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The Cavendish Lecture

ON

SOME POINTS IN THE SURGERY OF THE LUNG.

By SIR WILLIAM MACEWEN, F.R.S.,
REGIUS PROFESSOR OF SURGERY, UNIVERSITY OF GLASGOW.

MR. PRESIDENT AND GENTLEMEN, — When invited to deliver the Cavendish Lecture, I perceived among the honoured names comprising the list of previous Cavendish Lecturers that the penultimate one was that of my old friend, Professor Mikulicz. It recalled the fact that, at what proved to be our last meeting, after busy days passed at his magnificent Klinik at Breslau, we were spending a quiet Sunday among the Riesen Gebirge, when he told me he had been asked to deliver the Cavendish Lecture. He foreshadowed its subject, and was looking forward to the London meeting with evident pleasure—partly from the love of his work, and partly because he perceived in the invitation an extension of international courtesy which he highly appreciated. As I had known Mikulicz since meeting him in Billroth's Klinik in Vienna, where he acted as second assistant, and subsequently in the many surgical positions he held throughout life, perhaps I may be allowed to say that I have ever admired the ceaseless and untiring energy with which he pursued the culture of surgery, and thereby so greatly contributed to the advancement of its science and its art.

In giving the subject of this lecture as Some Points in the Surgery of the Lung, I had hoped to be able to place before you a series of observations on the physical, physiological, and pathological phenomena met with in dealing with human lungs and their pleurae, and also to have contributed a series of cases illustrative of the modern aspects of lung surgery. It became apparent, however, that within the limited time at my disposal to-night, it was impossible to undertake both. Hence it has been considered expedient to confine attention principally to the former.

The admission of air to the pleura and its results has been, and according to some authors is still considered, the greatest barrier to the surgery of the lung. Thus we have an excellent surgeon and experimentalist stating in a recent paper that "the pleurae do not remain in contact when air is admitted into the pleural cavity, even by a pin-hole opening," and that "when openings large enough to admit the hand are made into the pleurae, the lung, in two or three expirations, collapses to its hilum and remains there stationary, without the slightest effort at expansion." Having been taught that the lung always collapsed on opening the pleural cavity when there were no organic adhesions present, the phenomena presented by some cases which came under my observation in the early Seventies caused me to consider the question and to doubt that collapse of the lung was always so absolute as it was supposed to be. Inquiry was also made as to whether there were modifying circumstances which could avert that collapse, or others which could rectify it when it did occur.

OBSERVATIONS FROM WOUNDS OPENING THE PLEURAL CAVITY.

One of these cases was that of a man who lived only for a short time, having been terribly injured by falling over a circular saw in motion. Besides receiving other mutilations, he had a slice taken off the outer aspect of the right side of his chest in a vertical direction, so as to form a flap consisting of soft tissues, ribs (which were cut as if by a keen-edged knife), and part of the parietal layer of the pleura. The visceral pleural layer was left exposed over an area as large as the palm of my hand. When first seen the patient lay on his back, and, though extremely weak and blanched from loss of blood, he breathed quite easily, and not like one who had collapse of the lung. After his other serious injuries had been attended to, the thoracic wound was examined. There was a mass of blood-clot protruding from and filling up the thoracic wound which precluded visual inspection of the deeper parts, but so easily did he breathe that the deflected flap of tissue was again inspected to verify the previous observation that the parietal pleura was really attached to it. Being fully satisfied on this point it was apparent that the visceral layer must be exposed, yet there were no signs of pneumothorax. As bleeding still continued under the clot it became necessary to remove it and ligature the vessels in the thoracic wall. The clot was carefully removed, first from the centre, until the visceral layer of the pleura was exposed. It was then seen that the lung was fully expanded, and that the pleural cavity was as yet sealed at the periphery of the thoracic wound. There, however, the exposed portion of the lung lay in contact with the atmospheric air, and there was no collapse. One of the intercostal vessels which was still oozing had receded somewhat under the margin of the parietal wound, and during the manipulation necessary to secure it—the blood-clot having been removed from the periphery of the wound—the two layers of the pleura were separated and air was admitted into the pleural sac. The lung receded from the thoracic wall, but only for a short distance, sufficient to enable the finger to be introduced. The bleeding vessel having been secured, the osteoplastic flap was cleansed and it was applied over the wound to see how it fitted. This was done with some pressure. When the flap was about to be removed for readjustment, it was found to have coalesced to the underlying parts, so as to offer considerable resistance to direct lifting. It was, however, easily slid aside, and when the wound was uncovered the lung was seen to have again expanded, the two serous layers having coalesced. Apparently the moist soft flap, during the pressure of its adjustment, had been pressed in along with the whole thoracic wall, until its parietal pleural layer had come in contact with the visceral layer. On relief of the pressure the flap had lifted the lung forward and outward—the coalescence of the two pleural layers remaining and the lung filling the aperture in the chest wall, as it did prior to the admission of air into the pleural sac.

The portion of lung still exposed by the wound was in contact with the chest wall while the patient lay on his back, but, on the patient tossing suddenly round on his opposite side, the air again entered the pleural sac and the lung receded markedly from the thoracic wall. When

turned gently on to his back and pressure was made at the same time on his thorax, the two pleural layers were again brought into contact. The wound was at once closed with the flap, pressure being meanwhile applied to the thorax, and the external parts were suitably fixed to prevent undue expansion of the thorax on that side. His breathing became again quite easy.

From the observation of this case, it appeared probable that there were modifying circumstances which might prevent the collapse of the lung when air was admitted between the two pleural surfaces. Should collapse of the lung occur, to a limited extent, that organ could be expanded again by the simple expedient of bringing together the two layers of the pleura and securing intimate contact between them. Even by putting a suitable moist substance in the gap in the chest wall and bringing it into intimate contact with the collapsed lung, coalescence between the two surfaces was sufficient to bring the lung into its expanded state.

The question arose as to whether the lung in a physiological state could not always be expanded after temporary collapse, as long as the two serous layers were normal and the chest wall was compressible to an extent sufficient to bring the parietal layer into contact with the visceral; also whether the blood effused between the pleural layers had an effect in increasing the capillarity of the parts.

The second case, which came under observation in 1873, was that of a boy, aged 12, who was stabbed in the back, on the right side and posterior part of the chest—a wound remaining half an inch in length, situated between the fifth and sixth ribs. He had haemoptysis, and from the distressing symptoms which he exhibited it was believed that a foreign body still remained embedded in the lung. The wound was examined by the probe, the patient being placed in various positions in order to facilitate its entrance. It was not until the lad had been placed in a stooping posture that the probe slipped through a slit in the muscles, entered the pleural cavity and glided against the smooth surface of the visceral pleura. As the probe entered the cavity it was accompanied by an audible rush of air causing a slight recedence of the lung from the thoracic wall, which, while facilitating the examination of the lung, did not remove it from contact with the probe. The instrument was made to move lightly over the visceral layer of the pleura until it entered an irregularity or wound in the lung, the spongy, semi-elastic lung tissue being now felt instead of the smooth surface of the pleural covering along which it had previously glided. Next, embedded in the lung, a hard substance was detected, some portions of lung tissue intervening between it and the probe. By further manipulation the probe came into direct contact with a solid substance having a rough surface, but it was impossible to determine from the touch whether it was metal or earthenware. The outer border alone could be felt, and it seemed to be about ½ in. in length and not more than ¼ in. in thickness. On introducing a long-handled aneurysm needle, the foreign body was found to extend into the lung and to have smooth sides. The parietal wound was therefore enlarged (allowing the air freely into the pleural cavity), so as to admit a pair of narrow-bladed dressing forceps, which, with considerable difficulty, reached, seized, and withdrew the foreign body from the lung. It proved to be part of the large blade of a pocket-knife, over 1 in. in length, ½ in. in breadth, and about ¼ in. in thickness at the back part. There was a notch on the blade of the knife at the fractured part. The detached notched portion was found firmly embedded in the fifth rib, but projecting somewhat beyond the parietal pleura. This was likewise removed from the rib. After withdrawal of the blade from the lung, profuse haemoptysis occurred, and continued for a time. When it had ceased the wound was injected with an aqueous carbolized solution, the patient immediately afterwards expectorating, and saying that it gave him a "funny, nippy feeling" in his mouth. After the wound was dressed pressure was maintained on the chest wall. The patient made an uninterrupted recovery.

In this case, after the wound was opened, and the deeper parts exposed to visual observation, it was seen that though the air was freely admitted to the pleural cavity, and the lung had receded from the thoracic wall, it had only done so to a limited extent. In full inspiration there was not more than half an inch between the two layers of the pleura. No doubt slight pressure was maintained on the outside of the thorax during the manipulation.

It was also seen that firm pressure on the thorax brought the parietal layer of the pleura into contact with the visceral, while this effected the extrusion of the air between the layers. When this was accomplished the two layers remained in contact and the expanded lung was brought to the level of the aperture in the thoracic wall, where it was in direct contact with the external atmosphere. As long as the lad lay on his back the lung maintained its normal position with the chest wall, but when turned on his face and towards the unwounded side, recedence of the lung took place—unless pressure of the thoracic wall was maintained. As it greatly facilitated the extraction of the foreign body in the lung to have the pulmonary wound in close contact with the exterior, pressure was maintained on the thorax during the manipulation, and sufficed to keep the serous layers in contact.

No doubt here, as in the last case, the normal amount of lubricating fluid between the two layers of the pleura was augmented by the presence of a thin layer of liquid blood which may have aided in the coalescence of the two serous surfaces. The capillary attraction existing between the two moistened coated surfaces aided in the distribution of the serous fluid between the layers of the pleura, much in the same way as a drop of fluid spreads out under a cover-glass when placed upon a microscopic slide. The action of the biconcave meniscus was distinctly visible during the coalescence and the separation of the two serous layers. Though varied in detail, somewhat similar experience of the behaviour of the lungs when the pleural sac was opened, was many times repeated in penetrating wounds of the pleura, the lungs, and the mediastinum.

TRAUMATIC PNEUMOTHORAX.

In 1875 a case illustrating another aspect of the question came under observation. It was one of pneumothorax originating from fractured ribs due to direct violence. Immediately after the accident the patient fainted, and on recovery had become speedily cyanosed, and was in great distress from apnoea, the cardiac action being at the same time very feeble. It was evident that the pneumothorax was so great as to press the mediastinum and its contents toward the opposite lung, whose function was likewise embarrassed. Immediate aspiration was resorted to with marked benefit and relief. This was, however, of short duration. Ten minutes later the lividity and embarrassment was as great as before. Aspiration was again resorted to, very thoroughly this time, and though the relief was immediate it was as short-lived. On three other occasions the aspirations were each followed by a like result. It was evident that the pneumothorax was so great that it threatened life, being sufficiently powerful to cause collapse of the lung. If this compression went beyond a certain degree it would be impossible to bring the parietal layer of the pleura into contact with the visceral, and other means more difficult of application and more doubtful in effect would require to be resorted to to expand the lung. It is also believed that if a sufficient aperture were made through the thoracic wall in proximity with the wound in the lung the compression exercised by the confined air in the pleural cavity would at once cease.

My experience had not hitherto shown me an instance where such compression of the lung as this man was labouring from had been brought about by the entrance of air through an open wound in the thoracic wall. In such a case if the thoracic wall were opened one could deal with the lesion in the lung effectively. It was suggested that a trocar and cannula might have sufficed to draw off the air, the cannula being left *in situ*, but a direct opening in the chest wall, as nearly opposite the wound in the lung as possible, was preferred. An incision was made over the centre of the thoracic depression, a portion of the rib which had already been fractured was removed, and the pleural cavity opened freely, from which air, and afterwards blood, escaped. The lung was found to be much further collapsed than I had then seen in any of the cases with thoracic wounds. The thorax was vigorously compressed on to the contracted lung, and this induced the patient to hold his breath. The air was extruded through the aperture, and

the two serous surfaces were brought into contact. Pressure was maintained on the thoracic wall during the subsequent manipulations. It was now seen that the lung was torn, a portion of the visceral pleura having been invaginated into it. As the wound lay in the lung above the level of the rib which was removed, an inch of this upper rib was likewise taken away. The wound in the lung was fairly opposite the thoracic wound, and the air from the lung found a direct exit. Blood escaped at first freely from the pulmonary wound, and there was a considerable amount in the pleural cavity, compression of the pulmonary wound arrested the oozing, after which the invaginated and torn portion of the visceral pleura was taken out and secured across the gap by a single stitch. Blood-clot soon filled the gap in the lung. A light pad of antiseptic gauze, loosely applied, was inserted between the lips of the thoracic wound, which was thus kept open, and any air which might come from the lung would thus escape externally. Firm pressure was kept on the external thoracic wall above and below the wound in the thorax by means of adhesive plaster, as if for broken ribs, and a firm roller bandage was applied. The relief to the patient was immediate and lasting. The wound in the lung soon closed, and the tissues of the thoracic wall were then brought together.

On two other occasions when pneumothorax threatened life from collapse of the one lung and pressure of the mediastinum and its contents toward the opposite side, after repeated aspirations were found ineffectual, a similar opening in the wall was made, as nearly opposite the wound in the lung as possible, and the collapsed lung then expanded on bringing the two visceral layers intimately into contact.

On one of these occasions, however, considerable difficulty was experienced in effecting the restoration, as the lung had been reduced to such a small volume that it was impossible to bring the rather rigid thoracic walls into contact with the lung and arrangements were made for drawing the lung outwards. It was found, however, that the lung could be partially distended by the patient making expiratory efforts with his glottis shut, such as by straining, sneezing, or by trying to cough with the mouth and nose closed. By a combination of external pressure on the thorax and diaphragm, through the abdomen, and internal expiratory effort the two layers of the pleura were brought together, the lung expanding and remaining expanded, while light compression of the thoracic wall was kept up.

When pneumothorax causes such absolute collapse of the lung, and this condition is persistent, pulmonary consolidation might ensue. The longer air exists in the pleural sac the drier the serous surfaces become, and even when extra fluid is poured out the natural secretion is altered and its capillarity and cohesive power are defective.

In such cases, after repeated tappings, if the pneumothorax persists to a marked extent and threatens pulmonary collapse, open the pleural cavity by removal of a portion of rib, if necessary, as near the seat of the pulmonary injury as possible, and close the wound in the lung by suturing the visceral layer of the pleura where permissible. Then place the two pleural layers together by bringing the parietal into contact with the visceral layer. This must be effected by firm pressure on the chest and diaphragm. Cohesion will again occur between the two layers of the pleura and the pneumothorax will disappear. Maintain the aperture in the costal pleura until the wound in the lung is healed, or at least until it has been firmly sealed by exudation.

Since 1875 this method of expanding the lung has been made use of by me in operations of the chest wall, in removal of tumours of the thoracic parietes, and in a few cases where the lung itself was involved in the growth, and it has answered the purpose as long as the pleural surfaces remained in an approximately normal condition.

During the thirty odd years which have elapsed I have regularly taught that molecular cohesion and capillarity were the principal forces at work in maintaining the expansion of the lung, and also that when collapse of the lung did take place, these forces could be brought into play so as to produce re-expansion of the lung. Though much has been written on the physiology and surgery of the lung, which has increased our knowledge and improved our practice, yet the old theory of the maintenance of the expansion of the lung by atmospheric pressure has been maintained, with few exceptions, by physiologists and surgeons alike. The current belief, even now, is that the moment air enters the pleural cavity, the lung not only collapses, but does so absolutely to its hilum, and that it remains permanently collapsed. Therefore the opening of the pleural cavity is considered so dangerous that it is eschewed. A notable exception to those views is found in an excellent paper by Dr. West, which has just been read by me, but which was published in 1887. He there advocates the existence of a cohesive force between the two pleural layers.

It is still held by most physiologists that the natural elasticity of the lungs would cause them at all times to contract away from the ribs "were it not that the contraction is resisted by atmospheric pressure, which bears only on the inner surface of the air tubes and air sacs. On the admission of air into the pleural sac atmospheric pressure bears alike on the inner and outer surfaces of the lung, and their elastic recoil is no longer prevented, and a considerable space is left between it and the chest wall."

THE CAUSE OF THE EXPANSION OF THE LUNG.

Whatever effect atmospheric pressure within the chest may have in aiding expansion of the lung, it is clear that it is not the only factor, if, indeed, it be the chief factor in maintaining such expansion.

Experience shows that the lung is maintained in full expansion by the molecular cohesion existing between the two serous surfaces of the pleura, and the capillary attraction exerted by a thin layer of serous fluid existing between the two moist membranes. Although this molecular force may not be considerable at any given point on the pleura, yet, when it is remembered that it is distributed over the entire surface of the periphery of the lungs, its cumulative effect is very great and amply sufficient for the purpose. When this molecular cohesion is removed collapse of the lung occurs, owing to the elasticity inherent in the pulmonary tissues. Doubtless, when the pleural sac is opened and air is allowed to enter between the layers of the pleura, the lung will recede, the molecular cohesion being in abeyance. Total collapse of the lung does not, however, occur from atmospheric pressure, and the degree of recedence which ensues depends upon a number of modifying circumstances. Not only so, but while the atmospheric air surrounds the partially collapsed lung, the molecular cohesion, aided by the capillary attraction, may be brought into play to the exclusion of the intervening air, with the restoration of the lung to its expanded state.

The resultant collapse of the lung depends somewhat on the mode adopted, and on the part of the thorax selected for opening the pleura. When a choice is possible one ought to select a point as far from the hilum of the lung as possible. The outer convex aspect of the lung affords a broad surface which is suitable for opening the pleura, minimizing the collapse, and at this part the molecular cohesion can much more easily be brought into play, so as to restore the expansion of the lung.

Molecular cohesion is usually illustrated by the phenomena shown when two sheets of bright polished plate glass are brought into intimate contact; they cohere, and the truer the surfaces, the more perfect the cohesion. Not only do they hold one another together against the action of gravity, but in addition they sustain a considerable weight. This must be attributed to a reciprocal action between the two surfaces, and can have nothing to do with atmospheric pressure, as the experiment succeeds in a vacuum. When, however, the surfaces of the glass are moistened and they are pressed together, the cohesion becomes more perfect, and the resistance to separation much greater. If, instead of using water, the surfaces were covered with some fluid whose surface tension was better adapted for the purpose, the cohesion would become still greater. It is well known that there are differences in the surface tension of different liquids, and even of the same liquid in varying conditions. Serous fluid, such as is found in the normal pleura, is admirably adapted for the purpose which it serves. It is at once sufficiently fluid to flow easily and to lubricate freely the surfaces of the pleura, and to exhibit the phenomena of capillarity when one of the two pleural layers is wounded. Besides this, the fluid has sufficient viscidity to make it

valuable in hermetically sealing the lips of an incision in the parietal pleura, as when one tries to separate the two surfaces a concave meniscus is at once formed at either lip of the solution of continuity. In this way the serous pleural fluid is of value in preserving the normal relations of the two pleural surfaces, and consequently in preventing pneumothorax when the parietal layer is wounded. The two serous surfaces of the pleura, being lubricated by this viscid serous fluid, are capable of gliding over one another as in respiration. In surgery this freedom of movement may be made use of when the parietal layer of the pleura has been incised by sliding the parietal over the visceral layer of the pleura. One of the most striking illustrations of the power of capillarity and molecular cohesion is seen in the hip-joint. When the head of the normal femur has been detached from its socket, and all the ligaments and muscles which unite it to the body have been severed, if the head of the femur be again placed in the acetabulum while it is still moist with synovia, it will become so fixed that not only will it support unaided the weight of the whole lower extremity, but one finds it difficult to displace the head of the bone by forcible traction on the limb. Under these circumstances, in order to remove the head of the bone from the joint, it is sometimes necessary to take advantage of the long lever which the femur presents, in order to prise the head of the bone out of its socket. Those who seek to perform amputation of the hip-joint by first detaching the soft parts from the head and neck of the femur, and turning the head of the bone completely out of the acetabulum, and then proceed to sever the muscles at a lower level of the limb, find that they must take the precaution of introducing a portion of gauze or other suitable material between the head of the bone and the acetabulum, otherwise the head of the femur would slip again into position in the acetabular cavity, where cohesion will fix it in such a way as to render it difficult to remove the head of the bone at the critical moment when the soft parts and the vessels are severed. Even a notch made in the acetabulum does not destroy the molecular cohesion, unless large. Experience shows that the pleura, while in a physiological state, acts in a similar way, and that the molecular cohesion enables the two layers to be held together even when the parietal layer has been penetrated and a considerable area of the lung has been exposed.

The effect on the respiration of the admission of air into one of the pleural sacs will depend first on the condition of the other lung and its pleura. Provided the opposite lung is normal and in full functional activity, and its pleural and mediastinal connexions are intact, the opening of one pleura will produce less serious effect on the respiratory and circulatory function as a whole. Should the one lung be limited in its respiratory cavity, the opening of the pleura on the opposite side will clearly be attended by more serious consequences. The effect of admission of air into the sac will be modified somewhat by the position in which the patient is placed at the time of operation. If the pleura be opened while the patient is lying on the sound side, the compression of that side is greatly increased by the action of gravity, which throws the weight of the now loosened mediastinum and its contents, including the heart and blood vessels, upon the sound side, and prevents the mediastinum from aiding in the fixation and expansion of the sound lung. On the other hand, if the patient be turned on the affected side, the action of gravity favours the apposition of the lung to the chest wall on that side, thus limiting the amount of air which enters the pleural sac, and aiding in fixing the mediastinum and in expanding the sound lung and enabling it to perform its increased function with the least impairment.

Doubtless, after the pleura is opened and the lung collapsed or removed, the steadying of the mediastinal septum is of service in restoring the power of respiration of the other lung, and in allowing the heart to act free from the jumble produced by the mediastinal flapping. This is best produced by the cohesion of the two pleural surfaces after the pleural cavity has been opened. This cohesion of the visceral to the parietal layer draws out the lung and fixes the mediastinum. It may also be aided by temporarily closing the aperture in the thoracic wall with moist lint. The action of gravity further assists both the expansion of the collapsed lung and the fixing of the mediastinum—therefore, by placing the patient on the affected side before opening the pleura, the difficulties of breathing are greatly obviated. The lung is kept fairly expanded and the mediastinum fixed. Drawing a portion of the lung out of the aperture in the chest wall and suturing it, so as to act as a plug, has not been performed by me, but has been found also to cause the cessation of the dyspnoea by aiding in the expansion of the lung.

Preserve the Physiological, Lubricating, Pleural Fluid.

The possibility of the visceral and parietal pleurae becoming dry must be considered, though this can rarely happen while the two layers are in a physiological condition. A lubricating fluid between the pleural surfaces is necessary for the maintenance of capillary action which aids molecular cohesion. Blood while in small quantity and mixed with the normal pleuritic fluid does not seem to diminish the capillarity of the fluid, and when it is in sufficient quantity to coagulate round the orifice of the pleural wound it aids in sealing the pleural cavity. Sterilized glycerine and water was used on one occasion, painted over the pleural surfaces of the lung when it had become dry from exposure during operation, and it seemed to aid the coalescence, but did not act so well as the normal lubricating fluid. Sterilized water was often used and answered the purpose sufficiently.

The Pleurae under Pathological Conditions.

The foregoing remarks apply to the pleura in a healthy or physiological condition; but when pathological changes have supervened, then the behaviour of the pleura may be modified accordingly. When the pleural surfaces are covered by plastic exudation or layers of fibrinous patches the power of molecular cohesion between the surfaces is greatly lessened or lost. Instead of the smooth, glistening surface of the healthy serous membrane, with its interposed lubricating fluid, there is an unevenness of surface which prevents the exact and intimate coaptation which is so necessary for the purpose of securing perfect results, and coupled with this there is an absence of the normal lubricating fluid. When such a pleural sac is opened, unless organic adhesions have already formed, fixing the lung to the parietes, there is apt to be a degree of recedence of the lung, sometimes considerable, though this contraction does not increase much on freely exposing the cavity, emptying the contents and maintaining the patency of the external opening. Here the consistence of the pulmonary tissue is altered. There is less elasticity and less recoil, and therefore there is less tendency to collapse and less capacity of expansion. Bringing the costal walls into contact with the pulmonary pleura is not in this case followed by immediate obliteration of the pleural cavity, as it was when the pleura was in a normal condition. Hence the necessity, in many such cases, of removing a sufficient portion of the osseous walls to permit the thoracic wall to come in contact with the lung. Obviously the recedence of the lung from loss of molecular cohesion may lead to the physical production of hydrothorax, and its restoration will quickly cause reabsorption of the fluid.

The Determination of Pneumothorax and Emphysema in Cases of Fractured Ribs.

Many authors comment on the well-known fact that with simple fracture of the ribs emphysema is very common and pneumothorax is rare, even when the pleural surfaces are free from pathological adhesions. To account for this, some assert that the air does enter the pleural cavity, but becomes so rapidly absorbed therefrom that pneumothorax is prevented. Others believe that the resistance offered by the coalescence of the two pleural layers prevents the admission of air, as it is greater than the resistance offered by the subcutaneous cellular tissue, and therefore the air issuing from the lung causes emphysema.

Regarding the former theory, one would require to assume that the air in the pleural cavity was absorbed as rapidly as it issued from the lung, otherwise pneumothorax would form. There are no known facts which support the belief in such rapid absorption of air from the pleural sac. With regard to the second theory, it is possible that the subcutaneous tissue may offer less resistance than that presented by the cohesion of the two pleural surfaces, but

even if this were granted it would not alone account for the facts. In looking for an explanation, it is necessary to take into consideration the conditions in which the various layers constituting the wounded parts have been left by the lesion, and in this will be found the principal determining factors between the formation of emphysema and pneumothorax. If a spiculum of rib, while penetrating the lung, merely punctures the parietal pleura, the pleura being caught firmly round the base of the spicule so as to prevent air passing into the subcutaneous cellular tissue, then pneumothorax would be likely to result. On the other hand, if the parietal pleura be freely torn as well as the subcutaneous cellular tissue, and a direct exit for the air from the lung into the lacerated cellular tissue be provided, doubtless emphysema would follow. The lung is also occasionally found bound to the rent in the parietal pleura by a spiculum of rib which has been transfixed and which holds it in position, the air passing directly from the lung into the lacerated cellular tissue. On several occasions where emphysema had been marked, it was found, *post mortem*, that there were rents in the parietal pleura, and a probe could be passed from the lacerated and emphysematous cellular tissue directly into the aperture in the lung.

It will be obvious also that extravasated and coagulated blood may act as a determining factor. If one of the intercostal vessels poured its blood into the lacerated cellular tissue and coagulation of the blood ensued, emphysema would be likely to occur. If blood became effused between the two layers of the pleura, and it coagulated round the periphery of the pleural wound, the air from the torn lung would be apt to be diverted into the lacerated cellular tissue and emphysema would result.

If blood was extravasated into the pulmonary tissue at the periphery of the wound in the lung, it might, by expansion, bring the sides together; or if a clot formed in the pulmonary wound itself; in either case neither emphysema nor pneumothorax would result. So that in cases of fractured ribs, with penetration of the lung, emphysema occurs more frequently than pneumothorax on account of the fact that the costal pleura and subcutaneous cellular tissue are usually sufficiently torn to permit the air from the damaged lung to escape directly into the cellular tissue, and of course cohesion of the pleurae prevents the cavity from being invaded. On one occasion a case was seen by me where rupture of the lung had occurred from direct violence applied through the chest without fracture of the ribs ensuing. In such cases pneumothorax would be likely to result.

Compression Adhesion Between the Two Layers of the Pleura.

Immediate adhesion between the two layers of the pleura takes place from sudden and violent impact in the same way as it does between other serous surfaces, such as those of the pia and dura mater, but perhaps more frequently seen between the visceral and parietal layers of the peritoneum and the omentum or mesentery. I have seen intestinal obstruction following injury occasioned in this way.

This I have called compression adhesion. It is usually followed by pathological changes which may lead to organic union between the two parts originally held by compression. How often it occurs between the two layers of the pleura there are at present no data to guide one, and from the nature of the parts such will be difficult to obtain, but that it does occur between the pleural layers the following cases show: On two occasions of immediately fatal injuries this was seen to have occurred, the adhesions in the pleural surfaces corresponded in form to that of the external body with which the thorax had come into contact. There had been no time for pathological changes to have taken place, and yet the compression adhesions were as firm as if the two pleural layers had been stamped together. There was slight extravasation of blood into the pulmonary tissue corresponding to the position of the adherent pleurae. This extravasation would doubtless have been much greater had time permitted. In one of these the woman had fallen from a height on to a kerbstone, the thorax striking the stone longitudinally from the third rib in front of the diaphragm below. An ecchymosis corresponding to this strip appeared in the subpleural pulmonary tissue. In such cases neither emphysema nor pneumothorax could occur even with fractured ribs.

The Causation of the Primary Shock in Admission of Air to the Pleural Sac.

The primary shock which ensues on the admission of air to the pleurae, and which follows the collapse of the lung, has been attributed to the effect which the air produces on the pleura, or to the effect on the pneumogastric filaments occasioned by the sudden contraction of the lung tissue. Neither of these theories are sufficient to account for the intensity of the phenomena produced. Doubtless the compression of the lung and impairment of the respiratory exchange of gases, as well as the displacement of the mediastinum, lessening the powers of expansion of the lung, are contributory to the production of primary shock. My observation leads me to the opinion that primary shock is really due to the effect upon the heart. Although the lungs are respiratory organs, they are so intimately connected with the heart that one cannot consider them apart, especially during surgical procedure. The heart and the thoracic great vessels, along with the mediastinal structures, are practically suspended or buoyed up by the soft elastic lung, as long as the lung remains fixed to the thoracic wall. When one lung collapses the heart and great vessels lose much of their support, and though still partially supported by the pulmonary tissue on the other side are yet apt to suffer. With the thoracic cavity of one side filled with fluid or air, the heart though pressed on unduly, is steadied, and is not allowed to swing about as it does when the thorax on one side is fully opened, the lung collapsed and the mediastinum flops toward the empty space.

One patient, who was *in extremis* from disintegration of the left lung and pressure within the left side of the thorax, was relieved at once by thoracotomy, yet the flopping of the heart was so great within the empty cavity as to cause him to have an intense angina-like spasm on being turned ever so gently from one side to the other. The recurrence of this cardiac spasm was prevented by a soft gauze packing inserted inside the thorax, fixing the pericardium and steadying the mediastinal contents. In the subsequent course of the case it was interesting to observe how Nature intervened by fixing the pericardium by means of fibrous adhesions to the anterior thoracic wall and by an extra band to the diaphragm.

When air is admitted into the pleural cavity an important factor, which must not be overlooked, is the immediate and direct effect which the shrinkage of the lung produces on the heart. The pulmonary circulation is carried on by a series of vessels possessing great capacity for extension under linear traction, and having a remarkable power of recoil. These vessels are in contact with the heart at one extremity and with the periphery of the lung on the other, and in their whole course between the heart and the pulmonary periphery there are no anastomoses. In the periphery of the lung, where the veins lie beneath the pleura, and the subdivision of the vessels is very fine, anastomosis does occur, but between this point and the left auricle there are no anastomoses. Consequently, the influence produced by the peripheral arrest of pulmonary circulation would be instantly transmitted to the heart. This will be further evident when it is borne in mind that the four main pulmonary veins are so intimately connected with the heart that they may be regarded as diverticula of the left auricle sharing in its rhythmical contractions, having even incorporated into their texture striated cardiac fibres. The pulmonary veins have no valves anywhere in their course; so that the full force of any sudden stoppage of peripheral pulmonary circulation will be borne upon the heart directly. The result of the entrance of air into the pleura, when it produces contraction of the lung, is felt most at the periphery of the lung which shrinks, and that peripheral shrinkage in the calibre of these minute vessels greatly impedes, and may even arrest, the flow of the blood through them, and consequently through both the pulmonary arteries and veins. As this occurs suddenly, arresting the flow of blood into the lung from the right ventricle and at the same time gorging the right auricle, it produces an immediate staggering effect upon the heart, which falters in action and results in dyspnœa and lividity of the cutaneous surface. If it were bilateral it would probably lead to a fatal issue; but, when

unilateral, and if means be adopted to minimize the action, the cardiac function is soon restored, even when the one lung remains contracted.

The Pleura in the Anterior Mediastinum.

In the anterior mediastinum the layers of the parietal pleurae from both lungs meet, and as at this point they are very thin, when air has entered one pleural sac, and when rapid displacement or flopping of the mediastinum takes place, it is possible for rupture of the opposite pleura to occur, leading to embarrassment of function or collapse of the opposite lung. The possibility of a potential or patent opening existing between the two pleural layers in the anterior mediastinum ought to be borne in mind. Though such an opening has not been demonstrated as occurring in man, it is sometimes found in the dog, and commonly in some of the lower animals, such as the solipeds. If such an opening pre-existed admissions of air into one pleural sac would fill both pleurae, and tend to produce compression of both lungs. I have not had such an experience, and have not heard of any reported case of the kind. The mediastinal pleura is attached to all the important mediastinal structures, such as the pericardium, the trachea, oesophagus, and the vagus and phrenic nerves. It is difficult to separate the mediastinal pleura without endangering these important structures, besides possibly opening the neighbouring pleural sac.

The Hilum of the Lung.—In attempting removal of one lung, injury to the mediastinal contents is one of the chief dangers. The hilum of the lung in the mediastinal space is close to the right auricle, the vena cava and the trunks of the pulmonary artery and veins. In attempting removal of the lung, it is better to imitate Nature by leaving the hilum as is seen in separation of the slough in gangrene of the lung, severing the tissues several inches to the outer side of the hilum when the phrenic and vagus nerves are left uninjured. The pleural covering of the mediastinum ought to be left intact if possible.

The Apical Pleura.—The pleura at the apex of the lung is attached to the innominate vein, and further out to the subclavian artery, and sometimes even to the brachial plexus. Therefore it is better to leave intact the parietal, and even the visceral, layer of the pleura if it be adherent at the apical part.

Preserve the Attachments of the Diaphragm.

When one makes extensive operations on the chest wall, it is important to preserve the ribs to which the diaphragm is attached and also the attachment of the diaphragm to the ribs. By removing the whole of the ribs on one side of the chest to which the diaphragm is attached, the breathing on both sides of the chest becomes laboured or is made with an effort, the diaphragm no longer performing its function properly. Fresh attachments are, however, soon formed by the diaphragm if there are fixed osseous points remaining. When one remembers that the diaphragm is the most powerful respiratory muscle, the importance of retaining its attachments will be obvious.

In the few remaining minutes which are still at my disposal, instead of giving a hasty clinical summary of personal experience, I have thought it better to give an illustration of one of the gravest forms of tuberculous destruction of the lung, in the hope of showing that whatever opinion we may form concerning surgical intervention in the earlier stages of tuberculous invasion of that organ, yet when the other extreme has been reached, and the patient has sunk into what has commonly been regarded as an incurable condition from lung disintegration, that surgery may be of service not only in alleviating distress, but also in furthering actual cure.

Extract from Case of R. W.

When admitted in Professor Macewen's wards patient was in the following condition:

Patient was much emaciated, and *sat* in bed. He had rapid breathing and an aspect of distress, and was covered with perspiration, and complained of pain below the left shoulder blade and in the left mid axillary line, toward the lower border of the costal margin. When he attempted to get out of bed he was very short of breath, and experienced what he described as a crushed feeling round the body. He could lie for a short time on his back or on the left side, but could not do so on his right side for more than a few minutes without becoming cyanosed and having great discomfort and a sensation of asphyxia.

Physical Examination.—There was a great bulging and fixation of the left side of the chest. Expansion movements were lost on the left side. The respirations numbered 24 per minute. There was a diffuse pulsation in the third, fourth, and fifth interspaces on the right side. The pulsation could be seen in these spaces extending from the vertical nipple line to about 3 in. to the left of the nipple. There was dullness to percussion over this area, and the sounds of the heart could be distinctly heard. The sounds were evidently due to the displacement of the heart to the right side. There was absolute dullness over the left lung both in front and behind. This dullness was continuous with the splenic dullness below, and in the middle line extended for 2½ in. below the costal margin. On the left side the respiratory murmur, the vocal fremitus, and resonance were absent. Over the right lung the respiratory murmur was free, with the exception of the right mammary region, where some subcrepitant râles were detected, and there were coarse râles at the base. The temperature has only been about 100° F. in the evening, and in the morning has been normal. He has almost no expectoration, the patient stating "he only wished he had," as when he was expectorating mouthfuls of pus he had been easy, but since it ceased he had become gradually more and more distressed, and now found he could not get breath. The history of the case pointed to:

1. A disseminated tuberculous invasion of the left lung, commencing nearly three years previously.
2. Probable extensive tuberculous disintegration upon which a secondary pyogenic infection had taken place.
3. The formation of an abscess cavity or cavities in the left lung.
4. The formation of a pneumothorax from perforation or the formation of a very large cavity in the lung representing total pulmonary disintegration, and giving signs simulating those of pneumothorax or possibly both combined.
5. The pulmonary cavity emptied itself regularly for eleven months by free expectoration, through the bronchi, trachea, and mouth, till shortly before his readmission into the infirmary, when it ceased entirely, soon after which there was increased pain and distress in the chest, and probably from the accumulation of pus. The cessation of purulent expectoration was possibly due to the soldering of the bronchi by granulation tissue, which no doubt took place gradually, but the last patent bronchus became filled with a plug of granulation tissue probably projecting from the margin of this bronchus when the expectoration suddenly ceased.
6. The right lung, it was feared, was already affected with tubercle, judging from the physical signs in the right mammary region, and also from the liability of both lungs being affected when such an extensive lesion existed in one of them. His condition was such as to imperatively demand relief.

Operation, April 24th, 1895.—The patient was placed slightly under the influence of an anaesthetic, as, owing to the great embarrassment in breathing and the general lividity, the full anaesthetic effect was not considered safe. An incision was made over the seventh and eighth ribs in the line of the posterior axillary border. The periosteum was raised and a couple of inches of each rib were removed. The wound was then dusted with iodoform and boracic acid, which was rubbed into the soft tissues and the cut ends of the ribs, after which the periosteum and thickened pleurae and layer of lung tissue were penetrated by a pair of dressing forceps, which were then withdrawn while the blades were fully expanded.

From this aperture 160 oz. of pus, along with sloughs of the lung and caseated débris, were removed. The pus contained tubercle bacilli in enormous numbers and individually of large size; each drop, taken indiscriminately from the receiver containing the pus, swarmed with them. It is rare to find tubercle bacilli in such quantities in pus even from lung abscess. The fluid contained in this cavity seemed to have acted as a culture medium for pyogenic organisms, both streptococci and staphylococci being present. By means of the finger and the long probe introduced into the

cavity a dense layer of lung tissue with shreds of disintegrated lung were found still adherent to the chest wall. After thorough evacuation this cavity was washed out with an antiseptic solution, and gauze was introduced as a drain.

This operation afforded great relief, except that the patient would not dare to turn from one side to the other, and preferred to lie on the sound side. He said that when he tried to turn, something gave him a violent wrench, as if "his heart were being pulled out." This was attended by a distressing angina-like spasm. The reason for this sensation, which the patient experienced, was not understood at the time, though it was afterwards fully explained. After four weeks it was evident that the great space on the left side of the chest was not closing, and besides there was a persistent and free purulent discharge from this large cavity, which, if it were allowed to continue, would soon have exhausted the small amount of strength which the patient still possessed.

Under these circumstances it was deemed advisable to perform thoracoplasty, both with the view of thoroughly exploring the cavity and removing the shreds of lung tissue still remaining, and also with the hope of reducing the dimensions of the cavity by permitting the external wall to be involuted.

Excision of portions of the fourth, fifth, sixth, and seventh ribs was performed, each portion extending from the angle of the rib to the costal cartilage. It had been intended to remove three other ribs, but the patient's condition was such that their removal had to be deferred. The view obtained of the interior of the left side of the thorax by this free opening was such as to enable one to see that there was no vestige of the left lung remaining, save shreds adhering to the walls of the chest, a portion at the apex and a stump representing the larger bronchi and the corresponding blood vessels, somewhat fused together, and covered by granulation tissue. Behind this stump the descending aorta was seen and felt, and in front of the stump the pericardium lay freely exposed and non-adherent by pathological adhesions. The absence of the pericardial pathological adhesions was so marked and the normal attachments so relaxed from over-stretching of the diaphragm downwards and pressure of the heart toward the right side, that when the patient lay on his sound side the heart rested against the anterior mediastinum, and when he turned on to his back the heart flopped backwards over the stump of the bronchi, and the lower portion of it within the pericardium swung free in the thoracic cavity. The pericardium was somewhat thickened, but not so much as one would have expected, owing to the great destruction of the lung tissue occurring in its immediate vicinity.

The free movement and flopping of the heart inside its pericardium explained the strong objections which the patient expressed, previous to this second operation, to being turned from one side to the other, as he said each time he was turned it gave his heart a wrench. This had not been experienced by him before the evacuation of the fluid from the chest, but had been markedly felt in the interval between the first and second operation. There were several shreds of disintegrated lung tissue still adherent to the diaphragm, to the outer walls of the chest and to the apical part of the thorax. The former were removed, the latter cut short, their proximity to the large subclavian vessels rendering it undesirable to attempt complete removal. In order to prevent displacement of the heart, and to hasten adhesions between the pericardium, the mediastinum, and the diaphragm, the large cavity was packed with gauze, which was changed at frequent intervals. Subsequently adhesions quickly formed between the pericardium and the diaphragm, one of these first appearing as a comparatively thin band which stretched somewhat during the dressing. It gradually became thicker until it attained the diameter of a finger. These adhesions were then able to hold the over-stretched pericardium in its place, and thus to prevent the swinging of that organ, which it was previously subject to when the patient was turned from one side to the other. Soon after these adhesions had formed, the pericardium became attached to some of the structures in the anterior mediastinum and later to the anterior wall of the chest and to the stump of the bronchi behind. Gradually all the structures presenting on the left side of the mediastinum became covered with granulation tissue and fused together so that their individual outlines were lost, a continuous wall having been formed over the left side of the mediastinum from the anterior to the posterior portion of the thorax. The right lung likewise expanded to the right side. Portions of the third, eighth, and ninth ribs were removed at a later date to further facilitate contraction. The osteoplastic resection thus extended from the third to the ninth rib inclusive. After the interior had become aseptic and a layer of healthy granulation tissue had filled the various recesses, the skin was laid over the now thickened pericardium and diaphragm and stump of lung, and soon became adherent and filled up the cavity, a small sinus at the upper end persisted, coming from a point where shreds of the apical portion of lung remained. On several occasions, while the cavity of the thorax was still open, these were attempted to be detached, but on each the adhesions were found too firm to permit of easy separation. The adhesion of the apical portions to the subclavin vein precluded further detachment. The loose portions were trimmed. His general health meanwhile improved, the râles disappeared from his right lung and he gained strength and weight, and was able to walk about and enjoy life.

It is now eleven years since this man was operated on, and since his convalescence he has been able to engage in light work, supporting his wife and family thereby. He can walk about easily while taking time, and generally enjoys good health.

Examination of his lung at present time:

On June 3rd, 1906, this patient was examined by three physicians, who reported that there were no breath sounds on left side of the chest, except the transmission of bronchial sounds heard under the clavicle on the left side. The right lung appeared normal. The heart sounds were good. The patient states that he has been regularly at work as a light porter; he can go upstairs without trouble. He mounted the eighty odd steps of the infirmary stairs before he was examined, and did so without pause and with very little inconvenience. He states that since his operation he has walked ten miles without fatigue, but he does so at what he calls an "ordinary easy rate." Since the operation he has never been ill and has regularly been at work.

Gentlemen, allow me to thank you for the honour you have done me by inviting me to deliver the Cavendish Lecture for 1906, and also for your patient and courteous attention during its delivery.

Clinical Lectures
ON THE
BORDERLAND OF EPILEPSY:
VERTIGO.

Delivered at the National Hospital for the Paralysed and Epileptic.

By SIR WILLIAM R. GOWERS, M.D., F.R.S.,
physician to the hospital; consulting physician to university college hospital.

Lecture I.

Gentlemen,—Epilepsy is a many-sided malady. The prominent symptoms that attend its various forms differ widely in character, and some of them are common to it and diseases that are of different nature. Some of these maladies resemble epilepsy closely, and their distinction from it may be difficult. It seems sometimes that there is a gradation from the one to the other, and occasionally that an actual transition may occur. It is not surprising that this should be so with such diseases, considering how complex are the functions of the brain, and how close are their interrelations. Functional diseases are often less defined than our definitions. Thus, epilepsy has a borderland of disorders which resemble it in some of its special features, and their distinction from it may be a matter of considerable difficulty. The difficulty may be real, or may disappear with knowledge and consideration. It is important, therefore, to know the features of these borderland cases, the symptoms they present in common with epilepsy, and their distinctive characteristics. They fall into groups according to their nature and dominant

feature, and I propose to consider to-day the affection which constitutes by far the largest province of the borderland—vertigo.

As you know, vertigo is the most conspicuous subjective feature in a large number of cases of true epilepsy: it is also common from other causes. But, as a fact of observation, the only form of vertigo which bears a close resemblance to epilepsy is that which is produced by labyrinthine disease. The resemblance is, of course, to minor epilepsy alone. When there is either tonic rigidity or clonic convulsion, the nature of the initial vertigo is clear. In the minor attacks it is often the only symptom of which the sufferer is conscious, and it is these that the labyrinthine form may closely resemble. "Aural vertigo" and "labyrinthine vertigo" are practically synonymous terms; whatever part of the ear may be primarily affected, it is through the semicircular canals of the labyrinth that the symptom is produced. As you know, it is sometimes called "Menière's disease," but the cases described by him were of intense severity, and, at least in one case, due to haemorrhage into the canals.

I need hardly remind you that the function of these peculiar structures is believed to be concerned solely with the perception of the position and movements of the head. Nerve impulses are produced by the pressure of the endolymph on the hairs in the ampullae. These impulses seem to give rise to no conscious sensation. It is thought that they pass to an equilibrial centre—perhaps in the middle lobe of the cerebellum—which receives other impressions—some from the limbs, and others determined by the state of the muscles of the head and eyes, which afford guidance as to the relation to the body of objects that are seen. All should harmonize, and their effect guides the cerebral perceptions and the motor activity. If they are disordered, vertigo is the result.

In essential character the vertigo of epilepsy bears a close resemblance to that of labyrinthine disease. The latter must be perceived through the cerebral hemispheres, and we can thus understand at least the fact that they may be similar. Consider the vertigo of epilepsy. There may be a sense of turning to one side (subjective vertigo), or of a movement of objects to one side (objective vertigo), or the patient may actually turn (motor or actual vertigo). As a rule, objective, subjective, and actual vertigo are in the same direction. The facts can be understood on the explanation, suggested by Dr. Hughlings Jackson, that vertigo is a sensation of motor origin. In epilepsy we may ascribe it to an inequality in the motor discharge in the two hemispheres, often manifested in the attack by the deviation of the head and eyes towards the side most convulsed. A commencing unequal discharge, too slight to cause movement, may produce a subjective sense of movement. During this, objects in front of the eyes seem to be moving in that direction. If a person is actually turning, and an object remains opposite him, he necessarily infers that it is moving also, and in the direction in which he is turning. Thus, even the objective vertigo, the sense of movement in what is seen, is intelligible as the result of a motor process.

Is the same explanation applicable to the vertigo of labyrinthine origin? On first consideration this would seem to be different in nature. It has rather the character of a pure sensation of the disturbance of equilibrium. But its motor origin is possible. The nearest physiological analogy to labyrinthine vertigo is that produced when rotation of the body is suddenly stopped. The tendency to turn continues in the same direction, and may cause a fall. Objects before the eyes seem moving, also in the same direction as the preceding rotation. Yet during the turning, the apparent movement of objects was in the opposite direction. The rotation thus leaves a motor tendency in the same direction as the previous motion, which involves seen objects, as already explained. Apparently the excitation of the semicircular canals by the motion induces a motor process of the same character in the cortex of the brain. It seems to produce that which would cause it, by a sort of backward association.

It does not excite an opposing activity, as might be imagined, but an activity of corresponding character, as if the rotation were the result of volition. The stimulation of the canals and its central effect seem to be long in subsiding. Hence it is possible that even the conscious vertigo of labyrinthine disease may be produced through the agency of the motor cortex, under the influence of the derangement of the impulses from the equilibrial centre. But the precise features of such vertigo vary much, and are sometimes so peculiar as to suggest a direct sensory effect—not, indeed, from the canal nerves themselves, but by an indirect mechanism through the centre for equilibration. Some of these special features will come under our notice presently. One of them is not easy to explain; it is the apparently opposite direction of subjective and objective vertigo. The sufferer falls one way and objects seem to move the opposite way. It may be due, in some way, to a process of secondary origin, opposed to the primary. But it is rare, and some doubt attaches to sensations in a moment of supreme confusion. In connexion with it we may note that the objective vertigo sometimes predominates over the subjective sensation; indeed, the patient may only be conscious of the sense of movement in objects. These difficulties we cannot yet explain; but before I end you will cease to be surprised, so various and peculiar are the forms met with.

Very little is known of the features that are common to aural vertigo and epilepsy: I must, therefore, make good my ground by describing the facts as shown by individual cases. I must also make the evidence secure by mentioning the evidence of the labyrinthine origin of the symptoms. However briefly I do this, it must make a large demand on your patience and attention; but if the supply is equal to the demand, you will find that facts presented through cases secure a firmer hold upon the memory than those that are given as general statements, easily received and easily lost. I will describe the symptoms which aural vertigo presents in common with epilepsy, with as much method as the cases permit, but patients seldom present facts in the systematic way that would be convenient to us.

In the cases described, hearing was tested up to 2,000 vibrations by C tuning-forks. By "middle C" is meant that between the treble and the bass, 256 vibrations. The precise number varies with the pitch, and it is easier to remember if we call it 250. The C within the treble is C^1, 500 vibrations, and that within the bass, C_1 125 vibrations. Above C^1, 2,000 vibrations, hearing is observed by Galton's whistle, and recorded by the number of vibrations, which are indeed convenient for lower notes. Tinnitus is a symptom of great importance, as evidence of labyrinthine irritation: the word "continuous" is used in opposition to "pulsating," and "constant" is employed in the sense of persistent.

Suddenness.

The sudden onset of the attacks of aural vertigo is well known; one moment the sufferer may be in his normal state, and the next unable to keep upright without support, or on the ground and unable to rise from the severe sense of vertigo. We cannot regard the suddenness of the onset as the result of a sudden change in the impressions from the labyrinth; at any rate in most instances there is no other evidence of such a change. In rare cases there is an increase in the tinnitus at the time of the onset, which suggests a sudden increase in the labyrinthine irritation, but this is not common. Too much significance has been ascribed to it. The suddenness of the onset may be more reasonably regarded as of central origin. It suggests that the equilibrial centre has a certain degree of stability, which suddenly gives way under the cumulative effect of a persistent derangement of the impressions that reach it. We must consider that this centre acts upwards on the cerebral cortex, and its sudden deranged action may be compared to the process of "discharge" in epilepsy. The constancy of the features of the attacks in many cases suggests that, as in epilepsy, the repetition of the process facilitates its occurrence in the same form. Indeed, if the middle lobe of the cerebellum is the equilibrial centre, the facts of many cases suggest the conception of a cerebellar epilepsy, but this would carry the analogy farther than is quite justified. The suddenness of the onset is too familiar to need illustration, but it is not so with the feature next to be considered.

Brevity.

We conceive aural vertigo as of prolonged duration even when sudden in onset, and that of epilepsy as brief,

almost momentary. But the former may also be brief as well as sudden, and this constitutes one important point of resemblance which often gives rise to doubt. When the severe vertigo is brief it may be followed by much slighter giddiness for a time, or by nausea, which suggests its nature; and usually the patient has, or has had, attacks which present no resemblance to epilepsy. But it is not always so, as the following case shows.

A man of 60 had suffered for several years from attacks of momentary giddiness, a sudden impulse to go forwards, instantly over, but followed for a few moments by a sense of nausea equally brief. He never lost consciousness, and had no other form of attack. He had been slightly deaf for six years, hearing on the left side only the highest tuning-fork, 2,000 vibrations, and not much higher notes on the right; while for the same time he had tinnitus referred to both ears, at first louder in the left, lately in the right—a continuous hissing, sometimes increased for a moment to a loud "whizz." Such evidence of labyrinthine irritation as tinnitus affords is always important. In this case the aural condition had evidently made little progress during the years of its persistence, and this is of interest in relation to the uniformity of the vertigo. The facts suggest that, as I have just said, a tendency to uniformity had been developed by repetition. Such a case, although not epileptic, is distinctly "borderland."

A similar case, in which the sudden brief vertigo often caused an actual fall, was that of a man of 42. The sudden sensation was that everything before him was coming on top of him. Even when he fell, there was no impairment of consciousness; in a few seconds he was able to get up, but a slight sense of unsteadiness remained for ten minutes. Such a fall in epilepsy would have been attended by momentary unconsciousness. Other attacks, however, showed their nature. Occasionally he had time to take hold of something, and did not fall, but he felt himself and objects turning to the right. Such attacks were formerly followed by considerable nausea, and by diarrhoea, and with great coldness. There was also clear evidence of labyrinthine changes; hearing had been impaired in the left ear for five years. He had constant left tinnitus, which presented the rather unusual feature of being increased by external sounds. It was "buzzing" in character, occasionally louder, and then attended by a sense of pressure in the ear which seemed to prevent hearing. At the onset of the attacks in which objects seemed to be coming on to him, the noise changed for a moment to a shrill whistle. This affords confirmation of their labyrinthine nature. Note also the two after-symptoms, both suggestive. One was coldness of the surface, which must be ascribed to superficial vaso-motor spasm. The other is the diarrhoea; it frequently follows the vomiting after vertigo and sometimes even nausea. It may be the result of impairment of digestion, due to the nerve disturbance which causes vomiting, or possibly to dilatation of the intestinal vessels, coincident with the contraction of those of the skin. It is evidence of the readiness with which disturbance of the equilibrial centre deranges the gastro-intestinal tract.

In the last case there was an increase of the tinnitus at the onset of the sudden vertigo, which, as I have said, is rare; in the next it was increased after the attack. A man of 34 had moderate deafness and constant pulsating tinnitus on the right side, with continuous slight giddiness. He had also sudden exacerbations of giddiness in which, as in the last case, the floor seemed to rise and pass over his head, and he fell, but without the least confusion of mind. In a few seconds the attack was over, but the tinnitus was much louder for an hour or more after each attack. Slighter attacks, equally brief, were attended by a sensation that he himself was turning to the left. Such a variation in character is not uncommon. The objective sensation of objects coming to or over the person is usually a feature of the more severe attacks, and often causes a fall.

Many of the cases I shall have to mention in connexion with other symptoms will afford further illustrations of the brevity of attacks.

Loss of Consciousness.

If such cases of a sudden fall with almost momentary giddiness resemble epilepsy and are often mistaken for it, much more is this true of those in which the attack is accompanied by definite brief loss of consciousness. It is not generally known that such loss occurs in purely aural vertigo, and the symptom is often regarded as unequivocal evidence of epilepsy. But the cases I am going to describe afford clear demonstration of its occurrence in vertigo. As I have said, the condition in any attack of intense vertigo is one of imperfect perception of the surroundings, and of their relation to the sufferer, a condition which itself involves imperfect consciousness. We can understand that vertigo coming on with suddenness and momentum may for a moment sweep consciousness completely away before it.

A man of 61 had suffered for ten years from bilateral labyrinthine deafness, greater on the right side, with tinnitus louder on the left, and also from attacks of giddiness. They were severe, with a "whirling" sensation. Eight years before I saw him he had consulted Sir Samuel Wilks, who diagnosed "Menière's disease." The attacks had continued, but had become much briefer, lasting only a few seconds. Objects and himself seemed moving to the right, and when these attacks were severe, he fell. Almost immediately afterwards he could recall the giddiness and its character, but not the fall—clear proof of loss of consciousness. On coming to himself he felt dazed for a few moments, and burst into perspiration. The latter is a common feature of pure vertigo; the "dazed" recovery is a feature of epilepsy. But it is so as an effect of the loss of consciousness, and when this occurs in vertigo the slowness of the return to normal consciousness is not rare. The sudden perspiration is a feature of vertigo.

Another instance of the effect on consciousness of pure aural vertigo is of value on account of the high intelligence of the sufferer. He was a clergyman of 37, who had suffered for seven years from left-sided deafness and tinnitus, due to chronic changes in the middle ear, spreading to the labyrinth. His first attack of giddiness, three months before I saw him, was intense, making him fall from a chair on which he was sitting and he afterwards vomited. By a common diagnostic error, the vomiting, which was the pure consequence of the vertigo, was regarded as evidence that the attack was "gastric vertigo." Afterwards he had two slighter attacks, in which objects seemed to go to the left; mere retching followed these. Then occurred one of startling severity. When dressing in the morning before a looking-glass, this and the table on which it was standing, and the floor below, all seemed to rise up and come down upon him, as he fell. He knew of the fall, but was certain that he was then unconscious for a few seconds. He afterwards had others slighter, with objective giddiness to the left, and after each attack the tinnitus was louder, and became pulsating instead of continuous. (This change in character often attends an increase in degree; a uniform hissing, which becomes louder, may beat like machinery.) This patient was a careful observer, and he noticed that an increase of his tinnitus, with this change in character, often followed, for a short time, the act of rising from the sitting position. This fact is curious. A change of position often induces giddiness in labyrinthine vertigo, presumably because it causes a sudden change of pressure of the endolymph on the hypersensitive structures in the ampullae of the canals. The pressure of the endolymph must be similarly varied in the part of the labyrinth concerned in hearing, and if the changes are so situated that the influence exerted by rising acts upon them, we can understand the increase in the tinnitus that may be thus induced, although we may be unable to trace the process. Indeed, the pulsatile character of tinnitus must be due to the sensitiveness of the structures to the changes of pressure caused by the arterial pulsations. In this patient, the left ear gradually became quite deaf, and then all giddiness ceased.

Again, a man of 41 had suffered for some years from hissing tinnitus on the left side, on which he could hear no note of Galton's whistle, although it was well heard on the right. Recently he had had attacks in which a momentary "wave" seemed to pass over his head, with a movement of objects to the left; he fell to the left, and was unconscious for a second or two. Sometimes the apparent movement was to the right, and then he fell in that direction. The resemblance of such attacks to minor epilepsy is so close that doubt may be felt whether the association with labyrinthine changes is sufficient ground for regarding the case as essentially vertigo. But, before the attacks became so brief, he had slighter more pre-

longed attacks of giddiness, in which the ground seemed to recede, and if walking he would fall, distinctly from the unsteadiness. These attacks were followed by nausea, and they make the nature of the case certain.

I may mention, lastly, the case of a gouty woman of 67, who had complete left-sided deafness through air and bone, with left tinnitus "beating like an engine." Attacks of giddiness had occurred during three years, with a subjective sensation of being turned round and round. Lately they had begun very suddenly; they were so intense that for an hour she could not open her eyes, and were followed by prostation and nausea. In one she suddenly fell backwards, and afterwards remembered nothing of the fall; other attacks followed, also with brief unconsciousness, but followed by giddiness during many hours, slowly lessening.

Loss of Sight.

The facts I have described show clearly that intense and sudden vertigo may affect the cerebral functions with such momentum as to cause brief unconsciousness. As I have said, all intense giddiness involves some failure in perfect consciousness, so far as clear perception of the environment is concerned. The sensation of a swift movement of seen objects is distressing in vertigo; the fact that often the eyes cannot be opened testifies to the effect of visual sensations. It is not, therefore, surprising that when consciousness is not entirely lost, sight may be disturbed. In cases of partial syncope, sight may be alone affected, and sight may be lost before consciousness in epilepsy—and, indeed, may alone be lost. So in some of these epileptoid forms of pure vertigo.

A lady of 42, with gouty ancestry, had for years deafness of the left ear, distinctly labyrinthine, and also tinnitus—a noise like machinery, which seemed to be behind her. During eighteen months she had suffered sudden brief attacks of giddiness, lasting only a few seconds, in which she felt as if "going heels over head" backwards, and, at the moment, she could see nothing. There was no unconsciousness. An attack would sometimes occur in bed, and she would then beg to be held down, so intense was the subjective sense of movement. Although the feeling usually ceased suddenly, a very severe attack was followed by slighter giddiness for some hours, at first sufficient to prevent her raising her head from the pillow. During vertigo, when the sufferer is lying, the act of raising the head usually intensifies the distress. It causes a fresh impression on the nerve endings in the semicircular canals, which, slight though it must be, is sufficient to intensify the existing disturbance. The fact is easily verified. If a person turns round a few times with the head bent forward he feels sufficiently giddy to have to steady himself by taking hold of some support, but if he raises his head as soon as he stops, the giddiness is so much more intense that he may have great difficulty in preventing a fall.

Sight was lost, for a few seconds, in sudden falls to which a man, aged 61, was liable, in which he seemed felled to the ground. They had succeeded slighter attacks of giddiness from which he had suffered for two years. He had middle-ear disease and deafness on the right side, with destruction of the drum, and on the left side he was unable to hear high notes, and he had continuous tinnitus.

The fact that the loss of sight depends on a special disturbance of the visual centres was shown in a peculiar way by a lady of 50, who had suffered for three years from left labyrinthine deafness. Only the middle C tuning-fork (256) could be heard; no higher or lower octave. There was buzzing, pulsating, tinnitus, changing sometimes for a few minutes to a sound of bells. Attacks of vertigo had been severe and distressing, compelling perfect rest for the time. There was a sense of movement to the right in herself and external objects; when lying with her eyes closed the bed seemed turning over to the right. Later the attacks became brief, lasting only a few minutes, beginning with a rush to the head and a sense of movement within the head so bewildering that she "hardly knew where she was." In one of these everything was dark in the upper half of the fields of vision for about a minute. Her account was very precise. Such transverse hemianopia is met with rarely in functional disturbance of the brain. These brief attacks were seldom followed by vomiting, but generally by great coldness and shivering, no doubt from vasomotor spasm of the skin, another illustration of the relation of the vasomotor centre to that for equilibrium. Her longer attacks were frequently followed by recurring cramp in the legs. This effect may have been the result of their position, although we may remember that the equilibrial centre must readily influence the muscles of the legs for the maintenance of the erect posture, by whatever mechanism the influence is exerted.

We pass next to a remarkable symptom of sudden attacks which is probably characteristic of vertigo, although it has a striking resemblance to an epileptic aura.

Sense of Impulsion.

Intense aural vertigo of sudden onset, causing the person to fall, may be attended by a sensation that the fall is actually compelled. The feeling of giddiness is so intense as to involve a sense of compulsion, in which sometimes the vertiginous element is hardly realized. In epilepsy there may be a feeling of involuntary motion but not of being "felled or hurled to the ground," as the patient described it whose case I mentioned just now, and as many do who suffer from aural vertigo. I need not give you other special illustrations of this. The fact is carried still further in the remarkable symptom to which I pass.

Not only is there a feeling of being a passive object on which an impelling force is acting, but this impression may be so intense as to have, as it were, a backward influence. It may thus cause a definite sensation of an external physical agency which seems the cause of the sudden disturbance of equilibrium. The sensation may be gentle or violent. In the former case it is merely a sense of an impulsive force. For instance, a lady of 50, with slight nerve-deafness on the left side, had also loud pulsating tinnitus, referred to the head, compared to machinery in motion, sometimes changing to a sound of drums beating. For six months she had suffered from attacks which began with a sudden distressing sense of pressure at the vertex, passing to the front of the head, with a feeling that she was going down, down, through the floor. With this there was a slight tendency to fall to the right, and objects seemed to oscillate from side to side. Thus the chief subjective feeling of sinking down was accompanied by the perception of a physical force, pushing her down.

Much more violent in character was the sensation experienced by a woman of 34, with progressive nerve-deafness and tinnitus on the right side. For five years she had had sudden attacks, at first simple giddiness, and while it lasted she was unable to hear distinctly. Then they began with a sudden sensation of being struck on the head, just behind the vertex. Sometimes she fell and it seemed to her that the fall was the consequence of the blow. She never lost consciousness, nor had she any definite perception of movement at the onset; the sense of the blow, with the fall, seemed to prevent any vertiginous feeling, but, after the fall, she was distinctly giddy for an hour, usually with nausea and sometimes with vomiting. The fall naturally caused a feeling of alarm and sometimes of dyspnœa. She also had slighter attacks, with the sense of a much more gentle blow and a tendency to fall forward, which also seemed to her the direct effect of the blow. After such an attack there was a slower movement of objects to the left and back again, and she sometimes fell to the left. Even when sitting still she occasionally had the feeling of the sudden blow, which seemed to impel her forwards. Occasionally she almost lost consciousness, and it was actually lost in one attack. Afterwards the attacks occurred also during sleep (a point to be considered presently), and she was once waked up from sleep by a sensation of being struck on the right side of the head, and she seemed to be knocked over to the left by it. She afterwards remembered putting out her hands to save herself, but nothing more until she found herself on the ground. Her right-sided deafness steadily increased, hearing being lost from above down until she could only perceive the bass C ($C_1 = 125$).

That the vertigo in this case was purely aural we cannot doubt. Some special character in the process may have determined the perception of a seeming cause, but the constancy with which the feeling of a blow accompanied the attacks, whether they were slight or severe, is remarkable.

So definite a sensation of a blow is very rare, but other

cephalic sensations at the onset of the attack of giddiness seem to be of the same general nature. It was described as a "clutch" in the case of a single woman of 29, in whom the aural nature of the vertigo was less certain than in the cases I have previously described, since there was no deafness. But the patient had persistent tinnitus in the left ear, and such tinnitus means irritation of some of the labyrinthine structures, which, however trifling, may have a disturbing effect on the centres out of proportion to its intrinsic degree, and may be greater in the part of the labyrinth concerned with equilibrium. The patient had brief attacks of giddiness, in which the ground seemed heaving up and down, and each began with a sudden momentary sensation of a "clutch" in the head. Later, this clutching sensation occurred when going off to sleep, and was followed by palpitation of the heart, the tinnitus became much louder, pulsating like a steam engine at work, and she wondered that other people did not hear it. Sometimes it changed for a short time to a loud continuous hiss, compared to an engine blowing off steam. Strange to say, her hearing continued perfect, but there must have been definite labyrinthine irritation, sufficient to make it probable that the other symptoms had the same origin. This would not have been suggested by her nocturnal sensation, which, considered alone, bore a striking resemblance to an attack of minor epilepsy.

NEURASTHENIA: ITS NATURE AND TREATMENT.

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The Neurasthenic Condition.

The importance of this subject at the present time arises on the one hand from the fact that the condition of things known by the rather unsatisfactory name of "neurasthenia" is very greatly on the increase through all ranks of society, and on the other because instruction respecting it forms no part of the curriculum of the medical student, nor of the training of the nurse. Year by year cases of neurotic illness assume even larger proportions in the work of the general practitioner, and his inability to deal with them successfully is both a disadvantage to himself and the occasion of much avoidable pain, discomfort, and protracted invalidism in his patients.

By a curious and unfortunate misconception "neurasthenia," and in a tenfold greater degree "hysteria," have come to be regarded as terms of opprobrium, as though their victims were, as such, a kind of moral delinquents wilfully hugging maladies of a more or less imaginary character, which a mere fiat of their own might abolish if it so pleased them. It is to be hoped that in the light of fuller knowledge and more discriminating judgement of conditions this hurtful misconception will before long take its way into the limbo of other time-honoured but exploded prejudices.

Neurasthenia, as it comes under the doctor's notice, shows itself physically in a wide variety of ways, of which one of the commonest is general malnutrition, often leading to great emaciation. There may be indications of numerous forms of illness for which on examination no physical basis can be discovered—dyspepsia and vomiting without disease of the stomach; cardiac symptoms, even anginal in character, with a perfectly sound heart; paralysis or spinal pain, with reflexes intact; altered secretions from organs in a normal state. Or, again, there may be no local disturbances, but only general debility and depression—a state in which the patient can do nothing so well as formerly, and finds every little exertion a trouble; and often enough this is accompanied by a feeling of insecurity and self-distrust—a dread of facing life and its demands.

This condition of things may have been brought on by a sudden shock—some fright or distress—though in such a case it usually does not appear at once but after an interval of incubation. But very much oftener it is the upshot of a long, gradual deterioration in health due to some steady cause of wear and tear. The important point to grasp and keep in mind firmly is that the physical state is *secondary*. The originating cause is always to be sought for in the patient's mental life and history. So markedly is neurasthenia a disorder or disease of the mind that the gravest cases—such, for instance, as those in which the patient is subject to one fixed idea, often most difficult to dislodge—reach a border-line where they cannot with certainty be distinguished from the still more unfortunate persons who must be definitely handed over to the alienist. These, however, are extreme cases, and are, happily, not numerous; and, in the great majority of instances, it is comparatively easy to decide whether a given patient is or is not likely to respond to the treatment appropriate to neurasthenia and to be successfully treated.

But at present the neurasthenic patient complaining of some definite local pain or disturbance runs two opposite risks at the hands of an inexperienced practitioner: Either the pain and other symptoms may be taken to indicate the existence of some recognized physical disease for which the patient is in consequence treated by the ordinary recognized methods; or the doctor, finding no physical grounds for the symptoms, concludes, and perhaps gives his patient to understand, that there is nothing really the matter and nothing to be done. On the contrary, there *is* something really wrong, only it is not what the patient thinks, and has to be combated by means quite other than those directed to the cure of organic diseases.

This point has to be specially emphasized, that neurasthenia is essentially an affection of the *mind*; and that in consequence of its prevalence we medical men are in fact called upon to treat—perhaps more frequently than any other class of ailments—mental disease, and that often at a stage when as mere functional disturbance it is fully amenable to treatment. This fact becomes all the more striking and worthy of attention when we think that not one out of a hundred medical men knows anything of even the elements of psychology, and most doctors are consequently unable to explain to patient and friends intelligibly, and in a fashion suited to their requirements, the nature of the disturbed or perverted function. Such an attempt at explanation is often made, but only too often the result is disastrous alike to the patient's feelings and the doctor's reputation. Frequently it ends in the patient's going off to consult another doctor, either because the language employed is capable of bearing another interpretation than the one intended, or because it cannot carry conviction when the necessary tact and confidence begotten of knowledge are lacking. How often have I been consulted by a patient glibly dubbed a "neurotic," who informed me that the doctor said there was nothing the matter, and on my rejoinder that I was sure Dr. So-and-So could not have meant that, has replied, "Well, if he did not say so he implied it." Neurasthenia must be regarded as a real disease, something to be diagnosed and treated. The diagnosis may not be easy: but it can be made, after an honest and searching inquiry the aim of which is to exclude organic disease, and then when made it must be adhered to with courage, and the proper line of treatment adopted.

Where, then, are we to look for some central explanation of the protean variety of symptoms exhibited by different neurasthenic patients—some master-key to fit locks of apparently such varied patterns?

Let us consider very shortly our ideal of a normal, healthy human being, of sound mind in sound body, and possibly it will help us to find out where and how the neurotic patient breaks away from the normal. We recognize that health is wholeness, and that the whole being is one whose personality functions—that is, feels, thinks, acts—through and by the aid of an enormously complex organism in which, as in a well-governed State, each minutest part has its assigned work to perform in harmony with all the rest. Little by little, through the continuous efforts of myriad generations, has this organism been evolved to its present stage in which, through tiny acts countless times repeated, much that must at first have been achieved with difficulty is now, as it were, so registered in the structure as to go forward automatically—that is, without conscious attention or effort on the part of the present head of the State. Intelligence marks every step, and is still in control, but now it is intelligence so drilled and educated as to carry on its business without continual supervision from the conscious will; it works, as we say, subconsciously. So the reflex movements follow their

appropriate stimulus without a hitch: the instincts and appetites recur and are satisfied, receiving each their due, and not more than their due, attention: the emotions lend their impetus: thought guides: will controls and executes: and the watchword of the whole is harmony, balance, proportion.

Again, neglecting for a moment the marvellous psychophysical organism which is the instrument of all conscious life, let us consider from another point of view the constitution of the reasonable self as known to us in experience. Here, again, we have unity in difference, for self-consciousness unites two elements distinguishable in thought, but inseparable in experience, subject, and object, the "ego" which feels, thinks, wills; and the environment which is absorbed in feeling, knowledge, action, and is itself interpreted and remodelled in the process. These are the raw material, and out of their blending there emerges the creation of individual character. The baby at the outset is no more than a potential person, with no consciousness either of himself or of anything other than himself: consciousness of self comes only by the discovery of something not himself, and afterwards develops concurrently with his expanding acquaintance with his surroundings. In a few years we see that he is becoming what hearth and home make him; the love and care he receives are the making of his own affections; his knowledge is of things he sees; his language is the language of the people about him—his thoughts are their thoughts. Later still he is an equally faithful index to the nature of his school, his college, or his work-bench: and in his full maturity just so much of the world, or the universe, to which he gains access and can absorb—in a word, just so much as he can internalize—constitutes *his very self*. He epitomizes and reproduces in a new combination peculiar to himself those elements of the great not-self for which he has affinity. For the finite creature must and does select from the overpowering complex object that to which he can respond—that with which his nature as subject proves capable of amalgamation—and his character as revealed to his fellows is revealed by the selection he makes.

When once this constitution of the self is fairly apprehended, the inspiring thought follows at once that within limits it is open to all of us to become the selves we would wish to be. We may do it by the exercise of steady choice in our objects of feeling and thought: these forthwith become the springs of our action, and in all three capacities are made one with the self by the double movement which at once transmutes objects into the self and transforms the self into their likeness.

Infinite grades of character naturally emerge from this process, according to the degree of access that any individual has to that which is beyond himself and to the possibilities of response with which the "ego" starts on its career. The important matter is that each self in its own grade, in its own measure and degree, should be as fully rounded out, as well-proportioned as possible.

And this consideration brings us back to our neurasthenic patients. Is it not plain that what ails them is a loss of balance and proportion in their mental lives? Some idea or group of ideas assumes abnormal and undue importance, overmasters the central will, and leads to a break-up in the harmonious working of the hierarchy of centres governing both conscious and subconscious life. It is to be noticed that all the causes leading to neurasthenia are of a *narrowing* nature. People do not become neurotic by even hard-working devotion to large and generous ideals; personal business worries with men, personal domestic worries and friction with women, account for a large number of cases. Starved or wounded affections, personal griefs or losses, sudden shocks, chronic fears and anxieties, all of them have a contracting effect on the personality, tend to keep the thoughts in one groove, on one set of ideas or objects, and that a narrow one. When to this is added some derangement of the physical system still further contraction follows. The patient's attention is now demanded by bodily sensations which are good servants but bad masters, and which become more and more insubordinate the more they are humoured. Unless the process can be arrested a weary course of nervous invalidism sets in, exhausting both to patient and friends. A patient in this condition is like a person living always in one small room with the blinds down—self-centred and miserable.

In this state of things the conscious will has become weak or altogether defective. According to modern psychological doctrine, the function of the will is to select out of a number of feelings and ideas at any given moment presented in consciousness that one which, under the circumstances, is favoured, thus giving it prominence in attention to the exclusion (inhibition) of all others. The will thus regarded always involves conscious choice, and is practically a *direction of attention with consent of the personality* to this or that feeling or idea. But when one idea is allowed to absorb more than its due share of attention, and by degrees to become, as we say, a "fixed idea" monopolizing consciousness, the habit of selection is lost, the true will slips into abeyance, its power weakened or lost for want of exercise, and a usurper reigns in its stead. Instead of choosing its own objects of attention, the mind is unwillingly dominated by some notion that has taken possession, and becomes gradually narrowed down to its limits.

Nothing is more remarkable than the contrast in its effect upon health between voluntary concentration of attention upon some object and involuntary submission to some idea or succession of ideas that has happened to come in and prevail. In the first case a marked improvement in vitality takes place, under the influence of which all the organs function with increased vigour; in the second case vitality rapidly diminishes and functional troubles multiply. It almost seems as though the effort of will made some additional draft upon an environment of what we call "vital force," veiling our ignorance under the phrase; but whatever the explanation may be the fact is indisputable. A well-observed example of it is the way in which old men rapidly run down on retiring from accustomed work that has kept their mental powers in steady exercise. And in recovery from neurasthenia an opposite effect often takes place; the distressing feeling of fatigue or exhaustion from which the patient commonly suffers is a symptom that frequently disappears rapidly from the moment when the blinds are drawn up, the mental horizon broadened, and the central government in the personality is restored to its proper place. If this happy change is to take place, it is necessary that the will should be awakened and stimulated to direct the mind towards some fresh and wholesome object, and not to spend itself even in fighting or trying to control the disturbed functions, which may generally be trusted to correct themselves when deprived of their exaggerated importance.

Illustration and Treatment.

In illustration of some points mentioned in the preceding very brief sketch of the psychology of the neurasthenic condition a few cases may be given shortly as typical of countless others, and one in somewhat greater detail:

Mrs. C., aged 40. Has one son, and ascribes her illness to his illness some months previously: he was restless at nights and she lost her sleep. Very depressed, sleeps badly, appetite poor. Has always been nervous, and had a bad attack of nerves twelve years earlier, in which she was depressed and sleepless for some months. She acknowledges that she cannot interest herself in anything outside her own case.

Mr. R., aged 30. Business man, with very marked family history of nervous tendency; inclined to take whisky to excess; a very hard worker, anxious to succeed in business, often worked all night or took only one hour's sleep in the twenty-four; thought he could do without sleep. Lost the power of expressing himself in writing, could not spell simple words correctly, would even forget his own name when signing a cheque. Began to take alcohol to procure sleep. Complains of restlessness; cannot concentrate on a business problem; sleeps very little; disposed to be excitable; has feeling of pressure and discomfort in top of head, aggravated by mental work.

Miss K., aged 39. Always been highly strung, particularly in the direction of irritability and quick temper. Has quarrelled with several members of her family. Has been unduly taxed through a family rupture which led to her living alone. Very depressed, extremely irritable, very easily tired, complains of intense longing for rest, awakens in the night and fancies she hears bells ringing. She says she is only kept from suicide by her religion, but at the same time talks in a very bitter way about her relatives.

N.B.—Neurasthenics very rarely commit suicide.

Mrs. H., aged 55. Has suffered for three years from attacks of pain in the chest across region of heart and down left arm, accompanied by palpitation and choking feeling; lost power of

left arm; attacks worse at night when in bed; is very nervous: fears her heart is diseased; lies in bed dreading recurrence of attacks. There is in fact no heart disease; it is a case of pseudo-angina, and a good example of the effect of morbid suggestion on a timid mind dominated by the fear of death. This lady had unfortunately been told by two doctors that her heart was diseased.

Mr. R., aged 37. Business man; has been nervous and restless for some 12 or 18 months. Four or five months ago sold his shop, and has since brooded over this transaction. Thinks he will never be able to start another business—that he has ruined himself by his folly in parting with his business. Talks of nothing else; cannot sleep; complains of beating in the temples, which he says keeps him awake. His friends fear he will "go out of his mind" on account of his perpetual worry over the shop. Very depressed at times.

The following case gives a vivid picture of the slave's life to which a man may be reduced by a prolonged series of symptoms arising from nervous disturbances over-regarded by himself, misunderstood and further emphasized by his friends.

The patient is a young clerk of 25, with a family history of nervous tendencies and a personal history of poor self-controlling powers. Thin and apathetic-looking, he is depressed yet intense in his manner, detailing his symptoms with an evident strong desire to convince his interrogator of their reality. His illness began suddenly about four years ago with a sense of tightness in the abdomen and fullness in the stomach, feeling "blown out." This was quickly followed by violent pain in the right lumbar of right iliac region, and he was treated for seven weeks for appendicitis. During this time he had a dull, aching pain in the right lumbar region, and felt he must draw up his right leg in order to get rid of something which he thought was glued to the inside of his stomach. He was then advised by two doctors to have his appendix removed, but he refused. He still felt what he called a "full sort of sticking sensation" in the same place, "as if something were glued there," and this has remained with him. He has also been subject to attacks of faintness, with palpitation and a feeling that he could not get his breath; for these he took hot whisky whenever he could get it. In standing, he keeps his right foot off the ground, because he has more of the "sticky" feeling when his right leg supports him. He always has a feeling of weight at his heart, as though there were a lump there, and often has palpitation.

Lately, he says, his worst symptom has been a feeling that he ought to have his bowels moved, and cannot do so. This makes him feel "as if he did not know where to put himself." It causes him to take deep breaths, and he has to continue doing so, and at the same time he keeps rising rhythmically in bed to make room for the contents of the abdomen, and rid himself of the "sticky" sensation. *He has been doing this all day long for about three months!*

For over three years past the patient has had a rumbling and sense of movement in the abdomen, worst after meals, which makes him think something ought to come away, so he would sit for hours at a time straining and trying without success to have his bowels moved, and latterly has spent most of his time doing this. This gives him a despairing feeling; he tosses about all night, and only sleeps when exhausted. His abdominal troubles so occupy his mind that he is quite unable to concentrate his attention on anything else, the tight feeling and the bowels allowing him no peace.

About four months ago, after some opening medicine, patient passed a "white piece of slimy stuff" (mucus) which he took to the doctor, who told him that it was a piece of the lining membrane of the bowel. This gave him a shock, and since then he has been a good deal worse, his stomach having caused him special trouble. Now and then he passes more of the same material, and always carefully looks for any that may be there.

Patient is unable to have his meals in comfort because he "can't chew" for any length of time, and declares that his food, instead of going down, seems to be rising up from the abdomen. When this feeling is at its worst, he relieves his uneasiness by moving his teeth up and down. At intervals he has "trembling fits" in which his arms and legs feel numb with sensation of pins and needles in them, as though he were having an electric shock, which makes him feel very weak; his teeth chatter, and he is compelled to grip something till the fit passes off. He becomes weary and exhausted, and grows dazed. He has noticed that these fits are worst when his bowels have not been moved for some time, and he has taken opening medicine; and he puts them down to the action of the medicine, thinking it "produces substances that fill his abdomen," and of which he cannot rid himself. Talking and reading exhaust him, and make him take short coughs and gasp for breath; and latterly he describes an "airy sensation" in his arms and legs, "as if they were not there," and also feels "light-headed, as if he were going up in the air."

Treatment.

The first and foremost counsel as regards treatment is at all hazards to avoid treating neurotic symptoms as though organic disease were present. To administer drugs and perform operations manifestly can never remedy what is not there to be remedied; and even if no positive physical harm is done—as may only too easily happen—the invariable effect is to fix more securely in the patient's mind an idea of illness that it should be the physician's first aim to dislodge. Some patients are easily reassured and begin at once to improve on learning that their fears of heart or lung or stomach disease are groundless; others are discouraged, feeling that they would rather hear of some definite lesion that could be dealt with and perhaps definitely cured, than continue to be neither well nor ill, which seems to them the alternative, and which indeed is too often their fate in the present state of medical practice. But these will thankfully welcome a different kind of treatment specially designed to correct the nondescript condition of disordered health in which they find themselves.

When once a patient is satisfied that the doctor knows and understands the various symptoms, it is best to disregard them all and go straight for the central condition that underlies and gives rise to them in endless variety. It is well known that to Dr. Weir Mitchell of Philadelphia belongs the credit of having first devised a combination of curative measures for neurasthenia, which was afterwards enthusiastically taken up and practised in England by Dr. W. S. Playfair, and by which many successful cures have been obtained. These practitioners were chiefly struck by the malnutrition, the emaciation, and the anaemia which is so frequent an accompaniment of the brain-fag and nerve-fag in pronounced cases of neurasthenia—a state in which a vicious circle is set up, the organs being first ill-nourished through failure of the nervous control, and then in turn failing to supply the brain and nerves with good rich blood. They were sceptical as to the need or utility of mental treatment, and argued that, if proper nutrition were restored to the organs and the nervous system, the enfeebled neurasthenic conditions would disappear without more ado, and the patient would be fitted to return to the ordinary duties of life with the strength needful for meeting them. The means that Weir Mitchell laid down to attain this desirable result were: (1) Isolation away from home; (2) rest in bed throughout the treatment; (3) forced feeding; (4) regulated muscular exercise by means of massage and electricity. Both the American and the English physician insisted on the importance of using *all* these measures in combination, and were supported in their contention by many successful results; at the same time later practice has shown modifications to be advisable, and an over-rigid application of Weir Mitchell treatment to all cases alike—possibly in less intelligent hands—has also produced its failures, and even tended to bring some discredit upon the method.

In France Charcot and his followers made much use of hypnotic suggestion, though principally in cases of hysteria rather than simple neurasthenia. Liébeault and the "Nancy school" discovered and practised suggestion in the waking state, which has the great advantage of avoiding certain grave risks to health inseparable from treatment by hypnotism. But both methods have the drawback of substituting the will of another person instead of reinforcing the patient's own intelligent will and self-government; and for this reason both have been discarded by Professor J. Dejerine, now in control of the Salpêtrière, who also dispenses with massage and electricity: and although he employs rest in bed at the outset of his treatment, and over-feeding in the case of emaciated patients, relies mainly upon isolation and a form of psycho-therapeutic treatment which he designates "persuasion." This last consists in explanations and appeals addressed to the higher reasoning faculties of his patients, and when successful, as it commonly is, has the effect of changing their views as to their own condition, and restoring them to confidence and a better degree of self-management.

It is to be observed that the one element which remains constant in the different methods of practitioners who have given special attention to this subject is that of isolation in unaccustomed surroundings. All alike testify to the uselessness, or at the very best the comparative uselessness, of attempting to treat neurasthenia in the patient's own home, even if the home should be given up to the sole occupation of patient and nurses; and, on the contrary, it has been observed that some neurasthenic

patients have recovered with no special treatment when placed in even the imperfect isolation obtainable in an ordinary hospital ward. In the Salpêtrière Professor Dejerine has secured what proves to be a really sufficient degree of isolation by giving up to neurasthenic and hysterical patients one whole ward, in which the beds are screened off from each other.

We must not, however, hastily assume that isolation is all that is generally needed. No, if the attempt to analyse the neurasthenic condition that has just been made is in any degree correct, clearly what has to be aimed at is to reverse the narrowing process; first to get rid of the harassing notion of diseased organs; then to leave behind the over-insistent ideas of personal trouble and distress that have held sway; to draw up the darkening blinds, let daylight in and look further afield upon life; to cultivate a self of larger scope. We may surmise that the special virtue of isolation in unwonted surroundings lies in the fact that nothing else so quickly and completely breaks the domination of habitual ideas and makes way for others furnishing a better adjustment to life. Of course, physical means will not be neglected in cases where protracted nervous illness has rendered them necessary or advisable: rest in bed (reduced as the patient recovers strength and vitality), overfeeding in cases of emaciation, exercise of the muscles by massage and electricity—all these will have their value recognized as useful accessories; but systematic treatment should be elastic and differently adapted to meet the needs of different temperaments and circumstances in patients, no two of whom are ever quite alike. What we want to secure is a central will, reassured, instructed, strengthened, and set free from worrying trammels to play its proper part as director-general of the personality.

It must be added that the chances of treating neurasthenic cases successfully as part of an ordinary general practice are not very good. The need for treating them away from home and with the aid of carefully chosen nurses, the objections to routine treatment, above all the superlative importance of obtaining the patient's entire confidence, and the incalculable influence of the physician's personality in this respect—all point to the advantages of specialist treatment for this kind of illness. Constant experience is as valuable to the physician in dealing with neurosis as constant practice is to the surgeon who undertakes the more critical kind of operations. Tact, sympathy, firmness, resource, and infinite patience are called for and must be kept bright with use. Therefore the practitioner who does not find in himself any particular aptitude or interest in dealing with neurotic patients would be well advised to commend them to a specialist; on the other hand, a doctor who discovers that such patients will spontaneously confide in him and confess private troubles and even faults, in their longing for advice and relief, has a large sphere of helpfulness open to him if he chooses to take possession.

ON CANCER.

By SIR SAMUEL WILKS, Bart., M.D., F.R.S.

As I have always been much interested in the subject of cancer, I read the British Medical Journal of May 26th, giving an account of the work done by the Cancer Research Fund, with especial pleasure, and also your leader containing such an admirable summary of the present state of our knowledge and the problems for the future. My pleasure was naturally increased by the personal satisfaction which I experienced on seeing that the conclusions arrived at were so closely allied to the doctrines which I had for many years taught in my own school. These doctrines were not vague opinions arising from a non-acceptance of the prevailing views, nor hypothetical ones invented to take their place, but substantial and legitimate conclusions based on a large number of facts and on a long study of the subject. The views which I expressed were first published in the *Guy's Hospital Reports* for the year 1857—nearly half a century ago—in a paper on New Growths from Bone, and this was developed into a longer one in the next number of the *Reports* on Cancer and Malignancy.

At that time the microscope was coming into use and its value was considered very great, by enabling us to distinguish between malignant and benign growths. This proved to be true, as it rendered it possible to see in any particular growth a mass of cells and in another nothing but fibres. The first was cancer and malignant, being associated with all the clinical facts of the disease, whilst the other was innocent. These cells were supposed to be typical of cancer, being large, rounded cells with a large oval nucleus, and contained in a matrix. These characteristics combined with the history of the case were sufficient to decide its cancerous nature. It was a different question, however, to ascertain whether these cells showed any peculiarity of form or structure, and so after spending much time at this work, I came to the conclusion that they showed no special characters which could differentiate them as cancer cells from all others; I was thus placed in opposition to the current opinion of the day. I believed I had satisfactorily proved my position, for when I placed some healthy tissues under the microscope, and more particularly lymph taken from inflamed joints, and submitted them to competent observers as new growths, they were generally pronounced to be cancer if they showed a large nuclear cell. This was always the case if I gave any suggestion as to possible malignancy.

I came, therefore, to the conclusion that cancer cells had no characteristics distinctive enough to allow them to be marked off from others; indeed, they were no more in most instances than the ordinary embryonic cells. The belief at that time was that cancer was the outward and visible sign of a malignant disease arising from some unknown cause in the system. This seemed to be very evident when the disease returned after it had been removed; if it did not do so it showed that the original growth was not cancer. So there was a good deal of circular reasoning on the subject.

It was thought also that there was a malignant aspect due to a special kind of cachexia. This illusory notion I got rid of whilst a student, for I soon saw a middle-aged, healthy-looking woman apply at the hospital in consequence of her having found, whilst dressing that morning, a lump in her breast. This the assistant surgeon pronounced to be scirrhus. And then again, when an incident occurred of an opposite kind. This was the case of a man with long-standing jaundice, which at last had made his face dark green, or almost black. The very experienced physician, although he could find no tumour in the abdomen, pronounced the case to be undoubted cancer owing to the patient's malignant appearance and his great emaciation. After his death no trace of cancer could be found, but the common bile duct was obliterated in consequence apparently of ulceration caused by a gall stone.

I should say that the physiological doctrine of growth then taught was that of Schwann and Schleiden. It was that the blood nourished the body by exuding a fluid which was called the blastema; in this fluid granules shortly appeared; these subsequently formed themselves into nuclei, and around them the cell-wall grew. Out of this cytoblastema all the tissues of the body arose or were regenerated, the cell being converted in one case into a nerve fibre and in another case into a muscular fibre, and so on with all the tissues. My theory of cancer was that if these cells did not do their duty and follow their destination so as to produce natural tissue, but continued to increase in number without developing, they formed a mass or tumour, and to this the name of cancer was given. They corresponded in form to the cells of malignant growths, and therefore the latter were nothing more than masses of embryonic cells. It was a purposeless growth, and therefore might in contradistinction to benignant correctly be styled malignant. The cells were usually contained in a newly-formed matrix with a good supply of blood vessels. If the new material showed any attempt to grow, then the cell might become elongated until a simple fibre was formed. In this way I made a scale beginning with the cancer or simple cell growth, and so passing on with its development until I reached the simplest and most innocent pure fibrous tumour.

In my papers I discussed another important feature of new growths which made them totally unlike what is seen in specific diseases, and that is that they differed according to the part of the body in which they grew. In the case of any ordinary well-known virus, as that of measles or small-pox, or even that of tubercle, the effects are uniform

as seen especially on the mucous membranes and skin; but the so-called cancer if growing on a bone might contain osseous matter, cartilage or a myeloid material, and if it sprung from the choroid of the eye would be melanotic; moreover, all these local characters might be propagated to the lungs and other parts. Even a local adenoid growth might be found as a secondary formation in a distant part, carrying all its definite peculiarities with it. Besides, therefore, the absence of any special characters in the cancer cell, we had to deal with the fact that unlike tubercle it altered its characters in all parts of the body in which it occurred. These facts always made me in later years sceptical when I heard of any specific germ having been found, and of necessity the more so when it was found not to be infective.

I will now give one or two extracts from the papers I mention in which the terms heterologous and analogous were given by Carswell to growths consisting of elements foreign to the system and those which resembled them. Such a division has been more or less accepted up to the present time. The following is from my first paper written in 1857:

The question as to the malignancy of a new growth is the most important which can be asked concerning it, for, should the answer be in the affirmative, the decision is almost equivalent to the passing judgement of a certain and speedy death upon the unfortunate subject of it. The importance, therefore, is a sufficient excuse for making a few remarks upon the terms cancer and malignant disease. Cancer, although divided into several varieties, has generally been regarded as a disease consisting of a specific morbid material, which, once having appeared in any part of the system, resists all attempts at eradication or cure, since, as often as removed, it returns, or, having gained strength by age, at last breaks forth with virulence, until several distinct regions of the body have yielded to its destructive influence. Such a malady is eminently malignant, and thus the words cancer and malignant disease have grown up side by side as synonymous terms, the one having reference to the anatomical nature of the growth, and the other to its widespread ruinous character. When, therefore, in times past a new growth was early perceived, the importance of knowing whether it were cancer and was about to run this frightful course of malignancy was reasonable. At so incipient a stage the naked-eye appearance would not solve the question, and recourse was had to the microscope to assist the surgeon in his inquiry, for great expectations were then formed of the value of this instrument in respect to its ability to determine the cancerous or non-cancerous nature of a growth and thus form a decision upon its malignancy. Much disappointment, however, has been the result of this hope and discredit thrown on the means emp'oyed, but this has been without good reason, for we believe that the instrument has admirably succeeded in its own line of investigation, and that its supposed failure has been in reality a bright feature in favour of its utility and importance. Its disparagement has been due not so much to its occasional indecisive answers as to the fact of its denial of the cancerous nature of many growths which returned after removal or even multiplied themselves in various organs of the body with the utmost degree of malignancy. The microscope has therefore proved that cancer and malignant disease are not universally interchangeable terms, and all praise rather than blame is due e instrument for the discovery.

The following is from a second paper on the question of local or constitutional causes:

To discover how much one cause is in operation, and how much the other, we think is the clue to the whole question of new growths, and in this we see a meaning in the terms heterologous and analogous as applied to new formations, for if the latter be allied to the structure near which they spring, they indicate a healthy influence in operation, and therefore an absence of any vicious constitutional tendency, whereas, if they be not allied, that is consist of cells continually growing for a *purposeless* object, they indicate a vice in the system; the latter is foreign to a healthy intent, and therefore deserves the name heterologous. In the one case the tendency is to a formative process, and the nearer this approaches to the natural one the more benignant the structure, while in the other case the tendency is to the production of cells such as existed in the embryo preceding the formation of the tissue, and therefore if such embryonic cells spring up and continue to grow in the perfected body we have a cancer, a cancerous tumour being simply a mass of embryonic cells.

These quotations contain an outline of the views which I put forth half a century ago on the nature of cancer in the *Guy's Hospital Reports*. It is naturally of much interest to myself to see how the tendency of the work which is now being carried on has so much agreement with that which I had formerly written. Were this only a personal satisfaction I should not have dared to encroach so much on your space, but I regard it as of wider value, and especially to those who are now engaged in the cancer research. For it must be remembered that all our knowledge of natural phenomena can only be partial and relative; therefore it follows that having been gained step by step, we ought to be well acquainted with all the graduations which preceded it up to the present time. I have long been convinced that a pupil gains a more thorough grasp of any subject in natural philosophy if the lecturer begins to speak of the very first faint observation and then proceeds onwards until he reaches the present state of knowledge.

With this view I think it useful to know in what position we stood in connexion with cancer and allied growths when the microscope first began to be used for its investigation. This was the purport of my papers which I mention. In these I say that this instrument was of much use in showing the nature of cancer growth in distinction to that which is innocent, but it failed to prove that it had any characteristics which could at once separate it from normal structures. These views were not incompatible with the belief that, if the disease is one of nutrition, the cause might be of a special character although morbid; in other words I believed that the disease had its origin in the body itself, and was not of external origin. This idea was afterwards strengthened by observing the dire effects on nutrition when disease occurred in the thyroid, suprarenal, and perhaps the pituitary body. As regards the future attainment of the knowledge we require, we ought not to be over-sanguine as to its now being within our reach, as perhaps some altogether new method may be necessary to get a further insight into it. As it is now many years since Müller employed all the well-known chemical methods to discover the difference between a natural and malignant growth, so it may be that we require a new biochemistry to solve the problem. When the microscope came into use it enabled us to trace the structure of organic bodies imperceivable by the naked eye, and actually to see the poisonous matter, which we only before conjectured to be present in the ordinary specific diseases. The importance of new methods of investigation has been shown by the great advance of medicine owing to the introduction of the laryngoscope, ophthalmoscope, and other instruments. Without them we should have been only slightly better than our forefathers, having only our ordinary senses to guide us. In all branches of knowledge it is the same, new methods and instruments of investigation are necessary. The study of the heavens was complete as far as the telescope could make it, when astronomy made a quick advance by the aid of photography and the spectroscope. It may be, therefore, that we require some new methods of research before we can alight upon the true nature of cancer; but let us hope that the desideratum may not be far off, for every one must have been struck by the remarkable advances made in a knowledge of some of the most intricate functions of the body by our present distinguished physiologists.

Under the will of the late Dr. Thomas Corbett of Droitwich, who died on April 22nd, the following sums are allotted to the institutions undermentioned: To St. Thomas's Hospital, for the endowment of beds in memory of the deceased's brother, £5,000, and £500 to its Samaritan Fund; to Guy's, the Middlesex, St. George's, University College Hospital, the East London Hospital for Children, and the Hospital for Sick Children, Great Ormond Street, £5,000 each; to the Royal Free, Gray's Inn Road, the General Hospital, Birmingham, and the Queen's Hospital in the same town, £3,000 each; to the Cancer Hospital, Fulham, Gloucester Infirmary, Royal Hospital for Incurables, Putney, Belgrave Hospital for Children, Pimlico, and the Worcester Infirmary, £2,000 each, the latter institution receiving, also, a further additional bequest of £500: to the Rhyl Convalescent Homes for Children, for Men, and for Women, the Seaford Convalescent Home, the Midland Home for Incurables, Leamington, the Alexandra Hospital for Hip Disease in Children, the British Medical Benevolent Fund, and the Royal Medical Benevolent College, Epsom, £1,000 each. Directions are included in the will for the perpetual provision of medical attendance on the occupants of some almshouses built by his brother at an expense of £25 a year.

An Address

ON THE

OPSONIC THEORY AND ITS PRACTICAL APPLICATION TO MEDICINE AND SURGERY.

Given before the University of Birmingham Medical Society, January 26th, 1906.

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Mr. President and Gentlemen.—In the discussion of this subject it will be my aim to avoid technical and theoretical considerations so far as possible. It is essential, however, to understand clearly the principles of the "opsonic theory" of Wright and Douglas, because upon these principles rests the whole superstructure of therapeutic innoculation with bacterial vaccines.

The school of Metchnikoff believes that the leucocyte is the only element of the blood actively concerned in the phagocytosis of micro-organisms. It attributes everything to the white blood corpuscle, and does not consider that the blood fluid takes any active part in the phenomenon.

Opsonins.

In the early part of 1903, however, Wright and Douglas, of St. Mary's Hospital, London, approached the problem of phagocytosis from a totally different standpoint. They first separated the corpuscular from the fluid elements of the blood. That is to say, they obtained leucocytes suspended in a neutral medium instead of in the blood plasma, and the blood plasma (or blood serum) free from leucocytes or erythrocytes. They prepared also an emulsion of staphylococci in normal salt solution, and found that if they brought together only the leucocytes and the staphylococci, practically no phagocytosis occurred, but that the addition of blood plasma (or blood serum) to the leucocytes and the staphylococci effected some change, so that phagocytosis did occur. The obvious deduction was that the leucocyte by itself was impotent, and further that the blood plasma contained some substance which was essential to the attainment of phagocytosis.

Using ingenious methods of their own device, they investigated the blood plasma in order to determine the characters of this phagocytic element, and the following are the most important of their conclusions:

1. The substance, so essential to phagocytosis, does not act upon the leucocytes (as a stimulant to the leucocytes, for example), but it combines with the micro-organisms and prepares them for phagocytosis; hence the name *opsonin*, from *opsono*, I cater for, I prepare victuals for. The conception of their mode of action is that the opsonins are carried in the lymph to the nest of microbes which are responsible for the morbid process; that they chemically unite with the micro-organisms, and that then, and not until then, the leucocytes have the power of enveloping and destroying these micro-organisms. Thus it follows that the amount of phagocytosis which is observed is a measure of the quantity of opsonins present in any particular plasma, and does not represent the vital activity of the leucocytes.

2. The opsonins in a normal serum are almost completely destroyed by heating for ten minutes at 60° C.

3. The opsonins have been shown to be distinct from the bacteriolysins, the agglutinins, and the antitoxins.

Moreover, as shown by Bulloch and Western, the opsonins have a high degree of specificity. For example, the blood of a person may contain half the normal quantity of opsonins necessary to combat a tuberculous infection such as a tuberculous cystitis, and yet contain a normal amount of opsonins that have to do with an invasion of staphylococci such as causes furunculosis.

Leucocytes.

Wright and Douglas have shown by a striking experiment how invariable a factor the leucocyte really is. They obtained leucocytes both from an immunized patient and also from a normal individual. To a specimen of each of these they added some normal serum, and also some staphylococci, and allowed phagocytosis to take place. They then found that in the presence of normal serum the leucocytes of the immunized patient took up just as many staphylococci as the normal leucocytes in the presence of the same normal serum. They next took two portions of a suspension of normal leucocytes, to which had been added some staphylococci, and mixed with one of these portions some serum from the immunized patient, and with the other some normal serum, and allowed phagocytosis to take place. They then found that the leucocytes, to which had been added the serum from the immunized patient, took up about one half as many staphylococci as did the leucocytes to which the normal serum had been added. This affords striking testimony that the leucocyte is an indifferent or a constant factor in the phenomenon of phagocytosis. The amount of phagocytosis observed, therefore, represents the quantity of opsonins present in the blood. So far as we can tell at present, plasma has nothing to do with the "quality" of the leucocytes.

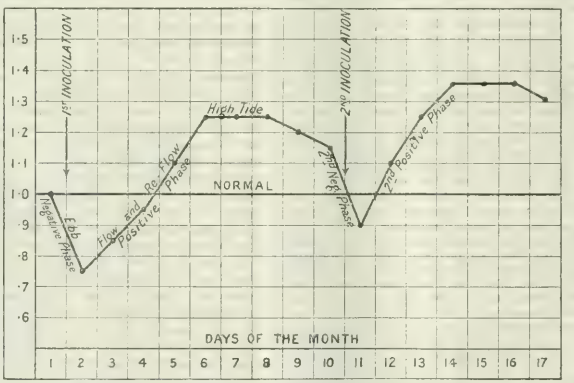


Diagram of opsonic curve—varying as a result of inoculation.

Technique.

If we wish to measure the quantity of opsonins present in the blood of a man suffering from furunculosis, which is almost always due to the *Staphylococcus pyogenes*, we require:

1. A drop or two of blood from the patient, and a drop or two from a normal person, from each of which we can easily obtain sufficient serum for our estimation.
2. An emulsion of staphylococci in salt solution.
3. Leucocytes washed free from their plasma.

We draw up in a capillary pipette equal quantities of the patient's serum, the staphylococcus emulsion, and the leucocytes, thoroughly mix all three, and having sealed the mixture in the capillary tube, place it in an incubator at 37° C.

With a second capillary pipette we again carry out precisely the same operations, except that instead of the patient's serum we use normal serum. This is incubated for the same length of time. An ordinary blood film is made from each tube at the expiration of the fifteen minutes' incubation. These films are appropriately stained, and then examined microscopically with an oil immersion lens. Numerous leucocytes are seen, in the protoplasm of which lie few or many staphylococci. The number of staphylococci, taken up by say 40 leucocytes, is counted. Let us say that in the film prepared with the

patient's serum we count 80 staphylococci in the 40 leucocytes. The average per leucocyte is then $\frac{80}{40}$ or 2. This figure is known as the "phagocytic index" of the leucocyte. We then count the number of staphylococci taken up by the 40 leucocytes in the film prepared with the normal serum; let us say we count 160 staphylococci; if we divide $\frac{160}{40}$ we get the "normal phagocytic index" for this particular experiment, namely, 4.

In each of these preparations the leucocytes and the emulsion of staphylococci are constant factors; the only variable factor is the blood serum. Further, let me recall the conclusion reached above, that the amount of phagocytosis depended upon the quantity of opsonins present. It follows, therefore, that the comparison between the two phagocytic indices above recorded is a comparison between the quantity of opsonins present in the blood serum of a diseased person and in that of a normal person. The actual ratio in this case is 2 : 4 or 0.5 : 1.0; the latter figure is the normal "opsonic index," and 0.5 is the abnormal opsonic index of a patient who is the subject of a staphylococcus infection, namely, furunculosis.

When we say that our patient has an opsonic index of 0.5 to staphylococcus we mean that his blood plasma contains but half the normal quantity of those opsonins which are essential to combating a staphylococcal infection successfully. Moreover, it seems probable that this deficiency was antecedent to the infection, or, in other words, it has made the infection possible.

The Opsonic Index: Bacterial Infections.

Certain generalizations have emerged from the investigation of numerous cases.

I. If the bacterial infection be strictly localized, the opsonic index of the blood, as concerns the particular microbe causing the infection, is below normal. For example, the blood of a patient who is suffering from furunculosis will probably show an opsonic index of about 0.6 to the infecting micro-organisms, that is, to the *Staphylococcus pyogenes;* or, again, the blood of a patient who is suffering from tuberculous glands in the neck will probably show an opsonic index of about 0.7 to the tubercle bacillus. In each case, the patient's blood is compared with the blood of a normal man.

II. The second generalization has to do with those infections which are not strictly localized. In such cases the opsonic index will be found high at one time and low at another; that is, the opsonic index in systemic infections tends to fluctuate from high to low. This characteristic is well shown in cases of acute pulmonary tuberculosis. I have often observed one day an opsonic index of 1.6 in such a case, and an index as low as 0.6 a few days later.

These two generalizations are of primary importance both as concerns the diagnosis and the treatment of bacterial infections.

Treatment.

Briefly stated, the treatment of a bacterial infection by Professor Wright's methods consists in increasing the antibacterial substances of the blood by inoculating the patient with dead micro-organisms of the same species that has caused and is maintaining the morbid process. This is the general principle.

The first essential in the treatment of a given case is to learn the particular micro-organism which is responsible for the patient's infection. In a case of furunculosis, for example, we know that the *Staphylococcus pyogenes* is almost certainly responsible, and so with certain other localized infections the organism is well known. When, however, we have to do with an empyema, or with a cystitis, we only know that one of several organisms is the chief offender. The particular organism is isolated by ordinary bacteriological methods in pure culture and identified. The quantity of those opsonins present in the patient's blood which have to do with combating this particular micro-organism is then estimated, and is, as a rule, found to be deficient.

The all-important problem now presents itself—how can this deficiency of particular opsonins be remedied? This was the great problem Professor Wright had to solve. The solution reached by him is simple in the extreme. He inoculated the patient with an appropriate dose of a suspension in normal saline of the dead micro-organisms responsible for his infective process. This suspension he termed a "vaccine," and many such vaccines have now been made. For example, staphylococcus vaccine is used to combat infections of staphylococci, pneumococcus vaccine is used to combat localized pneumococcus infections, etc. Let us now consider the application of these bare principles to a specific case.

The patient, a male aged 20, was in the Victoria Park Chest Hospital, under the care of Dr. Glover Lyon. He developed right-sided empyema, which was treated by resection of a portion of a rib, evacuation of the pus, and drainage. Seven weeks later, in spite of careful surgical treatment, the wound was discharging ℥ss of pus every day, and a sinus quite 4 in. long persisted. I investigated the pus bacteriologically, and obtained a pure culture of the pneumococcus of Fraenkel. With this organism I estimated the quantity of pneumococcic opsonins present in the patient's blood—that is to say, I determined the patient's opsonic index to the pneumococcus. This I found to be 1.0, or normal. In spite of the fact that there was no deficiency of the pneumococcic opsonins, I still thought that I might do good if I could increase their quantity to a point well above normal, for it seemed probable that the thick pyogenic membrane of a chronic empyema would so impede the flow of lymph to the bacterial foci that normal lymph would have insufficient opsonic power to prevent the growth of bacteria there. I therefore prepared a vaccine by inoculating a dozen milk-agar tubes with the pneumococcus I had isolated from the patient's pus. Having obtained a vigorous growth, I removed the colonies from the agar tubes to normal salt solution. This I sterilized at 60° C., and then standardized. Standardization simply means the dilution of the original suspension of bacteria until each cubic centimetre contains a known number of million of pneumococci. I gave the patient a quantity containing 100,000,000 pneumococci. The day following this first inoculation his opsonic index shot up from 1.0 to 2.5, that is to say, he had more than doubled the quantity of his pneumococcic opsonins. During a period of two weeks he had three inoculations, and upon each occasion there followed an exaltation of the opsonic index. The clinical result was very striking. At the end of the first week of treatment there was a diminution of the discharge and a shortening of the sinus. At the end of two weeks the discharge had entirely ceased, and the sinus had closed. All that remained was a scab covering the original wound. The patient left the hospital a few days later, and went to work at once. He has remained quite well since.

For further illustrations, and particularly as certain important general principles are brought out, I will quote a case of furunculosis, reported by Wright and Douglas to the Royal Society.

The patient was a medical man who had suffered from boils almost continuously for four years. His opsonic index was 0.6 to *Staphylococcus pyogenes* on the first examination, and 1.1 on the second. Wright inoculated him with 2,000,000,000 dead staphylococci. On the day after there was a diminution of the quantity of opsonins from 1.1 to 0.78. This fall following an inoculation is known as the "negative phase" or ebb of opsonic power (see Diagram). From this point, however, there was a steady rise in opsonic power from day to day, until the original level—namely, 1.1—was reached a week later. This phase is known as the "flow and reflow" of opsonic power. A few days later the opsonic index was 1.4, which is known as the "high tide" of opsonic power, or the "positive phase." While the opsonic power was still high another inoculation was given which resulted in, first a negative phase, then a rapid reflow, and in a day or two a high tide of opsonic power equal to twice the normal. The clinical result was eminently satisfactory. After several weeks of treatment the boils quite disappeared.

Before considering certain of the general principles of inoculation with vaccines, it is important to ask ourselves the question, Why did these two patients fail to rid themselves of their infections? First, because on the whole the lymph reaching the bacterial focus or foci contained an insufficient quantity of opsonins, so that, although many bacteria were destroyed, some were always left to multiply and continue the infection. The attacking force of the opsonins was, so to speak, too weak to conquer the defending force of bacteria. Or, second, because the excess of inflammatory tissue about the bacterial foci impeded the flow of the lymph to such a degree that the attacking opsonins could reach the enemy only with forces considerably reduced. Few of the attacking force, so to speak, passed the barricades behind which the micro-organisms flourished. Often both of these reasons are necessary to explain the persistence of a bacterial infection.

The next question that we must ask ourselves is, What supervenes upon the inoculation of an appropriate dose of a vaccine? As a rule, there is first a temporary depression of the opsonic power, an event which Wright has termed the "negative phase." The case of furunculosis just considered evinced this phenomenon upon two occa-

sions. Usually after twenty-four hours in the case of a staphylococcus inoculation the recovery or "flow" of opsonic power begins, and continues as the "reflow" until the opsonic power reaches a point well above the opsonic power of the patient before inoculation—the "high tide" of opsonic power.

We can readily observe these phenomena by opsonic methods of investigation, and they and they alone guide us as to when we should reinoculate. The cardinal principle laid down by Wright is "do not inoculate during the negative phase, or you will further depress the machinery of immunization, induce a low tide of opsonic power, and do the patient harm." You will remember the unfortunate results of the early use of tuberculin. By reason of too frequent inoculation with excessive doses, it is almost certain that negative phase was accumulated on negative phase until the resistance of the patient was so lowered as to facilitate a rapid progress of the tuberculous infection. Then again, it is inadvisable to reinoculate during the period of reflow, because another negative phase will be induced. When, however, the opsonic power has reached a fairly high level, and especially if it shows a tendency to recede, it is advisable to reinoculate. It is true a negative phase usually occurs after the next inoculation, but it is less marked than before if the dose of vaccine has not been excessive, while the rise to a high opsonic power is more rapid and better sustained.

Since the "negative phase" and "high tide" of opsonic power are of such transcendent importance, it follows that we must observe them in some way.

Unfortunately, at present we can only discover the passing of the negative phase by the estimation of the opsonic power of the blood. So far, no clinical or other method has been devised that will register these subtle changes in the blood fluids of the body. Clinical observation and the thermometer are equally futile. It is, therefore, upon opsonic methods of investigation of the blood that the whole superstructure of therapeutic inoculation with bacterial vaccines rests.

I have purposely reserved the treatment of tuberculous infections for separate consideration, partly on account of the important results obtained and partly on account of certain differences in the application of the principles that have been discussed.

From the opsonic standpoint, tuberculous infections fall into two great classes. First, those which are strictly localized, such as lupus, tuberculous cystitis, tuberculous glands of the neck, and so forth; second, those which are not strictly localized or are systemic. This class includes practically all cases of pulmonary tuberculosis excepting certain cases of early or quiescent phthisis.

It has so far been assumed that the figure 1.0 represents the normal opsonic index in the several infections discussed. This is not the case with tuberculous infections. Bulloch has estimated the opsonic index to the tubercle bacillus (spoken of hereafter as the "tuberculo-opsonic index") in 44 healthy medical students and in 40 healthy hospital nurses. The range from the lowest recorded normal to the highest was 0.8 to 1.2, with an average of 0.96. Hence our normal must be taken within this range.

Localized Tuberculous Infection.

As a rule, the opsonic index will be found lower than 0.8, that is, below the lowest limit of normal. Occasionally it may even sink to 0.2 in certain long-standing cases of lupus. It is possible that this depression of the opsonic power of the blood antedates the infection; or in other words, this lowered opsonic power has made a tuberculous infection possible. In the majority of cases of strictly localized tuberculosis, such as cystitis, tuberculous ulceration of the skin and subcutaneous tissues, tuberculous enlargement of the glands, and so forth, the lowered opsonic power can be raised, and *pari passu* the tuberculous process is relieved and controlled. I hesitate to say "cured," because sufficient time has not yet elapsed in most of the cases treated by inoculation to eliminate the possibility of a relapse. With this reservation, however, many have been cured. The principles of treatment in the case of strictly-localized tuberculosis are identical with those of such conditions as furunculosis, sycosis, etc. The tuberculo-opsonic power of the patient's blood is estimated, and inoculation with a vaccine undertaken. The vaccine used is tuberculin T.R., which is in all respects similar to a staphylococcus vaccine; for it is made from the finely-triturated bodies of tubercle bacilli. Instead, however, of using so many million tubercle bacilli, we use so much by weight of the tuberculin powder, namely, as an initial dose $\frac{1}{10000}$ mg. A negative phase, a flow, a reflow, and a high tide of opsonic power as a rule follow the inoculations, as after an inoculation with a staphylococcus vaccine. Great care must be exercised not to reinoculate during a negative phase, and inoculation with tuberculin in a given case should be undertaken at much longer intervals than in the case of a staphylococcus infection, for the increase of opsonic power is maintained over a much longer period. A safe rule to follow in a case of localized tuberculosis is to increase the opsonic power by inoculation, and not to reinoculate until the high tide begins to ebb—an event that is often delayed for one or two weeks, or even longer.

I have treated one case of tuberculous cystitis in a young man with eminently satisfactory results. He had diurnal and nocturnal frequency, and pain between and during the acts of micturition. Tubercle bacilli were present in the urine. After about six months' treatment with tuberculin, safeguarded by estimations of the opsonic power of the blood, his symptoms were entirely relieved, and no tubercle bacilli were found in the urine. He reported himself as feeling in perfectly normal health nine months later.

I have also treated with tuberculin one case of tuberculous glands in the neck and ulceration of the skin of four years' duration. After about two months' treatment, the glands disappeared and the tuberculide cicatrized.

I have under treatment a case of inoperable tuberculous glands of the neck, and also a very severe case of tuberculous iritis. Both of these patients are making excellent progress.

My experience with localized tuberculosis is small; but many successful cases have now been recorded representative of almost every manifestation of localized tuberculosis: so that Professor Wright's belief that inoculation treatment with tuberculin T.R., properly safeguarded by observations of the tuberculo-opsonic index, will soon be the recognized treatment for such conditions, seems justified.

Pulmonary Tuberculosis.

In the second class of cases—namely, those that are not strictly localized infections—I will consider only pulmonary tuberculosis.

Considerable investigation into the character of the opsonic index in the different varieties of pulmonary tuberculosis has yielded the following generalizations:

1. Early cases, or more advanced cases that have had complete rest in bed for a time, and also sanatorium "cures," show a low or a lowered opsonic index.

2. The more advanced cases show a high opsonic index or a fluctuating opsonic index.

In my own investigations at the Victoria Park Chest Hospital, out of 100 cases 51 showed upon the first examination an opsonic index of 1.2 or more. Most of these cases were more or less advanced. The reports from sanatoriums, however, where much earlier cases are to be found, show practically opposite figures; the majority have a low or lowered opsonic index. The importance of the fact that early cases of pulmonary tuberculosis have this lowered opsonic index cannot easily be overestimated, because it probably means that the tuberculous process tends to be localized. On theoretical grounds, therefore, we have every reason to believe that early pulmonary tuberculosis should react just as favourably to T.R. (safeguarded by observations of the tuberculo-opsonic index) as a strictly localized tuberculous infection, and that is my belief. I have treated two such cases by inoculation with T.R., and both made excellent progress. The symptoms, such as cough, expectoration, pain, and wasting, seemed to be definitely checked.

I have also treated four other more or less advanced cases. Whilst they all made good progress during their stay in the hospital, nevertheless it was not such as to justify one in attributing it to the tuberculin. In my own mind, I do not hope for much benefit from tuberculin in this class of case. In the early cases, however, I hold a distinctly opposite view. I believe that we have in T.R., given in doses of about $\frac{1}{10000}$ of a milligram at appropriate intervals as determined by estimations of the opsonic power of the blood, a most valuable weapon in the fight against pulmonary tuberculosis. Great care and persistence, however, are required in the administration

of the treatment, for it is a matter of at least many months, however early the case may be.

Diagnosis.

Of what importance, if any, are opsonic methods of investigation in enabling us to arrive at an accurate diagnosis of a given case? Certain general principles have emerged from the study of many cases.

1. Normal individuals, not the subjects of any bacterial infection, present a constant opsonic power to the various pathogenic bacteria.

2. Individuals, the subjects of a strictly localized infection, due to any micro-organism, show a lowered opsonic index to that particular micro-organism as compared with a normal person.

3. Individuals, the subjects of systemic infection, for example acute pulmonary tuberculosis, show a high opsonic power, or an opsonic power fluctuating from high to low, and Dr. Wright believes that this fluctuating opsonic power is due to repeated inoculation by the patient of bacterial products from his own focus of disease, and that it is comparable to what occurs after artificial inoculation—namely, negative phase and positive phase, and so forth.

By far the most important practical application of these principles so far has been in the diagnosis of a systemic pulmonary tuberculosis from other conditions, or in eliminating tuberculosis from our consideration. First, however, I will illustrate the opsonic method of the diagnosis in an obscure case.

C. P., a youth, aged 20, was sent to the Victoria Park Hospital with a tentative diagnosis of general tuberculosis. His symptoms, briefly, were fleeting pains, especially in the extremities, intermittent rigors, and a general feeling of malaise. No physical signs of disease could be found in the lungs, in the heart, or elsewhere. He had a temperature of 102° F.; his tuberculo-opsonic index was found to be 1.0. I thus thought that an acute tuberculous infection was improbable. Suspecting the possibility of a gonococcal infection, I asked Dr. Freeman, of Professor Wright's laboratory, to estimate his opsonic index to the gonococcus, with the result that it was found to be twice normal, a condition of the blood which almost certainly is only associated with a gonococcal infection. The youth owned to a recent gonorrhoea, and gave the history that the discharge had stopped shortly before the onset of the severer symptoms. The diagnosis of a gonococcal systemic infection was therefore almost certainly correct.

This case serves to illustrate how clinical observation is successfully supplemented by examination of the blood of the patient. As concerns pulmonary tuberculosis, I could cite quite a number of examples of successful diagnosis, for I have been using opsonic methods in the diagnosis of tuberculosis for the past nine months in the everyday work of a hospital which has largely to do with pulmonary tuberculosis. I will, however, only give a summary of my results.

The diagnosis of acute phthisis from ulcerative endocarditis and enteric fever presents at times very great difficulties. I have had to do with a number of such difficult cases which exhibited the signs and symptoms of acute tuberculosis. I shall refer to three cases that have come to autopsy. Two were ulcerative endocarditis, and were both diagnosed as such after eliminating acute tuberculosis by the absence of a high opsonic index. One was a case of enteric fever, with secondary pneumonia.

In the diagnosis of the more chronic forms of pulmonary tuberculosis from similar but non-tuberculous diseases, I have used with success the opsonic reaction in:

1. Malignant disease of the lung.
2. Chronic bronchitis and emphysema.
3. Bronchiectasis.
4. General debility.

The presence or absence of a tuberculous infection in these cases is often exceedingly difficult to establish by the usual methods of investigation. I am convinced, however, that a considerable number of these cases may be correctly diagnosed by opsonic methods of blood examination. As concerns malignant disease of the lung, I was able in one case to eliminate tuberculosis, and so reach a correct diagnosis. The diagnosis was confirmed at autopsy. In the diagnosis of early phthisis many difficulties have arisen, and, although it is too early to speak with any degree of certainty, I believe that those difficulties will be overcome, and that the estimation of the tuberculo-opsonic index will eventually prove of material assistance in the diagnosis of many of these cases. This question is now under investigation.

In determining whether a peritoneal or a pleural effusion is or is not tuberculous, I know from practical experience that opsonic methods are of considerable assistance.

Very many morbid processes have already been studied by these methods, and most interesting and important data recorded. I have considered very few of these conditions in any detail. It may be of interest, however, to give a summary of the more important bacterial infections that have already been investigated by opsonic methods, and have yielded to therapeutic inoculation by appropriate vaccines—safeguarded by the estimation of the opsonic index. It is perhaps most satisfactory to classify the various conditions on a bacteriological basis.

A. *Due to Staphylococcus Pyogenes:*
   1. Furunculosis.
   2. Pustular acne.
   3. Sycosis.

B. *Due to Pneumococcus of Fraenkel:*
   1. Empyema.
   2. Cystitis.
   3. Suppuration of the antrum.

C. *Due to Bacillus Coli Communis:*
   1. Cystitis.
   2. Various local affections.

D. *Due to Gonococcus:*
   1. Gleet.
   2. Gonorrhoeal rheumatism.
   3. Acute gonorrhoea.

E. *Due to Bacillus Tuberculosis:*
   I. *Strictly Localized Tuberculosis:*
      1. Lupus and tuberculous ulceration of the skin and subcutaneous tissues.
      2. Tuberculous disease of bones and joints.
      3. Tuberculous cystitis.
      4. Tuberculous nephritis.
      5. Tuberculous epididymitis.
      6. Tuberculous peritonitis.
      7. Tuberculous adenitis.
      8. Tuberculous laryngitis.
      9. Tuberculous iritis.
   II. *Not Strictly Localized Tuberculosis:*
      Pulmonary tuberculosis.

This does not exhaust the list; it only includes the most important conditions. Other micro-organisms are continually being led into the opsonic fold as the investigation of disease by these methods proceeds.

When, however, I say that I know of cases representative of each of the above-mentioned morbid processes which have been successfully treated by the methods of Wright, I am sure you will agree with him when he considers that "we have, in the power of raising the antibacterial power of the blood with respect to any invading microbe, out of all comparison the most valuable asset in medicine."

Observations

ON THE

OPSONIC INDEX OF TUBERCULOUS PATIENTS UNDERGOING SANATORIUM TREATMENT.

Read before a Meeting of the North Wales Branch of the British Medical Association at Rhyl.

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When a pathogenic organism such as the tubercle bacillus attacks the body certain complicated changes ensue. The microbe elaborates toxins which are cast off into the blood stream and carried all over the body, weakening its resistance by uniting with the protective substances already present in the blood and tissues. If this were the sole result, the microbe would almost inevitably gain the day and destroy the organism. But the mere presence of the microbe or its toxins usually leads to a further formation of protective substances in some part of the body, probably the blood, which, at any rate, enter the blood stream and are carried to the affected area. These protective substances are called

"antitropines"; several types are known, and can be demonstrated in the blood by appropriate means. They vary probably in quality and quantity, and, according to these two factors, so the immunity of man to any disease varies.

In dealing with tuberculosis we now know that there are two of these tuberculo-tropic substances present—that is, "agglutinins" and "opsonins." Agglutinins are substances which enter into combination with the tubercle bacilli in such a way as to render them immobile and to conglomerate them. Opsonins are substances which modify tubercle bacilli so that they may become an easy prey to the leucocytes. Wright and Douglas have demonstrated the presence of these opsonins and have shown that they perform this very definite and important duty in connexion with phagocytosis, by comparing a mixture of leucocytes and bacillary emulsion with a mixture of leucocytes, bacillary emulsion, and serum; after each has been incubated for, say, fifteen minutes at 37° C., it is found that there has been no phagocytosis in the first case and more or less phagocytosis in the second, the amount varying with the quantity of opsonin present. By another experiment they showed that the opsonin acts on the bacilli and not on the phagocyte, thus proving the definition that I have already given of opsonin. All the opsonin present in any sample of serum can be destroyed by heating to 60° C. for fifteen minutes, and exposure to sunlight has a similar effect. So far as present methods go, the amount of opsonin cannot be measured quantitatively, and we therefore have recourse to a qualitative measurement as follows: Equal volumes of leucocytes, bacillary emulsion, and patient's serum are mixed in a pipette and incubated at 37° C. for ten to fifteen minutes. Then a film is made and the number of bacilli ingested in, say, fifty leucocytes is counted, and a percentage called the "phagocytic index" is obtained. A similar proceeding is carried out, using the serum of a healthy person instead of that of the patient, and a "phagocytic index" is obtained. "The ratio in which the phagocytic index of the patient's blood stands to the phagocytic index of the normal blood (taken in each case as unity) is spoken of as the 'opsonic index.'"[1]

Bulloch,[2] who examined the serum of a large number of healthy nurses and medical students, found that the index varies between 0.8 and 1.2, the majority being 1.0, so that we may feel pretty confident that the opsonic index of any healthy individual may be taken as unity. He also found that the index of 75 per cent. of the lupus cases presenting themselves for treatment at the London Hospital was below 0.8, whilst that of 11 cases of surgical tuberculosis was also below 0.8. So that it appears from these observations that the index of many or most cases of local tuberculosis is not only below unity, but also below the lowest point of what may be called the normal range, and this fact may perhaps prove of value in the question of diagnosis, especially when combined with the reaction which follows the inoculation of a tubercle vaccine.

Urwick[3] examined the opsonic index in 33 cases in all stages of pulmonary tuberculosis, taken at random from various hospitals, and found it usually higher than normal. This is probably due to the fact that there is a large absorption of toxins from the lungs, as they are so plentifully supplied with blood; and it must be remembered that in these hospital cases (1) there would probably be a large proportion that were steadily going downhill, owing to progressive disease; and (2) there would be a good many who were taking exercise and doing work when they should have been at rest, so that with active lesions and erratic exercise there were many chances of auto-inoculation; and with auto-inoculation we probably get a high index when the immunizing machinery is strong, and a low one when it is weak.

We now come to the sanatorium cases proper, and I may divide them into four classes for the sake of convenience.

1. In the 2 cases that I have examined as soon as they came, I found 1 with a low and 1 with a high index, both being early cases and both now doing well and making good recoveries. It is interesting to note that in the case with the low index the disease is very slight indeed, and his low index may be due to the absence of auto-inoculation: while in the case with the high index the disease is rather more advanced, resulting, perhaps, in more auto-inoculation. In 6 ordinary early cases the index was high in 4 and low in 2; this may be due to the fact that the amount of auto-inoculation has been so slight that it has not been sufficient to alter the natural resistance more than very slightly. So far I have not been able to detect any influence on the effect of treatment, as all these cases have done or are doing well.

2. In cases of acute tuberculosis, where there is a fair amount of disease and a fairly high temperature—and it is doubtful if the cases will do well—we find that the index varies greatly from day to day, being sometimes high and sometimes low. This is probably due to auto-inoculation by considerable amounts of toxins, which not only affect the opsonic index but also raise the temperature, interfere with appetite, etc., so that we get a weakly-resisting organism where a high index is of no avail, and is probably only another sign of the acuteness of the disease. It almost seems as if we may conclude that a rapidly-fluctuating index is a sign of acute mischief, and that unless it can be got to remain steady, there is not much chance for the patient.

3. In sanatorium cases with fair amount of disease in a chronic state we are met with an index which is usually below, but may be just above, normal. Lawson's cases[4] show this very well, as he found that in 23 out of 25 the index was below normal, whilst in our own cases we have found it more often just about normal. This may be due to an absence of stimuli from auto-inoculation or to the immunizing machinery being worn out, but I think that in the majority of cases the former is the correct cause, because, if these cases are inoculated with tuberculin TR, the opsonic index usually rises, and by repeated inoculations at suitable intervals it can be kept up for a period which gradually increases with the number of the inoculations.

4. In cases of so-called "sanatorium cure"—more properly, arrested cases—Bulloch[2] found the index depressed in 13, while Lawson found that in 30 cases "cured" in a sanatorium without inoculation the index ranged from 0.5 to 2.1, 17 being 1.0 or below, though many of his cases had been well for two to four years. I have not been able to get the index from any of our old cases, but in the cases that have been on the point of leaving I have found that the index was 1.0 or over, except in one case, but as these cases have not been away from the sanatorium for any length of time it is scarcely fair to classify them with Bulloch's or Lawson's. But we see that to be a sanatorium cure or arrested case does not necessarily imply that the index is low, as has been stated, but as far as observations on these cases go at present, the index some little time after they leave the sanatorium seems to be variable, the majority perhaps being low. This may possibly be due to the absence of auto-inoculation, because the lung lesion is quiescent, the amount of exercise being too small to cause in such a case a larger absorption of tuberculin: hence we get no responsive increase in the opsonic power.

To sum up the results of our present knowledge:

1. In slight early cases the opsonic index appears to be above normal.
2. In acute cases the index fluctuates greatly from day to day.
3. In chronic cases the index appears to be below normal.
4. In sanatorium "cures" the index appears to be variable.

We now come to the practical bearing of these observations on treatment, and there has to be considered this question: Is a high index of any value, and, if so, can we secure it by artificial means?

Undoubtedly a high index is of value if it can be maintained; for, as we have seen in acute cases, a fluctuating index, high one day and low the next, is not of much value. It must, however, be a benefit to the patient to have his diseased tissues bathed in a serum which is rich in opsonins, because, if the bacilli are more easily taken up by the phagocytes, it gives him a better chance of combating his disease. In addition, we have noted in two of our patients that after a few inoculations bacilli in the sputum have been found, not only diminished, but also "clumped," whereas before they had been scattered broadcast in it, and so far as we know at present "clumping" shows that the bacilli are finding the conditions adverse to them. This latter point shows the possibility of a relation between opsonins and agglutinins.

Professor Wright and his pupils and colleagues have abundantly proved that Koch's new tuberculin TR, when inoculated in minute doses such as $\frac{1}{1000}$ mg., will raise the opsonic index to considerable heights, varying with the

patient. Almost immediately after inoculation there is a drop in the resistance (negative phase), the duration of which may vary from a few hours to fourteen days; it is succeeded by a gradual rise in the index (positive phase) usually to a higher degree than it formerly stood at, and this is maintained for a length of time varying with the number of inoculations, the strength of dose (apparently), and the patient. So far, however, it has not proved possible to accumulate one positive phase on another, so as to raise the index progressively to a high point, and maintain it: but by careful daily estimation of the index and judicious inoculations, one positive phase can be followed by another with only a very short negative phase between. In making these inoculations in suitable cases practically all workers have been struck by the regular presence of a negative phase followed by a positive phase, and by the absence (or slight amount) of any rise of temperature. The presence of a negative phase is most important in relation to further inoculations in that another inoculation must not be given until it has passed off, for it has been found possible to accumulate negative phases—leading to a prolonged condition of low opsonic power—during which it is conceivable that the bacilli may be able to multiply and spread, and so cause harm to the patient.

It will readily be seen, therefore, that it is important so to space our inoculations and to regulate their dose that we do not get a prolonged negative phase, and to avoid this two conditions are necessary:

1. We must examine the condition of the opsonic index frequently.
2. We must use appropriate doses of TR.

The first condition can undoubtedly be best met by having the patient in a sanatorium where the opsonic index can be estimated daily if necessary, and where the possibility of auto-inoculation due to injudicious exercise, etc., can be watched and avoided, for Meakin and Wheeler[5] have shown that exercise does cause an auto-inoculation followed by short negative and positive phases, and we have confirmed this in a few cases.

The second condition can only be determined by experiment and repeated estimations of the index, but, as a general rule, it may be stated that the dose should not exceed $\frac{1}{6\,0\,0}$ mg., and a much smaller dose should be used at first. The directions which have been issued with Koch's tuberculin state that the initial dose should be $\frac{1}{5\,0\,0}$ mg., and that this dose should be "repeated in two days, and gradually raised with reference to the signs of reaction, so that any increase of temperature more than 1° F. is avoided." But, in common with Wright and other observers, we have proved that much smaller doses not only do not cause any rise of temperature, and do not produce any appreciable negative phase but also produce a positive phase, the length of which can be progressively increased by appropriately-spaced inoculations of the same strength, though it possibly produces better results to raise the dose slowly up to about $\frac{1}{6\,0\,0}$ mg. I have had a positive phase lasting two months after an inoculation of $\frac{1}{6\,0\,0}$ mg., and if this is so it is probably better to use the smaller doses, and run practically no risk, rather than to use the big doses recommended by Koch and run a considerable one.

In early cases, whether the index be high or low—unless very low—there is probably little need to inoculate, because a large majority, if not all, of these cases get well with ordinary sanatorium treatment; but at the same time I think it quite possible that inoculations of TR might help them to get well more quickly and soundly, especially if their index were a low one. Trudeau[6] in America seems to have found that inoculations of tuberculin result in a larger number of "sanatorium cures." Of course, if, as sometimes happens, one got an early case which did not seem to be doing well and had not a good opsonic index, I should certainly advise inoculations.

In the case of members of a family predisposed to tuberculosis, it might be worth while for them to have the opsonic index estimated a few times to get a correct result, and, if it were found to be low, to have a few inoculations of tuberculin in order to raise it to normal or above; for Lawson and Stewart[4] found that even in healthy people there was a rise after inoculation (without a negative phase) to well above normal. In this way it might be possible to prevent the development of tuberculosis in those with a strong hereditary tendency.

In acute cases with a rapidly-fluctuating index it would obviously be unsafe to inoculate a man who may one day be high and the next low, because before he can be inoculated after estimation of his index it may already be dropping from auto-inoculation, and we might only succeed in producing a prolonged negative phase. Apparently at present our first effort in these cases should be to get the index to remain steady—that is, to lessen auto-inoculation, and, so far as we know, our only means of doing this is to keep the patient absolutely at rest in bed, and so diminish the blood supply of the lungs. Rest, combined with open air and good diet, is the ordinary sanatorium method of treating these patients in order to lower the temperature; and we may assume that until the temperature due to the absorption of "septic" toxins has fallen, auto-inoculation of tuberculin is still occurring. It may be noted, however, that the ordinary fluctuations of temperature do not bear more than a casual relation to the opsonic index, and that while the temperature may fluctuate considerably each day, and at different times in the day, the opsonic index remains fairly constant.

The greatest benefit from inoculation is to be obtained in those chronic cases of phthisis which with a fair amount of disease and a fair amount of cirrhosis and healing, are nevertheless practically stationary, whether they have tried climatic or sanatorium treatment. As we have seen, the index in such cases is usually below normal, and if we raise it by inoculation we probably give the patient another impetus, which, by maintaining his serum in a good resisting condition, may enable him better to combat the disease and lead less the life of an invalid.

One of our cases with disease of eighteen months' standing had the upper half of each lung consolidated, and I began inoculating him at once, in conjunction with sanatorium treatment, and when he left, after eight months, his lungs were quite clear, and he had apparently lost all his mischief and almost all his cough and expectoration (and these have since disappeared with one month's stay in Switzerland), and he was to all intents and purposes well.

Of course it may be argued in this case that the same effect could have been attained by sanatorium treatment alone, but I must say that the physical signs disappeared in a way that I never remember to have seen with this treatment only.

There is another class of sanatorium patient—though so far not a large one—those with tuberculous glands. Wright has shown that with appropriate inoculations these cases recover in a surprising fashion, the glands rapidly quietening down and disappearing.

We had one case which started with apical lung mischief and quieted down, and then after a year or more began to have acute abdominal pain in two or three places, where I could make out indefinite swellings, due, I believe, to tuberculous mesenteric glands causing a local peritonitis. I kept him in bed for four months practically without his improvement, the pain at times being so bad that I had to give him as much as a grain of morphine (besides hot fomentations, etc.). Then I began inoculations with TR, controlling the inoculations by his opsonic index (which was low at the start); two months later he was free from pain, and just beginning to get about. He went home and had a slight return of pain, owing to trying to do too much, and came back for another inoculation. He kept free from pain for two months, and then it recurred, and I gave him another inoculation, and now, four months later, he reports himself as very well, and a few weeks ago he climbed Moel Fammau (1,820 ft.) without more than temporary discomfort.

One other case that I may mention is that of one patient with a high tuberculous index and a low staphylococcic index. He suffered from severe furunculosis, and by inoculation of a staphylococcic vaccine I raised his staphylococcic index and improved his boils, without altering his tuberculous index.

The whole subject is one of great practical importance, and it seems to me that Wright has placed in our hands a most valuable adjunct, not only to sanatorium treatment, but also to the existing therapy of many other diseases; and, though I do not by any means think that we have a panacea for all tuberculous diseases, I am convinced that sanatorium treatment, alone or combined with inoculations of tuberculin, does at present give the best chance to a sufferer from tuberculosis.

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THE ELECTRO-MOTIVE CHANGES IN HEART-BLOCK.

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[Preliminary Note.]

Some years ago it seemed to me that the study of the electro-motive changes produced by the systole and diastole of the heart might be turned to practical advantage in clinical research, and for a considerable time the subject engaged my attention in hospital work. In an address delivered at Norwich[1] the general results were briefly referred to. As these, however, led to no definite conclusions, the subject was put aside in order to devote time to other matters of more urgent clinical interest.

Having recently had occasion to make thorough investigations on a series of cases of heart-block, with more or less complete dissociation of auricular and ventricular contraction, as proved by tracings from the jugular veins and apex, it occurred to me that it might be possible to obtain evidence of some departure from the normal electro-motive changes in such cases. The results of my observations have realized my expectations, and appear to deserve a short preliminary note.

The patient who furnished the opportunity of investigating the electro-motive changes in heart-block is a cabman, aged 56, whose case was described by me in a paper published last year on bradycardia.[2] His antecedents have been satisfactory, but he has for long been in the habit of taking somewhat more than the average amount of alcohol, and his work has necessarily exposed him to every extreme of climate. He has suffered from acute pneumonia on two occasions, and has had several attacks of bronchitis. During the last two years he has had attacks of faintness occurring at varying intervals, and during the same period has had severe pain in the chest, with a sense of constriction. The arteries are thickened and nodular, but not distinctly tortuous. The vessels are turgid and the pressure is high, being equal to 170 mm. Hg. The rate of the pulse is 36 per minute, and it is perfectly regular. A distinct impulse is seen in the sixth intercostal space close to the anterior axillary line. The borders of the heart extend 2 in. to the right and 5 in. to the left of mid sternum. On auscultation there is a loud blowing systolic murmur heard over the whole precordia, and propagated for a considerable distance in every direction over the chest. The maximum intensity of this murmur is in the mitral area. No other murmur is audible. The second sound is clear and ringing, especially in the aortic region; it is sometimes reduplicated. There are no pulmonary symptoms, and the physical signs of the chest reveal no abnormality. The renal functions are healthy. As regards the digestive system, there is slight increase in the size of the liver. The nervous system gives no obvious symptoms except the faintness, giddiness, and pain already mentioned. The radial pulse yields a tracing showing a quick ascent and a slow descent; in its features it closely resembles the pulsus bisferiens; it has a few little waves on the line of descent. Simultaneous tracings of the jugular and radial pulses show distinct undulations of the venous pulse between the radial pulsations, and the same may be said of the simultaneous tracing obtained from the apex and the radial artery. In each cycle there is a distinct wave seen in the apex beat intermediate between the principal pulsations.

When examined by means of the fluorescent screen—for kind assistance in which investigation my thanks are due to Dr. Hope Fowler, of the Electric Department of the Royal Infirmary—the dissociation of auricular and ventricular movements could be clearly seen, as has already been described by Ritchie,[3] by Brouardel and Villaret,[4] and by Magee Finny.[5] We were able to determine that the auricles contracted three or four times, as a rule, for each ventricular systole.

The electro-motive changes which accompany the movements of the heart have been studied by several observers, amongst whom may be mentioned Engelmann,[6] Marchand,[7] Burdon-Sanderson and Page,[8] and Waller.[9] My own observations have been carried out by means of the simple apparatus employed by Waller,[10] who first aroused my interest in the subject. By this method the electric variations are studied by means of Lippmann's capillary electrometer. Leading off from the basal region of the precordia to the acid, and from the apical to the mercury, the usual diphasic movements of the capillary column were clearly seen preceding the apex beat, and evidently resulting from ventricular systole. But in the interval between these movements other smaller waves were distinctly seen, and can only be attributed to the systole of the auricles. As these latter movements were small, as observed by the direct method with the microscope, it was impossible to be certain of their exact character, but they seemed, like the ventricular, to be diphasic. When thrown upon the screen by means of the projection microscope, they were obviously diphasic in their character.

The whole subject will have my earnest attention in the immediate future with methods allowing of graphic records, but in order to evoke the interest of others who are, like myself, engaged in the study of heart-block from the clinical point of view, it seems advisable to publish this short preliminary note. In doing so it is a pleasant duty to express my warm thanks to Dr. N. H. Alcock and Dr. Sutherland Simpson for many kind suggestions, and to my Clinical Tutor, Dr. Ritchie, and my House-Physician, Dr. Dalmahoy Allan, for their loyal and untiring assistance.

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MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

THE OPSONIC INDEX IN THE DIAGNOSIS OF TUBERCULOSIS.

It seems that in the estimation of the opsonic index we may have a means of diagnosis of tuberculosis. For this purpose old tuberculin (TO) has been used in 6 cases. In 4 the opsonic index was normal the day before and the day after an injection of TO 1 mg. (in one case 0.5 mg). In Case v the index dropped from normal, 1.0, to 0.7 (negative phase), and rose the next day to 1.4 (positive phase). None of the cases showed any temperature reaction. None of them had tubercle bacilli in their sputum when it was possible to obtain any of the latter.

The sixth case was used as a control: he had undoubted phthisis; tubercle bacilli were found in the sputum, and crepitations were heard at both apices. His index was 0.7. Twelve hours after injection of 0.5 mg. TO his index rose to 1.1, and by the fifth day fell to 0.9. His index was kept up by five subsequent injections of TO controlled by the estimation of his opsonins. At no time did he show any temperature reaction.

The conclusions to be drawn are, I think, these: The temperature reaction is not always to be relied on. Old tuberculin, like the new (TR), affects the opsonic index of tuberculous persons, but not that of healthy people. A normal opsonic index points to a negative diagnosis, but not conclusively, as in Case v, in whom a provisional diagnosis of tuberculosis has been made.

Though these 6 cases are too few to base any definite conclusions on, yet it seems well to bring them forward now, as the method is laborious, and it is impossible for one investigator to bring forward results numerous enough for definite proof.

I have to thank my chiefs, Dr. Robertson and Dr. Ross, for permission to make this communication.

Notes of first Five Cases mentioned.

1. A. B., aged 19. *Family history:* Mother, three brothers, two sisters died of phthisis. *History:* Pleurisy and pneumonia a year ago, cough and spit for four months. *Signs:* Weak entry of air into right apex. Temperature normal. No sputum. The opsonic index and temperature were normal before and after injection of TO, 1 mg.

2. C. D., aged 28. *History:* Pleurisy and pneumonia three years ago, subsequent formation of "abscess in left base" which burst internally and discharged as fetid sputum for six weeks. Since then occasional cough and pleurisy, and once a

large haemoptysis. *Signs:* Some prolongation of expiration at apices: no tubercle bacilli or elastic fibres in sputum. TO, ½ mg., with result as in Case 1.

3. E. F., aged 26. *History:* Pneumonia and pleurisy three years ago, subsequent chronic cough and spit, occasional pleurisy (and night sweats?). *Signs:* Right lung harsh breathing and prolonged expiration at apex, and scattered rhonchi. *Sputum:* No tubercle bacilli or elastic fibres. TO, 1 mg., with result as above.

4. G. H., aged 12. *Family history:* Aunt died of phthisis. *History:* Adenoids removed three (?) times; cough and spit for a year. *Signs* in chest, *nil.* TO, 1 mg., with result as above.

5. I. J., aged 17. *Family history:* Two uncles died of phthisis. *History:* Pleurisy six years ago; cough since then; streaks of haemoptysis; night sweats occasionally. *Signs:* Rhonchi at internal border of right scapula. *Sputum:* Before and after incubation no tubercle bacilli, no elastic fibres, many micro-organisms. *Opsonic index:* After TO, 1 mg. dropped from normal to 0.7 (negative phase), and rose next day to 1.4 (positive phase); no temperature reaction.

Ventnor. H. B. DODDS, M.D.

THE RASH OF CEREBRO-SPINAL FEVER.

IN the BRITISH MEDICAL JOURNAL, June 30th, p. 1560, reference is made to the memorandum recently issued from this office on the above subject, and with your permission I should like to extend the description of the rash there given, in the light of a recent observation.

As stated in my memorandum, two of the cases therein described presented in addition to herpes on the lips,

a few spots petechial in character, few in number, and irregularly distributed . . . more pronounced than a typhus rash, and much more limited in distribution.

This description was taken from two cases, which alone of those within my knowledge at the time presented anything of the nature of a rash. During last week, however, there was admitted to Belvidere Hospital a child of 7 months, in whom the features of a typhus rash were exactly reproduced within limited areas of the skin. That is, on the fourth day from the onset of the symptoms a rash was present which, in areas of the skin of the thighs and abdomen limited to about two palms' breadth, appeared to Dr. Brownlee, the Physician Superintendent, and myself to present no features by which it could be distinguished from that of typhus fever. It had the appearance of a subcuticular stippling, which could be obliterated on pressure, and it was only on looking beyond the limits of the areas that discrete purpuric spots could be observed such as alone had been present in the cases described in my memorandum, and which bore no resemblance to any of the features of a typhus rash. The subcuticular stippling in the latter case was pretty generally distributed.

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Sanitary Chambers, Glasgow. M.O.H. Glasgow.

NOTE ON THE TREATMENT OF WEAVER STING.

PAINFUL and severe wounds are produced almost daily by the poisoned spines of *Trachinus draco*, the greater, and *Trachinus vipera*, the lesser, weaver, and frequently result in the maiming of a hand by the ankylosis of a finger-joint; more rarely a finger or an arm may require amputation and death has been known to result. The wounds produced by these fish and the symptoms arising therefrom have been fully described by Bottard, Gressin, Günther, and Phisalix, and the venom secreted by the poison gland of the dorsal and opercular spines has recently been studied by Briot. In ignorance of the latter's work, I made various experiments upon the venom in the pathological laboratory of University College, London, during the spring of 1906, having previously extracted the venom of the opercular spines from nearly 2,000 greater weavers with a syringe, and dried the fluid in a vacuum desiccator.

I am indebted to Professor Sidney Martin for allowing me to work in his laboratory, and for the help of his assistant, Dr. Stevenson, in making the inoculation experiments.

This note is not concerned with the details of these experiments, which, however, in the main confirm those of M. Briot, and which I hope to publish later. The practical bearing of this research should, however, be known at once for the benefit of those whose work renders them liable to the danger of pricks from poisonous fish.

In many respects the symptoms are analogous to those from a bite of the European viper—the intense local pain of a burning character, followed by swelling and discoloration, and later by phlegmon and suppuration, the general symptoms of prostration and cardiac depression being almost absent on account of the smallness of the dose injected. Briot has shown that a concentrated solution of hypochlorite of lime 1 in 60 and a 1 in 100 solution of gold chloride destroys the action of the venom. Dr. Charles Martin, in speaking of the venom of snakes, has pointed out that a 1 per cent. solution of potassium permanganate would be equally useful if brought into contact with the venom. In fact, the effect of the above reagents on the venom of snakes applies equally to the venom of the weaver.

The practical point, therefore, remains that all fishermen and those engaged in packing and handling these fish should be provided with a Lauder Brunton snake lancet. They should be told to ligature the limb or fingers pricked, and then freely incise the wound with the lancet. They may, if the lips are not sore, suck the wound. Powdered potassium permanganate should then be dusted on the wound and moistened by a little water or saliva, the solution thus formed being brought thoroughly in contact with the raw surfaces with the blade of the lancet. By this means the potassium permanganate will be thoroughly mixed with the venom and its toxic power destroyed.

In the immediate application of this simple antidote we have a remedy at once simple and efficacious, and likely to prevent much unnecessary suffering.

Lowestoft. H. MUIR EVANS, M.D.Lond.

RUPTURE OF THE UTERUS.

As all cases of rupture of the uterus are worth recording, I append notes of a case. The patient was a thin sallow woman, aged 28, in her third confinement. I saw her first at 3.15 a.m., on May 21st, when the condition was as follows: Pains every ten minutes, moderate in severity, membranes ruptured, os not quite fully dilated, breech just entering the pelvis, position left dorso-anterior. Evidently the second stage of labour had just begun. At 4.30 a.m. the pains were very strong, but the breech not advancing. Under light chloroform anaesthesia the legs were brought down. By 5 o'clock the body was delivered, and after that steady traction was applied to the legs and body. At 5.15 a.m., pains very slight, traction ineffective. At 5.30 pains nil, pulse 100. An abdominal examination then made revealed below and to the left of the umbilicus part of a fetal head, the sutures of which could be easily felt through the abdominal wall. Running diagonally across it from the right of the umbilicus to the left of the pubes was a thick band. It was obvious that the uterus was ruptured and the fetal head partly protruding into the peritoneal cavity.

The next point to be decided was whether delivery should be completed through the abdomen or through the vagina. As the occipito-frontal diameter of the head had not yet passed through the rupture, the vaginal route was decided on to avoid increasing the laceration. After steady traction and the application of forceps to the after-coming head a dead child was delivered at 6.30. It was hydrocephalic, and had a spina bifida. Preparations were then made for operation. At 7 o'clock the condition of the patient was bad—pulse 130; lips slightly blue. At 7.15, assisted by Dr. G. Pearcey, I made a median incision from umbilicus to pubes. After turning out a quantity of clot and fresh blood, examination revealed a laceration about 3½ in. long in the left postero-lateral region, extending through the fornix and along the whole length of the cervix. Deep and superficial sutures were rapidly placed and tied. No attempt was made at cleaning out the abdominal cavity, but a pint and a half of hot saline solution was left in and the abdomen closed. The condition of the patient had been getting rapidly worse, and she eventually died four hours after the operation. The above appears to be a fairly typical case. The patient had a normal pelvis, but was badly nourished, and the child hydrocephalic. The rupture probably occurred about 5.15, and was no doubt due to over-distension of the lower uterine segment by an abnormally large head.

Sunderland. NOEL F. ROWSTRON, M.B.Durh.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

ULSTER BRANCH.

Belfast, Thursday, June 21st.

Professor LINDSAY, M.D., F.R.C.P., ex-President, in the Chair.

Horsley's Operation for Traumatic Epilepsy.—Professor SINCLAIR showed a patient, aged 33 years, upon whom he had performed Horsley's operation for excision of the left arm and leg centres in the cerebral cortex for traumatic epilepsy, constant vertical headache, and slight right-sided hemiplegia. These symptoms had gradually supervened upon an injury two and a half years previously, which had been caused by a heavy plank falling upon the left parietal region. On raising a disc of bone over the motor area on this side, there was not any bony or meningeal sign sufficient to explain the occurrence of the symptoms detailed, and therefore the epileptogenetic centres were excised to the depth of ¼ in. The disc of bone was reimplanted whole, and primary union followed. The slight hemiplegia was markedly aggravated for the time, but passed off in three weeks. The patient can now walk well and write well with the right leg and right arm respectively. Five months have passed, and there has been no return of the fits, headache, and vomiting of the former time, and the patient is ready and willing to undertake some light employment.—Some remarks were made on the case by Mr. A. FULLERTON.

Myositis Ossificans.—Dr. WILLIAM CALWELL showed a case of myositis ossificans.

Congenital Syphilis.—Dr. CECIL SHAW showed an unusual case of congenital syphilis in a lad of 12, in whom there had been interstitial keratitis, perforation of the hard palate, ulceration of the pharynx, necrosis of the superior maxilla, and there were now nodes on the skull and disease of the nasal bones.

Fissura Abdominalis.— Mr. HOWARD STEVENSON read notes of a case of fissura abdominalis with operation at age of 2½ hours. The child was a premature female, and when seen by him the following conditions were present: All the large bowel and several inches of the small were lying outside the abdominal cavity without any peritoneal or other covering; a patent Meckel's diverticulum was present, attached to the umbilical cord by gelatinous matter. The bowel was washed up with hot saline solution, the diverticulum excised flush with the bowel, the fissure enlarged, and the skin edges trimmed up, the umbilical cord being freed in the process. The intestines were placed within the abdomen, the cord was fixed in the upper angle of the wound, which was closed in the usual manner. The child rallied well, the stitches were removed on the fifth day, when the wound was soundly healed, but unfortunately the child died from inanition on the evening of the eighth day.

The Case for and against Sanatoriums.—Professor LINDSAY read a short paper on the case for and against sanatoriums for tuberculosis. He alluded to the recent adverse criticism of sanatorium treatment in some quarters, but pointed out that in spite of this the movement was making rapid progress in Germany, Denmark, the United States, Canada, and Great Britain. Returns from the German Imperial Health Office were quoted, showing that of those submitted to sanatorium treatment about two-thirds recovered sufficiently to resume work; and that, while the relapse-rate was undoubtedly high, it was much less when treatment was begun early. The reasons why the results in this country were often disappointing were attributed to three causes: (1) There was no proper selection of cases for treatment; (2) the period of treatment was too brief; (3) patients too often returned to their previous unhealthy occupations. Professor Lindsay concluded by expressing a strong belief in the educational value of sanatorium treatment.—Dr. HOWARD SINCLAIR (Rostrevor) agreed with most of Professor Lindsay's views, and specially with those on the length of time necessary for cure. He put this generally at three winters and two summers in a sanatorium, or carrying out similar treatment after education in a sanatorium.—The paper was also criticized by Drs. CALWELL, T. A. DAVIDSON, DEMPSEY, MCKISACK, MITCHELL, and SIMPSON.

REVIEWS.

CARBOHYDRATE METABOLISM.

THAT indefatigable veteran, Dr. PAVY, has published a most interesting and practical book on *Carbohydrate Metabolism*,[1] which contains the substance of a course of advanced lectures in physiology delivered at the University of London in May, 1905. While soaring to an atmosphere of abstruse physiological chemistry he has, as we shall hope to show, made the difficult problems with which he had to deal intelligible to any one acquainted with the general outlines of physiology, and has brought his conclusions home to the region of practical medicine so as to give real meaning to the reviewer's commonplace that the book is one that should be read by every practitioner.

It has long been known that starch is converted by saliva into malt sugar, and that cane sugar is changed by the action of invertase into invert sugar, these changes being necessary for the assimilation of these articles of food; it is assumed that these sugars in some way reach the tissues, and are there either burnt off to supply muscular energy, or are stored up as fat, or if disposed of in neither of these ways, are excreted in the urine. If sugar circulates as such in the blood, it escapes by the kidneys, and this is known to be true in whatever form it is introduced into the blood, so that it is certain that sugar in its transit from the intestine to the tissues cannot travel as a simple solution in the blood. It has been lately supposed that it may be loosely combined with something, and we know that the injection of phloridzin has the power of breaking up this combination as the blood passes through the kidneys, causing glycosuria without glycaemia.

Pavy has been able to show that the sugar contained in the blood is not wholly present in the form of glucose, but that after hydrolysis an additional quantity, varying from 20 to 30 per cent. makes its appearance, but must have been previously present in some form in which it did not reduce cupric oxide. This is also true of the normal urine, which, as is well known, contains a minute quantity of sugar, this amount being, however, increased 40 per cent. after hydrolysis. This phenomenon can, he contends, only be explained by the presence of carbohydrate matter of lower cupric-oxide-reducing power than glucose, or to the liberation of sugar from a glucoside. Glucosides are bodies into which carbohydrate enters as a component part, and it has been shown in recent years that proteid matter, whether animal or vegetable, is of a glucoside nature. It may be broken down by the action of potash or sulphuric acid so as to liberate carbohydrate, in the former case as amylose and in the latter as sugar. The albumen and vitellin of the egg, the proteids of the blood serum and of fibrin, gluten from wheat flour and the proteid of the haricot bean have all been found to yield this cleavage carbohydrate. It is in this constitution of the proteid molecule that Pavy sees the clue to the solution of the problem concerning the mode in which sugar is transported from the intestine to the tissues. Locked up in a large proteid molecule the carbohydrate is safe from the danger of being discharged with the urine; but how are these molecules carried?

The old notion that absorption took place from the intestine by simple osmosis is now given up, and it is generally admitted that the process necessitates some form of cell action. Microscopical examination of the villi of the intestine during digestion shows that the cells are gorged with fat, while the villus itself is densely crowded with lymphocytes. It is also known that the lymphocytes become greatly increased in number in the blood after the ingestion of food, and show a continuous rise up to the fourth or fifth hour, and then a more or less rapid fall. This flow of lymphocytes into the blood naturally means a great accession of proteid matter; it has been calculated by Pohl that as much as 15 grams of

[1] *On Carbohydrate Metabolism*, with an Appendix on the Assimilation of Carbohydrate into Proteid and Fat, followed by the Fundamental Principles and the Treatment of Diabetes Dialectically Discussed. By F. W. Pavy, M.D., LL.D., F.R.S. London: J. and A. Churchill. 1906. (Demy 8vo, pp. 160. 6s.)

proteid may thus reach the blood after a meal. Pavy considers these lymphocytes to be the carriers of the products of the digestion of food from the intestine to the tissues; locked up in these little elements, they safely traverse the circulation and reach the point where they are required as pabulum for the processes of vital activity. He suggests that the sugar is transported as a side-chain on the proteid molecule and can be taken off when it is wanted for use.

Assuming these views to be correct, Dr. Pavy suggests that in the simplest form of diabetes, which he calls "alimentary," some part of the carbohydrate fails to be properly assimilated or combined with the proteid molecule, so that it reaches the circulation as sugar and is rapidly filtered away by the kidneys; but in the form that he calls "composite" this defect in the building up of the sugar-proteid molecule is not the only evil, there is also a faulty breaking down or liberation of part of the sugar which has been combined. This latter process gives rise not only to sugar but to the acetone series of products by which the patient's life is endangered from the risk of the occurrence of diabetic coma. Moreover, when sugar is allowed to circulate freely in the blood it acts as a poison causing structural disorganization of the tissues of the body, and from its powerful diuretic properties it drains fluid from the body and leaves the tissues without a sufficient supply of liquid to carry off the poisons that tend to accumulate within them. By modifying the diet so that less sugar reaches the blood these symptoms may be greatly improved, while it favours the natural tendency to recovery, by which after a time the power of assimilation is to some extent regained; if the diet is properly adjusted the patient will thus recover his health, regain his weight, and feel well and equal to his work again. The addition of starchy food must be made with great caution, the author's practice being to allow 1 oz. of ordinary wheaten bread three times a day; this is continued provided sugar does not return to the urine. If carbohydrate food is found to be tolerated, the quantity allowed is to be adjusted to the assimilative power without running too close to the border line of toleration; in order to watch the effect of these additions to the diet, specimens of the urine should be examined from time to time.

Whether the suggestion that sugar is absorbed as a glucoside and is carried to the tissues within the digestion-lymphocytes, be ultimately confirmed or not, it appears to afford a most probable solution in the present state of our knowledge, and we may gratefully acknowledge the debt we owe to Dr. Pavy for his most interesting piece of work.

THE COMMON COLD.

IN his small book on *Catarrhal Fevers, Commonly Called Colds*,[2] Dr. PROSSER WHITE presents the claims of the common cold for serious consideration as a specific infectious disease. After remarking that colds are a source of inconvenience if not danger to the strong, and are often followed by the severest consequences in the debilitated and weak, he lays stress upon their liability to form an active factor in overburdening an embarrassed heart by setting up the final catarrh in phthisis, or by multiplying the difficulties and distresses of the chronic invalid suffering from bronchitis and emphysema. Having in this way stated the claims of the disease for careful attention, Dr. Prosser White proceeds to describe the symptoms and to distinguish the common cold from true influenza, on the one hand, and from what he calls "pseudo-colds" on the other. In the latter category he includes a condition described by Mr. Bishop Harman, in which symptoms closely resembling those of hay fever disappeared when the patient, whose eyes were found to be at fault, was fitted with suitable glasses. Throughout the book Dr. Prosser White emphasizes the high infectivity of the cold; chill, he considers, has been overrated as a cause, and he stoutly denies that this factor *per se* can produce the disease. In support of this view he adduces the case of persons engaged in arctic expeditions and others leading an open-air life, who, though exposed to great changes of temperature, remained free from colds until they returned to civilization, when they at once contracted the disease.

Dr. Prosser White defines the common cold as a specific febrile rhinitis, and from his bacteriological observations he is inclined to attribute it to *B. coryzae segmentosus* (Cautley), an organism which Dr. Prosser White has succeeded in recovering from 17 out of 21 cases. Including the results of Cautley, Gordon, and Benham, it would appear that this bacillus has now been obtained in a total of 50 out of 56 cases of common cold. The chief claim of Cautley's bacillus to be considered as an agent of the affection lies in its constant presence in the nasal mucus during the attack; but the claim can only be considered provisional because attempts to reproduce the disease with this bacillus have hitherto proved ineffectual. Dr. Prosser White describes how inoculation of the vaginal mucous membrane of guinea-pigs, rabbits, and of a monkey with Cautley's bacillus was without effect. But inoculation of the nasal mucous membrane of a monkey with a mixed culture from a case of common cold was also without result.

As regards treatment, Dr. Prosser White relates the results of some tests of the value of various antiseptics for disinfecting a culture on serum of *B. coryzae segmentosus*: but the results were small. Mention is made of the Biers method of producing passive congestion by wrapping a bandage round the neck—a method that, according to Clarence Wright, gives great relief in some cases of the common cold. As regards general treatment, Dr. Prosser White recommends the usual remedies—alcohol, phenacetin, belladonna, and Dover's powder, in the acute stage; and quinine and salicylates in the later stage. The principal method of combating the common cold, however, consists not so much in treatment as in prevention; and while Dr. Prosser White doubts the efficacy of chill *per se* for inducing a cold, he has no doubt at all about the responsibility of the polluted atmosphere of places of assembly, such as theatres and churches, for conveying the infection. He also lays stress upon the polluted atmosphere of bedrooms as a potent influence, notably in cases in which several persons occupy the same bedroom or even the same bed. Dr. Prosser White might also have noted the railway carriage as a place where the infection is readily acquired. Local predisposing causes, such as hypertrophy of the nasal mucous membrane and deficient secretion of mucus, are also mentioned.

It will be seen from the above brief sketch that the book forms an attempt to summarize present evidence for considering the common cold as a specific infectious disease. Having done this to his own satisfaction, Dr. Prosser White proposes to dignify the common cold by the title of catarrhal fever. As we already have the term coryza, this new term appears to us to be unnecessary, especially if, as seems to be Dr. Prosser White's intention, the term is confined to the type of cold in which Cautley's bacillus is present; for there is reason to believe that other organisms may also be concerned in producing varieties of the common cold. For the present, therefore, it would seem better to use the term catarrhal fevers for the whole class of colds, and to withhold further subdivision until our knowledge of the pathology of these maladies has become more complete. Dr. Prosser White's book is a handy collection of the present incomplete evidence in favour of the view that Cautley's bacillus is the commonest cause of the common cold, and it is a pity that he should have passed over such errors as that on p. 54, line 5, and on p. 93, where the name of a well-known physician is grotesquely misprinted.

EXPERIMENTAL PATHOLOGY AND PHARMACOLOGY.

THE second half of the first volume of Professor HEINZ'S handbook of experimental pathology and pharmacology[3] deals with the muscular system and heart. The general arrangement is the same as that adopted in the first half, which was noticed in the BRITISH MEDICAL JOURNAL of May 7th, 1904, p. 1083. For each subject there is a preliminary part, a second part dealing with methods and a third part describing the results of investigations which have been obtained by the principal workers. This volume, like its predecessor, contains little or nothing that is original, but it provides a very complete summary of

[2] *Catarrhal Fevers, Commonly Called Colds: their Causes, Consequences, Control, and Cure.* By R. Prosser White, M.D.Edin., M.R.C.S.Eng. London: H. K. Lewis. 1906. (Demy 8vo, pp. 120. 4s.)

[3] *Handbuch der experimentellen Pathologie und Pharmakologie.* Von Professor Heinz. Erster Band, Zweite Hälfte: Zweite Band, Erster Hälfte. Jena: Gustav Fischer. 1905. (Demy 8vo, pp. 622 and 649. M.20 each part.)

the subjects with which it is concerned. The methods for studying the functions or structures of the various organs are described, as a rule, with sufficient clearness to allow any one familiar with laboratory methods to use them. In parts too much space is occupied with accounts of methods familiar to every one engaged in experimental work: thus about fourteen pages are given up to the description of the various forms of myograph. The special parts, which deal in the main with the action of drugs, are given in the form of abstracts of the original papers of the principal investigators. We have found these abstracts both complete and accurate, and think that to those engaged in pharmacological research they should prove of considerable value for reference. As a rule, there is no discussion of the significance of the results, and we are left with the bare experimental facts.

In the first 110 pages an exhaustive survey is given of the action of drugs on the contraction of voluntary muscle of the frog, and of the way in which it influences chemical and electrical changes. This is followed by a description of the ergograph and an abstract of investigations made with it on man, especially in regard to the influence of drugs. On the subject of plain muscle the work is neither so detailed nor complete as we might, from a comparison of the manner in which striped muscle is treated, be led to expect. The methods adopted for studying the action of drugs on plain muscle are confined to ring preparations of the frog's alimentary canal, and no methods are given for investigating the non-striped muscle in mammalia.

Over 400 pages are devoted to the heart. Under general action a description is given of its histology, including that of nerve-endings and pathological changes in muscle and nerve. This section also includes an excellent summary of the neurogenic and myogenic theories of heart-beat; and the question of nourishment, the alterations of form, intracardiac pressure, strength, and work of the heart beat receive ample treatment. Under "methods" we think the frog's heart receives attention out of proportion to its importance, whilst some important methods of studying the mammalian heart, such, for example, as the cardiometer, are dismissed in a few lines. Langendorff's method of perfusing the isolated mammalian heart with defibrinated blood is given in detail, but the enormous advance which was made in all these perfusions when Locke suggested the use of oxygenated Ringer's solutions does not seem to be appreciated by the writer. In the special portion the various structural changes which can be induced in the heart by such substances as phosphorus, chloroform, and diphtheria toxin are described. The account of the action of drugs on the beat of the heart is so ample as almost to partake of the character of a dictionary. The discussion of the action of digitalis might be considerably curtailed and that of suprarenal extract amplified.

We have also before us the first half of the second volume of this handbook. It is arranged on the same general plan, and deals with blood-vessels, lymph-flow, and respiration. It contains a very full description of the physiology of the vessels; the general part is occupied with the theories of moving liquids in tubes, blood-pressure in arteries, veins, and capillaries, and the conditions which cause variations in blood-pressure, especially the innervation of the different vessels. A very complete and detailed account of the various methods in use for studying changes in the vessels is recorded; but some of the more recent methods are not given. Thus, the method by which an organ can be perfused over and over again by the same fluid is not mentioned, and the study of the pulmonary vessels by the method of perfusion is neglected; still the tables showing the effects of drugs and poisons on different vessels of the body as the result of perfusions cannot fail to be useful. Pathological changes, such as hyperaemia, anaemia, thrombosis, embolism, etc., receive sufficient attention, but the important subject of degenerative changes of the vessel wall, especially the experimental production of atheromatous conditions receives inadequate recognition.

About sixty pages are devoted to the subject of lymph flow, the theory of lymph formation, Heidenhain's classification of lymphagogues, and the action of drugs on the lymph flow from the thoracic duct.

A full share of space is given to the various ways of affecting the respiratory mechanism, and this is perhaps the most complete account of the subject available in a short space; nevertheless here also we find the subject matter, in parts, not quite up to date, as, for example, in the methods employed in the examination of blood-gases. The methods and results which have been obtained by the action of drugs on the respiratory centre directly, and indirectly through the peripheral nervous system, the action of drugs on the bronchial muscle and bronchial mucous membrane, are all clearly described.

The bibliographies are very complete, and these volumes, like their predecessor, should find a place in every laboratory of pathology, pharmacology, and physiology. The text is clear, very free from printers' errors, and illustrated by 134 figures, mostly of apparatus.

NOTES ON BOOKS.

The first edition of *Motors and Motoring*[4] in the Badminton Series appeared in 1902, and sustained the high reputation enjoyed by this series of sporting books. The articles have been revised in the new edition to bring them up to date, but in some instances the original form has been too closely retained when the article might with advantage have been more completely rewritten. Good as it is, it does not impress us on perusal as quite so good a representation of motoring matters in 1906 as the original was in 1902. We may single out for special praise the articles on caprices of the petrol motor by the Hon. C. S. Rolls, and on transmission by H. Sturmey; whilst an article on motors for men of moderate means by C. Johnson will especially appeal to medical men. A summary of official trials and races and their results will be found useful by those who may be selecting a car. It might have been advantageously expanded, as the original records of the Automobile Club are not particularly accessible. There is a useful statement of the law as it at present stands with regard to automobiles.

Remarkably well arranged, clearly and simply written, adequately illustrated, Professor Hobday's manual of *Surgical Diseases of the Dog and Cat*[5] is a model of what such textbooks should be to meet the requirements of the final year veterinary students. In the second edition, many important additions and amplifications are incorporated, so that the whole book is brought thoroughly up to date; the technique of antiseptic methods, the administration of anaesthetics, and the practice of obstetrics all find lucid exposition. There is plenty in the case records alone to make the pages as interesting to the general medical reader as it will certainly prove useful to the veterinary practitioner.

MEDICINAL AND DIETETIC PREPARATIONS.

Cocoa as a Beverage.—Although cocoa was brought from Mexico by Columbus before the introduction of either tea or coffee, it is only of recent years that its consumption has become considerable. This may be due to the fact that cocoa-nibs do not lend themselves to the production of a satisfactory beverage by any such simple method as suffices with coffee beans or tea leaves. As actually on the market now, however, in the form of so-called "soluble cocoa," the product of the cocoa-nibs requires no further treatment than the addition of boiling water, and can thus more than hold its own for ease of preparation, while the beverage obtained possesses certain substantial advantages over tea or coffee. The many investigations that have been made into the interference with digestion which may result from the use of the latter have shown that it is mainly due to constituents that are absent from cocoa; and while a large proportion of tea and coffee remains as a waste product in the form of leaves and grounds, the whole of the cocoa is consumed, and, consisting mainly of carbohydrate, fat, and proteid, supplies actual food as well as stimulant. Among the best-known preparations of cocoa are those of Messrs. Cadbury Brothers, samples of which we have recently subjected to analysis. The "cocoa essence" consists of finely-ground cocoa-nibs in which the proportion of fat has been reduced from about 50 per cent. in the original to about 28 per cent. in the "essence" by extraction of the excess.

[4] *Motors and Motor Driving.* By Lord Northcliffe and other writers. Badminton Series. London: Longmans, Green, and Co. 1906. (Cr. 8vo, pp. 528: 130 text and 23 full-page illustrations. 9s.)

[5] *Surgical Diseases of the Dog and Cat.* By Frederick T. G. Hobday, F.R.C.V.S., F.R.S.E. London: Bailliere, Tindall, and Cox. Second edition; pp. 387. Illustrations 243. 1906. 10s. 6d.)

Our analysis shows that no addition of starch has been made, this older method of reducing the proportion of fat giving a more dilute and less valuable article. Theobromine, the alkaloid of cocoa, has a similar action to that of methyl-theobromine, or caffeine, present in tea or coffee. We find that a cup of this cocoa prepared according to directions contains about the same amount of alkaloid as was found by Hutchison in infusion of tea as ordinarily prepared, that is to say, approximately 1 gr. in a teacup. We have also subjected to analysis a sample of the chocolate prepared by the same firm; this is guaranteed to consist solely of cocoa and sugar flavoured with vanilla, and we found no evidence of any other material; the fat present amounted to 27.4 per cent., and the nitrogenous substances reckoned as proteids to 7.4 per cent. The chocolate can be used as a sweetmeat or for the production of a beverage.

Rodagen.—We have received from Messrs. Greeff and Co. a sample of a preparation of goat's milk recommended in the treatment of Graves's disease. The preparation is manufactured under the name "Rodagen" by the United Chemical Works Company of Charlottenburg, and is stated to consist of a mixture in equal parts of milk sugar and the extractive of the milk of goats from which the thyroid glands have been removed. It has been found that goats survive this operation, and continue to yield a supply of milk, and the consumption of this milk by patients with Graves's disease is said to have been attended with benefit. After a short time, however, the milk becomes repugnant to the patient, and the preparation now under consideration has therefore been made. It is a dry white powder, nearly odourless and tasteless; our analysis gave the following results:

Proteid	...	...	20.5 per cent.
Fat	...	...	8.3 ,,
Milk sugar	...	...	64.5 ,,

From this it appears that a considerable part of the fat of the milk has been removed, and that the proteid is higher than would be obtained from normal goat's milk, even after removal of part of the fat. The average dose is stated to be from 75 to 150 gr. per diem, though doses of from 5 gr. up to 2 oz. per diem are recorded. In cases in which the cardiac symptoms are pronounced it is recommended to increase the dose very gradually and cautiously. The powder is only partially soluble in water, but may be rubbed to fine powder and made into a mixture with water; it might also be administered in cachets or as tablets, or mixed with food; the slight taste is not unpleasant.

Sajodin.—Under the name of sajodin the Bayer Company are putting forward an organic iodine compound intended to take the place of alkaline iodides in certain cases. The substance is the calcium salt of iodo-behenic acid, behenic acid being a member of the acetic series, containing twenty-two carbon atoms; calcium iodo-behenate thus has the formula $Ca(C_{22}H_{42}IO_2)_2$, and contains 26 per cent. of iodine; our analysis of sajodin shows that practically this proportion of iodine is present. It is an insoluble tasteless white powder, and it is claimed for it that it produces none of the disturbing secondary effects often caused by alkaline iodides, while exerting an equal curative action; it is therefore recommended in cases where iodide treatment is indicated, especially where the exhibition of alkaline iodide produces symptoms of iodism. Although it contains a proportion of iodine only about one-third of that in potassium iodide (26 against 76 per cent.), the dose is given as about the same—namely, 15 to 45 gr. a day; it can be administered as powders to be taken with a draught of water, in cachets, or in the form of tablets.

MEDICAL MAGISTRATE.—Dr. George Godfrey Macdonald of Crich has been appointed to the Commission of the Peace for the county of Derby.

A CONFERENCE summoned by the Board of Hygiene and Temperance to consider the national teaching of hygiene and temperance was held at the United Service Institution, Whitehall, on June 29th. The Chairman, Mr. Pearce Gould, M.S., after dwelling on the importance of giving instruction on these subjects in elementary schools, pointed out that the first step must be to provide facilities for the instruction of teachers, and appealed for support both moral and pecuniary. Professor Sims Woodhead supported these views, and Miss Richardson, B.A., in the name of temperance organizations, spoke strongly in their favour. Mr. Cameron Corbett, M.P., and Mr. Charles Roberts, M.P., also spoke, the latter pointing out what was being done in other countries. The meeting was, unfortunately, very sparsely attended.

THE COMPOSITION OF CERTAIN SECRET REMEDIES.

II.—Headache Powders.

FOLLOWING the analyses of medicines advertised for the cure of epilepsy previously published, we now give the results of the examination of the principal headache powders supplied to the public, in most cases as proprietary articles. The sale of some of these is undoubtedly enormous; fatal results have sometimes followed self-treatment with antifebrin (acetanilid), which figures largely in most of them.[1] The powders analysed were in all cases obtained from dealers in the ordinary way, in unopened packages; the composition of each is given in such a way as to show the dose of each article in one powder of average weight. Since the separation of the ingredients depends largely on their different solubilities in various liquids, it is not possible to obtain quantitative results having quite the same degree of accuracy as in some other kinds of analytical work: but the results of analysis have been checked by preparing mixtures of the composition stated and submitting them to the same analytical process and the possible error in the proportions given does not exceed a very small fraction.

The estimated costs given refer only to the ingredients of the powders, and take no account of the cost of wrapping and package, etc. The prices of the drugs are taken from an ordinary wholesale druggist's list.

Daisy Powders.

Put up by "Daisy," Limited, Mammoth Works, Holbeck, Leeds.

Ten powders for 7½d.; average weight of one powder, 6.0 gr.; individual powders in a packet, 5.7 to 6.4 gr.

The medicament consists of acetanilid alone. Being an unmixed drug it is not liable to stamp duty, and the package is accordingly unstamped. The dose is stated to be one powder, repeated in two hours if necessary; half a powder for children of 12 years; not adapted for children under 12 years.

Two "certificates" are printed on each wrapper from individuals who are notorious for giving testimonials in the guise of certificates of analysis. The only fact certified is that the powders are "free from any injurious substance," in which medical opinion will scarcely support the writers.

Estimated cost of drug (60 gr.) one-eighth of a penny.

Curic Wafers.

Put up by the Curic Co., London, E.C.

Recommended as a "safe and certain cure for headache, toothache, and neuralgia"; stated to be prepared "from the Prescription of an Eminent West-End Physician."

The "wafers" consist of ordinary cachets, with the name of the article embossed on one face, and containing the medicament in the form of powder. The package contains twelve wafers for 1s. 1½d. Average weight of contents of one wafer, 8.2 gr.; contents of individual wafer in a package, 7.3 to 9.3 gr. Analysis shows the composition of the powder to be:

Acetanilid	...	...	3.28 gr.
Phenacetin	...	...	3.28 ,,
Caffein citrate	...	...	1.64 ,,

Directions for taking the wafers are given, but it is not stated whether the dose is one or more.

Estimated cost of drugs (98.4 gr.), nine-tenths of a penny.

Stearns's Headache Cure.

Put up by F. Stearns and Co., Detroit, U.S.A. Agents for Great Britain, Thomas Christy and Co., 10, Old Swan Lane, London, E.C.

Recommended as "A Speedy, Certain, and Safe Cure for Headaches of all Origins, whether Sick, Bilious, Nervous, or Hysterical."

These, like the foregoing, are described as wafers, and consist of cachets containing powder. The package contains twelve wafers for 1s. Average weight of contents of one wafer, 9.8 gr.; contents of individual wafer in a package, 9.3 to 10.2 gr.

Analysis shows the composition of the powder to be:

Acetanilid	...	...	3.92 gr.
Caffein	...	...	0.98 ,,
Sugar of milk	...	...	4.90 ,,

[1] BRITISH MEDICAL JOURNAL, 1896, vol. ii, pp. 89, 195.

The dose is one wafer. "If relief is not obtained, repeat in an hour, but more than two wafers should not be taken."

Estimated cost of drug (118 gr.), a little under ½d.

BELL'S FAIRY CURE.

Put up by the Fairy Medicine Company, Norwich.

Stated to instantly give relief in all cases of neuralgia, headache, etc. A handbill enclosed in the package makes further claims, from which the following extracts are taken. "guaranteed to be an instant and absolute cure" for "neuralgia, headache, brain fag, nerve pains." "Nothing else is like it. Nothing else is so good. Don't compare it with ordinary 'cures' or 'powders.' Fairy Cure stands absolutely alone."

Ten powders for 7d. Average weight of one powder, 2.7 gr.; individual powders in a package, 2.0 to 3.7 gr.

Analysis shows the composition of the powder to be:

Acetanilid	...	...	1.16 gr.
Phenacetin	...	...	1.16 ,,
Caffeine	...	...	0.38 ,,

The directions are to take one powder, "repeat in an hour if necessary, then every two or three hours until a cure is effected." (Yet it is guaranteed to be an instant cure!) Not to be given to children below 12 years of age.

In this case also an "analyst's report" is given on the wrapper; this states that the powder "is composed of several organo-therapeutic agents well known in medicine"; probably the "analyst" did not mean quite what he said in the following: "In my opinion, the preparation is well calculated to fulfil the purpose for which it is intended, namely—neurotic affections."

Estimated cost of the drugs (27 gr.), one farthing.

KAPUTINE.

Put up by the Kaputine Company, Limited, Lidget Street, Huddersfield.

Stated to cure in ten minutes headache, neuralgia, and all nerve pains. In view of the similarity in composition of these articles, the claims of uniqueness are amusing. In this case the wrapper bears the words "Nothing as good. Nothing similar," while on a circular enclosed in the package it is stated that "Kaputine is composed of several approved ingredients. That is, unlike the white headache powders, which consist solely of one crude drug, and which have frequently been condemned as dangerous by the Medical Press—Kaputine is most carefully prepared from several ingredients which have the absolute confidence of the Medical Profession."

Eighteen powders for 1s. 1½d. Average weight of one powder, 6 6 gr.; individual powders in a package, 5.7 gr. to 7.5 gr.

Analysis shows the composition of the powder to be:

Acetanilid	...	...	6.30 gr.
Ferric oxide	...	...	0.05 ,,
Sugar	...	...	0.21 ,,

That is, the acetanilid is tinted pink with what is practically the saccharated carbonate of iron of the *B. P.*

The dose is given as one powder: "If not completely cured in two hours, the dose may be repeated. Half a powder for children under 12."

Estimated cost of the drugs (119 gr.), just over ¼d.

HOFFMAN'S HARMLESS HEADACHE POWDERS.

Prepared by the Hoffman Drug Company, New York. The package also bears the name of John Timpson and Co., Limited, London, presumably the English agents.

Described as "a simple and effective cure for all headaches."

Ten powders for 1s. 1½d.; average weight of one powder 10.5 gr.; nine out of ten weighed from 9.3 to 10.5 gr., the tenth weighing 15 3 gr. Analysis shows the composition of the powder to be:

Acetanilid	...	...	5.02 gr.
Cocoa	...	...	4.02 ,,
Sodium bicarbonate	...	...	1.01 ,,

The dose is given as one powder, to be repeated in half an hour if not relieved.

Estimated cost of drugs (105 gr.) one-third of a penny.

In addition to the above proprietary articles, large numbers of headache powders are supplied singly by retailers, and are commonly bought for this purpose ready packed from a wholesale house. It was, therefore, thought to be of interest to examine a sample of such powders: the one taken for the purpose is known as the "Good as Gold" headache powder. This is put up by Barclay and Sons, Limited, 95, Farringdon Street: three dozen are attached to a card for exhibition, and the powders retail at 1d. each. The average weight was found to be 2.8 grs., six individual powders ranging from 2.7 to 2.9 gr. The powders consisted of acetanilid only, and there is reason to believe that practically all the others sold in this way are of the same composition

Estimated cost of drug, for three dozen powders, 4d.

PREVENTION OF CONSUMPTION.

SOCIETY FOR THE PREVENTION AND CURE OF CONSUMPTION IN THE COUNTY OF DURHAM.

THE seventh annual meeting of the governors of the above Society was held at the Sanatorium, Stanhope, on June 30th. Lord Barnard (the President) was in the chair, and expressed the opinion that the various reports were excellent. Dr. W. Robinson (Sunderland), Chairman of the Committee, moved the adoption of the reports, of which he gave the following summary:

On the foundation of the Society eight years ago, exception was taken to its present name, as consumption was then believed by the majority of people, including most medical men, to be incurable, but there were cured patients present who had been at work regularly for three, four, and even five years. The death-rate from consumption in the administrative county had diminished over 30 per cent. during the last eleven years owing to better housing and the wider recognition of the necessity for fresh air and sufficient ventilation, but there had been little reduction in the rate of the four county boroughs of Sunderland, Gateshead, South Shields, and West Hartlepool, because of the density of the population in their slums, which are veritable hotbeds of the disease; and, as it is almost impossible to transform all these slums into healthy abodes, he urged that special homes for advanced cases which have insufficient accommodation should be provided by the local authorities, and then the disease would decline. Lanchester Rural District Council is to utilize the empty wards of its fever hospital for the purpose, following the example of Brighton, and the medical officer of health urges Sunderland to do the same. Tuberculosis caused 2,522 deaths in the County in 1904, 1,498 of which were due to disease in the lungs. The Sanatorium contains 45 beds. 234 patients applied for admission, but only 163 could be admitted, and there were 20 on the waiting list on April 30th last. As there are between 5,000 and 6,000 consumptives in the County another sanatorium is much needed for women and children so that the present one may be used for men only. Funds for this purpose are urgently needed. Fifteen local authorities sent 76 patients (30 more than last year) and contributed £1,162 15s. Bodies of workmen who subscribe 3d. per quarter per man (total for year was £654 14s., an increase of £255 9s 3d.) sent 40 patients as compared with 26 last year. Payments by private patients amounted to £975 16s. 4d. and the ordinary subscriptions were £200 6s. 6d. Interest and sundry receipts brought the total income up to £3,081 6s. 7d. The total expenditure was £2,264 3s. 5d., and £760 of the income was transferred to the investment fund, which now amounts to £2,700. The average daily number of patients was 41 1, the cost of each patient per week £1 1s. 6d., the average stay 14.8 weeks, and the average gain in weight was 18·6 lb. Stimulants cost £5 13s 6d. Of the patients treated for more than four weeks and discharged, 84 had on admission consolidation of the lung or lungs, and of these 21 (or 25 per cent.) left apparently cured, 53 (or 63 per cent.) very much improved, 4 improved, and 6 unsuitable or getting worse; 63 (or 75 per cent.) were enabled to return to work. Of 57 cavity cases, 38 were much improved, 10 improved, 8 were unsuitable; 23 (40 per cent.) were enabled to return to work. One Board of Guardians (Bishop Auckland) has begun to treat its consumptives by our methods in the wards of its workhouse, and it pays them to do so. Six years' experience: Of 305 consolidation cases, 233 were enabled to return to work, and of these latter 14 had been lost sight of during last year, and 193 are still at work and have been for periods varying from a few months up to five and a half years. Of 216 cavity cases 97 were enabled to return to work, and of these latter 10 had been lost sight of during the past year and 58 are still at work at the end of periods varying up to five and a half years. These results show the paramount importance of the disease being treated in the early stage. A "working out-door colony" to consolidate the cure is much needed for most cases. The sanatorium is rented on lease, and the total cost of additions and furnishing has been £3,874 16s. 9d. up to the present. No instance of the disease spreading to the staff or in the neighbourhood has occurred.

The Bishop of Richmond, in seconding the adoption of the reports, said that the institution now received support

from the whole county, and urged doctors not to send in advanced cases. As chaplain, very many instances of cures had come under his notice.

A SANATORIUM FOR CONSUMPTIVES IN AYRSHIRE.

The Ayrshire Association for the Prevention, Treatment, and After-care of Tuberculosis has established a sanatorium for consumptives at Glen Afton, near New Cumnock. The building stands in an estate of over 30 acres, on the shoulder of a range of hills, and at an elevation of about 800 ft. It provides accommodation for 14 patients, but it is intended to increase the number of beds to 40. It was formally opened on June 30th by the Countess of Eglinton, in the presence of a large and representative gathering.

Mr. J. B. Ferguson, of Balgarth, Ayr, Chairman of the Committee, stated that the cost would be about £10,000, and would certainly be well within the money they had in hand. Dr. Philip (Edinburgh) gave an address on the open-air treatment of consumption, and Dr. Caverhill (Edinburgh) proposed a vote of thanks to all concerned in the undertaking, and good luck to the institution.

The selection of the site, which is admirably suitable for a sanatorium, is largely due to Dr. Caverhill, whose assistance during the past two years in connexion with the establishment of the sanatorium was cordially acknowledged by the Chairman of the Committee.

EARL'S COURT EXHIBITION.

AUSTRIAN HEALTH RESORTS.

THE exhibition at Earl's Court this year is at least as attractive as any of its more recent predecessors, and differs from most of them in that some attempt has been made to give an idea of what the country depicted—in this case the Austrian Empire—can offer to health seekers. Thus one small department, located between the Empress Garden and the Big Wheel, has been named the Health Resort Section, and here may be seen specimens of a certain number of Austrian medicinal waters and a modicum of information obtained in regard to one or two of the more ambitious watering-places.

The spas and waters represented are Marienbad, Franzensbad, Baden, Teplitz Schönau, Bilin Sauerbrau, Giesshuebl-Puchstein, Abbazia, and Levico. Most of these places are in Bohemia, but Abbazia is on the Adriatic coast, and Levico in the south of South Tyrol.

MARIENBAD, as an occasional resort of the King, is already sufficiently well known. It possesses many different springs, all of them cold. The majority and the better known are of the sulphated alkaline type, best suited to full-blooded people who have led sedentary lives. Other springs, such as the Ambrosius-brunnen and Karolinen-brunnen, are chalybeate.

FRANZENSBAD is situated in the middle of an elevated moorland, and it is from this that the peat used in the moor baths for which Franzensbad is best known is derived. The greater number of the visitors are women and girls suffering from chlorotic and functional disorders. There are, however, several other types of baths besides the poultice-like peat baths, as well as drinking waters of the sulphated alkaline group, all of them being cold.

BADEN, which is close to Vienna, at the entrance of the Hallenthal, is a very popular spa. The springs, which are of earthy sulphur water, have a temperature ranging from 80.6° F. to 96° F. They are drunk, to a certain extent, usually mixed with milk or whey, but are mainly used for baths of all varieties.

TEPLITZ SCHÖNAU is reputed to be the oldest spa in Bohemia, and being close to the Saxon frontier is the seat alike of Austrian, Prussian, and Saxon military sanatoriums. The principal baths belong to the simple thermal group, but others containing peat less strong in iron than those of Franzensbad are also employed. Chronic rheumatism, gout, sciatica, functional nervous affections and the like, are the diseases to which Teplitz owes most of its health-seeking visitors.

BILIN, which has waters of the cold gaseous alkaline group, is not very far from Teplitz, and gouty cases sometimes divide their time between the two. The water contains a minute quantity of sodium sulphate in addition to its other constituents, and therefore to some persons is a gentle laxative. Most of the visitors are sufferers either from gouty complaints, uric acid, gravel, or gastric or bronchial catarrh.

GIESSHUEBL-PUCHSTEIN is pleasantly situated in the Eger Valley some six miles from Carlsbad. There is a hydropathic establishment, but the place is best known as the source of origin of a pleasant naturally aërated table water largely exported under the name of Mattoni-Giesshuebler.

ABBAZIA is at the head of an island-studded gulf on the coast of the Adriatic, not far from Fiume. It is a thoroughly well-found seaside resort, furnished with numerous hydropathic establishments, and has both a winter and a summer season. Its special characteristic is considered to be the large proportion of salt believed to exist in its atmosphere, as the sea is constantly breaking on the rocks in the vicinity.

LEVICO, a spa in the mountains near Trent in South Tyrol, on the Valsugana Railroad, has grown greatly in repute of late years, and now has at least two first-class hotels in addition to various boarding houses. There is also a very complete hydropathic establishment, but the "cure" which gives the place its real importance, medically, is the use both internally and externally of the waters jetting up in the grottoes of Vetriolo. These, which are charged with iron and arsenic, are believed by Professors Braun-Fernwald and Bamberger of Vienna and Nussbaum of Munich to be of value in various forms of blood disorder, by Professor Krafft-Ebing in neurasthenic complaints, and by Professor Schweninger in skin diseases and general debility. There are two waters, one being distinctly stronger than the other, and both are exported for use abroad. When thus used the usual plan is to begin with three small bottles of the mild water, which bear a blue label, then seven of the strong, labelled red, and conclude the course with two more of the mild.

These are the places to which attention has been drawn at this exhibition, and possibly they have been selected as being already more or less familiar in England by name. The managers, however, excellent as is their work in other directions, have done Austria considerably less than justice in this part of the exhibition, for it gives really little or no idea of what a wealth of attractive resorts for the weak or overworked are to be found within its frontiers. Almost any type of climate can be found without going outside them, whether in winter or summer, and no attempt whatever has been made to bring this fact into view. Even the waters exhibited represent but a tithe of those the existence of which might in some way have been shown, the chalybeate springs, of which there are so many in the Tyrol and elsewhere, being represented by the arseniated water of Levico alone, while the purgative waters of Hungary do not seemingly figure at all. Equally, too, the Health Section is silent as to the fact that mountain cures, milk cures, and grape cures, such as those of Meran, Botzen, Gries, and Arco, are very readily available. At least a list of the mountain resorts might have been supplied, showing their altitudes, their state of development, and the best season of the year to visit them. In the Vorarlberg, in Southern Tyrol, and down the Brenner Valley, and in many other parts, there is a great choice of elevated villages with well-fitted hotels equally suitable both for cures or after-cures. At several of them, indeed, a mountain cure and a water cure can be carried on simultaneously. Thus Gossensass, less than sixty miles from Innsbruck, has good chalybeate springs, an elevation of some 3,000 ft., comfortable, moderate-priced hotels, and endless possibilities for walking, driving, and climbing, both in summer and winter.

It must be admitted, however, on behalf of the managers of the exhibition that Austria itself, though there is no lack whatever of local enterprise, has, as a whole, made but little attempt hitherto to compete with Switzerland and Southern Germany for foreign invalids, real or imaginary; otherwise some endeavour would certainly have been made to utilize the possibilities offered by the salt mines for the establishment of brine cures. At the head of the Inn Valley, for instance, within walk of Innsbruck and close to the ancient townlet of Halle, there is a salt mine high on the mountain side, and hard by an ideal situation for a cure house and winter resort, of which no use has yet been made.

Of the rest of the exhibition but little need be said, beyond drawing attention to a neat display of surgical appliances by Odelga, of Vienna. It includes a useful form of operating table, the peculiarity of which is that the table has a central pedestal, instead of the usual legs. The firm of D. G. Fischel, also of Vienna, show a set of school desks which are well worth examination. They enable children of any height to sit perfectly erect, insure that the reading matter is at the proper distance from the eyes, and have seats which make egress and ingress easy, as they fold automatically and noiselessly. Finally, it may be noted that the Empress Hall this year is given up to a display which really does give a very good idea of what it is intended to represent—the life and appearance of a Tyrolese village and its surroundings.

BRITISH MEDICAL ASSOCIATION.

Annual Meeting at Toronto.

AUGUST 21st–25th, 1906.

CANADIAN SCENERY.

[From a Canadian Correspondent.]

Continued from vol. i, p. 1556.

THE ORILLIA DISTRICT.

Lakes Simcoe and Couchiching.

The principal charm of the region as a summer resort is to be found in its beautiful lakes, which in a variety of ways offer to the visitor endless means of healthful enjoyment. Lake Couchiching is a very gem among inland waters and has been styled "The Geneva of Canada." It is twelve miles long and about five miles broad. Though it has been termed "The lake of many winds," it is not treacherous and the storms are seldom formidable, so that the light and frail but delightful canoe is a favourite craft, while at the same time yachting is indulged in considerably, and steamers, very respectable in size, ply its waters. There are numerous islands, the largest among them—Chief's Island—being the Indian burying ground. On the shores of the lake are a number of fine summer residences, surrounded by beautiful well-kept grounds, where many families from Canadian and American cities, and even from as far south as New Orleans, spend the hot months.

The southern end of the lake, where is the town of Orillia, presents an aspect of cultivated beauty, the tree-clad banks rising from the water's edge in a mantle of deep green foliage; but the northern end has a rugged grandeur, white rocks alternating with patches of sun-baked grass, and tall pines raising their stately forms wherever they find foothold for their roots. Visitors are free to camp or picnic on almost any of the points or islands.

Compared with Couchiching, Lake Simcoe is a veritable fresh-water sea, thirty-five miles in length by fifteen in breadth.

On its shore line of over two hundred miles are many points of interest to which excursions can be made by steamer, including the town of Barrie, most picturesquely situated at the foot of Kempenfeldt Bay, an inlet ten miles long: Jackson's Point, Big Bay Point, De Grassi Point, Morton's Park, Beaverton, Strawberry Island, all having charms peculiar to themselves, and all places that are growing in favour as summer resorts. The big lake, too, offers opportunities for yachting and cruising rarely found in combination with waters suited to small craft.

Bass Lake and the Severn River.

Three miles to the west of Orillia lies Bass Lake, a comparatively small sheet of water, but much in favour with those who enjoy angling for the game fish from which it takes its name. An evening's fishing on this lake will generally furnish capital sport. It may thus be seen that the town lies on a peninsula with water on three sides of it and all breezes are cooled by the waters over which they blow.

In addition to these lakes, the Severn River, by which the waters of Couchiching and Simcoe find their way to Georgian Bay, furnishes ample scope for the enjoyment of those exhilarating pleasures peculiar to river navigation. The Severn is a fine stream about 60 miles long. Its navigation is neither very difficult nor very dangerous, yet the rapids along its course—one or two of them amounting almost to falls—add a spice of excitement, and, when passed by portaging or by "shooting," as the case may call for, give the gratifying sense of a difficulty surmounted. The scenery along the river is varied and in many instances grand, the landscape often changing in character with kaleidoscopic suddenness as point after point is rounded. Many small streams empty into the Severn, so that by the time the river has run half its course it has swelled to noble proportions, and in its lower reaches is in places nearly half a mile wide. One of its earlier expansions is Sparrow Lake, a favourite resort whose shores are lined with summer cottages and boarding-houses. Beyond this point the river passes through a wild and uninhabited region until it empties its waters into the Georgian Bay at Port Severn, near the village of Waubaushene.

The trip from Orillia to the Bay occupies from two to six days, according to the energy with which it is pushed and the time spent in fishing, etc., by the way. Canoes are the craft best suited to its navigation because of their lightness and handiness. These can be bought or rented at Orillia, where all necessaries, including guides if desired, can also be procured. The return trip is usually made by rail from Waubaushene.

The Kawartha Lakes.

The Kawartha Lake District is, comparatively speaking, little known to the summer tourist. The chain of lakes lies north of Peterborough and Lindsay, and is composed of Lakes Katchewanooka, Clear, Stony, Buckhorn, Chemong, Pigeon, Bald, Sturgeon, Cameron, and Balsam, with a magnificent steamer route of 70 miles from Lakefield to Coboconk. They combine the wildest primeval granite mountain and forest scenery with lovely grassy, shrub and vine-clad shores; many are dotted with islands, on which pretty and comfortable homes have been erected for their summer tenants.

Rich in minerals, the whole region has recently become an extensive field for lovers of geological science. The rocky regions are overgrown with berries, and parties from frontier towns and cities make yearly visits to the "rocks," camping for "a few days' berry-picking." Raspberries, thimbleberries, huckleberries, bilberries, and cranberries abound, and it is not uncommon for ladies to bring their jars and do their preserving in the "Camp." Canoe and camping parties find ideal conditions for a summer outing, or all the luxuries and pleasures of the most fashionable seaboard summer resorts, with far less cost.

Every variety of scenery—the calm pastoral of Sturgeon, the romantic rocky islands of Stony with their deep shores, the fine bathing of Balsam and Cameron, and the picturesque beauty of the lakes further north, coupled with the unsurpassed fishing and shooting along the entire chain, lend to these waters an attraction and a charm. Excellent Indian and white guides and cooks are found in Lindsay, Peterborough, Lakefield, Fenelon Falls, Coboconk, Bobcaygeon; in short, at all the points along the route.

Owing to the altitude of these lakes (600 feet above the level of Lake Ontario) the air is pure, and laden with health-giving and soothing balsamic odours from the pine and spruce-clad hills. The Kawartha lakes are easy of access, being three hours from Toronto.

The eastern portion of this district is reached via Peterborough and Lakefield, the latter being the point of embarkation for the trip up Stony Lake and westward.

The Chicago Medical Society has appointed a committee of three pathologists to co-operate with the Chicago Commercial Association and the Illinois Manufacturers' Association in an investigation of the stockyards. One of the questions which it is especially desired to study is whether carcasses affected with local tuberculosis are fit for food after the diseased parts have been removed.

The Founder of The British Medical Association.

REMINISCENCES OF

SIR CHARLES HASTINGS, M.D.EDIN., D.C.L.OXON., F.G.S.,

DEPUTY LIEUTENANT OF THE COUNTY OF WORCESTER.

SEVERAL notices, more or less biographical, have been published of Sir Charles Hastings. One in his lifetime, which appeared in the *Lancet*, and which may be taken on the whole as authentic; one by the late Dr. Edwin Lankester in the *Journal of Social Science*, sympathetic in tone and striking in delineation of character, but requiring some correction as to facts; one in a speech made by the writer at the Jubilee Meeting of the Association in 1882, fully reported in the BRITISH MEDICAL JOURNAL, and a much fuller one, with an admirable portrait, published in its columns in January of the present year. In this last an acknowledgement is made of the information obtained from the *Lancet* of 1851. It is not proposed to attempt here a regular biography, but rather to give some facts and incidents, chiefly of the anecdotal order, which it is hoped may prove of interest to the members of the Association.

Early in the year 1794 a Mrs. Willes travelled by carriage from Shropshire to London. She was daughter-in-law to Chief Justice Willes, and her destination was the "tall house near Lincoln's Inn," then inhabited by him, though celebrated by Pope in other times as the residence of a great peer and statesman. From that house Mrs. Willes wrote to a lady friend in Worcestershire: "On our way up we changed horses at Ludlow, and I was able to go and see Mrs. Hastings. I found her looking charming in a dressing gown, and nursing in her arms what I really believe is the prettiest baby I ever saw." This baby was Charles Hastings, in after-years to be the founder of a medical society destined to be the greatest known to the world. His father, the Rev. James Hastings, was at that time the Rector of Bitterley in Shropshire, a benefice which he held for some years while awaiting a vacancy in the family living of Martley in Worcestershire, of which he was himself the patron. Some repairs or alterations were going on at Bitterley, and it was thought advisable that Mrs. Hastings should be in lodgings at Ludlow for her confinement.

It may not be without interest if a few words be said concerning this James Hastings. It is rather remarkable that he was a centenarian himself, and also the father of a centenarian. The facts in both cases are undoubted. He was born on January 2nd, 1756, in Soho Square, then one of the principal squares in London, where his father, another James Hastings, then resided, and he was baptised in the parish church of St. Martin-in-the-Fields. He was entered as a gentleman commoner at Wadham College, Oxford, in 1776, taking his Bachelor's degree in due course, and was ordained by the Bishop of Oxford (his letters of orders are in the possession of the writer) in 1779. He married in 1781 Elizabeth Paget, of Chipping Norton, Oxfordshire, and had by her fifteen children, eight sons and seven daughters. He was Rector of Martley, on his own presentation, for sixty years, being inducted in 1796, two years after the birth of his son Charles, and was buried there in July, 1856, having attained the age of 100 years, 6 months, and 4 days. His eldest child, Joanna Hastings, was born on March 14th, 1782, and died at Malvern on March 12th, 1806, being thus within two days of completing her 104th year. Although many years older than several of her brothers and sisters, she survived them all, and kept her faculties clear to the day of her death.

Charles Hastings was reared as a boy at the rural rectory of Martley, and was remarked for great activity of body and habit, and for love of and care for animals. As one of his sisters told the writer, "he was always nursing sick chickens." His first public appearance in life, at the age of 18, was as candidate for the office of house-surgeon to the Worcester Infirmary. The late Lord Lyttelton, speaking in public on this incident, said that if it had not been attested by irresistible evidence he should have refused to believe it, so incredible did it seem that a boy of that age could not only compete for but actually obtain such an office. The wonder was increased by the fact that his opponent, a Mr. Lewis, was a grown man and a member of the College of Surgeons. It is believed that his success was mainly owing to the indomitable energy with which he rode about the country canvassing the subscribers, whom he impressed with his earnestness and intelligence. During this contest, young as he was, he showed a trait of character which distinguished him through life. It happened that his opponent was a Roman Catholic, and he was urged to hoist the Protestant flag and thus defeat Mr. Lewis. It would not have been surprising if a boy brought up in a country rectory, with its surrounding influences, had yielded to the advice, for in 1812 religious prejudice ran high. But the character of Charles Hastings was already formed, and he announced to his family and friends that nothing would induce him to oppose any man on the ground of his religious convictions. He was elected by a majority of one vote, and was by universal consent accounted most successful in the performance of his duties. Mr. Lewis settled in a country practice at Hanley Castle, in Worcestershire, and remained there, much respected, within the memory of the writer.

After three years' service at the Worcester Infirmary, Charles Hastings matriculated at the University of Edinburgh, and though he suffered somewhat from the northern climate, passed through his University course with credit and even distinction. It may be taken as undoubtedly true that he was the only student of Edinburgh at that date who used the microscope for the purpose of physiological inquiry. He knew the value of the instrument, for he had already been employed by Dr. Wilson Philip of Worcester to make microscopical investigations for him, and the researches thus begun were continued assiduously. There is no doubt that he established a high reputation as a student, of which indeed the offer of a Chair in the University as soon as he had graduated is sufficient proof. But his health at that time was precarious. Sir John Forbes, who was one of his contemporaries, told the writer many years since that the saying about him among the students was, "Ah Hastings, he is a very clever fellow, but he cannot live; he will be dead of pulmonary disease in a few years." Perhaps their diagnosis might have been right if he had remained at Edinburgh, for he often said how the spring there tried him. The journeys to and from the North were in those days formidable; in one winter the coach in which he was travelling was snowed up near Shap Fell for a whole night, and he and the other travellers were dug out in the morning. Probably the main cause of his refusing the flattering offer made to him was his desire to return to the softer climate of his native county; and in 1818 he resolved to settle as a consulting physician at Worcester. He can never have regretted the decision, but Dr. Edwin Lankester, in the biographical article already referred to, passed some reflections on the fame Charles Hastings might have attained in physiological research had he filled a chair at Edinburgh University.

Soon after Dr. Hastings settled at Worcester he became one of the physicians to the Infirmary, and, being well known throughout the county, he obtained practice at an early period. In those days, when railways did not exist and London was consequently distant, there were, and had long been, two consulting physicians in good practice at Worcester, and usually a third one also, who was perhaps not exactly *tertius gaudens*. In 1818 Dr. Wilson Philip and Dr. Woodyatt occupied the field, but the former soon left for London, where he practised for some time in Cavendish Square, and the latter in a few years died somewhat prematurely. Dr. Hastings had married his eldest daughter, and may be taken to have succeeded to his whole practice. Dr. Wilson Philip's still larger connexion was divided between Dr. Hastings and Dr. Malden, who was also a new comer: but a letter in the possession of the writer from Dr. Philip to Dr. Hastings, dated a year or two after the former had left Worcester, contains the words: "I heard from Malden the other day. He says that, on the whole, he does not complain; but he also says that you get the lion's share of the practice." This will serve to indicate the rapid rise

made by Dr. Hastings, and it may be added that the accounts which he kept carefully throughout his professional life show that not long after his marriage he had an income of considerable amount. His consulting practice was not confined to Worcestershire, where he was always trusted and popular among the local practitioners, but extended into the neighbouring counties, and not infrequently to considerable distances, even into North Wales. It is wonderful that with such engrossing employment he found time for other occupation, but his energy impelled him in two different, and both of them important, directions.

He was a man of quick eye and of remarkable powers of observation. From boyhood a lover of Nature in all its animated forms, he took in as he drove about the country the sights and sounds of beast and bird, of hill and valley. Geology was then, perhaps not in its infancy, but certainly in not more than its adolescence, opening out the attractions of its insight into the past history of the earth; and he entered upon the study keenly. His *Illustrations of the Natural History of Worcestershire*, published nearly eighty years ago, remains a monument of his scientific avocations in the midst of his professional work. Much of it is necessarily antiquated at the present time; the geology especially is of a bygone type, yet the record of the various strata and their exposures in the county is valid to this day. His account of the birds of Worcestershire is excellent, and the botany is equally exact. The geological part of the work contained, it is believed, the first notice of the formations on the west flank of the Malvern Hills; and a description of the Salt Springs of Droitwich, and of the general saliferous nature of the new red sandstone of Worcestershire, was so original and precise that Sir Roderick Murchison subsequently embodied it *literatim* in his great work on the Silurian system. On the publication of his *Illustrations* Dr. Hastings was elected a Fellow of the Geological Society. It may here be mentioned that his medical *Treatise on Inflammation*, of earlier date, had been translated into German, and that he had received honorary communications from foreign societies.

His reputation as a geologist gave rise to a noticeable, and perhaps, so far as geology is concerned, an historical, incident. Sedgwick and Murchison had resolved to explore the Western Midlands, and they came to Worcester to consult Dr. Hastings. The writer, though then a child, can remember them seated at the breakfast table, and he heard the directions given to them for their explorations. The exposure of the new red sandstone on a hill beyond Powick was pointed out, and they must have been assured that all the country lying between the Severn and the Malverns was of that formation. But, above all, the geology on the west of those hills was dwelt upon, no doubt in more detail than can now be recalled, and its scientific importance prophesied. The two famous men of science went forth from Dr. Hastings's house to prosecute their researches, and from that day may be dated the foundation of the Cambrian system of Sedgwick and the Silurian system of Murchison. To the student of English geology the colloquy and the place must be memorable. Such, at least, was the opinion of William Symonds of Pendock, no mean geologist.

It may be appropriate to mention here that Dr. Hastings's name will be found in the list of original members of the British Association for the Advancement of Science; he attended its second meeting at Oxford in 1832, when his friend Dr. Buckland was president, and Murchison was in the Chair of Geology. He had visited Oxford many years before, and was present in the Sheldonian Theatre when the degree of D.C.L. was conferred on Warren Hastings amid great enthusiasm. It could not then have been foreseen that the same distinguished honour would be bestowed on himself, but when that day arrived, and when at the dinner given in the hall of University College by its Principal, then Vice-Chancellor, his health was proposed, he said, in acknowledging the toast, that great as was the honour done to him by the University, he felt it all the more deeply as many years before he had been a witness to the same ceremony, when the most illustrious of his name and race had found himself consoled for the seven years' persecution which he had received as a recompense for saving India. Sir Charles Hastings never spoke in a more impressive manner.

The study of natural science was thus one of the two directions in which, as already stated, Dr. Hastings early in his career was impelled. The other was to effect a closer intercourse and a higher professional tone among his medical brethren. It was in pursuit of this object that he established the *Midland Medical and Surgical Reporter*, which brought him into communication with many of the leading practitioners in the provinces, and which proved to be, in 1832, the *nidus* out of which the Association sprang. It has been more than once stated that the idea of the Association grew out of his membership in the great scientific body founded at York; but this was a mistake. Dr. Hastings had no such intention; in its beginning the Association was a society founded for mutual co-operation and intercourse, and did not possess the organization or machinery for any more ambitious purpose. When the statement referred to was once made in his presence it received from him a categorical denial. The real origin was in the *Midland Reporter*. The history of the first meeting in the Infirmary at Worcester has been frequently written, and the original objects of the Association, as drawn up by its founder, are too well known to need quotation. What is desired here is to chronicle the devoted attention, the vast amount of anxious labour, the unremitting care and foresight which the growing society received from its author. Occupied by day in his constantly-increasing practice, he gave his evenings and not a little of his nights to correspondence and literary work. He edited the *Transactions*, which were for some time its first corporate expression. He remained for many years its Honorary Secretary, it is true with a colleague, but it may be said without derogation that the partnership in office was like the consulship of Julius and Caesar. As the Association rapidly grew he obtained the assistance of a paid secretary, Mr. George Reece of Worcester, a highly intelligent person, who in after-years became the curator of the Worcester Museum, and possessed of much public confidence. But whatever assistance Dr. Hastings had, from whatever quarter, the management and correspondence of the Association remained virtually in his hands, and to him, emphatically, the members owe not only its foundation, but its development, influence and character.

His merits were neither unappreciated nor unacknowledged. In 1839 his portrait was painted by subscription and presented to his wife. It was the work of Faulkner, a painter who died too early for his full fame, but who was well known and much employed in the North of England. His reputation was much appreciated by the firm of Agnews, who engraved the portrait of Dr. Hastings, as they had others of the artist's works. It is known that the baronet who is the present head of the firm, and perhaps the best judge of paintings now living, has always retained a high opinion of Faulkner's portraits. In this work Dr. Hastings appears in the full vigour and attraction of his eminently handsome manhood, with features and expression given to the life.

Ten years afterwards—in 1849—the Association resolved to pay their founder the compliment of meeting in the city of Worcester, under his presidency. It was a most successful gathering, and the address from the chair was an eloquent exposition of the objects for which the Association had been called into existence. It dwelt especially on the moral influences produced by thus knitting the profession together. Who could overestimate the effect in these meetings of "eye beaming on eye and voice answering to voice"; this companionship which brought them together was the true bond of social life; "it is the principle of friendliness; it is the principle of true honour; it is the principle of the Christian religion." Those words revealed the feelings which had animated the heart of Charles Hastings, a heart beating with human sympathy and manly brotherhood, when he brought into being the British Medical Association. Many of his old colleagues were present. At the dinner in the Guildhall his health was proposed by one of the earliest, Dr. John Conolly, who had been joined with him in the *Midland Reporter*, and the speech, made all the more persuasive by the silvery voice and exquisite manner of Conolly, produced a great effect. Dr. Hastings was so moved that for a moment it was feared he would find it difficult to reply, but he recovered himself and spoke admirably. It was a real triumph for the man

p rsonally as well as for the Association collectively, and it was hailed as such by all present. It was in consequence of this feeling that he was soon after recommended to the Crown for some mark of distinction, and that early in the following year he received at the hands of Queen Victoria the honour of knighthood.

One of the early objects of the Association had been to obtain an improvement in the legal status of the medical profession throughout the United Kingdom. At the present day, fifty years or so after the passing of the Medical Act, it may be difficult to realize what the condition of things then was. In some respects it was hard to say who was legally qualified and who was not. The medical colleges affected to set up an exclusive claim to license, but it was certain that the medical degrees of Oxford and Cambridge had a more ancient existence, and were valid over England and Wales. The Scotch universities asserted equal rights under the Act of Union, and their degrees were acknowledged in the provinces but not in London. It was once, perhaps rather absurdly, affirmed that while the Queen's physician, Sir James Clark, an Edinburgh graduate, could lawfully prescribe for her Majesty at Windsor, he broke the law when he did so in London; and, strange as it may seem, the assertion was left uncontradicted. In fact, the state of medical legislation was nothing less than chaotic, and its anomalies would not have been tolerated for a year in any country but our own. Yet the colleges were deaf to the appeals made by the Association. In 1850 it was resolved to lay a Bill before Parliament, and a committee was appointed to prepare one. Sir Charles Hastings was the chairman, and the writer of these reminiscences acted as honorary secretary and was the draughtsman of successive measures. These were all discussed at different meetings of the Association, were, of course, much criticized from various points of view, and were all opposed by interested parties. But the committee, always led on and inspirited by their chairman, persevered year after year, and at length, in 1856 a Medical Bill, approved by the Association, and commanding a wide support from the profession at large, was introduced into the House of Commons by Mr. Headlam, Q.C., M.P. for Newcastle-on-Tyne, where a near relative of his was an eminent physician. This was perhaps the best Bill on the subject ever submitted to Parliament; it was the work of the Association, and it deserved success. That success might have been attained had a firmer hand been at the Home Office. But Sir George Grey, then Home Secretary, with many estimable qualities, was wont to lack decision. He had been approached by the committee, had received and conferred with an influential deputation, and had assured them of his desire to see the question settled; but at the last moment, when the second reading was on, and everything promised fair, he unaccountably wavered, said in a faltering way that he feared the Bill would not satisfy all parties (as if it were possible that it could do so), refused to vote for it, and on a division it was lost. It was a disheartening defeat, after all the work that had been done, and the committee came to the conclusion that the only hope of a settlement was through a Ministerial measure. It happened that the writer was at that time, for quite other reasons, well acquainted with Mr. William Cowper, stepson of Lord Palmerston, then Prime Minister; and Mr. Cowper, being Vice-President of the Privy Council, was induced to take up the question. With powerful influences at his back, Mr. Cowper, who mastered the various details with much intelligence, was able to carry the Medical Act which now, with some amendments, regulates the legal aspects of the profession, and which, if it did not do all that was desired, at least remedied the many contradictions and inequalities of the former state of things, making the great profession of medicine in the United Kingdom a tolerably coherent whole. For this achievement the Association may claim the chief merit; it was the only medical institution out of the many which aimed at the benefit of all; it was the only one which acted on public and unselfish grounds; it was the one which compassed the success, but that success was, before all things, due to the unflinching courage and tenacity of Sir Charles Hastings.

The Natural History Museum at Worcester was another of his creations. By his efforts some seventy years ago a handsome building was erected, and for more than thirty years the collection had his unceasing care. Its distinctive merit lay in the formation of a local museum, for which a separate room was fitted up, representing in a complete way the fauna and flora as well as the geology of Worcestershire. Sir Richard Owen on one occasion came to see this room, having heard that it held some exceptionally fine specimens of fossil bones from the gravels of the Severn and the Avon. The illustrious naturalist was struck with the representation of the past and present animal life of the county, and he said in the room, "This is just what a provincial museum should be. You cannot emulate metropolitan or other great collections, but you can give an illustration of the natural history of the district, which is most valuable, and that is just what you have done here." Thus, it will be seen, Sir Charles Hastings did in fact what he had long before done on paper. As a young man he had written his *Illustrations of the Natural History of Worcestershire*, and in his old age, after years of assiduity, he saw scientifically arranged in one chamber a full and practical illustration of the ancient deposits and of bird, beast, and flower within the boundaries of his county. The museum has now been named "The Hastings Museum," and it contains a marble bust of its founder from the hands of a great artist.

For a still longer period he had given unwearied service to the Worcester Infirmary. When failing health and strength compelled his retirement in the early Sixties he had been for more than forty years one of the Honorary Physicians to that institution. Scarcely a week during those many years had ever passed without his having bestowed precious hours on the patients under his care. He looked upon his attendance there as a sacred duty never to be set aside. When on his retirement the feeling of the public was manifested in the presentation to him at the Guildhall of a magnificent silver service, the inscription on which commemorates that it was the gift of his friends in the city and county of Worcester in acknowledgement of his services to the infirmary, he said, when returning thanks, that his work there had been a labour of love. "Often when I have ascended the steps of that temple of sorrow, I have said to myself, this day at least I shall have alleviated some suffering freely, this day I shall have given all I can, unremunerated, to the sick and needy." It is not suggested that there was anything unusual in the service, though in the case of Sir Charles Hastings it was perhaps performed with more than ordinary zeal, as indeed were all his many avocations; but it may be remarked that if some statistician could estimate at its lowest, that is, at its pecuniary value, the gratuitous, unselfish work of the medical profession to the sick and suffering, and add it up in cash figures, the result might startle the mind.

The last subject on which Sir Charles Hastings addressed the public was one in which for many years he had taken a deep interest. The question of public health had often been dealt with by him, both in the Association and also in speeches and pamphlets. Soon after the Municipal Government Act was passed he consented to serve as an alderman of the city of Worcester in order to press on the town council the need for sanitary measures. When the Social Science Association was formed and took up the cause of public health with energy, he joined its council and was active in the sanitary work. In 1864 he was nominated to the presidency of its Public Health Section for the York meeting, and delivered an address which was received with acclamation. The *Times* newspaper discussed his views in a laudatory article, noticing his scientific explanation of the great increase in general health and diminution of disease in rural districts which had been brought about in the century then past by the enclosure and improved cultivation of land. This was his final effort for the public good, and was marked by his characteristic qualities.

The last few months of his life were spent almost entirely at his country house at Barnard's Green, near Malvern. A long and painful illness was borne with serene fortitude, but after the death of Lady Hastings in the spring of the year it became evident to those around him that he no longer had much craving for life. Nevertheless his cheerfulness and courage remained to the last, and only the day before his death he walked out in his garden and observed it with interest. A day or two pre-

viously he had given to his friend, Mr. Henry Carden, a message to the Association he had served so well to be delivered at its Chester meeting. He calmly breathed his last on July 30th, 1866, in his 73rd year.

It was said at the commencement of these reminiscences that it was not proposed to attempt a regular biography. Still less is it here intended to pronounce a formal eulogium. The deeds of Charles Hastings speak for themselves. One who had been long his friend, Dr. William Farr, the distinguished statistician of Somerset House, said of him soon after his death, in a public address, "he was a man of an eminently friendly disposition." No truer word could have been spoken. That friendliness of character, making him hospitable, kindly, generous, amiable to all around him, tolerant of diverse opinions, sedulously attentive to even the minor courtesies of life, blossomed out, as it were, in the creation of a great Society which should bind his profession together in amity and honour, and increase its value to mankind. His fame will live in the permanence and utility of the British Medical Association, and that distinguished body will perennially embalm his memory.

G. W. H.

EPSOM COLLEGE.

Annual General Meeting.

The annual general meeting of the Governors of Epsom College was held on June 29th. Sir Constantine Holman, and afterwards Mr. Henry Morris, presided over a well-filled room, among those present being Sir W. S. Church, Sir R. Douglas Powell, Sir Dyce Duckworth, Surgeon-General Branfoot, Drs. W. Collier, Havilland Hall, Frederick Taylor, John Galton, George Eastes, and Messrs. Andrew Clark, Bilton Pollard, John Morgan, Paul Bush, C. Smiles, and the Rev. E. W. Northey, of Epsom. The notice convening the meeting having been read, the minutes of the last meeting confirmed, and letters of regret for non-attendance read, the result of the election to pensionship, etc., was declared. The report of the Council for the year was then submitted and adopted. The principal facts to which it drew attention were that the General Purposes Fund had been nearly exhausted by the expenditure on recasting the drainage, but, on the other, a donation had been made in memory of the late Dr. Highett of Montpelier, Bristol, of £5,000, four-fifths being for the establishment of scholarships and pensions, and the remainder for the drainage scheme. The terms of the donation necessitated some small modifications in the by-laws. With a view to encouraging the attendance of day boys, the school hours had been rearranged so as to allow of these boys not arriving until 9 a.m., and of their leaving Epsom Downs Station at 6.27. On Founder's Day the Holman Art and Reading Room, a building erected by subscription as a testimony to the services rendered by Sir Constantine Holman, had been formally opened, while on July 1st the Jubilee of the opening of the College was celebrated. In June the school was finally inspected under the direction of the Joint Universities Board with very satisfactory results, the Army Council having since recognized the school as entitled to send candidates for army competitions. The report terminated by a long list of successes gained by present and past pupils at various university examinations, the Indian Civil and other competitions for admission to the public services.

The meeting then turned to the principal business of the day, the resignation of Sir Constantine Holman. The original document in which he tendered his resignation having been read by the Secretary, Mr. Bernard Lamb, Sir Constantine Holman said:

Half a century is a large slice out of a man's life, and it is fifty-one years since, at a meeting of the Surrey Medical Benevolent Society, I took part in the negotiations with Mr. Propert for an advance of £2,500 to be applied towards the initiation of Epsom College, in return for certain scholarships in perpetuity which the Society was to receive. Even before that time I had been engaged in work for the South-Eastern Branch of the British Medical Association. Thus I can say that for considerably more than fifty years I have taken an active part in the public life of the profession, and for forty-one of those years I was engaged in a large general practice. A brain that has been incessantly busy about many things for so long a period cannot work on at full pressure indefinitely. Sooner or later there comes a time when a man feels that the burden which he has hitherto borne with comparative ease is becoming irksome, and when responsibilities not only lie heavy upon him, but become worrying anxieties. When that time comes, I hold that a man should take stock of his own powers, and, in the interest of institutions in the direction of which he takes a prominent part, should retire from the position of an active administrator before he loses the sense of the true proportion of things and the elasticity of mind that enables him to adapt himself to changes without which there can be no progress, before his judgement stiffens into obstructiveness or relaxes into vacillation and uncertainty. The duties of the office of Treasurer to Epsom College carry with them heavy responsibilities, and I may be allowed to say that I have always looked upon everything that seemed to come within the sphere of those duties as a matter of grave importance. The Treasurer's burden does not grow lighter, and I had reluctantly to come to the conclusion that it must be transferred to shoulders less bowed by the weight of years. I should not have resigned an office which I have held with great pride for nineteen years, had I felt any longer equal to a strain which must increase as the power to bear it diminishes. A glance at what has happened during the time I have been Treasurer may be permitted. In 1887 the Council pressed me to accept office as your Treasurer, and with great reluctance I consented. At about the same time I was appointed Treasurer of the British Medical Association, and for three years held the two offices—a double burden I should advise no one again to undertake. When the late Mr. Wood became head master of the College I found him a fellow-worker after my own heart, and I never can adequately acknowledge the help he was always ready to give. Up to that time the moneys of the College went into one pocket, but we then decided that the funds of the charity and the school should be kept separate. Finding the niceties of the division beyond our powers, I received permission from the Council to call in expert aid, and we were most fortunate in securing the help of Mr. May, who ever since has remained our trusted counsellor; one most careful, most able, and most willing to advise. I would warn my successor that Mr. May has a habit of sending to the Treasurer a most courteous letter annually, after completing his audit, placing his finger with most fatal precision on the weak point of the year's balance sheet. For myself, I have ever welcomed these minatory letters, and where possible have acted upon them. I envy the incoming Treasurer the balance sheet which he will be able to bring forward as his first offering, for it promises to be the most satisfactory we have seen for many years, and I think he will be able to say that, although he is a poor man, his balance sheet is sound, and to be understood by any one who seeks to know the financial condition of the institution. The experience gained as a member of the Council of the British Medical Association, on which I served for nearly forty years, was most valuable to me in my work at Epsom. That experience led me, on my appointment as Treasurer, to urge upon my Council the desirability of instituting Committees—School, Finance, Selection, and Works—among which the labour of administrative work was divided. These Committees, composed of picked men of the Council, made inquiries and threshed out questions that had to be dealt with; their reports were printed and circulated among the members of the Council, who thus had the opportunity of making themselves fully acquainted beforehand with every subject which was to be considered at their meetings. So well has this system worked that I can hardly call to mind an instance in which any important amendment has been moved at a meeting of the Council. I have not had an easy time as Treasurer. The water supply for a long time caused much anxiety and frequent expense; I hope the matter is now settled for all time. The bursting of the bath led to the discovery that it had never had a proper bottom; it cost us £1,100 to put this right. Last, but not least, came the almost crushing calamity of a breakdown in our drainage, on the renovation of which we had to spend no less than £8,000. We have now a plan of drainage laid in the best possible manner known to sanitary science of to-day, and with the best materials. So far as human ken can reach,

it should serve us for many, many years to come. This expense has been paid, but only at the cost of selling almost all our realizable securities. Fortunately, there is a brighter side to the picture, and on this I ask you to look with gratification at what has been done, and a hope of even better things for the future. You have 27 more acres of freehold land than you had 20 years ago; you have a lower school in full work, with accommodation for more pupils, and you have a fully-equipped chemical laboratory and lecture room. Acting on the advice of the examiners, the Council decided to extend the science teaching, which had been started in makeshift quarters. I hope the legacy we are to receive under Dr. Corbett's will may enable my successor to make better provision for this most important department of the school work. I hope, too, that an increasing number of boys will warrant an increase in the number of masters. In view, however, of the fact that for some years we have been overstaffed, owing to the number of subjects that have to be taught, the increase in the number of pupils should be substantial. Whereas in 1887 we had 191 pupils, there are now 254, which so far is our high-water mark; we are, I think, justified in believing that the increase is at least partly due to the elimination from the title of the word "Benevolent," which gave rise to the mistaken notion that Epsom College was a charity school. The decision of the Council to encourage the attendance of day boys was carried unanimously. Although it was the wish of our founder to attract such boys, hitherto there has been no opportunity for boys coming from any distance. It has been found possible to overcome this difficulty, and I trust that the facilities for the attendance of day boys which the Council have recently given will never be curtailed. Other schools welcome day boys, and I may mention that a member of our Council, himself a former pupil of Clifton College, has borne emphatic testimony to the fact that the presence of these boys was regarded as a source of strength to that College. It has always been a pleasure to me to keep in close touch with the teaching staff and the principal officers of the College. Needless to say, many little clouds which are, it may be, at first no bigger than a man's hand but which will darken the heavens if allowed to grow, may be dissipated by a word spoken in season. The teaching staff are a splendid body of men whose whole heart is in their work; for proof of this one need only look at the scholarships and distinctions won at the hospitals and at the universities by those whom they have trained. Of the three matrons, I can only say in homely phrase that they would be hard to beat. The reformations wrought by the college matron have been of the highest value. Miss Brown, our lower school matron, who plays the part of a mother to fifty small boys, is beyond praise; whilst Miss Hassall, who has for sixteen years been the infirmary matron, has never failed us in times of grave difficulty, and has earned the gratitude of many an anxious parent. Mr. Lamb, whom our Council knows and trusts, I have much to thank for, and I cannot say enough in acknowledgement of his help. I cannot conclude without referring to the incorporation of the asylum into the school premises at a rental, whilst the aged pensioners with augmented annuities can live where they please, and pass their last years amongst friends and relations. I have heard of nothing but satisfaction expressed at this change. A word about the Council itself may not be out of place here. I have often wondered whether the Governors in general have estimated at its true value the strength of the present Council of the College, to the formation of which have gone infinite care and patience. That the body contains within itself all the elements that make for efficiency will be made apparent by a study of its composition and the balance of its parts. The Council consists of leaders of the profession, teachers in the great medical schools of London, representatives of the provinces whose position entitles them to the respect and confidence of their fellows, old Epsomians, and two or three gentlemen of note outside the profession. In Sir Arthur Watson, Bart., K.C., Chairman of the Middlesex Hospital Committee, we have now a most valued member, who never fails us when we ask counsel of him in legal difficulties. And now, ladies and gentlemen, Governors of Epsom College, it only remains for me to resign into your hands the trust you placed in mine nineteen years ago. From my heart I thank you for the honour then done me. I have done my best, and I hope I have not been altogether an unprofitable servant. As for my colleagues on the Council, how can I find words to express my gratitude to them, who have so long trusted me with their fullest confidence, who have been so indulgent to my many shortcomings, who have borne with all my failings, and who have been in every way so considerate to me? Old colleagues and dear friends, I can only say I thank you with all my heart.

This address, delivered in certain passages not without a trace of very comprehensible emotion, was loudly applauded.

Sir WILLIAM CHURCH and the Rev. E. W. NORTHEY, who are respectively Chairman and Deputy Chairman, then in turn gave expression to the appreciation of the Governors of Sir Constantine Holman's services and to their regret at his resignation. These were finally put into the form of a resolution which was passed with acclamation, and read as follows:

> That the Governors of Epsom College desire to express the great reluctance and regret with which they accept the resignation of the Treasurership by Sir John Constantine Holman, M.D. They desire to record on the minutes that during the nineteen years he has filled this most important office the Institution and College have made uninterrupted progress, the finances of both having been placed on a satisfactory financial basis under his guidance. The Governors earnestly trust that Sir Constantine Holman will be spared for many years to continue to give the Council the benefit of his wide experience as a member of their body.

The next business was the election of Mr. Henry Morris to the vacant Treasurership, which being completed, Sir CONSTANTINE HOLMAN rose and performed his last act of office, the induction of Mr. Morris into the chair.

Mr. MORRIS having acknowledged the distinction conferred upon him in a few words and expressed his hope that his tenure of office would prove beneficial to the institution, the rest of the business on the agenda paper was completed.

This included the formal election of Sir Constantine Holman as a member of Council, his acknowledgement of the same, with a humorous allusion to the work which he would do as its youngest member, the filling of some vacancies on the Council, and the passing of certain minor alterations in the by-laws, and the usual votes of thanks.

The meeting then separated, members of Council remaining to hold an ordinary meeting.

BRITISH MEDICAL BENEVOLENT FUND.

AT the monthly meeting of the Committee, held on June 19th, twenty-one cases were considered and sums amounting to £201 were voted in relief to twenty of the applicants.

A legacy of £1,000 was announced from the late Mr. Thomas Corbett of Droitwich.

Mr. George Eastes, M.B., F.R.C.S., was elected a member of the Annuity Subcommittee.

Appended is an abstract of the cases relieved.

1. Widow, aged 53, of L.R.C.P., L.R.C.S.Ireland, who practised in Birmingham and who died six months ago after some years of ill-health which exhausted his means. No children. Voted £5 in one sum.

2. Wife, aged 43, of M.B., C.M.Glasgow.: was deserted by husband some years ago and has supported herself since by letting lodgings, but has been obliged to incur some small debts. Voted £5 in one sum.

3. Daughter, aged 62, of late L.S.A., who practised in Bucks and in London. Has maintained herself for several years as a housekeeper, but is now unable to obtain a post. Voted £10 in two instalments.

4. Widow, aged 29, of L.R.C.P.Lond., M.R.C.S.Eng., who practised in Poplar. Quite unprovided for at death of husband a few months ago, and had to sell furniture to pay funeral expenses and debts, the death vacancy only realising £25. Has one child, under 2 years of age, and is at present living with her father, but hopes to shortly obtain a situation. Voted £10 in two instalments.

5. Widow, aged 55, of L.S.A., who practised as a *locum tenens*. Practically unprovided for at husband's death two years ago. No children. Health indifferent. Voted £5 in one sum.

6. Daughter, aged 36, of M.D.Glasg., who was a surgeon in the Royal Navy. Applicant lost both her parents before she was three months old, and has supported herself as a nurse for

several years, but is now ordered at least a year's rest on account of ill-health. Voted £12 in twelve instalments.

7. Widow, aged 65, of M.D Edin., who practised in Lincolnshire. Income less than £10 a year. Children unable to help, and applicant is in feeble health. Relieved twice, £17. Voted £10 in 10 instalments.

8. Daughter, aged 60, of late L.S.A., who practised for 50 years in a town in the North of England, but lost his means through unfortunate investments. Has a small annuity from the North of England Governesses' Society. Tried to keep a lodging-house with a sister, but was unsuccessful, and had to sell a portion of the furniture to pay debts. Relieved 8 times, £72. Voted £10 in 2 instalments.

9. Widow, aged 55, of M.B., C.M.Edin., who practised in Lancashire. No income: small earnings from needlework, but finds difficulty in obtaining orders. A little help from son, aged 22, earning 25s. a week as a clerk. Relieved three times, £36. Voted £12 in twelve instalments.

10. Daughters, aged 46 and 43, of late L.R.C.P.Lond., M.R.C.S.Eng., who practised in Wales. No income; endeavour to maintain themselves by knitting in the winter and by letting lodgings in the summer, but last year had an extremely bad season, only having their rooms occupied for seven weeks. Relieved seven times, £75. Voted £12 in twelve instalments.

11. Widow, aged 43, of L.R.C.P., L.R.C.S.Edin., who practised in Essex. Six children, aged 20 to 11, the four eldest being clerks earning a small weekly salary. Endeavours to keep a home for the family by the help of the sons and by taking a couple of boarders, one of whom has just died. Relieved three times, £36. Voted £12 in twelve instalments.

12. Daughter, aged 43, of late M.D.Edin., F.R.C.P.Edin., who was a University Lecturer and Examiner in Midwifery. Has been in bad health for several years past but until recently was able to partially support herself; has now been quite incapacitated for some months and is dependent on a grant from the Royal College of Physicians of Edinburgh and the help given by this Fund. Relieved eight times, £70. Voted £12 in twelve instalments.

13. Daughter, aged 36, of late F.R.C.S.Eng., who practised in Bedfordshire. Has been laid up for more than a year with haematemesis and phlebitis, and is only just beginning to walk about again. Dependent on mother, whose income is less than £1 a week. Relieved six times, £50. Voted £10 in ten instalments.

14. Daughter, aged 57, of late M.D Edin., who practised in Devonshire. No income; is allowed a small weekly sum by a brother, but owing to constant ill-health for the last three years it is not sufficient for absolutely necessary expenses. Relieved once, £10. Voted £5 in one sum.

15. Widow, aged 51, of L.R.C.P., L.R.C.S.Irel., who practised in London. No income; has endeavoured to support herself by maternity nursing for several years, but is now nearly blind. Relieved four times, £41. Voted £12 in twelve instalments.

16. Daughter, aged 46, of late M.R.C.S., L.S.A., who practised in Lancashire. No means, and unfitted for permanent employment by epilepsy and general ill-health. Relieved three times, £36. Voted £12 in twelve instalments.

17. Widow, aged 41, of L.R.C.P., M.R.C.S., who practised in London. Was practically unprovided for at husband's death, and for seven years has been housekeeper for a medical man, who is now about to marry. Three children, aged 17, 16, and 15, one being very delicate after rheumatic fever. Applicant proposes to take a small house to receive boarders, and is promised every possible help by several doctors of her acquaintance. Relieved three times, £25. Voted £15, subject to £45 being raised by her friends.

18. Widow, aged 45, of L.R.C.P., L.R.C.S.Edin., who practised in Sheffield. No income, and dependent on a son aged 19, earning 18s. a week as a labourer, another son having just married, and a daughter, aged 16, having been obliged to give up work on account of ill-health. Relieved eight times, £99. Voted £10 in ten instalments.

19. Widow, aged 58, of M.D St. Andrews, who practised in London. No means. Lets lodgings, but has only one of her rooms occupied. Children unable to help. Relieved twice, £24. Voted £12 in twelve instalments.

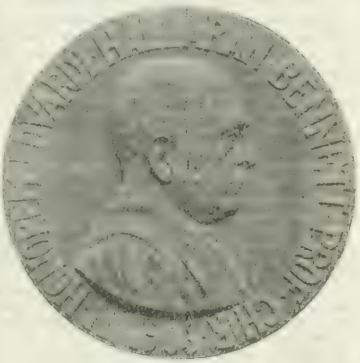
20. Widow, aged 76, of M.R.C.S., L.S.A., who practised in Bucks. Four children, aged 43 to 39, but three are deaf and dumb and one epileptic also; the fourth is a teacher, but at present has no post. Applicant has a small income, but it is not sufficient for the maintenance of herself and her afflicted family. Relieved four times, £30. Voted £10 in two instalments.

TRINITY COLLEGE, DUBLIN.

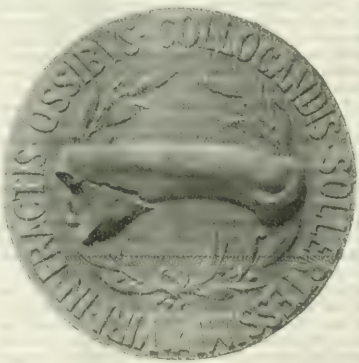
THE BENNETT MEDAL.

The accompanying photographs illustrate the medal founded this year, in the School of Physic, Trinity College, Dublin, in honour of Professor Edward Hallaran Bennett, by his former pupils.

At the beginning of the winter session 1904-5 Professor Bennett retired from the active teaching work of the school, with which he has been associated for over forty-five years. It was in June, 1859, that Dr. Bennett first became a member of the teaching staff of Trinity College as a Demonstrator of Anatomy. On the retirement of Dr. J. K. Barton he was appointed University Anatomist, and on the death of Robert Smith in 1873 he was elected to the Chair of Surgery, which he has filled ever since. For over forty years Dr. Bennett has been a member of the Surgical Staff of Sir Patrick Dun's Hospital.



Obverse.



Reverse.

The Bennett Medal will be awarded every second year at the Surgical Travelling Prize Examination to the candidate who gains the highest marks, and a Bennett Prize will be awarded to the candidate who obtains second place at the same examination. In addition a bronze life-size relief portrait of Dr. Bennett will be placed in Sir Patrick Dun's Hospital and another in the Medical School of Trinity College. These will be unveiled at the beginning of next winter session.

The work of designing the medal and the bronze medallion was entrusted to Mr. Oliver Shepherd of the School of Art, Dublin, and has been carried out by him to the complete satisfaction of the Committee elected by the subscribers. The reverse of the medal bears a realistic representation of Bennett's fracture of the metacarpal bone of the thumb and a suitable inscription in Latin.

It is proposed to call the subscribers together at the beginning of next winter session for the purpose of presenting Professor Bennett with the first copy of the medal struck in gold, and of unveiling the medallions at Sir Patrick Dun's Hospital and at the Medical School Trinity College.

Subscribers to the fund can obtain proofs of the medal in bronze as mementos upon payment of 30s. each, provided they communicate with either of the Honorary Secretaries, Dr. H. R. Swanzy, 23, Merrion Square, or Dr. C. A. Ball, 12, Lower Mount Street, Dublin, before September 1st.

LITERARY NOTES.

IN the current number of *Alma Mater*, the Aberdeen University magazine (which, it may be mentioned by the way, has just completed the twenty-third year of a blameless and useful existence) Professor MacWilliam discourses pleasantly on physiology old and new. In the good old days of scientific teaching, he says, a lecture table and a manuscript with a pair of spectacles *pro re nata* constituted the essential equipment. Modern methods of teaching physiology were introduced at Aberdeen in 1877, when Professor Stirling, now of Manchester, began demonstrative lectures, and started a practical class of histology, with a little chemical work. The sole requirement as regards physiology in the Scottish universities at that day was a winter course of lectures. On the advent of Professor MacWilliam in 1886 the regulations were the same. There was hardly any teaching plant, diagrams, etc.; those which had been used in previous years did not belong to the University. There was no assistant, and the accommodation was of the most limited kind. In 1891 physiology got a new habitation in the South Wing, but even then it was uncomfortably lodged. The practical class room, however, was greatly overcrowded, and incongruous kinds of work—microscopical, chemical, etc.—had to be done there in default of other accommodation. The remaining workroom on the ground floor had to serve many heterogeneous purposes—histology, chemistry, and experimental work herding together as best they might. Of fume chambers, says the Professor, with a gentle shudder at the remembrance, there were none; all the different fumes evolved in physiological work, offering a rich variety in regard to offensiveness and potency for evil, were liberally commingled in the rooms in which we lived and moved and had our—often unsatisfactory—being. Now at last in this present year of grace physiology has been housed in a manner befitting its importance. There is an excellent lecture-room, with microscopical, chemical, and experimental classrooms, specially constructed and fitted up in accordance with requirements. Provision is also made for research work. When the department has been fully equipped with apparatus, Professor MacWilliam says it will be on a thoroughly modern footing.

The multiplication of scientific and technical journals, each devoted to some special department, is perhaps an inevitable consequence of the extension of scientific investigations into ever new regions, and the heaping up of fact on fact and theory on theory; but it is a serious embarrassment to every man of science who wishes to keep up at least a general acquaintance with the progress achieved in departments other than that in which he is specially engaged. The difficulty is even greater for those intelligent members of the public who desire trustworthy accounts of the results of recent research, and are not satisfied to take their information from the halfpenny press. An attempt to meet this difficulty is to be made by a new quarterly journal, *Science Progress in the Twentieth Century*, the first number of which has just been issued by the publishing house of John Murray. From the editorial preface we gather that the new journal is in some sense the successor of *Science Progress*, published from 1894 to 1898 under the editorship of Professor Bretland Farmer and the general direction of Sir Henry Burdett. The new venture has the support of an advisory committee, including most of those who served the former journal in a similar capacity, and of some others. The editors are Dr. N. H. Alcock, Lecturer on Physiology at St. Mary's Hospital Medical School, and Mr. W. G. Freeman, B.Sc., F.R.S. The papers contained in the first number, an octavo of 180 pages, are: A Science of Commerce and some Prolegomena, by W. J. Ashley, M.A.; Chloroform a Poison, by B. J. Collingwood, M.D.(Cantab.); Physical Geography as an Educational Subject, by J. E. Marr, Sc.D., F.R.S.; On the Occurrence of Prussic Acid and its Derivatives in Plants, by T. A. Henry, D.Sc.(Lond.); The Solvent Action of Roots upon the Soil Particles, by A. D. Hall, M.A.; Some Notable Instances of the Distribution of Injurious Insects by Artificial Means, by Fred. V. Theobald, M.A.; The Blood-Platelets, by G. A. Buckmaster, M.A., D.M.(Oxon.); Some Recent Progress in Chemical and Structural Crystallography, by A. E. H. Tutton, M.A., D.Sc.(Oxon.), F.R.S.; The Geological Plans of some Australian Mining Fields, by J. W. Gregory, D.Sc., F.R.S.; The Corn Smuts and their Propagation, by T. Johnson, D.Sc., Nehemiah Grew and the Study of Plant Anatomy, by Agnes Robertson, D.Sc.; and The Utilisation of Proteids in the Animal, by F. G. Hopkins, D.Sc., F.R.S. The annual subscription is £1, post free, and single numbers will be sold at the price of 5s. Subscriptions should be sent to Mr. John Murray, 50A, Albemarle Street; and editorial communications to the Editor, *Science Progress*, Physiological Laboratories, London University, South Kensington.

THE KING'S SANATORIUM.

THE King has approved of the following appointments in connexion with the King Edward VII Sanatorium at Midhurst:

Consulting Staff.

Sir William Broadbent, Bart., K.C.V.O., F.R.S.
Sir Richard Douglas Powell, Bart., K.C.V.O.
Sir Felix Semon, K.C.V.O.
Sir Hermann Weber, M.D.
Sir Lauder Brunton, M.D., F.R.S.
C. Theodore Williams, Esq., M.V.O., M.D.
Professor Clifford Allbutt, M.D., F.R.S.
Professor Osler, M.D., F.R.S.
James Frederick Goodhart, Esq., M.D.
J. Kingston Fowler, Esq., M.D.
Percy Kidd, Esq., M.D.
William Bulloch, Esq., M.D.

Executive Committee.

The Viscount Esher, G.C.V.O., K.C.B. (Chairman).
Sir Frederick Treves, Bart., G.C.V.O., C.B. (Deputy Chairman).
The Hon. Sidney Peel.
Sir Francis Laking, Bart., G.C.V.O.
Colonel Lascelles, M.V.O.
William James, Esq., D.L., J.P.
Rowland Bailey, Esq., M.V.O., I.S.O.
P. Horton-Smith Hartley, Esq., M.V.O., M.D. (Honorary Secretary).

Lady Visitors.

Mrs. William James.
Miss Ethel McCaul, R.R.C.

END OF THE SUMMER SESSION.

GUY'S HOSPITAL.

THE biennial festival took place on July 3rd, when some 250 Guy's men dined together at the Hotel Cecil. Mr. C. H. GOLDING-BIRD occupied the chair. In proposing the toast of the evening, "Prosperity to Guy's Hospital and its Medical School," the Chairman alluded to the traditions of the hospital, and the characteristics of its teaching and its students, its founder and makers, "a series of old masters," all of whom had been actuated by a sense of benevolence of the highest kind, and who had erected the platform from which the present teachers of the school had started. Changes at Guy's always ended in improvements; and all parts of the hospital were now "quite up to date," although the income of the institution in recent years had not only been vanishing but had actually vanished. He spoke feelingly of the loss sustained by the hospital and school through the death of Dr. J. H. Bryant, who was great both as a student and a teacher; and of the loss occasioned by the placing of Mr. Jacobson upon the consulting staff. Mr. COSMO BONSOR (the Treasurer), in returning thanks, said that although Guy's house was built 200 years ago the wards had been brought to a condition worthy of to-day. The autocracy in the old governing body had disappeared. The school had always been self-supporting, though the professors and teachers had sometimes had to sacrifice their rights and privileges in order to secure its prosperity. As regarded the hospital finances, they were just now fairly prosperous. Dr. FREDERICK TAYLOR proposed "The Consulting Staff," and Dr. PYE-SMITH responded. Sir S. WILKS also spoke. He said that he looked upon the past with satisfaction. Guy's Hospital had moved far upon the path of progress since he first knew it, and the benevolent despotism of its former Treasurers had been converted into the constitutional government of its present House Committee. Speaking of the progress of medical science, he said that the microscope

had opened a new world, and histology was a new science since he began work. There had been more real advance in medicine during the last half century than had taken place in all the previous ages since the time of Hippocrates; and Guy's Hospital had, he rejoiced to think, contributed its small share to this progress. Moreover, if the great conqueror, Death, had not prematurely removed from the scene some truly wonderful men, Guy's would have been pre-eminent amongst the medical schools of the world. All Guy's men should remember that it was their great privilege to aid in keeping up the glorious traditions of the place. Dr. Hale White proposed the toast of "The Chairman." Mr. Golding-Bird replied, and gave the toast of "The Secretary," to which Dr. Newton Pitt, to whom the excellence of the arrangements for the dinner was due, responded. The proceedings were all marked by much enthusiasm, and after the toast of the evening the company as usual sang "Auld Lang Syne."

The annual gathering at the London (Royal Free Hospital) School of Medicine for Women took place on June 28th, Mrs Garrett Anderson, President of the School, occupying the chair, and the Duchess of Marlborough distributing the prizes. In the course of the proceedings Mrs. Garrett Anderson said she thought the school was to be congratulated on the achievements of its students. Out of 410 who had obtained diplomas, 117, or over 43 per cent., had taken the degree of the University of London. Sir Benjamin Franklin, K.C.I.E., who also addressed the students, spoke in particular of the large field of work which India offered to medical women, and alluded with satisfaction to the fact that seventy-six old students of the school were at present carrying on their profession there. Some of these were in Government hospitals, others in the Dufferin hospitals, while many were at work as medical missionaries. The Duchess of Marlborough, in response to a vote of thanks, said it was a justifiable source of pride that women were now independent, and that their power to add to the general advance of the world had been brought about by their own industry and intelligence. The work of those who joined the medical profession was invaluable, especially in the East.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Council Election.

This election took place on Thursday, July 5th. At 2 p.m. there was no quorum, and the proceedings were delayed for half an hour. The result was:

	Votes.	Plumpers.
Mr. G. A. Wright	**462**	**46**
Mr. Henry Morris	**386**	**21**
Mr. Richardson Cross	**340**	**10**
Mr. Charters Symonds	316	51
Mr. Bruce Clarke	305	48

The President declared Mr. Morris and Mr. R. Cross duly re-elected and Mr. Wright (Manchester) duly elected members of Council. There were 759 votes, all by voting paper excepting 9. Two of the papers were invalid. One Fellow voted by telegram, but the vote was disallowed.

MEDICAL NEWS

The King will open the Royal Victoria Infirmary at Newcastle-on-Tyne on Wednesday next, and in connexion with this event Dr. G. H. Hume, Consulting Surgeon to the Infirmary, has written *The History of the Newcastle Infirmary* from its commencement in the mid-eighteenth century down to the present day. The work is founded on researches made among the early records of the institution, and affords an interesting example of the local response to the philanthropic movement which led to the foundation of so many important hospitals about a century and a half ago. It will be issued at the end of this week in an octavo volume, illustrated by fourteen portraits, six plans, and eleven views, and will be sold at the price of half a guinea, the profit resulting going to the funds of the new infirmary. Among the portraits it will contain are those of Shute Barrington (Bishop of Durham), Robert Stephenson, Dennis Embleton, and George Yeoman Heath.

The Prince and Princess of Wales, as Grand President and Lady Grand President of the League of Mercy, will receive the members of the League in the garden at Marlborough House on Thursday next, July 12th, at 4 p.m.

A course of post-graduate lectures will be given in Berlin from October 1st to October 27th. Further particulars can be obtained from Herr Melzer, Ziegelstrasse 10,11 (Langenbeck-Haus), Berlin.

Sir Lauder Brunton, Dr. J. C. McVail, Medical Officer of Health for the counties of Stirling and Dumbarton, Dr. A. Macfadyen of the Lister Institute, and Dr. T. A. Starkey, Professor of Hygiene, McGill University, Montreal, have been elected Fellows of the Royal Sanitary Institute.

At a meeting on June 28th the Court of Common Council of the City of London raised the salary of Dr. Collingridge, its Medical Officer of Health, from £1,000 to £1,250, and declined to agree to the recommendation of the Offices and Clerks Committee that the latter sum should be regarded as a maximum.

At the provincial meeting of the Incorporated Society of Medical Officers of Health to be held at Bath on July 14th, under the presidency of Sir Shirley F. Murphy, a discussion will be opened by Mr. C. S. Loch, LL.D., Secretary of the Charity Organization Society, on the Relation of Sanitary Authorities to Charitable Organizations. The dinner of the Society will be held in the evening, and there will be a reception in the Roman Baths by the president and members of the West of England and South Wales Branch of the Society.

We have received a notice, too late to insert in its proper place, that an extra meeting of the Hampstead Division will be held on Tuesday, July 10th, at 5 p.m., at St. Mary's Schools, Church End, Finchley, to consider the proposed new cottage hospital at Finchley, and especially the question of subscribers' letters (see British Medical Journal, February 17th, 1906, p. 395). A special meeting of the same Division will be held on Thursday, July 12th, at 8.45 p.m., at 9, College Crescent, Swiss Cottage, N.W., to consider, among other matters, the propriety of obtaining from all Divisions of the Association reports on the subject of contract and gratuitous practice.

At a meeting of the Liverymen of the City Guilds on June 28th Dr. Thomas Crosby was elected one of the two Sheriffs for the City of London. Dr. Crosby was first elected to the Court of Common Council in 1877, and became Alderman of the Langbourne Ward in 1898. He is also a past master of the Turners' Company and a justice of the peace for the City. He became F.R.C.S.Eng. in 1860, and M.D. St. Andrews in 1862; he is a member of the Senate of the University of London, and was at one time President of the Hunterian Society, and Vice-President of the Metropolitan Counties Branch, British Medical Association.

The movement recently started with the object of compensating Dr. A. E. Jones for his heavy expenses in his late ordeal was brought to a fitting conclusion on July 2nd. A small gathering of subscribers was held, through the courtesy of Sir Victor Horsley, the treasurer of the fund, at 25, Cavendish Square. Mr. John Tweedy presided. Amongst those present were Dr. F. T. Roberts, Dr. Radcliffe Crocker, Mr. Sidney Spokes, Mr. Herbert Tilley, Mr. Sydney Stephenson, Dr. Andrew Duncan, Mr. George Pernet, and Mr. E. S. Weymouth. Mr. Tweedy, in presenting Dr. Jones with a cheque for £144, said that the meeting of Dr. Jones's professional friends showed their deep sympathy with him in his recent terrible ordeal, and symbolized their absolute confidence in his high integrity. The charge had been triumphantly disproved in a court of law and he congratulated Dr. Jones in the name of his professional brethren most heartily on the successful issue of a most painful experience. Dr. Roberts, in a few remarks, spoke of the high esteem in which he held Dr. Jones, and, as a former teacher, added his congratulations. Dr. Jones made a short reply in which he said that apart from personal considerations all such movements as this were of the utmost value in promoting the unity of the profession. He thanked the subscribers most heartily for their sympathy and support.

Annual Representative Meeting.—The Irish Medical Schools' and Graduates' Association has arranged for a conversazione and a dance at the Great Central Hotel on Thursday, 26th July, commencing at 9 o'clock, at which it is hoped as many as possible of the Representatives will attend together with their wives. Individual invitations will be issued in due course.

British Medical Journal.

SATURDAY, JULY 7th, 1906.

THE CHRISTIAN SCIENCE CASE.

The case of R. *v.* Adcock, a report of which appears elsewhere, is remarkable from many points of view. It brings to light the first instance, so far as we know, of a medical practitioner espousing the cause of Christian Science, and sheds a fierce light upon the practical application of the doctrines of this so-called religion; even if it does not show that a jury will hold anyone criminally responsible who encourages a patient who is seriously ill to rely on this crazy system, it at least proves that there were some members of one jury who were prepared to take this view of the prisoner's conduct. This is a legitimate inference from the refusal of the jury to find a verdict either way.

It were idle to argue with those who hold that Christian Science is an all-powerful means of cure. The prisoner in the case under notice, was unable to answer the pertinent question put by Mr. Justice Bigham, when he asked: "Why, then, do Christian Scientists ever die?" A man who believed that snake bite and opium poisoning may certainly be cured by a belief in the doctrines of Mrs. Eddy was not sufficiently versed in the new faith to answer this question.

Stripping the case of Christian Science, what was the naked issue for the jury? A patient who is suffering from chronic septic poisoning summons a medical man to his assistance. The practitioner thus summoned prescribes nothing except the use of a dusting powder. Granted that the patient had strong views in opposition to medical treatment of any kind, there was only one course open to the medical man who was attending him—that was to cease doing so. If he continued to attend, and to pander to the delusions of his patient, he became responsible for the neglect. Mr. Justice Bigham, in his summing-up, told the jury that the patient was master of the situation, and that it was not because his death resulted from his obstinacy that someone else should be made responsible. But the conclusion is irresistible that, being attended by a qualified medical practitioner who openly avowed the doctrines of Christian Science, the delusions of the patient were strengthened and fortified by those of the man who was constantly with him. In these circumstances we do not altogether understand the attitude which Mr. Justice Bigham adopted with regard to the case. Had the prisoner not been a medical practitioner there would have been more difficulty, as it is not at all clear, upon the authorities, that one of the Peculiar People or a Christian Scientist who is not a medical practitioner can be held criminally responsible in such circumstances as those disclosed in this case. But here the accused was a registered medical practitioner and had received regular remuneration for his attendance upon the deceased; as we understand the judge's summing-up this was the first question left by him to the jury, and upon it he gave the jury no guidance whatever, in spite of the fact that he repeatedly informed the Court that he was not trying "Christian Science."

The second question was whether, if the accused had attended as a medical man, he had been guilty of negligence, and, with all respect to Mr. Justice Bigham's opinion, we venture to say that on this head the case did distinctly raise the question whether to resort to the so-called treatment of Christian Science is not, at any rate in the hands of a trained medical man, really in itself evidence of negligence. We do not accept the judge's dictum that the jury had nothing to do with the folly of people who refuse to avail themselves of the assistance that science and skill can afford, and submit that this was not the point at issue; it was not what Major Whyte believed or disbelieved, but what the accused knew. He must have known that to treat with a dusting powder a huge bedsore with an abscess burrowing among the muscles of the buttock and thigh was to court disaster, and to destroy any chance of recovery which the patient might have had. This consideration brings us to the third point left by the judge to the jury; this was whether, granted that negligence had been shown, that negligence had hastened the death of the deceased. Upon this the judge, in the course of the case, adopted the curious view that if the patient could be shown to have been gravely ill three months before he died, the "treatment" which he subsequently received did not affect the matter.

The judge took up Sir Victor Horsley when he said that there was a moral responsibility on a medical man to use every means in his power to cure his patient. Mr. Justice Bigham seemed surprised at the suggestion that a medical man has any such moral responsibility; but the judge's surprise will very much surprise members of the medical profession who are not familiar with the general attitude of lawyers on the ethical question of responsibility for life. It is quite common to find barristers and even judges assuming that a medical man's duty ends with the performance of an operation or the prescription of a mixture or ointment. The feeling that he must do everything possible for his patient, with which the mind of every medical man who is worth his salt is imbued, appears almost incomprehensible to the legal mind. Yet this feeling, this sense of an imperative duty, is of vast importance to the individual patient, and to the public weal, and should be fostered and not belittled by the law.

In conclusion, we would protest against the bitter and extravagant attack made by the counsel for the defence upon the various members of the profession who were called for the prosecution. There was no shadow of foundation for the charge that they came forward in any spirit of malice towards the prisoner; theirs was a public duty, and if in the performance of it they have laid bare the inhuman practices of Christian Scientists their labours will not have been in vain.

THE TRUE FUNCTION OF THE ROYAL ARMY MEDICAL CORPS.

It has become obvious recently that some misconception is current as to what should be the true duties of the Royal Army Medical Corps. The public memory is very short, for it is only some five years since the nation, with the assistance of a Royal Commission, discovered the reasons why the medical arrangements of our armies in the field were not satisfactory. The difficulties in the field were found[1] to be due in the main to two causes, first and chiefly, to imperfect

[1] *Report of the Royal Commission on the Care and Treatment of the Sick and Wounded during the South African Campaign*, pp. 7 to 12 and p. 69.

sanitation, and secondly, to a lesser but still large extent to insufficient nursing.

Taking first the question of nursing, it may be recalled that it was found on inquiry that the men employed for nursing were willing but were insufficient in numbers and untrained in nursing duties. Steps have been taken to remedy these defects by increasing the strength of the Corps, and by specially training a section of the men as nurses. As time progresses the number of trained male nurses at the disposal of the medical department of the army will be sufficient to cope with the nursing required in the field ambulances, leaving also a proportion for nursing in the hospitals. It must be borne in mind that it requires prolonged training to create a nurse; the nursing section is therefore a training school, from which the majority of those trained pass early into the Reserve, if they do not obtain advancement.

But in order to train these men, and at the same time to have a fair nucleus of women nurses for the war hospitals, a further step was necessary. That step was the reorganization (including an increase in numbers) of the Army Nursing Service. Fortunately, these improvements are now well in working order, and the tented cities of pestilence of the past will in future be hospitals in every way fitted to cope with their duties.

Before leaving this subject it is necessary to controvert certain fallacious statements which have recently been made. In the first place, it is not the case that the new Nursing Section of the Royal Army Medical Corps is unpopular with the men; the truth is that there are more candidates desirous of qualifying as nurses than can be accepted. In the second place, the system is, in fact, producing excellent male nurses, and is thus becoming efficient for the nursing requirements of the army both in peace and war. Again, it is not true that Queen Alexandra's Imperial Military Nursing Service is an expensive establishment. So far as can be gathered from the Army Estimates for this year (p. 40) the average cost of each member is £110 per annum. For this moderate average charge, actually no greater in the aggregate than would be the cost of maintaining an equivalent staff of warrant and non-commissioned officers, army nursing is being made efficient. Lastly, it is incorrect to say that there is not a sufficiency of cases for nursing in military hospitals. The number of nurses is proportioned to the bad cases. As a matter of fact, the army Sister has nearly twice as many cases under her supervision as the Sister of a civil hospital.

Let us now turn from nursing to that which should be the highest function of the Royal Army Medical Corps—the prevention of disease. In order to deal with this sanitary question a new departure is demanded. In this new departure is to be sought the practical realization of the dreams of preventive medicine. If the Royal Army Medical Corps can realize these dreams, it will show itself to be in every respect in accord with the civil profession of medicine. Throughout this country prevention of disease is the guiding note of medical policy.

In the Manchurian war the Japanese proved the pioneers of preventive medicine in the field. Why cannot the British Army follow the lead? Not for want of knowledge of its value. Not for want of desire to do so on the part of those responsible for the efficiency of the Army Medical Service. The secret of the difficulty lies in the inertia of the mass, the dead-weight resistance to innovation, the stolid "as you were" of preconceived ideas and effete custom. The Japanese started with a clean slate. The causes mentioned above prevent us from cleaning ours, and occasional dabs would fairly represent our past efforts at cleaning. Perhaps in time, through the sustained energy of the head, aided by the enthusiasm of a few enlightened followers, the inertia may be overcome, and the wiping-out process effected. When this clean slate has been obtained, "Sanitary Section" will be written across it. Then the highest aim of medicine will be the highest aim of the Royal Army Medical Corps, which will be able to pride itself on fulfilling its most essential function in relation to the army.

It is not necessary here to detail the duties of such a section; the comprehensive term, army sanitation, includes the whole range of hygiene as applicable to armies in peace and war, and more especially the latter. Neither is it necessary to sketch the organization whose object will be the provision of specially-trained water-sterilizers and sanitary inspectors. It is only necessary to emphasize now, in general terms, the supreme importance of the broad fact that sanitation is the highest duty, not only of the officers, but emphatically also of the men of the Royal Army Medical Corps.

An ideal organization of the Royal Army Medical Corps would involve the subdivision of the non-commissioned officers and men into sections, which in order of importance would be as follows: (1) A trained sanitary section, containing sufficient non-commissioned officers and men to supervise the water supplies and conservancy of an army in the field; (2) a nursing section, with sufficient trained men to nurse in situations to which women can have no access; (3) a cooking section; (4) a section composed of men who will carry out the rough work connected with hospitals. This section now exists as the General Duty Section—an excellent name, for its members carry out such work as requires no more special training than is given during the recruits' course at the Aldershot Dépôt. But its work is essential in order that the sanitarians, nurses, etc., may be free to perform their technical duties. (5) A clerks section.

When this ideal has been attained we shall find the man and the woman each working in his or her own sphere, mutually co-operating for the good of the army, the one in preventing disease, the other in alleviating suffering; the man working where the woman cannot go; the woman working so that she can set free the man to carry on man's work in the zones of danger.

THE ALLEGED GROWTH OF INSANITY.

Considerable public attention has been directed of late years to the enormous numerical increase of certified insanity, and as each succeeding blue book has disclosed a still heavier burden on the country from this cause, numerous articles have appeared in lay publications pointing out the serious importance of this question, and mostly filled with the gloomiest forebodings for the future. The latest of these, two lengthy articles in the *Times* newspaper of April 14th and 21st last, whose writer regarded the question from an ultra-pessimistic standpoint, has evoked a reply[1] from Dr. David Nicolson, Lord Chancellor's Visitor in Lunacy. No one is better able to speak with authority and freedom from bias than Dr. Nicolson, and his able letter should aid in dissipating unnecessary apprehensions. The question, of course, has two sides—an economic and a purely medical, and it would be well if in discussing it the two issues—the drain on the public purse by increasing

[1] *Lancet*, June 9th.

insanity, and this increase as a symptom of a possible decline in national stamina—were kept entirely separate.

As to the first, there can be no question. Between 1869 and 1905 the number of pauper insane rose from 31,401 to 109,277, or from a ratio of 21.03 per 10,000 of general population to a ratio of 32 per 10,000. This increase, so notable and so steadily progressive, of patients requiring State provision, whether determined by an actual increase of insanity or merely by increased certification, cannot but occasion the gravest concern, and should stimulate administrative bodies to seek some means for its mitigation.

The second question—as to whether there is an actual increase of insanity—is not so easy of answer, if, indeed, it can at present be answered at all. Dr. John McPherson stated his opinion in his masterly Morrisonian Lecture last year that there is no actual increase of insanity. This view is endorsed by Dr. Nicolson, who quotes the Lunacy Commissioners' statement that, "in spite of this large numerical increase"—from 53,177 total insane in 1869 to 119,829 in 1905—"it "will be found that, when considered in relation to the "growth of population the proportion of insane has *not* "increased as much as the population." This does not, however, do away with the facts that whereas there were 536 sane persons to every insane person in 1859, there were only 288 in 1904, and 285 in 1905. Probably the least erroneous index to the actual growth of insanity is contained in the ratio of occurring insanity as represented by the admissions. This has risen from 4.71 per 10,000 of population in 1869 to 6.56 in 1904, or between a third and a half. Even this criterion, however, is vitiated by the intrusion of adventitious factors, such as increasing stringency of certification, a diminished reluctance to enter an asylum, and—a very noticeable feature in many districts—an increasing tendency amongst the working classes to secure for their aged relatives the comforts and medical treatment of an asylum. This may partly explain the trifling increase in the ratio of admissions of private as compared with pauper patients during the period in question. Similarly with regard to discharges, the pecuniary position of the patients largely influences asylum statistics. This is well expressed by Dr. Nicolson, who after commenting on the fact that the domestic life of the poorer classes is not always well adapted to looking after weaklings from asylums, and that the relatives, knowing how well-housed and looked after they are, consequently refrain from clamouring for their discharge, says that "impecuniosity and straitened circumstances "(the *res angusta domi*) must be held responsible for "the numerical growth of insanity, and that a large "proportion of the insanity upon which the rate-"payers so freely expend their money is a kind of "insanity which has for its test or gauge not the mental "condition but the pecuniary resources of the patient. "From this kind of insanity the well-to-do can, as it "were, purchase their discharge, while the impecunious "have to remain in the asylum and on the notified list." In consideration of these facts Dr. Nicolson divides the pauper patients into two classes, making with the private patients three groups: (*a*) private patients actually insane, (*b*) pauper patients actually insane, and (*c*) pauper patients potentially insane, that is, those who, if private patients, would be taken care of, without being under certificate, by their friends. It is to the retention and accumulation of this last class that Dr. Nicolson considers that the numerical increase of the certified insane must be largely ascribed. Dr. Nicolson therefore answers the question, "Is insanity on the increase?" in the negative.

As we have already said, it does not appear to us that this question, from the evidence before us, admits of anything more than a general opinion; but we believe, following Dr. Nicolson's line of reasoning, that it would be a distinct gain, which would bring us nearer the solution of this question, if accurate returns could be obtained of the numbers of patients in asylums who would fall within Dr. Nicolson's category of the "potentially insane." We need only say in conclusion that Dr. Nicholson advocates as a practical measure of reform, which might favour the discharge and obviate the return of cases of the latter kind, a liberal extension of "after-care associations." The boarding-out system does not, he says, appeal successfully to English householders, but this remains to be seen, and it is probable that if provision could be made on the lines already suggested by the London County Council Asylums Committee on more than one occasion, for the boarding-out of suitable patients in the vicinity of the asylums under the supervision of the asylum officials, local resistance would as quickly disappear as it has done at Lierneux in Belgium, in Saxony, and in other countries.

THE PROPOSED APPLICATION FOR A ROYAL CHARTER.

The Central Council at its meeting on July 4th resolved to recommend that the proposed application for a Royal Charter should not at present be made. The matter came up on a resolution moved by Dr. Helme, one of the representatives of the Lancashire and Cheshire Branch, seconded by Dr. Pope, of Leicester, and carried by 28 votes to 15. The resolution, while not expressing any opinion unfavourable to the application for a Royal Charter, stated the Council's view that further and fuller consideration is required of the whole question, and therefore strongly recommended the Representative Meeting to delay the application so as to give the Association as a whole longer time to appreciate and consider the many important matters involved in drafting a thoroughly comprehensive and permanent form of charter.

The reasons which induced the majority of the Council to vote in favour of delay were probably not the same in all instances. It appeared that some considered that the advantages anticipated from incorporation under a charter were not obvious, or had at least not been laid before the Association with sufficient clearness and insistence. We may, however, recall the fact that the history of the circumstances which led up to the proposal, together with reasons in its favour, were very clearly and succinctly stated by the Organization Committee in an explanatory memorandum prefixed to the draft charter published in the Supplement of March 24th. In the main the reason which led to the proposal being made was that difficulties were anticipated in obtaining from the High Court such an extension of the objects, stated in the memorandum of association, as appeared to be desired, whereas a chartered corporation, even though constituted for specific objects, is not in point of law limited by those objects. Under a charter, then, the Association would be free from the trammelling rules of the courts in regard to what is and what is not *ultra vires*, and would thus, as its horizon widened, be free to extend its operations without the necessity for seeking express provision among the objects specified. Another advantage expected from incorporation under a

charter was that it would be easier to carry out the representative principle to its logical conclusion, and that in particular it would be possible to provide, according to the terms of the resolution of the Representative Meeting at Leicester, for the transfer of financial business from the general meeting, which must now be held under the Companies Acts, to the Representative Meeting. Finally, it appeared that there would be in practice no greater difficulty in altering regulations under a charter than under the Companies Acts provided that the charter, ordinances, and by-laws were properly drawn.

The aim of the Organization Committee in drafting the charter, ordinances, and by-laws was to import into them nothing not contained in the present articles and by-laws, save in so far as the Representative Meeting had given instructions that certain specific alterations should be made, but it is probable that some members of the Council voted for Dr. Helme's resolution because they considered that the opportunity ought to have been taken to introduce into the charter certain modifications which experience of the working of the new constitution during the last few years has, they hold, rendered desirable; probably the matter which they had particularly in mind was the question of the control of expenditure. Whatever the motive which may have determined the result of the division, the fact remains that the Representative Meeting will have before it a recommendation from the Council to the effect that the application for a Royal Charter should be postponed, and those who are in favour of delay will doubtless find an argument in the fact that only 55 Divisions had expressed an opinion upon the Charter down to June 13th, that of these 55 only 44 had expressed approval of the application for the Charter or of the Draft Charter submitted, and that among these some had made certain more or less important reservations.

THE FOUNDER OF THE ASSOCIATION.

In the first number of the British Medical Journal for this year a portrait of Sir Charles Hastings, the founder of the British Medical Association, was published, and some account of his career, based on the information then available, was given. This attracted the attention of a member of the family, and in this number, the first of the second volume of the Journal in its improved form, we are enabled to publish some interesting reminiscences which complete the picture of his life and character. It is a picture of a very engaging personality, one who, proud of his profession and devoted to the maintenance of its honour and interests, yet found time to occupy himself in the study of natural history, and was able, owing to his intimate acquaintance with the conformation of his own county, to put Sedgwick and Murchison on the track of investigations which led to remarkable advances in the science of geology. The original portrait painted in oils by Faulkner, and presented to Sir Charles Hastings by the Association in 1839, is still in the possession of his family, who would, we have reason to believe, gladly give permission for a copy to be made for the British Medical Association.

BIRTHDAY HONOURS.

The birthday honours list contains the announcement that the King has directed that Dr. Robert Farquharson shall be sworn of His Majesty's Most Honourable Privy Council; this recognition of Dr. Farquharson's long and distinguished services in the political arena, where he always represented everything that is best in medicine, will be received with the greatest satisfaction by his professional brethren. The baronetcy conferred upon Sir Christopher Nixon of Dublin is doubtless a recognition not only of his eminence as a physician—he has been President of the Royal College of Physicians in Ireland, and is Professor of Medicine in the Catholic University—but also of the large share which he took in the establishment of the Royal Veterinary College in Ireland. Emeritus Professor A. R. Simpson of Edinburgh, upon whom the honour of knighthood has been conferred, held the Chair of Obstetrics and Gynaecology in the University of Edinburgh for thirty-five years. The recognition of his life-work now made by the Crown only confirms the judgement which has been passed upon his career by the profession, not only in Great Britain but abroad, as is shown by the many honours which he has received from foreign learned societies. Dr. E. A. Wright, who receives a like honour, has deserved well of the nation by the result of his strenuous efforts to provide a method of prophylactic inoculation against typhoid fever, while the practical value of his more recent researches on opsonins is explained in the articles published elsewhere this week. Surgeon-General Alfred Keogh, who received the decoration of C.B. for his services during the South African war, and was appointed Director-General of the Army Medical Service on January 1st, 1905, is advanced to be Knight Commander of the Military Division of the Most Honourable Order of the Bath. Since his appointment to the office he now holds he has worked hard to place the organization of the Royal Army Medical Corps for war on a scientific basis, especially in relation to the prevention of disease, and the estimation in which he is held by the civil profession is shown, among many other evidences, by the fact that he has recently received the honorary Fellowship of the Royal College of Physicians of Edinburgh and of the Royal College of Surgeons in Ireland. Deputy Surgeon-General John McNeale Donnelly, I.M.S., who receives the like promotion, was appointed C.B. in 1886 in recognition of his services during the Burma war of 1885-6; he served also in the Chin-Lushai expedition of 1889-1890, and was again mentioned in dispatches. The decoration of C.B. is conferred upon Surgeon-General W. S. Pratt, Army Medical Staff, Principal Medical Officer, Southern Command, who served in the Soudan expedition of 1884-5, and also acted as assistant surgeon in the army of Bazaine during the Franco-German war. Lieutenant-Colonel D. Prain, M.B., I.M.S., who receives the Companionship of the Order of the Indian Empire, is Director of the Botanical Survey of India, Superintendent of the Royal Botanical Gardens, Calcutta, and Government Quinologist.

POST-GRADUATE STUDY.

The navy, the army, the Indian Medical Service, consultants, and general practitioners were alike all well represented at the dinner of the West London Hospital and its Post-graduate College on June 28th. The Chairman of the evening, Mr. Stephen Paget, was supported on one side by Mr. Danvers Power, of King Edward's Hospital Fund, and on the other by Mr. G. F. Marshall, of the Weekly Board, and in due course proposed the usual loyal toasts and that to "The Hospital." Of the latter as it was, and as it ideally might be, he drew gravely humorous pictures, and then described it as it is—a place, he said, which had long since ceased to be a local institution, which was constantly progressing, of which they were all entitled to be proud, and which would inevitably come to occupy a more and more important position among London hospitals. In his reply Mr. G. F. Marshall said that whatever might be the case with other hospitals, at the West London the interests of the college and of the hospital were indissolubly mingled,

and he could not wish anything better. The separate toast to "The College" was proposed by Surgeon-General Branfoot, President of the Medical Board at the India Office, who showed of what value the school had been to the Indian Medical Service; he was answered by Mr. A. Bidwell, the Dean, who traced the history of the college, and stated that some 1,100 medical men had now taken advantage of its existence. The first in the field, its success had naturally led to the opening of other institutions; that they had no cause to fear rivalry and were likely at least to hold their own in competition, was shown by the fact that during the past year the number of entrants had greatly increased, the total being as large as at any London school even for ordinary students. Response to the toast was also made by Mr. C. A. Lees of Ealing. After discussing the great value of post-graduate study to those who, like himself, were in general practice, he gave a very clear description of the difficulties encountered by any one who endeavoured to pursue it at an ordinary medical school, even if he were one of its former students, and well known to all the staff. *Per contra*, he showed how the needs of men in practice were studied at the West London, and the facilities which the school offered for getting up to date in any branch of clinical science. Further testimony to the value of the school came from Inspector-General H. M. Ellis, Medical Director-General, R.N., when acknowledging the toast of "The Imperial Forces," proposed by Mr. D. J. Armour. He said that nearly all officers granted study-leave found it best to put in their work at the West London. The remaining toasts were "The Guests," proposed by Dr. A. E. Russell, and answered by Mr. Danvers Power; and "The Chairman," proposed by Dr. G. P. Shuter; this was accorded musical honours, and, having been suitably acknowledged by Mr. Stephen Paget, the evening came to an end.

THE HISTORY OF STREET AMBULANCES.

THE note on street accidents published on June 23rd has brought more than one letter on the history of the reform, which is a question not without interest. Looking back at the literature of the subject and at the periodicals of upwards of a quarter of a century ago, it is apparent that in the late Seventies reform was already in the air. The unnecessary suffering of those who sustained street accidents was attracting attention, the police were receiving first aid instruction, and talk as to the need for reform was beginning in several quarters. Early in 1880 an editorial note in the BRITISH MEDICAL JOURNAL definitely called for improvement in the police arrangements for dealing with accidents, and after that Dr. Carrick Steet, Dr. Nock, and other correspondents specified various ways in which the police might be enabled to act much more efficiently. It was not, however, until a year later, or in July, 1881, that any suggestion for a real ambulance system such as is now understood by the term was made, and even then it was only in the form of a brief communication from Dr. Benjamin Howard to the BRITISH MEDICAL JOURNAL drawing attention to the advantages of a system in vogue in the United States. This communication was made the subject of a leader in the same issue, while before the end of the year strong support for the general idea came from Liverpool. There Mr. Reginald Harrison, in a paper read before the Medical Institute, drew a striking picture of existing conditions in respect of accidents, and showed in detail how well the American plan could be adopted in Liverpool and other large English towns. Meanwhile the idea had been making progress in London also. Dr. Howard had come into contact with Mr. Crossman, then vice-president of the London Hospital, and between them they worked out a plan for the provision of ambulances at that hospital, and with the co-operation of the Commissioner of Police, Sir Edward Henderson, who was then linking up all the police stations of London by telegraph, the hospital was put into touch with the nearest police station. Finally in February, 1882, Dr. Howard published both in the BRITISH MEDICAL JOURNAL and in the *Lancet* a detailed scheme for an ambulance system for the whole of London. After that a great deal of attention was everywhere paid to the subject, but it was in Liverpool that such a system came into actual existence. In that city, urged on by Mr. Reginald Harrison, Captain Nott Bower, the head of the police, worked out a complete plan which was formally adopted in June, 1883, and began work in the following year. Later on other large provincial towns established systems, and London itself seems at length about to follow suit. This is a general outline of the history of the movement in England, but it leaves a very important detail unmentioned. Long before Dr. Howard's first paper in the JOURNAL, an active crusade had already been successfully started by Dr. Nachtel in Paris. Towards the end of 1880 Dr. Nachtel presented to the Académe de Médecine a detailed report of the American system of dealing with street accidents, and the Académie on the advice of a Committee passed a vote of thanks to Dr. Nachtel, and advised that his recommendations should be carried out. This the authorities of the Department of the Seine formally resolved to do in the spring of 1881. Dr. Nachtel's acquaintance with the subject arose from the fact that he had been on an official mission to America connected with the medical administration of towns; it lasted over a year, and one of its by-results was that the two legislative chambers of New York, on a petition from a number of leading medical men and others, passed a Bill adding to the ambulance system a night medical service on the lines of that in Paris. Dr. Nachtel sent a copy of his report to England and he also verbally discussed it with Dr. Howard shortly before the latter's paper appeared. A statement to this effect was made in the BRITISH MEDICAL JOURNAL in 1882, and there is plenty of internal evidence which suggests that Dr. Howard was prompted in his crusade by Dr. Nachtel and his work on the Continent. The salient facts, therefore, of the history of the reform are that the system itself was born in the United States, imported into France by Dr. Nachtel (and first put into practice at Vienna after the Ring Theatre catastrophe at the instance of the Austrian ambassador to France) and thence into England where Liverpool was the first town to adopt it. Finally, as regards Dr. Nachtel, it must be added that the credit due to him is more than that of priority of advocacy in Europe. Promotion of ambulance systems has been in a large measure his life-work, and as regards England, he was already in communication on the subject with the police as early as 1882, and in 1890 furnished the Foreign Office at its request with a full report on the system. Since then he has been in frequent communication with persons who take an interest in the subject in England, and by request with various bodies which at one time and another have considered the matter officially. The origin of the American system is obscure. In New York it seems to have been introduced by the Commissioners of Charity and Correction in 1869. Possibly it was an evolution and inheritance from the military ambulances in the Civil War. The first military ambulances were arranged by Napoleon's surgeon, the famous Larrey, in the Rhine campaign.

CHICAGO FOODSTUFFS.

THE Meat Inspection Bill passed through the Congress of the United States on the last day of the session, and is now awaiting the approval of the President. It is regarded by many reformers as defective for two

reasons: First, that the provision requiring the date of inspection to be stamped on canned products has been omitted; and secondly, because the cost of inspection is placed upon the Federal Government. With regard to the first point, its importance, especially in relation to tinned products for the tropics, was pointed out recently in these columns, and is, in fact, quite obvious. With reference to the second point, it is stated that the packers believe that when Congress is next in an economical mood it would be easy to get the sum voted for inspection cut down to so small an amount as to render the provisions of the Bill with regard to inspection practically inoperative. The great importance of the matter to this country is shown by statistics given in Sir William Ward's last report on the trade of Chicago. He states that the annual export from Chicago of fresh beef reaches the enormous value of four and a half millions sterling, and 99 per cent. of this is taken by England. Of tinned beef we take two-thirds of the export, to the value of close on one million, whilst the "salted and cured" figures at about £250,000. As might be imagined, the pig plays a very large part in the exports to the United Kingdom. We buy bacon to the value of £4,376,000, ham to nearly as large an amount, and pork to the sum of one and a half millions sterling—an amount that is continually increasing. Lard is sent to us in thousands of tons, and the value has reached the almost incredible figure of £11,000,000, of which about one-third comes to England. Nearly a million pounds' worth of "lard substitutes" are exported. These synthetic products, as they are euphemistically termed, mostly contain cotton-seed oil, and the business in them is increasing. It is reassuring to learn that little or none is sent to this country. The same, however, cannot be said with regard to oleo-margarine, which we purchase to the value of a quarter of a million sterling annually. Its manufacture, we are told, is almost entirely in the hands of the large meat packers. A new feature in the Chicago trade is the increase in preserved vegetables. The industry is now chiefly centred in this city, and enormous quantities of Indian corn and tomatoes are canned.

THE MILK SUPPLY OF LONDON.

AT its meeting on Tuesday last the London County Council adopted a report of the Public Health Committee which dealt *inter alia* with the subject of the milk supply of London. The report referred to the bad fortune which the Council had encountered in endeavouring to obtain legislative powers for dealing with the matter. The opposition can, we believe, be traced to the milk trade and the agricultural interests, but the proposals now adopted are more far-reaching than those which have gone before, and there seems reason to hope that in the present temper of the public mind there will be a greater prospect of obtaining beneficial legislation. It is proposed to obtain powers to deal not only with tuberculous and other infectious milk, but with dirty milk. The procedure with regard to infectious and tuberculous milk would be its bacteriological examination, and then, should evidence of infection be found, inspection under a justice's order of the cows in the dairy farm from which the milk was supplied. With regard to dirty milk, samples would be taken at railway stations by the Council's officers and elsewhere in London by the officers of the sanitary authorities; should the milk be found dirty to an extent to warrant such proceedings, an application for a penalty would be made to a magistrate. The report also recommended that the Council should obtain authority to enable the metropolitan borough councils to provide and sell milk for the food of infants. The adoption of the report was opposed by Sir T. Brooke-Hitching on the ground that it was a socialistic suggestion, but Dr. Beaton, the Chairman of the Committee, took, we venture to think, the right line when he brushed aside arguments founded on the supposed interests of the trade, and based his case on the importance of a pure milk supply to the public health, and especially for the feeding of infants. The report and recommendations of the Committee were eventually adopted without a division.

MEDICAL TERMS IN THE *NEW ENGLISH DICTIONARY*.

THE part (a double one) of the *New English Dictionary*,[1] which has just appeared, contains so many interesting medical words that we may again refer to it in a future number. In the meantime we will restrict our comments to the words *physician*, *physic*, and *pharmacy*, and to the terms derived from or associated with them. An obsolete meaning of the word *physician* is a student of natural science or a physicist, while, curiously enough, an old and obsolete meaning of the word *physicist* is one versed in medical science. The common signification of *physician*, however, is one practising the healing art, including medicine and surgery; and among the quotations which Dr. Murray has selected as illustrating this wide use of the term is the paragraph quoted more than once in these columns from an Act of Henry VIII (1540): it reads thus: "Forasmuche as the science of phisicke "dothe comprehend . . the knowledge of surgery as a "speciall membre and parte of the same, therefore be it "enacted that anny of the said company or felawiship "of Phisitions . . may . . exercise the said science of "Phisick in all and every his membres and partes." With his usual felicity of selection, Dr. Murray places in juxtaposition to this wide prerogative of the physician the following restrictive caution from Udall (date 1542): "The physicians dooe not fall to cuttyng, except all "other meanes and wayes afore proved." Passing to Shakespeare's works and times, the editor takes a quotation from Macbeth: "Will she (Lady Macbeth) go "now to bed?" asks the Doctor, who has just had to confess, as have other practitioners before and since, "This disease is beyond my practice," and adds, as others have had to add audibly or inaudibly many times since, "More needs she the divine than the "physician." It is the last clause only that Dr. Murray quotes, but the whole passage is memorable. A final illustration of this wide meaning of the word "physician" is got from Jowett's *Plato* (1875): "Physicians to cure the "disorders of which luxury is the source." There is a text to which Dr. Abernethy would have done full justice. Physician is also used, as the *New English Dictionary* reminds us, in a more restricted sense, as one legally qualified to practise the healing art, especially as distinguished from one qualified as a surgeon only. The following explanatory paragraph is added for the sake of lay readers: "In the United "Kingdom every medical practitioner is now required "to have a qualification as physician and also as "surgeon, so that a general practitioner usually de-"scribes himself as 'physician and surgeon.' The use "of 'physician' or 'surgeon' alone usually implies "that the person so styled is in practice a specialist in "that branch; so especially with the designation "'consulting physician.'" The editor is not very kind to the profession in his first selected quotation, which he gets from Lanfranc's *Cirurgie* (1400): "O lord, whi is "it so greet difference bitwixe a cirurgian and a phisi-"cian?" His second quotation (dated 1612) may be taken as a compliment or not by both physicians and surgeons: "The more learned sort are justly stiled by the title of "physicians, and the more experienced sort are called "chirurgions or surgeons." Before passing to the figurative meaning of physician so familiar in such

[1] *A New English Dictionary on Historical Principles.* Edited by Dr. James H. Murray, Ph.—Piper, Double section. Price 5s. July 2nd, 1906. Oxford: At the Clarendon Press.

expressions as "physician of souls" and the like, the *Dictionary* gives three illustrative proverbs: "Feed by "measure and defy the physician"; "a fool or a "physician"; and "the unknown disease putteth out the "physician's eye." Some of the compound words are noticeable: "*Physician-finger*" or "*leech-finger*" is the third or ring finger of the left hand: "Aulus Gellius "declareth that a small and subtile arterie proceedeth "from the heart to beate on this physition finger." "*Physician-accoucheur*" is another compound which speaks for itself, and the meaning of "*Physicianess*" is obvious, but the word is inelegant. *Physic* is a word as interesting or more interesting than physician. At first it meant natural science (now *physics*), then it came to signify the knowledge of the human body, and, since we know to how many ills that body is heir, we can easily understand that it was not long before it came to mean the knowledge of the body especially in relation to the theory of diseases and their treatment. An illustration of the early use of the word is found in Richard Baxter's *Paraphrase of the New Testament*, "True "Physick is the knowledge of the knowable Works of "God, and God in them"; while the later sense is exemplified in the phrase "Doctors of Phisique" in *Pepys's Diary* (1662-3). The use of the word gradually extended, and we find that its various meanings included the art of healing, the medical profession, the medical faculty personified, medical treatment (now obsolete in this sense), medicine, and a purge. The adjective "*physic*," meaning medical or medicinal, is now obsolete; but the verb "*to physic*," signifying to dose, to treat with medicine, or to alleviate, is still in use (for example, "children ought to be physicked as little as possible"; "a mind diseased no remedy can physic.") "*Physical*" once had the meaning of medical or medicinal or curative or in need of medical treatment, but its use in such senses is very rare, except in one or two names, such as *Physic* or *Physical Garden*. Of associated words there are many; among them may be mentioned *physiatric* or *physiatrics* (nature-cure); *physicker* (one who administers physic) *physicster* (a contemptuous name for a medical practitioner); and *physicalist* (a humorous title for a medical man). Quite a company of words find their root in *pharmaco-* (Gr. *φάρμακον*, drug or medicine), and the *Dictionary* defines and illustrates at least thirty-seven of them. There is *pharmacy*, of course, and its associates *pharmacist*, *pharmacize*, *pharmacal*, *pharmacian*, *pharmaceutic*, and *pharmaceutist*: there are also the less familiar *pharmacodynamics*, *pharmacognostics*, *pharmacomania* (a craze for trying drugs), *pharmacopedia*, etc. *Pharmacopoeia* is defined as a book containing a list of drugs, with directions for their preparation and identification, specially such a book officially published by authority and revised at stated times. *Pharmacopolist* is a rare word for an apothecary, or seller of drugs.

DEATH OF MANUEL GARCIA.

SENOR MANUEL GARCIA, the inventor of the laryngoscope, died on Sunday, July 1st, in London, having passed the age of 101 years. He was born in Madrid on March 17th, 1805; just half a century later, on March 22nd, 1855, his epoch-making paper, "Observations on the Human Voice," was communicated to the Royal Society; and after another 50 years, on March 17th, 1905, his centenary was celebrated with great enthusiasm in London. This celebration was a remarkable tribute to Garcia as a musician and as a man of science. So full an account was then given[1] of his career, and of his discovery, that we may be excused from any lengthened reference to the matter now. Suffice it to say, that the controversy which has recently taken place in Germany as to his share in the foundation of laryngology has only served to make more plain the pre-eminent position which he must always hold.

[1] BRITISH MEDICAL JOURNAL, 1905, vol. i, p. 681 et seq.

IN spite of the earthquake the President of Cooper Medical College, San Francisco, gives notice that the Lane medical lectures will be delivered this year on August 20th and five following days. The course will be given by Dr. John C. MacVail, Medical Officer of Health for the Counties of Stirling and Dumbarton. The lectures will be devoted to various subjects relating to practical hygiene, epidemics, and preventive medicine.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

The Military Nursing Service.—On Monday Mr. Morton asked the Secretary of State for War whether he proposed to make reductions in the Queen Alexandra's Imperial Military Nursing Service, seeing that the numbers employed in military hospitals were far in excess of the requirements of the sick, and that much public money could be thereby saved. Mr. Haldane replied that the establishment of the Queen Alexandra's Imperial Military Nursing Service was fixed to provide for the efficient nursing of sick in military hospitals at home and abroad, and to establish in connexion with these hospitals nurse training schools for the men of the R.A.M.C. Increased responsibilities in both respects had been delegated to the nursing service. The distribution of the staffs had been decided upon by the civil matrons of the Nursing Board, and all matters relating to army nursing formed the subjects of recommendation by that Board. The numbers were not, in the opinion of his expert advisers, in excess of the requirements. It must be remembered that the standards of the medical care and treatment requisite for the sick had arisen during the last few years, and that the improvement was resulting, not only in more humane methods, but in a saving of public money, which was not the less substantial because it was indirect.

Vivisection.—Sir Philip Magnus asked the Secretary of State for the Home Department whether his attention had been directed to an advertisement of the National Canine Defence League alleging that a collie dog, afterwards claimed by a doctor, recently took refuge in a shop in Gower Street with its throat cut and suffering terribly, and whether he had directed any inquiries to be made in the matter, and, if so, with what result. Mr. Secretary Gladstone said that it appeared from the statement of the shopkeeper that the incident occurred four years ago and not recently, as might have been supposed from the statements in the papers, and that the dog was claimed by a porter at University College who was well known to the shopkeeper, and not by a doctor as alleged. The condition of the dog's neck could not be seen because it was bandaged, but some tubing was stated to have been hanging from the bandage; the porter died some time ago. No further information appeared to be available.

The Notification of Cerebro-Spinal Fever.—In answer to a question by Mr. Charles Schwann with reference to the compulsory notification of this disease, Mr. John Burns said that the Infectious Disease (Notification) Acts did not empower the Local Government Board to issue a general order making a disease compulsorily notifiable. He was advised that under present circumstances there would be no need for such an order as regards the disease in question. With the approval of the Board, however, action for the purpose of making the disease notifiable might be taken by every sanitary authority in England and Wales for their own districts, and in August last the Local Government Board issued a circular stating that it was prepared to consider applications for the extension of the Acts to the disease. Some applications had since been approved.

Rural Water Supply.—Mr. C. Schwann called the attention of the President of the Local Government Board to the unsuccessful attempt of the Bumpstead Rural District Council to secure a proper water supply for nine cottages

at Baily Hill, Bradbrook, Essex, and the need for some amendment of the law to meet such cases. Mr. John Burns replied that he had received from the rural district council a copy of the report made by the medical officer of health on this subject. He understood that there was a well within 200 yards of the cottages from which the occupiers might obtain water, but that there were certain difficulties in their using the well, and there was the quality of the water to be considered. He was still in communication with the rural district council on the matter.

The Poisons and Pharmacy Bill.—Last week Mr. Winfrey asked whether, having regard to the fact that there was in addition to the Government Bill another Bill for amending the Pharmacy Acts, and that both Bills were objected to, he could arrange for the two Bills to be referred to a Select Committee. Mr. Secretary Gladstone replied that he did not think there was any need to refer the two Bills to a Select Committee. The points needing detailed investigation had already been fully considered by a Departmental Committee, and the facts relating to the questions arising on Clause 4 of the Poisons and Pharmacy Bill were already fully known, and did not require further investigation by a Committee.

Poor-law Children.—Mr. John Burns informed Sir John Kennaway last week, that on January 1st, 1906, the latest date for which information was available, the numbers of pauper children relieved in workhouses and workhouse infirmaries in England and Wales were as follows:

	Number of Children Chargeable to Poor-law Unions in London.	Number of Children Chargeable to Poor-law Unions Outside London.	Total.
(a) Not including insane and idiots:			
1. In workhouses otherwise than in infirm wards ...	1,023	13,543	14,566
2. In infirm wards or infirmaries ...	2,061	4,899	6,960
(b) Insane and idiots in workhouses*	5	288	293
	3,089	18,730	21,819

*There were also 156 children chargeable to London unions in district sick asylums, and 756 children in the imbecile asylums belonging to the managers of the Metropolitan Asylum District.

The number of children under 3 years of age chargeable to Poor-law unions in London in the workhouses on January 6th was 737, and in infirmaries 916. The numbers above the age of 3 years were on the same date 371 and 1,015 respectively. Similar information with regard to the rest of England and Wales was not available.

The Infant Life Protection Bill introduced last week by Mr. Staveley Hill seeks to extend the provisions of the Act of 1897 to cases where only one child is taken in to be nursed or maintained. It proposes to raise the age to 7 years, and to punish any person failing to notify the reception of an infant, also to enable the local authority to remove an infant kept by an unfit person or in an insanitary home. Notice will have to be given, too, of all changes of residence of persons in charge of children under the Act, and inspection will continue up to the age of 7 years. The Bill is down for second reading on an early day, but its prospects of passing are not favourable.

Vaccination Exemption Certificates.—On Monday Mr. Lupton asked the Secretary of State for the Home Department, if Captain Gravener, who said he would not give certificates of exemption from vaccination, was still a magistrate; if his attention had been called to Dr. Tinker, a magistrate sitting on the Hyde bench, who declared on June 25th, 1906, a conscientious objection to give certificates of exemption from vaccination; and if he would take any steps to enforce the law. Mr. Secretary Gladstone replied that he was informed that Captain Gravener stated that he would not sit when applications for certificates of exemption were under consideration. When the matter was first brought to his notice he sent the papers to the Lord Chancellor and there was no further action for him to take in the matter. He had made inquiry into the case at Hyde referred to, and he found that after some conversation with the applicant Dr. Tinker withdrew from the bench and the applicant was told to come again when two other justices were present. Dr. Tinker did not refuse to carry out the law. These cases and others to which his attention was constantly being drawn illustrated the chronic friction which was caused by the present state of the law with regard to exemption certificates.

The Sources of Vaccine Lymph.—In reply to Sir William Collins, who asked for a return of the original sources of vaccine lymph employed by the National Vaccine Establishment, Mr. John Burns said that as he had stated in reply to previous questions, the usual method of renewing lymph, supplied from the National Vaccine Establishment, was by vaccinating calves with vaccine lymph obtained from children, but in some instances the lymph had been obtained from abroad, and in such cases it would usually not be practicable to give its original sources. In these circumstances he did not think that a Parliamentary return of any value could be given. He might, however, state that in no case was lymph used at the establishment unless it had been passed through a series of calves.

Medical Officers of Health and Antivaccination.—Mr Lupton asked the President of the Local Government Board whether he would treat the publication by a qualified medical man of an opinion adverse to vaccination as a bar to his appointment as medical officer of health, as was done in the Penge District Council case in April, 1901; and, if the answer be in the affirmative, would he state how he proposed to safeguard the free expression of scientific opinion by medical officers of health. Mr. John Burns said he could not give a general answer on the point referred to in the first part of the question. If it came before him in any particular case he should be prepared to consider it.

Food Inspection on the Manchester Ship Canal.—Late on Monday night an Irish debate arose on a Local Government Provisional Order called the Manchester Port Bill. It was a question of food inspection, and originally the Bill had been promoted by the Corporation of Manchester as one of the sixteen local authorities out of which the port sanitary authority was proposed to be constituted. The Chicago scandals had, however, led the Manchester Corporation to consider that if new powers of inspection were granted to the port sanitary authority, that that port would be injured as regards its trade in comparison with other ports. There was therefore a strong opposition to the Bill by Manchester and Lancashire members. Mr. John Burns defended the Bill on sanitary grounds, and urged that a Committee would impartially consider the whole question. The Bill was read a second time, and sent to a committee by a majority of 86.

Female Postal Medical Officers.—Mr. Watt asked the Postmaster-General last week if he had taken into consideration the advisability of appointing one or more female doctors to the position of medical officers to the post office at Glasgow; and if he would now say into how many districts he proposed to divide the appointment. Mr. Sydney Buxton replied that he did not think it would be advisable to appoint female medical officers to any of the six districts into which Glasgow would be divided.

Ophthalmia at Rugby.—Mr. Robert Pearce asked the President of the Local Government Board whether his attention had been called to the frequent recurrence of cases of ophthalmia, conjunctivitis impetigo, and other preventable diseases in the public school at Rugby during some years past; and whether, by holding an inquiry or otherwise, he would take steps to prevent danger to the public health by the spread of these disorders, usually arising from bad sanitary arrangements. Mr. John Burns answered that he was not aware of the outbreaks referred to. He would communicate with the urban district council on the subject.

Nurses' Registration. Mr. Claude Hay introduced on Monday last his Bill to regulate the qualifications and registration of trained nurses. It is supported by Mr. Bignold and Mr. Findlay.

Scotland.

The Teaching of Midwifery in Edinburgh.

Obstetric physicians in Edinburgh dispensaries, as well as the University and Maternity Hospital authorities, are at the present time occupied with consideration of the methods and manner of midwifery instruction.

The recommendations of the Committee of the General Medical Council on this subject may or may not assist in the evolution of an improved scheme suitable for practical adoption, but whatever alterations are initiated in connexion with the practical clinical teaching it is sincerely to be hoped that in the near future changes may be wrought in the manner of theoretical instruction. Strong exception is taken to the rule which compels students to attend theoretical lectures on this subject for a period of six months. The best extramural teachers encompass the subject with ease in a summer session.

The subjects of midwifery and gynaecology no longer stand to each other in the relationship of past years, the latter subject rapidly and most justly becoming year by year more readily recognized as occupying a place in the domain of surgery. Midwifery in the future must be taught as a separate subject, and, so taught, will not necessitate a six months' course of lectures. The Professor of Midwifery in Edinburgh is no longer also Professor of Gynaecology, but the Professor of Midwifery for three months only of the twelve has opportunities of teaching also clinical and practical midwifery. For that period only has he charge of wards in the Royal Maternity Hospital. Can it be wondered at that difficulties occur in the clinical teaching of midwifery, when practically the entire *personnel* of the hospital is changed every three months?

Is it too much to expect the appointment of a Master for a prolonged period, or at least that greater opportunities be given the Professor of Midwifery? With a Master at its head as Director, the value of the hospital from an educational point of view would enormously increase, and the facilities for teaching would be greatly enhanced. As regards the extern practice of the hospital, a scheme has been proposed by which the hospital and the dispensaries would work hand in hand. Such a proposition must meet with general approval, provided always that the dispensary obstetrician retains his present position. Teaching in cases occurring in the extern practice of a hospital must of necessity be extremely irregular and uncertain and of a somewhat scanty nature, even more so, we venture to think, than that obtainable in a dispensary practice. If at the head of the latter be a keen, enthusiastic young practitioner, earnest and careful in his work and teaching, the opportunities for students working under him are certainly good, and in the interest of all concerned the dispensaries will do well to see to it that in the many changes which are bound to take place in the teaching of midwifery, the position of their obstetric physicians remains secure.

British University Students' Congress in Edinburgh.

The Congress of British University Students is this year to be held in Edinburgh, from Friday, July 13th, to Tuesday, July 17th. The universities represented will be Aberdeen, Birmingham, Bristol, Durham, Edinburgh, Glasgow, Ireland, Liverpool, London, Manchester, St. Andrews, Sheffield, and Wales. On the evening of July 13th there is to be a dance in the University Union. On July 14th the Congress delegates will be welcomed in the hall of the Union by Principal Sir William Turner and the Hon. Lord Dundas, the Lord Rector's Assessor, and the first session of the Congress will be held. In the afternoon there is to be an excursion to the Forth Bridge, and a dinner in the evening. On Sunday the delegates will attend the military service in St. Giles's Cathedral, and in the afternoon drive to Roslin, where they will be present at the evening service in the chapel. The second session of the Congress will be held on July 16th, after which the delegates will be entertained at luncheon by Principal Sir William Turner. In the afternoon they will visit the Castle and Holyrood, attend a second session of the Congress, and in the evening the Women Students' Union have invited them to an "At Home." On July 17th the last session of the Congress will be held. Academic dress is to be worn at the several functions.

The Retirement of Professor McKendrick.

At the close of the summer session Professor McKendrick gave his valedictory address to the class of practical physiology. He referred to the great changes which have taken place in the science and teaching of physiology, and traced in broad lines the developments which have occurred during his own connexion with the teaching of the subject. To John Goodsir he gives the credit of inaugurating the physiological school of Great Britain, for he was the first to introduce the "German" experimental methods. Many of us believe that the Germans learnt the method from this country. Professor McKendrick expressed the belief that during the next few decades progress would be made chiefly in the direction of physiological chemistry. In closing, he stated that though there was a vast amount of research work carried out every year yet much of it seemed of a transitory and incomplete nature. For solid work time was needed, and he believed that it would be for the benefit of physiology if workers published nothing for the next five years, but spent the time scrutinizing and revising their work. It is to be hoped that, now that Professor McKendrick has more leisure, he will see his way to amplify this brief sketch of the development of physiological methods, and expand it into a detailed history of physiology. Such a work is much needed, and there is no one who is so fitted to write it as Professor McKendrick himself.

The Post-office Medical Service in Glasgow.

Within recent years no appointment has raised such general interest as the present vacancy in the medical service of the Post Office. On the death of Dr. Dougan, those in authority decided to proceed upon a new plan. Instead of appointing one man to devote all his time to the duties of the post, they have decided to split the work up into several districts, and appoint a local practitioner from each district, to be paid by a capitation grant. He will be required to give an undertaking to attend personally to all Post-office patients. In view of the enormous growth which has taken place in the district covered by the Glasgow Post Office, it was perhaps inevitable that the appointment should be split up, but some dissatisfaction has been expressed at the unequal way in which the division has been made. The districts vary both in size and in value. The most valuable divisions are the central and the southern. We understand that the number of applicants is large.

International Congress on School Hygiene.

In connexion with the second International Congress on School Hygiene, which is to meet in London next year, a meeting of representatives from educational and local authorities to the Scottish National Committee was held in Edinburgh on June 30th, when it was agreed to invite the co-operation of school inspectors, educational institute officials, head masters of secondary schools, architects of experience in school buildings, and medical officers of health. The names of Professor Hay of Aberdeen, Dr. Leslie Mackenzie, Mr. Mill, and Mr. Williams were added to the proposed list of presidents of sections, and that of Dr. John G. Kerr of Glasgow to the list of secretaries. A Ladies' Committee was formed, with Mrs. Leslie Mackenzie as Convener. A Subcommittee on Exhibits relative to the health of schools was formed, with Dr. John G. Kerr as Convener; Professor Hunter Stewart was appointed Convener of the Subcommittee on Papers. The Chairman (Professor Edgar) indicated the divisions of the work to be undertaken by the Congress.

Edinburgh Royal Infirmary Residents' Club.

The annual meeting of the Edinburgh Royal Infirmary Residents' Club was held on June 29th, when David Christison, M.D., LL.D., was elected President for the coming year. The Secretary, in his report, referred to the very prospercus state of the club. The feature of the year had been the publication of a list of the names of those who had held office as resident physician or surgeon in the Royal Infirmary since the year 1843. This list, compiled by the Treasurer, Dr. W. Macrae Taylor, had been sent to all those whose names were included and whose addresses could be obtained. Since it was proposed in the near future to issue a second and revised edition of the list, notification of any error or omission was particularly requested.

Eighty-seven members of the club subsequently dined together, the chairman, Sir Lauder Brunton, retiring president, was supported by no less than seven of his fellow residents of 1866-67, several of whom had travelled long distances in order to be present. In proposing the toast of the evening, "The Residency," the President took for his theme some of the changes which had taken place during the past forty years. Drs. Darling, H. P. Thompson, Noel Forsyth, Kennedy, Muir, and Captain Gallie contributed to the evening's entertainment. The toast of "The Chairman" was given by Sir Thomas Fraser. "Floreat res Medica," "Floreat Residentia," and "Auld Lang Syne" concluded one of the most successful gatherings in the annals of the club.

Memorial Window to Dr. James Jamieson.

A stained-glass window dedicated to the memory of the late Dr. James Jamieson has been placed in the north aisle of St. Giles's Cathedral, Edinburgh. It bears the legend, "To the glory of God and in memory of James Jamieson, M.D., F.R.C.S.E., an elder of this church, born at Bowden 1841, died at Edinburgh 1905." The window is traceried, and subdivided into three upper and three lower lights. Saint Andrew occupies the centre of the upper tier, with Saint Columba and Saint Cuthbert right and left. In the lower tier Saint Giles occupies the centre, with Queen Margaret, the foundress of the chapel on the castle rock, and her son, David I, the founder of Holyrood, right and left.

Women Graduates and the Parliamentary Vote.

Counsel were heard before Lord Salvesen, in the Court of Session at Edinburgh, on June 27th, in an action which raises the question of the right of women graduates to vote in Parliamentary elections for University representation. The action has been raised by a number of women graduates, and is directed against the University Courts of St. Andrews and Edinburgh.

Ireland.

Catholic University Medical School.

During the past week the Catholic University Medical School has been celebrating its golden jubilee under the direction of the Council, led by Sir Christopher Nixon, Dean of the Faculty. The Lord Mayor added to the interest of the occasion by placing the round room of the Mansion House at the disposal of the promoters of a conversazione, which passed off brilliantly. On Saturday night a commemorative dinner was held, but it was found necessary to place the diners in two rooms, one party being presided over by Sir Christopher Nixon and the other by Mr. J. S. McArdle. The former alluded to the Commission appointed to deal with the case of Trinity College. There were, he said, men on the Commission who would not brook prolixity of argument, and the University question was bound to be dealt with after the report had been presented.

Dr. Darnell's Expenses in Tughan v. Darnell.

The following further subscriptions to aid in defraying Dr. Darnell's expenses in the case of Tughan *v.* Darnell have been received up to June 30th:

	£	s.	d.
Sums already acknowledged	234	4	6
Dr. John Campbell	10	10	0
Dr. James A. Craig	10	10	0
Dr. J. Walton Browne	5	5	0
Dr. John Gorman, Bangor	3	3	0
Dr. John E. MacElwaine	3	3	0
Dr. J. C. Rankin ...	3	3	0
Dr. Gardner Robb ...	3	3	0
Professor J. Symington	2	2	0
Dr. G. A. Hicks ...	1	1	0
Dr. MacWilliam, Ballynure	1	1	0
Dr. J. C. Taylor, Brookboro' ...	1	1	0
Dr. J. Thompson ...	1	1	0
	279	7	6

The Executive Committee have decided to close the fund on July 14th, and would be much obliged if all subscriptions kindly promised were sent in before that date. Cheques may be made payable to one of the Honorary Treasurers, Dr. Leonard Kidd, Inniskillen, and Dr. William Calwell, 1, College Square North, Belfast.

Sir Donald Currie at Queen's College, Belfast.

On June 30th Sir Donald Currie visited the Queen's College, Belfast, and was the recipient of a handsome address from the President and Council, thanking him for his liberal donation of £20,000. The address was presented in the large Examination Hall. The proceedings were enlivened by a second address from the students. Sir Donald, in replying, said he sympathized with the students in their desire for an athletic ground, and made them the challenge that if they would raise £4,000, he would give £1,000 towards the purchase. The challenge was accepted with a promptness and good humour that evidently much pleased the challenger. The new chemical laboratories are to be called the Donald Currie Laboratories.

Public Health Congress at Cork.

Favoured with delightful weather, the fifteenth annual Congress of the Royal Institute of Public Health opened in Cork on Wednesday, June 27th. From all parts of the kingdom public bodies sent representatives to take part in the proceedings in the Queen's College, so picturesquely situated on its commanding heights. At 2 p.m. the delegates assembled at the Municipal Buildings, and having formed a procession through the city to the College, were ushered into the Crawford Library, where the High Sheriff, in the absence of the Lord Mayor, accorded them an official welcome. Professor W. R. Smith, President of the Institute, having thanked the City Council, said that the objects of the Congress were to bring together men who were engaged in public health administration in various parts of the kingdom, and to enable them to compare notes, not only for their own advantage, but for the benefit of the districts in which they were more particularly interested.

President's Address.

Dr. Windle, the President of the Congress, then delivered his inaugural address, in which he said that the Congress had come to a country where the public health was as badly in need of public interest and attention as in any other country in the world, for no other country presented such great possibilities of happiness and health and no other country a similar condition of misfortune and decay. In respect to health, the country was the prey of evils which seemed to be increasing rather than diminishing. The people were decimated by tuberculosis; year by year the death-rate from this disease had been steadily declining in England and Scotland and as steadily increasing in Ireland. In 1864 the English death-rate was 3.3 per 1,000, Irish 2.4. Slowly two lines converged, the one ascending, the other descending, until in 1881 they met at 2.6. Again the lines began to diverge, Ireland, alas, taking the worse direction, and the English death-rate in 1904 was 1.7, whilst Ireland's was 2.9. The death-rate in Scotland was 3.6 in 1864, but thirty years later the death-rate from tuberculosis had so far risen in Ireland and fallen in Scotland; that Ireland was 0.6 per 1,000 worse than Scotland, where the rate had sunk to 2.1, whilst in Ireland it had risen to 2.9. Side by side with this advancing rate of mortality from tubercle there had been an alarming increase in the number of insane; of every 10,000 persons in Ireland 52.6 were registered as lunatics or idiots. It was, unfortunately, only too true that lunacy was on the increase in England and Wales also, but the actual figure there was 34.71 per 1,000, that is to say, nearly 11½ less than the figure in Ireland.

Many attempts had been made to explain why it was that this country, so favourably situated for the production and maintenance of a healthy and a happy population, should suffer so severely from these two terrible scourges. Some would have it that drink was at the root of the whole matter, and it was no doubt true that in Ireland people drank a good deal more than they needed or than was good for them, yet they did not drink as much per head as their neighbours. No doubt there was a good deal of drinking in the towns, large and small, but his knowledge of both countries led him to the conclusion that the people of country parts of Ireland, at least, were on the whole less given to drink than those of the country parts of England. Still there was room for a vast improvement in this direction. He expressed the opinion that overdrinking of tea, and particularly overdrawn tea, had a good deal more to do with the low state of health in Ireland as well as in England than most people were at all inclined to recognize.

Others, again, attached importance to the housing of the people. No doubt here again there was vast room for improvement. But the housing problem was acute in most English cities and in the country parts of England, too. He granted that Ireland was worse off; but he did not think that this fact, whether taken by itself or in conjunction with the drink question, was sufficient to account for the state of affairs. In Ireland there was another factor not operative to anything like the same extent in England, and that was the emigration curse, which year by year drew away the life-blood of the race in the shape of its youngest and most promising members. The decline of the population was an old story. In 1801, when the union between England and Ireland was in its early days, the population of the two countries was much more nearly equal; England then had nearly 9 million inhabitants, or 163 persons to the square mile, and Ireland had nearly 5½ millions or 166 to the square mile. The proportion had not very greatly altered in 1841, when England had nearly 16 millions and Ireland rather more than 8 millions. Then came the terrible days of the famine and of the fever which succeeded it, terms which meant little to the ears of modern England, but which were of dire import to those who had heard of those times from their parents, still more to those who had lived through them. During that awful time Ireland lost 2,000,000 of her population, and came down from 8 to 6 millions inhabitants. Following upon the famine and fever came the emigration, which still continued to prey upon the very vitals of the country. In 60 years 4,000,000 persons had emigrated, and of that number 69 per cent. had gone to the United States. Over 90 per cent. of the emigrants, according to Lord Dunraven, had been young persons or persons in the prime of life; this meant that a large proportion of the least profitable—the oldest and the least healthy—were staying at home, whilst a large proportion of those who would be most useful to Ireland were flying to other lands. It was high time that those who were interested in the welfare of this country should turn their attention to finding a remedy for this desperate state of affairs. That it was desperate few would deny, and it was rendered doubly desperate by the fact that, no doubt on account of the desertion of the island by so many of its younger members, the birth-rate was almost the smallest in the world.

After referring to what some might expect England to do for Ireland, the President proceeded to ask whether full advantage was being taken of the Public Health Acts, Housing Acts, and other enactments which had from time to time been passed with the view of improving the public health. Was adequate use being made of the provision for the notification of disease, and particularly of the tuberculous disease, the medical profession being helped in its struggle against the enemy by appointing bacteriologists in the towns and in the counties? He would like to ask the members of the general public whether they were keeping their eye on their Public Health Committees with a view to seeing whether those Committees were doing all they could to preserve public health. Were they doing anything to promote temperance and the better housing of the poor? Were they trying to foster their few native industries? It was not for want of goodwill that they left many things undone which they ought to have done; it was for want of knowledge, and it was for that reason that they welcomed congresses of that kind, because there were opportunities of stirring up public opinion on points which were of vital importance to the public welfare.

Sections.

The Congress entered upon its deliberations in five sections: (1) Preventive Medicine, (2) Child Study and School Hygiene, (3) Engineering and Architecture, (4) Bacteriology and Chemistry, (5) Veterinary Hygiene, with the following gentlemen as Presidents respectively: Dr. D. O'Donovan, Medical Officer of Health in Cork; the Rev. T. A. Finlay, M.A., F.R.M.I.; Mr. Joseph Holloway, M.R.I.A.I., President of the Architectural Association of Ireland; Dr. Moore, Lecturer in Bacteriology in the Queen's College, and Examiner in the Royal University; and Mr. E. W. Hoare, F.R.C.V.S.

On Thursday the business of the Congress was resumed, when Dr. O'Donovan in his presidential address to the Section of Preventive Medicine, gave an interesting account of the position of Cork, its facilities for trade, the geological character, temperature, rainfall, climate, and sanitary condition of Cork in the past. He gave statistics showing that in ten years, from 1880 to 1889 inclusive, 3,314 cases of typhus occurred in the city, whilst in six years ending 1905, 74 cases were reported. In the year 1881 there were 1,406 cases; in 1905 only 9 cases. In his opinion typhoid fever was almost invariably associated with overcrowded sleeping apartments.

Dr. Hope, in a paper dealing with the proper supervision of the milk supply, described the measures adopted in Copenhagen, and moved a resolution to the effect that powers should be conferred upon the county and city councils to appoint inspectors to supervise the production and transport of milk, and that great advantage would accrue if the Local Government Board and Board of Agriculture called on their staff of veterinary and other inspectors to co-operate with the officers of the authorities named.

Dr. Wright Mason (Hull), in a paper on port sanitary administration, advocated the close and minute inspection of food and water supply on board vessels, and that the powers at present vested in the Board of Trade should be transferred to the port sanitary authorities.

In the Section on Child Study and School Hygiene, Dr. James M. Browne originated a discussion upon the advisability of periodic examination of the eyes of school children. He suggested that the Congress should use its influence with a view to having it made compulsory.

Hull.

THE MEAT SUPPLY.

THE question of the purity of the meat supply of the city of Hull has recently been brought prominently to the notice of the inhabitants. First of all as regards the condition of the private slaughterhouses, and later in connexion with an outbreak of diarrhoea in one of the two workhouses in the town which was attributed by the medical officer to the consumption of foreign meat brought to this country in a frozen state. In May of last year the Chief Food Inspector reported that, owing to their structural defects and the nature of their surroundings, it was impossible to keep the private slaughterhouses in a satisfactory condition, and that the establishment of a public abattoir would be a great sanitary advantage. A subcommittee subsequently visited all the slaughterhouses in the city, and recently presented a report endorsing the opinion and the recommendation of the inspector. There appear to be 62 slaughterhouses in Hull, and most of them are within 50 yards of dwelling-houses. The subcommittee classify 8 as good, 20 as moderately good, and no less than 34 as bad or very bad. In a large number of the last there is no daylight, except through the doorways, and in the afternoon in winter lamps, and even candles, have to be used. In one slaughterhouse the same water was being used over and over again to scald pigs, being reheated when cool. The scum on the water in the boiler was several inches thick, and consisted of scrapings from the carcasses, hair, bristles, faeces, etc. This economy in the use of water was no doubt due to some extent to the fact that it is supplied by meter, and to the same reason is also to be attributed the insufficient flushing of the drains, into which a large quantity of blood is allowed to flow, creating during the summer months a stench which is described as appalling. In many cases offal was found in manure pits instead of in properly closed receptacles as required by the model by-laws. It is satisfactory to find that the full sanitary committee in the first instance and the city council at a later period adopted the report of the subcommittee together with the very definitely-expressed opinion that the establishment of an abattoir is the only guarantee of a perfect system of slaughtering and meat inspection.

We trust that something further will speedily be done to give practical effect to this opinion. The City of Hull is one of the most important in the kingdom, and the inhabitants have a right to claim that those who administer the Public Health Acts shall do so in such a manner that the best interests of the community are served. It is difficult to imagine any public body having a full sense of its

responsibilities deliberately ignoring the very precise recommendation which has been made to the Corporation of Hull.

The outbreak of diarrhœa already alluded to occurred in the Sculcoates Workhouse at the end of May. There were 35 persons attacked and 6 died. In his report upon the outbreak, the medical officer, Dr. Robinson, said that it had been the practice in the previous weeks to provide the inmates with English-killed meat and with frozen meat on alternate weeks. Since the frozen meat started it had been noticed that among a certain class of inmates—namely, the feeble old women, there had been attacks of diarrhœa. The outbreak in question started after the first dinner of frozen meat in a particular week. After the supply of this meat to the infirmary patients had been discontinued there were no more cases of diarrhœa. Dr. Robinson subsequently stated that on a later occasion he examined some frozen meat twenty-four hours before it was required for cooking and found it in a condition of decomposition and unfit to be eaten. This opinion was endorsed by the city meat inspector. When the report of the medical officer was considered by the Board of Guardians, an effort was made to minimize its seriousness, and several members of the Board distinctly traversed the conclusions at which he had arrived. A few days later an investigation of the whole circumstances was made by the House Committee, when by 8 votes to 4 a resolution was passed to the effect that it was not proved to the satisfaction of the Committee that the deaths were caused by using frozen meat. A further resolution was passed expressing the opinion that the meat which had been destroyed was in a wholesome condition when it was received at the house, but that it had not been kept at the house under proper conditions. Of this last resolution it can only be said that it is a distinct confession of neglect on the part of the guardians, who had failed to provide proper accommodation for the storage of this kind of meat. It is a matter of common knowledge that frozen meat after being thawed decomposes very rapidly, and if, as appears to have been the case in this instance, several days elapsed between the taking of the meat out of the freezing chamber of the meat contractor and its consumption, there is ample justification for the contention of the medical officer that the meat in question was the cause of the outbreak of diarrhœa. The action of Dr. Robinson throughout seems to have been only what could have been expected of an official who realizes his responsibilities towards those who are under his care, and we are glad to learn that the Board has accepted his report and will take action in the directions he recommended.

Leeds.

THE TEETH OF SCHOOL CHILDREN.

THE twenty-seventh annual meeting of the North Midland Branch of the British Dental Association was held in Leeds on Friday, June 29th, under the chairmanship of Mr. C. Rippon of Dewsbury. Mr. Rippon's presidential address dealt with the important subject of the inspection and care of the teeth of school children. He believed that 75 per cent. of the mouths of school children were bad in respect of teeth. Much of this was due to the mothers not living, either before or after childbirth, in such a way as to be most beneficial to their offspring. In connexion with the Interdepartmental Committee's report on physical deterioration, and in view of the institution of a dental charity at the Leeds Public Dispensary, he considered that some systematic attempt should be made to deal with this important matter in Leeds, and he suggested that the Board of Management should approach the Local Education Authority with a view to the dispensary being made a central institution, where school children should be sent periodically for examination, and in cases of necessity for treatment. Dr. Forsyth, who is head master of the Higher Grade School, and one who, though a layman, has interested himself greatly in this question, read a paper on the subject from the point of view of a schoolmaster, and elaborated the same ideas. He urged: (1) An appeal to the Education Committee to inaugurate systematic inspection of the teeth of all children attending school; (2) that the Committee of the Association should draw up a short statement to be printed on a card, and given to each scholar, stating simple rules for the daily care of the teeth, and having space for a brief report advising, where necessary, expert treatment; (3) that the duties of inspection be undertaken by local dentists; and (4) that treatment after report might be obtained for the very poor at the dental department of the Leeds Public Dispensary, while those whose parents were in better circumstances should be advised to consult dentists in the usual way. The matter was referred to the Council of the Association to be dealt with.

In the evening the annual dinner was held at the Hotel Metropole, when there was an attendance of about eighty or ninety, including ladies. Among the guests were: Sir John Ward (the Chairman of the Public Dispensary), the Vice-Chancellor of the University (Dr. Bodington), the Dean of the Faculty of Medicine (Professor Grünbaum), Professors Birch, Wardrop Griffith, and Littlewood, Dr. Forsyth, and others. In responding to the toast of "The University," the Vice-Chancellor expressed the cordiality with which the proposal to institute a school of dentistry had been received by the Council of the University, and some reference as to what steps have been taken will be found in the succeeding paragraph.

THE SCHOOL OF DENTISTRY.

Acting on the recommendation of the Board of the Faculty of Medicine, the Council of the University decided at a recent meeting to proceed to the appointment of gentlemen to fill the following posts: (1) Lectureship on Dental Surgery; (2) Lectureship on Operative Dental Surgery; (3) Lectureship on Dental Anatomy and Dental Physiology (including Dental Microscopy); (4) Lectureship on Dental Mechanics (including Practical Dental Mechanics); and (5) Dental Metallurgy (including Practical Dental Metallurgy). In the case of the subjects of dental anatomy and dental mechanics it is contemplated that demonstrators will also be shortly appointed. These appointments will be made by the Council on the nomination of a special committee which is entrusted with a wide discretion as to whether the posts should be advertised or whether in any case individuals should be invited to accept of one or other of them.

India.

THE ADMINISTRATION OF HOSPITALS FOR NATIVE TROOPS.

THE medical officers of native regiments in India all belong to the Indian Medical Service, and the regimental system is in force, each regiment having its own medical officer and its own hospital. On several occasions attempts have been made to introduce the station hospital system of the British Army into the native branch. About 1890 an experiment in this direction was made at Rawal Pindi, where the hospitals of three native regiments are situated together in one quadrangular area, but the frequent transfers of officers from one hospital to another, which prevented them from getting to know the men of the regiments, and certain other drawbacks, soon led to the abandonment of the system; the feeling of the service is believed to be strongly in favour of the present regimental system, except in the case of some senior officers. At the same time the equipment of the regimental hospitals leaves much to be desired as regards especially surgical instruments, drugs, etc., and an important order has just been issued, designed to improve matters in this respects, without completely altering the regimental system. Thus, all medical officers, assistants, ward orderlies, and hospital followers will continue regimental as at present, and officers commanding units will continue in every respect to exercise absolutely the same disciplinary control as they do now, and all regimental customs will continue as heretofore. The Senior Indian Medical Service Officer of each station will, however, be competent to detail all Indian Medical Service officers, hospital assistants, ward orderlies and regimental hospital establishments for any medical and sanitary duties he may consider necessary, provided he does not interfere with regimental

arrangements, that is, field firing, parades, etc. All hospital buildings for native troops, together with all their medical stores, drugs, instruments, and hospital equipments, will be under the charge of the Senior Indian Medical Service Officer of the station, who will be responsible to the Divisional Brigade Principal Medical Officer for their maintenance in a thoroughly efficient condition. The Senior Indian Medical Service Officer of each station will, under orders of the officer commanding the station, allocate the accommodation for sick as occasion may require, keeping men of each unit in separate wards or groups of beds, contagious or infectious cases excepted. The medical, surgical and hospital stores for the use of native troops in each station will be amalgamated into a single central stores, with a small branch stores for urgent requirements at hospitals too far from the central store for convenience. Such are the new orders as far as they are at present generally known, but without further details it is difficult to form an opinion of their effects in practice. The statement that wards or groups of beds will be allotted by the senior officer appears to imply the formation of station hospitals, where the sick of several regiments will be treated together. The massing of troops in stations in the Punjab, under the scheme of the present Commander-in-Chief, would render it cheaper to provide such hospitals instead of separate ones for each regiment as hitherto, while at the same time the medical officers will remain permanently attached to their regiments, moving with them when a change of station takes place, instead of being attached to the station hospitals as in the British army system. How the dual control of the regimental medical staff will work in practice remains to be seen, but the new system will certainly not be popular with comparatively junior and up to-date officers, very few of whom at the present time elect to remain in military employ rather than go into the civil branch with its infinitely greater professional opportunities. Nor is anything said in the orders yet published of "command" pay being given to the senior officers, on whom the extra work will be thrown, although this must follow, as it is already given in the sister British Army Medical Service. In so far as it will bring about an improvement in the present out-of-date equipment of these hospitals for native troops it will be a great advance, but the effect of the new measures on the position of junior officers in military employ, and its ultimate influence on the recruiting for the Indian Medical Service will be watched with great interest.

THE HEALTH OFFICERSHIP AND THE CALCUTTA MUNICIPALITY.

The vagaries of the Calcutta Municipality in its dealings with their health officer will afford little satisfaction to the advocates of extending local government in India, or at least in Bengal. After deciding to give the health officer six months' notice and to advertise the post, the notice of dismissal was not served on him until after the proper date, and, according to competent legal opinion, was consequently inoperative. A petition from the health officer to this effect was ignored, but after the new municipal elections had been held a long discussion took place on the terms of the advertisement for a new health officer, but before this was terminated a special meeting was summoned at which a proposal to extend the term of the present health officer for five years was warmly discussed, and eventually the unsatisfactory compromise of extending his term for eighteen months only, and proceeding with the advertisement of the post in the meantime, was adopted. The following day Dr. Cook applied for six months' leave, supported by a medical certificate, and this led to another special meeting being summoned, on the requisition of the native Commissioners, who proposed to rescind the last resolution, on the ground that the bad state of health of the medical officer had been withheld from them when they granted the eighteen months' extension, and a proposal to give him a bonus of several months' pay and let him go was brought up. After another verbose debate this motion was defeated, and the six months' sick leave, which had in the meantime been confirmed by a Medical Board, was granted. As the matter now stands, the post will fall vacant in October, 1907, and in view of this it seems well to place these facts before the medical profession in order that any candidate applying for the post may know what manner of masters he will have to serve under. So far the Government of Bengal has not interfered in any way; but, unless it takes the appointment out of the hands of the present municipality, it is exceedingly unlikely that an efficient successor to the present health officer will be obtained—that is, if the present decision to advertise the post is actually carried out, which is more than doubtful under the régime of the present vacillating Municipal Commissioners.

SPECIAL CORRESPONDENCE.

PARIS.

Académie de Médecine: Professor Budin on the Results obtained by Consultations for Infants.

AT the last meeting of the Académie de Médecine, Professor Budin made an interesting communication on the results which have been obtained by the Consultations for infants. When he founded the first Consultation in 1892, Professor Budin laid down as his programme (1) to receive infants each week up till the age of 2 years in order to examine and weigh them, and to advise the mothers; (2) to encourage breast feeding by every means; (3) to give sterilized milk of good quality in exactly-dosed quantities when the mothers have insufficient or no milk.

As these Consultations now exist in a large number of communes in France, Professor Budin brought forward some of the statistics which leave no doubt as to the happy results obtained. The Mayor of Arques (Pas-de-Calais) founded such an undertaking in 1903. The infantile mortality had been for the years 1898 to 1903, 191 per 1,000 births; in 1903, 1904, and 1905, it fell to 101 and 112 per 1,000. These figures give the mortality for the whole town, because among the infants who came to the Consultation the deaths were only 9.34 and 24 per 1,000 for the three years in question. That the favourable results are due to this work is evident, because in three neighbouring communes in which they do not exist the infantile death-rate was in 1904 and 1905:

At Blendecques	136 and 140	per	1,000 births.
At Wizernes	190 „ 150	„	
At Longuenesse	200 „ 230	„	

At Saint-Pol-sur-Mer during the five years before 1902, when the Consultation was founded, the mortality of infants under one year had been 288 per 1,000 births. In October, 1903, the mortality for the whole town had fallen to 209 per 1,000, and at the end of the second year (in October, 1904), in spite of the very hot summer, it was only 151 per 1,000.

At Varengeville-sur-Mer (Seine-Inférieure) a Consultation was founded in 1904. During the seven preceding years the infantile mortality had been 145 per 1,000. During 1904-5 none of the infants who came to the Consultation died, with the result that the total mortality in Varengeville fell in 1904 to 77 per 1,000. In 1898, when the summer had been as hot as in 1904, the infantile mortality had been 285 per 1,000.

In the Department of the Pas-de-Calais, through the activity of M. Durcault, a large number of Consultations have been organized; 71 were in existence in 1904. A statistic comparing the two hot years 1898 and 1904 shows that in all these towns the mortality was much lower in 1904. Is this reduction really due to the existence of Consultations for infants? In eleven other towns which do not possess them the infantile mortality for 1904 was higher than in 1898. In presence of this proof, a large number of fresh Consultations were immediately created: 118 were founded in 1905, and 33 more are being organized for the present year.

In the department of the Yonne there is a large number of them in existence. In the town of Auxerre, in 1898, the infantile mortality under 1 year was 205 per 1,000. In 1904, which was very hot, a Consultation was founded, and the infantile mortality fell to 120 per 1,000; and in 1905 it did not rise above 60 per 1,000, the fall being due to the small number of deaths of infants attending. In three neighbouring communes, where no such work was done, in 1905, the mortality was 120 per 1,000 at Toucy, 157 at Maligny, and 214 at Druyes. At Sens, where the infantile mortality had been 116 per

1,000 in 1898, it fell to 80 per 1,000 in 1904 and 47 per 1,000 in 1905.

At Villeneuve-sur-Yonne, in 1898 the infantile mortality was 163 per 1,000; after the foundation of the Consultation it was 82 per 1,000 in 1904 and 37 per 1,000 in 1905, while in three neighbouring communes without Consultations in 1905 the mortality was at Migennes 117 per 1,000, at Saint-Fargeau 163, and at Béon 176.

The good results obtained by these undertakings are due to several causes, and more particularly to the return to breast-feeding, which tended to disappear everywhere. By making mothers in the maternity give the breast to their infants, and after their leaving hospital making them return as soon as possible to the Consultation, Professor Budin has succeeded in inducing 94 to 95 per 100 of the mothers confined in the maternity to give their infants by the breast all the milk they are capable of supplying. The same results have been obtained by Dr. Maygrier at the Charité and Dr. Boissard at the Tenon Hospitals. At Saint-Pol-sur-Mer the infants scarcely ever used to be fed at the breast; when the Consultation was started by Dr. Ausset, only 22 per 100 of the infants were breast-fed; at the end of the first year there were 35 per 100, and 77 per 100 at the end of the second year.

At Varengeville, before the institution was founded, not a single woman fed her infant at the breast; since its foundation, the proportion rose to 47.5 per 100 in 1894, and to 75 per 100 in 1905. The mothers must be encouraged to give the breast, and be told all the advantages there are for their infants.

In Paris at the dispensary in the rue Oudinot, Dr. Bresset has seen the proportion of breast-feeding increase from 61 to 81.4 per 100. In the dispensary of Dr. Carel breast-feeding at the opening was 40 per 100 in 1901 and had risen to 81.3 per 100 in 1903.

Among the women who attended the institution of Dr. Bresset 139 came back after fresh accouchements; 40 per 100 had fed their infants artificially. These same mothers for a second series of children only gave the bottle in the proportion of 6.5 per 100, that is, 93.5 per 100 had adopted breast-feeding.

In May, 1904, Professor Budin spoke at the Académie of women employed in manufactories and workshops giving the breast to their infants. The State has set the example of favouring breast-feeding, and has founded fresh crèches; some large manufacturers do the same thing, and MM. Blin et Blin of Elbeuf deposit 100 francs in the savings bank for each of their employées who feed their infant at the breast for twelve months. The first results are very encouraging; formerly no workwoman in their employ fed her infant at the breast, whereas from April 15th, 1904, to September 1st, 1905, 37.5 per 100 of the infants were breast-fed, and 62.5 per 100 were artificially fed. The mortality among the former was 0; among the bottle-fed babies the mortality was 21 per 100.

These ideas are now spreading, and now in Paris women come to the consultation who say that their employers authorize them to give their children the breast, the infant being either brought to the workshop, or the mother going away for the purpose; formerly this never occurred.

Consultations for infants have also this advantage, that they can be adapted to many other institutions. Thus the ordinary crèches or the Crèche d'Usine realize this object as follows: Once a week at a fixed hour the doctor weighs the infant when its mother brings it or takes it away, and gives her the necessary advice. The majority of crèches now encourage breast-feeding as much as possible.

The "mutualités maternelles," which used to encourage the mothers to give the breast for one month and got good results, have decided to continue their help longer to mothers who continue to nurse, and are founding Consultations for infants under medical control where the children are weighed every week for eighteen months. The statistics for 1905, given by the doctors of these Institutions in the department of the Seine, show that for 1,377 children born living and viable, 1,200 have been breast-fed, giving 87 per 100, a large proportion considering that among the working classes the mothers are generally considered unable to feed their infants at the breast. The good results are due to the good advice given by the medical men in charge and to the increase of breast-feeding.

VIENNA.

Earthquakes and the Carlsbad Springs.—Action for Damages against a Doctor.—The Vienna Lupus Institute.—Reform of the Army Medical Corps.

The Vienna University has delegated several of its best geologists, together with two professors of chemistry, to join a body of scientists now at work at Carlsbad, striving to devise means for securing the springs against telluric and seismic disturbances. The committee consists of men acknowledged as authorities in their several branches of science. The importance of the question is obvious. Not only the material and financial prosperity of Carlsbad, which is based entirely on the health-giving properties of the water, is at stake, but the matter demands very thorough study from the medical point of view. A change in chemical constitution or the destruction of the springs would be a heavy blow to medicine. Once previously, in 1775, when the great earthquake in Lisbon occurred, the waters disappeared for three days, only to return turbid and changed in taste and temperature. These changes soon passed off. The recent earthquakes had no marked effect on the springs, perhaps because they are situated nearly exactly opposite the seat of the disturbances. A similar catastrophe nearer at hand might prove disastrous.

At no long interval after the action for damages against medical men, of which mention was made in a previous letter, the court had to give judgement in an action brought by a patient against a surgeon. It was alleged that a woman had consented to undergo operation for some disease of the neck to which Paquelin's cautery had to be applied. When the patient was under the anaesthetic and the assisting nurse handed the cautery to the operator ready for use, suddenly a "flame ran along the patient," causing bad burns on the cheek, the neck, the shoulder and breast, and singeing the hair off half the scalp. It was stated that the room used was entirely unsuitable, being very small and badly ventilated, and that the air was filled with ether and other flammable vapour. The room, in fact, was the operating theatre of a large hospital, and several minor operations had been performed just before the operation in question. The hospital Board was therefore sued conjointly with the surgeon. For the defence it was stated that ventilation was always practised after and also during every operation, and that such accidents might happen now and then if the benzene was too warm, or if, owing to some other cause, the gas passed the Paquelin and got heated without being burnt within the apparatus. After hearing numerous witnesses the learned judge ruled that the occurrence was not due to any fault on the part of the surgeon or those engaged in the operation, or the hospital Board, but that it was an accident. The patient was entitled to an accident premium from the insurance company she was insured with. The company had at first refused payment on the plea that the accident was due to negligence.

At a recent meeting of the Clinical Society a number of patients suffering from lupus vulgaris, who had been treated entirely by exposure to the Finsen lamp, were shown by Dr. Jungmann, senior surgeon to the Lupus Institute in Vienna. The patients came from all classes of the population, and had either been cured for periods extending from six months to two and a half years, or were still under treatment. It is Dr. Jungmann's practice to give a little more of the treatment than is necessary so as to effect an absolute cure. If but the slightest suspicion of a fresh nodule is visible, a few sittings are given so as to cause a fresh reaction. The results are excellent. The cost of the treatment with the new modifications of Finsen's lamp, which require only one-third of the electric power and one-tenth of the time formerly used, is still rather high, though much less than that of *x* rays and not greater than the cost of an operation.

The Army Medical Corps is now the object of much attention on the part of the military authorities. The lessons taught by the last war have shown that an efficient service for the sick and wounded is a very important factor. Very searching inquiries and extensive trials have resulted in the adoption of a scheme for rendering the ambulance corps effective. The number of bearers and stretchers at the disposal of each staff surgeon will be trebled, and a reserve of stretchers is to

be kept in the rear of the fighting line. The number of junior surgeons and regimental surgeons will gradually be increased. Substantial grants to medical students are proposed to induce them to enter the army, with a promise of quicker promotion to higher title and better pension. The political state of affairs has made it necessary to distribute numerous detachments of soldiers in the Tyrol, and these require a large number of medical officers. Thus, the vacancies have risen to a number never before experienced in the Austrian army. Nearly 120 regimental surgeons are wanted, and not a few practitioners who are not in a satisfactory position as regards income have a chance never dreamt of before.

CORRESPONDENCE.

THE FINANCES OF THE ASSOCIATION.

SIR,—It has been brought to my notice that a circular issued to the Lancashire and Cheshire Branch has been sent out also to other Branches and Divisions of the Association. This circular concerns the receipts and expenditure of the BRITISH MEDICAL JOURNAL, and while the figures given are not disputed, the inferences drawn or suggested from them appear to be founded on a misconception.

Briefly put, it is stated that, while during 1905 the JOURNAL earned £23,500 from advertisements, sundry sales, etc., the cost of production has involved an outlay of £29,000. Of this sum, in round figures, £9,000 was for paper, £9,000 for printing, and £4,000 for postage and wrappers. The remainder was in the main for the preparation of literary matter, the collection of advertisements, cost of staff, etc. It is argued that the difference is a "loss" of £5,500.

Now while it is true that the JOURNAL was during 1905 not self-supporting from advertisements and sales to non-members of the Association to the extent of £5,500, it is not just to describe this sum as a "loss," and to ignore the £25,000 received by the Association from members' subscriptions. It must be remembered that the JOURNAL is not merely a commercial venture, but the organ of the Association, and at least £1,500 is expended in printing in the JOURNAL Association matter which no paper privately owned would publish. Further, that the postage and special production of the Colonial edition involves a loss, owing to the fact that on an average 2½d. per copy is expended each week on foreign postage. Secondly, a very close, and some may think a too close, scrutiny is made of the advertisement columns to prevent anything of an objectionable character being admitted, and thereby large and highly remunerative classes of advertisements are excluded, many if not all of which would be published by a medical journal of the highest class run for profit only.

If these advertisements were admitted the so-called "loss" could easily be converted into a surplus, especially if analyses and notices of certain classes of products were inserted in the body of the JOURNAL, as is not unusual in similar publications. This so-called deficit is, as a fact, made good out of the subscriptions to the Association at a cost per member for the JOURNAL of less than 1½d. (1.33d.) per week, post free, so that for little more than one-fifth of the annual subscription members receive a journal with full scientific information, besides the Association intelligence, for which proprietors of an independent journal would charge 6d. or more per copy.

These are a few of the considerations which should be taken into account when reading the circular, and it is to save some misapprehension that the above is set forth by yours faithfully,

H. RADCLIFFE CROCKER,
London, W., July 2nd. Treasurer of the Association.

THE COUNCIL AND THE CHARTER.

SIR,—The amendments proposed by the Council in the draft Charter will require very careful consideration by the Representative Meeting. Two of them appear to me to be of a distinctly retrograde character, and to be quite out of harmony with the spirit which inspired the recent reorganization of the Association. That reorganization, as I understand it, was intended to secure that the body of Representatives should be the supreme legislative organ of the Association, the Council being the executive organ. But the amendments proposed by the Council to delete the words "and affairs" in Clause 7, first line, and to insert the words "at their discretion" in Clause 8, line 2, will practically have the effect of reinstating the Council in the supreme place of authority. I trust, therefore, that the Representative Meeting will resolutely and emphatically reject both these amendments.

Nor can I see any good reason for the proposal to substitute "Representative Meeting" for "Representative body," which seems a peculiarly fitting designation for the body of Representatives. The amendment to Ordinances 14 and 15 giving members of the Council power to vote at the Representative Meeting will need discussion; probably there is something to be said both for and against it. The amendment of Clause 17 (1), which on the one hand permits the Representative Meeting to pass a valid resolution which affects the funds of the Association by a simple majority, and on the other declares that no such resolution shall be binding on the Council unless it has been presented by the Council or by the Finance Committee, appears reasonable. I can find no trace in the proceedings of the Council of any consideration having been given to the amendments proposed by Divisions. I presume, however, that there will be an opportunity of bringing these before the Representative Meeting.—I am, etc,

FRANCIS JOHN BUCKELL,
London, N., June 30th. St. Pancras and Islington Division.

HOSPITAL REFORM AND THE METROPOLITAN COUNTIES BRANCH.

SIR,—In his presidential address to the Metropolitan Branch Dr. Ker expresses his anxiety to know why the general practitioner is "conspicuous by his absence" from the roll of the Association. I would suggest that the reason is that the Association has not hitherto evinced its willingness or used its power to help general practitioners or to protect their interest. Let him signalize the tenure of the presidential chair by a general practitioner by promoting an inquiry by general practitioners into the working of the gratuitous medical service of London. No doubt eventually a Royal Commission will be issued to inquire into the expenditure of the gigantic sum of over four millions sterling each year for this purpose; but meanwhile an independent inquiry into the out-patient abuses might set the ball rolling.

It is true that quite recently a Committee presided over by Sir W. Church ladled out the whitewash with an unsparing hand; but in this, as in other matters, everything depends upon the point of view. It is the general practitioner, and not the consultant or specialist, with whom the out-patient departments are in competition. I venture to say that in not one case out of a hundred is the out-patient unable to pay for the services of a general practitioner; he is merely unwilling to do so, and sees no need to pay for that which can be obtained free. Practically, the whole expenditure on out-patients is devoted to enabling the patients to obtain luxuries, chiefly of an alcoholic nature, instead of paying a doctor. But it is said the hospitals provide knowledge and skill which is beyond the power of the general practitioner to provide. Well, the greater proportion of the hospital skill and knowledge is the skill and knowledge of recently-qualified house-officers; even of those cases which come under the direct treatment of the members of the honorary staff, physicians, surgeons, and specialists, only a small number call for exceptional knowledge and skill; the remainder should be and are within the powers of a general practitioner to diagnose and treat. One would naturally expect that exceptional cases would be more frequent in the special departments, and therefore I looked through the records of the ear, throat, and skin departments of a large hospital. The aural surgeon reports 11 per cent. of cerumen; we may live to see a department of cerumenology, with a staff appointment for a cerumenologist from Harley Street. At present the general practitioner is competent to use a syringe. The laryngologist reports 13 per cent. of tonsillitis; the dermatologist 22 per cent. of itch, lice, and ringworm. Again, every practitioner should have been taught to diagnose and treat at least the commonest forms of disease in each special department, yet we find adenoids, chronic otitis, and eczema form respectively 34, 50, and 25 per cent. of the work of

their departments. It is clear, then, that the eminent specialists do not devote their time to uncommon or difficult complaints and conditions, but are actually engaged for the most part in dealing with trivial ailments, or common diseases, which every practitioner can and does treat. And what is true of the specialists is even more true of the physicians and surgeons.

The lay authorities of hospitals are mainly concerned to provide medical attendance on the needy. All is fish that comes to their net, from cerumen to epithelioma. The one is as good as the other for advertising purposes, while to make a searching and trustworthy inquiry into the means and luxuries of their *clientèle* would require more money than they feel disposed to part with.

The medical upholders of out-patient practice are in another boat. Their dilemma is this: either the hospitals are competing with general practitioners in respect of common and in many cases trivial complaints, or the medical schools and licensing bodies are sending out men who are insufficiently trained and inefficiently examined—at once an injustice to the student and a danger to the public.

If Dr. Ker can induce his Branch to carry out a searching investigation into the workings of the metropolitan hospitals he will earn the gratitude of his professional colleagues, and his year of office will mark an epoch of useful activity unrivalled in the history of the Association.—I am, etc.,

Putney, July 2nd. DONALD F. SHEARER.

THE TRAINING OF STUDENTS IN PRACTICAL MIDWIFERY.

SIR,—In the report just issued by the Students' Practical Midwifery Committee of the General Medical Council on the operation of the rules regarding the midwifery practice required of candidates for medical qualifications,[1] copies of which have been sent to the various medical schools in order that observations may be made on this important subject, there is a reference to suggestions made by me in a statement given in reply to the questions of this Committee last year (p. 72). These suggestions for the better training of students in practical midwifery were as follows:

1. I think no student should be allowed to begin his attendance on cases until he has had a course of six months' systematic lectures. This would ensure that he has had, at least, some knowledge of the theory of the subject. Further, no student should, in my opinion, be allowed to take out the class of systematic midwifery until he has passed all the previous—what may be termed non-final—examinations of the university, or Examining Board, whose degree or diploma he is aiming at obtaining. An example will make my meaning clearer. In the Royal University of Ireland a student, before the final degree (M.B.) examination, must pass three preliminary university examinations. The third examination in medicine consists of the following subjects: Anatomy, physiology, materia medica (with pharmacology and therapeutics). Now, I hold all students should be obliged to pass this examination before attending lectures on midwifery. It often happens they do not follow this course, with the natural result that while attending midwifery lectures their mind is all the time dwelling on this third examination which they have to pass, and so they don't take sufficient interest in the lectures, with the result that they begin their practical midwifery afterwards with a very inadequate knowledge of the theory of the subject.

2. I think a student should take out his pathology course before attending his labour cases, owing to the important bearing of pathology on many obstetric problems.

3. Students should, in my opinion, be required to give evidence that they have received clinical instruction in midwifery. The Examining Boards should not be content with simply a number of cases "personally attended," which too often means that the attendance is only during the labour. Evidence should be required that students have seen their cases regularly under the personal supervision of the obstetric physician for at least ten days after the confinement. In other words, midwifery should, like medicine and surgery, be taught clinically. At present the difficulty obstetric teachers have to meet is that students shirk the after-attendance on their midwifery cases—on the ground that they have so many other hospitals to attend (special and general). To obviate this they should be obliged to take their midwifery cases at a time when they can properly attend them both at delivery and afterwards. A better knowledge of pregnancy from the clinical standpoint is also needed.

4. The number of cases of "personal attendance" should be at least 10, conducted by each student, and seen regularly for at least ten days afterwards.

5. No student should attend a case until he has seen, under adequate supervision, five cases, and while doing this, his attention should be specially directed to acquiring a knowledge of the practical application of asepsis and antisepsis to labour, and of the importance of abdominal palpation as a means of diagnosis.

6. Each student should be drilled on the phantom in the technique of obstetrical operations; that is, he should personally perform such operations as forceps, turning, etc., etc., under the direct supervision of a medical tutor.

7. In Universities, or Examining Boards of Colleges, where at the final M.B. Degree, or Diploma Examination, in Obstetric Medicine, students are examined in midwifery, gynaecology, and diseases of children, the candidates should be obliged to give evidence beforehand (in addition to the certificates in reference to practical midwifery) that they have also studied diseases of women and of children clinically. In other words, students should be obliged to show that they have had personal charge of cases (say 6 each) of diseases of women and of children, either in the special wards devoted to these maladies in a general hospital, or in special hospitals for diseases of women and of children.

These suggestions are based on my experience as a professor and clinical teacher in the Belfast Medical School, and as an examiner in the Royal University of Ireland.—I am, etc.,

JOHN W. BYERS,
Belfast, June 31st. M.A., M.D., M.A.O.(Hon. Causâ).

THE BACTERIOLOGY OF A COMMON COLD.

SIR,—I cannot agree with Dr. R. W. Allen's opinion, expressed in his letter in the BRITISH MEDICAL JOURNAL of June 30th, 1906, p. 1565, that the *Bacillus septus* (*Bacillus coryzae segmentosus*) is only present when a sore throat complicates the coryza, and that it has little, if anything, to do with the etiology of the latter. Of course, catarrh of the fauces is very common in cases of "colds," but it is more often secondary than primary. If Dr. Allen will refer to my paper in the Local Government Reports (Report of Medical Officer), 1894-5, p. 455, he will find eight cases fully reported. In one of these, a case of postnasal catarrh, the segmented bacillus was not found, the illness being apparently due to the *Streptococcus pyogenes*. In a mild case the organism was found in scanty numbers, but in three it was found in considerable numbers, and in three in almost pure culture. These seven cases were clinically cases of "influenza colds," and in five of them the affection had apparently started in the nose. In one the nose, eyes and throat were simultaneously involved, and in one the affection began in the larynx and trachea. In four out of the seven cases another organism, more closely allied to that of true influenza, was also found.

I prefer the name of *Bacillus coryzae segmentosus* to that of *Bacillus septus*, suggested by Dr. C. H. Benham. The latter name is too suggestive of septic infection, and it leads to confusion to give a new name to an already recognized bacillus. The name does not imply that the bacillus is the only organism giving rise to "colds," but that it is a segmented bacillus found in such cases.—I am, etc.,

London, W., June 30th. EDMUND CAUTLEY.

SIR,—From the tone of Dr. Allen's letter I regret to find that I have inadvertently overlooked his and Dr. Arkwright's investigations upon this subject, and shall be grateful for references to their work.

I know of no inquiry which determines the relative frequency with which Cautley's bacillus is found in sore throats not associated with colds, and sore throats presumably the sequence of colds.

At the present time the clinical distinctions are so obscure between the so-called septic, catarrhal, influenzal, and other anginas, not definitely known to be due to specified organisms, and their bacteriology is so unsettled, that if Dr. Allen can substantiate the constant presence of the *Bacillus coryzae segmentosus* with a particular variety of sore throat, it will be a valuable help in solving a difficult problem.

The inoculation experiments alluded to in my last letter were confined to the mucosae of the nostrils and vaginae of monkeys, rabbits, and guinea-pigs; possibly had they been made to the throats of these animals, as Dr. Allen seems to suggest, the results might have been more positive.—I am, etc.,

Wigan, July 1st. R. PROSSER WHITE.

*** This correspondence must now cease.

[1] SUPPLEMENT to the BRITISH MEDICAL JOURNAL, June 2nd, 1906, p. 310.

THE PREVENTION OF DIFFICULT LABOUR.

SIR,—Having read the valuable paper by Dr. Herman on the above subject, I am tempted to notice one or two points. Under the heading "*Post-partum* Haemorrhage" Dr. Herman says: "The prevention of *post-partum* haemorrhage depends on two things: (1) upon the avoiding of extraction when the uterus is not acting, and (2) upon the careful emptying of the uterus." I and many others have seen *post-partum* haemorrhage where this advice had been most carefully followed, and the pressure by hand over uterus (the Dublin plan of expression), commonly called Credé's, has been found too valuable to be relinquished even now by Dr. Herman's advice. Who ever heard of compressing the uterus and tying the funis at the same time? The latter act being as a rule left to the nurse.

If "the uterus will do its own work," what need for doctor or nurse?

Of course, if, as Dr. Herman says, "*the uterus will do its own work if allowed to*" (*italics* mine. What about passive haemorrhage from inertia?), how can any portion of placenta or membranes be left to keep up the haemorrhage? and no direction given for the removal of such? which is another cause of *post partum* haemorrhage if left behind. When the uterus fails "to do its own work" it becomes one cause at least of puerperal septicaemia.—I am, etc.,

London, W., June 30th. ALEXANDER DUKE.

OBITUARY.

JOHN HENRY BRIDGES, B.A., M.B.Oxon., F.R.C.P.Lond.,

LATE MEDICAL INSPECTOR, LOCAL GOVERNMENT BOARD, ENGLAND.

JOHN HENRY BRIDGES, who died at Tunbridge Wells on June 15th, at the age of 73, was a man more remarkable for his character and attainments than for his achievements; he was content to spend the greater part of his life as a medical inspector of the Local Government Board for the metropolitan area, but his literary eminence was recognized by a small and distinguished body of friends.

He was the son of the Rev. Charles Bridges, and was born at Old Newton, Suffolk, on October 11th, 1832. He was sent to Rugby, then under Tait, and afterwards to Wadham College, Oxford. At Wadham he came under the influence of Dr. Congreve, then the leading exponent in this country of the Positivist or humanitarian philosophy of Auguste Comte. Among his contemporaries there were Frederick Harrison, Edward Spencer Beesly, afterwards professor of history in University College, and Vernon Lushington. The friendships then formed always afterwards persisted, and the friends have for more than a generation represented the influence of Positivism in this country. Bridges was elected a Fellow of Oriel in 1855, and, resolving to follow the profession of Medicine, he took the degree of M.B.Oxon. in 1859 and became M.R.C.S.Eng. in 1860; in that year he resigned his Fellowship and settled in Bradford, where he became Physician to the infirmary. He became a Fellow of the Royal College of Physicians in 1867, and in 1869 accepted the office of Medical Inspector under the Local Government Board in the metropolitan district, in succession to Dr. Markham, at one time editor of this JOURNAL. The period covered by Dr. Bridges's work in the metropolis was one of great importance and many new departures; it fell to his lot to guide the practical application of the legislation of 1867 (Metropolitan Poor Act), by which the Metropolitan Asylums Board was established, and on his retirement in 1892 the President of the Local Government Board nominated him to be a Manager of the Metropolitan Asylums Board. He gave up this position in 1897 to devote himself to literary work, to which he had always devoted much of his leisure. In 1865 he issued a translation of Comte's *General View of Positivism*, and in the following year published a historical work on *France under Richelieu and Colbert*. In 1875 he co-operated with Mr. Frederick Harrison in a translation of Comte's *Positive Polity*, and was one of the contributors to the *New Calendar of Great Men* and to a volume on *International Policy*. After his retirement he published an edition of the *Opus Majus* of Roger Bacon with a prefatory essay on the history of science, containing an analysis of Bacon's work. Certain errors, due probably to the editor's failing eyesight, were discovered in the text of the *Opus Majus* as printed by Dr. Bridges, who at once set himself to work to revise the text, a task which he accomplished with expert assistance.

Dr. Bridges was a charming companion and conversationalist, and those who worked with him will always honour his sincerity. His health had failed for some months past, but the end came suddenly and painlessly.

WILLIAM BATES RAMSDEN, B.Sc., M.B., B.Ch.,

LECTURER OF SANITARY CHEMISTRY, UNIVERSITY OF MANCHESTER.

By the untimely and sudden death of William Bates Ramsden on June 29th, the University of Manchester has been deprived of the services of one who promised to enhance the reputation of the Manchester School by his researches in sanitary chemistry. He had prepared himself for a specially useful career by taking successively complete courses in chemistry and in medicine. In 1897 he obtained a first class in the final B.Sc. Examination in the Honours School of Chemistry, and in 1903 he passed the examination for the degree of M.B., Ch.B. of the Manchester University.

For more than three years he had given considerable attention to the application of chemistry to hygiene, and was appointed in 1904 Research Fellow in Sanitary Chemistry at the Public Health Laboratory. In 1905 he succeeded Mr. D. L. Chapman, who for the previous three years had occupied with marked success the post of Lecturer in Sanitary Chemistry. Dr. Ramsden had for the last year been specially engaged in researches on foods, preservatives, and adulterants. This work was already yielding results of great practical importance. A short account of his new methods of estimating formaldehyde appeared in the *Memoirs and Proceedings* of the Manchester Literary and Philosophical Society, vol. xlix, No. 16, 1905, and in the *Archives of the Public Health Laboratory*, vol. i. It is hoped that the notes he has left of his larger work on the subject of formaldehyde in milk will be sufficiently complete to allow of their publication.

Dr. Ramsden was in his thirtieth year. He had just been speaking to two members of his class when he suddenly fell dead from failure of the heart. He was an inspiring and successful teacher, and his death is deeply regretted by all his colleagues and pupils.

JOHN WINTER DRYLAND, M.R.C.S., L.S.A., J.P.,

MEDICAL OFFICER OF HEALTH FOR KETTERING.

DR. J. W. DRYLAND of Kettering died on June 24th, at the age of 73. He had been out of health for several months and more or less decidedly ill for some weeks, but the end came suddenly. Born in Newbury in 1833, Dr. Dryland received his general education at Totteridge and in Paris, but turned early to medicine. Its study he began at Brighton, continuing it at Guy's Hospital, and becoming M.R.C.S.Eng. and L.S.A.Lond. in 1855. After the lapse of some two years, part of which he spent as house-surgeon at Reading Hospital, he was taken into partnership by the late Mr. Wyman of Kettering, and in 1858 succeeded to the whole of his practice. In the following year he received the first of the many appointments which subsequently he came to hold under various local authorities. The Union of Kettering, as Medical Officer of its Workhouse, of one of its districts, and as public vaccinator, he served for some forty-six years. He was instrumental in introducing many improvements in the medical work of the district, and in getting the whole workhouse and its nursing system recast; later on he induced the guardians to arrange special accommodation for cases of phthisis and for their treatment according to modern views. To the post of Medical Officer of Health he was appointed in 1872, and in the same year received from the guardians a silver cup in acknowledgement of the services which he had rendered to the district during a severe outbreak of small-pox. Other professional appointments which he held were those of Medical Officer to the Hospital for Infectious Diseases, the establishment of which was largely due to his energy, to the Midland Railway Company, the Post Office, the Fire

Brigade, and to several Friendly Societies. He was also Surgeon-Major in the Royal Kettering Yeomanry Cavalry. From the first Dr. Dryland was *persona grata* in the district, and throughout the greater part of his career exercised a wide influence in its local affairs. He was a member of the School Board and Chairman of one of its Committees, President of the Conservative Association and of the Kettering Conservative Club, and a trustee of several local institutions. In his time he was a keen sportsman, well known with the Pytchley hounds, and an excellent cricketer. In the latter sport his interest did not diminish, and he remained president of the local cricket club up to the time of his death. In first aid and ambulance work Dr. Dryland also took much interest, teaching the first class ever held in Northamptonshire, and subsequently arranging classes for railway employés; he thus initiated a movement which has always remained popular in the district.

Some three years ago the Lord Chancellor placed him on the Commission of the Peace for the County, and so long as his health continued Dr. Dryland devoted to work on the bench the same intelligent industry that he showed in everything he took up. For the last two years, however, owing to a serious illness which lasted several months, he had been unable to do nearly as much work as before. He recovered sufficiently to recommence work, but fell ill again last winter, and since then had been more or less an invalid. Dr. Dryland was twice married, and leaves a widow and several daughters and sons, one of whom is a medical man and has been associated with his father for several years past.

The death took place on June 23rd, in Kilkelly, of Dr. James Butler Norris Cane. He was born in 1844 in Kilkenny, and received his general education first at a private school, and afterwards at the St. Francis Xavier College in Dublin. As a medical student he attended the Peter Street School of Medicine, and the Meath, Mercer's, and Coombe Hospitals. His career at this time was one of promise and distinction, for he gained the Sir Charles Cameron Gold Medal in chemistry, and in physiology the silver medal awarded by the Science and Art Department. His professional diplomas, L.R.C.P. and L.R.C.S.Edin., he received in 1866, and then became Surgeon to the old *Thornton*, the last of the sailing ships carrying emigrants to America. A little later he was appointed Resident at the Birmingham Lying-in Hospital, and then saw something of English private practice in Rochdale and Wigston Magna. The year 1868, however, found him back in Ireland as Medical Officer of the Kilmackerogue District of the Waterford Union. This position he held for a long time, and his career was remarkable for the extraordinary series of attacks to which he was subjected. First and last some dozens of charges were made against him to the Irish Local Government Board. Many of them were the subject of sworn investigation, and all were dismissed as either frivolous or unproven. This persecution did not disturb Dr. Cane's equanimity or abate his courage, and he continued to hold his post for thirty-one years, not retiring until a pension was allotted him by the guardians. The balance of his years, some seven in number, he spent in County Mayo at Kilkelly, where his only son is in practice. His wife and a daughter likewise survive him. Dr. Cane, as might have been expected, was an ardent advocate of reform in the Poor-Law Medical Service, nor did his interest in the matter cease with his personal activities. He was a good friend and a loyal enemy, and his name is not likely soon to be forgotten in the district where he worked and fought so long.

Deputy Surgeon-General Theobald Ringer, M.D., Indian Medical Service, died at Cheltenham on June 12th, in the 80th year of his age. He joined the Bengal Medical Department as Assistant Surgeon, April 17th, 1854, and became Deputy Surgeon-General, September 21st, 1881, in which year he retired from the service.

Surgeon-Major Framji Ruttonji Divecha, formerly of the Indian Medical Service, Madras, died at Chinchpoogly on June 11th, at the age of 53. He entered the service as Surgeon, March 31st, 1880, was made Surgeon-Major twelve years thereafter, and retired in 1897. He served with the Soudan Expedition at Suakim in 1885-6.

Major Stanley J. W. Hayman, retired pay, late Royal Army Medical Corps, died at Southsea on May 23rd, at the age of 45. He joined the Army Medical Service as a Surgeon, January 30th, 1886, and was made Surgeon-Major, January 30th, 1898. He took part in the Burmese campaign in 1886-8, and had received a medal with two clasps.

Lieutenant Walter Hyde Hills, M.B., Royal Army Medical Corps, died at Cawnpore on June 22nd from cholera at the age of 28. He was educated at Cambridge and at the Medical School of St. Bartholomew's Hospital, and entered the Army Medical Service as a Lieutenant, July 30th, 1904.

Dr. Andrew D. Blanchard, of Melrose, U.S.A., who is said by the *Boston Medical and Surgical Journal* to have been the oldest surviving surgeon of the American Civil War, died in June at the age of 83. He was born in Medford, and graduated at the Harvard Medical School in 1846.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are: Dr. Ludwig Ebner, Professor of Surgery in the University of Graz, and Dr. A. Josias, Member of the Académie de Médecine, Physician to the Paris Hospitals.

MEDICO-LEGAL AND MEDICO-ETHICAL.

THE CHRISTIAN SCIENCE CASE.

The trial of George Robert Adcock for the manslaughter of Major John Nicholas Whyte, D.S.O., was commenced by Mr. Justice Bigham at the Central Criminal Court on Wednesday, June 27th. It lasted until Saturday, June 30th.

The Attorney-General (Sir J. Lawson Walton), Mr. Charles Matthews and Mr. Bodkin appeared to prosecute; Mr. Kingsbury, Mr. Curtis-Bennett and Mr. Hastings for the prisoner.

The Attorney-General in opening the case said the allegation against the prisoner, who had been in practice for some years and was still on the *Register*, was that by neglecting to use ordinary care and skill as a medical practitioner towards the deceased he has been guilty of a breach of duty which accelerated the death of the deceased. Major Whyte was thrown from his horse while hunting on February 15th, 1905, and fractured his spine. He then passed into the hands of Sir Victor Horsley and was placed in a condition which made ultimate recovery quite possible if not probable, but his progress was necessarily slow. In convalescence he was sent to the Officers' Home at Osborne, and, unfortunately, while there became associated with persons who practised Christian Science. In September, 1904, he returned to London to the house of a Mr. Smith, and from that time down to January, 1905, he was attended by a Christian Scientist named Captain Baynes. He continued to improve until the end of 1905, when there was a reaction. The deceased's valet having noticed that he was suffering from bedsores, called in the prisoner to attend him. The prisoner said counsel, was called in as an ordinary medical man, and his only treatment of the bedsores was to powder them with ektagon. In the result, a large abscess was formed; and in spite of other medical aid, which was summoned by Mrs. Whyte, the deceased's mother, he died on April 29th in the present year. On April 25th the prisoner wrote to Mrs. Whyte, saying that Major Whyte had been treated under Christian Science. "Beyond looking after the wounds, I have given him no medicine, and he refused to take any drugs since taking up Christian Science. Before taking up Christain Science, he told me the doctors had given up hope of his getting better, and he told me that if it had not been for the help he got from Christian Science he would not have been alive now." In conclusion, the Attorney-General pointed out that the prisoner was possessed of a standard of knowledge by which he must be judged. The law could take no cognizance of Christian Science. There was a duty upon the prisoner, and a breach of that duty had hastened the death of Major Whyte.

Mrs. Whyte, mother of the deceased, admitted that her son had told her that he had earnestly studied the question of Christian Science for months, and had deliberately come to the conclusion that Christian Science was best for him. He forsook the Roman Catholic religion early in 1905, but returned to it before he died.

Dr. Ludwig Freyberger detailed the results of the *post-mortem* examination. He said death was due to blood poisoning resulting from the bedsores. The poisoning had been going on for some months.

The Judge: Then it had been going on before the prisoner was summoned?—Yes.

The Judge: Whether he could have avoided it is, of course, another matter.

Witness did not think that oktagon had any antiseptic qualities. In cross-examination, he admitted that the blood poisoning might possibly have been due to other causes than bedsores. He had seen about a dozen cases of fracture of the spine, and in each one death ensued from some form of blood poisoning within a few months of the injury. Witness also said he was satisfied that if the deceased had been medically and surgically treated his life would have been prolonged. He could not say, however, that life would have been saved.

Sir Victor Horsley described the complete state of paralysis below the seat of injury in which the deceased was prior to the operation of laminectomy. While the operation removed the pressure from the spinal cord, he was of opinion that the patient never would have entirely recovered the use of his left leg. The deceased had received his death sentence six weeks before his death, and death was due not only to the neglect of the last three months, but also to the neglect of the previous fifteen months.

Cross-examined as to what ought to have been done for the patient, Sir Victor Horsley related in detail the treatment which ought to have been adopted, and said that until everything possible had been done a medical man had not absolved himself of his responsibility to his patient.

The Judge: What responsibility?

Witness: His moral responsibility.

The Judge: Moral responsibility? I do not understand how the question of moral responsibility arises.

Dr. Huxley also gave evidence on the part of the prosecution.

The accused, in giving evidence, said he had practised as a doctor for ten or twelve years, but gave up practice in February, 1905. Major Whyte knew that he had given up practice as a doctor. Nothing took place to lead him to suppose that Major Whyte wanted him to attend him as a medical man. He at first declined to take any fee for his Christian Science treatment of the deceased, but eventually he agreed to take £1 1s. per week, that being the customary amount. His medical or surgical treatment of the deceased was limited to his recommending the use of oktagon powder.

In cross-examination, witness said that he thought he was first called in to see Major Whyte as a friend. He knew that he was then beyond the reach of medicine and surgery. He ordered the powder in order to keep the wounds clean and to purify the atmosphere of the room, but not with a view to treating the wounds. Major Whyte was a dying man at the time. Had witness attended him medically he could not have done more than he did. It was not necessary to use any antiseptic lotion. He thought he was being paid a guinea a week for being with the deceased and helping him in any way he could. As a Christian Scientist, he thought that the deceased had a good chance of recovery. He believed it cured everything.

Mr. Justice Bigham: Why did it not cure this man?—He gave up Christian Science before he died.

Mr. Justice Bigham: Why do Christian Scientists ever die?—I cannot very well answer that question as I do not really know enough about Christian Science to tell you.

In further cross-examination, witness said that he thought Christian Science would cure opium poisoning, snake-bite and indigestion. His former statement that he used strychnine for morphine for indigestion was incorrect; the real reason was that at one time he was a victim to morphine, but he had obtained complete relief since he became a Christian Scientist. During the worry of this case, however, he had had a relapse. His statement that the phial of strychnine found upon him when he was arrested was to be used for indigestion was not true. He told a lie because he did not wish to confess that he had been a victim of the morphine and cocaine habits. In re-examination he said that he had provided himself with the strychnine because he expected to go to gaol.

In reply to a member of the jury, he said that if Major Whyte had wanted a doctor he would have said "Call in a doctor by all means."

Mr. Kingsbury, in his address to the jury, attacked the members of the medical profession who had given evidence for the prosecution. He said it was revolting that men who but for religious prejudice would have clasped the accused by the hand in friendship as a professional brother should behave in this cruel, unheard-of way, and charge him with manslaughter. He invited the jury to say that the accused had honestly done what he considered best for his dying friend.

The Attorney-General, in reply, said the case was one of considerable gravity. He could not understand how the term "religion" was applicable to Christian Science—a system which sterilized human intelligence, human knowledge, and experience, and asked us to abdicate all that the world had ever learnt when we endeavoured to deal with suffering human nature, could not claim the cloak or sanction of any religious system which was entitled to our respect. He also alluded to the "amazing, extraordinary and extravagant" attack which had been made on all the medical men in the case. In particular, Dr. Huxley had been subjected to a most unfounded attack. It was to the credit of Dr. Huxley that he took the steps he did take to have this matter investigated. If the jury believed Mr. Whyte it was clear that the prisoner had undertaken the case as a medical man, and had represented that he did so.

In summing up, Mr. Justice Bigham said the law was plain and simple. If a man stood in the relationship to another of his medical attendant, he was bound to bring to the case care, attention, and proper skill. If he failed, he rendered himself liable to a charge of manslaughter in the event of death ensuing. The jury had to consider whether if the accused was Major Whyte's medical adviser his neglect led to Major Whyte's death. It was clear that both the deceased and the accused believed in Christian Science. The fact that beyond prescribing oktagon the accused did nothing one might have expected a medical man to do, might, as the prosecution said, be evidence of neglect, but, on the other hand, it might be evidence that the relationship of patient and medical man did not exist. Although Major Whyte was probably very foolish, still, if a man did prefer this treatment, and would not have any other treatment, he was master of the situation, and it was not because his death resulted from his obstinacy that some one else was to be made responsible. If the jury thought that the accused had attended the deceased as a medical man, they would have to consider the question of negligence; and in that connexion it was necessary to remember that a mistake in treatment was not sufficient to render a man liable to be convicted on such a charge. Finally, if they did think the accused had been guilty of negligence, did that negligence hasten the death of Major Whyte by a single hour? In conclusion, his lordship said: "You have nothing to do with Christian Science, nor are you asked to form any opinion about it. We may have our views—our strong views—about the folly of these people who refuse to avail themselves of the assistance that science and skill can afford, but with those views we have nothing to do at all."

The jury retired to consider their verdict. After a prolonged absence, they announced that they could not agree, and were discharged.

The prisoner was released on his own recognizances, in £500.

Mr. Justice Bigham, upon taking his seat at the Central Criminal Court on Monday, July 2nd, addressing Mr. Matthews, one of the counsel for the prosecution, said that he had carefully considered the evidence, and in his opinion a conviction would be undesirable. The evidence for the prosecution was not, he considered, sufficient to bring guilt to the person charged. He did not desire to do anything to interfere with what the prosecution might choose to do, but he thought it desirable that they should know his feeling so that the prosecution might take it into consideration when they were determining what course should be pursued in regard to the case.

Mr. Matthews said that his lordship's remarks would be conveyed to the Attorney-General.

A CASE OF CONSCIENCE.

CONSCIENTIOUS writes: A patient of mine was knocked off his bicycle and injured; the owner of the car being insured against such accidents placed the matter in the hands of his company, who sent a representative to interview my patient and later on asked me to meet their medical officer in order to examine the patient together; this we did, but before going into the patient's room the doctor said he had a fee to give me. After seeing the patient he asked for a piece of paper to write out a cheque for one guinea, to which I demurred and said I did not care to receive a fee from the insurance company. Was I right or wrong? The medical officer said other doctors did so, especially at hospitals.

*** We agree with our correspondent that the offer of the fee had the look of a bribe, and it was offered in a way that tended to confirm this view; if the company looked upon it as an ordinary business transaction why did it not send its own cheque and ask for a receipt?

PROFESSIONAL SECRECY.

H. R.—The proper proceeding in such a case is to see the patient alone, explain the condition to her, and point out the desirability of letting her mother know, but, as she is 25 years of age, our correspondent has no right to reveal the result of his medical examination without her consent.

ADVERTISING AND CANVASSING.

A CORRESPONDENT sends us a letter received by him from the General Accident Fire and Life Assurance Corporation in connexion with its "Monthly Payment Department for Sickness and Accidents." It commences by stating that the writer understands our correspondent is willing to accept an appointment as medical examiner for the M.P.D. on the following terms: "First treatment at the surgery or the patient's house, 2s. 6d., including the filling out of the first form provided by the Corporation. The patient to pay for any subsequent treatment." After a few unimportant details, the letter goes on to say: "We shall enclose your card in each policy if you furnish them, or a printed slip, prepared by us, as per the enclosed copy; we feel sure this will add to your clientage." This printed slip is headed "The General Accident Assurance Corporation, Limited. Monthly Payment Department. This is to certify that you

are entitled to the services of the following doctors for first medical treatment, including the filling out certificate at the surgery or at your home if within one mile of the doctor's surgery. This treatment does not include setting of bones. Policy holders must show agent's receipt for premiums paid to date of application for attendance." Below this are four blank spaces for the names and addresses of doctors from whom we suppose the subscriber is entitled to choose his medical attendant.

*** Our correspondent asks our opinion of this scheme, as he fears that if he accepts he would bring himself under the censure of the General Medical Council in respect to canvassing and advertising. No doubt any medical man who allowed his card or the printed slip to be enclosed by the Society with each policy would expose himself to a charge of personal advertising; and if the Society canvasses and advertises to gain adherents to this scheme, medical men acting for it will bring themselves within the terms of the notice of the General Medical Council.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examinations indicated:

FIRST M.B.

Organic Chemistry.—P. L. Gibson, W. F. Harvey, T. B. Heaton, G. L. Hollister, C. H. G. Martin, A. S. Roe, E. H. Ushe.

Materia Medica and Pharmacy.—T. B. Batchelor, J. L. Birley, F. W. Browne, P. N. Cave, A. R. Chavasse, W. G. Chavasse, G. H. Gross, A. W. Donaldson, H. O. S. Gibson, N. Glover, T. B. Heaton, W. D. Kennedy, C. H. G. Martin, A. E. Mavrogordato, S. F. Moore, W. J. Oliver, E. L. Pearce-Gould, W. J. Pearson, E. P. Poulton, A. S. Roe, H. W. Scott-Wilson, O. L. V. Simpkinson, C. T. G. Taylor, D. R. Todd, W. W. Vagstaffe, R. O. Ward.

Anatomy and Human Physiology.—C. N. Binney, H. J. B. Fry, H. E. Gibson, A. E. Mavrogordato, G. E. Seligan, H. P. Newsholme, E. W. M. Phillips, A. H. Savage, O. L. V. Simpkinson, S. S. Strahan, T. S. Wright.

SECOND M.B.

Pathology.—G. H. H. Almond, Hertford Coll.; B. E. A. Bull, Trinity Coll.; G. D. H. Carpenter, non-coll.; E. A. Cockayne, Balliol Coll.; M. Davidson, Trinity Coll.; C. G. Douglas, Magdalen Coll.; M. W. Flack, Keble Coll.; J. F. Hornsey, Wadham Coll.; F. Howson, non-coll.; E. L. Kennaway, New Coll.; C. T. Raikes, Trinity Coll.

Forensic Medicine and Public Health.—C. Beards, Jesus Coll.; E. L. Kennaway, New Coll.; G. M. Johnson, Magdalen Coll.; A. S. Macvalty, non-coll.; H. C. G. Semon, Magdalen Coll.; H. S. Souttar, Queen's Coll.

Medicine, Surgery, and Midwifery.—O. A. R. Berkeley-Hill, Trinity Coll.; D. Davidson, Brasenose Coll.; S. Nockolds, Keble Coll.; L. J. J. Orden, Keble Coll.; H. S. Souttar, Queen's Coll.; A. G. Thompson, Queen's Coll.

UNIVERSITY OF LONDON.

THE BROWN LECTURES.

DR. T. G. BRODIE, F.R.S., Professor Superintendent of the Brown Animal Sanatory Institution, will give a course of five lectures in the Physiological Laboratory of the University of London, on July 9th, 11th, 13th, 16th, and 18th, at 5 p.m. on each day, the subject selected being The Secretion of Urine under Normal and under Pathological Conditions. The lectures are given in accordance with the will of Mr. Brown.

KING'S COLLEGE.

THE Council has appointed Mr. Hugh Playfair, M.D., F.R.C.S., M.R.C.P., Lecturer in Practical Obstetrics.

UNIVERSITY OF BIRMINGHAM.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*W. R. S. Roberts, *R. H. Astbury, J. S. Austin, A. C. Hincks, C. Johnson, H. B. Jones.

*Equal for the first place, and recommended for the Queen's Scholarship of 10 guineas. W. R. S. Roberts receives the Ingleby Scholarship of £10 in addition.

M.B., CH.B. (*for Past Students*).—F. N. Deakin, C. H. Maskew.

M.D.—T. Webb Fowler, R. B. D. Hird, A. E. R. Weaver.

CH.M.—A. W. Nuthall (Class I).

UNIVERSITY OF LEEDS.

Medical Examinations.—During the present week the written examinations for degrees in Medicine and Surgery have been going on, and by the end of the week the practical *viva voce* examinations of the Second M.B. will be completed. Next week the *viva voce* and clinical parts for the final will be conducted.

Degrees.—At a congregation of the University for the conferment of degrees held on June 30th, the degrees of Bachelor of Medicine and Bachelor of Surgery were conferred on the two following graduates in Medicine and Surgery of the Victoria University who had been students at Leeds: Oscar Bagster Trumper and Joshua Williamson.

The following candidates have been approved at the examinations indicated:

FIRST M.B. AND CH.B. (*Parts I and II*).—J. P. Brown, J. B. Fisher, H. V. Limb, N. V. Milton, B. A. Slowcombe, G. V. Stockdale, [illegible] Thornton, Wood. (*Part I only*).—R. [illegible]. (*Part II only*: H. N. Ingham, J. P. Musson, F. W. Nunneley.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary comitia was held at the College on Thursday, June 28th, the President, Sir R. Douglas Powell, in the chair.

Licences.

The Licence of the College was granted to Neil John Maclean and Harry Francis Golding Noyes.

Communications.

The following communications were received:

1. From the Secretary of the Royal College of Surgeons, reporting proceedings of their Council on May 10th.

2. From the Anthropological Institute, inviting the College to join in a deputation to the Prime Minister to urge the institution of a national anthropometric survey. In view of a report of the College, so recent as the year 1904, it was deemed inexpedient to accept the invitation.

3. From the General Medical Council, forwarding a copy of a report from the "Students' Practical Midwifery Committee," with recommendations, and inviting observations from the College. The consideration of the communication was deferred until the next comitia.

Reports.

The following reports were received:

1. From the Representative of the College on the General Medical Council on the proceedings of the Council during its session in May last.

2. From the Committee of Management, dated April 23rd, recommending:

a. That Dr. Theodore Dyke Acland be appointed the first Assessor to the Examinations of the Egyptian School of Medicine for the examinations to be held in December next.

b. That the course of laboratory instruction in public health given by Dr. William Hunter, Government Bacteriologist, Hong Kong, in the Government Laboratory, be recognized as fulfilling the conditions of Clause 2, Paragraph 2, Section 2, of the regulations for the Diploma in Public Health. The recommendation was adopted.

3. From the same Committee, dated June 11th, recommending that the Technical College, Sunderland, and the Municipal Day Technical School, West Bromwich, be added to the list of institutions recognized by the Examining Board in England for instruction in chemistry and physics. The report was received and adopted.

4. From the Conjoint Finance Committee, dated May 14th, sanctioning the expenditure necessary for remedying grave defects in the drainage and sanitary appliances of the Examination Hall. The expenditure suggested in the report was agreed to.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

Barker Anatomical Prize for 1907.

A PRIZE of £21 is offered for competition, and is open to any student whose name is on the anatomical class list of any school in the United Kingdom. The prize is offered for a dissection showing the viscera in relation with the abdominal surface of the diaphragm. The relations of the common bile duct, which should be seen opened up along its entire length, to be fully retained. The preparations must be sent to the Curator of the Museum, Dr. A. H. White, Royal College of Surgeons, Dublin, from whom further particulars can be obtained.

TRINITY COLLEGE, DUBLIN.

THE following candidates have been approved at the examinations indicated:

Final M.B.—F. O'B. Ellison, T. J. Cobbe, M. K. Acheson, H. B. Leech, R. Connell, L. V. Hunt, J. A. Hartley, T. C. Somerville, M. P. Leahy, G. S. Walton, W. Hutcheson, E. C. Crawford, J. du P. Langrishe, E. D. Caddell.

The following candidates have been approved at the examinations indicated:

Final M.B. (*Part I*).—W. Pearson, R. E. Wright, G. F. Graham, J. A. L. Hahn, A. J. Powell, F. Stevenson, H. de C. Dillon, C. H. O'Rorke, E. C. Stoney, R. G. S. Gregg, J. C. C. Hogan, W. J. Dunn, H. J. Keane, J. W. Lane, W. S. Thacker, J. H. Morton, E. H. Sheehan, J. E. M'Farlane, J. H. Elliott, Eleanor E. Finegan.

Final M.B. (*Part II*).—J. C. P. Beatty, F. R. Coppinger, T. H. Peyton, E. Gibbon, Lily A. Baker, T. L. de Courcy, H. D. Drennan, G. Dongan, E. C. Phelan, E. C. Crawford, T. J. Cobbe, J. B. B. Whelan, E. D. Caddell.

D.P.H. Part I.—E. W. W. Cochrane, C. H. Burtchaell, H. Knaggs.

Part II.—C. H. Burtchaell, E. W. W. Cochrane.

THE APOTHECARIES' HALL OF IRELAND.

Honorary Diplomas.—On June 29th the freedom of the Company of Apothecaries of Dublin, and the honorary diploma L.A.H. were conferred on Sir Christopher Nixon, Professor of the Practice of Medicine, and on Dr. D. J. Coffey, Professor of Physiology in the Catholic University Medical School. On the same occasion, a resolution was adopted congratulating the Catholic University School of Medicine on the attainment of its golden jubilee. Sir Christopher Nixon, in acknowledging the honour done to him and to the school in which he was a teacher, said that he believed that the present Government would in time see their way to provide a system of university education in Ireland acceptable to all classes, and would also provide the medical school of the Catholic University with an

equipment which would enable it to fulfil its great function to the country and to its students.

Examinations.—The summer medical examination will commence with the first professional examination on Monday, July 16th. Candidates should at once send their names to the Registrar, 40, Mary Street, Dublin.

ASSOCIATION OF MEDICAL DIPLOMATES OF SCOTLAND.

At the annual meeting of the above Association held at 11, Chandos Street, W., on June 12th, the following officers and members of Council were elected:

President.—Claude St. Aubyn-Farrer.

Secretary.—E. N. Féré (12, Northampton Square, E.C.)

Treasurer.—Sydney Stephenson.

Council.—Heather Bigg, T. E. Fenton, Fitzgerald-Powell, J. G. Fitzgerald, A. J. Harries, C. O. Hawthorne, G. Hardyman, F. B. Lewis, Sidley Lightfoot, Alexander Morison, P. H. Parsons, Noble Smith, David Walsh.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

ARMY HOSPITAL ADMINISTRATION IN INDIA.

INDIA Army Orders Nos. 231 and 388 of 1903 are cancelled, and the following are substituted:

With a view to increased economy and efficiency His Excellency the Commander-in-Chief is pleased to direct the following modifications in the medical administration of hospitals: All medical officers, assistants, ward orderlies, and hospital followers will continue regimental as at present, and officers commanding units will continue in every respect to exercise absolutely the same disciplinary control as they now do, and all regimental customs as regards hospitals will continue as heretofore. The senior Indian Medical Service officer of each station will, however, be competent to detail all Indian Medical Service officers, hospital assistants, ward orderlies, and regimental hospital establishments for any medical or sanitary duties he may consider necessary, provided this does not interfere with regimental arrangements (that is, field firing, parades, etc.). All hospital buildings for native troops, together with all their medical and surgical stores, drugs, instruments, and hospital equipments, will be under the charge of the senior Indian Medical Service officer of the station, who will be responsible to the divisional or brigade principal medical officer for their maintenance in a thoroughly efficient condition. The senior Indian Medical Service officer of each station will, under the orders of the officer commanding the station, allocate the accommodation for sick as occasion may require, keeping the men of each unit in separate wards or groups of beds, contagious or infectious cases excepted. The medical, surgical, and hospital stores for the use of the native troops in each station will be amalgamated at single central stores, with small branch stores for urgent requirements at hospitals too far from the central stores for convenience. Steps are being taken, and will shortly be published, to alter the existing scales where more than one regimental hospital exists in a station; the surplus will then be returned to the store. By doing away with the present duplication of identical stores in the hospitals of units it is hoped that it will be possible to supply the extra instruments, etc., the necessity for which is recognized. The purchase of extra drugs and hospital supplies, now made separately for each unit by its medical officer, will in future be made by the senior Indian Medical Service officer of each station. The returns of sick will continue to be submitted separately for each unit as at present. All cases of discipline originating in hospital will be disposed of by the soldier's own commanding officer, on the report of the regimental medical officer.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

ANTHRAX IN HORSEHAIR FACTORIES.[1]

THIS report on anthrax, presented by Dr. T. M. Legge to the Chief Inspector of Factories, appears opportunely, for there has been a fresh outbreak of the disease in Bradford. Between the years 1889 and 1905 there were reported to the Home Office, as occurring in horsehair and bristle factories alone, 77 cases of anthrax—56 males and 21 females. Of these 77 patients 18 died. Most of the cases were traced to the manipulation of foreign horsehair and bristles. It is noteworthy that six of the cases notified occurred in home workers or in those employed in domestic workshops. The malady is not confined to factory and workshop alone, nor to any particular district. The disease has appeared in persons employed in docks and in warehouses where the material has been stored in bulk. China mane hair is responsible for 25 cases out of the 77, and doubtfully for 16 others. The hair when it arrives is usually unwashed and undressed. Manufacturers will not buy it in this condition, or if they do they at once proceed to sterilize it. Samples of Siberian and Russian hair are frequently found to be infected, but the hair from the United Kingdom and the British colonies is free from the germs of the disease. Dr. Legge has shown how very efficient as a disinfecting agent steam is when properly applied. It is absolutely essential that the steam should be under pressure. Under a pressure of 28 lb. (temperature 246.4° F.) it renders long tail hair brittle and tends to cause it to lose its elasticity, but under a pressure and temperature equal to 220° F. long-tail hair apparently does not suffer at all. In Germany manufacturers have been compelled since 1899 to boil horsehair and bristles for two hours in water alone, or for a quarter of an hour in a 2 per cent. solution of potassium permanganate, subsequently bleaching it in a 3 to 4 per cent. solution of sulphurous acid. Since the enforcement of these regulations the number of cases of anthrax has materially diminished. The disinfection must be thorough, for in England the boiling of horsehair in a solution of crude carbolic acid for some time did not destroy anthrax spores. The necessity of proper disinfection is at once apparent when it is stated that in the United Kingdom 2,535 persons are employed in horsehair factories, and in brush-making establishments 11,753. The German Regulations for the Disinfection and Manipulation of Horsehair are published as an appendix to the report. Some of these are excellent. In Germany there are public disinfecting stations wherein horsehair and bristles can be treated. It is a reasonable recommendation that close to the Port of London there should be erected a building in which the disinfection of horsehair in bulk could be carried on. By disinfecting the material on its arrival in this country there is not the least doubt that much illness would be avoided, and death averted.

[1] Report on the Incidence of Anthrax in the Manipulation of Horsehair and Bristles. By T. M. Legge, M.D., H.M. Medical Inspector of Factories. Darling, Son, Ltd., 34 to 40, Bacon Street, E.

THE Home Office is now issuing to all establishments dealing with raw animal products such as wool, horsehair, and hides, an illustrated placard which has been prepared by Dr. T. M. Legge, H.M. Medical Inspector of Factories. At the top are three pictures in colours representing an anthrax initial cutaneous lesion as it appears respectively on the first or second day, on the third or fourth day, and in its later stage. Below is a clear verbal description of the symptoms of the disease, of its etiology, and of the means of avoiding and treating it. It is intended that copies of the placard shall be framed and hung in workshops; thus used, this novel form of poster is well calculated to prove of great value.

ADULTERATED BUTTER.

THE adulteration of butter is strongly denounced by Mr. Barns Graham, of Craig Allean, Milngavie, in a pamphlet of 16 pages printed for private circulation by Maclehose of Glasgow. We cannot but express our agreement with his views. The regular, efficient, and systematic inspection of all stages of the milk supply is most important, and it is a common disgrace that any local authority should permit its powers to become obsolete. The blending of two butters is, of course, impossible to prevent, but the mixture of butter and margarine is obviously fraudulent. Annatto and orange analine are harmless, but quite unnecessary if the buyer could be made to think so. That waterlogged butters may contain an excess of bacteria is not improbable, and milk-blended butters doubtless contain more bacteria than without the addition. That butter can be kept without the addition of boron compounds is proved by the experience of Denmark.

VACCINATION.

PREMATURE OFFER OF PUBLIC VACCINATOR TO VACCINATE.

CYMRO.—The vaccination officer has no legal right to send a public vaccinator to offer to vaccinate a child until that child is four months and one week old; and the public vaccinator is bound to give twenty-four hours' notice of his intended visit (General Orders, 1898, Schedule V. 5). The wisest course to pursue would be to write to the public vaccinator, drawing his attention in courteous terms to the regulation, and in the event of his persisting in this line of conduct for the parents to draw the attention of the Local Government Board to the matter. The vaccination officer is not exceeding his duties in visiting the house, as he is expected to find out if all children are still in his district.

THE certificates and medallions won at the last examination by the Railway Men's Ambulance Class at Canterbury were distributed by the Mayor of that city on June 18th. The candidates were all trained by Dr. Henchley, and 16 out of the 18 were successful. Six won first certificates, 4 second certificates, 6 medallions, and 3 the label which denotes success at the stiffest examination of all.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

C. G. asks whether there is any place in England where he could carry out a cure for fever and congestion of the liver, instead of having to go to Homburg, which he is not desirous of doing if it can be avoided.

Glanrye asks for information as to the value of Droitwich brine baths in rheumatic arthritis. He also wishes to procure a list of lodgings suitable for an assistant school mistress.

Sciatica.

A member who has suffered from sciatica for eight months and has tried almost all the recognized forms of treatment including drugs, counter-irritants, a visit to Buxton, and recently the operation of stretching and puncture of the nerve, but still experiences almost constant pain, would be grateful for advice.

Diphtheria Antitoxin.

Dr. F. G. Crookshank (Medical Superintendent, Isolation Hospital, South Worple Way, Mortlake, S.W.) writes: I should be glad to know if any superintendents of isolation hospitals, or others who have large experience of diphtheria, have noticed of late less favourable or anomalous results in cases treated with antitoxin derived from one of the two or three best recognized sources. I ask this because during the last six months I have had very diverse results with cases treated with one or other of the best-known serums, and these results, though confined to a series of some fifty cases only, have seemed to me too striking to be due to coincidence or accidental circumstances.

ANSWERS.

Vegetarian Religious Orders.

Joshua.—We have tried in many likely quarters to get information as to the effect on the health of members of such religious orders or communities as practise abstention from meat, eggs, milk, and cheese, but with little result. We are informed that it is unlikely that any trustworthy statistics on the subject are procurable. The general impression, however, seems to be that the health does not suffer appreciably. Certainly a considerable number of instances of remarkable longevity are cited. Perhaps our correspondent might find what he wants in *Der Orden der Trappisten und die vegetarische Lebensweise*, by Hofrat Dr. Suchier, published by Otto Gmelin, of Munich. A second edition has recently appeared.

LETTERS, NOTES, Etc.

Presentation to St. Anne's School for Girls.

The Council of Epsom College is about to present a girl to the Schools of St. Anne's Society. A candidate must be between the ages of 7 and 12, and must be the orphan daughter of a duly qualified medical man who has been for not less than five years in independent practice in England or Wales. Forms of application can be obtained at the office of Epsom College, 37, Soho Square, London, W.

"All that Glisters is not Gold."

A member of the medical profession in this country who, one day this week, received a visit from a glib gentleman calling himself an American doctor, intends to keep the watch left with him as security for a small loan, as a reminder of the truth of the proverb.

Milk Supply of Crèches.

L. L. Thomson, M.R.C.S., L.R.C.P., writes from Lyons: In reading your article on crèches, which discusses some of the problems which those who have the direction and control of such have to contend with, it appears to me that an account of the management of the milk supply to crèches in Lyons might be of some interest.

I may say that the Municipal Institute for the sterilization of milk is under the direct supervision of Dr. Roux, the well-known hygienist, who is also Professor of Hygiene at the University of Lyons.

I visited the Institute with him, and he gave me a lengthened description of the various phases through which the undertaking had passed. First of all, they bought the milk and sterilized it, but had to give this method up as the milk supplied was found to be adulterated.

The Institute occupies the centre of the finest park in Lyons—the Parc de la Tête d'Or; its position is essentially good, especially as the park is situated on the outskirts of the city.

The building is long, low, one-storied, and built of stone. At one end is the cowshed, built on the latest principles as regards ventilation. There are only twenty cows, but there is room for as many more if necessity arises. There is a broad path down the centre of the shed limited on each side by a stone trough. The cows are in two rows and face one another. The food given to the cows is natural, as opposed to such food as compressed oil cakes, etc.

Apart from this shed an isolation shed is being built for isolating cows as soon as they are found to be suffering from a contagious disease. Dr. Roux lays great stress on the necessity of this isolation shed.

The cows are milked twice a day, and the milk immediately conveyed to the bottling room, which is separated from the cowshed by a covered way. A special tank fitted with taps enables the milk to be introduced into the bottles with a minimum of handling. The bottles are the shape of small champagne bottles, and hold about one-third of a pint. They are closed with an indiarubber cork, held on by a patent clip, which yields just enough during heating to allow gas and vapour contained in the milk to be expelled.

The bottles are placed in wire baskets and transferred to the next room, where there are two sterilizing appliances. The baskets are placed on trolleys, and the trolley introduced into the sterilizer. The door is carefully closed, and steam admitted to the outer jacket of the sterilizer. Sterilization takes 40 minutes, and the temperature attained reaches 106° C. On removing the bottles the clips are taken off, the indiarubber corks adhering by atmospheric pressure. The bottles are distributed to the various crèches, and the quantity of milk supplied to each infant is prescribed by a doctor. Milk is also distributed to the necessitous poor. In this case the milk is deposited at the town hall, and distributed according to the poor-officer's dictum. The bottles are very carefully washed, special instruments, mechanical brushes, rinsers, etc., being used; a special room is set apart for this.

As to the epidemic question Dr. Roux says that it is a great evil, and necessitates the immediate closure of the crèche. Nearly half the crèches are at this moment closed in Lyons for this reason. The milk tastes quite good and natural, and has none of the taste of boiled milk. It keeps indefinitely.

Papain in Malignant Growths.

Dr. John A. Shaw-Mackenzie (London) writes: I was much interested in Dr. W. J. Branch's communication in the British Medical Journal of June 16th, p. 1439, and I readily acknowledge his independent work and results. In drawing attention, however, to the proteolytic and glycolytic ferments in the treatment of cancer, I (*The Nature and Treatment of Cancer*, 3rd edition) had suggested that it was not impossible that the action of plants and serums might be due to vegetable trypsin and erepsin. In respect of papain the researches of Sydney Martin (*Journal of Physiology*, vol. v. 1884) show that "we have in papain a proteolytic ferment acting almost exactly like trypsin." J. R. Green (*Annals of Botany*) refers it also to the tryptic group of vegetable ferments, while W. Pfeffer (*Physiology of Plants*), speaks of it as a peptic enzyme. With regard to the detail of employment and effects produced, I have already noted fluid degeneration not only from injections of trypsin into the neighbourhood of the growth but into the growth itself. Local atrophy and degeneration are, however, far from the successful treatment of cancer, and in a large number of cases the growth itself is inaccessible to local injection. The difficulty seems to me how effectually to raise the presumed deficiency (secretive and intracellular) of these alkaline and defensive ferments. I have had no experience with papain, and I feel sure Dr. Branch's promised further communication will be looked forward to with interest.

Achondroplasia.

Dr. Guthrie Rankin requests us to state that the paper on this subject, by himself and Dr. E. C. Mackay, published in the British Medical Journal of last week, p. 1518, was read before the Royal Medical and Chirurgical Society.

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An Address
ON
MENDELIAN HEREDITY AND ITS APPLICATION TO MAN.

Delivered before the Neurological Society of London, on Thursday, February 1st, 1906.

By W. BATESON, M.A., F.R.S.

Mr. President and Gentlemen,—I need not say that I feel it a very high compliment for me, a layman, to be asked to address a professional meeting of this kind. When I received the invitation I hesitated for a moment as to whether anything I could say would have a sufficiently direct bearing on the subjects in which you are interested to justify me in occupying this place. Though I venture to call my paper "Mendelian Heredity and its Application to Man," I ought to say that that application is rather for the future than for the present. We do know cases in man where the rules of inheritance traced in other animals and plants must certainly apply, but those cases are very few. On the other hand, I feel sure that if members of your profession were to take the matter up and study the phenomena of inheritance with due regard to those points which we now know to be critical, the list will be very soon increased.

The advance in knowledge which I am about to describe is the outcome of the work of Mendel. I have not time to tell you who Mendel was, or how it came about that his paper published in 1865 was completely ignored until 1900, when de Vries and others simultaneously rediscovered it. Nor need I go through the reasoning by which he worked out his discovery. That, I think, will become easily intelligible when you see the practical examples which I shall be able to illustrate by specimens. I will therefore begin at the point we have now reached.



Dwarf (R). Tall (D).

Fig. 4.—F_2 family from the cross tall sweet pea × a dwarf procumbent ("Cupid") variety. The plants, five talls and three dwarfs (on the left of the photograph), came from one pot of seed.

In a very large range of animals and plants we know that bodily characters—points of structure and features of physiological constitution—are treated by the cell divisions in which the germs are found as units. This may be made intelligible by a simple demonstration. Here are draughts, white and black. Suppose the discriminating points whose heredity we are to trace are blackness and whiteness.* The draughts are the germ cells. When two are united together they represent the soma, or "zygote." The body cells, as you know, are double structures, containing twice the number of chromosomes present in the germ cell. A pure black individual is thus represented by two black draughts; a pure white by two white ones. When the two are crossed the hybrid contains both characters—a black draught on a white one. But though the combination of characters in the body of the hybrid may be intimate, yet when that hybrid forms its reproductive cells, the processes of cell division are such that the blackness is segregated from the whiteness. Each germ cell, then, carries either blackness or whiteness, not both; and an equal number of each kind are formed. Such segregating characters, or *allelomorphs*, as they are called, are, so far as we know, always constituted in pairs. In respect of each pair, therefore, there are only three kinds of individuals—the pure, or *homozygous*, of each kind, and the impure, or *heterozygous*, containing both.

Fig 1.

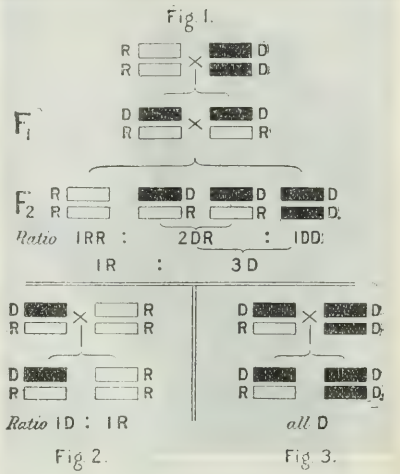


Fig 2.

Fig 3.

It is often found that one member of the allelomorphic pair is so conspicuous in the heterozygotes that these impure individuals may pass for pure. The character which thus prevails is then called the dominant (D), the other being the recessive (R). The gametes, or germ cells, may be represented by the single letters D, D, D, etc., and R, R, R, etc.; but to represent the zygotes—namely, the individuals resulting from the union of two germ cells in fertilization, two letters, DD, or DR, or RR, are required. In the diagram black is supposed to be dominant, the black draughts lying on the white ones. The results of the various possible unions are then shown. RR × DD gives all DR, which if dominance be complete may pass for pure D. Consequently DR × DR *seems* to give on an average 3 D : 1 R (Fig. 1).

* Taken as imaginary illustrations. We know, of course, that in man blackness and whiteness do not follow the simple system. In the rabbit, however, they do.

In reality, of the 3D two are impure on an average, and one is pure. Similarly DR × RR gives an equal number



Fig. 5.—Skiagraph of hand in Farabee's family copied from his paper.

of DR and RR (Fig. 2), while DR × DD appears to give all D (Fig. 3).

The most striking consequence of allelomorphism is that pure individuals may be bred from impure ones. For example, whenever an R germ meets an R germ in fertilization, the individual is pure R, and the same is true for the D germs. Consequently, when an R individual appears in the family, the D element is thrown out of that individual for good and all.

The simplest illustration is that of tall and dwarf ("Cupid") sweet peas crossed together. The first filial generation—F_1, as we call it—are all tall, for tallness is dominant. In the germ cells the characters tallness and dwarfness segregate.

By self-fertilization the second generation—F_2—is produced, consisting on an average of three talls to one dwarf. The dwarfs are then pure dwarfs, giving no more talls in their posterity: but of the talls one on an average will be pure tall, and two will be heterozygous, giving the same mixture in the next generation. In the photograph (Fig. 4) members of the F_2 generation are shown. All came from one pod of seed. The dwarfs are now pure dwarfs, though they are the offspring of a tall plant, and though the grandparent was also tall. But of the talls some are pure tall, and some are hybrids of tall and dwarf again, the pure being to the impure on an average 1 : 2.

The next, which is a human case, is exactly similar. It is the case of a family in Pennsylvania described by Farabee,[1] many of whose members had a deformity of the digits—the fingers and toes all having two phalanges like the hallux and pollex (Fig. 5). This character was like tallness in the peas, dominant. Every individual that bore the character exhibited it. Those that had normal digits did not transmit the peculiarity, because they were formed from two germ cells not bearing it. Fig. 6 shows the pedigree of the whole family. Though there is even a first-cousin marriage between normals, no abnormal appears in their posterity. Fig. 7 shows the descent from abnormal members, the other parent being in each case a normal person. The fourteen families bred in this way contained thirty-three normals, thirty-six abnormals—a close approach to the expected equality. It is therefore an even chance that the child of one of the abnormals will be normal, or abnormal; whereas if one of the normals were to consult a medical man and ask what was his chance of having a child with the deformity, he might be confidently assured that the chance was infinitesimal, and no greater for a normal member of this curious family than for any normal person in the general population.

Here is one of a collection of cases made by Mr. Nettleship,[2] dealing with inheritance in congenital cataract (Fig. 8). I have to thank Mr. Nettleship for calling my attention to these cases, and for other help in connexion with the inquiry. The same account applies to it as to the last. Here again a dominant character is passed on; roughly speaking, the affected have children of both kinds in equal numbers. The actual numbers in this series are

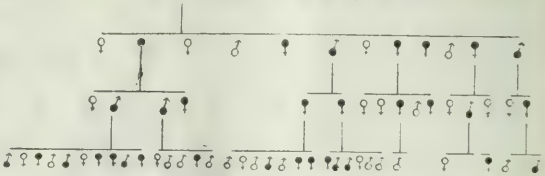


Fig. 7.—Offspring of abnormal members of Farabee's family* (from his paper).

29 (? — 1), and 26 + ? But the normals have exclusively normal offspring.

A chart of another family, also in Mr. Nettleship's collection[2] (Fig. 9), shows a similar distribution. It differs from the last in one respect, because at the top of the series there is a normal with a number of affected persons in his family. That, of course, is against our rule, and constitutes a definite exception to it. Though this family and that shown in Fig. 8 are in good agreement with the Mendelian scheme, several other cases in Nettleship's series present more or less difficulty. (See especially Gjersing's family, page 63, which shows such an excess of affected persons, that unless it is to be supposed that normals have been partially omitted—which is improbable—the case cannot possibly be brought within our rules.)

Such cases as that shown in Fig. 9 suggest a further question which we cannot answer—namely, What is the origin of these variations? As to that we know nothing at all. Whether a variation be dominant or recessive, we cannot form any clear idea as to what is the cause which leads it to begin. But having begun, it usually follows the ordinary course. The dominants—namely, the affected—have affected and unaffected offspring in equal numbers, and

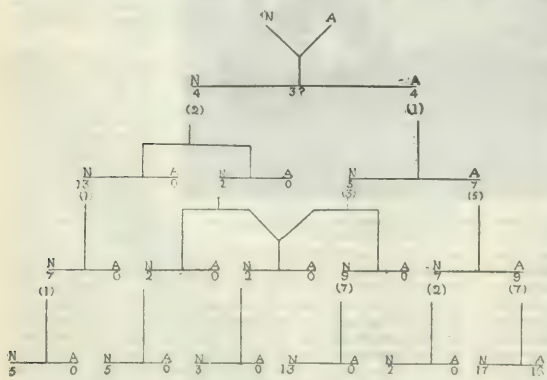


Fig. 6.—Pedigree of Farabee's family (from his paper). N, normal; A, abnormal, with only two phalanges in fingers and toes.

*In this and subsequent pedigrees the *black* symbols represent abnormal individuals.

the unaffected have unaffected offspring. This is characteristic of the distribution of dominant characters.

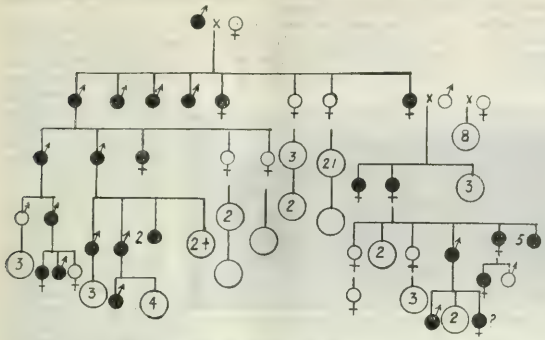


Fig. 8.—Pedigree of congenital cataract, after Nettleship, loc. cit., p. 40. The figures in the circles show the total number of unaffected persons.

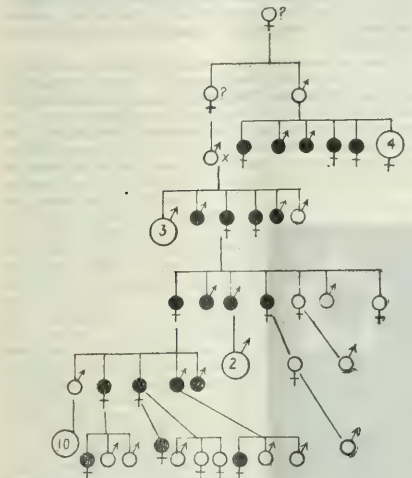


Fig. 9.—Congenital cataract, from Nettleship after Berry. The female at the top of the pedigree came of an affected family, but she was probably normal; and her son, from whom the rest descend, is said to have been certainly without cataract. Such descent of the condition through the unaffected is exceptional.

I will now pass rapidly through cases that we know more about, in plants and animals which are amenable to experiment. The first is a case in the Chinese primrose (*Primula sinensis*). The original species has a palmate leaf (Fig. 10). About 1860 a variety appeared as a sport from seed, having a pinnate or "fern" leaf [Fig. 2 (R)]. The palmate form is dominant, and the fern leaf is recessive, breeding true whenever it appears. The deformed sweet pea known as the "Snapdragon" variety is a similar recessive.

In wheat, a long series of characters following these rules has been determined by Biffen[3] and Spillman. Beardless, for instance, is dominant to bearded, and consequently the bearded offspring extracted from a cross-bred are pure to the bearded type.

Another of Biffen's cases has considerable theoretical importance, and is especially interesting as bearing on conceptions of evolution. It occurs in a cross between 2-row and 6-row barley. The difference between them is, briefly, that in the 2-row form certain lateral flowers develop no seed because they are *male* only, having no female organs. In the 6-row all the flowers are both male and female, and all set seed.

When these two are crossed together what should we expect? Certainly I should expect that the positive characteristic, the presence of both male and female parts, would dominate over the negative characteristic, the absence of female organs. But it is not so. It is the negative characteristic which dominates. Though in the "blood" of the cross-bred there is the positive characteristic, yet the negative form dominates and excludes it from appearing. It is as though an inhibitory process had occurred; that there was some substance or arrangement, some peculiarity—we know not what—present in that organism which prevents development of the female organs. Consequently it is 2-rowed, like the 2-rowed parent.

One of the simplest cases which first attracted attention is that of the cross between the wrinkled sugar-maize and the common or starchy maize with round seeds. In this case the round form dominates. Every "wrinkled" eggcell fertilized by a pollen grain bearing the "round" character becomes a round seed, developing a starchy endosperm instead of a sugary endosperm. Such a seed, when sown, becomes a plant which, on self-fertilization, will have a cob containing a mixture of starchy and sugary seeds in the ratio 3 : 1. Every one of the wrinkled seeds would give a plant of pure sugary or "wrinkled" type; but of the round seeds two would be impure "rounds" for one which was pure (Fig. 11).

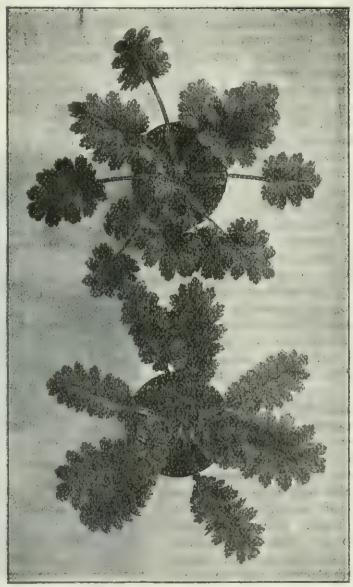


Fig. 10.—Palm-leaved (dominant) and fern-leaved (recessive) *Primula sinensis* in the F_2 generation from a cross between these two varieties. In F_1 all are like the upper, palm-leaved, plant.

The next is the classical experiment of Mendel, which consisted in crossing a wrinkled pea with a round pea, showing that the same series of results follows as in the case of the wrinkled and round maize.

So far all is very simple. From this point various extensions have been made. The first was to find other animals and plants, and other characteristics which followed these rules. Some very interesting ones have been found, for example, a case which will probably have an interest for the medical profession. Biffen has found in wheat that the condition of greater resistance to the rust disease is a recessive character. I have seen myself his wheats growing and can attest that that is so. He crossed a breed of wheat which has comparative immunity, or a greater resistance to rust, with one which has less resistance, whose leaves are yellow with rust. The first generation is affected heavily

with rust, like the bad parent. In the next generation one sees the yellowed plants, with green or recessive ones standing among them comparatively immune; and when the seeds of the resisting plants are saved—they are self-fertilized before the flower opens—the offspring are comparatively disease-resisting. That is the only case of this kind which has been properly attested, but I have no doubt plenty of others will be found when they are looked for. Another case which is rather interesting occurs in the primrose. Most people know from Darwin's books that primroses exist in two forms. In one form the anthers are in the top of the tube, and the style is short. In the other form the anthers are at the point of contraction of the tube, and the style is long. Primroses in Nature exist in about equal numbers in the two forms. And we find that the thrum, or short style, is dominant over the long style, and these characters are segregated in the ordinary way. Long-styled plants being recessive never produce short-styled offspring unless they are pollinated from a short-styled plant. That is a complete answer to the objection which was made when the Mendelian facts were first discovered, that wild animals and plants might not follow the rules applying to domesticated breeds.



Fig. 11.—A cob of maize produced by Mr. R. H. Lock, in F_2, from the cross round-seed × wrinkled seed.

An illustration of interest to neurologists is that of the Japanese "waltzing" mice. The peculiar vertiginous movements exhibited by these creatures are probably connected with malformations of the semicircular canals. The "waltzing" character is recessive to the normal, for the offspring of normal × waltzer is always normal, and in F_2 waltzers reappear.[1]

Another interesting case, also of a recessive character, is that of sterile anthers in the sweet pea. This curious pathological condition is partially coupled with the absence of colour in the axils of the leaves.

The application of Mendelian rules to mankind has not made the progress that was to have been expected. In particular, we have not clear evidence that these rules apply to the transmission of colour characteristics in man. We know that they do in the rabbit, the mouse, the horse, and many other creatures; but in man there is no clear evidence that the colour characteristics follow the Mendelian rules. There is evidently a complication, probably an important one, in that case. Those who are familiar with the subject will know that though we can work out the simple rules for the blacks, chocolates, and albinos in the mouse and rabbit, we have great difficulty in tracing the rules for yellows and browns. Yellows and browns do not segregate clean when crossed with black. I think that perhaps some difficulty of this kind exists in regard to human pigments, though we should probably be wrong in imagining that there was no segregation.

Even in regard to albinism—usually the most obvious Mendelian recessive in animals and plants—the human evidence is not yet clear. Albinos have been recorded with some frequency among the offspring of consanguineous matings, a circumstance characteristic of recessive features, but the existence of complications is indicated both by the many degrees in which human albinism may present itself, and by the frequent association of the peculiarity with various forms of disease—an association not usual among domesticated animals.

I now pass to another subject. So far we have only been concerned with the distribution in their posterity of characters obviously existing in the original parents from whom the descent is traced. We know long ago that such original parental types might reappear in F_2, together with the cross-bred form produced in the first generation. But we know also that in other cases F_2 might contain a number of *new* forms appearing for the first time. This phenomenon is the "variability," caused by crossing with which all breeders are familiar. Within the last two years this problem has been greatly elucidated. In all the cases which have been properly examined we now know that these *new* forms are created by simple re combinations of characters brought in by the original parents.

We cross, for example, a red variety of some plant, say a stock, with a cream-coloured variety. The red variety is characterized by red sap, the cream variety is characterized by yellow corpuscles, surrounded by colourless sap. In the red those corpuscles are represented by colourless corpuscles floating in the red sap. What will happen when these two are crossed together? As a matter of fact, we find that the red is dominant. But in the second generation, the F_2 generation, we have nine red, three red with cream, three *white*, and one cream as before. What is the white? White was not put in. Apparently we have produced it *de novo*—an albino by crossing two coloured forms; cream was a corpuscle colour, red was a sap colour, but the white have *colourless* corpuscles floating in *colourless* sap. It is evident what has happened. Which are the factors which segregate in the formation of the germ cells? They are (*a*) red sap from colourless sap, and (*b*) white corpuscles from yellow corpuscles; so that when the possible combinations of those two pairs of characters are made, colourless corpuscles may coincide with colourless sap and a white flower is the result. I think the answer is quite clear.

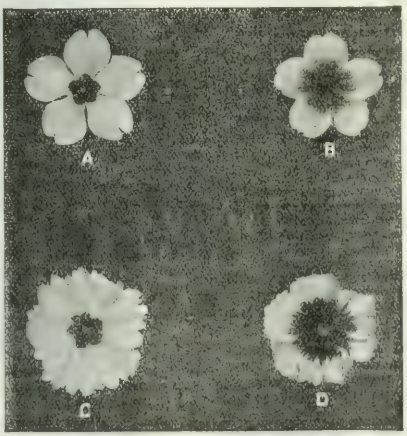


Fig. 12.—The four types of primula flower in F_2 from the cross large-eyed, homostyle × small-eyed short style. A, small-eyed, long style; B, large-eyed, homostyle; C, small-eyed, short style; D, large-eyed, short style.

The operations may be shown in a tabular form, thus:

Parents	... ... Red variety × Cream variety.			
Allelomorphs	Red sap (a).		Colourless sap (a).	
	Colourless corpuscles (b).		Yellow corpuscles (b).	
F_1	... ... Red sap. Colourless corpuscles.			
F_2	Red sap. Colourless corps.	Red sap. Yellow corps.	Colourless sap. Colourless corps.	Colourless sap. Yellow corps.
Appearance	9 RED.	3 RED CREAM.	3 WHITE.	1 CREAM.

Fig. 12 shows another example of a novelty arising in F_2 by re-combination. In the Chinese primula we have a modern variety with an extraordinarily big yellow eye or flush spreading up the petals, quite different from the small yellow pentagon characteristic of normal types. This variety has the peculiarity that though its pollen and anthers are those of the ordinary pin-eyed type, yet in it the style is short and the stigma is down the tube at the anther level.

Mr. Gregory and I crossed this "homostyle" plant, as it was called by Darwin, with the small-eyed short-styled form. F_2 is short-styled with the small eye. In the F_2 generation we got out four types: (*a*) Short style with small eye; (*b*) short style with big eye; (*c*) *long style* with small eye; (*d*) homostyle with big eye, in the ratio $9a : 3b : 3c : 1d$. Now, the long-styled or pin type, which apparently was not put in at all, is due to a re-combination of the characters. The two pairs of characters are—

Thrum type (Domt.)	Pin type (Rec.).
Small eye (Domt.)	Large eye (Rec.).

The homostyle is the form which the pin type assumes when the large eye is developed; but when in F_2 the pin type meets the small eye, the ordinary pin, or long-styled, form is produced.

The combinations of two such pairs of characters C c and R r can be represented diagrammatically as shown in Fig. 13. The figure contains sixteen squares, presenting every combination of the two pairs of characters.

There are therefore four groups of individuals produced in F_2—namely, nine of the kind that contains C and R, three that contain C only, three that contain R only, and one with neither.

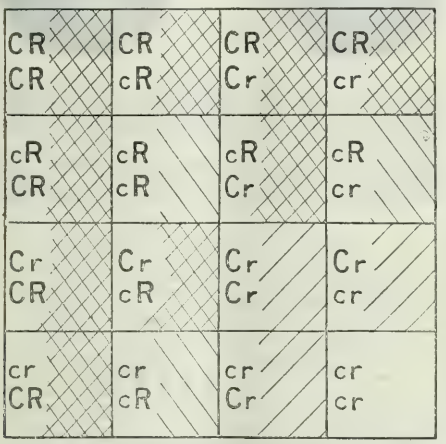


Fig. 13.—Scheme of distribution of two pairs of factors in F_2, showing how the F_2 ratio 9 : 3 : 3 : 1 is produced. From the same distribution the F_2 ratio 9 : 3 : 4 results in cases where one factor produces no visible appearance unless the other is present; while, if neither factor can be perceived unless both are present, the F_2 generation is 9 : 7. The big letter in each case denotes the presence, the small letter the absence, of the given factor.

A complication we often meet in the application of the rules of heredity lies in the fact that characters belonging to distinct allelomorphic pairs react on each other. A particular appearance, for instance, may depend on the coexistence of both C and R, and either of these factors alone may be unable to manifest any influence on the individual in the absence of the other. In that case there will be nine showing the appearance in question, say a colour, for seven which are without it. Or, again, the factor C may produce an effect alone; while R, though imperceptible in the absence of C, may modify the effect of C when C and R coexist. There will then be nine of the C + R class; three of the C class; and four all alike because C is absent, though their gametic composition is really diverse. This is a result well seen in the colour heredity of mice and rabbits. For example, grey × albino gives grey F_1, with in F_2 three grey: one albino. But F_2 may be instead nine grey: three black: four albino. The latter result indicates that the factor which determines the colour to be grey was absent in the albino. The meaning of these occurrences was first pointed out by Cuénot.*

In illustration of these descents I exhibit skins of some of the remarkable series of rabbits bred by Mr. C. C. Hurst,† who has kindly lent them for this meeting. Some of his F_2 families were three grey: one albino, while others were nine grey: three black: four albino; in either case, of course, three coloured: one albino. The albinos can give no more coloured. The blacks may be pure blacks, or they may give blacks and albinos. The greys may be pure greys; or they may give greys and albinos; or greys and blacks; or greys, blacks and albinos as before. If in the diagram (Fig. 13) C stands for colour, c for albino, R for grey and r for black, the nature of this series will be understood.* Inspection shows that of the four albinos, for instance, which appear on an average in 16 F_2, one will be carrying the grey determiner, one the black determiner, and two will have both grey and black determiners. By suitable cross-matings the condition of each albino can be exactly determined. For example, when bred to a pure black, a G albino will give greys only; a GB albino will give equal numbers of greys and blacks; while a B albino will give blacks only. Similarly, the exact composition of each coloured rabbit may be determined by experimental breeding.

The particular colour of a rabbit or mouse is therefore not a simple character depending on the presence of a single factor, but a double one, depending on interaction between one distinct factor and another, each factor being transmitted independently in heredity.

In certain plants we can go beyond this. Two white-flowered sweet peas, for instance, may when crossed give a coloured F_1, which by self-fertilization will produce nine coloured, seven white. This result proves that the colour depends for its appearance on the coexistence of two complementary elements or factors. The nine are the nine squares in Fig. 13, containing both C and R; the seven are the three with C, the three with R, and the one with neither. Either factor alone is insufficient to cause colour. C and R are not allelomorphic to each other, but each is allelomorphic to its own absence. This conclusion has been tested and confirmed by an elaborate series of experiments made by Miss Saunders, Mr. Punnett, and myself. A further complication is due to the fact that colour, once formed by the meeting of the two complementary factors, is modified by the operations of distinct determining elements, just as is that of a rabbit. Thus, for instance, the nine coloured: seven white commonly forms the series twenty-seven purple: nine red: twenty-eight white.

In the stock, which has formed the subject of a long series of experiments by Miss Saunders, a still further complication is met with. Colour in the stock, as in the sweet pea, requires the coexistence of two independent factors, each of which in the germ formation is allelomorphic to its own absence. In addition, the development of the hoariness or felting of hairs upon the leaves is also produced by another similar pair of factors, either of which alone may be present without a single hair being formed. But in the stocks employed ("ten-week stocks") both these factors for hoariness may be present, but no hairs are developed *unless the flowers are coloured*, that is to say, unless the complementary pair which form pigment are also present. To go through the elaborate steps by which this conclusion has been experimentally established is impossible on this occasion, but I mention it to illustrate the kind of complexity which is to be met with in these investigations, and at the same time the far-reaching precision that may be attained by Mendelian analysis.

Evolutionists will note that in the stock and the sweet pea we have examples of Darwin's famous "reversion on crossing." Two white-flowered plants crossed may give the wild, purple flower. Two glabrous stocks may reproduce the original hoary, ancestral type. Such reversion is nothing but the meeting of two parted complementary elements, which have somehow been separated by variation.

The various factors, then, which interact to produce

* *Arch. zool. exp. et gén.*, 1904; (4) II, *Notes et Rev.*, p. xlv. Cuénot, in his argument, speaks of the determiner for grey as present in the grey mouse, and of the black determiner as present in the albino, regarding the two determiners as allelomorphic to each other. For various reasons, however, it is probably more correct to regard the grey determiner in the grey mouse as allelomorphic to its absence, and to imagine the black determiner as present in both the grey and the albino.

* As implied in the previous note, the account in the text is too simple, though it may suffice as a rough presentation of the phenomena. The case should be expressed thus: The allelomorphs are C, colour; c, albino; G, grey determiner; g, absence of ditto; B, black determiner; b, absence of ditto. The grey rabbit is CGB; the albino is cgB. B is common to both, so that in F_2 the arithmetical result, nine grey: three black: four albino occurs as it would do if G were allelomorphic to B so that the original parents could be expressed as CG and cB.

what we formerly regarded as a single character, for example, colour, are *separately* transmitted in heredity. Such interaction constitutes a remarkable phenomenon from the standpoint of general physiology. We cannot doubt that this inter-relationship between these distinct units plays a great part in the determination of bodily features. As these complex inter-relationships are gradually resolved, we shall acquire a new light on the problems of evolution, and especially on the genesis of variation. What the nature of such elements may be we must leave as yet to conjecture. It is natural, however, that we should think of their mutual actions as comparable with that of a ferment acting upon a definite material.

To the student of disease, illustrations of a comparable nature will be familiar in the case of the sex-limited inheritances. In these families the peculiarity is manifested generally, if not always, by members of one sex, say the male; but the females, though unaffected themselves, may transmit it to their male offspring. Haemophilia and colour blindness are the most famous examples of this "Knight's move" descent, as it may be called (Fig. 14). The possible bearing of the new ideas upon

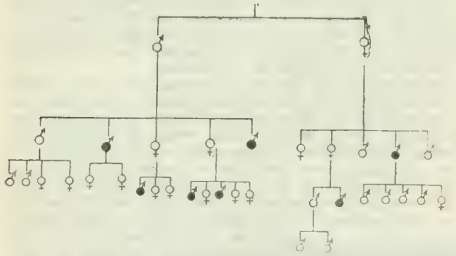


Fig. 14.—Pedigree of a family containing colour-blind members observed by Dr. Rivers, among the Todas, an Indian hill tribe, illustrating the "Knight's move" descent of that condition.

this curious phenomenon may be shown by an illustration seen in crossing sheep.

Mr. T. B. Wood[6] made a cross between the Dorset Horn and the Suffolks. The Dorsets are horned in both sexes, the Suffolks are hornless in both sexes. In F_1 the males are horned, the females hornless. In other words, horns are dominant in males, recessive in females. But in F_2 there are both horned and hornless males, and also horned and hornless females; because two "hornless" germs have had the opportunity of meeting in presence of "maleness," and two "horned" germs in presence of "femaleness." Undoubtedly when these animals have been tested, the hornless F_2 males and the horned F_2 females will be proved to be each pure to their respective characters (Fig. 15).

Though the evidence as to sex-limited descents is imperfect, and in some respects obscure, it is obvious that there is a general resemblance to what we have seen in this case of horns in the sheep. If the affected sex is the male, the unaffected males do not transmit the condition, though the unaffected females* may do so. We may suppose that the unaffected males, in fact, are by segregation freed from the peculiarity, just as the hornless rams in F_2 are freed from the horned character. To test the applicability of these comparisons much evidence is required which is not yet obtained, but the tests which must be applied are clear. Supposing the members of the affected family mate with persons not bearing the peculiarity, we should expect that (1) half the sons of (*a*) *affected males*, and of (*b*) *unaffected females who had any affected sons*, would be affected; (2) that half the daughters of (*a*) and (*b*) would transmit the peculiarity to half their sons. Moreover, (3) affected females should be pure in respect of the character, and consequently *all* their sons should exhibit it.

We are far from possessing adequate evidence that this simple system holds in any sex-limited descent. The most that can be asserted is that the general course of the inheritance is in rough agreement with some such scheme.

* The popular belief that such a condition is transmitted *only* by females is, of course, a mistake. In haemophilia, for example, there are many cases of transmission by affected males.

As regards colour blindness the pedigrees are few, but it is noticeable that the only examples—three—of colour-blind women with sons that are known to me are, as far



Fig. 15.—The four types of sheep in F_2 from Dorset horn × Suffolk (hornless) from lambs bred by Mr. T. B. Wood. (For parents and F_1 types, see his paper.) A, horned male; B, hornless male; C, hornless female; D, horned female. In F_1 all males are horned, and all females are hornless.

as they go, in agreement with our hypothesis. Two (Fig. 16) are cases observed by Mr. Nettleship. In each a colour-blind woman had one son, who was colour blind.

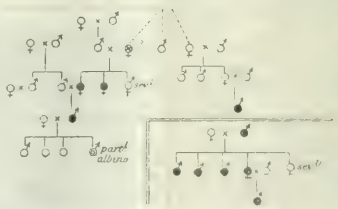


Fig. 16.—Pedigrees of two families containing colour-blind females, from Mr. Nettleship's collection.

The other case is that of Burckhardt[7]—a colour-blind woman with three sons, all colour blind (Fig. 17).

As to haemophilia the evidence is more abundant, and in respect of criteria (1) and (2) is usually not very discordant

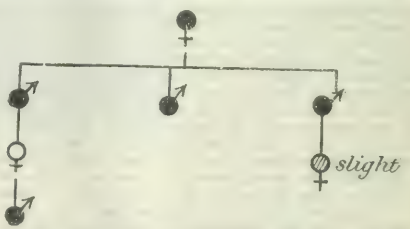


Fig. 17.—Pedigree of colour blindness, from Burckhardt.

with expectation. With rarest exceptions unaffected males do not transmit the disease. Nevertheless, many more males are affected than our rule expects;* and unless it is supposed that normal families have been freely disregarded by the recorders, too many of the females transmit. Moreover, of some thirty-five groups of families, at least twelve

* I got the following very rough figures by adding all the published families (containing "bleeder" males) which can be at all supposed to be comparable. Parents non-bleeders in each case.

Males.			Females.	Sex not given.
Bleeders.	Non-bleeders.	Died young	Non-bleeders.	Non-bleeders.
183	65	29	177	44

cannot be brought into line at all. The subject is complicated by the circumstance that various pathological conditions have been included under the name "haemophilia," as has been suggested by Legge in reference to female haemophilia, and a proper analysis of the evidence could only be made by an expert.

Some of these families, especially those in mountain villages, were doubtless much inbred, a circumstance which may have introduced complications. The excess both of bleeding males and of transmitting females, is, however, far too large to admit of any simple explanation. (For extreme cases, see Stahel, *Inaug. Diss.*, Zurich, 1880, and Sadler, *Birm. Med. Rev.*, 1893 and 1903.) The phenomena could only be brought under the Mendelian scheme by the supposition that a complex system of coupling exists, for which we have as yet no justification. I hope at some time to discuss this subject in more detail.

The same features are presented by another sex-limited disease, peroneal atrophy, with the added difficulty that too few of the sons of affected males were affected; while, as before, too many of the women transmit and too many of their sons are affected.*

A source of complication in understanding these statistics may arise through complete or partial *coupling* between distinct characters. We have proof that in certain cases a character, say of shape, may be so linked or coupled with another character, say of colour, that all or a majority of the germs which carry the one carry the other also. To this fact I can now only refer, but the existence of such coupling constitutes one of the most interesting, as well as one of the most difficult, branches of these inquiries.

Finally, I would say something as to the way in which evidence must be collected if it is to be used in the study of heredity. First, the facts must be so reported as to be capable of analysis. It is for want of such analysis that all examination of the facts by pre-Mendelian methods failed. The tabulations must present each family separately. Miscellaneous statistics are of little use. Secondly, *it is absolutely necessary that the normal or unaffected members should be recorded*, together, if possible, with information as to their offspring. In the records hitherto published these essentials have too often been omitted, the doctor's attention having been more or less exclusively directed to the individuals manifesting the disease. Next, if similar families are to be added together, it is scarcely necessary to insist that the cases added must be in reality similar. For instance, there are abundant genealogies of deafmutism, but the various families present such inconsistencies in the heredity rules which they follow that there can be no doubt that not one, but many, pathological states are concerned. Accurate diagnosis is the first preliminary in dealing with these phenomena.

When complete information has been obtained, it is to be expected that definite rules of transmission will not rarely be traceable. Suppose the disease dependent on a simple dominant character, the fact will manifest itself in exclusive transmission through the affected; and—if the other parent be unaffected—in the frequent production of affected and normal offspring in equal numbers. The case of dominance limited by sex has already been considered.

Recessive characters may be distinguished by the frequency with which they appear in the offspring of normal parents, and especially as the result of consanguineous marriages. The identification of recessive characters will be less easy, direct experiment being impossible.

One condition probably of this nature may be mentioned—that of alkaptonuria, studied by Dr. Garrod.[9] The high proportion of cases of this rare condition resulting from first-cousin marriages makes it very likely that this peculiar "chemical sport," as Dr. Garrod has called it, is recessive. First-cousin marriages give an opportunity for the meeting of recessive germs. The same element or character, as we may say, meets itself; and thus the hidden characteristic, being brought in by both male and female germs, may appear, though it would still have remained hidden if one of the two germs had not carried it. Think of the tall peas bearing dwarfness as a recessive character. Bred together they give one dwarf on an average in four, though bred with a pure tall individual no dwarf would be given. So when first cousins marry, it gives a chance for the hidden character to come out, because each parent may be carrying out that character derived from the common grandparent. The chance even so, however, is a very small one. I do not suggest it should be considered in practical life. Certainly there is not enough to base advice upon respecting consanguineous marriages. The chance is remote that the hidden character will be present on both sides, and perhaps, too, some recessive characters may be very desirable ones!

In conclusion, I should warn you that the detection of these systems of heredity is, except in a few cases, not a simple matter, even when experimental breeding is applicable. The rules perceived in the sweet pea and the stock, for instance, have only appeared after five years' careful breeding, and as these cases show, results which at first seem hopelessly conflicting may ultimately be proved to be entirely consistent. We cannot suppose that the complexities there encountered can be absent in the case of man. We have seen how the presence of one character may either excite or prevent the manifestation of another independent character. Other features are undoubtedly dependent on excitation by external influence—in a wide sense. There are many indications that this is true of some nervous diseases. Lastly, it sometimes happens that two characters, one dominant, the other recessive, to a third character may be scarcely distinguishable from each other. For instance, pure white in fowls (white Leghorns) is dominant to colours; but a white associated with a few minute specks of colour (white rose-comb Bantams) is recessive to colours. Distinctions of this kind are not perceived on superficial examination, and can only be unravelled by most exact and specific investigation.

My object has been to put before you the results of work on lines somewhat remote from your own, though, as you have seen, presenting points of possible contact. If this discourse may lead to a closer study of the hereditary transmission of disease, I am confident that positive results may be expected, and I shall feel that my opportunity has not been wasted.

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*I have since examined many published pedigrees of nervous diseases to which my attention was called by Dr. Batten and others. In several of these transmission is exclusively, or almost exclusively, through the affected, so the characters may well be dominants, but the ratio of affected to unaffected is nearly always too high. Normals may doubtless have sometimes been omitted, but the deficiency of normals is so persistent as almost to forbid a recourse to this hypothesis. The possibility suggests itself that some of these diseases may be due to actual transmission of a disease germ through the reproductive cells (like pébrine of silkworms studied by Pasteur). I am told that this suggestion is highly improbable; but in view of the statistics for some of these family diseases I feel considerable doubt whether they should be regarded as illustrations of heredity, pure and simple, in the sense in which a naturalist employs the term.

A Further Series OF ENUCLEATIONS OF THE PROSTATE.

READ IN THE SECTION OF SURGERY, ROYAL ACADEMY OF MEDICINE, IRELAND, MAY 11TH, 1906.

BY SIR WILLIAM THOMSON, C.B., F.R.C.S.,

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IN a paper read before this Section of the Academy and in communications to the journals I have already written on the removal of the enlarged prostate by the suprapubic route. I have dealt with the question whether the high operation or the perineal is the more generally applicable, and which is the safer and the quicker. These are very important considerations when we remember that the majority of our patients are of advanced age, broken down by the insufferable distresses and the pathological mischiefs of the affection; and after some experience I may state my position. I adhere to the view which I originally expressed—that the suprapubic method is in most cases the best. I am aware, of course, that this opinion is not

universally held, but I think I may assert confidently tha the great majority of those surgeons who have operatively treated enlarged prostate have pronounced in favour of the suprapubic procedure.

To-night I do not intend to raise any serious controversial topic. Who was the originator, whether the gland is removed with its capsule, or without it, are not matters with which I shall venture to trouble you. But I wish to record some additional cases in my own practice, and to refer to a few points which have interested me. The operation has sprung into much prominence, and has been widely practised, but, as in all cases of new methods, there is a good deal to be learned and reported before we arrive at the high level of great comparative safety.

Results.—I submit a tabular list of the cases of enucleation which I have so far done. They number eighteen in all. The list does not include cases in which I have explored the bladder by the superior incision, or established a fistula when the patient's condition was so bad, or the age so advanced, that it would have been a fatal procedure to carry out enucleation; or cases of malignant disease; nor do I include a case which I did two months ago, in which all the symptoms of prostatic obstruction were present, but with no evidence of enlargement in the rectum. It was one of the rare examples of prostatism without enlargement, but it does not come within the scope of the present communication. Nine patients were over 70 years of age; the youngest was 54 and the oldest 76. Two of the tumours were of very large size—64 oz., and another 10 oz. less a few grains. Three came away in one mass, including the prostatic urethra. The immediate and remote results did not differ from those following enucleation of the lobes separately. The patients have had no difficulty in emptying the bladder, there has been no irritation or symptom of stricture at the torn vesical extremity of the urethra, and the function of easy urination has been completely restored.

	Age.	Date.	Result.
1. J. I.	66	1902	R.
2. J. D.	75	1902	D.
3. J. T.	60	1902	R.
4. W. H.	63	1902	R.
5. U. E.	68	1903	D.
6. T. W.	53	1903	R.
7. M. H.	70	1904	D.
8. P. C.	76	1904	R.
9 W. D.	70	1905	R.
10. J. L.	70	1905	R.
11. A. M.	60	1905	R.
12. J. K.	58	1905	D.
13. J. L.	70	1905	R.
14. C. M'P.	74	1906	D.*
15. M. N.	54	1906	R.
16. J. S.	72	1906	R.
17. J. G.	70	1906	R.
18. B. B.	65	1906	R.

* Twelve weeks later, of gangrene of lung.

Phosphates.

One of the troubles which sometimes are associated with the operation is the deposit of phosphates on the edges of the wound. I have had several instances of this. Confined to the edges one expects that these deposits will clear away in about ten days, but they are not always limited in this way. In Case IV this occurred. The encrustation was very extensive and persistent. The patient had so much distress after some months that I was compelled to open the bladder again. I found the mucous membrane coated with phosphates, and there were two phosphatic calculi. These were removed and the deposit was dealt with. There was subsequent copious irrigation and suitable internal treatment, but when he went home a good deal of irritation still remained, and there had been a recurrence of phosphates. This is the only case in which there has been any persistent phosphatic deposit.

When the prostate has been removed the covering of it which remains in the bladder is very thin. It has been in some parts subjected to much bruising, and its vitality is distinctly lowered. Some of this occasionally dies, and upon it deposits of phosphates may occur. In two cases this happened, and the fragments, finally detached, were extruded through the wound. This offers another reason why the opening in the bladder should be shaped by a large tube, about three-quarters of an inch in diameter, for it affords ample space for free washing out and the carrying away of débris and deposit.

In my last 10 cases this condition has occurred only three times. In the instances in which there has been no appearance of it I have noticed that there has not been any preceding chronic cystitis, the patients have responded to preliminary treatment satisfactorily, and the bladder has been brought into a fairly healthy state by rest, the careful use of the catheter, washing out, and the administration of some drug to secure acidity of urine. When the symptoms allow of such a course I regard it as of the utmost importance. I have tried the acid phosphate of soda and several other drugs in the post-operative course of the case, but I think on the whole I have had the most satisfactory results from benzoate of soda in 10 gr. doses, with a drachm of tinct. of buchu, three or four times a day.

Flushing.

But with this must be associated copious flushing of the bladder with boric solution. I have pointed out the importance of a large bladder opening. For some time I have rarely used the catheter for washing out. I suspected that it sometimes did mischief, and so I adopted the plan of first flushing through the upper wound. But this alone is apt to be deceptive. If you pass a stream directly through the bladder wound you will soon find that the fluid is returning perfectly clear. But this current does not effectively stir up the deposit which is lying about the base of the bladder and the original site of the prostate. When I have finished this stage of the washing I pass into the urethra a glass nozzle, about 3 in. or 4 in. long. It should have as wide a mouth as it will carry. Attached to a syringe or an irrigator it conveys the fluid in a full stream into the bladder. The clots or other deposits of pus and phosphates are displaced, mixed with the current, and discharged through the suprapubic opening. You will be often surprised to find how much dirt you will get out of a bladder which you may regard as perfectly clean if you confine yourself to the single route washing.

Sloughing.

A more serious danger is the existence of extensive sloughing in the wound, and the infection of the layers of cellular tissue in continuation with it. This is especially apt to occur in patients who have large and pendulous abdomens. I lost Case VII by infection of the deeper parts of the space of Retzius. Sloughing occurred, and it was only towards the end of the third week that the patient showed urgent symptoms. Then I discovered an abscess, which I opened above Poupart's ligament, but he died on the twenty-third day, although I had regarded him as quite safe a week before.

A fortnight ago I operated on a gentleman (Case XVIII) of this type, assisted by Mr. Tobin, Mr. H. Rutherford, and Dr. Boyd.

He had long been troubled with urinary difficulties, but the week before, for the first time, he had complete retention. He was seen by Dr. Gorham, of Clifden, and Dr. Loftus, of Roundstone, but they failed to get in a catheter, and Dr. Gorham very skilfully aspirated above the pubis. As the obstruction could not be overcome, the operation was repeated next day, and the patient was at once sent on to Dublin—a distance of 160 miles. I saw him the same evening, and, after some difficulty, succeeded in reaching his bladder. He was in a very low state, and there was cystitis. The prostate was so large that my finger in the rectum could not reach its upper limit. I treated him for a week, and operated on April 26th. The wound passed through nearly 3 in. of fat, the bladder was quickly reached and opened, and I then found a prostate of enormous dimensions almost filling the cavity. The right lobe was huge, as I show you, and came away in three portions. The left is much smaller, and was removed in one piece. The total weight is 10 oz., less a few grains, and is the largest I have removed. The enucleation lasted 25 minutes. The upper portions were quickly freed, but the attachments at the base were very close, and required, finally, the use of the first two fingers before the gland could be delivered. Now in this case I had to deal with a great deal of superficial fat, and a large wound in the abdominal wall was necessary. When my fingers were in the bladder my hand had disappeared in the gap of the surface wound. Much force was necessary, and the operation was most tiring to the hand. In the upper part the edges of the wound have united perfectly. On the third day, however, signs of extensive sloughing appeared. The process passed under the abdominal walls on either side for a couple of inches, and the edges lost colour and necrosed. This was sufficient to cause much anxiety. It was continuous [illegible] of course [illegible]

This untoward complication is especially apt to occur in fat subjects. The tissue is itself of low vitality, and in burying the hand in the wound bruising of the parts is likely to accelerate necrosis.

What I did was to remove a couple of stitches to enable me to expose the deep parts, and then these were bathed in 30 per cent. solution of peroxide of hydrogen. This has been done at each dressing. The temperature has remained normal, the sloughs are separating, the line of demarcation is well established in the skin, and the patient is, I am glad to say, progressing rapidly to recovery.

Haemorrhage from the Prostate.

Case XI was one of much interest because of the diversity of the views which from time to time were held regarding it. It was diagnosed as stone in the kidneys and malignant disease of the bladder. My own independent declaration was that the case was one of enlarged prostate, with possibly a stone in the bladder. I have already published the full details of the case in the British Medical Journal of January 27th, 1906, but I may here allude to one or two points of great interest:

The patient was examined in London and no stones were found. In two days he had retention for the first time, having never previously needed the use of a catheter. He was sent home, and I found him suffering from bad cystitis. In a fortnight he had a bad attack of haemorrhage, and in spite of all I could do, by means of styptics internally and locally, the bleeding continued. He was greatly weakened, and, having regard to his alarming condition, I suggested that the bladder should be opened and the prostate removed. In this view the gentlemen who helped me in consultation concurred, and the operation was duly performed. The haemorrhage immediately ceased. I found no fewer than thirty-two calculi, which I show you. The prostate weighed 2 oz. The patient is now perfectly well, and has never had the least return of his former symptoms although he suffered for a time from a painful spot in the scar which had to be excised.

The failure by an experienced surgeon to find the stones is only another instance of the difficulty that sometimes impedes us in diagnosis. The important matter, however, is the carrying out of a treatment for the haemorrhage, which, so far as I know, had not before been reported,* and I submit it to the Section as an advance in the treatment of such cases which may be established. If we come to the conclusion that the bleeding is from the prostate, and if the discharge is continuous and excessive, not yielding to any other known remedy, I regard the proceeding as urgently called for. In these cases the covering of the gland is often exceedingly vascular, and the veins are enlarged. If from ulceration or other cause a large continuous haemorrhage is established, particularly from an open vessel, it does not seem reasonable to hope that it will be stopped by styptics. We cannot apply pressure, and we cannot hope that a clot will help us out of the danger, for the temporary covering is certain to be disturbed by the action of the bladder in its efforts to get rid of an offending body. Urine is constantly distilling into the cavity, and helps to increase the expulsive efforts of the patient, so that the essential condition of rest for the permanent healing of the vessel is absent. What, then, can we do in such a case? To my mind there is no other way open to us but to expose the seat of bleeding, to enucleate the prostate if that be necessary, or to plug the bladder.

An Abdominal Tumour.

Case XV was sent to me as a tumour of the abdomen. It had been seen by several medical men.

The swelling was very easily observed, occupying the middle of the abdomen and extending above the umbilicus. The patient was able to pass a normal amount of urine in a fair stream, but he was disturbed two or three times at night. He felt no pain, and was able to hold water for four or five hours without distress. The tumour was hard, but it did not give the feeling of solidity. I found that he had an enlarged prostate, and on passing a catheter I drew off 58 oz. of urine. This reaccumulated rapidly, and the next trial produced 3 pints. It was a case of atony due to over-distension, and after a few days I removed his prostate, and in five weeks he went home perfectly well, the tone of the bladder having been quite recovered.

I remember some years ago seeing a case which had been under the care of a surgeon, since deceased, who had declared that the patient was suffering from malignant disease of the colon, and as the gentleman was 84 years of age he was advised that operation would be inadvisable. I found a curiously oblong tumour passing obliquely upwards to the right side, and reaching nearly to the liver. Tracing it downwards it passed into the pelvis in the central line. It was dull on percussion, but not solid. I found that he had a very large prostate, and on asking if he had difficulty in passing urine I elicited all the usual symptoms. A catheter solved the difficulty, for the tumour promptly disappeared. I mention this case in connexion with the other in order to show that even an experienced surgeon may be misled by a distended bladder, and that the possibility of such a thing should never be forgotten when dealing with tumours of the abdomen.

Dangers of Operation.

What of the dangers of the operation? Apart from the fact that we are dealing with aged persons, who are often broken down by suffering of the most distressing character, there are undoubtedly risks of a serious kind. We make an opening into the bladder suprapubically, and the escaping urine, in spite of drainage tubes or siphonage, does to some extent come into contact with the wound. If the urine is from a bladder which has been severely inflamed, and is infected, the dangers are increased. It is of importance to limit the risks as much as possible. In the first place, I always secure the cut edges of the bladder wound to the fibres of the separated rectus muscles. Besides lessening the chances of extravasation it has the advantage that when changing the drainage tube the sutures on either side serve as a guide in its re-introduction, and we are spared the risk of breaking down adhesions by trying to push the tube through an opening which in the early stages rapidly narrows.

Then the surgeon is often alarmed by the perilously close approximation of the finger in the bladder to the finger in the rectum. In a thin bladder it sometimes feels as if the least additional effort would make the fingers actually meet. The accident has happened in more than one case; but let me say, in passing, that the perineal operation cannot claim immunity in this respect, for several cases of recto-vesical fistulae have been reported as a result of that procedure. I refer to this matter simply to emphasize the lesson that while undoubtedly we must use much force in some cases where the connecting fibres are very tough, our violence must be gentle, if I may so say, and, above all things, under control. There must be no rough pulling upon bands, but a careful peeling off of all attachments, with the fingernail always directed close to the surface of the prostate.

In some cases the peritoneal fold falls freely into the upper part of the wound, and ought to be carefully protected. This may be done by a retractor of the Simon type, or it may be tucked up under a pad of sterile gauze and given in charge of an assistant.

The Trendelenburg position is of use if a close inspection of the interior of the bladder is required, but I never use it for getting the peritoneal fold out of the way. As is now admitted, the position is attended by risk, and in the case of the old patients with whom we have to deal it is especially dangerous to crowd the viscera against the diaphragm, and so interfere with the action of the lungs and heart.

Primary Haemorrhage.

As to free primary haemorrhage I have only encountered it once, and I have already reported that case. I have for some time adopted the plan of administering 10-grain doses of chloride of calcium three times a day for one and a half or two days before operation. The result has been entirely satisfactory, and the bleeding during the actual enucleation had been very small.

Drainage.

At the close, water as hot as can be borne by the finger is used to douche the bladder until it returns quite clear; then the disturbed membrane in the position of the prostate is gently replaced, and the tube is secured in the wound. A glass tube, bent at a right angle, to one arm of which a rubber tube has been fixed, is passed into the bladder; and to the other arm, which lies on the abdomen, supported by a layer of wadding, a long rubber pipe is attached and passes into a bottle holding a known quantity of water, the level of which is marked. Any rise above this point shows whether urine is flowing, but this can

* In the British Medical Journal, July, 1903, Mr. Freyer notes a somewhat similar case.

always be seen by looking at a glass joint fixed midway in the length. This plan has been used by Sir Thornley Stoker, and I have found it very serviceable in the first three or four days during which the tube is retained in the bladder.

Fatal Cases.

The mortality may be thus summed up: One died of ether bronchitis—he was aged 75—and suffered from mitral disease; one died fourteen days after operation from a suddenly-developed peritonitis; one from pelvic cellulitis; one died in twenty-four hours from sepsis; and one died twelve weeks after operation from gangrene of the right lung. This case was sufficiently well to be out of bed for a couple of weeks, and the wound was nearly closed, when he had an attack of purpura haemorrhagica. He wasted considerably, and all progress ceased. He recovered from this, but four weeks later he had another attack of purpura. Blood came from the bladder, lungs, nose, and intestine. He developed cough and much bloody expectoration. At the *post-mortem* examination the right lung was in a state of gangrene. This death can hardly be attributed to the operation, and if I omit it I have lost only one in the last ten.

Cases for Operation.

I may say, however, that I have never refused to operate in any case, no matter how feeble or advanced in years, when the question to be dealt with was the attempt to relieve the patient from imminent danger I have treated many by means which are generally accepted as less heroic and so often capable of giving a large degree of comfort. It would be very foolish to lay down the law that all cases of enlarged prostate are to be operated upon. Many men have enlarged prostates, but certainly not all enlarged prostates demand removal. But I have no doubt that if the nocturnal distress is great, if the patient has had recurring attacks of retention, if he has suffered from outbreaks of cystitis, if he has had severe haemorrhage, if he has suffered from any one or all of these, then operation ought to be undertaken. The risks attending these troubles are in a sense more certain than the risks of enucleation. The gratitude of a patient who has been restored to the ordinary method of urination, whose sleepless nights and frequent painful efforts to empty the bladder have gone for ever, impels one who has to do with such cases to urge the advantage of operation. The patients seem to rejuvenate, and are enabled to live a life of peace, at least in this respect.

A CASE OF TOTAL LARYNGECTOMY FOR RECURRENT EPITHELIOMA OF THE LARYNX.

By SINCLAIR WHITE, M.Ch., F.R.C.S.,

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History.

GEO. H., aged 64 years, a patient of Dr. Menzies, Worksop, had been hoarse for many years, but did not take much notice of this until March, 1902, when a laryngeal examination revealed an extensive warty growth on one of the vocal cords. He was sent to a distinguished London surgeon, who confirmed the suspicion of epithelioma and removed the growth after mesial section of the thyroid cartilage. The patient made a rapid recovery, but soon after his return home he began to suffer from laryngeal stenosis, which, slowly increasing, became so pronounced by February, 1903, that tracheotomy had to be performed. Thereafter he wore a large-sized rubber tube, and was quite comfortable until November, 1905, when he noticed a slight discharge of blood from the tracheotomy opening. As the discharge continued he again consulted Dr. Menzies, who sent him to me on January 8th, 1906. Commencing half an inch above the tracheotomy opening and extending upwards in the middle line for two-thirds of an inch there was an oblong ulcer with slightly indurated margins. The ulcer had eaten its way from within outwards through all the tissues including the lower margin of the thyroid cartilage. A cutting removed from its edge showed under the microscope typical epithelial cancer. There was no obvious involvement of the cervical lymphatic glands, and he appeared in every other respect to be quite healthy. Total laryngectomy was advised, and the patient, having yielded a somewhat reluctant consent, was sent to a surgical home where he was operated on on January 11th.

Operation.

He was placed supine on a pillowless table with a large sandbag under his shoulders. This position obviated the risk of blood gravitating into the trachea during the operation, and enabled me to dispense with the use of a cannula. Chloroform was given through a Junker's inhaler, and from time to time the operation area was swabbed with a mixed solution of eucaine and adrenalin. Through a mesial vertical, combined with a transverse, incision, just below the hyoid bone, the various extrinsic muscles were divided close to the larynx on either side. The epiglottis was then separated from the base of the tongue and pulled forwards out of the wound. The mucous membrane covering the back of the larynx was divided transversely on a level with the top of the arytenoids and dissected downwards as far as the tracheotomy opening. In this dissection the pharyngeal muscles were divided from their attachments to the thyroid cartilage. The entire larynx was now removed by cutting through the trachea on a level with the lower margin of the

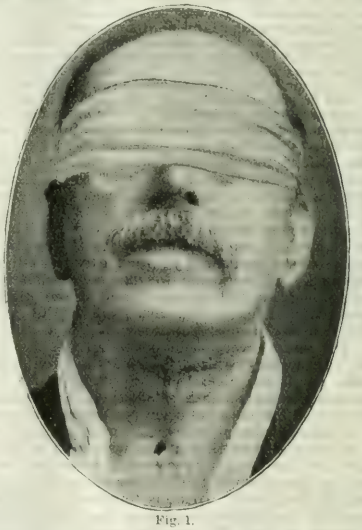


Fig. 1.

tracheotomy opening. The divided trachea was at once sutured to the skin by several stout silkworm strands. A rubber tube, ½ in. in diameter, was passed through the mouth down into the stomach, and the large gap in the anterior wall of the pharynx closed by three superimposed layers of fine catgut, the innermost layer being placed so as to approximate, but not to include, the edges of the mucous membrane. The upper margin of the restored anterior pharyngeal wall was next sutured to the raw surface at the base of the tongue left after removal of the epiglottis. The skin incisions were closed with silkworm sutures, a small drain being inserted at either end of the transverse wound. The œsophageal tube was intended primarily to act as a mould on which to fashion the new pharynx, and afterwards to feed the patient through, but it was vomited out a few hours after the operation. The patient bore the operation very well.

After-history.

He was fed rectally for the first forty-eight hours, then for the succeeding twenty-four hours through an œsophageal tube. After this he was allowed to swallow, which he did quite satisfactorily. The wound healed aseptically. For several days after the operation he was much distressed by blood and mucus collecting at the tracheal opening, and a nurse had to be in constant attendance to mop up

the discharge. It was found that the semi-prone posture with the foot of the bed raised facilitated its escape. The tracheal wound healed rapidly by granulation, and does not show any tendency to undue contraction. The only serious annoyance he experienced after the first few days was due to the collection of inspissated mucus in the tracheal opening during the hours of sleep. This difficulty ceased after a few weeks, and while it lasted it was checked somewhat by smearing vaseline over the edges of the opening. The patient is now, six months after the operation, in excellent health, can swallow perfectly, has no respiratory difficulty, although he has not worn a tube since the operation, and, most remarkable of all, can carry on a conversation in a loud sibilant whisper. This he effects by drawing air through the nose into his pharynx, and expelling it buccally.

REMARKS.

It is now a well-established fact that epithelioma of the vocal cords usually runs a chronic course, and that for a long time its ravages do not spread beyond the interior of the larynx, while the same disease when it attacks the upper surface of the larynx grows rapidly and produces



Fig. 2.—A. Epiglottis. B. Epitheliomatous ulcer. C. Old tracheotomy opening

early infection of the cervical lymph glands. This knowledge has been utilized by Sir Felix Semon and Mr. Butlin, who practise thyrotomy and partial laryngectomy for intrinsic laryngeal epithelioma instead of total laryngectomy, which is usually resorted to by Continental surgeons for this disease. A study of their papers and of their carefully-prepared statistics cannot fail to produce the conviction that their operative procedures are much safer than total laryngectomy as it is commonly carried out, and that in early cases, at any rate, their results as to immunity from recurrence are excellent, although I do not think they can be so good as after complete removal of the larynx. An additional advantage secured by resection over total laryngectomy is the ability of the patient to speak, even though it be indistinctly, without the aid of a mechanical appliance. Against this, however, must be placed the tendency to laryngeal stenosis.

Much stress is laid by Sir Felix Semon, Mr. Butlin, and other writers on the miserable condition of patients who have survived the operation of total laryngectomy—a condition which, according to one writer, makes life hardly worth living. Without wishing in any way to challenge the accuracy of the data on which these statements are made, I can most emphatically say that my patient, apart from the fact that he is unable to speak otherwise than in a whisper, is more comfortable than he was with a mutilated larynx.

While I do not wish to dogmatize on a subject of which I have only a casual practical experience, I venture to suggest that a stumbling-block to the successful performance of total laryngectomy has been the desire to leave an opening in the pharynx for the subsequent reception of an artificial larynx. This doubtful advantage is secured at a very great cost; indeed, I think, at an unjustifiable cost. It involves an open wound, which must be constantly fouled by discharges from the pharynx, and is the most potent factor in producing septic lung troubles, which bulk so largely among the causes of death after the operation. It very greatly increases the difficulty of feeding the patient, and it causes a much-delayed convalescence. Moreover, the benefit gained can be almost equally attained by carrying a tube fitted with valves and a vibrating reed from the tracheal opening up the side of the neck and chin into the angle of the mouth.

I was particularly fortunate in that my patient had an old-standing and fairly low tracheotomy opening. This, conjoined with the posture I placed him in, enabled me to dispense with a tampon cannula. The swabbing of the parts from time to time with a mixed solution of eucaine and adrenalin is, I think, helpful. It deadens the highly-sensitive mucous membrane, and thereby reduces the depth to which general anaesthesia must be pushed, it reduces the oozing from cut vessels, and, perhaps most important of all, it largely curtails the shock incidental to the prolonged irritation of the laryngeal nerves.

APPENDICITIS AND ABSCESS FORMATION.

BY JOHN D. MALCOLM, F.R.C.S.EDIN.,

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THE difficulty of making a diagnosis between disease of the vermiform appendix and disease in the right ovary or Fallopian tube is one of the most important clinical questions raised by the following records. I have given the histories with some fullness to emphasize this point, which is a frequent source of doubt in connexion with abnormal conditions in the right side of the lower abdomen in women.

CASE I.

History.—The first case was that of a lady, 25 years of age, married, and the mother of two children, the youngest 15 months old. She was of slight build and delicate appearance, but I was assured that she was very wiry. In May, 1900, she had an acute febrile attack with pain in the caecal region, being ill about a week. Recovery seemed complete, and her London physician considered that the symptoms were caused by appendicitis. After this the menstruation was irregular, the periods being frequently missed. Eight months later, the patient, who was then in the country, got very wet whilst riding, and on the evening of the next day she was seized with severe pelvic pain, followed two days later by a rise of temperature. The symptoms subsided after about ten days, and a good recovery followed. When convalescence had been apparently established between three and four weeks, a consultation was held by the practitioner in charge of the case with two gentlemen from a large neighbouring town, and after examining the patient under an anaesthetic a diagnosis of recurrent inflammation of the right Fallopian tube was made, for which operative treatment was recommended.

State on Examination.—I saw the patient in consultation, in London, a few weeks later. There was then some tenderness of the fundus uteri, which was displaced backwards, and a small painful substance which felt like an ovary was situated close to the right side of the uterus. There was no pain or swelling over the usual site of the vermiform appendix. The severity of the two illnesses recorded and the tenderness still existing indicated an urgent necessity for an exploratory operation, whether the diagnosis of appendicitis or that of salpingitis was correct.

Operation.—The abdomen was opened eight weeks after the temperature caused by the second attack subsided. The uterus was found retroflexed, it and the right ovary and tube being fixed by vascular, but recent easily-separated, adhesions. When the tube, ovary, and fundus uteri were released and brought into view there was no evidence of disease in them except the adhesions, the fimbriated extremity of the tube being unaffected. On examining the caecum the vermiform appendix was seen to be very adherent and unhealthy in appearance. These parts were deep down in Douglas's pouch, and had been attached to the back of the ovary and tube. At first the appendix seemed unusually short and dilated at its attachment to the bowel but on releasing

the latter and bringing it well into view, further examination showed that the proximal ½ in. or rather more of the appendix was very firmly attached to and enclosed by a fold in the wall of the caecum. On separating the adhesions a small but distinct abscess cavity—hardly larger than a pin's head would fill—was opened. The pus in it was thick, as if it were undergoing caseation, and there was a communication between the minute abscess and the interior of the appendix. The whole of the latter was removed. Some slight adhesions of the left ovary and tube were separated, and the abdomen was closed.

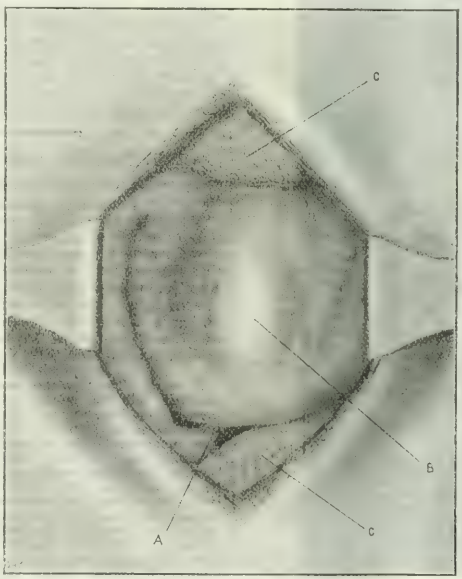
Result.—The degree of shock consequent on the operation was severe, but a good recovery followed, with little inflammatory reaction. The appendix removed was slightly distended by muco-pus, but was not obliterated at its junction with the caecum. This distension without obliteration pointed to the possibility that the mischief had existed longer or more constantly than the history indicated. The Clinical Research Association examined the appendix, and reported that "a section showed much inflammation and ulceration of the mucous membrane. The lymphoid nodules in the submucosa were also swollen, but there was little inflammatory change in the muscular and cellular coats."

Remarks.

The patient's health has been good since the operation, with the exception of a severe internal haemorrhage occurring off and on for some ten days in the autumn of 1904, unaccompanied by pain or any other symptom whatever. This was attributed by Dr. Goodhart to the presence of a duodenal ulcer. The fact that the blood was thoroughly mixed with the faeces showed that it must have been derived from some of the higher parts of the bowel. The patient recovered under treatment by rest in bed and care in regard to diet, and since then she has been very well, except that she has had three or four attacks of pain, continuing for a few days and then subsiding. I examined her in June of this year and the pain was clearly associated with a small but tender right ovary and with a somewhat enlarged uterus. The patient bore a child about eighteen months after the operation.

Case II.

History.—In the second case the patient's age was 33. She had one child 10 years old, had been a widow for seven years, and was again recently married. Her menstrual history began before she was 13, and she stated that she had on six occasions been attacked by fainting, preceded by a sensation of twitching, beginning in the right thumb and passing up to the elbow. These six attacks were fairly evenly distributed between the ages of 13, shortly after the periods began, and 32. The patient on each occasion was feeling somewhat run down before the attack, and she never fainted at any other time. A period followed every attack, and when it came on the patient felt better. She said that she had been subject as long as she remembered to indigestion about the times of the periods. The monthly discharges had, however, been in abeyance for several years, and during their absence in 1899 the patient had an attack of peritonitis which kept her in bed a fortnight. She was not examined internally at that time, but the doctor then in charge mentioned the Fallopian tube as being the cause of mischief. She had attacks of abdominal pain in the right side for six months after that illness, and these were all treated with success by the administration of castor oil. The patient then underwent a "rest cure," and was very well after it until the autumn of 1904. Then in Paris she got her feet wet, and subsequently suffered from abdominal pain and felt very ill. The medical man whom she consulted treated her chiefly by rest. Other attacks followed in Rome and in Naples, and these were always attributed by the doctors who were consulted to salpingitis. The voyage home from Naples by sea proved beneficial, and the patient was fairly well until early in March, 1905, when she again got her feet wet, and subsequently had much pain in the lower abdomen, accompanied by a rise of temperature as high as 103° F. During this attack there was a considerable discharge of mucus when the bowels acted. An evacuation was easily induced either by enemata or by medicine.



View of parts when first exposed by median incision. A. Root of appendix; B, swelling over appendix abscess; C, C, gauze pads. Practically all the intestine shown was removed.

State on Examination.—I saw this patient in consultation on March 14th, 1905. At that time the whole of the pelvic organs were hard, tender, and immovable on each other. The abdomen was quite soft anteriorly, but it was rather more flatulent than it should have been, and offered just sufficient resistance to make an examination of the pelvis from above very unsatisfactory. It was not possible to give a definite opinion as to the exact site of the primary mischief, but it seemed certain that there was an inflammatory condition affecting the pelvic peritoneum and causing some difficulty in the passage of flatus downwards, without any real obstruction of the bowel. The patient did not look nearly so ill as her history and the pelvic condition would have led one to expect, whilst she had a good and not rapid pulse. The temperature chart and the symptoms generally indicated clearly that the mischief was becoming less severe, and as the patient had been ill eight days it was decided that the treatment by careful nursing and attention to the intestinal functions should be continued. When I saw the patient a week later the improvement was still more pronounced in all respects. It was not anticipated that the condition would clear up completely, and the question of surgical interference was reserved for rediscussion later on. Although this patient had a history of repeated ill health which she associated directly with the menstrual functions, and which had been attributed to salpingitis by many physicians, she so constantly referred to indigestion, and so many symptoms pointed to the blow as the seat of disease, that I formed and expressed the opinion that the vermiform appendix was quite as likely to be at fault as the right Fallopian tube. The history of the illness in 1899 especially seemed to point in this direction. After my second visit the improvement was so rapid that in a few weeks no abnormal condition was detected on examination. The patient went to the seaside, and except for an occasional "indigestion" pain she was quite well until she came to London again two weeks later. On the night of her return she had severe pain, was very sick, and complained of a shivering in the abdomen. The pain continued and the temperature on the following day rose to 102° F.; but it fell to normal three days later when a period began, and the patient, as usual, then felt better. After the period ceased there was a well-marked oval swelling the size of a turkey's egg in the region of the right broad ligament. The abdomen had the same general fullness as before, but the mass in the pelvis could easily be defined bimanually. No other physical abnormality was detected, and again the patient did not appear seriously ill. Although I still had a feeling that the history pointed to the vermiform appendix as the source of trouble, the physical condition was exactly that of ovarian or tubal mischief, and the view that the patient had appendicitis seemed probable only if the appendix was so displaced that it exactly simulated in position and connexions a broad ligament swelling. The apparently complete disappearance of all evidence of mischief and the rapid reappearance of a definite swelling, did not, however, seem to me to indicate that a pyosalpinx had given rise to the acute symptoms of the illness in which I first saw the patient. I thought that a pyosalpinx causing so much mischief should not be expected to subside so quickly or so completely. Operative treatment was recommended, but before carrying it out, Dr. Dakin was asked to see the patient in consultation and ovarian or tubal mischief was diagnosed. The view that the condition might be due to appendicitis was considered improbable and with this I felt constrained to agree.

Operation.—Assisted by Mr. W. S. Handley, whilst Mr. Henry Davis gave the anaesthetic, I opened the abdomen a fortnight after the patient came back to London and eight

weeks after the attack beginning in March. The first abnormality noted was a swelling exactly in the middle line at the back of the abdominal cavity, under a tightly bound down coil of small intestine which lay transversely at and rather overhanging the brim of the pelvis. The anatomical right side of the mesentery of this coil was above and anterior and free from adhesions, but the left, posterior, side was fixed. The appearances have been very well, but of course somewhat diagrammatically, reproduced by Mr. M. H. Lapidge in the accompanying drawing. The condition at first suggested to me the existence of a mass of caseating glands causing adhesions of only one side of the mesentery. It was at once clear that the flatulent condition of the intestines had prevented the examining hands from palpating the abnormal condition now discovered, and that neither I nor any of the medical men who examined the patient with me had detected evidence of mischief in this situation. On passing my finger into the pelvis I found the oval swelling which had been defined and which proved to be a cystic mass. On separating it, several cavities containing clear fluid were opened, but it was not certain whether the abnormal part was a collection of thin-walled ovarian cysts or of serous fluid in connective adhesive tissues. When separated little was left except shreddy material, which, together with a ragged but otherwise healthy Fallopian tube, was hastily removed at the end of the operation. Some adhesions of the left ovary and Fallopian tube were not disturbed. I again examined the centre of the abdomen, and was able to trace the displaced vermiform appendix under the bound-down coil of intestines, where it was firmly fixed by adhesions, except about ½ in. or rather more of its base which appeared fairly healthy externally. The mass, which at first I supposed to consist of caseating glands in the mesentery, was obviously the appendix inflamed and adherent behind it. On separating the attachments I suddenly opened an abscess cavity about the size of a pigeon's egg containing thick pus. The walls of the abscess were formed by mesentery and small intestine, the peritoneum of the posterior wall of the abdomen being only slightly involved. When separated and spread out the suppurating surface was so extensive, and the bowel wall in places seemed so deeply ulcerated, that I thought it safer to perform a resection of intestine than to attempt to clean and drain the foul surfaces. It seemed easier to remove also the part between the abscess and the caecum, and accordingly about 12 in. of the lower part of the ileum (9½ in. when shrunk by spirit) and the vermiform appendix were removed, a considerable opening being made in the wall of the caecum into which the remaining lower end of the small intestine was inserted and fixed by catgut sutures supported by one or two of fine silk. With the bowel the whole of its mesentery and some adjacent suppurating peritoneum were taken away, and the abdomen was closed without drainage. The proximal portion of the appendix was patent in this case also, so that the abscess cavity would appear to have been draining through it at the time of the operation. The patient suffered severely from shock, causing Mr. Davis much anxiety towards the end of the operation, and I felt greatly indebted to him for the perfect way in which he managed the anaesthesia.

Result.—The patient complained of great pain for several days, but apart from this and the shock her recovery was uneventful and complete. For some weeks she seemed to be conscious of the passage of flatus or faeces from the small to the large intestine. I saw this patient in February. The abdomen was then soft and free from any tenderness, and the general condition was in every way satisfactory. The latest account is also good.

REMARKS.

It seems fairly certain that in the first of these cases a sufficiently prolonged care of the health would have led to a practical, if temporary, cure by a process of granulation with discharge of pus into the appendix, the small abscess cavity being gradually replaced by cicatricial tissue.

In the second case, also, there appeared to be a discharge of the contents of an abscess through the remaining portion of the appendix, for there can be no doubt that the abscess formed during the illness in which I first saw the patient. In both cases the escape was so free that symptoms of confined pus ceased to be obvious, and the patients were able to get about for a time apparently quite convalescent, each, nevertheless, having a distinct though small abscess within the peritoneal sac. How completely either case could have been cured without operation is an interesting speculation. In the first case an absolute closure of the minute abscess cavity would not directly have given rise to further trouble, but in the second the abscess could only have been closed by binding together the surfaces of the coil of intestine around it. Such a result would have been very likely to induce chronic attacks of colic, with the possibility of acute intestinal obstruction supervening. In fact, it is probable that as much discomfort and danger would have arisen from this as from the liability to further attacks in the remaining part of the appendix. Moreover, a recurrence and possibly a much more serious illness would have been practically certain to follow sooner or later in both cases even if obliteration of the abscesses had occurred.

The fact that patients may apparently become completely convalescent when an intraperitoneal abscess is still unhealed, is especially interesting and important in connexion with the question of diagnosis. When an abscess penetrates the wall of the vermiform appendix it may be considered certain that the natural passage of its secretions into the caecum is closed for the time. The relief of tension brought about when the ulcerative process passes beyond the walls of the appendix into looser tissue is one of the causes of the abatement of symptoms—the period of repose—which is often so deceptive in these cases.

But a relief of tension is beneficial in all forms of inflammation, and in the cases under consideration it may be fairly concluded that, either by altering the direction of the lumen of the appendix or by causing the inflammatory thickening of its mucous membrane to subside, the relief of tension led to, or at least was accompanied by, a reopening of the passage of communication between the appendix and the caecum in each case. If this had not happened the abscesses, although released from the strong bounding walls of the appendices, would have again tended to become tense after a very few hours, and would then have caused a recrudescence of the symptoms, a rise of temperature and pulse, and an increase of the size of the pus cavities. As it turned out in these two cases, the period of repose became a period in which a cure was possible, at least temporarily, by healing of the abscess cavities from the bottom, but in which extreme danger would have arisen immediately if the communication between the appendix and the caecum had again become occluded. There was, in fact, an indefinitely prolonged "period of repose." The danger showed itself, though in a mild form, in the last attack in the second case. As I interpret the symptoms there can be no doubt now that this patient suffered from appendicitis for at least six years, possibly from childhood, and that her Fallopian tubes were never at fault.

When the ovary and appendix are in contact, as in the first case above recorded, a definite diagnosis is obviously very difficult, and may even be impossible. In the second case, although my inclination to diagnose appendicitis was founded on a correct interpretation of the symptoms, the physical signs, so far as they were discovered, were decidedly against this view.

THREE CASES OF GASTRO-JEJUNOSTOMY.

BY FREDERICK C. WALLIS, M.B.CAMB., F.R.C.S.,
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THE operation of gastro-jejunostomy is nowadays such an everyday occurrence that, unless it were thought that some special point was being brought out, one would scarcely be justified in bringing forward the following three cases.

The first is of sentimental interest in that the patient was a lady aged 91, who had lived in five reigns, and remembered being carried in a sedan chair in the Strand.

The other two cases are, I venture to think, of extreme practical interest, in that in both cases chronic inflammatory growth around an ulcer simulated carcinoma so closely that the latter diagnosis was made in each instance.

CASE I.

A female patient, aged 91, whose life-history was excellent except for an attack of general eczema twelve years previously. Beyond this and occasional bilious attacks, she had never had any illness.

Previous History.—At the commencement of 1905, the patient had all the signs of a dilated stomach—vomiting large quantities of fluid which was on various occasions of coffee-grounds character, tenderness over the pylorus, no cachexia, no great loss of flesh.

Progress and Diagnosis.—In March, 1905, Dr. Hale White saw the patient in consultation with Dr. Grigg, and it was agreed that there was evidently pyloric obstruction, and as the patient was suffering, and going downhill, it was decided that in spite of the great age of the patient, an operation was urgently needed for her relief.

Operation.—A posterior gastro-jejunostomy was carried out on March 31st. Extensive thickening and ulceration of the

pylorus was found, and the liver and pyloric end of the stomach were all matted together. The stomach itself was much dilated.

Result.—The patient made a good recovery, and from April to December, 1905, regained weight, had a good colour, and was able to take out-of-door exercise. She could take her ordinary diet, but, as heretofore, had occasional bilious attacks. At the end of December patient had cerebral thrombosis, and died about fourteen days ago.

CASE II

A male patient, aged 57, was admitted to Charing Cross Hospital on December 4th, 1905, suffering from gastric pain.

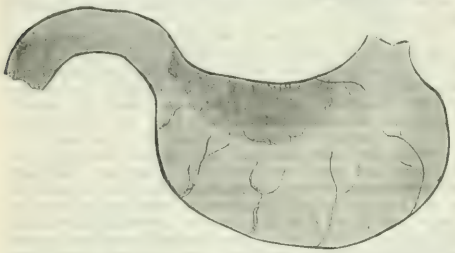


Fig. 1.—The darkened outline shows the growth as seen at the first operation.

Symptoms.—The pain came on about four months previous to admission. It was of a sharp shooting character, always starting in the same place and radiating across the abdomen. The pain became more and more severe, and lasted for longer periods, much worse after food, always bad at night, keeping the patient awake. No vomiting and no nausea, considerable

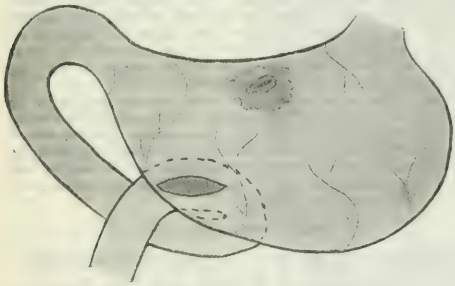


Fig. 2.—Showing the condition at the second operation.

loss of weight, and great tenderness on pressure over the stomach region. The patient was profoundly anaemic.

Operation.—The abdomen was opened on December 11th, and on the stomach being pulled forward a large growth was exposed, involving the lesser curvature and extending to the pylorus, but not to the cardiac end (Fig. 1). It was thought that the growth could be removed, but having regard to the general

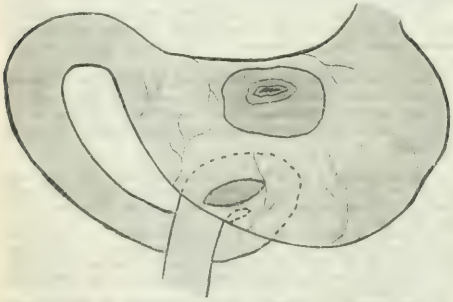


Fig. 3.—The inner dotted line shows the position of the ulcer situated on the posterior wall and adherent to the pancreas.

condition of the man, it was considered best to do a gastro-jejunostomy now, and leave the major operation until later. This was accordingly done.

After-progress.—The patient made a good recovery and got up on the tenth day. He left the hospital at the end of the third week, and was readmitted a week later. All pain had disappeared within thirty-six hours of the operation and there had not been any return of it. The patient was eating and sleeping well, had put on weight, and was obviously greatly improved in health.

Second Operation.—On January 10th, 1906, the abdomen was again opened, and the stomach pulled forward; it was seen that the "growth" had to a great extent disappeared (Fig. 2). Enlarged glands were found in the omentum, but they were not characteristic of new growth. The growth was now entirely on the posterior surface, near, but not quite reaching, the lesser curvature. A circular ulcer with a clear-cut edge was felt through the anterior wall. The ulcer itself was adherent to the pancreas (Fig. 3).

Result.—The wound was closed, and the patient left the hospital twelve days later. He was last seen on March 26th. He takes ordinary diet, has no pain, has gained a stone in weight, and looks well and healthy.

CASE III.

This patient, a woman aged 39, was admitted to St. Luke's Hostel under the care of Dr. de Havilland Hall, on January 29th

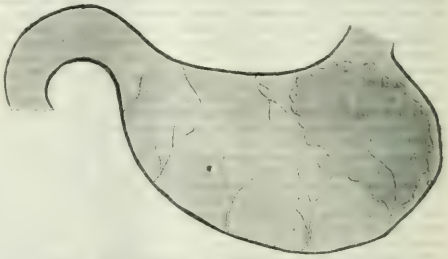


Fig. 4.—The growth seen at the operation in Case III.

this year suffering from gastric pain and general nervous depression. She began to have pain about the first week in December, 1905, and had been treated for nervous dyspepsia at Windsor and gastric neuralgia at Brighton.

Condition on Admission.—The patient complained of severe abdominal pain, going through to the back; the pain was better after food; she had been very sick at times, the vomit containing a little blood. She could not sleep nor eat, had bad dreams, and was depressed and constipated. Nothing was made out on examining the abdomen as the patient was hypersensitive, and even slight pressure caused pain. I saw the patient in consultation with Dr. de Havilland Hall on February 6th, and it was decided that a gastro-jejunostomy should be done.

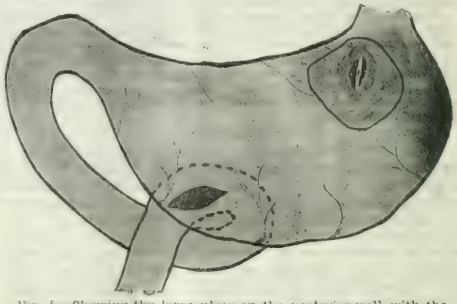


Fig. 5.—Showing the large ulcer on the posterior wall with the perforated vein running across the floor

Operation.—The operation, for various reasons, unfortunately, was postponed until February 13th. On opening the abdomen an extensive growth was found occupying the cardiac end of the stomach, which was considered malignant and quite impossible to remove (Fig. 4). Posterior gastro-jejunostomy was done in the hope of relieving pain by the quicker outlet thus obtained.

Result.—The night of the operation was most satisfactory in that the patient was almost free from pain; this was noticeable all along until, on February 16th, at 12.15 p.m., the patient became collapsed and vomited some blood. Dr. Hubert Roberts did everything possible, but the patient gradually became more exhausted and died twelve hours later. The *post-mortem* examination showed that what was taken for a malignant growth was chronic inflammatory thickening around a large ulcer situated high up on the posterior wall in the lesser curvature towards the cardiac end. Death was due to haemorrhage from an oval opening in a large vessel running along the floor of the ulcer (Fig. 5). It was interesting to

note the perfect mechanical safety of the gastro-jejunostomy on the fourth day of the operation.

Remarks.—Additional interest in the first case, that of the old lady, is that it is a good example of the fact that even very old people stand operations well when their tissues are young, and the number of years a patient has lived is not in itself a bar to even a considerable surgical operation.

In Case II all of those present at the first operation were sure that the growth was malignant, and I regretted at the time that I did not think the man's general condition warranted me doing a partial gastrectomy. It was a matter of great surprise and satisfaction to see, when the abdomen was reopened, how the mass had melted away.

I have been so much impressed with this case and the next that I am strongly inclined to think that in a large number of cases where partial gastrectomy is under consideration it would be always as well to do a preliminary gastro-jejunostomy. The operation in either case is of material benefit to the patient. The pain suffered is much less or entirely disappears, and peaceful sleep is procured. The diet can be increased and the food is digested.

If a partial gastrectomy is ultimately necessary the patient is in much better case after two or three weeks than when the abdomen is first opened, and the time lost makes no material difference in the possibility of removal of the growth.

In the third case when the stomach was exposed the condition looked so hopeless that I nearly closed the wound without doing anything further.

The effect of the operation on the patient was interesting, and most satisfactory during the three days that she lived. The drawn, pain-stricken appearance of her face disappeared, and she lay in bed quite comfortable and placid.

I was fortunately able to procure a *post-mortem* examination—which I was anxious to get—to see whether this case was also only inflammatory growth around ulcer; this, as the specimen shows, it proved to be, and a microscopical section of the tissue near the ulcer is a further proof of it.

The lesson this third case teaches is that delays are dangerous in cases of gastric pain which are well marked, and do not readily respond to medical treatment. Under such circumstances the abdomen should be opened and the stomach examined. A gastro-jejunostomy can be done, and if there has been haematemesis to any marked degree, the stomach should be opened through healthy tissue in the neighbourhood of the ulcer, and the ulcer either cauterized, cut out, or ligatured to prevent further haemorrhage.

THE RELATION OF ULCERATIVE COLITIS TO DYSENTERY.

By A. E. CARVER, M.D., M.R.C.P.,
TORQUAY.

THE brief notes recorded below appear to have some bearing on the views put forward in Dr. Saundby's interesting paper on endemic sporadic dysentery in England. In addition to the case described at length by Dr. Saundby, there is some evidence that the bacillus of Flexner and Shiga does, occasionally at all events, occur in cases of colitis.

In 1903 Mr. Foulerton, of the Middlesex Hospital, very kindly tested for me the agglutinative power of the blood of three patients suffering from ulcerative colitis. One gave a positive result, whilst the other two were negative, the dilution in each case being 1 in 40. A positive reaction had previously been obtained by Mr. Foulerton[1] in six cases of dysentery and in one of acute colitis, and in no other disease was the reaction obtained with a dilution greater than 1 in 10.

It has been pointed out, by Flexner I believe, that the agglutinative reaction is obtained in cases of dysentery comparatively early in the course of the disease, and that it disappears also at an early date. This is hardly to be wondered at considering how great are the chances of a secondary infection occurring from the large bowel, and it seems not unlikely that the nature of such secondary infection may determine the clinical variety of the colitis.

In the autumn of 1902* there occurred in North London a sharp outbreak of acute colitis, an account of which was read before the Medical Society of London. The disease presented the symptoms and pathological lesions of acute bacillary dysentery, and seemed also indistinguishable from the acute cases of asylum dysentery described by Dr. Gemmel.[2] I was able to find a published account of only one similar outbreak, that described by Dr. Cautley,[3] which occurred in a London barracks during the summer of 1900; but I have been informed that a similar condition prevailed at Aldershot about the same time, and that an account of it was read before the Epidemiological Society.

It will be remembered that shortly after the conclusion of the late Boer war a good deal was heard of "typhoid infected blankets" brought home from South Africa. Now, typhoid fever and dysentery were of almost equal prevalence during the war, and if the one infection were brought home it is not unreasonable to suppose that the other may have been conveyed in like manner. A consideration of the times and places at which the above epidemics occurred would seem to lend colour to such a conjecture.

A sequence of events which occurred at the Great Northern Hospital in 1902, and again at the Westminster Hospital in 1903, seems also to suggest that there is some relationship between acute colitis and the more chronic ulcerative colitis. During the nine months included between October, 1901, and June, 1902, there were admitted into the Great Northern Central Hospital 5 cases of ulcerative colitis, the last of which was followed in three weeks by the first case of acute colitis, and this was in the person of one of the nurses of the hospital. No other cases of either disease had been in the hospital during the previous four years certainly, and possibly not during a longer period.

Again, during April, 1903, two cases of ulcerative colitis were admitted into the Westminster Hospital, and a fortnight later there appeared in the children's ward an outbreak of bloody diarrhoea, of which one patient died. The bowel presented the lesions of acute colitis. These events may well be mere coincidences, but it would be interesting to learn whether any similar sequences have occurred at other hospitals.

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[1] *Centralbl. für Bakt. und Parasiten.*, February 27th, 1902. [2] *Ulcerative Colitis.* 1895. [3] *Lancet*, May, 1901.

* Abstracted from thesis for degree of M.D., Cambridge.

THE EFFECT OF X RAYS UPON THE LEUCOCYTES IN THE BLOOD AND BONE MARROW IN LEUKAEMIA.

By R. J. M. BUCHANAN, M.D., M.R.C.P.,
ASSISTANT PHYSICIAN TO THE LIVERPOOL ROYAL INFIRMARY.

THE extraordinary results which have been obtained from the treatment of leukaemia by exposure to the *x* rays are well known. Clinically the action of the rays is manifested by a rapid diminution of the enlarged spleen, and a great reduction in the number of leucocytes in the blood, as evidenced by the leucocytic count. From so great a number as 500,000 per cubic millimetre, or about fifty times the normal, the leucocytes may fall gradually to the normal. The large finely granular myelocyte, and the large coarse granuled eosinophile myelocyte, which give the blood in leukaemia so distinctive a character by their presence, and which are not usually to be found in normal blood, are rapidly reduced in numbers, and have been said to disappear entirely.

When one states that the presence of these large myelocytic cells is distinctive of this disease, one is brought face to face with the problem of myelogenous leukaemia as opposed to simpler leucocytosis. They are clinically regarded as different conditions.

Apart from physiological leucocytosis, which is rather of a lymphatic than a myelogenous origin, I consider we are in a position to distinguish two forms of pathological leucocytosis only: (*a*) one in which the excess is due to an increase of the lymphocytes derived from the lymphatic glands and tissues—a lymphocythaemia, lymphaemia, or lymphocytosis; and (*b*) one which is due to an excess of cells derived from the marrow—a myelocythaemia, myelaemia, or myelocytosis.

The myelocytosis I consider comprises the leucocytosis which is present in suppurations and certain other conditions and that which is present in myelogenous leukaemia, the difference being one of degree only and not specific.

If we accept the teaching of Ehrlich that the lymphocytes are derived from the lymphatic tissues and the other leucocytes from the marrow, one must account in some way for their presence in the blood stream. This is not difficult. For the lymphocyte easy access is obtainable from the lymphatic tissues through the large lymphatic ducts; the myelocytic cells may easily pass from the marrow to the blood in a degree proportionate to their power of amoeboid movement. We can thus understand the presence in the blood of the polymorphonuclear cell and the transitional forms preceding it. Only when the production becomes excessive do we find the large myelocyte in the blood. I have recently recognized the ancestral myeloplax in the blood in a case of myelogenous leukaemia. The influence of the *x* rays in altering the proportion of cells may act in inhibiting excessive production, so that the first cells in leukaemia to diminish in numbers ought to be the large myelocytes, fine or coarse. Next in order of disappearance should be the transitional cell, and last of all the polymorphonuclear.

In examining stained specimens from cases which have not been exposed to the *x* rays the large myelocytes have been present in great numbers—relatively *plus*. In stained specimens from a case after exposure to the *x* rays the polymorphonuclear cells appeared to be the most numerous; then the transitional; and least numerous of all the great myelocytes, fine and coarse. This condition is quite evident without a differential count. Further, in all the cases where the myelaemia has been marked, nucleated red blood corpuscles—normoblasts—have been present and easily detected in stained specimens. After *x*-ray treatment I have failed to discover any nucleated red cells—a point in favour of the idea that the rays act by inhibiting production. Seeing, then, that the *x* rays exercise a profound influence on the leucocyte production, the questions arise, have they any direct influence upon the cells themselves? Do they alter their morphological characters? To give an unassailable answer to these either in the affirmative or negative, could only be done after a prolonged research with a large series of cases, and exhausting all the most approved technical methods of fixation and staining. One must also recognize the ever-present difficulty of interpreting and determining the true and exact morphology of delicate cell structures. Fixative reagents of various kinds and composition may act differently. For all practical purposes dry heat at 120° C. for twenty minutes when carefully carried out proves a most useful method, and one which in my hands has provided excellent results in film preparations. In cases which have not been exposed to the *x* rays I found no difficulty in making good films, equally good in gross and minute structure when stained in a variety of ways.

I am indebted to Sir James Barr for the opportunity of examining the blood from patients under his charge in the Royal Infirmary, and who had been subjected to *x*-ray treatment. Films were made with all care and delicacy, and fixed carefully by the aid of dry heat at 120° C. for twenty minutes. On proceeding to stain and examine them, however, I found that they had not spread well, nor were the cells so sensitive to the stains used. A second batch was but a repetition of the first. Specimens stained with eosin, dried, and counterstained with methylene blue revealed a diffuse staining of the nuclei as compared to the sharp chromatin stain which is normally seen. To Ehrlich's acid haematoxylin and eosin the nuclei did not respond as they ought, and even with prolonged immersion they stained but feebly. The use of methylene blue revealed a lack of chromatin and basophile reaction, in many cells to a very marked extent.

The eosinophile reaction of the coarsely-granular myelocytes was in many cells diffluent rather than sharp and refractile. In specimens stained with Jenner's stain the same condition was present, but the eosinophile diffluence was less marked. Many of the large myelocytes and transitional cells appeared altered and paler than usual, others diffluent and broken up, not having the sharp spherical outline one ought to expect in a normal cell. Similar changes were observed by the use of Heidenhain's haematoxylin.

The small basophile cells had suffered in an extreme degree: the polymorphonuclear leucocytes less so, and this might be expected, as of all leucocytes they are the most resistant to any form of disintegration. In these, however, the same pallor and diffluence of the nucleus was evident.

There was a general tendency for many cells of any variety to take on a diffuse stain in which the nuclei were indistinguishable from the surrounding cytoplasm. Fragmentation of nuclei was not uncommon, especially in the basophile cells.

The so-called "spread cells" which are always to be found in leukaemic blood I found present in much larger numbers than usual, indicating an increased vulnerability to technique.

At an autopsy on a man who had died from a relapse of leukaemia, and who had been treated by the *x* rays, I was enabled to obtain specimens of marrow. On comparing them with films made from the marrow of a case not so treated I found that the coarse eosinophile cells were abundant in the latter, while they were scarce in the former. In the untreated marrow the cells were well formed and the nuclear chromatin responded sharply to the stains used, but after exposure to the *x* rays many cells were diffluent and stained diffusely without a sharp chromatin reticulum—a condition similar to that recorded in the blood films.

In conclusion, I am of opinion that there is evidence to show that the action of the *x* rays in leukaemia is of a two-fold character, (1) by inhibiting over-production in the marrow, and (2) by a destructive influence over the leucocytes themselves. The effect is especially noticeable in the cell structures which respond normally to basic dyes, less so in those which respond to acid dyes.

Further evidence is afforded by the fact that the myelocytosis recurs rapidly when the *x*-ray treatment is discontinued.

A CASE OF LIPOMA OF THE PERICARDIUM.

BY M. VAUGHAN McKECHNIE, L.R.C.P., L.R.C.S.ED.,
EASTBOURNE.

THE patient in this case, a tailor by trade, aged 56, was first seen by me on March 23rd, 1906. His family history was good but his personal history bad, since he was a confirmed alcoholic. He was very anaemic in appearance, but stated that until two weeks before he had been perfectly well, and that all he complained of was shortness of breath.



Heart with large lipoma lying over left auricular appendage: right ventricle held open to show thrombus.

State on Examination.—He was a fairly well-nourished man. Heart sounds normal, but upon percussion over the area corresponding to the ascending and transverse part of the arch of the aorta I noticed marked dullness. He had no signs of aortic aneurysm. Pulse regular in force and frequency. Lungs normal. Liver much enlarged. Urine normal.

Progress.—On April 11th, 1906, that is, seventeen days after I first saw him, I was sent for and found him in bed suffering from delirium tremens. I was unable to examine him owing to his condition. I called the following morning, April 12th, but found he had gone out. The next night, April 13th, I was sent for to see him in a great hurry and found him dead.

Post-mortem Examination.—I duly notified the case to the coroner, Dr. Vere Benson, who ordered a *post-mortem* examination, of which the following are the notes: "Brain normal. Thorax, left lung, pleuro-pneumonia; right lung much congested. Liver greatly enlarged. Heart weighed 19 oz. instead of 11 oz., the average weight of a male heart, and was very thickly covered with fat. Upon opening the pericardial sac, I was struck with a mass of fat which was attached to the pericardial sac below the pulmonary artery.

Pathologist's Report.—This case seemed to me so unique that I took the specimen to Dr. H. S. Gabbett, Pathologist, Eastbourne, for his report, which was as follows: *quite good*.

Lipoma of Pericardium.—The specimen received consists of the heart, pulmonary artery, part of aortic arch, bifurcation of trachea, and adjoining parts. Projecting into the pericardial cavity on the left side is an oval pendulous mass of adipose tissue measuring 2¾ in. in length and 1½ in. in thickness. It springs from a base situated in the recess of the pericardial sac beneath the left division of the pulmonary artery, and lies upon the left auricular appendage. General excess of subpericardial fat. The left ventricle is dilated, mitral valve somewhat thickened. There is a very dense adherent clot in the right auricle extending from the appendage to the tricuspid orifice, which it partially occupies, and a similar clot in the right ventricle extending up to the pulmonary valves. Tricuspid valve much thickened and distorted. The portion of aortic arch included in the specimen is dilated and the intima is rough; valves competent.

REMARKS.—The photograph, a very good one, shows the large lipoma lying over the left auricular appendix. Dr. H. S. Gabbett showed the specimen at a meeting of the Eastbourne Medical Society, and it was stated that no member had seen a similar specimen or heard of such a case. It is interesting, I take it, from the fact of its being so unique. The specimen has been forwarded to Dr. Byrom Bramwell of Edinburgh, my late teacher.

My best thanks are due to Dr. Gabbett for his report and photograph, and to Mr. J. N. d'Esterre for his assistance at the necropsy, and in helping me to prepare the notes of this case.

A CASE IN WHICH LARGE QUANTITIES OF DIPTEROUS LARVAE WERE PASSED PER ANUM.

BY C. H. CATTLE, M.D., M.R.C.P.,
HON. PHYSICIAN, NOTTINGHAM GENERAL HOSPITAL.

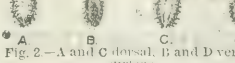
IN September, 1905, a young man of healthy aspect, aged 19, came to me, stating that he had a "nest of insects" in his inside, of which he had passed per anum a basinful at one time. For some weeks previously he had not been feeling well. He now complained of abdominal discomfort, but his symptoms were chiefly the result of alarm at the discovery of living grubs in the faeces. He had many fantastic ideas about the insects, such as "they



a. *b.* *c.* *d.*

Fig. 1.—Horse botfly (*Oestrus equi*). *a*, Egg on a hair, strongly magnified; *b*, younger larva, magnified; *c*, older larva, magnified; *d*, fly.*

were living on his food and taking his strength," "that he felt them crawling about." From what I have since been able to learn, I have no doubt whatever that the parasites were capable of causing considerable irritation, which probably accounted for his lively imagination respecting their behaviour. He had no vomiting or other gastric or intestinal symptoms. I expressed a wish to see some of the insects, and he brought from twenty to thirty slender, flattened, fusiform larvae, about 5 mm. in length, similar to (*b*), Fig. 1. Two months later he brought four specimens, somewhat longer and much broader than the first, and evidently of a later stage of development. These are illustrated, drawn, the exact size, in Fig. 2.



A B. C. D.

Fig. 2.—A and C dorsal, B and D ventral surface.

I showed the four specimens illustrated in Fig. 2 to Professor Carr, of the Nottingham University College, and he had no difficulty in identifying them as a species of the family *Oestridae*, or "botflies." The best-known species are the *Hypoderma bovis*, which infests the subcutaneous tissue of cattle; *Oestrus equi*, infesting the gastro-intestinal tract of horses; and *Oestrus ovis*, inhabiting the frontal sinuses of the sheep. The larval forms of these insects are parasitic in the bodies of the animals named, attaching themselves to the tissues by means of hooklets. When about to become pupae, they are voided with the faeces, or escape with secretions, such as pus, their remaining stages being passed in the open air. The female fly lays her eggs in such position as to secure the easy passage of the larvae to the tissues of the host. For instance, the botfly of the horse deposits her eggs on the hair of the shoulder or knee, whence they are licked off and conveyed to the stomach.

The man who is the subject of this paper, although living in the country, was not a farm labourer, or immediately concerned in tending domestic animals. It remains, therefore, quite uncertain how he became infected. His evacuations have been regularly watched and he now (March, 1906) very rarely sees any larvae, and not more than one or two at once. The parasiticides used were various purgatives: santonine, turpentine, and calomel in 5-gr. doses; these, however, did not seem to have much effect.

There is very little information on this subject in medical textbooks. Osler quotes from Finlayson the case of a physician who passed per anum a large quantity of the larvae of the flower-fly (*Anthomyia canicularis*). The same authority says that botflies occasionally attack the skin of man, rarely, however, in temperate climates; but does not mention their presence in the human intestine. Larvae of the *Musca domestica* have been occasionally vomited or passed in the faeces, and those of the bluebottle and flesh-fly have been found in neglected wounds.

AN ANTIVIVISECTIONIST SERMON.—A correspondent has forwarded us a cutting from the *Record* which contains an abstract of a sermon preached at Christ Church, Endell Street, on June 26th. The occasion was the annual service of the Church Antivivisection League, and what the preacher, the Rev. L. S. Lewis, Curate of All Saints, Mile End, had to say upon the subject was thoroughly in keeping. A statement had been made in the morning papers of that day to the effect that 5,000 more experiments on living animals were performed in 1905 than in the previous year. This circumstance Mr. Lewis took for his text, and it is perhaps fortunate that he did so, since, possibly, if he had given himself more time to study the matter, what he would have to say might have been less pleasing to antivivisectors, and more in accordance with common sense. As it was, his address, with one exception, was painfully lacking in originality. As usual, antivivisectors were actuated by the meanest motives: love of money, or love of fame. Possibly there might be some who were desirous of serving their fellow-creatures, but even if there were they were acting from want of principle. The general dreariness and banality, in short, seems to have been only relieved by his concluding statement of a belief that animals not less than man are included in the scope of the Redemption. It is a doctrine which may be commended to the study of theologists: when they have settled it, possibly those who share Mr. Lewis's prejudices might observe with some advantage the general scheme of Nature, note the general preying of animal upon animal, of insect upon insect, and ask themselves whether, apart from physical sufferings, the standpoint of nearly all Christian sects is not that we are all here in pursuance of a vast experiment, being sent into the world with free wills, and inoculated at birth with the toxins of good and evil. Unfortunately, however, there are no controls, and the result can never be known to any of us in mundane life.

* We are indebted to Messrs. Methuen for permission to reproduce this figure from *Agricultural Zoology*.

British Medical Association.

REPORT

OF

SPECIAL CHLOROFORM COMMITTEE.

FIFTH REPORT OF PROCEEDINGS (1905-6).

(*For preceding Reports, see (1901-2)* BRITISH MEDICAL JOURNAL, July 12th, 1902; *(1902-3)* BRITISH MEDICAL JOURNAL, July 18th, 1903; *(1903-4)* BRITISH MEDICAL JOURNAL, July 23rd, 1904; *and (1904-5)* BRITISH MEDICAL JOURNAL, July 22nd, 1905).

INTRODUCTION.

1. The Committee, consisting of the President of the British Medical Association and Chairman of Council (*ex officio*), and Sir James Barr, M.D., Professor Brodie, F.R.S., Dr. Dudley Buxton (Honorary Secretary), Dr. H. Radcliffe Crocker (Chairman), Professor Dunstan, F.R.S., Mr. A. Vernon Harcourt, F.R.S., Sir Victor Horsley, F.R.S., Dr. W. J. McCardie, Dr. C. J. Martin, F.R.S., Mr. George Rowell, and Professor Sherrington, F.R.S., was elected by a resolution of Council, July 27th, 1905.

2. The Committee was originally appointed by the Council at the Annual General Meeting of the British Medical Association, July, 1901 (BRITISH MEDICAL JOURNAL July 20th, 1901). The following is the reference of the Council. Resolved:

> That a Special Chloroform Committee be appointed to investigate methods of quantitatively determining the presence of chloroform in the air and in the living body.

The ultimate object laid before the Council of the British Medical Association by Sir Victor Horsley was to determine, if possible, what is the minimal dose of the drug which will secure an adequate anaesthesia for operations and at the same time not endanger life.

THE WORK OF THE COMMITTEE.

3. The initial work undertaken by the Committee (the results of which will be found in the first two reports) was to examine critically the best-known methods of quantitatively measuring chloroform. Data will be found in these two reports for the quantitative determination of chloroform in air and liquids.

4. The work subsequently carried out, the details of which will be found in the reports published in the BRITISH MEDICAL JOURNAL, July 18th, 1903, July 23rd, 1904, and July 22nd, 1905, has been of a more practical character.

5. It has dealt with the effects produced upon cardiac muscle, skeletal muscle, and involuntary muscular fibre, when chloroform is administered under conditions permitting of exact dosage.

In this way it has been possible to determine what is the minimal dose which produces deleterious and ultimately destructive effects upon the vascular structures engaged in the circulation.

6. To extend our knowledge to the case of the intact animal, investigations have been undertaken to ascertain what part, if any, the constituents of the blood take in absorbing and retaining chloroform when it is brought in contact with them in the form of liquid or vapour.

7. A further step towards obtaining practical results from the Committee's work has been the attempt to ascertain (1) what percentage of chloroform upon entering the lungs of the intact animal induces complete anaesthesia; (2) of this, how much is really operative, that is, is retained in the blood stream and conveyed to the tissues.

8. To arrive at such data the Committee examined the inspired and expired air of patients under chloroform and so obtained approximately the amount of chloroform retained.

WORK DONE DURING THE YEAR 1905-6.

9. During the year just completed the work carried out has been consecutive and complemental to that already reported.

10. Professor Brodie, F.R.S., assisted by Miss S. T. Widdows, B.Sc., contributes a research upon the rate of absorption of chloroform during the induction of anaesthesia (Appendix I). The animals respired a known percentage strength of chloroform vapour in air, varying in different experiments from 1.06 per cent. to 2.78 per cent. by volume, and the proportion was maintained uniform during the ten minutes which each experiment lasted. The inspired and expired vapour mixture was examined, and the lung ventilation measured at definite intervals during each experiment. The details will be found in the protocols attached to the report. From these experiments Professor Brodie arrived at results which may be summarised as follows:

Soon after the commencement of inhalation of the chloroform mixture respirations become accelerated and more shallow. This depression of respiration appeared within the first two minutes and persisted until the sixth or eighth minute. Then the lung ventilation rapidly increased, and by the end of the tenth minute it was in some cases greater than at any other stage of the administration.

The depression was found to vary in different individuals, and to depend upon the degree of concentration of the mixture.

The rate of absorption of the chloroform bore a rough correspondence with the degree of the lung ventilation, but when the latter was great the absorption was not proportionately increased.

The percentage of chloroform in the expired air was least in the first two minutes, the minimum being nearly always reached in the second minute. Subsequently the percentage rose, but it remained below that of the mixture inhaled even in the tenth minute.

The period of maximum absorption was attained in the second minute. The amount then decreased, this being usually associated with lessened lung ventilation, but this lessened absorption occurred even when there was no marked depression of respiration, although it was found that an increase in lung ventilation might slightly promote absorption. Further, at the close of the experiments the rate of absorption always fell below that of any of the preceding periods.

11. Mr. Vernon Harcourt, F.R.S., whose report will be found in Appendix II, has continued his work upon the proportion of chloroform retained by the patient when chloroform is administered as in the induction of surgical anaesthesia. The chloroform regulator which has been adopted by the Committee for the prosecution of this research was again employed, and Mr. Harcourt has devoted some of his report to a description of means whereby the desired percentages can be more accurately obtained during the use of this inhaler.

He also enters upon the consideration of the necessary correction in results for the dead space between the lips and the walls of the mask, and that between the lips and the absorption surface of the lungs. Several estimations of the inspired and expired air of patients during the induction of anaesthesia and throughout the course of surgical operations, were made and the results are given in the report. In one experiment, the person inhaling was a member of the Committee, and the results were uncomplicated by surgical procedure. A record of the blood pressure was made in this case.

The percentage of chloroform inhaled was not, as in Professor Brodie's experiments, kept at one uniform strength but varied at intervals, according to the requirements of the operation, from 0.5 per cent. to 2 per cent. The periods during which the observations were made were much longer, and the intervals between successive examinations of the expired air were also greater than in the case of Professor Brodie's experiments, so that close correspondence in results cannot be looked for. At the same time the comparison is of obvious value. Possibly this part of the Committee's research needs to be carried further, but it certainly explains in part the correlation between the rate of absorption, the force of respiration, and the fall of blood pressure coincident with chloroform inhalation.

12. Professor Sherrington, F.R.S., assisted by Miss S. C. M. Sowton, has pursued the investigation of the depressant effects of chloroform upon the circulation of the blood. They have studied the effects consequent upon known strengths of chloroform being perfused when con-

comitant conditions tending towards asphyxia were introduced. The results at which they have arrived, and which are to be found in Appendix III, they regard as at present tentative.

The experiments were made upon the isolated heart, and the liquid perfused was in the one instance oxygenated and in the other deoxygenated, and contained a certain amount of added carbonic dioxide gas. The former sustained the heart-beat more vigorously than did saline which had not been oxygenated, while the latter produced slowing and enfeeblement of the heart. Percentages of chloroform adequate to depress without abolishing cardiac action, when perfused in saline containing carbonic dioxide gas, caused depression distinctly in excess of that which obtained when oxygenated saline was employed, and the depression was more persistent. It appears, therefore, that chloroform in deoxygenated saline containing carbonic dioxide gas will depress the heart muscle more than chloroform in oxygenated saline. Results similar in kind, although less in degree, were obtained in the cases of the muscular structures of the blood vessels and of the skeletal muscles. In every case the depression from chloroform was aggravated when conditions tending towards asphyxia were present.

13. Reviewing the work done during the year the Committee desires to point out that further progress has been made. The concurrent investigations made by Professor Brodie and Mr. Vernon Harcourt render it clear that the actual percentage of chloroform inhaled determines the dosage to which the blood, and by it the tissues, is subjected, and also affects the amount of lung ventilation. Professor Brodie's experiments indicate further that the period during which maximum absorption takes place is definite, and occurs near the commencement of inhalation; while Mr. Harcourt points out that a proportion only of the chloroform absorbed goes to produce anaesthesia, or perhaps it is more accurate to say that a greater part of the chloroform absorbed remains in the organism after consciousness has returned. The conditions of the blood at the time chloroform is inhaled vary, and in the present report one of these—the asphyxial state—has been shown by Professor Sherrington to exert a distinct influence upon the effects brought about when chloroform comes into direct contact with the heart muscle, the musculature of the blood vessels, and skeletal muscles. The practical bearing of this is too obvious to need further comment. It yet remains to ascertain how other abnormal states of the blood affect the chloroform problem, and to pursue further the equally important investigation dealing with absorption of not only minimal but excessive doses of chloroform and the circumstances which influence the degree and rate of absorption. Upon these lines the Committee believes it can profitably pursue its work.

DUDLEY W. BUXTON, Honorary Secretary.

APPENDIX I.

PRELIMINARY REPORT UPON THE RATE OF ABSORPTION OF CHLOROFORM DURING THE INDUCTION OF ANAESTHESIA.

BY

T. G. BRODIE, M.D., F.R.S., LECTURER ON PHYSIOLOGY, LONDON SCHOOL OF MEDICINE FOR WOMEN.

and

SIBYL T. WIDDOWS, B.SC., LECTURER ON PRACTICAL CHEMISTRY, LONDON SCHOOL OF MEDICINE FOR WOMEN.

THE object of the following experiments was to determine the rate of absorption of chloroform during the induction of anaesthesia. All the experiments have been conducted upon cats, the plan adopted being to make the animal inspire air of known chloroform content and to collect the expired air and determine the amount of chloroform it contained. The anaesthetizing mixture was given through a mask, which fitted closely over the animal's head. The mask was first adjusted in position, and when the animal was breathing quietly through it it was connected to a pair of Chauveau valves. The inlet to the valves led from a large goldbeater's-skin balloon containing the mixture of air and chloroform. The outlet was connected to a smaller bag of the same material, it being possible to change from one bag to another at any instant. The course of an experiment was as follows:

PREPARATION OF THE ANAESTHETIC MIXTURE.

The large balloon, which has a capacity of about 20 litres, was emptied and then connected to one limb of a large U-tube. This tube was nearly filled with glass beads, and into it the necessary amount of chloroform was measured. The other limb of the U was then connected to a large aspirator bottle and air sent from this into the balloon through the U-tube. The chloroform was thus evaporated, and about 12 litres of air mixed with an amount of chloroform vapour was thus collected. The strength of the chloroform was known approximately from the known volume of chloroform measured into the tube. The air in the bag was next thoroughly mixed, and a sample taken from it for subsequent analysis. In some experiments this sample was not taken until the end of the experiment, while in others samples were taken both at beginning and end, in order to be sure that the concentration of the chloroform had not altered.

THE ADMINISTRATION OF THE ANAESTHETIC.

The balloons having been attached to the Chauveau valves and the mask adjusted over the animal's head, at a signal the administration of the chloroform mixture was commenced by connecting the mask to the valves. The animal usually breathed the mixture quite quietly throughout the whole induction, and as a rule there was no struggling. These first experiments deal with the

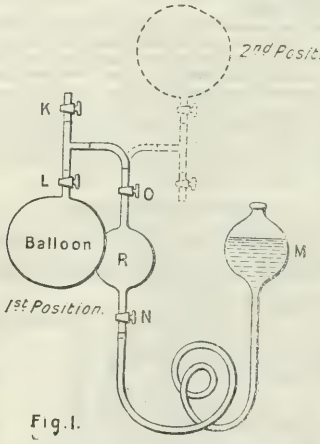


Fig. 1.

absorption of chloroform during the first ten minutes of its administration, and in all cases six samples were collected during that time. The intervals varied in successive experiments, and are given in the protocols. At the end of the ten minutes the mask was removed and the degree of anaesthesia recorded.

COLLECTION OF THE SAMPLES FOR ANALYSIS.

The samples of expired air for analysis were taken immediately after the experiment in glass receivers. The receivers used have a capacity of about 300 c.cm., and are provided with two tubes, each fitted with a well-ground tap. The inlet tube is connected to a large container of mercury M (Fig. 1), and the outlet tube to a T-piece. The one end of this T-piece is provided with a short length of rubber tubing, which can be closed by a screw clamp. To the other limb the bag containing the expired air to be analysed can be connected. The T-piece is first held in the position indicated in the figure, the tap L still being closed, taps K, O, and N are opened. The reservoir is then raised and mercury run into the receiver until it appears just above the clip K. The tap N is then closed, and subsequently taps O and K. The bag is then held in the second position shown in the figure, and, the reservoir having been lowered, the taps L, O, and N are opened in the order named. The mercury now flows out of the receiver, which is filled with expired air from the

bag. As soon as the mercury falls below the level of the tap N, this is closed, and the mercury reservoir disconnected. As the balloons are extremely flexible, the receiver R is now filled with air at atmospheric pressure. The taps G and K are closed and the receiver disconnected. In this way samples of air are collected in a series of receivers of known capacity.

Measurement of the Expired Air.

The measurement of the total volume of air expired during the different intervals was effected in the following way. Two tubulated bottles A and B were connected by wide rubber tubing (see Fig. 2). The one bottle (B) is graduated. Its upper end is closed by a cork through which passes a tube which can be connected (1) to the bag containing the air to be measured, (2) to the external air through the tap M, and (3) to a water manometer P. This tube can also be closed by a tap N. The bag containing the expired air after collection of the sample for analysis is connected to this at K, and while that tap remains closed taps M and N are opened. The bottle A is placed on a small box and the air in B displaced through M. This tap is then closed and tap K being opened air is drawn from the bag into the measuring bottle by lowering the bottle A. Tap K is then closed and the amount withdrawn read off after bringing the pressure to zero by raising or lowering bottle A. This is repeated as often as necessary until the bag has been emptied. The temperature of the room and the height of the barometer are recorded to enable the necessary corrections for the gas measurements to be made.

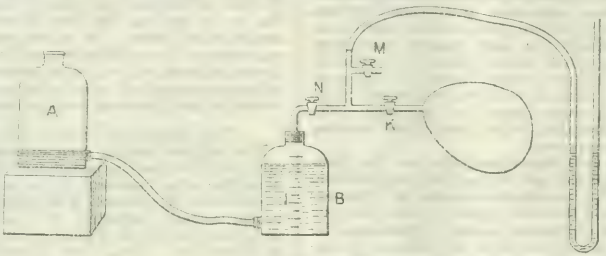


Fig. 2.

Control Experiments.

In the manipulation of the gases as above described it will be noticed that there are two possible sources of error which have to be tested. In the first place, the gases containing chloroform are kept for a time, which may amount to as much as thirty minutes, in the balloons. It is possible that the material of which they are made might absorb some of the chloroform or that it might permit some of it to diffuse out. In the first place the bags were tested to prove that they were quite airtight; and to determine whether any loss of chloroform occurred by keeping the gases in the balloons the following experiment was made. A balloon was filled with chloroform mixture and a sample at once removed and analysed. The remainder was allowed to stay in the bag for two hours, and then a second sample was withdrawn and analysed. The two analyses gave results agreeing within the limits of experimental error. This control experiment was repeated on three occasions with the same result, thus proving that it was quite safe to allow the chloroform air mixture to remain in the bags, if necessary for as long as an hour. In all instances, however, the samples for analysis were taken at the earliest possible time to avoid any loss of chloroform in this way.

The next possible source of error lay in the fact that it was at times necessary to keep the samples for analysis within the glass receivers for more than a day, and that these were provided with two taps which were made perfectly airtight by a little vaseline. It might therefore have been necessary to devise receivers in which taps were altogether avoided. The point was tested by collecting samples of the same mixture in different receivers and analysing them after they had been kept for different times. Thus, in one experiment, the air in the first receiver was found to contain 0.0256 gram of chloroform in 100 c.cm. That in a second receiver, which had been allowed to stand for three days, was found to contain 0.0244 gram in 100 c.cm. The difference between the two analyses was 0.0008 gram, an amount lying within the limits of experimental error. It was thus proved that the simple arrangement adopted might be used with safety.

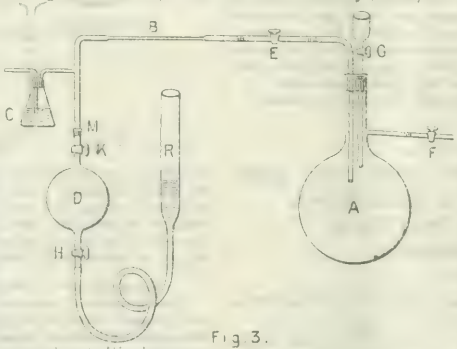


Fig. 3.

The Chloroform Estimation.

The principle of the method we have adopted is the same as that of Harcourt—namely, the combustion of the chlorine of the chloroform to hydrochloric acid by steam and air. The method was modified by drawing the sample mixed with water vapour through a narrow red hot platinum tube into an evacuated flask of about 2 litres capacity. The hydrochloric acid formed was then absorbed by an excess of potash. The apparatus used is shown in the accompanying figure (Fig. 3), the method of procedure being as follows:

The taps E and G being closed, the flask A (of about 2 litres capacity) is evacuated and then closed by the tap F. The glass receiver containing the mixture of chloroform and air is then joined on to the apparatus at M, and the other end of the receiver is connected by means of india-rubber tubing to a mercury reservoir, R. The flask C, half filled with water which has previously been heated nearly to boiling, is then connected to the apparatus, and the tap E being slightly opened, a gentle stream of air saturated with moisture by passing through C, is sucked through the platinum tube B, which is kept heated throughout the rest of the experiment. The taps K and H are now slightly opened and the mercury reservoir slowly raised, so forcing the contained mixture through the heated platinum tube. A constant stream of air is kept bubbling through C, thus preventing any of the mixture from passing that way. When the mercury has risen to M the tap H is closed, and a carefully-measured quantity of normal potash solution run into the flask through the funnel G. Finally, all traces of chloroform left in the apparatus are swept through by allowing air to pass through C until the flask is full. The apparatus is now allowed to stand until all the hydrochloric acid in A has been absorbed. The receiver is then removed and replaced by a flask containing distilled water, and the whole apparatus thoroughly washed out by drawing over the water by means of the pump. The contents of the flask are then washed out and made up to 250 c.cm. Several variations of this method were tried, but the method described above was the one finally adopted, as it avoids as far as possible all contact of the air and chloroform mixture with rubber and grease.

In the first experiments the amount of hydrochloric acid produced was measured by estimating the excess of potash, of which a known amount had been added, by titration against a standard solution of dilute sulphuric acid. The objection to this method lay in the difficulty in finding a sufficiently delicate indicator. Litmus was at

first tried, but, this not proving satisfactory, phenolphthalein was used, care being taken to get rid of all the carbon dioxide by boiling.

The following are some of the results obtained in experiments performed to test the degree of accuracy of this method:

Weight of $CHCl_3$ taken.	Weight of $CHCl_3$ found.	Percentage of $CHCl_3$ found.	Error on Weight of $CHCl_3$ taken.
Grams.	Grams.		
0.0115	0.01149	99.9	−0.00001
0.0100	0.00995	99.5	−0.00005
0.0057	0.00600	105.3	+0.00030
0.0091	0.00890	97.8	−0.00020
0.0081	0.00790	97.5	−0.00020
0.0074	0.00750	101.4	+0.00010
0.0080	0.00765	95.6	−0.00035

From the above results, it is seen that when the weight of chloroform to be estimated is about 0.01 gram, the percentage of chloroform found does not vary much, and that when smaller quantities are taken the error is never more than 5 per cent. The actual error on the weight of chloroform used was always in the fourth place of decimals and below 0.0004 gram. Such an error might be expected in the actual working of the above-described apparatus.

As considerable difficulties were experienced when titrating by means of an indicator, the method was changed in the last three experiments and the hydrochloric acid was determined by Volhard's process. Control experiments proved that greater accuracy and certainty could be obtained in this way. The solution containing the hydrochloric acid was acidified with nitric acid, a measured amount of N/20 $AgNO_3$ added, and the excess of silver titrated with N/100 KCNS, employing iron alum as an indicator. The accuracy of the method was tested in a series of experiments. In these a small bulb was taken in place of the receiver, and into it a small bottle containing a weighed amount of chloroform was dropped, the stopper of the bottle being loosened as it was inserted. The bulb was at once connected to the apparatus, and the chloroform gradually evaporated by heating the bulb while moist air was being drawn through the platinum tube.

The bulb was then emptied in the manner already described. In order to ensure complete vaporization of the chloroform, the bulb D is refilled with air by closing the tap E and lowering the mercury reservoir, the bulb D being at the same time gently heated. This air was then driven through the heated platinum tube. This process was repeated three times. The sample of chloroform employed was one obtained from Kahlbaum. The results of these control experiments are given in the following table:

Weight of $CHCl_3$ taken.	Weight of $CHCl_3$ found.	Amount found as Percentage of Amount taken.
0.0150	0.01560	104.0 per cent.
0.0094	0.00980	104.3 ,,
0.0103	0.01010	98.3 ,,
0.0066	0.00650	98.5 ,,
0.0078	0.00778	99.7 ,,
0.0098	0.00935	95.4 ,,
0.0084	0.00820	97.6 ,,
0.0076	0.00770	101.3 ,,

The results of these control experiments prove that even with such small amounts of chloroform as 0.01 gram, the estimation of which becomes necessary in experiments upon so small an animal as the cat, results may be obtained within 5 per cent. of error if care be taken in the analyses.

PROTOCOLS OF THE EXPERIMENTS.

As previously stated, all the experiments described in the present report refer to the first ten minutes of the administration of chloroform. In the first three the estimations were effected by titration with standard acid, using phenolphthalein as an indicator. In the last three the hydrochloric acid formed was estimated by Volhard's method.

Experiment 1.—July 14th, 1905. Temperature of room, 25° C. Barometer, 768.3 mm.:

11.50 ... Commence to administer chloroform.
11.51.30 ... First bag removed.
11.53 ... Second bag removed.
11.55 ... Third bag removed.
11.56.30 ... Fourth bag removed.
11.58.30 ... Fifth bag removed.
12.00.30 ... Sixth bag removed. Administration stopped.
12.01 ... Animal well under. There has been no struggling throughout. Respiration rapid. Pupils moderately dilated.

The results of the analyses are given in the following table:

TABLE I.—*The Anaesthetic Mixture contained 3 per Cent. of Chloroform by Volume.*

No.	Duration of Interval in Minutes.	Total Volume of Air Expired in Interval.	Volume of Air Expired per Minute.	Percentage of Chloroform in Air Expired.	Chloroform Absorbed per Minute.	
					Volume of Vapour in c.cm.	Weight in Grams.
		C.cm.	C.cm.			
1	1.5	1.245	830	1.00	8.30	0.0406
2	1.5	1.228	818	0.94	9.00	0.0438
3	2.0	662	341	0.82	4.10	0.0198
4	1.5	508	338	1.15	2.94	0.0146
5	2.0	880	440	1.35	2.84	0.0142
6	2.0	1.164	582	1.20	4.66	0.0211

Thus, in this experiment the animal inspired 5,707 c.cm. of the anaesthetic mixture in ten minutes and absorbed 0.2747 gram of chloroform.

Experiment 2.—July 19th, 1905. Temperature of room, 21° C. Barometer, 769.6 mm.

12.17 ... Commence to administer chloroform.
12.19 ... First bag removed.
12.20 ... Second bag removed.
12.21 ... Third bag removed. The respiration has been slow and deep from the commencement.
12.23 ... Fourth bag removed. The animal is beginning to go under.
12.25 ... Fifth bag removed.
12.27 ... Sixth bag removed. Administration stopped. The animal is well under and breathing regularly. The pupils are dilated. There is a slight lid reflex. Good deal of salivation.

TABLE II.—*The Anaesthetic Mixture contained 1.64 per Cent. of Chloroform by Volume.*

No.	Duration of Interval in Minutes.	Total Volume of Air Expired in the Interval.	Volume of Air Expired per Minute.	Percentage of Chloroform in Air Expired.	Chloroform Absorbed per Minute.	
					Volume of Vapour in c.cm.	Weight in Grams.
		c.cm.	c.cm.			
1	2	523	261.5	0.64	2.618	0.0131
2	1	513	513.0	0.12	7.777	0.0387
3	1	327	327.0	0.61	3.368	0.0168
4	2	598	299.0	0.71	2.780	0.0138
5	2	1,205	602.5	1.10	3.354	0.0172
6	2	1,787	893.5	1.34	2.630	0.0131

Hence, in this experiment the animal inspired 4,953 c.cm. of the anaesthetic mixture in ten minutes and absorbed 0.1699 gram of chloroform.

Experiment 3.—November 2nd, 1905. Temperature of room, 16.5° C. Barometer 755 mm. A small animal, rather thin, but otherwise apparently quite healthy.

3.5 ... Commenced to administer chloroform.
3.6 ... First bag removed.
3.7 ... Second bag removed. The breathing very shallow.
3.9 ... Third bag removed.
3.10 ... The respiration suddenly ceased during this interval. Attempts to recover the animal were unsuccessful.

The amount of air collected in bags 2 and 3 only sufficed to fill one receiver. The two samples were therefore combined for analysis.

TABLE III.—*The Anaesthetic Mixture contained 1.06 per Cent. of Chloroform Vapour.*

No.	Duration of Interval in Minutes.	Volume of Air Expired in the Interval.	Volume of Air Expired per Minute.	Percentage of Chloroform in Air Expired.	Chloroform Absorbed per Minute.	
					Volume of Vapour in c.cm.	Weight in Grams.
		c.cm.	c.cm.			
1	1	445	445	0.613	1.99	0.0099
2	3	465	155	0.180	1.36	0.0067

In this experiment the animal inspired 910 c.cm. of the anaesthetic mixture in four minutes and absorbed 0.030 gram of chloroform.

Experiment 4.—March 9th, 1906. Temperature of room, 11° C. Barometer, 769.8 mm. Weight of animal, 3.4 kilos.

12.25 ... Administration of chloroform commenced.
12.26 ... First bag removed.
12.27 ... Second bag removed.
12.29 ... The tap leading to the bag was not perfectly free; the sample was therefore discarded.
12.31 ... Third sample removed.
12.33 ... Fourth bag removed.
12.35 ... Fifth bag removed.
12.37 ... Sixth bag removed. Administration stopped. The animal is well under. No corneal reflex. Pupils moderately dilated. Respiration regular, fairly deep.
12.37.50 ... Lid reflex returned on right side.
12.38 ... Lid reflex returned on left side.
12.38.20 ... Conjunctival reflex on both sides.
12.39.45 ... Light reflex not very brisk. Pupils still widely dilated.
12.41.40 ... Light reflex normal. Pupils still dilated.

TABLE IV.—*The Anaesthetic Mixture contained 2.78 per Cent. of Chloroform by Volume.*

No.	Duration of Interval in Minutes.	Total Volume of Air Expired in the Interval.	Volume of Air Expired per Minute.	Percentage of Chloroform in Air Expired.	Chloroform Absorbed per Minute.	
					Volume of Vapour in c.cm.	Weight in Grams.
		c.cm.	c.cm.			
1	1	838	838.0	1.018	14.765	0.0787
2	1	553	553.0	0.519	12.103	0.0577
3	2	627	313.5	1.157	5.088	0.0202
4	2	948	474.0	1.500	6.067	0.0310
5	2	905	452.5	1.690	4.932	0.0252
6	2	747	373.5	1.447	4.979	0.0256

In the ten minutes of the experiment the animal inspired 4,618 c.cm. of the anaesthetic mixture and absorbed 0.3494 gram of chloroform.

Experiment 5.—March 19th, 1906. Temperature of room, 9° C. Barometer, 766 mm. Weight of cat, 3.55 kilos.

11.1 ... Commenced to administer chloroform.
11.2 ... First bag removed.
11.3 ... Second bag removed. Animal sneezing.
11.5 ... Third bag removed.
11.7 ... Fourth bag removed. The valves did not act quite perfectly during the collection of this sample.
11.8 ... Animal under.
11.9 ... Fifth bag removed.
11.11 ... Sixth bag removed. Administration stopped. No corneal reflex. Slight lid reflex. Pupils slightly dilated. There is only a light degree of anaesthesia.
11.12 ... Pupils contracting. Both react to light. No salivation. Animal fast coming round.
11.13 ... Corneal reflex brisk.
11.13.30 ... Animal has practically recovered. Can walk, but unsteadily.

TABLE V.—*The Anaesthetic Mixture contained 1.8 per Cent. of Chloroform Vapour.*

No.	Duration of Interval in Minutes.	Total Volume of Air Expired in the Interval.	Volume of Air Expired per Minute.	Percentage of Chloroform in Air Expired.	Chloroform Absorbed per Minute.	
					Volume of Vapour in c.cm.	Weight in Grams.
		c.cm.	c.cm.			
1	1	633	633.0	0.81	6.267	0.0336
2	1	623	623.0	0.57	7.663	0.0405
3	2	572	286.0	1.56	0.686	0.0042
4	2	678	339.0	1.58	0.746	0.0046
5	2	1,625	812.5	1.38	3.413	0.0202
6	2	1,552	776.0	1.68	0.931	0.0068

In the ten minutes of the experiment the animal inspired 5,683 c.cm. of the anaesthetic mixture and absorbed 0.1457 gram of chloroform.

Experiment 6.—March 26th, 1906. Temperature of room 7° C. Barometer, 756 mm. Weight of animal, 3.4 kilos.

11.9 ... Commence to administer chloroform.
11.10 ... First bag removed.
11.11 ... Second bag removed.
11.13 ... Third bag removed.
11.15 ... Fourth bag removed.
11.17 ... Fifth bag removed. Several deep respirations were taken just before this bag was changed.
11.19 ... Sixth bag removed. Administration stopped. No corneal reflex. Slight lid reflex. Pupils moderately dilated. Heart beating well.
11.19.30 ... Animal coming round. Pupils react to light.
11.20 ... No conjunctival reflex.
11.20.45 ... Pupils small.
11.20.55 ... Conjunctival reflex.
11.21.10 ... Pupils quite small.
11.21.20 ... Marked conjunctival reflex.
11.21.40 ... Animal can walk unsteadily.

TABLE VI.—*The Anaesthetic Mixture contained 2.3 per Cent. of Chloroform Vapour.*

No.	Duration of Interval in Minutes.	Total Volume of Air Expired in the Interval.	Volume of Air Expired per Minute.	Percentage of Chloroform in Air Expired.	Chloroform Absorbed per Minute.	
					Volume of Vapour in c.cm.	Weight in Grams.
		c.cm.	c.cm.			
1	1	538	538.0	0.918	7.435	0.0377
2	1	493	493.0	0.760	7.868	0.0400
3	2	512	256.0	0.928	3.512	0.0178
4	2	603	301.5	0.913	4.182	0.0212
5	2	750	375.0	0.819	5.554	0.0282
6	2	827	413.5	0.700	6.616	0.0321

In the ten minutes of the experiment the animal inspired 3,723 c.cm. of the anaesthetic mixture and absorbed 0.2753 gram of chloroform.

CONCLUSIONS.

An examination of the results obtained in these experiments brings out the following points:

As is well known, soon after the commencement of the administration the respirations become less frequent and shallower. In our experiments this is seen to commence within the first two minutes of the administration, and from that time the respiration remains depressed until about the sixth or eighth minute. From this time on it rapidly recovers, and at the end of the period of ten minutes the total lung ventilation may be considerably greater than in any other stage of the administration. This depression of the respiration varies greatly in different animals, and is also dependent upon the chloroform concentration of the mixture administered. Thus in Experiment 2, although the concentration of chloroform employed was only 1.64 per cent., the lung

ventilation fell very greatly. On the other hand, in Experiments 4, 5, and 6, which were all performed upon the same animal, this depression in the lung ventilation is but little marked, even though in one of the experiments the concentration of the chloroform used was as high as 2.78 per cent.

With regard to the rate at which the chloroform is absorbed, there is, in the first place, a rough correspondence to the changes in lung ventilation. Thus when the increase in lung ventilation takes place, there is always an increase in the rate of absorption of chloroform, but if the former increase is great the increase in the chloroform absorption is in a very much smaller proportion.

In the next place, if we examine the columns giving the percentage of chloroform in the samples of expired air, it is seen that during the first two minutes these figures are at their lowest point. It is very notable that the minimum is with one exception always reached in the second minute, and that this minimum may lie considerably below that recorded during the first minute. From that period the percentage tends to rise gradually, but in all the experiments there has still been a considerable difference between the percentage of the expired air at the end of the ten minutes during which the observations were continued and that of the mixture administered.

An examination of the figures giving the total amount of chloroform absorbed per minute shows that the amount is at its maximum during the second minute. During the first minute the amount in all cases, with the one exception of Experiment 4, is below that found for the second minute. After these intervals the amount absorbed falls off considerably, a fall which is commonly accompanied by the diminution in lung ventilation already referred to. But even though there may not be any great falling off in the lung ventilation, yet the diminution in the rate of chloroform absorption is always present. The amount absorbed again goes up when the lung ventilation increases, but usually only to a small degree. In all cases, moreover, it is seen that though the total lung ventilation may remain at a very high figure, the rate of chloroform absorption invariably falls off, and at the end of the experiment may be below the amount observed in any of the preceding periods.

The result obtained in Experiment 3 was very remarkable. The concentration of the chloroform vapour was lower than in any other of the series, and yet the animal took it very badly from the start. The depth of the respiration decreased almost at once, and at the end of the fourth minute respiration ceased. The heart was still beating, though feebly, and soon stopped. Attempts to recover the animal by massage of the heart and by artificial respiration were unavailing. The actual amount of chloroform absorbed during the whole experiment was extremely small (0.030 gram). The animal was poorly nourished, but apart from that nothing could be found *post mortem* to account for its extreme susceptibility to chloroform.

It will be seen from the protocols that the total quantities of chloroform absorbed during the ten minutes' induction have varied very considerably. Taken generally, the amount increases with the concentration of the chloroform in the anaesthetic mixture, but is by no means in proportion to that concentration.

	Percentage of Chloroform in Mixture.	Total Amount of Chloroform Absorbed in Grams.
Experiment 2	1.64	0.1699
Experiment 5	1.80	0.1457
Experiment 1	2.00	0.2747
Experiment 6	2.30	0.2753
Experiment 4	2.78	0.3494

This is clearly seen in the accompanying table, where the five experiments (Experiment 3 is omitted as being irregular) are arranged according to the strengths of chloroform used. Experiments 4, 5, and 6 are especially interesting in this connexion, since they were all performed upon the same animal. Thus, if we compare Experiments 5 and 4, we see that a 55 per cent. increase in the concentration of the chloroform administered led to a 140 per cent. increase in the total quantity absorbed during the first ten minutes of administration.

APPENDIX II.

REPORT ON THE ADMINISTRATION OF CHLOROFORM AND ON THE PROPORTION OF THE CHLOROFORM ADMINISTERED WHICH IS RETAINED BY THE PATIENT.

By A. VERNON HARCOURT, M.A., F.R.S.

In a report made to the Committee last year it was mentioned that the maximum dose of chloroform obtainable from the inhaler adopted by the Committee had been judged in some cases to be insufficient.

The maximum dose, which had fallen below 2 per cent., can readily be increased by using a rather larger bottle and beads adjusted to a rather higher temperature; and a suitable increase of dimensions and temperature is suggested in the report.

It has since been found that the makers of the bottles had latterly increased the size of the necks; and since with a larger inlet the force of the entering stream of air is diminished, and correspondingly the rate of the evaporation of chloroform, the actual deliveries fell considerably below the amounts intended. The remedy is very simple and should be adopted in all cases. If a small piece of brass tube, whose internal diameter is 11 mm. and its length 13 mm., is fixed inside the glass neck which serves as an inlet, the deliveries will be raised to the value indicated. By this means in an important detail, the regulation of the dimensions of the inlet tube, a degree of accuracy is secured which is beyond the reach of the glass-blower.

The two beads which serve to indicate the temperature of the chloroform should be in neutral equilibrium, one at 19° C. the other at 21° C.

With the present form of chloroform bottle when air is drawn through very slowly, as happens when less than half the total air inspired passes through the bottle, the proportion of chloroform vapour delivered is unduly large. When, for example, the index of the inhaler is set at 0.5, so that only a fourth of the inspired air passes through the bottle; this fourth is more highly charged with chloroform, and thus the delivery is generally 0.7 or 0.8 per cent. For the same reason shallow respiration tends to increase and deep respiration to diminish the proportion of chloroform vapour in the air delivered; but not to the same extent, if at all, in the air inspired. The difference is due to the effect of the dead space in the mask and in the mouth and throat, which is discussed subsequently. When breathing is shallow the proportion of air delivered by the inhaler to air already breathed and deprived of much of its chloroform is smaller, and thus the proportion of chloroform in the mixture actually inspired is reduced. An elongation of the cylindrical part of the bottle, together with some increase in its diameter, might be made which would render the deliveries more independent of the rate of passage of air; but there are obvious objections to alterations, and the simplest remedy, if it is ever desired to give so weak a dose as ½ per cent., is to set the index between 0.3 and 0.4.

Another cause tending to lower the maximum dose provided by the inhaler, besides that already explained, is imperfect fitting of the mask. At the end of an administration the pneumatic tube of the mask is sometimes found to be deflated. When this happens, packing round with wet cloths or otherwise is an imperfect remedy, also, unless the tube is blown tight, the compressibility of the air allows the hard framework of the mask to press unpleasantly upon the bones of the face. The tube of the mask should be filled with a fluid mobile but not compressible. Both disadvantages are got rid of by substituting water for air. A tap which is not airtight may still be watertight, and the leaking out of water is more

sure of detection and more easily remedied than the leaking out of air.

In regard to the methods of collecting and analysing mixtures of air and chloroform, administered and exhaled, some improvements have been made. The treatment of corks described in the last report has been tested and adopted. A better security against loss or mixture during the collection of samples, resulting from the continual and sometimes strong variations of pressure with alternate inspiration and expiration, has been provided by making the inlet tube of each flask dip into the water below. Flasks and corks have been improved, and the number increased, so that as many as twenty-four samples have been collected during one administration.

The analysis of these samples has become a matter of routine, requiring, however, some skill, and constant care and attention during a long day's work. Of this work the greater part has been done, and very well done, by Mr. A. D. Cowper, a chemical student of University College, London.

Four sets of collections and analyses have been made during the period of induction only. The chloroform was administered in each case by Dr. Dudley Buxton.

I. February 20th, 1906.

Index of Inhaler set at	Percentage of Chloroform in Air		Percentage of Chloroform administered which was	
	Inhaled.	Exhaled.	Breathed Out	Retained.
0.5	0.43*	0.37	72	28
1.0	0.95	0.48	51	49
1.6	1.66	1.08	63	37
2.0	2.04	1.28	63	37

Each percentage was administered for about five minutes.

* The chloroform was too warm, and the small evaporation, at less than 1 per cent., did not cool it down before the end of the collection.

II. February 21st. Ten pairs of flasks were filled, the samples being collected, at intervals of about six minutes, from the beginning to the end of the administration of chloroform.

Index of Inhaler set at	Percentage of Chloroform in Air		Percentage of Chloroform administered which was	
	Inhaled.	Exhaled.	Breathed Out.	Retained.
1.0	1.03	0.41	40	60
1.5	1.40	0.69	49	51
2.0	1.93	1.29	67	33
2.0	1.66	1.22	73	27
2.0	2.14	1.63	76	24
2.0	2.06	1.61	78	22
1.0	1.15	0.90	78	22
2.0	2.23	1.40	63	37†
1.6	1.51	1.02	71	29
0.5	0.30	0.22	72	28

* At this time, owing to the exigencies of the operation, the mask was twice removed for a little while and oxygen administered, the index being set at 2 after each administration. The increase in the proportion of chloroform retained is probably due to this.

The whole time occupied was sixty-two minutes; the quantity of chloroform used was 23 c.cm. (6¼ drachms); the average percentage administered over the whole time was 1.6. Of the chloroform administered one-third had been retained when administration ceased.

III. March 7th (operation on the leg). Twenty samples of the mixtures of air and chloroform inhaled and exhaled were collected. The results of the analyses are in some cases uncertain, owing to the table on which the flasks were placed being exposed now and then to full sunshine, and in two cases leakage occurred and the analysis failed. The induction and operation occupied fifty-seven minutes, and the samples were collected at intervals of about six minutes. The results were as follows:

Index of Inhaler set at	Percentage of Chloroform in Air		Percentage of Chloroform administered which was	
	Inhaled	Exhaled.	Breathed Out	Retained.
1.0	1.07	0.51	48	52
1.5		0.54	36	64
2.0	—	0.73	37	63
2.0	2.08	0.99	48	52
2.0	1.[illegible]	0.86	43	57
1.6	1.[illegible]	1.16	64	36
1.0	1.[illegible]	0.48	43	57
1.0	1.21	0.68	56	44
0.5	0.[illegible]	0.48	58	42
0.5	0.86	0.38	45	55

The proportion of the chloroform administered which was retained by the patient was larger than in other cases, and underwent little diminution as the administration went on, being 58 per cent. during the first half of the time and 47 per cent. during the second half.

IV. May 4th. The collection of samples at equal intervals and when the proportions of chloroform convenient for experimental purposes were being administered, has presented some difficulties, though, through the kind helpfulness of both the surgeon operating and the anaesthetist, much less than might have been expected. It was, however, thought desirable to make a series of collections and analyses during chloroform anaesthesia when no operation was being performed, partly for the above reason, but chiefly that the results due to anaesthesia might be observed when undisturbed by those of an operation going on simultaneously.

Dr. McCardie, a member of the Committee, volunteered in the cause of the inquiry, and chloroform was administered to him by Dr. Dudley Buxton. The arrangement of the inhaler on a stand, with a table carrying the flasks for collection of samples interposed between inhaler and mask, and attached to the outlet of the mask, was made as hitherto. During the administration and collection, which continued for one hour and ten minutes, the blood pressure was taken every two minutes by means of a sphygmomanometer by Mr. Lockhart Mummery. The results of these observations, stated summarily, were as follows: When 1 per cent. of chloroform was administered, the blood pressure sank, at first slowly, then more rapidly, from 130 mm. of mercury to 110. With 1.5 per cent., it fell in ten minutes to 90, and was steady at that point for seven minutes, at the end of which time the proportion of chloroform was lowered to 1 per cent.; thereupon the blood pressure rose again in about six minutes to 105, but did not rise, on the average, above this point during the next twenty-five minutes, though administration had ceased and consciousness returned.

Index of Inhaler set at	Percentage of Chloroform in Air		Percentage of Chloroform Administered which was	
	Inhaled.	Exhaled.	Breathed Out.	Retained.
0.5	0.76	0.48	63	37
1.0	1.19	*	—	—
1.0	1.15	0.67	58	42
1.0	1.13	0.66	58	42
1.0	1.31	0.74	56	44
1.5	1.52	*	—	—
1.5	1.34	0.75	56	44
1.5	1.50	1.19	79	21
1.	1.17	0.82	70	30
0.5	0.99	0.67	68	32
0.0	—	0.05†		—
0.0	—	0.05†		—
0.0		0.04		—
0.0		0.[illegible]		—

* Error in making analysis.

† From a consideration of the effect of the "dead space" which follows, it appears that if the mask had been removed chloroform would have been exhaled more quickly.

Collections of samples of the mixtures of air and chloroform administered and breathed out were made every five minutes during the administration, and the collection of samples of the breath was continued for twenty minutes afterwards.

The index of the inhaler was set first at 0.5, but after five minutes was moved on to 1, and kept at that point for twenty minutes. During ten minutes the patient was conscious, but five minutes later communications ceased; ten minutes later, the conjunctival reflex being still active, the index was moved from 1 to 1.5. After seven minutes the breathing was noisy, and there was no conjunctival reflex. It was ascertained that the patient was quite insensitive to a painful stimulus. Seven minutes later the dose was reduced to 1 per cent., and after another six minutes to 0.5. No reflex. Five minutes later, ait only. Still no reflex; but, soon after, the head moved purposively. Attempts to communicate were first successful thirteen minutes after the administration had ceased, and seven minutes later the patient could answer a question. Complete recovery soon followed.

It has been estimated that of air entering the mouth and nose in ordinary respiration, about two-thirds is "alveolar air," and subject to absorption of its constituent gases, while the other one-third remains in the "dead space" and is breathed out unchanged.[1]

The interposition of a further dead space cannot be avoided when a mask is used; the volume of this space, which must vary considerably with different forms of masks and faces, has been measured by filling a mask of average size with water and pressing down into it successively two average faces. In one case 36 drachms (128 c.cm.), in the other case 38 drachms (135 c.cm.), remained in the mask.

Thus the dead space between the lips and the walls of the mask may be taken as about 130 c.cm., and that within the body between the lips and the lungs as about 150 c.cm., total 280 c.cm. The volume of air breathed out is ordinarily about twice as great, and therefore at the end of an expiration the dead space is filled with air which has been in contact with the lungs, and when inspiration follows this air is drawn in again, together with a similar quantity of outside air, or, in the case of the administration of chloroform, air containing the dose delivered by the inhaler. The same air now fills the dead space, and forms the first portion of the air which on expiration passes through the outlet of the mask, the second portion only being air which has entered the lungs.

Accordingly the air delivered into the lungs is a mixture of air containing 1 per cent. or 2 per cent. of chloroform, as the case may be, with, roughly speaking, an equal volume of air containing so much of the above dose as the lungs have not absorbed; and the exhaled air which is collected and analysed has the same composition.

The actual proportion of chloroform in the air which enters and leaves the lungs is approximately calculable from the experimental data for any rate of breathing that may be measured or assumed. Taking, for convenience of calculation and as a fair average, 560 c.cm. to be the volume breathed in and out at each respiration, the percentage of chloroform in the air which entered the lungs (Table II) when 2 per cent. was being delivered from the inhaler was 1.4, and that in the air leaving the lungs was 0.9, showing that only 0.5, or about one-third of that offered, had been retained. If the actual volume respired was greater than 560 c.cm. the percentage of chloroform in the air entering the lungs was greater, and that in the air leaving the lungs was also greater.

In the opposite case, if the volume respired is less than twice the dead space, the mixture which reaches the lungs of the air and chloroform delivered by the inhaler with that which has been already breathed will contain a smaller proportion of chloroform; while that which passes out of the mask will contain a larger proportion. The mixture of air and chloroform passing out of the mask would in this case furnish no measure of the chloroform breathed out by the patient, for it would consist chiefly of a supply from the inhaler which had remained in the dead space and had never reached his lungs. It would be possible to gain more knowledge of the quantity of chloroform entering the lungs by measuring the volume of air breathed out at each expiration, but even with this datum only a very rough estimate could be formed, because when inspiration begins the gas which enters the mask and mouth and throat does not simply drive before it the gas which filled the space, but mixes with it in a degree varying with many circumstances, and also because chloroform is absorbed by moist surfaces and "there are no direct means of determining to what extent the air passages, and particularly the small bronchi, are capable of performing respiratory functions."[2]

The only facts, it would seem, which can be very nearly determined are the total quantity of chloroform used and the quantity which is retained. Measurements, such as have been made, of the relative amounts administered and sent out during corresponding periods at equal intervals throughout an administration, give approximately the fraction of the whole amount administered which has been sent out, and therefore by difference the fraction which has been retained; and the whole amount used being known, the absolute amount retained by the patient is known also. For example, in the second case of which an account has been given 23 c.cm. of chloroform were used. From the analyses it appears that, as a mean result, of 100 parts used, 66.7 parts passed out of the mask; hence 33.3, or one-third, being 7.67 c.cm. or 11.5 grams, of chloroform were retained by the patient at the end of the administration.

The question whether the total amount retained would after very prolonged anaesthesia reach, or nearly approach, a limit is still unsolved. The operative part of the chloroform retained seems to be small, since only a very small fraction has been breathed out when consciousness returns.

Is it possible that the greater part of the chloroform retained, and passing for a short time into the blood, is distributed throughout the body without contributing to the anaesthetic effect, and that only the small part which the blood holds at any time in solution, and which may not increase though chloroform is accumulating in the body, acts upon the brain and other nerve centres?

"I am conscious that even to state a question in these matters is to venture beyond my knowledge. The only service I have been able to render the Committee is to arrange methods of collecting samples of air and chloroform, of keeping them unchanged while waiting for analysis, and of determining the proportion of chloroform. These methods I have now perfected as far as I am able.

REFERENCES.

[1] *The Regulation of the Lung Ventilation.* By J. S. Haldane, M.D., F.R.S., and J. G. Priestley, B.A., *Journal of Physiology*, vol. xxxii, p. 240. [2] Loc cit.

APPENDIX III.

ON THE EFFECT OF CHLOROFORM IN CONJUNCTION WITH CARBONIC DIOXIDE ON CARDIAC AND OTHER MUSCLE.

BY

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WE have entered on a question early raised at the Committee by Dr. Dudley Buxton, namely, the quantitative estimation of reinforcement of the depressant action of chloroform upon the circulation, traceable to concomitant conditions tending toward asphyxia. We have not yet arrived at a point at which our work allows of more than a very brief statement of results, and the results are still wanting control observations in several respects.

We have attempted to compare the effect upon the isolated heart of perfusing it with Ringer's salt solution oxygenated by bubbling oxygen through it, and of Ringer's solution after air had been removed by boiling and the solution shaken up and delivered under carbonic dioxide gas, washed from impurities. We found that when perfused with the latter saline solution the heart's beat became enfeebled and slowed, whereas with the former it, as is well known, continues to beat well for several hours.

When chloroform is administered in concentrations not sufficient to abolish the cardiac beat, although depressing it, the depressant action has been more marked in the boiled Ringer solution charged with carbonic dioxide than in the oxygenated Ringer. Thus with 100 mg. chloroform per litre the depression of heart-beat has been 90 per cent. in the latter solution as against complete suppression of beat in the former. Again, with 50 mg. chloroform per litre the depression of beat has been 80 per cent.

in the former solution as against 45 per cent. in the latter. Nor does the depression pass off so rapidly after administration of chloroform in the former solution as it does after exhibition of chloroform in the oxygenated.

As in our previous work, so also in the past few months, we have made observations comparing the sensitivity of the heart to chloroform with the sensitivity of the skeletal and vascular muscles also to the drug; and have included in these observations a number of perfusions with boiled Ringer charged with carbonic dioxide. The striking difference between the effect of chloroform upon the heart and on skeletal muscle has been instanced by the slight stimulant effect of the drug in a concentration of 300 mg. per litre without depression in the case of skeletal muscle when perfused continuously for eight minutes (Fig. 1). The cardiac muscle is rapidly paralysed by chloroform, perfused at that concentration, and in little over ninety seconds gives no evidence of beat. Further, in this concentration the chloroform solution exerts no obvious effect in our experiments upon the flow of the perfused fluid through the blood vessels of the limb. The preparation was the hind limb of the cat, and the gastrocnemius was the muscle taken. Change in the rate of flow through the limb vessels first has become recognizable in our experiments with solutions of a concentration of 500 mg. chloroform per litre. The effect produced is then slight diminution of outflow—constriction of the path. This may amount to 5 per cent. of the flow. This slight decrease of outflow where the perfusion with the chloroform solution has been continued for many minutes, has lasted for several minutes, and has not been followed by any after-increase.

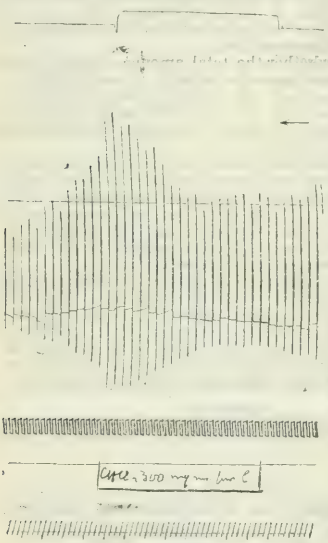


Fig. 1.—Hind limb of cat. Perfused with Locke's solution. Contractions of gastrocnemius muscle stimulated directly with break induction shocks at intervals of 25 seconds. The record shows the effect of chloroform at a strength 0·05 per cent (or 500 milligrams per litre, for 8 minutes. The contractions remain unaltered until the fourth minute, when there is a gradual increase in their height, which continues until the chloroform is taken off. The flow remains practically unaltered. The tracings read from right to left unless otherwise indicated. The top line indicates the pressure under which the perfusion fluid was delivered at the entrance of the artery of the limb. The lowest is the time line, marking 2-second intervals. The next line above signals the beginning and ending of chloroform perfusion; while the line immediately below the muscle tracing is the record of the Schäfer "tilter" by which the rate of flow is measured.

With higher concentrations of chloroform there is a first transient diminution of flow through, and this may last a couple of minutes; this diminution is followed by an increased flow through the limbs, which lasts as long as the chloroform solution is administered, at least within the compass of the time for which the administration has lasted in our experiments—for instance, twenty minutes. After replacement of the chloroform saline by ordinary oxygenated Ringer's saline the flow through the blood vessels returns to its previous rate (Fig. 2). The stronger the chloroform solution within the range of strengths we have employed the shorter the duration of the initial decrease of flow through the limb vessels.

The increase in the rate of the flow through is considerable. For instance, in the experiment of which Fig. 2 is the record, the increase in the flow produced by administration of chloroform in a concentration of 1,000 mg. per litre of Ringer's fluid is 33 per cent. of the initial flow. The increase of flow is generally accompanied by a diminution in the height of the contractions of the perfused skeletal muscle under excitation through its nerve. The stimulus applied to the nerve has been a single-break induction shock. The diminution of the contraction of the skeletal muscle generally begins later than the commencement of the increase of the flow through the blood vessels.

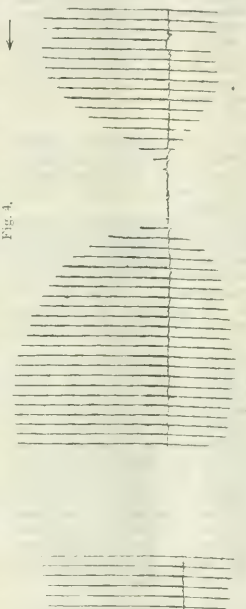


Fig. 3.

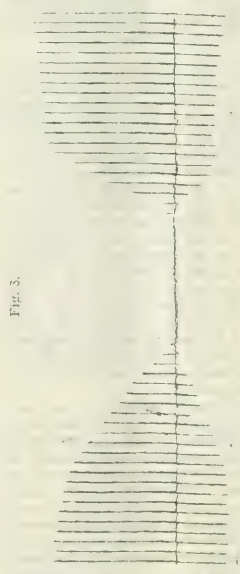


Fig. 4.

Figs. 3 and 4.—Hind limb of cat. Perfused with Ringer's solution. Contractions of gastrocnemius muscle stimulated through the nerve with break induction shocks at intervals of 15 seconds. Time in seconds. In the case of Fig. 4 the effect of chloroform at 1,000 milligrams per litre (0·15 per cent.) in oxygenated Ringer, delivered under pressure as in former experiments, and in the other case (Fig. 3) a like strength of chloroform in Ringer's solution, in which the oxygen is replaced by carbon dioxide, and delivered under pressure of that gas. It will be noticed that with the CO_2 containing mixture, the contractions are abolished rather sooner than with the O_2 mixture, and recovery, in the former case is longer delayed. In both cases the rate of flow is first slightly diminished and then increased to above the normal, the diminution amounting in the CO_2 observation to 17 per cent., and in the oxygen experiments to 9 per cent.

When the chloroform in measured concentration is administered to the limb by perfusion, not in oxygenated Ringer's fluid but in Ringer's fluid boiled and then shaken with and delivered under carbonic dioxide, the depressant effect is distinctly increased. In the experiment of which Figs. 3 and 4 contain records it will be noticed that the

contractions of the skeletal muscle are abolished rather earlier with the carbonic dioxide containing fluid than with the oxygenated, and that after discontinuance of the administration of the chloroform the recovery is longer delayed in the case of the saline that had been boiled and then charged with carbonic dioxide. Also with this latter, the effect on the blood vessels, as evidenced by the flow through, is greater.

Our observations on the heart and on the skeletal muscle and on the blood vessels of the limb do therefore, as far as they have gone, agree with one another in indicating an aggravation of the effect of chloroform in saline solution on these structures when the chloroform at these concentrations is administered in unoxygenated saline solution containing carbonic dioxide instead of oxygenated saline.

The observations also indicate, as has been noted previously, a greater susceptibility of the heart than of the blood vessels of the limb and of the skeletal muscles of the limb to the action of chloroform. The heart is affected by much smaller concentrations of chloroform than are the blood vessels of the limb or the skeletal muscles of the limb. The contractions of the skeletal muscle have been in these observations produced in most cases indirectly by stimulation of the nerve-trunk many centimetres distant from the muscle. The observations therefore incidentally showed that the susceptibility of the intramuscular nerve-twigs and motor nerve-endings to the action of the chloroform is distinctly less than might have been expected. Their susceptibility to chloroform seems much less than is that of the heart-wall itself.

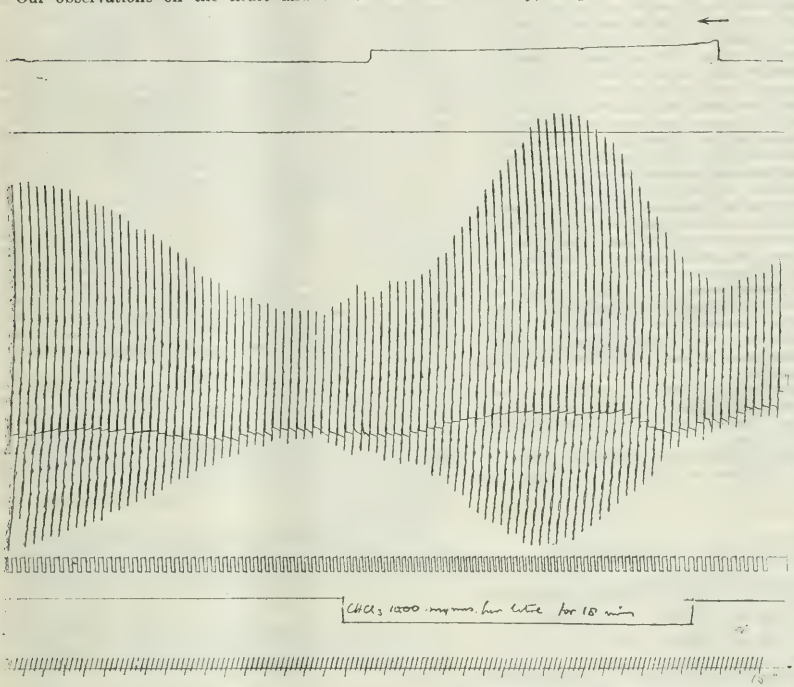


Fig. 2.—Hind limb of cat. Perfused with Locke's solution. Contractions of gastrocnemius muscle, stimulated with break induction shocks at intervals of 25 seconds. Effect of chloroform at 1,000 milligrams per litre (0.1 per cent.) for 18 minutes. There is a gradual but marked rise in the height of contraction, which is continued for about 7 minutes. The contractions then decline to their normal height, which they have regained by the end of 18 minutes, when the chloroform is taken off. The tracing to be read as in Fig. 1. During the course of the chloroform administration the rate of flow was increased by 35 per cent.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

THE OPSONIC INDEX IN THE DIAGNOSIS OF TUBERCULOSIS.

DR. DODDS's memorandum in the BRITISH MEDICAL JOURNAL of July 7th, p. 22, calls attention to the important part which the opsonic index may play in the early diagnosis of the more obscure forms of microbic diseases. The practically constant occurrence of a negative phase observed to follow therapeutic inoculations of bacterial suspensions suggests the obvious possibility of its application to diagnosis. That this method has not already been developed is probably to be attributed to the fact that our fundamental knowledge of the actions and nature of opsonins and the phenomena consequent on a bacterial inoculation is so limited and incomplete. Further data are required as to the result of such inoculations in healthy individuals.

With a view to elucidating this question we have been engaged during the past six months in making systematic blood examinations of over fifty patients and healthy individuals before and after inoculations with various "vaccines." Our work so far has shown that the opsonic index *per se* is inadequate as a constant reliable test; that observations on heated serums also give inconstant results; and, further, that a very extended series of observations is necessary on cases that admit of verification of the diagnosis.

In our opinion the special points which require investigation are: (1) The most suitable dose of "vaccine"; (2) the periods at which estimations require to be made after inoculation; (3) the nature and effects of special features of disease in modifying the results obtained; and (4) the action of repeated inoculations on healthy individuals.

IAN STRUTHERS STEWART, M.D.Edin.;
L. C. PEEL RITCHIE, Ch.M.
Surgical Laboratory, University of Edinburgh.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

SOUTH MIDLAND BRANCH.

Northampton, Thursday, June 21st.

H. CROPLEY, F.R.C.S., President, in the Chair.

Elementary Education.—The PRESIDENT (Mr. Cropley) gave an address on elementary education. In his opinion children were sent to school too young; 5 or even 6 years old was quite early enough, and previous to that age the

child should be taught on the kindergarten system, which had been adopted in some local schools with great success. Special stress was laid on the careful examination and treatment of the eyes and teeth, and the general condition of the children should be subjected to periodical examination.

Gastric Surgery.—Mr. Mansell Moullin (London) gave an address on gastric surgery. He spoke first of the present hopeless treatment of cancer of the stomach; by the time the diagnosis was made the opportunity for operation had passed. Not until physicians urged patients with intractable dyspepsia, or with symptoms pointing to chronic ulceration to submit to exploratory operation, would the results show any improvement. With regard to acute simple ulcer of the stomach, he maintained that the mortality from this disease was much higher than was generally supposed. The records of the London Hospital showed that it was as high as 18 per cent. In addition to this must be taken into account the frequency of relapses. Rest was what the ulcerated stomach required. This was given very inefficiently by any medical measures when compared with a successful gastro-enterostomy. Speaking of haematemesis from acute ulcers, while he admitted that it rarely proved fatal, he did not understand why it should not be treated on general surgical principles. He recognized that in a small minority were some cases where there was a general oozing and no ulceration, but in all cases he insisted that when the stomach was opened the bleeding stopped immediately. All remarks about acute ulcer applied with much greater force to chronic ulceration. In these cases a gastro-jejunostomy was the only rational treatment.

Discussion.—There was a good discussion on both addresses by the members present, the physician's point of view in gastric diseases being especially strongly defended by Dr. Buszard.

Exhibition of Cases.—The meeting terminated with an exhibition of cases by the members of the honorary staff of the hospital.

REPORTS OF SOCIETIES

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Dr. J. O. Affleck, President, in the Chair.

Wednesday, July 4th, 1906.

Perforated Gastric Ulcer.

Dr. G. Keppie Paterson read notes of a case of perforated gastric ulcer in a boy aged 12 years. He had suffered intermittently from pain after taking food for twelve days, and was then suddenly seized with very severe pain in the abdomen. On examination he was found collapsed, the pulse slow, abdomen rigid, and liver dullness present. On partial recovery he complained of severe pain in the abdomen and near the left clavicle. On operation by Mr. Caird, eighteen hours after the rupture, a perforated gastric ulcer was found on the anterior wall of the stomach, about two inches from the middle of the lesser curvature. The patient made a good recovery, but afterwards suffered from an attack of double pneumonia which almost proved fatal. The author gave an abstract of 14 other cases of ruptured gastric ulcer in children. The lesion in all was discovered on *post mortem* examinations. He could only find one recorded case in which the rupture had been discovered during life, in a boy aged 13 years.

Mr. Alexander Miles gave an account of 46 cases of *Perforated Gastric and Duodenal Ulcers* in his own practice. Perforation, he thought, occurred almost as frequently in males as in females, but the latter took place usually at an earlier age. Most of his patients had suffered from indigestion, which was most pronounced in the duodenal cases. In some, where the lesion occurred in the stomach, all symptoms of indigestion had disappeared before perforation. Haematemesis was rarely met with, but in a considerable number premonitory symptoms were present. Analysis of the cases failed to reveal the possible factors which determined perforation. The rupture occurred on the anterior surface of the stomach in 33 cases, on the posterior aspect in only 3. Of the total, 4 were at the cardiac end, 14 affected the body of the viscus, and 18 were situated towards the pyloric end. In nearly all cases the lesions lay towards the lesser curvature. In cases of multiple perforation he had only had one. The size of the openings varied from that of a pin's head to that of a threepenny-piece. All the patients died in whose cases the perforations were large, but this was only a coincidence. The clinical features noted were suddenness of onset, intense pain, marked abdominal rigidity, and shock. Vomiting occurred in about one-third of all the cases. The information derived by percussion of the abdomen was unreliable. Early absence or impairment of the liver dullness was suggestive of perforation; its disappearance later on was of no diagnostic value. Its persistence did not negative the diagnosis of perforation. The area of maximum pain and of tenderness to pressure formed a guide to the seat of perforation, and to the site of incision. The reaction which came on one to four hours after the initial shock was often very deceptive, and often led to fatal delay. It should be noted that during this period the pulse became more rapid and weaker. He was strongly opposed to the administration of opium for the relief of the initial pain. In his series the drug was not given in 22 cases, and of those 17 recovered. In 12 cases it was employed, and of those 10 died. He advocated early operation, and employed a vertical incision passing between the fibres of the rectus muscle and usually placed over the site of greatest tenderness. As a rule, he washed out the abdomen, a special opening being made above the pubes for the cleansing of the pelvis. He advocated raising the head of the bed to assist drainage, and the free use of saline injections.

Mr. Cathcart, in cases of perforation, had seen the stomach contract powerfully, and believed that most probably this was the cause of the intense pain experienced by the patients. He did not agree with Mr. Miles as to the disadvantage of employing opium. Given during the acute stages in small doses it relieved the agony, and the effects were of such short duration that he did not believe harm could be done by its administration.

Mr. Cotterill emphasized the importance of considering the symptoms of onset of perforation, and not being misled by the subsequent amelioration of the symptoms. Pyloric spasm might closely simulate gastric perforation.

Mr. Stiles also believed that pyloric spasm might closely simulate the symptoms of perforation of the stomach, but in the former case vomiting was more common and persistent, and had no effect on the pulse-rate. He believed in operating in all cases of a doubtful nature.

Medico-Psychological Association of Great Britain and Ireland.—We are asked to correct the report of Dr. W. R. Dawson's paper on lunacy administration in Ireland, which appeared in the British Medical Journal of June 16th, page 1412. Dr. Dawson wishes it to be understood that it was not the Public Bodies Order that placed medical superintendents in a subsidiary position to that of lay officers. The statement he wished to make was that the Committee of the Richmond Asylum alleged that, on condition of its carrying out the wishes of the Local Government Board according to that Order, the Local Government Board made certain concessions, one of which was alleged to be the empowering of the Committee to delegate to the chief clerk certain duties of the resident medical superintendent in such a way as to remove him from under the control of the resident medical superintendent, and to make him (the chief clerk) the chief officer. It does not appear that the Local Government Board admits having made any such concession; at all events it does not think so now, and the controversy is between the Local Government Board, who is really supporting the resident medical superintendent's authority, and the Asylum Committee, which is seeking to reduce it.

The late Mr. Francis William Webb of Bournemouth, and formerly of Crewe, whose will has now been proved, left £10,000 for a nursing institution at Crewe, £2,000 to University College Hospital for the endowment of a bed, £1,000 each to the Manchester Royal Eye Hospital, the Devonshire Hospital at Buxton, and the Men's Convalescent Home at Ilkley; and £500 to the Royal Albert Asylum for Idiots at Lancaster.

REVIEWS.

EHRLICH'S DOCTRINE OF IMMUNITY.

THE German edition of Professor EHRLICH'S *Collected Studies on Immunity*[1] was published in Germany in 1904, and the English translation by Dr. CHARLES BOLDUAN, has been brought up to date by the addition of three chapters dealing with the most important work on the subject which has appeared since the publication of the German edition. With the exception of a short chapter at the end, written by Professor Ehrlich specially for Dr. Bolduan's translation, the forty-one articles of which the book is composed are a collection of separate studies on one or other of the problems of immunity which have already been published independently. They are all written from the standpoint of Ehrlich's "side-chain" theory, and serve to show the ways in which this doctrine has been elaborated, corroborated, and vindicated against hostile criticism. The articles are highly technical, and most of them are of a controversial nature; their collection into one volume serves the useful purpose of enabling the student who is working on these subjects to follow step by step the attitude which Ehrlich and his school have adopted towards the many difficulties and complications which arise in the study of immunity. To borrow a simile of Ehrlich's, these studies are comparable to a succession of moves in a game of chess. Confident that the validity of his theory has now been thoroughly established, Ehrlich considers that his present position "is like that of a chess-player who, even though his game is won, is forced by the obstinacy of his opponent to carry it on move by move until the final 'mate.'" The interest of some of the latest "moves" on the chess-board centres round the opposition between the physico-chemical theories of Arrhenius and Madsen, and the stereo-chemical conception of the biological processes on which Ehrlich bases his theory of immunity. Arrhenius and Madsen regard the reaction between toxin and antitoxin as similar to the reaction between a weak acid and a weak base (ammonia and boric acid), and interpret the phenomena observed in the neutralization of toxins and antitoxins on the basis of the assumption that we are dealing with an interaction between simple substances of weak affinities. Following up this view, they endeavour to explain the toxin-antitoxin reaction by mathematical formulae expressing the conditions determining the equilibrium between two simple substances which have weak affinities for one another, and are capable of a reversible reaction. Ehrlich regards the reaction in question as much more complicated, and refuses to admit that it can be adequately explained as a phenomenon of incomplete neutralization. The formulae devised by Arrhenius and Madsen, in his opinion, "explain absolutely nothing; even in particularly favourable cases they can merely represent certain experimental results in the form of interpolation formulae." Nor does he consider that any advantage has been gained by the attempts to utilize recent discoveries about the chemistry of colloids in explanation of the immunity reaction; they have done nothing to disturb the sound foundation on the principles of synthetic chemistry upon which his receptor theory in constructed. Similarly with other "obstinate" opponents who refuse to admit that they are "mated" on the chess-board of immunity, to every fresh argument or experiment which they bring forward Ehrlich shows that he can call "check," and is confident that, sooner or later, they will be compelled to acknowledge their defeat.

One can understand the keen interest which such controversies arouse, and we ought never to forget that these complicated discussions as to laboratory technicalities have a practical as well as a scientific importance, since a deeper insight into the nature of immunity cannot fail to increase the efficiency of the treatment and prevention of disease. But now that Ehrlich feels secure of his position, we think it would be an advantage if he would identify himself less closely with the storm and stress of scientific polemics, and would adopt more of the dispassionate air of the *grand maître* who can survey his kingdom with the contentment of undisputed ownership. The scientific attitude which we suggest is excellently exemplified by Metchnikoff in his work on *Immunity in Infective Diseases*. Metchnikoff never seems distressed or annoyed by the people who disagree with him; on the contrary, he seems to take a pleasure in showing how far the views of his opponents are really in substantial agreement with his own; when he is compelled to disagree with them he states his reasons, clearly and categorically, but with no more antagonism than is necessary; and, whilst evincing a thoroughly sincere desire to do justice to his rivals, he has a way of dispensing his criticisms from the judicial tribunal, without descending into the arena of the disputants. The consequence is that Metchnikoff develops his views with a wonderful lucidity, which enables us to follow him readily through the most intricate details, and to recognize throughout his argument the coherent grasp of a master mind. In Ehrlich, too, we see the same creative power and masterly vigour, and we appreciate his keen desire to challenge the fierce light of criticism. He shows us, in his *Collected Studies*, how his battles have been won. But after conquest there comes the duty of organization, and we hope that in a future work Ehrlich will systematize the whole of our knowledge on the subject of immunity under the dominating guidance of his "receptor" theory, treating this theory not as a mere working hypothesis which is still on its trial, but as a substantiated law by which the value of all experimental evidence brought forward by the investigators of this subject can be reliably estimated. Ehrlich seems very confident that he has "come into his kingdom," and we think that there are strong reasons in support of the validity of his claim, but we are getting somewhat overburdened with the accumulation of scientific onslaughts upon minor aspirants which he and his collaborators continue to contribute to periodical literature. When Ehrlich has welded his doctrine of receptors into a systematic whole with the same firmness of grasp which Metchnikoff displays in his treatment of phagocytosis, we shall be better able to appreciate his position as a leader of scientific thought.

[1] *Collected Studies on Immunity.* By Professor Paul Ehrlich and by his collaborators. Translated by Dr. Charles Bolduan. First Edition. New York: John Wiley and Sons; London: Chapman and Hall. 1906. (Demy 8vo, pp. 597. 25s. 6d.)

DISEASES OF CHILDREN.

So well-known an authority on the surgical diseases of children as Professor KIRMISSON might be expected to produce a useful book on the subject, and in his *Précis*[2] practitioners who seek for sound advice, the outcome of long and wide experience, will not be disappointed. The book is not, and does not claim to be, an elaborate treatise on the subject; the author states in his preface that his wish was to produce a work which would be of practical use to students and practitioners, leaving out all that is purely theoretical, in order to insist on the clinically indispensable facts in symptoms, diagnosis, and treatment. He divides the surgical diseases of infancy into four classes, to each of which a book is devoted, namely, congenital, traumatic, inflammatory and nutritional, neoplasms and tumours. As was to be expected from an orthopaedist of Dr. Kirmisson's eminence, Book I contains a great deal of very sound advice; but we hardly think that the pages devoted to the treatment of congenital club-foot give quite a true impression of the difficulties of the subject or of the radical operations for its relief. On the subject of cleft palate the instructions are clear and good, and it is interesting to note, in view of recent discussions on this side of the Channel, that the author does not advise operation before the age of 4 years. The chapter on hernia is full, but it is strange that in a practical manual no illustrations of the operation for radical cure are given, although there are six figures illustrating its pathological anatomy. On congenital dislocation of the hip Dr. Kirmisson is a recognized and trustworthy authority whose views as to the needlessness of violent measures, and the results to be expected may safely be accepted. The chapters on fractures and injuries of joints and epiphyses, especially of the elbow, are good, as are also the parts of the book dealing with tuberculous disease. Professor Kirmisson holds strong views as to the small practical value of tendon transplantation for infantile paralysis, an operation which has been cried up on the other side of the Rhine in a manner that is not very creditable to the

[2] *Précis de Chirurgie Infantile.* Par E. Kirmisson, Professeur de clinique infantile à la Faculté de Paris. Paris: Masson and Co., 1906. (Crown 8vo, pp. 802; 462 illustrations. Fr.12.)

judgement of some surgeons. The print of the book is clear and the illustrations good, but it has one very great defect, which we hope will be remedied in the next edition—there is no index. We would also point out that Lund of Manchester, who is referred to on p. 241, was named Edward and not Otto.

Dr. Barrett's book, *The Management of Children*,[3] would have been more likely to prove of service to mothers and nurses had he restricted its size to a third of its present bulk. In the main the work consists of advice as to feeding and the general management of children, coupled with much of the material usually found in books of first aid, to which has been added a treatise on medicine written in popular style, and occupying more than four hundred pages. Now, even when undertaken with the best motives, such a treatise lays the writer open to the charge of parading his professional knowledge before the eyes of the laity. Moreover, even when professional aid is totally inaccessible, it is only in the rarest instances that such descriptions of diseases and their treatment could be of benefit to the readers. Of what advantage, for instance, could it be to mothers or nurses to read that, in boys of 14 and upward, a varicocele feels, "as has been said more than once to me," "like a bunch of worms" coiled up together? Numerous other instances could be quoted where the question of emergency could never arrive, and where the information is superfluous and open to question. Apart from such blemishes, the matter seems generally correct enough, if containing little that is original.

MUCOUS MEMBRANES.

Mr. Stuart-Low's short essay on *Mucous Membranes*,[4] including some suggestions on mucin and malignancy, has, we are informed in the preface, grown out of a lecture delivered at the Polyclinic. The author's main thesis is, if we rightly understand him, that healthy mucus is a natural protection to mucous surfaces, which are liable to be affected by disease in proportion to the absence of provision for its supply, and that pathological diminution of the secretion is an important forerunner of disease. He believes this not only of diseases of the nose, throat, and ear, but all regions lined by mucous membrane; and in the section headed mucin and malignancy, proposes it as an explanation of the occurrence of cancer. He says: "I have now carefully observed for years a large number of cases of malignant disease, and have never yet seen one that was not decidedly hypomyxiatous, and that had not been so for years previously." On the same page he states that in old age the intercellular mucinoid material undergoes a wasting change, and thus favours the onset of carcinoma; and on the next page he supports his argument by stating that malignant disease of the oesophagus is common in the upper third where there are few mucous structures, very common in the middle third where there are practically none, and least seen in the lower third, where mucous glands are numerous. This suggestion, like that of the relation of cancer to the eating of meat or tomatoes, cannot easily be disproved, but the burden of proof rests with those who advance the proposition. Atrophic rhinitis and pharyngitis are common conditions, just as the habit of meat eating is fairly general. The rest of the argument is not convincing, because it is not in old age when the intercellular material wastes and the body shrinks that cancer is most likely to occur. Nor can the argument drawn from the localization of cancer in the oesophagus be allowed to rest on facts universally admitted. On the contrary, it is generally held that the disease is least common in the middle third. One recent article on the subject states that the only point upon which all authorities are agreed is that only 25 per cent. of the cases occur in that situation. The author does not strengthen his essay by introducing statements about other organs in the course of his description of pathological conditions with which his practice is most familiar; such passages have all the appearance of having been interpolated, and break the continuity of the text. About half the book is devoted to the anatomical and physiological discussion in the Section for Laryngology and Rhinology at the German Congress for Science and Medicine. This is highly technical and controversial, and can hardly be instructive to the ordinary medical reader, for whom we presume this book is intended. What, for instance, would he make of such a passage as the following, in which Hajek is speaking of the mucous glands of the nose: "They are developed in this way, that the substitution of the 'beaker cells' through the substitution cells does not occur completely as the mucous transformation progresses"? The chief interest of the book lies in the suggestion that many cases of disease of the nose and upper air passages are due to want of mucin, and can be cured by its local application in the form of the mucin tablets dissolved in warm water.

[3] *The Management of Children.* A Book for Mothers and Nurses. By Howard Barrett, M.R.C.S., late Surgeon to the Poplar Hospital, London: George Routledge and Sons. 1906. (Crown 8vo, pp. 653. 5s.)

[4] *Mucous Membranes, Normal and Abnormal, including Mucin and Malignancy.* By William Stuart-Low, F.R.C.S. London: Baillière, Tindall, and Cox. 1905. (Crown 8vo, pp. 69. 2s. 6d.)

NOTES ON BOOKS.

There is already attached a history of some interest to the twenty-fourth annual issue of the *Medical Annual* for 1906.[5] The total destruction of the *Medical Annual* offices by fire at a time when a large part of the present work was already in type was, indeed, a calamity calling for sympathy; but, as authority has it, troubles do not come singly, and when the strain of repairing the former havoc was at its greatest a fatal railway accident deprived the publishers of the help of the colleague who was mainly concerned in passing the work through the press. The editor acknowledges the kind help of the contributors to the volume in rewriting their destroyed MSS. thus enabling every part of the work to be replaced as originally prepared. Under these circumstances the volume deserves and receives not only the usual approval and welcome, but admiration; for, though by careful search perhaps here and there an indication of this stress might be found in the text—for example, there is a prescription on page 257 which is not worded in its latinity according to accepted usage—such oversights seem to be like the proverbial raisins in the proverbial plum-duff. It seems worthy of recollection that this *Annual* is not only an epitome of current work, but also a collection of short monographs by experts, who bring the results of their thought and experience up to the date of to-day.

The Girls' School Year Book (Public Schools)[6] has been prepared by the Editor of *The Public Schools Year Book*, to provide a record of matters of interest to parents, school mistresses, and girls in connexion with secondary education. The first part contains particulars of the leading girls' public schools in Great Britain, arranged in alphabetical order of towns; the second part contains particulars of various careers open to women who desire to earn their own living.

Volume XVII of the *Transactions of the American Pediatric Society*,[7] containing the report of the annual meeting last year, has been issued recently; it contains a portrait and brief obituary notice of Dr. Walter S. Christopher, Professor of Pediatrics in the College of Physicians and Surgeons in Chicago, who was President of the Society in 1902. He had given particular attention to the study of children in Chicago public schools, and his work in this direction led to the establishment under his direct supervision of a department of child study in the schools.

Dr. Wilcox's book on *Genito-Urinary and Venereal Diseases*[8] is vol. xiii of Saunders's "Question Compends," and the whole of the matter is arranged in the form of questions and answers. The book will probably be of service to those who favour this not always satisfactory method of imparting knowledge, but it might be improved by careful revision. For instance, pemphigus, we think, can hardly be said to be "common" in inherited syphilis, and 1 oz. of calomel is certainly not a usual or desirable quantity of mercury to use for fumigation. The soft chancre again—or "chancroid," as it is called here though described as always a local disease, is included under the heading of Syphilis.

[5] *The Medical Annual.* Bristol: John Wright and Co. 1906. (Cr. 8vo, pp. 641. 7s. 6d.)

[6] *The Girls' School Year Book (Public Schools).* London: Swan Sonnenschein, and Co., Limited. 1906. (Cr. 8vo, pp. 471. 2s. 6d.)

[7] New York: E. B. Treat and Co. 1906. (8vo, pp. 228.)

[8] *Essentials of Genito-Urinary and Venereal Diseases.* By Starling S. Wilcox, M.D. Philadelphia and London: W. B. Saunders Company. 1906. (Cr. 8vo, pp. 313, illustrated. 4s.)



Royal Victoria Infirmary, Newcastle-on-Tyne. Birdseye View

THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE.

The medical and surgical staff of the Royal Infirmary of Newcastle-on-Tyne have been for a long while keenly anticipating the occupation by themselves and their patients of the new Royal Victoria Infirmary, opened by His Majesty the King on July 11th. They will no doubt feel certain pangs of regret in vacating the old buildings on the Forth Banks, where the original infirmary—which has been added to and patched from time to time—was built in 1751, for its associations have been happy, its memories are valued, and the old familiar walls, though antiquated and grimy, compel response to their pathetic cry,—

> Be kind to my remains, and O defend,
> Against your judgement, your departed friend.

But such pangs are more than compensated by the prospect of working for the future in bright and roomy wards with all the convenient modern appointments and salubrious surroundings.

The foundation stone of the new Royal Victoria Infirmary on the Castle Leazes was laid by the King, then Prince of Wales, on June 20th, 1900. The site, which is the gift of the Mayor and Corporation, is ideal, for it stands high, and, though only a little way removed from the heart of the city and from the railway stations, it is practically surrounded by park land, open and ornamental. It is adjacent to the Armstrong College of Science, and within five or six minutes' walk of the College of Medicine. The building has been erected at a cost of nearly £300,000, drawn from three sources: £100,000 was collected, chiefly through the exertions of Sir Riley Lord, from the charitable public of Newcastle and the district, including many working men; £100,000 was given by the late Mr. John Hall; and the remaining £100,000 is the gift of the Noble Chairman of the House Committee and his wife, Lord and Lady Armstrong. In the expenditure of this splendid sum the Building Committee under its Chairman, Sir Riley Lord, has made an honest attempt to provide "the sick and lame poor" of the North of England with a hospital equipped with every comfort and all the improvements suggested by modern medical and surgical science for combating disease. Indeed, it is due to all concerned to say that the staff and Committee have in this work united to "subdue all the means at their command to a whole-hearted service of humanity."

We proceed to give some details of the construction of this noble new Infirmary.

Scheme of the Building.

The structure itself covers a large proportion of the ten-acre site allotted to it on the Leazes section of the Town Moor, the remainder of the site being laid out in ornamental grounds. The main front faces almost due south, opposite the Leazes Park, and the main entrance is from Queen Victoria Road, which runs between the infirmary grounds and the Armstrong Science College. The entrance is through fine gates of wrought iron and bronze made from a design by Gilbert; and from the principal avenue other roads branch to the seven entrances appropriated to out-patients, in-patients, visitors, drug stores, etc.

The Infirmary has been built upon the pavilion system, from the designs of Mr. William L. Newcombe, F.R.I.B.A., and Mr. H. Percy Adams, F.R.I.B.A., and has, besides the various administration buildings, 8 ward pavilions, containing 20 wards and 450 beds—200 more beds than were held in the old infirmary. The administrative block, which has a façade of red brick and sandstone, stands in the midst, with pavilions grouped on each side, all being arranged to obtain the best possible aspect and the maximum of sunlight and air. The ward pavilions are built in two stories, the ground floor being occupied by the surgical wards, with operating theatres on the same level, and the medical wards being on the first floor. The out-patient department stands on a lower ground-floor level at the eastern end and near to the main entrance; and the highest part of the site, at the extreme west end, is occupied by the nurses' home. The laundry is at the lowest level of the site, in the least conspicuous position, with the engine and boiler-house in the basement under it.

The Administrative Building.

This forms the central portion of the whole, and its main hall, which is reached through a vestibule from a *porte cochère*, is supervised from the porter's office, which overlooks the casualty rooms, and is near a room for telephone and telegraph. Immediately on the right of the central entrance is a small committee room for the use of the staff or committee, and next to this a room for the visiting medical and surgical staff. At the end of the corridor on which these rooms open is the large and very handsome library, panelled and fitted with oak bookcases, and with an ornamental plaster ceiling. The arms of the city are here carved on the chimney-piece.

Close to this library is a staircase communicating with the students' department, which owing to the slope of the ground has been placed below the level of the library, though still above the level of the ground. By this arrangement the students are at once close to the library and can gain access to the operating theatres and the wards without passing through the main administrative building.

To the left of the entrance hall are the rooms for secretary and clerks, house governor, lady superintendent, and a visitors' waiting room. The service wing has been placed between the main corridor of the Infirmary and the administrative block, and contains large receiving room, rooms for stores, etc., and a lift direct to the kitchen above.

The central hall is panelled with teak and leather, and has a plaster-enriched ceiling, and the arms of various districts connected with the Infirmary enblazoned in the windows. From this hall a wide teak staircase leads to the first floor, where the Board Room occupies the central place, and takes on its walls the fine oil paintings from the old Infirmary. The quarters of the senior medical officer are here; also six sitting and twelve bed rooms for the resident medical staff, besides storerooms, bathrooms, and lavatories. West of the corridor is a dining hall for resident officers, with a door into the service corridor, and in the service wing on this floor is the dining hall for Sisters and staff nurses, and another very large one for nurses and probationers. On the second floor of the service wing is the kitchen, beautifully lighted and lined with glazed bricks. This is fitted up with all the most modern kitchen appliances, and is supplemented by sculleries for preparing vegetables and washing up, storerooms, larders with north aspect, carving and distributing rooms, housekeeper's office, and an office for distributing the daily stores.

On the upper floor of the front administrative building is the accommodation for all the women servants, with special lavatories supplied with hot and cold water. Access to these rooms can be obtained by the ward maids from the main corridor of the ward pavilions without passing through any other department.

The Ward Pavilions.

The ward pavilions are not less than 80 ft. apart, lying north and south from the corridors. There is a staircase 5 ft. wide to each pair of ward pavilions, with a passenger lift in the well-hole large enough to carry bedstead or ambulance.

All the large pavilions are alike (see plan, p. 93), being designed for 26 beds each. At one side of the entrance is the ward kitchen, and at the other the Sister's room; a day room with bay window is provided for each ward, and two single-bed wards. There is also a room for examination of secretions, etc., a linen room, a small larder for milk, etc., and a room for patient's clothes. At the other end, each ward gives upon a large open balcony, and in an annexe at one side are bathrooms and at the other side sink-rooms and waterclosets, cut off from the wards by cross-ventilated lobbies.

The wards measure 102 by 27 ft., and are 13 ft. high; this allows an air space of 1,500 cubic ft. to each bed, and a wall space of 8 ft. from centre to centre of each bed. They are heated by Shorland stoves in the middle of the floor and hot water radiators at the sides; and lighted by windows alternating with the beds, and by electricity, each bed having its own electric bracket besides the ward central light. For ventilation (the plenum system was discarded after careful investigation), cold fresh air is admitted through stoneware pipes near the floor under each bed and passes through the hot radiators into the rooms; it is also admitted by "hopper" ventilators at the upper part of each window. The vitiated air is got rid of by special flues between the smoke flues in the chimneys and by Sheringham ventilators.

The walls of the wards are lined with pale blue-green tiles to a height of 5 ft., and the upper parts are cemented and finished with grey-blue enamel paint. The floors are laid with teak blocks, wax-polished, all angles and corners being rounded. The windows have double-hung sashes with a lower deep rail, so that they ventilate at the meeting rail as well as through the "hoppers," which have glass sides.

The children's pavilions are a special feature of the hospital. They practically form part of the out-patients' block at the eastern end, though only connected with that department by the main corridors. They contain four wards—two medical and two surgical—of 10 beds each, and are particularly bright and attractive. The walls in these are tiled throughout, and decorated with picture panels of Doulton's choicest designs illustrating nursery rhymes. Altogether there are twenty wards in eight pavilions, accommodating 212 men and 142 women including 25 single-bed wards, 16 of which are for women. The children's pavilions contain 46 beds, including 6 single-bed wards.

The Operating Theatres.

These are on the ground floor, level with the surgical wards. The main theatre (see plan, p. 93) is octagonal, with a large north window and a roof almost entirely of glass, double-glazed to obviate extremes of temperature. It has a marble gallery for students, running round five sides of the octagon, and entered from the main first-floor corridor; by this arrangement the students have an excellent view of the operation and the staff has the whole of the floor area. The walls are of white glazed tiles, the floor of marble terrazzo, and the fittings of white porcelain. All the furniture, supplied by Messrs. Brady and Martin, is aseptic in character and freely movable, so that all parts of the room can be got at for thorough cleaning whenever necessary.

The operating table, which is one of the best modern types, is of massive construction to give great stability, but can be raised on wheels and moved about with perfect ease, and all the positions needed for operative procedures are readily obtained by simple mechanical devices. The general furniture includes lotion reservoirs on wheels, lotion bowls on wheeling frames, irrigators, tables for instruments, dressings, nurses' service, etc.; and the guiding principle throughout has been to provide articles of workmanlike design which could be kept surgically clean with the smallest expenditure of time and trouble, and would stand the wear and tear of a busy hospital.

In connexion with each theatre are anaesthetic rooms, rooms with apparatus for sterilizing by steam, and waiting room. In all the operating theatres a system of emergency lighting provides by storage battery for an auxiliary circuit, so that if the ordinary light should fail an emergency light will be automatically switched on, and the surgeon can complete his operation without interruption or inconvenience.

The Lecture Theatre and Class Room.

These are placed under the large operating theatre on the lower ground level; the lecture theatre seats 120 students.

The Nurses' Home.

This stands at the extreme west end of the buildings, and is reached from the Infirmary through a large covered winter garden, but the principal entrance is from a private garden on the western front.

There are three staircases, one at each end and one in the middle, allowing of easy access, and a double exit, in case of fire, from all the rooms; also a central automatic lift, worked by electric press-button, is provided. On one side of the entrance on the ground floor are sitting and bed rooms for the assistant matron; and on the other side similar rooms for the night superintendent, and a room for visitors.

This floor has also large sitting-rooms for nurses and probationers, a kitchen and pantry; and a cycle store is on the lower ground level. On the ground and upper floors are upwards of 100 bedrooms for nurses and 6 for housemaids; each room faces either east or west, has a fireplace and fitted furniture, and every floor is provided with a large linen room, housemaid's room, and sanitary adjuncts. There are 18 bathrooms.

The Out-patient Department.

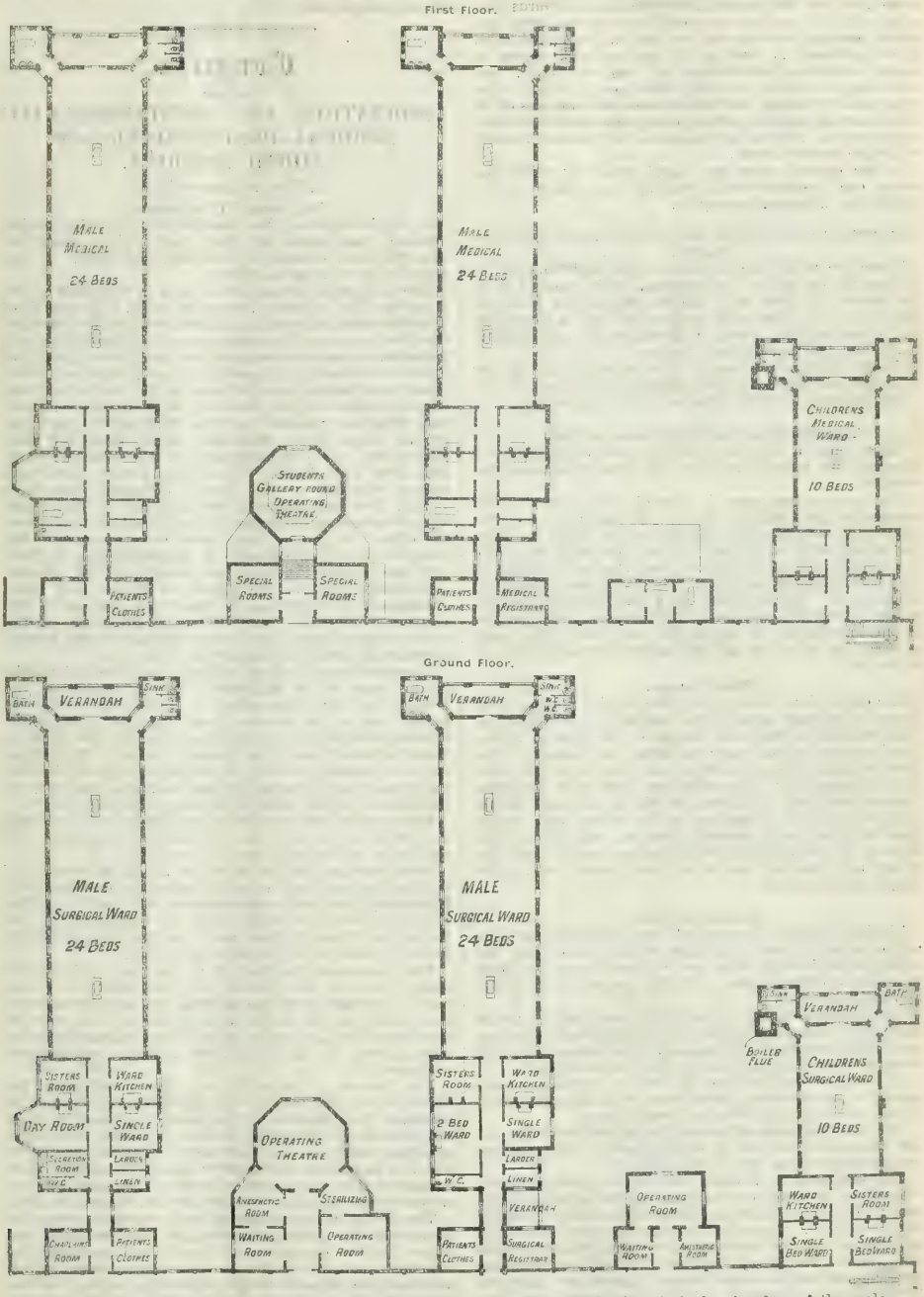
This is placed close to the main entrance gates, accessible to patients directly they enter the hospital grounds.

The consulting rooms are arranged round a large waiting hall, and patients pass from this through the consulting rooms to an outer corridor leading direct to a smaller waiting room for medicines, men and women being separately served at the dispensary hatches, and then passing directly outside. There will thus be no confusion nor retracing of steps, but every patient will follow a definite route. The consulting rooms have examination rooms opening off them, and each room has direct access to the outer corridor. An operating room is provided in connexion with the surgical consulting rooms; there is also a surgical dressing room for minor accidents and dressings.

The ophthalmic room is 24 ft. long, and is fitted as a "dark room."

The dispensary is placed so as to be convenient for all the casualty rooms, and also for the rest of the hospital. It is well lighted, excellently fitted up, and has dispenser's room and large laboratories in connexion.

ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE.



Block plans of ground floor and first floor of the north-eastern part of the hospital, showing four of the male wards, children's wards, and the operating theatre.

THE CASUALTY ROOMS.

The accident department is centrally situated on the same level as the ground floor (or surgical) wards corridor, with a carriage way easily accessible from the public road and entrance entirely out of the public gaze. The department is close to the medical staff rooms, to ensure immediate attendance by day or night; and adjoining the porter's central office there is a large room for accident dressing, with small examination rooms off it, and rooms for medical officer, nurse, and small wards for urgent cases. Also a waiting room for patients' friends, and space for ambulance.

In the central office are signal gongs by which the porter can instantaneously call up any officer of the institution, wherever he may be.

DEPARTMENT FOR DISEASES OF THE SKIN AND ELECTRICAL ROOMS.

These are under the south-east ward pavilion, close to the general out-patient department, easily reached from the general hospital and also by out-patients from the main entrance. There is a large waiting hall, a consulting and demonstrating room, a Roentgen-ray and waiting room, and four special bath rooms.

Special electrical rooms in the same block, together with the Roentgen ray and photographic rooms, form a very complete electrical department for in-patients.

THE MORTUARY AND POST-MORTEM ROOM.

These form a separate building well away from the hospital, but reached by the staff through a connecting corridor.

The *post-mortem* room is one of the most striking features of the hospital. It is very large and airy, well lighted by roof and side windows, and the walls are tiled throughout with white tiles. It is fitted with two white porcelain revolving tables, and teak stands for students are placed close to the tables. The room has a laboratory adjoining it. The mortuary has a little chapel attached, where a body can be viewed by friends. In a position at once accessible to the wards and close to the *post-mortem* room is a large and well-appointed bacteriological laboratory.

THE CHAPEL.

The chapel has been built close to the north side of the main infirmary ground-floor corridor. It is a beautiful little building of Byzantine design, in the form of a true Greek cross, of which one arm forms the chancel. The dome is lined with gold glass mosaic and the arches with blue vitreous tiles; the walls are lined with Doulton's Carrara ware, and the floors are of oak parquet blocks. Light comes from lunettes in the dome and arched windows filled with stained glass on each side. The chancel is paved with polished Italian marble, and the pulpit and reading-desk are of finely carved oak. The chapel will seat 140.

MISCELLANEOUS.

The laundry is at the north of the easternmost pavilion, and consists of receiving room, washhouse, drying and airing rooms, ironing room, and delivery room, the linen following a definite route. All fittings are of the latest approved character.

The basement under the laundry is occupied by a very large boiler house containing three high-pressure boilers, each 30 ft. long by 8 ft. diameter. The entire hot-water heating of the building is controlled from this point.

At the north-east corner of the site are workshops, consisting of joiner's shop, a wood store, stick-chopping room, oil store, and plumber's and engineer's shop.

The entire lighting of the building is by electricity, and the lifts also are worked by electric power. The current is obtained from the public city supply.

The buildings as a whole have little ornamentation, what there is being concentrated in the administrative block. Otherwise, effect has been obtained by grouping and proportion. The elevations are all of red brick with stone dressings, and the roofs are covered with Westmorland slates. The internal joinery is chiefly of Columbian pine, and the walls, except in special parts, are plastered. The floors are all fireproof. In the great main corridors, which are of noble width and height, the walls have a bright-coloured tile dado, and the floors are of terrazzo mosaic.

Newcastle is indeed greatly to be congratulated on the possession of such a magnificent provision for healing of the sick and injured.

Congress

OF THE

ASSOCIATION OF FRENCH-SPEAKING MEDICAL PRACTITIONERS OF NORTH AMERICA.

(From a Correspondent.)

INAUGURAL CEREMONIES.

THE third Congress of the Association of French-speaking Medical Practitioners of North America was opened at Trois-Rivières, Canada, on Tuesday, June 26th. It was attended by over 300 members.

The inaugural ceremony was held in the Salle of the Hôtel de Ville, and the President, Dr. L. P. Normand, of Trois-Rivières, delivered an address, in which he described the development of the congresses of the Association, and extended the warmest welcome to the different groups of members attending the meeting; these groups comprised those from Quebec, presided over by Dr. Brochu, medical superintendent of the Montreal Asile d'Aliénés; those from Montreal, presided over by Dr. Foucher, physician at the Hôtel Dieu, Montreal; those from the East (Rimouski), the West (Winnipeg), the United States Fall River and Boston. Dr. Normand then extended a special welcome to the French delegates, who were Dr. H. Triboulet, Médecin des Hôpitaux de Paris, past Vice-President of the National League against Alcoholism, the official delegate of the French Government and the delegate also of the Société de Thérapeutique de Paris and the Union Française Antialcoolique; Dr. Proust, professeur agrégé in the Faculty of Medicine of Paris, chirurgeon des hôpitaux de Paris, the delegate of the University of Paris: and Dr. Loir, professor in the colonial agricultural high school, delegate of the French Association pour l'Avancement des Sciences.

After the French official delegate had returned thanks in the name of the Minister of Public Instruction, the Director of the Department of Higher Education in France, and of the various French learned societies, the Secretary-General of the Congress, Dr. Ch. De Blois of Trois-Rivières, read the general report. The three subjects specially selected for discussion were alcoholism, tuberculosis, and infantile hygiene, and upon each of these there was a general report and a supplementary report.

Immediately after the Secretary had read his address, the President declared the Congress open, and the discussion on tuberculosis at once commenced.

On the evening of the same day a general meeting of the Congress was held, when the Honorary President, His Excellency the Lieutenant-Governor, Sir Louis A. Jetté, K.C.M.G., took the chair. He was supported by the Bishop of Trois-Rivières, and the Hon. Lomer Gouin, Prime Minister of the Province of Quebec.

The Lieutenant-Governor, in a charming and graceful speech, dwelt on the devotion and disinterestedness with which the members of the medical profession discharged their duty to the public, and prophesied the greatest success for the Congress, to which French-Canadian ladies were giving the help of their amiable and gracious presence.

The Bishop of Trois-Rivières, after pointing out the difficulties of the task of the physician called upon to elucidate the mysteries of the human organism, the most complicated in the creation, insisted upon the high moral qualities which, in the practice of medicine, should be added to knowledge and ability: among these that which completed the aureole of the medical profession was the transcendental goodness of heart of a St. Vincent de Paul.

The Prime Minister recalled in the warmest terms the part which the French-Canadian medical profession had played in the expansion of Canada, and promised the heartiest sympathy of the provincial government, which was ready to respond to the legitimate demands of the medical profession for the amelioration of the hygienic condition of the people.

The Vice-Consul of France, Baron d'Hallewyn, speaking in the name of the Consul-General, said that he was at

once happy and proud to wish success to his compatriots who were bringing their knowledge and their energy to help the efforts of French-Canadian practitioners for the advancement of French science.

The Mayor of Trois-Rivières welcomed the Congress, and especially the French delegates. He trusted that his efforts and those of the municipality of the historic town of Trois-Rivières would worthily fulfil their intention of offering the most fraternal welcome to the Congress.

Dr. H. Triboulet responded in the name of the French Government and expressed the thanks of the three representatives of France for the warm welcome they had received. In the name of the Minister of Public Instruction of the French Republic, in the name of the Director of higher education, he congratulated the organisers of the Association and of the Congress, and expressed the warmest hopes for its success. He knew that in these official words his hearers would find the expression of the most cordial sympathy of all the children of the mother country for their French-Canadian brothers. The Congress had arranged to discuss the great questions which were now occupying the minds of all civilized nations, and he was glad to think that the French-Canadian nation had exceptional opportunities for finding prompt and effectual answers. The detailed reports on infantile hygiene and on tuberculosis made to the Congress would serve for the information of other nations. French Canada was particularly well placed to combat alcoholism, because the evil was as yet only beginning, and because medical opinion was backed up by the action of the clergy and of the press. French energy, so active in Canada, sustained and guided by such great sons of the mother country as Claude Bernard, Trousseau, Pasteur, and Curie, ought to find expression in some great work. Young Canadian practitioners ought to complete their studies in the laboratories and in the amphitheatres where they could listen to the great teachers. With the help of the provincial authorities and of French-Canadian practitioners, and with the assistance of the great masters of France the third centenary of French Canada, which would take place in 1908, ought to afford a striking manifestation of French energy by bringing together the whole body of French-speaking practitioners in North America for the opening of a Pasteur institute on French-Canadian soil.

Dr. Proust said that he was proud to succeed his illustrious master, Professor Pozzi, in expressing to his French-Canadian brethren the cordial sympathy of the University of Paris, which was happy to count so many Canadians among its pupils. He was glad to think that the presence of the French delegates would favour closer and more frequent relations.

Dr. Loir said that his great master, Pasteur, had been much touched to learn that a district in Canada had, when it was first called into existence, chosen his name. French-Canada was still little known to the French, but he hoped that, inspired by the name of that great benefactor of humanity, Pasteur, a *rapprochement* would take place between the children of old and new France.

CONTRACT MEDICAL PRACTICE.

CLUB RATES.

A CORRESPONDENT asks whether there is any reason why he should not accept the post of medical officer to the Liverpool Victoria Legal Friendly Society, who pay at the rate of 1s. 1d. per quarter per member.

*** We would recommend our correspondent to study the report of the Medico-Political Committee on Contract Practice published in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of July 22nd, 1905. The rate mentioned, though not unusual, is very low for the responsibilities undertaken. There is also the danger of societies like the one mentioned publishing the names of their medical officers on circulars—a proceeding that is not unattended by risk to the latter. The appointment is not one that can be recommended.

THE Governors of the City Orthopaedic Hospital agreed on July 11th to allow the institution to be amalgamated with the other orthopaedic hospitals of London, the National and the Royal. A long-standing controversy is thus brought to a satisfactory end.

British Medical Association.

ANNUAL MEETING AT TORONTO.

August 21st—25th, 1906.

CANADIAN SCENERY.

[FROM A CANADIAN CORRESPONDENT.]

(Continued from p. 30.)

MUSKOKA LAKES.

IN the JOURNAL of May 26th, p. 1233, an illustrated account was published of the Muskoka Lakes district, a country of wood and lake situated at an elevation of about 1,000 feet above the sea level. We are informed that so many inquiries have been received regarding the the trip to this district by the honorary local secretaries in Toronto, that it is proposed to run an excursion train, which will leave Toronto at 8 a.m. on Saturday, August 25th; this will accomplish the journey of 112 miles to Muskoka wharf in about four hours. The members of the party will be given an opportunity to visit the sanatorium at Gravenhurst, and afterwards will go up the lake by steamer to Rosseau, where arrangements will be made for their accommodation; they will be able to return to Toronto by any of the regular trains on Saturday or Monday. The cost of the journey by rail and steamer from Toronto to Rosseau and back will be $2.60, or about 10*s.* 6*d.*

TO LAKE NIPISSING AND FRENCH RIVER.

Cost for Round Trip (Association Rate) $6.85 (£1 7*s.* 5*d.*).

From Toronto to North Bay (227 miles) on the Grand Trunk Railway is a short journey. At Callandar a glimpse is first obtained of East Bay, the gleaming waters of Nipissing. Some one has admirably written: "Like a virgin goddess in a primeval world, Canada still walks in unconscious beauty among her golden woods and along the margins of her trackless streams, catching but broken glances of her radiant majesty as mirrored on their surface."

North Bay, the metropolis of Northern Ontario, is 227 miles from Toronto by the Grand Trunk Railway. It is the chief supply station for the vast expanse of forest, lake, and stream extending to Lakes Temagami and Temiscaming on the north, the Ottawa on the east, Georgian Bay on the west, and the Maganetawan on the south. It has two comfortable hotels. Four miles to the east is Trout Lake, famous for its angling; further on, fifteen miles, is Lake Talon and the Matawan River, affording black bass, maskinonge, pike, and pickerel. The tributary streams are full of brook trout, and in Lake Nipissing the fishing is good. At Manitou Island, five miles out, excellent sport with the rod and trolling line may be obtained.

The lake voyage lasts twenty-five miles due west to the head of the French River, and twelve miles down to the Big Chaudiere Falls, where canoeing and portaging begins.

A delightful way to return is to continue the trip down to the mouth of the French River and then take the Northern Navigation Company's steamer to Parry Sound, and thence by another steamer (running daily) through the 30,000 islands of the Georgian Bay to Penetanguishene. It is but a hundred miles from that point by rail to Toronto.

THE TEMAGAMI REGION.

Cost of Round Trip (Association Rate) $9.95 (£2).

The Grand Trunk Railway system offers the best and most direct route to the Temagami region, passengers travelling by the northern division to North Bay, and over the Temiscamingue and Northern Ontario Railway 300 miles to Temagami Station.

The Temagami region is a forest reserve, under control of the Ontario Government, and covers an area of 1,400,000 acres. It is a land of lakes and rivers, and until a few years ago visited only by Indians and the Hudson Bay Company's canoes. Of the two principal bodies of water, Lake Temagami is the largest, having an area of about 100 square miles, and a shore line of nearly 3,000 miles. It is dotted with islands of all proportions. Though 300

miles due north of Toronto, the weather during the day is warm and balmy, with little rain, and the nights pleasantly cool for sleeping.

The principal fish are small-mouthed black bass, speckled trout, lake trout, wall-eyed pike and common pike. During the midsummer season the lake trout go into deep water, and it is necessary to use a wire line of a couple of hundred feet. The black bass, on the contrary, bite well during July and August, and in the waters of the lakes in close contiguity to Lake Temagami run up to 6 lb. Brook trout or speckled trout from 1½ lb. to 3 lb. are found in large numbers in the streams emptying into Lady Evelyn Lake.

The visitor can outfit at Temagami Station and take the steamer which plies on the lake, reaching Bear Island or any other point by this means, and thence proceeding by canoe into the more remote parts of the reserve. The Hudson Bay Company's store at Bear Island is well stocked with provisions and all necessaries for the camper.

ADDENDUM.

Yellowstone National Park.

Yellowstone Park, about sixty-two miles long from north to south and fifty-four miles wide, may offer attractions to some members who make the journey through Canada to Vancouver and wish to return through the United States. At Vancouver tickets can be purchased from the Northern Pacific Railway. The park, which has an average elevation above the sea of about 7,500 ft., is a plateau surrounded by mountains. The capital of the park is Mammoth Hot Springs, and from there a tour of six days can be made by stage coach; there are hotels at convenient distances. Mr. William G. Mason, 215, Ellicott Square, Buffalo, N.Y., will supply further information.

CONGRESS OF THE ROYAL SANITARY INSTITUTE.

THE twenty-third annual congress of the Royal Sanitary Institute was opened on Monday, July 9th, at Bristol, by the Lord Mayor of that city (Mr. A. J. Smith).

Bristol holds a reputation second to no town in the United Kingdom for knowing how to make congresses succeed, and as a not very unnatural result no year passes without some society holding its annual meeting in the capital of the West. The present occasion bids fair to uphold Bristol reputation, for—writing, as is unavoidable, in the early part of the week, when work and pleasure have only just begun—it is evident from the extensive programme of papers and conferences that important subjects are to be brought before the numerous members and delegates for their consideration. Nor are the social and excursion sides of these affairs neglected, and there is little doubt that should any visitor attempt to carry out all the programme he will need a prolonged rest both for body and mind.

The Victoria Rooms are, as usual in these congresses, the head quarters. Here in the large hall is the reception room where members enter their names and receive the orders of the day, and here, too, Sir Edward Fry, a member of the well-known Bristol family, delivered his presidential address. The arrangements appear to be quite complete. Everything was ready for the opening at midday on July 9th, and the officials displayed the greatest courtesy in supplying your representative with the necessary papers.

OPENING CEREMONIES.

The opening ceremony took place at the Council House in the city, where the Lord Mayor received the members and delegates, welcoming them to Bristol in a few well-chosen words, and referred to the changes that had taken place in Bristol since that city adopted the Act in 1851. The High Sheriff, Mr. H. Riseley, also spoke, and later Mr. Anderson (Glasgow) acknowledged the welcome and Colonel J. Lane Notter expressed the thanks of the Council of the Institute.

The delegates then adjourned to the Royal Hotel for lunch, and afterwards one of the stiff hills for which Bristol is famous had to be negotiated to reach the Health Exhibition, housed in the Drill Hall of the Bristol Rifles. The Lord Mayor and Lady Mayoress were conducted round by members of the Council, and the Exhibition declared open.

Here again we must express our praise for the preparedness of everything. Every stall was fit for the minutest examination, the awards had all been made, and a list published of the recipients of medals. Of this we shall have more to say later, but we have seldom seen an exhibition of sanitary appliances better arranged or more complete in every detail. An excellent band was provided, and, except for the excessive warmth of the Hall, everything was most comfortable.

SECTIONS.

Of the work of the Sections little can at present be said. They commenced work on Tuesday. Section I, that of Sanitary Science and Preventive Medicine, under the presidency of Sir William J. Collins, M.D., M.P., has down for discussion a paper on Mediterranean fever by Fleet-Surgeon P. W. Barrett-Smith, one on scarlatina in relation to temperature and rainfall by Dr. Marsden, two on subjects relating to diphtheria by Dr. Fletcher and Dr. Bond. Sir W. Collins in his address said that the institute existed to promote sanitary knowledge and to diffuse it, and invited with impartial solicitude any one and every one interested in the science of health. After referring to a paper published by him in 1884 on the usually-accounted specific diseases arising *de novo* and divers diseases having a common external ancestry, he then drew his audience's attention to another paper published in 1889 on a further development of this thesis, pleading in it that the paramount importance of soil had been absurdly underrated as a determining factor in specificity. These opinions, he held, had received confirmation in many instances, and he stated that the inherent properties of cells and tissues of the body have been rather neglected as factors in the production of and protection from disease. We must return to cellular pathology, a cellular pathology interpreted and quickened by the loyal acceptance of the evolutionary principle. In inflammation, repair, and in malignant growths there is a reversion to embryonic type: in the two former there is either organization of embryonic cells into tissue or liquefaction into pus, in the latter there is the disposition of the component cells either to differentiate into tissue or to suppurate. They lack the influence which makes for organization, are reminiscent of reproductive cells, while their instincts are of the lowest—are amœboid, in fact. On the brighter side of the picture there are the leucocytes, and chemical action of healthy blood as potent germicides. The business of the sanitarian is to prevent such invasion taking place, and though in some cases the lesson has been and is being learnt, yet more remains.

A Conference of Municipal Representatives was held on July 10th in University College to consider various municipal questions.

Section II, on Engineering and Architecture, is presided over by Mr. Edwin Hall, and promises papers on homes, disposal of rubbish, treatment of sewage, filter beds, and dry privies.

PRESIDENTIAL ADDRESS.

The inaugural address was delivered on Monday evening at the Victoria Rooms by Sir Edward Fry, a large number being present.

The President said that the obvious reflection that occurred to the mind when looking forward to a meeting like the present one was the progress of science, or, in other words, the exact knowledge of subjects that admit of exact knowledge. Advances in an exact knowledge of Nature during the last half century have affected our intellectual, political, and social life in a vast variety of ways, not always for good. One of the effects of our increase of scientific knowledge has been to increase the burden of our duties both as individuals and as citizens. As an illustration Sir Edward instanced the careless sanitary treatment of infectious diseases of former times as compared with the precautions taken at the present time. Continuing, he referred to the duties the State requires of public bodies concerning drains, cleansing, etc., and the difficulties encountered in carrying out these duties. From this conflict of duties, and injured landlords' or tenants' rights, a vast volume of litigation has arisen to compel public bodies to perform their duties. This mass of litigation has evoked the labours of a great army of experts—engineers, architects, chemists, physicists, and sanitarians

—and to the onlooker at their contests the thought that a science which can admit of such a conflict of opinions must be in a more or less chaotic condition. For the solution of these difficulties both corporate bodies and individual housekeepers naturally turn to the Sanitary Institute for advice and guidance. Everyone admits that many questions involved in sanitary science are of much intricacy and difficulty, but all are confident that the more the subject is studied the nearer will be the attainment of exact knowledge of the matters that arise, and a more certain guide be given the public, who are earnestly desiring some uniform advice from those they trust in such matters. "Sciences and arts, like cities and people, have their periods of advance and recession, of rise and fall. Instances of good sanitary advice are to be found in many classic writers, but no drainage system has ever had so great an influence on the world's history as the drainage of Rome, the Cloaca Maxima, which converted the low swampy land to solid ground that would bear the Forum Romanum. Even more remarkable than the drainage of Rome was the marvellously copious supply of water, as many as eleven streams yielding their daily supply to the people of the Imperial city. Then again, the warm and medicinal baths. Yet when the Goth, Vandal and Lombard wrecked the Roman Empire all thoughts of sanitary science disappeared.

The part that Great Britain has played in the matter of sanitation may be learned partly from the works she has executed, but perhaps more from the legislation which she has enacted. These show that the first serious efforts to make life more healthy in this country date from the earlier days of Her late Majesty's reign. In the year 1847 several Acts were passed containing what may be called model codes or collections of provisions respecting such matters as markets and fairs, gas works, cemeteries, and town improvements, and in the following year the first general Public Health Act was passed, constituting a central controlling authority, the General Board of Health, and providing also for the creation of local Boards. In 1872 the Public Health Act divided all England and Wales into sanitary districts, urban or rural, and provided a local body for the administration of the laws relating to health. The Act of 1875 gathered together the whole of the legislation on the subject, and so forms a very important epoch in the history of sanitary legislation. The next year saw the foundation of this Society, and the first two Congresses were presided over by Sir B. W. Richardson and Sir Edwin Chadwick, distinguished advocates in those early times of the study of public health. Since those days much has been done; but much remains to do, not only by a body like the Sanitary Institute, but by those who are concerned with the general social condition of the people—for health and morals are closely connected the one with the other.

A vote of thanks to Sir Edward Fry was proposed by Mr. Colston Wintle, seconded by the Bishop of Bristol, and supported by Mr. Wirgin (delegate for the Swedish Government), Dr. Kerr, and Professor Lloyd Morgan, and carried with acclamation.

PREVENTION OF CONSUMPTION.

Worcestershire Association for the Prevention of Consumption.

The Knightswick Open-air Sanatorium of the Worcestershire Association for the Prevention of Consumption has now been open for the reception of patients for three years, and since its opening in November, 1902, nearly 400 applications for admission have been received. Originally designed to accommodate 18 patients—10 men and 8 women—it has been enlarged, and now contains 14 beds for men and 8 for women. The average cost of each bed in 1905 was £73, against £76 in 1904. As the result of a special appeal for funds the Committee has been able to purchase the sanatorium, and in consequence may be able to effect many economies in the future. Regret is expressed that, with one exception, the Friendly Societies have not evinced any special interest in the work of the sanatorium.

During 1905, 75 patients were under treatment, of whom only 28 appear to have been cases in which permanent benefit from treatment was probable. The great majority of these early cases justified the anticipation. A small number of the more advanced cases admitted also improved so far as to be fit for work. A review of the results of the three years' work compares favourably with similar reports from other sanatoriums.

THE PLAGUE.

Prevalence of the Disease.

During the weeks ended June 7th and 14th the fresh cases of plague in India numbered 7,888 and 3,597, and the deaths from the disease amounted to 7,024 and 3,446 respectively. The principal centres of the disease were the Punjab, where during the two weeks in question the deaths from plague amounted to 6,152 and 2,811; Bombay Presidency, 437 and 316; United Provinces, 165 and 85; Bengal, 90 and 85; Burmah, 82 and 113. Elsewhere there were only a few scattered cases of plague. The sudden fall in the deaths from plague in the Punjab during the week ended June 14th is ascribed to the intense heat prevailing throughout that district.

Port Said.

A case of plague was reported from Port Said on July 2nd.

Persia.

In the Seistan district plague is reported to be spreading in spite of sanitary cordons.

Australia.

Brisbane.—During the weeks ended May 19th and 26th the fresh cases of plague numbered 1 and 0, and the deaths amounted to 1 and 0.

Rockhampton.—During the same periods the fresh cases of plague numbered 1 and 0. No deaths reported during the two weeks in question. The patient at Rockhampton was a rat-catcher, who was bitten on the hand by a rat on May 9th and developed plague on the 13th.

During the present outbreak there have been 6 cases of plague, with 3 deaths, at Brisbane, and 11 cases at Rockhampton.

A few rodents are found plague-infected.

South Africa.

No recrudescence of plague in human beings in any part of South Africa up to June 9th. A few rats and mice were found to be plague-infected up to June 9th at East London.

The Philippines.

In Manila the last case of plague was reported on April 14th, making, since January 1st, 1906, six cases of plague altogether. Plague-infected rodents were found in Manila during April.

Hong Kong.

During the weeks ended June 16th and 23rd, the fresh cases of plague numbered 57 and 34; the deaths from the disease amounted to 45 and 31 respectively.

LITERARY NOTES.

Dr. Tourreil, writing in the *Chronique Medicale* of June 15th, gives an account of a report made on August 3rd, 1816, to the Société Royale Académique des Sciences de Paris on a work by Dr. Luna Calderon, entitled *Démonstration de la Prophylaxie syphilitique authentiquement constatée.* In that work Calderon reported the results of a number of experiments made in the Paris Hôpital des Vénériens by a medical committee, with the object of testing the efficiency of a toilet powder which, it was claimed, would protect any one using it against syphilitic infection. Calderon offered himself to the Société du Cercle Médical, which included among its members all the chief luminaries of the profession in Paris as a subject for the experimental inoculation of the syphilitic virus. The Cercle appointed a committee, consisting of MM. Capuron, Demangeon, Gardien, and d'Olivera, with the senior members of the staff of the Hôpital des Vénériens. Calderon, or Luna as he appears to have been indifferently called, was accordingly inoculated, and was held by the committee, whose experiments were extended over ten months, to have protected himself successfully by the use of his prophylactic. The committee's reasoning must strike a modern pathologist as singularly inconclusive, but Calderon's prophylactic was hailed by the Paris doctors as entitling him to fame equal to that of Jenner! Nothing, however, came of his "discovery," and his name passed away as quickly as though it had been "writ in water."

What was the *mal des ardents* which devastated France in the tenth and eleventh centuries? The disease was variously known as "Saint Antony's fire," "Saint Marcel's

fire," the "divine fire," the "plague of fire," "Ignis Ardoe" and by many other names. The symptoms as far as can be gathered from the confused descriptions of the old historians seem to have been high fever, with eruption of pustules on the limbs and deep-seated swellings which stretched the tissues and made the skin shining and livid. So great was the local heat that water poured on to cool them evaporated immediately, leaving a noisome smell. Often the tense skin ulcerated and great masses of tissue sloughed away; sometimes even, it is said, the whole became separated from the body. The pain was intense and the course of the disease usually rapid. The sufferers were, in the graphic phrase of an old writer, consumed by a *mortifex ardor*. Of the sufferings of the victims, we learn from a preacher who says there was throughout the whole city, within and without, a continual noise of men and women groaning with pain, while an intolerable stench was exhaled by the bodies on fire. Some modern authorities see in the disease a form of ergotism produced by eating bread made of rye, or some disorder due to heavy rains or poisonous fungi. Others, again, are inclined to regard it as a form of the plague. After a time the sufferers were isolated in shelters which, we learn from the Satire Ménippée, were painted red with flames on the doors and outer walls—a significant device to warn passers by to give the houses a wide berth. Many of these, known by the name of Ty Ru, which is Breton for "red house," still exist in many of the western departments of France, and notably in the Loué Inférieure. Dr. Viaud-Grand-Marais, Professor in the Medical School of Nantes, not long ago made an investigation on the subject, the results of which he recently published in a monograph. He first discusses the hypothesis that they belonged to the Templars, who were sometimes called "red knights"; the red houses existed before the foundation of the order. They either stand alone, or in small groups, at a distance from other places, at the side of a pathway or old road, usually at a distance of two or three kilometres from the nearest hamlet. That they were built for purposes of isolation in times of epidemic is evident. They may have been leper houses, but the red colour is suggestive of the *mal des ardents*. It is possible that they may have been employed for different diseases at different times.

MEDICAL NEWS.

THE King has granted permission to Dr. W. St. C. Symmers, formerly Professor of Pathology in the Egyptian School of Medicine, to accept the Order of the Medjidieh, 3rd class, and the Order of the Osmanieh, 4th class, and to Dr. H. Nolan, medico-legal expert to the Egyptian Native Tribunal, the Order of the Medjidieh, 3rd class, conferred upon them by the Khedive.

SURGEON-GENERAL SIR A. KEOGH, K.C.B., Director-General of the Army Medical Department, will present the prizes and unveil the South African War Memorial at the St. Mary's Hospital Medical School on Monday next at 4 p.m.

THE London County Council, at its meeting on July 10th, adopted a recommendation from the Education Committee to the effect that during the presence of diphtheria in any district the Committee should be authorized to refuse the readmission to school of children excluded on account of diphtheria or sore throat until such children shall have obtained a medical certificate of freedom of infection, based on a bacteriological examination. The certificate of freedom from infection based on bacteriological examination will be accepted either from general practitioners or from the medical officer of health.

THE annual report of the Chief Inspector of Factories has been issued this week. It records the occurrence of 100,609 accidents during the year. Of these about one-third were reported to certifying surgeons, and 1,063 proved fatal. The number of cases of lead poisoning was 592, being approximately the same as in the previous year. Of anthrax there were 59 cases, this being an increase of 9 over the year 1904. The mortality-rate among these cases showed a large increase, 18 being fatal as compared with 10 in the earlier year. Presumably this was due to 7 instead of 1 of the attacks being of the internal variety.

THE views of the Police Committee of the Corporation of the City of London as to what form of ambulance it is desirable to adopt under its new scheme for an ambulance service have swung round somewhat suddenly. Not so very long ago, after a long investigation and the collection of much evidence, it was considered that horsed ambulances should be employed, and many of the calculations put forward in regard to expenditure, as well as the general recommendations made, were based on a decision to that effect. At a meeting on July 5th it was resolved, however, to adopt electrically-driven vehicles on the ground that they are more economical than horse traction and better suited to the narrow thoroughfares which abound in the heart of the City.

The officers of the Laryngological Society of London for the session of 1906-7 are: President, Dr. J. B. Ball; Vice-Presidents, Drs. F. Willcocks, William Hill, P. Watson Williams, and Mr. Charters Symonds; Honorary Treasurer, Mr. H. B. Robinson; Honorary Librarian, Dr. StClair Thomson; Honorary Secretaries, Drs. W. Jobson Horne and H. J. Davis; Council, Sir Felix Semon, Drs. J. Middlemass Hunt and Atwood Thorne, Mr. Stephen Paget, and Philip de Santi.

THE officers of the Dermatological Society of Great Britain and Ireland for the session of 1906-7 are:—President, Dr. H. Leslie Roberts; President-elect, Dr. E. Graham Little; Vice-Presidents, Drs. Wallace Beatty, H. A. G. Brooke, A. Eddowes, H. Radcliffe Crocker, J. H. Stowers and H. Waldo; Council, Drs. H. G. Adamson, J. Galloway, A. J. Hall, T. Manners-Smith, J. F. Payne, P. H. Pye-Smith, V. H. Rutherford, E. Stainer, C. H. Thompson, W. B. Warde and Messrs. J. P. Hartigan and G. W. Sequeira; Hon. Treasurer, Mr. A. Shillitoe; Hon. Secretaries, Mr. Spencer Hurlbutt and Dr. G. Norman Meachen.

OUR attention has been called to the formation of the Automobile Co-operative Association, Limited. According to the advertisement which will be found elsewhere, its promoters propose to do for the purchasers and owners of motor cars what the co-operative stores do in respect of the purchase of most of the other luxuries or necessaries of life. There is a Committee of Management and an Advisory Council, and a man may become a member of the Association by taking up one or more £1 shares, and paying an annual subscription, which is at present 5s. In the advertisement mention is made of payment of a bonus to purchasers of motor cars and appliances, and also dividends on Ordinary shares and Founders' shares. The idea on which the Association has been founded is a good one, and in many respects preferable to the system of payment by instalments. If the business of the Association is conducted in the interests of the shareholders and not of the Founders' shareholders, we can imagine that it will attain success.

THE sixty-fifth annual meeting of the Medico-Psychological Association will be held at the rooms of the Medical Society, Chandos Street, London, W., under the presidency of Dr. Robert Jones, on Thursday and Friday, July 26th and 27th. The President will give his address at 2 p.m. on July 26th. On Friday, at 11 a.m., Dr. Mott will read a paper on the effects of alcohol in hospital and asylum practice; other papers will be read at that meeting and at an adjourned meeting at 2 p.m. on that day. The annual dinner will take place at the New Gaiety Restaurant at 8 p.m. on July 26th, and among those who have accepted invitations to be present are the President of the Royal College of Physicians (Sir R. Douglas Powell), the President of the Royal College of Surgeons (Mr. John Tweedy), Lord Monkswell, Sir William J. Collins, M.P., Sir Kenneth Muir-Mackenzie, K.C.B., Sir Ralph Knox, Colonel Lockwood, M.P., Sir William Church, Mr. Justice Walton, Sir Lauder Brunton, and Sir Owen Roberts.

THE members of the Harrogate (Yorks) Branch of the St. John Ambulance Association recently presented Mr. Edward Carnell, M.R.C.S.Eng., with an ivory and silver paper-knife as a mark of appreciation of his services as honorary lecturer.

MR. LEGH RICHMOND MARSHALL has received the Government grant for the second time in succession for efficiency in vaccination as Public Vaccinator for the Mary Tavy District of the Tavistock Union.

PSYCHICAL RESEARCH.—The *Boston Medical and Surgical Journal* says that, as an outgrowth of the Society for Psychical Research, a new organization, to be known as the American Institute for Scientific Research, has been granted a perpetual charter by the State of New York. The objects of the institute are to organize investigations in abnormal psychology and to extend knowledge of the subject along scientific lines.

British Medical Journal.

SATURDAY, JULY 14th, 1906.

POOR-LAW MEDICAL RELIEF IN IRELAND.

The wisdom of the establishment of an Irish Committee of the British Medical Association is already justified, for it is obvious that it does not intend to exist only in name, and that it will do its work with zeal and discretion. A big task presented itself soon after its formation, and the way in which it has been tackled shows what may be expected in the future. This task is the preparation of Ireland for the visit of the Royal Commission on the Poor Laws; it is not expected to take place for at least a year, but that period is by no means too long if a sufficient quantity of evidence is to be got together and placed before the Commissioners in a convincing form. The Irish Committee has appointed a Subcommittee which has placed itself in communication with the Irish Medical Association, the Workhouse Reform Association, and the Poor-law Association of Ireland, with the result that a Joint Committee representing all these four bodies has come into existence, Dr. Darling being its chairman and Professor A. H. White of Dublin, Honorary Secretary of the Leinster Branch of the British Medical Association, its general secretary. The work to be done naturally falls into three divisions, and to avoid confusion the joint committee has therefore subdivided itself into three sections, each taking charge of one division of the subject: (1) Questions connected with general poor relief, (2) sanitation, and (3) medical relief. All the sections have now got to work, and from the details of what is being done by the Medical Relief Section, which will be found in the Supplement of the British Medical Journal, page 31, it is obvious that the whole question is being boldly faced. It is not intended merely to seek evidence of evils and hardships in the present, but to collect and collate opinions as to what reforms are required; in brief, to supply the Royal Commission with a policy as well as convince it of the need for reform. The Poor Relief Section, it is to be noted, has taken a similar view of its work, and has issued a memorandum by which it hopes to obtain the opinions of guardians, clerks of Unions, relieving officers, and the lay and professional officials of workhouses on various points of administrative and executive Poor-law work.

Of the circulars hitherto issued, the greatest interest, from a medical point of view, attaches perhaps to those sent respectively to dispensary medical officers, and to the incumbents of sanitary appointments. The latter are asked to keep for the ensuing year a record of reports made by them, of the number of notices served, of the approximate distances travelled, of their inspection of dairies and cowsheds, of houses which they disinfect, of prosecutions which they undertake, and of the other multifarious duties which fall to the lot of a sanitary officer to perform. The appeal to dispensary officers is of an analogous character; the Committee believes that the ground upon which increased remuneration to Poor-law medical officers has been widely refused—namely, decrease of work—is untrue; but in order that it may show that it is so, it is necessary that it should be provided with accurate records of work done. It believes that at present medical officers see and prescribe for many poor persons without troubling to ask for a ticket. They are asked to do so no longer, but to keep a book of tickets themselves and fill a ticket up, and get it signed by a guardian or relieving officer whenever a person applies for medical assistance. The dispensary medical officers are also asked to keep a record of all visits paid, of the bottles of medicine dispensed, of night work done, of confinements attended, of vaccinations performed, and of the distance travelled by night and day on Poor-law work.

It will be seen, therefore, that the whole subject has been well thought out, and that all the ground has been duly covered. Hence it only remains for individual medical men in Ireland to co-operate heartily with the Committee for success to be assured so far as its attainment depends upon able treatment of the material at command. There is everywhere almost proverbial slackness in paying attention to circulars, but it can hardly be anticipated that on this occasion many will refuse to do what is asked, for it is to the direct interest of every man in any way dependent on Poor-law work in Ireland that the splendid opportunity presented by this Royal Commission should be used to the full. After all, for each medical officer to be in a position to contribute his quota to the general store of ammunition, nothing more is required than that for a year to come he shall keep what may be regarded as normal records of official work with more than usual care.

SHOULD EXAMINERS BE SPECIALISTS?

A debate which took place at the recent session of the General Medical Council raised the question whether it was or was not desirable that examiners at a qualifying examination should be specialists in the subject upon which they examine. The subjects particularly under consideration at the moment were medical jurisprudence and hygiene. It so happens that in Scotland, according to Dr. McVail, who moved a resolution, these two very distinct subjects are often combined as special studies by the same individual, and the Council—or, at least, a majority of it—endorsed his view that there should be special examiners in them, or, as it would appear, one special examiner in these two subjects. Apart from the rule of the General Medical Council that each candidate should be examined by two examiners, which it would seem will make it necessary to appoint not one but two examiners, each to be regarded as a specialist upon these subjects, the much wider issue, whether specialist examiners are upon the whole desirable, arises. To a certain extent this desirability has been already recognized in practice in the earlier examinations, where chemists, physicists, biologists, physiologists, and anatomists are appointed by most of the examining bodies to conduct the examinations in their own subjects, and also in the final examinations in so far that physicians, surgeons, and obstetric physicians deal with their own subjects, but it still remains open to doubt whether in the final examinations any wider extension of the principle is advisable.

The multiplicity of subjects in which the student is examined renders it absolutely impossible that he can have attained to anything more than a very general knowledge of those parts of medicine which in actual practice have come to lie in the hands of those who have specialized, and during the discussion in the Council it was contended that such knowledge as can fairly be expected in a qualifying examination is

possessed by the average physician or surgeon. There is a special diploma in public health which covers the ground of advanced hygiene, and recognizes to the full that there are departments of hygiene into which the pass student cannot be required to range. It has also become recognized that in medico-legal cases the evidence of an expert is often required, yet the average practitioner or, let us say, the average examiner, may any day become involved in medico-legal matters, and every day he is more or less closely concerned with questions of hygiene. It cannot, therefore, be presumed that he is ignorant of these matters: indeed, it is to be supposed that he carries in his mind as much of these subjects as the qualifying student need know.

The preliminary subjects are on a different footing. In them the student has to obtain an acquaintance with many things which are intended rather to serve as a mental training enabling him to approach the study of others, than as an abiding part of his equipment for everyday practice. Many of the facts he learns will be forgotten in great part: few retain anatomical knowledge in detail, unless surgery is the line of practice selected; fewer still retain more than a general knowledge of chemistry or even of physiology.

Hence it may be contended with much force that the subjects of a final examination should not go beyond that which is necessary as the permanent equipment of the practitioner for daily use. This appears to have been very distinctly recognized and acted upon by the Japanese, to whose methods we have recently alluded. They group a certain number of special subjects singly, or two or three in conjunction; the student who has passed in medicine and in surgery draws lots which of these subjects he shall take up, and then has two or three months in which to work up the special subject before offering himself for examination in it. The system has received the approbation of the General Medical Council in so far that it has accorded recognition for registration to graduates trained and examined upon it. In other words it has by a side-wind recognized that the student cannot be omniscient in medicine and need not for the purposes of qualification go deeply into special subjects; the Japanese system, however, differs from our own in that the student is required to go fully into some one special subject, and that not one of his own selection. It further recognizes that he must have time for preparation in this selected subject.

There is a further objection to the multiplication of specialist examiners; experience has shown that specialists have an unconscious, and indeed perhaps an inevitable, tendency to press for the extension of their own subject to a point beyond that which is reasonable; to them, with their minds constantly directed into particular channels, some things may come to appear the very A, B, C of the subject which others regard as lying altogether beyond this limit.

Upon the whole, then, the recommendation of a majority of the Council that the employment of specialist examiners should be extended beyond the point to which it has at present attained is very open to criticism, at all events in its application to the final examinations.

MEDICAL "SPIRIT GUIDES."

We are apt to grumble, by no means without cause, at the licence allowed by our law to unqualified practitioners. It is true we are not much worse off than our brethren in Germany and France, who have the privilege of living under a dispensation which seems to fence round the fold of medicine so securely that no wolf can jump into it. In Germany, in particular, the Temple of Medicine is—on paper—a sanctuary over the gate of which is written *Procul, O procul este profani!* Nevertheless, as may be gathered from Dr. Neustätter's article recently published in the JOURNAL, unqualified practice is perhaps as rampant in Germany as among ourselves. That enlightened country, indeed, is favoured in the possession of certain forms of quackery—notably "nature-healing"—which are peculiar to itself. Among the manifold forms of illegitimate competition with which the profession in many countries has to contend at the present day is that of "spirit guides." In plying their unlawful trade these irregular practitioners are "covered" by persons who at any rate have the outward aspect, with a considerable share of the frailties, of ordinary mortals. They call themselves by many names—healing mediums, clairvoyants, psychometrists, magnetic healers, and so forth. How much the spirit guides relish of humanity is shown by the manner in which they move their "covering" practitioners to advertise; the congenial columns of *Light* are full of the most seductive invitations from spiders of psychic healing to foolish flies to come into their parlour, where they will be entertained, like Polonius, at a supper not where they eat, but where they are eaten. The quality of the advice given by the spirit guides does not strike us as particularly illuminating. The Rev. Genevra Lake says that twenty-eight years ago she became conscious of the admonitions of a supermundane being, who directed her mind to the desirability of abstaining from the use of flesh food. As she was suffering greatly from stomach difficulties, it scarcely needed a ghost to suggest that a change of diet might be beneficial. In another case a medium "psychometrized" a brooch belonging to a young lady said to be consumptive and to be given over by the doctors, and on the strength of the diagnosis they made the spirit guides prescribed some "herbs," and the patient is now well. The cure, it is added, is all the more remarkable as the medium does not normally know anything about herbs.

In a book entitled *Entretiens posthumes du philosophe Pierre de Béranger, dit Abailard*, which has recently appeared, the communications made to a French lady through various mediums are related. These would lead the mere human reader to conclude that the famous lover of Heloïse had forgotten his own philosophy. On other matters his utterances are of the usual platitudinous character of spiritualistic messages, expressed with a non-committal caution which the most diplomatic oracle might envy. As to medicines, Abailard attributed their effect entirely to the animated expectancy of the patient, and said that plain water would do just as well, if taken with the proper dose of faith. The disciple venturing to express a doubt about this, the spirit guide insisted that it was all a question of nerves, adding that all serious practitioners were agreed on the point. Some spirit guides charitably give mortal practitioners a helping hand in the treatment of cases. A transmitter of messages from the unseen world calling herself "Snowdrop" has been moved to write to a distinguished physician in Edinburgh—and doubtless to others—asking them to use "natural and "curative agency," such as natural and pure diet, curative colours, curative clothing, hot baths and bathing. Fruit and hot fruit drinks, says the guide, can cure any disease; but, alas! he forgets to tell us what fruit is to be given and how the hot fruit potions are to be compounded. The spiritual Mentor proceeds: "All "drugs, operations, impure food, and drink (flesh, fowl,

"fish, and alcohol) are forbidden in the spirit world, "therefore against God's law and a healthy soul and "body. Black came into the world through evil agency, "and is against God's divine law." Here Snowdrop, rapt into ecstasy—and incoherence—like an inspired Sibyl, goes on to say: "Your guides earnestly pray that "you will help us in these important matters, and at "their earnest request we must tell you that all vacci- "nators will be punished in this or the spirit world, as "most disease is due to the dirt and poison of vacci- "nation." Really, if the spirit guides wish us to listen to them they must not talk such nonsense. If it is a question of dirt, do they seriously ask us to believe that the disease is cleaner than the remedy? And while they are about it they might tell us on what ground they assume vegetables to be "purer" than wholesome meat or fish? Apparently they regard black as a colour. May we hint that a little training in elementary science would be of distinct advantage to our spirit guides?

THE LORDS AND LONDON AMBULANCES.

IT was with profound regret that we learnt at the close of last week that the Committee of the House of Lords, presided over by Lord Camperdown, had rejected the clauses in the London County Council General Powers Bill which would have enabled Londoners at last to possess a decent and efficient ambulance service. For five years the County Council has, with great deliberation, matured its plans for such a service. It approached the police, but found they were not convinced of any need of more prompt arrangements for dealing with street casualties than at present obtain. The Asylums Board, in extending its ambulance service, excluded the case of street accidents. Evidence poured in from the provinces and from abroad proving conclusively that London was behind nearly all large cities in its method of dealing with injured persons in its streets or public places, and the facts were well placed before the Council and the public by the Association, of which Mr. Reginald Harrison is President and Dr. James Honorary Secretary. The Committee of the House of Commons to whom the Bill was sent unanimously approved the Ambulance Clauses. No dissentient voice was heard at any stage in the lower House. The witnesses who appeared before Lord Camperdown's Committee on behalf of the proposals were Sir William Collins, M.P., and Sir Shirley Murphy. At the conclusion of the former's evidence the Chairman of the Committee said: "I am sure we are all of "opinion that it is very desirable that there should be "a good ambulance service. Of course, as we know, "you cannot have everything you desire, but it is "certainly quite desirable. I do not think there "can be any question as to the desirability." And though Sir Cooper Perry and other representative men from the large hospitals were in readiness to be called, the Committee did not desire to hear them. The only opposition encountered was from the City Corporation, which was in no sense opposed to the Council obtaining the powers, and which is itself proposing to establish a service for the City. The sole ground of objection was to the City being charged for the ambulance service of the Council. It was, therefore, with no little surprise that the public learnt that the Committee, without assigning any reasons, had decided to strike the Ambulance Clauses out of the Bill. Rumour has suggested two possible explanations of this high-handed action. First, that the financial position of the Council would not admit of it incurring the liability attached to this very desirable duty; and, secondly, that the police are the proper authority to undertake it. In regard to the former, we gather from the minutes of the Council that the scheme for the immediate future had been based upon the most moderate lines, with a view to test the appreciation by the public of the new service. The Finance Committee of the Council, presided over by Lord Welby, had raised objection to a costly scheme, but had recognized that its earlier objections had been overcome by the scheme reported by the General Purposes Committee to the Council in December last. As to the police, if we are to judge of the future by the past, they appear to think that the needs of London are adequately met by three antiquated horse ambulances without horses, and neither ready nor fit for immediate use. The duty of the police, moreover, as was pointed out in evidence, is a divided one. They have to clear the traffic as well as to see to the injured in a street smash. Instead of fetching an ambulance they more often whistle up a cab and pack the sufferer into the first hansom or four-wheeler that comes along; and hospital surgeons know the pitiable condition and the dangerous consequences of this mode of conveyance to the casualty department. At the recent terrible tram accident at Highgate we read of the sufferers being transported to hospital on shutters and match-boarding. Is this creditable to the greatest city in the world? We hold no brief for the County Council but see no need to defer to the House of Lords; and, with full professional knowledge and a deep sense of responsibility, we protest against a decision which is opposed to the evidence given and to the legitimate demands of Londoners, while it betrays an almost callous indifference to the claims of suffering humanity.

THE MANUFACTURE OF PAUPERS BY HOSPITALS.

THE *Spectator*, which has been publishing a series of articles under the general heading "The Manufacture of Paupers," reached last week the consideration of the pauperizing effect of hospitals. The article gives a short history of the various attempts which have been made to remedy the hospital abuse in London; it mentions first the report of the Medical Committee presided over by Sir William Ferguson, which in 1870 expressed the opinion that there then existed a great and increasing abuse at various hospitals and dispensaries in the metropolis. The article then quotes the recommendations of the House of Lords Committee, which reported in 1889, records the foundation of the King Edward's Hospital Fund for London, and recalls the fact that the number of out-patients and casualties attended at 86 hospitals had risen from 1,056,852 in 1887 to 1,775,422 in 1904. The *Spectator* expresses the opinion that the metropolitan hospitals, by the maladministration of their out-patient departments, are sapping the independence of the people and helping to manufacture paupers. "These institutions," our contemporary goes on, "are managed by men of great ability. Some "of the managers are trained business men; others "have been, or still are, in one or another of the pro- "fessions. Clergymen of all denominations, soldiers, "sailors, and lawyers, all meet to assist in the delibera- "tions of the Board of their pet charity. As it would "be supposed, men such as these, assisted as they are "by secretaries who are for the most part extremely "able men, imbued with boundless energy, and loyally "devoted to their own institution, do regulate the "affairs of their own charities in a very satisfactory and "enlightened manner; but it is much to be wondered "at that they have not long before this evolved some "scheme whereby the present disorganization in the "administration of our metropolitan medical relief "could be changed, and order and system produced out "of chaos—some well-thought-out method that might "bring about co-operation between the charities them-

"selves, and between them and the infirmaries and "dispensaries under the Poor Law. It will, no doubt, "be a painful surprise to many people to learn that "there is a large body of thoughtful and experienced "people who think that medical relief as it is now "administered in London, more particularly through "the out-patient and casualty departments of our "voluntary hospitals, and through the free and part-"pay dispensaries, is a frightful source of evil, inas-"much as it is to a large extent a waste of energy and "material, and is a means of pauperizing the recipients." The article concludes by expressing the hope that "the "Prince of Wales and the Council of King Edward's "Hospital Fund for London will before long turn their "attention to the out-patient departments, and so "ameliorate their administration that the accusation "made at present, that our hospitals assist in the "manufacture of paupers, may be removed." The article is but a sketch of a very large subject, but its conclusions, coming from so impartial an exponent of public opinion as the *Spectator*, cannot fail to have weight with all thinking laymen.

MILITARY NURSING.

The *Broad Arrow* is again singularly unfortunate in its references to Queen Alexandra's Imperial Military Nursing Service. In a leading article on "The Military Nursing Service" in its issue of July 7th, it brings forward the Toyama Branch Hospital in Tokio as an argument in support of its contention that the nursing section of the R.A.M.C. should be increased, on the assumption that as the Toyama Hospital employed 600 male nurses, such a hospital would absorb three-fourths of our available staff of male nurses. This estimate is incorrect. Six hundred is three-fourths of our peace strength, which does not "form our whole available staff," as the war strength is augmented by the reserves. But this by the way. We should not require more than 250 male nurses, and we might even do without any at all, in hospitals with 3,000 patients, the deficit being made up by female nurses. The fact is that the military hospitals of the Japanese army have no soldier nursing-orderlies. "Such duties are per-"formed by a class of men who are not of sufficient "height, age, or physique for military service, but who "are trained as sick nurses. They are not enlisted "soldiers, but are simply civil employés of the army."[1] In time of war these men go to the front for duty on the lines of communication. Their places in the hospitals in Japan are taken by the nursing sections of the Red Cross Society. In these Red Cross nursing sections the males look after the light cases and the females the more serious cases.[2] The male nurses of the Toyama Hospital were not soldiers, and therefore cannot be compared with the R.A.M.C. The only soldier orderlies of the Japanese army are men in the combatant ranks and reservists who have received a certain amount of hospital training; in war they are employed principally in the "first line." "None of these men do duty as nursing "orderlies or hospital attendants in the military hos-"pitals." In this respect our present system provides better-trained nurses in the field than does the Japanese. Therefore, the British and Japanese nursing systems bear no comparison, though the Japanese rely upon women to nurse severe cases in their base hospitals and hospital ships. Their institutions along lines of communication are not hospitals properly so-called. Consequently they make every effort to get their sick back to the hospitals at the base: in other words, the home territory. So far as the results of treatment in the respective hospitals go, this country has nothing to learn from Japan. But where we have much to admire and to emulate is in the success of the Japanese in preventive medicine. If the *Broad Arrow* desires to utilize Japan as an example for the instruction of the army generally in medical matters, it will find a profitable lesson in the success of that country in coping with sanitary problems in the field. The prevention of disease in war is a theme which engages the thoughts of all those interested in the welfare of the army. If the influence of the *Broad Arrow* were directed towards furthering the spread of sanitation among the *personnel* of the army, it would earn the gratitude of the public, provided the information supplied were more accurate than that furnished on the nursing question. A constructive policy is preferable to iconoclastic effort, but neither the one nor the other is likely to be effective without an accurate knowledge of the requirements of the case.

[1] *Journal of the Royal Army Medical Corps*, vol. vi, p. 244.
[2] Ibid., vol. vi, p. 246 and p. 475.

ANATOMICAL TERMS.

The multiplicity of synonymous anatomical terms is one of the difficulties which stands in the way of every medical man who wishes to master any subject in which he is interested and who does not possess an extensive and intimate acquaintance both with the anatomical terminology of his own country and with several other languages. Not only are several different terms used for the same part—as, for example, in English, we speak of the supraoccipital, the tabular, or the squamous part of the occipital bone—but also the same structure has different names in different languages. Thus, our musculo-spiral nerve is the radial nerve of the French and Germans, and the ulnar nerve of the English and Germans is the cubital nerve of the French. To make the confusion still greater, many parts and structures are called by the names of observers who drew attention to them, but not necessarily by the same name, in two different countries or even in two different cities. The confusion and trouble arising from this state of things was becoming so annoying that as long ago as 1895 the German anatomists arranged a Congress at Basle where the whole matter was discussed, and a Latin vocabulary was adopted which has since been known as the Basle nomenclature. Its advantages are that proper names are rigidly excluded and synonyms are avoided. Since 1895 the Basle nomenclature has been adopted in Germany, and it has also received general acceptance in America. In this country the newer textbooks of anatomy and the more recent editions of some of the older books have inserted the Basle terms after or before the English term; but the Basle nomenclature has not been universally adopted by the English medical profession. This is to be regretted, for the workers in other countries are learning and using the terms, and as a result the writings of English observers are becoming more difficult to understand by other people, and English readers have more difficulty in understanding precisely the meaning of foreign authors. The neglect of the Basle nomenclature in this country is probably due to the fact that hitherto the terms have been printed in Latin only, and no book or dictionary has been readily available containing the equivalents in English and other languages. This difficulty is now, however, partly removed by the publication of a vocabulary of anatomical terms in four languages by Dr. Paul Rodet,[1] the languages being Latin, English, French, and Esperanto. The vocabulary is issued in a convenient and cheap form, and it is based entirely on the Basle nomenclature. Every writer on medical subjects should possess it, and when in his writings he uses anatomical terms he should use those sanctioned by the Basle Congress, not necessarily the Latin form, but at least its

[1] *Nomenclature anatomique en quatre langues*. Dr. Paul Rodet. Paris: Masson et Cie. 1906. (Cr. 8vo, pp. 76. Fr.1.50.)

equivalent in his own language, and he will do this in his own interest if he wishes to place his ideas before his readers in the most readily comprehensible form.

THE CAMPAIGN AGAINST TUBERCULOSIS.

PROFESSOR E. J. MCWEENEY, Bacteriologist of the Local Government Board for Ireland, who attended the International Congress on Tuberculosis in Paris as the Representative of the Board, has drawn up a report upon the proceedings of the Congress, which should be widely circulated and carefully considered by all public health authorities. It may be taken for granted that this report will be read by all health authorities in Ireland, for it has been forwarded to the various urban and rural councils with a memorandum, in which it is suggested that a special meeting of the council should be convened for its consideration. It would be well if all similar authorities in England would also consider the report. The wide range of subjects generally brought forward for discussion at such Congresses makes it difficult for any report to review the proceedings comprehensively with any advantage, and Professor McWeeney has wisely selected from the mass of material presented to the Congress such facts and figures as bear upon the means which may most satisfactorily be employed in large communities to diminish the prevalence of tuberculosis, and some which tend to show the measure of success which has attended these efforts up to the present. The two Continental countries which have taken the lead in the struggle against tuberculosis are France and Germany, and a consideration of the means chiefly employed in these two countries, which differ in the main line of attack adopted, is full of interest and instruction. Speaking generally, the action of communities which have to defend themselves against infectious diseases is necessarily of a twofold nature: (1) To cure those who are already attacked, and (2) to prevent the disease from spreading to the healthy. France, by means of her anticonsumption dispensaries, attacks consumption by seeking to prevent its spread; Germany's plan of campaign places chief reliance upon the cure of those already affected through the establishment of working-class sanatoriums. These two cardinal measures ought to be employed in judicious combination; they may be said mutually to complete each other. It is the system of workers' insurance prevailing in Germany which has made the development of workers' sanatoriums possible, and the complete organization of the various societies not only makes for economy in administration, but facilitates the collection of the statistical information from which some idea of the after-results of treatment may be gathered. Broadly speaking, the figures may be taken as demonstrating that the results justify the expenditure entailed; whilst the progressively-increasing permanence of the success, as shown by the comparison of a succession of years, holds out hopes of still further benefit to the community. As supplementary to the sanatorium scheme, there are the diurnal fresh-air stations and the forest schools which have been established in the neighbourhood of several large towns in Germany. The consumptive dispensaries, which form so prominent a feature of the prophylactic scheme in France and Belgium, seem likely to be fruitful of good results, especially if associated with State-aided or rate supported sanatoriums. Since, in order to take precautions and to give advice, the sanitary authority must know where the cases are, notification forms a necessary part of prophylactic organization, and the tendency seems to be in favour of making this notification compulsory. We may sum up the lesson in this report as follows:—Success depends upon the completeness of the organization for the campaign. A well-thought-out scheme must be put in action throughout the country and controlled by some central authority. Isolated efforts by private individuals or by local bodies lead to small results in proportion to their expense, and though useful adjuncts to a national organization are by themselves inadequate.

A PAY HOSPITAL SCHEME.

A SCHEME for a surgical hostel, which first saw the light last March, is again being brought into prominence and deserves comment. The desire is to raise a sum of £20,000, and with this to erect and equip a building suitable for the reception of every kind of surgical case in the female sex. Into this establishment, which it is proposed shall accommodate from 80 to 100 patients, three classes of patients are to be admitted—the first paying nothing at all; the second a fee of 3 guineas a week, to include all the expenses of their treatment; and the third such a weekly rate as shall cover the whole expense of their maintenance, exclusive of professional attendance, and leave a balance in hand. The first two classes are to receive the gratuitous treatment of a permanent medical and surgical staff; those who belong to the third are, with the sanction of the Managing Committee, to be allowed to arrange for their treatment by any surgeon of repute, the fees they pay being a matter between them and the surgeon. It is intended to start work as soon as £5,000 has been collected, and it is estimated that the institution once built would pay its way. In its favour the promoters of the scheme suggest that on the one hand it would not be in competition with any existing enterprise with the same purpose, or interfere with any future paying hospital, and that on the other it would meet the needs of numbers of ladies who are too poor to pay under ordinary circumstance for the treatment they require, and prefer to remain unattended rather than seek gratuitous relief. The profits, if any, are to go towards the establishment of a similar place for men. The names of the supporters of the scheme mentioned in the prospectus are those of persons more or less well known in society, but we do not recognize any of them as people having any particular familiarity with questions of hospital enterprise. Only two medical men at present figure in connexion with the scheme. These are Dr. Norris Wolfenden and Surgeon-General Sir William Hooper, K.C.S.I., I.M.S.(ret.), both of whom are on the Managing Committee. The scheme as it stands, admirable as doubtless is its object, possesses several weak points, one being that an institution of 100, or even 80 beds, and of the type demanded, cannot possibly be built in London for as little as £20,000 or anything like that sum. The second is the contention that such an institution, if established, would really meet the scruples of those who do not desire to be the recipients of charity. Persons who occupy beds in an institution for which they pay either nothing or merely a nominal sum are not less the recipients of charity because the principal source of the charity is the medical profession. This is a fact to which the general public remains curiously and persistently blind. The scheme, as a whole, is really one for the establishment of a large nursing home, the only originality of which is that it is openly put forward that losses on poorer patients are to be recouped by the payments of the richer, and that the initial expenses are to fall not on private speculators but on the general public. The success of the scheme, moreover, is likely to be handicapped by the prospective arrangements as to a medical staff. Surgical skill, as we have before had occasion to observe, is nowadays the possession of the many and not of the few. There are large numbers of men in general practice who are willing and thoroughly

competent to complete the treatment of their patients themselves for fees adapted to the financial exigencies of their patients, if only they are provided with the ordinary facilities found in hospitals and good nursing homes. It would, therefore, be superfluous and disadvantageous in this new establishment to limit the power of choosing their own medical attendant to those who pay the highest rate.

THE INTERPRETATION OF LUNACY LAW.

A CASE which was recently heard in the Privy Council, by way of an appeal from the Supreme Court of New South Wales, involved the discussion of an interesting question as to the powers of the committee of a lunatic. It appeared that an action was brought in the Colony by a person who had been of unsound mind to recover damages from his committee which had caused him to be confined in an asylum. It appeared that the committee, acting upon medical advice, had caused the appellant to be removed to an asylum where he was detained from September, 1902, to February, 1903. Upon his release he commenced the action. The Supreme Court decided that he had no right of action, and the Privy Council have held that this is a correct ruling, having regard to the lunacy law of the Colony. It would seem, indeed, that in this particular the Colonial law is similar to that in force in England. "The learned counsel (for the appellant)," said Lord Halsbury, "has insisted with great care and diligence "on the right of the subject to liberty. But that right "must always be subject to this limitation, that if a "person is not of sound mind he must be subject to "the authority of others who are, and the suggestion "that everything that is to be done by a committee "must be sanctioned by an order of the Court, "would render the administration of the lunacy "laws practically impossible. In this case there "has been no suggestion of impropriety in the "conduct pursued towards the lunatic. To maintain that the committee of a lunatic cannot, under "proper medical advice and with due care and without "excess or violence, confide to a properly-qualified "medical man, or to a properly-constituted lunatic "asylum, the care of the person whom it was her duty "to protect and look after, seems to their Lordships an "extravagant proposition." The protection which the law gives to the committee is also accorded to the practitioner upon whose advice the committee acts. It was long ago decided in our own courts that a medical man who has merely signed a certificate, and has done nothing more towards causing the confinement of a lunatic, is not liable in trespass. Nor, if he has merely consulted another medical man who has signed the other certificate, and told him his idea of the case, is he liable for causing the other to sign such certificate. But if he signs such a certificate without taking due care and making due inquiries he is liable for the consequences which ensue, and this gives a loophole of which litigious persons have not been slow to avail themselves. Further, if on his own personal examination he is not satisfied, he is bound to make due inquiries.

BACTERIAL VACCINES AS A CANCER CURE.

HAVING received from MM. Jacobs and Geets a somewhat remarkable article on the treatment of cancer by inoculation with bacterial vaccines, the Belgian Royal Academy of Medicine instructed M. Van Ermengem, in co-operation with M. Debaisieux, to examine the article and report upon its value. From this report we learn[1] that MM. Jacobs and Geets attribute to Doyen's *Micrococcus neoformans* a "primordial rôle" in the development of malignant neoplasms. They have not, however, been able to discover the least therapeutic value in Doyen's anticancer serum. This preparation in their hands has been found to be not only inactive from the clinical point of view but to be devoid of all bactericidal, bacteriolytic, agglutinative, or opsonic power when tested against the organism which has yielded the cultures used in obtaining the serum. In their own investigations they have treated the disease by inoculations with a vaccine obtained from sterilized cultures of the *Micrococcus neoformans*. This vaccine must be administered in exactly measured doses, and the treatment must be controlled throughout by repeated estimations of the opsonic index if good results are to be obtained and disastrous effects avoided. It is essential, therefore, to make a careful study of variations in the opsonic index. When the patient is not entirely devoid of defensive resources this index rises after one or two injections, and in favourable cases continues an upward course, whilst both the general and local condition improve in a striking manner. With patients who are in an exhausted state the opsonic index remains stationary, and in these cases, if the injections be repeated imprudently, it may fall even lower, and then there soon supervene the clinical manifestations of a hopeless cachexia. On the other hand, when the vaccination attains its object and the opsonic index is maintained above the normal, the infiltration in the neighbourhood of the cancerous foci and the inflammatory reaction subside, the tumour makes no further progress, and the disease appears to be definitely checked. The time has then arrived for surgical intervention, for the neoplasms, being sources of toxins secreted by the cancer cells, must always be removed; it is impossible for them to disappear by total resorption, and their histolysis would necessarily give rise to toxaemia. The main contention, then, of MM. Jacobs and Geets is that vaccination with *Micrococcus neoformans* is a valuable remedy against cancer, provided that it be conducted with proper care and with due regard to the general principles of opsonic action which have recently been elaborated by Wright; but the Commissioners, in their report to the Academy, do not see their way to accept this position. They have examined the evidence of cures or "ameliorations" which MM. Jacobs and Geets claim to have effected by their method, and find that the facts adduced are somewhat scanty and far from convincing. They have therefore come to the conclusion that the authors have not proved their case. They also point out that the significance of Doyen's microbe in malignant disease is far from established, and they do not consider that Wright's theory of opsonins is sufficiently well established to justify the assumption that it can be successfully applied to the therapeutics of cancer.

[1] *Journal de Chirurgie et Annales de la Société Belge de Chirurgie*, May, 1906.

RESCUE WORK IN MINES.

THE appalling disaster at the Courrières mine in France has compelled us to reflect and ask ourselves the question whether all is well with us at home. Are British mines provided with safety appliances, and do the miners know how to use them? The value of the Fleuss apparatus has already been tested in England. Although it was as far back as 1853 that Professor Schwann of Liège indicated how men could penetrate into galleries containing irrespirable gas, it was not until 1883 that his apparatus for the regeneration of the air after respiration was constructed. The object of the apparatus is to absorb carbonic acid, and add oxygen in the necessary proportions. It was constructed upon the principle enunciated by Regnault and Reiset that the same volume of air can be continuously employed for breathing purposes so long as it is freed from carbonic acid and the oxygen consumed in the act of breathing is replaced by fresh oxygen. This was the

starting-point of work in this particular direction. The oxygen had to be carried ready-made and under pressure, and the carbonic acid was absorbed by hydrated peroxoide of baryta. It was the same idea which Fleuss put forward when in 1880 he exhibited his apparatus, and which was used at the Seaham Harbour collieries in Durham, and subsequently modified at the Government mines at Saarbrucken. The defect in Schwann's apparatus was that it did not supply sufficient oxygen to men who had to undergo considerable muscular exertion, when the consumption of oxygen by the muscles is fully eight times more than when the body is at rest. Instead, therefore, of supplying only 30 cubic inches of oxygen a minute, experiments carried out at the Shamrock mine in Westphalia showed that a regular supply of 122 cubic inches of oxygen a minute is necessary. It is these experiments which have "laid the foundation for the principles controlling the design of the magazines of oxygen under "high pressure for breathing appliances." Mr. Meyer, in a paper read recently before the Institution of Mining Engineers,[1] gave an interesting and exhaustive account of the use of such appliances and an analysis of the gases removed from the apparatus when in use. It is important to bear in mind that in rescue work it is necessary not only to provide oxygen, but also to remove carbonic acid and prevent the accumulation of non-respirable gases in the neighbourhood of the mouth of the rescuer. These difficulties have to a large extent been overcome in the portable safety appliances that can now be bought. The world greeted with applause the arrival of the Westphalian rescue mining party as Courrières, and France gratefully accepted the proffered assistance. To Bergmeister H. Engel, of Essen, who suggested the rescue expedition to the mining district in the north of France, it must be a source of considerable gratification that the offer was accepted. It has raised the mining authorities of European and other countries to a sense of their responsibility towards those who work in the mines, and our own Home Secretary, it may be remembered, appointed a Commission to deal with this and other problems affecting the health and risks of life of miners.

[1] Rescue Apparatus and the Experiences Gained therewith at the Courrières Collieries by the German Rescue Party. Paper read at the Institution of Mining Engineers by G. A. Meyer.

COTTON MATHER AND INOCULATION.

Dr. Thayer, Professor of Clinical Medicine in the Johns Hopkins University, has recently published an interesting article on Cotton Mather's ideas of hygiene.[2] That eminent New England divine studied medicine when a youth, and utilized his knowledge of the healing art to some purpose afterwards, as will be shown. It is a mistake to picture him as simply a hard, conscientious, ultra-Puritan bigot. The main reason why he is misjudged lies in the fact that he was a firm believer in witchcraft, as was the gentle Charles Wesley, but further took an active part in the persecution of crazy and hysterical women. It seems odd that the Anglo-Saxon maintained the need of judicial persecution of sorcerers and sorceresses in days when a bigot of another type, Louis XIV, had already discouraged it. Cotton Mather, however, was in reality a humane opponent of sorcery. He was no ignoramus in secular knowledge; indeed, he could write seven languages, including Iroquois, at a date when the great bulk of the clergy in England knew nothing of living languages. Mather also understood hygiene. His *Angel of Bethesda* was an intelligent essay on the common maladies of mankind; it was, however, never published in full. It includes a note of "a grievous and fearful "disease . . . the Dry Belly Ache," which Dr. Thayer believes signified appendicitis. The work in question, however, included some most interesting notes on inoculation, and, as Dr. Thayer shows us, Mather, impressed by the benefits which the introduction of this practice might bring to a city in which small-pox was spreading, urged Dr. William Douglas, the leading physician of the town of Boston, to introduce inoculation. Douglas refused, as did all the other doctors save one, Zabdiel Boylston, who in June, 1721, inoculated three persons, including his own son, a boy aged 13. This was only about six weeks after the introduction of the practice into London, at the instigation of Lady Mary Wortley Montagu. The public, including the bulk of the clerical and medical professions, violently assailed Mather and Boylston. A convalescent patient was known to be residing in Mather's house. A mob assailed it, and someone threw a bomb into the patient's room, but the fuse fortunately failed to explode. Attached to the bomb was a polite note: "Cotton Mather I was once of your meeting, but "the cursed lye you told of—you know who, made me "leave you, you Dog. and damn you, I will enoculate "(*sic*) you with this, with a pox to you." The last sentence was clearly meant for a grim jest, and it shows that one of the several terms of abuse which it contained, a word very frequent in eighteenth-century literature, was sometimes meant to signify variola rather than syphilis. Mather, thus in danger of being a martyr to science, took the prospect as a saint, not a sage. In his journal he wrote: "I had much rather dy "by such hands as now threaten me than by a Feaver," adding a sentiment which shows how well he represented a very transitional phase of thought, for he states he would rather be sacrificed "in essays to save "the lives of Men from the Destroyer, than for some "Truths, tho' precious ones, to which many Martyrs "testified formerly in the flames of *Smithfield*." In short, Mather was half Latimer, half Galileo, but as tough as the former and much firmer than the latter. It is satisfactory to find that neither Mather nor Dr. Boylston were persecuted any more. A year later Boylston and two colleagues had inoculated 286 persons with but 6 deaths, 3 of which may have been due to previous contraction of the disease from other sources; whilst amongst 5,579 uninoculated who took the disease during the same period, 840, or more than 1 in 7, died. Of the survivors, let us bear in mind how many must have been grievously disfigured, or even blinded! Boylston gained well-credited fame in the United Kingdom as well as in the American Colonies, and we now know, thanks to Dr. Thayer's researches, that his fame was grounded on his practical recognition of Cotton Mather's advocacy of inoculation. Thus the New England divine deserves well of humanity.

[2] "Cotton Mather's Rules of Health," *Bulletin of the Johns Hopkins Hospital*. September, 1905.

"BLOODLESS SURGERY" AND THE HAIR.

For a long time past Mr. H. A. Barker, who calls himself a "bloodless surgeon," has been in the attitude of Elijah Program, challenging the universal earth. He challenges surgeons, who are by implication bloody, to a contest in the art and mystery of bonesetting, and he professes most virtuous indignation because they let him severely alone. He cannot reasonably complain, for he gets an advertisement out of his challenge without risk of forfeiting the stakes. It might indeed be thought that he had reached the topmost height of such fame as bold advertisement can give, for has he not received the supreme consecration of an interview with Mr. Raymond Blathwayt? That gentleman used to be the champion interviewer, and we are disposed to sympathize with him in the fate which has brought him, who, erstwhile would look at nothing less than a bishop, down to a bonesetter. And the interview has not

the merit of being amusing; even Mr. Blathwayt's radiant pen could not lighten the dullness of the subject. Mr. Barker, with the modesty of true genius, attributes his success to "a natural gift, enormous practice and "experience which is unrivalled in its variety, and to a "certain dexterity in manipulation." To another interviewer Mr. Barker confided that he was a manipulative surgeon, and we have no difficulty in believing that he is a pastmaster in the art of manipulating patients. He has eclipsed the Blantyre collier and other rivals of whom we used to hear so much; one is almost tempted to suppose that certain newspapers, whenever there is a dearth of other sensations, give him a "turn." Is it surprising that the tremendous strain of so much puffing and so many bloodless victories should begin to tell on him? As Achilles had a vulnerable point on his heel, so Mr. Barker has one in his hair. Is it possible that the obsession of bloodlessness causes a corresponding condition in his scalp? In an advertisement of the last new specific, which is adorned with his portrait, he says that for some years his hair has been getting thinner, adding: "Last year, when such an enormous strain was put "upon me during my operations in 'bloodless surgery,' "which caused world-wide criticism, I began to develop "bald patches." Some one recommended the infallible elixir to him and rapidly fresh hair began to grow, and so on to the old, old tune. Samson, who also suffered the loss of his hair, may have been stronger, but assuredly he did not manipulate its recovery so skilfully to his own profit as Mr. Barker!

THE MENDELIAN DOCTRINE.

Problems of heredity must always be matters of interest to practitioners of medicine, and inquiries which have reached us during the last few months justify the belief that very many readers will be glad to have an opportunity of studying the exposition of the Mendelian doctrine which Mr. Bateson, one of its chief supporters in this country, gave to the Neurological Society a short time ago. With the assistance of Mr. Nettleship he was able to bring forward some interesting facts with regard to congenital cataract the occurrence of which in families appears on the whole to obey the law of Mendel. It is to be hoped that Mr. Bateson's appeal to medical men to make careful records of the distribution of deformities or defects in families will meet with a general response. It may be that he is too dogmatic, and Professor Karl Pearson has told us that a very complete Mendelian system worked out by him leads to general principles singularly like those proposed by Mr. Galton from observation, but it is certain that the discussion raised by the enthusiastic supporters of the Mendelian doctrine will do good, if only by stimulating observers to greater accuracy and completeness. That the observations now being made may have an important bearing on pathology and on the prevention of disease, is suggested by the interesting observation quoted by Mr. Bateson at page 63, with regard to rust in wheat. It would appear that the relative or complete immunity to this disease is a distinct, so-called recessive, quality transmitted according to the law observed in respect of colours and other qualities in certain plants and animals. The observation is undoubtedly most suggestive, and cannot fail to arrest the attention of pathologists, whether human or veterinary.

THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE.

We publish elsewhere a description of the building of the new Royal Victoria Infirmary, Newcastle-on-Tyne, for which we are indebted to Dr. D. Drummond, Chairman of the medical staff. The Infirmary has cost £300,000; of this amount £109,000, including £20,000 contributed by the working men in the district, was yielded by the Queen's Commemoration Fund, founded by Sir Riley Lord when mayor in 1896; the late Mr. John Hall gave £100,000, and Lord and Lady Armstrong a like amount. The King and Queen were received by Lord Armstrong, chairman of the house committee, and Sir Riley Lord, chairman, and Sir George H. Philipson, vice-chairman of the building committee. A number of presentations were then made, including Dr. G. H. Hume, of whose *History of the Newcastle Infirmary* the King accepted a copy; Dr. Drummond was also presented, as were the architects and representatives of the workmen and co-operative societies. The address presented by the governing body recalled the fact that His Majesty had laid the foundation stone of the Infirmary on June 20th, 1900, in the name of Queen Victoria. The King, in his reply, said that it gave great pleasure, both to the Queen and himself, to open the fine building which was to bear the name of Queen Victoria, his beloved mother. His Majesty expressed the gratification with which he learned that the workers had given so generously towards the infirmary from which they would secure benefits of the greatest value in a city where there were many industries involving risks to life and health. The King then referred to the good work done by Dr. Thomas Oliver, Physician to the Infirmary, in connexion with diseases due to dangerous trades, and concluded by stating that the Queen and himself willingly agreed to the proposal that two wards should be named Edward VII Ward and Queen Alexandra Ward respectively; subsequently Their Majesties inspected some of the wards, and the King unveiled the statue of Queen Victoria which has been placed in front of the building. Before visiting the infirmary Their Majesties had opened the Armstrong College of the Durham College of Science in Newcastle.

A Pathological Society for Great Britain and Ireland, similar in character to the Physiological and Anatomical Societies, is to be formed at a meeting in Manchester this day (Saturday).

It is rumoured that an examination for commissions in the Royal Army Medical Corps is to be held at the end of this month, but no official notification on the subject has reached us. The War Office reminds us of the old lady in reduced circumstances who tried to get a living by selling muffins but hoped no one would hear her bell.

The Section of Physiology at the annual meeting of the British Association at York next month will be presided over by Professor Gotch, F.R.S., who will give his Presidential address on Thursday morning, August 2nd; afterwards the Committee on the Metabolic Balance-sheet of the Tissues will present its report, and on the following day the Committee for the Investigation of the Effect of Climate upon Health will make a report. A discussion on the physiological value of rest will be opened by Dr. T. D. Acland on Monday, August 6th, and on Tuesday, August 7th, a joint discussion with Section B (Chemistry) on the factors which determine minimum diet values will be opened by Dr. F. Gowland Hopkins, F.R.S.

Dr. Lennox Lindley, formerly Assistant Physician, has been appointed Physician-in-Chief to the Shah of Persia. He has also been decorated with the Timsah, the highest Persian order, to mark His Majesty's appreciation of Dr. Lindley's services during a recent illness, which at one time caused much anxiety and led to the

circulation of many rumours. The state of His Majesty's health has not been satisfactory for some years past, but it is now officially announced that he is quite recovered. Great satisfaction has been given to the English community by the appointment of a fellow countryman to be Physician-in-Chief, a post until lately held by Dr. Schneider, a Frenchman, who succeeded Sir Hugh Adcock, C.M.G., when he resigned about two years ago on account of ill health.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

The Metropolitan Asylums Board.—On Monday Sir John Jardine put a question to the President of the Local Government Board complaining of the rules and regulations of the Board, and suggesting that a circular be issued prescribing forms of reports on patients. Mr. Burns said in reply that the Managers of the Metropolitan Asylums District had, as he was informed, no reason to believe that delay frequently occurred in answering letters of inquiry concerning patients in its hospitals, nor had he received any complaints on the subject. He understood that the certifying medical practitioner was always informed by the Medical Superintendent when the letter did not agree with the certified diagnosis. Notice of the arrival of a patient at a hospital was always sent to the parents or other nearest known relative or friend. Extracts from the regulations were printed on the notice, and these showed that inquiries as to the condition of the patient might be made in writing of the Medical Superintendent, who would send an early reply, and that should the patient become dangerously ill notice would be sent to the nearest known relative with an intimation that the patient might be visited. He believed it was in other hospitals of local authorities the general rule to give notice when the patient was dangerously ill. As at present advised he did not think there was sufficient ground for adopting the suggestion made in the question. He thought the public attention drawn to the subject would meet the object of the question.

The Enteric Fever Outbreak at the Belmont Asylum.—Mr. Straus asked the President of the Local Government Board whether he intended to suggest to the local authority concerned the desirability of taking legal action against the Metropolitan Asylums Board for omitting for 14 days to notify the outbreak of enteric fever—in fact, until there had been more than 50 cases; and whether he could say why the Metropolitan Asylums Board did not use the ordinary test for enteric fever, which would have taken but a few hours. Mr. Burns replied that he was informed that the facts were not quite as supposed. He understood that the first notification of the cases of enteric fever at the Belmont Asylum was made twelve days after the earliest manifestation of illness amongst the inmates, and that the number of persons who had then been attacked was ten. At first the patients were supposed to be suffering from influenza. When, however, suspicion arose that the disease was enteric fever, the necessary apparatus for applying the test referred to in the question was obtained, and samples were sent to the bacteriological laboratory of the Asylums Board. On the same day that the real nature of the disease was ascertained as a result of the bacteriological test notification was made. He did not propose to suggest to the local authority to take proceedings against the Asylums Board in the matter. Mr. Straus asked whether twelve days was a long period to allow to elapse before notification. Mr. Burns agreed, and said the Metropolitan Asylums Board was taking steps to prevent such a thing happening in the future.

Vaccination.—Mr. Lupton asked the Secretary of State for Foreign Affairs last week whether he would ascertain and inform the house which of the cantons constituting the Swiss Republic had abolished compulsory vaccination, and which of them still enforced it; and whether the population of the cantons in which compulsion had been retained showed a liability to small-pox greater or less than the liability shown by the population of the cantons which had abolished compulsion. Mr. Runciman replied that the latest information (1900) respecting the vaccination law in Switzerland represented two cantons as having never passed such law, nine cantons as having repealed a former vaccination law, two cantons as not enforcing their vaccination law, and twelve cantons as having vaccination law more or less in force. Switzerland in recent years had not suffered much small-pox: in the period 1900-4 (inclusive) there occurred in that country some 800 cases only of the disease. These cases were fairly evenly distributed between the thirteen cantons not enforcing and the twelve cantons giving effect to vaccination law. But though the disease might be regarded as fairly evenly distributed in the five years in question over the whole population, it affected very differently children under 10 years of age. Of the 800 odd small-pox attacks, 180 were of children under 10; and of these 180 children 26 were recorded as vaccinated, while 154 were returned as unvaccinated. Of the 26 vaccinated children taking small-pox, none died; whereas of the 154 recorded as unvaccinated and attacked by the disease 27 died.

Vaccination Certificates.—Mr. Brace on Monday last asked the Home Secretary if he proposed to take any steps to protect the rights of the citizen under the conscientious objection section of the Vaccination Act in consequence of refusals to grant certificates of exemption, as in the case at Porth. Mr. Gladstone replied that the justices at Porth twice considered applications from Mr. Griffiths, but were not satisfied that the applicant conscientiously believed that vaccination would be prejudicial to the health of his child. At Ystrad and Pontypridd the Court refused to review the decision of the other magistrates. He had no authority to take any action in the matter. Mr. Lupton also called the Home Secretary's attention to a case in which a certificate of registration costing 3d. had been refused by the magistrates as evidence of birth, and a certificate of birth costing 2s. 6d. demanded, and asked him to take steps to alter this condition of things. Mr. Gladstone said that the 3d. certificate mentioned was not a certificate of birth, but only one of registration. It had been held by the High Court that magistrates were entitled to require a certificate of birth unless some reason was shown why it could not be given. He had no authority to intervene in the matter.

Vaccination Notices and Fines.—Mr. John Taylor asked the Secretary of State for the Home Department whether he was aware that Richard Dixon, of Birtley, was prosecuted under Section 29 of the Vaccination Act of 1867 at Chester-le-Street Police Court on July 4th; that the public vaccinator admitted in evidence that he had not called to offer vaccination at the home of the child before the cause of complaint arose, namely, before the child attained the age of six months, and that when he did call at the home, after the child had attained the age of 7 months, he did so without having previously given twenty-four hours' notice of his intended visit, contrary to the provisions of Section 1, Subsection (3) of the Vaccination Act, 1898; and whether he would remit the fines and costs inflicted at Chester-le-Street Petty Sessions. Mr. Secretary Gladstone replied that the justices convicted the defendant of neglecting to have his child vaccinated within six months of birth without rendering any reasonable excuse for such neglect. They took the view that the notice and visit contemplated by Section 1 (3) of the Vaccination Act, 1898, were not conditions precedent to a conviction. This was a question of law which he had no authority to determine, but he understood the justices had agreed to state a case for decision of the High Courts, and while the matter was thus *sub judice* it would be improper for him to interfere. Mr. John Burns, to whom the same question was put, said he was aware of the case. He understood that the public vaccinator did not give notice before he visited the home of the child because he had been informed by the father that he would have the child vaccinated by his own doctor, and under the circumstances he did not think notice necessary. The inspector who was said to have advised this course retired a few years ago, and he had not been able to learn from him what advice he had given as to notices, but the public vaccinator stated that in future cases he would endeavour to carry out rigidly the provisions of the Vaccination Acts in this matter.

Ireland.

PUBLIC HEALTH CONGRESS AT CORK.

The Cork Water Supply.

THE Congress of the Royal Institute of Public Health was resumed on Monday, July 2nd, when the most controversial subject discussed was the Cork water supply. Major Jackson, R.A.M.C., said that, judging from frequent inspection of the waterworks and from the testing of the source, and the result of the numerous analyses of the water, he had no hesitation in condemning the drinking water supplied by the municipal waterworks as unwholesome and dangerous. The supply was polluted with impure unfiltered sewage-laden river water, and the medical officer had advised that the drinking water supplied by the municipal authorities should be boiled. Major Jackson recommended the adoption of a suitable gravitation scheme, in spite of the large initial expense.

Mr. D. J. O'Mahony, City Analyst, defended the water supply, and pointed out that the recent outbreak of typhoid fever was traced to the milk supply. He gave the result of his various analyses and also a favourable result from Professor Franklin. He hoped that when the present extension of the filtration tunnel was completed, it would supply the increasing demand, and give a complete supply of filtered water. The city was singularly free from outbreaks of sickness, and the River Lee was frequently inspected.

Mr. Thomas Farrington, F.C.S., Cork, as an independent witness, pointed out that a great improvement would be made in their water supply in the near future. In summer, when the water was low, the water supply was not bad because at that time the river was mostly fed by springs.

Major Jackson, in reply, said there was not as much typhoid as might have been expected in Cork, but this did not justify waiting till it came before taking precautions. Professor Franklin referred to water taken from the tunnel. Cork should take warning, and provide itself with a pure water supply by gravitation.

School Medical Officers.

On Tuesday, July 3rd, Mr. Marshall Jackson, Past-President of the National Union of Teachers, and Chairman of its Parliamentary Committee, read a paper on the advisability of appointing school medical officers; £16,000,000 was spent, he stated, on elementary education in England and Wales, and as the future of 5,000,000 of children was thus affected, he was of opinion that it was important to see that the best value was got for the money. There could be little doubt that in the past what was ascribed to dullness or laziness on the part of the children was really the result of some physical defect, and a school medical officer was absolutely necessary. In the opinion of the Commissioners of Education, experience had so far proved that school discipline by no means suffered under medical regulations, and that the school physician and school principal, working in complete union, could together promote the interests of education. In Germany the medical examination of the children, on entrance, was very exhaustive, and in Paris there seemed to be a very complete system of medical inspection. He thought that the appointment of school medical officers should be an essential part of school organization. A physician should visit the schools regularly at least once a fortnight, and the purpose of each visit should be (1) to examine thoroughly the new entrants, so as to inform the teacher of the physical condition of each child; (2) to examine such children as the teachers of the school considered required medical treatment; (3) to examine from time to time the children who had previously been found defective. The medical examination of the children should deal specially with hearing, sight, breathing, the heart, lungs, nose, throat and teeth. The medical officer should advise as to cases of exclusion and also see that when children were excluded on account of diseases which required treatment the proper remedies were applied by their parents. He should advise on all questions of building ventilation, lighting, sites and sanitary arrangements. Where necessary the education authorities should be empowered to provide for or aid the provision of medical or surgical treatment of those scholars who without it would be unable to take full advantage of the education provided. Clause 35 of the Education Bill, if not sufficiently strong, should be amended so as to give full powers to education authorities to treat the children medically or surgically.

Dr. Snell, M.O.H., Coventry, said Japan had good school medical officers, and he was of opinion that as education was compulsory in the United Kingdom it was an almost necessary corollary that medical inspection should follow.

Dr. Arthur Sandford of Cork, in a paper on the importance of early attention to affections of the special senses in children, insisted that it was the duty of medical men, as enlightened guardians of public health, in season and out of season, to urge upon parents the necessity of taking a larger and more intelligent interest in ascertaining at an early age how far their children were endowed with sight and hearing, and how far the causes of any imperfections could be remedied or removed.

Sanatoriums for Consumption.

Dr. Nash of Southampton, in the Section on Preventive Medicine, advocated the provision of cheap sanatoriums for tuberculosis; but Dr. Cameron of Leeds thought that the Government should come to their support, while the local authorities should still retain responsibility. Mr. Malinson of Edinburgh paid a tribute to the noble work done in his city by the hospitals, and said if a rate were struck for the prevention of the disease in Edinburgh 6,000 deaths annually occurring would be reduced by half. On the motion of Councillor Askew the following resolutions were adopted:

1. That in the opinion of this Congress the time has come when the Government should encourage and contribute towards providing and maintaining a sanatorium for consumption.
2. That it is desirable that every health authority should appoint a skilled bacteriologist whom any medical practitioner might consult in suspicious cases of consumption.

Infantile Mortality.

The following resolution was also passed on the motion of Miss May Yates, seconded by Sir Charles Cameron:

Whereas the ignorance about food tends directly and indirectly to produce infantile mortality and physical degeneration, it is resolved that this Public Health Congress recommends that an educating food campaign be started to spread scientific information about this important subject.

Alderman Cohen advocated the appointment of lady inspectors to go around and tell the mothers what to do and what class of food they should take.

The Prevention of Tuberculosis in France and Germany.

Professor McWeeney contributed a paper pointing out what was being done in France and Germany to prevent tuberculosis. The mainspring of the enormous development of energy directed towards the prevention and cure of tuberculosis throughout the German Empire was undoubtedly the system of workers' insurance prevailing there. By means of a tax contributed from the wages of every worker vast sums were accumulated, and were applied for the purpose of affording contributors and their families assistance in the event of their being prevented from gaining their livelihood. Nearly £56,000,000 sterling had been distributed during the last eighteen years in sick pay, and nearly £41,000,000 in "invalidity pay," or weekly payments to workmen's families when the illness was protracted over three months. One of the largest items in this huge expenditure was the working-class sanatoriums, of which about ninety had been already established. The cost of erection varied from £25 to £275 a bed on the level, and from £325 to £350 in mountainous situations. During the last eight years over 90,000 consumptives of the working classes enjoyed the advantages of an energetic modern treatment of this disease in these institutions without expense to themselves, the cost being borne by the insurance societies, of which they were (compulsory) members. The average duration of treatment was about seventy-five days, and the cost about £18 a patient a year. The immediate object of the sanatorium was to keep the workman off the sick list, to restore his working power, and save the money he would be entitled to draw under the insurance system.

Those in control of the system had gone further. They had subsidized local sanitary authorities in order to enable them to furnish improved dwellings for the working class and to effect other sanitary reforms. In this way nearly £9,000,000 had been spent down to 1904. Remarkably good results were claimed for the sanatorium treatment, nearly 50 per cent. of those treated being still able to work for their living five years after leaving the sanatorium. Their influence for good did not end here, for it was in the patient's mode of living after his return home that the influence of sanatorium treatment was most markedly and beneficially exercised. He greatly improved the hygienic condition of his home and the ideas of his family and friends. Fresh-air stations were also established; a diurnal fresh-air station was a sort of clearing in the forest whither the consumptive could repair in the early morning, spend the day, and return home at night to sleep. Shelter and food were provided and school for the children. The plan was well worth trying in Ireland—for children, at any rate. Consumptive dispensaries attained their greatest development in France and Belgium. The object was to get into touch with the poor suffering from tuberculosis and advise them how to stay the progress of the disease in themselves and avoid infecting others. This was attained partly by trained inspectors drawn from the working classes, who found out cases of "neglected colds," suspicious coughs, and cases of wasting without apparent cause. Managers of works, of railways and tram companies, and big business concerns were also asked to report to the dispensary such suspicious cases as come to their knowledge. Each applicant was interviewed separately by the Committee, his or her circumstances, wage-earning power, etc., ascertained, and he was then passed on to the medical officer for examination. A laboratory was provided, but prescriptions and drugs were not given. Should the patient be poor, material assistance was afforded in the shape of food, clothes, spittoons, etc. An interesting discussion followed.

PUBLIC HEALTH OF BELFAST.

The monthly report on the health of Belfast, presented at the ordinary meeting of the City Council on July 2nd, showed that the total mortality was 20.8, and for children under one year, 3.7; 140 cases of zymotic diseases had been notified, including 30 of typhoid and 21 of simple continued fever; 75 deaths occurred from zymotic diseases, including whooping-cough; and 92 from phthisis. Dr. Symmers, Musgrave Professor of Pathology, reported on the samples of cockles and periwinkles gathered on the shores of the Lough, which had been sent to him; of 27 samples, 10 showed distinct sewage contamination, and the remaining 17 contained putrefactive organisms in abundance; the shellfish were unfit for human food. The Chairman of the Health Committee (Dr. King-Kerr) drew attention to the satisfactory reduction of typhoid during the last three years. The Health Committee had placed notices on both sides of the Lough, warning the public of the danger of eating these shellfish. He said, also, that there had been considerable irregularity and carelessness on the part of medical men in the matter of notification of the infectious diseases. Alderman Dr. O'Connell drew attention to the high infant mortality.

Scotland.

PROPOSED TESTIMONIAL TO THE RT. HON. R. FARQUHARSON, M.D.

A PUBLIC meeting was held within the County Hall, Aberdeen, on Friday, July 6th, to consider what steps should be taken to recognize in some manner the long and faithful services which Dr. Farquharson, ex-M.P. for West Aberdeenshire, has rendered to the community generally. Sir John C. Clark, Bart., of Tillypronie, Vice-Lieutenant of the county, presided over an influential gathering. On the motion of the Chairman, seconded by Mr. Gordon, of Newton, Convener of the county, and supported by Sir David Stewart, Colonel Innes, of Learney, Lord Provost Lyon, and ex-Lord Provost Fleming, the following resolution was cordially adopted:

> That this meeting tender to the Right Hon. Robert Farquharson, of Finzean, M.D., their heartiest congratulations on the high honour recently conferred on him by the Crown; and further resolve to present him with some suitable testimonial in token of their affection and regard on the occasion of his retirement from public life.

A committee was appointed to take the necessary steps.

DR. DOW OF DUNFERMLINE.

Dr. William Barrie Dow, Dunfermline, was recently the recipient, on the occasion of his retirement from active practice, of a gratifying testimonial from a good many friends. At a meeting at the Lecture Hall, Dunfermline, he was presented with a rose bowl, silver salver, silver coffee service, and a set of quaichs made of Scottish silver mined in the Lead Hills. Dr. Dow, who is an Assessor of the University of St. Andrews, received the honorary degree of LL.D. from that University not long ago, and was recently the guest of honour at the annual meeting of the Fifeshire Medical Association.

PRESENTATION TO SIR HENRY LITTLEJOHN.

A very large number of his old pupils have indicated their intention to join in the presentation of his portrait to Emeritus Professor Sir Henry Littlejohn. We understand that the Committee's arrangements would be facilitated if gentlemen will send their cheques—limited to 1 guinea—to Mr. R. N. Ramsay, Royal Bank, Forrest Road, Edinburgh.

EDINBURGH ROYAL INFIRMARY.

At the weekly meeting of the managers of the Edinburgh Royal Infirmary on Monday, July 9th, Dr. R. W. Philip was appointed an ordinary physician for five years as from October 1st next, and Dr. Norman Walker was appointed to the office of physician for diseases of the skin for five years as from October 5th next; Mr. Roger St. Clair Stewart, M.B., Ch.B., was appointed clinical assistant to Dr. Gibson for the period from July 28th to September 30th. The report of the House and Medical Managers' Joint Committee on the offer of the Royal Navy sick quarters at Queensferry for use as a sanatorium recommended that managers should intimate their inability to avail themselves of the offer. In supporting this recommendation, Dr. McLaren mentioned that the building, which was 2½ miles from the railway station, was not suitable. He had visited the Convalescent Hospital that week, and he did not think there was any necessity for adding to their head quarters. The recommendation was accordingly agreed to.

THE ROYAL INFIRMARY, GLASGOW.

For the first time for many years the managers of the Royal Infirmary have gone outside the members of their own junior staff. Dr. J. M. Cowan, who has just been appointed to the post of physician, has hitherto been connected with the Western Infirmary, where he has acted on the dispensary staff, and has assisted the Professor of Clinical Medicine in ward work. For the past year or two Dr. Cowan has been successful in attracting students to his extra-mural lectures on medicine. It will be interesting to see whether he will succeed in inducing university students to go to the Royal Infirmary for their clinical instruction. It would be greatly to the benefit of the students if some arrangement could be made whereby full advantage could be taken of the vast amount of clinical material available in the Royal Infirmary. A more even distribution of the clinical tuition between the Western and the Royal Infirmaries would be a distinct advantage provided the initial difficulty of the distance could be overcome. The result of crowding all the students into the Western leads to serious congestion in the medical wards. The excessive size of the clinical classes must inevitably react on the amount of individual attention paid to each student. At the present time there is only one physician who limits the number of students in his clinic. If the other teachers followed a similar course the problem of distributing the clinical teaching among the different hospitals would soon solve itself.

ROYAL EDINBURGH HOSPITAL FOR SICK CHILDREN.

By the beneficence of the late Miss Mary Jane Meikleham, the hospital will acquire, as part of the residue of her estate, the house and grounds of Muirfield at Gullane, some seventeen miles from Edinburgh, and it is proposed, if the necessary funds are obtained, to establish a convalescent home there. Such a home the directors consider necessary to secure the ultimate efficacy of the hospital treatment, pointing out that the great majority of the children's hospitals in the kingdom possessed such

homes. The existing house, which is small, is being used temporarily for a few convalescent children, but it is intended to establish a home suitable for the needs of the hospital, and it is estimated that to do so, and to provide even a partial endowment, a sum of at least £20,000 will be required. The directors have appealed to the public for help in the matter, and already subscriptions to the amount of £6,584 have been intimated.

INFANTILE MORTALITY.

On June 29th the Local Government Board for Scotland issued a circular on the subject of infantile mortality, and with it a leaflet entitled Hints about the Management of Children, by Dr. James Burn Russell, late Medical Member of the Board, and formerly Medical Officer of Health for Glasgow. The leaflet was prepared for the Local Authority of Glasgow, and has been distributed by the registrars there for many years. It deals with the eyes of the baby, washing, dressing, feeding, weaning, fresh air and exercise, and sleep, and contains general advice to nursing mothers and to parents.

WOMEN GRADUATES AND THE PARLIAMENTARY VOTE.

Lord Salvesen, in the Outer House of the Court of Session at Edinburgh, in an action at the instance of several women graduates of Edinburgh University, has decided that they were not entitled to vote at the election of a member of Parliament for the Universities of St. Andrews and Edinburgh. Lord Salvesen held that it was scarcely conceivable that women should be entitled to exercise the vote at elections of a University member when they were to be debarred from the same privilege in county and borough elections. He thought it was extravagant to assume that when Parliament in 1889 conferred powers on the University Commissioners to make ordinances "to enable each University to admit women to graduation in one or more faculties, and to provide for their instruction," it was introducing so important a constitutional change as the extension of the franchise to women in University constituencies. What the Act of 1889 was dealing with was provision "for the better administration and endowment of the Scotch Universities, and for improving and regulating the course of study therein," and it was not an Act which had the remotest bearing on election law. If the proviso on which the pursuers founded so strongly was to be interpreted literally, it might lead to the conclusion that women graduates ought not to be on the register of the Council of the University at all.

NOTIFICATION OF MEASLES AND PHTHISIS AT EDINBURGH.

The Public Health Committee of Edinburgh Town Council has recommended that it is desirable to notify the first case of measles occurring in a family. The recommendation will come before the next meeting of the council. A motion by Councillor Robertson, suggesting that the time has now come for the compulsory notification of phthisis, was remitted to a subcommittee for report.

Sheffield.

THE CHAIRMAN OF THE ROYAL INFIRMARY.

MR. JOHN MARSHALL, who for the last sixteen years has been the Chairman of the Board at the Sheffield Royal Infirmary, was entertained at dinner on the 4th inst. by the members of the Board of Management and the medical staff, to testify their personal esteem for Mr. Marshall, and to recognize the very distinguished services he has rendered to the Royal Infirmary during the time he has been Chairman. Every member of the Board of Management, except one who was unavoidably absent, was present, as well as every member of the honorary medical staff, all the consulting staff, the anaesthetists, and as many of the house surgeons as could be spared from the institution. The occasion was also made the opportunity of presenting him with a massive piece of silver, with a suitable inscription. It is interesting to note that the speeches both of Mr. S. G. Richardson, a member of the Board, who presided, and of Mr. Snell, speaking on behalf of the medical staff, testified that one of the most marked features of Mr. Marshall's chairmanship was the very cordial relations which he had fostered between the medical staff and the Board. There must be very few other institutions in the country in which the relations are so harmonious as, fortunately, are those which exist at the infirmary. Such a happy state of things is of the greatest advantage to the best interests of the institution.

MEDICAL APPOINTMENTS.

Changes have taken place in the medical institutions of the city. At the Royal Infirmary, Dr. Rupert Hallam has been appointed Medical Officer in charge of the Electrical Department. At the Royal Hospital, an Assistant Surgeon has been elected—namely, Mr. Graham Simpson—and two officers, styled Assistant Physicians, have been elected to take charge of the Medical Out-patient Department; both are general practitioners. At the Children's Hospital, the vacancy in the staff created by the lamented death of Dr. Gwynne has been filled by the election of Mr. Garrick Wilson.

WORKMEN'S COMPENSATION.

A short time since an important firm in Sheffield and one of the largest employers of labour decided that all applicants for employment at its works should in the first place undergo a medical examination. A considerable number of men presented themselves, were examined medically, and a certain number of these were rejected in consequence of defects. As a consequence the various unions to which the men belonged took umbrage and represented that they totally disapproved of any such arrangements. They regarded such examinations as humiliating to men seeking employment and contended that those rejected would be thrown upon the unions or upon the rates. For the present the firm in question has withdrawn its regulation. It is hardly necessary to point out that the proposed action of the firm was prompted by the proposals now before Parliament for the extension of the Workmen's Compensation Act, and it would appear not unlikely that in the near future some conditions as to fitness among men seeking employment will be adopted by employers to protect themselves.

Leeds.

POST-GRADUATE COURSE AT THE LEEDS PUBLIC DISPENSARY.

THE first post graduate course in connexion with the Leeds Public Dispensary, which has just come to an end, met with a gratifying measure of success. The number of applicants to attend the course was in excess of the limit fixed by the Committee as advisable, it being thought that in view of the eminently practical character of the teaching the numbers should be limited to 25. The various meetings have been well attended, and apparently the instruction and opportunities for discussion have been well appreciated. A wish has been expressed for an extension of the course, and the Secretaries have under consideration arrangements for this, or alternately for another course to meet the wishes of those who were not able to attend the first.

APPOINTMENT OF ANAESTHETIST AT THE GENERAL INFIRMARY.

Consequent on the resignation of Mr. Harold Collinson, who has been appointed Surgical Registrar, and on that of Mr. Moorhouse, two vacancies in the position of anaesthetist occurred. They were filled at a recent meeting of the faculty by the appointment of Mr. L. Capper Johnson, M.B., Ch.B.Vict., M.B.Lond., and Mr. S. T. Rowling, M.B., Ch.B.Vict. and Leeds. There are in all six anaesthetists attached to the Infirmary. Of these the senior gives a series of demonstrations for the instruction of the students, and all the anaesthetists give practical instruction in administration to the dressers. A reference to the hospital report for 1905 shows that general anaesthesia was used in 5,412 cases. Of these 3,142 were in the in-patient theatres, 1,137 in the out-patient surgical theatre, 816 in the out-patient ophthalmic theatre, and 317 in the casualty theatre. For general anaesthesia ether continues to be the commonest agent employed in Leeds, for it appears to have been used alone in 2,044 cases. Chloroform alone was used in 967 instances. In 505 cases one of these anaesthetics was

used at the beginning of inspiration, and the anaesthesia continued with the other. The A.C.E. mixture was used 34 times. Nitrous oxide alone was used on 302 occasions, 243 operations in the out-patient ophthalmic theatre being done under its influence. In the in-patient theatres nitrous oxide was used as a preliminary to ether in 76 cases. Ethyl chloride was used either alone or as a preliminary to other anaesthetics in 1,394 cases, somnoform was used 33 times, and a mixture of somnoform and ether on 7 occasions. The students at Leeds have, therefore, very abundant opportunities of acquiring, under skilled guidance, a large and varied experience of the art of administering anaesthetics.

THE FEEDING OF POOR CHILDREN AT BRADFORD.

Attention was called in this column in February last to the successful efforts of the Bradford Board of Guardians to recover from those parents who were considered able to pay the amount expended on the meals which had been provided for their ill-fed children. Further summonses to the number of 41 were heard in the County Court at Bradford on June 26th. The cost of each dinner given was put down at 3d., and one point raised in the defence was that this amount was excessive. In each case Judge Bompas made orders for payment at the rate of 2s. a month.

THE WINTER SESSION OF THE MEDICAL SCHOOL.

Past and present students will be interested to learn that Sir James Crichton-Browne has consented to deliver the opening address to the students in October. Sir James is always a welcome visitor anywhere, but nowhere is he more so than in the West Riding of Yorkshire with which he was so long and so brilliantly associated as Medical Superintendent of the asylum at Wakefield. The arrangements for the opening of the session are in the hands of a Subcommittee of the Board of the Faculty of Medicine.

South Wales.

MONMOUTHSHIRE WATER.

AT the monthly meeting of the Llantarnan Urban District Council a letter was read from the Clerk to the Monmouthshire County Council, in which he said he had been instructed to inform the Council that in view of the rapidly-decreasing area in Wales available as the gathering ground for supply of water, and of the possibility of further encroachments by co-operating bodies in England, the County Council had appointed a committee to consider what steps could be taken to secure for the inhabitants of that county the first claim to the most suitable area for their supply. He also asked whether the District Council would sympathize with, and if necessary support, the County Council in the promotion by it of a Bill in Parliament with a view to secure a good and ample supply of water for the different country districts. A conference of all urban and rural district councils had been convened to discuss the question and the intentions of other county councils and bodies to seek legislative powers to abstract waters that might be required by the inhabitants of that county, and to which they had a prior and natural claim. The Chairman (Mr. E. Hartley) and Mr. H. S. Crocker were appointed to attend the meeting which will take place on July 18th.

CARDIFF QUEEN'S NURSES.

The Marchioness of Bute has started a 20,000 shillings fund for the Cardiff Branch of the Queen's Nurses, and some 7,000 shillings have already come to hand. The honorary secretary and treasurer of the fund is Dr. Ewen J. Maclean, 12, Park Place, Cardiff.

THE *Boston Medical and Surgical Journal* states that an out-of-door camp for sick babies is to be started this summer on an open space overlooking the river by the New York Association for Improving the Condition of the Poor; it is to accommodate 100 infants in open tents. The object of the enterprise is less individual than general, the desire being at once to teach poor mothers how to take care of their children in hot weather, and to give an object lesson to the city of the benefits which may be expected if open spaces are devoted during the hot season of the year to a similar purpose.

SPECIAL CORRESPONDENCE.

PARIS.

The Treatment of Pulmonary Tubercle by Serumtherapy.—The Treatment of Post-Diphtherial Paralysis by Injections of the Serum of Roux.—Tubercle of Knee-joints cured by the Sclerogenic Method of Lannelongue.

PROFESSOR LANNELONGUE has made an interesting communication to the Académie des Sciences on the treatment of pulmonary tuberculosis by serumtherapy. For the last seven years Professor Lannelongue, with MM. Achard and Gaillard, have been experimenting on guinea-pigs with a toxin extracted from the human tubercle bacillus. Pulmonary tuberculosis is produced experimentally, and then the curative treatment is applied, and if the consumptive guinea-pig gets well why should not man also? The three authors have made two experiments each on a large number of these animals. The first experiment consists in comparing four lots, each of thirty guinea-pigs of equal weight, inoculated in the lung with the same dose of a virulent culture of tubercle. The first lot served as a control; the second lot was treated with the serum of a normal ass; the third by the serum of a presumably tuberculous ass; the fourth lot were treated preventively with this serum before being inoculated; 371 days after the inoculations 90 per cent. of the first lot were dead, 87 per cent. of the second lot, while only 40 per cent. of the third lot treated with the anti-tuberculous serum had died. The mortality among the fourth lot treated preventively was 64 per cent. In the second experiment an attempt was made to render a horse immune and with its serum a lot of fifteen guinea-pigs was treated, an equal number acting as a control. Both lots were inoculated in the lung on the same day. After sixteen and a half months the mortality among the control animals was 78 per cent., but only 42 per cent. among those treated with the serum; after twenty months 90 per cent. of the control animals had died, while 60 per cent. among those treated had died. All the guinea-pigs were examined *post mortem*: generalized lesions were found in the control guinea-pigs, while in those treated the lesions were circumscribed and but little advanced. Some had cicatrices showing cure. The authors think that the time has come to apply the serum of the immune ass systematically in the human subject. From the few cases in which it has been tried they find the injections are well tolerated and do not give rise to any rise of temperature.

At a recent meeting of the Société Médicale des Hôpitaux, M. Comby read a paper on the treatment of post-diphtherial paralysis. During the last five years he has systematically treated all his cases—9 in number—of late post-diphtherial paralysis by large and repeated injections of Roux's antidiphtherial serum. He has obtained very good results, all the patients recovering. M. Barbier, in discussing M. Comby's paper, also advised the use of antidiphtherial serum. Sufficient account is not usually taken of the toxic symptoms which sometimes appear long after the pharyngeal lesions have disappeared. Diphtheria patients must be watched for a long period, and if during convalescence they become pale and exhausted and vomit, serum must be injected at once, since paralysis may thus be prevented or greatly attenuated. These complications, which may arise two months after the beginning of the illness, are more commonly met with in adults. They are also seen in children when the serum injections have been given late, and in cases in which the false membranes have been extensive.

M. Walther showed recently at the Société de Chirurgie a young woman, aged about 30 years, whom he had treated in 1891 and again in 1896, for a white swelling first of the right knee and then of the left knee-joint. On each occasion the treatment consisted of sclerogenic injections of zinc chloride according to Lannelongue's method. Now, ten and fifteen years after the treatment, it is possible to judge of the remarkable result of this method. The patient can walk perfectly, the movements of the two knees have their normal range, and there has never been the slightest sign of relapse. M. Lucas-Championnière agreed that the results obtained in M. Walther's patient were marvellous, but said that one or two isolated cases of success were insufficient to allow the real value of this method to be appreciated. M. Labbé

said that from his experience he could only confirm the excellence of the sclerogenic method of treating tuberculous arthritis. M. Broca remarked that in M. Walther's case the tuberculous affection was bilateral, and that in his experience, without being able to give any explanation of the reason, these cases were generally mild.

VIENNA.

The Hygienic Exhibition.

A committee, which included representatives of the medical, commercial, and industrial world, succeeded in producing an exhibition of hygiene full of interest not only to the scientist and the medical expert, but also to the public. The exhibition is housed in the enormous "Rotunde" situated in the Prater, the great recreation ground of Vienna. It was erected in 1893, when the World's Exhibition was held, and at that time it was the largest of its kind. It is a great round hall, with a diameter of 200 yards, gently narrowing upwards, and covered by a cupola or rotunda, whose diameter is about 85 yards. The whole structure is surmounted by a crown of glass and iron. The height of the hall is 70 yards, and the number of electric lights exceeds 3,000. The whole area has been divided by radiating avenues into several sections, and these sections again are divided transversely by streets running parallel with the periphery of the circle. In this way blocks are formed capable of showing all objects of similar character at a single glance. The first division is devoted to the hygiene of dwellings. The necessity of baths in the house, of proper drainage and ventilation, is shown not only by models, but also by tables referring to comparative morbidity and mortality in hygienic and unhygienic towns or districts. The next group deals with personal and hospital hygiene. The third section, which is devoted to public hygiene, demonstrates all that has been achieved by municipal, governmental, and public work for the benefit of the people. There are tables giving exact dates and figures for the hospitals, lunatic asylums, the sanitation of whole countries (malaria), coal-mine diseases, the water supply, the percentage of public money spent on hygienic institutions and improvements. There is what almost looks like a touch of malicious humour in some of the arrangements. For instance, next to a room containing fearful descriptions and pictures of the ravages caused by alcohol, there is a very tasteful stall where the finest lager beer and the best cognac wine tempts the visitor.

If we turn to details, first of all the apparatus for saving the lives of miners in case of explosion or fire catches the eye and the attention of the visitor. An actual size coal mine is exhibited, or rather that part of it where the apparatus is stationed. It consists of a chamber built solid enough to resist all explosions. The doors are made of iron, and rendered airtight by indiarubber to prevent the influx of poisonous gas. Accumulators are provided to supply electric power for twenty small portable lamps, and there are three reservoirs filled with compressed oxygen, under a pressure of 120 atmospheres, holding 5,000 litres of gas. The gas comes into a steel box, out of which project twelve pipes with mouthpieces. Several apparatus for breathing in bad air enable the occupants of the chamber to go out in search of unfortunate comrades. A chest with medicines and provisions complete the outfit of the chamber. On each floor of the mine such chambers must be provided for, according to the Austrian mine law. Another very interesting object is the hospital train of the Red Cross Society, and a similar one exhibited by the Ministry of War. These trains each consist of fifteen cars: one each for the medical officers, for the kitchen, a dining car, for the provisions, one serving as a magazine, and ten cars for the wounded or sick soldiers. Each sick-car contains fifteen to twenty-five berths, and is supplied with sufficient stretchers, pillows, and a medicine chest. A hospital tent is seen next to the train. It has a floor of linoleum, and provides accommodation for the doctor, a dispensary, a bath room, a room for the attendants, and six beds for patients; in case of need the number of beds can be raised to twelve, or the tent can be transported within six hours. The Vienna Street Ambulance Corps exhibits the latest type of an ambulance car (motor car) for first aid, a car for the transport of infectious cases, a large kitchen car in which 1,000 meals can be cooked within three hours. The car for the transport of insane patients is covered inside with indiarubber. A number of the latest medicine chests, which are carried in every ambulance car, are shown. They contain all that is necessary for first aid in surgical cases, with a supply of antidotes, and represent the latest and best equipment of its nature in the world. Some apparatus for the restoration of life in case of drowning is exhibited, together with the swimming belts and cork jackets provided by the corps along the banks of the Danube.

A large area is allotted to the exposition of the city of Vienna. The model of the Vienna General Hospital at the time of its foundation (1790), compared with the model of the present hospital, illustrates the difference between the medicine of the past and that of to-day. The model for the new hospital now in course of construction, which, with its area of 200,000 square yards and its 2,400 beds, will be the largest clinical hospital in the world, is very striking. That lunatic asylums have also attained a high standard of perfection is demonstrated by drawings of the two most recently-built asylums and their models worked out in plaster-of-paris and cardboard. The plan of supplying the capital with a sufficient quantity of pure air by the completion of a ring of woods and meadows and parks around the city is shown on very instructive cardboard maps; the hills and ridges in the vicinity of the town are well utilized, and form a charming borderline between town and country. Quite an exhibition by itself is the collection of the Board of Health. Apart from the tables referring to diseases, the morbidity and mortality, the adulterations of articles of food require the earnest study of both medical men and housewives. It is astonishing how many articles of daily use are adulterated and how skilfully these manipulations are carried out. Not a few of the changes thus produced are positively harmful to the human organism. Flour is mixed with chalk; vegetables and other preserved dainties contain an undue proportion of salicylic acid or aniline dyes or metallic salts. The tables show the percentage of articles seized on account of being pronounced impure or unfit for human use, and a specimen of each is exhibited.

A very interesting group is that relating to disinfection. All systems of steam and chemical disinfection are shown; among the latter such methods as are now applied in most hospitals for the disinfection of wards and halls. The idea lying at the bottom of all such procedures is to produce a gas or a vapour of a chemical compound which shall destroy germs without injuring furniture. Such an agent has been found in chlorine gas and in formaldehyde and formol vapour. A special apparatus, like a large lamp, heats tablets of compressed formaldehyde compounds, and at the same time produces steam from a kettle, which flows over the heated tablets and liberates formol gas. The disinfection is said to be very efficacious and cheap. It is now in use in all isolation hospitals throughout Lower Austria, and is also employed in the waiting halls of children's hospitals. The steam disinfection of the personal belongings of patients admitted to the Vienna hospitals is demonstrated by the large apparatus capable of disinfecting the clothes of 60 men at a time. It does not differ materially from the apparatus used in England. The method of disposal of the refuse from cities and factories is shown in another group. Everything that can be burnt is burnt, the resulting fire, smoke, and gas being used to heat the kettles of large pumps, which drive the water of drains and sinks over large filters of stone, charcoal, and chemical compounds of iron. The water comes out clear, and is used for watering fields in the neighbourhood of the town.

A small but very interesting collection is that of the Royal Hospital of the Fourth District in Vienna dealing with electro-pathology. Dr. Jellinék, a leading authority on that part of medicine, exhibits a complete course of instruction, along with specimens in alcohol and pictures of the havoc wrought by short-circuit in the cables and electric machines. The points of entrance and of exit of the currents are well shown, and the power of the electric spark is demonstrated by the melting of strong cables and twisting of powerful iron bars. The physiological action of lethal electric contacts are extensive haemorrhage at the larynx and trachea—oedema of the glottis?—and shock; the injuries to the skin consist mostly in charring, and if the patient survives, necrobiosis and exfoliation of the mortified parts follow.

An equally instructive exposition is that of the dental surgeons and stomatologists. The exhibits demonstrate the growth of teeth, the pathology of position and nutrition, and the means of correction of malformation by elastic and inelastic bands.

In the department of the Anti-Alcohol Society no pains have been spared to impress on the public the dangers of free indulgence in favourite beverages. Every few days lectures are delivered by eminent professors and specialists on the subject. The visitor at once encounters a wall full of wax models of the internal organs of man, prepared by Dr. Henning in a really artistic fashion and with an astonishing reality and lifelikeness. The normal liver, heart, vessels, and kidney are shown, and next to it the liver, heart, and kidney of a man who consumed much alcohol, and the hypertrophied or fatty organs form a speaking contrast to the normal aspect of the organs. Tables showing the expectation of life—taken from the largest life-insurance companies—of the abstainer and the non-abstainer respectively, the work done with a dynamometer by the two classes of men, the crimes committed under the influence of alcohol, complete the picture. The wax models just mentioned are a speciality of the Vienna school. Invented in Paris, the art has been brought to perfection by Dr. Henning, who is the official moulder to the General Hospital. His wax casts are at once artistic and astonishingly natural. A cast can be taken from the dead body as well as from a living individual and every part. The casts are extensively used in medical schools when living illustrations of certain diseases are not at hand. Thus the aspect of a cancerous breast or tongue, or of a trunk with syphilitic eruptions, or tinea or other visible changes may be studied as well in the cast as on the living body.

Among the other exhibits are those of the Society for the Relief of Tuberculous Patients and the Society for Erection of Sanatoriums. Their tables form interesting reading for the statistician and the social reformer. The children's hospitals exhibit several model nurseries, and milk disinfection, the preparation of baby's milk and other milk products are shown by large farming industries, which supply hundreds of tons of milk to the capital and other cities. Of course, model instruments for all branches of medicine have been designed specially for the purpose of the exhibition, and there is a large collection of model preparations, nostrums, and chemical compounds.

CORRESPONDENCE.

THE FINANCES OF THE ASSOCIATION.

SIR,—The real point in the finances of the Association, as it affects the ordinary member, is this: He subscribes 25s. a year; for less than 5s. of this he receives the JOURNAL; what return does he get for the remainder of his subscription? He gets practically nothing. For as long as this is so, the Association can never hope to enrol such a number of the members of our profession as would make its decisions for the improvement of the status of the profession really effective.—I am, etc.,

Llandrindod Wells, July 8th. W. RINGROSE GORE.

THE PROPOSED APPLICATION FOR A ROYAL CHARTER.

SIR,—Although it is doubtless true that a Royal Charter is more elastic than the Companies Acts in permitting extension of "objects," the ordinances will settle our constitution, and it was this reason that mainly determined the votes of the majority of the Council last Wednesday in favour of delay. It is to be hoped that the Representative Meeting will accept this recommendation. There ought to be no want of harmony between the two bodies, for each has at heart the interests of the Association, and it may be fairly claimed for the Council that it possesses a larger proportion of members who have devoted long years to the business of the Association.

A capital defect in the present constitution is that it has not removed the old-standing antagonism between the Council and the general body of members assembled in General or Representative Meeting. This should not be. The Council is fully representative, yet the Representative Meeting regards the decisions of the Council with jealous hostility, and the Council regards the Representative Meeting as a dangerously irresponsible body. There can be no peace or security for the Association so long as these two powers are pulling in opposite directions. If the present dual control cannot be safely prolonged it would be better to give the Representative Meeting the power to elect the Council, not partly but entirely, so that full responsibility shall rest with the Representative Meeting.

The effect of this change would be to strengthen the Representative Meeting, as all those who wished to take a leading part in the affairs of the Association would be obliged to participate in it. At present they are secure, through the Branches, of seats on the Council, and their attitude towards the doings of the Representative Meeting is one of comparative indifference; they hope that by some means it may be prevented from doing serious injury to the Association, but they do not accept responsibility if that should happen.

The Divisions having been adopted as the units of the Association, is it not too late to attempt to preserve the power of the Branches, which cannot exist concurrently without dangerous clashing? Either we must go back to the Branch organization or perfect the Divisional organization. It is hard to go back, and so long as stability is attained it does not matter whether the fabric of the Association rests on the Divisions or on the Branches; many of the latter are admittedly too large to form convenient units for representation.

Therefore, let those who remodelled the constitution apply their minds to completing the work by perfecting a plan in which the members of the Association will meet in Divisions, the Divisions will elect representatives to the Representative Meeting, which will guide the general policy of the Association and elect a council and committees for carrying on the work.

This scheme will furnish a stronger, smaller, and withal cheaper Council, but I have perfect confidence that a body so elected will guide the affairs of the Association wisely and well. It would probably be safer to elect the Council for three years, one-third retiring each year, but being eligible for re-election; and to reconsider the rules concerning the eligibility of members after short terms of service. There need be no co-opted members, as all members of the Association should be eligible, and arrangements could be made to secure a due but not excessive representation of Scotland, Ireland, and the Colonies.—I am, etc.,

Birmingham, July 7th. ROBERT SAUNDBY.

ORAL SEPSIS IN SCARLET FEVER.

SIR,—Dr. William Hunter, in his letter in the BRITISH MEDICAL JOURNAL of June 9th, p. 1,376, in answer to some remarks of mine on his clinical lecture, says that I expressed myself as "amazed" at two statements in that lecture. I am unable to find the word "amazed" in my letter to you of February 24th. Dr. Hunter appears to be injured at my calling attention to the statistical fallacy contained in his statement that "our mortality at the London Fever Hospital for the last year has been 0.8, which compares, I believe, with an average mortality of some 3 per cent. in other fever hospitals." In his letter of May 28th he says he prefaced this statement at the commencement of his lecture by the statement—

> All the main facts with regard to scarlet fever and its complications could be expressed in figures drawn from tens of thousands of cases, and that it was not with such facts that I proposed to deal.

On referring to the lecture, as printed in the BRITISH MEDICAL JOURNAL, I find that this statement was partly made subsequent to the statement upon the mortality rates; but I do not find the words "and it was not with such facts that I proposed to deal." In my letter to you of February 24th, I showed clearly that the statement on mortality-rates was, statistically, without value, and therefore can be made no use of as it stands. In his letter, Dr. Hunter speaks of the mortality of 0.8 as being "low." I am not prepared to accept the statement of its being "low" without the publication of all the facts—age, incidence, etc.

Dr. Hunter, in his letter, says that I was good enough to express myself "amazed" that the condition he has termed "oral sepsis" had not hitherto usually received

the attention it deserves.' As a matter of fact, the words I used were, "and I am surprised that in Dr. Hunter's experience, usually no care has been taken to remove this source of infection." A very different statement.

In his clinical lecture, he speaks of the presence of foul sores around the teeth, foul gingivitis, and an abscess round one of the teeth. Later in his lecture he says:

It must be remembered that in all these cases I removed the "oral sepsis" "immediately," and did not leave them, as it were, to soak in their oral sepsis; and yet that is what has been done hitherto. Usually no care has been taken to remove this source of infection.

Does Dr. Hunter speak seriously? If so, he holds a very different opinion of his medical brethren to that which I hold. Later in his lecture he modifies his statement about removing the sepsis "immediately" by saying that he endeavours to eliminate this factor as far as possible. I draw attention to this modification because I do not think his medical brethren would be prepared to accept blame for not removing sepsis "immediately," though they might for not endeavouring to do so as far as possible. I take it Dr. Hunter challenges me to refer to papers or treatises on fever, even the most recent, where the conveyance of septic infection from the mouth is emphasized, or even mentioned. In the article on measles in Clifford Allbutt's *System of Medicine* (1897) we read: "Much may be done to prevent the occurrence of otitis"; and, with this object, the use of antiseptic mouth washes, and syringing or spraying the nose and nasopharynx are advocated. Theodor von Jurgensen, in his article on scarlet fever in Nothnagel's *Encyclopaedia of Practical Medicine*, says: "Great emphasis should be laid upon the care of the mouth." He does not state why; I presume, because he regards the reason as obvious.—I am, etc.,

FREDERIC THOMSON.

Fountain Hospital, Tooting Grove, S.W., July 8th.

THE TEACHING OF MIDWIFERY.

SIR,—In reply to Dr. Mears, in the BRITISH MEDICAL JOURNAL, June 30th, p. 1565, I consider it very extraordinary that any practitioner of the present day should advocate the manufacture of abnormal midwifery, by injudicious and premature interference, for the sake of the teaching of students, without any consideration whatsoever for the future happiness and welfare of his patient. To carry Dr. Mears's proposition a little further, I suppose he would recommend Caesarean section on normal cases merely for the edification of students.

Dr. Mears entirely misunderstands what it is essential for a midwifery student to learn. It is not abnormal midwifery and the manufacture of it, but *normal midwifery* and the prevention of abnormal midwifery, which is much more important.

The whole aim and object of all teachers of obstetrics is the prevention of complications, and the reduction of abnormal midwifery to an absolute minimum, and this should be the sole aim and object of every conscientious practitioner. A teacher imbued with and practising these ideas is not only considering the best interests of his patients, but also of his students, who in a few years will become practitioners.

The practice advocated by Dr. Mears is, in the hands of others less experienced than himself, undoubtedly fraught with the greatest calamities both for mothers and infants. I have the most ample proof of this, and were I to put on paper the description of some cases which I have seen as the result of such practice, even Dr. Mears, I am convinced, would feel thoroughly ashamed of his "up-to-date midwifery."

Parturition in the vast majority of cases is admitted by every one as a perfectly natural process; it was never intended to be otherwise, and why violently hasten a strictly natural process?

Is it from sentiment? if so then I say that it is from the most prejudiced sentiment. How would any practitioner like his own wife or sister to be treated on the lines advocated by Dr. Mears? I do not think that he would tolerate it for one minute. Is it on account of the approach of the dinner hour? none but a selfish gourmand would give this as a reason. Is it that the practitioner has too much to do? this is the reason which is most commonly given, but surely a parturient woman deserves much more immediate care and consideration than a chronic bronchitic or a chronic rheumatic, and none but a most callous and penurious practitioner would propound this as a reason.—I am, etc.,

Newcastle-upon-Tyne, June 30th. R. P. RANKEN LYLE.

THE PREVENTION OF DIFFICULT LABOUR.

SIR,—I am sorry I have not succeeded in conveying my meaning to the mind of Dr. Alexander Duke. I advise no one to relinquish the Dublin (often called Crédé's) method of expressing the placenta. On the contrary, in a book that I have published I have described and recommended it. And when I said "the uterus will do its own work," I was speaking of normal labour. Retention of membranes is not a normal condition. If it were perfectly certain that a labour would be normal, there would be no need for a doctor; he is there because no one can tell what complication may arise.

I wished to do something to correct a prevalent error, namely, that a woman incurs danger from prolongation of labour, when the position of the child is normal, and there is no obstruction. In such cases "the uterus will do its own work if allowed to." It may get exhausted; but if the patient is given food and sleep the uterus will recover its energy and expel the child. If the accoucheur does not know this, and pulls out the child when the uterus is not contracting, there will be *post-partum* haemorrhage.—I am, etc.,

London, W., July 10th. G. E. HERMAN.

IMAGINARY CURES FOR IMAGINARY DISEASES.

SIR,—The article in the BRITISH MEDICAL JOURNAL of June 30th, p. 1554, entitled Imaginary Cures for Imaginary Diseases, appears to me to undermine one of the soundest principles of medical ethics. Straightforward dealing is surely essential in all our relations with patients, whether they be infirm in mind or body.

You mention one or two cases in which deliberate deception seemed to remove delusions, but the after-history of these cases is not given nor are the details in themselves very convincing. Is it not easy to quote many cases where similar frauds do nothing but harm? May I mention one? A lady and ex-missionary was suffering from her second attack of melancholia, and was overwhelmed with the delusion that she had sinned beyond all hope of forgiveness. Some well-meaning friends, in order to convince her of her error, wrote on the walls of her bedroom with some phosphorescent substance a text from the Bible which gives the promise of salvation to all who believe. That night the patient saw what seemed to her miraculous handwriting on the wall, and to this day she believes there was vouchsafed to her a special message offering a way of escape from her sinfulness. This poor woman is now a chronic melancholiac, and, although the facts above mentioned have been explained to her, she is unable to accept the explanation, and her chronic mental suffering is increased by the conviction that she neglected to accept this last striking offer of salvation.

At the risk of being called an "austere moralist," or the severer censure of being styled "righteous," I venture to believe that the line of treatment quoted, apparently with approval, in your article is really subversive of the best interests of both patients and physicians. Strict integrity in our professional relations needs no apology, and if our patients are deluded or neurotic we are not relieved of our duty in this respect. I could give many instances in which the deception of the insane did serious harm; and, on the other hand, I could illustrate the advantages gained in others by an exhibition of the naked truth; but it is not worth while. We all know how difficult it is in certain cases to know what to say and how much to say, and what to leave unsaid, but surely we can never countenance deliberate fraud, however good the motive may be.

In dealing with neurotic or deluded patients we shall do well to take warning by the ancient maxim, "Answer not a fool according to his folly lest thou also be like unto him."—I am, etc.,

BEDFORD PIERCE, M.D., F.R.C.P.Lond.

York, July 3rd.

HOSPITAL REFORM AND THE METROPOLITAN COUNTIES BRANCH.

SIR,—Permit me to draw particular attention to the statement in Dr. Shearer's letter in the BRITISH MEDICAL JOURNAL of July 7th, p. 53, that "in not one case out of a hundred is the out-patient unable to pay for the services of a general practitioner; he is merely unwilling to do so, and sees no need to pay for that which can be obtained free. Practically, the whole expenditure on out-patients is devoted to enabling the patients to obtain luxuries, chiefly of an alcoholic nature, instead of paying a doctor."

Why should he pay?

The out-patient is guided by his common sense. Should the average out-patient want a bicycle, a camera, a piano, or any other luxury, he can get it, but he knows he will have to pay for it, and can pay for it. Was not the average expenditure in 1900 £3 18s. 8d. a head per annum on alcoholic drink? Is not the average annual contract club-rate for medical attendance a head only 4s.? About a twentieth of the amount spent in drink? The out-patient knows he need not even pay this small amount.

It seems to me that the out-patient uses his common sense, and that hospital staffs, from the practitioner's point of view, encourage him, or the abuses would soon be checked. A hospital staff does not object to great numbers of patients because of the grand advertisement it gives them individually; therefore they use their common sense in allowing matters to remain as they are.

Now comes the turn of the general practitioner to use common sense. Let him use his influence privately and otherwise never to recommend or call in consultation any consultants attached to some particular hospital singled out for the purpose, where abuse particularly exists.

Then, and not till then, shall we see a sudden change, a revolutionary change, in hospital procedure. Perhaps some other medical man better acquainted with the conditions will suggest some particular hospital in London where a commencement might be made. Then hospital staffs will commence to look after other interests than their own. We suffer too much from talk! Let us be up and doing. Which hospital shall we start with? There is no other way.—I am, etc.,

July 9th. A GENERAL PRACTITIONER.

POST-OFFICE MEDICAL OFFICERS.

SIR,—Dr. Newbigging writes in the BRITISH MEDICAL JOURNAL of June 2nd, 1906, p. 1319, to complain of having to attend postmen nine miles away for 8s. 6d. yearly. Why does he do it? Surely these men must live within the practice of some other medical man.

The Post Office asked me to attend men six and eight miles off, but I declined, as they were, amongst other objections, in the district of other medical men; and if the fee offered were £8 10s. instead of 8s. 6d., I should consider it very unfair to contract for patients in the "sphere of influence" of another doctor.

Finding I refused these I was given all the men in my own immediate neighbourhood. This pays very well, as most of them were my club patients already, paying 4s. 6d. yearly instead of 8s. 6d., which I now receive.—I am, etc.,

June 18th. JUVENIS.

STREET AMBULANCE SERVICE FOR LONDON.

SIR,—The action of the House of Lords' Committee in throwing out the Ambulance Clauses of the London County Council General Powers Bill (1906) will certainly delay action on the part of the County Council for at least twelve months.

It is much to be regretted that Lord Camperdown, in his speech in the House of Lords relative to London County Council expenditure (as reported in the *Times* of July 10th), did not refer to this point, and state why his Committee had cut out the Ambulance Clauses of the Bill.

At present the streets of London are no better off than they were twenty years ago in this respect, and are likely to remain so if Parliament continues to refuse to grant permission to the municipal authority of the metropolis to do what is urgently necessary.

To say that London is not to have an efficient ambulance system because the London County Council has spent too much money on steamboats is absurd, and must be resisted. Surely we ought not to be put to the trouble and expense of petitioning the Houses of Parliament as to the pressing nature of a want of this kind.—I am, etc.,

London, W., July 10th. REGINALD HARRISON.

OBITUARY.

JOSEPH KÖRÖSY.

DIRECTOR OF THE STATISTICAL BUREAU, BUDA-PESTH.

By the death of Joseph Körösy we are deprived of one of the most distinguished statisticians of the last fifty years. Although not a medical man, Dr. Körösy's reports dealt so largely with problems in which medical men have an especial interest that his loss will be nowhere more sincerely felt than among them.

For many years he had been the head of the Statistical Bureau of Buda-Pesth, and the reports issued under his direction were models of lucid arrangement besides being elaborate documents containing more precise and fully detailed information than is available in our own national statistics. He was, however, not merely a painstaking compiler of statistical material. He had in a full sense the spirit and insight necessary to constitute the accurate statistical investigator, and to bring out from elaborate data their essential teaching. It was always felt by him that his work in this direction was, owing to difficulties of language, insufficiently known. A large part of it was published in Hungarian, and it required considerable courage as well as knowledge in the statisticians of other countries to attack reports in this language.

Fortunately some were written in German, and the difficulty was then less. Still more fortunately, some of his best work was contributed in English; perhaps the most important under this head was his Study of the Laws of Increase of Population, a summary of which was published in *Public Health*, vol. viii, p. 100, and appeared in full in the *Philosophical Transactions*, vol. 186 (1895), B., p. 803. In this paper he went far towards framing a table of natality analogous to a life table, in which a separate statement of the probabilities of a birth is given for each age of life of father and mother respectively. It may be added that Mr. Francis Galton, working on Körösy's tables, has attempted to form isogenes analogous to isotherms and isobars.

Dr. Körösy also attempted an elaborate investigation into the relationship between various conditions of weather and the prevalence of certain infective diseases. It must be admitted, however, that in this investigation too little regard was paid to the cyclical and other causes of variation of infectivity, and that the investigation was inconclusive.

At the various International Congresses of Hygiene and Demography, and at the meetings of the International Statistical Institute, Dr. Körösy was a familiar figure. He was universally respected and admired; and he has laid foundations on which statisticians for many generations to come will build.

WITH much regret we have to record the death at the early age of 45, of Mr. JOSEPH HICK, one of the most popular of Leeds practitioners. Mr. Hick retired from practice about 15 months ago on account of ill-health, but his sudden death came as a surprise to most of his friends. Educated at the Leeds School of Medicine he became one of the Resident Assistants at the General Infirmary in 1883, and in the following year took the qualification of M.R.C.S., and acted as House-Surgeon to Mr. Wheelhouse until that gentleman retired from the acting staff. He was subsequently one of the Resident Medical Officers at the Public Dispensary, and after filling a similar position at the Fever Hospital—then spoken of as the Leeds House of Recovery—he commenced practice on his own account in the Burmantofts district, where he soon built up a large connexion. By a large circle of friends, and especially by his professional acquaintances, "Joe Hick," as he was always called, and liked to be called, will be remembered as one of the most genial and kind-hearted of men.

DR. GWILYM EVANS, L.R.C.P. and L.R.C.S., Blaengarw, died on July 8th after a short illness. He was born at Nantymoel in 1862, and was educated at St. Bartholomew's

Hospital and Glasgow. Dr. Evans was in medical charge of the workmen of the Ocean Colliery, Blaengarw. He leaves a widow.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

Medical Degrees.

The following Degrees in Medicine have been conferred:

D.M.—W. H. Wilson, Keble College.

B.M., B.Ch.—A. G. J. Thompson, Queen's College; O. A. R. Berkeley-Hill, Trinity College; S. Nockolds, Keble College, L. J. Orpen, Keble College.

UNIVERSITY OF CAMBRIDGE.

The following degrees were conferred on June 19th:

M.B., B.C.—F. A. G. Jeans, Joh.; R. P. Cockin, Gonv. Cai.

UNIVERSITY OF LONDON.

Meeting of the Senate.

A meeting of the Senate was held on June 20th.

Election of Vice-Chancellor.

Sir Edward Busk was re-elected Vice-Chancellor for another year.

Recognition of Teacher.

Dr. W. H. Willcox was recognized as a teacher of pathological chemistry at St. Mary's Hospital Medical School.

Doctor of Science.

The degree of Doctor of Science has been conferred upon Alfred Walter Sikes, M.D., B.S., who presented as a thesis the four following papers: (*a*) On the phosphorus of human milk; (*b*) on the estimation of proteid in human milk; (*c*) on the calcium of human milk; (*d*) on the globulin of albuminous urine.

GUY'S HOSPITAL.

Distribution of Prizes.

A large company was present on July 4th at the distribution of prizes in the new school buildings. Mr. A. C. Cole, one of the Governors, presided.

The Dean, Mr. Herbert Eason, read the annual report, which described the progress of the school during the past year as quite satisfactory, there having been an increase in the number of students. The number of men who had qualified during the past twelve months was also well up to the mark of previous years; and the medals and other honours obtained, especially at the University of London, afforded further gratifying testimony to the efficiency of the school. The changes on the staff had been numerous, and the death of Dr. J. H. Bryant was especially mentioned with sincere regret, and his great services to the hospital and school recorded. The cost of recent changes and improvements in the biological department had been defrayed by a munificent donation of £600 from an anonymous benefactor. The school had also received a bequest under the will of the widow of the late Mr. Arthur E. Durham of £1,000 for the endowment of a travelling scholarship. The most pressing need of the school was a sum of £10,000 for the endowment of a chair of pathology, as it had been decided that at the earliest opportunity a department of pathology must be instituted, with a separate staff of lecturers and demonstrators.

Sir Cameron Gull, a governor of the hospital, next distributed the prizes won during the past year, and afterwards delivered an address, remarking that his sole claim to such a privilege was on the ground of heredity. After congratulating the prize winners he said that the public took far too little interest in medical schools. Perhaps this was on account of that noisy section which was endeavouring to persuade the public that vivisection was a great evil. For himself he fully believed that it was absolutely essential for advance in medical science. Guy's could speak freely on this matter, for the Governors had never supported the medical school out of funds subscribed to the hospital; this had been done almost entirely by the staff, who were doing as much in this direction as was possible. And what would the hospital be without its staff, and where would they obtain the staff if there were no medical schools? The cost of a medical education was nowadays at least £1,000, so that it was not possible to increase the students' fees. The Governors earnestly appealed for further support for the medical school. There were only a few small endowments; and he was convinced that if the public could realize the great needs of the school, where the training given was essential to the healing of the sick, they would be more generous, and the requirements of the school be met.

A vote of thanks to Sir Cameron Gull, proposed by Dr. Frederick Taylor, was carried with applause. The company then proceeded to the grounds, where a garden party was held. The hospital, library, museum, and other buildings were also inspected by the visitors.

UNIVERSITY OF LIVERPOOL.

The Medical Faculty.

A notable increase has taken place in the entries in all departments of the medical school of the University during the past year. The number of first year students who have entered for University degrees is 26, as against 13, 17, 19, and 11 in the four previous years. Dental students number 31, as against 24 in 1904-5. Public Health students have increased from 4 to 11, and Tropical Medicine students from 23 to 36, as compared with last year. The total number of students in the school is now 217, against 197 in 1904-5. This is a state of things which is highly encouraging to the authorities in the school, who are confident that it only needs to be better known in order to become one of the largest in the provinces.

The Clinical Hospitals.

An arrangement has been happily arrived at between the different hospitals in Liverpool by which they agree to form a single clinical school under a title to be hereafter chosen. Under this arrangement students taking out their hospital attendance in Liverpool will have a very large clinical field at their disposal, the number of beds available for teaching being close upon 1,200. The exact details of the scheme will require to be carefully worked out, but the main points aimed at are to give the student the greatest latitude consistent with the maintenance of proper discipline in the choice of hospital and teacher. It is hoped that the splendid field offered in Liverpool for clinical study will do much to enhance the reputation and popularity of the Medical School.

UNIVERSITY OF GLASGOW.

The following candidates have been approved at the examinations indicated:

Final M.B., C.M. (*Old Regulations*).—*R. S. M'Kim, M.A.

Final M.B., Ch.B. (*New Regulations*).—J. M. Anderson, *J. Anderson, M.A., B.Sc., T. Barbour, M.A., B.Sc., G. D. M. Beaton, C. Burns, J. M. H. Caldwell, W. R. Cammock, G. Campbell, W. A. Campbell, H. H. Christie, J. S. Clark, M.A., J. Coutts, T. L. Craig, *A. M. Crawford, *J. R. Drever, M.A., E. M. Eaton, W. Gilbert, W. Gilfillan, *A. H. Gray, R. N. Guthrie, C. F. D. Hammond, W. T. Hardie, R. M'C. Hill, A. Hunter, A. Y. Hutchison, J. Keys-J. D. Kidd, W. H. Kirk, A. M'Call, T. M'Cririck, M.A., B.Sc.; D. Macdonald, *J. M'Farlane, J. R. M'Gilvray, W. A. M'Kellar, W. F. Mackenzie, N. S. MacNaughtan, A. A. C. M'Neill, *Elizabeth M. M'Vail, *A. A. M'Whan, Florence Mann, W. H. Manson, M.A.; R. Marshall, J. Miller, W. Miller, *P. Mitchell, M.A.; Edith Oversby, J. H. Paul, *Agnes Picken, M.A., A. M. Pollock, T. H. Rankin, Vera D. Reis, F. G. Robertson, *W. J. Rutherfurd, W. H. Sieger, *W. Smellie, T. B. Smith, *J. Stevenson, T. Stevenson, T. Strain, D. M. Tate, *C. S. Thomson, *G. H. Wilson, J. Wyper, *J. Young, *M. Y. Young.

* With distinction in one or more subjects.

ROYAL UNIVERSITY OF IRELAND.

The following candidates have been approved at the examinations indicated:

First M.B.—M. J. Ahern, W. F. Alges, W. W. Allison, H. Black, F. J. Burke, Sarah E. Calwell, P. E. Carroll, F. Carson, L. Cohen, P. Cotter, R. C. Cummins, T. A. Daly, H. Emerson, T. Fitzgerald, M. J. Fogarty, P. J. Gaffikin, G. S. Glass, B.A., H. P. Hannigan, C. A. P. Harrison, W. S. Haydock, T. F. Hegarty, D. Higgins, T. H. Houston, M. C. Irwin, G. Jackson, E. P. Kelly, R. A. Kerr, T. J. KilBride, P. D. McCullen, L. J. E. McHugh, T. P. McMurray, H. P. Malcolm, M. Moloney, A. J. Moran, H. C. Mulholland, L. P. Mulligan, D. Murphy, J. E. O'Sullivan, W. Paul, W. Prendiville, T. Reynolds, J. J. Ryan, G. Sheridan, C. J. Simpson, J. Stephenson, W. Stevenson, J. Stewart (Sch.), B. Teeger, S. J. Turkington, W. Turner, R. W. Vint, J. R. White, T. Woulfe.

The following are entitled to present themselves for honours in one or more subjects:

H. Black, F. J. Burke, P. E. Carroll, T. A. Daly, M. J. Fogarty, D. Higgins, M. C. Irwin, R. A. Kerr, T. J. KilBride, P. D. McCullen, H. P. Malcolm, H. C. Mulholland, L. P. Mulligan, D. Murphy, W. Paul, T. Reynolds, C. J. Simpson, W. Stevenson, J. Stewart (Sch.), B. Teeger, R. W. Vint.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Fellows' Dinner.

On Thursday, July 5th, after the Council election, the Fellows dined together in the Library of the College under the chairmanship of the President, Mr. John Tweedy. Most of the members of the Council and about seventy other Fellows were present. After dinner the loving cup was duly circulated, the President remarking that the handsome cup which he passed was presented in 1745 to the Company of Surgeons by John Ranby, the first Master of the Company and Sergeant-Surgeon to George II.

The usual loyal toasts having been duly honoured, the President proposed the toast of the evening, "The Fellowship of the Royal College of Surgeons of England." He remarked that the Fellowship was a symbol of the highest attainments in surgery in the whole country, and was sought for by some of the best surgeons in the British Colonies. A proof of the value of the Fellowship was to be found in the fact that every year a greater number of candidates for it came from the Universities. The College was of old descent, and had lasted nearly six centuries, for the first extant record of a Master of the Barbers' Guild was in 1308. From that time to this the lineage could be traced. For long the barbers and the surgeons were united, but in 1745 two separate guilds were formed; there was, however, an unbroken continuity of corporate existence for nearly six hundred years. According to some the Fellowship was a close borough, limited to the surgeons of the London hospitals, but the gathering present was sufficient to disprove such a theory; on one side of him was Mr. Spanton, who was in general practice in the country, though practising

also as a surgeon, and on the other side was Sir Edgcumbe Venning, who also took part in the most useful branch of the medical art, namely, general practice. The Fellowship was open to every Member of the College who was willing to make the necessary sacrifice to obtain it.

Mr. W. D. Spanton, responding for the provincial Fellows, said that in every part of the world the F.R.C.S. of England commanded universal respect, and so long as the present able President and Council had the control in their hands there was no reason to fear that it would lose any of its high prestige. On behalf of the provincial Fellows especially he thanked them most heartily for associating his name with the toast; but, hailing from the supposed savage wilds of the Midlands, he might be pardoned for quoting an old rhyme which had been slightly modified for this occasion:

> When Satan tried his arts in vain
> The worship of our Lord to gain,
> The earth, quoth he, and all is thine
> Save one small spot which must be mine.
> There souls and bodies cease to vex,
> The natives call it Middlesex;
> That is a spot I cannot spare,
> For all my choicest friends are there.

Sir E. Venning returned thanks for the London Fellows, and proposed the health of the President, who was honoured not only in the College itself but also by the whole profession.

The President, in returning thanks, said that three years of the Presidency were no sinecure; in fact, he who endeavoured to do his duty in such a great institution was never free from care. It was only too easy to make mistakes. "Strong convictions and amiable personal relations" was his ideal in working with his colleagues. From differences of opinion came progress, and when such an institution as the College ceased to advance, it simply became retrograde. He offered his personal congratulations to Mr. H. Morris and Mr. F. R. Cross on their re-election to the Council, and to Mr. G. A. Wright, who would be a source of strength to it.

The company then separated to inspect the additions made to the museum during the past year, which were displayed in an adjoining room. Mr. Clinton T. Dent and Mr. G. H. Makins, C.B., were the honorary secretaries of the dinner. In the course of the evening, each guest was presented with a copy of a Historical Summary of the College, prepared under the direction of the President and Council.

CONJOINT BOARD IN ENGLAND.

THE following candidates have been approved at the examination indicated:

SECOND EXAMINATION (*Anatomy and Physiology*).—E. R. Allnutt, M. D. Anklesaria, T. C. R. Archer, J. L. Atkinson, C. W. T. Baldwin, J. C. Balsara, E. C. Barnett, D. M. Cox, E. E. Davies, A. W. Duncan, E. R. Evans, W. A. Fernando, P. C. Field, R. S. Graham, G. F. Haycraft, M. Hallan, J. F. Hoare, M. L. C. Irvine, J. L. Johnston, W. P. Jones, A. S. Khan, L. H. Khan, H. G. Kilner, F. Kolaporewalla, R. H. S. Marshall, C. A. Meaden, J. C. W. Methven, J. K. Milligan, F. C. Morgan, A. E. Nicholls, F. C. Nichols, R. G. Oram, W. R. Parkinson, G. H. Peall, C. A. Pemberton, A. T. Pitts, Q. H. Richardson, A. Ryland, F. S. Tamplin, J. L. Waller, T. N. Watt, W. Weir, C. Whitaker, C. U. Whitney, A. J. O. Wigmore.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examination indicated:

First Professional.—*H. G. P. Armitage, *G. J. Fraser, *J. S. Pegum, *W. A. Swan, *H. R. Tighe, G. F. Allison, R. J. Barlee, J. J. Barry, O. G. Connell, A. Foley, R. R. Forde, F. J. Graham, E. Hannigan, R. Henry, R. Hickey, J. P. Johnston, F. M. Kirwan, V. J. Lawless, P. Loughnane, H. H. Montgomery, C. Molan, T. J. Nunan, M. F. O'Hea, A. A. Pellissier, R. Ross Todd, J. V. Ryan, G. Sheehan, J. Walsh, R. H. Weir, H. Q. O. Wheeler.

* With honours.

UNIVERSITY COLLEGE OF SOUTH WALES.

DR. T. MITCHELL STEVENS, Cardiff, has been appointed Lecturer in Materia Medica at the Cardiff Medical School of the University College of South Wales and Monmouthshire, in succession to Dr. Paterson, resigned.

TRINITY COLLEGE, DUBLIN.

THE following candidates have been approved at the examinations indicated:

PRELIMINARY SCIENTIFIC (*Physics and Chemistry*).—†H. de L. Crawford, *W. L'A. English, *H. Müller, J. H. Woodroffe, E. P. Allman-Smith, R. T. St. J. Brooks, R. A. Albertyn, J. Gardiner, C. M. Finny, A. Stokes, D. L. M'Cullough, G. Elliott, V. G. Best, W. C. Adam, J. Ronaldson, M. A. Drennan, A. C. Hallowes, G. F. C. Healy, J. N. Greene-Nolan, E. M. Maxwell, B. H. Moore, G. J. Meldon.

PRELIMINARY SCIENTIFIC (*Botany and Zoology*).—*C. W. M'Kenny, *R. A. Albertyn, *W. L'A. English, *A. Stokes, *Dorothea M. Franks, B. A. Molyneux, V. M. Fisher, C. M. Finny, J. H. Woodroffe, E. W. Young, F. J. A. Keane, F. Lawson, J. Ronaldson, T. J. Bookey, V. W. T. Mc Ginity, P. Murphy, J. G. Dods, J. C. Kelly, L. Trichard, H. H. M'C. Fleming, J. M. Elliott, H. P. Harpur, F. Crosbie, E. N. Bateman.

INTERMEDIATE MEDICAL (*Part I*).—*J. L. Phibbs, *R. P. Haddon, *A. J. Stals, *T. A. Hughes, A. A. M'Connell, H. V. Stanley, C. P. Smyly, W. A. R. Spong, D. F. Hunter, P. H. Lemass, A. H. Laird, J. D. Kernan, G. B. M'Hutchison, W. N. Watson, R. J. Attridge, E. J. Powell, C. G. S. Baronsfeather, F. R. Sayers, H. T. Sugars.

INTERMEDIATE MEDICAL (*Part II*).—*R. P. Haddon, *S. F. A. Charles, *J. L. Phibbs, H. H. Ormsby, A. V. J. Richardson, H. V. Stanley, F. A. Anderson, C. W. Laird, G. Halpin, G. B. Mellis-chesson, G. G. Meecredy, R. de C. Wheeler, W. E. M. Armstrong, E. J. H. Garstin, F. R. Sayers, D. F. Hunter, H. R. Kenny, A. H. Laird, H. S. Sugars, R. T. Attridge, J. C. Baker, W. H. Sutcliffe, W. H. M'Carthy, F. Smartt.

FINAL MEDICAL (*Midwifery*).—G. W. Thompson, E. Gibbon, R. B. Jackson, T. L. de Courcy, C. T. Conyngham, H. B. Leech, H. D. Woodroffe, C. Dongan, W. L. Hogan, T. B. W. MacQuaide, C. C. Sherlock, T. C. Somerville, F. W. H. Bigley, T. J. Cobbe, J. B. B. Whelan, Madeleine S. Baker, A. J. T. M'Creery, J. E. M'Farlane, E. C. Crawford, J. H. Elliott.

* Passed on High Marks.

The following awards have been made:

FITZPATRICK SCHOLARSHIP.—R. S. Oldham.

ANATOMY AND INSTITUTES OF MEDICINE. J. C. Pretorius, *Trinity College Scholarship*; S. F. A. Charles, *Stewart Scholarship*.

PHYSICS, CHEMISTRY, BOTANY, and ZOOLOGY.—A. K. Henry, *Trinity College Scholarship*; D. Dill, *Stewart Scholarship*.

PURSER MEDAL.—R. P. Haddon.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the examinations indicated:

PRIMARY EXAMINATION (*Part I*), *Biology*.—C. R. Corfield, E. M. Johnstone, A. Jonathan, A. Singha. *Chemistry*.—J. B. Holmes, A. Singha. *Materia Medica and Pharmacy*.—C. R. Corfield, W. H. Hooton, B. Robertshaw, H. H. Smith. *Part II, Anatomy*.—R. E. Clarke, A. H. C. Dawes, B. McDermott, G. S. Richardson, S. H. Scott, T. A. F. Tyrrell. *Physiology*.—E. C. Banks, A. Baxendale, R. E. Clarke, A. H. C. Dawes, B. McDermott, M. Reney, T. A. F. Tyrrell.

SURGERY.—*A. J. Ambrose, D. L. E. Bolton, *†R. C. T. Evans, †J. L. Meynell, *P. Moxey.

MEDICINE.—*A. W. S. De Vine, †*F. G. Edholm, †*A. G. Gamble, E. Morris, *P. Moxey, †*A. F. Palmer, *O. P. N. Pearn, †J. W. Pratt.

FORENSIC MEDICINE.—A. W. S. De Vine, F. G. Edholm, A. G. Gamble, E. D. Richardson.

MIDWIFERY.—J. C. Fletcher, M. L. Ford, W. J. G. Gayton.

The diploma of the Society has been granted to:

Messrs. A. J. Ambrose, D. L. E. Bolton, A. W. S. De Vine, R. C. T. Evans, and P. Moxey.

† Section I. * Section II.

MEDICO-LEGAL AND MEDICO-ETHICAL.

THE NEWSPAPER TOUT FOR PATIENTS.

A SHORT time ago, our readers may remember, a scheme was put forward by a weekly newspaper to give medical advice gratis to its subscribers, who on the production of a coupon were to be allowed to consult any medical man on a list kept at the office of the paper. The inducement offered to the doctor was that, although on the first consultation he would get no fee, he would have an introduction to the patient who would probably consult him again; thus the newspaper was to act as an advertising medium and tout to procure patients for doctors who were willing to accept them on these terms. The scheme was given up on account of the opposition manifested to it by the medical profession, which found due expression in these columns.

Our attention has been drawn to the medical arrangements of the *Free Lance*, a weekly newspaper which devotes a page to subjects pertaining to the toilet and health. This department was formerly under the care of a person who was not a registered medical practitioner but after her death the editor announced in the number dated June 2nd, 1906, that "Dr. A. W. Wheatley" would take over the work of the column, and from the introductory article it is plain that his duties are of three kinds: first, to answer for publication inquiries on matters of toilet or health addressed to the editor; secondly, to give medical advice by letter, as "Enquirers desiring an immediate reply or one of a strictly private nature" are asked to address "Dr. A. W. Wheatley, 'Urgent,' *Free Lance*, 37, Southampton Street, Strand, enclosing fee of 2s. 6d. together with stamped addressed envelope"; thirdly, "Requests for appointments for personal interviews" are to be addressed as above, but "need not be accompanied by a fee." It would appear, therefore, that Dr. Wheatley sees patients introduced to him through the medium of the paper.

The gratuitous information contained in the published answers to correspondents is commonplace and harmless enough, but the last paragraph in the issue of June 23rd, 1906, takes this form:

> "DOES THIS INTEREST YOU?
>
> "Is your Complexion too pale?
> I can permanently colour it so that it defies detection.
> Have you any Disfiguring Scars?
> I can effectually hide them.
> Have you any Moles, Birthmarks, or Superfluous Hairs?
> I can permanently remove them.
>
> Write for private appointment free of charge, to A. W. Wheatley, 18, Somerset Street, Portman Square, W."

This would be very wonderful if it were true. We cannot believe that Dr. A. W. Wheatley is a registered practitioner: certainly no one with the name spelt just in the same way is on the *Medical Register*, but if the Dr. A. W. Wheatley who is being advertised in the *Free Lance* is not registered he is infringing the Medical Acts. Although the editor, with

becoming modesty, describes him as "the very best authority to be found in the world on 'Health and Toilet Journalism' to-day," the introductory article states "Dr. A. W. Wheatley will be pleased to reply to questions on all subjects pertaining to the toilet and health for both sexes."

"THE WEIDHAAS INSTITUTE."

WE are glad to agree with Mr. Troutbeck when he gives us an opportunity, and to recognize any service which he renders to the public. Recently he inquired into the death of a carman residing at Wandsworth, who had gone in for the treatment of the Weidhaas Institute at Burgess Hill, near Brighton. We have on several occasions called attention to the methods of this place, but the coroner quoted some picturesque details which have not yet appeared in these columns. The deceased, who was a carman, had been treated by correspondence, and the coroner read through some of the details, which included the following: Weidhaas star tea, horse-tail sage, juniper berries, fennel powder, cut-oat straw, hot-water baths, steam foot baths, body-packing, calf-packing, and calisthenics. The patient was asked to read a chapter on "atmospheric sympathy," and to make a report from time to time, based upon a form of questions which the coroner said could not possibly be answered by a patient. Medical evidence was to the effect that death was due to pulmonary haemorrhage supervening on chronic consumption. In summing up, the Coroner said that the deceased had had no proper treatment for the last six months. It was in such cases as this that people fell under the influence of quacks, and the law of England was very tender to quacks, and enabled them to make large fortunes out of the ignorance of the people. The directions issued by the Institute did not differ very much from the regular quack advertisements which appeared in the newspapers. All kinds of things were suggested with fancy names, grand-sounding names to impress ignorant persons with the semblance of knowledge. Such things as calf-packing and body-packing and mixing various ingredients reminded him of the bowl in *Macbeth*, and it quite disgusted him to think that people should be allowed to practise on the weaknesses of ignorant persons. He did not suggest that the man's death was in any way accelerated by such treatment, but it was a course which could do no good. In any case little could have been done.

A verdict of death from natural causes was returned.

THE OBLIGATIONS OF A CONSULTANT.

J. A. S.—We are of opinion that A. has not incurred any obligation towards C., and therefore is at liberty to attend the patient.

MULTIPLYING DOOR PLATES.

PLYMOUTHIAN writes: Is there any limit to the number of branch practices that one can open? Just recently two partners placed their plates on two houses within a few yards of each other in a new district near here, and quite a long distance from their own homes; this makes four branches to my knowledge, and possibly they may have done the same in other districts. Only a short time since two partners from another town placed a plate in the same district; but as it was removed soon after, I suppose they saw the absurdity of their venture. With all due respect to their enterprise, this seems to my mind to savour more of the limited company than of legitimate competition, which at the present day seems to be reducing professional etiquette and courtesy to a minimum.

*** We have repeatedly expressed the opinion that, except in scattered country districts, there is no justification for the multiplication of door plates by affixing them to houses where there is no bona-fide tenancy; but the question is one which might properly be referred to the local Division, and, if necessary, the Central Ethical Committee could be asked to express an authoritative opinion on a case submitted, or to bring the matter in the shape of a resolution formally before the Representative Meeting.

CONTRACTS NOT TO PRACTISE.

DUX writes: A. sells a practice to B. on an agreement not to practise "as a physician or surgeon" within a fifteen-mile area for a definite term of years. A year later A. is asked to act as *locum tenens* on the staff of a charitable institution in a town six miles distant, where only those patients are treated who have "recommends" proving their inability to pay for medical aid. Would the agreement be held to refer to private practice only, though not expressly so stated, or can B. reasonably prevent A. from acting?

*** B. could legally prevent A. from acting, but there can be little doubt that he would give his consent if asked.

THE SUPPLY OF INSTRUMENTS TO PATIENTS.

ANTIQUACK.—If a medical practitioner orders an appliance which he believes in good faith to be required for a patient's relief he is not to be blamed because in the opinion of some-one else the said appliance is not worth the money charged for it; but if the medical practitioner, as is suggested, said that the appliance had to be procured in Paris and gave that as the reason for its costliness, and if in truth it was not made in Paris, it might be necessary to take a very serious view of his action. Moreover, for a medical man to sell to a patient appliances recommended by himself and to charge a profit upon them is contrary to the ethical rule that a medical practitioner should not have any pecuniary interest in the sale of articles recommended by him in the treatment of his patients. In these remarks we are only expressing an opinion upon a hypothetical case put by ourselves; we think that the charge made by our correspondent is so grave that if evidence can be obtained to support it he should lay it before the Central Ethical Committee, the party complained of not being a member of the Association.

ABROGATION OF MIDWIVES' ENGAGEMENT.

YARDLEY.—Mrs. H. engaged a midwife to attend her at her confinement, which she calculated would take place about September. At the end of May she had a miscarriage, and had to engage a second midwife, as the former was away at another case. Ought the midwife primarily engaged to be paid?

*** A midwife has no claim to be paid under such circumstances.

PUBLIC HEALTH
AND
POOR-LAW MEDICAL SERVICES.

VOLUNTARY NOTIFICATION OF CONSUMPTION.

THE clerk to the Petersfield (Hants) Rural District Council has sent a circular letter to the medical practitioners in the district inviting them to notify to the medical officer of health any case of consumption in the rural district which may come under their notice, also to notify to the medical officer of health any death occurring from this disease, or the removal of any visitor from a house or lodgings, in order that the premises may be properly disinfected. There is no mention of any fee proposed to be paid by the district council for the information asked for. This invitation does not constitute consumption a legally notifiable disease, and in the absence of any arrangement to the contrary no fee could be claimed by a medical practitioner who gave the information. As the proposed arrangement is a purely voluntary one it is to be presumed that the medical practitioner would not give the information required if he had reason to suppose that his patient or his patient's friends would raise any objection. There could thus be no breach of professional confidence. In many districts immediate notice of the registration of a death from consumption is obtained from the registrar of deaths, a special fee of 4d. being paid to him for each return. In the present state of the public health law, if consumption were added to the list of diseases compulsorily notifiable under the Infectious Disease (Notification) Act, 1889, patients suffering from the disease might be prevented, under Section 120 of the Public Health Act, 1875, from travelling or going into public places unless they took certain precautions. In Sheffield, where the compulsory notification of consumption is in force, the special Act contains a provision designed to prevent this disability.

INSPECTION OF FOOD.

IN his last report, Dr. Collingridge, M.O.H. for the City of London, devotes a short space to the consideration of the legislation which the London County Council intends to promote in order to enable "sanitary authorities to examine premises on which food is prepared for sale and to require the removal of conditions likely to give rise to contamination." Seeing that such an Act would give compulsory powers of entry at any time that work was going on it might in itself be advantageous, but so far as the City was concerned it was scarcely required since the owners of such establishments usually threw them open to the inspectors and adopted any sanitary suggestions made by the medical officer. During the five weeks ending June 16th there were some 3,393 seizures of meat in the markets and slaughterhouse, attention having been called to the meat in some 33 per cent. of the cases by the salesmen themselves.

BACTERIOLOGICAL EXAMINATIONS.

IF any doubt existed as to the valuable services which the bacteriologist is rendering to those who are charged with the administration of the Public Health Acts it ought to be speedily dissipated upon the perusal of the reports which are issued from time to time from bacteriological laboratories in all parts of the country. One of the latest gives an account of 5,000 examinations made by Dr. Joseph Priestley, the Medical Officer of Health for the Metropolitan Borough of Lambeth. The Lambeth laboratory was established in 1899, and since that date 1,190 specimens of sputum have been examined, revealing tubercle bacilli in 416 instances. In 575 specimens of blood examined Widal's reaction was obtained in 234 and

the diphtheria bacillus was found in 433 of the 3,188 specimens in which it was sought for in throat or nasal discharges or membranes. Dr. Priestley gives details in his report of two outbreaks of diphtheria in large schools in Lambeth. In each case there were children who showed in their throats or noses the presence of the Klebs-Loeffler bacilli, and others who showed the presence of the pseudo-bacilli of Hoffman. The two classes of patients were isolated from each other and from the other children in the schools, and the outbreaks were stamped out. Dr. Priestley considers that there can be little doubt that throats infested by the pseudo-bacillus form a suitable breeding ground upon which true diphtheria bacilli may at any time become engrafted and spread rapidly, whilst it may even be that at times the pseudo-bacilli change into the true Klebs-Loeffler bacilli or vice versa.

SALARY OF MEDICAL SUPERINTENDENT OF INFECTIOUS HOSPITAL.

H. E. B.—The salary of £75 per annum is not an exorbitant one for attending the patients at two isolation hospitals each five miles distant from the medical superintendent's residence. A fair salary for attending patients from the urban district who may be sent to the small-pox hospital would be £50 per annum, or alternatively a fixed salary of £25 per annum, and say 10s. for each visit paid to patients.

VACCINATION.

PROPER NOTICE BY PUBLIC VACCINATOR.

THE general vaccination orders distinctly state that a notice must be sent in advance on a stated form. But it is within our knowledge that the inspectors of the Local Government Board do advise public vaccinators that such formal notice is not necessary in all cases, and that when the public vaccinator is personally acquainted with parents he may arrange for vaccination by word of mouth or by informal communication. This is not a desirable method, and public vaccinators would be better advised to follow the Act strictly.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

ARMY MEDICAL DEPARTMENT REPORT FOR THE YEAR 1904, WITH APPENDIX. Vol. XLVI.[1]

THIS invariably excellent report presents certain new features which require to be specially noted.

The relative health of our troops, at home and abroad, for any given year is, of course, best estimated by comparing the statistics of the year with a decennial average; but in this new volume we find such comparison now materially affected, especially in the admissions to hospital, by (as stated) "the extension of the practice of treating cases in barracks."

TREATMENT IN BARRACKS.

This practice is copied from the French army, in the statistics of which it appears as *Malades à la Chambre*; it seems to have been smoothly inaugurated in our army; but old medical officers will recall that in former days it was always severely discountenanced by commanding officers as not conducive to discipline, and violating the old regimental axiom that the soldier should be "either at duty or in hospital."

ADMISSIONS.

The report ascribes "part of the decrease" in admissions to hospital for 1904 to barrack treatment; we think it must be the chief part, from the following figures: The admissions to hospital in 1904 among European troops at home and abroad were in the ratio of 653.1 per 1,000, against 758.1 in 1903, and 888.6 in the decade 1894-1903, showing a substantial decrease, which, however, becomes less so when to the total 159,644 admissions are added about 95,000 cases treated in barracks, of which many would formerly and necessarily have been taken into hospital.

As barrack treatment is now universally adopted at home and abroad, it will have to be discounted in decennial averages for years to come.

MORTALITY.

The year 1904 must be regarded as a healthy one, for it had a death-rate of 6.19 per 1,000, against 7.13 for 1903 and 8.38 for the previous decade; but the ratio of the latter was affected, and undoubtedly increased in various ways, by the Boer war.

United Kingdom.

The admissions, mortality, and constantly sick all show, compared with decennial averages, substantial decreases, the death-rate especially, which was only 2.96 against 4.29; and even this low rate represents "not only sickness originating in the United Kingdom, but also contributed to by disease contracted during service abroad."

The total loss to the service at home by death and invaliding during 1904 was in a ratio of 24.55 per 1,000, being somewhat less than in the previous year.

Specific Diseases.

Among the chief diseases was enteric fever, with 90 admissions and 16 deaths, Dublin, as heretofore, heading the list. Venereal diseases give a ratio per 1,000 of 10.13 constantly sick. Dublin headed the list in the larger garrisons, but was exceeded by some of the smaller—as Norwich, etc.; 49,943 cases were treated in barracks, giving a ratio of 10.24 per 1,000 strength constantly under such method of treatment.

DENTISTRY.

A new and interesting table shows that between April 1st and December 31st, 1904, a very large number of soldiers had the advantage of skilled dentistry in various directions.

RECRUITING.

70,346 recruits were inspected during the years, and 46,556 passed; but 992 were found unfit within three months, which raised the total rejection to the ratio 352.29 per 1,000. The ratios of rejection per 1,000 inspected were, in England, 356.53; in Scotland, 349.35; and in Ireland, 331.83; colonial and foreign, 256.68.

The chief cause of rejection was loss and decay of teeth, showing a ratio of 74.67 per 1,000 inspected. As the dental rules were considered too stringent, we believe they have lately been relaxed.

STATIONS ABROAD.

Mediterranean.

In all our Mediterranean stations, including Egypt, all the ratios, but especially the admissions, were under the decennial averages.

In Malta a representative Commission of the Services, including Dr. T. Zammit, Board of Health, Malta, has, under the auspices of the Royal Society, been investigating the life-history of the *Micrococcus melitensis*, believed to be the source of the peculiar disease known as Malta fever, which, moreover, seems undoubtedly contagious, from the fact that the nursing staff and men of the Royal Army Medical Corps brought into direct contact with sufferers had more than three times as many cases as the whole garrison troops.

In 1905, Major Horrocks, R.A.M.C., one of the Commissioners, detected the said micrococcus in the milk of an apparently healthy goat; and afterwards in the milk of five similar goats taken from two herds; and, finally, it is shown that goats secrete this microbe both in their milk and urine. Goat's milk is the chief fresh supply in Malta, and the following-up of these discoveries is likely to have far-reaching results.

South Africa.

It is most satisfactory to have the health of the troops in this very important region described during 1904 as "exceptionally good"; leaving little to be desired, if only enteric fever could be held in check; but this disease spares no district or station during the hot summer months. Its nidus is said to be soil pollution, spread through dust, flies, and water.

India.

The health of India more than equals in importance that of all other of our foreign possessions; it is also declared to have been in 1904 "exceptionally good," better, indeed, than for 23 years past.

Sanitary progress has been sound and steady in India for a number of years, keeping pace with the evolution of the etiology of its endemic diseases.

Malarial diseases less widely prevail. Cholera has been decidedly checked; there were only 16 cases and 11 deaths in 1904. Notwithstanding the severe epidemics of plague among the natives, there were only 2 cases in the European troops, owing probably to the strict precautions enforced against it in epidemic areas; in China and Mauritius also the troops had no cases of the disease while epidemic among the civil population.

Enteric fever remains and continues the serious blot in Indian sanitation; no districts and but few stations escape it. There seems a growing opinion in India in favour of Koch's theory that enteric once set going spreads further, chiefly by simple personal contact.

Venereal diseases, although less virulent, still cause a constant inefficiency equal to the available services of two battalions of European infantry.

This volume gives for the first time an interesting summary, entitled "Index to Appendices of A.M.D. Reports from 1859 to 1901," giving the subject, author, and year of each report.

It will have a sad interest to all old medical officers, recalling the names and memory of many former friends and comrades, the most of whom have joined the majority.

[1] London: Wyman and Sons. Edinburgh: Oliver and Boyd. Dublin: E. Ponsonby. 1906. 2s. 6d.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

QUERIES.

SIMPLICITAS asks for the simplest mode of estimating, day by day, the amount of urates and uric acid.

FEES FOR ADMIRALTY SURGEON.

M. R. T.—The surgeon and agent should make a special report of the case to the Medical Director-General, when reasonable expenses, including the fee for the anaesthetist, would be allowed.

INCOME TAX.

CUSTODA has sold his practice and started to make one in a town. He is living on capital only, and asks how he should fill up his income-tax return form.

*** Our correspondent should return the form to the income-tax assessor with a note stating the above facts, and he will probably find that no assessment will be made for the current year.

EXAMINATION OF POLICE RECRUITS.

POLICE SURGEON asks if police surgeons in extra-metropolitan districts as a rule receive a fee for the examination of candidates for entrance into the police force, or is their salary supposed to include payment for such duties? He also asks what the usual fee is if extra fees are allowed for the examination of candidates for admission to the police force. Will provincial police surgeons kindly say what the custom is in their districts?

ANSWERS.

S., who is preparing to give two lectures on consumption to working people, is recommended to communicate with the Secretary of the National Association for the Prevention of Consumption, 20, Hanover Square, London, W., and with the Secretary of the National Committee for the Establishment of Sanatoria for Workers suffering from Tuberculosis, 54, Gray's Inn Road, London, W.C.

THYROID EXTRACT IN OBESITY.

D. Y.—It is generally held that the administration of thyroid extract for the purpose of reducing weight is not quite rational, inasmuch as its effect is to promote oxidation of the tissue proteids as well as the fat of the body. Untoward effects are by no means uncommon, an undesirable raising of blood-pressure, palpitation, and other phenomena associated with hyperthyroidism, and even glycosuria, have been met with. On the other hand, benefit has been obtained, and under constant medical supervision its administration is moderately safe. The best effects are said to have been obtained in pale flabby subjects, whose appearance and character have suggested some myxoedematous tendency. The susceptibility to the influence of the agent varies greatly in different individuals. Small doses of arsenic have been found to act sometimes as a corrective.

SCIATICA.

DR. J. BRINDLEY JAMES (Hammersmith, W.) writes: I would advise "Member" to inject direct into the sciatic nerve ether sulph. with a long hypodermic needle, beginning with a dose of 15 minims, increasing the dose up to 30 minims. I can speak highly of this treatment, as I have cured several cases of obstinate sciatica by this method.

DR. J. CURTIS WEBB (London, S.W.) writes: I have recently treated two cases almost exactly as "Member" describes by static electricity, and have effected complete cures. If the "Member" would care to write to me direct, I shall be glad to afford him any assistance that lies in my power.

DR. ARTHUR WATSON (Sandown, I.W.) writes: If "Member," who has suffered for eight months, would simply take ℞ Pil. ferri carb. sacch., gr. 7, thrice daily, I think he will be well in two or three weeks, and feel none the less toned up as well. It has never failed with me in any case, no matter what the origin.

S. S., M.D., writes: "A Member," who has suffered so long from sciatica, will almost certainly obtain relief, possibly cure, from deep massage along the course of the sciatic nerve by means of a condenser electrode attached to one end of the usual high-frequency solenoid. The applications should not be so severe or so prolonged as to prevent repetitions every second or third day. The number of the applications required will depend on the previous duration of the complaint.

AUSTRALIA writes: I would advise the inquirer to try natural sulphur baths. For some years I used to suffer from pleurodynia, lumbago and sciatica, and the only remedy that gave relief, which however was short, was the electric bath. Eight years ago I took a dozen sulphur baths, which cured me. From the same town where I lived a gentleman on crutches went to the same spa and after twenty baths went home cured. I will communicate privately and more fully if the inquirer will give me his address.

SUFFERER, aged 73, who has had the complaint since February, writes: The indications in my own case have been to use laxatives, not for the sake of constipation but to help the kidneys, which seemed to be "working overtime," with clear, pale urine: tepid shower or sponge baths, with any desired chemical, such as Scrubb's ammonia or sulphaqua; moderate use of flesh-brush; gentle walking exercise. For some reason or other I have found relief from a mixture as follows (prescribed by my son): ℞ Liquor strychnin. mxxiv; tr. ferri sesquichl. ʒj; aqua chloroform. ʒij; aqua ad ʒxii. ʒj ter die post cibum.

QUANTITATIVE ESTIMATION OF ALBUMIN.

W. D. G.: Introna (*Gazz. deg. Osped.*, September 13th, 1903) has recommended formalin (a 40 per cent. solution of formaldehyde) as a substitute for picric acid in the estimation of albumin. One hundred parts of urine for complete coagulation require twenty of formalin; it is not essential to employ heat. Whatever reagent is employed in place of Esbach's it is obvious that the tube will require special graduation, the calibration being carried out by gravimetric methods. With regard to the use of salicyl-sulphonic acid (BRITISH MEDICAL JOURNAL, 1891, vol. i, page 837. Ibid. April 16th, 1904, vol. i. Ch. Murray), proposed by McWilliam and Reoch, as a qualitative reagent, it would probably be necessary to employ a much narrower tube than that of Esbach's apparatus, because the best results can only be obtained by the use of saturated solutions, and only very small quantities of urine can be dealt with. The use of crystals of the acid as recommended by Murray (*loc. cit.*) would, perhaps, obviate this difficulty, and from the purely chemical point of view the reagent is entirely satisfactory and suitable. Wassiliew (*St. Petersburg med. Woch.* 1897. Beilage, p. 4) has devised a volumetric method for the estimation of albumin which depends upon the colour struck by salicyl-sulphonic acid (12·5 per cent. solution) with urine to which 1 per cent. *Echt-gelb* (Grübler) has been added when all albumin has been precipitated; the calculation requires the use of a constant, arbitrarily determined. Roberts (*Lancet*, 1876, vol. i, p. 313) and Stolnikow simultaneously described a method for estimating albumin, which has since been elaborated by Brandberg (Maly's *Jahresber. für Thierchemie*, vi, 148. rep. 1877). It depends upon the time elapsing before the appearance of turbidity in the nitric acid test. Urine containing 0.0033 per cent. of proteid yields a cloud, appearing in from two and a half to three minutes. By successive dilutions the appearance of the turbidity can be delayed to the required extent and the amount of albumin contained calculated. In Von Jaksch's manual will be found an elaborate table for use with this test. A method in use in the Clinical Laboratory of the Westminster Hospital has proved quite satisfactory for clinical purposes. Acidulate a definite quantity of the urine with acetic acid, boil and subsequently centrifugalize, preferably in a flat-ended tube, carefully calibrated. The albumin can be recorded as a fraction of the volume of urine taken, or in grammes per cubic centimetre.

LETTERS, NOTES, ETC.

MANAGEMENT OF A CASE OF LABOUR.

DR. JOHN W. DUNCAN (Hockley, Birmingham) writes: In Dr. Purslow's interesting lecture in the BRITISH MEDICAL JOURNAL of June 30th, p. 1512, I see a means adopted for saving the perineum "by pushing it forward against the pubic arch, and assisting its extension," the common method I think. There is another method, just the reverse, that I sometimes try, that is to say, to pull the head back, and cause more flexion. It seems to act well, and has been amplified, I think, in Dr. W. J. Caie's method (BRITISH MEDICAL JOURNAL, September 16th, 1905, p. 628) with regard to the shoulders and body. A slight oblique rotation of head into oblique diameter of contact also relaxes the perineum, and prevents undue tendency to tear, and these two means, pulling back the oncoming head and changing the direction of the fronto-occipital diameter to the oblique, I often use.

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N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

An Inquiry

INTO

SOME POINTS IN UTERINE AND OVARIAN PHYSIOLOGY AND PATHOLOGY IN RABBITS.

[WITH FOUR PAGES OF SPECIAL PLATES.]

BY C. J. BOND, F.R.C.S,

SURGEON, LEICESTER INFIRMARY.

GENERAL INTRODUCTION.

THE present investigation was undertaken from November, 1902, to July, 1904, with the object of clearing up some doubtful points in uterine and ovarian physiology in rabbits. It may be conveniently divided into four divisions. The experiments were performed by Sir Victor Horsley, to whose kind assistance I am much indebted.

1. To investigate the effect of the removal of the uterine cornu on the ovary of the same side, and also the effect of removal of the whole uterus on ovarian growth and function.

2. To inquire into the nature of, and the conditions governing the secretion of a peculiar saline fluid by the endometrium and mucous membrane of the Fallopian tubes, and to ascertain what influence this secretion exercises when retained under pressure and absorbed into the circulation, on oestrus, ovulation, pregnancy, and the formation of lutein tissue or corpora lutea in the rabbit.

3. To ascertain whether any compensatory hypertrophy takes place in the remaining ovary in the rabbit after removal of one ovary, and if so, under what conditions it occurs.

4. To ascertain by experiment some of the conditions under which abdominal pregnancy and abdominal abortion occur in the rabbit.

PART I.

Much work has been done by physiologists—Fraenkel, Heape, Marshall and Jolly, etc.—and by surgeons—Spencer Wells, Tait, and others—and much is now known about the influence of the ovaries on uterine function, but few facts have been recorded as to the influence of the uterus and Fallopian tubes on the ovaries and on ovarian function. The first point was to determine what effect removal of the whole uterus or one half of the organ in the rabbit exercised on the occurrence of oestrus, ovulation, and pregnancy.

Experiment I (Rabbit 2).

The whole uterus, including the cervix uteri but excluding the Fallopian tubes, was removed on November 20th, 1902. Oestrus and coitus occurred at monthly intervals on February 15th, March 12th, and April 11th, 1903. The animal was killed on April 13th, 1903, forty-eight hours after the last coitus.

Both ovaries (Fig. 1) are normal in appearance; each contains several red, raised, and recently-ruptured follicles,

DESCRIPTION OF ILLUSTRATIONS.

Fig. 1, Plate 1.—Rabbit 2, Experiment I. Ovaries after hysterectomy. A, Left ovary; B, right ovary showing recently-ruptured follicles.

Fig. 2, Plate 3.—Rabbit 2, Experiment I. Ovaries after hysterectomy; section of left ovary (× 180 diameters). Shows retrograde changes in follicles A and B.

Fig. 3, Plate 3.—Rabbit 2, Experiment I. Section of right ovary × 180 diameters). Shows pseudo-corpus luteum at A, maturing follicles at B.

Fig. 5, Plate 1.—Rabbit 1, Experiment II. Ovaries after removal of the uterine cornu and subsequent pregnancy. A, Right ovary; A, left ovary; both equal in size and both contain numerous corpora lutea, C.

Fig. 6, Plate 1.—Rabbit 6, Experiment III. Ligature of one uterine cornu; uterus and appendages removed and vagina laid open A, Ligatured portion of right cornu distended with fluid. Hydrometra B, Left uterine cornu; C, left ovary showing haemorrhagic follicles.

Fig. 32, Plate 1.—Rabbit 13. Restoration of canal after ligature of uterine cornu. A, Right uterine cornu laid open; B, catgut ligatures partly free in mucous canal; C, right Fallopian tube adherent and distended with clear fluid hydrosalpinx.

Fig. 7, Plate 1.—Rabbit 31, Experiment V. Uterus and appendages after transplantation of one uterine cornu. A A, Portions of right uterine cornu transplanted and distended with clear fluid. Hydrometra C, Left uterine cornu containing two fetuses; B, right ovary.

Fig. 8, Plate 1.—Rabbit 31, Experiment V. Shows the left uterine cornu and vagina laid open. A, Vagina and left os uteri; B B, hydrometric transplanted cornu; C C, two placental attachments; D D, adenomatous polypi.

Fig 10, Plate 1.—Rabbit 9, Experiment VI. Uterus and vagina three months after complete oophorectomy. A, Ligatured and distended portion of right uterine cornu; B, vagina laid open. Bristles inserted in each os uteri.

Fig. 11, Plate 3.—Rabbit 9, Experiment VI. Transverse section of distended right uterine cornu (× 30 diameters). Shows atrophy of uterine wall and endometrium.

Fig. 14, Plate 1.—Rabbit 14, Experiment XII. Effect of ligature of uterine cornu. C, Left or ligatured cornu laid open; A, adenomatous sessile polypus; B, villous polypus.

Fig. 15, Plate 3.—Rabbit 14, Experiment XII. Transverse section of polypus and uterine wall at A (× 180 diameters).

Fig. 16, Plate 1.—Rabbit 14, Experiment XII. A, Cystic right ovary.

Fig. 17, Plate 3.—Rabbit 14, Experiment XII. Section of right ovary (× 30 diameters), showing cyst.

Fig. 18, Plate 1.—Rabbit 12, Experiment XIII. Uterus and appendages after transplantation of right ovary. A, Left uterine cornu, containing eleven fetuses; B, right uterine cornu, empty; C, transplanted atrophic right ovary, adherent to uterine cornu; D, left ovary, containing eleven corpora lutea; E, vagina.

Fig. 19, Plate 2.—Rabbit 17, Experiment XIV. Uterus and appendages after transplantation of right ovary. A, Left uterine cornu, containing four fetuses; C, right ovary, adherent to posterior surface of uterus; D, right uterine cornu, empty; B, left ovary; B, right Fallopian tube hydrosalpinx.

Fig. 20, Plate 2.—Rabbit 17, Experiment XIV. A, Right transplanted ovary; B, left ovary.

Fig. 22, Plate 3.—Rabbit 17, Experiment 14. Portion of right ovary (× 60 diameters). Shows, A, corpus luteum of pregnancy undergoing retrograde changes.

Fig. 21, Plate 3.—Rabbit 17, Experiment XIV. Section of left ovary (× 60 diameters.) X X, Corpora lutea.

Fig. 27 Plate 2.—Rabbit 3. Experiment XV. Compensatory hypertrophy in left ovary after removal of right ovary and hysterectomy two and a half months earlier. A, Left ovary; B, right ovary.

Fig. 28, Plate 2.—Rabbit 3, Experiment XV. A, Left ovary attached to subperitoneal fat; B, pseudo-corpora lutea; C, vesicular follicles; D, Fallopian tube.

Fig. 29, Plate 4.—Rabbit 3, Experiment XV. Section of left hypertrophied ovary (× 60 diameters). Shows overgrowth of stroma, B, and pseudo-corpus luteum, A.

Fig. 30, Plate 4.—Rabbit 3, Experiment XV. Section of right ovary (× 60 diameters) removed at operation. A A, Follicles containing ova.

Fig. 31, Plate 2.—Rabbit 24, Experiment XV. Compensatory hypertrophy in left ovary after unilateral oöphorectomy. A, Left ovary, weight, 15½ gr.; B, right ovary, weight 8 gr. Both contain corpora lutea.

Fig. 33, Plate 2.—Rabbit 13, Experiment XVII. Compensatory hypertrophy after unilateral oöphorectomy. B, Left ovary double the weight of A, right ovary removed two and a half months before; X, corpora lutea.

Fig. 34, Plate 4.—Rabbit 13, Experiment XVII. Section of left ovary (× 60 diameters). Shows pseudo-corpora lutea.

Fig. 35, Plate 4.—Rabbit 13, Experiment XVII. Section of right ovary (× 60 diameters).

Fig. 13, Plate 2.—Rabbit 8, Experiment XIX. Compensatory hypertrophy after unilateral oöphorectomy. A, Hypertrophied left ovary; B, right ovary.

Fig. 36, Plate 1.—Rabbit 19, Experiment XX. Absence of compensatory hypertrophy after unilateral oöphorectomy. Coitus and pregnancy prevented. A, Left ovary; B, right ovary.

Fig. 37, Plate 1.—Rabbit 25, Experiment XXI. Absence of compensatory hypertrophy after unilateral oöphorectomy. No coitus. A, Left ovary; B, right ovary.

Fig. 38, Plate 1.—Rabbit 23, Experiment XXIII. Absence of compensatory hypertrophy after unilateral oöphorectomy and hysterectomy three months earlier. A, Left ovary removed at operation; B, right ovary removed at *necropsy*.

Fig. 41, Plate 2.—Rabbit 15. Effect of coitus on rupture of follicles. A, Left ovary twenty-four hours after coitus (shows numerous raised ruptured follicles); B, right ovary removed during pregnancy one month before.

Fig. 46, Plate 2.—Rabbit 27, Experiment XXVII. Uterus and vagina after formation of vaginal fistula and closure of upper uterine end. A A, Uterine cornua distended with creamy fluid; B, distended vaginal *cul de sac*.

Fig. 47, Plate 2.—Rabbit 27, Experiment XXVII. A, Right ovary; B, left ovary. Both show hypertrophic changes with pseudo-corpora lutea, X.

Fig. 48, Plate 2.—Rabbit 11, Experiment XXVIII. Peritoneal abortion after formation of utero-peritoneal fistula. Abdomen laid open. Intestines removed. A, Fetus enclosed in membranes lying free in peritoneal cavity; X, site of utero-peritoneal fistula; B, left ovary.

Fig. 49, Plate 2.—Rabbit 11, Experiment XXVIII. Mummified fetus and placenta, A, with membranes removed.

Fig. 50, Plate 2.—Rabbit 11, Experiment XXVIII. Uterus and appendages. B, Uterine cornua laid open below the fistula; C, utero-peritoneal fistula with everted mucous membrane; A A, position of fetus in right and left uterine cornu above the fistula.

Fig. 51, Plate 4.—Hypertrophy of ligatured cornu during pregnancy. No hydrometra. Transverse section of ligatured cornu (× 30 diameters).

Fig. 51A, Plate 4.—Hypertrophy of ligatured cornu during pregnancy. No hydrometra. Transverse section of ligatured cornu (× 20 diameters).

together with several dull-yellow, slightly-raised spots, the corpora lutea of the follicles of the previous ovulation.

Microscopic section (Fig. 2) shows two of these latter corpora lutea in the left ovary, Fig. 3 two of the mature or unruptured follicles in the right ovary.

This experiment shows that panhysterectomy has no deterrent effect on ovulation, and that it does not prevent the occurrence of oestrus and ovulation at periodically-recurring intervals.

Experiment II (Rabbit 1).

Removal of one uterine cornu has no detrimental effect on the corresponding ovary on the same side.

The left uterine cornu was removed on November 20th, 1902, the vaginal portion, os, and cervix, being left. Oestrus and coitus occurred on February 12th, 1903; this was followed by abortion. Coitus again occurred on March 12th, 1903, and a litter of six young was born on April 12th.

The animal was killed on April 15th, 1903.

The left os uteri is hypertrophied and has undergone, equally with the right os, the changes incidental to pregnancy.

The left ovary (Fig. 5) is equal in size to the right ovary, and contains the remains of five corpora lutea of pregnancy, the right ovary containing six.

This experiment illustrates the fact, which I have repeatedly verified, that the number of corpora lutea in one ovary generally corresponds with the number of fetuses in the uterine cornu of the same side, and means, of course, that under normal conditions all the ova which escape from the ovary at any one oestrus and ovulation become fertilized and effect a lodgement in the uterus. Further, only those follicles which have ruptured and shed ova at the time pass on into the stage of corpora lutea of pregnancy.

Further, the experiment also demonstrates the important fact that the occurrence of pregnancy, or the imbedding of fertilized ova in one uterine cornu exercises an equal influence or stimulus on both ovaries, and not only on the ovary corresponding to the pregnant cornu, thus strongly suggesting the inference that it is not by way of the nervous system, but by means of some secretion or substance circulating in the blood, that the stimulus is conveyed to the ovary.

In fact, the bicorned or double uterus (in the rabbit) acts, as far as the function of pregnancy or providing a nidus for the growth of fertilized ova is concerned, as one organ or gland; just in the same way that the two ovaries functionate as one gland as far as the functions of ovulation and the production of an internal secretion are concerned.

PART II.

In the course of some experiments on the production of hydrometra and hydrosalpinx in the rabbit and guinea-pig carried out in 1899,[1] I showed that the normal secretion of the endometrium and the mucous membrane of the Fallopian tubes in the rabbit and guinea-pig and the Fallopian tube in the case of the sheep is a clear watery saline fluid having a low specific gravity of 1010 to 1012 and containing a large quantity of chloride of sodium in solution with a trace of calcium phosphate. It also contains serum albumin but no globulin and a small quantity of an albumose. It is now recognized that the watery fluid which collects under pressure in the occluded Fallopian tube in the human subject is the secretion of the mucous membrane lining the tube and not an inflammatory product.

The object of the following experiment was to ascertain the conditions under which this secretion occurs in the rabbit:

Experiment III (Rabbit 6).

The right uterine cornu was doubly ligatured with silk on December 20th, 1902. Oestrus and coitus occurred on February 28th, 1903, and again on March 12th, 1903; this was followed by pregnancy, the animal was killed on May 7th, two months later.

Fig. 6 shows the distension by saline fluid (hydrometra) of the upper portion of the right cornu after double ligature. The occurrence of this distension following pregnancy will be referred to later, and it may here be explained that in cases of double ligature of a portion of uterine cornu in the rabbit, and in which at the necropsy some weeks later no hydrometra has been found, the explanation has been that the ligature material (and this applies especially to catgut) has made its way into the cavity of the tube or cornu, and in this way the continuity of the mucous canal has been restored and the fluid allowed to escape.

This is well shown in Fig. 32 (Rabbit 13) in which the tube was found empty and the catgut ligatures projecting free into the mucous canal.

Thus is experimentally produced the condition which arises in those cases in the human subject where pregnancy has occurred after ligature of the Fallopian tube or tubes. This secretion by the endometrium of the uterine cornu and Fallopian tube takes place independently of nervous influence, and occurs in ligatured portions of cornu that have been transplanted to distant parts of the abdominal cavity, and the same thing occurs in transplanted tubes. This point will be referred to later.

Experiment IV (Rabbit 30).

Two portions of the right uterine cornu were transplanted and grafted on the peritoneum of the abdominal wall on March 1st, 1904.

A cystic swelling the size of a walnut could be felt a fortnight later at the site of the transplanted cornu, through the abdominal wall. This swelling subsequently subsided after pregnancy occurred in the normal cornu. The animal was killed on July 30th, and the transplanted portion of the uterus had undergone atrophy.

Experiment V (Rabbit 31).

Two portions of the right uterine cornu were excised and transplanted to the peritoneum of the abdominal wall on March 1st, 1904. An abdominal swelling formed as in the last case. The animal became pregnant on May 12th (the swelling being still present), and was killed on May 21st, 1904.

Fig. 7 shows the two portions of transplanted cornu, cystic and distended with saline fluid, and the pregnancy in the left cornu.

Fig. 8 shows the left uterine cornu laid open, exposing the sites of the two placental attachments, and a number of adenomatous polypi, to which reference will be made later.

This uterine secretion occurs after complete removal of both ovaries and in the absence of oestrus or coitus, thus:

Experiment VI (Rabbit 9).

Both ovaries were completely removed on February 14th, 1903. The right uterine cornu was doubly ligatured. The effect of double oöphorectomy in this rabbit was, as usual, to abolish all sexual appetite; in other respects the animal was in good health and fat. It was killed on May 7th, 1903, nearly three months after the operation. The mammary glands had practically disappeared, and the teats were smaller than in the normal rabbit in the non-pregnant condition. The whole uterus and vagina had undergone a very marked degree of atrophy, the walls of both were thin and fibrous, not thick and muscular. Both os uteri were small and shrunken. No trace could be found of either ovary.

Fig. 10 shows the uterus and vagina removed, the left uterine cornu is a small thin tube, and the vagina thin, fibrous, and atrophic.

The right uterine cornu between the ligatures has its thin, atrophied, almost translucent walls distended with the clear watery fluid described above, hydrometra being present.

The vagina is laid open, and bristles are inserted into the two minute canals of the os uteri.

Fig. 11 shows a cross section of a portion of the distended cornu and the atrophy of the villi of the endometrium.

Absence of Saline Secretion during Pregnancy.

This saline secretion of the uterine cornu, while occurring under all other conditions, and becoming manifest on occlusion of the uterine canal, practically ceases, or is at any rate greatly diminished in amount, during pregnancy.

Experiment VII (Rabbit 16).

A fistulous opening was established by stitching the incised and everted mucous wall of the right uterine cornu to the skin in the abdominal incision, the opening of this fistula when repeatedly examined was always found moist and bathed with a muco-watery fluid. This continued for five weeks, when the animal was killed.

Experiment VIII (Rabbit 21).

A uterine fistula was established in this as in the last experiment on July 2nd, 1903. The animal became pregnant on August 1st, and was killed on August 7th, 1903. After the occurrence of pregnancy, and for some days before the animal was killed, the uterine fistula had dried up, and the everted mucous membrane had become drawn in. Both ovaries contained small corpora lutea of early pregnancy.

The hypertrophy of the ligatured uterine cornu and the absence of distension by saline secretion during the presence of pregnancy in the other cornu are well shown in Figs. 51 and 51A.

Experiment XIX.

Right uterine cornu ligatured at vaginal and Fallopian ends two days after coitus.

The animal was killed fourteen days later. The right cornu was not distended; it contained a little milky secretion, and its walls were thick and spongy.

The left cornu contained five fetuses.

These experiments show that if the uterine cornu be ligatured after impregnation has occurred, no saline secretion occurs, and no distension of the occluded tube by hydrometric fluid.

The same absence of saline uterine secretion was observed in the uterine fistula in Rabbit 21, after the occurrence of pregnancy, while continuously present in Rabbit 16, in which pregnancy did not occur.

The apparent exceptions in which ligatured portions of uterine cornu have been found distended by saline fluid at the necropsy (pregnancy being also present) are probably due to the fact that the collection of secretion occurred before the occurrence of pregnancy and remained during its continuance.

We have seen that this secretion occurs independently of any ovarian influence, and that it is present in transplanted portions of cornu in which all nervous influence has been severed.

An extended inquiry into this function of the oviduct in animals below the mammalia would probably yield valuable information as to the steps by which the function of the endometrium in the higher vertebrates has been evolved.

It is, at any rate, a suggestive fact that in the human female, while the lower or uterine portion of the oviduct has undergone special changes, the secretion of the upper portion or Fallopian tube still remains a saline watery fluid like that of the whole duct (uterus and Fallopian tube) in the lower mammals.

It is certain that this secretion of the endometrium must bear some reference to the nutrition, while in the duct, of the ova shed by the ovary, and it is impossible not to be struck by the marked saline character of this watery fluid and its resemblance to sea water, as far as chemical constitution is concerned.* Is it possible that we have here in this fact a relic of the earlier stages of vertebrate evolution, in which, as in the aquatic species, the ova were shed into sea water?

One other point about this saline secretion still remains, and that an important one. Under ordinary conditions of patency of the canal no collection of secretion occurs, no distension of the tube by fluid under pressure, and any fluid that is secreted by the endometrium is either resorbed or flows into the vagina.

Under the altered conditions of a ligatured cornu the fluid is retained under a certain degree of pressure, and the question arises as to what influence this retained secretion exercises on the uterus, on the ovaries, and on the animal itself?

Influence of this Uterine Secretion on the Uterus.

In nearly all cases of double ligature of one uterine cornu and retention of saline secretion, some interference has occurred with the normal sequence of oestrus, coitus, impregnation, and the imbedding of the fertilized ova on the endometrium of the healthy cornu.

(*a*) Sexual appetite is not abolished; on the contrary, the oestral period is prolonged, and occurs more frequently than is natural. Thus, in Rabbit 30, in which a transplanted portion of the uterine cornu had become hydrometric, repeated coitus occurred every few days from March 16th (two weeks after operation) till May 20th, and pregnancy only occurred at this latter date, and after atrophy of the transplanted portions of the cornu had become complete. The same frequency of coitus and absence of pregnancy occurred also in Rabbit 31.

(*b*) Interference with the normal imbedding of fertilized ova in the endometrium occurs, or if the ova have become imbedded, there is a great tendency for abortion to occur—that is, there is some interfering influence exercised by the retained fluid on the normal relationship between trophoblast and endometrium. Thus:

Experiment XI (Rabbit 31).

After transplantation of the right uterine cornu only two fertilized ova succeeded in establishing themselves in the lower portion of the left or healthy cornu. (Fig. 7.) On opening the cornu, the mucous membrane of the tube above the fetal sac was found covered with numerous sessile, mucous polypi (see Fig. 8), which on microscopic section were found to be adenomata. (See Fig. 15.)

These adenomatous polypi are, I believe, the sites of the imbedding of abortive ova, or abortive placental attachments. This is rendered likely from the fact that the lower and larger of the polypoid masses resembles a placental site after an early abortion, and has a central umbilicated necrotic area, and contains syncytial cells.

Experiment XII (Rabbit 14).

That the association of retained secretion and a polypoid or adenomatous condition of the endometrium is not an accidental one is rendered probable by this experiment, in which the left extreme cornu was doubly ligatured on June 3rd, 1903. Repeated oestrus occurred, but no coitus was allowed, and when the animal was killed on July 5th, 1903, the left or ligatured cornu was found undistended, because the ligatures had already cut their way through the mucous membrane, and the patency of the canal was restored.

The upper portion of the tube, however, contained two polypi, one villous and pedunculated, one sessile and adenomatus. Fig. 14 shows the polypi in position, and Fig. 15 the microscopical appearance of a section of the lower growth under a low power.

In this case also the right or remaining ovary was cystic (Fig. 16 and Fig. 17), the only occasion on which I have detected a pathological cyst in a rabbit's ovary. The left ovary was removed at the operation.

The Influence of this Uterine Secretion on the Ovaries.

(*c*) It was thought that some light might be thrown on the question of uterine influence on ovarian function by experimental interference with the conditions under which this uterine saline secretion is produced.

It is, of course, well known that the presence of a fertilized ovum, or ova imbedded in the endometrium, the presence in fact of a living trophoblast, is necessary to ensure the active growth of lutein tissue in the ruptured follicles in the ovaries, and that these corpora lutea are necessary for the continued nutrition of the trophoblast within the uterus until the placenta has formed. (See Fraenkel, Marshall and Jolly, and others.)

The question arises as to the manner in which this stimulus is conveyed to the ovary. It is by blood stream or by nerve impulse? By what means, in fact, does the ovary become aware, so to speak, of the occurrence of pregnancy?

That some reaction between endometrium and trophoblast is necessary for the stimulus to occur is rendered probable by the fact that in cases of pregnancy occurring outside the uterus, either abdominally or in the broad ligament in the human subject, the corresponding corpora lutea are ill developed, while for the purpose of this reaction the cavity of the Fallopian tube and uterus may be regarded as one membrane.

It is quite possible that a substance may be elaborated at the site of this reaction between trophoblast and uterine epithelium, which, circulating in the blood, exercises this stimulating influence on the lutein cells of the ovary.

And further, it is probable that this hypothetical substance, and some constituent in the saline uterine secretion, are mutually antagonistic as far as their effect on the lutein cells of the ovary is concerned.

An attempt was made to throw light on this question of the transference of the ovarian stimulus (by circulation or nerve influence) by transplanting one ovary and then observing the effect on the corpora lutea in the transplanted ovary at a subsequent pregnancy. Unfortunately it frequently happens that atrophic changes occur in the transplanted ovary, which abolish or render doubtful any subsequent effects of pregnancy.

Experiment XIII (Rabbit 12).

The right ovary with the mesovarium was entirely detached and transplanted to the parietal peritoneum in the right flank, May 25th, 1903. Primary aseptic healing occurred. The animal became pregnant on June 19th, producing nine young.

Pregnancy again occurred on July 27th, and the animal was killed on August 7th. The left uterine cornu contained eleven fetuses (Fig 18), and the left ovary eleven corpora lutea. The right or transplanted ovary could be recognized with difficulty, and had undergone atrophic degenerative changes, and no corpora lutea could be detected.

Experiment XIV (Rabbit 17).

The right ovary was transplanted to the peritoneum over the right psoas muscle in two stages. In the first stage on June 13th, 1903, the ovary was freed from all attachments to surrounding parts, except its attachment to the Fallopian tube; the ovary, however, broke away from this anchorage and

* A quantitative chemical analysis of hydrosalpinx fluid from the human subject gives 10·12 parts per 1,000 of sodium chloride. The proportion in blood plasma and serous fluids being 6 or 7 parts per 1,000. Sea water has a specific gravity of about 1,022 and contains 28 parts per 1,000 of sodium chloride.

became adherent to the back of the uterus near the vagina. Seven days later the abdomen was reopened and the Fallopian tube attachment ligatured and divided. Aseptic healing occurred. The animal became pregnant on July 4th, and was killed on July 19th.

The left uterine cornu contained four fetuses (Fig. 19) and the left ovary six corpora lutea. The right or transplanted Fallopian tube was slightly distended (hydrosalpinx). Fig. 20 shows the two ovaries side by side. The right or transplanted ovary was rough on the surface from adhesions; it showed signs of degenerative changes but was not markedly small. It had some raised eminences on its surface, and Fig. 22 shows the appearance at one of these sites under a low power; the appearance is that of a somewhat modified and degenerate corpus luteum of pregnancy—an area of epithelial cells surrounded by a vascular ingrowth from surrounding tissue.

Fig. 21 shows a section of the left ovary. Thus in this case a somewhat aberrant corpus luteum had occurred during the early stage of pregnancy in a transplanted ovary in which all original nervous connexions with the uterus had been severed, thus lending support to the supposition that it is by means of the circulatory system, by means of some substance circulating in the blood, that the stimulus is conveyed from the uterus to the ovary which provokes the growth of lutein cells.

One other apparent effect of the retention under pressure of uterine secretion on the ovaries must be mentioned. In several cases after ligature and operations on the uterus the follicles in the ovary on the healthy side have been dark red or black in colour, due no doubt to haemorrhage. This is shown in Fig. 6 (Rabbit 6), in which the hydrometric right cornu is associated with black haemorrhagic follicles in the right ovary.

Influence on Health and Nutrition.

The retention or absorption of this saline fluid besides its effect on the ovaries and the imbedding of fertilized ova has some prejudicial effect on the health and nutrition of the animal.

Experiment XIV (Rabbit 22).

A utero-peritoneal fistula was established at the upper end of both uterine cornua by longitudinal incision, and stitching back the everted mucous membranes at the margins of the incision.

The animal, though well nourished, seemed in bad health, dull, with staring coat; coitus occurred and probably failure of fertilized ova to become imbedded. The two ovaries contained two crops of follicles, a number of corpora lutea and a crop of red, raised mature follicles; the animal in fact presented the symptoms of some toxaemia probably associated with the abortive impregnation.

PART III.

Compensatory Hypertrophy in Ovary.

There are but few recorded physiological observations bearing on the question of the occurrence of compensatory hypertrophy in ductless glands.

On the other hand, in the case of glands having a definite external secretion, or excretion hypertrophy under certain conditions is well recognized. Thus, in the case of the urinary organs, if one kidney be removed the remaining organ, after a certain lapse of time, increases in size and responds to the call made upon it by the organism for increased excretory effort.

For the purpose of the present inquiry we may regard the ovaries as ductless glands, for in addition to the special function of ovulation (the excretion or shedding of ova) it has been now established that the ovaries are responsible for the manufacture of a substance or substances which, when thrown into the lymph or blood stream, acts on the organism as an internal secretion.

The first point to determine was whether, after removal of one ovary, any increased growth or hypertrophy occurred in the remaining organ.

Experiment XV. (Rabbit 3).

The whole uterus, together with the right ovary and tube, was removed on December 24th, 1902, the left ovary and Fallopian tube being left. Primary healing and rapid recovery of health occurred.

Repeated coitus took place during February, 1903, and the animal was killed on March 9th, 1903. On opening the abdomen after removal of the intestines there was no peritonitis, and the utero-vaginal stump was soundly healed. The left ovary was much larger than the right when removed two months and a half earlier (see Fig. 27), in fact more than twice as large; the surface was irregular and studded with numerous raised projections like partially-developed corpora lutea of pregnancy. There were also a number of clear vesicular mature follicles; this condition is well seen in Fig. 28, which is an enlarged view of the ovary resting on the fat covering the psoas muscles, with the end of the Fallopian tube on the left side.

Micro-sections of both ovaries also exhibit striking differences (Fig. 30). The right ovary, removed earlier, is full of maturing follicles containing ova, while a section from the corresponding pole of the left ovary shows very few follicles but a large increase in the ovarian stroma structures, and gives an appearance resembling that seen in sections of ovaries containing corpora lutea during pregnancy (Fig. 29).

Thus in this experiment marked compensatory hypertrophy occurred in the left ovary after the removal of the right ovary two and a half months earlier. It is, however, very important, as we shall see later, to bear in mind that repeated coitus had occurred in the interval, the associated hysterectoromy, although important, and probably accessory to, is not necessary to, the occurrence of hypertrophy of the ovary.

Experiment XVI (Rabbit 24).

The right ovary was removed at mid-pregnancy on July 18th, 1903. It weighed, after hardening in formalin, 8 gr., and contained eight corpora lutea. Abortion occurred after the operation. Coitus took place on August 11th; pregnancy following, and a litter of seven young rabbits was born on September 12th, of which three were reared. The animal became pregnant again on November 29th, and was killed during pregnancy on December 20th.

The left ovary was found to have undergone a marked increase in size—it weighed after hardening 15½ gr., and contained seven corpora lutea

These were not individually quite so large as the corpora lutea found in the right ovary on removal of a slightly earlier date of pregnancy, so that the increase in size of the left ovary is due to hypertrophy of ovarian stroma tissue, and not wholly to increase of lutein tissue. (See Fig. 31.)

In this experiment also the removal of the right ovary was followed after an interval of five months (during which time pregnancy had occurred on two occasions) by a marked compensatory hypertrophy of the remaining ov left ovary.

Experiment XVII (Rabbit 15).

The right ovary was removed and a portion of the right uterine cornu ligatured during pregnancy on May 21st, 1903. Abortion followed the operation on June 8th. The animal became pregnant again on June 14th, and was killed during pregnancy on July 4th.

The left ovary was found to have undergone a marked hypertrophy, and weighed after hardening double the weight of the right ovary, when removed two and a half months earlier. It contained nine corpora lutea of pregnancy. Fig. 33 shows the two ovaries for comparison.

Fig. 34 and Fig. 35 are photomicrographs under low power of sections of the left and right ovaries respectively, and show the characteristic appearance of increase of stroma and lutein tissue in the hypertrophied or left ovary.

It is important also to observe that in this experiment the left uterine cornu contained eight fetuses or placental sites, while the corresponding left ovary contained nine corpora lutea. Now, since the right uterine cornu was of course empty, the presence of a litter of eight or nine young illustrates the fact that besides structural changes, a marked increase of physiological activity in the shape of increased ovulation had occurred to make up for the deficiency due to the removal of the right ovary.

This phenomenon was more strikingly shown in the next experiment.

Experiment XVIII (Rabbit 13).

The right ovary was transplanted on May 21st, 1903, but as almost complete degeneration and atrophy occurred, it may be regarded for the purpose of the present experiment as having been removed. The animal became pregnant for the first time on June 19th and produced a litter of nine young. It became pregnant for the second time on July 27th, and was killed during pregnancy on August 7th.

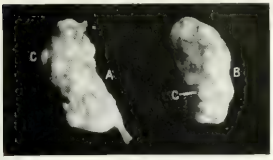
Fig. 18.—*Post mortem* the left uterine cornu was found to contain eleven living fetal rabbits, the right cornu being of course empty. The left ovary was markedly hypertrophied and contained eleven corpora lutea of early pregnancy.

Thus in this case the left or only active ovary had produced two crops of ova, subsequently fertilized, one of 9 and one of 11 in two and a half months, both of which collections of fetuses were nourished in one uterine cornu. Assuming that the right ovary had also been equally functionally active in this rabbit, we should have had two litters, one of 18 and one of 22 young rabbits in two and a half months—a very unusual occurrence—a fact which serves to emphasize the heightened physiological activity occurring in the remaining ovary.

The next experiment illustrates the effect of unilateral oöphorectomy under rather different conditions.



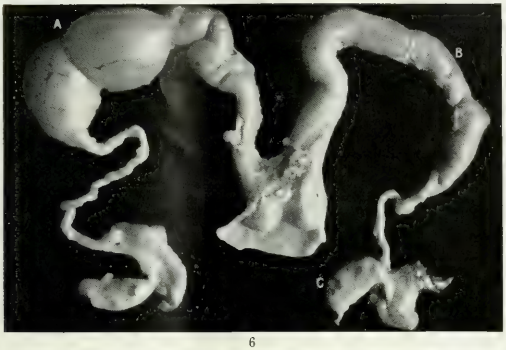
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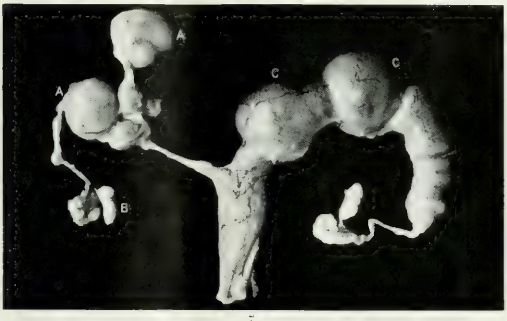
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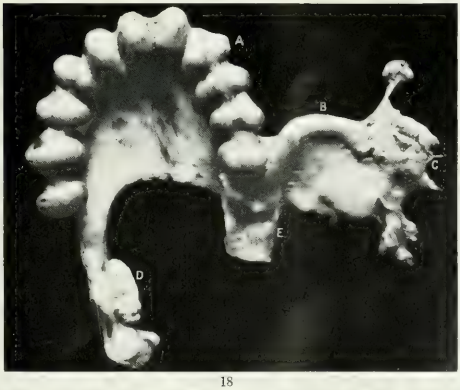
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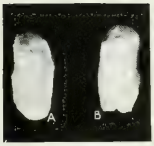
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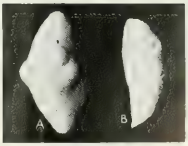
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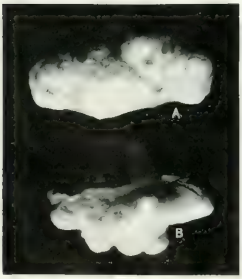
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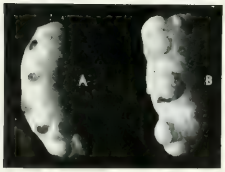
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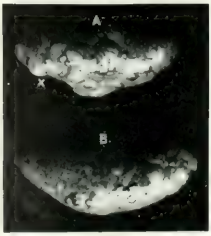
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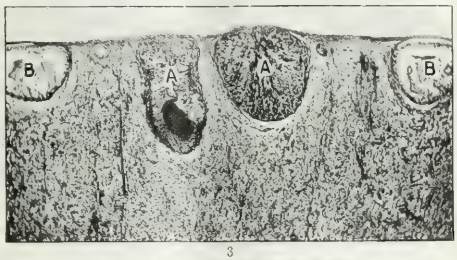
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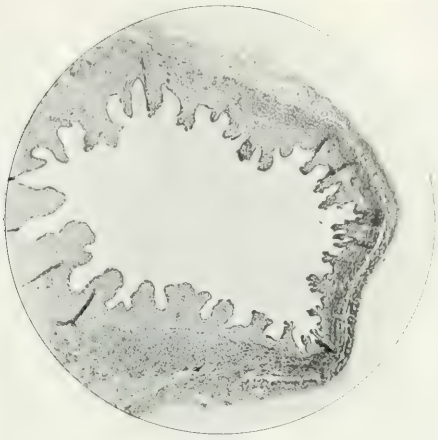
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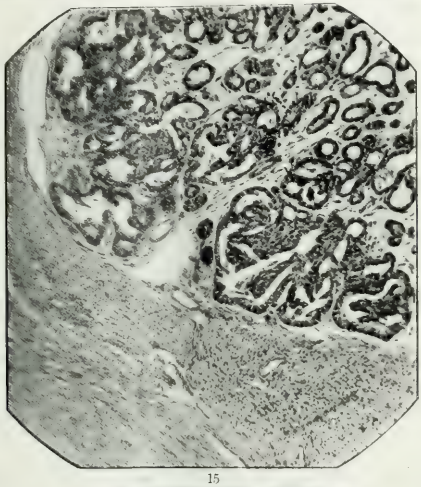
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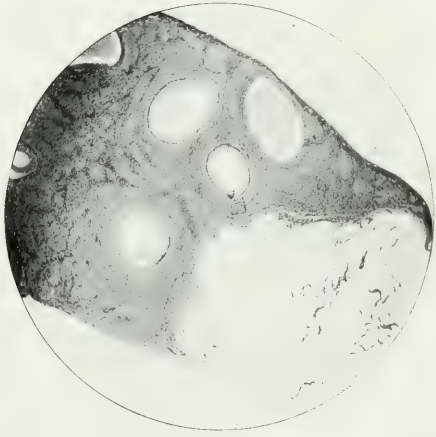
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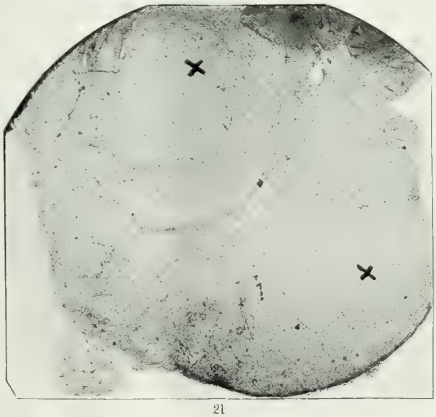
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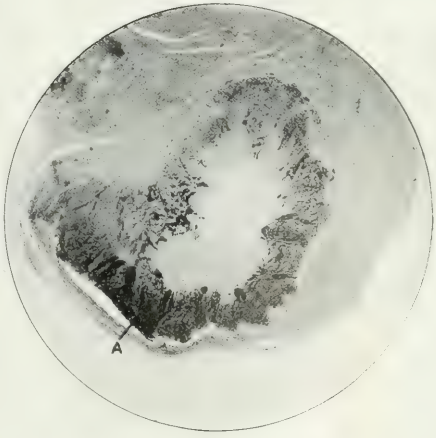
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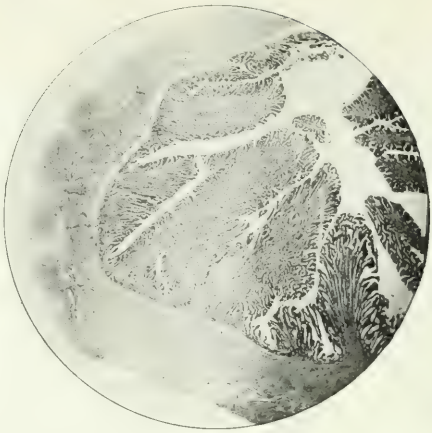
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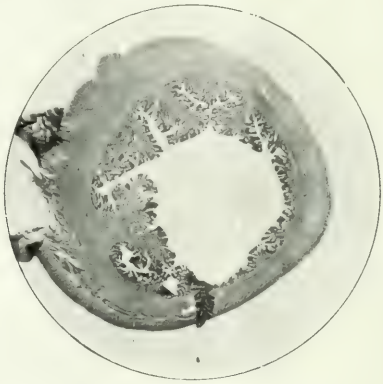
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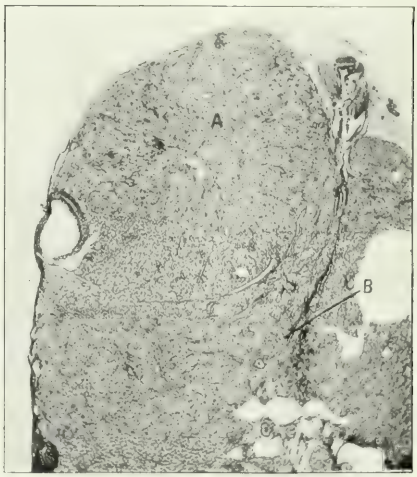
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Experiment XIX (Rabbit 8).

The right ovary was removed and the right uterine cornu ligatured on February 14th, 1903, in the non-pregnant condition. Pregnancy occurred on March 25th, and two young were born dead on April 28th. The animal was killed six days later. Fig. 13 shows the two ovaries side by side for comparison, the left being double the size of the right.

In all these five experiments, repeated coitus had occurred after the removal of the one ovary, and with the exception of Experiment XV pregnancy once, or repeated had occurred in each case; that this association is important and that coitus, or pregnancy, or both are important stimuli in connexion with the compensatory hypertrophy which occurred in the remaining ovary in these cases is shown by the fact, that when after removal of one ovary coitus and consequently pregnancy are prevented, little or no compensatory hypertrophy occurs, thus:

Experiment XX (Rabbit 19).

The right ovary was removed in a three-parts grown rabbit on July 2nd, 1903. No coitus occurred; the rabbit was killed on October 21st, 1903, three and a half months later. Fig. 36 shows the two ovaries. No hypertrophy has occurred in the left ovary; in fact, it is smaller than the right when removed three and a half months before.

Experiment XXI (Rabbit 25).

The right ovary was removed on July 25th, 1903. No coitus was allowed. The animal was killed on October 22nd. No compensatory hypertrophy was found in the left ovary. Fig. 37 shows the two ovaries, which are equal in weight.

Experiment XXII (Rabbit 18).

The right ovary was removed during pregnancy on June 15th, 1903. Abortion occurred. The animal was killed on July 8th, 1903. No compensatory hypertrophy had occurred in the left ovary, which is smaller than the right when the usual proportion between the ovary of the non-pregnant and that of the pregnant condition is considered. The interval of time, however, in this case after operation was less than one month.

The next experiment can be usefully compared with Experiment XV (Rabbit 3).

Experiment XXIII (Rabbit 23).

The whole uterus was removed, together with the left ovary, during early pregnancy, on July 18th, 1903. No coitus was permitted, and the animal was killed on October 21st, 1903. *Post mortem*, the body was well nourished; the right ovary was considerably smaller than the left, even when allowance was made for the corpora lutea present in the latter (see Fig. 38)

Thus, in these four last experiments no coitus, and consequently no pregnancy, occurred after the removal of the one ovary, and when the animals were killed, at periods from one month to three months after the operation, no compensatory hypertrophy was discovered in the remaining ovary. Moreover, in the last experiment (Experiment XXIII, Rabbit 23) the uterus was also removed, as in Experiment XV (Rabbit 5), in which case marked compensatory growth occurred in the remaining ovary, the difference being, however, that frequent coitus occurred in Experiment XV, while in the last experiment (Experiment XXIII, Rabbit 23) it was not permitted.

The consideration of these facts strongly supports the conclusion that the occurrence of sexual intercourse, or pregnancy, or both, are in the case of the rabbit powerful stimuli of ovarian growth and function, and cause compensatory hypertrophy to take place in an ovary after removal of the corresponding organ or half the sum total of ovarian gland substance some time previously.

I have been very careful to apply this statement to the case of the rabbit only. In the human female, in several cases in my own personal experience, in which, after removal of one ovary and tube some years earlier, it became necessary to remove the remaining ovary, no striking increase in size was noticeable. Further observations are necessary on this point, and also on the question of the occurrence of compensatory hypertrophy after unilateral oöphorectomy in other animals besides rabbits under varying conditions.

Coitus and Ovulation.

There is, however, one point of importance in this connexion. It has been shown by W. H. Heape (1897) that whatever may be the relationship between oestrus and ovulation in many animals, in the rabbit, at all events, it is the stimulus of coitus occurring during oestrus, and the presence of spermatozoa in the uterus which actually determines and provokes the rupture of the mature follicles and brings about the shedding of the ova.

My own observations confirm this, as far as the act of copulation is concerned. If a rabbit be killed from twenty-four to forty-eight hours after the occurrence of coitus during oestrus and the ovaries be carefully examined, fully mature, red, raised follicles will be found studding the surface of the glands with the umbilicated surface characteristic of recent rupture, and in many cases little portions of blood clot or fibrin are found adhering to the ruptured surfaces.

Experiment XXIIIa (Rabbit 15).

Fig. 41 shows the ovaries of a rabbit killed twenty-four hours after coitus, the left ovary containing eight just-ruptured mature follicles. The right ovary had been removed by operation during pregnancy one month earlier.

Experiment XXIIIb (Rabbit 16).

Shows the same relationship between coitus and follicular dehiscence. (See also Fig. 1, Experiment I.)

The next point to determine was the actual factor in the act of coitus responsible for this stimulating effect on the ovary. Was it the nervous stimulus of copulation ending in increased vascular turgescence of the ovarian vessels, or the presence of semen in the genital canal of the female rabbit which caused the result?

To determine this point artificial insemination was carried out as follows:

Experiment XXIV (Rabbit 29).

After ascertaining that the animal was in the condition of oestrus, semen from the vagina of another rabbit just impregnated was injected into the vagina of Rabbit 29 on March 15th, 1904. An inspection of the right ovary twenty-four hours later showed four maturing, but unruptured, follicles. Natural coitus occurred four days later, and when killed twenty-four hours afterwards the follicles were ruptured.

Thus insemination without coitus is not as effectual as an ovarian stimulus as coitus and insemination. (See also Experiment XXVI, Rabbit 27.)

On the other hand, coitus without insemination is not so effective in causing dehiscence as coitus with insemination.

Experiment XXV (Rabbit 28).

A vaginal *cul-de-sac* was formed on March 1st, 1905, by dividing the vagina across within the abdomen, and closing the lower or vaginal end, and returning it into the abdomen, and fixing the upper or uterine end to the skin on the surface of the abdomen. Oestrus and repeated coitus occurred at regular intervals, and the animal was killed on June 14th, 1904, forty-eight hours after coitus. An examination of the ovaries showed some follicles in various stages of growth, but none quite mature or recently ruptured. In connexion with this experiment also two interesting facts may be mentioned:

(*a*) It was noticed on examination of the two os uteri (which were quite visible on holding open the edges of the vaginal fistula opening on the abdomen) that during oestrus, and immediately after coitus had taken place, or even during the manipulation necessary to expose the os uteri, paroxysmal erectile movements occurred in each cervix uteri at frequent intervals, each cervix elongating, everting the mucous membrane of the endometrium at each os, and standing prominently into the vagina, then as the turgescence and muscular action subsided the cervix contracted and the endometrium was drawn in again. Such a condition of the cervix uteri and os, and such movements as these must be powerful agents in drawing, almost pumping, the seminal fluid from the vaginal vault into the uterine cornua, and would seem calculated to ensure the impregnation of the animal after coitus.

(*b*) If during these periods of oestrus and sexual excitement an inspection of the os uteri is made, a thin watery discharge will be noticed exuding from each os uteri, which is probably the saline secretion peculiar to the uterus which I have previously described, mixed with a certain amount of cervical mucus, and it is interesting to note that this has a peculiar odour exactly resembling that of the liquor amnii and sebaceous covering of the human fetus when just born.

One other point remained to be settled: that is, whether seminal fluid itself, apart from the living spermatozoa, exercises any stimulating influence on the ovaries when injected into the genital canal of the female rabbit.

Experiment XXVI (Rabbit 33),

A solution of previously desiccated semen in water was injected into the vagina during oestrus—under the microscope this fluid consisted of epithelial cells and dead spermatozoa—on April 15th, 1904. The rabbit was killed twenty-four hours later. No very mature or dehisced follicles were seen in either ovary.

Thus we are brought back to the facts: that the normal and effective stimulus in the case of the rabbit for effecting terminal maturation and dehiscence of ripe follicles and the shedding of ova during oestrus is the act of coitus, and that in association with this act the presence of seminal fluid and living spermatozoa in the upper portions of the uterine canal may also be an important adjunct.

We also know from Experiment XV (Rabbit 3), Experiment XVI (Rabbit 24), Experiment XVII (Rabbit 13), Experiment XVIII (Rabbit 12), Experiment XIX (Rabbit 8), that after previous removal of one ovary, if coitus, or coitus and pregnancy occur, then after a certain interval of time compensatory hypertrophy of structure and an increased functional activity occurs in the remaining ovary.

Whereas Experiments XX, XXI, XXII, and XXIII illustrate the fact that if after removal of one ovary the stimuli of coitus and pregnancy are absent, then little or no compensatory hypertrophy occurs in the remaining ovary.

Further, the hypertrophic changes in the remaining ovary, brought about by the stimulus of coitus, are similar to those produced by pregnancy, that is to say, changes are produced in ruptured follicles which have all the appearances, to the naked eye, and on microscopical examination of the true corpora lutea associated with pregnancy. This is well shown in Figs. 27, 28, 29, and 30 from Rabbit 3, in which, the uterus having been removed, pregnancy was prevented.

The same production of pseudo-corpora lutea by repeated coitus in the absence of pregnancy is seen in Experiment XXV (Rabbit 28) in which insemination took place into a vaginal *cul de sac*, although in this experiment one ovary had not been removed.

The same changes in the ovaries were produced in:

Experiment XXVII (Rabbit 27).

A vaginal fistula was formed on March 1st, 1904, but in this case, unlike Experiment XXV, the lower or vaginal end of the divided vagina was united to the skin of the abdomen and the uterine or upper end closed. As a result of this occlusion of the vagina just below the opening of the uterine cornua a very remarkable distension of the vagina and uterine cornua occurred. The cornua filled the abdomen and were of the size of a full term pregnancy. On opening them they were full (one pint) of a pale yellow cream-like fluid without odour, alkaline in reaction, and consisting under the microscope of epithelial cells and granular débris in a mucoid fluid. (See Fig. 46.) The ovaries showed very markedly the changes found in compensatory hypertrophy, and those seen in ovaries during early pregnancy containing numerous corpora lutea. (See Fig. 47.) In this case repeated coitus had occurred.

Further, coitus during oestrus has the effect in the rabbit (probably by reason of the production of this lutein cell growth in the ovary) of bringing about a certain physical condition in which the animal appears and acts as though it were pregnant and no doubt, as far as subjective sensations are concerned, goes through the same nerve state, thus in both cases of vaginal fistula (Experiment XXV, Rabbit 28, and Experiment XXVII, Rabbit 27) this occurred.

Experiment XXVIII (Rabbit 27).

In this experiment repeated coitus occurred on March 15th. Oestrus was followed by a quiet interval of one month in which the rabbit refused the approaches of the buck, tore off fur and made a nest, no pregnancy, of course, existing. Although we must not forget the largely distended condition of the uterus which may have given rise to sensations of pregnancy.

Experiment XXV (Rabbit 28).

In this experiment the occurrence of coitus on March 23rd was followed by a quiescent interval of nearly a month, in which the animal refused the approaches of the buck, and at the end of the time made a fur nest; pregnancy being, of course, absent.

On the other hand the absence of coitus is followed by a prolongation and increased frequency of the condition of oestrus.

Thus, from the effects which we have seen to follow from coitus, namely:—

(*a*) The dehiscence of mature ovarian follicles:

(*b*) The formation of pseudo-corpora lutea in the ovaries in the absence of pregnancy;

(*c*) The production of a psychical state associated with pregnancy;

we are strongly led to look upon coitus as the stimulus which causes the hypertrophy and the formation of pseudo-corpora lutea in the absence of pregnancy, in those cases in which, after the removal of one ovary, compensatory hypertrophy has occurred in the remaining organ.

It is very suggestive to find that of two experiments in which one ovary together with the whole uterus was removed by operation, the peculiar changes associated with hypertrophy occurred in the remaining ovary in the animal in which coitus was allowed (Experiment XIV, Rabbit 3), and was absent in Experiment XXIII (Rabbit 23), in which coitus was prevented.

It is interesting to find that the compensatory hypertrophy, the increased ovulation, and more frequent oestrus which occurs in the rabbit after unilateral oöphorectomy resembles the result brought about by flockmasters in the case of ewes by means of increased supply of rich food (see Marshall, *Fertility in Scottish Sheep*, 1905).

Part IV.

The following few remarks refer to the experimental production of abdominal pregnancy in rabbits.

In connexion with this subject attention may be drawn to the extreme rarity of any records of abdominal pregnancy in the animal kingdom apart from the human species.

It was thought that by establishing a fistulous communication between the interior of the uterine cornua and the peritoneum the escape of fertilized ova into the peritoneal cavity might be encouraged and their subsequent vascular attachment and growth on the peritoneum produced.

Experiment XXVIII (Rabbit 11).

On March 20th, 1903, both uterine cornua were laid open for a short distance along their free border near the lower end, and the mucous membrane sewn back to the peritoneal coat with catgut in order to prevent early closure of the incision. Coitus occurred on April 9th, 1903. The animal made a nest and appeared as if approaching labour on May 9th, 1903. No young were, however, born.

Coitus occurred again on May 12th and 13th, and the animal was killed on May 21st. The peritoneum contained some clear fluid, and the mammary glands were enlarged and contained milk. Lying in the right flank and quite free from adhesions was a wasted fetal rabbit, together with the placenta, enclosed in a shrunken amniotic sac. It appeared to be about the period of growth of a full-term pregnancy, and was of a yellowish-reddish-brown colour (see Fig. 48). Fig. 49 shows the fetus and placenta attached with the membranes removed.

Fig. 50 shows the uterus removed and the uterine cornua laid open below the fistula; the edges of the fistula in the two cornua have coalesced, so that each communicates with the peritoneal cavity by a common opening with a herniated protrusion of mucous membrane surrounding the fistula above this point; each cornua also contains a fetus of about seven or eight days' growth. The ovaries are large; both contain corpora lutea corresponding with the latter pregnancy.

Thus the sequence of events in this experiment was as follows: The animal became pregnant on April 9th, and went nearly to term when peritoneal abortion occurred, one fetus enclosed in its membrane passing through the fistula into the abdominal cavity, possibly others escaped through the vagina, and may have been eaten by the doe. Coitus occurred again three days later, pregnancy following, and when killed eight days later, a second set of fetal sacs occupied each cornua above the fistula.

This experiment should be called the "experimental production of peritoneal or abdominal abortion" rather than "abdominal pregnancy," and exemplifies the probable manner in which practically all abdominal pregnancies occur, that is, by abortion from the abdominal end of, or escape through a rupture in the wall of, a cornu or tube.

These are facts which suggest the conclusion that it is extremely difficult for the early or naked ovum to live in the peritoneal cavity when deprived of the shelter of either tubal or uterine endometrium, and of the nutritive fluid secreted by that membrane.

It is also interesting to note that the presence of a dead fetus in the abdomen does not act in any way as a living fetus in the uterus does as far as the reciprocal action of pregnant uterus on the ovary is concerned. Oestrus, coitus, and pregnancy occurred during the presence of the fetus in the abdominal cavity, a fresh set of follicles matured, ruptured, and underwent the changes of lutein overgrowth characteristic of early pregnancy.

The drawing of any inference from the facts of this experiment with regard to abdominal pregnancy in the human subject would be inadmissible. We are, perhaps, justified in saying this much: That the reason why primary abdominal pregnancy is so rare, almost unknown, in the human subject as in the lower animals, is that a fertilized ovum finds it almost impossible to live in the peritoneal cavity in the absence of any vascular subperitoneal attachment, and that consequently nearly all cases of abdominal pregnancy are secondary, the ovum being launched into the peritoneal cavity at a later stage of growth.

Imbedding of the fertilized ovum in the mucous membrane of the Fallopian tube must depend on an abnormal or altered relationship between ovum and mucous membrane, but in what the abnormal reaction consists we do not yet know, in spite of much investigation.

General Summary and Conclusions.

1. That the presence of functionally active ovarian tissue is necessary for the uterine function, or that portion of it which is concerned with the preparation by the endometrium of a suitable nidus for the imbedding of fertilized ova.

2. The presence of the uterine or endometrium tissue is not, on the other hand, necessary for the carrying on of ovarian function, either ovulation or the production of the internal secretion associated with oestrus.

3. That one function of the endometrium in the anoestrous state is the secretion of a saline, watery fluid of low specific gravity, containing a large amount of chloride of sodium in solution.

4. That there is some antagonism between this endometric function or saline secretion and that portion of the internal secretion of the ovary which is specially concerned in producing pro-oestrous changes in the endometrium preparatory to the imbedding of fertilized ova. That portion of the internal secretion of the ovary which is, in fact, associated with the growth of corpora lutea.

Thus the saline uterine secretion is associated with katabolic, the ovarian secretion with anabolic, changes.

5. The mechanism by means of which the ovary obtains its stimulus from the stimulated endometrium consequent on the occurrence of pregnancy is a circulatory and not a nervous mechanism.

In all probability some substance is manufactured by endometrium or by trophoblast or by both, which reaches the ovary by way of the blood stream, and is also concerned with the increased activity in the mammary glands.

6. That the bilateral and bicorned uterus in the rabbit may be regarded as one gland as far as that function of the endometrium is concerned, which is associated with the preparation of a suitable nidus for fertilized ova.

7. That the bilateral ovaries may also be regarded as one gland as far as the functions of ovulation and production of internal secretion are concerned.

8. That after removal of one portion or half of this gland, the remaining portion is capable, under certain conditions, of undergoing a process of compensatory hypertrophy.

9. These necessary conditions in the rabbit are (*a*) the presence of the stimulus—namely, copulation—which in this animal normally determines ovulation, or (*b*) the stimulus of pregnancy. Under normal conditions these two stimuli occur together.

10. That these hypertrophic changes in the ovary after unilateral oöphorectomy structurally resemble those changes which normally occur in the ovaries during pregnancy in its early stages.

11. That after unilateral oöphorectomy together with hysterectomy in the rabbit, the hypertrophic stimulus is supplied by repeated copulation.

12. The prevention by previous hysterectomy of the secretion of the saline fluid by the endometrium of the anoestrous uterus favours the overgrowth in the ovary of lutein tissue.

The Bearing of the above Conclusions on Various Theories of the Nature and Cause of Menstruation.

We may first premise that of the many hypotheses put forward to explain the phenomenon of menstruation many are opposed by facts, and only one or two need be considered.

The three fundamental points which seem established are:

1. That the whole pro-oestrous process is of the nature of a preparation for the attachment of an embryo (Marshall and Jolly).

2. In addition to ovulation the mammalian ovary elaborates an internal secretion which at recurring periods is the cause of pro-oestrus and oestrus.

3. The corpora lutea form a ductless gland which is necessary for the nutrition of the trophoblast during the early stages of pregnancy and subsequently atrophies.

The alternative and still undetermined points about ovarian function are:

1. Whether the ovary supplies one internal secretion or two internal secretions mutually antagonistic in character.

2. If the latter, whether one is derived from the stroma and one from the lutein cells, or both from follicular epithelium at different periods of activity.

It will be noticed that in the outline of menstruation, oestrus and ovulation and pregnancy so described no mention is made of any possible internal secretion derived from the uterus. The uterus is supposed to play a passive part, being entirely under the influence of the ovary in these processes.

The facts now established are:

1. That the endometrium has a secretion peculiar to the anoestrous state.

2. That there is evidence that some substance is elaborated by the pregnant uterus which stimulates the growth of corpora lutea in transplanted ovaries. We must, therefore, reconsider this matter, and I suggest that the ovary elaborates only one internal secretion having an influence on the uterus of an anabolic character, which at recurring intervals increases in amount and produces the phenomenon of pro-oestrus and oestrus.

A further formation of this substance occurs during pregnancy, owing to a stimulus derived from an internal secretion elaborated by the endometrium at the sites of the embedded trophoblasts, and provides for the increased growth of endometrium associated with the early stages of pregnancy, while the anoestrous or saline secretion of the uterus is antagonistic to the ovarian secretion, and during the anoestrous period overcomes the ovarian reaction, now reduced in intensity or amount.

Reference.

[1] *Journal of Physiology*, vol. xxii, No. 4; and *Lancet*, July 22nd, 1899.

The Etiological Diagnosis of Pulmonary Tuberculosis.—In a recent issue of the *Journal of the University of Sydney Medical Society* Dr. W. Camac Wilkinson, Lecturer in Medicine to the University, extols the use of tuberculin in the diagnosis of pulmonary tuberculosis. He says that staining sputum for tubercle bacilli has lost its importance, since the aim of the physician is to detect pulmonary tuberculosis long before tubercle bacilli have escaped into the sputum. The doctrine that successful treatment ends where physical signs begin has at least this virtue—that it emphasizes the importance of early diagnosis. Since the examination of the sputum and physical examination of the chest cannot be relied on for early diagnosis, how may we recognize the disease in its early stage? "The genius of Koch has furnished a simple and safe solution to our otherwise dire perplexity." So far, so good; but Dr. Wilkinson proceeds to discount the value of his opinion by showing intolerance of all who cannot see exactly eye to eye with himself. He thus expresses himself: "Whatever ills and disasters have been laid to the charge of tuberculin by the insensate fears of the timorous, the absurd reasoning of the ignorant, or the distorted imagination of the sceptical wiseacres, those who have constantly used tuberculin both for diagnosis and treatment, and therefore have established some claim to be heard, agree with the great master that tuberculin is the invaluable and indispensable key to the early diagnosis of pulmonary tuberculosis." Dr. Wilkinson considers that by the use of tuberculin in diagnosis and treatment the profession will attain to far better results than by means of sanatoriums or health tracts, and concludes his article with the following prophecy: "Ultimately the idea that sanatorium treatment can be a reasonable measure in prophylaxis must go to the scrap-heap, and the scientific discovery of Koch, neglected already for 15 years, will prove to be the greatest boon ever evolved by the scientific genius of man."

Clinical Lectures

ON THE

BORDERLAND OF EPILEPSY:

VERTIGO.

Delivered at the National Hospital for the Paralysed and Epileptic.

By SIR WILLIAM R. GOWERS, M.D., F.R.S.,

physician to the hospital; consulting physician to university college hospital.

Lecture II.

Gentlemen,—In the last lecture we considered the features of aural vertigo which resemble the symptoms of epileptic seizures—suddenness, brevity, loss of consciousness, loss of sight, and also the remarkable sense of impulsion downwards by an external force, sometimes so intense as to amount to a feeling that a blow has been received. The latter, although suggestive of an epileptic sensation, is probably peculiar to vertigo.

Other cephalic sensations, various in character, may attend the onset of the attack. Sometimes they are allied to that which we have just considered. A lady of 27, with the remains of otitis media on the right side, and some labyrinthine deafness on the left, had also constant tinnitus, continuous, at times louder, and then pulsating like an engine. Her attacks of giddiness began with a sudden sensation in one side of the head, which seemed as if it would throw her down. But the sensation varied, and sometimes was "beating" in character—half sound and half pressure—which made her hold her head firmly with her hands. Occasionally she woke up in the night with a loud noise like machinery in the right ear, and this seemed to pass gradually to the middle of the head and then to the left side; it lasted long—sometimes even twenty-four hours—and while it continued she could hear nothing. Of special interest is the fact that the sense of pressure seemed also to cause impulsion. These cephalic sensations, at the onset of an attack of vertigo, are sometimes very misleading. They are so obtrusive as to absorb the attention of the patient. In one instance of this, the aural origin of the symptoms rested on the tinnitus, since hearing was good—at least for a lady of 60. For many months she had been troubled by a loud noise, referred to both ears, compared to the sound of a steam-engine at work. During the last three months there had been vertigo, moderate, often lasting several hours at a time, and apt to be especially severe on waking in the morning. Sometimes she dared not raise her head from the pillow. In the night it was often induced by turning over to the right, and obliged her to turn back to the left. (Such an effect of posture is always significant.) But she had also peculiar attacks, which generally occurred soon after rising in the morning. A sudden sensation from the back of the neck seemed to dart over the head, and a feeling as if she were losing consciousness made her throw herself on the bed; in a second or two she was all right again. She never became unconscious. These attacks afterwards ceased, but the slighter continuous giddiness still occurred at times. In this case, again, we cannot doubt that the symptoms were of aural origin, and the sense of impending unconsciousness was probably closely allied to vertigo. Yet, alone, it would strongly suggest epilepsy.

Another example of a cephalic sensation was afforded by a lady of 65, completely deaf on the right side and partially on the left. She had suffered much from tinnitus, and for six months from slight prolonged giddiness, with a sense that objects were moving round her. But she had also sudden attacks after lying down at night, very similar in character to those of the case last described, but opposite in their relation to posture. She had a feeling of a sudden "rush" to the head, and that she would become unconscious if she did not instantly sit up. On doing so, the feeling ceased at once. The contrasted similarity of these two cases is remarkable. Each illustrates the effect of posture, and each shows also the prominent part a cephalic sensation may take in an attack which is essentially vertiginous.

Attacks during Sleep.

Another feature presented in common by epilepsy and aural vertigo is the occurrence of attacks during sleep. It may seem surprising that such disturbance should occur during the cerebral quietude that constitutes sleep, but certain considerations may help us to understand it. That which disturbs sleep is sudden vertigo. The suddenness of the onset, as I have said, we must refer to the centre for equilibration, not to the peripheral processes which derange it. These seem to bring the centre into a state of instability, in which its balance suddenly gives way. During the recumbent posture assumed in sleep, the pressure in the semicircular canals is different from that caused by the upright position of the head. In the cases last considered we have seen the effect of this difference. If the change in the sensory elements of the canals is such that they are specially influenced when the posture is horizontal, their stimulation may gradually bring the equilibration centre beyond its stable point. Thus, the constant influence may overturn the balance, as we may often see in the illustration provided for us in the flushing cisterns, where a slow flow of water gradually raises a ball to a point at which it turns a stop, and the contents of the cistern suddenly escape. So far we may reasonably speculate. But there may well be more. We know that during sleep the lower centres are in activity, which is less restrained than during the waking state. We should not, indeed, conceive this to be the case with the equilibrial centre. No influence from the eyes can act upon it, or from any active state of the muscles of the legs. Yet the impulses from the semicircular canals will go on, and their effect on the centre will be in relative preponderance in consequence of the cessation of other impressions; they will also vary with every involuntary change in the position of the head, altering the direction of the pressure of the endolymph.

It once chanced to me to have an instructive illustration of the influence of altered pressure. All know, by occasional experience, the strange sleep sensation of falling—of going down, down some deep space. It often wakes the sleeper, and once woke me up so promptly that I caught the sound of what, I doubt not, was its cause. The sound was the flutter in one ear which is caused by contraction of a tympanic muscle, doubtless the stapedius. This lessens the pressure in the labyrinth, and the ampullae of the canals being at their lower ends, the pressure in them would be lessened by descent, and its diminution by the stapedius would suggest descent. It would seem, therefore, that even during sleep the equilibrial centre and also the cortex are readily influenced by impressions from the semicircular canals, although the auditory impulses, produced by sound, have little effect.

One example of attacks coming on during sleep has been already mentioned. Another was a lady of 33, in whom sudden vertigo had occurred for a year. There was a sense of motion in herself and objects, and if standing she was sure to fall. During sleep she was awakened by a peculiar "grinding" sensation in the head, and a feeling that she was sinking through the bed. She dared not raise her head, and even when the room was dark she had the impression that objects about her were moving. Although she had a brother who was epileptic, her vertigo was certainly aural. Deafness and hissing tinnitus had existed on the right side for eighteen months. Her objective vertigo was of the rather unusual form in which objects seem rotating around an axis in the line of sight, in this case in the direction opposite to the movement of the hands of a clock. It might conceivably be the result of isolated irritation of the right posterior semicircular canal, in which such actual rotation of the head would cause increased pressure.

Extension of Symptoms.

Such symptoms as the sensations in the head we have considered, are of great importance, because they do not suggest the purely vertiginous nature of the attacks. The sudden "rush" to the head, or other sensations of which examples have been mentioned, are, as I have said, suggestive of epilepsy. This is true also of cases in which there is an extension of such a sensation. Such extension may seem less strange if we remember how wide are the relations of the centre for equilibration. Its closest connexion seems to be with the gastric centre of the vagus,

shown by the nausea and vomiting that so often attend vertigo. The relation varies in different persons, as is shown by their liability to sea-sickness, which is almost certainly produced through the agency of the semicircular canals. It is not surprising that the cardiac centre should also share the disturbance, with irregular and feeble action of the heart as the result. The vasomotor centres are likewise often disturbed; sudden nausea is often attended with perspiration, and the coldness of the surface, with or after vertigo, testifies to the vasomotor spasm.

The diffusion of the sudden sensory disturbance often gives rise to concern and perplexity. It was so in a man of 44, who had suffered for four years from tinnitus, referred to the right ear and head; never to the left ear. Usually hissing, it sometimes changed to a loud whistle for a few seconds. In spite of this evidence of irritation, his hearing was good. For a year he had been troubled with giddiness, and recently sudden exacerbations had occurred, in which he seemed to spin rapidly to the left, and sometimes fell; the onset of the sense of spinning was attended by a pain at the vertex, as if he had received a blow there. Note that it was not the sense of an impulse from a blow, as in the cases I have before spoken of; it was a sensation of the pain a blow would cause, and this passed, like a shock, to the body, the arms, and the legs. It was felt at the heart as a sickening pain, which caused a feeling "as if he were going to die at once." After a second or two it ended as suddenly as it began, but the pain at the vertex lasted longer, and the feeling of rotation for a considerable time, slowly lessening. It was ten minutes before he could stand, and for an hour the sensation of turning to the left was such that he could only walk with help. He was an intelligent man, and the account of his symptoms was clear. I saw him again after four years; the giddiness had ceased under the treatment, and then recurred in slighter form, still objective and subjective to the left, with a tendency to fall to that side. The tinnitus was unchanged. A year later the symptoms continued, but in slighter form. He was then suffering from gouty neuritis in one arm.

Border-line Epilepsy.

Before we consider the more definite relation to epilepsy that aural vertigo may present, it is important to note that true epileptic attacks may begin with the symptoms characteristic of labyrinthine giddiness, tinnitus, and vertigo. I have elsewhere described examples of this,[1] but the following case is specially instructive, because there is strong reason to regard it as the result of old stationary damage to the brain, occurring during infancy. The patient was an intelligent girl of 18, who had a severe brain illness in India at the age of 11 months. This began with a series of severe convulsions, and she is said to have been unconscious for a fortnight, and was then unable to move one arm and leg for a few days, after which their strength returned. It was thought that the convulsions were chiefly on one side, but on which side was not remembered. Her epileptic attacks began at the age of 13, and had continued with increasing frequency. Each began with a sudden sense of movement of objects and of herself to the right, and a confused sound in the right ear; with these there was a slight sense of nausea. The warning lasted long enough to allow her to sit down. Then some vague feeling made her close her lips and swallow two or three times. This she remembered, but was not conscious of any peculiar taste or smell. She then lost consciousness, and made a gurgling noise in her throat, which she did not afterwards remember; her limbs were the seat of slight tonic spasm, sometimes with a few jerks of the arms. The whole attack lasted about half a minute, and she was at once quite well.

It is probable that this patient had a small spot of damage to the brain near the auditory centre in the first left tempero-sphenoidal convolution. This centre is excited by a sound which reaches the right ear, and the normal effect is a movement of the head to the right. The instant spread of the discharge to the motor region would cause a sense of movement to the right, and also an impression that objects opposite her were moving to the right. Indeed, the discharge may have involved the left motor region at the same time as the auditory centre. Spreading at once to the motor region of the other hemisphere in the mysterious way the epileptic discharge extends, it caused the slight spasm on both sides, without the deviation of the head and eyes, which would have occurred had the motor discharge in the left hemisphere reached a higher degree before it spread to the right. Thus the perception of vertigo in such a case, and in the aural form, may both be regarded as due to activity in the same region of the brain, the motor cortex, the difference being in the nature of the activity. In epilepsy it is a primary discharge; in ear disease it is secondary, a result of the disturbance of the centre for equilibration. It must be remembered that all sensations of vertigo, and connected with it, can only be consciously perceived through the cortex of the brain, whatever be their precise mechanism.

We should note, however, that in the case of epilepsy just described, the resemblance to aural vertigo was made more complete by the slight nausea which the giddiness seemed to cause. In vertigo we refer this to the direct influence of the equilibrial centre on that of the vagus, but all lower associations must be repeated in the region of the cortex through which consciousness is influenced, and we can thus understand that any vertigo that is felt may induce associated nausea. But we can also conceive that such epileptic vertigo may have a downward influence on the equilibrial centre and its relations.

Association of Aural Vertigo and Epilepsy.

The facts just mentioned may enable us better to consider the occasional coexistence of epilepsy and labyrinthine vertigo, and the question of an actual relation between the two. We must remember that the two diseases may simply coincide; both may occur in the same person. Neither is a rare disease, and they must by mere chance sometimes be met with together, without a direct relation between them. When the epileptic attacks are of the minor form, which vertigo may resemble, the distinctive diagnosis requires special care. There is sometimes evidence that the relation is more than mere coincidence. The attacks, although of different nature, sometimes seem to exert an influence one on the other.

An illustration of the association of vertigo and epilepsy was presented by a member of our own profession, gouty, 53 years of age, whose brother was epileptic. He had suffered for two years from slight nerve deafness and tinnitus. On the left side he could hear no note above 2,000. For four months sudden attacks of giddiness had occurred; objects seemed moving to the left, and he fell to the left unless he could support himself, but he never lost consciousness. The intense giddiness lasted 1½ minutes, and for the same time objects seemed to oscillate laterally. He was never sick. For years, every three or four months, he had had a sudden sensation of a pleasant smell, like jasmine, which seemed to fill his nose and head, and lasted thirty seconds, without mental change. Sometimes it was followed by a brief but distressing sense of fullness in the throat and head, so intense that he felt as if "something must give way there." This feeling occurred independently three or four times a week, by night as well as by day, and at night it was associated with a sense of falling and a sound in the ear. (This seems similar to the stapedius effect I have already mentioned.) The sudden brief sense of smell must be regarded as a form of minor epilepsy, and there was some evidence that he once had a definite convulsive seizure.

A more direct relation between aural vertigo and epilepsy seemed to exist in a patient who probably inherited a tendency to the latter, since his father was epileptic. He was a man of 38, and had become deaf to the watch on both sides, alike through air and bone. On the left, he could hear no tuning-fork; on the right, C^3 (2,048) was audible only through the air; lower notes also through the bone. For five years there had been tinnitus, bilateral, but greater on the left side, and with it began attacks of giddiness, sudden in onset, lasting an hour or more, attended by vomiting. After two years they became very brief. There was a sudden sense of movement of objects to the left; he fell, and was unconscious for a moment, but the attack was over in two or three seconds. Similar attacks occurred in bed, with a feeling that he was turning to the right, and sometimes there was also momentary loss of consciousness. Subsequently, he became liable to attacks resembling minor epilepsy still more closely. They began with what he called

a "numb sensation" passing up the spine to the head. If he had time to nip the skin at the back of the neck, this would arrest the attack, just as a warning sensation passing up the arm may be stopped by the same expedient. When the sensation reached the head it became "thrilling, like a galvanic battery," and often there was brief loss of consciousness. This case certainly presents the aspect of the development of minor epilepsy from what we may term "epileptoid vertigo," and this from the ordinary form.

A remarkable combination of aural vertigo and epilepsy was presented by another patient, whose symptoms were so remarkable as to deserve detailed description. She was a married woman of 35, who had been slightly deaf all her life, and had suffered from tinnitus as long as she could remember. It became worse after an attack of scarlet fever at 18. At 20, she began to suffer from attacks of giddiness and sickness, each lasting five minutes. At 23 she had a fall on the ice, striking her head. At 32 she began to have attacks of minor epilepsy, which continued, occurring in the night as well as in the day, and at 33 severe nocturnal attacks began. But the tinnitus also went on, and so did brief attacks of giddiness. The minor attacks of epilepsy consisted of lip-smacking and loss of consciousness; at night the sound of the lips always aroused her husband. The severe attacks always began with the same lip-smacking, which was followed by deviation of the head to the right and by spasm—first tonic and then clonic—said to be confined to the right side; after each fit the right arm was weak for a time. There was never tongue-biting, but always micturition. There was no remembered sensation of smell or taste, but a remarkable effect of the severe attacks was complete loss of perception of flavours for two or three days. It was called "loss of taste"; but sweet and bitter were perceived, so that the loss must have been of the olfactory sensation which constitutes "flavour." Yet smell was not lost. I have pointed out[2] that the warnings of epilepsy indicate a difference in the cerebral representation of olfactory impressions, according to their production through the anterior nares, as a smell, or through the posterior nares, as a flavour. Although produced through the agency of the same nerve, they are always clearly distinguished by the epileptic patient who experiences one or the other.

Her attacks of giddiness seemed to have no relation to her epileptic seizures, except that there was a sudden sense of turning in the same direction, to the right, compelling her to hold on, and of movement of objects in the same direction. With this there was a sound of a shrill whistle going through the head from left to right, "like a train whistling while passing a station"; it gradually died away. These attacks were very brief, but they occasionally caused her to fall. A dazed feeling attended them when severe, and once or twice she lost consciousness. They were always followed by brief vomiting. In one she heard the whistle, and felt as if falling down a tremendous height; then she found herself on the floor, having hurt herself in the fall; she was still very giddy and vomiting. The sickness ceased in about two minutes; the giddiness lasted five, and ended suddenly, as usual. Sometimes, as the tinnitus was passing away, it changed to a sound of bells ringing. A curious fact is that she sometimes had a peculiar taste in the mouth at the onset of these attacks of vertigo, although never with the epileptic seizure, in spite of the smacking of the lips. The attacks of giddiness had a close resemblance to the paroxysms of aural vertigo, and the fact that they began some years before the epileptic seizures, and continued distinct from the latter, gives some support to the opinion that this was their original nature. But their frequent repetition must have induced a central state, facilitating their recurrence, and it is possible that they had become purely central in nature. The features of the double series of attacks render the case one of unusual interest. The probability that the process had become largely central is important in relation to the next and last class we have to consider.

PSEUDAURAL VERTIGO.

One group of cases remains for consideration. They are very rare but of great clinical importance. Patients sometimes suffer from attacks similar in character to those caused by labyrinthine changes but present no permanent evidence of such disease. We have seen that in most cases there are tinnitus and impaired hearing to justify the diagnosis of ear-giddiness, but that in some the same opinion is warranted by the existence of tinnitus, since this, if persistent and pronounced, is evidence of labyrinthine irritation. In the cases now to be mentioned even this is absent as a permanent symptom. The symptoms consist only of the paroxysmal attacks, yet these bear the closest resemblance to those met with in the cases with unequivocal evidence of changes in the ear. For the present we may term them "pseudaural," leaving their exact nature an open question.

A man of 38 presented a pertinent example of this condition. His attacks were attended by a cephalic sensation similar to those we have considered. They occurred about once a fortnight. A sudden sensation passed over the head from behind, and was instantly followed by slight deafness, hissing tinnitus, and a sensation that objects before him were moving from left to right while he seemed still. It seemed to him to last about two minutes; nausea followed but no vomiting. Sometimes brief tinnitus occurred alone, and sounds for the moment seemed distant; there was no constant tinnitus and no impairment of hearing. It may be thought that such attacks might be caused by a contraction of a tympanic muscle, but, if so, there must have been considerable central co-operation.

It will be noted that, in the case just described, the symptoms were not only paroxysmal, but brief. So it was in a lady of 35, with gouty ancestors. Her attacks occurred at intervals, varying from a day to four or five weeks, and were brought on by excitement, over-fatigue, and mental exertion. Her description was this: Quite suddenly she feels that the ground is rising up to her, and that she is going backwards. This seems to her to be due to some physical force pulling her back. With this there is a "rushing" sensation in the head. The feeling of going back lasts for two or three minutes, and its diminution is accompanied by a sound of rushing water in both ears, which ceases when she feels steady. Nausea follows, often for hours, but as a rule she does not vomit. Generally there is no impairment of consciousness, but twice it was lost in an attack—it is said for as long as five minutes. There was never micturition or any evidence of convulsion. A curious feature was that if she resisted the tendency to go back the sense of giddiness was more intense, and afterwards, instead of mere nausea, she vomited for a couple of hours. At the early stage of the attack her face was pale and limbs cold; towards its close there was a little flushing. Her attacks were arrested by treatment, but recurred when it was omitted. Its resumption was followed by freedom for five years, when slighter attacks occurred of the same form, but without unconsciousness.

These paroxysmal symptoms were precisely such as we have seen are met with in other cases of certainly aural vertigo. Yet her hearing was good to every test, and there was no tinnitus apart from the attacks. (I have learned that she is still free from aural symptoms, although it is eleven years since I saw her first.) The sense of an external force dragging her back was analogous to the sense of pressure on the head, or of a blow, described in characteristic cases, and met with, as far as my observation goes, only in vertigo of labyrinthine origin. To ascribe the attacks to irritation absolutely limited to the semicircular canals, is an assumption scarcely justifiable, considering how constantly tinnitus of persistent character is associated with such irritation. Here a sound was only observed as part of the attack, and may have been due to extension of the central process. It is easier to conceive such attacks as purely central; perhaps originally excited by labyrinthine irritation, but persisting independently. All peripheral associations are, as I have said, reproduced in the nerve centres, in the lower and also at the higher level of function, and we must not therefore attach to them undue weight as evidence of a distal cause. Such cases of pseudaural vertigo remain mysterious, even when all is said that can be, and they deserve careful study from those who chance to meet them.

TREATMENT.

The treatment of such cases as I have described is scarcely within the range of these lectures. Yet you may reasonably desire to know whether the facts and considerations I have put before you have any bearing on thera-

peutics. They at least show more clearly the reasons for the treatment that is customary. We have seen that the process of aural vertigo is a treble one, and that there are variations in the relative degree of its elements. One is the labyrinthine derangement, the second is the disturbance of the equilibrial centre, and the third is the process in the cerebral cortex thereby induced.

For the changes in the internal ear, as you are aware, little can be done by direct treatment. The labyrinth is beyond the range of aural surgery. When its affection is secondary to middle-ear disease, the treatment of this is obviously the first consideration, but for the internal ear little can be done locally beyond the customary, and by no means useless, counter-irritation. It is always important to discern whether any diathetic state underlies the labyrinthine changes, and to treat it, in the hope of at least staying their further increase. A gouty condition, especially that which is inherited, is often to be traced. We know how frequently this induces changes in the fibrous tissues to which the membranous labyrinth belongs. Structural changes that have taken place we cannot hope to remove, and the tinnitus thus produced, although often lessened by treatment, seldom ceases, except in the rare cases in which the disease is so progressive as to abolish all aural function.

The study of the symptoms has brought prominently before us the part taken by the central structures in determining the occurrence and character of the attacks of vertigo, and it is on these that most influence can be exerted. We have seen that the suddenness of onset must be referred to the disturbance of the stability of the equilibrial centre, and bromides certainly enable us to lessen the readiness with which it is deranged, to reduce the frequency of the attacks, and also their severity. Several of the cases I have mentioned afford evidence of this effect, and in some, arrest continued as long as treatment was maintained. We may, at least provisionally, conceive the process as an upward "discharge," acting on the cerebral cortex, inducing in it motor and sensory activity, by which consciousness of the features of the attack arises. Although the assumed upward discharge of the equilibrial centre may differ in character from the sudden "discharge" of epilepsy, we can understand that it may be amenable to the same influence. The effect of bromide seems sometimes to be increased by sedative agents, such as gelsemium and hyoscine.

In general, this treatment is effective in proportion to the degree in which the symptoms seem determined by the central instability, as indicated by the uniformity of the features of the attacks. It is least in the cases in which the aural symptoms present evidence of steady increase, and the attacks are variable in character.

My chief object has been to impress on you the features presented by these borderland cases of vertigo which resemble epilepsy, and to enable you, by the examples put before you, to discern the differences, and also the probable relation, between the symptoms of the two diseases. Yet a careful consideration of them, briefly as the cases are described, may subserve another object. Giddiness is a common symptom, usually passed as such without endeavour to learn its features or discover its cause. It would have been easy thus to dismiss the symptom in most of the cases I have described. They only yielded their instructive detail to careful investigation, and they should teach us to "call nothing common," since within that which seems to be so may lie much that is unfamiliar, much that will well reward our careful study.

REFERENCES

[1] *Epilepsy*, second edition, p. 234. [2] Ibid., p. 73.

A NOTE ON THE EFFECT OF BODILY EXERTION ON THE OPSONIC INDEX OF HEALTHY PERSONS.

BY G. G. ELLETT, B.A., M.B.

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IN the BRITISH MEDICAL JOURNAL for November 25th, 1905, p. 1396, Drs. Meakin and Wheeler published a paper on a series of observations on the variation of the opsonic index after exercise of patients suffering from pulmonary tuberculosis. All, with one exception, showed a lowered opsonic index after walking. It is, of course, possible that some, if not the whole, of the variation might occur in healthy persons. Taking this into consideration, and having the opportunity of examining the blood of several men training for a boat race, I determined to put the matter to a preliminary test. The subjects might be taken as good types of men in normal health, and the exercise of rowing is rightly called exertion.

As the index had previously been studied in exercised tuberculous patients, I used the tubercle bacillus as my indicator. Samples of the bloods were collected in the early morning, before any exercise had been taken, and again in the afternoon, when the men had returned from their day's outing. With a view to eliminating any possible effect from the intake of food, the samples were taken, as far as could be assured, before meals. This precaution I was led to adopt from the observation of a slight fall in the opsonic index of my control subject after a meal. Wright's method of preparation of emulsion and dilution of serum were followed as closely as possible; and the same control subject was used almost throughout the experiments. I may add that the serum of my control subject, as also that of myself, which was used on several occasions, has throughout a considerable number of experiments given very consistent results.

In one case the blood was examined eleven times before exercise and nine times after exercise, and the indices averaged:

	O.I.
Before exercise	1 32
After exercise	1.17

In another case the blood was examined five times before and five times after exercise, with average of indices:

	O.I.
Before exercise	1.08
After exercise	0.78

The "before exercise" index is, I think, probably rather lower than it should be, for the reason that on one or two occasions the morning samples of blood were not mixed immediately on arrival at the laboratory; whereas the serum of the control subject was taken in every case just prior to the experiment, and was consequently fresh, and the "after exercise" serum was never more than one hour old. If this fact were taken into consideration, we should get a larger difference between the indices before and after exercise than is recorded in the figures given above.

In two other cases the blood was examined, but not with sufficient regularity to give any reliable results. These experiments, though few in number, took a considerable time to carry out. And though, naturally, they do not settle the point raised, they afford evidence that severe exercise has some influence in lowering the opsonic index even in healthy persons, in whom, of course, there can be no question of auto-inoculation, as is claimed in the case of the tuberculous patients.

IN his report on the trade of Germany, Mr. Oppenheimer, the British Consul-General for that country, gives some interesting statistics on the relative meat consumption of the Briton and Teuton. One of the most remarkable incidents of last year's record was the existence of what was practically an approximation towards a meat famine. Formerly the importation of animals into Germany was considerable. Now the free traffic in pigs from Russia, etc., is entirely forbidden, the importation of foreign cattle has practically ceased, and the duty on fresh meat has this year been raised from 17 marks per centner to 27 marks. The idea has been to encourage home production, in the belief that German agriculture could eventually succeed in producing a sufficient supply of meat for the population. This expectation has proved erroneous. The estimate has assumed a consumption of 40 kilos per head, but it seems that it amounted to as much as 50.4 kilos. This is the first year for which accurate statistics have been available, and they have revealed some curious facts as to the great differences in kind between the British and German consumption. With us the basis of meat food consists of beef, which constitutes 45.1 per cent. of the whole consumption. With veal and mutton added the figure is raised to 69.7 per cent., leaving only 30.3 for the meat from pigs. This is almost exactly one-half of what is consumed in Germany, where 60.1 per cent. of the consumption is pork, ham, bacon, etc., and only 39.9 per cent. beef and mutton. These fundamental differences, it is stated, are not exclusively to be explained by national habits, but are also dependent on prices. The Briton pays just three-fourths of the price given by the German for his meat, with the result that the latter is largely induced to use the meat of pigs.

LARGE CALCULUS OF URETER, REMOVED BY SUPRAPUBIC CYSTOTOMY.*

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(Photographs by C. R. Woods, Electrician and Photographer to the Hospital. Drawing by Peter Nairn.)

The following case presents several points of medical as well as surgical interest:

B. G., aged 49, a collier, was sent by Dr. Richard Owen, of Brymbo, Wrexham, and admitted into the Liverpool Royal Infirmary on November 4th, 1904, complaining of pain in, and prolapse of, the rectum, with a tumour. He felt the pain in walking; the prolapse he said occurred at stool, and Dr. Owen stated that he felt a tumour on examining the rectum with his finger. The duration of the symptoms had been about six months, and on examination a rounded, hard tumour about the size of a walnut could be distinctly felt with the finger in the rectum. The tumour was movable, but apparently not in the bowel, being felt through the mucous membrane. In consequence of the extreme hardness of the lump, a radiograph of his pelvis was taken on November 7th, and a distinct shadow shown of an oval shape suggestive of a calculus (Fig. 1). On November 9th the bladder was sounded and nothing found there, while the finger in the rectum passed between the sound and the tumour.

No urinary symptoms of any kind had ever been noticed, and in order to exactly localize the supposed calculus, it was determined to commence by abdominal section. This was done by median hypogastric incision on November 10th, 1904, and the opportunity was then taken of feeling the right kidney at its lower end, where nothing unusual was perceived. Low down in the pelvis there was then felt what was clearly a calculus, of the size mentioned, but not in the rectum or bladder. From its position to the right of and behind the bladder, it was considered to be in the right ureter, close to the bladder. It was then decided to approach it through the bladder; so a second incision, transverse and curved with its convexity downwards, was made in the suprapubic region, the attachment of the recti muscles partly divided, and the bladder distended with chinosol solution 1 in 3,000 to push up the peritoneum out of the way. The bladder was opened transversely, and the stone felt close beneath the mucous membrane in the region of the right ureter. To bring it more within reach while cutting upon it, the hand of an assistant was passed into the peritoneum through the vertical abdominal incision, and so behind the calculus. After some difficulty on account of the rough surface of the calculus, the latter was got out by cutting directly upon it.

The upper, vertical, intraperitoneal wound was then carefully closed by separate suture of peritoneum, aponeurosis, and skin, while its dressings were covered with mackintosh cloth and fixed below by a broad piece of strapping. To avoid wetting by urine, if possible, the transverse, suprapubic wound was left open, with a wide glass tube in the bladder, and dressed with pads of wood-wool frequently changed. The upper wound healed quickly by first intention, and its dressings happened not to get wet by the urine-soaked dressings below. The bladder and lower wound were irrigated daily with chinosol solution through the tube. After a fortnight the tube was removed, and a catheter tied in by the urethra, the daily irrigations being continued by this route.

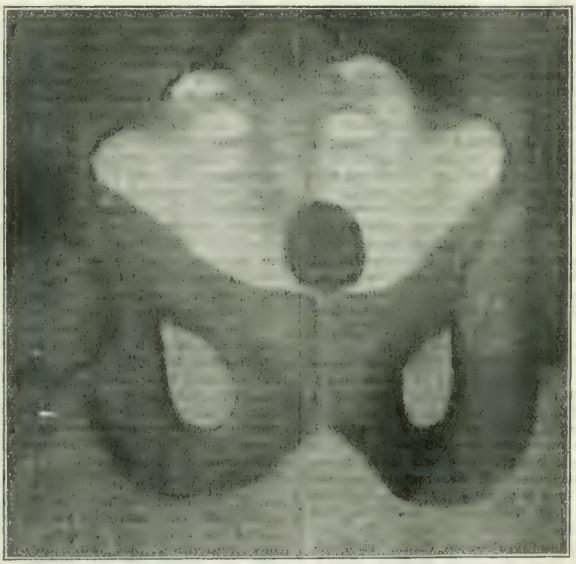


Fig. 1.—Drawing of radiograph, too indistinct for reproduction, owing to blurred shadows.

Two days later the catheter was removed, but passed when required for micturition and irrigation.

On the twenty-third day he first passed urine of his own accord by the proper route, and three days later he was able to do this several times a day. At the end of six and a half weeks he passed all by this route, of his own accord, but could only hold it a couple of hours.

The temperature remained normal for the first fortnight, but rose to 100° F. and 101° F. on several evenings of the third week. At the end of the fourth week—on December 6th—he had a rigor, with a temperature of 102° F.; a similar rise on the 15th, 22nd, and 23rd: also on January 1st, 4th, 5th, 6th, 11th, and 16th the temperature went up to 101° F. or 102° F., and on one occasion—January 11th—it was between 103° F. and 104° F. all day. On all other days the temperature remained normal.

After five and a half weeks he got up for several hours, and afterwards daily, except when feverish.

The stone weighs a little over ¾ oz., and measures 1½ by 1$\frac{3}{4}$ by 1 in. (3.8 by 3.1 by 2½ cm.). Its exterior is blackish in colour, presumably due to oxalate of lime, and the surface is sharply serrated, roughened like a rasp in a way that is quite unusual in urinary calculi. The interior is in irregular alternate layers, of urate of ammonia and oxalate of lime, apparently. Both surfaces are shown in the accompanying photograph (Fig. 2).

As regards the operation, after the site of the calculus was made certain by exploring the abdomen, it seemed, in the absence of previous experience, that the easiest and safest route would be that followed. On referring afterwards to the great French treatise on surgery edited by Duplay and Reclus (second edition, 1899, vol. vii, p. 419), it appears that an even larger stone was similarly removed from the ureter by Tuffier, and is figured in that work. That is the only other instance of anything like the size that I have heard of.

A striking peculiarity of the case here related is the nature of the symptoms which led the patient to his medical adviser. The inconvenience suffered was referred entirely to the rectum, through which viscus the stone was originally felt. There were no urinary symptoms, either noticed as such or traceable in the history, at any time.

Cystoscopic examination on January 19th, 1905, showed a dark recess in the region of the right ureter, evidently indicating the remains of the cut in the bladder wall and orifice of the ureter, through which the stone was removed more than two months before.

A not unimportant question is the probable condition of the kidney on the affected side, and this has been answered in part by a careful "separation of the urines," kindly made by Mr. Robert Bickersteth on February 15th and 22nd, 1905. The result was that no urine whatever came through the right ureter, while the discharge from the left was normal urine emitted in characteristic ejaculations. The quantity was on February 15th 12 c.cm. in sixteen minutes, and on February 22nd 3 c.cm. and 4 c.cm. in two periods of five minutes each.

In the words of Mr. Bickersteth's report: Although "no urine entered the right side of the bladder during the periods of observation, it does not follow that the right kidney never secretes any urine, but it seems likely that

* Read before the South Carnarvon and Merioneth Division, North Wales Branch, Dolgelly.

its functions are seriously impaired." After this examination he went home.



Fig. 2.—Appearance of the stone.

A letter dated May 11th, 1905, was received from the patient, and another from Dr. Owen, saying that his water was right enough and passed without pain, but that he often had pain in his back when walking, so that for days at a time he sometimes could not go out. He had not yet begun work again. One cannot help suspecting stone in the kidney, and hoping for an opportunity of submitting him to *x*-ray photography to try and settle the point; but he is difficult to entice into hospital again, even for so harmless a purpose.

A Lecture
ON
PULMONARY TUBERCULOSIS IN CHILDREN.

DELIVERED AT THE MEDICAL GRADUATES' COLLEGE AND POLYCLINIC ON APRIL 3RD, 1906.

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PULMONARY tuberculosis in children is interesting owing to its frequency, its mode of onset, and the indefinite signs by which in many cases it is accompanied.

FREQUENCY.

Tuberculosis is, of all diseases, the most common and the most fatal in infancy and childhood. In the Registrar-General's returns for 1903 the deaths of children from tuberculosis in its various forms are shown as follows:

0—5 Years.	5—10 Years.	10—15 Years.	Total.
12,172	2,439	2,039	16,650

This, however, does not represent the full extent to which tuberculosis affects children, for some, at least, recover, some linger on till they are over 15, and many children who die of some other complaint (and are therefore not included amongst the tuberculous in the Registrar-General's returns) show evidence of the disease on *post-mortem* examination. The proportion of this latter class is considerable, as is evidenced by the returns of autopsies of the various children's hospitals in Europe and America. Even when we have taken into account all the cases indicated above it would seem that we have not included all the possible cases of tuberculosis in children, for it has been found that in many cases where ordinary pathological examination—macroscopic and microscopic—has afforded no evidence of tuberculosis, inoculation experiments prove the presence of latent tuberculosis. (Ganghofner,[1] Harbitz.[2])

It is, however, to tuberculosis of the lungs that I propose to direct your attention, and the figures I have quoted include tuberculosis of all organs. In infancy tuberculosis, whatever be the seat of the primary infection, tends to become quickly generalized, and tuberculosis in the lung, even if this organ is the primary seat of the disease, is almost always associated with tuberculosis of other organs—a part only of a generalized tuberculosis. When tuberculosis attacks a young child, the lungs are almost always affected sooner or later. This is well shown in the records of autopsies. Of 72 cases of tuberculosis in the first two years of life, Holt[3] found the lungs were involved in all; and in 119 autopsies on tuberculous children of various ages, 66 per cent. being 2 years old or less, the same observer found the lungs affected in 99 per cent. In the reports of the Children's Hospital at Pendlebury, Manchester, for 1885 and 1886,[4] out of 54 fatal cases of tuberculosis in children from 9 months to 13 years of age, 52 had the lungs affected, giving a percentage of 96. With older children the proportion becomes somewhat smaller. In Still's[5] 269 cases of tuberculosis in children under 12 years of age the lungs were affected in 210, or 78 per cent.

It is said (Holt) that during the first two years of life tuberculosis, with great uniformity, involves first the bronchial lymphatic glands and the lungs; generally it is the lung mischief which kills, though not infrequently it is meningitis.

Beginning with the third year, tuberculosis of bones, cervical glands, peritoneum, and intestines becomes more frequent, though the lungs are usually involved as well. In these young children the lung mischief is, as a rule, widely diffused and not, as so generally occurs in adults, localized to one portion of the lung.

After the sixth or seventh year—the period of the second dentition—the pathological processes tend to resemble those of adults. Generally speaking, the younger the child the more diffuse is the tuberculous mischief in the lungs. In infants and young children the physical signs of tuberculosis in the lungs resemble those produced by bronchopneumonia, and a differential diagnosis has to be arrived at by the prolonged course of the illness and the persistence of the physical signs or by the signs of tuberculosis in other parts.

Though I may occasionally refer again to pulmonary tuberculosis in infants, I think it will be most useful to the majority of those in practice to confine my remarks chiefly to the cases occurring in older children; this is also the more desirable, since my personal experience of pulmonary tuberculosis in children over 5 years of age is much larger than that of the disease in infants.

It will be seen from the following table which I have drawn up from the Registrar-General's returns that the deaths from phthisis fall after the fifth year until the tenth year and then again rise. This increase shows itself earlier in the case of females, and swells the number of deaths in girls from 10 to 15 years of age. In males the increase comes later (when they get out to work) and is not marked until childhood is past.

Total Deaths (England and Wales) from Phthisis and Pulmonary Tuberculosis, 66th Report of the Registrar-General (1903).

	Under 1 Year.	1 to 5 Years.	5 to 10 Years.	10 to 15 Years.	Total under 15 Years.
Males ...	213	494	279	290	1,276
Females ...	201	409	343	702	1,655
Total ...	414	903	622	992	2,931

Pulmonary tuberculosis in children shows certain clinical points of difference from consumption in adults in the path of entry of the infective bacillus into the lung; in the mode of development of the disease; and in the signs by which its presence is manifested.

PATH OF INFECTION.

The source and path of entry of the infection of tuberculosis in children demands consideration, since on a

proper understanding of this depends, to a large extent, our precautions to prevent infection; and by a knowledge of the usual seat of the initial lesions we may be the better enabled to recognize the disease in an early stage. Though in infants infected milk may be a source of infection, in older children it may be confidently asserted that the general cause is the inhalation of air contaminated with tubercle bacilli of human origin.

The path of entry into the lung is more difficult to determine. Most authorities agree in considering infection of the bronchial lymphatic glands as a usual halfway house, as it were, between the passage of the tubercle bacilli through the mucous membrane of the respiratory passages and their invasion of the lung substance.

That in some cases the bronchial glands become affected first, the disease spreading from the gland to the root of the lung, is undoubtedly true; but there seems good reason to believe that the reverse order of infection may be much more frequent than seems to be the generally accepted impression. No doubt the lymphatic glands at the root of the lung are generally affected with the lungs in children—early youth is the period of greatest lymphatic activity, and the glands rarely escape disease when a child becomes infected with tuberculosis. It seems from *post-mortem* records that in a very large proportion of cases the condition of the tuberculous process in the glands appears to be more advanced than that in the lungs. It does not, however, follow that the disease commenced earlier in the glands than in the lung, though it may have advanced more rapidly in the former. When the disease spreads from a tuberculous bronchial gland to the lung we should expect to find evidence of tuberculosis near the root of the lung. This is the case in many instances, and clinically we meet with cases where the physical signs of tuberculosis are found most evident in the mammary region and in the right lung are almost confined to the middle lobe, suggesting extension from a bronchial gland. In a large proportion of cases of pulmonary tuberculosis in children, and particularly in older children, the lung mischief is located in the apex of the lung, at a distance from the root, and it is more reasonable to suppose the gland to have become infected through the lymph stream from the lung than to infer that the mischief has spread from the gland to the lung. Dr. Paul Matthews[6] gives a series of 25 cases of tuberculosis in children, in 23 cases of which the lungs were affected, and in 19 of these the bronchial glands were also involved. I have attempted to classify these according as the lungs or the glands appear to have been first affected, with the following result:

	Lung affected first (most advanced).	Bronchial Glands first affected (most advanced).	Lungs and Glands equally involved.	Totals.
	Cases.	Cases.	Cases.	Cases.
Under 3 years of age	4	5	6	15
Over 3 years ...	5	0	3	8
Total ...	9	5	9	23

A series of careful observations recently published (Dr. Russell) tend to confirm this view. Dr. Russell[7] made a series of inoculation experiments on guinea-pigs, and traced the course of extension of the infection. He found that in several instances the lungs became affected whilst the bronchial glands remained free; in other animals, in whom the glands were affected whilst the lungs seemed to be clear, careful examination demonstrated that there was tuberculosis present in the lungs. He points out that the great difference in size between the lungs and the gland makes it easy to detect changes in the glands and to overlook tuberculous foci in the larger organs; also that the tuberculous process in the gland, when once commenced, advances more rapidly than do the changes in the lung foci. Thus disease commencing later in the gland may soon overtake that in the lung, and, being then more advanced, suggests that it is of longer duration. Whether the glands or the lungs become affected first, we have still to consider where the bacilli get through the mucous membranes of the air passages. The observations of Walsham[8] and others point to the tonsils and the adenoid tissue at the back of the naso-pharynx as one point of entry of bacilli into the lymph channels. I succeeded fifteen years ago in infecting the cervical lymphatic glands in rabbits through the tonsils and pharynx, and no one now doubts that tubercle bacilli get into the tonsils and adenoid tissues of the pharynx.

Probably there is much more risk of infection through the tonsils when these are inflamed, either acutely or in the chronic enlargement which is far from uncommon in weakly children.

The importance of the post-nasal adenoid tissue as a path of entry for tubercle bacilli is shown by the comparative frequency with which these bacilli have been found in adenoid growths; as much as 12 to 15 per cent. (Morgan[9]). Decayed teeth must also be taken into consideration. An American observer (G. W. Cook[10]) frequently found tubercle bacilli in the pulp of decayed teeth or in scrapings taken from around the teeth, especially in young persons. How far this may have any causal relation to tuberculosis in the lungs I am unable to say, but I am convinced that both in relation to prophylaxis and to treatment of tuberculosis in children, as in adults, attention to oral and dental hygiene should not be overlooked.

One other possible source of danger should be noted—namely, middle-ear and mastoid disease. This is recognized as one source of infection in the generalized tuberculosis of young children. Seeing how common middle-ear disease is amongst the children of the poor in London, this question is worthy of consideration.

From recent inquiries and observation in some of the elementary schools in London I have found that the proportion of children attending these schools in whom there is discharge from the ears varies in different schools from 0.4 per cent. to 6 per cent., according as the children are living in very poor or in better class districts. Taking over 5,000 children on the rolls of schools which I have visited in different localities, I find the proportion affected with ear discharges to be 2 per cent., which agrees very closely with the proportion found in the whole of the County Council schools in London by Dr. Kerr, the Medical Officer of the Education Department of the Council.

It must not be assumed that all, or nearly all, of these cases are suffering from tuberculous disease of the ear, but if not more than 2 per cent. of these ear discharges are due to tuberculosis it is not altogether a negligible quantity. Dr. Price Jones,[11] in discussing the causation of tuberculosis in children, draws attention to middle-ear disease as a possible cause of pulmonary tuberculosis, and records cases in illustration. I have recently had a case under my observation in which, in an adult, middle-ear disease seemed to have been the starting point of tuberculous infection of the lung.

The predisposing causes of consumption are as important with regard to children as in the case of adults. Children are peculiarly susceptible to unhygienic conditions, and the influence on the causation of tuberculosis in children of overcrowding, dirt and neglect, insufficient or improper food, is very potent. Debilitating illnesses, such as measles, influenza, whooping-cough, pneumonia, etc., also have an influence which must not be overlooked. How great is the predisposing influence of overcrowding and its attendant evils on the prevalence of pulmonary phthisis in children, and especially in young children, is seen from a table in the Registrar-General's Report (1903): taking an average of five years the phthisis mortality for children under 5 years of age for the whole of England and Wales is 355 per million living. In the urban counties the corresponding rate is 401, whilst in rural counties it is only 268.

Mortality from Phthisis per Million Living. (From the 66th Annual Report of the Registrar-General, 1903.)

Both Sexes.	0-5.	5-15.	Total.
England and Wales:			
Average 5 years	358	237	592
1903	345	229	574
Urban Counties:			
Average 5 years	401	246	647
1903	419	251	670
Rural Counties:			
Average 5 years	268	235	503
1903	252	233	485

SYMPTOMS AND CLINICAL TYPES OF PULMONARY TUBERCULOSIS IN CHILDREN.

To the practitioner, however, interesting though the study of causes of disease may be, it is the detection and treatment of disease when it has attacked the individual which is of practical importance. I pass, therefore, to a consideration of the symptoms and clinical types of pulmonary tuberculosis in children.

Tuberculosis affects the lungs of children in different ways, giving rise to various clinical types which, though distinct enough in well-marked cases, tend to run into one another. The simplest division of clinical varieties appears to be into (*a*) infantile and (*b*) adult types. The infantile group may be subdivided into miliary and bronchopneumonic; the adult into apical and basic cases.

Infantile Type.

Miliary Tuberculosis of the Lung.—This is essentially the type associated with generalized tuberculosis in young children. Scattered through both lungs are areas thickly dotted with miliary tubercles, or the whole of both lungs may have these small tubercles distributed throughout their substance. With these grey granulations some parts of the lungs may appear healthy; other portions give the appearance of bronchopneumonia. The pleura generally shows tubercles. The general appearance of the lung is similar to that seen in ordinary bronchopneumonia, but with the grey granulations dotted about in it. The physical signs in the chest will be those of bronchopneumonia. Diminished resonance and resistance on percussion will be found in patches or over the whole chest. Moist râles and crepitations of various sizes will be heard everywhere over the affected parts. Breathing may be quickened. Cough is frequent, sometimes paroxysmal when enlarged bronchial glands press on the pneumogastric nerve. When expectoration is present the sputum is generally frothy, as in bronchitis. Fever is almost always present; emaciation generally marked; weakness extreme and cerebral symptoms not uncommon. Evidence of tuberculosis in other organs may often be obtained, and a fatal termination is almost invariable. Occasionally the symptoms suggest typhoid fever, and mistakes in diagnosis are not unknown. This miliary tuberculosis, though not uncommon in infants, becomes less seen as age advances. It is not frequently met with after 5 years of age.

The bronchopneumonic type, or tuberculous bronchopneumonia, is also most frequent in infants and young children. The course is more prolonged than in miliary tuberculosis. There is, as a rule, considerable dense consolidation of portions of the lung, more frequently at the apex than at the base; the pleura is generally thickened over the affected area, and adhesions form. Softening (caseation) takes place in the consolidated lung, and cavities are formed. The physical signs are dullness on percussion, tubular or bronchial breathing, numerous crepitations—at first fine, and then, as softening commences, larger and more liquid. The presence of cavities may be indicated by the altered character of the breath sounds, but cavities are less easily recognized in children than in the adult. The general symptoms are less marked than in the acute miliary variety, the illness being less acute. Cough may be almost absent at first, but is generally frequent when softening occurs, and if there is expectoration the phlegm is thick and yellow or greenish.

As an example of the bronchopneumonic type of pulmonary tuberculosis I select a case which I saw in consultation at Watford, because the microscopic examination of the sputum showed the presence of tubercle bacilli, leaving no doubt as to the diagnosis.

CASE I.—A little girl, 5¼ years of age, had been ailing somewhat for about six weeks, but with no very definite symptoms. About a fortnight before I saw her, just before she was going away from home on a visit, her temperature one evening was found to be 102° F. She returned home three days before I was called in, looking very ill and evidently much worse than when she left home. The temperature was raised every evening to 100° and over. There was no history of tuberculosis in the family. When I examined her, about 4 o'clock p.m., the temperature was 103° F. There was dullness on percussion over the left base, with numerous moist râles. Crepitations were scattered through the upper lobe of this lung, and there were also some large moist crepitations at the apex of the right lung. The physical signs at the base of the left lung were indistinguishable from those of an acute bronchopneumonia. The history of the illness, however, indicated the nature of the disease, which, as I have said, was confirmed by the examination of the sputa.

Adult Type.

In children over 6 years of age tuberculosis in the lungs often takes a form in all respects similar to that characterizing consumption in the adult. This is the "chronic tuberculous phthisis" of most authors. The signs, symptoms, and course need not be described, since they are only too commonly seen in the adult consumptive.

A few points of interest may, however, be noted: First, as to the part of the lung primarily attacked. The base may be first involved more frequently than in adults, and when the disease spreads to the lung from a caseous bronchial gland the physical signs of the mischief will be found over the situation of the root of the lung—about the mammary region of the chest. Still, as in adults, there is a marked preponderance of apex cases.

Another point is that the bronchial glands are frequently involved in the tuberculous process: so signs and symptoms specially due to the enlargement of these glands may be noted. These signs and symptoms are chiefly due to pressure upon the neighbouring blood vessels, nerves, or air tubes. Thus pressure upon the superior vena cava or the innominate vein will cause fullness of the superficial veins of the face, neck, chest, or shoulder, or one or both sides, as the case may be. If the pressure be considerable, we may get cyanosis and puffiness of the face. Pressure on the trachea may give rise to some cough and difficulty in breathing, constant or occasional. Some so-called "asthmatic attacks" in children are attacks of dyspnoea due to the pressure of enlarged bronchial glands on the air tube. Similar paroxysmal attacks of dyspnoea and paroxysmal cough, resembling that of whooping-cough, may be caused by the pressure of such glands on the pneumogastric nerve. I have seen a case in which paralysis of the right vocal cord was associated with signs of enlargement of bronchial glands, and was apparently due to pressure upon the right recurrent laryngeal nerve. The enlargement of the gland became less under treatment, but, although other pressure symptoms and signs disappeared, the paralysis of the vocal cord remained; apparently some inflammatory infiltration around the gland had involved the nerve and compressed it.

Enlarged bronchial glands rarely give rise to distinctive physical signs by which their presence may be definitely inferred. Pressure on the bronchus may give rise to high-pitched tubular breath sounds over the affected branch of the air tube, or may so interfere with the entrance of air to the lung as to cause the breath sounds on the affected side to be much weaker than those on the opposite side of the chest. Pressure on the root of the lung may, by obstructing the return of blood through the pulmonary veins, cause mechanical congestion of the lung, indicated by diminished percussion resonance and crepitations at the base. So, also, murmurs may be caused in arteries or veins from pressure on them of enlarged glands.

The symptoms vary greatly in pulmonary tuberculosis in children. Cough may be entirely absent, or so slight as to be unnoticed. When present, the character of the cough varies greatly in different cases. Sometimes we have the almost constant, irritating, dry cough, preventing sleep and wearing the child out by its persistence; in other cases the paroxysms of violent cough suggest whooping-cough; or again we may have the liquid cough of bronchitis. Children under 6 or 7 years of age rarely expectorate, however much phlegm may be brought up into the mouth by the cough. If very plentiful, or when muco-purulent the phlegm may cause vomiting, but as a rule it is swallowed. This, of course, prevents the possibility of assisting diagnosis by the microscopical examination of the sputum. It will, perhaps, be possible sometimes to collect a little of the phlegm which may remain hanging about the throat or fauces after a cough, or to select a specimen of sputum from the vomited matter. A bougie, probang, or tube passed down the oesophagus may withdraw sufficient mucus adhering to it to allow of microscopical examination. Though older children do expectorate, they will frequently swallow the phlegm if they are not trained to expel it. It is, however, in my experience very much less common for pulmonary

tuberculosis in children to be accompanied with cough with expectoration than is the case with the same disease in adults.

It is in consequence of the habit of swallowing the sputum that children so frequently get secondary infection of the intestine with consequent diarrhœa. Secondary infection of the tonsils may also result from the phlegm which is coughed up into the mouth. Infection of the larynx is less common in children than in adults.

Haemoptysis is not common in children. In my cases there is a history of haemorrhage in 10 per cent., which seems to be above the average, since Herz (quoted by Holt) found this accident only eight times in 247 cases of clinical tuberculosis in children.

In the Pendlebury Hospital haemoptysis was the cause of death in 4 cases out of 131 autopsies on tuberculous children. Haemoptysis rarely, if ever, occurs in children under 3 years of age.

Shortness of breath (dyspnœa) also seems less prominent as a symptom of phthisis in children than in adults.

Fever may be present at some time in the majority of cases. The fact that fever is present is important; the character of the fever is of comparatively little assistance in diagnosis.

In acute cases it may be almost continuous, and frequently high. A diurnal range extending over three or four degrees or more may be met with. In other equally acute cases, the temperature may rarely rise above 100° F. In the more chronic cases fever may be practically absent. The temperature varies between 98° and 99°, with an occasional rise to 100° or over at rare intervals; unless the temperature is taken regularly over a long period these rises may be altogether overlooked. The breathing is generally slightly quickened; the pulse rate also is generally quicker than in health.

The general symptoms also vary greatly in different cases. Progressive emaciation and weakness may be the chief initial indications of ill-health; on the other hand, children with unmistakable physical signs of tuberculosis in the lungs may remain plump and robust in appearance, with good colour, lively and cheerful spirits, and no outward signs of impaired health.

The physical signs in the chest are also very variable. In cases where the disease has affected any considerable portion of the lungs there will, on examining the chest, be little difficulty in detecting evidence of changes in the lung. The difficulty consists in deciding whether the changes evidenced by the physical signs are due to tuberculosis, or to some other morbid condition. In infants and young children the signs of tuberculosis in the lung so closely resemble those of bronchopneumonia that it is often impossible to distinguish between the two diseases; in fact, the signs are those of a bronchopneumonia set up by the tubercle bacillus. When these signs are limited to the apex of the lung, as it may be in a fair proportion of the cases, the probability of a tuberculous origin is strong. The history of the illness will often give some indication of its nature, the gradual onset of tuberculosis being in marked contrast to the more sudden commencement of simple bronchopneumonia.

In older children the physical signs are more distinctive. There is some diminution of the respiratory movements at one apex, with deficient percussion resonance; the breath sounds over the affected area are weak and harsh, jerky, bronchitic, tubular, or even cavernous, according to the stage which the disease has reached in the part examined. The expiratory portion of the breath sound is almost always prolonged, and may be louder than the inspiratory. In early cases no râles or other adventitious sounds may be heard; in later stages crepitations of various sizes, clicking, or bubbling râles may be heard. It is not uncommon in children to hear the marked tubular or cavernous breathing, which in the adult would indicate excavation, when consolidation and not cavitation is the actual condition present. Whispering pectoriloquy may also be obtained under similar circumstances, and even a cracked-pot percussion note in a child does not necessarily indicate a cavity in the lung.

In these older children the mischief commences in the apex of the lung much more frequently than in the base. Even in quite young children the number of apex cases is in excess of those commencing at the base; as age advances the preponderance of apex cases becomes greater.

I have looked through a number of cases which have been under my observation in hospital and private practice during the past year or so, and I find that where it has been possible to form an opinion as to the seat of the initial mischief in the lung, this has been in the upper lobe in exactly five-sevenths of the cases. The actual figures are as follows:

Out of 105 cases in children from 3 to 15 years no opinion could be formed as to the seat of the initial lesion in 49. In the remaining 56 cases the disease commenced at the apex in 40, and at the base in only 16. The proportion of apical to basic cases appears to depend to some extent upon the ages of the children examined. Holt out of 127 cases in younger children found the numbers to be: Upper lobe, 69; middle lobe, 23; lower lobe, 35. This is very nearly the same proportion as in my cases if the middle lobe is included with the upper lobes.

As examples of the adult type I will take a case in an early stage of the disease; one which had advanced to cavitation, but remained subacute: and one in which the condition was advanced and the symptoms extremely acute.

Case II.—A schoolboy, aged 11 years, was kept away from school with cough, but with no expectoration. His pulse-rate and temperature were taken regularly for a week or two, and were rather significant of tuberculosis. When I examined him the only physical signs were a want of loudness and of clearness in the breath sounds above the left clavicle, a few fine crepitations in the region of the cardiac apex and some prolongation of the expiratory portion of the breath sound above the right clavicle.

Case III.—E. V., aged 11 years, gave a history of cough for the past six years. On examination there was flattening below the right clavicle, and dullness on percussion down to the third space in front and to the inferior angle of the scapula on this side. Above and below the inner end of the right clavicle and in the supraspinous fossa behind cavernous breathing with whispering pectoriloquy were heard; below this the breathing was harsh. Moist crepitations were heard all over the right side. On the left side percussion resonance was diminished down to the fourth rib, the breathing over this area was weak, and the expiratory sound prolonged. Moist crepitations were scattered through this part of the lung. Examined by the *x* rays, both lungs were seen to be sprinkled with mottled shadows, more extensive on the right side, but rather more dense on the left. The right apex was occupied by a shadow with a definite margin best seen from behind. The child's temperature ranged from 96.4° to 99°. The pulse-rate varied between 80 and 112 per minute. The weight was 3 st. 15 lb.

Case IV.—Ada H., aged 13, whose father, an uncle, and two aunts on the father's side had died of phthisis, had had a cough for some time and an attack of haemoptysis twelve months before admission to hospital. She had not yet menstruated. On admission she complained of pain over the apex of the left lung. Her temperature was 104° F., pulse 130 per minute, respirations 30. On examination the right side was flattened at the apex; the movements were poor; percussion note dull to the fourth space in front and to the fifth spine behind. Breathing over this area tubular, with fine crackling râles. On the left the apex was flat, expansion poor; dull on percussion to the fourth rib in front and to the fifth spine behind. Tubular breathing all over the upper part of the chest, with loud bubbling râles. Some amphoric breathing, with whispering pectoriloquy (cavity) at the apex. At the base on this side were heard some small, fine crepitant râles. On discharge thirteen weeks later the chest was nearly dry; a few râles were occasionally to be heard over the apices: there was no cough; appetite good. The temperature for a month previously had kept generally between 98.4° and 99°, rising about once in a week to 100°, and about as frequently falling to 98°. She had gained 1 st. 4 lb. in weight. She reported herself some time later as keeping well.

In a not inconsiderable proportion of cases where tuberculosis of the lungs is suspected the physical signs in the chest are very indefinite, as is seen in Case II. There may be cough, wasting, and perhaps irregular temperature, and the only signs to be elicited on examination of the chest may be some increased resistance on percussion, with a less resonant note than might be expected from a child's chest, not necessarily localized to any one part of one lung, but general over the whole of one or both sides. On auscultation the breath sounds may be weak, and a few fine crepitations may be heard at the margins of the lung, down the edge of the sternum or over the cardiac area. These crepitations are probably due to emphysema, and might, of course, be due to compensation for partially consolidated lung in the neighbourhood. Such crepitations, in the absence of other signs, are of little significance. I have within the past fortnight had the opportunity of examining a number of healthy children, and out of 268 children, all about 10 to

11 years of age, I have been able to detect such crepitations in 81, or just over 30 per cent. In this connexion it is well to bear in mind that children—especially the younger ones—often flinch a little when the stethoscope touches the chest, and the slight tremor causes the skin to rub against the instrument, and thus gives rise to a friction sound almost indistinguishable from crepitant râles. In strumous children the skin is often dry and rough, and these pseudo-crepitations are the more easily produced.

I have not infrequently been asked to confirm a diagnosis of pulmonary tuberculosis in children when I could find no evidences of pulmonary disease on examination of the chest. It is, however, well to give a guarded opinion in these cases. Tuberculosis of other organs—bronchial glands, for example—may be present and cause the symptoms which have suggested the diagnosis of phthisis. If that be the case, the lungs will probably become affected sooner or later; and, in any case, the line of treatment will not be affected by the presence or absence of tubercle in the lung. Proper treatment commenced in good time may prevent extension to the lung, or may cure the disease if it has already attacked these organs; delay until definite physical signs present themselves may materially diminish the chances of recovery.

There are certain aids to diagnosis which may in some cases be of use. The *x* rays may possibly disclose some consolidation in the lung which gave no sufficient evidence of its presence on physical examination. Injections of tuberculin might give clear indications of the presence of tuberculosis, though not of its seat. I have on other occasions given my reasons for having discontinued the use of tuberculin and for considering its use for diagnostic purposes to be risky.

I have not sufficient experience of taking the opsonic index to express any opinion as to its value in assisting diagnosis in doubtful cases in children.

The difficulties of diagnosis are not confined to those cases in which the symptoms and physical signs are few in number and indefinite in character. Pleural effusion may be mistaken for tuberculous infiltration of the base of the lung, and even when consolidation of the lung is undoubtedly present it may be difficult to determine its cause—whether due to the action of the tubercle bacillus or of some other morbific micro-organism, such as the pneumococcus or the influenza bacillus. Pneumonia affecting the apex of the lung may sometimes be only distinguished from tuberculosis by a microscopical examination of the sputum.

In this connexion I may briefly refer to a case recently under my care in hospital:

CASE V.—A girl, aged 14 years, was admitted as an emergency case supposed to be suffering from acute tuberculosis of the lung. She gave a history of three weeks' illness. On admission she was obviously acutely ill, with hectic appearance; temperature 103.4° F., pulse 128, respirations 32. There was deficient movement of the right chest, dullness on percussion all over this side, with bronchial breathing and fine moist crepitations. In the left lung there were scattered sibilant rhonchi, with some fine râles at the base behind. I expressed the opinion that the case was one of pneumococcic rather than of tuberculous infection, and this view was subsequently confirmed by the presence of pneumococci in the sputum, which was free from tubercle bacilli. The girl remained acutely ill for a fortnight, and then she developed a swelling of the right knee, suggestive of tuberculosis, which subsided under treatment after about ten days. The general symptoms and the temperature had begun to improve a few days previously, and her recovery was ultimately complete. She remained under observation for about six months, and at no time were tubercle bacilli found in the sputum.

PROGNOSIS.

The large mortality from pulmonary tuberculosis in children shows that the prognosis must always be a guarded one. The proportion of cases in which healed tuberculosis is found in children who have died from other complaints is evidence that recovery from tuberculosis is not infrequent even in infancy.

To a certain extent we may take it as a rule that the younger the child the more grave is the outlook. We have to bear in mind, however, the greatly increased mortality in girls especially, after the age of 10 years, and I think we may take it as certain that a large amount of this increased mortality occurs in girls at about the age of puberty. The age of puberty is variable, but is generally in this country within the limits of 12 and 15 years of age.

I have repeatedly pointed out that in girls who become phthisical within these ages the prognosis will be much influenced according as menstruation has or has not already commenced. I have found that tuberculous girls at about the age of puberty in whom menstruation has not commenced have a much better chance of recovery than those who have already menstruated (see Case IV). As I have expressed it, it appears as though a reserve of energy stored up for the completion of sexual development may be diverted from its purpose and utilized in combating the tuberculosis. Puberty in these cases is delayed until the disease has become arrested.

A few words in conclusion as to treatment.

The most important requirement is to put the child under proper hygienic conditions. Life in the open air, good and sufficient food, cleanliness, and a proper amount of rest and sleep, are the essentials. As a rule I consider that children are much better not kept in bed, unless the fever is high and the weakness extreme.

There is a question of much importance with regard to children over 6 or 7 years of age, namely that of education. Ought they to attend school, or have lessons of any kind? I believe they are all the better for having lessons, excepting in acute cases. Without some occupation they tend to become fretful, dissatisfied, and tiresome. If not overpressed, and especially if the lessons can be taken out-of-doors, they will benefit physically, mentally, and morally by carrying on their education whilst under treatment. We must bear in mind that the cure of tuberculosis in children, as in adults, is not a matter of days, or even of a few weeks.

Treatment—in the sense of hygienic management under medical supervision—may be required for months or even for years, and in education we cannot afford to waste the most valuable years of life.

For the poorer children seaside schools—such as the City of Paris has established on the coast for its tuberculous children—and forest (or open-air) schools—such as have been instituted in Berlin—have a great value, both prophylactive and curative. Residential schools on the East Coast for tuberculous children, and open-air lessons in the school playground, or even in the London parks or in Epping Forest, are worth consideration.

Economically, it is more advantageous and less costly to keep the children free from tuberculosis and to treat those who become infected than to attempt to cure the consumptive adult.

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A CASE OF ACTINOMYCOSIS OF THE ABDOMINAL WALL

PRODUCED BY AN INFECTED FOREIGN BODY WHICH HAD ESCAPED FROM THE INTESTINE.

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THE history of the following case is of interest from the way in which the probable mode of infection was demonstrated.

History.

J. J., a carter, a strong, healthy-looking man, aged 46, was admitted into hospital on April 11th, 1905, complaining of a "lump in the side," which he had noticed for six months.

On exposing the abdomen a distinctly localized prominence could be seen, on the right side, touching internally the semilunar line and extending outwards beyond and above the anterior superior iliac spine and iliac crest. When the man

contracted the abdominal muscles the prominence became much less distinct, warranting the belief that the mass lay beneath the superficial layer of muscles at any rate. On palpation, a hard mass with somewhat irregular outline could be felt; it appeared to be slightly movable laterally but not in any other direction, and it could not be separated from the deeper parts. The skin over the swelling was normal in colour and freely movable; there was not the slightest tenderness of the swelling or abdomen. The patient had first noticed that there was anything wrong six months earlier, when he had discovered a small lump in the side, which had been slowly increasing in size since then. It had never given him the slightest pain; he had had no trouble with the bowels, which had acted regularly every day, and he had never suffered from indigestion. There was no history of syphilis or, indeed, of any ill-health. The family history was also good. The pulse-rate was 74 and the temperature 99·2° at night.

I was unable to come to any satisfactory conclusion as to the nature of the disease. From the slightly raised temperature at night I was inclined to think that it was inflammatory, and hazarded the suggestion that it might be tubercle, very chronic inflammation around the cæcum or appendix, or actinomycosis. I did not feel justified in excluding syphilis or malignant disease. If the diagnosis was in doubt, the course of treatment to be pursued was not, and I decided to attempt to remove the mass.

Operation.

Operation revealed the fact that the mass involved the transversalis muscle and peritoneum, and slightly the internal oblique muscle, and was closely attached everywhere to the ascending colon. This attachment was, however, easily separated without cutting the coats of the bowel except at one spot where the adhesion was firmer and the peritoneal coat was nicked. The tumour was completely removed with a margin of surrounding muscle and the wound closed in layers in the usual manner. Convalescence was uneventful.

Description of Tumour.

The tumour on section cut like hard fibrous tissue and the cut surface had that appearance, but the outer part was harder and denser than the inner. The centre consisted of similar tissue containing numerous small areas of yellow softening of various sizes; the contents of some were liquid and pus like. One of these spaces was much larger than its fellows, and contained a small spearhead-like body like a piece of straw.

From the naked-eye appearance there was little doubt that the disease was actinomycosis, and microscopical examination, which was kindly undertaken for me by Dr. Charles Porter, of the Bacteriological Department of Sheffield University, confirmed this, typical filaments of the ray fungus being found in plenty, the small spearhead-like body being made out to be part of the husk of an ear of wheat. Such pieces of straw have been found in actinomycotic deposits both in man and in animals, especially when the jaws have been the seat of the disease (Bostrom, Soltmann), and are believed to be the means by which the infection is introduced.

The course of events in this case was probably this: A piece of infected straw bearing spores of the ray fungus was swallowed by the patient; the small particle found perforated the colon and entered the abdominal wall, setting up the disease there, leaving as evidence of its passage the adhesions between the bowel and abdominal wall. Bearing on this view is the interesting paper by Mr. Bland-Sutton,[1] drawing attention to the ease and frequency with which small foreign bodies, pieces of straw, metal, etc., perforate the large bowel and produce tumour-like inflammatory swellings and abscesses in the abdomen, their more or less firm attachment to the bowel wall pointing to the mode of origin; he cited a case in which a lump about the size of a bantam's egg in the left iliac fossa was shown at operation to be inflammatory, adherent to the bowel, and to contain in its interior a piece of straw.

The following further information obtained from my patient subsequent to the operation throws further light on the above views. For at least eighteen months previous to the discovery of the abdominal condition he had had a very decayed molar tooth which he was accustomed to pick with a piece of straw. He was hardly ever without a piece of straw in his mouth when at work. Three months before he noticed the lump the tooth broke off, and he did not put a piece of straw in his mouth again.

REFERENCE.
1 *Lancet*, October 24th, 1903.

[1] The late Mr. William Chapman, of Warminster, whose will has now been proved, left £100 to the Warminster Cottage Hospital.

THE VALUE OF CALCIUM IODIDE IN THE TREATMENT OF ULCERS.

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Last April, in a short memorandum, I published some good results I obtained from calcium chloride in the treatment of chilblains. Sir A. E. Wright had about nine years previously published the result of his work on the same subject with an elaboration of detail that I did not attempt.

I was particularly impressed by the remarkable readiness with which the broken chilblains responded to the treatment. A broken chilblain is an acute ulcer, so that the administration of calcium chloride had the good effect of causing acute ulcers to heal. One of the broken chilblains that came under my notice had been very much neglected and as a consequence had become very offensive, and almost gangrenous if smell were the sole criterion. After two days' treatment with calcium chloride the smell from this foul ulcer had almost disappeared. Soon afterwards I had occasion to see in adult or elderly people some offensive chronic ulcers of the leg, having a characteristic and objectionable odour not easily removed by the usual methods of nursing them. I use the word "nursing" as it better describes the mental attitude of the average medical man with regard to these sores. The usual experience is to find that the ulcer may after a lengthy period close up, only to break down on the least provocation. Even after the ulcer has closed, the scar and the surrounding skin often appear weak and unhealthy. The consequence is that medical men give up all hope of getting any good results, and pay little attention to this common but chronic ailment.

The good effect produced by calcium chloride in removing the offensive smell from an acute ulcer suggested to me the possibility of an equally good result in chronic ulcers. With this object I ordered two patients—each of whom had, in spite of cleanly and careful nursing, a very foul ulcer—to take 15 gr. of calcium chloride three times a day. The result was beyond expectation, and in a few days the two ulcers were practically free from smell. In addition to this improvement I was very pleased to notice that the edges of both ulcers had begun to take on a typically healing appearance.

I afterwards placed several other patients under the same treatment, and in nearly all cases the response was ready and good. Instead of the usual *statu quo ante*, I found a series of healthy-looking ulcers from day to day. In addition to the improvement in the edges of the ulcers, the surrounding skin to the extent of 2 to 3 in. began to take on a healthy appearance not usually associated with even a healed ulcer. In some of the cases, however, after a period of healthy activity, the healing process became slower, and in two or three cases ceased altogether.

For a few days calcium chloride increases the coagulability of the blood, then this effect ceases; and remembering this I hesitated to proceed with the treatment in the cases of chronic ulcer. Feeling, however, that I was on the right track, and that possibly a slight modification of the treatment would be attended by beneficial results, I decided to try calcium iodide—a very deliquescent crystalline salt, which on exposure to air readily gives off iodine. The only reference to it that I came across was in Hare's *Therapeutics*, where the one fact stated is that the dose is 2 to 4 gr.

The benefit derived from the calcium iodide was more than could be expected, for its effect in reducing thick, callous edges into thin, healing ones was little less than miraculous. This may appear a rather extravagant phrase, but I know that some who have seen this marked effect will bear me out in every particular, and that others who try the drug will find their results equally encouraging.

Case 1 (aged 47).

April 5th: Ulcer on left leg 3¼ × ⅞ in. Placed on calcium chloride: 15 grams three times a day.

April 10th: Ulcer diminished all round. A band of skin has grown across the centre, dividing the original ulcers into two smaller ones ⅜ in. and 1 in. long respectively.

April 17th: These two ulcers reduced to ⅛ in. and ¼ in. long.

April 21st: Both ulcers healed.

CASE II (aged 60).

April 5th: Ulcer on left leg 7 × 2¼ in., right leg 2 × 1¼ in. Placed on 15 gr. of calcium chloride thrice daily.
April 10th: Edges have become healthy and thinner.
April 21st: Ulcers smaller and shallower; healthy granulations.
April 30th: Left ulcer 5 × 1½ in., right 1½ × 1 in.
May 5th: Not much further improvement. Patient placed on calcium iodide—2 gr. thrice daily.
May 14th: Both much smaller; right nearly healed.
May 21st: Right ulcer healed, and left reduced to 2 × ½ in.
May 28th: Left ulcer healed.

CASE III (aged 56).

April 5th: Oval ulcer on left leg; length ¾ in.; placed on calcium chloride.
April 10th: Granulations very healthy.
April 21st: Ulcer healed. This ulcer has been in existence for the last two years.

CASE IV (aged 72).

April 5th: Ulcer on right leg 1 × ¾ in. Calcium chloride ordered.
April 10th: Edges very healthy.
April 21st: Ulcer healed.

CASE V (aged 42).

April 12th: Two ulcers on each leg, each about 2 × 1½ in. Skin looks unhealthy all over lower half of legs; ulcers not very deep. Calcium chloride ordered.
April 30th: Left leg, both ulcers healed; right leg, ulcers nearly healed.
May 4th: The right ulcers both healed.

CASE VI (aged 23).

No history of syphilis; the patient had an injury to the leg three years ago, which caused a big surface wound, leaving a large amount of scarred surface. This surface broke down as the result of a blow, and as the result of neglect the ulcers became very offensive.
April 12th: Two ulcers on left leg, one 4½ × 2 in., and the smaller crescentic in shape, length 2 in. Placed on calcium chloride.
April 20th: Both ulcers clean, healing edges, and without any smell.
April 30th: Smaller ulcer healed, the larger reduced to 2 × ¼ in.
May 5th: Both ulcers healed.

CASE VII (aged 66).

April 5th: Foul smelling, thick-edged ulcer, 4 × 3 in. wide, of 10 years' standing, during which time I understand it has nearly healed several times, but never got quite well. It is situated on old scar tissue, the result of an old injury. The patient was ordered 15 gr. of calcium chloride.
April 10th: Ulcer looks dull, and smell less offensive; edges look somewhat healthier.
April 12th: No further improvement; calcium iodide (2 gr.) ordered.
April 14th: Smell much less offensive; all except 4 in. of edge looks very healthy and much thinner.
April 23rd: No smell. The thickened part of edge reduced to 2 in., the rest looking very healthy.
April 30th: Thickened edge only ¾ in. in length, ulcer closing in all round, and an island of skin, 1 in. long, in centre.
May 4th: Edge healthy and thin all round. Ulcer, 3 × 2 in.
May 10th: Island of skin has joined edges at both ends, forming two small ulcers.
May 20th: Both ulcers markedly reduced in size.
May 28th: Ulcer healed over completely.

CASE VIII (aged 36; history of syphilis).

April 5th: Ulcer, 2 × 1 in. on left leg. The patient had been treated with potassium iodide, but the ulcer had not improved. There was a very objectionable odour. I ordered him calcium chloride.
April 10th: Ulcer healed up, all except a small area ½ in. long; no smell.
April 15th: No improvement. Calcium iodide (2 gr.) ordered.
April 20th: The whole ulcer broke down, but the granulation surface and edges now look very healthy.
April 25th: Ulcer slightly smaller, but looking very healthy.
This patient was not seen after this date as he had removed from the district. The remarkable way in which the whole ulcer broke down after he was placed on calcium iodide was very striking.

CASE IX (aged 54).

April 15th: Deep ulcer, thickened edges, offensive smell; has been in existence over four years, 3 × 2 in. Placed on calcium iodide.
April 20th: Smell quite gone, edges reduced in thickness, and looking healthy all round.
April 25th: Ulcer reduced to 2½ × 1½ in.
April 30th: Still further reduced.
May 10th: Quite healed up.

In addition to these patients, I have placed others with small syphilitic ulcerations about the mouth under treatment with calcium iodide. One or two had found great difficulty in taking potassium iodide, but the calcium iodide agreed excellently, and the result has invariably been good.

Two cases of malignant ulcers, which were very painful and foul smelling, have been for a short time under calcium iodide with a good result as regards smell, discharge and pain. The number of cases of this class at my disposal at present is very limited, but a few other medical men have at my request promised to give the drug a trial, and I hope they will soon be in a position to publish their results.

Such valuable results obtained by using the salts of calcium are very interesting when we consider the large amount of calcium present in the body. The skeleton consists of over 60 per cent. of calcium salts. From fœtal life, when we find the early deposition of the spicules, to the period of old age, when the bones become altered in shape and also more brittle, calcium plays an important part. In infancy when the bones are growing, and at puberty when growth ceases, calcium is always exercising a great influence.

The proportion between animal and earthy matter in bone is constantly varying from infancy onwards, and disease attacking the bone at an early stage produces quite different effects from those produced at a later period.

The first and second dentitions only serve to emphasize still further the value of calcium salts, and the deposition of calcium in the repairing callus is of immense importance. A comparison of the composition of healthy and rickety bones is very interesting:

	Healthy.		Rickets.
Calcium phosphate ...	57·54 per cent.	...	26·94 per cent.
Magnesium phosphate	1·03 ,,	...	0·81 ,,
Calcium carbonate ...	6·02 ,,	...	4·88 ,,

The chemical products resulting from any disease occurring in a child with rickets where the calcium salts are depleted to such an amount, must be very different from those produced by the same disease in an otherwise healthy child.

In general diseases, such as syphilis, mollities ossium and acromegaly, the calcium salts of bone are considerably affected, while in pernicious anæmia and leukæmia the bone marrow is altered to a great extent. The close relationship between bone and its marrow is of extreme importance, and as a large percentage of bone is composed of calcium, the marrow must have much to do with calcium salts.

Some experiments performed by Dr. Ringer a few years ago served to show how necessary calcium salts were for the beating of the frog's heart. The development of frog's ova was also found to be dependent on the presence of calcium salts in a proper percentage, and red corpuscles during their embryonic stage are found in parts well supplied by calcium salts. If ova (which are the beginnings of life) and red corpuscles (which are for the maintenance of life) are so dependant on the presence of calcium salts, it is a logical conclusion that the growth of all cells is dependent on the proper proportion of the same salts. If the normal growth of cells is so dependent, any abnormal growth of cells must depend on some abnormal percentage of calcium.

We find both bones and teeth affected in syphilis, so evidently this disease interferes with the normal percentage of calcium salts; and the exhibition of symptoms of congenital syphilis at puberty—a period that is closely associated with a rearrangement of the calcifying process—certainly seems to emphasize the connexion between disease and an abnormal percentage of calcium.

The valuable results obtained in urticaria and purpura by using calcium chloride, together with the above-mentioned facts, tend to emphasize the important part played by calcium in health and disease.

THE late Sir William Huffington Findlater, of Dublin, whose will has now been proved, left £100 each to the Coombe Lying-in Hospital, the Hospital of Sir Patrick Dun, the Stewart Institution for Idiotic and Imbecile Children, the National Hospital and Molyneux Institution for the Female Blind, the Mater Misericordiae Hospital, and the Charitable Infirmary.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

CASE OF CONGENITAL IRIDO-DIALYSIS WITH HETEROCHROMIA.[1]

W. H. H, aged 21, A.B., recently presented himself for treatment for some trivial ailment, when the peculiar condition of his right eye was noticed. The condition was apparently that of irido-dialysis, but the man stated that he was born with it, and not only so, but that his mother, who is dead, had a similar deformity of her right eye, and that she had told him that her grandmother was also similarly affected.

The iris of the right eye is of a rich brown colour, whilst that of the left is a light hazel with a tinge of green. The left eye is perfectly normal. The upper part of the iris of the right eye, for about a fourth of its circumference, is detached from its peripheral margin at its uppermost part, and heaped up above the pupil, its upper border forming a double curve. The shape of the pupil is that of a semicircle, the base uppermost; this becomes more conspicuous after dilatation with homatropine, which however, does not affect the shape of the upper opening.

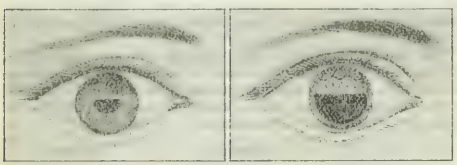


Fig. 1, before, and Fig. 2, after, dilatation of pupil with homatropine.

On illuminating the upper opening with a beam of light it is seen to be completely closed by the black choroid coat and its ciliary processes. Ophthalmoscopic examination shows both retinae to be normal; a red reflex appears through the choroid in the upper opening when a beam of light is thrown through the pupil. The man's sight is unaffected; in fact, he uses his right eye to sight his rifle.

I can find no mention of irido-dialysis as a congenital deformity in the books at my command. As a rule, I believe, when caused by traumatism, the choroid is ruptured as well as the iris.

Fleet Surgeon VIDAL G. THORPE, R.N.

THE *SPIROCHAETA PALLIDA* AND ITS VARIATIONS.

IN Professor Maclennan's description of the various phases of *Spirochaeta pallida* in the BRITISH MEDICAL JOURNAL, May 12th, page 1090, there is a remarkable resemblance to some of the phases observed in the life-cycle of *Spirillum obermeieri* as recorded in the JOURNAL of June 16th, page 1400, but in the case of the *S. obermeieri* great assistance is obtained in connecting up the intracorporeal cycle of the spirillum from the clinical symptoms of the patient. Since the spirillum is abundant in the blood during the pyrexia, but disappears completely during apyrexia and reappears in the succeeding relapses of pyrexia, the presumption is that it spends the interval between the relapses in the quiescent stage of sporulation within the body of the haemocyte, and the rise of temperature marks the liberation of the spores into the blood stream. It is at this stage, in my opinion, that infection is conveyed by the agency of the mosquito acting as intermediate host.

Ahmedabad, India. W. H. COX, Capt. I.M.S.

DIONINE IN THE TREATMENT OF IRITIS.

As this drug is now in pretty general use it may be well to call attention to one of its dangers. Recently Dr. Hewkley and I had a case of serous iritis under treatment at the Western Ophthalmic Hospital, and had occasion to instil a couple of drops of 5 per cent. dionine in the right eye, the pupil of which was fairly but not quite completely dilated by ung. atrop. ½ per cent., which the patient had been using thrice a day for several weeks. To our surprise it produced practically no chemosis but a very marked contraction of the pupil, so that in the course of about a quarter of an hour it was precisely the same size as the pupil in the unatropinized eye. Thinking there might be something wrong with the solution, I instilled it into several other eyes, but without producing a similar effect. The patient was kept under observation for a couple of hours, and atropine and cocaine instilled alternately, but without any effect.

Dr. Suker mentioned an exactly similar case at a meeting of the Chicago Ophthalmological Society in March of this year. In his case the myosis was extreme. "Two days later an iridectomy was performed, and it was found that in this short time attachment of the posterior surface of the iris to the anterior capsule had taken place." Several other members present had seen myosis after the use of the drug.

Dr. Suker's case and my own illustrate the danger of prescribing the drug for home use without having previously satisfied one's self as to its safety.

London, S.W. CHARLES WRAY, F.R.C.S.Eng.

P.S.—The patient was seen on July 6th, and the pupil was well dilated, so that the myosis was but temporary.

[1] Communicated by the Director-General, Medical Department, Admiralty.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

SUSSEX COUNTY HOSPITAL, BRIGHTON.

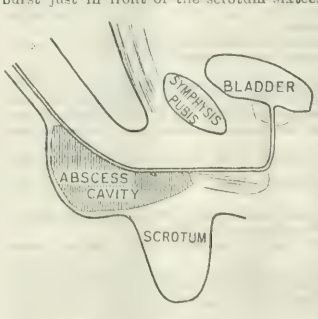
A CASE OF PERI-URETHRAL ABSCESS WITH THE FORMATION OF CALCULI.

(Reported by GEOFFREY BATE, M.B., B.C.Cantab., Senior House-Surgeon.)

THE following case seems worth recording in that the external closure of a urinary fistula led to the deposition of lime salts in such quantity as to produce numerous calculi in a sac in the substance of the penis. The patient, a policeman, presented himself at the Hospital complaining of a painful swelling on the under surface of the penis:

State on Examination.—An elongated tumour was found on the under surface of the base of the penis, merging posteriorly into the contour of the scrotum, and reaching in front to within about an inch of the corona glandis. The swelling was about an inch in diameter, inflamed and fluctuant, but under the fluctuation there was felt the definite grating suggestive of a bag of stones.

History.—The history of the case was that an abscess had burst just in front of the scrotum sixteen years previously; following this there had been for some years a urinary fistula which had gradually got smaller, and had been entirely closed for five or six years; the patient had noticed a painless swelling at the base of the penis for about two years, but during the week previous to his admission to hospital the swelling had greatly increased and had become very painful.



Operation and Result.—On an incision being made a quantity of very foul pus escaped, and thereafter fourteen faceted stones were removed from a large smooth-walled sac. No communication with the urethra could be found, although it was obvious that one had at some time existed, and a No. 10 catheter was passed without meeting any resistance. The cavity was well scraped out and the wound sewn up, the catheter being tied in, in the hope that healing might take place. For some days the wound remained dry, but later a minute fistula formed, and this still (a year later) persists, the

patient preferring the very slight inconvenience to an operation of doubtful success.

The stones were fawn-coloured, hard, and faceted, and were found to be composed for the most part of oxalate of lime. Seven of the fourteen were about the size of a truncated filbert and the rest smaller. The diagram shows the position of the sac in which they were found.

I am indebted to Mr. Willoughby Furner for permission to report this case.

LONDON MISSIONARY SOCIETY'S HOSPITAL, JAMMAMALAMADUGU, SOUTH INDIA.

RUPTURE OF THE VAGINA IN LABOUR.

(Under the care of T. V. CAMPBELL, M.A., M.B., C.M.Edin., and E. W. LEWIS, M.B., Ch.B.Edin.)

Two examples of this condition occurred in this hospital within a fortnight of each other.

CASE I.

On March 29th, Ramakka, aged 25, was admitted after having been in labour two and a half days. The pains began on the 27th, but ceased again on March 28th, the day before admission.

State on Examination.—On vaginal examination the os was found to be fully dilated and the head well down, the presentation being normal. Under chloroform forceps were applied, and a dead child delivered. In the complete absence of pains the placenta had to be removed by hand.

Result.—After delivery the abdominal wall was found to be very tense, and there was a good deal of tympanitis. The patient died on March 31st, having had no action of the bowels apart from enemata, and having had stercoraceous vomiting, in the course of which two *Ascaris lumbricoides* were brought up. On *post-mortem* examination a rupture of the vagina was found lying transversely in the anterior fornix, immediately in front of, but not involving, the external os. In the intestines were found 61 ascarides.

CASE II.

On April 9th, Shantamma, aged 28, was admitted, having been in labour six days. All pains had ceased the day before admission. This was the patient's fourth labour, three still-born full-time children having been previously delivered.

State on Examination.—The presentation was found to be normal, with the head tightly jammed in the pelvis, and with a large caput succedaneum. The conjugate of the brim was found to be only 3 in. Long forceps were applied, and a dead child delivered.

Result.—The patient died next day, and on *post-mortem* examination the pelvis was seen to be very flat. There was some peritonitis and some bleeding into the peritoneal cavity round the upper part of the vagina, which was found to be due to a rupture of the posterior vaginal wall, immediately behind the os, the tear being transverse.

REMARKS.—In both these cases the vaginal tear lay in the mesial plane, and in such a situation that it could not have been produced by the forceps, which were in both cases applied with ease. Any pressure produced by traction on the forceps would have tended to relax the part of the vagina torn, and the tear lay at some distance from the route taken by the forceps during application and their site when placed. In all the books at our disposal this condition is passed over altogether, or only mentioned as a possible occurrence. It seems worth while, therefore, to report these cases.

DR. W. E. ROTH continues his reports on North Queensland Ethnography, which are published at Brisbane as Parliamentary papers. The last we have received, issued in November, 1905, is entitled *Notes on Government, Morals, and Crime*, and is interesting as a contribution to the study of what may be called tribal or social politics, but contains comparatively little that is of special interest to medical men. But in connexion with the absolute power of life and death over children which is enjoyed by the father and the *father's eldest brother*, Dr. Roth says that "the mother may lawfully kill her child within a few hours after birth, especially if the pregnancy or confinement has caused her more than ordinary pain and trouble; she usually puts her infant out of the way by pressing her foot upon its chest. Half-caste and deformed children are thus similarly got rid of." Here two points are worthy of notice—the occasional appearance of half-breeds, and the means whereby the race is kept free from supposed degeneration. It was at one time thought by some anthropologists that the white man and the Australian gin were not fertile together; but this notion is now acknowledged to be untenable. Miscegenation can also take place from the union of a Chinaman and a black gin.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH.

Lancaster, Wednesday, June 27th.

J. MASON, M.D., President, in the Chair.

Presidential Address.—Dr. HALL (Lancaster) delivered an address, illustrated by many lantern slides, on radiography.

Method of Estimating Carbon Dioxide in the Air.—Mr. W. FRENCH, D.Sc., M.A., demonstrated a rapid method of estimating the amount of carbon dioxide in the air.

Patients.—Dr. J. W. ANDERSON showed a man in whom spontaneous healing had taken place after rupture of the intestine. Mr. A. S. BARLING showed a man on whom he had drained a hydatid cyst of the liver that had ruptured into the duodenum. The wound was soundly healed.

Specimens.—The following were on the tables:—Dr. HALL: Malignant disease of heart. Dr. G. R. PARKER: Carcinoma of abdominal wall. Mr. C. W. DEAN: Cerebellar abscess. Dr. H. C. LAMPORT: Hydatid cysts from liver. Mr. A. S. BARLING: (1) Portion of colon removed by enterectomy for carcinoma; (2) mole excised from face; (3) safety-pin removed by gastrotomy. Messrs. Wooley exhibited a large collection of instruments and Messrs. Parke, Davis, and Co. the Typhoid Agglutometer. Numerous new books were shown.

REPORTS OF SOCIETIES.

OBSTETRICAL SOCIETY OF LONDON.

W. R. DAKIN, M.D., F.R.C.P., President, in the Chair.

Wednesday, July 4th, 1906.

PRIMARY CANCER OF THE OVARY.

MISS LOUISE MCILROY, M.D., in a paper (followed by a demonstration) on this subject drew the following conclusions from the clinical standpoint:

Primary cancer of the ovary occurs in women about the time of the menopause or after, but is found in young patients; in the latter cases menstruation is influenced, cessation of the periods occurring. Previous child-bearing has no influence. Pain is not a marked symptom, patients seeking operation on account of the swelling of the abdomen. Ascites is present in most cases. Metastasis depends upon the duration of the disease and the integrity of the tumour capsule. The probability of recurrence is great. Malignancy is rarely suspected previous to the operation.

Her conclusions from pathological investigations were that—

Both ovaries are frequently affected, one showing a more advanced stage of the disease than the other. In early stage the capsule is firm, later on becomes broken down, and tumour tissue proliferates through it. Germinal epithelium is absent as a rule. No Graafian follicles or corpora lutea found. Previous benign change in the ovary always present. The most common forms of cancer in the ovary are the glandular cystic form and the alveolar with connective tissue increase. The growth is found near the surface and in the folds in early specimens. The origin of the growth is from the follicle cells, and from cells which have been derived from the germ epithelium. The so-called ova of the German pathologists are masses of degenerated protoplasm; they are retrogressive products of the follicle cells. Karyokinesis is not well marked in these cancer-cell tumours. The cells found in cancer of the ovary resemble those found in benign growths, but differ in their distribution, irregular arrangement, and in the amount of proliferation.

Dr. EDEN said that on two points, at any rate, the author appeared to have made an important contribution to our knowledge. One point was that she had traced the invasion of the ovarian stroma by cells derived from malignant changes in the germ epithelium. The second was that she believed she had traced the transition stages by which the epithelial cells of a benign cyst became transformed into the malignant cells of an adenocarcinoma.

Dr. RUSSELL ANDREWS asked whether the author's researches had led her to agree with the teaching of some German writers, that many adenomatous or pseudo-mucinous ovarian cysts which appeared to be perfectly

innocent to the naked eye, proved to be malignant on microscopical examination. If this teaching were accepted it would become a duty to remove all adenomatous ovarian tumours whole, without diminishing their size by tapping, however large they might be.

Dr. May Thorne had had a case in which acute pain was the first thing which attracted attention.

Contracted Pelvis.

Dr. Nepean Longridge read a paper on 64 cases of contracted pelvis treated during 1905 at Queen Charlotte's Hospital. The system of admission was arranged so that it was possible to recognize and treat if necessary the cases of contracted pelvis at an early date. The results in these cases were satisfactory as regards the mothers, no death or serious complication being noted: 8 infants died, 3 of which were suffering from some abnormality incompatible with life. There was a group of 14 cases in which labour was unaided and spontaneous, the most remarkable case being a primipara who gave birth to a living child weighing 5 lb. 12¾ oz., through a true conjugate of 2¾ in. in ten hours. Nine of these cases were primiparae and 5 multiparae: 2 infants were born dead, 1 being macerated and 1 hydrocephalic. Labour was induced by bougies in 17 multiparae and 6 primiparae. The date of induction was determined by estimating the relative size of the head and the pelvis. Delivery was unaided in 17 cases; 5 were delivered by forceps and 1 by version. The mothers all made a good recovery, and 1 infant was born dead; a second died on the third day with an imperforate anus. The time which elapsed between the passage of the bougies and the birth of the child averaged 92.6 hours; 18 cases were delivered by forceps, 5 after induction; the mothers and infants did well, with the exception of 1 case in which the cord was prolapsed and the infant died; the occiput was posterior in 14 cases, and was rotated forwards by the hand in 6. Version was performed in 6 cases in which contraction was present; 2 infants died and the mothers did well. Caesarean section was performed in 9 cases. The mothers all did well and 1 infant died. In 1 case the operation was performed for the second time. The treatment of contracted pelvis appeared to be narrowing down to election between one of two methods, namely, induction and Caesarean section; experience at Queen Charlotte's tended to show that the former was a satisfactory procedure with a conjugate of 3½ in. and over, whereas Caesarean section was the best method to adopt in cases with conjugates of about 3 in. and under.

Adenoma of the Labium.

Dr. Williamson made a short communication on adenoma of the labium, showing a specimen. This was diagnosed as "an epithelioma and removed by Dr. Champneys in 1903. No recurrence had taken place. These growths probably arose in connexion with the sweat glands.

Dr. Herbert Spencer did not think that these growths were as rare as appeared in the paper. He had met with 2 cases himself. Their origin was by no means certain: Mr. Lawrence, the Curator of the Museum at University College, was of opinion that they probably arose in sebaceous glands on the ground that they had a distinctly lobulated structure, and the tubules had such a distinct racemose arrangement as to leave no doubt that they did not arise from tubular glands.

In reply, Dr. Williamson said he thought that the tumours referred to by Dr. Spencer were sebaceous adenomata, and belonged to a class different from those now under discussion.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Priestley Smith, F.R.C.S., President, in the Chair.

Friday, July 13th, 1906.

Congenital Distichiasis.

Mr. A. R. Bradley read a paper on this subject, and gave a clinical description of a case, together with the result obtained by making a microscopical examination of a small portion of the lid. The chief point of interest was the fact that the Meibomian glands were apparently completely absent and their place was taken by hair follicles. He then gave a description of 4 other cases seen in the clinic of Professor Fuchs in Vienna. These were the only cases seen there during a period of twenty years, and showed how rare this deformity was. He also described a case reported by Kuhnt. He drew attention to the distinction which should be recognized between trichiasis and distichiasis, and urged the advisability of limiting the latter term to the congenital cases. He gave a list of other cases which had been reported.

The Choroid at the Macular Region.

Dr. C. H. Usher (Aberdeen) read a note on the choroid at the macular region. He drew attention to the fact that in sections of the eyes of albinos examined by Mr. Nettleship, and shown at a meeting of the Society in November last, pigment was present in the choroid, but limited to the yellow spot region. He had since examined 11 normally pigmented eyes, and had found, (1) a deeper pigmentation of the retinal epithelium at the yellow spot region and an increased thickness of this layer, (2) a marked increase of the pigmentation of the choroid, and (3) an increase in the thickness of the choroid. From the above observations it might be expected that if pigment were present at all in an albino's eye, it would be found in the macular region.

Partial White Eyelashes.

Dr. Usher also read a paper on a case of unilateral white eyelashes and tufts of hair. The patient was a girl aged 3 years whose eyelashes on the left side were quite white, and she also had two tufts of white hair on the left side of her head. There was nothing else abnormal in the mother or child, and the pregnancy was normal in every way. The condition was first noticed about the third day after birth. All the eyelashes on the right side were light brown in colour, so also was the greater part of the hair of the head. The family history was carefully investigated, and, although there were some albinos in the family, yet no other member seems to have had this peculiar condition.

Edinburgh Obstetrical Society.—A conjoint meeting of the Edinburgh Obstetrical Society and the Glasgow Obstetrical and Gynaecological Society, under the presidency of Dr. J. W. Ballantyne, was held in the Caledonian Station Hotel, Edinburgh, on Wednesday, July 11th. A discussion on *Irregular Manifestations of Puerperal Sepsis* was opened by Professor Stephenson (Aberdeen), who considered that a knowledge of the site and character of the local affection was of greater prognostic value than could be given by any information as to the particular organism which produced the lesion. He dismissed from consideration the graver forms of septic infection grouped under the terms septicaemia, sapraemia, and pyaemia. Other affections of the puerperium—less grave, shorter in duration, and rarely fatal—were now known to be of septic origin, and it was a discussion on those that was invited. In regard to any "standard of morbidity," the temperature of the patient was of itself relatively unimportant, and the ratio between temperature and pulse was the cardinal fact. An intermittent temperature, even though it might rise to a great height, was less serious than one which, though only slightly above normal, persisted. Professor Murdoch Cameron (Glasgow) considered that the worst type of sepsis was that in which nothing definite could be found in the pelvis, yet the patient was of an earthy colour, suffered from nausea and diarrhoea. Such a condition usually terminated fatally in the second week of the puerperium.—Dr. Barbour described two cases in which a puerperal rash had developed, and suggested that such rashes might be due to absorption by the system of some toxin produced by the uterus during its muscular activity in labour.—Dr. Easterbrook stated that he divided cases of puerperal insanity into two classes. In one the attack, as a rule, appeared during the first week of the puerperium. In such cases there was present almost invariably a high temperature, a rapid pulse, and general manifestations of sepsis. In the second class the attack came on later in the puerperium. The temperature was subnormal. Insanity in this class he considered might be due to the exhaustion of an unstable nervous system by pregnancy.—Dr. Kerr believed that the rashes occurring in

septic puerperal cases might be caused by enemata stirring up faecal matter. Removal of the protecting layer of mucus from the bowel might aid absorption and thus tend to produce such rashes.—Professor DICKENSON, of New York, described the history of a case where the patient had three severe haemorrhages; the first occurred ten days after labour, the second ten days later, and the third during the fourth week after labour. The uterus was removed by vaginal hysterectomy, and on examining it a small septic focus was found to be present in the uterine wall. This had caused an opening to form in a large vessel, and given rise to the bleeding.—Dr. OLIPHANT described a case in which he had obtained a pure culture of the pneumococcus from the interior of the uterus. The patient a few days after labour had developed a temperature of 105°.—Professor JARDINE stated that in his experience sudden involution of the uterus had a great effect in producing a high temperature. Certain bodies were thus thrown into the blood stream and produced this result.—The Fellows of the two Societies subsequently dined together in the Caledonian Station Hotel.

BRITISH GYNAECOLOGICAL SOCIETY.—At a meeting on July 12th, Mr. F. B. JESSETT, the President, in the chair, Dr. CHARLES MAUNSELL showed: (1) Uterus and adnexa removed by *Wertheim's operation* for malignant disease of the cervix. The glands were removed up to the kidneys, and although enlarged, yet no evidence of malignant disease was found. The ureters were easily found by tilting forward the ovaries when they readily showed through the peritoneum. The patient had urinary leakage on the tenth day, which healed up in a few weeks after the bladder was washed out regularly. (2) Specimen of *carcinoma of the right ovary* from a single patient, aged 25, who complained of a swelling in the abdomen. On opening the abdomen some ascites was present, and there were adhesions between the tumour and surrounding structures, also between the liver and anterior wall of the abdomen. The left ovary contained a small cyst which was not malignant. The patient had increased in weight, and so far there is no evidence of metastasis or recurrence. (3) *Myoma of the cervix* from a patient, aged 47, who had metrorrhagia for two years. The tumour bled profusely when touched, so that vaginal plugging was necessary. On drawing the tumour down it was found to be attached by a narrow pedicle which was snipped through with scissors. The patient recovered satisfactorily. (4) A *tubo-ovarian abscess* of one side and salpingitis of the other tube removed from a multipara, aged 24, fifteen months previously. The patient continued well for some months, and then complained of severe pain and vaginal discharge. The uterus was removed, and found to be suppurating profusely. The patient made a good recovery. (5) Two large tubo-ovarian abscesses of gonorrhoeal origin removed from a patient aged 23 who had no children and had been married about a year. She complained of vaginal discharge and pelvic pain. Before operation she had two attacks of sudden severe pain, and when seen was collapsed. On opening the abdomen pus welled up from the peritoneum, and both tubal abscesses were ruptured. Two incisions were made, one above and the other below the umbilicus, the abdominal cavity was washed out and drained with gauze. She made an uninterrupted recovery. (6) Two tubo-ovarian abscesses which ruptured before operation. The treatment was the same as in the former case, but the patient died a few days afterwards.—Dr. MACNAUGHTON-JONES showed a specimen of *hydatidiform mole* removed from a patient aged 20, who had been married eighteen months, and had a stillborn child at term. She considered herself to be pregnant four months, but had a haemorrhagic discharge for some time. The uterus was emptied, and the specimen shows degenerated decidual tissue and chorionic villi, showing hyperplasia of Langhans's layer with syncytial buds. As a precautionary measure, the uterus was curetted two months afterwards.—Dr. JAMES OLIVER read a paper on the same subject. The pathogenesis dated from the embryonic period between the third and sixth weeks. The interaction of allantois and chorion was at first harmonious. This harmony might be disturbed by the vigorous local growth associated with the formation of the placenta, and thus induce a perversion of the function of the allantois and influence prejudicially the vessels and more or less obliterate them—a mole resulting. The functionally-deranged placental and even non-placental villi might excite such reaction in the uterine wall that a more or less intimate union was established between embryonic and maternal tissue; the morbid process connected with this union might be injurious not only during gestation, but also after abortion. The formation of a hydatidiform mole might occur at any time during reproductive life.

DERMATOLOGICAL SOCIETY OF LONDON.—At a meeting on June 13th, Mr. MALCOLM MORRIS in the chair, Dr. H. G. ADAMSON showed: (1) A case of *Hydroa aestivale* in a girl aged 12½. The eruption had appeared during recent sunny weather, and occupied the face, forearms, and hands, with a sparser distribution on the legs. The patient had been entirely free of eruption during the winter, but had had similar eruptions in hot weather before, and these previous attacks had left numerous faint white glistening scars. (2) A case of a linear *naevus* running down from the head of the elbow to the head of the radius on the left side. The patient was a boy of 11, and the naevus had been noticed for the first time at the age of nine years.—Dr. J. M. H. MACLEOD showed a case for diagnosis, a little girl aged 9, with a small patch of leucodermia on the right cheek. The eyelashes of the affected side were white, the hair being normally brown. The affection had begun at the age of four years, and the disease was spreading in extent.—Dr. GRAHAM LITTLE showed a boy, aged 12, with a *Grouped vesicular eruption* upon his feet (on the dorsal surface), in his right groin, and on his left forearm. He had had eruptions of this kind for the past three years, almost always upon the feet, and in summer. There was very little itching. The blood had been examined for excess of eosinophiles, but these had been found in the proportion of only 1.5 per cent. The marked herpetiform grouping suggested to the exhibitor a diagnosis of dermatitis herpetiformis, an opinion which was confirmed by the majority of those who saw the case.—Dr. J. J. PRINGLE showed a case, under Dr. Essex Wynter's care, of a large *hairy mole* on the hand, with hypertrophy of the underlying bones.—Dr. H. RADCLIFFE CROCKER and Mr. G. PERNET showed a case of a hypertrophic scar (left by a burn) which had improved during two years of treatment with thiosinamine injections.—Dr. J. H. SEQUEIRA showed: (1) A case of *Xerodermia pigmentosa* in a man aged 26 years. It had commenced with freckles in early childhood. The patient had now a large epitheliomatous tumour, the size of a Tangerine orange, in front of the left ear, and numerous pigmented warts on the face, with some small tumours varying in size from a pin's head to a small marble. There were also several depressed scars in positions where there had been pigmented warts before. The hands were much freckled, and there were many pigmented warts here also. The age of the patient was to be noted, it being a rare circumstance for subjects of this disease to survive for so long. (2) A man, aged 42, an Austrian by birth, the subject of *anaesthetic leprosy*. The man had travelled in many tropical countries, and had come into frequent contact with lepers. He had had syphilis twenty years ago. The first symptoms of leprosy had appeared eighteen months ago in the form of circular red patches on the forearm, then on the leg and toes. The musculo-spiral, ulnar and median, and the external popliteal nerves were thickened. The patient's opsonic index to tubercle had been tested and found to be 0.8. It was accordingly proposed to treat him with small injections of tuberculin.—Dr. ARTHUR WHITFIELD showed: (1) A case of a very superficial *rodent ulcer* on the cheek of a woman in whom this had been noted for three years. The diagnosis had been confirmed by the histological examination of a portion of the skin affected, and the very unusual superficiality of the growth was discernible on microscopic investigation, sections being shown to the meeting. (2) A case of persistent raised *erythematous patches* on the nose and the cheeks of a child aged 5 years. The blood coagulation was slow, and calcium lactate had consequently been administered, with complete success. (3) A microscopic specimen showing *leprosy bacilli* in a blood film from a case of very early leprosy, in which the diagnosis had been made by scratching the surface of a doubtfully-pigmented patch and staining the blood so derived. By this simple means typical bacilli had been demonstrated.

The patient had come from Columbia, but had been resident two years in England. The first symptoms had appeared as burning sensations in the forearms and fingers six months ago.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—At a meeting on June 28th, Dr. ALFRED EDDOWES, Vice-President, in the chair, Mr. G. W. DAWSON showed (1) a man with a peculiar thickening of the terminal phalanx of the left thumb, said to have started as an eczema: (2) a woman, aged 46, with lupus erythematosus of the face and fingers; (3) a man with acne varioliformis of the scalp.—Dr. EDDOWES showed a woman with an acute spreading lupus erythematosus of the face.—Mr. T. J. P. HARTIGAN showed (1) a girl with a peculiar eruption around the nose of fourteen years' duration; (2) a man with a vesicular eruption affecting the limbs, having some resemblance to a varioloid syphilide; (3) a young man with Darier's disease, and also coloured drawings of the disease taken from this patient and from a girl previously exhibited before the Society: (4) an infant with urticaria pigmentosa; (5) a young woman with a curious acneiform eruption upon the face and trunk; from the papules small sebaceous plugs had been observed to extrude: the condition was most probably one of keratosis follicularis contagiosa (Brooke).—Dr. GRAHAM LITTLE showed (1) a young woman with koilonychia or "spoon-nail"; (2) a little girl with a tuberculide upon the lower limbs upon which were seen numerous pitted scars, the results of older lesions.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—The provincial meeting of the Society was held at the Radcliffe Infirmary, Oxford, on June 23rd. Dr. OSLER was in the chair during the exhibition of clinical cases and pathological specimens, and Dr. W. COLLIER (Oxford) while papers were read. Among the exhibits and papers were:—Mr. A. P. PARKER: A boy with *External dislocation of the patellae* outwards.—Mr. H. P. SYMONDS: A girl with a solid tumour of the pelvis, probably enchondroma.—Dr. W. J. TURRELL: A case of well-marked *Achondroplasia* in a girl.—Dr. E. MALLAM: Three cases of *Calf ringworm*: microscopic specimens and cultures from these cases being shown by Miss FITZGERALD.—Mr. PERNET: Cultures of ringworm from the scalp and nails.—Mr. P. H. ADAMS: A case of *Lamellar cataract* in a patient who also suffered from *Ichthyosis simplex*.—Mr. FINCH: A case of well-marked *Cretinism* in a child.—Mr. R. H. A. WHITELOCKE: A girl with double *Hernia of the ovary*: her sister had suffered from the same trouble, and had had one ovary removed by operation.—Mr. C. P. PARKER: A specimen of *Congenital malformation of the intestines* in a full-time fetus; the stomach was normal, but the duodenum was enormously distended, and at the duodeno-jejunal flexure there was complete occlusion of the tube of the gut; the rest of the intestine was lying in a corkscrew manner with a small mesentery.—Dr. GEORGE CARPENTER: Notes of a case of *Acute osteomyelitis* of the spine in a girl aged 15 months. On admission to hospital it was found anaemic and somewhat wasted. In the left loin there was a large, smooth, rounded, and fluctuating swelling, dull on percussion and very tender. The child died six days after admission. On *post-mortem* examination the left pleura was found to contain about two pints of purulent fluid. In front and to the left of the first, second, and third lumbar vertebrae there was a quantity of pus, and the cavity communicated with the left pleura. Microscopical examination of the pus showed streptococci and diplococci. No evidence of tubercle was found.—Dr. E. C. WILLIAMS: Notes of a case of congenital heart murmur in an infant aged five months during an attack of whooping-cough.—Mr. H. P. CROLY: Notes of a case of *Intussusception* in an infant aged nine months successfully operated upon by Mr. Whitelocke at the Radcliffe Infirmary eight hours after the first symptom was noted.—Dr. BERTRAM ROGERS: Notes of a case of *Acute atrophy of the liver* in a boy aged 4. The child's only previous illness was measles. When first seen he was distinctly yellow, and was very sick, and complained of abdominal pain. He became delirious, and in lucid intervals complained of headache; the jaundice was now well marked. He died two days after admission. After death the liver was found to be about the usual size, no obstruction to the flow of bile being present.—Dr. A. G. GIBSON read a paper containing some observations on enlarged veins in children.

REVIEWS.

DIABETES MELLITUS.

A SMALL volume on *Diabetes Mellitus*,[1] translated by Dr. BOARDMAN REED from the German work by Professor VON NOORDEN, gives in the clearest manner his views on the metabolism of diabetes. From the introductory note, although it is nowhere else stated, we infer that this material was used for the lectures delivered by the author in Philadelphia last year. These may be compared with those of Dr. Pavy which we lately had occasion to notice, and with which they do not entirely agree. For example, von Noorden does not admit that the kidneys are normally permeable to the sugar which is circulating free in the blood—a point upon which Dr. Pavy insists, and adduces evidence which supports his view. Professor von Noorden says that in his opinion one must either explain every case of diabetes as having a neuro-hepatogenous origin or else none of them. We do not think that in the present state of knowledge of diabetes this is a fair condition to insist upon, for while such cases may be rare, three cases of diabetes due to tumours in the fourth ventricle were published by Frerichs, who also reported a case due to tumour situated on the root of the right vagus nerve, while other cases have been recorded by good observers; much as we might like to see the pathology of diabetes simplified, these cases cannot be disposed of in this summary fashion. On similar grounds he throws doubt upon the occurrence of traumatic diabetes, and states that there are hardly half a dozen cases in which the relationship of the diabetes to the accident has been made out with scientific exactitude; he suggests the possibility or even probability that the alleged cases had previously suffered from diabetes, although they were unaware of the fact. It is quite impossible to disprove this suggestion in the case of healthy persons who have not been under medical observation before the accident, but it does not raise our opinion of the author's judgement that he should seriously advance such an argument.

He believes that all carbohydrate food is converted into sugar, which passes to the liver, where it is stored up as glycogen, and thence given out slowly and gradually in the form of glucose for the nourishment and work of the body tissues, but as more passes off than can be so used up, the surplus is in part accumulated in the muscles and glands in the form of glycogen for further use, while part is transformed into fat. The glycosuria which so commonly occurs after beer drinking is explained by suggesting that the splitting of the maltose is not completed, the necessary ferment being present in an insufficient amount in the blood, but he has omitted to show that the sugar which appears in the urine after drinking beer is maltose.

The part played by the pancreas is held to be in aid of the glycogen-storing function of the liver; when this action is depressed from alcoholism, the temporary effect of other poisons, or more permanently in diabetes, sugar escapes into the blood and passes away by the kidneys. The muscles do not make use of sugar as such, but only after it is reconverted into glycogen; as this power to fix glycogen is reduced or abolished in diabetes, the muscles cannot utilize the sugar circulating in the blood, and it is useless to recommend diabetic patients to take muscular exercise in order to increase the consumption of sugar in the body. In diabetes there is diminished power of the liver to store sugar as glycogen, and a diminished power of the muscles to fix sugar as glycogen for consumption. The pancreas may supply a ferment which favours this fixation of glycogen, or an antiferment which prevents its too rapid destruction; in either case the result would be the same, but further investigation must determine which process really occurs. An obese person possesses a great capacity for converting carbohydrates into fat; but this power masks a tendency to diabetes, so that when it becomes impaired glycosuria results. Obese

[1] *Diabetes Mellitus: Its Pathological Chemistry and Treatment.* By Professor Dr. Carl von Noorden. Authorized translation under the direction of Boardman Reed, M.D. Bristol: John Wright and Co. 1906. (Cr. 8vo, pp. 211. 5s.)

persons are theoretically already diabetic, many of them showing marked alimentary glycosuria after the ingestion of 100 grams of glucose.

There is a true over-production of sugar in diabetes caused by the physiological stimulus of the tissues which fail to receive the nutriment they crave, and therefore constantly excite these organs whose business it is to supply sugar. Sugar may be formed from fat and proteid, and it is a remarkable circumstance that casein, which contains no pre-formed carbohydrate, is the proteid from which sugar is most readily formed in the diabetic organism; this is due to the amino-acids contained in casein, which are a ready source of sugar, and it should therefore be absolutely forbidden in severe cases of diabetes. The acetone bodies are derived from the lower fatty acids, and butter is the only ordinary article of food which contains a considerable amount of them, but as they and their salts are readily soluble in water, these dangerous substances can be completely removed by washing the butter. One of the chief causes of acetonuria is the withdrawal of carbohydrates from the diet; when these are restored acetone disappears so long as the patient retains to some extent the power of utilizing carbohydrates; if this is lost the restoration of carbohydrates makes no difference to the excretion of acetone. The facts do not quite bear out the opinion that the poisonous effects of these bodies is due solely to their acid reaction or "acidosis," as it is called. Quite a number of cases have occurred in which for months so much alkali was given that the urine gave permanently an alkaline reaction, in which, therefore, no acidity of the blood or tissues could have developed; yet, in spite of this, coma ultimately appeared. Other poisons besides those of the acetone series probably play some part in the production of coma.

We must not omit reference to the "oat cure" which is associated with the name of Professor von Noorden; as now prescribed by him, it consists in the daily administration of from 200 to 250 grams (½ lb.) of oatmeal, best given in the form of gruel every two hours: 200 to 300 grams of butter, and about 100 grams of vegetable proteid or eggs; nothing else is allowed but black coffee, lemon juice, a little old wine or a little brandy or whisky. What strikes us about this diet is the large amount of butter which the patient is expected to consume without anything to serve as a vehicle for it, such as bread. We have previously directed attention to this peculiarity of German dietaries, as these quantities of fat are more than English people can swallow, or at least willingly accept. At the commencement of the oat cure there may be an increase of the glycosuria, but after a few days the excretion of sugar and acetone diminishes. A case in which on ordinary strict diet the sugar did not fall below 800 gr., on the oatmeal treatment became free from sugar, and remained so on the subsequent return to restricted diet. A feature of von Noorden's plan of diet is the intercalation of "vegetable days," on which there is abstinence from all meat, and of other days on which no carbohydrates are permitted.

The translation is very well done, and we have noticed few slips of any kind. We commend the book to all who are interested in diabetes, as it contains an admirable statement of the author's views.

PATHOLOGY.

DR. HEWLETT'S object in writing his book on *Pathology, General and Special*,[2] is to convey to the medical student the information which it is essential he should possess, but to avoid the encumbrance of details not likely to be useful to him when he becomes a practitioner. We do not think there is any serious danger of medical students becoming overburdened with too much knowledge of pathology; they possess the healthy instinct of self-preservation—a sort of natural immunity, which enables them to resist this peril without any assistance from teachers; it is generally the main anxiety of the latter to overcome the tendency of their pupils to be contented with too little. The most attractive feature about Dr. Hewlett's book is the consistent manner in which he has endeavoured to bring his information up to date. In a work which sets out with the unambitious project of providing the average student with the necessary minimum, one rarely finds so many interesting, concise, and very lucid accounts of recent investigations which are throwing new light on pathological problems. An excellent sketch is given of the more important hypotheses which have been put forward in explanation of the etiology of neoplasms: conflicting opinions on this subject are discussed in an impartial manner, and the recent investigations of the cytologists on the mitotic phenomena of cancer are explained in simple language which will be intelligible to the average student. The chapter on immunity is also successful as an elementary outline of a highly technical subject; it contains an explanation of the object of the work on "opsonins," which is arousing a good deal of interest at the present day. Chittenden's work on metabolism is mentioned; there is a discussion of the purin bases in their relation to gout; and the section which embodies Mayo Robson's work on pancreatitis is particularly interesting and valuable. Our general impression of the book, therefore, is favourable, and we think that the student who reads it is likely to retain an interest in pathology after he becomes a practitioner, and that the practitioner whose student days are some years behind him might find it a useful guide to the newer knowledge.

M. FÉLIX LE DANTEC'S introduction to general pathology,[3] is quite different from the usual textbooks which appear under this or similar titles. It is not a medical treatise on pathology in the ordinary sense of the term; it is a sort of philosophical consideration of the general laws and logic which ought, in the author's opinion, to dominate scientific theories about the mechanism of life, heredity, and disease. "This work," he says, "has no other object than to deal with a question of method; it has no pretension to erudition." The latter statement we ought to qualify. M. le Dantec is conversant with a wide range of subjects, and he employs his knowledge with remarkable versatility and originality. In the present book his powers are devoted mainly to the elaboration of one idea—the conception of equilibrium. With this object in view, he endeavours to transform into more general and, as he thinks, more accurate terms the language which is current amongst eminent pathologists. He finds that Metchnikoff's theory of immunity, for example, is expressed in language which is "individualistic" and involves the employment of terms only applicable to living matter. His objection is that "in the phenomena of disease and immunity we have not merely to take account of living elements; we have reactions between living beings and dead colloids which we call serums, plasmas, etc.; there are often, again, reactions between plasmas and plasmas, and in these last the language of physico-chemical equilibrium is the only one which is admissible. . . . It is desirable, therefore, from the philosophical point of view, to describe everything in one and the same terminology, which must of necessity be in terms of equilibrium." Ehrlich's theory, again, to take another instance of our author's "method," is said to possess "the great philosophical defect of ascribing to relative properties a character of absolute entity." We are asked to realize "how much more simple would the description become if expressed in terms of equilibrium, which, in place of the rigidity of chemical formulae, substitute the impressionability of physical states." And so forth. It is all about "equilibrium." We have no particular quarrel to pick with these ambitious attempts at originality in speculation. Restrained within a limited compass, say in the guise of a scientific article in one of the "heavy" monthlies, we might find in them quite a satisfactory source of post-prandial enjoyment; but when they swell to the size of a volume of over 500 pages, the odour of pedantry becomes oppressive.

In a short monograph on antitoxic processes,[4] Dr. C. LEVADITI discusses the chemical theory of Ehrlich and his school, and compares it with the rival physico-chemical standpoint of Arrhenius and Madsen, who regard the action of antitoxins as analogous to the processes observed in the formation of salts from the interaction of weak bases and weak acids. According to the latter view toxin

[2] *Pathology, General and Special.* By R. Tanner Hewlett, M.D., M.R.C.P., D.P.H. London: J. and A. Churchill. 1906. (Demy 8vo, pp. 540. 10s. 6d.

[3] *Introduction à la Pathologie Générale.* Par Félix le Dantec. Paris: Félix Alcan. 1906. (Roy. 8vo, pp. 504. Fr. 15.)

[4] *Antitoxische Prozesse.* Von Dr. C. Levaditi. Jena: Gustav Fischer. 1905. (Royal 8vo, pp. 96. 23 illustrations. M.2.80.)

and antitoxin interact upon each other like relatively simple substances, with the result that a molecule of toxin and a molecule of antitoxin yield two molecules of a neutral toxin-antitoxin combination, and this combination is reversible. Dr. Levaditi does not accept the theory of reversible action as applicable to antitoxins, and maintains that no explanation can be regarded as adequate which does not recognize the high degree of chemical complexity in the constitution of bacterial secretions. He does not regard the views either of Ehrlich or of Arrhenius as providing a complete solution of the difficulty, but thinks that new light is gradually being thrown upon the subject by recent physico-chemical investigations into the nature of colloids. The matter has not yet advanced beyond the regions of hypothesis and debate, but some help may be found in the suggestion of Nernst and Zangger that antitoxic action consists of two phases, the first of a colloidal nature, the second following the analogy of salt formation and leading to the formation of stable products. Dr. Levaditi's study is well worth reading by those who are interested in theories of antitoxic action.

VENEREAL DISEASES.

MR. LEEDHAM-GREEN'S book on *The Treatment of Gonorrhœa in the Male*[5] has been written for the purpose of giving an account of modern views on the pathology and treatment of gonorrhœa, and also to assist students and practitioners to whom foreign literature and the scattered English papers on the subject are difficult of access. The book is divided into three parts. In the first, after a chapter on the anatomy of the urethra and bladder, urethritis—acute and chronic, anterior and posterior—is duly considered, and there is also a chapter on the bacteriological diagnosis of gonorrhœa. Part II deals with certain complications of the disease. Stricture of the urethra is omitted as being too extensive a subject for the space available, and gonorrhœal ophthalmia because it belongs more correctly to ophthalmology. Part III is concerned with the proofs of the cure of gonorrhœa and its bearing on marriage. Although those who are familiar with the more recent work of Neisser and Scholtz, Finger, and other Continental writers, may not find much that is new to them, by others Mr. Leedham-Green's book ought to be highly appreciated, for it gives an excellent picture of the present state of knowledge respecting one of the most troublesome of diseases.

Maladies Vénériennes,[6] *by* Dr. F. BALZER, forms the seventh fasciculus of a *Nouveau Traité de Médecine et de Thérapeutique*, edited by Professors P. Brouardel and A. Gilbert. Gonorrhœa is first considered, and the symptoms, complications, diagnosis, prognosis, and treatment are judiciously dealt with in considerable detail. In the acute stage of cases attended by severe pain, Dr. Balzer thinks it best to abstain from local treatment, and he does not favour the early administration of balsamics, which he finds act best during the period of decline. Several pages are devoted to the various forms of balanitis, and special attention is given to one form called *balano-posthite érosive circinée*, which is said to be always of venereal origin, and characterized by profuse suppuration and the presence of spirilla in the discharge. In the section on the soft or simple chancre, the varying prevalence of this form of sore is referred to. Sometimes it seems almost to disappear, whilst at other times it is quite common. In Paris it has been found that the number of cases increases with any temporary increase of population, as, for instance, at the time of great fêtes or exhibitions, and Mauriac noted an enormous increase at the time of the Franco-German war in 1870-71, and the years immediately following it. Syphilis occupies more than half the book, and Dr. Balzer considers that the *Spirochæta pallida*, or, as he prefers to call it, the *Spironema pallidum*, is probably the pathogenic agent of the disease. The several phases of syphilis, both acquired and inherited, are well described. As regards treatment, Dr. Balzer seems to be a disciple of Fournier. He recommends mercury almost continuously during the first six or eight months of the disease, and afterwards mercury intermittently and combined with iodides in courses extending over a period of several years. Of course, in a work such as this there are points on which there is room for difference of opinion, and to which exception might be taken, but on the whole the book is a good one. It is clearly written in a practical manner, and we are pleased to be able to commend it to French-reading practitioners and students. As is the case with so many other French books, however, its value is lessened by the absence of an index.

[5] *The Treatment of Gonorrhœa in the Male.* By Charles Leedham-Green, M.B., F.R.C.S. London: Bailliere, Tindall and Cox. 1906. (Demy 8vo, pp. 165, 36 illustrations. 5s.)

[6] *Maladies Vénériennes.* Par F. Balzer, Médecin de l'Hôpital Saint Louis. Paris: J. Bailliere et Fils. 1906. (Demy 8vo, pp. 318; 20 illustrations. Fr. 6.)

A HISTORY OF THE NEWCASTLE INFIRMARY.

IN preparing his *History of the Newcastle Infirmary*,[7] an institution which has, for the present, culminated in the magnificent hospital just opened by the King, Dr. HUME has produced a book of much more than local interest. He traces the career and fortunes of the infirmary from its modest beginning in 1753, when a delightfully quaint advertisement in a Newcastle paper announced:

> INFIRMARY at NEWCASTLE,
>
> 'TIS with the greatest Pleasure that the COMMITTEE can now acquaint the Publick that the NEW BUILDING on the Forth-banks is ready, and will be opened for the Reception of PATIENTS on Monday next, the eighth of October, at Ten o'Clock in the Forenoon.
>
> At the same Time will be held there, a General Quarterly Court of the GOVERNORS of this Charity, to take the Reports of the several Committees, inspect the Accompts, appoint a new House Committee for the ensuing Quarter, and transact such other Business as shall be laid before them.
>
> By Order of the Committee. R. BURDUS, Secretary.

Down to the inauguration of the splendid building on the Leazes which now takes the place of the old house of many memories on the Forth Banks, from end to end the story is full of interest—all the stronger, perhaps, for the unpretentious way in which it is told.

The earlier part of the account must have cost much time and patience to recover, but, besides its own special value, it throws the later achievements into fine relief. The whole is a story of long, undaunted, and finally triumphant wrestling with huge difficulties in a great and gracious service of humanity; the very weaknesses and failures, the times of set-back and discouragement through which the undertaking has passed do but bring home in the end a clearer appreciation of the efforts of unselfish devotion and ability by which they have been surmounted. Three great problems the governors and medical staff have had always with them: how to cope with needs which have steadily grown faster than the infirmary resources; how to make finances serve; how best to administer the internal working: and we follow the developments which bit by bit have added to the original buildings, widened the ranks of supporters, subdued causes of friction in working, and improved the treatment of the patients. In this last respect a particularly striking episode is the long fight with the dreaded scourge, now half forgotten, of "hospital disease," moderated through suggestions of Miss Nightingale, but never completely vanquished till Lister's antiseptic precautions were discovered and put in practice. As an illustration of the difficulties and progress of hospital work which applied all over England during the period it covers, this record should have lasting historical value.

The infirmary, judged by Dr. Hume's story of its history, has been a work of love and citizenship worthy of both: and it is with feelings of pride and pleasure that we arrive at a final account of the latest princely gifts which have brought the almost unhoped-for within reach, and made an accomplished fact of the Royal Victoria Infirmary.

The book, of which a beautifully bound copy was by permission presented to the King by Dr. Hume at the opening ceremony, is well illustrated with reproduced portraits, and views and plans both of infirmary buildings and the city. It is itself another offering at the shrine, for the proceeds of its sale are to be given to the Infirmary. We can heartily recommend Dr. Hume's book, and congratulate him upon the success of his undertaking.

[7] *The History of the Newcastle Infirmary.* By George Haliburton Hume, D.C.L., M.D., F.R.C.S.Edin. Newcastle-upon-Tyne: Andrew Reid and Co. 1906. (8vo, pp. 148. 10s. 6d.)

NOTES ON BOOKS.

IN DR. MANSEL SYMPSON'S *Lincoln*,[1] the history of the ancient cathedral city is set forth from early times. Whilst naturally much space is devoted to the history of the cathedral round which so much of the mediaeval life centred, a full account is also given of other institutions and of customs that have ceased to be. It is evident that the author has a deep love for his city, and a keen appreciation of its beauties. His book will take a worthy place in a series under the general supervision of an archaeologist so capable as Mr. Windle. Of the illustrations, it is enough to say that they come from the hand of Mr. Herbert New to indicate that they are possessed of high artistic merit. Some are very good indeed, but the markedly original touch which invariably distinguishes his work does not quite lend itself to the representation of architectural detail, nor, we think, is it as well suited for comparatively large full page illustrations as for smaller cuts. Hence some of the illustrations of the cathedral are lacking in richness of effect, whilst the smaller figures are all that can be desired.

The object of Dr. MAGIAN in writing his pamphlet *How to be Healthy*[2] is to bring home to persons engaged in business the importance of exercise in preserving health. To obtain the full benefit of any kind of exercise—be it walking, cycling, or lawn tennis, or any other form—the exercise should be taken in the proper manner and in amount proportionate to the strength of the individual. A few common-sense directions as to the proper way to indulge in some of the more common and popular forms of exercise, such as are to be found in this pamphlet, should be useful, and, as it is published at the price of one penny, there is no reason why any one should remain ignorant.

DR. DE SEIGNEUX'S little "book of the midwife and nurse"[3] consists of three parts: (1) An *aide mémoire* composed of 49 pages giving an outline of the physiology of pregnancy and labour; (2) instructions to midwives. This is in a way officially authorized, for it is based upon the instructions supplied to the midwives of the Canton of Vaud. Dr. de Seigneux is very careful that the midwives who adopt his teaching shall not do harm by over-haste. Therefore the midwife is told to wait for five minutes after the birth of the child before she ties the cord. She is to wait an hour before trying to express the placenta. When taking the temperature she is to leave the thermometer in the axilla for at least ten minutes. We notice that the antiseptic preferred by the author is a 2 per cent. solution of lysoform, a soupspoonful in a litre of water. Carbolic acid and sublimate are, he thinks, too poisonous, and apt sometimes to irritate the skin; and the odour of lysol is to him disagreeable. To prevent ophthalmia the nurse is told to wash the eyes with a 4 per cent. solution of boric acid. We doubt if a midwife will hold the lids open and drop the antiseptic in, unless she is distinctly told to do so; and even if she does, boric acid is a very weak germicide. The third part is some words on cancer, the object of which is to impress upon midwives and nurses that they ought to use their influence, as confidential friends of their patients, to induce them to consult medical men whenever they get any irregular haemorrhage, to go without delay to a doctor, so that if there is cancer the opportunity for effective treatment may be seized. The size of the book is increased by a number of forms for entering obstetric engagements and notes of cases.

[1] *Lincoln: An Historical and Topographical Account of the City.* By E. Mansel Sympson, M.A., M.D. Illustrated by E. H. New. Ancient City Series. Edited by B. C. A. Windle, F.R.S. London: Methuen. 1906. (Cr 8vo, pp. 448; 56 illustrations. 4s. 6d.)

[2] *How to be Healthy.* A Word to Business People. By A. C. Magian, M.D. Manchester: Merrin and Hayward. (1d.)

[3] *Le Livre de la Sage-Femme et de la Garde, suivi de quelques mots sur le traitement du cancer de l'utérus* [The Book of the Midwife and Nurse, followed by some words on the treatment of cancer of the uterus]. Par Dr. R. de Seigneux. Privat Docent à l'Université de Genève. Avec un Agenda Obstétricale et 50 feuilles d'observation. Genève: Henri Lündig. 1905. (Demy 8vo, pp. 82.)

THE UNIVERSITY OF CALIFORNIA.—The *New York Medical Journal* states that it has been decided to transfer from San Francisco to Berkeley all instruction in the first two years of the medical curriculum established by the University of California. In future, students desiring admission to the Medical Department will be expected to have completed a two years' course in physics, chemistry, zoology, and the German and French languages. Medical students at Berkeley, therefore, will start work at anatomy, physiology, and pathology as soon as they join. The last two years of the curriculum will be passed at San Francisco as heretofore.

THE PROPOSED APPLICATION FOR A ROYAL CHARTER.

By T. ARTHUR HELME, M.D., M.R.C.P., F.R.S.Ed.,
MANCHESTER.

UPON the Representative Meeting this year will devolve the duty of considering and deciding what is a matter of supreme moment for the welfare of the Association, namely, the suggested Charter and the suggested modifications of the constitution of the Association.

It is but a very short time (three years) since the constitution was reorganized; it would have been optimistic to a degree to hope that the form then adopted would prove to be perfect, and the passage of time has already served to reveal directions in which improvement is possible and desirable, but not yet have we fully grasped what changes are desirable; the constitution is still, as it were, on probation; as time goes on its imperfections and suitable methods of dealing with them will become more manifest. The question at once arises, Is this the time to adopt another form of incorporation and to introduce modifications of our present constitution, or would it be wise to postpone such action until our experience has ripened and we are in a position to draft a constitution likely to be in form and substance permanent? Before the reconstitution of 1903 the Council of the Association, it is true, recommended the application for incorporation by Royal Charter, having in view the amendment of the government and administration of the Association, but, as the result of careful inquiries, it was eventually decided that the suggestion of the Council was not the best, and that it would be more advantageous to modify the existing form of the Association as incorporated under the Companies Law. That the present form of government is still imperfect and requires still further modification is acknowledged, and the original arguments which led to the decision of the Constitution Committee and the abandonment of the Council's proposal for a Royal Charter still hold good in regard to these particular objects, namely, the *government and administration of the Association.*

In regard, however, to the *expansion of the objects* of the Association, it is fairly agreed that incorporation by Royal Charter would be an advantage, in that the Association would then be free to undertake without hindrance work in new directions, for example, medical defence; but it must be remembered that this will involve increase of expenditure and increase of subscription.

It is doubtless the fact that many members of the Association are anxious to extend its objects, and are prepared for an increase of the annual subscription; if the Association is to advance so as to meet all the possible requirements of the medical profession, to undertake defence and insurance, to provide benevolent funds, and open agencies and employment bureaux, then it must take measures to obtain increased powers, and probably incorporation by Royal Charter will be the most efficient means. But before enlarging our scope would it not be well to rest content for the time with our present objects, to concentrate our energies and our funds on rendering our present machine as efficient as we may, to get our government and administration as perfect as experience may allow, and, having set our house in order, then to extend our scope of work? For the former object we shall obtain no help or advantage from a Royal Charter, but the reverse; once the Royal Charter is obtained we cannot change in any fundamental point except by a supplementary Charter.

It would appear to many that the wiser course would be to wait until we could frame a Charter thoroughly comprehensive and likely to be permanent.

I have said that our present government and administration are not perfect; in support of this it is only necessary to glance at the propositions which are to come before the Representative Meeting and the amendments to the draft Charter suggested by the Divisions and the Council; but perhaps I may with advantage indicate some matters which require consideration.

1. *The Divisions as the fundamental unit of power in the Association and the Representative Meeting.*—I well remember the dissatisfaction with the existing government of the Association a few years ago. I was a member of the Council, which acted, or appeared to act, in an arbitrary manner, and I took part in those

efforts which ended in the evolution of the present constitution. It fell to my lot, as the honorary secretary of a large Branch, to write and circulate a memorandum urging the members to resist certain proposals of the Council. I have this memorandum before me as I write, and I am not surprised to find that the expressions used are somewhat strong. I ventured to urge that if the proposed articles were adopted the Council will become an autocratic body from whose decisions there will be practically no appeal, and to object "to what practically amounts to the wholesale disfranchisement of the general body of members." I urged members "to be present at the meeting to protect the interests and privileges of the members of the Association." This circular, I believe, assisted in the overthrow of the Council's proposals and helped to clear the way to the reorganization of the Association on its present democratic basis.

I may therefore claim that I have at heart only the good of the Association, and that, when I now call the attention of members to the imperfections of our present constitution, I am acting only in the interests of the general body of members.

As the Honorary Secretary of the Branch, I am brought into contact with all the Divisions of the Lancashire and Cheshire Branch, but I learn that identical conditions prevail in other parts: in many of our Divisions, their smallness, the arrangement which was thought best and the fundamental point in our new constitution, has led to their undoing. Men who used to take an active and lively interest in the work of the Branch have lost interest in the Divisions: they have gone away, we cannot get hold of them, we never see them. Not 10 per cent. of the members attend the Divisional meetings in many instances, and often a quorum cannot be obtained, even at the annual meetings. One of our Divisions has lapsed, and another has not yet organized; the majority of the Divisions are dying, and the apathy is extending to the Branches, and so to the Association as a whole. There are, I am glad to say, one or two notable exceptions. Further, many men whose resignation we should regret, men of standing in the profession, and men of influence and weight in their neighbourhood, are threatening to resign. I have in my possession many letters indicating profound dissatisfaction with things as they are. In many Divisions the meeting is composed of five or six members; important questions are introduced, and decisions may be the result of a majority of one; such a vote cannot be held to represent the opinion of the Division of, let us say, sixty or eighty members; in other instances a mass of material is sent down from the London office, there is no time for discussion, and if any attempt is made the member is reminded that time will not allow, the result being that votes are taken on matters ill digested or not digested at all. Then, the Representative is sent up in a similarly haphazard way, so that the Representative Meeting, although nominally representative, comes to be not representative at all; it is a large meeting, but not truly, in the way in which it was intended to be, representative.

I would particularly ask the members of the metropolitan Divisions to note these facts as it must be difficult for them, attached as they are to Divisions as large as many Branches, to realize the difference from their own position.

Last year the Representative Meeting passed a resolution that the financial business shall be transferred from the general meeting of members to the Representative Meeting. This will be a most important and fundamental change in the constitution of the Association, and should be thoroughly understood. It is necessary to consider it in the light of the fact that our hopes in the representative character of the Representative Meeting have not been realized in the past, and I fear may be even less so in the future.

This proposed change means that the power and privilege of the individual member of the Association as an individual will be destroyed in this sense—at present every individual shareholder of our company has the power to be present, to speak, and to vote at the annual business meeting of the company; if this transfer is effected that power of the individual goes. It may be for good or ill, but that is the fact, and it should be clearly recognized. The draft Charter, for which it is now proposed that application be made, contains this vital change. The draft Charter has been sent to the Divisions for report and with what result? Of 199 Divisions only 55 send in a report. Many suggest modifications, and others suggest that it requires more careful thought. These facts, I believe, have influenced the Council in their consideration of this question.

It is, perhaps, an unpopular duty to point out that up to the present the Representative Meeting, in its eagerness to get through the mass of work, has been ready to adopt resolutions involving expenditure without having had the financial bearings carefully investigated by Committees appointed for that purpose. This is a matter which requires to be set right.

To those of us who desire to see the Association so constituted as to be the channel through which the voice of the profession as a whole may be heard and its opinions and desires made known, so managed as to be an efficient machine through which the intentions of the profession as a whole may be carried into execution and its interests protected, it is a source of great regret to find that in what we have done our hopes have not been realized. Further reform is essential. To me it seems of the first importance that the question of the Divisions and the Representative Meeting—the foundation stone on which the Association rests—requires reinvestigation, so that their position may be strengthened. Experience already shows some weak spots and will indicate the remedy.

To safeguard the representative character of this meeting, it would be well if some plan could be devised whereby the Representative must be elected by a due proportion of the Divisional members; and in order that the opinion of a Division, on any matter sent down for report before submission to the Representative Meeting, may really reflect the feeling of the Division, it shall be required that a due proportion of members shall record their votes.

2. *The Branch.*—In the reorganization there was no intention to destroy the Branches, but events have been too strong for them. They are no longer the powerful factor in the Association which they once were. It is true that the Branches elect the members of Council, but only in the sense that the Branch constitutes the electoral area, the councillors being elected by the individual members of the Divisions of the Branch—that is, the individual members of the Association. The decay of the Branches is to be regretted, for they were the means of reunion (political, scientific, and social) of members who otherwise had not much opportunity of meeting, and I am sure that the extinction of the Branch will not be for the permanent benefit of the Association as a whole.

3. *The Council.*—The Council is primarily the Executive of the Representative Meeting and of the Association; but whilst the Representative Meeting is elected by the members of the Association through the Divisions, the Council is elected by the members of the Association through the Branches. This mode of election, through different machinery, allows a trace of that mistrust of the Council, which existed under the old constitution, to linger. It should not, as both bodies are elected by the same electorate, only in different groupings.

The Representative Meeting meets only once a year, and cannot be an executive body. The Council meets at frequent intervals, and is chiefly an executive body, but during the remainder of the year it has other duties to perform; it *must* conduct the business of the Association. If it is to be merely an executive body, then it is too large—unnecessarily large, and unnecessary expense is entailed by its meetings. It is of the highest importance that the powers and position of the Council should be clearly defined. As the Council is a democratic body, elected directly by every member of the Association, it would be well that the Council should exercise some discretionary power in financial matters, not absolute, but discretionary, and this would tend to establish the stability of the Association.

4. *The Colonies.*—The Colonies have been appealed to in reference to the Charter, but it is improbable that their views can in any way be known before the Representative Meetings are held. For the sake of unanimity it is desirable that their wishes should be fully known and receive due consideration.

5. *Financial Matters.*—The work of the Association has grown so rapidly that the expenditure has now almost reached the limits of our present resources. The applica-

tion for a Charter will entail further expenditure, and its main object, the expansion of our work, will require larger funds. Further, if the Association undertakes work in the personal and pecuniary interests of its members, then we must remember that the Revenue Authorities will demand their share! and this will mean a substantial yearly addition to our expenses. This is a fact the importance of which, in connexion with the application for a Charter, must not be overlooked. It must of necessity be taken into our reckoning.

I have said enough, I think, to show that there are points in our constitution which require consideration and amendment, and I think I may say that it was the knowledge of matters of this kind that has led the Council to advise the members to defer for the present the application for a Charter.

The Representative Meeting meets but once a year; the Central Council meets at frequent intervals; it carries out the instructions of the Representative Meeting, and conducts the affairs of the Association throughout the year; it exercises supervision over the expenditure and general business; and all Committees, Branches, and Divisions report to it; its members therefore have the opportunity of ascertaining how the Association as a whole is getting along. On any matter affecting the welfare of the Association, and especially upon any changes affecting its constitution or financial stability, it is the manifest duty of the Council to fully convey to the Association and to the Representative Meeting its deliberate opinion, based on a wide and intimate knowledge of the affairs of the Association in all its parts.

In the matter of the Royal Charter and the proposed modifications of constitution the Council has, after mature consideration, viewing the matter on the broadest basis, guided by some or all of the subjects I have touched upon, and in the interests of the Association as a whole, deliberately arrived at the decision that it is its duty to advise the Representative Meeting that fuller and further consideration of the question is required, and that it is desirable to delay the application so as to give the Association as a whole longer time to appreciate and consider the many important matters involved in drafting a thoroughly comprehensive and permanent form of Charter.

I doubt not but that the Representative Meeting will recognize fully the bona fides and proper intention of the Council, and will afford its recommendation the most thoughtful consideration.

ANOTHER CANCER "CURE."

Since the publication recently[1] of a description of the composition of several articles put forward for the treatment of cancer, we have received from a medical practitioner another pretended "cure" for this disease, which had been supplied to a patient of his by an individual from Croydon who describes himself as a retired Government analytical chemist. So far as is known he does not advertise. The patient heard of him from friends who knew of marvellous cases of cure which he had effected. The bottle did not bear an Inland Revenue stamp. He saw the patient and examined her. He was paid 3 guineas, and asked for more, as it was a complicated case. The directions given were "two tablespoonfuls should be taken three times a day."

Analysis of this liquid showed the presence of ferric chloride, and traces of hydrochloric acid and alcohol, and nothing else except water; the alcohol indicates that the tincture of perchloride of iron, and not the liquor, has been used; determination of the amounts of iron and chlorine present showed that 6 fluid ounces of the mixture contained 5.7 fluid drachms of the tincture.

[1] British Medical Journal, May 26th, 1906, p. 1238.

A seaside hospital for the treatment of children suffering from tuberculous disease is about to be erected in the State of New York on land to be found by the City Corporation. The estimated outlay is 250,000 dollars, half of which sum was provided by Mr. J. D. Rockefeller on condition that a similar sum should be raised by the Association for Improving the Condition of the Poor.

The late Mr. Naboth Albon Burt, of Crofton House, Bristol, left £50 each to the General Hospital, the Royal Infirmary, the Dispensary, and the Hospital for Sick Women and Children, all of Bristol.

THE PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

The Pathological Society for the United Kingdom, the approaching formation of which was announced last week, was duly constituted at a meeting held in Manchester on Saturday, July 14th.

When Professor D. J. Hamilton, of Aberdeen, took the chair in the Physiological Theatre, Owens College, on Saturday morning, there were between seventy and eighty persons present, including the chief working pathologists in the United Kingdom, and other members of the profession interested in the progress of the science. The Society which owes its existence to the initiative of Dr. Lorrain Smith, Professor of Pathology in the Victoria University, Manchester, and of Dr. Robert Muir, Professor of Pathology in the University of Glasgow, is intended to be conducted on lines similar to those which have proved so successful in the case of the Physiological and Anatomical Societies. After some discussion on the form of constitution, a Committee was appointed to draw up rules: these will be submitted to the next meeting of the Society, which will probably take place in London next December.

This formal business having been disposed of, the rest of the morning was devoted to the reading of a number of papers. Among these were notes on amyloid goitre and amyloid disease of the air passages, by Dr. J. Miller, Lecturer on Pathology in the University of Birmingham; on waxy degeneration in rheumatism, by Dr. J. M. Beattie, Lecturer on Pathology in the University of Edinburgh; and on terminal thrombosis in amyloid degeneration, by Dr. J. Ritchie, Professor of Pathology in the University of Oxford; Dr. A. C. O'Sullivan, Lecturer in Pathology, Trinity College, Dublin, described the appearance in a case of extensive anaemic infarction of the liver; and Dr. S. G. Scott, demonstrator of pathology in the University of Leeds, read a paper on obstruction-atrophy of the pancreas.

Professor J. Lorrain Smith read a very interesting paper on the staining of fat with aniline dyes. He pointed out that if a section of a tissue containing globules of fat, such as fatty liver or kidney, be exposed to a solution of a basic dye (methyl violet), the globules of fat occasionally stain, but in many cases none stain. He found that if after staining the section in a watery solution of the basic dye, it was exposed to the air, by leaving it mounted in Farrant's medium without a coverslip, the colour disappeared from the tissue as a whole, but the fat globules became more and more intensely stained. The same result was obtained if the section was exposed to the air in the medium for two days and a drop of the stain then added. The action took place with all basic dyes but failed with acid dyes, and it took place with all forms of fat (normal fat tissue, fat globules in gland cells, degenerating nerve fibres, granular corpuscles, fatty muscle-fibre, lipochromes, etc.). The reaction was due to the presence of carbon dioxide, and did not take place in sections exposed to an atmosphere of oxygen, nor in those exposed to air deprived of carbon dioxide. The action of carbon dioxide was apparently to hydrolyse the neutral fat, splitting it into glycerine and fatty acid, the latter then combining with the colour base. Further experiments showed that the hydrolysing action of carbon dioxide was not confined to fats. Experiments with carbohydrates give the following results: Cane sugar is converted into a reducing sugar (1) by exposure of a solution to CO_2 at high pressure (about four atmospheres pressures has been tried); (2) if boiled in a sealed tube, the solution in the tube being saturated with CO_2 at atmospheric pressure; (3) if left standing for some time in CO_2 at atmospheric pressure; (4) if left for twenty-four hours at 60° C. in a solution containing calcium or barium bicarbonate. Glycogen was converted into a reducing sugar if exposed to the action of CO_2 at high pressure in the presence of sodium bicarbonate. Carbon dioxide alone at high pressure failed to bring about the reaction. Starch behaved in the same way as glycogen. Specimens shown indicated that the method was applicable to the study of degeneration of the nervous system.

A paper on the absorption of toxins by the perineural lymphatics was read by Drs. Orr and Rows, and Dr. McWeeney, Professor of Pathology in the Catholic University, Dublin, described the appearance in a case

of medullary lymphadenoid pseudo-leukaemia. Mr. Henry Wade described an experimental research carried out in the laboratory of the Royal College of Physicians of Edinburgh, on the so-called infective sarcoma in the dog. The papers were illustrated by specimens displayed in the Pathological Laboratory.

At the conclusion of the morning meeting those present were entertained at luncheon by Professor Dreschfeld at Owens College. In the afternoon the members, at the invitation of Professor Sheridan Delépine, reassembled at the Public Health Laboratory, where papers and demonstrations on bacteriological subjects were given and specimens shown. Mr. A. G. R. Foulerton gave a demonstration on the acid-fast streptotricheae, with special reference to infection by *Streptothrix eppingeri*; Professor D. J. Hamilton demonstrated the organisms of chorea paralytica ovis, morbus subitarius ovis, and malignant oedema of the sheep, diseases A. and B. Papers on opsonins were communicated by Professor S. Woodhead and Dr. W. Mitchell, and by Professor Muir and Dr. W. B. M. Martin; Dr. J. Henderson Smith discussed the absorption of antitoxin by the tissues; and Dr. J. A. Craw the maxima and minima in agglutination, haemolysis, etc. Professor Delépine described the results of inoculation of man with avian tubercle bacillus.

On Friday evening many of those attending the meeting were entertained at the Clarendon Club by Dr. Henry Ashby and Dr. Buckley, President of the Medical Society of Manchester; others were entertained by Professor Dreschfeld, and later in the evening Mr. Thorburn gave an at home.

The inaugural dinner was held on Saturday evening at the Queen's Hotel, Manchester, when 81, of whom 65 were members, assembled under the chairmanship of Professor Dreschfeld.

The toast list was as follows: "The King"; "The Pathological Society of Great Britain and Ireland," proposed by Professor Clifford Allbutt and responded to by Professors D. J. Hamilton, S. Delépine, and A. C. O'Sullivan; "The Progress of Pathology," proposed by Professor G. Sims Woodhead and responded to by Dr. M. Armand Ruffer and Colonel W. B. Leishman, R.A.M.C.; "The Victoria University," proposed by Professor W. Osler and responded to by the Vice-Chancellor and Mr. W. Thorburn; and "The Chairman," proposed by Professor Muir and responded to by Professor Dreschfeld. Dr. S. Monckton Copeman then proposed the health of Professor J. Lorrain Smith, whose response brought the day's proceedings to a close.

LITERARY NOTES.

The July issue of the *Canadian Journal of Medicine and Surgery* is a special British Medical Association number. It contains an article describing the arrangements for the annual meeting, and a series of editorial notes upon the history of the Association, upon its Committees, upon its constitution, and upon the British Medical Journal; the number concludes with an account of the climatology and opportunities of the Canadian North-West. The whole is very copiously illustrated by photographs of the University of Toronto, and the new medical school buildings, of many of the hospitals, and of some of the principal buildings in Toronto and other parts of Canada, including views of some of the beautiful parts of the country to which excursions have been arranged. The editor promises to members of the Association a warm welcome in Canada, and it is certain that in respect both of the opportunities for scientific instruction during the week of the meeting, and for agreeable excursions afterwards, the occasion will be unsurpassed.

James Whitcomb Riley's *Rubáiyát of Doc. Sifers*[1] is excellently printed and beautifully illustrated by C. M. Relyea. The old "Doc," so lovingly painted by the poet reminds us of nothing so much as Ian Maclaren's "Doctor of the Old School." Sifers is an American Maclure. He has all the strength, simplicity, and great-hearted kindness of the grand old doctor of Drumtochty, and is, like him, a childless man who loves children. Like "Weelum," Doc. Sifers spends his day in doing good to all with whom he comes in contact, and earning love and respect from all who know him. The Rubáiyát are sung by one of his patients (a farmer, to judge by the pictures), whose "little dorter" Sifers had saved. The dialect is occasionally somewhat of a stumbling-block to the Britisher, and at times it must be owned we become just a trifle weary of hearing Aristides called the Just with such monotony of iteration. But it is a delightful, pretty study, that of the kind-hearted, absent-minded old man, devoted to his work, and full of an universal charity. The homely country surroundings, just hinted at in the text, form a most appropriate setting. His wide benevolence extends even to criminals, and his views on crime will bear quoting:

> Doc argies 'at "The Red-eyed Law," as *he* says, "ort to learn
> To lay a mighty lenient paw on deeds o' sich concern
> As only the Good Bein' knows the wherefore of, and spreads
> His hands above the accused and sows the Mercies on their heads."
>
> Doc even holds 'at *murder* hain't no crime we got a right
> To *hang* a man fer—claims it's *taint* o' *lunacy*, or *quite*.
> "Hold *sich* a man responsibul fer murder," Doc says, "Then
> When *he's* hung, where's the rope to pull them *sound mind* jury men?"

Some may be tempted to regard the old doctor as a bit of a crank because of these very advanced views; but there is a shrewd wisdom in some of his sayings that proves the contrary. His receipt for happiness, for instance, is well worth remembering:

> Ef we'll jes do the work cut out and give to you and me,
> We'll lack no joy, ner appetite, ner all we'd ort to eat,
> And sleep like childern ever' night—as puore and ca'am and sweet.

The old man's character is admirably drawn, his sound common sense, his unostentatious piety and devotion to duty, even his intense patriotism, are described in homely language which is a perfect medium for the expression of the ideas and feelings, and his few foibles are dealt with very tenderly.

We have to thank Mr. Riley for a noteworthy addition to the gallery of literary pictures of doctors of a fine type which, we are thankful to say, is far from uncommon.

A correspondent of the *Times*, writing from Rome, says that M. Pierre-Paul Plan, a French journalist, has discovered an Aldine copy of Plutarch's *Moralia* bearing the autograph "Francisci Rabelesi Chinonen" on the title page, with a number of notes which appear to be in the handwriting of Rabelais. The book had lain for several years at a second-hand dealer's. M. Plan, in a pamphlet describing his purchase, gives facsimile reproductions of the marginal notes attributed by him to the author of *Pantagruel*, whose indebtedness to Plutarch he illustrates by a number of comparisons, some of them overlooked by Le Duchat and others. We think we are right in saying that in the roll of Montpellier medical graduates the creator of *Gargantua* describes himself, or is described, as Franciscus Rabelosus Chinonensis. He was a native of Chinon in Touraine.

In the time of the wars of the French Revolution large bodies of troops frequently passed along the Riviera into Italy. This was followed by a considerable rise in the birth-rate, which in turn led to an increase of work for midwives. In regard to this subject the *France Médicale* not long ago published a decision of the General Council of the Commune of Cannes, dated 5th Brumaire year III, which throws an interesting sidelight on the situation. The preamble sets forth that the *citoyen maire* had represented that the *citoyennes* Jourdan and Isnard, twin Lucinae whose duty it was to minister to frail virgins who added to the population in an illegitimate manner, asked for an increase of pay proportionate to the increase in the price of eatables, stuffs, and other commodities. "They beseech the council," adds the *citoyen maire*, dropping like Silas Wegg into something like poetry, "to take into account the fact that their help is frequently called for, since love has become familiar with the clash of arms," and he asks the Council to deliberate on the subject. The result of their deliberations was a unanimous decision that the salary of the midwives should be raised from 20 to 40 livres a year to indemnify them for the extra work required of them.

The Great Eastern Railway have issued a new edition of the handbook bearing the title *Summer Holidays*: it contains notes on the seaside places and other summer resorts of East Anglia, which have grown so much in popularity during recent years.

[1] *Rubáiyát of Doc. Sifers.* London: Longmans, Green, and Co. Pp. 111.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

DEPUTATION TO MR. BIRRELL

A DEPUTATION representing the British Medical Association, supported by representatives of the Manchester and Salford Sanitary Association and of the Medical Committee on the teaching of hygiene and temperance, had an interview with Mr. Birrell on July 16th with reference to Clause 35 of the Education Bill, which gives the local education authority "power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools." The deputation laid before Mr. Birrell reasons for accepting the amendment proposed by Mr. Tennant, M.P., rendering it compulsory for every local education authority to make such arrangements. Mr. Birrell was accompanied by Mr. T. Lough, M.P., Parliamentary Secretary, and Mr. Morrant, C.B., Permanent Secretary of the Board.

Among those forming the deputation were:

Representing the British Medical Association: Mr. G. Cooper Franklin, F.R.C.S. (President), Sir Victor Horsley, F.R.S. (Chairman of the Representative Meeting), Dr. H. W. Langley Browne (Chairman of Council), Dr. R. C. Buist (Chairman of the Medico-Political Committee), Mr. R. H. Kinsey (Chairman of the Ethical Committee), Dr. Dawson Williams (Editor of the BRITISH MEDICAL JOURNAL), and Dr. J. S. Whitaker (Medical Secretary).

Representing the Medical Committee for Promoting the Teaching of Hygiene and Temperance: Sir Wm. Broadbent, Bart., and Dr. Claude Taylor.

Representing the Incorporated Society of Medical Officers of Health: Dr. W. Butler, M.O.H. Willesden.

Representing the Manchester and Salford Sanitary Association: Mr. T. C. Abbott, Mr. T. C. Horsfall, the Rev. F. G. Edwards Rees, and Mr. Fred. Scott (Secretary).

The deputation was introduced by Mr. TENNANT, M.P.

Mr. HORSFALL said that in Manchester they were convinced that the question of the medical inspection of school children concerned not only the health and happiness of the children, but also the interest and commerce of the country. In the large towns and country villages there was a very large proportion of diseased children, but the percentages could not be given because systematic examinations had not been made in this country: some estimate could be made from the experience of other nations equally as healthy as England. It had been found, for instance, by the careful examination of children in the Scandinavian countries, not only was there a great deal of disease among school children, but that schools equally as well managed and equally as well provided as those in this country might greatly increase the amount of disease among the children. In the year 1890 there were school doctors in only three German towns—Leipzig, Dresden, and Nuremberg—and the doctors had only to examine the school buildings and the arrangements of the schools. In that year Professor Axel Key of Stockholm reported in Berlin that of children beginning to attend school in Stockholm 30 per cent. were sickly, and that of those who had been at school some years, 60 per cent. were sickly. He reported also that Professor Axel Hertel had found in Denmark 30 per cent. were sickly when they began, and of those who had been at school some years 50 per cent. Key's report caused Wiesbaden to make an examination which showed that on a certain date 25 per cent. of children were sickly. Now there were school doctors in more than 130 German towns. Schmid-Monnard of Halle found that children who, on account of feebleness, spent their 7th year at home, increased in height and weight much more than more robust children who spent their 7th year at home. The latter set increased 21 per cent. less in weight and 43 per cent. less in height than the former set. In Berlin in 1901-5 8½ per cent. of children were put back; in earlier years 12½ per cent. and 9¾ per cent. In 1889 two Russians, Grazianoff and Sack, showed that those children of a given age who are highest in school are taller and heavier than those of the same age who are lower. In 1892-4 Townsend Porter of St. Louis showed that examination of 33,500 children there gave a similar result. Similar results had been obtained in Berlin and Vienna. In no German town had it been found that 50 per cent. of the children in schools were in good health; 10 per cent. were found to be seriously unwell. In Chemnitz, which did more for health than our large manufacturing towns, only 7.9 per cent. of the children in elementary schools were described as healthy and well fed. In Stuttgart, 34 per cent. suffered from rickets and 29 per cent. were underfed. Examination of teeth there showed that 98 per cent. suffered from decayed teeth. The average number of decayed teeth per child was 7.5. Only 14 children out of 6,633 had filled teeth—32 filled teeth in all. School increased some diseases. In Lausanne 23 per cent. of boys and 26.7 per cent. of girls had curvature of spine. Of 8-year-old boys only 9.7 per cent. had it, but of 13-year-old boys 37.7 per cent. In the lowest class of village schools only 1.4 per cent. were shortsighted; in the highest class of classical schools 55.8 per cent. Rickets and scrofula were often caused; anaemia and nervous diseases were increased. Short-sighted eyes and dull ears were often caused by school conditions. Teachers could not detect more than a small proportion of cases of disease (*Gutachten ueber die Schularztfrage in Stuttyart*, p. 63):

	By Doctor.	By Teachers.
Anaemia	24.87 per cent.	... 1.29 per cent. of children.
Bad teeth	12.57 ,,	... 0.29 ,, ,,
Physical weakness ...	9.10 ,,	... 2.60 ,, ,,
Scrofula	4.42 ,,	... 0.40 ,, ,,
Rickets	3.23 ,,	... 0.56 ,, ,,

Dr. BUIST (Chairman of the Medico-Political Committee, British Medical Association) said that the results of voluntary examination showed that, owing to the absence of medical examination, the elementary schools of this country contained a large proportion of children who were educationally inefficient at present and would be economically inefficient in the future; in the report of the examination of 1,000 children in one town it was found that about 7 per cent. suffered from disease of the heart—a condition undiscoverable by the teachers, and to be ascertained only by medical examination, yet the point was of importance in regard to the question whether such children would be improved or injured by the physical drill and routine of school life; 20 per cent. of the children were suffering from adenoids and impaired hearing, affecting their work in the school and making them dull. From the point of view of preventive medicine it was important that the clause should be compulsory, so that the arrangements contemplated should apply to the children in all towns, and not only to those in the more enlightened communities.

Sir VICTOR HORSLEY said he had been asked also to speak on behalf of the British Medical Association, and until Sir William Broadbent came into the room he would have represented the Committee of the medical profession that approached Mr. Birrell's predecessor in that department on the cognate subjects of hygiene and temperance. The Association was convinced that this matter could not properly be settled until it was entirely under the Education Department; hitherto the voluntary system left it to the local education authorities to pursue it in such a manner as they saw fit, but that did not satisfy the medical profession. They felt that the Education Department should take the example of the prevention of disease in the invasion of this country by zymotic epidemics by the work of the medical department of the Local Government Board and the improved conditions of the country as an instance, and that the Board of Education should have a medical department. Since the report of the Physical Deterioration Committee that request came with twofold force. He believed he was right in stating that the Education Department would shortly be asked to receive a deputation from the Anthropological Institute and other societies who wished to have an anthropometrical investigation of the children also carried out under the auspices of the Board. If the Board agreed to accept the German system of inspection of every child when it entered a school—which was one of the points the deputation desired—that would meet the anthropometric requirements as well as the study of the physical deterioration of the whole nation. The two objects would, in fact, be met by one department, and while the medical profession felt that all this work was part of the work of prevention of disease and the promotion of the health of the community, it also realized that there must be a co-ordinating centre, and that centre could only be a medical bureau within the Education Department. They asked for a medical official with perhaps one or two assistants who should correlate the reports that came into the Education Department from the local authorities, and also correlate the opinions

derived from other countries. All this work was begun in Belgium as long ago as 1874, and he thought it was time that this country should take it up as part of its central government. The medical profession asked that the Board of Education should, by accepting Mr. Tennant's amendment, remove the matter from its voluntary aspect and make it compulsory, and further should construct a scheme to include a central official body governing and co-ordinating all the peripheral bodies throughout the country. If the President could see his way to do this he would have the warmest support of the medical profession.

The Rev. W. G. Edwards Rees (Vicar of Pendleton) said it would, no doubt, be urged against the proposal that it would be costly. He had calculated that £100,000 a year, coming from both Imperial and municipal sources, would sufficiently provide for a biennial examination of every scholar in attendance at the elementary schools of the country. This was not a great price to pay for a system which would have such very great and beneficial effects. It would add incalculably to the health and energy and even to the morals of the community, and the price would be cheerfully paid. In more than one regard English elementary education was better than that of any other nation. In regard to the care of the health and physique of the children we were lagging behind our rivals. The parents, it was sometimes urged, would raise objections to the inspection of their children. In view of the urgent demand put forward by that representative body, the Co-operative Guild of Mothers, this objection would not hold. Their experience at Salford, where the school children were anthropometrically examined, went to show that the objections of parents were infinitesimal. No improvement of our educational machinery was so important as this.

Sir William Broadbent, speaking in support of the amendment, said that the constitution of the man was determined in childhood, when tendencies to disease could be recognized and combated by suitable treatment. Wherever medical inspection of schools had been established it had led to the detection of those early tendencies to disease and to a very great improvement in the general health of the children. Whatever expense might be incurred in medical inspection, and as the result of that inspection, would be repaid by increased health and increased efficiency of the population as they grew older.

Mr. Birrell said he supposed that no department received so many deputations as his own; he was much impressed by the public spirit displayed by the members of these deputations, although unfortunately it was not possible to meet their wishes in all respects. He was glad to be able to inform the deputation that it was proposed to add another medical officer to the staff of the Central Education Department. In regard to the main question put before him—the proposal to make it compulsory on every local authority to make arrangements in accordance with the scheme drawn up by the Board of Education, the proposal embodied in Mr. Tennant's amendment—he observed that it was not limited to towns; it must be remembered that there were hundreds and hundreds of very small local authorities. Nothing was more useless than perfunctory inspection, which, instead of being a step forward, was a step backward; but he agreed that proper inspection and a proper record of facts would be of great public utility. He thought that in large towns there was a growing disposition to secure proper medical inspection of the children. The salaries, of course, varied very much. Leicester, for example, had appointed a medical officer to devote his whole time at £425 per annum; he had to examine the children, visit the schools, and so on. The salary, of course, was inadequate for a person having to give up his whole time to the appointment. He did not believe that compulsion would effect the object the deputation had in view; they must be content to strengthen the medical side of the Board and stimulate local authorities by every feasible method, by circulars and the like. He would ask the medical profession to espouse the cause of the health and physical condition of the children, and he hoped that in the course of a few years enormous progress would be manifest. Much would depend on the course the debate took, but as at present advised, he could not say that it would be a good step to make the duty obligatory on every local authority. Remembering that there were about 5,000,000 children in some 21,000 schools, he did not think that £100,000 a year would even touch the expense if they were properly to inspect the children on really scientific principles.

Mr. Franklin (President of the British Medical Association) thanked Mr. Birrell for his most courteous reception of the deputation.

THE MIDWIVES ACT.

Rotherham.

Dr. Alfred Robinson, Medical Officer of Health, has recently made a report on the working of the Midwives Act in Rotherham. In giving a brief account of the objects of the Act, Dr. Robinson states that practically no medical supervision over midwives was exercised until May, 1905; since that time active steps have been taken, all the midwives on the roll have been personally visited, and instructed as to the rules of the Central Midwives Board, and printed regulations have been drawn up and sent by post to each midwife, with accurate instructions how to fill up books and registers. The report then continues as follows:

The inspection revealed a very unsatisfactory state of affairs. There were twenty-three midwives on the roll, one only of whom had been admitted on account of possessing a certificate of efficient training. The remainder obtained certificates in virtue of having been in "bona fide practice" for one year previous to April, 1905. The majority were women of the lowest class, and, with few exceptions, dirty in the extreme. They had no washable dresses, no apparatus, and had no conception of the importance of cleanliness. All except four were utterly illiterate, and depended on their children or neighbours to fill up their registers and books. One actually told me it was no use my sending her any written instructions; she could not read them. None of the untrained midwives had any idea of how to use a clinical thermometer. Not only were they ignorant of how a labour should be properly conducted, but most of them indulged in practices of the most harmful nature. For instance, it seemed a necessary part of their practice to keep their patient (and incidentally themselves) well plied with brandy throughout the labour. The Female Health Visitor is continually explaining the rules to these women. Some endeavour to improve, others take no notice, and one stated that she had been practising for the last thirty years, and did not intend to alter her methods.

Dr. Riddell has been appointed a recognized teacher by the Central Midwives Board for this district, and at present has a class of six nurses preparing for the August examination. The examination, in my opinion, is too difficult, as many as nearly 50 per cent. of the candidates being rejected. The consequence is that the supply of properly-trained midwives is not equal to the demand. The percentage of confinements attended by midwives in Rotherham is at least 75.

Any one having an opportunity of examining their books would, I feel sure, be astonished at the number and the amount of money they make. Any nurse who will take the trouble to work and pass the examination would be well repaid for her exertions in a very short space of time, because no one can realize the class of women the Central Midwives Board have been compelled to place on the Midwives Roll without a certificate of training. It is absolutely impossible for many of them to carry out the regulations owing to their ignorance, lack of training, and more particularly their inability to read a clinical thermometer with any degree of accuracy. I have heard of one woman who, when told to purchase an ordinary thermometer, actually went and bought a weather barometer!

Methods of Supervision.

1. The names and addresses of the midwives are placed on a roll, and any change of address has to be notified. All midwives have to send in notice of their intention to continue practice in the month of January in each year.

2. The midwives are frequently visited by myself and their registers and appliances inspected.

3. The female health visitor visits and instructs them, and also occasionally attends confinements with them for the purpose of giving them instruction.

4. Births attended by midwives are notified to me, and the health visitor visits the houses, leaving instructions as to the feeding of infants, etc.

5. Stillbirths are also notified to me, and a record is kept of them.

6. In any case of malpractice or flagrant breach of rules, I report the matter to the Midwives Committee, who can either suspend the woman from practice or can report her to the Central Midwives Board with a recommendation that her name be removed from the roll.

7. Cases of puerperal fever are also notified to me, and are followed by immediate investigation and suspension and disinfection of the midwife. I have found that these women who have had certificates "presented" to them make a "dead set" against, and try to "boycott" by all means in their power, the only properly qualified and certificated (by examination) midwife in the county borough, who informs me that they have already succeeded in seriously damaging her prospects. One of these women when asked how she would bring young children up, replied with evident satisfaction, "I have had 10 children myself, and 8 of them are dead; that is how I bring up children." Suspension of midwives has been adopted in five cases during the last twelve months, one being suspended for one week, three for one month, and one for two months. Suspension has been found the most useful method of dealing with these women, because when this course is adopted they are kept under control, whereas, if they are removed from the roll no further supervision can be exercised over them.

I consider that our chief object must be to make the best we can out of the very bad material we have at present, and to exercise such a supervision as will permit as little harm to be done as possible. A certain amount of improvement has already taken place, and we may expect still more; but until the present untrained midwives are replaced by properly trained women matters must necessarily be in an unsatisfactory condition.

The Medical Officer of Health of the local supervising authority would naturally appear to be the proper official to carry out the duties prescribed by Rule 20 under the direction of the local supervising authority; it would be absurd to have appointed any one but a medical man for the purpose. In conclusion, there ought, I think, to be some distinction between a woman who holds a certificate of proficiency in midwifery and one who has been allowed to register as having been in practice before the passing of the Midwives Act, 1902. The Central Midwives Board at the present time calls them all "certified midwives," and allows them all so to style themselves, which all of them are only too proud to do.

INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

THE fourteenth International Congress of Hygiene and Demography will be held in Berlin next year from September 23rd to 29th. The Committee of Organization, which is under the Chairmanship of the President of the Imperial Board of Health, has arranged that the work of the Congress shall be conducted in eight sections, as follows:

Section I.—Hygienic Microbiology and Parasitology.
Section II.—Dietetic Hygiene, Hygienic Physiology.
Section III.—Hygiene of Childhood and Schools.
Section IV.—Professional Hygiene and Care of the Working Classes.
Section V.—Combating Infectious Diseases and Care of the Sick.
Section VIa.—Hygiene of Dwellings and Townships.
Section VIb.—Hygiene of Traffic.
Section VII.—Military, Colonial, and Naval Hygiene.
Section VIII.—Demography.

The Congress will probably meet in the Reichstag building, and the arrangements are in so forward a state that invitations to attend will shortly be issued. The Secretary-General is Dr. Nietner, Surgeon-Major retired, and all communications with reference to the Congress should be addressed:

> An den Generalsekretar des XIV Internationalen Kongresses für Hygiene und Demographie Berlin 1907, Berlin W. 9.

During the Congress a scientific exhibition will be arranged under the direction of Professor Geheimer Medizinalrat Dr. Rubner, Berlin N. 4, Hessischestr. 4.

THE second Belgian Congress of Neurology, and Psychiatry will be held at Brussels from August 29th to 31st, under the presidency of Miss Stefanowska, M.D., President of the Société de Neurologie, and Dr. Crocq, President of the Société de Médecine Mentale. The subjects proposed for discussion are pretended lunatics; the theory of the neuron; and mental tests in children.

CONGRESS OF THE ROYAL SANITARY INSTITUTE.

THE Congress has proved a great success; the papers read and conferences held treated of matters of interest and importance, and the weather, except for one day, proved all that could be desired for those who wished to take part in the social gatherings or explore the many interesting archaeological features of Bristol.

At few of the Sanitary Institute Congresses have so many delegates been present. Three foreign Governments sent representatives, three home Government departments, and from county councils, boroughs, district councils, rural councils, societies, and others, as many as 188 delegates attended.

It is somewhat difficult to know which of the many papers read would be most interesting to the medical profession; all had some bearing on subjects that affect medical men, but several are of almost too technical a character to report at length.

VENTILATION.

In the Engineering and Architectural Section Mr. E. J. Hall's address was on the importance of light and ventilation in all buildings, and he suggested that a short paper might be presented to consumptive out-patients, impressing on them the simple rules of dust removal, the importance of open windows, and the abolition of dust-holding curtains. More especially he urged the importance of ventilating schools, partly for obvious reasons, but also to bring the children up to feel the need of fresh air. Smoke abatement must be taken seriously in hand, and though he advocated the open domestic grates, further improvements were still required. He hoped that the necessary mechanical power obtained from steam would soon be replaced by electricity and house-warming done by radiators. Housing of the poor and the unemployed question were also discussed.

CLIMATE AND HEALTH.

In Section III Dr. W. N. Shaw's address treated of climate and health, and confessed that with the crude meteorological statistics from a large number of places conclusions were very hard to draw. The ordinary observations included the height of the barometer, the direction and force of the wind, the temperature of the air and of evaporation, the amount of cloud and rainfall, and various incidental observations, such as fog, thunderstorms, etc. In some places sunshine records were kept. Dr. Shaw pointed to many conditions of climate that affect our comfort, and came to the conclusion that the ability to work harder and longer in London than in Oxford or Cambridge was not due to social circumstances and habits. Though the places were not far apart, certain fine distinctions made all the difference in the power to work in the three towns.

INFANT MORTALITY AND MILK.

In Section I (Sanitary Science and Preventive Medicine) there were several papers that should be widely distributed, as the matter was too full for a short abstract. Reference was made in last week's notice to some of the papers, and it must suffice to say that Dr. J. Fortescue-Brickdale read one on the Influence of Milk Supply on Infant Mortality; Mrs. C. Hamer Jackson on Prevention of Tuberculosis: a New Milk Supply; advocating the general supply of goat's milk, and Miss Marion Fitzgerald one on the Standard of Home Life and the Infant Mortality Problem.

In the Conference of Veterinary Inspectors two papers were read on milk supply by Mr. J. S. Lloyd on contamination in collection and transit, in which he advocated absolute cleanness of cows, sheds, food, water, and attendants, and the other by Dr. W. Savage on the hygienic control of milk supply, insisting on more efficient legislation, and greater powers for local authorities.

There was a conference on the hygiene of school life, in which the openers advocated the teaching of that subject in training colleges and secondary schools, and a conference of women on hygiene.

EMPLOYMENT OF CONSUMPTIVES.

In the Conference of Municipal Representatives Miss Hilda Joseph opened a discussion on the employment of consumptives whose disease has been arrested, and said

that it was an undeniable fact that a very large percentage of poor patients died within a few years of their treatment in sanatoriums. The reasons for this appeared to be that for the majority there was no help after they left the sanatoriums, that when help was given it was insufficient and not understood by the helpers, and the difficulties in finding employment. In Miss Joseph's opinion a scheme of the following sort would save many of these unfortunate persons. It is useless to put them to work on the land, the work being too heavy; but it might be possible to form an open-air colony in the country where the patients could be employed at their ordinary work, but only those could be accepted who had some one to assist in case of need. For instance, a large number of the East End of London consumptives are tailors, and with well-lighted and ventilated rooms they could continue their work in the colony. Printing and bootmaking might also be tried, and light farming promised an excellent opening. Miss Joseph, however, admitted that there would probably be a loss for some years over the tailoring manufactory, and it is quite possible that the public might not care to have their goods made by consumptives as many of the workers might be.

WASTAGE OF HUMAN LIFE.

The popular lecture given by Mr. W. Fleming Andersen was entitled the Wastage of Human Life. This interesting address was delivered in the Victoria Rooms on July 13th before a large and appreciative audience, the Bishop of Bristol presiding. Mr. Anderson's lecture was chiefly on the conditions of life among the poor in Glasgow, and he illustrated his remarks with a large number of photographs of the courts in which the workers live, of the ill-nourished babies of the factory hands, and of the municipal milk dépôt and the babies reared on the milk there supplied. Though the lecture took nearly an hour and a half to deliver it was never for a moment dull, and the audience by their applause showed that they had appreciated it.

HEREDITY AND PHYSICAL DEGENERATION.

The only other paper that can be given in any detail was the lecture to the Congress by Professor C. Lloyd Morgan, F.R.S., Principal of University College, Bristol, on "The Relation of Heredity to Physical Deterioration." He said: Every one can see that thousands of our fellow creatures are born and bred under conditions which preclude normal and healthy development. Anaemic, underfed, and overworked women bear to alcohol-tainted husbands children in an environment hopelessly insanitary, partly in ignorance, partly through wilful neglect. It is commonly stated that the race is deteriorating. This can only be proved by statistics, but we have no accurate ones, and, if we had, we should probably not know how to use them. We may divide the race into three cohorts, those deteriorating, those stationary, and those improving, and if we know the numbers of each we can draw conclusions with facts drawn from some previous generation, so that when we say the race is deteriorating we mean the first cohort outweighs the third. It would be possible to represent these cohorts pictorially, as is done with the navies of the Great Powers. But another factor has to be added—the increase in numerical strength of the population and in each cohort, for if more children are born in cohort 3 than in 1 the mean level will be raised, and vice versa. If, as is held by some, cohort 1 marries earlier, and has more children than cohort 3, we have a factor of deterioration. This is a cardinal point in Dr. Francis Galton's eugenics, and every legitimate and decent means should be adopted to increase the birth-rate in that section of the community which contains persons above the level of mediocrity, and a relative decrease in the births within the cohort of deterioration.

The next question to be considered is the relation of the statistical individual to what this individual might have been under the best possible conditions of nurture. The inevitable accompaniments of our social system are that many thousands of pale, peaky boys and girls in the congested parts of our great cities are prevented from attaining the strength and vigour they might attain if they had lived under more favourable circumstances, and the same obtains with thousands of office-bound men and women. Though all are not heirs to the same amount of inborn vigour, the child comes into the world with the possibilities of reaching a level of physical development. If science were equal to the task we could treat this statistically, and we should have a conception of the statistical individual as he might be under ideal conditions to compare with the statistical individual as he is under actual conditions. What is meant by "the race"? In speaking of deterioration of the race we mean one of two things—either the race as represented by the statistical individual in his actual state of development under existing conditions of nurture, or as gauged by its hereditary potentialities. It would be convenient to use the word "race" for the former, and reserve the term "strip" or "stock" for the latter.

Deterioration in the race does not necessarily imply degeneration of the stock. In this man differs from wild animals, which are pretty nearly all they can be. What, then, is the relation between the actual existent individual representative of the race and the ideal who realizes to the full the hereditary possibilities of his stock?

In every theory of heredity the germ cell is held to be the medium of hereditary transmission. All that a man can be is latent in the germ, though probably no human being realizes the whole of its inherited potentiality, some yielding thirty-fold, some sixty, and some a hundred; but we cannot in any given child accurately gauge its hereditary dower, nor say exactly how much of its inherited capital is realized in the course of life. If the grain—to again use the Parable of the Sower—falls on stony ground, and the scanty yield of seed again sown on stony ground for several generations, we obtain deteriorated crops, a shortcoming from the normal level of development. On this view deterioration is the result of unsatisfactory conditions of nature, not necessarily the result of any lack of hereditary potentiality. Is deterioration the same as degeneration? Degeneration is a lowering of hereditary possibilities, a depreciation of hereditary capital, and hence is far more serious than physical deterioration. But in drawing these distinctions the sociological fact must not be forgotten that the two are closely related, and that in so far as the hereditary possibilities are raised or lowered there is an improvement or degeneration of the stock. If those with less hereditary vigour are reproducing their stock with greater rapidity than those with greater hereditary stock the race must degenerate unless other factors of improvement counterbalance this tendency. Does physical and mental deterioration, as such, lead to degeneration? Or, in other words, is deterioration handed on as degeneration from one generation to another, or vice versa? The balance of expert opinion appears to negative these questions. In the development from the germ cells the majority build up the body, the minority hand on the torch of life, the germ cells produce germ cells, never the body cells germ cells. This, in brief, is the doctrine of germinal continuity—the primary basis of hereditary transmission. But there may be secondary means by which the highly-developed brain communicates to the germ cells acquired excellences. Of this there is no biological evidence, and it is difficult to conceive how it may be affected: and we may accept this doctrine, that modifications of structure—a function acquired in the course of personal life—are not inherited, whether they be in the direction of improvement or deterioration. This implies that such deterioration as is due to desire, even if carried through several generations, does not rob succeeding generations, reared under better conditions, of their goodly heritage. On the other hand, there is a fact which seems to justify another conclusion, that the hereditary possibilities are lowered producing degeneration. In alcoholic subjects it is held by some that the drug so permeates the system of the parent as to affect the germinal substance. There is an increasing number who hold the opinion that acquired characters are not inherited, and hence that unsatisfactory conditions of development are not transmitted. The generalized statement will be there. Acquired deterioration is not inherited, but deterioration of the germinal substance may lead to degeneration of stock, and this may be of sufficient importance to be reckoned with in any discussion of heredity in its bearing on social problems.

The dominant factor in the evolution of the lower animals is natural selection in which those born under unfavourable variations are eliminated. Under Galton's

law the statistical individual derives half his hereditary characteristics from his parents, a quarter from his grandparents, an eighth from his great grandparents, and so on, illustrating that the variations do not occur haphazard, and according to Pearson it is now possible to assign values to the coefficient of hereditary correlation between brothers and between a person and his parents or more remote ancestors. In instances this may appear to work out wrong, and we cannot foretell in what degree any given infant may depart from the statistical mean. If it is said that such conclusions are not applicable to mental characteristics, the reply must be that the data seem to justify the conclusion that approximately the same coefficient fraternal correlation applies to mental characteristics. Statistics which give the results for a large representative numbers of the population afford the only reliable data for scientific generalization. In natural selection there is a progressive elimination from below upwards, and if moral considerations permitted, we could unquestionably improve the human race by applying the methods of the cattle breeder. But something may be done by the pressure of public opinion and by a fuller realization of the principles of heredity to encourage the perpetuation of the best stock and to discourage the marriage of degenerates. We must be on our guard to avoid a fallacious mode of argument when treating with natural selection under social conditions of human life. It is often stated that since natural selection is dependent on the struggle for existence, it follows that natural selection is constantly in progress among mankind. It does not necessarily follow; it only follows that in so far as under this struggle men and women are prevented from marrying and begetting children. Natural selection is still operative in human evolution, as is best seen in the statistics of disease.

In a civilized race in which disease has been prevalent the inhabitants are less susceptible to attacks than those people among whom it has not been prevalent. It may be due to acquired immunity or to the weeding out of susceptible persons. This latter Dr. Reid accepts, though all are as yet not satisfied. The natural conclusion to draw is that the doctor and temperance reformer are in some degree enemies to the cause of progress, for under this theory the more people drink the less susceptible do they become to its effect.

If hereditary possibilities are to a very large extent beyond our control, all the more is the call on us so to better the conditions of life as to enable men and women to make the very most of the existing hereditary possibilities. This can be done by legitimate social means. Granting that we can do little to raise the hereditary possibilities, we can do much to improve the conditioning environment.

ENTERTAINMENTS.

Of the various social gatherings little need be said except that the visitors much appreciated the kindness of the hosts and the organizers of the excursions.

MEDICAL NEWS

AT the monthly meeting of the Wigan Infirmary held on July 5th Dr. Roocroft was appointed Chairman of the Board of Management.

A QUARTERLY court of the Directors of the Society for Relief of Widows and Orphans of Medical Men was held on Wednesday, July 11th, at 11, Chandos Street, Cavendish Square; Dr. Blandford, President, in the chair. Fourteen members were present. The death of Dr. John Clarke, who was elected a member in 1847, and had been one of the vice-presidents since 1867, was reported. Four new members were elected. The sum of £1,358 10s. was voted for the half-yearly grants to the annuitants of the charity. Five letters had been received from widows of medical men since the last court asking for relief, and this had in each instance to be refused, owing to the fact that their husbands had not been members of the Society. Mr. Edward J. Blackett was re-elected Secretary. The membership of the Society is open to any registered medical man who at the time of his election is in practice within a radius of twenty miles from Charing Cross. Full particulars and application forms may be had from the Secretary at 11, Chandos Street, Cavendish Square, W. The next election is on October 10th, and names of intending candidates must be received on or before September 19th.

AN urgent appeal is being circulated for immediate help to the Factory Girls' Country Holiday Fund, which this year has received 1,000 more applications than usual. The fund sends female factory hands into the country for a week or a fortnight, the girls saving up their money and paying the major part of the expense. In previous years we have pointed to the value of this society; the address of its Honorary Secretary is St. Peter's Rectory, Saffron Hill, London, E.C.

A LARGE and influential Committee has been formed in Wimbledon (with Lord Rathmore as Chairman) to secure subscriptions for the purpose of establishing a permanent memorial to the late Dr. Poole Collyns, who died in May last, and whose death was announced in the BRITISH MEDICAL JOURNAL of June 30th. Dr. Collyns was one of the best-known medical practitioners of Wimbledon, and took a very keen interest in the Cottage Hospital at Copse Hill. Consequently the suggestion that the memorial should be associated with the Cottage Hospital has been very favourably received by his many friends and admirers, and a ready response has been given to the appeal for funds for so worthy a project.

AT the statutory meeting of the Hampstead Garden Suburb Trust, Limited (32 and 34, Theobald's Road, W.C.), held on July 17th, the accounts submitted showed that a sufficient number of shares and debentures have been taken to make the progress of the scheme assured. A large number of applications for allotments have been received, but land still remains for disposal. The mapping out of the estate and the building regulations have been carefully planned, so that each occupant of a house, whether large or small, will be able to enjoy the view of the surrounding country, and the ground rents will be arranged so as to meet all purses.

THE occurrence of an epidemic of diphtheria has given rise to a good deal of excitement in the village of Fleckney in Leicestershire and led to the holding of an open-air meeting. At this much dissatisfaction was expressed at the manner in which the District Council was dealing with the matter, and several alternative proposals were put forward as to what should be done. In the end it was resolved to make an appeal to the County Council direct. The disquiet felt is by no means unjustified, for a large proportion of the houses of what is, after all, but a small village have been attacked. A few years ago the total population had fallen very low, but of late years has risen rapidly, owing to the erection of several hosiery factories. The place now appears to be overcrowded and to lack a proper water supply and efficient sanitary arrangements.

THE thirteenth annual meeting of the Governors of the National Society for the Employment of Epileptics was held on July 16th. The reports submitted and adopted showed that during the year 150 more acres of land have been acquired at the Chalfont Colony, raising its total to 360 acres, and its accommodation to 198 patients. In spite of the rapidity with which the Society has extended its operations, it has been found impossible to keep pace with the applications for admission, the result being that candidates have to wait an undue time for a vacancy. The Council expresses deep regret that this should be the case, because it is above all things desirable that cases should come under treatment in an early stage. The honorary medical staff supports this view, and adds that until opportunities for early treatment have been acquired the curative possibilities of colony life cannot be considered to have been tested.

THE average number of Europeans resident in Ashanti during 1905, according to the recently-issued Colonial Office Report, was 259, of whom 55 were officials, and their general health as compared with that of the white population of the coast towns is described as good. Five deaths occurred, representing a mortality of 19.3 per mille, and 32 persons—10 official and 22 civilian—were invalided. The medical staff consists of 6 medical officers, 2 of whom are stationed at Kumasi. Small-pox threatening the capital, all the troops, together with their wives and children, to the total number of 1,361 persons, were vaccinated, and no cases occurred either in or near the town. At the native hospital nearly 18,000 out-patients were treated and 815 in-patients were admitted. A new native hospital and out-buildings were completed before the end of the year, and a European hospital is now in course of construction. Particular attention is being paid to sanitation; street drains are now cemented and all cesspools have been done away with. Surprisingly rapid progress is being made in Kumasi, the capital showing greatly increasing importance as a trade centre, so much so that the fact is specially mentioned as "one of the most encouraging features in the political situation in Kumasi."

British Medical Journal.

SATURDAY, JULY 21st, 1906.

MEDICAL SUPERVISION OF SCHOOL CHILDREN.

The acceptance by the House of Commons, on the advice of the medical profession expressed through the British Medical Association, of the principle of universal compulsory medical inspection of school children, imposes upon the profession a further duty to which attention must be given without delay. Recognizing the necessity for prompt action, the Chairman of the Representative Meeting intends, we believe, to issue a special circular to the Representatives of Divisions in order that the important questions which have arisen may be considered at the meeting next week.

Those who have taken an active share in stimulating public opinion to recognize that the State, having decreed that all children shall receive an elementary education, thereby incurred a corresponding responsibility with regard to the physical health and development of those children, have indeed good cause to congratulate themselves on the remarkable advance which took place last Monday, and not least perhaps upon the significant way in which this advance was brought about.

At noon Mr. Birrell received a deputation from the British Medical Association, supported by certain other bodies, to urge upon him the importance of accepting the principle of Mr. Tennant's amendment to Clause 35 of the Education Bill. The Bill as it stood proposed to give local education authorities power, with the sanction of the Board of Education, to make arrangements "for attending to the health "and physical condition of the children edu- "cated in public elementary schools." Mr. Tennant asked Parliament to have the courage of its convictions and to provide "that it shall be the duty of every local "education authority to make arrangements, in accord- "ance with a scheme to be made by the Board of "Education, for attending to the health and physical "condition of the children educated in public ele- "mentary schools." Mr. Birrell was asked to accept the amendment because in the opinion of the medical profession three reforms are immediately required in order that the health of the children attending elementary schools may be properly safeguarded; first, that a medical department shall be formed in the Board of Education itself; secondly, that the local education authorities shall be under a compulsion to make provision for the medical inspection of elementary school children; and thirdly, that this inspection shall be made when the child enters school, and repeated during its school career. It was very obvious that Mr. Birrell when he received the deputation was in great doubt, not only as to what the opinion of the House of Commons would be, but also as to whether, supposing it to be in favour of compulsion, it would have the courage so to enact. That afternoon Mr. Tennant's proposal received so much support from both sides of the House that by seven o'clock Mr. Birrell had found salvation, and undertook to put down for the report stage of the Bill a subclause to the following effect: "It shall be the duty of every local authority to "provide for the medical inspection of every child on "its application for admission to a public elementary "school, and on such other occasion as the Board of "Education may direct or the local education authority "may think fit."

The difference between Mr. Birrell's new subclause and Mr. Tennant's is that the former would leave it to local authorities each to frame its own scheme of medical inspection. This must lead to some confusion and inequality of practice, but compulsory medical inspection of children admitted to a public elementary school is a long step in the right direction, more especially as the Board of Education will have power to require medical inspection on other occasions, and the local authority will be authorised to make such inspections as it may think fit.

Sir Victor Horsley, speaking at the deputation on behalf of the British Medical Association, said that the voluntary system which left it to the local education authority to carry out the hygiene of the school and of the scholars and the teaching of hygiene and temperance in the way it thought best was not satisfactory to the medical profession, which felt that the Board of Education should itself take the lead in prescribing the measures to be taken in respect to both matters. Medical opinion, therefore, was in favour of a central medical department of the Board of Education to correlate the reports of local authorities and the experience of other countries. Mr. Birrell informed the deputation, and afterwards stated in the House of Commons, that the Board was proposing to strengthen its medical staff at head quarters, not for the purpose of medical inspection of schools, which must be carried out by local doctors to be appointed by the local educational authority, but to see that the local authorities were discharging their duties and were kept informed of what was being done in other countries.

The medical profession having done this service to the country, having induced the House of Commons to prescribe medical inspection at entrance, to authorize its repetition, and to sanction the creation of a central medical staff to guide the Board of Education, the profession have thus got clearly established the principle that it is the duty of the State to promote the health and sound physical development of the children compelled to attend school, it remains for it to secure complete continuous medical supervision, and its proper local organization. Two systems of medical supervision have been suggested, by special officials or the medical officer of health, or by general practitioners. The first is the plan towards which we have been drifting, the second is that which has produced such valuable results for a relatively trifling expenditure in many American and Continental cities. In large cities a combination of the two systems may prove desirable, but for the country at large the choice lies between the two, and there is still time for the voice of the medical profession to be heard. The Government evidently looks to it for guidance, and the machinery for the formation and expression of a definite opinion exists in the British Medical Association through the Representatives of the Divisions, and the Central Executive. But the opportunities of the profession in this crisis do not end here, for local education authorities will be disposed to look to the local profession for advice and guidance which the Divisions will be very competent to give, and which they ought therefore to be prepared to offer. The whole question is of very great

practical importance, and one upon which the general body of the medical profession should speak with no uncertain voice.

THE BY-EFFECTS OF HYSTERECTOMY AND OÖPHORECTOMY.

By no means infrequently it has happened that the introduction of a new surgical operation has not alone revealed the existence of unsuspected problems in the physiology of the human body, but has also suggested the experimental methods which might be utilized for the solution of those problems. The introduction of oöphorectomy, for instance, led directly to an inquiry into the relationship existing between the ovaries and the phenomena of menstruation and metabolism; to a certain extent also these problems have been investigated by means of experimental methods in which the removal of these glands in the lower animals has been the chief procedure adopted. Within recent years there has occurred a great development of the operation of hysterectomy, and this likewise has been the means of raising new problems in connexion with reproduction and body metabolism. It has been found, as might indeed have been expected, that the removal of the uterus produces a novel state of affairs in the bodily economy not free from consequences which are troublesome, and may even turn out to be somewhat serious. An immediate result has been that operators have begun to try to leave some ovarian tissue in their hysterectomy cases in order to find out whether its presence would diminish the results due presumably to the taking away of the uterus. In the meantime the question has suggested itself to surgeons and physiologists whether the uterus has other functions than those of serving as a nest for the reception and protection of the fertilized ovum. Experiments have also begun to be performed on the lower animals with the object of settling this matter, and we publish this week an interesting record of experimental work upon reproduction in rabbits carried out by Mr. C. J. Bond of Leicester and Sir Victor Horsley.

These experiments were performed upon the rabbit, in which there is, of course, a bicornate or two-horned uterus, and in which pregnancies follow each other with a rapidity useful for experimental purposes, although it has proved somewhat embarrassing to mankind in the Antipodes. The first question investigated was the effect produced upon the ovaries by removal, in whole or in part, of the uterus. The whole organ, but not the Fallopian tubes, was removed, with the result that oestrus occurred as usual on three occasions; and then, when the rabbit was killed, it was found that ovulation had been going on. In another case one cornu was taken away; oestrus and ovulation occurred, and, further, a pregnancy took place, and six young ones were born. The animal was then killed, and it was found that both ovaries had been active (corpora lutea being present in both), and that both cervices had undergone the hypertrophy peculiar to gestation. In the rabbit, therefore, the removal of the uterus does not prevent the continuance of the functions of the ovary, and the removal of half the uterus does not interfere with the function of ovulation in the ovary of the same side. So the double uterus of the rabbit acts as one organ or gland, so far as the function of pregnancy is concerned. These are important facts to have ascertained experimentally, and the last conclusion is noteworthy as showing that although there is physiologically a great difference between the rabbit and the human subject still the existence of a double uterus in the former and of a single in the latter need not necessarily invalidate the results.

A second series of experiments were carried out in connexion with the production of hydrometra and hydrosalpinx in the rabbit. It was found that if a uterine cornu or tube were ligatured in two places a clear fluid containing much sodium chloride collected in the cavity, and this happened even when the cornu was transplanted to another part of the abdomen and also when both ovaries had been removed and neither oestrus nor coitus had occurred. The secretion, however, did not take place when there was a pregnancy going on in the other cornu. This saline fluid is regarded as the secretion of the uterus or tube, and its experimental production is held to strengthen the view that in the human subject hydrosalpinx is not an inflammatory state but the secretion of the mucous membrane. It was shown, further, that the retention of this secretion, while it lengthened the period of oestrus and caused it to occur more frequently, was instrumental in producing abortion and in bringing about a polypoidal or adenomatous state of the cornu to which the ligatures had not been applied. An interesting suggestion is that the adenomatous polypi were abortive placental attachments. The retention of the saline secretion seemed also to have a prejudicial effect upon the nutrition of the animal, and to interfere with the formation of lutein substance in the ovary of the same side in cases of pregnancy (even if the ovary were transplanted). It is thought that the saline secretion antagonizes in some way the internal secretion of the ovaries which has as its function the preparation of the uterine mucosa for the reception of the fertilized ovum; it is thought also that the preparation of the uterine mucosa reacts upon the ovaries (by the blood stream) and sets up the formation of lutein in these organs.

A third series of experiments seemed to prove very clearly that compensatory hypertrophy of one ovary may occur (as shown by an increased number of corpora lutea in it) and that this hypertrophy is largely dependent upon the continuance of coitus and the occurrence of pregnancy. It may take place after hysterectomy if coitus be continued. Apparently, also, the presence of the semen in the genital canal has a stimulating effect upon the ovarian function. In the absence of pregnancy, coitus seemed to cause the formation of pseudo-corpora lutea in the ovaries. Mr. Bond is careful to point out that the compensatory hypertrophy of the ovary met with in the rabbit does not seem to be found in the human subject in cases of removal of one gland; but it may turn out that this is too sweeping an assertion.

There are several other matters dealt with in this experimental research which are of great interest and which are fully considered in the article (the bearing, for instance, of the experiments upon the theories of menstruation and ovulation and internal secretions); but enough has been said to indicate the importance of the questions involved in view of the frequent performance of hysterectomy and oöphorectomy now-a-days.

THE WAR MINISTER ON ARMY SANITATION.

THE scheme of military organization unfolded by Mr. Haldane in his long speech on the Army Estimates last week, the third scheme presented to the country within the last few years, has already encountered a good deal of criticism, and it would appear that even the most experienced critics have found difficulty in

grasping its full significance. This may be due to the fact that any scheme of the kind must necessarily be extremely complicated, but it is safe to say that the keynote is to justify reductions in expenditure and in *personnel* by increasing the efficiency of the units retained. In his remarks upon the health of the army, Mr. Haldane made it plain that he had grasped the essential points in the problem; he proposes that in war the preservation of the health of the army shall be one of the first considerations, and that it should be carried out by an organization, one part of which would look after the health of the unit, and the other after the health of the base and lines of communication. He recognizes the necessity for the sanitary training of officers and men of the army in the means now available for the prevention of disease. The instruction given to officers in future is to include health matters so far as they bear on the health of their companies, and the company officer is to instruct his men in the object and meaning of the precautions to be taken. A manual has been prepared by the Army Medical Department, and it will henceforth be the duty of the company officer not only to study and understand the manual himself, but also to see that the men under his command read and understand it. He intends that in time of war the unit of the sanitary organization for regiments shall consist of one medical officer, one non-commissioned officer and four men of the Army Medical Corps, to look after the water supply, and for similar services one commissioned officer will be appointed to supervise sanitary police duties. The Royal Army Medical Corps non-commissioned officers and men detailed for these duties will be trained at Aldershot, where special arrangements have been made for this purpose. For the lines of communication sanitary sections of the R.A.M.C. will be allotted, whose sole duty it will be to look after the means for the prevention of disease; while at the base there will be a general sanitary commission having duties which may be compared to those of the medical department of the Local Government Board.

Mr. Haldane briefly referred to a sanitary campaign to be carried out from Aldershot during the autumn manœuvres. We understand that the intention is—acting upon the advice of the Army Medical Advisory Board—to issue strict regulations with regard to water, forbidding the use for drinking purposes of any water not furnished by a special water section. The proposal probably has reference to "the new system of filtration." It is to be hoped that the sanitary campaign will demonstrate the perfection of this new system of filtration, and thus solve the hardest problem of the sanitarian in the field; if this be attained, it will more than justify the eulogy passed by the Secretary of State on the present Director-General, whose efforts in the matter of sanitation receive the acknowledgement they deserve.

In the scheme thus briefly outlined we have the beginning of the evolution of a sanitary section of the Royal Army Medical Corps, whose duties will be to lead the way in the prevention of disease, and we have the beginning of a system of educating regimental officers to understand that one of their most important duties is to safeguard the health of their men. The members of the sanitary section of the R.A.M.C. will not have to attend to the sick, but to look after the health of the troops and to prevent disease. The natural result will be the reduction of the sick-rate, the increase—relatively to former days—of the fighting strength of the regiments, and diminished impedimenta in the shape of hospitals. Mr. Haldane, having grasped these very solid advantages, proposes to make economic application of them without delay by reducing the hospital accommodation to be provided in war from 10 per cent. to 7 per cent. of the strength of the field army. The provision of 10 per cent. was strongly recommended by the Hospitals Commission after the last war, but if and when his sanitary schemes are in full working order, it is probable that Mr. Haldane will be justified in making the reduction he now proposes. The effective execution of sanitary measures should produce a reduction of more than 30 per cent. in the number of cases of preventable disease; and it is through disease rather than through wounds that our armies have hitherto more than filled the hospitals.

So far as Mr. Haldane's sketch goes, it gives every indication of an earnest desire to give effect to the recommendations so frequently urged in these columns for the application of modern sanitary principles to armies in the field. The inculcation of these principles into the rank and file of the army indicates that the military authorities are alive to one of the two great defects of civil education. The other defect—the lack of military training—is without our province; it is gratifying to the medical profession, putting aside for the occasion their military instincts, that hygiene, untaught in the schools, should find acceptance in the army; and Mr. Haldane is to be congratulated on his efforts to deal thoroughly with a problem dear to the minds of all concerned in the preservation of the lives of our soldiers.

ANNUAL REPRESENTATIVE MEETING.

The Annual General Meeting of the British Medical Association will be opened on Tuesday next at 10 a.m. at Caxton Hall, Caxton Street, Victoria, Westminster. The hall is close to the St. James's Park Station of the Metropolitan District Railway and within two minutes of the omnibus lines from Tottenham Court Road and the Strand to Victoria Station. The Annual Representative Meeting will commence immediately after the conclusion of the Annual General Meeting. The meeting will have on this occasion to select a chairman, Sir Victor Horsley having declined to allow himself to be put in nomination again. In addition to the ordinary annual report of the Council, published in the Supplement to the Journal of April 28th, the meeting will have before it the report of the Organization Committee embodying the draft of a Royal Charter published in the Supplement of March 24th, together with the findings of the Council and of Divisions with respect to the draft. The annual reports of the Medico-Political Committee (Supplement, July 14th) and of the Ethical Committee will also be presented, and a number of resolutions for the amendment of by-laws and regulations of the Association are on the agenda paper. The members of the Metropolitan Counties Branch are taking the opportunity of making some return for the hospitality shown to them at many annual meetings in other centres by inviting the Representatives and members of the Central Council to a *conversazione* in the Natural History Museum, South Kensington, on Tuesday evening. On Thursday evening the Irish Medical Schools' and Graduates' Association will give a *conversazione* and dance at the Hotel Great Central, Marylebone Road.

ORGANIZATION OF NURSING FOR WAR.

The remarks made by Mr. Haldane in responding to a vote of thanks to him for his address at the London Hospital the other day (p. 174) must be of peculiar interest to the nursing profession, indicating as they do that in his schemes for the remodelling of the military

forces he has not lost sight of the fact that the army will require a large number of nurses for war. Mr. Haldane did not expand his views on the subject of mobilization of the nurses. But none the less it is desirable that the nurses of the various hospitals should recognize that they will be expected to take their share in the scheme of national defence, and should debate the question as to how they can best make themselves available for prompt transference to military hospitals in the field. On the outbreak of war, nurses are among the first to offer their aid; military enthusiasm which remains dormant until the outbreak of war is better than indifference, but experience has shown us that delay in preparedness leads to untold confusion, and results in suffering and loss of life which may be avoided by a little forethought. It is therefore incumbent on the nurses of to-day to take thought how they can be ready to fulfil their dormant desire to be of use in a moment of national emergency. They must realize in times of peace the functions they should fulfil in war, and should prepare to meet these functions in a manner which will obviate delay to the army and dislocation to the institutions they at present serve. It is not business to wait until an emergency before making provision for meeting it. Every sound commercial undertaking contains a promptly available reserve on which it can readily draw in times of stress. It is therefore to be hoped that Mr. Haldane's remarks indicate that he has grasped this principle, and has included in his schemes some system on which he can rely for the "mobilization" of nurses.

THE DISCIPLINE OF MIDWIVES.

THE Central Midwives Board has been actively—and we think beneficially—exercising its disciplinary powers. No less than twenty-three midwives have been this year struck off the Roll, and we are given to understand that the Board will be called upon to deal with many more cases at an early date. As in each case in which a name has been removed the woman concerned has been deprived of her chief means of earning a livelihood, it may seem as if hard measure had been dealt out; but when we look into the reasons which made the Midwives Board so act, we do not find that this theory can be sustained. In four cases the midwife was drunk and incapable while in charge of a case. We cannot think that any one will advocate that a woman capable of going to attend a confinement in such a condition should be allowed to practise. The most frequent cause for removing a midwife's name from the roll was the omission to send for a doctor when grave symptoms arose. As full particulars are not published, we cannot discuss the action of the Board in these cases, but we have no doubt that in these cases the Board proceeded with the greatest caution, and exercised the largest charity to the midwife; a midwife may make a mistake, and underrate the gravity of her patient's symptoms, and it would be harsh to deprive her of her living for an error in judgement. Since calling in a doctor throws an expense upon the patient, who has probably entrusted herself to a midwife because she wanted to avoid expense, there is an impalpable pressure upon the midwife, tending to restrain her from calling in a doctor if she can possibly help it. Further, some patients cannot pay, and there is in most places no fund out of which a doctor can be paid, and the midwife, who would gladly have the doctor's help, naturally shrinks from inflicting on him a gratuitous and possibly unnecessary visit. We have no doubt that these considerations have been borne in mind by the Midwives Board, and that they have been careful to distinguish errors in judgement from culpable negligence. We observe as another cause for removing a midwife's name from the Roll, absolute refusal to use antiseptics, to comply with the Board's instructions as to the cleanliness of her clothing, or to take with her the few appliances she is ordered by the Board's regulations to take. In such cases the Board does right to act unflinchingly. If a medical practitioner sets up his own opinion in opposition to that of the leaders of medical science in every civilized country he incurs a very grave responsibility, but in Great Britain we attach so much importance to originality, to freedom of thought and observation, that we shackle no trained man's opinions. But the case is different when a woman with a mere smattering of knowledge presumes, in matters involving the issue of life or death, to refuse to take the precautions which experience all over the civilized world has shown to be desirable. There were other cases in which midwives did not refuse to be clean, but, nevertheless, neglected cleanliness and antiseptics. In such cases the difficulty is to distinguish between habitual neglect and occasional omission or inadvertence. A midwife who habitually neglects antiseptics is practically one who refuses to use them, but occasional omission by inadvertence calls for instruction and admonition. One woman we observe fed a baby on oatmeal and gin, and gave injections by the rectum which were ordered for the vagina; it is not surprising to find that so incompetent a person was also dirty, and unmindful of antiseptics, and it would have surprised us if the Midwives Board had allowed her to go on practising. We think that in exercising its authority in this way the Midwives Board has fulfilled a public duty. Provision is wanted for the payment of a doctor's fee in cases in which a midwife needs assistance; and doubtless in time this will be arranged. But it cannot be too widely known throughout the land that midwives who do not keep themselves clean, who wear dirty dresses, and use no antiseptics, will not be allowed to go on attending confinements. When this has been borne in upon the minds of midwives it will not be long before the public learn it too; and a diminution of the mortality of childbed will be the result.

THE HYGIENE OF CHURCHES.

THERE is no doubt whatever, it must be confessed, that the hygienic condition of our churches leaves much to be desired. Fixed seats form dust traps which it is practically impossible to cleanse; the weekly cleanings are often of a very perfunctory nature; ventilation is a science which hitherto no one seems to have mastered; and, in short, no germ ought to complain that a fair field is not afforded it. So far, however, remarkably little attention has been given to the subject in this country, and it has been left, curiously enough, to Dr. Chateau, a Portuguese physician resident in Bahia, to treat of it in an "ouvrage couronné" by his Faculty. The author is evidently unafraid of the *furor clericus* that it is safe to say will fall upon him, for he writes, it must be remembered, in a land where it cannot be said that superstition is remarkable by its absence, and he enunciates his revolutionary hygienic rules with small regard to the feelings of the clergy. However desirable it may be from a sanitary point of view, it is, he premises, unreasonable to suppose that people would care to pull down existing churches for the sake of building others on the latest hygienic lines. Here, no doubt, his compatriots, no less than the authorities ruling over the destinies of Canterbury, Westminster, and other insanitary buildings of like nature, will be inclined to agree with him. It is when he passes from the general to the particular that he is likely to find himself at issue with his ecclesiastical readers. The great leather portals at the main doorways are to be removed, permitting free ingress to the light and air; all kissing of relics is to be put a stop to; and

the confessional boxes are in like manner included in his Index Expurgatorius. These points, as will be seen, do not affect the majority of churches in our land, nor is it likely that we shall see any necessity for adopting his suggestion that minatory placards anent expectoration at large be affixed to the walls, and the measure further enforced by a generous installation of "raised "antiseptic spittoons in the choir, near the altars (!), "and in short, wherever necessary." But, with these exceptions, there is much sound common sense in Dr. Chateau's recommendations. He would banish all fixed seats, and replace them by light iron or wooden chairs that can be easily washed. Curtains and hangings are similarly anathema, every door is to be well provided with mats, gas is to be superseded by the electric light, and thorough ventilation is to be ensured by opening all doors and windows after the services. It is, however, with regard to the cleansing of the building that our ecclesiastical hygienist is most insistent. Dry sweeping is on no account to be permitted. Every day sawdust damped with antiseptic solution is to be freely scattered on the floor and then swept up, while the seats and easily-reached parts of the building are to be cleaned with a sublimate solution. It would, perhaps, be not always convenient to carry out so thorough a system of warfare against the bacillus as Dr. Chateau suggests, but his general principles are unimpeachable, and as our churches are no less responsible for the dissemination of catarrhs and other more serious maladies than are the theatres, it would be a good thing if more were done to cleanse and disinfect them.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY (SECOND NOTICE).

ALLUSION has already been made to three of the most interesting of the medical terms in the present part of Dr. Murray's *New English Dictionary*;[1] these three were the words *physician*, *physic*, and *pharmacy*. We take up the *Dictionary* again, in order to refer to several other almost equally interesting terms. *Phagedaena*, "an "eating sore, an ulcer that spreads and corrodes the "neighbouring parts," comes like an evil dream to remind us that hospitals were not always the clean, sweet places they generally are now. *Phagedaenic water* was a liquid used for cleansing ulcers, and the date (1704) of the following quotation is noteworthy: "Phagadenick water is made by dissolving a dram of "sublimate corrosive in a pound of lime water." In startling propinquity to phagedaena comes the word *phagocyte*, bane and antidote being thus brought side by side by alphabetical necessities. Here is Dr. Murray's definition of the useful phagocyte: "A leucocyte "(white blood corpuscle or lymph corpuscle) which, "under certain conditions, has the power of absorb- "ing and destroying pathogenic microbes by a process "of intracellular digestion, and thus of guarding "the system against infection." An illustrative quotation (date 1889) reads thus: "Metschnikoff's theory is "that by accustoming these corpuscles, which he calls "'phagocytes,' to tolerate a weak form of the poison "produced by pathogenic bacteria, we 'educate' them, "so that they are able subsequently to resist and "eventually to attack and destroy the same pathogenic "bacterium in a stronger and deadly form." There is a mine of information in that definition and quotation, as every one who knows the subject will perceive. Around the word *phagocyte* has already grown up a family of new terms—*phagocytal*, *phagocytic*, *phagocytical*, *phagocytism*, *phagocytosis*, and *phagocytoblast*. We use the word *phalanges*, for the segments of the digits, often enough in medical phraseology; but it is doubtful whether our minds often go back in thought to that primary visual image of a compact body of infantry drawn up in close order to which the name Macedonian *phalanx* was given; the *Dictionary* gives us a lesson in ancient history here. *Pharyngitis* is given as a word not yet naturalized, while *pharyngectomy* would appear to be so recognized, although the former is illustrated by a quotation of date 1844 and the latter by one of 1890. Many words begin with the syllable *phen-*, and it is not evident at first why they should be derived from the Greek verb—meaning to bring to light—until we remember (or are helped by the *Dictionary* to remember) that *phenol* and its many compounds were obtained from coal tar—a by-product in the preparation of illuminating gas. Other medical names are *phimosis*, *phlebitis*, and all the compounds beginning with *phlebo-*. *Phlebotomy* and *phlebotomize* have many interesting illustrative quotations annexed, from which we select one or two. Dr. Johnson, writing to Mrs. Thrale (1780) says: "Gentle purges and slight phlebo- "tomies are not my favourites; they are pop-gun "batteries which lose time and effect nothing." In a quotation from the *Pall Mall Gazette* (1865) we read (we almost fancy there is a tone of regret in it), "These "phlebotomizing days are now, however, long gone by." Certainly venesection is now so seldom practised that the sentence taken from a work of 1644 has little meaning in modern ears: "Body politiques, as well as the "frayle bodies of men, must have an evacuation for "their corrupt humours, they must be phlebotomized." Another word with a remarkable history and with many orthographical vicissitudes is *phlegm*; the four bodily humours of olden days were blood, phlegm, yellow bile, and black bile, and so came the first meanings of sanguine, *phlegmatic*, etc.; but now *phlegm* is nasal mucus, no more, and to be got rid of, "hostit out" as the Scots say. When one feels the nose hot before a catarrh develops, one is only after all working out for one's self the derivation of the word phlegm: *phlegmon* and *phlegmasia* are expansions of the idea. From an old word like phlegm the *Dictionary* soon brings us to a very new one in the form of *phonendoscope*, which is sufficiently defined as "an apparatus for "rendering small sounds in the human body, or in "solid bodies in general, more distinctly audible." "*Phossy jaw*" is the popular name for phosphorus necrosis of the jaw, "one of the familiar dangers to life "of the East-end match girl." *Phosphorus* and its associated words have several columns of illustrative quotations in the *Dictionary*, and *photophobia* brings to mind the shrinking from light shown by the baby with ophthalmia, or the albino with retina unprotected by pigment. Another long list of words find their root in *phren*, the Greek name for the diaphragm or upper part of the abdomen, "anciently supposed to be the seat of "the mind"—so we have *phrenesis*, *phrenitic*, *phrenic*, *phrenitis*, *phrenalgia*, *phrenology*, and many others. We note that *phthiriasis* is kindly regarded by Dr. Murray as a non-naturalized word; let us hope it will always be an undesirable alien. The BRITISH MEDICAL JOURNAL is brought forward as employing the wonderful word *phtheirophagous*; here is the exact reference (no getting out of it for us), BRITISH MEDICAL JOURNAL for 1899, November 4th, page 1278, and here is the quotation: "Lice . . . "caused little inconvenience and afforded employment "to the phtheirophagous natives." We can only plead in apology that the word was used by the writer of a paper in the Section of Pathology. *Phthisis*, from the Greek, means pulmonary consumption now, but it once had a wider significance; *phthisical* was formerly spelled *tissical*. *Phyma* and *physcony* are little used medical terms which the *Dictionary* carefully derives and defines; *pia mater* has a curious origin, and signifies "thin or tender "mother"; "*pile*," among its many meanings, has a medical one: and *pile wort* is a less euphonious term than lesser celandine for Wordsworth's favourite ranun-

[1] BRITISH MEDICAL JOURNAL, July 7th, p. 44.

culus. Finally, we may cite, as a restorative, after so much *Dictionary*, the word *pick-me-up*, which is said to have had its meaning extended to beverages, medicinal preparations, etc., supposed to have restorative and tonic qualities; but there is a warning quotation which speaks (date 1900) of "the incautious use of a pick-me-up in which strychnine was an ingredient."

THE LONDON SCHOOL OF CLINICAL MEDICINE.

The London School of Clinical Medicine completed its first term of active work on July 10th. It was attended by forty-two practitioners, some engaged in general practice in the provinces, others belonging to the army, navy, Indian, and other public services, the remainder being practitioners from the British Colonies or from America. This diversity of students is an auspicious feature, because it gives good promise for the future that the facilities offered to post-graduates are likely to be taken advantage of by men engaged in every variety of practice, and that the School will appeal, as was intended, to a world-wide constituency prepared to avail itself of educational opportunities at home rather than abroad, if they are provided in such a way as to meet the practical requirements of those who desire, from time to time, to keep themselves abreast with modern developments in medicine and surgery. The amount of clinical material has proved sufficiently abundant. The records show that there has been a large number of cases of exceptional interest, and that every clinic has been amply provided with patients illustrative of most varieties of disease. Since the formation of the school a number of residents in Greenwich have intimated their willingness to let rooms on reasonable terms, so that there is now no difficulty in securing comfortable accommodation in the immediate vicinity of the hospital. There is an impression abroad that Greenwich is inconveniently far from London, but the Dreadnought Hospital is no further in point of time from, say, Trafalgar Square, than several other large hospitals and schools, and there is reason to believe that ere long the time spent on the journey, which need not now exceed half an hour, will be materially shortened. The alterations in the hospital which the establishment of the School has entailed are being systematically carried out, and much has been done to promote the comfort and convenience of those who work within its walls, whether as teachers or students. In a new institution such as this development is almost invariably delayed by want of sufficient financial support. The generosity of public benefactors may with full propriety be invoked to mark with substantial approval the enlightened policy of the Seamen's Hospital Society, either by assisting the charitable work of the hospital or by enriching the coffers of the clinical school. We are confirmed in our original opinion, to which we have already given expression, that the policy of the Governing Board of the Seamen's Society will achieve the success it merits, and we congratulate both the Board and staff upon the evidences of this prosperity which are shadowed forth in the results of the work accomplished during the first session of the new School.

ASYMMETRICAL EVOLUTION OF THE PREGNANT UTERUS.

At a recent meeting of the Obstetrical Society of Berlin, Dr. Brüse[1] reported what he believed to be the earliest pregnancy ever diagnosed with certainty, and exhibited an ovum of the third week, 5 millimetres in length, expelled a week after the diagnosis. The case also illustrated a condition probably not so rare as is still believed — namely, irregular, that is to say unsymmetrical, evolution of the uterus.

[1] *Zentralbl. f. Gynäk.*, No. 18, 1906, p. 527.

We may note that Paul Bar[2] detected in early pregnancy what seemed to be a soft tumour containing the fetus attached to a firm uterus. Between the soft tumour and the uterus there was a certain degree of mobility. Yet the pregnancy proved to be perfectly normal, the soft tumour being part of the uterus, the remainder of which gradually softened as gestation advanced. This condition has been taken for cornual pregnancy or for fibroid tumour complicating gestation. The fact is, irregular evolution is probably not infrequent during the early weeks of normal uterine gestation. Dr. Brüse's patient—a woman subject to phthisis—consulted him on January 19th. She had missed a period, the last taking place on December 13th, 1905, and believed that she was pregnant. On examination, Brüse found that the uterus was hardly enlarged, but noted that the left half was decidedly larger and softer than the right, while a distinct depression was definable between the left cornu and the rest of the uterus. On January 25th laminaria tents were applied, but did not set up uterine contraction; the next day the uterus was dilated, and the ovum removed. The uterine cavity was then carefully explored, and the right portion of the uterus, which was still firm, was found to be quite empty, the ovum having occupied the softer left portion. This question of consistence in relation to the implantation of the ovum has been disputed. Bar, to whom Brüse does not refer, apparently takes it for granted that the uterus must needs be softest where the ovum lies, but Brüse notes that though von Braun and Piskacek are of the same opinion, Schauta considers that the firmer part holds the ovum. Von Braun, in a discussion with Schauta, cautiously observed that this question must remain unanswered until an unsymmetrical uterus in very early pregnancy could be examined after total hysterectomy or at a necropsy. Piskacek objected that the uterine tissues are altered by death. Brüse considers that in his case the conditions for deciding the question were far more satisfactory, for he had diagnosed enlargement of the left part of the uterus with distinct softening, and found, when he induced abortion, that the ovum lay in that part. He further claims to have detected pregnancy with accuracy in the second week—the first instance on record of so early a diagnosis. Unsymmetrical and irregular evolution is of some importance, as it may lead to erroneous diagnosis of cornual, interstitial or tubal pregnancy. Hence it would be interesting if we could define the proportion of normal pregnancies in which evolution is distinctly unsymmetrical during the earliest stages.

[2] Note sur la Grelle de l'Oeuf dans une Corne Utérine, *Bulletin de la Soc. d'Obst. de Paris*, March, 1902, p. 168.

THE AMBULANCE NEEDS OF LONDON.

Though the result may not be very consoling it is satisfactory that the action of Lord Camperdown's Committee in striking the Ambulance clause out of the London County Council's General Powers Bill should have been the subject of debate in the House of Lords on Monday. We now know the quarter whence the opposition came, and the grounds of the decision reached. On the reinstatement of the clause being formally moved, Lord Camperdown stated that the Home Office was opposed to the plan, adding that the London County Council had brought forward no definite scheme, and had no idea what the ultimate cost might be. So far as the Bill was concerned it might spend £300,000 just as readily as the £5,000 odd with which it was proposed to commence, or even £30,000 which had been suggested as likely to cover the whole cost. Speaking on behalf of the Government, Lord Beauchamp said that it was unable to advise the House to reinstate the clause as the scheme did not seem to have received mature consideration at the

hands of the County Council. The Home Office considered that any plan for providing an ambulance service should not duplicate existing ambulances but supplement them, whereas the clause which had been struck out would have enabled the Council to sweep aside existing agencies and set up an entirely new service. The Home Secretary's view was that it would be better to develop the existing sources rather than to inaugurate an entirely new system; at the same time he was of opinion that the time had come when further steps should be taken to improve the ambulance service in London, and he had therefore decided to call a conference of the London County Council, the Metropolitan Police, and the Home Office on the subject. This conference, he thought, would probably be able to formulate a scheme. A further most undesirable delay in the introduction of reform of the greatest possible importance to London must therefore occur.

THE CEYLON TROPICAL MEDICINE INSTITUTE.

Recognizing the importance of the scientific study of tropical disease problems the Ceylon Government has established a pathological laboratory in Colombo under the direction of Dr. Castellani. On the suggestion of Sir Allan Perry and Dr. Castellani a special hospital for tropical diseases has now been formed in the immediate neighbourhood of the laboratory and placed under the charge of Dr. Castellani. It contains at present eighteen beds, but it is hoped shortly to enlarge it and to establish a ward for Europeans, which would be used especially for the study of sprue. The advantages of having such a hospital in connexion with the clinical laboratory are obvious. Among others may be mentioned the increased facilities afforded for the investigation of any special disease by having several cases in different stages of the same malady under observation at the same time. Again, many types of tropical disease, including especially skin diseases, are not considered suitable for admission into the Colombo General Hospital, but they can be admitted into the special hospital, thus affording better opportunities for their investigation with the view to devising effective means of prevention and treatment. Special instruction in tropical diseases is now given in the Clinic for tropical diseases at Colombo and the existence of this clinical laboratory and hospital will very greatly conduce to the advantage of the students. The Government of Ceylon deserves the highest praise for the scientific spirit it has shown, and we can only hope that the success of the present experiment may encourage it to extend the system further.

THE MOTOR OMNIBUS NUISANCE.

From the correspondence between the Commissioner of Metropolitan Police, Sir Theodore Martin, the Kensington Borough Council, and Secretaries of Omnibus Companies, which has been published, it is apparent that dawn in the matter of motor nuisances in London is at length approaching. The police authorities, who have hitherto held their hands in order not to cripple a youthful industry, intend now to exercise what powers they possess in connexion with vehicles plying for hire, more stringently than heretofore, and this is as it should be. It is many months now since we heard the first startling fusillade of back fires, smelt the first gust of half-burnt petrol vapour, were smothered in the smoke of lubricating oil, heard the first groaning shriek of imperfect machinery, and felt the earth-quiver caused by a heavy, rapidly-moving vehicle in certain parts of the town. There has been, in short, plenty of time to realize to the full the existing evils of motor omnibus traffic and to appreciate of what value it might be under good management. It is time to end the one and amend the other. All the evils which motor omnibuses are accused of causing might readily be shown to be of decided importance from the standpoint of the public health, and in the case of individuals to be a facultative source of very decided injury in many diseases. It is not worth while, however, to lay stress on the medical aspects of the question, for the evils are obvious to all alike, and still less is it useful to labour the point by introducing abstract questions as to what undesirable constituents motor traffic may introduce or increase in the atmosphere. As has already been mentioned in these columns, and as Sir James Dewar has since stated, the exact chemical result of the passage through the streets of many motors is somewhat doubtful, and it is conceivable that if this were made a central point in the argument, motor traffic as it is might gain the day. The amount of carbon-monoxide emitted by a car must at any rate be infinitesimal compared with that which escapes from many a chimney, whilst in respect of carbonic acid the balance between motor cars and an equivalent number of omnibus horses must be decidedly in favour of the former. It is undesirable, therefore, to weaken the attack upon the evil by the introduction of doubtful considerations of a chemical character, as well as superfluous in view of the indisputable nature of the nuisance. Though still somewhat of a side-issue, a much more important matter in connexion with motor traffic is the tendency of the drivers to depart from the accepted rule of the road. In the average human being the faculty of recognizing instinctively the direction from which any given sound comes, is exceedingly badly developed. Even those, therefore, whose hearing, from any ordinary point of view, is perfect, really depend for their safety in crossing thoroughfares, much less on their ears than on their eyes, and on their knowledge that ordinary vehicles use exclusively one or other side of the road according to the general direction in which they are moving. On stepping off the pavement the foot passenger looks to the right, and in ordinary traffic nothing is more necessary to ensure his safety. When motors are about, however, this is no longer the case, for, if space permits, their drivers do not hesitate to invade a portion of the road on which, in the direction in which they are travelling, they have no right whatever, getting back to their own side a little further on. By attention to noise, vibration, and smells, the police may save much annoyance, and possibly contribute something to the public health. By attention to the point which we have mentioned they will save many fatal accidents, as well as render many persons less nervous than at present they rightly are.

JUVENILE SMOKING.

The medical and other evidence on the evils of smoking by boys which has been given before the Select Committee of the House of Lords appears to have convinced that body that a drastic remedy is needed. Of the two Bills which were brought to its notice, the Committee has expressed its preference for that of Sir Ralph Littler, and would even desire to see clauses added rendering the restrictions imposed more stringent. The Bill as it stands subjects to a penalty of 40s. for a first offence, and of £5 for any subsequent offence, any person who knowingly sells or delivers or permits or suffers to be sold or delivered any sort of cigarettes to children under 16 years of age. Similarly it proposes that every child under the age of 16 found in possession of cigarettes or smoking tobacco shall be liable to pay a fine of 40s., and also come under the provisions of the First Offenders Act. The Committee considers that smoking by boys is an evil which threatens to do much harm to the manhood of the country, and therefore proposes that, in

addition, police constables shall be allowed to stop all youths apparently under 16 years of age seen smoking in public places and confiscate any tobacco found upon them. It is likewise suggested that corresponding powers should be possessed by local authorities and be delegated to officials, such as park-keepers and schoolmasters, and should be exercised also by railway and dock authorities on their own premises.

TRAVEL IN CANADA.

Those members intending to attend the Annual Meeting at Toronto who have not yet received the transportation certificate entitling them to the special reduction granted by the Canadian transportation companies should apply without delay to the General Secretary of the Association, 429, Strand, London, W.C. A list of the companies included in the Canadian Transportation Association was published in the Supplement of the British Medical Journal of May 26th, 1906, page 280. A separate certificate will be required for each passenger. It must be clearly understood that the concessions do not apply to the railways in the United States, and that passengers travelling from New York or Boston can only obtain the special rate from the point at which the Canadian frontier is passed.

The annual meeting of the Imperial Cancer Research Fund, under the direction of the Royal Colleges of Physicians and Surgeons in England, will be held on Wednesday next at the Examination Hall on the Embankment, when the fourth annual report (1905-6) will be presented.

Medical Notes in Parliament.

[From Our Lobby Correspondent.]

The Army Estimates: The Health of the Army.—On Thursday in last week Mr. Haldane made his promised statement as regards army reforms. In a speech of two hours and some forty minutes he detailed his proposals for a reduction in our military forces which he argued would combine efficiency with economy. His remarks on the medical department of the army were specially interesting, and were directed to the health of the army. He said: There have been some reproaches in the papers that we have been saying nothing about sanitary reform in the army and the improvement of our medical system. It is not a subject which, connected intimately as I am through family ties with medicine and science, I am likely to have neglected, and I am glad to say I have had working for me in this direction Sir Alfred Keogh, Surgeon-General and the head of the Medical Department of the Army, than whom there is no more skilled man anywhere. He has provided a scheme which is already partly in operation, and I propose to deal with the health of the army in this fashion. It is all part of our organization for war, which I am going to detail in a few words. We propose, on the outbreak of war, to treat the army on the basis of looking after the health of the unit as one thing, and the health of the base and lines of communication as another thing. The chief sources of disease are contact with infection, imperfect disposal of excreta, and impure water supply. All these things are being separately dealt with. Small things in themselves, they multiply the evils to enormous dimensions when dealing with great bodies of troops. First of all, field army conditions are quite different from those of the base and line of communications, and, therefore, it is necessary that there should be systematic teaching, not only of medical officers, but of the active officers, in order to enable them to apply the best results of medical science to the preservation of the health of the units. Our medical training we propose very largely to improve. We have already taken the decision to make the instruction of officers include health matters and medical matters as far as they bear on the health of their companies, as well as other matters. We propose to give instruction not only to the officers but to the men. The Medical Department has prepared a manual of instruction for the soldier, and henceforth it is to be the duty of the company officer not only to read and understand that manual himself, but also to see that his men read and understand it. We have also provided a medical school at Aldershot which is now training our medical officers. When we organize for war it is intended that the unit of organization shall consist of one medical officer, one non-commissioned officer, and four men of the Army Medical Corps, who will have to look after the water supply and other such services; and one commissioned officer who will supervise the sanitary police duties. These men will be trained at the new school of hygiene at Aldershot. A line of communication will be organized for the preservation of health and the prevention of disease on something like the organization of a civil community. It is intended to form sanitary sections who will not have to attend to the sick, but to look after the health of the troops and the prevention of disease. There will also be a general sanitary commission who, working at the base, will provide for requirements as they crop up. In that work the combatant officer and the medical officer will be brought together. We think they cannot be in too close a communication. Of course, for skilled medical work we look to the trained medical officer. But there is a great deal of other service which can only be attended to by the authority of the combatant officer. We have learned a great deal in this matter from the Japanese. But we have learned a great deal more from the studies of our own people themselves. They have worked out the problem of how to purify water by a new system of filtration. We have arranged at Aldershot for a regular sanitary campaign on lines as it would be carried out in war. The water there will be called impure—which is a great farce, as Aldershot is excellently supplied with water—and the water will be brought from a new source of supply in order to see how our organization would work out in war. I believe we shall have as good a medical service as any in the world, if not better, and have it with something in the way of economy. We are able to reduce the provision of hospital accommodation in war from 10 to 7 per cent., which is a substantial economy. The debate was continued in a comparatively small House by Mr. Arnold-Forster, Sir Charles Dilke, Mr. Balfour and others, but the proposals with regard to the Army Medical Service did not receive any particular attention. As the subject will come up again, more details on the sanitary reforms may be elicited.

The Medical Inspection of School Children.—There was an interesting debate on this subject on Monday last, raised by an amendment of Mr. H. Tennant in favour of compulsory medical inspection. He contended that medical inspection should be a feature of school organization. It was done in Germany, the United States, and in Switzerland, and was essential in the interests of public health as well as education. He calculated that it would cost some £35,000 a year, but it would be of incalculable value to the nation. The amendment was supported by Mr. Masterman, Sir Gilbert Parker, Dr. Macnamara, and Sir W. Anson, who said the inspection proposed was a matter of national importance. Sir W. J. Collins said that no compulsion would be required to induce parents to submit their children to medical inspection, but pressure would have to be put upon certain of the local authorities which had been singularly backward in this matter. Only forty-seven local education authorities outside London had done anything in regard to medical investigation. When the London County Council took over the work of the London School Board there were on the staff two medical officers and six oculists. Twenty-three additional medical officers had since been appointed for half-time, as well as twelve nurses, and the number of the latter would shortly, he hoped, be increased to twenty. Such an undertaking as an anthropometric survey might wait until the future; but much could be accomplished by medical officers in such ways as giving advice as to the sanitation of school buildings, the prevention of infectious diseases, and the examination of children who were mentally or physically deficient, although he doubted whether there was need for the medical inspection of every child. Later on Mr. Percy Alden suggested that trained nurses could do the

work instead of doctors, and Mr. A. Williamson said the whole of the schools should be looked after by the Queen's nurses, who could attend the children at school and follow them to their homes. Mr. Balfour supported the amendment, and suggested that the Government should not restrict their attention merely to the medical aspect of the problem as it affected the children, but to carry it on according to a general scientific plan applicable to the whole country, which would enable area to be compared with area, and the children of one generation with the children of another. In that way they would have some solid scientific basis for what were now rhetorical and speculative conclusions as to the effect of modern civilization on the development and progress of the race. Mr. Birrell expressed sympathy with the views of those who supported the amendment, and said that medical inspection was of great value as indicating to the teacher the congenital weakness of the children. He regretted that we were so much behindhand in these matters. The medical inspection need not be very expensive, and a great deal could be done by nurses. In Liverpool these nurses had been a great success. The question was, Mr. Birrell continued, whether it could be made obligatory upon every local authority to provide medical inspection. In this matter he was in the hands of the House of Commons. The difficulties he saw were not so much in the way of securing any particular duties by particular medical men, but in settling a scheme and imposing that scheme upon the local education authority. It would not be much good to make such a scheme a statutory obligation; such obligations were not always carried out. There was a good deal of enthusiasm shown on this subject; and although there were some authorities who lagged behind, he still did not think that inspection ought to be made obligatory. The people differed and varied in different districts, and no general scheme could be made applicable all over the country. The duty of the Board of Education would be to inspire the local authorities to attend to the medical inspection in the schools, and to upbraid those authorities who did not attend to the matter. He agreed to put down for the report stage an amendment to the following effect: "It shall be the duty of every local authority to provide for the medical inspection of every child on its application for admission to a public elementary school, and on such other occasions as the Board of Education may direct or the local authority may think fit." This was regarded as satisfactory, and the amendment of Mr. Tennant was withdrawn.

The Inspection of Food Factories. Mr. A. Henderson asked the Home Secretary whether he could say how many notifications of the insanitary condition of factories in which jam and other articles of food were manufactured were forwarded by the women inspectors to sanitary authorities during the period covered by the report of the Chief Inspector; and whether he had authorized any Home Office inspector to act in default of the sanitary authorities, as provided for by Section 4 of the Factory Act, 1901. Mr. Gladstone replied that he feared he could not give the hon. member the information asked for at such short notice, but the sanitary provisions of the Act in the case of factories were enforced by the Inspector of Factories, not by the local authorities, and the number of such notices as were mentioned in the question would be few. No case arose during 1905 in which it was found necessary to make an order under Section 4 of the Factory Act for the supersession of the local authority by the Factory Inspector with regard to the enforcement of the Act. In answer to a second question on the insanitary condition of such factories, Mr. Gladstone said that he had no reason for supposing that the factories referred to were unknown to the district inspectors or had remained unvisited by them. Neglect of cleanliness at one period did not in a trade such as this argue previous absence of inspection. He regretted to say, however, that a number of the matters to which the lady inspectors called attention, such as the cleanliness of the workers handling food materials, the cleanliness of the pots which were filled with jam, etc., were outside the scope of the Factory Act. They should be dealt with under the law for the protection of the public health, and he was bringing them to the notice of the President of the Local Government Board. The requirement of Section 1 of the Factory Act was that a factory shall be kept in a cleanly state and free from effluvia. Action was taken by the inspector wherever the defects found were of a kind with which they had power to deal. This was by no means the first time that the inspectors had reported insanitary conditions in food preserving works, and that as the result of these reports considerable progress had been made in their sanitation, and bad places had become fewer. The whole question of the inspection of these premises was under consideration, and he hoped that still further progress would soon be made.

Imprisonment under the Vaccination Act.—Mr. Lehmann asked the Secretary of State for the Home Department whether he was aware that Spencer Bray, J. J. Vann, and S. Bruin, of Blaby, in Leicestershire, were on Monday last committed to Leicester Gaol, the first two for seven days and the last for fourteen days, on orders under Section 31 of the Vaccination Act, 1867; and whether His Majesty's Government proposed to take any steps to alter the law so as to make such imprisonments impossible in future. Mr. Burns, who replied, said that he had no information as to the particular cases referred to, but he might point out that a parent would not be liable to any penalty under the Vaccination Acts for the non-vaccination of his child if he had obtained a certificate of conscientious objection under Section 4 of the Act of 1898. He was aware that the procedures with regard to obtaining such a certificate was not altogether satisfactory, and he was considering whether some alteration might not be properly made in the law with regard to the matter.

Vaccination at the Small Arms Factory, Enfield.—Mr. Branch asked the Secretary of State for War last week whether, in view of the effect upon the health of Alfred Handscombe (late an employé at the Small Arms Factory, Enfield), through vaccination being enforced upon him, he would consent to a similar modification of the rule as agreed to by educational authorities and as recommended to the magistrates by the Home Office. Mr. Secretary Haldane replied that the action taken by the Education Department in the case of teachers, and the case of Alfred Handscombe, did not appear to afford any sound grounds for an alteration of the decision not to admit men to the ordnance factories unless they consented to be vaccinated. He might point out that the Home Office letter was merely explanatory of the law in regard to vaccination generally.

Pupil Teachers and Vaccination.—In answer to Mr. Ramsay Macdonald on Monday, Mr. Birrell said that the Board of Education for purposes of registration of pupil teachers would not require any declaration of conscientious objection to vaccination to be made before a magistrate, but would be satisfied with a declaration signed by the candidate (or when as minor by his parent or guardian), to be countersigned by the local authority's representative and one other responsible person.

The Course of Business in the Commons.—On Friday in last week the Prime Minister made his statement as to the legislative programme of the Government up to August 4th. He mentioned by name some twenty-five Bills which he hoped to pass by suspending the Standing Orders as to the time of adjournment, and taking the whole time of the House. Twelve were departmental Bills, and among these were three of medical interest, namely, the Open Spaces Bill, and two Irish Bills dealing with the education of afflicted children and with infectious diseases. Seven were Bills that had passed through Grand Committee, and among these were the Prevention of Corruption Bill, and the Fatal Accidents (Scotland) Bill. The remaining six included the Street Betting Bill, and the Trades Disputes Bill, which is only to be pressed for the Committee Stage, and the report and third reading taken in the autumn session, which will begin in the middle of October.

The Royal Commission on Vivisection.—The names of the Commissioners will be announced very shortly, as Mr. Herbert Gladstone stated in the House this week that they would appear in due course when His Majesty had approved them.

Leeds.

THE FEEDING OF POOR CHILDREN.

A COMMUNICATION has been received from the Birmingham Guardians by the Leeds Board of Guardians in which it was suggested that the President of the Local Government Board should be urged to bring in a Bill to amend the law with regard to providing meals for poor children attending elementary schools, and that the feeding of the children should be relegated to the education authorities. On discussion, it was felt that the recommendations went too far. The Chairman expressed the view that the guardians should deal with the children, and do so only on the ground of destitution, and the Board unanimously came to the conclusion that the whole question of dealing with such children should be left in the hands of the guardians.

THE SALE OF ADULTERATED DUTCH BUTTER.

Following the prosecutions at Selby, Hull, and elsewhere for the sale of adulterated butter, it is to be noted that the Grimsby stipendiary magistrate has given judgement in charges arising out of the importation of adulterated Dutch butter brought by the Customs authorities against certain provision merchants in Grimsby and Liverpool. The analyses of the Government experts were called in question, but the magistrate said he could not go behind these; he pointed out that even the experts who were called for the defence had all admitted that the butter was suspicious, though they would not, in their capacities as public analysts, condemn it. It was not fair to the consumer, when he was under the impression that he was purchasing a shilling's worth of butter, that he should get only 10½d. worth of good butter and the balance consist of refined beef suet; in the interests of the consumer the importation should be stopped. Substantial fines were imposed.

FOOD ANALYSES IN LEEDS.

The report of the City Analyst on the samples of food, etc., which had been submitted to him during the quarter ending on June 30th shows that of 79 samples of milk 7 had been adulterated, 5 by the addition of water, 1 by the partial abstraction of fat, and 1 both by the addition of water and the partial abstraction of fat. Of the 14 samples of butter 7 consisted almost entirely of foreign fat. The specimens of tinned meat were all found to be free from preservatives and colouring matter. One specimen of infants' cordial was reported free from morphine. Some weeks ago the stipendiary magistrate had before him a case in which two grocers were charged with selling malt vinegar; upon analysis this was found to be partially derived from sources other than malt. In giving judgement the stipendiary said the vinegar sold was perfectly wholesome, and was sold at a fair price, but it was not what it professed to be, namely malt vinegar. As there was some doubt if *malt* vinegar was asked for in one case, that case was dismissed, but a fine was imposed in the other.

Liverpool.

THE MEDICO-CHIRURGICAL JOURNAL.

A SPECIAL meeting of the Medical Institution was held recently to consider the position of the *Liverpool Medico-Chirurgical Journal*, when the Treasurer of the Institution, Mr. T. H. Bickerton, delivered a most interesting address on the Past, Present, and Future of the *Journal*. It appears that Liverpool was one of the first towns in England to possess a medical journal. The first copy appeared on January 1st, 1833. It was styled "The *Liverpool Medical Gazette*, or Monthly Journal of Medicine and the Collateral Sciences," and was edited and conducted entirely by Dr. J. Hunter Lane, a gentleman of very distinguished attainments, who had then recently been elected a member of the Liverpool Medical Library. The publication showed much literary merit, and was issued monthly during the year of its formation. In the next year it appeared under the title of "*The Monthly Archives of the Medical Sciences*," of which only five numbers appeared, the publication coming abruptly to an end, probably on account of its radical and reforming tendencies, which did not commend it to the members of the profession. No further medical journal appeared in Liverpool for twenty-three years, but in 1857 there appeared *The Liverpool Medico-Chirurgical Journal*. No name was attached to it. Five parts in all appeared—the last in 1859—and Liverpool was again without a journal until 1867, when the *Liverpool Medical and Surgical Reports* appeared, edited by Dr. Frederick T. Roberts and Mr. Reginald Harrison. These reports were published yearly until 1871. In 1873 appeared *The Liverpool and Manchester Medical and Surgical Reports*, which were published yearly until 1878. Here occurred the last break in the continuity of medical publications in Liverpool, and that was only a short one, for in 1881 the present *Liverpool Medico-Chirurgical Journal* was founded, and has continued with varying success and under different managements until the present day. Until the year 1897 it was nominally under the management of a journal committee, and was edited by Dr. (now Sir) James Barr. It gradually gained in importance, being both a literary and a financial success, until in 1897 it was taken over by the Medical Institution. Though a high literary and scientific standard was still maintained, its financial success began to wane, and year after year the accounts have shown an increasing balance on the wrong side. This failure appears to have arisen from the attempt to convert the journal into a mere chronicle of the proceedings of the Medical Institution. At present an attempt is being made, apparently with good hopes of success, to restore the former prosperity of the journal and to make it representative, not merely of the Medical Institution, but of the profession of medicine throughout the kingdom and the world at large. To this end its pages are thrown open to contributors from all parts. Mr. Bickerton's paper was listened to by a large and interested audience. At its close a brief smoking concert took place.

Scotland.

BRITISH UNIVERSITY STUDENTS' CONGRESS.

THE delegates to the British University Students' Congress were welcomed in the hall of the University Union on July 14th. Sir William Turner occupied the chair and delivered an address on the subjects that were to occupy, and might occupy, the attention of the Congress. Sir William having vacated the chair in favour of the President (Mr. J. B. Forbes Watson, M.A.,) the Congress was duly constituted. Apologies were intimated from the Chancellor (Mr. A. J. Balfour), and the Lord Rector (Mr. R. B. Haldane).

The report of the Halls of Residence Committee was presented and unanimously adopted; by 14 to 8 the Congress decided that women ought to have a Parliamentary vote as members of the General Council of their Universities; and that the inequality of existing conditions between the old and new universities as regards the election of members of Parliament for university constituencies should be removed.

There was an excursion to the Forth Bridge in the afternoon, and the Congress dinner took place in the evening.

On July 15th a number of the delegates attended the military service in St. Giles's Cathedral, while in the afternoon a large party drove to Roslin and were present at evening prayer in the beautiful chapel there.

On July 17th the question of the inter-university magazine, begun in May, 1905, was discussed. It was agreed:

> That the Students' Representative Council, or other body corresponding thereto, in each of the universities of England, Ireland, and Wales, be placed on the same statutory relation with the academic authorities as existed between the Students' Representative Council and the university authorities in Scotland.

The question of inter-university volunteers was considered. On the invitation of Principal Sir William Turner, the delegates were entertained to luncheon in the Union. In the evening the members of the Congress, by invitation of the Women Students' Union, attended an "at home" in the hall of their union.

POST-GRADUATE INSTRUCTION, COURSE IN EDINBURGH.

Graduates of Edinburgh the wide world over are all at present keenly interested in the initiation of a course of post-graduate instruction in connexion with their Alma Mater. All must join in congratulation to the Executive Committee, and in seeking to give encouragement to the prosecution of the scheme, and all look forward to its future development along lines of greatest practical value to strangers and home graduates visiting the city.

In our student days we were, one and all of us, dosed with theory *ad nauseam*, theories dead and buried but resuscitated for our special benefit, theories on all manner of little subjects, clashing, contradictory, sporadic and all too frequently evanescent, a whole multitude of theories not demanding consideration or even comprehension. The broad principles and theories on which is founded the skilled practice of medicine and surgery must, fortunately of necessity, find an abiding resting-place for all time in the cerebral cells of the earnest student, and before the close of his undergraduate career his whole being is perforce saturated with the vital essence of medical science.

But theories are insufficient for practical work. Systematic theoretical instruction on practical subjects is dying hard, but, fortunately for all concerned, the death bells are tolling. Theory, most obviously, is essential, but theory must go hand in hand with practice.

The effects of the drenching process of systematic theoretical instruction in student days wears off in the process of time; and while the essentials are firmly instilled, along with the growth of medical discrimination, evaporation of the useless and cumbersome gradually takes place, and with the duties of life and the initiation and prosecution of a successful life's work staring us in the face we crave and demand from our instructors something more than theory.

Post-graduate work must be practical work. The man who has graduated and qualified to do all that a surgeon or physician may, is not going to be content with abstruse theories or a superficial skimming over the surface of a varied selection of subjects. Such superficial knowledge is his already in many subjects, and he seeks for something more than a medical pot-pourri. From foreign medical schools—from Vienna, Berlin, and Paris—we surely learn this fact, that opportunities for practical work form the attractive feature and the essential part of a post-graduate system of instruction.

Why do Scotch graduates study abroad? Apart from the language question, it is certainly for the opportunities of practical work unattainable at home. New methods of investigation and examination undoubtedly necessitate the inclusion of courses of instruction in which demonstration takes the place of practice, but for the post-graduate student, the essential attraction is the opportunity offered of practical work under highly-skilled supervision. Increased knowledge of diagnosis and treatment is desired by all, general practitioner and specialist alike, and treatment no less than diagnosis. The resources of medical Edinburgh are great, the facilities at her command most enviable, and her capacity for instruction large; that post-graduate instruction within her bounds will prove of useful and practical assistance to very many practitioners is the belief and hope of all interested in the new departure.

DR. MCKENZIE JOHNSTON.

Dr. R. McKenzie Johnston has resigned his office as Surgeon to the Ear and Throat Department of the Edinburgh Royal Infirmary. His resignation has caused much regret in the medical profession in Edinburgh and throughout Scotland.

NOTIFICATION OF PHTHISIS.

A Subcommittee of the Public Health Committee of Edinburgh Town Council on Monday, July 16th, agreed to recommend adoption of Dr. Robertson's motion as to the desirability of making the notification of phthisis compulsory.

It is reported from Lahore, under date June 15th, that the Secretary of State has sanctioned the appointment of officers of the Indian Medical Service to be directors of the Pasteur Institute at Kasauli, and assistant directors at the Kasauli and Condor Institutes, on the scale of salary sanctioned for officers of the Bacteriological Department. An addition of three officers will be made to the Indian Medical Service in order to provide for these requirements.

Ireland.

BRITISH MEDICAL TEMPERANCE ASSOCIATION.

A special meeting of the North of Ireland Branch of the Association was held in the Medical Institute, Belfast, on July 10th. Lieutenant-Colonel Macfarlane presided: Dr. Norman Barnett, Honorary Secretary, read the notice of the meeting. Dr. J. J. Ridge, the Honorary Central Secretary, attended, and explained the new constitution of the Association. He was glad to report that affairs were working very satisfactorily, and that no loss of income had occurred. He was confident the change would be for the better. A general discussion took place, and many advocated the more scientific investigation of the effects of alcohol, especially on the more recent discoveries in the blood, and the necessity of instructing students on scientific lines, and encouraging original and independent observation.

DR. DARNELL'S EXPENSES IN TUGHAN *v.* DARNELL.

The following further subscriptions to aid in defraying Dr. Darnell's expenses in the case of Tughan *v.* Darnell have been received up to July 14th:

	£	s.	d.
Sums already acknowledged ...	279	7	6
Dr. W. B. McQuitty...	15	15	0
Dr. Robert Allen ...	10	10	0
The Cork Medical and Surgical Society (per Dr. Philip G. Lee, Cork, and Professor Byers, Belfast)	5	5	0
Dr. James Colville ...	2	2	0
Dr. W. Massy Burnside	1	1	0
Dr. James A. Clarke, Carrickfergus ...	1	1	0
Dr. William Frier, Waringstown ...	1	1	0
Dr. Ch. Kevin ...	1	1	0
Dr. J. Mansergh Palmer, High Sheriff of the County Armagh ...	1	1	0
Dr. H. B. Murray ...	1	0	0
	£319	4	6

The Fund is now closed. Where the address has not been given the subscriber belongs to Belfast.

THE BELFAST BOARD OF GUARDIANS.

Report of Boarding-out Committee on Overcrowding of Schools.

A very important report was received by the Belfast Board of Guardians from the Boarding-out Committee at a meeting on July 3rd. It contained extracts from the report of the Inspector of the Local Government Board, Mrs. Dickie, who last year drew "particular attention to the fact that the condition of the national schools as regards cleanliness and ventilation is for the most part very unsatisfactory; the floors are seldom washed, the accommodation is frequently insufficient, and the arrangements for ventilation are generally defective." She urged the guardians to neglect no opportunity of seeing for themselves that this is done, and of securing for these boarded-out children healthy and sanitary surroundings in their schools as well as in their homes. Mrs. Dickie repeats this advice in her report for this year, and the Local Government Board suggests to the Guardians to make representations to the managers of the schools and to the Board of National Education.

The Boarding-out Committee, although it says that two of the schools are amongst the best in Belfast, yet endorses Mrs. Dickie's report for others: and is of opinion that no one who has not visited the average national school in Belfast can at all realize the condition under which children work and the atmosphere in which they spend the greater part of the day; it believes that this want of cleanliness, and the almost incredible overcrowding in some schools, is one of the main causes of consumption. The Committee is rather pessimistic; it says the managers have no funds, and that the teachers have to pay out of their own salaries, or the manager out of parochial funds, for the periodical washing of schoolrooms, desks, etc., or for the ordinary daily cleaning of the schools, for which expenses, apparently, there is no provision. The report was adopted, and the extracts were ordered to be sent to the daily press.

It is not difficult to supplement this report; judging from what is seen in the out-patient departments of both children and adult hospitals, it appears that too many of these children are dirty, neglected, and ill-fed, without a trace of proper training, and with little of "education" in

any form; tinea, impetigo, and pediculi are rife; feet, stained with the filth of the street; clothes, which one shrinks from touching; ill-kempt hair; dirty noses and dirty faces, not infrequently pinched and woebegone; all threaten the stomach as they sadden the heart of the onlooker. It is no exaggeration to say that from an out-patient department point of view there is not the slightest attempt to attend to the physical condition of the school children. Many in Ulster will recall to mind the late Dr. McKeown's vigorous exposure of the insanitary conditions of these schools. And yet, even with two or three of the family suffering from ringworm, spreading over half the scalp and causing the most evident loss of hair, the unfortunate mothers are threatened with "the Court" if they do not send them to school. No doubt one sees the worst in hospitals; but what about clean children sitting next to them?

Canada.

Medical Education of Women.

Owing to arrangements made by the University of Toronto, the Ontario Medical College for Women, which has existed for the last twenty-three years, has been closed. We are indebted to Dr. J. T. Duncan (Toronto) for the following short account of the history of this institution. At the time that it was founded there was no medical college for women in Canada, and those who wished to study medicine had either to enter the classes along with male students or to go to the United States; a few bold spirits adopted the first alternative, but the plan was not popular, the women considering that the men did not treat them fairly, and the men objecting that the instruction given to mixed classes was distinctly inferior to that given to men alone. A few medical men, one medical lady, and a few lay friends, believing that the solution of the difficulty was to be found in the separate medical education of the sexes, founded the Women's Medical College in Toronto. The first President of the College was Dr. M. Barrett, who undertook also the duty of lecturing in physiology, Dr. George Wright taught medicine, Mr. J. H. Cameron surgery, Dr. A. A. Wright obstetrics and gynaecology, Dr. A. McPhedran materica medica and botany, Dr. J. T. Duncan anatomy, Dr. R. A. Reeve, diseases of the eye and ear, and Dr. R. B. Nevitt sanitary science. Unfortunately for the enterprise, another women's medical college began its existence in the city of Kingston at the same time as the Toronto College, which during its first year, 1883, only had one regular student, although some other ladies took lectures in subjects in which they were specially interested. After a few years the Kingston College ceased to exist, and the number of students at the Ontario College in Toronto increased until the attendance reached thirty or forty.

In 1889 it became evident that more accommodation was necessary, and a new building was erected. It was opened in 1890, and in the announcement it is spoken of as "one of the most complete buildings of its kind in America. Among other rooms it contains a large lecture hall, capable of seating fifty students... the microscopical laboratory... modelled after the well-known Biological Department of Toronto University, each student provided with the requisite space and appliances for the best work in microscopy... the large chemical laboratory, fully equipped... and the commodious students' waiting room" entirely for their use. The building was near the Toronto General Hospital, and arrangements were made in this and other city hospitals for full clinical instruction for the students. During the twenty-three years of its existence many changes occurred, and now, when the College is about to close its doors, only three members of its original Faculty remain upon its staff—namely, Dr. Nevitt (for many years Dean of the College), Dr. Duncan, and Dr. Augusta Stowe Gullen. In the last year of its existence (1905-6) the staff of instructors, including professors and lecturers, numbered thirty-two. Every arrangement had been made for the thorough teaching of medicine in all its branches, and the excellence of the teaching was further testified to by the high average standing of the lady students at all examinations, and by the prominent positions to which many of them have attained. There are now about 120 graduates, holding degrees from the different universities, and qualified to practise. For ten or twelve years faithful and successful instruction was given, the attendance seldom rising over forty, and sometimes falling below that number (that is, the first year class numbered from 8 to 10). But, latterly, there has been a change in public sentiment. If, at the present time, the strong feeling against co-education which was present in 1881, 1882, and 1883 still remained, the College would still be in existence. But it has accomplished its mission. Many ladies do not now object to co-education in medicine. It is also believed that the ladies will be treated with perfect fairness by the other students, and separate instruction can be arranged for in classes if necessary. For these and other reasons the University Commission has recommended that lady students, in future, shall take their instructions in the University Medical College. This has been agreed to, and the Ontario Medical College for Women has closed its doors.

SPECIAL CORRESPONDENCE

VIENNA.

Dr. Erdheim's Experiments on Tetany.—Seaside Hospitals for Children.—Post-graduate Lectures.

In a paper read recently before the Clinical Society, Dr. Erdheim gave the details of a series of experiments on rats, which he undertook in order to ascertain the nature of tetany coming after operation for goître and other thyroid disease. The differences of the results obtained in such operations by Kocher (Berne), Eiselsberg (Vienna), and Billroth's school were the starting point. Erdheim's attention was drawn to the fact that Kocher, who generally excises the central parts of the gland, has had hardly ever a loss from cachexia strumipriva or tetany; whilst in Billroth's clinic 56 per cent. (later 30 per cent.) of radical thyroidectomy were followed by this fatal disease. In all such cases the entire or greater part of the organ had been removed. It remained to be explained why some surgeons had such bad results, and why the operation was followed by a cachexia (idiotism, malnutrition of skin, arrest of growth) in one case, and by tetany (cramps of facial and intercostal and brachial nerves, together with symptoms of cerebral insufficiency) in other cases. Most surgeons believed that the absence of sufficient normal thyroid tissues caused cachexia, and the presence of diseased tissues only tetany. Vasale and Generali were the first to maintain the view that the parathyroid body (a small nodule of the size of a bean, consisting of epithelial elements, and situated at each of the four "corners" of the thyroid gland) was closely connected with tetany. Dr. Erdheim first made his experiments on rabbits, but all these experiments failed, whilst 50 rats gave such results entitled to rank as proof. Dr. Erdheim succeeded in explaining the mystery of the failure with rabbits, because he found that rabbits had in the thymus and in the mediastinum several accessory parathyroid glands, numbering 12 to 50, besides the original ones at the "corners" of the thyroids. Rats showed a more human type of corpus epitheliale. The experiments on the rats consisted in total or partial thyroidectomy, with and without extirpation of all or part of the parathyroids, and in total or partial removal of these bodies alone without touching the thyroid gland. All animals died after total removal of the parathyroids from tetany and inanition, because the teeth decayed and were unfit for chewing; cataracts of the lens also appeared amongst the trophic changes thus producec. If the thyroid gland only was removed and the parathyroid remained intact, no tetany supervened, but cachexia only. If a partial resection of the parathyroid was made, tetany appeared the more readily the more these were resected. In three cases of human tetany Erdheim was able to examine the organs of the neck. All three had been operated upon for goitre whilst his experiments were going on, and all three succumbed within a short time with symptoms of tetany. The microscopical examination, which required over 10,000 slides, proved that the corpus epitheliale (or parathyroidea) had existed in these cases. Thus, Dr. Erdheim calls the attention of surgeons to the importance of saving every bit of this hitherto neglected body, and suggests the expression, "Tetania parathyreopriva," and *not*

"strumipriva." As the corpus epitheliale is in close vicinity to the nervus recurrens, all methods of operation for struma which do not touch its region are also capable of giving safety to the important but very small structures, and are therefore preferable to other ways.

The society for erection of seaside hospitals for children has completed its work by handing over the buildings, acquired for this purpose to the municipality of Vienna. The idea of the founders of the society was to enable large numbers of tuberculous children—of whom there is no scarcity in Vienna—to bathe in the sea water of the Upper Adriatic, because it is strongly charged with iodine. Three hospitals, together with convalescent homes for post-operative treatment, are now ready, and a committee, consisting of representatives of the society, of the municipality and hospital officers, and presided over by Professor Monti, the director of the children's hospital of the policlinic in Vienna, has been formed. The number of beds available at present is 280, but it is planned to increase this number to 600. The funds have been furnished by private contribution—a rare and rather unwonted way of raising money in Vienna for such purposes, where the State is expected to undertake all social reforms. The expenses have been comparatively low, as the grounds have been presented by members of the Imperial family, who are also patrons of the society. On an average, each bed costs about £150, and the upkeep is also cheap, in spite of the expenditure on radiotherapeutic departments.

A number of post-graduate lectures will be delivered during the months of September and October to members of the Vienna Medical Association at a minimal cost. Each class will consist of not more than ten to twelve gentlemen, will last twelve hours, and will have a certain definite chapter of medicine or surgery, or a special branch for their object; the latest discoveries of scientific and practical value will be explained and shown. The items include: Diphtheria, obstetrics, asepsis, sero-therapeutics, bacteriology, microscopy, *x* rays, surgery of the prostate, and other more or less known topics. The fee, which will be 5s., goes to the funds of the Medical Orphans and Widows Society of the Association. If the institution finds approval, it is planned to throw it open also to non-members of the Association, but at a slightly higher fee. Besides these short lectures, which must be given by the professors of the respective clinics, the usual summer lectures for qualified men—the so-called "perfection courses"—are delivered by the assistants and several "privat-docenten," and the fees vary considerably, but they are £2 2s. as a minimum, and only cover four weeks. A special programme of these courses has been compiled, and gives particulars and full details.

THE annual meeting of the Association for the Oral Instruction of the Deaf and Dumb was held on July 11th, at the Portman Rooms, Baker Street. The Earl of Crewe presided, and in moving the adoption of the report (noticed in the BRITISH MEDICAL JOURNAL, June 23rd, 1906, p. 1492) observed that the advantages of the pure oral method of teaching the deaf, as against other systems, were being more recognized as time went on. The report showed that the work of the Association had made considerable progress, but unfortunately the funds at its disposal had diminished rather than increased. He trusted that a larger number of small annual subscribers might come to their aid; but, speaking as a private individual, and not as a member of the Government, he thought that the State might well do something more in financially assisting not only the education of deaf children, but the training of expert teachers for them. The report, having been seconded by the Rev. C. H. Parez, was adopted; and then followed an interesting practical exposition by the Director (Mr. William Van Praagh) of the methods used in the oral instruction of the deaf, and a distribution of prizes to the scholars from 11, Fitzroy Square, at the hands of Lady Celia Crewe-Milnes. Votes of thanks to the Committee, Director and Staff, proposed by Dr. Shuttleworth, and to the Chairman, proposed by Mr. H. F. Pooley (late Assistant Secretary to the Board of Education), brought the meeting to a close.

THE undermentioned gentlemen have been granted permission to accept the order of El Alyeh, which has been conferred on them by the Sultan of Zanzibar in recognition of valuable services rendered by them to his Highness: A. H. Spurrier, Esq., L.R.C.P.Lond., the 2nd class; G. A. MacDonald, Esq., M.B., C.M., and A. D. MacKinnon, Esq., C.M.G., M.D., the 3rd class; and H. D. N. Mackenzie, Esq., M.D., the 4th class of the order.

CORRESPONDENCE.

FINANCES OF THE ASSOCIATION.

SIR,—The financial condition of the Association is of so much importance that I venture once more to trouble you with a letter on the subject. Let me at the same time thank Dr. Buist for his most kindly personal reference to me in his letter of June 9th.

In 1886 the income of the Association was £25,385, while in 1905—just twenty years later—it was £50,107. Thus in this period of time our income has practically doubled itself, as a result of a regular and steady expansion, which must be most gratifying to those who have so successfully guided our affairs.

Contrast with this our expenditure in 1886, which was £21,395. If we double this, on the same basis as above, our expenses for 1905 ought to have been £42,790. The actual expenses for that year were £49,245.

In order to ascertain when this great increase took place I have compared the figures for the past twenty years. Out of consideration for your space I only ask you to reproduce those for half that period, but I may say that the omitted years would only strengthen the contrast which is seen during the last ten years.

	Income.	Expenditure.	
	£	£	
1905	50,107	49 245	Increase in three years nearly £9 000.
1904	51,030	46,014	
1903	48,807*	43,236	
1902	45,024	40,525	Increase in six years about £4,300.
1901	43,730	38,767	
1900	43,419	38,943	
1899	43,253	36,981	
1898	42,924	38,188	
1897	40 433	36,973	
1896	38,009	36,148	

* Full subscription of 25s. included for first time.

These figures are interesting and worth careful consideration, and it will be noticed that the large increase in our expenditure has occurred since the new constitution came into force. The Representatives, I am sure, have the interests of the Association at heart and, I believe, they must by this time recognize that the Representative Meeting, from the fact that its members are constantly changing, that they meet but once a year and have not time to become acquainted with each other or to get a real insight into the work of the Association, cannot get the same grip of the Association business as the Council can. Important matters would often seem to be settled by that meeting without the financial and other bearings being properly realized. I do not claim that the Council is an ideal body—for one thing it is too large to conduce to efficiency—but if properly selected and given suitable authority it is, I feel sure, worthy of the confidence and trust of the Association. It should be placed in the position of and given the usual powers of directors of a public company. No limited company could possibly carry on with success under such a form of dual control as we have established. The first outspoken admission of this fact appears in the important letter you publish to-day from Dr. Saundby. There is much that is attractive in the suggestion which he makes, because it is so much better than the present state of matters, but I question whether it would be wise to hand over the selection of members of Council to delegates, and I think it would be a retrograde step to destroy the Branches that ought to be the real backbone of the Association.

While I think the Representative Meeting has largely contributed to the increase of our expenditure, I cannot acquit the Council entirely of a tendency in the same direction. One cause of this is, I think, due to the neglect of Standing Order No. 17, which requires the Journal and Finance Committee to consider all motions involving the expenditure of money.

Dr. Buist in his letter of June 9th invites me to specify what matters undertaken in the past three years could have been left over so as to regulate the pace and, incidentally, the expenditure. I am sorry I cannot at present act on his suggestion, for I desire to avoid all side-issues which may tend to obscure the main issue or to introduce the personal element into the discussion. My object is to endeavour to bring home to the Association as a whole

that the expenditure cannot go on at the progressive rate we have seen in recent years; that our policy must keep step with our resources; and that the present dual control, if continued, will inevitably lead to a deadlock. —I am, etc.,

Edinburgh, July 14th. R. MCKENZIE JOHNSTON.

SIR,—The circulation of the Memorandum on the Finances of the Association has to some extent achieved its purpose, which was primarily to arrest the attention of members. The correspondence which it has induced has not been all that could be desired; there has been rather much of the atmosphere of the Plaza de Toros; the lance of the picador and the banderilla of the Chulos, whilst inflicting individual pain, whetting the appetite of the onlooker for a more sanguinary show, and fostering those instincts which many of us would gladly see effaced, do not, so far as I am aware, serve any really useful purpose. The columns of our JOURNAL, too, are of too great value to allow their use for personal tilts, so that I should prefer to pass to the principles involved, and leave the actors out of account.

The correspondence so far has not shaken the main position of the Memorandum: that there has been a very rapid and serious increase in the expenditure of our Association, and that we have now reached the point when (apart from invested funds) our annual outgo has passed our annual income, and that it is necessary that we should rest and take stock of our position.

It would appear that, of the three departments, there is little increase in the expenditure of the General Secretary's office beyond the normal increase which must occur in the expansion of any well-regulated and growing society: in the Editorial department the increase also is trifling; the question here is whether it is possible to curtail without interfering with the efficiency of our JOURNAL; the Association has reason to place confidence in our Editor, and doubtless he will assist the Association as far as may be possible; the question of expenditure on contributions seems to be a hardy annual, and it would be well if this could be settled once for all: the rapid expansion is chiefly in the new department, that of the Medical Secretary, and is largely made up of the expenditure on printing and railway fares; it seems to me that here economy is possible. Are not the Committees too many and too large? And are the arrangements for their meetings the best? Could they not be so arranged as to reduce the number of railway fares and postages? Is not the Representative Meeting too large, and are not its methods of dealing with matters involving financial outlay capable of reform? Is not the Council too large if it is to be an executive committee only? Could not the *Year Book* and other printings cease without in any way rendering the Association less useful to the whole body of members? And is it not essential that our expenditure should not exceed our income, and that our income should be expended in the best way possible without unnecessary waste?

The object of the Memorandum was to call attention to these things, and its main points have not been controverted. There are, doubtless, in it expressions which had been better "differently expressed," but these are the faults of draughtsmanship; for example, the word "loss" as applied to the JOURNAL should have been "cost," and the expression "on the verge of insolvency" is not strictly accurate, but, taken with its context, its meaning is apparent to those who wish to see. For the "shriek" on the front page I must take the blame! my experience as an honorary secretary has shown to me the difficulty of getting members of the profession to take the remotest interest in things financial—connected with any Society. If I had sent out a document with a blank front page, or a front page on which appeared the word "Finance," few would have looked inside! therefore I printed there in letters large what I thought would catch the members' eye, and in this I have not been disappointed. In this "shriek" occurs the following:

> Were it not for the prudence of our predecessors we should this year have exceeded our income by £2,708.

If this be true, is there no reason for alarm? And this statement has not yet been shaken.

To Dr. Buist's attainture of the Lancashire and Cheshire members of the Council, I would merely reply that memory is short, and gratitude ofttimes turns to the future rather than to the present or the past! I have a mind that the doings of these selfsame members precipitated that action of the Council which led to the famous Exeter Hall meeting and its offspring—the present constitution! Surely that was something done for which, at any rate, Dr. Buist might find space in the recesses of his memory.

In what they have done the members of the Lancashire and Cheshire Branch have had solely at heart the good of the Association, and they are assured of widespread sympathy and support; they are part of the Association, and why should they wish it ill?—I am, etc.,

Manchester, July 16th. T. ARTHUR HELME.

SIR,—I have waited to see if any writer brought forward anything to seriously controvert the memorandum of the Lancashire and Cheshire Branch on the finances of the Association, and now that the controversy seems to be terminating I take the liberty of addressing you again.

I think all who have followed the correspondence will admit that nothing has been written to disprove in the least the facts or shake the arguments of the memorandum, while much has been said in their support. Especially has nothing been said in answer to what, to my mind, is incomparably the best contribution to the discussion—namely, Dr. McKenzie Johnston's letter.

The Annual Representative Meeting will soon be upon us, and I would particularly ask every Representative to read his letter (see BRITISH MEDICAL JOURNAL, June 2nd, p. 1316), and with it the memorandum of the Lancashire and Cheshire Branch.

I would also recommend for their perusal Lord Lansdowne's speech on the London County Council (Money) Bill. (See *Times*, July 10th, 1906, Parliamentary Reports.) I am not prepared to say that his position is correct as regards the County Council, but if for London County Council we read British Medical Association, we shall find well expressed the feelings of many deeply interested in the welfare of our Association and of the medical profession. I particularly recommend to the thoughtful consideration of our Representatives the following paragraphs:

> But what they felt was that it was not desirable that all these things should be done at once. It was, as his noble friend Lord Goschen said, a question of haste. They were for what he might call imposing a speed limit.
>
> The financial position is one that I look upon with grave doubt as to what is to be done in the future.
>
> He hoped "to convince" them "that we did stand in need of greater frugality and moderation in the expenditure of the ratepayers' money."
>
> Also his pertinent remarks about increase of staff and new buildings.

It is with great satisfaction that I see such ideas are beginning to actuate our Council, as is shown by the most reasonable recommendation concerning the Charter, which was passed by a large majority at their last meeting. This is in strict accordance with Dr. McKenzie Johnston's dictum, which I should like to see writ large and suspended over the chair at the Annual Representative Meeting.

"The healthiest and most lasting reforms come slowly and gradually after mature consideration."—I am, etc.,

Liverpool, July 15th. F. CHARLES LARKIN.

THE ANNUAL REPRESENTATIVE MEETING.

SIR,—May I remind members of the Metropolitan Counties Branch that a conversazione will be given in the Natural History Museum, South Kensington, on Tuesday next, at 8.30 p.m., to which all members of the Council, and all Representatives attending the Annual Representative Meeting have been invited? I would ask members of the Metropolitan Counties Branch desiring to be present who have not notified their intention to apply to me for cards of admission without delay.—I am, etc.,

138, Harley Street, W. FRED J. SMITH.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

SIR,—Mr. Birrell, in his reply to the deputation which waited upon him in support of Mr. Tennant's amendment of Clause 35 of the Education Bill, expressed the apprehension that if medical inspection of children were made compulsory on the local authorities the perfunctory discharge of this duty might be worse than useless, and might be an obstacle to further efforts to protect the

health and promote the physical well-being of the children. He spoke of the possible torpor and indifference of the local authorities, but he did not take into account the professional zeal of medical men appointed as inspectors. Still less did he consider the collective authority of the British Medical Association which would be brought to bear and would tend to correct any apathy or slackness on the part of individual examiners.

Another point was not brought out. It will be necessary, in order that the school medical examination may be turned to the best account, that the examiner should be in close relation with the medical officer of health, and that there should be co-ordination of their work. The school medical officer might perhaps be subordinate to the medical officer of health. It would certainly conduce both to efficiency and economy if in large centres of population the medical inspector held the position of assistant to the medical officer of health, while possibly in some rural districts the medical officer of health might be at the same time the medical examiner of the schools.—I am, etc.,

London, W., July 16th. W. H. BROADBENT.

"ANATOMICAL TERMS."

SIR,—Will you allow me a little space in your columns to say that you have done a conspicuous service to anatomical teachers, to those who have to examine in anatomy, and to every writer on medical subjects in this country by your annotation of advice and warning as to "Anatomical Terms" on page 102 of the BRITISH MEDICAL JOURNAL of July 14th last?

There is no doubt that the "Basle nomenclature," as it is called, which is largely the work of the late Professor His, must very soon indeed come to be in general use in this country, as it is already in Germany and almost as much so in America. At present it is little known and less used with us in England, and I have good reason for thinking that many of those actually and actively engaged in teaching anatomy in this country have no practical acquaintance with this nomenclature.

Though objection may be taken to some of the new Latin forms, and though in many instances the old terms may be thought to be better than the new, and will be parted with with regret, still it is none the less true, as your article states, that "the workers in other countries are learning and using the terms," and, as a consequence, unless they are adopted by us, the writings of English authors will become more difficult to be understood by other people, "and English readers will have more difficulty in understanding precisely the meaning of foreign authors."

It will interest some of your readers, therefore, to know that in the forthcoming fourth edition of Morris's *Treatise on Anatomy*, which will be out, it is expected, by October next, the terms sanctioned by the Basle Congress in 1895 will be adopted throughout the book.

To show the general acceptance of these terms in America I may state that Professor J. Playfair McMurrich, of Michigan University, who is doing the lion's share of the editing of this new edition, was prepared to make a sweeping adoption of the Basle nomenclature to the exclusion of the old; but until the English medical profession have become better acquainted with it I have thought it would be for the convenience of English readers to insist on the retention, within brackets, of the old terms placed after the Basle terms, in this next edition.

This course will I think, and hope, facilitate the transition for those who have learnt and hitherto used the old terms, without adding to the work or causing confusion in the minds of beginners in anatomical studies.—I am, etc.,

London, W., July 17th. HENRY MORRIS.

ENUCLEATION OF THE PROSTATE FOR HAEMORRHAGE.

SIR,—In the issue of the BRITISH MEDICAL JOURNAL of January 27th, 1906 (pp. 188, 189), my friend, Sir William Thomson, describes a case of "enucleation of the prostate for haemorrhage," and remarks: "The removal of the enlarged prostate for existing alarming haemorrhage has not been before advocated or deliberately practised—at least, so far as I am aware."

In the JOURNAL of June 9th, 1906 (p. 1346), Sir William, obviously referring to the same case, is reported to have remarked: "In one successful case enucleation (of the prostate) had been undertaken for severe haemorrhage. He believed this was the first time that the operation had been reported, as undertaken for haemorrhage only."

I invite Sir William's attention to a lecture of mine on the subject of enucleation of the prostate, published in the JOURNAL of July 4th, 1903, where at page 4 he will find details of a case—Case XXXVI in my series—that of a distinguished member of the medical profession, aged 71, in which, in consultation with Mr. Makins of London and Mr. E. White of Putney, I enucleated the prostate for alarming haemorrhage alone, which had existed continuously for several weeks, and which seriously threatened the patient's life. I am pleased to say that on the third anniversary of the operation I had a letter from this patient, saying that he was in perfect health, and that he had been untroubled by haemorrhage or any urinary symptoms since his recovery from the operation. In this case there was no stone in the bladder, to which, as in Sir William Thomson's case, the haemorrhage might possibly be attributed.

Amongst the 312 cases of enucleation of the prostate in my practice to date, details of 206 of which have already been given in the columns of the JOURNAL, severe haemorrhage has been a marked symptom in many instances, and in a few almost the only one. It is that which not infrequently induces the patient to submit to operation.—I am, etc.,

London, W., June 18th. P. J. FREYER.

ENDEMIC SPORADIC DYSENTERY (WITH SHIGA'S BACILLUS) IN ENGLAND.

SIR,—May I be permitted to point out, with reference to Professor Saundby's paper in the BRITISH MEDICAL JOURNAL of June 9th, 1906, p. 1325, on Endemic Sporadic Dysentery in England, that the relationship of certain cases of acute dysentery occurring in England to the acute dysentery common in tropical climates has been recognized for some time past? The first work, so far as I know, proving the relationship was carried out in the Middlesex Hospital laboratories in 1900, with results which were detailed in my paper on The Etiological Significance of *Bacillus dysenteriae* (Flexner) as tested by the Agglutinative Reaction with the Serum of Patients suffering from Dysenteric Symptoms,[1] and at that time a probable relationship of "asylum" dysentery to acute tropical dysentery had been suggested by several, although no satisfactory proof of the relationship had then been brought forward.

The agglutinative reaction of the serum of four patients who had suffered from acute tropical dysentery, contracted in two cases in South Africa, in one case in China, and in one case in Florida, was compared with that of the serum from three cases of acute dysentery which occurred in or near London during the late summer and autumn of 1900, the bacillus used for the purpose of the tests being one which Professor Flexner had isolated from a case of acute tropical dysentery amongst those occurring amongst the American troops in the Philippines. This strain was subsequently compared with another which had been obtained from Shiga, and the two appeared to be identical. In the three cases of acute dysentery which occurred at home the serum gave a good agglutinative reaction with a dilution of 1 in 100, whilst with the serum from the acute tropical dysentery a good agglutinative reaction was obtained also with the same dilution in two cases, and with a dilution of 1 in 40 in a case in which no greater dilution was tested. The remaining case of acute tropical dysentery was the one in which the disease was contracted in China: at the time of testing the serum in this case the patient was just convalescent, and no reaction was obtained with a dilution as low as equal parts of the serum and broth culture of the bacillus.

The three home cases occurred at a time when sporadic cases and small localized outbreaks of acute dysentery were reported in the northern parts of London, and I also heard of small outbreaks in Hertfordshire and Essex. One of the cases examined at the Middlesex Hospital was that of a boy who suffered from acute dysentery in August, 1900, and who was one of several inhabitants of a row of cottages in a hamlet in Hertfordshire who were

[1] *Centralbl. für Bakt.*, Band XXXI, 1902.

attacked in the same way. The cases involved in this particular outbreak were of considerable severity, the boy himself had been seriously ill and his mother had died in the second week of the disease; the source of infection appeared to have been the water of a well which was used in common by those attacked, and which was liable to sewage pollution. The unusual prevalence of acute dysentery at the time probably was connected with the large number of soldiers convalescent from dysentery who were then being invalided home from South Africa.

With regard to the specificity of the serum reaction, a considerable number of serums from cases of typhoid fever and other illnesses and also normal serums were used for control purposes, but in only one of these control cases was agglutination obtained with a dilution as high as 1 in 40, and this exceptional case was one of chronic ulcerative colitis of some seven months' duration, which may or may not have been originally of the same nature as the acute cases; the agglutination with the 1 in 40 dilution was incomplete, and with a 1 in 50 dilution no indication of the reaction was obtained.

With a clinical type of disease such as dysentery, in which the chief symptoms depend upon inflammation of a particular part, in this case some degree of colitis, it is clearly probable that more than one primary cause may be capable of producing the pathological changes upon which the symptoms depend; but at any rate I think that it has been fully proved that certain cases of acute infective dysentery occurring in this country, and including cases of what is known as "asylum" dysentery are identical with a common type of acute dysentery which occurs in tropical climates. It also is probable that an infection of this kind may end in a chronic ulcerative colitis in which all direct bacteriological evidence of the original causation is lost. I remember that Professor Flexner told me that whilst he had never found *Amoeba dysenteriae* side by side with *B. dysenteriae* in the excreta of acute cases of dysentery which he had investigated in the Philippines, he had found that in some cases which had passed into the chronic stage the amoeba made its appearance after the bacillus had disappeared.—I am, etc.,

ALEX. G. R. FOULERTON.

Middlesex Hospital, W., June 30th.

IMAGINARY CURES FOR IMAGINARY DISEASES.

SIR,—It is with much concern that I find, in the BRITISH MEDICAL JOURNAL of July 14th, page 114, my friend Dr. Bedford Pierce capable of a misquotation from Scripture, but, with this exception, I very heartily endorse everything he has said. I can imagine circumstances that may palliate the deception of sane patients; I have great difficulty in imagining any circumstance that could justify the deception of an insane patient. If Dr. Richelot avers that a delusion was abolished by the means he employed, I must believe it; but if the experience had occurred in my own practice, I should not have believed it. The essence of a delusion is its incorrigibility by contradictory evidence. If such evidence abolishes a belief, that, *ipso facto*, is proof that the belief was not a delusion. The trick described is an old one; it has been practised many times, but I know of no authenticated record of a case in which it has been successful. What one would expect to happen is what actually did happen in one instance to my knowledge. No amount of reasoning, no authoritative assertion of its impossibility, no pungency of ridicule, made any impression on the delusion of a patient that she had a frog in her stomach. At length her doctor gave her an emetic, adroitly introduced a frog into the basin, and, holding the animal up triumphantly, he called her to witness the removal of her parasite. What was the result? Was she convinced? Not a bit of it. "Now," she said, "perhaps you will believe that I was right and you were wrong. How many times have you not told me that I was mistaken, and poured ridicule on my belief, which you now find was true? But now you are too late. You should have believed me before. That frog has bred, and I am now infested by a nest of tadpoles, which will all grow into frogs in time. You may not believe it, but neither would you believe the frog was there. I knew the frog was there; and I was right. I know the tadpoles are there, and in that also I am right, though I daresay you will tell me that also is a delusion."

It is more than thirty years, I fear, since I discussed this question, of the ethical bearing of the use of deceit towards patients, with Dr. Hughlings Jackson; but I still remember vividly his emphatic dictum, "No good ever comes of telling lies." If one thinks it over, it is not a bad maxim to bear in mind in dealing with insane patients, with sane patients, and even with persons who are not patients.—I am, etc.,

London, W., July 14th. CHARLES MERCIER.

THE TEACHING OF MIDWIFERY.

SIR,—Dr. Rankin Lyle's reply to my letter of June 30th amply justifies my position. Here we have a University teacher stating that normal and not abnormal midwifery is essential for a student to learn, and that the vast majority of cases are normal and require no assistance. A teacher of medicine might as well devote a considerable portion of his time to teaching students the normal action of the bowels. But Dr. Lyle is bound to admit that abnormal cases crop up constantly, and lead to the deplorable results that sometimes come under his notice, results which he rightly attributes to want of experience on the part of the accoucheur. Teachers of medicine and surgery devote practically their whole time to instructing the student what to do in abnormal conditions and demonstrating their views by the bedside, yet here is a teacher of midwifery stating that he is consulting the best interests of his students by teaching them what he calls normal midwifery, or the art of doing nothing except in those cases where spontaneous delivery, however painful and prolonged it may be, is impossible. What the untrained accoucheur is to do in the latter case if no skilful teacher is available we are not told.

Dr. Lyle has not read my letter carefully, or he would have seen that I first study the safety and welfare of the patient, and that I strongly object to hospital cases being left in the unaided hands of a raw student, and, secondly, that I consider it unfair to the public to allow any one to qualify as a medical man who has not practical knowledge of the method of dealing with abnormal cases of midwifery.

This raises the important question as to what is a normal case. I hold strongly that any case in which there is delay is abnormal. In my experience there is such delay in 50 per cent. of cases, or, leaving out those which are over before the arrival of the doctor, there is need for assistance in 80 per cent. of the cases where the doctor is present. The patient is thus saved unnecessary pain and delay by the use of chloroform and the forceps, exhaustion is prevented, and with it the tendency to *post-partum* haemorrhage. Here I cannot but notice the statement of another teacher of midwifery, Dr. Herman, in his letter published in the BRITISH MEDICAL JOURNAL of July 14th. He states emphatically that if the accoucheur pulls out the child, when the uterus is not contracting there will be *post-partum* haemorrhage. I wish to state equally emphatically that in all the hundreds of cases where I have used the forceps I have pulled the child out as quickly as possible, without any regard to the contraction of the uterus, safeguarding of course the perineum, and yet I have never had a case of *post-partum* haemorrhage. The reason obviously is that I interfere before the uterine muscle has become tired, and also that I make sure that every bit of placenta has come away, and, finally, forcibly squeeze down the uterus after delivery.

Dr. Herman mentions as a cause of trouble the disproportion between the child's head and the outlet, and this in my experience, together with frequent occipito-posterior presentations, causes the delay in so many cases. I do not agree at all with Dr. Herman's suggestion of inducing premature labour, unless there is pelvic deformity of such an extent as to make delivery at term impossible or dangerous, but I do most earnestly advocate giving help in all cases of disproportion, however slight, and have practised this method with complete success for many years.

From what I have heard of Dr. Rankin Lyle I am sure he will regret having introduced into his letter the suggestion of unworthy motives, such as the teaching of students at the expense of patients, or the saving of a practitioner's time. Such suggestions form no argument, but at the same time prevent many sensitive men giving their experience to the profession. I have not yet had

the pleasure of making Dr. Lyle's acquaintance since he came to Newcastle, but if he would do me the honour of being my guest for an hour or two, I should be very glad to give him a clinical demonstration of the simplicity and success of the advanced method.—I am, etc.,

North Shields, July 14th. F. C. MEARS.

SIR,—After the able reply of Dr. R. P. Rankin Lyle in the BRITISH MEDICAL JOURNAL of July 14th to the practice advocated by Dr. Mears—which, it is to be hoped, has been seen by the majority of your readers—I shall hope that practitioners engaged in obstetrical operations will not fail to see the force of Dr. Lyle's argument, that "the whole aim of all teachers of obstetrics is the prevention of complications, and the reduction of abnormal midwifery to a minimum."

That complications must ensue from the too early application of the forceps ought to be as certain to the mind of the accoucheur as to the gynaecologist, and all the more likely are those complications to occur whilst under chloroform. Setting aside the perineum and its subsequent repair, what about those internal lesions which must frequently occur from such needless proceedings, and which are but too often quite overlooked in these "up-to-date" methods? Surely, the application of the forceps requires no extraordinary skill in the hands of those properly taught, therefore I would ask, in the cause of humanity, with what object would any man engaged in the practice of midwifery rush prematurely to terminate a case when the use of the forceps is clearly contraindicated?

In the great majority of cases that will terminate normally if left alone, rapid delivery under chloroform is not only opposed to the laws laid down and practised by the teachers and examiners in obstetrics, but it is manifestly unfair to the patient and fraught with danger both to her and to her offspring.—I am, etc.,

Liverpool, July 17th. CHARLES E. SOLOMON.

ASSOCIATION OF MEDICAL DIPLOMATES OF SCOTLAND.

SIR,—May I ask (through the medium of the BRITISH MEDICAL JOURNAL) those holding Scotch qualifications to kindly reinform me of the various disabilities and grievances they may know of appertaining to these qualifications, in order that they may be investigated and redressed if possible by the above Association.—I am, etc.,

CLAUDE ST. AUBYN FARRER (President).

London, W., July 18th.

MEDICAL ARRANGEMENTS ON PASSENGER SHIPS.

SIR,—In these days of large steamers of 10,000 tons and over, that carry emigrants in addition to first and second class passengers, the total number of souls on board often reaches close on 2,000. We therefore have to consider the ship as a small town containing an exceptionally large proportion of well-to-do persons.

Owing to the engine-rooms and stoke-holds our ship may be likened to a manufacturing town, and this, taken in conjunction with the surgical accidents due to rough weather, raises the percentage of surgical cases considerably above that of a town with a similar population on shore.

Sea-sickness also increases the liability to hernia and miscarriage, and considerably adds to the seriousness of many diseases. The prevention of infectious and contagious disease is of the highest importance in this little community, as the unavoidable crowding and the difficulty in obtaining complete isolation render an epidemic a very serious matter.

A ship such as I mention can therefore be regarded as a small town particularly liable to infection, and where there is an abnormally high proportion of serious medical and surgical cases. The medical department should therefore be highly efficient and the medical officer experienced and reliable if the safety of the travelling public is to be ensured.

The great majority of ships' surgeons can be classified under one of the following four headings:

1. Young men who are just qualified, and have not yet held any resident hospital appointment.
2. Men who have tried practice on shore, and have not been successful, generally owing to too free an indulgence in alcohol.
3. Men who are entirely without capital, and who have become wearied of "assistant" and "locum" work.
4. Men who have temporarily taken to a sea life in search of health.

Of these four classes, the last is the one that produces the largest number of reliable medical men practising as ship surgeons.

Alcohol is undoubtedly the curse of the ship surgeon's life, and too great stress cannot be laid on the importance of only appointing strictly sober surgeons.

It is difficult, however, to see how a regular supply of reliable men is to be obtained under the present conditions, for the pay is so low (£8 to £10 per mensem while at sea only), and the surgeon is not permitted in most lines to demand a fee even from first-class passengers who come on board suffering from some serious malady that requires constant attendance.

Many first-class passengers have, however, told me that they would much prefer not to have free medical attendance if by paying ordinary fees they could always be certain of obtaining the services of a competent medical man. Surgeons are generally graciously permitted to accept presents from passengers, but I need not point out how unpleasant and unsatisfactory this is. My own experience is that not more than about 20 per cent. of first-class passengers that have been under medical treatment ever send the surgeon any fee at all.

Considering the responsibility and the amount of work to be performed by a conscientious surgeon in medical charge of such a ship as I have mentioned, I consider the pay quite inadequate to attract and retain medical men competent to undertake single-handed all the work that may arise.

THE NURSING ARRANGEMENT.

I find the "nurse-stewardess," like all half-measures, far from satisfactory, as the nurse signs on as a stewardess, and is only liable for service with the first-class passengers. She is under the orders of the purser, and not of the surgeon. In a full ship her stewardess duties do not permit of her giving time to the nursing of second or third-class passengers, even if she is willing to do it as a favour.

Many lines carry a male hospital attendant, who also acts as the surgeon's servant. Of those that have come under my notice, the large majority have been trained in the R.A.M.C.; they have been reliable men.

The hospital attendants' duties consist in keeping the hospitals, dispensary, and instruments clean and in good order, in attending to the sick, and in giving the surgeon any assistance that may be required.

I consider, however, that a female nurse would be able to perform all his professional duties with the exception of scrubbing the floors, and would have the advantage of being able to nurse both sexes.

Under the "nurse-stewardess" and "hospital-attendant" system the third-class female passenger is entirely unprovided for. She is often in a filthily dirty condition when admitted to hospital, but there is no one to wash her or nurse her except her fellow-passengers, and they very naturally almost invariably refuse if there is any question of the case being of a contagious or infectious nature. That a third-class woman passenger should be entirely dependent on the surgeon and male hospital attendant for nursing appears to me neither civilized or decent.

If a nurse were carried in the place of a hospital attendant, the only additional cost would be that of a youth, who would act as doctor's servant and do the rough hospital work, such as scrubbing floors, etc. With ordinary wooden decks to the hospitals, it is very difficult to keep the third-class hospitals clean, as it is impossible to prevent the third class patients from expectorating, and occasionally vomiting, on to the floor.

I consider that the following suggestions, if adopted, would ensure an efficient medical department at a scarcely appreciable increased cost:

A. Staff.

1. That the medical officer should be required to have held a resident medical and surgical appointment in a large hospital. That the medical officer be permitted to charge fees to first-class passengers for attendance.
2. That a fully-trained hospital nurse be carried. That she

have no stewardess duties to perform. That she be liable for service with all sick on board irrespective of class. That she be under the orders and control of the ship's surgeon.

3. That a male hospital attendant, if carried, should have some certificate of training. That he should be under the orders and control of the ship's surgeon.

B. *Sick Accommodation.*

1. That one first-class and two third-class hospitals (one for men and one for women) be provided and capable of accommodating 2 per cent. of the souls carried.

2. That the hospital floors be tiled or tesselated.

3. That the hospital bunks be provided with spring mattresses, bedding, blankets, and linen.

4. That hot and cold water be laid on to the hospitals and dispensary.

5. That in the tropics the hospitals be provided with electric fans.

6. That an operating table (collapsible) and steam sterilizer be provided.

C. *General Sanitation.*

1. That one bathroom (with hot water laid on) be provided for every 100 third-class passengers; one for firemen and sailors; one for stewards and servants.

2. That either a temperance canteen be provided for the third-class, or that sufficient tinned milk be carried on board to permit of a daily ration of milk being given to all third-class children under 3 years of age.

3. That a glyco-formalin disinfecting apparatus be carried on board.

As regards the last two recommendations, the diet for third-class passengers and emigrants, though generally ample, wholesome, and well suited to adults, is not fitted for children of tender age, and is thus one of the causes of the sickness and mortality among them.

The use of vapourized sulphur for disinfection is undesirable, as it is impossible to prevent the odour pervading a considerable area around the particular cabin where it is being used, and unnecessary alarm and disquietude is thus caused.

In order to show that my suggestions are not unreasonable, I may state that during nine months' experience as surgeon to a mail ship I have had to perform nine operations requiring an anaesthetic (one a successful laparotomy for perforating duodenal ulcer). Amongst other surgical cases I have had a case of cerebral abscess where operation was refused and the patient died, three cases of appendicitis that recovered without operation, and a case of stone in the bladder with retention of urine. The medical cases have included pneumonia, phthisis with severe haemoptysis, empyema, morbus cordis, aortic aneurysm, exophthalmic goitre, enteric fever, gastro-enteritis, acute rheumatism, bulbar paralysis, locomotor ataxia, general paralysis, acute melancholia, and lunacy with delusions. The infectious diseases list includes variola, varicella, and morbilli.

Surely it would be policy to devote a small part of the many thousands of pounds spent in decorating a modern first-class mail steamer to equipping and maintaining an efficient medical department.

The medical department, however, is not considered a sufficiently good medium for advertisement to justify any expense that can possibly be avoided, and it is practically certain that no steamship company will adopt the reforms that I have suggested unless driven to do so by the force of public opinion.—I am, etc.,

HUGH WANSEY BAYLY, M.A.Cantab.,
M.R.C.S., L.R.C.P., late Surgeon R.M.S.P.Co.
New Oxford and Cambridge Club.

AORTIC INSUFFICIENCY.

SIR,—Dr. Seymour Taylor, in his paper in the BRITISH MEDICAL JOURNAL of June 23rd, p. 1461, mentions several interesting cases of aortic valvular disease in which the administration of digitalis appears to have acted injuriously.

It is not my desire to discuss the question of the value of digitalis in this disease, but I should like to draw attention to one detail that possibly sometimes escapes notice. Dr. Seymour Taylor considers that the patients with aortic valvular disease who also have evidence of leakage of the mitral valve suffer from milder symptoms of cardiac distress than those in whom the mitral valve is competent. That may be so; but, if true, it does not seem to me that the absence of serious symptoms is necessarily explained on the hypothesis of the safety-valve action of the mitral valve.

There are, mainly, two forms of aortic regurgitation: The aortic regurgitation of the young which follows rheumatism, and the aortic regurgitation of the middle-aged which is most commonly secondary to disease of the intrapericardial portion of the arch of the aorta. Differing in causation and in the appearance of the diseased orifice they differ also in one other important detail. In the variety in which the aorta is affected the orifices of the coronary arteries are often obstructed and the obstruction leads to extensive degeneration of the cardiac muscle. Where, on the other hand, the disease of the aortic valve is of rheumatic origin, although fibroid patches may be present in the heart-wall, the disease of the cardiac muscle is almost invariably slight in degree compared with what is commonly seen in association with disease of the aortic orifice of non-rheumatic nature.

Bearing in mind the existence of these two leading forms of aortic regurgitation it is necessary to consider in any given case whether a mitral systolic murmur is not indicative of an associated lesion of the mitral valve—that is to say, implies a sequel of rheumatic endocarditis rather than dilatation of the orifice secondary to dilatation of the left ventricle. In cases of aortic valvular disease of rheumatic origin a healthy mitral valve is the exception. It seems to me, therefore, that if the presence of a mitral systolic murmur in a case of aortic regurgitation is to be considered a comparatively hopeful sign, its favourable import is probably not to be explained on the supposition that a safety-valve action has developed at the mitral orifice, but on the ground that the presence of the murmur generally indicates that the less serious form of aortic regurgitation is present.

In conclusion, one brief remark may be made upon sudden death. It must be the experience of all pathologists that fibroid disease of the heart is the most common cause of sudden death. In my experience, not a few of these cases of fibroid disease terminating suddenly have been instances of obstruction of the orifices of the coronary arteries by disease of the aorta just above the valve, the aortic orifice, however, remaining competent. I should therefore be inclined to go a step further, and say that not only has regurgitation through the mitral orifice little concern in the question of sudden death in cases of aortic regurgitation, but that regurgitation through the aortic orifice itself plays quite a secondary part in any abrupt arrest of cardiac action.—I am, etc.,

June 23rd. THEODORE FISHER.

SIR,—I was painfully impressed by the truth of Dr. Seymour Taylor's contention in regard to the danger of administering digitalis in cases of aortic insufficiency, so much so that I feel it is my duty to forthwith communicate my experience through your columns.

Strangely enough a patient came to see me a short time ago complaining of dyspnoea upon the slightest exertion. She came fully dressed in her working attire. Upon a superficial examination—the only possible examination under such conditions—I discovered a valvular lesion giving rise to a murmur heard at the apex. I advised the patient to go home and to bed, promising to call next day and examine her properly. I then concluded that the condition was one of pure aortic regurgitation for the following reasons:

1. The first sound, although muffled, was not replaced by a bruit.

2. The second sound was entirely replaced by a soft blowing murmur.

3. The murmur, although audible at the apex beat, was lost an inch on its axillary side.

4. The murmur was more pronounced on the sternal side of the apex beat than over it, and was distinct along the right edge of the sternum up to and at the second right cartilage.

I was surprised to find, however, that the cardiac dullness was not appreciably increased, and that there had been little oedema of the feet. One seldom meets with uncomplicated aortic incompetence; nevertheless, I pronounced a grave prognosis.

Next day I was painfully shocked, although not much surprised, to learn that the patient had died during the night. It seems that she got out of bed at 5 a.m., and upon her husband remonstrating with her for disobeying my instructions said she never felt better. Almost imme-

diately afterwards she said she felt sick, sat down, and expired. The incident had passed as so many of these do and seemed inexplicable, but was vividly recalled by a perusal of Dr. Taylor's article, which set me thinking. Being uncertain what drug I prescribed in the first instance I forthwith consulted my prescription book, and felt grieved to find that I had given tincture of digitalis and citrate of iron and ammonia. Of course, when I discovered the real nature of her disease, for safety I ordered tincture of nux vomica and tincture of opium. It must remain a mystery whether the 80 minims of tincture of digitalis contributed towards the fatal result; but one must admit that it seems a strange coincidence that a patient who was able to work until three days before death should die after such a small quantity of digitalis. There may be other general practitioners who could recite similar experiences and thereby prove, as Dr. Taylor says, "that clinical knowledge and experience constitute the most valuable form of medical observation." Indeed, sir, if every general practitioner were to contribute his experience through your columns, it might do more to settle the vexed question of digitalis in aortic incompetence than laboratory experiments.—I am, etc.,

June 27th. FIDELITY.

PREVENTION OF THE AËRIAL DISSEMINATION OF INFECTIVE MATTER BY DUST.

SIR,—There is a point in the prevention of tuberculosis and other diseases which are spread by the aërial distribution of infective micro-organisms in dust, which is of great practical importance, but does not appear to be adequately dealt with.

I refer to the provision of spittoons in public buildings and thoroughfares wherever the notice "not to spit" is placed. Expectoration of mucus is physiological in this country, and such excretion should be received, as other excretions are, into receptacles, in view of its possible pathological properties. It is insufficient to forbid such an act unless it is accompanied by facilities for such as spittoons for the reception of sputum, and this applies to public thoroughfares, especially if the dangerous custom of "dry sweeping" is still in force. In certain parts of England the latter unwholesome habit still prevails, though it has long been discarded by French sanitary authorities. Such dust is either inhaled or settles on food which is directly exposed for sale, and is thus ingested. In any case, moistening of the dust, or washing it away, followed by brushing, is rational and hygienic, and is recommended by the National Association for the Prevention of Consumption.

The spittoons placed in the gutters of streets might be of simple and inexpensive pattern, but in certain buildings in Paris, as at the Pasteur Institute, there is a model which has advantages. A metal globe is mounted on a pedestal, and the upper hemisphere lifts up; this action automatically flushes with water the lower half for the reception of the sputum.—I am, etc.,

Brighton, July 7th. F. G. BUSHNELL.

OBITUARY.

MARK ANTONY MACDONNELL, M.D., M.CH., EX-M.P.

WE regret to announce the death of Dr. Mark Antony MacDonnell at the comparatively early age of 54, after a lingering illness of two years' duration, which he bore with the most cheerful resignation and fortitude.

In the late Seventies Dr. MacDonnell possessed a lucrative practice in Liverpool, where he held several valuable and responsible appointments. For several years he was Visiting Surgeon to the Toxteth Infirmary, and Surgeon to the Cancer Hospital, and only resigned those appointments on his removal to London, where he soon gravitated to Harley Street, and there lived for several years. His professional career was cut short on his entering the House of Commons as Member for one of the divisions of Queen's County in 1892, when he joined the Irish Party, to whose fortunes he remained true almost to the end; for he only ceased to represent his division at the late General Election.

It is no empty flattery to say that Dr. MacDonnell was a general favourite on all sides of the House of Commons. For many sessions he was invariably elected on the Kitchen Committee, and his shrewd common sense and professional knowledge of dietetics will be much missed in that body; there were no more frequent inquirers at his Wimbledon residence during his trying illness than his fellow members on that Committee.

Amid all the divisions and ruptures in the Irish Party during the Parnell split and on subsequent occasions, it is the simple truth that Dr. MacDonnell never made an enemy, either in the House or elsewhere. He held strong views as an Irish Nationalist, but he expressed them in a way that left no sore behind. His hospitality, both at Harley Street and at Wimbledon, was, to say the least of it, not discreditable to his race, and the writer, who has known him and his family from his youth, has never seen him happier than when entertaining a large party of his political associates. He will be a distinct loss to his profession, as he kept a most efficient watch over its interests in the House of Commons, and owing to his widespread popularity he was always able to obtain supporters from all parties in divisions on medical questions.

He was younger brother of the Right Hon. Sir Antony MacDonnell, K.C.S.I., etc., Under-Secretary for Ireland, and he has two other brothers in the medical profession. All the four were alumni of Queen's College, Galway.

His remains were removed from his Wimbledon residence on June 13th for interment in Liverpool. His wife, an American lady, survives him, and he leaves four sons, the eldest of whom is a law student in London; two of the younger are at Stonyhurst College in Lancashire.

J. J. G.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF LONDON.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

Scholarships.—The following scholarships, medals, and prizes have been awarded at St. Bartholomew's Medical School: Lawrence Scholarship and Gold Medal—value £45 in Medicine, Surgery and Midwifery—to G. C. E. Simpson. Brackenbury Scholarship—value £39 in Medicine—to P. L. Giuseppi and J. K. Willis (equal). Brackenbury Scholarship—value £39 in Surgery—to R. H. Bott. Matthews Duncan Prize in Midwifery to D. W. Hume. Burrows Prize in Pathology to P. L. Giuseppi. Skynner Prize in Morbid Anatomy in reference to Scarlet and Rheumatic Fevers—to A. E. Cockayne. Willett Medal for Operative Surgery, to J. C. Mead. Wix Prize for an Essay on the Life and Works of Sir William Savory, to K. Macfarlane Walker. Shuter Scholarship in Anatomy and Physiology—value £50—to H. T. H. Butt, of Christ's College, Cambridge.

THE LONDON HOSPITAL.

Distribution of Prizes.

THE Secretary of State for War, Mr. Haldane, distributed the prizes to the successful students and nursing probationers at the London Hospital on July 13th in the library of the Medical College. Mr. Haldane delivered an address on medical science, in which he observed that in both medicine and surgery it was now necessary to recognize that the work of the nurse was as important as the work of the physician and surgeon. In the art of surgery and the science of medicine much had been learnt in recent years, and, as in other great advances, progress had been due to the realization of fresh conceptions. Two remarkable addresses within the last few months had been delivered by Sir Frederick Treves dealing with the great thought that a living organism—the human body, for instance—was no mere mechanism in which the parts could be treated separately. It was now recognized that the parts of the organism were more like the citizens of a State than like the pieces of a machine. At the present time they knew that things which were once taken to be mere evils in themselves were really beneficent manifestations of the power of the living organism to throw off the poison affecting it. The new conception of medicine and surgery was to let Nature alone as far as possible and assist in her work by every means. The science of medicine at the present day had many branches, and the questions to be solved were now being studied in a way to which our forefathers were strangers. Science influenced and affected profoundly the teaching of the surgeon, the physician, and the nurse, and that was why the standards of a generation ago were useless at the present time. Those who were responsible for dealing with the organization of society ought to recognize that without economic science and legislative science and science of different kinds it was impossible to have clear principles and plain ends in a definite fashion before the mind. In that respect he thought the science of medicine afforded a lesson by teaching that the healing of the body was dependent on the understanding of the principles upon which life was governed. Science was now recognized as the guiding star of work, and afforded

a sure promise that the story of our race would be one of progress.

A cordial vote of thanks to Mr. Haldane was proposed by Lord Stanley, seconded by Mr. Hurry Fenwick (Chairman of the London Hospital Medical Council), and carried with acclamation.

Mr. Haldane, in responding, said that his presence there was not quite disinterested, for when he looked at the nurses present the word "mobilization" came to his lips, and the London Hospital seemed likely to be a tower of strength to the army if a moment of national emergency arose.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

Distribution of Prizes.

Surgeon-General Sir Alfred Keogh, Director-General of the Army Medical Service, presented the prizes to the successful students of St. Mary's Hospital Medical School on July 16th in the Library of that institution. In the course of his address to the students, after giving away the prizes, Sir Alfred Keogh said that St. Mary's Hospital Medical School was well represented in the public services, especially in the army. If he were asked to choose a medical career for a student, he would be inclined to say, Join the Royal Army Medical Corps, and follow the drum and the colours; leave behind all chance of a lucrative practice, and join the army, where there is less money to be made than in civil life, but perhaps more glory and honour. The path of those entering the medical profession was undoubtedly thorny, but he was happy to think there were fewer men going in for the medical profession at the present time than when he qualified. The improvement in the outlook for medical men was due, he considered, to the action taken by the General Medical Council.

Unveiling of a Memorial Bronze.

Sir Alfred Keogh afterwards unveiled the memorial bronze erected in the entrance hall of the Clarence Wing to the memory of members of the Hospital and Medical School who lost their lives during the South African war. The memorial is the work of the artist Mr. Tweed, and the inscription on it runs as follows: "To the memory of the members of St. Mary's Hospital who lost their lives while serving in South Africa. Arthur Baird Douglas, Lieutenant-Colonel 3rd Battalion Sherwood Foresters (Derbyshire Regiment); Robert H. E. G. Holt, Captain R.A.M.C.; George William Guy Jones, Lieutenant R.A.M.C.; George Umacke Jameson, Second Lieutenant 1st Battalion The Border Regiment; Cecil Courtenay Parsons, Civil Surgeon; Reginald Percy Fort, Civil Surgeon; Edith Manley Gardener, Sister Army Nursing Service."

UNIVERSITY OF EDINBURGH.

LECTURESHIP IN PSYCHOLOGY.

THE Edinburgh University Court at its meeting on July 16th appointed Dr. W. G. Smith to the recently-instituted George Combe Lectureship in General and Experimental Psychology. Dr. Smith has already occupied similar lectureships in Smith College, Massachusetts; in King's College, London; and at Liverpool University.

UNIVERSITY OF GLASGOW.

Graduation Day.

THE graduation address on July 17th was delivered in the Bute Hall by Professor J. G. M'Kendrick, who said that he had probably been selected for the duty in order to afford him one more opportunity of addressing the University before quitting the position he had held for thirty years. It was forty-two years since he had graduated, and during that time he had seen an astonishing development in connexion with universities, and more especially in connexion with the University of Glasgow, the methods and means of teaching had been vastly improved, much more was done in the way of demonstrations, and greater facilities were afforded to students for doing work for themselves. Subsidiary branches of science were cultivated by the establishment of lectureships; thus at the present time there were five lectureships in the chemical department—chemistry, organic chemistry, metallurgical chemistry, physical chemistry and physiological chemistry. "Had it fallen to me," Professor M'Kendrick continued, "to develop the physiological department in the new laboratories, it was my intention to subdivide the subject, so that we would have had at least five teachers, namely, physiology, experimental physiology, more especially in connexion with nerve and muscle, histology, physiological chemistry, and experimental psychology. I have no doubt my successor will work on similar lines. We have also lectureships on practical anatomy and embryology, and probably others that have not come under my observation. I cannot help alluding to the new laboratories for medical jurisprudence and public health, for materia medica and pharmacology, and for physiology. To indicate what is being done, I will only again mention the circumstance, alluded to in my valedictory address to the summer class, that for thirty years I have worked in five rooms, but my successor will have the command of twenty-five rooms, for various purposes. No doubt all this development will cost money, and I do not wonder that those who take charge of the finances of the University are fearful as to the future. But let them take courage. Expenses will be heavier, but the University and the country at large will get full value for all the expenditure in increased efficiency, in the progress of science, and, consequently, in the welfare of the public. I have myself no fears. Convince the public that the advancement of the University—or rather I would say of all universities—is of the utmost importance to our national well-being, and money will be forthcoming." So much progress had been made in medicine and surgery and gynaecology that some of those he was addressing might possibly feel discouraged and think that little was left for them to do, but that would be a great mistake, for marvellous as had been the progress of the last thirty or forty years, he believed that science was on the road to great discoveries, which might as regards some details of practice, revolutionize the medical art. "Ideas," he said, "precede discoveries in the onward march of science. The secrets of Nature are not revealed at haphazard. Sometimes one with merely an inquisitive mind discovers a new phenomenon, apparently almost by chance; but the best work is done by the thinker, who meditates over phenomena with which he is familiar, and who invents a working hypothesis to explain the facts. Then he appeals to observation and experiment. The observations and experiments are then not at haphazard. The investigator knows what to look for, and he knows the kind of experiment that must be tried. Thus great general principles are established. It seems to me that we have in our day striking examples of this process of human thought. New ideas are everywhere in the air." Practical medicine was no doubt an art, not a science: it was based on knowledge derived from physiology, pathology and pharmacology, branches of knowledge which were becoming more and more closely connected. There were gradations both in health and disease, ups and downs, different planes of health as it were; it was becoming more and more clear that each organ might have more than one function, and that if one organ was the seat of disease, other organs might, within limits, act vicariously for it. Morbid changes had a beginning, and if only they could be detected at this stage, it might be possible to employ therapeutic methods which would avert the morbid changes, or at least modify their progress. "We also see," he said, "that the body has numerous protective arrangements for defending itself against enemies, such as micro-organisms or poisonous substances generated even by itself. This is an idea only dimly perceived by our forefathers. The acidity of the gastric juice, the portal circulation, the abundance of adenoid tissue crowded with leucocytes in some of the so-called blood glands and in the alimentary tract, the influence of internal secretions—are all examples of what we may term a protective mechanism. The old physicians wrote much about a *vis medicatrix Naturae*. They had a glimmering of the truth. There is no *vis*—there is no principle that thus acts; but there is a tendency on the part of every tissue to resist attack, and, if altered in a morbid direction, to revert to the condition that is normal. In your future work you will recognize these ideas, and they will help you in your practice." After referring to toxins and antitoxins, opsonins, and to the theories of Ehrlich, he said: "Another idea that is taking possession of the medical mind is that by therapeutic measures, while we cannot cure the disease, we can help the body to carry on its functions, not, certainly, on the high level of perfect health, but on a lower level of comparative comfort and efficiency. Physicians do not invariably attempt to treat actively a new set of symptoms that may make their appearance in a chronic case. They are afraid to do harm when they cannot see clearly that they can do good. This is well brought out in a remarkable book I have recently been reading, *Principia Therapeutica*, by Dr. Harrington Sainsbury, and which I would strongly advise you all to peruse. He tells us of a case under the care of Sir William Jenner which illustrates the point: The patient had been long under his guidance for chronic renal disease, when, in the course of a journey abroad, active symptoms developed, were at once taken in hand, and as actively treated; within a short time the patient succumbed. A lady recounted the case to Sir William, spoke her regret that he had not been present, for then, as she expressed it, her friend would not have died. The answer came that this was unreasonable, seeing that the patient had an incurable disorder. 'Ah, yes, doctor,' she replied, 'but then you would not have attempted to cure it.'" Drugs could not work miracles, they could not materially alter the condition of a diseased heart or of degenerated kidneys, but he added "if we recognize the idea that the body as a whole has wonderful compensatory arrangements and adjustments, by which life may be beneficently prolonged, we can do much by therapeutic means to assist Nature. I frankly confess that as I have become older the crude scepticism of early years as to therapeutic measures has given place to a recognition of how much may be done to help by the judicious use of our materia medica."

UNIVERSITY OF LEEDS.

A CONGREGATION was held in the Library of the Medical School on July 13th.

Before conferring degrees the Pro-Vice-Chancellor, who presided, took occasion to refer to the recent resignation by Professor de Burgh Birch of the office of Dean, and to welcome his successor, Professor Grünbaum, to the position.

The degrees of Bachelor of Medicine and Bachelor of

Surgery were conferred on Messrs. F. G. Dobson, E. R. Flint S. R. Gloyne, J. J. Hummel, and F. E. Kendall.

The thesis of Mr. W. J. W. Anderson on Urinary Calculi for the degree of M.D. was approved.

Candidates have been approved at the examinations indicated:

SECOND M.B. AND CH.B. EXAMINATION.—*Part I:* W. H. Butler and J. B. T. Keswick. *Part II:* C. S. Brown, J. P. Musson, A. Riley, C. G. K. Sharpe, W. Shaw, R. E. Smith, J. N. L. Thoseby.

FINAL M.B., CH.B.—*Part I:* W. L. Dibb.

UNIVERSITY OF BIRMINGHAM.

THE following candidates have been approved at the examinations indicated:

M.D.—T. W. Fowler, R. B. D. Hird, A. E. R. Weaver.

M.CH.—*Official:* F. Marsh. *Under Ordinary Regulations, Class I:* A. W. Nuthall.

M.B., CH.B.—*Past Students of Birmingham Medical School, Class II:* F. N. Deakin, Ch. Maskew. *Under Ordinary Regulations, Class II:* *R. H. Astbury, J. S. Austin, A. C. Hincks, C. Johnson, H. B. Jones, *W. R. S. Roberts.

FOURTH M.B., CH.B.—*Class I:* *J. Fenton, *A. A. Sanders, F. B. Young. *Class II:* E. J. Boome, H. N. Crowe, E. T. Gaunt, J. K. Gaunt, P. J. Mason, N. C. Penrose, A. J. Smith, R. W. Thompson, N. V. Williams.

THIRD M.B., CH.B.—*Pathology and Bacteriology, Class II:* J. Adams, Charlotte Bailey, †J. Dale, G. H. C. Mold, D. P. Smith, E. V. Whitby. *Materia Medica and Pharmacy, Class I:* J. Adams, †J. Dale, H. A. Evans, E. V. Whitby. *Class II:* Charlotte Bailey.

SECOND M.B., CH.B.—*Class II:* W. C. Blackham, N. A. Boswell, H. G. Browning, *H. F. Humphreys, Violet M. McCready, C. Walker, K. D. Wilkinson. *Passed Part of the Examination:* J. H. Baupton, J. S. Edwards, C. E. Molino, Ethel A. Waldron, H. A. Whitcombe, H. Wilks.

FIRST M.B., CH.B.—*Class II:* E. W. Assinder, O. M. Holden, Elizabeth S. Impey, L. G. Jordan, R. D. Nelson, H. Richmond.

* Bracketed for a Queen's Scholarship.
† Queen's Scholarship.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY council was held on July 12th, Mr. John Tweedy, President, in the chair.

Harvard University.

A letter dated June 12th was read from the Secretary to the Faculty of Medicine of Harvard University reporting the adoption of the following resolution, namely:

"That the Faculty of Medicine of Harvard University gratefully accepts the valuable collection of prints and engravings of physicians given to them by the President and Council of the Royal College of Surgeons, England, through Victor G. Plarr, M.A., Librarian, and Walter G. Chase, A.B., M.D."

The Midwives Act.

The following resolution, moved by Mr. Ward Cousins, and seconded by Mr. R. J. Godlee, was carried:

That in the opinion of the Council it is essential for the efficient working of the Midwives Act that adequate provision be made to secure just remuneration for professional services rendered by medical men when called into attendance by midwives practising under the Act.

Lecturers for the Ensuing Year.

The following appointments were made:

Hunterian Professors.—William Sampson Handley (two lectures); John William Thomson Walker (two lectures); John Howell Evans (two lectures); William Wright (three lectures); Cecil Fowler Beadles (three lectures).

Arris and Gale Lecturers.—John Faulkner Dobson (two lectures); Bertram Louis Abrahams (one lecture).

Erasmus Wilson Lecturers.—Wilmot Henderson Evans, Reginald Cheyne Elmslie, Kenneth Weldon Goadby (one lecture each).

Election of President and Vice-Presidents.

Mr. Henry Morris was elected President. Mr. Edmund Owen and Mr. R. J. Godlee were elected Vice-Presidents.

Next Meeting.

The next meeting of the Council was fixed for Thursday, July 26th.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.

AT a meeting of the Governing Board of the School of Medicine of the Royal Colleges, Edinburgh, the Secretary and Registrar, Mr. R. N. Ramsay, reported that the number of students attending the school during the winter session 1905-6 was 1,284, and during the summer session 1906 the number was 996.

EDINBURGH DENTAL HOSPITAL AND SCHOOL.

THE Directors of this school entertained the students and friends of the institution at an "at home" on the evening of July 12th, when the medals and prizes were presented by Dr. John Smith, LL.D., F.R.C.S.E.

The Dean submitted his report, in which he mentioned that there were 49 students on the roll and 16 pupils in the workroom; 40 students had taken the L.D.S. Diploma during the previous twelve months. Observing that most of the students had attended the classes and courses for the First Professional Examination before beginning dental hospital practice, he went on to say: "This means that their powers of observation, their general intelligence, and their memories are so far trained and cultivated before they reach us. They are, as a consequence, more receptive and more retentive than they would be without this valuable educational experience. They are easier to teach and more likely to do their teachers credit. Students, in short, who have been well grounded in chemistry and physics, anatomy and physiology, are alone capable of completely understanding, appreciating, and assimilating instruction in dentistry, or, indeed, in any other branch of medicine or surgery."

Dr. John Smith congratulated the prize-winners, and pointed out to the unsuccessful competitors that profit lay not alone in the winning of a prize, but also in the effort to deserve it. He trusted that those who had now finished their course at the hospital, and were about to qualify, would always try to do credit to their old school and the training they had received there, a training which he thought was equalled by few similar institutions, and surpassed by none.

Rev. D. Glasse moved a vote of thanks to Dr. Smith, alluding in feeling terms to the reverence and esteem in which he was held by his professional brethren and the citizens generally.

The proceedings, which were much enjoyed, were enlivened by a programme of vocal and instrumental music arranged by Mr. Douglas Logan, L.D.S., and Mr. W. J. Cave.

MEDICO-LEGAL AND MEDICO-ETHICAL.

A LIBEL ON THE PROFESSION.

A YEAR ago, under the heading "A Libel on Hospitals," we drew attention to an article in the *Grand Magazine*, written anonymously but purporting to be by a medical practitioner, which gave a wholly misleading and inaccurate account of hospital work. We regret to see that the same magazine has recently published, under the title "Fads of the Faculty," a libel nearly as bad upon the medical profession, to which a medical practitioner has not scrupled to affix his name. The article gives, but in an ironical and depreciatory manner, some partial account of the modern history of medicine and surgery, dwelling more upon failures than on successes, where, unable to deny that progress has been made, the author is careful to point out any false steps made by those who were painfully groping towards these new discoveries, and magnifies in a way that is neither generous nor fair any unlucky incidents which may have been connected with the earlier stages of these advances. For example, the article relates that ether was discovered by a Boston dentist, introduced into England and there "used for about a year, successfully fulfilling its purpose," but was superseded by chloroform, because its introducer was a "fashionable physician and a professor at an important medical school"; the mortality from chloroform and ether is contrasted, and it is implied that a large number of innocent persons were sacrificed to the fad of the fashionable physician. But not content with this, the writer says that under the use of ethylene dichloride and isobutyl chloride, "people died like sheep, and those who did not had a very narrow escape," sacrificed again to a professional "fad" for novelty. The episode of Koch's tuberculin is described as a time when "every man, woman and child consumptive or suspected of being so, or even conscious of having a great-grandmother so affected, received dose after dose with the hypodermic syringe"; the result being that "if you became very *very* ill you were assuredly consumptive; if you got off with a mild febrile attack you weren't, or perhaps the complaint was latent." Such language cannot be taken seriously, it is too childishly inaccurate, yet the author has the assurance to add that "the most trivial exercise of prudence at the outset would have obviated all the fuss and subsequent disappointment." Antitoxin in diphtheria is a "fad" because "any ordinary case of diphtheria has always yielded immediately to sufficiently full and sufficiently frequent doses of sulphurous acid." It is hardly credible that a medical practitioner could make such a statement, but in the next paragraph he attributes any increase in body weight which may result from the use of cod-liver oil to the production of "an enormous fatty liver" . . . "that is how it does it"! The explanation of the cod-liver oil "fad" is that "Hughes Bennett" was a Scotsman—a statement which may be taken as typical of the writer's accuracy; yet he dares to tell the public that there is nobody in our medical schools to "teach such unimportant and unscientific matters as how to treat people with ordinary everyday complaints," and adds "What would be thought of an engineer who had always gone about in kid gloves, had learnt his trade mainly from books, and had never oiled a wheel or stoked a fire?" Whatever may be the shortcomings of English medical education every one knows that it is and always has been practical, and such language would be only foolish if it were not capable of doing much mischief when printed in a popular magazine. The search for parasites in malignant growths is spoken of as if it were a wilful waste of time, "the causes being well known to lie in quite other directions"; recent suggestions for the treatment of cancer are not only unsuccessful but unnecessary, although "much

to the profit of somebody"; "meanwhile the virtues of the drug which proverbially checks the progress of cancer pass almost unheeded." Unfortunately the name of the "proverbial" cancer-curing drug is withheld.

The article ends with the singularly inappropriate complaint that so much of our professional work should be unpaid; for if it be as therein represented, it deserves reprobation rather than reward. It is deplorable that any member of the profession should be found willing to charge his colleagues with habitually sacrificing the interests of the public at large and their patients in particular to vain "fads" or to a sordid greed for money, yet the writer of these calumnies is accredited to the readers of the magazine by an editorial note in which he is described as "for nearly thirty years chief surgeon at one of the best-known hospitals in the metropolis of the British Empire."

LIABILITY OF X-RAY OPERATOR.

THE action Ellis *v.* Bridge, heard at the Hampshire Winter Assizes, and reported in the BRITISH MEDICAL JOURNAL of February 17th, 1906, p. 418, was reheard at the Hampshire Summer Assizes. The plaintiff claimed damages for suffering and loss sustained through the alleged negligent application of *x* rays. At the first trial the jury disagreed; on the present occasion the judge, Mr. Justice Lawrence, in summing up, remarked that the jury had to decide whether negligence was manifested, or whether it was an unfortunate experiment prescribed in the hope that it would benefit the plaintiff. The jury returned a verdict for the defendant.

ACTION FOR ALLEGED NEGLIGENCE.
SCARLET FEVER IN THE PUERPERIUM.

ON July 18th the Court of Appeal refused an application for a new trial on behalf of the plaintiff in the case of Crier *v.* Hope and Currie—an action decided in favour of the defendants (BRITISH MEDICAL JOURNAL, March 17th, 1906, p. 655), the allegation being that the defendant, Dr. Currie, had negligently communicated the infection of scarlet fever to the plaintiff.

Their Lordships were of opinion that there was no evidence of a contract to take unusual care, and they were satisfied that the jury, on a proper direction, by their verdict for the defendant, found that he had taken proper and reasonable precautions to prevent infection.

THE CORONER AND PAYMENT TO MEDICAL WITNESSES.

HOSPITAL PHYSICIAN writes as follows: I was attending a man for a punctured wound of the forearm. After about ten days he developed tetanus and I sent him to the hospital, where he was put under the care of one of the surgeons and died soon after admission. An inquest was held, and I was summoned by the coroner and gave evidence, but the coroner declined to give me a fee as I am one of the honorary physicians to the hospital. The patient, as above stated, was attended in the hospital by one of the surgeons, and my evidence was solely as to what had occurred previous to the patient's admission into the hospital.

*** Regarding the payment of medical witnesses in connexion with hospitals, the Coroners Act, 1887, Section 22, states as follows: "When an inquest is held on the body of a person who has died in a county or other lunatic asylum, or in a public hospital, infirmary, or other medical institution, or in a building or place belonging thereto, or used for the reception of the patients thereof, whether the same be supported by endowments or by voluntary subscriptions, the medical officer whose duty it may have been to attend the deceased person as a medical officer of such institution as aforesaid, shall *not* be entitled to such fee or remuneration." Our correspondent will perceive that the only medical man who is not to be paid is the one whose duty it was to attend the patient in the hospital, and in this case it was the honorary surgeon. Therefore the honorary physician who did not attend the patient in the hospital, but was summoned by the coroner, is entitled to a fee of one guinea.

A DISCLAIMER.

DR. ALEX. GREGOR (Penryn, Cornwall) writes to disclaim responsibility for the publication in the *West Briton* of a paragraph with reference to his treatment of a case. The paragraph was published without his knowledge or consent.

A LAW has been passed in Minnesota bringing into existence a medical body authorized to deal with one part at least with the abuses of the trade in patent medicines. The new body, according to the journal of the American Medical Association, is to secure samples of all patent medicines sold in the State, and having analysed them publish the findings in its weekly bulletin.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE course of instruction for surgeons, Royal Navy, at Haslar was brought to a close on July 2nd, when the prizes were distributed by the Medical Director-General of the Navy. The gold medal was awarded to Surgeon L. L. Greig, of Glasgow University, the microscope to Surgeon L. Warren, of the London Hospital, and the silver medal and books to Surgeon R. C. P. McDonagh, of St. Bartholomew's Hospital.

The following are the names of the candidates with the marks gained at the entrance examination and at the Haslar course:

	Marks.		Marks.
Leonard Warren, M.B.	4,610	Percy F. Minett	3,962
Louis L. Greig, M.B. ...	4,447	Frederick G. Goble ...	3,807
Reginald, C. P. McDonagh	4,168	John Bourdas...	3,633
Ewen Cameron, M.B.	4,128	*Herbert A. Browning, M.A.	—

* This officer could not attend the second part of the examination owing to illness.

EXAMINATION OF MAJORS (R.A.M.C.) FOR PROMOTION.

AN Army Order just published recites that for the year 1907 the subjects for the examination of Majors (R.A.M.C.) for promotion to the rank of Lieutenant-Colonels, referred to in paragraph 3 (*a*) and (*b*), Appendix VIII (*b*) of the King's Regulations, will be as follows:

Subject 3 (*a*). The medical history of the more important campaigns and the lessons to be learnt therefrom. The medical history of the Afghan campaign, with especial reference to the march from Cabul to Candahar, and the medical history of the advance of Lord Roberts to Bloemfontein. Books recommended: *Diary (Medical) of the March of the Field Force of Lieutenant-General Sir F. Roberts, V.C., G.C.B., from Cabul to Candahar*; Army Medical Department Report for 1879; Special Report on the Hospital Organization, Sanitation, and Medical History of the Wars in Afghanistan, 1878-9-80 (Army Medical Department Report for 1880); *Forty-one Years in India*, by Lord Roberts, V.C., etc., chapters 59-62, 35th edition, 1902, Vol. II; Report on the Medical Arrangements in the South African War, by Surgeon-General Sir W. D. Wilson, K.C.M.G., first 44 pages; "*The Times*" *History of the War in South Africa*, 1899-1900, vol. iii, chapters 12 to 15 and chapter 17. Subject 3 (*b*). A knowledge of the Army Medical Services of the more important Powers; the medical organization of the German and Austrian Armies, as described in the *Handbook of the Medical Organizations of Foreign Armies*, 1892.

THE ARMY NURSING SERVICE RESERVE.

SURGEON-GENERAL GEORGE EVATT, late A.M.S., writes: I search in vain in the Army List to find any mention of that truly important body of nursing sisters called the Army Nursing Service Reserve, which did such useful service during the late South African war at home and abroad.

1. I first proposed the formation of the corps in 1885, and in 1893 had the opportunity of explaining the scheme to Her Royal Highness Princess Christian in the early days of its development. The corps took shape, as it was bound to do, when the late war broke out. May I ask where it is now hidden away, and not even mentioned in the Army List? and why Her Royal Highness's name does not appear as its President in the same book?

2. I desire to see it so mentioned, and also to have its members formed into territorial county "sections," so that we may know in peace who these sisters are, and keep touch of them by lectures and addresses, etc., and demonstrations of field work. In my opinion they form, in military parlance, "the reserve battalion" of the regular nursing service—that body of permanent sisters who are the "nucleus" of our war nursing corps.

3. I wish to see the reserve sisters placed immediately after the regular sisters in the Army List, exactly as the militia and volunteer battalions follow the regular county battalions. They are "sister corps," are they not?

4. Just as the true basis "unit" for militia and volunteer medical organization is the county, so the reserve of nursing sisters should be organized by counties.

I want to see a county "matron," and so many county "sisters," and to print their names in the Army List so that the county volunteer medical officers may know them, see their work, and both be friends and comrades when the time of national emergency comes. I also want the names of the sisters so that we may arrange that they will teach the non-commissioned officers and men of our local R.A.M.C. volunteers the principles of nursing, and show them the wards of their hospitals.

It will be delightful if a spirit of true comradeship would develop between our volunteer reserve sisters and our

volunteer R.A.M.C. rank and file. They must be the best of friends, and the more we make the county the basis the better it will be.

I regard the exclusion of the very mention of the name of this nursing body from the Army List as a grave omission; hence I address my queries through your columns, and say, "Where are our missing sisters?"

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

PROPOSED CENTRAL METROPOLITAN BACTERIOLOGICAL LABORATORY.

THE Clerk to the London County Council has sent the following letter to the various Metropolitan Borough Councils: "In connexion with questions relating to the public health, the Council has occasion to require a considerable number of bacteriological examinations to be made, and it has under consideration a proposal that it should establish a laboratory and engage the services of a bacteriologist. The Council understands that the several sanitary authorities in London also require a number of bacteriological examinations, and it has been suggested that it might be possible to considerably reduce the cost of such examinations if a central laboratory were established and maintained at the cost of the Council, for the use of both of the Council and the sanitary authorities, the services of a bacteriologist being wholly or partly retained as might be found necessary. I have been directed to ask you to be so good as to acquaint me with the views of your Council on this suggestion."

The Councils which have considered the communication up to the present have not, generally speaking, been favourable to the project.

At the meeting of the Lambeth Borough Council on Thursday, July 12th, the Public Health Committee presented the following report in regard to the matter: "Lambeth is the only metropolitan borough equipped with a municipal bacteriological laboratory of its own, for the sole use of medical men practising within the borough. The laboratory was established by the late Vestry in 1899, and has been in constant work since dealing during the intervening period with 5,000 examinations — 3,188 suspected diphtheria, 575 suspected typhoid, 1,190 suspected tuberculosis, and 47 other suspected samples. These numbers show a yearly average of 700, or a daily average of two examinations carried out at the laboratory since its establishment in 1899, and justifies the late Vestry and the present Borough Council in having established locally and maintained for the sole use of Lambeth such an institution without which no sanitary authority is properly equipped for battling against infectious disease outbreaks. The local and central position of the Lambeth Bacteriological Laboratory is specially advantageous, enabling the results of examinations to be quickly obtained and at a minimum cost. Further, the medical officer being the director of the laboratory, and in attendance daily, is directly responsible to the Council for its maintenance and efficiency, thereby ensuring trustworthy results. No central bacteriological laboratory for the whole of London could give such satisfactory results, whilst the expense of such a central metropolitan laboratory would be much greater for the ratepayers of Lambeth than that of the Lambeth Laboratory, the up-keep of which is under £50 yearly."

It was resolved to reply to the London County Council's letter in the foregoing terms.

INFANTILE LIFE PROTECTION.

THE Lewisham Borough Council has sent a circular letter to the whole of the Metropolitan Borough Councils on the subject of the provisions of the Infant Life Protection Act, 1897, and suggesting that the following amendments of the Act would prove of great benefit: (*a*) That the controlling authority should be the Borough Council, if for no other reason than the fact that the Council are constantly receiving information which it would be most difficult for the central authority to obtain; (*b*) that any person retaining or receiving for hire or reward for a period of more than forty-eight hours one or more infants under the age of 5 should be controlled by the Act. The letter adds that that Council has also had under consideration the question of the period within which the registration of births is permitted, and that it is of opinion that it is desirable, and that considerable advantage would result if the existing period of forty-two days were reduced to twenty one days in order that information might be furnished to parents as soon as possible when it was found that the infant was being improperly fed. The letter further states that the Council has addressed a letter to the Local Government Board on the subject, urging them to take the necessary steps with a view to the amendment of the law in the direction indicated above, and it asks that the various councils address similar letters to the Board in support of the proposals.

HOSPITAL AND DISPENSARY MANAGEMENT.

CUMBERLAND AND WESTMORLAND LUNATIC ASYLUM.

LAST year we read in the annual report of the Medical Superintendent, Dr. W. F. Farquharson, of the existence of considerable overcrowding at this asylum, to remedy which extensions for 76 patients of each sex were to be erected. From the report just received for the year 1905 we see that the extensions have made satisfactory progress, and will, it is hoped, be ready for occupation before the end of the year. The whole asylum has been supplied with electric light and power, and many other improvements carried out. On January 1st, 1905, there were 730 patients in the asylum, and on the last day of the year 743. During the year, 156 cases were admitted, of whom 2 were merely formal admissions. There were thus actually 154 admissions, which gave the lowest admission rate during the last fourteen years, new admissions numbering 15 less than the average for the five preceding years. Unfortunately, Dr. Farquharson says, this reduction in numbers was not accompanied by a corresponding improvement in the nature of the attacks, a large proportion showing from the first no prospect of recovery, and the majority being admitted in feeble bodily health. Of the admissions, 124 were first admissions to this asylum. In 70 the attack was a first attack within three, and in 19 more within twelve months of admission; in 38 the attack was a "not first" attack within twelve months of admission, and the remainder were either of more than twelve months' duration (25) or congenital cases (4) on admission. The admissions were classified as to the forms of mental disorder into: Mania of all kinds 92, melancholia of all kinds 36, dementia 5, general paralysis 5, acquired epilepsy 14, and cases of congenital or infantile defect 4. As to the probable causes of insanity in these cases, alcoholic intemperance was assigned in 17, or just over 10 per cent., venereal disease in 2, epilepsy in 16, old age and the menopause in 13, previous attacks in 41, "moral" causes in 26, and hereditary influences, direct or collateral, were ascertained in 51, or 32.7 per cent. of the admissions. During the year 68 were discharged as recovered, giving a recovery-rate on the admissions of 43.5 per cent., which is slightly above the average recovery-rate for this institution (42.3 per cent.). Also 5 were discharged as relieved, 3 as not improved, and there were 67 deaths. This gives a death-rate on the average numbers resident of 9.0 per cent. The deaths were due in 15 cases to cerebro-spinal diseases, in 33 to chest diseases (including 10 cases of pulmonary consumption), in 4 cases to abdominal diseases, of which 2 were cases of tuberculous peritonitis, and in 15 to general diseases, including 2 cases of general tuberculosis. Fourteen of the 67 deaths were thus the result of tuberculous disease, or 20.8 per cent. of the total deaths. This high tuberculous death-rate is attributed by Dr. Farquharson to the overcrowding present during the year. There was, however, an entire absence of dysentery and epidemic diarrhœa, and, with the exception of three cases of measles, the asylum was free from zymotic disease. No serious casualty, excepting 2 cases of fractured clavicle, had to be recorded, and the general health was good throughout the year.

AN ASYLUM FOR THE POOR NOT PAUPERS.

THE Lunatic Hospital for the County and City of Nottingham is one of those useful institutions, an asylum for patients who, not being paupers, are unable to pay the whole expense of their care and maintenance. It is, Dr. W. B. Bate, the Medical Superintendent, says, in his annual report for 1905, the second oldest benevolent institution in Nottingham, having been founded more than one hundred years ago. It is visited and managed by a committee who have no pecuniary interest in it, and is administered with a view to the treatment of recent cases of mental disorder in which there appears to be a fair prospect of recovery.

There were in the hospital on January 1st, 1905, 95 patients, and at the end of the year there remained 94. During the year 18 cases were admitted, of whom 17 were first admissions, but many applications for admission had to be refused on account of a lack of vacant accommodation. Of the admissions, in 7 the attack was a first attack within three and in 5 more within twelve months of admission, and the remainder were either not first attacks or of more than twelve months' duration on admission. Of the admissions, 5 were cases of mania, 9 of melancholia, 3 of dementia, and 1 of general paralysis; and the probable causes of the mental disorders were "moral," 9; alcoholic intemperance, 1; periodic causes, 2; parturition, 1; influenza, 1; and unknown, 4. During the year, 6 were discharged as recovered, 7 as relieved, 1 as not improved, and 5 died, giving a percentage death-rate on the average numbers resident of 5 3. The deaths were due to: general paralysis, 1; apoplexy, 2; cardiac disease, 1; and cancer of the stomach, 1. The general health was good throughout the year; no mechanical means of restraint had to be employed; in fact, restraint has never been put in force, and seclusion on only one occasion since the opening of the present hospital forty-six years ago. The Commissioners in Lunacy speak in highly favourable terms of this establishment and its administration.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

E. D. P. will be glad to know of any authoritative literature on the diet of Eastern races.

ADMINISTRATION OF ETHYL CHLORIDE.

E. M. W. asks: What is the best instrument for giving the ethyl chloride ether sequence, the requisites being that it must be possible to give the ethyl chloride by degrees and yet in accurate doses, and that the inhaler must have a wide bore.

*** An inhaler made by the Dental Manufacturing Company, of Lexington Street, Golden Square, London, W., has been designed to fulfil these requirements. It is being tried and has been found to be satisfactory. It is called the new Ideal Inhaler.

TACHYCARDIA TREATED BY COLD AFFUSION.

DR. D. MACMILLAN (Prestwich) writes: I have a patient, aged about 50, who has suffered for many years from severe attacks of tachycardia. The attacks usually have lasted about twelve hours and then passed off gradually. Treatment, applied by myself and others, has systematically failed to influence the violence or duration of the attacks. The patient himself associates his trouble with a feeling of digestive disturbance. He has often assured me that he can stop an attack either by running quickly upstairs or by bathing his chest freely with cold water—forms of treatment which one would naturally hesitate to encourage. One morning lately I happened to go into my patient's house, and found him lying in bed suffering from violent tachycardia which had lasted half an hour. The pulse-rate was 170, and the entire cardiac and epigastric region was in a condition of violent pulsation. He suggested that I should witness his own treatment, and with some trepidation I consented. He got up and dashed cold water freely over the chest for about a minute; then dried himself quickly and got into bed. I took the pulse-rate immediately and found it unchanged; two minutes later it was under 100, and in two minutes after that it was 72, regular and quiet. There was no return of the attack during the day, nor, so far as I know, on any occasion since. I should be glad to know of any similar case or of any explanation.

ANSWERS.

A. E.—Ether methyl, specific gravity .720, is the cheapest, and is, if efficiently purified, a perfectly satisfactory anaesthetic. It is important, however, to obtain it from a good maker to ensure its freedom from impurities. A little evaporated from the hand should leave no unpleasant smell or oily residue.

B. W.—Textbooks on analytical chemistry usually contain tables in addition to the text. Perkins's *Qualitative Chemical Analysis* (London: Longmans, Green, and Co. 1905. 4s.) or Muter's *Analytical Chemistry* (London: Baillière, Tindall, and Cox. 1903. 6s. 6d.) can be recommended. Carmody's *Elementary Chemical Analysis* (London: Henry Kimpton. 2s. 6d.) consists of tables only, but the books named are to be preferred.

INCOME TAX.

ASSESSED.—The omission to make a return is an offence under the Income Tax Acts, and a penalty of £20 and treble the duty chargeable can be imposed by the Commissioners, or £50 by the High Court. Proceedings for penalties must be commenced within two years after the commission of the offence. We believe that the income tax authorities have taken action during recent years in a number of cases where there has been neglect to make returns. It is, however, unlikely that penalties would be pressed for if the taxpayer offered to make good the loss of tax arising from his omission to return his income at the proper time, and we advise our correspondent to furnish the surveyor with the information asked for, and endeavour to make an equitable arrangement with him as to the amount to be paid. Particulars of expenses, life-assurance premiums paid, and abatement claimed should be given, and, if the income is thereby reduced below the taxable limit, no duty will be charged. If our correspondent follows the course suggested, he should have no difficulty in getting a satisfactory adjustment of his liability, and he would probably find it unnecessary to consult an income-tax expert. Should an unexpected difficulty arise, he can do so at a later stage.

MOTOR CYCLES AND MOTOR CARS.

DR. ALFRED S. GUBB (Aix-les-Bains, Savoie), writes: Dr. Gordon Kelly (BRITISH MEDICAL JOURNAL, June 30th, p. 1571) speaks highly of the motor cycle as a means of transport in medical practice, but it is only fair to your readers to point out that its use is fraught with many and weighty drawbacks. I have employed a 2½ h.p. Verner for some years in Algiers, and can speak highly of its hill-climbing powers and the ease with which it gets over the ground irrespective of levels. But the motor cycle is only available in absolutely fine dry weather. The slightest trace of moisture converts it into a death trap on account of the tendency for the rapidly-driven back wheel to skid. It is a very awkward predicament to be in when an unexpected shower renders the road greasy, for no prudent man would attempt a ride under such unfavourable conditions. Then, too, it is dangerous in the extreme to ride in the dark, or even in the dusk, a safe speed being virtually unattainable, as I have several times found to my cost. Lastly, there is the ever-present danger of small obstacles, and neither experience nor prudence, short of staying at home, affords any protection against the ubiquitous dog. Lastly, the motor cycle resembles pitch, in that it cannot be touched, indeed hardly approached, without defilement. A motor cyclist after a ten mile ride is not a thing of beauty, and although I take delight in this pocket locomotive for pleasure purposes, I am fain to consider it unsuitable for employment in medical practice.

NOTES, LETTERS, ETC.

FOLK MEDICINE IN IRELAND.

DR. HENRY C. MARTIN (Dundee District Asylum) writes: I was much interested in reading in a recent issue of the BRITISH MEDICAL JOURNAL, under the heading Nova et Vetera, the account of the remedies advocated by John Wesley for various diseases. As I was born and reared in Ireland, where superstition plays a considerable part in domestic therapeutics, I venture to send you an account of a few such remedies which came under my own notice when I was a boy, some twenty odd years ago. I can recollect a case of facial erysipelas, which, although under medical treatment, was at the same time "treated" by a neighbour woman who possessed the "cure." This good lady came every evening, after sunset—this was very important—and in a very mysterious way unfolded a bit of dirty paper, taking therefrom something like a piece of butter, which was rubbed on the patient's face and then replaced (!) in the paper; after applying the remedy she dare not speak to any one in the house or its therapeutic power would fail. She stole silently away, to return next evening, after sunset. The patient recovered, but I am not prepared to ascribe the happy result to the "cure." The "fasting spittle" I remember using myself, in all good faith, as a remedy for urticaria, on the recommendation of an old servant, depositing a little of the fluid on each lesion. The only benefit accruing was the very temporary cooling of the part due to the evaporation of the spittle. One of the most extraordinary remedies I ever heard of was a cure for warts, which was as follows: A common or garden snail (or rather slug) is rubbed on the warts and then impaled on a thorn, and as the snail dies the warts disappear. Another mode of treatment for the same complaint was that adopted by a working plumber. He used to give a sixpence to the sufferer, saying that he would buy the warts, but the money was not to be spent till the cure was complete. Two friends of my own treated in this way certainly got rid of their warts, but my own failed to yield, perhaps owing to want of faith. One other remedy I mention, and this is for hordeolum or sty of the eye—a sewing needle was pointed at the sore eye by some person (and here the whole power of the remedy lay) whose parents were both alive.

MIND AND MATTER.

DR. W. E. HENDERSON (Kirkcaldy) writes: In his lecture entitled "Mind and Matter," Dr. Claye Shaw, in the BRITISH MEDICAL JOURNAL of June 9th, p. 1335, is reported to have said: "We know, for instance, that thought-reading is merely an acute interpretation of touch impressions." In the light of modern research, this airy generalization requires considerable modification. The history of the Society for Psychical Research has recently been written by its Secretary. On page 12 of that work we read: "The earliest systematic work of the Society was the institution of series of experiments, of a variety of kinds, to ascertain whether such transference of definite thoughts from one mind to the other by means independent of the ordinary organs of sense was a reality. The first requisite in the experiments was to exclude the agency of the five senses—seeing, hearing, tasting, smelling, and feeling. Four of these presented no difficulty, but with regard to the sense of touch, it was soon found that 'unconscious muscular action' was a subtle factor, the extent of which it was extremely difficult to determine, and that as a conceivable explanation it threw doubt on all cases of transmission of thought where there was the slightest possibility of its agency. The extent to which 'unconscious muscular action' has been called upon to explain apparent thought transference seems at times to approach the limits of absurdity, as, for instance, when the transmitter and receiver are connected merely by a slack piece of string. But, to be on the safe side, the Society soon wisely decided to exclude

all experiments in which there was contact of any kind between transmitter and receiver." How does Dr. Claye Shaw's doctrine about thought-reading being "merely an acute interpretation of touch impressions" explain, say, "thought-transference drawings," a series of successful experiments conducted under these stringent conditions?

MANAGEMENT OF A CASE OF LABOUR.

AQUA FORTIS writes: I have read Dr. Purslow's letter in the BRITISH MEDICAL JOURNAL of June 30th, p. 1512, with great interest. He appears to me, however, to omit a most important point, the sterilization by boiling of the water in which the surgeon and nurse wash their hands, with which the vulva is washed during labour and on subsequent occasions, or with which douches are given. About here nearly all the well water is quite unfit for use, containing, as it does, a large quantity of nitrites and chlorides. It is obvious that the addition of a tablet to such water will not render it fit for immediate use even if the old woman in attendance can be depended on to use one. Many old women will not boil water—they merely heat it; or, if they do, they cool it down with cold unboiled water, and spoil the whole. A medical attendant can scarcely be expected to visit guinea confinement cases twice a day for a fortnight to see for himself that the kettle has boiled and that a tablet is used; yet, if he does not, the patient is in danger of being neglected. The diapers, too, have possibly been very imperfectly washed in the same quality of water, to my mind a most dangerous proceeding. Another point: Playfair says one should remove every scrap of membrane. The modern teaching is to leave it to come away with the douches (another job for the poor doctor). I had occasion lately to regret having followed this course, for after ten days I found a fragment of membrane firmly adherent to a placenta succenturia which I should have discovered and removed at the time had I followed Playfair's advice and gone for the missing piece of membrane.

THE PREVENTION OF DIFFICULT LABOUR.

DR. ALEXANDER DUKE (London, W.) writes: Along with others no doubt, I regret that Dr. Herman "has not succeeded in conveying his meaning." I presume he alludes to his paper in the BRITISH MEDICAL JOURNAL, June 30th. He now states (what he neglected to do before) that "the uterus may get exhausted," "but if the patient is given food and sleep the uterus will recover its energy." In what time, may I ask? and does this statement apply to the end of the third stage of labour? If the uterus is too exhausted to expel the child, how will it expel the placenta if "left to do its own work"? Dr. Herman distinctly states in his paper, "There is no necessity for putting the hand on the abdomen during the birth of the child or *during expulsion of the placenta*" (italics mine), and then, in his letter in reply to mine, says: "I advise no one to relinquish the Dublin method of expressing the placenta"! How does Dr. Herman reconcile these two statements? He also says: "It is a prevalent error that a woman incurs danger from prolongation of labour when the position of the child is normal and there is no obstruction." What about *post-partum* haemorrhage from inertia? Is that to be ignored, when often the worst form of haemorrhage occurs, after the uterus is apparently empty, from want of contractile power which might possibly have been avoided by a little assistance in time, and not trusting to the uterus to "do its own work if left alone"? No time, then, to give food and sleep. We all know the obvious truth of Dr. Herman's last statement in his letter.

THE TREATMENT OF TERTIARY SYPHILIS.

I. writes: The specific treatment of tertiary syphilis, unfortunately, is confined to that by the iodides. Unfortunately, because to what are we to turn when the patient proves intolerant of iodine in any shape or form? A case in point: I have a patient who contracted syphilis twenty years ago. His present state is shortly this, and it is a pitiable one: Pustular eczema all over the scalp, matting the hair, over most of the forehead, over one side of the face; the nose is greatly swollen and inflamed and "spread over" his cheeks. A broken-down gumma on the leg: his tongue is widely ulcerated and fissured, making it impossible for him to take any but the blandest of foods. His health otherwise is very good. The mental depression consequent on his appearance is marked. His would be a typical case for the exhibition of potassium iodide, could he but take it, but he is quite intolerant of the drug. It has been tried in small doses and in large; in single daily doses, small and large; in large draughts of water. Local treatment for the tongue alone has failed of a cure. It has mainly been chromic acid (10 gr. to ʒj), and 1 in 1,000 mercury perchloride solution. Would the production of "iodism" militate against the otherwise possible good effect? Thus, to try to make him persevere in the use of potassium iodide, with all its attendant (in him) miseries, until absolutely compelled to stop it. Give him a rest until recovered from his iodism and start him again. When one has had experience in the sometimes magical effects of potassium iodide in these cases, one is loath to give it up, more especially when there seems no alternative. I have not tried "iodipin." Would any one who has tried this drug kindly give me his opinion? Again, iodoform greatly improved the gumma, but on account of its smell this patient greatly objects to its use, as it "advertises" his disease. Has xeroform proved as efficacious? At present he is unable through pain and smarting to swallow any medicines. Would it be advisable to try to utilize the rectum? Any hints or suggestions as to treatment in this case will be greatly appreciated. The patient is an abstainer and non-smoker; all possible irritating teeth have been extracted. The diet is bland and unirritating, and there are no sources of local irritation.

DIPTEROUS LARVAE PASSED PER ANUM.

DR. A. B. NORTHCOTE (Monkgate, York) writes: The case recorded by Dr. Cattle (BRITISH MEDICAL JOURNAL, July 14th, p. 77) reminds me of a similar one I saw in 1887, that of a girl aged 9, a town dweller, who passed some hundreds of larvae at one time. An effort was then made to rear some to the perfect state, as a means of identification, but without success. The child had symptoms of gastro-intestinal irritation for some time afterwards, but passed no more larvae, and, I believe, made a good recovery. Cobbold, in *Quain's Dictionary of Medicine*, under heading "Oestrus," gives a long list of species which have been found.

DR. ALBERT E. MAY (Hayling Island) writes: Dr. Cattle, in the BRITISH MEDICAL JOURNAL of July 14th, p. 77, contributed a note on a case in which dipterous larvae inhabited the human alimentary tract. It may interest him to hear that a somewhat similar case occurred in my practice twenty-three years ago. A young man, 22 years of age, a farm labourer, came under my care in August, 1883 (in S. Devon), with symptoms suggestive of enteric fever, but after nearly three weeks of pyrexia, loose motions, and a large number of dipterous larvae were evacuated per anum on successive days, and with their passage the intestinal symptoms and fever disappeared, and the man soon regained complete health. Inquiry threw no direct light on the manner in which the parasites gained access to his stomach, but the fact that his occupation involved contact with horses suggested the source.

DR. A. R. SIEVEKING (formerly Chief Medical Officer Uganda Railway, Redland, Bristol) writes: In Dr. Cattle's account (BRITISH MEDICAL JOURNAL, July 14th) of dipterous larvae in the intestinal tract, he states that the parasiticides used did not seem to have much effect. Might I suggest that thymol is a useful drug in these cases? During some years' residence in British East Africa I saw several cases of dipterous larvae, and in two of them, in which ordinary purgatives were not sufficient to procure expulsion, I tried thymol. The result was eminently satisfactory, the larvae being all passed, and no recurrence taking place. It was given in 20 gr. doses, repeated twice at intervals of two hours, with the usual precautions. I would also mention that cases came under my notice of flies laying their eggs in the sound skin of human beings. When the larvae hatched out the resulting swelling closely resembled an ordinary boil. One patient had nineteen of these "boils" at one time on different parts of his body. On incising the swelling, slight pressure caused the larvae to be extruded. The places healed in a few days under an ordinary antiseptic dressing.

SOUTH AFRICAN CIVIL SURGEONS' DINNER.

DRS. C. GORDON WATSON and FRANCIS FREMANTLE, Honorary Secretaries of this Dinner, write from 44, Welbeck Street, W.: Having received inquiries concerning the South African Civil Surgeons' Dinner, we venture to ask an opportunity in your columns of announcing that no dinner will be held this year. It has been thought advisable in future to hold the dinner triennially. The next will be in 1908. We hope that members will keep us informed of their addresses in order to facilitate communication in the future.

ERRATUM.—In the paper by Dr. D. Montgomerie Paton on Serumtherapy by the Mouth, published on May 5th, 1906, p. 1032, second column, four lines from the top, for "by injections" read "in infections."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

An Address
ON
THE BORDERLAND OF MEDICINE AND SURGERY AS EXHIBITED IN THE STOMACH.

DELIVERED AT THE ANNUAL MEETING OF THE NORTH CUMBERLAND DIVISION OF THE BORDER COUNTIES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

BY G. A. GIBSON, M.D., Sc.D., LL.D.,

PHYSICIAN TO THE ROYAL INFIRMARY, EDINBURGH.

THE only hesitation experienced before accepting the kind invitation, so courteously conveyed to me by your Honorary Secretary, to address you this evening arose from some difficulty in the choice of a subject which would be at once useful and interesting. But as some questions connected with affections of the stomach have been recently occupying my attention, it seemed to me that in a brief analysis of certain of their features we might find matter of sufficient importance to merit discussion.

In doing this my purpose is strictly limited. It is far from my intention to enter upon a systematic examination of our knowledge of the interesting group of abdominal diseases forming common ground for the physician and surgeon. My wish is to bring before you this evening simply the results of my own experience in one group of cases. With this aim in view no reference will be made, save indirectly, to affections of the intestines. Further, all instances of perforated gastric or duodenal ulcer that have been under my notice will be excluded, and the examples of subphrenic abscess and its complications which have been under my care will also be passed by. In short, my remarks will be devoted to the diagnosis and treatment of chronic gastric ulcer and malignant gastric conditions, and will be based upon the last 25 cases belonging to these two categories occurring in my own wards, in which surgical intervention was invoked. For many reasons it has seemed best to leave out of the present paper cases seen in private practice, although many of them have furnished more interesting results and yielded more striking successes than those occurring during the same period in hospital.

It is unnecessary for me to dwell at any length upon the indications given by the general symptoms, or the results obtained from the ordinary methods of physical examination. But it will be, nevertheless, advisable to refer to one or two points as regards the former, and also to consider briefly two or three aspects of the latter, upon both of which sufficient stress is hardly laid. As regards general features, there is in simple chronic ulceration of the stomach, as well as in malignant disease, considerable emaciation, with a drawn appearance of the face, but sometimes the aspect in malignant disease bears the distinct appearance of cachexia. One point as regards subjective sensations seems to me worthy of more attention than it generally receives; that is, the pain which is felt at night in the back by patients suffering from gastric cancer. Pain, according to Osler and McCrae,[1] occurs in 86.6 per cent. of cases. This pain is much less common in patients with chronic gastric ulceration of a simple type than in those who are victims of malignant disease. Little need be said on the appearance of the tongue, which rarely gives any indication of real diagnostic importance. The incidence of vomiting is not quite so common in simple as in malignant cases, even when in both the pylorus is involved, and there are vital differences between the gastric contents.[2] The special differences between their chemical characters will occupy our attention shortly; let me simply mention in this place that, while the contents present close resemblances in general character, the simple cases are characterized by a less amount of organic acids, and not so often by the presence of sarcinae, while the Oppler-Boas bacillus is non-present. Haematemesis occurs almost indifferently in both, but sometimes in malignant cases some characteristic groups of cells may be observed on microscopic examination. Melaena, again, occurs both in simple and in malignant cases with a degree of frequency which is not widely different in the two types, and constipation is the rule in both. Two features may be mentioned as being of some importance. Enlargement of the supraclavicular and axillary glands is strongly suggestive of cancer of the stomach where associated with gastric symptoms. Absence of enlargement is not in any way a guiding factor, but the presence of glandular implication is a piece of valuable positive evidence. Again, the existence of ascites in the presence of symptoms of stomach disease will always make the physician suspicious of malignant invasion of the peritoneum.

On inspection of the abdomen there may be no departure from normal appearances. There may, on the other hand, be some local fullness, or even distinct swelling, sometimes attended by movements. If the ulceration or tumour be situated away from the pylorus, distension may not occur, and even when there is cicatricial contraction about the pylorus, or the growth of a tumour in that situation, the stomach wall may be too atonic to produce any definite results. This, in my own experience, is more commonly found in cancerous conditions—where atonicity is more likely to occur—than in the case of simple cicatricial contraction. In both conditions, however, it is very common to see the definite appearances of a dilated and hypertrophied stomach. This occasionally stands out almost like a Rugby football in the upper part of the abdomen. Sometimes a contraction is seen across the middle portion of the distended region, leading to the suspicion, which is not infrequently verified at the subsequent operation, of an hour-glass stomach. These appearances are frequently accompanied by characteristic movements sweeping along the distended portion of the abdomen from left to right. In some instances these movements appear to terminate at such an apparent constriction as has just been referred to, and from there, with a perfectly independent rhythm, other movements pass on towards the right. The observations of Cannon,[3] to be afterwards mentioned, help us in this connexion. When this is the case, the presence of an hour-glass constriction may sometimes be suspected, but the decision will depend on the persistence of the appearance. The contrast between this distension of the stomach, even when attended by distinct movements, and the appearances yielded by the small intestine in cases of obstruction, is remarkable. Although the intestines give, as a rule, a swelling somewhat lower down, embracing the region of the umbilicus below as well as above it, yet the position of the two appearances is not far distant. In the case of the intestines the appearances are as if two or three coils of a hawser lay underneath the distended portion; whereas, in the case of the stomach, it is a simple rounded or ovoid swelling. The outline in the case of the stomach, as a rule, is not so definite as when the intestine is involved, yet occasionally the form is so sharply cut that the hour-glass contraction may even be seen. In order to bring out the shape and size of the stomach different means of distension have been adopted. Various modes of inflation have been advocated, but the most satisfactory means at our disposal consists in the administration of effervescing powders. These are composed of 120 gr. of bicarbonate of soda dissolved in a glass of water, and followed a few minutes afterwards by 90 gr. of tartaric acid. In my own experience this method has yielded excellent results, and has never been followed by any disagreeable consequences.

Palpation very commonly yields only negative results, save as part of the method of succussion. To this particular aspect of the subject we shall return later, and, leaving it without further remark in the meantime, it may be said that when the stomach is fully distended it gives to the palpating hand the sensation of a resilient body, which may be simply rounded in form, or may give distinct evidence of some constriction. The hand sometimes feels a sensation of splashing, or of a fluid seething on displacement from one part to another. A hard mass is not infrequently felt; when anything of the sort can be made out the seat of the affection is usually in the body of the viscus. Unless it be displaced downwards the pylorus is quite out of reach, and even when it is the seat of a very large growth the tumour may be absolutely beyond the possibility of manual detection.

As a rule the percussion of the stomach is not difficult, and it yields unmistakable results. The whole of the fundus and the entire lesser curvature are easily defined.

It is, however, not always such a simple matter to delimit the greater curvature on account of the immediate proximity of the transverse colon. There is, however, as a rule, a change in the pitch, and very often also in the tone, of the percussion sound on passing from the one to the other. If any difficulty does arise, the matter is, as a rule, speedily cleared up by the combination of percussion and auscultation.

The combination of palpation and auscultation in the method of succussion always yields valuable information. The patient may be gently shaken from side to side; this, when any gas and fluid are present in the stomach, produces a distinct splashing. Much more satisfactory than this somewhat rough-and-ready process is the use of both hands, one upon each lateral half of the umbilicus, so as to produce a localized shaking. Still better is the method of communicating trembling movements to the upper half of the abdomen with the ulnar border of the hand, commencing below the umbilicus, and moving steadily upwards until the results of succussion are heard. If no results are obtained, it is always advisable to administer some effervescing fluid to the patient, and repeat the process. So definite are the results of succussion that very frequently, even on percussion, the finger which is employed as a pleximeter may feel a wave while the sound of a splash falls on the ear. Occasionally one very valuable piece of evidence is obtained in this way. On unilateral pressure gurgling and bubbling sounds may be heard as the fluid is displaced, and by similar pressure in the opposite direction the sounds may again be produced. These appearances are strongly suggestive, as von Eiselsberg first pointed out, of an hour-glass stomach.[1]

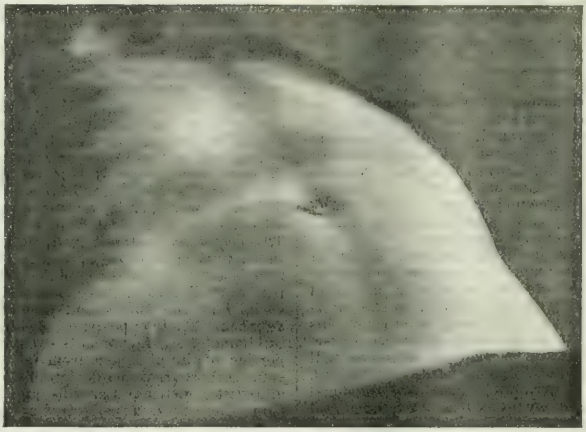


Fig. 1.—The ordinary position and appearance of swelling in dilatation of the stomach.

By these various methods it is, as a rule, perfectly easy to determine the size of the stomach, and there is, in my opinion, no necessity for such methods as the administration of metallic substances followed by the application of fluoroscopy, or of the internal illumination of the stomach.

As illustrations of some of the points which have been referred to let me show with the lantern some pictures. The chief point which arises from the consideration of these figures is the great contrast between the appearances yielded by distension of the stomach on the one hand, and distension of the intestines on the other. Figs. 1, 2, and 3 furnish good illustrations of the former, and Fig. 4 of the latter. But, further, such pictures show extreme variability in the size and shape of the stomach. Professor Cunningham, who has lately been devoting a great amount of attention to the anatomy of the stomach, has kindly placed at my disposal some illustrations which bring out extremely well the great differences which exist in the form and size of the stomach even in health, and they show, further, how widely these vary in conditions of disease. Some of his figures of hour-glass contraction are of the deepest interest, and they will naturally lead us to speculate for a few minutes upon the possible causes of this most interesting condition.

As in many cases these different methods do not lead to any conclusions more definite than that there is gastric dilatation, we have to seek aid in other directions. In illustration of my meaning let me recall to you that dilatation of the stomach may be produced by an atonic condition resulting entirely from a feeble condition of the nervous system; by an atonic state produced by chronic catarrh; or by an atrophic condition associated with some malignant affection, not implicating either of the orifices, in which a different state of matters prevails. In such forms there is no obstruction and, as a general rule, the muscular wall is not hypertrophied, so that the viscus is usually flaccid.

Again, dilatation may be produced by a functional spasm similar to what occurs in the intestine. In the case of the stomach, exactly as in that of the intestine, the viscus may lie torpid and immobile, or it may give evidence of definite peristaltic movements. Further, the dilatation may be produced by an obstruction at the pylorus of an organic type, this being very frequently the result of cicatricial contraction resulting from some previous ulceration or other old-standing lesion; and, lastly, the obstruction may be produced by a tumour the type of which is most commonly malignant.

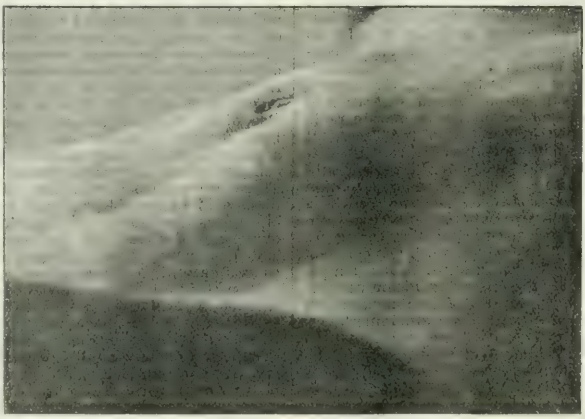


Fig. 2.—The most common appearance in dilatation of the stomach. In this case the cause was a cicatricial contraction at the pylorus.

With such a large number of causes producing effects in many respects so similar, it must be obvious that we require some additional aid to effect differentiation of these conditions. This is to be found in the chemical and microscopical examination of the gastric contents, and also—although this is not quite so useful—in the examination of the blood.

The duration of the gastric digestion is of some importance as regards the diagnosis of certain forms of

dyspepsia. It is, for instance, extremely useful in separating simple catarrhal atonicity from the neurotic form when the latter is attended by hyperchlorhydria, but it is of little utility in the differentiation of other gastric conditions. Even here, however, in the comparison, let us say, of a malignant obstruction with a cicatricial contraction



Fig. 3.—A less common appearance in dilatation of the stomach. In this case the cause was a recurrent spasm of the pylorus.

at the pylorus, it may be found that while, in consequence of the difficulty experienced in emptying the stomach, the contents in both cases remain hours after the stomach should be emptied—which, on an average, ought after a simple meal to be about six, or at most seven, hours—yet in the malignant condition the process of digestion has not proceeded so far as in the simple case, and the gastric contents, therefore, vary accordingly. Of more practical value is the investigation of the acidity of the stomach contents, and the power which they manifest in the digestion of proteids.



Fig. 4.—The usual position and appearance of the swelling in dilatation of the small intestines.

Probably every one now agrees that the best method of ascertaining the state of matters in regard to both these aspects of the subject is to give a test meal consisting of toast or rusk without butter, and tea without cream or milk, and after the lapse of an hour and a half to withdraw a small amount of the gastric contents by siphonage. After filtration, the total acidity is ascertained by using the decinormal solution of sodium hydrate, which by titration in the presence of a few drops of alcoholic solution of phenophthalein in the filtrate gives the exact point of neutralization by the carmine tint struck. The percentage of total acidity in health is usually about 0.25. In certain neurotic types of dyspepsia it rises above this level, and in most cases in which ulceration has taken place it is also above this percentage. In other gastric conditions, almost without exception, the percentage is low, and when there is malignant disease the percentage may be extremely small. Of even greater importance is the determination whether free hydrochloric acid is present or not. Undoubtedly the most satisfactory test for this is Günzberg's reagent—alcoholic solution of phloroglucin and vanillin—which must in all cases be fresh. Even in extremely small proportions free hydrochloric acid gives a bright scarlet tint when heated to dryness with this reagent. The absence of this reaction is always of considerable significance, as it means that the power of secretion of an adequate amount of hydrochloric acid is in abeyance. This may occur from profound nervous depression or from severe catarrhal conditions, but, in the absence of any symptoms of nervous disturbance, is uncomfortably suggestive of carcinoma. Osler and McCrae found it absent in 80 out of 87 cases carefully tested.[2] It is very interesting to recall the observation which has been repeatedly made that, when a simple ulcerative condition undergoes a malignant transformation, there may still be abundant free hydrochloric acid and an increased total acidity. The presence of organic acids is of some value in the recognition of different gastric conditions. This is especially true of butyric and lactic acids, particularly the latter. Both of these acids may be readily detected by Uffelmann's reagent—aqueous solution of perchloride of iron and carbolic acid—but the odour of the gastric contents is usually sufficient for the determination of butyric acid. The persistent presence of such organic acids is always significant of grave interference with secretory conditions: more particularly this is the case as regards lactic acid.

In order to ascertain how far our current beliefs are borne out by close observation, the results of my last twenty-five consecutive hospital cases as confirmed by operation have been tabulated and show the following results:

TABLE I.—*Simple.*

Total Acidity.	Free HCl.	Organic Acids.	Total Acidity.	Free HCl.	Organic Acids.
Per cent.			Per cent.		
0.18	0	0	0.21	+	0
0.29	+	0	0.18	0	+
0.25	+	0	0.08	+	0
0.30	+	0	0.05	0	+
0.20	+	0	0.14	0	+
0.24	0	+	0.15	0	+
0.17	+	0	0.12	0	+
0.16	+	0	0.17	0	+
0.30	+	0	0.47	+	0

TABLE II.—*Malignant.*

Total Acidity.	Free HCl.	Organic Acids.	Total Acidity.	Free HCl.	Organic Acids.
Per cent.			Per cent.		
0.12	0	+	0.30	0	+
0.15	0	+	0.18	0	0
0.15	+	0	0.09	0	0
0.07	0	+			

From the summary of these results it is interesting to notice that the average acidity is much higher in the simple than in the malignant series; that the presence of free hydrochloric acid is of extreme value in excluding the existence of malignant disease; that its absence does not necessarily mean that such a grave state of matters prevails; while the results in respect of organic acids are somewhat indefinite. Osler and McCrae[6] state that in a total of 343 cases of gastric cancer free hydrochloric acid was absent in 39.7 per cent.

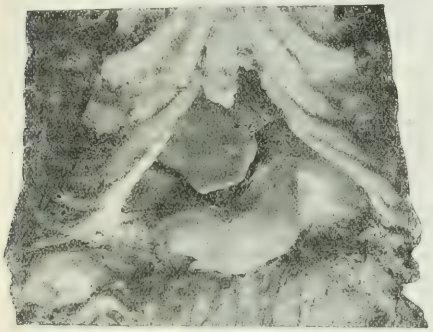


Fig. 5.—Stomach and adjoining viscera of a youthful woman; the stomach is in the early stage of emptying itself.

TABLE III.—*Summary of Gastric Contents.*

	Average Acidity.	Free HCl.		Organic Acids.	
		Present.	Absent.	Present.	Absent.
	Per cent.				
Simple	0.22	10	8	7	11
Malignant... ...	0.15	1	6	4	3

Schiff[7] collected the facts given by a number of authors, and found cancer present in 84.4 per cent. of all cases with lactic acid, while lactic acid was detected in 73.5 per cent. of cases of cancer. These figures are not to be compared with clinical findings based upon cases which have been diagnosed at an early stage; this may account for the discrepancy between Schiff's results and those of other observers.

The digestive power of the stomach in any suspected case may be estimated by comparing the contents in such a case with those of a normal individual, or with an artificially-prepared gastric juice. The former is always more satisfactory, as in my own experience a considerable amount of the pepsin in the market, upon which we have to rely in the preparation of an artificial gastric juice, is absolutely useless. By placing two small pieces of hard-boiled white of egg of equal bulk in two separate test tubes, to which are added equal proportions of the suspected gastric contents—obtained an hour and a half after a test meal—and of the control fluid, the two tubes are placed in an incubator or in a chamber with a temperature of 98° or 99° F. for an hour, and the results are then compared. If more accurate results are required they may easily be obtained by weighing the egg albumin before and after the process.

In addition to these chemical processes, the contents which have been at any time ejected will require careful scrutiny in order to recognize the presence of undigested



Fig. 7.—Stomach of a young man showing the physiological divisions into a cardiac sac and a gastric canal; P.C., pyloric canal; P.V., pyloric vestibule; B.S., part of body of stomach forming portion of gastric tube.

food and of blood. Occasionally it may be necessary to use the spectroscope for the detection of the latter, the chemical tests for blood being, in this connexion at least, often absolutely useless. The microscope frequently reveals the presence of sarcinae and other organisms, such as the Oppler-Boas bacillus, none of which, however, are in any sense pathognomonic. Sometimes characteristic groups of cells may be suggestive of carcinoma, but this is certainly a rare experience.

The examination of the blood in gastric cases is undoubtedly of importance. Cases consisting in simple affections of a catarrhal type yield no change, except a diminution of the ordinary leucocytosis seen an hour or two after a meal. It need hardly be added that the examination of the blood in such cases may possibly be deceptive, seeing that some small unnoticed suppurative lesion or some patch of skin disease may produce, on the one hand, a polynuclear leucocytosis, or, on the other, an eosinophilia. In every instance it is therefore imperative to exclude every possibility of another source when any blood change is present. In malignant cases of gastric disturbance the main points are the usual presence of a secondary anaemia, in which there is as a rule a leucocytosis involving the polymorphonuclear cells. In all these cases there is a great diminution or even total absence of

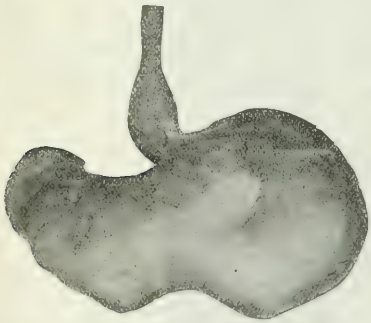


Fig. 6.—Stomach of a young man at the beginning of gastric digestion; the separation between the cardiac sac and gastric canal is marked by a shallow groove.



Fig. 8.—Stomach of male adult showing an aberrant form, especially affecting the gastric canal, which is definitely separated from the cardiac sac, and presents distinct constrictions.

the digestion leucocytosis. Occasionally eosinophilic cells, myelocytes, and even normoblasts make their appearance, but in my own experience this is far from being so common as in the case of malignant tumours of the liver. And, once again, although the blood platelets are sometimes considerably increased in such cases of gastric disturbance as we are considering, the number is never comparable in any degree with the great augmentation found in cancer of the liver. To sum up the results of the examination of the blood in the 25 cases forming the basis of this address, the following table is presented embodying the facts:

TABLE IV.—*Blood in Gastric Cases.*

Simple cases—Polynuclear leucocytosis ...	1 in 18	cases.	
Malignant cases—Polynuclear leucocytosis	2 in 7	,,	
Eosinophilia ...	2 in 7	,,	
Myelocythaemia ...	1 in 7	,,	
Normoblasts ...	1 in 7	,,	

Another point to which attention must be directed in passing is that in certain instances presenting difficulty in diagnosis we may take advantage of the fact that in grave structural alteration of the stomach the power of absorption is much diminished, and by the administration of certain drugs followed by tests for them in the urine it may be determined that such an alteration in absorption is present. The best method consists in the use of salol, originally proposed by Ewald.[8] It is given in a dose of 15 gr., and the urine is tested at short intervals for salicyluric acid, which ought to make its appearance within an hour, or, at most, an hour and a quarter, after the administration of the salol. The easiest way, according to Einhorn,[9] of employing the test is to place a drop of urine on a piece of filter paper and add a drop of a 10 per cent. solution of perchloride of iron to the moistened spot. At the edge a violet hue is produced if salicyluric acid is present.

In order to bring these various remarks to a focus let me in turn deal briefly with each of the different types of dilatation of the stomach so as to make clear what clinical results may be produced by the different conditions underlying the dilatation. Dilatation resulting from simple pyloric spasm gives no symptoms of catarrh, no change in the total acidity or free hydrochloric acid. The duration of digestion may seem to be prolonged in consequence of retention; no alteration is present in the blood, and a definite digestive leucocytosis takes place. Dilatation produced by atony resulting from gastric catarrh has catarrhal symptoms; reduced total acidity and decreased free hydrochloric acid; a prolonged period of digestion; no characteristic blood change, except a poor digestive leucocytosis. Dilatation caused by atony resulting from perverted nervous influence presents us with two diverse types, in neither of which are there any distinct catarrhal symptoms. In one type the total acidity and the free hydrochloric acid are reduced; the digestion is retarded, and no blood changes are to be seen, except a faulty digestion leucocytosis. In the second form the total acidity is high, and free hydrochloric acid is abundant; the digestive processes are very active indeed, and the period is reduced; no blood changes are present, and a very definite leucocytosis occurs after food.

Dilatation caused by pyloric obstruction of a simple type has usually some catarrhal symptoms; as a general rule a high degree of total acidity, with a large amount of free hydrochloric acid; the digestive processes are active, although necessarily the stomach contents may be long retained; there are no blood changes unless anaemia is present, but the digestive leucocytosis is small. Dilatation caused by malignant obstruction shows some catarrhal symptoms along with reduction in the total acidity; scanty free hydrochloric acid or none at all; slow digestive acidity, and definite blood changes which may consist in a simple polynuclear leucocytosis, or may show an increase, also, in the eosinophiles with myelocytes, and even with normoblasts.

Turning now to the practical application of these various facts, it may be said in a word that in all cases of chronic gastric troubles it is our bounden duty to obtain and investigate the stomach contents. This is especially to be borne in mind in dealing with dilatation of the stomach. The only proviso to be made is that we must always be certain of our ground, so that there be no acute gastric conditions. If there be symptoms leading to the suspicion of any acute ulceration of the stomach, the rules which were a few years ago so clearly formulated by Saundby[10] seem to me admirable in regard to treatment; but in many cases it may be necessary to go further, and to treat the patient for some days purely by means of rectal feeding. In this connexion it may be well to commend the recent observations of Boyd upon the most suitable forms of rectal alimentation.[11]

As regards the actual results of the 25 cases upon which this paper is based, there were four deaths in the series. Two patients suffering from simple non-malignant stricture of the pylorus died as the immediate result of operation. One patient with cancer of the pylorus also died within a few hours of the operation; while another, also suffering from malignant affection of the stomach, died within two or three weeks of the operative procedure. Amongst the cases there were but few requiring individual remark. One, however, requires particular reference—a case of hour-glass contraction, the channel of communication between the two chambers only admitting the little finger. This case was diagnosed by Dr. Denis O'Flaherty of Durham, who kindly sent her to be under my care in the Infirmary. A severe plastic operation was necessary, from which the patient made a perfect recovery. In one of the earliest of these 25 cases the patient made an excellent recovery after posterior gastro-enterostomy for cicatricial constriction at the seat of an old-standing simple ulcer near the pylorus. Some months afterwards, however, he again presented himself with a recurrence of all his symptoms, but in spite of a high total acidity and abundant free hydrochloric acid it seemed probable that a malignant change had occurred in the old ulceration. This led to exploration, when the fact of cancerous invasion was definitely proved. As many of the glands were involved in the neighbourhood of the stomach the case was beyond help, and the end cannot be far off.

One question arises naturally on considering the results of operation in such cases: Does gastro-enterostomy lessen hyperchlorhydria? According to the experience of Mayo Robson and Moynihan[12] it seems usually to do so. My own observations are certainly based upon a very much smaller number of cases than these observers have had the opportunity of studying, but they certainly allow me to state definitely that in some cases hyperchlorhydria is not reduced as the result of operation. It is probable that in those instances with perverted nervous influence the operation has no such effect, but that in instances of simple obstructive conditions the removal of the interference with the exit brings about a diminution of the excessive acidity.

It would not become me to enter upon any criticism of surgical methods of procedure, but it would not be right to leave this part of the subject without mentioning my own preference for gastro-enterostomy in all cases where pylorectomy is not possible. My experiences of pyloroplasty have not been so successful, as in some cases within a few weeks of the operation the pyloric orifice has again contracted. Before leaving this aspect of the subject let me simply state that in all cases of gastric trouble, when ordinary medical methods of treatment fail to bring about a recovery within a reasonable time, it is our bounden duty to have recourse to exploratory operation. Our aim must be to avoid precipitate action as much as undue delay. Possibly it may be true, as Saundby[13] says, that "the man who shines as an operator is seldom patient of the slow processes by which a medical diagnosis is reached, and prefers to cut them short by an exploratory incision." In my own experience, however, my surgical colleagues cannot be accused of reckless adventure. In the great proportion of cases it will be found on exploration that some structural alteration is present which demands operative interference. The further steps will, in every case, depend upon the nature of the lesion. There may simply be the removal of an ulcer; there may be some plastic operation to remedy an hour-glass contraction or something of the kind; or there may be pyloroplasty or gastro-enterostomy in the case of obstruction at the pylorus. On the other hand, if a malignant invasion should be present, pylorectomy, or even some more serious removal of part of the stomach, must be resorted to.

It is a pleasure to have this opportunity of expressing my thanks to my surgical colleagues, Mr. Cotterill, Mr. Cathcart, Mr. Caird, Mr. Hodsdon, Mr. Wallace, and Mr. Thomson, who conducted the operations on the patients belonging to this series of cases.

One or two matters, of more scientific than practical interest, may finally claim our attention. Some of the lantern slides, which, through the kindness of Professor Cunningham, you have had an opportunity of seeing to-night, show that the stomach may assume extremely varying forms under the influence of the muscular coat and its nervous mechanism, as well as in consequence of pathological conditions. Some of these forms we can even discover during life on clinical examination of the patient. The greater curvature of the stomach during life sometimes shows a distinct notch. Undoubtedly this may occur as the result of a spasm on the one hand, or of some cicatricial constriction on the other. An interesting point to which attention has in recent times been often directed, is the action of the pyloric sphincter. Undoubtedly pyloric spasm does take place under various influences, amongst which that of the nervous system cannot be excluded. By means of such a spasm a very considerable dilatation of the stomach may be produced, accompanied by distinct peristaltic movements. The same condition is seen more frequently in the intestines, where a constriction due to spasm may produce stasis with distinct intestinal patterns, and even waves of peristalsis, upon the front wall of the abdomen. The continuance or recurrence of pyloric spasm will undoubtedly in time bring about the development of hypertrophy, and this hypertrophy of the pyloric sphincter will in its turn produce, first a dilatation, and secondly a hypertrophy of the walls of the stomach. Congenital hypertrophy of the pylorus is a subject which has obtained a great amount of attention, and several theories have been advanced in explanation of it. None of these, save that of Thomson,[11] appear to me in the least respect valid. The hypertrophy of the muscle must be, as Thomson holds, secondary to some excessive activity. This view has been strongly urged on another occasion by myself.[12]

The causation of some abnormal forms of stomach, and especially of the hour-glass type, has provided material for much speculation, but it is probable that we have now been put in possession of some facts upon which to reason in regard to this subject. The work of Cannon,[13] based on feeding animals with pulpy food containing bismuth, and watching the movements of the stomach with the fluorescent screen, has given considerable impetus to the study of the movements of the stomach. He has shown that the stomach consists of two physiologically distinct parts, pyloric and fundal, of which the fundus is an active reservoir for the food, squeezing its contents gradually towards the pylorus, while the pyloric portion has a succession of waves passing from the middle portion of the stomach to the pylorus. It seems to me that in this graphic description of the normal functions of the stomach we have an explanation of the spasmodic type of hour-glass stomach. Perhaps you will allow me to quote the words of Moynihan[14] upon this subject. He remarks: "On several occasions during the last few years, when operating for chronic ulcer, I have watched the stomach intently for several minutes, and have seen the onset, the acme, and the gradual relaxation of a spasmodic muscular contraction of its walls. Quite gradually the stomach narrows and the wall becomes thicker and almost white in colour: when taken between the fingers the contracted area feels like a solid tumour. The spasm may be so marked as to prevent a finger being invaginated through the segment affected. The appearance presented is very striking. I have seen it in the body of the stomach and at the pylorus, but never at the fundus. As slowly as it comes on, the spasm quietly relaxes and the stomach assumes its natural form." It is satisfactory to know that Cunningham in his recent valuable monograph on the varying form of the stomach[15] fully agrees with Moynihan upon this subject. My own belief is identical with those two authors—hour-glass stomach is never found as a congenital deformity. Of hour-glass stomach as the result of some old-standing ulceration many examples have been before me. Their origin, however, is so clear that no time need be expended upon this matter. The practical bearing of this cicatricial type of biloculated stomach on clinical medicine, whether as regards diagnosis or treatment, has been already fully discussed in this address.

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A Clinical Lecture
ON
INFANTILE SCURVY.

DELIVERED AT THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

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GENTLEMEN.—Infantile scurvy is often spoken of as if it were a disease of recent discovery and of modern development. Its recognition all over the scientific world is justly associated with the names of two distinguished members of the consulting staff of this hospital, Dr. Cheadle and Sir Thomas Barlow, to whose investigations is due almost all that is known of the pathology of the disease. But to suppose that infantile scurvy was unknown, or even that its true nature as a scorbutic condition complicating rickets was unrecognized until the nineteenth century is an error, and one that has crept into many textbooks.

As long ago as the middle of the seventeenth century, Glisson, in his *Treatise on the Rickets*, had not only described the characteristic symptoms of infantile scurvy, but, with more accuracy than some of his successors, had recognized that it was scurvy complicated with the rickets and not an acute form of rickets. In the English translation, published in 1651 (p. 249), he says: "The Scurvy complicated with this affect (rickets) hath these signs: (1) They that labour under this affect do impatiently endure Purgations; but they who are only affected with the Rachites do easily tolerate the same. (2) They are much offended with violent exercises, neither can they at all endure them. But although in this affect (rickets) alone there be a kind of slothfulness and aversation from exercise, yet exercise doth not so manifestly, at least not altogether so manifestly, hurt them as when the Scurvy is conjoyned with the rachites. (3) Upon any concitated and vehement motion they draw not breath without much difficulty, they are vexed with divers pains running through their Joynts, and these they give warning of by their crying. . . . (4) Tumors do very commonly appear in the Gums. (5) The urin upon the absence of the accustomed Feaver is much more intens and encreased."

Glisson (ibid., p. 227) actually emphasizes what is not yet sufficiently recognized, that there is no essential connexion between infantile scurvy and rickets: he says "the Scurvy is sometimes conjoyned with this affect," and after mentioning as causes heredity, infection, and the possibility that it may be "produced from the indiscreet and erroneous regiment of the infant," though he attributed it chiefly to climatic influences, he adds, "for it (scurvy) scarce holdeth any greater commerce with this Diseas (rickets) than with other diseases of longer continuance."

Such terms as "scurvy rickets," "acute rickets," and "haemorrhagic rickets"—names which would imply that scurvy is a variety of rickets—have been responsible for much confusion. Obscure though the exact etiology of infantile scurvy may be, it is clear from clinical facts that this affection arises from causes entirely distinct from those which produce rickets; severity of rickets raises no special probability of scurvy; indeed the worst cases of scurvy

are often associated with very slight rickets, and in some cases with none. Both diseases are due to faults of diet, and it is likely enough that a diet which is faulty in one respect may be faulty in another; the particular fault which produces rickets may be, and no doubt often is, present when the diet shows also the particular fault which produces scurvy. But the fault is not one and the same; witness the many infants who suffer with severe rickets after being fed from an early age with potato, which would seem when given at that age to favour if not actually to cause the occurrence of rickets, whereas there is probably no more powerful agent than potato in the prevention or cure of infantile scurvy.

The clinical picture of the fully-developed disease is striking enough; an infant who has been fed upon one of the patent foods, with or without milk, or on milk which has been condensed, sterilized, or otherwise altered, has been ailing for some weeks, has taken food badly, and probably lost weight. Moreover the mother says it cries whenever it is touched, and, as she puts it, "has lost the use of its limbs." The infant is pale, it lies quiet perhaps until it is approached, when it cries out in obvious dread of being touched; the legs lie motionless, usually with the thighs slightly abducted and everted and the knees slightly flexed; the arms are less often affected. There may be some swelling of part of one or other of the limbs, obliterating the natural curves. Any handling of the affected limbs causes a piteous cry, evidently of acute pain. If teeth are present the gums around them are swollen and purple, occasionally projecting like a mass of granulations, almost completely hiding the teeth, and bleeding readily when touched. The urine is perhaps smoky, if not red with blood.

Such in outline is the characteristic picture of infantile scurvy, which I shall now consider in more detail, chiefly with reference to diagnosis and treatment.

Age-Incidence.

The age at which infantile scurvy begins is a point of considerable importance in diagnosis. As the accompanying chart of fifty-four cases under my own observation shows, its onset is almost limited to the later half of the first year of life, and in three-fourths of the cases the disease begins between the age of 6 months and 10 months.

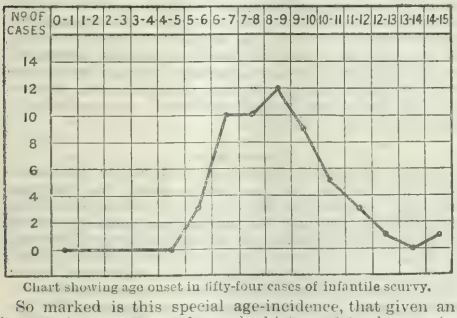


Chart showing age onset in fifty-four cases of infantile scurvy.

So marked is this special age-incidence, that given an infant of 6 to 12 months and a history of tenderness in the limbs, the diagnosis of scurvy should at once suggest itself as a possibility. In several of the cases in this series the disease had been diagnosed as "rheumatism"—a mistake which ought never to occur, for rheumatism is practically an unknown disease under the age of 18 months, and indeed is exceedingly rare under the age of 3 years. This chart shows also that in no case did scurvy begin before the age of 5 months—a point which distinguishes this disease from many cases of syphilitic epiphysitis which begins most often under the age of 3 months.

Mode of Onset.

So much stress has been laid upon the affection of the gums and upon the tender swellings in the limbs in infantile scurvy that there is danger of forgetting that in many cases there are other more insidious symptoms which may appear some weeks before these obvious manifestations. An infant who has thriven hitherto upon some patent food begins to ail, the weight ceases to rise or actually falls, the feeds are taken badly, and the child is fretful and miserable; there is no swelling of limbs, perhaps no definite tenderness anywhere, and the gums are perfectly normal: but that these early symptoms indicate scurvy may be shown not only by the rapid improvement within two or three days on antiscorbutic treatment, but also in some cases by the presence of blood in the urine even in this early stage.

I doubt whether the onset of scurvy is ever really sudden, but undoubtedly the more pronounced symptoms may appear quite suddenly, and are then apt to be mistaken for the results of traumatism; for example, an infant, aged 8 months, was brought to me because he was "not getting on"; there had been some tenderness in the legs for at least four weeks, but the nature of this had not been recognized; one morning the child had his usual bath and then went to sleep for a short time: he awoke with the left eye partly closed by great swelling of the lids, which were discoloured and soon looked as if bruised: it was concluded that during the bathing the child must have struck his eye against the side of the bath. The history, however, of feeding with Allenbury and Benger's foods, the tenderness of the legs, and the presence, as examination showed, of blood in the urine, all pointed to scorbutic haemorrhage, and the rapid disappearance of the swelling and haemorrhage from the lids under antiscorbutic diet confirmed the diagnosis.

It would, I think, be rash to assert that the supposition of traumatism is wrong in all such cases. The haemorrhagic tendency of scurvy may well favour the occurrence of haemorrhage from slight traumatism, which would have no such effect in a healthy infant, and this view is supported by the situation of superficial haemorrhages; for example, in one case the only subcutaneous haemorrhage was over the bony prominence of the sacrum, a part obviously exposed to pressure and jarring: in another which was sent to me as a case of infantile paralysis the efforts of the doctor to obtain a knee-jerk had resulted in a subcutaneous haemorrhage over the patella.

Limb Affection.

Perhaps the most striking feature of infantile scurvy is the tenderness of the limbs and loss of movement. These symptoms occur much more often in the lower limbs than in the upper. In the 54 cases tenderness or swelling was present as follows: In 39 in the legs only, in 10 in legs and arms, in 1 in the arm only. In 4 out of the 54 cases there was no tenderness in any of the limbs. The diagnosis in these cases rested on the association of a scorbutic diet with haematuria, confirmed in two where teeth were present by affection of the gums, and in all by the rapid cessation of haematuria on antiscorbutic diet.

With the tenderness there is sometimes associated some visible or palpable swelling of the affected limb, but in many cases this is so slight that it is easily overlooked; and as it is the result chiefly of subperiosteal haemorrhage it may be detected only by careful—and, I would add, most gentle—palpation of the bone as a vague, deep thickening. The situation of this thickening is of some importance; it is not limited to the epiphysial region like an epiphysitis, but extends some distance along the shaft of the bone—a point which should distinguish it also from any joint affection. In my own cases the swelling has been most often about the lower third of the tibia or the femur, but any part, or the whole, of the shaft may be surrounded by subperiosteal haemorrhage, and occasionally, though much more rarely, similar deep haemorrhage may occur over the flat bones of the skull, producing large bluish swellings on the head which may simulate sarcoma, or over the scapula, as in a specimen in the museum of this hospital.

The loss of movement in the affected limbs is so marked that the disease had been mistaken more than once in my series for infantile paralysis—a mistake which hardly ought to occur, for the acute tenderness, the severe pain on passive movement, the swelling and local thickening, and the associated conditions of the gums and urine are all features quite foreign to infantile paralysis. The loss of movement is no doubt due partly to fear of the acute pain which movement causes; but it may also be due partly to mechanical disability, for not only is the periosteum stripped off the bone by the underlying haemorrhage, but, as I have seen in some autopsies on

infantile scurvy, the muscles also in severe cases are infiltrated with serum and extravasated blood. Occasionally there is further disablement from separation of epiphyses by extensive haemorrhage at the epiphysial line; in one case which I examined epiphyses had been separated in all four limbs. This danger of separation of epiphyses, which is due to effusion of blood at the epiphysial junction, is a point to be remembered in the handling of these infants with scurvy. Cases have been recorded also in which fracture occurred in the shaft of the bone.

Oedema.

The occasional occurrence of oedema over the thickened part of the limbs in scurvy is worthy of notice. In the diagnosis between scurvy and suppurative periostitis it might have been thought that oedema pointed to the presence of pus. This is certainly not so; I have seen well-marked pitting of the skin on gentle pressure in cases of infantile scurvy.

Gums.

The characteristic appearance of the gums has already been mentioned, but it is to be remembered that any great swelling or discoloration of the gums is by no means a constant feature; often it requires careful observation to detect the little affection that exists. There may be only a thin purple line or minute patch of red discoloration at the free edge of the gum; and I have specially noted that in some cases it was only on the posterior edge of the gum behind the tooth, and therefore very easily overlooked.

It is generally stated that where there are no teeth there is no gum affection: this is not strictly accurate, for where the teeth are close up to the surface of the gum but not actually through I have seen haemorrhage in the gum over them. When teeth are present the gums are not necessarily affected; in 7 out of 39 cases in which teeth were present in my series the gums showed nothing abnormal.

Very rarely the gums are markedly affected when there is no other obvious symptom of scurvy. In one of my cases there was no tenderness whatever in the limbs, although the gums showed very marked swelling and purple discoloration. In another some tenderness had been noticed in the legs, but had passed off when I saw the child, whose gums were swollen and purple. In both these cases the existence of scurvy, suggested by the diet and the gums, was proved by the finding of blood in the urine.

Palatal Haemorrhage.

I wish to call attention here particularly to a manifestation of scurvy which has not, I think, attracted much notice, namely, haemorrhage in the mucous membrane of the hard palate. The discoloration occupies the middle part of the vault of the hard palate; it has not in my cases extended forward to the alveolar portion, nor backward to the soft palate. The colour varies from a bright blood red to a deep almost black purple. As in the gums, the affected area may become secondarily inflamed and the mucous membrane over it roughened. Such were the appearances in 4 of my cases, but as I had not looked for this manifestation in the earlier cases I cannot tell in what proportion it is to be found. This palatal haemorrhage is certainly noteworthy, as it may assist diagnosis when it occurs—as in 3 out of my 4 cases—in infants who, owing to absence of teeth, show no gum affection.

Orbital Haemorrhage.

"Black-eye" in an infant 6 to 12 months old, without obvious traumatism, should suggest the possibility of scurvy; but it is not a very frequent symptom. It was present in 6 out of the 54 cases, and in 5 of these was sufficient to cause proptosis of the eye. Curiously enough, in all 6 it was the left eye that was affected. The discoloration appears usually chiefly or only in the upper lid.

Urinary Symptoms.

The diagnostic importance of the urine in infantile scurvy is not sufficiently appreciated. Urinary changes are actually more constant than the gum affection, and an examination of the urine will usually clinch the diagnosis if there be any doubt. During the last few years I have examined the urine of all cases under my notice as far as possible, and out of 34 cases only 4 showed nothing abnormal. In 11 there was blood only, in 8 blood and casts, in 2 blood and pus, in 1 pus only, and in 7 albumen only; so that the proportion of cases showing some urinary change was 88 per cent., and the proportion showing haematuria was 60 per cent.

But it must not be supposed that blood is to be detected by the naked-eye appearance of the urine in this proportion of cases. In many the amount of blood was so small that it was seen only by careful microscopic examination; and when pus was present, although sufficient to attract attention at once under the microscope, it was not sufficient in any of my cases to be detected by the naked eye, although in one there was enough to make the urine slightly turbid.

It is generally stated that haematuria may be the only symptom of infantile scurvy; and if the haemorrhagic manifestations are to be taken as the only evidence of scurvy, this is certainly so. In 2 of the cases mentioned above there was no affection of the limbs or gums—in fact, no characteristic symptom except haematuria: but in both there had been wasting recently, and one was fretful and miserable, and the other would not take his food; there were in fact—as I suspect there usually are in these cases where haematuria is stated to be the only symptom of scurvy—these vague symptoms of disturbed nutrition which I have described as marking the onset of scurvy. The presence of casts in the urine in association with the blood may indicate a nephritis in some cases. As I have pointed out,[1] the casts are sometimes numerous, and easily found without centrifuging, and the albuminuria occasionally persists for many weeks or months. The occurrence of pyuria with acid or neutral urine, and without any special evidence of irritability of the bladder, would seem to point to a pyelitis, and this was the clinical condition in three of my cases. The recognition of this pyuria is of some practical importance, for, like the nephritis, it is apt to persist after all the acute symptoms of scurvy have passed away. In one case where the tenderness and loss of movement in the legs had begun to improve within forty-eight hours, and were as usual cured in a few days by antiscorbutic diet, the pyuria persisted nearly five weeks, and during this time the child remained pale, and failed to gain weight until the pyelitis began to subside. Not only may the pyelitis retard the infant's recovery, but it seems likely that this condition, which when it occurs as a primary affection in infants causes severe pyrexia, may account in some cases for the high temperature which sometimes accompanies infantile scurvy. In the case in which the urine showed pus without blood the temperature was 104.4°; and in one of the cases in which the pus was associated with blood, a slighter degree of pyrexia persisted for nine days after antiscorbutic treatment began although the gum symptoms and tenderness of limbs had rapidly subsided; the pyuria in this case lasted twelve days.

Temperature.

Pyrexia in infantile scurvy, although rather the exception than the rule, is by no means a rarity; the temperature may be raised to 101° to 102° F. when the infant comes under treatment, but it subsides generally within a few days as the acute symptoms of scurvy disappear. In some cases, however, the temperature rises to 103° to 105° F., and, as I have pointed out, this may depend upon the presence of pyelitis. The occurrence of fever in infantile scurvy is worth remembering, for this symptom, like the oedema to which I have referred, has been regarded as pointing to suppurative periostitis—a very serious mistake if it leads to incision, a measure which would only increase the risks of infantile scurvy. If the possibility of scurvy is borne in mind, and the history of feeding, the gums and the urine are investigated, this error is not likely to arise.

Other Haemorrhages.

Skin.—Haemorrhage into the skin is quite the exception in infantile scurvy: it was present in 6 out of the 54 cases, excluding those in which orbital haemorrhage showed as "black eye"; in two cases it showed as a linear bruise running downwards and outwards for nearly an inch from just below the inner canthus; in one the situation was the scar of vaccination.

Mucous Membranes.—I have already mentioned haemorrhage in the mucosa of the hard palate. The visceral mucous membranes may be similarly affected; in a specimen figured in the museum of the Children's Hospital,

Great Ormond Street, haemorrhage has occurred into the mucous membrane of the bladder. Bleeding from mucous membranes is not very common; in three of my cases slight epistaxis had occurred, and in one of these there was bleeding also from one ear. Less rare is the passage of streaks of blood with the stools (noted in 8 cases).

Visceral Haemorrhage.

Post-mortem examination showed in one of my cases that extensive haemorrhage may occur in connexion with viscera, though such an occurrence is probably rare. A boy aged 13 months, who had been fed on Savory and Moore's food mixed with condensed milk since the age of 4 months, had much swelling and tenderness in the left thigh and leg, and purple swelling of the gums. He was admitted under my care at King's College Hospital, and at once put upon antiscorbutic diet, but developed diarrhoea and died within a few days. Autopsy showed, in addition to the subperiosteal haemorrhage in the leg, that there were strands of old adhesions over the right lung, and in the meshes thus formed there was a layer of fresh blood clot about one-eighth of an inch thick over a large portion of the lung. Another case in which visceral haemorrhage raised an important practical point was one seen in consultation with Dr. H. J. Spon. The child, aged 8 months, had been fed on the Allenbury foods, and had tender swelling about the lower third of the right femur, and some scorbutic affection of the gums; the infant was extremely ill, and was passing blood and mucus frequently from the bowel; it had vomited twice on the day when I saw it. The abdomen was flaccid and hollow, but in the direction of the transverse colon it showed an elongated sausage-like tumour which on palpation was firm, and seemed to vary in hardness at intervals during palpation. Had there been no scurvy I think no one would have doubted that there was an intussusception. The child continued to vomit, but the bowels were open, and after consultation with my surgical colleague, Mr. F. J. Steward, and an unsuccessful attempt to reduce the tumour by injecting fluid into the bowel, it was decided to postpone operation, as the possibility of the tumour being haemorrhagic was in our minds; moreover, the child's general condition seemed almost desperate. Under antiscorbutic treatment the child improved, and I heard subsequently from Dr. Spon that the abdominal tumour became less, and gradually disappeared after several weeks. I suppose there can be no doubt that in this case there was a mass of blood clot surrounding the bowel, perhaps in the wall of the bowel.

Joints.

As already mentioned, infantile scurvy is sometimes mistaken for some joint affection; careful examination, however, shows that the tenderness and swelling is not connected with the joints, but with the shaft of the bone. Whilst, however, I know of no clinical evidence that arthritis ever forms part of infantile scurvy, haemorrhage into joints certainly may occur; in one of my cases there was found at autopsy a fresh blood clot about the size of a shilling, lying free in the intercondylar part of the knee-joint. In a drawing preserved at the Children's Hospital, Great Ormond Street, a haemorrhage is shown under the synovial membrane of the acetabulum in a case of infantile scurvy.

Prognosis.

There are few diseases in which the effect of treatment is so striking as in infantile scurvy; under *efficient* antiscorbutic diet the tenderness and pain on movement is usually appreciably less in forty-eight hours, and I would lay it down as a rule that if proper antiscorbutic dieting has produced no definite improvement within four days the diagnosis of scurvy should be questioned.

But although such rapid diminution of the tenderness and pain may be expected, other symptoms persist longer; the subperiosteal haemorrhage if large may cause some deep thickening to remain for two or three weeks. Occasionally the thickening remains for many weeks or months, in spite of the complete disappearance of all other symptoms of scurvy. This is explained by a specimen in the museum of the Children's Hospital, Great Ormond Street, which shows a layer of bone deposited by the separated periosteum and forming a bony sheath enclosing the subperiosteal haemorrhage. I am indebted to Dr. Lees for kind permission to mention this case, which was under his care.

But apart from the mere persistence of symptoms, there are other more serious risks in infantile scurvy. I have several times heard medical men make light of the danger of scurvy from patent foods on the ground that not only is scurvy an uncommon result but that when it occurs it is speedily cured by simple changes in the diet. No doubt the risks of scurvy would be minimized if the disease were detected at its earliest onset; as a matter of fact, it is hardly ever recognized until the infant has already passed through weeks of needless and intense suffering. This, surely, is serious enough; but there is also a very real risk to life; in 3 out of the 54 cases the disease proved fatal by diarrhoea and exhaustion, and even when death does not result there is sometimes prolonged disturbance of nutrition so that the infant fails to gain weight and remains ill-nourished and frail for weeks or months after all other symptoms of scurvy have disappeared. The renal symptoms may influence the prognosis—in one of my cases of nephritis with scurvy the child showed a trace of albumen in the urine, and was frail in appearance two years after the occurrence of scurvy—and pyelitis may persist for several weeks and nutrition may suffer therewith. The mere presence, however, of blood in the urine does not seem to be of serious import; it usually ceases in a week or ten days under antiscorbutic treatment.



Photograph of femur, showing at upper part periosteal ossification, enclosing subperiosteal haemorrhage.

Prevention and Treatment.

Scurvy is an entirely preventable disease, and it is important, therefore, to know the foods upon which it is liable to arise. In the subjoined table are stated the kinds of food in use for several weeks or months before the appearance of scurvy in this series of cases:

Patent foods containing dried milk, prepared according to directions, with water only	14 cases.
Patent foods prepared with fresh milk ...	18 ,,
,, ,, condensed milk	11 ,,
,, ,, sterilized milk...	1 case.
,, ,, fresh (unboiled) milk ...	1 ,,
Condensed milk diluted with plain water, barley water, or lime water	5 cases.
Sterilized milk	3 ,,
Peptonized milk	1 case.
Boiled milk	1 ,,

In the above table where "fresh milk" was used in mixing the food, it was usually, if not always, heated to boiling during the process.

It is clear that the mere fact that cow's milk is mixed with a patent food is not sufficient to prevent scurvy. Nor can it be shown that the occurrence of scurvy when fresh milk is thus used is due to the degree of dilution rather than to the patent food, for in some of my cases the milk had been used for many weeks in the proportion of not less than two parts of milk to one part of water, and in others with equal parts of milk and water. The extreme rarity of scurvy from plain boiled milk when used even more diluted than this seems to prove also that the scurvy in these cases is not due to the boiling of the milk but to the addition of the patent food. In one of my cases in which scurvy resulted from the use of diluted milk with Mellin's food the milk had been heated only to about 167° F. for some months, and had been used fresh without even pasteurization for three weeks before the onset of scurvy (the milk was examined chemically and bacteriologically, and certainly had not been sterilized, and there seemed no ground for disbelieving the statement that it had not been heated, except to the usual temperature of the feeds). The antiscorbutic power of fresh unboiled milk is evidently slight, and is diminished or destroyed by heating, but from the rarity of scurvy on boiled milk compared with the fact that boiled milk is probably the commonest of all infant foods, it would seem that milk has but little tendency to produce scurvy if merely heated to the boiling point for a few seconds, as is commonly done.

In order to prevent the occurrence of scurvy in an infant fed upon some scurvy-producing food, it is advised to add some antiscorbutic food to the diet, and for this purpose raw meat juice, orange or grape juice are commonly used. It might seem hardly necessary to point out that the meat juice must be from fresh meat, and probably from uncooked meat; but I have found in at least three instances that some patent meat juice, or one of the concentrated meat preparations which are so widely advertised, was being given with the idea that it would prevent or cure scurvy. As far as I have seen, such preparations are entirely worthless as antiscorbutics. The red gravy from cooked meat was shown to be ineffectual in one of my cases where the child was having one tablespoonful of this red gravy daily as an addition to its diet of Allenbury food No. 2, with one feed of baked flour with water and a little cream. In another case occasional feeds of beef tea had not prevented the onset of scurvy. Even raw-meat juice, unless given sufficiently freely and regularly, may not prevent scurvy. In one of the most severe cases raw-meat juice had been given for five months before the disease began; and in the only case in my series which arose on peptonized milk the infant was having a teaspoonful of raw-meat juice three times a day on every alternate day, then, owing to some looseness of bowels, it was omitted fourteen days, by the end of which time the infant showed well-marked scurvy.

Fruit juice, though probably a more powerful antiscorbutic than raw-meat juice, is not an unconditional safeguard. In the case already mentioned where red gravy of cooked meat was being given with the Allenbury food, the juice of two black grapes had also been given daily for four and a half months before the scurvy began; in another case where scurvy had been recognized the juice of four grapes had been given daily for fourteen days with no apparent improvement (on potato there was definite improvement in two days).

No doubt this failure of fruit juice depends upon insufficiency of dose; but it may be that this insufficiency is relative, not absolute—that it requires a larger amount of fruit juice to prevent the scorbutic tendency of some foods than of others. The superior potency of potato as an antiscorbutic seems to me quite certain, but as I have almost always given also raw-meat juice or orange juice my own results do not illustrate this point, and some of them have shown very rapid improvement on orange juice alone. While, however, potato seems specially valuable in the treatment of scurvy, it is less suitable for prophylaxis, for although it is usually tolerated well for a few weeks during treatment it is more apt to cause digestive disturbance than is fruit juice, and is therefore less suitable for prolonged use as a regular addition to the diet.

The potato is prepared by boiling or steaming in the ordinary way with care to obtain a floury potato; the outer floury portion is then scraped off and beaten up thoroughly with enough milk to make a smooth cream, sufficiently thick to pour out of a jug rather heavily—potato 2 heaped teaspoonfuls (with average 2-drachm teaspoon) to 1 oz. of milk; 1½ to 2 teaspoonfuls of this potato-cream are given three or four times daily: after two or three weeks the dose of this should be gradually reduced, and omitted altogether within four weeks from the commencement of treatment. The mode of giving the potato-cream is of some importance; most infants take it best mixed up with the ordinary feed, but if this is done it should be mixed with a portion only of the feed to ensure the whole of the potato-cream being taken, otherwise if part of the food is left the child does not get the full dose of potato. Occasionally it is taken more readily given separately; in either case it is often disliked at first, but I have rarely had any serious difficulty in getting it taken. In addition, 2 teaspoonfuls of raw-meat juice may be given three or four times in the twenty-four hours, and sometimes ½ teaspoonful of orange juice two or three times a day, but any looseness of the bowels should make us cautious in adding this to the potato-cream, for diarrhœa in infantile scurvy is a serious complication, as Glisson seems to have observed. At the same time, the child is placed on a diet of milk which has been heated just short of boiling point and diluted with water; the scurvy-producing "food" is of course stopped.

The necessity for moving and handling the infant as little as possible is obvious: the pain caused by pulling on socks, shoes, and tight sleeves, and by bathing is so evident and so piteous to behold that it is only humane to have the infant wrapped in loose clothing and let him lie undisturbed as much as possible; the duration of the tenderness and pain is only a few days after proper treatment is begun, so that all ordinary dressing and bathing and outing may well be in abeyance until all tenderness and pain have gone.

REFERENCE.

[1] *Lancet*, August 13th, 1904.

ERRORS OF REFRACTION AMONG CHILDREN ATTENDING ELEMENTARY SCHOOLS IN LONDON.

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WHILE holding the position of oculist to the elementary schools under the London County Council I took the opportunity during nine months of last year (1905) to gather statistics as to the relative frequency of the different forms of refractive error among the children. In the "provided" schools I saw all those children—except those who happened to be absent at the time of my visit—who had been previously picked out by the teachers as having failed to pass the somewhat rough test which has been in force in order to detect those whose vision is seriously impaired. This test consists—for the upper standards (V, VI, and VII) in reading $\frac{6}{12}$ accurately with both eyes open; for the lower standards (I. to IV) in reading $\frac{6}{18}$. It is found that by means of this test, on an average about 10 per cent. of the total number of children in either the boys' or girls' department of any elementary school are picked out as having defective vision.[1] When children already wear glasses the test is made with the glasses on, so that a certain number of children with a considerable refractive error are not included in my statistics. Although, however, in a few schools in comparatively well-to-do neighbourhoods the number of children wearing glasses—more especially myopes in the upper standards—was already considerable, yet the actual proportion with glasses in the whole number of schools that I visited in the two School Board divisions of East Lambeth and Chelsea was very small. In this way 31 boys', 33 girls', and 2 mixed departments, with a total register of 24,099, were dealt with, of whom 1,732—778 boys and 954 girls—of those who were brought under my special notice by the teachers, all between the ages of 7 and 14, were classified by me into the four categories that appear in my tables.

My method was to apply the shadow test to each of the children seen. Usually I was able to take them into the teacher's room, and with the gas lit and blinds drawn, while the child was directed to look at some distant object, to reflect sufficient light into each eye from a plane mirror to at once determine in which direction the shadow moved. If "against" in both meridia I put down the eye as myopic; if the shadow moved "with" in one or both meridia, by employing a trial frame with four convex glasses (+ 1, + 2, + 3, + 4) I was able quickly to determine to which of the remaining three categories the eye belonged, and to classify the children that I saw according as I found them to have:

1. Hypermetropia of 2 D or more with or without astigmatism not more than 1 D.
2. Hypermetropic astigmatism of more than 1 D.
3. Mixed astigmatism of more than 1 D.
4. Myopia (including myopic astigmatism) if 1 D or more.

A certain number, namely those with H less than +2, with astigmatism not more than 1D, with apparent myopia below −1, or with emmetropia, I did not classify at all. I also left out those with serious corneal lesions due to interstitial keratitis or phlyctenular disease, in fact all in whom I judged disease and not refractive error to be the main cause of bad vision. On the other hand, cases of slight corneal nebulæ, if these appeared to me to be less important than the refractive error, I included. In all those cases where the refraction of the two eyes was different, I classified the child according to his *better* eye; and in this connexion I considered simple hypermetropia as better than hypermetropic astigmatism, this, again, better than mixed, and mixed astigmatism better

than myopia with or without astigmatism. Of course, it will be understood that none of the children were under a mydriatic, and if my purpose had been to prescribe correcting glasses my method of testing the refraction would have been altogether inadequate. My object, however, was something different. Though in individual cases the true condition of the refraction may have been disguised by spasm, yet, on the average, an allowance of a dioptre or so for the tonic action of the ciliary muscle is found to be correct; my object being, by taking large numbers of children, to demonstrate the general tendency, I believe that my figures are sufficiently large to point out the route by which children who become myopic during school life commonly travel.

The following tables speak for themselves:

TABLE I.—*Number of Boys at Different Ages Examined in 31 Provided Schools with a Total Register of 10,416 Boys, showing the Number found in the Four Categories of Defective Vision.*

Age.	Total Examined.	Hypermetropia.	Hypermetropic Astigmatism.	Mixed Astigmatism.	Myopia and Myopic Astigmatism.
7	40	11	12	8	9
8	132	24	35	40	33
9	110	22	37	24	27
10	100	20	24	25	31
11	127	32	26	26	43
12	138	37	27	27	47
13	131	28	25	22	56
From 7 to 14	778	174	186	172	246

TABLE II.—*Boys. Relative Frequency of Different Forms of Ametropia in Provided Schools. The Figures show the Relative Percentage of each Class, compared with all having Serious Refractive Error.*

Age.	Hypermetropia.	Hypermetropic Astigmatism.	Mixed Astigmatism.	Myopia and Myopic Astigmatism.
7	27.5	30.0	20.0	22.0
8	18.0	26.5	30.0	25.0
9	20.0	33.6	21.8	24.0
10	20.0	24.0	25.0	31 0
11	25.6	20.0	20.4	33.0
12	26.0	19.5	19.5	34.0
13	21.3	19.0	16.7	42.7
From 7 to 14	22.0	23.9	22.1	31.6

TABLE III.—*Number of Girls at Different Ages Examined in 34 Provided Schools with a Total Register of 11,498 Girls, showing the Number found in the Four Categories of Defective Vision.*

Age.	Total Examined.	Hypermetropic.	Hypermetropic Astigmatism.	Mixed Astigmatism.	Myopia and Myopic Astigmatism.
7	51	10	15	14	12
8	135	35	33	40	27
9	132	34	30	30	38
10	139	32	35	31	41
11	155	36	26	48	45
12	190	64	39	30	57
13	152	52	25	35	40
From 7 to 14	954	263	203	228	260

TABLE IV.—*Girls. Relative Frequency of Different Forms of Ametropia in Provided Schools. The Figures show the Relative Percentage of each Class compared with all having Serious Refractive Error.*

Age.	Hypermetropic.	Hypermetropic Astigmatism.	Mixed Astigmatism.	Myopia and Myopic Astigmatism.
7	19.6	29.4	27.4	23.5
8	25.9	24.4	29.6	20.0
9	25.7	22.7	22.7	28.7
10	23.0	25.1	22.2	29.5
11	23.2	16.7	30.9	29.0
12	33.6	20.5	15.7	30.0
13	34.2	16.4	23.0	26.3
From 7 to 14	27.5	21.2	23.8	27.2

Before making any remarks on these figures it will be well to supplement them by others. During September and October last I was engaged in examining children in "non-provided" schools. Here the system differed from what had obtained in the "provided" schools in that no preliminary test by the teachers had been made. Failing this, I merely asked the teachers in the various class rooms to pick out for me those children whom they had noticed not to see well, or who themselves complained of bad sight. I then took these children into the best dark room that I could obtain, and proceeded with the shadow test exactly as I had done with the children of the "provided" schools.

It is perhaps worthy of remark that by this method I was able to discover very nearly as large a proportion of children with a serious refractive error as in the "provided" schools, the proportion being in the case of the latter 7.9 per cent., and in the case of the former 7.6 per cent. of the total on the register. This, it will be seen, is about 2 per cent. less than the average who are found to have a serious defect in vision in all the London schools. The difference is partly accounted for by absentees at the date of my visits, who escaped examination—about 10 or 12 per cent. of the whole number of children—partly by the fact that in the provided schools some of the children were wearing glasses, which enabled them to pass the teacher's tests, so that I did not examine them.

TABLE V.—*Boys and Girls at Different Ages Examined in 10 "Non-provided" Schools with a Register (Boys and Girls) of 2,738, showing the Number found in the Four Categories of Defective Vision.*

Age.	Total Examined.	Hypermetropia.	Hypermetropic Astigmatism.	Mixed Astigmatism.	Myopia and Myopic Astigmatism.
7	17	7	6	3	1
8	26	3	11	4	3
9	30	6	12	4	8
10	29	9	13	6	1
11	28	7	7	8	6
12	41	7	11	16	7
13	37	5	12	11	9
From 7 to 14	208	49	72	52	35

It will be noticed that the proportion with hypermetropic astigmatism is considerably greater, and the proportion with myopia considerably less, than in the previous tables. The numbers, however, are so comparatively small that I do not think any safe conclusions can be drawn from them alone; nor would a table of percentages calculated from them prove anything. There are so many disturbing factors in an investigation of this sort that the only percentages of much significance are those calculated from somewhat large numbers. I have therefore added the numbers of children in the different categories from all the schools, boys and girls, and divided

them into three age-periods and calculated percentages the result being set forth in the following table:

TABLE VI.—*1,940 Boys and Girls, all having 'Weak Sight' Relative Percentages at Different Ages of the Four Categories of Defective Vision.*

Age.	Hypermetropia.	Hypermetropic Astigmatism.	Mixed Astigmatism.	Myopia and Myopic Astigmatism.
7 to 10	23·3	28·3	24·8	23·4
10 to 12	23·3	22·6	24·9	28·9
12 to 14	28·0	20·1	20·4	31·3

This table is derived from figures large enough to be of real significance, but it requires some interpretation.

(1) *Apparent Increase of Hypermetropia in Children over 12.*

As has been explained, the test by which, in the great majority of cases, children with defective vision were selected by the teachers, was more severe in the higher than in the lower standards, the older children being required to see $\frac{6}{9}$, while the younger ones were let off with $\frac{6}{12}$. In order to find out how this would be likely to affect my statistics, I have picked out from my lists 128 children belonging to the V, VI, or VII standards who were returned by the teacher as seeing $\frac{6}{12}$ (no better and no worse). Of these the number of hypermetropes was 56, or 43 per cent., those with hypermetropic astigmatism 20, or 15 per cent., mixed astigmatism 32, or 25 per cent., and myopes 20, or 15 per cent. The proportion of hypermetropes in this particular set is far greater than the proportion among the whole number with defective vision —that is, a large part of the excess in the proportion of hypermetropes which is found among the older children is accounted for by their having had to pass a more severe preliminary test. This is one factor which accounts for the increase from 23·3 per cent. in the children under to 28 per cent. in the children over 12.

A second factor is the decrease in the power of accommodation. From infancy to old age, the volume of the crystalline lens becomes continuously greater. Either from this cause, as Sir W. J. Collins holds,[2] or according to the old view, from gradual increase in its density, the work of the ciliary muscle in altering its shape so as to bring near objects into focus, becomes continuously greater. Since the force exerted by the muscle does not vary very much with age, though it may with fatigue, the resulting power of accommodation tends to decrease continuously through life. With very young children it is not feasible to test the power of accommodation, but between the ages of 10 and 15 it is said to decrease from 14 to 12 dioptres[3] on the average. This, it must be understood, is the maximum amount, and can only be maintained for a very short time without causing fatigue. Probably about half of the maximum is as much as a well-nourished child can maintain for any considerable length of time together, as in reading. In the case of ill-nourished children the proportion is considerably less (depending on the condition of the ciliary muscle), as is shown by the relief sometimes afforded by low convex glasses to children whose hypermetropia does not exceed 2 or 3 D. With well-nourished children simple hypermetropia not exceeding 3 D does not, as a rule, call for even partial correction before the age of 12, whereas at the age of 14 or 15 it very frequently does.

(2) *Decrease of Hypermetropic Astigmatism.*

The continuous decrease in hypermetropic astigmatism as the children grow older is accounted for by the fact that during school life these children, so long as they are without glasses, are obliged constantly to strain their sight during school hours. Consequently they tend more than others to bring their eyes too near to their books or paper, with the result that their visual axis tends to lengthen. Consequently, as the children grow older many of those who begin with hypermetropic astigmatism, become myopic in one meridian, and later on in both. As there is no tendency for simple hypermetropes to become astigmatic, the ranks of the astigmatic hypermetropes become constantly thinner.

(3) *Decrease of Mixed Astigmatism after the Age of 12.*

When we come to mixed astigmatism we find that in the lower standards of boys' and girls' schools the proportion remains remarkably constant. Above the age of 12, however, there is a decided falling off. Just as hypermetropes with astigmatism tend to become myopic in the longer meridian, so those who are already myopic in one meridian tend to become myopic in both. Before the age of 12 the number of children who pass from mixed to myopic astigmatism is just about balanced by the accessions to the ranks of the former from those of the hypermetropic astigmats. After the age of 12 this latter tendency is decidedly overbalanced by the increase of myopia. Consequently the proportion of children with mixed astigmatism diminishes.

(4) *Increase of Myopia.*

As we should expect from the foregoing, the proportion of myopes steadily increases from the age of 7, when the child leaves the infant school, till the age of 14, when he leaves school altogether.

The average age of the children examined under 10 was 9; and at this age 23·4 per cent. of those with defective sight, or 2·34 per cent. of the children on the register, were myopic. Four years later, at an average age of 13, the proportion was 31·3 per cent. of those with defective sight, or 3·13 per cent. of those on the register, an increase of 1 in 125. This result is in accordance with the statistics published by Cohn and Risley,[4] though the actual extent to which myopia prevails is less alarming according to my statistics of London schools than according to theirs of German and American ones. A point, however, on which I wish to lay special stress is that although of the total number of children who leave our schools at the age of 14, permanently handicapped in the struggle for life by myopia, perhaps half have acquired the condition since the age of 7 years; the other half, probably 1·5 per cent. of the whole number of children in school, were already myopic in the infant school. Nor do I think that any considerable proportion of this infant myopia is accounted for by unsuitable methods of teaching, though these no doubt have existed. There is a tendency among some writers on the subject to attribute all myopia to unsuitable environment. The fact is that a certain not inconsiderable proportion of us are born with such a strong hereditary predisposition to myopia that nothing can stop it. This is a matter which would repay further investigation, but from my observations in infant departments I believe that I am right in estimating that at least 1 per cent. of children of 5 years old (the age at which compulsory attendance begins) are already myopic. Now these are the children, far more than those who develop myopia later on under stress of school work, who tend especially towards high myopia with all its dangers. The following figures are given in support of this view:

Of 174 boys and girls between 7 and 11, all myopic, only 50 were able to read $\frac{6}{9}$—that is, 28·7 per cent.

Of 288 boys and girls between 11 and 14, all myopic, as many as 172 were able to see $\frac{6}{9}$—that is, 59 per cent.

This makes the proportion of older children whose myopia was comparatively slight rather more than double that of the younger children. Some of these children were wearing glasses at the time of being tested. If we take only those children who were not wearing glasses, the proportion remains practically the same:

Of 150 boys and girls between 7 and 11, all myopic, and without glasses, only 40 were able to read $\frac{6}{9}$—that is, 26·6 per cent.

Of 222 boys and girls between 11 and 14, all myopic, and without glasses, as many as 122 were able to see $\frac{6}{9}$—that is, 54·9 per cent.

Again, the proportion of older children whose myopia is comparatively slight is rather more than double that of the younger ones.

I will conclude this paper with a few practical considerations bearing on the problem of how to deal with errors of refraction in all elementary schools. I assume that the standard of minimum vision requisite for the children adopted by the late School Board for London

and continued by the London County Council is a reasonable one—namely, $\frac{1}{2}$ for the higher standards, $\frac{1}{8}$ for the lower ones.

1. Of the total number of children who need glasses on this basis, about one quarter need simple convex spheres. In the case of these children, since their accommodation is as a rule quite equal to any demands likely to be made on it out of school hours, it is not necessary, except in the case of exceptionally high hypermetropia, to prescribe glasses for constant wear.

2. Excluding cases of myopic astigmatism, nearly half, or including them, more than half, of the children who need glasses at all need cylindrical glasses, or a cylindrical combination. The importance of this fact is sociological rather than surgical. The great expense which seven shillings is to a great number of poor parents has hitherto prevented a large proportion of the children in poor districts from obtaining properly correcting glasses, even when they have obtained the proper prescription at a hospital. This is a matter which has been under the consideration of the education authority, and steps are now being taken whereby through voluntary agency the difficulty may, it is to be hoped, be solved. Meantime, it may be pointed out to the medical men and women who work in our ophthalmic hospitals that in the case of children it is rarely necessary to correct astigmatism which does not exceed 1 D. Those with astigmatism of a higher degree need glasses for constant wear.

3. Myopic children, with or without astigmatism, are about 3 per cent. of the whole number in all elementary schools. For these the constant wearing of correcting glasses is especially important, because of the tendency of myopia to increase.

4. In very young children myopia exists to a greater extent than has hitherto been generally realized. In cases where the tendency is inveterate it is highly desirable that they should be caught while still in the infant school (and the same may be said of a certain number with central corneal nebulae in both eyes, the result of phlyctenular disease, etc.), so that, instead of their being set to do tasks which they are quite incapable of performing without doing still further injury to their eyesight, some suitable curriculum, specially adapted for children with weak sight who are not blind, may be arranged for them.

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THE VARIETIES OF RINGWORM AND THEIR TREATMENT.*

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THE object of this paper is to show how far recent advances in therapeutics have solved the difficulties which have hitherto rendered the treatment of the common forms of this disease so unsatisfactory and tedious. We all, no doubt, can recall cases in which remedy after remedy has been tried, and as months passed the cure seemed as far distant as ever. The fact that the peculiarly rebellious variety of the disease is prevalent at the school age has a serious influence upon education, and the enforced quarantine for what, after all, is a comparatively trivial complaint, is exceedingly troublesome to parents and teachers. It is not too much to claim that we are now able to shorten the duration of the disease and that the period of contagion can be reckoned in weeks instead of months and even years.

The diseases classed as ringworm—and with them must be included favus—are caused by several varieties of fungus. In this country the commonest by far is the *Microsporon audouinii*, which is found in nine cases out of ten of the ringworm of the scalp in children. Next in order of frequency come the large-spored *Tricophytons*, and last the favus fungus, the *Achorion schönleinii*.

* A paper read before a joint meeting of the City of London and Tottenham Divisions of the British Medical Association.

Microsporon Audouinii.

The *Microsporon audouinii* affects the hair of the scalp, and sometimes also other parts of the body. The changes produced in the scalp by this parasite are familiar. The patch or patches are usually covered with a fine scurf, often of an ashen-grey colour, and projecting through this we notice groups of broken hairs standing up like stubble. The margin of the patch (best seen when the head is shaved) is well defined, slightly raised above the surface, and often presents a ring of papules. When extensive this form of ringworm is often mistaken for dandruff, but the diagnosis is at once settled by finding the broken hairs and examining them under a microscope with a little liquor potassae. The hairs removed from a patch of this variety of ringworm are thicker than normal, and the thickened root has a peculiar white sheath which is very characteristic. This sheath is found on microscopical examination to be made up of spores arranged in layers. The spores are closely packed, so closely that they produce an appearance which resembles mosaic. In stained specimens, in addition to spores, short straight or slightly curved rods of mycelium are found inside the hairs. The fungus has a peculiar keratolytic action on the hair, making the shaft brittle, and this is the cause of the broken stumps. If an infected hair be planted in maltose agar a characteristic white ringed culture can be obtained. This variety of fungus is most commonly met with in children between the ages of 5 and 10 years, and in schools or families it spreads from child to child directly, or indirectly by hats, caps, etc. The liability to infection is very slight after the age of 15, and the disease is extremely rare in adults. I have seen it in young infants, and it has been known to occur in babies less than a week old. The disease, if untreated, spreads slowly, and may last for two or three years or more. It is exceedingly difficult to treat because the fungus extends into the hair follicles, and remedies applied to the scalp even under pressure cannot penetrate sufficiently. Where the disease affects parts which are not hairy circular red patches form, and, though the fine lanugo hairs are infected, the fungus is easily reached by parasiticides.

In a few cases the inflammatory condition known as kerion develops. In most of the cases I have examined at the London Hospital I have found a small spored fungus which microscopically and in cultures appears to be identical with the *Microsporon audouinii*.

The Tricophytons.

In a small proportion of the cases of ringworm of the scalp, and in most of the ringworm seen on other parts, parasites differing considerably from the microsporon are found. These are the large-spored tricophytons. On the scalp the patches do not present the scaly character with stubbly hair characteristic of the common variety. The hairs break off short, level with the scalp, and the broken stumps cause an appearance which has been well named the "black-spot" ringworm. On removing the hair the root is found to have no white sheath. Under the microscope the fungus is seen to consist of mycelium in the form of jointed rods, and the spores are arranged in chains like rows of beads. In diagnosis we do not rely upon the comparative size of the spores, though there is an appreciable difference, but upon the fact that they are arranged in chains. The large-spored fungi are of two great varieties — *Tricophyton megalosporon endothrix*, affecting the interior of the hair, and *Tricophyton megalosporon ectothrix*, affecting the outside of the hair. In some cases the fungus is found both inside and outside the hair, and is then called ectoendothrix.

To M. Sabouraud we owe the classification and differentiation of the forms of fungus in ringworm. The tricophytons are of several varieties. They differ chiefly in their cultures, which are usually tinted. Some are of a reddish-brown, some pale brown, others yellow, and occasionally a culture of a pinkish hue has been grown. The pathological effects also vary. Some are more irritant than others, and easily set up an intense inflammation with the formation of pustules in the skin and follicles. The tricophytons may occur at any age; and though they may be conveyed from one human being to another directly or by infected articles, such as shaving brushes and razors, the ectothrix fungus is often derived directly, and in most cases probably originally, from animals, such as horses, cattle, dogs, cats, and birds. With the exception

of those cases in which the beard is affected, the ectothrix ringworms are less resistant to treatment than the diseases due to the endothrix and microsporon fungi. Ringworm of the nails is usually due to the ectothrix fungus, but in a recent case under my care in which there was extensive ringworm of the body and extremities, the fungus found in scrapings from the skin, the nails, and from an ulcer at the umbilicus was of the endothrix variety.

Favus.

Though rarely seen in private practice this disease is not uncommon in the East End of London. It occurs usually in the Russian and Polish immigrants, and in other pupils attending the schools where there are many children of these nationalities. Both at the London Hospital and at the East London Hospital for Children at Shadwell it is frequently seen. The scalp is most commonly affected. The fungus attacks the hair and the scalp itself. The early spots are circular, cupped, and of a sulphur-yellow colour. They have a peculiar odour, which is well described as mousey. On removing old crusts, a raw surface is seen, and in sections of the infected scalp the fungus is found to penetrate the true skin. The whole scalp may be involved. The fungus is peculiar and easily recognized under the microscope. The mycelium is made up of branching rods, and the spores are large and in great numbers. Occasionally favus is found on other parts of the body, sometimes without any involvement of the scalp at all. In 1889 I saw a case in which the tongue had been affected and instances have been reported on the Continent in which there has been extensive infection of mucous surfaces.

The disease usually starts in infancy or early childhood, and may persist until adult life. In this country, however, we very rarely meet with it in adults. When it has existed for a long time, it leaves scars which are characteristic. The scalp presents numerous small bald patches, which close examination shows to be of a cicatricial character, the hair follicles having been destroyed by the fungus.

There is no doubt that cases of favus are sometimes diagnosed as ringworm, and it appears from recent researches that more than one variety of favus fungus is met with.

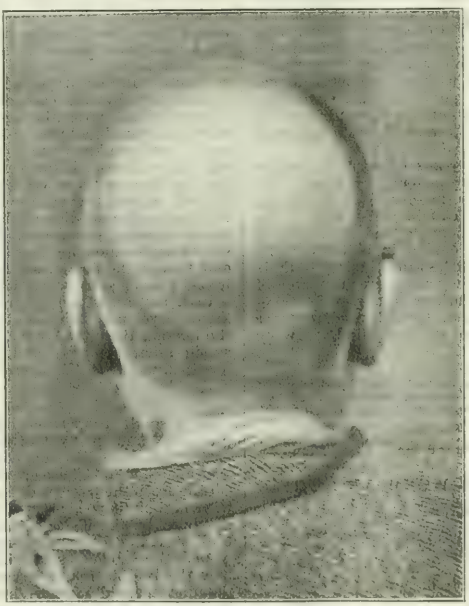


Fig. 1.—Case of ringworm. Epilation three weeks after *x*-ray treatment.

Treatment.

The treatment of ringworm of the non-hairy parts is rarely a matter of great difficulty. Parasiticide remedies thoroughly applied are always efficacious. The compounds of mercury are most useful. A good plan is to thoroughly wash the surface with soft soap and warm water, and then rub in the white precipitate ointment. Oleate of mercury in an ointment is another good preparation. Oleate of copper has also its advocates. An extensive case of endothrix ringworm which resisted mercurials, rapidly improved on the application of a strong solution of iodine. The blistering produced by the iodine removed the infected epidermis. Sulphur and sulphurous acid are also valuable.

When the nails are affected the difficulty is to get the parasiticide in contact with the fungus. I have found that removal of the nail and the application of salicylic acid and ammoniated mercury ointment give satisfactory results.

The greatest difficulty has always been found in the treatment of ringworm of the scalp and beard region. Frequent shaving of the scalp, with thorough washing with soft soap and the injunction of strong antiseptic ointments, is often not enough. Carbolic acid, sulphur, chrysarobin and the mercurials are often applied month after month in vain. Formalin in solution as strong as 10 per cent., iodine regularly painted on to the extent of setting up a sharp inflammation often fail. Any of these remedies would easily destroy the fungus, but they cannot get at it. The only way in which a rapid cure can be attained is by the removal of the infected hairs, and the prevention of the spread of the fungus to healthy follicles. To remove the hairs singly or in batches by epilation instruments is tedious, painful and unsatisfactory for ordinary purposes. Aldersmith's method by setting up a folliculitis by means of croton oil and thereby causing a shedding of the hairs proved efficacious, but we have now a much more satisfactory epilating agent in the *x* rays.

For years now the *x* rays have been used for this purpose, but their application has been attended with certain risks, which could scarcely be run except in very obstinate cases. The danger lay in the fact that the *x*-rays treatment was applied without any means of regulating the dose. The patient was treated several times a week, and in some cases thirty, forty and even more sittings were given before epilation took place. The operator, not having any means of measuring the dose, was obliged to give exposures of short duration, and when the accumulated doses began to produce their effect he stopped. This empirical method of treatment was often successful when the operator had had sufficient experience of *x*-ray treatment, but sometimes the accumulated doses produced a reaction of a severe character. It was always unreliable and tedious. Thanks to the work of Sabouraud, we now know that the dose of rays given at one sitting was too small. When a sufficient dose has been given to an area of the hairy scalp the hairs begin to fall off at the end of a fortnight, and at the end of three weeks the patch is completely bald. If this dose be exceeded an inflammatory reaction occurs, and with heavy doses the reaction may be so severe that the hair follicles are permanently damaged. With a smaller dose the hair does not fall out. It will be readily seen that when frequent small doses are given, and the operator waits for the hair to come out, the scalp has received a fortnight's more treatment than is necessary to cause epilation.

After the hair has fallen out the scalp remains bald for some weeks, and this is a great advantage because there is little risk of reinfection. In most cases the hair starts growing again in six to eight weeks after treatment. In some cases I have seen the new growth delayed as long as three months, and in two cases as long as four months. It may be objected that this is a serious matter, but when we remember that under old methods a child treated by frequent shaving was often kept bald for a year or more, it is not a matter of great moment. I find that epilation occurs more easily in children with thin fair hair than in children with tough dark hair, and I moderate the dose accordingly. The beard reacts more easily than the hair of the scalp, and where there is considerable follicular and perifollicular inflammation the effect of the exposure to *x* rays is to increase temporarily the severity of the inflammation.

It must be remembered that the *x* rays have no lethal effect on the parasite. Their sole virtue is that they bring out the hairs with the fungus. It is essential, therefore, that the rest of the scalp be protected against infection from the falling hairs.

The estimation of the dosage of *x* rays is the important matter, and we are now in possession of instruments of precision which enable us to gauge with some approach to accuracy the output of rays from our apparatus. The current in the primary circuit can be measured by means of the voltmeter and the ampèremeter. When working from the main or from accumulators the voltage in the primary remains fairly constant. At the London Hospital I work with a current of 60 to 62 volts. In my own installation I work from the main with a current of 240 volts. It is necessary to have each coil wound for the voltage used. I work with the ampèremeter at five. The interruptions are also regulated. With large coils I find that too rapid an interruption is a disadvantage. When there are 500 to 600 interruptions a minute we get much better results than when the interruptions are 1,000 a minute. This has for a long time been my experience in *x*-ray treatment. The selection of the tube is an important matter. We are now able by Benoist's apparatus to estimate the penetrating power of the tube. A tube with penetration corresponding to No. 6 or No. 7 on Benoist's scale is the most useful. The spark gap is also measured. The best results are obtained with a spark gap of 12 to 15 cm. The "softer" tubes are not suitable. The current in the secondary circuit is measured by a milliampèremeter. I find it best to keep the current in the secondary at about 0.7 milliampère.

The general procedure is as follows: The patient, we will suppose, has a single patch of ringworm. The hair is cut short, and the infected area is exposed for a definite time to the rays at a distance of 15 cm. from the anode of the tube. With the interrupter making 500 interruptions a minute, and the conditions as above described, sixteen minutes is sufficient to cause complete epilation of the area exposed. The exposure is controlled by the Sabouraud pastille. This little disc coated with platino-cyanide of barium is placed midway between the anode of the tube and the area under treatment. When a sufficient dose of *x* rays has been given to produce epilation the pastille changes from a yellowish-green tint to an orange. It is a useful adjunct to our means of estimating the dose of *x* rays, and though there is some variation in the pastilles I find them of great value in checking the dosage. It is essential that the pastille be placed exactly midway between the anode and the area treated, and that it be not exposed to light, for the orange tint vanishes on exposure to strong light. At the end of the sitting the area which has been treated is covered with collodion and the patient goes home. The collodion is painted on to prevent the rest of the scalp from becoming infected. At the end of a fortnight the hair begins to fall out, and at the end of three weeks, it is completely shed. Once more it is important to insist that the *x* rays do not kill the fungus, and therefore it is a wise precaution to apply a mild antiparasitic remedy to the rest of the scalp.

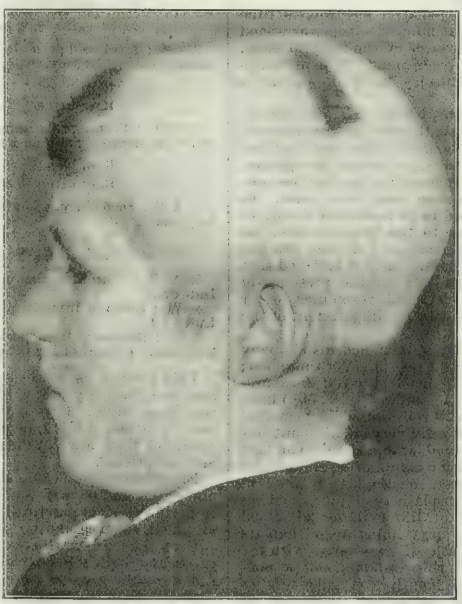


Fig. 2.—Case of favus. Epilation three weeks after exposure to *x* rays. A small triangular patch on parietal region has escaped treatment.

In extensive cases it may be necessary to expose the whole scalp. This requires great care to prevent overlapping, for if any area gets a double dose of *x* rays a troublesome erythema, and possible vesication and ulceration, with risk of permanent alopecia, may result. The area treated is marked out with iodine, and it is advisable to expose as small an area as possible each time. For if a large area be exposed the parts in the centre get a larger dose of *x* rays than the margin. This is particularly the case when curved parts of the skull are treated.

In treating an area 10 cm. in diameter, the centre of the patch may get a dose 30 per cent. larger than that received by the periphery. I think that this difficulty may be obviated, and am at present directing my attention to overcoming it. It will be seen that to get a complete epilation of the scalp it is necessary to make several exposures. To do this carefully requires two to three hours, but when we remember that the hair falls three weeks after the treatment, and that as soon as the hair has fallen the patient is free from infection, the time saved is enormous. I have already indicated that great care is required, for it is easy to give an overdose and it is easy to give an insufficient dose.

The ringworms of the beard are treated in an exactly similar manner. The pustular varieties are at first aggravated by the application of the rays, and the increased inflammation requires fomentations of boracic acid.

Kerion of the scalp does not, in my experience, require *x*-ray treatment. The inflammatory process itself loosens the hairs and causes them to fall. I find that fomentations of boracic acid constantly applied are sufficient to bring about a cure.

Favus is treated exactly as the ringworms of the scalp. I have now applied the *x* rays in about 150 cases of ringworm and favus, and in 115 in my hospital and private practice epilation by the Sabouraud method at one sitting has been performed. The following particulars may prove of interest:

The 115 cases included 107 of tinea tonsurans (the microsporon found in every instance), and 8 cases of favus.

The 115 cases required 455 exposures to the rays; many of the cases being complete epilations, and others requiring treatment of several spots.

In 2 cases only epilation was incomplete.

In 2 cases there was slight overlapping. In 1 an erythema resulted, and in the other vesication. In no other case was there any inflammatory reaction which called for treatment.

In 15 cases the hair was found to be growing again at the end of one month.

In 46 cases the hair began to grow again at the end of two months.

In 23 cases the hair did not start growing until after three months.

In 2 cases the hair did not appear until after the lapse of four months.

In 21 cases the patients failed to come up to the hospital until three months had elapsed, and then only when they were written for. It must be understood that many of the patients at the London Hospital are children of foreigners, and it is difficult to keep in touch with them.

Twenty-five cases of sycosis and tinea barbae have also been treated by the rapid method. Epilation has been satisfactorily produced in all.

In conclusion, I have to acknowledge my indebtedness to my assistant, Mr. Blackall, for his care in carrying out

the arrangements made for dosage at the London Hospital, and to my clinical assistants, Dr. T. Smith and Barclay, for their valuable supervision and assistance.

[The paper was illustrated by lantern slides showing the clinical features of the cases, the parasites, and the results of treatment, and by specimens of cultures.]

THE ELECTRICAL RESISTANCE OF THE BLOOD AND URINE AS A TEST OF THE FUNCTIONAL EFFICIENCY OF THE KIDNEY.

By DAWSON TURNER, M.D., F.R.S.E.,

MEDICAL OFFICER IN CHARGE OF THE ELECTRICAL DEPARTMENT OF THE ROYAL INFIRMARY, EDINBURGH.

In a communication made to the Royal Society of Edinburgh on December 21st, 1891, the author gave an account of the experiments he had made to ascertain and compare the electrical resistances of various kinds of urine both in states of health and of disease.

The fluids were held in a U-shaped electrolysis tube containing two disc-shaped platinum electrodes arranged so as just to rest upon the surfaces of the fluid, 21 c.cm. of which were used for each experiment. The measurements were made by Kohlrausch's method, and at a temperature of 65° F.

As a result of the observations, which extended also to artificial urines, it was found that the specific resistance of a normal urine amounts to about 45 ohms, and that the resistance is a measure of the salts, chlorides, phosphates, sulphates, etc., present in the urine; the greater the concentration the less the resistance and vice versa. In disease the resistance was found to be increased chiefly in acute croupous pneumonia (due to the diminution in the chlorides), in diabetes mellitus, acute and chronic Bright's disease, and in pernicious anaemia. As it is believed that the glomeruli are mainly responsible for the presence of salts in the urine, a high electrical resistance, other things being equal, would indicate an impairment of the function of the glomeruli.

Within the last ten years the author has made many attempts to measure the electrical resistance of the blood; various methods (dilution with distilled water, measurement of a column of blood in a capillary tube, etc.) have been employed and subsequently rejected. The principal difficulty is due to the fact that only very small quantities of blood can generally be obtained at one time. The best results were obtained by placing 5 c.mm. of freshly-drawn blood between two cup-shaped electrodes 3 mm. in diameter, coated with spongy platinum, and fixed at 0.75 mm. apart. The length of the cylinder of blood between the electrodes is of less importance than its diameter, because the cross-sectional area varies with the square of its diameter, and the resistance of a conductor varies directly as its length and inversely as its cross-sectional area. By employing electrodes of fixed diameter and at the same distance apart, and the same quantity of blood for each observation, and by making the measurement at once before such changes as coagulation or evaporation could occur, fairly consistent results were obtained. The average specific resistance of normal blood measured in this way is 93·5 ohms, but it may fall to 85 or rise exceptionally to 130. The resistance depends again upon the salt concentration of the blood.

A striking change is to be observed in pernicious anaemia, the resistance in this disease being usually about one-half (50 ohms) that of normal blood. The deduction is that the blood in this disease contains an abnormal amount of salts due either to destructive metabolism or to renal inefficiency, or to both. Light is thrown on this question by examining the resistance of the urine; this will be found to be abnormally high. Hence we have the striking fact that while the urine contains too few salts, the blood contains an abnormal amount. This, then, is a clear case of renal inefficiency.

In view of this fact (impairment of the glomerular function of the kidney) the pathology and treatment of pernicious anaemia require reconsideration. These results, obtained some years ago, and the introduction of cryoscopy, have led me to compare this method of determining the renal efficiency with that of cryoscopy, and to originate a ratio which I will call "The Haemo-renal Salt Index," namely:

$$\frac{\text{The Electrical resistance of the blood.}}{\text{The Electrical resistance of the urine.}}$$

In health this would be equal to two or three whole numbers, for example:

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{93.5}{45} = 2.08.$$

If this number increases it indicates that the blood contains fewer salts and the urine more, and that the functional activity of the kidney is increasing; if, however, the haemo-renal salt index diminishes it indicates that the functional activity of the kidney is diminishing. Thus in a bad case of pernicious anaemia the haemo renal salt index is less than one, it is a fraction, but with an improvement of the patient it will at once increase, and with his recovery it will return to normal.

The following are some illustrations:

1.—A. B.: Healthy:

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{119}{38\,25} = 3.1 = \text{haemo-renal salt index.}$$

2.—M.: Advanced pernicious anaemia, a patient of Dr. G. Gibson, examined July, 1906:

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{40\,8}{68} = 0\,6.$$

3. A. D.: Pernicious anaemia with many relapses, a patient of Dr. A. James, examined February, 1902:

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{51}{115} = 0.44 = \text{index.}$$

4. A B.: Secondary anaemia, patient of Dr. Gibson, examined July, 1906:

$$\frac{\text{R. of blood}}{\text{R. of urine}} = \frac{85}{56.1} = 1.5 = \text{index.}$$

5. A. T.: Chronic rheumatism, patient of Dr. Gibson. Index 3.3.

6. W.: Chronic interstitial Bright, patient of Dr. Gibson. Index 2.1.

7. H.: Recovery from pernicious anaemia; R.B.C. nearly 5 million. Patient of Dr. Gibson. Index 1.7.

This method is more sensitive, more rapid, and more accurate than cryoscopy, but it does not measure exactly the same thing. Cryoscopy measures the total molecular concentration, and is independent of the kind of molecule, provided they are not dissociated (salts, acids, and bases are exceptions).

Electrical resistance depends only upon the salts, acids, and bases, and of these sodium chloride is by far the most important; it is practically unaffected by the presence of albumen, sugar, and other non-electrolytes.

Urea has a small effect only. The combination of cryoscopy with the determination of the haemo-renal salt index would give us more precise information as to renal capacity than the use of either method alone; the one method should not be regarded as a substitute for the other, but rather as complementary to it, but of the two the electrical method is so much more convenient and rapid that it is likely to come into extended use in the future.

The name of Dr. John T. Collier has been placed on the Commission of the Peace for the City of Lincoln.

The foundation-stone of the first sanatorium to be erected by the National Association for the Establishment and Maintenance of Sanatoriums for Workers suffering from tuberculosis was laid at Benenden in Kent on July 14th. The grounds extend to 250 acres, and the buildings, when complete, will accommodate 200 patients. They will be chiefly of steelwork, with fireproof "frazzi" filling. Of the funds which have been collected, about £1,000 have come from the working classes, the maintenance of the beds being secured by subscriptions from Friendly Societies and trade unions. The patients will be distributed in ten bed pavilions, the maintenance of each being secured by subscriptions before its erection. The Chairman (Mr. C. H. Garland), in his speech, stated that there were at present not more than 3,000 beds for open air treatment in England altogether, and that considerably less than one-third of them were available to the industrial classes.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

NOTE ON THE ABILITY OF *VIBRIO CHOLERAE ASIATICAE* TO DECOMPOSE STARCH.

(From the Public Health Laboratory, St. Bartholomew's Hospital, London.)

IN the course of an examination of the ability of various micro-organisms to decompose starch, a series of bacteria were cultivated in the following medium: Lemco 1 gram, peptone 1 gram, sodium bicarbonate 0.1 gram, starch 0.5 gram, aqua dest. ad 100 c.cm. The medium is tinted with litmus. It has been found that *Vibrio cholerae asiaticae*, when cultivated in this medium at 37°C., decomposes the starch with a strongly acid reaction within twenty-four hours, whereas the vibrio of Finkler and Prior produces no such reaction in this time, and only a feeble acid reaction by the third day. Staphylococci, streptococci, *B. diphtheriae*, *B. coli*, *B. enteritidis* (Gaertner), *B. typhosus*, *B. proteus*, all fail to produce an acid reaction in this medium. The rapid positive reaction of cholera, therefore, in this test has a differential value. It may be added that the acid reaction notifying decomposition of the starch is also produced by the cholera vibrio when cultivated in distilled water tinted with litmus and containing 1 per cent. peptone, 0.5 per cent. salt, and 1 per cent. starch.

M. H. GORDON, M.D.

PNEUMOCOCCAL ARTHRITIS.

I READ with great interest Dr. Raw's account of a case of pneumococcal arthritis in the BRITISH MEDICAL JOURNAL of June 16th, p. 1400, as I have just met with a case of a very similar nature; of this the following is a brief account:

A man, aged 31, whom I first saw on June 8th, complained of what was evidently pleuritic and severe pain in the right side. On the following day definite signs of pneumonia could be detected at the base of the right lung. The disease ran a typical course till the evening of the 14th, when the patient complained of pain in the left knee-joint, and this on examination proved to be somewhat swollen and very tender. His temperature was then 102°. The pneumococcus was found in the sputum. The following morning the temperature had fallen to 100° but the joint swelling was more marked, the temperature rising to 103° that night. Next day (16th), with a view to determining the nature of the fluid present, I aspirated the joint and drew off a quantity of thin greenish pus, in which the pneumococcus was found to be present in great numbers. Unfortunately the patient became delirious that night, and died in the early hours of the following morning.

Blaina, Mon. B. L. MIDDLETON, M.B.

A SIMPLE METHOD OF ADMINISTERING CHLORIDE OF ETHYL.

IN view of the interest (evident from the BRITISH MEDICAL JOURNAL of late) taken in chloride of ethyl as a general anaesthetic, I should like to draw attention to a simple method of administration which I demonstrated at a meeting of the Glasgow Medico-Chirurgical Society two years ago. The apparatus consists of a facepiece such as that of a Clover's inhaler with an opening of about ½ in. diameter in the upper surface. Inside is placed a wire cage, and on this is spread three or four layers of gauze. The mask is applied, the chloride of ethyl is sprayed into the gauze through the opening, and this is then closed by a pad of gauze. This allows a certain amount of air to be inhaled but prevents evaporation of the anaesthetic outwards.

This simple contrivance has been used by me and for me between three and four hundred times, chiefly for short operations, removal of tonsils and adenoids, intranasal operations, removal of aural polypi, etc., but I have also used it for continuous administration. No doubt rather more ethyl chloride is used by this method, but this is more than compensated for by the continuous admission of air, which, it seems to me, means greater safety in the administration, especially by those who do not have frequent opportunities of using it. The facepiece may be as simple as possible. On occasion I have used an envelope, a paper poke, etc.

W. S. SYME,
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A COCKROACH IN THE EXTERNAL AUDITORY MEATUS.

A FEW days ago, about 1.30 a.m., I was called up to see a lady who said a fly had got into her ear while she was asleep in bed, that it was making a tremendous buzzing in her head, and she would soon go mad if it were not removed. I examined the ear with a speculum, and could see what appeared to be a dark-looking piece of cerumen; without the speculum this was not visible. I then proceeded to syringe the ear for a considerable time with warm water, but nothing but water returned and the patient stated that the buzzing still continued. I then got her to lie on a sofa and filled the meatus with 1 in 20 carbolic lotion, and in a short time the buzzing ceased. Syringing was then tried again without effect. I then passed a sinus forceps through the speculum and seized the foreign body. On withdrawing it it proved to be an ordinary cockroach such as haunts kitchens. It measured a little over 1 in. in length and a little over ¼ in. in width. What I had seen through the speculum was the tail end of the beetle. The creature was quite tightly wedged in the wall of the meatus, and this where its forelegs had been was considerably reddened, apparently owing to its scratching. I have not heard of a similar case occurring in this country before.

ASLETT BALDWIN, F.R.C.S.,
Senior Assistant Surgeon, West London Hospital.

THYROID GLAND IN OBESITY.

THE action of thyroid gland in cases of obesity depends on the age and sex of the patient, and also on the preparation of the gland substance used. Young persons of both sexes, as a rule, show no falling off in weight even when the gland substance is taken for some months. On the other hand, females between the ages of 25 and 45 years come under its influence speedily, and weight decreases rapidly, whilst in males of a corresponding age the results are uncertain, the fat in only a certain proportion being permanently reduced. The best results are obtained in females between the ages of 35 and 45 years. These conclusions have been arrived at after careful consideration of the records of over one hundred cases. The young healthy growing tissues seem able to resist the action of thyroid gland, and to have the power of storing up quantities of fat in spite of it, and it is only when careful dieting has been practised that any reduction has been effected, and even then it is very doubtful if the thyroid substance had anything to do with the loss in weight that resulted. In adults the loss of weight begins at the end of the third or fourth day, and this loss gradually increases so that, as a rule, from 2½ lb. to 4 lb. are recorded at the end of the seventh day. This reduction goes on as long as the thyroid is taken. When the superfluous fat is removed and a healthy condition of body weight regained the thyroid gland should be gradually left off. In some cases the weight increases rapidly when the thyroid is given up, but in all cases a temporary return to it has had the desired result. The loss of fat has been found to follow a very similar course in almost all instances. First, the chest measurement over the breast diminishes owing mainly to loss of fat substances in the breasts themselves, the chest walls being affected later. The upper and lower extremities follow next, and lastly, the buttocks and abdominal walls. In many cases the fat in the abdominal walls persists for some time after the fat in other parts of the body has markedly decreased, but this always diminishes under prolonged use of the thyroid. No untoward symptoms have been noticed in any of the cases; malaise, headache, palpitation, and nervous derangement have been entirely absent. Examination of the blood has been carried out wherever practicable, and has shown no increase or diminution of the red corpuscles or leucocytes during any part of the treatment. Albuminuria has not been seen at any time. The thyroid gland used in all instances has

been B. W. and Co. tabloids. The initial dose is 2½ gr. with each meal, either mixed with the food or taken with a little water. After seven days the dose is increased to 5 gr. with each meal, and this dose has not been increased in any case. The tabloids are crushed before being taken. In the successful cases summarized below no alteration in diet has been ordered, the patient eating and drinking anything he or she may have desired. Alcohol has, however, been strictly prohibited in any form.

Of 78 females treated 69 were between 25 and 45, their average weekly loss was 2½ to 4 lb., and the result was permanent cure; 9 were between 15 and 19, and there was no permanent result in any of them. Of 25 men 9 were between 30 and 47; they lost on an average 2 to 3½ lb., and the cure was permanent; 11 men between 30 and 47 lost 1 to 1½ lb. on an average, but the result was not permanent; on 5, between 14 and 17, there was no effect at all.

Manchester. W. J. Hoyten, M.R.C.S., L.R.C.P.Lond.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

HARROGATE INFIRMARY.

CASE OF RUPTURE OF THE LIVER, AND RECOVERY.*

(Reported by E. Solly, M.B.Lond., F.R.C.S., Hon. Surgeon.)

The following case is in my opinion worthy of record, partly from the rarity of recovery after such a severe injury, and partly as affording an illustration, if any were needed, of the advantages of early operation in abdominal injuries, where symptoms are increasing in severity, although not giving definite information as to the exact nature of the injury.

H. B., aged 14, a telegraph messenger, was on July 31st, 1905, riding on a bicycle down a rather steep hill, when he ran into a tradesman's cart; he was picked up unconscious, and carried home (a distance of about a quarter of a mile) on the cart; on the way he became partially conscious, but talked incoherently, and was very restless, and when brought to his home complained of severe pain, chiefly in the neck, but also in the abdomen. He vomited once only, and the vomit, so far as it was observed, consisted only of food and secretion, with no trace of blood; he had passed urine without difficulty, apparently normal.

State on Admission.—He was sent to the Infirmary and admitted about an hour after the accident, suffering from shock, pain in the abdomen and in the left side of the neck; the pulse was soft, but easily felt and counted, 90 per minute; respiration was irregular and shallow, rate about 25 to 30. There was no abdominal distension, no abnormal dullness, and the hepatic dullness was present. The only external sign of injury was a slight abrasion of skin just above and a little to the left of the umbilicus. The general condition, though severe, was by no means one of collapse; and partly owing to absence of definite symptoms, and partly in deference to the opinion of one of my colleagues, I decided to keep the patient under observation for a while, making ready for operation in case it should become advisable.

Progress.—No marked change in symptoms being noted, and being myself detained by another urgent case, I did not see the boy again for about four hours, when I found the general condition to be distinctly worse—pulse, 100 to 110, and certainly weaker; breathing, 35 to 40, and more irregular. The mental condition was certainly clearer, and the pain, although mainly located in the neck as before, was more marked in the abdomen, chiefly about the umbilicus; there had been no more vomiting. On examination there was some evidence of abdominal distension and some dullness in the hypogastric region. The indications pointed to intra-abdominal haemorrhage, probably from one of the solid viscera, and operation was decided upon.

Operation.—Upon opening the abdomen the peritoneal cavity was found to contain a large quantity of fluid blood, and upon examining the viscera two large rents were found in the left lobe of the liver, in the form of a letter **V**, each about 4 in. long, one having a secondary fissure of an inch in length leading from its middle. The blood was removed and the cavity washed out with sterilized saline solution, and the liver rents closed by sutures of catgut (sterilized by boiling in xylol), four sutures to each rent, two above and two below. These were very carefully tied, and I have no doubt that the least excess of force used in drawing the edges of the wound together would have caused the sutures to cut through; but as it was they held well, and the haemorrhage ceased. The area above and below the site of the rupture was carefully packed with cyanide gauze in two separate strips, and a large drainage tube passed down to the pelvis; the wound was then closed with interrupted sutures of silkworm gut, during the tying of which the peritoneal cavity was irrigated with a stream of saline solution. The boy was very restless, and with difficulty kept in bed during the night after the operation, and was very irritable for the first three days; but the temperature having fallen to 96° after the operation, became normal within twenty-four hours, and continued so throughout. Rectal injections of 4 oz. of normal saline solution were given four hours and eight hours after the operation; next day a few sips of weak tea and occasional teaspoonfuls of milk and water were given at intervals, and at 6 p.m. a dose of aspirin (15 gr.) was administered on account of the patient's excitable condition with marked benefit; this was repeated at midnight. Next day a dose of castor oil, followed by a simple enema, caused a slight but satisfactory action of the bowels, and feeding with custard pudding was commenced, and the quantity and range of the diet was cautiously increased daily without any complication arising, with one exception, to be noted below. The pelvidrain tube was removed twenty-three hours after operation, and the gauze packing slowly withdrawn piece by piece during the first week. There were no complications of any kind.

Result.—The patient got up on August 26th (twenty-seventh day), and went out into the Infirmary garden next day. Six days later, he came in from the garden suffering from severe abdominal pains and vomiting, and looking alarmingly ill. He was put to bed, and when upon inquiry it was found that he had plucked and eaten three sticks of raw rhubarb, the usual stomachic sedatives were promptly resorted to, and a repetition of castor oil and an enema completed the cure. The boy left the Infirmary on September 15th (forty-seven days after the accident). He has been at work ever since, and is apparently in perfect health.

* Notes read at the annual meeting of the Yorkshire Branch, British Medical Association, at Bradford, June 13th, 1906.

REPORTS OF SOCIETIES.

Dermatological Society of London.—At a meeting on July 11th, Dr. H. Radcliffe Crocker in the chair, Dr. James Galloway showed a case for diagnosis of a *Seasonal eruption* on the face of a middle-aged woman. He had thought that the condition was possibly a form of lupus erythematosus, but there had been vesication, and he was inclined to consider it as allied to hydroa aestivale. This opinion was supported by the majority of those present.—Dr. Radcliffe Crocker showed a case of *Mycosis fungoides* of very typical character in an old gentleman who, before coming to Dr. Crocker, had been treated with *x* rays with considerable benefit. The disease was now present on the legs, forehead, and face, the skin in these parts being much infiltrated, and the patient suffering from great irritation. The treatment with *x* rays was being continued.—Dr. T. Colcott Fox showed a case for diagnosis: a very extensive pink and scaly eruption occupying the greater part of the trunk, the arms, forearms, and hands; there had also been vesicles on the fingers and toes. He suggested the diagnosis of *Pityriasis rosea*, which found many supporters. Dr. Crocker and Sir Cooper Perry thought it was more probably a case of seborrhoeic eczema.—Mr. Malcolm Morris showed a father and daughter, the subjects of *Congenital tylosis*. In both patients the skin of the palms and soles had been immensely thickened and hardened from birth, the keratodermic areas being bounded by an erythematous border. There were two other children in the family who remained wholly free from the disease.—Mr. George Pernet showed a young man whom he had treated for *Linear naevus* of the hand and forearm with scraping and the application of carbolic acid. Many members disputed the diagnosis, considering the case as more typical of tuberculosis verrucosa cutis.—Dr. J. M. H. Macleod showed a case of multiple *Idiopathic keloid* in a man aged 55. He had a large patch of keloid on the chest and several smaller patches of similar character upon the shoulders and back. All the patches were violently itchy. No history of any previous injury to account for the development of the keloids could be

obtained.—Dr. WILFRED FOX showed a typical case of *Adenoma sebaceum* in a little boy the subject of epileptic fits. The disease had been noted for the first time at the age of 3 years, after the child had had several fits.—Dr. E. GRAHAM LITTLE showed (1) a little girl, aged 5, who had had an extensive eruption of *Sclerodermia* upon the scalp, face, and body for the past eighteen months. There was also marked hemiatrophy of the face on the affected side and of the tongue. All the lesions were on the left side of the body. The child appeared delicate, and had a quantity of downy hair covering the mid-vertebral line. (2) A case of *Rodent ulcer* in an elderly man, who had had this ulcer for twenty-five years, and who had been treated for it with some success with *x* rays. In the past fortnight he had developed upon the site of the unhealed rodent a tumour the size of a Barcelona nut. The general opinion was that this fresh development was epitheliomatous, and, in view of the extreme rapidity of its growth, immediate excision was recommended.

REVIEWS.

MEDICINE AND PHYSIOLOGY.

THAT the difference in point of view between clinicians and physiologists has been rapidly widening of late is a fact as certain as it is regrettable. The work which Mr. LEONARD HILL has edited[1] is an attempt to bridge the gap by setting before the student of medicine the progress made in those branches of physiological study which have an immediate bearing on pathology and therapeutics. The names of the contributors guarantee that the book will be a serious attempt to meet the difficulty. Four of them are professional physiologists, writing upon subjects in which they have to some extent specialized; the other is a clinician who has served a long apprenticeship to physiology. The result is highly creditable to British science, but the success of the production has, curiously enough, not been achieved along the lines laid down in the preface. The "pure" physiologists provide admirable and critical summaries of modern researches in their various branches, but the student or practitioner who hopes to deduce practical lessons therefrom has an arduous task before him. For the writers have been unable to alter their point of view; each subject is approached and elaborated from the purely physiological standpoint, and the space which should have been devoted to clinical inferences is given to the discussion of scientific technicalities. This part of the work is, in fact, an English analogue, and a most excellent one, of the *Ergebnisse der Physiologie;* as such it is of the highest value, especially to those engaged in research, and deserves to be supplemented by further volumes every few years. Dr. Beddard's portion is less satisfactory; hampered, perhaps, by the subjects allotted to him, his account is a mere compilation, a *Berichte*, accurate as far as it goes, but uncritical.

Taking the individual sections in detail, the first six, by Professor Moore, deal with the chemical and physical factors underlying ferment action and secretion. The opening chapter treats of energy transformations in living matter, and in it the author lays down the reasons which lead him to hold that there is a form of energy associated with life which is not found in inanimate matter. But this vitalistic view is held to be insufficient to explain all the phenomena of cell-activity, which must be investigated by the methods of physical chemistry, with particular reference to the reaction of substances in solution. Professor Moore proceeds to consider this subject in detail—his section is nearly 200 pages long—and with a wealth of mathematical demonstration which is calculated to appal the ordinary student, who is, indeed, almost invited by the editor—in a footnote to page 19—to skip it. A more masterly exposition of the present position of knowledge upon the subject of enzymic and katalytic action does not exist in any language, and although the author's main conclusion is that there is yet much to learn, a study of this article will form the best possible equipment for anyone desiring that further knowledge. The next five chapters are by the editor. There is a brief account of the atmosphere, in which the circulation of nitrogen is particularly well discussed; then follow two sections on the effects of lessened and heightened atmospheric pressure in which Mr. Hill's well-known views are put in a very convincing manner. This is the part of the book which has most practical value; the accounts of mountain sickness and of the pathological effects of compression and decompression cannot fail to be of use in treatment.

Professor Macleod's first contribution relates to the metabolism of the carbohydrates; his discussion of the Bernard and Pavy theories of glycolysis is very brief, and strongly in favour of the former. There is a good account of experimental glycosuria and a fair statement of human diabetes, and of the principal views regarding acid intoxication therein. The chapter on the metabolism of uric acid and the other purin bodies is largely devoted to the description of the very important experiments of Burian and Schur and their followers; the bearing of these researches upon the study of disease is hardly more than hinted at. The account of haemolysins and allied bodies which follows is highly technical and far too dogmatic in reference to matters which are still in dispute.

Dr. Pembrey has a chapter, 100 pages long, on the respiratory exchange, which is both interesting and valuable. His summary of Haldane's recent work on the relative importance of carbonic acid and oxygen tension is particularly to be commended, and there is a full discussion of the important subject of internal respiration. The conclusions as to dietetics on page 503 are eminently sound and reasonable. The subject of internal secretion is somewhat inadequately treated in a dozen pages.

The remaining four chapters are by Dr. Beddard, and as to them we have already offered some general criticisms. That on the production of lymph is chiefly of value for its account of Asher's researches and for a highly suggestive note by Mr. Hill on p. 618. In this the editor puts forward the suggestion that the conditions met with in the body are such as to prevent the existence of anything like a filtration pressure. If this view can be substantiated, many interesting and much-debated theories will vanish from practical consideration. There is a long and rather wearisome discussion of the mechanism of absorption from the small intestine. In both this and the preceding chapter physical terms are used in a somewhat loose manner, so that in some places it is made to appear as if diffusion, dialysis and osmosis were merely different ways of expressing the same process. The account of the precursors of urea is inconclusive, and that of the secretion of urine serves merely to show how little we know of the true nature of the process.

It is to be hoped that the sale of the work among students of science will be sufficient to enable the publisher to produce a fresh edition, with fewer misprints, and the editor to carry the work of summarization into other departments of physiology.

[1] *Recent Advances in Physiology and Bio-chemistry.* By B. Moore, M.A., D.Sc., Leonard Hill, M.B., F.R.S., J. J. R. Macleod, M.B., M. S. Pembrey, M.A., M.D., and A. P. Beddard, M.A., M.D. Edited by Leonard Hill, M.B., F.R.S., Lecturer in Physiology, the London Hospital. London: Edward Arnold. 1906. (Demy 8vo, pp. 740. 18s.)

TREATMENT OF GALL STONES.

THIS monograph on the medical and surgical treatment of biliary calculus, by Professor HANS KEHR of Berlin,[2] is the most interesting as it is also one of the most vigorously written contributions to the subject which it has been our good fortune to read within the last few years. It consists of a course of post-graduate lectures delivered to medical practitioners in the Empress Frederick Hospital in Berlin in the spring of the present year.

Professor Kehr begins by protesting against being suspected of taking a one-sided and merely surgical view of these questions. In over 3,000 cases upon which he has been consulted he has only operated in 37 per cent., and he fully appreciates the value of internal treatment. The important foundation of appropriate therapeutics is a right knowledge of pathological anatomy and correct diagnosis based upon it. Such knowledge, he contends, can be better acquired by an operating surgeon than by any other man; his examinations *in vivo* are infinitely more instructive than *post-mortem* examinations, because

[2] *Die interne und chirurgische Behandlung der Gallensteinkrankheit* Vortrag von Prof. Dr. Hans Kehr. Munchen: J. F. Lehmann. 1906 [The Medical and Surgical Treatment of Biliary Calculus. By Professor Hans Kehr, M.D. Munich: J. F. Lehmann. 1906.] (Demy 8vo pp. 176. M.4.)

he knows the history of the case and is able to see for himself exactly what the conditions are that correspond to a given set of symptoms. While admitting that the cause of gall stones remains doubtful, he accepts the doctrine of infection, and thinks the evidence weighs strongly in favour of local as distinguished from constitutional causes, the chief local cause being catarrhal inflammation of the gall bladder. Any obstruction which dams up the bile in the gall bladder favours the formation of stones; when stones are found in the hepatic ducts they usually get there from the gall bladder; they are rarely formed in the liver, but sometimes this happens.

The disease is more common in women than in men; it is rare in men under 20, but 50 per cent. of all cases are women over 50. It is by no means confined to the well-to-do classes, and he doubts whether alcohol plays any part in its causation. The diagnostic ability of the local medical practitioner plays a more important part in furnishing a large number of cases than the character of the drinking water or the habits of the population as to food and drink. Blows and injuries may set up inflammation and bring out the condition from the latency in which it has hitherto remained unnoticed. Ten per cent. of all cases in the *post-mortem* room have stones in the gall bladder without history of inflammation, pain, or jaundice during life: contraction of the uninflamed gall bladder is not painful, nor is obstruction of the cystic duct by cancer a cause of pain; it is the sudden closure of the duct or inflammation of the gall bladder that is attended by pain. Cholecystitis does not occur without infection: it may be serous or purulent, but seldom haemorrhagic, and may take on a diphtheritic, necrotic, or gangrenous character. In these different stages of inflammation the gall bladder alters its aspect and shape, but a bladder which looks quite normal may have been recently in a condition of severe infection. During the latent stage no trace of inflammation may be discoverable, yet during the acute attack the gall bladder is generally swollen, purplish-red, much inflamed, with many fibrinous flakes on its upper surface and its mucous membrane covered with ulcers, while in many cases there are traces of commencing necrosis. The serous and muscular coats are often swollen, so that the wall of the gall bladder may be from 1 cm. to 1½ cm. in thickness. The pericholecystitis above referred to often leads to inflammatory adhesions, which become the cause of later trouble. After such an attack the gall bladder may become full of pus, or there may be only serous dropsy, in either case with entire absence of symptoms. These conditions may undergo a cure from the cystic duct becoming reopened, or the gall bladder may burst into the stomach or bowel, but the resulting fistula leads to infection of the biliary passages, and is generally fatal.

An attack of biliary colic, as it is called, is usually cholecystitis. Its treatment should be that of a local inflammation, and its cure results from the subsidence of the inflammation; it is not, as is commonly thought, due to the impaction of a stone in the cystic duct. It ought to be more generally recognized that jaundice is rare in connexion with gall stones: in his own cases it was absent in 80 per cent., and if account is taken of the great frequency with which pains due to gall stones are overlooked, and are called gastralgia or gastric ulcer, it would probably be correct to say that in 95 per cent. of all cases there is no jaundice. Nor is enlargement of the liver present in more than from 10 to 20 per cent. of the cases. It must not be supposed that after every one of these attacks a stone passes into the bowel. This does not happen in more than 25 per cent. of the cases, and it is only when jaundice has occurred that it is worth while examining the stools for stones. The *x* rays have not proved trustworthy in the diagnosis of gall stones, but this is a matter for congratulation, as otherwise there would have been many useless operations; he would not interfere with gall stones so long as they keep quiet.

He alludes to the great difference to be found in the estimation of the prognosis of gall stones in the writings of physicians and surgeons respectively, physicians speaking of it as good, while surgeons say the opposite. This is due to the fact that surgeons see the more serious cases while large numbers get well under medical treatment, although physicians are no doubt in the habit of regarding their patients as cured when all that has happened is that the inflammation of the gall bladder has subsided. He does not believe that medicines really cure the condition—that is to say, they do not get rid of the gall stones; the only effect of such treatment is to bring things back to the latent stage. During an acute attack he recommends rest with hot applications over the region of the liver, and sipping plain hot water or hot Carlsbad water. There is some advantage in giving sodium salicylate to prevent infection of the bile ducts; and as there is often some concomitant stomach derangement it is desirable to regulate the diet, but no modification of diet can affect the formation or the solution of gall stones.

Carlsbad and similar places have no specific effect on the disease, but appropriate treatment can sometimes be better carried out away from home. No patient should be sent to a watering place until the diagnosis has been clearly established. Professor Kehr criticizes the various remedies which have been recommended during the last few years, of which oleate of soda (cholelysin) may be taken as an illustration: oleate of soda will dissolve cholesterine but not bilirubin stones, and it is difficult to believe that it gets into the gall bladder in sufficient quantity to be of any use. He has repeatedly used injections of oleate of soda into the bile ducts in the hope of softening an impacted gall stone, but has never found the least evidence of any solvent action.

A considerable part of the book is devoted to criticism of the methods employed by certain German specialists who claim to possess means of treating or curing gall stones without operation: some of these are properly-qualified medical practitioners, but their methods of practice are not in accordance with the rules of professional conduct. It is unnecessary to follow our author in this part of his work.

The conditions of cure are (1) removal of the stone or stones; (2) restoration of the permeability of the bile passages; (3) suppression of infection and inflammation. These results can only be obtained by operation: he would let any one operate who can: there is no reason to forbid a general practitioner undertaking such operations if he possesses the necessary aptitude and has learnt the proper methods, but although the operation is sometimes very simple, it may be most difficult, and tax to the utmost the surgeon's resource and skill, as well as his physical and mental powers. He advocates the operation of cystectomy in preference to cystotomy, as it gets rid of the infected gall bladder, as well as the stone, and affords less chance of relapse. Where the stone is situated in the common or hepatic duct he removes the gall bladder, slits up the ducts, and drains the liver. He does not operate in the acute stage for choice, but in the interval; but in gangrenous and purulent cystitis intervention is urgent and must not be postponed. In acute obstruction of the common duct with jaundice he prefers to wait. He does not think pain should be the main indication for operating, but advocates interference in acute and chronic empyema of the gall bladder, phlegmonous and perforating cholecystitis, in chronic obstruction of the ductus choledochus, and in chronic recurrent cholecystitis, while he would leave to be treated by medical means simple serous cystitis, acute obstruction of the ductus choledochus and sterile dropsy of the gall bladder.

He protests against rash, imprudent, and indiscriminate surgical intervention. While there are some physicians who are too slow to accept surgical help there are many surgeons too eager to operate; we should seek the golden mean, the safe middle path: "Operate when internal medicine has failed, when nothing but an operation can help; when capacity for work and pleasure in life have been for the most part destroyed." He disagrees with those who hold that an operation is justified whenever they are sure that a gall stone is present. The proper indications are to be found in the pathological changes in the gall bladder. He complains of the ignorant dogmatism of some physicians who oppose operations when they do not know what they are talking about; this is especially true of cases of acute inflammation where gangrene is threatening; if an attack of cholecystitis has not resolved in eight days he would operate. In severe infection with loss of strength, fever, rapid pulse, large tumour, and jaundice with vomiting, he would operate as early as possible. In acute serous cystitis he operates only exceptionally, while in purulent and gangrenous cystitis intervention is urgently necessary. He would operate

in a case of hydrops with a family history of cancer, as a prophylactic measure; in obstruction of the common duct with jaundice, loss of appetite, continued pain, and frequent vomiting, he recommends operation. Diabetes, arterio-sclerosis, chronic heart and lung diseases are contraindications to surgical intervention.

With regard to the mortality, he remarks that most cases die from the disease, and rather in spite of the operation than from it. His total mortality in 1,111 cases was 16.2 per cent., but this includes every kind of case; where there was no complication the mortality was only 3.2 per cent. The mortality was decidedly higher in men than in women, which he attributes to the frequency with which in the former the conditions were complicated by cirrhosis of the liver, alcoholism, and abuse of tobacco. He is sceptical as to genuine relapses, though he has occasionally left a stone behind in the neck of the bladder; it is unfair to blame surgeons for the reformation of stones—that is the business of the physician, but many so-called relapses are not due to any fresh formation of stones; in some cases they are due to pain caused by adhesions; in many more to stomach troubles. A case which had been under his care went afterwards to Carlsbad, and was there said to pass stones, but these were proved to be poppy seeds which the Carlsbad bakers put into their rolls! Another case of alleged relapse turned out to be renal colic. Others were purely nervous. These so-called cases of relapse are made the most of, and are carefully collected and exaggerated by those opposed to gall-stone surgery—a class which includes many physicians attached to watering-places, as well as quacks of all kinds.

It is difficult to give an adequate idea of all that there is in this book without trespassing beyond the space at our disposal, but we hope we have quoted enough to show that these lectures are of great practical value, and should be read by all who are interested in the subject.

MILITARY SANITATION.

A WORK on sanitation which may be understanded of the people is a want of the day, not only for soldiers, but for the whole population of these islands. Colonel ELKINGTON'S *Notes on Military Sanitation*[3] are intended for the use of the St. John Ambulance Brigade, but they might also well be taken as the basis of a popular primer on the subject. The nation must realize that it is only by teaching great principles in youth that these principles will become a second nature through life. This we learn from Japan, who has learnt from us. Without waste of space in pleading his cause, Colonel Elkington has contributed a matter-of-fact statement of sanitary principles which cannot fail to produce beneficial effects, even if these effects spread no further than the important organization for which they are intended.

War with Disease[4] is the title of a series of four lectures recently delivered to the officers and non-commissioned officers of the 3rd Cavalry Brigade at the Curragh. The work contains much useful information conveyed in a strain which must have carried the lecturer's hearers with him. The obvious enthusiasm of the author will doubtless bear fruit in inducing the co-operation of uninitiated hearers or readers in carrying out the first principles of cleanliness. The trained sanitarian would desire more exact statements than are sometimes found, while the educated reader would appreciate a less breathless and discursive style; but the lectures are intended to arouse a wider public to the real necessity of observing certain precautions in order to minimize the chances of success of disease-producing organisms. Surgeon-Lieutenant MacCabe is evidently no admirer of the British army medical system. He seems to prefer the Russian:

> Their military hospitals are under the executive command of an officer of the line, and thus these surgeons (of the Russian army) are not expected to waste their time learning a second profession in addition to their own.

The text is marred by numerous errors in spelling; thus "dysentry" occurs frequently, on p. 58 five times. In spite of such faults, which may be amended in another edition, the work must have a good effect upon such as have not been trained in matters of primary importance in health preservation.

[3] *Notes on Military Sanitation.* By Lieutenant-Colonel H. P. G. Elkington, R.A.M.C. London: St. John Ambulance Association. (Fcap. 8vo, pp. 104. 1s.)

[4] *War with Disease.* By Frederick F. MacCabe, M.B.Dub. London: Dollard Limited. (Fcap. 8vo, pp. 78. 6d.)

ORTHOPAEDIC SURGERY.

MR. JOHN POLAND has re-edited Mr. CHANCE'S lectures on *The Nature, Causes, Variety, and Treatment of Bodily Deformities*,[5] which were delivered in 1852 and 1858. The work is to be published in two volumes, and we have now before us the first one, a compact, handy book, clearly printed and well illustrated. Many of the pictures are from woodcuts drawn on the wood by Mr. Chance's own hand. The combination of the artist and the surgeon is sufficiently rare to excite comment and provoke envy, and it may be, emulation, in some. It is interesting to read in the introduction Mr. Chance's able defence of the institution of special hospitals, for we are accustomed to them by this time, and many of them have by the sterling character of their work amply justified their existence. Six lectures are recorded in the first volume. Lecture I deals with the form, proportions, and contour of the body, and the grouping of deformities; the latter, though somewhat intricate, proves on examination to be thoroughly scientific. The second and third lectures, on the nature of the inducing causes of deformities, are full of interest, and reveal Mr. Chance's wide reading and powers of inductive reasoning, supplemented by notes in a graceful and unobtrusive manner by Mr. Poland. In the fourth lecture the question of mechanical interference, especially position *in utero* and deficiency of liquor amnii in the production of deformity, is carefully weighed, but the writer decides against these possibilities. Lectures V and VI continue the investigations into the causes of acquired deformities. Mr. Chance's original edition was most favourably received by the profession, and we feel sure that Mr. Poland having set his imprimatur on this the second edition, and having brought it up to date, it will secure the approval and commendation of all who are interested in this branch of surgery. The great test of capacity in an editor is that his individuality and influence, directive and powerful though they may be, do not eclipse or in any way overshadow those of the original writer. There is no one less likely than Mr. Poland to make this mistake, and we look upon this volume as a model of editing.

In the second edition, enlarged and improved, of his outlines of orthopaedic surgery for practitioners and students,[6] Dr. MAX DAVID presents us with a purely German work. It has all the characteristics that we expect in a German scientific publication, in that it is painstaking and thorough, but it shows an indifference to, it cannot be an ignorance of, the work of surgeons of other countries, that marks the self-sufficiency of modern Germany. These considerations apart, the book forms a useful and convenient *précis* of orthopaedics as to-day practised in the German-speaking countries. As is usual in such books, the subject is divided into a general and a special part, the first and best part being devoted to a description of the means and methods at the disposal of the surgeon for the treatment of deformities, and the second to the particular affections of the different parts of the body and their treatment. The author thinks that except for division of the tendo Achillis subcutaneous tenotomy is obsolete—a view which is certainly an extreme one, and not held by a good many experienced orthopaedists on the west of the North Sea. However strong the theoretical arguments may be against the method, a long and wide practical experience has proved that there are many other superficial or nearly superficial tendons that may be divided subcutaneously with less risk and better results than by the open method, and with a saving of time in treatment. Dr. David gives us a full and good account of deformities of the spine and their treatment. If the illustrations on page 78 are to be trusted, the results

[5] *On the Nature, Causes, Variety, and Treatment of Bodily Deformities:* a Series of Lectures by the late E. J. Chance, F.R.C.S.Eng. Edited by John Poland, F.R.C.S.Eng., Surgeon to the City Orthopaedic Hospital, etc. Second Edition. In two vols. Vol. I. London: Smith, Elder, and Co. 1905. (Cr. 8vo, pp. 299; 121 illustrations. 6s.)

[6] *Grundriss der orthopädischen Chirurgie für praktische Ärtze und Studierende.* Von Dr. Max David, Spezialarzt für orthopädische Chirurgie in Berlin. Mit 184 Abildungen. Zweite, wesentlich vermehrte und verbesserte Auflage. Berlin: S. Karger; London: Williams and Norgate. 1906. (Demy 8vo, pp. 240. M.6.)

of Schanz's method of treating scoliosis, which is quoted at length by Dr. David, are very striking. The section on hip disease is innocent of all references to the work of Thomas of Liverpool, or the American surgeons. We have also failed to find any reference to the important work of Whitman on injuries of the neck of the femur, the differential diagnosis of which is of such importance in connexion with deformities of the hip. In the treatment of club-foot Dr. David is a follower of the late Julius Wolff, whose gradual (*etappen*) method has given him excellent results; but, nevertheless, we think that he hardly does justice to the importance of the subject when he dismisses the question of radical operation in a dozen lines, claiming that by Wolff's method cases of all kinds and of all grades can be cured *cito, tuto, et jucunde*. There may be no question as to the *tuto*, but we take leave to doubt the *cito* and the *jucunde* in the case of an inveterate adult club-foot.

ARTISTIC ANATOMY.

As Professor of Anatomy in the University of Oxford and also at the Royal Academy, Professor THOMSON has excellent opportunities for judging of the method in which the study of anatomy should be approached for the different purposes of the medical man and of the artist. The success of the previous editions of *Anatomy for Art Students*,[1] in our opinion much the best textbook on the subject in the English language, testifies to his having grasped the requirements of the art student. In the preface to the third edition he feels it necessary to justify the study of anatomy by artists, and gives examples of some of his pupils' work to show the advantage they have gained. A careful observation of picture galleries and still more of sculpture is, however, in itself sufficient proof; an anatomist will notice, both in the work of several of our own most distinguished sculptors and of perhaps the most distinguished French sculptor, that they fail to distinguish between the surface markings of muscles in repose and of muscles in strong action, so that a suspicion is engendered that they have put in their muscles from plates, or from an *écorché* cast, rather than from an intelligent knowledge.

The present edition of Professor Thomson's book differs but little from the last so far as the text is concerned, but a good many new plates and woodcuts have been added, and some of the old photographs of the nude figure have been reproduced on a larger scale. Moreover, photographs of the female figure in the same attitudes have been placed side by side with those of the male, so that the student may easily observe the differences which concern him.

We can cordially recommend the book as exactly suited to the needs of all who are interested in artistic anatomy; the illustrations being photographs taken from athletes, and from female models on the whole well-selected, are freed from the suspicion that anatomical points have been unduly emphasized.

NOTES ON BOOKS.

IN his *Anatomy and Physiology for Nurses*,[2] Dr. LE ROY LEWIS gives much anatomy and little physiology; what there is of the latter is of doubtful value. Let us justify our statements. The organic matter of bone is given as consisting of "gelatin and blood vessels . . . 83.30" (p. 15). "The impressibility of the muscle is dependent on nervous stimulus" (p. 45). "Each auricle is provided with openings for the arteries and veins that enter from the circulation" (p. 87). "The corpuscles (of blood) contain the red and the white cells" (p. 131). "The plasma of the blood is a white, sometimes yellow, fluid" (p. 133). As to white corpuscles, "when there is an increase in their number this is very easily noticed by the pallor of the countenance" (p. 133). "Expired air has lost its oxygen" (p. 144). Is it necessary to go on? We think not. No amount of descriptive—so-called—anatomy can compensate for such grave errors.

[1] *Handbook of Anatomy for Art Students*. By Arthur Thomson, M.A., M.B. Third edition. Oxford: Clarendon Press. 1906. (Fcap. 8vo, pp. 480; woodcuts 213; plates 59; 12s.)

[2] *Anatomy and Physiology for Nurses*. By Le Roy Lewis, M.D., Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Michigan. London: W. B. Saunders and Co. 1905. (Demy 8vo, pp. 317. 7s. 6d.)

The forty-first volume of *St. Bartholomew's Hospital Reports* for 1906, which is edited by Dr. A. E. GARROD and Mr. W. MCADAM ECCLES, commences with a sympathetically-written obituary of the late Luther Holden by his former pupil, Mr. John Langton. The volume is especially remarkable for the large number of original papers it contains, fifteen being on medical and six on surgical subjects. With few exceptions, however, the papers consist of descriptions of individual cases or of groups of cognate cases. The exceptions are a paper by Sir Dyce Duckworth on a tendency to blood clotting during life; one by Dr. H. H. Tooth on the segmental spinal sensory areas clinically considered; and one on pulmonary fibrosis in childhood by Dr. Clive Riviere. But in the case of several contributions consisting in the main of records of cases, there is an addendum based on the literature of the subject in question. The volume, like its predecessors, contains an account of the proceedings of the Abernethian Society for the previous session, a list of specimens added to the museum, and of books to the library. A valuable feature of this volume is a general index of the second twenty volumes, prepared by Mr. McAdam Eccles. The index to the former twenty volumes was prepared, it will be remembered, by Sir William Church, and either may be obtained separately from other matter.

The three later volumes of *International Clinics*[3] now before us do not appear to contain any paper of extraordinary interest or importance, although the average excellence of the contributions is, as usual, high. Among the more arresting or valuable papers are in the third volume of the fifteenth series one on the musculo-tenic and diuretic action of formic acid and the formiates by Dr. Huchard, and another on the differential diagnosis of tumours of the right hypochondrium by Dr. T. Tuffier; in the fourth volume a description of a method of abdominal palpation by Dr. A. E. Thayer, the examiner being behind the patient, who is in a squatting posture; and one on post-operative neurasthenia by Mr. E. M. Corner. In the first volume of the sixteenth series a very interesting paper is contributed by Dr. M. H. Fussell on the position and size of the heart in advanced mitral stenosis.

The first edition of Dr. J. M. ANDERS's *Textbook of the Practice of Medicine*[10] was printed in September, 1897; the seventh edition is now before us. This fact, and a reference to the favourable reviews of the successive editions that have appeared in the columns of the BRITISH MEDICAL JOURNAL (of the penultimate edition on April 9th, 1904, p. 843), are sufficient evidence of its acceptability. In the present edition several new subjects are introduced (splanchnoptosis, myasthenia gravis, etc.) and paragraphs incorporated on pseudo-tuberculosis, benign cirrhosis of the stomach, intestinal lithiasis, the Adams-Stokes syndrome and other subjects, and the accounts of certain diseases (paratyphoid fever, beri-beri, trypanosomiasis, etc.) have been rewritten. The section of diseases of the nervous system, one of the less strong chapters in earlier editions, has been revised by Dr. J. Sailes. The volume is one of the soundest and most practical of modern textbooks on medicine.

The *Matriculation Directory*, issued by the University Correspondence College,[11] is a compilation likely to be useful to the candidate for the matriculation examination of the University of London. In addition to stating and explaining the regulations, it gives the papers set at the examination last June, together with solutions. We observe that attention is very rightly called to the character of one of the questions set in the paper on heat, light, and sound. The question, as is pointed out, is insoluble and would not have been allowed to stand had the Principal exercised proper supervision over the examiners.

[3] Philadelphia and London: J. B. Lippincott and Co. 1905 and 1906.

[10] *A Textbook of the Practice of Medicine*. By James M. Anders, M.D., LL.D. Seventh edition. Philadelphia and London: W. B. Saunders and Co. 1905. (Demy 8vo, pp. 1237. 24s.)

[11] Cambridge, Burlington House; London, 32, Red Lion Square, W.C. (1s. net.)

We have received the reports for the year 1905 of the London Mission Women's Hospital at Pekin, and of the two hospitals at Tungkun carried on in connexion with the Rhenish Missionary Society. From the former may be gathered a clear idea of the difficulties which have to be met in China, and of the excellent spirit which those engaged in the work bring to bear on it, while the latter shows what splendid surgical opportunities often fall to the lot of the medical missionary.

Congress

OF THE

ASSOCIATION OF FRENCH-SPEAKING MEDICAL PRACTITIONERS OF NORTH AMERICA.

[FROM A CORRESPONDENT.]

(Continued from p. 94.)

Discussion on Tuberculosis.

Dr. A. Rousseau, Professor in the Laval University, and Physician to the Hôtel Dieu, Quebec, introduced the discussion on tuberculosis, and presented a general report on the subject. The Canadian statistics were, he said, very incomplete, and he believed that there were at least 18,000 cases of tuberculosis annually, producing 3,000 to 4,000 deaths, and a mortality of about 18 per 1,000; tuberculosis was more frequent than was generally believed. Indirect causes, poverty, alcoholism, and overwork, were of little importance in Canada, with the exception of the debility produced in women by too frequent pregnancies; a very important direct cause was the agglomeration of families in winter, producing dangerous overcrowding, frequently increased by the return of children who had gone to the towns to seek their fortune. Alimentary tuberculosis could not be ignored, since 10 per cent. of the animals killed in the public slaughterhouses were tuberculous. Practically no hygienic precautions were taken, there was no disinfection, and the streets were not cleaned, yet such precautions were indispensable in view of the habit of spitting which prevailed to an extent unknown in any other country. In the schools there was hardly any examination of the health of teachers or of scholars; the schools were only cleaned out once a week by the pupils themselves, and the cleaning was dry. In summarizing this part of his paper, he said that the dominant factor was the absence of family hygiene, but that there was occasion also to insist upon the hygiene of schools and upon supervision of workshops. The sanatorium system was little developed in Canada; with the exception of the sanatorium of the Province of Quebec, where the charge was low ($5 a week), nearly all the establishments were dear ($80 a month). The German system of workmen's assurance had been ill understood and badly applied. There were, it was true, workmen's assurance societies, but they had been badly managed on the financial side.

Dr. A. G. H. Beiqe (Magog) advocated small sanatoriums, established and conducted by local committees, and a resolution in this sense was adopted.

In the course of a discussion on the treatment of tuberculosis, Dr. A. Foucher (Montreal) called attention to the value of intratracheal injections in pulmonary tuberculosis carried out in the simple and efficacious manner advised by Dr. Mendel of Paris.

Dr. de Laval (New Bedford, Massachusetts) insisted upon the relation of diseases of the nose and throat to tuberculosis; not only did nasal and pharyngeal catarrhs conduce to virulent tuberculous infection, but he found that the attention of the physician was apt to be absorbed in the local disorder which masked the principal affection. He quoted statistics collected by himself showing that otitis and pulmonary tuberculosis were very frequently coincident.

Dr. de Martigny (Montreal) read a paper on the use of the antituberculous serum of Marmorek; he had observed a notable improvement even in the third stage, indicated by decrease of fever and diminution of wasting. He had only been able to treat three cases in the second stage, but they had been carefully observed by competent physicians. Recovery had taken place in these cases when softening had already begun, and the bacillus was present in abundance in the sputum; the patients had been able to resume their ordinary occupations. This paper led to a warm discussion, during the course of which it was pointed out that Dr. de Martigny's cases did no more than illustrate the physiological action of the serum, which had a temporary action in neutralizing the toxin, as shown by its effect on the fever, and in stimulating phagocytosis.

Hygiene of Childhood.

Two reports mutually complementary were presented on this subject, one by Dr. Hervieux, Professor in the University of Laval, and Physician to the Hôtel Dieu, Montreal, on the hygiene of childhood until the age of 7 years, and the other by Dr. Dubé, Professeur Agrégé in the University of Laval, on the hygiene of childhood after the age of 7 years. These two valuable reports cannot be analysed briefly; they gave an exact picture of the actual state of the great questions with regard to the hygiene of infancy, especially with regard to feeding up to the time of weaning, at that period, and in the choice of foods, subsequently dealing also with clothing, play, and work. They led to a prolonged discussion, and the following notes refer only to observations which have local colour. Dr. E. F. Panneton (Trois Rivières) showed and described a card of practical advice to mothers, issued by the medical association of the district, which contained twelve paragraphs upon feeding, cleanliness, the sterilization of milk, and on clothing, especially on the *maillot* and abdominal binder. Dr. Panneton stated that this card was given by the curé to the young mother after the ceremony of baptism, so that the priest and the doctor worked together in disseminating knowledge upon these important subjects.

Dr. Valin (Montreal) discussed the contradictory opinions held by various authorities as to the dilution of milk; one party, headed by Professor Budin, advising the use of undiluted milk at the earliest possible moment, the other recommending more or less dilution, so that the practitioner had to form his own opinion. Dr. Valin declared that no absolute rule could be laid down; the question was really physiological, and it was necessary to study minutely the nature of lactic fermentations, and the intestinal flora of the infant, as was shown by the investigations carried on by Metchnikoff and his followers at the Institut Pasteur in Paris.

Dr. Chevrier (Embrun, Ontario) read a paper on school hygiene, in which he reported certain highly-instructive observations which he had himself made. School hygiene was, he said, an unknown quantity in most schools; it was, for instance, the rule to resort to dry dusting. Punishments which were both physically and morally inappropriate were imposed, such as kneeling and kissing the floor a certain number of times; on these floors the children and sometimes the teachers spat, and in some instances he found that in a class of eighty or ninety children only one or two possessed pocket-handkerchiefs. Dr. Chevrier concluded by urging that the Federal Government should undertake the inspection of schools.

Dr. Ste. Marie (Ottawa) supported this view, and maintained that the Minister of Public Instruction ought to publish a hygienic catechism dealing especially with tuberculosis and alcoholism, for use in school examinations.

After the conclusion of this discussion, Dr. Lachapelle, Professor of Hygiene, read a paper on the treatment of convulsions in infants, and argued that it was too much neglected, and that a tendency to convulsions in later life was thus established. He urged that convulsions should be treated at the earliest possible age, and in the most energetic way, basing this opinion on personal experience and on the statistics of 1,143 cases published in New York. He recommended the use of chloroform, which should be pushed, and administered again on any recurrence, even if slight. In a series of twelve recent cases treated in this way at a crèche, he had not had one unfavourable result.

Inquiry having been made as to the frequency of exophthalmic goitre in Cuba, and whether it occurred among the negroes and mestizoes, Dr. Garcia Rijo publishes (*Cron. Med.-Cirurg. de la Habana*, May, 1906) some tables, with a couple of cases which came under his own observation. He regards the disease as rare in the island, there being many doctors, he feels sure, to whom it is personally unknown. Dr. Santos Fernandez, in his statistics of diseases observed in Cuba (*Chron. Med.-Cirurg.*, 1901, p. 385), found that among 22,186 white patients there were 4 cases of exophthalmic goitre, among 3,003 negroes 1 case, and among 2,528 mestizoes 1 case. The proportion thus tends to show that the disease is more frequent in the coloured races than in the white, but it is evident that no general deduction can be made from such restricted numbers, and all that can be said is that the coloured races suffer at least equally with the whites. Both Dr. Rijo's cases were of coloured females.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

The Incorporated Society of Medical Officers of Health held its jubilee provincial meeting at Bath on July 14th, Sir Shirley Murphy, President, in the chair. Professor C. S. Loch, LL.D., of the Charity Organization Society, London, read a suggestive paper on the relation of sanitary authorities to charitable societies, which well deserves to be studied in its entirety. Starting with the suggestion that it would be for the common good of the people that there should be a closer relation between sanitary authorities and charitable societies, Professor Loch pointed out that society may be considered as an organization which is constantly throwing out growths as a provision against decay or as a means of preventing decay in its own body. For one such purpose, the preservation of health and healthy habits, there was the sanitary authority. For improvement of the condition of the poor, for the prevention of destitution and for the relief of distress, the outgrowths of Society were the charitable societies and agencies. For the relief of destitution, for the maintenance of those unable to maintain themselves the State had established the Poor Law. These three departments might be appreciated in several ways: (1) By the amount of money invested in them—their cost to the nation; (2) by the results they achieved—that is, their actual effect in preventing decay and strengthening social habit, or, in the case of the Poor Law, by their carefulness in the maintenance of those who were destitute. He had been unable to ascertain what was the investment of the community in London in expenditure connected with sanitary authorities and for sanitary purposes. But, omitting the income of charities for spiritual purposes, the income of charities in or available for London for dealing with material and social needs amounted to £6,519,529; this sum covered assistance to the afflicted and inebriates, the sick and aged, to the education, training, and maintenance of the young, to general relief, to prisoners and penitentiary aid, to social and physical improvement, to employment and emigration, etc. The expenditure of the Poor-law authorities in the metropolitan area (apart from the Metropolitan Asylums Board) was £2,250,406 in 1903-4. If the three groups were tested by another method—by results—there were no common statistics of health work; but, taking London, it was found that with a falling birth-rate there was also a reduced general death-rate—16·5 in 1903, as against 19·9 in the decennium 1893-1902—and a reduced mortality in early life. Also, compared with the average for the preceding ten years, there was a diminution of 14,821 in certain diseases and groups of diseases, amongst which was to be noticed a diminution of 1,322 under the head of "phthisis and other tuberculous diseases." These figures showed that State hygiene was a force which was grappling with large numbers, and able to reduce unhealthiness and insanitary conditions on a considerable scale. If the number of recipients of Poor-law relief was examined, the results seemed less satisfactory than those accruing from hygiene, since they show more and not less dependence on the Poor Law and on charity. As for the preservation of the Social habit among the poor, this matter was nearly related to the duties of the medical officer of health as defined in the General Order of the Local Government Board. In conclusion, Mr. Loch made the following suggestions:

1. That there should be a centre for health visiting and for cognate work in each sanitary district.
2. That this centre should act in close co-operation with the medical officer of health, with the centre for organized charity in the district, with voluntary agencies, and with the Poor Law.
3. That the Health Committee and those who visit for it should, as health visitors, take no part in the administration of relief.
4. That the work of relief should be undertaken by other agencies in co-operation with the health visitor where relief is actually needed.
5. That the inquiry in every instance should be sufficient for the purpose in hand, and that if it is proposed to give relief, the inquiry should be extended to show how that may be properly given, and by whom and on what grounds and on what plan, or whether the case should not be rather left to the Poor Law as being the best agency to deal with it.
6. That the secretary of a health society should be trained in the work and methods of charity organization.
7. That, as far as possible, visitors already engaged in visiting the poor should be invited to take part in health work under conditions that will prevent careless or indiscriminate almsgiving.

In the discussion that followed the Rev. Prebendary Norton Thompson, in moving a vote of thanks to Professor Loch, said it would be a good thing if they could get some such co-operation as proposed, but it was a difficult matter to get all the charitable societies, the Poor Law, and the medical officers of health to act together. He would like to see carried out a suggestion made lately by the Bishop of Birmingham: that nothing in the shape of relief should be given by the clergy at all, and that they should go to the homes of the people for their special purpose, and not be looked on as taking the place of the relieving officer. But that was not possible unless they had some scheme on the lines suggested by Professor Loch.

Mr. Whitaker (Croydon) seconded, condemning indiscriminate and meddlesome almsgiving as a bad thing all round, even for the giver. Dr. Kay (West Riding) doubted the willingness of the ratepayer to set up a separate centre for health visiting and for cognate work. Dr. Davies (Bristol) touched on indiscriminate giving, and recommended that the heart should be hardened and the relief withheld. The public health officer was the natural centre for health work, but he agreed that charitable societies might come closer together and work with greater unity. Sir Charles Cameron (Dublin) gave an account of what was being done in Dublin to combine the work of charitable societies and the sanitary authority. He was altogether in sympathy with the reader of the paper. Dr. Weatherly said he had always felt that the medical officers of health needed two things—more liberty of action and more outside help. Especially was the latter the case in regard to consumption and its notification.

In the evening a dinner was held at the Empire Hotel, followed by a reception in the Grand Pump Room and Roman Promenade. On Sunday a special service was held in the Abbey in the morning, and arrangements were made for visiting the bathing establishments. In the afternoon a visit was paid to Winsley Sanatorium, which has been established for the poorer consumptives of the counties of Gloucester, Somerset, and Wiltshire and the city of Bristol by combination among the authorities, each of which has become responsible for the provision and maintenance of a certain number of beds. The site is an ideal one, and no trouble or expense seems to have been spared in endeavouring to render the institution as perfect as possible according to the most modern principles. A separate bedroom is allotted to each patient, who is kept on an average for four months, and who, if not sent in by one of the contributing authorities, pays a sum not exceeding 10s. a week towards the cost of his keep, which averages about 25s. a week. Much useful information will be found in the first annual report, a copy of which was presented to each visitor.

BRITISH PHARMACEUTICAL CONGRESS.

The Active Principles of Familiar Drugs.

The annual British Pharmaceutical Conference, held this year in Birmingham, commenced on Monday, July 23rd, and concluded on Friday. On Monday night the Lord Mayor gave a reception at the Council House, the official proceedings commencing on Tuesday morning in the lecture theatre of the University. The Conference was then formally welcomed on behalf of the city by the Lord Mayor, and the President (Mr. W. A. H. Naylor, F.I.C., F.C.S.) delivered the presidential address. In this Mr. Naylor alluded to the probability that before the Conference again met at Birmingham a pharmaceutical department would develop in the University. Such an event would be a welcome recognition by the Senate of the usefulness of the pharmacist to the community, and an evidence of its desire to encourage him to acquire the higher knowledge needed if he is adequately to fulfil the duties appertaining to the scientific side of his calling.

The greater part of the address, however, was given up to consideration of the evaluation of drugs, and to showing by examples the lines which he would like to see inquiry on the subject follow. The points mainly to be kept in view were: (1) How far can the newer knowledge

acquired as the result of the chemical or physiological investigation of drugs be usefully applied to their evaluation? (2) To indicate where there is a lack of common agreement in the isolation of principles and to focus the attention of workers on the points needing fuller elucidation.

The drugs which the President selected as examples were aloes, balsam of tolu, cantharides, cascarilla, euonymus, gelsemium, ginger, guaiacum, hops, lobelia, male fern, myrrh, senega and veratria. In dealing with each of these he gave a sketch of the development of the knowledge acquired about them, showed how far their essential principles had been identified, discussed the tests which had been laid down in the British and United States *Pharmacopoeias*, as criteria of their purity, and considered whether sufficient was known to justify inclusion in official pharmacopoeias of what was believed to be the alkaloid, or essential principle, to the exclusion of the drug itself.

In regard to *Aloes*, he showed that different specimens when chemically examined revealed materially different compositions. Aloin, he thought, was the chief but not the only active constituent of all of them. The best standard for the drug, therefore, would, he thought, be an estimate of its non-resinous constituents.

As for *Balsam of Tolu*, he regarded the bisulphide of carbon test of the *British Pharmacopoeia* as often valuable in distinguishing between spurious and genuine balsams, but seemed to think that the technique adopted by the *United States Pharmacopoeia* was on the whole more satisfactory.

Speaking of *Cantharides*, he showed that there were strong grounds for adopting cantharidin as the official preparation. He thought it was not generally known that when cantharides was applied for blistering purposes in the form of a plaster, its vesicating power varied directly with the coarseness of the powder employed.

Cascarilla, he suggested, depended for any virtue it possessed on a bitter crystalline substance, cascarillin. The amount of this present in different specimens varied considerably; if less variable, the drug would probably be more used. The present official preparation of *Euonymus* he stated to be unnecessarily weak, and therefore inferior to the extract prescribed in the *United States Pharmacopoeia*. The active principles of *Gelsemium* were two alkaloids, gelsemine and gelseminine, and there seemed no doubt that the former was the more physiologically active. In any case, the liquid extract ought to be standardized according to its alkaloidal strength.

Existing knowledge of the chemistry of *Ginger* fell far short of what might have been expected in view of its general use as a domestic remedy; that all its therapeutic value depended upon the amount of gingerine present was by no means certain.

There were good grounds, he considered, for deleting *Hops* from the *Pharmacopoeia* and retaining lupulin alone.

To what constituent the properties of *Lobelia* were to be ascribed he considered as yet obscure, and it would be prudent at present not to standardize the tincture by any process depending on estimates of alkaloidal strength.

The ethereal extract of *Male Fern* contained a toxic body in addition to vermifugal principles. This might or might not be due to filicic acid, but in any case it was worth noting that an amorphous acid, filmaron, had been isolated and shown to be non-toxic as well as vermifugal.

As for *Senega*, all views as to its essential principle required reinvestigation, while the principal alkaloid of *Veratria* so closely resembled aconitine physiologically that its retention in the *Pharmacopoeia* was of doubtful value.

In concluding his address the President said that his personal knowledge enabled him to affirm that the medicines supplied by qualified retail pharmacists at the present time were of a quality unobtainable less than a quarter of a century ago. The uncompromising maintenance of the principal of purity in medicine was a rubric of the Conference, and he thought that it was generally and intelligently applied. It was to the credit of pharmacy in this country that in spite of excessive competition, and in spite of the fact that the law placed the qualified man in an unfavourable position when contending with impersonal combinations of unqualified owners, there were, nevertheless, large numbers of chemists who practised high-class pharmacy; moreover, even amongst those whose work lay in districts where high-class pharmacy was not required, there were many who took a living interest in its advancement. Finally, there was a not inconsiderable number of highly-trained men who devoted what little leisure they had to the prosecution of pharmaceutical research. How well the Conference succeeded in its high object might be gauged by a study of the papers communicated at its annual meetings, and published in the *Yearbook of Pharmacy*.

The reading and discussion of papers was then begun. During the week a number of entertainments took place, the principal event being an evening party at Edgbaston Botanical Gardens given by Mr. Thomas Barclay, Chairman of the Local Committee; it was attended by many of the principal medical men in Birmingham and its neighbourhood.

PAYMENTS BY CORONERS TO PATHOLOGISTS.

THE report of the District Auditor (Mr. T. Barclay Cockerton) on the accounts of the London County Council for the year 1904-5, was circulated on July 23rd. The report says:

"In the course of the audit the British Medical Association, represented by their counsel, together with other ratepayers, appeared before me to object to the allowance of certain disbursements by Mr. John Troutbeck, one of the coroners of the County. I carefully considered the objections and on January 11th gave my decision that all the payments objected to were legal and that the Council were justified in charging them in these accounts. I have been asked to give a statement of my reasons for allowing the payments objected to, which reasons I have duly entered in the book of account according to the statutory requirements. In giving my decision in favour of the Council I expressed my sympathy with the members of the medical profession who were affected by the mode of procedure adopted by Mr. Troutbeck. At the same time I desire to take this opportunity of saying that I am convinced that both the Public Control Committee of the Council and the Coroner have been solely influenced by a desire to ascertain effectually the cause of death in cases where inquests are held, and to act generally in the public interest. I may say, however, that in my opinion the Coroners Act of 1887 on which the objectors relied never contemplated the employment of a special pathologist in the manner adopted by Mr. Troutbeck. I would therefore strongly urge the passing of an amending Act in order to remove some of the difficulties in connexion with this matter, and I understand that the Council have for the past eleven years been endeavouring to obtain an amendment of the law in this direction."

The following is a statement of reasons as entered by the auditor in the book of accounts on April 6th, 1906:

"At the Audit for the year ended March, 1905, of the Accounts of the Council of the Administrative County of London, the British Medical Association, being owners of property and ratepayers in the said County, attended before me by Archibald Henry Bodkin, Esquire, their Counsel, together with other ratepayers, and objected to the allowance of the undermentioned amounts entered and charged in the said accounts as and for disbursements by Mr. John Troutbeck, one of the Coroners of the said County.

	£	s.	d.
"A. Case in which a medical man in attendance on the deceased was not instructed to make a *post-mortem* examination but gave evidence before the Coroner.			
"Dr. Ludwig Freyberger for making a *post-mortem* examination of the body of and for giving evidence as to the cause of the death of one Timothy Corbett	2	2	0
"B. Case in which a medical man in attendance on the deceased was not summoned to give evidence at all.			
"Dr. Ludwig Freyberger for making a *post-mortem* examination of the body of and for giving evidence as to the cause of the death of one William Henry Smith	2	2	0
"C. Case in which no medical practitioner was in attendance on the deceased at or immediately after death and in which a			

	£	s.	d.
medical practitioner in actual practice in or near the place where the death happened was not summoned.			
"Dr. Ludwig Freyberger for making a *post-mortem* examination of the body of one Thomas Taylor and for giving evidence as to the cause of his death ...	2	2	0
"D. Case in which a *post-mortem* examination was held by a medical practitioner in attendance on the deceased and Dr. Freyberger was called in to assist at such *post-mortem* examination. No request was made by the Jury under Clause 3, Section 21, of the Coroners Act, 1887.			
"Dr. Ludwig Freyberger for making or assisting at the *post-mortem* examination of the body of and for giving evidence as to the cause of the death of one Joseph Peck	2	2	0

"I allowed the whole of the said sums so entered and charged in the said accounts for the following reasons:

"Because the requirements of Section 21 of the Coroners Act, 1887, are directory only, and not mandatory. (Caldon *v.* Pixell, 2 C.P. 562.)

"Because the aim, scope, and object of the said Act have been satisfied and complied with by the said Coroner in the cases to which the amounts objected to refer.

"Because adequate vouchers of payment were produced to me with reference to the said sums.

"Because the said Coroner has made a declaration with regard to all the payments which have been made by him and repaid to him by the said County Council.

"Because the fees paid by the said Coroner to medical practitioners and charged and allowed in the said accounts are not in excess of those allowed and provided for by the Coroners Act, 1887.

"Because each *post-mortem* examination in respect of which the fee has been charged in the said accounts was made with the previous direction of the Coroner.

"Because according to the principles laid down in Reg. *v.* Carmarthenshire Justices (10 Q.B., 796), and Reg. *v.* Gloucestershire Justices (7 E. and B., 805, 27 L.J.M., C. 15), the local authority are bound to pay the sums actually disbursed by the Coroner as fees to medical witnesses, and such payments cannot be disallowed.

"Because the said County Council had full and sufficient authority in law to pay the said sums and to charge the same in their accounts as aforesaid.

"(Signed) T. BARCLAY COCKERTON,
"*Auditor.*"

The Finance Committee of the London County Council to whom the auditor's report was referred, states that the matter in question is receiving consideration.

LITERARY NOTES.

A NEW edition of Martindale and Westcott's *Extra Pharmacopoeia* has been prepared, and will be issued in the course of a few weeks. The last edition appeared in 1904, and the fact that since that date new pharmacopoeias have been issued in Spain, Austria, Holland, and Belgium, and that a new edition of the U.S.A. *National Standard Dispensatory* has appeared, has led the authors to submit the book to a very thorough revision. The text has been rearranged and various additions have been made, especially in sections dealing with antitoxins, vaccines, and organotherapy. Altogether the new edition will contain 350 pages more than the last, but it is hoped that the bulk will not be seriously increased. The volume will be published by Mr. H. K. Lewis, at the price of 10s.

One of our contemporaries, the *Los Angeles Medical Journal*, has ceased to exist as a separate publication, all property in it having been acquired by the *California Medical and Surgical Reporter*.

The Child Healer, by Dr. George H. R. Dabbs (Silsbury Bros., Shanklin, I.W.), is a pretty little phantasy in which the spirit of a little child, grieving even in Heaven over the sufferings of earthly children, and longing to help them, is permitted to revisit the earth for the space of one week, and labour amongst them for their good. How he goes amongst the poor and the sick, bringing health and happiness and peace in his train, healing dying children, restoring a stolen boy to his mother, and how he finds his own mother and little blind sister before he leaves earth for the second time, is daintily and touchingly told. Perhaps the prettiest scene is that in which Goldenhair, as he is called, takes all the poor children from the London slums into the country for a day's pleasuring, and heals them of their ailments and infirmities before they return home. It is a fanciful sketch, perhaps, but a very tender, graceful fancy; and it breathes in every line a deep love of the neglected children of the poor in our great cities, and an active sympathy with their sufferings. The pretty frontispiece, representing the Child Healer as a deep-eyed boy with wavy hair, is drawn by Miss Lisa Stillman.

In a recent number of the *France Médicale*, Dr. A. Clerval gives an extract from a manuscript of the tenth century which may serve to give an idea of the difficulties of travelling in those days. It may interest our readers all the more since the journey was undertaken for the purpose of studying medicine. The writer was Richer, a monk of Saint Remi at Rheims, known to students of history as an authority on the fall of the Carlovingian dynasty. He relates how in March, 991, he was invited by his friend Héribrand, a great physician of that day, to Chartres to study under him the works of Hippocrates, Galen, and Soranus. The only outfit he got from his abbot was a palfrey, and he had to start without money or change of clothes, or anything else needful. At Orbais, a place famous for the charity of its inhabitants, he was fortunate enough to find an abbot who gave him shelter and entertainment. Next day he started for Meaux with two companions, but they had some unpleasant adventures. First of all, coming to crossways, they took the wrong road and went six leagues out of their way. After getting beyond Chateau-Thierry the palfrey which till then had carried itself like a Bucephalus began to walk more slowly than an ass. Towards sundown it began to rain, and poor Bucephalus fell down and died. There was no one to carry the baggage: the rain came down in torrents, and night was coming on. The monk determined to push on to Meaux with one companion, leaving the other in charge of the baggage. They came to a bridge so full of holes that they crossed in great fear and trembling. On reaching the town Richer was hospitably received by a community of monks who were sitting down to their *potum charitatis*. In the meantime he sent the companion who had come with him back for the other, and after many mishaps they took refuge in a hut where they were allowed to rest but got no supper. In the morning they turned up famished. Richer at last reached Chartres, and at once set to work on the *Aphorisms* of Hippocrates. He then read the *Concordantia* of Hippocrates, Galen, and Soranus, under Héribrand, who was "a man very skilful in his art, for whom the *dinamidia*, pharmacy, botany, nor surgery had any secrets."

In *La Clinique* Dr. Paul Delaunay discourses on old tombs and old graveyards. One need not, he says, look for such things in Paris, where nearly every relic of the past has disappeared. To find them you must go down the Seine or up the Rhine. At Strassburg in St. Thomas's Church you may read the following inscription on the tomb of the "Hippocrates of Alsace": "*Jo. Jacobus Sachsius, medicinae doctor, clinices professor, capituli Thomani decanus: per L annos medicinam exercuit, ultra XL in cathedra docuit, Alsaciae Hippocrates, oraculum naturae magnatum pauperumque refugium, liberalis et officiosus in omnes, decessit Argentorati D. XVIII. Jun. MDCCLXII, aetatis ann. LXXI.*" It is interesting to note the title of "professor of clinical medicine" applied to a physician in the early part of the eighteenth century. In the same church there is a bust in white marble under which one reads: "*Memoriae Francisci Danielis Reisseissen medici humanissimi qui studiis, opera, fortuna, de civibus ecclesia suaque arte praeclare meruit. Obiit Argent [orati] MDCCCXVIII. D. XXI maii, aetat. LV.*" Reisseissen was an anatomist who for his memoir on the lung was awarded a prize by the Berlin Academy of Sciences in 1808; among the defeated candidates was Soemmering. In the floor of the Augustinian Church behind the Hofburg in Vienna is a slab bearing only the name "Gerhard B. V. Switten"; this marks the resting place of the Empress Maria Theresa's famous physician.

IMPERIAL CANCER RESEARCH FUND.

THE annual meeting of the Imperial Cancer Research Fund, under the direction of the Royal College of Physicians of London and the Royal College of Surgeons of England, was held on July 25th under the presidency of Lord Strathcona. Sir Arthur Bigge was present on behalf of the Prince of Wales.

After the minutes of the previous meeting had been confirmed and letters of apology for absence read, the reports of the Executive Committee, of the Superintendent, and of the Treasurer were submitted.

REPORT OF EXECUTIVE COMMITTEE.

The fourth annual report of the Executive Committee gave a sketch of the proceedings of the history of the fund during the past year. The report stated that attention had been given to the examination of various so-called cancer "cures," and that investigation had failed to show that any value could be attached to them.[1] In this connexion the Executive Committee expressed its regret at "the publicity afforded from time to time in newspapers and periodicals to very misleading notices in favour of the numerous so-called 'cures.'"

The question of the appointment of a special therapeutic committee had been considered but no action was taken, as it was thought that for the present no useful object could be gained by instituting such a subcommittee.

REPORT OF THE GENERAL SUPERINTENDENT.

The report of the General Superintendent, Dr. Ernest F. Bashford, stated that the results of the investigations made during the past three years of the Fund's existence into the circumstances associated with the spontaneous development of cancer in human beings had led to an alteration in the details of the work. In the case of animals the statistical study of these circumstances had been usefully combined with the attempt to make them the object of experiment. This attempt had met with some success, and the fact was of hopeful augury. Energies diffused at first in overcoming all sorts of preliminary and experimental difficulties had been directed to the solution of a smaller number of more definite problems.

Spontaneous Cancer.

The Superintendent pointed out that the facilities employed by the fund for ascertaining the occurrence of the disease in native races and within different geographical areas were unique, while the combined study of hospital statistics and the statistics of the national mortality from cancer, rendered possible by the active collaboration of Dr. Tatham, was another feature peculiar to its researches and of the greatest value. The data which had been accumulating strengthened the belief that the two main types of cancer —carcinoma and sarcoma—increased in frequency as age advanced. The minimum of cancer mortality between the fifth and fifteenth year of life referred to in the second scientific report had been verified again in the more detailed data which Dr. Tatham had incorporated in the *Sixty-seventh Annual Report of the Registrar-General.* This part of the report concludes with the following observations:

"Some points in the occurrence of cancer in native races may be referred to. The classification of the cases reported from native races in India, and in the Colonies and Protectorates, reveals differences in the distribution of the disease in the body as compared with that for Europeans. Of 1,052 cases reported from India, 919 are either on the surface of the body, or on limbs and other parts easily accessible to complete medical examination: 35 only are reported from internal organs; 108 occur in sites intermediate between the two preceding groups, but of the latter, 67 are cancer of the uterus. This apparent absence of cancer in the internal organs of the body also holds for aboriginal races. In the case of India the reports supply additional information on the incidence of cancer in various castes, and state that 146 occurred in patients whose diet was vegetable, 274 in patients living mainly on flesh, and 340 in those living on a mixed diet. No definite conclusion ought to be drawn from the mere fact that differences in diet and mode of life appear to be associated with a different distribution of cancer in the body of natives of India, the Colonies, and Protectorates, as compared with Europeans. The apparent absence of cancer in the internal organs of aboriginals suggests that owing to the customs and temperament of the aboriginals, medical officers have opportunity for observing cancer on the surface of the body only. This consideration shows how fallacious it would be to deduce from the present data the existence of a real difference in the incidence of the disease."

The report then continues as follows:

Experimental Investigations.

Data continue to accumulate on the spontaneous (sporadic) occurrence of cancer in animals, and have furnished opportunities for widening the basis of the experimental investigations. In all parts of the world pathologists and biologists have energetically taken up this aspect of cancer research.

The study of experimental cancer during the previous three years had shown the similarities and differences between experimental and spontaneous cancer. As the result of the facilities thereby ensured, specific problems on the nature of cancer have received greater attention during the past year. The conclusions arrived at from the study of 15 mammary tumours in mice, and which have been already published in the Scientific Reports, have been placed on a more secure basis by the study of an additional 17 cases. The view expressed that the tumours, relatively frequent, in the mammary region of mice are in reality malignant new growths of the mamma, is now generally accepted, as is also the conclusion upheld in those reports that Jensen's tumour is a mammary carcinoma. Although the mouse has hitherto been the animal found best adapted for experimental investigations, its small size and short life are as great obstacles in the pursuit of some lines of inquiry as they are advantageous in others. Hence the attempt to extend the experimental study of cancer to other mammals has been continued.

Of twenty-two sporadic mammary carcinomata of which transplantations were made and as to which provisional results can be stated, thirteen, or 60 per cent., have grown. This is by far the highest percentage of successful transplantations attained by any investigators engaged on such work. The highest percentage attending the primary transplantation experiments of other investigators is 15 per cent. The discrepancy points to the need for caution in drawing deductions from the apparent impossibility of propagating some tumours in mice, and the negative results recorded in the case of other mammals. Ultimately all malignant tumours may be found to be transplantable under proper precautions.

The investigations summarised in the Annual Reports on the work of this Research during the first three years of its activity, were to a large extent preparatory to attempts to solve three crucial problems frequently referred to in those reports. They are (1) What part, if any, does individual susceptibility—hereditary or otherwise—play in determining the incidence of cancer? (2) Is the study of the apparently uniform and ceaseless growth of experimental cancer likely to elucidate the primary changes involved in the inception of cancer? (3) Is it possible experimentally to modify the growth of cancer? Some of the researches directed to these ends can now be summarised.

(1) *Study of Constitutional Susceptibility.*

As in past years, so now, the numerous data collected from hospitals on the occurrence of cancer in blood relatives do not yield conclusive evidence for or against hereditary susceptibility as a factor determining the occurrence of cancer. These statistics require to be interpreted by the aid of experiment. After repeated failures during three years, we have recently been able to obtain offspring from mice suffering naturally from cancer. Breeding experiments may enable us to explain the greater number of cancerous mice which are received from the stocks kept by some breeders as compared with others. The occurrence of an isolated case of cancer of the mamma in a mouse, whose grandmother had suffered in the same way at the same site, tends to show that data will in time be obtained on the existence of hereditary susceptibility in mice. These data, when

[1] BRITISH MEDICAL JOURNAL, May 26th, 1906, p. 1238.

obtained, may enable us to arrive at a conclusion as to whether cancer in man is, or is not, hereditary.

It has required four years and the examination of 100,000 mice to discover the occurrence of twenty-eight cases of spontaneous carcinoma of the mamma—that is, a proportion of one case in 3,500 mice. The final results of the attempts to transplant eighteen of these spontaneous tumours are known, and success has been obtained in nine. With these eighteen tumours 1,021 inoculations were made, and growth has followed in one of every thirty-six animals. This is a frequency nearly 100 times as great as the occurrence of spontaneous cancer in 100,000 mice. When, on the other hand, Jensen's tumour was transplanted, out of 32,000 inoculated, 12,000 mice were found susceptible, or roughly 1 in 3, and in many experiments all the animals inoculated yielded tumours. The discrepancies between the figures on the rarity of spontaneous cancer, and on the frequency of conditions which are favourable to the continued growth of cancer tumours in mice, show that the frequency with which cancer can be successfully inoculated is incomparably greater than the occurrence of spontaneous cancer.

The proportion of success attained on attempts to transplant cancer in mice appears to depend mainly on characters inherent in the cancer cells themselves.

Special experiments are necessary to ascertain whether the spontaneous origin of cancer is associated with a constitutional predisposition to the disease. A number of spontaneous tumours in mice have recurred at the primary site after operation, and given rise to secondary growths in the lungs; but the fragments of these tumours transplanted into a large number of normal animals have not continued to grow. It is at least remarkable that when the growth of some spontaneous tumours has continued in the animal primarily attacked it has not continued in those into which it has been transplanted. Other spontaneous tumours, after a primary exuberant proliferation in inoculated animals, have ceased to grow and have ultimately been absorbed. Success in two distinct cases has followed the inoculation of a mouse naturally suffering from cancer, with her own tumour, while 230 inoculations into healthy animals were unsuccessful. In a third case failure attended inoculation into the animal herself, but success was obtained in two out of 156 healthy animals inoculated with her tumour, and also in one of the two mice referred to above as having given positive results with their own tumours. Such experiments, together with the higher percentage of positive results obtained in young animals as compared with old animals, point strongly to the existence of individual variations in the suitability of mice for transplanation.

(2) *The Experimental Analysis of the Growth of Cancer.*

As has just been stated, experiment has revealed differences in the behaviour of different tumours under similar experimental conditions.

When a tumour is easily propagated the individual suitability of the animals used is of less importance, and by purposely diminishing its importance (by using large numbers of young and susceptible animals), the behaviour of the cancer cells themselves can be studied.

The enormous proliferation obtained with Jensen's tumour is exceptional. From what has been said above, it is obvious that spontaneous growths which were very malignant, since they recurred after operation and produced extensive metastases visible to the naked eye, were not therefore necessarily capable of artificial propagation. As our experience of the malignant new growths of mice widens, the power which small fragments of tumour possess of establishing themselves in new animals, is found to be less frequently manifested than metastatic formations. The varying behaviour on transplantation of different spontaneous tumours of the mamma which were truly cancerous, points to the possession of varying properties, or of the same properties in varying degrees, by the cells of different tumours or the cells of the same tumour at different times. We must, therefore, conclude that the causative factors of cancerous proliferation have operated with varying intensity, or that additional factors are superadded in some cases.

When the influence of the individual suitability of the animal is excluded, growth itself is seen to present significant fluctuations in its rate and amount, the same tumour having been more successfully transplanted at one time than at another. The clinical behaviour of a malignant new growth would therefore appear to depend on the susceptibility of the animal and on the intrinsic power of growth of the cancer cells themselves. The results published in the Second Scientific Reports indicated the necessity for more detailed and elaborate investigation of the fluctuations in the rate and amount of growth of cancerous tissue. The endeavour to obtain an insight into the nature of the growth of experimental cancer has been directed chiefly to a study of the behaviour of Jensen's tumour. Experiments, involving over 25,000 inoculations, have shown that fluctuations occur in the rate and amount of growth, and appear to be natural features of the growth of cancer under prolonged artificial propagation. Further study of these fluctuations may lead to a better knowledge of the nature of cancerous proliferation and its mode of origin. When growth has been obtained after inoculation it frequently ceases, and the tumours have been absorbed. When growth continues there is strong evidence to show that it is due to a revival of the proliferative powers in the cancer cells. Should an actual renewal of the proliferative power of the cancer cells be proved to occur, the change from diminished to increased energy of growth, when elucidated, may be expected to throw light on the genesis of cancer.

The spontaneous cessation of the growth or the disappearance of a tumour has generally corresponded with diminished energy in proliferative power of the cancer cells in other tumours of the same series. The disappearance of tumours under the influence of radium occurred concomitantly with the diminished proliferative power of the cancer cells, so that when the radium treatment had any effect at all, its action appeared to be merely superadded to a natural tendency to cessation of growth. Although the natural protective powers of an animal may assist in putting an end to growth, the extent to which they may do so remains under investigation.

During the past year a paper has been communicated to the Royal Society showing that the nuclear figures in cancer cells, believed to indicate the occurrence of a true "reducing-division," are in reality of the ordinary type. Dr. Murray and myself have invariably denied that the presence of cell-divisions resembling those of reproductive tissue were a means of distinguishing benign from malignant new growths. In that paper we withdrew categorically any support which our observations might be conceived to furnish to this hypothesis, or to the inference others have based upon it that essential similarities existed between cancer and reproductive tissue. The attempt to explain the continued power of growth and the fluctuations in cancerous proliferation on the assumption of a "reducing-division" followed by a nuclear fusion, has been abandoned.

A further paper has been communicated to the Royal Society giving the detailed observations on the experimental analysis of the growth of cancer.

The fluctuations in the growth of cancer afford an insight into the anomalous conditions to which clinicians have drawn attention from time to time—namely, the spontaneous and entire disappearance of malignant new growths, the spontaneous healing of malignant new growths—for example, the healing at one part of a rodent ulcer while growth is proceeding at another, and the disappearance of portions of tumours left behind at imperfect operations. The alternation of temporary amelioration, with exacerbation in the progress of the disease in the human subject, gains a new significance, for the probability is great that fluctuations in the rate and amount of growth are essential features of cancerous proliferation occurring spontaneously, and are not the consequences of indeterminate extraneous conditions.

(3) *Is it possible to Modify the Growth of Cancer?*

Attempts to modify the growth of well-established experimental tumours have been continued. The results of exposure to radium have been shown to give little encouragement in this direction. By following up investigations indicated in last year's report it has been possible, however, to make mice highly unsuitable for growth, so that on subsequent inoculations tumours do not develop.

This has been done in four ways:

(*a*) The large scale on which mice have been inoculated has provided a considerable number in which spontaneous

disappearance has occurred, as described last year for Jensen's tumour. In single series of experiments as many as 50 per cent. of the animals, in which large tumours had developed, may thus get rid of their tumours. Such mice have in fact recovered from experimental cancer. On subsequent inoculation no tumours develop in such animals even when inoculation has been repeated twelve times. In one experiment, out of 70 inoculations only 4 gave rise to tumours, while control experiments on animals not previously inoculated gave from 50 to 90 per cent. of success. This result has been obtained in young mice first inoculated successfully when 4 days old, as well as in adult animals, and the protection has persisted in them for at least six months.

(*b*) A spontaneous mammary carcinoma consisting of acinous and solid portions, with dilated capillary blood sinuses and extensive haemorrhages, was successfully transplanted, 75 inoculations yielding 15 tumours. The resulting tumours, however, showed quite a remarkable tendency to spontaneous absorption. The process of absorption was identical with that already described and illustrated for Jensen's tumour, the tumour cells being ingested by large mononuclear phagocytes. These mice also were protected, although to a lesser degree, against subsequent inoculation with Jensen's tumour. In them 6 inoculations of Jensen's tumour gave rise to two tumours, while a control experiment in previously untried animals gave 60 per cent. of success. The two tumours which developed grew for a time, but were ultimately completely absorbed, and repeated subsequent inoculations with Jensen's tumour were completely negative.

The results of these two series of observations (*a* and *b*) prove that, although Jensen's tumour and the sporadic adenocarcinoma differ histologically and in aptitude for transplantation, the conditions necessary for growth are so similar that recovery from one protects against subsequent inoculation with the other.

(*c*) As pointed out in previous scientific reports, when a number of mice which have been inoculated unsuccessfully with small fragments of Jensen's tumour (1 to 2 cgm.), are reinoculated, a varying number develops tumours. Success may be obtained in nearly the same percentage as in the first instance. By repeating the process on the animals remaining unaffected, and discarding those in which tumours develop, mice are ultimately obtained which exhibit a more pronounced power of resistance. For example, whereas 68 per cent. of previously untried animals of the same age developed tumours, only 12 per cent. of the previously unaffected animals could be inoculated successfully. A similar result has been obtained in mice which were unsuccessfully inoculated with two spontaneous sarcomata and various spontaneous carcinomata, on subsequently inoculating them with Jensen's tumour.

(*d*) An injection of healthy blood may protect mice against the subsequent inoculation of Jensen's tumour being successful. When 25 mice which had received an injection of the blood of other healthy mice were inoculated with cancer, 25 per cent. developed tumours, as compared with 68 per cent. in the control animals.

Since the negative results on transplantation recorded in the above experiments were all obtained at sites in the body remote from those from which the protecting inoculations were performed, their effects must have been primarily produced by way of the body fluids. The body fluids of some protected mice when injected into mice with experimental cancer have indeed given indications of a power to retard the growth of well-established tumours, and a study of the humoral conditions in protected mice is still in progress.

It is necessary to point out emphatically, that nothing but harm can result from ignoring the fact that the above experiments only indicate the possibility of rendering normal mice unsuitable for the growth of experimental cancer. They have not enabled us to arrest the progress of experimental tumours with certainty, far less to effect the cure of the disease occurring naturally. The results of the experimental study of cancer contrast favourably with the complete failure of all the reputed empirical remedies forwarded to the laboratory to be tested.

The new facts revealed by statistical studies—namely, the increasing frequency of sarcomata as age advances, and the minimum in the cancer death-rate between 5 and 15 years after birth, were entirely unforeseen, as was also the distribution of the disease throughout the vertebrates, and the association of cancer with senescence in lower animals. But when drawing up a provisional scheme for the conduct of the investigations under the direction of the Executive Committee of the Imperial Cancer Research Fund in October, 1902, I expressed the opinion that the most important development of the researches was to be looked for in experimental investigations. From year to year, the importance of the experimental work has increased, till this year the positive results it has contributed to the co-ordinated clinical, statistical, and pathological study of cancer have come to form the main portion of the annual report.

Four years ago there seemed little hope of acquiring new knowledge of cancer. In the interval it has been made the object of systematic experimental study, and the advance in our knowledge now enables us to reproduce at will all the features of spontaneous cancer in mice, and to protect healthy mice from all the consequences of inoculating them with experimental cancer. This having been achieved, it is not too much to hope that the further development of the experimental study of cancer will ultimately yield results having a direct bearing on the nature and treatment of the disease.

FINANCIAL REPORT.

The Honorary Treasurer, Mr. Henry Morris, reported with regret that there had been a marked falling-off both in the number of contributors and in the amount received by the Fund, a fact which justified the foresight of the organizers of the scheme in insisting on the formation of a permanent endowment fund. No money had been spent on bricks and mortar, the whole outlay—owing to the generosity of the Royal Colleges in providing laboratory and secretarial accommodation, fuel, light, taxes, and other incidental expenses—having been almost exclusively directed to the immediate work of research. The experience of four years showed that the requisite expenditure on the research work would average not much less than £4,000 a year, and to meet this an endowment fund of about £130,000, or £50,000 more than the Fund already possessed, was requisite. Such a sum would not only secure the continuation of the researches into cancer, but would ultimately provide a permanent endowment, safeguarded by responsible trustees, and under the direction of the two Royal Colleges of Physicians and Surgeons, for the future treatment of sufferers from cancer; or if this became unnecessary, for future researches into other sporadic, epidemic, and tropical diseases.

The adoption of the reports was then moved by Sir William Church, who said that the Fund had been engaged in carrying out the research on lines similar to those recorded in the second scientific report, and more time and a larger amount of experimental and statistical investigation were required before it would be desirable to publish another volume of scientific reports. A very distinct advance in the knowledge of the subject had been made, and encouraged further investigations on the same lines. He desired to bring to notice the enthusiasm with which the work was being carried on by the Superintendent, Dr. Murray, and Mr. Bowen, and valuable papers had been communicated by Drs. Bashford and Murray to the Royal and other Societies.

The motion having been seconded, Lord Strathcona, before putting the resolution, emphasized the progress which had been made and the importance of more financial support being accorded. The motion was then put and adopted.

The meeting concluded with votes of thanks to the various committees and officers and to the Chairman, a resolution appointing Professor Sims Woodhead to the Executive Council being also adopted.

A VACATION course, consisting largely of clinical demonstrations, will be given in the University of Wurzburg during the four or five weeks following September 17th. Particulars can be obtained on application to the Universitätsquästur.

A FIRM of dentists at Los Angeles, California, has unsuccessfully appealed against a verdict awarding damages of 2,400 dollars to one of its patients. During the extraction of seven teeth, one slipped from the forceps and passed into a bronchus.

PROPOSED UNION OF MEDICAL SOCIETIES IN LONDON.

A MEETING of the General Committee of Representatives of Medical Societies in London was held on July 17th to consider the report of the Organizing Committee.

Sir WILLIAM CHURCH, who was in the chair, pointed out that at the first meeting of the members of societies, which was held at the Royal College of Physicians in 1905, the feasibility of union was considered, and that as the outcome of the opinions expressed at that meeting a Committee of Representatives of the various societies was appointed. The Committee of Representatives appointed an Executive Committee to go more thoroughly into the feasibility of union and to outline some scheme of union if such were thought possible. This Executive Committee reported that a union was feasible on certain lines, and its report was confirmed by the Committee of Representatives on July 19th, 1905. With that report the Executive Committee's work came to an end, and an Organizing Committee was appointed to draw up a definite and, as far as possible, a detailed scheme of union. This scheme was before the meeting, and if approved would be sent to the societies to act upon or not as they thought fit. Those societies which approved of the report and decided to join the proposed union would be asked to appoint a representative before December 7th next to sit upon a committee which would act as the first Council of the new Society and deal with the necessary details of amalgamation.

The report recommended that all male members of those societies which took part in the amalgamation should be permitted to join the new society on its formation as members or Fellows without election, and that all women members of a society taking part in the amalgamation should become members of the corresponding section or sections of the new society. It was further recommended that the society should consist of the following sections which represented existing societies, but that the new society should have power to add new sections:

1. Anaesthetic.
2. Balneological and Climatological.
3. Clinical.
4. Dermatological.
5. Diseases of Children.
6. Electro-Therapeutical.
7. Epidemiological.
8. Laryngological.
9. Life Insurance.
10. Medical.
11. Neurological.
12. Obstetrical and Gynaecological.
13. Odontological.
14. Ophthalmological.
15. Otological.
16. Pathological.
17. Surgical.
18. Therapeutical.

It was hoped that in the early future an anatomical and physiological Section and a Section of preventive medicine might be formed. The Medico-Psychological Association and the Medico-Legal Society hoped to join the new Society at some future date. It was recommended that each Section should be self-governing as far as possible, and should have direct Representatives on the council of the society and on the editorial committee, but that its expenditure should be subject to the control of the finance committee of the general council. The general management of the society would be under the control of a general council consisting of the president, the presidents of the various sections, two treasurers, two librarians, two secretaries, and eight other Fellows.

HOSPITAL AND DISPENSARY MANAGEMENT.

KESTEVEN (LINCOLNSHIRE) COUNTY ASYLUM.

FROM the annual report of the Medical Superintendent, Dr. J. A. Ewan, for the year 1905 we see that there were 367 patients in residence on January 1st, 1905, and that at the end of the year there remained 368. During the year 50 cases in all were admitted, of whom 5 were private patients. This is a very considerable fall from the numbers admitted during the previous year (102) or those of 1903 (158), and in only 37 cases were the patients chargeable to the county unions. Dr. Ewan was able for the first time to report amongst the total asylum population a decrease in the numbers chargeable to the unions of Kesteven. Of the total admissions, 47 were first admissions, 15 were the subjects of first attacks within three, and 6 more within twelve, months of admission; in 10 the attack was a "not first" attack within twelve months of admission, and the remainder were either more than twelve months' duration or congenital cases. They were classified as to the forms of mental disorder into: Mania of all kinds, 15; melancholia of all kinds, 8; dementia, 14; general paralysis, 3; acquired epilepsy, 3; and congenital or infantile defect, 7. In only 4 of the admissions was alcoholic intemperance ascribed as the cause of the mental disorder, and this notwithstanding that the Commissioners in their last Blue Book placed Lincolnshire among those counties where intemperance in drink was the assigned cause in 10 to 15 per cent. Venereal disease was assigned in 2, hereditary influences were ascertained in 18, or 36.0 per cent., congenital defect in 9, previous attacks in 5, old age in 2, and "moral causes" in 15. During the year 14 were discharged as recovered, giving a recovery-rate on the admissions of 28.00 per cent., or, exclusive of transfers, of, 37.84 per cent., 5 as relieved, 13 as not improved, and there were 27 deaths. These deaths, giving a percentage death-rate on the average numbers resident of 7.33, were due in 9 cases to cerebro-spinal diseases, in 14 to chest diseases with only 2 deaths from phthisis, and in 4 cases to abdominal diseases, including one case of colitis. No serious casualty had to be reported during the year, and the asylum was free from zymotic disease.

MEDICAL NEWS.

DR. MUIR SMITH has been appointed a Justice of the Peace for Eastbourne.

A 10 to 12-h.p. Argyll, made by the Argyll Motors, Limited, of Alexandria, Glasgow, has for the third year in succession gained first prize and gold medal at Wirral Show for the best car under £500.

THE name of Provost Dr. James MacLachlan, Dornoch, has, on the recommendation of the Lord Lieutenant, been added to the new list of Justices of the Peace for Sutherlandshire.

THE Fifth International Congress of Obstetrics and Gynaecology, which was to have been held in St. Petersburg last year but was postponed until this year, has now been again postponed for another year. It will be held in St. Petersburg from September 11th to 18th, 1907.

THE fund for the establishment of the Institute of Medical Sciences as a part of the University of London will, it is stated, benefit to the extent of £25,000 under the will of the late Mr. Alfred Beit. Sums of £20,000 are also bequeathed to Guy's Hospital, the King Edward's Hospital Fund for London, and to the trustees of the will to distribute among charitable institutions in London.

GIVING evidence on July 23rd before the Select Committee of the House of Commons on the Housing of the Working Classes Amendment Bill, Miss Constance Cochrane, one of the Executive Committee of the Rural Housing and Sanitation Society, recommended that medical officers of health should be members of a branch of the ordinary Civil Service.

AT a general court of governors of the East London Hospital for Children on July 23rd, it was reported that the new isolation block had been completed and taken into use. The lower floors were devoted to cases of diphtheria and the upper wards to patients under observation only. Continued evidence was being received of the value of the whooping-cough block. Although the finances of the hospital were in a better state than last year, there was still a heavy deficit on the half-year's working.

THE Earl of Kilmorey, as Chairman of Charing Cross Hospital, made an application at Bow Street Police Court on July 23rd in respect of the nuisance caused by motor omnibuses, and asked for advice. He said that the Commissioner of Police had issued an order prohibiting motor omnibuses stopping in King William Street to put down and take up passengers, but that the drivers persisted in doing so unless the police were looking. The patients in hospital, therefore, were disturbed by undue noise and prevented from getting a proper amount of sleep. After asking some questions the magistrate said the best course would be to get shopkeepers and others in the neighbourhood to act with the hospital. If they came together and said there was a nuisance he would grant a summons against the companies concerned.

THE Board of Agriculture has issued the annual report of its chief veterinary medical officer for the year 1905, together with an account of the proceedings taken under the various statutes and the usual statistical tables. Of the diseases mentioned, the most interesting to the medical profession are anthrax and glanders, both of which we regret to see are largely on the increase. The causation of anthrax on farms on which no previous infection has been reported forms a very difficult problem, and has in some instances been solved by tracing the use of shoddy from wool-combing as bedding. The fight to stamp out swine fever goes on without apparently much change, and those who are interested in the work of county and district councils will find much to interest them in the report.

British Medical Journal.

SATURDAY, JULY 28TH, 1906.

THE MANAGEMENT OF IRISH ASYLUMS.

THERE is a risk that the treatment of the insane in Ireland may be about to undergo a serious retrogression owing to a return to obsolete methods of management. This is threatened by a conflict which has arisen between the Joint Committee of the Richmond Asylum, Dublin, and the Irish Local Government Board. Last November the Joint Committee adopted a resolution which if carried into effect would remove the chief clerk of the asylum from the control and supervision of the medical superintendent. The origin of the matter dates back, apparently, to an order of the Irish Local Government Board known as the "Public Bodies Order," which seemed to impose on resident medical superintendents duties of a somewhat unnecessary character in regard to the cancelling of old stores, etc.

We need not go into the details of the conflict between the two bodies, as they may be gathered from the newspaper reports of the meetings of the Joint Committee and elsewhere. They are complex and diversified, but the essential facts may be stated in a few words. The whole question rests on a resolution adopted by the Joint Committee, on the motion of the Chairman, to the effect that "the Joint Committee "affirm their order, holding their chief clerk re- "sponsible for conducting all correspondence of a non- "medical character. All correspondence covered by this "minute must in future, if addressed to any other official, "be handed to the chief clerk to deal with." This resolution ignored the fact that an asylum is a medical institution in which nothing can occur which may not affect the welfare of the inmates, or in regard to which the medical superintendent should not have the power to inquire and supervise, although he may rarely, if ever, find it necessary to intervene. That this principle has hitherto been predominant in this institution is proved by the statement of Dr. Conolly Norman to the Joint Committee, who pointed out that by Regulation 70 of the Richmond Asylum it is ordered that "the medical superintendent shall supervise and "regulate the whole establishment," and by Regulation 82 that "he shall exercise a general super- "vision over the manner in which the clerks and "the storekeepers perform their duties, and shall "see that the correspondence conducted under his "direction and supervision is properly carried out." The resolution of the Joint Committee, therefore, is directly contrary to the statutory authorized regulations of the asylum, not in a mere detail, but in the primary and fundamental principles of government expressed in those regulations, since it would make an official hitherto subordinate absolutely independent of medical supervision.

No satisfactory reason for the change is given, and all sides agree that Dr. Norman's management of the asylum is admirable and the reputation of the asylum high. This absence of cause makes it questionable whether the Joint Committee really appreciates the important and far-reaching character of the change which it seeks to inaugurate. The dual authority in the executive department of the asylum administration which this resolution would inaugurate has been tried again and again, and ever with the most disastrous results. The struggle for supremacy between the lay official and the professional is inevitable, and is destructive of efficiency both in treatment and economy.

If the removal of the chief clerk in the Richmond Asylum from under the control of the medical superintendent were permitted by the Local Government Board for Ireland, then assuredly the example thus set would soon be followed in other Irish asylums, with the result that the treatment of the insane in Ireland would be adversely affected for many years to come. The Local Government Board has hitherto resisted this unfortunate proposal, and its resistance will probably be strengthened by the strongly-worded resolution adopted by the Irish Committee and the Central Council of the British Medical Association.[1]

The Joint Committee of the Richmond Asylum has without doubt the welfare of the insane at heart, and cannot be suspected of introducing this innovation with the object of creating a lucrative lay appointment. When the heat of controversy has had time to pass away, it will no doubt with cooler judgement perceive that its action in this matter was most inadvisable. The resolution would in effect impose on the Board and thereby on the country at large a principle of asylum administration that has been universally abandoned. It is to be hoped, therefore, that the resolution will be withdrawn or rescinded.

The treatment of the insane in Ireland has made rapid progress in recent years in spite of many serious difficulties; the reintroduction of this obsolete principle would arrest all advance, and undo much of the improvement that has been made. The confirmation of the resolution of the Joint Committee, we consider, would constitute a slur on the national intelligence, and would be little less than an actual calamity to the welfare of the insane in Ireland.

THE ETIOLOGY OF GENERAL PARALYSIS.

IN all civilized countries the disease known as general paralysis of the insane, progressive paralysis, or paralytic dementia, is steadily increasing. This increase in a disease irresistibly progressive, impervious to treatment, producing, slowly but surely, absolute bodily and mental impotence, and ending invariably in death, has naturally excited the keen interest of neuropathologists, and an immense mass of information—statistical, clinical, and pathological—concerning this disease and its twin brother, tabes dorsalis, has been collected. Until 1857, when Esmarch and Jessen first enunciated their opinion that general paralysis was the result of syphilitic infection, all manner of causes—sexual excess, alcoholic intemperance, mental strain and bodily exertion, exposure to cold, etc.—were assigned.

[1] It having come under the notice of the Irish Committee of the British Medical Association that, according to reports in the public press, a certain measure is being urged in Ireland which would tend to transfer some departments of asylum management from medical to lay hands, the Committee desires, in the interests of the insane, to deprecate in the strongest manner any such reduction of the authority of the resident medical officers of asylums, as being a return to a long obsolete system incompatible with the proper treatment of those mentally afflicted, and they would urge upon the Medico-Political Committee the necessity of bringing these views very forcibly before the Chief Secretary for Ireland at the earliest possible opportunity, and that meantime the Chairman of the Committee be instructed to write to the Chief Secretary pointing out the reason for adopting this resolution and enclosing a copy of it.

Since that time collections of individual statistics, such as those of Rieger—who collated the results of eleven observers—Mendel, Hougberg, Hirschl, and many others, have set the question beyond doubt and shown that the pre-existence of syphilis in the great majority of general paralytics rests on irrefragable evidence. We have so often referred to the statistical grounds for this belief that it is unnecessary here to labour the point or to refer in detail to other supporting facts, such as: that general paralysis and syphilis coincide in topographical distribution, and, where statistics are available, affect the two sexes in the same relative proportion: that the incidence of general paralysis is heaviest in those classes—soldiers, sailors, travellers, etc.—who most frequently contract syphilis, whereas, conversely, Krafft-Ebing out of 3,000 male general paralytics found only one Catholic priest, and he had formerly suffered from syphilis; that juvenile general paralytics are almost always—probably always—the offspring of syphilitic parents; that tabes dorsalis and general paralysis, formerly considered distinct diseases but now recognized as the result of the same morbid process having a different *point d'appui*, have given practically the same proportion of cases with a syphilitic history; and, lastly, a point frequently commented upon, that the proportion of cases yielding a history of previous syphilis varies directly with the care exercised in investigating the cases. These, and other facts which if space permitted might be adduced, tend strongly to the conclusion that antecedent syphilitic infection is by far the most important factor in the causation of this disease, if, indeed, it is not an etiological *sine qua non*.

Notwithstanding all this, neuro-pathologists have to confess to entire ignorance of the part actually played by syphilis. That neither general paralysis nor tabes dorsalis yield at all, even in their early stages, to anti-syphilitic remedies was quickly proved, and the belief that they are tertiary (Hirschl) or quartary (Lesser) manifestations has not met with much acceptance. In consequence observers have been driven to the adoption of para-syphilitic or meta-syphilitic theories, according to which general paralysis and tabes dorsalis are the results, not of the direct action of the syphilitic virus, but of a secondary auto-intoxication conditioned by the syphilitic virus. This is the view which at present meets with the greatest amount of support. It rests, however, upon no proved bio-chemical or pathological data, is a mere cloak for ignorance, satisfying no one and is utterly sterile of suggestion as regards cure. In these circumstances the eyes of many have been turned to bacteriological investigation in the hope of finding here the cause, whether conditioned by antecedent syphilis or not, of the general toxic condition giving rise to these diseases. Prominent among these investigators is Dr. Ford Robertson, Director of the Scottish Asylums Laboratory, whose Morison Lectures on the Pathology of General Paralysis of the Insane[1] have recently been published. His views and those of his co-workers concerning the etiology of general paralysis—namely, that it is an infective disease, as specific in its causation as tuberculosis, typhoid fever or diphtheria, due to an organism resembling the Klebs-Loeffler bacillus, named by them the *Bacillus paralyticans*, and having its point of attack outside the brain in the alimentary and respiratory tracts—are now widely known and have been, in essence, before the medical profession since 1901, when two papers, one by Dr. Robertson[2] and the other by Dr. Lewis C. Bruce,[3] founded on independent investigations, appeared in the same issue of the BRITISH MEDICAL JOURNAL. From that time investigation on the lines of this diphtheroid hypothesis of general paralysis has formed the main object of research at the Laboratory of the Scottish Asylums by Drs. Robertson, M'Rae, Jeffrey, and Theodore Shennan. Their results up to that date were summarized in a paper at the Annual Meeting of the British Medical Association in 1903, which excited considerable criticism both by reason of its conflict with generally-accepted opinion and from the inconclusive nature of the evidence adduced. Dr. Robertson tells us that since then he and Dr. M'Rae have been mainly engaged in putting their hypothesis to the test, with the result that "every step forward has "been attended with the elucidation of some fresh fact "that has rendered it more probable." They have found *post mortem* in the alimentary and respiratory tracts in most cases of general paralysis, and in the genito-urinary tract in all cases, their *B. paralyticans* (apparently an attenuated Klebs-Loeffler bacillus, markedly polymorphic, forming acid in glucose broth, and by that fact proved, they maintain, to be not Hoffmann's bacillus nor the xerosis bacillus), and also an actinomycotic or leptothrix form of the same organism in several other cases. They have isolated the bacillus from the brain in 4 cases and in large numbers from catarrhal pneumonic foci. In 3 out of 5 cases they have found very faintly staining bacilli in the centrifugalized cerebro-spinal fluid, and after many failures they have at last been able to grow the organism from the blood and cerebro-spinal fluid of the living general paralytic. The cultures from the blood were extremely feeble, and we note that in three of the four successful attempts, the patients were in congestive attacks, two of them dying within a few days, another recovering (but the stage of the disease is not mentioned); the fourth was without any congestive attack but deteriorating rapidly. Further, although unable to obtain a specific action of the blood of the general paralytic on the *B. paralyticans*, they have, Dr. Robertson says, come near to doing so, that is, they have ascertained that the power of the serum of the general paralytic to dissolve this bacillus is greater than that of normal serum; and, lastly, experimental infection of three rats and a goat with diphtheroid bacilli isolated from a case of general paralysis "resulted in the production of symptoms and tissue-"changes resembling those of general paralysis." The rats showed slowness and uncertainty of movement and drowsiness, deepening later into motor weakness and marked inco-ordination, whilst the goat became "tottering" in its gait and towards the end had a seizure closely resembling a congestive attack. This evidence is, as might be expected from the animals experimented upon, of the slenderest description. Examined *post mortem* the rats showed the catarrhal mucosa which Dr. Robertson has learnt to associate with general paralysis, and also marked degeneration of nerve cells in the cerebral cortex and spinal cord, with slight but distinct neuroglial proliferation. In the case of the goat, although the animal died of a toxaemia generated by these diphtheroid bacilli, the brunt of which was presumably borne by the central nervous system, the brain showed only slight changes, and Dr. Robertson concluded that the spinal cord, which unfortunately was not obtained, was the part chiefly affected.

It is impossible to regard these results as sufficient grounds on which to erect so far-reaching a hypothesis. The results of the investigations of Dr. Robertson and his colleagues were epitomized and

[1] *The Pathology of General Paralysis of the Insane.* By W. Ford Robertson, M.D. The Morison Lectures for 1906.
[2] BRITISH MEDICAL JOURNAL, June 29th, 1901.
[3] Ibid.

most ably criticized by Dr. Ferrier in his Lumleian Lectures, printed in the British Medical Journal of April 7th last. He pointed out that Eyre and Flashman were unable to determine any greater incidence of diphtheroid organisms in the throats of the insane than the sane; that, as is well known, these organisms are ubiquitous both in health and disease, and that Dr. Emery and Dr. Bulloch have found the cerebro-spinal fluid, blood, and urine of several cases of tabes and of general paralysis absolutely sterile. Dr. Ferrier, therefore, returns a verdict of not proven, and with this opinion—whilst we are in entire sympathy with the work so ably carried out at the Scottish Asylums' Laboratory—we cannot but agree. Possibly the development of diphtheroid organisms in the alimentary and respiratory tracts may yet afford an explanation of the occurrence of congestive attacks; but with regard to the larger question involved, it seems to us that the overgrowth of these bacterial flora on mucous coats is most reasonably explained in precisely the same fashion as in the development of the Shiga and other bacilli in asylum dysentery—that is, as facilitated or permitted by the nervous disease and not as its cause.

PATHOLOGICAL VARIATIONS OF THE GASTRIC HYDROCHLORIC ACID IN CANCER.

Among the discoveries which we owe to the Berlin school of gastric pathology is the fact that in cancer of the stomach the free hydrochloric acid which should be present in the gastric contents removed an hour after taking an Ewald test breakfast, is generally absent, and at one time more stress was laid upon this as a point in diagnosis than subsequent experience showed it was able to bear. Further observations, while confirming the general truth of the statement, showed that, while in some cases of cancer of the stomach free hydrochloric acid may be duly present, there are not a few cases of non-malignant nature in which it is absent, so that the most that can be said is that in a case giving, for example, indications of the presence of an obstruction at the pylorus, the absence of free hydrochloric acid would be a point strongly in favour of the diagnosis of cancer.

A further contribution was made to this question by Professor Moore of the University of Liverpool, who, working with certain of his colleagues, ascertained that the frequent absence or reduction in the amount of free hydrochloric acid in malignant disease is not dependent upon the localization of the growth in the stomach, but may occur wherever the cancer is situated; and in the paper in which he communicated these results to the Royal Society he ascribed the diminished secretion, not to any destruction of the glandular elements in the stomach, but to altered conditions of the blood plasma.

In a recent number of the *Bio-chemical Journal*[1] Professor Moore has published a further study, made in association with Drs. W. Alexander, R. E. Kelly, and Herbert E. Roaf. As the result of the examination of a considerable number of cases with and without malignant disease, it is concluded that the amount of hydrochloric acid secreted varies with health, and is generally reduced in all cases of enfeeblement, but that its absence or reduction is much more marked and frequent in cases of cancer. Using Günzburg's reagent, it was found that, of 34 cases of cancer, 11 only gave a positive reaction, and of these the amount was above 0.05 per cent. in 4 only, whereas in 20 non-malignant cases it was present in 15, and 10 of these showed more than 0.05 per cent. The absence of hydrochloric acid was noted not only in what may strictly be called cancer, but in rodent ulcer and sarcoma, although the number examined was not large enough to make the proportion worth quoting. The different methods employed for estimating the amount of hydrochloric acid gave somewhat varying results, that of Mörner-Sjoqvist being noticeably higher than the others; the total acidity was also much higher than the hydrochloric acid figure, suggesting the presence of organic acids, but a method especially designed to detect these failed to do so. It was then thought that there might be inorganic acids combined with ammonia or organic bases, but the amount of ammonia present was insufficient to supply an adequate explanation; it was certain that the base was not ammonia nor any volatile substance, nor was there protein enough present for that to be the base. Finally they came to the conclusion that phosphoric was the acid present.

The reduction or absence of free hydrochloric acid is explained by Professor Moore and his colleagues as being due to some alteration in the pabulum supplied to the secreting cells; this alteration might be a toxic agent affecting the cell, or an alteration in the balance of the inorganic ions of the plasma, and consequently of the lymph, as a result of which the concentration in acid or hydrogen ions is diminished, causing the cells increased work in separating the acid secretion; or there may be a combination of the two influences. They discuss at some length the influence of the plasma upon the cells it bathes, and the importance of its containing many bases, so that although it is nearly neutral its neutrality is unstable; it is, in fact, just alkaline, and this slight degree of alkalinity prevents the cells being destroyed by their own acid secretion. The blood plasma in cancer shows increased alkalinity, and a study of the effects of acids and alkalies upon cell growth in the case of the fertilized egg of *Echinus esculentus* showed that while acid solutions caused no increase in the rate of growth or any stimulus to nuclear division, but, on the contrary, slowing of growth and general weakening of vitality, dilute alkaline solutions produced a marked favouring action upon cell growth, the organisms developing in these solutions being more advanced in cell division than the controls. Further, at a certain level of concentration, the growth became most irregular, so that the organisms became misshapen and the cells irregular in form and size. It is therefore clear that the alkalinity of the blood plasma favours the growth of cells, and therewith the development of morbid growths, and it has been often noted that primary malignant growths occur in situations which are, or have been, the seat of chronic inflammation and irritation, and these situations are exposed to a higher alkalinity than other parts of the body.

In another paper in the same number of their journal (p. 297) Professor Moore and Dr. Wilson point out with regard to the important question, whether the increased alkalinity of the plasma in malignant disease should be regarded as a cause or an effect, (1) that the condition is present in early cases where there could not be any large amount of altered material coming from the seat of the growth, (2) that it continues after the growth has been removed, and (3) that there is a general concurrence in the observation of an increase in the alkalinity of the serum in old age when the organism is peculiarly liable to the onset of malignant disease.

[1] Vol. i, Nos. 6 and 7, p. 274.

SETTLEMENT OF LEIGH INFIRMARY DISPUTE.

MEMBERS of the Association will be aware that the name of the Leigh Infirmary has been removed from the list of Warning Notices. This has been done under circumstances which demonstrate the great value of the intervention of the Association in disputes of this nature. We published some months ago a short account of the circumstances which had led to a deadlock between the Leigh Infirmary Committee and the Leigh Division of the British Medical Association. It will be remembered that when the proposed erection of the infirmary first took definite shape some years ago, the local medical men immediately protested against the formation of an out-patient department, giving reasons for their belief that such a department was unnecessary, would prove a financial burden on the charity, and an injustice to the local medical men who were to act as the honorary staff. As the Committee felt itself unable to abandon the out-patient department, the medical men gave notice that they would be compelled to refuse to provide an honorary staff. The Committee then drew up a second scheme, providing for the working of the Infirmary without an honorary staff, and decided to advertise for paid resident officers. Under these circumstances, the Representative Meeting at Leicester in July, 1905, passed a unanimous resolution, expressing the opinion that no member of the Association should apply for the proposed appointments, and a Warning Notice was consequently published. In April of this year, however, the Leigh Division of the British Medical Association was invited by the Leigh and District Trades Council to send delegates to a joint conference to be composed of members of the Trades Council, the Infirmary Committee, and the Leigh Division. At this meeting certain suggestions were put forward, which the delegates agreed to lay before the various bodies they represented. At a further conference it was reported that these suggestions had been accepted as a basis of agreement, and the representatives of the Leigh Division then undertook that the Division would submit an amended scheme embodying its views. The agreement arrived at contained the stipulation that "a casualty department be formed for cases of "urgency and cases requiring a second opinion only, "such cases to be attended once only, and then referred "to their own medical man; no ordinary medical "attendance to be given in that department." The scheme as finally drafted contained the further provision that the original Honorary Staff of the Infirmary be elected by the Leigh Division of the British Medical Association, subsequent appointments to be made by the Board of Governors from names submitted by the Division, it being understood that the Division was not bound to submit a greater number of names than there were vacancies to be filled. The result is entirely satisfactory to the members of the Leigh Division, who regard it as a complete demonstration of the value of the Association as at present constituted. They wish also to record their appreciation of the action of the local Trades Council in the matter, and of the courteous and conciliatory spirit in which their proposals were met by the Representatives and Secretary of the Leigh Infirmary.

THE SERUM TREATMENT OF CANCER.

THE current issue of the *Journal of Laryngology* contains the report of one of a first series of five cases of cancer, in which Professor A. E. Wright has undertaken inoculations with a vaccine consisting of a sterilized and enumerated culture of the *Micrococcus neoformans*. The patient, a Balaclava veteran, aged 75, was sent to the Throat Department of St. Mary's Hospital last March for an ulcerating growth in the throat and enlarged glands in the neck. The growth occupied the site of the left tonsil, the faucial pillars, the side of the tongue, and extended down the wall of the pharynx. It blocked the faucial passage sufficiently to prevent laryngoscopy, the tongue could not be extruded, and any attempt to swallow occasioned much pain. There was a large mass of swollen and hard glands behind the angle of the jaw. The condition was pronounced to be malignant and beyond the reach of surgery. A portion of the growth was removed from the tonsillar area for microscopic examination. Potassium iodide in 15 gr. doses was given three times a day, but, as no improvement was observed, it was discontinued after a week's trial. The microscope showed that the growth was a spheroidal-celled carcinoma, and the patient was referred to Professor Wright for treatment by the bacterial vaccine. Favourable changes commenced at once and continued to increase for five or six weeks, after which there was no further improvement, but no regression; the favourable changes consisted in (1) diminution in the size of the faucial mass, laryngoscopy becoming possible; (2) reduction of the ulcerated part, the unhealed part assuming a healthy granulating surface; (3) disappearance of the fetor, and (4) the dysphagia; (5) the tongue becoming less rigid; and (6) considerable shrinking of the external mass, leaving but one small gland. No other treatment was used. Dr. Doyen, as is well known, has asserted that there can be obtained by culture from all, or practically all, new growths, whether of a malignant or a non-malignant nature, cultures of a characteristic microbe. This microbe was, by Dr. Doyen, regarded as the specific cause of cancer, on the ground that it produced neoplastic lesions when inoculated into rats. It was accordingly named by Dr. Doyen the *Micrococcus neoformans*. Those who have seen Dr. Doyen's sections of the lesions obtained by him in rats do not, so far as we know, agree in the view that the lesions he produced were of the nature of new growths. There can, however, be no doubt, as Professor Wright remarks in explaining the *rationale* of his treatment of this case, "of the singularity of the pathological "changes which are here in question." That a characteristic microbe, the *Micrococcus neoformans*, can be obtained by culture from tumours has been confirmed by Metchnikoff, and after him by many others, including some of Professor Wright's fellow-workers at St. Mary's Hospital. The microbe, it appears, has a superficial resemblance to the staphylococcus; it differs from it, according to Professor Wright, in that when first taken from the body it gives only a very sparing culture on ordinary agar, in film preparations it is arranged in short chains often Y shape or bifurcating. It is agglutinated by normal human serum, even when this has been diluted 200 or more times. Blood which possesses high opsonic power with respect to the *M. neoformans* may possess a low opsonic index with respect to the staphylococcus, and vice versa. The case described is one of a first series of five cases treated in a similar way. It is the one which so far has yielded the most favourable result. Of the other four cases, two have died, and of the other two, one appears to be quite stationary, while the other shows marked signs of improvement. It would therefore be premature to forecast what may be the final verdict on the treatment, or even to venture an opinion whether the treatment influences only the concomitant septic processes of malignant disease. There can be no doubt that, whatever opinions may have been entertained about infection by the *Micrococcus neoformans*, this microbe is a factor to be reckoned with in the treatment of malignant disease. The important investigations of Professor Wright into the differential diagnosis of the micrococcus, and the opsonic and agglutinating power of cancer patients in respect to it, must unquestionably contribute largely to placing the whole matter on a more scientific basis.

VENTILATION OF THE HOUSE OF COMMONS.

THE Committee appointed in April, 1905, to investigate the question of improving the ventilation of the House of Commons, and advise the First Commissioner of Works, has presented its report.[1] The Committee consisted of Sir Michael Foster (Chairman), Dr. J. S. Haldane, and Dr. M. H. Gordon. Mr. Arthur Patey (Resident Engineer of the Houses of Parliament) was subsequently added. The Committee had throughout the co-operation of Dr. W. N. Shaw (Secretary of the Meteorological Council). A considerable number of observations on the quality of the air from both the chemical and bacteriological points of view had been carried out previously, and the Committee limited itself to a continuous examination of the temperature and humidity of the air by recording instruments carried out by Mr. Lempfert, of the Meteorological Office, and with the examination of the purifying value of the washing screen in operation during last session at the terrace inlet, carried out partly by Dr. John Aitken and partly by Dr. Gordon. An investigation of the quantity and distribution of the air passing through the debating chamber, division lobbies, and other parts of the system under varying circumstances was carried out by Dr. Gordon and Mr. Patey, assisted by Mr. Lempfert. Shortly before the appointment of the committee the old propeller fan used for driving air through the intake airway had been replaced by a much more powerful centrifugal fan, and another centrifugal fan was at the same time substituted for the furnaces previously used for extracting air through the ceiling of the debating chamber. It was found that in consequence of these changes the quantity of air supplied was approximately doubled, and that in addition a much more efficient control was obtained over the general ventilation. A marked improvement was also observable in the quality of the air in most parts of the debating chamber. Further investigations, however, disclosed the fact that the distribution of fresh air to various parts of the debating chamber and division lobbies was still very imperfect. Other serious defects were also found. Dr. Gordon and Mr. Patey, as a result of the investigations in question, formulated a number of recommendations which met with the general approval of the Committee. Many of them the Committee consider, should be put in hand without delay, especially those which refer to the treatment of the air on its passage from the battery chamber upwards. But in respect to these it considers that the recommendation suggesting changes with a view to diverting a larger portion of the air from the central floor of the debating chamber and the gangways to the area beneath the benches must needs be carried out tentatively and be accompanied by careful observations, with the object of learning by experience how large a portion of the air may thus be diverted without unduly depriving the front benches of air, and without any risk whatever of subjecting occupants of back benches to the sensation of "draught." The Committee advises that the observations made and records taken of the temperature and humidity of the air should in future be still more numerous and systematic than they are at present. It is stated in conclusion that the investigations so far made, though extensive, do not cover the whole subject. No systematic series of observations have yet been made of the warming of the ingoing air, and several other matters need to be investigated. With regard to the debating chamber the Committee recommends that steps should be taken to remove the present excessive entry of air by the centre gangway at those parts of it where pollution from material brought in on members' boots have been chiefly found to exist, and that the area of inlet at the seats at either end of the debating chamber under the gallery should be increased. It also recommends that the air entering the members' gallery, ladies' gallery, press gallery, and the strangers' gallery should be increased, and that in the division lobbies both the delivery and extraction of air should be improved.

[1] London: Wyman and Sons; Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. 1d.

THE INCOME-TAX COMMITTEE.

THE Select Committee of the House of Commons on Income Tax has collected a considerable amount of evidence, and is expected to issue a report before the end of the present session of Parliament. It was to be expected from the terms of reference to the Committee that a number of official witnesses would be examined, and there has been a consensus of opinion on the part of those who have given evidence that the administration of a graduated tax in this country, while possible, would be attended by grave practical difficulties, mainly owing to the necessity for a detailed system of checking the returns of individual taxpayers, and the incentive to evasion which the introduction of a scientifically graduated impost would provide. It has been suggested that the taxing authorities would require powers to examine banking accounts, and to call upon the bankers for information respecting their clients' financial affairs, a proposal to which Sir Felix Schuster, Chairman of the Union of London and Smith's Bank, expressed his unqualified opposition. There is some difference of opinion as to the form which a graduated income tax should take, more than one witness advocating merely an extension of the present scale of abatements, others a supertax on large incomes, to be levied separately from the existing impost, while one member of Parliament outlined a scheme for a universal income tax on all members of the community, from the agricultural labourer upwards. The general trend of the evidence suggests that the proposals for a differential tax providing for a lower rate to be charged on earned than on unearned incomes are not open to the same objections as those relating to graduation, and there is undoubtedly a strong current of feeling in favour of some changes in the direction of differentiation. In this connexion a significant remark was made by the Chairman of the Committee when Mr. Walter Gyles, Special Commissioner of Income Tax, was being examined. He asserted that the number of people who wanted a differential tax was surprisingly few, a remark which drew from Sir Charles Dilke the retort that "if members of Parliament judge "from the letters they receive they will come to the "opposite conclusion." It is to be noted that up to the present no evidence has been given by a member of the medical profession, nor has the position of the professional man been emphasized before the Committee; but his claims are likely to obtain recognition as being included in those of a more comprehensive class—the working members of the community generally as contrasted with the property owners. The prospects of something being done to relieve the worker of part of his burden by a readjustment of the income tax are certainly brighter at present than they have been at any time during the last forty years.

CANVASSING AND TOUTING.

IT is to be desired that all medical practitioners who accept employment from companies, societies, and other non-medical principals should realize more completely than seems to be the case at present the responsibility that rests upon them for any advertising, canvassing, or touting carried on by the principal with the object of procuring patients for the medical officer, even although this may have been done without his

direct permission. For example, it ought not to be tolerated that a medical man should accept a retaining fee and the position of medical officer to a block of residential flats if the agent for the estate considers it necessary to his business interests to send a circular to each tenant, or to insert in his prospectuses or other advertisements the information that Dr. So-and-So has taken up his residence at such-and-such an address as resident physician to the block, and that his services are available to the tenants at any time. Nor should a quasi-philanthropic society which has secured a list of medical practitioners willing to act as medical advisers, advertise for subscribing members the inducement that the services of one of these medical officers can be obtained without further fee for the purpose for which the society was founded. In a case recently brought to the notice of the Ethical Committee, a list of names of medical practitioners appears upon the prospectus, and although the duties for which they are appointed are within the competence of any registered medical practitioner, they are recommended as having "devoted special attention to the subject." We must repeat that such announcements are unethical, and that medical practitioners cannot rid themselves of their responsibilities by placing the blame upon a lay secretary; it is incumbent upon every one who accepts employment from a lay principal to make it a condition that he shall not be advertised in any way that is inconsistent with the ethical rules of the medical profession.

"KISSING THE BOOK."

In a recent number of the *Edinburgh Medical Journal* an editorial note calls attention to the extraordinary tenacity with which dwellers on this side the Tweed cling to certain bad habits, among which the writer reckons "smacking the calf skin," as one of the characters in *The Heart of Midlothian* calls it, or *anglicè* kissing the Book. For many years, as is well known, Mr. Lowndes of Liverpool has been pointing out the danger of this insanitary practice, and we are now once more reminded that since 1888, when the form of swearing by uplifted hand, the Scottish oath, as it is called, was made legal in English courts of law, it has been quite unnecessary for any witness to expose himself to such danger. Progress in such matters is slow in such a conservative nation as the English, but we have noticed of late years that many medical witnesses seek to avoid the danger of "smacking the calf's skin" by opening the book and kissing one of the leaves. Nevertheless we should be glad if a notice could be posted in all English courts reminding witnesses of the provisions of the Oaths Act 51 and 52 Vict. cap. 46, and inviting them to take advantage of those provisions.

GUNSHOT WOUND OF SPLEEN DURING LABOUR.

A bold feat of surgery, blended in a very unusual manner with obstetrics, is reported by Dr. Penkert, assistant to Professor Krönig, of Freiburg.[1] On January 9th a single woman, aged 38, found herself in labour; the last period had occurred at the end of April, 1905. The pains began close upon midnight; at half-past one on January 10th the patient drew a revolver and shot herself through the left side of the thorax. The bullet entered through the sixth intercostal space in the mammary line, and could be felt under the integuments about 2 in. external to the spine of the tenth dorsal vertebra. Great pain followed, without haemoptysis, coughing, or vomiting. The patient was admitted into hospital, still in labour, at 6.30 p.m. She was extremely anaemic, the head presented, and meconium was expelled during the pains. At 10 p.m. a dead child was delivered by craniotomy. There was no evidence that internal haemorrhage had continued after admission, but it was thought safer to operate. At 11.3 p.m., January 10th, the abdomen was opened by Professor Krönig. Air and blood escaped from the abdominal cavity, the stomach was wounded in two places, its contents escaping into the peritoneal cavity; the spleen, extensively damaged by the shot, was clamped at the hilum, and removed after the wounds in the stomach had been closed with suture. A wound in the diaphragm, ½ in. in length, was closed with interrupted catgut sutures; much pneumothorax remained. The peritoneal cavity was washed out with artificial serum. The operation was finished within forty minutes. On January 20th the bullet was removed under local anaesthesia; the patient was discharged on February 24th. When last seen (March 12th) her condition, both general and local, was highly satisfactory. Dr. Penkert claims this case as the first instance of gunshot wound of the spleen during labour, and gives many details as to the blood count before operation and during convalescence; but the clinical report of the operation itself will probably be found sufficiently remarkable to justify this note.

[1] Zur Frage der Leukocytose post-partum bei gleichzeitiger Splenektomie, *Zentralbl. f. Gynäk.*, May 12th, 1906, p. 593.

The King has conferred the honour of membership of the Royal Victoria Order of the Fourth Class upon Lieutenant-Colonel Bruce Skinner, R.A.M.C., Secretary to the Advisory and Nursing Boards of the War Office, and Mr. Charles Alfred Ballance, M.S., F.R.C.S.

We are reminded that we might have found confirmation of the rumour that an examination for commissions in the Royal Army Medical Corps was about to be held, in a modest little advertisement which was inserted once some months ago.

THE ANNUAL GENERAL AND REPRESENTATIVE MEETINGS.

The first business of the annual general meeting of the British Medical Association, which assembled at Caxton Hall, Westminster, on Tuesday last, under the chairmanship of the President, Mr. G. C. Franklin, F.R.C.S., of Leicester, was to receive an invitation to hold the annual general meeting next year, 1907, at Exeter. The acceptance of the invitation was moved by the Chairman of Council, seconded by the President, and carried unanimously. The Chairman of Council then took the chair, and the Treasurer immediately made his financial statement: this led to considerable discussion, which turned a good deal upon the circular recently issued to the Lancashire and Cheshire Branch, and on the correspondence thereon which has taken place in the Journal. During the course of the discussion the General Secretary made a statement with regard to the effect of the recent changes in the form of the Journal and in the rates charged for advertisements, which will, we believe, be read with great interest by all members.

The Annual Representative Meeting was called to order by the retiring Chairman, Sir Victor Horsley, at about 11.30 on Tuesday morning. There were present 117 Representatives of Divisions and about 40 members of Council. The meeting continued until 6 p.m., with intervals of an hour for lunch and a quarter of an hour for tea.

Unfortunately, the large room of the Caxton Hall, though affording sufficient space, did not prove in other respects very well adapted to the purposes of the

Representative Meeting; it was not a good room for hearing, and, owing to the shadow cast by a gallery, it was not easy to see, so that the task of the reporters was rendered very difficult.

A MOTION by Dr. Brassey Brierley, representing the Manchester (West) Division, which would have required every Division to make a return of the members present and voting at any meeting of the Division at which the Representative was elected, and of the total number of members of the Division, led to a rather warm discussion, but the motion was eventually negatived.

SIR VICTOR HORSLEY, before vacating the chair, gave a short address, which was listened to with great attention and loudly applauded. He claimed that since the Cheltenham meeting, when the new Constitution came into existence, the dual position of the Association as a technical, that is to say medical, organization, and as a socio-political organization, had been recognized by the State. During the past three years the Government had been educated to recognize the socio-political standing of the Association, and within the last few months three of the chief Government departments had acknowledged officially that the British Medical Association, through the influence of its Divisions, managed the medical affairs of the country. Representations made by the Association were now listened to because it was known that they expressed the opinion of the profession as a whole, and not merely the opinion of a small council or archaic corporation. The feeling of the Representative Meeting, representing the whole body of the Association, was that within the medical community the strong could help the weak, the rich could help the poor, and that each should be for all. He paid a tribute of gratitude to the Medical Secretary and his department which had constructed the organization and carried out the new work which it had been decided to do. He recognized that the effect of that work would be felt in greater and greater intensity as the years went on, and he looked forward to the future with the strongest hope. Subsequently a vote of thanks to Sir Victor Horsley for his conduct during three eventful years as Chairman of the Representative Meetings was moved by the Chairman of Council in a cordial speech, seconded by the President, and carried by acclamation.

ON the motion of Dr. Latimer of Swansea, seconded by Mr. Jackson of Plymouth, Dr. Macdonald, the Representative of the West Somerset Branch, was elected Chairman of the Representative Meeting, and Dr. Latimer was subsequently elected Deputy Chairman. Soon after this the meeting adjourned for lunch. The afternoon session was devoted to the consideration of the report of the Central Council. The financial statement again led to a prolonged discussion, and it was eventually resolved to appoint a Committee to inquire into the financial position of the Association, with a view to instituting such economies of administration as are consistent with maintaining and developing the valuable work now being done by the Association for the profession. The report of the Premises Committee also led to considerable discussion; it was eventually approved, and the plans prepared by Mr. Percy Adams, the architect selected, were displayed on Wednesday afternoon in the tea room.

ON Wednesday morning the first business taken was the special report of the Medico-Political Committee as to the selection of candidates for the General Medical Council. Strong objections were expressed to the second paragraph of the declaration required from candidates, under which a candidate pledged himself to endeavour in every way to give effect to the wishes and opinions of the British Medical Association as lawfully declared for the time being by the bodies constitutionally authorized to declare such wish and opinion. It was urged that the maintenance of this pledge would hamper the Association in bringing disciplinary cases before the General Medical Council, and the observations of the President of the General Medical Council[1] were quoted. It was resolved to cancel the paragraph, and this led to a protest by several Representatives, on the ground that possible candidates who had declined to sign the pledge, or possible candidates who might have come forward had the pledge not been required, had been prejudiced. Owing probably largely to this contention, it was eventually resolved not to nominate candidates for the approaching election of direct representatives.

THE discussion upon the question whether an application should be made for a Charter, and subsequently upon the clauses of the draft, was prolonged, and, in spite of the ability with which it was conducted by the Chairman, necessarily, from the nature of the subject, it was complicated and not always easy to follow. Upon the main issue the upshot was that the meeting negatived by a very decisive majority a proposal made by Mr. Wolstenholme, the Representative of the Manchester (Salford) Division, that it was undesirable to proceed further in the matter. The voting was 25 to 89. A vote by card having been taken, it appeared that the cards handed in in favour of the amendment represented 2,404 members, while those against the amendment—that is so say, in favour of proceeding with the consideration of the Charter—represented 9,253 members. At the conclusion of the sitting on Wednesday, the meeting was engaged in the detailed consideration of amendments. Before this, however, it had been resolved that the draft Charter, with the amendments to be approved by the Representative Meeting and those recommended by the Colonial Branches, should be referred to the Organization Committee, with instructions to revise the draft, which will then be submitted to a special Representative Meeting, to be held, it was suggested, next January. On Thursday morning the meeting resumed the consideration of the Draft Charter and Ordinances.

IN the course of the discussion, Sir Victor Horsley adumbrated a scheme for the reorganization of the Branch system of the Association. He contended that the ideal to be aimed at was to confine the medico-political work of the Association to the Divisions and the technical or scientific work to the Branches, and that for this purpose the Branches should be organized not in relation to county areas but to large cities. This suggestion arose partly out of a proposal that under the Charter the Central Council should be elected by the Representatives; and on Thursday Sir Victor Horsley moved two resolutions, the first instructing the Organization Committee to consider the complete reorganization of the Branches and the definition of their duties with the view to promoting the scientific work of the Association and facilitating the amalgamation of other medical societies with it, and the second instructing the same Committee in framing by-laws relative to the election of the members of Council by the Representatives to make provision for the due and proportionate representation of the several parts and districts of the Empire.

[1] SUPPLEMENT to the BRITISH MEDICAL JOURNAL, June 2nd, 1906, page 307.

AT the first meeting, on July 24th, of the Central Council of the British Medical Association for 1906-7, the following were co-opted members of the Council under By-law 31: Mr. Andrew Clark (London), Dr. William Collier (Oxford), Mr. Edmund Owen (London), Professor Saundby (Birmingham), and Dr. Norman Walker (Edinburgh). The Council was entitled on this occasion to co-opt five members. Ten gentlemen had been nominated.

A CONVERSAZIONE was given by the Metropolitan Counties Branch of the British Medical Association at the Natural History Museum, Cromwell Road, Kensington, on July 24th, with the permission of the Trustees of the British Museum. The central hall presented an animated scene as the members of the Metropolitan Counties Branch and their guests arrived and were received by Dr. Hugh Ker (president), Mr. Andrew Clark (past-president), and the two honorary secretaries, Dr. F. J. Smith and Mr. D'Arcy Power. Among those who had accepted invitations were Lord Liverpool, Lord Strathcona, Sir G. Fardell, the Right Hon. Sir Walter Foster, M.P., Sir P. Magnus, M.P., Sir J. Ritchie, Sir T. Brooke Hitching, the Vice-Chancellor of the University of London, Sir G. Truscott, Sir J. Dimsdale, Sir H. Craik, M.P., Sir J. Savory, the Mayors of Wandsworth, Hammersmith, St. Pancras, Woolwich, Finsbury, Paddington, Holborn, and Greenwich. The guests found much to interest them, especially in the north hall containing the collection of domesticated animals. Another popular part of the museum proved to be the bird gallery, but many of the visitors seemed to spend most of their time in the pavilion of British zoology. The reptile gallery was well patronized, for there was to be heard the entertainment furnished by the "Serenaders." In the central hall a full programme of music was rendered by the band of the Royal Artillery.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

The Local Government Board Vote came on last week on Thursday, and there were no less than eight notices to reduce the vote on the paper, and three of these were for reducing the salary of the President of the Board. Mr. Burns opened the debate with a statement that dealt mainly with the experience gained by the administration of the Unemployed Workmen's Act of 1905. He gave a very interesting account of the work done under the Act, the amount of money spent, and the unemployed persons relieved under it throughout the country. He contended that even now there were not sufficient data after the experience of one winter to amend the Act, and he thought the Government had acted wisely in not attempting it. For tiding over the coming winter it had been decided to grant from the Consolidated Fund a sum of £200,000, and by this means to give the Act further trial and keep the existing machinery alive. The fund would be administered by the Local Government Board and devoted to existing committees in proportion to the needs of the individual districts. A more sympathetic attitude than usual was taken as regards labour colonies, but the highest praise was given to what had been done by local committees for emigration. Promises were made for next year as regards afforestation and housing, and hopes held out that in the near future rural housing in England might be dealt with on the lines of the Irish Labourers Acts. In the speeches which followed, the general line sketched out by the President as regards the unemployed was accepted as wise for the time being, and most of the speeches were made by Labour representatives. After some four hours the debate was interrupted by a motion for the adjournment of the House on Mr. Haldane's army proposals. Consequently questions connected with public health and Poor-law administration, and local government generally, could not be discussed. This was a great disappointment to the antivaccinators.

The Indian Budget came on for discussion on Friday in last week, and lasted most of the afternoon. The Secretary for India made a very interesting speech on the material and general progress of India, and a long discussion followed. Mr. Keir Hardie, in moving to put the salary of the Secretary of State for India on the Estimates in order to provide for a more effective control over Indian questions, dwelt on the poverty of the people. He said the average income was £2 per head per annum, the taxes were 3s. 6d. per head, and the death-rate in 1904 was 34 per 1,000, showing an increase of 10 per 1,000 in twenty-four years. Mr. J. M. Robertson said that Mr. Morley had given them a rose-coloured picture of the condition of India, but he did not deal with the high death-rate nor with the facts that the crop area and the yield per acre were decreasing. Sir Henry Fowler controverted the figures of Mr. Keir Hardie, and said the actual taxation was only 1s. 10d. per head; the 3s. 6d. included the land revenue, which he said was not a tax, but rent. He thought the reference to the death-rate was an inadequate argument. There were plagues and wild beasts in India, and other causes of death which did not exist here. Sir W. Evans-Gordon also contended that no argument against the Government could be drawn from the death-rate. He put it for India at 32.86 per 1,000, and for Calcutta at 30 per 1,000; the latter, he said, compared favourably with Liverpool's 22 per 1,000. The death-rate in India necessarily varied in consequence of such visitations as plague, cholera, and famine. After some other speeches, Mr. Morley moved the closure, and Mr. Keir Hardie's amendment was rejected by 153 to 89, and finally the Budget resolution was agreed to without a division.

The Medical Inspection of School Children.—Last week Mr. Barnes asked the President of the Board of Education if the promised amendment to the thirty-fifth clause of the Education Bill dealing with medical inspection would include a provision authorizing local authorities to provide glasses for such children as are found to have defective eyesight. Mr. Birrell replied that the amendment which the Government inserted in the clause dealt only with medical inspection, which was made compulsory. The point referred to in question would therefore not fall within it, but would come, if at all, within the remainder of paragraph (*b*) of Clause 35. On this he had to say that he was not prepared to give a general interpretation beforehand as to the various individual matters which would fall within the powers of a local authority under the term "such arrangements as may be sanctioned by the Board of Education pertaining to the health and physical condition of the children educated in the public elementary schools," since the clause threw upon the Board the duty of giving hereafter such sanction as it might think justified by the circumstances of each individual case.

The Report of the Irish Poor Law Commission.—Mr. Murphy asked the Chief Secretary to the Lord Lieutenant of Ireland if he could now state when the report of the Poor Law Commission would be issued; and if he could give any explanation of the delay in publication, having regard to the fact that the terms of the report had been long since agreed to. Mr. Bryce replied that he had communicated with the Chairman of the Commission, and was informed that the Commissioners hoped to present their report at an early date, but could not yet fix the precise day. He had indicated some little time ago that the Commissioners had not then agreed upon quite all the questions which must be dealt with in their report. He understood, however, that they were now agreed as to the large majority of the recommendations to be made. The time seemed to be approaching when the Commissioners must be asked, if they could not forthwith arrive at unanimity, to consider the question of submitting their report, with a memorandum from any dissenting Commissioner stating the points upon which he might not be in accord with his colleagues.

Ireland and the Central Midwives Board.—A whole series of questions have been asked this week with reference to the prejudicial effects of the Midwives Act 1902 on women holding Irish qualifications both in England and the Colonies. In answer to Mr. Healy, Mr. Secretary Gladstone said that he was not aware that the Central Midwives Board was taking any steps to prevent Irish midwives practising in England. The Midwives Act of 1902 did not apply to Scotland or Ireland, but the Lord President of the Council had informed him that the Central Midwives Board had never refused to recognize the Irish midwifery qualifications. During the operation of Section 2 of the Act three Irish midwifery qualifications, in addition to the three mentioned in the Act, were recognized by the Board as entitling their holders to claim the benefits of that section. As to the holding of examinations in Ireland, the Central Midwives Board considered that they had no power to conduct examinations except at centres in England and Wales, but the Lord President was taking the opinions of the law officers of the Crown on the legal point involved. No advertisements from the Colonies advertising that the English Central Midwives Board certificate was necessary for Colonial appointments had been brought to his notice. In answer to a second question by Mr. Healy, the Prime Minister said that his information was that the Central Midwives Board had not refused to recognize Irish midwifery qualifications, nor had they induced or endeavoured to induce Government departments to stipulate in advertisements that the qualification of their own certificate would alone be recognized. He was advised that by the terms of the statute that examinations by the Central Midwives Board could not be held in Ireland. Mr. Healy, in another question respecting a recent advertisement requiring the English certificate for a midwife for the Curragh Camp, obtained from the Secretary for War the statement that all nurses appointed to military families' hospitals were liable to be moved to any part of the United Kingdom, and those holding Irish qualifications were ineligible to practise in England after 1910 unless registered in that country. Considerable difficulty, therefore, would arise from the appointment of a nurse who could not be employed in English hospitals. The nurse who had been accepted for this appointment held an Irish qualification, and was specially selected from a large number of applicants.

Vivisection at Khartoum.—Mr. George Greenwood asked the Secretary of State for Foreign Affairs whether his attention had been called to a series of vivisectional experiments performed on dogs, monkeys, and other animals by Andrew Balfour, M.D., at the Wellcome Research Laboratories, Gordon College, Khartoum; whether the Gordon College was under British control; whether the Wellcome Research Laboratories formed part of such college, or what was their connexion with it; how such laboratories were maintained, and whether or not by public money; whether vivisection experiments were habitually performed at the Gordon College; whether the operators were subject to any inspection, regulation, or control; and whether such practice was sanctioned by the British Government or their representative in Egypt. Secretary Sir Edward Grey replied that he had no information on the points mentioned in the question, but he would make inquiries on the subject. The Gordon College at Khartoum was not under the control of the Foreign Office.

Anthrax and Wool.—Mr. Jowett called the attention of the President of the Local Government Board to the death of a man at Bradford from anthrax contracted from unclean wool, and asked for steps to be taken to deal with such wool at the port of entry. Mr. Burns replied that he had seen the report of the inquest. There would be difficulties in dealing with dangerous wool at the port of entry, and it had been thought better to rely on precautions to be taken at the factories where the wool was sorted. Regulations for the process of wool sorting and wool combing were made by the Home Secretary in December last, which it was hoped would do much to lessen the risks incurred by the workers, but the matter was still engaging anxious attention.

The Cost of Poor-law Children.—In answer to a question by Mr. Lewis Haslam on Tuesday, Mr. Burns stated that there were on January 1st, 1905, in district and separate schools in England and Wales 12,134 children, and that the cost of maintenance for the year ending March, 1905, was £150,774. The number in cottage, scattered, and other homes was 13,971, and the cost of maintenance was £144,446; whilst the number boarded out was 86,200, and the cost of maintenance was £92,080.

The Increase of the Lunacy Commissioners.—On Wednesday Mr. William Redmond asked the Secretary of State for the Home Department whether his attention had been called to the fact that the number of lunatics had increased from 25,000, when the Lunacy Commissioners were first appointed, to 125,000, and that the Lunacy Commissioners had urgently asked for an increase in their numbers, without which their work could not be efficiently performed; and whether it was intended to appoint additional Commissioners forthwith. The Home Secretary replied that it must be remembered that the number of Commissioners was fixed by Statute, so that legislation would be required to add to their number. Such legislation could not be undertaken this Session, but he might say that the whole question of the administration of the Lunacy Acts was at present engaging the attention of the Government.

Public Water Supply.—Mr. Maclean asked the President of the Local Government Board whether, in view of the aggregation of population in urban areas and the development of industrial undertakings, both requiring, in the interests of public health and industrial efficiency, a great increase of the existing water supply, he would take into consideration the advisability of instituting an inquiry, either by Royal Commission or Parliament, to investigate, amongst other things, the need for the protection and development of existing gathering grounds and other sources of water supply, the allocation of such gathering grounds and other sources on a comprehensive and equitable basis, and the general control and supervision of this subject of national importance by some central and properly qualified body or department. Mr. John Burns, in reply, said that the Royal Commission on Sewage Disposal in its third report made recommendations as to the establishment of a central authority in connexion with the Local Government Board for the prevention of the pollution of water and for some other purposes relating to water supply. It considered that the central authority might, with the aid of the Rivers Boards, which it thought should be set up, collect information with regard to the waste of water and its abstraction from one district for distribution in another. He was giving attention to this report, and it seemed to him that pending a decision on the recommendations contained in it, consideration of the desirability of an inquiry by Parliament or by another Royal Commission such as was suggested should be deferred. Mr. Maclean asked, by a supplementary question, whether in the consideration of the matter Mr. Burns would also have regard to the question of afforestation which was so nearly related to an adequate water supply. The President replied that in the event of such an inquiry as that indicated by the question being instituted, in his judgement the question of afforestation might come within the reference to such a body.

CONTRACT MEDICAL PRACTICE.

INJURY OF CLUB MEMBER IN MOTOR ACCIDENT.

VIATOR writes that a boy who belonged to one of his clubs was knocked down by a motor-car and injured. The car owner asked him to attend to the boy and send in the account to him. Is "Viator" justified in sending in an account for such attendance?

*** If the car owner personally engaged him to attend to the patient he can properly send in his account. It would be otherwise if the patient, or his parents, had previously claimed his attendance as a club member. Such cases as these afford further examples of the hardships under which club surgeons labour. If the car owner paid, our correspondent might conscientiously accept the payment, but on the other hand, if he did not pay, recovery in the county court might be difficult. The club membership would be certain to complicate the question at issue.

Liverpool.

INFANTILE DIARRHOEA.

In view of the periodic outbreaks of infantile diarrhoea which almost invariably occur during August and September, the Committee of the Royal Infirmary, at the request of the health authorities, has opened a special ward for the reception and treatment of such cases. It contains 20 cots and 4 beds to meet the cases in which it is desired that the mother should also be taken into hospital. The Corporation will make a grant to the hospital for the use of the beds, and the arrangement will be in force from July 21st to September 30th.

LOW DEATH-RATE.

The Health Committee, at its meeting on July 19th, indulged in congratulations on the unusually low death-rate of the preceding week, the lowest on record—namely, 12.8 per 1,000 out of an estimated population of 739,180. The birth-rate for the same week was 33.0 per 1,000. Dr. Caton said that he hoped the remarkably low death-rate would be a strong encouragement to the Committee to persevere in its work. Fluctuations were inevitable, but, on the whole, there was no doubt that Liverpool was progressing in the right direction.

SANITARY HISTORY OF THE TOWN.

The annual report of the Medical Officer of Health for Liverpool this year calls for more than usual attention by reason of the fact that it is prefaced by an exhaustive retrospect of the sanitary history of the city from the year 1842, when the Registration Act for England and Wales was passed, down to the present time. Liverpool was the first community in Great Britain to employ the services of a special medical officer to attend to the public health, and so its sanitary history is in some sense an epitome of the sanitary history of the whole country.

Dr. Hope emphasizes the fact that the present improvements and sanitary progress have only been brought about by steady increasing perseverance and great monetary outlay. He refers to the absence of sanitary measures in the city in the Forties, and to the overcrowding in the poor districts, which was aggravated in the year 1847 by the enormous immigration into the city owing to the potato famine in Ireland. People were forced then to occupy every nook and corner of the already overcrowded lodging-houses, and cellars which had been closed under the provisions of the Health Act of 1842 were reoccupied. In more than one instance upwards of forty people were found sleeping in a cellar, and in many cases fifty or sixty of these destitute people were found occupying houses containing three or four small rooms about 12 ft. by 10 ft. Then followed the severest epidemic visitations of which any record remains. Fever spread with amazing rapidity, and dysentery and small-pox made their appearance in these crowded quarters. In that year the deaths in the city reached 21,129, of which 381 were due to small-pox, 2,580 to diarrhoea and dysentery, and 5,345 to fever. In 1849 cholera broke out in the city. At this time either the Select Vestry or the guardians of West Derby Union managed the sanitary administration of the town; the chief medical work fell upon the dispensaries. It was not until 1863 that any permanent infectious hospital was established in the city. Then, when the population had risen to 450,000, the deaths from all cases amounted to 15,266; the general mortality "was fed by every class of disease." Some 17,000 paupers were in receipt of weekly relief from the vestry, and each series of inquiries into the outbreak of disease brought drunkenness into prominence. The general sanitation of the city had undergone improvements in many directions, but upwards of 18,000 court-houses existed, "confined and unventilated, and poisoned by the exhalations of middens." "There were no drains, and, had there been any, there was an entire absence of sewers in the front streets with which they could communicate."

The streets occupied by the poorer classes were only cleaned once a week, and sometimes not for a much longer period. Some of the courts were never cleaned at all. The death-rate in 1866 was 41.7 per 1,000 of the inhabitants. In 1867 the Health Committee took steps to prevent overcrowding and to remedy the system of scavenging and cleansing the streets.

The totally inadequate supply of water led to evils that it would be impossible to exaggerate, and it was only in 1845, when through lack of water much mischief had been done to warehouses by fires, that any steps were taken to procure a better supply. During these negotiations a memorial signed by 5,000 people was presented to the Highway Board (then the Board of Trade), demanding a constant and abundant water supply in order to give the poorer classes more health, comfort, and cleanliness.

Though it is difficult now to believe it, there was a very strong opposition to the provision of water for sanitary purposes, many well-intentioned men believing that abundance of water would lead to needless waste. The report of an inquiry held by the Highway Board, however, revealed so much domestic uncleanliness and filth, both inside the houses and in the courts outside, that the demand for an improved supply was acceded to. The condition of the common day schools was "wretched in the extreme." Sometimes animals lived in the rooms occupied by children; in one case a large number of children occupied a room where poultry and three dogs were kept. The atmosphere of many of the schools, which were often located in cellars, was pestilential; they were almost devoid of light, as also of ventilation; and the teachers, such as they were, seem to have been completely unconscious of the unhealthiness of the conditions under which they taught. The account of the commencement of the terrible cholera outbreak of 1866, given in the words of Dr. French, is a gruesome story, which seems to take us back to a barbarous age. The first death from the disease was that of a poor Irish woman. When the woman died from the disease her family refused to part with the remains until they had maintained the orgies of the coronach during the following day and night. The body was laid on a board on the floor of the lower or sitting apartment of the cottage, and in this room men, women, and children ate, drank, and slept throughout the shameful carousal, while scores of people crowded round the open door of the room in which the corpse was laid. This ill-timed revelry resulted in the death of John Boyle, the woman's husband before a week had passed, and before the end of July forty-eight persons died from cholera within a radius of 150 yards from the court in which the orgie had been held. The common privy helped to spread the disease with terrible rapidity among the different families and residents of the courts and houses so supplied.

INFANTILE MORTALITY.

Turning to the present, Dr. Hope makes some important comments on infantile mortality, and says, "All inquiries show that the increase is due to one cause, and that cause is associated with the way in which the infant is fed." As regards consumption, 1,861 cases were reported, with 1,245 deaths. Rooms, bedding, etc., were disinfected in 614 instances. Total number of males affected, 1,257; females, 604.

ALCOHOLISM.

The number of deaths certified by the coroners' juries to be the result of excessive drinking was 146. The general death-rate is highest where there is most intemperance, and the workhouses show the greatest proportion of deaths.

SANITARY ADMINISTRATION.

One-half of the report covers the work of sanitary administration, which is of considerable magnitude, relating to thousands of inspections by the staff of dwellings, lodging-houses, courts, and alleys, cellars, sublet houses, canal boats, bakehouses, establishments where offensive trades are carried on, slaughter-houses, marine stores, stables, shippons, etc.

The female staff is doing very valuable work for the city, fifteen thousand visits were paid to houses, also 23,391 visits were made to houses where births had occurred, and the mothers given instruction as to the proper feeding of their infants, besides other useful advice. School children suffering from skin diseases were also visited by women inspectors.

During the year the staff of male inspectors found unfit for food 103 tons of meat, 53 tons of fish, and 100 tons of fruit; 697 carcasses were seized. Over 2,000 samples of food for human consumption were chemically analysed, as well as 371 samples of milk. Bacteriological examination and analyses were made by the medical staff in 8,216 cases. The good resulting from improved scavenging has been most marked. Down to the end of last year over 30,000 sanitary ashbins had been fixed in various properties. There has also been good progress in the erection of workmen's dwellings; 1,820 have been built by the Corporation, and in a short time 340 more will be ready for occupation. During the year Dr. Hope certified a large number of court dwellings and cellars as unfit for human habitation, and he advocates, as the surest way of diminishing the death-rate, the erection of workmen's dwellings in the outskirts of the city.

South Wales.

SWANSEA HOSPITAL.

THE eighty-ninth annual report of the Swansea General and Eye Hospital for the year ended May 31st, 1906, was presented at the annual meeting held on July 21st. During the year more patients have been treated than in any previous year. The number of indoor patients exceeded the previous year's record by 251. There were two more beds in daily use. There are 133 beds in the hospital, but the Board has passed a resolution that, as far as possible, on account of the want of funds, only 110 beds shall be occupied. The ordinary income was £7,881, and the extraordinary £383, making a total of £8,264. Employés gave £3,518, as against £2,827 the previous year.

ROYAL SANITARY INSTITUTE'S EXAMINATION.

On July 20th and 21st the Royal Sanitary Institute held its annual examinations at the Technical School, Dumfries Place, Cardiff. Some 78 candidates presented themselves for examination as inspectors of nuisances, in practical sanitary science, and in school hygiene.

Ireland.

PRESENTATION TO DR. DARNELL.

THE following further subscriptions have been received up to July 21st to aid in defraying Dr. Darnell's expenses in the case Tughan *v.* Darnell:

	£	s.	d.		£	s.	d.
Sums already acknowledged	319	4	6	Dr. J. Nelson ...	3	3	0
Mr. T. Sinclair Kirk	10	10	0	Dr. H. P. D. Graves, Cookstown	1	1	0
The Munster Branch (per Dr. P. G. Lee, Cork)...	5	5	0	Dr. H. G. Logan, Ballyclare	1	0	0
Dr. J. Aird, Bangor...	3	3	0	Dr. B. Beamish, Newry	1	1	0
Dr. A. Dempsey ...	3	3	0				
					£347	10	6

A meeting of the subscribers of the fund was held in the Medical Institute, Belfast, on the evening of July 17th. At a short preliminary business meeting, to receive the report of the Executive Committee, Dr. Calwell occupied the chair, and explained that the fund had been very generously responded to, and numerous letters of sympathy had been received with subscriptions; many also expressed great regret that the case had not been taken to the highest courts of appeal. Subscriptions had been received from the three kingdoms, and the liberality and sympathy of their fellow medical men in Cork and Munster was highly esteemed. There were 138 subscribers, and the total amount was £346 9s. 6d. It had been decided to ask Dr. Darnell to accept a small piece of plate as a memento of the occasion. The expenses had been small; the Ulster Branch and the Ulster Medical Society had defrayed all cost of summoning their special meetings, and his own were only a few shillings. They owed their thanks to these two Societies and to the BRITISH MEDICAL JOURNAL, which had published the weekly list of subscriptions and given the case its best help. They could hand Dr. Darnell a cheque for 300 guineas that evening and a beautiful pair of silver candelabra, and yet retain a balance more than sufficient to meet all chance expenses of publishing the addresses, etc. Even this sum, with that presented by his friends and patients, did not do more than cover half the loss that Dr. Darnell had incurred.

The report was adopted, and it was decided to hand over any balance to Dr. Darnell after the necessary expenses had been paid. Dr. McKisack was appointed auditor.

Subsequently Dr. J. Walton Browne was called to the chair and Dr. Darnell introduced. Upwards of forty subscribers were present, and apologies were read by Dr. J. Houston from Sir William Whitla, Professor Byers, Drs. Jefferson (Lisburn), Killen (Larne), Rowan (Gargary), H. B. Murray, C. C. Cathcart, J. S. Morrow, Warnock (Donegal), and J. Wilson. The Chairman briefly referred to the circumstances which led to their meeting that night, and alluded to the trying time through which Dr. Darnell had passed and to the universal sympathy felt for him by his medical brethren. Dr. William Calwell, President of the Ulster Medical Society, conveyed to Dr. Darnell the deep and warm sympathy, not only of the members of his Society, but also of the numerous medical men throughout the United Kingdom who had joined in this presentation. He claimed for Dr. Darnell that he had more than "exercised a reasonable degree of care and skill,' all that was demanded by the highest tribunal in the land—honesty of purpose and uprightness of conduct, which seemed to his professional brethren, in all equity, to entitle him to a verdict. It was only the ruinous and absolutely prohibitive cost that prevented the case from being carried to the House of Lords.

The address was then read by Dr. Cecil Shaw, Secretary of the Ulster Branch, and the Chairman made the presentation, to which Dr. Darnell replied, and added some feeling remarks as to the kindness and aid of the profession all through the trying ordeal which had now lasted two years.

On the motion of Dr. John Campbell a vote of thanks to Dr. J. Walton Browne for presiding was passed by acclamation.

DR. J. B. COLEMAN, C.M.G.

The resolution of sympathy with Dr. J. B. Coleman, C.M.G., passed at a large meeting of medical men in Dublin, was presented to him on July 23rd at his residence. The resolution received no less than 1,300 signatures, and was suitably engrossed in an album, together with the names of several hundreds of medical men throughout the country who desired in this way to express their confidence in him. There were present, as representing the profession: Sir W. Smyly (President of the Royal College of Physicians), Mr. H. K. Swanzy (President of the Royal College of Surgeons), and the following ex-Presidents of the Colleges—Sir F. Cruise, Sir C. Nixon, Bart., Sir A. Chance, Dr. J. Magee Finny, Sir Wm. Thomson, C.B., Sir Arthur Macan. Sir C. Cameron, Sir Thornley Stoker, and Dr. Little sent apologies for absence.

Sir W. Smyly, in making the presentation, said a judge and jury had declared that Dr. Coleman had passed through a terrible ordeal without a blemish on his professional or private character or honour. It was proper and befitting that the medical profession should express its satisfaction to him.

Mr. Swanzy said they had known Dr. Coleman throughout his whole career, and many of them were proud to reckon him as a friend. He had suffered wounds deep and grievous, but they hoped there were many happy days before him. He had two great sources of consolation—an honour untainted and a conscience undefiled, and the esteem of every man and woman.

Dr. Coleman said he was grateful beyond measure for the kind spirit which prompted them to express their sympathy for him in his great trouble.

Scotland.

THE TREATMENT OF PHTHISIS AT EDINBURGH.

SINCE the opening of the wards of the City Hospital at Colinton Mains for the reception of cases of phthisis, there have been 57 applications for admission. Of these, 47 were admitted, 23 males and 24 females; 14 of the patients died, the period of residence of the fatal cases being from two days to eleven weeks. Four patients have left

the hospital by their own wish, and of these 3 might be said to have greatly benefited by the rest and treatment they received; 29 patients remained in the hospital. The cost of food and medicine for each patient was 11½d. a day. Certain alterations proposed by the Students' Representative Council on the laws of the Council were approved.

An intimation by Dr. R. McKenzie Johnston of his resignation of the Lectureship on Diseases of the Larynx, Ear, and Nose, was received by the Court with sincere regret.

Dr. Norman Walker was appointed University Lecturer on Diseases of the Skin, in room of Dr. Allan Jamieson, resigned.

The Court appointed Dr. W. G. Smith (Liverpool) to be University Lecturer on Psychology (General and Experimental) for five years from October 1st next.

The University Assistants for next academical year were appointed, and such of them as are University Lecturers were continued in their office of Lecturer for the same period.

India.

PHTHISIS IN CALCUTTA.

IN recent years the mortality caused by consumption in the larger towns of India, especially in the presidency towns of Calcutta, Bombay, and Madras, has been exciting anxious attention. Registration of causes of death is, in the absence of skilled death certification, admittedly imperfect and unreliable; but, such as it is, it appears to indicate a serious and increasing tuberculous mortality. In Calcutta, a special investigation in this matter has been made by the officers of the plague department, and the results for the year 1905 have been displayed in an interesting note submitted by Dr. T. Frederick Pearse to the municipality. The population of Calcutta is 847,796; males 562,596, females 285,200. The number of Hindus is 551,462; males 361,176, females 190,286; and of Mohammedans 249,939; males 174,117, females 75,822. These two classes constitute about three-fourths of the population of the city. The report takes no cognizance of other classes. The facts as regards mixed races would have been interesting, but probably there were difficulties in the way of ascertaining them. The number of deaths caused by phthisis in 1905 was found to be 1,648, or 1.9 per 1,000. In England the rate is 1.3, in Bombay 3.8, and in Indian gaols 2.96. Calcutta therefore presents a higher rate than European cities, and one much lower than Bombay and Indian prisons. An exceptional age and sex constitution is held to account for the comparatively low rate. The death-rate for males was 1.4, and for females 2.86. For Hindus 1.8, and Mohammedans 2.8; for Hindu males 1.4, and females 2.4; for Mohammedan males 1.6, and females 4.6. The excess of mortality among females, especially Mohammedan females, is most striking. In England the death-rate of males is higher than that of females. The proportion of cases at early ages is also higher in Calcutta than in England. Dr. Pearse attributes the excess of female mortality to "deficiency of fresh air." He finds that the proportion of cases is higher in huts than in houses. The average number of persons to a room is 2.41 in the former and 1.72 in the latter. An elaborate series of tables shows the mortality according to wards. A map indicating the situation, size, and boundaries of these wards would have been very helpful; but the figures support the conclusion that crowding, particularly of Mohammedans, is associated with excessive prevalence of the disease. The report is interesting and useful, and ought to compel the municipal authorities to tackle the housing problem in earnest. Unfortunately the landlord element is largely and influentially represented in the municipality, and the Health Department has consequently encountered unconquerable opposition in its efforts to obtain reforms in building regulations by which the essential preventive means—more space and air—may be secured.

THE *Medical Record* states that the Fourth of July celebrations in America this year caused at least 50 deaths. In Manhattan alone 500 accidents were reported to the police, and the total throughout the country is believed to equal last year's record of 2,500.

SPECIAL CORRESPONDENCE.

PARIS.

Death of Professor Brouardel.—Report of the Pasteur Institute.—Presentation to Professor Pozzi.—Dr. Alan Herbert promoted "Officier" in the "Légion d'Honneur."

PROFESSOR PAUL BROUARDEL died on July 23rd, at the age of 69 years and 6 months. His death removes a personality of exceptional interest who rendered brilliant public service in France, and who for the last quarter of a century was the holder of every official position it was possible to hold, from Chairman of the Conseil Supérieur d'Hygiène de France to President of numerous medical societies. He was born at St. Quentin in 1837, and received his early education at the Lycée St. Louis in Paris. In 1859 he was first among the internes of his year, became Doctor in Medicine in 1865, Médecin des Hôpitaux and Professeur Agrégé in 1869, Professor in the Faculty of Medicine in 1879, Member of the Académie de Médecine in 1881, and of the Académie des Sciences in 1892. He was for many years Dean of the Faculty of Medicine, and was well known for his lectures on medical jurisprudence and the *post-mortem* examinations which he conducted before the students at the Morgue for the last thirty years. He ascribed his failing health to the deplorable hygienic conditions in which he gave this practical class, in a small room filled with students, and obliged from the nature of the work to have the small windows open, which allowed the cold, damp air from the Seine to strike on his back and cause numerous attacks of bronchitis. He did great public service as a hygienist and medical jurist, and collaborated in everything which has been done in improving the public health, both in and out of the Legislature. His last public appearance was as President of the recent Congress for the Suppression of the Illegal Practice of Medicine. Besides being a great administrator, Professor Brouardel was a wonderful diplomat. The funeral service took place on July 26th in the Church of Ste. Clotilde, and he was buried in the Montparnasse Cemetery, when, by his own request, no funeral orations were pronounced.

The report on the anti-rabic treatment at the Pasteur Institute during the year 1905 shows that 728 persons were treated, and of these 4 died of rabies. In one case rabies declared itself before the treatment was finished, and excluding this case the mortality is 0.41 per cent. During the last three years fewer persons have come to Paris for the treatment, since now it can be obtained at Lyons, Marseilles, Lille, Bordeaux, and Montpellier. The 727 persons treated during 1905 were 721 French and 6 foreigners, 4 of these being English. The following are the fatal cases:

1. M. L., aged 5 years. Bitten on the nose on October 13th. Three bites, which bled; not cauterized. The dog was recognized by a veterinary as suspect. Rabbits inoculated on October 19th with medulla of the dog developed rabies on November 8th. The patient began treatment on October 23rd, developed the disease on November 2nd, and died on November 4th.

2. A. B. Bitten on April 8th; two deep bites on dorsal surface of left hand, and two penetrating bites on left calf, which bled profusely, and were cauterized with thermocautery. The dog was recognized as mad by the veterinary surgeon. The patient was treated from April 9th to 25th. The first symptoms of rabies developed on June 24th; died on June 26th.

3. A. A., aged 29, blacksmith. Bitten on July 18th on first finger of left hand, four bites, which bled and which were not cauterized. Bitten by a cat recognized as mad by the veterinary surgeon. Treated from July 22nd to August 6th at Pasteur Institute. The first symptoms of rabies developed on September 6th; died on September 8th. The patient was alcoholic. Another person bitten by the same cat and treated at the Pasteur Institute is in good health.

4. E. C., aged 7 years, bitten on Christmas Eve on little finger of right hand; penetrating bite, not cauterized. Treated from December 31st to January 17th. The first symptoms showed themselves on April 26th; died on May 3rd. The patient was bitten by a dog, which was not found again, but bit three other persons, who were treated at the Pasteur Institute, and who are quite well.

On July 8th the friends and pupils of Professor Pozzi assembled in the Gynaecological Clinique at the Broca Hospital to celebrate his twenty years of clinical work at the Broca Hospital, and to present him with a gold

medallion portrait by the sculptor Chaplain, the reverse representing Science snatching a woman from Death, and a "livre d'or" containing original memoirs by Professors Pinard, Proust, Poncet (Lyons), Forgues (Montpellier), Monprofit (Angers), Barnsby (Tours), Martin (Rouen), Treub (Amsterdam), Depages (Brussels), and others connected with the Clinique. Professor Debove, Dean of the Faculty of Medicine, occupied the chair, and among those present were M. Clemenceau, Minister of the Interior, who is himself a doctor, Professors Dastre, Robin, d'Huchard, Hallopeau, Monod, Walthur, Gley, Widal, Florand, P. Delbet, Lermoyez, Depage, J. L. Faure, Schuster (Prague), Green (Cairo), Thiriart (Brussels), and many more from France and abroad. Professor Pozzi, in returning thanks, traced the history of the Chair of Gynaecology.

Dr. the Honourable Alan Herbert, the "doyen" of the English medical men in Paris, has been promoted to "Officier" in the Legion of Honour. Dr. Alan Herbert studied medicine in the Paris University, and after taking his degree in 1865 has ever since been in active practice of his profession, and was physician to the Hertford British Hospital from its foundation by the late Sir Richard Wallace in 1871 till 1900, when he became Honorary Physician. Dr. Alan Herbert was made Chevalier of the Legion of Honour for the services he rendered during the war and the siege of Paris.

CORRESPONDENCE.

THE DIRECT REPRESENTATION OF SCOTLAND.

SIR,—We have been instrumental in promoting a requisition to Dr. Norman Walker inviting him to be a candidate for the post of Direct Representative for Scotland on the General Medical Council. Dr. Walker received so large a measure of support on the last occasion, and has since continued to take so active and useful a part in the promotion of the improvement of medical education, as well as in other matters of general politics, that we have every reason to believe that on this occasion his candidature will be successful.

The requisition has been largely signed by practitioners from all parts of Scotland, and Dr. Walker has indicated his willingness to accept it.

We shall be glad to hear from those who wish to join the General Committee.—We are, etc.,

G. A. GIBSON,
3, Drumsheugh Gardens, Edinburgh.
F. W. N. HAULTAIN,
July 23rd. 12, Charlotte Square, Edinburgh.

MEDICAL INSPECTION OF CHILDREN.

SIR,—The thanks of the profession are due to you for pointing out the importance of the issue raised by the State's recognition of responsibility for medical supervision of the health of children. Of the two systems—supervision by special officials or by general practitioners—which are we going to recommend?

Surely the general practitioner should insist upon having at least some share in the honour of this great national function. When defects of health or physique are found, they must of course be dealt with, and by whom if not by those whose everyday experience best fits them for the task? Moreover, it is obvious that medical supervision should begin before the age at which children attend school. It should begin at birth with a report on the physique of the infant and the proposed method of nutrition, made by the practitioner in attendance at the confinement or chosen by the parents. Such reports should be renewed at stated intervals, and paid for as in the case of notification of infectious diseases.

The medical officer of health should co-operate with the private practitioner. As things go at present, it seems that he and his subordinates (health visitors and so forth) are likely to supplant him.—I am, etc.,

Bath, July 21st. CHARLES J. WHITBY, M.D.

PS.—A paper on Preventive Medicine and the Individual, read by me at the recent Sanitary Congress, deals more fully with the points involved in the above scheme. It met with a somewhat frosty reception from an audience consisting largely of public health officials, yet I submit that it is the only just and adequate solution of the problem.

SIR,—While agreeing in the main with Sir W. H. Broadbent's letter on the above subject in the BRITISH MEDICAL JOURNAL of July 21st, I think he has overlooked the fact that the office of medical officer of health has no fixity of tenure in England except in London, and only those who have held such appointments in small areas know how their sanitary and other efforts are hampered. In my opinion medical inspectors should be appointed by Government, and, as in the case of town clerks, *aut vitam aut culpam*. They should have districts assigned to them, and should call regularly at the various schools in these districts, as factory inspectors do at their factories. On visiting any school, only those children who show variations below the usual standard should be presented for inspection. The medical inspector should, if possible, find out why such children are below the average school standard, and whether this arises from defect in any special sense or from defect in general capacity, and report accordingly. This report would enable the educational authorities to discover the reasons of failure (educationally) of these children, and in this way certain children would be found incapable of profiting by further education, and should be sent back to the land to become agricultural labourers or farm servants. In this way the country districts would be repopulated.

It would be both right and desirable that the medical officers of health and the medical inspectors should act in harmony, but such united efforts ought to come about in a friendly and informal manner. Their appointments as well as their duties should be quite distinct. The numbers of children thus eliminated from education by the action of the medical inspectors, and put to work on the land, would soon prove a decided advantage not only to the children themselves, but also to the ratepayers and to agriculture.—I am, etc.,

Leeds, July 24th. THOMAS JOHNSTONE.

SIR,—In the BRITISH MEDICAL JOURNAL of July 21st Sir W. H. Broadbent, writing on the above subject, has opened a discussion at the present time as valuable as it is necessary.

The main portions of his letter must commend themselves to all medical men. His last sentence, however, is one to which many will take exception. I am sincerely sorry to find him adding the weight of his name to a solution of the problems against which so much can be said. He says:

> It would certainly conduce both to efficiency and economy if in large centres of population the medical inspector held the position of assistant to the medical officer of health, while possibly in some rural districts the medical officer of health might be at the same time the medical examiner of schools.

I agree with him as far as the economy is concerned. It is exceedingly problematical, however, whether it would conduce to efficiency. In large centres of population where an assistant medical officer of health is required, we have such a large number of children in attendance at school that if the work has to be done efficiently it is necessary that the school doctor should give the whole of his time to it. In some places, of course, assistance will be required.

This objection—that where the services of the assistant medical officer of health are at hand, the work is too much for him as part duty—is vital. There are other objections. Assistant medical officers of health are usually the ones most in contact with infectious diseases, and are on this account not the most desirable persons to be mixing with school children. The assistant medical officer of health is naturally usually a bird of passage; he comes to the town and in a few years away he goes as a fully qualified medical officer of health. Now, it is not to the best interests of the public that our school doctors should be continually changing. The statistics that it will be their duty to prepare for their respective districts will be far more valuable if we can be assured that they extend not merely over a number of years, but that the standard throughout is uniform. This cannot be assured if we are to have continual changes.

I might continue, but without any further criticism I suggest for consideration that a wiser policy for our

educational authorities to pursue would be, wherever there is work for one school doctor, to appoint one for that purpose solely, even should it be necessary for more than one district to appoint jointly. This would apply to all save the most sparsely-populated districts, and these should be the subject of special consideration.

In larger centres assistants would be necessary, and as vacancies occurred in areas with one officer they could be filled by these assistants, who would during their assistantship have obtained experience of these special duties.

I submit this, though only briefly outlined, would be a far better scheme; it would ensure the development of a special body of school doctors, trained and experienced in their own particular line, and would leave our medical officers of health to follow their own lines without having the worry and annoyance of a branch of work foreign to them.—I am, etc.,

Blackburn, July 21st. RILEY CUNLIFFE, M.B.

SIR,—The new Education Act propcses to make it compulsory for every child to be medically inspected at the commencement of its school career. The question now arises, who is to carry out this inspection? The Board of Education has already in almost every village in the country a medical examiner who conducts the medical examination of candidates for recognition as certificated teachers and of teachers applying for disablement allowances. What arrangement could be simpler or more rational than that this examiner should be the one to conduct the preliminary inspection?—I am, etc.,

Sandown, I.W., July 24th. G. BERRINGTON WOOD, M.B.

THE ALLEGED INFECTION OF REPRODUCTIVE CELLS.

SIR,—In his suggestive address on Mendelian Heredity and its Application to Man,[1] Mr. W. Bateson, in a footnote, writes as follows:

> The possibility suggests itself that some of these diseases may be due to actual transmission of a disease germ through the reproductive cells (like pébrine of silkworms studied by Pasteur).

This is a statement which is frequently repeated by writers on heredity, and especially by writers on syphilis, but the point is this: Did Pasteur ever show, or state in his contributions to silkworm disease, that the disease germs were actually transmitted through the *reproductive cells?* If so, I should very much like to have the reference to Pasteur's original works where any such passage or passages occur, in order to be able to verify the statement. My own recollection of a perusal of some of Pasteur's contributions on the subject is that he dealt with eggs—a very different thing to the reproductive cells. Yet those writers on syphilis who favour the hereditary maternal or paternal transmission of that disease, that it is through the ovum or the spermatozoon, always rely on pébrine to support their contention. The fact is that the true heredity of syphilis, through the reproductive cells (ovum or spermatozoon), has never been proven. Matzenauer of Vienna, whose excellent review of the subject[2] was dealt with in your columns, took the trouble to go through Pasteur's work on pébrine, and he asserts he could not find a passage in which Pasteur mentioned having found the pébrine parasitic bodies in either the female or male reproductive cells.

The onus of proof lies with those who make the positive assertion. If it has not a leg to stand on the sooner it is thrown overboard the better, as too many errors and unverified statements are carried from one textbook to another already.

The inoculations of apes with spermatic fluid derived from syphilities carried out by Professor Finger and Dr. Landsteiner of Vienna[3] were inconclusive, and did not of course prove that the spermatozoa were the actual carriers of the infection. The first experiment of the Viennese investigators would have been more interesting had some of the spermatic fluid been stained for *Spirochæta pallida*. It was examined for spermatozoa, which were present in fair numbers. Again, the fluid employed was obtained by expression per rectum of the seminal vesicles and *prostate*. On the other hand, Neisser, Baermann and Halberstädter obtained (in their Batavia experiments) positive results in 4 out of 8 cases by inoculating testicular material.[1] These experiments show that spermatic fluid may be infective in certain circumstances, contrary to the earlier inoculation experiments of Mireur, which had apparently put such a possibility out of court. The foregoing experiments, however, do not prove a direct infection of the female ovum by the spermatozoon.—I am, etc.,

London, W., July 19th. GEORGE PERNET.

[1] BRITISH MEDICAL JOURNAL, July 14th, p. 67.

[2] Die Vererbung der Syphilis in *Arch. f. Derm. u. Syph.*, 1903: see also *Wien. Klin. Woch.*, 1905.

[3] *Untersuchungen über Syphilis an Affen*, II Mitteilung, 1906.

SURGERY OF THE LUNG.

SIR,—In the Cavendish Lecture on Some Points in the Surgery of the Lung,[2] Sir William Macewen makes certain statements with regard to the physics of the expansion of the lung which are, I think, open to criticism. He states that:

> The lung is maintained in full expansion by the molecular cohesion existing between the two serous surfaces of the pleura, and the capillary attraction exerted by a thin layer of serous fluid existing between the two moist membranes.

He appears to have opposed for the last thirty years what he terms "the old theory" of the expansion of the lung by atmospheric pressure. He is here referring apparently to the lung in its normal condition. I would venture to submit that the old theory is nevertheless right.

If the inner pleural membrane follows the motion of the outer notwithstanding the resisting elasticity of the lung, it can only be because the inner membrane is either pushed after the outer or pulled after it. If it is pulled, then the moving force is the cohesion of the pleural fluid, which must be in a state of hydrostatic tension; if it is pushed, then the atmospheric pressure is the controlling force, and the intrapleural fluid is in a state of pressure, and, so far from pulling at the lung surface, is pushing against it. Now, though it is quite possible that a fluid may be in a state of tension, yet Sir William Macewen has adduced no evidence that the intrapleural fluid ever reaches this condition, which, be it remembered, corresponds to a pressure of at least 15 lb. to the square inch below atmospheric.

On the other hand, we have very definite evidence that the hydrostatic pressure of this intrapleural fluid never does fall below zero and pass into the condition of tension, for any one who has experimentally blown out a collapsed and exposed lung knows that an internal pressure far less that an atmosphere—above the atmospheric pressure already present on both sides—suffices to reinflate it to the volume occupied when fully expanded. The actual pressure required is, according to Waller, only about 10 mm. of mercury above atmospheric. Hence even when the lung is fully expanded the intrapleural fluid will be subjected to a pressure only about 10 mm. less than atmospheric. Thus we see that the inner pleural wall is pressed from within against the outer, or rather against the intervening fluid, which therefore exerts no cohesive pull to aid in the maintenance of the expansion. I venture to think that Sir William Macewen has reached his conclusion through not recognizing the difference between a real negative pressure or tension and a pressure less than atmospheric.

So long also as the pleural sac is closed and filled with lubricating fluid, there is no question of any capillary action in the ordinary sense of the term. Thus each of the two actions relied on by Sir William Macewen in the passage quoted is shown to be inoperative. This must not, however, be taken to imply that Sir William Macewen is not perfectly right in emphasizing the very important part played by capillary action as soon as the pleura is wounded and the air admitted to part of the pleural cavity. It is the sharp curvature of the concave edge of the thin layer of pleural fluid which now enables the surface tension to resist the atmospheric pressure and to prevent it from being transmitted across the meniscus, so that the rest of the pleural fluid remains in the same condition of lower pressure as before the injury; and thus it is still the atmospheric pressure from within the lung which maintains the expansion. The arrangement has in fact now become that of a boy's sucker.

[1] Versuche zur Uebertragung der Syphilis auf Affen, *Deutsch. med. Wochenschr.*, Nos. 1–3, 1906.

[2] BRITISH MEDICAL JOURNAL, July 7th, p. 1.

Exactly the same reasoning applies in the case of the hip-joint cited by Sir William Macewen. Here, also, as in all cases where there is a lubricating fluid, the atmospheric pressure is the cause of the apparent cohesion, the actual direct capillary contribution being excessively small (hardly amounting to a gram in the case of the hip-joint) in comparison with the observed pull required to produce separation, though the *indirect* effect of capillarity round the rim of the acetabulum, where the fluid is exposed to the air, in keeping back the atmospheric pressure from the lubricating fluid is all-important, as before. The notching of the acetabulum referred to by Sir William Macewen would only slightly diminish the area acting as a sucker.

Nor is it necessary to make the very unlikely supposition that the pleural fluid has any peculiarly high surface tension to enable it to perform the function described in the case of a wounded lung. Water would do just the same, and does so very effectively in the case of two sheets of wet paper, which are laid together and are then found difficult to separate. Sir William Macewen attributes this formation of a meniscus to *viscidity* with which it has nothing to do. Viscidity would, on the contrary, hinder rather than help the flow of the fluid into the curved formation alluded to, and has, moreover, no direct relation to surface tension.—I am, etc.,

Tavistock, July 19th. ROBERT WORTHINGTON.

THE PREVENTION OF DIFFICULT LABOUR.

SIR,—It is impossible to congratulate either the advocates of artificial interference in normal labour or the advocates of non-interference on their methods.

With the former it is impossible to argue, the foundation of their belief being based on nothing but gross error.

With the latter it is possible to plead for a little reasonableness. Surely the cause is sufficiently good, and it appears a pity to injure it by dogmatic assertion.

Dr. Horrocks and Dr. Herman plead the cause of absolute non-interference with what they denote normal labour. The difficulty, however, arises not infrequently of decision as to the point at which a normal labour becomes abnormal. This decision is one dependent upon the judgement of the attendant. During the long controversy upon the midwives' registration question, no point was more diligently laboured by the two eminent professors already mentioned, and their colleagues on the Council of the Obstetrical Society, than that of the safety of leaving this decision in the hands of trained midwives. It has always appeared to me that if this view is correct, the mere operative part, requiring infinitely less knowledge, might also be safely left in the same hands. In any case Dr. Herman's statement

> In natural labour, without bony or other obstruction, the uterus will always complete labour, and that without grave injury to the mother. When a labour lasts longer than usual, it is either because pains are weak, or because the child is large, or because the pelvis is small,

proves to my mind that he has no very accurate appreciation of, at all events, one of the very common causes of arrest in the descent of the child when there is no disproportion between the size of the child's head and that of the pelvis. Looking back at my records, I find the commonest cause of arrest is short cord. In the most pronounced case, the cord was wound round the trunk of the child so many times that I had the greatest difficulty in delivery with forceps.

No doubt owing to my Boeotian efforts at comprehension I was wrong in delivering artificially, but supposing that uterus had been left to deliver the child, it is a matter of certainty that both mother and child would have been lost. No doubt this is an extreme case, but I have so many notes of the cause of arrest being the fact that the cord was round neck or trunk, that it appears to me probably not an error to suppose that "short cord" is a factor to be reckoned with. Being a Boeotian I do not understand how abdominal palpation before delivery will assist me in diagnosis, or even at the time of delivery, in such cases.

The points which I desire to make are these:—That the proper point for artificial interference with a delivery must depend upon the judgement of the attendant; that judgement depends partly upon sufficient education, partly upon technical training, and partly on the individual factor; that judgement will not be helped in the right direction by dogmatic assertion, or by assertion founded upon gross error.—I am, etc.,

Hatfield, July 16th. LOVELL DRAGE.

THE ARTHRITIC DIATHESIS.

SIR,—The School of Montpellier,[1] which claims to have perpetuated the Hippocratic tradition, *Olim Cous nunc Monspelliensis Hippocrates*, would answer Dr. Pye-Smith as Hippocrates replied to Ctesias. It would remind him that the Father of Medicine reproached the Cnidians with introducing into their system an unnecessary subdivision of disease. Or rather, it would have reminded him twenty years ago when the same question he puts in the BRITISH MEDICAL JOURNAL—What is arthritism?—was exercising the French professional mind. It was a time when Laënnec's and Trousseau's defence of specificity was receiving brilliant confirmation by the genius of Pasteur, and when Koch had given a fresh impetus to the new conceptions by his memorable discovery of the tubercle bacillus. It was a time when even ordinary complaints, such as catarrhal bronchitis, were referred to a specific cause (Kelsch). The old theories were being threatened on all sides.

Charcot and Bouchard both necessarily intervened in the question. Both brought a philosophic grasp of the general principles of medicine to the discussion.[2] Charcot developed a clear conception of what could be understood by neuro-arthritism, and Bouchard added to the doctrine embraced under the familiar terms of herpetism and arthritism the luminous notion of retarded nutrition *(la nutrition ralentie)*. By this Bouchard meant "a permanent disturbance of nutritive mutations which prepares, provokes, and maintains diseases different in their symptomatic forms, in their anatomical seats, and in their pathogenic processes"; and he added, in reference to infectious disorders, what can be repeated to-day: "Watch the microbe, but do not forget the organism and its reactions. Glorify the progress of the times, but be certain that all does not date from yesterday, and that a '*médecine*' still remains. The knowledge of the reactions of the organism against morbific causes is still to-day, as in the time of Hippocrates, the essence itself of medicine."

Dr. Pye-Smith thinks that the only way in which the fictitious rheumatic diathesis can be discovered is by the subject of rheumatism presenting successive attacks of his disease. This may be true from the clinical and anatomical point of view, but surely medicine to-day has got beyond that stage? What do we find Professor Lecorché writing in 1889:

> I myself, studying the chemical constitution of the urine of the gouty, have tried to show the advantages to be gained from these researches, either in order to foresee and predict the development of gout in hereditarily predisposed subjects, or to affirm the gouty nature of certain visceral manifestations lying outside of all articular localization.

These lines occur in the preface to a work on urinary analyses and semeiology written by M. Gautrelet, one of Bouchard's chemical assistants. M. Gautrelet had applied the method of his earlier teacher to the investigation of other dietetic conditions besides the gouty, and utilizing Duclaux's researches in biological chemistry had divided constitutional diseases into two categories characterized respectively by organic hyperacidity and hypoacidity. I have shown the value of M. Gautrelet's charts or "grafts" on several occasions,[3] amongst others in discussing the questions of tuberculosis[4] and of heredity.

Dr. Pye-Smith would probably be interested to see the urinary "graph" and the analysis of respiratory chemistry of the one case I find amongst my notes of generalized osteo-arthritis. There was a history of gonorrhoea. Both analyses reminded us—my analytical chemist and myself—of the

> Evolution si fréquente de cette affection vers la tuberculose et le brightisme,

and both of the curious suitability to the condition of

[1] It may not be generally known that Sydenham "studied medicine at Montpellier" (Manuder).
[2] Boinet quotes Bacon: "Toute médecine qui n'est pas fondée sur la philosophie est quelque chose de bien faible."—*Les Doctrines Médicales.*
[3] BRITISH MEDICAL JOURNAL, October 28th, 1905, two papers.
[4] *Lancet.*

the old term rheumatic gout.[1] Every fresh advance of biological chemistry confirms the justice of the views held by Lecorché, Beneke, Bouchard, and their followers. Gautrelet's analyses have shown that Lecorché in looking upon gout as a tendency to hypernutrition or excessive assimilation is quite consistent with Bouchard, who attributes the same condition to defective disassimilation. The information derived from respiratory chemistry shows the two types of deviated nutrition already mentioned displaying an excess or deficiency of free carbonic acid in the circulatory fluids, and the most recent researches in cryoscopy the presence in the same diatheses of hyperchloruration and hypochloruration accompanied in their turn by corresponding disturbances of osmosis (Achard and Widal).

We may rest assured that it is not in the destinies of prevailing clinical medicine to solve the problems propounded by Dr. Pye-Smith. The great transformation in modern medical doctrines was not the work of a physician, and it is probable that to the higher conceptions of a biologist we shall owe the generalization of the vast store of facts collected by recent pathological research,—I am, etc.,

Nice, June 22nd. A. W. GILCHRIST, M.D.

THE STUDENT'S LIFE IN THE PUBLIC SERVICES.

SIR,—Upon reading Professor Osler's address upon the Student's Life one cannot help wondering what must be the mental state of those who do not pursue the minimum amount of reading which he considers possible for the least studious. It is not impossible to find medical men, who, although still young, possess no book dated later than 1885, and who do not read the scientific portion of the journals. However much the wearing life of the doctor may prevent such study as the Professor recommends, there is at least one portion of the profession for whom there is no excuse. I refer to the Services. Medical officers are not so overworked that it would seriously injure them to do double their normal amount of work for six months in every two years, in order that a corresponding number might rejoin a medical school for this period. C.O.'s should be held responsible that their officers have had such leave, and have produced evidence of the necessary attendance.

It should be considered that a fatal lack of administrative capacity had been shown should they have been unable to spare such officers, unless, of course, some special and sufficient reason could be shown. The appalling necessity for such study will be realized when it is remembered that for the first twenty years an officer of the R.A.M.C. only has charge of patients under strict discipline, and upon becoming a lieutenant-colonel directs and controls the treatment of every patient in his hospital, and, whatever his own professional acquirements may be, reports confidentially upon the professional ability of his officers.—I am, etc.,

July 4th. COLONIAL.

THE FETISH OF CLASSICS.

SIR,—Although my experience has doubtless been a common one, yet as a victim of the craze for classical, as opposed to modern and scientific education, my fate may help to stimulate the rebellion which is bound to come against the antiquated ideas of education fostered by our public schools and older universities.

Their motto is classics and athletics, and beyond that nothing, and unfortunately their influence and example react on all other schools and colleges throughout the country. The reason is hard to see. It may be conservatism, obstinacy, or narrow-mindedness, ever intensified by their own vicious system. It probably is all these combined with laziness.

There is a cheap and unlimited supply of estimable gentlemen primed to their finger-tips with classical lore, but void of all else, to be obtained as pedagogues without difficulty. They are fitted by their training for nothing else.

A Latin and a Greek grammar, with some of the profusely annotated editions of classical authors now extant, is all the equipment necessary for years of drivelling lifeless work between games of football or cricket. This is much cheaper and easier than technical or scientific training for both master and pupil. There is no undue expenditure of mental energy on either side, and all is pleasantness and peace.

We have all met the results of this pernicious system in the shape of worthy scholars who are incapable of appreciating the importance of any mundane affairs beyond the language and ideas of classical authors. Unfortunately these men are by our system let loose and encouraged to warp and stultify the minds of generation after generation of the youth of this country by instruction along their own narrow lines.

Now, to take my own case as an example, although all my inclinations were towards the scientific and concrete, I had to spend the greater part of nine years, six at school and three at college, in learning or evading instruction in Latin and Greek. At school the only good masters were classical, and the greater part of the day was occupied with these languages. The boys quickly discovered that classics was the only subject insisted upon. Consequently they neglected everything else, treating the instruction in modern languages or English history as a jest, or turning these classes into bear-gardens for baiting defenceless foreigners.

The normal boy is not given to thinking. He accepts. He does not wonder why the history and geography of Ancient Rome and Greece are considered so much more important than those of his own time and country. He knows that everybody has to go through the same mill, incomprehensible as it may appear. The only history I every knew thoroughly was that of Ancient Rome and its wars; the only geography that of the Roman Empire.

I suppose I must sometimes have wondered why nothing of interest—of everyday life, of things of importance happening in our country and in the world that I heard discussed out of school—was ever taught to me. I must have wondered why my mind was kept perpetually wandering in a maze of dull, lifeless old-world lore and events that my parents and seniors obviously neither knew of nor took the faintest interest in, and which were evidently going to be useless to me in after-life.

But it had to be accepted as inexorable fate that any instruction in new matters of living interest and in touch with the world around us which were mentioned in the papers or discussed by our elders was not to be hoped for in school. It had to be endured until escape from school and college permitted that musty, useless learning to be cast aside before the real work of life could be begun.

Were I the head master of a school, I should institute a class of everyday knowledge, where the textbook would be the daily paper. Here instruction in politics, law, colonial and foreign affairs, commerce, trades, manufactures, science, and art would be systematically given as the subjects cropped up, and I am certain that the interest displayed and the benefit gained by the boys would astonish the orthodox pedagogue accustomed to the listless inattention shown towards his dissertations on Thucydides and the Punic Wars.

When I think of what I might have learnt during these nine long years, of what an excellent knowledge of French, German, and science I might have acquired, how my future training and career might have been assisted, I am still filled with furious indignation at the carelessness of parents and the imbecility of instructors that made such a misguided education possible.—I am, etc.,

May 26th. ALEXINE.

THE SUPPLY OF POISONS TO NURSES.

SIR,—The other day I was called to see a woman about 40 years of age who had taken a tube of twenty ¼ gr. morphine hypodermic tablets, or 5 gr. in all. I found that she had taken them three hours before, not with any suicidal intent but simply to obtain sleep, and that she frequently took morphine in this reckless manner, though in smaller quantities. As a matter of fact she was very little the worse, a good pulse of 72, respirations of 16, and quite conscious when spoken to; the only marked objective sign was the pin-point pupils. Nothing very active was done in the way of treatment and the next day beyond a little depression she had quite recovered from the influence of the drug.

[1] Judging from Osler's (fifth edition, p. 403) reference to the very interesting variety of arthritis deformans differentiated by G. E. Still, "there seems no more reason for erecting this morbid state into a distinct entity than there would be for separating tuberculosis in children—tabes mesenterica, for instance—from phthisical affections in adults."

The chief interest of the case is the ease with which poisons such as morphine can be obtained in compressed form. This woman had done a little nursing some six years ago and her method was to send her visiting card with "Nurse B——" printed on it and an address in pencil, to a chemist with a request for the morphine for medical purposes; the messenger might be any one, in this case it was an ignorant charwoman. The tablets were supplied, as no doubt they had been many times before, with very little hesitation.

I inquired of the chemist afterwards, and he told me that it was quite usual to supply nurses with morphine or any other poison in this way. A few questions were asked if the persons were unknown, but no entries of such sales were made in the poison-book.

Even a fully-trained nurse is unjustified in administering poisons, either hypodermically or by the mouth, except under the supervision of a medical man, when the drugs would be specially provided for her; so that for a nurse to have poisons in her possession independently is quite unnecessary. What excuse, then, is there for supplying powerful poisons to any messenger who presents himself with a visiting card, and the title of nurse upon it? It seems to me a practice which cannot be too strongly condemned both by the medical profession and the Pharmaceutical Society.—I am, etc.,

Barnes, S.W., June 30th. GERALD S. HOVENDEN, M.D.

RULES FOR CONSUMPTIVES.

SIR,—As I receive rather frequent requests for information as to leaflets giving rules for the guidance of phthisical patients, it occurs to me that it may be worth while to publish a copy of some rules which were drawn up by me three years ago, and have since been regularly used at the Nottingham General Hospital, the Notts Sanatorium, and elsewhere:

INSTRUCTIONS TO CONSUMPTIVES.

Four three chief wants are Fresh Air, Rest, and Good Food.

1. *Fresh Air.*—You cannot have too much fresh air, and should try to spend at least eight hours a day out of doors.

When indoors keep the bed and sitting rooms as nearly like the outside air as possible by keeping the windows wide open. Never sleep with the windows shut, however cold may be the weather. A draught is much less dangerous than a stuffy room; indeed, some draught or current of air is necessary to good ventilation. Avoid all crowded rooms such as theatres, concerts, and public meetings.

2. *Rest.*—One great danger to persons affected with or recovering from consumption is the tendency to take too violent exercise. At first it is best to spend several hours of the day sitting or lying out of doors, well wrapped up in cold weather and sheltered from the wind. Later on gentle walks may be taken, and the distance walked gradually increased week by week. If your temperature goes up you are exerting yourself too much. If it goes above 100° you should spend most of the day resting. If your temperature remains normal and your weight increases you may gradually increase your exercise.

Running, jumping, and all heavy or dusty work are forbidden. Always rest for an hour before and after meals.

3. *Temperature.*—Take your temperature in the mouth three times a day—before breakfast, after dinner, and at bed-time—and record it in your diary. Wash the thermometer in cold water immediately after using it, and keep it in a jar of disinfectant.*

4. *Weight.*—Weigh yourself, if possible, once a week, and keep a record of your weights.

5. *Food.*—The ordinary full meals of a healthy person should be taken. Eat slowly, and try to finish your meal, even if you do not feel hungry. Drink two or three pints of boiled milk daily, and avoid alcoholic stimulants unless specially ordered by the doctor.

Milk is a complete food, but there is no real nourishment in wine, spirits, beer, or stout.

PRECAUTIONS AGAINST INFECTION.

Phlegm.—The phlegm contains the *germs of consumption*, and must never be allowed to dry and get into the dust of the house. When indoors spit into a mug, and when out of doors into a pocket spittoon. Empty the mug and spittoon into the fire, and rinse well with hot water. Keep a little disinfectant* in the mug and spittoon. After coughing, the lips may be wiped with pieces of rag, which should be burnt at once, or with a handkerchief kept in a linen bag, and not loose in the pocket, or under the pillow. Used handkerchiefs should be boiled daily, and the bag once a week.

* Disinfectant solution may be made of izal, 2 teaspoonfuls to a pint of water, or carbolic acid, 2 tablespoonfuls to a pint of water.

Consumptives must not be kissed on the lips.

If these precautions are taken, and the room kept airy, light, and clean, there is not much risk of infection. Another person may share such a room, but not the same bed.

One found that many leaflets were too long and were not read, or at least not learned, by the majority of patients. This at least has the merit of brevity.

Doubtless many other medical men have drawn up similar, and possibly better, instructions, and it would be of interest to compare a number of such, with the view of eliminating the superfluous and emphasizing the essential in our teaching.—I am, etc.,

W. B. RANSOM,
Honorary Secretary, Nottinghamshire Association for the Prevention of Consumption.

July 11th.

OBITUARY.

LIEUTENANT WALTER HYDE HILLS, whose death was announced in our issue for July 7th, was educated at the University of Cambridge and St. Bartholomew's Hospital. He became M.B., B.C., in 1904, and entered the Royal Army Medical Corps in June of the same year. He went out to India in January last, and was stationed at Cawnpore, where he soon became deservedly popular. His death was due to cholera, and up to within nine hours of its occurrence on June 23rd he seemed in perfect health and spirits. He was buried with military honours, the funeral being attended by many civilians, as well as by all the officers on the station. He was only 28 at the time of his death.

IT is with much regret that we record the death of Dr. ANDREW DAVID DUCAT, which took place at his residence in Highbury on July 23rd. After training for the Presbyterian Church at St. Andrews he went to Edinburgh to study medicine, and took the degree of M.D. in 1863. He became L.R.C.S.Edin. in 1864, and afterwards settled in London. He was for a few years Honorary Surgeon to the Holloway and North Islington Dispensary, and held the appointment of Medical Officer of the Highbury District for over thirty-eight years. He was just contemplating resigning, owing to ill-health, when death somewhat rapidly overtook him. He leaves a wife, three daughters and two sons to mourn his loss. He took a very active interest in the church to which he belonged, especially in regard to its Literary and Scientific Society, and was deeply respected by all who knew him.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

THE PAY OF R.A.M.C. COLONELS.

P.M.O. writes: It is perfectly true that there is no more helpless man in the army than a P.M.O. He sees perfectly what is required, he knows often what would stop an outbreak of disease, but he is forced to stand by idle. Any one and every one—generals, R.E. officers, A.S.C. officers, paymasters—other than P.M.O.'s are seemingly competent to decide what is, or is not, necessary for the cure or prevention of disease. Apparently the use or the uselessness of a P.M.O. is accurately appreciated if one may judge from the standard of emolument. Promotion from Lieutenant-Colonel to Colonel means in the R.A.M.C., in most cases, a loss in pay of from £20 to £60 a year. In India if a Colonel goes on general leave he draws Rs. 1,000 per month, a Lieutenant-Colonel Rs. 1,250. I think it would be hard to beat this outside Bedlam or military administration. Give P.M.O.'s power executively and financially, pick your men for the post, and make it worth their while to try to attain thereto. Surely that, and not the present fatuous policy, is practical common sense?

THE authorities of the Children's Sanatorium, Holt, Norfolk, will be ready to receive not more than twelve children after August 1st in a temporary home adjoining the site of the future building. The children admitted must be in an early stage of phthisis, the age limit being, for boys from 2 to 10, and for girls from 2 to 16. The charge for admission will be 25s. a week, but in the case of necessitous children assistance will be given by the Invalid Children's Aid Association. The latter has arranged for the investigation and medical examination of candidates, forms in respect of such being obtainable from the Secretary of the Association, 69, Denison House, Vauxhall Bridge Road, S.W.

MEDICO-LEGAL AND MEDICO-ETHICAL.

CRIMINAL ASSAULTS ON LUNATIC WOMEN.

A CASE tried at the Chester Assizes proves the necessity for an alteration in the law dealing with the mentally defective. The trial, which it is only fair to say resulted in an acquittal, arose out of a charge of criminal assault upon a patient in the Parkfield Asylum, Macclesfield, by a painter who was casually employed there.

The prosecution based its case upon the Lunacy Act of 1890, which defines a lunatic as an idiot or person of unsound mind. Mr. Justice Sutton, however, ruled that the Act did not apply in this case, as the alleged offender was not an attendant at the asylum, and therefore the case must come not under the Lunacy Act, but under the Criminal Law Amendment Act, which only mentions "a female idiot or imbecile." Mr. Justice Sutton held that to bring the case within the Act the prosecution must prove not only that she was a lunatic, which was not disputed, but that she was also an idiot or an imbecile, a person with a congenital defect.

We hope that the legal point which arose in this case may receive the careful consideration of the Royal Commission at present sitting to consider the treatment of the feeble-minded and epileptic. We do not question the ruling of Mr. Justice Sutton, but the law must stand in need of amendment if it fails to protect the majority of the female inmates of asylums

MUSIC-HALL PATIENTS.

At the Bradford City Police Court on July 19th, "Dr." Walford Bodie, described as a medical electrician, was summoned at the instance of the Health Committee of the Bradford Corporation for committing various breaches of the Employment of Children Act, 1903. The corporation was represented by Mr. C. H. Bird and the defendant by Mr. W. G. Purnell.

Mr. Bird stated that the defendant was a music-hall artist, and some time ago had visited Bradford and performed what was known as "bloodless surgery" at the Palace Theatre. The Act provided that children up to the age of 14 might be employed until 9 p.m. without licence but not after that hour. The Act applied to any child employed for the purpose either of trade or gain, whether the gain was to the child or any other person. Mr. Bird submitted that the children were actually paid by the defendant either in the form of a tip or fee for attending or as a gratuity; but the case did not depend upon that, because the Act defined employment as existing whether the gain was to the child or any other person.

Inspector Smith stated that he visited the Palace Theatre on June 14th, and found the children appearing on the stage with the defendant at the second performance, which began at nine o'clock. It was, in fact, nearly half-past ten o'clock when the first child came on. This was the girl Margaret Lilley, who was asked to hold up her arm, to kick her leg, and to walk across the stage. The defendant announced that she had been cured by him of some disease on the occasion of a previous visit to Bradford. Then the boy John William Bland was brought on, and went through a similar performance. The boy Moriarty was carried on to the stage without shoes or stockings, and placed upon a chair. The defendant then proceeded to pass a large magnet down the boy's leg, and, taking hold of the ankle, apparently broke down the joint. The lights were turned down, and certain electrical appliances were turned on. The defendant appeared to pass some electricity into the boy's leg. When the lights were turned up the boy was made to jump off the chair and walk off the stage. A charge was made for admission to the theatre.

In cross-examination by Mr. Purnell, the witness said he heard one of the children at another performance state that he had come in order to thank the doctor for what he had done on a previous visit. He did not hear a statement that nothing had been given to the children at all. He had, however, heard the defendant say that he had not asked them to come down, and had paid them nothing for coming. One of the children afterwards told him that she received some money from Dr. Bodie. He did not know what that was for, and it might have been to buy chocolates with. He believed as a matter of fact that the whole of the company at the Palace Theatre that week were paid by Dr. Bodie himself.

Mr. Purnell, for the defence, said that the whole of the show was run by Dr. Bodie, and that the prosecution could not take up any particular item and say that that was where a profit was being made. In reply to the Chairman, Mr. Purnell said that he considered that the performance of these children did not contribute to the profit as a whole, their appearance was not part of the programme as announced on the bills. Mr. Purnell argued that the children were grateful for the cure which had been effected. The Chairman said that the magistrates could scarcely accept the theory that the children came of their own free will.

One of the children, a girl, aged 11, was called as a witness. She said that she had been operated on by Dr. Bodie eighteen months before; she had gone on the present occasion to show herself and to thank him; she was not paid, but got a shilling for a box of chocolates. She went to the theatre every night during the week. In reply to Mr. Bird the child said that she received only one shilling on the Saturday night, and Dr. Bodie did not ask her on the Monday night to go again. The Chairman thought it was a made-up story, and that the evidence could not be accepted. The girl's mother gave corroborative evidence. In another case a child, a boy, denied that the defendant had asked him to attend or that he had received money, but in cross-examination he said that he had received a shilling on the Saturday night for a box of chocolates, and admitted with some hesitation that a letter had come from Rotherham to say that Dr. Bodie was going to Bradford: witness denied having told the inspector that Dr. Bodie had asked him to go to Leeds the next time he was there, and had arranged that a post-card should be sent. Another case, a boy, said he had received a shilling on the Thursday night, and threepence on the Friday night.

Mr. Purnell argued that the fact of the children walking on to the stage and thanking the defendant did not constitute a performance, their appearance was practically meant as a thank-offering, and the amount of money paid was so small as to be negligible.

Mr. Bird argued that the appearance of the children meant a gain to the defendant. The thanking was an integral part of his performance, and an interval was always made for these thanks to be given; even if there were no payment there was still an act of employment. The children had plenty of other chances to thank the defendant without doing so in such a public and systematic manner.

The magistrates found the charges proved in three cases, and imposed a fine of 2s. 6d. with 10s. costs in each case, or seven days' imprisonment: a fourth case was dismissed. On the application of Mr. Purnell the chairman consented to state a case. The above report is taken from that which appeared in the *Yorkshire Daily Observer* for July 20th.

"BILE BEANS"

THE Second Division of the Court of Session (four Judges) at Edinburgh gave judgement on Friday, July 20th, in an appeal against a judgement in the Outer House, in which the Bile Bean Manufacturing Company, Limited, Greek Street, Leeds, sought to interdict an Edinburgh chemist from selling under the name of "Bile Beans" any pills or other articles not made or supplied by the complainers. Interdict was refused in the Outer House, and the Second Division adhered to this judgement. The Lord Justice-Clerk said the bile beans of the complainers were said to be made of Australian vegetable substances discovered by a Charles Forde. The place of the discovery, the mode of it, and the instrument of it were all deliberate inventions, without any foundation in fact. The story was that Charles Forde, who was described as a skilled scientist, had noted the fact that the natives of Australia were free from bodily ailments, and that after research and investigation he had ascertained that that immunity was obtained by the vegetable substances. All that, in every particular, was false. There was never such a person as Charles Forde, and there was no eminent scientist engaged in such research in Australia. The truth was that the complainers had formed a scheme to palm off upon the public a medicine obtained from America, and they created a demand by flooding the country with advertisements, placards, pamphlets, and imaginary pictures. The complainers desired protection for the name "Bile Beans," but being themselves engaged in perpetrating a fraud upon the public, they were not entitled to any such protection.

A DISCLAIMER.

DR. ARTHUR W. WHEATLY (59, Abingdon Villas, Kensington, W.) writes: My attention has to-day been drawn to your article, The Newspaper Tout for Patients, in your column Medico-Legal and Medico-Ethical of date July 14th, 1906. I take this my earliest opportunity of disclaiming any knowledge of the weekly newspaper called the *Free Lance*, or of the "Dr. A. W. Wheatley" whose name appears in their advertisement. As I believe I am the only registered practitioner with those initials and name, I shall be obliged by your giving due publicity to my disclaimer.

PREMATURE CANVASSING.

H. H. R. CLARKE writes, that at a recent meeting of the local Board of Guardians it was suggested that all the public vaccinators should be given notice and one man be appointed at a fixed salary. Although the appointment had not been advertised, the father of a local medical practitioner had canvassed some of the guardians on his son's behalf. Our correspondent wishes to know whether this was unprofessional conduct which should be brought before the notice of a local medical society.

*** It is a recognized rule that a medical practitioner should not canvass for an appointment until it is advertised, but it would have to be shown that he was responsible for his father's action.

THE late Miss Claudia Griffiths, of Dylaisfach, Neath, who died on May 4th, left £1,000 each to the Swansea General Hospital, the National Hospital for the Paralysed and Epileptic, and the Royal National Pension Fund for Nurses, and £500 to the Nursing Institution at Neath.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

M.D., BRANCH I (*Medicine*).—J. H. Clatworthy, Guy's Hospital; F. C. B. Gittings, Middlesex Hospital; Louisa Hamilton, B.S., London (R.F.H.) School of Medicine for Women; C. V. Knight, St. Bartholomew's Hospital; H. C. C. Mann, B.S., Guy's Hospital; E. H. B. Milson, Guy's Hospital; E. C. Myott, B.S., Guy's Hospital and Victoria University; T. Perrin, B.S., St. Thomas's Hospital; H. Pritchard, B.S., St. Bartholomew's Hospital; W. A. Rees, Middlesex Hospital; G. H. Sowry, B.S., St. Bartholomew's Hospital; H. F. B. Walker, Guy's Hospital; H. E. Wise, Middlesex Hospital.

M.D., BRANCH III (*Mental Diseases and Psychology*).—G. W. Smith, Guy's Hospital.

M.D., BRANCH IV (*Midwifery and Diseases of Women*).—G. E. Aubrey, B.S., St. Bartholomew's Hospital; Lucian A. E. De Zilwa, B.Sc., University College; L. S. H. Glanville, B.S., Guy's Hospital; W. P. Gowland, B.S., Victoria University; E. C. Mackay, B.S., St. Bartholomew's Hospital; H. F. Seymour, London Hospital; F. E. Taylor, B.S., University of Leeds and King's College; E. F. Travers, St. Bartholomew's Hospital; V. G. Ward, St. Bartholomew's Hospital; Florence E. Willey, M.S., B.Sc., London (R.F.H.) School of Medicine for Women.

M.D., BRANCH V (*State Medicine*).—M. J. Rees, Guy's Hospital.

M.D., BRANCH VI (*Tropical Medicine*).—F. N. White, St. Bartholomew's Hospital and London School of Tropical Medicine.

M.S.—T. P. Legg, King's College and St. Bartholomew's Hospital; W. P. Noall, Royal Infirmary Manchester and London Hospital; W. G. Taylor, B.Sc., Middlesex Hospital.

UNIVERSITY OF EDINBURGH.

University Court.

AT a meeting of the University Court on July 16th, an application by the Scottish Association for the Medical Education of Women, for continuance of recognition, for next academical year, of the Edinburgh Medical College for Women, Minto House, and for permission to hold certain mixed classes in connexion with the College, was granted.

The Court granted recognition as follows: (1) Dr. F. D. Boyd, Edinburgh (materia medica); (2) Dr. J. Taylor Grant, Edinburgh (practical bacteriology—qualifying for the diploma in Tropical Medicine and Hygiene). It was agreed to recognize the course in Chemistry and Practical Chemistry in the Madras College of Agriculture as qualifying for the First Science Examination.

UNIVERSITY OF ABERDEEN.

DR. CARSTAIRS C. DOUGLAS has been appointed Examiner in Medical Jurisprudence and Public Health for a period of four years.

ROYAL UNIVERSITY OF IRELAND.

Regulations for the Award of Honours.

ON Friday, July 20th, Sir Andrew Porter, Master of the Rolls, and Sir Wm. Anson, Bart., M.P., Visitors appointed by the King, sat in the Senate Room of the Royal University to determine certain questions which had arisen regarding honours awarded in that institution. The Act of 1879 says:

Provision shall be made that no student holding any exhibition scholarship, fellowship, or other similar prize in any other university or in any college attached to a university, or in any college endowed with public money, shall hold any of the said exhibitions, scholarships, fellowships, or other prizes in the University without taking the value of such previous exhibition, scholarship, fellowship, or other similar prize into account.

And the University accordingly made the following regulation:

No student holding any exhibition, scholarship, fellowship, or other similar prize in any other university, or in any college attached to a university, or in any college endowed with public money, can hold any of the exhibitions, scholarships, fellowships, or other prizes in the Royal University without taking into account the value of such other exhibition, scholarship, fellowship, or other similar prize.

Doubts had arisen as to the meaning of "holding" and "hold." In the regulation the word "other" was used instead of "previous" in the Act, and one of the questions was whether that was the correct word. The enactment, which was intended to prevent the enjoyment of concurrent emoluments, had led to considerable difficulty—so much so that no less than ten cases had been submitted to the law officers on questions arising on the construction of the subsection; but, so far as the present visitation was concerned, the specific instances might be grouped as follows: There were candidates who, after having submitted themselves for examination in the Royal University, went to Trinity College and obtained sizarships there. Their examination in the Royal University taking place in June, after it had concluded, but before the result was published they obtained the Trinity Sizarship, the result of which was declared on July 3rd. The result of the examination in the Royal University was published later in July. On the receipt of queries as to whether they held emoluments in other universities than the Royal, their reply was that they were not the holders of the sizarships in a sense that deprived them of the emoluments in the Royal University, their contention being that at the time when their examination in the Royal concluded they were not the holders of other university emoluments. They went farther, and contended that inasmuch as the enjoyment of the sizarship emolument did not commence until the following October, when they entered into residence as sizars, they held no emolument at the date when the Royal University prize was awarded. There were two students who obtained in the year 1904 scholarships in the College of Science, but these were not awarded by the College, but by the Department of Agriculture, and were to be competed for and enjoyed in the College of Science. On January 27th, 1905, the Standing Committee recommended:

That if any student to whom a prize had been awarded should within a calendar year preceding the date thereof have been in receipt of emoluments from any other university or college, he should not hold the prize without taking into account the value of the other emolument.

They reported against the use of the word "holding." The Senate passed a resolution accordingly. With regard to the Queen's College Scholarships, these were awarded in November in each year, and were tenable for one year. The contention with regard to them was that "year" meant "session," which ended in June; and that as the student had then got all the money that he was entitled to, he ceased to be the holder of an emolument, and could get one from the Royal University in the following October. The opposite view was that "year" meant twelve months, which would exclude the holding of the second emolument.

Counsel having been heard at great length,

Sir William Anson said the Visitors had come to the conclusion that the resolution of the Senate proceeded on the assumption that it was possible to construe the word "holding" as "having held." The Visitors did not consider that that was a possible construction, that the student who was disqualified from holding a prize of any sort at the Royal University must be actually holding some prize of the sort included under Subsection 4. It would follow, therefore, that the resolution of the Senate was *ultra vires*. They (the Visitors) considered that the word "previous" could not be construed, as suggested, as equivalent to "aforesaid." Therefore, it was possible for a student to hold two of these prizes at the same time, so long as at the moment he was awarded a prize at the Royal University he was not holding a similar prize previously obtained. As regarded the point raised under Section 13, they had come to the conclusion that that reference to students at the moment of the dissolution of the Queen's University could not be construed to exempt students for all time from the operation of the Act of 1879; but, on the other hand, although they did not consider that the Queen's Colleges were exempt under that clause, that as the matter of the tenure of their scholarship was one of College regulation, and as the Colleges had always construed the scholarship to be awarded for the academical year, the Visitors were entitled to construe the year of tenure as the academical year, and not a calendar year. As a consequence of that, they held that a scholarship which had run out in June at the end of the academical year would not affect an exhibition or other prize obtained at the Royal University and awarded in July. As to an appeal in regard to a sizarship in Trinity College, they were of opinion that although the examination at which the Royal University Exhibition was awarded concluded in June, yet inasmuch as the announcement of the award, which was in substance the award, did not take place till the end of July, whereas the sizarship was awarded at the beginning of July, the sizarship must be regarded as a "previous exhibition, scholarship, fellowship, or other similar prize," and, therefore, as not tenable by the students of the Royal University. As regarded the appeals from students who held allowances from the Department of Agriculture, the views of the Visitors were that these are not held from colleges endowed by public money, but from a public department, and that therefore they are not affected by the words of the subsection.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A QUARTERLY meeting of the Royal College of Physicians of Edinburgh was held on Tuesday, July 17th, Dr. Playfair (President) in the chair.

Fellowship.

Andrew Balfour, M.D., B.Sc., D.P.H. (Camb.), was introduced and took his seat as a Fellow of the College; Sydney Wilson Thompstone, M.R.C.P.E., Zungeru, Northern Nigeria, West Africa, was admitted by ballot to the Fellowship of the College.

Admission to the Membership.

On a ballot the following candidates were admitted to the Membership of the College after examination: James Mair Rutherford, M.B., C.M., Edinburgh, and John McGibbon, M.B., Ch.B., L.R.C.P. and S.E., Edinburgh.

Admission to the Licence.

The Registrar reported that since the last quarterly meeting of the College twenty-five persons had obtained the licence of the College by examination.

Recognition of Lecturer.

Dr. Francis Darby Boyd, C.M.G., was recognized as a Lecturer on Materia Medica.

Curriculum and Examinations.

The regulations regarding the Membership and Fellowship of the College for the ensuing year, and the regulations for the Triple Qualification were approved.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following gentlemen have been admitted ordinary Fellows: C. H. Allen, J. R. Atkinson, K. Dadabhoy, J. M. Darling, W. H. Duncan, S. L. Heald, T. W. Irvine, I.M.S., J. A. Longley, J. C. Muir, J. K. Osborne, G. Potts, A. T. Ross, D. H. Wessels, A. L. White.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST EXAMINATION (*Five Years' Course*).—G. F. Hegarty, J. W. Robertson, S. C. Pal, T. N. Usher, G. F. Neill, Amabile Caruana, H. H. Field-Martell, R. G. Walker (with distinction), R. A. Mirzan, W. T. Torrance, A. E. Tughan, S. E. A. Acheson, C. B. Robinson, and T. Crawford.

SECOND EXAMINATION (*Four Years' Course*).—J. J. O'Sullivan, G. Harrison.

SECOND EXAMINATION (*Five Years' Course*).—R. H. La B. Cummins, W. F. Mitchell, B. Singh, T. G. Shand, J. du T. Malan, J. L. Pinto, C. J. Evans, Lily Holt, W. Henderson, A. Davidson, J. Grosert, E. Lewis, and J. Aiken.

THIRD EXAMINATION (*Five Years' Course*).—H. G. Ramsbottom, G. W. Rundle, G. E. W. Henderson, N. G. Walshe-Davidson, T. Mohan, Mary Rathbone, C. C. Campbell, R. M. Riggall, W. H. Bennett, S. M. Ware, H. H. Jackson, J. B. Kelso, R. G. Sherlock, B. S. Tirapurvalla, P. M. Tolmie, C. A. Paterson, W. R. Waddell, E. J. Lumsden, Lizzie L. de la Harpe, and R. H. la B. Cummins.

FINAL EXAMINATION.—Mary D. Hancock, K. S. Kania, J. A. Kane, T. McL. Galloway, M. Gavin, E. Martin, L. C. Webster, W. W. Dunlop, D. J. M. Legge, H. A. Pascoe, E. A. Williams (with honours), W. Scott, J. S. Phillips, G. H. Powell, L. H. Gill, P. R. Eskell, J. O. Shircore, T. A. Gregg, C. F. Fiaschi, W. J. Geale, Constance H. Colley, W. D. Dickson, and F. H. Everill.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the examinations indicated:

SURGERY.—*J. L. Meynell, †E. Sutcliffe, *E. J. F. Thomas, †G. L. Walker.

MEDICINE.—†*A. C. J. Elwin, *E. Gay, †*J. H. May, *J. L. Meynell, †*E. Moir, †L. Nicholls, †A. F. Reardon, †*A. Shepperd, †*E. W. Squire, *E. J. F. Thomas, †W. H. Williams.

FORENSIC MEDICINE.—E. V. Connellan, A. C. J. Elwin, W. H. Lister, E. Morris, L. Nicholls, A. Shepperd, E. W. Squire, F. A. K. Stuart, W. H. Williams.

MIDWIFERY.—E. R. Bastard, E. S. Cooke, G. B. Messenger, L. Nicholls, P. D. Pickles.

* Section II. † Section I.

The diploma of the Society has been granted to Messrs. H. J. May, J. L. Meynell, E. Morris, and E. J. F. Thomas.

PUBLIC HEALTH
AND
POOR-LAW MEDICAL SERVICES.

PRESERVATIVES IN FOOD.

MILK.

THE Local Government Board in England has issued a circular to local authorities on the subject of the detection of preservatives in milk. The report of the Departmental Committee on this subject is quoted, and its opinion that there is absolutely no need for the use of preservatives in milk is stated. The two substances to which attention has been especially directed were formalin (that is, a 40 per cent. solution of formic aldehyde) and boron preservatives.

After detailing the action which has already been taken in some parts of the kingdom, the circular goes on to recommend united action on the part of all authorities who have the control of the sale of food and drugs. It is therefore desired that public analysts should include in their quarterly reports the particulars of any samples that have been examined for preservatives; and whether any other preservatives than formalin and boron have been employed; also any further facts as to samples of milk which have been so treated.

It is suggested that a circular should be issued to milksellers pointing out that such action will be taken, and subject to such notice, the Board considers that proceedings might be taken under the Sale of Food and Drugs Acts. Attention is further called to the possibility that the vendor may seek to protect himself by a declaration under Section 6 of the Act of 1875 by declaring the presence of a preservative, in which case samples should be taken more frequently.

As to the amount added, the Board considers that any excess over 1 part in 40,000 of formalin or 40 grains of boric acid per gallon is calculated to be to the prejudice of the purchaser.

The action of the Local Government Board is decidedly encouraging in the interests of the consumer. The purity of our milk supply is of the utmost importance to those whose food mainly consists of it, and whose physical state is most in need of being safeguarded from the poisons which are calculated to produce chronic indigestion and consequent malnutrition. Hitherto no standard for the guidance of public analysts has been laid down, and although it is unfortunate that after a Departmental Committee has reported that preservatives are wholly unnecessary, it should be found advisable to admit the presence of any, we welcome a rule which will at any rate do much to abolish the recurrence of such cases as that quoted in Dr. Thresh's book from Leeds.

The section of the Act of 1875 to which reference is made has always kept a door open for the use of adulterants which has been a source of trouble to the courts, and it would appear wise that at any rate milk and butter should either be sold under their proper names and guaranteed free from any adulteration, or that a distinctive name should be given to any substitute or doctored form which may be put upon the market.

It has been clearly demonstrated that if milk is properly cooled there is no need for the use of preservatives; it is therefore to be hoped that the action taken by local authorities under this circular will produce good and increasingly satisfactory results.

CANNED MEAT.

Apart from the scare originated by the revelations of the American methods of cleanliness, etc., the question remains as to the freedom of home products from suspicion, not merely as regards hygienic methods but also with respect to the undue use of preservatives and the abuse of the employment of colouring matters.

The circular recently issued by the Local Government Board, and accompanied by a further letter from Dr. George Buchanan has stimulated local authorities in the discharge of their duties in inspecting food and drugs, but in view of the multiplicity of canning firms the task is difficult and there is a liability to overlapping.

The difficulties of the procedure have been well exemplified by the report of the action taken by the Middlesex County Council in the matter of some tinned goods supplied to the canteen at Hounslow Barracks, and largely loaded with a form of preservative. The Bench was of opinion that 52 gr. per pound of boracic acid in potted ham was injurious to health and that a conviction must follow. The evidence of the public analyst and of Dr. Sykes, M.O.H. St. Pancras, was clear and decisive, and the Bench had no difficulty in accepting it.

It is sincerely to be hoped that, assisted by the success achieved by the Middlesex County Council, other authorities will take action to stamp out this particular menace to the health of the consumer.

The Metropolitan Branch of the Incorporated Society of Medical Officers of Health has sent a circular letter to the London local governing bodies requesting them, in order to secure better protection for the public in regard to tinned and preserved foods, to make representations to the Local Government Board and the Board of Agriculture that legislation should be passed embodying the following reforms:—(*a*) The name and address of the manufacturer and the date of canning shall be impressed on the cans. (*b*) It shall be unlawful to sell for any purpose canned foods that are unfit for human consumption, and it shall be the duty of any person in possession of unsound canned foods to notify and surrender same to the local authority, who shall destroy such unsound food free of charge. (*c*) A certain number of tins—say 1 per cent.—from each consignment shall be opened on importation, and the contents examined under the supervision or instructions of the sanitary authority concerned prior to such canned foods being placed on the market. (*d*) Tins which are known in the trade as "doubtfuls" shall be deemed to be unfit for human consumption. (*e*) Food intended for canning shall be inspected by independent officials prior to being canned, and all foods shall be canned under strictly hygienic conditions. (*f*) The use of preservatives in canned foods should under no circumstances be permitted.

SUMMER DIARRHOEA IN INFANTS.

THE prevalence of summer diarrhoea in infants and its high mortality are alike deplorable, and this the more so as it is in a large measure a preventable disease. Any measures, then, which can be devised for its prevention are deserving of commendation, and the step taken by the authorities of the Paddington Green Children's Hospital in issuing the following card of instructions to mothers is one that might be followed with advantage by other bodies:

SUMMER DIARRHOEA IN INFANTS.

Hundreds of infants die in London during the summer from diarrhoea and sickness, which may, with proper care, be prevented, but cannot always be cured. If mothers will read carefully and carry out the following instructions, they may hope to save their infants from dying of these complaints.

1. BREAST-FED BABIES.

Diarrhoea and sickness are much more common in bottle-fed than in breast-fed babies, therefore mothers should always suckle their infants when possible for eight or nine months.

But infants should *not* be weaned during the hot weather.

To Prevent Diarrhoea in Breast-fed Babies.

Suckle the baby regularly, *not* every time it cries.
Give the baby *nothing* but the breast milk and water to drink.
Wash the mother's breasts and nipples before and after suckling.
Wash the inside of the baby's mouth with a clean wet rag after nursing.

On no Account Give Babies Fruit, Ice-cream, Fried Fish, or Bits from their Mother's Plate.

To strengthen herself, the mother should take milk and plain food, *not* beer or stout or spirits.

Nursing mothers should avoid over-work and fatigue, and should remember that worrying or quarrelling may spoil their milk, and give the baby diarrhoea.

In summer any dirt entering the mouth may produce diarrhœa. Therefore, do not let babies suck dirty soothers, teats, comforters, or thumbs.

II. BOTTLE-FED BABIES.

Summer diarrhœa in infants is chiefly due to bad milk and dirty feeding bottles and teats.

In hot weather milk quickly turns sour or becomes tainted by dust, dirt, and flies, and may easily bring on diarrhœa unless the following *precautions* are taken:

Buy the milk *twice* a day—not *once* only—and get the best cow's milk you can, as cheap milk is always dangerous.

Boil it at once for one or two minutes.

Then place it in a covered vessel in a basin of cold water and keep cool. The milk must be covered over to prevent dust and flies from reaching it.

Always taste the milk, in a spoon, before putting it into the bottle, to see that it has not turned sour. *Do not* put the teat in your own mouth at all.

Do *not* keep any milk left in the bottle for the infant's next meal. Use it for yourself or the rest of the family.

The bottle should be boat-shaped, with an indiarubber teat, but *no* long rubber tube.

The bottle should be scalded out after use, and cleaned with a bottle brush, which should be boiled immediately before using.

After each feed the nipple should be turned inside out and washed, and kept with the bottle in cold water.

Good milk is often spoiled by dirty bottles.

When fresh cow's milk cannot be obtained, or the milk has turned sour, use the best sweetened condensed milk.

Get small tins, as after the tin is opened the milk will soon go bad.

Cover an opened tin with clean muslin or butter cloth to protect it from dust and flies, and keep in a cool place.

In any case of sudden diarrhœa or vomiting stop the milk at once, give only plain water which has been boiled, or barley water, and take the baby to a doctor without delay.

Do *not* think that the diarrhœa will pass off, as the baby may be so ill in twenty-four hours that no treatment will be of any use.

Do *not* be afraid that the baby will starve if only plain water or barley water is given for a day or two. There is no danger of this.

Do *not* think when a baby cries or is sick that it only wants more food.

In hot weather do *not* keep bones, stale vegetables, or fruit and other rubbish for the dust-bin, in the room or house. Burn as much of the rubbish as possible. Rubbish breeds flies, and flies poison the food they settle on.

The instructions seem admirably adapted for their purpose. More emphasis might, perhaps, have been laid on the fact that in summer infants, like adults, suffer from thirst, and that in many instances a few teaspoonfuls of cold water are more grateful to them than milk in any shape. In very hot weather it is advisable to diminish the amount of cow's milk given, either by a further dilution of the strength or a lessening of the quantity of each meal, and to make up the deficiency in fluid by the administration of cold water at intervals. Instead of sweetened condensed milk, we would have preferred a good brand of unsweetened, which, after opening, should be treated in the manner advised for the storing of cow's milk.

It is open to question whether the paragraph about the safety of giving plain water or barley water for a day or two is advisable in a list of instructions to mothers; such treatment should only be carried out under the strictest medical supervision. The slight criticism we have ventured is, however, largely a matter of opinion, and in no way diminishes our appreciation of the instructions as a whole.

THE MUDDLE IN RURAL SANITARY ADMINISTRATION.

WE have from time to time commented upon the policy of the Local Government Board in connexion with a plurality of medical officers of health in a district. The wisdom of this policy has never been more clearly shown than in the case of the Pocklington rural district in the East Riding of Yorkshire. The population of this district is about 11,000, and two of the Poor-law medical officers are the medical officers of health. This arrangement has been considered so unsatisfactory that the Board has refused since 1895 to sanction the appointments, with the result that the district loses the moiety of the salaries which would otherwise be obtained from county funds. A vacancy recently occurred in one of the offices, but the district council continued the dual arrangement. One medical officer of health has under his care about three-fourths of the district, and although there are two inspectors of nuisances their districts do not correspond with the districts allotted to the medical officers of health. The latter are not asked to attend the meetings of the sanitary authority, and their advice upon public health matters is apparently not sought. One result of this independent action of the district council is described by Dr. Darra Mair in a report recently issued by the Local Government Board. After the occurrence last year of a case of small-pox an iron hospital was erected for the purpose of isolating other cases. This building is supported on railway sleepers, and consists of three rooms each about 15 ft. square. There is one window in each room, and ventilation is provided for by trap doors in the boarded ceiling, and by a narrow hinged flap above each window. The nearest water supply is three-quarters of a mile distant. So unsuitable does Dr. Mair consider this building for the purpose that he states great risk to life would be involved in putting a person actually ill in such a place. He does not exaggerate when he says that it would be difficult to find another example of so hopeless a waste of public money as has taken place in connexion with the expenditure of the £66 which was the cost of this so-called hospital.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

A. B. (Lytham) desires information as to a dry and sunny part of England suitable as a wintering place for a patient convalescent from sprue.

P. E. A. desires to hear of a suitable seaside nursing home for a medical man suffering from locomotor ataxia at a cost not exceeding 1½ guineas a week; he requires no nursing, and can look after himself generally.

G. E. D. asks: Which places in Ceylon would be most suitable for a patient who had mild acute nephritis a year ago, and who contemplates a three weeks' stay in the island next November?

COMPENSATION asks whether, in the coal districts, there are many, or any, indemnity companies for dealing with the Workmen's Compensation Act. He knows such a one exists in Cumberland, and is anxious to know if there are others, and where.

M. D. asks advice on the following case: Four years ago a lady had pediculi in the hair, and nits also. The hair, though long, was not cut, but vigorous treatment and washings exterminated the vermin. She now suffers at times from excessive itching of the scalp, no redness nor spots can be seen, but excessive "dandruff." The itching is confined only to the scalp, but the inside of the stockings are usually powdered with minute scales of epidermis. She suffers slightly from rheumatism, but is otherwise healthy.

PUZZLED asks for advice in the treatment of a lady, aged 55, who for about three years has lost thermal sensation in the left leg. She felt no difference between hot and cold water when the leg up to the knee was placed in either. Pain and tactile sense and muscular power are retained. The knee-jerks are normal, and Babinsky's sign and ankle clonus are not present. The leg always feels tired and heavy. There is a history of a pelvic tumour, probably fibroid, fifteen years ago, which disappeared. The heart and lungs are sound, and the action of skin and emunctories normal.

ANSWERS.

B. W.—Professor Bower's *Course of Practical Instruction in Botany* (London: Macmillan and Co., 10s. 6d.) has gone through several editions since it first appeared in 1885, and has been kept up to date.

DR. E. CARNELL (Harrogate) writes in reply to "C. G.," who inquired where the treatment of fever and congestion of the liver as carried out at Homburg could be obtained in this country, to advise a trial at Harrogate, and adds that full information can be obtained from Mr. Brickland, Royal Baths, Harrogate.

TUBERCULOSIS AND MILK SUPPLIES.

M.O.H.—Of necessity the answer must depend largely upon how thoroughly he wishes to go into the matter. Swithinback and Newman's *Bacteriology of Milk* (London: John Murray, 1903. 25s.) contains many references to tuberculosis. Our correspondent might also consult the minutes of evidence given before the Royal Commission of 1895 upon the effect on human health of food derived from tuberculous animals (Eyre and Spottiswoode, Fetter Lane, E.C.) As to the sanitary arrangements of houses he will probably get all he wants in an up-to-date textbook such as Parkes and Kenwood's *Hygiene and Public Health* (Second edition, London: H. K. Lewis, 1902, 12s.); or if he wants to go into the matter with more constructional detail there is an excellent work entitled *The Principles and Practice of Modern House Construction*, edited by G. Lister Sutcliffe, in six volumes. (London: Gresham Publishing Company, 1902, 8s. each volume).

THE TREATMENT OF TERTIARY SYPHILIS.

T. M. writes to recommend "I" to try either hyodin (which is Gardner's syrup of hydriodic acid), or syrup trifolium (Parke Davis and Co.'s), and he feels confident that the patient will be able to take either of them with benefit.

DR. T. STRETCH DOWSE (Littleham, South Devon) does not agree that "the specific treatment of tertiary syphilis unfortunately is confined to that by the iodides," and adds: In most of the multifarious manifestations of so-called tertiary syphilis, "mercury" in some form is far more effective than the iodides. May I suggest in his own particular case the administration of ½ gr. of grey powder three times a day, or ℥j of the liq. hydrargyri perchloridi three times a day, or the intramuscular injection of mercurial cream (BRITISH MEDICAL JOURNAL, November 11th, 1905), or

a course of Aachen mercurio-sulphur treatment; a generous diet with wine is also to be recommended.

Dr. John Broom (Kirriemuir, Forfar, N.B.) writes: May I suggest that "I" give his patient ℞ Liq. hyd. bic. ℥j, pot. iod. gr. vj, aq. ad ℥viij, to form biniodide solution with a little pot. iod. in excess, ℥ss three times daily, and increase to four, five, or six times daily. I can assure him of success if he does this and this only. I do not agree with the dictum stated in the first sentence of his query, namely, that "the specific treatment of tertiary syphilis is confined to that by the iodides," if he means by that pot. iod. and sod. iod. alone.

I Secundus writes: In a case such as "I" describes, where pot. iod. is not tolerated, I should recommend him to try some such prescription as this: liq. hyd. perchlor. ♏xv, liq. arsenicalis ♏v, aq. chloroformi ad ℥j, t. d. s. post cibum. I have found treatment on this line beneficial in syphilitic psoriasis, where the iodide could not be taken; as also in psoriasis occurring in young people in whom the trouble is inherited. It certainly is not logical to limit treatment to the iodide without first defining "tertiary" syphilis.

Major F. J. W. Porter, R.A.M.C. (Military Hospital, Colchester), writes: In reply to your correspondent "I," I would suggest his giving ext. sarsae. liq. ℥j three times a day, in addition to an intramuscular injection of mercurial cream (Lambkin's formula) ♏v once weekly. I have seen most marvellous results in tertiary syphilis lately from using this preparation of sarsaparilla *as an adjunct* to mercury by injection and potassium iodide gr. v three times a day by the mouth. Cases which were at a standstill immediately began to improve, and gained an average of 3 lb. a week. Of the virtues of sarsaparilla by itself I have no experience. I am having a trial of this method of treatment carried out at another of our military hospitals, but have not yet heard the results. I should be glad if your correspondent would use it, of course omitting the iodide which evidently is not tolerated. I have never yet seen the case of tertiary syphilis to which I was afraid to give mercury.

Motor Cycles and Motor Cars.

Dr. Clarence Beesley (Exmouth) writes: Dr. A. S. Gubb must have been unfortunate in his choice of a motor cycle to write so disparagingly about these handy little vehicles. I have ridden one every day, wet or fine, for four years, and have been several long tours, without experiencing the troubles and dangers he enumerates. I have just ordered a "Roc" 4-h.p. with magneto ignition, free engine, and very low frame (no pedals); and if this equals my old machine in reliability (as I know it will excel it in ease of manipulation), I shall be satisfied. As regards the state of a motor cyclist after a ten-mile run, granting that he is a "thing of beauty" at the beginning of the run, I am certain that neither a run of ten nor fifty miles will impair his "beauty" or cleanliness, if the ordinary precaution is taken of being suitably dressed, that is, dust coat and leggings. After riding over 15,000 miles, my experience is that, given a good English-made machine, very few roadside adjustments are necessary, and the hands are always clean.

Tachycardia Treated by Cold Affusion.

Fleet Surgeon W. Eames, R.N. (Yelverton), writes: In connexion with Dr. Macmillan's note on the treatment of tachycardia by cold affusion in the British Medical Journal of July 21st, page 179, I would mention a case in a friend of mine, which was most intractable, resisting all the usual remedies for its relief. The patient ultimately proceeded to Switzerland, where he placed himself under treatment at one of the spas. The treatment consisted in the application of iced-water compresses to the cardiac area twice or three times daily as requisite, the result being immediately beneficial and ultimately curative. A special dietetic régime was associated with this treatment, as the condition was evidently in this case secondary to digestive trouble.

NOTES, LETTERS, Etc.

Aspirin in Hay Fever.

Dr. Alex. S. Petrie (London) writes: A month ago a patient suffering from very severe hay fever told me she had been advised by a lay friend to take aspirin, and wanted to know whether she might do so. After three days of 5 gr. four times a day she had improved, and has been almost free ever since. She certainly looks vastly better, and says she has not had such a free time for many years. I do not know whether the aspirin deserves all the credit, but the effect was so marked that I think it worth recording in case the drug may be of use to others in this malady.

Cause of Faucial Inflammation.

Dr. A. Shaw Mellor (London, W.) writes: A patient (adult) complained of sore throat with pain on swallowing, on the left side. The left tonsil was found enlarged and, with the surrounding mucous membrane, red and angry-looking; a small white patch about the size of a pin's head was seen at the upper posterior margin of the tonsil where it joins the posterior pillar of the fauces. At first it was thought that this patch was due to exudation from one of the tonsillar crypts, but closer examination with a probe showed that it was the only visible portion of a mass of white, sour-smelling material, about the size of a pea, which occupied a pocket between the tonsil and the posterior pillar. The pocket was completely cleared out, with the result that all the symptoms soon disappeared; there has as yet been no further accumulation. It is difficult to understand how food could reach and remain in such a situation, but it was probably assisted by movements of the palato-pharyngeus muscle during deglutition. It seems quite possible that some cases of unilateral tonsillitis may be traced to a similar cause.

*** Such pockets are not uncommon. The opening is usually at the top and is big enough to admit a stout probe. Patients sometimes learn to express the contents periodically when the throat becomes sore. It may be necessary to slit the pocket and cut away the walls. The contents of such pockets are generally more or less gritty and cretaceous, of about the consistence of curded cream and emit a very fetid odour if rubbed between the finger and thumb.

Zinc Chloride as an Escharotic.

Dr. Thomas Hayes (Rathreale, Ireland) writes: L. E., aged 42, rather delicate looking but fairly plump, blue-eyed and with very fine skin, stated that when 15 years of age she had some "kernels" behind the right ear, which were treated at the local dispensary and painted with iodine. After some years the swellings formed an abscess at the angle of the jaw, which was lanced, but it never healed. After some years a small hard lump formed over the front of the angle of the right jaw, which broke out also and partially healed. She had been treated at various dispensaries and hospitals without permanent benefit. When first seen, on March 18th, 1904, the entire pinna of the right ear was covered with spongy, greyish, ulcerative plaques almost confluent. The part between the ear and mastoid process was swollen, red, and glossy. There were many ulcerated spots in front of the ear and behind and underneath the jaw. The cheek was livid and studded with small nodules and pimples, some covered with scabs. I applied the solid stick of zinc chloride to each of the ulcerated areas, and a strong solution of 30 per cent. to the pimples and nodules in the face, then a free dusting of flour, and over this a covering of absorbent cotton. I directed that a poultice of linseed meal should be applied after twenty-four hours and continued daily until next visit, which was to be in a week's time. I was glad to find that the treatment effected an improvement. The parts looked healthier and less inflamed. The patient visited me weekly for twelve months. The ulcers covering the ear and those that subsequently developed cleaned and healed rapidly by a weekly application as above described, and at the end of the year the ears, neck, cheeks, and the whole area affected present a perfect, healthy appearance, with very little deformity. I do not know any of the escharotics which produces such a lively, healthy reaction and the effects of which heal so satisfactorily as chloride of zinc.

Labour Obstructed by Unruptured Hymen.

Dr. Edwin Chill (Ealing, W.) writes: The following case, which came under my care some time ago in North London, is worth recording. With an experience of over 3,000 labours during the last twenty-three years, this is the only example of the kind I have had, though similar instances are mentioned in obstetrical works. The patient was a young woman who had been married about a year. When summoned to attend, labour had progressed for many hours, for the fetal head was well down on the perineum. The hymen was firm, rigid, and unyielding, and would not admit even the little finger. As this condition was obstructing labour, I made several incisions into the hard, fibrous material, after which delivery proceeded naturally. The perineum was slightly lacerated, but this was purposely left unsutured. The presentation was normal; no complications followed, and the mother subsequently did well.

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A Short Summary

OF THE

DEVELOPMENT OF THE TREATMENT OF UTERINE FIBROMYOMATA WITHIN THE LAST TWENTY-FIVE YEARS,

With a Record of over One Hundred Consecutive Successful Cases of Supravaginal Hysterectomy.

By F. W. N. HAULTAIN, M.D., F.R.C.P.Edin.,

Lecturer on Midwifery and Diseases of Women, Edinburgh School of Medicine.

The development of and success in the treatment of uterine fibromyomata during the last twenty-five years may be considered the greatest advance of gynaecology, and takes its place in the very van of surgery, or any of the marvellous strides which have been made in medical science. Not so much is this due only to the actual success, but chiefly to the benefits that have accrued to the welfare of enormous numbers of suffering women; for uterine fibroids may be considered one of the commonest causes of prolonged suffering and invalidism to which they are heir.

In 1884 Lawson Tait, to whom we owe so much in the development of gynaecological surgery, wrote[1]:

I have now come to speak of hysterectomy, concerning which I may say at once is an operation which I detest. Its mortality is fearful. My own mortality has been 35 per cent. Every patient, or at least nearly every one, who recovers does so, as it were, by the skin of her teeth. The amount of worry which is given me by every case even when successful is such as to be almost beyond the recompense of any fee, and the disappointment inflicted by every death is indescribable.

The mortality at the present time in efficient hands is less than 5 per cent. Comparison and comment is therefore superfluous. The treatment then and now must necessarily be viewed from widely different aspects, and in this connexion the views of Thorburn, one of the most able practical gynaecologists, are interesting and instructive. Writing in 1885 Thorburn in his textbook summarizes as follows:

Given 100 fibroids, 50 at least require scarcely any treatment medical or surgical. They will have no troublesome symptoms, and many of them will be discovered by accident alone, or will not be discovered at all. In the remaining 50, symptoms will lead to diagnosis, and demand treatment of some kind. I think it is not too much to say that of these the great majority may be rendered perfectly endurable and compatible with the enjoyment of life by medical means, including appliances for lifting up the mass and occasional minor surgical proceedings such as scarification, until the menopause brings still further relief or complete cure.

Some 10 per cent. of the 50 may require the aid of the operating surgeon. In certainly not more than one of them is he driven perforce to the repulsive proceeding of vaginal evulsion. In the remaining nine, removal of the ovaries cures the predominant symptoms and ensures absorption of the mass in all but a mere fraction.

These fractions spread over the community amount to a considerable number of cases, and so far we may say that when there is any kind of pedicle to be got for such tumours along with the containing uterus the whole mass may be removed with a mortality of some 40 or 50 per cent.

How different from the expression of opinion of many writers of the present day, according to whom the mere presence of a fibroid nodule is sufficient indication for hysterectomy!

It is questionable from their standpoint whether women with fibroids are happier as a class now than then; 50 per cent. then with fibroids suffered nothing and were allowed to lead an unmolested life, now they are in jeopardy of having the abdomen opened and being unnecessarily mutilated. Fortunately, however, the great bulk of gynaecologists steer the middle course, and affirm that the presence of a fibroid *per se* is no indication for operative procedure, and it is only when actual symptoms develop that treatment is to be considered. With this I am in entire accord.

At the present time the treatment of uterine fibromyomata may for all intents and purposes be divided into electrical and surgical. Medicinal means, with very few exceptions (as, for instance, when slight menorrhagia may be tided over till the menopause by ergot) may be said to be obsolete.

Electrical Treatment.

Electrical treatment as propounded by Apostoli I cannot but feel has not had accorded to it the deference it deserves. This perhaps is due to the fact that surgical methods have made such progress as entirely to supersede it. From a large practical experience of this method I am convinced that a very considerable proportion of cases are not only temporarily benefited and thus tided over till the menopause, but also are completely cured. When the mortality from hysterectomy and other surgical procedures was over 25 per cent. it was a method of treatment to be strongly recommended, but now that surgical methods are performed with such freedom from danger to life, its uncertainty and tediousness places it in the background. Still there is a proportion of sufferers from fibromyomata who resent operative procedure if any other possible method of treatment is of avail, and it seems to me that there is no reason why they should not have the benefits of a trial of the electrical procedure if they so desire. No more outstanding proof of the value of electrical treatment can be found than the fact that Thomas Keith, who was the most successful hysterectomist of his time, discarded surgery for this method, although in 1883 he had successfully performed twenty-three hysterectomies with but three deaths. Why Apostoli's treatment has failed to be recognized as a standard method of treatment, and is now practically obsolete, is difficult to determine. Perhaps it is due to its uncertainty, and to the haphazard manner it has been recommended and used as a universal panacea, which seems to be the fate of all advances in medical electricity. But there is no doubt in my mind that it is denounced unfairly as dangerous and useless by many who have given it an insufficient trial, if any at all; while others seem to have a completely mistaken notion of its application.

One is surprised, for instance, to read in Hirst's textbook[2] a description by one who was a member of a Committee of three appointed to investigate the treatment that a current of the strength of 40 milliampères is enough. No wonder the results were negative; and when that is taken in association with the elaborate method of application, little wonder is to be expressed with the fact that the Committee discarded it.

A current of less than 80 milliampères cannot be expected to have effect on a fibroid growth, if it be considered from a physiological aspect, and anything between that and 120 milliampères may be given with the utmost safety. To "unreservedly condemn" electro-negative puncture, as the same author does, is also entirely opposed to my experience; but perhaps it has also been used in a similar unsatisfactory manner. I again repeat that Apostoli's treatment of fibroids is one of great value, and feel obliged to do so from the benefits I have achieved by its adoption. Even now, when surgical methods have attained the extraordinary success they can boast of, it offers to those whose timidity refuses to allow them to undergo the ordeal of the knife an alternative worthy of trial, which must be respected in a free country such as ours. It has also been denounced as not only dangerous, but militating against safe subsequent operation. This, again, I can only infer is the dictum of those who have either not used it at all or have done so in an imperfect manner.

Out of more than 150 cases in which I have followed this method, both by electro-negative puncture and intrauterine positive treatment, I have never seen an untoward result, and in many of these in which I have subsequently had to operate no complications due to the previous electricity were observable.

Surgical Treatment.

The surgical treatment of uterine fibromyomata may be divided into:

1. Removal of the uterine appendages;
2. Removal of the tumour; and
3. Removal of the uterus and tumour.

Removal of the appendages as recommended by Lawson Tait, like electricity, has had its day, and formed a most valuable method of treatment before the more radical operative measures were perfected. It may simply be mentioned as a milestone on the road of surgical advance,

as its uncertainty of cure, inapplicability in many cases, and impossibility of performance in others, render it rarely worthy of adoption.

Removal of the tumour or tumours with or without the uterus now holds the field as practically the only surgical procedure. This may be performed according to the bent of the operator either vaginally or abdominally. The removal of the tumour alone, when pedunculated, must naturally be the operator's selection, but the removal of sessile fibroids by enucleation is still a much controverted question. From its conservative aspect it has indeed to be favourably considered when the growths are small and comparatively easily reached through the dilated or split cervix. Statistics show the mortality of about 5 per cent. in 1,781 cases collected from various well-known operators.

By the abdominal route, myomectomy is much more dangerous, and shows a mortality of nearly 10 per cent. in 807 cases. Further, it must be remembered how uncertain one must be that no other nodules are left in the uterine wall after the operation is completed. When the mortality and other facts of myomectomy are considered in comparison with the statistics of hysterectomy, it cannot but be apparent that there is much cause for favouring the latter procedure. Indeed, the development of hysterectomy may be said to have revolutionized our treatment of fibromyomata within the last twenty-five years.

Before 1883 there were reports from the various European countries and America of 573 cases collected by Bigelow.[3] Of these, 311 recovered and 241 died, so far as could be followed.

As in the development of ovariotomy, the stump was at first treated extra-abdominally, and haemorrhage controlled by wire ligature (*serre-noeud*, Pean), elastic ligature (Hegar), or clamps (Thomas Keith). Schroeder, however, treated the stump intra-abdominally and subperitoneally in the fashion of the present day, with the all-important exception of ligation of the uterine arteries. In his first 25 cases he had 10 deaths. The general mortality from either method was very similar:

Extra-abdominal, 247 cases—mortality 39 per cent.
Intra-abdominal, 84 cases—mortality 39.28 per cent.

Following the development of technique of ovariotomy by intra-abdominal treatment of the stump; in the face of the good results of Bantock and others, secured by the extra-abdominal method, hysterectomy has by the advanced technique of aseptic surgery become an operation of very limited risk. A review of the work of well-known operators of various nationalities within the last five years shows 2,081 cases, with a mortality of less than 5 per cent., and this is rapidly becoming lessened.

My own statistics in this relation show 203 cases by the supravaginal method, with 2 deaths; a consecutive series of 109 cases having been successful. One death occurred on the twelfth day suddenly from embolism. The other took place on the day after the operation on a patient whose blood showed 18 per cent. haemoglobin and 2¼ million red cells. Such results cannot be looked upon as other than exceptionally fortunate when one considers the unsatisfactory state of many of the cases operated upon, the result of intense anaemia, and weakened cardiac action. Still, they are sufficiently stimulating in warranting the recommendation of the operation.

Panhysterectomy, or removal of the entire uterus, has been advocated by some operators, but has little specially to recommend it, except in the rare cases in which the cervix is involved by the growth, or some malignant uterine complication is present. It certainly is an efficient bar to subsequent cervical cancer, but this sequel is so seldom met with as hardly to warrant the prolongation of the operation which is necessarily involved, or the increased mortality which is shown by statistics collected from the work of the best-known operators as 8.27 per cent. in 1,668 cases.

CONCLUSIONS.

From what has been said it cannot but be admitted that in the last twenty years our advice to women the victims of fibromyomata must necessarily have materially changed. Instead of commending 90 per cent. to a life of semi-invalidism till the climacteric arrived only probably to relieve their sufferings, we are now able to offer a certain prospect of cure to 95 per cent. at least.

Far be it from me to suggest that every woman the subject of fibromyomata should have to undergo treatment, surgical or otherwise. The excellent summary of Thorburn above quoted is as true to-day as it was when written. Fully half of those having fibroids have no symptoms and should be left alone, for these growths cannot in themselves be considered as a menace to life, or even a barrier to health, happiness, or usefulness.

When, however—as happens in one out of two cases—they cause symptoms from haemorrhage, pain, or pressure, it seems to me reprehensible not strongly to recommend active treatment.

To condemn a woman to a life of inutility and semi-invalidism during the most active years of her existence so that she may possibly spend a comfortable old age surely cannot be considered worthy of our profession when the risk of absolute immediate cure is so slight.

Fibroids are mainly met with in the "well-to-do," who can afford to rest so many hours daily, spend their "period" times in bed, and go to fashionable spas for change; they thus lend themselves to a temporizing inactivity which is out of the question in the working classes.

Doubtless, in the former class, the patient herself, in the majority of instances, supports the line of inactivity, as, from the slow and insidious manner in which she is reduced to inutility, she is unaware of her weakness and inefficiency, and at the same time is but too ready to coincide with any method of so-called treatment which avoids operation. It is pitiable to think that so many women in early middle life are thus encouraged to exist simply to avoid an operation with so little risk. Still more pitiable is it to know that they are encouraged in this almost suicidal attitude by the advice of those who assert that not only are they unsexed, but are liable to become insane. This canard cannot be too strongly denied as being without even the vestige of proof to substantiate it. Indeed, one might argue from the opposite standpoint; I have performed hysterectomy with complete success, simply on account of the mental condition, upon a chronic inmate of an asylum who after the operation regained her usual mental equilibrium.

In conclusion, I have no hesitation in saying that, now that our methods of treatment are so perfected as to reduce the risk of radical operation to the vanishing point, we are warranted in taking a strong position against long-continued temporizing, and if a woman's health and happiness are impaired by reason of a uterine fibromyoma, to urge its removal.

REFERENCES.
[1] *One Thousand Cases of Abdominal Surgery.* [2] *Textbook of Diseases of Women*, p. 367. [3] *American Journal of Obstetrics*, vol. xvi, 1883, p. 1269.

A Lecture
ON
DYSMENORRHOEA.

DELIVERED AT CHARING CROSS HOSPITAL.

BY AMAND ROUTH, M.D., B.S., F.R.C.P.,

OBSTETRIC PHYSICIAN, CHARING CROSS HOSPITAL, AND LECTURER IN MIDWIFERY AT THE MEDICAL SCHOOL; CONSULTING PHYSICIAN, SAMARITAN FREE HOSPITAL FOR WOMEN.

My lecture is on a subject in which a large percentage of one half of the world's population are personally interested, and for the relief of which you will find you will often be consulted.

Now, let me first say that dysmenorrhoea (δὶς-μην-ῥέω) is a symptom, and should not be treated as a disease. It is as much a symptom as toothache is, and though you may temporarily mask or obliterate the symptoms by pain-killing drugs, your constant aim should be to try and find out the cause. If you can modify or remove the cause, the pain will also disappear. In cases where the patient is first seen during the actual dysmenorrhoea, you will have to temporarily treat the symptom by sedatives, but in the three weeks following you must try to discover the cause and so to deal with it that the next "period" may be easier.

If the cause be a general or constitutional one, more

time than the intervening three weeks may be required to entirely relieve. In an unmarried girl, if the cause is apparently local, but associated with some abnormal constitutional state, which may partly explain the pain, you would be wise to avoid local treatment at first, whilst treating the anaemia, the constipation, or whilst regulating the diet or regimen of the patient, and be subsequently guided by the result of your general treatment.

How are we to discover the cause in a given case of dysmenorrhoea?

Probably the first essential is to have a clear idea as to the varieties or types of the pain. Dysmenorrhoea in the sense which we are now assuming is not always caused by painful contraction of the uterus, but may also be due to congestion, inflammation, or other abnormality of the pelvic organs, in which cases the types of pain are different. It is probable, too, that we shall need a third group where the pain is ovarian in origin, dysoötocia, as Robert Barnes used to call it.

Let us, therefore, try to group all our cases of dysmenorrhoea under one or other of these types, which we must now consider in detail, and we will also note the causes of the various types of pain, for, as already stated, we can only cure dysmenorrhoea by removing its cause.

Our types of pain then are:

1. Painful uterine contractions.
   (*a*) True obstruction. Absolute, partial, and relative.
   (*b*) Spasmodic or nervous.
2. "Congestive" dysmenorrhoea.
   (*a*) True congestion.
   (*b*) Following pelvic inflammation.
3. Ovarian dysmenorrhoea.
   (*a*) Menstrual.
   (*b*) Intermenstrual (*Mittelschmerz*).

1. Painful Uterine Contractions.

We have an exact counterpart of these contractions in "after-pains," which may be the result of the uterus trying to expel clot or membrane through a blocked or irregularly contracted cervix, or the contractions may be the still more painful type where there is no foreign body requiring expulsion, and where the pain is spasmodic, resembling cramp, though intermittent in character, and is sometimes called "uterine colic." Such pain may radiate upwards to the breast and downwards along the thighs.

Thus the painful uterine contractions may be:

(*a*) Obstructive—due to actual or relative obstruction.

(*b*) Spasmodic — or functional, sometimes called "nervous" or "neuralgic."

(*a*) *Obstructive Dysmenorrhoea.*

Though I begin with obstructive dysmenorrhoea, I may say at once that in my opinion it is the rarest form of all the varieties.

In my student days I attended lectures by Dr. Graily Hewitt at University College Hospital, and he attributed most cases of dysmenorrhoea to obstruction, believing that uterine flexions could so impede the flow of menstrual blood past the uterine bend that pain and secondary organic conditions resulted. We now know that such flexions, *per se*, do not cause dysmenorrhoea, but that pain in such cases is either due to an absence of normal uterine polarity, causing a deficient cervical relaxation like the rigid os in the first stage of labour, or to a superadded congestion, which may be due to a prolapse of the organ, but is certainly not due to a kinking of the arteries or veins of the uterus as was then taught, for those vessels lie outside the uterine muscle and are not influenced by flexion. A flexion may produce a *relative* obstruction if clots are formed *in utero*, for these have to be expelled by increased muscular effort (relative obstruction).

Absolute obstruction, whether congenital or acquired, is a very rare condition. It leads to the product of menstruation being retained, resulting in hematocolpos, hematometra, or even in cases of long standing, hematosalpinx. The dysmenorrhoea is due to the increased tension present in the organs respectively distended or to ineffectual muscular contractions. Such obstruction may either cause a continuous, cramp-like pain, or an intermittent colicky pain, owing to the efforts of the uterine muscle to expel its contents; or if the blood is retained in the vagina, there will be a bulging of the hymen or other obstructing membrane, causing a "forcing," pain and a strong tendency to bear down and strain.

Partial obstruction may be due to a partially-occluded cervix, the result of an imperfectly-performed amputation of the cervix, or to cautery or caustic applications to the endocervix or vagina.

Relative obstruction is seen where clots are present in cases, for instance, of subinvolution and retroversion where there is a bulky uterine body with a dilated cavity and poor powers of tonic contraction. In such a case there is often menorrhagia, clots may form *in utero*, and be passed with some difficulty through the internal os uteri.

The most typical example, however, of relative obstruction is "membranous" or exfoliative dysmenorrhoea, where the detachable portions of the endometrium come away, entire or in pieces, and severe pain is produced during expulsion through the relatively small internal os. This pain is partly due to a painful contraction of the body of the uterus, but partly also to the mechanical dilatation of the sensitive fibres round the internal os. Sometimes there is no pain till the blood or membrane is passing the relatively narrow internal os; sometimes there is a preceding "spasmodic" pain, which Matthews Duncan suggested might be a mechanical cause of the gross detachment of the membrane.

In all cases the pain steadily increases till the membrane is expelled past the point of obstruction. This usually occurs about the end of the second day, and is immediately followed by a sudden gush of blood previously pent up. The pain then at once ceases. Secondary or compensatory hypertrophy of the uterus almost invariably follows obstructive dysmenorrhoea.

(*b*) *Spasmodic Dysmenorrhoea.*

In these cases the pain comes on usually a few hours, sometimes a day or two, before the flow. It is usually intermittent in type, more rarely continuous. In severe cases the patient's suffering may be intense. It is often preceded by frontal, or orbital, or facial pain. Vomiting often accompanies the paroxysm, and exhaustion may be experienced for some days afterwards.

The patient will often tell you that the pain is relieved by hot applications to the abdomen, by hot drinks, especially if alcohol or ginger be added. The "spasm" passes off as the flow comes on owing to the resulting physiological relaxation of the cervical sphincter. Indeed it is probable that the pain is really due to absence of the normal uterine polarity, for at the menstrual cycle the cervical fibres and the circular fibres of the lower zone of the uterine body should tend to relax, whilst the uterine body fibres contract. A failure in this action produces a rigid cervix as in the first stage of labour.

Undeveloped uteri, usually those showing persistent infantile characteristics, such as conical cervix, small round external os uteri, shortened length (2¼ in.) with anteflexion, are often functionally imperfect, and liable to irregular painful contractions of this type.

A pelvic examination may not be advisable in many of these cases owing to their youth or virginity, but if decided upon should be made in the first instance per rectum or under anaesthesia. As a rule in early cases, except in undeveloped uteri, or when a complicating pelvic disease is present, the physical signs are negative, but if the patient has had well-marked spasmodic dysmenorrhoea for many years, the body of the uterus gradually both dilates and hypertrophies (compensatory hypertrophy), as if the dysmenorrhoea were obstructive, and the organ has to be clinically distinguished from subinvolution, a congested uterus or a small fibroid. Such secondary hypertrophy is usually associated with a flabby supravaginal cervix, somewhat simulating Hegar's compression sign in early pregnancy.

Sometimes spasmodic dysmenorrhoea is caused by the presence of a small fibroid in the uterine wall, which seems to act as a foreign body and to cause irregular painful contractions. A rectum loaded with scybala will similarly act as a local irritant, and so also will a full bladder in a "nervous" patient.

The constitutional state in spasmodic dysmenorrhoea is usually one of two conditions. In the one group the girl is anaemic, perhaps plump but flabby, or in poor general nutrition from phthisis, Bright's disease, or diabetes, with lessened menstrual loss, or she has recently recovered from some serious illness, such as enteric, scarlatina, or acute rheumatism. In all these cases the dysmenorrhoea may

be of recent onset, and is more or less relieved by constitutional treatment. In the second of the constitutional groups into which these cases fall, neurosis is a prominent feature. The patient is highly strung, emotional, excitable, clever, a pleasant companion, though liable to depression. Such cases have pain from puberty, have frontal or orbital headache, and vomiting, as well as local pain. The pain will sometimes be entirely absent if the patient is living an energetic or personally interested life at the moment. City women lose their pain when holiday making in the country; rural women when enjoying a round of amusement in London.

2. CONGESTIVE DYSMENORRHOEA.

In this section I would place two somewhat distinct groups, those due to:

(*a*) True pelvic congestion;
(*b*) Following pelvic inflammation.

(*a*) *True Pelvic Congestion.*

The type here is different to that of spasmodic dysmenorrhoea though it is not always easy to differentiate, for the two may co-exist. The pain is often merely an exaggeration of intermenstrual pelvic discomfort. The pain suffered from is mainly in the back, hypogastrium, groins, and thighs; is usually a continuous one, and takes the form of weight, bearing-down or "forcing," with backache and fullness in the pelvis, and a desire to unduly strain at defaecation or micturition, with subsequent increase of pain. There is often leucorrhoea between the periods, the bowels are constipated, the urine high-coloured, and the breasts are swollen and tender for some days previous to the period. The menstrual flow is scanty for the first two days, but is then followed by increased, often profuse, loss, with relief of all the pelvic pain. There is usually associated with the pelvic pain a congestive headache, chiefly over the parietal or occipital bones.

This pelvic congestion may be due to displacement of the pelvic viscera, to tumours of the uterus, ovaries or tubes or other viscera pressing upon the large venous plexuses in the broad ligaments, or it may be the result of venous engorgement of cardiac, pulmonary or hepatic origin. It may also be caused by certain harmful modern methods intended to prevent conception, and by venereal excesses.

As a result of such congestion, there is an excessive increase of the normal vascular tension during menstruation, with increased pressure upon and increased hyperaesthesia of the terminal nerve elements. The subjects of this type are constitutionally quite distinct from the "spasmodic" cases. They are usually heavy, dull, uninteresting women, of lethargic habits, often obese, with cold extremities, mottled skin, subject to chilblains; such patients will tell you that their pain is not relieved by alcohol, and that the pain only leaves them when the flow is well established.

If a pelvic examination be made in these cases, the rectum is probably loaded, the uterus bulky and tender, and through the speculum the cervix would be bluer than the vaginal mucous membrane. There may be a mucopurulent discharge from the os with perhaps a granular erosion, if, as a result of the uterine congestion, an endocervical catarrh or hypertrophic fungous endometritis has developed, and menorrhagia—often metrorrhagia—may be an associated symptom. The physical evidence of definite displacement or tumours would be easily recognized. It is evident that if there be much engorgement of the uterine mucosa a relative obstruction may be produced, which would be relieved only when the established flow had lessened the vascular swelling of the mucous membrane. Thus "obstructive" and "congestive" dysmenorrhoea may be combined, and the respective "types" be merged.

(*b*) *Pelvic Inflammation.*

This is the second subdivision under this "congestive" group. There has been preceding pelvic inflammation, as a result of which either the venous return of blood is interfered with by persistent adhesions, or the uterus is displaced by contracting bands or rendered immobile by plastic adhesions or by cicatricial bands to surrounding structures. In many such cases the uterus, which was probably itself an infected organ at the outset, remains tender. In all these cases the uterine function is impaired by its impeded circulation and its hampered muscular contractility. The resulting pain is mainly congestive in type, for the circulation of the whole pelvis is impeded; but it is so often complicated by the fact that the uterus itself is tender and its muscular contractions therefore are painful, that the type of pain is often mixed and confused.

When the type of pain is not definite enough to enable you to place the dysmenorrhoea in one or other of our groups, you must rely more upon the physical signs present. In such cases as we are considering it is not, however, always easy to recognize evidences of past pelvic inflammation. The history of the case and the ripened experience which will soon be yours will tell you all that you need to know.

3. OVARIAN DYSMENORRHOEA.

Occasionally the maturation and escape of the ripened ovum from the ovary is accompanied with difficulty and pain. This is especially the case where the ovary has a thickened capsule, or where its investment of modified peritoneum is covered by recent lymph, or is adherent to another organ.

In such a case there is a tension-pain due to the non-yielding character of the ovarian covering. The pain is in one or other ovarian region, or may be so diffuse that it cannot be distinguished from that due to ordinary congestive dysmenorrhoea, except that, unless the ovary is prolapsed into Douglas's pouch, there is rarely any bearing-down or "forcing" pain. Ovarian dysmenorrhoea is sometimes present when the uterus is either absent or so undeveloped that menstruation is absent—primary amenorrhoea. In most of these cases the patient's intellect is dull, and other neuroses beside the dysmenorrhoea are present. Such cases are very difficult to relieve. I refer later to one such case, complicated by epilepsy, which was recently in Golding Ward. In all these cases of ovarian dysmenorrhoea, if the ovaries are palpable, one or other, or sometimes both, are found tender and swollen during the pain. If ovulation should occur at some cycle not identical with the menstrual cycle, this ovarian dysmenorrhoea causes an intermenstrual dysmenorrhoea called "Mittelschmerz." Whether this pain is always due to ovarian dysmenorrhoea, as I think probable, or may sometimes be due to one of the many other causes assigned to it, such as uterine fibroids, salpingitis, vaginal cysts, etc., is uncertain. "Mittelschmerz" occurs more or less regularly on a definite day—usually about the tenth or twelfth after a period. It is spread over two or three days; is paroxysmal, like spasmodic dysmenorrhoea, each paroxysm lasting from five minutes to half an hour or more. In rare cases the pain in continuous; but even then there are exacerbations of severity. There is one variety of "Mittelschmerz" which is particularly distressing. The pain comes on at a definite date after the period, and as it passes off a more or less profuse muco-purulent or watery discharge comes away. In some such cases the Fallopian tubes are found to swell during the pain, and the watery discharge may be from the emptying of an evanescent hydrosalpinx. The muco-purulent discharge is preceded by the uterus becoming tender and swollen. I believe both these conditions to be the result of a determination of blood to a chronically-inflamed organ during an ovulation-cycle asynchronous with the alternating menstrual cycle.

TREATMENT OF DYSMENORRHOEA.

As already stated, the treatment consists in the removal or modification of the constitutional or local cause, and until this can be done in masking or alleviating the pain itself. Cases of dysmenorrhoea need attention both during the pain itself and during the intermenstrual three weeks. I will deal with the treatment under the various types of pain, in the order in which we have already grouped them, but I will discuss the general treatment suitable to nearly all cases, and the indications for giving the many useful sedatives under the head of spasmodic dysmenorrhoea.

Taking our types of dysmenorrhoea as already grouped, the true "obstructive" cases must be treated by temporary relief of the symptoms during the period by sedatives, and endeavours should then be made to remove the cause of the obstruction before the next period is due.

Broadly speaking, complete obstruction to the menstrual

flow requires to be relieved by incision, partial or relative obstruction by dilatation. For the latter I prefer rapid dilatation under anaesthesia, followed by either plugging with gauze or the introduction of a glass stem of suitable size to be kept in only whilst the patient is in bed. In a few cases bilateral or posterior cervical incisions are required. Slow dilatation by tents is preferred by some, and if both the patient and the tents are suitably prepared, there is no real risk in these days of antiseptics. The chief objection to tents is the discomfort to the patient during the process of dilatation.

In *relative obstruction*, due to the difficulty of expulsion of clots as in retroverted subinvoluted uteri, replacement of the uterus, with iodized phenol applications to the endometrium, or curettage may be required, and ergot should be given between the periods to encourage involution. Ergot should always be discontinued three days before the period is due if pain is usual. In these cases there is often much congestion present, which should be treated as stated later.

"*Membranous*" *dysmenorrhoea* should be treated by rapid dilatation and curettage, followed by the passage of a few bougies and the application of iodized phenol to the endometrium a week before each period for some months, otherwise the membrane will begin to be again expelled as before. Medicines recommended for the relief of spasmodic dysmenorrhoea should be given two or three days before the period is due.

In the nervous form, usually called spasmodic dysmenorrhoea, the treatment is also, to a great extent, necessarily prophylactic, but is usually more medical than surgical.

You are probably called in first during the actual paroxysm, and, after masking the pain by sedatives, you devote the next three weeks to discovering and treating the cause. In all cases general treatment is indicated. Among the most important are physical and physiological rest, moderate exercise in the open air, unless contra-indicated; carefully-regulated diet; the bowels and skin should be attended to by purgatives and bathing; clothing should be of wool, yet loose and cool; the mind should be pleasantly yet fully occupied; and some occupation involving practical sympathy for others is particularly beneficial.

In the anaemic group you can do much to improve the general state. I have found the following an excellent prescription, to be taken after food thrice daily:

℞ Liq. ammoniae acetatis, ℥ij.
Ferri et ammoniae citratis, gr. vij.
Tr. calumbae, ♏ xxx.
Liq. arsenicalis, ♏ iij.
Mag. sulph., quant. suff.
Aq. chloroformi ad ℥ j.
M. Fiat haustus.

Enough Epsom salts should be given to open the bowels once or twice daily. A week before the period is due 10 gr. of bromide of potassium may be added to this combination, or salicylate of soda if a rheumatic tendency be present. If the dysmenorrhoea should, nevertheless, ensue, there are many drugs which are useful. I have found the following prescription act well for the relief of the pain:

℞ Tinct. cardamomi co., ℥ ss
Tinct. zingiberis fort., ♏ v
Liq. ammoniae acetatis, ℥ iv
Antipyrin, gr. v
Pot. bromid., gr. xv
Aq. caryophyll. ad ℥ j
M. Fiat haustus.

A dose to be taken when the pain is present, and repeated if need be in two hours. If stronger sedatives are required, a cachet, taken with sal volatile and water, containing 3 gr. each of antipyrin, phenacetin, and citrate of caffeine, usually answers better than larger doses of the same drugs separately.

Aspirin, 10 gr., in a cachet, is especially useful during the paroxysm if there be a rheumatic or gouty diathesis. Antikamnia, exalgine, acetanilide, and other coal-tar derivatives, are often useful. Apiol capsules, in three to five drop doses, thrice daily, commenced three days before the period is due, will often greatly relieve. If the extremities are cold, or the patient feels chilly, prompt relief may be afforded by the inhalation of amyl nitrite (♏ iij), or by taking nitro-glycerine (gr. $\frac{1}{100}$). Where the pulse is small and hard these last two drugs are especially useful.

You should be particularly careful to avoid giving alcohol, opium, or chloral in these cases, especially in the neurotic type of woman, lest a habit of the drug be acquired.

If the above treatment fail, the empirical one of dilatation of the cervix uteri by the rapid or the gradual method will relieve the pain for some months and in some cases cure. It is especially indicated where the woman is married, and sterility is a feature of the case also requiring attention.

In cases of long standing, when compensatory hypertrophy is present, or in other cases when the cause of the colic is an intramural fibroid, or where these cases are complicated by other pelvic lesions, local treatment must of course be directed differently.

In connexion with these nervous cases, much has been written on the subject of their treatment by cauterization of the so-called "genital points" in the nose. This treatment originated from the well-known fact that, in the few days preceding menstruation, women may feel pain or discomfort in distant regions, amongst which may be noted frontal headache, pain in one or both eyeballs, facial neuralgia, twitching eyelids, tinnitus, toothache, etc., and nasal discomfort. These are vaguely called reflex phenomena, and are due to the increased vascular and nervous tension affecting specially some nerve or organ which is liable to be easily influenced.

The nasal "genital points" are stated to be the inferior turbinated bone and the tubercle of the septum. I only mention this subject owing to the statements of Lehmann, Fliers, Schiff, and others that they have successfully treated spasmodic dysmenorrhoea by applying cocaine or caustics to these "genital points." Linder has, however, conclusively shown in thirty cases experimented upon that the majority of such ameliorations are due to "suggestion," and are at the best very temporary in their effect. They take the patient's attention away from the pelvis, and so relieve the subjective pelvic neurosis.[1] I cannot recommend this form of treatment.

In *congestive dysmenorrhoea* the pain does not yield readily to antispasmodics, but will sometimes yield promptly to ext. cannabis indica (gr. $\frac{1}{2}$) or to a combination of hydrastis, belladonna, and bromide of potassium or sodium. Our efforts should be directed towards encouragement of the flow (for the pain passes off when the period is properly established), and to relieve the congestion by acting on other excretory organs, especially the liver, bowels, kidneys, and skin. If one of these "congestive" cases is first seen at the onset of the menstrual period only, a hot sitz or foot bath with mustard in it, and a hot bran poultice or rubber bottle over the hypogastrium will encourage the flow and relieve the pain. A dose of calomel (gr. ij to v) should be also given if indicated, and the skin encouraged to act by rest in bed and a few large doses of liq. amm. acetatis (℥ss to ℥j) with two or three drops of tincture of aconite. In cases of pelvic congestion with cold extremities and cold skin over the body nitroglycerine is remarkably effective. Ten grains of pulv. ipecac. co. is often very useful with 30 gr. of bromide of potassium if the patient is seen towards night-time.

To reduce the pelvic congestion, you must prepare the patient beforehand by manual rectification of any uterine prolapse or retroversion, and introduce, if need be, a suitable pessary. Order hot (110° F.) vaginal douches containing borax or tincture of iodine. In each case 4 drachms to 6 pints should be ordered and the douche should be used slowly. In bad cases the cervix may be punctured, or leeches applied once a week to relieve the venous engorgement of the uterus. Instead of this or in addition to it, glycerine tampons, or a gelatine (℥ss) and glycerine (℥jss) pessary should be inserted by the patient at bedtime to encourage a profuse watery exosmosis. The genu-pectoral position for ten minutes at bedtime, or when the patient is tired, is very useful as a means of emptying the pelvis of venous blood. Its value is much assisted by allowing air to enter the vagina whilst in this position. A patient can do this by inserting an enema nozzle into the vaginal orifice. Thus both gravitation and atmospheric pressure are brought into play and much relief is felt. The bowels should be freely relieved by cholagogues, such as calomel or blue pill or jalapine,

followed by salines, and a mixture containing magnesia sulphate, acetate of ammonia, and sal ammoniac, to act on bowels, skin and liver, is often useful.

Where the pain is due to old uterine or perimetric inflammation, rest and other suitable means must be adopted to promote absorption of the inflammatory products and return of uterine mobility, but as some of these cases require surgical treatment, either by vaginal or abdominal section, I cannot go into details now.

The treatment of *ovarian dysmenorrhoea* is more difficult, but when the pain is due to pre-existing perioöphoritis much may be done to lessen discomfort on the lines laid down for congestive dysmenorrhoea. The actual pain is relieved by many of the drugs alluded to under spasmodic dysmenorrhoea, but the bromides of potassium and sodium and nitroglycerine are particularly indicated. Turpentine stupes or hot bran poultices over the abdomen are very soothing.

Operative treatment is unsatisfactory, and, in my opinion, is not justifiable except when this form of pain occurs in women with absent or undeveloped uteri. Some of you will remember a typical case of this in Golding Ward about five months ago. She was a woman of 28 years of age, who had true epileptic seizures and dysmenorrhoea once a month, with absolute primary amenorrhoea. On examination under anaesthesia the vagina was found to be short but patent, no uterus could be felt, but what appeared to be an ovary was felt on one side. It appeared to be a case of ovarian dysmenorrhoea with absent uterus. At the urgent request of the patient and her friends I opened the abdomen, and found that each ovary (one was inside the inguinal canal of its own side) was attached to a small solid muscular nodule which represented one half of a double uterus, and on each side there was a much hypertrophied round ligament. I removed these structures. The patient had no dysmenorrhoea at her next period, but had an epileptic fit of lessened severity, with little or no subsequent coma. Since then she has only had one slight fit, and is much improved mentally.

The treatment of "Mittelschmerz" is most unsatisfactory. I cured one case by removing a vaginal cyst which became tense and caused pain on the tenth day after each period. Cases due to chronic salpingitis have also been cured by operation. Cases due solely to the ovulation cycle occurring at a different time to the menstrual cycle, are relieved somewhat by a blister over the ovarian region, but as a rule sedatives have to be given, and nothing short of removal of the offending organ will cure. Needless to say, this is not often to be recommended.

You will see that the treatment of dysmenorrhoea depends not only upon the recognition of pelvic diseases and abnormalities, but also upon a due regard being paid to constitutional or general conditions. The practitioner who devotes all his attention to local causes, to the exclusion of the general state, is as little likely to relieve complex cases of dysmenorrhoea as he who neglects to adequately investigate pelvic conditions, and who treats such cases by sedatives, which merely mask the symptoms without curing the condition which causes them.

REFERENCE.
1 BRITISH MEDICAL JOURNAL, Epitome, August 30th, 1902, No. 121, and October 25th, 1902, No. 255.

A SERIES OF FIFTY CONSECUTIVE ABDOMINAL SECTIONS.*

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In December, 1902, the Samaritan Hospital was instituted in Newcastle-upon-Tyne for the practice of gynaecology. There are six beds, including one emergency bed, for patients, and an out-patient department, which is open two days a week. All the operations are performed in an ordinary attic, under the most restricted conditions, and it has not been specially fitted up in any way. Since its opening I have performed a large number of major and minor operations, and my object now is to show you the result of the first 50 abdominal sections, and to draw certain conclusions therefrom.

The period during which they were performed extends from October 1st, 1903, to January 18th, 1906, and the conditions necessitating them were as follows:

Ovarian cystomata, including dermoids ...	18
Fibromyomata of the uterus	11
Ectopic gestation	6
Broad-ligament cyst	3
Adherent retroversion	3
Pyosalpinx	3
Tuberculous disease of the peritoneum ...	2
Malignant disease of the cervix uteri ...	2
General abdominal carcinosis	1
Parovarian cyst	1
Total	50

The actual operations were:

Ovariotomy	17
Supravaginal hysterectomy	8
Salpingectomy	5
Salpingo-oöphorectomy	4
Enucleation of cyst	4
Coeliotomy	4
Myomectomy	3
Ventrifixation	3
Panhysterectomy	2

I have, unfortunately, to record one death. The case will be fully described.

The Technique Adopted.

The technique adopted in all these operations was of the simplest nature, as I am of opinion that complicated technique or elaborate preparations are not only unnecessary but may be even a source of danger to the patient, inasmuch as minor essentials may be sometimes accidentally overlooked when the preparations are too elaborate.

Antisepsis was very carefully carried out, the hands and forearms were thoroughly washed in hot lysol solution with a nailbrush, then turpentine and methylated spirit were used, and the hands and forearms well washed in 1 in 1,000 corrosive solution. The instruments were boiled and placed in 1 in 40 carbolic solution. The sponges, which were of gauze, were boiled for twenty minutes, and were then wrung out of hot saline. All buried ligatures were of catgut, which was prepared by ether, methylated spirit, and corrosive sublimate solution. Silkworm gut was used for all superficial sutures. The abdomen was prepared the night previous by washing with soap and water, then sponged with turpentine and methylated spirit, and the application of a corrosive pad over night, and washed with 1 in 1,000 corrosive sublimate solution just previous to the operation. No vaginal antisepsis was carried out even in cases of panhysterectomy. The abdominal incision was restricted to the smallest dimensions consistent with the proper performance of the operation, and there was consequently a marked absence of shock following the operation, and a diminished risk of ventral hernia in later years. All cut surfaces of peritoneum were properly adjusted—such as suturing the anterior and posterior layers of the peritoneum after hysterectomy and the removal of broad ligament cysts, and suturing the peritoneum over the pedicle in cases of ovariotomy and salpingectomy.

The abdominal wall was carefully sewn up in three and sometimes four layers, care always being taken to properly adjust corresponding structures. A small strip of plain sterilized gauze wrung out of hot saline and covered with plain absorbent wool was used as a dressing to the wound. The dressing was kept in position by strapping and flannel bandages. Ether, with one or two exceptions, was the anaesthetic. In three cases of pyosalpinx, in which a small amount of purulent material escaped during the operation, it was carefully mopped up and did not cause any further trouble. In those cases where a large wounded surface of peritoneum occurred, for example, ventral fixation for adherent retroversion, as much saline solution as possible was left in the abdomen to float the intestines from the wounded surface and so prevent adhesions.

After-treatment.

The patient was given a drink of hot water with a little bicarbonate of soda in it (which is often effectual in relieving bilious vomiting) about three hours after the operation. This was freely continued in addition to barley water until the following morning, when she was given a cup of tea, followed during the day by milk diluted with barley

* A paper read before the British Gynaecological Society.

water or soda water. Early on the second morning after operation, calomel was given in two doses of 5 and 3 gr. respectively, at an interval of one hour, followed by a hot seidlitz drink half an hour later. As soon as the bowels were moved the patient was put on a liberal diet. The sutures were removed on the tenth day.

Analysis of the Cases.

Ovarian Cystomata.—Of these there were 18 cases divided as follows: Simple unilocular, 6 cases; multilocular simple, 4 cases; multilocular undergoing colloid degeneration, 3 cases; multilocular suppurative, 1 case; multilocular malignant, 1 case; mutilocular papillomatous, 1 case; dermoids, 2 cases.

In addition to these, a case of left tuberculous pyosalpinx was found, complicated with a right ovarian cyst the size of a goose egg; and a case of cervical fibromyoma had a cystoma of each ovary.

The following cases were of special interest:

Case VII.—Suppurating multilocular ovarian cyst with purulent peritonitis. This patient was exceedingly ill, having had a temperature of 104° F. for two evenings before the operation. On opening the abdomen the peritoneum was very inflamed and oedematous, and the omentum was adherent to the tumour, which was about the size of a seven months gestation. On separating the omentum several ounces of encapsuled pus escaped, the tumour was removed, the posterior vaginal fornix was opened and a gauze drain was inserted through it into the pelvis. The temperature fell to 97° F. on the morning after the operation, but was 105° F. the following evening: after a great deal of fluctuation it gradually fell to normal six weeks later, when she was discharged. Some days after leaving the hospital she had a relapse, and unfortunately died a fortnight later.

Case XXVI.—Ovarian dermoid with twisted pedicle. The twist occurred about one week before admission, when there were the usual symptoms of peritonitis. On opening the abdomen the tumour was found partly gangrenous. She made an uninterrupted recovery.

Case XLII.—Malignant ovarian cyst. The whole of the peritoneum and omentum was infiltrated with hard, malignant masses, and the tumour was found adherent in all directions and commencing to disintegrate. It was not removed, but the abdominal cavity was filled with saline solution and then closed. Convalescence, as far as the operation was concerned, was uneventful.

Case XLIV.—Enormous multilocular ovarian cyst undergoing colloid degeneration. This patient was confined nine weeks previously of a seven months child, since that time the abdomen rapidly enlarged, and on admission was about three times the size of a full term gestation. She was very emaciated and very ill, pulse 120, very feeble, and temperature 99° F. She had severe dyspnoea, and was unable to lie down during the whole night before operation. The patient had to lie on her left side on the operating table, as respiration ceased when she was turned on her back. The abdomen was opened with her on her left side, and about two gallons of ascitic fluid escaped. The tumour, which was about 1½ times the size of a pregnant uterus, was adherent to the under surface of the liver and diaphragm. The pedicle was clamped and divided, and the tumour removed from below upwards. The other ovary was about the size of an ostrich's egg. It was also removed, and the abdomen filled with about 1½ gallons of normal saline. During the greater part of the operation the patient was practically pulseless, and respiration temporarily ceased on two occasions, the anaesthetic (ether) was not pressed, and during the closing of the abdomen she was partly conscious. She got three injections of $\frac{1}{30}$ grain of strychnine. When returned to bed the pulse was just perceptible at 180, shortly afterwards it fell to 160, and in the evening it fell to 140. She made a good recovery, and six months later was reported to be in good health.

Case XLV.—Right ovarian cyst. In addition this patient had a left ovarian abscess which contained 4 or 5 oz. of very fetid yellow pus and a double hydrosalpinx. She made an uninterrupted recovery.

Fibromyomata.—Eleven operations were performed for the removal of fibromyomata, and in every case the symptoms complained of by the patient were sufficient to render the operation one of necessity. Supravaginal amputation of the uterus was performed in 8 cases, and myomectomy in 3. Myomectomy was the operation of selection, but in those cases where it was not feasible, supravaginal hysterectomy was performed, care being always taken to leave the ovaries, in order to save the patient from the ordinary consequence of their removal prior to the menopause. An artificial menopause practically means that the patient will be an invalid for many months, and it is highly desirable that this, if possible, should be prevented. It was not possible, however, to leave the ovaries in Case XLVII, as there was a cystoma of each ovary.

The following cases were of interest:

Case III.—Myomatous uterus and large ventral hernia—death. This patient was operated on eight years previously, the ovaries being removed in the hope of curing her. The result, however, was that she continued bleeding, making her a chronic invalid; besides the tumour increased in size, and she developed a very large ventral hernia, which reached to her knees and totally incapacitated her from work. She was very corpulent and anaemic. The abdomen was opened by an elliptical incision, extending from the umbilicus to the pubis, and surrounding the hernial sac, which contained nearly all the intestines. They were entirely adherent to the hernial ring, which was 4 in. long by 3 in. broad. The intestines were separated from the ring, which was dissected out. On examining the pelvis everything was found adherent, a myomatous uterus, the size of a large cocoanut, was freed from its adhesions and lifted out of the pelvis, the broad ligaments ligatured and divided, and the tumour removed, the cervix being left. The peritoneum was sutured over the stump. With some difficulty the intestines were returned into the abdomen, and the abdominal wall sutured in four layers with strong catgut. She developed a small faecal fistula in the lower angle of the wound, which practically ceased discharging on the seventh day. During the next two days her condition was very satisfactory, but on the morning of the tenth day, at 2 a.m., she was suddenly awakened with severe pain in the region of her heart, and much difficulty in respiration. She was deeply cyanosed, pulse very rapid, irregular and feeble. She was given stimulants internally, with strychnine and digitalin hypodermically. Considerable improvement took place till 6 a.m., when she had a similar attack, and died in ten minutes, death being due to pulmonary embolism, probably fat embolism.

Case XXXII.—Myomatous uterus—supravaginal hysterectomy. The tumour was the size of a fetal head and impacted in the pelvis, causing partial intestinal obstruction. Patient had purulent cystitis and was seriously ill. On opening the abdomen the bowels and omentum were found adherent all over the front of the tumour. These were separated, and both tubes were found distended with pus. While removing them they both burst and some pus escaped. This was carefully mopped up. The myomatous uterus was removed and the abdomen closed. The patient made an uninterrupted recovery.

Case XLIII.—Subserous fibromyoma—myomectomy. This patient was five months pregnant, and suffered severe pain on the left side of the abdomen. The abdomen was opened at the left border of the rectus, and a pedunculated myoma the size of a large goose egg was found in the left iliac fossa, and was removed from the surface of the pregnant uterus. The uterus then rotated from left to right through a quarter of a circle, so that the point of attachment came to lie in the middle line anteriorly. The patient went on to full term and had a normal confinement.

Ectopic Gestation.—There were 6 cases of ectopic gestation. Case XVII was admitted on August 2nd, 1904. Rupture took place at 4 p.m. the following afternoon as she was lying quietly in bed. The patient rapidly became collapsed, but fortunately before an hour passed I was able to proceed with the operation, which was in no way difficult. The abdomen was full of recent blood clot; this was not removed. All these 6 cases made uninterrupted recoveries.

Broad Ligament Cyst.—There were 3 cases; none of them presented any difficulty. The cysts were opened, the capsules enucleated, and the wounds in the broad ligaments sutured with fine catgut. They all did well.

Pyosalpinx.—In addition to the case which was associated with a myomatous uterus, and which is already described, there were 3 cases:

One of these—Case XXXIV—was tuberculous. It was single, and was associated with an ovarian cyst of the opposite side. The pyosalpinx was matted with some knuckles of intestine, which were involved in the disease, and during its removal the bowel unfortunately got injured. This was carefully and with some difficulty sutured. A strip of plain sterilized gauze was inserted from the wound in the bowel to the lower end of the abdominal incision to determine the track of a faecal fistula, should such occur. The following day the gauze was removed, and two days later a small amount of faeces came through the lower angle of the wound. This continued for six days, then ceased, and the fistula completely closed. With this exception, convalescence was quite uneventful.

Case XXVIII.—Double pyosalpinx of old standing. On opening the abdomen the intestines were found matted with old and dense adhesions, over the tumour. They were separated with much difficulty, and during the removal of the tumours one of them burst and a quantity of pus escaped. This was very carefully mopped up and the abdomen closed without the insertion of any gauze for drainage. Three days later some discharge, which had a faecal odour, came through the lower angle of the

wound. This continued for five days, when the fistula closed spontaneously, leaving a hollow, granulating surface about 2 in. square. Three silkworm-gut sutures were inserted, pulling the granulating surfaces together: the wound healed perfectly, and the patient did well.

Malignant Cervical Disease.—Panhysterectomy was performed in two cases of advanced malignant disease of the cervix in order to relieve severe symptoms of haemorrhage and pain; both patients recovered, although one of them developed a temperature which on one occasion was as high as 102.6 F. The temperature, however, remained perfectly normal for nine days before she was discharged from the hospital.

DRAINAGE.

Gauze was used in three of the earlier cases (Nos. V, VII, and XII) for the supposed purpose of drainage, and the result in all these cases was unsatisfactory. In Case V, panhysterectomy for ulcerating malignant disease of the cervix, gauze was used from the pelvis into the vagina, and the result was a gradual rise of temperature to 102.6° F., whereas in a similar case (Case XLVI) no gauze was used, and the patient made an uninterrupted recovery. In the case of the suppurating multilocular ovarian cyst (Case VII) the posterior vaginal fornix was opened and the pelvis drained through the vagina. The result was a pelvic abscess, which had to be douched for many days afterwards, and to which, I have little doubt, her high temperature and unsatisfactory convalescence was partly if not mainly due. In Case XII gauze was also used for the supposed purpose of drainage, on account of general oozing, and although this patient had a normal convalescence for four weeks after the operation, a faecal fistula developed during the fifth week.

I have since then altogether abandoned the use of gauze for drainage purposes in abdominal and pelvic work, unless in cases of pelvic abscess, where the abscess wall cannot be removed, and have since followed the following rule: If a little pus accidentally escapes I carefully mop it up, and in case a large amount escapes and soils the intestines, I wash the intestines and pelvic cavity thoroughly with normal saline and then close the abdomen, leaving a considerable quantity of saline behind. In cases of general oozing I first secure the more important points, and then fill the pelvis with saline.

I have followed this rule in several such cases on which I have operated since, and the result has been quite satisfactory in every case. I have now no doubt that the gauze in the earlier cases did not act as a drain, but merely as a superfluous and noxious foreign body, and a local irritant to any intestinal surface with which it came in contact.

TEMPERATURE.

A study of the temperature charts of the series is most interesting, considering the circumstances under which the operations were performed. There was not a single case of "sepsis from without," and in no less than 41 cases the temperature did not exceed 101° F. even on a single occasion, while in 28 it never exceeded 100.4° F.

In 5 cases the temperature exceeded 101° F. on two occasions only, but did not exceed 102° F. These cases were:

No. XVII. Recent ruptured ectopic with severe internal haemorrhage.

No. XXI. Ovariotomy for simple ovarian cyst.

No. XXXIII. Supravaginal hysterectomy for large myomatous uterus in a very corpulent subject.

No. XLII. Double ovariotomy. The abdomen was enormously distended, and the patient was extremely ill on admission.

No. XLVI. Panhysterectomy for ulcerating malignant disease of the cervix.

In Case III, which proved fatal, the temperature was marked between 101° F. and 102° F. on three occasions. Only in two cases was the temperature recorded above 102° F. and less than 103° F. These were:

No. V. Panhysterectomy for ulcerating malignant disease of the cervix.

No. XLVIII. Advanced malignant disease of the peritoneum. The temperature was due in this case to a somewhat mild attack of left-sided pneumonia at the end of the second week after the operation.

Only in one case was there any serious degree of temperature. This case was one of suppurating multilocular ovarian cyst with purulent peritonitis, but the temperature was 104° F. for two nights prior to the operation.

The following table summarizes the charts:

	One Occasion Only.	Two Occasions Only.	More than Two Occasions.	Total.
Not exceeding 100.4° F...	—	—	—	28
100.5° F. to 101° F. ...	9	3	1	13
101.1° F. to 102° F. ..	—	5	1	6
102.1° F. to 103° F. ...	1	1	—	2
Above 103° F.	—	—	1	1

GENERAL OBSERVATIONS.

From this series the conclusion appears to be deducible that attention to the following points is highly desirable in order to obtain good results:

1. A correct preliminary diagnosis.
2. Simplicity in operative technique.
3. The simplest antiseptic preparations combined with asepsis.
4. The use of few surgical instruments and appliances.
5. Limited abdominal incisions.
6. The correct adjustment of all cut peritoneal surfaces.
7. The complete closure of the abdominal cavity without drainage of any kind.
8. The free use of normal saline solution in cases where purulent material gets accidentally spilled in the pelvis or abdomen during the performance of an operation.

Finally, I desire to express my great indebtedness for these results to Mr. J. W. Leech and the many practitioners and students who assisted me with the operations. I have also to record my high appreciation of the careful preparations, assistance at the operations, and careful nursing of all these patients by the sister in charge, and on account of which the entire elimination of sepsis was mainly due.

MIDWIFERY EXPERIENCES:

A RECORD OF FORTY-SEVEN YEARS' WORK.

By JOHN LINDSAY, M.D., J.P.,

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SINCE 1875 I have had assistants, till within the last few years, unqualified. Since that time I may not have been in actual attendance on more than the half of the cases, but upon nearly all serious cases I have been told about anything unusual.

When I started practice in 1859 I had experience of the usual kind of about 50 maternity cases in England. I had never seen labour carried out except in bed, or on the floor when there was no bed. In our district—and I do not know how far around—it is a very common habit to go through labour out of bed, the patient on her knees holding on by a chair. I resisted this very strongly at first, but had to give way sometimes when the patient said she could not lie and those in attendance pressed the matter, saying that her old doctor would have allowed it, and she would have been better long since. I soon got to see that it was not a bad way for a poor woman with, perhaps, a very scanty supply of clothing. The whole mess—often a very ugly one—is left on the floor, and with a warm dry cloth to the parts and a quick shift to bed the patient is pretty comfortable. I daresay more than half of our patients have been delivered in this way. I once tried the forceps in this position, but did not use them well and never tried again.

There has been no use of antiseptics except some antiseptic oil or grease for the finger, hand, or instruments. Many times we have been caught on the roads with no preparation. From the first I have always been very careful in washing my hands and changing my outer coverings if we had infection on our rounds, though this was not always possible.

It would be wrong to say that I have never poisoned a woman with my finger, because I was once caught a good many miles from home on my way from a *post-mortem*

examination, and, though I did my best with soap and water, I found after I left that my hands still smelled. It was before germs were much thought of, and, though I interfered as little as I could, she would cry out for help, and had a slight septic fever, but is now a strong old woman. There has been no shaving of the parts in our practice, no washing in the ordinary run of cases, and no syringing—in fact, in such interference I do not believe. I now see some of our trained nurses taking small bits of cotton and sponging the parts with a mild antiseptic, too mild, perhaps, to be of any use. Meantime the woman is exposed, and it serves, in my opinion, no good purpose, perhaps may plant some germs, which the flow of blood would envelop or take away.

I see now and again in our JOURNAL a run of a few successful cases since the doctor started the shaving process, others with a run since syringing out and with antiseptics, an interference with Nature not safe, I believe, and quite unnecessary.

In a large number of our cases the parts may not have been washed since infancy, though I should not speak too strongly; many of them may have given themselves a bath when they had opportunity. In one-end houses, obviously, there are not very frequent opportunities, and in a good many of the houses water was so scarce that there was little to spare.

So far as non-interference with the natural powers, of which we have heard so much lately, I think that in a good part of our practice, the opposite course—a good deal of interference—has been the case. There are little helps which often hasten labour, such as ergot, in right cases, rupture of the water-bag at the right time, pressure on the os when dilatable, and a firm bandage; if everything is natural, why should we delay the forceps if there is great suffering? I find our patients are more anxious for the forceps than we are, and if Dr. Horrocks was in our position, often miles from home, a cold house, and little in it in the way of comfort, perhaps a man and horse standing at the door, he would before long try all the little or big helps, which had in similar cases been found of use and with no fatality.

I do not know why there should be so much fatality in England in midwifery practice if it is not due to too much trust in a poor use of antiseptics and too little in ordinary cleanliness. I cannot help thinking the midwife is the danger—too much careless washing before and after, and other wicked interference by unskilful hands. I saw myself 50 cases in a mill-town in England nearly fifty years ago, not a case going wrong, and there were no antiseptics, no washing, and little interference except, I have no doubt, too frequent examinations. In the grandest surgical operation septic mischief crops up now and again; who can put an end to it here at the very point of the sewage discharges? We now know that typhoid germs are discharged by the urine; the kidney throws off pus, perhaps other septic things; and we know what dangerous organisms live in the bowel. I do not think the grounds for blaming the clean-washed finger are very strong.

Since my son commenced practice, about five years ago, there has been no fatality in over 600 cases. I see he is more careful, because he always carries a brush for his hands.

Nearly all my own work has been done without uncovering the patient, except when using instruments or when anything unusual arose. In fact, I do not like to see nurses throw women bare, so that you may see where to put your finger. There should be no modesty if it kills, but we have yet to learn that it does. May not so much exposure account for some of the mishaps? My first ten years or so were without a death, when antiseptics had no place in the midwifery bag. The first death having any real connexion with labour was a case of real puerperal fever, imported from Glasgow, by the nurse who nursed a fatal case there on a sister-in-law. It was some little time after, but I have no doubt it was brought in the nurse's clothes. I took off my clothes in an outhouse when I got home, sent all that had any connexion with the case to be disinfected, and we had no more of it.

In our practice there has been, as a rule, very little waiting for the placenta. When the child is born I immediately seize the uterus and either keep up pressure myself, or ask some one to do it (but I find that I often lose by that), till the child is separated, then keeping up the pressure on the uterus and slight traction on the cord the placenta is soon delivered. Dragging by the cord will not do it, but the combination of pressure with judicious traction soon does it. The pressure is kept up for some little time, then a pad and a firm bandage.

I have had a few cases of *post-partum* haemorrhage, anything severe a long time ago, and no deaths from it. I often give a good dose of ammoniated ergot when the labour is nearly over, and the case a good way from home. I have thought in some of these cases that too much kneading of the uterus was bad, and took to watching or the application of cold towels. In a very few cases I have had to introduce the hand and remove the placenta after failure otherwise, or where symptoms were threatening. The most common difficulty has been when I was not present at the birth of the child, and the uterus had contracted on the placenta, enclosing it. I have had no case of adherent placenta, but have heard of a few.

ANALYSIS OF CASES.

The number of births was 5,845—I daresay close on 6,000—from July, 1859, to end of 1905.

Of forceps cases there were noted 309, and a good many not noted, cases requiring so little help, or for the doctor's convenience; 209 cases requiring help for tedious or difficult labour, a good many of them through the soft dilatable os, and also here, a few to help the doctor as well as the patient; 100 long forceps cases where the head was at the brim, 47 for long exhausting or helpless labour, with 7 stillborn children; 31 very lingering, and requiring great help, with 15 stillborn; 8 forceps and craniotomy (two women account for 5 of these—one for 3, the other for 2). In one of these I tried turning, but failed to save the child from difficulty with the head. Six women account for 18 of the very difficult cases; 22 cases include bad presentations, occipito-posterior (very common), cord, hand, face, hand and head, internal haemorrhage, etc. All the difficult cases had one or more living children, so that there is often not much difference between success and failure, the result being determined by slight difference in the size of the head, more favourable presentation, or possibly more perfect hold with the forceps.

Turning Cases.—19, 5 stillborn; 11 cases transverse presentation, mostly arm, arm and cord twice; placenta praevia once. Tried to save child, woman having had craniotomy before, but failed; once for convulsions and once after failure with forceps, the patient dying after from rupture of uterus. If I had been less squeamish about doing craniotomy, this woman might have been saved.

Placenta Praevia.—12 cases, 8 central 4 partial. I have no doubt, from the symptoms observed, there were a few more partial. Five deaths of children, one dead some time and one from perforator to save mother. These cases of placenta praevia were treated by turning in 5 cases, 1 after dilating with Barnes's bags, 2 dilating quickly by fingers and forceps. 1 craniotomy by ordinary household scissors, 3 forceps and 4 natural labours. No maternal deaths.

Cord Presentations.—13, 2 delivered by turning children stillborn, 9 quickly by forceps, 1 stillborn. I believe in the forceps if expeditiously used.

Breech or Feet.—40 cases, 8 stillborn, 2 from want of timeous help, and 1 dead for some time: result of partial presentation of placenta. I tried forceps on the breech once with good effect, but on another occasion failed, too much power being needed. Worth a trial.

Twins.—71 cases; presentations nearly all varieties; 5 of the second children stillborn, 2 dead for some time, one from want of help; 8 cases noted as premature, 3 cases of mummified fetus, one about sixth month, others fifth. All came away after birth of other healthy child, in an unbroken bag, attached to the placenta. In three of the cases each child was followed by its placenta.

Triplets.—3 cases, all about seventh month, and all lived a short time.

Occipito-Posterior.—52 cases noted. 37 cases born in that position with forceps or alone; 15 cases born without help. I have tried to turn the head with forceps, but not successfully.

Face Presentations.—13 cases; 8 cases help with forceps, 5 no help.

Inversion of Uterus.—2 cases. In one of them I determined to be cleverer than her old doctor, who had always to introduce his hand to bring away the placenta. In my usual way I was pressing the uterus firmly with the hand, not my weight on her, because she was on the floor on her knees, and my usual traction at the cord. After some little time the uterus suddenly left the hand and tumbled outside. I at once separated the placenta, and easily replaced with the hand. No evil result followed. The other was only partial into the vagina. Feeling the uterus suddenly leave the hand when the placenta was discharged, I very fortunately examined and found the fundus in the vagina; it was easily corrected. I once assisted at a *post-mortem* examination in a case of *post-partum* haemorrhage which resulted fatally. The doctor was at a loss to account for the result. We found an inversion into the vagina; if it had been noticed at the moment life might have been saved. These cases show the benefit of

having the uterus in the grasp of the hand, and the benefit of an examination if it goes suddenly out of the hand.

Mole.—2 cases; one large mass of hydatid; this was treated with chloroform and dilatation with Barnes's bags; in the other a large quantity of mole and a child healthy at full time.

Monstrosities.—8 crania or spinal bifidas; one small one was cured by iodine, but the child did not grow up; 8 cases of harelip more or less severe; 5 anencephalous, one lower part of belly wanting, one contents of belly hanging out at umbilicus, one no anus or rectum, meconium-like discharge from bladder. Other small things a few, such as want of small parts, supernumerary fingers and toes, etc.

Premature Births.—126 reckoning from sixth month onward; 63 dead some time before labour. Very few lived any length of time. These were accounted for in many ways, separation of placenta, albuminuria, scarlet fever, pneumonia; in most the reason was not known, or at any rate not well known. A few cases from syphilis; my experience in our country district is that two or three children are born prematurely and decaying, after that a fairly healthy family, and continuing healthy. Two women aborted about the fifth month, one from pneumonia, the other from albuminuria; the latter died.

Rupture of Uterus.—Three cases. One, multipara, aged 40. Seven years from last birth. Strong, little fat woman: occipito-posterior position; tried forceps twice and failed: then turned, and forceps to head. Head extraordinarily elongated from great pressure: placenta came easily, and uterus contracted fairly. Complained of great pain, and looked like sinking after labour, but lived six days. A rupture of two or three inches across the neck of uterus, beginning on left side. The second case was a very strong, little stout woman: very hard os, for which I tried chloral, and very hard labour: died almost immediately after labour was completed. No instruments used. *Post mortem*, small tears were found in the peritoneal coats, some deeper, and half-pint of blood in the peritoneum. The third case was the sister of last and of the same build; she was a multipara, and was in the hands of my assistant till her labour, which was severe, suddenly ceased. The head was well down, instruments were easily applied, and she was delivered easily and quickly; the placenta came away soon and no more haemorrhage than usual occurred, but she looked prostrated, which we were inclined to think might be from the severe protracted labour. She died next day. There was a large rupture across the uterus about the neck. In none of these cases was I aware that rupture had taken place till the *post-mortem* examination. Fortunately for me, I never had much difficulty in getting a *post-mortem* examination; in many places there is no chance. It requires training, and might be overcome to a far greater extent, and with great advantage to the doctor.

Indentation of frontal bone has happened five times: it always happens in difficult long forceps cases. It did not happen in the same woman twice, though three of the cases had come through severe labours. In one of the cases I heard it take place just as the head engaged in the pelvis. This was her first living child, evidently a smaller child; the first, severe, long forceps: second, forceps and craniotomy; third brought on premature labour at eighth month, but a breech presentation, and failed to save child. I corrected the second last indentation by pressure round the edges of the depression, and reported it in the BRITISH MEDICAL JOURNAL. It went into its place with a sound like a dislocated bone. It is worth trying, and I think a small, finely-made screw, which could be screwed into about the centre of depression and lift a little would almost certainly correct it at the moment, and save operation which is sometimes done for it. I have had a small screw made for the purpose by Young, of Edinburgh, which would do it. I feel certain, combined with pressure at the edges, and take no more room in the midwifery bag than a needle.

Rupture of Perineum.—I have had no case of rupture into the bowel, perhaps half a dozen cases reaching to about ½ in. or so from the anus. Three or four of these were treated by stitching, not very successful in some, others left alone, keeping the patient on her side to avoid discharges. There were many slighter cases, which are unavoidable with the best management, and are, I believe, best left alone. One can scarcely tell to look at the parts after that such a thing had happened. It is now a good many years since I have seen one of these worst cases, but would now stitch, avoiding including the skin. I saw the benefit of this some years ago when I was asked to take a case in hand, in which a distinguished surgeon had failed by paring and stitches including skin. I could not coax her to go to hospital again, and made a good job by flap-splitting, which is easy and sure, and no loss of tissue.

Does support of the perineum help to prevent rupture? I believe keeping back the head long and strongly would, but no other help. I used to keep back the head, pressing forwards slightly. Long ago some of my patients told me they felt great relief from support of the bowel, and for some years I used to press on the anus and pretty strongly forwards. I decided after a good long experience that this was dangerous, because it presses out the head—just what one is trying to avoid.

The deaths in these nearly 6,000 cases were 28: 8 from previous existing disease, 1 from putrid child (from which I suffered myself, never being able to see her again), 1 erysipelas, 2 pneumonia, 1 measles, 1 some peritonitic mischief (being her second premature labour), 2 scarlet fever. Four of these gave birth prematurely.

From septic fever, 1 real case of puerperal fever, 5 pelvic or peritoneal mischief, 2 cases of phlebitis coming on after the patients were out of bed and well, 4 cases of convulsions, 1 almost dead already from general paralysis, 4 from scarlet fever, 1 embolic clot of brain on the second or third day. In 5 of these 28 deaths forceps were used, 2 requiring great help; the others were easy cases. One of these 5 cases was a primipara aged 45 years, who but for religious feelings and anxiety to have a living child should have been relieved sooner by craniotomy. In only 4 of these cases could the doctor's finger or anything about him be blamed, and I believe this is pretty much the history of midwifery in Scotland; at any rate in a neighbourhood like mine, where it is the rule to have the doctor. It should be the same in England if the work were in the hands of the doctor.

Abortions have been numerous and many more were never heard of. A woman has often told me that she had several mishaps. In many cases pretty severe haemorrhage occurred, but none died from it. The treatment has been to do one's best to get the fetus away; in strong women this is often not practicable; giving ergot frequently and temporising, it comes away safely in a day or two. I feel sure there would have been a considerable death-rate if I had followed the advice of some great men, who have advised that a woman should not be left till the uterus is cleared out by the finger, or, if that fails, the curette—a dangerous tool in the best hands.

Nature has provided wonderfully for the safety of woman in her hard hour, we should be careful neither to add nor remove without good reason.

THE EVAPORATION OF CHLOROFORM DURING INHALATION.

AN INQUIRY INTO THE FACILITIES OF REGULATING WITH GREATER ACCURACY THE STRENGTH OF THE VAPOUR EVAPORATED FROM WOVEN FABRICS.

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THE process of dropping chloroform upon a piece of lint and allowing the patient to inhale from this, has the appearance, at first sight, of being extremely simple; but this is, however, an entire misapprehension, for the complexity of physical conditions is great, and gross fluctuations are liable to occur in the vapour which is yielded in accordance with apparently negligible, and certainly neglected, changes in conditions. Ignorance in regard to this subject has led to the adoption of various phrases and ideas which have no real signification, and are mainly due to wrong inferences regarding the relations which exist between the quantity of chloroform poured out and the strength of the vapour which is afforded. Thus such general injunctions as the giving of "plenty of chloroform" or "plenty of air" arose doubtless in relation to some definite procedure, but that they cannot involve that which they imply is evident from a consideration of the overwhelming preponderance of air over vapour which must of necessity exist even in the case of the most concentrated non-lethal mixtures.

The method is one of "unknown percentages," for no attempt is thus made to gain a knowledge of the strength of the vapour administered; but means—certainly very imperfect ones—are adopted to regulate the strength of the vapour according to the clinical indications of the patient under observation. These means consist principally of approaching or withdrawing the mask from the face, pouring or dropping out a greater or less unmeasured quantity of chloroform, or by an intermittent administration; and naturally these procedures, even in capable and experienced hands, leave a great deal to be desired.

This method must, however, be considered seriously and in detail, for whatever may be the ultimate fate of more exact mechanical appliances, it will survive for use under certain eventualities, for it is a ready means of producing anaesthesia when no other materials are available except the ever-ready bottle of chloroform.

Various attempts have been made, more particularly by Lister,[1] to estimate the concentrations of chloroform vapour which are afforded by the simple appliances in general use. Into these calculations there necessarily entered too large an element of conjecture to enable the investigators to work out such a delicate problem with success. Mr. W. Legge Symes[2] has recently brought a more exact method to bear upon the subject, and his estimations are, therefore, of great interest, but it is evident that a more extended analysis is possible and desirable. The investigations which I have carried out have aimed at the consideration of the more important physical conditions which attend the evaporation of chloroform, and they have led to the conviction that not only chloroform, but other anaesthetic vapours also, may be far more accurately adjusted to the patient's requirements by simple means than has been generally surmised.

The apparatus which I employed for these investigations consisted simply of a bellows arranged to simulate human breathing, and provision was made for regulating the volume of air sucked in and expelled at each expansion and compression; as the pace at which the air currents moved depended upon the rate of driving the appliance, it was an easy matter to counterfeit any required depth or force of respiration. The estimation of the amount of the chloroform vapour taken up by the aspired air was carried out by the densimetric method introduced by Waller and Geets,[3] a densimeter bulb being interpolated for this purpose in the suction stream between the chloroform and the bellows, a by-pass being provided for the passage of the expelled air back to the chloroform.

The terms "suction" and "expulsion" will be applied in this paper to the two phases of the artificial respiration, and the terms inspiration and expiration to the corresponding processes of human respiration only.

A. Considerations of Temperature.

Naturally the starting point of observations of this kind must be a consideration of the reciprocal relations which exist between temperature and evaporation. Quick and slow volatilization are the result of high and low temperatures respectively, and hence arises a difficulty which is well recognized in every method proposed for regulating anaesthetic vapours. An illustration of this important relation is given in Table I, which shows the percentages which may be presumed to be yielded when the conditions of evaporation are the same in each case, and are of such a nature as to afford a non-saturated vapour.

Table I.—*Vapour Yielded under Conditions of one-tenth Saturation at Various Temperatures (deduced from Snow's Estimations).*[4]

Temperature at which Evaporation takes place.	Percentage of Vapour.
24° Centigrade	2.2 per cent.
19° ,,	1.6 ,,
14° ,,	1.1 ,,
9° ,,	0.8 ,,
4° ,,	0.6 ,,

This table serves to accentuate the importance of considering the temperature at which the chloroform is evaporated, and of the rapid cooling which it undergoes during evaporation by reason of the abstraction of "latent heat" from it by its vapour. In order to arrive at an estimation of the extent of the fall of temperature which actually occurs during inhalation I have made some observations by placing a sensitive thermometer in close contact with a suitable material to which chloroform was applied under conditions which admitted of its rapid evaporation by artificial ventilation with the bellows on the one hand and by natural respiration on the other.

Table II.

Conditions of experiment: The thin bulb of the thermometer was interwoven in the strands of a section of a domette diaphragm, through which the air currents were alternately sucked in and expelled.

0.5 c.cm. of chloroform was applied about the bulb upon one quarter of the domette.

The expansion capacity of the bellows was set to 360 c.cm., and 30 alternate expansions and compressions were made per minute. (This frequency is a common one under chloroform anaesthesia.) The human respiration was timed to the same frequency and adjusted as nearly as possible to the same volume.

Room temperature 15° C.

Seconds.	Aspirations.	Temperature under Artificial Respirations.	Temperature under Natural Respirations.
0	—	15° Centigrade	15° Centigrade.
5	—	11° ,,	11° ,,
10	5	5.5° ,,	8° ,,
15	—	2.0° ,,	6° ,,
20	10	0.0° ,,	5°* rises
25	—	−2.0° ,,	
30	15	−3.0° ,,	
35	—	−3.5°* rises	

* The last figure in each column indicates the point at which the temperature commenced to rise on account of the exhaustion of the chloroform.

It is apparent from this and numerous similar experiments that human respiration affords a contrast with artificial respiration in two particulars, for evaporation is relatively accelerated by it, and the fall in temperature is considerably diminished; consequently a corresponding equalization of evaporation will take place. These results occur as a consequence of the warmth of the exhaled air, which tends to prevent excessive cooling. This constant factor also bears an important relation to the initial atmospheric temperature, for within the range included in my observations (namely, 14° C to 24° C.) the final temperature in every case of human respiration lay within the limits of 5° and 7° C., independently of the initial temperature. Thus the expired air plays an important part as a temperature regulator, and this material consideration obviously discounts to a great extent the supposed importance of the effect of the temperature of the external air.

There exists further a very practical way, not of preventing fluctuations of temperature, but of evading their effects, for the anaesthetic effect produced upon a person must depend not so much upon the vapour tension of individual inspirations, but upon the mean tension of a number of inspirations, mainly on account of the comparatively large atmospheric contents of the lungs with which the individual respirations become merged; when, therefore, small quantities only of chloroform are evaporated at a time—that is, within the duration of a few respirations—the resulting anaesthetic effect will bear a relation to the mean of the descending scale of tensions at which the consecutive inspirations are made. A similar consideration applies to the mitigation of the somewhat raised mean vapour tension in hot weather. In such circumstances the whole of the liquid is evaporated more rapidly, and at a higher mean vapour tension, but provided that the same number of respirations be allotted to each application of chloroform as suffices for its complete evaporation during cooler weather, then at all temperatures a given quantity of vapour is mixed with a given quantity of air and the resulting average in the lungs will be almost the same, despite its having been inhaled in each case at different concentrations per respiration. To sum the matter up, it can be stated that a required anaesthetic effect may be perfectly maintained in spite of temperature variations, provided that definite and small quantities of chloroform be applied at definite intervals of respirations. When large quantities of chloroform are being evaporated a prolonged and slow series of temperature changes may result, and will no doubt give rise to varying tensions which will be sufficiently long continued to induce corresponding general anaesthetic effects.

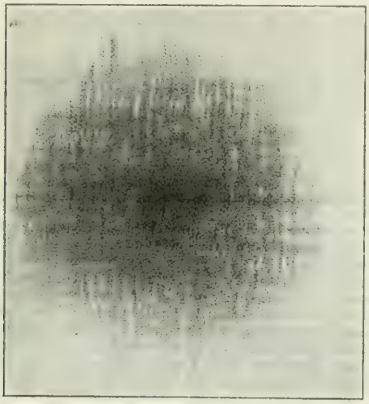
Before leaving this subject it is necessary to consider

how far the results obtained with an artificial respiration apparatus deviate from those occurring under conditions of similar but human respirations. From the data at my command I should judge that the mean percentage values given in the succeeding sections, which are derived from artificial respirations, require, at a maximum computation, an addition of one-third of their magnitude to bring them into conformity with clinical conditions.

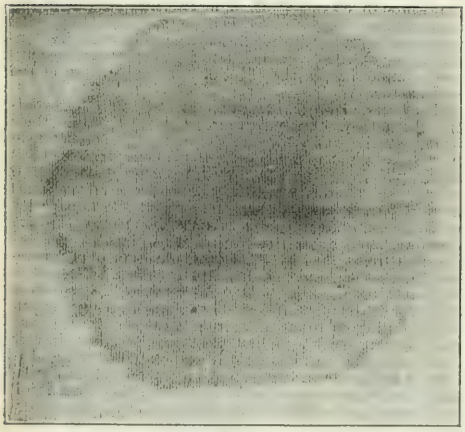
NOTE.—The percentages given in the tables which follow represent as nearly as possible those derived from a mean temperature; such values were arrived at by performing a suitable number of aspirations to each estimation, and by varying this number in accordance with the magnitude of the aspirations.

B. PHYSICAL CHARACTERISTIC OF FABRICS.

It appears to be a prevalent idea that anything which will absorb chloroform will also serve as a vehicle for its administration. This may in a sense be true, but that



a



b

Fig. 1.—*a*, Lint; *b*, domette.

fabrics cannot be employed indiscriminately is illustrated by the consideration of the following particulars:

1. *The absorbent quality of fabrics* was investigated by adding a small quantity of an aniline dye* to the liquid chloroform, which left in consequence a permanent stain upon the fabric from which it was evaporated. The accompanying photographs (Fig. 1) portray the stain which results from the application of 30 drops of dyed chloroform to domette and to lint respectively, the reproductions being made on precisely the same scale. The domette is a good example of a fabric which is absorbent in the sense that it promotes a capillary spread of the chloroform, so that a large area is covered with a thin but fairly evenly distributed film of the anæsthetic. The lint, on the other hand, does not tend so much to promote capillary spreading, the total surface covered being smaller, and it acts more like a sponge will act in taking up a mass of chloroform which largely accumulates at the point of application; such spreading as does occur is very imperfect, for it takes place (as the photograph shows very well) by selection along the less numerous and more fluffy threads of the warp. It is obvious that a material which best promotes a rapid and even distribution is to be selected for clinical use, not only on account of the evenly-conducted evaporation that it involves, but also because a required evaporating surface can be produced with the smallest quantity of chloroform. Of the materials which I have investigated domette best fulfils these conditions.

The same method of investigation shows that for a given material the amount of chloroform applied is a rough guide to the extent of surface covered; thus for amounts of 5, 10, 15, and 30 drops each, the averages of the corresponding areas stained in three different fabrics vary in the ratio of 1.0, 1.8, 2.8, and 4.7. The same quantity, however, applied to different materials, as already implied, yields very different results; thus, for instance, the average areas produced in the case of domette, lint, and linen towel respectively, vary in the ratio of 3, 1.8, and 1. The details of these experiments are given in Table III.

TABLE III.—*Showing the Extent of the Spreading of Chloroform in a Single Thickness of Different Fabrics (50 Drops of Chloroform to 1 Cubic Centimetre).*

Number of Drops.	Domette. sq. cm.	Lint. sq. cm.	Linen Towel. sq. cm.
30	98	64	36
15	61	36	20
10	38	25	12.5
5	23	12	7

The spread of the chloroform may, perhaps, be most accurately controlled, and certainly an even distribution best ensured, by applying chloroform in an appropriate number of separate patches of a few drops each, and under certain conditions this method is, in my experience, the most convenient.

The result of folding a fabric several times is this: the mass of liquid applied becomes divided up between the folds, so that the spread is restricted in proportion as the folds are numerous. Manifold materials are only requisite when it is desired to hold in suspension a large quantity of fluid.

2. *The Texture of Fabrics.*—A loosely-woven fabric, such as domette, will allow the respirations to pass through its

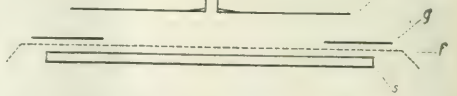


Fig. 2.—*S* is a flat porcelain slab upon which the flannel (*f*) is spread. On top of the flannel is laid a glass plate (*g*), out of the centre of which a circular hole has been cut in order to expose the required area. A glass disc (*d*), from the centre of which an aspirating tube (*t*) is led off, is supported at a definite distance above the flannel, which is saturated with chloroform.

meshes with great facility, and air thus passing through a fabric comes into intimate contact with the chloroform it holds in suspension, and so has the opportunity of taking up a high percentage of vapour. This aspect of affairs may be illustrated by means of the arrangements for obtaining estimations of vapour which is illustrated and described in Fig. 2, but for this special purpose the porcelain slab (*s*) was removed from under the fabric, which was then supported merely by a large retort ring, so

* Erich's "Dahlia" answers well for this purpose.

as to leave an open air space beneath it. The percentages thus obtained are given in Table IV.

Table IV.

In this case the chloroform was submitted to one phase only of aspiration—that is, the suction phase.
Volume of bellows expansion 360 c.cm., frequency 30 per minute.
Area of fabric = 200 sq. cm.
Distance of disc from fabric 5 mm.
A single fold only of each fabric was used.

Linen Towel.	Fine Flannel.	Domette.
Per cent. 2.7	Per cent. 3.4	Per cent. 4.3

There existed a fairly free passage for the air between the disc and the fabric, and in the case of the towel it is probable that, on account of its relative impermeability, it took this course almost entirely. In the case of the flannel and domette, however, the raised percentages can only be due to the fact that a greater or less proportion of air passed directly through them.* This "breathing through" is an important and an insufficiently recognized factor in most of the usual methods of administering chloroform, especially those for which a frame or mask is employed; the closer the fitting of the edges of the mask to the face the greater the proportion of air which is breathed through it, and hence the greater the effect which is produced. In many practical methods of administering chloroform, as also in the foregoing experiments, the process of inhaling is a mixed one of "breathing over" and "breathing through" a chloroform surface, but in order to arrive at a precise knowledge of the physical conditions which control evaporation, I found it necessary to dissociate these two processes, and study them separately.

C. Evaporation by Currents of Air Passing Entirely Over the Surface of the Chloroform.

The experimental inquiry into this branch of the subject was conducted by means of the appliance shown in Fig. 2. This arrangement may be taken to reproduce the clinical conditions in which an impervious material, such, for instance, as a folded towel, is roughly adapted to the facial contour and the tidal air propelled in and out between the parallel surfaces of the material and the face. The results obtained are concisely summarized in Tables V and VI.

Table V.

Volume of aspiration, 360 c.cm.
Frequency of aspiration, 30 per minute.
Conditions of aspiration, alternate suction and propulsion.
Ten aspirations made before taking each estimation.
Height of disc above flannel, 1 cm.
Temperature of room, 17° C.
The area of fabric which was submitted to experiment was governed by the size of the hole in the glass plate which covered it.

Areas of Chloroform Surfaces in sq. cm.	Diameters of Surfaces in cm.	Percentages.	
		Calculated from the Ratio of the Perimeters	Observed.
26	5.75	0.98	0.95
68.6	9.35	1.60	1.55
196	15.80	2.70	2.70

In the above table the "observed" percentages were obtained in the usual way with the densimeter, and from the highest of these, namely, 2.7 per cent., the values for the other areas were calculated in the ratio of the circumferences of those areas, and these values are tabulated in the column headed "calculated."

The observed results are contrary to expectation, for it has usually been assumed that the vapour evolved is directly proportional to the surface exposed to evaporation, whereas these figures show a direct proportional relation between the vapour and the circumference of the area, or, what amounts to the same thing, the square root of the area. Of course, this relation has probably an application to these special conditions only; in fact, they are partly the result of the, from a physical point of view, exceptional condition of an alternating current of air, the expelled air being partly confined in the apparatus and re-aspirated; but I have also found good reason to believe, from experiments under simpler conditions of aspiration, that the air absorbs a considerable part of its charge of vapour at its first point of contact with the chloroform, and that hence the extent of the periphery of the moistened surface exercises a considerable control upon the total amount of vapour taken up.

Table VI.

Average temperature, 13.5° C.
Area of chloroform surface, 200 sq. cm.
Frequency of aspiration, 30 per minute.
Type of aspiration, alternating suction and propulsion.

Vertical Measurement of Air Space.	Volume of Aspiration.		
	550 c.cm.	360 c.cm.	160 c.cm.
	Per cent.	Per cent.	Per cent.
4 cm.	0.85	1.0	0.90
3 ,,	1.85	2.4	2.40
2 ,,	1.75	3.1	3.60
1 ,,	1.60	2.7	4.75
The flannel folded into light contact with the disc around the aspiration tube	—	5.5	—

In Table VI are found several minor variations, which are, perhaps, open to further investigation; but, at the same time, there are certain main conclusions to be drawn which have a practical application. In the first place, a withdrawal of the mask from the face entails a dilution of the vapour which affords the greatest contrast in the case of small, weak inspirations, but during strong ones the relation of distance to percentage is of less importance. In the second place, very slight contact between the surfaces may result in the production of a very powerful vapour. Thirdly, the variations of the force of respiration produces an effect which must be extremely embarrassing from a clinical standpoint when the adaptation of the surfaces is fairly close, but this variation becomes practically non-existent when the distance of the mask is considerable.

The surface of 200 square centimetres which was submitted to these experiments is larger than is practically convenient, and hence, with a smaller surface, the distant position at which the respiratory fluctuations in percentage tend to disappear can only be attained at the expense of too great a dilution of the vapour, and it is my practical experience that a surface of this kind requires to be held in close apposition to the face to induce anaesthesia with sufficient expedition. It is my view—which, I believe, is common to other anaesthetists—that in the administration of chloroform as well as of other anaesthetics a higher strength of vapour is required to induce anaesthesia within a workable period than is required to maintain it; so that anaesthesia may perhaps be favourably maintained by this method, more especially in the case of superficial operations, provided the correct distance be properly gauged. The production of a constant extent of evaporation surface is, however, a difficult problem, and as this must in any case involve the application of a considerable quantity of chloroform, we have to contend with the additional complication of variable temperature effects. In short, I cannot conceive of any practical means by which an impervious material can be adjusted so as to regulate the vapour with any degree of accuracy.

There exist several well-known methods which involve the use of impervious fabrics. The six-fold towel (the Edinburgh method) comes under this category; this has been regarded as an essentially "open method," but it appears to have been employed in such a fashion as to obtain the maximum of vapour available; thus Lister[5] who for many years advocated this procedure directed that the towel should be held as close to the face as could be comfortably borne. The method contains no

*When air is forced *entirely through* a fabric, then the closer its meshes the higher the percentage; very close woven materials under such clinical conditions would, however, involve laboured breathing.

intrinsic theoretical advantage, but at the same time, it is interesting to observe that the abnormal quantities of chloroform employed, "unmeasured and unstinted," do not tend to the production of abnormal percentages, they merely extend the period of efficiency, for the tendency to an extension of surface by absorption is already small in a single fold of towel, and it is further limited, in the manner already explained, by the employment of several folds.

A single layer of lint is fairly pervious to air, but a double layer is practically impervious, and such a double layer is commonly employed in close contact with the face. This form of mask certainly possesses the advantage that it is readily reversible, and small quantities of anaesthetic may be frequently applied on alternate surfaces, and in this way the danger of an accumulation of unevaporated residues is obviated.

Any closely applied moderately impervious chloroform mask which encloses a considerable space is undesirable, and the various forms of "cones" are on this account open to objection. With such appliances during periods of very weak breathing or temporary closure of the glottis, the heavy chloroform vapour is liable to accumulate in the space and produce a very strong atmosphere, and sudden and disastrous consequences may follow the restoration of normal respirations. It is under such conditions of an enclosed and concentrated atmosphere that a sudden deep gasp becomes dangerous; whereas, under the more usual and safer conditions, a rapid flow of air thus produced tends, if anything, to the production of a diminished vapour tension.

D. Evaporation by Currents of Air Passing Entirely Through a Pervious Surface.

The experimental study of this subject is simplified by the fact that the air is excluded from entering under the edges of the mask and so the factor of distance from the face which was so important in the last section does not form a complication; the theoretical consideration of the subject is, however, somewhat involved on account of the rapid revolution of air currents which must take place within the dome of the mask, thus entailing to a certain extent, a simultaneous process of breathing "over."

In Fig. 3 is shown the apparatus which was used for this series of experiments and it is sufficiently explained by the description appended to it. In these experiments I have taken a certain area of domette and caused the air currents to pass through it, but it would appear from Table VII that it is a matter of comparatively little moment what the actual total area of this material may be; this will not appear strange when it is remembered that the air stream must be distributed to the same extent as the chloroform.

Table VII.—*The Percentages obtained from Aspiration through Different Areas totally wetted with Chloroform.*

Conditions of experiment: The area of domette which was submitted to experiment was governed by the size of the holes in the glass plates between which it was enclosed.
Volume of aspiration (remaining constant), 360 c.cm.
Frequency of aspiration, 30 per minute.
Type of aspiration diphasic (alternate suction and propulsion).
Room temperature 15°C.

Area of Surface (in sq. cm.).	Percentages obtained.
60	3.3
30	3.7
20	3.3

Such differences as are shown in the table are simply explained when we consider the pervious areas of fabric as apertures, the size of which will naturally determine the rate of flow of the air at that point; the smaller surfaces, therefore, will promote more rapid air currents, which will take up less vapour in their passage. The interesting conclusion to be drawn is that a restriction, within limits, of the size of a pervious mask does not involve a corresponding restriction of the vapour, and is useless therefore as a precautionary measure, a conclusion which is entirely in accord with my practical experience.

When, however, only a limited part of the domette is wetted with chloroform, we may regard the whole air stream which passes through the domette diaphragm as being split into two portions, one of which consists of pure air and the other containing a definite proportion of vapour. Provided that the meshes of the fabric are not blocked up by too copious a supply of chloroform, then the two streams must follow the law which governs the flow through simple apertures, and hence the percentage of

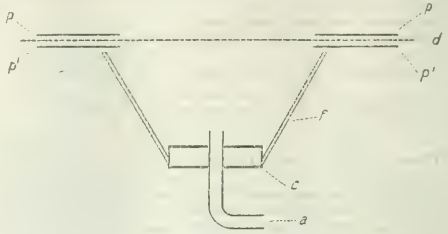


Fig. 3.

f is a glass funnel of which the stem has been cut off; into its smaller end is fitted an aspiration tube (*a*) by means of a cork (*c*). The edges of the larger end are ground flat, and they support the perforated glass plate (*p'*). Between *p'* and a similar plate (*p*) the domette (*d*) is enclosed.

vapour in the mixture will, theoretically, be directly proportional to the extent of surface which the chloroform is spread over. This proposition was put to an experimental test by dividing a circular area of domette into separate sectors by means of ribs of a non-absorbent material, after the plan shown in Fig. 4, the smallest sector of which measures one-fifteenth of the whole pervious surface.

Table VIII.—*The Percentages obtained from Aspirating Air through Domette only partially wetted with Chloroform.*

Conditions of experiment: The proportion of the area wetted with chloroform was defined by radiating ribs of "batiste."
Volume of aspiration (remaining constant), 360 c.cm.
Frequency of aspiration, 30 per minute.
Eight aspirations performed to each estimation.
Room temperature 15° C.
Total area exposed to the air stream by the holes in the glass plates, 65 sq. cm.
An excess of chloroform was applied in each case.

Proportion of Area Bearing Chloroform.	Percentages.		Values (Theoretical) which are in Direct Proportion to the Areas Concerned.
	Double Aspiration (Suction and Propulsion).	Single Aspiration (Suction only).	
One fifteenth	0.65	0.33	0.3
Two fifteenths	1.10	0.65	0.6
Four ,,	1.75	1.20	1.2
Eight ,,	2.60	2.35	2.4
Twelve ,,	3.40	3.50	3.6
Fifteen ,,	4.10	4.20	4.5

It is seen from the above table that under the more simple experimental conditions of intermittent suction only (the propelled air being allowed to escape) the percentage of vapour obtained is very nearly directly proportional to the fraction of the total area which is moistened with chloroform. Unfortunately this relation fails under the test of a double-phased aspiration—alternate suction and propulsion—when the lower percentages are raised in value and the higher lowered. It follows that although a percentage value cannot be assigned in direct accordance with the area wetted, still it is evident that, even under clinical conditions, each section possesses its own definite and ascertainable power of generating vapour.

The effect of altering the force of the air current has been indirectly illustrated in Table VII; the changes in the percentages consequent upon direct variation in the force of the aspiration are given in Table VIII. These changes are seen to be far less in magnitude than those which are found to occur under some other conditions, such, for instance, as aspiration "over" a closely-applied

surface. The reason for this is that all the currents are so spread out and consequently slowed down at the moment of passing through the fabric, that they tend to vary little among themselves in their capacity for taking up vapour.[6]

Table IX.—*Showing the Result of Varying the Force of Aspiration.*

Type of aspiration, alternate suction and propulsion.
Frequency of aspiration, 30 per minute.
Temperature of air, 15° C.

Volume of Aspirations in c.cm.	Proportion of Area to which Chloroform was Applied.		
	Entire Surface.	Six Fifteenths.	One Fifteenth.
550	3.30	2.00	0.75
360	3.75	2.45	0.70
160	3.90	2.70	1.00

It is evident from the foregoing considerations that the process of "breathing through" a material affords favourable opportunities of regulating the vapour. This process can be carried out by means of any of the various frames in general use which can be made to fit close to the face at their edges with a fair degree of accuracy. The prime necessity is a means of controlling the area wetted, and two ways of effecting this have occurred to me:—

1. The areas may be mechanically limited by some such contrivance as the domette cover shown in Fig. 4, which was used for the experiments already described.* The domette is in this case adapted to clinical purposes by being sewn on to a sheet of non-absorbent material, such as batiste, and it can thus be used on a suitable frame. Each section of domette is entirely separated from its neighbours, and even when thoroughly saturated with chloroform there is no possibility of an overflow taking place. Under conditions of proper adaptation to the face, approximate values of percentage of vapour may be assigned to each division, according to the estimations given in Table VIII, the proper correction being supplied for human respiration (see Section A); but inasmuch as it may be difficult without undue pressure to ensure in all cases such a close apposition that no air enters beneath the mask, the values must be regarded as the maximum obtainable. It should, however, be noted that the existence of a slight adventitious entry of air in this way has not the same significance when the air way of the inhaler is superabundant (as in this case) as it would have if a more restricted air channel were provided. However, on account of this and other more or less important sources of variation, I cannot regard this method as affording reliable percentages, which in my experience to be of value must be absolute and invariable; otherwise it is better to be content with clinical indications, and with such guides the cover provides valuable possibilities of limiting, and of increasing and decreasing, the strength of vapour with great precision, for it provides a complete immunity from the mischievous effects of an accumulation or a widespread diffusion of chloroform. The exact amount of chloroform applied to the smaller sections is not very material, but when using a large area it is important to apply only just sufficient to cover it, so that the strong vapour is evolved for the shortest possible time. In the case of the largest section fifteen drops are sufficient, and this proportion serves as a guide to the supply required for the other sections. The supply of chloroform must be renewed at fairly regular intervals of respirations and the correct interval may be at once ascertained by running a finger over the surface, for the chloroform is so cold that its disappearance is readily remarked. The administration is conducted upon the general principles which relate to chloroform inhalation, but it is worthy of remark that it is frequently not necessary to exceed wetting one half of the total area in order to induce anaesthesia, and that the smallest section is sufficient to maintain it in the case of many superficial operations.

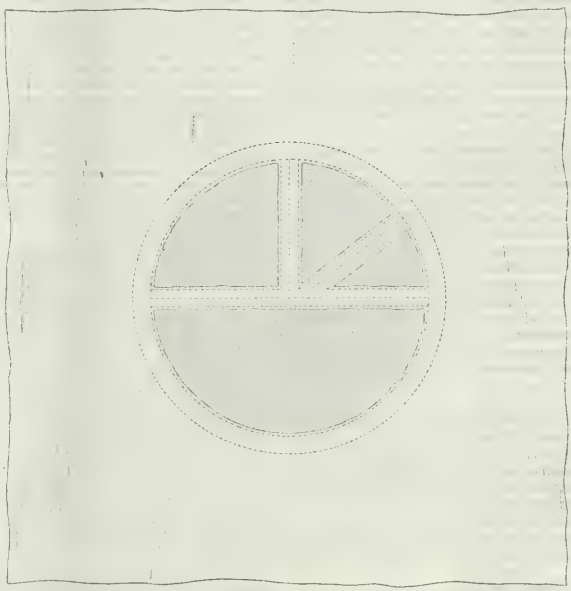


Fig. 4.—The shaded part represents domette sections which are sewn into a groundwork of batiste cloth. The diameter of the circle is 11 cm., and the four sections represent roughly estimated *maximum* percentage values as follows: 0.8, 1.5, 2.3, and 3.5 per cent.

2. The areas may be controlled upon an undivided fabric according to the relation which it has been pointed out exists between the amount of chloroform, measured in drops, and the resulting spread of the chloroform. The simplest method, so far as manipulation is concerned, is to apply the anaesthetic at a single spot, and to regulate the number of drops according to the effect required. It is, however, doubtful whether the proportion between the number of drops and the area produced can be relied on during rapid evaporation by inhalation, but it may perhaps form the basis of definite procedures which may be worked out according to individual inclination; the procedure which I have myself adopted, and which I find capable of very delicate adjustment, is as follows: On a medium-sized mask as many as four patches of chloroform, of 5 drops each (40 drops to 1 c.cm.), may be applied without their coalescing, and there are thus provided four grades of strength of vapour, intermediate grades being introduced if required by diminishing the number of drops in one group. In the case of an adult breathing an average depth of respiration the process works out as follows: The mask is imagined as divided into quadrants, and intervals of six respirations are decided upon; the administration is commenced by applying two drops to one quadrant, increasing the amount to five drops in successive applications; the next thing is to repeat the process in addition on a second quadrant, ultimately applying five drops to each of three quadrants and if necessary four. Once anaesthesia has been induced in this way it is maintained by omitting groups of drops as rapidly as possible, until one group is found sufficient, when further attenuation of the vapour is aimed at by gradually increasing

* Messrs. Allen and Hanbury are making an approved pattern of his cover.

the intervals of respirations if possible up to ten. A slight amount of skill enters into this method in rapidly pouring out and enumerating the drops, and also an element of judgement in estimating the depth of the respirations, for although deep respirations, which are generally forcible, tend to take up a diminished percentage of vapour, this tendency is insufficiently marked to prevent a more rapid evaporation, so that a shorter interval has to be allowed, that is, about four respirations; and, conversely, as many as eight or nine shallow respirations may be required to make up an interval. However, these adjustments are made with little difficulty, for a change of anaesthetic state, which is conveniently gradual, will call attention to the requirements. Chloroform given in this way is administered under the most favourable conditions regarding distribution, quantity, and temperature variations, and it is capable of the most delicate double adjustment by drops and intervals: in fact, once a routine is established, the vapour is practically continuously constant in strength; thus, with the artificial respiration apparatus I obtain values of 3.15, 3.2, and 3.2 per cent. at the seventeenth, twenty-third, and twenty-eighth respiration respectively.

As regards the frame employed, I find a Schimmelbusch with a pear-shaped rim to be the most readily adaptable. An efficient drop bottle is also an essential, and nothing is better than a glass bottle with a grooved stopper affording a rapid succession of individual drops, of which between 40 and 50 go to make up 1 c.cm.

The above procedures, derived from experimental work and clinically confirmed, I believe to be the best suited to the administration of pure chloroform.

I may shortly state that these principles relating to the process of "breathing through" apply with added force to the use of diluted chloroform, as in the form of A.C.E. mixture; it is only necessary to employ a cover of four-fold gauze divided into four equal divisions and to proceed on an assumed efficiency of one-third of that of pure chloroform—that is to say, using three times the quantity. With ether anaesthesia may be very readily maintained in this way without undue waste (it may, indeed, be induced with a little perseverance), and the excellence of the type of anaesthesia thus obtained deserves detailed comment; however, clinical considerations are somewhat outside the scope of this paper, and cannot be further discussed. I think I have said enough to show how the principles can be extended in many directions.

In this paper I have considered the administration of anaesthetics from one point of view only—that is, that of the regulation of the vapour. This is an essential part of the anaesthetist's business, and I am inclined to think that it is the most essential part, for no accurate or intelligent appreciation of the physiological effects of anaesthetics is possible without it.

I have to conclude with an expression of thanks to Professor Vaughan Harley for kindly allowing me the use of his laboratory.

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LANDRY'S PARALYSIS.

BY

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THE case of which full details are given below was from a clinical standpoint a typical instance of Landry's disease. The motor symptoms, it should be noted, were those of a gradually-ascending flaccid palsy, and these mounted to so high a level that on the eleventh day of illness ocular movements were impaired. Thereafter the symptoms gradually retrograded. Throughout there were no sensory symptoms nor any incontinence of faeces or urine, and eventually recovery was complete.

W. H., aged 30, waiter, admitted to the Westminster Hospital on August 3rd, 1904.

Previous History.—Had had syphilis at 24, and thereafter thorough and prolonged treatment. Had had no other previous serious illness. Had not drunk to excess. Usually smoked 1 oz. of tobacco a day.

History of Present Illness.—Quite well up till eleven days before admission; at that time the legs began to get weak, and in three days' time loss of power in them was complete. For three days before admission patient had been gradually losing power in the hands, and for one day had had double vision and difficulty in swallowing. For first three days of his illness patient's legs had ached. There had been no numbness or paraesthesia, and no headache or backache. The bowels had been constipated, and there had been some difficulty in starting micturition. There had been no incontinence.

State on Admission.—The patient was well nourished and of a good colour. Mentally he was markedly intelligent. Special senses of smell, taste, and hearing were normal. Vision of R. eye $\frac{6}{24}$, of L. $\frac{6}{18}$. Visual fields were normal. Optic discs normal.

Outward movements of both eyes were incomplete in range. There was no nystagmus. The left pupil was a little larger than the right, and both were almost immobile to bright light. There was slight ptosis of the left eyelid. There was no obvious affection of parts supplied by the fifth and seventh nerves. The left half of the soft palate drooped more than the right and moved less completely.

The tip of the tongue on protrusion deviated to the right and its lateral movements were feeble. There was slight difficulty in pronouncing the lingual and guttural sounds.

There was no movement at any of the joints of the legs or feet, with the exception of the right first metatarso-phalangeal joint; here the big toe could be feebly flexed and extended. The leg, if lifted and dropped, fell flaccidly and presented no passive resistance to the movement of its joints.

The patient could not sit up, though the abdominal muscles could be felt to contract on his attempting to do so. The movements of the upper extremity were very feeble. The thumbs and little fingers could not be approximated, and the fingers scarcely abducted or adducted.

Flexion of the head was very feebly performed, but lateral movements of the head were fair. Respiratory movements were good. The anal sphincter was very lax.

There was nowhere any sign of tremor, fibrillation, or rigidity. The various muscles felt flabby, but did not seem to be wasted. The co-ordination of movements, where any could be performed, was good.

There were no sensory changes, objective or subjective. No reflexes could be obtained from the lower limbs. The abdominal, cremasteric, and epigastric superficial reflexes were normal, as were also the triceps and supinator jerks. There were no trophic or spinal changes.

A faint apical systolic murmur was heard, but otherwise the thoracic and abdominal organs presented no abnormal physical signs. The spleen was not enlarged. The urine showed no abnormality.

Progress.—Up to August 8th the movements of the limbs and trunk remained much as described above. On that day the emotional movements on the left side of the face were noted to be not quite so good as on the right side; forced movements were equal on the two sides. The ptosis of the left eyelid was more pronounced. The abdomen was rather distended. On August 10th the hand grips were slightly stronger and speech a little more distinct. The patient complained less of diplopia. The left pupil reacted to light more rapidly than the right. Both pupils just reacted to painful stimulation of the skin of the neck, but did not accommodate. The triceps and wrist jerks were less brisk than before. The abdominal, cremasteric, and epigastric reflexes could not be elicited.

By August 15th the patient was again able to swallow solids, the ocular movements were better, and the hand grips still stronger.

On August 25th slight power of flexion and extension at the ankles returned; the legs, also, could be slightly flexed upon the trunk and abducted and adducted.

By September 3rd both pupils reacted well and equally. There was no ptosis, and ocular movements were through a normal range, but there was a little nystagmus on extreme lateral movement. There was no further complaint of diplopia. The patient could sit up in bed, using his arms to heave himself up. All movements at all the joints of the legs could be feebly performed. The knee-jerks and ankle-jerks seemed normal. The flexor response was present on both sides.

Result.—By September 17th the patient was walking with the help of sticks, and shortly after left the hospital.

The temperature had been observed to be elevated to 99.4° F. on the day of his admission, thereafter it had been normal. On August 9th the electrical reactions were reported as showing some diminution to faradism, and on September 14th some increase. There was no reaction of degeneration. Drug treatment had consisted in the administration, during the early stages, of potassium iodide. From August 21st onwards massage and electricity were used. The patient was last seen in May, 1904, when he had almost wholly recovered. He could then walk perfectly well on the flat, but experienced a little difficulty in going upstairs.

REMARKS.

The etiology of those cases of acute ascending palsy which appear to their various reporters to justify the title

of Landry's disease covers a wide field. Among the causes are chronic alcoholism, though this condition is regarded rather as predisposing than exciting (Andr. Schultz,[1] Levi-Sirugue,[2] Mills and Spiller,[3] Bailey and Ewing,[4] Ormerod,[5] Colla,[6] and Prince[7]); syphilis (Landry,[8] Levi-Sirugue,[2] Diller,[9] Alexander,[10] Vizioli,[11] Ross [12]); influenza (Levi-Sirugue,[2] Krewer,[13] Ballet,[14] Galetta,[15] James and Fleming,[16] Ormerod,[5] Pick [17]), and some others of the acute specific diseases; enteric (Levi-Sirugue,[2] Girandeau et Levi,[18] Curschman [19]), variola (Levi-Sirugue,[2] Oettinger et Marinesco,[20] Bernhardt [21]); varicella, measles, pneumonia (Levi-Sirugue [2]); malaria (Taylor and Clark,[22] Baumstock,[23] and Remlinger [24]); tuberculosis (Westphal [25]); diphtheria (Westphal [25]); and gonorrhoea (Mills and Spiller,[3] Ricaldoni and Lamas,[26] Landry [8]); cold (Landry,[8] Levi-Sirugue,[2] Jaccoud,[27] Watson [28]); prolonged exertion (Parhon,[29] Ormerod [5]); nervous fatigue, tobacco, venereal excess, and heredity have each been suggested as possible causes. The disease has been associated with dysmenorrhoea (Landry [8]), parturition, and attempted abortion; (Spiller,[30] Levi-Sirugue [2]) with accidents of catheterism and cystitis (Walker [31]); with gastric trouble (Roux [32]); with auto-intoxication (Kapper,[33] Levi-Sirugue [2]); with anaemia (Schwab [34]); with septicaemia (Oppenheim [35]); with exophthalmic goitre (Rosenfeld [36]); and with antirabic treatment (Rendu et Roux [37]). Rissler [38] has described an epidemic of the disease, while Erball [39] thinks it may be a sporadic form of beri-beri.

In other reported cases there does not seem to have been anything in the histories of the patients which could be adduced as having any etiological bearing on the malady. In the case of the patient whose history is given above, the only noteworthy facts in this connexion are that he had syphilis six years previously (but for this he had, according to the present canons of our art, been well treated) and that he smoked 1 oz. of tobacco daily.

Several micro-organisms have been noted by various observers as occurring in the tissues of patients. A diplococcus resembling Weichselbaum's has been described by Piccinino,[40] and was found by him in the spinal cord, and similar organisms have been found by Dercum [41] in the cerebro-spinal fluid and by Buzzard and Russell [42] in the exudation upon the meninges and in the substance of the cord. Dercum's case was, however, described as one of acute poliomyelitis, and Buzzard and Russell's was one of acute ascending meningo-myelitis.

A micro-organism like the pneumococcus was found in the blood from the heart of a case, but not in or about the spinal cord, by Roger and Josué,[43] and similar organisms were found in the spinal fluid, and, mixed with bacilli, in the spinal cord by Courmont and Bonne.[44] Streptococcus was found by Oettinger and Marinesco,[20] in the cord by Remlinger,[24] and with staphylococci by Jaccoud.[27] A bacillus was found by Baumgarten[45] in the blood and medulla and in the veins, but not in the spinal cord, by Centanni.[46] A bacillus, "voisin du proteus," was found by Chantemesse and Ramond,[47] Eberth's bacillus by Curschman [19] and Levi-Sirugue,[2] Staphylococcus was found in a sciatic and in the spleen by Eisenlohr,[48] and a bacillus like that of anthrax by Marie and Marinesco.[49] Lastly, a tetracoccus has been described by Farquhar Buzzard.[50] In the patient W. H. lumbar puncture was performed and a tetracoccus discovered in the spinal fluid, as recounted below.

Numerous other observers have found no micro-organism after death; Courmont and Bonne[44] found none in the blood drawn during life, and Knapp and Thomas[51] found none in spinal fluid drawn during life. In experiments on animals Roger and Josué[43] produced paraplegia in mice and rabbits by the injection of their pneumococcus-like organism; a similar organism found and injected by Courmont and Bonne[44] produced no results. F. Buzzard's[50] tetracoccus on injection produced a rapidly-spreading palsy. The tetracoccus found in the case of W. H. produced no results on injection, as recounted below.

So numerous are the supposed etiological factors that it is plain either that many conditions can produce the disease or that, so far, the *causa causans* has not been definitely determined. It is remarkable in how many cases reported in quite recent years it has been impossible to name any etiological factor or, by the most approved bacteriological methods, to obtain any micro-organism from the tissues of patients having the disease.

The Symptoms.

Dealing next with symptoms, it is obvious that the collection of symptoms known as Landry's disease has a sufficient individuality of its own and occurs with sufficient frequency to justify Landry's action in placing it in a special position by itself. But from that collection there are divergencies of greater or lesser moment. Some are so great that it is difficult to follow how the various diagnosticians have managed to place their cases in this category: others so small that it is difficult, without splitting hairs, to remove the cases from this category. A few of such divergences are here referred to.

In a case of Prince[7] the patient was found paralysed in his arms and legs one hour after he had been seen to use them. Sensation and sphincters were normal and death occurred in twelve hours. In a case of Taylor and Waterman [52] flaccid palsy of arms and legs occurred contemporaneously and nineteen days later respiratory difficulty commenced and resulted in death in two days. Ricaldoni and Lamas [26] tell of a case which began with tingling and loss of power in the right hand and later similar symptoms in the left hand and legs. In this case there was pain on pressing the muscles and hyperaesthesia of the hands and feet. Knapp and Thomas [51] report a case which commenced with cramps in the abdomen and legs. In Taylor and Clark's [22] case the disease began with pain in the back, numbness below the level of the umbilicus and fibrillary tremors were shortly afterwards observed. Schwab's [35] case began with numbness in the hands eight weeks before death. This was shortly followed by an ascending and gradually increasing loss of power. Wappenschmidt's [53] case first showed bulbar symptoms. Guizetti,[53] Howard,[54] Rowden,[55] and Janichevsky [56] report similar cases. In a fatal case of Hirtz and Lesné [58] the symptoms did not ascend as far as the bulb.

Diller[9] tells of a case in which five weeks after onset much weakness and softness of the muscles remained and R.D. was demonstrated. Vizioli's [11] case began with severe pain, succeeded by loss of power, fibrillary twitchings, and R.D. Levi-Sirugue,[2] Oppenheim,[35] and Raymond,[57] say that R.D. may occur. Girandeau and Levi [18] in their case could get no reaction to faradism.

Sensory symptoms are described in the majority of cases, and in general consist of numbness and tingling, with, less frequently, objective anaesthesia. In Galetta's [15] case there was severe pain in the sacral region, and in Marie and Marinesco's [49] pain was intense over the whole body. Oppenheim [35] states that pain is exceptional.

The sphincters, according to Landry's [8] description, in almost all cases remain normal; in Oettinger and Marinesco's,[20] in Courmont and Bonne's,[44] in Girandeau and Levi's,[18] in Schwab's,[34] and in two cases of Knapp and Thomas [51] the sphincters were involved. Fever is unusual, but occurred in the cases of Knapp and Thomas,[51] Taylor and Clark,[22] and Brissaud.[61] In Eisenlohr's [48] case the patient had had some fever three weeks before the symptoms came on.

Prognosis.

Though prognosis has been considered grave in this disease favourable terminations have been frequently reported. Nearnow,[59] Soltman,[60] Brissaud,[61] Parhon,[29] Foley,[62] Knapp and Thomas,[51] Baumstock,[23] and Spiller,[30] have all seen complete recoveries in their cases. In the cases of Muratow [63] and Senna,[64] which were reported as cases of Landry's disease, recovery occurred in the first, but in the second there was only great improvement. In Muratow's case, however, one of the signs was ankle clonus, and in Senna's there was tenderness of nerve trunks and muscles. Martinet [65] reports two cases in which the first stage was that of acute ascending palsy, the second that of amyotrophy, and the third that of progression to complete recovery. Raymond [57] mentions a somewhat similar case.

It is, on the whole, a striking fact that in those cases which, clinically speaking, were cases of Landry's disease, recovery, when it occurred, was complete. On the other hand, partial and very tardy recovery only seems to have occurred in those cases which can only hesitatingly be brought under the heading of Landry's disease.

The case of W. H. was most typically, clinically speaking, one of Landry's disease. The motor symptoms were those of a gradually ascending flaccid palsy, and had mounted to so high a level that on the eleventh day of illness ocular movements were impaired. Thereafter, the

symptoms gradually retrograded. There were no sensory symptoms, and there was no incontinence of urine or faeces.

MORBID ANATOMY.

Before proceeding to discuss the morbid anatomy of Landry's disease, it is desirable to consider if there are other diseases having a similar clinical course, and whose anatomy is known. Here a difficulty at once confronts us, for some authors, on discovering a gross lesion of the cord, put aside a diagnosis of Landry's disease. To a certain extent they are justified, for it is a fact that Landry's own words, in his first description of the disease, are that there is "an absence of all appreciable nervous lesion." Methods of examination have, however, improved since Landry's time, and nervous lesions inappreciable then are obvious now. On the other hand are observers who seem ready to persist in a diagnosis of Landry's disease, even when the *post-mortem* appearances are very decidedly those of a very obvious myelitis or neuritis. Indeed, for the present, it would appear that a case which clinically has been one of Landry's disease, and which *post mortem* presents, let us suppose, some slight change in the grey matter of the cord, may be classified as a poliomyelitis or as Landry's disease according to the fancy of the observer. E. W. Taylor,[99] in a paper on Poliomyelitis of the Adult, describes the typical course of the disease as a more or less extensive palsy which is rapid in onset and which tends to recover, the sensory symptoms being slight and transitory. He speaks of how reporters of cases of Landry's disease describe "lesions essentially characteristic of poliomyelitis, and yet classify their cases under the vague heading of Landry's paralysis."

The following have reported cases clinically like Landry's disease and anatomically poliomyelitis: Cornil and Lepine,[67] Niedner,[64] Rissler,[78] Jagie,[69] Schultze,[70] Dercum,[61] Dauber,[58] Goldscheider,[64] and Redlich.[75] Sherman and Spiller[71] report a case of poliencephalomyelitis which ran a clinical course as of Landry's disease.

In other cases, again, where clinically the cases were Landry's disease, changes found *post mortem* were confined to the nerves (Dejerine and Goetz,[52] Vierordt,[79] Roth,[74] Nauwerck and Barth,[72] Pribykow[73]). In Putnam's[77] and Eisenlohr's[15] cases, in which the only lesions found were in the nerves, there were, in addition to the symptoms of acute ascending palsy, tenderness and pains which suggested a neuritis.

Is there, then, any change or want of change which from an anatomical point of view takes Landry's disease out of the categories of neuritis of a special clinical type or of poliomyelitis of a special clinical type?

To endeavour to answer this question is to endeavour to ascertain what changes have been discovered in cases of Landry's disease. In a case of Hun[34] there was a slight cerebro-spinal meningitis and degeneration of the anterior roots of the cauda equina, and in one of Courmont and Bonne[11] there was oedema of the cerebral meninges and signs of desquamation of some of the cells in the cord itself. Vascular lesions have often been noted. Hirtz and Lesné[35] described enlargement of the calibre of the vessels and thickening and infiltration of their walls along the whole length of the cord. Remlinger[24] describes inflammation in the central branches of the anterior spinal artery. Bailey and Ewing[4] and Wappenschmidt[20] describe intense perivascular infiltration. Taylor and Waterman[82] observed, in one case of theirs, some vascular congestion, but nothing else. In Schwab's[81] case there was capillary engorgement of the cord and meninges and some haemorrhages into the nervous substance. Immermann,[36] as well as perivascular infiltration, noted hyaline deposits, and this has also been observed by Taylor and Clark,[82] Klebs,[41] and Baumgarten.[12]

In many cases, besides perivascular infiltration, there is more or less extensive alteration of the cells of the grey matter (Iwanow,[38] James and Fleming,[10] Chalvet,[16] Schulz and Schultze,[57] von Rencz,[54] Ross,[59] Marie and Marinesco,[47] and Roussel[60]). Farquhar Buzzard's[9] case showed minute haemorrhages, changes in the ganglion cells of the grey matter, and degenerative changes in the myelin sheaths. Changes of an even more extensive character are frequently reported. Mills and Spiller,[3] Knapp and Thomas,[42] Wilson and Rothrock,[84] J. W. Thomas,[83] Hoffmann,[37] Ballet,[14] Rissler,[78] and Eichberg[24] have observed changes in the cells of the grey matter, and, in the same cases, changes in the nerves. Levi-Sirugue[45] described "small disseminated areas of softening along the whole length of the cord." Dejerine[51] described hypertrophy of the axis cylinders in the white matter, fragmentation of the myelin, and karyokinesis of the neuroglia. Oettinger and Marinesco[50] and Jaccoud[27] have also had cases in which there were areas of softening in the dorso-lumbar region of the cord.

In a certain number of cases cerebral lesions have been found with lesions of the cord and nerves. Worcester[86] observed changes in the anterior cornual cells, peripheral nerves, and cerebral cortex. Sherman and Spiller's[71] case was clinically one of Landry's disease, and anatomically a poliencephalomyelitis. Bailey and Ewing[4] describe a similar case. Ballet and Dutil[87] in their case found in the brain periarterial and perivenous nodules with pericapillary infiltration, and in the cord changes in the cells of the grey matter. Goebel[55] found vascular extravasation in the medulla, with disappearance of nuclei and fatty degeneration of fibres. He also found degeneration of the fibres in some muscles. Lastly, hyperplastic splenitis has often been observed (Kahler and Pic,[39] Bernhardt,[23] Westphal,[23] Putnam,[77] Remlinger,[24] Guizetti[33]).

So far, then, an examination of the polymorphic changes found does not suggest a constancy of type which justifies, from the anatomical point of view alone, the removal of Landry's disease to a separate category. The broad facts that emerge are that the changes found suggest a recent origin and an inflammatory cause.

We are next met with the rather startling fact that in certain cases no changes whatsoever have been met with *post mortem*. Landry himself said there was an absence of all appreciable nervous change, and other observers, later in time and of fuller knowledge, have said the same. Schultz[1] in a case of acute ascending palsy in 1898 found no anatomical alteration. The same was the case with Girandeau and Levi[17] in 1898, Taylor[100] in 1898, Ormerod[5] in 1892, Albu[101] in 1893, Kapper[33] in 1900, Greppin[102] in 1892, Watson[28] in 1892, Leube[103] in 1893, and with Prince[7] in 1895. Less recent observers who found nothing are Bernhardt[23] and Westphal.[23] Dixon Mann[102] found no changes in the cord, but the nerves in his case were not examined.

On the balance, however, it is obvious that changes are usually present, and as time goes on tend more and more to be noted. The cases which show no morbid appearance may perhaps be analogous to those severe forms of the acute specifics which kill from the intensity of the toxaemia and even before the proper symptoms of the disease have had time to display themselves. But it is evident that it would be, at present, a little rash to prognosticate what anatomical changes will be found in a case of acute ascending palsy or, conversely, on a *post-mortem* inspection of the nervous system from such a case to say what the symptoms had been.

But though the details of our knowledge of the anatomy of Landry's disease require considerable elaboration, a general survey of the disease, as one of rapid onset, running a short course and eventuating in death or in complete recovery, with *post-mortem* appearances suggesting recent inflammation and toxaemia, reminds us of the characteristics of the acute specifics. Not, however, until one of the numerous micro-organisms found by various reporters has been more definitely connected with the disease does it seem possible that we shall be able finally to classify Landry's disease in this category. For the first time, so far as I know, a micro-organism was found in spinal fluid extracted during life by lumbar puncture in the case of W. H. That organism resembles the one found by Farquhar Buzzard, and a description is detailed below.

I am indebted to Drs. Murrell, Gossage, and Abrahams, who were successively in charge of the case during the summer holidays, for permission to publish it.

REMARKS BY DR. BERNSTEIN.

BACTERIOLOGICAL EXAMINATION.

A. Cerebro-spinal Fluid.—Several c.cm. of fluid were obtained by lumbar puncture on August 5th and inoculated into a tube containing peptone bouillon and incubated at 28° C. Three days later the broth was turbid from the presence of cocci of variable size, shape, and arrangement, which stained with Loeffler's methylene blue and retained the stain in Gram's method. These were arranged in pairs, tetrads, a few groups, and short chains. The results of subcultures were as

follows: (1) In bouillon there appeared in a few days a white, slimy, viscid deposit at the bottom of the tube of a growth resembling the original culture; (2) on agar fine colonies appeared, somewhat resembling streptococci, but more closely aggregated, and consisting of cocci arranged in pairs, tetrads, and small groups; (3) a gelatine stab in four days showed minute white colonies along the track of the needle, and these slowly increased in size without liquefaction or gas formation. From the agar growth subcultures were again made in broth, with results as in (1) above, with which it was sent to be inoculated. Two rabbits were inoculated by Drs. Eyre and Price Jones intracranially with the centrifugalized culture, but after many weeks, no symptoms ensuing, the animals were killed. No pathological changes or micro-organisms were found in the central nervous system or its membranes.

B. Blood.—On August 6th the skin over the antecubital fossa was sterilized and one of the veins exposed by a small incision; 10 c.cm. of blood were removed aseptically and immediately transferred to three flasks of peptone bouillon and incubated at 38° C. In fourteen hours no organisms could be found in Flask A, and two days later all the media was still clear. Four days later, that is, six days after inoculation, the bouillon in Flask B showed a faint cloudiness. This on examination was shown to be due to a growth of cocci of rather large size generally grouped as tetrads, staining with ordinary dyes and not decolorised by Gram's method. The results of sub-cultures were:

1. In bouillon in three days a slimy, viscid deposit at the bottom of the tube similar to the subcultures from the cerebro-spinal fluid, this consisted of cocci arranged in tetrads, pairs, and a few short chains which were generally Gram-staining, but in places one or two cocci were partially decolorised by this method. The individual cocci in some groups varied in size.

2. In a gelatine shake culture in three days numerous scattered minute colonies without liquefaction or gas formation. These only increased very slightly in size after several weeks' growth.

3. On agar in three days minute closely-aggregated colonies resembling the corresponding subcultures from the cerebro-spinal fluid.

Flask C was examined eight days after inoculation, and contained a few cocci arranged in groups, tetrads, diplococci, and short chains of three. The staining reactions and subcultures were identical with those described above, but the cocci in the subcultures appeared to be slightly larger than in the original culture. These subcultures seemed more luxuriant than any of the previous ones, a fact that was noted in further sub-cultures.

Thus from the blood and cerebro-spinal fluid during the acute stage of disease was isolated a micrococcus which arranged itself most frequently as a tetrad, was Gram-staining, and which gave somewhat characteristic growths in bouillon and in gelatine, where it grew as an anaerobe without liquefaction. Against its being a contamination are the facts that the fluids were taken on different days, yet produced similar results, a pure culture of the same organism was found in all the media, and this organism was of slow growth in the parent cultures. In all our similar experiments with the blood from infective disorders, where contamination has occurred the growth has been very rapid, generally of a mixed nature, and where an organism has been isolated from the blood in pure culture the positive results have been confirmed by finding the organism in the lesions after death, and in the spleen in many cases. In a few cases which have recovered, somewhat confirmatory evidence has been obtained by agglutination tests, which, unfortunately, were not performed in this case. Wherever our results have been negative, the resulting history has confirmed the absence of organisms; and so the evidence is in favour of the organism being present in the body of the patient. The patient recovered, so the infection cannot be regarded as a terminal one.

The organism bears some resemblance to the tetracoccus isolated *post mortem* from a case of Landry's paralysis by Buzzard. This, however, did not stain by Gram's method in the original cultures though it did in subcultures, and several of our cocci at times behaved erratically with Gram's method. We were not as successful even as Buzzard in our animal experiments, but this negative result loses much in value when it is remembered that subcultures were used for inoculation, and in these the cocci were rapidly changing their character, as evidenced by the increasing luxuriance of growth in the successive subcultures compared with the slow growth of the original cultures.

No attempts were made to exalt the virulence of the organism owing to the difficulties arising in connexion with animal experiments. The cocci were still alive after several months' storage in the cool chamber.

Conclusion.

Hence we can only conclude that an organism resembling a tetracoccus isolated from a similar case *post mortem* was existing in an active condition in the blood and cerebro-spinal fluid of a patient with Landry's paralysis, from which he recovered. And though the evidence is insufficient to definitely point to it as the causal agent, in the light of bacteriological findings in other acute infections the association is suggested. Further, it helps to confirm Buzzard's *post-mortem* findings in a similar case.

We are much indebted to Drs. Eyre and Price Jones for their kindness in performing the animal inoculations, and to Dr. Hebb for his kind advice and valuable suggestions.

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NOTES ON A CASE OF FISSURA ABDOMINALIS: OPERATION AT AGE OF 2½ HOURS.*

By HOWARD STEVENSON, B.A., M.B., F.R.C.S.,
SURGEON, ULSTER HOSPITAL FOR WOMEN AND CHILDREN.

THE comparative rarity of a case of this type coming to operation, and the apparent recovery from the immediate effects of operative interference, are the reasons why I thought fit to report the case.

The subject was a seven to eight months premature female child, born before the arrival of Dr. Ferguson on June 5th.

When I saw the child two hours later a large mass of bowel lay exposed outside the abdomen with out peritoneal or other covering. On washing the bowel with warm saline solution it was seen that the prolapse consisted of all the large intestine and several inches of the small, with a patent Meckel's diverticulum. A part of the bowel was covered by the gelatinous matter of the umbilical cord, a well-marked line indicating where it joined the skin. Close to the right of the base of the umbilicus, and joined to it by the gelatinous matter, was the orifice of the patent diverticulum. This diverticulum was about 2 in. in length, its diameter that of a cedar pencil, and joined the small intestine about 3 in from its termination.

I removed the diverticulum flush with the bowel, and excised the rest of the gelatinous matter, freeing the umbilical cord at the same time from the margin of the fissure. The fissure, which was between 1 in. and 2 in. in length, was slightly enlarged towards the pubes, and the intestines placed within the abdomen. The deep layers of the abdominal wall were united by continuous catgut suture, and the skin by several points of silkworm gut, the umbilical cord being fixed in the upper angle of the wound. The child was slightly sick after the operation, but rallied well, and four hours after was fed with ℥j of milk and ℥iij of water; this was repeated every six hours. The following day a rectal catheter was passed and a considerable amount of flatus got rid of. Olive oil was administered by the mouth, but had no effect, so a small simple enema was given, with satisfactory result. The bowels subsequently acted naturally. There was no difficulty with micturition.

The diet was increased on the third day, the child still seeming hungry and taking well. The stitches were removed on the fifth day, when the wound was soundly healed; no signs of distension were present. On the sixth day, however, the child became jaundiced and passed a clay-coloured motion, and some purpuric spots appeared on the lower extremities. It was somewhat listless, and did not enjoy its food as before. It died on the evening of the eighth day.

I confess to being disappointed in the result, but feel that, could the child have been returned to its mother and had the advantages of breast feeding and animal warmth, it would probably have survived, as it never exhibited an abdominal symptom and seemed to be progressing satisfactorily until the sixth day.

I have not been able to find much information in the literature, but would refer to a case recorded by Mr. Lockhart Mummery[1]; it was not operated on and died. In Mr. Edmund Owen's work on the *Surgical Diseases of Children* an excellent photograph and remarks on treatment appear.

REFERENCE.

[1] *British Journal of Children's Diseases*, 1904.

* Read at the annual meeting of the Ulster Branch of the British Medical Association, June 21st, 1906.

ASCARIS LUMBRICOIDES AS CAUSE OF APPENDICITIS.

By ALDO CASTELLANI, M.D.,
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IN a very interesting paper published in the BRITISH MEDICAL JOURNAL of March 26th, 1906, Dr. F. E. Anley has suggested the hypothesis that *Ascaris lumbricoides* might be the cause of some cases of appendicitis—particularly in the tropics where that worm is so common. In support of his theory Dr. Anley quotes two cases in which the symptoms of the disease subsided when a round worm was passed in the stools. He is of opinion that the inflammation might be set up by the worm attempting to enter the appendix or by the worm obtaining a partial entrance, if no more, into the organ.

Nearly two years ago I had the opportunity of making in Ceylon a *post-mortem* examination which seems to me to prove that Dr. Anley's supposition is in some cases an actual fact.

The body was that of a young Tamil girl of about 14 years of age. The clinical history sent with the body was unfortunately not very complete, but the following principal points could be gathered. The girl had been suffering from intestinal helminthiasis for a long time and had passed round worms in the stools on several occasions. She was given santonin. Shortly after the administration of the drug she had vomiting, pain and tenderness on the abdomen, especially on the right iliac fossa, with some rise of temperature. This condition lasted apparently unchanged for about two days, when the girl died suddenly.

The *post-mortem* examination was held a few hours after death. There was nothing to be noted concerning the thoracic organs. There was no effusion into the peritoneal cavity, and the peritoneum did not show any sign of inflammation.



The appendix was observed to be protruding, and presented engorged superficial vessels, and here and there small areas of fibrinous exudation. The organ was quite free, no adhesions whatever being present. To the touch it was hard, and felt as if it contained a cylindrical body. The intestine having been opened, this body was seen to be an ascaris firmly imbedded for about one half of its length in the appendix, the other half being free in the intestine. The worm was very firmly inserted into the appendix, and could not be pulled out, although some force was used. The worm was apparently dead, as the free portion did not show any movements. On squeezing the appendix towards the base a little purulent liquid oozed from between the walls of the appendix and the ascaris. This liquid was examined bacteriologically; the *B. coli* only was found. The small intestine contained numerous ascarides, some of which were still alive. No other helminths were present. The mucosa of the small and large intestine was slightly hyperaemic, but no ulcers of any kind were present; the mesenteric gland were not enlarged.

It might be said that the worm entered the appendix after the death of the patient; it seems to me that this cannot have been the case, as the worm was very firmly imbedded, and was dead when the examination was made.

A photograph of the appendix containing the worm was taken, and is here given. Later on sections of a portion of the appendix were examined microscopically. They showed a diffuse leucocytic infiltration of all the coats; the mucosa was swollen, and several minute haemorrhages were seen. The lumen was completely occupied by the worm, the external surface of which was surrounded by a zone of desquamated and exudated cells from the mucosa, which showed several erosions.

In conclusion, it appears to me that the result of this *post-mortem* examination clearly proves that ascarides

under certain circumstances may be a cause of appendicitis. In the case I have related a point which might be discussed is whether the santonin may not have indirectly caused or facilitated the entrance of the worm into the lumen of the appendix; it is well known that according to the experiments of Schroeder and Coppola, santonin has a convulsing action on the ascarides, rendering their movements for a time much more active. The onset of appendicular symptoms soon after the administration of the drug is somewhat suggestive.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

GUMMA OF THE BRAIN.

W. S., aged 50, a well-built fair complexioned man, was seen on January 4th, 1903. He lay apparently unconscious. By vigorous shouting he could be roused to semiconsciousness and was able in response to give an unintelligible mumble but could not speak. Feeding had to be conducted by spoon or feeder. Faeces and urine were both passed under him without his apparently being aware of the fact or any rate without his taking any notice of such occurrence. The right arm was completely paralysed and flaccid. There was a marked drop of the right angle of his mouth, paresis with rigidity of his right leg. Both knee jerks were active and the plantar reflexes flexor in type. On the penis was a large papilloma thought to be syphilitic. His history was as follows: He was an old soldier now following the occupation of carter. On November 10th, 1902, he fell off his cart, it was thought in a fit, was found unconscious on the road and taken home. On recovering it was found that his right arm was weak; he was at that time able to get about, but not able to work. He has had several fits since. On November 27th it was noticed that his speech was getting thick, and since then he progressively got worse until he reached the condition observed on January 4th, 1903. The treatment adopted was potassium iodide 1 drachm, and liq. hydrarg. perchlor. 1 drachm three times a day. Also the inunction of half a drachm of ung. hydrarg. daily. His condition on January 31st, 1903, was as follows: Bright and lively in manner, intelligent, talking incessantly during the whole of the waking hours. He possessed perfect movement of face, arm and leg, but with some weakness of the right arm; eating largely of an ordinary diet, able to get up and be weighed, no sign of stomatitis. On February 8th he had gained 10½ lb. during the previous week, was walking about and going down to the garden. Before long he was at work again, and has continued at work ever since. About nine months later he had a fit, due apparently to the old scar, and he has had two since. The fits are completely controlled by small doses of bromide, and he has never since had any sign of recurrence. He is now (June, 1906) a fine-looking man, weighing about 14 stone, and doing a hard day's work. His optic neuritis cleared up, and has apparently not affected his sight.

Nottingham. F. H. Jacob, M.D.

OCCIPITO-POSTERIOR PRESENTATION.

I read Dr. Geddes's paper in the Journal of March 10th with much interest, especially as his figures very nearly coincide with mine, and I was, until I read his paper, under the impression that occipito-posterior presentations were much more common in Australia than at home.

Of 70 confinements I attended in England of which I have a record, I had but 3 occipito-posterior presentations. In 276 cases attended in Western Australia there were 44 occipito posterior—a percentage of 16.

Following Dr. Geddes's method of classification, I find that in 55 primiparae with vertex presentation 12 were occipito-posterior, or 21.8 per cent. (Dr. Geddes 20.8 per cent.). In 132 multiparae with vertex presentation, 22 were occipito-posterior, or 16 per cent. (Dr. Geddes 10.5 per cent.). (Prior to 1904 I did not record whether cases were primiparae or multiparae.)

I agree with Dr. Geddes as to the importance and difficulty of diagnosis. He makes no mention of abdominal palpation, which I regard as one of the most helpful means of discovering this condition. These cases are always tedious, especially when, as often happens, the "waters break" early. How can we save our patients this long and trying time of ineffectual pains? The method of pushing the child into an occipito-anterior position, with the hands placed on the mother's abdomen as recommended in Herman's *Difficult Labour* I have not found successful. But when the cervix is well dilated, with the left hand grasping the child's head, and the right hand assisting through the abdominal wall, the head can often easily be turned into an occipito-anterior position. I have on several occasions successfully delivered in this way when traction with forceps was ineffectual.

Another matter upon which Dr. Geddes only just touches is the increased risk to the child. Of my 44 cases 5 were stillborn, 1 due to prolapsed funis, the others, I think, due to cerebral haemorrhage. Two children were born alive with signs of cerebral haemorrhage, and have been partially paralysed since; both have been trephined, but neither of them with entire success.

If forceps are used, I believe the tips of the blades sometimes may catch the child under the angle of the jaw, and cause death by compression of the carotids. The only way to avoid this disaster is, I think, to rotate the head as I have described above.

Douglas E. Darbyshire, M.B., Ch.B.

Cottesloe, West Australia.

OTECTOMY IN OTORRHOEA.

The work of the past year has confirmed my opinion as to the advisability of removing diseased tissues in the middle ear. Otorrhoea does not generally receive the consideration it deserves. It is the cause of far more trouble than is generally supposed. In the county hospital I had recently, at one time, 3 cases of meningitis, 1 of intracranial suppuration, and 4 of extensive disease of the temporal bone, all the result of neglected otorrhoea or inefficient treatment. As these complications are in almost every case preventable by an operation that I have proved to be practically free from danger, I think it is my duty to press this matter upon the attention of medical men. It would be difficult to exaggerate the number of people whose health is being deteriorated and whose very life is threatened by the existence of this disease. They are to be found in every street, though many of them live in happy ignorance. Nor does every medical man always remember that the most easy path for disease to reach the brain is that of the aural cavities.

Coventry. F. Faulder White.

NEURITIS IN PHTHISIS.

In connexion with the case published in the British Medical Journal, June 23rd, 1906, p. 1464, the following will be of interest:

About two years ago I was called to see a man aged 30, who had complained of progressive debility, wasting, and pain in his legs for a few months. I found that he was extremely emaciated, and could hardly stand on his legs on account of the very great weakness. He did not complain of cough, and there was never any haemoptysis, or any other symptom of phthisis apart from the wasting. The legs looked exceedingly wasted, and were practically reduced to "skin and bone." They were painful and hyperaesthetic. There was no marked foot-drop. On account of his greatly debilitated condition I could only make a very cursory examination of his chest, and found somewhat suspicious, but by no means convincing, signs of pulmonary tuberculosis. He had been under hospital treatment for several months, but was not informed of the nature of his complaint. The urine was copious, sp. gr. 1006, and contained no albumen, no sugar, and no casts. The neuritis was therefore evidently not diabetic. The simultaneous onset of atrophy in all the muscles of his body excluded a diagnosis of progressive muscular atrophy to explain his wasting and loss of knee-jerks. I therefore came to the conclusion that he was probably suffering from pulmonary tuberculosis with peripheral neuritis as a complication.

I sent him to the London Hospital, and the physician under whose care he was admitted, was good enough to write to me that he could not, owing to the patient's condition, make a thorough investigation of the case, but that on the whole he agreed with me as regards the evidence

of tubercle in the lungs. A few days later I received another letter from the physician to say that the patient died suddenly before there had been an opportunity of going into his case thoroughly, and that at the *post-mortem* examination the lungs were found to be riddled with tubercle, and that therefore the case was undoubtedly one of peripheral neuritis complicating pulmonary tuberculosis.

I might add that the patient was not an alcoholic, and was not a subject of any of the other etiological factors of peripheral neuritis. The case, apart from its interest as regards this rare complication, is somewhat remarkable in another way; in spite of the extensive distribution of tubercle in the lungs as discovered *post mortem*, no definite physical signs could with certainty be made out before death.

London, E. M. FELDMAN, M.R.C.S., L.R.C.P.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

PARK HOSPITAL, HITHER GREEN.

A CASE OF MALIGNANT JAUNDICE FOLLOWING SCARLET FEVER.

(Reported by H. W. L. BARLOW, M.D., Assistant Medical Officer.)

THE following case, though incomplete, is of interest on account of its short duration, fatal issue, and connexion with scarlet fever.

History.—A girl, aged 6½ years, previously healthy, was taken ill on the forty-second day of convalescence from scarlet fever, and after she had been up for nearly three weeks, with headache, malaise, and sore throat, without vomiting.

State on Examination.—There was a moderate pyrexia, with clean slightly congested fauces, on cultivation yielding cocci; signs of local suppuration or pyaemia were absent. There was no rash. She had been taking carbonate of iron for post-scarlatinal anaemia, but the original attack had not been severe, and there were no complications.

Progress.—The following day the sclerotics and skin were slightly jaundiced, the liver not enlarged. The heart's action was accelerated with an apical systolic bruit. The urine was free from albumen or sugar, but contained traces of bile. The child was somnolent, but free from pain and easily aroused to answer questions. She grew gradually worse, however, and on the third day her condition was grave. The skin was then more deeply jaundiced, without a corresponding increase of bile in the urine, which had become slightly albuminous. There was some incontinence; a specimen gave 1.22 per cent. nitrogen, 2.45 per cent. urea, 0.55 per cent. uric acid, without casts, leucin, or tyrosin. The stools were normal; the liver dullness not increased; there was some vomiting; pulse 160; respirations about 30 per minute, sometimes variable and sighing. The pupils were natural; there were no subcutaneous haemorrhages.

Result.—By the afternoon the child had become profoundly ill. She was partially unconscious, then delirious and restless, the temperature fell, while the pulse and respiration were accelerated, and death occurred less than three days from the onset, being preceded by a slight convulsion.

Post-mortem Examination.—An autopsy was held eleven hours afterwards. There was a general yellow staining of the tissues; no subserous haemorrhages were found. With the exceptions noted below, the thoracic and abdominal organs were normal to the naked eye: the central nervous system could not be examined. The liver (24½ oz.) was pale, not sensibly fatty nor softened, its lobules were plainly visible, and on treatment with ferrocyanide and acid a well marked blue stain was produced chiefly in the portal zones. The microscope revealed little: some cells were vacuolated and shrunken, but they contained no fat and the nuclei stained well. In sections fixed by sublimate and alcohol, yellowish-brown or black pigment masses, apparently filling lymphatics in the capsule and portal canals, were a prominent feature, and minute branching clumps of similar pigment were also visible between the cells. No infiltration was found round the vessels. The epithelium of the smaller bile ducts was normal, and the large bile passages were patent; the duodenum contained a quantity of dark-coloured tarry matter, apparently altered bile. The kidneys (5 oz.) had normal capsules; in parts there was microscopically a tubular nephritis with yellow débris in the cells. The bladder contained a little blood-stained urine with many casts, 0.5 per cent. nitrogen, 0.85 per cent. urea, 0.7 per cent. albumen. The spleen was enlarged (4 oz.) and rather firm; like the liver and kidneys it showed microscopic pigment masses. Some mesenteric glands were calcareous; no tubercles were found. Subsequent staining of the sections by Jaeger's methods[1] failed to reveal micro-organisms, and cultures in broth and on serum, taken aseptically from the blood at the time, proved sterile, but one liver culture showed scanty bacillary forms, and a serum culture from the kidney yielded a growth of bacilli singly and in chains which was not at the time further examined.

REMARKS.—Jaundice in connexion with scarlet fever is now rare in this country, though it has formed a feature of some epidemics abroad. Of fifteen instances among 10,000 scarlet fever patients treated during some years at the Park Fever Hospital, two had a simultaneous nephritis; in two others the patients were members of the same family, and in two more the jaundice was associated with the onset of an intercurrent disease. In the remainder it generally occurred either during the acute stage (Graves's form[2]—two cases) or in connexion with some septic process, when there was commonly albuminuria as well. In the majority the jaundice was of obstructive type, with enlarged liver, icteric urine, and clayey stools. Though the association between jaundice and scarlatinal nephritis is recognised,[3] the present case presents certain analogies with Weil's disease or the epidemic jaundice of tropical countries. The nephritis if scarlatinal, was late, and a case of Weil's disease has been reported in an even younger person.[4]

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REPORTS OF SOCIETIES.

ASSOCIATION OF REGISTERED MEDICAL WOMEN.—At a meeting on July 3rd, Miss ALDRICH-BLAKE in the chair, Miss HARE showed a patient with a swelling of a doubtful nature on the inner and upper part of thigh; it had been noticed for five months, and there was no definite history of injury. The swelling, which was just below origin of adductor muscles, was hardly noticeable with the limb at rest, but became prominent on active adduction. Diagnosis lay between psoas bursa, chronic abscess, intramuscular lipoma, gumma, and ruptured muscle. Miss ALDRICH-BLAKE summed up in favour of the last named, and mentioned that she had seen two cases of ruptured biceps with no history of injury.—Miss LENEY showed a case of *Solitary tumour of the choroid*, probably tuberculous, in a girl of 16. There was no pain in the eye, no headache, no loss of acuteness of vision, and the tension was normal and equal. The swelling was first observed in February of this year: it appeared as a bluish-grey mass, about 2 mm. in diameter; it was rounded in shape, and the summit was raised about 1 mm. above the base. It could not be very clearly observed on account of numerous vitreous opacities. On March 28th a yellowish halo was noticed round the swelling, which was thought to be due to chronic inflammation. The following were the points on which the diagnosis was made: (1) A tuberculous family history; (2) the general aspect of the patient; (3) the elimination of other causes, such as subretinal cysticercus, sarcoma, glioma of the retina, and gumma; (4) the opsonic index which was variable and low, the first record being 0.9 and the second 0.6. With the one enucleation was considered unjustifiable, the vision in the affected eye being so good and the progress of the growth very slow. The lesion being localized, with no constitutional symptoms, Sir E. A. WRIGHT considered the case a very favourable one for inoculation, and offered to treat the patient, using very small doses of tuberculous vaccine.—Miss THORNETT read a paper on *intraocular tumours*. The theories as to the origin of glioma were discussed, more especially with regard to a congenital predisposition to their formation. Sarcomata of the choroid were also described, with special reference to diagnosis. Cases were cited and microscopical and macroscopical specimens shown. Miss Thornett also showed a Sachs's lamp and explained its use in the diagnosis of intraocular tumours. She said it was particularly valuable in cases where there was suspicion of tumour, when the media were not clear enough to allow of ophthalmoscopic examination.

REVIEWS.

ROBERT SCHUMANN.

Dr. P. J. Möbius, of Leipzig, has written an interesting monograph[1] with the object of solving the question whether Schumann, the musical genius whose compositions have delighted three generations of mankind, died from progressive general paralysis, as has been asserted, and the conclusion arrived at is that his insanity was based on hereditary predisposition, and that there was no supervention of "progressive paralysis" on the primary disease.



Robert Schumann was born in 1810 and died in 1856. He had two brothers and one sister, all of whom predeceased him. This sister was mentally impaired, and suffered from some form of skin disease. His parents were in no degree musical, but he showed early talent, and when only eight years old began musical composition, one curious feature being power of musical caricature in which he imitated by touch and expression on the piano the different characteristics of his playfellows. He grew to be a well-set-up man, tall, and of distinguished appearance, though rather ungainly in his walk. His features had a pleasing expression, and his finely-cut mouth combined with his deep-sunk, half-closed eyes to give a striking character to his fresh complexion and round and plump face.

There was, however, one peculiarity—that his mouth was projected as if in the act of whistling; he was also short-sighted. Over a stumpy nose towered a vaulted forehead, specially wide over the temples, covered by long, thick, dark-brown hair. Reserved in demeanour, he was yet capable of energetic remarks on subjects which interested him, and perhaps he was at his best when joining a small circle of friends over a glass of beer or wine. He was fond of champagne, which he said "knocked out sparks of wit," and of strong cigars, which he called "little devils." His round of work was regular, from about nine to twelve in the morning and from two or three to five in the afternoon. After visiting his club he returned home about eight o'clock. As a composer, he seemed inexhaustible, but his work was often interrupted by illness. His handwriting was of a very artistic order, and it remained so until the end. Like many artists he was no man of business, and he scattered money without regard to the morrow. He sometimes did odd things. On one occasion, for instance, he walked into a friend's house, his lips pouting as usual, opened the piano, played a couple of chords, shut the instrument, and went off without saying a word! In 1830 he injured one of his fingers, and in 1831 he complained of loss of power of the whole right hand. About this time, too, he had a morbid fear of cholera, which, however, subsided in a few days. In the summer of 1833 he had an attack of malaria, and in September he was much affected by the death of his sister-in-law and made an attempt to throw himself out of the window; in October of this year he was terribly depressed and thought he was going mad. In 1840 Schumann married, and in 1844 he accompanied his wife (Clara) on a concert tour through Russia; during this tour he had several attacks of illness, fainting, rheumatism, and depression. Whilst engaged in October of this year at Dresden he worked hard on the composition of the epilogue to Goethe's *Faust*, and suffered much from trembling and faintness, fear of death and dread of high places, of all metal work (even keys), of physic, and of poisons. About this period of his life he suffered hallucinations of hearing, singing and noises in the ears. During the years from 1845-50 he was producing some of his most brilliant work, though tortured in a fiendish manner. From this date there are accounts of gradual but persistent failure, and of difficulty of speech. Matters culminated in 1854, when on one wet night he suddenly left the house, clad only in a coat, and threw himself into the Rhine. He was rescued, and thereafter confined in the private asylum at Endenich, near Bonn, under the care of Dr. Richarz, where on July 9th, 1856, he died quietly: At the *post-mortem* examination the chief appearances were: (1) Congestion of blood vessels, especially those at the base of the brain: (2) thickening of the bones at the base of the skull, with abnormal development of long processes, the ends of some of them going through the dura mater; (3) thickening of the membranes and adhesion of the pia to the convolutions in many places; (4) atrophy of the brain as a whole; there were no general visceral lesions.

In 1880 Professor Schaffhausen had occasion to exhume Schumann's skull in order to take a cast of it. He found in the left central fossa an osteophyte the size of a pea, and he remarked that the convolutions were very well developed, as were also the striae transversales on the floor of the fourth ventricle; the capacity of the skull was 1,510 c.cm. At this time little was known about staining tissues, and no microscopic examination of the brain elements is recorded.

It is clear that Schumann was in a way degenerate, and of bad heredity. His parents were highly "nervous," but nothing is known of the health of his ancestors. His sister suffered from a severe form of dementia praecox, and his brothers died prematurely. That he showed so much musical talent whilst his parents were absolutely devoid of it is a puzzling fact, and there is nothing in the family history to explain it. His talent, like the pearl in the oyster, was a sign of abnormality. The first twenty years of his life passed uneventfully, his first real illness began in his twenty-third year, taking the form of anxiety or distress so severe that it caused him to make a suicidal attempt. Though repeatedly suffering from attacks of melancholia the intermissions were distinct, though in the interval his condition was not quite so good as before. The change in his face was noteworthy. Soon after 1833 the peculiar position of the lip was assumed (so that he was called the "town-piper"), and to this were added peculiarities such as walking on tip-toe, profound mutism, and strange impulsive conduct. With successive attacks appeared fresh signs of weakness, such as excitability, fancies that people were insulting him and intended mischief to him, attacks of faintness, affection of speech, and strong hallucinations of hearing. The value of his compositions fell off. He was removed from the office of Director of the Faculty of Dusseldorf, and he took to table-turning. The complex of symptoms—fear, change of manner, dumbness, mistrust, hallucinations, speech lesion, gradual loss of mental power, slowly but unfailingly increasing, point to the disorder known as dementia praecox. The question, however, is whether he died from it? In other words, did a progressive paralysis plant itself on the already-existing disease? Certainly some of the *post-mortem* appearances favour this supposition, but what was found might equally be noted in any long-lasting brain disease, and was not pathognomonic of general paralysis.

The microscope might have settled the question, but in 1856 not only was microscopic investigation at a low level, but the knowledge even of general paralysis itself was very unsatisfactory in Germany, and it was not until 1861-3 that Hoffmann of Siegburg made it clear. Though it was understood that there was a lesion of speech in general paralysis, and that the handwriting was impaired, there is every reason to believe that Schumann's symptoms in these particulars differed materially from those seen in true general paralysis; there was no dropping of letters and words, none of the slippery speech defect, whilst the actual strokes of the letters were firm and did not exhibit that tremor in the down stroke which is so characteristic of general paralysis. The memory, too, was good, as is the case in dementia praecox, very different from the lapse of this faculty in general paralysis. The indifference with which he regarded the separation from his family and his seques-

[1] *Ueber Robert Schumann's Krankheit.* Von P. J. Möbius. Halle: Verlag von Carl Marhold. 1906. (Demy 8vo, pp. 52. M. 1.50.)

tration in the asylum point to the destruction of emotion and feeling, so often diagnostic of dementia praecox. Finally, there was neither history nor any suspicion of syphilis, the chief if not the absolute ultimate cause of general paresis. It is not likely that overwork was the cause of the mental decline. It is true that during his later years work became more difficult for Schumann, but that was because his brain lesion was becoming more extensive. Without hereditary predisposition to mental weakness, it does not appear that exertion or effort is ever the cause of insanity. The fact is that Schumann in his later years bore work badly because he was ill; he was not ill because he worked too hard.

The history of dementia praecox, from its first enunciation under the name of "hebephrenia" in 1863 by Kohlbaum to its delineation and connexion with katatonia by Kräpelin in his lectures on clinical psychiatry, is that of a disease whose symptoms vary according to the original intellectual range of the victim. The main signs of altered emotional tone, of certain muscular complications (especially the Schnautz-Krampf, or nose spasm, in Schumann), the hallucinations, the mutism, the desire for solitude, the slovenliness, and, above all, the hereditary taint, form a symptom-complex which leaves no doubt that this musical genius suffered early from the defects in his organization, and that the paralytic symptoms which ultimately supervened were due to the secondary conditions caused by the progressive degeneration produced by the morbid processes which he inherited. The life-history of Robert Schumann presents us with a typical and clinical history of a case of the much-discussed dementia praecox.

THE HEART-MUSCLE.

A long controversy has waged between those who think the cardiac rhythm is co ordinated by nervous channels and those who regard the excitatory wave as passing through the musculature of the heart only. Gaskell was the pioneer in demonstrating the muscular conduction of the wave of contraction in the heart of frog and tortoise. The sequence of auricle and ventricle he ascribed to the delay the excitatory wave underwent in bridging the muscle-bundles of the auriculo-ventricular septum. Thirteen years ago Stanley Kent, working with Burdon-Sanderson, demonstrated the existence of muscle-fibres bridging the auriculo-ventricular septum of the mammalian heart. At the same period His brought forward strong evidence on the embryonic side for the existence of an "auriculo-ventricular bundle," and the muscular conduction of the excitatory wave in consequence became generally accepted. Recently Carlsen has shown that, at any rate in the heart of the king crab (Limulus), the conduction is by nervous channels. Now, the importance of the auriculo-ventricular bundle has been brought into prominent view by the laborious and exact studies of a Japanese (Dr. Tawara[2]) working under Professor Aschoff. By the method of cutting serial sections right through the heart Dr. Tawara has demonstrated and mapped out the course of the auriculo-ventricular bundle of His in all the classes of mammals and birds examined by him. He finds that the Purkinje fibres, or equivalent structures, form the terminal expansion of the bundle; that the auriculo-ventricular bundle is separated by connective tissue from the ordinary muscle of the heart and runs from its origin in the auricular wall through the auriculo ventricular septum, first as a circumscribed and then as a branching system. The bundle forms a most complicated network just above the fibrous auriculo-ventricular septum, and, after piercing the septum, divides into two chief divisions, which course down the ventricular wall and then pass through the trabeculae, or false chordae tendineae to the papillary muscle and walls of the ventricles. Dr. Tawara gives many admirable figures showing how the fibres of the bundle spread out through these trabeculae and tendinous chords, and his discovery of this expansion is a notable advance on the demonstration of the muscular connexion between auricle and ventricle which was made by Stanley Kent and His. Dr. Tawara's work is being fully confirmed and extended in this country by Dr. Arthur Keith. It seems almost certain that the wave of contraction passes through this bundle to the papillary muscles and to the middle and apical parts of the heart, and not first to the base, as has hitherto been supposed. The whole build of the heart was opposed to the commonly-received view that the excitatory wave passed from base to apex; the heart is evidently formed to wring the blood from apex to base where the aorta and pulmonary artery issue. Dr. Tawara's laborious and exact histological studies have made plain the pathway by which this action is brought about. He has shown also that the peculiar Purkinje cells form the end-organs to the bundle, and link the fibres of the bundle to the common musculature of the heart. The Purkinje cells are characterized by richness in sarcoplasm and lessened cross striation and by their large nuclei. In some animals he has demonstrated nerve fibres and even ganglion cells accompanying the auriculo-ventricular bundle. The heart beat is supposed to start from the mouths of the great veins, and from thence to pass over the auricular muscle to the bundle, but it is conceivable that the auricular beat may also have its origin in the complicated network of the bundle, and that this is the sole place of origin of the excitatory wave. Cases of allorhythmia can be explained by supposing the bundle to be altered in functionating power—for example, that its ventricular portion may become more active than the auricular, and so the normal sequence be reversed, or that its conducting power is lessened so that the auricle and ventricle do not beat in sequence, but independently. Experimentally, it is found that ligation of this bundle upsets the cardiac rhythm. Dr. Keith found the "bundle" destroyed by a gumma in one case of arrhythmia observed by Dr. Grünbaum: it was reduced to fibrous tissue in a case of Dr. Mackenzie's. Dr. Tawara finds the bundle little affected in comparison with other parts of the heart in processes of atrophy and hypertrophy. His work is a most notable addition to the physiology and pathology of the heart.

In his monograph on hypertrophy of striated muscle with special reference to cardiac muscle,[3] Dr. Max Asch points out that the term "hypertrophy," as applied to muscle, is often erroneously interpreted. He brings forward a considerable amount of evidence to show that, in adult tissue, when a muscle increases in volume owing to an increase in its activity, it is the sarcoplasm only, and not the contractile material, which increases in amount. An increase in function implies an increased demand for nutrition, and in order to store the increased quantity of nutritive material which is required, the sarcoplasm must increase in bulk. Cardiac muscle, like skeletal muscle, is so adapted that the degree of contractile energy is directly dependent on its degree of tonus when it is stimulated to contract. This is conditioned by the varying internal pressure of the blood column, which determines the degree of muscular tonus in diastole, and upon this the vigour of the systolic contraction depends. Thus the heart is able, long before there are any visible signs of increase in bulk, or "hypertrophy," to undertake the increased amount of work which excessive exertion, or the incidence of a pathological change in the cardio-vascular system, may impose upon it. Dr. Asch's thesis is worked out in an interesting manner, and is based on a careful study of recent literature on the innervation and musculature of the heart.

ATMOKAUSIS.

Dr. Ludwig Pincus, unlike the Moor of Venice, knows how to grace his cause in speaking for himself. Atmokausis and zestokausis[4] represents his cause, the subject with which his name is universally associated. A complete essay on steam cauterization of the uterus has been a desideratum for several years, and for the author of such an essay the medical public desired Dr. Pincus. The book is very complete in the best sense

[2] *Das Reizleitungssystem des Säugetierherzens.* Von Dr. S. Tawara (Japan). Preface by Professor L. Aschoff. Jena: Gustav Fischer. 1906. (Demy 8vo, pp. 200, 10 plates. M.10.)

[3] *Zur Hypertrophie der quergestreiften Muskeln, speziell des Herzmuskels.* Von Dr. Max Asch. Berlin: Julius Springer. 1906. (Demy 8vo, pp. 47. M. 1.20.)

[4] *Atmokausis und Zestokausis: Die Behandlung mit hochgespanntem Wasserdampf in der Gynäkologie.* By Dr. Ludwig Pincus. Second Edition, with 32 illustrations and tables. Wiesbaden: Bergmann. 1906; and Glasgow: F. Bauermeister 1906. (Demy 8vo, pp. 371. 6s.)

of the word. Not only is the technique of the matter well described, but many pages are devoted to its history. In this case there is no padding about Hippocrates, Ambroise Paré, and the immortal Hunter, but the author begins with that not very remote era, 1894 to 1899, which beheld the development of vaporization into typical atmokausis and zestokausis.

The general medical public are somewhat reticent about one very essential question, a matter of mere terminology, it is true, but we naturally like to be able to explain new names when desired to do so. After careful perusal of page 55 in this treatise readers will be able to hear the specialist talk about atmokausis and zestokausis without dread of being asked what they signify. Dr. Pincus, in short, tells us what the words mean; he rejoices us by giving Kossmann the credit of rejecting the *vox hybrida* of "vapocauterization" and applying to cauterization of the uterus by steam the name "atmokausis." The application of a hollow sound filled with scalding steam was termed by him "zestokausis." Pincus chivalrously gives full credit to Kossmann, whose terminology, he takes care to note, has been universally adopted. Feeling sure which is which, the medical public will be in a better position to judge of their relative merits, and of the advantages of the entire system of steam cauterization. Dr. Pincus's directions about technique and the application of the cauteries will be judged with respect, and studied with interest. No doubt his plea in favour of a very wide extension of his method will meet with much adverse criticism, for the recognized advocate of a new practice is of necessity prejudiced in its favour. The chief objection to the entire method is that its application is difficult, demanding great previous experience in gynaecology, and much practice, only to be carried out in hospitals and nursing homes. Hence its supporters consider that it is unsuited for the general practitioner, who, on the other hand, can confidently point out that he has made use, with the best results, of far simpler and cheaper methods in intrauterine medication. Again, we must all feel sceptical about the treatment of bleeding fibroids by steam cauteries. It is significant that the author stigmatizes Apostoli's treatment as tedious and likely to fail, but the advocates of electricity said much the same of earlier methods of treatment in this type of disease. The strongest point raised by experts against the steam treatment is that its apparent advantages seem most marked, as is usually the case with new methods, in those maladies which are clinically and pathologically the least clearly defined, such as the non-typical haemorrhages associated with menstruation, endometritis, and so forth, independent of new growths, innocent and malignant. Possibly the steam may by destroying germs and morbid tissue protect the parts from the development of graver maladies.

We need not undertake to review Dr. Pincus's work in detail, for his subject is very intricate, and those who take an interest in it are fairly cognizant of the literature of the subject and the views of British and foreign writers on atmokausis and zestokausis. Dr. Macnaughton Jones has recently spoken of the method with more favour than has hitherto been accorded to it in the United Kingdom, yet he cannot think that it is superior to the curette properly used. Campbell, of Belfast, was somewhat severe on the steam treatment of metritis when he introduced the discussion on that disease at the Cheltenham meeting of the Association (British Medical Journal, vol. ii, 1901, p. 964). In 1902 and 1903 Dr. Blacker considered "Vaporization of the Uterus" more seriously in the *Journal of Obstetrics and Gynaecology of the British Empire*. We give these references because when studying Dr. Pincus's valuable work the English reader must desire to know the views of his countrymen on a practice so novel as vaporization of the uterus. Still that reader must bear in mind that Dr. Pincus is the accepted authority on that practice, therefore he should carefully read through *Atmokausis und Zestokausis*, and in order to do justice to the author and his method he must bear in mind Dr. Blacker's warning: "It is unfortunate that some of the writers upon vaporization of the uterus have advocated this mode of treatment with so little discrimination. Attempts to show that it is the best method of treating a large number of very different conditions cannot but lead to the discredit of an operation which, within certain well-defined limits, should prove a measure of permanent value."

URINARY DISORDERS.

In his small work on *The Urethrotomies and Kidney Capsulotomy in Diseases and Injuries of the Urinary Organs*,[5] Mr. Reginald Harrison deals with two separate subjects, and the book, as we learn from the preface, for the most part represents recent clinics at the London Medical Graduates' College and Polyclinic. Urethrotomy is first considered in relation to stricture of the urethra; the internal, external, and combined operations are in turn described, and the conditions indicating the choice of one or other of these operations are pointed out. Then follow sections on urethrotomy for urinary fistula, for ruptured urethra, for stone in the bladder, and for prostatectomy and prostatic stone. The details of the particular operation, of course, vary according to the purpose for which it is performed, and these take up the greater part of the book. For internal urethrotomy Mr. Harrison uses Maisonneuve's instrument, but when there are indications that the stricture has not been sufficiently opened thereby he finds that a supplementary division of any remaining fibres or bands may be readily made by means of Civiale's urethrotome. After the operation a catheter is tied in for from three to ten days, according to circumstances. Kidney capsulotomy was proposed by Mr. Harrison in a paper on Some Forms of Albuminuria associated with Kidney Tension and their Treatment, published in the *Lancet* in 1896. Mr. Harrison here quotes from that paper, discusses what has been done by others in a similar direction since that time, and sets forth what he considers to be the indications for relieving tension surgically in cases of nephritis however arising, or for kidney exploration. Details of this operation, as well as of the urethrotomies, should be sought in the book itself, which well deserves to be read by all those who are interested in the diseases and injuries of the urinary organs.

"The handbook of urology,"[6] edited by Dr. Anton v. Frisch and Dr. Otto Zuckerkandl, may be taken as a fair representation of current teaching in the Vienna school. The two volumes before us contain no index, and therefore the enormous mass of information is at present almost valueless. Few English practitioners have the leisure to read so copious a work, and none have the patience laboriously to search through 1,500 pages of close print. If, for example, one tries to find the account of alkaptonuria, it is only after much turning of leaves that the heading "Homogentisin Säure" appears. In the first volume the anatomy and physiology of the urinary and the reproductive (male) organs are discussed in sequence by several authors; the chemical investigation of normal and pathological urine, the bacteriology of the healthy and diseased urinary tract are then treated at length. Dr. v. Frisch writes upon methods of clinical investigation, Dr. Zuckerkandl upon asepsis in urology and upon general symptomatology. In the second volume Dr. Paul Wagner deals with wounds and surgical diseases of the kidney and ureter; Dr. Julius Mannaberg writes upon the clinical aspects of diseases that may be called "medical," and we may note that he regards the intrusion of the surgeon upon the field of chronic nephritis as unjustified by results. Dr. O. Zuckerkandl in this volume describes disorders of the bladder other than those dependent on lesions of the nervous system, which are dealt with by Professor Frankl von Hochwart. Speaking without the help of an index, it seems that the peculiar characteristics of disease in the female organs have been a little neglected. We have been unable to find any account of recent work by the French and American schools on the pyelitis of pregnancy. In the description of pyelonephritis of haematogenous origin, and in particular of the acute variety which follows on furunculosis and tonsillitis, the authors do not admit that frequency of unilateral affection which recently-published cases in this country have indicated. This has an important bearing on treatment, for immediate nephrectomy has in several instances proved successful, whilst in other similar cases simple nephrotomy has failed. The work, which is to be complete in three volumes, will, if

[5] *The Urethrotomies and Kidney Capsulotomy in Diseases and Injuries of the Urinary Organs.* By Reginald Harrison, F.R.C.S. London: John Bale, Sons, and Danielsson. 1905. (Demy 8vo, pp. 96. 2s. 6d.)

[6] *Handbuch der Urologie.* Herausgegeben von Dr. Anton v. Frisch und Dr. Otto Zuckerkandl. 3 Bände. Wien, 1904. Wien, 1905. Alfred Hölder. (Pp. 779-870. Plates and Figures.)

provided with an index, be a standard book of reference. The bibliographies are copious without any pretension to be exhaustive. Such illustrations and diagrams as are furnished deserve every commendation.

AUTO-INTOXICATION.

WE are not sure that Dr. OLIVER is to be congratulated upon the republication of Professor Bouchard's *Lectures on Auto-Intoxication in Disease*[7] for, as he has not been able to persuade the author to rewrite them, the book is a reprint of work done more than ten years ago, since Dr. Oliver's new chapters do not amount to much, and are mainly included in an appendix of twenty pages.

While there is much truth in the doctrine of auto-intoxication, these lectures exaggerate its importance and at the same time magnify the value of the therapeutic measures based upon it. The value of intestinal antisepsis is by no means more certain now than it was ten years ago, and a healthy scepticism may be properly entertained of the value of some of the remedies upon which Professor Bouchard lays stress, for example, charcoal. We certainly feel sorry for his typhoid fever patients, for whom on page 229 he says: "The intestinal antiseptic treatment consists in mixing 100 grams powdered vegetable charcoal with 1 gram of iodoform and 3 grams of naphthalin; the whole is mixed with 200 grams of glycerin and 50 grams of peptone that form the basis of nourishment. This mixture forms a black semi-liquid paste which is taken in twenty-four hours in doses of a tablespoonful every two hours in a third of a glass of water." Many would not agree with Professor Bouchard's means of diagnosing dilatation of the stomach, or regard the conclusions he bases upon it as of any scientific value.

In the appendix Dr. Oliver gives a summary of the recent researches which have thrown light upon the process by which the organism defends itself against diseases, and quotes at some length Hemmeter's criticism of the doctrine that auto-intoxication commonly results from absorption of poisons formed normally in the intestine.

The translation might be better, and Dr. Oliver is so well known for good work in other directions, that we feel he might have been better employed than in making this *rechauffé* of stale matter.

FORENSIC MEDICINE.

By the sparing use of illustrative cases and the abandonment of diagrams Dr. BREND has succeeded in his *Handbook of Medical Jurisprudence and Toxicology*[8] in condensing the whole subject into 272 small 8vo pages. The print, though somewhat small, is clear, the type good, and the size of the book such that it can easily be carried in the bag or pocket. Perhaps the best description of the volume is "a manual of first aid in forensic medicine and toxicology," and if it be used for this purpose, larger and more detailed works being referred to when first aid has been given, then we can recommend it without reserve to both medical and legal practitioners. The author, being a barrister as well as a medical man, has known how to adapt his information to the needs of the courts, and to give prominence to those points which are especially liable to arise in medico-legal cases. This being so, it almost inevitably follows that, considering the limited compass of the work, the more purely scientific aspects of the subject receive at times but scant treatment. On the other hand, the author's familiarity with the more purely legal side has enabled him to deal with many points not usually included in books on medical jurisprudence, but of great importance to all, and of the utmost value to medical men whose acquaintance with court work is limited. Indeed, the clear and capable handling of the more distinctly legal aspects of the subject fully justifies the appearance of the volume, and will undoubtedly render it popular among medical men in general. In the toxicological portion some valuable statistics are given with regard to accidental, suicidal, and homicidal poisoning, which show that, whilst lead has, as might have been expected, caused the largest number of accidental deaths, carbolic acid, probably owing to the freedom with which it is sold for disinfecting purposes, has been in recent years very often used by suicides. In homicidal poisoning, out of 38 deaths occurring from 1883 to 1902, cyanides were employed in 14, strychnine in 8, and opium in 6; whilst out of 21 murders from 1894 to 1903 strychnine was the drug used in 6, carbolic acid in 5, and prussic acid in only in one. The more common poisons, with the symptoms, *post-mortem* appearances, and tests for their detection, are briefly but clearly described; and the book ends with an appendix giving the approximate ingredients of various patent and proprietary preparations.

[7] *Lectures on Auto-Intoxication in Disease*, or Self-poisoning of the Individual. By Ch. Bouchard. Translated with a preface and new chapters added by Thomas Oliver, M.A., M.D., F.R.C.P. Second edition. Philadelphia: F. A. Davis Co. 1906. (Demy 8vo, pp. 342. 2 dollars.)

[8] *A Handbook of Medical Jurisprudence and Toxicology for the Use of Students and Practitioners.* By W. A. Brend, M.A.(Cantab.), M.B., B.Sc.(Lond.), of the Inner Temple, Barrister-at-Law. London: Charles Griffin and Co. 1903. (Fcap. 8vo, pp. 300. 8s. 6d.)

NOTES ON BOOKS.

THE new *Appendix*[9] to the *Catalogue* of the Museum of the Royal College of Surgeons of England, contains descriptions of the pathological specimens added between July, 1904, and July, 1905. Among them are some gall bladders removed during life, with instructive clinical histories. No. 2747 B, presented by Dr. Parkes Weber, illustrates biliary cirrhosis associated with cholelithiasis. Mr. Paterson's series, illustrating excision of the pylorus and gastro-jejunostomy, prepared for the Jacksonian Essay, 1904, are included. No. A. 3502, will be familiar to our readers, it being the "soft fibroma of the larynx and neck removed by external operation without opening the cavity of the larynx," reported by Sir Felix Semon in the BRITISH MEDICAL JOURNAL for January 7th, 1905. Dr. C. F. Beadles contributes some preparations of the brains of lunatics. Dr. Ferrier and Mr. Ballance add to the collection two tumours removed from the brain during life; both patients recovered, but in one case recurrence was very rapid. We may also turn attention to Dr. Poynton's preparations illustrating a memoir by him and Dr. W. Vernon Shaw, of Malton, on the relation of *Staphylococcus pyogenes aureus* to rheumatic fever, to be found in the fiftieth volume of the *Transactions of the Pathological Society of London*.

Dr. MÖBIUS has written a series of monographs on the sexual characters of animals,[10] and of these the third part deals with the sexual characteristics of the skull. It is more popular than scientific, but the illustrations are good and the text interesting so far as it is descriptive; but when it advances to an attack upon some of Darwin's opinions it becomes less convincing. We have more sympathy with Dr. Möbius's attack upon craniometry and the insufficiency of the data hitherto furnished by craniometrical methods, but we cannot admit that the phrenological assumptions which constitute the latter part of the monograph have any more, or even as much, scientific basis as the craniometrical statistics which Dr. Möbius derides. The tables which Dr. Möbius gives of the measurements and weights of male and female skulls would be more useful if the number of specimens from which the measurements and weights are derived were stated.

Dr. JAMIESON B. HURRY, who some time ago published a large book on Reading Abbey, has now printed, under the title *The Rise and Fall of Reading Abbey*, an address which he gave last year as President of the Reading Literary and Scientific Society. The Abbey, which was founded by Cluny monks in 1121, was for over four centuries one of the greatest religious houses in the country; its head was a mitred abbot who was a peer of Parliament; it possessed a great church with monastic buildings clustered about it, and its hospitality was proverbial until a too-wide knowledge of the proverb compelled some curtailment. Its fall was dramatically sudden and complete; the last abbot, a man who seems to have deserved a better fate, was hanged before the gateway of his abbey, and the abbey itself suffered a ruin more complete than that which overtook most other monastic institutions even in England. Dr. Hurry tells the story sympathetically, and illustrates it by appropriate pictures of buildings, charters, seals, and coins from the abbey mint.

[9] *Appendix XIX to the Second Edition of the Descriptive Catalogue of the Pathological Specimens contained in the Museum of the Royal College of Surgeons of England.* By Samuel Shattock, Pathological Curator of the Museum. London: Printed for the College and sold by Taylor and Francis. (1905. Demy 8vo, pp. 39.)

[10] *Die Geschlechter der Tiere.* III Theil. Der Schädel. Von Dr. P. J. Möbius. Halle: Carl Marhold. 1906. (Demy 8vo, pp. 86, 35 illustrations. M.2.)

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

The sixty-fifth annual meeting of this Association was held on Thursday and Friday, July 26th and 27th, at 11, Chandos Street, Cavendish Square, London. The chair, during the early part of the meeting, was occupied by the President, Dr. T. Outterson Wood, and later by the new President, Dr. Robert Jones. The Thursday morning sitting was occupied in transacting Association business. In the afternoon a cordial vote of thanks to the retiring President and the officers of the Association was passed and was suitably acknowledged.

The President announced that the Gaskell Prize had been awarded to Dr. J. M. Rutherford of Morningside Asylum, Edinburgh, and the Bronze Medal of the Association to Dr. C. J. Shaw, Assistant Medical Officer, Montrose Asylum.

Dr. Robert Jones then delivered his Presidential address. In this, after paying an eloquent tribute to his many illustrious predecessors, he dealt with the Evolution of our Conception of Insanity. The two striking features of this were, first, that during its progress the restraints, penalties, and disabilities formerly so inconsiderately applied to the patient had become shifted to his physician, who was now himself threatened with penal clauses and surrounded with restrictions; and, secondly, that with the progress of civilization mental breakdown became more serious, if not more frequent, and the varieties of insanity more chronic and less curable than when life was simpler and men were more content. In a rapid historical review of the great vicissitudes in the lot of the insane within known times, beginning with their benign treatment under the Egyptian priests 2,000 years before Christ, the President touched on the more important features of this moving history, the rise and development with Greek culture of conceptions of insanity identical with our own in so far as they traced the insanities to bodily causes, boldly discarding superstitious beliefs in demoniacal possession, its lamentable decline in the third and fourth centuries after Christ, and the terrible excesses of the Middle Ages with regard to the insane, which resulted directly from the revival, under priestly influences, of these same superstitious beliefs and practices, lasting almost to the dawn of the nineteenth century. Continuing his historical summary, Dr. Jones gave a short account of the evolution of lunacy legislation and administration in our own country, and of the extraordinarily rapid improvement in the provision made for the insane during the latter half of last century ensuing upon the appointment of the present Board of Commissioners in Lunacy in 1845. He then adverted to the comparatively recent Acts affecting the idiot and imbecile classes and the further need for increasing stringency of control by special notification and the exercise of adequate care in specially-adapted schools, homes, and colonies. In consequence of the great improvements achieved inside asylums and the diminished reluctance on the part of the public to avail themselves of the advantages held out by asylums, a great accumulation of the insane had resulted, constituting an increasingly serious burden on the tax-paying public. This growth of insanity—so great that pauper lunacy increased between 1880 and 1905 by 49 per cent., whereas the population increased in the same time by only 25 per cent.—was then correlated to such etiological factors as increasing drinking—distinguished, however, from increasing drunkenness—heredity, venereal disease, and the increasing complexity of modern social conditions. "This increasing complexity," he said, "implies a brain structure more highly evolved to cope with it, and therefore a structure less organized, more unstable, and more subject to derangement." In relation to these ascribed causes of insanity he severely criticized the statements made in the *Times* newspaper in April last (April 14th, 21st, et seq.), in which doubt was cast on the etiological significance of alcohol and stress. In particular the point of view of the *Times* correspondent, who was affirmed to have said that the medical officers of asylums were physicians only in name, devoting neither thought nor time to professional work, and that the asylum service was one from which scientific work was practically excluded, came under censure. Leaving these controversial questions, Dr. Jones proceeded to the increasing occurrence of general paralysis of the insane, of dementia praecox, and the remarkable growth inside asylums of cases of senile dementia, the latter due partly, no doubt, to increased certification. These facts were adduced in support of his second contention, that a change is coming over the forms of insanity in the direction of greater chronicity and hoplessness of cure. Reverting to heredity as a causal factor, he gave it as his opinion that in eugenics was to be found the chief remedy, leaving, however, its form of application for future settlement. Legislation aiming at the control of alcoholism and venereal disease was next advocated, and as a further measure the State supervision and care over the defective classes. The provision of out-patient departments for patients offering mental symptoms but not requiring detention, increased facilities for clinical teaching at asylums, the formation of reception-houses, the extension of after-care societies, and, finally, the adoption of the boarding-out system were instanced as measures of reform which would result in the relief of congested asylums, in a lessened burden on the tax-payer, and increased efficiency in the teaching and practice of mental diseases. In concluding his extremely interesting and able address, Dr. Jones alluded to the valuable work done by the Medico-Psychological Association in many directions, by encouraging scientific investigation, by the dissemination of information through its journal, by the training and examination of asylum nurses, and in many other ways, and, after pointing out the intimate relationship of sanity and *a fortiori* of insanity with all the varied aspects of social life, he suggested for the further consideration of this relationship that an annual lectureship be endowed by the Association to deal with insanity in its sociological bearing.

On the motion of Dr. G. F. Blandford, seconded by Dr. R. Percy Smith, the President was heartily thanked for his address.

Dr. Joseph S. Bolton, in a paper entitled the Prefrontal Cortex Cerebri, illustrated by lantern slides, demonstrated by a series of most successful sections that the prefrontal area of the brain was of extremely complex structure, as complex as, though of finer architecture than any other part of the brain. These observations were distinctly at issuewith those recently published by Dr. A. W. Campbell to the effect that the prefrontal cortex was a very low structure, of poor development, and that it contained practically no fibres, except a few of the finest calibre. It was for the purpose of giving ocular proof of his own contention that the author made the contribution. The paper was discussed by the President, Dr. C. C. Easterbrook, Dr. P. W. McDonald, and Dr. Albert Wilson.

On Friday an elaborate and striking paper was read by Dr. F. W. Mott, F.R.S., entitled, The Effects of Alcohol in Hospital and Asylum Practice. He compared the results on the mind and body of those who drank to excess in the pursuit of pleasure with those who drank because they were worried, or had some great trouble or affliction. He had found that the people admitted to asylums through drink had drunk because they were worried, and that they were persons of a nervous temperament; perhaps previously they were epileptic, or degenerate, or feeble-minded. Excessive drinkers who had not such a bad history were found, usually, not to suffer in mind, but in body, and to manifest the effects in cirrhosis of the liver, with ascites.

The paper was discussed by the President, Dr. Conolly Norman, Dr. James Stewart, Dr. R. C. Holt, Dr. J. Carswell, Dr. C. Hubert Bond, and Dr. T. W. McDowall.

Dr. Helen Boyle read a paper entitled The History of an Unusual Case of Murder, a woman having murdered her young child in a fit of religious exaltation following upon a visit to a famous mission. The paper was fully discussed.

Dr. W. F. Menzies read a paper entitled Tuberculin Diagnosis, in which he gave his reason for holding but little faith in tuberculin as a certain diagnostic. In the discussion which followed, considerable emphasis was laid on the necessity for adhering to the old methods of diagnosing phthisis.

Dr. Pasmore described a diagrammatic method of recording family histories, which was applicable to general medical practice.

Dr. Robert Pugh sent a contribution entitled The Relation of Goître to Insanity, which was read by Dr. Albert Wilson.

A paper by Dr. Nolan entitled On the Possibility of

the Limitation of Lunacy by Legislation, and one by Edward N. Brush, M.D., Maryland, U.S.A., on Description of the Method of Admission and Treatment into the Hospital, also of the Founding and Organization of the Hospital, with Plans of Extension, were taken as read.

The meeting concluded with a cordial vote of congratulation to the President.

The sixty-fifth annual dinner took place on the first day of the meeting, Dr. Robert Jones presiding. The toast of "The Medico-Psychological Association" was proposed by Sir William Collins, M.P., who expressed himself as most interested in the question of insanity, and in the provision of special accommodation and improved nursing in asylums. He referred to the great advance made in scientific investigations and pathological research, and emphasized the necessity of scientific investigations into the causes of insanity from the clinical, ancestral, geographical, pathological, and sociological standpoints. The toast was responded to by Dr. Yellowlees and Dr. Conolly Norman. Sir Richard Douglas Powell replied on behalf of the visitors, and Lord Monkswell on behalf of the Legislature.

BRITISH MEDICAL BENEVOLENT FUND.

At the July meeting of the Committee twenty-two applications were considered and grants amounting to £161 were voted in relief, one case being postponed for further inquiries. Appended is a short abstract of the cases assisted:

1. Daughter, aged 54, of late M.R.C.S., L.S.A., who practised in Bucks. Used to be a governess, but is now unable to teach on account of deafness, and can only earn a few shillings a week by needlework. Relieved five times, £56. Recommended by Lady Milbank. Voted £10 in ten instalments.

2. Widow, aged 50, of M.R.C.S., L.S.A., who practised in London. No income; indifferent health; no children. Quite unprovided for at husband's death a few years ago. Relieved twice, £24. Recommended by his Grace the Archbishop of York. Voted £12 in twelve instalments.

3. Widow, aged 62, of L.R.C.P.Lond., L.R.C.S.Edin., who practised in London. No income; only son, aged 42, is barely able to support himself on account of mental weakness. Earns a few shillings a week by needlework. Husband's means exhausted by six years' illness before death. Recommended by Mr. Percy Warner. Voted £10 in ten instalments.

4. Daughters, aged 68 and 65, of late L.R.C.P., L.R.C.S.Edin., who practised in Scotland. At father's death, twenty-two years ago, the younger sister obtained a certificate for teaching, and for twenty-two years has been head mistress in a State-aided Episcopal School, but is now obliged to retire (on account of age), with a pension of £20 per annum. The elder sister is living with her attending to the household duties, and has assisted for many years in the charge of a resident patient. Recommended by Sir Hector Cameron. Voted £18 in twelve instalments.

5. Daughter, aged 48, of late M.R.C.S.Eng., who practised in Oxfordshire. Income less than £8 a year, and since her father's death some years ago has supported herself by taking situations as servant, etc.; but has now had an accident by which she is temporarily incapacitated. Recommended by Miss Kingslake. Voted £5.

6. Widow, aged 54, of L.K.Q.C.P.I., who practised in Bucks. Practically unprovided for at husband's death. Has endeavoured to establish a nursing home, and is now trying to obtain situation as a companion. Recommended by Dr. William Travers. Voted £5.

7. Daughter, aged 21, of late L.R.C.P., L.R.C.S.Edin., who practised in Jamaica. Has been obliged to give up a situation as draper's assistant on account of severe dyspepsia and nervous exhaustion from carious teeth. Is advised to have twenty-three teeth extracted and replaced by artificial ones, and asks help to get this done. Recommended by Mr. Edward East and Mrs. Evelyn Martin. Voted £6.

8. Widow, aged 46, of L.S.A., who practised in London. Quite unprovided for at husband's death two years ago. Small earnings from needlework; ill-health and bad sight. Two sons, aged 19 and 14, barely self-supporting. Relieved once, £12. Recommended by Dr. Ormerod. Voted £14 in thirteen instalments, £2 being an emergency grant.

9. Widow, aged 52, of M.B.Camb., who practised in London. No provision at husband's death five years ago, and has supported herself with a little help from this Fund and from friends and by washing and other work. Five children, of whom three are in domestic service, one a boy earning 6s. a week as an apprentice, and the fifth, a daughter, aged 5. Relieved three times, £41. Recommended by Mr. J. Roche Lynch. Voted £12 in two instalments.

10. Widow, aged 55, of L.R.C.P.Lond., L.R.C.S.Irel., who practised in South Wales. At husband's death a few years ago had £500 insurance money, but has spent a considerable portion of this to maintain and educate a daughter, who is studying cookery and laundry work with a view to teaching those subjects under a county council. Ekes out small income from the remainder of her capital by letting lodgings and the help received from a Masonic fund. Relieved once, £5. Recommended by Dr. Sheen, Vice-President. Voted £5.

11. Daughter, aged 37, of late M.R.C.S., L.S.A., who practised in Staffordshire. Endeavours to support herself by literary work. Indifferent health. Relieved once, £12. Recommended by Dr. J. Pickett. Voted £5.

12. Daughter, aged 58, of late M.R.C.S., L.S.A., who practised in Warwickshire. Supported herself for many years as a dispenser, but now finds it impossible to get work on account of her age. Only income about £15 a year, being the interest on savings. Relieved once, £10. Recommended by Dr. H. F. Haynes. Voted £10 in ten instalments.

13. Widow, aged 35, of M.R.C.S., L.R.C.P., who practised in London but was incapacitated for some years before death. Applicant maintains herself as a working housekeeper, but has been recommended to have a short rest. Two children, aged 15 and 11. Relieved twice, £20. Recommended by Mr. S. H. Byam. Voted £5.

14. Daughter, aged 56, of late M.R.C.S., L.S.A., who practised in Hants. Income £15 a year and receives a little help from brothers. Endeavours to earn a few shillings a week by needlework, but finds her eyesight is failing. Relieved once, £6. Recommended by Mr. W. R. Grove. Voted £6 in two instalments.

15. Daughter, aged 25, of late M.D., who practised in Middlesex. Unable to earn her living on account of ill-health and dependent on a mother with a very small income. Relieved once, £10. Recommended by Dr. H. A. Sansom. Voted £5.

16. Daughter, aged 59, of late M.R.C.S., L.S.A., who practised in Hampshire. Used to be a governess, but unable to obtain pupils any longer. Tries to supplement a pension of £20 per annum from a charity by letting rooms. Relieved nine times, £78. Recommended by Sir Constantine Holman, Vice-President. Voted £5.

17. Widow, aged 50, of L.S.A., who practised in Notts. At husband's death, nearly twenty years ago, applicant trained as a maternity nurse with the aid of a grant given by this Fund, and has supported herself ever since, but two years ago invested her savings in a registry office which has not been a success. Two daughters, aged 21 and 17, barely self-supporting. Relieved once, £12. Recommended by Mr. Edmund Owen, Vice-President. Voted £6.

18. Widow, aged 66, of M.D.St. Andrews, M.R.C.S., who practised in London. No income and dependent on children. Relieved five times, £66. Recommended by Mr. Parker Young and by Mr. Kiallmark. Voted £12 in twelve instalments.

19. Widow, aged 60, of L.R.C.P.Edin., L.F.P.S.Glasg. Dependent on a pension of £20 a year from a charity and occasional help from a son earning a small weekly wage. Relieved nine times, £96. Recommended by Dr. Tatham. Voted £10 in ten instalments.

20. Daughter, aged 50, of late M.R.C.S., L.S.A., who practised in London. Has supported herself for thirty years by nursing but is now incapacitated by ill-health and dependent on a niece who lets lodgings to maintain herself and a consumptive brother. Relieved twice, £15. Voted £2 as an emergency grant and case to be considered again at the next meeting.

EPSOM COLLEGE.

The annual prize distribution to the successful students of Epsom College took place on July 28th in the big schoolroom of that institution, after choral evensong had been held in the College chapel. The interest of the function was further heightened by the fact that July 28th was "Founders' Day," and advantage was taken of the occasion to hold a sale of work in the College grounds for the purpose of providing funds for a jubilee memorial window in the chapel. The ten stalls erected for this sale of work and the numerous entertainments supplied for the amusement of the guests were well patronized.

At the prize-giving the proceedings commenced with a statement by the headmaster of the satisfactory progress made by the school, and his reference to the long list of distinctions gained by Epsom scholars was greeted with enthusiastic cheers. The prizes were distributed by Lord Monkswell, the chief prize winner being G. L. Vivian, who received the Forest Exhibition of £50 a year for three years, and the Wakley and the Propert prizes. Lord Monkswell then delivered an eloquent address to the boys, and urged them to remember the words of Huxley, who said:

That man I think has had a liberal education who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that as a mechanism it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength, in smooth working order, ready, like a steam-engine, to be turned to any kind of work and spin the gossamers, as well as forge the

anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of Nature and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience, who has learned to love all beauty, whether of Nature or of art, to hate all vileness, and to respect others as himself.

The vote of thanks to Lord Monkswell was moved by Mr. Henry Morris, seconded by Sir William Church, and carried with great enthusiasm. Amongst others present were: Sir Constantine Holman, Mr. Stanley Boyd, Mr. J. H. Morgan, Dr. F. Needham, Dr. J. H. Galton, Mr. F. N. G. Propert (the only surviving son of the founder), Mr. Clement Locke Smiles, and the Rev. E. W. Northey (Deputy Chairman of Council).

LITERARY NOTES.

The first number of the *Transactions of the South Indian Branch of the British Medical Association* for 1896 (vol. xiv), contains a paper by Captain T. H. Symons, I.M.S., on aneurysm of the aorta, one on traumatic aneurysm of the radial artery by Lieutenant-Colonel F. C. Reeves, I.M.S., who also contributes another on popliteal aneurysm. The other papers are by Lieutenant-Colonel W. B. Browning, C.I.E., I.M.S., on fractures of the lower end of the humerus; Major G. G. Giffard, I.M.S., on six cases of hepatic abscess, and some points in the diagnosis of multiple hepatic abscess; Lieutenant-Colonel Van Geyzel, I.M.S., on corrosion of Madras cement drain pipes; and Captain W. J. Niblock, on surgical curiosities. The *Transactions* are edited by Captain W. C. Long, I.M.S., and Assistant Surgeon Muhammad Uzizullah, M.B., the Honorary Secretaries of the Branch.

In Mr. Bernard Quaritch's last catalogue of rare and valuable books in natural history there are a number of herbals and other early books on medicine. Among them we note a third edition of Philip Barrough's *Method of Phisick, containing the causes, signes and cures of inward diseases in mans body from the Head to the Foote. Whereunto is added the forme and rule of making remedies and medicines which our Physitions commonly use at this day, with the proportion, quantitie and names of each medicine. Third Edition. . . . Imprinted at London, 1596; a Book of Fruits and Flowers, Shewing the Nature and Use of them either for Meat or Medicine.* The medical part contains directions "To make all sorts of Poultisses and Sercloaths for any member swell'd or inflamed, Ointments, Waters for all Wounds, and Cancers, Salves for Aches, to take the Ague out of any place Burning or Scalding; For the stopping of suddain Bleeding, curing the Piles, Ulcers, Ruptures, Coughs, Consumptions, and killing of Warts, to dissolve the Stone, killing the Ringworme, Emroids, and Dropsie, Paine in the Ears and Teeth, Deafnesse. *Contra vim mortis non est Medicamen in hortis. London:* Printed by M. S. for *Tho: Jennur* at the South entrance of the *Royall Exchange*, London. 1656." The book is described as "exceptionally rare; unknown to either Lowndes or Hazlitt." Then comes a work to make a medical bibliophile's mouth water. This is *The Breviarie of health: wherein doth follow, Remedies for all maner of sicknesses and diseases the which may be in Man or woman. Expressing the obscure termes of Greeke, Araby, Latine, Barbary, and English, concerning Phisick and Chirurgerie. Compiled by Andrew Boord, Doctor of Phisicke: an Englishman. Now newly corrected and amended, with some approued medicines that neuer were in Print before this impression, & are aptly placed in their proper Chapters, by men skilfull in Phisicke and Chirurgerie. Imprinted at London by Thomas Este. 1598. The Second Booke of the Breviary of Health: named the Extrauagants. followeth. Compiled by Andrew Boord, Doctor of Phisicke: an Englishman. Imprinted at London by Thomas Este. 1598.* Andrew Boord is supposed to be the famous "Merry Andrew," whose name has gone to enrich our English vocabulary. Then there are Conrad von Magenberg's *Buch der Natur*, printed in 1482; the *Haven of Health . . . Amplified uppon fine words of Hippocrates written Epid. 6. Labour, Meate, Drinke, Sleepe, Venus:* by Thomas Cogan, Maister of Artes and Bacheler of Phisicke, imprinted in 1589. Nicholas Culpepper's *Physical Directory, or a Translation of the Dispensatory made by the Colledge of Physitians of London and by them imposed upon all the Apothecaries of England to make up their medicines by second edition*, 1650; and the *English Physitian Enlarged*, first edition of the complete book, 1653; this edition of the book popularly known as Culpepper's *Herbal*, is the parent of all succeeding issues. Other interesting books are Sir Thomas Elyot's *Castel of Helth*, 1541, described as "an early edition of a famous book, written by a layman, in English, to the annoyance of the medical profession"; N. Gyer's *English Phlebotomy; or Method and Way of healing by letting of blood. Very profitable in this spring time for the preseruative intention and most needful at the Whole Yeare beside, for the curative intention of Phisick* (1592); and Jerome of Brunswick's *Vertuose Boke of Distyllacion of the Waters of all Maner of Herbes* (1527). The list includes several manuscripts. It used to be said *Non cuivis homini contingit adire Corinthum*, which may be freely translated: It is not every medical book collector who can afford to expose himself to the manifold temptations of 15, Piccadilly. Any one who does so should follow Iago's advice to Roderigo, and put money in his purse.

MEDICAL EMERGENCIES AND PUBLIC AUTHORITIES.

A certain number of coroners, as well as some other more highly-placed judicial personages, seem to gain much satisfaction from the deliverance of *obiter dicta*, but what they have to say is, as a rule, not of an epoch-making character and passes unnoticed.

The Borough Coroner of Colchester, however, has been more fortunate. He made an opportunity at an inquest last May of expressing his views on the duties of medical men, and his remarks have gained importance because, as will be seen hereafter, they have indirectly led to what is substantially the formal enunciation of a principle in this connexion by the British Medical Association.

The case out of which the matter arose was one in which a man poisoned himself by drinking oxalic acid; medical aid could not be obtained, and he died shortly after without having received regular treatment. In summing-up the evidence, the coroner raised the question as to whether the death of the deceased was accelerated by the absence of proper medical treatment, and, if so, whether anybody was to blame. Discussing this point, the coroner said that he supposed it would be very difficult to say whether medical assistance would have been any use or not: the opinion of the police medical officer was that it would not, and they had no evidence to the contrary. They could not, however, overlook the fact that the first medical man called was told that a man had poisoned himself, though the person who called him was not certain that he convinced the doctor that the patient was dying. The doctor refused to go, giving as his reason that the deceased was not his patient. The coroner had asked this medical man whether he would like to attend the inquest or had any statement to make; in reply, he received an answer to the effect that the writer was not aware that he was bound to attend to any call that might be made on him, whether by the police or by any other persons. If the police required assistance, they had their proper officer to apply to. In the case in point the writer was expecting to be called out; he therefore declined to leave home, and formally stated that he would follow the same course in other cases. Pursuing his comment, the Coroner said that the police medical officer was also called, but though he did not go at once, he at least gave as an excuse that he had another call to attend to at the time, and took the trouble to give the names of two other doctors who might be obtained. The police could not say that any other doctors knew of the call, except one who was expecting a summons to a confinement. In conclusion the Coroner said:

As far as I know there is no law which compels a doctor to answer a call to a sick man, except possibly in certain cases of Poor-law doctors, and therefore, though a doctor is told a man is dying in the next street, he is not bound legally to go to his aid. Therefore, legally, we cannot usually compel medical help for the dying; but I think we should be neglecting our duty, or at any rate I should be neglecting my duty, if I were not to say it seems to me that there is a law which is higher and stronger than the law of man, which calls us to at least try and help those who are in great distress without waiting to think what it will cost us, or what we shall have to pay, or whether or not it is convenient. I take it that even we who are ignorant of medical knowledge would

feel it a duty to go, as one witness did, to try and help, if we knew a man were dying. I am reminded of a case at an inquest some years ago, when a ship went down in the Thames, and a man was standing on the bank. He admitted to the coroner that he had not tried to do anything. "Then," said the coroner to the man, "if you did not mean to try to do anything I consider you are a disgrace to your nation." I do not think, however, the present case is one for any strong language. I do not think we are in a position to criticize the doctors in question, for we have not to inquire into their action, as I do not think it affected the cause of death, or would have saved life. There are always two sides to every question, always excuses to be made for every man, and there was clearly no legal duty for any doctor to go, but as a general principle of action I feel that if it were to become the custom for a doctor in Colchester, after being clearly informed that a man was dying and in need of help, to say, "I refuse to go because it is not my patient," or "It is not quite convenient," or some other excuse of that kind, then, gentlemen, I should feel it my duty to say that action seems to me to bring a disgrace upon a high and honourable profession for which we have usually the greatest respect.

It will be observed that the coroner, though he admitted that he was neither called upon nor in a position to judge the matter, yet managed practically to censure severely the conduct of the first medical man called, and the jury followed suit by adopting the coroner's remarks as a rider to its verdict of suicide. Thereupon the North-East Essex Division of the British Medical Association considered the matter at one of its meetings and finally drew up the following series of resolutions :

(1) That this Meeting of the North-East Essex Division of the British Medical Association, having had its attention drawn to the proceedings at an inquest held by the Borough Coroner, H. Geoffrey Elwes, Esq., on Monday, May 21st, 1906, on the body of Walter Charles Pavey, and having considered the remarks of the coroner concerning the action of Dr. L. and concerning the duty of medical practitioners in attending emergency calls, enters its strong protest against those remarks as not being justified by the evidence given at the inquest, as throwing unmerited imputation upon the professional character of Dr. L., and as conveying to the public an erroneous and mischievous conception of the obligations resting upon members of the medical profession.

(2) That the meeting considers that in view of these remarks of the coroner it is necessary to point out that it is not the duty of individual members of the profession, but of the community generally, as represented in this instance by the municipality, to make proper provision so that as far as practicable no case of sudden and dangerous illness shall remain without prompt medical attention, that in this case it was given in evidence that the police surgeon's services could not be obtained for two or three hours and there was no recognized arrangement whereby such a difficulty could be overcome; that, while the records of the medical profession show that private practitioners are ever ready to respond to the calls of humanity, they are bound to consider the claims of their own patients, and cannot neglect these in order to attend to casual summonses to strangers; that such summonses, even when stated by messengers to be urgent, are often found in fact not to be so; and that in the present case the messenger made it clear in his evidence that he had not conveyed to Dr. L. the urgency of the case.

(3) That the members of the Division, while repudiating the impracticable view of their duties in such cases suggested by the coroner, would be prepared to co-operate with the municipal authorities in devising and giving effect to a proper scheme for providing medical attendance in emergencies in response to official summonses from the police.

(4) That the Division desires to place on record its sense of the high professional character of Dr. L., and its conviction that his action in this case was strictly consonant with his duty.

These resolutions were submitted by the Division to medical men practising in the neighbourhood, and when some fifty of them had added their signatures in proof of approval, copies were sent to the coroner and to the town clerk of Colchester.

The matter was also brought to the notice of the Medico-Political Committee of the British Medical Association. This body expressed its full concurrence with the principles enunciated and embodied the resolutions in a report subsequently submitted to and approved by the Central Council.

The net result, therefore, of the coroner's remarks is that the medical profession has formally traversed the suggestions which the coroner went out of his way to make; and, on the other hand, has clearly stated, for the information of all and sundry, that it is not prepared to regard compliance with calls, whensoever and howsoever received, as a necessary part of its duties.

This is as it should be, for there is too much tendency on the part of the public to regard medical men as necessarily their servants, and for coroners' juries to blame individuals if it appears they have not fallen in with the same view. This is not the legal conception of the duties of medical men, nor is it the official conception in towns better organized than Colchester. In London, for instance, the police, besides having at its call the police medical officers and their deputies, has it in its power to call any medical man who is willing to come and to pay him certain fees. The same should be the case everywhere else, or some arrangement should be made by which various medical men undertake to hold themselves ready to answer emergency calls in turn for different periods of a week or month. Corresponding arrangements are common in connexion with cottage hospitals, and there is no reason why they should not be adapted to the possible needs of any average town.

MEDICAL NEWS.

A short vacation course at the Post-graduate College, West London Hospital, will commence on Monday, August 13th, at noon, and terminate on Friday, September 7th.

It would appear from the *Pharmaceutical Journal* that the French Minister of Public Instruction is endeavouring to secure that when the names of weights and measures are not written in full, certain definite abbreviations shall always be used. These are, for measures of capacity, kilolitre, kl.; hectolitre, hl.; decalitre, dal.; litre, l.; decilitre, dl.; centilitre, cl.; and millilitre, ml. For measures of mass and weight: tonne, t.; quintal métrique, q.; kilogramme, kg.; hectogramme, hg.; décagramme, dag.; gramme, g.; décigramme, dg.; centigramme, cg., and milligramme, mg. Abbreviations are also authorized for measures of length, area, and bulk.

Postal Medical Officers' Association.—The annual dinner of the British Postal Medical Officers' Association was very successful, a large number of provincial members journeying to London to be present. In acknowledging the toast of his health Mr. Sydney Buxton, the Postmaster-General, speaking for himself and the headquarters staff, said that not only were they indebted to their medical colleagues for the manner in which they always carried out their duties, but for other assistance which they rendered. They looked to them for advice in dealing with questions of sanitation, and in such matters as deciding how many miles an able-bodied man might be expected to walk a day, and how many pounds in weight he should be able to push along on his tricycle. It was a great honour to the profession that the complaints made against the 3,000 members who were postal medical officers were infinitesimal and almost invariably proved unfounded.

The Plague and Health in Zanzibar.—Mr. Sinclair's Consular Report on the trade of Zanzibar for last year shows that had it not been for the outbreak of plague in the autumn a considerable increase in commerce would have been recorded. The disease was officially notified on September 3rd, and although the port was declared free of it on November 23rd, there was a large exodus of the British-Indian population, and the German ports were closed to all traffic with Zanzibar till January 13th this year. Plague has never been recorded in the island before—a remarkable fact considering that there is constant communication with Bombay and other towns which are either permanently or frequently affected. The disease chiefly confined itself to the British-Indian quarter, where the streets are very narrow, and sanitary conditions highly unsatisfactory. There were 152 cases and 122 deaths, but the epidemic was very energetically dealt with, and the efforts of the medical authorities were attended with great success. Haffkine's serum was largely used, 22,485 persons having been inoculated with it, and of these only 10 were attacked and only six died. Rats were destroyed wholesale by poison, the rewards which the Government had for some years been paying per head being doubled. It is interesting to note that in Iringa, in German East Africa, where plague is practically endemic, the natives have of their own accord realized the connexion of rats with the disease, and the chiefs have paid so much for every tail brought in for more than twenty years past.

British Medical Journal.

SATURDAY, AUGUST 4th, 1906.

THE PROPOSED ROYAL CHARTER.

What will probably be generally considered the most important piece of business done by the Annual Representative Meeting during its session of four days last week was the decision to proceed with the proposed application for a Royal Charter for the British Medical Association. This decision was arrived at by a vote of 89 to 25, and the vote by card brought out a proportion very nearly similar, but slightly more favourable to the proposal to seek a Charter.

The terms of the draft Charter prepared by the Organization Committee were generally approved, and sent back to that Committee along with the Ordinances and By-laws, with instructions to embody certain amendments adopted by the Representative Meeting as well as others which might be desired by the Colonial Branches, and to issue the amended draft in preparation for a Special Representative Meeting, which it was understood would be summoned probably in the course of next January. With a few exceptions the amendments accepted did not alter the principles embodied in the draft. The exceptions were of considerable importance, and chief among them were those which concerned the Central Council. The Representative Meeting decided that both the mode of election and the constitution of the Council should be modified. Under the old constitution the local organization of the Association consisted of Branches, through which both the scientific and the political business of the Association was in part carried out; the Council was, as is still the case, elected by the Branches; that is to say, the members of each Branch had the right to elect a member of Council, and the larger Branches had the right to additional members roughly in proportion to their numerical strength. The Council was not only the executive body of the Association, but also the legislative body, if we may use a term which in this case perhaps requires some limitation. At that time it must be remembered a man might be a member of the Association without being a member of the Branch within the area of which he resided. The main object of the reorganization was to develop the medico-political side of the Association's work by extending the representative principle, and providing greater facilities for every member to take part in this work. To this end a representative system founded upon units far smaller than Branches was introduced, and to each unit was given the right to elect a representative to take part in a meeting of a representative body, which should be the legislative body of the Association, the body, that is to say, which should determine its policy.

There were many members of the Reorganization Committee who would have liked to have gone a step further, and to have given the Representative Meeting the duty of electing the executive body or Central Council of the Association; but it was realized that there were serious practical difficulties in the way of the adoption of this course, and the Council was accordingly left, under the new constitution, to be elected as before by the Branches. In spite of the fact that the franchise is the same although the constituencies differ, there must always be the risk of a conflict of opinion between the Representative Meeting and the Council, between what we have ventured to call the legislative body and the executive body, and it is urged that the logical course now to be taken would be to make the Central Council the Executive Committee of the Representative Meeting. Sir Victor Horsley moved and carried a resolution instructing the Organization Committee to report upon the complete reorganization of the Branches and the definition of their duties, with a view to promoting the scientific work of the Association, and facilitating the amalgamation of other medical societies with the Association, his contention being, if we understood him aright, that as the socio-political work of the Association was now conducted through the Divisions, the Branches might be quite differently arranged and organized, with a view of carrying out more efficiently the other side, that is to say, the scientific side of the Association's work. Those who accepted this view were almost bound to support a resolution moved on behalf of the Stratford Division by Dr. Percy Rose, to provide that the Central Council of the Association should be elected by the Representatives of the Divisions at the Annual Representative Meeting; the motion was, in fact, seconded by Sir Victor Horsley, and although it was not adopted by the meeting, his previous resolution no doubt paved the way for the acceptance of Dr. Latimer's amendment directing the Organization Committee to provide in the revised draft of the Charter that the members of the Central Council other than *ex-officio* and service members shall be elected as to two-thirds by the Branches and one-third by the Representative Body at its annual meeting, due regard being had to geographical distribution of the members. The proviso with which the resolution concludes was inserted in order to meet the objection put forward by several speakers that the proposal would be to the prejudice of the more sparsely-populated parts of the country.

A subject which had very seriously engaged the attention of the original Reorganization Committee—the reduction of the number of members of the Central Council—then came up for consideration, and it was finally resolved that the Council should consist of thirty members, twenty elected by the Branches and ten by the Representative Body, with, in addition, the *ex-officio* and service members.

The only other amendment of the draft Charter to which reference need here be made was that which would directly empower a Division to elect its Representative by means of voting papers sent to each member of the Division. It was stated that this course was already followed by certain Divisions, but however this may be there is no doubt that the proposition involves a somewhat serious departure from the original conception of the new constitution, inasmuch as it was intended that the Representative should receive instructions as to the course he should follow at the Representative Meeting from a full meeting of his constituents.

In conclusion, we may draw attention to the fact that, as will be seen from the report of its proceedings in the Supplement, p. 137, the Central Council at a special meeting on Saturday, in view of the fact that the referendum can be exercised by the Council on the whole matter of the Charter after the next meeting of Representatives, resolved that it would not at the present time institute a referendum on the Charter.

EPILEPSY AND CRIME.

CERTAINLY one of the most difficult tasks with which a criminal court can be faced is that of determining whether, and if so how far, the conduct of the subject of any of the many manifestations of epilepsy is the outcome of the morbid processes of which he is the innocent victim. On the answer to this question much hangs and still more ought to hang. Obviously an affirmative question ought, according to the degree of morbid implexion, to absolve the accused from punishment. On the other hand, ascertained ingrained defect resulting in incorrigibly antisocial conduct should be followed by permanent, and in most cases lifelong supervision and care. Punishment at all is futile and the restoration to entire freedom of an individual inevitably prone to periodic criminal accessions the veriest farce. In the settlement of such questions great weight is rightly attached to the medical evidence, but, unfortunately, great differences of opinion exist amongst medical men as to the scope and importance of epilepsy in this respect. On the one hand there are those who would extend this category so widely as to include almost any form of impulsive conduct not covered by other disease forms, employing the term with a latitude which, if put into effect in courts of law, would almost certainly degenerate into licence. On the other hand, there are those who deny any justification for the application of the term to any conduct other than that bearing the clinical stamp of epileptic action, occurring in the subjects of undoubted typical convulsive epilepsy.

The subject is one of the greatest scientific and medico-legal interest, and for that reason the recent utterances on this point of an authority so well known as Professor Aschaffenburg[1] must carry considerable weight.

Rather more than ten years ago (1895), this distinguished alienist directed attention to the question by a paper[2] based on observations made mainly upon dipsomaniacs under detention, correlated with similar observations made at the Heidelberg Klinik upon epileptics with mental deterioration sufficiently pronounced to necessitate confinement. His observations went to prove that dipsomaniacs under enforced abstinence suffered from periodic fluctuations of emotional tone, apparently uncaused depression or excitement, accompanied by the most varied bodily signs and symptoms, profuse sweating, palpitation, tachycardia, pupil changes, headache, and so on, indistinguishable from similar attacks in the subjects of typical epilepsy. These attacks he considered epileptic in nature, and, following Hoffmann, who first used the term, he described them as "epileptic equivalents." His paper attracted considerable attention, and incidentally a good deal of criticism. Recognizing and fully admitting the one-sided nature of his then material, he now returns to the attack, supporting his contention by careful clinical observations of cases no longer open to this objection. His later work entirely supports the conclusions reached in his earlier publication, and are too important to be easily set aside. The patients were genuine epileptics, entirely unselected, and for the most part moral delinquents undergoing detention. The first important point which he sets himself to decide is the question of what is the most characteristic feature of the disease epilepsy. Contrary to what is perhaps a general preconception, he finds this, even in the subjects of undoubted convulsive epileptic seizures, not in the convulsions, nor in *petit mal*, nor in giddiness or fainting attacks, but in periodic emotional disturbances, characterized subjectively by sudden depression or excitability, great anxiety or fear, home-sickness, suicidal desires at times resulting in suicidal attempts and marked mental confusion; objectively, by the bodily symptoms already enumerated, with, in addition, eccentric conduct, attempts at escape and a noticeable increase of prison offences. Professor Aschaffenburg is careful to state that only marked emotional or psychic disturbances were recorded, and that, owing to the minuteness of supervision, no convulsive seizure, however trifling, could have failed to be noted. The actual relative frequencies of the various epileptic manifestations, in the whole of his cases, including those patients who had convulsive attacks during their period of detention (21 in number), and those who had none (29), were as follows: Vertigo, 74 per cent.; periodic affective disturbances, 70 per cent.; *petit mal*, 58 per cent.; "fainting" attacks, 44 per cent.; convulsions, 42 per cent.; epileptic dream-states, 36 per cent.; wetting-beds, 28 per cent.; and "epileptic flights" (to use Voisin's term), 18 per cent. Judged, therefore, by their relative frequency, convulsive attacks fall a long way behind other phenomena as characteristic features of epilepsy. The possibility of a psychic disturbance replacing a "fit" has, of course, long been recognized, Gowers, for example, finding himself unable to deny its occurrence; similarly, "masked epilepsy" and *epilepsie larvée* are terms in common use, and a great number of cases have been reported by German and Italian writers, but no one, so far as we know, has hitherto demonstrated their great importance as characteristic signs of epilepsy, both amongst the subjects of major fits and others.

Professor Aschaffenburg's opinions fall into line with the observations of many authorities, Wollenberg, Ottolenghi, Gaupp, and others too numerous to mention, and he mentions as of suggestive and perhaps corroborative value Pfister's[3] observation that persons with an epileptic or hystero-epileptic heredity are frequently subject from the fourth year of life onwards to pronounced affective disturbances suddenly appearing and as suddenly departing. The majority of writers, however, demand for the diagnosis of an epileptic equivalent not only suddenness of onset, brevity of attack, and periodicity of recurrence of the emotional and psychic fluctuation, but a disturbance of consciousness followed frequently if not constantly by amnesia; Professor Aschaffenburg lays very little stress on amnesia, though it might very well have been included in his records. On some points Professor Aschaffenburg is at variance with generally-accepted opinions; for example, although he admits with others that the "epileptic character" in its pronounced form shows a typical picture, compounded of egotism, obstinacy, deceitfulness, hypocrisy, family pride, and reckless, quarrelsome excitability, he considers that the general view that the epileptic is always prone to react with undue force on slight occasions requires revision. Much more has he learnt to regard him, except during the recurrent periods of disturbance, as a quiet, well-behaved individual.

Recurrent outbursts of temper, accompanied frequently by morbid suspicion and wanton destructiveness are frequent among a considerable section of those

[1] Ueber die Stimmungsschwankungen der Epileptiker. By Dr. Gustav Aschaffenburg. *Sammlung zwangloser Abhandlungen aus dem Gebiete der Nerven und Geisteskrankheiten.* Bd. vii, Hft. 1, 1906. Carl Marhold, Halle a. S. (Demy 8vo, pp. 55. M.1·60.)

[2] Aschaffenburg. Ueber gewisse Formen der Epilepsie. *Archiv f. Psychiatrie.* Bd. xx, **3**, 955.

[3] Pfister. *Strafrechtlich-psychiatrische Gutachten.* 1902. Ferd. Enke, Stuttgart.

persons who are styled degenerates but not recognized as epileptic, and it would be interesting to know whether a more minute observation would yield similar results to those obtained by Professor Aschaffenburg. In any case, his researches should do much to stimulate inquiry in a much neglected field; the results might very probably throw considerable light on many moral and other branches of conduct, both in and outside of prison, which are at present, except on some hypothesis such as this, inexplicable.

GIFT OF A PATHOLOGICAL SCHOLARSHIP.

Dr. R. C. Brown, of Preston, Lancashire, has placed at the disposal of the Committee for the study of special diseases of the University of Cambridge the sum of £150 per annum for two years, for a pathological scholarship in connexion with the investigations now being carried out by the committee on rheumatoid arthritis and allied diseases. The scholarship, which will be called the R. C. Brown Scholarship in Special Pathology, will be open to all recently qualified medical men; the holder will be required to work under the direction of the Huddersfield lecturer in special pathology. The necessary material and apparatus will be provided, and the results obtained may be used for a thesis if desired. Further particulars will be found in the advertisement columns. Dr. R. C. Brown is a graduate of the University of London, is Consulting Medical Officer to the Preston and County of Lancashire Royal Infirmary, and has held the office of President of the Lancashire and Cheshire Branch of the British Medical Association. His gift, as wise as it is generous will, it may be hoped, incite emulation in the minds of other practitioners who are in a position to assist the progress of pathological science in this way.

DRUG STORES AND THE PUBLIC.

Some curious statistics in regard to the trade in medicines in Birmingham were given by Mr. Thomas Barclay, the Chairman of the Local Committee at the Pharmaceutical Conference. During the last twenty years the population of Birmingham has risen some 50 per cent., or from about half a million in 1886 to three-quarters of a million in the present year. At the earlier date there were in Birmingham 188 persons in business as chemists and druggists, of whom 24 were pharmaceutical chemists; if their number had increased *pari passu* with the population, as might have been expected, there would now have been some 282 chemists and druggists and 36 pharmaceutical chemists. So far, however, from this being the case, the number of such persons now in business has diminished to 148, of whom only 16 are pharmaceutical chemists. A partial explanation appears to be that there are now working in Birmingham two limited liability companies, with their head quarters elsewhere, one of which has 13 establishments in the city, and another 8, whilst there is also a private individual who has 6 shops in his own name. This fact, though it practically accounts in number for the actual decrease, does not explain the greatly diminished ratio of chemists to the population. Possibly people take less medicine than formerly, but it seems more likely the diminution should be ascribed, in part at any rate, to another cause, namely, the increased popularity of proprietary remedies. The retail profit on these is small, and though people spend at least as much money on drugs as formerly, the greater part of it nowadays goes into the pockets of wholesale manufacturers. Hence the opening of a retail chemist's shop is a much less tempting speculation than when drug preparing and drug compounding were more common than simply selling ready-made remedies. Further probable factors seem to be the great increase in out-patient work at the hospitals, and possibly the growth of friendly societies. In any case the tendency seems to be for the bulk of the retail trade in drugs to be thrown into the hands of persons whose interest in their work is not that of men who are at once well trained and proprietors of the shops in which they work, and it does not seem likely that this can be to the advantage of the public.

PAINFUL SWELLINGS IN RIGHT ILIAC REGION.

We hear a great deal about appendicitis and ovarian tumours in contemporary medical literature. Both may be associated with pain and swelling in the right iliac region. In the case of the vermiform appendix the symptom is almost essential; when a tumour of the right ovary has undergone axial rotation the symptom is easy to understand, whilst a left ovarian tumour may become displaced and adherent in the right iliac region, local pain being usually considerable in such a case, as the traction on the uterus is great. Professor Fritsch of Bonn reports a case of painful tumour which eluded correct diagnosis.[1] The patient was a woman, aged 30, subject for two months to violent pains in the right side of the abdomen, which for a fortnight had assumed the character of acute paroxysms, increasing in frequency and severity. On examination, there seemed, however, to be no evidence of appendicitis, and ovarian dermoid with twisted pedicle was diagnosed. Abdominal section was performed, and a tumour was found to project from the wall of the ileum close to its junction with the caecum. As it seemed malignant (it proved to be a simple fibromyoma), Fritsch resected the adjacent ileum and colon, with the caecum and appendix. The patient recovered. This remarkable report shows how difficult may be the diagnosis of painful swellings in the right iliac region.

TRICOCEPHALUS AND APPENDICITIS.

A case of some interest has recently been reported by M. Oui, of Lille.[2] A woman, aged 22, was admitted into a lying-in ward of the Hôpital Saint-Sauveur with symptoms of abortion, in her second pregnancy. On the next day she was delivered of a fetus, apparently in the middle of the third month. Two years previously her first labour had ended normally at term; the puerperium was followed by an attack of severe pain in the right iliac fossa, ascribed to salpingitis. Several similar attacks came on until the second pregnancy, then they ceased. After the abortion the pain returned, and Oui detected very characteristic tenderness and induration in the right iliac fossa. He operated and removed a thick, red vermiform appendix. The right Fallopian tube was normal. The patient made a good recovery. The appendix was carefully examined, and two specimens of whip-worm, *Tricocephalus dispar*, were detected, each with the whip end deeply sunken in the mucous membrane. Little brown spots were seen on the surface of the mucosa: they proved to be collections of the ova of the parasite. Oui observes that in this case there was no evidence that the attack of pain which followed the first puerperium was due to puerperal infective inflammation; that he did not operate until three weeks after the miscarriage so as to give time for all inflammation outside the appendix to subside, and that lastly the appendicitis was caused by traumatism, the implantation of the tricocephalus damaging the mucosa. The parasite, we may note, is not common in the British Isles.

[1] *Monatssch. f. Geb. u. Gyn.*, June, 1906.
[2] *Comptes Rendus de la Soc. d'Obst. de Gyn. et de Péd. de Paris*, June, 1906.

OBSTRUCTION FROM FAECAL CALCULUS: RESECTION OF COLON.

About two years ago M. Morestin published a communication in a medical periodical on intestinal obstruction seated in the splenic flexure of the colon. Señor Antonio Nores of Cordova, in the Argentine Republic, has recently reported an interesting case of this kind in the same periodical.[1] The patient was a Spanish-American woman, aged 31. She did not marry until she was 29 years of age, and she bore a live child at term—eleven months after marriage. The bowels had acted regularly until the patient married, and then they became constipated for no discoverable reason, her habits, diet, etc., remaining just as when she was single. Abdominal pains set in during gestation; a small tumefaction was felt a month after delivery, then all the symptoms of chronic constipation developed, and the patient became highly cachectic. The thinness of the abdominal walls allowed of palpation; a tumour of the size of a man's head lay in the upper part of the abdomen on the left of the middle line. It was very hard, yet slightly compressible, freely movable, not tender, and dull on percussion. Scybalous concretion was suspected, and enemata were administered for several days, but at length, after a fortnight's comfort, the patient grew worse again. Dr. Nores, diagnosing the condition opened the abdominal cavity, intending either to manipulate the mass, so as to pass it along into the descending colon, or to break it up. He found a faecal collection of extreme hardness in the splenic flexure of the colon, which he was compelled to resect, as there was constriction of the intestine immediately below the mass. End-to-end anastomosis was effected, and the patient recovered. The faecal mass was "truly a coprolite," to use Dr. Nores's own expression, a faecal calculus composed of laminae of calcareous material harder and harder in consistence towards the centre, where the nucleus, also faecal it appears, required a hammer to break it. It measured 7 in. in its longest by over 5½ in. in its shortest diameter, and weighed 368 grams, about four-fifths of a pound. The resected segment of gut was of necessity much dilated, its walls were quite a fifth of an inch thick. It was strictured by a very old radiating cicatrix, representing local ulceration. The cause of the initial lesion remains obscure.

INSECTS, LEPROSY, AND SIR THOMAS GRESHAM.

Dr. E. S. Goodhue of Hawaii, Sandwich Islands, informs us that Dr. W. J. Goodhue, Medical Superintendent of the Molokai Leper Settlement, has, after several trying years of research, succeeded in demonstrating the bacillus of leprosy in the mosquito (*Culex pungens*) and the common bedbug (*Cimex lectularius*). Dr. Goodhue expresses the opinion that the bedbug is more of a factor in the spread of leprosy among the natives than the gnat, for the following reasons, that the bedbug's invasion is noiseless and occurs during deep sleep of the victim; and secondly, the beds and bedding which have belonged to a leper are after his death or segregation used by his family without adequate disinfection. Mosquitos and other parasitic insects have long been looked upon as a possible source of infection in leprosy. Arning, when in the Sandwich Islands, examined mosquitos quite full of blood sucked from cases of severe cutaneous leprosy, but he was never able to find the bacillus either in or upon them.[2] In the course of their investigations again, the Leprosy Commission in India examined mosquitos and flies for leprosy bacilli with negative results.[3] It may be stated in passing that in Japan leprosy is considered to be spread by mosquitos. But if this were the case Jeanselme pertinently remarks[4]: "It is a little difficult to understand how it "is that certain classes of the whites in New Caledonia, "where leprosy has been greatly on the increase of "recent years, are spared, although such individuals "are just as liable to be attacked by the insects." Jeanselme's researches in Indo-China were also negative. Notwithstanding all this, however, it may well be that insects may convey the disease, and Dr. Goodhue's investigations point in that direction. Further systematic work on the subject is required. The question could be readily settled if pure medical research were adequately provided for. Some 200 years ago Sir Thomas Gresham, an enlightened and far-seeing man, founded an institution for scientific research in the City of London, the property he left for this purpose being now estimated to be worth three millions sterling. This property was deliberately appropriated to other uses by the Corporation of the City of London and the Mercers' Company about 100 years ago, the Houses of Parliament being consenting parties.[5] Had this money been applied to the purposes designed by Gresham, England, which has produced so many great minds, would not have lagged behind in systematic pure scientific research. At a moment in the evolution of this nation when it is of the utmost importance that our brain-work should be encouraged, the reversal of the mistaken step taken by the City Corporation, the Mercers' Company, and Parliament would lead to great mental expansion and the solving of many problems which confront man in his struggle with natural phenomena.

SANITATION IN FRENCH WEST AFRICA.

We are indebted to Professor Ronald Ross, of the Liverpool School of Tropical Medicine, for information which shows that a considerable amount of antimalarial work and other sanitary improvements have recently been carried out by the different French Colonies on the West Coast of Africa with eminently satisfactory results. During the year 1905 the sum of £136,000 was spent on drainage and sanitation at St. Louis, Dakar, and Rufisque, and the estimated expenditure for the present year, 1906, is put down at £84,400. Last year a sum of £56,000 was spent on sanitary services in Senegal, and this year a sum of £48,000 has been devoted to the same object. The work carried on under this head includes the filling in of vast areas of land liable to be swamped and therefore capable of becoming mosquito-breeding grounds, comprehensive schemes of mosquito extermination, irrigation schemes, and town drainage. The effects of those different measures has been to decrease the mortality in a most striking manner. In Dakar, for example, the number of admissions into hospital diminished last year by 210, and malarial patients were reduced from 407 in 1904 to 242 in 1905: the mortality-rate per mille was 15.2 in 1903, 12.5 in 1904, and 10.1 in 1905. This is specially satisfactory because Dakar is handicapped from a sanitary point of view by the character of its white population which in all amounts to between 3,800 and 4,000 persons, and consists very largely of workpeople, navvies, and privates in the army, classes which generally take little care of their health. Formerly yellow fever periodically decimated the white population, but last year, though again appearing, the steps promptly taken were so effective that only one death occurred.

TAXATION OF MEDICAL MEN IN FRANCE.

In France the imposition of an income tax is on the horizon, and the medical profession, which is already by no means too flourishing, is somewhat alarmed at the

[1] "De l'occlusion au niveau de l'angle colique gauche," *Revue de Gyn. et de Chir. Abd.*, September-October, 1905, p. 891.
[2] See also Report of Leprosy Commission in India, 1890-91, p. 302.
[3] Op. cit., Addendum viii, p. 451; also p. 302.
[4] *La Pratique Dermatologique*, vol. iii, p. 98.
[5] *The Advancement of Science*. By E. Ray Lankester, p. 95 et seq.

prospect. This is very natural, but fortunately there seems to be a set-off in the fact that it is promised that simultaneously with the introduction of an income tax two other taxes—the professional tax and a kind of house tax—which at present exist will be abolished. Should this be the case, the soundest view seems to be that medical men in France—or, at least, the great majority of them—will benefit by the change, provided that in its details the Bill is carefully thought out. At present all French medical men alike, whether successful or unsuccessful, contribute more to the revenue, in comparison to their means, than the average citizen. The house tax, though not so named or nominally so estimated, is really calculated on the rental, and medical men, in virtue of their profession, and whether working in town or country, habitually have to occupy houses of a more expensive kind than those they would inhabit did they win the same income from another source. Within the profession itself it is argued that there is at present also much disproportion, since a successful man in a fashionable practice only pays about three times as much in house tax as the average practitioner, though his income may be ten or twelve times greater. This is a very credible theory, and such anomalies will naturally be brought to an end by the abolition of the existing taxes. Nevertheless other anomalies may arise in respect of the new tax, and the position of the medical profession in France is not likely to prove satisfactory unless some such steps are taken in advance as those which for many long years in England have been seen to be necessary. An income tax to be really a just method of assessing revenue should not only be graduated according to income, but a difference should likewise be made between income acquired by the existing and personal exertions of the taxpayer and that which is derived from inherited property or accumulated capital. The latter is a point which has already engaged the attention of the British Medical Association, and steps have been taken with the view of getting the existing law on the subject amended, and such endeavours the Representative Meeting of the Association last week resolved should be continued. Our French colleagues, therefore, will be well advised to agitate at once in a corresponding direction, since it is much easier to get the incidence of a tax well planned out in advance than to obtain amendment of the regulations respecting it at a later date.

THE BRITISH ASSOCIATION.

The meeting of the British Association in York was opened on Wednesday evening, when Professor Ray Lankester delivered his presidential address. After a reference to the founders of the Association—rendered especially appropriate by the fact that the first meeting of the Association was held in York seventy-five years ago—the President went on to review some recent developments of science, referring first to chemical elements newly discovered, especially to radium. After a reference to the development of astronomy and geology he spoke of the knowledge gained as to new forms of animal and vegetable life, and as to their distribution, and then referred to the advance in physiology and psychology. He next discussed the work of biologists tending to establish, develop, or modify Darwin's great theory of the origin of species, and passed on to the consideration of the advances made in pathology, dwelling especially on the work of Calmette with regard to cobra poison and on Metchnikoff's doctrine of phagocytosis, observing that "after years of opposition "bravely met in the pure scientific spirit of renewed "experiment and demonstration, Metchnikoff is at last "able to say that the foundation stone of the hygiene "of the tissues, the thesis that our phagocytes are arms "of defence against infective germs, has been generally "accepted." The President concluded his address by a protest against the comparative neglect of science by the successive political administrators of our national affairs.

COAL-TAR PRODUCTS.

The fiftieth anniversary of the discovery of aniline dyes was celebrated at the Royal Institute last week and Sir William Perkins, F.R.S., was the recipient of many scientific honours. The meeting was remarkable for the number of British and Foreign scientific chemists who attended to do honour to the occasion, and for the delivery by delegates of addresses of congratulation from chemical societies in France, Germany, Austria, Holland, Switzerland, the United States and Great Britain. Opportunity was also taken for announcing the outcome of the meeting which was held at the Mansion House last February; it is intended to provide a portrait of Sir William Perkins, which will eventually be hung in the National Portrait Gallery, and a bust, which will be placed in the rooms of the Chemical Society. The rest of the large sum subscribed at home and abroad will be devoted to the foundation of a Perkins Memorial Fund for the promotion of chemical research. The celebration is one in which the medical profession has distinct interest, for, until Perkins made his discovery in 1856, coal-tar, from which so many valuable modern drugs are derived, was regarded as practically valueless for other than mechanical purposes. It is also to be noted that when Perkins discovered that an excellent mauve colour could be derived from tar, he was not looking for a dye but for a means of producing quinine artificially. Curiously enough a process of producing quinine synthetically has recently been discovered, but meantime the price of the natural product has fallen so greatly that the discovery is not likely to be put to commercial purposes. A further point of interest is the age at which Perkins made his discovery; he was only 19. A less satisfactory fact in connexion with the discovery is that the value of the possibilities opened up were for long not generally recognized in England, with the result that the huge industry which has developed from it is now chiefly in the hands of foreigners.

THE PATHOLOGICAL INSTITUTE AT BERLIN.

To celebrate the completion of the new buildings of the Berlin Pathological Institute a volume of essays by workers in the Institute has been published under the editorship of the Director, Professor Johannes Orth.[1] In an interesting introductory article Professor Orth gives a detailed description of the new buildings, and traces the history of the Institute from its earliest beginnings down to the present time. In connexion with the *post-mortem* work of the Charité Hospital a prosectorship was founded in 1730. The earliest holders of this post were Rust and Phoebus, but the credit of developing and increasing the importance of the *post-mortem* investigations belongs to Robert Froriep. Virchow first worked as Froriep's assistant, and then succeeded him in 1846. He gave up the post in 1849, and was succeeded first by Reinhardt and afterwards by Meckel. After the death of the latter, in 1856, Virchow was recalled, and resumed work under much more favourable conditions than that existing in 1849. He was made both Prosector to the Charité Hospital and Professor of Pathological Anatomy in the University, and by means of this dual position was able to bring the hospital and the university into much closer relationship with each other than they had been previously. Under Virchow's guidance the Pathological Institute rapidly increased in importance, and has for long been

[1] *Arbeiten aus dem pathologischen Institut zu Berlin.* Berlin: August Hirschwald. 1906. (Demy 8vo, pp. 656. M 18.)

regarded as one of the most famous centres of pathological learning in the world. Virchow was succeeded by Professor Orth in October, 1902. The new buildings have been planned on a most elaborate scale, and appear to provide everything which could be desired for the accommodation of pathological teaching and research.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

IT is announced that a petition from the Council of the Metropolitan Hospital Sunday Fund, praying for a Charter of Incorporation, was submitted to the King at the Council held by His Majesty on July 28th, and was referred by His Majesty to a Committee. Any petitions for or against the grant of a charter should be lodged at the Privy Council Office before September 3rd. We are well aware of the great services which this Fund has rendered to the London hospitals since its commence in 1873, but we understand that with the lapse of years it has been found that some of its original laws have become obsolete, while others are rather incomprehensible. Advantage ought therefore to be taken of the proposed grant of a charter to draw attention to the points on which improvement is desirable. We have heard it suggested that three societies for the same purpose (the Hospital Sunday and Saturday and King Edward's Funds) are too many, and that the first and third, at all events, might well be amalgamated. The great point of difference in administration, too, between these funds is that the King Edward's Fund requires no *quid pro quo* in the shape of subscribers' letters, while the Hospital Sunday Fund continues to sanction this abuse and circulates many letters. This ought, we think, to be brought to the knowledge of the Privy Council. The matter is one in which the British Medical Association is deeply interested, and the wording of the proposed charter will require careful study on the part of those responsible for hospital affairs.

COURT FEES IN FRANCE A HUNDRED YEARS AGO.

NAPOLEON is commonly credited with having been a convinced opponent of the medical profession, but his hostility, like that of many others, was probably more academic than real. In any case he had a large number of physicians and surgeons in his personal employment, and paid homage to medical science to the tune of at least £8,000 a year. This sum was necessary to cover the retaining fees of some thirty persons, including a surgeon dentist, a surgeon corncutter, and seven chemists. A trussmaker was also on the list of his professional staff, but no one seems ever to have been appointed to the position. Among those in his personal employment whose names are best known were Corvisart and Lanfranceque, the former being his chief physician. Judging by some figures which the *Journal de Médecine* has unearthed, the sums individually paid were not ungenerous, considering the value of money a hundred years ago. Thus Corvisart himself received a salary of £1,250 a year, with an extra allowance for expenses; and Hallé, the physician in ordinary, a sum of £625. Lanfranceque, Guillounean, Lerminier, and Bayle, together with four surgeons, were in charge of the Imperial sick bay; the physicians and surgeons alike were each on duty in succession for three months at a time, the former receiving each a salary of £320 a year and the latter £240. In addition, there were four consulting physicians, whose pay was £120 a year each. Besides these, Napoleon seems to have had a surgeon-in-chief, named Boyer, who received £600 a year; while there was likewise an assistant, who drew rather less than half that sum. One of these surgeons—Dubois—it may be noted, attended the Empress Marie Louise during her confinement; it was long and difficult, and Dubois expressed to the Emperor some anxiety as to the outcome. The reply with which His Majesty is credited bears strong testimony to his common-sense: "Treat "her exactly as if you were dealing with a citizen's "wife in the Rue Saint Denys; anyhow, Dubois, save "the mother." Fortunately, both mother and child survived the ordeal, and the Emperor, in his delight, sent a message to Dubois asking what reward he deserved. Dubois, who seems to have been troubled with no false modesty, rose not less successfully to this occasion than to that which had preceded it. "Tell the Em- "peror," he replied, "that I want plenty of honour and "plenty of money." What he got was the title of Baron gilded with a fee of £4 000. When Napoleon was wounded at Ratisbon in 1809 none of his personal staff seems to have been at hand, for it was a surgeon with the Russian name of Yvan who attended him on that occasion. The most enduring reward which this surgeon received he owes to the painter Gautherot. The latter included him in a picture of the event which hangs in the galleries of Versailles. According to Maze-Sencier, it was in conversation with Corvisart that Napoleon used chiefly to tilt at medicine. Corvisart on these occasions used to find it convenient to forget that he had himself cured Napoleon of scabies at the siege of Toulon, and after a short show of resistance to end by agreeing with his Imperial and imperious master's opinion of his profession.

MEDICINE AND THE LAW IN THE UNITED STATES.

ACTIONS against medical practitioners for negligence would appear to be more common in the United States than in the United Kingdom, and, judging from the reports in the last half-yearly volume of the *General Digest of Cases in the United States*, many of them are founded on very flimsy grounds. In a case of Bigney *v.* Fisher, which was heard in Alaska, it was decided that the implied contract of a physician treating a fractured limb is not to restore it to its natural perfectness but to treat it with that degree of diligence and skill which is ordinarily possessed by the members of the profession in similar localities, regard being had to the state of the medical profession at the time. There is nothing new in the principle here enunciated: it might almost be the dictum of an English judge in an ordinary action for malpractices. In another case it was apparently alleged that a practitioner had been guilty of negligence in not visiting his patient sufficiently often. The Court in this instance came to the conclusion that the question whether a physician is negligent in permitting certain intervals to elapse between his calls on his patient depends on the custom in similar localities in the treatment of similar cases, and not upon the custom of any particular physician in his own practice (Tomer *v.* Aiken, 101 N.W., 769). The same case is also cited as an authority for the proposition that the failure of a physician to effect a cure of a dislocated clavicle is not evidence of want of care or skill, where it is shown that the results are not always satisfactory under any form of treatment, and there is no assurance that the bone will permanently remain in place. Where an action for negligence was brought by a father against a physician for failing to diagnose a case of diphtheria, the plaintiff alleged that the diphtheria developed at least two days before the death of the child, during which time she was being treated by the defendant. The defendant contended that the disease did not develop until within twelve hours before the child's death. It was held admissible to ask an expert witness whether it was possible for a child to show no symptoms of diphtheria on one day and develop fatal symptoms on the next (Purcell *v.* Jessup, 91 N.Y.S., 165). The following extraordinary action against a dentist may also be noted. The plaintiff complained of a

"clicking" or disagreeable sound made by the movement of the jaw, said to have been caused by the defendant. The defendant sought to call a number of witnesses to prove that they were similarly affected. It was held that he could not call these witnesses, inasmuch as the plaintiff did not claim that the condition could be produced only by a dental operation (Mernin *v.* Cory, 79 P. 174). The case of Shead *v.* Tomlinson (59 A. 376), which appears to have been tried in Alaska, may also be noted. From that case it would seem that certain American courts actually recognize the Christian Scientist as a physician (of a kind), and in answer to a charge of negligence against such a person will entertain the plea that the defendant acted as a Christian Scientist healer ought to act! In that case the patient, who applied to a Christian Science healer for treatment of appendicitis, was told to keep about the room the same as usual, to eat anything she wanted, and not to lie down. It was held that there being nothing to show that these directions interfered with Christian Science practice, they were not evidence of such deviation therefrom as to render the healer liable for negligence. The standard of care by which a Christian Science healer is to be judged is the care, skill and knowledge of the ordinary Christian Scientist who undertakes to treat diseases according to the method practised by such healer, and not that of the ordinary physician. The Court apparently expressed the view that "the intelligent and voluntary consent to follow "the advice and abide by the result of the prayers of a "Christian Science healer precludes the recovery of "damages for negligence, based on the ground that "public policy is opposed to such treatment."

THE ANNUAL MEETING IN TORONTO.

Information has been received from the United States Customs Service to the effect that instructions have been given to facilitate and expedite the examination of the luggage of members proceeding to Canada through the United States on the production of the transportation certificate to be obtained from the General Secretary of the British Medical Association. Members who have not yet received this transportation certificate are recommended to apply to the General Secretary, 429, Strand, London, W.C., without delay. Members from Great Britain on their arrival at the Union Station, Toronto, are advised to inquire at the British Medical Association Office in the station as to accommodation; a list of hotels, lodgings, and private houses will be kept there, and all information on the subject will be supplied. We may also point out that the registered telegraphic address of the Executive Committee in Toronto is "Stamawis, Toronto," and that telegrams addressed to individuals, care of Stamawis, Toronto, will be delivered to the addresses registered in Toronto. We are requested to remind members attending the Annual Meeting at Toronto that it is understood that the local Executive Committee desires that academic costume should be worn on official occasions.

ANNUAL REPRESENTATIVE MEETING.

NOTES.

The Annual Representative Meeting did not conclude its session until 7.30 on Friday, and it had sat until 6.30 on Thursday. This prolongation of the session may be, in part at least, accounted for by the fact that part of one day was given to the discussion of the proposal to apply for a Royal Charter, and, after that point had been decided, the whole of another was occupied by the consideration of the draft charter and ordinances. We have ventured to discuss in another place some of the considerations raised by the decision of the meeting to proceed with the application for a charter and by certain amendments which have been directed to be introduced into the draft.

After disposing of the charter and the reports of the Medico-Political and Ethical Committees the meeting proceeded to the consideration of certain amendments to existing by-laws. It was first of all resolved that the Annual Representative Meeting should elect at least one-half the members of each standing committee, due regard being had to topographical representation. It was then decided by 41 votes to 40 to divide the Journal and Finance Committee and to institute a separate Finance Committee consisting of the Chairmen of the Organization, Journal, Science, Medico-Political and Premises Committees with eight ordinary members and a Journal Committee of six ordinary members; in addition to the members mentioned the Chairman of the Representive Meeting and the Treasurer would be *ex-officio* members of these Committees as of other Committees. It was also resolved that the Hospitals Committee should have eight ordinary members and the Premises Committee five ordinary members, leaving it to the Committees to decide what should be a quorum. The meeting then proceeded to lay down the duties of these four Commitees. The Council resolved, at a special meeting on Saturday last, July 28th, to take a referendum upon the resolutions embodying these matters, on the ground (to quote the terms of Article XXII) that they do "not "properly represent the wishes of the Association." The reasons of the Council will be published at a later date.

The functions of the Science Committee, a Committee which succeeded the Scientific Grants Committee and has steadily grown in importance, were still further extended by the Representative Meeting. It will in future have charge of all matters concerning the work of the Association for the promotion of medical and allied sciences not specially referred to other committees. It will, for instance, be entrusted with the superintendence of the library and with the duty of assisting the officers of Sections at the Annual Meeting, and the encouragement and assistance of the scientific work of the Branches and of the Association generally.

The medical supervision of children attending elementary schools was one of the matters mentioned in the report of the Medico-Political Committee, and the recent history of the subject, rather fully related in these columns a fortnight ago (p. 156), was briefly stated by Mr. Armit who, in the absence of the Chairman of the Committee, was in charge of the report. A motion moved by Sir Victor Horsley, and seconded by Dr. McManus, was adopted without a division, expressing the meeting's sense of the great benefits which will accrue to England and Wales by the institution of compulsory medical inspection and the establishment of a medical department in the Central Education Office. The Committee was instructed to submit for the consideration of the Divisions a memorandum on the manner in which these two reforms may best be carried into effect.

Upon the subject of the State registration of nurses the Representative Meeting spoke with an almost unanimous voice approving of the principle, condemning the alternative proposal for a "directory," and expressing the opinion that on the Central Nursing Board, when it comes into existence, the medical profession and the nursing profession should be adequately and directly represented; a resolution to this effect was carried by 90 votes to 3, and a rider expressing the view that at least one-half of the members of the Central Nursing Board should be representatives of the medical profession was carried with only one dissentient. As there seems to be some

misapprehension on the matter it may be well to point out that the Lord President of the Privy Council, Lord Crewe, did not say that the Government was opposed to the principle of State registration of nurses, but merely that the Government could not take the matter up during the present session, and could not give any promise with regard to the next session. He further pointed out that what the Select Committee hoped was that State registration would lead teaching institutions to adopt uniform and improved methods of education.

The letters received from the two Lord Chancellors with reference to the conduct of the Coroner for South-West London illustrate in a manner which would be amusing if the matter were not so serious the complexities and uncertainties of our glorious British constitution. The coroner is an official who in the last resort is responsible to the Lord Chancellor, but we here have an instance in which this high officer of the Crown declares himself to be unable to check a certain course of conduct, though both he and his predecessor clearly regard it as, to use a mild expression, founded upon a misinterpretation of the law. The only remedy which the present Lord Chancellor can suggest is an action at law. Such an action, as Sir Victor Horsley pointed out, would raise a very nice question of constitutional law, which would no doubt be very interesting to constitutional lawyers. It would certainly be taken to the House of Lords, and the legal expenses involved can only be estimated by the letter "*x*."

Almost the last business of the Annual Representative Meeting was to pass with acclamation a vote of thanks to Dr. J. A. Macdonald, of Taunton, for his conduct in the chair. Never was compliment better deserved. It was a difficult and a rather nervous task to succeed Sir Victor Horsley as Chairman, but Dr. Macdonald came out of the ordeal well. Strict but not unsympathetic, patient and courteous but yet firm, he soon won the respect of the meeting, and directed its proceedings with a success which has been recognized by every one. Actually the last business was to confirm the minutes, and here a hitch occurred which for the moment was exceedingly embarrassing. It was discovered that there was not a quorum present; some Representatives had got permission to leave, and others it is to be feared had taken French leave. At any rate it turned out that there were only 67 Representatives present, whereas the quorum was 73. The incident was not without its humorous side, but had the Chairman's feelings at the moment found vent in words they might not have been expressed in terms as urbane as those which the meeting had learnt to expect from his lips. However, a volunteer was found who went out into the highways and hotels of Westminster, the missing six to form the quorum were found, the minutes were read, and the Chairman authorized to sign them, and so everything ended happily.

The Irish Medical Schools' and Graduates' Association on July 26th entertained the Council and Representatives of the British Medical Association at a *conversazione* and dance at the Hotel Great Central, Marylebone. Before the *conversazione* took place many of the members dined together at the Hotel Great Central, having as their personal guests Representatives of the British Medical Association. The chair was taken by Dr. P. S. Abraham. The toast of the evening, "The British Medical Association," was proposed by Dr. H. Macnaughton Jones, and was duly acknowledged by Dr. F. J. Smith. The company then adjourned to the courtyard of the hotel, which had been artistically roofed over with canvas and decorated for the occasion, and here the guests were received by Dr. Abraham, invitations having been issued to over 400. The guests found that the Wharncliffe dancing hall had been prepared for a ball, and dancing was kept up with great spirit till the early hours of the morning. The success of the evening was due to the great zeal and energy of the Honorary Secretary, Mr. Canny Ryall.

Medical Notes in Parliament.

[From Our Lobby Correspondent.]

The General Medical Council.—Mr. Bowles asked the Home Secretary whether his attention had been called to the proceedings of the General Medical Council in the recent case of Dr. John Bate Bawden; whether he was aware that, though proved to have committed only a slight infraction of etiquette, which he engaged not to repeat, Dr. Bawden's name had been removed from the *Medical Register* on the ground that he was guilty of infamous conduct in a professional respect; and whether, in view of the power of the General Medical Council to adjudge as infamous any conduct of which it disapproved and the absence of any appeal or other remedy to the victims of such judgements, he was prepared to introduce legislation limiting the powers of this Council to bringing cases of unprofessional conduct before a Divisional Court. Mr. Gladstone replied that he was informed by the Registrar of the General Medical Council that the Council, after a prolonged and careful trial, at which the accused practitioner was present and gave evidence on his own behalf, had come to the conclusion that a grave professional offence had been committed by Dr. Bawden. He was not prepared to introduce legislation on the lines suggested.

Motor Driving and Defective Vision.—Mr. Weir asked the President of the Local Government Board whether he was aware that persons of defective vision were unable to judge distances accurately; and whether, in view of the public danger in the case of persons driving high-speed motors in crowded thoroughfares, such as were common in the metropolitan police area, he would take such steps as may be necessary to prevent licences being granted to persons of defective vision. Mr. John Burns replied that, so far as licences under the Motor Car Act to drivers of motor cars were concerned, there was no power to require any test or qualification before they were granted. So far, however, as relates to licences under the Metropolitan Public Carriage Act to the drivers of omnibuses and hackney carriages in the metropolitan police district, he understood that the police authorities satisfied themselves as to the general soundness of the driver's sight before a licence was given. If any defect appeared a closer examination was made.

The Royal Commission on Tuberculosis.—Last week Mr. Jeremiah MacVeagh asked the President of the Local Government Board if he would state the amount of the grant originally made for the tuberculosis experimental farm at Stansted, Essex; what public moneys had since been expended thereon; and whether he would assent to a return showing how the money was expended; the number of milk-cows and young heifers which had been purchased from the Channel Islands and other places, and how they had been disposed of; the number of animals killed, and the number which had died under treatment; and whether he proposed to allow the continuance of this institution, having regard to the fact that it was locally considered a public nuisance. Mr. John Burns said that he understood that the amounts voted for and expended by the Royal Commission on Tuberculosis included the following sums in respect of the work at the farms and laboratory at Stansted: In 1901-2 expended £1,368; in 1902-3 voted £10,750, expended £9,799; in 1903-4 voted £7,853, expended £7,296; in 1904-5 voted £7,969, expended £8,064; in 1905-6 voted £7,635, expended £7,473; in 1906-7 voted £7,765, and up to date about £2,000 expended. He was informed that the other details asked for in the question would appear in the report and appendix which the Commission now had in preparation. He was not aware of any sufficient reason for suggesting that the work should be discontinued. In answer to another question, put by Mr. Raphael, Mr. Burns

said that he was not aware that any limitation of time was placed by the late Government on the use of the farms at Stansted. These farms were the property of Sir James Blyth, who in the first instance gave the Royal Commission on Tuberculosis the use of them, rent free, for three years, and had since most generously agreed to allow the Commission to continue in occupation on the same terms as long as may be necessary for the completion of their work. He understood that no public footpath passed through either farm, and that, though the main road ran close to both, the infected animals were kept in sheds at some distance from it. Their carcasses were burnt in a specially-constructed destructor, and there was, he was assured, no danger to the public. The present arrangement saved the country a considerable sum each year, and he did not propose that it should be altered.

Special Homes for Poor-law Children.—Mr. Toulmin asked the President of the Local Government Board if his attention had been drawn to the Report for 1905 of the Children's Committee of the Metropolitan Asylums Board, in which regret was expressed at the want of appreciation, by metropolitan boards of guardians, of the homes and schools provided by the Board for certain special classes of children in the guardians' care, namely, those with ophthalmia or ringworm, defective children, or convalescent children needing sea air; and at the failure to secure that every child falling within one or other of the classes in question, should be promptly removed to the institution suited to its requirements: and whether he would urge on boards of guardians the duty of giving the children in their care, who needed them, the advantages of these special homes. Mr. John Burns replied that his attention had been drawn to the passage in the report referred to, and he proposed to address a circular to the metropolitan boards of guardians on the subject.

The Conscientious Objector.—Mr. Seaverns called the attention of the Home Secretary to the case of Mr. Farrow who had been refused a certificate of exemption for his child at Lambeth Police Court, and Mr. Secretary Gladstone said that he was informed that Mr. Farrow stated that he conscientiously objected to vaccination, but refused to give the grounds upon which he founded his objection. The certificate was refused because the applicant failed to satisfy the magistrate, as required by the Act, that he conscientiously believed that vaccination would be prejudicial to the health of the child in question. As he had said in reply to previous questions on the same subject, he had no authority to take action in the matter.

Asylum Attendants and Lunacy.—On Tuesday Mr. George Roberts asked the President of the Local Government Board whether he had yet caused inquiry to be made from the Lunacy Commissioners as to the number of hours worked by asylum attendants, and the percentage of those attendants who ultimately suffered from lunacy; if so, could he state the results of such inquiry; and whether the proposed legislation on the matter. The Home Secretary, who replied, said that information on this subject had been collected by the Commissioners of Lunacy. The particulars of the hours during which attendants were on duty could not well be summarised, but the returns were at the honourable member's disposal at the office of the Commissioners. It appeared that during the last five years 52 attendants and ex-attendants (23 male and 29 female) were known to have become insane; that is to say, that, roughly speaking, in any given year 1 per cent. of the average number of attendants employed in asylums became insane. This figure was slightly in excess of the percentage of insanity in the general population between the ages of 20 and 54. The terms on which asylum attendants were employed was a matter for the Visiting Committee, and he did not propose to introduce legislation on the subject.

Diphtheria at Piershill Barracks.—Viscount Turnour asked the Secretary of State for War how many cases of diphtheria had occurred at Piershill barracks during the last ten years, and how many of such cases were directly traceable to defective drainage at the barracks; and whether he was now in a position to state whether any steps had been taken to acquire a site for fresh barracks at Edinburgh in place of Piershill. Mr. Secretary Haldane replied that there had been five cases of diphtheria during the last ten years, four of which were among children, and none of which were attributed by the medical officers in charge of barracks to any defects of the drainage system. There was no money at present available for the purpose suggested in the last part of the question. In reply to a second question put by Major Anstruther-Gray, Mr. Haldane replied that these barracks were not absolutely insanitary, and that they had not been condemned. In his opinion they were not satisfactory as cavalry barracks.

Specialists in the Indian Medical Service.—Dr. Rutherford asked the Secretary of State for India how many Indian Medical Service officers had been appointed as specialists under the Indian Army Order regarding specialists' appointments in India; how many officers so appointed by the Director-General of the Indian Medical Service had received the special remuneration authorized for such appointments; and how many were natives of India. Mr. Ellis, in replying for the Secretary of State for India, promised to obtain the information and send it to the hon. member.

Cancer in India.—Mr. Weir asked the Secretary of State for India on Monday whether any statistics were now available in regard to the prevalence of cancer in India. Mr. Secretary Morley said that he understood that, in the forthcoming report of the Imperial Cancer Research Fund, certain statistics as to the occurrence of cancer in India, derived from the information supplied by Indian medical officers, would be published.

Prison Medical Officers in Ireland.—Mr. Dillon asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that prison medical officers appointed under 7 George IV, chap. 74, sec. 72, were permanent officers, and as such entitled to pensions under the Paid Officers Superannuation Act; and, seeing that, since the passing of the Prisons (Ireland) Act, 1877, prison medical officers in Ireland had been appointed as temporary officers, and thereby deprived of right to pension and of independence in the discharge of their duties, whether he would state the reason for this change. Mr. Bryce said that the answer to the first part of this question was in the affirmative. Since the passing of the Prisons (Ireland) Act, 1877, such prison medical officers as did not devote their whole time to the service were not entitled to pension. The fact that these officers were appointed for temporary terms did not affect the question of pension, which depended upon the principle now generally recognized throughout the public service that those persons only who devote their whole time to the service of the State were entitled to pension. Prison medical officers in Ireland were appointed for recurrent periods of three years, and no case had occurred in which the appointment had not been renewed at the expiration of the term of three years. There was, he was informed, no ground for the assumption that these officers were not independent in the discharge of their duties.

The Sanitary Condition of Roscrea.—There were two questions asked last week by Mr. Lonsdale and Mr. Corbett as to the water supply of Roscrea and the need for a public inquiry into the sanitary condition of the town. Mr. Secretary Bryce replied that the Local Government Board were aware that in Roscrea No. 2 Dispensary District the water supply was deficient, there being no public supply under the control of the sanitary authority. There was no water supply in the townland of Druma Keenan, where there was a schoolhouse. The local water supply was obtained from streams which were subject to pollution. The Board was also aware that the sanitary condition of Roscrea was not satisfactory owing to its defective sewage system. The Board had already called the attention of the Rural District Council to the necessity for an improved system of drainage, and was about to address them again on the subject. Before considering the question of holding an inquiry the Local Government Board would await the result of their further communications with the district council.

The Lunacy (Ireland) Bill came on for second reading last week, and was withdrawn for the session.

Leeds.

APPOINTMENT OF TEACHERS IN DENTISTRY.

A FURTHER step has just been taken in connexion with the institution of a dental school in Leeds. After a careful investigation of the qualifications of a large number of applicants for various lectureships, the Council of the University, acting through a Special Committee, has made the following appointments: To the position of Lecturer on Operative Dental Surgery Mr. T. S. Carter, L.D.S., R.C.S., has been appointed. Mr. Carter, who was Honorary Dental Surgeon to the General Infirmary at Leeds, has recently been promoted to the consulting staff of that institution, and it is felt that his experience as a dentist and as a teacher will be of the utmost value in the earlier years of the existence of this new department of the work of the University. He will be cordially welcomed on the staff of the University, especially by those members who are his colleagues on the staff of the General Infirmary. Mr. A. G. G. Plumley was appointed Lecturer in Dental Surgery. Mr. Plumley, who holds the diploma of L.D.S., R.C.S., is also a member of that College, and holds the degree of Bachelor of Medicine of the London University. He also holds the post of Honorary Dental Surgeon to the new Dental Department at the Leeds Public Dispensary and to the Clayton Hospital and Wakefield General Dispensary. To the Lectureship on Dental Mechanics and Practical Dental Mechanics Mr. Charles Rippon of Dewsbury has been appointed. Mr. Rippon is Dental Surgeon to the Dewsbury and District General Infirmary, and is at present President of the North Midland Branch of the British Dental Association. Mr. Alan Forty was appointed to the position of Lecturer on Dental Anatomy and Dental Physiology, and the school is fortunate in being thus able to have on its staff one who has recently acted as Demonstrator on Dental Microscopy and Dental Metallurgy at the Dental School of Guy's Hospital. In all probability demonstrators will soon be appointed in connexion with the latter two lectureships.

THE GENERAL INFIRMARY.

Mr. B. G. A. Moynihan, having served the Infirmary as Assistant-Surgeon for a period of ten years, has been appointed Surgeon with charge of out-patients. This is in harmony with the recent rules which were adopted some two years ago and were commented on in the BRITISH MEDICAL JOURNAL of last year, vol. i, p. 998; one of them is to the effect that assistant-physicians and surgeons are appointed for a period of ten years only, and that when they have held office for that time they shall, if they wish to continue to work in connexion with the Infirmary, submit themselves for election for the post of physician or surgeon with charge of out-patients. When an officer receives this promotion it carries with it the succession to any vacancy which may arise on the full staff without the necessity for further election. The following resident appointments have been made: Mr. A. Beeley, M.B., B.S.Lond., M.Sc.Leeds, House-Physician to Dr. Wardrop Griffith; Mr. W. B. Hill, M.B., Ch.B. (Victoria), House-Surgeon to Mr. Ward, and Mr. G. W. Thomas, M.B., B.S.Lond., House-Surgeon to Mr. Lawford Knaggs.

South Wales.

THE WELSH WATER QUESTION.

WELSHMEN, especially those in South Wales, feel grateful to Mr. Donald Maclean, M.P. for Bath, for drawing the attention of the President of the Local Government Board (as reported in the JOURNAL'S Notes in Parliament last week) to the importance of taking such steps as may be necessary to secure a plentiful supply of water to populous centres. Mr. Maclean was prompted to take this step after reading the excellent report prepared some time ago by Dr. Williams, County Medical Officer of Health, on the "Water Supplies of Glamorgan." Mr. Maclean suggested that the matter can only be dealt with adequately by some central and properly-qualified body or department. It is only fair to state that Mr. John Burns's reply showed him to be entirely in sympathy with the suggestions embodied in Mr. Maclean's question. The President of the Local Government Board is a Londoner, and doubtless he has in mind the possibility at no distant date of London moving with a view to passing a Bill enabling it to go to Wales, just as Liverpool did, and divert some of the Welsh streams to the metropolis. Before that is done, however, there will be a strenuous fight, for Welsh County Councils are waking up to the importance of devising means to retain Welsh water for the use of the teeming populations in the Principality. A dry summer or two would go far to convince everybody in Glamorgan and Monmouthshire of the urgent importance of the subject. At Blaenavon, at present, the possibility of a water famine is being brought home to the inhabitants. Their supply at the best of times is not over-plentiful, but this summer the surveyor has cut it down to four hours a day, and told the people that they must exercise every precaution against waste. The Medical Officer of Health went still further, and said that unless they had rain soon there would be a water famine in Blaenavon, and Blaenavon is only one of the many populous places of Monmouthshire. The same danger is, to a lesser or greater extent, present both in Glamorgan and Monmouthshire, and also in East Carmarthenshire, and to cut off the streams which form the natural supply of water for this thickly-populated district is a possibility not to be entertained. To supply London, with its five million of inhabitants, is, of course, a matter of paramount importance, but any proposal to foreclose any Welsh area will be resisted vigorously, and it is believed that the best way to accomplish this is to take the necessary steps to exclude outside bodies from interfering with Welsh areas.

A private conference of the public authorities of Monmouthshire was held at Newport, on July 18th, for the purpose of considering the question of water supply. After discussion, the following resolution was unanimously passed:

> That in the opinion of this conference it is desirable, in the interests of the county, and especially of its industrial districts, that the present sources of supply be conserved, and measures taken for preventing outside companies and bodies from extracting water to which the inhabitants of this county have a natural claim; that the council should promote a Bill in Parliament in the ensuing session with a view of securing a good and ample supply of water for the benefit of the county, and that the members of the council present pledge themselves to use their best endeavours to procure the co-operation and support of their respective councils in support of the Bill.

It was also resolved, in the event of the county council deciding to proceed with such a Bill, to summon another conference.

MEAT CANNING IN SOUTH WALES.

A correspondent of one of the South Wales papers makes the suggestion that meat canning should be done in South Wales. He despairs of pure meat from America, alleging that "the trusts, rings, and combines have no principle save the mighty dollar, and monopolize and manipulate the legislative machinery, wherein bribery and corruption notoriously exist. It would be an infinitely safer remedy were the animals sent alive to South Wales—either Swansea or Llanelly—where a company could be formed with a capital of £100,000 in £1 shares (to begin with)."

MEDICAL OFFICERS AT CARDIFF.

Dr. Ebenezer Davies, of Swansea, presided over the annual meeting of the West of England and South Wales Branch of the Incorporated Society of Medical Officers of Health, held at the City Hall, Cardiff, on July 27th. On the motion of Dr. Bond, of Gloucester, seconded by Dr. William Williams, County Medical Officer of Glamorgan, Dr. J. D. Jenkins, Medical Officer of Health to the Rhondda Urban District Council, was unanimously elected President for the ensuing year. The following were appointed members of the Council: Dr. Bond, Dr. Symonds of Bath, and Dr. E. Walford of Cardiff.

BRITISH ASSOCIATION.

At the forthcoming meeting of the British Association, to be held at York, Principal E. H. Griffiths, F.R.S., in his Presidential Address to Section A (Mathematical and Physical Science) will range over a wide field of subjects. Among other points he will emphasize will be the necessity for close study of the natural history of the elements.

Thus the fact that the amount of radium is strictly proportional to that of uranium in a sample of native rock is of singular significance. His address will also contain a plea for the encouragement of the necessary work of accurate measurement, the importance of which has received striking illustration in some of the more recent scientific discoveries. At the close of the address some general considerations will be submitted respecting the need for a modification of the existing system of examinations, so as to meet the difficulties arising from the increasing magnitude of the stores of scientific knowledge.

Scotland.

Dr. R. McKenzie Johnston.

The announcement of Dr. McKenzie Johnston's resignation of his post of surgeon to the ear and throat department of the Royal Infirmary and lecturer to the University was a surprise to most and a regret to all, but the real explanation is known only to few. Some time ago Dr. Johnston suffered from an affection of the throat which necessitated an operation. It was expected that his voice would soon be as useful as ever, but though it is believed that it will eventually recover, that recovery has not been so speedy as was hoped, and he has found the routine teaching in the out-patient clinics too heavy a strain. Many of his friends thought that arrangements might have been made in the two years which are expected to be required for his practical full recovery, but Dr. McKenzie Johnston believes that he is acting in the real interests of the school by giving up his appointments. The Managers of the Royal Infirmary have elected Dr. Johnston Consulting Surgeon to the department. Probably never has this honour been bestowed on one who has been surgeon in charge for so short a time. The profession, while it loses in one way, will benefit in another, for, instead of giving the time available from private practice to hospital work, Dr. Johnston will devote his spare time to serving the profession in other ways. He has inherited all the talents of his family in business capacity and balanced judgement, and as Secretary of the Royal College of Surgeons of Edinburgh, as a member of the Edinburgh University Court, of the Council and chief committees of the British Medical Association, and as a Director of the *Scottish Medical and Surgical Journal*, he will have an outlet for the surplus energy which he has hitherto devoted to teaching students.

Royal Army Medical Corps (Vols.), Aberdeen.

The Aberdeen companies went into camp near Netley Hospital on July 21st. The corps to the number of 250 will receive a fortnight's training this year. The companies are under command of Captain Kelly, and the other officers in camp are Captain Ogston, Lieutenants Smart and Noble, and Quartermasters Cromar and Duthie. The Aberdeen companies were inspected a few weeks ago by Colonel Corker, P.M.O., Scottish Command. On that occasion the force was drawn up as a "field ambulance," the new unit of the Royal Army Medical Corps, and after an inspection extending over several hours Colonel Corker expressed himself as well satisfied with the work done.

The New Laboratories, Glasgow University.

Great satisfaction is felt that the Prince of Wales has agreed to open the new science buildings. The ceremony is expected to take place in the spring of next year, but no date has been fixed. The new laboratories for natural philosophy have been in use during the summer session, though they are not completely out of the workmen's hands. Advantage was taken of the increased accommodation to institute a practical class in elementary physical methods for medical students. The medical buildings, comprising the departments for physiology, pharmacology, and public health, are not so far advanced. Interior work on the physiology building is meantime at a standstill pending the appointment of a successor to Professor McKendrick.

Cerebro-spinal Fever in Glasgow.

In terms of the Infectious Disease (Notification) Act the Corporation of Glasgow, as local authority for the city and borough of Glasgow, have decided, in accordance with the recommendation of the medical officer, as noted in the British Medical Journal of June 30th, to include cerebro-spinal meningitis among the list of diseases compulsorily notifiable. The disease has been gradually spreading in the district. The first case was admitted into hospital in March, and since then 69 cases have been admitted. The infection is of a severe type, as no less than 48 of these cases have died. There have, in addition, been some fatal cases treated at home. The majority of deaths have occurred in children under 10 years of age. In fact, the epidemic is chiefly confined to young children, and few cases have occurred in adults. The distribution of the outbreak is peculiar. It is almost confined to the Eastern and Northern wards. The disease will be notifiable until July 31st, 1907. The disease has also been made notifiable compulsorily in Lanarkshire for the next two years.

Ireland.

The Irish University Question.

It is well known that there is not a complete agreement among Irish Roman Catholics on the subject of University education. There is a very powerful Committee of laymen whose labours are at present directed to seeking a solution which will be acceptable to those they represent and to the Bishops. In view of the approaching inquiry into the working of Trinity College these gentlemen have formulated their suggestions and forwarded them to the Secretary of the Commission, which will begin its sittings in October. These proposals have taken this form:

We, the undersigned Catholic laymen desire to place on record our conviction that no solution of the University difficulty in Ireland, based upon Trinity College being constituted as the sole College of a National University, can be accepted as satisfactory so long as it fails to provide for:

1. A substantial representation from the start upon the governing body with the power of expansion of such representation dependent upon, and fairly proportionate to, the number of students whom Catholics send into the College and the academic distinction which they may therein win.
2. The establishment of dual professorships in at least mental and moral science and in history.
3. The religious instruction of our students by clergymen of our own Church.
4. The establishment of a Faculty of Catholic Theology in terms of full equality with those enjoyed by Protestants.
5. The establishment of a chapel for our students within the College.
6. The erection of a Council or other body to secure the practical efficiency of the safeguards for our students in religious faith and dogma.

A prominent member of the committee—Mr. George Fottrell—recently approached Archbishop Walsh on the subject, and presented him with a copy of the above document. A correspondence has followed, and appears in the morning journals.

Archbishop Walsh writes to Mr. Fottrell disapproving of the views of the laymen, and says:

Events have moved rapidly of late in the direction of a settlement which I have always favoured—that is, letting T.C.D. alone, and setting up in the University of Dublin a second college. That is a plan which can be worked out with perfect safety and perfect justice to every interest involved.

But outside all this, it is workable, which the scheme outlined in the paper which you left me is not. With the latter, for instance, I, for one, could have nothing to do. I can say the same of every Bishop in Ireland. And even if *per impossibile* we were willing to take it up, the Holy See would undoubtedly at once put us under an injunction to have nothing to do with it.

Mr. Fottrell replies that he thought the Archbishop was unaware of the fact that "a document had been drawn up, and had on the previous day been signed by some of the Fellows and professors of Trinity, in which, on behalf of that body, an offer was made to assent to all the terms set forth in the paper which" he had handed to him (Archbishop Walsh).

Mr. Fottrell further says he had been in favour of the second scheme, of establishing within the University of Dublin, and side by side with Trinity College, another college, which should be for Irish Catholics what Trinity College has hitherto been for Irish Protestants.

Within the last month events have taken place which have seriously modified this belief, and with the evidence (at present available) before me it seems to me now that the most attainable solution is that which for facility of reference I shall call the "Bonn University" Scheme, the scheme, namely, which would not establish a second college within the University of Dublin, but which would revolutionize Trinity College, and which, while securing effective safeguards for our religion, would enable us Irish Catholics to win our share of the worldly advantages which that institution, with its prestige of antiquity and its huge revenues of over £70,000 a year, can yield to us.

But although this is at present my belief, I am not irrevocably wedded to it. I still keep my mind open, and reserve my right to support the "Second College" Scheme, as against the "Bonn University" Scheme, if it can be shown to me that it is the more attainable of the two.

In short, as between the two schemes, the question seems to me to be one of opportuneness and not of principle.

It will be seen, then, that at the threshold of the inquiry there is a considerable difference between the ecclesiastical and the lay sections. The difficulties are well known, and primarily they lie in the methods of government which may be proposed in the new order of things.

It is very certain, also, that other important questions will be raised before the Commission. The relation of professors in the Trinity College Medical School to the Royal College of Physicians and to Sir Patrick Dunn's Hospital will be opened up. It is contended that these relations practically make the Trinity Medical School a close borough, and that such a state of things is not tolerable in these days of increasing liberality.

The "Board," which is now composed of "Senior Fellows" who reach their exalted position by the lapse of years, will certainly be modified. It has long been complained that the members are of an age which decreases their activity and their progressiveness; that important interests are represented by chance or not at all; and that the presence of some younger men, to be chosen by election, is urgently needed.

Another proposal will be to abolish the annual examination for fellowships and to adopt the plan followed in the older English Universities.

Altogether the inquiry will be interesting. Whether it will be productive of the best results is another matter.

Since the foregoing was written, certain Fellows and professors of Trinity College have published outlines of a scheme which they have forwarded to the Royal Commissioners. The purpose is to make such changes as would induce Roman Catholic students to enter Trinity College in larger numbers. The suggestions may be thus set out:

1. An advisory committee of six, four of whom shall be laymen, who shall have certain defined duties relating to the faith and morals of Roman Catholic students. They shall report to the governing body on matters relating to the duties assigned to them.
2. If the advisory committee so desire, second professors shall be appointed in mental and moral science and in history, subject to the veto of the committee.
3. Provision shall be made for the religious instruction of Roman Catholic students by clergymen of their own church. Should the Bishops so desire, a Roman Catholic chapel shall be erected within Trinity College.
4. A Faculty of Theology, under the direction of the Roman Catholic Bishops, shall be established if desired.
5. Provision to be made for students of other religious denominations.
6. Immediate representation of Roman Catholics' interests on the governing body to be provided. The present Board shall be replaced by a new governing body, mainly elected. There shall be a nominated electoral body of fifty, of whom forty at least shall be laymen, who shall, during a transitional period of twenty-five years, have the right to elect 25 per cent. of the governing body, exclusive of the Provost, the first fifty to be named as part of the settlement, and vacancies to be filled by co-option. At the end of twenty-five years this body shall cease to exist, and the seats on the governing body up to that time occupied by their nominees shall be distributed amongst the other bodies entitled to representation.

There might be the following additional electoral bodies:

(*a*) A body consisting of the Fellows and Professors of longest standing.
(*b*) A body consisting of the remainder of the Fellows and Professors.

N.B.—The question what professors should be included in (*a*) and (*b*) is left undecided; but it is not intended to include in them professors appointed under private trusts.

It is evident that Roman Catholics must, for a number of years, be in a minority among the more senior of the Fellows and Professors: hence some such division would serve to give due weight to the votes of Roman Catholics who, during the transitional period, obtained Fellowships or Professorial Chairs.

(*c*) Another Body, consisting of those who obtain Senior Moderatorships in and after 1912, by which time, if the scheme be a success, it may be assumed that a large proportion of Senior Moderatorships will have been obtained by Roman Catholics.

7. The Cecilia Street (Catholic University) Medical School to be brought into the proposed settlement.
8. No appointments to teaching posts, except in theology, or to those endowed under private trusts, should be made by external and independent bodies.

ROYAL UNIVERSITY.

At the last meeting of the Senate of the Royal University rules were adopted which it is believed will enable the authorities to deal with cases of improper behaviour, within the University, on the part of graduates or undergraduates.

CORK SANATORIUM FOR CONSUMPTION.

It is exceedingly probable that Myshall, the site originally offered free by Mr. Barter, will be that selected eventually for the proposed sanatorium for consumption. The Mount Massey site having been found unsuitable for the purpose, the County Cork Joint Hospital Board met, and having received the report of the Subcommittee appointed to visit the sites at Myshall and Kildinan, passed the following resolution:

> That Myshall be considered a suitable site for a sanatorium, and at the same time we recommend that the Board empower Mr. Evans, C.E., to call in the assistance of a consulting engineer in order that the sanitary authority of the city may be satisfied that the drainage will not interfere with the river water of the Dripsey River, which helped to supply the city of Cork.

DR. DARNELL'S EXPENSES IN TUGHAN *v.* DARNELL.

The following further subscription has been received to aid in defraying Dr. Darnell's expenses in the case of Tughan *v.* Darnell:

	£	s.	d.
Sums already acknowledged... ...	347	10	6
Dr. J. Mellroy	1	1	0
	£348	11	6

LIMERICK UNION AND MEDICAL OFFICERS.

Through the intervention of the Irish Medical Association, the Limerick Board of Guardians have consented to the payment of the increased salaries to their medical officers at the end of June last. The Association threatened legal proceedings, and requested the guardians, if they declined to pay the increase, to name a solicitor to accept service of a writ to compel payment. After some discussion at the Board meeting, it was proposed by a member that the increases be paid as sanctioned by the Local Government Board. Eventually a resolution to this effect was carried.

New South Wales.

AMENDMENT OF THE PUBLIC HEALTH ACT.

THE Board of Health has found by practical experience that the Public Health Act, which was passed ten years ago, is seriously defective in many particulars. The Board has directed the attention of the Premier to the urgent necessity that exists for introducing an amending Bill during the approaching session of Parliament, and has reminded him that several amending Bills of a partial character have been drafted during the past five years, but none have become law. The directions in which amendments are required are as follows:

1. Improvement and simplification of procedure.
2. Improvement of the status, tenure, and instruction of sanitary inspectors, with part payment of their salaries from the Consolidated Revenue Fund.
3. Establishment in all municipalities of a sanitary fund, to which cost of carrying out the health laws would be charged.
4. A general building law.
5. Revision of the adulteration part, with especial reference to the protection of the retailer by mention of his supplier in all proceedings, simplification of the method of transmitting samples from country places to analysts so as to avoid unnecessary expense and extend the operation of the Act, and the

conferring of power on the Board to put up pure food standards, disregard of which should be made an offence.

6. Amendment of the Dairies Supervision Act so as to permit local authorities to charge a small fee for registration, the same to be applied to costs of carrying the Act out, power to require notification of dangerous diseases of cattle, power to prevent the delivery of skim-milk from factories to breeders until it has been boiled, which is regarded as the most important means of preventing tuberculosis in calves and pigs, as well as other amendments.

7. Amendment of the nuisances part of the Public Health Act in procedure, and in other very necessary respects.

8. The making of occupiers responsible for keeping their property free from infestation with rats, as a preventive of plague.

Inspection and Supervision of Meat Supply.

In consequence of the revelations in connexion with the meat packing industry in Chicago, the Premier called for a report from Dr. Ashburton Thompson, President of the Board of Health, on the condition of the local meat trade and the system of inspection and supervision. This report states that the Central Board of Health directs the inspection of meat over the whole of the State, whether for home consumption or for the export trade. It derives its power from:

1. The Cattle Slaughtering Act, which regulates establishments and methods in sanitary respects.

2. From the Diseased Animals and Meat Act, which forbids the selling, consignment, or exposure for sale of (*a*) diseased animals and (*b*) diseased and unwholesome carcasses and meat.

3. The Sydney Abattoir Act, which places that establishment under the Board's management and direction in all respects.

Inspection is regularly carried out at the Sydney abattoir, at freezing and canning works in the metropolitan district, at private slaughterhouses in the metropolitan district, at freezing works and private slaughterhouses in country districts all over the State. Before reaching the slaughterhouses animals are inspected on the hoof in the metropolitan district by the chief veterinary inspector and his staff; in the more important country districts by the police. If evidently diseased animals are penned for sale legal proceedings are invariably taken against the consignor and vendor; if penned animals are considered to be not certainly healthy they are killed under supervision, and dealt with after slaughter. The Board, while not adopting the rules by which public health bodies in England regulate condemnations for tuberculosis, requires total seizure of all carcasses affected with tuberculosis unless the evidence of the disease is strictly limited to a single group of glands; but pigs are totally condemned, even if they show only localized disease in the pharynx, and appear to be otherwise sound. At the Sydney abattoirs the Board supervises annually the slaughter of from 750,000 to 1,500,000 sheep, 80,000 to 100,000 beeves, and 70,000 to 90,000 swine, of which a large proportion is for export. At the freezing works in the metropolitan district there is freezing capacity for about 300,000 carcasses of mutton, and storage room for about 278,000. All these places, according to the latest reports by the medical officers of health, are in an excellent state. Under this system of supervision by Government, no important branch of trade can escape, and its effective application is secured by the constitution of the central authority.

Bubonic Plague.

Some two or three sporadic cases of plague have been reported during the last month, and a report presented to the Board of Health at its last meeting showed that among the rats bacteriologically examined four were found to be plague-infected. These all came from the neighbourhood of the Darling Harbour Wharf, which was pronounced to be in a very bad state of repair, and although attention had been repeatedly drawn to it, nothing has been done.

Royal Prince Alfred Hospital.

At the last meeting of the Board of Directors of the Royal Prince Alfred Hospital, a scheme for the allocation of beds in the hospital, when the remainder of the wards will be opened, which had been submitted by the executive officers and approved by the medical staff, was adopted. The chief features of the scheme were that the new pavilions, in which there will be two large operating theatres, be used almost exclusively for surgical cases; that two separate children's wards, for medical and surgical cases, be provided in the basement of the old operating block, and that one ward of 32 beds be always held in reserve for cleaning and for emergencies. The scheme provides for the following accommodation in the completed hospital: Male medical cases, 70; female medical cases, 62; male surgical, 93; female surgical, 50; gynaecological, 32; eye, ear, nose, and throat, female 14, male 18; lock (female), 20; emergency, male 10, female 10, children 28; receiving wards, 4; cottages (insanity and infectious), 12; special wards, 10; private wards, 4; reserve ward for cleaning, 32; total, 469. It was also resolved by the Board to appoint a staff of eight masseuses, two each of whom will attend at the hospital on two days of the week, while two will assist the honorary medical officer in charge of the department. Three masseurs will also be appointed to attend at the hospital on the same days as the masseuses.

SPECIAL CORRESPONDENCE.

VIENNA.

Proposed Regulation of Prescribing.—Limitation of Experimental Treatment in Hospitals.—Regulations Concerning Dangerous Colours, Enamelling, and Bread Baking.

The Vienna Medical Council is preparing a Bill to be brought before the meeting of the Union of Medical Councils with a view to regulating the present way of dispensing written prescriptions. It is a fact that some druggists do not hesitate to dispense ten or twenty year old prescriptions, whilst drastic or dangerous drugs are also sold at very short intervals. This may be stopped by the physician adding the note "Ne repetatur" to his prescription, but this is very inconvenient in some places. The following propositions have therefore been made: Every prescription shall be valid only for three years from the date it is written, and after the date must be added "Ne repetatur tres annos post." Prescriptions containing strong drugs are to be valid only for one year. The fact of the presence of strong drugs should be made known by the affix "Ne repetatur post unum annum." In order to prevent abuse of prescriptions the name and abode of the patient are to be inscribed. Persons suspected of the morphine habit should be reported to the Central Board of Apothecaries, which in its turn will inform the druggists, warning them to be careful in dispensing prescriptions for such persons. Prescriptions signed by foreign medical men will be valid only in health resorts and on the frontier.

An ordinance of the Minister of the Interior calls attention to cases in which hospital patients have been the subjects of experimental treatment, and demands special precautions during such proceedings. All hospital directors are advised in this ordinance to keep themselves informed of any such treatment as may be in progress. The director of each clinic or each ward is to be held responsible for harm arising. Further, minutes of the treatment and of its object must be preserved. If possible, the patient, who, as the ordinance puts its, has placed his faith in the fact that he will be cured or improved by the safest and quickest method, should be informed of what is being done. Dangerous methods must be first practised on animals, and the human subject as rarely as possible be the subject of hitherto unknown proceedings. If positive harm results compensation and damages may be claimed. Only if an inactive or expectant treatment is fraught with danger should experimental treatment be adopted.

The present Minister of the Interior is taking a great interest in matters relating to social welfare and medicine, and is always on the look-out for improvements. Thus three new regulations have been quite recently published. The first deals with the use of colours in articles of everyday use and in food. Since the time when aniline dyes were pronounced dangerous to the health (1891) technical progress has enabled the manufacturers to turn out pure dyes, free from all dangerous admixtures. Thus the new "code" allows of the use of certain pure colours for toys, papers, cosmetic preparations; but compositions containing lead, arsenic, mercury, antimony, zinc, picric acid, copper and lead acetate are forbidden. Food

may be coloured (sweets, caramel, pastry, jam) if the colour is not intended to hide any unwholesome taste or appearance. Candles for Christmas, artificial flowers, tapestry, and articles of underwear and clothing must not be dyed with any one of the dyes mentioned above. The enamelling of household utensils is also brought under the influence of the aforesaid Act. Measures for solid or liquid food, cooking utensils, papers used for packing coffee, tea, chocolate, or sweetmeats, wrappers for tobacco, must be free from all admixture of antimony or zinc. The coating of kitchen pots must be of such material that it will not be dissolved or affected by the acids and alkalis used in cooking, and at the usual temperatures. The last ordinance has for its object the checking of the spread of actinomycosis, several cases of which have been reported recently, evidently originating from one source. In the country bakeries there is in force a method of wetting the bread just before and just after putting the dough into the oven by means of straw bundles dipped in cold water. As these straw bundles may easily be contaminated by the presence of actinomycosis, every baker is ordered to have these straw bundles disinfected by boiling them in water for at least half an hour, and drying them in the sun. Leaflets containing a brief but clear explanation of the disease and the necessity of precautions are being distributed amongst the country bakers in order to ensure widespread knowledge of the facts.

CORRESPONDENCE.

ORAL SEPSIS IN SCARLET FEVER.

SIR,—Dr. Frederick Thomson's second letter brings out as nothing else could have done the extraordinary and hardly credible degree to which this subject has hitherto been neglected. One sentence of eleven words in which the condition is not mentioned, from a German treatise of 1902, in which the subject of the teeth or of sepsis connected with the teeth is nowhere noted, represents the sole evidence he adduces from a literature of 200 years of the degree of observation and "particular attention" given to a condition which I now assert to be the most prevalent, the most proximate and the most overlooked source of septic infection in this disease. It is a truly remarkable record of particular attention, and if Dr. Thomson is satisfied I have nothing more to say.

My statement of oversight was met by Dr. Thomson by the counter-statement that "particular attention has for many years been paid to the condition of the gums and the teeth in all cases admitted into the Asylums Board hospitals" in London, and he implied that similar attention had been given to the matter by others.

I asked him to justify that statement and that implication by any evidence it was in his power to produce, either from his own records or by referring to any papers or treatises on fever where even mention was made of the pre-existing septic state of the teeth or gums as a possible source of septic infection in this disease.

The challenge could not possibly have been made a wider one, for the disease is always with us, its literature is most extensive, and its septic complications are notoriously most common and most dangerous. In reply, Dr. Thomson has not adduced any evidence from his own experience either in confirmation or refutation of my conclusions; and, as I expected, he has failed to produce even one single instance of the mention of the condition. Moreover, from a literature extending over 200 years he has only been able to adduce one short sentence of eleven words, from a German treatise, date 1902, which even by implication may be held to refer to it, and, according to his comment, apparently does include all that is necessary with regard to the subject!

The sentence is to be found in Professor von Jurgensen's article on Scarlet Fever in Nothnagel's *Encyclopaedia of Practical Medicine*, 1902, p. 614, and is the following:

"Great emphasis should be laid upon the care of the mouth." "He does not state why," adds Dr. Thomson; "I presume, because he regards the reason as obvious"! (As a matter of fact, he gives 16½ pages of obvious reasons connected with the mouth, throat, tonsils, and pharynx, why care should be taken, but none of these include any reference to the teeth, or to the sepsis associated with them.)

That sentence was before me when I wrote the challenge in my last letter, and I confess I half expected to have it sent back as a reply. Taken with its context, and with Dr. Thomson's comment on it, it is the fullest justification of my statement of oversight that could have been adduced. For that sentence is from an article on scarlet fever, perhaps the most detailed and complete of any in the literature, extending to 244 pages, and containing the most minute consideration of every feature of the disease. The portion dealing with "Pathology" extends to 30 pages; that dealing with "Consideration of the Symptoms" extends to no less than 123 pages—16½ pages of these being devoted to the subject of the "Involvement of the Pharynx and Oral Cavity," 6 to that of "The Nasal Cavities, the Ears and Eyes," and 14 to the involvement of "The Lymphatic System." Altogether a total of 36 pages is devoted to those parts most subject to septic complications—"the conditions," Jurgensen expressly notes, "that so often cause death. In contrast to them the actual danger of the scarlatinal infection retires into the background."

Moreover, he is greatly concerned about the source of these septic infections and their inexplicable occurrence. He is compelled, finally, to connect their "variations with the locality and time," and to ascribe to this circumstance "the variety of view among different observers, among whom we see our best men, some supporting one view, some another." None of these different views, however, include a reference to the source of infection—the most constant and the most proximate of all, namely, the sepsis associated with caries and gingivitis.

Nowhere in the whole account, from first to last—not even in that portion dealing with the pharynx and oral cavity (where emphasis is laid on everything, even on infection by the thrush fungus)—is there any mention of the teeth and gums; no mention of pre-existing sepsis connected with them as the possible source of the septic infections to which he draws attention; not even any mention of the condition of the teeth in any of the cases he so fully describes! And yet the conditions often met with are thus described by one of Dr. Thomson's own colleagues (1904):

> Dr. Goodall said he was much interested in one point in particular mentioned by Dr. Hunter—namely, the relation of the severity of the angina to the condition of oral sepsis present. He had made no special study of the point, but he could testify to the shocking state of the teeth of not only the children, but also of the adults who were treated in the Eastern Hospital. In examining statistics recently for another purpose, he found that the severer forms of scarlet fever angina were more common in the older than in the younger children; speaking from memory, in children over 10 years of age, rather than under 10. He had constantly seen suppuration around temporary teeth, and was quite prepared to accept what Dr. Hunter had said on this point.

—I am, etc.,

London, W., July 30th. WILLIAM HUNTER.

THE BACTERIAL VACCINE TREATMENT OF CANCER.

SIR,—In the BRITISH MEDICAL JOURNAL of July 28th, page 214, you have inserted under the heading, The Serum Treatment of Cancer, a long annotation dealing with a report contributed by Sir A. E. Wright and myself to the Laryngological Society of London on June 1st, and reprinted in the *Journal of Laryngology*. You have thus brought before the general body of the profession matter which, not having passed beyond the tentative stage (as far as cancer is concerned), was only communicated now to a society of experts, and only to them, in the words of our report, "in case unfavourable changes should intervene before next session."

As the surgeon in charge of the case in question at St. Mary's Hospital (though—a somewhat unusual occurrence—my name was omitted from your commentator's account), I trust you will find space for these few remarks.

Imprimis, the title selected does not convey accurately to the profession the nature of the treatment being investigated, and will, if allowed to pass without protest, tend to keep up the mental confusion present in some commentators—and others. The injections made by Wright, being an emulsion of a sterilized and enumerated pure culture of a specific bacterium, should be referred to, as in the title of our report, as the "bacteria vaccine" treatment.

Why, then, call it "serum" treatment?—a complete misnomer. In this as well as in all the other cases in which we have collaborated no serum is used at all. This is not only a question of nomenclature, for the *rationale* of the two methods is quite distinct, and their essential difference should not be ignored, at least by any one presumably writing for the information of the profession, and especially in our highly valued and scientific journal. Let me make it plain, therefore, for the information of your commentator, as well as others who have not followed the trend of modern thought and work, that in the serum treatment animal serum from an extraneous source hypothetically charged with protective substances (antitoxins or antibacterial substances) is injected in comparatively massive quantities in the idea that those substances will neutralize the products of vital activity (toxins) of the invading pathogenic bacteria, or bring about the destruction of the latter. On the other hand, in the bacterial vaccine treatment minute doses (a few minims) of a pure bacterial culture are used with the idea of exciting the body tissues of the host to the production of antibacterial substances (opsonins, agglutinins, etc.)

The brilliant results of Sir A. E. Wright in staphylococcic, pneumococcic, coli, and other infections are well known, and need no words from me, but his lucid demonstrations to his colleagues, the convincing arguments he bases on them, and his admirable technique are beyond all praise, and have gained their complete confidence. From the comparatively humble standpoint of the clinician, I have felt it a great privilege to systematically collaborate with him both in finding suitable cases, facilitating arrangements for treatment, and in watching results in patients attending my department, and this more especially in cases of inoperable cancer of the throat.

The throat department of a general hospital affords an admirable field for that purpose. It is true that most cases afflicted with this disease apply only when in an advanced stage of the affection, and are too ill to be treated as out-patients, and bed accommodation is very limited. In another group the trouble is so localized that it is amenable to radical surgical procedures. There is always a residuum which no treatment hitherto known is calculated to improve, and in which Wright's methods offer a possibility of improvement which I have seen materialize, if regular attendance can be provided for.

May I add that now two months have elapsed from the date of our report, and that our veteran is still going strong, with no retrogression in the state of his throat or neck? Further, that among several others attending the hospital there is one more case in which the improvement is almost equally marked as in our first patient.

Under these circumstances, I feel it my duty, in the best interest of these sufferers, to employ all the resources of the department I have had the good fortune to conduct for the last eighteen years in promoting this work.—I am, etc.,

London, W., July 30th. ROBT. HY. SCANES SPICER.

*** The great feature of the original article, which was dwelt upon in the annotation, was that the laboratory researches of Professor Wright, into the differential diagnosis of the micrococcus and the opsonic and agglutinating power of cancer patients in respect to it, had been the means of putting on a scientific footing a method of treatment which, in the hands of Dr. Doyen, had been little better than rough guess-work. The fact that the case was treated in the Throat Department of St. Mary's Hospital was mentioned, and Dr. Spicer's name ought to have been given as the surgeon in charge of that department. For this omission and for the inadvertent use of the word "serum" in the title we desire to express regret.

THE BY-EFFECTS OF HYSTERECTOMY AND OOPHORECTOMY.

SIR,—I have read with great interest Mr. C. J. Bond's Inquiry into Some Points in Uterine and Ovarian Pathology in Rabbits. The author's conclusions as to endometrium tissue exercising special functions appear to me to be very important. Zweifel and Abel announced seven years ago that they had followed up a series of cases of conservative subtotal hysterectomies, and found that when the entire body of the uterus was amputated atrophy of the ovaries left behind always followed, so that within three years troublesome menopause symptoms set in, just as is often observed after removal of both ovaries. Yet in three instances under Abel's observation a portion of the endometrium or uterine mucous membrane was saved, and it happened that the patients all continued to menstruate and were all free from flushings and other neuroses.

In November, 1905, I read before a meeting of the Obstetrical Society of London a communication entitled "Subtotal Hysterectomy: After-histories of Sixty Cases." My experience seemed to support the Abel-Zweifel theory. Those who are interested in the subject will find my monograph in the forty-seventh volume of the *Transactions of the Obstetrical Society of London*, p. 363. I need not enter into the qualifications which I opposed to the direct advantages of leaving ovarian tissue and endometrium. It is not necessary for me to defend or attack the "horrid expression subtotal hysterectomy," as stigmatized by a distinguished obstetrician. Again, I am not called upon to comment on the instructive and justifiable criticisms which may be read in the report of the discussion on my conclusions. It remains that, taken as a whole, those patients in my series did best in whom I had spared, not only one or both ovaries, but also some endometrium. In surgical language, then, it is best to amputate the uterus a little above the os internum. The results in some more cases in my operative practice since the publication of my experience of sixty patients with after-histories not under two years in length are similar.

I must further point out that in two cases where I thought it advisable to remove both ovaries, but amputated the uterus above the os internum, so that some endometrium was left behind, the menopause was neither immediate nor complete. The menstrual blood must have proceeded from the endometrium, at least in part.

I therefore can well understand Mr. Bond's theory that the endometrium has a function, and according to my experience the retention of some endometrium is beneficial as that function, some kind of stimulation of the internal secretion of the ovary, is not suddenly suppressed. On the other hand, I admit that there are disadvantages in amputating the uterus above the os internum or even in saving any part of the cervix. For that reason I should be deeply interested in reading the after-histories of fifty or a hundred cases of panhysterectomy for fibroid, prepared after the manner adopted in my own reports, based on a previous publication by Dr. Crewdson Thomas. For it is not sufficient for us to be successful in removing uterine fibroids by some brilliant new method or by some well-tried and relatively easy operation. Recovery from hysterectomy for fibroid disease is not all that the patient seeks. She wishes ease and she does not always get it. What are the essential factors whereby we may insure her against loss of ease? We do not know, but the preservation of some ovarian tissue is certainly advantageous if not essential, and the experience of Abel, Zweifel, and myself, coupled with the result of Mr. Bond's researches, tend to show that the endometrium is a physiological factor to be respected by the operator.—I am, etc.,

London, W., July 23rd. ALBAN DORAN.

AORTIC INSUFFICIENCY.

SIR,—The cases which Dr. Seymour Taylor cites in his interesting and instructive paper (BRITISH MEDICAL JOURNAL, June 23rd, p. 1461) constitute a valuable lesson of which we cannot too often be reminded, namely, that to prescribe digitalis in aortic regurgitation is to undertake a very grave responsibility. His explanation of the untoward results which so frequently follow this practice does not, however, seem to be sufficient. We must, as Dr. Theodore Fisher suggests (BRITISH MEDICAL JOURNAL, July 2nd), learn to distinguish between aortic insufficiency of rheumatic origin and aortic insufficiency which is secondary to a degenerative process in the ascending aorta. In the former case, if certain rules are rigidly observed, digitalis is not only harmless, but it is occasionally immensely helpful; in the latter, it is never anything short of deadly. The reason of this is sufficiently plain when we remember that digitalis not only strengthens the systole and prolongs the diastole but strongly contracts the arteries in the systemic periphery, thus raising the general blood pressure.

Now, disease in the ascending aorta is almost invariably associated with high arterial tension (in the majority of cases it is actually caused thereby), so that to exhibit a drug which has for one of its effects a still further increase of this tension is obviously to provide the last straw in the burden of the already labouring heart. That fatal consequences should ensue is not, therefore, surprising. I do not suggest that the prolongation of the diastole plays no part in bringing about these results, but I do submit that the increase of arterial tension is the real causative factor, and that where, as in the rheumatic cases, there is no undue rise of blood pressure, the prolongation of the diastole is comparatively harmless, if suitable precautions are observed.

The only one of these precautions which it is necessary to mention here is that the patient should be confined to bed. The sole justification for prescribing digitalis in a case of aortic regurgitation is afforded by unmistakable evidence that the myocardium is failing to contract properly, and when this occurs, rest in bed is the first and most important indication. If the patient is not ill enough to be confined strictly to the recumbent posture, he is certainly not ill enough to be given digitalis.—I am, etc.,

London, W., July 20th. LEONARD WILLIAMS.

THE ETIOLOGY OF INFANTILE SCURVY.

SIR,—Dr. Still's lecture on infantile scurvy[1] is most interesting, and contains a great deal that is new, to me at any rate. But, though it is venturesome to disagree with Dr. Still, I must express dissent from the opinion that infantile scurvy is a food disease, at least in the sense of being purely a food disease. Four questions occur to one:

1. How is it that the innumerable children who are fed on bacon, kippered herrings, dirty crusts of bread, and other articles that are no more antiscorbutic than patent foods, have provided Dr. Still with no cases of the disease?

2. How is it that so small a proportion of those fed with patent foods develops the disease?

3. How is it that the best treatment of the disease is not the adoption of a perfect diet, but the use of a diet that is not suitable to healthy children?

4. Why have patent foods been given to those children who develop the disease on them?

The answer to this last question points to the explanation of the matter. The reason is twofold: (1) The mother has (usually) been unable to nurse her child; and (2) the child has been unable to digest fresh diluted cow's milk. Thus there have been both a family (I avoid the word hereditary) abnormality, and also a personal abnormality. In other words, there is a predisposition that plays quite as important a part as bad feeding, of which indeed it is the cause.[2]

The children have not as a rule been wrongly fed; they have probably been fed in the best way possible under the circumstances. Their mothers have been unable to provide them with the best food, they themselves have been unable to digest the second best, and so it has been necessary to fall back on the third.—I am, etc.,

Tunbridge Wells, July 30th. P. C. SMITH.

THE PREVENTION OF DIFFICULT LABOUR.

SIR—Until "normal labour" can be satisfactorily defined there will always exist a difference of opinion as to when interference or help is required. "Meddlesome midwifery is bad," but a masterly inactivity is equally so. When Nature fails art must step in. If the diagnosis is to be left altogether to the midwife, another source of revenue to the general practitioner (whose income is already sufficiently depleted) will vanish. This consideration alone should make professors and teachers think twice before promulgating such erroneous doctrine, which the midwife will be only too glad to take advantage of if allowed.—I am, etc.,

London, W., July 30th. ALEXANDER DUKE.

[1] BRITISH MEDICAL JOURNAL, 1906, vol. ii, p. 186.
[2] BRITISH MEDICAL JOURNAL, 1905, vol. i, p. 495.

OBITUARY.

E. NOBLE SMITH, F.R.C.S.EDIN., L.R.C.P.LOND.,

SENIOR SURGEON TO THE CITY ORTHOPAEDIC HOSPITAL, LONDON.

WE announce with much regret the death of Mr. Noble Smith, which occurred at his residence, 24, Queen Anne Street, on July 20th. Although of late he had been evidently out of health, and occasionally going away to the seaside, his end was sudden and unexpected, and came as a shock to a very wide circle of friends and patients. He was of a generous and warm-hearted nature; and had a great capacity for methodical work, and the elaboration of mechanical methods of treatment.

His father was Mr. Thomas Smith, an architect of repute both at home and abroad, practising at Hertford, where Noble Smith, who was the third son, was born in 1847: he was consequently 59 years of age at his death. He inherited a love of drawing which he turned to excellent account in illustrating the many published works of which he was the author. He was educated privately, and medically at St. Mary's Hospital, where he was house surgeon for a year after becoming qualified in 1868; he was also successively Resident Medical Officer to the Paddington Lock Hospital, and House-Surgeon to the Children's Hospital, Bristol. He next engaged in general practice for a few years, but about 1880, when he obtained the F.R.C.S.Edin., he devoted himself to orthopaedic surgery, and gained for himself a high reputation in that branch of professional work, especially in regard to diseases of the spine. He was connected with many orthopaedic institutions, but the City Orthopaedic Hospital in Hatton Garden, of which at the time of his decease he was the senior surgeon, was that with which his interests were most intimately associated. Largely through his exertions and the generosity of friends the new operating theatre at this institution was built; when completed it was opened by the late Duke of Cambridge. In various other ways, too, he endeavoured to better humanity. He was a strong advocate of ambidexterity, and of the necessity of educating in children an equal use of both hands. He recognized the value of the Japanese system of jiujitsu, and interested himself in the clothing of children and the proper distribution of the weight of the child's clothing upon the parts of the body that can bear it; the diet of children, and especially that of boys in public schools, was a subject to which he had given attention, and his vigorous attacks upon some of its admitted evils led to their abatement. These examples are instances of the catholicity of his views upon orthopaedy, and of his constant endeavour to treat the subject in a broad and wholesome manner. They also show the energy with which, when once embarked upon a subject, he pursued it until his views came to prevail. In order that practitioners in this country might witness the method of treating congenital displacement of the hip-joint advocated by Dr. Lorenz, of Vienna, Mr. Noble Smith was mainly instrumental in persuading that surgeon to give demonstrations in London some three or four years ago. It would be unbecoming to omit to mention in the BRITISH MEDICAL JOURNAL his considerable services in past years to the Metropolitan Counties Branch of the British Medical Association, of which he was for three years the Honorary Secretary, and which for a year or two he represented on the Central Council of the Association. He was, too, a constant attendant and reader of papers at the meetings of the Association.

His publications were many, and mostly illustrated by himself. The following are perhaps the best known: The *Atlas of Histology* (jointly with Dr. Klein), the *Surgery of Deformities, Spinal Caries, Curvatures of the Spine* (fourth edition), *Paralytic Deformities of the Lower Extremities, Spasmodic Wry-neck*, and *Coccygodynia*. In 1895 he produced *Clinical Sketches*, an illustrated monthly journal of practical medicine and surgery, which ran for a year.

The funeral took place at Kensal Green Cemetery on July 25th, and was attended by several friends and colleagues. Altogether, the greatest sympathy has been evinced towards his widow and three children in their great bereavement.

THE science of public health owes much to the late Mr. JAMES ALFRED WANKLYN, M.R.C.S., whose book *Water Analysis*, first published some thirty-eight years

ago, gave immense impetus to the development of this particular branch of chemistry. He was born in 1833, and was one of the earliest students of Owens College, Manchester. Whilst still very young he was appointed Demonstrator of Chemistry in Edinburgh University, in the days when Playfair was the Professor of Chemistry. Subsequently Mr. Wanklyn became Professor of Chemistry in the London Institution, and lectured on both physics and chemistry at St. George's Hospital. He also held appointments as Public Analyst to several county boroughs, analysed London water for the Local Government Board, and carried on a large practice as a consulting chemical expert. The latter part of his life he passed chiefly at New Malden, where he had his laboratory; he there died suddenly from heart failure in the middle of July. The process for the determination of free and albuminoid ammonia in water, which formed the centre point of his earliest work bears his name, and as a fairly simple and fairly accurate method continues to hold the field. When first suggested it met with much opposition, and gave rise to great controversies, but, having survived all attacks and all competition as a practical method for over thirty years, it may be expected to keep his memory green for many years to come. Curiously enough, the person who has seemed least satisfied with it of late years was Mr. Wanklyn himself; quite recently he was very full of some modifications of his original method which he considered an improvement. The first two editions of his book on water analysis were brought out in collaboration with the late Mr. Ernest Theophron Chapman, who died in the early Seventies; the book has since run through many editions and undergone much revision, but Mr. Wanklyn kept the name of his early colleague on the title-page to the end. Other successful books which he brought out, either alone or in collaboration, were treatises on *Milk Analysis*, *Bread Analysis*, *Air Analysis*, and *Sewage Treatment*; of the latter, a second edition appeared as recently as last year. Mr. Wanklyn in his later years was full of reminiscences, and a very interesting and pleasant companion. To the end he remained a keen and able controversialist.

With Dr. Henry McNiece, who died some two months ago at Carshalton, there disappeared a good specimen of the professional type of a past generation. For some two years before his death Dr. McNiece had been severely handicapped by chronic gout, but up to that time he had been a very well known figure in the neighbourhood, and a practitioner whose patients did not desert him even when he was no longer able to visit them. Altogether Dr. McNiece was in practice in Carshalton for some forty-five years, having settled down there after a considerable period of service with the Army Medical Staff, which he he joined before Sebastopol about the middle of the Crimean War. At an earlier period he had held appointments in connexion with the Oxford Lying-In Charity and the Prison, and had likewise worked as an assistant in the practice of the late Dr. Robert Knaggs, of Swindon. His early education he received at Ballymena, where, though of Scottish parentage, he was born, and it was there that his body was taken for interment in the family grave. He held the diplomas of L.R.C.S. and L.M. of Edinburgh, which he obtained in 1853, and that of L.R.C.P.Lond., which he took after he had settled down at Carshalton. He joined the British Medical Association at an early period of his career, and was a member of the Croydon Division at the time of his death. Dr. McNiece was never married.

MEDICO-LEGAL AND MEDICO-ETHICAL.

DICHOTOMY.

X. Y. Z. writes in reference to the letter of "A General Practitioner" (page 115) respecting hospital reform, that the best way of bringing hospital staffs to their senses, and stopping hospital abuse, is to devise a plan by which they can be ignored. He says, "In my neighbourhood lives a general practitioner who is a good surgeon. When I want an operation performed I call him in and we share the fee. Cannot other general practitioners do the same? There are plenty of men in general practice who can operate."

*** The proposal to ignore the members of the staffs of unreformed hospitals where abuse is rampant is not an illegitimate method of drawing attention to the injury done to the rest of the profession, but the plan adopted by our correspondent in so far as it involves division of the fee between the operator and himself is open to grave objection, as offering a temptation to the practitioner to agree to operations, whereas the family medical attendant should be able to protect his patients against any risk of unnecessary surgery. In the British Medical Journal for April 21st of the present year, page 956, a consulting physician wrote to say that he had been on three recent occasions asked to share his fee with the general practitioner, and we expressed our regret that there should be any sign of the existence of this system of dichotomy, as it is called, which prevails in France, and is there the notorious source of much evil. We would warn our correspondent that such a practice, if brought to the notice of the professional authorities, is pretty sure to meet with condemnation, and any one adopting it may find himself exposed to serious consequences.

OVERDUE BILLS.

Allah wants to know the legal limit of time in which he can sue for a medical account. He writes that he has attended a family since September, 1900, and although his account has been repeatedly sent in, no notice has been taken of it. Can he safely wait till September, 1907?

*** No. He should take action at once. A portion of his account will be irrecoverable after September, 1906. Simple contract debts can only be recovered within six years of their becoming due.

DRUG TREATMENT OF INEBRITY.

Trevor and Others.—The much-advertised treatment of inebriety as to which our correspondents inquire is a secret system, and as such does not deserve the countenance of members of the medical profession in spite of its aristocratic sponsor. Most of the systems consist in the use of an alkaloid of the atropine group combined with strychnine, and the administration of stomachics.

MEDICAL MEN AND MIDWIVES.

Forceps.—It sounds undignified for a medical man to act as the substitute for a midwife during her illness or incapacity, but considering the legal status conferred by the recent Midwives Act, we are not prepared to say that it could be regarded as covering so long as the midwife confines herself to her legitimate sphere of practice.

MULTIPLYING DOOR-PLATES.

Three Towns can hardly have read with sufficient care the answer we gave to our Plymouth correspondent, in which we said that there is no authoritative pronouncement upon this question of multiplying door-plates; and we have suggested that it is a point upon which the opinion of the Central Ethical Committee should be asked. The view we have repeatedly expressed in this column is that, while a door-plate upon a house of which a medical practitioner has a bona-fide tenancy is recognized by the profession as a legitimate form of announcement, custom has not sanctioned the use of such door-plates upon houses at a distance. An exception must apparently be made for scattered country districts where special circumstances may justify it.

This note will also answer the inquiry from "Justice."

LEGAL CRUELTY.

Tibia.—In the case of Scott *v.* Scott (29 L. J., Mat. 64), it was decided that drunkenness, even when accompanied by acts of considerable violence, is not a substantial ground for a decree of judicial separation. We do not know of any case which has arisen in relation to the use of drugs; but if habitual drunkenness, as a form of legal "cruelty," does not afford ground for a judicial separation, it is apprehended that the use of drugs could not be so pleaded. It may be mentioned that a sentence of judicial separation (which shall have the effect of a divorce *à mensa et thoro*) may be obtained, either by the husband or the wife, on the ground of adultery, or cruelty, or desertion without cause for two years and upwards (Matrimonial Causes Act, 1857, s. 16). "Injury to person or to health, or reasonable apprehension of bodily hurt is the general description of legal cruelty" (Tomkins *v.* Tomkins, 1 Sw. and Tr., 168).

SHAM OPERATIONS FOR IMAGINARY DISEASES.

Sussex.—For a general discussion of the ethical question involved, we may refer our correspondent to the annotation headed "Imaginary Cures for Imaginary Diseases," on page 1554 of the British Medical Journal for June 30th of the present year, and the subsequent correspondence, but there is a difference between a sham operation involving a

risk to life, and such harmless proceedings as those therein quoted. It is not in our power to answer questions 1 and 2. 3. No cutting operation should be performed by a practitioner on his sole responsibility, and the opinion of a physician skilled in mental diseases would be of value in judging of its probable utility, as a really insane person would be less likely to derive benefit. 4 and 7. There are no means of preventing the patient from bringing a charge of fraud later on, but this would be difficult to establish in the face of a written statement of the facts, which should be signed by the parties to the consultation and by the relative whose consent is obtained and whose indemnity against subsequent legal expenses should certainly be obtained. 5. There would not be absence of pain if, as we understand, a skin incision were made. 6. The fee must be a matter of arrangement, but it should be approximately that for the supposed operation. 8. If all these precautions were taken, there would be no justification for a charge of fraud.

A CASE OF CONSCIENCE.

J. R. writes, with reference to the note under this heading in the BRITISH MEDICAL JOURNAL of July 7th, p. 57, that as the consultation was ordered by the company it was right that the company should pay for it, and he regrets that the JOURNAL should favour the idea of a bribe, as from his varied experience he is sure that the desire is to have a true scientific opinion in these cases in order to save litigation.

*** We cannot agree with our correspondent that it is right that the company should pay both the consultant sent upon their own behalf and the one employed by the patient, and we adhere to what we said—that the mode in which the fee was tendered quite justified the correspondent who complained to us in refusing to accept it.

INTERFERENCE WITH OTHER MEN'S PATIENTS.

YORKSHIRE writes: I should like to know if it is usual and correct for surgeons acting for insurance companies under the Compensation Act and factory surgeons to visit and examine cases of accident without reference to the medical man in charge.

*** Complaints of this kind have been common, and we have always held that when a medical practitioner proposes to visit a workman in order to make an examination on behalf of an employer, he should give notice to the workman of the intended visit, and suggest the desirability of his medical attendant being present at the examination.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF LONDON.

KING'S COLLEGE.

Experimental Psychology.—A class in this subject, including practical work and demonstrations, will be held by Professor C. S. Myers on Saturdays at 11 a.m., in the Psychological Laboratory of the College. Those who wish to attend are requested to apply to Dr. Myers. The class will first meet on October 6th, at noon. Further particulars may be obtained from the Secretary at King's College.

UNIVERSITY OF GLASGOW.

THE following were among the degrees conferred on July 17th:

M.D.—(*Commendation*): Madge S. Maclean. (*Ordinary Degree*): J. Allan, J. A. Cook, D. Ferguson, J. Selkirk, M.A.

M.B., C.M.—(*Honours*): R. S. M'Kim, M.A.

M.B., CH.B. (*Honours*).—P. Mitchell, M.A., J. Stevenson. (*Commendation*): W. R. Cammock, G. H. Wilson, J. M'Farlane, T. B. Smith, J. R. Drever, M.A., Elizabeth M. M'Vail, W. J. Rutherford, W. Gilfillan. (*Ordinary*): J. Anderson, M.A., T. Barbour, M.A., G. D. M. Beaton, G. Burns, J. M. H. Caldwell, G. Campbell, W. A. Campbell, H. H. Christie, J. S. Clark, M.A., J. Coutts, T. L. Craig, A. M. Crawford, E. M. Eaton, W. Gilbert, A. H. Gray, R. N. Guthrie, C. F. D. Hammond, W. T. Hardie, R. M'C. Hill, A. Hunter, A. Y. Hutchison, J. Keys, J. D. Kidd, W. H. Kirk, A. M'Call, T. M'Cririck, M.A., D. Macdonald, J. R. M'Gilvray, W. A. M'Kellar, W. F. Mackenzie, N. S. MacNaughtan, A. A. C. M'Meill, A. A. M'Whan, Florence Mann, W. H. Manson, M.A., R. Marshall, J. Miller, W. Miller, Edith Oversby, J. H. Paul, Agnes Picken, M.A., A. MacM. Pollock, T. H. Rankin, Vera D. Reis, F. G. Robertson, W. H. Sieger, W. Smellie, J. Stevenson, D. L. Tate, C. S. Thomson, J. Wyper, J. Young, M. Y. Young.

UNIVERSITY OF ABERDEEN.

THE following degrees and diplomas were conferred on July 25th:

M.D.—*H. S. Brander, Keighley, Yorks; *A. Flett, Aberdeen; J. Gilchrist, West Dulwich; A. Gregor, Penryn, Cornwall; D. M. Macdonald; W. A. Milligan, London, W.; Murchison, A., Isle of Skye; Renton, M. W., Dartford, Kent; Skae, H. T.; Souter, W. C. Nigg, Aberdeen.

CH.M.—†Villiers, I. F. B. de, French Hock, South Africa.

M.B., C.M. (*Old Ordinances*).—Cartwright, L., Travell, T. R.

M.B., CH.B.—*With Second-Class Honours*: ‡Gunn, R. M'K.: *Ordinary Degree*.: Begg, H., Begg, W., Browne, F. J., Chalmers, R., Clark, J. M'K., Cooper, G., Copland, J. G., Dalgliesh, W., Dornhorst, H. K. W. H., Duthie, R. J., Gray, T. G., Hall, A. P., Hendry, G. F. J., Laing, J., Macdonald, J. M., Mackenzie, J. R., MacPherson, R. W., Marr, D. J., Noble, A., Paterson, A., Rennie, P. M., Rodgers, A. N. E., Ross, G. E., Scharenguivel, J. A., Smit, H., Sturm, C. A. F. S., Wallace, A. F.

Note.—J. E. Mitchell has passed all the Examinations, but will not graduate until he has attained the necessary age.

* Commendation for Thesis. † Honours for Thesis.
‡ With Distinction.

D.P.H.—C. B. Gerrard.

The *Lyon Prize* was awarded to W. A. H. M'Kerrow, M.B., Ch.B., Workington, and the *John Murray Medal and Scholarship* to the same gentleman.

The *Alexander Anderson Scholarship* went to J. M'Intosh, M.B., Ch.B., Aberdeen.

UNIVERSITY OF LEEDS.

DATES OF EXAMINATION FOR MEDICAL DEGREES.

HITHERTO the final examination for the degrees of M.B. and Ch.B. has been held in March and in July. For some time it has been felt that a more equal division of the year would be desirable. Candidates cannot enter for the final examination, Part II, until the end of five years' study—that is, in most cases, until the July examination; and it has been thought that it would be a convenience to those students who desire to put off their final examination, if an opportunity were afforded them of presenting themselves for examination before March. As hitherto, the first examination—that in chemistry, biology, and physics—will be held in June and in September. The second examination and Part I of the final will be held in March and July, and Part II of the final in July and in December.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

SECOND EXAMINATION.

ANATOMY AND PHYSIOLOGY.—W. A. Bullough, J. K. Hartley, E. Howe, T. M. Popple, B. W. E. Trevor-Roper, W. B. Wamsley.

PHYSIOLOGY ONLY.—R. J. Batty.

MATERIA MEDICA AND PHARMACY.—H. E. Allanson, S. J. Clegg, D. I. Connolly, C. Davies, F. H. Diggle, J. Gow, H. M. C. Green, J. H. C. Green, T. T. Higgins, E. Howe, R. A. Jackson, N. T. K. Jordan, T. A. Jordan, N. McDonald, Edith M. Marsden, C. B. Marshall, Mabel B. May, G. E. E. Nicholls, H. Platt, A. A. Smalley, N. Tattersall, R. H. Titcombe, J. F. Ward, G. Whitehead, A. E. Woodall.

FINAL EXAMINATION.—*Part I.*—J. Allen, G. W. Bury, H. Coppock, D. J. Dakeyde, F. Hall, S. E. McClatchey, V. D. Madgavkar, J. L. Moir, G. Rainford, D. Rodger, F. K. Smethurst, V. Southwell, H. E. R. Stephens, J. V. Steward, T. W. Todd, F. D. Walker, B. V. Ward, J. Whitehead. *Part II.*—G. Ainsworth, *D. E. Core, H. S. Dixon, D. Dougal, P. Ferguson, J. Fletcher, C. L. Franklin, E. F. S. Green, R. Haslam, C. Hibbert, M. Hooper, R. H. Mercer, G. F. Porter, A. E. Quine, C. H. S. Redmond, G. H. H. Russell, H. G. Ward, J. S. Webster, W. A. Wheeldon, A. W. T. Whitworth, W. Wilson.

* First-class Honours.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examinations indicated:

SECOND M.B., CH.B.—(*Part A*): G. Brown, S. P. Sykes. (*Part B*): A. Adams, K. J. C. Bradshaw, L. Buckley, Euphemia L. Farmer, A. G. W. Owen, B. Parkes, J. F. Roberts, N. W. Steinberg.

FINAL M.B., CH.B.—(*Part I*): T. T. Apsimon, E. R. Armstrong, J. W. Cropper, J. A. Donnellan, A. C. Edwards, C. H. H. Harold, S. J. C. Holden, M. L. Farmer, A. Jones, W. R. Pierce, J. H. Rawlinson, A. M. M. Roberts, G. F. R. Smith, E. Swales, R. S. Taylor, S. V. Tinsley, G. W. Williams. (*Part II*): L. Adamson, E. Alderson, N. Bradly, J. L. Browne, E. S. H. Gill, S. W. McLellan.

The following have passed the Final Examination for the degrees of Bachelor of Medicine and Bachelor of Surgery with honours:

FINAL M.B., CH.B.—(*With Honours*): *F. R. Tickle, †G. C. Barnes, ‡R. A. Hendry.

D.P.H.—W. F. Colclough, T. U. Mercer, L. A. Williams.

DIPLOMA IN TROPICAL MEDICINE.—J. R. Adie, J. A. Chisholm, H. C. Jeffreys, M. E. Pailthorpe, H. T. Palmer, W. I. Taylor, E. J. Tynan, C. F. Watson, G. A. Williamson.

*First Class. †Second Class.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary quarterly Comitia was held at the College on Thursday, July 26th, the President, Sir R. Douglas Powell, in the chair.

Lectures.

The President announced that the Bradshaw Lecture would be given by Dr. Sharkey on November 6th, on Rectal Alimentation; the Fitzpatrick Lectures (two) by Dr. Norman Moore on November 8th and 13th, on the History of the Study of Clinical Medicine in the British Islands: the Horace Dobell Lecture by Dr. F. W. Andrewes on November 15th on the Evolution of the Streptococci.

Membership.

The following gentlemen were elected members of the College: John Telfer Calvert, M.B. Lond., L.R.C.P.; Thomas Edwyn Cecil Cole, M.A., M.B. Oxon., L.R.C.P.; Henry Roy Dean, B.A., M.B. Oxon., L.R.C.P.; George William Ross, M.B. Toronto, L.R.C.P.

Licence.

The Licence of the College was granted to 103 gentlemen.

In conjunction with the College of Surgeons Diplomas in Public Health were granted to fifteen gentlemen.

Communications.

The following communications were received :

1. From the Emeritus Registrar, Sir Henry Pitman, in reply to the congratulations of the College on the 98th anniversary of his birth.

2. From Dr. Balls-Headley, who was appointed to represent the College at the recent jubilee of the University of Melbourne.

3. From the Secretary of the College of Surgeons reporting proceedings of the Council of the College on June 14th and July 12th.

Election of Officers.

On the nomination of the President and Council the following gentlemen were elected Censors of the college, officers and examiners :

Censors.—Frederick Thomas Roberts, M.D., Sir Thomas Barlow, Bart., M.D., John Mitchell Bruce, M.D., Thomas Clifford Allbutt, M.D.

Treasurer.—Sir Dyce Duckworth, M.D.

Emeritus Registrar.—Sir Henry Alfred Pitman, M.D.

Registrar.—Edward Liveing, M.D.

Harveian Librarian.—Joseph Frank Payne, M.D.

Assistant Registrar.—Oswald Auchinleck Browne, M.D.

Elected Members of the Library Committee.—Norman Moore, M.D., William Osler, M.D., Archibald Edward Garrod, M.D., Humphry Davy Rolleston, M.D.

Curators of the Museum.—Henry Charlton Bastian, M.D., William Cayley, M.D., William Henry Allchin, M.D., Seymour John Sharkey, M.D.

Finance Committee.—David Bridge Lees, M.D., Francis Henry Champneys, M.D., Sir Edwin Cooper Perry, M.D.

Examiners.—Chemistry: John Millar Thomson, F.R.S.; George Senter, Ph.D., B.Sc. Physics: John Addyman Gardner, F.C.S., F.I.C.; Frederick Thomas Trouton, F.R.S. Materia Medica and Pharmacy: Cyril Ogle, M.B.; Joseph John Perkins, M.B.; Robert Arthur Young, M.D.; James Purves Stewart, M.D.; Otto Fritz Frankau Grünbaum, M.D. Physiology: William Dobinson Halliburton, M.D.; Ernest Henry Starling, M.D.; Bertram Louis Abrahams, M.B. Anatomy: Peter Thompson, M.D.; Robert Howden, M.B. Medical Anatomy and Principles and Practice of Medicine: Francis de Havilland Hall, M.D.; Theodore Dyke Acland, M.D.; George Newton Pitt, M.D.; William Collier, M.D.; Hubert Montague Murray, M.D.; Norman Dalton, M.D.; Humphry Davy Rolleston, M.D.; Frederick John Smith, M.D.; Arthur Pearson Luff, M.D.; Walter Essex Wynter, M.D. Midwifery and Diseases peculiar to Women: Francis Henry Champneys, M.D.; John Phillips, M.D.; Herbert Ritchie Spencer, M.D.; William John Gow, M.D.; Thomas Watts Eden, M.D. Public Health: Part I: William Henry Willcox, M.D., B.Sc. Part II: Alexander Grant Russell Foulerton, F.R.C.S.

Dr. Sidney H. C. Martin, who retired by rotation, was re-elected a Representative of the College on the Imperial Cancer Research Fund.

Moxon Medal.

The Moxon Medal, which is awarded every third year, was on the recommendation of the Council awarded to Jonathan Hutchinson, F.R.C.S., LL.D., D.Sc., F.R.S., as having distinguished himself by observation and research in Clinical Medicine.

Reports.

The following reports were received :

1. From the Chairman of the Classification Committee on the completion of the *Nomenclature of Diseases*, 1906 (copies of the work were on the table). On the motion of the President, a vote of thanks was passed with acclamation to Dr. Pye-Smith, the Chairman of the Committee. The members of the Committee, other than Fellows of the College, were warmly thanked for their assistance, and an honorarium of 200 guineas was unanimously voted to Dr. Ormerod, the Secretary, for his invaluable aid in the compilation of the work.

2. From the Committee on the Midwifery Curriculum. This was referred to the Committee of Management to consider and to report on at the next Comitia.

3. From the Students' Practical Midwifery Committee of the General Medical Council, with recommendations and inviting observations. This was also referred to the Committee of Management.

4. From the Committee of Management, dated July 9th, recommending

(*a*) That the Transvaal Technical Institute, Johannesburg, be added to the list of institutions recognized by the Board for instruction in Chemistry and Physics.

(*b*) That the course of instruction in the administration of anaesthetics given at the Cardiff Infirmary in connexion with the University College of South Wales and Monmouthshire be recognized as fulfilling the conditions of Clause 3, Paragraph xxi, Section ii of the Regulations of the Examining Board in England.

(*c*) That the course of clinical instruction in ophthalmic surgery given at the Royal Eye Hospital, Southwark, be recognized as fulfilling the conditions of Clause 4, Paragraph xxi, Section ii, of the Regulations of the Examining Board in England.

5. The Quarterly Report of the College Finance Committee, the Annual Report of the Library Council, the Annual Report of the Curators of the Museum, and the Quarterly Report of the Examiners for the Licence on the results of the examinations in April last were received.

Library.

Books and other publications presented to the library during the past quarter were received and thanks returned to the donors.

Special mention was made of contributions by Sir Dyce Duckworth, Professor Osler, and Mr. Fleming.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An Ordinary Council was held on July 26th, 1906, Mr. Henry Morris, President, in the chair.

Issue of Diplomas.

Diplomas were issued to 103 candidates found qualified as Members at the recent examination ; 15 diplomas were issued jointly with the Royal College of Physicians, to candidates found qualified for the diploma in Public Health of the two Colleges.

College Finance.

The annual report of the Finance Committee was received by the Council and entered on the minutes. In this report the following statements occur :

"The gross income of the College for the past year amounts to £25,361, being £394 less than the gross income of the previous year.

"As regards the receipts from the Conjoint Examining Board there is a small decrease of £108 in the Examination Fees, but this is more than met by an increase of £326 in the receipts from hire of rooms and other incidental sources.

"The fees for the Fellowship, and for the Licence in Dental Surgery have diminished to some extent, a decrease of £364 being shown in the case of the former, and of £348 in that of the latter.

"The expenditure of the College for the past year amounts to £23,031, a difference of only £6 from the amount expended in the previous year."

The balance of income over expenditure amounts this year to £2,329.

Examination in Dental Surgery.

The following report from the Board of Examiners in Dental Surgery was adopted by the Council :

The Board recommend that the period of instruction in Mechanical Dentistry required by Clause 2, Section I, of the Regulations for the Licence in Dental Surgery be reduced from three to two years.

The Board are also of opinion that it is desirable to admit a student to the First Professional Examination so soon as he can produce the required certificates, without necessarily completing six months' attendance at a dental school and hospital. They therefore recommend the omission of the words "after completion of six months' attendance at a recognized dental hospital and school" in Clause 2, Section II, of the Regulations, so that the Clause will read as follows :

2. The First Professional Examination consists of mechanical dentistry and dental metallurgy. Candidates who have passed the Preliminary Science Examination may present themselves for the First Professional Examination for the Licence on production of the certificates required under Section I, Clauses 2, 3, and 4.

Under the present regulations candidates may be examined at the Practical Examination in Part II of the Second Professional Examination.

(*a*) On the treatment of dental caries, and may be required to prepare and fill cavities with gold or plastic filling or material, or to do any other operation in dental surgery.
(Candidates must provide their own instruments.)

(*b*) On the mechanical and surgical treatment of the various irregularities of children's teeth.

The Board of Examiners recommend that Clause (*a*) be amended so as to read as follows :

(*a*) On the treatment of dental caries, and may be required to prepare and treat teeth by filling with gold or other material, by inlaying or by crowning, or to do any other operation in dental surgery.

Midwives Act.

The President stated that, in accordance with the wishes of the Council, he had forwarded to the Lord President of the Privy Council a copy of the resolution adopted at the last Council meeting in regard to the remuneration for professional services by medical men when called into attendance by midwives practising under the Midwives Act. A letter had been read from the Clerk of the Privy Council, stating, by direction of the Lord President of the Council, in reference to the resolution adopted by the Council of the College, that the question will be carefully considered in connexion with any amendment of the Act which it may be possible to introduce.

Imperial Cancer Research Fund.

Mr. John Tweedy and Mr. Edmund Owen were elected on the Executive Committee of the above, in the vacancies occasioned by Mr. Morris having, as President of the College, become an *ex-officio* member of the Committee, and by Mr. Langton having ceased to be a member of the Council of the College.

Donation to the College.

Mr. Tweedy, on behalf of Dr. Edmund Clapton, F.R.C.S., presented a branch of the plane tree under which Hippocrates reputedly taught the art of healing more than 2,300 years ago in the Island of Cos, and a photograph of the tree, which is still living.

The thanks of the Council were given to Dr. Clapton for his interesting gift.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following gentlemen have been admitted Fellows:

C. H. Allen, J. R. Atkinson, K. Dadabhoy, J. M. Darling, W. H. Duncan, S. L. Heald, T. W. Irvine, Major, I.M.S.; J. A. Longley, J. C. Muir, J. K. Osborne, G. Potts, A. T. Ross, D. H. Wessels, A. L. White.

CONJOINT BOARD OF ENGLAND

THE following gentlemen, having completed the final examination of the Examining Board in England in the subjects of medicine, surgery, and midwifery, the Licence of the Royal College of Physicians and Diploma of Member of the Royal College of Surgeons has been conferred on them—namely:

C. Amarasuriya, Ceylon and King's Coll.; L. J. Austin, Camb. and London; G. F. S. Bailey, Camb. and St. Bart.'s; G. C. Barnes, Liverpool; R. D. Barrow, Otago and Guy's; W. K. Beaman, Charing Cross; N. Bennett-Powell, St. Bart.'s; H. Bevis, St. Mary's; L. H. Booth, Charing Cross; W. H. S. Burney, Guy's; *J. Butterworth, Manchester; N. H. Byc, London; J. G. Castellain, Camb. and St. George's; F. H. M. Chapman, St. George's; B. W. Cherrett, St. Bart.'s; T. A. Clarke, King's College; B. M. Collard, London; D. H. Collingham, Camb. and London; H. P. Crampton, Camb. and Middlesex; H. N. Crowe, Birmingham; S. W. Daw, Guy's; J. T. de Coteau, Guy's and St. Thomas's; W. F. Denning, Camb. and London; G. Eager, King's College; K. E. Eckenstein, Liverpool and St. Thomas's; R. Farraut, Westminster; W. S. Fenwick, Charing Cross; A. Fiorillo, St. Mary's; R. L. Gaulen, Camb. and St. Thomas's; N. H. Gandhi, Camb. and London; H. J. Gouvain, Camb. and St. Bart.'s; E. W. Giesen, Guy's; V. B. Green-Armytage, Bristol; C. V. Griffiths, King's College; E. W. D. Hardy, St. Bart.'s; G. A. Hayman, King's College; *J. W. Heekes, Charing Cross; R. B. Heygate, Middlesex; C. C. Hickey, Westminster; R. A. P. Hill, Camb. and St. Bart.'s; *R. C. Hill, McGill and Cincinnati; G. F. Hodgkin, Camb. and London; G. M. Huggins, St. Thomas's; C. B. Hutchison, London; C. Johnson, Birmingham; A. L. Jones, St. Mary's; H. E. Jones, London; J. R. Kemp, St. Bart.'s; C. M. Kennedy, London; J. A. Kilpatrick, Cardiff and King's Coll.; A. Kinder, N. Zealand and London; W. W. King, Bristol; B. T. Laug, Camb. and St. Bart.'s; C. S. Lee, Camb. and St. Bart.'s; D. T. Lewis, Cardiff and Middlesex; P. C. Litchfield, Guy's; P. F. McEvedy, Guy's; C. McMane, Toronto and London; H. C. Malleson, Guy's; W. B. Marshall, Camb. and Liverpool; V. L. Matthews, London; E. M. Middleton, Toronto and St. Thomas's; W. H. Miller, Guy's; W. A. Milner, Sheffield and Univ. Coll.; *W. C. Morrison, Toronto and Univ. Coll.; A. C. Morson, Middlesex; H. W. Moxon, Camb. and London; F. W. Murray, Liverpool; C. M. Ockwell, Guy's; J. Pellatt, Guy's; J. Pauley, St. Bart.'s; H. A. Philpot, Oxford and St. Thomas's; C. W. Ponder, Camb. and Guy's; J. M. Postlethwaite, Camb. and St. Bart.'s; E. N. Ramsbottom, Manchester and Durham; A. C. Rankin, McGill and London; H. G. Rickman, St. Mary's; C. S. Rivington, Bristol; R. P. Rowlands, Guy's; H. K. Salisbury, Bristol; G. C. Scott, Liverpool and Univ. Coll.; G. E. Seldon, Toronto and London; E. F. Skinner, Sheffield and Camb.; A. B. Smillie, Toronto and Univ. Coll.; W. H. Smith, Manchester; G. F. Stebbing, Guy's; W. H. R. Streatfeild, Camb. and St. George's; P. K. Tarapurwala, Bombay and Guy's; R. T. Taylor, London; E. J. F. Thomas, Bristol and Middlesex; R. E. Thomas, Bristol; *A. W. D. Thomson, St. George's; F. B. Treves, Camb. and St. Thomas's; S. A. Tucker, St. Bart.'s; S. W. J. Twigg, University College; H. A. R. F. Unwin, Camb. and St. Thomas's; R. Wade, Camb. and St. Bart.'s; K. M. Walker, Camb. and St. Bart.'s; J. B. F. Wilson, Leeds; A. W. G. Woodforde, St. Bart.'s; J. C. Wootton, St. Thomas's; E. Wragg, Guy's; E. L. Wright, St. Bart.'s.

* Under Regulations dated October 1st, 1884.

CONJOINT BOARD OF SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST EXAMINATION.—E. P. Meherji, R. J. Helsby (with distinction), D. M. Cama, M. D. Preiter, W. H. B. M'Cann, J. M'Cusker, J. M. A. M'Vey, D. Wilson.

SECOND EXAMINATION (*Five Years' Course*).—T. S. Douglas, J. M'Call, P. J. Taaffe, H. C. de Souza, J. D. Collins, T. Walsh.

SECOND EXAMINATION (*Four Years' Course*).—T. A. R. Aiyar, Madras; P. C. Gerachty.

THIRD EXAMINATION.—H. H. Bradley, A. R. F. Douglas, J. W. M. Hunter, W. Riddell, J. A. J. Crowley, P. M. O'Dwyer, R. J. Jones, W. Tregea, E. H. Smith, Anna S. Lindsay, A. Hill, W. F. M'Kenna.

FINAL EXAMINATION.—J. H. Allan, O. T. Jones, R. J. Jones, J. A. Ashurst, G. W. Hill, J. M'Arthur, R. R. Bakshi, A. Hill, E. J. Stubbs, E. C. Chandler, L. Albuquerque, M. Samiullan, P. J. A. Curtin, A. Baxter, J. B. Engineer, R. A. Taylor.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examinations indicated:

SECOND PROFESSIONAL (*with Honours*).—R. Adams, Miss I. M. Clarke, E. C. Deane, H. S. Meade, J. Menton, Miss A. F. Nash, and Miss C. F. Williamson. *Pass.*—P. N. Allman, S. J. Barry, G. E. Beggs, B. G. S. Bolas, W. Breen, H. F. Blood, T. G. Brown, P. A. Doyle, E. Dunden, B. H. Farrell, J. F. Gibbons, Miss M. K. Griffin, E. Harrison, F. N. Harvey, W. Hedermian, H. S. Johnston, C. Kelsall, P. M. J. Power, R. Power, R. H. Taaffee, P. T. Warren, J. D. Williams, Miss Nora T. Williams, and O. W. J. Wynne.

THIRD PROFESSIONAL.—S. Blake, T. C. Boyd, W. H. Bomford, S. Broderick, T. Cormac, W. F. S. Davis, J. Ellenbogen, B. Foley, W. F. Lane, G. S. Levis, J. E. Moffatt, J. McNamara, C. McQueen, J. V. O'Hagan, W. H. O'Riordan, D. O'Sullivan, G. F. Shepherd, and J. M. Warnock.

FINAL.—J. Burke, T. A. Burke, R. Calnan, M. J. Coyne, M. Cohen, J. Daniel, W. J. Deighan, *F. F. Foran, T. J. Galligan, J. Grace, W. Glennon, D. Gillies, A. Hipwell, W. P. Kelly, T. H. Massy, P. Mullany, W. J. M'Cormack, K. P. Neary, J. O'Donnell, T. T. O'Farrell, D. T. O'Flynn, G. Petit, E. P. Punch, W. C. T. Robey, J. R. Tobin, W. Walsh, C. H. Waddell, M. Walters, J. M. Warnock, R. Welply, C. H. Wilson.

D.P.H.—F. W. Brunker, E. S. R. Cadman, F. J. Cahill, *T. W. Irvine, Major, I.M.S., E. McDonald, *The Hon. Ella Scarlett-Synge.

* Honours.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

ROYAL ARMY MEDICAL CORPS.

THE undermentioned gentlemen were successful at the recent examination for commissions in the Royal Army Medical Corps held in London:

Marks.	
593	Gerald Hoey Stevenson, M.B., B.Ch., R.U.I.
575	John Heatly Spencer, M.B., B.S.Lond., M.R.C.S.Eng., L.R.C.P.Lond.
570	William Henry Forsyth, M.B., B.Ch.Edin.
564	Alfred Herbert Heslop, M.B., B.Ch.Durham.
557	Archibald Craig Amy, M.B., B.Ch.Glas.
548	Wright Mitchell, B.A., M.B., B.Ch.Dub.
536	James Archibald Bruce Sim, M.B., B.Ch.Aber.
528	Edward John Elliot, M.B., B.Ch.Edin.
510	Ernest Browning Lathbury, M.R.C.S.Eng., L.R.C.P.Lond., M.D.Brux.
508	Frederick William Tough, L.R.C.P. and S.Edin., L.F.P.S.Glas., F.R.C.S.Edin.
503	Edward Gibbon, B.A., M.B., B.Ch.Dub.
501.5	Cecil Seaife, B.A., M.D., B.Ch.Dub.
487	Robert Walter Dickson Leslie, L.R.C.P. and S.Irel.
479.5	Ernest Duncan Caddell, B.A., M.B., B.Ch.Dub.
475	Michael Joseph Lochrin, L.R.C.P. and S.Irel.
474	Daniel Maurice Corbett, B.A., M.B., B.Ch.Dub.
474	Benjamin Johnson, L.M. and L.S.Dub.
468	William Ernest Craven Lunn, M.B., B.Ch.Durham.
467	John Rowland Foster, M.R.C.S.Eng., L.R.C.P.Lond.
464.5	Arthur Hildebrand Jacob, M.R.C.S.Eng., L.R.C.P.Lond.
459	Arthur Morris Benett, M.R.C.S.Eng., L.R.C.P.Lond.
458.5	Francis Lyndou Bradish, L.R.C.P. and S.Irel.
457	George Philip Alexander Bracken, L.R.C.P. and S.Irel
451	Owen Cunningham Preston Cooke, M.R.C.S.Eng., L.R.C.P. Lond.
450	William Wallace Boyce, L.R.C.P. and S.Irel.
445.5	Carlisle Kelly, B.A., M.B., B.Ch.Dub.
441.5	Clarence Hamul Denyer, M.R.C.S.Eng., L.R.C.P.Lond.
441	Whiteford John Edward Bell, M.B., B.Ch.Edin.
439.5	Duncan Coutts, M.B., B.Ch.Aberd.
434.5	William Francis Brenan Loughnan, L.R.C.P. and S.Irel., D.P.H., R.C.P. and S.Irel.
434	Dennis Thomas McCarthy, M.B., B.Ch., R.U.I.
433	Hector Lionel Howell, M.R.C.S.Eng., L.R.C.P.Lond.
431	Charles William Bowle, B.A.Cantab., M.R.C.S.Eng., L.R.C.P.Lond.
428	John Joseph O'Keeffe, M.B., B.Ch., R.U.I.
425.5	James Alexander Bennett, M.B., B.Ch.Durh.
424	Thomas Walker Browne, L.R.C.P. and S.Irel.
421	William Irwin Thompson, B.A., M.B., B.Ch.Dub.
419	Reginald Charles Galgey, L.R.C.P. and S.Irel.
418	Edward James Kavanagh, M.B., B.Ch., R.U.I.
415.5	Ernest Cyril Phelan, B.A., M.B., B.Ch.Dub.

Sixty-nine candidates entered for the competition.

INDIAN MEDICAL SERVICE.

THE following gentlemen were successful at the examination for admission to the Indian Medical Service held on July 24th and the four following days:

J. Taylor, M.B.	S. Singh
A. D. Stewart, M.B.	P. F. Hebbert
C. H. Cross	J. F. James, M.B.
R. A. Chambers, M.B.	J. Smalley, M.B.
R. H. Rott, F.R.C.S.	A. S. Leslie, M.B.
N. N. G. C. McVean, M.B.	C. M. Roberts, M.B.
J. Morison, M.B.	A. P. G. Lorimer, M.B.
S. G. S. Haughton, M.B.	W. M. Thomson
F. W. Cragg, M.B.	H. B. Scott
N. S. Simpson	F. C. Fraser, M.D.

Forty-seven candidates (thirty-two of whom had university qualifications and five Fellowships of the Colleges of Surgeons) competed for the twenty vacancies.

We are also informed that a few extra vacancies will probably be given in the course of the next few days.

VOLUNTEER MEDICAL SERVICE.

PROMOTION TO MAJOR.

"MAJOR."—In the Volunteer Regulations for 1901, with Corrections up to July 31st, 1904, the requirements for promotion of medical officers are given as follows:

Para. 77. Before promotion to the rank of Major or Surgeon-Major he will be attached for 14 days at the Dépôt, Royal Army Medical Corps, Aldershot, or to a selected military hospital; or be required to pass in the examination laid down in Appendix X.

In this appendix the subjects for promotion to Captain are given, with the addition, for Majors, of (1) medical organization in peace and war; (2) military discipline (King's Regulations). Thus "Major" will apparently have to attend for a fortnight at the R.A.M.C. dépôt, or at a military hospital, or to pass an examination. Every Volunteer Medical Officer should possess a copy of the Volunteer Regulations kept up to date. If he has been unable to get a copy for himself, he can always consult the office copy at the head quarters of his corps.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

FEE FOR PROLONGED MEDICAL ATTENDANCE ON PUERPERAL CASE.

J. M. R., who is a district medical officer, states that at 3 a.m. on March 16th last he was called to a patient suffering from an attack of uterine haemorrhage, which had been going on for one or two days. She had been attended in confinement by a nurse eleven days previously, and had apparently become convalescent eight days after delivery. He found it necessary to remove a quantity of fetid clots from the uterus, but no portion of placenta or membranes could be detected. The haemorrhage was temporarily arrested, but it recurred five days later and the case necessitated attendance up to April 30th, altogether seven weeks. In order to provide the patient with proper medical attendance, a medical order was given by the relieving officer on March 17th. He was asked to grant a *midwifery* order, but declined to do this, as the confinement had occurred twelve days earlier, but he gave an *ordinary* medical order. Our correspondent has claimed £2 as his proper fee for the case; this the guardians have declined to pay, on the grounds that twelve days elapsed between the birth of the child and the issue of the medical order, that the order granted was not a midwifery order, and that consequently the medical attendance given in the case was one of the ordinary duties of the medical officer. He asks our advice as to applying to the Local Government Board or as to taking proceedings in the county court.

*** This is a most unsatisfactory case on which to have any difference with the guardians. It must be evident to any medical mind that the haemorrhage in question had its origin from the pregnancy of the patient, or her labour, or from both, and that it was strictly a puerperal affection which had cropped up during her convalescence. Unfortunately it may be difficult to prove this to the satisfaction of the majority of the guardians, and as long as they remain unconvinced no extra fee is likely to be paid. That the medical order granted for attendance on the case was an *ordinary* one is no reason whatever for disputing the claim for a special fee, as whenever such an order is granted it enables the patient to claim for herself *all the medical attention* which the nature of the case demands; and if by regulation it so happens that a special fee has been earned, payment of such can be enforced. Art. 183 of the Consolidated Order of July, 1847, which is as follows, appears to rule this case:

> "Provided that in any special case in which great difficulty may have occurred in delivery *or long subsequent attendance* in respect of some *puerperal malady or affection* may have been requisite, any district medical officer *shall* receive the sum of two pounds."

This case of uterine haemorrhage may be considered as being on a par (so far as the fee is concerned) with cases of phlegmasia dolens, or suppuration in breasts, which undoubtedly carry the special fee. We, however, do not advise our correspondent to take any legal proceedings until he has asked for and obtained the opinion of the Local Government Board as to the validity of his claim. Armed with the opinion, which we assume would be given in his favour, the guardians would probably no longer decline payment, but if they should continue to do so (and even this is possible), the county court would then appear to be the only resource, and we should be without apprehension as to the result.

THE PLAGUE.

Prevalence of the Disease.

India.

During the weeks ended June 23rd, 30th, and July 7th, the deaths from plague in India numbered 952, 769, and 536 respectively.

In the principal plague-stricken districts the deaths were distributed as follows: Bombay Presidency, 169, 151, and 149; Bengal, 30, 36, and 30; United Provinces, 11, 14, and 7; Punjab, 533, 302, and 155; Burmah, 167, 225, and 270.

At Nagpur and Hubli cotton mills extensive prophylactic operations amongst the mill hands have given satisfactory results. At Nagpur of 1,119 persons inoculated 5 died of plague; of the 5 at least 2 were infected by plague before they were inoculated. Of 2,665 uninoculated persons 179 died of plague. At Hubli inoculation has been practised since 1898. Although resorted to only when plague threatens or is actually epidemic, the results have been satisfactory. At Bassein, in Burmah, 4,048 persons out of a population of 31,814 have been inoculated against plague. During the epidemic which extended from June, 1905, to June, 1906, there were 4 cases only and 2 deaths from plague amongst the inoculated, and 278 cases and 238 deaths amongst the 27,816 uninoculated.

Australia.

Brisbane.—During the weeks ended June 2nd, 9th, and 16th one fresh case of plague only was reported during the week ended June 16th. Since the commencement of the recent outbreak (March 10th, 1906) there have been 7 cases in all, with 3 deaths, in Brisbane.

Rockhampton.—No fresh cases of plague reported during the weeks ended June 2nd, 9th, and 16th. Rats were found plague-infected in Brisbane as late as June 5th; in Rockhampton the last plague-infected rat was found on May 13th.

South Africa.

No recrudescence of plague in human beings occurred in any part of South Africa up to July 7th. During the weeks ended June 16th, 23rd, 30th, and July 7th, 2 mice only were proved to be plague-infected during the week ended June 23rd.

Mauritius.

During the week ended July 14th 1 case of plague reported and 1 death from the disease.

Since the week ended March 22nd Mauritius has been free from plague until the second week of July.

Hong Kong.

During the weeks ended June 30th, July 7th, 14th, and 21st, the fresh cases of plague numbered 21, 12, 14, and 7; the deaths from the disease were returned as 18, 7, 14, and 5.

HOSPITAL AND DISPENSARY MANAGEMENT.

COUNTY AND CITY OF WORCESTER LUNATIC ASYLUM.

According to the annual report of the Medical Superintendent of this Asylum, Dr. G. M. B. Braine-Hartnell, there were, on January 1st, 1905, 1,193 patients in this asylum, and there remained at the end of the year 1,199. The average number resident during the year was 1,197 and, as the total sleeping accommodation estimated as on the return made to the Office of the Lunacy Commissioners is for 1,168 patients, considerable overcrowding existed throughout the year. In consequence of the increase in the number of patients, the Committee of Visitors have entered into agreements with the Somerset and Bath Asylum and the Monmouthshire Asylum as a temporary relief until the new Asylum at Barnsley Hall is ready for the reception of patients. During the year 269 patients were admitted of whom 234 were first admissions. This is the highest number of admissions since the opening of the asylum and is in excess of those of the previous year by 17. In 116 cases they were the subjects of first attacks within three, and in 20 more cases within twelve months of admission; in 66 cases they were "not first" attacks within twelve months of admission, and the remainder were either of more than twelve months (44), congenital cases (18), or of unknown duration (15). They were classified according to the form of mental disorder into: mania, 146; melancholia, 55; dementia, 40; general paralysis, 3; acquired epilepsy, 18; and congenital or infantile defect, 7. As to the probable causes of the insanities in the admissions, alcoholic intemperance was assigned in 32 cases or 11.8 per cent., venereal disease in none, direct hereditary influences were ascertained in 33 or 12.2 per cent., and "family predisposition (not direct heredity)" in 50 or 18.5 per cent. It is not stated whether these cases of direct heredity and family predisposition overlap or not. Previous attacks existed in 69 or 25.6 per cent., general paralysis in 4, old age was ascribed as cause in 17, congenital defect in 7, "moral" causes in 36, and in 59 or 21.9 per cent. no cause could be stated. During the year 117 were discharged as recovered, giving a recovery rate on the admissions of 46.9 per per cent.; 15 as relieved, 50 as not improved, and there were 51 deaths. These deaths, giving a percentage death-rate on the average numbers resident of 6.7, were due in 19 cases to cerebro-spinal diseases, including 9 from general paralysis; in 29 to chest diseases, with 14 deaths from pulmonary consumption; in 16 cases to abdominal diseases, of whom no less than 11 succumbed to asylum dysentery, and in 17 to general diseases. Thus pulmonary consumption and asylum dysentery between them accounted for over 49 per cent. of the total deaths.

The Commissioners in their report draw attention to the prevalence of dysentery at this asylum, and state their gratification on learning that the Committee are taking steps with a view to the more effectual isolation of those attacked by it. There were 10 serious casualties, none of which were fatal, during the year, and 8 patients escaped, all of whom were recaptured. With the exception of 1 case each of erysipelas and influenza, and a considerable number of cases of asylum dysentery, the general health was good throughout the year.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

AN ANTISEPTIC FOR THE HANDS.

DUNELM desires to hear of an efficient antiseptic that will not harden the skin of the hands. His hands are extremely sensitive to hydrarg. perchlor., carbolic acid, and even hydrarg. biniod., which is said not to coagulate albumen.

GLYCOSURIA IN PREGNANCY.

APEX asks for advice in the following case: A lady, aged 34, has just come under his observation; her second confinement is expected in a few days, the specific gravity of the urine is 1022, and it contains 3 gr. of sugar (glucose) to the oz. The quantity in 24 hours is not abnormal. There is no thirst or other symptoms. The patient is a fine, healthy-looking woman. The first confinement was easy, and there is no history of glycosuria at that time. "Apex" would be glad to hear from any one who has had a similar case, especially with reference to prognosis and to the question of the mother suckling the child.

*** With so small an amount of sugar, the specific gravity of the urine so low, and the quantity of the urine not increased, it is probably unnecessary to do anything. The prognosis is good both for mother and child. The sugar is probably reabsorbed from the breasts, and indicates galactosuria, not diabetes.

ANSWERS.

FREEMASONRY.

BALBUS is informed that no meeting is held of any of the medical lodges during the summer vacation, so it would not be possible for him to be initiated in a medical lodge before proceeding to India in September. He might obtain information about some new medical lodge on application to the Grand Secretary, Freemasons' Hall, Great Queen Street, W.C.

ANTITYPHOID INOCULATION.

L. M. has been asked if he recommends antityphoid inoculation for a person about to go to India. Our correspondent feels personally prejudiced against it, as he has heard unsatisfactory accounts of its results; but on the other hand he is aware that some authorities highly recommend it. He asks us if we can help him out of his difficulty. We advise inoculation, assuming that it will be done by an expert in the work. Technical knowledge on this subject has improved during recent years, and we do not think that there is now any serious ground for fearing that any harm will ensue when the work is done by a careful and competent person. As to the question whether it will actually do good as a prophylactic against typhoid fever, we must point out that the method is still on its trial, and we cannot expect a complete consensus of opinion until further statistics have been published. But we believe that those who express a hopeful view on the subject have reasonable grounds for doing so, and we think that when a man leaving for India expresses a willingness to be inoculated, it is wiser for his medical adviser to encourage rather than to discourage him.

NOTES, LETTERS, ETC.

PREVENTION OF DIFFICULT LABOUR.

MR. DAVIES, M.R.C.S. (Bath) writes on the question of delayed labour and its evil effects on the mother. He asks whether the fate of the child ought not to have its share of attention. Is it not often seen in consultation and otherwise that delayed application of the "forceps" is a common cause of stillbirth? He would exemplify specially the labour of the aged primipara where the membranes rupture early and the head becomes arrested in the pelvis. Given such a case, with only partially-dilated os, experience alone will tell one when to interfere if the life of the child is to be saved.

IMAGINARY CURES FOR IMAGINARY DISEASES.

DR. CHAS. E. WADDINGTON (2, Marlboro Road, Manningham, Bradford) writes: In the BRITISH MEDICAL JOURNAL of July 21st, p. 171, Dr. Chas. Mercier tells a story of "what did actually happen in one instance to his knowledge" as to a delusion of a patient that she had a frog in her stomach. The story, as I have always heard it, goes one further, and shows the physician to have been a man of much greater resource. When confronted with the lady's anger and the belief that the frog, though ejected, had left eggs in her stomach and that she would be alive with tadpoles, the physician took the frog up and examined it, then said, "That cannot be madam; it is a male," whereupon her fears were allayed. We have none of us two opinions as to "honesty being the best policy," but it is such a pity that such a well-known good old story should be spoiled by incomplete telling.

A BELOVED PHYSICIAN.

DR. A. IVOR THOMAS (Stoneycroft) writes: I take the liberty of sending you the following account taken from an old guide-book describing Southport, North Meols, etc., in the County of Lancashire, written by T. K. Glazebrook, F.L.S., and published in 1826. The monument is described as being in Ormskirk Parish Church:

"A most beautiful marble monument, surmounted with the figure of the late Dr. Brandreth in the character of the Good Samaritan, extremely well sculptured, is erected to commemorate that eminent physician. It is thus inscribed:

Sacred to the memory of
JOSEPH BRANDRETH, M.D.,
Physician to his Royal Highness the Duke of Gloucester,
The Rt. Hon. Edward Earl, and Elizabeth Countess of Derby,
etc., etc.

He was many years first Physician to the Liverpool Infirmary, and zealously exerted himself in establishing the Dispensary. His industry and talents raised him to the head of his Profession, while the kindness of his heart rendered him universally beloved.

Born Oct., 1745—Died 10 April, 1815.

In the hope through Christ of a Joyful Resurrection.

S. and T. Francey's, Liverpool.

Dr. Brandreth's decease called forth the following tribute to his memory in the obituary of a Liverpool paper, dated 14th April, 1815: "On Monday night last Joseph Brandreth, Esq., M.D., in the 70th year of his age, after a long and painful illness, which he bore with his characteristic fortitude and with perfect resignation to the will of his Creator. He commenced his career with no other advantages than his own industry and talents, and his perseverance was rewarded with unexampled success in his profession. His mind was ardent in the pursuit of knowledge, and notwithstanding the avocations of a most laborious life, his reading was universal, and few discoveries in science escaped his inquiry. He was possessed of a most accurate and tenacious memory, which he ascribed to his habit of depending upon it without referring to any notes. His medical course was principally distinguished by the establishment of the dispensary in Liverpool, by thirty years' unremitted attention to the infirmary, and by the discovery of the utility of applying cold in fever. There are few persons in this neighbourhood who have not had opportunities of judging of his worth, and who will not regret his loss."

THE BRITISH LOVE OF DRUGS.

DR. WALTER R. JORDAN (Birmingham) writes: Is not the following passage from *A Wanderer in Holland*, by E. V. Lucas, interesting on account of the light it sheds on the attitude to drugs, not of the Dutch, but of an educated and cultured Englishman? "That the Dutch are a healthy people one might gather also from the character of their druggists. In this country, even in very remote towns, one may reveal one's symptoms to a chemist or his assistant, feeling certain that he will know more or less what to prescribe. But in Holland the chemists are often young women, who preside over shops in which one cannot repose any confidence. . . . In Holland one must, in short, do as the Dutch do and remain well" (p. 11).

COINCIDENCE OR IMPRESSION?

D. O. FOUNTAINE (London) writes: I notice in the BRITISH MEDICAL JOURNAL of June 9th, p. 1384, a case reported from Gillingham, "Impression or Coincidence?"—a very singular one, certainly: but I should rather incline to the latter solution, and ascribe it to some imperfect development of the second branchial cleft.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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An Address
ON
THE RELATIONS OF MEDICAL MEN TO THEIR PATIENTS.

Delivered before the North Cumberland Division of the Border Counties Branch, May 25th, 1906.

By RODERICK MACLAREN, M.D.,
consulting surgeon, cumberland infirmary.

Two years ago we discussed The Relations of Medical Men to Each Other; last year we discussed The Relations of Medical Men to Public Bodies. This year I ask you to continue the survey of our surroundings by considering the Relations of Medical Men to their Patients.

Clubs.

Before entering on this I propose to make a few remarks on some matters which could not be well included in our previous discussions and yet are not, strictly speaking, parts of our present subject. Medical men have as patients members of every social plane, not only the rich and the poor, but a large class who are too well off or too independent to be indebted to any one for medical attendance, and yet who find it difficult to meet the expenditure which a serious illness entails. For such, a system of arranging during health for medical attendance in the time of sickness by means of the sick club has much to commend it. It tends to promote independence, thrift, and foresight. When a man is in vigorous health and earning good wages he makes provision for the almost inevitable time of illness by a small expenditure paid out of his weekly wage, an expenditure so small as hardly to diminish his weekly income. This plan is not, however, found to work with the smoothness which might be expected from it. It is alleged against it, from the doctor's point of view, that the remuneration is too small to recompense him for good work; that clubs are often under the control of men whose education and experience have not fitted them for such positions; and, lastly, that in the membership there is a large infusion of men whose incomes are sufficient to allow them to obtain medical attendance on ordinary terms. On the other hand, members of clubs often complain of inattention, carelessness, or even neglect on the part of the doctors. There is cause to fear that there is some truth in what is alleged, and that while there are clubs in which the mutual relations are harmonious and satisfactory, there are others in which there is discontent on both sides and in which the connexion only continues because one or both cannot see how to do better. The elements of good in the system are many, and raise the hope that the imperfections may be so far removed as to result in the survival of a satisfactory working condition. This is essentially a young man's question, and it is through those who are making their life's position that the remedy must come. Many a medical man now regrets his haste to accept this sort of work. Too eager for occupation in his early days to be very particular in considering its influence on his future, he has gradually got into such a position that his clubs are essential to him and prevent him being independent. What can he do? He has accepted obligations based on the income he derives from this source. Perhaps he has married and has a household depending on him. There may then be no other course open than to make the best terms available. He is no longer a free man. But in planning what his career shall be a man need not accept appointments of which the terms are unsatisfactory. If the coming men will resolve not to apply for appointments unless conditions are reasonable and just, they are bound to succeed in making them so. The fact must be faced, that at present club work is not looked on with favour, but there is no inherent reason why it should be other than pleasant: with reasonable remuneration, fair security of tenure, and work well done, it might be just as satisfactory as any other medical practice.

Insurance Companies.

Our relation to life insurance is another matter for which I ask your consideration. Sundry fallacies are sometimes advanced in relation to this subject—for instance, that we ought to promote the business of the companies to the utmost of our power because insurance tends to cultivate thrift and so on: that small insurances necessitate as much care as large amounts but will not bear the same fee. The true view is that insurance, being a purely business transaction between the company and their clients, our function is limited to seeing that the former does not make a bad bargain by accepting risks which are not covered by the averages. In no way does any principle of benevolence come into the matter, except in the effort to reduce the medical fee. Remuneration ought to be in due proportion to the time spent in examining each case. There is no justification for making it have any relation to the amount of the policy; indeed, the proposal to make it do so is only advanced as a reason for tendering a small fee. It is not usual to hear of a corresponding proposal for a *pro rata* fee in the case of large policies. Nor does any such principle obtain in the ordinary work of the consulting room. One man gets advice which alters his whole future, another receives some simple directions for a passing ailment; one has taken up the same time as the other, the fees are alike for both. How vastly different should these be if importance dictated the amount. It is not satisfactory to attempt to adapt medical fees to the importance of the issues involved, as there is no regulating standard which can be appealed to. The companies require from their medical advisers the best and most careful work; they are not justified in asking for this to be given at a cheap rate. There is, however, a plan which might be fair to both and a reasonable compromise. Let the companies adopt for small policies a less stringent examination and more limited inquiry than for large amounts. This may be asserted, that it can be ascertained whether or not a proposer has healthy organs and a good family history with an expenditure of about half the time, which most of the present schemes necessitate. The elaborate statements which some companies require from applicants, the questions being put by the medical examiner and the answers written down by him, might all be filled up before the examination to the great saving of the examiner's time. The life insurance companies might very well adopt a Standard Schedule of medical examination, eliminating from it all matters not essential to its objects. All those questions which indicate more the individuality of those who devised them than help to an estimation of the applicant's fitness would then be omitted. Of course the more thorough the examination and inquiry into family history the more perfect is the protection to the companies, but my argument is directed to meet a state of matters in which they are not prepared to pay for the time occupied in a very elaborate investigation.

Many accident insurance companies, in the case of a claim being made, ask two questions to be answered by the usual medical attendant. One is: Have you any reason to believe that the claimant was other than sober at the time of the accident? It is no part of our duty to have an opinion on this point. If we decline to answer we subject our patient to suspicion. If we have seen that he was not sober, are we justified in revealing the fact? In such a case it is best to put the question to the claimant, are we to decline to answer or are we to tell what we know? In no case should we suspect or make special inquiries on this matter. If we know that he was not sober we cannot say that he was; but it is certainly not right for us to repeat a suspicion. We are in no way bound to ask questions for the benefit of the insurance companies. The other improper question is: How long will the claimant probably be disabled, wholly or partially, as a result of the accident? This amounts to demanding prophecy for the benefit of the companies, who expressly state that the fee must come from the claimant.

Family Practice.

Coming now to the subject proper of this paper, there are various ways of regarding patients. It is possible to consider them simply as pieces of machinery out of order, which it is our business to put right. From this point of view we would not take into consideration their human feelings and failings. What they wished or desired would

be nothing to us; what they liked or disliked would not enter into our calculations. We would say to them, this do, and you will be well; that do, and you will be ill. On the other hand, we may look upon patients as creatures to be coaxed and humoured, never contradicted nor put to inconvenience by us; no storing up of trouble for the future allowed to interfere with present indulgence. Our advice may thus be limited to making life, be it short or long, pleasant while it lasts.

But the world is made up of compromises, and the most successful practitioner is the man who keeps away from either extreme; who preserves a mental attitude little influenced by feeling, having neither strong likes nor dislikes, not caring too much whether he retains patients or not; but whose sense of duty is the guiding principle of his life. The ideal medical man is tender-hearted and sympathetic, but not weak; candid, but not pitiless. He is not only sympathetic, but he shows that he is so; partly by words, but more by the efforts he makes and the attention he gives to relieving suffering. With most patients the present pain bulks more largely than ultimate results, and to convince them that they are receiving active sympathy, they must see that their present condition is fully appreciated, and that every effort is being made to alleviate it.

The majority of doctors and their patients are average everyday sort of people. It may be assumed that they are alike anxious to go on comfortably together, and that they only fail to do so from some misapprehension of their mutual relations.

Broadly speaking, we are the guides and advisers of our patients in all matters connected with their bodily health. But let it be remembered we are nothing more, let us not unduly magnify our office; we are not their superior officers, not even their guardians in the strictest sense of the word. They are at liberty to do as we tell them or not; we have no property in them as patients, and no claim to restrain them if they wish to go elsewhere. If we find that our advice is not followed, it is certainly open to us to determine that we shall no longer occupy a useless position, but this is our ultimate resort. The capable and strong man by the force of his individuality may retain a firm personal hold on his patients, but it is by his innate power, not from any right or allowable claim. The weak and obstinate man who attempts to do the same thing is not only apt to fail, but to fare badly.

To no man is a thick skin more useful than to a practitioner of medicine. There are many whose lives are embittered by the want of it, who take each instance of human thoughtlessness, of abnormal anxiety, or of the worrying condition which many people drop into in the presence of illness as implying dissatisfaction or want of confidence. It is really very rarely that this is so, and it is well to be slow in admitting the existence of such feelings. Large allowance must be made for natural anxiety. We must not be surprised if words and expressions are not quite nicely balanced. When, however, there is good reason on consideration to believe in the existence of want of confidence, the best course is to have a frank explanation, and get at the foundation of the feeling. Often this puts matters right. For misunderstanding may be the sole cause of tension. If there is any doubt on the part of patients or their friends as to the accuracy of diagnosis or the suitability of treatment, nothing more effectually restores confidence than a consultation. To most people willingness to submit an opinion or treatment to the revision of another is in itself presumptive evidence that these are careful and right? It is in circumstances such as I am speaking of that the medical man most needs to cultivate the separation of the professional from the mere human man. He should endeavour to attain the state of mind which treats business life as a thing apart from social life. Just as the soldier may have an official standard of conduct on parade which he does not feel called upon to exhibit in the mess-room.

If these measures fail to induce a comfortable and harmonious relationship, what next? Separate quietly, accept incompatibility as inevitable; do not try to drag on like coupled greyhounds. It is futile to show resentment, and do not look on the patient as necessarily a knave or a fool because your ways and his have not coincided. If there has been friendship before, do your best to continue it.

When patients elect to go elsewhere, as elect they do, it can hardly be otherwise than a matter for some thought why this is so. Under such circumstances, let the discarded man first examine himself—has he been at fault, has he been hasty or deficient in the sort of knowledge required, is he too old or too young, or has there been anything in the past which were it to do again he should do in some other way? It is a species of discipline which may be very educative, calculated to produce a just view of past events and to be a warning for the future, even should it fail to alter the present.

It is an essential condition of the relationship of professional adviser and client that the former should place at the disposal of his client all his skill, knowledge and experience in the matter under discussion. He must be prepared to answer all reasonable questions in regard to existing conditions, and to forecast the future as far as he can. He must never allow himself to deviate from the truth, however amiable be the motives which might impel him to do so. It is natural for a kindly-hearted man to shrink from telling bad news—say the hopeless nature of a disease—but it is a duty we owe to those who trust us to tell them exactly what we know or think, and it should not be shirked owing to any desire to spare the feelings of others or of ourselves. It is sometimes the wish of responsible friends that bad news be withheld, and their desire should always receive sympathetic consideration. If doing so does not involve deception, we are not wrong in being silent under such circumstances. As a rule, however, the best course is to be candid from the first about hopeless disease, about ailments which must go on to disablement, or with conditions which must lead to operation. To be otherwise may involve the possibility of one of two imputations—ignorance on the part of the doctor or wilful concealment. We must, of course, be quite sure of our data before dogmatizing: so long as doubt exists, let us frankly say so, but, when certainty is arrived at, it should be gently but decidedly stated. The medical practitioner of to-day, whether he be consultant or otherwise, must be prepared to treat his patients as educated intelligent human beings. He must be ready to give such explanations as are suited to their intelligence and knowledge, and to tell them in language which they can understand the nature of their ailments and the purpose of treatment. The day of "authority" is gone. No longer must a man rely on his personality for the acceptance of his dicta. An air of profound wisdom or a dictatorial manner carry less weight than a capacity for clear reasoning and lucid exposition. If this change has brought with it some disadvantages in the necessity of adapting technicalities to ordinary language, these are more than counterbalanced by the induction of habits, of clear and orderly arrangement of facts and opinions, and by obtaining intelligent co-operation in carrying out what is suggested.

Is there much in the relation of patients and medical men which is capable of alteration and at the same time desirable to alter? Not very much. No human being in this country need suffer for the want of medical attendance; it can always be procured in some form or another, and the cost bears a reasonable relation to the means of the people. Then the medical profession as a whole is as well remunerated as any other. It is held in good esteem by the community at large, and the social position of its members is pretty much what they choose to make it. No disability adheres to it. It has no tendency either to deteriorate the intellect or soil the soul. One phase of it, however, is capable of improvement—that irregularity of medical life which makes it a hard occupation. Some of this is essential and unavoidable; sudden illness calls for attention at whatever time of day or night it occurs, obstetric work is not amenable to regulation, and operations have often to be done irrespective of time or convenience. But after these are deducted there is still a large amount of irregular work which is not such of necessity. Few other professions are so absolutely without limit or order in their hours of work as that of medicine. The clergyman has his stated hours of duty. It is true that he is at the call of the sick and the dying at any hour day and night, but urgent or untimely requests hardly form an appreciable factor in his life. The lawyer, the schoolmaster, and the business man have each their definite and fixed hours of work. The soldier in time of peace is only on duty for stated periods. No one expects a

member of these occupations to deviate from his normal routine, but the belief is almost universal that the doctor should be available at all times day and night, and that he may be consulted or called upon to visit at any time which suits the convenience of his patient, and that he may be summoned at the time which causes the least inconvenience to send for him.

Society novels are admitted to be often good records of the manners of the time. In a recent one an aged baronet is represented as dining in town in his usual way, and then sending his butler to ask his doctor to step in because he, the baronet, was feeling uneasy about his health. Even if the accuracy of this as a picture of what is likely to have occurred is open to question, it yet shows that in the mind of the writer there was nothing which made him think such an occurrence unreasonable. In hardly any other occupation is it found possible to allow such uncertainty as to hours of work. In medicine the occurrence of real emergencies interposes an obstacle to any rigid limitation to definite working hours. However, these emergencies are rare, and my observation leads me to the conclusion that when a medical man is systematic and habitually keeps his temper under control, he can be successful in securing a life of reasonable comfort. By method and order he does better for his patients than the men who submit to irregularity and desultoriness. There is much more system in medical life than there was fifteen or twenty years ago, still there is plenty of room for more. The labour of daily work might be diminished and comfort might be increased. With hardly any exceptions every one could have regular consulting hours differing according to the nature of his practice but at rational times. Those hours alone may be adhered to for all ordinary home work. Every one can also fix hours for starting visiting. Some disability may be imposed on requests for visits at times which suit the patient, but are obviously inconvenient to the doctor, and such as are received after the usual hour of commencing the day's work. A method which succeeds very well is to require a special fee for such visits; another is to arrange that this work is undertaken by an assistant; yet a third one, which I cannot say I recommend, is plain speaking; it is not given to every one to bear the truth, and however thoughtless people may be, they are apt to resent the imputation of being so. But in whichever way it is done the comfort of medical life is much increased by requiring from patients due consideration and the avoidance of waste of time.

In no relation of life is legitimate independence more necessary than between doctor and patient. Unfortunate is the patient who feels bound to hold to his doctor for any other reason (be it social, family, or personal) than that he has faith in his professional capacity. He is in a condition of bondage apt to be tempered by subterfuge and deceit. No less unfortunate is the doctor who is afraid of his patients, afraid of his neighbouring practitioners, and whose actions are conditioned by the dread of losing practice. He had set for himself a low ideal and a still lower real is sure to result. I would have every man not only guard his own independence, but be too self-respecting to interfere with that of any one else.

In all that we do and in all that we aim at we must ever remember that we are members of an organized society with multiform relations to those about us. We are governed by the inexorable laws of supply and demand; we have our rights within those laws and so have others. We do well to obtain what is due to us, but only so long as we do not seek to encroach on the rights and freedom of others.

The *Medical Record* says that at the Lisbon International Medical Congress last spring there was to be found a table of equivalent obstetrical terms in different languages constructed by a German medical man for the benefit of his colleagues. In the English division the German term for triplets was represented by "three-twins," the umbilical cord by "caul," and the umbilical murmur by "hiss of the navel string." Other equally happy translations into English were "mooncalf" for hydatid cyst, "gastrostomy with removal of the pregnant uterus" for Porro's operation, "combined inquiry" for bimanual examination, "impervious mouth" for undilated cervix, and "cephalic carve" for craniotomy. The interchange of ideas with a German medical man who had studied this vocabulary must have been somewhat exhausting.

THE PRESENT POSITION OF PROSTATIC SURGERY.

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The development of prostatic surgery presents in its history three periods—the pre-castration period, the period during which the claims and practice of castration largely diverted attention from prostatectomy, and the present period of renewed interest in prostatectomy.

Successful prostatectomy comprises three prime factors:

1. Procedure by *enucleation* (digital or otherwise). This removes the prostate, leaving the capsule *in situ*. On its successful accomplishment mainly depend the patient's chances of life.

2. *Efficient removal* of the obstructing prostatic mass. This commonly, but not necessarily, means total, or nearly total, removal of the organ.

3. The existence, after recovery, of a *mucous urethra* in the prostatic region—a urethra preserved intact during the operation or renewed by natural processes during the course of healing.

The essential importance of all three factors is now universally acknowledged. All three were familiar to not a few operators in the pre-castration period. All three were lost sight of by the majority of surgeons in the castration period, and to this fact must be attributed their somewhat remarkable rediscovery as new within the past five years.

Prostatectomy may be performed by one or other of three methods: The vesical (suprapubic), the perineal, and the submucous combined (vesical and perineal). The perineal (pure and simple) I have rarely practised, and propose here to deal with the submucous and vesical methods alone.

Operative Procedure.

Extended experience has confirmed me in the opinion formed in my earlier cases[1] that the first step in prostatectomy should be the opening of the bladder by the suprapubic route. This permits the completion of the

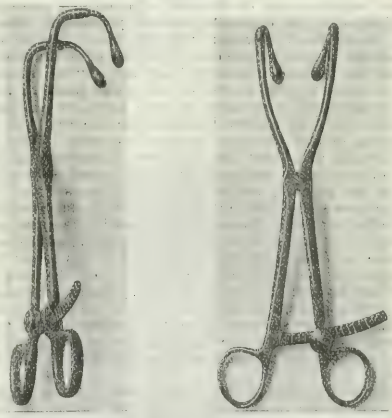


Fig. 1A. Fig. 1B.

Retraction forceps for suprapubic cystotomy wound in prostatectomy. The terminal parts of the blades are of plated copper, to permit of their form being readily altered by the fingers to suit varying degrees of corpulence.

diagnosis—the exclusion of carcinoma of the prostate and of encysted abscess or calculus—and the complete bimanual examination of the prostate (one finger in bladder and the other, gloved, in rectum). On the results of that examination a decision is come to as to whether the urethra and mucous floor of the bladder are to be preserved intact or not. Such preservation is unattainable by the vesical method, is occasionally effected by a happy chance by the perineal method (pure and simple), and can be uniformly secured by the combined or submucous method alone. The further course of the operation, therefore, takes the form of the submucous combined or of the vesical method of enucleation. As a

preliminary to either it is well, in cases in which a difficult operation is anticipated—a tough, fibrous prostate or a fat patient—to secure the margins of the bladder wound to the skin incision by a couple of stout silk sutures, or by use, in corpulent patients, of the retractors shown in Figs. 1A and 1B.

SUBMUCOUS ENUCLEATION.

Pass a metal urethral sound. Place the patient in the lithotomy position. Expose the prostatic capsule by a perineal incision, and open it on its postero-inferior aspect. Enucleate the prostate from its capsule, leaving intact the mucous floor of the bladder and the mucous urethra, the former being defined (and protected) by the fingers of one hand in the bladder, and the latter by its contained metal sound. The perineal wound (including the empty prostatic capsule) is lightly packed with gauze. The vesical (suprapubic) wound is sutured round a drainage tube. The abdominal parietal wound is partly closed. The practice of tying in a catheter, formerly followed, has been discontinued.

Comment on submucous enucleation as above described concerns the following points:

The Perineal Incision.—The most suitable is the lithotomy-inverted Y. It has been in use for prostatectomy in the practice of more than one surgeon for at least fifteen years, and its recent appearance as a new feature, at the instance of a distinguished American surgeon,[2] constitutes one of many instances of late of the effect of the "castration period" in obliterating the records of pre-castration work. The inverted Y incision, and, in a few of my earliest cases, a single "median lithotomy" incision are the only incisions I have ever made use of, despite the illustrated descriptions of various ideas in this matter attributed to me by recent authors.

The Opening of the Capsule.—This is effected either by a median vertical incision or by a crucial incision. These are the only methods I have ever made use of or published, and I have no claim to the "H incision" or the "two lateral incisions, near and outside of the median line," which have been repeatedly described as mine.

The Completeness of the Removal.—In my first published description of the operation, twelve years ago (*Lancet*, 1894), occur the following: "Briefly, the operation is a submucous removal of the entire prostate or as much of it as may be deemed necessary," and again, "the surgeon . . . removes by the fingers of his right hand . . . the entire prostate," piecemeal, in two lobes, or *en masse*. The accompanying illustrations indicate the scope of the operation in one direction, removal *en masse*. They are photographs, and show the difference in surface appearance of specimens removed by digital enucleation alone and by that aided by instruments. Specimens 2 to 5 inclusive were shelled out of the prostatic capsule entirely by the finger alone. Specimen 6 shows in its upper part the easily detached, and therefore smooth, surface of a prostate enucleated by the finger, and in its lower part evidences of the action of the scissors in detaching the layer left around the intact urethra. Specimen 7 shows the rough aspect of the internal faces of the lateral lobes as detached by scissors from the urethra. The back (external aspect) of the specimen has the smooth, rounded cortex of the organ which has been "shelled out" by the finger.

Complete removal of the prostate was not new in 1894, when the paper quoted above was published. At that date complete or total removal of the prostate had of course been performed by other surgeons, making use of different methods. From that date onwards total removal of the prostate became quite common. When, therefore, in 1901 total removal was announced as something new, it is difficult to say whether amusement or indignation predominated in the minds of surgeons who were abreast of prostatic operative developments.

THE METHOD OF ENUCLEATION.

By whichever method operating, vesical or submucous, the surgeon, once the prostatic capsule has been opened, requires no other instrument than his finger, *provided he is prepared to bring away, in whole or in part, the mucous urethra*. This was emphasized long ago by McGill, and digital enucleation has been constantly made use of since his day. It is, therefore, not a little suggestive of the lack of knowledge of the work of the pre-castration period exhibited by certain recent writers that the past five years should have seen digital enucleation put forward as something new on the one hand, and, on the other, its feasibility denied on theoretical grounds.

Operating by the submucous method, it is possible in 70 per cent. of the cases to enucleate the prostate by the finger alone without damage to the urethral or vesical wall. In dealing with tough "fibrous" prostates, however, it is necessary, if the urethra and bladder are to be preserved intact, to make use within the capsule of some form of cutting instrument in addition to the finger. For such cases of hardish prostates two Continental surgeons have recently each independently published an operation, the feature of which is the preservation of the integrity of the urethra by leaving a layer of prostatic tissue adherent to it. That is, of course, the essence of success in cases of *hardish* prostates, and its necessity has been evident to these surgeons. Their papers appeared in the *Centralblatt für Chirurgie*, October 11th, 1902, and *Deutsche med. Woch.*, October 29th, 1903, respectively. Like many other recent converts to prostatectomy they have been placed at a disadvantage by the hiatus in the records caused by the castration period. The procedure is one of pre-castration origin. Reference to my papers in the *Lancet*, April, 1894, and BRITISH MEDICAL JOURNAL, October, 1898, will show a description of the procedure, while in the *Lancet*, July, 1894, is figured the gouge cutting forceps I formerly used in carrying it out.

The idea of removing the prostate in two lobes after bisecting it longitudinally along its inferior aspect has been recently advocated by another Continental surgeon. He has embodied it in a monograph on prostatectomy. His first description of it, however, appeared in the *Compte Rendu de l' Assoc. Franc. d'Urologie*, 1902. It is a useful manœuvre in certain cases, and constitutes what I have for years been in the habit of calling "slitting the book up the back" (and then removing the lobes separately from their beds as they lie enfolding the urethra (Fig. 8), as against "opening the book from the front" (Fig. 9).

DAMAGE TO THE MUCOUS WALL OF URETHRA AND BLADDER.

The submucous method was devised to obviate this, at a time when it seemed essential to keep the (often putrid) urine of the patient from entering and lodging in the vacant prostatic capsule, with possible pyogenic toxaemic effects, and when the preservation of the urethra appeared to be the *sine qua non* in the securing of early restoration of normal micturition. Of late two facts of importance have been demonstrated by increasing experience. The first is that many chronic catheter prostatics are immune with reference to putrid urine. The other is that the mucous urethra is very readily reproduced after removal in the course of a prostatectomy. (It has been suggested that the mucous wall is reproduced by proliferation of portions of the glandular tissue of the prostate left adherent to the capsule after enucleation of the prostate. From appearances observed in a case in which death occurred from cerebral embolism three weeks after prostatectomy, I am inclined to the view that, in cases in which complete enucleation has been performed, the restoration takes place by extension from the mucous membrane of the bladder behind and the urethra in front of the gap.) The immunity of a number of the patients dealt with and the ready restoration of the mucous urethra have combined to render the submucous method in my practice now a matter of choice as between it and the vesical, and I find the tendency increasingly towards vesical enucleation. For a considerable proportion of cases, however, the combined submucous method is retained. Its comparatively small haemorrhage, the preservation of the evacuated prostatic capsule from urinary contamination and phosphatic deposit, the early restoration of urethral micturition, and the shortness of the bedridden stage of convalescence, all tend to make it the method of choice in old or much-enfeebled patients. As against these advantages my statistics show the disadvantage of the second wound to be inconsiderable.

FREYER'S FIRST CONTRIBUTION TO PROSTATIC SURGERY.

When, towards the end of the Nineties, the castration period finally gave place to the inevitable revival of general interest in prostatectomy, the periodicals were so burdened with records of castration that enthusiastic



Fig. 2.—Entire prostate removed by perineal enucleation in 1899. Patient aged 68. Weight of prostate, 5 oz. Urethra and bladder left intact.

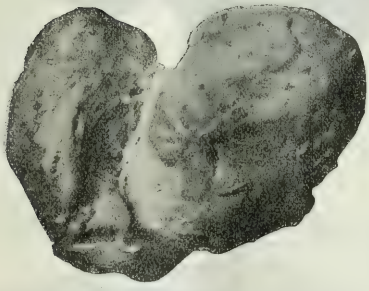


Fig. 4.—Entire prostate removed by enucleation in 1895. Patient aged 62. Weight of prostate, 3½ oz. Urethra and bladder left intact.

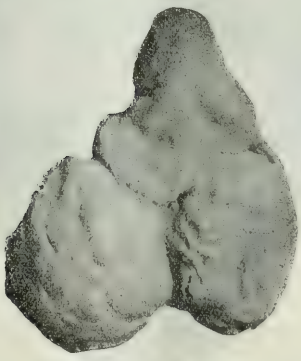


Fig. 5.—Entire prostate removed by perineal enucleation in 1899. Patient aged 75. Weight of prostate 2¼ oz. Urethra left intact, but a portion of the mucous floor of the bladder, of size of sixpenny piece, came away, adherent to the projecting median lobe.

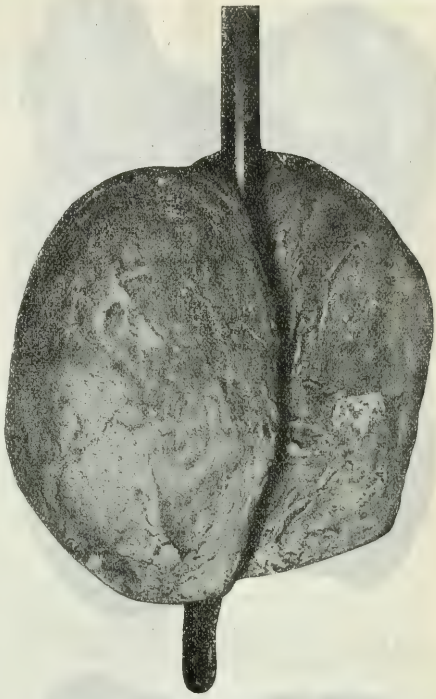


Fig. 3.—Entire prostate removed by perineal enucleation in 1900. Patient aged 59. Weight of prostate, 4 oz. Urethra and bladder left intact. The lobes have been folded into their natural position embracing the urethra.



Fig. 6.—Prostate, weighing 5¾ oz., removed by perineal enucleation in 1900 from a patient aged 66. Upper portion (smooth) enucleated by finger; lower portion (rough) detached from urethra by scissors cuts.

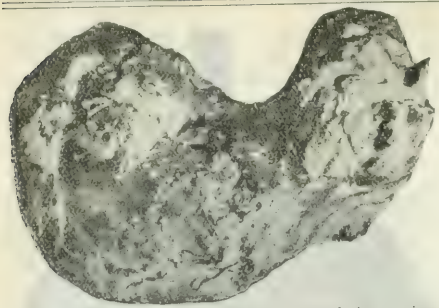


Fig. 7.—Prostate, weighing 4½ oz., removed by perineal enucleation in 1902 from a patient aged 71. A considerable layer of prostatic tissue, cut bit by bit with scissors, was left surrounding the urethra (vide text).

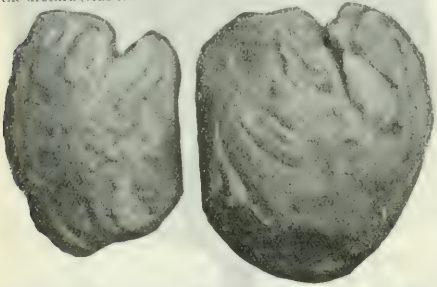


Fig. 8.—Lateral lobes of prostate removed by perineal enucleation in 1897. The prostate was bisected, and the lobes detached from the urethra, which was left intact. The gaps represent wedges removed for histological examination.

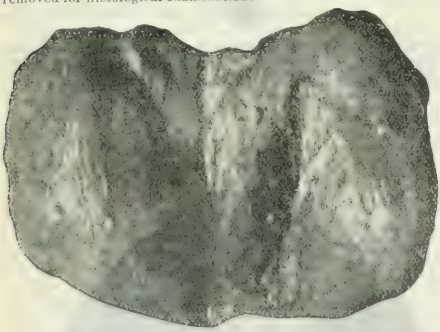


Fig. 9.—Entire prostate removed by perineal enucleation in 1901. Patient aged 77. Weight of prostate 5 oz. The specimen is viewed from the anterior aspect. It is pinned out, opened like a book. The two lobes were folded round the urethra, which was left intact.

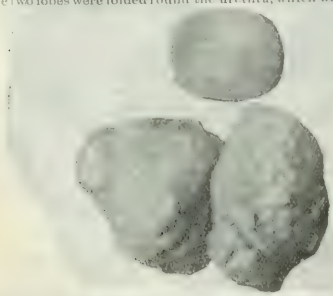


Fig. 10.—Entire prostate removed in two lobes by vesical enucleation in 1903. Weight of prostate, 1½ oz. The lobes have been placed in their natural relations, and above them a button-shaped calculus, which lay behind the prostate and was diagnosed only after the bladder had been opened. No mucous membrane could be identified adherent to the specimen.



Fig. 11.—Entire prostate removed in two lobes by vesical enucleation in 1900. Weight, 3½ oz. A portion of the urethral mucous membrane is adherent to the left lobe.



Fig. 13.—Prostate enucleated *en masse* by vesical route in 1898. Weight, 4¾ oz. The specimen possesses an unusually perfect "capsule." The urethra traverses the specimen longitudinally.

recent converts to prostatic surgery may well be pardoned the somewhat wholesale overlooking of previous work in prostatectomy which many exhibited. None the less, throughout the castration period prostatectomy was being practised and improved by surgeons who had early become convinced of the inefficiency of castration. Amongst these, Mayo Robson, Albarran, Fuller, Alexander, Goodfellow, and the present writer

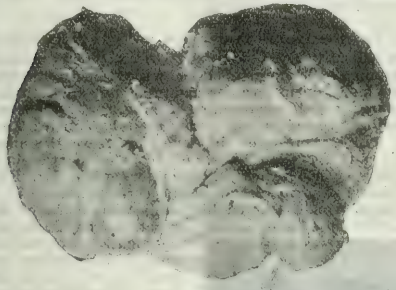


Fig. 12.—Entire prostate removed *en masse* by vesical enucleation in 1899. Weight, 3 oz. No mucous membrane could be detected in the specimen, but the urethra toru transversely across was identified in the cavity left by passing a bougie and examining around it with the finger.

had all put on record published results which were available. To the overlooking of these and others must be attributed much of the confusion which followed. Amongst those whom the general revival of prostatectomy brought into the field was Mr. P. J. Freyer, who within eighteen months published two "new" methods of removing the prostate, one by the perineal and the other by the vesical route. The ideas underlying both were the preservation of the urethra and the removal of the entire prostate. Neither operation was new. Mr. Freyer's first

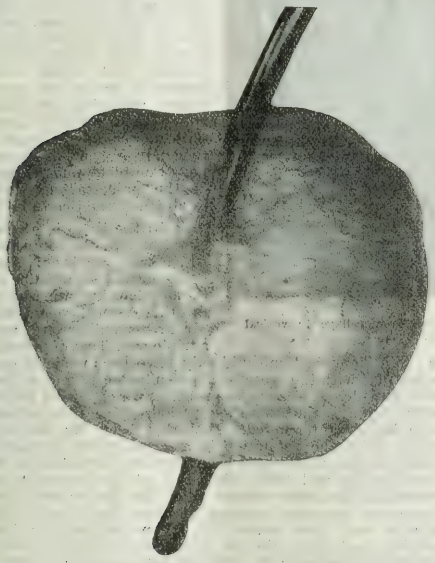


Fig. 14.—Prostate enucleated by vesical route in 1902. Weight, 4½ oz. The urethra traverses the specimen.

publication concerned a perineal operation which he regarded as an improvement on the combined submucous method as above detailed. It was described to the Medical Society of London in 1900 under the title of A New Method of Performing Perineal Prostatectomy. By this method, he states in his pamphlet, *Stricture of the Urethra and Hypertrophy of the Prostate* (page 105) "Nicoll's objects are attained by a much less serious proceeding.' The operation described consists in the removal of the prostate from its capsule by one hand while the organ is hooked down into the perineum by a finger passed into the bladder through an incision made

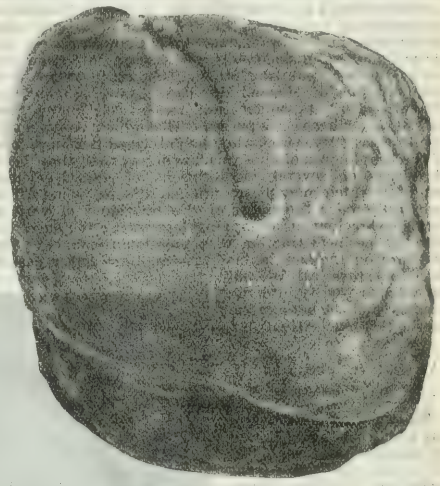


Fig. 15A.—Prostate enucleated by vesical route in 1897. Weight, 3½ oz. The urethra traverses the specimen. A year previously castration had been performed without benefit.

in the urethra. Mr. Freyer has ignored both my private note to him regarding the misrepresentation of my operation contained in the above statement and the two letters which I sent to the British Medical Journal regarding his position and claims in the course of the general correspondence in the autumn of 1901. In the matter of this perineal operation Mr. Freyer is doubly in error. In



Fig. 15B.—Lower aspect of Specimen 15A, showing aperture of urethra.

the first place, the operation he describes does not, as he asserts, attain the object of the operation known as mine. That object is, primarily, the preserving intact of the bladder floor and urethra, in order to prevent urine entering the evacuated prostatic capsule and perineal wound. An operation such as he describes, and which involves the initial opening of the deep urethra and neck of

the bladder, can attain no such object. In the second place, the operation described is not new. It was a well-recognized procedure in the pre-castration period, and has been continued since. References to such enucleation, as carried out by different operators, exist in surgical literature at least from 1890 onwards. From documentary evidence in my possession, I am inclined to the belief that, amongst the earliest, if not indeed the first operator to enucleate the prostate in this way, was Sir William Macewen. So far as I am aware, Macewen's work in this direction has not as yet been published, though known to others, vide both editions of Mansell-Moullin's *Enlargement of the Prostate*. Perineal enucleation, as is well known, has passed through several phases. That which commended itself to Mr. Freyer was, when he published it as new, one of the best known of these, as having at that time been the basis of several modifications or improvements, amongst which may be mentioned the following: The substitution for the finger of the left hand of various forms of tractors, as occupying less room; the substitution for perineal traction of depression from above, by pressure on the suprapubic parietes, by a finger passed into the prevesical fat, and by a finger passed into the bladder, and the submucous method of enucleation.[1]

VESICAL ("SUPRAPUBIC") ENUCLEATION.

The method followed in my practice is that of McGill as modified and extended in scope by subsequent operators, notably Mayo Robson, Fuller, and Watson. The bladder having been opened over the pubes, a scissors snip is made in the mucous wall of its neck. Through this the finger of one hand is introduced into the interior of the prostatic capsule, and the entire prostatic mass, so far as identifiable by sense of touch, enucleated in one or more portions, counter pressure being meantime made by the fingers of the other hand (gloved) in the rectum. The glove having been removed, the suprapubic vesical wound is partially sutured (usually round a large drainage tube), and the skin incision similarly partly closed. The accompanying photographs illustrate the appearances of prostates so removed (Figs. 10 to 15). Comment on the vesical method as above described concerns the following points:

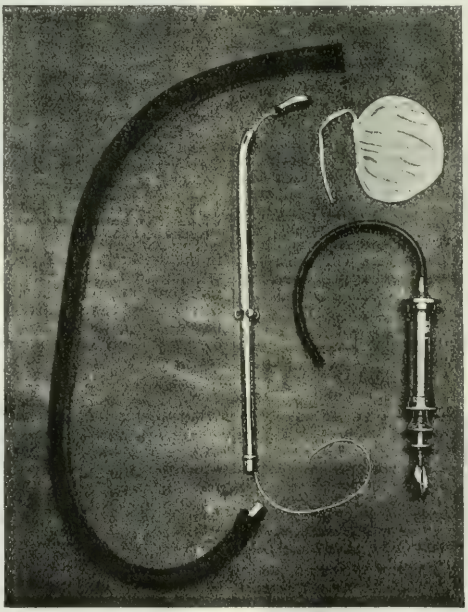


Fig. 16.—Apparatus for control of haemorrhage in vesical enucleation (vide text).

Control of Haemorrhage.—I have never seen fatal haemorrhage following prostatectomy by any method. It is, however, occasionally considerable for some hours after operation. This occurs only in the vesical operation. In the submucous it does not occur, being prevented by the packing introduced into the evacuated capsule. In cases of old and feeble patients, where the loss of blood may seriously delay convalescence, I am in the habit of following the submucous procedure, or, if adopting the vesical method, of employing the special catheter figured below as a means of applying pressure by means of a pad soaked with adrenalin for a few minutes to a few hours as may be deemed necessary. The catheter (Fig. 16) is passed, the end detached and brought out by the suprapubic wound. In its place the gauze bag filled with gauze (or a gauze pad) is attached to the silk string and lodged in the vacant capsule and vesical neck. The syringe and tube are used for the application of adrenalin (Fig. 17), and pressure is secured by firmly pulling on both string and catheter, and fixing them in position for a time if necessary. It is but rarely, however, that such measures prove necessary.

The Method of Enucleation.—This is performed by the finger, as originally advocated by McGill, and practised since his time by various operators, including Mayo Robson, Fuller, the present writer, and others. Of the many astonishing instances of "rediscovery" of old facts as "new" within the past five years, none has been more striking than that of "digital enucleation" of the prostate.

FREYER'S SECOND CONTRIBUTION TO PROSTATE SURGERY.

In 1901 Mr. Freyer[1] described a second "new" method of removing the prostate (this time by the vesical route), which he claimed "opens up a new and promising era in this field of surgery with far-reaching results." The operation described consists in the digital enucleation of the entire prostate in one or several masses. Such an operation was, of course, a well-known measure in use by various operators when Mr. Freyer published it as new, and in the correspondence in the JOURNAL which followed his publication, many of these operators drew attention to the remarkable oversight on the part of Mr. Freyer of descriptions of it and references to it existing not only in periodical literature but in standard works. The operation constitutes the final form of McGill's method, in the ultimate development of which two names, amongst others, stand prominently out, those of Mayo Robson in Great Britain, and Fuller in America. At the date of Freyer's publication it had become quite common, and, as stated at the time,[2] I had then seen it carried out by several surgeons, and, though largely then practising the submucous method, had myself employed it on several occasions, removing prostates which constitute specimens quite as "complete" as anything Mr. Freyer has shown us. Complete enucleation of the prostate was well-established practice in 1900.

So far the issue is of the simplest, and the confusion which arose, and is only now being cleared up, was due to the fact that the claim which, in this vesical operation, Mr. Freyer put forward, was a triple one. That of priority in "total" enucleation could only have been made by one unfamiliar with the records of prostatectomy, and at the time at which it was made—a date at which, owing to the intervention of the castration period, these records had been largely interrupted. Had that been Mr. Freyer's whole claim the refutation it met, wide and emphatic though it was, would have been more so; for not a few of those familiar with total enucleation of the prostate were puzzled by the further claims which Mr. Freyer included. These were somewhat striking, and time has been necessary to test their value. So far as opportunity has enabled me to ascertain the opinions of other operators, I find them ranged with my own against their validity. These claims were two:

(*a*) *Removal of the Prostate and its Capsule.*—Mr. Freyer's claim to have removed the prostate surrounded by its capsule was more than a little puzzling. In the correspondence which followed I published in the BRITISH MEDICAL JOURNAL an untouched photograph of an entire prostate removed in the Alpin Home, Glasgow, in 1889, and in referring to it[2] said, "if the photograph . . . be

examined it is possible to discern the strands and contour of a fibrous investment. That is possibly what Mr. Freyer refers to as the 'capsule'" in his description of his specimens. And in the same correspondence I stated that I had in my possession several complete prostates removed by operation (by both vesical and submucous methods), all of which possessed the same fibrous-looking investment or capsule. Since that date I have seen Mr. Freyer's specimens. Their investment or capsule is exactly that possessed by mine and by many others which existed in the collections of various operators when he believed he had accomplished something new.

With reference to Mr. Freyer's further conclusion that he had discovered something new in the anatomy as well as in the operative surgery of the prostate, facts are again against the claim. Mr. Freyer announced the discovery of a second or true capsule of the prostate, and[7] in support of this claim stated that

> Appeal to the anatomy of the prostate as taught in the schools and textbooks was of no avail. He had in his first lecture shown that this was defective. . . . He supposed that the chief object of anatomy was to teach surgery, but they might have gone on to the "crack of doom" without discovering this operation if guided by the anatomy of the textbooks.

Probably one of the most popular text books of the schools is Gray's *Anatomy*. Had Mr. Freyer consulted it he would have found this—

> The prostate is immediately enveloped by a thin but firm fibrous capsule, distinct from that derived from the recto-vesical fascia, and separated from it by a plexus of veins,

and had he been desirous of information on the matter he might have got from anatomists and surgeons alike further information regarding it. In a recent paper on prostatectomy in the *Annals of Surgery*, April, 1905, Fuller puts the matter clearly:

> I remove the same amount of capsule and the same amount of hypertrophy that he (Mr. Freyer) removes, as can be seen in the pictures in my article (*Journal of Cutaneous and Genito-Urinary Diseases*, June, 1895). I do not, however, assume in my article that the capsule I remove is the capsule proper of the prostate. I purposely left that question open as one for the anatomists and histologists to decide.

Fuller's specimens, when Freyer wrote, were numerous, and at that date, as my own publications show, such specimens existed in possession of many other operators, and, in my own case, had been discussed by prominent anatomists, with special reference to this "capsule," which Freyer puts forward as "new." Space does not permit further discussion of the matter here, but in a future publication it is my intention to return to certain observations made regarding the investment of the hypertrophied prostate in which I have recently had the valuable assistance of Drs. J. H. Teacher and Leslie Buchanan of Glasgow.

(*b*) *The Removal of the Prostate "as a whole" while the Urethra is left "Intact."*—Shortly after Freyer published this claim one of my students, who had been practising prostatectomy on the cadaver, told me he had failed to do this, and asked if it was any more easy on the living patient. The statements I made to him were: (1) That I had good reason to believe that in supposing he had accomplished removal of the prostate in one mass by the vesical route, while he left the urethra intact, Mr. Freyer would, with further experience, discover that he had been in error; (2) that my experience of prostatectomy had taught me that it was not always easy to say at first glance whether the enucleated specimen contained a portion of the mucous wall of the urethra or not, and that until the specimen had been placed under still water and inspected by a lens at the time of the operation, and, further, hardened and examined histologically, I had learned to distrust my own impression, and any man's statement as to the presence or absence of mucous membrane; (3) that Mayo Robson and others had demonstrated years ago that the entire prostate could be removed by vesical enucleation, leaving the urethra intact, provided the prostate was brought away in two or more lobes; (4) that by combined (vesical and perineal) enucleation alone could the urethra be preserved intact while the prostate was removed in one mass. That was in 1902, and I have seen no reason since to modify these statements.

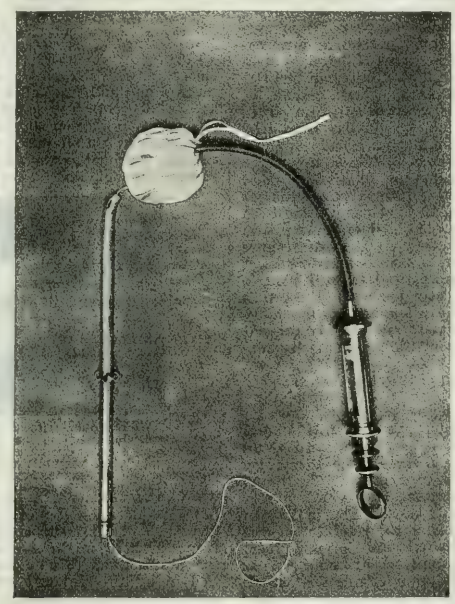


Fig. 17.

Mortality Rate of Prostatectomy.

Prostatectomy by enucleation constitutes the cure for senile hypertrophy of the organ and its effects. When efficiently carried out the cure is complete and permanent in the large majority of cases. In the few in which it is not so the degree of relief obtained is considerable. The mortality rate shows a steady tendency to decrease, and may now, over all (operators and methods) be fairly stated at from 5 to 7 per cent.

My own results demonstrate the effect on an operator's statistics of a factor familiar in other operative work, namely, the judicious choice of cases. Excluding cases in which castration, or partial operation, have been performed, the cases in which I have performed enucleation fall into three series or periods. The first series comprised 48 cases, with 4 deaths, or rather over 8 per cent. The second comprised 25 cases, with 5 deaths, or 20 per cent. The high mortality rate of this period was the direct result of unconscious over-confidence, the effect of previous favourable experience. Two of the five deaths occurred in cases in which I had previously, on account of the patients' feeble and unsound condition, discouraged the idea of operation. The third or most recent series shows a much lower death-rate. Ending December 31st, 1905, it shows 38 cases, with two deaths, or, approximately, 5½ per cent. There would appear to be no reason why, by a rigid selection of cases, the mortality rate should not be brought down to something approaching that of the radical cure of hernia. Fuller's latest statistics, which are the lowest of which I have knowledge, now touch 4 per cent.

References.

[1] *Lancet*, April 14th, 1894, and British Medical Journal, October 29th, 1898. [2] *Journal of American Medical Association*, August 15th, 1903. [3] British Medical Journal, August 24th and September 14th, 1901. [4] Ibid., July 28th, 1901. [5] Ibid., August 21st, 1901. [6] Ibid., September 14th, 1901. [7] Ibid., October 17th, 1903.

Mr. Walter Emden's scholarship of £100 for the best original work performed in the laboratories of the Middlesex Hospital has been awarded this year to Dr. Victor Bonney.

Under the will of the late Colonel Oliver Minster, of Coventry and the 2nd Volunteer Battalion Warwickshire Regiment, the Coventry and Warwickshire Hospital will benefit to the extent of some £15,000. The greater part of this amount it will receive at once, and the rest on the decease of certain persons mentioned in the will. The income of the estate immediately inherited is to be used for sending poor patients to convalescent homes.

A Lecture

ON

A SERIES OF CASES IN WHICH COLLECTIONS OF STONES FORMED IN THE PROSTATIC URETHRA.

DELIVERED AT THE MEDICAL GRADUATES' COLLEGE AND POLYCLINIC.

BY CHARLES A. MORTON, F.R.C.S.,

PROFESSOR OF SURGERY IN UNIVERSITY COLLEGE, BRISTOL; SURGEON TO THE BRISTOL GENERAL HOSPITAL AND THE HOSPITAL FOR CHILDREN AND WOMEN.

GENTLEMEN,—As it is uncommon to find collections of stones in the prostatic urethra I thought the records of the following three cases, which have been under my care, might be of interest to you. I wish to make it clear at once that I do not consider that they are cases of prostatic stones, that is, stones formed from the prostatic secretion within the gland; nor can we, I think, regard them as stones formed within the prostate, but of urinary origin. There is no evidence that they were formed within the prostate. The prostate seems to have disappeared from pressure, or at any rate to be so flattened out as to be unrecognizable, and the stones lay in the greatly dilated, and, in some cases, pouched, prostatic urethra. There can be little doubt that they are cases of urethral calculi, and an interesting question is, Were they formed entirely within the urethra, or did they come originally from the bladder or kidneys, and lie in the urethra, and grow there from accession of phosphatic deposit? And if they came from the kidneys, why did they lie in the prostatic urethra, rather than pass farther down the urethra, or even out of it altogether? And if they never came from the bladder or kidneys, but were formed entirely within the prostatic urethra, why were they so formed? These are the questions which it seems to me we want to answer in our study of these cases; and it will be well, also, to note the symptoms and signs associated with this condition, and to discuss briefly what can best be done to remove the stones, and to prevent their re-formation. To prevent their re-formation seems the great difficulty, at any rate in some cases.

I will now give you an account of the three cases.

CASE I.

A. C., aged 35, was admitted to the Bristol General Hospital, under my care, as a case of stricture, on January 28th, 1901. The urine seemed to be constantly dribbling away, and he never had any stream. There was a history of difficulty with micturition extending over fifteen years, and that instruments had been passed fifteen years ago. There had never been actual retention at any time. Eighteen months before admission there had been painless haematuria every time he passed urine for several weeks, and again after an interval of a fortnight, in which he was free from this symptom, he passed clots for three days with great pain. He had passed a No. 6 soft catheter for himself six months beforeadmission: this was the last time an instrument had been passed. There had been no stream—only dribbling of urine for three months before admission. An attempt had been made to pass a catheter by another surgeon in the out-patient room before admission, but had failed. There had never been much pain with micturition, except on the few days he passed the clots, already referred to; but for twelve years there had been a slight pricking pain at the end of the penis and in the perineum after micturition. This might, however, be absent for several months. There was no history of any sudden stoppage of the stream of urine at the time he had passed it in a stream. He had suffered from pain in both loins as long as he had had difficulty in micturition.

The bladder was not distended. The urine contained a tenacious mass of pus floating in it. I passed no instrument for several days after admission, as at first he had some pyrexia. I then passed Lister's sounds up to 2.5 without much trouble, but I did not then detect the stones, and regarded the case as one of stricture only; but, a few days later I again passed the same sized sound (2.5), and at once struck a stone in the deep urethra, nor could I get it past the stone this time. Examination per rectum revealed a large irregular stone lying in the position of the prostate, and it felt as if only the mucous membrane of the rectum lay between the finger and the stone. When under the anaesthetic another rectal examination revealed the fact that several stones were present, and that they grated on one another. This time the 2.5 Lister's sound passed into the bladder

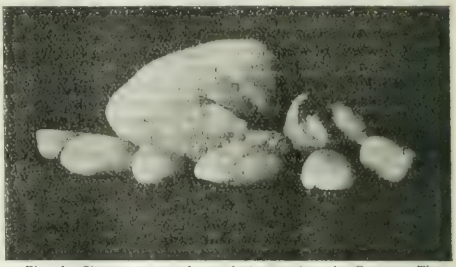


Fig. 1.—Stones removed at first operation in Case I. The branched stone lying in front of the large stone is the one removed from the bladder; on its upper branch a cup-shaped facet can be seen. The stone on the right of the large stone has been bisected. The photograph represents the actual size of the stones.

easily, and also a No. 5 grooved staff, on which I opened the urethra just in front of the anus. It was greatly dilated, and pouched in a downward direction, and full of stones. The largest I had to extract with small lithotomy forceps, the others I turned out readily with my fingers. The neck of the bladder was easily made out, and the finger passing through it detected one stone within the bladder,



Fig. 2.—The stone removed from the bladder in Case I at first operation. It is seen in the photograph of the group of stones removed at the first operation the actual size of the stone: in this photograph it is very slightly magnified in the photographic process. The cup-shaped facet is well shown.

which was removed. A sound passed into the bladder failed to detect any more. The walls of the pouch were smooth, and all trace of the prostate had disappeared. I found there was a stricture in the scrotal portion of the urethra, and this I dilated with Lister's sounds, and tied in a full-sized catheter. There were seven stones, and three minute concretions in the pouch in the prostatic

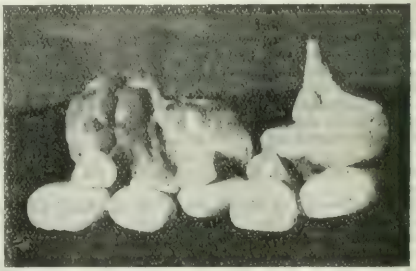


Fig. 3.—Stones removed at third operation in Case I. The photograph represents the actual size of the stones.

region, one in the bulbous urethra, as well as one in the bladder. Many were faceted. The largest stone (which was one of those in the pouch) was $1\frac{1}{2} \times 1$ in., and weighed 208 grains. It is composed entirely of phosphates. There appeared to be a minute nucleus of uric acid, and a layer near the periphery looks like uric acid, but a chemical

examination does not show any trace of uric acid. All the other stones I have sectioned seem to be entirely phosphatic. The stone found in the bladder is of a very remarkable shape, like two stones joined at an acute angle, and on one branch is a small facet. This stone was probably partly urethral, and projected into the bladder, into which it eventually slipped. I have not made a section of it to determine the structure of its interior, in order not to destroy its remarkable shape, so I cannot say whether it is entirely composed of phosphates or not.

The catheter was retained for a few days only, and then the urine came for a time by the perineal wound. This healed in April, and he was then much better, had gained flesh, and passed urine without pain every two hours, and he was able to get out in the exercise ground of the hospital; but early in May he began to suffer from pain above the pubes, associated with sudden stoppage of his urine, and a stone was discovered in the prostatic urethra. He also had more pain in the loins since he had been getting about freely, and a skiagram was taken to see if there were any indication of stone in the kidney, but it did not show any.

On May 10th I again explored the urethra and found the old pouch empty, but I detected the point of a stone projecting into it from a cavity on the right, and in dilating the orifice I found it contained several stones, two branched like renal stones and a few smaller ones. The cavity seemed to extend backwards under the bladder, and was not quite as smooth as the pouch originally emptied. I could feel no stones within the bladder this time. I have no note as to when the perineal wound healed, but a few months after the operation he passed two small stones, and several were felt by me in the urethra, but they did not cause any trouble for some time after that.

He came under my care again rather more than two years later (October, 1903), and then the urine only dribbled away, and he had much pain with micturition, very disturbed nights, and his urine was very ammoniacal, and contained much pus. Stones could be easily felt in the deep urethra. He still had the loin pain on both sides, and he said it extended into the groin, and was worse on the right side. A skiagram of the kidneys was again taken, but with negative result. I removed fifteen stones from the prostatic pouch, and he returned home in the following month, when the perineal wound completely closed. No stones were found in the bladder. After the removal of the stones, until they formed again, he was free from the loin pain, but unfortunately they very quickly re-formed. I had to remove two more in the following February (1904), and in June the house-surgeon removed one which was impacted in the urethra and which caused retention; and again in November, 1904, I had to remove some stones from the pouch, and a stone which was fixed in the urethra had to be removed by an incision in the peno-scrotal junction. At this time I decided to explore the kidney on the side in which he had most pain, but found no stones in it. The last operation was in March, 1905, when numerous small stones were extracted from the pouch and some from the urethra between two strictures at the peno-scrotal junction. I saw him again last February. He said he passed small stones occasionally, and felt sure there were some in his urethra. I did not feel any from the perineum, but I did not examine from the rectum. I also dilated the strictures fully with Lister's sounds, but did not detect any stones. He had no pain with micturition, but a fistula persisted in the perineum from the last operation. He was able to work as a painter again, and looked better than I had seen him for several years. He has thus had stones removed by incision six times; once a stone which caused retention was removed by forceps, and he has frequently passed stones.

Case II.

The patient, H. W., aged 34, was admitted into the Bristol General Hospital, December 6th, 1904. There was a history of retention of urine when a boy, which was relieved by some operation on the end of the penis, and, from the appearance of the orifice of the urethra, the meatus had apparently been slit up, perhaps to extract an impacted stone. He told me that from this time he had suffered from incontinence. Nine months before admission he had had a catheter passed for retention, and a month later two stones were removed from the scrotal portion of the urethra by incision, and there a urinary fistula remained, through which the greater portion of the urine came. There was a slight stricture not far from the meatus, which was easily dilated to a certain extent, but the smallest size sound was obstructed in the perineum, and in the prostatic region two stones could be felt grating on one another per rectum. The urine was ammoniacal and contained pus. On December 20th I opened the urethra in the same place as in the last case, and removed from the prostatic urethra a stone the size of a small marble, which had broken into two pieces. The prostatic urethra was not only dilated, but was considerably elongated, so that it was difficult to reach the neck of the bladder, but I did so, and also sounded the bladder, but with negative result. The stricture was fully dilated when he was under the anaesthetic. The perineal wound was healed when he left the hospital at the end of a month after the operation, but the fistula was not. The prostatic urethra was so dilated that by pressure on it a stream of urine could be forced out of the fistula.

Case III.

T. F., aged 63, was sent to me by his doctor with stricture, perineal fistula, and recurring scrotal abscesses. He had had Wheelhouse's operation performed by another surgeon many years before, and the fistula remained from that. He had been able to pass an instrument for himself until one year ago, but since then had failed to get it in. The urine was ammoniacal and contained pus. I found a stricture at the junction of the penis and scrotum, but under an anaesthetic easily dilated it to the full; but the large-sized sound was very tightly gripped all along the deep urethra. In passing the sounds I found stones in the prostatic region, and they could be easily felt per rectum. On January 31st I cut through the scar tissue of the old Wheelhouse into the urethra and removed from a greatly dilated prostatic portion several fragments of stone, which altogether weighed 95 gr.; this stone is partly composed of calcium oxalate. I could just reach the neck of the bladder beyond, and I sounded the bladder with negative result. The prostate seemed to have disappeared, the floor of his pouch being apparently formed of the urethral and rectal walls only. The fistulous track was dissected out, and its walls brought together with catgut, and a large-sized catheter tied in. He was much relieved by the operation, but the fistula was not cured.

In all these cases the presence of the stone was associated with a stricture of the urethra, and thus the passage of stones out of the urethra was obstructed. It was not a very tight stricture in any of the cases, and was easily dilated to a considerable extent; but still it was enough to obstruct any calculus. But how were the stones formed? The prostatic urethra may dilate behind a stricture to a very considerable extent, and the urine remaining in the dilated urethra after micturition may no doubt deposit phosphates and so form calculi. That such a collection of urine did take place was shown by the fact that in Case III urine could be emptied out of the dilated part of the urethra by pressure. In none of the cases, however, was the stricture just in front of the prostatic urethra. In one case it was scrotal, in another at the junction of penis and scrotum, and in the third quite near the meatus; and hence we might expect a more general dilatation of the urethra behind the stricture. Moreover, the stricture was not as tight as one would expect a stricture to be if it were the cause of such marked dilatation behind the obstruction, and in none of the cases had the stricture been dilated for many months.

In Case I the rapidity of the formation of the stones after removal was very striking, and also the way in which a collection was discovered at the second operation in a cavity only communicating with the urethra by an opening through which a part of one of the stones projected, when no such cavity containing stones had been recognized at the first operation. They might have been present as very small stones shut off in this cavity at the time of the first operation. But they were of such size at the time of the second operation, three months later, that they were discovered by palpation from without. It is, of course, well known that stones may pass out of the urethra into the surrounding tissue and grow there, and the original track become a mere fistula. In this case it seems more likely that a part of the original pouch got shut

off by contraction, and the stones formed in it after the first operation.

So far as I know only phosphatic stones are formed in the urethra (though true prostatic calculi containing a certain amount of organic material may get loose into it), and thus if any of these stones contain oxalates or uric acid, they must have passed into the urethra from higher up in the urinary organs, but failed to get away, on account of the strictured condition of the tube, as they undoubtedly did in a case to which I shall refer at the end of this lecture. They would then grow there by accession of phosphates, and by their growth might dilate the prostatic urethra into the pouched condition in which I found it, or if composed of phosphates only they might come originally from the bladder or kidneys. But if they came from the bladder or kidneys, with the strictures so far forward, why should they lodge especially in the prostatic urethra? In Cases I and II one would expect them to lodge just behind the stricture, or to form a ball-valve obstruction, as stones in the common bile duct so often do, and dilate the whole canal behind the stricture. Perhaps they did so at first, and then falling back into the prostatic urethra at the end of the act of micturition; at any rate when the patient was in the recumbent position, as they increased in size, at last they became too large to pass out of the region of the urethra. But there was no history of repeated attacks of temporary retention or intermittent stream which one would expect with ball-valve obstruction. It was the idea that the stones might possibly be formed in the kidneys, and simply lie in the urethra, detained there by the stricture, that induced me to have several skiagrams of the kidneys taken in Case I, and to finally explore the kidney on the side on which he had the most lumbar pain, but all with negative result. I presume the lumbar pain was reflected pain from the prostatic region, and the fact that it was relieved by removal of the stones pointed to this cause, but we must remember that associated with such removal there was always a period of rest which might relieve pain from renal calculus.

In Case III, as the stone was largely composed of oxalates, it must have come originally from the bladder and kidney. In this case the urethra in front of the prostatic pouch was so contracted by the scar tissue of the old Wheelhouse's operation that it is not surprising the stone lodged in the prostatic urethra.

All the stones from Case I which I have sectioned are entirely phosphatic, and might, therefore, have been formed where they were found. You will remember that one stone was actually found in the bladder, but as it is of such remarkable shape, and has a little facet on it, I feel sure it must have been originally urethral, probably with one branch extending into the bladder. Mr. Henry Morris, in his book on *Injuries and Diseases of the Genito-Urinary Organs*, figures a stone somewhat resembling it, but larger, which lay partly in the urethra and partly in the neck of the bladder.

The stone in Case II, you will remember, was also entirely phosphatic. As dilatation and pouching of the urethra behind a stricture often occurs to a marked degree, and though, as I have already suggested in these cases, the strictures were hardly tight enough, one would think, to cause so much dilatation, and the great dilatation seemed so far back behind the stricture, yet I think the view that in Cases I and II the pouches were primary and due to the obstruction, and the stones were formed in them, is probably the correct one. We know that in Case I, although the urethral pouch was frequently refilled by stones of some size, yet skiagrams of the kidneys failed to show any there, nor did actual exploration of the right kidney reveal any.

I have already stated that I do not regard the stones as of prostatic origin in any of the cases, neither formed from concretions in the prostate gland, nor of urinary origin within the prostate. In none of these cases, either with the finger in the pouch or the finger in the rectum, could any trace of the prostate be made out; it seemed to have been completely flattened out by the dilatation of the prostatic urethra. The stones were therefore obviously not in the gland, nor were they of such character as one would expect to have been of prostatic origin.

It is interesting to note how little pain may be present with quite a large collection of stones in the prostatic urethra, as in Case I at the time of admission. Neither in Case II or III was there pain with micturition. The painless haematuria lasting for several weeks was also a symptom worth noting. It is said to occur in cases in which stones are formed and remain in the prostate gland.

These cases show that even the passage of a stricture-dilating sound will not always lead to the detection of the stones in the prostatic urethra. In Case I a 2.5 Lister's sound could, the first time I introduced it, be passed into the bladder without detecting the stones, but the second time I passed it I discovered them in its passage. The stone in Case III was also discovered by passing a stricture sound, but in Case II the cause of the obstruction in the perineum was not made out by the instrument, but only by a rectal examination made to guide the point of the catheter through a supposed stricture. Only once in any of the cases did a stone get so impacted in the narrower part of the urethra as to cause retention, although there was a stricture in all.

With regard to treatment there is not much to be said. A perineal section to remove the stones, together with dilatation of any stricture or strictures, is clearly indicated, and to prevent the re-collection of the stones, it is desirable to keep the stricture well dilated, so that the stones may have the chance to pass when small. At one time in Case I I endeavoured to establish a perineal fistula so that urine might not remain and deposit in the dilated part of the urethra, but I could not keep the drainage tube in long enough, and the wound completely healed. Since the last operation, however, a perineal fistula has remained, but it has not stopped the formation of stones, for he frequently passes small ones. Correction of the alkaline condition of the urine by washing out the bladder, and the administration of drugs might also diminish the tendency to phosphatic deposit in the urethra, but it is possible that in some of these cases ammonical urine may not come from the bladder, but only from the urethral pouch. If so a catheter passed very slowly would draw this off first, and then afterwards urine of a different character from the bladder.

Mr. Henry Morris, in his book on *Injuries and Diseases of the Genito-Urinary Organs* to which I have already referred, records a case in which he removed four stones from the dilated prostatic urethra. As he could get a lithotrite passed into the bladder, there could have been no stricture in this case, unless he had previously dilated one, but he does not state that he did so. The patient, who was an elderly man, had previously had both lithotrity and lithotomy performed. Eighteen months after the removal of these stones, Mr. Morris removed another from the same place. He refers to a very remarkable case which was under the care of another surgeon. In a boy, a large stone lay in a urethral pouch in the perineum and occasionally caused retention, which was relieved by the boy lying on his back; so that the stone acted as a ball valve at times. Dr. Thistle[1] records a case in which retention was associated with a fluctuating swelling in the perineum. This was formed partly by the urethra, greatly dilated, behind a very tight stricture, partly by an abscess cavity. The urethral pouch extended backwards behind the neck of the bladder, and contained three uric acid stones. As these stones were of uric acid they must have passed into the urethra from the bladder, and been retained there by the stricture.

REFERENCE.

1 *Lancet*, 1892, ii, p. 1330.

INTERNATIONAL CONGRESS OF HYGIENE.—The fourteenth meeting of the International Congress of Hygiene and Demography will be held in Berlin from September 23rd to September 29th, 1907. The work of the Congress will be distributed among eight sections, as follows: (1) Hygienic Microbiology and Parasitology; (2) Hygiene of Nutrition and Hygienic Physiology; (3) Hygiene of Childhood and School Life; (4) Industrial Hygiene; (5) The Prevention of Infectious Diseases and the Cure of Patients Suffering Therefrom; (6) *a*, Hygiene of the Dwelling and the Community; *b*, Hygiene of Traffic; (7) Military, Colonial, and Marine Hygiene; (8) Demography. An exhibition to be held in connexion with the Congress is being organized under the direction of Professor Rubner of Berlin. The General Secretary of the Congress is Dr. Nietner, 9, Eichhornstrasse, Berlin, W., to whom all communications should be addressed.

ON THE VESICAL SPHINCTER AND THE MECHANISM OF THE CLOSURE OF THE BLADDER.*

By CHARLES LEEDHAM-GREEN, F.R.C.S.,
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Although the physiology of micturition has received much attention from many investigators, there is still no little confusion and doubt as to the exact method by which the outlet of the bladder is closed so as to retain the urine. Anatomists, whilst differing considerably in minor details, describe three, more less distinct, constrictor muscles in connexion with the bladder and urethra, though their opinions differ greatly as to the part these muscles play in maintaining the closure of the bladder. They are as follows:

A. A slender, ill-defined ring of oblique muscular fibres, intermingled with elastic tissue, encircles the vesical opening. This muscle corresponds to the "prismatic ring" of Henle and to the "sphincter trigoni" of Kalischer,[1] and is formed of unstriped or involuntary muscular tissue. According as to whether it is regarded as belonging to the bladder proper or to the prostate it is called the "internal vesical," or "internal prostatic," sphincter.

B. Below the internal sphincter some short, transverse, muscular fibres are present on the anterior or ventral surface of the lower or distal half of the prostate. They rapidly increase in length as they approach the apex of the prostate until they completely encircle the urethra. The majority of these fibres, chiefly composed of voluntary muscular tissue, are situated on the outer surface of the prostate, and some of the lower ones are intermingled with the glandular tissue of that organ. All these fibres together comprise the external prostatic or vesical sphincter of Henle, which, according to Mr. Griffiths,[2] is merely the commencement of the constrictor urethrae.

C. And, lastly, surrounding the membranous urethra, contiguous to the anterior portion of the external prostatic sphincter is that muscle, or group of muscles, best known as the compressor urethrae.

The theory, put forward long ago by Rosenthal,[3] that the closure of the bladder was maintained by the elastic, in contradistinction to the vital, power of the neck of the bladder no longer receives any support. For Heidenhain and Colberg[4] proved by experiment that not only did it require enormous pressure, far greater than is possible for the detrusor muscle to exercise, to force the sphincter so that the urine could flow out of the urethra, but that the bladder is able to hold fluid at a much greater pressure in the living than in the dead subject. These experiments have been repeated by Uffelmann[5] and Sauer,[6] by Kupressow[7] and von Rosenplanter,[8] and also by Rehfisch.[9] Their results are, in the main, very similar, though the estimated amount of pressure necessary to force the sphincter shows considerable variation.

Henle, having noticed that the fibres of the detrusor muscle were inserted between those of the internal sphincter, suggested that the contraction of the former muscle mechanically pulled open the sphincter. Zuckerkandl[10] has, however, shown that only a very small part of the detrusor fibres are so inserted, the greater portion being attached to the upper part of the prostate; so that it is impossible for the detrusor to open the sphincter, as Henle believed.

The theory put forward by Guyon[11] and Finger,[12] unlike those previously mentioned, has received very considerable support and has been widely adopted, especially by genito-urinary surgeons on the Continent. Doubtless this is partly due to the great renown of Finger, and also to the fact that this theory affords a ready and apparently satisfactory solution of many of the phenomena met with in the pathology of the urethra and bladder. According to Finger, the internal vesical sphincter is far too weak a muscle to withstand the pressure of the urine and prevent its escape from the distended bladder, this work being performed by the action of the muscular fibres surrounding the posterior urethral canal—that is, the external prostatic sphincter and the compressor urethrae muscle. When the bladder contains little fluid it assumes a round ball-like form, sharply defined from the prostate by the contracted internal sphincter (see Fig. 1.). But as the bladder becomes distended, the pressure of the urine gradually causes the elasticity of the neck of the bladder and the internal sphincter to yield, thus allowing the fluid to enter the posterior portion of the prostatic urethra. When this takes place, the sharply-defined border between the bladder and urethra is lost, and a "bladder neck" is formed. The further collection of urine takes place, not only in the distended bladder, but also in the now encroached-upon prostatic urethra (Fig. 2). By this encroachment of the bladder the urethra is appreciably shortened. According to this view, when the bladder is either empty or but moderately distended it is closed by the internal vesical sphincter; when it is fully distended this function is performed by the external prostatic sphincter and the compressor urethrae.

It cannot be denied that when the voluntary muscles are contracted they can and do play an important part in maintaining the closure of the bladder. But the assertion made by Finger, Anatal, and Ultzmann, that in the distended bladder the prostatic urethra is taken up into it so as to form a "bladder-neck," and the escape of the urine is only prevented by the external sphincter and compressor urethrae, has never been conclusively proved, for

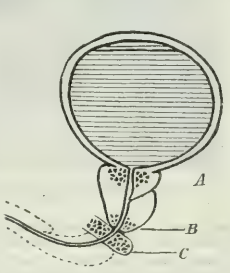


Fig. 1.—Diagrammatic representation of the shape of the male bladder, according to Finger, when it contains but little fluid. A, internal vesical sphincter; B, external vesical sphincter; C, compressor urethrae muscle.

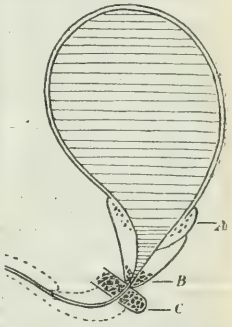


Fig. 2.—Shape of male bladder, according to Finger, when fully distended. A, internal vesical sphincter; B, external vesical sphincter; C, compressor urethrae muscle.

no one has yet been able actually to demonstrate the presence of the "bladder-neck," either endoscopically or in frozen sections of the cadaver. Finger whilst noting M. v. Zeissl's[13] striking experiments on the innervation of the urinary bladder of the dog (the results of which are in direct conflict with his own views), brushes them aside on the ground that it is unwise to draw deductions as to the action of these muscles of the urethra and bladder in man from experiments upon the lower animals, for both the anatomy of the parts and the physiology of micturition is markedly different in man. He[14] asserts the presence of a bladder-neck can be readily determined by passing a catheter along the urethra until the urine begins to flow, and noting how far the catheter has been introduced. When the bladder is moderately full, but no desire to micturate is evinced, the catheter may be passed from 18 to 21 cm. before the urine will flow. But when the bladder is full enough to cause a desire to micturate, showing that the urine has entered the prostatic urethra, the flow will take place when the catheter has been passed from 16 to 19 cm. It has been shown, however, by Dreyssel and Rehfisch that this is not a constant phenomenon; neither, when it does take place, is the difference in the extent to which the catheter needs to be introduced more than 1 or 1.5 cm.

Rehfisch[15] has also shown experimentally that the action of the external sphincter is very slight, and is not capable of resisting even the most moderate fluid pressure. It therefore follows that if the urine enters the posterior urethra in the manner described by Finger, its expulsion is only prevented by the powerful compressor urethrae muscle. But, if this were so, instead of the catheter showing a difference of some 2 cm., according to whether the bladder was strongly distended or not, it

* Read before the Birmingham Branch of the British Medical Association.

would show a difference of somewhere about 4 cm., that is, the entire length of the posterior urethra.

Rehfisch quotes the following interesting experiment as evidence that the internal sphincter may be inhibited or set into contraction directly by voluntary impulses. He passed a rigid catheter into the bladder and fully distended that organ with fluid. He then withdrew the catheter until its eye lay just outside the bladder in the posterior urethra, then the flow of the fluid from the bladder at once stopped. He then asked the patient to micturate. This he at once did, and, as there was considerable distension of the bladder, the urine came away with considerable force, not only through the instrument but also by the side of it. The man was then told to stop micturating, and immediately the stream ceased. And, on his again being desired to micturate, the fluid again flowed. This alternate evacuation and arrest of the flow could be repeatedly performed. All the time this was going on the eye of the catheter was lying in the prostatic urethra just outside the bladder, and the experiment clearly showed that the internal sphincter is the chief agent in closing the bladder, even though it be greatly distended. During the experiment it was impossible for the voluntary muscles, the compressor and external sphincter, to play any part in the arrest of the flow, as the rigid catheter excluded their action. I have repeated this experiment of Rehfisch several times with various slight modifications, and have found that his account of it is correct; though, as one would naturally expect, men differ considerably in the amount of control they possess over the power of micturition under such circumstances.

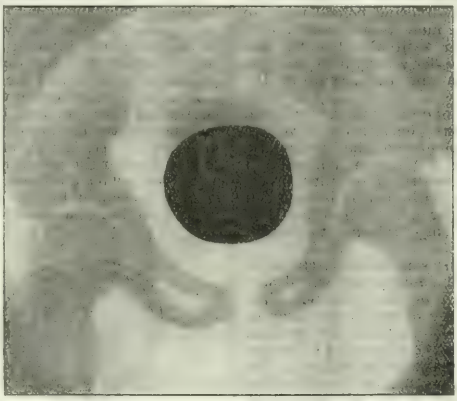


Fig. 3.—Radiograph of bladder fully distended with bismuth suspension (boy aged 12).

Finger, in further support of the theory that as the bladder becomes distended the pressure of the urine causes the elasticity of the neck of the bladder and the internal sphincter to yield and the urine to enter the posterior portion of the prostatic urethra, quotes certain experiments by Born,[16] who injected liquid plaster-of-paris down the ureter of certain recently-killed animals so as to distend the bladder. After a small quantity had been injected under slight pressure and had set, the cast of the bladder had the form of an egg, and was sharply cut off from the urethra by the internal sphincter. When a large quantity was injected under greater pressure the cast was pear-shaped, on account of the prostatic urethra having been taken up into the bladder so as to form a "bladder-neck."

Finger also quotes Waldeyer[17] (1899), who, by some experiments made by injecting the bladder of cadavers with a 10 per cent. alkaline solution of formalin, obtained similar results to Born. Such experiments on the dead bodies of animals are, however, so crude, and carried out under circumstances so totally unlike those met with during life, that no weight can be attached to their results. I have repeated this experiment under more natural conditions, and obtained very different results. I injected the bladder of certain men and youths with a suspension of bismuth, and then radiographed the pelvis. In every case I found that, whether the bladder was fully distended or not, the outline of the organ was oval, and not pear-shaped, and the urethra was sharply cut off from the bladder without a suggestion of a "bladder-neck."

Fig. 3 represents the bladder of a boy, aged 12, when fully distended with a bismuth suspension The radiograph was taken with the patient lying on his back, with the thighs flexed and abducted. The photographic plate was placed behind the sacrum, and the tube above the symphysis pubis. The rays in passing through the body have struck the bladder obliquely, and so somewhat foreshortened its shadow, rendering it unnaturally round.

Fig. 4 is an excellent radiograph of the distended (20 oz.) bladder of a man. In this case a fine metal bougie was passed down the urethra, so as to illustrate more clearly the relation of the parts, and the complete absence of a "bladder-neck."

Fig. 5 shows the male bladder distended with 21 oz. of silver albuminate solution. It is of interest from the fact that it was only by means of a very considerable effort on the part of the man, and the calling into play of the accessory voluntary urethral muscles, that he was able to retain the fluid whilst the radiograph was being taken. Yet even under these circumstances there is no suggestion in the photograph of a "bladder-neck."

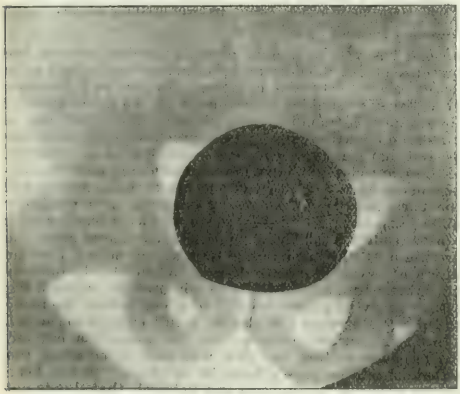


Fig. 4.—Radiograph of bladder distended with bismuth suspension (adult male).

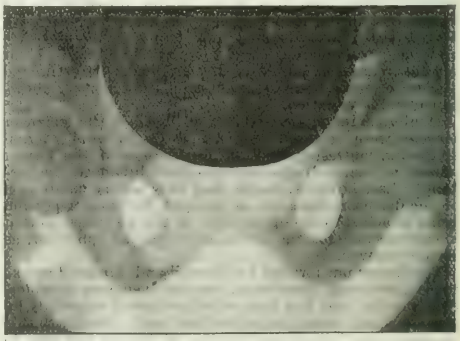


Fig. 5.—Radiograph of bladder distended with silver albuminate solution (adult male).

There are, therefore, reasons for believing that the sphincter of the bladder (the internal prostatic sphincter) plays a far more important part than Finger and Guyon credit it with, and that under ordinary circumstances it is by this muscle that the bladder is closed whether distended or not. And there is evidence[15] that when the internal sphincter does yield, it does so, not because it is overcome by the mechanical pressure of the urine in the bladder, but because its muscular fibres relax as a vital act in response to a nerve impulse preliminary to the evacuation of the urine.

The normal act of micturition would appear to be as follows: As the bladder becomes distended with urine the vesical nerves are stimulated and evoke stronger and stronger contractions of the detrusor muscles, giving rise to the desire for micturition. To withstand the increased pressure of the urine the tone of the internal unstriped muscular sphincter is increased and, if necessary, even the accessory voluntary urethral muscles are called into play. When a favourable opportunity for micturition occurs the internal sphincter is voluntarily relaxed, together with the rest of the unstriped muscular tissue of the posterior urethra, and the urine is expelled by the contraction of the detrusors.

The objection which has been raised to an unstriped muscle, like the internal sphincter, being under the influence of the will is fairly met by a reference to the accommodation muscle of the eye, which, whilst unstriped, is completely under the control of the will.

In conclusion, I wish to acknowledge my indebtedness to Mr. Hall-Edwards for the care and skill with which he has produced the radiographs to illustrate this paper.

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THE MODERN MASTOID OPERATION.*

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The mastoid operation as now performed has only been developed during the last few years, and one cannot but wonder that it was not described and carried out many years ago. This may be due partly to the fact that otology was formerly looked upon as of no importance, that the otologists had little or no knowledge of surgery, and that the surgeons who operated on the ear had no knowledge of otology. In his interesting paper on mastoid operation[1] Ballance says:

> The operation for the cure of chronic suppuration in the temporal bone is practised abroad almost exclusively by highly skilled operators, who have devoted special attention to the subject. In this country it would appear to be considered within the competence of all. In skilled and careful hands it is attended by no more risk than other great operations, but, to quote a remark from a French book on surgery about another operation: if it is undertaken by "the rash, the ill-informed, and the ill-equipped," there is grave risk of disaster or injury to the patient, or perhaps still greater risk of *failure to cure the disease*, from the operation being ill-conducted and incomplete.

The operation for mastoid disease is in fact very tedious and difficult, and as the position and size of the important parts, facial nerve, lateral sinus, antrum, and mastoid cells vary so much in every patient, and are quite different in children and in adults, every case has to be treated on its own merits, and we can never tell, until we explore the parts, how far the operation will extend, and what we shall have to remove. For these reasons it is much more difficult than many other important operations, and becomes dangerous if the surgeon is not perfectly acquainted with the topography of the surrounding parts.

The real history of mastoid operation begins with the publication of Schwartze's 59 cases in 1873. Schwartze opened up the mastoid antrum and a few cells in acute and chronic cases. At the present time this operation is only performed in acute cases, and in chronic cases we perform the so-called Stacke-Schwartze or complete mastoid operation.

There are three varieties of the mastoid operation: (1) Opening of a mastoid abscess and removal of any diseased bone; (2) opening of the mastoid process and the mastoid antrum—Schwartze's operation; (3) the radical operation in one of its forms, by which the middle ear, attic, mastoid cells, and antrum are reduced to one smooth-walled cavity—Stacke-Schwartze operation. This involves also the removal of the posterior wall of the meatus, the outer wall of the attic, and of all the bony ledges which overlap the antrum. I only intend to deal with the complete or radical operation.

A large skin incision should be made extending from the top of the ear to the apex of the mastoid (in cases of extensive disease an additional horizontal incision is made backwards), the periosteum is then carefully stripped off. Many operators make the incision much too small. We now carefully examine the exposed bone and look for a fistula. If there be one, it is generally found either just over the suprameatal triangle or near the apex of the mastoid, or further back on a level with the auditory meatus, when the lateral sinus or cerebellum is involved. If a fistula is found we, of course, follow this up, carefully exploring with a probe any cavities there may be. In some cases the antrum is lined with a thick membrane which may be mistaken for the dura. If no fistula is found, we chisel open the antrum from the posterior wall of the meatus, or in the area of the suprameatal triangle, cutting towards the centre of the triangle, thus making a conical cavity which points towards the antrum.

This is the old Schwartze operation, now only adopted in acute cases. In the modern operation for chronic cases the attic is also exposed, the posterior wall of the osseous meatus removed, and all the mastoid cells opened up and cleared out. We first turn our attention to the remaining bridge of bone which separates the mastoid antrum from the middle ear and attic. This is practically the posterior and upper wall of the auditory meatus. In the upper part we find the aditus to the antrum—that is, the communication between the attic and the antrum. The chisel is applied to the upper wall of the meatus, and thin layers of bone carefully removed. We thus open the so-called attic, or upper part of the middle ear, which contains part of the ossicles, and the aditus to the antrum. We then turn our attention to the posterior wall of the meatus. In its lower part lies the facial nerve, and near it the external semicircular canal. This part is very hard, and of a pale, shiny colour. We have to be very careful not to remove too much of this posterior wall, or we shall damage the facial nerve and the external semicircular canal. The assistant must carefully watch for any twitching of the face. For this part of the operation an electric forehead lamp is absolutely necessary. We then open up all the mastoid cells very carefully. These vary very much in extent, sometimes they extend forward into the zygomatic process, and backward well over the lateral sinus. All overlapping and rough bone should now be carefully removed by the forceps and gouge, or burr, and the walls of the cavity made as smooth as possible. At one time the burr was extensively used, but it is now practically discarded by most surgeons as unnecessary and tedious. Most of the operation can and should be performed with the help of bone forceps of various sizes, and the gouge. The chisel should be used as little as possible. We have now formed one large cavity consisting of the middle ear, attic, mastoid antrum, and mastoid cells. During the operation I frequently apply hydrogen peroxide, which not only arrests the aggravating haemorrhage from the bone or granulation tissue, but also cleanses the cavities and removes small pieces of débris which obscure the field of operation.

Instead of opening up the mastoid cells through the

* This paper was read before the Leeds and West Riding Chirurgical Society, and illustrated with numerous lantern slides.

suprameatal triangle we can do so from the posterior upper wall of the auditory meatus (Zaufal). This is much more difficult, but there is less risk of wounding the lateral sinus.

We next turn our attention to the soft parts. As the posterior wall of the bony meatus has been removed, the cutaneous meatus now projects into the newly-formed cavity and its posterior part must be cut away or utilized as a flap. Several methods have been suggested: Stacke makes a horizontal incision through the meatus into the concha and then turns the knife and cuts downwards. The lower large flap is then stitched into the lower angle of the post-auricular wound and helps to fill up and cover the cavity. This in my opinion is the most satisfactory method. Korner makes two horizontal incisions; Panse one horizontal, and then a T-shaped vertical incision, upwards and downwards. Ballance makes a horizontal incision in the lower part and then a vertical incision upwards, cutting round the edge of the meatus into the concha. In many cases the healing process is very tedious. Ballance had suggested grafting a large piece of skin from the arm or leg and fixing it over the whole of the large cavity, and two smaller ones on the posterior wall of the ear. He now does not graft the whole of the cavity, but only the upper part. He has discarded gold leaf, and uses small pellets of cotton-wool to keep the grafts in position. He grafts eight or ten days after the operation, and removes the grafts a week later. The objections to this method are, that practically two extra operations are necessary, and the skin grafting is not appreciated by many patients. I do not think that it reduces the time of healing very much, except in cases in which very much bone has been removed.

Another very important question is whether we should close the posterior auricular wound at once, or leave it open, and for how long. I think it advisable in severe or chronic cases not to close the wound at once. I generally put in three stitches and do not tie the middle one, but leave a central opening in the wound; through this and through the external meatus I pack the cavity. It is of great importance to keep the cutaneous meatus well open and dilated. This can be done by plugging, or by inserting a tube, metal or rubber. If we are not careful we get a stricture of the cutaneous meatus, which makes the after-treatment much more difficult. If things do well and there is no rise of temperature, no pus, and no pain, I tie the suture in the posterior wound after five to ten days, and only plug through the meatus. At first I dress the wound daily as long as it is septic, or if there is any rise of temperature. It seems to me to be a most unsurgical proceeding not to dress such a septic wound daily, especially as there is danger of the disease spreading into surrounding vital parts. Hydrogen peroxide is very useful: it cleanses the diseased parts in a most remarkable manner, and is a strong antiseptic. It is essential that the bandage should be as comfortable as possible. I never put it round the neck as, apart from the discomfort, this often causes severe headache.

One of the great difficulties in the after-treatment, is the excessive growth of granulations. These are often brought on by the too-prolonged use of iodoform. After a few days I now plug with aluminium-acetate gauze, and insufflate aristol, isoform, or xeroform, instead of iodoform. In many cases I apply 10 per cent. trichloracetic acid to the granulations, or 20 per cent. silver nitrate solution.

It is of very great importance that the after-treatment of mastoid cases should be most carefully watched by the surgeon. Many a successful operation has been completely spoiled, and the patient has died, owing to careless or bad after-treatment.

I have no time to discuss all the indications for performing the complete mastoid operation, and will only briefly mention the most important:

1. In all cases of recurrent or chronic mastoiditis with external swelling.
2. Recurrence of granulation masses or caseous matter (cholesteatoma) in the attic or antrum, or persistent otorrhoea, after careful local treatment.
3. Recurrence of pain in the mastoid process, if accompanied by rise of temperature, especially if the pain is in the apex of the mastoid.
4. Fistula over the mastoid process.
5. Cases of chronic otorrhoea with marked stenosis of the auditory meatus.

The points to which I should like to have drawn special attention in this very incomplete paper are:

1. That operations on the mastoid process are often very difficult.
2. That every case is different, and that there is no typical mastoid operation, but the plan and extent of every operation must depend on the area of the diseased bone, and on the topography of the various parts: lateral sinus, mastoid cells, and mastoid antrum.
3. The chisel should be used as little as possible, and the bone forceps and gouge as much as possible.
4. In all cases it is absolutely necessary to open up the attic, remove the posterior wall of the meatus, and carefully explore and open up all the mastoid cells.
5. The great importance of preventing stricture of the cutaneous auditory meatus, and of making a flap or flaps from its posterior wall.
6. The use of skin-grafting when much bone has been removed.
7. The use of hydrogen peroxide for arresting haemorrhage during the operation, and for cleansing the cavity in the after-treatment.
8. The danger of the prolonged use of iodoform in the after-treatment, and the use of isoform or xeroform, and of aluminium acetate gauze.

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1 *Lancet*, April 11th, 1903.

THE MICROSCOPIC CHANGES IN THE NERVOUS SYSTEM IN A CASE OF CHRONIC DOURINE,

OR "MAL DE COIT," AND A COMPARISON WITH THOSE FOUND IN SLEEPING SICKNESS.*

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DR. LINGARD, of the Imperial Bacteriological Laboratory of India, who has published an interesting monograph on dourine, forwarded for microscopic investigation the nervous tissues of an Arab stallion which acquired the disease by infective coitus; after exhibiting 156 characteristic cutaneous plaques, together with marked symptoms of paraplegia, it died 27½ months after infection.

Dourine is due to a specific form of trypanosome which has the power of penetrating the mucous membrane, affects equines, and is transmitted, like syphilis, by coitus. This is of especial interest, since Schaudinn has demonstrated the *Spirochaeta pallida* of syphilis. It is also of interest because, like some other trypanosome infections—for example, sleeping sickness—it may run a very chronic course, and, as in the case under consideration, more than two years may elapse before a fatal termination.

A comparative examination of the nervous tissues of this disease with those of animals infested with *Trypanosoma gambiense* and with the tissues of human beings dying of sleeping sickness appears to show that chronic trypanosome infection causes a chronic lymphadenitis, followed later by an interstitial inflammation of the connective-tissue structures of the nervous system.

This morbid change is due to the presence of an irritative agent in the lymphatic system, which, in the case of dourine, starts in one seat of primary infection, extends to the inguinal glands, thence presumably by the pelvic lymphatics to the lumbo-sacral plexus, and the posterior roots to the central nervous system; consequently, the lower part of the spinal cord, and especially the root zone of the posterior column, is first and most affected.

Laveran and Mesnil refer to the observations of Marek, who showed the presence of a degeneration of the nerve fibres of the posterior columns, the other parts of the spinal cord being healthy. Marek therefore named dourine infective polyneuritis of the horse.

Dr. Mott was unable to examine the peripheral nerves, because they were not sent, but a very complete examina-

* Abstract of a paper read before the Royal Society on March 8th, 1906, and published in full in the *Proceedings of the Royal Society*, vol. 73, No. B 522.

tion of the central nervous system was made and the following changes recorded:

1. Severe chronic interstitial inflammation of the posterior spinal ganglia—especially severe in the lumbo-sacral region, but fairly marked in the cervical and dorsal regions also. In the lumbo-sacral region the inflammation had been so intense as to cause destructive atrophy of the ganglion cells.

2. In the lumbo-sacral region the posterior roots and their fibre continuations into the posterior columns of the spinal cord had undergone destructive atrophy. This was shown in the spinal cord by a characteristic sclerosis in the posterior columns, especially of the root zones. The lesion resembles, therefore, in some respects locomotor ataxy.

Dr. Mott suggests that the eruption of the cutaneous plaques which came out at successive periods, and which appeared as rings of angio-neurotic oedema, may have been the result of the inflammatory irritation of the posterior spinal ganglia, and not caused, as Lingard and Laveran suppose, by embolism of the cutaneous vessels. In support of this view, he refers to the fact that numerous authorities have shown that herpes zoster in man is caused by an acute inflammation of the posterior spinal ganglia.

Other trophic changes which may be associated with the posterior spinal ganglion lesions may be cited—for example, many of the plaques terminate in a leucoplakia. Towards the end of life in this animal the hoof dropped off. Fractures and dislocations occur, according to Laveran, in this respect bearing a resemblance to tabes dorsalis.

Besides this localized lesion, there was evidence of a general irritation of the central nervous system, manifested by a subpial and septal proliferation of the neuroglia, a chronic interstitial inflammatory change which in the spinal cord was not found limited to the posterior columns.

The changes in the tissues of animals dying after inoculation with *Trypanosoma gambiense*, and the tissues of human sleeping sickness are compared with dourine, and there is evidence to show that chronic trypanosome infection causes a lymphadenitis and a chronic inflammation of the lymphatics of the central nervous system which manifests itself by a chronic interstitial change affecting the lymphatics of the soft membranes, the subpial septa, and the perivascular spaces, without any marked destruction of the neural elements. The neuroglia cell-proliferation is the first manifestation of this chronic interstitial change, and the lymphocyte accumulation and proliferation which is such a pronounced feature of human sleeping sickness, in the light of the observations of chronic trypanosomiasis in animals, may be secondary, and partially the result of these neuroglia changes.

The communication to the Royal Society was illustrated with drawings and photomicrographs. A full description of the histological changes in sleeping sickness and certain trypanosome infections of animals, including experimental sleeping sickness, will be published shortly in the Reports of the Sleeping Sickness Commission.

CASE OF OBSCURE INTRACRANIAL TUMOUR: MENINGEAL SARCOMA WITH EXTENSION TO FOURTH VENTRICLE.

By G. H. GRANT DAVIE, M.B., Ch.B.,
WITHINGTON, LANCS.

Mrs. H. J., aged 35 years, married, two children, consulted me on May 8th, complaining of "an aching fullness like rheumatics, only worse," in the occipital region. On March 19th she had an attack of "neuralgia" in the right side of the lower jaw. A few days afterwards she complained of a "rheumatic pain" in the right side of the neck and right shoulder, which "went up and settled in the back of her head, but which was not like an ordinary headache." About the same time she suffered pain in both temporal and inferior parietal regions. These pains continued to increase in severity, with some intermissions, until the middle of April. From this time she could not lie flat in bed, but supported herself in a semi-sitting posture on the right side, for "she felt she would choke if she lay on her back." Pressure at the back of the neck near the skull gave rise to pain, and sometimes to the choking sensation also. On April 28th she fainted twice owing to the severity of the pain, and because her head "seemed to get off its balance."

The occipital pain always increased in severity between 3 and 4 a.m., after which she could get no more sleep, and made frequent complaint she felt "worn out," as she had had no "proper sleep" since her pains began. Exacerbations of the pain occurred at first once or twice during the day, but latterly more frequently.

On May 8th her symptoms were as follows: She complained of "an aching fullness" in the occipital region and of a track of pain extending forwards to the orbits. This latter pain was of less severity than the occipital, but it became more pronounced when she suddenly rotated the eyeballs, especially in the vertical axis. It was noticed that whilst speaking she placed both hands at intervals under the angles of the jaw, as if to support the head. On suddenly assuming the upright posture she became giddy and placed her hand momentarily over her eyes. She was able to stand erect steadily, with eyes closed, after an initial slight swaying movement. She walked in a straight line and turned with moderate rapidity, preserving her equilibrium. She stated, however, that there were times when she felt she would fall, especially when walking outside and looking at passing objects. She had the sensation of "running forwards on her toes all the time." On one occasion, when suddenly rising, she had vomited, and sometimes "had hard work to keep her food down." In the act of drinking the occipital pain was much increased. The head was therefore thrown back with great care, and rotation of the head horizontally was performed as though she suffered from "stiff neck." She complained of sore throat and some difficulty in swallowing, and also of pain in the lumbar and sacral regions, increased on straightening the back. The tongue was slightly coated white, the fauces injected, the pharynx showing chronic granular inflammation; the appetite was very poor; the bowels sluggish, requiring aperients for every action; the urine was normal; reflexes normal; the temperature normal; the pulse 84.

A week later the occipital pain had extended to the left ear and angle of the jaw, and at 3 a.m., when the pain was most acute, she would call out to be raised to the sitting posture "or she would choke." At a later date she got out of bed when she experienced this acute pain, and knelt with her forehead on the floor, affirming that this attitude gave relief. She described this acute paroxysm of pain as though "a knife was pushed through above the ears to the back of her head." Frequent complaint was made that "she was sure there was something in her head, that this was not an ordinary headache, but if she could only make one understand there was a *something* there."

In order to ascertain exactly the condition of the eyes, the patient was sent to see Dr. Hill Griffith, and the following is his report:

> I saw Mrs. J. on May 16th, and found the vision of each eye equal to No. 1 Jaeger and $\frac{6}{9}$: with -0.5 D she got $\frac{6}{6}$. The pupils were normal in size and reacted well to light. The fields of vision (hand test) were normal. The fundi were absolutely normal. The examination was repeated after full dilatation of the pupils by atropine. The vision was $\frac{6}{9}$ with a glass of -0.5 D, and no further improvement could be obtained.

So matters progressed, with decreasing periods of relief, until June 30th, when she got no respite at all from her pain. On July 1st, in the morning, she got out of bed as usual to place her forehead on the floor, and on the second occasion had a violent rigor, "though her body felt warm." The pain, which now extended down the neck to both shoulders, must have been agonizing, for when I saw her at 4.30 p.m. she appeared dazed with it. On this occasion she had a peculiar apprehensive look, and, relaxing hold of her head, she stretched out her arms and cried, "Save me, doctor, I am dying!" Her pulse was then 80, steady, regular, and of good tension; temperature normal. The knee jerks were exaggerated. The respirations were somewhat "panting."

She complained bitterly of the occipital pain throughout the whole evening, and about 10.30 asked for something to drink. She then appeared to close her eyes to rest, and a few minutes afterwards her attendants found that she was dead.

I am indebted to Mr. Telford, F.R.C.S., for his report of the *post-mortem* examination of the head:

Calvarium.—Unusually thick; otherwise normal.

Dura Mater.—Very loosely attached; inner surface normal.

Brain.—A layer of soft, gelatinous tissue was found covering to a depth of ¼ in. the whole of the anterior half of the under surface of the left cerebellar hemisphere. This substance extended inwards towards the middle line covering the under surface of the mid portion of the cerebellum, and extending forwards as a delicate covering over the hinder half of the floor of the fourth ventricle. The abnormal tissue was grey in colour, almost diffluent in consistence, and resembled the grey matter of an infant's brain. The fourth ventricle was dilated to twice its normal size; the iter to the third ventricle was as large as a goose quill, and the third and lateral ventricles were alike much enlarged, and contained clear fluid.

The growth was quite distinct from the adjacent brain, from which it could readily be removed, disclosing the unaltered contour of the structures beneath it.

The anatomical diagnosis was new growth of the soft meninges, with secondary extension to the fourth ventricle, producing interference with the normal circulation of cerebro-spinal fluid. Paraffin sections were made of the growth. These showed that the structure was that of a round-celled sarcoma, with almost complete absence of an intercellular stroma.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

INDUCTION OF PREMATURE LABOUR.

MOST men in general practice meet with obstetric cases in which, in subsequent pregnancies, they would like to induce premature labour, and yet have a hesitation in doing so. I chiefly allude to difficult forceps cases in which craniotomy may have been necessary. The following plan I have found simple and effectual. The date—seventh or eight month—having been settled for the induction, the patient should have an enema administered. After free purgation the external genitals are well cleansed, and a bougie inserted as usual into the os and passed upwards, care being taken not to rupture the membranes. This by itself often fails to induce labour. The following procedure, in addition, makes it effectual. A large-sized Barnes bag, made aseptic and oiled with carbolic oil, should be inserted high up in the vagina. It should then be distended fully with warm water by a Higginson's syringe, the tap of the bag turned so as to retain the water, and the syringe taken away. The presence of the bougie in the uterus and of the Barnes bag in the vagina set up in a few hours rhythmic uterine contractions. If the insertion of the bougie and bag is done at 11 a.m., the labour will probably be completed in the evening. Micturition will be necessary two or three times during the day. The nurse should be instructed to get the patient into a suitable position and allow the water in the Barnes bag to drain off, but on no account to withdraw the bag. After micturition the nurse should again distend the Barnes bag with warm water. A capable nurse can carry out all this, and will summon the medical attendant in the evening, when the os will be found, on removing the Barnes bag, fully dilated. A natural delivery will then take place.

Bournemouth. A. HUMPHREY DAVY, M.D.

A HYDATIDIFORM PREGNANCY.

MRS. C., aged 44, who had reared a large family, had missed a period or two, but as she was nearing the menopause it was impossible to be certain whether she was pregnant or not. There then succeeded slight intermittent haemorrhages for two or three months more, the abdomen meanwhile rapidly distending, till at the end of four or five months it had attained the size of a six or seven months pregnancy. The haemorrhage then became so serious that it was decided to evacuate the contents of the uterus without any further delay. The smallest Barnes bag was used, but after its application for many hours there was no further dilatation than that made by the finger for its first insertion, the os remaining as hard as ever, and becoming dry, hot, and tender. A further exploration with the finger withdrew a vesicle or two, thereby clinching the diagnosis. It was then decided to abandon any further attempt at artificial dilatation, and a full dose of ergot was given; it was interesting to note the inefficiency of forced dilatation compared with the beautiful effects of the oxytocic, which, acting on the nerve centre, set in motion all the co-ordinating forces of labour, the os soon becoming soft, moist, and patulous, and labour pains setting in, which, increasing in force and frequency, were not long in expelling a large hydatidiform mole, with complete cessation of haemorrhage and an uneventful recovery.

In the management of the case I had the invaluable assistance of the late lamented Dr. James Murphy, to whose memory I wish to add my humble tribute of warm and grateful admiration.

Sunderland. E. STRACHAN, M.B.

ANTISTREPTOCOCCUS SERUM IN EMPYEMA.

ON April 16th I was called to a boy, A. T., aged 11 years, an ill-nourished child suffering from acute pleurisy with effusion on the left side. He had also suffered for some time from blepharitis. To all appearances he was of strumous diathesis. He had all the usual signs of acute pleurisy with effusion. For nine days the temperature ranged from 100° to 104°; on April 24th it was 99.2° in the morning and 102° at night: the acute pain had subsided and the child began to show signs of rapid wasting. His appearance was hectic and pus was found in the chest. I suggested operation, but this was objected to by the parents.

The temperature remained the same, ranging between 99° to 103° morning and evening, until April 29th. I then injected 10 c.cm. antistreptococcus serum. On April 30th and May 1st and 2nd the child's temperature reached 101° in the morning and 104° at night, but on May 3rd the temperature assumed its old character—99° in the morning and 103° at night—and so remained until May 11th, when I received an urgent message to see the child as his mother was afraid he had scarlet fever. I found the temperature 104.2°, and an adventitious rash more especially marked on the face. He complained of aching throughout his body; I assured the mother it would all soon go. On the following day the temperature was normal and his aches and rash soon disappeared. The child was out of bed on May 17th; the cough entirely disappeared; he was soon able to be out-of-doors, and rapidly gained strength. The condition of his eyelids has also improved.

Burghead, Morayshire. JOHN WM. INGLES.

THE ETIOLOGY AND TREATMENT OF OBLIQUE INGUINAL HERNIA.

I WAS interested to find, in Mr. Murray's paper in the BRITISH MEDICAL JOURNAL of June 16th, p. 1390, confirmation of an opinion formed by me as the result of experience with Egyptian troops. There is little to be added to his lucid and convincing observations upon the subject, but the nature of my cases makes them interesting. The reasons which led me to regard most oblique inguinal hernias as congenital, and to modify my operative methods accordingly, were as follows:

1. The Egyptian soldier is a man of exceptional strength and muscular development. The idea that, in his case, rupture is due to weakness of the abdominal wall, is refuted as soon as an operation is commenced and the strength of the local defences against hernia made visible.

2. A large number of recruits suffer from hernia shortly after joining the army. This I attribute to the new muscular combinations that are demanded by military exercises. Mr. Murray has used an illuminative expression in speaking of the "sphincter like action of the muscles guarding the inguinal canal." This action might be perfectly successful whilst muscular exertion was on familiar lines, but the sphincter might be "taken by surprise" during some new and severe exercise. On the assumption that a patent funicular process exists, it is to be expected that the fellah, having pulled a "shadoof" all his life without inconvenience, might rupture under the unfamiliar stress of the goose step.

3. I have on several occasions found a patent funicular process during operation for encysted hydrocele of the cord, although hernia had been carefully excluded in a differential diagnosis.

4. Lastly, I have during the last two years had very good results from an operation exactly similar to that advocated by Mr. Murray, that is, splitting of external oblique tendon, high ligature of sac, and avoidance of any meddlesome attempts to narrow the canal. I find that it pays to give great attention to closing the wound layer by layer, reproducing the natural condition as far as possible. In the case of soldiers it is essential to keep them away from military duty for at least two months after operation; a month in bed and a month's sick furlough is found sufficient. I have carried out the above operation from thirty to forty occasions during the last two years, and have seen many of the men since. I have had occasion to see three in the last few weeks. Two came asking for a fresh operation, *but on the opposite side.* One of these is a bugler in the 1st Battalion. He has, against my advice, carried out the duties of a bugler for over eighteen months since his operation. There is no trace of return where the sac had been obliterated on the right side. He has managed to blow down a fresh hernia on the left side, however. Another man (not a bugler) reported sick lately with a fresh hernia on the left side, the right side being perfectly sound a year after operation. Lastly, a clerk, an enormously fat man who had the biggest hernia that I have yet operated upon, visited me for a slight illness, and gave me the opportunity of seeing that there was no return of the hernia after a year. I have only seen one slight return, but possibly some of the men since gone to the Reserve may have had fresh trouble.

Khartoum. S. Lyle Cummins,
Captain R.A.M.C., Att. Egyptian Army.

TRANSPOSITION OF VISCERA.

On examining a boy, aged 15, at my consulting rooms recently, I found that his heart was placed on the right side of the chest instead of on the left. The apex beat was situated in the fifth right intercostal space one finger-breadth internal to the nipple line. The cardiac dullness extended inwards to the edge of the sternum, and upwards to the lower margin of the right third rib. On auscultation there was a soft systolic murmur limited to the apex, but not conducted round to the back. On examining the liver I found it normal in size, but situated on the left side instead of on the right. The spleen was also transposed from the left to the right side; apparently it was of normal size. The case seems worth recording, as the transposition of the heart, liver, and spleen is sufficiently rare in itself, and has more commonly been discovered *post mortem.*

Broseley, Shropshire William Dyson, M.B.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

LONDON MISSIONARY SOCIETY'S HOSPITAL, JAMMAMALAMADUGU, SOUTH INDIA.

MYXOMATOUS DEGENERATION IN A UTERINE FIBROMYOMA.

(Under the care of T. V. Campbell, M.A., M.B., C.M.Edin., and E. W. Lewis, M.B., Ch.B.Edin.)

On March 16th, 1904, Hussain Bhu, aged 45, came to the hospital complaining of extreme distension of the abdomen and great weakness. The history given was that three years before she noticed a small tumour in the right lumbar region which gave her some pain. Nothing was done, however, and the pain disappeared. For a little more than two years the tumour grew rapidly, then increase in its size seemed to stop. Menstruation had been regular until within fifteen months of admission, when it began to decrease in amount and finally ceased in May, 1903. She had had four children, the youngest of whom was twelve years old.

State on Admission.—The patient was weak and emaciated, but her organs generally were healthy. The abdomen was distended by a large fluctuating tumour; the measurement round the umbilicus was 43 inches; there was resonance in the flanks, but complete dullness elsewhere. The percussion wave could be felt right through the tumour from side to side. On vaginal examination the uterus could be felt apparently distinct from the tumour and to the left but attached to it. A diagnosis of cystic ovarian tumour was made and operation undertaken.

Operation.—On March 25th, under chloroform, the abdomen was opened by a 4-in. incision. At the site of the incision the parietal peritoneum was firmly adherent to that covering the tumour, which made it very difficult to define the latter at first. The walls of the tumour were extremely friable, and tore in many places, causing a profuse haemorrhage. When the trocar was introduced, the fluid which escaped seemed to be pure blood. As rapidly as possible the adhesions were separated, the tumour isolated and drawn out of the abdomen, when it was found to be a degenerated fibroid with a long pedicle. This pedicle was ligatured and the tumour removed. After the abdominal cavity had been thoroughly washed out, the wound was closed.

Result.—The patient suffered from severe shock for three hours, but recovered, and made good progress for three weeks, when she suffered from a very severe attack of dysentery which nearly proved fatal. She recovered from this, however, and left the hospital on May 9th, completely cured.

Remarks.—The interest of this case lies in the difficulty of diagnosis. It was impossible to diagnose the growth from an ordinary cystic ovarian tumour. After removal, the tumour showed one huge cyst filled with almost pure blood, and several smaller cysts which showed typical myomatous degeneration. There was very little solid tumour left, but what there was showed the typical fibroid appearance on section. This solid part lay at the back of the tumour, where it could not be felt. The long pedicle, which allowed of some separation of the tumour from the uterus, completed the resemblance to an ovarian tumour.

REVIEWS.

AN EDINBURGH MURDER.

The volume of the Notable Scottish Trials Series giving an account of the trial of *Eugene Marie Chantrelle*[1] is dedicated to Sir Henry D. Littlejohn, Emeritus Professor of Forensic Medicine in the University of Edinburgh, who played an important part in it as a witness for the Crown.

Chantrelle was a native of Nantes, where he was born in 1834, being the son of a ship-owner of some standing in that town. It is not likely, as stated by the author, that the boy's studies at the Nantes Medical School were broken off at or about the year 1848, as he could have been only 14 years of age at that time. Chantrelle says in his Declaration, made after his arrest, that he studied medicine for five years at Strassburg and one year in Edinburgh, but he did not qualify although he practised medicine to some extent among his friends, and with the overweening conceit which is curiously characteristic of the criminal intellect, he was fond of expressing his contempt for the regular members of the medical profession. Little seems to be known definitely of the reasons why he did not take his degree or why or when he left France, but it is certain that he went to America, and it may have been, as Mr. Duncan Smith suggests, that his republican principles made him uncomfortable in France under the Napoleonic régime. In 1862 he came to England, and in Newcastle, Leicester, and other places devoted himself to the teaching of French. In 1866 he settled in Edinburgh, where he acquired a good connexion with some of the leading schools, his reputation being enhanced by the compilation of several French textbooks for use in schools. According to Mr. Duncan Smith, he was not only able to teach French and German, but he had a sufficient knowledge of Latin and Greek to enable him to undertake general private tuition, and at one time he made a fair if not a large professional income. In his capacity as a teacher of French he was engaged to instruct the pupils of Mr. McLachlan's school, known as the Newington Academy, on the south side of Edinburgh, where he became acquainted with a young girl named Elizabeth Cullen Dyer, the daughter of a commercial traveller. Eighteen months or two years later he was on visiting terms with her family, although he does not seem to have been well received by Mr. and Mrs. Dyer, whose consent

[1] *Trial of Eugene Marie Chantrelle.* Edited by A. Duncan Smith, F.S.A.(Scot.), Advocate. London: Sweet and Maxwell, Limited. (Demy 8vo, pp. 253. 5s.)

to the marriage, which occurred when their daughter was only 16, was given unwillingly, and mainly because she was shortly to become a mother. When the marriage took place, in 1868, Chantrelle was 34 and his wife 16; and, according to the evidence of Mrs. Dyer, "the married life of Madame Chantrelle was an unhappy one from first to last." She complained to her mother of her husband's language, his threats and his blows, and she repeatedly took refuge from his violence in her mother's house, but always returned owing to her affection for her children. In his Declaration Chantrelle accused his wife of hysteria, of feigning unconsciousness, and of frequently threatening to drown herself, of constant fits of jealousy, and of carrying on intrigues with young men, but the evidence of the servants and of others who knew her contradicted this account of her character, which seems to have been amiable and affectionate; they testified that she was a devoted mother, and always bore patiently with Chantrelle's abuse and ill-treatment.

As time went on, Chantrelle's habits became more irregular, and, according to the testimony of the servants, latterly he was in the habit of consuming about a bottle of whisky a day, and he was frequently the worse for drink. The natural consequences were that he lost several engagements, became straitened in his circumstances, and was hard pressed for money. In the latter part of the year 1877 he was being pressed to pay an account due to a firm of butchers, which had become bankrupt and whose affairs were being liquidated. About the same time Chantrelle applied for and obtained agencies to the Accidental Insurance Association of Scotland and the Star Accidental Assurance Company. With the former he took out policies in favour of Mary Byrne, the servant, Madame Chantrelle and himself in October. It was suggested by the prosecution that this insurance gave him a direct interest in his wife's death. It was proved that he had made inquiries from the Star Accidental Assurance Company as to what would constitute an accident, but there is nothing to show that accidental poisoning by escape of gas would have been within the terms of the policy; in fact, its terms expressly excluded death caused by "any accidental administration of noxious substances," and, as the advocate for the defence pointed out, it would be "a very nice question whether that clause would refer to death by gas poisoning or not"; therefore evidence of motive, based on the hope of pecuniary profit through his wife's death, cannot be said to have been satisfactorily established.

Up to New Year's Day, 1878, Madame Chantrelle had been in good health, but on that day she became slightly unwell, and, according to the testimony of her eldest child, a boy aged 8, who had remained at home with her, she vomited as she was sitting by the fire. She ate nothing but a few grapes, and drank only lemonade, ultimately going to bed at 6 o'clock. The servant, who had been out for a holiday, came in at 9.30, and, hearing that Madame had been ill, went to her room and found her in bed; "she did not seem very well, not so well as in the morning"; she was "very heavy-looking," but expressed herself as "feeling better," and asked for some milk; as there was none in the house, and it was late, she asked to have an orange peeled for her, which the servant did, and broke it into four pieces, giving her mistress one and leaving the other three on the plate with some grapes and a tumbler of lemonade three parts full. Chantrelle was in and had opened the door to the servant, but she did not see him again that night. Next morning the girl rose and went downstairs to boil the water for her mistress's tea when she heard a moaning which seemed to come from her mistress's room; she went there and found the door about a foot open; she entered: it was by this time pretty light, and the gas was out, which was unusual. Her mistress was lying on her side and back moaning heavily; she was "awfully pale-like, her eyelids were closed; there was some green-brown-like stuff on the edge of the pillow and bed like vomit." When spoken to and shaken, she took no notice, but only moaned, and did not open her eyes. The servant went to call her master, and told him her mistress was ill and "would not speak." He got up, dressed partially, and went to his wife's room, sat down by the bed, took her hand in his, and said, "Lizzie, what is wrong? Can you not speak?" The servant suggested he should go for the doctor, but he said he heard the baby crying, and sent her to look after it. She returned, having found the baby asleep, and saw him near the window, which he had opened; he then asked her whether she could not smell gas, and she said "No"; but soon after the smell became perceptible, and she turned off the gas at the meter. Chantrelle then fetched Dr. Carmichael, who arrived about 8.30. He found Madame Chantrelle comatose, with interrupted respiration, and the room smelling of gas. Dr. Carmichael had the patient removed into the front room, and sent a card to Dr. Littlejohn, on which he wrote: "Dear sir,—If you would like to see a case of coal-gas poisoning, I should like you to come up here at once," or words to that effect.

Dr. Littlejohn, on his arrival, accepted the suggestion that the case was one of coal-gas poisoning, and in his subsequent evidence could point to no symptom inconsistent with that view. Artificial respiration was started by Dr. Carmichael and kept up by the assistance of relays of medical students. Madame Chantrelle's mother was sent for and arrived accompanied by Dr. Gordon, the family medical adviser, who stated in his evidence that he looked upon the case as one of narcotic poisoning and not gas poisoning, but gave no reasons for this opinion; he said the pupils were natural, and thought that in opium poisoning there was usually a stronger pulse. The dying woman was removed to the infirmary about one o'clock, and was seen by Professor Douglas Maclagan at a quarter to two; when he saw her she was lying insensible with muscles relaxed, the eyelids closed, and the pupils of the eyes "somewhat contracted"; respiration was interrupted, the heart's action scarcely discernible, while the pulse at the wrist was not to be felt. He noted the absence of any smell of gas, and came to the conclusion that it was not a case of gas poisoning but one of "narcotic poisoning, possibly opium or morphia." The *post-mortem* examination was made later by Professor Maclagan in conjunction with Dr. Littlejohn, the results being negative. All the organs were healthy; there were no traces of irritant poisoning; the blood was dark, not exhibiting the bright red appearance characteristic of poisoning by carbonic oxide. The contents of the stomach were removed for chemical examination, but there were no indications of poison except a doubtful suggestion of the presence of chloral. The body was later on exhumed and the contents of the intestines collected together with some urine. These, together with the stomach contents and other material, were submitted to Professor Crum Brown and Professor Fraser for analysis; a considerable amount of alcohol was found in the urine, but the report says nothing about the presence of morphine, and we may conclude that it was not looked for. Chantrelle was arrested and lodged in gaol while his house was searched and attention was directed to certain brown stains upon Madame Chantrelle's bedclothes and the back of her nightgown near the shoulder; there were two patches, of which one was described as orange-coloured and looking like vomit, while the other, smaller in extent, dark in colour, smelling and tasting and giving the distinct chemical reactions of opium, was held by the medical witnesses to be caused by the presence of solid extract of opium on the linen. No attempt was made, as by testing for hydrochloric acid, to prove that either stain had come from the stomach. The theory put forward by the prosecution was that the prisoner, who was proved to have had in his possession considerable quantities of extract of opium, had administered to his wife solid opium concealed in a portion of orange; part of the orange left by the servant the night before had disappeared, and a fragment of pulp was removed by Dr. Carmichael from the patient's mouth but was not kept.

A remarkable feature of this in other respects extraordinary case was that Professor Maclagan was called as a witness for the defence as well as for the prosecution; when called for the defence he was questioned about having failed to look for crystals of morphine, but adhered to the opinion that the case was one of poisoning from opium and morphine, and not from coal gas: the blood examined spectroscopically was found not to give the spectrum of carbonic oxide haemoglobin. It was to the prisoner's disadvantage that he was unrepresented at the *post-mortem* examinations and the analyses, although Mr. Falconer King, the City Analyst, gave expert evidence on his behalf, and must have puzzled the court and jury by his criticisms of the chemical reactions upon which the prosecution relied. That there were gaps,

and grave gaps, in the evidence for the prosecution can hardly be denied, but these do not seem to have been taken advantage of as fully as might have been expected.

In his summing up the Lord Justice-Clerk (Lord Moncrieff) seems to have allowed that the symptoms left the cause of death entirely open to doubt, but that the discovery of opium on the bed-clothes suggested a cause not inconsistent with these symptoms; yet this only sufficed to raise a suspicion, and probably the prisoner would have escaped but for another element in the case to which allusion has not yet been made. When the prisoner was fetched to his wife's room on the morning of January 2nd he sent the servant away on the plea that the baby was crying, and when she returned to the room he was standing near the window, which he had opened; it was then that he drew her attention to the smell of gas, which she had not previously noticed. Dr. Littlejohn sent word to the gas company that there had been an escape of gas at the prisoner's house, and a gasfitter came, who found behind the window shutter a broken gas-pipe, which had previously served a bracket, but which had been cut off and soldered up; this pipe had been recently broken off about 2 in. from the end, and this could only have been effected by forcibly bending it from side to side. When the prisoner's attention was drawn to this pipe he said he did not know it was there, but it was proved that there had been an escape of gas in the same room in 1876, caused by a hole in this very pipe, and that the prisoner was present when the source of the escape was discovered. The flow of gas was so great that it would have rapidly filled not only the room but the whole house, yet when the servant entered the room she perceived no smell of gas, nor was it observed until after the prisoner had been near the window. The Lord Justice-Clerk asked the jury, Who broke that pipe? It could only have been the prisoner, and, if so, for what purpose did he do it? This consideration proved fatal to the prisoner, and it is clear led the jury to adopt the theory of the prosecution that he had poisoned his wife by opium and subsequently broken the pipe in order to give the case the appearance of coal-gas poisoning. The jury unanimously brought in a verdict of murder. After his formal condemnation to death the prisoner made a rambling speech from which nothing of importance can be gathered, except that he explained the presence of opium on the sheets by saying that it had been rubbed in by some person for a purpose which he did not know. It was one of many unsatisfactory elements in this case that these clothes had not been taken charge of by the police until several days after the death, during which interval access to them was not impossible for persons unfriendly to the prisoner. These and other circumstances led to the preparation of a memorial to the Home Secretary on behalf of the condemned man, but it set out by asserting that two of the jurymen were asleep during the Lord Justice-Clerk's summing up, a statement afterwards repudiated by the judge; this caused a good deal of indignation in the city, and possibly prejudiced the memorial. The other points upon which the memorialists dwelt were (1) the want of evidence either from the symptoms during life, or the two *post-mortem* examinations, or the chemical analyses, that death had been really caused by opium poisoning; (2) the absence of proof that the opium found upon the sheets had come from the body of the deceased; (3) an alternative theory was suggested that death had resulted from uraemic poisoning, and complaint was made that there had been no microscopical examination of the kidneys, although a recent case had shown the possibility of mistaking death from kidney disease for death from opium poisoning; (4) the breaking of the gas-pipe, they allowed, bore unfavourably against the prisoner, but it was submitted that he might have given way to a sudden temptation to cheat the Accidental Insurance Company by giving the death the appearance of coal-gas poisoning rather than of one from natural causes. The memorial failed to convince the Home Secretary, and the prisoner was duly executed without making any confession or admission of his guilt.

The work is illustrated by a frontispiece portrait of Sir Henry Littlejohn, and others of the prisoner, the judge, and the counsel engaged on both sides. The documents relating to the case are printed in an appendix.

AURAL QUACKERY.

Surdus in Search of his Hearing[2] is a book which should be in the hands of every practitioner who has to deal with deaf patients. It throws a flood of light upon the methods of certain aural quacks who, by their advertisements, tempt deaf sufferers to try their remedies, while the section which gives information respecting genuine methods of treatment may convey useful information even to members of the medical profession. Mr. Evan Yellon, the author, is himself deaf, and has had much personal experience of the manners and customs of the sharks who live by deluding the unfortunate. It is impossible not to feel profound pity for those to whom approaching deafness means—not merely the isolation of silence, but loss of their means of livelihood. When they find that they derive no benefit from regularly-conducted treatment, it is not surprising that they should turn in their despair to men who at least hold out hope, although, unhappily, their promises end only in relieving the unfortunate sufferers of some part of the little cash they still possess. It seems hopeless, in the present state of public opinion, to expect aid from Parliament, as on all questions relating to the treatment of disease our legislators appear to believe either that it is within the capacity of persons devoid of all knowledge of the structure and functions of complex organs to cure the diseases they pretend to treat, or that, if there be any element of risk in their proceedings the public is sufficiently protected by the rules of law which govern the buying and selling of merchandise and the liability of craftsmen for the results of their want of skill. The important consideration is left out of sight, that quacks deal in wares which have no value in the open market, whilst injuries which accrue to the organs of the human body cannot be accurately estimated, even by experts, unless the state of the parts concerned be previously known. An enlightened public opinion would recognize the importance of possessing a well-educated body of medical practitioners: it would interest itself in procuring the utmost efficiency of medical education; and it would allow none to undertake the treatment of disease who had not passed a competent public test of his training and knowledge. An ignorant meddler with diseased organs is as dangerous as a colour-blind engine driver, and should be as carefully prevented from pursuing an occupation which involves so much risk of injury to the public.

DENTAL SURGERY.

Dr. Luke's *Anaesthetics in Dental Surgery*[3] is an excellent and very practical guide to the selection and use of the various anaesthetics usually employed in dental practice, and is in many particulars an improvement upon the first edition. The writer condemns the use of chloroform for dental operations, quoting the statistics collected by Dr. Hewitt, which showed a mortality from anaesthetics administered for dental operations four times greater in Scotland than in England and Wales, and eight times greater than in London, in which latter area chloroform has practically been abandoned for such operations. It is noteworthy that of the chloroform fatalities adequately reported most occurred in patients below 40 years of age, and in no case was there the smallest reason to suppose that the patient's condition contraindicated its use. Ethyl chloride, though undoubtedly less safe than nitrous oxide, meets with considerable favour with the author; he prefers it to nitrous oxide for very young, very old, or decidedly anaemic persons. It gives a slightly longer anaesthesia, and the chief objection, he finds, to its use is that vomiting, seldom severe, occurs in something like 20 cent. of the cases. An excellent, though perhaps somewhat short, chapter is devoted to the dangers and accidents of anaesthesia, though much on the same subject is also to be found in the appendix dealing with chloroform which supplements it. Local anaesthesia by means of freezing, of cocaine, stovaine, and the various substitutes such as eucaine is treated of, and precise directions given as to the means to be employed to ensure success;

[2] *Surdus in Search of his Hearing.* An Exposure of Aural Quacks and a Guide to Genuine Treatments and Remedies. By Evan Yellon. Illustrated by F. M. Cooper. London: The Celtic Press. 1906. (Demy 8vo, pp. 125. 2s. 6d.)

[3] *Anaesthetics in Dental Surgery.* By Thomas D. Luke, M.B., F.R.C.S.Edin. Second edition. London and New York: Rebman and Co. 1906. (Crown 8vo, pp. 227. 6s.)

the author prefers, on the whole, the older cocaine hydrochlorate to the substitutes proposed, with possibly the exception of the synthetic stovaine. The extreme disability as subjects for anaesthesia attributed to tobacco smokers suggests that the author is not a smoker himself; but all will agree with him in regarding alcoholism as rendering anaesthesia unquiet, and indeed, sometimes dangerous.

Dr. GUSTAV PREISWERK[1] having already contributed to the series of medical handbooks published by Lehmann of Munich a volume on dental surgery, has confined that which has now been written on dental technique strictly to manipulative processes. How far these can be taught otherwise than practically is a question, but at all events this volume presents in a collected form much that has been culled from the literature of all countries, and will be found useful as a book of reference. Care has been taken to include some notice at least of all the more important alternative methods, and, though sometimes priority has been attributed to the wrong person, this is almost inevitable in a work of the kind. It is profusely illustrated with 21 plates and 362 woodcuts, so that the meaning is not left obscure owing to want of figures. The scope of the book includes not only manipulations usually performed in the mouth, but also those more generally referred to the dentist's workroom, and on its particular lines is as complete as any book with which we are acquainted.

NAVAL HYGIENE.

THE *Traité Hygiène*,[2] edited by MM. BROUARDEL and MOSNY, is planned on a lordly scale, and the whole of the tenth volume is devoted to naval hygiene, forming an elaborate work, profusely illustrated with technical plans and figures relating to the ventilation and drainage of the modern French warship. It is the joint work of MM. Duchateau, Jan, and Planté, who have been at great pains to expound in detail the internal economy of the very complicated man-of-war of to-day as she is seen when ready for service at sea; but from a constructive point of view it does not contain anything very novel.

A chapter is devoted to urinals, and we are informed that, taught by experience, the primitive iron cemented troughs have been superseded. Cement and tiles, when used to line the urinals, were found to fissure and to become displaced, partly as the result of gun-firing and partly because the urine collected in the interstices; they were therefore abandoned, and the trough or receptacle for the urine now in favour consists of a galvanized iron cylinder fixed to the bulkhead some 10 cm. above the deck. The cylindrical shape, it is suggested, prevents splashing. At measured intervals sections are cut out of the upper half of the cylinder resembling mangers. This trough is from time to time flushed with electrolysed salt water. The electrolysing apparatus consists of reservoirs of wooden boxes, 30 cm. square, lined with gutta-percha and tarred on the outside; they contain charcoal, the same as the carbons used for the searchlights. The reservoirs are filled with salt water, and an electric current of from 7 to 80 volts from the ship's dynamo is passed through the water. As this electric current and carbons are found in every ship, it is argued that the expense incurred is a negligible quantity. Free chlorine is the result of the electrolysis, and this disinfects and deodorizes the contents of the urinal when the latter is flushed automatically at stated intervals. The period occupied in freeing the chlorine is about ten minutes, and the gas is said to be very obviously present in the air. The readiness with which salt water parts with its chlorine and in this way provides an excellent disinfectant, and the fact that the apparatus for evolving the gas is always at hand, appear to be very good arguments in favour of the system.

The artificial ventilation in use is a supply and exhaust system, and shows no improvement on that which has for years obtained in our ships. Mechanical appliances are spoken of, and fans worked by electric power are used. These fans are made to act at the bottom of the shaft in each compartment, and in this way the draught is increased. Such fans placed at the bottom would certainly increase the current of fresh air and facilitate its distribution.

There is much generosity as to the water supply, between 2 and 3 litres being allowed for each man, and, when required, this water is heated by steam. To avoid danger from contagion in its ordinary sense, baths are refilled after use by twelve men. The newer ships have fitted douches for the men's use, and, excepting in the tropics, the water is heated. The douche system is extolled on account of the economy in the water supply. The stokers are allowed to use douches of salt water after using soft water with soap. After working in the engine room they are made to change into clean clothing. These methods are carried out in addition to bathing overboard. There is a recognized ship's barber, who is directed to sterilize his implements so as to avoid distribution of contagious skin and hair diseases. A powder comprised of potassium chlorate, 10 grs.; boric powder, 10 gr.; cuttle fish powder, 60 gr.: essence of aniseed, gtt. v., is served out as a dentifrice to the men, who are taught to use it with water every morning.

The elements of the actual ration are notable for the quantity of oil and salad used, and the supply of these is, to say the least of it, generous. The recipe is made up as follows: Cauliflower, 15 per cent.; carrots, 25 per cent.; apples, 35 per cent.: rice, 10 per cent.; and, according to season, pears, onions, celery 10 per cent. This salad is compressible, and can be served out in cakes, which, with hot water, make soup.

At the naval ports the innumerable unlicensed houses of prostitution are the subject of police prosecution, whilst houses registered are left alone.

It will be seen that the volume is a comprehensive treatise on the subject, written mainly from the naval military point of view, but containing also much information of more general application.

GARDEN CITIES.

FEW will be found to dissent from the statement that "as we desert the lanes of Nature for the cities of artificiality we desert quietude, happiness, and integrity for bustle, unrest, and insincerity"; but, under existing economic conditions, the young men of this country have little choice. The present tendency for the bulk of the population to gravitate to the great centres of activity is an inevitable consequence of advancing civilization and increased national prosperity. But this is, if true, the strongest of all possible reasons for endeavouring to improve all existing, and to construct future, towns and cities in such a way as to bring to them, in whatever measure may be possible, the delights and health-giving conditions which belong to rural districts. In two bulky volumes Mr. A. R. SENNETT has recently published a collection of facts and opinions about *Garden Cities in Theory and Practice*,[6] and—however Utopian it may be to hope within the next generation or two for all the pleasures and attractions which he so skilfully dangles before our eyes as future possibilities of city life—he none the less clearly shows that the project is not wholly chimerical. This is how Mr. Sennett paints for us the City of Delight which he confidently sets forth as a legitimate goal of municipal enterprise:

> In Garden Cities every house will be surrounded by a garden, the streets will be avenues delimited not by brick-and-mortar, but bordered by shade-giving trees, margined by widely detached villas. The man of affairs will be able to reach his works or office afoot if he will. His walk will be through a succession of gardens carefully tended like his own: his street will possess the quietude of the country; he will be exhilarated in his walk by the freshness of the air, charmed by the fragrance of floral perfume, and cheered by the songs of birds.

Though the civic perfection which Mr. Sennett thus adumbrates may be beyond the likelihood of present achievement, something is being done towards the fulfilment of his aspirations. Bourneville and Port Sunlight are already established, and stand forth as witnesses to the beauty, healthfulness, and salubrity of towns estab-

[1] *Lehrbuch der Zahnartlichen Technik* [Handbook of Technical Dentistry]. Von Dr. Gustav Preiswerk. Munchen: J. F. Lehmann. 1906. (Cr. 8vo, pp. 442; 21 plates, 362 illustrations. M. 14.)

[2] *Traité d'Hygiène* Sous la direction de MM. P. Brouardel et E. Mosny. Hygiene Navale. Par A. Duchateau, Jan, et Plante. Paris: J. B. Baillière et Fils. 1906. Demy 8vo, pp. 365. Fr. 7.50.)

[6] *Garden Cities in Theory and Practice*. By A. R. Sennett, author of *Fragments of Continental Journeyings*, etc. Volumes I and II. London: Bemrose and Sons, Limited. 1905. (Demy 8vo, pp. 1404, numerous illustrations. 21s.)

lished and conducted on the garden principle in connexion with large works, while recently the public has been appealed to for assistance in the development of the Letchworth Garden City.

ORGANIC CHEMISTRY.

Professor Bunge is the well-known author of a textbook of physiological chemistry, which at the time of its first appearance created considerable stir in the scientific world on account of the original, interesting, and masterly way in which he presented what up to that time had been mainly dry bones. It came on the crest of the wave of neo-vitalism, and so its appearance was admirably timed. The second edition fell rather flat, for Bunge had not advanced with the times, but in both editions he maintained the correct attitude of looking at chemistry through physiological spectacles and not vice versa. It is therefore with considerable interest that we see that he has now produced a book on pure chemistry,[7] although, as the title-page tells us, it is primarily for the use of medical men and medical students. Like its predecessor, it consists of a series of lectures, seventeen in this instance making up the volume. The first, dealing with the recent progress of organic chemistry, recalls Professor Bunge's previous luminous writing, but the remainder do not differ in any marked degree from an ordinary textbook. Beginning with simple hydrocarbons, the various classes of organic compounds are treated group by group as complexity increases, until in the last lecture, a very short one, the proteids are reached. So far as we have tested the book, the matter is excellent and up to date; it is clearly presented; we do not suppose that Bunge could ever be really dull. Beyond the fact that the subjects treated include substances of physiological and medical interest, such as fats, sugar, and urea, it is not clear how the material is more suitable for students of medicine than many other excellent textbooks on organic chemistry are. Little or no attempt is made to point out the bearings of chemical knowledge on physiological or pathological problems. We presume that the author takes the view that students of medicine should learn their organic chemistry thoroughly at the outset, so that later they will have no difficulty in understanding those parts of it which are of a more utilitarian character. There is much to be said for such a view, although we confess to a feeling of disappointment in not seeing the practical applications pointed out here. Bunge has the requisite knowledge and the necessary ability to have done this well.

NOTES ON BOOKS.

Messrs. W. B. Saunders have brought out an edition in English of Dr. Johannes Sobotta's atlas of human anatomy, and with it they have combined the same author's elements of anatomy, interspersing the plates of the former with the text of the latter, as we suggested should be done when reviewing the original publication in German two years ago. The result is a very attractive and by no means unwieldy volume under the title of an *Atlas and Textbook of Anatomy*,[8] dealing with the bones, the ligaments, and the muscles. The majority of the plates are multicoloured lithographs prepared from photographs; in the taking of these, special precautions, it appears, were adopted to avoid focus distortions, and the results as a rule are excellent, while the text is clear, and usually quite sufficient in detail. In a future edition there might usefully be introduced one or two plates of immature long bones, showing the precise situation of the epiphysial junctions. As the volume is marked I, it is presumably intended to issue another dealing with the viscera and nervous system.

A little book under the title of *Cures de Vichy*[9] may be found useful by those who desire to study the classes of case likely to benefit by treatment at this spa. The author is Dr. Clerc, who has distinct individuality in his literary style, and relieves his pages with occasional touches of humour. He has picked out from his notebook a great many typical examples of the different forms of disease in visitors whose treatment he has had to direct, and manages in spite of the brevity of his remarks to make his points clear. His general conclusions are that Vichy treatment is a good prophylactic in persons who suffer from liverishness or from uric acid, and that it often cures, or at any rate benefits, persons affected with rheumatism, gravel, diabetes, lack of appetite, or gastro-intestinal diseases. He stipulates, however, that all the complaints should be of a chronic afebrile nature. There is nothing to be gained by the treatment in most forms of cachexia, and least of all by persons suffering from new growths; pain arising from disturbance of the central nervous system or due merely to neuroses is, he affirms, often aggravated.

A second volume of the Index to Messrs. Wright's Medical Annual has now been published under the title of *The Medical Annual Synoptical Index*.[10] The issues covered by it are those which appeared between 1899 and 1904, both dates inclusive. The comparative delay in its appearance is due to the fact that the book as first prepared perished like so many others when Messrs. Wright's premises were destroyed by fire a year or so ago. In any case, however, the book will certainly be welcomed by those who have copies of the *Annual*. It is likely, too, to be found useful by many others, owing to the fact that the references which it contains are arranged in such fashion as to make it easy to ascertain at a glance what have been the leading suggestions as to treatment during the period covered.

Mr. Sayers, lecturer upon plumbing at the Municipal Technical Institute of the city of Belfast, has been well advised to issue in book-form the series of lectures on *Experiments on Hot-Water Systems*,[11] which have recently appeared in the columns of the *Plumber and Decorator*. We have here a long series of records of experiments made under the best circumstances by trained observers under adequate supervision into the various problems which arise on the installation of hot-water systems. The experiments are detailed, the results are clearly set out and tabulated, and the whole is accompanied by graphs showing completely the story of each experiment. The work will naturally appeal more directly to the sanitary engineer and to the plumber than to members of the medical profession, but there will doubtless be times when those who are consulted with reference to hot-water installations in asylums, schools, and the like will find Mr. Sayers's little pamphlet most valuable. Professor Forth, who has written an admirable preface to the work, admits that he is not able to judge of the practical value of the problems tested, and there will be many who will find themselves in the same predicament, but we join with him in praising an excellent and practical little work.

MEDICINAL AND DIETETIC PREPARATIONS.

Coffee and Condensed Milk.—Messrs. Fussell and Co., 4, Monument Street, London, E.C., have sent us specimens of a mixture of condensed milk with extract of coffee and cane sugar; it is a preparation of about the consistence of ordinary condensed milk, and only requires the addition of boiling water to produce the complete beverage. The genuineness of the coffee in the sample was ascertained by extraction of pure caffeine, which was identified in the usual way. The aroma of coffee, however, is not very pronounced in the preparation. Being supplied in hermetically-sealed tins, the mixture can, of course, be kept indefinitely. The same firm also supplies cocoa and milk and chocolate and milk in closed tins. These preparations consist of mixtures of cocoa, condensed milk, and sugar, with the addition of a little vanilla flavouring in the case of the chocolate and milk. Both are free from arrowroot or other foreign starch, showing that pure cocoa has been used in their preparation. It is only necessary to add boiling water in order to produce an agreeable beverage.

[7] *Lehrbuch der Organischen Chemie für Mediciner* [Textbook of Organic Chemistry for Medical Men]. Von Gustav v. Bunge, Professor in Basel. Leipzig: J. A. Barth. 1906. (Demy 8vo, pp. 274. M.7.)

[8] *Atlas and Textbook of Human Anatomy*. By Johannes Sobotta. Edited with additions by J. Playfair McMurrich, A.M., Ph.D. Vol. i. London: W. B. Saunders. 1906. (Demy 8vo, pp. 258. 320 illustrations. 25s.)

[9] *Cures de Vichy*. Index Clinique par Dr. Clerc. Angoulême: L. Coquemard et Cie. (Fcap. 8vo, pp. 124).

[10] *The Medical Annual Synoptical Index to Remedies and Diseases*. For the six years 1899 to 1904. Bristol: John Wright and Co. (Demy 8vo, pp. 270.)

[11] *Experiments on Hot-Water Systems*. By A. Sayers, Lecturer to the Municipal Technical Institute, Belfast. London: Sanitary Publishing Co. 1906. (Demy 8vo, pp. 168. 3s.)

At the Northampton County Court, on August 1st, the Judge (Sir Thomas Snagge) said that he hoped to live to see the day when, in administering an oath, kissing the dirty leather cover of a book would not only be not required but absolutely prohibited by law. It was a most insanitary and objectionable ceremony, and ought to be abolished.

LISTS OF REFERENCES.

By CUTHBERT E. A. CLAYTON,

LIBRARIAN TO THE MANCHESTER MEDICAL SOCIETY; MEMBER OF THE LIBRARY ASSOCIATION; LATELY ASSISTANT IN THE LIBRARY OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON.

My work during the last few years has brought me so frequently into contact with compilers of medical bibliographies that I have been impressed with the need of some notes dealing with the subject.

With the exception of a paper by Dr. A. E. Garrod in the *St. Bartholomew's Hospital Journal*, 1894-5, ii, 145, and another by the late Mr. J. B. Bailey in the BRITISH MEDICAL JOURNAL, 1895, i, 875, very little has been written on the subject in England.

When one considers the appalling waste of time caused by incorrect and imperfect references, it will be evident that any suggestions tending to reduce them to a minimum must be of service.

The making of a bibliography naturally falls into three divisions:

A. Collection of material.
B. Arrangement.
C. Details of Construction.

A.—*Collection of Material.*

This is more a matter of time than of difficulty. In the first place, the *Index Catalogue of the Library of the Surgeon-General's Office, United States Army*, must be consulted. This is an author and subject catalogue alphabetically arranged, and published annually; monographs are entered twice, (1) under author's name, and (2) under subject: articles in periodical publications under the subject only—for example:

BENZINE.

See, also, Benzol.

JUNGFLEISCH (E.). (1) *Recherches sur les dérivés chlorés de la benzine.* (2) *Propriétés optiques des cristaux.* 4° Paris, 1868.

BENECH. Sur l'action physiologique de la benzine, *Compt. rend. Soc. de biol.*, 1878. Par. 1880, 6 s., v, 353-355.

LANGDON (F. W.). Benzin as a parasiticide. *Cincin. Lancet-Clinic*, 1891, n.s. xxvi, 167-169.

The monograph by Jungfleisch is repeated under the author's name; the articles by Benech and Langdon are not.

The first series of the *Surgeon-General's Catalogue*, as it is familiarly called, consists of sixteen volumes, the date of the last volume being 1895; the second series has reached vol. x, 1905, M— Mnikhovski. Owing to the alphabetical arrangement, references cannot be obtained to authors or subjects after "Mnikhovski" later than those in the volumes of the first series containing the particular authors and subjects.

However, the difficulty is obviated by having recourse to the *Index Medicus*. This, also an American publication, is issued in simply-classified monthly parts, welded together by an excellent index at the end of each year.

The method of working the *Index Medicus* with the *Surgeon-General's Catalogue* is as follows: Let us suppose that we are compiling a bibliography on naevi. The last collection of references was in the *Surgeon-General's Catalogue*, 1st Ser., 1888, ix, and all we have to do to bring this list to date is to commence with the volume of the *Index Medicus* for 1888.

For more special lists of references there are several most useful compilations, such as *Schmidt's Jahrbücher der in- und ausländischen gesammten Medicin*, *Jahresbericht über die Fortschritte der Tier-Chemie*, *Jahresbericht über die Leistungen und Fortschritte im Gebiete der Ophthalmologie*, etc.

The correctness of the references in the publications referred to may be relied upon, but if any be taken from actual articles they must be verified. To perpetrate an error by giving an incorrect reference is serious enough; it is almost criminal to perpetuate one.

B.—*Arrangement.*

This depends much upon the particular purpose for which the bibliography is intended; I think the enumeration of the various forms will be quite sufficient. A list may be arranged either, (*a*) alphabetically according to names of authors, or (*b*) chronologically, or (*c*) classified if of great length.

C.—*Details of Construction.*

The following points must be carefully observed:

1. In every case the initials of an author should be given. If an author bear a hyphened name, or is known by his last christian name and surname, it should be placed under the last name—for example, John Bond Smith or Bond-Smith as follows: Smith (J. Bond or Bond-), never Bond Smith (J.).

2. The name of the periodical must be so abbreviated that no doubt as to its nationality is possible. I think the abbreviations used in the *Surgeon-General's Catalogue* might be universally adopted.

3. References to papers should contain date, volume, and page; not the dates of the weekly or monthly parts—for example, BRITISH MEDICAL JOURNAL, 1906, i, 173.

THE MOTOR CAR REPORT.

THE Royal Commission on Motor Cars, which was appointed to report upon the working of the Motor Car Acts of 1896 and 1903, the amendments desirable in them, the alleged injury to the roads, and other cognate matter, has issued its report.

The recommendations and the grounds upon which they are based are eminently sensible, and may be expected to be enacted when the renewal of the present Act comes up for consideration.

The question which is of perhaps the greatest interest is that of the speed limit; at present it is twenty miles an hour, but the Commission reports against the imposition of a speed limit except in places marked by a danger sign. The chief reason given for this perhaps rather unexpected conclusion is that in practice it has proved to be no protection to the public, but rather the contrary. There is a stringent clause in the existing Act against dangerous driving, and this, it is recommended, should be made yet more stringent. But this clause has been rendered practically inoperative by the police having devoted themselves almost entirely to catching, by means of police traps, persons offending against the speed-limit clause, and for that purpose selecting the most open, straight, and safe roads as being the places where even the most careful of motorists may be tempted to exceed the limit. Granting that police timing is accurate, and that the police are not tempted to stretch a point to get a "bag," two assumptions by no means certainly correct, the harm done by exceeding the limit in the safest pieces of road to be found in the district and the danger to the public are very small. But, as pointed out by the Commissioners, driving at or a little within the speed limit may in very many places be exceedingly dangerous; the case of proof as to speed and the comparative difficulty of proof of dangerous driving have led the police to neglect the latter. We only know of one dangerous piece of road where police traps have ever been set; a considerable number of convictions have been obtained, but they have all been on the question of speed pure and simple. The only accident which has, so far as we know, happened in this place was caused by a motor which was being driven well below the speed limit, but presumably with insufficient care. This may serve yet further to illustrate the futility of prosecutions merely for exceeding the speed limit to the neglect of prosecutions for careless driving. Further the present speed limit is one that the more cautious of drivers are always approximating or reaching; if there is to be a speed limit at all it should be one that is not close upon the speed at which every one runs under safe conditions. In a singularly illogical paragraph appended to the report two of the Commissioners dissent from the abolition of the speed limit. Though one of them is the Commissioner of Police for the Metropolis, they actually suggest that the law be retained, but that it should not be enforced except "under reasonable conditions"!

To the suggestion that there should be a speed limit, but that army motor cars and those used by medical men for professional purposes be exempted, the Commissioners do not assent, except possibly in areas scheduled under the Manœuvres Act, 1901, and only for the period of manœuvres. A speed limit of twelve miles an hour is, however, recommended in all places marked by danger triangles; in large towns, and in villages and small towns where adopted by the local authorities. This

appears to be an excellent suggestion, and indeed is exactly what was advocated by a well-known member of the profession during the sitting of the Committee, in a letter published in a leading motor journal.

Other points which will interest our medical readers are that the duty of the motorist to stop when any damage or accident has occurred shall be made more explicit, and failure to do so shall be made an offence. The proposed graduation of the scale of taxation may press hardly upon the medical profession; at present moderate-powered motors pay the ordinary carriage tax of £2 2s., but it is proposed to graduate it according to the weight of the car: Cars under 12 cwt. to pay as at present £2 2s. a year; over 12 but under 15 cwt., £3 3s.; over 15 cwt. but under 25, £5 5s.; and those exceeding 25 cwt. to pay £8 8s. To this there is the objection that very few cars are under 12 cwt., and that cars of 12 h.p. will generally weigh 18 to 20 cwt., so that the cars of many medical men would be taxed as highly as £5 5s. a year. It is proposed that trade and public service vehicles should pay only half these rates, and this rebate might well be extended to cars used for professional purposes. Indeed this should be at once urged, and means taken to introduce an amendment to this effect in any new Act.

SCOTTISH POOR-LAW MEDICAL OFFICERS' SECURITY OF TENURE.

Deputation to the Secretary for Scotland.

On Tuesday, May 8th, the Secretary for Scotland received a deputation composed of Representatives of the Scottish Poor-law Medical Officers' Association, of Members of Parliament for several Scottish constituencies, and of Representatives of the British Medical Association.

The deputation was introduced by Mr. J. Cathcart Wason, M.P., who pointed out that the questions of security of tenure for Poor-law medical officers and superannuation, which the deputation attended to urge, did not affect only the medical profession, but affected the poor whom it might be the duty of Poor-law medical officers to attend. He and his colleagues representing Scottish constituencies were deeply impressed by the importance of the matter as affecting the health of the population in the poorer districts of Scotland.

Dr. Gilbert Campbell, as Chairman of the Scottish Poor-law Medical Officers' Association, briefly stated the action which had been taken in this matter, which was more fully explained by the Secretary of the Association, Dr. W. L. Muir.

Dr. Muir pointed out that under present conditions Poor-law medical officers were at the mercy of local authorities, and thus it was left open for the influence of individual members of these authorities to be exercised tyrannously with regard to the medical officers. If medical officers were not properly treated the result must be that men whose services were worth having would not accept such appointments, and his Association had felt it to be its duty for some time to take care, by notices in the press and otherwise, that medical practitioners should not be allowed to remain in ignorance of the objections to appointments in districts where the medical officers had not received fair treatment in the past. They asked for the same security which was enjoyed by their English colleagues who were Poor-law medical officers, and by the Scottish medical officers of health, namely, that they should not be removed without a right of appeal to the Local Government Board.

Mr. Alexander Cross, M.P. (President of the Scottish Poor-law Medical Officers' Association), Mr. John Ainsworth, M.P., Mr. J. Annan Bryce, M.P., Mr. R. Leicester Harmsworth, M.P., and Mr. Galloway Weir, M.P., spoke in corroboration of the statements which had been made as to the effect of the present system upon the health of the population, and as to the importance of the proposed reforms.

Mr. C. H. Watts Parkinson, Chairman of the Public Health Committee of the British Medical Association, bore testimony as to the cordial support which that Association gave to the efforts of the Scottish Poor-law Medical Officers' Association in this matter, and as to the benefits which had resulted in England and Wales from the security there accorded to Poor-law medical officers.

The Secretary for Scotland, in reply, expressed his pleasure at the opportunity of hearing the views of a deputation so representative of the districts of Scotland chiefly concerned in the matter, as well as of the medical profession, and stated that he recognized that the matter was one of importance not merely as affecting the interests of the medical profession, but of the public. While unable to give any definite pledge as to action by his Department in the specific directions indicated by the deputation, he expressed his full sympathy with the general objects which they had in view.

The deputation, having cordially thanked Mr. Sinclair for his courtesy and kindness in receiving them, withdrew.

BRITISH ASSOCIATION.

The British Association for the Advancement of Science held its annual meeting this year at York, where it first met seventy-five years ago. We give abstracts of the communications and discussions of medical interest from the excellent reports published by the *Times*.

President's Address.

The business of the meeting was opened by an address from the President (Professor Ray Lankester), who, after some introductory remarks, proceeded to give a general survey of what had been going on in the workshops of science in the last quarter of a century. During that period new chemical elements possessed of astounding properties had been discovered. It was found that nitrogen obtained from the atmosphere invariably differed in weight from nitrogen obtained from one of its chemical combinations; thus Rayleigh was led to conclude that a distinct gas, which has hitherto passed for nitrogen, was present in the atmosphere to the extent of 1 per cent. This gas was separated, and to it the name argon (the lazy one) was given, on account of its incapacity to combine with any other element. Subsequently argon was found by Ramsay to be itself impure, and from it he obtained three other gaseous elements equally inert—namely, neon, krypton, and xenon. These were all distinguished from one another by the spectrum, the sign-manual of an element given by the light emitted in each case by the gas when in an incandescent condition. A fifth inert gaseous element was discovered by Ramsay as a constituent of certain minerals which was proved by its spectrum to be identical with an element discovered twenty-five years ago by Norman Lockyer in the atmosphere of the sun, where it existed in enormous quantities. Lockyer had given the name helium to this new solar element, and Ramsay thus found it locked up in certain rare minerals in the crust of the earth. By helium they were led back to radium, for it had been found only two years ago by Ramsay and Soddy that helium was actually formed by a gaseous emanation from radium. Radium was discovered owing to the study of the remarkable phosphorescence of glass vacuum tubes through which electric currents were made to pass. Crookes, Lenard, and Roentgen each played an important part in this study, showing that peculiar rays or linear streams of at least three distinct kinds were set up in such tubes—rays themselves invisible, but having the property of making glass or other bodies which they struck glow with phosphorescent light. Roentgen rays made ordinary glass give out a bright green light; but they passed through it and caused phosphorescence outside in various substances, such as barium, platino-cyanide, calcium tungstate, and many other such salts; they also acted on a photographic plate and discharged an electrified body such as an electroscope. But the most remarkable feature about them was their power of penetrating substances opaque to ordinary light. They passed through thin metal plates or black paper or wood, but were stopped by more or less dense material. Hence it had been possible to obtain "shadow pictures" or skiagraphs by allowing the invisible Roentgen rays to pass through a limb or even a whole animal, the denser bones stopping the rays, whilst the skin, flesh, and blood let them through. They were allowed to fall (still invisible) on to a photographic plate, when a picture like an

ordinary permanent photograph was obtained by their chemical action, or they might be made to exert their phosphoresence-producing power on a glass plate covered with a thin coating of a phosphorescent salt such as barium platino-cyanide, when a temporary picture in light and shade was seen. Other rays studied in the electrified vacuum tubes were known as cathode rays or radiant corpuscles; others, again, as the Lenard rays.

Radio-Activity.

It occurred to Becquerel to inquire whether other phosphorescent bodies besides the glowing vacuum-tubes of the electrician's laboratory could emit penetrating rays like the *x*-rays. About twelve years ago he made the experimental inquiry—Does uranium give off penetrating rays like Roentgen's rays? He wrapped a photographic plate in black paper, and on it placed and left lying there for twenty four hours some uranium salt. He had placed a cross, cut out in thin metallic copper, under the uranium powder, so as to give some shape to the photographic print should one be produced. It was produced. Penetrating rays were given off by the uranium; the black paper was penetrated, and the form of the copper cross was printed on a dark ground. The copper was also penetrated to some extent by the rays from the uranium, so that its image was not left actually white. Only one step more remained before Becquerel made his great discovery. It was known that sulphide of calcium and similar substances became phosphorescent when exposed to sunlight, and lost this phosphorescence after a few hours. Becquerel thought at first that perhaps the uranium acquired its power similarly by exposure to light; but very soon, by experimenting with uranium long kept in the dark, he found that the emission of penetrating rays, giving photographic effects, was produced spontaneously. The emission of rays by this particular fragment of uranium had shown no sign of diminution since this discovery. The emission of penetrating rays by uranium was soon found to be independent of its phosphorescence. The emission of these rays discovered by Becquerel was a new property of matter. It was called "radio-activity," and the rays were called Becquerel rays.

Radium.

From that discovery to the detection and separation of the new element radium was an easy step in thought, though one of enormous labour and difficulty in practice. Professor Pierre Curie and Madame Curie, incited by Becquerel's discovery, examined the ore called pitchblende which was worked in mines in Bohemia and was found also in Cornwall. From that ore all commercial uranium was extracted. The Curies found that pitchblende had a radio-activity four times more powerful than that of metallic uranium itself. They at once conceived the idea that the radio-activity of the uranium salts examined by Becquerel was due not to the uranium itself, but to another element present with it in variable quantities. This proved to be in part true. By a long series of fusions, solutions, and crystallizations, they succeeded in "hunting down," as it were, the radio-active element. The first step gave them a powder mixed with barium chloride and having 2,000 times the activity of the uranium in which Becquerel first proved the existence of the new property—radio-activity. Then step by step they purified it to a condition 10,000 times, then to 100,000 times, and finally to the condition of a crystalline salt having 1,800,000 times the activity of Becquerel's sample of uranium. The amount of radium in pitchblende was one ten-millionth per cent.; rarer than gold in sea water. The Curies at once determined that the minute quantity of colourless crystals they had obtained was the chloride of a new metallic element with the atomic weight 225, to which they gave the name "radium." The atomic weight was determined in the usual way by precipitating the chlorine in a solution of radium chloride by means of silver. None of the precious element was lost in the process, but the Curies never had enough of it to venture on any attempt to prepare pure metallic radium. That was a piece of extravagance no one had yet dared to undertake. Altogether the Curies did not have more than some 4 or 5 gr. of chloride of radium to experiment with, and the total amount prepared and now in the hands of scientific men in various parts of the world probably did not amount to more than 60 grains at most.

Leaving aside for a moment what had been done in regard to the more precise examination of the rays emitted by radium, the following facts had been found out in regard to it: (1) If a glass tube containing radium is much handled or kept in the waistcoat pocket, it produces a destruction of the skin and flesh over a small area—in fact, a sore place. (2) The smallest trace of radium brought into a room where a charged electroscope was present, caused the discharge of the electroscope. (3) Radium actually realized one of the properties of the hypothetical philosopher's stone; for it gave out heat which it made itself incessantly and without appreciable loss of substance or energy. It was also faintly self-luminous. Radium had been proved to give out enough heat to melt rather more than its own weight of ice every hour; enough heat in one hour to raise its own weight of water from the freezing point to the boiling point. After a year and six weeks a gram of radium had emitted enough heat to raise the temperature of a thousand kilograms of water one degree. And this was always going on. Even a small quantity of radium diffused through the earth would suffice to keep up its temperature against all loss by radiation. If the sun consisted of a fraction of 1 per cent. of radium this would account for and make good the heat annually lost by it. It had now, within these last five years, become evident that the earth's material was not self-cooling, but on the contrary self-heating.

Radium Emanation.

The strangest of all proceedings of radium had been discovered by Rutherford in Canada, who found that radium was continually giving off, apart from and in addition to the rectilinear darting rays of Becquerel, a gaseous "emanation." This "emanation" was radio-active, and deposited "something" upon bodies brought near the radium, so that they became radio-active, and remained so for a time after the radium was itself removed. This emanation was always being formed by a radium salt, and might be most easily collected by dissolving the salt in water, when it came away with a rush, as a gas. Sixty milligrams of bromide of radium yielded to Ramsay and Soddy 0.124 (or about one-eighth) of a cubic millimetre of this gaseous emanation. What was it? It could not be destroyed or altered by heat or by chemical agents; it was a heavy gas, having a molecular density of 100, and it could be condensed to a liquid by exposing it to the great cold of liquid air. It gave a peculiar spectrum of its own, and was probably a hitherto unknown inert gas—a new element similar to argon. But this by no means completed its history. The radium emanation decayed, changed its character altogether, and lost half its radio-activity every four days. Precisely at the same rate as it decayed the specimen of radium salt from which it was removed formed a new quantity of emanation, having just the amount of radio-activity which had been lost by the old emanation. All was not known about the decay of the emanation, but one thing was absolutely certain, having first been discovered by Ramsay and Soddy and subsequently confirmed by independent experiment by Madame Curie: After being kept three or four days the emanation became, in part at least, converted into helium—the light gas (second only in the list of elements to hydrogen), the gas found twenty-five years ago by Lockyer in the sun, and since obtained in some quantities from rare radio-active minerals by Ramsay! Here, then, was the partial conversion or decay of one element radium—through an intermediate stage into another. It must be obvious, therefore, that radium had very slowly, but none the less surely, destroyed itself. There was a definite loss of particles which, in the course of time, must lead to the destruction of the radium, and it would seem that the large new credit on the bank of time given to biologists in consequence of its discovery had a definite, if remote, limit. It had been calculated that radium would transform half of itself in about 1,500 years, and unless it were being produced in some way all of the radium now in existence would disappear much too soon to make it an important geological factor in the maintenance of the earth's temperature. As a reply to this depreciatory statement there was the discovery by Rutherford and others that radium was continually being formed afresh, and from that particular element in connexion with which it was discovered—namely, uranium. The kind of conceptions to which these

and like discoveries had led the modern physicist in regard to the character of that supposed unbreakable body—the chemical atom—were truly astounding. But they were not destructive of previous conceptions, but rather elaborations and developments of the simpler views, introducing the notion of structure and mechanism, agitated and whirling with tremendous force, into what was formerly conceived of as homogeneous or simply built-up particles, the earlier conception being not so much a positive assertion of simplicity as a non-committal expectant formula awaiting the progress of knowledge and the revelations which are now in our hands. The President then briefly referred to wireless telegraphy, the low temperatures produced by Sir James Dewar, and the high temperatures employed in continuation of the earlier work of Deville, and others by Moissan, the distinguished French chemist.

The Prevention of Disease.

After reviewing the progress made in chemistry, astronomy, geology, animal and vegetable morphology, the physiology of plants and animals, psychology and Darwinism, the President proceeded to deal with pathology. He said our knowledge of disease had been enormously advanced in the last quarter of a century, and in an important degree our power of arresting it, by two great lines of study going on side by side and originated, not by medical men nor physiologists in the narrow technical sense, but by naturalists, a botanist, and a zoologist. Ferdinand Cohn, Professor of Botany in Breslau, by his own researches and by personal training in his laboratory, gave to Robert Koch the start on his distinguished career as a bacteriologist. It was to Metchnikoff the zoologist and embryologist that we owed the doctrine of phagocytosis and the consequent theory of immunity now so widely accepted. Within the same period much of the immortal work of Pasteur on hydrophobia, of Behring and Roux on diphtheria, and of Ehrlich and many others to whom the eternal gratitude of mankind was due, had been going on. It was only some fifteen years since Calmette showed that if cobra poison were introduced into the blood of a horse in less quantity than would cause death, the horse would tolerate with little disturbance after ten days a full dose, and then day after day an increasing dose, until the horse without any inconvenience received an injection of cobra poison large enough to kill thirty horses of its size. Some of the horse's blood being now withdrawn was found to contain a very active antidote to cobra poison—what is called an antitoxin. The procedure and preparation of the antitoxin was practically the same as that previously adopted by Behring in the preparation of the antitoxin of diphtheria poison. The remarkable development of Metchnikoff's doctrine of phagocytosis during the past quarter of a century was certainly one of the characteristic features of the activity of biological science in that period. It was known that when a wound bringing in foreign matter was inflicted on a vertebrate animal the blood vessels became gorged in the neighbourhood, and the colourless corpuscles escaped through the walls of the vessels in crowds. Their business in so doing, Metchnikoff showed, was to eat up the foreign matter, and also to eat up and remove the dead, wounded tissue. He therefore called these white or colourless corpuscles "phagocytes," the eater-cells, and in his beautiful book on inflammation, published twenty years ago, proved the extreme importance of their activity. At the same time he had shown that they ate up intrusive bacteria and other germs; and his work for the last twenty years had mainly consisted in demonstrating that they were the chief, and probably the only, agents at work in either ridding the human body of an attack of disease-causing germs or in warding off even the commencement of an attack, so that the man or animal in which they are fully efficient was "immune"—that is to say, could not be effectively attacked by disease germs. Metchnikoff's conclusion, as recently stated in regard to the whole progress of this subject, was that the phagocytes in our bodies should be stimulated in their activity in order successfully to fight the germs of infection. Alcohol, opium, and even quinine, hindered the phagocytic action; they should therefore be entirely eschewed or used only with great caution where their other and valuable properties were urgently needed. It appeared that the injection of blood-serum into the tissues of animals caused an increase in the number and activity of the phagocytes, and thus an increase in their resistance towards pathogenic germs. After years of opposition bravely met in the pure scientific spirit of renewed experiment and demonstration, Metchnikoff was at last able to say that the foundation-stone of the hygiene of the tissues—the thesis that our phagocytes are our arms of defence against infective germs—had been generally accepted. It was the great merit of Ross to have discovered, by most patient and persevering experiment, that the malaria parasite passed a part of its life in the spot-winged gnat or mosquito (*Anopheles*), not, as he had at first supposed, in the common gnat or mosquito (*Culex*), and that if we could get rid of spot-winged mosquitos or avoid their attentions, or even only prevent them from sucking the blood of malarial patients, we could lessen, or even abolish, malaria. That great discovery was followed by another as to the production of the deadly "Nagana" horse and cattle disease in South Africa by a screw-like, minute animal parasite, the *Trypanosoma brucei*. The tsetse fly, which was already known in some way to produce this disease, was found by Colonel David Bruce to do so by conveying by its bite the trypanosome from wild big-game animals, to the domesticated horses and cattle of the colonists. The discovery of the parasite and its relation to the fly and the disease was as beautiful a piece of scientific investigation as biologists had ever seen. The trypanosomes had acquired a terrible notoriety within the last four years, since another species, also carried by a tsetse fly of another species, had been discovered by Castellani in cases of sleeping sickness in Uganda, and demonstrated by Colonel Bruce to be the cause of that awful disease. Over 200,000 natives of Uganda had died from it within the last five years. It was incurable, and, sad to relate, not only a certain number of European employés had succumbed to it in tropical Africa, but a brave young officer of the Army Medical Corps, Lieutenant Tulloch, had died from the disease acquired by him in the course of an investigation of this disease and its possible cure, which he was carrying out, in association with other men of science, on the Victoria Nyanza Lake in Central Africa. Trypanosomes were now being recognized in the most diverse regions of the world as the cause of disease—new horse diseases in South America, in North Africa, in the Philippines, and East India are all traced to peculiar species of trypanosome. He had not time to do more than mention the effort that is being made by combined international research and co-operation to push further in our knowledge of phthisis and of cancer, with a view to their destruction. It was only since their last meeting at York that the parasite of phthisis or tubercle had been made known; it might be hoped that it would not be long before they had similar knowledge as to cancer. Only eighteen months had elapsed since Fritz Schaudinn discovered the long-sought parasitic germ of syphilis, the *Spirochaeta pallida*. The President said that even as he was writing the sad news of Schaudinn's death at the age of 35 had come to him from his family at Hamburg—an irreparable loss. He wished finally to state, in relation to this study of disease, what was the simple fact—namely, that if the people of Britain wished to make an end of infective and other diseases they must take every possible means to discover capable investigators, and employ them for this purpose. To do this far more money was required than was at present spent in that direction. It was necessary, if we were to do our utmost, to spend a thousand pounds of public money on this task where we now spend one pound. It would be reasonable and wise to expend ten million pounds a year of their revenues on the investigation and attempt to destroy disease. Actually what was so spent was a mere nothing, a few thousands a year. Meanwhile the people are dying by thousands of preventable disease. The successive political administrators of the affairs of this country, as well as the permanent officials, were altogether unaware to-day, as they were 25 years ago, of the vital importance of science, and of the urgent need for making use of it in a variety of public affairs. The reason is, we think, to be found in the defective education, both at school and university, of the governing class, as well as in a racial dislike among all classes to the establishment and support by public funds of posts which the average man might not expect to succeed by popular clamour or class privilege in gaining for himself—posts which must

be held by men of special training and mental gifts. Whatever the reason for the neglect, the only remedy that could possibly be applied was that of improved education for the upper classes, and the continued effort to spread a knowledge of the results of science and a love for it amongst all members of the community. One of the most solid tests of the esteem and value attached to scientific progress by the community was the dedication of large sums of money to scientific purposes by its wealthier members. They knew that in the United States such gifts were not infrequent; they were rare in this country. It was therefore with especial pleasure that he called attention to a great gift to science in this country made only a few years ago. Lord Iveagh had endowed the Lister Institute, for researches in connexion with the prevention of disease, with no less a sum than a quarter of a million pounds sterling. That was the largest gift ever made to science in this country, and would be productive of great benefit to humanity.

Science and Religion.

In conclusion, the President said it seemed to him not inappropriate that a society for the advancement of science should have taken its origin under the walls of York Minster, and that the clergy of the great cathedral should have stood by its cradle. It was not true that there was an essential antagonism between the scientific spirit and what was called the religious sentiment. "Religion," said Bishop Creighton, "means the knowledge of our destiny and of the means of fulfilling it." They could say no more and no less of science. Men of science sought in all reverence to discover the Almighty, the Everlasting. They claimed sympathy and friendship with those who, like themselves, had turned away from the more material struggles of human life, and had set their hearts and minds on the knowledge of the Eternal.

[*To be continued.*]

LITERARY NOTES.

The *Health of the Nation* is the title of a new periodical which is the organ of the National League for Physical Education and Improvement. The greater part of it is occupied by an elaborate paper by Dr. Arthur Shadwell on foundations of national health in large cities. The editor, Mr. L. Eliot Creasy, announces that in the second number he hopes to place before his readers an account of physical culture in the schools of Sweden and Denmark, by Mrs. Scharlieb, M.D., and Miss Alice Ravenhill. Sympathizing as we do with the objects of the League we heartily wish success to its organ.

Messrs. Archibald Constable will shortly publish a book by Sir Almroth E. Wright on the microscope, the object of which is said to be to show how to get from any class of instrument the highest degree of satisfaction in proportion to its range. The text of the book goes hand in hand with experiments. It also contains a complete vocabulary of technical terms relating to the microscope. The work has been written as the result of investigations extending over a period of many years with the aid of expert assistance.

Dr. S. D. Clippingdale writes that a recent number of *Notes and Queries* contains the following lines which apparently show that the famous Dr. Lettsom not only sent bills but that these were not always promptly paid:

From "A Journey to Epsom."
Next morn it was enough to vex one.
A bill was brought from Dr Lettsom.
The bill was due that very day
And Pa had not enough to pay,
For what was saved to pay poor Lettsom
Was spent the day before at Epsom.

We have received a copy of the first number, dated July, of the *Calcutta Medical Journal*, which is described as the organ of the Calcutta Medical Club. In addition to the transactions of the club, it contains original papers, reviews and abstracts of current medical literature.

In the June number of *Janus* Dr. E. Withington gives an interesting account of Adamantios Koraes, "the physician of a nation and a language." Koraes, who was a physician and a scholar, was the moving spirit in the struggle which freed Greece from the dominion of the Turk. He was also, in the words of the historian Finlay, the great popular reformer of the Greek system of popular instruction, the legislator of the modern Greek language, and the most distinguished apostle of religious toleration and national freedom. "He passed his life in independent poverty in order that he might consecrate his whole time and the undivided strength of his mind to improve the moral and political feelings of the Greeks." He is classed by the German historian Hertzberg with Capodistrias, who was also a member of the medical profession, as one of the two leaders of Hellenic independence. Koraes was born at Smyrna in 1748 and began life, much against his will, in a commercial house at Amsterdam. He entered on a study of medicine in 1782 at Montpellier, where he took his doctor's degree in 1786. He had already given much attention to philology and he spent two years more at Montpellier translating the works of Greek medical writers. In 1788 he went to Paris, where he saw the whole of the Revolution. He fell into dire poverty, and in 1796 he lived for some time on an ounce of bread a day, till he got 600 francs for a French version of Black's *Sketch of the History of Medicine and Surgery*. But he soon reverted to his former ideal of national education. In 1802 he dedicated a translation of Beccaria to the Ionian Republic, and in the following year published a memoir on the state of Greece which attracted much attention. In 1804 Napoleon commissioned him to make a translation of the works of Strabo, and in the same year there appeared one of his most important productions, an edition of the *Aethiopics* of Heliodorus with *Prolegomena* on the state of the Greek language and the means of improving it. He advocated, in short, the gradual purification of the language by the exclusion of foreign words and expressions, and the substitution of ancient ones so far as possible, without the hopeless attempt to restore the inflectional and involved structure of classical Greek. Through countless struggles with opponents on both sides he carried this system to victory, a victory gained less by argument than by the example of his own copious writings, "which charmed and carried away his countrymen, and which are distinguished as brilliant models of modern Greek by an expressive style and a happy combination of popular and classical elements in grammar and vocabulary." As Professor Clyde says in his *Romaic and Modern Greek Compared*, "He showed how many elements of Ancient Greek remained in the Romaic dialects, and how far they might be restored to their ancient forms. If he did not give his countrymen a language, he made them conscious of possessing one second to none in Europe." In 1803 he addressed an open letter to the people of Smyrna urging the foundation of a school and library there. About this time the brothers Zosimades, wealthy Greek merchants, asked him how he thought the regeneration of Greece could be best hastened. He suggested the publication of a "Library" of ancient Greek authors, with introductions and notes in modern Greek, and they offered to defray the expenses. It was thus that he commenced in 1805 the publication of his *Bibliotheca Hellenica*, which caused a great sensation among his countrymen. Meanwhile his fame as a scholar was increasing. He had gained a prize of 5,000 francs for a translation of the *Airs, Waters, and Places* of Hippocrates, and was twice offered a professorship (one with a salary of 6,000 francs), which, however, he refused, as being likely to hinder his work for his country. Koraes was privileged to behold Greece free and independent, and to receive the solemn thanks of his countrymen unanimously voted by the Panhellenic Congress at Troezen in 1827. The outlook, however, was not very promising. "Our condition," he writes, "is such that if an angel came from Heaven to rule us, we should risk turning him into a devil." John Capodistrias, though an able and amiable man, and a member of the medical profession to boot, was by no means an angel. His ideals took the form not so much of schools and libraries as of a strong fleet and army, with himself at their head as a dictatorial Russian viceroy. Koraes, therefore, took the field against him with two pamphlets. This was his last effort. He had written or edited about fifty volumes, including seventeen of the "Greek Library," made about ten translations from modern medical books as pot boilers, and had further accumulated notes for an edition of Hippocrates, which, however, he did not live to accomplish. He died in 1833.

Nova et Vetera.

THE MEDICAL GREGORIES.*

To many of us the name of Gregory carries with it the association of a useful but nauseous powder which has caused the memory of its inventor, Dr. James Gregory, to be execrated in every nursery in Great Britain. This may be "the golden fame that a hitherto unimagined mixture would bring to the name of Gregory unto all time"; but the Gregories have other and better claims to be remembered by posterity.

It is rather a shock to learn that the Gregories were descended from the Macgregors of Roro, to which clan the famous cateran Rob Roy belonged, though luckily for them their name had been assumed before the proscription of 1603, so that they escaped the penalties that were incurred by the unfortunate Macgregors. It seems strange to us when we think that whilst the outlawed Macgregors, a price on their heads, were leading the lives of hunted beasts in the Highlands, their hand against every man and every man's hand against them, their cousins the Gregories were living quietly in Edinburgh, Aberdeen, or Oxford, busy and useful with mathematics or medicine, respected and renowned.

Yet, as Miss Grainger Stewart well says, "the change of name . . . . could not, and did not, alter their natures, and all the Gregories . . . . were at heart M'Gregors. Nothing that civilization, education, wealth, and society could do to modify their disposition was able entirely to obliterate in them the warlike character of their Highland forefathers."

Herein lies their peculiar charm for us. It is interesting to note the occasional unexpected breaking-out of the fierce family temper in a staid professor or learned doctor, as in the case of Professor James Gregory, who beat his brother physician, Professor Hamilton, in the quadrangle of Edinburgh University! One is not surprised to learn that the lives of these men were by no means peaceful, for with men of their stamp quarrels were inevitable.

Yet, whether they were right or wrong, one cannot help admiring them for their wholehearted devotion to their work, and the steady determination with which they opposed the abuses of their day. Not only abuses, however, but shams and affectations aroused their quick anger, for one of the most striking characteristics which appears in every member of the family is an intense love of truth. Anything that savoured of insincerity was hateful to them, and many were the quarrels between them and their colleagues in consequence. But it is pleasant to think that, whatever struggles they had abroad, they ceased at the threshold of the home, for the Gregories, one and all, were sure of peace and love at their own firesides. They were all singularly happy in their home life, as, indeed, they deserved to be, for, if they were good haters, they were also good lovers, and made devoted husbands and fathers, and very loyal friends.

The Gregories do not seem to have been noteworthy in any way till we come to the sons of the Rev. John Gregorie: it may be concluded, therefore, that the family owes its great mathematical powers to the minister's wife, Janet Anderson. It is the descendants of Janet Anderson and John Gregorie whom Miss Agnes Grainger Stewart calls "the Academic Gregories," whose lives she has sketched with sympathy and appreciation. Her subjects live again for us, and one feels whilst reading that one has known and loved them personally.

Miss Stewart heads her list of Gregories with one who may be regarded as the founder of the line, the Rev. John Gregorie, minister of Drumoak, in Aberdeenshire, who died in 1650. If his descendants inherited their remarkable mathematical gifts from his wife, no doubt a large share of their obstinacy in the face of opposition came from the reverend gentleman himself, as may be gathered from various incidents in his life.

It was in his second son, David Gregorie of Kinairdy, that the vocation towards medicine first appeared in the family. Though David had no regular medical training but what he gave himself, he passed his life in the study of medicine, and was perfectly content to spend his days in his old country house, practising on his numerous children and the country folk about Kinairdy.

He was a Jacobite at heart, and the troubled days of the '15 drove him with his young family abroad to Holland, from whence he returned to die in 1720. The gentle, dreamy old man is by far the most lovable of the little group of brothers; it is strange to think that for a long time he was looked upon as a magician by the country people and feared accordingly. He was able to foretell the weather, they said, and clearly must have sold his soul to the devil. But he had only invented a barometer (the first in Scotland, by the way), and was able to refute the charge.

His nephew James, the son of James Gregorie the astronomer, inherited from his uncle the love of medicine which was henceforth to be one of the family characteristics. He was a cousin of Rob Roy, who once stayed with him in Aberdeen whilst recruiting for the Stuarts. The outlaw, in return for his cousin's kindness, wished to take little James Gregorie with him to the Highlands, and "mak' a man o' him" to the horror of the boy's father. The worthy doctor was anxious not to offend his cousin, and was therefore obliged to plead the boy's delicacy of constitution as a reason for refusing the kindly offer. "So, full of pity, perhaps not altogether unmixed contempt for each other's outlook in life, the cousins parted; their roads ran far apart. Rob Roy came to his end claymore in hand listening to the dire 'Cha till mi tuillidh' (we return no more), while for the doctor there was a career of steady success and a peaceful ending in the sweet house in the middle of the herb garden." It is a pleasant episode in Rob Roy's stormy career, and one likes to think of the affection between the two cousins, who were so like and yet so unlike.

Dr. Gregorie died in 1733, and his son James grew up to be professor in his place. He was a delicate irritable man, and "his friends had a standing joke whenever he was cross. 'Ah,' they would say, 'this comes of not having been educated by Rob Roy.'" Miss Stewart suggests that the joke might have palled after a certain time; and we can quite understand that in time it probably did grow a trifle monotonous.

The two Jameses, father and son, were in many ways the least remarkable of their family; but any deficiencies they may have had were amply atoned for by John Gregorie, the stepbrother of the younger James. Born in 1724, and educated at Edinburgh and Leyden, he practised for a short time in Aberdeen before he and his wife set up housekeeping in London. Here he was introduced into an interesting circle of literary and artistic people, and became friends with Johnson, Fanny Burney, Reynolds, Garrick, and Mrs. Montague.

After his removal to Edinburgh, he kept up friendly relations with at least one of his London friends, for Mrs. Montague stayed at his house there, and became the godmother of his daughter Dorothea. John Gregory wrote a good deal and brought about a hygienic revolution in the nurseries of his day, condemning the cold morning bath and advocating warm, sensible clothing for children. To us he seems the most attractive member of his attractive family. His son James, of powder fame, was described by Lord Cockburn as "a curious and excellent man, a great physician, a great lecturer, a great Latin scholar, and a great talker, vigorous and generous, large of stature, and with a strikingly powerful countenance." Great part of his life was spent in useless controversy, and this probably prevented his doing much work in medicine of permanent value; but he was an excellent teacher, and he was capable of acts of singular generosity with pupils. Apart from that, he is perhaps best remembered now as the author of the well known *Conspectus Medicinae Theoreticae*, of which the Latin was as much admired as the matter it contained.

Perhaps the most interesting fact concerning James is the curious friendship which existed between him and Robert Burns. Miss Stewart quotes one of his letters in reply to the poet's request for his opinion on the lines. "On seeing a wounded hare limp by me which a fellow had just shot at," which is, quite unconsciously, very funny. The great doctor takes his task very seriously: "As you desire it," he begins, "I shall with great freedom give you my *most rigorous* criticisms on your verses"; and he proceeds to do so at great length,

* *The Academic Gregories.* By Agnes Grainger Stewart. Famous Scots Series. Published by Oliphant, Anderson, and Ferrier, Edinburgh and London.

informing the poet that there is "real poetic merit—I mean both fancy and tenderness and some happy expressions" in his work, but objecting to some of his words as coarse, and accusing him of bad grammar! The word "fellow" in the title incurs his special dislike, and he suggests "person," or even "sportsman," as a substitute. One wonders what Burns felt on receiving this extremely frank reply to his demand.

William Gregory, born in 1803—James's fourth son—was the last of his family to hold a chair in a Scottish university. He had intended to be a physician, like his father, but chemistry appealed to him more strongly than medicine, and he decided to become a chemist. He went abroad to study, and at Giessen met the man who was to be his lifelong friend—Liebig.

In 1839 he was appointed Medicine of King's College, Aberdeen, and took up his residence in that city. His life there, however, was not wholly pleasant, for, besides shocking the people by playing secular music on Sunday, he was much interested in spiritualism, and gave great offence by being surrounded by "a most undesirable throng of quasi-scientific humbugs," who practised table-turning and mesmerism, to the extreme disgust of Gregory's friends. He died at Edinburgh in 1858, and left only one son. None of his descendants carried on the medical tradition of the family.

One is sorry to leave this interesting family. Miss Stewart's evident love and admiration for them communicate themselves to her readers, and one lays down her interesting book with a feeling of something like personal affection for the "Academic Gregories."

INTERNATIONAL CONGRESS ON ASSISTANCE FOR THE INSANE, MILAN.

THIS Congress will be held at Milan from September 26th to 30th, 1906. The meetings will be held in the Palais de l'Université Bocconi, Piazza del Statuto. In addition to the subjects for discussion proposed by the Organizing Committee, of which Professor Tamburini of Reggio Emilia is President and Professor Ferrari of Bertalia, Bologna, is General Secretary, the Congress will discuss a proposition made by Dr. Frank of Zurich the object of which is to found an international institute for the purpose of studying and combating the causes of mental diseases.

The general subjects proposed for discussion by the Organizing Committee are:

1. The progress in assistance for the insane in different countries since 1902 to the present time.
2. The organization of sections of observation, supervision, and isolation in asylums and colonies, and methods which have given the best results.
3. Assistance for convalescents.
4. Assistance for the feeble-minded, alcholics, epileptics, and the morally insane.

The subjects 1, 2, and 4 will be treated by the following representatives of Great Britain: No. 1, by Dr. Menzies, of Cheddleton Asylum; No. 2, by Dr. Bond, of Ewell Colony for Epileptics; and No. 4, by Drs. Ireland, Shuttleworth and Fletcher Beach.

Other subjects for discussion will be, outpatient departments for the "nervous" and insane; popular sanatoriums for the "nervous"; economic and social results of the progress of assistance for the insane and especially family care; the function of the State in assistance for the insane.

An exhibition of plans of asylums will be held, the London County Council showing plans of Long Grove Asylum prepared by its architect, Mr. G. T. Hine, who will also show plans of Kesteven and Hellingly Asylums; on the latter of these a paper will be communicated by Dr. Hayes Newington, Alderman of the Sussex County Council, and Dr. F. R. P. Taylor, the Medical Superintendent.

The Provincial Administration of Milan will afford opportunities to the Congress to visit the Asylum of Mombello and other institutions, and a tour has been organized to the Italian Lakes with an opportunity to visit the asylum of Mendrisio, Switzerland.

The Italian railways will make reductions of 60 per cent. in the prices on their lines.

Those who wish to join the Congress should at once inscribe their names by sending their subscriptions, 20 frs., to the Treasurer, Dr. Piero Gonzales, via Leopardi 14, Milano.

NOTES ON HEALTH RESORTS.

DROITWICH.

DROITWICH, an ancient borough with a resident population of about 4,000 people, is 6 miles from Worcester and 20 from Birmingham; it can be reached from London either from Paddington by the Great Western Railway in two and a-half hours, or from Euston by the London and North-Western Railway via Birmingham, and there it has a junction between the Great Western and Midland Railways.

The town has been celebrated for its salt manufactured from the natural brine since Roman times. The waters have earned a considerable reputation in the treatment of chronic rheumatic affections: they are said to be of value also in rheumatic arthritis, sciatica, and lumbago. We have seen no recent analysis of the water, but that made at Hercpath in 1855 gives the following results in an imperial gallon: Sodium chloride, 21761.872; magnesium chloride, 2.560; lime sulphate, 91.120; aluminium sulphate, 14.400; sodium sulphate, 342.720; sodium iodide, 0.201; total, 22212.880. The water may, therefore, practically be regarded as a saturated solution of common salt, and is a type of the strongest brine water.

CONTRACT MEDICAL PRACTICE.

CONSULTATIONS.

"IN DOUBT" asks whether a club doctor is entitled to charge for a consultation in the case of a club patient, and whether it is usual to make a charge?

*** A club surgeon is not obliged to meet a consultant in the case of a club patient, unless he thinks the consultation necessary, but in that case he cannot charge the patient.

MEDICAL NEWS

DR. D. R. CAMPBELL, Resident Medical Officer, County Hospital, Newport (Mon.), has been presented with a portrait by the members of the Cinderford Ambulance Association.

A MEETING of the Council of the Metropolitan Hospital Sunday Fund was held on August 2nd, the principal business being to receive the report of the Distribution Committee and confirm awards to hospitals, dispensaries, and nursing associations. The amount dealt with was some £58,000, this being divided between 161 hospitals, 60 dispensaries, and 26 nursing associations.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society, was held at 429, Strand, London, W.C., on July 27th, Dr. de Havilland Hall in the chair. The accounts presented showed that the operations of the Society during the first six months of the current year have produced very satisfactory results. The sickness experienced has been appreciably less than in the first half of 1905, and the present list of sickness claims compares favourably with that of the same date last year. The number of members increases each year, and the average age of the members is also growing. From this it follows that a considerable increase in the sickness expectation has to be reckoned upon, and since the year 1884, when the Society started its operations, the amount paid away annually in sickness claims has steadily grown until, four years ago, the sum disbursed in this way just equalled the amount expected by the tables. During the last few years, however, the sickness experienced has always been under the expectation, and the result has been an appreciable increase in the financial strength of the Society. Over £10,000 is now disbursed each year in sickness claims, and nearly £2,000 of this is paid to members who are permanently incapacitated from professional work and thus entitled to sick pay, usually amounting to 100 guineas a year, until they reach the age of 65 years. A considerable reserve is, of course, required to secure these annuities, but as the funds of the Society now amount to over £200,000, there is little fear that the great benefits secured by the members will ever have to be reduced. Prospectuses and all particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

British Medical Journal.

SATURDAY, AUGUST 11th, 1906.

THE VOLUNTEERS AND DISEASE PREVENTION.

Dr. Childs opened a discussion on February 16th last at the Epidemiological Society on the enteric fever outbreak in the volunteer camps of the United States in 1898. In six months nearly 20 per cent. of these volunteers, without having left their own country, were attacked by enteric fever, and more than 14 per 1,000 died of the disease.

After discussing the interesting facts brought to light on investigation by the United States Commission, Dr. Childs agreed that the Commission was justified in the conclusion that the epidemics of 1898 were, to a certain extent, waterborne, but that there were other important factors in the spread of the infection. The conclusion he drew was that it was desirable to have a staff of experts to add to the sanitary staff on the outbreak of a typhoid epidemic.

Whatever the cause the principle remains the same: whenever a large concourse of men continues for any length of time in one locality, special sanitary measures are necessary for the maintenance of health. These measures should be adopted before the possible occurrence of any epidemic. Sanitary measures should be carried out concurrently with the selection of the camp, and must be carried out by men trained to deal with such matters. What would be the effect of marching a large body of volunteers in this country to some spot isolated from a sewerage system, and dependent for water upon what may be called natural sources? On the analogy of the United States Volunteers we may calculate their loss at 20 per cent. in six months. Each unit might possibly effect a certain amount in the way of sanitation by dint of individual effort, but the sanitary efforts of one unit may prove the undoing of a neighbouring unit. There is no machinery within the volunteer force for sanitary co-ordination. There is not even a machinery for unit sanitation. The massing of a large force of volunteers for war has apparently not been seriously considered. To those who are familiar with the handling of large bodies of men, the contemplation of the certain fate of a volunteer force of, say, two Army Corps operating during war is appalling. The Walcheren Expedition, or the Crimean war in its worst stage, affords no uncertain index to the calamitous outbreaks of epidemic disease which would occur. Among the volunteer medical officers are highly trained sanitarians, and they will be the first to grasp the necessity for a volunteer sanitary organization proportionate to the force. Those who know will scoff at the idea that individual efforts will be competent to cope with the position. And why? Because the volunteers, officers and men, are innocent of sanitary knowledge. Their sanitation has always been done for them. Their R.A.M.C. rank and file are equally innocent of sanitation, for the same reason. The latter are only trained to deal with wounded. And, as every one knows, the wounded form a minority of the population of war hospitals. The R.A.M.C.(Vols.) are not trained to prevent disease.

Therefore Mr. Haldane's remarks on sanitation, referred to in these columns,[1] should be carefully considered by volunteers, combatant as well as medical. The organization of the medical branch of that force is under discussion. The members of that force must see to it that the result of this discussion bring its organization into such shape as will make it competent to deal with all the medical problems of war. The Volunteer force is being taken seriously as a war machine. The medical portion must be no exception; it must adapt itself to those requirements which experience has shown to be essential for real war. And among those requirements the question of sanitary specialization stands foremost. The R.A.M.C. is dealing with the problem. It is necessary that the R.A.M.C. (Vols.) should also deal with it, and evolve a sanitary organization. Field ambulances they may be said to possess; general hospitals may be organized with comparative facility; nurses will probably be forthcoming as soon as the nursing world is alive to its responsibilities; but as yet there is no sanitary section of the volunteers. This section will require more specialized training so far as the men are concerned than any of the others. It is only necessary to draw attention to this flaw in the volunteer medical system to ensure the adoption of measures which will result in at least equal energy being directed to the training of volunteer sanitary companies as has hitherto been lavished upon the bearer companies. The latter are excellent examples of the thorough work of the profession. Equally excellent results must attend the sanitary companies of the R.A.M.C. (Vols.), for in this direction lies the true medical salvation of an army in the field.

SOME DIETETIC PROBLEMS.

The Royal Institution has published a summary of an interesting lecture delivered by Dr. Robert Hutchison at the Institution last March in which he puts very clearly the present position of dietetic theories, stating them in such a way as to enable us to harmonize some of those contradictory results which have been so puzzling. After describing the mode in which a metabolic balance-sheet is constructed by estimating in large calories the expenditure of energy and giving on the other side the quantity of proteid, fat and carbohydrate required to supply that expenditure, he adds the important consideration that individual variations in metabolism may vitiate these results; that the human body is certainly not a thermo-dynamic machine—it may even transform energy in some as yet unknown way; and that so long as we are ignorant of its exact mode of working, the possibility of variations in the economy of the machine cannot be absolutely denied. Standard diets based upon custom may be in excess of what is needed, economy being possible (1) by a lessened heat production, and (2) by a reduction of body-weight. In civilized conditions fat is no longer required as a reserve of food, while to carry about several pounds of superfluous fat involves a considerable waste of energy: the amount of fat it is advisable to harbour in the body is an individual question which must depend upon the body-weight at which mental and physical efficiency are at their maximum for the individual concerned. The trend of scientific opinion is now in favour of the view that the 3,000 calories usually given as the amount required by an

[1] British Medical Journal, July 21st, 1906, p. 163.

average man, is unnecessarily liberal. With respect to proteid, it is important to bear in mind that when an equal number of molecules of proteid, carbohydrate, and fat are brought into the neighbourhood of a cell, the highest percentage of destruction is of the proteid molecules, next of the carbohydrates, and lastly of the fat, due probably to the greater instability of the proteid and carbohydrate molecules. But if a small number of proteid molecules and a relatively large number of molecules of carbohydrate and fat are brought simultaneously within reach of the cell, the mass influence of the more numerous molecules asserts itself, so that by the destruction of the carbohydrate and fat the proteid molecules are spared; hence the term "proteid sparers" as applied to carbohydrates and fats. This explains why it is that gout, which is presumably due to the presence in the blood of imperfectly oxidized proteid, may be treated successfully either upon a diet containing very little total proteid or upon one from which the proteid sparers are largely excluded. It also follows from this that it is easy to maintain a nitrogenous equilibrium upon a minimum supply of proteid when the latter is taken together with carbohydrates, so that both come simultaneously under the action of the cells. Thus it is wasteful to take most of the animal food at one meal and the carbohydrates at another, but on the other hand, a vegetarian diet in which carbohydrate and proteid are so intimately mixed that they reach the tissues at the same time, is one on which it is most easy to maintain a nitrogenous equilibrium on a relatively small amount of proteid.

But the practical question is not what is the proteid minimum, but what is the proteid optimum? This was fixed by Voit at 118 grams daily, but Chittenden's results indicate that health can be maintained on even so little as 60 grams.

It has been suggested that the proportion of proteid in human milk may afford a guide among these conflicting conclusions. Estimating that an infant of 6 months consumes milk to the value of 578 calories daily, containing 14 grams of proteid, and that the average energy value of an adult diet is 3,000 calories, it follows that if the same proportion holds good for the adult the standard for the latter is about 74 grams of proteid, growth in the child being set off against the greater wear and tear of the adult. This result is in striking harmony with that at which Chittenden has arrived. At the same time we ought not to forget that a diet rich in proteid may increase the powers of resistance to infective diseases, especially to tuberculosis, and that there may be a danger in having no margin of circulating proteid to draw upon in case of an emergency. In his conclusion Dr. Hutchison says that while the proteid optimum must vary greatly in different circumstances and individuals, it is probable that it stands nearer to the proteid minimum than has hitherto been supposed; or, in other words, that it is probable that the amount of proteid requisite for efficient health is considerably below the standard of 118 grams hitherto generally accepted, a conclusion which may have far-reaching economic results.

THE WILL OF A NATION.

Mr. H. G. Wells, who appears to have been commissioned by the *Tribune* to write a series of articles on the future in America, began his task by discussing certain general considerations from the point of view of the Englishman who is not acquainted with America. Mr. Wells is always interesting, and in his first article, published a short time ago, he arrived at a conclusion which expresses in his own incisive way the truth that psychology is not a science leading to a discernible terminus, but a study at the mercy of an intruding determinant, compelling, sometimes cataclysmic, leading to the unexpected, which diverts social processes into paths of its own. What men should do in given circumstances may be possible to predict, what they will do is uncertain because there is no law of composition of forces to compel a mental resultant, no complete series of co-ordinates in the curve of human action. Mr. Wells writes of the "will of America," but it is not clear that he uses the term "will" in the sense accepted by mental physiologists: rather, perhaps, it implies for him that activity process of the metaphysician which postulates a dominating factor, selecting this or that, and terminating finally in what is known as the act. The fact that "will" is not an entity, a power, strong in some, weak in others, subject to strengthening or lowering agents, but on the contrary is itself a result, makes all the difference in the forecasting of occurrences, and the sooner it is recognized that the latter is the true view to take the more easily will be understood the strength of the tendencies which go to make the collective "will" of a nation. A strong or a weak will does not depend on the quantity, form, or quality of a supposititious faculty, but upon the number and the clarity of ideas, and the degree in which their true connexion with the object in view is appreciated. The savage may have a strong "will," he may act quickly, energetically and determinedly, owing to the clearness of his abstract or concrete ideas, but if educated he may lose his "power of will," because his augmented knowledge sets up such an equipoise of motive that vacillation and hesitation take the place of the prompt energy so much admired as evidence of a strong innate force; he is like Buridan's donkey, which perished from the balanced supply of food and water.

At one time "the collective will" of a nation swings here, at another time there, not because there is any vagary in the judicial act of an innate faculty, as Mr. Wells supposes, but because the psychical contents of the motives have changed. Additions to this set of ideas, counter-propositions to that, have set up a current which, defying all other influences, compels a landing on some unsuspected strand, to the astonishment and at times to the discomfiture of the passengers.

To the question, what sets up this compelling current in the will of a nation? the answer is the intervention of that unique individualism to which Mr. Wells alludes. In a striking passage, Wundt, the philosopher of Leipzig, says "Men think very little and think very "seldom"; we are most of us reflex creatures, slaves to limited spheres of thought and action, feeding, as Goethe says, like beasts on dried-up pastures while all around are fair green fields; but who is to slay the *böser Geist* which confines the outlook of the multitude, and to point to the desired goal? Not the will of the many, for there is no such thing; there is the desire, but no plan of accomplishment, no clear concept of how the end is to be reached. This is the moment for the exceptional man, the man who from apparently the same premisses but with better ramifying and receptive capabilities forms a judgement which is seen to be right, which therefore fashions the oscillating and shadowy ideas of the multitude, consolidates them into a potential energy, and ends by being the will of the people.

Mr. Wells will find in America the same pre-

dominant factor which shapes the "will" of this country, of the Antipodes or of the most remote community. He was predisposed to credit the American with great individual force of will, and it is probable that he has not been disappointed, because on the other side of the "herring pond" the man is perhaps more individualized, more self-reliant and assertive than in less strenuous places; he is so because of his tendencies, because of competition, of strife after early and large wealth. Therefore the men in America who direct the stream of thought and are the acknowledged exponents of the will of the nation are indeed men of comprehensive and receptive mind, facile in the application of the laws of similarity and contiguity, patient in the abstraction of essentials, abiding the time when they can say, "Here is the light. Follow me." The rulers in America are not, so far, hereditary placelings; they have had to fight their way up through strenuous wrestling, and, when viewed in detail, they are seen to have exceptionally clear views of the trend of events and of the way to arrive at the desired end: knowing the fallacy of courting the people by an easy acquiescence in what they imagine to be their "will," they become the leaders by an astute elaboration and analysis of concepts, drawing the arrowhead to the limit of the bow, that the twang of its release and the sureness of its flight may strike the ears and the eyes of the followers who shall realize the achievement of their desire.

Mr. Wells counsels us to beware of prophets, and his reasons are sound. None can prophesy correctly unless he knows all; and, inasmuch as such knowledge, except in very limited range, is impossible, the prophet is merely the clever guesser—at one time, perhaps, the idol of a clique; at another the failure whom the duped crowd stamps under its million feet. There are plenty of these here, and in America.

CANCER RESEARCH AT THE MIDDLESEX HOSPITAL.

In the Fifth Report of the Cancer Research Laboratories, which forms the last number of the *Archives of the Middlesex Hospital*,[1] Drs. Lazarus-Barlow, Colwell, and Douglas each contribute articles on the question of the formation of specific precipitins in malignant disease. They have pursued the subject by different experimental methods, but have not been able to find any indication of a precipitin which is really specific for cancer. Dr. Walter Ball tells us that during 1905 a number of the empirical methods suggested for the treatment of cancer have been investigated in the cancer wards of the hospital. These alleged remedies include violet leaves, betel leaves, uranium salicylate, a caustic paste consisting chiefly of zinc sulphate and radium. In no instance was any beneficial result obtained. The method of using radium was to inject into the subcutaneous tissues of the patient a liquid preparation of radium made by Sir William Ramsay, who promises to publish a detailed account of the way in which it was obtained. Writing on the histological diagnosis of the endotheliomata, Dr. Lazarus Barlow develops the view that the group of tumours termed endotheliomata must be widened so as to include many growths usually regarded as being either squamous or spheroidal celled carcinomata. In his opinion endotheliomata are much more common than is usually supposed. He has examined the histological material which has accumulated at the Middlesex Hospital during the past five years, and finds that endotheliomata constituted 8 per cent. of the malignant diseases of the tongue, 10 per cent. of the uterus, 10 per cent. of the breast, 10 per cent. of the liver and bile passages, and 7 per cent. of the malignant diseases primarily affecting bones. These views will appear to most pathologists to be remarkably heterodox, and we do not think that Dr. Lazarus-Barlow has yet succeeded in substantiating them, though it must be admitted that we have still much to learn about the endothelial cell, and that it probably plays a more important part in many morbid processes than is generally recognized. Another article by the same author deals with the electrical and photographic phenomena manifested by substances which are supposed to be etiologically associated with carcinoma. Investigation was suggested by the observation that several cases of squamous-celled carcinoma of the hand have occurred among persons who are engaged in the handling of apparatus for the production of the *x* rays. It therefore seemed desirable to see whether other physical agents, commonly regarded as causative of the same type of malignant disease, manifested evidences of radio-activity. Dr. Lazarus-Barlow finds that clay pipes, paraffin wax, pitch, gall stones, and soot have certain properties, electrical or photographic, which are apparently identical with properties possessed by recognized radio-active substances, but that it is impossible to regard them as radio-active substances, at least in the present acceptation of that term. The report also contains several statistical studies of the cases of malignant disease which have presented themselves at the Middlesex Hospital.

[1] *Archives of the Middlesex Hospital*, vol. vii. Fifth Report of the Cancer Research Laboratories, edited for the Cancer Investigation Committee by W. S. Lazarus-Barlow, M.D., F.R.C.P. London: Macmillan and Co. 1906. (Medium 8vo, pp. 217.)

WARNING NOTICES.

We desire to call attention to two changes which have occurred in the list of Warning Notices advertised in the Journal weekly. In the annual report of the Council of the North of England Branch, an abstract of which is published in the Supplement for this week, it is stated that members of the profession in certain parts of Durham, who up to the present time had been receiving the old rate of payment for colliery appointments adjudged by the profession in the locality to be insufficient, were about to take steps to obtain the standard recognized throughout the county of Durham. It would appear that they have met with the usual opposition, and consequently medical practitioners are requested not to apply for any appointment in connexion with collieries or clubs in the districts of Tow Law and Wolsingham without first communicating with Messrs. Graham, Shepherd, and Son, 32, John Street, Sunderland, Secretaries "Durham Committee," North of England Branch, British Medical Association. On the other hand, the notice concerning the Chipping Campden and Mickleton Districts of the Shipston-on-Stour Union has been withdrawn. In this case the medical officers of the union in concert asked that the fees in respect of midwifery and of lunacy certification might be revised so as to bring them into line with those paid elsewhere. The result was a curt refusal by the guardians to consider the matter, and as a protest one of the medical men concerned, acting with the approval of his fellows, resigned his appointment, but offered to keep it on if his previous salary were raised by £10. He actually resigned, and for a time the guardians seemed likely to win the day, as one officer departed somewhat from the common agreement. On remonstrance, however, he again came into touch. The guardians then endeavoured to join this vacant district to another with which it had once upon a time been combined, so as to provide by the combined salaries a bait which might tempt some outsider to establish himself in the locality. The Local

Government Board, however, withheld its consent, and the final upshot is that the resigning medical officer has been reappointed at the increase for which he asked.

THE CURETTE AFTER ABORTION.

The finger, every practical surgeon is aware, should always be preferred if possible to the most cunningly devised instrument. There are limits, however, to the powers of the human digit. The defining of such limits is a most instructive subject. It is specially the duty of the obstetrician to make sure about the relative value of the finger and the curette, an instrument widely used in this country for the removal of placental relics after abortion, yet its value as a safe and efficient contrivance is disputed in its native land. Professor Lepage, Obstetric Physician to the La Pitié Hospital, Paris, maintains that it is not reliable.[1] He agrees with Pinard and Budin that the curette is a blind agent. The former authority, he observes, systematically rejects the curette, and teaches that in all cases the finger should be employed. Budin impresses on his pupils his opinion that the finger alone can detect whether there be any abnormal material in the uterine cavity. Professor Lepage publishes a most candid record of his own experiences: indeed, he admits that even the finger may prove unreliable. This fact was proved by a case under Vivier and Faure; the curette was employed, after a simple clearing out of the uterine cavity by means of the finger had failed, yet bleeding and fever continued, so that Faure thought vaginal hysterectomy advisable. The patient recovered from that operation; a piece of fetid placenta was found incarcerated in the left uterine cornu, the finger having failed to recognize and the curette to reach it. Vivier and Faure's experience in hospital practice, we must add, may be profitably considered by others who often have to treat abortion, but are not in a position to resort to such extremes as hysterectomy when the finger and curette fail. Lepage himself, a most skilful and experienced obstetrician, having under his charge patients placed in the most favourable conditions for observation and treatment, testifies that in three such patients he failed to remove or even detect a considerable amount of retained placenta. In the first case he made use of the finger when the curette had already failed in other hands, and detected and extracted a mass representing about three-quarters of the placenta, but too late to save the patient's life. In two other cases he himself believed that when using the curette all placental tissue was removed as the instrument seemed at length to grate against uterine tissue in all directions. Yet in the second case the patient expelled a placental mass as big as a billiard ball six days after she had been curetted. In the third Lepage was called in on the second day, and feared when summoned that he had perforated the uterus through scraping its interior too thoroughly. On arriving he found that the patient had had several characteristic pains, coming on at intervals of two minutes. He removed a tampon from the vagina, and then discovered the placenta lying almost completely outside the os externum. Lepage also quotes Laroyenne's case in which the finger was introduced three days after the curette—and a fetal foot extracted! Denis relates a case in which the curette was used by a distinguished living obstetrician. For five minutes it was made to scrape the uterine walls *sans ramener de fongosités*. The professor very properly explored the uterine cavity with the finger in order to make sure of one matter of some importance in any abortion case. His doubts were settled, for he found a three and a half months fetus with placenta complete. Another obstetrician used the curette after dilatation in a case of uncontrollable vomiting, but suspected that the curetting was not complete. His suspicion was correct, as the patient was delivered at term of a live child, but the little operation was followed by complete disappearance of the hyperemesis. M. Lepage's admirable full report of an instance in which, in a private patient, he experienced great difficulty in removing retained placenta even after full dilatation, should be read by every obstetrician. He does not reject the curette, as it is of great value in partial retention of placenta after abortion during the first two months of pregnancy, but he insists that the finger alone can make the obstetrician reasonably certain that no placental tissue is left behind.

[1] De l'Insécurité du Curettage instrumental dans la rétention placentaire post-abortum. *Ann. de Gyn. et d'Obstét.*, June, 1906, p. 321.

THE BACTERIOLOGICAL IDENTIFICATION OF CHOLERA.

We have received three short reports, issued to the Sanitary Board for Shipping and Quarantine Regulations in Egypt on the bacteriological diagnosis of the cholera vibrio. Dr. Milton Crendiropoulo, Director of the Quarantine Laboratory in Alexandria, has investigated the bacteriological reactions of 42 vibrios obtained from various sources with the object of observing the relationship of the cholera vibrio to allied organisms. On testing these with a serum known to agglutinate the cholera organism he found that 18 gave a positive reaction. Of these 18, 11 had been isolated from the stools of cholera patients, 1 from the stools of a case of pneumonia occurring during the cholera epidemic of 1902, and 6 from the intestinal contents of dysentery patients who showed no evidence of cholera. Of the viruses which failed to give a positive reaction, four had been obtained from the stools of cholera patients. The identity of the agglutinins in the 18 viruses which reacted was further established by the application of the saturation test. The 42 strains were also tested for the Pfeiffer phenomenon, and it was again found that the 18 which agglutinated also gave a positive reaction to this test. But when the "fixation" test of Bordet and Gengou was tried it was found that the results were no longer parallel with those of the previous reactions. Out of the 24 vibrios which were not agglutinated 14 fixed the sensitizing substance of cholera serum—that is, they possessed receptors in common with the cholera vibrios. On the other hand, 6 strains which gave the Pfeiffer phenomenon and reacted to the agglutination test failed to fix the sensitizing substance. Dr. Crendiropoulo also tested the haemolytic power of his 42 vibrios. Putting all his results together, he divides the vibrios into four groups: (1) Those which give with an immune serum positive results in the agglutination test, the Pfeiffer reaction and the fixation test. These produce no haemolysis, even if they remain in contact with the corpuscles for three days at laboratory temperature. (2) The second group answer to the agglutination and Pfeiffer tests, but do not give the fixation reaction. These have a vigorously destructive action on blood corpuscles. (3) The third group consists of the vibrios which do not give the agglutination or Pfeiffer reactions, but are capable of fixing the sensitizing substance. These vibrios are also haemolytic, but for the most part only to a feeble degree. (4) The fourth group consists of vibrios which are vigorously haemolytic, but do not give any of the other best reactions. Dr. F. Gotschlieb reports on the results of his examinations of suspected cases at the quarantine station of El Tor. He has investigated during the present year the intestinal contents of 127 cases and has isolated vibrios on eighteen occasions, but only two out of these eighteen strains responded to the principal tests which are specific for the organism of

cholera. Dr. J. Zirolia, Director of the Bacteriological Laboratory at Port Said, reports on his examination for vibrios of the drinking water of vessels which have passed through Port Said during the latter half of 1905. The number of samples examined was 384, and from these vibrios were isolated in 82 cases. Only six of these strains gave a positive agglutinative reaction with cholera immune serum, and when further tests were applied the number of strains which exhibited a close resemblance to the characteristics of the true cholera organism was reduced to one.

BEDBUGS AND DISEASE.

With the short account given last week of Goodhue's experiments with bugs in Molokai, a recent paper by Dr. A. A. Girault[1] may usefully be collated. This author has been able to trace some five hundred articles dealing in one connexion or another with bedbugs, but very few of them have any relation to medicine or disease, and all of them leave the conviction that very little at all is really known about the habits and life-history of *Cimex lectularius*. If it is dependent upon human blood for its existence, as is commonly supposed, its potentialities as a disease disseminator are greatly limited, but it is questionable if this be really the case, and Dr. Girault's own limited experiments seem to indicate that the common bedbug is indifferent as to the source of the blood which it obtains. As for the literature of the subject, the first person who seems to have suspected that bedbugs may disseminate disease is Metchnikoff, who, writing in 1887, in a German periodical, referred to the bedbug as a possible carrier of relapsing fever. The point, however, was not taken up by anyone, and nothing more appeared for five years, when Dr. Dewévre, writing in the *Revue Scientifique* in 1892, endeavoured to prove that a certain case of tuberculosis was due to infection by a bug bite. Since that time more or less vague accusations against bugs have been comparatively common. Calmette and Salembi in 1899, in a paper published in the *Annals de l'Institut Pasteur*, tried to prove that in a particular case of plague a bug had been the infecting agent, and in the same year Dr. Coplin of Jefferson Medical College showed that pure cultures of Eberth's bacillus could be obtained from an infected bug. On the other hand it is to be noted that Joly, a French experimenter, had somewhat earlier tried in vain to transmit anthrax by the agency of the same insect. A good review of the whole subject will be found in the *Transactions of the Johns Hopkins Medical College* for 1900. At that date Nuttall considered that no clear case against the bedbug had been made out and since then nothing of material importance has been published. Whether the charge against the bedbug will appear more convincing when Goodhue's results have been controlled by others remains to be seen.

TRYPANOSOMIASIS IN ANNAM.

In the French territory of Indo-China serious ravages have been caused amongst animals by a form of trypanosomiasis which has generally been diagnosed as surra. Taking advantage of an outbreak of this disease amongst horses in the neighbourhood of Nhatrang, in Annam, Dr. J. J. Vassal has reinvestigated the subject, and has compared his results[2] with the records of somewhat similar outbreaks observed in Mauritius, the Philippine Islands, Java, and India. He finds that the trypanosomes occur in the blood of the affected horses in very large numbers, particularly when the disease has fully developed; but in the terminal phases, just before death ensues, they may have entirely disappeared. With laboratory animals, including the dog, the parasite occurs, however, in large numbers during the terminal phase of the disease. Dr. Vassal has investigated the pathogenicity of the Nhatrang trypanosome for a great many species of animals and has observed certain differences in this respect from the surra of India, Java, and Mauritius. Bovines and buffaloes are less susceptible to the Nhatrang trypanosome, but for all other animals which have been investigated this parasite exhibits an exceptionally high virulence. Morphologically, it bears a close resemblance to the parasite of surra (*Trypanosoma evansi*). Its average length is from 28 μ to 30 μ, and not infrequently forms are met with in the horse, the ox, and the guinea-pig which have attained the length of from 30 μ to 35 μ. In the dog and in the buffalo exceptionally small forms occur. But neither morphological characteristics nor virulence tests can be regarded as sufficiently distinctive to establish the exact relationship of this parasite to the organism of surra and other varieties of trypanosomiasis. In order to elucidate this problem Dr. Vassal has sent his virus to the Pasteur Institute in Paris, where it has been investigated by MM. A. Laveran and F. Mesnil. These authorities agree with Dr. Vassal that the organism found in Nhatrang, both in its morphological characters and in the nature of the morbid process which it sets up, presents a close resemblance to surra. They have also observed the effects of inoculation with this virus upon animals previously immunized against surra acting on the principle that an animal which is immunized against one form of trypanomiasis would resist inoculation with a virus of identical nature, but would be susceptible to other forms of trypanosomiasis. The results of these experiments were somewhat discordant. A he-goat, immunized against surra, developed a fatal infection when inoculated with the Nhatrang virus, but a she-goat, also vaccinated against surra, only contracted a very slight infection, which passed off in less than a month. The control, non-immunized goat developed a very severe infection, and died in less than three months. The Nhatrang virus was, therefore, very virulent for goats, and the failure of the vaccinated he-goat to resist the infection may have been due to the relatively low virulence of the surra of Mauritius against which this animal had been immunized. MM. Laveran and Mesnil, in view of these considerations, are inclined to regard the trypanosomiasis of Nhatrang as a special variety of surra, and not as a distinct morbid entity. In confirmation of this view they find that the specific reactions of the serum of animals inoculated with this virus show a close relationship with surra, but no indication of any relationship to the nagana trypanosome.

[1] *Journal of the American Medical Association*, July 14th.
[2] *Ann. de l'Inst. Pasteur*, April 25th, 1906.

ANTIMALARIA CAMPAIGN AT PORT SWETTENHAM.

Port Swettenham, a new port at tide-water, was designed by the Government of the Federated Malay States to replace that of Klang on the upper tidal reach of the river of the same name. It was jungle-covered, flooded daily by tides, and incident to an average of about 100 in. of rainfall a year. The railway station and bungalows for officials and coolies were on made ground. Dr. Hamilton Wright, Chairman of the late Port Swettenham Sanitary Commission, had previously shown the Government that the district was a pest-centre of the worse forms of malaria, and Dr. Watson, who had recently taken up the position of district surgeon, had several times memorialized the authorities on the matter. On the formal opening of the port, Klang was abandoned and the river closed to sea-going vessels. Severe malaria immediately broke out amongst the officials and coolies employed on the railway and shipping. A Commission was at once appointed, composed of medical men, railway and works officials, and instructed to devise measures for the suppression of malaria.

and to otherwise improve sanitation. The recommendations of the Commission involved an outlay of from £10,000 to £12,000. The Government without any hesitation accepted the recommendations made by the Commission. A panic that nearly led to the reopening of the old port of Klang, which would have cost £10,000, was allayed; the new port was dyked, drained, levelled, and cleared. Since these sanitary measures were initiated there has been scarcely a case of malaria at the port; and from being an unhealthy, shunned swamp, it is now sought by officials as a desirable billet. Such results as this, and as achieved later at Ismailia, ought to be, says Dr. Hamilton Wright, compelling examples to those who still doubt the findings of science in regard to malaria and other tropical diseases. To Drs. Travers and Watson, who were original members of the Port Swettenham Sanitary Commission, great credit is due for the manner in which they supervised the carrying out of the recommendations of the Commission. He adds that the Commission remember gratefully the willing ear lent to their advice, and the prompt execution of their designs, by Sir Frank Swettenham and Sir William Hood Treacher, who were at that time at the head of the Government.

THROMBOSIS OF THE MESENTERIC VEINS.

The days are past when every grave symptom after abdominal operations and childbirth was ascribed to septic peritonitis. Many definite pathological lesions are now well recognized, and attention has been frequently turned to a complication which is particularly rare, for it is essentially formidable. Olshausen has recently reported a case where the symptoms indicated puerperal thrombosis of the mesenteric veins, whilst Hartmann brought forward another where that complication followed an operation on the appendix.[1] A woman in labour came under Professor Olshausen's care on October 10th last, on account of suspected eclampsia. There was great oedema of the lower extremities and labia, and extreme distension of the abdomen, the greatest circumference exceeding 43 in. Hydramnion was present; delivery occurred on October 12th. The temperature rose on the fourth day, fell at the end of the seventh, and was high again on the twelfth and thirteenth. Then extreme tympanitic distension appeared, without any tenderness on touch, and great oedema of the labia, and ascites was suspected. Haematemesis occurred on the sixteenth day, blood was passed in the motions two days later. The labial swelling was relieved by punctures. On October 27th the patient was exhibited at a meeting of the Berlin Obstetrical Society, when the abdomen was still considerably distended. Dr. Olshausen ascribed the symptoms to thrombosis of mesenteric veins. Another case, authenticated at a *post-mortem* examination, has been reported by Amos. hydramnion and tympanites were absent, but blood was passed from the bowel. Dullness on percussion over the left side of the abdomen was present for several days before death, and was found to be due to distension of a coil of intestine with blood. Dr. Olshausen suspected that the same condition existed in his case, dullness being detected in the left flank and taken at first for ascites. Dr. Hartmann agreed with Dr. Olshausen as to dullness due to intestinal haemorrhage. He operated recently on a patient with perityphlitis; fourteen hours later haematemesis and bleeding from the rectum occurred. He had excised the greater part of the omentum, as it was found to be infiltrated with pus. The patient soon died after the symptoms of haemorrhage had set in and thrombosis was discovered traced to numerous veins in the omentum. The intestines contained blood. The President of the Society believed that in Dr. Olshausen's patient the superior mesenteric vein was thrombosed, and he considered that in these cases it would be prudent to open the abdomen and resect as much intestine as would be likely to become gangrenous should no surgical relief be attempted.

[1] Verhandlungen der Gesellschaft für Geburtshülfe und Gynäkologie zu Berlin, October, 1905. *Zeitschrift f. Geb. u. Gyn.* Vol. lvi. 1905.

MOTOR GOGGLES.

To protect the eyes from dust, wind, flies, etc., some one of the many forms of goggles now on the market is absolutely indispensable. In making a selection care should be taken that there is no uneven pressure on the rim of the orbit, for this becomes painful if continued for hours, especially if the pressure be over the supra-orbital nerve. On the other hand the fit must be close, whether accomplished by the metal mountings of the glasses being shaped to fit the circumference of the orbit and padded, or by additional flaps of leather or some other flexible material; if there are open spaces dust, and even flies, will find their way in with surprising ease. Those who, on account of myopia, hypermetropia, or an amount of astigmatism that is too great to be neglected, require glasses for distant vision, may adopt one of two alternatives. The ordinary spectacles may be worn, and goggles superimposed upon them; a square-fronted pattern consisting of plain, flat front glasses, with side glasses set at right angles to them, will allow sufficient space for this, and the further protection needed can be afforded by a continuous flap of leather or some similar substance extending an inch or more all round the glasses. Goggles may be specially made with glasses ground to afford the required corrections, but they must of necessity be flat, and of much larger size than the glasses kept in stock for spectacles. The central axis of the lens must coincide with that of the pupil, and this centering can be pretty accurately done, though the centre will be nowhere near the centre of the whole glass, which has to be extended far outwards to give a sufficient lateral range of vision, so that a large lens has to be ground, and a great part of it cut off and discarded, which renders such glasses rather expensive. Whether cylinders could be placed with sufficient accuracy is open to doubt. Goggles, however, with rims fitting the rims of the orbit have little disposition to get out of place.

PELVIC KIDNEY.

This anomaly is of high interest to the embryologist, and of much importance to the surgeon. Hochenegg wrote about five years since on the clinical signification of displaced kidney;[1] Strube's notes on the subject appeared nearly twelve years ago.[2] The embryology of the genito-urinary tract is a complicated question, hence the theories explaining misplacements of the kidney must be left to scientific experts. The physician and surgeon are interested in the question mainly because pelvic kidney is not rarely associated with retroperitoneal tumours and with uterine malformations. Thus Buschmann has reported a case where Billroth removed a fibroma entirely separate from the uterus and adherent to a pelvic kidney,[3] and Doran discovered a pelvic kidney when removing a large retroperitoneal lipoma.[4] M. Alglave, Prosector to the Faculté de Médecine, Paris, recently published notes of a dissection where there was a close relation between malformation of the uterus and pelvic kidney, by which term he meant, of course, a kidney connected with the iliac vessels and fixed in the pelvis, not a floating kidney bear-

[1] *Wiener klin. Wochenschr.*, vol. xiii, 1900, p. 4.
[2] Ueber congenitale Lage- und Bildungsanomalien der Nieren. *Virchow's Archiv*, vol. cxxxvii, p. 227.
[3] Extirpation eines sehr grossen retroperitonealen Fibromes und der damit verwachsenen in Becken gelegenen linken Niere. *Wiener med. Wochenschr.*, 1880, No. 28.
[4] *Journ. of Obstet. and Gyn. Brit. Emp.*, vol. ii, p. 244.

ing in its hilum vessels running a normal course.[1] There is no clinical history attached to Alglave's case. In the course of a demonstration of operative surgery on the body of a woman about 40 years of age, Alglave discovered the malformations. The upper end of the right kidney lay against the promontory of the sacrum in the space between the common iliac veins; the outer border was bounded by the right common iliac artery. A renal artery from the left common iliac ran into the hilum, another artery springing from the bifurcation of the aorta coursed along the outer border of the kidneys lying against the common iliac artery; it gave off three branches running into the kidney substance. The renal vein divided into two branches about 1 in. from the hilum. One branch, which was very short and wide, ran into the left common iliac, the other ran for 4 in. upwards, crossing the left common iliac artery and turning under the aorta to join the vena cava over 2 in. above its origin. Three veins ran out of the external border of the kidney and united, forming a common trunk which joined the vena cava just above its origin. The ureter sprang from the hilum anteriorly to the vein which lay in front of the artery; it ended without any further anomaly in the bladder. The left kidney was normally situated. The uterus was held against the bony pelvis on the left side by the disposition of the peritoneum, which passed on to it from the pelvic brim; the round ligament, Fallopian tube and ovary were normal. But the right cornu of the uterus was suppressed; two cords ran from the body of the uterus towards the right, one being the right round ligament, the second was traced on to a Fallopian tube and ovary placed in the right iliac fossa completely above the pelvic brim. Thus it is advisable to bear in mind whenever extensive malformation of the uterus is detected in the course of an abdominal section or whenever an operation is proposed for the remedy of any prejudicial condition associated with such a malformation, that a kidney may be situated in the pelvic brim. Semon of Danzig found a tumour obstructing labour; fortunately he did not attempt to push it up, but operated. In the case of retroperitoneal tumours, such as the fibrolipoma described in the British Medical Journal for December 2nd by Dr. R. J. Johnstone of Belfast, congenitally misplaced kidney is always probable. In Billroth's case the pelvic kidney was closely connected with a tumour nearly 40 lb. in weight, and had to be removed, the operative difficulties being very great, yet the patient was saved.

[1] Malformations Congénitales, *Bull. et Mém. de la Soc. Anat. de Paris*, July, 1905, p. 652.

METROPOLITAN HOSPITAL SUNDAY FUND.

As indicated last week a petition from certain representative members of the Metropolitan Hospital Sunday Fund, seeking for the grant of a Royal Charter, was submitted to the King in Council on July 28th. It was referred to a committee, and September 3rd was fixed as the date before which any persons who may desire to be heard in the matter must submit petitions in respect of it. In such a connexion a month is in any case a very short time, and when that month happens to be August it is certain that the period is quite insufficient to allow of the public at large adequately considering the general bearings of the matter, and still less of other bodies conceivably interested studying the document submitted and ascertaining in what position a granting of the Charter by His Majesty, in its original or any terms, may leave them. Consequently, Dr. Langley Browne, Chairman of Council, has on behalf of the British Medical Association addressed a letter to the Clerk of the Privy Council (printed at page 156 of the Supplement to this issue) asking that the period should be extended. It seems fairly safe to presume that no difficulty will be made about this since one of the principal reasons put forward for the granting of a Charter at all is the magnitude of the interests which the work of the Hospital Sunday Fund involves. That this is the case is undoubtedly true, but otherwise the reasons of the call for a Charter by a body which ostensibly is merely a collecting agency are not very clear. A desire to amend the regulations in respect of the representation of congregations which contribute to it is stated to be one of them, but on examining the proposed Charter and ordinances, the alteration in this respect is not easy to ascertain. The terms of the document, indeed, are throughout somewhat vague and the powers it would confer very general. It is clear, however, that the Governing Council will consist of 100 elected persons in addition to *ex-officio* members, half the former being clergymen and the rest laymen. Is this a desirable constitution for a Council which, with the weight of a Royal Charter behind it, may play a more important part in hospital affairs than hitherto? The present Council, similarly constituted, contains, it is to be noted, only some half dozen medical members, all but one being consultants. It is clear, too, that it is intended to exact from all assisted hospitals not merely evidence of good work, efficiency, and economical management, but a definite return, in the shape of letters of recommendation, for the use of the Council. How far can such a proviso really be defended to-day, when subscribers' letters are widely recognized as one of the most fruitful sources of hospital abuse? A first glance at this document certainly leaves an unfavourable impression, but apart from this a wider question is raised. The more prominent defects in this particular charter might be amended, but is it really in the public interest that any step should be taken to perpetuate the separate existence of this fund at all? To have three funds—one collecting on a Sunday, another on a Saturday, and the third throughout the year, the Hospital Sunday, the Hospital Saturday, and the King Edward's Hospital Fund—for London is mere wastefulness. If they all combined, the sources of public charity which they at present separately endeavour to tap would be reached just as surely and at much less expense than is at present necessarily involved by their existence as three separate administrations with three offices and three sets of salaried officials. Should they all combine and a sound constitution duly ensuring the representation of all interests involved be proposed, there might be some ground for granting such a body the status of a Royal Corporation. To grant such a position, however, to one of them, and that a body which in some respects has ceased to be quite in touch with modern conditions of hospital work, would seem to be decidedly undesirable in the general interests.

Owing to the resignation of Dr. J. F. Payne, Convocation of the University of London at its next ordinary meeting will be called upon to elect a representative on the Senate. The Council of the Graduates' Association has already selected Dr. E. Graham Little, Physician in Charge of the Skin Department, St. Mary's Hospital, as their candidate.

The Home Secretary has appointed a Departmental Committee to inquire and report what diseases and injuries, other than injuries by accident, are due to industrial occupations, and can properly be added to the diseases enumerated in the third schedule of the Workmen's Compensation Bill, 1906, so as to entitle persons who may be affected thereby to compensation. The Chairman is Mr. Herbert Samuel, M.P., Par-

liamentary Under-Secretary of State for the Home Department; and the members are Professor Clifford Allbutt; Mr. H. H. Cunynghame, C.B., Assistant Under-Secretary of State, Home Office; and Dr. T. M. Legge, Medical Inspector of Factories.

Medical Notes in Parliament.

[From Our Lobby Correspondent.]

The Home Office Vote, which was discussed last week, produced an interesting debate which touched on several topics affecting the profession. Sir Charles Dilke, in moving a reduction of the vote, urged strongly the need for more inspection of factories and workshops, especially by women inspectors. He pointed out that the extension of the principle of "particulars" to all piece-work trades was necessary, and should be done at once. There were medical officers of health and local authorities with their inspectors behind them, who were unacquainted with the law on this subject. He suggested that the Home Office should address a circular to the medical officers. He dwelt also on the need for saving young workers from the strain of carrying excessive weights, and asked for the extension of the law on this subject to all trades. Mr. Ramsay Macdonald also criticized the system of inspection and specially exposed the system which deputed assistant inspectors, who were practical men, to work in which their special experience was comparatively useless. Mr. H. Tennant referred to the insanitary state of jam, fish curing, and chocolate factories, and pointed out that of 60 persons employed in aniline dye works, all were found on medical examination to be suffering from the effects of their special work. Mr. Jowett called attention to the prevalence of anthrax, and said the Home Office rules in this connexion began at the wrong end. They dealt with the infecting material when it reached the factory floor, instead of stopping it at the port of entry. Last year there were 20 cases of anthrax in Bradford, and there was no sign of permanent diminution of the disease. The greed of commerce induced manufacturers to use dirty, low-grade wool imported from the East irrespective of the danger to the men who handled it. An interesting point was mentioned by Mr. O'Grady, who said there was an increased mortality among cabinet makers due to the use of cheap and poisonous timber imported from the Congo and West Africa. Hundreds of lives might be saved by more effective inspection. Mr. Secretary Gladstone, in his reply, said that he would confer with the Local Government Board respecting the establishment of some system of inspection of home industries. He had called for special reports on the jam and fish-curing industries, and he would do so as regards the aniline dyeing trade and the use of poisonous woods in cabinet and shuttle making. He regretted that there had been a great outbreak of anthrax. The deaths in 1900 were 37; in 1901, 39; in 1902, 38. Then there was a jump up in 1903 to 47; in 1904 to 50; and in 1905 to 59. This was a grave matter. To deal with the wool at the port of entry, as suggested, would mean placing too heavy a tax on the trade. A Special Committee had been appointed in Bradford, with a Government subsidy, for the special purpose of detecting the disease, and there were real hopes of a remedy being found by a chemical process. If, however, the wool containing the spores of the disease did not yield to treatment, the wool would have to be excluded altogether. The Home Office had had heavy work in connexion with lunacy and vagrancy; vaccination had been hurled at his head almost every day; and there was also vivisection, on which he had been tormented perhaps more in private than in public. As regards inspection, he hoped to improve the condition of assistant inspectors and to add to their duties in amount and importance. He had nominated three lady inspectors, and the total number would thus be raised to 15.

The Lunacy Commission and its work were discussed in connexion with the Home Office vote by Dr. Cooper, who urged that the number of paid Lunacy Commissioners should be increased. The Board as at present constituted was unable properly to discharge its duties. There were six Commissioners—three barristers and three doctors. On the work of inspecting lunatic asylums they went in pairs, a legal member always accompanying a medical member. If all the lunatics in the asylums were examined each pair of Commissioners would have to examine 39,943 in the year. It was physically impossible that they could do so and determine whether any one was wrongly detained in an asylum. He complained of the growing tendency to send aged people into asylums. In 1903-4, 1,445 people over 70 years of age were sent into asylums as lunatics who were suffering from senile degeneration and nothing more, 18 per cent. of the men and 24 per cent. of the women being over 80. The whole of these people ought to have been kept in the workhouse. He had heard it stated that if the rich were treated as these poor people were, one-third of the members in another House would die in a lunatic asylum. [Laughter.] He pointed out that under the London County Council the asylums had much improved, the treatment was better, and the attendants were a better type of men. But the percentage of recoveries had decreased. The knowledge of the essential nature of insanity and its causes was no better to-day than it was a hundred years ago: and until a more scientific investigation into the cause of brain disease was made there would be no better means of cure forthcoming. He invited the Home Secretary to make inquiries as to the working of the receiving-house system which had been adopted by lunacy authorities in Scotland and in America. Mr. Gladstone said, in reply, that he had a mere shred of responsibility as regards lunatic asylums. He merely passed plans and sanctioned the estimates. The county councils built the asylums, the Local Government Board sanctioned the loans, and the Lord Chancellor appointed the Lunacy Commissioners. He was in favour of an examination into the whole system of inspection, which at present was antiquated and absurd. The Commission on the Feeble-minded was on the point of reporting, and its report would deal largely with lunatic asylums. When that report had been received the Government would consider what action was desirable. He had already been in communication with the Lord Chancellor on the subject.

Beer in Lunatic Asylums.—Mr. Wiles asked the President of the Local Government Board if he was aware that the report of the Joint Committee of the Three Counties Asylum near Arlesey, showed that 32,800 gallons of beer were brewed in the institution last year for the use of the inmates and staff at a cost of £933; and whether, seeing that the experience of the London County Council Asylums Committee had proved the percentage of recoveries to be greater where no beer was given, he would consider the advisability of recommending the Joint Committee to abandon the practice of giving alcoholic beverages to lunatics, except under direct medical orders. Mr. Secretary Gladstone, who replied, said that he was informed by the Lunacy Commissioners that the beer used at the Three Counties Asylum was given to the patients generally on Sundays only, when each patient had half a pint at dinner. On week days patients were encouraged to work by an allowance of beer to those who worked. As, however, the use of beer had been discontinued in most asylums, he would make further inquiry into the matter.

The Report on Tuberculosis. In answer to a question by Mr. Field respecting the report of the Royal Commission, Mr. John Burns said that the Royal Commission had hoped that the report which they proposed to issue would have been published before the adjournment, but they now found that it would not be practicable to issue it before October. They thought it necessary to include in the Appendix a larger amount of experimental detail than they had anticipated, and to confirm certain important facts by additional experiments, which were still under observation. He understood that a definite statement on the communicability of bovine tuberculosis to man would be made in the report.

Tuberculosis in Ireland and American Bacon. Last week Mr. Fetherstonhaugh asked the Chief Secretary to the Lord Lieutenant of Ireland, whether the Irish Government

had directed its attention to the circumstance that the increase of tuberculosis in Ireland had followed on the increased use of low class American bacon, believed by many people to be the flesh of tuberculous swine; whether as there was no Government inspection of possibly tuberculous meat at the ports of entry, he would consider the advisability of issuing a circular to the various public health authorities in Ireland, calling their attention to the danger to health arising from the consumption of meat infected with the bacilli of tuberculosis, and the necessity for vigilance of their inspectors in preventing unsound meat from being exposed for sale. Mr. Bryce replied that the entire question of the importation of food, which affected the United Kingdom generally, had been under the consideration of the Government, and his right honourable friend the President of the Local Government Board had introduced a Bill dealing with the matter. He referred to the Public Health (Regulations as to Food) Bill, which was down for second reading on October 23rd.

The Irish Poor-law Commission and the Medical Profession.—Mr. O'Shee asked the Prime Minister what were the reasons why he declined to recommend the appointment of an Irish medical man on the Royal Commission on the Poor Laws to fill the vacancy created by the death of The O'Conor Don; and whether, as the Irish medical profession was vitally concerned in the investigations of the Royal Commission so far as regarded Ireland, he would reconsider the matter. Sir Henry Campbell-Bannerman replied that he did not see his way to reconsider this matter in the sense desired by the hon. member. The selection of members of Royal Commissions was governed by general considerations, and in any fresh appointment that might be made to the Royal Commission on the Poor Law the hon. member might be sure that regard would be had to the Commissioner's qualifications for dealing with the Poor Law as it was administered in Ireland. It did not follow that, because Irish Poor-law medical officers were interested in the inquiry, the appointment of an Irish medical gentleman would necessarily be the most fitting to make.

The Rating of Hospitals.—Sir Henry Campbell-Bannerman having been asked by Mr. Brodie whether he could see his way by legislation or otherwise to secure for all recognized public hospitals exemption from rates and taxes, replied that the question was one which raised many difficulties, and it would no doubt have to be considered whenever the revision of local taxation was taken up. In the meantime he was not prepared to make any general statement on the subject. He understood that hospitals were already exempt from certain Imperial taxes.

Cockles and Typhoid.—Mr. Whitehead asked the President of the Local Government Board whether his attention had been called to the recent action of the Fishmongers' Company in stopping the sale at Billingsgate of all cockles from Leigh; whether he was aware that this was done in consequence of an allegation that a basket of bad cockles had originated from Leigh; whether he was aware that the basket from which the cockles alleged to have caused typhoid were supplied was not owned by any cockler at Leigh, and that the cocklers at Leigh observed the regulations necessary for the protection of the public as laid down by Dr. Klein; and whether he proposed to take any action in regard to this exercise of authority by the Fishmongers' Company, in view of the loss inflicted on the cockle fishermen of Leigh. Mr. John Burns said he had communicated with the Fishmongers' Company on this subject, and found that they had taken the action referred to in consequence of their being satisfied that the cocklers at Leigh had not observed the regulations laid down by the Company for the protection of the public. The Company stated that they had no information with reference to the basket of bad cockles referred to. He had no control over the Company in the matter.

London Water Supply.—Mr. Ashley, on the last day of the session, asked the President of the Local Goverment Board whether his attention had been called to a statement of Sir Alexander Binnie that the Rivers Thames and Lee, from which the drinking water of London was drawn, received above the waterworks intakes the more or less clarified sewage of 1,000,000 persons in the case of the Thames and about 250,000 in the case of the Lee, and that the late Sir George Buchanan, Principal Medical Officer of the Local Government Board, had stated that the drinking of such contaminated water ultimately resulted in death and disease to the consumers: and whether it was proposed to take any steps to secure a purer water supply for London. Mr. Burns said he had seen the statement made by Sir Alexander Binnie. He was informed that the whole question of the adequacy of the works of the Water Board and existing sources to deal with the present and future population of the water area was now under the consideration of a committee of that Board.

Insanitary Housing in Birmingham.—Mr. Steadman asked the President of the Local Government Board if his attention had been directed to the case of the Birmingham Housing Committee *versus* John Roderick, in respect of seven houses owned by the latter which had been represented by the medical officer of health under Part II of the Housing of the Working Classes Act, 1890, as being in a state so dangerous and injurious to health as to be unfit for human habitation; if he was aware that through several adjournments of this case by the magistrates and their being unable to agree as to the facts of the case, the defendant owner was enabled to evade the proper carrying out of the repairs required by the sanitary authority, and that this action of the magistrates had caused more money to be spent in legal proceedings than would have sufficed to put the houses in a thoroughly sanitary condition; and whether he intended to take any administrative action in the matter or to assist sanitary authorities in their work by legislation. Mr. John Burns replied that his attention had been directed to a report of the Housing Committee of the Birmingham Town Council with respect to this case, from which it would appear that the facts were substantially as stated in the question. He had, however, no power to review the proceedings of the justices in such a case, and he did not think he could usefully intervene in the matter.

Parliament Adjourned.—On Saturday both Houses of Parliament adjourned. The Lords got over their business early and separated at half-past twelve, after passing the Appropriation Bill and giving assent by Commission to some twenty-seven general Acts and over eighty local Acts. The Prevention of Corruption Act, the Open Spaces Act and the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act have some medical interest. In the Commons the motion for adjournment was discussed till nearly two o'clock. The debate ranged over many subjects, and among others the exemption from vaccination was raised by Mr. Morton, and Mr. Gladstone, speaking in reply, admitted that the present condition of the law was extremely unsatisfactory, and he would gladly see it amended. The Home Office, however, had only to administer the law as it stood. The whole administration of the Vaccination Acts was, he believed, under the consideration of the President of the Local Government Board.

The Autumn Session will begin for both Houses on October 23rd. The Lords will have the Committee stage of the Education Bill as their principal work, and of course the consideration of any other Bills that may be sent up to them. In the Commons there is promise of a busy time in the autumn months. There are no less than thirty-two Government Bills on the order paper, and in addition the Land Tenure Bill, for which facilities have been promised. The first Bill is the Merchant Shipping Acts Amendment Bill, then comes the report stage of the Trades Disputes Bill, the same stage of Workmen's Compensation and the second reading of the Plural Voting Bill. The Irish Education, Afflicted Children and the Infectious Disease (Ireland) Bills, together with Mr. Burns's measure of Public Health (Regulations as to Food) and the Poisons and Pharmacy Bill have all some medical importance. There must, however, be many Government Bills dropped, while the 56 private members' Bills still left on the papers have no chance of passing.

Stockport.

Infant Mortality: Midwives and Stillbirths.

From the annual report of the Medical Officer of Health of the Borough of Stockport, which has a population of 99,646, it appears that the birth-rate was 27.13 and the death-rate 18.22 per 1,000, while the infant mortality—the bane of most manufacturing towns—was lower than it had been for fifteen years. One-sixth of the children born did not survive the first year of life, and it is estimated that of the five-sixths remaining, on a general average more than one-half would not survive beyond the fifth year of life. Thus, by the end of five years from the birth of a given number of children, according to the rate at which they die in Stockport only one-third would be left, and this one-third would have to face the diseases of childhood. This terrible sacrifice of life is all the more serious by the fact that in large towns it is frequently coupled with a low birth-rate. No less than 174 deaths were due to causes connected with improper feeding, but the teaching of infant hygiene by female sanitary inspectors is having good results.

Under the Midwives Act, 1902, it is compulsory upon all midwives to send notice to the local supervising authority of all stillborn children delivered by them. During the year the Medical Officer of Health received twenty-two such notifications. This officer has excellent reason to believe that this does not represent more than one-fifth of those that should have been received, for during each year there were from 100 to 120 stillborn children interred in the various burial places within the borough. Thus there has been gross neglect on the part of some of the midwives. He adds that there can be no doubt that many so-called stillbirths are not stillbirths at all. Lamentable as it indeed is, there are midwives practising even now who either take good care to prevent any possibility of life even commencing in the newborn infant or who cut life short when it is hardly begun, and the body is disposed of as a stillborn child. The possibility of this occurring will exist until it is made compulsory that no stillborn child shall be interred until it is certified by a medical man or a coroner's jury to have been stillborn.

Canada.

Undergraduates.

The published lists of undergraduates in medicine who have successfully passed their examinations are rather remarkable for the small number of men in the first year. For example, at McGill University but 58 freshmen have passed into the second year, while 92 have graduated with the degrees of M.D., C.M. At Toronto University, combined with Trinity, there are but 55, as compared with 70 graduates. As a rule, the first year at McGill has from 100 to 150 men, and the final year 60 to 100, the other universities showing a somewhat similar proportion. Whether it is that the general public is beginning to feel that the profession is becoming overcrowded, or that it is merely a curious coincidence that the Canadian universities should at the same period show so remarkable a drop in first year attendance, can hardly be determined in one year, and time alone can solve the problem.

The Parole System.

In the Dominion of Canada the penitentiaries are under Federal control; the gaols and prisons are under municipal or provincial charge. This division of authority is a disadvantage in dealing with the problem of criminology; but, so far as the Dominion as a whole is concerned, very effective work has been done during the last few years under the earnest and enlightened efforts of Mr. Archibald, Parole Officer, and others.

The parole system was adopted in 1899, and until the close of the last fiscal year paroles were granted to 1,082 prisoners. Of this number, 657, or about 61 per cent., have completed their sentences, under licence, without violation of the conditions imposed; while 325, or 30 per cent., have thus far respected the conditions of their licences, which are still operative. Those who have forfeited their licences by subsequent conviction, and who may be thought to represent the criminal element of those under licence, number 24, or a little over 2 per cent. The remaining 7 per cent. have been recommitted for non-compliance with the conditions of the licence, but without charge of criminality against them during the period they were at large. During the year 1905 each convict in a penitentiary cost the State $254. The 222 men released on parole during the past year who have proved themselves satisfactory cases have turned producers. The State has not only been relieved of the cost of their keep in a penitentiary, but these men, working outside at labourers' wages ($1.50 per day), produce in the year over $100,000 for the support of their families and themselves. Many of these men are earning $3 to $4 a day as capable mechanics. A number of patrons have been found throughout the country who are willing to give employment to these men on recommendation.

Attempt to Regulate the Sale of Patent Medicines.

During the last session of the Ontario Legislative Assembly a Bill was introduced, but was not passed, the intention of which was to regulate the sale of patent and proprietary medicines. It proposed that every package or bottle of any such preparation should contain on its wrapper the formula of its ingredients and proportions thereof, and in the case of those containing more than 6 per cent. alcohol or more than $\frac{1}{60}$ per cent. of morphine, codeine, heroin, or cocaine, or any of the drugs mentioned in a schedule, there should be printed on the wrapper the statement that in accordance with the Act it is labelled "poison," the word "poison" being printed in prominent letters, together with formula, the name of the manufacturer, and his place of business. Certified samples would be deposited with the Secretary of the Provincial Board of Health, who would have power to have analyses made to determine the accuracy of the information vouchsafed. In case of violation of the provisions of the Act fines were incurred, and the payments for sales in contravention would not be recoverable in any court. The schedule contained all the drugs in common use which are poisonous or subject to abuse. Another amendment suggested to the Pharmacy Act was passed, which requires that in the case of joint stock companies dealing in drugs, poisons, etc., the majority of directors of such company shall be duly qualified and registered under the Act.

India.

Lady Minto's Nursing Scheme.

During the last Calcutta cold weather season, in spite of the rush of social events caused by the visit of the Prince of Wales, Lady Minto spent much time in seeing all the local charitable institutions, and took a special interest in hospitals of all kinds. Since the Viceregal party have moved up to Simla she has taken up the great question of the supply of nurses for Europeans attacked by serious illness in small stations scattered all over India, at present very inadequately provided for by certain local associations, while hospital accommodation for other than military officers is almost entirely wanting except in the large Presidency towns. In a country where such acute diseases as typhoid and cholera carry off so many valuable Europeans the need of a more extensive supply of trained nurses who can be sent to out stations is crying, and it is satisfactory to find that 30,000 rupees have already been subscribed by the few European officers who have yet been appealed to. Very much larger sums are required, and, in view of the small number of wealthy Europeans in India, subscriptions from England will no doubt be welcomed by the august promoter of the fund.

New Rules for the Posting of I.M.S. Officers.

During the last week important modifications of the rules relating to the posting of officers of the Indian Medical Service on their arrival in India, and to their subsequently obtaining civil employment, have been issued, the effects of which will in time be far-reaching, while it is to be feared they will not add to the popularity of the service. Before 1896 officers on leaving Netley were appointed to one of the Presidential lists: Bengal, Bombay, or Madras, choice being allowed in order of seniority, but since that date all officers have been borne on a common list; they are liable in cases of emergency to serve anywhere, but

are ordinarily employed in the military command to which they were posted, in accordance with the choice allowed to them on passing into the service. Some administrative difficulties have arisen entailing additional expense in connexion with posting to regiments, transfers from military to civil employment, and grant of leave, and have been accentuated by the liability of regiments to be moved in relief to any part of the country. An arrangement has therefore been sanctioned by the Secretary of State for India by which the Presidential and general lists of the Indian Medical Service will be amalgamated (this, apparently, applying to those who entered before 1896) and officers will no longer be allowed to retain a lien on the military areas of their choice which they have hitherto possessed; they will, however, retain the right to employment in a civil capacity, should they be candidates for such employment, within the civil areas for which they are at present eligible, and will also be eligible for promotion to administrative appointments at present open to them on the lists on which their names have hitherto been borne. From the date of the second examination of 1906 all officers will be liable for military employment in any part of India. As this amalgamation is designed to lessen the extent and frequency of moves in the military section of the service, there appears to be no objection to the new order from that point of view. It is, however, also laid down that in future, for the purposes of civil employment, subject to the requirements of the service, and in accordance with their positions on the list as determined by the combined results of the preliminary and final examinations in London, a choice will be allowed of the following civil areas: (1) Madras, to include Madras and Burmah; (2) Bombay, to include Bombay and Aden; (3) Upper Provinces, to include Agra and Oude, the Punjab, and the Central Provinces; (4) Lower Provinces, to include Bengal and Eastern Bengal and Assam. In civil employment officers will ordinarily be employed in the areas to which they have been allotted, but will in emergency be liable to serve in any part of India. They will on first arriving in India be posted as far as possible to military commands or divisions within the civil areas of their choice, to enable them to become acquainted from the first with the language and people of the part of India in which, in many cases, they will ultimately serve in civil capacities. After arriving in India those desirous of civil employment will apply to the Director-General to have their names registered for such employment within the areas to which they have been allotted.

Such are the new rules, which have evidently been carefully worked out to meet the requirements of the State. They clearly have their good points, but unfortunately they considerably restrict the present privileges as to choice of provinces for civil work (which covers about nine-tenths of the service of two-thirds of the members), for it will no longer be possible to apply for a single province and wait to be appointed to it in due time, but only for a group of provinces, which may present very different prospects. For such officers as have local influence this may not matter much, but for their less fortunate brethren it will lead to great uncertainty and frequently to bitter and lifelong disappointment. The object of the new rules is quite apparent, for the opinion expressed in these columns when the recent increase of day was sanctioned, namely, that the mistake of retaining the old custom of reducing the grade pay of junior officers by 50 rupees a month on entering the civil department would lead to difficulties in filling the civil ranks of some parts of India, has already proved true, as the new province of Eastern Bengal and Assam has recently had to be recruited by taking away officers from Bengal who had actually joined Bengal after the Eastern districts had been separated; the knowledge of this possibility of transfer is restraining officers from accepting civil work in Bengal proper, as well as in Assam. In fact, under the new scheme, it seems probable that only men at the bottom of the list will accept military or civil service in Bengal and Assam, and the foremost position which the former province has hitherto held will be reversed unless some further attraction, such as a local allowance, is held out, or the pay of the civil branch is considerably raised, to make it in some degree proportionate to the much greater amount of work and responsibility as compared with military service.

Ireland.

The Irish University Question.

Archbishop Walsh finds himself compelled to publish the statement of the Roman Catholic Episcopal Committee, which has been forwarded to the Secretary of the Commission. It is signed by Cardinal Logue, Chairman, and the Bishops of Waterford and Down and Connor.

The statement shows that in 1901 the students in Trinity College were 746 Episcopalians (76.4 per cent.), 73 Roman Catholics (7.5 per cent.), 64 Presbyterians (6.5 per cent.), 53 Methodists (5.9 per cent.), others 35 (or 3.5 per cent.).

Religious tests were abolished by the Fawcett Act of 1873, but "Trinity College, Dublin, and the University of Dublin are as closed now against Catholics as they ever were. The Act of 1873 has made no change for them."

They claim to be national institutions, but they do not belong to the nation, nor satisfy its needs. The revenues which they enjoy are collected, from tenants who are almost all Catholics, as the rent of confiscated Catholic lands, and yet are devoted to the service of one Protestant denomination, whose members amount to something over half a million out of the whole population of the country.

The Protestant religion has been disestablished in Ireland, but it is still established and endowed in Trinity College, Dublin, and this position of privilege has been formally sanctioned by the Fawcett Act itself.

For these reasons the Catholic bishops of Ireland feel justified in asserting that these institutions are, as a matter of fact, organs of the higher education, not for the nation at large, but for the members of the Protestant Episcopalian Church.

Many persons set great store by bringing the youth of Ireland together during the formative years of college life, as a means of mitigating religious and political animosities and developing the feelings of comradeship in a common nationality which spring up naturally amongst fellow-students. Unquestionably these things are worth a great deal, but they are not to be attained by cramping the whole intellectual, religious, and political development of the best minds in Ireland within the limits of any one college. It may be open to question whether a country is the better educationally of being reduced to one university; it seems preposterous to confine it, as this scheme inevitably would, to one college. If the Catholics of Ireland were to join the Episcopalian Protestants in Trinity College, it appears to be evident that the Royal University should die of inanition and the Colleges at Belfast and Cork become mere local institutions without university rank. This would be a disastrous development. There is no precedent, as far as we know, for creating such a state of things. So far from crowding millions of people into dependence on one college, the whole tendency of modern thought is towards the multiplication of places of higher education, and the Standing Committee of the Bishops believe that this proposal would never have been made for Ireland except by persons with whom the supremacy of Trinity College, Dublin, was of more consequence than the educational interests of the country.

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It has often been said that the Catholics, by organization and persistent effort, might within a limited number of years "capture" the College. This is far from certain. But, even if it were feasible, is it the development which the friends of the College or of education would desire? Would it make for the religious peace, which, *ex hypothesi*, is the motive of making the experiment, to have a perpetual struggle for supremacy going on between two great sections of the College? Would academic life be possible under these conditions? Yet such internecine strife would be inevitable unless the Catholics consented to lie down in permanent subjection.

The bishops claim that they have a right to a university in harmony with their principles, and they regard this as the true and adequate solution of the University question. The statement of the Episcopal Committee then continues.

It is a matter for regret that the Royal Commission of 1901 did not adopt it, but recommended instead a reconstruction of the Royal University by which it would be changed from a mere Examining Body into a Teaching University, in which "an autonomous College on an adequate and impressive scale" would be provided in Dublin for Catholics. That solution, as indeed any solution that would give us a College instead of a University, falls far short of what the Catholics of Ireland have a right to claim. Yet the bishops, recognizing that it would be a substantial gain for education, and impressed by the ruinous consequences which the deprivation of higher education entails upon every interest in the country, have long since expressed their willingness to consider favourably a solution on the lines of the Report of the Commission.

To sum up, then, the Standing Committee of the Catholic Bishops feel that they are safe in stating that the Catholics of Ireland would be prepared to accept any of the following solutions:—(1) A University for Catholics; (2) a new College in the University of Dublin; (3) a new College in the Royal University; but that on no account would they accept any scheme of mixed education in Trinity College, Dublin.

There has not been very much public discussion of the various manifestoes, but the views which have been published show how difficult it is to arrive at a settlement which will be generally satisfactory. It is argued that in these days it would be impossible to obtain the support of the nation to a proposal for a Catholic university, and that, therefore, the question will be solved by giving what will practically be a fourth Queen's College, established in Dublin, and affiliated to the Royal University. That institution, so far as it goes, has the approval of the bishops. They are represented on its Senate, their medical school is indirectly endowed by it, Maynooth sends its theological students to it for Arts degrees, and the bishops have in it a more than friendly interest. In the case of Trinity the case is different. "Trinity is not popular" is the bishops' phrase, and they see many dangers which might follow the contact of Catholics with the atmosphere which must still exist in what is called a Protestant institution. Therefore it seems likely that the Royal and not Trinity will win in this matter.

The truth is that Trinity has not moved quickly enough. If it had been sufficiently alive and energetic it might have won. But it has allowed years to slip by, content with its sense of security, and apparently indifferent to the force of the new life in Ireland. Even now the offer which is made does not come from the official heads of the College but from a section. People ask what do the senior Fellows of the Board think. Are they in opposition, and is this manifesto merely a despairing cry from a few "forwards," who hope by it to awake their somnolent brethren. Undoubtedly Trinity College is in danger. Its Fellows and professors see that there is a rival institution with numerous colleges and thousands of students. If a new College is established in Dublin, it is certain to be greatly prejudicial to the Trinity Medical School. It will be an institution elaborate in its equipment and its general attractions in teaching and prizes, and beyond all question it will be the great medical school of Ireland. It is said that herein lies the desire of Trinity College, to absorb the present Catholic Medical School in Cecilia Street, for it sees disaster looming. If Trinity is wise it will state what its official policy is. If that policy is broad-based, generous, and national, in the sense of making her the true mother of Irish education, the position may be saved. But it will need saving.

Scotland.

EDINBURGH ROYAL INFIRMARY.

AT the weekly meeting of the managers on Monday, August 6th, Dr. Logan Turner was appointed Surgeon to the Ear and Throat Department. Mr. E. W. Dyer, M.B., Ch.B., was appointed Clinical Assistant to Dr. N. T. Brewis's Wards for the period to September 30th.

HEALTH OF EDINBURGH.

The mortality in the City of Edinburgh in the week ending Saturday, July 21st, was 60, equal to an annual death-rate of 9.14 per 1,000. This is the lowest death-rate ever recorded in a single week in the health history of Edinburgh. In the week ending Saturday, August 4th, the death-rate was 10.36 per 1,000.

New South Wales.

SEPTIC TANKS.

FOUR years ago the Department of Public Health issued a model set of by-laws for regulating the construction and use of septic tanks, which conferred on any municipal authority which chose to adopt them full powers of control over the installation of septic tanks within its districts. These model by-laws have now been adopted by most of the municipalities in the metropolitan area not entirely served by public sewers, and are generally administered by local authorities with firmness and discretion. In most instances before granting approval for proposed installations they refer the plans to the medical officer of health (Dr. W. G. Armstrong), and when this is done the site is always inspected and the plans carefully examined before a recommendation is made. At the end of 1905 there were 187 septic tanks within the metropolitan area, most of them situated where population is not very dense and the circumstances are unusually favourable. Septic tanks in Sydney are of two kinds: in the one the effluent is discharged into the water of the harbour, in the other it is dealt with in another manner. In the former case control of the quality of the effluent allowed to be discharged comes within the jurisdiction of the Harbour Trust, which requires that, except where there is deep-water frontage, domestic sewage should be treated by septic tanks before being allowed to discharge into the harbour. The use of septic tanks in premises situated along the harbour frontages is assisting materially in preventing pollution of the harbour.

SYDNEY HOME FOR INCURABLES.

A public meeting was recently held under the chairmanship of His Excellency Sir Harry Rawson, the State Governor, in the interests of the Sydney Home for Incurables. This institution has hitherto been carried on only in a small way in an old house, which has now been condemned, and the Committee has been compelled to appeal to the general public to assist it in securing larger and more suitable premises. Sydney has lagged behind very much in its provision for incurables, while the other large cities of the Commonwealth have good provision for this class of patient. A generous offer has just been made by the Hon. Henry Moses, M.L.C. He has offered to sell his large private residence and grounds, comprising some 42 acres of land, for a sum of £6,900, and has promised to return half the purchase money as a contribution to this charity. The property is situated at Ryde, on the Paramatta River, and commands beautiful views. It is easy of access and appears to be in every way a most desirable acquisition. Mr. Hugh Dixson has offered to contribute a sum of £1,000 towards this object, so that there should not be any difficulty in securing the necessary amount of money to complete the purchase.

South Wales.

THE SANITARY CONDITION OF NARBERTH.

THE practice of appointing Poor-law medical officers as medical officers of health in rural districts no doubt arose in the first instance from the fact that the rural sanitary authority or, as it is now styled, the rural district council, is in many places identical with the Poor-law authority. Although in a district of extended area it may be desirable to have several Poor-law medical officers there is no corresponding advantage in having a multiplicity of medical officers of health. For many years past the policy of the Local Government Board has been to advise the employment of only one medical officer of health in each sanitary area or the combination of several adjoining districts in order that a specially qualified official might be engaged who could devote his whole time to the duties of the office. The report of Dr. S. W. Wheaton to the Local Government Board upon the sanitary circumstances and administration of the Narberth Rural District in the County of Pembroke reveals the disadvantages of the divided system of administration. There are three medical officers of health and two inspectors of nuisances and the inspectors' districts are distinct from those of the medical officers of health. Dr. Wheaton observes that among the more important functions of a medical officer of health must be reckoned the guidance to the sanitary authority in matters affecting the public health of the district and the general control and direction of the work of the inspectors of nuisances. With three medical officers of health each advising the authority concerning his own district, and each dealing separately with one or more inspectors, a broad view as to what is in the interests of the district as a whole and uniformity in guidance of the authority and in direction and control of the

inspectors are seldom likely to be attained. Some of the conditions described in the report are not pleasant reading. Pigs and cattle were frequently found standing up to their bellies in filth. Manurial filth was thrown on the ground around dwellings and seldom removed or taken on the land; it accumulated until washed away by the rainfall into an adjoining brook. A certain quantity of milk is sent away from the district by train, but the cowsheds and dairies are neither registered nor inspected. In many dairies the milk is exposed to contamination from manurial filth, and in many the water supply is unsatisfactory and even dangerous. It is not surprising to learn from data included in the report that the total cost of the sanitary administration of the district appears to be equal to about one-third of a penny in the pound on the rateable value of the district.

Cardiff Infirmary.

The whole of the sixteen beds in the women's ward at Cardiff Infirmary are maintained out of the fund raised by the committee of Glamorgan ladies, headed by Lady Aberdare, Mrs. Mackintosh of Mackintosh, and Miss Talbot of Margam. The fifth annual report of the committee says:

We are very pleased to be able again to give a most satisfactory account of the work. For the year ended December 31st, 1905, 285 cases were treated, an increase of over 47. Six only of the beds are permanently endowed. The rest of the beds were supported last year by the usual towns and persons, but we much fear (say the committee) that Cardiff, from where come most of the patients, is likely to fail us in the future. We can hardly believe that if this fact were realized an endeavour would not be made by the ladies of Cardiff to avert what would be a serious loss to us and to the Infirmary and a reflection upon the sincerity of their sympathy for their suffering sisters.

The Marchioness of Bute has responded to the appeal by subscribing 50 guineas, which will cover the cost of the Cardiff bed for this year. The accounts for the year, presented by Mr. Arthur Waldron, the honorary treasurer, of Peterstone-super-Ely, show an income of £554 2s., and a balance in hand on December 31st last of £52, but this small balance is required to meet the cost of the up-keep of the ward.

West Wales Asylum.

At the quarterly meeting of the Committee of Visitors of the Joint Counties Asylum the annual report of the Lunacy Commissioners, in which serious charges were made in regard to the asylum, was received. The Commissioners stated that they regretted to find upon their visit this year that none of the important matters mentioned at previous visits as requiring attention had been dealt with, owing to the continuance of the dispute between the several local authorities concerned. In the meantime the interests of the asylum suffered to a considerable extent. They might point out as instances of this, the absence of any proper system for the disposal of sewage and the inadequacy of laundry accommodation, necessitating the washing and drying of clothes in the wards. This condition of things, added the Commissioners, is not a credit to the asylum. The Commissioners also wrote that according to the estimated accommodation the asylum was overfull by 46 on the male side and by 6 on the female side, with the result that some beds had to be made on the floors. After discussion, during which the urgency of carrying out the improvements mentioned in the Commissioners' Report was admitted, a subcommittee was appointed to inquire into the whole question and report to the next quarterly meeting, or, if thought advisable, to a special committee to be convened by the chairman. Dr. E. Goodall, medical superintendent, tendered his resignation, after eleven years' service, owing to his having been appointed medical superintendent of the new asylum in the city of Cardiff. Dr. Goodall's resignation was received with regret, numerous references being made to the excellent services rendered by Dr. Goodall during his stay at Carmarthen.

The University of Greifswald celebrated the four hundred and fiftieth anniversary of its foundation on August 3rd and 4th. Among the modern teachers who have helped to make the old Pomeranian University famous in the medical world may be mentioned Hueter, Niemeyer, Landois and von Bardeleben, Grawitz and Loeffler.

SPECIAL CORRESPONDENCE.

BERLIN.

Tuberculous Dispensaries.—Appendicitis.—A Bath Tour.

Dr. Kayserling, Secretary-General of the Berlin "Bureaux for the Information and Assistance of the Tuberculous Poor," has published an admirably detailed report of the work done during the first nineteen months of their existence; 15,646 persons made application to the Bureau (3,035 men, 5,689 women, and 6,924 children). Each case was examined at least twice, each tuberculous or suspicious case at regular intervals of six or twelve weeks. The old miserable story of family infection was revealed again and again, and no less than 7,500 families were kept under medical supervision. Among children attending school, and apparently in fair health, were numerous cases of well-established tuberculosis with as yet undeveloped clinical symptoms, a state of things the significance of which has hardly received sufficient attention from public health authorities. This is what the new Berlin organization found in the course of their nineteen months' investigations; what they *did* towards bringing about a better state of things in the future has been in the right direction, and as radical as the funds at their disposal permitted; 1,099 cases were placed in lung sanatoriums, 1,014 in convalescent homes; on reports submitted to them by the Bureaux the Poor-law guardians co-operated in assisting poor families to have a separate room, or at least a separate bed, reserved for their tuberculous members (362 beds were supplied gratis). Regular house visiting was done by ladies of the Committee. Far more difficult to deal with than the family unit was the unmarried tuberculous adult in lodgings. Many of these had been obliged to flit again and again, having been given notice to leave as soon as the disease was recognized. Kayserling strongly advocates the establishment of hygienic homes for working men and working women.

Surgeons and general clinicians are so widely at variance as regards the treatment of appendicitis, and the questions connected with it are so far-reaching and important, that prominent members of both camps eagerly welcomed the chance given them by the Berliner medicinische Gesellschaft to ventilate the subject thoroughly. No less than three entire meetings were given up to the discussion. By desire of Secretary of State Count Posadowsky, Dr. Albu proposed the election of a special committee to make a statistical inquiry on appendicitis. The proposal met with general favour, and eight members of the meeting were chosen to form the committee. Among the surgeons who spoke were v. Bergmann, Israel, Krause, Rotter, Beck (New York), Landau, and Olshausen, their opinions—based in each case on a long series of operations—showing a noticeable unanimity even on questions of detail. Thus they all agreed that, though numerous cases of appendicitis recover without operation, yet since it is impossible to conclude from the symptoms whether the disease may take a favourable or an unfavourable course, the best prospect of saving the patient's life is ensured by operation. In acute attacks the chance is greater the earlier operation is performed; the first forty-eight hours are considered early. After recovery from an attack without operation there is danger of relapse, which occurs in about 50 per cent. of all cases. The operation has the best chance of success when performed during a period of quiescence, and therefore patients should be advised to submit to operation even after recovery without operation. As regards diagnosis, examination is more exact in female than in male cases, though the experience gathered in late years has made diagnosis in male cases more certain than it used to be. It is most difficult in the case of children, and therefore, when a child has recovered from an attack without operation, there should be no waiting for a second attack, but the operation should be performed during a period of quiescence. That these radical opinions could not and would not be shared by the Berlin clinicians was to be expected, and many and authoritative were the voices raised in favour of expectant methods in many cases. Thus Neumann pointed out that very early diagnosis and treatment of slight attacks by complete rest in bed, and rendering the appendix approximately motionless (ice and opium),

might be attended by recovery without risk of recurrence. Ewald, too, expressed the opinion that the course of the attack should be watched, and recourse had to operation only when the symptoms were threatening. Children only should be operated on without delay, as they are extremely liable to sudden unfavourable changes of condition. Guttstadt said that unfortunately there were no general statistics of appendicitis available as yet, but that the few figures at command went far to prove its wide dissemination. During the year 1903, 8,412 cases were treated in the general hospitals of Prussia, and of these 3,400 were operated on. During 1904, the number was 10,793, of whom 4,774 were operated on, and it was evident, from comparison of the figures of different years, that the percentage of lethal cases, more especially after operation, had materially decreased. By far the greater number of patients suffering from appendicitis were between 15 and 20 years old.

This year's tour of German doctors for purposes of study will commence at Heidelberg on September 2nd and end at Stuttgart on September 15th. The places to be visited are Höfen, Schömberg, Wildbad, Teinach, Freudenstadt, Rippoldsau, Peterstal, Badenweiler, Wehr, Schaffhausen, Konstanz, Sigmaringen, Dürrheim, Triberg and Baden-Baden.

CORRESPONDENCE.

HOSPITAL ABUSE.

SIR,—À propos of your comments in the BRITISH MEDICAL JOURNAL of July 14th, 1906, p. 101, upon an article in the *Spectator*, I may mention that I discovered a week or two since that a sister of a patient of mine was receiving treatment at one of the special departments of one of our leading London hospitals. She or some member of the family had heard of the vaccine treatment combined with the taking of the opsonic index of the blood, and as she thought her condition was due "to her blood" she applied for the treatment and obtained it regularly, and is still undergoing it in the special department of the hospital. The family are in affluent circumstances and could well afford to pay full medical fees. They live in a large, well-kept house, with pretty grounds, and keep horses and carriage, etc. The patients are hardly to be blamed if they can so easily obtain free treatment instead of having to pay for it, but is it fair to the profession or to "charity"? —I am, etc.,

August 2nd. M.D.

HOSPITAL REFORM AND THE METROPOLITAN COUNTIES BRANCH.

SIR,—It does not appear that the Metropolitan Branch, hospital authorities, or hospital staffs are in a position to dispute the correctness of the assertions made in my letter of July 7th. No doubt they are all willing to reform if they knew how to do it. What they require, probably, is some workable scheme which would satisfy the general practitioners, relieve the hospitals of a mass of trivial complaints, and, without in any way obstructing any suitable person from receiving the benefits of hospital treatment, remove the present abuses. The proposal of "General Practitioner," in the BRITISH MEDICAL JOURNAL of July 14th, p. 115, to boycott the staff of some hospital as an example to the others is not practicable, even if it were desirable; that may be left as a drastic punishment in the event of there being any who fail to fall in with reform when it is generally accepted.

The two points to be borne in mind are first, that the majority of patients receiving gratuitous treatment are in a position to pay general practitioners' fees, and second, that the majority of them are only suffering from minor complaints. An ounce of fact is worth a ton of assertion. Let me then give definite proof from the published returns of certain hospitals. Eight special hospitals—I am quoting from the *Register and Digest of Charities*—obtained in one year from some 54,000 patients the sum of £14,057, that is about 5s. a head. There is no reason to suppose that of the 1,700,000 out-patients those who are in more flourishing circumstances develop disease of a special character. It is merely a definite proof that the authorities of these hospitals know that the general run of out-patients can pay fees, and they make them do so.

As to the nature of the cases treated, let me take the instance of the London Hospital, of which the Hon. Sydney Holland recently stated that there due consideration was given to the character of the illnesses. He will not, I think, dispute the authority of the prospectus of the Medical School attached to the London Hospital, in which it is stated that the number of out-patients in 1905 was 209,272. Of these 71,812 were examined and treated by the physicians, surgeons and specialists on the Honorary Staff, leaving 137,460 to whom the following sentence applies: "The dressers on duty, under the supervision of a qualified resident officer, give first treatment to *all the minor casualties*." (The italics are mine.) Excluding 15,719 "accidents and emergencies," after due consideration of their nature, three-fifths of the patients were admittedly treated for minor ailments.

A very simple and inexpensive way of solving the problem can be worked out on the following lines. Whenever a person applies to a hospital for treatment, whether as in-patient, out-patient, emergency, or accident, let him be seen and examined, but only given treatment when the case is urgent. Let him be required to give the name and address of his usual medical attendant and informed that before treatment can be begun or medicine given he must apply to his doctor (or to the relieving officer) for a card of recommendation. The same day let a card be sent by post to the medical attendant (or the relieving officer) stating the nature of the disease and the treatment proposed, saying whether the hospital authorities are willing to carry out such treatment and asking that the recommender will sign the card and give it back to the patient only if he knows him to be a suitable case for charitable relief.

The effect would be this: membership of a club or provident dispensary would practically qualify for hospital treatment in serious cases, or at any rate for a consultation, as at present; the hospitals would exclude minor ailments; those who could pay would hesitate to attend if they knew they would be referred back always to their doctor or to the relieving officer, and if the doctor did recommend a paying patient for treatment it would presumably be in cases which he was unable to treat himself; for example, *x* rays.

The general practitioner would undoubtedly benefit; he would retain many paying patients who slip off to hospitals the moment they see an illness of more than one or two visits to the doctor; the number of contract patients would be increased from below by those who now attend hospitals as a matter of course for all ailments. The contract rate could be raised because of the added benefit of hospital advice and treatment when required. The hospitals would benefit by restriction to cases of serious illness or of interest. The consultants would benefit by many fees from persons whom they now treat gratuitously. The general public would benefit by the removal of the temptation to rely on charity for their medical requirements.

It may be said that the cost stands in the way. Well, the cost of printing and posting the necessary cards would not amount to £5,000 a year, for the two million patients who now attend the hospitals, out of their income of over £1,000,000. As to the time required, the porter who fills in the patient's letter would at the same time fill in on one side of a post-card the patient's name and address, on the other the medical attendant's name and address or the words "Relieving Officer," in such and such a district. The medical officer or his assistant would enter the diagnosis and treatment. The card would be posted, and, if returned, attached to the patient's letter.

One word as to the ethical position of members of hospital staffs. The consultant or specialist who sees and continues to see and treat the patient of a general practitioner without his knowledge is looked at askance in private practice. He is considered to be acting in an undignified, if not actually dishonourable, manner; but if he does the same thing at a hospital, charity covers that sin as others. It is, no doubt, true that a patient has the right to choose his medical man, specialist or otherwise, but it can never be true that a patient has the right to claim secrecy if he accepts charitable relief, and the medical man who grants or consents to such secrecy is outside the pale, whoever he may be. Many of the reputed consultants and specialists are so only in name, and are practically on a level with general practitioners, and take what comes; but in their public offices the profes-

sion has a right to demand the strictest adherence to the recognized code of ethics. If the staff referred every hospital patient to his usual medical man at the first visit abuses would cease and hospitals take their proper place among the most beneficent institutions in the world. It lies on the knees of the hospital staffs.

The inertia of the numerous and complicated vested interests which centre in the metropolitan hospitals is immense; hence, since no one man can reasonably attempt to overcome it, it becomes the duty of the Metropolitan Branch to take the matter in hand.—I am, etc.,

DONALD F. SHEARER, M.B., F.R.C.S.

London, S.W., July 23rd.

DIGITALIS IN AORTIC REGURGITATION.

SIR,—In reference to Dr. Seymour Taylor's communication on digitalis in aortic insufficiency Dr. Theodore Fisher, in the BRITISH MEDICAL JOURNAL of July 21st, p. 173, has called attention to the very important difference between aortic regurgitation in the young associated with rheumatism, and that in later life secondary to degenerative changes in the aorta and aortic valves. In this latter condition he considers that degenerative and fibroid change in the walls of the heart is a far more serious element of danger than the aortic incompetence. With this view I am entirely in accord. In this class of cases the amount of regurgitation is seldom very great, but the aorta is always atheromatous and frequently dilated, and the heart muscle is often degenerated or invaded by fibrosis.

There would appear to be three main causes of aortic incompetence in later life. First, arduous occupations associated with severe and intermittent strain, in which the brachials and radials are usually affected as well as the aorta and are thickened and tortuous. In these cases the prognosis is grave, as the onset of aortic incompetence is usually the prelude to a general breakdown. Of this I recently had an instance in a man, aged 49, who had been a gravedigger for 26 years. He came to my out-patient department at St. Mary's Hospital in September last complaining of shortness of breath. There was a well-marked diastolic murmur at the aortic cartilage, with a low-pitched ringing second sound, significant of dilatation of the aorta. The radials and brachials were thickened and tortuous, and the blood pressure, as estimated by the Riva-Rocci instrument, was 175 mm., in spite of the aortic incompetence. The regurgitation was slight in amount, and there were no indications of back working or right ventricle embarrassment, though a mitral systolic murmur was present. He attended for three months, and appeared to improve somewhat as regards his symptoms, but he died suddenly in January of this year, probably, as in Dr. Fisher's cases, from obstruction of the orifices of the coronary arteries and fibroid change in the heart wall. It is clear that in such a case, where the blood pressure was high and the cardiac muscle diseased, that digitalis could only do harm.

In a second group of cases aortic regurgitation may be the result of acute or subacute aortitis. Dr. Poynton[1] called attention to the well-marked changes which are found in the cardiac muscle in these cases to which he attributed the sudden death which occurred in those he described. In a case I investigated some two years ago the patient was a woman, aged 41, who complained of precordial pain and shortness of breath. A diastolic murmur was audible at the base, but the amount of regurgitation was slight. She died suddenly. At the autopsy I found the aorta extensively diseased in the region of the aortic valves and for about 1 in. above, but normal elsewhere. The aortic valves were thickened and opaque, but there was no great leakage. Sections of the aorta showed extensive and widespread round-celled infiltration in the adventitia and media, which was split up and completely disorganized, suggestive of some recent acute toxaemia. The coronary arteries were patent, the heart muscle was studded with patches of round-celled infiltration, and many of the muscle fibres were broken up, while others had lost their striation, and the nuclei stained badly. In this type of case it is improbable that digitalis could be of any service.

In a third group of cases in which the prognosis is fairly good, the aortic incompetence is the result of senile degenerative change and thickening of the valves. At the present time I have an old woman of 73 attending my out-patient department who has to my knowledge had aortic incompetence for upwards of two years, attended by no serious symptoms of any kind. Here again digitalis is not called for.

Turning to the type of aortic regurgitation in the young the result of acute endocarditis, I again agree with Dr. Seymour Taylor that the administration of digitalis is seldom called for, even when a mitral systolic murmur is present in addition. From my *post-mortem* experience I think that the mitral murmur so frequently present is the result more commonly not of endocarditis affecting the mitral valve as suggested by Dr. Fisher, though of course this may occur, but of dilatation of the left ventricle. If there is much regurgitation through the aortic orifice, the regurgitant stream distends the ventricle while it is relaxed and defenceless in diastole, and dilatation of the ventricle takes place. Hypertrophy follows later under favourable circumstances, and enables the ventricle to deal with the increased volume of blood it has to propel, but the valves do not increase in size, and though undamaged do not completely occlude the mitral orifice of the enlarged ventricle, so that some amount of reflux takes place. This however is relatively unimportant, and does not call for digitalis. Again, many cases occur in children and young adults who are liable to repeated attacks of rheumatism, and frequently it is not the amount of aortic reflux, but a fresh attack of rheumatism with accompanying myocarditis or pericarditis which brings about the fatal issue. In such cases, though oedema of the legs and signs of right ventricle failure may be present, they are commonly the result, not of back working, but of myocarditis which disables the right ventricle, so that digitalis if administered is ineffectual.

It may, however, happen in cases of aortic incompetence in which compensation has been efficient for some time that the left ventricle breaks down for some reason or other, and that the blood is dammed back in the left auricle and lungs, and the right ventricle has to come to the rescue. It is, I think, in these cases where pulmonary congestion, enlargement of the liver, oedema of the legs and other signs of embarrassment of the right ventricle are manifest, that digitalis is likely to prove of great service temporarily, till rest and time enable the right ventricle to undergo sufficient hypertrophy to deal with the extra work thrown upon it.—I am, etc.,

London, W., July 23rd. JOHN F. H. BROADBENT.

[1] *Lancet*, May 20th, 1899.

SIR,—I was interested in the letter of "Fidelity" in the BRITISH MEDICAL JOURNAL of July 21st, p. 173, on the use of digitalis in aortic incompetence, but it would appear that there are several points in the case he quotes about which further information is necessary before any opinion could be formed as to the extent to which the digitalis administered was responsible for the fatal event.

One would like to know the frequency and character of the patient's pulse—were there any signs beyond the dyspnoea on exertion showing that the heart was overtaxed ("Fidelity" states that the cardiac dullness was not appreciably increased, and that there was little or no oedema of the feet)? was the dyspnoea to any extent persistent after the patient went to bed? into how many doses were the 80 minims of the tinct. digitalis divided, and at what intervals were these given? We know that the action of digitalis is prolonged and cumulative, and 80 minims of the tincture consumed in twenty-four hours, say 10 minims every three hours, is not such a very small dose.

I have found it a good working rule that *the* call for digitalis lies in the distressed condition of the heart from inability to carry on its work, irrespective of the particular valvular lesion or other diseased state which causes that over-taxation; but, once the heart has recovered sufficiently to deal properly with the circulation, the drug should be stopped, at any rate for a time.

In a case of valvular incompetence or stenosis, it is not the valvular lesion itself which we treat, or which is amenable to treatment, but the *effects* of that lesion upon the heart and circulation in general. What was "Fidelity's" special reason for giving digitalis in the first instance? and why, on the other hand, did he "of

course" substitute nux vomica and opium when he "discovered the real nature of her (valvular) disease"?

To me it seems only reasonable that when a heart is giving way under the strain of aortic regurgitation, it might be benefited by the employment of the same means as when it is giving way under the strain of regurgitation at the mitral valve. In both instances it is the *effect* on the heart and circulation, and not the valvular lesion itself, which we try to influence by the administration of digitalis and other means.

Personally, I cannot call to mind any case of aortic incompetence, where the heart was failing, that received any harm from the administration of digitalis, but I *have* seen great distress follow the use of opium.—I am, etc.,

W. BARRINGTON PROWSE, M.R.C.S., L.R.C.P.

Brighton, July 24th.

THE PREVENTION OF DIFFICULT LABOUR.

SIR,—It is mental refreshment to leave work and plunge into medical polemics, and, like Dr. Drage, to have a peck all round.

It is remarkable what different impressions from the same words come to different minds. This will ever be so, and who shall decide?

It strikes me that the "Horrocks-Herman group" merely points out what Nature *can* do, what is ideal practice rather than what *may* be done by art, or what it is expedient that we *should* do. Who can doubt that these authors use the methods of art and expedience? But that is no argument. They are only human after all; and their students would be somewhat amused, I make bold to assert, could they see their teachers' actual practice, and how they were heckled by patients, no respecters of personages!

Dr. Herman is ever dogmatic in his valuable teaching. He can hardly exclude all possibilities, but surely forceps for a too-short funis cannot be very frequent?

Dr. Drage, to be successful, must (starting from the top) either invert the uterus, detach the placenta, rupture the funis, cause umbilical hernia, uncurl the funis, or stretch it. The whole uterus could hardly be pulled down. I would fain be enlightened on this point. Dr. Drage's views are always worth listening to.

To the ordinary general practitioner the discussion is futile. He knows almost by instinct when labour should be terminated, when it will be prolonged. He takes each case on its merits; works for the benefit of those to whom he is responsible; he is educated enough to realize when he may have done harm, and progressive enough to improve.

I often think how good it would be if those of Harley Street who criticize us so freely, who hardly deign to answer our letters, and, who, knowing little of our just wants, legislate for us, were to do six months' rural practice of obstetrics.—I am, etc.,

Ilminster, Somerset, July 28th. W. H. MAIDLOW.

THE TEACHING OF MIDWIFERY.

SIR,—I see by Allbutt's *System of Medicine*, in an article by Drs. Shuttleworth and Beach on idiocy and imbecility, that protracted pressure during parturition is given as a cause of mental deficiency; in a series of 2,380 cases collected by them, there was a history of protracted parturition in 27.25 per cent., asphyxia neonatorum in 20 per cent., and first-born cases 40 per cent. Forceps delivery occurred in 3.98 per cent., and as a result of their researches these authors advise timely application of the forceps in protracted cases.

This seems to me a clap on the back for the forceps from an unbiassed source. I have in the past twenty years attended about 2,000 cases of midwifery, and my practice has been, in cases of apparently natural labour, if the head does not advance in one hour after the os is fully dilated and the membranes ruptured, to apply forceps. If the maternal parts are rigid, and not inclined to dilate, I give chloroform to a rather deep degree, and I have not been much troubled with ruptured perinæum.

Uterine inertia seems to me the greatest cause of protracted labour, especially in poor people, in whom it is due to want of sufficient and proper food. People that buy meat by auction at 2d. per lb. I fear cannot always have proper food.

I certainly do not pull the child out as quick as I can, but if I do not stimulate the uterus to action by gentle traction on the forceps I fear I would not expedite matters much in a good number of cases. I well remember in my younger days waiting six hours, twelve hours and more for better pains, or labour that had stopped to commence again, and finally had to apply forceps. I fear the children in these cases would have swelled the mentally deficient if they lived to tell the tale.

Meddlesome midwifery is certainly bad, but the do-nothing midwifery is quite as bad. The Créde or Dublin method of expelling the placenta I have always adopted, and I consider it a valuable practice, but of course it can easily be abused. You cannot press out the placenta with impunity just when you like. I never remove my hand from the uterus or the abdomen until five minutes after the expulsion of the placenta and all bleeding has ceased.

I have, of course, had septic cases of varying degree, especially in my earlier days, before I understood antiseptics as I did later, but most of them occurred when the child was born before my arrival, and some of them without the presence of nurse or friend. I think still there is something in the auto-infection theory. We see cases of pyaemia, septicaemia, and septic endocarditis without an open wound. Why not a similar condition in parturition?—I am, etc.,

Tadworth, Surrey, July 24th. A. CUFFE.

ENDEMIC SPORADIC DYSENTERY IN ENGLAND.

SIR,—With reference to Professor Saundby's interesting paper under the above heading in the BRITISH MEDICAL JOURNAL of June 9th, p. 1325, and your leading article on the same subject on p. 1493 of your issue of June 23rd, I venture to submit a few remarks as to the desirability of concluding that the cases quoted by him were really those of true bacillary dysentery simply from having isolated a bacillus from them apparently corresponding to Shiga's bacillus.

1. It is unfortunate that the blood of these cases could not have been tested for agglutination, as the mere fact of isolating a bacillus similar to Shiga's is not very convincing, as these intestinal bacilli bear a very close resemblance to one another and to the *Bacillus coli*, so much so that some authorities go so far as to suggest the theory that the pathogenic bacilli may all be derived from the *Bacillus coli* under suitable conditions. It would also have been interesting to know whether the disease could have been reproduced experimentally from this bacillus in animals, and whether it could have been recovered again from them.

2. With regard to the symptoms of the cases, they seem to have commenced as a somewhat indefinite chronic diarrhoea lasting weeks or months, whereas bacillary dysentery in this country generally starts as an acute disease, the stools becoming characteristic in from a few hours to a day or two.

Pain is stated to be not constantly present, whereas in India it is an almost invariable symptom.

Vomiting is not usually common.

Temperature.—It is far from being the rule even in acute cases to find this raised, and if there is fever it is rarely above 100°.

Termination.—Professor Saundby's experience that perforation of the bowel is the most common cause of death is certainly remarkable; it is a rare complication in this country, and Berne, in the *Journal of Tropical Medicine*, 1904, collected records of 2,711 cases, in only 5 of which was there perforation. His statement, too, that recovery, *if it does take place*, is in many instances incomplete is very far from the results obtained in this country, where if taken early treatment is very successful, as witness Major Buchanan's series of 1,130 cases with only 9 deaths, the last 272 of which all recovered.

Duration.—In this country bacillary dysentery is essentially an acute illness lasting usually from one to three or four weeks, and the percentage of properly treated cases that become chronic is small.

Prognosis is good if the cases come under treatment early.

Treatment.—Professor Saundby has used quinine by the mouth as giving the best results, but this is quite opposed to the treatment adopted in India, the two methods in vogue being the administration of ipecacuanha or the salines, and both give most satisfactory results. Quinine is only employed in the irrigation of the bowel in chronic cases of so-called amoebic dysentery.

These considerations would seem to show that, as far as clinical symptoms, treatment and prognosis are con-

cerned, the cases quoted by Professor Saundby can scarcely be claimed as instances of bacillary dysentery as known in the tropics.—I am, etc.,

E. A. C. Matthews, M.B.(Cantab).
Cawnpore, July 12th. Captain I.M.S., 10th Lancers.

SUPRAVAGINAL AMPUTATION AND TOTAL HYSTERECTOMY FOR FIBROIDS.

Sir,—Dr. Haultain, in the British Medical Journal of August 4th, makes some observations on the relative value of total hysterectomy and supravaginal amputation for fibroids on which as an advocate of total hysterectomy I should like to make some comment.

In the first place, it should be borne in mind that by excluding cases of total hysterectomy, which is the only admissible operation for some of the most dangerous cases of fibroids (those growing in the cervix and those complicated with malignant disease), the statistics of the partial operation do not give the full mortality of hysterectomy for fibroids, but only that for the simpler cases. Dr. Haultain himself, who has had such excellent results with supravaginal amputation, had two deaths out of 15 cases of total hysterectomy.

Dr. Haultain gives (without details or reference) the mortality of hysterectomy during the last five years as less than 5 per cent.; he does not clearly state whether this figure has reference to the total operation or the partial operation or both; but, if it refers to the partial operation only, it is, in addition to the fallacy alluded to, clearly unfair to compare statistics of operations performed during the last five years with statistics extending from many years back up to six years ago. Dr. Haultain says:

> Panhysterectomy, or removal of the entire uterus, has been advocated by some operators, but has little specially to recommend it, except in the rare cases in which the cervix is involved by the growth, or some malignant uterine complication is present. It certainly is an efficient bar to subsequent cervical cancer, but this sequel is so seldom met with as hardly to warrant the prolongation of the operation which is necessarily involved, or the increased mortality which is shown by statistics collected from the work of the best-known operators as 8.27 per cent. in 1,668 cases.

The figures in this paragraph are Praeger's, and have been published by me in the *Obstetrical Transactions* for 1905 (vol. xlvii, p. 403). I at the same time gave the mortality for supravaginal amputation with intraperitoneal treatment of the stump from the same source—Saenger and Herff (*Encycl. der Geb. und Gyn.*, 1900)—namely, 8.64 per cent. (2,025 cases, with 175 deaths). I am sure that others besides myself who are interested in the above question would like to know why Dr. Haultain has omitted these figures and states that statistics show an increased mortality for the total operation, when exactly the opposite is shown by Praeger's statistics, from which apparently he quotes.—I am, etc.,

London, W., Aug. 7th. Herbert R. Spencer.

"THE FETISH OF CLASSICS."

Sir,—While the study of the classics has come in for much condemnation, I never yet knew a distinguished classical scholar to be filled with "furious indignation" that he had received a classical education. I have known the lazy and indifferent to blame their subject instead of condemning their own indolence.

We ought to be men and gentlemen first before we are doctors or men of science. There is too little literary culture among us. We have to deal with human beings, not with machines. The problem we have constantly to face is complex, so complex that laboratory methods can only be ancillary to it. A nice estimation of probabilities is often our only guide to diagnosis and treatment, and this fine mental balancing of probabilities is one of the things that classical study promotes.

Anyone who has been a thorough student of the two classical languages will find the acquisition of French and German easy. A diligent schoolboy can acquire a fair knowledge of one or both languages on the classical side at our public schools.

What I have personally seen of schoolboy science, that is, chemistry, physics, etc., does not encourage me to think it worth while sacrificing any substantial knowledge for such a smattering.—I am, etc.

July 30th. Alexander.

P.S.—I may add that one of my sons was recently elected to a classical scholarship at one of the great public schools. Besides the usual unseen passages and compositions in Greek and Latin, he had to do two papers in French, one in mathematics, a general paper containing questions in modern history and geography and in English literature, and to write an English essay. For a scholarship in Natural Science at this examination *no boy qualified.*

Sir,—I cannot refrain from writing to express my heartfelt sympathy with your unfortunate correspondent "Alexine." It must indeed be particularly galling in later life to find that a little thought on the rationale of the educational system of one's youth might (if exercised at the right moment) have prevented such a terrible waste of the best years of a boy's life. Your correspondent had much better, of course, have been an "abnormal" boy; thought about the value of technical education, and revolted against the classics at a suitably early age. No doubt his experience of the classical scholar as one "who is incapable of appreciating the importance of any mundane affairs beyond the language and ideas of classical authors," is the experience of most of us; we have also occasionally met worthy scientists whose thoughts and views are similarly limited to the subject to which they have given their life-study.

As to the ideal head master whom "Alexine" sketches for us, I seem to remember a "classical" sixth form where essays on matters of contemporary importance were of frequent occurrence; but perhaps the head master was not an orthodox pedagogue, whatever that may be.

I am afraid, however, that "Alexine" fails to go to the root of the matter. His misguided parents and guardians hoped to be able to educate him, whereas what he really required was merely *instruction*. But there is still hope. He has doubtless forgotten the classical knowledge he despises, just as he would probably have forgotten French or German, or biology, or any other subject learnt as a matter of school routine; he is therefore no worse off than he would have been had he been sent to a "modern" school, and may with a clear mind continue to instruct himself technically without the least fear of ever becoming educated.—I am, etc.

July 30th. J. M. F. B.

THE BY-EFFECTS OF HYSTERECTOMY AND OOPHORECTOMY.

Sir,—I have read with no little interest the admirable paper by Mr. C. J. Bond and the letter of Mr. Doran, who hardly echoes Mr. Bond's views of the functions of the endometrium in his general statements.

As I am at present particularly interested in this question, and am, in conjunction with Professor Benjamin Moore, working at various points in connexion with it, I trust you will spare me a little space for a few comments.

On May 3rd last I read before the Liverpool Medical Institution a preliminary note (vide *Liverpool Med.-Chir. Journal*, July, 1906), in which I made the definite suggestion that there was an internal uterine secretion, which I called "uterin," and which plays an important part in female genital activity. This note is, I believe, the first definite pronouncement of this view that has been published, although clinical facts which support it have been noticed and commented upon from time to time by various surgeons; for instance, Zweifel, and, following him, Mr. Doran, have stated that it is advisable to leave endometrium, whenever possible, in supravaginal hysterectomy—a practice I always adopt myself.

In my note, which was only a preliminary communication, I purposely kept back all clinical and experimental evidence in order to complete my investigations, being content to indicate the lines on which the work was proceeding.

With regard to Mr. Bond's paper I should like to call attention to some experimental errors which seem to negative at least one of the conclusions arrived at, namely, the action, or inaction as he concludes, of uterine secretion upon the ovaries.

In his own words, Mr. Bond's conclusion on the point is: "The presence of the uterine or endometrium tissue is not, on the other hand, necessary for the carrying on of ovarian function, either ovulation or the production of the internal secretion associated with oestrus."

This conclusion is arrived at after one single experiment—No. 1—which is described in the following words: "The whole uterus, including the cervix uteri, *but excluding the Fallopian tubes* (italics mine) was removed."

It is then stated that oestrus and coition occurred, and that when the animal was killed, he goes on to say: "Both ovaries are normal in appearance; each contains several red, raised, and recently ruptured follicles. . . ." The conclusion is then made: "This experiment shows that panhysterectomy has no deterrent effect on ovulation. . . ." I would like to ask Mr. Bond (1) How he knows that none of the uterine cornua was left? (2) How he could expect any other result than the one obtained if he left the Fallopian tubes? for I quite agree with what he says later in his paper that "the cavity of the Fallopian tube and uterus may be regarded as one membrane," although, perhaps, the English might be a little clearer. I gather, also, that he considers, as I do, their secretion, or secretions, to be similar, to some extent at least.

In my note, alluded to above, I pointed out that in the human subject the leaving of Fallopian tubes and cervix uteri must make any case of doubtful value in a study of this question.

Further, in regard to this experiment I would like to ask if he took the precaution to operate upon an animal before ovulation had ever occurred? I would not accept the evidence of ovulation as conclusive unless he had taken the precaution mentioned, but about which he says nothing. One of the great difficulties we have had in our experiments has been the youthful age of our subjects, and the consequent evil effects of shock upon them.

There are several other points in Mr. Bond's experiments that are open to criticism, but I will not occupy more of your valuable space than to ask him how he reconciles his mind to expect that the fluid which he collected in the artificial hydrosalpinx would be "absorbed into the circulation under pressure." He certainly produces no evidence to show that the collection of fluid was absorbed, in fact, in the recent words of *Mr. Punch*, it seems to be a case of "on the contrary."

I do not in these friendly criticisms intend in any way to detract from the great value and interest that attaches to Mr. Bond's excellent work and paper, but, since at the present moment I am interested in the question of internal secretion of "uterin," for which I hold a brief, I want to clear the ground; at the same time I feel I owe some apology for doing so until I have backed up my preliminary note by the publication of the detailed work and investigations, which I hope to bring forward in due course in conjunction with Professor Moore.—I am, etc.,

Liverpool, August 6th. W. BLAIR BELL,
Assistant Gynaecological Surgeon, Royal Infirmary, Liverpool.

AMOEBIC AND BACILLARY DYSENTERY.

SIR,—Practitioners in tropical medicine will take heart on appreciating the value of Dr. Foulerton's remarks, made in his letter which appeared in the BRITISH MEDICAL JOURNAL, July 21st, p. 170, under the heading Endemic Sporadic Dysentery (with Shiga's bacillus) in England—a subject which has of late been dealt with at some length in the medical press. I have not had the good fortune to see Dr. Foulerton's paper on the Etiological Significance of *Bacillus dysenteriae* (Flexner), as tested by the agglutinative reaction with the serum of patients suffering from dysenteric symptoms, but I have been considerably baffled by a very exceptional case of dysentery, contracted three years ago in Java, which has been under my charge here since last August.

I have considered this case to be one of mixed infection, this being due to the presence of the *B. shiga* as well as the *Entamoeba hystolytica* (Schaudinn), evidence of the former being obtained by agglutinative reactions in varying dilutions (5 per cent. and ½ per cent.) with cultures of the *B. shiga*, while the presence of the *Entamoeba hystolytica* (Schaudinn) was noted in the stools at the bedside microscopically. The *B. shiga* was not detectable, and Dr. Foulerton's concluding remark that Flexner had never found *Amoeba dysenteriae* side by side with *B. dysenteriae* in the acute cases, the former being found in chronic cases only, has greatly reassured me. Moreover, the absence of toxaemia, after the brief early period of a relapse, in these chronic cases would indicate the absence of the toxic bacilli, in the later stages, when evidence of the presence of the protozoon amoeba is more easily obtained at the bedside.

It should be noted that according to Professor Hewlett[1] these amoebae have not so far been shown to produce either intracellular or extracellular toxins, further, that they are practically extracorporeal, as in the case of the cholera vibrio, their transportation from the gut to within the organism, either in the liver or other abdominal glands is due more to accidental circumstances, and not the rule.

Shiga has tested the agglutinative reaction in hundreds of cases, and he found it generally parallel in intensity with the severity of the disease, except in very grave cases, usually fatal, in which he found the reaction but slightly marked. He has seen the reaction present as long as eight months after the attack, and he states that agglutination appears only in the second and third week of the disease and reaches its highest point during convalescence—a view which Dr. Foulerton would not seem to accept, as instanced in his case when the disease was contracted in China, the patient being just convalescent, and "no reaction was obtained with a dilution as low as equal parts of the serum and broth culture of the bacillus." On the other hand, Professor Metchnikoff, in his recent Harben Lectures, implied that a high agglutinating power, accompanied by a high opsonic index, sometimes forebodes a relapse. In the case of my patient here, his opsonic index to *B. shiga*, as well as the agglutinating reaction of his serum, were both carefully obtained simultaneously, at the laboratory of the Clinical Research Association, at different periods, during this his fourth and last relapse, and in this single case, when a high opsonic index, accompanied by a high agglutinating power, was obtained, recovery took place, and convalescence was maintained. No relapse has occurred during the past two months. I propose shortly to submit a detailed report of this case, with opsonic chart, etc., in connexion with the serum treatment of this case, with M. Vaillard's antidysenteric serum, which was kindly supplied to me by his instructions from the Pasteur Institute last March.—I am, etc.,

Bournemouth, July 23th. HENRY D. MCCULLOCH.

OBITUARY.

EDWARD FRANCIS WILLOUGHBY, M.D.LOND.,

D.P.H.LOND. AND CAMBRIDGE, M.R.C.S.ENG.

DR. E. F. WILLOUGHBY died at his residence, Finsbury Park, N., on July 29th, after a week's illness. He was in his 67th year. His medical education was acquired at University College Hospital, London. He became M.R.C.S. in 1865; graduated M.B.Lond. in 1869, with honours, and M.D. in 1889; and took the Diploma of D.P.H., both at London and Cambridge, in 1881. He was a Member of the Epidemiological Society, of the Society of Medical Officers of Health, and of the Royal Sanitary Institute, and was Honorary Medical Officer to the Mansion House Council on the Dwellings of the Poor. He was the author of several well-known works on sanitary subjects, including *Hygiene for Students*, of which the fourth edition was published in 1901: the *Health Officers' Pocket Book*, second edition, 1902: and contributed various articles on cognate subjects, such as disinfection, milk, variola and the varioloid diseases of animals, criminal responsibility of the insane, statistical fallacies, etc., to various encyclopaedias and medical and other journals. He had also edited Chaucer's *Prologue to the Canterbury Tales*.

FELIX BRANNIGAN O'FLAHERTY, M.B., C.M.EDIN., D.P.H. CAMB.,

LIVERPOOL.

DR. F. B. O'FLAHERTY, whose early death we record with much regret, was born in Constantinople forty-five years ago. His father, who was first an officer in the army and afterwards a clergyman in the Church of England, was a very distinguished linguist, and was interpreter to Lord Raglan during the Crimean war. The family subsequently settled in Liverpool, where the father was appointed curate. The son, who was educated at the Liverpool

[1] *Clinical Journal*, May 16th, 1906.

College, inherited much of his father's aptitude for languages, and at school was noted for his successes in the classics. He went to Edinburgh to study medicine, was prizeman in medicine and surgery, and graduated M.B., C.M., at the University in 1884. He took the D.P.H. of Cambridge in 1893. He practised for some time in Kansas, U.S.A., but returned to England eighteen years ago, and became assistant to his uncle, Dr. R. A. Brannigan, of Liverpool. About eleven years ago he began to practise on his own account in Park Place, Liverpool, and continued there until a few months ago, when a rapid failure of health compelled him to desist. Beyond a slight attack of rheumatism some thirteen years ago he had enjoyed good health, at any rate he never seemed to be ill, but about a year ago he was found to be suffering from aortic disease, and cardiac failure rapidly supervened.

Dr. O'Flaherty was a man who, had he chosen, might have aspired to the highest positions in his profession. He combined a cultivated intelligence with a love of work for its own sake, but he seems not to have felt the ambitions which urge on men of far less ability to obtain distinction as commonly understood. He deliberately preferred to practise among poor people, and persistently declined the solicitations of his friends to move into a wealthier neighbourhood than that in which he first put up his plate. He was a man of most refined tastes and susceptibilities, and kept himself well abreast of the progress of medicine. His hobby was literature, and he had a passion for languages. He read Greek as a recreation, and he mastered several modern languages. As an illustration of the facility with which he could master a new language, as well as of the thoroughness with which he pursued any work which he undertook, it is worth recording that some years ago a lady from South America, who knew no language but Spanish, came to Liverpool and engaged him to attend her in her confinement. Thereupon he set to work to learn Spanish, in order to be able to converse with her during the attendance, and he acquired such a mastery of the language that he was ever afterwards able to talk fluently in it, and sometimes was called on to act as interpreter between medical practitioners and their Spanish patients. He made many friends, to whom he was endeared by his charm of manner and his amiable disposition; and he was idolized by his patients, to whom he gave ungrudgingly of his best.

His death took place on August 1st at the residence of his uncle, Dr. Brannigan, and he was buried on August 3rd in Flaybrick Hill Cemetery, Birkenhead. The Rev. Mr. Burrows, who knew him well, delivered a most touching address, dealing more especially with his work among the poor in Liverpool. Many of his patients were at the graveside, and not a few of his professional friends, though there would have been more if it had not been for the fact that many were away on their holidays

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We learn with regret that Dr. William J. Martin died at his residence, 17, Harcourt Street, Dublin, on August 4th after a few hours' illness, of cardiac failure. He had been in delicate health for some time, but he was able to attend to all his numerous duties up to the eve of his death. Dr. Martin became a Licentiate of the Royal College of Surgeons, Ireland, in 1852, M.D. St. Andrews in 1855, F.R.C.P.Edin. in 1855, L.K.Q.C.P. in 1866, and M.R.C.P.I. in 1880. He was for many years Physician to Jervis Street Hospital; and later on became Visiting Surgeon to the Richmond District Lunatic Asylum. He was also Inspector of Anatomy in Ireland, and Secretary to the Board of Superintendence of Dublin Hospitals. He had travelled much in America, the Near East, and in Australia, and he was full of interesting reminiscences of his wanderings. His death is very sincerely regretted. He was one of the most genial of men, and he never said an unkind word of any one.

Telegrams from China announce that the Rev. Dr. Roderick J. J. Macdonald has met his death in very tragic circumstances. The steamboat by which he was travelling on the West River was attacked by Chinese pirates. The captain fell badly wounded, and Dr. Macdonald went to his assistance, and was himself shot. This was not his first brush with river pirates, for on a former occasion, when travelling by boat on the same river, a shot, fired from a pirate vessel, went through the chair on which he was sitting. Macdonald was connected with the Wesleyan Methodist Missionary Society, and had worked in the Canton District for twenty-two years. At the time of his death he was stationed at Wuchow, having charge of the Mission Hospital there. His name adds another to the long list of those who fall victims in the cause of religion and humanity. He was of a modest, retiring disposition, yet faced unflinchingly the dangers which beset all foreigners in China. He had to a singularly wide degree won the respect, and even the love, of the Chinese; and so great was his desire to get into touch in every possible way with those among whom he laboured that he would not permit a wall to be built around the mission compound. Dr. Macdonald received his medical education partly at the Middlesex Hospital and partly at Edinburgh. He graduated M.B., C.M.Edin. in 1881 and M.D. in 1884. He was medical officer to the Imperial Maritime Customs, Wuchow, and surgeon to the British Consulate and gaol, Wuchow. His death is greatly deplored by all who knew him, struck down as he was in the prime of life. Much sympathy is felt for his widow and two boys.

Colonel William Egerton Saunders, C.B., Royal Army Medical Corps, Principal Medical Officer of the Meerut Division in India, died on July 17th in the 57th year of his age. He was appointed Assistant Surgeon, April 1st, 1871; Surgeon, March 1st, 1873; Surgeon-Major, April 1st, 1883; granted the rank of Lieutenant-Colonel, April 1st, 1891; made Brigade-Surgeon-Lieutenant-Colonel, May 1st, 1895; and Colonel, June 14th, 1899. He served in the Zulu war in 1879 (medal); in the Boer war in 1881; and in the campaign on the North-West Frontier of India in 1897-8 with the Tirah Expeditionary Force as Principal Medical Officer on the Line of Communications; he was mentioned in dispatches, made C.B., and granted the medal with two clasps.

Lieutenant-Colonel Henry Walker Butler Boyd, of the Indian Medical Service, Bombay, died at Bombay, July 16th, from cholera, aged 55. He joined the Bombay Medical Department as Assistant Surgeon, March 31st, 1876, and became Brigade-Surgeon-Lieutenant-Colonel, March 31st, 1896. Lieutenant-Colonel Boyd was well known in Bombay, where he had filled numerous important offices, the latest being that of Senior Physician at St. George's Hospital.

Deputy-Surgeon-General Edward Taylor, Bengal Army, retired, died at Stevenage, Herts, on July 26th, at the age of 81. He entered the service of the East India Company in 1853, and served through the Indian Mutiny with the 42nd Native Infantry (medal with clasp); the Bhutan campaign (medal with clasp); the Abyssinian war in 1867-8 (medal); and the Afghan war in 1878-9.

Surgeon-Major Hampden Healey Maclean, late of the Royal Horse Artillery, died at Northampton on June 24th, aged 74. He was appointed Assistant Surgeon, April 22nd, 1858; became Surgeon-Major, April 1st, 1873, and retired from the service, August 9th, 1878.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have lately died are Dr. A. Peride, Professor of Anatomy in the University of Jassy, Roumania; Dr. Albert Voss of Potsdam, a distinguished anthropologist; Dr. A. Chkliarewsky, Professor of Medical Physics in the University of Kieff; Dr. Jules Castiaux, Professor of Forensic Medicine in the University of Lille; and Dr. A. Vincent, formerly Professor of Hygiene in the University of Geneva, and Vice-President of the International Conference for the Revision of the Geneva Convention.

Miss K. H. Monk, on her retirement from the post of Sister-Matron at King's College Hospital, after twenty three years' service, has been presented with a testimonial subscribed for by past and present members of the Committee and medical and nursing staff of King's College Hospital.

A party of forty French doctors is visiting the German medical schools. They are to make a three days' stay in Berlin, where a Committee, of which Professors von Bergmann and von Leyden are Honorary presidents, has been formed to entertain them.

MEDICO-LEGAL AND MEDICO-ETHICAL.

ACTION FOR SLANDER BY A MUSIC HALL PERFORMER.

AT the West Riding Assizes on August 1st an action for slander was tried by Mr. Justice Grantham, the defendants being Mr. and Mrs. Hudson, of Weetwood Mount, Far Headingley, Leeds, from whom damages of £100 were claimed. Mrs. Hudson, a lady who has been a member of the Educational Committee of Leeds, and does much philanthrophic work in the city, made the remarks alleged to be slanderous in addressing, by request, the annual meeting of the Leeds Invalid Children's Aid Society. The plaintiff was the man Bodie, whose conviction for breaches of the Children's Employment Act in Bradford was recorded in these columns on July 28th. Both parties were represented by King's Counsel, aided by juniors. Bodie was described by his counsel on this occasion, according to the *Yorkshire Daily Observer*, as a gentleman of some property residing at the Manor House, Macduff, N.B., and as having the qualification of M.D., C.M., of the United States of America. Similarly he was stated to carry on the business and profession of a lecturer on electricity and its uses as applied to cripples and people suffering from paralysis. Whether the degrees that plaintiff held were of any great validity was a matter of indifference in this case. The plaintiff's plan was to advertise in the newspapers of the towns which he intended to visit, asking people to bring crippled children who had been declared incurable by the medical faculty; those children appeared on the stage of the music hall, and were subjected by plaintiff to his treatment. As for the results, these, he was told, were in some cases absolutely startling. Cases had been verified in which people who had been treated as incurable and discharged from hospital had absolutely walked off the stage after the treatment. Many would think this was incredible, and that the plaintiff was a quack, but probably the plaintiff would not mind that so long as he had the satisfaction of doing good work. He charged nothing for his treatment or for the presence of the children or persons who appeared on the stage.

The statement made at the meeting of the Invalid Children's Aid Society, and alleged to be slanderous, was as follows:

"The Committee was very sorry that some of their children had been taken to the Tivoli in connexion with a certain show, and that some of the irons with which the Committee had provided them had been exhibited as cruel things. The man had paid the parents 2s. a night to go there, but the parents had since been admonished. He said he had cured one child, but as a matter of fact it had never been in his hands."

The plaintiff brought the action to refute the truth of these statements, not, said counsel, because he wanted money, but in order to establish his character. He could not appear in court himself, because he was under a penalty of £300 to appear at Dundee that night, but his manager was present to give evidence.

The plaintiff's manager, in giving evidence, said that the children were selected from the cases which attended, and arrangements were made for the exhibition of others who had previously been cured. The children came of their own accord, and nothing was paid either to them or their parents for attending, or by them or for them for their treatment. The plaintiff received from 50 to 55 per cent. of the receipts of the music hall. He had himself seen hundreds of cases cured, and the plaintiff never claimed to have cured any case which had not been under his care. When a new case was introduced the patient was carried on to the stage or allowed to walk on with a crutch. Any supports worn were then taken away, adhesions were broken down, and electricity applied. Then in about five minutes the patient was able to get up and walk off the stage without assistance. It was true that one woman alleged to have been cured had died three days later of "overjoy and exertion."

Two women of the working class gave evidence as to children of theirs having ceased to need crutches or supports after being treated by the plaintiff. An objection to this evidence being received was raised on the ground that the plaintiff's general work was not under consideration, but it was overruled.

The case for the defence was then opened, counsel stating that he relied on the occasion on which the words complained of were uttered being privileged. As for the alleged slander, the words were spoken in reference to the plaintiff's pretensions as a doctor, but his business was admittedly that of a showman, and in respect of his qualifications and work in that respect the defendant said nothing.

Evidence was then given by the nurse engaged at the School for Crippled Children provided by the Leeds Education Authority and in the work of which the Invalid Children's Aid Society takes part. One of her children having absented herself in March this year she made inquiries and went to the music hall at which the plaintiff was performing. She there saw two of her children paraded on the stage as cases which had previously been cured; one of them the showman Bodie stated had been discharged from the Infirmary as incurable, but now she required no supports and her crutches had been chopped up. He did not state that others had had to be provided for her. She did not know that the child had been to Bodie at his previous visit last year. The children stumbled off the stage and one of them had again been sent to the Infirmary.

Mrs. Hudson said that some headings for remarks in moving a vote of thanks at the annual meeting of the Society were given her, and one of them had reference to Bodie. On the previous day when visiting the school she had learned from the nurse about the children appearing on the stage; she understood they had never been treated by the plaintiff at all, and that the parents had been paid for their appearance, though she could not remember precisely what she had said in her speech she had no thought of injuring the plaintiff in his business if he had any, but merely wished the supporters of the Society, whom she believed she was alone addressing, to know that they were doing everything they could to relieve the children in their charge.

Mr. H. Littlewood, one of the Surgeons of the Leeds Infirmary, said the child shown on the stage as having been cured was under his treatment in 1903 and 1904 for hip disease. The child came again to him in April last year, after Bodie's visit, a fresh abscess having formed as the child had abandoned its crutches. He did not ask who had suggested her doing so, but told her she was not fit yet to do without them. He operated again, new crutches were provided, and, after a long stay in the convalescent home, she got comparatively well again. So far as hip-joint disease was concerned electricity was useless.

Mr. Justice Grantham, in summing up, ruled that the occasion on which the statements were uttered could not be regarded as privileged, as the meeting was advertised. They had, therefore, to consider if the statements were true. They were made on the strength of something which Mrs. Hudson heard from the nurse, and this turned out to be untrue in parts, and in effect the plaintiff was accused of being a rank impostor. But was he one? His methods might be a shock to some people, and it might be better if he did his work in some other way, so long as it was honest. Had any one a right to accuse him of lying and imposition? That he did a certain amount of good was beyond dispute. Doctors called these men quacks, but it was common knowledge that cures had been effected by other than medical men, and a well-known instance was that of a common cobbler who, working as a bonesetter, cured hundreds of cases the doctors had not been able to cure. It was done, no doubt, through his having a great knowledge of anatomy. An eminent doctor had told the Court that electricity was beneficial in certain cases, and they had had before them specific evidence of cases which had been cured. The plaintiff, therefore, could not fairly be described as an impostor.

After an absence of a few minutes the jury returned a verdict for the plaintiff with one farthing damages. Counsel for the defendants applied for a stay of execution and an order that each side should pay its own costs, but the judge refused.

The foregoing account of the trial is derived from the *Yorkshire Post* and the *Yorkshire Daily Observer*.

SALE OF DIACHYLON AS AN ABORTIFACIENT.

THE attention of the medical profession in and around Nottingham has been directed for some time to the increasing use of diachylon as an abortifacient among the working classes. Since the passing of the Midwives Act, moreover, inquiries have been systematically made in the city of Nottingham with regard to cases of stillbirth and abortion notified to the local authority under the Act, and in many instances there has been a strong suspicion that lead pills had been taken for the purpose of procuring abortion. Special attention was given to Bulwell, an outlying part of Nottingham, as the reports received from that place showed that the practice was very common there. Cases of lead poisoning, exclusively confined to women of child-bearing age, were stated to be of continual occurrence in this suburb. The pills used in Bulwell were commonly spoken of as "Mrs. Seagrave's pills," and this Mrs. Seagrave (alias Wardle) was said to do quite an extensive trade in them, selling them both to married and unmarried women. About ten recent cases were cited in which there was a definite history of lead poisoning and abortion, and the Corporation authorities considered that an attempt should be made to obtain some of the pills for analysis, so that if possible legal proceedings might be taken against Mrs. Wardle. A box of pills was procured by an agent of the Health Department, and these were found on analysis to consist of diachylon (50 per cent. to 70 per cent.) and aloes, with an outer coating of boric acid. They were roughly made, and varied in size from gr. jss to gr. v. The case was now handed over to the police, who arrested Mrs. Wardle and searched her house, where a large quantity of pills, similar in composition to those which had been analysed were found, and also the implements and materials used in making them. The prisoner was brought before the magistrates, and three witnesses were produced who had bought pills from her and been seriously ill after taking them. Medical evidence was adduced to show that in each case these women had aborted, and had suffered from lead poisoning. On the evidence given, the magistrates committed the prisoner to the Assizes, defence being reserved. The case was heard at the Nottingham Assizes on July 17th and 18th, the prisoner being indicted on four charges of supplying pills "containing a certain poison called lead, with intent to procure abortion." As before, the prosecution called witnesses to

prove the purchase of the pills from Mrs. Wardle, and the ill effects produced by taking them. The medical men who had attended these witnesses again gave evidence that lead poisoning and abortion had occurred in each case. The City Analyst described the result of his analysis of the pills, and the medical officer of health corroborated this, and also gave evidence as to the serious results that would follow the taking of such pills for any considerable period. The women who had purchased pills all stated that Mrs. Wardle had instructed them to take a dose of Epsom salts, fasting, in the morning, followed by four of the pills, and four pills again at night.

For the defence it was stated that Mrs. Wardle made and sold the pills, but had no idea that they were harmful, and that she had not sold them for the purpose of procuring abortion, but only as "female pills," to be taken in cases of suppressed or irregular menstruation. In the witness-box Mrs. Wardle said that she had no knowledge of the specific action of diachylon, or that it contained poison, and that she merely used it to make the pills hold together. She denied that she had knowingly sold the pills to pregnant women.

Several witnesses, both male and female, stated that they had taken the pills and derived benefit from them for such ailments as bad backs, internal pains, and anaemia. To rebut the last statement, the medical officer of health, with the consent of the court, was again called, and stated that anaemia was one of the earliest and most constant symptoms of lead poisoning, and it was inconceivable that when lead was given to an already anaemic patient, it should fail to aggravate the anaemia.

In his summing-up, the learned Judge expressed his opinion that there was no doubt that Mrs. Wardle had sold the pills, and that they were noxious things, but that the question for the jury to decide was whether they were sold with intent to procure abortion. He spoke strongly as to the growing prevalence of the trade in abortifacients, and said that in the interests of public justice it should be severely dealt with. His lordship also remarked that it was very difficult to reconcile Mrs. Wardle's statement that she was not aware of the harmful effects of diachylon with the fact that she had advised her clients in every instance to take doses of Epsom salts. As Epsom salts were an acknowledged eliminative for lead, it seemed very strange that they should have been prescribed unless it was known to the prisoner that diachylon contained lead.

The jury found the prisoner guilty, but recommended her to mercy, and she was sentenced to eighteen months' hard labour. At the same time the learned Judge stated that he wished it to be clearly understood that the law said an offence of this kind was a felony, for which the maximum penalty was penal servitude for life.

THE CRIMINAL LAW AMENDMENT ACT.

General Practitioner.—Incest is not a crime according to English law, but there are certain statutory enactments relating to the defilement of young girls which might avail our correspondent. The Criminal Law Amendment Act, 1885, provides that any person who unlawfully and carnally knows any girl under the age of 13 shall be guilty of felony, and being convicted thereof shall be liable to penal servitude. The same Act provides that any person who unlawfully and carnally knows any girl being of or above the age of 13 and under the age of 16 shall be guilty of a misdemeanour. In this case, however, it is a good defence if it shall be made to appear to the Court or jury before whom the charge is brought that the person so charged has reasonable cause to believe that the girl was of or above the age of 16 years. It is obvious that this defence could never avail the father of a girl.

DEATHS AFTER ACCIDENT.

House-Surgeon writes: I have been taken to task by the local coroner under the following circumstances. A man is brought to hospital suffering from a serious abdominal condition. An exploratory operation is done and several feet of gangrenous intestine found due either to volvulus or thrombosis. He subsequently dies, and a paragraph appears in the local paper to the effect that the man had an accident whilst lifting a box, but an inquest is not necessary as the doctor can certify the cause of death. I may say that is the first intimation I had had of any accident. The coroner writes me demanding to know all the circumstances, and complains that he has not been informed of the accident. I should be glad if you would inform me:

1. Whether there is a legal duty imposed upon a medical man to inform the coroner in cases of death from accident?

2. Whether there is a legal duty to inform the coroner of doubtful cases such as this one, in which the probability is that accident (as generally understood) had nothing to do with the death?

My practice has been and will be to inform the coroner of deaths undoubtedly caused by accident, but I should be much interested to know the law on the subject.

*** There is no statute law compelling a medical man to give notice to the coroner of the death of a patient which has been caused or accelerated by an injury. If in the certificate of the cause of death he makes mention of an injury which may be accidental or otherwise, then according to the instructions of the Registrar-General, the local registrar of deaths refers it to the coroner before registration or issuing the burial order, in order that the coroner may decide whether an inquest is necessary or not. The coroner then makes certain inquiries through his officer as to the nature of the injuries and how they were caused, etc., before he decides what action he will take. The medical man in attendance on the deceased can usually give important information concerning the case, and therefore the practice usually adopted by "House-Surgeon" is the best course to take, as it places the coroner in possession of facts and opinions which materially assist him in arriving at conclusions. The only "demand" the coroner can make of our correspondent is after he has taken the oath in the witness box.

CALLING ON PATIENTS BY THE PURCHASER OF A DEATH VACANCY.

Robert Gibson, M.D.—As it is customary for the purchaser of a practice to be personally introduced to the patients by the vendor, we can see no objection to the purchaser of a death vacancy calling on the patients by himself if there is no one to introduce him. He must, however, be careful not to call on any but bona fide patients of the practice.

OWNING A CHEMIST'S SHOP.

Inter Nos asks whether it is contrary to any written or unwritten law, or in any way *infra dig.*, for a medical man to purchase the goodwill of a chemist's shop in the town in which he practises. The shop would be managed entirely by a duly-qualified manager, who would be paid a salary or percentage out of the profits; the only connexion the medical man would have with the business would be to pocket the profits.

*** The view taken of the matter by the profession is shown by the by-laws of many of the licensing bodies. Thus the Colleges of Physicians of London, Edinburgh, and Dublin forbid their Fellows and Members to dispense medicines or in any way to engage in the sale of drugs; while the Royal Colleges of Surgeons of Edinburgh and of Ireland and the Faculty of Physicians and Surgeons of Glasgow prohibit their Fellows from keeping chemists' shops. On general grounds it may be said that it is not consonant with the claims of the medical profession for its members to enter into trade competition with pharmaceutical chemists.

ASSISTANTS AND MIDWIFERY FEES.

Dunedin writes that he pays his assistant a salary and one-third of the midwifery fees of all cases he attends. He wishes to know whether abortion cases of three and four months should be included in such an arrangement.

*** Yes, if a midwifery fee is paid by the patient, but not where an account is sent in for such attendance in the same manner as in ordinary sickness.

EXPENSES OF INTRODUCTION.

A. bought a death vacancy from B. (a widow). B. drew up a circular letter to be sent to all patients, announcing the fact, and as A. was passing the printers, he offered to take the letter, and the offer was accepted. The bill for printing the letter has now been sent in, but B. refuses liabilty, saying that A. ordered them, and is liable for the cost of printing them. A. has also expended 9s. 8d. upon stamps and envelopes. A. maintains that it is B.'s duty under the agreement to introduce him in every way possible to the patients.

*** Although it is usually the vendor's duty to introduce his successor to all his patients, as far as it lies in his power, it does not follow that the vendor is bound to pay out-of-pocket expenses involved in so doing, unless it were specially stipulated in the agreement that he should. There is nothing in the clause of the agreement quoted necessarily throwing the onus of paying these expenses on B.

VALUE OF PART SHARE.

D. writes that he took a partner in his practice some years ago, selling him a quarter share. The practice has considerably increased since then, and his partner wishes to purchase a further share. There is nothing regulating the purchase of a further share in the deed of partnership, but his partner thinks that he ought to be allowed to buy the extra share at the original price. D. wishes for advice in this matter.

*** It is very desirable that a partnership deed should clearly set out the terms on which a partner purchasing a

small share may in the course of time increase the same. Where the deed is silent, the most equitable arrangement would seem to be for the holder of the small share to be allowed to purchase an additional share at the same rate he paid for his original one. If he paid one or two years' purchase for his original share, he should do the same for the additional one, but the valuation of the latter must be made according to the present value of the practice.

VALUE OF A PRACTICE.

A CORRESPONDENT asks the following questions: (1) In selling a practice how many years' income is generally calculated to get at an average income? (2) What ratio of income is generally deducted for expenses? (3) How many years' purchase is as a rule asked for a practice?

*** (1) The gross receipts of the last three years are usually taken. (2) The gross receipts are taken. It is not usual to make any deduction for expenses. (3) A practice is seldom worth more than two years' purchase, and the value is usually somewhere between one and two years' purchase, according to the character of the practice.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

INDIAN MEDICAL SERVICE.

THE Commander-in-Chief in India has notified that the following officers of the Indian Medical Service have been approved by the Director-General Indian Medical Service as specialists in the subjects noted against their names:

Capt. C. A. Sprawson	Eastern ...	Fevers.
Lieut. F. N. White	,, ...	,,
,, A. C. Ingram	Secunderabad.	,,
,, J. H. Burgess	Eastern ...	Operative Surgery.
,, C. H. Brodribb	,, ...	,,
,, C. H. Barber	Northern ...	,,
,, A. F. Hamilton	Western ...	,,
Major J. Bedie	Secunderabad.	,,
Capt. T. B. Kelly	Eastern ...	Ophthalmology.
,, S. H. L. Abbott	Northern ...	,,
,, F. S. C. Thompson ...	Western ...	,,
Major A. E. Berry	Secunderabad.	,,
Capt. G. E. Charles	Eastern ...	Rhinology.
,, C. C. Murison	Western ...	Physiological Medicine (Mental Science)
,, A. W. Overbeck-Wright	Eastern ...	,,
Major H. M. Earle	Northern ...	Midwifery and Gynaecology.
Capt. G. Tate	,, ...	,,
Lieut. J. Anderson	Western ...	,,
Capt. W. D. A. Keys	,, ...	,,
Major M. A. Ker	Northern ...	Public Health.
Capt. A. W. C. Young	,, ...	,,
Major C. M. Moore	Western ...	,,
,, G. W. Jenney	,, ...	,,
Capt. A. Spitteler	,, ...	,,
Major C. A. Johnston	Secunderabad.	Public Health and Parasitology.
Lieut. A. C. Ingram ... ... (also in fever)	,,	Public Health.
Lieut. D. Steel	Eastern ...	Parasitology.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

DUTIES OF DISTRICT MEDICAL OFFICER IN REFERENCE TO BOARDED-OUT CHILDREN.

J. R. A., who is a district medical officer, writes that he has recently attended three children suffering from chicken-pox. They were brought to him by their foster-mother, who reported them to him as boarded-out children of the union, but beyond this he had no official communication in reference to them, and did not know that there were any such in his district. At midsummer last he sent in an account charging for this medical attendance, and was subsequently informed by a guardian, who was honorary secretary to the Boarding-out Committee of the union, that he had no right to make any charge for medical attendance, as this was one of the duties of a district medical officer.

*** We are advised that it is one of the duties of a district medical officer to provide medical attendance in illness for all boarded-out children in his district, and for this he cannot claim any special remuneration. In this case, however, there must have been great neglect on the part of some non-medical official of the union, as our correspondent ought to have been supplied with a list of all such children resident in his district. It would then have been his duty to visit them at their homes once during every quarter whether ill or well, and to report to the guardians at the end of it. For this duty he would be entitled to a fee of 2s. 6d. for each visit. As it is, he has lost the opportunity to earn these fees and the guardians have profited by not seeing that the regulations were carried out in reference to these cases. Now, as our correspondent is aware of the existence of such children he should at once make all his quarterly visits and charge for the same at the end of the quarter, whether the patients are then still living in the district or not. The foster-mother ought to have been supplied with a ticket or order for medical attendance on all these children to use in case of illness of any kind occurring to them.

M. S.—We know of no book better than Goodall and Washbourn's *Manual of Infectious Diseases*. London: H. K. Lewis. 1896. 15s. With regard to opinions as to the value of isolation we can only refer our correspondent to the pages of this JOURNAL during the last two years or so.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF EDINBURGH.

THE summer graduation ceremonial was held in the M'Ewan Hall on Friday, July 27th, the Vice-Chancellor (Principal Sir William Turner) presiding. The honorary degree of LL.D. was conferred on Sir Donald Currie, G.C.M.G., Sir Alexander Russell Simpson, Senhor Antonio Da Veiga Beirao of Lisbon, and on Baron Descamps, D.C.L., of Louvain.

The Promoter (Professor Annandale) devoted the customary address to the subject of "Quackery," and traced the beginning of the use of internal remedies. Surgery, he said, was more ancient than medicine. The first special treatment of disease came from the ancient Egyptians or Chaldeans; from them the Grecians obtained their knowledge. The history of medicine was traced onwards to Aesculapius, Hippocrates, and others. Quackery in olden times was discussed. It might have been expected that as knowledge and civilization advanced, the treatment of disease and injury would have been relieved of much that was erroneous and absurd, but although great improvements had taken place gradually, yet quackery in many forms continued rampant, and it was sincerely to be regretted still remained so. The history of quackery was traced, and some noted quacks referred to. The quackery and credulity of to-day were next discussed, and Christian Science characterized as neither Christian nor scientific, and quite incompatible with the Christian faith. A shrewd Scotswoman had been treated for painful rheumatism according to the methods of Christian Science, and when asked her opinion of it said, "Christian Science has not cured me, but I am cured of Christian Science." Some remarks on the law for patent medicines, and the need for its stringent revision, and parting counsels to the younger graduates, closed an interesting address.

The following were among the gentlemen who received ordinary degrees:

M.D.—*R. G. W. Adams, W. Anderson, J. R. Atkinson, A. C. Begg, J. H. Bell, A. J. Biennemann, *V. Chastel de Boinville, Isabella D. Cameron, W. S. Campbell, T. F. Cavanagh, †R. D. Clarkson, *J. H. Connolly, *J. F. Crombie, †D. H. Croom, *T. A. Davies, *J. L. Dick, *C. W. Eames, T. *. Easton, T. G. Elsworth, †E. Fawcett, *A. N. Fell, J. W. Gainer, *J. C. Gilchrist, A. Gillespie, *L. Grant, A. Y. Greenwood, †W. W. Greer, †M. Holmes, J. W. Ingles, *A. Ingram, †E. B. Jamieson, *R. W. Johnstone, *J. W. Keay, I. C. Keir, *I. E. H. Kelso, †J. M. Kirkness, H. Kramer, *G. D. Laing, *A. J. Lewis, *E. W. Lewis, C. H. Lindsay, J. Lindsay, A. W. B. Loudon, A. J. M'Closky, * J. S. M'Cracken, W. J. M. M'Farlan, *W. Mac Kenzie, L. C. Maclagan-Wedderburn, *R. A. MacK. Macleod, *L. W. C. Macpherson, *R. M. Manwaring-White, D. P. Marais, †F. Mason, *P. Mathews, * J. S. Maynard, †J. H. Meikle, H. G. Melville, *J. Muller, †T. W. Mitchell, †S. A. Moore, *E. M'K. Nicholl, H. Overy, *R. Owen, B. L. Paton, E. C. Prichard, *H. H. Robarts, J. H. Robertson, W. S. Robertson, G. A. Rorie, A. B. Ross (M.A.), *R. A. Ross, Shiela M. Ross, Francois Augusta Rouget, D. J. Scott, J. A. Scott, G. B. Serle, †C. J. Shaw, †W. C. Sillar, †J. W. Simpson, †W. H. Simpson, *W. M. A. Smith, †J. Tait (B.Sc.), *H. P. Thompson, G. C. Trotter, J. O. Veitch, *H. Whittaker, *F. A. Wille, W. Y. Woodburn, M. B. Wright.

* Commended for thesis. † Highly commended for thesis.

‡ Gold medal for thesis.

M.S.—F. D. S. Mackenzie.

M.B., C.M.—P. W. Freyer.

M.B., Ch.B.—G. F. Adshead, J. H. Aikman, M.A., J. A. Ainscow, J. Alexander, A. W. Atkinson, R. C. E. Atkinson, A. F. Baboneau, C. R. M. Baker, D. P. Blair, *F. Blamire, J. D. Bowie, F. H. Bradley, I. W. Brebner, *T. G. Brown, C. H. Burgess, Alice M. Burn, E. Burnet, J. S. Caldwell, †S. T. Champtaloup, A. E. Chisholm, Marjorie D. Cohen, W. Cory, S. J. Corner, D. Cotterill, Agnes M. Cowan, R. G. Cunningham, J. A. Currell, L. S. Daniell, J. Dass, S. K. Datta, R. Davidson, *A. Davies, †A. M. Dick, T. H. Dickson, †A. M. Drennan, J. D. C. Duncan, R. Duncan, D. D. Dunn, E. W. Dyer, *S. S. Dykes, †J. S. Edwards, P. El-Karey, R. H. Fothergill, M. S. Fraser, *J. W. Frew, Jessie H. Gellatly, K. N. Ghosh, G. H. R. Gibson, L. Gibson, J. Gilmour, E. C. Girling, G. A. Gordon, E. Gordon, W. L. Gordon, E. R. Grieveson, *W. M'A. P. Henderson, Isabel Hill, A. S. Holden, G. H. Howe, †T. B. Johnston, N. W. Kidston, *A. G. K. Ledger, A. Laitch, Olive T. Leonard, J. Lindsay, P. Lornie, J. P. Lowson, A. T. M'Donald, *J. W. S. Macfie, G. B. Macgregor, T. S. M'Intosh, J. MacKenzie, J. N. MacLaughlin, M. Maclean, J. A. MacLeod, J. B. M'Morland, R. P. M'Morland, G. M'Mullan, A. C. B. M'Murtrie, W. J.

Macnab, J. M. MacPhail, A. S. Mactavish, *J. N. M'Turk, D. Mann, J. S. Manson, J. Mathewson, G. M. Melville, H. J. More, J. E. Murray, M. A. D. Naoroji, A. J. P. Nowell, J. L. H. Paterson, A. MacT. Pirrie, *G. Pollock, H. B. Porteous, Agnes E. Porter, *C. Pycroft, Edith G. Pycroft, Mabel L. Ramsay, G. Raubenheimer, J. Ritchie, W. G. Rivers, H. D. Robb, R. M'N. Robb, T. E. Roberts, G. Robertson, Æ. Rose, F. Ross, J. M. Ross, Z. M. H. Ross, E. Russell, A. Sandison, Elsie B. Saunders, W. O. Sclater, T. H. Scott, L. Sells, E. D. Simson, A. G. H. Smart, W. T. Smith, A. Stephen, R. StC. Steuart, A. D. Stewart, G. H. de Wet Stofberg, K. R. Tampi, D. R. Taylor, J. A. Taylor, C. H. Tewsley, E. R. Thompson, H. H. Thorburn, A. Todrick, J. N. Turnbull, N. B. Turnbull, Annie D. Urquhart, E. W. Vaughan, A. G. Visser, G. F. C. Wallis, R. H. Walton, W. O. Welply, W. H. Welsh, O. H. Williams, W. E. R. Williams, C. R. Wills, Ethel Wiseman, A. F. Wright, *A. W. Young.

† First-class Honours. * Second-class Honours.

D.P.H.—T. H. Jamieson (with distinction), A. MacRae, M.A.

Certificate in Tropical Medicine.—G. P. Adshead, J. A. Ainscow, J. Alexander, D. P. Blair, F. H. Bradley, I. W. Brebner, Alice M. Burn, E. Burnet, S. T. Champtaloup, Majorie D. Cohen, S. G. Corner, Agnes M. Cowan, R. G. Cunningham, J. A. Currell, H. Curwen, J. Dass, A. A. Davies, A. MacD. Dick, T. H. Dickson, E. W. Dyer, S. S. Dykes, J. S. Edwards, K. N. Ghosh, E. C. Girling, G. A. Gordon, J. E. Gordon, W. M'A. P. Henderson, H. Jamieson, P. Lornie, J. P. Lowson, J. A. McLeod, J. S. Manson, W. R. C. Middleton, A. MacT. Pirrie, Agnes E. Porter, Edith G. Pycroft, J. Ritchie, H. D. Robb, R. M'N. Robb, G. Robertson, F. Ross, J. M. Ross, W. O. Sclater, T. H. Scott, A. G. H. Smart, A. Stephen, K. R. Tampi, C. H. Tewsley, H. H. Thorburn, J. N. Turnbull, R. H. Walton, Ethel Wiseman.

The following awards were announced:

Ettles Scholarship.—A. M. Drennan.

Allan Fellowship.—A. D. Stewart.

Buchanan Scholarship.—A. MacD. Dick.

James Scott Scholarship.—E. Burnett.

Moutar Scholarship.—J. Ritchie.

Stark Scholarships.—W. Omand Sclater.

M'Cosh Graduates' and Medical Bursaries.—W. M'A. P. Henderson.

Beaney Prize.—A. MacD. Dick.

Conan Doyle Prize.—C. Pycroft.

Dorothy Gilfillan Memorial Prize.—Ethel Wiseman.

Pattison Prize.—A. E. Bounce and W. K. Macdonald (equal).

Wightman Prize.—J. S. Manson.

Gunning Victoria Jubilee Prize.—J. M. Kirkness.

UNIVERSITY OF LONDON.

The following candidates have been approved at the medical examination indicated:

Intermediate.—† O. J. W. Adamson, M. H. Atherton, A. P. Bacha, E. F. Ballard, R. S. Barker, Anne Borrow, S. Boyd, Ethel M. Brand, †‡ ¶ Eda S. Bryan-Brown, D. H. Caine, G. H. Chisnall, *‡ ¶ Elsie M. Chubb, B. I. Cohen, M. M. Cowasjee, S. J. Darke, H. C. R. Darling, T. B. Dixon, J. R. B. Dobson, D. Dunbar, Irene C. D. Eaton, *† E. G. Fearnsides (B.Sc.), Mabel Foley, W. L. E. Fretz, C. G. Galpin, S. R. Gleed, A. A. Greenwood, J. R. Gyllenhreutz, D. J. Harries, E. R. Holborow, A. W. Holthusen, H. T. Howells, *† W. B. Johnson (Scholarship in Anatomy), C. A. Joll (B.Sc.), W. B. Jones, H. B. Kent, W. S. Kidd, *‡ Blanche P. Lindup, †J. P. Little, †W. E. Lord, †T. S. Lukis, G. R. Lynn, Marjorie E. Middleton, *† E. B. Morley (Scholarship in Physiology), D. G. S. R. Oxley, †‡ A. H. Penistan, A. A. W. Petrie, Ellen M. Pickard, W. N. Pickles, N. Prescott, †R. A. Rankine, H. D. Rollinson, N. G. H. Salmon, F. S. Scott, *R. R. Smith, Florence Stacey, V. H. Starr, *Marion Stocks, H. L. Tasker, †J. Thompson, C. C. Tudge, †R. W. W. Vaughan, *† Anna B. Walsh, F. M. R. Walshe, G. R. Ward, A. L. Weakley, L. M. Webber, H. O. West, E. W. Witney, C. A. Wood, C. I. Wright.

* Distinguished in anatomy. † Distinguished in physiology. ‡ Distinguished in pharmacology. ¶ Bracketed equal for Scholarship in Pharmacology.

CONJOINT BOARD OF ENGLAND.

The following candidates have been approved at the examinations indicated:

First Examination (*Chemistry and Physics*).—S. V. Appleyard, T. E. Ashley, T. C. Brentnall, H. H. Budd, R. E. R. Burn, L. C. W. Cane, H. G. Capon, W. E. Carter, D. T. Corke, J. Cowan, H. W. Doll, D. C. Evans, S. Falkner, N. H. Gilbert, A. S. Gillett, D. H. Griffiths, J. Griffiths, A. A. Henderson, A. J. Hickey, H. H. Hiley, A. S. Hoole, S. W. Jamieson, J. E. T. Jones, R. L. Jones, J. B. Jordan, G. A. E. Kelman, W. S. Lacey, C. Y. Laing, W. E. Levinson, M. Lindsey, E. C. Linton, D. McRae, H. L. Mann, S. Mee, G. K. Maurice, A. E. Moore, W. E. Neale, G. Nelson, H. L. C. Noel, H. C. W. Nuttall, F. M. Oliphant, W. G. Orchard, J. H. Owens, G. N. Palmer, A. Pimm, V. St. L. Pinnock, J. A. Prendergast, R. B. Roe, A. M. Stuart, W. E. Tanner, R. T. Timberg, M. C. Wall, A. F. Waterhoose, P. J. Watkin, W. Watts, H. White, F. St. B. Wickham, R. F. Wilkinson, J. W. Williams.

First Examination (*Elementary Biology*).—B. Barnett, P. L. T. Bennett, K. Black, H. R. Brown, F. B. Bull, E. C. Cline, W. E. S. Digby, G. J. E. Elphick, M. A. Farr, N. E. Farr, A. A. Fyffe, A. J. Graves, A. P. Green, B. Grellier, D. H. Griffiths, J. Griffiths, S. F. Harris, P. V. E. Hayes, A. S. Heale, A. J. Hickey, S. Hutchinson, J. B. Jordan, W. S. Lacey, J. A. Lamb, W. E. Levinson, M. M. Melrose, W. E. Neale, W. G. Orchard, A. S. Pern, V. St. L. Pinnock, M. H. Ratton, V. G. Roberts, H. Robinson, P. Scott, T. Scott, H. G. Spain, A. M. Stuart, R. T. Timberg, A. G. Trott, C. G. Waddington, W. Watts, F. Wells, W. H. Williams.

First Examination (*Practical Pharmacy*).—G. Aldridge, J. Appleyard, D. G. Arthur, R. G. Bingham, G. C. Birt, A. E. Blythmann, I. G. Cobb, B. M. Collard, J. T. Daly, S. Danziger, D. H. Davies, W. T. Dobson, H. R. Elliott, G. E. D. Ellis, D. C. Evans, H. A. Evans, C. D. Faulkner, E. G. P. Faulkner, H. E. B. Finlaison, W. T. Flooks, G. J. Gallagher, H. Gibson, G. Graham, H. L. S. Griffiths, J. Griffiths, C. Hall, C. H. Hart, G. R. Heard, T. S. Hele, E. C. Hobbs, R. A. Hobbs, F. H. Holl, W. H. Hooton, E. Howden, D. E. J. S. Hughes, A. H. James, G. Jefferson, G. L. Jones, C. F. V. Kebbell, W. R. Kilgour, C. H. Knowles, J. M. Lund, M. H. Langford, W. B. Lawrence, S. J. Lee, E. C. Linton, D. McCully, C. McIver, H. S. Mason, A. E. Moore, C. W. Morris, A. P. Nicolle, H. L. C. Noel, C. Noon, R. S. Overton, G. N. Palmer, R. A. Parsons, S. K. Poole, J. F. Richardson, H. Rimington, T. S. Rippon, H. N. Ritchie, J. Selfe, E. A. Shirvell, O. T. Slatter, H. Stobie, R. W. Stocks, T. E. A. Stowell, C. H. B. Thompson, G. G. Timpson, W. V. Tothill, A. J. Tozer, H. B. Walter, A. Watson, J. E. P. Watts, F. C. Wright, R. Yood.

The Secretary reports to the two Royal Colleges that at the first part of the Examination for the Diploma in Public Health, held on July 2nd, 4th and 5th, by Dr. Luff and Dr. Spitta, 30 candidates presented themselves, 19 of whom were reported by the Examiners to have passed; and that at the second part of the Examination, held by Dr. Hamer and Dr. Bulstrode, on July 9th, 10th and 11th, 20 candidates presented themselves, of whom 15 were found by the Examiners to be qualified for the Diploma.

The following are the names of the fifteen candidates who are therefore recommended by the Examiners for the Diploma, namely:

D.P.H. (*Parts I and II*).—J. H. L. Cumpston, L. H. D. Hale, J. M. Hamill, J. W. Leake (Capt. R.A.M.C.), H. A. Macewen, S. H. Nathan, L. E. L. Parker (Capt. R.A.M.C.), T. P. Puddicombe, D. M. Taylor, J. F. Taylor, W. J. Thomas, J. M. Thomson, H. B. G. Walton (Capt. R.A.M.C.), H. G. S. Webb (Capt. R.A.M.C.), C. S. Willis.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The following candidates have been admitted Fellows of the College: D. R. Bardi, D. N. Morgan.

LONDON SCHOOL OF TROPICAL MEDICINE.

The following were successful at the examination held at the end of the twenty-first session:

*Captain L. P. Stephen, I.M.S., *L. A. Prins (Colonial Service), *Captain A. W. Cook Young, I.M.S., *Major E. Wilkinson, I.M.S., W. S. Allan, R. T. Booth, I. McW. Bourke (Colonial Service), John Cross (Colonial Service), B. M. Flood (Colonial Service), E. N. Graham, E. M. Nicholl, J. Ottley (Staff-Surgeon R.N. retired), E. C. Peake, E. Robledo, Miss L. G. Thacker, Captain L. L. G. Thorpe, R.A.M.C., A. B. Tighe, W. M. Wade, Miss K. Wyss.

* With distinction.

HOSPITAL AND DISPENSARY MANAGEMENT.

CITY OF LONDON ASYLUM.

From the annual report for the year 1905 of Dr. R. H. Steen, appointed to the Medical Superintendentship of the City of London Asylum, Stone, near Dartford, in January, 1905, we note that the resident inmates numbered 565 on January 1st, 1905, and that there remained 552 on the last day of the year. There was thus a fall in the numbers of 13, but we note that the average number daily resident was 568, the highest number recorded in the history of this institution. Of the 552 remaining at the end of the year 515 were English and the remainder were—Germans 15, French 5, Americans 4, Russian 3, and natives of other countries. About 46 per cent. of the total inmates were private patients, both at the beginning and at the end of the year. During the year 146 cases were admitted, a considerably lower number than in any of the preceding six years. There were 28 transfers from other institutions, and, including these, recovery appeared probable in 34, possible in 30, improbable in 41, and impossible in 41. Thus only 23 per cent. of the admissions could be classed as favourable, and no less than 28 per cent. were hopeless. The bodily condition was poor in the greater number and in 27 feeble. In 79 cases the attack was a first attack, in 68 within three months, and in 11 more within twelve months of admission. All the remainder were "not-first" attacks or congenital cases, or of unknown duration. As to the form of mental disorder on admission 71 were classed as cases of mania, 48 as cases of melancholia, 6 of dementia, 10 of general paralysis, 7 of acquired epilepsy, and 4 of congenital or infantile defect. Dr. Steen notes the difficulty in obtaining reliable information as to the probable causation of the mental malady, but states that in those cases from whom a trustworthy history could be elicited, hereditary predisposition was ascertained in 40.22 per cent. Of these the insane heredity was direct in 7, collateral in 26, and remote in 2. Amongst other probable causes noted are: Alcohol in 19, or 13 per cent., venereal disease in 3, previous attacks in 32, puberty, old age, and the climacteric in 13, bodily diseases and disorders in 16, "moral" causes in 27, and in 40 no cause could be assigned. During the year only 24 were discharged as recovered, giving the unusually low recovery-rate on admissions for this institution of 20.51 per cent. There were also discharged as relieved 69, 16 as not improved, 1 as not insane, and there were 49 deaths. These deaths, giving a death-rate on the average numbers resident of 8.62 per cent., were due in 22 cases to cerebro-spinal diseases, including 12 from general paralysis; in 14 cases to chest diseases, including 3 cases of phthisis pulmonalis; in 8 cases to abdominal diseases, in 4 to general diseases, and in 1 case to exhaustion from burns. There were only 4 deaths in all from tuberculous disease, or in the small proportion of 8 per cent. of all deaths. The general health of the patients was satisfactory during the year. There were 8 cases of dysentery, of whom 1 died, and there were 2 cases of typhoid fever, but no other cases of zymotic disease. There

were only 3 major casualties, 1 of these being the case of a male patient who swallowed a fork at dinner. The patient was operated upon on the following day and the fork removed, the patient making a satisfactory recovery.

WILTS COUNTY ASYLUM

On January 1st, 1905, there were 977 patients in this asylum, and at the end of the year there remained 988. The average number resident during the year was 981.9, as compared with 986.7 for the previous year. This satisfactory decline in the numbers becomes even more favourable when the admissions are considered. The medical superintendent, Dr. J. Ireland Bowes, shows that there has been a steady diminution in the admissions from 1900, when they numbered 189, to 141 for the year 1905, the lowest number recorded for eleven years. This decrease is the more satisfactory in that it is not due to the insane in the county being detained elsewhere, for a tabular statement given by Dr. Bowes shows that on January 1st, 1900, there were only 6 county patients in other asylums, and on January 1st, 1906, only 3. Notwithstanding this decrease in occurring insanity, the accumulation of patients had gone on steadily here as in nearly all other parts of the country, and the patients, on the male side, were in excess of provided accommodation throughout the year, at one time to the extent of 21 patients. Further provision, however, is being made for 50 male patients.

Of the 141 cases admitted during the year, 125 were first admissions. In 68 cases the attack was a first attack within three, and in 10 more within twelve, months of admission, in 31 cases the attack was a "not first" attack within twelve months of admission, and the remainder were either cases of more than twelve months' duration on admission (25) or of unknown duration (7).

The admissions were classified as to the forms of mental disorder into: mania of all kinds, 56; melancholia of all kinds, 46; dementia, 8; general paralysis, 9; acquired epilepsy, 9; and congenital or infantile defect, 13. Although mania was the predominant form of insanity, it apparently assumes, Dr. Bowes says, less of the maniacal and more of the delusional type than formerly, and is in consequence less promising as to curability. As to the probable causes of the insanities in these cases, alcoholic intemperance was assigned in 21, or 15·6 per cent; venereal disease in 1, previous attacks in 31; puberty, change of life, and old age 13; "moral" causes in 34, and hereditary influences were ascertained in 46, or 32.6 per cent. In 14 more ascertained congenital defect appears in this table. During the year 54 were discharged as recovered, giving a recovery-rate on the admissions of 38.3 per cent., 9 as relieved, 1 as not improved, and 66 died. The deaths, which gave a percentage death-rate on the average numbers resident of 6.7, were due in 17 cases to cerebro-spinal diseases, 11 of which were cases of general paralysis; in 20 to chest diseases, including 5 cases of pulmonary consumption; in 8 cases to abdominal disease, including 1 case of dysentery and 1 of tuberculous disease of the intestine, and the remaining 21 to general and other diseases. No deaths were due to accident. Only 6 cases, or 9 per cent., of the total deaths were due to tuberculous disease. *Post-mortem* examinations were made in 53 cases, or 80.3 per cent, of the deaths; and we note that Dr. Bowes maintains that compulsory power should be granted to hold a *post-mortem* examination in every case dying in an asylum. Dr. Bowes gives in a useful table a summary of results obtained in these 53 autopsies—a practice which might be universally followed with advantage—from which we excerpt the following: Arterial degeneration was marked in 34, chronic renal degeneration in 28, active tuberculosis of lung in 7, signs of old non-active tubercle in 10, and cardiac degeneration in 29. During the year 5 patients sustained fractures and 1 dislocation, but no other serious casualty. The general health was unusually good throughout the year, no epidemic disease occurring except dysentery, of which there were 5 cases, as against 21 in the previous year.

ITALIAN MEDICAL CONGRESS.—The sixteenth meeting of the Italian Congress of Internal Medicine will be held in Rome in October. The subjects proposed for discussion are: (1) Arterio-sclerosis, to be introduced by Professors Riva of Palermo, and Devoto of Pavia; (2) fevers resembling typhoid and Malta fever, to be introduced by Professors Gabbi of Messina, and Lucatello of Padua; (3) arthritism, to be introduced by Professor Castellino of Naples. A report on the progress in diagnosis will be presented by Professor Ferrannini of Naples, and one on advances in therapeutics by Professor Michelazzi of Pisa.

FRENCH SURGICAL ASSOCIATION.—The nineteenth Congress of the French Surgical Association will open in Paris on October 1st under the presidency of Professor Monprofit of Angers. The questions proposed for discussion are: (1) The surgery of the great venous trunks, to be opened by MM. Lejars and Morestin, of Paris; (2) ectopia of the testicle and its complications, to be opened by MM. Souligoux, of Paris, and Villard, of Lyons; (3) routes and means of access to the thorax from the operative point of view, to be opened by MM. Willems, of Ghent, and Loison, of the Val-de-Grâce Hospital, Paris.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

CELT asks what textbooks are suitable for reading for the F.R.C.S.Ire., grade ii.

DR. W. LANGWORTHY BAKER (Lyndhurst, Warwick Gardens, Worthing) desires to hear of any institutions which would take an elderly male patient suffering from chronic nervous disease (incurable) who could only pay from 5s. to 10s. weekly, but would be of some use in writing and book-keeping.

INCOME TAX.

FANT writes: A. and B. are practising in the same town. A.'s practice is worth £900 a year, B.'s is worth £100 a year. They enter into partnership and, at the end of two years, A. retires. Meantime A. receives three-fourths and B. one-fourth of the profits. What per cent. is payable to the Inland Revenue authorities and how much should each partner pay?

*** We assume that our correspondent's question is intended to apply to the period during which A. is in receipt of three-fourths and B. of one-fourth of the profits, also that B. has no income (whether taxed or untaxed) beyond what he derives from the practice. If these assumptions are correct the liability will be: Assessment, £1,000; tax at 1s. in £, £50; less abatement to B. of tax on £160, £8; net, £42. The respective shares of the partners will be: A., £37 10s. (tax on £750); B., £4 10s. (tax on £250, less £160 abatement £90 net.)

ANSWERS.

RETIRED is recommended to consult a physician.

REFUGE.—As the lady is still insane and at times requires much care, it is only necessary for us to mention some of the metropolitan licensed houses, such as Camberwell House, Northumberland House, etc., where a certain number of private patients are received at a weekly charge of one guinea. If the patient has inhabited a London parish for a certain time she can be received as a paying patient for about 16s. a week into one of the London County Council Asylums. Application should be made to the offices of the London County Council, Waterloo Place, where all particulars will be furnished. It is only in institutions of the above-named class that patients can be received on the terms indicated. "Homes" or offers of private treatment for low prices should be carefully scrutinized, inasmuch as it is scarcely possible to treat small numbers at very low rates. Private patients within the London area can be received by the Manor Asylum, Epsom, for about 26s. a week. Apply in this case also to the London County Council offices as above given.

COPPER ALGINATE.

LIEUTENANT-COLONEL JOHN RECKITT, R.A.M.C.—Dr. Albert Gresswell states, in reply to an inquiry, that the copper alginate mentioned in the BRITISH MEDICAL JOURNAL of June 23rd, page 1464, was supplied to him by Messrs. G. Curling, Wyman and Co., 58 and 59, Bunhill Row, London, E.C. He believes that iron alginate was originally made by Messrs. Evans, Lescher and Webb, 60, Bartholomew Close, London, E.C.

MOTOR CARS.

"MUCH WORRIED."—General experience would seem to be altogether against the use of solid tyres on a 6-h.p. car: even on cars specially built with frames and springs designed for solid tyres they are often exchanged for pneumatic tyres after a few months' trial. We should advise the heaviest pneumatic tyres that the rims will take, preferably those with square treads.

COUNTY COUNCILS AND CONSUMPTIVE SANATORIUMS.

A. R.—So far as we can ascertain very few councils of counties or county boroughs have *provided* sanatoriums for the treatment of pulmonary consumption. Bradford and Liverpool have done so, and in Ireland Belfast, Clonmel and Cork have provided sanatoriums, or are about to do so. Several county councils and county borough councils have subsidized sanatoriums to a greater or less extent, or have taken beds in sanatoriums established by the local branches of the National Association for the Prevention of Consumption, or by private subscription. Brighton utilizes unoccupied beds in the isolation hospital for consumptives.

AN ANTISEPTIC FOR THE HANDS.

L. F. H. writes: I should advise "Dunelm" to try lysol, a 1 per cent. solution of which is efficient, and does not injure the

skin. I use a liquid antiseptic soap, containing: ℞, soft soap, 2 oz ; lysol, 1 drachm ; oil of gaultheria, q.s. ; methylated spirit, 6 oz. ; water to 10 oz. The following, which resembles "glycola," is a very useful application for roughness of the hands: ℞, pulv. tragacanth., ½ drachm ; sp. vini rect., 1 drachm ; glycerine, 6 drachms ; rose water, 1½ oz. Mix the spirit and tragacanth in a mortar ; then add all at once the glycerine and water, previously mixed, and stir until uniform.

Stock Exchange Gambling.

A CORRESPONDENT invites us to warn members of the profession to be very cautious in their dealings with firms or companies which offer to do speculative business in stocks or shares on the so-called "cover system." It can hardly be necessary to give such warning to any man of ordinary prudence. The transaction is really a gamble. The following is a copy of a notice issued from time to time by the London Stock Exchange:

NOTICE.

NO MEMBER of the STOCK EXCHANGE is ALLOWED to ADVERTISE for business purposes or to issue circulars to persons other than his own principals.

Persons who advertise as brokers or Share dealers are not members of the Stock Exchange or under the control of the Committee.

A List of Members of the Stock Exchange who are Stock and Share brokers may be seen at the Bartholomew-lane entrance to the Bank of England, or obtained on application to

EDWARD SATTERTHWAITE,
Secretary to the Committee of the Stock Exchange.
Committee Room, The Stock Exchange, London, E.C.

Antityphoid Inoculation.

MAJOR F. J. W. PORTER, D.S.O., R.A.M.C. (Colchester), writes, in reply to "L. M.": Recent statistics tend to show the value of these. The 17th Lancers went to India last trooping season 600 strong: 400 refused inoculation ; 200 accepted inoculation. The regiment contracted enteric on their way up country, and shortly after they arrived at Meerut 62 cases went into hospital. Out of these only two had been inoculated, and *neither of these had received the second dose.*

I have inoculated numbers of the Leicestershire and Dorset regiments recently, and they go to India in a few weeks. A young medical officer is being attached to each regiment for three years, for the purpose of watching and reporting on the effects of these inoculations. Elaborate precautions are being taken to ensure that proper records are kept, and that the inoculations are entered on each man's medical history sheet. It was the want of this which was responsible largely for the unbelief in the efficacy of the injections given to men who went to South Africa. In the majority of cases of the disease the man's word had to be taken as to whether he had been inoculated or not. Some men undoubtedly mixed up vaccination with inoculation.

I have inoculated several ladies who are proceeding to India with these regiments.

The preventive treatment will without doubt be placed on a thoroughly sound basis within the next two years, and if it proves as effectual as many of us believe it to be, it is to be hoped that recruits will be called upon to sign to the effect that they will be inoculated when called upon—as is done in the case of vaccination.

NOTES, LETTERS, Etc.

Kissing the Book.

H. G. K. writes: A simple and efficient remedy for the insanitary practice of kissing the Book is to be found in providing a fresh Book for each witness. A New Testament in a paper cover could be produced for a very small sum, probably less than 1d., and could be destroyed after use. The provision of a movable paper cover, which could be changed for each person, would be more economical, but perhaps lawyers would not consider that such a cover constituted a part of the Book. I often wonder that sanitary reformers never call attention to what, in my opinion, is a much more dangerous practice than kissing the Book, that is the common use of drinking utensils, spoons, forks, etc., that have actually been in the mouths of others, and have received but a very imperfect cleansing after use. It is no uncommon thing to find traces of the last user's food between the prongs of a fork, but few people, happily for their peace of mind, ever look to see.

*** With regard to kissing the Book, the Oaths Act, permitting the oath to be taken in English courts in the manner followed in Scottish courts, is surely the most complete and satisfactory solution of the matter.

Motor Cycles and Motor Cars.

DR. H. A. C. DAVIDSON (Coupar Angus, N.B.) writes: On reading Dr. Gubb's letter in the BRITISH MEDICAL JOURNAL of July 21st, page 179, any fellow practitioner contemplating an investment in a motor cycle for professional work would think twice before doing so. After four years' trial of motor cycling in a Perthshire country practice in all weathers, fair and foul, in rain and mud, frost and snow, and by night as well as by day, I have found the motor cycle most useful and reliable.

I have had no experience of the roads in the neighbourhood of Algiers ; but Dr. Gubb's "death-trap" statement, when applied to Scotch roads, in my opinion is most misleading. As to the tendency for the back wheel to skid on greasy roads, if the cycle is carefully ridden, in my experience it is *nil*. By careful riding in such conditions one can do, without any personal risk, from 10 to 12 miles an hour, always remembering to slow well down at corners or for any specially bad piece of road.

I cannot agree that "riding in the dark is dangerous in the extreme." With a good head-light, which can be purchased for 10s. or so, one can ride with perfect safety at a speed of from 8 to 10 miles per hour. I have practically done my entire nightwork for the past three years on the motor cycle and without a misbap.

The dog trouble in this district is now almost a thing of the past. Dogs, like horses, have become so used to motor cycles and motors generally that they seldom ever look at them.

Lastly, if "the motor cycle resembles pitch in that it cannot be touched, indeed hardly approached without defilement," it is the owner's own fault through injudicious lubrication. If lubrication be properly attended to, it is quite unnecessary for one to have a single spot of grease on one's clothing after a season's riding. As to economy, I have ridden a 3½-h.p. Rex motor cycle for the past two and a half years at the following expenditure: Distance covered, 7,540 miles ; petrol consumed, 64 gallons ; petrol account, £3 18s. ; accumulator charging, £1 1s. ; lubricating oil, 10s. ; repairs (including tyres), £2 11s. This works out to a fraction over ¼d. (one farthing) per mile.

Before purchasing my first motor cycle I kept two horses, but since then with one horse (occasionally two in winter) I have been able to overtake more work and spend much less time on the road. I have now dispensed with horses altogether, and with a little Rexette car and Rex cycle feel always prepared for a heavy daily mileage at a minimum of expenditure.

To young men beginning country practice, and who have to study economy—as, unfortunately, most of us have—my advice is not to buy a horse and trap and engage a groom, but invest in a good motor cycle. This will take you round your district at the rate of 20 miles per hour, at the cost of one farthing per mile, instead of 7 to 8 miles per hour at 6d. a mile, a fair average for a horse and trap. There is nothing that pleases a patient better than prompt attention to an urgent country call, and for this the ever-ready motor cycle will be difficult to beat. If in winter the weather is stormy, and you do not care to ride over bad roads, any posting establishment would only be too pleased to come to your assistance at a very moderate rate.

Tonsillar Chancre.

DR. C. W. BRANCH (St. Vincent, B.W.I.) writes: In the BRITISH MEDICAL JOURNAL of June 16th Dr. W. R. Grove records an interesting series of non-venereal infections of syphilis. He is followed in the JOURNAL of June 23rd by Dr. J. Brown with a similar series. Such observations as these have a great practical importance, for they draw the attention of the profession to the reality of non-venereal syphilis, and help us to get out of the harmful and unjust error of regarding syphilis as a venereal disease and a disgraceful thing to suffer from. Apart from framboesial syphilis, I see a great deal of extragenital syphilis, and in my experience, among barefoot blacks, the feet and ankles are the most common sites for infection, which usually with us takes place in childhood. Dr. Grove speaks of the tonsil as an unusual situation for primary syphilis. I beg to draw his attention to an article on chancre of the tonsils by Dr. W. Cheatham in the *Medical Brief* for June, 1906, p. 404. This writer quotes from Bulkley's *Syphilis of the Innocent*, where 571 such cases are collected putting chancre of the tonsil fourth in order of frequency of extragenital sites. He also quotes Kyle, *Diseases of the Throat*, p. 464, to the effect that, "next to the genitalia, the tonsillar and pharyngeal sites are, perhaps, the most frequent seats of the primary lesion." Dr. Cheatham reports that he had seen 12 cases of tonsillar chancre in eighteen months.

The National Health and Tobacco Smoking.

DR. H. H. TIDSWELL (Torquay) writes: Last November I read a paper on the evil effects of tobacco smoking before the South-Western Branch of the British Medical Association at Exmouth. The meeting was well attended—perhaps fifty were present—and probably more than half were smokers. Of course my views met with some disapproval, but no attempt was made to controvert my statements, nor did any member advocate smoking as beneficial to the mind or body. I am frequently told by young men that doctors advocate smoking. I believe this statement has very little truth in it, but such a belief may do infinite harm in an age when the youth eagerly seeks an excuse for indulging in a narcotic. Unfortunately, and to our shame, the profession is not free from blame. It is no use for medical men to condemn the use of tobacco unless they abstain from it. So long as the public trusts the medical profession to speak the truth and

the whole truth on every subject that concerns health, a very great responsibility rests upon our shoulders. Statesmen and all people of intelligence are becoming alarmed at the increase of juvenile smoking, and medical men have condemned it. Are the boys to blame for doing what their parents do? Is it not natural for a boy to imitate his father? Does not a boy naturally look to his father to be wise and prudent and experienced in all things? He sees his father sets value on tobacco, and he learns to regard it as in some way beneficial and essential to his father's happiness. Perhaps the majority of smokers are truly ignorant of the nature of tobacco and its evil effects. If so, they should be taught better. Who is responsible for the ignorance of a large section of the public on this question? The responsibility rests upon the individual members of the medical profession and on all corporate associations that profess to teach the laws of hygiene. The habitual use of narcotics, such as nicotine, is condemned by religion and science. What will the British Medical Association do?

IMPRESSION OR COINCIDENCE.

MR. S. N. GORE, L.M. and S. (Bom. Univ.), Assistant Chemical Examiner and Bacteriologist to Government U.P. (Agra, India), writes: To Dr. T. D. Manning's supernumerary thumb and Dr. C. A. Ensor's spina bifida cases under the heading of "Impression or Coincidence" (BRITISH MEDICAL JOURNAL, vol. i, 1906, pp. 978 and 1200), the following similar happening which occurred in my practice may be added: I was called to see a lady who brought to my notice the peculiarity in her baby's eyes, the iris of one of which was blue, while the other was brown. On inquiring about the family history, I was told that she did not know of any such case, but she well remembered that when pregnant a lady friend of hers had shown her a cat having a blue and a brown eye, by way of curiosity.

MEDICAL ARRANGEMENTS ON PASSENGER SHIPS.

SHIP-SURGEON writes: The subject introduced by Mr. Bayly in the BRITISH MEDICAL JOURNAL of July 21st, p. 172, is worth more than a passing notice. The owners keep the number of the crew down to the limit required to work the ship. It is therefore necessary that each man should be always efficient, and that every slight ailment should be attended to. When I looked at the fine healthy men nearing home, and compared them with the rather scraggy lot who left the Thames three months before, I felt proud of them, and felt I had earned my wages on that head alone. It is therefore worth the owners' while to pay a man well, or at any rate better than they now usually do. As regards passengers, a small fee should be named, or else (I think a better way) a percentage of 2½ on the passage money as an inclusive fee, and this should go to the doctor. My experience was that passengers were reluctant to consult me except in severe illness. They preferred the stewardess, whose sensible remedy was cascara tabloids, and who was in the habit of consulting me in any difficulty. I think some women who got little benefit from the voyage required a little medical assistance of the right sort: gin and soda brought to their rooms in the early morning is hardly appropriate treatment for any case. No doubt if they had paid a little extra for the doctor, they would have had it out of him, and they would have been brighter and perhaps cheerful. As to engaging a doctor who has given way to drink, there is something to be said even for him. If it is the result partly of a nervous breakdown, I am inclined to think that the calm influences of the sea voyage may restore his mental equilibrium. Of course, on a teetotal ship, with a kind and thoughtful captain, I have known a drunken fellow do well, who on a subsequent occasion, without such supervision, made a sad mess of it.

CLAUSTROPHOBIA.

R. W. S. writes: The following statement of facts, relating to the experience of one who has suffered from the above complaint, may be of interest to the medical profession, the attention of the general reading public having been so recently drawn to it, by what is known as "the Crick Tunnel Mystery." The phenomenon of claustrophobia presented itself to me for the first time in the month of May, 1893. I was then travelling home from the South of England, and, when alone in a compartment, a sudden sense of danger, unless I got out of the train, seized me. I put the fear away time after time, but it became one of almost terror. This feeling was so intense that when I arrived at my destination, I was very much upset. However, I went again in that year, fairly long journeys, by train, but never again in an empty compartment. The phenomenon, however, became, ultimately, so painful to my nerves that I abandoned train travelling, except once or twice, and then for very short distances. In the month of August, 1895, being desirous of going about forty miles by train, my medical adviser (who was interested in my case) arranged to go with me. He did so, the compartment being fairly full of people. I could only proceed three miles, when, as I suffered too much, I got out at the first station and returned home much disappointed. In the month of December, 1899, I had a general break-down in my health, my lungs being threatened. On the advice of my doctor and a physician I arranged to go to Egypt without any delay. I accordingly started, accompanied by the doctor. It was with much difficulty that I was induced to enter a special saloon carriage to get from Birmingham to London; so great was my terror, in fact, the train had to go without me, and it was not until I had taken an effective stimulant that I was induced by the doctor to enter the train later on in the day. We went by sea from London to Plymouth, thence to Gibraltar and Marseilles, intending to proceed to Alexandria, but the phenomenon of claustrophobia was so aggravated while on the ship, that, rather than endure another hour of it, I returned home, preferring to take the risk of my lungs going wrong than suffer as I had with the nerve trouble. I travelled back by train from Marseilles to Calais, and Dover to London. I had had seven days of it, and the memory thereof will never be effaced. In the beginning of the year 1902 my health being bad, I was advised that the best method of recovering it, and to cure claustrophobia, was to take a complete rest. I did so, and sold my practice as a solicitor. In the January of 1903, when seeing a friend off by train, I was asked to go with him into the train. I had an inclination to do so, jumped into the train, and travelled with it to the next station. On alighting, I suffered considerable pain at the back of my neck. I repeated the train journey the next week, and have kept it up ever since. At first I thought it wise not to go often; my doctor, on the contrary, urged me to travel incessantly: he was right. Since 1903 I have ridden more than 400 times, and, with a friend, have been three times to London and back, and taken every form of railway travelling in London, including the "Tube." On two of these three occasions I went there and back, being about 224 miles both ways, in a day. To encourage me, my doctor allowed me often to go short journeys with him, and I cannot be sufficiently grateful to him for his tact, encouragement, and kindness. The concrete fact that I have conquered it has effected a most marked and material improvement in my general health. I suffered relapses occasionally, but quickly pulled myself together again. In the year 1903, when commencing to conquer this complaint, I found that opening the carriage window produced relief: now it may be open, or closed. Possibly this feeling of desiring the window to be open is allied to the desire for air in hysteria. I found for two years from 1902 to 1904 that cold weather was prejudicial to me, but not so now. I may remark that in 1893, when in Scotland in a train, this wretched phenomenon of claustrophobia recurred about every thirty seconds. Now, Sir, may I venture to state that I cannot possibly emphasize the importance to any sufferer of the fact that he or she should go by train *voluntarily*, for the sense of confinement as a prisoner is then dispelled; also, never to *fight* the complaint, but to absolutely *ignore* it, and do not ever allow the nerve impression to remain and be carried to the nerve centres, but occupy the mind with reading or talking. I have had stated to me the theory, by a doctor, that the complaint is due to a defective respiratory circulation. I venture, with the greatest respect, to doubt it. Claustrophobia, I believe, from my own experience, to be due to fear, and that when you cure fear you also cure this complaint. Whether fear is a form of nerve degeneration I do not know, but, undoubtedly, the only rational method of treatment is that which effects the repair of the whole constitution of the body. I may state that, in a tunnel, I was considerably relieved; the reason, I think, was that the apparent danger was absent. Speed always increased the fear. I state that an absolute trust that the Almighty protected me was, beyond all other assistance, the most helpful. I am very sorry that I have encroached on your valuable space, but the comparative rarity of the complaint, and consequent necessity for all information thereon, must be my excuse.

SIMILIA SIMILIBUS.

THE *South African Medical Record* says a white prisoner at Tokai, one of the Cape Convict establishments, was recently very irate because he heard the medical officer order him a black draught. He protested that he was a white man, and not a blanketty blank nigger, and ought to have a white mixture. Evidently he was a believer in the doctrine of *similia similibus*.

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An Address
ON
PULMONARY OEDEMA.

Delivered before the Bexhill Medical Society.

By FRANK J. WETHERED, M.D., F.R.C.P.,
physician, hospital for consumption and diseases of the chest, brompton; assistant physician, middlesex hospital.

After some introductory remarks, Dr. Wethered proceeded:

Pulmonary oedema is a subject which receives but scant notice in the textbooks and other volumes dealing with general medicine which crowd the bookshelves of our libraries and consulting rooms at the present day. It is, however, a condition constantly met with in clinical work, and, owing to the fact that under certain circumstances it may prove most serious in itself, and at other times resemble other grave maladies, the question of diagnosis is often a source of considerable anxiety and concern to the medical attendant.

I need scarcely remind you that oedema of the lungs is not a primary disease, but is secondary to some pre-existing malady. Pulmonary oedema is, as you know, very commonly seen in the *post-mortem* room. It does not necessarily follow that it occurred during life, as it may have developed during the lethal agony. You may, perhaps, remember Cohnheim's remark: The patients do not die because of the oedema, but the oedema develops because the patient is dying.

For clinical purposes pulmonary oedema may be divided into three classes—acute, subacute, and chronic (or a better term would be "persistent").

Acute Pulmonary Oedema.

I do not intend to consider at length the pathology or mechanism of this condition, but would merely remark that acute oedema of the lungs may be an outcome of most of the more severe forms of both acute and passive congestion of the lungs, those being also secondary processes. Authorities differ as to the exact manner of its production; many, however, favouring the view that owing to obstruction of the pulmonary circulation due to cardiac failure or other causes, there is some interference with the proper circulation through the lymph channels, and exudation accordingly ensues.

Acute oedema of the lungs is especially prominent in death by asphyxia brought about by pneumonia and acute bronchitis. In croupous pneumonia we know that when only one pulmonary lobe is attacked, the prognosis in a large measure depends upon the condition of those parts of the lungs not affected by the pneumonic process. If the opposite lung becomes greatly congested, acute oedema may develop, and the case then becomes most grave. In my experience this complication is more likely to occur in elderly patients than in younger subjects, and also in those patients exhausted by previous disease. I think also it is more frequent in pneumonia complicating influenza than when the pneumonic fever is primary. In alcoholic subjects also oedema is likely to develop, whilst the degree of toxaemia also probably has an effect in inducing this condition.

As a rule, oedema affecting the lungs follows the laws of gravitation, and the physical signs are generally to be sought for over the bases of the lungs, at any rate in the early stages of the process, but in acute bronchitis the oedema, when it occurs, not infrequently has a peculiar localization. It tends to take place more especially in the middle and upper parts of the lungs, consequently on listening over those areas the characteristic sharp, crackling râles are heard.

The occurrence of acute oedema of the lungs is facilitated by a hydraemic condition of the blood, and it is therefore not infrequently the cause of death in inflammation of the kidney, especially in acute nephritis. It is especially liable to occur if cardiac disease coexists with the renal condition. An attack may then supervene even after the disappearance of other dropsies. Pulmonary oedema may also be the final stage in some of the disorders of the blood, such as pernicious anaemia, and is very occasionally seen also in cases of scurvy. The occurrence of acute pulmonary oedema in connexion with the diseases I have mentioned has received general acceptance, and we should always be on the look-out for its possible development in patients suffering from those affections, but there are other considerations under which it may occur producing rapidly fatal results, and some of these I now propose to consider. The first I will mention is cardiac disease. Subacute and chronic pulmonary oedema is of common occurrence in cases in which the circulation is carried on under difficulties. Acute oedema, however, is, I believe, rare. A few years back I was asked to see a gentleman aged 73, who had always lived in easy circumstances. His only complaint was indigestion. He was greatly troubled with flatulence after meals, and constipation was a source of constant annoyance to him. These symptoms had persisted for many years. He was able to walk a considerable distance at a moderate pace, but if he hurried he experienced slight dyspnoea. There was no history of pain across the chest after exertion. I was surprised to find his pulse-rate 140 per minute, but there was no irregularity of the beats. The arteries were in a fairly good condition considering his age, and the tension was slightly increased. On examining his heart I found it slightly dilated, the sounds being clear. There was no albumen in the urine. I saw him at intervals for some months and the dyspeptic symptoms became less marked. One day I was called to see him as he thought he had taken cold. I found him complaining of cough and shortness of breath. A few rhonchi were heard over both lungs, anteriorly and posteriorly. The heart was beating very rapidly (160 per minute) but the rhythm was perfectly regular. On the next day numerous râles were heard over both lungs, and there was impairment of resonance over both bases. The pulse-rate was again 160, and the second sound of the heart could scarcely be heard. Dyspnoea was extreme, and he was expectorating a large amount of thin watery fluid. Death occurred two days subsequently in spite of all the means that were tried to relieve the condition. This was a typical case of acute pulmonary oedema occurring in conjunction with a weakened heart, and indicates the possibility of its occurrence in a patient who had not previously exhibited the usual symptoms of cardiac failure.

It is well known that rapid unforeseen death may take place after the performance of paracentesis thoracis. Acute oedema of the lungs is supposed by some authors to be the cause of death in some of these cases. Personally I have never met with a case which ended in this way. I shall have to refer later to persistent oedema of the lungs after tapping the chest, but when acute oedema does occur under these circumstances it is stated to be one-sided only (the side that was operated on) and has been attributed to the rapid expansion of the lung which has been compressed for some time. It is possible that the blood vessels become suddenly distended with blood, and exudation results. Most authors state that oedema thus developed is attended with much less grave results than would have been expected considering the very copious expectoration of clear fluid which occurs.

Another cause of acute pulmonary oedema is sudden mechanical obstruction to the blood vessels of the lung. This accident is most likely to happen in the form of thrombosis of the main pulmonary viens, or in embolism or thrombosis occurring in many vessels of the lung, generally in gouty subjects.

Other conditions which may be the cause of acute pulmonary oedema are certain of the specific fevers accompanied with hyperpyrexia. Perhaps the oedema occasionally occurring in the course of diphtheria may come under this head, also that which is met with as a rare complication of whooping-cough. Such oedema has been ascribed to a toxaemia, and I should think that this is very probably a correct explanation. Certain poisons may cause death by pulmonary oedema, mainly by producing rapid cardiac failure.

There is one other condition under which acute pulmonary oedema may be produced, and that is after the administration of an anaesthetic. It most frequently occurs after ether has been employed. I recollect one case which greatly impressed me. It was that of a gentleman, aged 54, who sought advice on account of profound anaemia. Subsequently an obscure swelling was found in the right flank, and an operation was performed in order to ascertain the nature of the tumour, and

whether it might be possible to remove it. It turned out to be malignant disease of the colon, the removal of which could not be undertaken. Twenty-four hours after the operation the patient complained of severe dyspnoea and distressing cough. On examination there was found impairment of resonance over the base of the right lung, and subsequently over the left, with bronchial breathing and numerous high-pitched râles. The expectoration was copious and blood-stained. The condition was ascribed to "ether-pneumonia." Death occurred on the fourth day, and at the autopsy the lungs were found in a highly oedematous condition, but there was no pneumonic consolidation. Possibly the anaemic condition in this case predisposed to the occurrence of oedema.

The symptoms of acute pulmonary oedema may be judged from the cases I have mentioned above, dyspnoea and straining cough being the most constant. These symptoms, however, may be caused by the primary conditions, and are not necessarily due to oedema, but a rather sudden increase of the dyspnoea, with increasing cyanosis developing in the course of the diseases I have mentioned as being more or less frequently complicated by acute pulmonary oedema, should give rise to a suspicion of the onset of this serious condition. The only certain diagnostic phenomenon of acute pulmonary oedema is a copious, thin, watery expectoration, sometimes, when the secretion is very abundant, tinged or streaked with blood. This symptom, however, is not a constant one, since the patient may die before expectoration occurs. Extreme exhaustion may be produced by the primary malady, and consequently the patient has not strength enough to cough up the fluid, and hence death occurs by suffocation.

A state of orthopnoea generally exists, and the respiratory movements are mainly thoracic, the thorax moving as a whole, the lower portion receding with inspiration. On percussion the note will probably be found to be hyperresonant in front, but posteriorly over the bases it will be more or less impaired. On auscultation a few râles may be heard over the front of the chest, but posteriorly, extending from the base downwards, the breath sounds are feeble, or perhaps annulled, and fine bubbling râles are heard mainly with inspiration. The râles are similar to those heard along the anterior margins of the lungs in emphysema, or the sounds that are heard over the pulmonary bases when patients who are not accustomed to breathe properly are directed to take a deep inspiration. When the chest first expands under these circumstances a peculiar fine creaking is heard, which disappears after the first two or three inspirations. The râles produced by oedema also somewhat resemble the crepitations heard in cases of pneumonia, hence confusion in diagnosis may arise. For instance, in cases of pneumonia where the base of one lung is involved, the development of oedema in the opposite lung may afford a suspicion that the pneumonic process has spread to the other lung.

From these remarks it will be seen that not infrequently the diagnosis of acute pulmonary oedema is one of surmise only, but the subsequent course of events will prove the true state of affairs.

I need only say a few words in reference to the morbid anatomy of acute pulmonary oedema. The lungs are large and heavy: they are indented by the ribs and pit on pressure. On section, an abundant frothy fluid exudes, which is sometimes blood-stained. All these characters are usually most marked at the bases and may only be apparent there unless otherwise locally determined, as I mentioned when speaking of the oedema accompanying acute bronchitis. One point must not be forgotten, and that is, that it is very usual to find the pleura on one or both sides containing a large amount of serum. Except at the extreme bases, the lungs are generally more or less crepitant and portions of the organs when placed in water float. An exception to this may occur when, owing to old-standing mischief, due probably to chronic cardiac disease, the lungs have become thoroughly permeated with fluid. On microscopic examination, some epithelial débris may be observed in the alveoli, otherwise the texture of the lungs is unaltered if oedema only is present.

With regard to prognosis, acute oedema of the lungs is always of grave significance. It is one of the later phenomena in nephritis, and in cases of failing heart, whether from valvular disease (particularly of the mitral valve) or from affections of the myocardium. The supervention of pulmonary oedema in acute bronchitis or in croupous pneumonia is of almost certain fatal augury.

The treatment of acute pulmonary oedema will naturally vary with the primary cause. The most valuable remedies consist in cardiac stimulants—strychnine, best administered hypodermically, commencing with $\frac{1}{15}$ gr., $\frac{1}{10}$ gr. or $\frac{1}{8}$ gr. being afterwards given according to the severity of the case; digitalis and strophanthus in appropriate doses, and I have often found that the two drugs may with advantage be given in combination. I have also obtained encouraging results by the hypodermic injection of these drugs together with strychnine. Brandy is also a useful ally. Squill may also be useful, both as a cardiac stimulant and an expectorant. I always employ oxygen gas, given at regulated intervals through a mouthpiece, direct from the cylinder without the intervention of a balloon, or the gas may be given continuously. It then serves not only to keep the blood aërated, but also aids in procuring sleep and the much-needed rest. Dry-cupping to the back of the chest may also be tried. With regard to venesection, great caution is necessary in its employment, and if the presence of oedema is certain I should hesitate to adopt this procedure unless as a last resource. Some observers, however, have recorded success in cases which appeared most desperate. There is no doubt that the prejudice against bleeding has been carried too far, and that this therapeutic measure is a most useful one in relieving a dilated right heart. I need scarcely say, however, that it should not be resorted to without full consideration of all the elements in each individual case.

SUBACUTE OEDEMA OF THE LUNGS.

This condition I believe to be more common than is generally supposed. It is often one-sided; in other cases both bases may be affected. With regard to the latter class I need say but little. Such a state of affairs is perfectly familiar to you as likely to occur in patients who are the subjects of emphysema, when any increase in the bronchial condition may speedily give rise to a certain amount of oedema which gradually subsides when cardiac tonics and stimulant expectorants are given. Patients suffering from myocardial degeneration, or insufficiently compensated mitral valve disease, especially mitral stenosis, are also liable to present similar phenomena, especially after unusual exertion to which the damaged heart has been unable to respond. Treatment consists in giving digitalis and strychnine. A course of "blue pill" will also be found efficacious. I wish, however, to refer more particularly to subacute oedema affecting one pulmonary base only, as errors in diagnosis may easily be made. The physical signs in such cases consist of small or medium-sized bubbling râles at one base (most frequently the left), which exist for a certain length of time and then disappear. There may or may not be some impairment of resonance over the same area, together with weakening of the breath sounds or prolongation of the expiratory sound.

One condition under which such a collection of signs is met with is in the later stages of an attack of influenza. After the acute symptoms have subsided a racking, paroxysmal cough develops, and on examining the chest one or more of the physical signs I have just mentioned will be found. The cough is often most distressing, and frequently proves very intractable to treatment. The patient suffering from the post influenza debility is still further shaken by the violence of the cough, and hence convalescence is considerably retarded. The friends are naturally apprehensive lest some more serious malady is threatened. The medical attendant, conscious that influenza may prepare the tissues of the lung to be a favourable pabulum for the tubercle bacillus, and thus afford the "second etiological factor" necessary for the development of pulmonary tuberculosis, also feels no little anxiety until the disappearance of the cough and full return to health on the part of the patient reveals what was the true nature of the cough. After making trial of numerous drugs to relieve the cough, I have obtained the most satisfactory results from the use of hydrochloride of heroin given in tabloid form in doses of $\frac{1}{12}$ gr., the tabloid to be sucked and not simply swallowed. Counter-irritation to the base of the lung also gives relief.

Some physicians would perhaps classify such cases as undeveloped influenzal pneumonia. The general con-

ditions, however, are, as a rule, scarcely severe enough, in my opinion, to warrant such a diagnosis.

Another class of case is met with which closely resembles those I have described as dependent upon influenza, and indeed the differential diagnosis may be disputed. I have seen this class of case most frequently in London, and generally in the months of August and September, and the outbreak appears to be epidemic in character. The illness commences with a sore throat, gradually increasing in severity. There is moderate pyrexia, the temperature rising to 101° or 102°. Laryngitis follows on the pharyngitis, and then cough becomes a prominent symptom. This is paroxysmal and tearing in character, often producing considerable though temporary pain in the head. When the sore throat has subsided the cough persists. There may subsequently be a daily rise of temperature to from 99.5° to 100° F. Expectoration is scanty at first, subsequently becoming more abundant and muco-purulent in character. General malaise is more or less marked. On examination, fine bubbling râles are heard over one pulmonary base, rarely over both bases. The cough often becomes very trying, being almost persistent, and disturbing sleep at night. The debility accompanying the attack is marked. Headache, except after cough, is not a prominent symptom, and aching of the limbs is not, as a rule, complained of. I believe the attack to be caused by some poison being inhaled into the system, and I think it is very probable that, as has been suggested, it is brought about by the dust which collects during the hot months of the year on the wooden pavements. Dry horse dung, and the dust from the house refuse as it is being emptied into the "sanitary dust-carts" and so profusely distributed, doubtless add to the malignant nature of the ordinary road scrapings. This mixture is scattered by the traffic, and if there is any wind must be freely inhaled by persons passing along the streets. It is, I believe, further intensified by the plan adopted in some parts of London of only watering the sides of the roads during the daytime, leaving the central portions dry. Whether this is from motives of economy in labour and water, or whether it is intended to help the horses by not rendering the roads greasy by means of the water, it is difficult to say. At any rate, I should urge that this etiology of the condition I have described is worthy of serious consideration.

The treatment of this affection is unsatisfactory, and I have frequently seen the symptoms persist for two months or longer, the general health of the patient thereby suffering considerably, and rendering the tissues, especially those of the lungs, vulnerable to bacterial attacks. Iodide of potassium, carbonate of ammonia, tincture of nux vomica, and syrup of tolu may be given in a mixture, and hydrochloride of heroin frequently relieves the cough. Change of air and rest from the ordinary duties of life will probably constitute the best prescription that can be ordered.

Under the heading of subacute oedema of the lung, I would place the oedema that occasionally occurs after the withdrawal of a pleuritic effusion, excluding those acute cases to which I have already referred. Usually the physical signs make their appearance at the posterior lower part of the thorax on the side on which the effusion took place. Impaired resonance, weak breath sounds and voice sounds and bubbling râles. In a certain number of these cases the oedematous condition is situated in the pleura and gradually disappears under the influence of fresh air, good food, and such drugs as preparations of strychnine and iron. Sometimes, however, there is another distribution of the oedema, as in a case brought before the Clinical Society of London by Dr. J. Calvert, in which for four months after paracentesis numerous râles were heard over the upper part of the affected side, and the patient expectorated large quantities of serous fluid. Dr. Calvert made the suggestion that the oedema was brought about by the existence of adhesions which, as the lung expanded, compressed the pulmonary veins coming from the upper lobe.

Another cause of subacute oedema of the lung to which I would draw attention is the existence of adhesions the result of previous pleurisy. When a patient with this condition acquires a chill (using the ordinary term without inquiring minutely into what is really implied by it), temporary oedema will often be found at the site of the adhesions, but whether the pleura or the lung is the site of the oedema it is difficult to say.

The diagnosis of such cases presents some difficulties. They may be confused with several other conditions, One which may be mentioned is what is usually termed "unresolved pneumonia." In a few cases of pneumonia, instead of the physical signs all disappearing in due course as the pneumonic process subsides, impaired resonance and râles remain for a certain length of time at the affected base. This is asserted by some physicians to be caused by imperfect resolution. I am inclined to believe that the râles are produced by oedema of the lung or pleura continuing after the acute condition has passed off. Here I may add that undoubtedly many cases of so-called unresolved pneumonia in children are really cases of empyema, the suppurative condition following on the pneumonic change and having the same microbic origin—the pneumococcus. Occasionally a similar course of events is observed in the adult.

After an attack of acute or subacute bronchitis the same physical signs may present themselves. The history of the case is, of course, of importance in interpreting these signs.

Other difficulties in diagnosis consist in distinguishing the above-mentioned conditions from those occurring in the class I am about to consider, namely:

Chronic or Persistent Oedema.

I would rather have entitled this part of my subject: "Râles heard at the base of one lung," for such is the only physical sign usually manifested, although occasionally the percussion note may be slightly impaired and the expiratory sound somewhat modified.

The causes of such râles are varied and may be a source of much perplexity. In old people with a feeble heart or emphysematous lungs, persistent as well as subacute pulmonary oedema is common; usually the râles are constant at the base of one lung, but are occasionally heard over both pulmonary bases. Sometimes, however, both bases are permanently affected in this manner. Such an event is especially liable to occur when the individual is the subject of chronic renal disease or of glycosuria. If either of these two conditions are present the prognosis must be a guarded one. Death due to the kidneys is the most common form of unforeseen sudden death. The fatal termination may then be brought about in various ways; but if the circulation is feeble, as demonstrated by persistent oedema of the base of one or both lungs, there may be serious danger ahead at any time. Diabetes is perhaps the disease of all others which runs the longest course without its subject being aware of it, whatever may be the quantity of sugar voided in twenty-four hours. If sugar is found in the urine, even in small quantities, and at whatever age, I always regard the life of the patient as a precarious one. Some of the subjects thus affected do certainly live to a good old age, but sudden death through the heart is common, and if râles are persistently heard over one of the pulmonary bases cardiac weakness is indicated, which naturally adds to the gravity of the prognosis. These patients are sitting, as it were, on the brink of a volcano, which may remain quiescent for a long period, but an eruption may at any time take place with the most serious and immediate consequences.

Anaemic conditions, combined with râles at one base, must also be regarded as suspicious. The blood in anaemic states is hydraemic, and consequently oedema is readily produced. The class of case I have more particularly in my mind is that in which pernicious anaemia or leucocythaemia exists and has not been recognized. If profound anaemia is accompanied with râles at the base of one lung the blood should always be examined with reference to the numbers and forms of the red corpuscles, the percentage of haemoglobin, and a differential estimation of the various forms of leucocytes.

Another important class of case in which sometimes râles at the base of one lung form the only physical sign is that in which there is some pressure on the bronchus and vessels of the lung, generally on the left side. Aneurysm of the aorta only signifies its presence, at any rate in the early stages, by signs of pressure. The diagnosis may be easy, as when there is a constant gnawing pain, difficulty in swallowing, a characteristic cough, and a visible pulsating swelling. But if the aneurysm is situated on the descending arch or on the descending thoracic aorta, the physical signs and symptoms may differ very widely, and owing to the fact that

no important structures are pressed upon the diagnosis may be most difficult. Especially if pain be absent, the true state of affairs may easily be overlooked. In some of such cases, the only symptoms are cough (which may not have the characteristic ring) and increasing dyspnoea; on auscultation some râles may be heard at the left pulmonary base. Such symptoms and physical signs may easily be ascribed to other causes. The lungs may be emphysematous, still further complicating the difficulties of diagnosis. When examining patients exhibiting these symptoms and signs, the aortic second sound should be carefully noted. Then, if an aneurysm be present, the characteristic ringing second sound is heard accompanied by a distinct jog to the ear, when a wooden stethoscope is employed. The presence of this phenomenon should always give rise to the probability of aneurysm being present. In the cases to which I am now alluding the diagnosis may be corroborated by the presence of tracheal tugging, or the conduction of tracheal sounds to the margin of the manubrium sterni. If the aneurysm is situated on the descending thoracic aorta the diagnosis will be still more difficult. Indeed, if pain be absent, as not infrequently occurs, the exact morbid condition may remain entirely unrecognized. Then we only have the cough, dyspepsia, and râles at the base of the left lung to guide us, and these phenomena may, as we know, be due to many causes. The *x* rays may then lend valuable aid in diagnosis; the shadow yielded by an aneurysm being plainly visible, although errors are easily made, unless the shadow cast by a healthy aorta is fully known.

I have laid stress on the above points in order further to accentuate my contention that these râles may be indicative of grave organic disease, and may be the only physical sign to warn us that some obscure lesion is present.

I will here relate a case which shows the difficulty which arises in cases of this kind.

A man, aged 56, had been in the Middlesex Hospital, having been admitted for haemoptysis, but at that time there were no definite physical signs. He subsequently attended under my care as an out-patient. I found a faint diastolic murmur over the aortic area, and numerous râles just above the angle of the scapula on the left side. He complained of no pain whatsoever, and was thought to be suffering from aortic regurgitation. Some time afterwards he was again admitted into the wards with profuse haemoptysis, and died in about three hours. At the autopsy an aneurysm of the descending thoracic aorta was found, which had ruptured into the lung at a spot exactly corresponding to that over which I had heard the râles.

This case is a striking instance of the uncertainty which attends the occurrence of this disease, and the importance that may be attached in certain cases to the appearance of these râles.

Closely allied to aneurysm is the existence of other tumours in the chest indicating their existence only by pressure on a bronchus or vessels at the root of the lung. Carcinoma affecting a lung usually commences at the root, and may give rise to the physical sign I have been considering.

I may, perhaps, be here allowed to interpolate the warning that dyspnoea out of all proportion to the physical signs points to the possibility of carcinoma of the lung; the other indications, especially the wasting, only becoming marked at a later period of the case.

In children, also, enlarged glands may give rise to similar manifestations. In such instances, paroxysmal attacks of dyspnoea, closely resembling asthmatic attacks, may be observed.

The difficulties of diagnosis in such cases is obvious. As I have already indicated, râles at the base of one lung are present in many varying conditions. I will now briefly refer to one or two others in which they cannot be ascribed to persistent oedema of the lungs, but these diseases may easily be mistaken for some of those I have already pointed out. Râles at the base of one lung, not necessarily the left, may be the first indication of early basic pulmonary tuberculosis. I have seen several instances of patients attending in the out-patient department of Brompton Hospital complaining of cough, expectoration, and loss of flesh, the only physical sign being the existence of such râles, the subsequent course of the illness indicating its tuberculous nature. The examination of the sputum is, under such circumstances, of the greatest value, and I may insist on the importance of an examination for tubercle bacilli in all cases where the diagnosis is obscure. Pulmonary tuberculosis commencing at the base instead of at the apex is uncommon, but this initial site must not be forgotten.

Another lesion that may give rise to similar physical signs is bronchiectasis. The signs in this disease are frequently obscure. Râles may be present over the affected area of the lung, and if this happens to be the lower lobe we again have the sounds to which I am referring. In many cases there is no obvious impairment of the percussion note or alteration of the breath sounds. The râles, however, have a peculiar character, being sharply crackling and high-pitched. By some physicians they are known as "bronchiectatic râles." The odour of the breath, especially after coughing, and the peculiarities of the sputum may corroborate the diagnosis. The condition may, however, be confounded with pulmonary abscess; but in the latter disease the sputum is not so copious, and the physical signs are often very slight. Abscess of the lung affecting the base is, I believe, not common, but in other areas the differential diagnosis between gangrene of the lung, bronchiectasis, and localized empyema is often very difficult, but scarcely enters into the range of my subject to-day. I would only add that in bronchiectasis and abscess of the lung, the former especially, treatment by means of the creosote bath has given excellent results.

I do not suggest that I have exhausted all the causes which may give rise to temporary oedema; collapse of the lung may, for instance, give rise to temporary oedema, but is difficult to distinguish from other conditions. I trust, however, that I have said sufficient to show that the greatest care is necessary in arriving at a conclusion when signs of persistent oedema are found to exist.

Remarks

ON

ACUTE NEPHRITIS (MORBUS BRIGHTII),

WITH SPECIAL REFERENCE TO TREATMENT.*

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ALTHOUGH anasarca and ascites were well known to the ancients, and are referred to in the writings of Aretaeus and Celsus amongst others, and much later Contugno and Cruikshanks in the eighteenth century noticed that dropsy is often attended with the presence of serum in the urine, yet it was left to our renowned countryman, Richard Bright, to discover and establish the fact that many cases of dropsy were dependent on well-marked lesions of the kidneys, and that the urine in such cases was albuminous. His *Reports of Medical Cases*, published in 1827, containing a lucid description of 23 renal cases, with the *post-mortem* reports in some instances, is a lasting monument to his acumen and skill as a physician. Following Bright came many workers, notably Osborne, James Gregory, Christison, Barlow, Rees, and Wilkes in this country, and Rayer, Professor Frerichs, Jaccoud, and Bartels on the Continent. These men were divided into two schools, one led by Bright and supported by Rayer, which contended that the primary disease was situated in the kidney; and the other led by Graves, who in 1831 propounded that the condition of the blood was the primary disease, and the condition of the kidney which resulted from the irritation of the albumen passing through it was secondary. And there was truth in both of these views, as acute and chronic renal disease had not yet been differentiated, and Richard Bright himself, under his third heading, described "contracted kidney." It was Rayer in 1840 (*Traité des Maladies des Reins*) who first positively recognized the changes in the kidneys to be inflammatory, and stated that they could be acute or chronic. This view was proved conclusively by the histological investigations of Reinhardt and Frerichs in 1850 and 1851. Anticipating both these writers, Dr. George Johnson pub-

* A paper read before the Liverpool Medical Institution, February 15th, 1906.

lished a series of memoirs, followed by a large work in 1852 on *Diseases of the Kidneys*, in which he endeavoured to classify the diseases from the results of his investigation into the minute pathological anatomy of the organ. These investigations were strikingly important in one particular, namely, they were the first that recognized the changes which the blood-vessel walls undergo. And these observations were thus precursors of those well-known researches of Grainger Stewart, Gull, and others. Before leaving this brief historical note I must mention the names of Virchow, Bartels, Bradford, and last, but not least, Dickinson, to whom we owe much of our present knowledge of Bright's disease.

In this paper I deal with acute nephritis entirely from a clinical aspect, and not from its pathological side.

Etiology.

Acute Bright's disease is undoubtedly a complaint of the temperate zones, and though occurring in the tropics much less frequently, is practically unknown in the arctic regions. It therefore appears that cold, to produce this disorder, is more likely to do so under a varying temperature than in an equable one, and as if the active combustion required for the maintenance of animal heat in the polar regions consumes matters which in other circumstances would be thrown on the kidneys to their detriment. The disease is more common in the male sex, even in childhood, and this difference is decidedly more marked among adults. Thus Dr. Tripe, writing on scarlatinal dropsy, found in 99 cases—60 males and 39 females;[1] and of 105 cases of nephritis from all causes in children under 12 years of age at the Hospital for Sick Children, 58 were in boys and 47 in girls.[2] In later life the preponderance is on the same side; thus, Dr. Dickinson recalls that of 54 cases under his own observation in adults (that is, over the age of 16), there were 33 males and 21 females.[3] My 42 cases show a very similar proportion—25 males and 17 females. This is not surprising when it is remembered that man throws more work upon the kidney in eating and drinking than woman, and is more liable to exposure to cold and wet and changes of temperature, and also the poison of lead. There is one cause of renal disease which affects females only, that is pregnancy.

As regards age, probably no age is exempt. It is, however, rare in the first year of life, and is stated to be rare after 40, but not unknown after 50. The two decades in which most cases are said to occur are up to 10 and up to 30. My cases, as far as they go, seem to show that, in proportion to the population, all the decades are affected pretty uniformly after the first. For, considering that they are taken chiefly from admissions to a general hospital, the number in the first decade is probably below the average.

The cases (42) are as follows:

Up to 10,	up to 20,	up to 30,	up to 40,	up to 50,	up to 60,	60+
9	7	7	8	6	2	3

The youngest patients were 1 year 2 months and 2½ years, and the oldest 62, 63, and 65 years respectively. And as not very infrequently acute nephritis occurs in a subject suffering from chronic nephritis, and is then often

Summary of Cases.

No.	Case.	Age.	Sex	Month Disease Commenced.	Occupation.	Cause of Disease.	Duration in Hospital.	Result.	Remarks.
1	G. J.	8	M.	November	Schoolboy	Scarlatina	9 weeks	Cured	—
2	M. G.	38	F.	July	Housewife	(c) Cold and wet	15 weeks	Cured	—
3	R. W.	62	M	June	Dock labourer	(c) Cold and wet	11 weeks	Cured	—
4	A. H.	17	F.	January	Confectioner	Cold and wet	18 weeks	*In statu quo*	Had suffered from the disease 7 months prior to admission.
5	A. M.	32	F.	October	Housewife (washerwoman)	Cold and wet	13 weeks	Cured	—
6	M. H.	26	F.	July	Domestic servant	Scarlatina	23½ weeks	Improved	This patient recovered 5 m'nths after leaving hospital.
7	W. P.	5	M.	April	Schoolboy	Cold and wet	10 weeks	Cured	—
8	M. E.	18	F.	October	At home	Cold and wet	3½ weeks	Cured	Was an O. P. for 2½ months.
9	F. P.	17	M.	July	Nil	Doubtful	10 weeks	Cured	—
10	G. B.	1 year 2 mos.	M.	January	—	Doubtful	7 weeks	Cured	—
11	C. W.	54	F.	January	Housewife	Cold and wet	7 weeks	Cured	Dilatation of left ventricle and mitral regurgitation.
12	R. T.	51	F.	November	Housewife	Doubtful	8 weeks	Left at own request, *in statu quo*	Ascites, 5 pints withdrawn. Mitral stenosis.
13	E. D.	18	M.	September	Apprentice	Burns	7 weeks	Cured	—
14	H. B.	42	M.	May	Painter	Lead, previous syphilis	12 days	Improved	Left at own request.
15	J. B.	10	M.	August	Schoolboy	Scarlatina	5 weeks	Cured	—
16	R. C.	34	M.	July	Dock labourer	(c) Cold and wet	16 weeks	Cured	Dropsy after scarlatina when 3 or 4 years of age.
17	R. H.	39	M.	March	Porter	(c) Cold and wet	9 weeks	Cured	—
18	F. P. W.	2½	M.	November	—	Scarlatina	2 weeks	Cured	Marked dropsy disappeared very rapidly.
19	D. W.	13	F.	October	Schoolgirl	Cold and wet	5 weeks	Cured	—
20	J. W.	17	M.	January	Stable-boy	Cold and wet	3 weeks	Greatly improved	Left at own request.
21	N. K.	37	M.	November	Dock labourer	Rheumatic fever	14½ weeks	Improved	Finally passed into chronic nephritis.
22	E. F.	6	F.	February	Schoolgirl	Cold and wet	8 weeks	Cured	Dropsy after scarlatina when aged 3.
23	A. T.	3	F.	January	—	Scarlatina	4 weeks	Cured	—
24	T. S.	37	M.	February	Labourer	Cold and wet	14½ weeks	Cured	A previous attack 12 years before.
25	T. S.	39	M.	August	Labourer	Cold and wet	9 weeks	Cured	Same patient as Case 24. Third attack.
26	B. M.	42	F.	May	Housewife	Pregnancy	13 weeks	Improved	Ninth time pregnant.
27	M. M.	10	M.	May	Schoolboy	Doubtful	7 weeks	Died	Ascites, very marked oedema, and died of cardiac asthenia.
28	H. T.	43	M.	May	Saw-grinder	(c) Doubtful	2 days	Died 48 hours after admission	Complicated by cardiac dilatation.
29	J. H.	49	F.	August	Domestic servant	Cold and wet	21 weeks	Greatly improved	Complicated by dilatation of heart and mitral regurgitation.
*30	J. D.	30	M.	February	Engineer	Diphtheria	8 weeks	Cured	—
*31	R. T.	25	M.	April	Doctor	Diphtheria	6 weeks	Cured	—
*32	M. L.	21	F.	January	Housewife	Pregnancy. Cold and wet	12 months	Cured	Abortion occurred.
*33	J. R.	46	M.	November	Gentleman	(c) Cold and wet	4 months	Cured	—
*34	F. T.	17	F.	January	At home	Cold and wet	Several months	Cured	Uraemia, convulsions and coma for 24 hours.
35	T. L.	6	F.	February	Schoolgirl	Scarlatina	10 weeks	Cured	—
*36	J. R.	27	M.	November	Clerk	Cold and wet	7 weeks	Cured	—
*37	M. T.	63	M.	November	Publican	Excessive drinking	12 weeks	Death	Uraemia, coma.
38	G. F.	24	M.	December	Baker	Chill	10 weeks	Greatly improved	Still in hospital.
39	W. C.	46	M.	December	Clerk	Jaundice	5 weeks	Cured	—
40	R. C.	30	F.	January	Housewife	Chill	7 weeks	Cured	—
41	A. Ch.	21	M.	March	Bricklayer	Cold and wet	12 weeks	Cured	—
42	E. N.	65	F.	January	Housewife	?	4 weeks	Cured	Also suffered from myxoedema.

* Indicates cases seen in Consultation, all the others are Hospital cases. (c Indicates decided history of alcoholism.

fatal, it must be admitted that it is not as rare after 50 years of age as is sometimes supposed. Among the other predisposing causes, mental and nervous exhaustion, heredity, and alcoholism are important factors, the latter probably being the most important. Many cases of acute Bright's disease date from a chill contracted during or immediately after a drinking bout, six at least of my cases being accounted for in this way. Lastly, as a predisposing cause, I would include a *previous attack* of acute nephritis. Thus, in four of my cases there was a distinct history of a previous attack:

Case XVI.—A dock labourer, aged 34, stated "that he had had dropsy following scarlet fever at the age of 3 or 4."

Case XXII.—A girl, aged 6. Mother stated "that the child had had dropsy and inflammation of kidneys at the age of 4, but she had quite recovered after being in bed for a few weeks." This patient had all the signs and symptoms of acute nephritis, and she left the hospital after eight weeks, cured.

Case XXIV.—A labourer, aged 37, stated he had had a similar illness twelve years before. He left hospital after fourteen and a half weeks cured.

Case XXV.—The same labourer, aged 39, after a chill was readmitted two and a half years later, with his third attack of acute nephritis; he was discharged cured after nine weeks, but had a relapse when an out-patient, from which he has now completely recovered.

The exciting causes may be grouped:

1. Those affecting the skin, and thus throwing extra work on the kidney; of these, cold and wet is much the most common, and is much more effective if associated with alcoholism. Cold probably acts in producing nephritis as an indirect cause, just in the same way as it acts on the lungs in producing pneumonia.

2. Toxic substances produced by micro-organisms, that is, the specific fevers which evidently produce a renal irritant, notably scarlatina, which is the most fertile source of this disease in childhood. Dr. Dickinson, in his recent article,[1] puts a query after acute rheumatism as a cause, but in Case XXI acute nephritis undoubtedly began whilst the patient was in bed suffering from rheumatic fever.

3. Toxic matters which act as renal irritants, present in the blood—that is, turpentine, cantharides, alcohol, lead, arsenic, and as a subgroup in this class may be added "bile" in cases of jaundice, and sugar in cases of diabetes mellitus. Case XXXIX, a man aged 46, was suffering from jaundice, and had blood, albumen, and casts in his urine.

4. Severe burns which act under both Group 1 and 3.

5. Pregnancy, which excites the disease by interfering with the renal circulation and throwing greater work on the organ. Probably, however, many of these cases are dependent on a chill as well.

The following were the exciting causes in 42 cases:

Cold and wet	21*
Scarlatina	6
Diphtheria	2
Pregnancy	2
Acute rheumatism	1
Burns	1
Excessive drinking	1
Jaundice	1
Lead	1
Doubtful	6†
Total	42

* Including 6 in which there was a history of drinking and chill. Four cases were known to have had previous attacks of acute nephritis.

† One of these, Case XLII, was a woman aged 65, who was also suffering from myxoedema, and it is interesting to note that experimental removal of the thyroid in animals produces albuminuria.

Twenty-seven cases commenced in the winter half of the year (October-March) and 15 in the summer portion (April-September).

The onset of acute nephritis is very varied. In some cases, especially those which are due to a chill (as in Case XIX), the affection may commence with severe febrile phenomena, even a rigor, and the temperature may rise to a high level for a short time, even as high as 104° F. This condition we do not often see in hospital cases, as it has usually passed before they seek admission, but the history of "a shiver and feeling cold" is often given. Thus Case XXIX stated that he had to return home from work as he had a shivering attack. This pyrexia in uncomplicated cases is always of short duration, and is often associated with a coated tongue, headache, dyspepsia, and sometimes vomiting and pain in the loins. Other attacks due to the same cause begin more gradually, the patient notices his urine is scanty and perhaps contains blood. If the patient persists in going to work the symptoms all become aggravated, especially the dropsy, which becomes general, and soon he is compelled to seek advice. Other cases, especially those which are accompanied by the symptoms of the primary disease are usually first recognized by either of two signs: First, oedema of the face and eyelids or of the body (this occurred in Cases XXI, XXX, and XXXV), with perhaps a slight rise of temperature; or, secondly, by the appearance of blood in the urine. This happened in the case of a medical man who, when suffering from diphtheria, was surprised one morning to find his urine bright red (Case XXXI). Oedema appeared shortly afterwards. However the complaint may begin, at first the amount of urine secreted in twenty-four hours is far below normal in nearly every case, and this condition often exists prior to the dropsy, and, according to Bartels,[2] even before albumen appears. As a rule, the more scanty the urine passed the more serious the outlook, especially if the condition be maintained. In those cases, fortunately rare, in which total suppression occurs, death usually ensues in a few days. Even, however, if very small quantities of urine are passed, recovery may take place; thus, in Case X only a few drachms, and in Case XXXV, whom I saw in consultation with Dr. Morris, only a few ounces of bloody urine were passed for several days, and yet recovery occurred. Diuresis in the course of an attack is a good sign, and frequently accompanies or precedes the disappearance of the albumen. This condition was recorded in several of my cases. It was most marked in Case XVI, in which the quantity of urine passed per diem suddenly rose from 40 to over 100 oz., and on one day it amounted to 169 oz., and on the following day to 173 oz.; the specific gravity at the same time fell from 1023 to 1012. This polyuria lasted for several weeks whilst the albumen was disappearing. For two weeks before this patient left hospital his urine was quite normal in character and amount. The explanation for this large increase of watery urine is to be found, I think, in the fact that only a portion of the kidneys has recovered and the other parts are still disabled—a condition analogous to that brought about by Bradford's experiments, in which, after the removal of two-thirds of the total renal substance, a greatly-increased flow of dilute urine results. In the clinical conditions, however, the functionally recovered area steadily increases till it finally extends through the whole kidney.

Character of Urine.

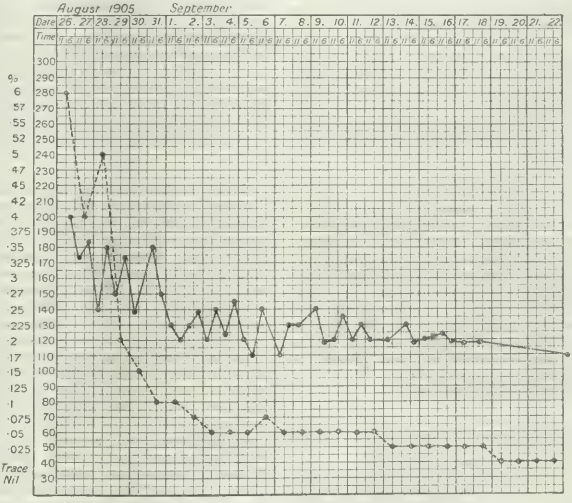
The urine contains blood, renal débris, and urates. The reaction is invariably acid, the specific gravity usually high, 1024 to 1028, rarely 1030. The total quantity of urea excreted per diem by my patients has never been found to reach the normal quantity. All the other solids are proportionately diminished.

Albumen was found in all these cases of nephritis, but there was one patient in whom it was absent for a time. Case X, my youngest patient, aged 1 year and 2 months, was a well-nourished child, and was admitted suffering from severe general anasarca. His face was swollen and white, eyelids so distended he could not open them; his limbs were distended and swollen, the skin being pale, shiny and pitting readily. Pulse 100 to 120; tension raised. Heart sounds loud and pure at all areas. Respirations 40. There was some oedema at the base of the right lung, and a little fluid in the abdominal cavity. The day following admission, as he had passed no water, 5 drachms were drawn off with the catheter; this urine contained no albumen or blood, and microscopically urates only. It was not until four days after admission that albumen and casts appeared in his urine. All this time the quantity of urine was very scanty, only a few drachms per diem. After the appearance of the albumen the urine became more copious, and the child ultimately recovered. This condition is certainly rare, and, if the appearance and symptoms of the child had not been so typically those of real dropsy, the absence of a bumen might have shaken the diagnosis. Bartels[2] records that he has met with a few cases in which dropsy set in after scarlet fever, although the urine contained no albumen. In his cases very little urine was excreted; in one only two tablespoonfuls in twenty-four hours. He says: "Very soon afterwards a more abundant excretion of bloody urine set in, whilst the dropsy increased." In these latter points my case differs from his, as the dropsy passed off, and the quantity of urine

increased as the albumen appeared, and at no time was there any haematuria. I agree with his conclusion "that the kidneys of the little dropsical convalescent from scarlet fever must have been in a condition of inflammation at the time when the urine was scanty, although it was free from albumen." Henoch[7] and Dickinson[8] have published solitary cases which prove the correctness of this view. One must conclude that this urine, free from albumen, is secreted by a portion, perhaps a small portion, of the kidneys which is not affected by the inflammation. So emphatic is Bartels, that he says: "I have never seen dropsy after scarlet fever that was not due to nephritis."

Haematuria is often present in acute Bright's disease, and was found in 19, that is, 45 per cent. of my cases. Sometimes it disappears in a short time; at others it remains in greater or lesser amounts for weeks. In the former cases it usually disappears much earlier than the albuminuria, and in the latter and less common cases it may be accompanied by only a small quantity of albumen, as in Case XXXVIII, where haematuria was present with only 0.05 per cent. of albumen, and this usually departs shortly after the blood.

Microscopically, *casts* can nearly always be found. Hyaline and epithelial are the usual variety at the onset, with blood casts if haematuria is present. Later in the history of an attack, the casts usually appear more granular and even fatty, and as the case proceeds towards recovery they diminish in size and number, and finally disappear. If the acute inflammation is limited to the interstitial tissue, there are no casts in the urine from first to last. These cases are rare, and are said to be fatal.



Oedema.

The oedema of acute Bright's disease is most characteristic. In Case XXVII the skin and subcutaneous tissues were so distended that quantities of serum exuded through the sweat ducts. This was accompanied by sloughing of the skin. In other and minor cases, the oedema may be more local, being confined to the eyelids and face, where it is especially noticeable in the morning; but probably the best site to find it in patients recumbent in bed is in the loose skin over the sacrum, where it forms the "sacral cushion." In all my cases some oedema was present. But instances are recorded in which most intense acute nephritis with typical scanty bloody urine occur, without any dropsy. Such cases are rare, and often end fatally. This renal dropsy was formerly supposed to be due to the diminished excretion, but Dr. Rose Bradford, in his admirable Croonian Lectures of 1904, has shown that the dropsy is not merely due to renal inefficiency. He proves that experimentally ligature of renal arteries, removal and destruction of the kidney, do not cause dropsy, nor is it produced clinically in the case of nephritis just mentioned, or in complete calculous obstruction, or in thrombosis of the renal arteries. He comes to the conclusion that the dropsy is due to the renal inefficiency plus a hydraemic condition of the blood brought about as a result of the partial or complete suppression of the urinary excretion. There is also experimental evidence in support of this view. And we know that clinically renal dropsy is always associated with marked *anaemia*, which is so conspicuous in acute Bright's disease, and is developed so rapidly. This anaemia, though often said to be due to the loss of blood and albumen in the kidneys, appears to me to be quite out of proportion to these causes, and I would suggest that it is either due to (1) a loss of internal secretion from the damaged kidneys which is necessary for the anabolism of the blood, or (2) to harmful products retained in the blood which should be excreted by the kidneys, and which destroy the corpuscles.

Cardio-Vascular Changes.

Increased action of the left ventricle of the heart can, I believe, be detected from the onset of the attack in most cases of acute nephritis; and the hard, high tension pulse is evident from the very first. As yet I have only been able to take the blood pressure by the sphygmomanometer in a few cases, and these show a distinct fall in pressure as recovery advances. Case XXV demonstrates in a most striking manner the high blood pressure, and how rapidly it fell, its fall coinciding with the diminution of the albuminuria (vide chart).

Other Symptoms.

The coated tongue, anorexia, occasional vomiting, and morning headaches are symptoms which are often present, especially at the onset, or preceding uraemia in severe cases. The skin in this disease is usually dry and harsh. In one or two of these cases it was ichthyotic in some parts and sweating was induced with extra difficulty. When it is found to be soft and moist from perspiration recovery can be guaranteed.

Lumbar pain is a symptom which was present in twelve of my cases, all adults, and males with the exception of two. Occasionally, as in Cases XXIV, XXV and XXXVI, it persisted into convalescence.

Duration.

The duration of nephritis is very varied, and it is impossible to predict the course or ultimate result of any case with certainty. The younger the patient, however the more rapid the course to recovery or death. Thus in my 9 cases of children up to 10 years of age, the duration in Cases XVIII and XXIII was only two and four weeks respectively, and the average length of complaint in the nine cases was just under seven weeks, which, as a glance at the table will show, is very much shorter than that of the adults. Fortunately, many patients steadily progress towards recovery.

The shortest attack among my cases was by no means the mildest. It was a small boy, aged 2½ (Case XVIII). He had had scarlatina some weeks prior to admission. He was pale, very oedematous, and presented the typical picture of acute nephritis. Under the influence of diaphoretics, etc., his skin perspired freely. On the sixth day a large quantity of urine, free from albumen, was excreted, and the dropsy then rapidly passed away. On the other hand, it frequently happens that cases which have steadily, or even rapidly, improved for a time come to a standstill, and the urine is found to contain about the same amount of blood and albumen day after day for long periods, this amount varying from a considerable quantity of both blood and albumen to a trace, or to a trace of albumen alone. Thus, in Case VI, after a steady improvement, the urine contained from 2 to 1 part per 1,000 of

albumen, and was tinged with blood for seventeen weeks, notwithstanding a stringent diet and all the usual methods of treatment. And in Case XXXIX, after a steady and rapid improvement, the urine tinged with blood contained three-quarters to one-half part per 1,000 of albumen for weeks. In this case, as the albumen is so slight, I expect it will disappear as soon as the blood ceases. I cannot agree with the statement made by several writers "that haematuria is a good sign because it relieves the congestion." It is an indication of severe inflammation, and, as far as I have been able to observe, those cases have progressed better and more rapidly in which there has been no haematuria or in which it persisted for a very short time. Case XXI of my series supports this contention: for the first four and a half weeks after admission the patient steadily improved, the albumen falling from 7 to 1 part per 1,000, but the haematuria remained, and in spite of the most active and rigid treatment it persisted till he left the hospital, and it was present for many months afterwards. This patient ultimately passed into a state of chronic parenchymatous nephritis. This is an example of the small and rare minority of cases of acute nephritis which passes into the chronic condition, and also coincides with Bartel's experience that true rheumatic nephritis, of which it was an example, tends to become chronic." Dr. Dickinson truly says:

> Of those who completely recover, the vast majority do so within a year; of those who die, the majority do so in six months.

But I would strongly urge that some cases require long and patient treatment; thus, Case VI recovered after nearly six months in hospital and five months at home, where she continued treatment in bed and on a milk diet. Case XVI required nearly four months, Case XXIV over three months, and Case XXXII twelve months before they were completely cured.

MODES OF TERMINATION.

The causes of death in this disease are numerous: in children it usually results from some inflammatory complication of the lungs or pleura, or uraemia. In adults uraemia is the more common cause, and then dropsy and its effects. But secondary inflammation of the serous cavities—notably pericarditis and peritonitis—may also be causes of a fatal termination, and pneumonia and pleurisy, though these are much less common than in childhood. Heart failure from dilatation of the hypertrophied left ventricle is also a cause, and was present in 2 of my fatal cases (Cases XXVII and XXXVIII).

Of my 42 cases the results are as follows:

30 cured.
2 left *in statu quo*, and probably passed into a chronic condition.
6 left improved, of whom 1 (Case VI) recovered.
1 (Case XXI) passed into chronic nephritis, and the others have been lost sight of.
1 (Case XXXVIII) has greatly improved, and is still in hospital.
3 died—2 of cardiac failure, one of which (Case XXVII) was associated with ascites, marked oedema, and some sloughing in the cellular tissues and skin.
1 of uraemia.

Total 42

RECURRENCES AND RELAPSES.

I believe that the more accurate the history of cases of this disease the more frequently will it be found that we are dealing with a recurrent attack. Thus, in Case XVI a recurrent attack occurred after thirty years, and in Case XXIV after twelve years.

Relapses occurring during the illness or convalescence are only too common, and are the cause of considerable anxiety. I will refer to this condition again under the heading of "Treatment."

There is, however, another condition which might be called subacute nephritis, as it is a very mild condition of nephritis, in which a patient who has previously had acute nephritis, and from which he has completely recovered, develops albuminuria, lumbar pain, and headache when unduly exposed to a chill or fatigue, and which passes off after a few days if judiciously treated by rest in bed, purgatives, light non-nitrogenous diet, and perhaps mild diaphoretics. These attacks I have seen in Case XXXI.

I have tested the urine on several occasions during these attacks, and have found albumen, urates, and débris, but on only one occasion some hyaline casts. There is usually no dropsy. It is needless to say that the urine is quite normal between the attacks. Perhaps it is noteworthy that he is also subject to psoriasis, but the onset of the disorder is quite independent of any change in the skin lesion, and always follows some definite chill. For instance, once it followed a difficult instrumental confinement, in which he exerted himself for some hours, having doffed his coat. Probably this condition is not so rare as it appears, and some cases of those disorders called "lumbago" and "biliousness" may in reality be such a subacute nephritis in a person who has previously, at some time or other, suffered from acute nephritis; and some of the cases of functional albuminuria, or the albuminuria first detected at a life insurance examination may be of this nature.

TREATMENT.

The indications for the treatment of acute nephritis are: (1) To secure a rest for the inflamed organ, and to thereby diminish the risk of an increase of the inflammation; (2) to counteract the dangers which result from the interference with the excretory action of the kidney by encouraging the other organs—namely, skin and bowels—to act freely; and (3) to relieve the hyperaemia of the kidneys if possible.

The patient should be kept in bed between blankets, and clothed in a woollen nightgown, and he should not be allowed to get out of bed on any pretext whatever. His skin is thus more ready to act, all risk of a chill avoided, and his body is in as complete a state of rest as possible, metabolism being thereby diminished.

Diet.

1. To secure rest for the kidney the diet should be limited to one which will throw as little work on the excretory organs as possible, and undoubtedly the best is one which consists of milk only. For an adult in bed 50 oz. in the twenty-four hours is quite sufficient. It is best given in small quantities—4 oz. every two hours—and taken warm. If milk is objected to, or causes nausea or dyspepsia, it may be diluted with water, soda water, or potash water. When given in this way I have never seen any digestive disturbance arise, and all my patients have been treated on exclusively milk diet. Butter milk and skimmed milk might be substituted if desired, but they are not so nutritious. It is advisable to continue the use of milk far into the convalescence, and to very gradually return to a normal diet, by adding first a little carbohydrate, such as milk pudding, followed by bread and butter, and then a very little fish. Very frequently, however, relapses are brought on by adding to a milk diet: thus in Case IX the urine had been free from blood for nine days, but on the tenth it reappeared, the patient having eaten a few biscuits smuggled in by friends the previous day. Albumen recurred after six days' absence in the urine of Case XIII from the same cause, and Case XXX had a return of albuminuria and oedema the day following that on which he was ordered a little fish, and it was found that he had eaten heartily of the biggest sole that could be procured. Also in the convalescent stage great care should be observed to prevent a relapse, and for this reason my hospital cases attend the out-patient department weekly for about two months, and have their urine tested. In this way Cases XIII and XXV were discovered soon after their discharge to be suffering from albuminuria. They admitted having eaten freely of meat.

Because I have seen so much injury done by even slight additions to a milk diet I am very strongly averse to the views given in many textbooks on this subject. One writer says, "light animal broths should be included, thin beef tea or thin broth of other kinds"; another, "when the patient's appetite will permit, a more solid diet, consisting of easily-digested meats, light vegetable food, and good bread, may, of course, be adopted"; and another, though advising milk diet, says, "if necessary, beef tea and chicken broth." I cannot too strongly deprecate such views. I have yet to see the patient suffering from acute Bright's disease or any other complaint who

cannot live in bed for many weeks on a milk diet, and even thrive on it. And I am confident that if we desire to relieve the kidneys we cannot be too particular in avoiding a nitrogenous food. If the patient complains of thirst, Imperial Drink may be allowed. If the urine is scanty and very acid, 1 oz. of water containing gr. x of sodium bicarbonate and gr. x of potassium citrate may be added to each quantity of milk, as recommended by Sir William Roberts, or this may be given every four hours.

Drugs.

2. To counteract the dangers which result from interference with the excretory action of the kidneys, (*a*) purgatives and (*b*) diaphoretics are very beneficial.

The best *purgatives* are the hydragogue purgatives, which act by reducing the renal hyperaemia, lowering the blood pressure, relieving the oedema, and removing from the blood some of the toxic constituents. A good evacuation should be obtained at least twice a day. I generally find 1 drachm of compound jalap powder at night, or 3 or 4 drachms of magnesium sulphate or sodium sulphate in 1 oz. of water first thing in the morning most advantageous. Improvement under this treatment is noticeable. Mercurials should rarely be used, and then with the greatest care and followed by a saline. Bright, who used them at first, was the first to deprecate their use.

Diaphoretics, which by making the skin active, reduce probably to a slight extent the hyperaemia of the kidneys, diminish the oedema, and assist in removing from the body some of the waste products. Of these the tincture of jaborandi in ʒss to ʒj doses, or the liquid extract of jaborandi in ♏v to ♏xv, are most useful. Also the liquor of ammonium acetate in doses of 2 to 6 drachms, and potassium citrate are recommended; but there is one drug which appears to be of the greatest benefit in all cases of acute nephritis, and that is sodium benzoate, and I always use it from the commencement in doses of 10 to 20 gr. It probably acts as a mild diaphoretic, a very mild diuretic, and most effectually as a disinfectant to the urinary tubules; for we know how useful it is in cases of cystitis, and what strong disinfectant properties the compound tincture of benzoin possesses. It is also believed to have the property of favouring the conversion of urates into less irritating and more easily excreted compounds. I prefer the sodium salt, though I have seen good results from ammonium benzoate; for the base of the latter must be excreted partly as urea and thereby throw slightly more work on the kidneys. I frequently prescribe:

℞ Tincture of jaborandi ♏xxx
Sodium benzoate gr.xv
Chloroform water 1 oz.
1 oz. every four hours.

If diaphoresis does not follow this treatment, hot air baths or the warm pack are most useful; the former is the safer, as there is less danger of the patient contracting a chill. When a poor result has been obtained, $\frac{1}{15}$ gr. of pilocarpine may be given hypodermically on the next occasion, and if necessary the dose may be gradually increased to $\frac{1}{6}$ gr. or more. As this drug also stimulates the bronchial glands, its effect on the lungs should be watched, and it should be given with caution in cases of uraemia, and never in any case in which lung complications are present.

Digitalis or other stimulating diuretics should never be used during an acute attack of nephritis, except only in cases of cardiac failure. In most uncomplicated cases they can only do harm by increasing the already high blood pressure and the hyperaemia of the too congested kidneys. Indeed their use is often followed by haematuria.

Counter-irritation.

3. To relieve the hyperaemia of the kidney, besides the methods already expounded, direct counter-irritation over the loins may be employed. This mode of treatment is especially useful in the early stages of acute nephritis, and it should always be used in cases in which there is suppression of urine. The various ways in which counter-irritation can be applied are (1) mustard poultices, (2) dry-cupping, and (3) wet-cupping. The two former are the ones now usually adopted.

Dry-cupping is the more preferable, and should be applied over both kidneys, and followed by hot poultices. In this way counter-irritation may be maintained regularly with beneficial results, and in many of my cases the blood and albumen have considerably disappeared after a few days of this treatment. This also greatly relieves any lumbar pain. The cups I prefer are the large ones having a circumference the size of an ordinary teacup or glass.

Wet-cupping and leeches applied to the loins are methods not often used.

Sometimes, in cases of acute nephritis, in spite of the use of the usual therapeutic measures, certain symptoms persist and require special treatment. Thus, if headache, restlessness, and sleeplessness are troublesome, the administration of bromides and chloral are extremely serviceable, and can be given with safety if the pulse tension is good.

Morphine and opium, however, are contraindicated in all cases of acute nephritis, since they are not readily excreted by the damaged kidneys, and therefore produce a greater toxic effect, and, moreover, they may be followed by dangerous suppression and uraemia. Hyoscine hydrobromide and hyoscyamine sulphate are, however, free from these dangers, and may be given subcutaneously in doses of $\frac{1}{200}$ to $\frac{1}{100}$ gr. Persistent vomiting, except as an indication of uraemia, is not usually present in patients who are carefully dieted. If it should occur, a little bismuth is generally sufficient, and some physicians recommend dilute hydrocyanic acid. When the anasarca of the limbs is very great, it may be relieved by numerous small punctures or by the introduction of Southey's tubes through the skin. Every aseptic precaution must be observed; also, dropsy into the serous cavities should be removed by tapping. In the case of ascites this is frequently followed by a greater flow of urine; such occurred in Cases XII and XVII. During convalescence anaemia requires mild preparations of iron. They must be given with great care and the astringent preparations should be avoided. It is important to warn a convalescent patient to avoid all risks of chill, undue exertion, and a too nitrogenous diet.

Uraemia.

Uraemia, the actual cause of which we do not yet thoroughly understand, is undoubtedly a series of symptoms depending on a toxaemia due to an auto-intoxication dependent on the loss of function of the kidney. Its onset may be sudden, but it is often indicated by such symptoms as dull headache, drowsiness, vomiting, and convulsions; and these must be immediately opposed by vigorous measures, that is, free purgation, free diaphoresis, and counter-irritation over the loins should at once be practised on the lines already indicated. If, however, the uraemia be well established, and coma and convulsions, etc., are present, the bowels must be moved by half to one minim or more of croton oil applied to the tongue, and sweating may be brought about by pilocarpine injected under the skin, assisted by hot blankets and bottles to the body, and hot mustard poultices over the loins. Such treatment relieved the coma and convulsions of Case XXXIV, though they had persisted for over twenty hours, and the patient had passed only a few ounces of highly albuminous and very bloody urine.

Treatment on these lines also relieved the uraemia in Case XXXVII on several different occasions, but in the end he succumbed. Undoubtedly, from the many recorded cases, uraemia is often expelled by the withdrawal of 10 to 20 oz. of blood from a vein, and the injection of some warm normal saline solution; but before giving the credit of any instance of recovery to a particular method of treatment we must remember that cases with very severe symptoms of several hours of unconsciousness and the almost total suppression of urine do sometimes spontaneously recover. If it were not for this fact I would give the credit of the recovery of Case XXXIV to the use of pilocarpine. Nevertheless, judging from the facts that this condition is a toxaemia, the analogy of the treatment of diabetic coma, and the beneficial results already attained, this method of saline injection into the veins is certainly one of the many measures of treatment which should always be adopted where possible. The inhalation of chloroform is specially useful in relieving those cases in which asthma or convulsions are the predominating symptoms, and bromides may be given if the patient is not comatose. In conclusion, I would reiterate the importance of

prolonged treatment in the tedious cases of acute nephritis.

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Presidential Address
ON
FOOD AND FOOD PRESERVATIVES:
THEIR INFLUENCE ON THE INCREASED PREVALENCE OF CERTAIN DISEASES.

DELIVERED BEFORE THE ANNUAL MEETING OF THE NORTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

BY RICHARD JONES, M.D.EDIN., D.P.H.CAMB.,
PRESIDENT OF THE BRANCH.

GENTLEMEN,—There can be no doubt that the health of the public suffers by the enormous consumption of tinned and preserved meats now offered to the public. This injurious effect may be due to one of two causes, or, probably a combination of both.

1. Meat that is diseased or becomes diseased before consumption.

2. The adulteration or the addition of preservatives to the food, either to preserve or to disguise its diseased or unwholesome character.

It does not follow that all adulterated foods are injurious to health—for example, butter may be adulterated with margarine—the same may be said of milk and water, wheat and potato starch; such adulterations are nevertheless, a fraud, and punishable by certain Acts of Parliament.

But it is seldom that we find butter adulterated with margarine without the addition of a preservative and colouring matter. This is commonly boric acid or borax and annatto. It is the addition of the preservative that makes it possible (in many instances) to place diseased meat, milk, or fruit upon the market.

Preserved peas are often, if not always, adulterated by the addition of copper sulphate, both as a preservative and a colouring reagent. Here we have an adulterant that is also poisonous.

The revelations connected with the Chicago tinned meat trade have been brought prominently before the public; possibly too much is being made of this, and it would be well to bear in mind what the late Sir J. Simon, the pioneer of public health in Great Britain, said in the Eighties, when referring to a report of Professor Gamgee on meat inspection in this country:

> Horned cattle affected with pleuropneumonia are much oftener than not slaughtered on account of the disease, and when slaughtered are commonly (except their lungs) eaten, and this even though the lung disease has made such progress as notably to taint the carcass; that the presence of parasites in the flesh of an animal seldom influences the owner against selling it for food; that carcasses too obviously ill-conditioned for exposure in the butcher's shop are abundantly sent to the sausage makers, or sometimes pickled and dried; that some sausage makers will utilize even the most diseased organs which can be furnished them; that the principal alternative, on a large scale, to the above-described human consumption of diseased carcasses is that, in connexion with some slaughtering establishments, swine are habitually fed on the offal and scavenge of the shambles, and devour, often raw and with other abominable filth, such diseased organs as are below the sausage-maker's standard of usefulness.

Many changes have since taken place, all tending to minimize the possibilities of such practices being resorted to in these days, with what success is often questionable.

Diseased meat has its danger, and is undoubtedly the cause of much illness and death; but I much doubt whether the possibility of the contents being diseased is the only danger we have to face when consuming preserved and tinned meats.

To-day I propose bringing before you the large question of food and food preservatives, and their influence on the increased prevalence of certain diseases.

In 1899 a Departmental Committee was appointed to inquire into the use of preservatives and colouring matters in the preservation and colouring of foods. In the report of this Committee, published in 1901, it is stated that "we cannot overlook the danger to which the uncontrolled use of drugs in the food of the population may be likely to give rise."

In dealing with the use of preservatives in milk they come to the conclusion that no preservatives or colouring matter whatsoever should be allowed. They state that:

> The farmer or producer sometimes applies it; so does the wholesale purveyor; so does the retail dealer; lastly, the domestic use of preservatives is increasing, and has become very general, and hence the milk may receive a fourth dose before it reaches the unsuspecting consumer.

And further that

> One of the considerations which renders it expedient to prohibit the use of any preservative in milk offered for sale—namely the large quantity which may be taken into the system of the consumer—places, in our opinion, wine, cider, and temperance beverages upon a very similar footing.

Moreover, while by far the greater proportion of preservatives used in the dairy industry consists of compounds of boron, it is otherwise with fermented and temperance drinks. The usual preservatives in these articles are salicylic acid and formaldehyde, and although the quantity of each actually required is very small, it is often largely exceeded.

The report also states that it is

> Highly undesirable to use copper sulphate, even in the smallest quantity, to preserve and colour peas and other vegetables.

The extent to which the use of preservatives and colouring matters become possible will be seen from the following table relating to the importation of food and foodstuffs into the United Kingdom during 1905.*

Imported Foodstuffs, 1905.

	Quantity.	Value in £.
Butter	4,147,866 cwt.	21,586,622
Cheese	2,442,682 ,,	6,339,811
Cocoa butter	685,720 lb.	28,544
Fish (cured)	667,450 cwt	1,830,128
,, (uncanned)	,,	1,339,328
Peas (not fresh)	2,015,876 cwt.	725,104
Beans (all kinds)	1,444,939 ,,	535,519
Wheat (meal and flour)	22,476,430 ,,	6,044,845
Corn and grain (not all kinds)	207,930,766 ,,	70,057,290
Fruit (dried and preserved)	2,152,339 ,,	2,373,336
,, (other than preserved)		10,270,584
,, (canned—no sugar)	525,139 cwt.	326,286
,, juice	783,000 gal.	74,645
Margarine and margarine cheese	967,783 ,,	2,735,785
Meat (frozen, salted, and preserved)	18,679,507 ,,	38,487,409
Fresh milk	49,640 ,,	100,517
Mineral waters	1,410,330 doz.. (bottles	308,619
Oils (refined and edible	471,089 cwt.	500,000
Oleo-margarine	254,312 ,,	495,212
Poultry and game		1,000,000
Chicory	1,914,572 lb.	38,606
Cider	395,044 gal.	15,183
Cocoa	63,936 974 lb.	2,256,389
Ice	345,332 tons	165,030
Stearine	1,822,519 cwt.	2,389,386
Albumen		37,792
Sauces and condiments	342,907 lb.	40,044
Spices		783,004
Spirits (tested)	7,630,765 gal.	1,821,297
,, (not tested)	59,441 ,,	131,312
Sugar (refined and unrefined)	23,352,549 cwt.	19,471,811
Molasses	2,537,999 ,,	502,324
Glucose	1,410,557 ,,	608,853
Caramel, cherries		
Chutney, confectionery (hard and soft)		
Canned, bottled	[illegible]	2,774,757
Crystallized fruit		
Condensed milk		
Preserved fruit of all kinds		
Vegetables (preserved, canned)	280,002 cwt.	280,104
,, (raw)		3,[illegible],71
Pickles	2,536,280 gal.	120,262
Vinegar	302,485 ,,	17,671
Tea	309,034,980 lb	9,307,235
Wines	12,731,689 gal.	4,072,199
Coffee	18,662,078 lb	2,578,371
Beer	66,605 brls.	153,430
Caseine		34,362
Eggs	18,814,293 h'ds.	6,812,436
Lard	2,206,390 cwt.	3,961,671
Methyl alcohol	486,051 gal.	54,268
Kernels	51,522 tons	771,900

Living animals, destined to be used as food, are not included; these numbered 748,375, and were valued at £9,901,869.

The value of the condensed milk imported during 1905 was over £1,000,000.

* Board of Trade returns.

These commodities, when sold to the public, may contain one or other of the many ingredients used either for preserving or colouring:

Flour is often adulterated with other cereals, alum, mineral substances, starches.
Cream and Milk with water, boric acid, boron compounds, formaldehyde, carbonate of lime, peroxide of hydrogen.
Cheese and Butter with boric acid, formaldehyde, salicylic acid, fluorine compounds.
Margarine with annatto, boric acid and the others used with butter.
Vegetables with sulphate of copper.
Meat, Poultry and Game with sulphurous acid to keep the red colour of meat and as a preservative.
Ginger Beer, Wines, Cordials, Juices, Syrups with sulphurous acid and sulphites.
Preserved Fruit of all kinds with salicylic acid, boric acid, benzoic acid.
Jams with salicylic acid, fluorine compounds.
Beer with saccharine, peroxide of hydrogen, sulphurous acid, arsenic.
Potted Meats with benzoic acid, salicylic acid, sulphurous acid and sulphites.
Hams, Bread and Pickles with alum for whitening and hardening.
Tea with ferro-cyanide of iron.
Sugar with sand and iron.

Time will not allow me to follow this any further, but there can be no doubt that the continuous introduction of these chemical substances into the system interferes with digestion, depresses the heart's action, and injuriously affects the kidneys; indeed the question may properly be asked, Which is the greater public danger—diseased meat or the insidious action of food preservatives? Many experiments have been carried out with the object of establishing a rule as to the use of preservatives. Thresh and Porter in their book state that—

Physiological experiments relate to the use only of one preservative for a given period, whereas in everyday life, probably more than one preservative is used and this not for a given period.

In actual practice the ingredients are daily used in unknown quantities and often under distressing and lowering circumstances.[1] It is also proved that fully 80 per cent. of preservatives used in food are excreted unchanged by the kidneys. This statement has been confirmed by Dr. Hannington who states that in his investigations he found "the kidneys inflammatory." The action becomes insidious and, although there may be but few instances of acute poisoning, it is interesting to note the comparative prevalence of diseases of the alimentary system in 1904 as compared with twenty years ago when the use of these preservatives was not carried on to such an enormous extent as it is in these days.

In the decennium 1871-80 the general death-rate for England and Wales was 21·27 per 1,000 of the population, that of the five years 1881-85 being 19.40. During 1891 to 1895 the rate was 18·71; in 1896-1900, 17.67; and for the four years 1901-1904 the rate was further reduced to 16.19 per 1,000. We thus find that during the last thirty years the general death-rate of England and Wales has been reduced by over 5.0 per 1,000 of the population; or in other words, had the death-rate during the four years 1901-4 been the same as during the decennium 1871-80, 162,500 more people would have died annually.

This enormous saving of life has been brought about mainly by a combination of successful efforts to prevent the introduction of impurities into the air breathed and the water consumed by the inhabitants (see Table I).

Notwithstanding this great reduction in the general death-rate and of the diseases referred to in Table I, we find on a more careful examination that the death-rate from certain other diseases—those particularly associated with the alimentary or digestive system—has increased to a very material extent (see Table II). In addition to this, the infant mortality (England and Wales), which in the decennium 1881-90 was 142, increased in 1894-1903 to 150, that of 1904 being 145 per 1,000 registered births. We also find that about 60 per cent. of all the deaths among infants under 1 year of age are due to diseases of the digestive system, and that during the year 1904[2] the deaths among children under 5 years of age formed one-fifth of all the deaths registered, whereas those living in this age-period (1 to 5) form only one-ninth of the total population. These are important facts and can only point in one direction.

Table I.—Diseases the Death-rate from which has Decreased.

Rate per Million 1885-1904.

Disease.	1885.	1891.	1896.	1901.	1902.	1903.	1904.
Enteric fever	175	168	156	155	126	100	93
Scarlet fever	233	170	177	133	148	125	111
Puerperal fever ... ... septicæmia Pyæmia, phlegmasia	93	71	69	64	61	51	49
Erysipelas	73	47	36	35	39	32	36
Phthisis pulmonalis and phthisis	1,770	1,589	1,303	1,264	1,233	1,203	1,236
Tuberculous peritonitis, tabes	251	251	196	188	161	167	172
Bronchitis	2,240	2,593	1,535	1,365	1,323	1,112	1,216
Other diseases. Respiratory organs, fibroid disease of lungs	197	182	125	120	114	102	103

Enteric fever (rate per million), 1869—390. 1876—309.

Table II.—Diseases the Death-rate from which has Increased.

Rate per Million 1885-1904.

Disease.	1885.	1891.	1896.	1901.	1902.	1903.	1904.
Carcinoma, sarcoma, malignant disease	572	692	762	842	844	872	877
Gastric ulcer, gastric catarrh, other affections, digestive system (not malignant)	117	147	165	216	195	189	184
Enteritis, gastro-enteritis, appendicitis, perityphlitis	133	190	328	242	238	268	305
Diabetes mellitus	56	66	74	91	84	85	93
Alcoholism	49	71	71	96	84	76	70
Diphtheria	164	173	291	273	236	182	170
Epidemic diarrhœa, infectious enteritis, dysentery	503	480	563	924	526	551	876
Rickets	22	43	40	42	41	49	54
Acute nephritis	67	84	83	93	91	88	92

Diabetes Mellitus.—Some may disagree with me as to the classification of diabetes mellitus; nevertheless, in 1885, the death-rate from this disease was 56, and in 1904 the rate had increased to 93 per million.

Alcoholism has increased from 49 in 1885 to 70 per million in 1904. In 1901 the rate was 96. The improvement since 1901 may be due to the detection of arsenic in beer.

Deaths from *Diphtheria* have increased from 164 per million in 1885 to 170 in 1904. In 1896 it was 291, and 273 in 1901.

From the last report of the Metropolitan Asylums Board we find that in 1893 (just before antitoxin was introduced in the treatment) the case mortality for diphtheria was 30.4 per cent., whereas in 1905 the figure was 8.3. This, no doubt, accounts for the reduced diphtheria death-rate in 1903 and 1904.

Under the heading *Carcinoma, Sarcoma*, and *Malignant Disease* all parts of the body affected are included, but we find that during the four years 1901-1904 no less than 62,305 persons died of cancer of the digestive system, giving an average of 15,576 every year.

The cancer rate in 1885 was 572, and in 1904 it had increased to 877 per million of the population.

Coming to those affections of the digestive system that may be called non-parasitic, we find (Table II) that the death-rate from gastric ulcer, gastric catarrh, and other (non-malignant) affections of the stomach was 117 per million in 1885, that is, twenty years ago, and that the rate has steadily increased up to 184 in 1904.

Again, with such diseases as enteritis, gastro-enteritis, appendicitis, perityphlitis, the rate has increased from 133 in 1885 to 305 per million in 1904 (Table II).

Rickets, a disease of children directly associated with diet, has increased from 22 in 1885 to 54 per million in 1904.

Epidemic diarrhoea, infectious enteritis and dysentery—diseases generally regarded as of parasitic origins—have enormously increased, though enteric fever, as already pointed out, has decreased to a marked degree during the same period, 1885-1904. The rate from epidemic diarrhoea etc., in 1885 was 503, rising gradually to 876 per million in 1904.

I have already stated that it has been proved that about 80 per cent. of the preservatives (particularly boron compounds) are excreted by the kidneys. This will probably account for the gradual increased death-rate from acute nephritis during the last twenty years. In 1885 the rate was 67, and in 1904 we find that the rate per million of the population was 92, an increase of about 30 per cent. The mortality-rate of Bright's disease in 1881-85 was 222 per million, rising gradually to 278 per million in 1896-1900. This is significant when we bear in mind the reduction in the death-rate from scarlet fever (Table I).

The Registrar-General has, for the purpose of comparison, divided the country into two representative groups:

1. Urban Registration Counties.
2. Rural Registration Counties.

Working on this basis I have carefully examined the number of deaths, with the object of determining the comparative prevalence of those affections of the digestive system and of acute nephritis already referred to (Table II) in the Urban and Rural Registration Counties respectively.

The details are embodied in Tables III, IV, and V.

TABLE III.—DEATHS, URBAN REGISTRATION COUNTIES 1904.

Rates per Million.

Counties.	Population.	Gastric Ulcer, Catarrh, etc.		Enteritis, Appendicitis, etc.		Epidemic Diarrhoea, Dysentery.		Acute Nephritis.	
		No.	Rate	No.	Rate	No.	Rate	No.	Rate
London	4,648,950	667	143	1,425	306	4,614	992	361	77
Glamorgan ...	923,203	278	300	317	342	832	899	118	127
Lancashire ...	4,603,868	1,036	231	1,808	393	5,860	1,272	561	121
Middlesex ...	894,548	122	136	295	329	1,108	1,238	53	59
Monmouth ...	331,153	95	286	156	471	215	649	38	114
Northumberland and Durham	1,889,613	430	227	661	349	1,693	895	227	120
Nottingham ...	628,060	105	167	219	348	688	1,095	59	93
Staffordshire...	1,301,910	232	178	436	334	1,311	1,006	134	102
Warwick ...	942,890	232	243	206	324	1,266	1,342	100	106
East Riding ...	472,731	89	188	118	249	702	1,484	36	76
West Riding ...	2,875,464	511	198	769	268	2624	912	268	93
Total ...	19,514,410	3,817	195	6,510	333	20,903	1,071	1,955	100

The tables afford a very interesting study of the variations in the rates in different districts both in the urban and rural classes. Thus we find that in the urban counties (Table III) the highest rate from *Gastric Ulcer, etc.*, was in Glamorgan (300 per million), Monmouth coming next with 286.

Under *Enteritis, etc.*, the highest rate was in Monmouth (471), and the lowest in the West Riding of Yorkshire.

Under *Diarrhoea, etc.*, the highest rate was in East Riding (1,484), Warwick coming next with 1,342 per million. The lowest rate was in Monmouth (649).

The highest rate from *Acute Nephritis* was in Northumberland and Durham (120), and the lowest but one in London (77).

TABLE IV.—DEATHS—RURAL REGISTRATION COUNTIES—1904.

Rates per Million.

Counties.	Population.	Gastric Ulcer and Catarrh, etc.		Enteritis and Appendicitis, etc.		Epidemic Diarrhoea, Dysentery, etc.		Acute Nephritis.	
		No.	Rate	No.	Rate	No.	Rate	No.	Rate
Buckinghamshire..	156,738	41	261	47	299	55	350	14	81
Cambridge	202,669	28	138	38	187	107	527	12	59
Cornwall	319,445	62	194	54	169	72	225	26	81
Herefordshire ..	112,245	29	258	25	222	23	204	9	80
Huntingdonshire...	45,722	3	65	3	65	20	437	5	109
Lincolnshire ..	502,637	85	169	116	237	320	636	45	89
North Wales ..	495,683	138	274	170	342	143	280	61	123
Oxford	186,143	35	188	57	305	76	408	14	75
Norfolk	471,411	73	154	93	197	264	560	23	48
Rutlandshire ..	20,397	1	48	7	343	4	195	2	96
Shropshire	260,722	49	187	71	272	53	203	26	99
Somersetshire ..	470,823	86	182	91	193	98	208	37	78
South Wales (less Glamorgan)	375,694	72	191	105	279	83	274	47	125
Suffolk	365,319	43	117	73	199	126	344	23	62
Westmorland ..	63,992	14	218	7	109	2	31	2	31
Wiltshire	257,849	37	138	46	171	57	212	23	85
Total	4,317,549	796	184	1,003	232	1,508	349	369	85

TABLE V.

Deaths, 1904, per Million.

Districts.	Population	Gastric Ulcer and Catarrh, etc.		Enteritis and Appendicitis, etc.		Epidemic Diarrhoea, Dysentery, etc.		Acute Nephritis.	
		No.	Rate.	No.	Rate	No.	Rate.	No.	Rate.
Rural Registration Counties.	4,317,549	796	184	1,003	232	1,508	349	369	85
Urban Registration Counties.	19,514,410	3,814	195	6,510	333	20,903	1,071	1,955	100

Coming to the Rural Registration Counties (Table IV) we find the highest rate from *Gastritis, etc.*, was in North Wales (277), Buckinghamshire coming next with 261 per million. The highest rate from *Enteritis, etc.*, was in Rutlandshire (343), North Wales coming next with 342. From *Diarrhoea, etc.*, the death-rate per million of the population in Lincolnshire was 636, that of Norfolk being 560. The lowest rate was in Westmorland (31). North Wales also has the highest rate of death from *Acute Nephritis*, namely, 123 per million of the population.

Under the headings of the four classes of disease tabulated we find the death-rate per million in all to be higher in the urban than in the rural registration counties.

During 1904, 84,678 samples of food were seized under the Food and Drugs Acts in England and Wales: 7,173, or 8.5 per cent., of these samples were found to be adulterated. The percentage of samples found adulterated in the rural counties was 8.9 per cent., and of those in the urban registration counties 8.3.

Thus we find that notwithstanding the higher rate-mortality from gastro-intestinal and acute kidney diseases in the urban registration counties as compared with the rural, the percentage of adulterated samples is slightly higher in the rural.

Rural populations have not to resort to tinned meats to such an extent as the inhabitants of industrial centres and large urban districts.

During later years the habits of the people have changed, and the exegesis of life has also changed. Tinned, canned, and preserved articles of food have become almost a necessity, and, as if to assist in this change, tinned and bottled meats are so much used in dressing and decorating the windows that the man in the street would find a difficulty in distinguishing between a grocer's and a tinman's or an ironmonger's shop.

Mothers wilfully resort to the artificial feeding of their babies; condensed milk, possibly adulterated, being the favourite. As the child grows older, tinned meats become an integral part of his diet. We often find the housewife, either from ignorance or from sheer neglect, rushing to the shop just before the husband returns from his toils—tinned meat again. In many districts it has become a difficulty as how to dispose of the empty tins.

Professor Metchnikoff, in delivering the Harben Lectures in May this year on the Hygiene of the Tissues, said that "the future of medicine rests far more in hygiene than in therapeutics." This becomes apparent when we look back at the sanitary record of the last thirty years. The decrease of infectious and contagious diseases, of puerperal affections and of erysipelas, of tuberculous maladies, and of bronchitis and other chest affections—all this is mainly due to improved water supplies, better ventilation and cleanliness of our military barracks, factories, and workshops. This is still further strengthened when we bear in mind the fact that, notwithstanding all sanitary improvements, etc., infantile mortality is as high to-day as it was thirty years ago; when we consider that alimentary diseases are on the increase, when the enormous possibilities for the adulteration and poisoning of the food of the inhabitants is realized, and when the insidious and continuous deleterious action of food preservatives on the system is thoroughly understood.

What are the remedies?

(*a*) Reorganization of the Local Government Board in London on the lines suggested by the Council of the British Medical Association, or, better still, the creation of a new State department of public health at Westminster, and more research work supported from the public purse.

(*b*) Legislation. Several sections of the Public Health Act, 1875 and 1890, require amending. Increased powers of inspection are required. The Sale of Food and Drugs Act, 1875 and 1879, should be so amended as to embody the recommendations of the Departmental Committee on Food Preservatives. At present, before any conviction can take place, it must be proved that the preservative used is injurious to health. This is often difficult.

Briefly, the recommendations are the following:

1. The use of formaldehyde to be prohibited.

2. No more than 1 gr. to the pint or 1 gr. to the lb. of salicylic acid to be allowed, and its presence to be declared.

3. All preservatives and colouring matter in milk to be strictly prohibited.

4. That boric acid or with borax—not to exceed 0.25 per cent.—be the only preservative of cream, presence to be declared.

5. That no preservative other than boric acid or boric and borax—not exceeding 5 per cent.—be used with butter and margarine.

6. No chemical preservatives of any kind to be used in the food of invalids and of infants.

7. That the use of copper salts be prohibited.

8. Proper supervision by the Local Government Board of the use of preservatives and colouring matter in food.

The report of the Departmental Committee on Food Preservatives was published in 1901. So far nothing has been done to carry out the recommendations contained in it.

Now that a Supplementary Charter for the granting of medical degrees by the University of Wales has been settled upon, it becomes necessary that the University Colleges of Bangor and Aberystwyth should follow the excellent example of Cardiff in the teaching of subjects directly relating to public health. These subjects are not included in the ordinary medical curriculum of qualifying bodies to the extent they should be, and when we take into consideration the great increase in importance of hygiene and bacteriology in the science of medicine, we may well ask: To whom is this knowledge of the greatest advantage—the general practitioner or the public health officer?

The College should be a centre for analytical and bacteriological work. The erection of a sanitary museum on the model of Parkes Museum in London should be provided for in the new university buildings about to be built. Here the teaching of sanitary science would receive a practical demonstration; all the appliances relating to ventilation, water supplies, drainage, heating, lighting, and, lastly, personal and domestic hygiene, including clothing, school fittings, food and their adulterations, could be made a means of education, not only to the student of medicine but to the hundreds of men and women that attend the university with the object of qualifying as teachers, both in elementary and secondary schools.

The knowledge of hygiene is almost as necessary for the elementary school teacher as it is to the medical man. At the last annual meeting of the National Union of Teachers it was stated that of the 160,457 elementary school teachers in the United Kingdom only 46.5 per cent. were certificated, and I am led to believe that of those certificated a small percentage only receive any special course of training in hygiene.

I am glad to find that cooking and hygiene have (under the new code) been made compulsory subjects in elementary schools.

It is by these means only that we may hope to educate the public of the importance of pure air, pure water, and wholesome food in their life history.

In North Wales we are blessed with abundance of pure air, and of pure water Wales has more than enough. The great cities—Liverpool and Birmingham—have had their "gwala a'u gweddill," and now Birkenhead, the central slaughtering establishment of the kingdom, is also to be supplied with water from the Welsh hills. Let us hope that this may be of some assistance in the preparation and a guarantee as to the wholesomeness of our food, and that the community at large will benefit by it.

References
[1] Thresh and Porter. [2] Registrar-General's Report, 1904. [3] Ibid.

THE DIRECT EXAMINATION OF OESOPHAGUS AND UPPER AIR PASSAGES.

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Though recent progress in the direct examination of the food and air passages has, to judge from the almost complete absence of literature, attracted little attention in this country, it is of some interest that one of the earliest attempts to solve the problem was made in England. As far back as 1868 Bevan described[1] an oesophagoscope made of a straight tube 4 in. long and ⅜ in. diameter. Over the tube was a small mirror, the light being obtained from a candle or magnesium lamp. Bevan recommended it chiefly for the diagnosis of foreign bodies, strictures and malignant disease. The instrument does not seem, however, to have been taken up, as no record of its use is obtainable. In 1880 Mackenzie[2] introduced an oesophagoscope, which consisted of a skeleton tube constructed of two upright rods connected at intervals by rings one above the other. Being collapsible it was easy to introduce and expand *in situ*. Mackenzie made considerable use of it for removing tumours, etc., and to him belongs the credit of being the first to record the extraction of a foreign body (a piece of bone) by the direct method. It does not appear to have come into general employment, probably because in the following year (1881) much improved models were introduced by Mikulicz.

The improvements in oesophagoscopy later by v. Hacker and Rosenheim greatly extended its use, and the suitability of the instruments of the latter observer led Kirstein to apply the same principles to the inspection of the larynx. He first used an instrument like a Rosenheim's long straight oesophageal tube introduced over the epiglottis after cocainization of the larynx. Later, this tube was introduced through a spatula, at first box-like, to be replaced subsequently by the "universal spatula," a long narrow instrument slightly bent forwards, with the

handle at right angles. Its end was inserted between the epiglottis and the base of the tongue, and by exerting pressure on the latter a good view of the whole interior of the larynx was obtained. Kirstein found that only a limited number of people could bear the pressure. In one fourth only of the adults could the whole larynx and trachea be seen, and in one to two fourths could it be carried out in a moderate degree only. On the other hand, Kirstein regarded the lower part of the trachea as a highly dangerous region, where the introduction of a stiff tube demanded the greatest care. It remained for Killian, when he removed a bone from the right bronchus through the upper air passages, to indicate the clinical importance of direct tracheoscopy with the tube, and the possibility of extracting foreign bodies from the deep bronchial passages. He demonstrated in 1897 that it was possible to pass tubes into the entrance of the main bronchi, and showed that these bronchi possessed a high degree of elasticity, are extensile, and may be displaced without ill effect. Through the tracheotomy wound he was able to introduce a tube past the bifurcation for 5 cm. into the right, and 4½ cm. into the left bronchus, to bring into view all the larger branches both right and left, and to see deep into the lower lobe branches and their ramifications. This he carried out equally well through the larynx and trachea, and named his method "direct bronchoscopy."

My own experience of Kirstein's method of "autoscopy," as he called it, dates from 1896, shortly after he published his first papers. One soon confirmed the truth of his statement that great difference as to tolerance existed among patients. Using his later models, when a patient was found who could stand the necessary pressure of the tongue, a direct view was obtained of the larynx and upper trachea which fully justified the enthusiastic description of Kirstein. The details of the larynx were seen close under the eye in a way which far excelled the laryngoscopic image, and the facility with which instruments might be used appealed strongly to the imagination. Unfortunately in practice its application was much limited. The majority of patients could not tolerate the necessary pressure, and the presence of a good set of upper teeth seriously interfered with the manipulation. The method consequently fell into disuse generally, and it was only on the introduction by Killian of the narrow tube-spatula that it has again become largely employed. The use of the tube form prevents the interference of the tongue with the spatula, a much smaller instrument is sufficient for the purpose, and the patient is much less inconvenienced; though it possesses the disadvantage of giving a more curtailed view, it is much more easily tolerated, and a larger number of patients are brought within its scope. Though the tube-spatula is a return to an instrument which in principle was used by Kirstein in his early trials, the direct method owes to the untiring labour of Killian much of the improvement in detail and the now widespread recognition of its great value.

DIRECT EXAMINATION OF THE OESOPHAGUS (OESOPHAGOSCOPY).

For this purpose Rosenheim's tubes are the most convenient. They are rigid, thin, and slightly thickened at the end to avoid injury to the mucous membrane. The gullet is not of the same calibre throughout, being affected at several points by adjacent structures. Perhaps the most important from the point of view of examination is the cricoid narrowing at the lower border of that cartilage. There the gullet is flattened from before backwards, and sometimes presents difficulty to the introduction of the tube. The narrower the tube the more readily is it introduced and the more easily borne. Tubes of a calibre of 9 to 11 mm. are those generally employed. In children 5 mm. may may be used, but, of course, with a narrower tube a more restricted view is obtained. In adults the calibre may be increased to 15 mm., and in special cases—as, for example, when examining the lower segment just above the cardiac end—I have used them as large as 20 mm. without difficulty, and with the advantage of a much larger field. For illumination the Kirstein electric forehead lamp is admirably adapted. The use of a local anaesthetic such as cocaine is necessary. A 10 per cent. solution brushed over the soft palate, pharynx, epiglottis, pyriform sinus, and entrance to oesophagus will suffice to render the parts insensitive. In some anxious patients a small dose of morphine hypodermically will serve to quieten, and in a few a general anaesthetic may be required.

The position of the patient is of some importance. The sitting posture is well adapted for most short procedures, and the one I generally adopt. The patient sits on a low stool, with the head hyper-extended and steadied behind by an assistant. As the examination is often undertaken where obstruction of the oesophagus exists, the presence of a quantity of mucus is a serious drawback, as it interferes with the view. In that event, as well as when the procedure is likely to be prolonged, the recumbent position is better. The dorsal position, with the head hanging over the table, so that all saliva drains into the pharynx, is adopted by many operators; others prefer the patient on the side (Mikulicz), when the mucus escapes by the mouth. In introducing the tube a gum elastic bougie of a calibre which fills the tube exactly is used as pilot. Moistened with liquid paraffin, the tube is passed over the tongue, the flexible end of the bougie guiding it down the posterior wall of the pharynx until it comes to the entrance to the gullet, into which it usually follows the pilot. Sometimes the passage through the upper narrower part constitutes a difficulty. It is helped by making the patient breathe deeply or swallow, when the tube may be slipped through, or a smaller bore tube may be tried. In any case no force should be used. Once in the oesophagus, the bougie is withdrawn, and the further progress of the tube can be controlled by the eye. With the smaller bore tube I never make use of a pilot, as guiding by the eye is more precise, and the entrance can be inspected at the same time. With the tube in the oesophagus difficulty with mucus may be again encountered, and here Killian's saliva suction pump does good service, though in dilatation with food contents it may get blocked. When the amount of fluid is large, tilting up the foot of the table may empty it, and I have found irrigation very helpful.

In setting forth the conditions in which direct examination is of especial value, I do not propose to do more than refer briefly to a few illustrative cases selected from material which has come under my own care. Cases in which difficulty of swallowing is the most prominent symptom are most frequent. Where this is of the so-called functional character, occurring chiefly in women, and associated often with atrophic catarrh of the upper pharynx, the history is generally a guide, but in certain cases a definite diagnosis is possible only by direct examination. In one patient, a woman, aged 40, who suffered for eighteen months from constant pain in the throat, difficulty in swallowing and loss of flesh, and in whom malignant disease had been suspected, the oesophagoscope revealed nothing in the nature of a stricture or growth, and the passage of the tube was followed by improvement. In another, a woman of 60, who had a varying amount of difficulty in swallowing for three or four years, which had latterly become somewhat more constant, nothing was revealed by the laryngoscope. The oesophageal tube showed, however, at the cricoid an ulcer with thickened edges, which subsequently infiltrated the cricoid plate and involved the larynx. A third patient, a man, aged 69, had trouble in swallowing referred to the neck, usually followed by pain in the epigastrium. From other symptoms present an aortic aneurysm was suspected, but a tube of 11 mm. diameter was carefully passed without difficulty down a normal oesophagus until the cardiac end was reached, when a growth was discovered. A smaller-sized tube was passed through with good results, as the patient entirely lost his pain and was able to swallow much better for a time. It is an easy matter to remove part of a growth for examination, and when this is in the upper part of the gullet I find the straight laryngeal forceps very suitable for the purpose.

Extraction of Foreign Bodies.

It is perhaps in the extraction of foreign bodies that oesophagoscopy shows its great advantages. Where the body is impacted the choice lies between it and oesophagotomy, an operation attended with a high mortality. The following cases which have come under my care illustrate the usefulness of the method.

(*a*) A boy, aged 13 years, swallowed a fishhook which he had been holding in his mouth, and was admitted into hospital with the loop of gut protruding from the mouth. Measured

from another specimen the gut was 9 in. in length, and a radiograph showed the hook in the gullet opposite the body of the fifth dorsal vertebra. Under chloroform, a tube was passed over the gut into the oesophagus under control of the eye and carefully pushed down until the hook was reached. It was seen fixed in the oesophageal wall, the point being firmly imbedded beyond the barb. To effect its removal I threaded the gut through the tubular end of a saliva suction pump and pushed it down on to the hook. Its bulbous termination fitted into the concavity and guarded the point and barb. When the gut was now made taut complete control was obtained over the hook, which was readily detached and removed. The boy recovered completely (Fig. 1).

(*b*) A woman, about 38 years of age, swallowed during sleep a tooth-plate, and was admitted into hospital shortly after. Fortunately nothing was done to dislodge it. The plate carried four teeth and two sharp metal clasps for fastening. A skiagraph showed the plate in the oesophagus opposite the suprasternal notch. Under an anaesthetic the oesophagoscope was passed, the plate discovered, and its relative position determined. The edge was then laid hold of with straight laryngeal forceps and the body carefully drawn up. As it was too large to pass through the tube they were withdrawn together and extraction successfully accomplished (Fig 2).

(*c*) A child, aged 4, swallowed a large brass button, plano-convex in shape such as worn on a seaman's overcoat. Difficulty in swallowing was present. Under an anaesthetic with the oesophagoscope the button was found in the gullet just within the chest. It was extracted with the straight laryngeal forceps (Fig. 3).



Fig. 1.—Fishhook from oesophagus. Fig. 2.—Toothplate from oesophagus. Fig. 3.—Brass button from oesophagus. Fig. 4.—Halfpenny from oesophagus. Fig. 5.—Safety-pin from larynx. Fig. 6.—Collar-stud from larynx. Fig. 7.—Stay eyelet from trachea.

(*d*) A child, aged 3, swallowed a halfpenny which was detected by *x* rays behind the cricoid. An attempt with a coin-catcher failed to dislodge it and the child was admitted to hospital. The coin was readily seen through the oesophagoscope and extracted without difficulty (Fig. 4). Several other cases of coins in the oesophagus of children have come under my notice—one had remained for ten days—and their removal was effected with great ease by means of the tube.

It is not unusual for a patient who has swallowed a small pointed body to complain of symptoms which make it difficult to say whether it is still in the oesophagus or has merely caused some lesion of the mucous membrane. A case in point is that of a gentleman who swallowed a small piece of bone when eating game. Pain was immediately felt in the lower part of the throat and a probang was passed by his medical attendant which appeared to displace something. As pain persisted for a time afterwards I examined with the oesophageal tube and found a linear abrasion of the mucous membrane in the cricoid region evidently caused by the passage downwards of the sharp body, no trace of which could be found. The discomfort eventually disappeared.

As an example of a foreign body impacted in strictured oesophagus, the following case is very instructive from several points of view:

A lad of 17, who had "a small swallow" for years and was careful to masticate his food well, had whilst at dinner a piece of beef stick in his throat, and was totally unable to swallow. A bougie and coin-catcher were used, apparently with some force but without success, in clearing the passage. On admission to hospital next day the patient was very ill. The neck was swollen and emphysematous crackling was felt on the left side. On examination under an anaesthetic, the entrance of the oesophagus and left pyriform sinus were seen to be much swollen and oedematous, the mucous membrane standing out in dusky folds. By means of an oesophageal tube that region was carefully examined, and one of small calibre passed down, when a piece of beef was found impacted just behind the cricoid plate. This was removed, and a narrowing of the gullet made out just below it. The patient was now able to swallow fluids, and though very ill for some days he eventually made a good recovery. Difficulty in swallowing large solids remained, due to the oesophageal narrowing, which had probably existed for some years.

This case illustrates the danger of employing the probang even in cases where the body is known to be soft. A previous history of difficulty of swallowing should always be inquired for, and, if obtained, no attempt to use bougie or probang with any degree of force should be made.

With regard to the diagnosis of foreign bodies, it may be laid down that the most certain method is oesophagoscopy. When the body is of metallic nature which gives a distinct shadow, radiography is helpful in determining its size and general situation, but precise information of its relations can only be obtained by means of the oesophageal tube. When the body is soft or small, giving no definite shadow, such as a spicule of bone, this instrument is indispensable, for by it alone a careful search is possible without risk. The probang or coin-catcher often fail to detach small bodies, and where these are sharp, serious injury may result. Even in the case of comparatively harmless bodies, such as coins, perforation of the oesophagus and death have resulted from attempts at dislodgement in this way. Blind attempts at extraction are not without danger, and, even when controlled by the fluorescent screen, injury to the mucous membrane has been inflicted. It is surely more in accord with surgical principles to view the foreign body *in situ*, and so define its relations to the surrounding oesophagus.

Oesophagoscopy is the safest and most certain method in the extraction of foreign bodies, and all other methods by bougie or coin-catcher, or by pushing the body into the stomach, should be avoided. The cases above detailed afford evidence of this. If undertaken at the earliest possible moment and before attempts by other means have complicated matters, the operation is perfectly safe and rarely fails. V. Hacker records a series of 38 consecutive cases of foreign bodies extracted by oesophagoscopy without harm to the patient.[3] It has been urged that such cases may be dealt with by oesophagotomy, and even for impacted coins in children this serious operation has been carried out several times by Sebileau.[4] As the most favourable statistics of oesophagotomy give a mortality of 20 per cent., all observers who have had experience of oesophagoscopy will agree that it is more suitable and certainly less dangerous. Of course, in certain conditions, the operation of oesophagotomy may be necessary. Where the foreign body is large and irregular, or has been impacted a long time, or has set up inflammatory trouble, it may be advisable to open the gullet, and, where gentle manipulation through the oesophageal tube has failed to move it, this should be done without delay, if the body lie within reach in the upper two-thirds.

To sum up, oesophagoscopy is the most certain method in the diagnosis and extraction of foreign bodies, and should be adopted as early as possible. Other methods, such as the use of bougies, coin-catchers, etc., should be avoided as not without danger, and under no circumstances used where a sharp body or the existence of a stricture below the body is suspected.

Direct Laryngoscopy and Tracheoscopy.

In examining the larynx Kirstein's direct method is employed. With the tube spatula, the end of which has a fish-tail shape, a certain amount of pressure on the base of the tongue is necessary, and when that is well borne the results obtained are excellent. I generally use the model devised by Killian, and find it in every way satisfactory. For an ordinary examination in an adult, Kirstein's electric lamp throws the light well into the tube, which can be guided by the sense of sight as it passes downwards. It is necessary to cocainize the base of the tongue, soft palate, posterior surface of the epiglottis, and the interior of the larynx with a 10 per cent.

solution of cocaine containing a few drops of adrenalin added. The patient is seated on a low stool, with the head supported by an assistant, and told to breathe regularly and avoid straining. The spatula is then warmed and introduced through the open mouth under control of the eye, guided by the forefinger. It is passed over the epiglottis and then downwards, or it may be passed round that structure to one side or the other, and the handle tilted up so as to bring the point over the entrance of the larynx. A good view may be obtained of the interior, and if it is desired to examine the trachea a narrow tube may be used and gently pushed down as far as the cords. If the patient is now told to breathe deeply it may be passed through the glottis. The interior of the trachea may then be cocainized—a 10 per cent. solution being quite sufficient, as the mucous membrane is not very sensitive unless a catarrhal state is present. The tube may now be gently pushed as far as the bifurcation. For the tracheal examination a narrow tube, 9 mm. diameter in adults and 5 to 7 mm. in children, may be introduced by itself or through the tube-spatula, the latter greatly facilitating the procedure. The spatula is constructed in two halves so that it can be detached and removed after the tracheal tube has passed the glottis. In children it is usually necessary to administer a general anaesthetic, and the examination is done with the head hanging over the table. In adults, when operative measures are to be carried out, this position is certainly the most convenient and the one to be adopted. I have found the tube-spatula serviceable in operating on the epiglottis, and preferable to the indirect method, as illustrated by the following case:

A woman, aged 56, complained for two months of burning in the throat and slight discomfort in swallowing. There was some thickening of the epiglottis, which was superficially ulcerated at one point. A small piece excised through the tube-spatula showed it to be epithelioma. She was now put under a general anaesthetic, and by means of Hartmann's conchotome the disease was cut away freely, and nothing but the stump of the epiglottis left. There was no difficulty with haemorrhage, and the parts healed rapidly.

For examination of the posterior laryngeal wall the direct method is excellent. It gives a much better view of the inter arytenoid region than the mirror, and curettage can be carried out directly and more satisfactorily. When there is great swelling of the arytenoids a short tube will permit an inspection which is often impossible with the laryngoscope.

In the removal of laryngeal tumours the direct method is of great value, and this is especially the case in the papillomata of children. For this purpose the little patient is put under chloroform in the dorsal position, the parts cocainized, and the end of the fishtail tube-spatula placed between the base of the tongue and the epiglottis. By suitable pressure the epiglottis is tilted up, and the interior of the larynx brought into view. I employ a straight forceps with a small beak to remove the growths, and this can be done rapidly, blood giving little or no trouble, as it drains into the dependent pharynx. A number of cases so dealt with have given excellent results, as a more complete clearance was possible, the anterior commissure and subglottic space being brought within reach.

Direct tracheoscopy has similar advantages, bringing the whole length of the windpipe under observation. I have used it perhaps most frequently in estimating the effect of pressure on the trachea from without in enlargements of the thyroid. For the surgeon, it is important to know the extent of and point at which pressure takes place, and whether it is present on one or both sides. Compression by aneurysms may be detected, and the discovery of a pulsating swelling just above the bifurcation clears up the diagnosis in an obscure case. In a boy now under treatment, a gradually increasing stridor was seen to be due to stenosis of the trachea opposite the suprasternal notch, and in a child who had left off wearing a tracheotomy tube some time before the serious difficulty of breathing was found to be caused by a large granulation on the site of the old tracheal wound, almost blocking the lumen. Removal by the straight forceps put matters right.

Examination of the trachea may be carried out through a tracheotomy wound—direct lower tracheoscopy. In the case of stenosis just mentioned, tracheotomy was performed for increasing dyspnoea, and a long catheter inserted. The opening facilitated the employment of a short tube of 7 mm. diameter, through which granulation tissue was removed, with great relief to the breathing.

For the removal of foreign bodies direct laryngo-tracheoscopy is of especial value. The following cases illustrate its use:

(*a*) An infant 9 months old was brought to hospital with the history of having swallowed a safety-pin six weeks before. The mother stated that the child showed no sign of inconvenience until a few days before advice was sought, when a slight fullness was noticed on the right side of the throat. The child looked well nourished, was placid, and nothing appeared amiss. Chloroform having been administered and the tube-spatula passed, I came at once upon a foreign body. It was an open safety-pin, the point lying inside the larynx, the protector fixed in the right pyriform sinus, and the hinge close to the right border of the epiglottis. It was somewhat firmly fixed, but by means of the straight laryngeal forceps it was loosened and extracted. It measured in length 1¾ in. (Fig. 5).

(*b*) A child 12 months old was admitted to hospital with difficulty of breathing and well-marked stridor. The history was that three months previously, whilst playing with a metal collar-stud, the child had a coughing fit and the stud could not be found. Nothing unusual, however, was noticed about the child, except a crowing noise made in sleep. Two months later difficulty of breathing set in which increased in degree. A skiagraph showed the stud fixed in the larynx in an oblique position with its head anteriorly. This I confirmed on direct examination, and made out as well considerable oedema of the entrance of the larynx. The foreign body was readily seized by the head, but it required firm traction to free it from the oedematous tissue around. The breathing was at once relieved and in ten days' time all trace of stridor had disappeared. The absence of interference with respiration at first, was no doubt due to the situation of the stud which kept the larynx open, and it was the gradual onset of oedema which led to the block (Fig. 6).

(*c*) A girl, aged 8, came to hospital with laryngeal obstruction of a week's duration. She was not hoarse, and, with the laryngeal mirror, a glimpse was got of a body, situated below the glottis. As the difficulty of breathing was said to have come on after teeth extraction, a broken tooth was suspected and a skiagraph strongly supported this. After admission the breathing suddenly became worse, and it having been ascertained that the foreign body had become displaced somewhat downwards and dyspnoea being very urgent, a low tracheotomy was done. The pharynx and larynx being now cocainized, a good view of the body was obtained through Killian's tracheoscope, and I had no difficulty in extracting it with the straight laryngeal forceps, when it proved to be, not a tooth, but a stay-eyelet somewhat crumpled and covered with calcareous incrustation. The child admitted that she had played with it some time before, but had no recollection of swallowing it (Fig. 7).

The direct examination of the lower air passages, or bronchoscopy, brings into view the bronchi and their ramifications. It may be carried out through the tracheotomy wound where that exists—lower direct bronchoscopy—or through the larynx, upper direct bronchoscopy. The latter method is always chosen unless tracheotomy has already been performed. The preliminaries are the same as in tracheoscopy. If the patient possesses good self-control, the sitting posture may be adopted, but for most, and especially if manipulative procedures are contemplated, the recumbent posture, with the head hanging over the end of the table, is more suitable. Longer tubes are necessary, 30 cm. to 35 cm. in adults, and 15 cm. to 25 cm. in children. The passage of the tube into the larynx and trachea is facilitated by the tube-spatula through which it is passed. The interior of the trachea and bronchi are cocainized, and the tube pushed gently down past the bifurcation. The right bronchus being more in a line with the trachea is easily explored into the base of the lung. To enter the left slight pressure may be necessary, which is perfectly safe, as the wall of the passage is elastic and extensile. Divisions of the bronchi to the second or third degree may be investigated. This method has made possible the removal of foreign bodies which have been aspirated into the bronchi, and the series of successful extractions recorded by Killian testify to its brilliant results. In cases where a foreign body is suspected, the bronchoscope is of great value in settling the question.

A child aged 2½ was sent to hospital by its medical attendant with the history that a week before it had a severe suffocative attack, thought to be due to something it had swallowed. On three subsequent occasions it had slighter attacks of dyspnoea. On examination the breath sounds on the right side were not so marked as on the left. Under chloroform I examined the upper passages, and then passed a tube of 6 mm. diameter into the right bronchus, and well into the lower lobe. Beyond

some increase in secretion, nothing was detected. The left bronchus was similarly explored with a like result. The child was kept under observation for some time, but there was no recurrence of the attacks.

It has been pointed out by Killian that bronchoscopy may be of service in localizing pulmonary cavities—a matter of great importance in the surgery of the lung. From the point of view of diagnosis the following case is of some interest:

A girl, aged 8, was admitted to the medical wards suffering from purulent expectoration of six months' standing. The pus was ejected in considerable amount, generally once a day in the morning, and had the appearance of coming from a lung cavity. The physical signs were indefinite, being chiefly loud rhonchi over both bases. With a view to ascertain the source of the pus a bronchoscopic examination was made, the child being under chloroform. The right bronchus was explored into the base of the lung and the openings of the branches from the middle and upper lobes noted. They contained, however, only a small quantity of stringy mucus. On inserting the tube into the left bronchus a quantity of pus was ejected through it with some force. After careful mopping, most of the pus appeared to come from a branch of the bronchus serving the middle of the lung. Ten days later another examination was made, the tube on this occasion being passed at once into the left bronchus and with the same result, a large quantity of pus coming out of the same bronchial branch. The child suffered no ill effect from the examinations, and was about on the second day. As the general condition was improving under medical treatment this was continued.

In such a case it would be possible to pass a probe into the branch and have a skiagraph of it taken *in situ*, so as to facilitate localization; or bismuth might be insufflated into the cavity and a skiagraph made for the same purpose. In the event of surgical procedures, for example, pneumotomy, the presence of the probe would enable the surgeon to locate the cavity, often a matter of great difficulty in a partially-collapsed lung.

From the evidence that has been produced it appears to me abundantly clear that direct examination of the air passages is a method of the greatest utility. It is especially welcome in the treatment of that group of cases which has always been so difficult and has yielded not a few tragedies, namely, foreign bodies in the air passages, and it is earnestly to be hoped that the time has now come when workers in this country will recognize its enormous advantages.

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HUMAN AND BOVINE TUBERCULOSIS.

THE DANGER OF INFECTED MILK.

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In the British Medical Journal of 1903, 1904, and 1905, I have had the pleasure of expressing my views as to the part played by tuberculous cattle in the spread of tuberculosis amongst humans, more especially in children. The intricate and difficult problem as to the exact relationship between human and bovine tuberculosis is still unsolved, because the actual test—namely, the experimental test of inoculating humans is inapplicable, and always will be. Hence we must work by roundabout methods, making clinical observation our basis, and relying on inferences from analogy, pathological research, and minute and careful comparisons between the bacilli of various origins for our ultimate conclusions.

I would like to follow the lines of my original paper of 1903, since I have no reason to modify the view then set forth—namely, that human and bovine bacilli are divisible into two distinct types of a common species:

1. *Typus humanus.*
2. *Typus bovinus.*

Long-continued residence in a particular host has resulted in the bacilli assuming characteristics which serve to distinguish it from others, and the fact that tubercle bacilli have lived for thousands of years in human lungs would be ample evidence for assuming a difference between bacilli which had lived for centuries in cattle.

To what extent infectious agents are restricted in their activities is shown by the fact that only *one* of the infectious diseases in man—the bubonic plague—is shared by one of the lower animals—the rat. The plague is known to spread freely from rat to rat, from rat to man, and less freely from man to man, so that some are inclined to the view that plague is primarily a rat disease.

There are other infections which may be transmitted from animals to man, but only under exceptional circumstances (Smith).

Another fact of the most profound importance in studying this problem is that for centuries man has been accustomed to feed upon cattle and their products (milk, butter, cheese, etc.), and in this way the human body has become tolerant to bovine tubercle bacilli.

Whilst I firmly believe that human and bovine bacilli are different types of parasites, yet I am convinced that bovine bacilli are freely communicable to humans and are the cause of a large amount of tuberculosis in children.

Koch holds that human and bovine tuberculosis are separate and distinct diseases, and that bovine tuberculosis if conveyed to man cannot set up generalized human tuberculosis.

Koch, in addition, believes that phthisis is conveyed from one person to another by direct infection, especially from contact with an advanced case of the disease, and that this is by far the commonest cause of the spread of the disease. Von Behring, on the other hand, holds diametrically opposite views. He says that human and bovine tuberculosis are the same disease, and that nearly all tuberculosis is the result of infection during infancy by means of infected milk, and that direct infection from person to person is not proved. I venture to submit that the truth will be found between these opinions, and, whilst I firmly believe that human and bovine bacilli are distinct varieties of an original species, yet they are sufficiently distinct to produce different and characteristic lesions in the human body; and I am also convinced that bovine bacilli give rise to a large amount of tubercle in the child through infected milk.

During the last three years I have made a very large number of pure cultures of tubercle bacilli from various sources—human, bovine, and avian. My original cultures were obtained from Berlin, Copenhagen, and Lille through the kindness of Professors Koch, Bang, and Calmette. Three cultures were obtained from each laboratory, and, after growing a very large number, one is bound to admit distinctive cultural differences on the same medium between human and bovine bacilli. All are agreed on the distinctive characteristics of avian bacilli.

So much, then, for the bacteriological side, which has received important support from the Imperial German Commission appointed to investigate the question of the relationship between human and bovine tuberculosis. They have reported entirely in favour of their being distinct varieties, and out of 23 cases of tuberculosis from human sources examined they found 6 to be of bovine origin, and all from children.

From the clinical and pathological side, my contention is considerably strengthened, and for this purpose I have examined over 4,000 cases of tuberculosis which have been under my care during the last nine years, a large number of which were children. In addition I have made over 1,600 *post-mortem* examinations on tuberculous cases, and most of them have been examined minutely.

Leaving for a moment the difficult question of modes of infection, I have come to the conclusion that man is attacked by two distinct varieties of tubercle, one conveyed by infection from person to person, the other received into the body through tuberculous milk and dairy produce. After examining some thousands of cases of phthisis one cannot but be impressed with the fact that the tuberculous process is confined strictly to the lungs and intestines in a very large percentage of cases—in fact, it is rare to see enlarged lymphatic glands, tuberculous joints, lupus, or peritonitis associated with true phthisis pulmonalis.

As a primary disease, phthisis seems to originate in the lungs as a result of inhalation of infected tuberculous matter, and secondarily to cause tuberculous ulceration of the intestine by swallowed sputum.

Other forms of tuberculosis, such as enlarged lymphatic glands in the neck, tuberculous peritonitis, tuberculous joints, and probably tuberculous meningitis and lupus, are most likely caused by bovine bacilli being absorbed through the digestive tract in milk and other food, such as butter, buttermilk, cheese, sausage, etc. Enlarged glands in the

neck are, in my judgement, a grave danger. In a great many instances the infection through the fauces and tonsils by infected milk is limited by the glands which either suppurate or are removed by the surgeon. If the infection is allowed to spread downwards, the apex of the lung may be directly attacked and an extensive bovine infection of the lungs may result. Although this is rare, I have seen several instances in which I have watched the process extend from the glands to the lung. For this reason, it is of the highest importance that all tuberculous glands should be excised as quickly as they appear.

From my own observation I would say that human tubercle bacilli do *not* attack the ordinary lymphatic glands of the body.

I have just completed a series of 100 carefully-conducted autopsies on children dying of tuberculosis, many of them ordinary phthisis, and several of them abdominal and meningeal tuberculosis. Of this number, 38 showed tuberculous intestinal ulcers with caseating mesenteric glands, and 23 showed caseating mesenteric glands without intestinal ulcers.

From the nature of the pulmonary lesions, I am inclined to think that the tuberculous ulcers were caused by human bacilli, and that in those cases where the mesenteric glands were infected without ulceration of the intestine, the bacilli were of bovine origin.

In short, human bacilli, whether primarily swallowed or as a secondary infection in phthisis, will cause intestinal ulceration, whilst bovine bacilli ingested with milk, etc., will readily pass through the intestine, leaving no trace behind, attack the mesenteric glands, and thence spread to the lungs and all over the body.

It is possible that this may be a means in future of distinguishing the origin of an infection.

I am at present engaged in collecting information from all parts of the world as to the distribution of the various forms of tubercle and its association with tuberculosis in cattle.

Some results already received are most interesting, and tend generally to show that in those countries where tuberculous cattle are absent, or where milk is not drunk by children, the surgical forms of tuberculosis are absent, whilst phthisis pulmonalis is rife. One letter of great interest is from Siam, and is from the Government medical officer, of which the following is an extract:

> As our experience in Siam would seem to support your contention that tabes mesenterica and other tuberculous affections of the serous membranes in children are probably bovine tuberculoses conveyed by milk and are not true human tuberculoses, I send you the following notes, hoping they may be of interest to you:
>
> During eight years' practice in Bangkok I do not remember having even seen or ever having heard of any case of strumous joints, lupus, or tabes mesenterica, or, in fact, of tuberculous affections of such nature in children. I have often spoken of this to my colleagues, but could formulate no reason until I read your paper in the BRITISH MEDICAL JOURNAL. The Siamese practically never drink cow's milk, either children or adults. Ordinary pulmonary tuberculosis, however, in adolescents or their elders *is very rife* in Bangkok. The same seems to hold good for China.

I have received similar confirmation from Jersey, Guernsey, Egypt, Malay, India, and Persia. When the inquiry is complete I will publish it.

A very valuable contribution to this question has just been made by Dr. Mayo, of Rochester, Minn. He says, speaking of abdominal tuberculosis:

> Practising as my brother and I do in an agricultural community, we have long noticed the relative infrequency of pulmonary tuberculosis, while abdominal, bone, joint and lymphatic diseases of tuberculous origin are common. One cannot help believing that much of the extra-pulmonary tuberculosis had to do with uncooked milk, which is a common article of diet in this country

This testimony is of great importance, and I feel sure that until tuberculosis is reduced in dairy cattle, where it at present prevails to the extent of between 20 and 25 per cent., there will not be much reduction in the mortality from tuberculosis in children.

The suppression of tuberculosis must, in my judgement, be accomplished by attacking two sides of the question—first, phthisis pulmonalis; secondly, bovine tuberculosis. Phthisis pulmonalis is essentially a "house" disease, and is most rife amongst the poor and where people live in insanitary and crowded rooms, by which infection is easily conveyed to different members of a family.

Owing to improvements in hygiene and the sanitary conditions in which the poor live, it is gratifying to find that the death-rate from phthisis is steadily diminishing, but the same cannot be said of tuberculosis in children, and I feel convinced that until milk *free* from tubercle bacilli can be supplied to children, we must not expect a marked diminution in the surgical forms of tuberculosis.

In my original paper I expressed the opinion that these two varieties of tubercle were antagonistic to each other in the human body, and that children who have suffered from bovine tuberculosis in the form of strumous glands, spinal caries, strumous joints, etc., did *not* develop true phthisis in later life. In fact, I argued that this mild infection conferred a certain immunity against phthisis in the same way as vaccination and small-pox.

This theory has also received great support by the work of von Behring and Römer. The only strain of tubercle bacilli which they find produces complete immunity is the human strain, and by using human bacilli they have been able to immunize thousands of cattle against bovine tuberculosis, not one of which has contracted tubercle, although repeatedly exposed to infection by living in the same stalls with infected cattle. If human bacilli will protect cattle, it is natural to suppose the converse—that bovine tubercle in children will protect them against human tubercle or phthisis.

I am at present engaged in collecting the blood of animals killed for tuberculosis, the serum of which, after careful preparation, I propose to use in vaccinating children whose parents have died of phthisis, with a view to protecting them against phthisis.

The brilliant results obtained by Professor Wright and other workers in the treatment of non-pulmonary forms of tubercle—such as glands, bones, genito-urinary, and lupus—with tuberculin may be explained, I venture to submit, by the fact that the tuberculin, being prepared from human bacilli, has an antagonistic effect on bovine forms of tubercle but has no effect on phthisis.

I conclude by expressing the opinion, based almost exclusively on clinical and pathological evidence, that human and bovine tuberculosis are distinct varieties of disease, but that the human body is susceptible to both, and especially to bovine tuberculosis in the milk-drinking period of life.

A CASE OF SUDDEN DEATH POSSIBLY DUE TO VAGUS INHIBITION.

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THE features of the following case suggest that the sudden fatal ending may have been due to the damaged condition of the right vagus. A lesion in the position described would involve the thoracic cardiac branches of the right pneumogastric:

History.

E. J., a pale, undersized girl of 11 years, was admitted to the Manchester Royal Infirmary on December 7th, 1905, suffering from chronic tuberculous cervical adenitis. The previous history of illness was negative, and there was no evidence of her ever having suffered from diphtheria. Glandular enlargement in the neck had existed for two years, and during the few weeks before admission the glands on the right side of the neck had discharged through two sinuses. The deep cervical glands on both sides were enlarged, forming a diffuse indurated mass, reaching from the angle of the jaw to the inner end of the clavicle. The skin of the left side was intact, but on the right side it was much puckered and scarred. Below the angle of the jaw were two small sinuses with thin watery discharge. There was no other superficial glandular enlargement, and no sign of disease in the chest or abdomen. The pulse and temperature were normal. The source of the tuberculous infection may have been the tonsils, which were slightly enlarged.

Operation.

On December 11th the child was anæsthetized with chloroform, and the glands on the right side of the neck were widely removed through a free V-shaped incision. The operation proved difficult and tedious, and occupied one hour. A deep dissection was necessary, and the large vessels were laid bare for some distance, but the right vagus nerve was not seen. The wound was sutured and drainage provided by two gauze wicks. On two occasions the child's behaviour under the anæsthetic

caused temporary anxiety, owing to pallor and great rapidity of the pulse.

After-history.

Recovery from the anaesthetic was prompt and complete, and in the evening her condition was satisfactory. The only unusual feature was a pulse-rate of 120. Throughout the following day the course of the case was uneventful. There was no vomiting, the temperature was normal, and the mental condition quite bright. The pulse, however, continued at 120, both in the morning and evening. Next morning (December 13th) nothing unusual was seen till 9 a.m., when the child suddenly sat up in bed and cried out "Sister" in terror-stricken tones. The Sister had scarcely reached the bedside when the child fell back dead. There was, however, time to note that the pulse was feeble and quite beyond count in the moment before death.

Necropsy.

On the following day a very exhaustive *post-mortem* examination was made by Dr. Anderton. A trace of pus was found on the gauze drains; this was no more than might be expected in a wound involving two septic sinuses. The aspect of the wound both in its superficial and deeper parts was quite satisfactory. All the deep structures of the neck, including the cervical portion of the vagus nerve, were normal in appearance. The whole of the thoracic and abdominal viscera were closely examined with negative result. There was no indication of any acute septic infection, nor was there anything to suggest that the fatal issue was due to the delayed action of chloroform. The brain and its vessels were in a perfectly healthy condition on naked-eye examination.

On tracing the right vagus nerve into the chest a very suggestive condition was found. At the level of the first dorsal vertebra the nerve disappeared into an elongated mass the size of a large filbert, formed by the fusion of several enlarged and tuberculous glands. The nerve was distinctly swollen for 1 in. before its entry into the mass, whilst at the point of entry it was actually constricted as definitely and sharply as if it had been encircled by a ligature. The interior of the mass contained soft caseous débris, and the fibres of the nerve were frayed out in their course through it. At the point of exit and throughout its subsequent course the nerve was normal.

Brouardel quotes a case of sudden death in which the *post-mortem* findings offer a striking parallel to those observed in the present instance.

On the other hand, the vagus has frequently been injured or divided in surgical work on the human subject, and such division does not appear to have produced any noteworthy results either immediate or remote. I have notes of one case in which 2 in. of the left vagus were deliberately excised during the removal of a mass of secondary epitheliomatous glands from the neck. Attention was specially directed to the pulse-rate and respiration rhythm at the moment of section, but no effect was found. The patient was alive and well six months after the operation. One of the conclusions reached by Roy and Adami in their classical research on the mammalian heart is "that the influence of the nerve on the heart is limited, so that the economy as a whole is not endangered even by the most powerful functional activity of the vagus mechanism."

At the meeting of the German Ophthalmological Society held at Heidelberg on August 6th, the Graefe Medal was awarded to Professor Hering, of Leipzig.

The twenty-sixth annual meeting of the Caledonian Medical Society was held at Stirling on July 13th, under the presidency of Dr. W. A. Mackintosh of Stirling. There was a representative attendance from both sides of the Border. The honorary secretary (Dr. Macphail of Derby) gave his report, which showed the membership to be 232, or double what it was ten years ago. Financially also the society was stronger than it ever had been, and the *Journal* published quarterly by the society had increased its circulation. Dr. Andrew Little of Bradford was elected president for the ensuing year. In his presidential address, Dr. Mackintosh spoke of the present position and prospects of the Gaelic language, and his address was an able and forcible plea for the teaching and study of Gaelic. The annual dinner was held the same evening. The menu card, designed and beautifully illustrated with local views by Mr. J. G. Murray, was entirely in Gaelic. A motto from Galen in the original Latin with an old Gaelic translation from a curious and valuable MS. in the president's possession appeared on the frontispiece, which also showed the crest of the society—an armed Highlander battling with the skeleton Death, and the motto "Is Righ Gach Slan." The toast of the evening was proposed in a racy and witty speech by the Rev. Lachlan Maclean Watt, Alloa, a well-known Celt and poet.

British Medical Association.

REPORT

TO THE

THERAPEUTIC COMMITTEE.

THE BACTERICIDAL ACTION OF COMPOUNDS OF SILVER.

BY

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This research was undertaken at the request of the Therapeutic Committee of the British Medical Association. Owing to the extensive use of silver compounds as bactericidal agents in certain diseases, it seemed to the Committee desirable that a comparison of the value of these compounds should be made by disinterested observers. For this purpose all the silver compounds in common use were bought from a retail pharmacist. The percentage of silver in each was determined in most cases by incinerating, heating with nitric acid, dissolving in water, and titrating with centinormal ammonium sulphocyanide solution, with the following results:

	Percentage of Ag.
Collargol	86.6
Silver fluoride	81.7
Silver nitrate	63.6
Itrol	60.8
Actol	51.5
Argentol	31.2
Ichthargan	27.1
Argyrol...	20 0
Albargin	13 4
Nargol	9.6
Largin	9 4
Novargan	7.9
Protargol	7.4
Argentamine	6.4
Argonin	3.8

These results were used in preparing the various solutions. Each solution was made to contain a definite percentage of silver. This appeared to be the only method available for comparison, as equimolecular solutions could not be employed owing to the composition of many of the substances being unknown. It is only necessary to draw attention to the fact that a 25 per cent. solution of argyrol practically corresponds to an argyrol solution containing 5 per cent. silver; a half per cent. solution of protargol to one containing 0.04 per cent. silver, etc.

Bactericidal Action.

The bactericidal effect was determined both on a mixed culture and on a pure culture of *Staphylococcus pyogenes aureus*. In every experiment a control was made, and this invariably showed growth after remaining twenty hours in the incubator.

Experiments with a Mixed Culture.

The fluid for these experiments was obtained by allowing uncooked beef to stand in water in an open vessel for four to six weeks. It was strained just previous to use. To 5 c.cm. of this fluid sufficient sterilized water and solution of a silver compound were added to make the whole 10 c.cm. A loopful of this mixture was transferred to 10 c.cm. of sterilized broth at intervals of five, ten, and twenty minutes, and the inoculated broth was incubated at a temperature of 38° C. This method approaches somewhat the conditions actually met with in therapeutics, since the meat fluid contained both albumins and chlorides; 5 c.cm. of meat infusion when treated with excess of silver nitrate solution gave a precipitate which when dried contained 0.0256 Ag. Of this 0.0236 g. Ag appeared to be combined with albumins and 0.0021 g. Ag with chlorides.

The following results were obtained: + indicates growth; 0 indicates no growth. The experiments indicating limit of action are alone given.

SILVER NITRATE.

	1st Day.	2nd Day.	10th Day.
0.02 per cent. Ag for 5 minutes	0	0	0
0.01 per cent. Ag for 5 minutes	+		
0.01 per cent. Ag for 10 minutes	0	+	
0.01 per cent. Ag for 20 minutes	0	0	0

SILVER FLUORIDE.

	1st Day.	2nd Day.	3rd Day.
0.02 per cent. Ag for 10 minutes	+		
0.02 per cent. Ag for 20 minutes	0	0	0
0.01 per cent. Ag for 20 minutes	+		

ACTOL.

	1st Day.	2nd Day.	10th Day.
0.01 per cent. Ag for 5 minutes	0	0	0
0.005 per cent. Ag for 5 minutes	0	+	
0.005 per cent. Ag for 10 minutes	0	0	0
0.0025 per cent. Ag for 10 minutes	+		
0.0025 per cent. Ag for 20 minutes	0	0	0
0.001 per cent. Ag for 20 minutes	+		
0.001 per cent. Ag for 24 hours	0	0	0

ITROL.

	1st Day.	2nd Day.	10th Day.
0.01 per cent. Ag for 5 minutes	0	0	0
0.005 per cent. Ag for 10 minutes	+		
0.005 per cent. Ag for 20 minutes	0	0	0
0.002 per cent. Ag for 10 minutes	+		
0.002 per cent. Ag for 20 minutes	0	0	0

ARGENTAMINE.

	1st Day.	2nd Day.	10th Day.
0.02 per cent. Ag for 5 minutes	0	+	
0.02 per cent. Ag for 10 minutes	0	0	0
0.01 per cent. Ag for 5 minutes	0	+	
0.01 per cent. Ag for 10 minutes	0	0	0
0.005 per cent. Ag for 20 minutes	+		
0.005 per cent. Ag for 19 hours	0	0	0

PROTARGOL.

	1st Day.	2nd Day.	10th Day.
0.02 per cent. Ag for 5 minutes	0	+	
0.02 per cent. Ag for 10 minutes	0	0	0
0.01 per cent. Ag for 5 minutes	0	+	
0.01 per cent. Ag for 10 minutes	0	0	0
0.005 per cent. Ag for 20 minutes	+		
0.005 per cent. Ag for 19 hours	0	0	0

LARGIN.

	1st Day.	2nd Day.	3rd Day.
0.02 per cent. Ag for 5 minutes	0	0	0
0.01 per cent. Ag for 5 minutes	0	0	+
0.01 per cent. Ag for 10 minutes	0	0	0
0.005 per cent. Ag for 10 minutes	+		
0.005 per cent. Ag for 20 minutes	0	+	

ICHTHARGAN.

	1st Day.	2nd Day.	10th Day.
0.02 per cent. Ag for 5 minutes	0	0	0
0.01 per cent. Ag for 5 minutes	0	+	
0.01 per cent. Ag for 10 minutes	0	0	0
0.005 per cent. Ag for 10 minutes	+		
0.005 per cent. Ag for 20 minutes	0	+	

ALBARGIN.

	1st Day.	2nd Day.	10th Day.
0.02 per cent. Ag for 5 minutes	0	+	
0.02 per cent. Ag for 10 minutes	0	0	0
0.01 per cent. Ag for 5 minutes	+		
0.01 per cent. Ag for 10 minutes	+		
0.01 per cent. Ag for 20 minutes	0	0	0
0.005 per cent. Ag for 20 minutes	+		

NOVARGAN.

	1st Day.	2nd Day.	10th Day.
0.05 per cent. Ag for 5 minutes	+		
0.05 per cent. Ag for 10 minutes	0	0	0
0.02 per cent. Ag for 10 minutes	+		
0.02 per cent. Ag for 20 minutes	0	0	0
0.01 per cent. Ag for 10 minutes	+		
0.01 per cent. Ag for 20 minutes	0	0	0
0.005 per cent. Ag for 20 minutes	+		

ARGONIN.

	1st Day.	2nd Day.	10th Day.
0.05 per cent. Ag for 5 minutes	0	0	0
0.04 per cent. Ag for 5 minutes	+		
0.04 per cent. Ag for 10 minutes	0	+	
0.04 per cent. Ag for 20 minutes	0	0	0
0.02 per cent. Ag for 10 minutes	+		
0.02 per cent. Ag for 20 minutes	0	+	
0.01 per cent. Ag for 20 minutes	+		

ARGYROL.

	1st Day.	2nd Day.	10th Day.
5 per cent. Ag for 20 minutes	+		
1 per cent. Ag for 72 hours	0	0	0
0.5 per cent. Ag for 72 hours	0	+	

Argentol.

	1st Day.	2nd Day.	10th Day.
0.03 per cent. Ag for 5 minutes	0	+	
0.03 per cent. Ag for 10 minutes	0	+	
0.03 per cent. Ag for 20 minutes	0	0	0
0.02 per cent. Ag for 20 minutes	+		

Nargol.

	1st Day.	2nd Day.	3rd Day.	4th Day.
0.1 per cent. Ag for 5 minutes	0	+		
0.1 per cent. Ag for 10 minutes	0	0	0	0
0.02 per cent. Ag for 5 minutes ...	+			
0.02 per cent. Ag for 10 minutes ...	0	0	0	0
0.01 per cent. Ag for 10 minutes ...	+			
0.01 per cent. Ag for 20 minutes ...	0	0	0	+

Collargol.

	1st Day.	2nd Day.	10th Day.
4 per cent. Ag for 10 minutes	+		
4 per cent. Ag for 20 minutes	0	0	0
2 per cent. Ag for 20 minutes	+		
1 per cent. Ag for 23 hours	0	0	0
0.5 per cent. Ag for 23 hours	0	+	

Experiments with a Pure Culture of Staphylococcus Pyogenes Aureus.

The method employed was the ordinary thread method. Such threads, 20 mm. long, were digested in boiling alcohol and in ether, and afterwards dried. They were subsequently infected with an emulsion of *Staphylococcus pyogenes aureus* in water and dried in an evacuated desiccator over calcium chloride for eighteen to twenty hours. The threads were then subjected to the action of various strengths of the different compounds for five, ten, and twenty minutes, and after being washed for about ten minutes in three different quantities of about 20 c.cm. of sterile water were put into sterilized broth. Controls were always made, and invariably showed growth on the first day.

Silver Nitrate.

	1st Day.	10th Day.
0.001 per cent. Ag for 5 minutes	0	0
0.0075 per cent. Ag for 5 minutes	+	
0.0075 per cent. Ag for 10 minutes	0	0
0.005 per cent. Ag for 10 minutes	+	
0.005 per cent. Ag. for 20 minutes	0	0

Silver Fluoride.

	1st Day.	10th Day.
0.002 per cent. Ag for 5 minutes	0	0
0.001 per cent. Ag for 5 minutes	+	
0.001 per cent. Ag for 10 minutes	0	0

Actol, Largin, Ichthargan, Novargan gave exactly the same results as Silver Fluoride.

Argentamine.

	1st Day.	10th Day.
0.004 per cent. Ag for 5 minutes	0	0
0.002 per cent. Ag for 5 minutes	+	
0.002 per cent. Ag for 10 minutes	0	0
0.001 per cent. Ag for 10 minutes	+	
0.001 per cent. Ag for 20 minutes		

Protargol.

	1st Day.	2nd Day.	10th Day.
0.002 per cent. Ag for 5 minutes	+		
0.002 per cent. Ag for 10 minutes	0	0	0
0.001 per cent. Ag for 20 minutes	0	+	

Albargin.

	1st Day.	10th Day.
0.004 per cent. Ag for 5 minutes	+	
0.004 per cent. Ag for 10 minutes	0	0
0.002 per cent. Ag for 10 minutes	+	
0.002 per cent. Ag for 20 minutes	0	0
0.001 per cent. Ag for 20 minutes	+	

Nargol.

	1st Day.	10th Day.
0.02 per cent. Ag for 10 minutes	+	
0.02 per cent. Ag for 20 minutes	0	0
0.01 per cent. Ag for 20 minutes	+	

Argyrol.

	1st Day.	10th Day.
10 per cent. Ag for 2 hours	+	
10 per cent. Ag for 23 hours	0	0

Collargol.

	1st Day.	10th Day.
10 per cent. Ag for 80 minutes	+	
10 per cent. Ag for 120 minutes	0	0

Antiseptic Action.

This was determined in two ways—(1) by observing the time taken by minced cooked beef to putrefy in presence of solutions of silver compounds of known strength; (2) by inoculating an agar medium containing a definite quantity of the various silver compounds. Neither method can be regarded as wholly satisfactory. In the case of the beef experiments it was several times observed that a certain strength of solution prevented putrefaction better than one double the strength. The experiments, however, on the whole corroborate those previously described, and, consequently, we think they are worthy of record.

One gram of finely-minced lean roast beef was placed in test tubes, each of which contained an aqueous solution of the silver compounds of known strength. The test tubes were then placed in an incubator at 40° C., and observations were made every morning to detect any smell of putrescence. The days given are those on which a smell of putrescence was first observed. In the case of the control this was on the first day.

SILVER NITRATE.

0·001 per cent. Ag	3rd day
0·002 ,, ,, ,, ...	5th ,,
0·004 ,, ,, ,, ...	8th ,,

ACTOL.

0·001 per cent. Ag	3rd day
0·002 ,, ,, ,, ...	4th ,,
0·004 ,, ,, ,, ...	6th ,,

ARGENTAMINE.

0·001 per cent. Ag	3rd day
0·002 ,, ,, ,, ...	5th ,,
0·004 ,, ,, ,, ...	6th ,,

PROTARGOL.

0·001 per cent. Ag	5th day.
0·002 ,, ,, ,, ...	4th ,,
0·004 ,, ,, ,, ...	6th ,,

LARGIN.

0·001 per cent. Ag	4th day.
0·002 ,, ,, ,, ...	5th ,,
0·004 ,, ,, ,, ...	5th ,,

ICHTHARGAN.

0·001 per cent. Ag	4th day.
0·002 ,, ,, ,, ...	4th ,,
0·004 ,, ,, ,, ...	7th ,,

ALBARGIN.

0·001 per cent. Ag	3rd day.
0·002 ,, ,, ,, ...	4th ,,
0·004 ,, ,, ,, ...	6th ,,

NARGOL.

0·001 per cent. Ag	5th day.
0·002 ,, ,, ,, ...	5th ,,
0·004 ,, ,, ,, ...	6th ,,

ARGYROL.

0·05 per cent. Ag	6th day.
0·2 ,, ,, ,, ...	6th ,,
1·0 ,, ,, ,, ...	6th ,,

COLLARGOL.

0·01 per cent. Ag	5th day.
0·05 ,, ,, ,, ...	4th ,,
0·1 ,, ,, ,, ...	6th ,,
0·5 ,, ,, ,, ...	6th ,,

In the second class of experiments agar medium containing a definite quantity of the respective silver compounds was sloped and inoculated in the form of a streak culture with *Staphylococcus pyogenes aureus*. The tubes were then incubated at 38° C. The following results were obtained (+ indicates growth on first day):

SILVER NITRATE.

0·002 per cent. Ag.	0
0·001 ,, ,, ...	+

SILVER FLUORIDE, PROTARGOL, LARGIN, ICHTHARGAN, ALBARGIN, and NARGOL gave the same results.

ARGENTAMINE.

0·004 per cent. Ag	0
0·002 ,, ,, ...	+ (2nd day).
0·001 ,, ,, ...	+

ARGYROL.

0·05 per cent. Ag	+

COLLARGOL.

0·01 per cent. Ag	+

DIFFUSION EXPERIMENTS.

As the therapeutic value of bactericidal substances employed in the class of cases for which silver compounds are commonly recommended does not depend on their bactericidal action alone, but also in some degree upon their power of diffusion, their freedom from ill-effects, etc., an endeavour was made to determine the relative rates of diffusion, this being the only other factor that cannot be definitely decided by clinical observation. The method employed was as follows: Glass tubes, 50 mm. long and of 2 mm. bore, were filled with 2 or 3 per cent. nutrient agar, which had previously been inoculated with *Staphylococcus pyogenes aureus*. The tubes were placed horizontally in solutions of the various silver compounds corresponding to 0.5 per cent. Ag. After remaining twenty-four hours, they were taken out, washed in water, and any diffusion apparent to the eye, either as a precipitate or a coloration, measured. The agar cylinders were then blown out of the tubes, well washed in a stream of sterile water, placed in Petri's dishes and incubated. The experiments, for reasons we have not yet been able to determine, were not uniformly successful; in some cases no growth occurred in the agar cylinder. The following table is a record of successful experiments. "Free" indicates the length of cylinder in millimetres free from bacterial growth at the respective ends; "growth" indicates the length of cylinder showing bacterial colonies.

	Free.	Growth.	Free.
Silver nitrate (0.5 per cent. Ag)	13.0	24	13.0
Silver fluoride ,, ,, ...	13.0	24	13.0
Argentamine ,, ,, ...	15.5	19	15.5
Protargol ,, ,, ...	19.0	24	7.0
Albargin ,, ,, ...	17.0	17	16.0
Ichthargan ,, ,, ...	16.0	19	15.0
Largin (0.25 per cent. Ag)	9.5	31	9.5
Argyrol (10 ,, ,,)	20.5	9	20.5
Control	0.0	50	0.0

The obvious diffusion, as shown by the formation of a precipitate in, or, in the case of coloured substances, by discoloration of the agar cylinder, is seen in the following table:

		Obvious Diffusion from Each End of Tube.	
Silver nitrate (0.5 per cent. Ag)...		8.0 mm.	8.0 mm.
Silver fluoride	,, ...	8.0 mm.	8.0 mm.
Actol	,, ...	8.0 mm.	8.0 mm.
Albargin	,, ...	8.0 mm.	8.0 mm.
Ichthargan	,, ...	7.2 mm. ..... (slight opalescence to 10 mm. on each side).	7.2 mm.
Argentamine	,, ...	5.0 mm.	5.0 mm.
Protargol	,, ...	10.0 mm. ..... (precipitate of 2.0 mm. on each side).	4.0 mm.
Novargan	,, ...	8.0 mm. ..... (precipitate of 2.0 mm. on each side)	5.0 mm.
Nargol	,, ...	7.0 mm. ..... (precipitate of 0.8 mm. on each side).	4.5 mm.
Largin	(0.25 per cent. Ag)...	5.0 mm. ..... (precipitate of 1.5 mm. on each side).	3.0 mm.
Argyrol	(5 per cent. Ag) ...	4.0 mm.	4.0 mm.
,,	(10 per cent. Ag) ...	13.0 mm.	13.0 mm.
Collargol	(5 per cent. Ag) ...	2.5 mm.	2.5 mm.
,,	(10 per cent. Ag) ...	8.0 mm.	8.0 mm.

The different diffusions observed at different ends of the tubes in some cases is probably due in part to the tubes not having lain quite horizontally owing to inequalities in the bottom of the dish in which they were placed.

We do not presume to state that these relative rates of diffusion will be maintained in the case of living cells, as it is known that the rate of diffusion into agar jelly and the rate of absorption into living cells are in the case of some salts markedly different, but we do believe that these experiments are suggestive as regards the rate of absorption.

SUMMARY.

The experiments show that as regards bactericidal action the various silver compounds investigated fall into three groups: (1) Those which are powerfully bactericidal; (2) one—nargol—much less powerfully bactericidal; (3) two—argyrol and collargol—which possess practically no bactericidal action whatever. The first group includes most of the substances investigated, namely, silver nitrate, silver fluoride, actol, itrol, argentamine, argentol, albargin, argonin, ichthargan, largin, novargan, and protargol. The bactericidal action of these in solutions con-

taining the same percentage of combined silver is closely similar, and it is practically impossible to place them in any order of activity which would be true under all circumstances.

As argyrol and collargol are not bactericidal, it is evident that the amount of silver which a compound may contain is no criterion of its bactericidal power. Moreover, in view of the results obtained with argyrol, it seems impossible to attribute the good effects which many clinicians have obtained with it to its bactericidal action.

THE RELATION BETWEEN A CUTANEOUS NAEVUS AND A SEGMENTAL NERVE AREA.

By G. LENTHAL CHEATLE, C.B., F.R.C.S.,

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The original observation which pointed out the fact that naevi sometimes occupy nerve areas I have failed to trace. But it is mentioned in some of the textbooks which deal with the matter, and in a few an example is illustrated. The illustrations are those which relate to the areas of the fifth cranial nerve; and I cannot discover any recorded case which describes the distribution of a naevus that corresponds to the area of a segmental nerve.



Fig. 1.

For such a case I have been looking for four years, and at last I have found one among the out-patients of King's College Hospital. It is the first case of naevus which I have seen or heard of which corresponds to the complete area of distribution of one segmental nerve area.

This naevus occupies the area of distribution of the third cervical nerve. (See Figs. 1 and 2.) Fig. 3, with Dr. Head's kind permission, is taken from his article in *Brain*, vol. xvii, on The Disturbances of Sensation with Especial Reference to the Pain of Visceral Disease, and shows the corresponding part mapped out in the sterno-mastoid area, which is the area of the third cervical nerve. The curious notch in the lower border of the naevus corresponds to the same interruption in the line of the inferior border to the sterno-mastoid area. In my case the actual naevus is difficult to reproduce in a photograph, but clinically it is linear and less continuous in arrangement towards the angle of the jaw where the lines are vertical. In fact the whole manner of its formation resembles an eruption of herpes zoster in this area.

In my collection I have naevi which occupy the following areas:

1. The first division of the fifth cranial nerve.
2. The second division of the fifth cranial nerve.
3. The first and second divisions of the fifth cranial nerve.
4. Dr. A. H. Lister of Aberdeen has kindly sent me a cutaneous and subcutaneous naevus which occupies the areas of the fifth cranial nerve, the second cervical nerve, and part of the third cervical nerve. But the case I now publish is the first and only one that corresponds to a

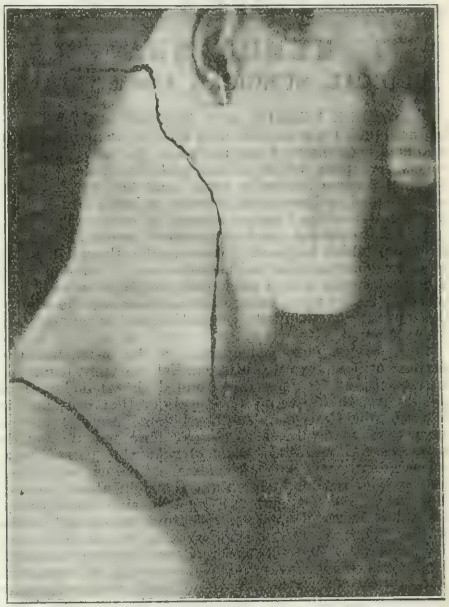


Fig. 2.

single segmental nerve distribution. It is not one case out of many, but the only case of a widespread naevus I have seen on the neck or trunk.

I have published three cases of rodent ulcer which are of interest in considering the areas occupied by naevi.

1. Occupied the area of the first division of the fifth cranial nerve (British Medical Journal, April 18th, 1903, which also contained the next case).
2. Occupied the second division of the fifth cranial nerve.
3. Occupied the first and second divisions of the fifth cranial nerve (British Medical Journal, December 12th, 1903).

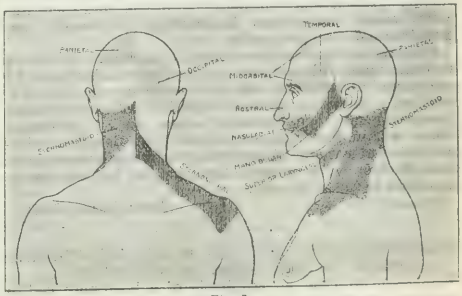


Fig. 3.

So far as the head is concerned, these rodent ulcers correspond in distributions to the naevi and eruptions of herpes on the face; but on the body I have never seen any case of widespread rodent ulcer which marked out a segmented nerve area, and in this respect the distribution

of rodent ulcers on the body differs from the distributions of herpes zoster and this one case of naevus. The distribution of rodent ulcers on the body and face resembles the areas occupied by leucodermia and sclerodermia. In the early stages rodent ulcers on the trunk appear oblong, with their longitudinal axis in the direction of the segments, but the form is soon lost, and the eventual sites occupied are peripheral areas rather than those which are segmental. It must be borne in mind that cutaneous naevi may spread during life and they may atrophy, the recognition of which form data of importance in considering their relation to the nervous system.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

DOUBLE UTERUS AND DOUBLE VAGINA.

IN June, 1904, I was consulted by a young woman, aged 25, who had been married seven weeks. She complained of very severe pain during coitus, and this instead of improving became gradually worse, and latterly had been accompanied by haemorrhage more or less profuse. She was a well-developed young woman, of an extremely dark type. The external genitals were well formed, and menstruation, which began at 13, was regular though painful. Since her marriage she had been costive. I found she had a double vagina with a thick fleshy septum between the two orifices, the right being more anterior and the edge of the septum raw, exquisitely sensitive, and bleeding freely when touched.

When slight tension was put on the perineum the vaginal orifices became quite parallel, the right being the less sensitive. The septum extended the whole length of the vagina; there was no visible perforation in it, and it seemed to be thicker above than below. A cervix and os uteri were found in each vagina. Two uterine sounds were passed, one into either uterus; they passed to a normal depth, and could not be made to touch each other internally. Examined per rectum, the right uterus seemed the larger and the adnexa on that side more easily palpable. Examined with a speculum, the os and cervix of the right uterus were, if anything, better developed than the left. She was ordered some vaginal pessaries containing cocaine to be used before coitus, and was next seen in July, 1905, when she came to tell me she thought she was pregnant. This was found to be the case. The left vagina was much more patent, and the septum was pushed over so as to completely occlude the right passage. Impregnation had apparently taken place on the left side, and she was about three months pregnant, the tumour being markedly left-sided. When eight months pregnant she was again seen; the tumour then occupied the normal central position.

She was confined in January, 1906. Presentation: occipito-posterior. Labour was naturally slow and tedious. During the progress of the head the septum was torn nearly its whole length, the external portion slipping like a band over the advancing head as it came through the vulvae. Labour was terminated by forceps, and there was pretty smart *post-partum* haemorrhage. She did not menstruate during pregnancy.

Remarks.—Her future fate is very uncertain. While the septum remained intact, and practically occluded the right vagina and uterus, there was little or no chance of superfetation. But in her present condition, with her cervices presenting into one common vagina, such a calamity comes within the range of possibility; unless the unimpregnated uterus and its appendages have undergone some form of atrophy, or in some other manner become a mere appendix to the active one.

Wigan. JOHN BLAIR, M.D.

EPIPHYSIECTOMY OF THE FIFTH METATARSAL BONE IN THE CURE OF CLUB-FOOT.

DISEASE or injury of an epiphysis of a bone may lead to arrest of its growth; and where there are two parallel long bones, as in the forearm, if one is damaged and its growth stopped while the other continues to grow, the result is that the hand is pushed to one side. This fact induced me to try what would be the effect of arresting the growth of the fifth metatarsal bone in talipes varus. Here, no doubt, in many cases which have been neglected a great deal of deformity exists in the bones of the tarsus, long-neglected malposition of the foot interfering with their development. In the following case—one of talipes equino-varus in a child aged 4—treatment was begun early. By strapping and plaster-of-paris the foot could be almost straightened, but whenever the restraint was removed the forepart rotated and inverted to a considerable degree. Instead of doing a tarsectomy, for which the patient was sent into hospital, it occurred to me that a portion of the fifth metatarsal bone might be excised and the ends wired together. The result at first was excellent, but did not last, as the wire cut through the soft bone. It then occurred to me that if the proximal epiphysis were thoroughly removed and growth arrested the traction of the stunted bone would pull the foot out of its inverted position automatically.

This operation I subsequently performed on May 29th. An incision was made on the side of the foot and the epiphysis removed. The soft parts were approximated by strong silk sutures, and a back splint with foot pieces and side splints were applied. On June 21st, the child was sent home with measles, the limb being encased in plaster-of-paris. The inversion of the foot was considerably reduced.

Whether the arrest of one metatarsal bone will be sufficient it is impossible as yet to say, but there is no reason why the fourth should not be treated in a similar manner; then I have no doubt the foot ought to be pushed by the uninterrupted growth of the other three into its normal position. Possibly the operation would find its greatest utility in cases where the parents have not the tenacity of purpose necessary for prolonged treatment by splints.

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TRICHOCEPHALUS AND APPENDICITIS.

I SEE in the BRITISH MEDICAL JOURNAL of August 4th, page 265, a case of appendicitis reported from abroad in which two specimens of *Trichocephalus dispar* were found in the mucous membrane of the appendix. On May 28th this year a potman, aged 23, was admitted to this hospital, under the care of Mr. D'Arcy Power, suffering from what appeared to be an ordinary attack of appendicitis of three days' duration. There was marked rigidity and tenderness in the region of the appendix, and the original attack of pain, he said, doubled him up. On June 28th Mr. D'Arcy Power operated and removed what was to all appearance a normal appendix. Upon splitting the organ open, however, after removal, a small worm was found inside, and was identified by Dr. Thursfield as *Trichocephalus dispar*.

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St. Bartholomew's Hospital, E.C.

ACUTE COLITIS.

I HAVE recently had several cases of acute colitis following the ingestion of tinned or potted meat. In all there was severe pain along the course of the colon, with raised temperature, diarrhoea, and little or no vomiting. (1) The first case followed the consumption of some tinned meat, the patient having a temperature of over 106°. (2) In the second case, a young lady had suffered from constipation and colicky pains some days before eating tinned salmon; having done so, severe pains and fever (102°) set in, attended by the passage of copious motions, resembling red-currant jelly, and containing much blood and very offensive. The illness was very acute and lasted a week. (3) The third case followed the eating of potted salmon. In this the diarrhoea and tenesmus were most frequent and distressing; large flakes of mucus as well as extremely offensive jelly-like material were passed. In this case the treatment commenced with calomel, which was followed by salol and bismuth salicylate, and starch and opium enema and pil. plumbi e opio for the frequent diarrhoea. The severe haemorrhage in the second case was promptly arrested by calcium chloride and hamamelis. The food was chiefly peptonized milk. The jelly-like material in the third case showed plasma cells like those in the plate illustrating Dr. Saundby's recent paper, and there were abundant bacteria, which when stained superficially resembled the bacilli in his case; no cultivations were made.

Colwyn Bay. W. BARKER RUSSELL, M.B.

REPORTS

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

LEWISHAM HOSPITAL FOR WOMEN, SYDNEY.

GANGRENE OF THE FINGERS FOLLOWING THE ADMINISTRATION OF LIQUID ERGOT.

(By W. J. Stewart McKay, M.B., M.Ch., B.Sc., Senior Surgeon.)

I am induced to publish the following case because Spencer, in his article on gangrene in the *International Textbook of Surgery* (vol. i, p. 225), says, "Although ergot has often been administered in large doses for long periods, the drug has never been known to cause gangrene."

The patient was a woman aged 30, married fifteen years, five children, two miscarriages. She had suffered from chilblains, but had only had very slight attacks.

History of Illness.—Four months before she was first examined the patient missed a period, and obtained from a chemist a 12-oz. bottle of medicine, which she was told contained ergot, with the idea of inducing abortion. She was directed to take one tablespoonful of the mixture three times a day, and she was given some pills as well to take at bedtime. She took the medicine for one week, but as it had not the desired effect she waited three days, then returned to the chemist, and obtained a second bottle which he told her was stronger. She took the second mixture, and finished it in seven days. Before, however, she had taken it all her arms had begun to ache very much, her skin became very itching, and she then noticed that the fingers were somewhat swollen. Then the index finger on the left hand began to ache, and then got cold and began to turn blue at the tip, and the pains increased every day. The patient procured some opium and rubbed it into the fingers to endeavour to ease the pain. Then she noticed that the middle finger of the right hand began to grow green, then the third finger on the left hand went the same, and after this the little finger of the right hand began to grow dark.

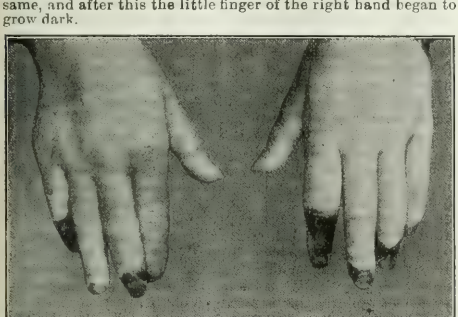


Fig. 1.—Gangrene of the fingers following the administration of liquid ergot.

Present Condition (about twelve months after the first symptoms of gangrene were noticed).—*Right Hand:* Thumb: Normal appearance, distinctly cold. Index: Slight blush on surface, not painful; has been very painful; sensation normal, slight pressure causes it to turn blue; distinctly cold. Middle: Gangrenous to the distal point, very slight feeling in its extremity. Fourth: Normal, no pain. Little: Gangrenous to just past the distal joint. *Left Hand:* Thumb: Normal. Index: Gangrenous to the second joint; no pain, no sensation. Middle: Last one to exhibit signs of gangrene; is black for a centimetre on the radial side; can feel with it, but has pain in it. Fourth: Gangrenous to the distal joint. Little: Slightly gangrenous at extremity; has pain in it. Patient says that the pains have become much less in both hands, but the middle and little fingers of the left hand still ache very much at times.

Operation and Result.—The middle and little fingers of the right hand, and the index, middle, and fourth fingers of the left, were amputated at the joint on the proximal side of the gangrene. The little finger on the left hand was not operated on, and when the patient left the hospital it looked in good condition. The stumps all suppurated, and the patient was unable to leave the hospital for five weeks after the operation. During this time she kept the hands for hours at a time in hot boracic solution, and she took 2-minim doses of the solution of nitro-glycerine three times a day. When the patient left the hospital the stumps were all healed.

Remarks.—If the above case is not an example of gangrene following the administration of large doses of liquid ergot, what is it an example of? A careful examination of the patient showed that she was a fine, strong, healthy country woman of splendid physique. She exhibited no heart lesion, and her arteries seemed quite normal. The time of the year was the warm month, so that gnat-bite is out of court. There was no obstruction to the main arteries of the limbs, and the patient's urine contained no sugar or albumen. There was no history of traumatism. One point is of interest: in spite of the large doses of ergot that the patient had taken she had not aborted. But so determined was she to have a miscarriage that she went and had it produced two weeks before she came to the hospital. On one occasion I made up some ergot in a mixture and asked her to take it, and the patient immediately recognized the taste as being similar to the mixture she had taken.

REVIEWS.

HANDBOOKS OF CLINICAL DIAGNOSIS.

Professor von Jaksch's well-known book, *Clinical Diagnosis*,[1] has met with so much acceptance in England that a fifth edition has now appeared. This is based upon the fifth German edition, but has had the advantage of being edited by Dr. Archibald Garrod, whose own researches, particularly into chemical methods of investigation, united as they are with both erudition and sound judgement, eminently equip him for the task. The result may be confidently asserted to be a standard textbook, fair in statement, accurate in detail, and comprehensive in scope. The progress of science is so rapid and so many-sided that some work such as this is indispensable to any medical man who wishes to keep himself up-to-date; and we know of none better in the English language than that under consideration. A subsidiary title explains that it is the bacteriological, chemical, and microscopical evidences of disease which are discussed, and it should be added that these are only considered in their relation to internal diseases. We cannot help feeling that this is to some extent a limitation of the value of the book, which would unquestionably be increased by a description of the appearances and methods of staining and culture of the fungi of ringworm and favus, to say nothing of the animal ectoparasites, as to which knowledge is almost daily widening with the scope of research in tropical medicine. It is a pity that the rigid German distinction between *innere* and *aussere Medizin* should be allowed to impair the usefulness of a book which has in many respects gained in the process of adaptation into English. The order of the chapters follows that adopted in previous editions. The blood is first considered, and an excellent account given of the various methods of estimating haemoglobin and of staining the corpuscles, together with a useful summary of such subjects as pycnometry and the investigation of blood parasites. The description of the malarial amoeba is especially good. Dr. Garrod has added very considerably to this part, including a description of Haldane's haemoglobinometer and of recent discoveries in connexion with trypanosomes. He also quotes Jenner's stain, but curiously enough there is no reference to the now almost universally employed method of Leishman. Nor are Schaudinn's researches on spirochaetes referred to, although the work could hardly have gone to press before they had been published. The succeeding chapters on the buccal and nasal secretions and on the sputum are adequate, but call for no special comment. The fifth, on the gastric juice and vomit, is, from the nature of the subject, a little less satisfactory; the sixth, on the faeces, contains a good and well-illustrated description of their flora and fauna. The account of the examination of the urine occupies nearly 200 pages, and comprises a critical description of every method of importance. In their anxiety to be fair it may be that the authors have gone a little too much into the details of processes which they do

[1] *Clinical Diagnosis.* By Rudolf v. Jaksch, M.D., Professor in the German University of Prague. Fifth English edition, edited by Archibald E. Garrod, M.A., M.D., F.R.C.P., Assistant Physician to St. Bartholomew's Hospital. London: Griffin and Co. 1905. (Demy 8vo, p. 628; 172 illustrations. 24s.)

not regard as of much practical importance, but if this be considered a fault it is at least in the right direction. The remaining chapters treat of the examination of exudates and of the genital secretions, and the book concludes with a brief but very good summary of methods of bacteriological research—should conclude, we had nearly said, for, as a matter of fact, some seventy pages of bibliography follow. The thousands of references which these contain would no doubt be of great value to an investigator; but, as far as the ordinary clinician is concerned, they only increase the already portentous weight of the work, and probably add to its cost. There is an index, which is not wholly satisfactory; thus, it does not directly refer to the precipitin test for blood, though this is accurately described in the text. But these are not serious defects, and we only draw attention to them in the confident hope that the authors will soon be called upon for a further edition.

The favourable terms in which Professor SAHLI'S *Treatise on Diagnostic Methods of Examination*[1] was reviewed in these columns at the date of publication of the first German edition (BRITISH MEDICAL JOURNAL, January 5th, 1895, p. 23) can be unreservedly extended to the translation edited by Drs. KINNICUTT and BOWDITCH POTTER. The scope of the work, originally great, has nevertheless been extended, until the dimensions assumed are almost encyclopaedic. An excellent index serves to minimize the difficulties of students, the spacing and type are good, and the pages contain many clinical photographs from the New York City Hospital. Besides these the editors have inserted here and there supplementary notes, always clearly indicated by brackets, and seldom if ever superfluous. Thus the section dealing with sphygmography would be quite inadequate were it not for an interpolated description of the Hill and Barnard, Janeway and Stanton instruments. The chemical and chemico-physical methods are clearly detailed, but in many instances demand a technical skill not often possessed by those to whom the strictly clinical parts of the work will most appeal. There will be few readers of this book who do not lay it down with new ideas and with many an old idea upon a clearer and a sounder basis.

Instead of attempting "impartially to present all that has been or is now thought of value by some one," Dr. RICHARD C. CABOT, in his *Physical Diagnosis*,[2] confines his attention to the "methods and processes needed by competent practitioners," and describes only those he has personally found valuable. The book is planned on the regional system; thus in successive chapters he deals with diseases of the head, face, and neck, the arms and hands, the back, the chest, the pulse, the heart, and so on, with special sections devoted to certain disorders. The chapters dealing with the abdomen are a little meagre; peritonitis is dismissed in a page and a half; the pancreas in rather less than that, but perhaps there is some justification for this. The value of book-knowledge as a criterion for the diagnosis of peritonitis is, after all, small in the extreme. The incidence tables from the Massachusetts General Hospital Records are interesting but, in their incomplete form as presented, of little real value. The arrangement of the matter, the excellent illustrations, and the soundness of the teaching will recommend Dr. Cabot's book to every student desiring a full knowledge and clear understanding of clinical phenomena.

The compendium of chemical, microscopical, and parasitological diagnosis, recently published by Drs. GUIART and GRIMBERT,[3] is very material evidence of an opinion the diametric opponent of Dr. Cabot's. Indeed, in their preface the authors pour out a hardly-deserved scorn upon the unfortunate doctor of the old school who has not the latest tricks of the clinical laboratory at his immediate command. To arrive at a correct diagnosis without the use of test tube or microscope is but a back-stair business. The preface was doubtless written after the book, however, and the authors may be forgiven for being a little carried away by the magnitude of the mass of information they have managed to compile, especially since they have presented their facts in admirably simple phrase and in a fashion well adapted for constant use. The first part of the book furnishes an account of bacteriological technique; in the second part the chapters are devoted to the blood, pus, other pathological fluids, milk, nasal secretion, the lung, the mouth and pharynx, the stomach, the intestine and liver, the skin, the ear, the eye, the genital organs, and the urine. The most striking feature is the full account of the animal parasites that infest man, his various organs and surfaces, in all parts of the world. The illustrations, which are not remarkable as such, nevertheless serve their purpose well. The pictures of parasites will be a joy to students, if their number and variety do not appall them. The account of the cryoscopy of the urine is at once the most satisfactory and the simplest we have come across. It is of interest to note that neither in this volume nor in Sahli's work is there any mention of Cammidge's reaction. Dr. Guiart so far supports Metchnikoff's view of the etiological importance of intestinal worms in appendicitis as to urge anthelmintic treatment for all recurrent and "family" cases. They do not, however, refer to the work of Lorrain Smith and Tennant, who showed that in the neighbourhood of a worm the part "becomes the seat of a localized but enormous bacterial growth"—evidence of no negligible value for their case.

Under the title of *Clinical Bacteriology and Haematology for Practitioners*,[4] Dr. EMERY has revised and expanded his earlier book on bacteriological diagnosis. The haematological portion of the book is almost all new, and is intended to give the practitioner a full description of the way to make blood counts, and to guide him in the clinical interpretation of his results. Dr. Emery thinks that the general practitioner ought to be able, in a great many instances, to make his bacteriological diagnosis for himself, and shows how much may be done without the possession of any more elaborate laboratory equipment than a good microscope and the ordinary accessories for preparing and mounting specimens. How far a general practitioner will really become able to establish his bacteriological diagnoses for himself naturally depends partly upon his individual aptitude for this kind of work, and partly upon the amount of time for it which he has at his disposal. But even if he cannot undertake the work himself, he will find in Dr. Emery's book useful instruction in the proper methods of obtaining the samples of material which he ought to send to an expert for diagnosis. The importance of this consideration is often overlooked, and the consequence is that the pathologist frequently receives from the medical man specimens which, owing to defects in their selection or preparation, are practically useless. Hence arise misunderstandings and disappointments which, after a study of Dr. Emery's book, might easily be avoided. Dr. Emery also offers some advice on the interpretation of bacteriological reports. In dealing with diphtheria, he says it is safest to regard any patient who contains Hoffmann's bacillus in his throat as infectious. This is a disputed point, and, as it is of great practical interest to the medical man, a brief summary of the evidence for and against this view might with advantage have been given. In describing the *Spirochaeta pallida* found in syphilitic lesions, the author says, "It is thick, a fact which has led to its having been overlooked previously." This statement is difficult to understand: possibly some verbal error has crept in.

[1] *A Treatise on Diagnostic Methods of Examination*. By Professor Dr. Hermann Sahli. Edited with additions by Francis P. Kinnicutt, M.D., and N. B. Potter, M.D. Authorized translation from the Fourth German edition. Philadelphia and London: W. B. Saunders and Co. 1905. (Demy 8vo, pp. 1008; figs. 383. 27s 6d.)

[2] *Physical Diagnosis*. By Richard C. Cabot, M.D. Third edition. London: Bailliere, Tindall and Cox. 1906. (Demy 8vo, pp. 609; 5 plates; 240 figures. 15s.)

[3] *Précis de Diagnostic Chimique, Microscopique, et Parasitologique*. Par les Drs. J. Guiart et L. Grimbert. Paris: Rudeval. 1905. (Crown 8vo, pp. 770; illustrations 500. 12s.)

[4] *Clinical Bacteriology and Haematology for Practitioners*. By W. D'Este Emery, M.D., B.Sc. Being the second edition of *A Handbook of Bacteriological Diagnosis for Practitioners*. London: H. K. Lewis. 1906. (Demy 8vo, pp. 252; 10 plates. 7s. 6d.)

TROPICAL DISEASES.

THE medical reports of the German colonies, German East Africa, the Cameroons, Togo, German South-West Africa, New Guinea, the Caroline and Marshall Islands, and Samoa for the year 1903-4,[6] published by the colonial

[6] *Medicinal-Berichte über die Deutschen Schutzgebiete Deutsch Ostafrika, Kamerun, Togo, Deutsch-Südwestafrika, Neu-Guinea, Karolinen, Marshall-Inseln u. Samoa für das Jahr 1903-4*. Herausgegeben von der Kolonial-abtheilung des Auswärtigen Amts. Berlin: Ernest Siegfried Mittler und Sohn. 1905. (Demy 8vo, pp. 303. M.7.50.)

section of the Foreign Office, are well worthy of a careful perusal by those interested in tropical diseases. The plan of publishing a series of reports from different colonies in one volume is to be commended, especially as it renders it easy to see at a glance what diseases are to be found in the different places, and what work has been done with regard to them by the different research workers and others living there. The part of the report dealing with German East Africa is the most interesting, chiefly on account of the large number of diseases met with there, and also on account of the recent investigations carried out or set on foot by Professor Koch. Dr. Feldmann's work on trypanosomiasis and sleeping sickness is interesting: it indicates that the German authorities will have to be very much on the alert to prevent the spread of this destructive malady into their territories. Another article worthy of notice is that on spirillum fever. The subject of endemic animal diseases will have to be mastered before either British or German East Africa will become suitable for farmers or stock breeders. Of the other colonies, the Caroline Islands, Marshall Islands, and Samoa show fairly healthy conditions, but the Cameroons appear to be still very deadly for the white man, the mortality statistics of the district of Victoria in that colony showing a very heavy death-rate from blackwater fever. Another point brought out in the different reports is the extreme frequency of venereal diseases and skin diseases. The latter offer a very large field for the dermatologist, the etiology and other characteristics of many of them being obscure, and very imperfectly understood.

Observations in the Federated Malay States on Beri-beri,[7] by C. W. Daniels, late Director of the Institute for Medical Research, Kwala Lumpor, F.M.S., is the title of a pamphlet dealing with this somewhat vexed subject. The work is more or less a summary of the research work lately completed. It contains, in addition, descriptions of outbreaks of beri-beri in prisons, mines, etc., which occupy a good many pages, and form exceedingly dull reading; the same may be said of the part devoted to rice as an occasional causative agent in the production of the disease. Though throwing doubt on Hamilton Wright's idea that beri-beri is primarily a disease of the duodenum with secondary toxic changes in the nerves, a theory which has more to back it than most of the others, the author still believes that beri-beri is an infectious disease. Though he is not in a position to say where or how the organism enters the body, the suggestion is made that if an intermediate host for the unknown parasite is required, it must be either a cimex or a pediculus. With regard to prophylaxis, the author believes that such means as disinfection of buildings and places, modifying the diet, etc., are useless. He advocates instead that particular attention should be paid to personal cleanliness, freedom from vermin, and isolation of early or trivial cases of the disease. The last suggestion certainly seems to be sound, but it must also be remembered that some authorities claim that disinfection of cells and rooms has done good in keeping down the spread of this obscure disease.

The Management of a Plague Epidemic and the Principles on which it should be Based[8] deals with a subject of great importance. Captain E. F. Gordon Tucker's experience has been gained in India, and he divides an epidemic into nine stages, commencing with the termination of the period of quiescence, then passing through the different phases of the rise, spread, and decline till the quiescent stage is again reached. The question of this resting phase of the disease is discussed at some length, and Hunter's recent work in Hong Kong on rat plague is mentioned. What the author's views on this point are is not quite clear from the text, but as far as can be judged he considers that the arrival of a primary infecting agent can generally be ascertained; if this be so we are left to conjecture how this individual became infected. The confirmation of Hunter's work for India is really of the greatest importance, and Captain Tucker might with advantage have taken up this point. There is little to criticize in the author's account of the sporadic atypical cases, the stage of local place infection, and the early epidemic stage. The importance of the speedy recognition of the early atypical cases cannot be too strongly insisted on. The means by which the epidemic is to be combated are not so convincingly described. The usual means of disinfection, inspection of new arrivals, the putting of new arrivals into camps, the inspection of the sick, and the disinfection of drains are said to be absolutely useless, and in their place is advocated the education of the people to the necessity of evacuating areas actually infected; when this has been attained they are to be educated up to the value of evacuating blocks which are likely to be attacked, and of inoculation. When, one may ask, is this stage to be attained, and what is to be done in the interval? The whole question of the prevention of plague in India turns on the difficulty of getting the natives to submit to discipline. Captain Tucker writes:

> If every municipality which had ever been afflicted with plague were to keep in store tents or huts for 10 per cent. of its population and used them in accordance with the author's plan, the annual epidemic, with its attendant waste of life and two months' dislocation of trade, would be averted.

It is well to be optimistic, but such a statement is open to serious doubt. The task of the ridding of India of plague is vastly more difficult than the author supposes; and until we get more information as to the life of the plague bacillus outside the body and its means of spread, we cannot hope for much reduction of the disease in that country.

Textbooks and articles on plague have been fairly numerous of late, and one of the most recent comes from Japan; it is by Dr. Tohiu Ishigami,[9] and an English translation has been made by Dr. MacDonald, Bacteriologist to the South Australian Government. The book consists of two two parts, (1) the translation of the original manuscript, and (2) an addition by Dr. MacDonald. Dr. Ishigami's treatise deals chiefly with his work during the recent epidemic in Japan, and though containing nothing specially new, shows close and careful study. It brings out one point very forcibly—the great danger of infection from pneumonic cases, and the sad end of some of the Japanese doctors should be a warning to others who may come into contact with this type of the disease. The chapter devoted to the pathology and pathological anatomy is less strong than the other parts of the book; the blood counts made by Professor Aoyama in cases at Hong Kong give remarkable numbers for the white corpuscles, and require confirmation. Of the additions to Dr. Ishigami's text made by Dr. MacDonald the less said the better, and the strange chromolithographic plates, called pathogenic horticulture series, apparently an advertisement of some food company, do not enhance the value of the book. Surely Dr. Ishigami was not consulted as to their introduction. The diagrams, apparently Dr. MacDonald's, are extremely poor, and his temperature charts dotted haphazard through the text spoil the book. The English of the translation is indifferent, and numerous misspelt words occur.

Nutrition and Dysentery[10] is the title of a small book by Dr. U. N. Mukerji, of Calcutta, based on 530 cases treated in the Mymensing Gaol from September, 1901, to January, 1904, with only one death. As far as we can follow the author's meaning, it appears that he considers nutrition plays a very important factor in the causation of dysentery. That a bad state of nutrition is a factor predisposing to the disease, and to a severe or fatal attack, is undoubted, but without the specific germ nutrition itself is inoperative—a point the author seems to miss. The bulk of the work is taken up with the question of the effect of small quantities of fish and of inunction of oil on the excretion

[7] *Studies from Institute for Medical Research, Federated Malay States*, vol. 4, part 1. Observations in the Federated Malay States on Beri-beri. By C. W. Daniels, M.B. Camb., M.R.C.S.Eng., late Director Institute for Medical Research, Kwala Lumpor, F.M.S. London: E. G. Berryman and Sons. 1906. (Demy 8vo, pp. 105. 3s. 6d.)

[8] *The Management of a Plague Epidemic and the Principles on which it should be Based*. By E. F. Gordon Tucker, Captain, Indian Medical Service; Civil Surgeon, Surat. Calcutta: Thacker, Spink and Co. 1906. (Demy 8vo, pp. 28. Rs.1.8.)

[9] *A Textbook on Plague*. By Dr. Tohiu Ishigami, Superintendent, Bacteriological Institute, Osaka, Japan; formerly Assistant Bacteriologist to Professor Kitasato. Revised by Professor Kitasato. Translated, enlarged, and illustrated with pathogenic horticulture by D. MacDonald, M.B., C.M. Adelaide: Vardon and Pritchard. 1906. (Demy 8vo, pp. 180; 155 illustrations.)

[10] *Nutrition and Dysentery*. By U. N. Mukerji, M.D.Edin., M.R.C.S.Eng., Lieutenant-Colonel I.M.S. (ret.). London: Kegan Paul, Trench, Trübner and Co. 1905. (Crown, 8vo pp. 288. 3s. 6d.)

of urea, no fewer than 130 pages being devoted to the tabulated results of such examinations. The addition of these two articles, fish and oil, to an ordinary diet of rice seems, according to the author, to lower the death-rate among prisoners in a gaol. His figures and general work, however, do not make the point clear. Unfortunately no attempt to classify the different types of dysentery is made in the book, and therefore the chapter devoted to treatment is useless. As ipecacuanha seems to have been fairly successful, it is probable that most of the cases were of amœbic and not of bacterial origin.

Lieutenant PATTON, I.M.S.,[11] in a paper, The Culicid Fauna of the Aden Hinterland, their Haunts and Habits, has collected some facts about the mosquitos of this district. He believes that he has discovered five new species of *Anopheles*, and gives them the names of the localities where he found them. He does not seem to have satisfied himself of their distribution elsewhere, and this system of nomenclature is very apt to lead to confusion. It would have been better to have left Mr. Theobald, for whose assistance the author expresses his thanks, to name them and give the generic characteristics, reserving for himself the descriptions of their habits and life-history. For example, *Cellia pharoensis*, designated *A. pharoensis* in the text, has been found previously in the Aden Hinterland, others having sent mosquitos home to Mr. Theobald from this district as well as the author. Lieutenant Patton, though he stayed in places in the Hinterland where he knew malaria was being contracted, did not suffer himself, and he attributes his escape to certain precautions which he summarises in the following set of recommendations:

1. See that there are no holes (in the mosquito curtains).
2. Have the curtain put up early, and be most particular to have all mosquitos driven out that may have settled on the inside when the curtains were turned up.
3. See that there is no entrance left after getting into bed.
4. Have a piece of cloth "let in" (about 8 in. broad), where arms or legs are likely to touch the curtains when asleep. This is so often forgotten. Camp beds are often cramped for various reasons. It is a good plan to have the rods fixed to the legs, and diverging so that the curtain falls away from the bed and allows more space.
5. Wear putties when sitting out at night. I have seen *Anopheles* (*A. dthali*) at Nobat come into the mess tent at dinner time and fly round the lamp.
6. Not to hang up dark clothes, as mosquitos prefer dark objects to rest on.
7. Keep all trunks and boxes closed, as they are often means of conveying mosquitos from one place to another.

NOTES ON BOOKS.

The Climber's Notebook is a small waistcoat-pocket volume bound in washable limp cloth. Prefixed to the memorandum pages which form its chief bulk are a number of reminders of things which a mountaineer starting in a hurry may forget. Thus there is a packing list, an expedition list, and a hut and camp list. The Alpine distress signal, recommended by the Alpine Club twelve years ago, and since adopted by most European Alpine clubs, is given also. The book, which is compiled by "C. W.," under which initials we suspect we are right in identifying Dr. Claude Wilson, is published by Fisher Unwin at the price of 1s. net.

"A very comprehensive kind of book recently published under the title of *Pannell's Reference Book*[12] contains, besides an immense amount of information on sundry matters of domestic and business interest, some two hundred columns on medical topics. These are arranged in alphabetical order, and such of them as we have read are written on thoroughly sound and useful lines. No attempt is made to render the reader independent of regular medical advice, but he is placed in a position to put it to good use, and acquainted with the result, importance, and general bearing of such comparatively recent discoveries as *x* rays and the relation of the stegomyia to yellow fever. Laymen who study this part of the work are certainly likely to prove more amenable to skilled treatment than others, and less likely to fall victims to quackery and abuse of domestic remedies. Supposing the chapters on legal, commercial, social, political, educational, and domestic topics to have been equally well written, the book is one which would certainly be useful in all households.

The latest addition to that interesting series known as Whittaker's Science Textbooks is *A Textbook of Botany*,[13] by M. YATES. The volume is inscribed Part I.—The Anatomy of Flowering Plants,—and is intended for the use of students preparing for the Civil Service, London University, Oxford and Cambridge Local, College of Preceptors, and South Kensington examinations. The author in the preface says: "Great care has been taken to explain every subject so carefully that this book can be used for self-instruction, no teaching being necessary." The book is certainly very simply written, but there are several misprints, such as "budle" for "bundle" (p. 59), and "Aetoeris of Achenes" for "Aeterio" twice on pages 106 and 108. It will no doubt be useful as a preparation or "cram" book.

In the preface, Dr. BRICKNER states that his book, *The Surgical Assistant*,[14] is a pioneer, his idea having been to prepare a helpful guide to those who act as assistants in surgical operations, and on whose care and skill the success of the surgeon so much depends; but Dr. Brickner has gone further than this. A small and handy volume giving a good description of the principles and details of aseptic surgery, and some general information on the duties of the surgical assistant, would, we think, have better fulfilled the main intention of the author, and met in a more suitable form the needs of the student. As is indicated by the title of the book, the author has endeavoured to give in one large and somewhat expensive volume such instruction as will be readily and more conveniently found in the many useful works on minor surgery and surgical nursing. Dr. Brickner's book is full of information on the practical details of surgical work, is well illustrated, and evidently has been prepared with much care and labour by one who is thoroughly acquainted with the different branches of his subject.

MEDICAL AND SURGICAL APPLIANCES.

Douche and Sterilizer.—Dr. C. St. Aubyn-Farrer, Physician-Accoucheur and Lecturer on Midwifery, Royal Maternity Charity, London, has designed a combined douche and sterilizer to obviate the difficulty in obtaining hot water in cases of emergency. The appliance has a firm stand and the lamp is adapted to yield a hot douche



in a few minutes. The apparatus can also be used as a sterilizer as it is large enough to hold midwifery forceps without the stand and lamp it forms an ordinary douche-can. It has been made by the Medical Supply Association, 228, Gray's Inn Road, and is small enough to go into a midwife's bag.

[11] From the *Journal of the Bombay Natural History Society*, November 2nd, 1905. The Culicid Fauna of the Aden Hinterland, their Haunts and Habits. By W. S. Patton, M.B.Edin., Lieutenant I.M.S. (with plates A, B, C, D, and a map). Read before the Bombay Natural History Society on August 31st, 1905.

[12] *Pannell's Reference Book*. London: The Granville Press. (Demy 8vo, pp. 994. 6s. 6d.)

[13] *Textbook of Botany*. By M. Yates. Part I.—The Anatomy of Flowering Plants. London: Whittaker and Co. 1906. (Cr. 8vo, pp. 147; 413 illustrations. 2s. 6d.)

[14] *The Surgical Assistant*: A Manual for Students, Practitioners, Hospital Internes, and Nurses. By Walter M. Brickner, B.S., M.D. New York City. New York: International Journal of Surgery Company. 1905. (Demy 8vo, pp. 363; 123 illustrations. 2 dols.)

MEDICAL EVIDENCE IN LUNACY CASES.

[From a Correspondent.]

The result of the inquiry into the state of mind of the Marquis of Townshend and of his capacity to manage his affairs has been the finding that he is of sound mind, but that he is incapable of managing his affairs, and as a result he is at liberty and is free to do what he likes, but he is not to have the control of his property. I do not propose to comment upon the result of the trial further than to say that the proceedings were conducted with the greatest fairness by a judge eminently qualified by medical antecedents and by experience when at the Bar in this special class of cases. There was the usual conflict of medical testimony, and yet there is no doubt of the bona fides of those ranged upon the opposing sides in giving their honest, candid opinions. How, then, is it, many will and do ask, that such a diversity of conclusion is possible? and they also speculate as to what would have happened if the medical antagonists had changed sides. With regard to the latter speculation I think that it is probable that they might have reversed or modified their opinions; and, if they did, no blame could rightly be attached to them. When engaged on one side or the other facts are with difficulty seen in their true light, for whilst those which tell for the side are perhaps exaggerated, those of an opposite tendency are apt to be minimized or so distorted as to be corroborative instead of antagonistic, and all this not from any intention to deceive but from the natural inclination to do the best for the party. The highest legal authorities have distinctly stated that they do not favour a neutral body of experts to give their dictum in a positive manner as to whether a certain person is insane or not. They prefer to have the *pros* and *cons* argued, and the decision as to which is correct left to the Court; therefore they favour the system which gives to them the arbitrament between opinions which are strained to the utmost in certain directions by men who, though knowing that they may be fighting a forlorn hope, are yet encouraged to persevere in doing their best because of the possibility of some adventitious circumstance cropping up which shall turn the scale in their favour. The law says: "Do your best for your side; let your opponents entangle you if they can, and leave to us the declaration of what we make to be the truth." In the face of this judicial authority for attack and defence, it is a necessity that there must be differences between people who are engaged to look at opposite sides of the same object; and when it is remembered that in the majority of cases there is great difficulty in obtaining an accurate and full account of all the circumstances, it is easy to see that, with the best intentions and with a real desire to tell the truth, it may not be possible to get that standpoint for viewing the object which is necessary for a correct solution of the difficulty, a standpoint which the judge reserves for himself, because of his power of having every nook and corner of the transaction investigated. Therefore I think that it is not the medical conscience which is at fault when doctors disagree as to the validity of this or of that condition, but that if any explanation for the discrepancy is required it is to be found in the system which favours the extraction of the last possible drop of matter to be squeezed for and against the proposition, leaving very often a *rudis indigestaque moles* from which the bright crystal may be enucleated.

I confess myself disappointed with the psychological evidence of the medical witnesses. It is true that there was some attempt at analysis of the elements of the mental "contents" of the respondent. For example, it was stated that his memory was "good," that he was "amiable," that he was free from delusions, etc.; but there was indistinctness in laying before the Court the way in which the summation of these elements, as exhibited in thought and action, was incomplete or wrong. The emotional element does not seem to have been sufficiently taken into account in estimating the "dominance" of one individual over another. There was no evidence that Ebbinghaus's laws with regard to the degree of perfection of the memory had been applied; there was no mention of reaction time, no notice of the effects of fatigue upon the subject of examination, nothing to make it clear that the mind of the Marquis was in an undeveloped state, and to show with some pretence to scientific accuracy that the competence or the incompetence of the person was a certainty and not a mere matter of opinion. It ought to have been made abundantly evident to the Court that such and such acts and statements were impossible to a sound mind, and were the inevitable results of defects which could be demonstrated scientifically. Instead of this, many of the opinions were of the kind where one man's estimate is as good as another's, and they lacked the compelling force which is expected from experts. For instance, one witness said that the mental state of the Marquis was that of a "man of 20 years of age." Why was this particular year named? There are numbers of men of that age who are actually carrying on in the most perfect manner responsibilities of social and business life.

Sound judgement is based upon the elements of memory, emotion, correct appreciation of the end desired, and experience, and it ought to be possible to say from a due estimation of these within what limits an influence or "dominance" may be allowed to go without being morbid. Thus if a person is deficien in power of attention (which can be determined by a reaction-time instrument), if he is easily fatigued, if he is very emotional, we have all the conditions which render him susceptible to hypnotic influence and to suggestion from any source which presents motives which may or may not be in his real interests, but which are cogent because of the mono-ideism superinduced. Psychology is not an exact science, and judgements are often formed which are surprising even when the factors which go to form these judgements are presumably known; but from all that is seen of the medical evidence in these mental cases, there is nothing in advance of the class of evidence given years ago. What has happened to psychological investigation in the meantime? Books have been written on the subject; there are special societies for its study; psychological experiments have been introduced which claim to have reduced some at least of the mental processes to mathematical accuracy; altogether there is much talk of the increase of our knowledge of the details and the results of mental processes; and yet, when the question is raised of an individual's competence to do his own business and to behave in conformity with the obligations of his social environment, we find a certain number of specially-trained persons saying that he is competent, and a number of trained opponents saying that he is not; whilst it is left to a body of men who may or may not have had any special training in logic, psychology, or ethics, to make an absolute and definite statement. Surely there is something wrong in this condition of things! The connexion between acts and judgements, on the one hand, and the mental elements which we call memory, emotion, will, etc., on the other, must be a necessary connexion, and it is probable that a more complete study of action or expressed thought from the analytic point of view would lead to valuable results. If psychology cannot do more for us than at present seems practicable, the opinion of those who deem it an unnecessary complication for the higher medical examinations seems justified.

THE HEALTH OF THE JAPANESE NAVY.

The annual report on the health of the Imperial Japan Navy for the year 1903, that preceding the war, relates to a force of the mean daily strength of 31,583 officers and men.

In the text comparisons are established between the sick returns, as variously classified for the year under consideration, with the previous year, with the average of the six years which have elapsed since the revised regulations for the medical department came into force, and in some cases with that of the last twenty years.

General Results.

There is not much advantage in entering deeply into these figures, and it will suffice to note that while there was a slight increase in sickness in 1903 as compared with 1902, there was a decrease as compared with the earlier years. The average number of men sick daily was 1,927, or 61.03 sick in each 1,000 of strength, the slight excess on the year being attributed to the number of cases

of injury and venereal disease brought about by the frequent movements of ships in connexion with the Manchurian problems. More men were invalided than usual because the rule was adopted of discharging as quickly as possible from active service all men suffering from chronic disease, such as phthisis.

The total death-rate of the force was 5.03 per 1,000 of strength. Of this number 3.23 deaths per 1,000 of strength were due to disease, 0.32 to injury, and 0.60 to drowning. It is to be noted also that the total mortality includes 21 suicides, or 0.06 per 1,000 strength, and 2 murders, while 5 men were frozen to death.

Special Diseases.

Some of the details regarding different diseases are interesting; thus of malarial fever, typhoid, and dysentery there were treated during the year only 143, 157, and 23 cases respectively, all of which figures, considering the stations at which the men serve, seem low. On the other hand, diseases of the respiratory system seem to have been common, the ratio of new cases per 1,000 of strength having risen from 5.50 in the year 1884 to 8.42 in 1903, invaliding from the same cause also greatly augmenting. Similarly, while in 1883 the ratio of cases of venereal disease to strength was only 63.04 per 1,000, in the year 1903 it was 159.10. Particular interest attaches to the figures respecting *kakke*; of this disease there were only 18 cases, old and new, altogether, and it is noted that 3 of the new cases were among recruits, and that 6 others were men who, owing to certain circumstances, were served with food from their own houses. The great success with which the medical department has grappled with this disease is shown by the fact that in the year 1882 the number of cases per 1,000 strength was no less than 404.49, while in 1903 it was 0.57.

Dieting.

The chief interest of the whole report, however, lies perhaps in the elaborate tables, twenty-eight in number, partly because of the intrinsic value of the information they contain, partly because their preparation indicates the matters to which the Japanese medical authorities attach importance in connexion with bodies of men. Thus, it is obvious at once that the questions of dieting are regarded as of supreme moment; hence, there are tables showing: (1) The average daily amount of food for each person in 1903; (2) the average during each of the years between 1884 and 1903; (3) month by month the amount of each nutritive element and the carbon nitrogen ratio in the diet for the year; (4) the average amounts of each nutritive element and the carbon nitrogen ratios in the diets for each of twenty years past.

When these tables are taken in connexion with those which follow, and which refer to average losses and increases of body-weight during identical periods, there is a great deal of useful material for careful study by dieticians. The following table shows the average daily amount of food for each person during the year under review and its form.

TABLE No. XXII.—*Average Daily Amount of Food for Each Person.*

Article.	Amount.	Article.	Amount.
	Mommes.		Mommes.
Biscuit	9.49	Dry vegetables	0.59
Bread	52.28	Vegetables	113.46
Preserved meat	6.55	Tea	0.40
Preserved fish	6.76	Roasted barley	0.78
Meat	49.51	Sugar	9.92
Fish	17.79	*Shoyu* (a kind of soy)	19.43
Rice	100.45	Vinegar	1.54
Cracked wheat	34.39	Oil	0.55
Beans	3.48	Salt	1.76
Wheat flour	2.12	Fat	1.29
		Total	432.54

From another table it may be gathered that the dry weight of the different constituents in this average diet is, of albuminates 37.32 mommes, of fats 7.39 mommes, and of carbohydrates 160.92 mommes, or 206 13 mommes in all, the ratio of nitrogen to carbon being as 1 to 16. A Japanese momme, it should be mentioned, is 53 grains, so in English measures the total dry weight is—

Albuminates represented	2,004 grs.	or	129 grams.
Fats	391 ,,		25 ,,
Carbohydrates	8,528 ,,		552 ,,

From the body-weight tables, apart from what may be gained from reading them in connexion with the dietaries, two points of interest develop: (1) that the average weight of the men increased from 14,570 mommes in 1884 to 15.630 in 1897, and fell somewhat in the following years to 15,510 in 1903. In other words, the men twenty years ago averaged 7 st. 2 lb. in weight and now average 7 st. 9 lb., or ½ st. heavier; (2) a second point is that after weighing all the men monthly for many years this has now been found superfluous; weighing them in March and September is sufficient, for the tables show that their weight always goes up in March and April and down in August and September.

Points in Recruiting.

Other interesting tables are those which refer to recruiting and to vaccination. From the former it would appear that all the men in the Japanese navy are volunteers for that service, and that they are eligible for enlistment, in point of age, between 15 and 25. Altogether 13.565 men applied for admission during the year, and 70.84 per cent. were rejected. The causes of rejection are duly given in a number of tables, but more interest, perhaps, attaches to the points taken into consideration in respect of those accepted. These are, apart from freedom from disease and defects of special senses, the height, the body-weight, the circumference of the chest, the expansion of the chest, its vital capacity, and the grasping power of the left and right hands. Full details are given as to these in respect of the recruits at every station, the tables being divided into three separate age-periods, according to the time at which the candidates presented themselves, 15 to 16, 17 to 19, and 20 to 25. We note that 2,986 of the successful applicants were in the middle, or 17 to 19, age-period; their average height was 5.32 shaku, their body-weight 14,831 mommes, their chest circumference 2.76 shaku, their chest expansion 0.16 shaku, their vital capacity 3,619 c.cm., their grasping power, left hand 33.29 kilograms, right hand 34.98 kilograms.

These figures, in better-known terms, are approximately represented in the following table:

Height	5 ft. 2 in.
Weight	7st. 4lb.
Circumference of unexpanded chest	31 in.
Range of chest expansion	2 in.
Vital chest capacity	3,619 c.cm.
Power of grasp, left hand	73 lb.
Power of grasp, right hand	77 lb.

An interesting point about the vaccination tables is that they reveal that it is apparently the Japanese custom to revaccinate a great number of times. Thus, tables are given relating to success or failure in respect of men who have been vaccinated as many as six times; indeed, very few of the recruits seem to have been vaccinated for the first time on entering the navy. Probably this repeated vaccination accounts for the fact that, detailed as are the returns, small-pox finds no mention in the whole volume.

ANTIRABIC TREATMENT AT THE PARIS PASTEUR INSTITUTE.—During the year 1905, 728 persons have submitted to preventive treatment against this disease at the Pasteur Institute in Paris. Out of this number only four cases terminated in death from hydrophobia, and in one of these the disease manifested itself before the completion of the treatment. Excluding this case, the total mortality shows a percentage of 0.54. In the preceding year the number of persons treated was slightly higher, being 755. The work of the Paris Institute has been relieved to some extent by the creation of similar institutes in Lyons, Marseilles, Bordeaux, Lille, and Montpelier. The persons treated at Paris are divided into three categories, as follows: (*a*) Where the presence of rabies in the animal which inflicted the bite has been proved experimentally by the development of the disease in animals which were bitten by it or were inoculated with its medulla; (*b*) where the presence of rabies in the animal which inflicted the bite has been confirmed by veterinary examination; (*c*) where the animals in question were supposed to be suffering from rabies. One hundred and sixty-six of the persons treated are comprised in class (*a*), 306 in class (*b*), and 255 in class (*c*).

BRITISH ASSOCIATION.

(Continued from p. 312.)

Section of Physiology.

President's Address.

Professor Francis Gotch, after quoting Burdon-Sanderson's description of the purpose of physiological investigators as being "to acquire an exact knowledge of the chemical and physical properties of animal life and of the self-acting machines by which they are regulated for the general good of the organism," said that at the outset it was desirable to refer to certain wide issues which were involved in the statement that the business of the physiologist was to "acquire an exact knowledge of the chemical and physical processes of animal life." The limitation of physiology to ascertainable characters of a chemical and physical type did not commend itself to certain physiologists, physicists, and chemists, who had revived, under the term "neo-vitalism," the vitalistic conceptions of older writers. They denied that physiological phenomena could ever be adequately described in terms of physics and chemistry, even if these terms were in the future greatly enlarged in consequence of scientific progress. It was undoubted that there were many aspects of living phenomena which in the existing state of knowledge defied exact expression in accordance with chemical and physical conceptions; but the issues raised had a deeper significance than the mere assertion of present ignorance, for those who adopted "neo-vitalism" were prepared to state not only that certain physiological phenomena were, from the chemical and physical point of view, inexplicable today, but that from the nature of things they must for ever remain so. This attitude implied that is was hopeless for the physiologist to try by the use of more appropriate methods to remove existing discrepancies between living and non-living phenomena, and this was accentuated by the use of a peculiar nomenclature which, in attributing certain phenomena to vital directive forces, left them cloaked with a barren and, from the investigator's point of view, forbidding qualification. Neo-vitalism, like its parent vitalism, was fostered by the imperfect and prejudiced view which man was prone to take in regard to his own material existence. He was reluctant to believe that those phenomena which constituted the material part of his existence could be intellectually regarded as processes of a physico-chemical type, differing only in complexity from those exhibited in the non-living world, and impelled by this reluctance he fabricated for them, out of his own conceit, a special and exclusive realm. The logical pressure of physical and chemical conceptions forbade the postulation, by either the public or the neo-vitalist, of such an incongruous entity as a vital chemical element capable of blending with the familiar chemical elements recognized in the material world; yet the physiological processes of life were in popular estimation still held to be due to peculiar forces blending with those of the material world, but so essentially different that they could only be described as "vital." The neo-vitalistic school, without adopting this popular view in its entirety, retained the same term for such physiological characteristics of cell processes as, with our present limited knowledge, and with our present inadequate methods of investigation, seemed to be in disagreement with present chemical and physical conceptions. This disagreement was accentuated by the assumption of directive vital forces, and since these could not be ranged alongside those of chemistry and physics, transcendental phenomena might be always expected to occur whose orderly array as part of natural science was not merely a futile, but on *a priori* grounds an absolutely impossible task. What possible justification was there for branding as hopeless all further physical and chemical investigation of certain aspects of the phenomena by attributing these to vital directive forces? The gaps and imperfections of the palaeontological record were triumphantly vaunted by the opponents of evolution; and now that the work of successive years had convincingly contributed towards the filling up of these gaps, not only had this objection collapsed, but the hypothesis of special creations which it supported had been involved in its fall. His own position was this—he asserted that, although the complexity of living tissues made our present knowledge extremely limited, it was essentially unscientific to say that any physiological phenomenon was caused by vital force or was an argument in favour of "vitalism," and that, if this phraseology was offered as a sufficient description of the phenomenon, its further scientific study was prejudiced because the only terminology which admitted of scientific exactitude was excluded. The recent history of physiological progress showed that investigations confined to the study of physical and chemical processes had been the one fruitful source of physiological knowledge. It would be impossible to give even a brief survey of the chief results which had during the last twenty years been thus obtained, but out of the enormous wealth of material one of great importance and promise might be selected. It was that of the constitution of the nitrogenous compound familiarly known as "proteid," which, from its close association with protoplasm, the physical basis of life, had a fundamental significance, and had therefore attracted the attention of many competent investigators. The success which had so far attended these investigations was so pronounced as to encourage the hope that the future might reveal the chemical constitution of proteid itself and thus bring us perceptibly nearer to its possible synthetic formation. It was remarkable how many of strictly chemical automatic mechanisms had been discovered in the last few years, thus substantiating the views of Brown-Séquard. The automatic character of the mechanism which determined the secretion of the pancreatic fluid was revealed by the experiments of Bayliss and Starling, which showed that definite chemical compounds were formed in the lining cells of the small intestine, and that treatment with weak acid, such as occurred in the acid chyme, liberated a substance which, absorbed into the blood, had the special function of stimulating the pancreatic cells. A similar automatic mechanism had been found by Edkins to exist in the stomach, for although the flow of gastric juice was initiated by nervous channels, the subsequent peptic secretion was largely augmented through the presence in the blood of chemical substances elaborated and absorbed in the pyloric portion of the stomach wall. These were only a few instances of a class of mechanisms, strictly chemical in character, by which the activities of remote and dissimilar organs were automatically co-ordinated; a further class of such mechanisms, although involving a chemical substance conveyed by the blood, carried out the actual regulation by means of the central nervous system. An example of this class was afforded by the researches of Haldane and Priestley upon the carbonic acid gas in the pulmonary air. These showed that the alveolar pressure of carbonic acid in the lung spaces remained constant even when the atmospheric pressure was considerably altered in amount. The constancy was due to the circumstance that the respiratory nerve centres were exquisitely sensitive to a rise in this carbonic acid pressure. Any such rise slightly augmented the carbonic acid tension of the pulmonary blood, which, on being conveyed to the nerve centres, aroused their greater activity, and the increased efficiency of the respiratory ventilation, thus produced, rapidly reduced the amount of the very agent which was its exciting cause. The researches of Hill and Greenwood, with air pressures up to seven atmospheres, bore out the conclusion that by this automatic mechanism the air in the lung alveoli had a practically constant pressure of carbonic acid in any given individual. The introduction, in this example, of the respiratory centres and nerves raised the question whether the nervous system, which was in a very special sense the channel for the regulation and co-ordination of the various activities of the body, might not itself be conceived to be a supreme example of an automatic physico-chemical mechanism, the transference from one part to another taking place, not through the flow of blood containing chemical substances, but through a more subtle physico-chemical flow along the highly-differentiated nervous strands of which this system consisted. This chapter of physiology still bristled with difficult problems and obscure points, yet the unmistakable trend of the immense advances which had been made in recent years was towards the assumption that nervous processes did not in their essence differ from processes occurring elsewhere in both the living and non-living worlds. In the nerve fibres, which were undoubtedly the offshoots of nerve cells, the only demonstrable changes

during the actual passage of nervous impulses were of an electrical type. These resembled the effects which would occur if there were redistributions of such electrolytes as were known to exist within and around the differentiated fibrillated core or axon of each nerve fibre. All the better-known aspects of nerve-fibre activities were in accordance with such an electrolytic conception. Further, the brief duration of the activity of the nerve, its rapid development and slower decline, and the circumstance that a second external change could not arouse a second activity if it occurred very shortly after an effective predecessor—all had their counterpart on the electrolytic side, and we had convincing evidence that the electrolytic redistribution during activity could not be again produced until the electrolytic condition had more or less returned to its original resting poise; the real peculiarity of the living tissue was its persistent tendency to re-establish the electrolytic concentration of this resting poise. Finally, experiments showed more and more convincingly that the capacity of the nerve to respond to external changes, as well as the magnitude and duration of the aroused activities, were particularly susceptible to modification by all those agents which were most potent in affecting electrolytic aggregates, such as temperature, electrolysis, and impregnation with various electrolytes. These electrical indications of nerve-fibre activities were fundamentally the same whether the fibres occurred in peripheral nerve trunks or in the bundles which coursed through the central masses; and thus, if the whole system consisted of nothing but the united strands of differentiated nerve fibres, nervous phenomena would be merely the expression of the development, along appropriately-distributed tracts, of similar electrolytic changes primarily started by some external physical or chemical alteration. But additional complications were introduced by the existence of nerve-fibre endings and by the interposition of the nerve cells. Continuity with a nerve cell was essential for the integrity of both the structure and the function of a nerve fibre, but it was undoubted that, in its turn, the nerve cell was also dependent upon the existence of its processes in an unimpaired state. Thus the cell suffered a change which came on slowly but with great certainty if any part of the neuron had been mutilated, or if the cell had been shorn of some of its offshoots. That it formed a special part of the conducting path was indicated by the occurrence of intracellular and nuclear alterations when a prolonged series of impulses travelled towards it; and a further more remarkable point was that it had also appeared to change if the entering nervous impulses with their electrolytic concomitants were no longer able to reach it. This suggested that the nerve cells, far from being spontaneous actors, were in a very real sense dependents; they formed only one possible conducting portion of the whole differentiated tract, and atrophied when this tract was broken or was from any circumstance not utilized. The second feature which more particularly suggested spontaneous cellular activity was the well-known fact that reflex centrifugal discharges might continue after the obvious centripetal ones had ceased. The more we investigated the physiology of the nervous system, the stronger became our belief that for centrifugal discharges to occur centripetal impulses must be primarily started either in the peripheral sensory surfaces by changes of a physical or chemical type occurring in the external world, or at some point in the nerve continuum by local, chemical, or physical changes within the body, especially those due to the chemical condition of the blood. Having been thus started they coursed along definite structural paths, and the only direct indications of this passage consisted of such phenomena as would be produced by the redistribution of concentrated groups of electrolytes—a purely physico-chemical process. This conception placed the propagation of the nervous excitatory state as the sole determining factor of nerve activities, central or peripheral. It derived additional support from the circumstance that it was in harmony with that aspect of these activities which was comprised under the term "inhibition." Any effective regulating system must be able to bring into play both incentive and restraint—the whip and the reins. The possession by the central nervous mechanism of inhibitory powers was remarkable both for its extent and its delicacy. It appeared more and more probable that this was achieved by the propagation of nervous impulses of the ordinary type. The physiologist had definite grounds for believing that, as far as present knowledge went, both the production and cessation of central nervous discharges were the expression of propagated changes, and that these changes revealed themselves as physico-chemical alterations of an electrolytic character. The nervous process did not, in the light of this conception, owe its physiological mystery to a new form of energy, but to the circumstance that a mode of energy displayed in the non-living world occurred in colloidal electrolytic structures of great chemical complexity. There was a natural prejudice against the adoption of this view, but such prejudice should surely be mitigated by the consideration that this full admission of physiology into the realm of natural science, by forcing a more comprehensive recognition of the harmony of Nature, was invested with intellectual grandeur. If objective phenomena formed the subject-matter of the physiologist, then "the legitimate materialism of science" must constitute his working hypothesis; and his "well-defined purpose" must be to adapt and apply the methods of physics and chemistry for the analysis of such phenomena as he could detect in all physiological tissues, including the nervous system. The trend of such a strictly physiological analysis was towards a conception in which the highest animal appeared as an automaton composed of differentiated structures exquisitely sensitive to the play of physical and chemical surroundings. The various parts of the animal body were linked by circulating fluids and by one special structure, the nervous system; in this linking of parts the physiologist detected the working of automatic chemical mechanisms of great delicacy which, once developed, were retained and perfected in proportion as they efficiently regulated the various bodily activities and co-ordinated them for the welfare of the whole organism.

The Physiological Value of Rest.

Dr. T. D. ACLAND opened a discussion on this subject with a paper on the physiology and physiological value of rest. He stated at the outset that he dealt with the subject from the point of view of the practical physician rather than from that of the experimental physiologist, and that he would confine his attention to young children and those in the period of adolescence. Sleep in respect of these was needed not only for growth, but for repair of tissue waste resulting from physical and mental activity. Sleep, as Sir James Crichton-Browne had said, was more intimately connected with brain growth than with brain function; in the years of highest cerebral activity in adult life least sleep was required, but in the years of low functional activity but rapid growth most was required. One of the causes of the physical deterioration that he believed was going on was insufficiency and dislocation of sleep. He considered that far less harm was relatively done by curtailing the hours of sleep in adults than in growing children, to whom prolonged periods of rest were an absolute necessity. Highly-strung, nervous, keen, sensitive children, who were forward in their work, often got the least rest, though they required most. The physical efficiency of the next generation and our place among the nations of the world depended mainly on the kind and quality of the upbringing that we gave our children now. The main grounds for giving long hours of rest to young and rapidly-growing children were: (1) To make up for waste resulting from work and play; (2) to allow for growth; (3) to obviate the dangers which disregard of well-known physiological laws not infrequently entailed. The second of these was not sufficiently recognized by those who had the care of growing children. What food was to the body, sleep was to the brain and nervous system, and to stint growing boys and girls of sleep was to hinder the processes of growth and development and to impair the efficiency of those higher nerve centres upon the well-being of which their individual intellectual future so largely depended. He agreed with Sir George Darwin, who had written to him saying that if it were a question of giving up some hours in school or giving up sleep, the former was immeasurably preferable; further, that lack of due sleep was responsible for a good deal of both slackness and staleness. In workshops better results were generally

obtained by having no work before breakfast. The same would, he thought, be *a fortiori* true as to the intellectual work of boys in our public schools. He had received a large number of letters from headmasters and parents as to the beneficent results that had accrued on the insisted increase of the period of sleep. The fetish of early rising was responsible for a large amount of the nervous breakdown and strain, the insomnia, chorea, and even epilepsy in our midst, and this breakdown and strain often began as a result of insufficient sleep obtained at school and continued afterwards at the universities. The experiments of Professor Patrick and Dr. Allen Gilbert all went to show that if a boy had to work hard and play hard he must perforce be given a large amount of sleep, or disastrous results would soon follow, because of the lowered vitality, the marked diminution of bodily vigour, and the lessened acuteness of the intellectual faculties. It was a great error to suppose that physical exercise was an ample compensation for a small amount of sleep. To send a boy from hard brain work immediately to the cricket field was bad physiology; and with both brain and body working hard more and not less sleep was essential. Another fallacy was that there was a severance between bodily and mental health, so that what was best for one might not be best for the other, and that the rest needed to repair the bodily waste caused by the day's work and play might be detrimental to the boy's best development. Such a theory was inconsistent with all known facts. If the body and nervous system were to be maintained at the maximum of efficiency, the general conclusion of experts was that there should be a minimum of nine hours' sleep, at any rate, up to the age of 18 years—that is, all through the ordinary school period. Of twenty-seven experts eleven had advocated ten hours, eight had suggested nine and a half, six nine to ten, and four nine hours as a minimum. These experts were those who had most experience in diseases of children and mental disease. Moreover, statistics of forty of the best public schools in England and five in the United States showed that nine hours' sleep was being advocated and put into effect as the means of obtaining the best results, both mental and physical, from the boys. Dr. Acland's conclusions were (1) that rest was a physiological necessity, especially for those who had not reached maturity; that short hours of rest did not tend to promote efficiency and keenness of mind and body in the average boy; but that, on the contrary, they tended to loss of clearness and rapidity of brain function, to diminution of bodily vigour, and to retardation of physical and mental development; (2) that there was no ground for supposing that hard physical exercise was a sufficient compensation for hard brain work, for after both mental and bodily activity there was need of rest, and if bodily activity was added to hard brain work an increased amount of rest was required; (3) that to stint a child of rest was a mischievous way of attempting to teach him self-control, and defeated the very object in view by making him less efficient in body and mind than he was capable of becoming; (4) that to give a growing child ample rest was not only not teaching him self-indulgence and encouraging him in luxury (as he had been told), but was teaching him to obey physiological laws the neglect of which must impair the powers with which he had been endowed; (5) that it was just as cruel to deprive a growing child of an ample allowance of rest as to deprive him of the food which was needed to fit him for the full development of his body during the years of active growth.

Dr. Bevan Lewis, Medical Director of the West Riding Asylum at Wakefield, next read a paper on the Neuron Theory: Fatigue, Rest, and Sleep, in which he said that in respect of fatigue as it affected the nerve cell, it must not be overlooked that mental and physical operations were indissolubly bound together, and overwork in either sphere entailed a disability in both. There was, therefore, a dangerous assumption in the widespread view that a change of occupation implied a relief to fatigue, and in the case of growing lads it was of primary importance that this faulty conception should be corrected. Fatigue induced by mental work in any one direction involved the whole sphere of mental operations, the capacity for work in all directions being thereby restricted. So with our muscles: fatigue of any overworked group of muscles flooded also other muscular areas, rendering them less capable of work, whilst at the same time it reduced the psycho-motor activities. The latest delicate experiments showed that during ordinary functional activity a notable protoplasmic turgescence of the nerve cell occurred, causing great increase in size, whilst the nucleus and nucleolus of the motor and sensory ganglion cells and the spinal sympathetic participated; but that during fatigue the nerve cell underwent progressive decrease in size and the nucleus shrank less notably. For the clearing out of fatigue Nature's remedy was not only rest, but sleep also. To give that cessation to brain actively correlated with phases of consciousness, and that complete relaxation of muscles lowered blood pressure, diminished expenditure of cardiac energy, and lessened respiratory vigour that sleep entailed. It was of paramount importance to save our growing youth from pathological brain weariness or brain-fag, which was often the correlative of muscular fatigue. A persistent dilatation of the cortical arterioles supplying the brain with blood saturated with katabolic fatigue products was the most reasonable explanation of this sense of brain weariness. The consequent changes in the nerve-cells resulted with continued stimulation and inadequate rest in establishing structural disease; and therefore failure to detect early indications of brain-fag in young growing children might lead to irreparable mischief. In conclusion, he laid special emphasis upon the following points: It should be recognized that there were diurnal variations in intellectual capacity of rhythmic periodicity in all children, who were capable of producing the highest work values at definite times of the day. Teachers should be keenly alive to that residual fatigue betrayed by children who obtained inadequate sleep, a residuum that was constantly accumulating and resulted eventually in grave reductions in normal working capacity. At the period of adolescene the psycho-motor centres were feeling the full force of the developmental wave, and all through the successful stages of adolescence structural integration was proceeding with enormous strides, the result being almost equivalent to a complete transformation of the personality. The form of adolescent insanity so intractable in its progress and so terrible in its issue was most likely to occur in neurotic subjects who at this time of life were exposed to the stress of overwork, and the pressure of school life conjoined with inadequate rest and sleep. For such subjects ten hours' sleep had not been found extravagant for the restorative effects required for the succeeding day's work.

Professor Gotch said that sleep might be divided into two portions, the neurotic and the normal. The latter he illustrated diagrammatically by the results of experiments which showed that sleep commenced deeply at first and shaded off to the awakening. In the former only the first hour or two were of deep and refreshing sleep. Then came a period of shallow sleep, the least refreshing, followed by a period of deep sleep preceding the actual awakening. It was in this shallow period that dreams occurred.

Professor Sherrington thought that this science of sleep-physiology had been so recently and insufficiently studied that we required more data before being able to construct any definite laws, though at the same time he did not contest any of the conclusions arrived at by those who had spoken.

Dr. McDougall pointed out that the development of the mind consisted of three processes, namely, its natural and spontaneous growth (the most important of the three), the training of the power of the mind, and the acquisition of knowledge. The first duty of the educator was not so much to train the mind or to force knowledge into it as to see that there was no interference with its normal and spontaneous development.

Carbon Monoxide Poisoning.

Dr. G. G. Nasmith gave an account of recent researches made by himself and Mr. B. L. Graham on the haematology of carbon monoxide poisoning. They consisted mainly in observations made upon guinea-pigs living for months in an atmosphere of dilute carbon monoxide, so that the blood became partly saturated with this gas. The conclusion arrived at from a series of continuous observations was that the action of this gas upon the body was due entirely to its ability to deprive the tissues of their normal oxygen supply. The physical and physiological effects were very similar to those produced by high altitudes. The ultimate effects on the body were, he thought, due to deranged anabolic and katabolic activity

in the body cells, resulting probably in the accumulation of excretory substance and the formation of toxic degeneration products.

Electrical Signs of Life and Chloroform.

Dr. A. D. Waller delivered an evening lecture on the electrical signs of life and their abolition by chloroform. He began by stating that all the mechanical and chemical changes manifested in living organisms were accompanied by electrical changes, and, since these were capable of most delicate measurement, the intensity or amount of life in any living fibre or substance could be measured most accurately by ascertaining the magnitude of the electrical changes to which it gave rise on stimulus from some outside source. The methods by which this measurement of electrical change in living nerve fibres had been made and recorded photographically were then described in detail, and photographic records of the electrical changes obtained by stimulus from an outside source, with the living matter from the crystalline lens of the eye, from the chlorophyll in green leaves, from vegetable seeds, from a flower, and from a hen's egg, were exhibited. The effects of gases and anaesthetics upon these phenomena were then dealt with. Chloroform was the most effective of the anaesthetics experimented with, all electrical signs of life being totally abolished by its use. Ether was less effective, and therefore much more safe for use as an anaesthetic, since the suppression of the electrical response to stimulus was only temporary and not permanent, as in the case of chloroform. The action of alcohol and of carbonic acid gas upon nerve fibres was also described. The electrical result of stimulus was called by the lecturer "blaze" current; this, in his opinion, was a universal sign of life in all tissues and organs, from both the animal and vegetable worlds.

[*To be continued.*]

THE ANNUAL REPORT OF THE METROPOLITAN ASYLUMS BOARD FOR 1905.

This report increases in value year by year, and its contents cannot with safety be neglected by either lay or medical administrators of hospitals. No other report deals with hospital statistics on so large a scale, and in no other report can useful lessons as to administrative details be so easily learnt.

The facts are set forth under the headings of the work of different Committees—Hospitals, Asylums, Children's, Training Ship, Ambulance, General Purposes, Finance, Works, Contract, and Statistical, a medical appendix being given in connexion with the record of the last-named Committee. A preliminary report briefly summarizes each branch of the work of the Board.

Hospitals Committee.

During the year the highest number of patients in the hospitals of the Board was 5,247, as compared with 3,932 in 1904. The excess was due to an unexpected increase in the seasonal rise of scarlet fever, which resulted in the Board having, on November 7th, the largest number of cases of this disease under treatment in its history. By means of a readjustment of the work of the Ambulance and Hospital Committees, a daily re allocation of beds became practicable from October onwards, and as the result of this not a single case was refused admission during the year.

The more general transfer of convalescing patients from the acute hospitals also came into operation during 1905, and additional convalescent accommodation was furnished for this purpose. A new system of bathing patients certified to be free from infection and then housing them for two or three days in a separate uninfected building was also begun during 1905. A system of giving warning notice to parents whose children are being sent home was also started, this warning being similar to those in common use in provincial isolation hospitals.

Children's Committee.

The Committee has charge of several classes of children, chargeable to the guardians of the poor, namely, those suffering from ophthalmia and other contagious diseases of the eye or from contagious diseases of the skin or scalp; those requiring special treatment during convalescence, and defective children and certain others.

Ophthalmia Schools.—In an appendix to the report of the Children's Committee, Mr. E. T. Collins, the Visiting Ophthalmic Surgeon, draws attention to the fact that a large number of the children admitted with ophthalmia suffer also from sores about the nostrils and rhinorrhoea. Dr. Anderson made a bacteriological examination of the nasal discharge from 300 of the children; in 125 of these he found the Morax-Axenfeld diplobacillus, often in large numbers. As this bacillus is one of the commonest causes of chronic conjunctivitis, it is evident that the nasal discharge may easily infect and reinfect the eyes. Hence the importance of attention to rhinorrhoea in these schools and of the supply of a clean pocket-handkerchief each day.

Ringworm Schools.—A complete *x*-ray apparatus has been fitted up, and it seems likely that the method of treating ringworm by *x* rays will in time revolutionize the work of these schools and possibly greatly diminish the amount of accommodation required.

Ambulance Committee.

Attention is drawn to the fact that over two years ago the Committee applied to the Local Government Board for formal consent to the extension of their ambulance service for the conveyance of persons suffering from non-infectious illness. Pending this formal consent the Asylums Board have made this very desirable extension of their work in a limited number of urgent cases. Motor-propelled ambulances are gradually coming into use. By their means experience already shows that patients can be conveyed to hospital much quicker and with greater comfort than by horse-traction, and much more work per vehicle can be obtained. "Hence fewer vehicles will be required, and consequently a smaller staff of nurses and men need be employed." In connexion with the discharging of patients from the convalescent hospitals, motor omnibuses have secured a great saving of time.

General Purposes Committee.

The most important subject which during 1905 has been deliberated by this Committee has been the proposed use of some of the hospitals of the Asylums Board as sanatoriums for consumptives. In answering the influential deputation which waited on the Board on April 15th, 1905, the Chairman expressed the anxiety of the managers to do everything possible for the promotion of the public health of London, the main question remaining being "whether the public of London and the ratepayers of London are yet sufficiently educated on this question, and sufficiently acquainted with the vast wants of the tuberculous portion of the population, to induce them to give a ready assent to an extension of their rates for the purpose of providing sanatoriums." The Local Government Board was asked for an authoritative opinion on the subject, and since the close of 1905 have informed the managers that "the information at present before them does not appear to afford sufficient justification for the very heavy outlay which would be involved in the proposal."

Works Committee.

This Committee are at last able to report that the actual cost on completion of the Park Hospital was £251,711, including furnishing. Exclusive of the cost of the land and of the furniture, this is equal to the very large figure of nearly £440 per bed.

Contract Committee.

This part of the report is worthy of careful study by all hospital administrators. Various economies have been effected. Thus on starch, by not using proprietary starches, an annual saving of £70 has been effected. By ordering laundry blue in accordance with a chemical specification, £110 is annually saved; on clinical thermometers, by substituting a hospital test for the Kew certificates, £280 has been saved in one year; and on other articles similar savings have been made.

Statistical Committee.

The number of cases of infectious diseases admissible to the Board's hospitals and so admitted formed 33.6 per

cent. of the total number in 1890, and steadily rose to 84.6 per cent. in 1905. It is clear, therefore, that, whatever view be held as to the efficiency of these hospitals as means of combating infection, their popularity with the public as hospitals for treatment of illness and as means of relieving households from the tedious inconveniences of home treatment of infectious cases has steadily and continuously increased. The disease in which most doubt on the above point has been raised is scarlet fever, but the present percentage of cases of this disease which are isolated is 88.6 per cent., much higher than in diphtheria (82.1) and enteric fever (51.4), and only surpassed by small-pox (105.4), in which fear of infection led to the isolation of more than the total cases.

We note that the spot map at the end of the volume is confined to small-pox and typhus. The economy secured by not giving spot maps for the more common infectious diseases is well justified, as spot maps of diphtheria, etc., for an entire year indicate little but the relative density of population of different districts.

Age and Sex Distribution of Infectious Diseases.

On pp. 156-7 are embodied most valuable statistics of the age-incidence of scarlet fever, diphtheria, and enteric fever, and of the fatality from these diseases. So far as fatality is concerned, the following table gives the main results:

Fatality per 100 Cases of Each of the Undermentioned Diseases at Each Age-Period..

Age.	Scarlet Fever.		Diphtheria.		Enteric Fever.	
	Male.	Female.	Male.	Female.	Male.	Female.
Under 5 ...	6.7	5.8	11.1	15.6	—	21.4
5 to 10 ..	1.7	1.7	6.8	4.9	6.4	2.7
10 to 15 ..	0.7	0.9	4.8	2.1	4.3	5.3
15 to 20	0.9	0.6	—	1.1	12.8	15.0
*20 to 25 ...	1.9	2.4	—	—	12.2	10.0
*25 to 30 ...	—	0.4	—	—	17.5	23.3
*30 to 35 ...	—	1.8	—	—	24.1	33.3
*35 to 40 ...	20.0	—	11.1	—	23.5	35.7
*40 to 45 ...	7.7	12.5	—	9.1	35.3	21.4

At the higher ages marked * very few scarlet fever and diphtheria patients were treated.

Average Residence of Patients.

The average duration of residence of scarlet-fever patients (not including deaths) was 61.8 days in the town hospitals as compared with 63 days in 1904; at the convalescent hospitals it was 64.2 days as compared with 70.7 days in 1904, including the time previously spent in the town hospitals. For diphtheria patients the corresponding days in 1905 in town hospitals were 55.5 days (52.6 in 1904), and 62.6 days (69.8 in 1904). The average stay of small-pox patients, not including fatal cases, was 48.6 days.

Mistaken Diagnoses.

Of the total admissions, 9 per cent. (as compared with 10.7 in 1904) were after admission to the fever hospitals found not to be suffering from the diseases mentioned in the medical certificates upon which they were removed to hospital. Among the 975 cases wrongly certified as scarlet fever, 96 were measles, 90 rubella, 106 tonsillitis, 147 erythema, 143 had no obvious disease, and 149 were not diagnosed. Amongst the 908 cases wrongly certified as diphtheria, 52 were measles, 544 tonsillitis, 55 had no obvious disease, and 22 were not diagnosed. Amongst the 247 cases wrongly certified as enteric fever, 27 were influenza, 6 general tuberculosis, 64 pneumonia, 6 had no obvious disease. The diagnoses of small-pox are revised by a medical officer of the Board at the London wharves. The mistaken diagnoses numbered 32 out of 74.

Diphtheria Fatality and Antitoxin Treatment.

Since 1889 the fatality-rate of diphtheria has declined from 40.5 to 8.3 per cent. in 1905, in which year it reached its lowest point. How much of this is due to the successful treatment of cases by antitoxic serum and how much to the more complete diagnosis of diphtheria by the aid of bacteriology must necessarily be a doubtful point. Some light is thrown on the point by the declining fatality of tracheotomy cases, which was 66 to 70 per cent. in the two years preceding the use of antitoxin, 50.2 per cent. in the next year, 1895, and has steadily declined to 27.6 per cent. in 1905.

Medical Supplement.

The medical statistics of all the hospitals are now summarized as a uniform plan, the combined statistics being edited by Drs. Turner and Beggs. It is not possible to give details in the space at our command, but attention may be drawn to Dr. Matthews's observations on the bearing of shortened stay in hospital of scarlet-fever patients on the occurrence of "return cases." These are based on 6,493 cases discharged during 1905. His main conclusion is that selection—as to the presence or absence of mucous discharges—has no influence on the percentage of return cases, the main determining influence being duration of detention in all cases.

NOTES ON HEALTH RESORTS.

Harrogate.

Harrogate, though it cannot claim, perhaps, a leading position in point of spa age, could at any rate justly state that for many a long year it was one of the very few English inland watering places which took any real trouble to develop their possibilities, and to justify their existence, as Kurorten. Nor would the boast be an empty one, for it is, thanks to its foundation, that Harrogate has for several decades and two or three generations been a health resort much esteemed by medical men and highly popular with patients. It has therefore gained an excellent position among its competitors, and obviously its authorities are resolved not to lose it.

Very many things besides natural advantages in the way of good air and mineral springs are necessary to make a spa either medically or financially successful, and as knowledge has developed Harrogate has provided itself with all of them. A new scheme conveying all drainage several miles away from the town has recently been completed at a cost of £150,000, and only some two years ago a kursaal or casino was opened, which is one of the finest to be found anywhere. As for the baths and pump rooms, these are very well arranged; the Royal Baths, which were opened some six years ago, being, in particular, singularly complete. Altogether, facilities are provided therein for the application of no less than forty-six forms of hydrotherapeutic and other treatment of the physical order.

As for the town itself and its waters, these are almost too well known to require description. Readers, however, may be reminded that Harrogate lies on a plateau in Yorkshire between 500 ft. and 600 ft. above sea level. It is about equally distant from London, Edinburgh, and Dublin, and is practically midway between the Irish Channel and the North Sea. In its immediate neighbourhood there are broad moorlands, and right through its centre runs a 200-acre belt of open ground.

As for the local climate, its distinguishing features are esteemed to be a bracing atmosphere, coupled with low humidity and much sunshine. It is mainly owing to the tonic influence of the local meteorological conditions usually prevailing that Harrogate may reasonably claim that no after-cure is necessary for its visitors, as for those at most Continental resorts. As for the "sources," which are used both for internal and external medication, these are very numerous, eighty springs being known. In type they may be classified as: (1) Strong saline sulphur, (2) mild saline sulphur, (3) alkaline sulphur, (4) saline iron, and (5) pure chalybeate.

A Movable Tuberculosis Museum.—A Tuberculosis Museum, to which the public is to be admitted free, will be opened at Darmstadt on August 29th. The Museum, which is the first of the kind in Germany, is intended for the instruction of the people in the nature of the disease and the means of its prevention. After two months the Museum will be transferred to some other town, and so on through the whole of the Grand Duchy of Hesse.

Nova et Vetera.

PHTHISIS AND SUPERSTITION AMONG THE MAORIES.

ON a holiday visit to New Zealand last year, I had a short personal experience of the ravages of phthisis among the Maories. Though physically a powerful race, they are slowly dying out, like many other native populations when brought in contact with European civilization.

The Maories of old were divided into a number of tribes perpetually at war with one another. Their villages were built and stockaded (*pahs*) on hills as a protection against sudden raids by their neighbours, and they only descended to the plains to cultivate the land during times of temporary peace. Their clothing, which consisted of woollen matting, was well suited to protect their bodies from cold and damp. Since the advent of the colonists and the establishment of a settled and peaceful government, the Maories have abandoned the more salubrious hills and have built their *pahs* on low-lying damp land. They have partially adopted European clothing, and men and women may be seen lazily standing outside their poorly-constructed huts or roaming about the streets clad in insufficient garments. This altered condition of habitation and dress, no doubt, produces in them the soil necessary for the growth and multiplication of the tubercle bacilli.

They have also adopted European education and religion, for in every Maori village is that Jack-of-all-trades, the schoolmaster, who combines in his person the duties of lawyer, doctor, pastor, schoolmaster and friend. There is always the church, for the Maories are all Christians now, but close by is the native meeting-house (*Tama-te-kapua*) with its grotesque carvings and symbols of old cannibalistic days.

After an interesting visit to the wonders of Geyserland, we arrived at a village beautifully situated on the shores of Lake Taupo. Here we put up for the night at the hotel before continuing our coach drive through the North Island. The kindly colonial hotel proprietor informed me that there had been nine deaths the previous week among the small community of natives, and that three others were then lying seriously ill. He was anxious that I should see them and express an opinion, as the nearest medical man lived some sixty miles away. Accordingly, in the evening, I was conducted to the first case, an emaciated young woman, 25 years old, with all the symptoms of acute phthisis. There was a large cavity in the left lung, and a patch of consolidation at the apex of the right. She was lying on a mat stretched on the ground in a tent some 8 ft. by 6 ft.

The next patient was some thirty yards away across the main street. The history of the case was that the child had had three attacks of haemoptysis, and, fearing a fatal termination, the parents had called in a native medicine man, who had employed certain charms and incantations, and then prophesied the recovery of the patient. Hearing voices as we approached, the mother inside the sick tent promptly extinguished the candle; however, with a little persuasion, she came out and explained to my friend that she was afraid of the presence of an English medical man, as it might break the spells of the native doctor, and her child might die. We departed, but not before I heard the patient give that characteristic cough associated with the last stage of phthisis. I was curious to know what excuse the medicine man would make for the failure of his prophecy. The reply he usually makes is simple enough: "If it had been a Maori complaint, recovery would have been certain; but what could he do against a *pakeha* (European) disease?"

The third patient lived in an outlying settlement, to which there was no road. The schoolmaster now acted as guide, and conducted me, in the darkness of the night, through bush and swamp till we reached the *pah* about a mile and a half away. On our journey my companion gave me an account of his work and of his difficulties in treating patients with the aid of an elementary medical book and a case of drugs supplied by the Government, as well as an appreciative account of the Maori character in health and disease. We found the patient, a young man, lying in his tent, with his father, mother and brother squatting close by his mat. This was a case of left lobar pneumonia, accompanied with delirium (it had previously been diagnosed as hysteria). As resolution had begun and he had been less delirious that day, I was enabled to give a favourable though guarded prognosis, and to make some suggestions as to treatment. Let us hope he did recover and that tuberculous complications (meningeal or pulmonary) did not supervene.

It is well-known that when a Maori is taken ill, as observed in some other primitive races, he will make up his mind he is going to die and dies. Accordingly, on the first symptoms of illness, the tent is quickly fitted up in the garden adjoining, and the patient hurried into it, for should he expire in the house (*wharé*) that house would be "tabu," after which no native would live in it. Thus it is that in various parts of the country *wharés* are met with shut up and deserted. Superstition dies hard among primitive peoples.

This Maori settlement is situated among a number of hot springs strongly impregnated with sulphur. The whole village is enveloped in the rising steam. Some of the pools, formed by the springs, are used for bathing, some for washing clothes, and those of intense heat for boiling water in kettles and cooking food. The question arises whether the constant inhalation of this steam, both here and in other parts of Geyserland, acts injuriously on the pulmonary tissues and is the exciting cause of tuberculosis.

The Maories now number about 40,000, compared with a population of nearly 900,000 colonists. In the South Island they are practically extinct. They are mentally and physically superior to all the other native inhabitants of Oceania and add considerably to the charm and interest of New Zealand as a tourist centre. Surely they are a race worth preserving. A little outlay should procure them qualified and more accessible medical advice, and a sanatorium for the treatment of tuberculosis in place of their miserable tents. The great stumbling-block, one can conceive, is the inborn native superstition, but even this is not an insuperable difficulty.

Ealing, W. EDWIN CHILL, M.D., F.R.G.S.

MIDWIVES ACT.

OXFORD.

AT a recent meeting of the Oxford City Council the Midwives Act Committee reported that in accordance with the resolution of the Council on May 2nd, 1906, they had appointed Miss E. Mary Martin (Health Inspector of Stockton-on-Tees) Inspector of Midwives and Health Visitor. Miss Martin will take up her appointment in September. The salary is £80 a year, rising by £5 a year to a maximum of £100. The report was adopted.

HAMPSHIRE.

We learn from the *Times* that at a meeting of the Hampshire County Council, held on August 13th, a lengthy report was presented by Colonel Grimston, on behalf of the General Purposes Committee, which pointed out that in February, 1904, the Council delegated their duties under the Act to the several rural and urban district councils. Some of the councils, however, declined to administer the Act on the terms upon which the powers were delegated. In one-third of the districts no arrangements at all for the inspection of midwives were made. This the Committee regarded as reducing the Act to a dead-letter in a considerable portion of the county, but those midwives who were efficiently inspected naturally complained of the injustice of their being under inspection while midwives in adjoining districts escaped the control contemplated by the Act. It was accordingly agreed after a long discussion to revoke the delegation of powers, to establish a central committee under the Council to work the Act from Winchester, the committee to include ladies, and to accept an offer made by the Hampshire Nursing Association through the Marchioness of Winchester to inspect midwives throughout the county during 1907 at a fee of one guinea for each midwife up to 300 and 15s. for each midwife in excess of that number. The Marquis of Winchester hoped that by this means the stigma of failure to work the Act would be removed from the county.

LITERARY NOTES.

We have received a history of the medical faculty of the University of Greifswald during the last hundred years, by Dr. Paul Grawitz, Professor of Pathological Anatomy in that ancient seat of learning. It is a *Festschrift* written on the occasion of the 450th anniversary of the foundation of the University, which was celebrated with appropriate pomp and circumstance a few weeks ago. Professor Grawitz's monograph is sumptuously printed and beautifully illustrated with portraits, sketches and plans of buildings. From these an idea may be gained of the development of the medical faculty. The view of the hut in which Hoppe-Seyler worked in 1850 should serve to console some eager spirits of our own day who are dissatisfied with the laboratories at their disposal.

The second supplement to the *Catalogue of Lewis's Medical and Scientific Circulating Library* (1902-5) contains 1,800 titles. The classified list of subjects, with the names of authors who have dealt with them, make the *Catalogue* especially valuable to medical writers. The *Catalogue* revised to the end of 1897 contains upwards of 5,800 titles, and in the First Supplement (1898-1901) there are 1,400.

The *Internationales Centralblatt für die gesamte Tuberkulose-Literature*, of which we have received the first number, is edited by Professor Ludolph Brauer, of Marburg, Professor Oscar de la Camp, of the same university, and Dr. G. Schröder, Medical Director of the new sanatorium for lung disease at Schomberg. It is an epitome of current literature on everything relating to tuberculosis. The new periodical is published by A. Stuber, of Würzburg.

In a communication recently made to the Société Française d'Histoire de la Médecine, Professor Blanchard exhumed a curious report made by Orfila, J. B. Dumas, Chomel, and Thénard in 1847, which had been discreetly buried in some official pigeonhole. These famous men of science had been consulted by the Minister of Public Instruction as to the expediency of using gas for the lighting of libraries. They recommended that it should not be employed for the following among other reasons: That gas would vitiate the atmosphere of reading-rooms to such an extent as to make it irrespirable, and that it would be likely to cause scrofulous ophthalmia. It may be remembered that in the early days of railways a committee of German doctors solemnly condemned the new invention as prejudicial to public health, because the rapid motion, besides causing various diseases in those who travelled by rail, would produce nervous disturbance, often amounting to frenzy, in those who looked at passing trains! It is a saddening thought that probably the findings of some scientific committees in these days of light will seem equally foolish to those who come after us.

The July issue of the *Indian Medical Gazette* is a Special Plague Number, in which an endeavour is made to sum up the knowledge and experience gained in the ten years during which India has been afflicted by the present pandemic. The question of the spread of plague is discussed by Major Browning-Smith, I.M.S.; Captain E. T. Gordon-Tucker, I.M.S.; Dr. A. E. Elliot, late Special Plague Officer at Bombay; and Lieutenant C. Allchin Gill, I.M.S. Captain A. F. Stevens, I.M.S., deals with the natural history of the disease; Captain T. S. Ross, I.M.S., writes on plague in the city of Madras; and Mr. W. M. C. Hossack, of the Plague Department, Calcutta, contributes a report of an experimental investigation as to the potency of various disinfectants against rat-fleas. In an editorial note it is stated that the statistics of 1906 so far have been very hopeful.

The *Museum Gazette and Journal of Field Study*, conducted by Mr. Jonathan Hutchinson, assisted by Mr. E. W. Swanton "and many others," is published monthly at the Haslemere Educational Museum. The third number, now before us, contains articles on plant life in London squares, the tides, the Humber, and the Nile, seaside natural history, common seaside plants, garden vegetables from the sea coast, etc. The *Museum Gazette* is interesting as the accredited exponent of the system of objective education which Mr. Hutchinson considers the great educational reform of the future.

In the *Montreal Medical Journal* for July, Dr. John McCrae gives an interesting account of a Canadian hospital of the seventeenth century. He says the stately Montreal hospitals of the present day had their forerunner in a miserable tumbledown house in La Flèche, where three servant maids ministered to the sick. La Flèche was a little town of Sarthe on the Loire, where dwelt a man called de la Dauversière, the father of a family, who called by God to greater things, became the founder of an order whose mission it was to tend the sick in Canada. The order came into being in 1636. Dauversière made the acquaintance of Olier, the famous founder of the Society of St. Sulpice, and together they formed the Society of Our Lady of Montreal, acquired the Island of Montreal, and in 1642 sent out a little colony, the most prominent member of which was Jeanne Mance, who felt a call to work in Canada. In 1644 a hospital was opened—the original Hôpital de l'Hôtel-Dieu de Montreal. It was a modest structure, measuring 60 ft. by 24 ft., made of axe-hewn beams, the crevices filled with mud, the roof of slab. It contained two rooms for the sick, a kitchen, a room for the servants, and one for the foundress and Director, Mdlle. Mance. The furniture, as well as the medical stores and instruments, arrived after some time from France. The hospital had for its endowment five cattle and twenty sheep. There seems to have been no medical officer for several years after the foundation of the hospital. When Mdlle. Mance had her arm broken and her wrist dislocated by a fall on the ice, the best medical skill obtainable was that of a priest, who had made some study of surgery. Then came a pious founder in the person of a French lady, Madame de Bullion, who gave 42,000 livres to the young institution. A new hospital was built, and instead of one servant soon three were required, for the colonists were frequently wounded by the Iroquois. The hospital itself was subject to attacks by Indians, and its beneficent work was often interrupted in that way. In 1663 a severe earthquake, lasting five minutes, struck terror into the community; the hospital patients were carried out and laid on the snow, but no great damage was done. Life in the hospital was not without other exciting incidents. An Indian attempted to strangle one of the sisters, who was only saved by the intervention of the other patients. To avoid displeasing friendly Indians, the sisters sometimes partook of sagamité; the nature of this compound may be gathered from the following description:

> In a large pot on a tripod was put corn and water. The Indians added to this the fattest of their dogs, after grilling them over the coals to remove their hair; cats, bear, beaver, and other animals were also used. The whole was boiled together for about half a day, then prunes and grapes (wild varieties) were added; it was cooked for two hours more, and then distributed.

Mdlle. Mance continued working for the hospital till her death in 1673.

To the July number of the *Bulletin of the Johns Hopkins Hospital* Dr. J. Chalmers Da Costa contributes a sketch of Baron Larrey, the famous surgeon of Napoleon's Guard. Larrey served in twenty-six campaigns, and followed his chief from Syria to Germany, from Moscow to Madrid, and so deep an impression did his character make on Napoleon that he was described in the will of that excellent judge of men as the most virtuous man he had ever known, a testimonial accentuated by a handsome legacy. Dominique Jean Larrey was born at Beaudeau, a village in the High Pyrenees, in 1766. He was originally a choir boy, and educated out of charity by a priest named de Grasset, who was charmed by the boy's voice. At the age of 13 young Larrey went to live with his uncle, who was surgeon to a large hospital at Toulouse. After finishing his literary education he studied medicine and surgery, and at the age of 21 went to Paris, where he got an appointment as assistant surgeon in the navy. He sailed from Brest to Newfoundland in 1788, and one outcome of his voyage is a graphic description of seasickness from which he evidently suffered very severely. On his return he entered the army. He joined the army of the Rhine in 1792, and in that campaign he was struck by the utterly inadequate arrangements for the transport of the wounded, most of whom perished for want of assistance. This led him to devise a "flying ambulance," which proved so useful that he was recalled to Paris to complete the organization of an ambulance service, and establish it in all the armies of the Republic. In 1794 he was appointed

Chief Surgeon to the army intended for Corsica, and was ordered to report at Toulon. There he first met Bonaparte, whom in 1797 he accompanied on his Italian campaign. Wherever Larrey went he noted everything that was to be seen in the way of disease, and he also lost no opportunity of teaching the younger medical officers anatomy and surgery. Larrey was with Napoleon in the Egyptian campaign, and was wounded at Acre. In that battle Bonaparte, seeing that the surgeon was dismounted, gave him his own horse, and ordered that the horses of the staff should be placed at the disposal of the Surgeon-General for the removal of the wounded. After the action Napoleon presented Larrey with a sword of honour in recognition of an amputation through the shoulder joint performed in the very heat of the battle. The sword was engraved, by order of Napoleon after he became Emperor, with the words "Aboukir and Larrey." The distinguished soldier-surgeon wore it all the rest of his military life. When he was captured at Waterloo it was stolen from him by the Prussians. Larrey fell with his chief; but though brilliant offers were made to him by the Emperor of Russia and Dom Pedro of Brazil, he refused to leave France. In 1826 he was restored to his post, which he continued to hold till his death in 1842. We get a portrait of Larrey from a letter written by Dr. J. Mason Warren, father of the present distinguished professor of surgery at Harvard, who was a student in Paris in 1832. Writing to his father, he says Larrey is "a short corpulent man with a very agreeable face. His hair, which is gray, falls in curls over the straight ornamental collar of his military coat that he wears during his visits." He adds that Larrey, "if he has anything he thinks his own, will not give it up for anybody." Larrey always spoke his mind freely to the Emperor, and was not afraid to brave his displeasure. How much Napoleon valued this quality is shown by the fact that after an altercation he gave Larrey his portrait set in diamonds, 6,000 fr. in money, and a pension of 3,000 fr. a year. Larrey was a masterful man, and on one occasion, finding that his wounded were starving, he "commandeered" a number of officers' horses, and had them shot to make soup. There was of course a great outcry, but the Emperor supported his surgeon in his high-handed action.

MEDICAL NEWS

The Ottery St. Mary Cottage Hospital receives £300 under the will of the late Mr. John Simons, of Sidmouth, £100 going also to the Devon and Exeter Hospital.

Mr. F. H. M. Parker, M.A.Oxon., Barrister-at-law, has been appointed Secretary to University College Hospital Medical School.

At the high court, or annual general meeting, on August 7th, of the Foresters, a well-known Friendly Society with numerous and widely-scattered branches, a proposal was made that provision or subvention of open-air sanatoriums for the treatment of tuberculosis should be included in the objects of the society. It was, however, rejected by a very large majority. In opposition to the proposal it was argued, on the one hand, that it was the duty of the State to provide all that was required for the subdual of tuberculosis, including better housing and more favourable conditions of labour, and, on the other, that sanatorium treatment was valueless, instances in support being narrated.

Vaccination Grant.—William Paulson, L.R.C.P.Lond., has received the extra vaccination grant (fourth time).

Central Midwives Board.—At the examination held on August 1st the number of candidates who presented themselves was 245. Of these, 192 passed. The percentage of failures was thus 21.6.

Medical Magistrate.—Among the gentlemen recently placed by the Lord Chancellor on the Commission of the Peace for the Borough of Portsmouth is Dr. John Mulvany of Landport.

German Association of Scientists and Physicians.—The Association of German Scientists and Physicians will hold its seventy-eighth annual meeting at Stuttgart from September 16th to the 22nd. Among the addresses to be delivered are the following: Professor Garré of Breslau, "Transplantation in Surgery"; Dr. Speman, "Embryonal Transplantation"; Professor Korschelt of Marburg, "Regeneration and Transplantation in the Animal Kingdom." The work of the meeting will be distributed among 31 sections. Of these 18 have to do with medicine, and the number of communications already promised in these groups is more than 350. In the Medical Section a report by Professors Starling of London and Krehl of Strassburg will be presented on Chemical Correlations in the Animal Organism.

A Medical Warrior.—We learn from the *Natal Mercury* that Dr. S. G. Campbell, in his capacity of Major in the Durban Light Infantry, recently did excellent service in the field. He was in command of a convoy of wagons *en route* for Thring's Post. Five hundred rebels charged the advance guard, which gallantly repulsed them. They returned three times to the attack, but were beaten off each time with severe loss. Forty rebels were killed and two wounded. On the Colonist side there was only one casualty. The situation was made worse by the desertion of the wagon-drivers and the stampeding of the oxen. Major Campbell therefore went into laager with such wagons as he could get together, and brought his charge safely to its destination next morning. We congratulate Major Campbell, who is a Doctor of Medicine of the University of Edinburgh, on his efficiency as a commanding officer.

Large Ovarian Cyst.—We have received from Dr. W. A. Smith, of Springfield, Massachusetts, an account of a case of very large ovarian cyst, full details of which will be published in the *Transactions of the Massachusetts Medical Society*. The patient's abdomen had been increasing in girth for two or three years, during which time she had been under the treatment of electrical, Christian Science, and other quacks. The patient's height was 5 ft. 4 in.; her weight, 375 lb. Round the umbilicus she measured 204 cm. (about 6 ft. 8 in.), the distance from the ensiform cartilage to the pubes being 94 cm. (about 37 in.) The urine contained neither albumen nor sugar, the sp. gr. being 1015, and the pulse 120. As a preliminary, 14 gallons of fluid were removed very slowly through a trocar, laparotomy following in the morning. The cyst wall was found adherent over the whole of the abdominal wall, covering a space of about 3 square feet, reaching, and partly involving, the diaphragm. With the exception of a small portion underneath the liver the cyst was simple. The pedicle was very small, having a diameter of only about half an inch. The patient died some twenty-four hours after the removal of the tumour, from shock and exhaustion. The difference between her weight before and after operation was 192 lb., this representing the weight of the cyst and its contents.

Royal Sanitary Institute.—The forty-second course of lectures and demonstrations for sanitary officers will be held in September, October, and November. The course comprises the following lectures:—Part I. Four lectures on elementary physics and chemistry in relation to water, soil, air and ventilation, and meteorology. Twenty-one lectures on public health statutes, orders, memoranda, and model by-laws of the Local Government Board and the by-laws in force in the Administrative County of London. The practical duties of a sanitary inspector—for example, drawing up notices as to sanitary defects, drain testing, disinfection, methods of inspection, note-taking, reporting, and elementary statistics. Municipal hygiene or hygiene of communities, including prevention and abatement of nuisances, sanitary defects in and about buildings, and their remedies, water supplies, sanitary appliances, drainage, refuse removal and disposal, offensive trades, disinfection. Building construction in its sanitary relations, local physical conditions. Measurement and drawing plans to scale. Inspections and demonstrations are arranged in connexion with the lectures, and include visits to disinfecting stations, dairy premises, municipal dépôts, artisans' dwellings, offensive trades, waterworks, common lodging-houses, sanitary works in progress, refuse and sewage disposal works, and other public and private works illustrative of sanitary practice and administration. Part II., seven lectures on: Meat and food inspection, including taking of samples of water, food, and drugs for analysis. Practical demonstrations of meat inspection are given. The lectures begin on September 10th and end on November 23rd. The lecturers are: Dr. J. Priestley, M.O.H. Lambeth; Dr. G. Newman, M.O.H. Finsbury; Mr. A. Wellesley Harris, M.O.H. Lewisham; Dr. E. J. Steegmann, M.O.H. Heston, Isleworth; Mr. W. C. Tyndale, M.Inst.C.E.; Dr. E. Petronell Manby, Medical Inspector, Local Government Board; Mr. A. Saxon Snell, F.R.I.B.A.; Mr. J. Wright Clarke; Mr. J. E. Worth, M.Inst.C.E.; Mr. Hunting, F.R.C.V.S.; and Mr. J. King, M.R.C.V.S. Further particulars can be obtained on application to Mr. E. White Wallis, Secretary of the Institute.

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SATURDAY, AUGUST 18th, 1906.

THE TOWNSHEND CASE.

Another cause, likely to be very celebrated, has, after ten days' examination before a judge and a special jury, been decided, and we think there can be no doubt that the judgement is a proper one. There are many points which were brought out in the trial which have grave social indications, but which need not be considered in a medical paper.

It is a matter for congratulation that there was no real discord among the medical witnesses, for whereas, on the one hand, the Marquis was considered to be feeble-minded and subject to unreasonable and uncontrolled emotional displays, on the other the opinion given was that he was not mentally developed—that he was immature in mind and body.

There was a statement that he was not insane, but that he was undeveloped. This, of course, is rather a question of terms than of fact. It was well that the inquiry was held before Mr. Justice Bucknill, who seems to have inherited clear and definite views of insanity from the late Sir John Bucknill, his father. We may think from the medical standpoint that too much general evidence was accepted which had no apparent connexion with the issue as to the sanity and capacity of the Marquis, yet we believe the admission of this was necessary to show how dependent the Marquis was on others, and how easily misled. The medical evidence showed that the Marquis was seen by a mental specialist twelve years ago, but evidence as to this was not admissible in an inquisition. Then and till this year he had been living with and looked after by Mr. Robins, for whom he seemed to have a most profound attachment, and to whom he seemed to look for direction in all matters. He appears to have had a love affair which nearly ended in a breach of promise action before he was introduced to his present wife. Pecuniary and social differences having arisen after his marriage, he wished to return to his friend Mr. Robins. This was prevented, and here the special medical history begins. He was seen by Dr. Bramwell, then by Dr. Crawford, and later by Dr. Savage. They all agreed that he was in a very abnormal mental state, and that it was essential that he should be separated from the supposed cause of trouble—Mr. Robins. The plan followed was to certify him as being of unsound mind and to detain him in his own house. This proceeding, though unusual, appears to have been justifiable, and the Marquis, under those conditions, was seen by the Commissioners in Lunacy; he was also seen by Dr. Robert Jones and Dr. Lister, who reported that he was not insane but suffering from arrested development. It may be pointed out that the Marquis was safeguarded by the certificate, and his liberty was really not interfered with except as to communications with Mr. Robins.

It was decided to apply for an inquisition and then the Marquis and his wife suddenly left for the Continent, probably not recognizing that an inquisition can be held *in absentiâ*. After some delay the inquiry took place before a special jury and the medical facts as here stated were testified to, but in addition it was shown that the Marquis had thought himself neglected by his friend and supplanted in his regard by Mr. Dunne and had contemplated suicide; that he had said he feared his mother might poison him and that his wine might have been tampered with. Besides this, one night he had a very violent outbreak in which he attacked his attendant, thinking him to be Mr. Dunne.

This nocturnal attack and the emotional displays resulting from his removal from Mr. Robins were the chief points on which the cross-examination of the medical witnesses turned.

Counsel required distinction between nightmare and hystero-epileptic attacks, and urged that even severe emotional disorder, if depending on specific causes, should be looked upon as normal and not disordered. The cross-examination of the doctors was severe but courteous, and was in all ways justifiable. The medical evidence for the Marquis really supported that of the other side in admitting that a person so easily influenced was not fit to manage his affairs. It is not usual for a special jury, in this case of twenty-one men, to be unanimous. The fact that this was the case goes far of itself to justify the general feeling of the public that the right thing has been done.

It may be added that the process adopted in this case is very tedious and costly, and we venture to suggest that the time has come when some simpler method—one more in accord with old Roman and modern French plans for control of the property of wasters—might be devised.

SLEEP.

The papers for the last week or so have been full of the question of more sleep, or less sleep, and we have been favoured with a good many dicta, few data, and numerous suggestions, wise and otherwise. For in these days, though Science herself is still treated with comparative contumely, subjects which can be made to cloak themselves in her garb have a singular attraction for the multitude. Really, however, Science and this particular problem are at present barely on speaking terms, and the question, so far as it can usefully be discussed, is of a very narrow character, its real interest being strictly confined to the limits which Dr. Acland assigned himself in the opening paragraphs of his address at York.

The question of how many hours of sleep it is desirable to allow young people of school age was fully discussed only a year or so ago. Young brains have to grow as well as work, and quite enough was said on the point at that time to convince all thinking parents that young people should have more sleep than, in the decades which have passed since dames schools went out and "collegiate" schools came in, it has been the custom to allow them. Nevertheless, it is well that the subject should again be ventilated, in order that more parents should become insistent and schoolmasters generally be allowed no peace until they have all reformed their hours of work. That much pressure should be needed may seem at first sight strange, but schoolmasters are, in dealing with the individual parent, autocratic folk. Furthermore, their minds often seem decidedly of the unreceptive order, and as a body they are loath to adopt changes prescribed by Science if these entail alterations of routine. Hence the number of defects in hygienic administra-

tion which, on careful scrutiny, may be found in many expensive schools is remarkable, and it is safe to conclude that an enormous number of institutions beyond those coming within our personal ken have paid no attention whatever to the cry raised last year, and still maintain those short hours of sleep which in other ways are more convenient than would be shortening the working day for boys and girls by an hour or more, as the case may be. For this reason it is well that agitation on the subject should from time to time be renewed.

The question of sleep for adults, however, raises quite a different set of considerations, and we have been told some curious things. Of the doctrines put forward, one which has been decked with the title of the Edisonian theory is, from the medical point of view, most objectionable; it is to the effect that the amount of sleep required is just as little as the individual has the will power habitually to permit himself to take. This concept is the more foolish because of the few really scientific observations which have been made on the subject of sleep, the best known and the most thorough is that in which the investigators, Patrick and Gilbert of Iowa, showed that after a certain number of hours no will power could keep the subjects of enforced insomnia awake, and that as the hours went on most of the special senses diminished in acuity, while there was increasing evidence of failing power in all directions.

Historically, too, it is probably incorrect to suggest that the man of the twentieth century sleeps longer than his forefathers; on the contrary, it is reasonable to assume that he sleeps less. For in the days when the penny novelette cost a really considerable sum, when the electric light was not, and the tallow dip made the darkness deeper, there were fewer temptations to prolong day into the night, and vast numbers of the population habitually adapted their hours of rest to the rising and setting of the sun; and thus in the long run, year in and out, they probably got a good deal more rest than do any of us nowadays. Nor was there any particular reason why they should not do so, for life moved more easily, and though it may not always have been afternoon, there were more occasions on which an afternoon feeling was permissible than any one with an occupation can now permit himself.

In any case the form of a question which has been put, "Do we require more sleep?" is essentially unsound, for there can be no doubt that each man's requirements differ in some degree from those of his fellows. This is especially clear, because apart from observations like those of Gotch the investigations already mentioned showed that sleep may differ in quality not less than in length. Some people, indeed, rarely fall more than half asleep, while there are others who take long to rouse themselves into full activity after rest, and yet a third class who are only in a condition of extreme wakefulness, or in other words in a condition of conscious and high cerebral activity, for a very few hours of the day.

As regards the great majority of us, however, the question put may be answered with a distinct affirmative, and for these nothing could be more foolish than to pay any attention to the old adage, "six hours for a man, seven for a woman, and eight for a fool." Such a rule may conceivably have some application to the happy few whose work begins and absolutely ends at certain definite and not far separated hours; but this is not the case of the majority, for nowadays business of every kind is too complicated and competition too severe to allow of more than a few individuals dropping all thought of work as they close the office door. To most, then, we would certainly say, Sleep as long and especially as often as you can. The capacity to take short light naps without the aid of gastric repletion is a precious possession, and one which, if the conditions of modern life permitted it to be utilized freely, we should advise all to cultivate. It would be an advantage, indeed, if it were possible in England, as it once was, and as it still is in many parts of the world, to spread the day's task over a sufficient number of hours to allow of a prolonged break at midday; this, however, with the spreading of towns and enforced nightly retreat to distant suburbs, is becoming less and less feasible.

As for the purely scientific aspects of the question, there is at present regrettably little to say upon the matter. In the modern acceptation of the term, a really scientific investigation of the mystery of sleep is comparatively a new study, and one in which little progress has yet been made. Most of the work hitherto done has been directed to the formulation of theories such as those of Lugaro, Demoor, Quenton, and Lépine. Many of them are of much interest, and that which ascribes the oncoming of sleep to the effect of an accumulation of the katabolic products of work on the centres of thought is decidedly attractive. None of them, however, enable it to be stated what are the precise immediate effects on the organism of that cessation of cerebral interchanges, other than those essential to the continuance of ordinary vital processes, which we know by the term of sleep.

Nevertheless, there is one very important fact to which it seems right to make allusion, for though we are not certain that it has ever been the subject of direct proof in the physiological laboratory, there are many excellent grounds for assuming its existence. This is that one of the concomitants of sleep is lowered arterial tension; it is a point which every one may well bear in mind, for of all physiological epigrams which have ever been emitted none is more true than that a man's age is that of his arteries, and the age of an artery is certainly in direct ratio with the average tension at which its walls are kept. Let us sleep, therefore, as much as we can, but less that we may live than that while consciously alive we may do the best work it is in us to perform.

Finally, on the general subject of the management of life in respect of work and play, attention may be directed to a little pamphlet on the home life of school children, written by Dr. R. T. Williamson of Manchester, and forming the fifth in the series of health lectures for the people published by the Manchester and Salford Sanitary Association. It deals in an attractive way with the desiderata of the home life of school children, and might well be in the hands of all persons who have the care and control of young persons of school age.

THE DISSOCIATION OF A PERSONALITY.

EVERY ONE must have been struck some time or another, when awaking from a dream, by the extraordinary fidelity with which places and things have been represented, the stage properties having been reproduced in the dream with a luxuriance and minute exactitude only vainly emulated in waking moments. Memories long lost to waking consciousness have been rescued from oblivion in this way, and so also have details which did not seem ever to have been consciously observed. Even when we are engrossed with that which apparently demands and receives our undivided

attention, there must, it appears from experimental data, be "a chiel amang us takin' notes"—vigilant, never to be caught napping, all-observant, and ever ready to furnish the fecund material of the confused medley of mental states we call a dream. Fortunately, neither this "chiel" nor any other of the many subconscious partners—for it appears there are many in the firm of "Ego and Company"—usurps, with normal people, the chief place or takes up the reins of government and directs our commerce, walk, and conversation. There are, however, many cases now on record in which precisely this has happened, and, following physical trauma or emotional shock, people have broken suddenly away from their accustomed life, have evinced a character entirely changed, and after varying periods of somnambulistic existence, ranging from a few hours to many years, have awakened to find themselves amidst strange surroundings, on intimate terms with people they did not know, and even, as in the case related by Dr. E. Mayer,[1] saddled with a wife and children whom they could not but indignantly repudiate. Carefully-written accounts of many such cases are to be found in many scientific journals—German, French, and American—and their importance both as affording glimpses into the penetralia of mind and as possible explanations of many vagaries of conduct, even criminal conduct, cannot be denied. "Find out all about dreams," we have heard Dr. Hughlings Jackson say on more than one occasion, "and you will have found out all about insanity;" and if the term "dream" be extended so as to include all somnambulistic states, or what Dr. Morton Prince more explicitly defines as states of dissociated personality, whether of traumatic, hysterical, or epileptic origin, the truth of Dr. Jackson's dictum becomes evident.

Dr. Morton Prince has written an able study[2] of disintegrated personality as exemplified by a very remarkable case which he had under close observation for many years. The subject, whose identity is disguised under the name of Miss Beauchamp, is a case of what is commonly known as "multiple personality," but what Dr. Prince correctly designates as "disintegrated personality," for each secondary personality is only a part of the whole normal self. "The synthesis of the original consciousness known as "the personal Ego is broken up, so to speak, and shorn "of some of its memories, perceptions, acquisitions, or "modes of reaction to the environment. The conscious "states that still persist, synthesized among them "selves, form a new personality capable of independent "activity. This second personality may alternate with "the original undisintegrated personality from time to "time." But, further, certain conscious states, rejected in the synthesis of the new personality, may remain outside the consciousness of the new personality and, combining among themselves, form a second simultaneously-acting consciousness. To this latter phenomenon Dr. Prince restricts the use of the term "subconsciousness." Miss Beauchamp exhibited, in addition to many of the ordinary stigmata of hysteria (anaesthesia, negative hallucinations, and so on), both alternating and subconscious mental states in a succession so bewilderingly kaleidoscopic that the sceptical reader is inclined, at first, to suspect their disentanglement and the depiction of their several characters by Dr. Prince of being, in part at any rate, conjectural. Later these doubts are resolved. Altogether, Miss Beauchamp—the Miss Beauchamp who first consulted the author in 1898, and was therefore named B. I—manifested herself in four principal and separate parts: B. I aforesaid, a refined, over-anxious, neurasthenic student, subject to frequent mental lapses, of which she had no subsequent recollection, but in which she behaved, she learned from others, in unaccountable fashion, displaying conduct at entire variance with her proper character; B. II, for long merely a "hypnotic self" evoked by Dr. Prince; B. III, a subconscious personality, continually, however, obtruding herself upon the stage, an illiterate, childish madcap, always in good health, and having a complete knowledge of the conduct and mental operations of B. I and B. II, and of the actions and later the thoughts of a late-appearing B. IV, who again differed in character but resembled in mental qualities B. I. Miss Beauchamp appeared, therefore, to be not one person but a family, inhabiting alternately the same body (except B. III, who co-existed with the others), the individual members being, however, imperfect, the complements of the others. Unfortunately the personalities were at perpetual war with each other, Miss Beauchamp as B. III taking delight in placing herself as B. I or as B. IV in awkward situations, continually indicting derisive epistles to B I, and even as B. III taking a large and unnecessary dose of calomel and then converting herself into B. IV.

The ordinary reader, unversed in and perhaps somewhat sceptical of the latest developments of hypnopsychology, must on reading this involuntarily exclaim, in the words of Truthful James:

> Do I sleep? do I dream?
> Do I wander and doubt?
> Are things what they seem?
> Or is visions about?

or else arrive at the conclusion that Miss Beauchamp was simply an insane person. That this conclusion would be wrong is evident from a careful perusal of the facts, Miss Beauchamp in none of her phases comporting herself as other than a sane person, though sometimes, as B. III, as a very demon of mischief. The whole series of phenomena was clearly hysterical in nature, initiated by a severe emotional shock some time prior to her observation by the author of her biography. An exceedingly interesting fact is that the B. I who first consulted Dr. Prince was not the true or original Miss Beauchamp. How the real Miss Beauchamp was discovered and finally restored to a condition of practical permanence and integrity may be read in the book itself, which is an engrossingly interesting and suggestive document. Dr. Prince's observations throw considerable light on the mechanism of dream states, and further afford possible explanations of many other abnormal phenomena, such as hallucinations, fixed ideas, aboulia and obsessional states, already so ably investigated by Janet, Freud, and many others; phenomena occurring not only in the hysterical but in the insane, and in what Soukhanoff has well termed the ideo-obsessive constitution. The immense amount of time and care Dr. Prince has devoted to the investigation of this one case is justified, although we cannot entirely uphold him in endowing the separate manifestations with a fictitious reality and completion by naming them "Sally" (B. III) or "The Idiot" (B. IV) for, to the uninstructed public, the undoubted scientific value of the book must be somewhat obscured by the bizarre Dr. Jekyll and Mr. Hyde character it thus acquires. It does serve, however, to teach that the mind of man is not a simple, single document, but a palimpsest, or rather a pile of documents up and down which the

[1] *Journal of the American Med. Assoc.*, December 14th, 1904.

[2] *The Dissociation of a Personality: A Biographical Study in Abnormal Psychology.* By Morton Prince, M.D., Professor of Diseases of the Nervous System, Tuft's Medical School; Physician, Boston City Hospital, U.S.A. New York and London: Longmans, Green and Co. 1906. (Demy 8vo, pp. 569. 10s. 6d.)

lamp of consciousness, when shaken by emotional storm, may flit, illumining for even lengthy periods of time long-buried characters, so that an individual may walk at large, apparently a normal being, in reality a dream incarnate.

CENTRAL EMERGENCY FUND.

WE think it well again to call the attention of all members of the British Medical Association to the Emergency Fund established, in conformity with a resolution passed by the Central Council, for the purpose of dealing with disputes in cases of contract practice, and otherwise, under the management of the Medico-Political Committee. Details of the scheme prepared by that Committee for the carrying out of the purposes of the Fund will be found in the SUPPLEMENT to this issue of the BRITISH MEDICAL JOURNAL, page 162. The Fund is being created by voluntary subscriptions to assist members of the profession in various parts of the country in defending their legitimate interests when these are threatened by the action of organized bodies of the community. The Fund may be applied either by way of grants to individual practitioners to assist them in maintaining any position in which the Association considers itself called upon to support them; of grants to Divisions or Branches towards defraying expenses incurred in the conduct of local disputes falling within the scope of the objects of the Fund; or of other expenditure, under the supervision of the Medico-Political Committee, for the promotion of these objects. The scheme was approved by the Annual Representative Meeting on July 27th. We need say nothing more to impress upon our readers the importance of active support of the Fund; the mere statement of its objects should be sufficient to commend it to all who have the interests of their profession at heart and to induce them to help in assuring the success of a measure designed for the protection of medical practitioners against oppression, and for the promotion of their welfare. Contributions to the Emergency Fund will be received and acknowledged on behalf of the Medico-Political Committee of the Association by the Medical Secretary, 429, Strand, London, W.C.

THE CHAIR OF PHYSIOLOGY AT GLASGOW.

THE King has been pleased, on the recommendation of the Secretary for Scotland, to appoint Diarmid Noel Paton, M.D., B.Sc., F.R.C.P.E., F.R.S.E., Superintendent of the Research Laboratory of the Royal College of Physicians of Edinburgh, and Lecturer on Physiology in the Extra-Academical School of Medicine of Edinburgh, to be Regius Professor of Physiology in the University of Glasgow, in place of Professor J. G. McKendrick, resigned. Dr. Paton was born in 1859, and is the eldest son of the late Sir Noel Paton, R.S.A. He was educated at the Edinburgh Academy; at the University of Edinburgh, where he took the degrees of M.B., C.M., with first-class honours, in 1882, and the degree of M.D. (with a gold medal for his thesis) in 1885; and at the medical schools of Vienna and Paris. In 1880 he took the degree of B.Sc., and was Baxter Scholar. In 1886 he was appointed Lecturer on Physiology in the Extra-Academical School of Medicine of Edinburgh, and three years later Superintendent of the Research Laboratory of the Royal College of Physicians of Edinburgh. He is Examiner in Physiology in the University of Edinburgh, and has been Examiner in that subject in the Universities of Glasgow and Aberdeen. He was a Biological Fellow of the University of Edinburgh. He acted as a member of the Royal Commission on Salmon Fisheries appointed in 1900. Professor Paton has contributed many important papers to the literature of his subject, particularly in relation to the action of the liver. His departure from Edinburgh will be a great loss to the School of Medicine of the Royal Colleges, and his place will be difficult to fill; but he has well earned his promotion to a University chair.

THE SKULL OF SIR THOMAS BROWNE.

ON several occasions reference has been made in the BRITISH MEDICAL JOURNAL to the skull which is preserved in the Museum of the Norfolk and Norwich Hospital as that of Sir Thomas Browne. It has been suggested by more than one admirer of the author of the *Religio Medici* that it is fitting that the skull should be restored to the tomb in the church of St. Peter Mancroft, from which it is said to have been taken, and this proposal has been strongly supported in these columns. Some time ago we announced that the authorities of the Norfolk and Norwich Hospital had intimated their willingness, under certain conditions, to deliver up the relic which they have in their keeping to the vicar and churchwardens of St. Peter Mancroft in order that it might be replaced in the grave from which it was "knav'd." Doubts were, however, felt by some as to the genuineness of the relic, and, owing probably to this circumstance, the Church Council has not come to a decision in the matter. Quite recently a discovery has, we learn from the *Eastern Daily Press*, been made which seems to strengthen the case against the relic. The following entry has been found in the manuscripts of John Mackerell, a Norwich antiquary of the eighteenth century, under the heading of St. Peter Mancroft: "The "late Dr. Jeffery gave notice to Sir Thos. Browne's "nearest relative that his Vault wanted Reparation, "who sent him word it might be filled up, which when "the Dr. knew, desired that he might be interred "therein, who shortly after Dying His corps was "deposited in the Vault and afterward filled up with "Earth and over the Doctor on a Stone in this Ins.:— "M.S. Johannis Jeffery S.T.P., &c., &c., &c., 1720, Anno "aet. suae 73." The entry is somewhat cryptically worded, but it certainly suggests that Archdeacon Jeffery was buried in the vault containing the remains of Sir Thomas Browne, which the representative of the great writer's family neglected to keep in repair. An investigation is to be held with the object of clearing up, if possible, the mystery of the skull. There never was more than a presumption that the skull was that of Sir Thomas Browne. All that is known is that more than sixty years ago, during a burial in the chancel of St. Peter Mancroft, a coffin supposed to hold Browne's remains was accidentally broken open by the pick of a workman, and that Dr. Edward Lubbock secured the skull which was said to have been taken therefrom. Dr. Lubbock did not, it appears, see the skull taken from the coffin, and the relic may have passed through several hands before coming into his. The question of genuineness is a stone of stumbling which always lies in the path of relic worshippers. Many step over it with the light-hearted indifference to difficulties that comes from the wish to believe, but in minds of a critical turn the doubt must seriously abate, or at any rate hold in suspense, the natural feeling of veneration. The result of the inquiry as to the identity of the Norwich skull is sure to be interesting, and for sentimental reasons we venture to hope that it may be conclusive in favour of the skull now enclosed in the crystal casket which is the tribute of Professor Osler.

CONTRACT PRACTICE.

IN the early part of this year reference was made to the disputes in connexion with contract practice in South Wales, and somewhat later, when the conditions as regards the Ebbw Vale collieries had been for some

little time acute, an account was given of the steps taken for their settlement; a Branch Contract Practice Committee had been called into existence, and steps taken to ensure that it had the local profession in South Wales at its back. Until April the negotiations entered into seemed likely to result very happily, for it was decided that the points in dispute should be settled between two arbitrators, one of them, Mr. Richards, M.P., acting for the miners, and the other, the Medical Secretary of the British Medical Association, for the doctors. Unfortunately, at the date mentioned, this partial agreement failed, it being unfairly stated on behalf of the miners that the terms of reference were unreasonable. Of what has since occurred the net result is that the doctors concerned have again received notice of a termination of their agreements, and are now addressing a manifesto to the men themselves, as distinct from the Committee which has hitherto claimed to represent them. In the manifesto a history of the dispute is given. It is shown that the negotiations with the miners' Committee broke down because that body would not give to their Representative the same free hand in settling the dispute as the medical men were prepared to give to the Medical Secretary. More important still, the Committee would not undertake to cease meanwhile to import "blacklegs," and the men are asked whether as trade unionists they consider it just that their Committee, acting for the time being as employers of labour, should take advantage of friendly negotiations to drive out one employé after another, and fill their places with the persons already picturesquely described. It is also pointed out in the manifesto that after the negotiations for arbitration had broken down, the medical men were approached individually by the Committee, and informed that, if they would consent to remain in the service of the miners, what they had been asking for should be granted them, namely, employment on the conditions under which they originally served. This offer was accepted; but when eventually an agreement was submitted to each of them for signature, it was found that the terms introduced were anything but those promised. Finding themselves thus deceived when dealing as individuals with the Committee, they resolved to deal with the Committee in future solely through the British Medical Association. They intimated this decision to the Committee, and in consequence each of the medical men concerned received notice to terminate his engagement. In this connexion the men are again asked to consider the matter as unionists and with their own eyes, and to decide whether they really wish to part from those in whom they have confidence as medical advisers, on an issue which, if raised by their own employers, they would strongly resent. For it is justly pointed out that the dislike the Committee shows to dealing with the medical men as a body rather than as individuals, each separately at its mercy, arises from exactly the same causes as those which have led ordinary employers of labour to strive against intrusion of trades unions into disputes between themselves and their employés.

HEALTH AND HEAT.

The prognostications of the weather prophets as to a cold summer have been signally falsified as far as the southern part of our happy island is concerned, and the weather for several weeks has been warm enough to afford an excellent opportunity of noting how people nowadays deal with an incident which annually recurs but never ceases to surprise and more or less upset the world at large—the occurrence of a few really hot days. Upon the whole things seem very much what they have been in former years, and as usual the heat has been an excuse, by the ladies for light frocks, pneumonia blouses preponderating, by the men for a certain slackness in attire, and by both alike for grumbling. To the two former we have no objection whatever, but the latter is sheer ingratitude born of persistence in what in the circumstances are totally unreasonable habits. After all, the mean temperature of the air throughout any given twenty-four hours can never have been much above 70° F., with a relative humidity at least 50 per cent. short of saturation; and under such conditions no one's comfort should be disturbed. Provided the nights are sufficiently cool to permit of a sheet by way of a covering, which must be the case with a mean temperature of the figure indicated, rest is always possible, while in the daytime temperatures far higher than 70° can be sustained with pleasure. It sounds a platitude to say that the objection to hot weather is that one gets hot, but it is not really so, because coolness of person is quite compatible with the hottest weather we ever get in England. People feel the weather mainly because at one time and another in the day they get through quite as much food as during the cold months of the year, and food of much the same quality; while there is little material difference in their clothing, and they drink a great deal more. To keep cool it is only necessary to remember that the main source of individual heat is not the sun or the temperature of the air surrounding the body but food assimilation and muscle action. In hot weather people should prefer the less concentrated forms of food, be less active in their movements, and not obstruct the passage of heat from their bodies by thick clothing, and, above all, refrain from the constant imbibition of liquids. In particular, those of an alcoholic nature should be scrupulously avoided, although when the day's work is done it is legitimate, and after a tiring day may even be desirable, to take a glass of claret or some other light wine at the evening meal. To take more liquid than usual is a great mistake; nothing is easier than to acquire the habit of being thirsty, and in hot weather the only result of being thirsty and of satisfying the feeling is a rush of blood to the surface accompanied by a sensation of heat and followed by unpleasant perspiration. Those constant wanderers under a hot sun, the Bedouin Arabs, are credited with never drinking more than once in twenty-four hours, and many old travellers in hot countries have learned by experience how much they gain by restricting all drinking to meal times. The same practice may be followed with great advantage in England throughout the year. Owing to the conditions of work in London and the changeableness of the climate, clothing really suitable to hot weather is scarcely available, but men might safely wear much thinner things than are at present usual if they carried a dust or other light overcoat ready to put on when journeying homewards. How greatly English customs, in respect of eating, drinking, and dress, count in the production of discomfort during warm weather is shown by the fact that residents in warm climates often suffer from the heat in London even more severely than do cockneys themselves. They cannot wear the clothes to which they are accustomed, and almost perforce adopt the social habits of the town in the way of eating and drinking.

EXAMINATIONS AND EXAMINERS.

In the August number of the *Broad Way, or Westminster Hospital Gazette*, Professor Halliburton sets before us his ideal of what examinations should be. He discusses the subject with a largeness of view and a sympathy for human weakness too rare among examiners. Ideals, he says, are seldom reached, but the possession of them may

do good if they lead people to seek to make them realities. He first describes the ideal candidate as one who knows his work, who is able to reproduce it in readable English in a written paper, who is neat and exact in his practical work, who is ready with his answers in the oral, and who is untroubled either by concealed self-assurance or by want of confidence or nervousness. On the other hand, the ideal examiner is kind and courteous; he is able to remember that not many years back he was himself a pupil, and he does not forget that his main object is to find out what students know, not what they happen to have forgotten. The more one examines, says Professor Halliburton, the more lenient one becomes. It is the young examiner who bubbles over with his learning, who sets questions out of the small print, who devises puzzles instead of questions, and who heckles instead of examining. The unhappy candidates who pass through the hands of such an one are likened by Professor Halliburton to the broken test tubes which strew the early path of the future chemist. As examinations are at present conducted in this country, a student may come to grief through temporary indisposition, transient failure of memory, or other accidental cause. Such disasters would, says Professor Halliburton, be counteracted if the work of the previous months were allowed to count; if his notebooks and sketchbooks could be put in and if his class record were taken into account. If these things are not allowed, Professor Halliburton regards it as essential that one of his examiners should be his teacher. The idea that a teacher must never examine his own students is one almost entirely confined to London, and is the direct outcome of the jealousies of its numerous schools. In the University of London it is beginning to die out, but it remains in full force at the examinations of the Royal Colleges of Surgeons and Physicians. Professor Halliburton has little belief in the viva voce examination: "It is the pitfall of the nervous candi-"date: it is the opportunity of the heckling examiner." The practical examination is conspicuous by its absence at the Conjoint Board. Professor Halliburton finds the nearest approach to his ideal examination in those conducted by the Institute of Chemistry, where the practical examination lasts a week. "There is no "hurry and skurry to try and squeeze a week's work "into a few hours; the students soon feel at home; they "are allowed to consult their books and notes; they "are treated as reasonable beings, as though they were "working as they subsequently will work in their daily "life, and not as mere storehouses of figures and data "which they will forget (if they know them) before "a month has expired." It is certain that by this leisurely method competent examiners are able to form a more satisfactory judgement of the knowledge and capacity of candidates than by a paper or two followed by a brief interview. A similar plan is, we believe, adopted in the *Staatsexamen* which is the portal of admission to the profession in Germany. But, if a fair test, it is also a severe one, and many a candidate whose weakness might escape detection in an examination as at present conducted would be found wanting if exposed to the ordeal of a week of practical work.

THE SECRET OF SUCCESS IN MEDICINE.

One of the cheaper magazines has published under this title what it calls a "symposium," or a collection of the opinions of a number of members of the medical profession on the qualities which conduce to success in practice. The list of names of the contributors includes some of very well-known and highly-respected men, who are evidently alluded to in a prefatory editorial note to the following effect: "In some of the "cases where the names are given our authority has "been the annual addresses to students at the great "medical schools, published in the medical papers and "elsewhere." Others are from persons whose names are not familiar to us, and who can hardly be considered as expressing more than their individual opinions; one of these is sufficiently naïf to try to impose upon his readers Sir Walter Scott's story of the Scottish cow-doctor who, having crossed the border to practise physic on Englishmen, opined that his "twa simples" of "laudamy and calamy" would take a long time to "mak' up for Flodden"; this chestnut is told as apparently a modern illustration of the ignorance and malice of the Scottish medical immigrant! Two are anonymous, though each professes to be a titled member of the profession. Internal evidence, however, strongly suggests doubts as to the authenticity of these contributions. One is said to be from "an "eminent London physician who has received a "baronetcy," yet on reading the supposed account of his career which he gives it is evident that he is not a physician but a surgeon, while his autobiographical confessions do not fit in with the facts of any living medical or surgical baronet known to us. The other, "Sir X. Z., a well-known London specialist," is, we believe, a relation of "Mrs. Harris," for no genuine specialist could make the mistakes he does. Professor Allbutt is described as "Sir Thomas Clifford Allbutt." The authorities whose names are given say what might be expected as to the importance of those virtues which lead to success in any profession; while the anonymous gentlemen utter some commonplace rubbish in favour of the less reputable means of reaching success. Dr. Herbert Snow has the courage to put his name to a communication which informs the readers of the magazine that "in his experience the main elements for "success arranged in the order of their relative impor-"tance are (1) unscrupulousness, (2) selfishness, "(3) hypocrisy, (4) industry, (5) ability"; adding to this remarkable catalogue the statement that "No one with "the merest vestige of a conscience should attempt to "become a doctor of any kind. Everything in the "nature of benevolent instincts, of kindly feeling for "others, of sympathy with suffering and pain, should "be sternly discouraged. If possible the student should "strive to trample them out at the beginning of his "studies." When poor Smollett published his views on art, Sterne unkindly suggested that the expression of such opinions should be reserved for the ear of his physician. We venture to offer the same advice to Dr. Snow.

SULTAN ABDUL HAMID II.

There have been rumours for a very long time past that all was not physically well with His Imperial Majesty Abdul Hamid II, Sultan of Turkey and Commander of the Faithful throughout the world, in spite of the regularity with which the Friday State attendances at the Mosque near the Stambul Palace were carried out. More recently these have found expression in the general press, and colour has been given to them by the fact that for the first time for very long those who at the beginning of the month visited the Selamlik were disappointed, His Majesty not appearing. Some of the comments to which the more recent rumours have given rise appear to be the outcome of a conception that Abdul Hamid II is very old and habitually infirm. Such a notion, however, is, in one respect at any rate, decidedly erroneous, for though it is true that Mohammedans everywhere have looked to him as their spiritual head for the long period of thirty years, Sultan Abdul Hamid is, as monarchs go, only a middle-aged man. In point of actual years, indeed, he is only 64, and at this age the simple-living Mohammedan inhabitant of the Near East is certainly at least as young as his more Western and nominally more

civilized compeer. As for the Sultan's personal health, that is another matter. Politically the "Sick Man" of the Porte has for many long years falsified the prognosis of the most distinguished authorities, and so far there has been no strong cause for believing that in his own person His Majesty is likely to prove less wiry than the national body politic which he represents and really rules. It is true there is a suspicion that he is the subject of some degree of renal mischief of the nature of granular kidney, but even if this be true no one could say that that fact brought the end really in sight. His present trouble seems to be of an entirely different nature, and, without referring to any sources of private information, it seems not unreasonable to suggest that when one little published detail of his illness is taken in connexion with another, there is ground to conclude that his complaint is of a nature likely to yield easily to intelligent treatment. Apart from the natural tendencies of the Turk, the life which the Sultan leads is almost enforcedly of a sedentary nature, and in such persons nothing, of course, is more common than a moderate degree of varicosity of the venous plexus surrounding the lower extremity of the digestive tube. That the resulting trouble can usually be kept under by very simple means the public is quite aware, but what it does not recognize freely, as with advantage it might, is that surgical interference in marked degrees of this condition should be sought rather than avoided. No operation, indeed, is happier in its effects or affords more obvious benefit than those which have been devised for the relief of this particular trouble; and if in the Sultan's case such an operation should be deemed necessary it may be anticipated that the outcome of the whole incident will be an addition at once to the Sultan's expectation of life and to his personal comfort.

TWENTY YEARS' WORKHOUSE DUTY.

During the last few years the size of official and other reports has been enormously increasing, writers apparently assuming that the value attached to their work will be in direct ratio to the length at which it is recorded, and that the weight of the paper their reports cover is a measure of the influence they will exert. Hence it is refreshing to receive a report only six pages long, and positively exhilarating when it is found that it not only covers twenty years' work, but a number of definite conclusions accompanied by quite enough in the way of figures and details to reveal their solid basis. We therefore congratulate Dr. A. E. Dodson, Medical Officer of the Garrett Lane Workhouse, on his report on the work of that institution from 1886 to 1906, being the first twenty years of its existence. During that time some 100,000 persons—men, women and children—have passed through his hands, and some of the comments he makes upon his work with them are decidedly interesting and probably of general application. Thus, some 30,000 of the inmates have been men, "and among all these," says Dr. Dodson, "I "am well within the mark when I say that I have not "come across (and I make it my business to inquire) "twenty total abstainers from alcohol. The actual num- "ber I believe to be fifteen, and in at least one-half of "these physical or mental infirmity has been an evident "reason for their inability to maintain themselves out- "side. Abuse of alcohol leads to a mode of life, a want "of self-respect and a want of thrift, which among the "poorer classes inevitably leads to the workhouse." Speaking of the female adults under 60 and classed as able-bodied, he says that many of them are strong young women, whom longer hours of work and more of it might induce to get an honest living outside. Many of them are mothers of one or more illegitimate children, and seem content to remain year after year, taking a day or two out occasionally with an equally unpromising pauper member of the opposite sex. Many such women are of defective intellect, and their power of reproduction in inverse proportion to their mental development. Of the men under 60, some classed as able-bodied suffer from some slight physical or mental defect which prevents the exercise of strict discipline; nevertheless there are thousands outside who earn a living and keep families under great disadvantages. In reference to the really able-bodied as a whole, he says the present dietary and short hours of work do not tend to lessen their number. A very few go out occasionally and honestly try to get work, but the majority are content to go out to get drink, and when they are back in the House do as little work as possible, or just sufficient to prevent them being taken before the magistrate. The present tasks of work do not deter them from coming into the workhouse and remaining off and on for life. He would like to see some central establishment where these incorrigibles could be kept more on the principle that "he who will not work neither "shall he eat." His experience is that workhouse officers generally are by no means so devoid of sympathy as they are so often accused of being, but it is impossible to deny that there are a great many workhouse inmates who are undeserving of pity and useless and expensive members of society. As for the effect of workhouse life, he considers that, as a rule, a person admitted at, say, 60 years of age adds several years to what would otherwise have been his expectation of life. This is the result of the dietary, good drainage, and forced personal cleanliness and enforced absence from alcohol. He would like to see a uniform dietary in all London and suburban workhouses. Another observation he makes is a good answer to the old query, "What's in a name?" In this Union, besides a regular infirmary, there is a block in the workhouse with about 100 beds for infirm inmates. Many of their occupants are persons who have been in the infirmary for a long time. These old people are just as comfortable and well off in the former as the latter, and are quite contented and happy; nevertheless, the change of their address from the *Infirmary* to the infirm wards of the *Workhouse* seems to make a great difference to their friends and relations, who, awakening suddenly to a sense of their responsibilities, often take and keep them out permanently.

THE NATAL MEDICAL SERVICE.

A local paper which has reached us shows that when this year's estimates were submitted to the Natal Legislature the Public Health vote was especially picked out for attack and wholesale reductions proposed. Such items as were passed were only carried by exceedingly narrow majorities, and even the Government itself, though it showed that not a penny more was being spent than was absolutely necessary, seemed only half-hearted in the matter. The Prime Minister, indeed, moved a resolution reducing the total vote by the sum demanded for the continuance of measures for the suppression of small-pox and bubonic plague. It was seriously proposed, too, that the vote for the salaries of District Health Officers should be withdrawn and the work assigned to District Surgeons as part of their ordinary duty. Speaking on this proposal, the Prime Minister pointed out that the Government had no power to call upon these officers to do the work mentioned without remuneration, and said that even as things stood the greatest difficulty was experienced in getting medical men to accept appointments as district surgeons. These posts were by no means so remunerative as some persons seemed to imagine. In so speaking the Prime Minister by no means overstated his case. Little by little everything which tended to make these posts at all attractive has been abolished, while at the same time the general

expenses of life have been increasing. The medical profession in Natal will doubtless get matters righted sooner or later, and meantime it is to be hoped that, on the one hand, the Colony at large will not suddenly find itself paying dearly for its existing skim milk policy in matters of public health, and that, on the other, the professional situation will not be complicated by men at home applying for Government posts which local men will not accept.

ANKYLOSTOMIASIS IN PORTO RICO.

The widespread prevalence of ankylostomiasis is now a matter of common knowledge. Apart from the Arctic countries it may be said to be practically world-wide in its distribution. But, common as it is in many places, especially in warm countries, it is probable that few parts of the world are more affected than Porto Rico, where some six or seven thousand persons are annually carried off by the so-called island anaemia. The Commission for the Suppression of Anaemia, as it is entitled, originally started in 1904, showed by its investigations that the task in hand was far more formidable than supposed. Accordingly a fresh grant was made by the island Government in March last year, and thereafter the Commission carried on its operations on more extended lines. The results, which have recently been published, are sufficiently instructive to be summarized here. The disease (which the American medical officers prefer to term "uncinariasis") is due to the New-World form of the parasite, known as *Ankylostoma duodenale* var. *americanum* of Styles. Though found all over the island, it is most prevalent in the mountainous interior. Here accordingly, at Aibonito, was established the central station for the campaign, while ten substations served the districts most in need of assistance. It was thought advisable for the doctor to take the patient into his confidence, and in pursuance of this idea the latter was shown specimens of the parasite, told how he contracted the malady, and instructed as to the avoidance of reinfection. Pamphlets were distributed everywhere by the police to the same effect, and the construction of proper latrines was strongly counselled to all. In the part where the work was chiefly carried on negroes were not very numerous, but the race becomes just as heavily infected as the whites and half-breeds, though possessing a relative immunity to the effects of the parasite. The tables show that of the 18,865 persons treated, 14,661 were whites, 3,340 mulattos, and 682 negroes. With regard to age, 72 per cent. were persons under 30 years of age. Some 16,000 were practically cured and 67 died, but in the latter death was often due to concurrent maladies. The Commission concludes that at least 99 per cent. of those affected contracted the disease from the direct penetration of the skin by the parasite while the bare-footed labourer is in contact with soil loaded with the larvae, in other words that "mazamorra," or grounditch, is the invariable precursor of the malady. Only 4 per cent. of those treated denied having suffered from it, and no doubt some of these either forgot the circumstance or did not wish to mention it. The coffee plantations, shady and moist, are described as offering the most suitable conditions for the hatching and preservation of the larva, and they and the hut surroundings were found to be the cause of mazamorra infection in 12,759 cases. Drying is far more destructive to the ova than to the fully-developed larvae, and the latter thrive exceedingly in decaying vegetation, especially in the rotting banana stalks and leaves. Coffee-picking generally goes on during the rainy season, and this increase of moisture constitutes, of course, an added source of danger. Infection from the rivers and streams occurs only from the mud at the edges and not from the running water. The Commission dwells upon the necessity of making the owners of all plantations responsible for the construction of proper latrines, and the even greater importance of the labourers wearing boots, but preventive measures are not easy to inculcate, for the *jibaro* can with difficulty be made to realize the cause of his malady, and has for years been the prey of the quack medicine vendor. With regard to the question of the most suitable anthelmintic, it is worthy of note that male fern, though perhaps not given a sufficiently extended trial, was found of little use. Thymol and beta-naphthol were the two drugs employed, and with five or six doses of either of these (though the former seems to be the more efficacious), the patient is practically cured. It is recommended that no time should be lost in dealing with the disease. Out of the 1,000,000 inhabitants of the island no less than 800,000 are believed to be affected, and from year to year things are getting steadily worse. The success attending the six months' campaign of the Commission leads them to urge most strongly that the greatest efforts should be made, and made without delay. They recommend the establishment of seven central stations, ten substations, and twenty dispensaries, which, with a proper staff of medical men and sanitary inspectors, would entail the expenditure of about £20,000 annually; though this may seem a large outlay, it will be the truest economy in the end, for sooner or later it is inevitable that large sums will have to be spent, and the longer action is deferred the greater will be the cost of the work. The report, which is published by the Government Press on the island, is printed both in English and Spanish, and contains a number of interesting tables and statistics.

WARNING NOTICES.

In the advertisement pages will be found as usual a notice asking practitioners not to apply for appointment in certain towns and districts, some nineteen in number, without first communicating with the officer of the British Medical Association whose name is supplied in each instance. At each of the places mentioned a dispute of some kind, usually in connexion with some form of contract medical work, is in progress, and the desire is that those who may be tempted to apply for appointment vacancies elsewhere advertised should be in full possession of the facts before lodging their applications. The notice is identical with that which appeared last week, except for the fact that in some instances the names of the gentlemen prepared to supply information have been changed.

THE COST OF VACCINATION.

Mr. E. Williams Clerk to Leigh Union, has received a letter from Mr. J. F. L. Brunner, M.P. for the Leigh Division, in which the following passage occurs: "I "had an interview with Mr. Burns, and he authorized me "to tell you that the regulations for the charges for "vaccination would be dealt with by an Order of the "Local Government Board some time in the autumn."

The winter session of the London School of Tropical Medicine will be opened on October 8th. An introductory address will be delivered by Colonel Kenneth MacLeod, I.M.S., M.D., LL.D., Hon. Physician to the King. The Duke of Marlborough will be in the chair, and will also preside at the students' dinner which will be held in the evening.

A Committee for the furtherance of cancer research has been formed by the Swedish Medical Society. The Chairman is Professor Berg.

Ireland.

Lunacy in Ireland.

The special report of the Inspectors in Lunacy as to the large increase of lunacy in Ireland makes sad reading for the Celtic race. From the figures submitted it would appear that, while the population has been decreasing, the number of insane has been increasing during the last fifty years, and in 1901 it reached 17,350, being 500 per cent. more than in 1851. The causes of insanity are dealt with exhaustively. The following is a summary of the conclusions at which the inspectors have arrived:

1. The population of the country has decreased, but, while the number of insane has increased, the statistics do not afford precise grounds to put forward a definite opinion.

2. Without affirming that there has been no increase, the inspectors conclude that it is largely due to accumulation in public asylums, emigration, and the return of emigrants mentally broken down.

3. The increase has occurred amongst the poor.

4. The increased number in asylums is actually due to accumulation and decreased discharges and deaths, widening of medical opinion as to insane persons who should be confined, and to the greater confidence in asylum treatment and the increase in number and accessibility of asylums to greater longevity owing to sanitation, to the influx of returned emigrants broken down mentally.

5. The statistics of insanity in other countries more than even those of Ireland point to the fact that the Celtic race, notwithstanding their undoubted intellectual gifts, are prone to mental disease.

6. Next to heredity, intemperance heads the list of causes of insanity. General paralysis of the insane is on the increase, though in the rural districts it is practically non-existent.

New City Fever Hospital, Belfast.

On August 1st the Lord Lieutenant visited Belfast and opened the new City Hall; and on the 2nd he opened the new Fever Hospital at Purdysburn. His Excellency was received by the Lord Mayor, by Alderman Dr. King-Kerr, Chairman of the Public Health Committee, and by other members of the Corporation. Dr. King-Kerr explained the origin of the hospital and the need of such an institution in the city, where the only fever accommodation was the Poor-law hospitals. He then briefly traced the course of events to its present completion, and asked His Excellency to declare the institution open. Lord Aberdeen referred to the admirable position and to the imposing and attractive appearance; he was sure it would be admirably adapted for the requirements and the purposes for which it was erected. He then opened the main door of the administrative block with a gold key presented by Dr. King-Kerr, and called for three cheers for the success of the building. A pavilion was subsequently named by Her Excellency "The Isabel Aberdeen."

The Infectious Disease (Notification) Act, 1889, was adopted in Belfast in 1897. Mr. Connor, a member of the Corporation, and Lord Mayor, had already moved in the direction of fever hospital accommodation for the better classes, and when the act was adopted, Dr. Graham, the Chairman of the Health Committee at the time, entered with zeal into the subject, and after overcoming many difficulties, he carried his selection of the present site. The medical societies and most medical men urged the necessity of such a hospital, but objected to the site, not on account of the surroundings, which are splendidly suited for its object, but on account of the great distance from the city and its proximity to the new asylum, which is being built, one might nearly say, close at hand. An Act of Parliament was promoted, authorizing the Commissioners of Lunatic Asylums in Ireland to transfer this portion of the land to the Corporation for hospital purposes. This was done in the "City of Belfast Hospital Act of 1898." In 1901 the plans were approved of, and in 1904 Alderman Dr. King-Kerr succeeded Dr. Graham, who had retired from the Council, as Chairman of the Health Committee. The work was pushed forward, and it is now practically ready for patients, for which it will be open at the end of this month.

The hospital is formed of a series of pavilions. Directly facing the entrance is the administrative block, which contains the offices, the residential quarters for the residential staff, consisting of a resident medical officer and house-physician; the nurses' home, with accommodation for fifty nurses; kitchen, storerooms, etc. From the kitchen will proceed glass-covered ways to each pavilion, with a subway for steam, hot and cold water, gas pipes, electric mains, etc.

The pavilions are arranged axially north and south, and have ample window space; sanitary annexes are placed outside at each end, and connected by a short corridor with windows on both sides to the ward. The patients are received in the middle of the block, where there are observation and bath rooms, and at the far end of this entrance hall the main corridor leads to the two large wards, one to the right and one to the left; the nurses' kitchen is between these wards; these large wards contain ten beds each. In addition, there are two smaller single-bed wards adjacent to the nurses' room for special cases; and both these small and the large wards are under supervision from the nurses' room by means of windows.

There is a cemented open basement about 6 ft. high forming an aërial disconnexion of the wards from the earth. The floors are of teak laid on concrete; the walls are lined for a height of 8 ft. with glazed tiles of neutral tint; above this they are cemented. The heating is effected by passing fresh air through radiators; the extraction is done by fires and aspirating flues placed in the centre of the ward and lined with glazed tiles to the ceiling; in addition, there is an auxiliary electric fan for close weather. The lighting is entirely by electricity. There are two stories in each block or pavilion, and four pavilions as well as the two other blocks are now ready for use, but provision has been made as regards space and general arrangement to build eleven altogether as well as the observation block, and another block which was originally intended for a resident superintendent's house: but since the Health Committee decided to have a visiting physician in full charge and not a resident superintendent, it has been transformed into a set of wards. This gives at present about 200 beds with a future possibility of over 500. There is a very elaborate disinfectant house and a very complete laundry. The present small-pox sheds are placed far to the back. Two motor broughams ambulances have been ordered, so that no time may be lost in conveying patients either to or from the hospital. On a general inspection one is rather struck by the absence of private wards and of arrangements to accommodate the better classes, and also a want of a small ward laboratory in which the examination of urine, faeces, etc., might be carried out. Dr. Gardner Robb, the Medical Officer to the Poor-law Hospital for Fevers, has been appointed Visiting Physician in full charge.

Purdysburn Fever Hospital, Belfast: New Motor Brougham Ambulance.

One of the two new motor ambulances for the fever hospital was on view on August 10th, and was named "The Shaftesbury" by the Countess of Shaftesbury at an informal meeting of members of the Corporation and friends. Dr. King-Kerr, Chairman of the Public Health Committee, received the Countess and explained the circumstances. The plan of the ambulance is original and quite unique. There is accommodation for two patients; the upper stretcher can be lowered to the level of the lower, and then, with the patient on it, can be raised again. If it is not necessary for the patients to lie horizontally the accommodation can be changed into a four-seated brougham. The motor chassis is of 12 to 14 horse-power, of the Cottercan make, fitted with Gaulois tyres 815 × 100. It is three speeds forward and one reverse speed, with ample braking power. The engines are placed underneath the driver's seat, thus lessening the length of the vehicle, a great advantage in traversing narrow streets. The cost is £450. Messrs. Wilson and Stockall, of Bury, obtained the order, and Mr. Stockall explained the working of the machine and its novelties and advantages.

Infantile Mortality.

At the annual meeting of the Bangor District Nursing Society held recently, the Dowager Marchioness of Duffering and Ava, the President, in submitting the annual report, said she was glad to be able to report that the work of nursing the sick poor in the district had been

carried on to the entire satisfaction of the Managing Committee. Two hundred and twenty-seven cases had been nursed. Their financial position was good, though not so good, in the opinion of many of the Committee, as to justify an immediate extension of new work, but the growing number of cases requiring nursing showed that it would not long be possible for one nurse to do all that there was to be done in Bangor, and that a second ought to be employed. Professor Byers delivered an address, in which he said there was certainly no place in which public health was so badly in need of public interest and attention as Ireland at present. It was, however, very satisfactory to know that those who were the responsible heads for the government of Ireland were alive to the serious condition of affairs. There were two public health problems, both of national importance, in the solution of which he thought societies such as theirs could be of enormous help through the aid and personal advice that might be given by their district nurses, as well as by any member of the Society who wished to engage in public health work. These questions were infantile mortality and consumption. By infantile mortality was meant the deaths of children under the age of 12 months. In England and Wales 120,000 such deaths occurred each year; indeed, there were as many deaths in the first year of life as in the succeeding eighteen. In 1904, for every thousand children born, 145 died within the first year of their existence. Ireland, taken as a whole, fortunately had not such a high death-rate, the average infant mortality for the past ten years being 102·3; in 1905 it was 95, the same as in 1896; but if they divided Ireland into urban (or town) and rural districts, they found a marked difference. The average infantile mortality in the Irish towns was for the past ten years 144·5 (130 in 1905 and 133 in 1896), while the average infantile mortality in the rural districts was 79·2 (74 in 1905 and 76 in 1896). It was probable that this marked difference was due to the well-known fact that in rural districts the percentage of mothers nourishing their infants was larger than in the towns, and when this could not be done, and hand (bottle) feeding was adopted, to the greater freshness and purity of the milk employed, as compared with the same article after having been sent long distances to the towns and then used. In Belfast during 1904 (last published return) 1,749 children died under 1 year of age, giving an infantile death-rate of 154 per 1,000 births, and the average for the six years (1899-1904) was 150·4 per 1,000 births. In Dublin it was 168 per 1,000 births in 1904, and the average rate there was about 155 per 1,000 births. The infantile mortality of Belfast was less than that of English towns similarly situated. There were certain facts connected with infantile mortality that were most suggestive: (1) As a whole, infantile mortality was stationary; (2) this infantile mortality had remained practically stationary for several years, during which there had been a marked decline in the general death-rate of the community; (3) infantile mortality, although it was not declining, was, curiously, becoming younger. It was not spread uniformly over the twelve months, but fell most heavily on the first few weeks or months of life. As one might expect, infantile mortality was greater among those living in towns than among those living in the country, and it was specially high among the poorer classes. It had been found, from results observed in England in a large number of families of those in such a station in life that they could bring comfort and intelligence to bear upon the problem, that the infantile mortality was 89 per 1,000 for males and 70 for females: so some thought we might fix the ideal of infantile mortality, which we should endeavour to reach, as about 75 per 1,000 births, a little lower than that found in the rural districts of Ireland. While there were many causes at work in producing the high death-rate in infancy—such as bad housing insanitary environment, the occupations of women in workshops and factories, poverty, etc.—and while these factors were playing a great part in the problem, the home was playing a much greater part. Apart from prematurity and wasting, caused by ante-natal conditions, infantile mortality was, after all, a question of maternity. It was defective feeding—the result of careless and ignorant motherhood—which was the main cause of the high death-rate among infants in the first year of their existence. The enormous importance of mothers rearing their own infants was known to every doctor, and was brought home especially to those who, like himself, had been for years connected with a children's hospital. The whole tendency of modern opinion was that the solution of this question must be based on the fact that the responsibility for the care of the child lay with the mother, and that the substitution of non-maternal for maternal care was a mere makeshift. Every one would agree with Mr. John Burns when he appealed to the recent conference to concentrate its energies on the mother, to glorify, dignify, and purify motherhood, for what the mother is the children will be. How could this be accomplished? There must be earlier registration of births. At present in England and Ireland a birth need not be officially registered for six weeks, a period during which one-fourth of the deaths of infants occurred. The most critical period of a baby's life was the first week after its birth, and if help was to be afforded to mother and infant alike it should be promptly given. Reference was then made to what was being done in this direction at Huddersfield, where for the first twenty-seven weeks of 1906 the infantile mortality had been only 95. For the infants that the mothers were unable to nourish means must be taken by the health authorities to provide a supply of pure milk, and the mothers must be taught the correct principles of hand-feeding. The infant milk dépôts which had been opened by several municipalities (Liverpool, Battersea, Bradford, Dundee, Glasgow, etc.) had really sprung from two French organizations—the "Consultation de Nourrissons" and the "Goutte de Lait." If milk dépôts were established in any place, it must be made clear that they were not shops where milk was simply retailed to any mother applying. No mother should be supplied with milk from them unless she presented a medical certificate that she could not nourish her child, and these milk dépôts should be rather educational centres, "schools for mothers," where they must bring their infants at regular intervals to see how they were progressing, and where they could receive hints as to the hand-feeding of their children. In France, as indeed in most of the English milk dépôts, the milk at present was sterilized; but every one felt that the ideal to be aimed at was to supply the milk pure and as it left the udder of a clean, healthy cow. The experience of the famous White Rose Dairy at York (established by Sorensen) had shown that by strict medical and veterinary supervision, combined with aseptic methods of milk production, the use of sealed bottles and cans, and the cooling of the milk, it was quite possible to supply pure milk. The other health problem, in the solution of which he thought their Society might give immense help, was consumption, from which the death-rate in Ireland was steadily rising, while in almost every other country it was declining. In Ireland during 1904, 12,694 persons died of tuberculosis, that is, nearly one-sixth of the whole deaths, and of these, 9,833 died. In Ireland more people died of consumption than of all the other fevers and infectious diseases put together. The majority dying were in the prime of life, between 15 and 35 years of age, and for every death from tuberculosis there were about ten persons suffering from the disease, many of whom had their wage-earning power diminished or altogether taken away. No wonder that, with such an appalling state of affairs, the Local Government Board had recently issued an important circular to the clerk of each urban and rural council of Ireland on the question, enclosing leaflets and posters, giving special and detailed instructions for consumptive patients and those who lived with them, and requesting the district councils to be good enough to cause them to be printed and freely circulated throughout the district. The Local Government Board also suggested that special meetings of the councils should be held to consider the question, and they advised that the council should appoint a few members of their body, in conjunction with some local clergymen, doctors, and others who took an interest in the question, to form a committee to which they might entrust the duty of looking after the education and other aspects of the consumptive question. When the matter came up for discussion in Bangor, the speaker trusted the council would recognize that they could have no more potent helpers than the members of the Bangor District Nursing Society. Professor Byers said, in conclusion, that if they were to banish consumption from Ireland, if they were to

reduce the terrible wastage of infant life in their towns, they required the assistance of the women of the country, who, by educating their sisters and children in the laws of health and hygiene, could, in his opinion, accomplish more than any other agency.

Inspectorship of Anatomy.

The Chief Secretary for Ireland has appointed Sir William Thomson to be inspector of schools of anatomy for the provinces of Connaught, Ulster, and Leinster, in the room of Dr. William J. Martin, deceased.

South Wales.

Cardiff and Swansea Hospitals.

About a fortnight ago an article appeared in a London paper on "Cardiff and Swansea Hospitals," and the Chairman of Committee of the Swansea General and Eye Hospital has addressed the following reply to the editor of that paper:

The grounds for your unfavourable criticism of the management of the Swansea Hospital as compared with that of Cardiff for the year 1905 appears to be the relative cost per bed as furnished by your correspondent. These were: Swansea, £71 19s.; Cardiff, £64 5s 4d. Your correspondent, in arriving at these results, has in the case of Swansea taken the total ordinary expenditure, £8,214, and divided it by the average number of beds occupied, 114.12, with the result, £71 9s. as the cost per bed; but in the case of Cardiff has taken from the total ordinary expenditure, £12,745, a sum of £2,606, leaving a balance of £10,139, which he has divided by the average number of beds occupied, 157.77, with the result, £64 5s. as the cost per bed. These results are two totally different costs per bed, there being no connexion whatever between them, and any comparison must be absurd. If the expenditure of both hospitals were compared, according to the standard laid down by Sir Henry Burdett and adopted almost universally by the London and provincial hospitals, taking into account the out-patients, painting and bank charges in both cases, the result would be as follows:

Swansea.

Year.	Cost per Bed per Patient after Deducting 1s. 6d. for Out-patients.			Cost per Bed on Total Ordinary Expenditure.		
	£	s.	d.	£	s.	d.
1903	57	0	0	60	5	0
1904	60	0	0	63	12	0
1905	68	0	0	71	19	0

Cardiff.

Year.	Cost per Bed per Patient after Deducting 1s. 6d. for Out-patients.			Cost per Bed on Total Ordinary Expenditure.		
	£	s.	d.	£	s.	d.
1903	70	15	0	79	15	0
1904	72	0	0	80	15	0
1905	74	0	0	84	10	0

This is not the time to criticize the standard adopted by Sir Henry Burdett or to question the right of the Cardiff authorities to adopt any standard they may think fit, but if the expenditures of two hospitals are to be compared, it can only be done satisfactorily by adopting a common standard for both.

Merthyr Hospital.

There was a discussion at the half-yearly meeting of the governors of the Merthyr Hospital, held on August 9th, concerning the refusal of the Cyfarthfa colliers to carry out their promise to increase their contributions to the hospital, necessitated by the enlargement of that institution. Mr. John Plews, who presided, reviewed the situation, and a letter was read from the miners' agent declining to receive a deputation of governors appointed to ask the miners to call a meeting of the Cyfarthfa colliers in order that the matter might be discussed. Mr. Plews said that the Cyfarthfa men were acting with unfairness towards the other workmen in not fulfilling their promise. Mr. William Jones, on behalf of the Plymouth workmen, moved that the question be deferred, so that a meeting of the Cyfarthfa and Plymouth men could be held. Mr. John Evans, who seconded, said the object of the deputation from the governors to the miners must have been misunderstood. The Chairman said that every overture made to induce the Cyfarthfa colliers to explain their grievance had been fruitless. He wished to make it clear that the Executive Board had full power to exclude Cyfarthfa colliers from the hospital. One of the working-men governors moved that the Cyfarthfa men be excluded, but the motion met with a storm of protest. Dr. Biddle said that if the Cyfarthfa men continued in their present attitude they would bring suffering upon all classes now benefiting by the hospital, because unless the funds were maintained some of the beds would have to be closed. The Chairman advocated strong action being taken by the Executive Board unless the Cyfarthfa colliers came into line within six weeks. Mr. F. T. James, as a member of the Executive Board, said he should certainly protest against any proposal to exclude the Cyfarthfa colliers from the benefits of the hospital, but that was no reason why the men should take up the attitude they assumed. After further discussion it was decided to adjourn the matter for a month, a mass meeting of the Cyfarthfa and Plymouth workmen to be called in the meantime. The meeting adopted the thirty-fifth half-yearly report, which showed that there were in the hospital at the beginning of the year 22 patients, and that there had been admitted since 174 cases. During the past six months there had been discharged, cured or relieved, 160 patients, 14 had died, and 22 remained under treatment. The revenue account showed—receipts £704 3s. 2d., expenditure £868 6s. 8d. The quarterly accounts, amounting to £379 15s. 9d., had since been paid. Subscriptions had been received from the Dowlais colliers, £175 4s. 4d.; Dowlais iron and steel workers, £122 10s.; Cyfarthfa iron and steel workers, £65 3s. 7d.; Plymouth colliers, £50; Merthyr Vale colliers (increased subscription), £129 19s. 3d.; Cyfarthfa colliers, nil.

Housing Problem at Merthyr.

The Merthyr Town Council is about to consider the question of municipal lodging-houses as a means of solving one part of the housing problem, which stands in such urgent need of attention. A very large number of single men are employed in the district, and the way in which they literally "pig it" with families to whom they are tied by no bonds of relationship is painfully evident even to the casual passer-by in any of the streets where the working classes make their homes. The lodger, returning from his work, changes his clothes in the kitchen and performs his ablutions there under circumstances which often make ordinary decency impossible. A recent return showed that there are as many as 16 two-roomed cottages in Merthyr where lodgers are taken in, while no fewer than 44 three-roomed tenements give accommodation to them, bringing the number of occupants per house in many instances to 7, in others to 8, and in others to even 9 and 10. Lodgers find accommodation in 281 four-roomed houses, bringing the number of occupiers up to 6 in 53 instances, 7 in 37, 8 in 18, 9 in 16, and 10 or more in some instances. The occupiers of 227 five-roomed houses let lodgings, and 262 occupiers of six-roomed houses. Even in the better class of these houses a bathroom is a rare thing. The council is now hoping to find a means of remedying this state of things by building lodging-houses where single men may live under healthy conditions, sleeping in cubicles and using a common dining-room. The Medical Officer of Health (Dr. A. Duncan) has made inquiries of 25 towns in an endeavour to find the cost of upkeep and other information respecting municipal lodging-houses in those places. It appears that in Belfast, where a municipal lodging-house was erected in 1902 at a cost of £12,310 with 222 beds, the charge of 6d. a night brings in £1,713, while the expenses are £1,730. At Huddersfield, on the other hand, where a house built at a cost of £7,500 was opened in 1880, giving accommodation for 165 men, 12 women, and 10 couples, the receipts amounted to £985, while the expenditure was £931: the charges being 3d. and 5d. a night for men, 5d. for women, and 6d. for married couples. A loss is incurred every year on the municipal lodging-houses at Darwen, Lancaster, Leith, and Manchester, while one in London and another in Salford pay their way, and

the profits on one in Glasgow, accommodating 2,166 men and 248 women, have been sufficient to pay 5 per cent. on the value of the site, 1 per cent. for depreciation, and a balance of net profit of from 4 to 4½ per cent.

NEWPORT CONSUMPTIVES.

The Newport (Mon.) Sanitary Committee, after paying a visit of inspection to the Brighton Borough Hospital for the treatment of consumptive patients, recommend that steps be taken to use the unoccupied portion at Alltyrun Hospital as a sanatorium. It is estimated that if the Committee started with six patients the cost would work out at about £500 or a little more a year. Dr. Newsholme, who is in charge of the Brighton institution, informed the deputation that "all the other public work he had ever done paled into insignificance when compared with the work now being done at the hospital in connexion with consumption."

South Africa.

KIMBERLEY HEALTH REPORT.

IN the annual report for 1905 of the medical officer of health for Kimberley (Dr. A. W. Reid), the birth-rate during 1905 is stated to have been 37.3 per 1,000 among the white population and 33.4 per 1,000 among the natives. The death-rate among the 17,000 white inhabitants was 14.2 per 1,000, and among the 37,000 natives 36.3 per 1,000. This very high death-rate among the natives was due in great measure to the large number of deaths among young children, the infantile mortality-rate being equal to 400 per 1,000 births, compared with 125 per 1,000 births among the white population. The only satisfactory feature connected with the frightful mortality among the native children is that it is considerably below that recorded in previous years. In 1900 the rate was 695 per 1,000 births, but each year since that date there has been a steady fall. Dr. Reid considers that the principal cause of this preventable waste of human life is the contamination of food, and especially of milk, assisted by unsuitable food, irregular feeding, uncleanly feeding bottles and tubes, and insanitary surroundings, aggravated by high atmospheric temperature. In connexion with the milk supply, it is satisfactory to find that standard regulations for its control have now been adopted, as a result of a conference between the Board of Health and the principal milk vendors, when the Board urged, among other measures, the use of vessels which could be readily cleansed and corked in such a manner that pollution would be prevented. The Board also drew attention to the danger of preserving milk in hot weather by means of chemicals. During an outbreak of small pox which occurred between May and October 33 white persons and 219 natives were attacked. All the former recovered, while among the 83 vaccinated natives there was 1 death, against 5 among the 136 unvaccinated natives.

Sydney.

OUTBREAK OF PNEUMONIC PLAGUE.

A SOMEWHAT serious development in connexion with the occurrence of plague in Sydney has taken place at Balmain, a suburb of Sydney, the pneumonic form having appeared. Hitherto only cases of bubonic plague have been known to occur in Sydney. The first case was that of a man employed on one of the coasting steamers as a donkeyman, who fell ill on June 19th and died on June 24th, apparently from pneumonia. His wife was taken suddenly ill, and died on June 28th from an illness which aroused the suspicions of her medical attendant. The case was reported to the Board of Health, and a *post-mortem* examination was made by the Government medical officer, and the specimens obtained showed on examination that the cause of death was plague. As soon as the facts were reported the President of the Board of Health, Dr. Ashburton Thompson, visited Balmain, and after full inquiry took extraordinary measures to prevent as far as possible the spread of the infection. The family, consisting of nine children, together with two or three people who were closely associated with the deceased during their illness, were at once removed to the quarantine station. All of them received an injection of protective serum, which was also administered to the medical men who had attended the patients. Shortly after the President was notified that a woman who had been nursing the father and mother was also suffering from pneumonia. She likewise died after a brief illness from plague pneumonia. No further cases have occurred among the contacts, most of whom have now been released from quarantine.

Victoria.

LUNACY REFORM.

WE learn from the *Australasian Medical Gazette* that at a sitting of the Victorian State Cabinet held in May certain recommendations made by Dr. E. Jones, Inspector-General of the Insane in Victoria, were discussed. As a result the building of a hospital for acute cases of mental disease for the metropolitan district was authorized. The hospital is to contain 125 beds, and is intended for the reception of recent cases of mental disorder in which there is a reasonable prospect of recovery. The estimated cost is £30,000. It was further decided to renovate all the existing country institutions for the insane, and to expend £8,000 in providing reception houses, which are intended to "do away with the present monstrous system of treating the mentally afflicted as criminals and placing them in police-station cells or gaols." The untrained attendants temporarily employed in the various asylums are to be replaced by a permanent staff of fully-trained attendants.

Hong Kong.

VITAL STATISTICS AND PUBLIC HEALTH: THE GENERAL REPORT OF THE PRINCIPAL CIVIL MEDICAL OFFICER AND THE MEDICAL OFFICER OF HEALTH FOR 1905.

Area.

THE Sanitary Board's jurisdiction extends to the island of Hong Kong, which has an area of twenty-nine square miles, and to a portion of the mainland between the shore and the first range of the Kowloon Hills, with an area of about sixteen square miles and a sea frontage of about thirteen miles. Old Kowloon, with an area of about two and three-quarter square miles, has been in British occupation since 1861, but New Kowloon was leased in 1898 only, as part of what is known as the New Territory. The remainder of this new territory is not under the jurisdiction of the Sanitary Board. The city of Victoria, built on the northern shore of the island of Hong Kong, has a frontage to the sea of five miles, and is separated from the mainland by the harbour, which varies in width from three miles to a quarter of a mile.

General Sanitary Condition.

Improvements have been carried out on a large number of existing buildings by providing increased window area, adding open spaces in the rear, and concreting ground surfaces. In addition, the draining of nullahs to the extent of 5,145 ft., and the resumption by the Government to the extent of 18,092 sq. ft. of the Kau U Fong area, have improved the general sanitary condition of the colony.

Meteorological Return.

The meteorological return shows that the highest mean average temperature, 82.3° F., was registered in July and the lowest, 56.3° F., in February. The humidity (relative percentage) was 88 in March and 66 in November. The total number of hours of sunshine was 1,854.4, the greatest number being registered in July, 243.5, and August, 223.4, while in February there were only 26.3, and in March 31.1, hours of sunshine. The rainfall for the year was 70.945 in.

Population.

The following is the estimated population to the middle of 1905:

Non-Chinese civil community		10,452
Chinese:		
City of Victoria including the Peak and Stonecutters Island... ...	194,950	
Villages of Hong Kong ...	16,296	
Old Kowloon	75,473	
New Kowloon (approximate) ...	21 000	
Floating population	54,154	
Total Chinese civil population ...		359,873
Army (average strength)		4.274
Navy (average strength)... ...		3,251
Total population of the colony ...		377,850

The civil population is essentially a male adult one. At the last census (1901) the population of males was 72.6 per cent. of the total civil population. Of the Chinese population 72.9 per cent. were males, and over half the civil population were between the ages of 20 and 45 years.

Births.

The births registered during the year were as follows:

	Males.	Females.	Total.
Chinese	676 ...	312 ...	988
Non-Chinese	153 ...	148 ...	301
	829	460	1,289

Deaths.

The deaths registered during the year numbered 6,594. The death-rate was therefore 17.45, as compared with 16.94 in 1904. These deaths include 287 from plague. From a table showing the death-rates during the past twenty years (exclusive in every case of the naval and military populations and deaths, as until the last eleven years these latter figures were not recorded), it is seen that the average death-rate has been decreasing. Including plague, it was for the years 1886-1890, 27.78, which has decreased to an average of 20.28 for the last five years, 1901-1905. Excluding plague, the average death-rate for the years 1896-1900 was 19.31, and has fallen to 17.62 for the period 1901-1905.

The following table of population, births, and deaths is given for the purpose of ready comparison with similar tables given in the reports from other Colonies

	Europeans and Whites.	Africans.	East Indians.	Chinese and Malays.	Mixed and Coloured.	Totals.
Number of inhabitants in 1905	10,835	20	3,907	360,228	2,860	377,850
,, births ,,	145	1	46	936	101	1,289
,, deaths ,,	137	—	80	6,238	79	6,594
,, immigrants ,,	—	—	—	140,483	—	—
,, emigrants ,,	—	—	—	64,341	—	—
,, inhabitants in 1934	11,532	20	4,354	342,356	2,944	361,206
Increase ... ... or	—	—	—	17,872	—	16,644
Decrease	697	—	447	—	84	—

The number of deaths of infants under 1 year of age was 1,541, or 23.3 per cent. of the total deaths.

Respiratory Diseases.

The death-rate among the Chinese from respiratory diseases was 4.4 per 1,000, and that for phthisis alone was 1.9 per 1,000. The deaths from phthisis amongst the Chinese were 10.9 per cent. of the total deaths amongst the community.

Malarial Fever.

The total number of deaths from malarial fever during the year was 287, of which 4 were non-Chinese, 3 being from the civil population and 1 from the troops. A comparison of the number of deaths from malaria during the last six years shows that in 1900 there were 526 deaths amongst the Chinese and 29 among the non-Chinese, and that the numbers have gradually decreased to 283 Chinese and 4 non-Chinese in 1905.

Beri-Beri.

There were 678 deaths during the year from this disease.

Infectious Diseases.

The total number of infectious disease notified during the year was 508, of which 304 were of plague.

There were 90 cases of typhoid fever, 21 of which were imported into the Colony.

Typhoid fever being so insidious in its onset and being undoubtedly due to the ingestion of infective common articles of diet, it is extremely difficult when cases occur in different localities and at different times to fix upon any one factor as the exciting cause of the disease. It cannot, however, be too strongly impressed upon the public in this Colony that to indulge in uncooked vegetables, for example, salads, is to run a risk of typhoid infection. By far the greater amount of vegetable food is imported into Hong Kong from China. The Chinese, as is well known, use human excreta as manure. The danger of this practice is not found in this mere fact itself, for provided that all such matter is thoroughly "ripened" in a manure pit before being applied to the soil, the probability of contamination of the plants is remote. But there is danger in the practice of watering vegetables with diluted fresh excretal matters. . . . The urine of a typhoid patient may contain the typhoid bacillus for weeks and even months after convalescence. Over such food grown out of the Colony there is no control at all. Within this Colony the by-laws require all excretal matters to be removed to the conservancy boats, and hence the using of it in gardens is illegal. Practically the only manure obtainable by gardeners in Hong Kong is of human origin, and the very existence of market gardens in this Colony must certainly be taken as presumptive evidence that human manure is used. In spite of the fact that people if caught removing excreta to any place but the conservancy boats are liable to punishment, no one should assume that vegetables grown in this Colony by market gardeners are or can be grown with profit without the use of human manure.

Five cases of cholera were recorded during the year. Two were Europeans, one being imported from Canton, while three cases were Chinese, all coal-carrying coolies employed in coaling ships in the harbour.

There were 75 cases of small-pox, 24 of which were imported. The number of vaccinations for the year was 5,722.

Of diphtheria 12 cases were notified, 9 being Europeans, 2 Chinese, and 1 Portuguese. One of the Chinese cases died.

Seventeen cases of puerperal fever were certified. One was a European, one a Eurasian, and the remainder Chinese.

St. Helena.

An Epidemic of Measles.

The Governor of St. Helena, Colonel Gallwey, in a Blue Book just published by the Colonial Office, states that "it is the general testimony that a darker period in the history of St. Helena cannot be remembered." Owing to a variety of causes, the prosperity of the island has long been waning, and now the withdrawal of practically the entire garrison of British troops has rendered the outlook extremely gloomy. Almost the only consolatory part of the report is that relating to the health conditions of the island, which are quite satisfactory. With a civil population of 3,512, making with the garrison a total of 3,781 souls, the death-rate stood at 14.5 per mille, and the birth-rate at 36. The main feature of the year from a medical point of view, however, was an outbreak of measles, which assumed an epidemic form over the greater part of the island. It was imported in March by a non-commissioned officer and his family, and though the disease was recognized on their arrival, and the patient and contacts isolated, cases began to appear among the civil population in the following month, and from this date to August 28th, when the final case was registered, more than 500 persons were attacked, or nearly one-seventh of the entire population. The south-west district of the island practically escaped. It is stated that the type of the disease was not less severe than that ordinarily met with in England, the temperature at the onset in a large number of cases rising to 105°. Only one death, however, resulted, the patient, aged 52, being also the subject of malignant disease, and considering that sixteen years have elapsed since the last epidemic of measles in the island, the low mortality is noteworthy. A new system of drainage and water-supply has been completed in Jamestown during the year, the very poorest tenements being provided with the most modern water-closet fittings, and in this respect the town is not behind any in the British Empire.

SPECIAL CORRESPONDENCE.

PARIS.

Dr. Borrel on Cancerous Tumours and Helminthes.—An Electric Apparatus for Killing Mosquitos.—Creation of a Higher Certificate of Medical Study.—Appointments.

AT a recent meeting of the Académie de Médecine Dr. E. Roux made a report on a communication by M. A. Borrel, of the Pasteur Institute, entitled Cancerous Tumours and Helminthes, which contains some new and interesting facts. M. Borrel has for a long time been studying cancer in mice and rats at the Pasteur Institute, and has found that there are certain cancer cages just as there are houses in which it is especially prevalent. He found veritable cancer epidemics in some broods of mice. In some they had epithelioma of the jaw, in others generalized lymphoma, especially adeno-carcinoma of the mamma. These facts showed the existence in those families of local causes of infection, since other families remained free from infection. Dr. Borrel writes:

One of those strains has already furnished more than thirty cases of spontaneous tumours, and I have especially studied the animals which died of cancer and presented secondary tumours of the lung. In nearly every case it was possible to find in the lung, in the neighbourhood of the tumours, little nematodes quite recognizable, encysted in the tissue, or characteristic débris of lactine in the centre of phagocyte reactions or in the epithelioid cells near the tumour.

M. Borrel does not think that the presence of these nematodes justifies the statement that they produce the tumour. It is very probable that the helminthic infection is simply superposed on the cancerous infection, more especially as this particular set of cages is badly kept and soiled by the dejecta of mice, rats, and even cats living side by side. All these animals drink water from a little pool where the rain carries all the organic refuse of the spot. The precise conditions of the cancerous infection in this series are not yet worked out. M. Borrel also gives two very suggestive observations of tumours in rats. The first rat, which died in the laboratory, had a cancerous tumour of the right kidney; there was no parasite visible either to the naked eye or under the microscope. In the left kidney, however, there was a cystic sac containing a hyaline liquid and a quite young cysticercus. On the membrane of the sac there had developed at the expense of the renal tissue a small tumour of identical structure to that in the right kidney. In the liver there was a large cyst with a well developed cysticercus, recognized by M. Rayet as the cysticercus of the *Taenia crassicola* of the cat. There was no hepatic tumour. The renal tumour was inoculated without result. The second case was given to M. Borrel by M. Laveran.

It was a rat which had died of a tumour as large as an orange in the liver; around the principal tumour there were on the epiploon satellite tumours of different sizes and a large number of swollen mesenteric glands. Incision of the principal tumour showed exactly in the centre of a cystic sac from which radiated the tumour elements a whole and living cysticercus, 20 cm. in length, and this too was a *Taenia crassicola*. Microscopically the tumour was a large-celled sarcoma, the cells often arranged in bundles. Bipolar or multipolar karyokinesis was very numerous. At rest the nuclei were often multilobed and enormous as in certain forms of sarcoma in man.

Fragments of the growth inoculated in rats developed and gave rise to voluminous descendent tumours. During three months it has been reinoculated three times. These positive results of inoculations seemed to demonstrate that the cysticercus brought with it some still unknown virus. This virus inoculated with the cells in passages from one rat to another, and without a fresh intervention of the worm, causes the tumour elements to proliferate, so to speak, indefinitely. It is important also to call attention to the fact that in one case the cysticercus provoked the formation of a sarcoma in the liver, and in another case an epithelial tumour of the kidney. This hypothesis of a possible connexion between helminthes and cancers is in agreement with the frequency of tumours of the digestive tract and its annexa; it would explain why cancer is common in damp countries, in places where manure heaps are badly kept close to human habitations, and in places where irrigation of sewage is carried on. In conclusion, M. Roux joins with M. Borrel in hoping that in France an association may be founded for the study of cancer, so that experimenters, physicians, and surgeons who work separately may collect their material as is done in other countries.

Professor Blanchard presented to the Académie a very ingenious apparatus, invented by M. Chaulin, for the destruction of mosquitos. It is a simple kind of metallic cage formed of fine chains almost touching, and held rigid by two metallic rings above and below. This is suspended from the ceiling, an alternating electric current passes through the apparatus, and the insects, which are attracted by an electric light showing within, are literally electrocuted.

On the advice of the Conseil Supérieur de l'Instruction Publique, the President of the Republic has just signed a decree creating a certificate of higher medical studies. It will be necessary for all who desire to be *professeurs-agrégés*, or to have charge of additional courses of lectures, or to become *chef de travaux* in the Faculty of Medicine, to take this advanced diploma. Doctors in medicine holding the higher diploma will be exempt from the competition for position of *chef de clinique*. All candidates for this diploma must possess the degree of Doctor in Medicine. The examination consists of three parts: (1) A written composition on anatomy, histology, and physiology: (2) an oral examination of three-quarters of an hour on some question of general pathology; (3) a practical examination in pathological anatomy, including the different methods of examination of the tissues and morbid fluids. The jury will consist of nine members, no medical faculty being represented by more than four members.

Dr. Albarran has been appointed Clinical Professor of Diseases of the Urinary Passages, and Dr. Thoinot Professor of Medical Jurisprudence in succession to the late Professor Brouardel in the Faculty of Medicine.

VIENNA.

Out-patient Departments in State Hospitals.—Influence of Heat and Barometric Pressure on Cerebral Haemorrhage.—Cocoanut Shell in the Main Bronchus.

THE Governor of Lower Austria, as representative of the Government, has issued the long looked-for new regulations dealing with the abuse of the out-patient department. The hospitals have gradually come to be frequented by the middle class not less than by the poor elements of the population, and a large percentage of the expenditure is thus diverted from the purpose it was originally intended for—namely, the welfare and medical help of the poor. The main feature of the new regulations is the evidence of reduced means (not exactly poverty) which applicants have to produce. Such evidence is obtainable from the landlord of his lodging, or from the official guardian of the poor, and is given to people who pay for their lodging a smaller rent than £25 a year, or have less than £100 a year income. In exchange for his certificate of want of means the patient is handed an ambulance card, which will admit him as an out-patient. In-patients discharged from the wards may continue to attend as out-patients without a special certificate. Exceptions are granted if the treatment has to be followed up by special remedies which are not at the disposal of the bulk of the profession (radium, prolonged *x*-ray treatment); or if a very prolonged line of treatment requiring special knowledge has to be adopted. In the latter case special permission must be obtained from the hospital director. Exception is also granted in cases of emergency accidents and the like. Fees, to be paid into the funds of the hospital, may be charged in such cases if the patient happens to be well-to-do. Patients must be treated in the order of their coming, so as to prevent favouritism; they may not receive any bandages or medicine for use at home. All bandages must be applied within the hospital. Members of clubs and Friendly Societies are not allowed to apply to the out-patients' department, but will be compelled to consult their club doctor or their specialist. (This was one of the chief complaints of the hospital officers.) Whenever there appears to be grounds for suspicion of foul play or violence, a notification to the police must be made by the medical staff. Infectious diseases must not be treated in out-patient departments, but will be transferred to special wards. One paragraph of the order deals especially with the bad habit of certain professors who sent patients of

the lower middle class to their clinic if prolonged treatment is too expensive for them. In future, only such patients can be sent by the professor to his clinic as present features of special interest and can be used for teaching purposes.

Advantage has been taken of the heat wave and its usual concomitant, the high barometric pressure, by Dr. Deutsch, for a series of experiments to determine whether atmospheric pressure has any definite relation to the frequency of cerebral haemorrhage. The experiments were made on a number of old horses and dogs, but, owing to the difficulty of producing at will haemorrhage without traumatism, led to no definite results. More information is obtained from the vital statistics for the hot weeks when compared with the figures for the same months in cooler years. Apart from the cases of sunstroke in the army during manœuvres, the heat wave is responsible for an increase of 12 per cent. of deaths from brain haemorrhage, as shown by these statistics, even considering in the calculations the percentual increase of the population. The figures used hold good only for the capital. No doubt a verification of the facts thus constructed would be obtained if the corresponding figures for the flat country and the mountainous districts were accessible. But such statistical data are as yet very scanty.

At a recent meeting of the Laryngological Society, Professor Chiari showed a girl, 17 years old, from whose right main bronchus he had extracted, after several vain attempts, some fragments of the shell of a cocoanut. Whilst nibbling the nut, she was struck by a friend on the back, and at once began to suffer from dyspnoea. The *x* rays showed that the right half of the diaphragm did not move, and the respiratory dislocation of the right ribs was absent. It was therefore concluded that the entire right lung was blocked. Under 20 per cent. cocaine a Killian tube was inserted through the glottis, and at a distance of 30 cm. from the front teeth a white hard body was visible in the bronchus, but it evaded the forceps which were used to extract it. A violent fit of coughing suddenly brought up a bit of the foreign body, and the remainder was soon afterwards got hold of. Fever supervened, and a large part of the lower lobe of the lung remained inactive. Chiari did not succeed in getting at a supposed third fragment of the cocoanut, as it was invisible by the bronchoscope and the *x* rays. The mucosa of the bronchi of the second order was swollen, red, and full of muco-pus. The girl went home, complaining now and then of pain and fever. At last, after a period of indifferent health, a sudden pain in the lung produced a violent paroxysm of cough, and a foul-smelling, grey-white mass was brought up, sixteen days after the accident. The mass proved to be the missing fragment of shell; it measured ¼ in. by ⅓ in. by ⅛ in. The fever subsided very quickly and the movements of the ribs and the diaphragm were now clearly visible. Operative treatment (trans-pulmonary) was out of the question because the localization of the shell was not clear.

CORRESPONDENCE.

THE VOLUNTEERS AND DISEASE PREVENTION.

SIR,—Your admirable leader on this subject should be brought before the authorities at the War Office, for with them rests the question, Shall the cause of 66 per cent. of deaths and illness peculiar to troops be removed or remain?

As a question of fact, efforts have been made both to teach and practically to carry out "disease prevention in the Volunteers."

For eight years at the Volunteer Ambulance School of Instruction we have had an advanced class, and because the Government do not examine nor grant a certificate other than A.F.E. 596 for First Aid, we have given a certificate to those who after the thirteen weeks' course of instruction have made 66 per cent. of marks on the extra subjects, one of which is "camp sanitation."

In 1904 I read a paper at the annual meeting of the British Medical Association, which you published, on Sanitation in Volunteer Camps and the Disposal of Refuse and Excreta. Lieutenant-Colonel R. Caldwell, R.A.M.C., is kind enough to refer to the paper in his *Military Hygiene*.

I also know that other Volunteer medical officers try their level best to enforce sanitation in their camps, and that the present state of things is not attributable to the Volunteer medical officers, but to the "powers which be."

At the present moment, instead of doing away with the Field Army Brigades, it would be better to form them into divisions complete with corps troops. The "regimental stretcher-bearers" should, in addition to first aid, be taught camp sanitation, so that whatever the unit there would be a proportion of men who would be acquainted with the rudiments of preventable disease. As the unit increased, and the R.A.M.C.V. came upon the scene, further *personnel* and equipment would be available.—I am, etc.,

P. B. GILES.
Surgeon Colonel, S.M.O., 30th Field Army Brigade; S.M.O., Volunteer Ambulance School of Instruction.

Bletchley, Aug. 12th.

HOSPITAL REFORM AND THE METROPOLITAN COUNTIES BRANCH.

SIR,—Agreeing in the main with Dr. Shearer's suggestion that it is the duty of the Metropolitan Counties Branch to take the question of hospital reform in hand, I would like to ask if he has well considered the *vis inertiae* which seems to pervade that Branch, due to the numerous and complicated vested interests which weigh it down, perhaps as much as the metropolitan hospitals themselves.

During the past year several of its Divisions have shown marked activity on hospital questions—the Hampstead Division with reference to the Hampstead Hospital and the proposed Cottage Hospital at Finchley; the Wandsworth Division with reference to the proposed Putney Hospital, and, in combination with the Lambeth Division and the Norwood Division of the South-Eastern Branch, on the question of the removal of King's College Hospital to South London; but on none of these questions has the Metropolitan Counties Branch, as a Branch, shown any sign of interest.

At the present moment there is the subject of the proposed Charter to the Metropolitan Hospital Sunday Fund, in which our Branch is certainly more interested than all the other Branches put together. I trust that the application for delay made by the Chairman of Council to the Privy Council may be successful; but, if not, I hope that some of the Branch officials will prepare a petition for signature by its members against the granting of the Charter on the grounds already stated in your columns. Some of us think that the Metropolitan Counties Branch has grown too large, and that if it were divided into four—North London, South London, East London, and West London—certain complicated interests would have less weight, and that in at least three of them the voice of the general practitioner would be heard with some effect.—I am, etc.,

H. NELSON HARDY.

London, N., Aug. 11th.

TAXATION OF MOTOR CARS.

SIR,—Perhaps the most important recommendation of the Royal Commission on Motor Cars, as reported in the BRITISH MEDICAL JOURNAL of August 11th, as far as medical men is concerned, is the proposed increase in the taxation of cars of over 12 cwt. in weight. As you say, there are few cars able to stand the stress of a country doctor's practice under this weight. The majority, therefore, will have to pay a higher tax. The point I wish to bring forward, however, is the fact that many medical men have two cars—one a fairly large one for a long country round, and the other a small one, for short journeys and night calls. The small one, in most instances, will weigh over 12 cwt.; a 6-h.p. de Dion, for stance, when properly fitted up, weighs over 13 cwt. Makers' specifications do not allow anything for hoods, glass screens, and other fitments which a doctor will find necessary, and most people are astonished when they visit a weighbridge previous to entering a club competition to find how much their car does weigh! The tax, therefore, which a medical man will have to pay on his two cars will amount to, in many cases, eight or even eleven guineas instead of as at present four. This is a serious matter, and may make the difference between one car or two, to the detriment of the motor industry. Combined action is necessary, and medical men who are motorists should

endeavour to influence their representatives and Parliament, and also would-be members, in favour of some abatement for members of the profession. A vast number of medical men now motor; there are thirty medical members of this club; and the matter calls for speedy and combined action on the part of all.—I am, etc.,

GODFREY LOWE, M.R.C.S, L.R.C.P.,
Honorary Secretary, Lincolnshire Automobile Club.

Lincoln, August 11th.

SIR,—In view of the proposal of the Royal Commission on Motor Cars that the taxation should be on a graduated scale according to weight, the Committee of medical men using motors will meet in October to consider what steps should be taken to watch the interests of the members of our profession. The weight of the high-powered racing car is often very much less than the touring car such as is used by the "Country Doctor," and when the doctor's car is fitted with some protection from the weather it will in almost every instance weigh over 25 cwt. Eight guineas a year may be a very small matter to the owner of a racing car, but it will press very heavily on the "Country Doctor." I should be much obliged if medical men owning cars will send me a line giving the weight of their car when "ready for the road." These replies will be of great value to my Committee, and will give a guide as to the effect of this tax on the profession.—I am, etc.,

H. E. B. BRUCE-PORTER,
Honorary Secretary.

Grosvenor Street, W., Aug. 9th.

THE REPORT OF THE CHLOROFORM COMMITTEE.

SIR,—I have waited for a time in order to see if any one better qualified than I am would call attention to the misleading statements of the Secretary of the Chloroform Committee in the BRITISH MEDICAL JOURNAL of July 14th. That no one has done so appears to indicate the widespread demoralization which has been produced in the profession by the erroneous doctrine that chloroform when given by inhalation has a direct action upon the heart.

In the first place, the Secretary speaks of an "investigation of the depressant effects of chloroform upon the circulation of the blood." I beg leave to inquire of all impartial men whether an investigation which consists in the perfusion, *post mortem*, of isolated muscular tissues with fluids containing varying amounts of chloroform can be described correctly in these terms? All that can be demonstrated by such a method of investigation is the effect of chloroform on the *post mortem* contractility of the perfused muscles, and this has manifestly nothing whatever to do with the circulation of the blood during life. Would it not be just as scientific to perfuse the musculature of the intestines or of the chest wall with chloroformed liquids, with or without added carbonic dioxide gas, and then theorize on the effects of chloroform on the digestion or on the respiration? In the second place, the Secretary describes the effect produced by the perfusion of isolated cardiac muscle with chloroformed liquids which contain a certain amount of added carbonic dioxide gas, and on these slender grounds asserts that the asphyxial state has been shown by Professor Sherrington to exert a distinct influence on the action of chloroform on the heart. He further says, "The practical bearing of this is too obvious to need further comment." It is criminal to allow asphyxia to occur during the administration of chloroform, not because of the effect of carbonic dioxide gas on the contractility of muscular tissue after death, but because the Hyderabad Commission has clearly demonstrated that asphyxia, and holding the breath, while chloroform is being given, causes the patient or animal to gasp in deep inspirations which lead to rapid and fatal overdosing. In the light of this common-sense definition of the effect of the asphyxial state on the administration of chloroform, the roundabout explanation founded on Professor Sherrington's *post-mortem* investigations is altogether superfluous. It is obviously put forward to bolster up the dangerous fallacy that chloroform directly affects the heart.

It may well be inquired, What is the outcome of the investigations of the Chloroform Committee? The answer is, a cumbersome and unworkable chloroform inhaler. Complicated inhalers of the Vernon Harcourt kind may, possibly, materially reduce the enormous danger of giving chloroform on the principle that it affects the heart directly, but I maintain that it would be more scientific to get rid of this antiquated belief altogether, since it is this belief alone which makes the administration of chloroform dangerous. Given in my method, chloroform can be administered with uniform safety in every branch of surgery and dentistry by any one who knows how to look after the breathing properly. If the Vernon Harcourt inhaler were to be employed in this method of giving the anaesthetic, it would introduce into it an element of risk from which it is at present entirely free, as it would take an appreciable amount of the chloroformist's attention away from the all-important respiration.—I am, etc.,

London, W., July 31st. EDWARD LAWRIE.

THE PREVENTION OF DIFFICULT LABOUR.

SIR,—In reply to Dr. Maidlow, I must confess neglect to elaborate the condition of the cord which interferes with the descent of the child in an otherwise normal labour. In the extreme cases where the cord is shortened by twisting or is abnormally short, there is great risk to the mother and almost certain death to the child. The cord, when stretched sufficiently, acts like a spring, and it is possible to notice the retraction of the head after the expulsive forces cease to act. Labour is delayed because the first force of the pain is used up in the stretching of the cord, and as it proceeds the pains gradually become weaker, and no advance of the head takes place. The judgement of the accoucheur must be used to determine the proper moment for artificial interference and the length of time labour is to be allowed to continue unassisted.

Putting aside the extreme cases, there is no difficulty in extraction, but the operation must be conducted slowly. In cases where the strength of the pains has gradually diminished to practically nothing, I should be very sorry to undertake the responsibility of allowing the woman to linger on with the off-chance of the pains resuming their proper power.

In the extreme cases, which, as Dr. Maidlow presumes, are of very rare occurrence, there is difficulty in extraction; but it is not difficult to diagnose, when pulling with the forceps, the nature of the difficulty. Great care must be exercised in traction, but, if care is exercised, the cord can be stretched without inverting the uterus, detaching the placenta, or causing umbilical hernia.—I am, etc.,

Hatfield, Aug. 13th. LOVELL DRAGE.

THE MODERN MASTOID OPERATION.

SIR,—A perusal of my friend, Dr. Bronner's, excellent paper on the mastoid operation leads my thoughts in two directions—first, into a hearty endorsement of his remarks as to the difficulty of the operation, and his deprecation of its practice by unskilled hands; and, secondly, to an appreciation of how much two surgeons may differ as to detail and yet arrive at equally good results.

I may perhaps, with your permission, make a few remarks upon Dr. Bronner's paper—not in any spirit of criticism, but merely to indicate wherein one may or may not differ in one's technique.

In the first place, I do not believe that there is ever any necessity for an additional horizontal incision. I have now performed a considerable number of mastoid operations, both simple opening of the antrum (Schwartze) and complete radical operations, and I have never yet met with a case in which such additional incision was required. I have always found one curved incision from about opposite the top of the meatus to the tip of the mastoid, and as near the retro-auricular fold as possible, ample for my purpose, and leaving much less scar.

Secondly, I believe that it is always better, when commencing to work upon the bone, to at once attack the antrum, and deal with any sinuses when that cavity is safely reached. I have always taught this, because in the case of surgeons who have not the advantage of experience they are less likely to lose their way. As regards the method of entering the antrum, I for a long time used the chisel. I have now abandoned that instrument for the hand gouge, which is, I think, a safer, swifter, and more suitable tool. The chisel I use for removing the "bridge"

and outer attic wall. I do not know whether Dr. Bronner knows the advantages of the high-pitched chisel (devised by my colleague, Mr. Lake), which splits rather than cuts, at this stage of the operation.

Dr. Bronner, I gather, does not look upon the grafting operation as favourably as some otologists. I quite agree with him that it by no means materially reduces the time of healing, and I believe that, provided every particle of disease is removed, and the after-treatment is carefully carried out, the very great majority of cases will heal as well and as quickly without grafting as with it. In one private case of my own, in which extensive disease necessitated a large cavity, complete healing resulted in six weeks.

As to the treatment of the wound after the radical operation, I believe it is better to suture it at once. It is only in some half-dozen cases that I ever found it necessary to leave the wound unsutured.

The points to which Dr. Bronner draws special attention are all of great importance, save, perhaps, the use of skin-grafting when much bone has been removed. To them I would add the importance of a thorough removal of disease and the paramount importance of careful after-treatment. If these two points are kept well in mind, there will be less foundation for a remark once made to me by a well-known otologist, that "we must not forget that the radical operation does not always cure an ear discharge."—I am, etc.,

MACLEOD YEARSLEY, F.R.C.S.,
London, W., Aug. 14th. Senior Surgeon to the Royal Ear Hospital.

THE BACTERIAL VACCINE TREATMENT OF CANCER.

SIR,—In the BRITISH MEDICAL JOURNAL of August 4th Dr. Scanes Spicer, writing on the above subject, states that "there is always a residue (of cases) which no treatment hitherto known is calculated to improve, and in which Wright's methods offer a possibility of improvement." Reference to the favourable changes in the case noted in the JOURNAL of July 28th under this method of treatment do not appear to have shown more than I have claimed for other methods of treatment—in fact, the description itself might have been taken from my published reports of cases. Moreover, in these methods, the basis of which does not include a theory of bacterial infection, the opsonic index, so far as I have gone, would appear to hold good.

Using the methods of treatment advocated by me recently in a case of inoperable cancer of the larynx with cervical glandular enlargement, coincidently with so far marked local and general improvement, the opsonic index of the blood to *M. neoformans* was found on July 28th for me by Dr. Eastes to be 1.2, and on August 7th, 1.14. This appears to be equal to that found coincidently with improvement noted in cases under "vaccine" treatment. In another case (recurrent breast) with some improvement the opsonic index is 0.9, which would appear to be above the worst, but below the best.

While, therefore, opinions may differ as to the respective methods, or underlying theories, the control afforded by the researches of Sir A. Wright must be of the greatest value.—Yours faithfully,

JOHN A. SHAW MACKENZIE, M.D.Lond.
London, W., Aug. 9th.

THE CONDITION OF THE URETHRA AFTER PROSTATECTOMY.

SIR,—Mr. Nicoll's article in the BRITISH MEDICAL JOURNAL of August 11th, p. 287, presents many points of interest, and the lesson he is apparently anxious to impart is the necessity for careful study of the literature in preparation for any statement of priority or of fact.

On one point Mr. Nicoll is the reverse of clear, and he appears to lack that familiarity with the literature which he so ardently advocates for others. I refer to the condition of the urethra after the operation of prostatectomy. It is not quite clear whether Mr. Nicoll refers only to perineal prostatectomy in discussing "the damage to the mucous membrane of the urethra and bladder," and, if so, why he considers the subject important here and not in the suprapubic method. It hardly matters, however, for the important point is, Can a patient survive the removal of a portion or all of his prostatic urethra?

We now know that he can; but the knowledge has not been gained by what Mr. Nicoll calls "increasing experience."

One statement that Mr. Freyer's critics made was that if he removed the prostatic urethra the patient must surely die, for the urine would infiltrate the areolar tissue of the pelvis. I examined a large number of specimens at that time, and made sections of the supposed mucous membrane, and I found that the following three conditions were possible results after suprapubic prostatectomy:

1. The whole urethra might be left behind.
2. The whole prostatic urethra might be removed, and sometimes, in addition, portions of the bladder base and of the membranous urethra.
3. The prostatic urethra might be removed in part, a portion of the posterior wall between the verumontanum and the membranous urethra being left adherent to the wall of the cavity.

I then stated, and have since had abundant additional proof in support, that, from the frequency with which the third condition was found, this was the usual effect upon the urethra.

Following upon this, I was able to publish, through the kindness of Mr. Henry Morris, a description of a specimen removed two years after the operation of suprapubic prostatectomy.

Microscopical examination of the wall of the "prostatic cavity" showed that the lining membrane in this case consisted of one or two layers of cells which only here and there showed any tendency to flattening on the surface, and in places were absent, the wall being formed merely by dense fibrous tissue. There was no appearance of the bladder epithelium growing down to meet the urethral epithelium.

It will be seen, therefore, that the condition of the urethra and the lining of the cavity after prostatectomy have been carefully worked out, and that the suggestion that the "mucous wall is reproduced by proliferation of portions of the glandular tissue of the prostate left adherent to the capsule," and Mr. Nicoll's "inclination to the view that restoration takes place by extension from the mucous membrane of the bladder behind and the urethra in front of the gap," both of which are purely hypothetical, must stand down in the face of published facts.

The mucous urethra is not "very readily reproduced after removal." In fact, it is not reproduced at all, as Mr. Nicoll will appreciate if he reads the notes upon the specimen to which I have referred. For Mr. Nicoll's information I append the references,* which he has apparently overlooked, and which he will no doubt find useful when he "returns to certain observations made regarding the investment of the hypertrophied prostate."—I am, etc.,

J. W. TECMSON WALKER.
Queen Anne Street, W., Aug. 11th.

OBITUARY

CHARLES ANGUS, M.B., C.M.,

MEDICAL SUPERINTENDENT, KINGSEAT ASYLUM, ABERDEEN.

DR. ANGUS, Medical Superintendent of the Aberdeen City District Asylum, Kingseat, who died recently, had made his mark in the special province of medical practice to which he had devoted himself. Placed at the head of an institution which is in some ways a new departure in this country, he had during the brief time he was spared for the work more than justified the choice of those who appointed him. At the meeting of the Asylum Committee of the Aberdeen Parish Council, held after his death, the convener, Mr. Cheyne, said that as one of those who had been closely associated with Dr. Angus during his term of office in connexion with the Board, he could speak with confidence of the high esteem in which Dr. Angus had been held by others connected with the District Board. As an official Dr. Angus was always at the post of duty, ever ready to obey the behests of his Committee and the Board, and a suggestion from them was to him a command. As a man he stood in the front rank of his fellow creatures, straightforward in all his dealings and upright in his manner. He was one of those men one always felt better

* BRITISH MEDICAL JOURNAL, July 9th, 1904; October 29th, 1904; and October 7th, 1905 (with discussion). *Transactions Medico-Chirurgical Society*, vol. lxxxvii. *Archives of the Middlesex Hospital*, [illegible] *Journal of Anatomy and Physiology*, vol. xl. [illegible]

for having met. His wonderful knack of getting at the brightest side of life's troubles or difficulties was in itself an object lesson to them all. While in charge of Kingseat Asylum Dr. Angus's whole interest was centred in the success of the institution.

Dr. Angus, who was about 47 years of age, was born at Rhynie, and entered the University of Aberdeen as a medical student in 1883. After a distinguished career, he graduated Bachelor of Medicine and Master of Surgery in 1887. He was for a time Demonstrator of Anatomy. In 1888 he was appointed Junior Medical Assistant in the Royal Asylum, Aberdeen, becoming Senior Assistant in 1900. This post he held for nearly eight years. Afterwards he was appointed Medical Superintendent of the Aberdeen Royal Infirmary and Convalescent Hospital. He continued, however, to give much attention to lunacy administration; he visited many asylums abroad, in particular making himself acquainted with the working of the asylum at Altscherlitz in Germany. When the Kingseat Asylum was established some two years and a half ago, Dr. Angus was appointed its first superintendent; this post he held till his untimely death. He discharged the duties of his office with great ability and energy. He was not only a master of his speciality in its scientific aspects, but a first-rate administrator. Dr. Angus was the author of a number of contributions upon anatomical subjects to the proceedings of the Anatomical Society of Great Britain and Ireland, and of a monograph, entitled Clinical Observations on Recently Introduced Hypnotics on those Mentally Afflicted, to the Therapeutic Committee of the British Medical Association. He leaves a widow and two daughters to mourn his loss.

ROBERT CRAIK, M.D.,

MONTREAL.

Dr. Robert Craik, one of the Governors of McGill University, and formerly Dean of the Medical Faculty, died at the age of 77 at his home in Montreal on June 28th. He was born in Montreal in 1829, and graduated at McGill Medical School in 1854 with the highest honours of his year. He was then appointed House-Surgeon at the General Hospital, and later Demonstrator of Anatomy at the University. Subsequently he became Professor of Clinical Surgery, and then Professor of Chemistry. In 1881 he was elected Dean of the Faculty and Professor of Hygiene and Public Health. The wide extent of his accomplishments rendered Dr. Craik able to take up almost any Chair in the Faculty, and carry on the duties of Professor with thoroughness. His graduation thesis, which was written in 1854, marked him as a student of bold and original mind, for he at that time championed the theory that infectious diseases were each caused by a specific cell or germ, and pointed out that doubtless before long the search for such germs would be successful.

Dr. Craik will be missed by the Faculty of Medicine at McGill, for although compelled to resign his position as Dean by reason of ill-health and old age, he still continued to make his influence felt as a Governor of the University.

In 1895 his University conferred upon him the honorary degree of LL.D. He did not write much, his reputation being built on his teaching.

Dr. Craik married, in 1856, Alice, eldest daughter of the late Mr. Alexander Symmers, of Dublin, Solicitor in Chancery, who died without issue in 1874.

FRITZ SCHAUDINN, M.D.,

HAMBURG.

Fritz Schaudinn, whose death on June 22nd, was announced at the time in the British Medical Journal, was born at Roeseningken, in East Prussia. He distinguished himself both at school and at the university, and evinced at an early age a marked aptitude for natural sciences. In 1893 he began to make his mark by excellent biological observation, under the auspices of the Biological Institute, in connexion with the University of Berlin. His work on the *Foraminifera* was of an unusual type, and the dissertation which he published in this connexion excited considerable attention in the zoological world.

Turning his attention to the protozoa groups, he advanced our knowledge not a little. After having been Assistant, he became Privat-docent in the spring of 1898. In the summer of the same year he went on an expedition with Roemer to the Arctic regions to study the Arctic fauna. He also was chosen for other investigations in connexion with biological problems. In 1904 he was elected on the staff of the German Health Department, and was made *Regierungsrath*. His important discovery of the *Spirochaeta pallida* in syphilis has caused his name to be known all over the world and has ensured for him a permanent place in the history of science. It would take too long to enumerate all his important works or even to describe in mere outline the direction of his researches. All students of zoology and protohistology know the invaluable nature of Schaudinn's work, especially with regard to the generation changes of various protozoa, including the *Coccidia*.

Schaudinn was a man of retiring, modest disposition; but beneath the quiet, unassuming exterior lay a sympathetic and noble spirit. The loss, not only to his friends and acquaintances but also to the scientific world, is irreparable. He appeared to be in good health when he attended the International Medical Congress at Lisbon. His death was due to an obscure pelvic suppuration. He had not completed his 35th year.

We regret to announce the death of Dr. Edward Mackey, of Hove, Senior Physician to the Sussex County Hospital and Consulting Physician to the Royal Alexandra Hospital for Children at Brighton, who died recently in London after a short illness. Dr. Mackey, who was 65 years of age, was a son of the late Mr. Edward Walter Mackey, of Erdington. He studied medicine at Queen's College, Birmingham, and was admitted a Member of the Royal College of Surgeons of England in 1864, and a Licentiate of the Edinburgh College of Physicians in the following year. In 1867 he graduated M.B. at the University of London, where in 1874 he took the M.D. degree. In 1875 he became a Member of the London College of Physicians. Dr. Mackey was for some time Physician to the Queen's Hospital, Birmingham, and to the Birmingham and Midland Counties Hospital for Sick Children. He was also Professor of Materia Medica and Therapeutics in Queen's College, Birmingham. He was Vice President of the Section of Pharmacology and Therapeutics at the annual meeting of the British Medical Association held at Brighton in 1886, and Honorary Secretary of the Food and Drugs Section of the Annual Museum. Among his contributions to medical literature were papers on skin diseases and on peripheral neuritis.

The death is announced of Deputy Surgeon-General Theobald Ringer, M.D., retired Indian Medical Service, as having occurred on June 12th last. He joined the Bengal Medical Department as an Assistant Surgeon, April 17th, 1854, and retired with the rank of Deputy Surgeon-General in 1881.

Professor Salvatore Tomaselli, the Nestor of clinical teachers in Italy, died on August 1st. He received his medical education at Naples, and began to teach as a private lecturer on medical diagnosis at Catania in 1857. About 1860 he began to collect the observations which led him ultimately to the identification of the form of quinino-malarial intoxication which is now known by his name. After acting for a number of years as Professor of Medical Pathology, he was, in 1880, appointed Professor of Clinical Medicine in the University of Catania. His great popularity as a teacher was shown in 1902, when the completion of his forty-fifth year of teaching was celebrated with immense enthusiasm by his pupils and colleagues.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are Dr. Alexander Bogdanoff, Professor of Pathology in the University of Odessa, aged 52; Dr. Juan Gonzalez, a well-known physician of Granada, aged 92; Dr. Felix Rymowicz, a leading ophthalmic surgeon of Warsaw, formerly Professor of Ophthalmology in the University of Kasan; and Dr. Filipp Dosjanikoff, Emeritus Professor of Anatomy at St. Petersburg, aged 79.

MEDICO-LEGAL AND MEDICO-ETHICAL.

SENTENCE ON AN ELECTRICAL QUACK.

Albert Edward Richard, an electrical quack, was convicted at the Stafford Assizes last week of obtaining money by false pretences. He had been in the habit of travelling round the country giving so-called entertainments under the name of "Professor" Richard, at which he exhibited various electrical apparatus and claimed to be able to cure many sorts of chronic nervous affections, such as paralysis and deafness; he supplied his victims with appliances, including an "electric chair," for which he obtained considerable sums of money. The defence took the form of evidence from patients, who said that they had received benefit from the prisoner's treatment.

The jury retired at half-past 4 o'clock, and returned in ten minutes with a verdict of guilty.

Detective Lewis was called into the box, and he was proceeding to read a brief history of the career of the prisoner, but he had not gone far before the Judge stopped him and said that that was not what he wanted to know. From the little that was read by Lewis, it appeared that prisoner was born in Alsace in 1847, that he carried on a rag-dealing business at Antwerp in 1869; that he was married at that place in 1870, and divorced the same year; that he had suffered three months' imprisonment for complicity in robbery; that in 1872 he received two years' imprisonment at Antwerp for swindling; that in 1873 he was expelled from Belgium by royal decree: that his name was subsequently removed from the register of population at Wavre for misconduct: that he was again permitted to live in Belgium, but in 1876 was again expelled for misconduct; that in 1879 he was conducting a glove store in Louisville, America, and became bankrupt: that he married again, and soon after the marriage ceremony made an assignment to his creditors, the assets being a greatly-depleted stock of gloves.

His Lordship, in sentencing the prisoner, said he had no doubt that it was a proper verdict. He regarded prisoner as a dangerous person, who obtained money from poor people which they could ill afford to spare. Prisoner had been doing this for a long time, and doing it successfully, and he had no doubt that his career before he came to England was a bad one. It was a perfectly proper prosecution, but he could not but say that he thought it might have been better managed. He had read certificates from medical men which had been handed to him, and he was satisfied that prisoner was not in good health, and that he was not in a condition to undergo hard labour. He hoped that by the exposure which had taken place an end would be put to prisoner's career in this country. A sentence of twelve months, without hard labour, was passed. The judge refused an application for the case to be referred to the Court for Crown Reserved, but he made an order for the expenses of the prisoner's witnesses to be paid out of the borough funds of the borough of Wolverhampton.

This result may be regarded as satisfactory, for it is difficult to obtain a conviction in cases of the kind.

MEDICAL EMERGENCIES AND PUBLIC AUTHORITIES.

At an inquest held at Bideford, North Devon, on Monday respecting the death of a Torquay pedlar, Kate Daly, who died in a trap from apoplexy, evidence was given by Police-constable Townsend that Dr. Grose was first called to the case, but was unwell; Dr. Thompson refused to come, and then they got Dr. Pearson. Dr. Pearson explained that there was no means of paying a medical man called by the police under these circumstances, and a doctor was not bound to attend. A Juror: And it is open for a doctor to come or not? Dr. Pearson: Yes. He might come, get no fees, and be neglecting his own patients. Doctors, like other persons, desired fees for their services. The jury found death due to apoplexy, and added a strong expression of opinion "that the present system of non-payment for medical assistance in cases of accident when medical men are called by the police is very unsatisfactory, owing to there being no paid medical men."

IMPRISONMENT OF A MIDWIFE.

At the Liverpool assizes on August 7th a registered midwife, aged 64, was charged with the manslaughter of a woman who died two days after the premature birth of twins. It was alleged that the midwife's treatment had been unskilful, that when attending she had been under the influence of drink, and that she gave up attending the patient earlier than should have been the case. In the event she was sentenced to three months' imprisonment in the second division, the judge stating that in passing a light sentence he was taking into consideration the prisoner's age, and the fact that she was a relic of an old system.

There were two curious incidents in the case: the prisoner, on examination by the judge, said that she knew what a clinical thermometer was, but it turned out she was thinking of a bottle of disinfectant. The other was that an objection was raised and sustained to a copy of the rules of the Central Midwives Board being tendered in evidence on the ground that, being printed neither by the Government printer nor under the superintendence or authority of His Majesty's Stationery Office, they did not meet the requirements of the Documentary Evidence Act, as amended by the Royal Publications Act. Seeing the frequency with which these rules may have to be used in the prosecution of cases, the point raised seems worth attention.

ADVERTISING FOR THE PURPOSE OF PROCURING PATIENTS.

J. S. Dockray, M.D.—If the leaflet is used for the purpose of systematic canvassing and advertising for the purpose of procuring patients, it seems to bring the society using it under the terms of the resolution passed by the General Medical Council on June 6th, 1899. We would also direct attention to the annotation headed "Canvassing and Touting" published in this Journal on July 28th, p. 215. In any case we should advise that the name of the medical officer should be removed, and that he should be careful that nothing that could be called systematic canvassing and advertising for the purpose of procuring patients takes place in the society so long as he remains its medical officer.

SECRET COMMISSIONS.

Several correspondents have sent us a circular issued from the head offices of the Scottish Hagey Institute, dated from 107, West Regent Street, Glasgow, and signed by the Secretary, Thomas Lindsay. The circular states that the work of the institute is conducted under skilled medical supervision, but the name of the medical officer to the institute does not appear. The matter, however, to which we wish to draw attention is that on a separate slip of paper, but enclosed in the same envelope, is printed: "Commission of £3 3s. allowed to medical men introducing patients." An establishment which uses such means to obtain patients stands self-condemned. Unfortunately, the Prevention of Corruption Bill which was passed by the House of Lords has disappeared; we can only hope that the Government will find time to pass it during the Autumn Session.

Anxious.—So far as we are aware no objection has been raised to the assurance department of the society mentioned by our correspondent.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF LONDON.

The following candidates have been approved in the second part (Organic Chemistry) of the Preliminary Scientific Examination:

Pass List.

J. W. Adams, F. C. Alton, F. J. Anderson, R. W. Annison, Kathleen J. Armstrong, E. A. Attenborough, R. P. Ballard, C. Banks, A. D. E. Bayliss, J. D. Benjafield, B. Bernstein, C. A. Birts, K. C. Bomford, K. J. C. Bradshaw, B. W. Brown, H. L. Burton, H. W. Catto, A. E. D. Clark, W. E. Crowther, H. H. Cuthbert, W. A. Daley, F. A. Dick, G. Dundendale, W. H. Dupré, E. M. A. Duvivier, A. O. English, R. N. Farrer, Frances J. Freston, H. Gardiner, T. W. George, C. Gibson, M. D. D. Gilder, Katherine A. Gill, C. D'O. Grange, Alice M. L. Greaves, D. Green, H. J. Hacker, A. W. Havard, G. R. Hind, G. V. Hobbs, H. M. Hood-Barrs, E. L. Horsburgh, G. Jefferson, C. A. Joll, B.Sc., C. D. Kerr, N. C. Lake, P. S. B. Langton, M. McW. Lopez, Mary F. Lucas, K. D. Marriner, G. Matthews, G. Maxted, B. C. Maybury, M. Mayers, J. Menzies, A. L. Moreton, Hannah G. Morland, R. N. O. Moynan, G. T. Mullally, Stella Myers, G. E. E. Nicholls, W. M. Oakden, H. B. Parker, W. H. Parkinson, W. H. Parr, Mary M. Patterson, Cicely M. Peake, E. A. Penny, W. L. Pink, H. Platt, H. M. Rashbrook, Morna L. Rawlins, Maude M. Richards, E. H. Roberts, A. L. Robinson, C. J. Rogerson, R. A. Rowlands, Mary Schofield, C. E. Shattock, C. W. Shepherd, B. S. Simmonds, E. J. Storer, R. Stout, T. D. M. Stout, J. S. Strachan, N. Tattersall, J. B. Tackaberry, G. Taylor, L. H. Taylor, G. O. Teichmann, G. Y. Thomson, D. O. Twining, E. W. Twining, E. White, T. H. Whittington, W. W. Woods.

UNIVERSITY OF LEEDS.

Conferment of Honorary Degrees.

A Congregation of the University was held on August 4th, when certain honorary degrees were conferred by the Vice-Chancellor, in the absence of the Chancellor, Lord Ripon. Some of these degrees were conferred in connexion with the York meeting of the British Association and some in connexion with the jubilee of the discovery of coal-tar colours.

The degree of Doctor of Science was conferred upon Professors E. Ray Lankester, Alfred Grandidier, Paul Pelseneer, Heinrich Rubens, Sir W. H. Perkin, Dr. Heinrich Caro, Professors Albin Haller, C. Liebermann, Dr. C. A. Von Martius, Professor H. H. Turner, and Professor T. Clifford Allbutt.

The degree of LL D. was conferred upon the Right Hon. Lord Wenlock and Sir Owen Roberts.

The degree of Litt. D. was conferred upon the Right Reverend the Lord Bishop of Ripon and Sir Charles Holroyd.

Professor Grünbaum, the Dean of the Faculty of Medicine, in presenting Professor Allbutt for the Degree of D.Sc., used the following words: Mr. Vice-Chancellor,—We take to-day the earliest opportunity afforded to us as a University of testifying that Professor Allbutt, already the recipient of many honorary degrees, is a prophet with honour in his own land,

and we rejoice to be numbering among our own graduates one whose departure from here was a loss equalled only by the gain to his mother University of Cambridge. Early in his career Dr. Allbutt became so active and so excellent a guide to his British professional brethren along some almost untrodden paths on the mountain of scientific medicine that several of these paths have now become familiar highways; but the guide, although no longer necessary, is not forgotten. To him chiefly is due both its convenient short form as well as the routine use of the clinical thermometer in England, and every layman knows its value. The invention of Helmholtz for illuminating the back of the eye might have long remained unused in this country but for the joint efforts of Dr. Allbutt and Dr. Hughlings Jackson to familiarize the profession with its utility in the diagnosis of many forms of disease and with the facility of its employment. Most truly does the King in *Hamlet* say:

> Diseases desperate grown
> By desperate appliances are relieved,
> Or not at all.

It was Dr. Allbutt's scientific boldness which, forty years ago, caused the first planned tapping of the pericardium in this country to be carried out in the General Infirmary at Leeds with such brilliant success that the patient, otherwise doomed, is still alive. A celebrated teacher of medicine, Nothnagel, once said, "To be a good physician one must needs be a good man," and no one more worthy could I have the honour to present to you, Mr. Vice-Chancellor, than Thomas Clifford Allbutt, Regius Professor of Medicine in the University of Cambridge, for the degree of Doctor in Science, *honoris causa*.

UNIVERSITY OF ABERDEEN.

IN the Aberdeen graduation list published in the BRITISH MEDICAL JOURNAL of August 4th, it should have been stated that Drs. W. A. Milligan, M. W. Renton, and W. C. Souter were all commended for the M.D. theses presented by them.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

ROYAL ARMY MEDICAL CORPS: CHANGES IN DESIGNATION.

AN Army Order recently issued announces that detachments of the Royal Army Medical Corps serving in the following commands abroad will in future be designated and numbered as now specified: Cape Colony Command, new designation No. 22 Company; Transvaal, No. 25 Company; Orange River Colony, No. 24 Company, including detachment in Natal; West Coast of Africa detachment, Bermuda, No. 25 Company; Ceylon, No. 26 Company; North China, detachment; South China, No. 27 Company; Gibraltar, No. 28 Company; Jamaica, No. 29 Company; Malta, No. 30 Company, including detachment at Crete; Mauritius, No. 31 Company; Straits Settlements, No. 32 Company; Egypt, No. 33 Company, including detachment at Cyprus.

ROYAL ARMY MEDICAL CORPS, VOLUNTEERS (LONDON COMPANIES).

ON Saturday the London Companies of the Royal Army Medical Corps (Volunteers) struck camp at Aldershot, and returned to town after a week under canvas. The weather during the week was very hot, but that did not prevent the work of the corps being carried out in a thoroughly efficient manner. The camp itself was pitched on Rushmoor Hill, and was composed of two Sections, A and B, of the new Field Ambulance. The corps itself was divided up so as to supply the *personnel* of the three Sections, A, B, and C, of the two Divisions, the Tent Division and the Bearer Division, into which the Field Ambulance is primarily divided. The Leicester and Lincoln Companies of the R.A.M.C. (Vols.) shared the camp with the London Companies, and altogether a most enjoyable and instructive week was spent. On one occasion the whole corps marched out early in the morning, and spent the day in close proximity to a supposed battlefield, pitching the Field Ambulance, and sending out stretcher squads under officers to bring in the wounded. Major Richardson's dogs (three collies), which have become quite a feature of the Field Ambulance, were present in camp, and accompanied the stretcher squads in their search for wounded, proving of very great assistance in finding the patients. The work throughout was carried out in a most thorough manner, every detail being gone into as in real warfare. On that occasion the Principal Medical Officer for the Aldershot Division, General Sir Thomas J. Gallwey, K.C.M.G., C.B., paid a surprise visit, and expressed himself in very flattering terms and as being extremely pleased at the way in which everything had been done. The officers present were: Colonel Valentine Matthews (Commanding Officer), Major Harper (Second in Command), Major Richardson, Captains Langford Lloyd (Adjutant), Miles, Waggett, Sharpe, Snape, Bennett (Quartermaster), Peake (in command of the Leicesters), Lieutenant Phillips, Lieutenants Purcell and Jones (Quartermasters), and Lieutenant McGregor (attached to the Leicesters). The head quarters of the Corps are at 51, Calthorpe Street, Gray's Inn Road, where recruits will be welcomed.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

POOR-LAW MEDICAL OFFICERS AND PAUPER HOSPITAL PATIENTS.

OMEGA writes: A practitioner is a district medical officer and also an honorary medical officer of the local hospital. Having received an order from the relieving officer to attend a man, he visits him, finds him to be suffering from a strangulated hernia and removes him to the hospital where he himself operates. As he is medical officer of the district he is entitled under his contract with the guardians to a certain extra fee, but as he is an honorary medical officer of the hospital, can he receive it? It is allowed that the district medical officer is the only man who can claim this fee from the guardians, and that the guardians cannot recognize any claim which the hospital authorities might urge. Further, it has been agreed by the Medical Board of the hospital that the district medical officer can legally claim the fee, that he is not obliged to hand it over to the hospital, but that he is entitled, if he does not appropriate it to his own use, to give it to any charity he may think fit. The question is, whether on account of his honorary position he is debarred from enforcing for his own benefit a contract entered into with a public body, such as the guardians of a parish, and whether to do so would deprive him of his title of "honorary." A further difficulty arises with regard to a case such as a broken leg, which may be treated outside the hospital for a time and subsequently in it, or vice versa; how much of the extra fee may he receive, and how is such portion, if any, to be calculated?

*** We cannot see that there can be any objection to the honorary medical officer of a hospital claiming and receiving any or all medical fees which he may be entitled to by statute law or Poor-law regulations, even if the patients for attendance on whom these fees become due are treated in a general or public hospital. It should, however, be borne in mind that for a Poor-law medical officer to become entitled to such fees from the guardians, the hospital where the patients are treated must be itself located within the district of the Poor-law medical officer who is responsible for the care and treatment of the patients in question, as no district medical officer has any claim on the guardians for medical attendance on patients not resident in his own special district. Moreover, as our correspondent tells us that neither the guardians of his union nor the managers of the hospital raise any objection to his receiving the fees about which he writes, we consider it would be unwise for either him or his colleagues not to claim them, and this without any reservation whatever, as their not doing so might intensify difficulties in other districts where Boards of Guardians pay reluctantly, and only after much pressure consent to pay claims under similar circumstances. The title of "honorary surgeon" could not be endangered by the acceptance of fees legally due when such fees are neither paid by the patients themselves nor are paid out of the funds of the institution in which the patients are treated.

COCAINE HABIT IN INDIA.—According to a Reuter message from Simla, Mr. E. N. Baker has introduced a Bill into the Council proposing the curtailment of the sale of cocaine in India, on the ground that the cocaine habit at present constitutes a serious danger to the country.

VARIOUS BEQUESTS.—The Scarborough Hospital and Dispensary receives £200 under the will of the late Mrs. Rachel Robinson Cross, of Scarborough, the Female and Sick Charity in the same town likewise receiving £150. Under the will of the late Mrs. Elizabeth Sarah Harris, of Brighton, the Croydon General Hospital received £125, and the Sussex County Hospital has a sixth share of the residue of her estate, which appears to be some £4,000 in value. Under the will of the late Mr. Robert William Robertson, of Glenshellish, Argyllshire, which has now been proved, the Glasgow Royal Infirmary, the Western Infirmary of Glasgow, the Victoria Infirmary of Glasgow, the Glasgow Asylum for the Blind, and the Glasgow Deaf and Dumb Asylum, each receives a sum of £500, a similar amount going to the Infirmary at Greenock. Under the will of the late Mr. Charles Thornton, of Mount Street, W., the London Hospital and the Victoria Hospital for Children each receives a sum of £1,000. A payment of £500 is also directed to be made to the After-care Society for the Benefit of Persons Discharged from the Asylums for the Insane.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original Articles and Letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone, unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any Circumstances be Returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the Editor of the British Medical Journal is *Attiology, London.* The telegraphic address of the Manager of the British Medical Journal is *Articulate, London.*

Telephone (National):—

EDITOR,	GENERAL SECRETARY AND MANAGER,
2631, Gerrard.	2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Delta asks if any one can inform him of a method for preserving the sphygmographic tracings on smoked paper.

B Flat or Sharp asks if any reader would kindly give information as to any medical comic songs suitable for small drawing-room evenings, and where they could be got.

Omega would be glad to know where a man can be taught embalming, preferably in the North of England; also if there is any society which grants a certificate; how long it would take to learn, and the probable cost.

Badly Bitten (New Cumnock, Ayrshire) writes: I write to ask if any of your readers can recommend a really efficient preventive of midge bites. We are troubled with an exceedingly bad variety of midge here; indeed, on some evenings I find it quite impossible to be out of doors, at the risk of getting a swollen face and eyelids, which persist throughout the next day. Other people agree that they never saw midges so troublesome. I have tried various preparations sold as preventives, but find them absolutely useless. Last night I applied one of them freely to my hands and face, and was twice bitten on the very spot within five minutes, besides killing many which had alighted preparatory to making a meal. Smoking is also useless. I shall welcome most heartily anything which will afford some relief from what is really a serious nuisance.

Member, who is thinking of starting a small motor car, will be very glad if any other members can tell him anything concerning the reliability, etc., of any of the following: 6 h.p. Starling, 6 h.p. Rover, 7 h.p. Pope-Tribune, Baby Friswell, and 6 h.p. De Dion. "Member" has been using a Tri-Car, but the results have not been satisfactory.

*** Of the cars mentioned we should give the preference to the 6 h.p. De Dion, which is a very sound, well-made car; next to this we should perhaps place the Rover.

Reducing Agents in Urine.

Sussex describes a urine which is faintly acid, specific gravity 1022, free from albumen, but deposits triple phosphates and gives a slight reduction of Fehling's and Pavy's solutions; no crystals with phenylhydrazin. The patient was taking syr. glycerophosph. co. (B.P.C.); she is neurasthenic, but not believed to be addicted to any drug habit. "Sussex" says he should be "much obliged for any suggestions that may lead to the detection of the unusual substance present."

*** There are so many substances which cause slight reduction of copper solutions that it is risky to hazard a guess, but on the whole the condition suggests the presence of alkali-albumen.

ANSWERS.

Inquirer.—We know of no firm which could supply a complete set of tropical specimens. Messrs. Baker, 244, High Holborn, London, W.C., might be able to send a selection of some of the simpler objects. Stephens and Christophers' textbook on *The Practical Study of Malaria* (London: Longmans, Green and Co. 1903. 10s.) would be the most useful work as a guide to blood examinations in malaria.

The Immediate Treatment of Snakebite.

Dr. Arnold Lederer, Cazin, Bosnia.—The method to render easy the immediate treatment of snakebite by potassium permanganate devised by Sir Lauder Brunton consists in tying tape as quickly as possible above the bite, incising the bite with a lancet so as to convert the puncture into a small wound, and then inserting crystals of potassium permanganate, which are well rubbed into the wound. Messrs. Ferris and Co., Bristol, sell a first-aid snakebite outfit, consisting of a small box in which are packed a lancet mounted on a hollow wooden stem containing permanganate crystals, a small bottle of these crystals, tape, lint, and adhesive plaster. The whole weighs under 2½ oz., and measures 1⅞ in. by 1 in.; the price is 3s. 6d. Sir Lauder Brunton informs us that Captain Leonard Rogers, I.M.S., has records of over twenty recoveries under the treatment, with only one death, a woman not treated until eleven hours after the bite, and then moribund. The snake was identified in thirteen instances; two were kraits, three Russell's vipers, and the rest cobras. In the hope that cheap lancets might be placed on sale at post-offices throughout India, in the same way as packets of quinine are now sold, Messrs. Arnold and Sons, 26-30, West Smithfield, London, E.C., have made at Sir Lauder Brunton's suggestion a cheap lancet mounted in a hollow wooden case to contain permanganate crystals; they are sold at 6d. each.

NOTES, LETTERS, Etc.

The General Medical Council and the "Medical Register."

The Home Office has addressed the following circular letter to the chief constables of counties:

Whitehall, August 6th, 1906.

Sir,—I am directed by the Secretary of State to inform you that the General Medical Council have asked to be furnished with notice of any medical or dental practitioner convicted of an indictable offence. This is done by the prison governors when the prisoner is committed to prison; in London, when he is fined, the Metropolitan Police report the conviction; and the Secretary of State will be glad if you will give instructions that an intimation of any case coming to the knowledge of members of your force shall be sent to the General Registrar, 299, Oxford Street, London, whenever a fine is imposed on the defendant.—I am, Sir, your obedient servant,

M. D. Chalmers.

Midwifery of the Present Day.

Dr. Bert. Jordan (King's Norton) writes: Dr. Henry Monteagle's reply to my last letter is so full of assumptions, and even a want of faith in my veracity, that I find it somewhat difficult to reciprocate the general courteous tone of his letter. It is clear that he is quite incapable of weakening my position, and so, to cover that failure, he has fastened imaginary obstetric sins on me, and has on his own side made a remarkably candid confession of his failure as an "advanced" practitioner. It is certainly a "blazing" admission to tell us that many years ago he lost two women by the use of forceps, and that now he is not quite sure whether the cases were natural or not. That admission is proof positive that he has got himself into a tight controversial corner. The "advanced" practitioners are successful, but their success does not alter Dr. Monteagle's views, because he himself has lost two women by using forceps. I advise him to remain a faithful disciple of Dr. Horrocks. Dr. Monteagle's position in this controversy is further not improved by charging those whose record is better than his own with practically falsifying their statistics. We are to compete with him in publishing our failures; but we have not any failures to publish. When we say in a leading medical journal that we have lost no forceps cases we have some right to have our word believed. I have had one maternal death, and in a primipara; but the labour was easy, and forceps were not used. In my forceps cases no mother was either "killed" or "maimed," and not one of the women so delivered has been unfitted to fill the duties of her station in life. In advocating the "advanced" method, and in enunciating the three principles on which that method is based, I assumed a certain reasonable amount of skill as necessary for the practice of that method. It is interesting to contrast Dr. Monteagle's distrust of our statistics with his touching faith in the veracity of his "reliable" midwives. We are not to be believed because, if our statistics are accepted, the bottom is knocked out of Dr. Monteagle's position. On the other hand, his "reliable" midwives are veritable pillars of veracity, because their records lend some small support to an otherwise untenable position. I do not copy Dr. Monteagle's example and insinuate that his midwives have concealed maternal deaths and kept them out of their records; but I have a great distrust as to the "flooding" records of midwives. Midwives almost invariably deny that their patients "flood" at all, and they think very little of it unless their patients are moribund from haemorrhage. I have seen cases of chronic anaemia,

of "white legs" and phlebitis, etc., all due to old *post-partum* haemorrhage, but the midwives have always told the patients that they did not "flood." Let me assure Dr. Monteagle that *post-partum* morbidity has a bearing on the question we are discussing only less material than *post-partum* mortality. I assert once more as a fact that there is no routine midwifery, and, from the point of view both of mortality and morbidity, it is a social calamity of the first magnitude that so many women in our present social state are attended by midwives only. I am unabashed and unrepentant as to my state of mental tension after the birth of the child, a tension maintained, and rightly so, until after the expulsion of the placenta. Mental tension is not, despite Dr. Monteagle's insinuation, mental nervousness. It is merely an adequate appreciation of the tragic gravity of *post-partum* haemorrhage, that is a realization of the awful fact that the loss of a certain quantity of blood in a few seconds may change a healthy young woman, joyous by hearing the cry of her newborn child, into a corpse. The idea of Dr. Monteagle that I must unduly anticipate "flooding" because I assist lingering cases, is simply grotesque. Is not *post-partum* haemorrhage conspicuous by its absence in primiparae, and is it not increasingly frequent in those multiparous labours which are not terminated by forceps, even when attended by the "bold" practitioners of the "advanced" school? The primipara's risk is not *post-partum* haemorrhage, but the risk of either not being assisted when she ought to be, or by being "killed" by unskilful assistance. I well remember the paper of Dr. Sinclair, to which Dr. Monteagle has referred. That paper impressed me at the time it was published in much the same way as I am now impressed by the letters of Dr. Monteagle. Both paper and letters are distinguished by vividness of imagination, and by an entire divorce from the stern reality of facts. I close this letter by a recapitulation of the principles that I advocate. If a man washes his hands, uses clean forceps with intelligence and skill, and be in a state of "mental tension" during the all-important third stage, I venture to say that his results will be better for the mother and far better for the infant than if he relies overmuch on Nature. Let us remember that we do not attend women living in a state of Nature. We do not attend the negresses of Africa, but we attend that complex, educated, and highly-sensitive being—the modern white woman. To meet her obstetric needs something more is necessary than an overweening faith in Nature. The position I have taken up in this controversy is, I believe, a sound one. If nothing more damaging can be brought against it than a suggestion that I have kept maternal deaths from my records, then I have little to fear.

MEDICAL ARRANGEMENTS ON PASSENGER SHIPS.

DR. J. GRAY DUNCANSON (Shooter's Hill, S.E.) writes: Without entering into any discussion of the main facts embodied in Dr. Bayly's letter which appeared in the BRITISH MEDICAL JOURNAL of July 21st, 1906, I wish merely to offer my testimony to the admirably practical working of a system of individual payments to the medical officer on the part of first-class passengers aboard ship. I spent fully three most enjoyable months last year on the S.Y. *Argonaut* (Dr. Lunn's excellent cruising yacht) as medical officer, where the following method is adopted: All passengers receive a printed form stating that medicines will be supplied free of charge by the ship; but that medical attendance must be paid for, according to a specified scale of fees, to the doctor himself, the transaction being directly between patient and doctor. By this means the status of the doctor is improved in the eyes of every one, and he no longer figuratively stands with his hand extended, like a steward, waiting for any gratuity the grateful patient may like to drop therein; and the passengers have the advantage of consulting a man and paying for his advice in a suitable manner. Many expressed to me the pleasure they felt in the arrangement, and some said they would not have consulted me at all under the usual method. From a personal experience of both systems I can speak most appreciatively of the vast advantage to the medical officer of that which I have described; and I trust many of our great lines will see the benefit which would accrue by adopting some such arrangement, which would cost them nothing.

INSECTS IN THE EXTERNAL AUDITORY MEATUS.

DR. LLEWELLYN WILLIAMS (Putney) writes: I was particularly interested in reading Mr. Aslett Baldwin's remarks on the above in the BRITISH MEDICAL JOURNAL for July 28th, page 197, as I had the opportunity of seeing an almost similar case when taking charge of a practice in the neighbourhood of the London Docks some ten or twelve years ago. The patient in my case was a mate on one of the vessels then in the Docks, who presented himself at the surgery one morning for treatment. As he was an Italian and spoke only a few words of English, it was very difficult to understand what he complained of, but as he pointed to one of his ears, rubbed it, and gave other unmistakable signs that the trouble lay there, I proceeded to examine the ear. Nothing could be seen without a speculum, and then only a small black speck in the distance. I gathered from the man that something had got into his ear, and so, although in doubt of the genuineness of his ideas, and also considerably in doubt as to the nature of his trouble, I succeeded after some difficulty, and much to my surprise, in withdrawing with a pair of small sinus forceps, a large cockroach, still alive and kicking. The man was greatly pleased, and took it away in a chip ointment box. The wall of the meatus in this case also had been considerably reddened by the insect's scratching. I gathered that while the man was asleep in his bunk the cockroach had entered the meatus, whether to escape down the nearest hole from danger or not, of course, one does not know.

DR. J. R. PRYTHERCH (Llangefni, Anglesey) writes: I was consulted on July 25th by a lady who complained of pain and noise in her left ear. She first observed it when she awoke that morning. On examining the ear with a speculum I could see what at first appeared to be a very "shiny" and glistening membrane, but not possessing the normal characteristics. Being rather puzzled by the appearances presented, I reintroduced my speculum and improved the position of the patient. The light was now better, and I could see oscillating movements of the said "membrane," the patient at the moment exclaiming that "the noise was terrible just then." I continued to watch the movements, and found that it was more of a flapping movement, and that in reality there was a moth present, whose wing lay on the membrane and occasionally flapped. I filled the ear with boracic lotion, and let the patient lie on her side for some minutes. I then syringed the ear with warm lotion, and a small moth came away, of course to the immediate relief of all symptoms. The difficulty of diagnosis, of course, depended upon the quietness of the moth at the moment of first examination.

HOSPITAL ABUSE.

DR. ALEXANDER DUKE (London, W.) writes: The letter appearing in the BRITISH MEDICAL JOURNAL of August 11th, page 328, is opportune, but I am surprised the writer has not given his name. And why should the London hospital which allows such an abuse of charity (we may be quite sure, not exceptional) not be named? Every case of the kind should be reported, and not alone in medical journals, with only initials, as if the writer were afraid of stating facts, but especially to the *Spectator* and other magazines, so that, perchance, the governors of such hospitals as countenance such abuses should at least be made aware of it. Hospital abuse is now broadcast, and would amount to a scandal if all such cases were at once reported (as they should be). Medical advice free! Education free! Free dinners for children, etc.! But no such thing as a free press.

KISSING THE BOOK.

DR. E. CLAUDE TAYLOR (Hampstead) writes: Reading the correspondence and remarks in your columns on Kissing the Book, one wonders why so many medical men still take the oath in any form. It is now open for those who have a conscientious objection against taking an oath—on account either of a religious belief or an absence of such belief—to make an affirmation. Obviously the latter do not add to the security of their word by swearing by that in which they do not believe. As to the former, one would have thought that the following arguments would have weighed with scientific and devout men: (1) Oaths are mainly imposed by the authority of the Church (see Article 39) or State; but so far as authority goes we have the direction of our Lord: "Swear not at all; let your speech be Yea, Nay." (2) Common sense and logic show that if a man will speak the truth only through fear there is little reliance to be placed on his word at any time, and that a dual standard of truth belittles the value of truth. Perjury is not uncommon in our courts, but an investigation recently by Mr. J. S. Rowntree of York showed that since the passing of the Toleration Act in 1689 not a single conviction for false affirmation could be discovered, and similarly in the United States. Surely it is more dignified for a member of our profession, whether in his consulting room or in a court of law to say: "This is my word; to the best of my belief and knowledge it is true; it is as full as consideration for others will allow."

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THE SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association

HELD AT

TORONTO, CANADA, AUGUST 21ST TO 25TH, 1906.

Address in Medicine

DELIVERED AT THE

SEVENTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION,

BY

SIR JAMES BARR, M.D., F.R.C.P., F.R.S.E.,

SENIOR PHYSICIAN TO THE LIVERPOOL ROYAL INFIRMARY; LECTURER ON CLINICAL MEDICINE, LIVERPOOL UNIVERSITY; MEDICAL VISITOR, TUEBROOK ASYLUM; VISITING PHYSICIAN, HAYDOCK LODGE ASYLUM; EXAMINER IN MEDICINE, GLASGOW UNIVERSITY.

THE CIRCULATION VIEWED FROM THE PERIPHERY.

Mr. President, Ladies, and Gentlemen,—In the first place I must thank you, and through you the whole British Medical Association for the high honour which has been conferred on me in my appointment to deliver this address. This is an honour and a privilege which happens to very few men, and that only once in a lifetime. I feel the dignity of the office and the obligations which it entails all the more deeply inasmuch as the invitation in the first place came from the members of the Association resident in this City. When the invitation was conveyed to me I rather hesitated to undertake a task which I felt I could only inadequately perform, but, on the other hand, I looked upon the request as a command, and it seemed to me that I could scarcely refuse to undertake a duty for which I had been selected by my Canadian brethren.

After accepting the task my difficulties began, and my first was in choosing a subject which would have a more or less general interest. The whole domain of medicine has been traversed by addresses, and it appeared as if there were no corner left for me. I could find nothing new under the sun, but there was still left to me the privilege of talking of the glories of the past, and what medicine has done for humanity. Again, I found that any attempt at a hackneyed survey of the advances of physic, say during the Victorian era, would be merely clothing in my own language facts with which you are all familiar and in the advancement of which many of you have taken an important part. I further found that standing on the high pedestal on which you have placed me I was, to a certain extent, placed above criticism, and therefore could not fairly deal with polemics.

It finally occurred to me that I might find some devious path or unbeaten track in the vast field of medicine which I might pursue with some measure of success. I intuitively turned my attention to the circulation, the ramifications of which pervade the whole field, and as writers hitherto on this subject have almost invariably traced the circulation from the centre to the periphery it occurred to me that we might get a fresh view if we turned our attention in the opposite direction. There are numerous treatises on diseases of the heart and aorta, but until recent years a careful study of the peripheral circulation has been largely left to physiologists and pathologists. The experimental work of Cohnheim will ever remain a landmark in the pathology of the circulation, while to the school of Ludwig physiologists are no less indebted. To physiology medicine owes much, and all great advances are being prosecuted along physiological lines. If there have been any apparent divorce between the scientific basis and the practical application of our art, it is not due to any too rapid advance of physiology, but to physicians being too slow to fructify the field which has been tilled by physiologists. I have previously asserted that diseases of the heart most frequently arise from causes acting on the periphery, and hence there is here no room for specialism. The man who only studies the circulation with the aid of a stethoscope is a positive danger to society. I can, therefore, with an easy conscience and a sense of much satisfaction devote some attention to that periphery.

The capillaries through which the interchange of nutritive pabulum and gases takes place between the blood and tissues, play a most important rôle in the animal economy. Yet they have received very inadequate attention from clinicians. Perhaps it has been thought that their structure and position could be so briefly described that any circumlocution in their description was unnecessary. But however simple their structure, and however apparent their functions, they constitute a vast filter bed for conveying nutritive material and oxygen to the tissues and for removing waste products therefrom. A careful study of how these changes take place, and how the functions of these little tubes are carried on, has always seemed to me a matter of as much importance as even the action of the heart itself. These little vessels are of extreme tenuity and delicacy, consisting of a single layer of endothelium, yet they are much stronger than most people imagine, and are capable of standing considerable internal pressure; they vary from about 0.5 to 1 millimetre in length, and from 7 to 13 micro-millimetres in diameter. They are to a certain extent elastic, or at least they have the capacity of adapting themselves to the amount of blood which is driven through them. Their importance has been aptly described by Leonard Hill, who says: "The blood is brought into intimate relation with the tissues by diffusing through the endothelial wall of the capillaries, and this wall is of great tenuity; thereby takes place that change of material which maintains the combustion of the body and the fire of life."

The capillary bed is a vast territory which pervades every tissue and organ of the body, and so numerous are these little vessels that it would be difficult to stick the point of a needle in any vascular area without wounding one or more, but in neurotic individuals you may wound many such vessels without drawing blood. In very plethoric individuals and in cases of polycythaemia the capillaries of the body are fairly replete, but in ordinary mortals, especially in those of neurotic temperament, perhaps not a third of the capillaries are full at any one moment. Apply a sinapism to a very pallid skin, and you may wonder where all the turgid capillaries have sprung from. From the fact that under normal circumstances a sufficient quantity of blood cannot get through the arterioles to keep the enormous capillary bed full, the lateral pressure and the velocity in the capillaries are ever-varying quantities. When Leonard Hill stated that the pressure in the capillaries under certain conditions is often over 100 mm. of mercury, I thought that there must be some error of observation, as I was under the impression that such pressure would rupture these delicate little vessels, but I remembered the old advice: Do not think; try. I tried, and found that Leonard Hill had rather understated the fact, as I found variations from about 50 to 2,000 mm. of water. I also found equally

great variations in the velocity of the blood in the capillaries. In textbooks on physiology it is put down from 0.3 to 0.75 mm. per second, but my observations have given records from about 0.5 to 25 mm. per second. The capillary bed covers an enormous area; take, for example, the lungs where all the air vesicles are surrounded by a meshwork of capillaries, and the surface of the air vesicles in the average individual has been calculated by Zuntz at 90 square metres. Numerous attempts have been made to estimate the capacity and sectional area of the capillaries, but in my opinion these questions are still unsolved. The method adopted of estimating the sectional area of the systemic capillaries is simplicity itself. We all know that with any given force the velocity is inversely as the sectional area. The mean velocity in the aorta has been set down as 320 mm., and in the capillaries as 0.5 mm. in the second: therefore, on this basis of calculation the sectional area of the systemic capillaries would be 640 times that of the aorta. It is not difficult to show that the premisses are wrong, so it is highly improbable that the conclusion can be right. It at once becomes absurd if we consider how this calculation would work out for capacity; if we reckon the average length of a capillary as 0.75 mm., and the length of the aorta as 480 mm., accordingly the aorta should hold as much as all the systemic capillaries. From the effective mean lateral pressure in the arteries it is difficult to draw any conclusion as to the velocity in the aorta, because the force imparted to the blood in the aorta by the heart is an ever-varying compound of kinetic and potential energy. Even if you did arrive at any fairly accurate idea as to the mean velocity in the aorta, it would not be correct to draw any inferences from a comparison between the velocity of the blood in the aorta and in the capillaries, because the conditions determining the velocities in the two sets of vessels are not comparable. The higher the potential in the arteries the greater the velocity in the capillaries, but as this arterial potential is induced by obstruction to the outflow the velocity in the arteries will be diminished. As Leonard Hill appropriately says: "The circulation of the blood follows certain definite laws; unfortunately, the conditions of the flow are so complicated that these laws remain for the most part undetermined. A viscous fluid driven by an intermittent pump which circulates through a system of branching elastic tubes of varying capacity; a system of tubes into and out of which passage of fluid takes place either by osmosis, filtration, or secretion; a fluid which varies in viscosity, a pump which varies in force, and tubes which have an ever-changing diameter and coefficient of elasticity."

In a paper on tubal nephritis published in 1883, and in one on the pathology and treatment of dropsy in 1886 I dealt with the capillary circulation. I have long been in the habit of estimating the velocity by compressing the blood out of the capillaries in a given area and then watching the quickness or velocity of the return. This has served, and still serves, my purpose, but when I wish to record my observations I use a glass rod 10 millimetres in diameter. With the flat end of this rod I compress the capillaries, and then with a stop-watch recording fifths of a second I time the period of the return of the blood. If you divide the radius of this rod (5 millimetres) by the time, you get the velocity per second. For these observations you must select some spot where there is a network of capillaries which you can completely empty, such as those in the back of the hand or finger, and you must also choose a spot where the return current flows from all parts of the circumference. This method is so simple and accurate that it is a matter of surprise to me that, so far as I know, it has never been thought of before.* When fluid is circulating in a capillary tube, the axial velocity is double the mean velocity. Now, the erythrocytes travel in the axis, but as they occupy at least four-fifths of the lumen of the vessel, the mean must be fully 0.8 of the observed velocity. For estimating the pressure in the capillaries I use a modification of v. Kries's apparatus. For applying the pressure I use three sizes of glass plates measuring 20, 100, and 400 sq. mm., so a gram pressure on each of these plates represents respectively 50, 10, and 2.5 mm. of H_2O. As before stated, I have recorded capillary pressures varying from 50 to 2,000 mm. of water, and my velocity records have ranged from about 0.5 mm. to over 25 mm. per second. Any one with a capillary velocity at the level of the heart which physiologists set down as normal might appropriately take up the refrain, "The hour of my departure's come."

The study of the lateral pressure and velocity of the blood in the capillaries is an exceedingly interesting one. A combination of these two forces represents the energy of the blood in the capillaries, and no doubt this energy is derived from the heart, and stands in direct relationship to the force of the cardiac contraction; the greater the force of the cardiac output the greater will be the energy in the capillaries, but the component elements of this energy—lateral pressure and velocity—need not bear any direct relationship to those respective elements in the arteries. These two conditions (velocity and pressure) might be said to stand, within certain limits, in an inverse ratio to one another, the more rapid the flow the less the lateral pressure, and vice versa. The lateral pressure depends on the statical condition of the blood, and just in proportion as you introduce movement you convert the force of pressure into that of velocity.

If you wish to drive a certain quantity of fluid through a tube, the velocity will depend on the force of the propulsion minus the obstruction to the outflow, with the inertia or viscosity of the fluid (there is no fluid perfectly mobile) and the friction of the tube; and the lateral pressure will increase as the outflow is obstructed—in short, as the statical condition is maintained. The *vis viva* or energy of the blood in the capillaries can be represented, as in any other vessel, by the formula $\frac{MV^2}{2}$. The component forces of this energy—pressure and velocity—are constantly varying, so, for the sake of clearness, it will perhaps be better to describe them separately.

The pressure stands in direct relation to the freedom of the inflow and the obstruction to the outflow. For example, take a very cold hand: the arterioles and small arteries may be so contracted that the mass of blood supplied to the capillaries is greatly diminished, and the lateral pressure correspondingly falls. Even in the arterioles there may be such a drop in the pressure-gradient that there may be a difference of 50 mm. of Hg between the lateral pressure in the digital artery and that in the radial. In cases of local syncope the lumen of the arterioles supplying the affected district is obliterated and the capillary pressure is reduced to nil. On the other hand, if you warm the hand, or take a glass of whisky which dilates the arterioles, the mass of blood in the capillaries is augmented and the pressure rises; and the fall in the pressure-gradient between the arteries and capillaries becomes more gradual. An increased obstruction in the arterioles over a wide tract, such as the splanchnic area, raises the general arterial pressure and lowers the capillary pressure in the area supplied by the contracted arterioles.

As Colnheim long ago pointed out, if you obstruct the outflow by tying a ligature round the limb you greatly raise the pressure in the veins and capillaries distal to the ligature, but as you cannot thus completely obstruct the venous return without at the same time obliterating the arterial supply, the pressure in the veins does not rise so high as that in the capillaries, and the pressure in the capillaries does not attain the level of that in the arteries, and, of course, that in the obstructed artery does not rise above the general arterial pressure at the same level. With any given energy in an artery the pressure and velocity in the capillaries supplied by that artery stand in an inverse ratio to one another, the greater the pressure the less the velocity.

I have corroborated v. Kries's observations as to the effects of gravity on the capillary pressure, and like him I have found that the increase is usually less than one-

*Dr. George Oliver has drawn my attention to a capillary dynamometer devised by Dr. Alexander Haig for gauging the amount of uric acid in the circulation and estimating the blood pressure. Dr. Haig compresses the blood out of the capillaries under pressures varying from about 5 to 20 oz., and times the periods of compression and of the capillary reflex. Dr. Haig says that his "instrument gives a constant definite area of pressure—a definite and measurable force, the pressure being applied for a definite and constant time, measured by a metronome beating half seconds, the length of time the blood and colour take to return being measured by the same instrument." Our methods are similar, but our objects are different. At one time I thought of drawing up rules for estimating the arterial blood pressure by the capillary velocity, but I soon found that the necessary corrections on account of the contraction or dilatation of the arterioles, the position and temperature of the part under examination, and perhaps the viscosity of the blood were so numerous as to materially lessen the clinical value of any such method.

half the hydrostatic effect—for example, if you take the capillary pressure in the finger at the level of the vertex, and then take it when the finger is lowered, say 600 mm., the increase may be only 200 mm. of water in place of an increase of 600 mm. of blood which it would be in an artery. I have also found that the increase is not at all uniform. It may vary enormously in different individuals, and in the same individual under different conditions. It largely depends on the condition of the vasomotor mechanism of the part which you are examining. If the arterioles be contracted and the inflow to the capillaries be obstructed the increase may not be a third of the hydrostatic pressure, but if the arterioles be much dilated the increase may be half or even two-thirds of the increase which has taken place in the artery. Leonard Hill has pointed out to me that this increase chiefly takes place when the limb is immobilized; and when active movements are going on the blood is compressed out of the capillaries and this increase in the lateral pressure does not take place. There is, however, under these conditions an increased hydrostatic pressure in the arteries, as Leonard Hill was among the first to demonstrate, and this must be expended in the arterioles and capillaries either in the form of increased pressure or augmented velocity, but more anon when we come to speak of the latter component of the increased energy.

I have shown that the capillary pressure in the foot even when immobilized is often less than that in the hand and much less than that in a grog-blossomed nose. This is entirely due to the wonderful mechanism of the vasomotor system.

Some people are very liable to cold feet in bed, and such appendages to a lady seem to have led up to a divorce in the United States of America. In such cases the part may be fairly comfortable before going to bed, but once the horizontal posture is assumed the arterial pressure and capillary velocity fall, there is not a sufficient amount of fuel carried to the extremities to keep the large cooling surface warm. Here the defect is in the initial energy, and besides improving the general arterial pressure it would be advantageous to keep the feet much lower than the head and shoulders. Possibly if the lady had been under medical treatment she might have conserved her own comfort, preserved the affection of her husband (though she might not have thought the affection of the brute worth preserving), and saved the notoriety of the divorce court.

The velocity of the blood in the capillaries is, if possible, even more interesting than the pressure. It varies enormously in different individuals under different conditions. As I have before said, the range of my observations has been from less than 0.5 to 25 mm. per second. We shall now consider the conditions under which these variations occur. In the first place it depends chiefly on the potential in the arteries—the higher the arterial pressure the greater the velocity in the arterioles and capillaries. High arterial tension drives the blood through the arterioles and capillaries with great velocity, but certain little corrections have here to be borne in mind. If the arterioles of a small area, such as the hand, be contracted, the general arterial blood pressure is not affected; the blood travels in the direction of the least resistance, so the supply to the hand is diminished, and although the capillary pressure is diminished the velocity is not increased—in fact, the diminished supply spread over a large capillary district should tend to lessen the velocity. The velocity in the capillaries is not comparable with that in the arteries, but with that in the arterioles; and as velocities are inversely as the cross sections, you could easily calculate the sectional area of the capillaries if you only knew the velocity of the blood in the arterioles and their sectional area.

When the arterioles are dilated in any area, as at the commencement of an inflammation, the whole of the capillaries are opened up and engorged with blood, and with this increased mass the pressure is raised, but the velocity is also heightened owing to the arterial potential remaining high and the resistance in the enlarged capillaries being diminished. The resistance is inversely as the square of the cross sections, or the fourth power of the diameter, or directly as the square of the velocity. We have seen how hydrostatics affect the pressure in the capillaries, but the velocity is much more uniformly affected. It is usually sufficient to lower the hand 320 mm. in order to double the velocity, and in the capillaries of the foot the velocity is usually extremely rapid. Velocity, $V = \sqrt{2\,Gh}$; but in the capillaries we have further to take into account the sectional area, which has not yet been accurately computed either in whole or part.

So readily is the capillary velocity affected by the arterial pressure that, *caeteris paribus*, you can easily detect a difference between the velocity in the back of the hand and in the fingers: when a warm hand is hanging the velocity in the finger is greater than in the back of the hand, and if the relative position of these parts be altered the velocities are reversed. I purposely said a warm hand, because in a cold hand the capillary circulation in the fingers is often very languid. After removal of an Esmarch's tourniquet the capillary velocity in the flushed extremity is considerably augmented.

Any obstruction to the outflow from the capillaries diminishes the velocity in them. The hydrostatic effect of the blood in the veins would materially obstruct the capillary flow only for the provision of valves, and the muscular compression hastens on the blood and thus diminishes the statical condition. However, certain capillaries, such as those of the liver and kidneys, are exposed to considerable backward pressure when from any cause the venous pressure is raised.

When the velocity in the capillaries is reduced to one millimetre or less per second the blood becomes surcharged with carbonic acid and the skin or organ supplied becomes of a dusky hue. This appearance immediately disappears if you increase the capillary velocity; for example, when the hand is blue and passively congested from cold, or the so-called local asphyxia, if you let it hang down you increase the velocity and you quickly see bright red spots intermingled with surrounding lividity, and soon the colour of the whole hand improves. In the cold livid dependent hand the colour of the fingers is better than that of the back of the hand. When you get cardiac failure, with or without any obstructive lung disease, you frequently see the upper part of the body and the hands quite dusky, while the legs and feet, which are at a lower level, may be pale. In one marked case of cardiac failure where the upper part of the body was livid, I saw one foot and part of the leg in a state of local syncope and as pale as marble. These patients do not require a cylinder of oxygen, with which they are frequently plied, but the judicious application of a little common sense, such as the intravenous injection of small doses of adrenalin or some cardiac tonic. In cases of Raynaud's disease the local syncope is ascribed to vasomotor spasm, but really the spasm, if it exist, is a very mild affair. In these cases the arterioles shut down because there is not sufficient blood pressure to keep them open. The arterial pressure is always low, and the blood is deficient in lime salts and viscosity. In the cases of local asphyxia the arterioles are not closed, but the arterial potential is low, the velocity in the capillaries is defective, and the *vis viva* is not sufficient to drive on the blood stagnating in the veins. In cases of erythromelalgia the reverse happens; the velocity and pressure are both increased in the large engorged capillaries.

In many cases of pneumonia with low blood pressure, the vasomotor taps in the splanchnic area are all open, and the aorta is drained before it terminates in the iliac arteries; the bulk of the blood is retained in the chest and abdomen, and the quantity supplied to the lower limbs is diminished. Moreover, the extremities are often colder than the body, and the arteries contracted. The lower level of the limbs increases the velocity in the capillaries and veins, and consequently the capillaries of the foot and leg are often blanched and the veins comparatively empty when the upper part of the body appears congested and purple.

Viscosity of the Blood.

The viscosity varies greatly, and is no doubt the great cause of resistance in the capillaries. Normally it is about five times that of distilled water, and my friend, Dr. John H. Watson, who has recently been doing some valuable work on this subject in association with a physicist, Dr. A. du Pre Denning, has found that in many diseases the viscosity is nine or ten times that of distilled water. The coefficient of viscosity in the tarry blood of Asiatic cholera is often so great that it will not

pass through the capillaries. Dr. Graham Brown and others have found that a rise in temperature lessens the viscosity, and hence a febrile temperature lessens the resistance and so diminishes the work of the heart, but it does not follow from this that a high temperature in fever is an advantage, as there are many more efficient ways of lessening the viscosity. As the velocity diminishes the blood becomes more charged with CO_2, which enlarges the red corpuscles and further increases the viscosity. Drs. Watson and Denning have devised a very convenient capillary viscosimeter, which shows these variations in this physical property of the blood. They conclude that the chief resistance to the flow is due to the viscosity, and occurs in the capillaries. It has long been a disputed point as to whether the resistance to the arterial flow, and consequently to the heart, is situated in the capillaries or arterioles.

Sir W. H. Broadbent, I believe, even now throws the weight of his deservedly great name in favour of the resistance being in the capillaries; and in cases of vasomotor paralysis no doubt such is the case, but in ordinary circumstances I agree with the majority that there is an earlier barrier to the outflow from the heart in the arterioles and small arteries which are governed by vasomotor nerves. This can be readily proven by the fact that there is very little fall in the pressure-gradient from the large to the small arteries. The pressure in the radial and tibial at the same levels is as great as that in the brachial and femoral. When you come to the very small arteries and arterioles which are offering resistance to the flow there is a very great fall in the pressure and an increased velocity. As I have before said, the fall between the radial and digital artery may be as much as 50 mm. of mercury, and there may be an even greater fall in the pressure-gradient between this and the capillaries. Now, if the capillaries formed the first line of resistance the fall in the pressure-gradient would be much more gradual, and high arterial pressure would be associated with high capillary pressure, but we know the reverse to be the case.

It is extremely fortunate that there is this first line of defence created by the action of the vasomotor nerves in the small arteries and arterioles, because if this were wanting, as at present constituted we should either have to go about on all-fours or constantly run the risk of fatal syncope. Moreover, the blood would gravitate into the most dependent parts, the cooling surface would be enormous, the capillary velocity would be diminished, the blood would become surcharged with CO_2, and we would become cold-blooded animals. When the vasomotor nerves of a rabbit are paralysed it appears all right until you suspend it by the ears, and then it immediately dies. The arteriolar resistance saves us from such risks.

In cases of vasomotor paralysis the arteriolar resistance to the cardiac outflow is transferred to the capillaries, and then the fall in the pressure-gradient becomes more gradual. In a case of Landry's paralysis I have seen within half an hour of death the diastolic pressure 146 mm. of Hg, and the systolic 190 mm. of Hg in the brachial artery at the heart level, and when the arm was raised 220 mm. the diastolic pressure fell to 130 mm. and the systolic to 174 mm. of mercury. The capillary velocity in the hand at heart level was 0.83 mm. in the second. The hand was perfectly livid, but when it was lowered over the edge of the bed 650 mm. the velocity increased to 1.67 mm. in the second, and the colour improved; thus proving that the resistance was not a question of viscosity, but gradual failure in the driving power to overcome the total resistance. The venous pressure was low as well as the capillary, showing that the heart was rapidly failing (though doing its utmost) and had not sufficient energy to overcome the capillary resistance. By this wonderful vasomotor mechanism a large amount of the cardiac energy is stored up in the arteries as potential, and is converted into kinetic energy in the arterioles and capillaries.

In the second line of resistance there is a greater transformation of energy. If there be very little resistance in the veins a large proportion of the kinetic energy is carried right through to them, but as far as the resistance to the outflow has to be overcome the velocity is converted into pressure. There is considerable waste or rather transformation of energy in overcoming resistance and in producing filtration pressure. In these small tubes there is an enormous amount of surface friction. The resistance is directly as the length of the tube and inversely as the square of the sectional area: directly as the square of the velocity and inversely as the fourth power of the diameter. It also varies directly as the viscosity. The extravascular pressure is about one-fourth of the capillary pressure from which it is derived and is an important force in carrying on the lymph circulation.

The viscosity is an important element in the resistance: we have already seen how it is increased by CO_2 and diminished by heat. The work of Professor A. E. Wright has shown that it is increased by the salts of calcium, magnesium, and strontium, and diminished by decalcifying agents such as citric acid and the salts of potassium, ammonium, and sodium.

We have already referred to the viscosity in connexion with the resistance in the tubes or the surface friction, but the mobility of the fluid or the surface friction of the molecules of the fluid against one another increases the resistance. The force of the heart is used up in propelling on the blood, and of course the mere weight of the blood and the viscosity must use up a great part of this force. The blood is a very viscous fluid and its viscosity is much increased by an excess of corpuscles.

Dr. John H. Watson and Dr. Denning found that the viscosity is much diminished by a rise of temperature; and that an increase in the corpuscles invariably causes an increase in the viscosity, and in the tubes of small bore this increase produces a most definite rise in the internal resistance, increasing more and more markedly as the diameter diminishes.

My former house-physician, Dr. R. J. Ewart, who has done some excellent work on the viscosity of the blood, has shown that here the law of Poiseuille does not hold good in tubes of very small diameter, because the increase is much greater than the inverse ratio of the fourth power of the diameter.

Drs. Watson and Denning have shown that, "With a given number of corpuscles present in the blood, the rate of flow through any particular tube down to 0.3 mm. in diameter may be considered directly proportional to the pressure. A given increase of pressure exerts a much greater accelerating effect on the rate of flow through tubes of fine calibre than through tubes of wide bore." This corroborates my own observations on the effects of arterial pressure on capillary velocity.

Burton-Opitz, quoted by Watson, has found the viscosity increased by nitrogenous diet and by alcohol. Watson has found the viscosity diminished in chlorosis, but this must be more than counterbalanced by the great increase in the plasma and the total increase in the corpuscles, which Lorrain Smith has shown to exist in this disease. The viscosity is diminished, but the total weight of the fluid to be driven is enormously increased, consequently the heart hypertrophies.

In polycythaemia, as Professor Osler has said, "It is especially important to test the viscosity of the blood by accurate physical methods, and to determine the relation of the number of corpuscles to the viscosity." This has been done by Watson and by Parkes Weber, and they have found that viscosity may be more than doubled, and is in direct proportion to the number of corpuscles.

Burton-Opitz, Fano and Rossi found that thyroid secretion lessens the viscosity. Watson concludes his observations in the statement: "The influence, therefore, of the viscosity of the blood is not an independent but a dependent variable whereby its effect upon the work of the heart may be diminished or increased."

There can be no doubt that the viscosity is an important element in determining the work of the heart; but, as a clinical factor, its importance can be easily overrated, as there are other simpler methods of determining the condition of the capillary circulation, and we must remember that the living capillaries are more or less elastic, and offer much less resistance to the flow of blood than would be caused by rigid tubes of the same calibre. On the other hand, the great variableness of the capillary pressure and velocity makes their interpretation often a matter of some difficulty.

THE INTERCHANGE OF MATERIAL THROUGH THE CAPILLARY WALLS.

There are some physiologists who would raise the endothelial cells of the capillary walls to the high level of

secreting structures, not that they have any evidence, either from analogy or otherwise, in support of such a contention, but simply because they think that the physical properties of diffusion, osmosis, and filtration cannot account for the phenomena. They hold that the capillary pressure is low, and is more than counterbalanced by the endosmotic equivalent of the albumen and salts in the blood. When they recognize the enormous variation which takes place in the pressure and velocity of the blood in the capillaries, they will have less difficulty in admitting the problem of filtration as applicable to the capillary circulation. Moreover, the capillary walls do not form a semi-permeable membrane, but are just as easily permeated, *caeteris paribus*, in one direction as in the other. In a network of capillaries the pressure must necessarily be higher in the efferent or distributing vessels connected with the arterioles than it is in the afferent or collecting tubules which unite to form the venules. You can thus have filtration and absorption going on side by side, just as in a hole in the wall divided by a midriff you can have strong currents of air flowing side by side in opposite directions. The fall in the pressure-gradient in the capillaries must be fairly uniform from arteriole to venule; but as there is usually a considerable fall from the capillaries to the veins there must be a corresponding difference between the efferent and afferent capillaries, and thus transudation and absorption in different parts of the same network can be readily explained. In the intestinal capillaries the larger and deeper vessels supply the secretory structures, and the smaller and more superficial vessels are the absorbents.

The interchange of gases which are in solution readily takes place by the process of diffusion; and osmosis must play a very important part in transudation and absorption according as the osmotic equivalent is greater on one side than the other of the capillary membrane. In 1886, when dealing with the pathology of dropsy, I said: "Fluids pass very readily through organic membranes, such as the walls of the capillaries, by a process of osmosis, but albumens do not thus readily transude. Unlike the capillaries of the lungs and kidneys, the systemic capillaries allow albumen to pass through their walls, so that it is found in all the intercellular fluids. Now, if it does not pass through by osmosis, we must suppose it to be filtered through under varying amounts of pressure. In filtering under pressure, as a rule, the greater the pressure the greater the amount of the filtrate, but the composition of the latter differs very materially from the nature of the compound fluid submitted to the pressure, as the different constituents pass through with varying degrees of ease, the water passing through much more readily than the albumen. Hence, although the total amount of albumen passed through may be increased according to the quantity of the filtrate, its percentage is diminished. Hence, the greater and more rapid the production of dropsy—if there be no increase in absorption—the less the relative amount of albumen." Runeberg in 1882 expressed similar views when he maintained that the concentration of a colloid filtrate is greater at lower than at higher pressures.

Time will not permit me to wander into this attractive by-path, but I wish you not to allow any advanced physiologist to allure you from the paths of truth. By all means prove all things, but hold fast to that which is good. On this score you cannot do better than adhere to the teaching of Professor Starling, who says: "In fact, we may say that the formation of lymph and its composition, apart from the changes brought about by diffusion and osmosis between it and the tissues it bathes, depend entirely on two factors: (1) The permeability of the vessel wall; (2) the intracapillary blood pressure. So far as our experimental data go, we have not sufficient evidence to conclude that the endothelial cells of the capillary walls take an active part in the formation of lymph. It seems rather that the vital activities of these cells are devoted entirely to maintaining their integrity as a filtering membrane, differing in permeability according to the region of the body in which they are situated. Any injury, whether from within or without, leads to a failure of this their one function, and therefore to an increased permeability, with the production of an increased flow of a more concentrated lymph."

We shall now briefly glance at the capillaries and their functions in some of the principal regions of the body. In order to avoid repetition, I shall here include the minute arteries and arterioles which regulate the supply of blood to the capillaries. These little vessels are anatomically composed of three coats, but according to the function which they have to perform they vary very much in the thickness of the middle coat and in the supply of vasomotor nerves.

The Arterioles and Capillaries of the Skin.

The arterioles are well endowed with muscular fibre and vasomotor nerves, chiefly of the constrictor type; frequently they are so contracted that the capillaries are almost empty, and in cases of local syncope quite empty, and the pressure and velocity fall to zero. When the vasomotor nerves are paralysed from a central cause the capillaries are full, their pressure increased, and the velocity diminished. When paralysed from a local cause—such as a mustard poultice—the capillaries are engorged and the pressure and velocity increased. Witness also the effects following the application and removal of an Esmarch's tourniquet. These little vessels are reciprocal to those of the splanchnic area, are largely concerned in regulating the temperature of the body and in maintaining the general arterial pressure.

The capillaries form an exceedingly close network in the corium and send loops up into the papillae. The pressure and velocity vary enormously. After a liberal meal—especially one containing ingredients which dilate the arterioles, raise the diastolic arterial pressure, and thus provide an abundant supply of blood to, with increased pressure in, the capillaries—there is a free outpouring of lymph. In my opinion, a good deal of the work which has been done on the so-called digestion leucocytosis has been rendered worthless by the work of George Oliver on the tissue-lymph circulation. These observations were made on blood obtained from a prick of the finger, and this consists of a mixture of blood and lymph. The white cells are increased—the increase being in the lymphocytes—in proportion to the dilution with lymph and the red cells are proportionately diminished. If the lymph be compressed out of the tissues and then a drop of pure capillary blood be obtained, there will be found in it an increase of red cells, and the white cells will be much less than in the mixed blood and scarcely any more than would be obtained by an ordinary puncture two or three hours later when the lymph had been reabsorbed. This so-called digestion leucocytosis is therefore no evidence of any increase of white corpuscles in the circulating blood, but merely that lymph has been pressed out from the vessels, and in this lymph there is a considerable number of lymphocytes, probably obtained from the tissues rather than from the capillaries. There is no doubt a digestion leucocytosis, but it is not what has been described.

The Arterioles and Capillaries of the Splanchnic Area.

These arterioles are very muscular and well supplied with vasomotor nerves. These nerves are the chief regulators of the arterial blood pressure. The capillaries are very fine and form an extremely close network. The resistance to the outflow is very slight, except in cases of portal obstruction, hence the velocity is usually great and the lateral pressure slight. This is just what would be expected in vessels where absorption is an even more important function than secretion. Those capillaries which are given off earlier are the largest, and go to supply the secreting structures of the glands, while those which approach the surface of the mucous membrane are much finer, consequently the velocity in them is much greater and the lateral pressure less. This is where absorption takes place.

The Capillaries of the Liver.

The capillaries of the liver are short and wide, measuring 0.5 to 1 mm. in length and about 10 to 13 micromillimetres in diameter. The velocity is often so slow that the liver is of a dull purple colour, and the pressure is relatively but not absolutely high. The liver capillaries are very permeable, and, as has been shown by Professor Starling, give rise to a free secretion of concentrated lymph. This is in accordance with the observations of Runeberg and of myself that the concentration of the filtrate is greater at lower than at higher pressures. Professor

Starling has also shown that the lymph is also increased by any obstruction to the outflow from the hepatic veins. In the large nutmeg livers, induced by positive intrathoracic pressure and regurgitation through the tricuspid orifice, the capillary pressure is increased and the velocity diminished. In the early stages of hepatic cirrhosis, while there is an increased exudation and fibrosis along the portal vessels there is also marked congestion of the central lobules due to cardiac asthenia, dilatation of the tricuspid orifice, and increased venous pressure, the results of chronic alcoholic intoxication. At this period the liver is enlarged from hepatic congestion, and it is only later that the contraction of the newly-formed fibrous tissue leads to diminution in bulk. The liver acts as a reservoir for the right side of the heart.

The Arterioles and Capillaries of the Kidneys.

The arterioles are very muscular and well supplied with vaso-constrictor fibres, and thus while these nerves contribute to raise the general arterial pressure, they protect the capillaries of the glomeruli from any excessive pressure; thus high arterial pressure increases the velocity in the glomeruli, but not necessarily the lateral pressure. The glomeruli are further protected by the endothelial lining of Bowman's capsule, and are not easily permeable to albumen, but readily allow the transudation of water and salts. Moreover, the glomeruli are protected in ordinary circumstances from any backward venous pressure by the second set of capillaries into which the efferent vessels divide. In cases of orthostatic albuminuria there is defective vasomotor action in the whole of the splanchnic area, the kidneys are congested in the erect posture, and moreover the blood is deficient in lime salts as has been shown by Professor A. E. Wright, so the albumen more easily permeates the walls. Here, with the lessened velocity and lowered pressure, the concentration of the filtrate is increased.

The same local conditions occur in a more marked degree in inflammatory disturbances in the kidneys. We have seen that only a fourth or less of the capillary pressure is transmitted directly to the surrounding tissues in which they are imbedded, but in some pathological states the whole brunt of the arterial and capillary pressure is transmitted, and woe betide any organ when this pressure is long continued. In those large, congested, chocolate-coloured kidneys, when the capsule is stretched to its utmost capacity, and the kidneys are nearly twice their normal weight, the transmitted pressure of the arteries and capillaries stops all secretion. The only salvation for such kidneys and their possessor is to freely incise the capsule and kidneys, as has been ably and persistently advocated by Mr. Reginald Harrison. When the pressure is relieved the secretion is at once re-established. This is a purely physical effect, and may occur in any organ where the limits of its expansion are exceeded. I have felt a big spleen pulsating in my hand till I thought it was going to burst; in this case the transmitted pressure was arterial. An inflamed gland often pulsates.

In granular kidneys the glomeruli are further protected by the increased thickness of Bowman's capsule; the velocity is much increased and the pressure only relatively so; the filtrate is bulky but not concentrated. There is nocturnal diuresis because in the horizontal posture, although there is a fall in the general arterial pressure, the arteries of the kidneys are dilated, and the total amount of blood circulating through them increased.

The Arterioles and Capillaries of the Muscles.

The arterioles are supplied with vaso-dilator nerves, and thus these vessels are reciprocal to those of the splanchnic area. The capillaries are arranged in a fine longitudinal network, and readily allow of the transudation of lymph. When there is a rise in the general arterial pressure these vessels are flushed and allow a free secretion. Dr. George Oliver has shown that during the height of the digestive flow of lymph, tension exercises of the muscles do not further raise the arterial pressure. The lymph in the limbs is not concentrated and is readily absorbed.

The splenic vessels are well supplied with vasomotor nerves, and the whole organ seems to have the power of contracting and of thus regulating its own blood supply. Adrenalin has a powerful effect in producing contraction.

The Cerebral Vessels.

The arteries and arterioles have relatively thin walls in proportion to their calibre. The inner coat is well developed; in the middle coat there is a moderate amount of muscular fibre but the elastic tissue is defective; the external coat is attenuated, and ceases before the muscular coat disappears and the arterioles pass into the capillaries. The external coat is composed of connective and white fibrous tissue with longitudinal striation, and there are no elastic fibres. Robin described a lymphatic sheath over the arterioles, which strengthens them and helps to supply the place of the defective adventitia.

These vessels are not very contractile, and take no part in regulating the general arterial pressure. Owing to the stress and strain to which they are frequently submitted they are very liable to atheromatous and calcareous degeneration of the internal coat, and thickening or periarteritis of the external coat; there are also frequently small miliary aneurysms. Physiologists, as a rule, do not admit that these vessels possess any vasomotor nerve fibres, but Dr. Alexander Morison says that he discovered their presence; if so they must be very scanty, and perhaps only serve a trophic function. There is not a very great amount of muscular fibre on which they can act, and adrenalin does not cause any contraction of these vessels, of the coronary, or pulmonary arteries, as has been shown by Schäfer, Dixon, Brodie, and Elliott. The capillaries are small, short, well-supported vessels, which seem to be able to bear a considerable amount of strain, as Leonard Hill has shown that sometimes the pressure may be at zero and at other times when the head is down it may rise to 100 mm. of mercury. This latter condition must however be rather exceptional, as the carotid arteries have great contractile power. Professor MacWilliam has shown that *post mortem* the carotid can be easily made to contract to half its former diameter, and any one can easily satisfy himself as to the great variations which occur in life. Under these circumstances the circulation in the brain becomes largely kinetic, the velocity is enormously increased, but not the lateral pressure. The cerebro-spinal fluid is very deficient in proteid, from which we may infer that under ordinary circumstances the capillary velocity is relatively great and pressure slight. In cases of meningitis the proteid in the cerebro-spinal fluid is increased.

The Coronary Vessels.

The arteries and arterioles which supply the heart closely resemble the cerebral vessels in being thin-walled, rather deficient in muscular fibre, and in having very few, if any, vasomotor nerves. They are also exceedingly prone to atheromatous and calcareous degeneration of the intima. Newell Martin, Roy and Adami, and Alexander Morison have found some evidence of vasomotor nerves, but on the other hand Schäfer, Dixon, Brodie, and Elliott have failed to get any response to adrenalin which acts on all muscular fibre innervated by the sympathetic. The portions of the arteries which are not subject to muscular compression, and which consequently are constantly under the strain of the aortic pressure are very liable to degenerative changes, but the terminal portions of the arteries which are imbedded in muscle are not as a rule much affected. So when a coronary is blocked the heart may be supplied with blood from the venous side. In cases of stenosis of the tricuspid orifice the coronary veins are often much dilated, and form regular sinuses in the cardiac muscles.

The Pulmonary Circulation.

The pressure in the pulmonary artery is not more than one-third and the velocity of the blood about three-fourths of those respective conditions in the aorta; but, unlike the vena cava, the pressure in the pulmonic veins is always positive, so that the blood always enters the left side of the heart under pressure, while it is usually sucked into the right side. There is a gradual fall of the pressure-gradient from the right ventricle to the left auricle, and there does not seem to be much resistance to the circulation either in the arterioles or capillaries.

Bradford and Dean, and François Franck have shown by a series of very elaborate experiments that the pulmonic vessels are innervated; but while such innervation may be sufficient to maintain slight tone in the vessels, the experiments with adrenalin, to which I have before

referred, would show that it cannot constrict the vessels so as to effectively increase the resistance.

The experiments of Lichtheim showed that the greater number of the branches of the pulmonary artery could be ligatured without lessening the input into the left heart or lowering the aortic pressure. But Cohnheim showed that this end was attained by increased work on the part of the right ventricle as demonstrated by the increased intraventricular pressure, and once this ventricle began to fail there was a sudden fall in the input to the left heart, and in the aortic pressure. Any diminution in the pulmonary vessels, such as occurs in pneumonia and in emphysema, increases the work of the right ventricle, but so long as it is able to meet the demand, the circulation is maintained. It is the failure of the right ventricle which is the principal cause of death in pneumonia. The pulmonic arteries are fairly well endowed with muscular fibre, and even after death have a considerable power of contraction so as to drive the blood right on through the capillaries into the pulmonic veins.

If formaldehyde, which firmly clots the blood, be injected down the trachea after death, there will often be found firm thrombi in all the pulmonary veins, but not in the pulmonic arteries. It is therefore highly probable that any nerves which the pulmonic vessels may possess merely maintain the tone of the vessels or have a trophic effect. In cases of mitral stenosis the intrapulmonic tension is raised throughout, and atheromatous changes are as common in the pulmonic veins as in the arteries.

Respiration renders great assistance in carrying on the circulation to the right side of the heart, and to a less extent to the left; that the assistance extends to the whole circulation is shown by the fall in the arterial pressure which occurs at the beginning of inspiration. In the so-called *pulsus paradoxus* (there is no paradox, but merely an exaggeration of a perfectly normal phenomenon), and in Müller's experiment of expanding the chest with the glottis shut, the pulse may disappear at the wrist. This is due to the sudden emptying of the veins to fill up the vacuum in the chest, and with this removal of the obstruction to the capillary flow there is a simultaneous depletion of the arteries. It is not due, as has been supposed by Kussmaul, to any kinking of the large vessels, nor to any sucking back of the blood into the aorta as has been imagined by those who seem to have forgotten that the pressure in the aorta is always high and cannot be affected by a negative pressure in the thorax. It is due to a certain fall in pressure affecting the veins, capillaries, and arteries, and it is most marked in cases of low arterial pressure. When the arterioles are much contracted and the arterial tension high, as in cases of Bright's disease, it does not occur. The lungs form a blood reservoir for the left side of the heart, and during this expansion the reservoir is increased and has to be filled up before the left side of the heart is sufficiently well supplied with blood to enable it to throw the proper quantities into the aorta at each systole; the arteries are therefore emptied at their distal end and not filled at their proximal end and so the pulse disappears until an equilibrium is restored. I recently had a very good example of this in a case of bradycardia under my care where the frequency of the pulse varied from twelve to twenty-four beats in the minute.

When Dr. John Hay, and my house-physician, Dr. Jones, were taking cardiographic and sphygmographic tracings I found that when the patient took a long deep breath and then held his chest expanded as long as possible, the following events occurred:

During the deep inspiration there were two beats of the heart and two pulses at the wrist, then the pulse disappeared in the carotid, brachial, radial, and femoral arteries, and remained absent for several beats. At the same time the impulse of the heart disappeared, and the clear loud first sound and systolic murmur were replaced by a low, dull-toned, obscure sound, and the second sound was not audible. After four or five faint systoles, which I attributed to the right ventricle, the clear first sound and systolic murmur, and the double second sound reappeared and were associated with a return of the pulse in all the arteries. Here undoubtedly the blood was stored up in the lung reservoir, and the proper systoles of the left ventricle and the pulse in the arteries did not reappear until the reservoir overflowed. He had several attacks of semiconsciousness and one slight epileptic seizure during the periods of suspended breathing with the chest expanded. These attacks always occurred after the pulse had ceased for about twenty seconds.

In 1904 Dr. George Oliver gave a great stimulus to the study of the peripheral circulation by the publication of his admirable work on the tissue-lymph circulation. He showed that during the first hour of digestion there was a rise in the blood pressure—arterial, capillary, and venous—with a flow of lymph into the tissues; during this wave there might be a difference of 10 to 20 per cent. in the number of erythrocytes and haemoglobin between the mixture of blood and lymph obtained by a simple prick of the finger, and that of the pure capillary blood obtained from the same prick after the lymph had been compressed out of the finger.

He also showed that the same extracapillary lymph flow occurred in the muscles and prevented any further rise in the arterial pressure from tension exercises. His observations led him to the following conclusions: "(1) That the food constituents themselves (proteids, fats, and carbohydrates) do not possess the power of starting the mechanism by which lymph is dispensed to the tissues through the body. (2) That Nature, however, associates with our foodstuffs small quantities of very active substances which bring into play that mechanism, though these substances themselves are practically devoid of food value, and that man frequently increases this natural lymph by the use of salt and beverages containing bodies which also incite the flow of lymph. Such bodies as uric acid, creatin, creatinin, xanthin, glycogen, and sodium chloride perform an important function in nutrition, for during digestion they act as distributors of lymph to all the tissues—an office which the nutrient constituents themselves (proteids, fats, and carbohydrates) are incapable of discharging."

Dr. Oliver associated the action of these lymphagogues with a rise in capillary blood pressure, but in 1891 Heidenhain had ascribed the action of such agents to a specific excitation of the secretory activities of the endothelial cells. We have before referred to the careful experimental work of Starling in 1893, by which he refuted the conclusion of Heidenhain and re-established the doctrine of filtration under pressure.

From not clearly recognizing how the *vis viva* is very variedly compounded (in the arteries, capillaries, and veins) of pressure and velocity, very many have had great difficulty in giving a satisfactory explanation of capillary filtration under pressure. They assume that the capillary pressure always stands somewhere between the arterial and venous pressures, and therefore when these two pressures are high so also should the capillary be high. We know that when a person is standing the arterial and venous pressures in the foot are higher than in any other part of the body, and therefore according to this view the transudation should be greater, and we should have constantly more or less physiological oedema of the feet and ankles. Dr. George Oliver explains its absence by accepting the dictum of Starling that the capillaries are less permeable. No doubt the support, protection, and permeability, especially if they be damaged, of the capillaries vary in different parts of the body. The capillaries of the lungs and kidneys are well protected and not readily permeable to albumen. The capillaries of the limbs are more perfect and less permeable than those of the liver. The capillaries of the foot may be less numerous and better supported than those of the hand, but to assume that they are less permeable is a gratuitous assumption without a shred of evidence in support of it. The error arises from the assumption that the capillary pressure must be always higher than the venous. The energy always is, but not necessarily the pressure. I have shown that the capillary pressure in the foot may be less than in the nose; why, then, conjure up the unproven factor of lessened permeability?

The pressure in the capillaries is usually higher than that in the veins because their sectional area is greater and there is greater friction, but if the arterioles be much contracted, a tenth or even a twentieth of the capillaries may not be filled with blood, and the sectional area of those may fall even below that of the vessels collecting the blood.

When a person is standing the venous pressure in the foot is raised, but so also is the arterial. Supposing under the circumstances you have a venous pressure in

the foot of 100 mm. of mercury obstructing the capillary flow, and an arterial pressure of 300 mm. of mercury, you have a difference of 200 mm. of mercury driving the blood through the capillaries with great velocity and very little lateral pressure. If, then, the subject assume the horizontal posture, and raise the foot till the venous pressure be *nil*, there will be a corresponding fall in the arteries of 100 mm. of mercury, but there will still remain the same difference between the arteries and veins of 200 mm. The following physical experiment readily explains this question of pressure and velocity. If you construct a U-shaped tube out of india-rubber tubing, having both the limbs very wide, and a short connexion made of very fine tubing, then make a small hole in each of the three pieces, and connect one of the limbs with a water-tap, you will then find that the water comes out in a forcible jet from the hole in the proximal limb or artery, with less force from the hole in the distal limb or vein, but from the hole in the capillary there is no escape; the energy in it is all converted into velocity. If you compress the vein, then you raise the lateral pressure in the capillary and thus cause an escape. In the healthy individual the arteries of the lower limbs are firmly contracted, and although the pressure is high the mass of blood on which it acts is relatively small, and consequently the energy in the capillaries is largely converted into velocity. In proportion as you obstruct the outflow from the capillaries you increase the lateral pressure and diminish the velocity in them, and consequently increase the transudation. In cases of vasomotor paresis and in cases of cardiac failure the mass of blood in the capillaries of the dependent limb is augmented, the pressure is increased, and the velocity is diminished; consequently you get oedema.

THE VEINS.

The veins are smooth, capacious vessels, which practically offer no resistance to the circulating blood. They contain a certain amount of muscular fibre, and are supplied with some vasomotor nerves, which maintain their tone and to some extent regulate their capacity. The great strength of the veins depends on the strong fibrous external coat. They are slightly elastic and attain their maximum distension at a low internal pressure; in this respect they differ essentially from their corresponding arteries. The veins have very flaccid walls, and consequently readily adjust their cubic space to the amount of blood in transit. It has been shown by MacWilliam and by Leonard Hill that veins contract on mechanical stimulation or by cold, and dilate by heat. The coefficient of elasticity increases with the internal pressure.

THE PRESSURE IN THE VEINS.

The lateral pressure in the systemic veins depends on three factors which it would be well to consider separately: (1) The obstruction to the inflow to the chest; (2) the hydrostatic effect of the column of blood; and (3) the potential energy transmitted through the capillaries.

1. During inspiration there should be a negative pressure of a few millimetres of mercury in the systemic veins in the chest, and from this there is a gradual rise till you reach the smallest vessels collecting the blood from the capillaries, and of course the pressure in these vessels will largely depend on the hydrostatic pressure due to their posture. During expiration there is a positive pressure in the veins of the chest, and this is further increased when there is any obstruction in the lungs such as arises from emphysema, pneumonia, or bronchitis, or in the heart as may arise from pulmonic or tricuspid obstruction or regurgitation, pericarditis with effusion, cardiac failure, etc. This obstruction tells backwards throughout the whole venous system to the capillaries, but its effects are more immediately felt in the liver, and it often gives rise to transudation into the pleural sacs. In epileptic or tetanic convulsions there is great obstruction to the entrance of blood into the chest, while the high arterial pressure keeps the lungs engorged by damming back the blood, drives the blood on through the capillaries, and thus raises the venous pressure.

2. The effects of the hydrostatic pressure in the veins of the limbs would be very great only for the fact that they are well supplied with valves, and the muscular compression of the vessels drives the blood onwards, thus lowering the venous pressure and diminishing the obstruction to the outflow from the capillaries. If there be a negative pressure in the chest the venous pressure at the level of the vertex should be practically *nil*. Therefore, when the body is in the horizontal posture and the foot raised to the level of the head, the pressure in the veins of the dorsum of the foot may be at zero, but when a person with large varicose veins and defective valves in the veins of the lower extremity is erect the pressure in the dorsum of the foot may rise to over 100 mm. of mercury.

3. The pressure transmitted by the blood moving through the capillaries. This is a very variable quantity, and largely depends on the amount of blood and the energy which it retains in its passage from the arteries through the capillaries. If the quantity be great and the capillary pressure high the venous pressure is raised, but if the quantity be small and the velocity great in the capillaries the blood in the veins may still retain much of its kinetic energy. In the veins the viscosity of the blood and the friction against their walls are practically negligible quantities. The energy of the blood in the veins is also variously compounded of pressure and velocity; the greater the obstruction to the flow into the chest the greater the pressure and the less the velocity; and the greater the freedom in the flow the more is the *vis a tergo* converted into velocity.

In the portal vein the pressure is always positive, and in this respect it resembles an artery.

VELOCITY IN THE VEINS.

The blood in the veins is one of the very few things which runs more quickly up the hill than it does down it. The velocity depends on the *vis a tergo* and varies enormously; in the veins of the arm it is frequently five times greater when the arm is hanging than when it is held horizontally at the level of the shoulder. The velocity is calculated by emptying a long piece of vein between two valves, and then timing with a stop-watch the period it takes the blood to fill the empty vein. I have seen 23 cm. of a vein in a dependent arm filled in 0.2 of a second, or a velocity of 115 cm. in the second, a velocity as great as often occurs in the aorta. As in this case viscosity and friction can be left out of account, the only resistance to the flow was the retarding influence of gravity which can be easily calculated.

The resistance would just equal the accelerating influence of gravity on a body falling *in vacuo* through a height of 23 cm., and from the formula $V = \sqrt{2Gh}$, we know that this would equal a terminal velocity of 2,100 mm. per second. This is equivalent to a pressure of 230 mm. of blood and equals the resistance, but in order to attain a velocity of 1,150 mm. in the second over and above the resistance of gravity, we must have a pressure which would give a velocity of 3,250 mm. in the second, which would be obtained by the pressure of a column of blood of 530 mm. in height. The pressure-gradient in these 23 cm. of vein would, therefore, be a fall from 530 to 300 mm. of blood, or from 40 to 23 mm. of mercury. This calculation was borne out by observation with a haemometer. In these calculations mercury is reckoned as thirteen times heavier than blood. Where the resistance is *nil*, a pressure-gradient of 5 mm. of mercury in a vein will give you a velocity of 1,120 mm. in the second. These observations show how kinetic and potential energy in every part of the circulation is constantly varying.

THE ARTERIES.

It would be quite out of place to this audience and to the larger audience which I hope to reach, to describe the constitution of the arteries, but for the clear comprehension of the physics of the circulation it is rather important to emphasize some difference between the aorta and its branches. The aorta and the commencement of its principal branches differ from those of smaller calibre in the enormous amount of elastic and white fibrous tissue which almost completely replace the muscular layer of the middle coat. The external coat is very strong, and is composed of white fibrous tissue and longitudinally disposed elastic fibres, while the internal coat, like that of the other arteries, is divisible into three structures. When we pass down to the small arteries and arterioles,

the muscular layer is relatively better developed, and the external tunic gradually lessens, and before the capillaries are reached finally disappears.

The constitution of the respective arteries depends on the functions which they have to perform. The arteries, especially those of large size, are well supplied with nutritive vessels, the *vasa vasorum;* and, with the exception of those previously specified, are richly endowed with vasomotor nerves; and it is largely due to this influence that the arterial tone is maintained.

As the blood leaves the heart its energy is largely kinetic, and therefore there must be very little lateral pressure at the commencement of the aorta during ventricular systole, but if the aorta be healthy a large portion of this energy is rapidly stored up in the elastic walls as potential which is paid out during the diastolic period, and then the blood is compressed with a force nearly equal to that which it exercised, and this applies to all portions, including the commencement.

The velocities of the blood in the aorta and pulmonary artery vary considerably in different individuals, and in the same individual under different conditions. The velocity is directly as the cardiac energy and inversely as the resistance to the outflow and the sectional area. The force of the right ventricle is not a third of that of the left, but the resistance is also not a third of that in the systemic vessels; the sectional area is only slightly greater, therefore the velocity in the pulmonary artery is nearly equal to that in the aorta.

In my opinion physiologists place too low an estimate on the velocity of the blood in the aorta, though no doubt their conclusions are based on many careful experiments, but experiments very difficult to carry out and very liable to great fallacies. Chauveau found that the velocity in the carotid artery of the horse reached 520 mm. per second during systole, while at the time of the dicrotic wave the velocity sank to 220 mm. per second, and in diastole to 150 mm. per second. In the human aorta the mean velocity has been set down as 320 mm. to the second, while Professor Sherrington is a little more liberal with 500 mm. Now, a fall in the pressure-gradient in the aorta from 100 to 80 mm. of mercury gives you a theoretical velocity of 525 mm. per second. It seems to me that with this easy-going circulation a kind of perpetual motion ought to be set up, and you should live to the age of Methusaleh before your arteries were worn out. However, there would be the disadvantage of this theoretically perfect circulation in the present day, that you would be more easily hustled out of existence, and the only consolation would be that your relatives would know that, although you ceased to exist, there was nothing the matter with you.

You must bear with me while I explain these questions of velocity and pressure in the aorta, because a clear comprehension of them is essential for any true knowledge as to how stress and strain produce atheromatous and sclerotic changes in the vessels.

There is no more important subject in the whole domain of medicine, as, after the age of 50, arterio-sclerosis, directly or indirectly, kills more people than any other disease.

As the semilunar valves open the blood has acquired its velocity head, and then the actual velocity depends on the energy or effective head minus the resistance to the outflow; in the aorta the viscosity of the blood can be left out of account. The velocity between any two points depends not on the pressure but on the difference in the pressures. In a healthy aorta the energy is rapidly stored up in the elastic walls during systole and paid out during diastole, thus making the pressure and velocity more or less uniform. The most perfect circulation is one with a small difference between the systolic and the diastolic pressures—a moderately low systolic and a relatively high diastolic pressure in all the arteries. The systole of the ventricles gives out the energy during a third of a cardiac revolution, and the perfection of the circulation depends on the disposal of that energy not only during the time that it is given out, but also in the interval between the systoles. The diastolic pressure is more than sufficient to overcome all the resistance in the circulation; if it were not, the circulation in the main arteries would come to a standstill towards the end of the diastole. You can therefore look upon the difference between the systolic and diastolic pressures as that part of the energy which is not stored up in the walls of the arteries and which is engaged in producing velocity. I usually think that when this difference exceeds 40 mm. of mercury there is something wrong with the elasticity of your aorta and it is about time that you began to think about repairing the damage. Now we have seen that a pressure-gradient of 5 mm. of mercury in a vein without any resistance would give you a velocity of 1,120 mm. in the second, but in an artery, in order to get a velocity of 1120 mm., you require a fall in the pressure gradient from 150 to 100 mm. of mercury. With a pressure of 150 mm. and a resistance of 120 mm. of mercury to the outflow you get a velocity of 640 mm. in the second. With this velocity there is no excessive longitudinal strain on your vessel, and provided the lateral pressure in the aorta does not exceed 150 mm. of mercury the elasticity of the vessel may be preserved till old age. This ideal is not often realized.

When you get a continuous lateral pressure of 200 mm. of mercury or more there is no period of repose for the vessels, but merely periods of greater or less distension; there is interference with the circulation in the nutritive vessels, the *vasa vasorum;* you get irritative and proliferative changes in the subendothelial layer of the intima, atheromatous and perhaps calcareous degeneration follow, and the elasticity of the aorta becomes impaired. Oskar Klotz says that all the aortas examined by him coming from persons over 25 years of age showed more or less calcareous change in the aortic wall. In proportion to the loss of the elasticity the energy of the heart is not stored up, and with the loss in the conservation of energy the heart has got more work to do in order to carry on the circulation, and a great disparity arises between the systolic and diastolic pressures.

In these cases the immediate resistance to the outflow from the heart is not increased, but the total work is greater, the diastolic pressure in the heart rises, and the ventricle dilates and hypertrophies. The output is increased, the velocity is increased, and longitudinal straining—especially along the greater curvature of the arch of the aorta—takes place. You may now get a difference between the diastolic and systolic pressures of 120 or 130 mm. of mercury or more. With a systolic pressure of 250 mm. and a diastolic pressure of 120 mm. of mercury you would have a velocity of 2,450 mm. in the second, which would be chiefly expended during the systole. This gives rise to a marked recoil of the heart at the end of the systole, and to negative and positive waves in the circulation which obstruct one another. When failure begins to set in, you may find the force of this big powerful organ which shakes the whole chest only poorly represented at the periphery. In these cases the storage is defective, the pressure and the velocity are more or less intermittent, and there is an enormous waste of energy. In cases of very free aortic regurgitation the difference in the pressure gradient, and consequently in the velocity, is often very great, the cardiac hypertrophy becomes extreme, and subsequent failure rapidly takes place.

This question of storage forms an important element in prognosis, and for this reason aortic regurgitation occurring early in life from a rheumatic lesion when the aorta is fairly healthy is, *caeteris paribus*, very much less serious than a similar lesion arising secondary to degeneration of the aorta. If there be any elasticity left in the aorta and principal branches, there is an advantage in aortic regurgitation in maintaining a relatively high diastolic pressure, because you thus make circulation more uniform, and you do not necessarily raise the systolic pressure or increase the work of the heart. For these reasons well-regulated doses of digitalis and squill often do an enormous amount of good in this disease, notwithstanding the fact that many well-recognized authorities have entirely condemned the use of digitalis in aortic regurgitation, possibly because they did not know how to use it.

While a combination of these drugs increases the peripheral resistance—which is an advantage if moderate in amount—they lessen the size of the ventricle, increase the length and completeness of contraction, diminish the residual blood, and thus lower the diastolic pressure in the ventricles. In estimating the condition of the aortic wall in these cases some valuable evidence is furnished by the ear, because if there be any delay in the transmission of the pulse wave the aorta is still fairly elastic. You must always be careful to distinguish between the

velocity of the blood and that of the pulse wave. With the former, the greater the resistance, the higher the diastolic and the lower the systolic pressure, the less the arterial velocity of the blood; but in the case of the pulse wave, the greater the resistance, the higher the diastolic pressure, the more rigid the arterial wall, and the greater and more rapid the energy of the ventricle the quicker the transmission. The rigidity of the arterial wall may either depend on the atheromatous and calcareous degeneration with loss of elasticity, or on an increase in the coefficient of elasticity due to high blood pressure; in both cases the velocity of the pulse wave is increased. The velocity of the blood in the smaller arteries is inversely as the cross section, and need not here further detain us, as it will be best considered with the pressure-gradient. In the present day it is a very common, and occasionally beneficial, practice to combine cardiac tonics with vasomotor relaxants, such as digitalis and nitro-glycerine, but before combining opposing forces I think it is always well to have a clear indication in your mind as to the objects which you wish to accomplish, and the results which are likely to be attained. The circulation of the blood is one of the most perfect pieces of mechanism in the universe, and no amateur should be trusted to keep it in repair, yet American and English people pour tons of baneful drugs down their throats every year on the recommendation of advertising quacks, who care nothing for the lives and health of the community, and care for nothing but their money.

Arterial Blood Pressure.

During recent years an enormous amount of literature has been devoted to what has been euphemistically described as blood pressure. To much of this I do not wish to refer, and I have no time to devote to the really valuable contributions. With one of the numerous blood-pressure instruments on the market it might seem a very simple matter to make an observation, but it must be remembered that it is not the instrument, but the man behind the instrument, who makes or mars the observation.

The arterial pressure at the level of the heart depends on the force of the cardiac systole and the resistance to the outflow through the arterioles and capillaries. With a healthy heart or self-regulating pump the greater the resistance the greater the force of the cardiac contraction, and consequently the higher the lateral pressure on the walls of the arteries. If the resistance be too great, we may get cardiac failure, and then the pressure falls. A long-continued great resistance increases the work of the heart, and work leads to hypertrophy, which maintains the pressure at a high level. In a healthy aorta the coefficient of elasticity increases with the internal pressure, but long-continued strain impairs the elasticity and leads to degenerative changes in the intima.

Roy considered that the maximum distensibility of an artery occurred under pressures corresponding, more or less exactly, to their normal blood pressure, but since then Professor MacWilliam has shown that this is an error due no doubt to Roy unwittingly using arteries in a state of *post-mortem* contraction. MacWilliam has shown that the behaviour of an artery under varying degrees of internal pressure depends on the state of contraction or relaxation of the vessel, and on the relative amount of elastic and muscular tissue. A strongly contracted muscular artery resists internal pressure, and the maximum distension does not occur until very high pressures are reached, while in a completely relaxed artery and one containing very little muscular fibre, the increase in volume is greatest at low pressures. Similar conclusions were deduced from his experiments on the pulsatile expansion of arteries.

"In the intact arteries of men and animals there would be much less pulsatile expansion in a contracted artery than in a relaxed one; and in a relaxed artery expansion would be very much more extensive when the mean blood pressure is low. Further, elongation would occur markedly in the relaxed artery as compared with the contracted one. And when a long stretch of artery is concerned the increase in length is very much greater than the increase in transverse diameter."

I have arrived at the same conclusions from my observations on the pressure-gradient; wherever there is relatively a great disparity between the systolic and diastolic pressures you get marked expansion in the arteries; when the arteries and arterioles are very relaxed and the diastolic pressure low, as in the hyperdicrotic pulse, you get extensive expansion; but even under these conditions if the systolic output be slight the expansion is not great, so we are driven back to the conclusion that even in a relaxed artery the amount of expansion depends on the fall in the pressure-gradient. In very contracted arteries, which are usually associated with high blood pressure, the fall in the pressure-gradient is slight and the expansion is slight. Again, I observed that a contracted artery, no matter how high the internal pressure, does not become tortuous. On the other hand, tortuous arteries are always more or less relaxed, and there is a great difference between the systolic and diastolic pressures. In these arteries there is a want of muscular tone, there is a waste of energy, they are badly nourished, their walls become thickened, the muscular tissue wastes and is partly replaced by fibrous or even calcareous material. This is the condition which has been termed by Clifford Allbutt the involutionary form of arterio-sclerosis, but it is involutionary in development and is primarily due to want of muscular or vasomotor tone.

When a person is in the horizontal posture there is still the same pressure-gradient between the systolic and diastolic pressures, and in all the arteries of the limbs these respective pressures are about similar levels. The postural variations in pressure have been thoroughly investigated by Leonard Hill and placed on a true scientific basis. These variations are of importance not only from a physiological but also from a pathological standpoint. In arterio-sclerotic changes the arteries of the lower limbs are most involved, notwithstanding their muscular development and good vasomotor nerve supply. These arteries take part in raising the general arterial pressure, and are also subjected to additional internal strain from the statical pressure of the blood; hence both the middle and internal coats are involved in the sclerotic changes.

In arterio-sclerosis the middle coat is chiefly thickened in the muscular arteries and arterioles which take part in raising the general arterial pressure, such as those of the splanchnic area, the skin, and muscles; while in those arteries which are not very muscular and are subjected to internal strain from both high systolic and diastolic pressures the intima is principally involved. Hence atheroma and calcareous degeneration are very common in the aorta and in the commencement of its branches, and in the coronary and cerebral arteries. The carotid arteries seem to occupy an intermediate position; they are muscular and very contractile, and are not specially liable to sclerotic changes either in the intima or the media.

In my writings on arterio-sclerosis I entered very fully into the numerous causes which give rise to this disease, and the pathological aspect of the subject has been well investigated by Councilman, Cowan, Russell, Welch, and a host of others. A life of indolence and luxury is more deleterious to the circulation than the work of a navvy. I must not be supposed as recommending either course of life, but a happy mean with a strong leaning towards hard work. Sir Lauder Brunton and Dr. F. W. Tunnicliffe showed that after the cessation of muscular contraction the intramuscular arteries dilate and thus lessen the resistance. Athletes who have had great muscular training retain very healthy peripheral vessels, but are liable to atheromatous changes in the aorta, and cardiac hypertrophy with subsequent degeneration.

Where there is continued high arterial pressure, especially high diastolic pressure such as occurs in chronic granular kidneys, you get general arterio-sclerosis, but the lesion is more local when the high pressure is intermittent. Women have not got the continued physical strain of men, but they are very liable to sudden increases of blood pressure from emotional causes which chiefly act on the splanchnic area, hence in them the aorta suffers more than the peripheral vessels. It is like the effect of suddenly turning a stopcock in a water-pipe connected with the main supply: it is the larger pipes which get the chief stress. We are not now allowed to put such a tap in a main water-pipe, but it is rather more difficult to legis-

late for the vasomotor system in an emotional individual. In many of these women the arch of the aorta becomes considerably dilated and the walls thin.

In assuming the erect posture from the horizontal there is not only a rise in the arterial pressure below the heart level but a fall in the arteries above, and to prevent the blood from the upper part of the body gravitating into the capacious vessels of the abdomen, the regulative vasomotor mechanism contracts the splanchnic area, and so raises the mean arterial pressure, thus syncope is obviated. There are many cases, such as Addison's disease, where there is defective action of the vasomotor nerves, perhaps from lack of their usual stimulus—adrenalin—the splanchnic vessels do not contract, and the patient cannot maintain the erect posture. In the so-called cardio-splanchnic paresis of Albert Abrams, and in cases of orthostatic albuminuria, there is a defective action in the splanchnic area, but the vessels of the skin and muscles contract and make a feeble attempt to compensate for the want of tone in the abdominal vessels. In these cases the systolic pressure is low, but there is an even greater fall in the diastolic pressure.

The Heart.

No survey of the circulation would be complete without a reference to the self-regulating pump. The heart is composed of two physiologically distinct organs—the right and left heart. Each has got its own varying amount of work to perform, and it, under normal circumstances, performs it without any assistance from the other, but in cases of stress or difficulty they mutually assist one another. They act together, and are set to the same time, but this does not prevent one side from beginning or ending contraction before the other, and so much so is this the case—and they are at least to this extent independent—that doubling of both sounds of the heart is one of the most common of cardiac phenomena. In a healthy heart, both sounds are usually doubled every deep respiration.

Ladies and gentlemen, I have said enough to show you the necessity of a well-balanced circulation for the maintenance of life and health. It is only with healthy blood vessels that any one can hope to retain his mental and bodily vigour, and expect to attain a green old age.

Like the circulation, let us run with patience the race which is set before us. "Life every man holds dear, but the brave man holds honour more precious dear than life."

Address in Surgery

DELIVERED AT THE

SEVENTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION,

BY

SIR VICTOR HORSLEY, F.R.C.S., F.R.S.,

LATE CHAIRMAN OF THE REPRESENTATIVE MEETING OF THE BRITISH MEDICAL ASSOCIATION; SURGEON TO UNIVERSITY COLLEGE HOSPITAL, AND TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN SQUARE.

ON THE TECHNIQUE OF OPERATIONS ON THE CENTRAL NERVOUS SYSTEM.

[*With Special Plate.*]

In considering in what way I could best fulfil the extremely honourable and at the same time responsible duty of delivering the Address in Surgery on the occasion of such a meeting as this, it occurred to me that exactly twenty years had elapsed since I showed at the Annual Meeting of the Association at Brighton the first three patients upon whom I had operated at Queen Square Hospital for intracranial disease. Many of what were then regarded as special points in the technique of operations on the central nervous system are now, thanks to the work of surgeons in every part of the world, household words. The principles then advanced were chiefly based on experiments on animals. During the past twenty years further experimental research on animals and clinical observations on human beings have confirmed and extended the general soundness of the broad principles underlying the treatment then proposed.

I intend, therefore, to-night to analyse my cases at the National Hospital, Queen Square, and facts which we have gained therefrom since 1886, while from my experience at University College Hospital and in private practice, I shall only quote such cases as are unique, or particularly demonstrate certain points.

The considerable interval of time which has elapsed since the Brighton meeting has also permitted of such an accumulation of facts that important questions of diagnosis and prognosis, which were matters of much doubt in 1886, can now be more readily answered. In fact, the advance in technique of the surgical treatment of diseases of the brain and the spinal cord has been relatively less than the improvement in our knowledge of the seat and nature of the diseases for which surgical intervention is useful and necessary.

Correct diagnosis in diseases of the nervous system is still far to seek, and yet operative treatment in such a difficult field is often expected to yield as good results as the relatively easier and simpler work of curing herniae or removing abdominal tumours.

It will soon appear of what immense importance it is to the community that the study of neurology should be pushed forward by every means in our power in order that the earliest commencement of a tumour of the brain should be determined as certainly as that of one nearer the surface of the body. The International Commission for the advance of this branch of science, which owes its inception to the great German anatomists, Professor Waldeyer and the late Professor His, will, it is hoped, have a co-ordinating and fostering influence on the work.

But the twenty years of medical and surgical work which have passed have done more than improve our topographical knowledge of the probable seat of encephalic lesions, they have taught us from the operating theatre what previous generations had never learnt in the *post-mortem* room—namely, a great deal of the vital pathology and true anatomical nature of brain disease. How often we see the nature, structure, and treatment of cerebral tumours discussed on the basis of such growths as are seen at autopsies, that is, when they have reached such a maximal degree of development as to have caused death! (See Figs. 13 and 14, Plate 3.) *Post-mortem* records can never teach what the careful study of the living tumours exposed in an operation can demonstrate, since in almost every case the former condition is practically what we may term inoperable.

I must first briefly allude to the responsibility of the surgeon in the treatment of diseases of the central nervous system. As in all special branches of medicine and surgery which are in a process of evolution, it is not easy to assign credit or blame when the course of treatment pursued is respectively successful or unsuccessful; but so long as our powers of diagnosis remain as imperfect as they are so long will the vulgar error of regarding surgical treatment as a *dernier ressort* be committed. This question, namely, When should medicinal treatment be given up and operative treatment substituted? has been raised again and again and hotly discussed in connexion with many diseases, notably appendicitis.

In 1890, hoping to secure a more logical and definite pronouncement on this fundamental point at the International Medical Congress, I proposed that in cases of Jacksonian epilepsy and other syndromata which suggested the existence of gross organic disease of the brain, a definite probationary period of medicinal treatment should be agreed upon, and that in an elementary case where no urgent symptoms like optic neuritis existed surgical treatment should be employed after thorough drug medication* had been energetically applied for about six or eight weeks and cure had not appreciably resulted. No conclusion, however, was arrived at.

Again, in 1893 I was unable to get an expression of opinion on this point, although Dr. Allan Starr, in his well-known work on *Brain Surgery*, had also formulated the conclusion that the surgeon should be invited to consultation in the case after about three months' medical treatment had been unsuccessful. Although such a course is in general the practice at the Queen Square Hospital, this view of the situation unfortunately has not yet been discussed in the profession. Even in the present year I

* Practically such drug treatment means mass treatment with the iodides, combined or not with mercury.

have been asked to operate on a patient with a lateral tumour of the cerebellum who had been known to have optic neuritis for nine years, and last year I did operate on such a patient who had been known to have optic neuritis for thirteen years.

As the opportunity of seeing the disc under such conditions is rare I append a photograph (Fig. 1, Plate 2) of the fundus in this case. It is of course perfectly ridiculous to include such cases in surgical statistics purporting to be a scientific study of this subject, and I only mention them to show what extraordinary ideas still prevail of our responsibility towards the victims of diseased conditions when such happen to constitute what are termed new subjects in medicine and surgery.

Assuming now that in a given case surgical treatment is considered advisable, the question immediately arises for what precise purpose is it to be employed, for all treatment, medical or surgical, is either palliative or curative. These two aspects of the matter require separate consideration.

Palliative Surgical Procedures.

It is a prominent characteristic of intracranial disease that (1) it is liable to produce optic neuritis, which customarily ends in total blindness; (2) it may concomitantly cause severe headache and vomiting, all of which symptoms are dependent upon pressure, and can be completely palliated or wholly removed by making a sufficiently free opening in the skull and dura mater.

The first of these, namely, optic neuritis, is a condition which, owing to its causing blindness, is of such vital importance to the interest of the patient, and so to the community, that it merits full attention. In 1886 its pathological causation was a matter of acute controversy, but we learnt by a very few years of operative surgical experience that, whatever other factors might be concomitant, the most important one in the production of optic neuritis was increase of the intracranial tension, and thus it happened that our earliest experience was the strikingly rapid subsidence of the optic neuritis when the skull and dura were opened. Therefore it is now possible to dogmatize on this question, and to say that in no case of optic neuritis (not of course of toxaemic or anaemic origin) should the process be allowed to continue after it has once been diagnosed, and that if blindness results therefrom the responsibility is very heavy on any one who fails to advise such a simple proceeding as opening the dura mater. The gravity of this responsibility does not seem to be generally recognized, and it is owing to this as well as to the backward state of neurological diagnosis that melancholy cases such as the following occur. A. B., lady, married, developed symptoms of cerebral tumour with acute optic neuritis, and was told by a neurologist that nothing could be done surgically. Subsequently, and after some treatment with the iodides, the neuritis subsided into complete atrophy and blindness, while the cerebral lesion gradually retrogressed. When the patient came under my observation in the spring of this year, her physical condition was apparently perfectly normal except the permanent loss of sight. This calamity would have been wholly avoided by operating to relieve the optic neuritis, even if nothing further had been attempted to deal with the lesion itself.

As regards the procedure to be adopted, my own experience is that although in rare instances the neuritis may begin to subside after even the first stage of only opening the skull, it is, as a rule, necessary to make a free opening in the dura mater to effect this purpose. One reservation must be made, that in cases where the tumour directly involves the optic tract, the specially delicate anatomical structure of the optic tract may negative the attaining of this otherwise invariable result.

In predicting what will be the condition of vision after surgical treatment of the optic neuritis, everything depends upon the care with which the ophthalmoscopic appearances of the disc are interpreted. Yellowish-white stippling, patches of exudation, or opal white atrophic changes, especially when associated with macular figures, all indicate that the secondary changes in the disc are likely to be permanent, and, therefore, in proportion to their development so the vision will be impaired, whereas when the loss of vision has been dependent simply on the swelling of the disc, then not only is the sight saved but largely improved. For some further discussion of this most important point from the point of view of the ophthalmologist, I would refer to Mr. Leslie Paton's recent analysis of the Queen Square cases which contains many of the results of my operations.

One more point must be mentioned in connexion with optic neuritis, because although of more importance in diagnosis than technical procedure I find it is of the utmost value in indicating to the surgeon on which side he should operate. I refer to the localizing value of the incidence of the optic neuritis. Varying statements have been made on this subject from time to time, namely, that (*a*) the optic neuritis begins on the side of the lesion, (*b*) that it begins on the side opposite to the lesion, (*c*) that sometimes one thing happens and sometimes the other according to the position of the lesion in the skull, for example, whether above or below the tentorium and according to the nature of the lesion. I wish to lay down the position drawn from an examination of my own cases of intracranial tumour that the optic neuritis commences on the side of the lesion (see Fig. 2, Plate 1). I am quite aware that true exceptions may yet be found to this rule, but I would point out that some of the exceptions hitherto described have not been real, that in any given case it is not a question merely of the number of dioptres of swelling of the disc, but it is also a matter of the anatomical changes in the disc, and finally that by the time the patient comes under observation the disc on the side of the lesion may be actually subsiding into decadent conditions at a time when the opposite disc is rising into its maximal swelling.

To sum up, then, during the past twenty years we have learnt that although the old procedure of de Wecker of incising the swollen sheath of the optic nerve in the orbit is of no avail, we can with certainty avert blindness by opening the subdural space early in cases of intracranial disease. [Preferably in the basal temporal region of the right side, that is, assuming that no attempt is made to attack the disease itself.]

Curative Surgical Procedures.

If the operation is undertaken for the purpose of effecting a cure we have to consider (1) what is the nature of the disease, (2) what loss or aberration of nerve function it causes, (3) whether if the lesion be wholly extirpated there will be a recovery from the disorder of function, and (4) whether any loss which may have been present before operation will be made permanent by the necessary extirpation of particular regions of the brain.

On points like the last it is evident that we cannot give a satisfactory opinion until we know precisely first what parts of the central nervous system alone contain the representation of movements or the record of sensation, and consequently of what parts does destruction entail permanent loss of function. In other words, we require to learn from the cerebral physiologist under what circumstances and to what extent can we get *compensation* of function when various parts of the cerebrum and cerebellum are destroyed.

1. *As Regards the Cerebrum.*—Apparently from the clinical records we can generalize thus far, that special motor functions cannot be restored if the whole of their cortical representation be removed. The same thing is probably also true of the special senses, and certainly is true of the hemianopic representation of sight. Succinctly stated, this amounts to the generalization that compensation is not possible after the destruction of middle level centres (see Fig. 3, Plate 4). The higher sensory representations and *a fortiori* the intellectual functions are, on the contrary, not permanently abrogated by the destruction of any one part of the cerebral hemisphere. The net conclusion, however, must be that as little injury as possible should be done, and no more removed than is absolutely necessary.*

2. *As Regards the Cerebellum.*—This question of compensatory power is of notable scientific interest when studied in the cerebrum, which is so clearly an assemblage of different nerve centres (in fact we might almost say organs), but it is no less interesting in the study of a homogeneous structure like the cerebellum, and has assumed a particular importance in the present subject because of Professor Frazier's proposal to extirpate the lateral lobe of the

* It being always understood that this does not apply to the skull but only to the nerve structures. The opening in the skull must always be free to allow of a proper survey of the brain.

cerebellum in preference to pushing it aside by displacement for the purpose of reaching deep-seated tumours. My own experience is against such extirpations for convenience. In fact, I regard them as an unnecessary mutilation, though quite admitting that in the process of removing a large tumour in that region the cerebellum is considerably bruised when so pushed aside. I ought to add that although I have removed a considerable number of lateral recess cerebellar growths, I have never found it necessary to do more than compress the cerebellum aside (see Fig. 4, Plate 4).

As to whether there is loss of function from such displacement involving bruising of the cerebellum, I have followed up the longest surviving case that I could find in the Queen Square series, namely, one of cerebellar tumour and cyst combined, which I operated on eleven years ago, when the patient was a boy of 14. He is now a healthy young man of 25, as may be seen in the accompanying photograph (see Fig. 6). In this case the tumour was a large one, situated in the right lateral lobe of the cerebellum, which was consequently markedly compressed, and probably the dentate nucleus of that side was also affected. The only indication of loss of physiological function that he now presents is a slight unsteadiness of the hand when he is particularly fatigued, as for



Fig. 6.—Case of tumour and cyst of cerebellum eleven years after operation.

instance after a long bicycle ride. The photograph shows distinctly the plus tension of the normal cerebro-spinal fluid. As far as the cerebellum is concerned, whether this remarkable recovery is due to restoration of function of the bruised portions or compensation from the uninjured part cannot yet be determined with certainty (I believe the former), but the conclusion I would draw is that we should preserve as much as possible of every portion of the encephalon which is not absolutely shown to be diseased.

At any rate, cases either cerebral or cerebellar dealt with on these lines show a remarkable power of recovery of function.

Consideration of the Details of Operative Procedure.

Perhaps the most convenient way of continuing this review of the technique and procedure of encephalic operations will be by taking the essential steps of such operations *seriatim*, and virtually it will be found that the fundamental purpose of every detail is the prevention of shock and the maintenance of the physiological integrity of the nervous system.

(*a*) *Previous Preparation.*

The general preparation of the patient by dieting, enemata, etc., is the same as for all operations. In a few instances I have found calcium chloride of probable service in cases where oozing from the bone or superficial tissues was to be expected, as in cases of penetrating endotheliomata of the skull.

The head and cavities in relation to it having been thoroughly disinfected for two or more days with sublimate and carbolic acid, the patient is placed on the table in such a position that, while the head is elevated to diminish the pressure in the venous sinuses, the shoulders are also slightly raised, so that the glottic respiration is not interfered with. If the operation is to be on the cerebellum the patient is placed on his side, with the uppermost arm drawn downwards. By these simple means complete access can be gained for any operation on the encephalon without subjecting the patient to constraint which affects both the circulation and the respiration. This question of posture of the head is no mere matter of convenience to the operator, it is an extremely serious one to the patient for the satisfactory performance of the operation, and is only to be secured by having a suitable head-rest, such as the fork rest of Professor Frazier or the one I use.

(*b*) *Anaesthesia.*

The all-important question of anaesthesia must next be considered. My own experience is confined to general anaesthesia, for I have never yet employed the intraspinal injection of cocaine or stovaine.

Since the use of an anaesthetic agent should, I think, extend beyond the production of analgesia, and include among other purposes the convenience of influencing the blood pressure at will, intraspinal anaesthesia is of too limited applicability because control of the intensity of narcosis is lost. Moreover, in many cases the psychical effect produced by the preparations for an operation upon a patient suffering from a lesion of the central nervous system might be unfavourable unless consciousness were abolished. However, after the very remarkable results of Morton and others, this question must be regarded as quite an open one and may indeed help to decide the best means of avoiding shock in this department of surgery.

In 1886 I suggested, in view of the remarkable power that morphine possesses of contracting the cerebral vessels, that it was better to use a combined anaesthesia of morphine with chloroform, a combination which many years before was largely advocated in general surgery. Unfortunately the adverse effects which morphine produces on the alimentary canal have always proved a bar to its common use. As regards the central nervous system also it has a disadvantageous action on the respiratory centre, and since the energy of this is already lowered by the shock of the operation I gave up the combined anaesthesia and have employed pure chloroform only for many years.

Of the general anaesthetic substances at our disposal, therefore, there are at the present time two for practical discussion, namely, ether and chloroform.

Of these two, numerous experiments on animals in 1883-5 proved to me the striking disadvantages of ether, in spite of its greater safety, which it owes to its far lower physiological toxicity on nerve tissues.[1] Apart from this specific difference the most important contrast between the two substances is due to their respective effects on the blood circulation. Ether directly causes, besides a rise of the blood pressure, a notable increase of the blood venosity, and therefore much additional and troublesome haemorrhage. In its later effects—that is, on recovery—it causes excitement, as well as in many cases notable headache and, of course, vomiting.

Ether I regard, therefore, as inadmissible as an anaesthetic in operations on the central nervous system: but in saying this I must not be thought to be criticizing my colleagues, especially American surgeons, who have accomplished most brilliant results under ether narcosis.

Chloroform, *per contra*, causes a fall of blood pressure with relatively less blood venosity—although this is by no means absent, as will be seen below. It therefore does not aggravate the bleeding, nor embarrass the respiration by causing bronchorrhoea.

By its more essentially paralysing action on nerve centres it causes practically no after-excitement and but moderate headache. It is probably as frequently followed by obstinate sickness, but this depends on many other correlative factors, and primarily on the dose used (vide infra). Chloroform, however, as already stated, is more dangerous. It kills by paralysis of the respiratory centre as often or more often than by paralysis of the heart.

Moreover, all cases of increased intercranial tension (as is now well recognized) are liable to die at any moment from sudden paralysis of the respiratory centre. How often one sees this accident in cases of intercranial tumour which are only at the very last transferred for surgical treatment! Two or three instances will suffice.

Case I.—Boy, aged 17. National Hospital, Queen Square. Admitted with all symptoms of localized cerebral tumour. Prepared for operation. On morning of day of operation suddenly fell back "dead" in bed. Respiration stopped, heart beat continued. Failure to restore respiratory centre. *Post-mortem* examination: Small encapsulated tumour of the leg area.

Case II.—Woman, aged 42. University College Hospital. Admitted with symptoms of cerebellar tumour. Operation advised. Patient decided to have same done at home. Two hours before leaving hospital suddenly collapsed. Respiration stopped, heart beat continued. Failure to restore respiratory centre. *Post-mortem* examination: Tumour of interior of lateral lobe of cerebellum.

Case III.—Woman, aged 38. Private practice. "Tumour of brain" had been diagnosed nine years before. Admitted into nursing home with symptoms of lateral recess cerebellar tumour. Prepared for operation. Twenty-four hours before operation attack of cerebral vomiting, followed by sudden arrest of respiration. Heart beat continued. Artificial respiration combined with opening of the skull failed to restore respiratory centre. *Post mortem*, lateral recess cerebellar tumour.

In the literature of the early days of cerebral surgery may be found instances of death on the operation table. I have no doubt that these were due to failure of the respiratory centre, owing to a dose of chloroform having been given which, though perhaps not necessarily lethal in an ordinary case, was fully so to a patient whose bulb was hampered by previous tumour pressure. Chloroform, therefore, must be used with caution in the surgery of the nervous system, to avoid giving a dose which might bring about fatal arrest of the respiratory centre.

The immediate problem is how to regulate the dosage of chloroform, and let me say, in passing, that the whole of my consideration of this question is applicable to all operations, and not only those on the central nervous system. Yet, curiously enough, because the early efforts of Snow, Clover, and others to obtain the administration of such a drug in known quantities were not entirely successful, the present haphazard and dangerous method of unknown dosage became customary and universal.

At the original suggestion of Dr. Waller I obtained, on July 10th, 1901, from the Council of our Association the appointment of a Research Committee to secure data for the administration of chloroform in known doses, commencing with its precise quantitative determination. The results so far obtained have already proved of notable value.



Fig. 7.—Arrangement, at the National Hospital, Queen Square, for anaesthetization and oxygenation of the patient. The Vernon Harcourt regulator is fixed on the conical stand, the chloroform bottle being in a water bath. The oxygen supply from the horizontal cylinder is readily regulated by the anaesthetist, Dr. Powell. Professor Theodor Kocher of Berne, who happened to be visiting the hospital at the time, stands at the right of the photograph.

The Committee have found that less than 2 per cent. of chloroform vapour in the atmosphere breathed by a patient is enough to produce deep narcosis, and that a much smaller dose is required to maintain unconsciousness to pain. Various apparatuses have been devised to give known percentages of chloroform. Of these I have worked practically entirely with Mr. Vernon Harcourt's, and the arrangement my colleagues now generally employ is shown in the photograph (Fig. 7).

Much has been written on the subject of chloroform administration, but I must state categorically what I believe to be the most profitable way in which it can be used in operations on the nervous system, and how its disadvantages can be mitigated or avoided.

If the mask of the inhaler be made to fit by wet aseptic

towels, the amount of the dose given will be under complete control. With the dose commencing at 0.5 per cent., and rising in one to two minutes to 2 per cent., the patient ought to be ready for operation after five to eight minutes. If the initial narcosis be complete no adverse event—for example, vomiting—will occur. If it be incomplete when the operation is commenced various drawbacks will appear. This is, of course, well recognized as a general principle by anaesthetists, but is so salient a point as to deserve repetition.

I desire now to refer to the use of chloroform during the operation, and, first, as regards its use as an anaesthetic or pain-preventing agent (Fig. 8).

I venture to repeat what I constantly stated in the chloroform discussions of the last three years, that having now, by means of the Harcourt or other regulator, the power of giving known doses, we ought to arrange the narcosis strictly according to the nerve excitations it is intended to drown, and so avoid contributing to the patient's discomfort by giving unnecessary quantities of the drug. The accompanying parallel diagrams (Fig. 8) convey my meaning. Abscissae represent time, and ordinates the grades of pain and amount of chloroform respectively. Naturally the curves are arbitrary, but the chloroform dosage represents what I am in the habit of asking for and what my colleagues, Dr. Dudley Buxton and Dr. Powell, find to be amply sufficient.

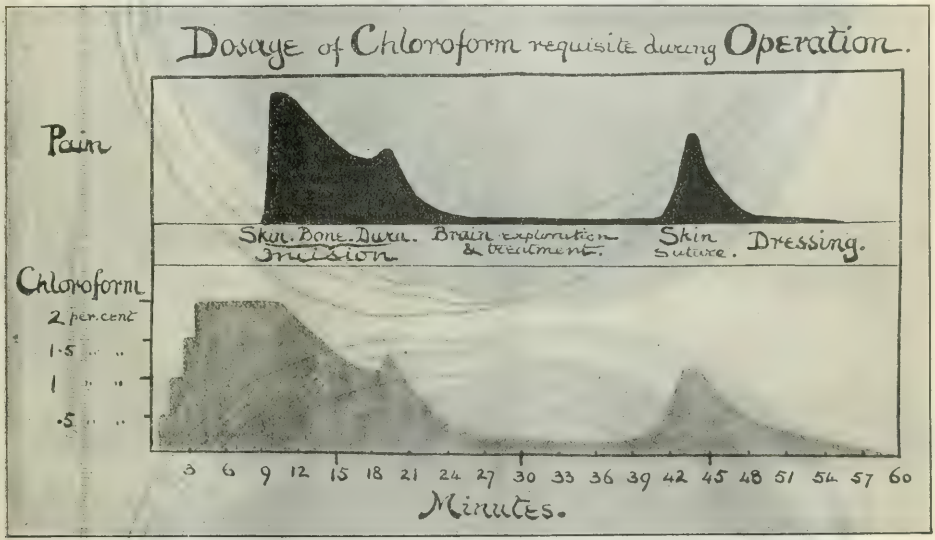


Fig 8.—In this diagram the upper curve is that of degrees of pain, the lower that of corresponding percentages of chloroform requisite. The lengths 3 to 60, on the abscissa line, signifies an hour divided into periods of three minutes. The diagram shows in a graphic form that to the stages of induction nominally is given about nine minutes; that after the patient has inhaled 2 per cent. vapour for about six minutes he is ready for the operator. The maximum pain being caused by the skin cut, the concentration is lowered for the division of the less sensitive bone, and again raised for the division of the dura. Then the exploration of the brain being a painless procedure, as the chart shows, a great reduction of the chloroform is made—that is, to 0.3 per cent., or zero. Finally, the dose is raised to meet the pain of skin suture and prevent vomiting.

As a rule the amount of 2 per cent. is given for about five minutes before the incision of the skin and reflection of the flap which constitutes the maximal pain period of the operation. This completed, the dose can be lowered by pushing the tap back and the bone be removed at 1 per cent. As the dura is a sensitive membrane supplied by the fifth cranial nerve the dose should be somewhat raised just previous to its incision to prevent reflex starts or movements on the part of the patient.

As soon as the dura is opened the encephalon can be dealt with without causing any pain except if the course of the fillet or one of the peripheral sensory cranial nerves be accidentally irritated. Consequently all this part of the operation is done under less than 0.5 per cent. of chloroform in the air respired, an amount which of course is far below that required in the induction stage. Indeed in many cases (the edges of the wound being as usual thoroughly protected by gauze) the chloroform can be entirely shut off, the longest period that I have been able to do this for being twenty minutes. This, however, was a case of a cerebellar tumour in a child, and I have never been able in the adult to exceed twelve or fifteen minutes before the return of the reflexes of the limbs necessitated the renewed administration of the drug. After the encephalic lesion is dealt with the percentage always should be raised to about 0.7 or even 1 per cent. to provide for the insertion of the sutures in the skin, as naturally that is a strong pathic stimulus. Finally this percentage is continued to the commencement of the dressing to prevent the accident of vomiting occurring before the protecting rubber bib can be applied.

(c) Maintenance of the Body Temperature.

One of the depressant physiological effects of the general anaesthetic now requires consideration, and that is the remarkable influence which Dr. Horatio Wood and Dr. Hare have done so much to elucidate—namely, a high degree of power to lower the temperature of the body, and therewith emphasize the shock of the operation.

This is of course characteristic of all narcotic substances (cf. Chloral, Lauder Brunton). Ether, for example, in a very short time will, as Dr. Hare has shown, lower the temperature of the body two degrees Fahrenheit. For this reason I think that all operating rooms should be at a temperature of not less than 75° F., and that the operating table should be provided with a suitable hot water bed.

While, however, cooling due to the anaesthesia can thus be readily combated, my experimental work of the last twenty years on both the carnivora and monkeys has convinced me that to maintain the physiological energy of the central nervous system and prevent shock thereto it is necessary during all operative procedures on the skull and its cavity to prevent cooling by radiation from the brain exposed in the wound. The wound, therefore, should be constantly irrigated, usually with a solution of sublimate of 1 in 10,000 strength, or with saline. These lotions are put into the irrigator at a temperature of 115° for the reason to be detailed directly, and the flow is regulated at will by an assistant.

While, therefore, a follower of Professor Cheever and others, in thinking that much shock can be prevented by artificially maintaining the general temperature of the body, I consider we must also preclude local cooling.

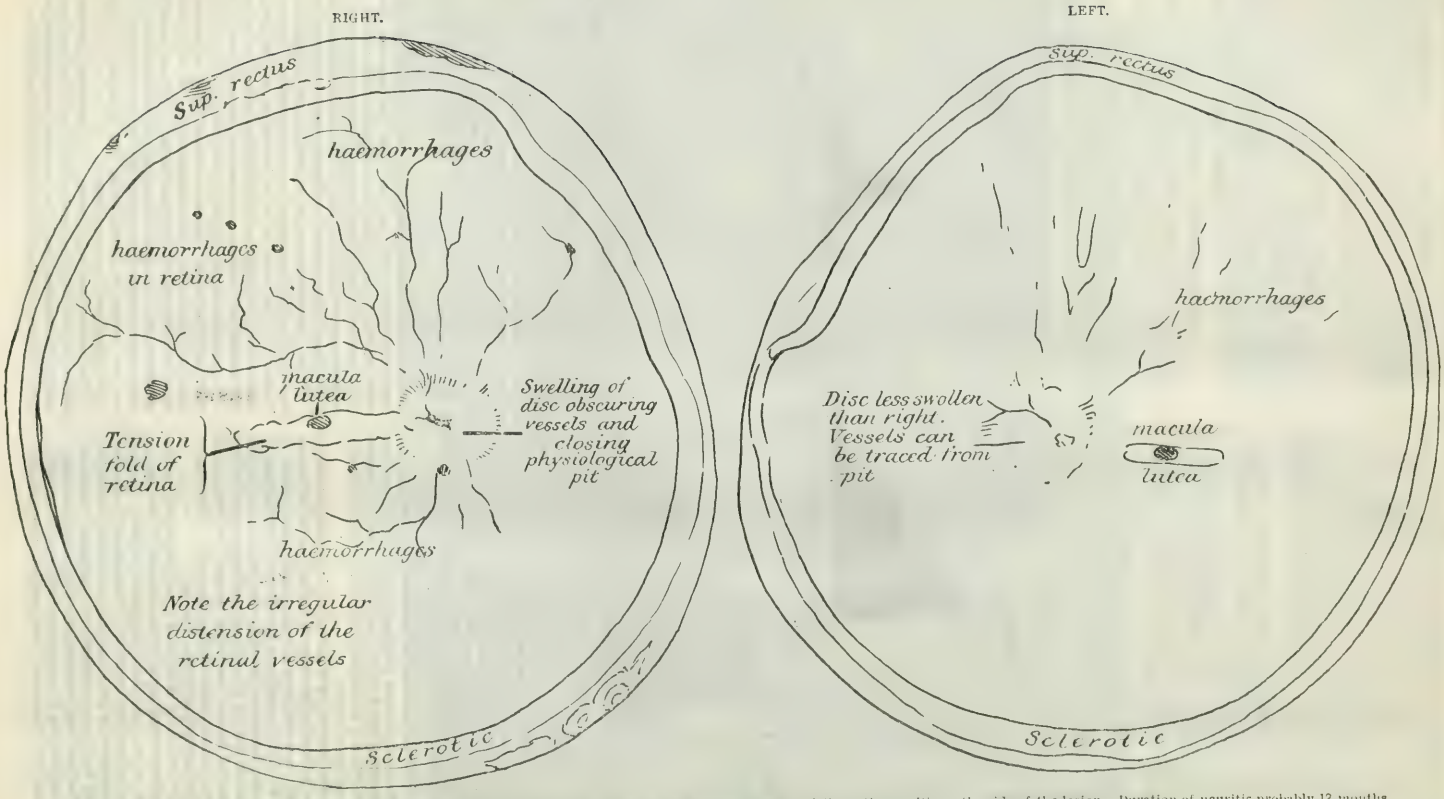


Fig. 2.—The fundi from a case of endothelioma of the right tentorium cerebelli, showing the greater intensity of the optic neuritis on the side of the lesion. Duration of neuritis probably 12 months. (Magnification about 4 diameters.)



Fig. 2

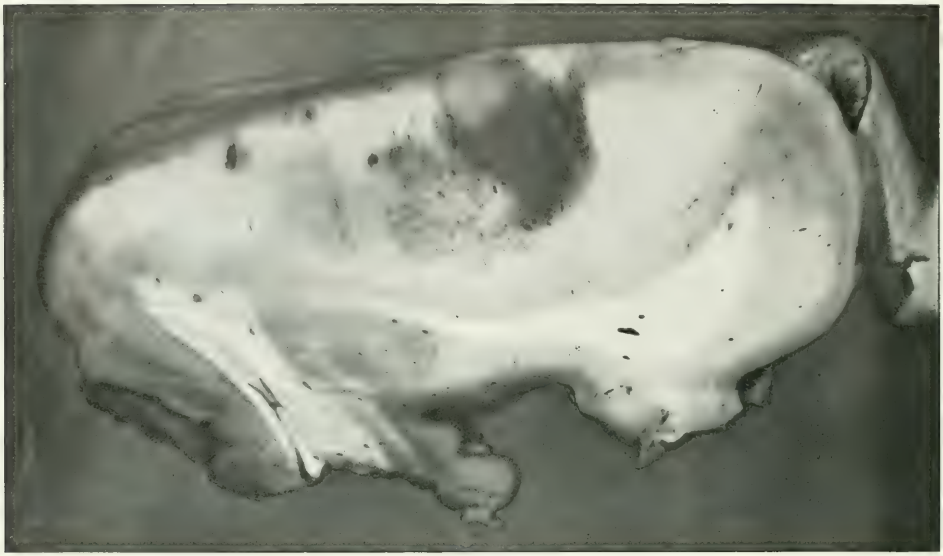


Fig. 19



Fig. 1

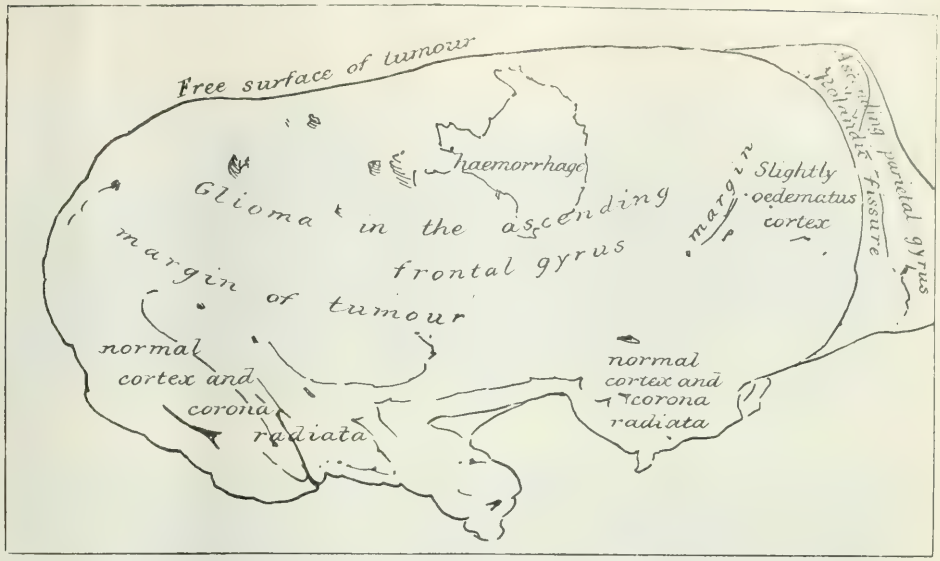


Fig. 19.—Section of glioma and surrounding tissue removed. Case I. "P." (Magnification 2·5 diameters.)

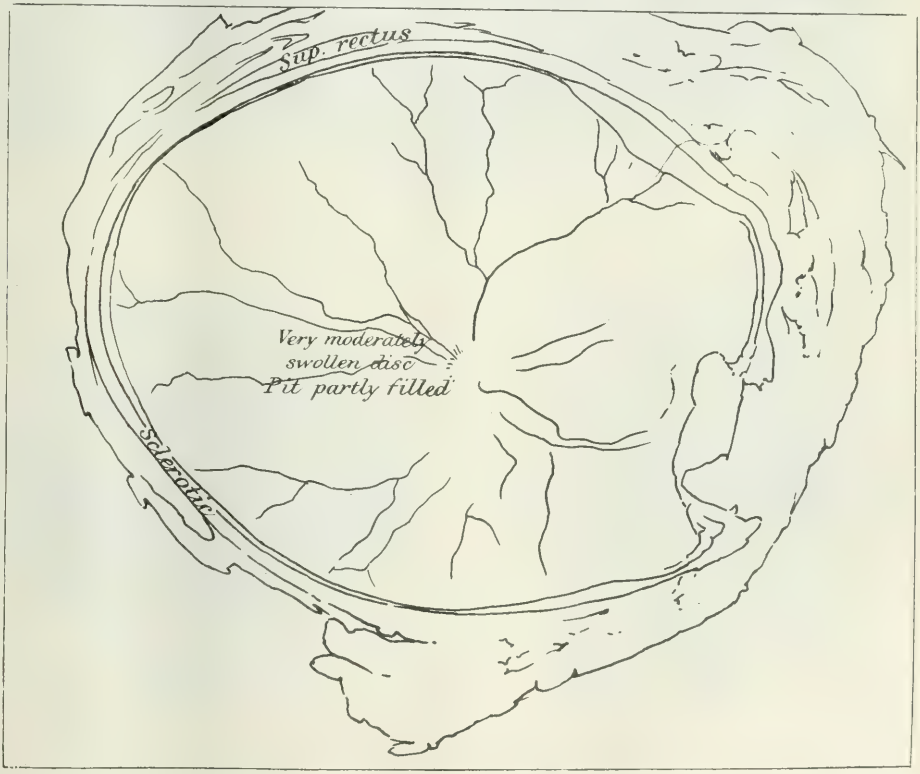
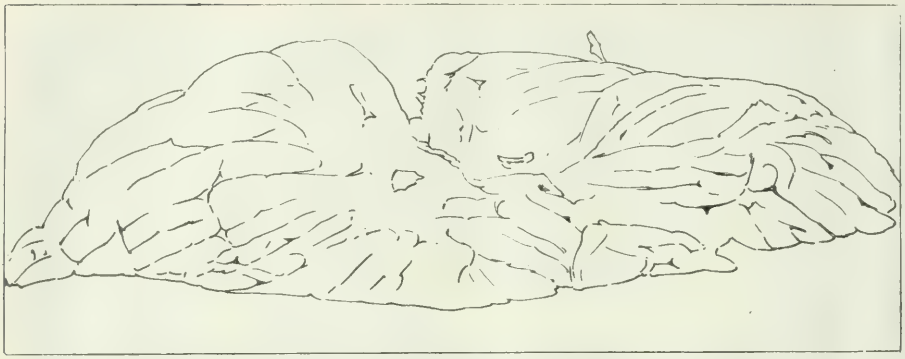
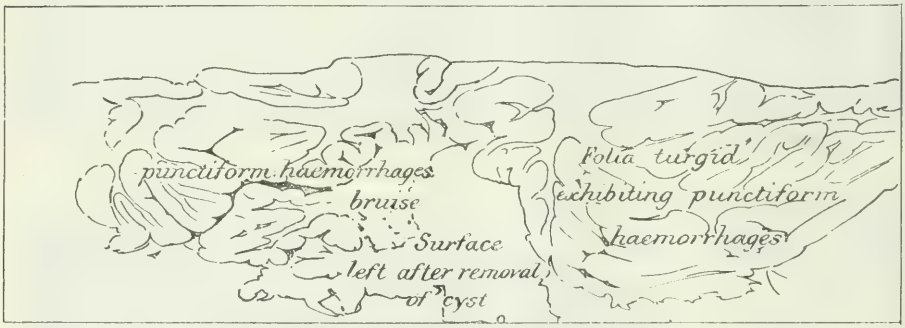


Fig. 1.—Optic neuritis of duration known to exceed 13 years. (Magnification about 3·5 diameters.)

Fig. 12.



Exterior of cerebellum showing normal appearance. (Magnification 1·5 diameters.)



Section of cerebellum showing punctiform hæmorrhages, &c.

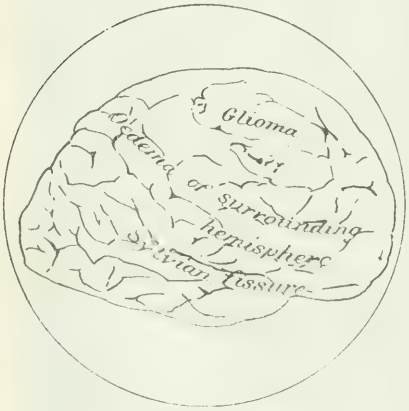


Fig 13.—Outer surface of hemisphere, seat of glioma cerebri.

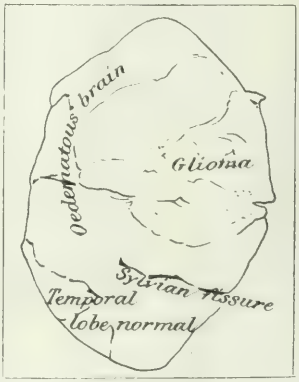


Fig. 14.—Section of glioma cerebri and brain (same case as fig. 13).

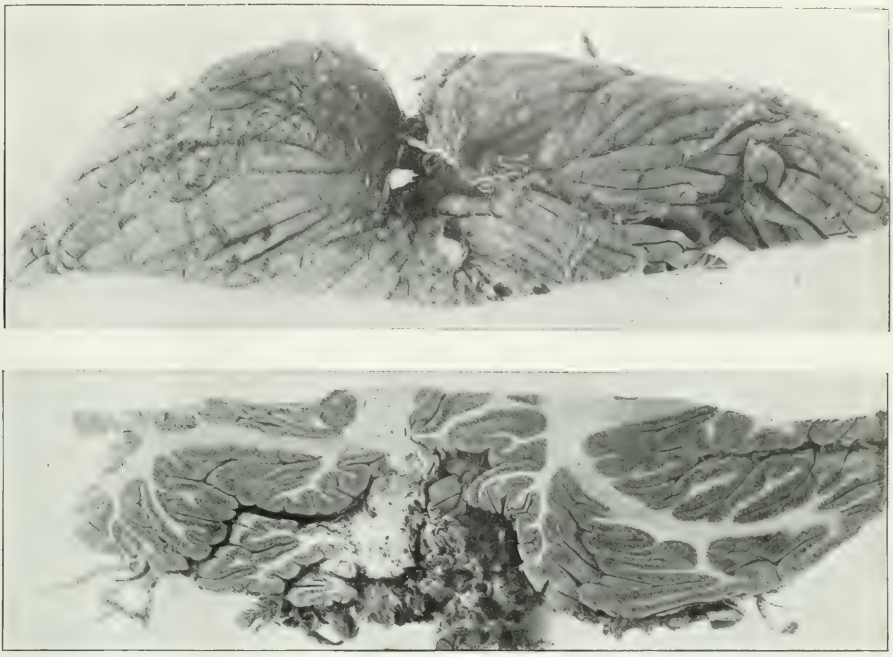


Fig. 12

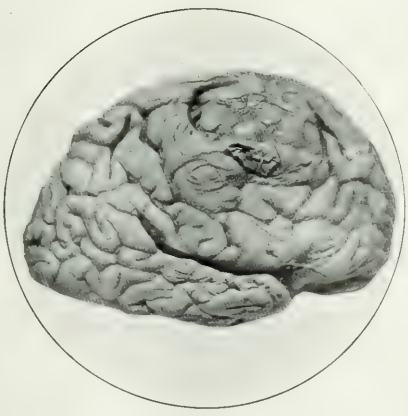


Fig. 13

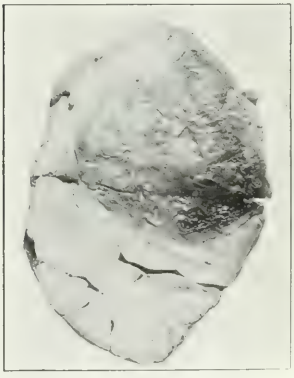


Fig. 14

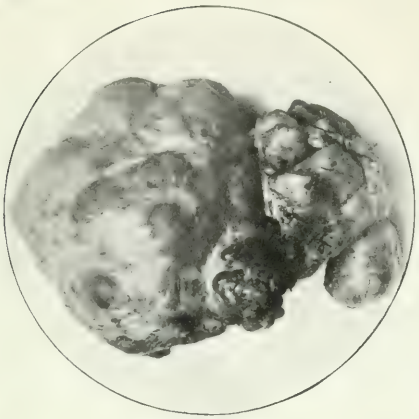


Fig. 15



Fig. 16

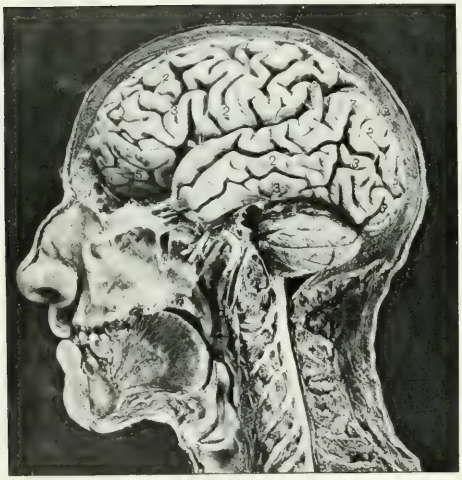


Fig. 3



Fig. 10



Fig. 4

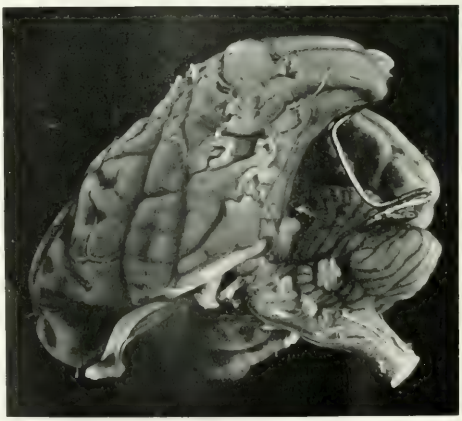


Fig. 9



Fig. 15.—Encapsulated fibroma from the left frontal lobe.



Fig. 16.—Patient well two and a half years after operation.

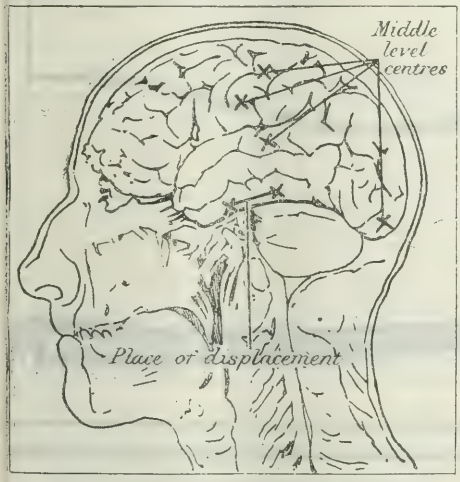


Fig. 3.—From Fraser's *Guide to Operations on the Brain.*

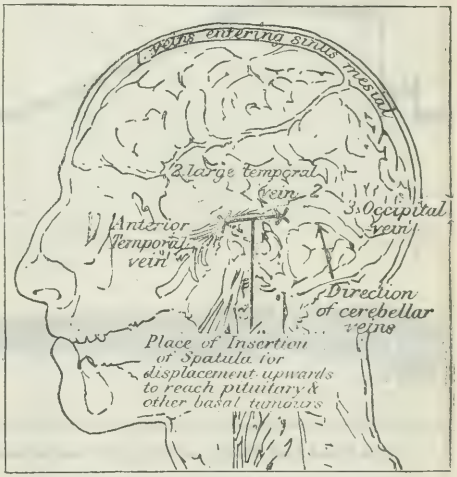


Fig. 10.—From Fraser's *Guide to Operations on the Brain.*

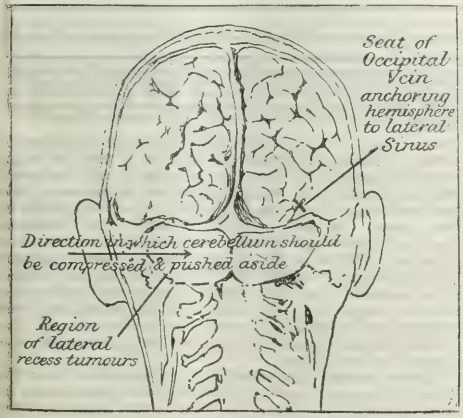


Fig. 4.—From Fraser's *Guide to Operations on the Brain.*

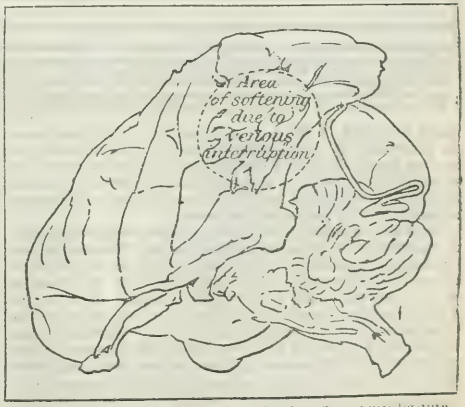


Fig. 9.—Brain of macaque monkey, showing effect of vein ligature for displacement of hemisphere.

The use of the hot irrigation fluid, however, is not only to prevent cooling of the nerve centres: it also has another purpose—namely, the arrest of capillary and arterial haemorrhage. I, therefore, take up the question now of haemorrhage; and it is, of course, only necessary to speak on this occasion of the haemorrhage from the central nervous system itself—unavoidable haemorrhage met with in dealing with the nerve tissues.

(*d*) *Haemorrhage.*

The first general principle is the recognition of the fact, originally established by Cohnheim's researches, that as few vessels as possible should be obstructed; and, again, experiments on animals show that in encephalic surgery this principle must be followed as closely in the case of the veins as in the case of arteries. For instance, in the monkey (Fig. 9, Plate 4), as well as in man, the blocking of the large temporo-sphenoidal vein (Fig. 10) and the most anterior external occipital vein produces softening of the posterior part of the hemisphere. In pursuance of this principle, where it is necessary to remove large portions of the brain, the branches of vessels to be divided should be severed as far as possible from the trunk. A few points in detail must now be discussed according to the nature of the vessel.

Arteries.—From time to time it has been proposed to tie the main arteries—for example, the carotid, with the view of producing a large control of the blood flow from the cerebral arteries. But a thorough consideration of the cases in which this has had to be done by reason of operative necessities has convinced me that it is a measure to be avoided as far as it possibly can be. For instance, when ligature of the carotid has been found necessary in the case where a portion of the hemisphere has been partly displaced and compressed to gain access to a basal tumour, etc., serious and even fatal secondary oedema and softening has proved the adverse influence of this proceeding. On the whole, I cannot suggest anything better than the original plan of tying all the arteries around the lesion before extirpating it; and inasmuch as all arterial supply of the encephalon is necessarily from below upwards, it is better to commence the excision of a lesion by beginning the incision in the brain below, and carrying it upwards and towards the mesial plane.

Arterioles and Capillaries.—Although it is necessary that every bleeding artery should be secured by ligature—and on this point one cannot too strongly emphasize the dictum of von Bergmann,[2] that it is very unsafe to trust to tampon pressure—it is remarkably easy to arrest capillary oozing and arteriole oozing from the brain by the simple means of hot irrigation. The most accurate work on this subject to my knowledge is that of the late Dr. Milne Murray,[3] who from his experiments came to the following conclusion, which I prefer to quote in his own words: "It is certain that water from 70° F. to 103° or 105° F. will invariably dilate blood vessels and promote the flow from open ones, but it is equally certain that water of tempera-

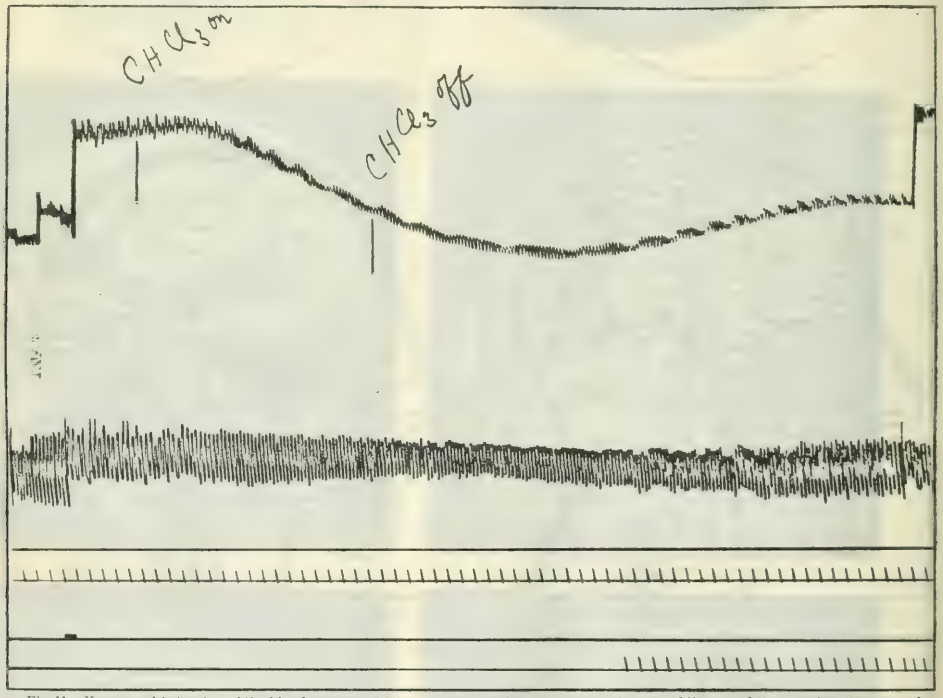


Fig. 11.—Kymographic tracing of the blood pressure (highest curve), respiratory movements (second line), and time marker (two seconds intervals). It will be seen that while the blood pressure was at its highest (the animal, a dog, being then under ether), chloroform vapour was given instead at the point marked "$CHCl_3$ on." Within twelve seconds the pressure began to fall, and continued to do so for about a minute, the fall continuing after the chloroform was shut off at "$CHCl_3$ off." Note also the effect of chloroform in gradually diminishing the expiratory function of the respiratory centre (Hughlings Jackson, Laborde), thus leading to blood venosity. (See paragraph, page 419.)

tures from 110° F. to 120° F. will have just the opposite effect." Theoretically what we require is that the irrigation fluid shall at the moment of contact with the nerve tissues contract the small vessels and at the same time not cause any heat coagulation of the cut surface of the brain. In my opinion, therefore, the temperature of the fluid should not exceed 115° F.—that is, about 46° C.—but it is equally certain that it must not fall below 110° F. or 43.5° C. If a large irrigator be used it is practically an easy thing to keep the fluid at the desired temperature on account of its mass, and it is gratifying, especially in a cerebellar wound, to see the oozing gradually cease during the steady flow from the irrigator "hose" pipe.

Before leaving the question of haemorrhage from the arterial system I must refer to the use of chloroform in this particular. As will be seen in the accompanying kymograph tracing (Fig. 11), one of the most striking features of the physiological action of chloroform on the

mammalian animal is that it soon (10 to 20 seconds) causes a marked fall in blood pressure. Consequently when a lesion is about to be extirpated, and there is reason to expect considerable oozing, or when the brain is obviously turgid with congestion, I always ask that the chloroform percentage should be raised for, say, a quarter to half a minute to 1 or 2 per cent. This at once induces a convenient, proportionate, and, of course, temporary anaemia.

The consideration of capillary oozing and haemorrhage brings us logically to the question of bleeding from the venous sytem, because capillary oozing is so dependent on the venous pressure. The same steps, therefore, which diminish the latter will also reduce the former.

Veins.—All bleeding from the veins and sinuses in bone can be immediately and absolutely certainly arrested by plugging with wax if the periosteum round the hole is completely removed. No difficulty, therefore, should ever arise from haemorrhage from this cause. It is otherwise with wounds of the sinuses and Pacchionian bodies and venous lakes in the dura mater. The bleeding from these, however, no matter how severe, is immediately controlled by pressure with the point of an instrument, while the opening is closed by a fine lateral suture on a round needle in the usual way. The principal veins if necessary are, of course, ligatured like arteries by passing a round needle beneath them, and there only remains, therefore, for consideration the control and arrest of venous oozing.

Control of Venous and Capillary Oozing by the Use of Oxygen.

Venous bleeding as just stated, commonly occurs in association with capillary oozing, and is often very troublesome in spinal as well as in intracranial operations, especially those at the base of the skull.

This can be rapidly controlled by a simple manœuvre, namely, the inhalation of oxygen. It is not necessary here, nor have I the opportunity or time to discuss why during the administration of chloroform there is gradually induced a moderate degree of asphyxia which has the effect of raising the venous pressure. The fact is plain, and consequently all that has to be done to lower the venous pressure and stop the oozing is to get rid of the asphyxial condition. Though it is impossible to promptly improve the action of the respiratory centre itself directly or the respiratory movements of the patient and so lower the venous pressure, it is easy to raise the percentage of oxygen in the anaesthetic atmosphere breathed, by directing a stream of the gas through the air inlet of the Harcourt regulator, and so quickly abolish any asphyxia.*

It is interesting to see how rapidly the bleeding stops as the colour of the oozing blood changes from dark purple to a bright scarlet. I frequently, therefore, during operation, especially towards the end, request the anaesthetist to turn on the oxygen for this purpose as well as for the elimination of shock (vide inf.). (See Fig. 7.) It of course must not be forgotten that as the gas is delivered through the Harcourt tap at a pressure somewhat greater than the patient's own respiratory current passing through the chloroform bottle, the in-draught of chloroform air (and therefore the total percentage of chloroform is somewhat diminished, but this is of no practical consequence, especially at that stage of the operation.

Shock.

I now come to the analysis of the Queen Square cases, and shall endeavour as far as possible to thereby throw light on the actual cause of death occurring within the first twenty-four to forty-eight hours after the operation—that is, from what is termed "shock."

The question is one of profound interest, for since shock or sepsis are practically the only causes of death which can be provided against, the answer to it lies at the root of successful prognosis as well as of further improvement in surgical technique.

A few prefatory words are necessary as to what is meant by "shock." I quite agree with Crile, who has done so much to elucidate this all-important question, that we should discriminate between shock and collapse; and that while collapse is a temporary accident, in which the patient's nerve centres are capable of being revived by ordinary clinical means, shock, on the other hand, is a post-operative condition, which deepens after the operation for a variable period, and which if it terminates fatally destroys life, as a rule, within twenty-four hours. It is this dangerous phenomenon which we must now discuss.

From observation of the condition of patients after all kinds of operations it is evident that the phenomena of dangerous shock differ according to the part of the body operated upon, according to the condition of the patient before the operation, the concurrence of accidental haemorrhage, etc. The alteration of the intracranial tension which is produced by opening the skull, of itself necessarily causes shock after encephalic operations in a manner which is somewhat different from that caused by other operations. Therefore I think its treatment must also be different. The nervous system is responsible for the maintenance of the respiration, the maintenance and control of the blood pressure, and for the maintenance and control of the temperature of the body. Hence the only way in which we can adequately examine into the subject is by systematic discussion of these several points.

Fortunately the clinical investigation of the first—the alteration of the intracranial tension—has been rendered more easy by reason of the procedures adopted during the last thirteen years. In 1893, at the discussion in the Section of Surgery of this Association at Newcastle,† I pointed out that the early statistics of intracranial operations showed that the majority of deaths occurred from a severe degree of shock which could be in great part avoided by dividing the operation into two stages, the interval between them being about five days.*

The first stage consisted of the opening of the skull, the second of opening the dura mater and removal of the lesion. On the same occasion I also drew attention to the fact that although at the second stage the dura mater was opened, the removal of the tumour was often attended by relatively little shock. Subsequent experience has fully confirmed these statements, and shown that it is in fact the opening of the skull which causes most general depression of nerve energy and most alteration in the circulation.

Method of Opening the Skull.

I cannot spend time on the various mechanical devices for opening the skull, but as much of the shock depends on the way in which this is effected, I must allude to the principles which I believe govern the opening of the cranio-neural tube at any point. Of these the first is that as far as possible the bone should be divided with as little vertically applied force as possible, and removed with the least possible pressure on the brain and dura beneath. After a long experience of saws, circular or straight, and trephines driven by electromotors, I find that the foregoing principle can be most quickly and readily fulfilled by first removing a trephine disc, then marking with a large saw the area to be removed, and finally cutting away the bone with large bone forceps, all traction being directed outwards. The ill effects of vertical pressure or force are particularly seen when the opening of the skull has been done osteoplastically with the use of the mallet and chisel, and as in very many cases it is not advisable to preserve the bony wall of the skull the chisel need be but rarely used.

Alteration of Intracranial Tension.

(*a*) *Influence of Region of Skull Opened.*

Having thus briefly dealt with the methods of opening the skull, I pass to the next practical question—the influence of the region opened. This introduces a very important point which was first raised by Duret some thirty years ago, and has attracted the attention of most surgeons who have more especially operated on the cerebellum. It is obvious that inasmuch as the nerve centres of organic representation are situated in the posterior fossa of the skull, opening this region might theoretically be expected to cause more shock symptoms than the opening of other parts. No statistics can give a dogmatic explanation of this or any other clinical matter.

* I may here add that Bayliss and Starling found in their experiments on animals that warming the respired air diminishes the effects of operative shock. This can easily be done by passing the oxygen through a hot coil.

* The advantage of systematic two-stage operations only properly applies in my opinion to encephalic cases, although I have used it in emergency in a spinal operation.—Cf. also Broduitz, *Verhandlungen der deutschen Gesellschaft für Chirurgie*, 1905, p. 219.

and in fact every case forming the material for our present statistical analysis in which death occurred from shock after the first stage (six of the total number of cases) was complicated by the pressure of the lesion being only partly diminished, while in two instances there was, in addition, persistent haemorrhagic oozing; but on taking all the cases together they give the following result, which is sufficiently demonstrative:

	Proportionate Ratio.
"Motor area"	1 death in 27 operations
Parietal and post-parietal regions	1 ,, 19 ,,
Frontal region	1 ,, 13 ,,
Temporal region	1 ,, 12 ,,
Cerebellar region	1 ,, 10 ,,

If, therefore, a line be drawn from the frontal eminences to the occipital protuberance, it is obvious that more shock results from operations below that line than from above, and also as we proceed from the frontal to the cerebellar pole of the encephalon.

Duret's conclusion was that pressure applied to the frontal regions specially produced lethal effect by direct transmission to the medulla along an axis parallel to such a line, and I shall show how such mechanical effects can, as far as possible, be avoided during operations on the basal parts of the brain.

(*b*) *Production of von Bergmann's Oedema Cerebri.*

The surgery of the central nervous system has been enriched by many contributions that have been made to it by von Bergmann, but on no point more particularly than that of the causation and frequency of oedema of the nerve tissues (see especially his *Kopfverletzungen*, and, later, *Die chirurgische Behandlung der Hirnkrankheiten*, 1889, p. 118, *et seq.*). The readiness with which the cerebrum and cerebellum become oedematous is remarkable, but the circumstances under which it happens are not at all easy to understand, and the facts of a large series of cases do not fall into line with von Bergmann's generalization—namely, that oedema necessarily occurs whenever the skull is freely opened. Thus, after the second stage of an extirpation in which the skull has been very freely opened and a tumour removed, there may be only a very moderate degree of oedema of the hemisphere operated upon, which, like all traumatic oedema of the brain, arrives at its maximum in three to four days, and disappears without any complication. On the other hand, when the skull has been freely opened in the first stage and the dura mater left intact, if the pressure of the growth is considerable, that may be accentuated by the development of a markedly oedematous condition around the focus of pressure. It is, of course, quite comprehensible that this is owing to the fact that a slight relative increase of tension may unfavourably affect the walls of the cerebral blood vessels, which are still under compression, and bring about a Cohnheim effect. That this does occasionally occur is proved by the very rare phenomenon of transudation of the red blood corpuscles into the oedematous tissue, of which the following is an example, and as it is unique in my experience I quote it here:

The patient, a lady of 52 years of age, had had symptoms of cerebellar tumour for several years, and a varying degree of optic neuritis had been known to exist for more than two years. The case being referred to me, I opened the cerebellar region, and finding extreme tension, decided to relieve it by a small opening in the dura. This revealed a thin-walled simple cyst, which I punctured and removed. After a preliminary stage (three to four hours) of moderate shock, the patient gradually developed remarkable symptoms of deepening coma, Cheyne Stokes respiration, and a rising temperature. These symptoms terminated fatally in thirty-six hours from the operation. *Post mortem* examination showed that the cyst was completely removed, and that death had resulted from oedema, with punctiform extravasations, of the medulla and cerebellum (Fig. 12, Plate 3).

Probably this unusual occurrence was partly determined by a moderate degree of arterial sclerosis which was also present, but had not the complication of oedema occurred no case could have been more satisfactory.

This question of oedema is in our experience clearly associated with the further question of unrelieved pressure, and this brings us to the all-important question of success in diagnosis and the much-discussed procedure which is called an exploratory operation. The statistics of Queen Square Hospital throw a good deal of light on this subject, and show that the former condition, namely unrelieved pressure, is a matter of great practical importance in respect of ordinary palliative operations performed to abolish optic neuritis and relieve the headache, in short, to the procedure to which Professor Cushing has recently given the name of "decompression" operations. I will take this point now. Thus, of 13 cases which died of shock after the second stage, in 7 by reason of failure of topographical diagnosis, the pressure was not relieved directly over the seat of the lesions, whereas in 6 cases in which a tumour of the brain was diagnosed and correctly localized, but in which removal was not attempted owing to the size of the growth and other reasons, no patient died.

A comparison of this kind is sufficient, I think, to warrant the statement that the risk of an operation for decompression is greater if the opening for the relief of pressure is not made directly over the lesion. Precisely the same point is borne out with even greater distinctness by the figures showing the relative risk of operating with and without a correct diagnosis. Thus, of 79 cases in which a correct diagnosis was made and the tumour successfully removed, 7 cases died of shock—a little over 8 per cent.; whereas in 16 cases of tumour which were incorrectly diagnosed and consequently not removed, 6 cases died from shock—approximately 37 per cent. It is, perhaps, worth while adding that practically in all these latter cases the tumour was a glioma or gliomatous sarcoma—that is to say, a diffuse growth the diagnosis of which is always the most obscure, and at the same time a form of neoplasm in which circulatory changes and oedema is always liable to occur (see Figs. 13 and 14, Plate 3).

I think that these data enable us to form a more or less correct estimate of the risk of an exploratory operation in cases of doubtful diagnosis.

TREATMENT OF SHOCK.

As I have suggested above, the treatment must be arranged according to the symptoms which threaten life, and those may be grouped according as they affect (1) the respiration, (2) the circulation, (3) the body temperature.

Depression, or aberration of special nerve functions—for example, motion, sensation, etc.—need not be a source of anxiety, as, if the centres of organic life are restored, recovery of the others will certainly follow in proportion to the extent to which their representation has been preserved.

1. *Respiration.*—The embarrassment of the respiratory centre in a stage of shock shows itself in increasing degrees of severity as follows: (*a*) shallowness of the respiratory movement, (*b*) periodicity and grouping of the respiratory movements, (*c*) typical Cheyne Stokes respiration. These changes are best dealt with by inhalations of oxygen until the effect of nutrient enemata (vid. inf.) begins to make itself felt, but it is above all in depression of the respiratory centre that strychnine is of use in combating shock. In speaking thus favourably of strychnine I nevertheless agree with the elaborate and useful work of Dr. Crile on this subject, and believe that in many cases strychnine is used too empirically, too freely, or with undue reliance on its powers, and that in repeated doses it has a depressant action on the circulation. As a stimulant of the bulbo-spinal centres strychnine is of course unrivalled, and when any marked alteration in the rhythm of the respiratory centres shows itself, a small dose should be given hypodermically, but for the above-mentioned reasons it does not seem advisable to give such a drug beforehand, as is sometimes done either immediately previous to the operation or at the end thereof, with the idea of anticipating difficulties resulting from shock. It is also not to be forgotten that the usual functional depression of the respiratory and the cardiac centres which immediately precedes chloroform vomiting is particularly marked in these operations, and often causes unnecessary alarm.

2. *Circulation.*—In considering the depression of the circulation by shock, we must again express our indebtedness to Crile for having shown that this part of the subject is not merely a question of the central or cardiac maintenance of the blood pressure, but to a large extent the lack of influence of the vasomotor system. I think the

beneficial effects of pressure on the surface of the body can be obtained by bandaging the limbs with cotton-wool. It remains, therefore, to consider what drug treatment is to be resorted to. As regards cardiac stimulation, that has always seemed to me to be a clinical error. The heart does not require accelerating as a rule, but it does require feeding. Undoubtedly repeated enemata (every two hours) of four ounces of beef-tea in which is dissolved Brand's essence or pancreatized milk is the readiest means of beginning to follow this line. If time presses, a very small dose of atropine is useful, and in cases of peripheral vasomotor paralysis digitalis is also useful, but its use must be at once stopped if there is any acceleration of the pulse. It is, I believe, of universal experience that, compared to the foregoing drugs, alcohol is not worth mentioning, and as it has very definite depressant after-effects, I think its use is to be avoided. A small quantity of strong coffee gives all the psychic stimulation of alcohol without its depressant effects; and even if it be vomited within a few minutes, benefit results.

3. *Body Temperature.*—In a large majority of cases the body temperature is somewhat lowered, but in certain instances, notably in children, one of the shock effects of operation is the losing of heat control and consequently the temperature, instead of falling, rises from the moment the patient is returned to bed. This rise may in a child become hyperpyretically dangerous, but can, of course, be, as a rule, like all neurotic pyrexia, controlled by cold sponging the upper limbs.

In leaving the question of shock I desire to once more assert that the main principle of operating on the central nervous system should be the avoidance and prevention of all conditions which lead to shock—namely, cooling and mechanical disturbance of the central nervous system. In respect of the necessity of producing less disturbance or chance of pressure upon the brain beneath, Mr. Spencer found in my laboratory that even slight pressure on the surface of the hemisphere materially affects, in accordance with the principles of Duret, the activity and regular function of the respiratory centre. So, too, in the second stage all the necessary instrumental procedures must be effected with as little pressure upon the brain and nerve tissues as possible. Sponging, for instance, should be avoided unless absolutely requisite; and, indeed, the practice of hot irrigation renders it very unnecessary. In particular, during the separation and extraction of an encapsulated tumour—such as a large fibroma (see Figs. 15 and 16, Plate 4)—every attempt ought to be made to exert a leverage or traction, so that the direction of the force is always outwards.

These principles underlying the avoidance of shock having been fully discussed, we may turn to the question of septic infection.

On Sepsis.

So far I have said nothing about the second possible cause of death, namely, septic infection. Few things are more interesting in a review of general surgery as compared to the special branches of the subject than to see how essentially different in varying conditions is the incidence of sepsis. It had always been recognized, and long before Lord Lister's immortal discovery of antisepsis explained why, that the cavities of the body presented special risks in this particular. Nowadays, when many surgeons can show an unbroken record of successful operations for the radical cure of hernia or for appendicitis in the cold stage, I believe it is not completely realized how very different should be our estimate of the proclivity of the central nervous system to invasion by septic micro-organisms and the extremely feeble degree of its resisting powers. A survey of the literature of the last ten years proves this most distinctly, numbers of cases of sepsis arising in the practice of the most careful operators even for such simple conditions as a benign isolated fibroma compressing the spinal cord. The records of Queen Square Hospital of the past twenty years are somewhat vitiated by accidental infections traceable to causes unconnected with the special region of the wound. Thus of the 17 cases in which death directly resulted from sepsis, one was due to the condition of the scalp before the operation, another to infection from the mouth, and two if not three from imperfect sterilization of the ligatures. Of the remainder, the infection in a very large majority obviously originated during the after-treatment of the case, while the external wound was still open at the drainage spot, especially when such openings and avenues of infection had been kept open by tampons and plugs. Personally I believe that the present-day precautions are sufficient at the time of operation, especially if the irrigation fluid used be a weak antiseptic lotion, that for the subsequent dressings it is essential to use an antiseptic (I have only complete confidence in a mercury salt), and that so long as the cerebro-spinal fluid continues to escape the most vigorous disinfection of the skin and frequent changing of the dressings must be carried out, for not only so long as the cerebro-spinal fluid is flowing is there great danger of septic invasion, but the difficulty of closing a drainage sinus is increased the longer the cerebro-spinal fluid passes through it.

In summary, I feel inclined to reassert the view expressed in 1886 that the less drainage is employed the better, and consequently that every effort should be made to close the skin wound as early as possible.

Displacement of the Brain.

With these general considerations before us, there remains the discussion of particular procedures. One of the most important of these is displacement of the brain, which must be resorted to to reach tumours at the base. I mean displacement of the lobes or regions. My first attention to this subject was drawn by being requested in 1889 to operate on a tumour pressing on the front of the optic chiasma, and for this purpose I raised the frontal lobe, but found that the tumour was really a cystic adeno-sarcoma of the pituitary gland, and was inoperable. To facilitate the elevation of the frontal lobe some of the veins entering the longitudinal sinus therefrom were ligatured. On the death of the patient some years later I found that there was considerable softening of part of the frontal lobe in the area drained by these veins, and not directly implicated by the tumour. This and subsequent evidence referred to above led me to the following conclusions, which I have repeatedly made use of and found of service, especially in 10 cases of operation on the pituitary body. The cerebral hemisphere is anchored by emissary veins to the dura mater at various points (see Figs. 10 and 3, Plate 4), (1) in the mesial plane, that is, to the longitudinal sinus; (2) laterally, chiefly by the temporo-sphenoidal vein to the lateral sinus opposite the asterion; (3) to a less degree by the external occipital vein, and (4) by the anterior temporo-sphenoidal vein, both of which last are small vessels, but being almost terminal require to be respected (see Fig. 9, Plate 4). The hemisphere can be readily compressed upwards by inserting a flat spatula cautiously beneath it (see Figs. 10 and 3, Plate 4) and between the veins just described. The next question, of course, is What happens to the hemisphere compressed? This entirely depends on the mode of compression. If the compression is, as it should be, gradual, the soft nerve tissues soon mould, with very little internal derangement; but it is easy to produce, with too much and too rapid application of pressure, laceration of and ecchymotic oozing between the fibres of the corona radiata. Such compression contusions of the basal portions of the hemisphere are relatively unimportant, because they relate to portions of the cortex of which the function is either readily compensated when lost or of very wide representation. The inspection of the deep parts of the skull by displacement of portions of the brain entails trouble to the assistant, because it is certainly disadvantageous to move the retractor when once properly in position. So far I have spoken of the cerebrum. I think that precisely the same principles should prevail in the case of the cerebellum.

With this procedure properly applied to the temporal lobe it is remarkable how much can be seen and correctly examined. With a good illumination the crura cerebri, the circle of Willis, the pituitary body and internal carotid, the second and third nerves come into view. I have in two cases after removal of a pituitary tumour inspected the base of the brain further by means of a small rhinoscopic mirror placed in the sella turcica; and it is very easy by continued but gentle pressure with a copper spatula, or with a spatula of suitable size, and with a strong head-light, to inspect the lateral region of the cerebellum and medulla oblongata with the issuing nerves (see Figs. 3 and 4, Plate 4). For these reasons I venture to take

exception to the step of removing portions and lobes of the encephalon if these impede the approach to the lesion.

The Ventricles.

In this connexion, namely, procedures necessary for the examination of the deeper portions of the brain, a few moments must be devoted to the matter of exploration of the ventricles.

Considering that for 1,400 years (as we know historically) the lateral ventricles were looked upon as the most important part of the brain, inasmuch as the animal spirits, or, as we should now say, nerve energy, originated therein, it is not surprising to find that special danger was supposed to attend their opening or surgical interference. Undoubtedly their continued drainage exposes the patient to the particular risk of sepsis, but apart from this there is no reason why they should not be freely dealt with like other parts of the brain, opened and portions of their wall removed as the case may require, provided that one precaution is taken, namely, that blood is prevented from flowing into the ventricular cavity. This, of course, may be obviated at the time of operation by a simple plug, and when the removal of the lesion is completed a temporary tampon is left in for twenty-four hours, by which time all the oozing vessels are thrombosed. I may, perhaps, on this question draw attention again to my paper of 1893, because the case therein referred to of death by intraventricular



Fig. 17.—Dilatation of the ventricles in a case of unrelieved cerebellar tumour.

filling was an instance of persistent oozing gradually forcing its way through the softened roof of the unopened ventricle.

Procedures in the Treatment of Malignant Disease of the Encephalon.

The analysis of the Queen Square cases also brings out in very strong relief the fact that where the technique of intracranial operations fails most is the treatment of malignant disease. This, therefore, will fitly form the last chapter of our considerations. All tumours which, growing from the meninges, penetrate the brain, or which are encapsulated, such as fibromata, myxomata and endotheliomata, tuberculomata and gummata, can all be excised with a good permanent result (see Figs. 15 and 16, Plate 4). The comparison between simple and malignant disease is well shown in the accompanying table of 55 tumours, cases in which the patients' histories have been followed up to date.

Queen Square Cases. Recurrence Table of 55 Tumours.

	Cases.		
Glioma	19	23	Recurrence within 2 years, 20.
Sarcoma ...	4		
Endothelioma		8	1 recurrence 3 years later; died of valvular heart disease. 7 alive well, longest 5 years.
Tuberculous ...		4	2 died within 3 months of tuberculous meningitis. 2 alive well, longest 7 years.
Gumma ...		8	No recurrence.
Fibroma ...		4	No recurrence.
Cysts		5	No recurrence.
Adenoma ...	Pituitary	3	1 recurrence.
Adeno-sarcoma			

But unfortunately a considerable proportion of cases of cerebral tumour are essentially malignant, and by reason of their diffusing through the nerve tissues are very difficult to deal with so as to produce a complete and radical cure. These are the gliomata or glio-sarcomata. One elementary point of difficulty arises from the fact that they not infrequently reach a considerable size before they produce sufficient symptoms to render a topographical diagnosis accurately possible. Further, pathological anatomy does not yet tell us how to classify these growths, or how to determine what is their exact point of origin, consequently it is very difficult to systematically attack their growing focus or plan correctly the complete extirpation of the infected tissues (see Fig. 17 and Fig. 18). Further, the regions of the

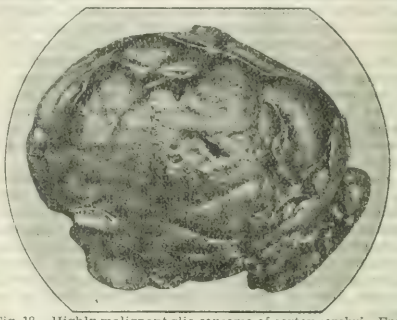


Fig. 18.—Highly-malignant glio-sarcoma of cortex cerebri. From a photograph taken immediately after removal to show the diffuse and oedematous character of the lesion. Recovery with recurrence in eighteen months.

brain surrounding the tumour are commonly oedematous, and this introduces a fresh difficulty—namely, to decide between the infiltration of the brain tissue with neoplastic growth and with simple oedema respectively. The Queen Square series of cases in the foregoing table show that recurrence of malignant disease was observed in no less than 20 out of 23 instances. I have on several occasions attempted, with but partial success, to obtain by extirpating such recurrences the same striking result as Bramann in his classical case, but undoubtedly the treatment of this class of disease will not be surgically



Fig. 20.—Case of glioma of the right lateral lobe of the cerebellum. Photograph three and three-quarter years after operation.

satisfactory until the diagnosis is so far improved as to make it possible to remove the growth entirely with certainty in the first instance. I may quote a couple of cases illustrative of this:

Case I.—P. This patient, a man aged 62, sent to me by Dr. Sellers, of Preston, presented all the classical symptoms of a localized tumour of the right ascending frontal gyrus, namely, Jacksonian epilepsy, hand aura, slight hemiparesis, atopognosis, etc., and optic neuritis limited to the upper nasal quadrant of the right disc. At the operation a small tumour, 5 cm. in length, was found, and the accompanying photograph (Fig. 19, Plate 2) shows that

it commenced in the substance of the cortex and was spreading diffusely from that focus. Microscopically it proved to be a highly malignant glioma. The patient remains in good health.

Case II.—F. In this case the patient, a boy aged 8, presented fulminating symptoms of cerebellar tumour, intense optic neuritis, inability to stand, repeated cerebellar fits, marked nystagmus and localizing pressure symptoms enabling a diagnosis of right cerebellar lateral lobe lesion. A glioma of about 8 cm. long axis was removed from this situation. As will be seen from the photograph (Fig. 20) the patient is in perfect health nearly four years after operation, and shows no symptoms of loss of cerebellar function, although the removal of the growth necessitated considerable contusion of the cerebellar hemisphere.

These cases make it clear that the successful treatment of glioma resolves itself into a question of early diagnosis. In this respect it seems to fall into line with the corresponding malignant tumours, for example, sarcomata of muscle and other soft vascular organs and tissues.

Effect of Directly Exposing but not Removing Gliomata.

In 1890, that is, sixteen years ago, my attention was drawn to the remarkable progress of a case of glioma of the cerebrum which was referred to me by Dr. Buzzard for operation on the understanding that the operation should not be completed if the hemiplegia should be increased or made permanent. The tumour was found at the point diagnosed, but it was so large that obviously its extirpation would have been followed by some permanent paralysis. The wound was therefore closed and the patient made a good recovery. Two and a half years later he accidentally infected himself with erysipelas and died in another hospital. At the *post-mortem* examination it was found that the tumour had disappeared, leaving a cicatricial and degeneration cyst. Since then I have operated on 10 cases of similar nature, but not always defining the tumour itself. In all, however, classical symptoms were present, namely, double optic neuritis, headache, vomiting, and varying motor and sensory pareses, together with severe intracranial tension and bulging of the brain through the opening of the dura.

I may quote the two most recent of these cases: The first, a boy, admitted into University College Hospital, with left hemiplegia and Jacksonian epilepsy, optic neuritis, stupor and vomiting. At the operation I found that at least the middle third of the cerebral hemisphere, principally the leg area, was involved in a dark red diffuse growth. Regarding it as inoperable I closed the wound, hoping that the tumour would undergo retrogression in accordance with the previous cases. This duly happened, and the boy is growing, is bright and intelligent. Examined July 10th, 1906, two and three-quarter years since the operation, he seems to be normally healthy, except that there is a considerable degree of spastic hemiparesis of the left leg, and to a less degree of the arm. Occasionally he has cortical twitching of the left leg.

The second of these two cases is that of a medical practitioner, whom I saw in October, 1902, with all the symptoms of a rapidly-growing malignant tumour of the left lateral lobe of the cerebellum. As this was apparently confirmed when I opened the skull and dura by the extreme turgescence and deep red colour of the cerebellum, I closed the wound, considering that the original intention of palliation of the headache and neuritis was the only possible treatment. His recovery was, however, so complete that in a few months he returned to his practice, which he has been carrying on ever since. Cases of this kind are clearly comparable to those which Dr. Glynn has published[5] of subacute encephalitis and internal hydrocephalus simulating cerebral tumour. It is, however, of course, difficult to determine the parallelism between his series of cases and mine, as only in one was an operation performed—namely, by Mr. Thomas—but in that instance the relief of the cerebro-spinal fluid was followed by complete recovery.

I venture to think that we are justified in making the following general deductions on the question of the surgical treatment of malignant disease of the encephalon: (1) That operation should be resorted to as early as possible; (2) the tumour should be, if possible, freely exposed and examined and extirpated with surrounding tissue; (3) that if it cannot be removed without undue interference with important or essential structures there remains some possibility of the tumour undergoing retrogression in a certain number of cases.

Conclusion.

In bringing this discussion of but one set of cases to a close some explanation is, I think, due from me why I did not follow the customary course of accumulating the records as of many cases as possible from the literature and basing my deductions on that basis.

My reason is that the massing together of cases treated by different surgeons under different conditions of operative technique with different clinical histories has always seemed to me an unscientific proceeding.

The errors of clinical observation are so numerous that to arrive at correct conclusions we ought to exclude variations of condition as much as possible.

I have only now the very agreeable duty of rendering an acknowledgement of my sense of indebtedness to Dr. Grainger Stewart, the Pathologist to the National Hospital (Queen Square), who has with indefatigable industry worked out the clinical records of the cases on which this address is based.

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Address in Obstetrics

DELIVERED AT THE

SEVENTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION,

BY

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THE TEACHING OF OBSTETRICS.

May I be permitted, before entering on the subject proper of this address, to make a brief reference to the addresses delivered by my predecessors? They are few in number, and appear to have been given only on exceptional occasions.

That this should be one of those special occasions has been wisely determined by the Council of the Association, and they have placed on me the responsibility of endeavouring to make some adequate use of the opportunities which such an occasion affords.

The first, and in some respects one of the most interesting of these addresses was given at the thirty-first annual meeting of the Association, held at Bristol in 1863, by Dr. J. G. Swayne, Physician-Accoucheur to the Bristol General Hospital, and Lecturer on Midwifery at the Bristol Medical School. It is recorded in volume ii of the British Medical Journal of that year, p. 178, and it will be noticed that of the many subjects discussed in this address, the obstetric use of chloroform, version in cases of obstructed labour, the treatment of placenta praevia, Caesarean section, blood-letting and chloroform in puerperal convulsions, the nature of thrombosis and of phlegmasia dolens, and the operation of ovariotomy, almost all are still matters under discussion.

As regards the obstetric use of chloroform he says that although it had been used for over fifteen years, obstetric authors were not agreed as to the extent or the frequency with which it should be administered, and in reading his arguments for and against the use of chloroform we can see that medical men at that time had not learnt how to administer it in such a way as would ensure to the patient the needful relief from suffering, while interfering as little as possible with the normal action of the uterus. He concludes by saying that in normal labour especially he would not administer chloroform, but would rather let well alone than interfere with the course of Nature.

Apparently very many practitioners of to-day agree with his views, and not having been taught the proper method of administration, they allow many a patient to suffer severely during labour without affording them the relief that chloroform can give.

Many of us will agree with him in his conclusions as to the treatment of placenta praevia, namely, that the method of version and extraction by the feet must after all be our main resort, being that most often suitable and, be it added, successful. The cases which are exceptional and require other methods are those in which the difficulty of dilatation of the cervix is considerable.

Of the other subjects he discusses, that of the operation of ovariotomy (then still in its infancy) must interest us particularly. Here are seen some of the pioneers of this operation: Spencer Wells, Baker Brown, Tyler Smith, and Clay, with the results involving a mortality in selected cases of from 50 to 30 per cent. Dr. Tyler Smith, then President of the Obstetrical Society of London, whose papers will be found in the third volume of the *Transactions* of that Society, is quoted as having had seven recoveries out of twelve cases, and that "one of the most remarkable features in these cases was, that in two of them the pedicle was tied with a silk ligature, the pedicle and ligature being cut as short as possible, and dropped into the abdomen without producing any bad results."

The address in 1884 was given by Dr. G. H. Kidd of Dublin at the meeting at Belfast. It is recorded in the BRITISH MEDICAL JOURNAL, vol. ii, p. 217, of that year. The subject was Puerperal Fever, treated chiefly from the clinical point of view. While rightly exposing the fallacy of the theory of scarlet fever as a cause of puerperal fever, he refused to admit the general septicaemic theory, because it did not include groups of cases which he supposed due to a specific epidemic disease. The twenty-two years which have elapsed since that date have brought evidence which convinces all who study the matter under favourable conditions that the cases commonly grouped under the head of "puerperal fever" are in the main cases of septicaemia arising as the result of infection introduced from without in connexion with the process of labour and the lying-in, and that this septicaemia is to be prevented by the prevention of this infection. In addition to this, the principal group, there remains a small fraction of cases in which the infection, although introduced from without originally, has remained almost dormant within the body until labour has provided the opportunity for its extension. The theory of a specific epidemic disease has vanished.

The next address was delivered in 1893 at Newcastle-on-Tyne by our revered colleague, Dr. Cullingworth, who is occupying his leisure from active hospital work by editing the *Journal of Obstetrics and Gynaecology of the British Empire*. His address will be found in the second volume of the BRITISH MEDICAL JOURNAL for 1895, p. 353. The subject was Pelvic Peritonitis in the Female, and the Pathological Importance of the Fallopian Tubes in connexion therewith. The address remains as a landmark in our knowledge of the pathology of salpingitis; it led to the general appreciation by British gynaecologists of the true pathology of perimetritis, as well as to advances in abdominal surgery in the treatment of these cases.

In 1900 an address was given at Ipswich, where I had the honour to be President of the Obstetric Section, by our friend, Dr. W. J. Smyly, of Dublin, whose work at the Rotunda Hospital is well known to you all, and who has since received the well-deserved honour of knighthood. His address will be found in the BRITISH MEDICAL JOURNAL, vol. ii, p. 377, of that year. The subject was Maternal Mortality in Childbed. Its chief importance as a landmark is in its indication of the simplification of antiseptic measures for the protection of parturient women, as for instance the abolition of the douche as a routine practice, and in its insistence on the substitution as far as possible of external or abdominal for internal or vaginal examinations during labour. Dr. Smyly does full justice to the pioneers in the fight with puerperal fever, but like Dr. Kidd, and indeed other writers until quite recently, he does not mention the astounding evidence collected by Oliver Wendell Holmes—whose essay on the contagiousness of puerperal fever was placed in my hands by a non-medical friend in my first year as a medical student, and has ever since remained in my memory. The profession is indebted to Dr. Cullingworth for having reminded them of the great service which Oliver Wendell Holmes rendered, though with so little immediate fruit.

At the meeting at Manchester in 1902, Professor Sir William Japp Sinclair discussed Carcinoma in Women, chiefly in its clinical aspects. This is reported in the BRITISH MEDICAL JOURNAL, vol. ii, p. 321, of that year. In this address he expressed his firm conviction that the secret of cancer will be discovered (if ever it is) by the study of cancer of the uterus, although his reasons for this view are not very clear. He is less pessimistic with regard to the results of vaginal hysterectomy than many operators, and was not at that time in favour of abdominal hysterectomy in these cases.

Such an address as I am requested to give on this occasion should, if possible, deal with some point of general importance and interest rather than of personal investigation or experience, and I can imagine none at the present time so important to the present and future members of the Association as the efforts which are being made to improve the teaching and training of our medical students in practical obstetrics. The faults of our methods of teaching are obvious to every thoughtful person. The difficulty in adequately removing the deficiencies is undoubtedly very great.

May we first consider some of the most obvious imperfections? These are for the most part due to the difficulty of providing practical clinical teaching. There is no large maternity hospital in London capable of accommodating the students of the various medical schools, for the four lying-in hospitals are primarily charities for the relief of poor women and training schools for monthly nurses and midwives.

Queen Charlotte's is the only lying-in hospital which admits medical students or qualified practitioners to its practice. The students, however, who take the month's course obtain clinical teaching and experience of a kind not to be easily obtained elsewhere, but unless the hospital is prepared to give up its principal work—the training of midwives and monthly nurses—in favour of the medical students, its 70 beds, accommodating 1,600 in-patients in the year, can only provide the necessary experience for a small number of the students of London. At the present time the practice is attended chiefly by qualified men, who, having found out their lack of experience, are glad to make use of the opportunities for instruction to be obtained there.

The other three lying-in hospitals provide between them 100 beds, but they do not at present admit medical students. So far as teaching is concerned their work is limited to the training of midwives and monthly nurses. The number of women from all parts of the country seeking to be trained as midwives is continually increasing, and to meet their requirements the capacity of these lying-in hospitals is fully taxed.

All the medical schools and lying-in hospitals have an extern maternity department, and in this department the students, under more or less organized supervision, attend poor women in their own homes. Even in the best organized of these maternities the supervision and instruction of the students are very inadequate, for the resident medical officer in charge of them is without that constant guidance and close personal contact with his chief which fall to his lot when working in the wards of a hospital. It is impossible for it to be otherwise, and it speaks well for the general standard of practical common sense that so few calamities occur.

When attended by students *who have had the necessary preliminary clinical teaching*, these extern maternities provide the most important and valuable training that any medical student can obtain, for, as in private practice, he is then placed almost entirely on his own resources. At any time he may have to deal with one of the sudden emergencies of midwifery, and so he begins to acquire that feeling of personal responsibility for the direction and management of the case which it is so difficult to arouse in the student while at work within the hospital, where every important detail is supervised by the responsible officers. Thus invaluable training is at hand for every student in the maternity districts, and their responsibilities in degree and in value are not exceeded by those of any house-surgeon or house-physician, offices which can only be held by a small minority of the best students.

Another factor which has delayed the provision of adequate teaching in obstetrics, not only in England, but probably in other countries, is the old ingrained idea that the process of labour is a simple function of Nature, requiring for the most part a competent nurse only, and that the practitioners of obstetrics, although recognized in theory as of equal standing, are to be looked down upon in comparison with their colleagues in the other great branches of medicine and surgery. As the result of this, both in teaching and in examinations, the study of obstetrics has been relegated to a position totally unworthy of its immense importance to the practitioner and to the national welfare.

As Dr. Dakin pointed out in his excellent inaugural address before the Obstetrical Society of London last year, if only the scourge of puerperal septicaemia can be removed childbed will be robbed of one of its principal terrors, and this long-desired consummation will be nearer its accomplishment when our students are taught practically in the lying-in wards the application to midwifery of the general principles of antisepsis.

As shown in the report of a Committee of the General Medical Council, just published, it is still common in many places for students to be permitted or even encouraged to attend their maternity cases before they have had any adequate instruction in those general principles of medicine and surgery upon which the whole practice of obstetrics is based.

Another defect in the teaching is due to the fact that the lecturers frequently have had little experience in the practice of obstetrics. It is considered essential for the lecturer on medicine, surgery, or, indeed, any other special subject, to be a man of wide clinical experience, and to be in charge of wards devoted to the care of patients suffering from those particular diseases upon which it is his duty to lecture.

In obstetrics it is otherwise; the lecturer presides over no obstetric clinic and has often had but little experience. He is an obstetrician in name, not in practice. He probably does not attend twenty cases in a year. His obstetric practice is limited to the few special cases to which he may be called in consultation, and his teaching is necessarily of the book, not controlled by that wide personal experience only to be acquired by the constant observation of large numbers of cases such as falls to the surgeon, the physician, or to himself as a gynaecologist in the course of their daily work. They, however, aim at and attain a high standard of theoretical teaching, and all credit is due to the men who under these very imperfect conditions have done such admirable work as teachers and investigators.

In many of the provincial schools the lecturer is a successful general practitioner, to whom the Fates have given a large obstetric experience, but whose scientific training for this work and whose experience as a teacher may have been quite inadequate.

It is essential to have a scheme which shall place the teaching of obstetrics upon the same basis as the teaching of medicine and surgery. To devise such a scheme is not difficult, but to render it practicable within a reasonable time must be a matter of considerable expense and difficulty.

It is in the first place essential that the clinical teaching be given in hospitals provided for the purpose, where a sufficient and continuous series of patients can be admitted, and they should have a large extern department where the advanced students can attend patients at their own homes. Lying-in wards in a general hospital would be equally valuable if there were a sufficiently large number of beds to ensure a regular series of patients in sufficient numbers. A small ward with a few beds is quite inadequate for routine teaching, although of great value for the admission of special cases. A large number of cases is less of a necessity than a continuous series, and I am convinced that it is of the greatest advantage to teachers and pupils that medical students be taught their duties at the same time and place as monthly nurses and midwives. If taught separately, the average student learns little of the many things every nurse knows well, and the nurse of a few months' training thinks she knows a great deal more than the doctor, and does not realize the wide gulf that separates her knowledge and practice from that of the properly-trained doctor.

Both student and nurse will in the wards have been taught together how to carry out their respective duties in the best manner with all the appliances and assistance which can be provided there, and in passing from the wards to the out-patient department they will learn how to carry out those principles in the simplest manner, and often enough with little to assist their wits and their fingers in dealing with the lesser emergencies which they will meet with.

Every clinical teacher of obstetrics should be a practitioner of obstetrics having charge of the obstetric wards and extern maternity department, whose office as professor or lecturer would necessarily terminate with the cessation of his clinical duties. This arrangement would usually lead to the devolution of the greater part of the obstetric teaching to the younger members of the medical staff, with great advantage to them, as well as to the students. They would have more time for visiting and clinical teaching in the labour and lying-in wards, and to devote to the pathological work of their department, which the older physician busy in practice may find it difficult to do.

Owing to the great difficulty that there is in providing the necessary funds for the maintenance and development of the existing hospitals, supported as they are by the voluntary contributions of a comparatively small proportion of the community, it seems hardly possible to expect that adequate accommodation can be provided in this manner in the near future, whether by the extension of the lying-in hospitals or provision of suitable wards in the general hospitals or by the foundation of new hospitals. All these are urgently needed, and will require the expenditure of large sums of money. When we look at the splendid provision made for patients in the great public asylums and fever hospitals we shall be pardoned if we are inclined to look forward to a time when the great hospitals of the country shall be relieved from the eternal difficulty of finding the money necessary to pay for their daily maintenance, and when we shall see them equipped in an equally suitable though perhaps less expensive manner by funds provided by the State, administered by the existing Board of Managers, under the general supervision of a responsible Central Hospital Board or Commission.

The practice of obstetrics consists of the practical application of the ordinary principles of surgery and medicine to special organs and to special conditions, and yet as stated in the report of the Midwifery Training Committee of the General Medical Council, already alluded to, in twenty-three out of thirty-seven medical schools students are allowed to attend midwifery practice before they have received even an elementary training in the principles of medicine and surgery. All obstetric physicians who have to teach know well that it is impossible to instruct such students with any enthusiasm, however willing the students may be to learn.

The action of the General Medical Council in appointing this Committee is a very important step in the right direction. The recommendations are in the main excellent, and are now being considered by the various teaching bodies. They are—that every student be required to have conducted no less than 20 cases of labour, subject to the following conditions:

A. Before the student is allowed to conduct the above-mentioned 20 cases of labour he should be required to have held the office of clinical medical clerk and of surgical dresser; to have attended a course of lectures in medicine, surgery, and midwifery; to have during one month given undivided attendance upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital; and to have therein attended cases of labour under the direct supervision of a medical officer of the hospital. He should further be required to produce a certificate from the authorities of the hospital showing that he is competent to undertake the conduct of ordinary cases.

B. No certificate that the student has conducted the above-mentioned 20 cases of labour should be accepted unless it is given by a member of the staff of a lying-in hospital or of the maternity charity of a general hospital.

These recommendations, when they can be rendered practicable and can be enforced, will meet some of the most important deficiencies suggested in this address. They will ensure that the student has had a considerable part of his training in medicine and surgery and elementary obstetrics before the required twenty cases of labour are commenced; and that he will have had the same practical demonstrations and clinical instruction in the wards of the lying-in hospitals or in the lying-in wards of the general hospital as he receives in his surgical and medical training.

The changes indicated in Paragraph B may be thought to inflict some hardship upon individual students, for at the present time the requisite certificate of attendance upon twenty cases of labour may be given by any registered practitioner. But it must be remembered that under the existing regulations the certificate affords no evidence that the student has received any instruction whatever, and there is reason to believe that such indeed is sometimes the case.

While it is perfectly clear that there are many general practitioners able to give excellent instruction in some of the details of practical midwifery, it is equally certain that there are many others whose methods of practice, especially in the disregard of aseptic precautions, would make them dangerous teachers, and would lead to the continuance of methods which tend to the perpetuation of the still high mortality from puerperal fever. The difficulty of making any selection under these circumstances would be very great, and there is no satisfactory alternative but to adopt the course which is universally followed in the teaching of surgery and medicine—namely, to require that instruction be given by recognized teachers selected from the hospital staff for the purpose, and that the instruction in practical midwifery necessary for qualification be given only by recognized teachers.

The regulation at present in existence which demands that the student shall attend courses of systematic lectures is also faulty, since it involves unnecessary labour to the lecturer and makes too great a call on the time and attendance of the student. This remark, indeed, applies to almost all systematic lectures as delivered at the present time, and many of us think that the time has come when the arrangements for such lectures need thorough revision. The great extent and variety of the subjects, on the one hand, and the excellence of so many of the text-books on the other, make it desirable that the greater branches of medicine and surgery be taught in sections rather than in a continuous course of sixty or eighty lectures.

In obstetrics the usual plan is to give a course of lectures extending over three months, and delivered on four or five days in the week during the summer session; this course the student is expected to attend, but it is often quite impracticable to arrange a time for the lectures which shall permit anything like the whole number of the students to attend without interfering with their other duties, and unless (as is the case in the larger schools) a tutor is appointed to supplement these lectures by classes held at short intervals, a student may get little or none of the higher instruction which it is essential for him to receive. The lecturer on his part has year after year to spend a considerable portion of the time given to his lectures in teaching the anatomy and physiology of the female generative organs, both in the normal and gravid conditions, before he can begin teaching obstetrics proper, namely, the anatomy and physiology of labour, the management of pregnancy and labour, and the science and practice of the various complications that may arise.

It is a curious custom, but apparently a common one, for the lecturers on anatomy and physiology to omit from their systematic courses the female generative organs; hence the student learns but little of female pelvic anatomy and of such a highly-important subject as the physiology of menstruation until he attends lectures on obstetrics and gynaecology.

Before attending his cases and acquiring some degree of practical acquaintance with the process of labour the student is not in a position to appreciate or even to understand much of what he hears in a course of systematic lectures. It would be better if the instruction he received before his attendance upon labours were limited to the management of normal pregnancy, labour, and the puerperium together with such complications as are common. Instruction of this kind could well be given by the demonstrator, and would clear the ground for the lecturer on obstetrics, leaving him free to devote more time to the graver complications and more advanced work. The student also at this later stage of his career would be in an infinitely better position to appreciate the value of this advanced teaching.

Another method of instruction, and one likely to be keenly appreciated by advanced students, is the delivery of clinical lectures upon cases recently in the wards. Hitherto, owing to the absence of lying-in wards, such lectures have seldom been delivered.

Amongst the many able and learned obstetricians in London who have from time to time endeavoured to raise the standard of teaching, there is probably no one to whom we owe so much as to the late Dr. Matthews Duncan. He came to London to fill the vacant post of obstetric physician at St. Bartholomew's Hospital in October, 1877, and from the first devoted a large portion of his time and his great experience, and gradually his affection also, to his wards and his students. A "Scotsman of the Scots," he came to London believing that there was little of value to be found South of the Tweed. He gradually transferred his devotion from Edinburgh and Aberdeen to London and St. Bartholomew's. He would go to Scotland for his holiday but came back to London for his work.

His influence at the hospital may be summed up in the statement that by his teaching and example he transformed the teaching of obstetrics and gynaecology from an almost insignificant position to one of the greatest importance. This change was soon felt, not only by his colleagues on the staff of St. Bartholomew's, but by the students and junior officers who flocked to his lectures and wards to learn from his example that the practice of midwifery and gynaecology could be as noble and as full of dignity as that of the highest standards of surgery and medicine. This transformation was due not only to his learning and greatness as a teacher and to his success as a leading consultant—both of which were sufficiently recognized far beyond the limits of St. Bartholomew's and even of London itself—but also to the greatness of character which made it impossible for any one to be brought in contact with him, either in hospital or palace, without feeling that the branch of the profession which he practised was as noble and dignified as that practised by the greatest physicians and surgeons. In this respect, as in the high standard of his teaching, his example diffused itself in every direction, and it is no injustice to other great teachers of his time to say that it raised the whole standard of teaching obstetrics and gynaecology throughout London.

It is difficult to say whether he excelled most in his systematic or clinical lectures. Students who regularly attended his systematic lectures received a course of instruction which by its completeness rarely left any matter of importance—however recent a contribution or emanating from whatever country—lacking in their knowledge of the subject. Illumined with the criticism of his clear, highly-trained, logical mind, they were enabled to discriminate what was of permanent value and what they might expect to lay aside with fuller knowledge.

His clinical lectures were models of what such lectures should be. No student could help keeping his attention fixed on the subject. No mass of detail was allowed to obscure the clearness of the main object of the lecture, so that every one carried away some important principle clearly impressed on his mind, while to the more advanced student in gynaecology the facts grouped round the main thesis (the importance of which was not always perceptible to the elementary student) afforded him further instruction, the value of which rose in proportion to his knowledge of the subject and his experience as a practitioner.

The influence of such a man, who combined the highest personal qualities with knowledge, experience, and clear judgement, not only in the ward and class room but in every relation of life, raised the standard of the science and practice of obstetrics and gynaecology to a position which, at least in London, they had never before attained.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

MUSCLE PLASMA: ITS OPSONIC POWER AND FUNCTION IN PHAGOCYTOSIS.

Of the opsonic power of the blood plasma we have heard much; of that of the tissue fluids nothing has been mentioned. Inasmuch as the class of case, such as lupus, sycosis, and acne, which benefits most by vaccine treatment, is that in which the infecting organism probably never comes into direct contact with the blood plasma, but only with the tissue fluids, it seemed desirable to estimate the opsonic index of the muscle plasma.

Opportunities of collecting human material being slight, rabbits were employed for the purpose, the procedure being that used in every physiological laboratory for obtaining muscle plasma. A quite unexpected difficulty was early encountered to which reference will be made later.

The action of opsonins being upon the bacilli and not upon the leucocytes, there is no objection to the employment of the white blood cells of man in estimating the opsonic index of rabbit's blood serum or muscle plasma, and these accordingly were employed. The method was that devised by Dr. Wright.

Making due allowance for the fact that admixture of the normal saline, used for washing out the blood from the animal's vessels, with the muscle plasma is unavoidable, and that the values obtained for the opsonic index are therefore below the true ones, it is evident from the following figures that muscle plasma has at least as high, and probably higher, an opsonic index than the blood plasma.

Numerous observations I have made upon the human subject show a well-marked diurnal rise and fall in the opsonic index, this being highest in the evening and lowest in the early morning. A relation thus to bodily activity is quite possible, and the muscles may well be a source of opsonins.

Experiment I. Rabbit 1.

A. Human blood cells ...	3 vols.	Count: 62 in 50 polymorphonuclear leucocytes.
Tubercle bacilli ...	2 vols.	
Muscle plasma ...	2 vols.	
B. Human blood cells ...	3 vols.	Count: 62 in 50 leucocytes.
Tubercle bacilli ...	2 vols.	
Rabbit's blood serum	2 vols.	

Experiment II. Rabbit 2.

It was obvious from the amount of plasma obtained that in this case a greater admixture with the normal saline had occurred than in the former.

A. Human blood cells ...	3 vols.	Count: 60 in 50 leucocytes.
Tubercle bacilli ...	2 vols.	
Muscle plasma ...	2 vols.	
B. Human blood cells ...	3 vols.	Count: 97 in 50 leucocytes.
Tubercle bacilli ...	2 vols.	
Blood serum	2 vols.	

Experiment III. Rabbit 2.

(Organism employed, the bacillus of Friedländer.)

With muscle plasma count = 83 in 100 leucocytes.
With blood serum count = 110 in 100 leucocytes.

The difficulty encountered in using rabbit's blood cells was that very few if any polymorphonuclear cells with bacilli inside were usually to be seen; such as were seen were in a very damaged condition, and the contained bacilli were undergoing solution, whereas the non-phagocytic white cells seemed perfectly healthy. Examination of specimens prepared after varying periods of incubation seemed to confirm this observation, and it would appear that tissue plasma has a definite lytic action upon leucocytes which have taken up organisms, whereas it is without effect upon the normal white cells.

Examination of two slides thus prepared gave the following results:

18 good cells contained	0 bacilli.
5 fairly good cells contained ...	4 bacilli.
13 cells obviously being destroyed ...	75 bacilli.
14 wrecked cells	32 bacilli.

(Often hard to tell whether the contained body was a bacillus or not.)

The slow breaking down of large numbers of leucocytes and their contained organisms would probably result in the formation at some period of powerful toxins, and it is possible that the rôle of this constituent of muscle plasma is to carry the process rapidly past this period of danger.

Assuming these observations to be correct, considerable light is shed upon various problems, as, for example, why invasion of the blood stream by organisms is so dangerous, for blood plasma is without this lytic substance; the advantage of treatment of certain infections by passive congestion on the one hand or by massage on the other is obvious; by the former the tissue plasma of the part is increased, for the return lymphatic flow is obstructed; by the latter old used-up plasma is removed and new plasma brought to the part.

Before, however, considering this lytic action of muscle plasma as an established fact, it is obviously necessary to extend the observations, especially by employing human muscle plasma, and I should be very grateful for any assistance in obtaining a limb immediately after amputation.

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FISSURE ABDOMINALIS AND DOUBLE GENITALIA.

Mrs. L., aged 29, one healthy child alive, was attended by me in April, 1903, for her second confinement. The premature rupture of the membranes was followed by a tedious labour ending in inertia uteri, which necessitated delivery by forceps. The liquor amnii was of a peculiar tenacious consistence, dirty dark colour, staining deeply as it escaped with each pain. The mother made an uninterrupted recovery. The child was an eight months fetus and lived for some hours after its birth. The whole of the abdominal wall was absent from about an inch below the point of the sternum to within an inch of the pubic bone, with the exception of a small irregular flap of skin which contained the umbilical cord. The viscera protruded freely through this opening. There was no great omentum. The external genitalia were duplicated and separated from one another by a clearly-defined central space of skin (raphe). The urogenital and anal orifices on both sides were extremely rudimentary and suggested early intrauterine arrested development. There were present two shallow sinuses, with raised labia majora in each and two anal depressions below the perineum on either side. The organs on the left of the raphe were rather more developed than those on the right. With the exception of these abnormalities the child was in every other respect well formed, and cried lustily at birth.

In the *Journal of Anatomy and Physiology* (1881) is an article by Alban Doran on a case of abdominal fissure. In this, although the genital organs were not duplicated, the interest lies in the fact that defect in the abdominal wall was accompanied by defect in the genito-urinary organs. The dissected specimen is in the Museum of the Royal College of Surgeons.

Hewetson's case of Fetus showing a rare Maldevelopment of Cloaca, in the *Journal of Obstetrics and Gynaecology* (1904), is somewhat similar; defect in the abdominal wall was associated with remarkable abnormalities in the genital tract. A vigorous, full-time child was born with only a single perineal depression and an entire absence of urethral, vaginal, or anal orifice, yet on dissection a complete double uterus and vagina were present.

There are a few examples recorded of double genitalia, well developed but unaccompanied with abdominal fissure. One such specimen, presented by John Gay in 1887, is in the Royal College of Surgeons Museum. This is a female, at full term, with an acephalous parasite below the umbilicus. There are two perfect external genitals, and each is connected with a vagina and uterus, having one Fallopian tube and ovary. There are two urinary bladders, each with only one kidney. A single rectum lies between the two vaginae. In Ahlfeld's Atlas, *Die Missbildungen des Menschen*, there is only one example recorded—that of Katherine Kaufmann. In this case there was no abnormality in the abdominal wall. She possessed two well-marked sets of external genitals, with labia majora and minora, clitoris, hymen, vagina, urethra, and anus, on each side of the raphe. She lived for two years, and on *post-mortem* examination the pelvis was found divided by

a sagittal fold of peritoneum; in each half was a bladder, a unicorn uterus with corresponding tube and ovary. There were two colons attached to a caecum, and the spinal column was double below the third lumbar vertebra. So rare is this case that the American authors, Hirst and Piersol, have reproduced it as the only example of the kind in their Atlas on *Human Monsters*.

Ealing, W. EDWIN CHILL, M.D., C.M.EDIN.

SCLEROMA NEONATORUM IN TWINS.

A MULTIPARA was delivered about 4 a.m. on May 17th, 1906, of twins, a boy and a girl (separate placentae); both were apparently quite strong and healthy, and cried lustily after division of the cords, but were small, the mother not having expected to be confined till a month later. The parents were quite healthy, also their near relations, and their other child, a boy aged 5 years, is, and always has been, strong.

The mother states that she menstruated regularly every month after giving up nursing this boy, till she became pregnant; she did not go out to work, only performing her house duties, and was able to have good, nourishing food the whole time she was carrying the children; she has had no miscarriages.

On May 19th I was called in to see the little girl, and found the feet were very much swollen, hard and waxy in appearance, pitting very little on deep pressure; the child was very somnolent and refused the breast: temperature 97°, pulse 90. Later on in the day I found the swelling had spread up the legs and thighs to the middle of the abdomen, and by the next morning it involved the head and upper extremities. On this day I found the same condition commencing in the feet of the other child; as in the little girl, it gradually spread, the child being similarly drowsy. The girl died in the evening of that day and the boy three days later.

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REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

MUNICIPAL HOSPITAL, KURNOOL.

EXTRAUTERINE FETATION.

(By Captain D. G. RAI, I.M.S., District Medical and Sanitary Officer.)

AN extremely interesting case of extrauterine fetation, with a rather rare termination, was admitted into the Municipal Hospital, Kurnool, on February 26th this year. The notes taken on admission are as follows:

The patient, a woman about 40 years old, is of ordinary build, anaemic, and very thin. Had one child fourteen years ago, the labour being natural. Her second pregnancy occurred four years after the first, and, according to her statement, pregnancy went on to full term, when the labour pains came on and continued for a day or two. No child was expelled, but a bloody discharge began from the uterus and continued for two months. After this period the abdominal tumour was very much reduced in size. From that time onwards, she says, she menstruated regularly, and never felt any inconvenience or discomfort, more than a slight pain in the region of the tumour, till four months ago, when she began to feel that something was always obstructing the passage of the urethra and causing intense pain and discomfort. Urine began to dribble away, and small pieces of bone were very often discharged with the urine. It is for this distressing symptom that the patient has sought admission into the hospital.

Examination of the abdomen reveals a tumour about the size of a cocoanut situated immediately above the pubes. On percussion the tumour is dull, and on palpation a crackling sensation is imparted to the hand. The tumour is not very mobile.

Bimanual examination shows that the cervix is very hard, and os uteri does not admit an ordinary uterine sound, and appears to be completely stenosed. The uterus is behind the tumour. Per rectum the fundus of the uterus feels normal and empty; no crackling sensation is felt by the fingers from the uterus.

On dilating the urethra and examining the bladder with the finger the bladder wall is found to be thickened, and the bladder very much contracted; it is proved to communicate with a sac through a firm ring-like opening of the size of a sovereign. This sac contains a large number of fetal bones which can be felt distinctly with the finger through the opening. Urine is dribbling and is extremely foul, and has the colour of pus. The patient is pale and wasted, her tongue is dirty, and temperature 100.5°. Pulse 88, very feeble; respirations 22.

Treatment.—The patient was placed on good nourishing diet, with quinine internally; boric, iodine, and Condy's lotions were used to irrigate the sac and bladder. The patient was placed under chloroform five times, with an interval of six days between the sittings, and sixty-eight bones were removed, including long, flat, and irregular bones. It was not considered safe to keep her under chloroform for more than a few minutes each time. During each interval between the sittings her condition very much improved, and since the last sitting she has felt so well that she insists on going to her home. The only instruments employed were the polypus forceps and Lister's sinus forceps. I intend crushing the remaining bones in the sac to facilitate their removal with the sinus forceps if she returns to the hospital.

Owing to the septic condition of the bladder and free communication between the bladder and the sac, the abdominal section was not considered advisable or necessary.

REVIEWS.

TEST MEALS AND THE CLINICAL EXAMINATION OF THE FAECES.

THE main principle of Professor SCHMIDT'S original and instructive work on the examination of the function of the intestine by means of the test diet[1] is that, in order to make the examination of real utility, we must have as our starting point a uniform composition of the faeces, or what he calls a normal faeces, which can only be obtained by putting the patient upon a test diet of known composition. The diet he proposes consists of five meals daily, containing milk, zwieback, oatmeal gruel made from oatmeal, butter, milk, water, and an egg: chopped beef lightly broiled, and 250 grams of potato broth made with mashed potatoes, milk, and butter; this contains about 102 grams of albumen, 111 grams of fat, and 191 grams of carbohydrates, or a total of 2,234 calories. The diet is given for three days, sometimes longer, at any rate, until a stool is obtained, and it is only occasionally that he finds it necessary, in order to mark off the "normal excrement" from the excrement of the former diet, to administer at the beginning and end of the test diet a wafer containing 5 gr. of powdered carmine, which gives a distinguishing colour to the corresponding part of the faeces. He describes at length the examination of the faeces so obtained, and we may briefly draw attention to its chief points.

The macroscopic examination is the most important part of the whole procedure, and for this purpose the excrement is first stirred up thoroughly with a wooden spatula, and a small amount, about the size of a walnut, ground up in a glass mortar as fine as possible, with the addition of distilled water until it is of a fluid constituency. It is then spread over a flat plate or a large glass vessel in a thin layer, so that all the elements may be recognizable in it with the naked eye. In normal digestion there ought to appear only a few brown points, composed of the remains of the oatmeal gruel; their nature will be explained by microscopical examination. Under abnormal conditions we may see mucus in larger or smaller flakes, pus, blood, parasites, stones and other foreign bodies, remains of connective tissue and tendons from the chopped meat, remains of muscular tissue and of potatoes and large crystals of triple phosphate. Much connective tissue points to a derangement of the gastric digestion, while the muscle remains point to disturb-

[1] *Die Funktionsprüfung des Darmes Mittels der Probekost.* Von Professor Dr. Adolf Schmidt. Wiesbaden: Verlag von J. F. Bergmann. 1904.

ance of intestinal digestion. The microscopical examination is to be made by preparing three slides, on the first of which a particle is crushed into a very fine layer with a cover-glass. On the second the particle of faeces is to be stirred up with a small drop of acetic acid, and held for a minute over a flame until it begins to boil; it is then covered with a cover-glass. The third is rubbed up with a small drop of a strong solution of iodine—1 in 50. The first preparation may show muscle fibres, calcium salts, colourless isolated potato cells, chaffy remains from the oatmeal gruel, and, where cocoa is taken instead of milk, remains of cocoa. In the second preparation, which serves to melt all the fat remains temporarily, there are seen after cooling small flakes of fatty acid scattered over the entire preparation. If it is again carefully heated and placed under the microscope while hot, the small flakes of fatty acid are melted into drops, which congeal very suddenly as the preparation cools. In the third preparation the potato remains assume a violet shade, and isolated fungus spores stained blue-violet may appear. The chief pathological features to be noted are the large number and undigested state of the muscle fibres, the drops of neutral fat, and the quantity of fatty acids and potato cells present; in the acetic acid preparation the amount and size of the fatty acid flakes; and in the iodine preparation the remains of starch granules, the fungus spores, and yeast cells.

The chemical examinations Professor Schmidt recommends are the reaction, the sublimate test, the fermentation test, and perhaps the examination for dissolved albumen. The reaction is taken with litmus paper, and normally should be amphoteric, or at most feebly acid or feebly alkaline. The sublimate test consists in placing some of the faeces which have been ground up with water in a glass vessel filled with concentrated solution of corrosive sublimate, stirring it and leaving it to stand until the next day; by that time normal faeces become coloured red from the presence of hydrobilirubin, while if unchanged bile pigment is present the colour is green. The fermentation test is performed by Strasburger's fermentation tube, of which he gives an illustration. Some of the faeces are put into the apparatus, which is is then filled with water and placed in an incubator for twenty-four hours. If sufficient gas has been formed to drive the water up one-third of the ascension tube the condition is pathological; while if the faeces in the apparatus have become acid, carbohydrate fermentation, or if alkaline albumen putrefaction, has occurred. In the former case the bottle when opened gives off an odour of butyric acid, in the latter a decided putrefactive odour. As he does not think that any definite conclusions can be drawn from the examination for dissolved albumen, the method need not be detailed, and he regards the bacteriological examination of the faeces as not calling for discussion in the present work.

The significance of the results of these examinations are that the appearance of mucus is, in his opinion, the sole reliable sign of inflammation of the mucous membrane; the presence of unchanged bilirubin has a more doubtful meaning, as it may indicate a too rapid passage of the intestinal contents or a defect of the normal processes of reduction for unknown reasons. The insufficient digestion of fat may be due to deficiency of bile or to disturbances of the pancreatic secretion or of the intestinal digestion.

The presence of connective tissue indicates stomach disorder, but not its precise nature; if, however, remains of muscular fibre can be seen with the naked eye, there is some disturbance of intestinal digestion, although even here it does not seem certain whether this is due to the insufficient secretion of pancreatic juice or to increased peristalsis, or to some disturbance of absorption leading to decomposition and secondarily to diarrhoea. The microscopic appearance of muscle fibres has the same significance. An acute form of meat lientery sometimes appears in the course of acute gastro-intestinal catarrh. A positive result with the fermentation test indicates defective starch digestion in the small intestine, but the absence of the formation of gas cannot be relied upon to prove that the digestion of starch is normal. The microscopic finding of numerous potato cells seems to give as much information respecting the digestion of starch as is derived from fermentation. The presence of albumen putrefaction allows us to infer severe disturbances of digestion which are for the most part connected with anatomical changes in the intestinal mucous membrane, and are usually accompanied by secretion of mucus and pus; it is only where putrefaction is very marked that any diagnostic significance can be drawn from it. Professor Schmidt says it would be rash to assume that the methods described are at present adequate for satisfactory functional examination of the intestines and the glands connected with them. We possess no reliable test of the three chief functions of the intestine, secretion, motility, and absorption, nor can we localize the disorder in the bile, the pancreatic juice, or the intestinal juice, or decide whether the small or the large intestine is affected. We know nothing of the extent to which the small intestine participates in diarrhoea or constipation in a given instance, nor even in the case of such obvious disturbances as catarrhs and ulcers can we always determine whether they are situated in the large or the small intestine. These difficulties are still greater in the case of purely functional disturbances. Sahli's attempt to test the activity of the pancreatic secretion by giving a gelatine capsule of iodoform, so treated as to render it indigestible by the stomach juices but digestible by the pancreas, fails because it is impossible to be sure that the gelatine which is hardened by formaline is so accurately prepared that it escapes the gastric juice and is dissolved by the pancreatic juice. Professor Schmidt suggests a method which is based upon the fact that the pancreatic juice dissolves or digests the nuclei of cells, but he only goes so far as to say that if all the nuclei escape the pancreas must have undergone serious structural change; it does not indicate mere disturbance of the pancreatic function. Contrary to the old opinion, he finds that in the absence of bile from the intestine bacteria are diminished in amount and there is less putrefaction of the ingesta. Nor has he found that constipation results from the cessation of bile secretion; fatty stools stimulate peristalsis, probably by the action of the free fatty acids which are present in considerable quantities, and he suggests that something might be made of this in overcoming chronic habitual constipation. The presence of starch, as in gruel, prevents putrefaction, or, as he puts it, the carbohydrates to some extent shield the albumen from putrefaction. Purgatives and intestinal disinfectants, even calomel, fail to reduce the number of intestinal bacteria, while astringents such as bismuth and tannigen do so effectively; he recommends the addition of 5 gr. of salicylic acid to the daily quantity of 1½ litres of milk as the best means he knows to prevent decomposition of the milk in the intestine.

We have by no means exhausted the subjects of interest discussed in Professor Schmidt's small volume. It is true that the results so far obtained do not at present allow us to attach very serious practical importance to the use of the intestinal test meal, but it is clear that Professor Schmidt's work has led him to investigate many questions connected with the intestine, and his researches promise to have a peculiarly valuable bearing upon many points of practice. The American translation[2] is on the whole good, but here and there are long sentences which are so difficult to follow as to make one doubt whether the translator had himself grasped clearly the meaning of the original.

Dr. RÉNÉ GAULTIER'S epitome of clinical coprology[3] is to be regarded as a sort of comprehensive statement of all the work he has done upon this subject during the last few years, of which specimens published from time to time have been noticed in these columns; most of the most important points have been discussed already, and it is consequently somewhat of a repetition and a good deal an extension of work with which we are already familiar. We may recognize the convenience of having easily accessible in one volume all that Dr. Gaultier has done, although we regard his methods as not adapted to present clinical needs, and we are not convinced that the results he obtains are worth the labour he bestows upon them. He is one of the pioneers of this subject, and if

[2] *The Examination of the Function of the Intestine by the Test Diet.* By Professor Dr. Adolf Schmidt. Authorized Translation by Charles D. Aaron, M.D. Philadelphia: F. A. Davis Company. 1906 (Demy 8vo, pp. 91. $1.)

[3] *Précis de Coprologie Clinique.* (Epitome of Clinical Coprology.) Par le Dr. René Gaultier. Paris: J. B. Baillière et Fils. 1907. (Crown 8vo, pp. 384. Fr.7.)

ever the examination of the faeces should come to be, as he thinks it should, as much a matter of ordinary routine clinical investigation as the examination of the urine, his name and his work will occupy a place of honour. We regret to receive with the book a fly-sheet containing a request at the top that we will publish it and send the copy of the JOURNAL containing it to the publishers. This fly-sheet is a review of the book, written of course in French, and naturally praising, though perhaps not unduly, the work and the author. We should have supposed that Dr. Réné Gaultier and the great firm of J. B. Baillière et Fils were equally above the necessity of doing this kind of thing; it is a custom sanctioned by usage in France; it would be more honoured in the breach than in the observance.

DIETETICS.

THE translation of Professor ARMAND GAUTIER'S *Diet and Dietetics*[1] undoubtedly places before English readers a famous French textbook, but there is reason to doubt whether the translation was desirable, for the original work has been published two years, since which time Professor Chittenden's researches have thrown so much doubt upon the bases upon which diets had been previously calculated that there is an obvious need for the careful reconsideration of the whole subject: moreover, it is not unfair to say that Professor Gautier's book is not original, and that in its English form it does not possess the supreme merit of clearness of expression which gives to so many French textbooks a value to students which may even surpass that of originality. The work is divided into three parts: in the first are described the general principles of normal diet for a healthy man; in the second the nature and application of the various alimentary substances; and in the third the variation of diets according to individuals, races, climates, and age in health and in sickness. The ordinary Frenchman is said to need daily 110 grams of albuminous food, 68 grams of fat, and 425 grams of amylaceous material; this corresponds closely to the estimate of C. Voit and other writers before the days of Chittenden, but these figures were arrived at by the very simple process of finding out what the average man ate, and accepting the range of his appetite as a solemn and indisputable fact—a simple but not a sound basis for further conclusions. That the better a man is fed the longer he lives is a doubtful doctrine; nor are we sure that the people in the country, where the diet is poor, are quickly worn out and die early; nor that the better-nourished workmen of large towns really live several years longer. There is no statistical proof in France of this assertion, and, reasoning from analogy, we should expect the better-fed animal to die sooner, although he might be a more efficient machine during his lifetime. The following story, if it can be believed, is one of the best arguments we have seen in favour of the addition of a certain amount of wine to the diet of a mule; whether it would apply equally to less obstinate animals we do not know:

> It happened that a mule, a very beautiful animal, refused for some months, every time he was harnessed to a heavy cart, to make the effort that was demanded of him. Neither hay, oats, nor blows were of any avail. He was about to be sold again when a farm servant proposed to apply to him the means which he said they employed at his home to overcome the resistance of these beasts when they do not feel capable of doing the work expected of them. There was then added to his usual food 2 litres of wine daily, a very small quantity compared to the size of this animal, weighing as much as seven average men. From that day and as long as the wine was mixed with his daily food this mule did the best work. I saw him a year after, always on the same diet, and always undaunted and resisting fatigue.

The dietetic importance of sodium chloride, while generally admitted, is not usually satisfactorily explained, but, according to Professor Gautier, it protects albuminoid substances against "dissimilation," and is therefore economical, while in the omnivora it promotes the secretion of a more acid gastric juice; it plays an important part in the nutritive exchanges between the cells and the plasma, while it stimulates the excretion of the various waste products by the kidneys. On the other hand, complete privation of salt is believed to induce the animal to "dehydrate itself," whence the French method of treating dropsical effusions by a diet from which sodium chloride is eliminated as completely as possible. The greater digestibility of stale bread is explained as due to its being "more pervious to the digestive juices," a change not due to desiccation, but to the fact that a part of the starch which had been transformed into amylodextrin returns at the end of twelve or twenty-four hours to the state of starch: the starch of fresh bread absorbs from four to five times its own volume of water, while the starch of stale bread will not absorb more than twice its own volume of water, hence the latter swells less in the stomach. The translation is generally good, but the exact equivalents have not always been selected; for example (p. 3), we speak of "mother liquor" not "mother water"; on p. 436 the word wanted is obviously "cool," not "fresh"; on p. 341 it should be "washing" not "soaping"; on p. 427 it should be "affusion" not "lotion": the word "aperitif" is not translated by "aperient," nor do we talk about cloves "perfuming" our food. We might also expect an English translator to correct such slips as that the Loch Katrine water is brought "to Edinburgh" instead of to Glasgow, and such mistakes in the spelling of names as "Stockes" for "Stokes," "Todt" for "Todd," while the translator may be himself responsible for the printing of "Laenec" and "Sublotin" (for Subbotin): we notice, too, on p. 306 "vermont" for "vermouth," on p. 382 "height" for "weight," on p. 450 "urocrythin" for "urocerythrin": these by no means exhaust our list of errata, but are enough to show that more care might have been shown in the preparation of the book.

The fourth part of the new *Traité d'Hygiène*[2] is devoted to alimentary hygiene, and is written by MM. J. ROUGET and CH. DOPTER, both army surgeons and Professeurs Agrégés at the military medical school of Val-de-Grace. It contains in a small compass a great deal of information compiled from standard authorities, but makes no pretension to originality, and shares the defect of all recent books on diet in failing to take into account Chittenden's researches. Apart from this it may be regarded as a trustworthy guide, and its style and arrangement are all that can be desired. The authors follow Professor Gautier in making the dietetic customs of an inhabitant of Paris their standard for comparison, and it is interesting to notice the enormous difference in the consumption of meat between that ideal person and the average Englishman, although it is admitted that the inhabitant of Paris consumes more meat than the average Frenchman. According to Gautier, an Englishman consumes annually 59 kilograms of meat or its derivatives, whereas the average Frenchman eats only 38 kilograms. In the opinion of our authors, the large consumption of meat in England is of great hygienic value, and they follow Grancher in attributing to it the reduction in the prevalence of tuberculosis which has taken place here during the last forty years. They give figures showing the enormous growth of the chilled meat trade, by which carcasses brought from the Antipodes are available for the food of the European working classes, and they deplore the fact that in France this trade has not developed, although the desire to obtain cheap meat is sufficiently shown by the growth of the sale of horse meat, which has increased from below 1,000 horses per annum before 1870 to over 30,000 in 1902, while even asses and mules are sometimes slaughtered for food. But these figures are minimal when compared with the growth of the trade in chilled meat brought to England, which amounted to only 400 carcasses in 1880 but had risen to 6,422,153 in 1898. The authors speak highly of the method of preserving meat by chilling, and consider meat thus treated quite equal to fresh meat, except that it will not keep so long after it has been thawed. They write very sensibly about alcoholic drinks, and quote with approval Lord Rosebery's saying, that "If the State does not control the liquor trade the liquor trade will control the State"; but they admit that legislation has so far been unsuccessful, and despair of seeing any efficient measure carried in the present state of public opinion in France. The value of the book as a work of reference is greatly diminished by the absence of an index.

[1] *Diet and Dietetics*. By A. Gautier. Edited and Translated by A. I. Rice-Oxley, M.A., M.D. London: Archibald Constable and Co., Limited. 1906. (Demy 8vo, pp. 552. 18s.)

[2] *Traité d'Hygiène*. Publié en fascicules sous la direction de MM. P. Brouardel et E. Mosny. IV.—Hygiène Alimentaire. Par J. Rouget et Ch. Dopter. Paris: J. B. Baillière et Fils. 1906. (Demy 8vo, pp. 320. Fr. 6·)

ANIMAL METABOLISM.

The valuable series of books which Mr. John Murray is bringing out under the auspices of the University of London has just received an important addition in the work on *Animal Metabolism*,[6] which is the outcome of a series of lectures delivered there in 1904 by Dr. J. B. Leathes. Every page bears evidence of care and thoughtfulness. The difficult questions discussed are treated clearly, and the way in which the problems are approached throws new light on what has hitherto been obscure. The author is an accomplished organic chemist, but pure chemistry is never obtrusive in his pages. He uses it as a foundation, and the superstructure is the work of a physiologist. The main headings are the good old-fashioned ones of carbohydrates, fats and proteids, and in each case anabolism is discussed first and then catabolism. Individual chemical reactions must be studied before it is possible to grasp the sum total of the chemical changes in the body which the word "metabolism" implies. It will doubtless be a long time before we know all there is to know on such a wide theme; more facts must be collected, and probably many theories will have to come and go before this aim is reached. In the collection of facts Dr. Leathes is a prominent worker; as a propounder of theories he is both cautious and inspiring. One striking impression, the outcome of reading the book, is the depth of our present ignorance; one knew beforehand how much we have still to learn; but one had perhaps not realized before how little we know even of the simplest changes, such as the origin of water and carbonic acid from the non-nitrogenous constituents of our bodies; the study of intermediate products like lactic acid and acetone will no doubt furnish keys to unlock such riddles. When we come to the proteids our difficulties increase. There seems, however, little doubt that the major part of the albumen ingested is never incorporated with the body tissues; the nitrogen is got rid of easily and discharged, leaving the non-nitrogenous residue as a source of energy and heat. It is also taken as pretty well proved that digestion of proteid matter is carried normally as far as the amino-acid stage, and the new tissue proteid is constructed from these simple substances. The difficulties of discovering leucine and its allies in the blood during absorption is well recognized, but we fancy that Dr. Leathes has somewhat exaggerated them; he calls to his aid a little arithmetic, and he is extremely fond of illustrating his ideas by numerical data. As a rule these are convincing, but in this particular case we have not been able quite to follow him. The questions raised by Chittenden, Folin, and others as to the necessity of reducing our proteid intake below the Voit standard are discussed, and the main conclusion reached is that the minimum is not physiological. This may be comforting to those who have been perplexed recently as to the proper course to pursue; the reasoning that has led Dr. Leathes to this decision we leave to our readers to discover for themselves. It is unwise for the reviewer of a work of fiction to reveal the plot of the author. Dr. Leathes's book is certainly not fiction, but we can confidently recommend it as being more interesting than the majority of modern novels to those who have the necessary knowledge to read it.

SURGERY.

Professor E. Leser of Halle has written a companion volume on general surgery[7] to his well-known textbook on special surgery which has already passed through a number of editions. The book treats, in the course of fifty chapters, of general surgical pathology and therapeutics. Professor Leser's purpose has been to produce a textbook for the medical student. The first chapters are devoted to the subject of wounds and infections, and are admirably arranged and clearly expressed. Then follow tuberculosis, syphilis, and burns. After this injuries of bones and joints and diseases of the skin, of muscles, of blood vessels, and of bones and joints are taken in order. The chapters on affections of bones and joints are exceedingly good; the illustrations are not numerous, but on the whole sufficient. Professor Leser treats his subjects in a descriptive manner likely to impress the memory of his readers and to convey clear and abiding conceptions. The nine chapters devoted to tumours are the best illustrated in the book, and really form a treatise on the subject. The illustrations are original and well reproduced. We have pleasure in commending the book, on the whole, as a student's textbook of an excellent type, clear in expression and sufficiently dogmatic in statement, and we anticipate that it will be popular among those for whom it is intended.

The first instalment of Dr. Fowler's new *Treatise on Surgery*[8] which is to be completed by another volume of the same size, consists of a long preliminary section in which the author sets forth fundamental principles in a decidedly interesting and instructive manner, and of the first portion of the more practical element of the subject comprising the injuries and diseases of each region. The author seems to regard this grouping of his topics as somewhat novel, but really it conforms to the usual and traditional method, as, indeed, is acknowledged in the table of contents, of classification under the headings of general and regional surgery. The reader will find here the teaching of a thoroughly competent surgeon presented in a very attractive form. The style is lucid, and the illustrations—most of these original—are distinct and graphic. It is a thoroughly practical treatise, and in his discussion of all the details of practical work the author has made it his aim to submit to the reader the most recent and improved methods of surgical practice. Notwithstanding the high professional standing and experience of Dr. Fowler and the general excellence of his treatise, it seems very doubtful whether such a book as this can now meet the requirements of surgical readers. Like many other treatises on surgery intended for the use of the student and practitioner, it is too bulky and cumbersome for the one and far from adequate for the other. In a book intended just for teaching the principles and practice of modern surgery, the inclusion of chapters on laboratory work, surgical operations, and even bandaging, is now hardly necessary, as such subjects can be more effectually taught by special books and classes. The author in dealing with such subjects, and especially with laboratory aids in surgical diagnosis and prognosis, has certainly done his work well, but at the cost of rendering his book very unwieldy. On the other hand, it seems likely to prove disappointing in many respects as a work of reference for the advanced student and the practitioner. Many sections on important subjects, such, for instance, as syphilis, tuberculosis, and cancer, are meagre, and occupy too little space in so large a volume. As might be expected from a surgeon so experienced and practical as Dr. Fowler, the portion of the book which deals with subjects of regional surgery seems to be by far the best.

The Principles and Practice of Asepsis,[9] by Dr. Arthur Styles Vallack, is a useful little volume of rules and instructions for aseptic technique. The author has evidently a thorough grasp of his subject, and nurses and dressers will find many things in the book which should prove useful to them in training themselves in the principles of surgical cleanliness. The principles on which aseptic practice is founded are very clearly set out, and it is well shown how this practice is essentially prophylactic. Special attention is directed to the subject of tissue resistance to infection, and to the necessity for its careful study and estimation in individual cases. The subject is considered throughout from the clinical and practical standpoint. In some matters Dr. Vallack perhaps insists unnecessarily on admitted facts, and is inclined to underestimate the value of chemical antiseptics. All surgeons admit that they cannot for the most part be used in such concentration as to be actually germicidal, but it is an error in the opposite direction to belittle their value as

[6] *Problems in Animal Metabolism.* A Course of Lectures given in the Physiological Laboratory of the London University. By J. B. Leathes, Lecturer on Physiology at St. Thomas's Hospital. London: John Murray. 1906. (Demy 8vo, pp. 205. 7s. 6d.)

[7] *Die Allgemeine Chirurgie in 50 Vorlesungen. Ein Kurzgefasstes Lehrbuch für Ärzte und Studierende.* (General surgery in 50 chapters. A short textbook for practitioners and students.) Von Dr. Edmund Leser. Jena: Gustav Fischer. 1906. (Royal 8vo, pp. 585: 171 illustrations. M.12.)

[8] *A Treatise on Surgery.* By George Ryerson Fowler, M.D., Examiner in Surgery, Board of Medical Examiners of the Regents of the University of the State of New York; Emeritus Professor of Surgery in the New York Polyclinic, etc. Vol. i. Philadelphia and London: W. B. Saunders and Co. 1906. (Demy 8vo, pp. 722: 892 illustrations. 2 vols. 63s.)

[9] *The Principles and Practice of Asepsis.* By Arthur Styles Vallack, M.B., Ch.B., L.M. London: Bailliere, Tindall, and Cox. 1906. (Fcap. 8vo, pp. 95. 2s. 6d.)

inhibitants of microbic activity; to state that chemical antiseptics are quite useless for the purpose of disinfecting mucous membranes is a considerable exaggeration. Dr. Vallack is surely aware that all surgeons, at least we know of no exception, who have had the patience to persevere in the use of rubber gloves admit that after use for a time they do not hamper manipulation. The instructions given for the sterilization of instruments, ligatures, and dressings are most useful; a half per cent. solution of lysol for boiling instruments, as a substitute for the soda solution, is new to us, and appears to be an improvement. In regard to catgut we direct Dr. Vallack's attention to the Claudius method of preparation, which is probably the best of all. We recommend the book as a very practical elementary textbook to those commencing clinical surgical work.

THE SHIP'S SURGEON.

THE author of the little work, *The Ship-Surgeon's Handbook*,[1] has met a decided need, for though we have books, of which Leach's well-known *Medical Guide* is so good an example, for the use of marine captains, there has hitherto been an absence of any literature devoted to the life and work of the ship-surgeon. This small and handy volume, however, contains much more than its title implies, as Mr. Elder not only deals quite fully with the duties and responsibilities of the medical officer on board ship, but also gives much information on subjects relating to this work which, it is hoped, may come under the notice of managers and owners, and also of any colleague on shore who is proposing a sea voyage for a patient. Mr. Elder has not only had much experience of medical work at sea, but he is capable of giving copious and most useful instruction in a very pleasing way, and of discussing clearly and judiciously the merits, on the one hand, and the difficulties and pitfalls on the other, of this attractive service. The surgeon going to sea for the first time will find good advice in the chapters on the choice of ship and on outfit and uniform. A very brief experience will teach him the force of the author's opinion of the importance of private influence in obtaining what he needs, and we trust that after he has overcome any preliminary difficulty of this kind, he will in due time regard the words of warning given at the end of the first chapter. The hints on drugs and appliances on board ship are good and suggestive, and show the necessity, under the changing conditions both of medical science and of merchant shipping, of frequent revision of what, with regard to the proper objects of Government control, may be regarded as on the whole an adequate and satisfactory scale. In regard to the subject of fees at sea, to which a chapter is devoted, there seems, even in mail boats, to be no fixed custom. So long as the supply of doctors far exceeds the demand and the young surgeon is often disposed to regard his service as casual and irresponsible, there is likely to be great difficulty in establishing a satisfactory and widely-recognized system of special remuneration. The author points out, quite correctly we think, that the solution of such difficulties which under present circumstances must and do occur, rests entirely with the medical profession. The long chapter on sea-sickness, though it presents no novel views on the cause or the therapeutics of this ailment, will be found practically useful, as it shows that much may be done by sympathetic attention and by a knowledge of small details to alleviate the distress of the patient. This excellent treatise on the professional work of the ship-surgeon, and his relations to executive officers and passengers, concludes with a useful chapter on ships as convalescent institutions, in which the author, after a protest against light and heedless advice in sending a patient to sea, discusses, for the guidance of the non-seagoing practitioner, the indications for and against a voyage for the sake of health, and the main facts in connexion with a venture of this kind.

[1] *The Ship-Surgeon's Handbook.* By A. Vavasour Elder, M.R.C.S., L.R.C.P., Surgeon, Orient Steam Navigation Company. London: Baillière, Tindall, and Cox. 1906. (Cr. 8vo, pp. 167. 3s. 6d.)

THE International Conference on Tuberculosis will, by invitation of the Netherlands Association for the Prevention of Tuberculosis, be held this year at the Hague, on September 6th, 7th, and 8th.

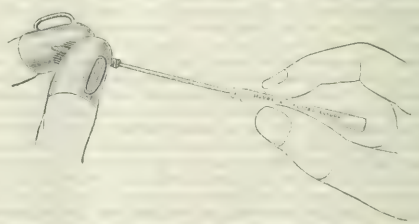
NOTES ON BOOKS.

THE recent discovery of haemogregarines in the blood of mammals has stimulated further research on this interesting subject, and Captain PATTON, I.M.S.,[1] now describes a new parasite of this group in the blood of palm squirrels in India. The account given in the memoir is accurate and good, showing that the leucocytozoon is of the nature of a haemogregarine without doubt, and also that it differs from the one recently discovered by Bentley in the blood of dogs in Assam. Its main features are that it inhabits the large mononuclear leucocytes alone, does not possess a cytocyst, and is furnished with a tail. No mention is made of any illness in the affected animals, a rather difficult point to determine, but the fact of almost all the squirrels in the district in which the author worked being infected would tend to show that it is comparatively harmless or, at least, not very deadly. No developmental forms were observed in the body of the squirrel louse. Other insects might with advantage be tried, and more blood counts and observations would be useful.

In the preparation of a new edition of *Minor and Operative Surgery*[2] Dr. WHARTON has been tempted by a liberal interpretation of what he assumes to be the wants of his readers to enlarge to a considerable extent the size and scope of his work. He has evidently done the work of revision very thoroughly and conscientiously, but by the inclusion of such subjects as fractures and dislocations, and major operations has, in our opinion, impaired rather than improved the special merits of what, without such unnecessary and inadequately discussed additions, might be regarded as a convenient and useful guide to minor surgery and bandaging.

MEDICAL AND SURGICAL APPLIANCES.

Thimbles for Making Wool Mops.—Mr. E. Cresswell Baber (Brook Street, W.) writes: The drawback of making surgical mops by holding the cotton wool between the finger and thumb is that, in order to keep them clean, repeated washing of the fingers is necessary, and even when this is done absolute cleanliness is doubtful. To avoid these inconveniences I have had the metal thimbles shown in the accompanying figure made for the left forefinger and thumb.



They are flattened, and provided with several shallow and one deeper groove on the opposing surfaces, where also the metal is dulled instead of being polished. With a little practice mops of any size can be rapidly made. The thimbles, which fit on to a little metal stand, can be boiled, stand and all, before use, and if they are only kept on whilst actually making the mops they can be employed for a series of cases without any further cleaning. The handles are merely for lifting them off the stand. They have been made for ear, nose, and throat work, but can, of course, be used to make mops for other purposes. I have found them more convenient than Kayser's forceps, which were devised with the same object. The thimbles are made by Messrs. Mayer and Meltzer, 71, Great Portland Street, W., in various sizes.

[1] *Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India.* New Series, No. 24. On a Parasite Found in the White Corpuscles of the Blood of Palm Squirrels. By Captain W. S. Patton, M.B., I.M.S. Calcutta: Office of the Superintendent of Government Printing, India. 1906. (Demy 4to, pp. 13. 1s. 2d.)

[2] *Minor and Operative Surgery, including Bandaging.* By Henry R. Wharton, M.D., Professor of Clinical Surgery in the Woman's Medical College of Pennsylvania, etc. Sixth Edition. London: Kegan Paul, Trench, Trübner, & Co., Limited. (Demy 8vo, pp. 650; 532 illustrations. 14s.)

Nova et Vetera.

NOTES FROM A SEVENTEENTH CENTURY TEXTBOOK OF MEDICINE.*

By R. L. Meade-King, M.D.,
TAUNTON.

The *Synopsis Medicinae* of William Salmon, Professor of Medicine, a revised and enlarged edition, was published in London in 1681. It contains over twelve hundred pages on Diagnosticks, Prognosticks, Therapeuticks, and Anatomicks.

The time at our disposal will not allow of any exhaustive treatment of his work, so I have tried to select interesting items that might illustrate the everyday practice of the period.

I consider the book worthy of your attention, as it expounds the curious mixture of shrewd observation with empiricism and astrology, which represented the art of medicine up to his time, but even then was being swept aside by the scientific labours of Salmon's famous contemporaries, and by the increase of rationalism amongst the public, following the peace of the Restoration—men having learnt to think for themselves during the long series of political and religious troubles through which the nation had passed.

Astrology and practical medicine are here generally treated of in different sections and do not greatly intermingle. I regret that my ignorance of the former art prevents my doing justice to this part of the work.

I find that by astronomical observations assisted by logarithms you may decide the following important questions:

"Whether the Party be sick, or no,"

"Of the Cause of the Disease,"

"Whether the Disease be in the Body or Mind,"

"Whether the Diseased be bewitched or no?"

and the prognosis.

I may remind you that at this period even judges of assize were only beginning to expose the errors of witchcraft.

The section on Therapeuticks opens with lists of the simples which are appropriated to each planet, which simples must only be gathered and prepared when their planets are in certain positions.

There are also astronomical times for bloodletting, vomits, sweats, baths, clysters, and gargarisms—though in some severe cases you are warned not to wait for the stars "lest farther mischief ensue."

You may understand some of these extracts:

Administer no purgation when Leo ascends, lest it cause vomit.

Purge the Lungs, when Jupiter is weak; the Gall, when Mars is weak; the Instruments of Generation when Venus is weak; the Brain when the Moon is weak.

The Moon in Scorpio in Sextile or Trine with Venus not combust, purge choller, with Sol, purge Flegm; with Jupiter, purge Melancholly, and that with Potions.

But when Pisces takes the place of Scorpio, you must use pills.

Magic occasionally appears in his treatment. He relies on it in prolonged labour; turning is described, but forceps of course were unknown.

The Eyes of a Hare, taken in March, drawn out of the Head intire, and dried with Pepper. . . . One of these Eyes to be so tied to the belly, that the sight of the eye may touch it. The Child being Born, it is to be removed, lest the Womb also comes out.

Precious stones, either in rings or in the ears, must be removed, as they retard delivery.

Again, warts may be cured by rubbing with a dead man's hand (dandelion juice is also mentioned, which is still used locally).

For epilepsy in children,

Take a little black sucking Puppy (but a Bitch Whelp for a Girl), strangle it, open it, and take out the Gall, which has not above gut. iii or iv of pure Choler in it. Give it all to the Child in the time of the fit, with a little Tile-flower water; it will cure presently, as it were by a miracle.

For hydrophobia, eat the roasted liver of a mad dog.

Human bones powdered are good for gout, preferably the same bones as are affected in the patient.

By way of contrast to this white magic let me give you some aphorisms from his chapter "Of the General Precepts of Curing":

"Consider the strength of the Sick, that it may be preserved: then consult the Cure of the Disease," otherwise "the Sick may dye in the mydst of his cure."

If two indications are directly opposite one to another, regard not the one so as to neglect the other.

If the kind or quality of the Disease be obscure, do not hastily use Medicines; rather let Nature work, and a good diet.

In this last precept is the teaching of Sydenham, which was in contradiction to the usual practice of the time and not generally adopted until later.

Salmon is a bitter opponent of the custom of bleeding on all occasions, though he recommends it in many cases.

These are some of his arguments:

Nature Generates or Augments not the Quantity of the Blood in vain.

That the taking away of the Blood: (1) Hinders Nature in performing her operation; (2) diminishes her generation; (3) frustrates some intention of Nature; (4) diminishes the Medium of Unition; (5) impairs the strength; (6) opens a Chasm, which, being made sufficiently wide, lets out life and introduces Death.

His "Prognosticks" include the inspection of urine, faeces and expectoration, without any chemical examination.

The urine after sleep was to be taken, and allowed to stand for six hours in a high clear glass; after which you notice the sediment, colour, and smell; though he complains, "to smell to urine misbecometh the Dignity of a Physician, but sometimes against our Will, we are forced to it."

We find 180 paragraphs on the inferences to be drawn from urine, chiefly on such obvious abnormalities as pus, blood, bile and gravel.

As you know, it was then the custom for physicians to treat a patient after only seeing a sample of urine; but Salmon warns the student of the danger of "for vain glory sake, to seem to Conjure by a Piss-pot." He should find out from the bearer of the sample, the age, sex, and symptoms of the patient and his habitation; and then by his knowledge of endemic and epidemic diseases, and considering the season of the year, "you may come very near to the Business you desire to know, namely, the Disease by name."

With regard to the pulse, we are told that "The most prudent Physicians only observe three kinds—1. The Equal and Unequal. 2. The Swift and Slow. 3. The Strong and Weak."

Other advice with regard to prognosis includes:

That sneezing is a hopeful sign except in lung disease.

Shingles is fatal if it extend all round the body.

"All quinsies are dangerous if not mortal," and further on tracheotomy is advised in extreme cases.

"Ulcerations of the throat in hot diseases are generally mortal."

This bad prognosis may be due to diphtheria not being differentiated until nearly 150 years later.

Aneurysm is commonly a long disease unless an incision is made by mistake, "when death quickly follows."

Asthma evidently includes many cases of phthisis, as now in the uneducated classes. Some skin diseases are difficult to recognize from the description given, and all are severe and intractable, doubtless owing to the fact that our forefathers were large eaters and small washers.

Salmon teaches the importance of diet in treatment.

In renal calculus the patient must avoid "putrefactive things" and all wines, and eat asparagus, pease broth and beans.

In gout he lays great stress on a frequent change of diet to strengthen the digestion; "avoid gorging and eat only when hunger enforces." The gouty man who was lucky enough to live in the days before adulteration was common might drink in moderation of "beer, ale, cider, perry, mead, cherry, gooseberry, or raspberry wine, Spanish or Rhenish wines, or alicant."

The value of milk is extolled in the treatment of phthisis. We are told that many cases are cured by milk alone; asses' milk is best; the quantity to be gradually increased to three gallons a day. The broth of snails in milk well sweetened with sugar of roses took the place of our cod-liver oil.

Infection or contagion are only mentioned in connexion with leprosy and plague. Plague, I may remind you

* President's address delivered at the annual meeting of the West Somerset Branch held at Taunton, June, 1906.

was almost endemic in England from the time it reached our country in the reign of Edward III, when, beginning in the west, it overran the whole land, and is said to have destroyed over one-half of the population. In London there had been three severe epidemics in the seventeenth century before the great plague year.

Salmon advises those who have to mingle with plague-stricken people not to touch them, their attendants, or garments, to avoid their breath and the exhalations of their sores, and not to remain longer than necessary in their houses. To avoid all things which weaken the body, as venesection; to shun a sedentary life and excess in diet.

If any are troubled with fistulas or old ulcers, they are not to be healed up in the time of a plague, and you ought rather if there be none, to make an issue in a convenient and declining place, that the body may be emptied of its filth and uncleanness.

Abstain from passions of the mind and hunger.

Then follows a little sermon on turning from your evil ways, which does not apply to modern physicians.

On rising you should eat "two or three Cloves of Garlick, there is no more certain Preservative, especially if you drink after it a good draught of Generous and clear Canary."

After this meal you are to wash your whole body with a lotion, of which I will give you the ingredients as an example of the complicated mixtures then in use:

℞ Rose-water, Vinegar of Roses, White wine āā lbvi, roots of Elecampane, Angelica, Gentian, Bistort, Zedoary, Juniper and Ivy-berries āā ℥iii, Rosemary, Rue, Sage, Wormwood āā Mj (one handful), Citron peels, Mithridate, Venice Treacle āā ℥i—bruise what are to be bruised, boyl with a gentle fire, and keep it for use.

But, knowing the distastes of his contemporaries, he adds:

If you are unwilling to wash the whole body, you may then only wash the Temples, Forehead, Face, Neck, Shoulders, Armholes, Wrists, Hands, Stomach, Groins, and instruments of Generation.

If "you yet mislike this Bathing," he gives an alternative ointment to use on the above parts of the body. Lastly, he returns to magic, and recommends amulets to be worn about the neck to hang against the region of the heart—such as a dried toad sewed up in silk.

In the chapters on Therapeuticks I am sorry to say that Dr. Salmon is not above advertising his proprietary medicines, and referring the reader to his other works for prescriptions.

There is his pulv. antepilepticus magistralis for epilepsy in children; "a peculiar injection of our own" for gonorrhoea, "which cures in six or eight days' time, or if it be recent in three or four days"; "our new London treacle" for rheumatism at 4s. a pound. The advertisement of his "silver purge" at 5s. the ounce extends over two pages. It cures as many complaints as a modern quack pill, and he boldly says, "We determine not fully to reveal the secret." There are also long lists of stock medicines, with prices.

The chapters on surgery are much the same as those of other writers before the day of Percival Pott. His method of sewing up an abdominal wound seemed to be peculiar to me, although it may be well known. With a well-waxed thread you pass your needle through the skin and muscles, but not through the peritoneum, on one side, and bring it out through peritoneum, muscles, and skin on the other. Wiseman, Surgeon to the King from Charles I to James II, makes his first stitch in the same way, but includes the peritoneum on alternate sides in successive stitches: but Heister, who learnt his surgery in Churchill's campaigns, uses a thread with two needles, and includes the peritoneum on both sides.

Tents were used for drainage, wounds were washed with wine and dressed with powders, ointments or plasters of the usual complicated formation.

Uterine pessaries were made of cork covered with wax mixed with a little castoreum or asafoetida. Heister advises silver or gold for the more opulent, instead of cork. The plates show strings attached to them, to draw them out more easily.

Counter irritation, bleeding, issues, setons, wet and dry cupping, and the cautery are frequently prescribed in the medical therapeutics. The cautery is even recommended to be applied to the neck of babies a few days old for convulsions. Leeches will suck longer when full if you cut off their tails.

A favourite method of bleeding is to open haemorrhoids "by friction, fig leaves, coarse cloth, or the juice of onions."

Mania is relieved by making the nose bleed with a feather.

Other forms of medication now fallen into disuse are clysters of infinite variety, vomits, and errhines or irritating applications to the nostrils, used "to purge the brain."

Friction and swinging by the arms is advised for rickets. Salmon says that this disease was first noticed in England: he gives a good description of the symptoms: and in addition to the usual causes says it may arise from "sucking a red-haired nurse," or from witchcraft: in the latter case it may be cured "by a piece of gold given by the King of England's hand."

Salmon describes natural baths, as at Bath, and medicated baths, also a vapour bath not unlike the cabinet baths now in use. Other forms of vapour bath are illustrated in the works of Heister and Scultetius.

A novel form of bath is said to cure deafness:

After universal Evacuations, for the Patient to wash his Head well in Brimstone Baths: put upon the Head of the Sick a Cap reaching to his Eye-lids, and beneath his Ears, made of spunges sewed together, and let him so sit in the Bath, that it may fall from a Cock or Spout upon his Head for two hours space twice a day.

Drugs obtained from the mineral, animal, and vegetable kingdoms are in bewildering numbers: the mineral less than now; numerous animal derivatives, and I should think most herbs then known.

I will pass over the disgusting subject of skatological remedies, which are far too frequent, merely remarking that urine of children and dogs, spittle, dung, and blood all enter into the prescriptions.

To give an idea of the number of drugs in use, there are over fifty herbs tabulated as specifics for epilepsy. Trepanning was advised for bad cases of this disease. Tobacco-smoke is another remedy: the patient takes the stem of the pipe in his mouth while the physician blows down the bowl. Oak mistletoe is greatly praised in the treatment of the same disease. Sir John Colbatch wrote a pamphlet in 1720 on *Miseltoe as a Specific Cure for Convulsive Remedies*. A purge for epileptics is composed as follows: "Scammony, Resin of Jalap and Aloes āā gr. vi, Cremor Tartar gr. viii, Oils of Rosemary, Lavender, and Lemons āā miii, Salt of Amber gr. iii—mix for a dose."

I will further trespass on your patience with a few random notes.

For baldness, which is caused by "dryness of the brain," he recommends "ashes of bees or wasps, or the fat of vipers."

Rhubarb is among the remedies for dysentery. Turnips improve the sight. "Mustard boiled in butter, to which add some gunpowder," is a dressing for shingles. An empyema was considered more satisfactory if it were coughed up than if it pointed; expectorants were given with this object.

I find many modern friends amongst the remedies for amenorrhoea—aloes, myrrh, savin, pennyroyal, steel, and asafoetida. For menorrhagia, "a decoction of orange peel in which red-hot steel has been quenched divers times." A fit of hysteria may be cut short by plucking hairs from the privates.

"From three to twelve hog's lice, swallowed alive for several mornings while fasting," cures jaundice "to a wonder."

"The lungs of a sheep, hot and bloody, being sit upon," will stop the bleeding of internal piles.

For volvulus, leaden or golden bullets in olive oil may be swallowed, or as much as 3 lb. of quicksilver in water.

In conclusion, I will give you Salmon's vigorous treatment for apoplexy:

First let there be a gentle concussion and rousing of the Sick, as also Frictions in the extream parts with Salt and Vinegar. Secondly, make a Revulsion of the matter by Cupping Glasses on the head, chiefly the hinder part thereof; by strong Clysters and Suppositories by Vesicatories applyed to the Nape of the Neck and Shoulders by application of Actual Cauteries to the Crown of the head, hinder parts, and other places adjacent till the skin becomes hard and crusty, which are afterwards to be made to run well: by Errhines and Sternutatories put up the Nostrils: by purging with Mercurius

vitae if the Sick be a rustick and strong person: and lastly (as common Physicians advise) by opening the Vein of the forehead, Jugular and head vein, which is to be done without delay, and often to be repeated in the space of a few hours.

BRITISH ASSOCIATION.

(Concluded from p. 374.)

Section of Physiology.

Granular Changes in Nerve Fibres.

Professor J. S. MacDonald read a paper on granular changes in nerve fibres. As a result of researches carried out at Sheffield, he had come to the conclusion that nerve fibres owed their function to the inorganic salts that they contained. Conclusions drawn from a study of the electrical phenomena of nerve had led him to search within the nerve fibre for strong solutions of potassium chloride, and he had collected evidence of their presence. He also stated a reasoned belief in the possibility that the means most widely made use of in the "microchemical investigation" of nervous tissues—cells as well as fibres—were in reality stratagems used to precipitate and then map out the inorganic salts present within them. Pictures of nerve structure were often no more than pictures of salt distribution.

Professor Gotch drew attention to the manner in which the result of this investigation added point to his remarks on neo-vitalism in his presidential address. At the outset of these investigations by Professor MacDonald he confessed he had not been in complete sympathy with the ideas upon which they were based, but these added results and further work had practically destroyed his attitude of opposition, and enabled him to agree almost wholly with Professor MacDonald's conclusions. He had been conquered by the weight of accumulated evidence, and was now glad that he had never stated dogmatically that the new facts were impossible.

Nitrification of Sewage.

Dr. George Reid read a paper on nitrification of sewage by shallow filters of fine particles, in which he observed that he had always advocated fine-grain sewage filters, used as "percolating" filters, not as "contact" beds; but until recently he was not aware that the reduction in the size of the filter particles allowed of much shallower, and therefore less costly, filters being constructed. At present the Local Government Board paid no regard to size of particles or depth of filter so long as a minimum depth of 4 ft. was provided, the sole governing principle being cubic capacity in relation to sewage flow, irrespective even of the strength of the sewage. It followed, therefore, that for a given volume of sewage the area of an 8 ft. filter need only be half that of one 4 ft. deep, the rate of delivery per superficial yard in the case of the former being twice that of the latter. Seeing that nitrification was dependent upon the healthy activity of aërobic organisms, theoretically it would seem that the larger the number of these organisms the greater the amount of work they could accomplish. If this were so the aim surely should be to provide within a given space as large a surface for bacterial growth as possible by reducing the filter particles to the smallest size which was found to be compatible with free aëration and practical working conditions. In practice he had found that the best results were obtained from $\frac{1}{8}$ in. filter particles, although from 1 in. to 3 in. or 4 in. was the range usually adopted for percolating filters. He had directed his attention specially to the gradational changes effected at different depths by analysing samples collected by a series of trays introduced into the body of the filter at 1 ft. intervals, the trays being placed obliquely from above downwards, so that no tray had another in the vertical line above it. The more important results of a series of analyses of samples collected over a period of six months, the filter having been in constant use for three years previously, were as follows: The suspended solids in the tank effluent, amounting to 7.6 parts per 100,000, of which 50 per cent. was mineral matter, were practically all retained in the superficial layers of the filter, where the organic portion was evidently liquefied—probably by aërobic organisms. Within the first foot the organic matter was nearly completely oxidized, the free ammonia in parts per 100,000 being reduced from 1.71 to 0.03, the albuminoid ammonia from 0.34 to 0.05, and the oxygen absorbed from 2.18 to 0.32, a nitric nitrogen figure of 2.07 being recorded. Thus, a very high-class effluent resulted from filtration through 1 ft. only, and very little work was left for the lower strata of the filter to accomplish. The oxidation of the carbonaceous matter was also practically completed at 1 ft. depth, as was evident from the reduced oxygen absorbed figure, as well as from the fact that the carbonic acid in the air of the filter nearly reached its maximum within 1 ft. of the surface. A remarkable increase in the free ammonia figure in the effluent from the lowest tray was recorded, and, whatever the explanation of this might be, it did not arise from an accumulation of organic solids, for on examining the filter no such accumulation could be detected, and this was also borne out by the ascertained percentage loss on ignition of the filter particles at different depths. The conclusion which the results seemed to warrant was that, given fine particles and good distribution, sewage filters might be constructed much shallower than hitherto; also, if a sewage, by reason of its strength, should prove to be exceptionally resistent to treatment, more would be effected by increasing the area than by deepening the filter.

The Prevention of Infectious Disease.

Dr. Hime gave an address on the preventive measures employed against infectious diseases and considered their effectiveness. It was clear, he said, from an exhaustive series of observations made in almost every large town in the kingdom consecutively since 1876, and now reduced to tabular and graphic form, that, although modern therapeutic agencies had caused a large diminution of the percentage of fatal cases in the most serious infectious diseases, yet there had been no corresponding diminution, in fact, no diminution at all, in the prevalence of those diseases. Such diseases included chiefly diphtheria, enteric fever, scarlet fever, and measles. In many large towns, such as Wakefield, Leeds, and Leicester, though the hospitals seemed efficient, in certain years the outbreaks had increased remarkably and isolation had no effect in checking them. On the contrary, in Wakefield, when the hospitals were for a period shut, the outbreak diminished rapidly. In Leicester, too, in 1903, when there was a serious outbreak of small-pox and the hospitals were thus needed, a large number of scarlet fever patients were sent back home from the hospitals, and a marked decrease at once resulted. The question whether present preventive measures were effective must, he thought, be answered in the negative, except in the case of small-pox, which was undoubtedly prevented or protected by vaccination. Dr. Hime then referred to the resolution carried last year at the annual meeting of the British Medical Association, in which the efficiency of hospitals in the prevention of these commoner infectious diseases was seriously called in question, and the Government was urged to cause a public inquiry to be made. In addition to small-pox, consumption was a disease that was decreasing owing to effective preventive measures, but in this case it was not so much the result of isolation as of a better general environment and increased attention to breathing, diet, and cleanliness and exercise. In respect of the other diseases, such as diphtheria, scarlet fever, typhoid fever, and measles in particular, it seemed that science was now upon the eve of introducing an effective preventive method in direct personal treatment analogous to vaccination. This was the opsonic treatment being perfected by Sir A. Wright, which consisted in testing and strengthening the resisting power in a person by injecting into the system the specific antitoxin of the disease in increasingly stronger doses, until the blood was so strongly impregnated that it had the power of destroying all the bacilli of the particular disease, and thereby rendered the individual quite immune from infection. This, Dr. Hime thought, was the great method of the future whereby these common and dangerous infectious diseases would be destroyed or greatly lessened.

Electrical Resistance of Human Tissues.

Dr. Dawson Turner contributed a paper on the electrical resistance of the human tissues, in which he detailed the results he had obtained by comparing the electrical resistance of the blood with that of the secre-

tion of the kidney. This ratio he called the haemorenal salt index. It was a measure of the renal efficiency, and was likely to lead to valuable results, by throwing valuable light upon the suitability, or otherwise, of a patient for an operation. The salt index was shown to be markedly altered in pernicious anaemia.

Diet Values.

In the Sections of Physiology and Chemistry a joint discussion took place on the factors which determine minimal diet values.

Dr. F. GOWLAND HOPKINS said that the animal, especially the human, body was capable of very astonishing degrees of adjustment in respect of food, and therefore, so far as immediate results were concerned, it was not easy to observe the effects of variations in diet values. Again, it was difficult to estimate the quality of different human employments in respect of energy expended. Professor Voit of Munich had determined that for the average body under average conditions the standard for moderate work was 3,050 calories and 118 grams of proteid. Professor Atwater of the United States had increased these figures to 3,500 and 125 respectively, while Professor Chittenden of Yale had from experiments, lasting over many months, on soldiers and athletes reduced them to 2,600 and 2,700 calories with 55 grams of proteid in each case. There was nothing, when all the circumstances were fully considered, in Chittenden's results to show that Voit's standard for energy was too high, for there was nothing in the body to prevent it from largely adjusting itself to circumstances; and experiments had shown conclusively that this adjustment was of a fundamental sort. The work of the internal organs required the expenditure of more energy than had hitherto been supposed, and this energy was of a high value. Taking the whole evidence available for this country under normal conditions for average persons, an active life could be well carried on with Voit's figures. Dealing with Mr. Seebohm Rowntree's experiments and investigations in York, Dr. Hopkins pointed out that in the case of fourteen families, with an average earning power of 26s. a week, and an expenditure of about 6¾d. per head per day, the figures were not far from Atwater's figures for soldiers and athletes, reaching a maximum of 2,685 calories and 89 grams of proteid; but here it was important to note that the women and children always had less, and the breadwinner more, than the average. A point of real practical importance was that a small diminution of food from the ordinary quantity taken by a person resulted in no loss of power, but produced a loss of vivacity, or what the Americans called "snap," and this illustrated the fact that the total caloric value expended was not all used usefully but a good deal superfluously. Another very important point was that the form of the proteid mattered greatly. Science had not yet given attention to the fact that to get the best qualitative constituents of food for growing children was of the utmost importance. If we knew more we could, by studying details of children's food, profoundly affect their condition and very much raise their normal standard.

Professor GOTCH expressed the extreme satisfaction at the conjoint method of treating this subject by both the chemists and the physiologists. It was essentially a chemical problem, and the physiologists had no skill in determining the exact chemical operations; that was for the chemists. One point Dr. Hopkins, he thought, had not mentioned sufficiently—namely, that the caloric value was subject to one important variation in respect of the amount of muscular exercise which needed caloric energy in the form of carbon fuel and did not need any proteid. But the general condition could only be maintained and improved by caloric *plus* proteid. He was amazed at our extraordinary folly as a nation in not considering this whole question of food by a thorough scientific investigation. It was extraordinary that our army had no scientific dietary. France and Germany both had departments and conducted experiments to ensure the best dietary to make an efficient army, while our army was an underfed army without the slightest effort being made to remedy it. Professor Gotch also expressed a belief that no really hard-and-fast line could be laid down, for force of habit determined in the main what each individual required for efficiency. There were also matters to be considered such as the efficiency of the individual's digesting organism and the extraordinary potency of the psychic factor over this efficiency.

Professor WYNDHAM DUNSTAN thought we were face to face with a complex problem, in which questions of race, climate, muscular and mental work, temperament, cooking, palatability, and state of individual digestion were all factors to be considered. The best plan of investigation was for both chemists and physiologists to work together to test the value of good foodstuffs. As yet little was known of the relative values of carbohydrates and proteids, and a much more accurate definition of proteid or protein was required than before. The quality was all-important, for vegetable proteid was very different in its effects from animal proteid. Quantitatively and qualitatively the dietetic values of food must be determined. It was a subject of national importance. The Somalis subsisted on a particular kind of meat which he was now engaged in analysing; at present it seemed that this meat was one of the most perfect, if not absolutely the most perfect, form of food that was yet known.

Professor H. E. ARMSTRONG said the value chemically *per se* of food was not all-important; it was the quality that was essential. The kind of value to be aimed at in dealing with conventional food materials was quite different from that to be aimed at if other more proper foods were taken. All carbohydrates were not digestible, and vegetarians did not always take into account that only the starch and sugar in the carbohydrates they took were digestible; the rest were useless, and a great deal of these useless carbohydrates occurred in many vegetables. Again, rice was better than wheat, in that the latter contained gluten, one-third of which was quite useless. True it was all bound up in the body, but not usefully so. The question was in respect of quality, whether the human body had the synthetic power possessed by the plant. The tendency of the evidence was to show that it had a very limited synthetic power, and therefore a great variety of diet was essential. The time was ripe for concerted action, and it was the duty of the Association to speak out and tell the Government that it was neglecting its duty in not investigating this important subject on a national scale.

Mr. SEEBOHM ROWNTREE dwelt upon the hygienic conditions of cooking among the poor of York. It was very bad all through England, and food was therefore burnt and indigestible. The lethargy of the working classes was due to the fact that they were chronically underfed.

Dr. HAMILL referred to investigations he had made among the physiology students at University College, London. He thought that the amount of proteid mentioned by other speakers as being necessary had been placed slightly too high.

SECTION OF EDUCATIONAL SCIENCE.

The PRESIDENT (Professor M. E. Sadler) said that if we reviewed the general course of events in English education during the last few years, certain changes stood out conspicuously and called for special notice. There had been a great growth in public control over educational work. The chief tendency of recent legislation had been to strengthen the powers of the Board of Education on the one hand and of the local authorities on the other. It was true that many of these powers had not yet been fully exercised, but they had been granted, often without serious challenge, and they lay in reserve. Secondly, we had realized more fully than heretofore the need for greater unity of purpose in the different grades of education, and the dependence of what was attempted at one stage upon what had been accomplished in another. For example, the fact that technical instruction could not be built up as a detached system by itself had been recognized. In its higher forms it had to rest upon a long and carefully-organized course of secondary education; in its more elementary grades upon a sound foundation given in the primary and higher elementary schools. Thirdly, a wholly new stress had been laid upon the physical side of education. The reports of the Scottish Royal Commission on Physical Training, 1903, and of the Inter-Departmental Committee on Physical Deterioration, 1904, helped to put the whole question of school work in a new perspective. A systematic physical training must be regarded as an essential part of the daily

work of every school, and would be found as beneficial to the intellectual and moral development of the scholars as to their bodily condition. For guidance in the educational treatment of every child according to its physical need; for the detection of defects in eyesight, in hearing, and in teeth; for marking the symptoms of organic disease, systematic medical inspection of all school children at periodical intervals, especially in schools in poorer districts, was required. The attention of great numbers of the teachers was already directed to these matters, and with a fuller training in hygiene they would be able to make a considerable number of the necessary observations for the use of the medical inspectors who would visit the schools at such intervals as the special circumstances required. The crux of the difficulty lay in getting the parent to act upon the medical inspector's report. But the majority of parents, especially when interest in the matter was shown by a personal visit to the home, would gladly take the necessary steps to secure the medical treatment required. Where help was necessary, it would not be difficult, through the co-operation of charitable agencies, to secure it. And in cases of obstinate neglect, the law should severely remind the parent of his responsibility. But to improve the schools and the physical care of the school children was not sufficient without reforming the state of many of their homes also, and without a great change in some of the conditions of industrial employment. Where the insufficient feeding or the wrong feeding of some of the children was found to defeat the work of the school, the real cure of the mischief lay in dealing with the parents, with their economic weakness or ignorance or wastefulness or insensibility, as the case might be. Where the children came to school exhausted by the strain of long and late employment out of school hours, the remedy had to be found in stringent regulation of the use of juvenile labour, and, so far as might be, in the prohibition of those forms of premature wage-earning which were fatal to the gaining of industrial efficiency in later years. Thus at point after point purely educational questions were implicated with economic and social problems, and we were forced to the conclusion that educational reform involved the intrepid handling of evils which lay outside the class room and affected the home life and economic welfare of parents and children alike. What was now especially needed in English education was scientifically-planned experiment in the use of new methods of teaching, in new grouping of studies, and in the closer adaptation of different forms of school training to the practical needs of later life.

Health Conditions in Schools.

Sir Edward Brabrook presented the report of the Committee appointed to investigate the conditions of health essential to the carrying on of the work of instruction in schools. The report dealt chiefly with the hearing and teeth of children, and suggested rules to be laid down in connexion with the examination of, and attention to, children's ears and teeth.

A subcommittee report gave the result of inquiries about the amount of time left to children for play and leisure during the school period of their life. The inquiry, exhaustively made in England, was extended to America, Germany, and France. The Committee expressed the opinion that for the growth and maintenance of mental health (1) there should be short school hours of vigorous work, guided or independent, broken by frequent intervals of relaxation; that teachers be encouraged to secure the co-operation of parents in affording the children opportunities to develop their own individuality in home life; that no home lessons be set by the school for younger children; that the curriculum of elementary schools should include a scheme for organized play; and that organized play should consist of such games as would develop the physical and mental powers of the child in grace of movement, voice culture and imagination, and would continue in the home the lessons unconsciously taught under this system.

Physical Education.

Sir Lauder Brunton read a paper in which he said that education should consist of three parts—physical, mental, and moral—and in the arrangement of these parts the object of development should be kept clearly in view, and they should not be allowed to degenerate into processes of cramming or routine. The brain was the organ through which the mind acted upon the body, but the body also reacted upon the brain and on the mind; therefore mental education could not be regarded as complete unless combined with physical education. Proper physical education was almost impossible without systematic medical inspection. A good deal of training might be done in rooms, but it was better carried on in the open air, and thus playgrounds were really as essential as schoolrooms. In order to obtain all the requisites for physical education a good deal could be done by the Board of Education and county councils; but a good deal would still depend upon voluntary agencies, and it was most essential that these should be able to work together, so that each one should be aware of the best methods as followed by others, and there should be no overlapping.

ANNUAL REPORT OF THE CHIEF INSPECTOR OF FACTORIES AND WORKSHOPS FOR THE YEAR 1905.*

At the close of the year 1905 there were under Home Office inspection 107,193 factories and 144,619 workshops. The factories gave employment to 4,150,000 persons, the workshops to 700,000, while in laundries 100,000 persons were employed. During 1905 there was an increase in the number of children and young persons employed; especially was this the case in Lancashire, where the number of "half-timers" had increased.

Celluloid Manufacture.

New wants create new industries. In the neighbourhood of Birmingham, for example, large quantities of celluloid are manufactured for cycle accessories. Celluloid is very inflammable, consequently the greatest care has to be exercised both in regard to the place wherein it is manufactured and that in which it is stored. No naked lights are allowed.

Shipbuilding.

Attention is drawn to the large number of accidents that occur in shipbuilding yards. This is a subject that too often passes unnoticed. Many of those injured in the shipyards are lads of 14 to 15 years of age. These rivet boys or apprentices are obliged to run along narrow planks carrying hot rivets in all kinds of weather, and have often to climb 30 or 40 ft. of a ladder. Another frequent accident in shipyards is due to men falling off staging.

Lead Poisoning.

Lead poisoning among the file cutters of Sheffield is declining. During 1903 there were 18 cases reported, 17 in 1904, and in 1905 only 10. This declension in the number of cases is regarded as a proof that the special regulations have had a good effect. Probably the men have become more cleanly in their habits. It may be that the influence of the rules is more apparent than real, for the number of hand file cutters in Sheffield has during recent years fallen, machinery now doing the work previously done by the hand file cutter. In the manufacture of files by machinery there is no lead poisoning.

First Aid.

It is pleasing to see from the report that throughout the country generally workmen are being trained to deal with emergencies, and after the Courrières disaster in France this is well. In this movement the medical profession is rendering important service by giving ambulance instruction and in showing the men how to deal with the effects of poisonous gases such as carbon monoxide, etc. Gassing of workmen by carbon monoxide is, unless the greatest care is taken, likely to figure more frequently in the returns of accidents in the future than in the past, especially in blast furnace work. The new method of producing coke by the Simon-Carvés process, instead of by combustion of the coal slack in the beehive ovens, requires considerable care and attention on the part of the workmen on account of the explosiveness of the vapours,

* Published by Darling and Son, Bacon Street, London, E. Price 3s. 9d

and the risk of the men becoming asphyxiated from the gases.

REPORTS OF LADY INSPECTORS.

The reports of the lady inspectors are always interesting reading. The ground covered by the inspectors, the helpful way in which their work is done, and the manner in which they elicit information from the operatives, more than justify their appointment and their existence as a special department of the Home Office. In nothing is this more apparent than in their reports upon laundries and the conditions of labour therein. Their accounts of the manner in which laundry work is carried on in "religious houses" and penitentiaries is highly interesting reading and certainly educational.

THE HERRING INDUSTRY.

The herring industry is well described by one of the lady inspectors. The wanderings of the herring are still not understood by zoologists, and as a consequence fisherfolk and the army of gutters and cleaners of the fish keep migrating during the summer months from the Western Islands round the North of Scotland, including the Shetlands and down the East Coast. The uncertainty of the trade and the perishable character of the produce cause the hours of work to be long. In these out-of-the-way places house accommodation is difficult to obtain, and little or no sanitary convenience is provided for the army of women workers almost constantly on the move. Proper food, too, is not always easily got. The work is wet and cold, and is often carried on without adequate shelter. Although the women wear waterproof coverings for their skirts, and their hands are protected, many of them subsequently suffer from rheumatism.

MEALS IN FACTORIES.

The removal of factories outside large towns, the distance workpeople have to travel to and from their homes, and the overcrowding of cheap restaurants in the middle of the day are leading to an increase in the practice of the workers taking their dinner in the factory. This is not desirable, and when allowed a dining-room separate from the factory should be provided.

REPORT OF MEDICAL INSPECTOR.

To medical men the annual report of the Medical Inspector of Factories, Dr. T. M. Legge, is always helpful. Of the new items we shall only allude to the ill health of shuttle-makers caused by the inhalation of the dust given off from African boxwood. It is satisfactory to observe that the number of cases of lead poisoning is still declining. In 1899 there were 1,258 cases notified to the Home Office, in 1905 there were only 592. The improvement is noticeable in the white-lead industry. Dr. Legge lays considerable stress upon the part played by lead dust in the causation of plumbism. Attention is directed to a new and rather unsuspected but limited outbreak of plumbism in markers of testing ranges at a small arms factory. The bullets, after passing through paper targets, were stopped by means of dry sand. This sand was found to contain large quantities of lead dust. Sawdust was substituted for sand, but it too became impregnated with a soluble lead dust. The lead poisoning was traced to the inhalation of the dust.

Three cases of phosphorus poisoning occurred in 1905, and 34 cases of anthrax. The excellent results of the treatment of the disease by Sclavo's antianthrax serum find a proper place in the report.

CONCLUSION.

The Annual Report of the Chief Inspector of Factories for 1905 quite maintains the reputation which Dr. Whitelegge has created for himself. It contains valuable information. The factory department is still overworked and underofficered. Some idea of the amount of clerical work alone may be inferred from the fact that, apart from the returns of employers—250,000 in number—occupiers forwarded 361 847 statutory reports and notices, including 100 609 of accidents and 188,148 of overtime. From certifying factory surgeons and medical officers of health 40,000 reports in addition were received.

INDIA IN 1904.

THE REPORT OF THE IMPERIAL SANITARY COMMISSIONER.

No change has been made in the construction of the report or the statistical tables appended to it. The former has been drawn up by Lieutenant-Colonel John T. W. Leslie, I.M.S., Sanitary Commissioner with the Government of India, and the latter compiled by Captain S. P. James, M.B., I.M.S., Statistical Officer. The report is full and interesting, and contains the usual information regarding the general population, troops, and prisoners, and, in addition, useful summaries of recent researches concerning malarial and other fevers, plague, syphilis, scurvy, and dysentery. Abundant references are given to the sources of information detailed in these *précis*. In view of the abstract of provincial sanitary reports which have recently been published in the BRITISH MEDICAL JOURNAL, this article will present a condensed account of the public health throughout the Indian Empire in series, with seven similar summaries, the last of which, for 1903, appeared in vol. 2 of 1905, pp. 683 and 910.

GENERAL CHARACTERS OF THE YEAR 1904.

The conditions of 1904 were favourable to health. The rainfall was generous, though somewhat irregularly distributed, harvests were abundant, and food plentiful and cheap. Peace was unbroken throughout the year, and the only troops employed on foreign service were an average annual strength of 421 Europeans and 660 native troops in the Aden hinterland, 249 Europeans and 2,720 natives in Sikkim-Tibet, 2,521 natives in Somaliland, and 1,417 in China. Excepting the serious prevalence of plague, the year was characterized by prosperity and healthiness in many respects unexampled.

VITAL STATISTICS OF THE GENERAL POPULATION.

In most of the provinces the number of births registered was higher than in 1903. The general rate was 40.86, against 38.96. The extremes were 53.19 in the Central Provinces and Berar and 21.97 in the Coorg. Birth-rates exceeded death-rates in all provinces except Bombay, the Punjab, and Coorg, in which they fell short by 6.3, 7.6, and 4.6. Excessive plague mortality explains the excess of deaths over births in Bombay and the Punjab. The death-rate for all India was 32.85, against 34.7 in 1903. The highest was 49.06 in the Punjab, and the lowest, 18.69, in Upper Burmah. Registration is still very defective in the latter. Urban were higher than rural rates in all provinces except the Punjab and Assam, and male death-rates exceeded female in all provinces except the United Provinces, the Punjab, the North-West Frontier Provinces, Coorg, Bombay, and Ajmir-Merwara. In the Punjab and United Provinces the excess of female mortality amounted to 9.9 and 2.44 per 1,000. Infantile mortality continues very high in all provinces.

PREVALENT DISEASES.

There was a decrease in the mortality caused by fevers, bowel complaints, cholera and small-pox and an increase in plague. From all causes there were 444,653 fewer deaths registered than in 1903, notwithstanding a probable advance in registration accuracy. "Fevers" still maintain a great preponderance, the death rate under this head being 18.09 per 1,000. There was, however, a decrease of about half a million as compared with 1903. There was an increase in the amount of quinine sold through various agencies, which is satisfactory in view of the important use of the drug as a preventive. Investigations by Captain James, I.M.S., indicate that kala-azar, which he holds to be distinct from malaria, is more prevalent in Assam than figures would show. He avers that Assam is not so malarious as is generally supposed. The subject of plague is treated in great detail. The mortality caused by it amounted to 940,609, or 4.16 per 1,000 of population. The disease has now spread all over the Indian Empire. More than one-third of the total mortality occurred in the Punjab: but large aggregates were returned from Bombay, the United Provinces, Bengal, the Central Provinces, Central India, Mysore and Hyderabad. Including native States, the plague mortality of 1904 amounted to 1,143,993. The Sanitary Commissioner gives a brief history of the disease since its introduction into Bombay in 1896, indicates the influences, topical, seasonal and sanitary, which favours its spread or, the reverse, describes the researches,

bacteriological and otherwise, which have been made known since the publication of his last report, and discusses the measures which have been employed for prevention, laying stress on those which offer the best prospect of success. It is impossible here to summarize these 24 folio pages. Suffice it to say that they are of remarkable interest, and, in view of the persistent increase of the disease, most necessary, and certain to be materially helpful to bewildered Indian administrators. An excellent coloured map shows the prevalence of plague according to intensity throughout the Indian Empire. There was a considerable abatement in the mortality from bowel complaints, which, as a rule, fluctuate in unison with fevers. The death-rate from cholera fell from 1.38 to 0.85 per 1,000. There was a decrease in all provinces except Bombay and the Central Provinces, in which the disease is said to have been disseminated by pilgrims returning from the Pandharpur Fair. Reference is made to some researches by Dr. F. Gotschlieb at the pilgrim quarantine camp at Tor, who found vibrios giving the characters and reactions of cholera vibrios in the bodies of six pilgrims who had died of other diseases. These men had come from cholera-infected districts, and had been to Mecca without communicating the disease to other pilgrims, either in the Hejaz or at Tor. These observations are viewed by Dr. Leslie with some doubt, and evidently require confirmation. Since the close of 1904 anticholeraic inoculation has been discontinued among coolies proceeding to Assam tea gardens, although the results recorded for the year appear to have been in favour of the process. There was a decided decrease in deaths from small-pox, from 0.41 to 0.24, the mean of the quinquennium 1899-1903 being 0.39.

Prisoners.

The prison population of British India amounted in 1904 to 104,325. The sickness and death-rates were the lowest on record. Excluding the Andamans, the mortality was 17.26 per 1,000; highest (20.68) in Assam, and lowest (12.67) in the Central Provinces. The death-rate of central gaols (17.5) was lower than of district gaols (17.9). It is curious to observe that the rates of the former rise and the latter fall with length of residence. Ague, dysentery, diarrhoea, and chest diseases were the principal causes of sickness, and phthisis, dysentery, and pneumonia of mortality. Malarial fevers caused 216 admissions and 0.66 deaths per mille, the latter being the lowest hitherto recorded. The decline in rates is attributed to prophylactic measures and more accurate diagnosis. This latter circumstance is also held to explain the decrease of remittent fever. Drainage, the destruction of *Anopheles* larvae, and quinine were the preventives adopted. Dysentery rates have also declined in recent years. In 1904 they were 85.7 and 2.91. The case mortality was lower, indicating more careful treatment. Some recent observations regarding the bacteriology of the disease are referred to. Diarrhoea rates are also improving. It is satisfactory to note that the prevalence and mortality of chest diseases are also falling. The mortality caused by pneumonia (2.79) is still very high. The death-rate of phthisis (3.09) was higher and showed a tendency to rise. The large proportion of long-term prisoners, who are most liable to tubercle, may partly account for the increase, and many cases which used to be returned as anaemia are now registered as phthisis; where the tubercle bacillus is found segregation and open-air treatment are generally resorted to. There were only 25 cases and 4 deaths from small-pox, 47 cases and 31 deaths from cholera, and 37 cases and 24 deaths from plague. Cerebro-spinal fever continues to decrease (23 cases and 18 deaths), and a diagnosis of enteric fever was made in 55 cases, of which 14 died. The admissions from anaemia and debility, though fewer, are still considerable. The death-rate of prisoners in the Andaman Islands was very high—34.78 per 1,000, due to phthisis, bowel complaints, and malarial fevers. The Sanitary Commissioner, while admitting that the facts justify an acknowledgement of improvement in gaol sanitation, considers that further improvement is possible, and strongly recommends the opening of small, well-fitted laboratories in the larger prisons and the use by prison officers of the Central Research Institute and other laboratories.

European Troops.

The average strength of the European army of India was 71,083, of which 1,761 were marching and 670 on service. The great bulk of the army, therefore, spent the year in cantonments. The number of fresh arrivals was 16,366. The admission and death rates were the lowest on record—900.4 and 10.83, but the invaliding rate, 35.2, was higher than that of 1903, but slightly below that of the quinquennium, 1898-1902. Admissions into hospital were, as usual, mainly due to ague and venereal disease, and deaths to enteric fever and abscess of the liver. Malaria, tubercle, heart disorder, syphilis, and debility were the chief causes of invaliding. The admission and death rates in the Aden Column Field Force were 1,577 and 14.25, and in the Sikkim-Tibet mission 710 and 12.05. An alteration has been made in the commands and divisions under which the army is distributed, rendering comparison with previous years difficult; but the geographical groups devised for statistical purposes remain the same. There was an increase in the prevalence of influenza. Only 16 cases and 11 deaths were caused by cholera, and 49 cases and 4 deaths by small-pox—a substantial decrease in both instances in accordance with reduced prevalence in the country. Similarly there was a fall in ague from 243 admissions and 0.34 deaths per 1,000 to 174 and 0.24. Reports were called for from medical officers regarding the prevalence, causation, and prevention of malarial fever. These are summarized, and show that antimosquito measures and the preventive use of quinine are largely resorted to. This may account in some degree for reduced prevalence as well as more accurate diagnosis. There was a fall in sickness and mortality from "remittent fever," but a rise in "simple continued fever." Only 7 cases, with 3 deaths, were returned as Malta fever. The subject of enteric fever is dealt with at great length. Evidence in favour of infection by contact is gaining strength, but infection through the medium of water still maintains a chief rôle in the dissemination of the disease. Prompt diagnosis, strict isolation, and thorough disinfection have proved very successful in Germany, and the importance of segregation in India is strongly urged. The admission-rate (19.6) was the same as in 1903, but the death-rate fell from 4.19 to 3.76. Only 2 cases of plague, both of which recovered, occurred—a very satisfactory circumstance, considering the increased prevalence of the disease throughout India; 27 cases of beri-beri were returned, 22 of which occurred at Aden. There were 439 cases of dengue in five stations of Madras and Burmah. The death-rate of phthisis rose from 0.24 to 0.38, and the number invalided from 91 to 223. The prevalence and fatality of respiratory diseases was much the same as usual. There was a decided fall in the prevalence and mortality of dysentery, the figures relating to diarrhoea undergoing slight change; 211 cases of hepatic abscess, with 97 deaths, were admitted, against 199 and 92 in 1903. There was a considerable fall in venereal diseases, but this was partly due to change of practice in admission and treatment. The death-rate of officers was 9.06, of women 14.42, and of children 36.87—all favourable results.

Native Troops.

The average strength of the native army was 124,055, of which 10,724 were marching and 8,997 on service or employed outside India. The admission and death rate—603 and 8.46—were the lowest on record, and the invaliding-rate about the average. There was a reduction in all the chief causes of sickness and mortality. Ague, dysentery, and chest diseases are the principal causes of admission, and pneumonia, remittent fever, and phthisis of death. The death-rate of the China Garrison was 12.7; of the Somaliland Field Force 17.06, of the Aden Field Force 37.88, and of the Sikkim-Tibet Force 52.27. Scurvy, ague, and dysentery were the chief causes of sickness, and pneumonia and phthisis of mortality. There was a decline in admissions from influenza. Cholera caused 27 admissions and 22 deaths, and small-pox 56 and 3. The admission-rates for ague were remarkably low, and remittent fever was also less prevalent and fatal. Admissions from simple continued fever were more numerous, probably owing to changes in diagnosis. Seventy cases were returned as enteric fever, with 16 deaths. The disease continues to be more prevalent among Gurkhas. Five cases of Malta fever were returned, and 6 cases of cerebro-spinal fever with 4 deaths. From plague there were 187 cases with 111 deaths, the figures being very similar to those of 1903. Cases were reported from

27 stations and 44 regiments, and occurred in places where plague prevailed in the neighbourhood, being presumably conveyed by men or rats. There was a marked increase in admissions from scurvy, which prevailed largely in the Somaliland and Aden Forces. Phthisis, which has been on the increase for ten years, showed some abatement—from 5.9 admissions and 0.68 deaths per 1,000 in 1903 to 3.9 and 0.51. Tubercle is still more severe among Gurkhas, but there was an improvement in incidence and mortality among them. More space and air are obviously requisite for this class, whose habits lead to crowding. The admission-rate of pneumonia fell from 14.4 to 11.7 and the death-rate from 3.06 to 2.32. This disease accounts for 27 per cent. of mortality and is worse in hill stations. There was a marked decrease in the prevalence and mortality both of dysentery and diarrhoea, which are also worst in hill stations. The admission-rate from venereal diseases was 20.6 against 198.5 in European troops. Gurkhas suffer most from this class of diseases. From beri-beri there were 49 admissions and 5 deaths, more than half of which occurred at Singapore. Guinea-worm caused 730 admissions, mostly in Central India. The statistics and reports of the year indicate a decided improvement in the health of the native army, which was no doubt in great measure due to the healthier character of the year. The decrease of dysentery and pneumonia are especially satisfactory, but both these diseases are capable of further reduction.

VACCINATION.

The returns of vaccination are for the year ending March 31st, 1905, because operations are mostly conducted during the cold season. There was an increase of work done in all provinces except the North-Western frontier province where an exceptional effort to suppress smallpox had been made in the previous year. The proportion of the population successfully vaccinated was 34.79 per 1,000 and of estimated births 42.46 per cent. The amount of work done by each vaccinator and of dispensary vaccination was higher and the percentage of success better. Progress is reported in arrangements for the supply of lymph and favourable mention made of the success attending the use of chloroformed glycerinated vaccine.

SANITARY ADMINISTRATION AND WORK.

No change has occurred during the year in arrangements for sanitary administration. An important resolution, dated June 5th, 1905, is reproduced referring to the organization of bacteriological laboratories. The scheme consists in the establishment of a central laboratory at Kasauli, under Lieutenant-Colonel Semple, who has done such good work in the Pasteur Institute at that station, and of provincial laboratories throughout the country. Institutions of this kind already exist in Calcutta, Bombay, Madras, and Agra, and others are to be opened. These places will be made available for medical officers throughout India for purposes of scientific study and clinical aid. Details are given regarding the work done and money expended for sanitary purposes in all provinces. Data of this kind cannot easily be summarized, and information has been given in the abstracts of provincial reports already published regarding the sanitary work accomplished or projected by municipalities and urban and rural bodies, and the proceedings of sanitary Boards. The facts recorded indicate increasing interest and action in the sanitation of towns and villages.

MISCELLANEOUS.

Under the heading of "General Remarks," several subjects of sanitary and scientific importance are dealt with. The Red Sea pilgrim traffic was considerable and unattended by any serious sickness or mortality. The subject of Malta fever is discussed at considerable length. Recent researches by Captain Lamb, I.M.S., have made it certain that the disease originates in India among both Europeans and natives, but to a very limited extent. The work of Rogers, Statham, James and others respecting the Leishman parasite, kala-azar, and Delhi boil is presented in an intelligent manner, and moot points still awaiting illumination indicated. Discoveries regarding the presence of haemogregarines in the blood of mammals are fully represented. The important work of Metchnikoff and Rowe respecting the communication of syphilis to the higher anthropoid apes and the discovery of a spirochaete in a syphilitic lesion by Schaudinn are detailed and other researches in consequence on these related. A brief account of Semple's proceedings at Kasauli is given, and the establishment of a Pasteur Institute at Coonoor on the Nilgheri Hills, Madras, announced.

These notes render it evident that the report of the Sanitary Commissioner is a volume of great value, which deserves careful study, and will take high place in an important series as a work of reference.

LITERARY NOTES.

THE subject of body snatching has a horrible fascination which has made several writers of fiction touch upon it. To us it has always seemed that the matter-of-fact records of the doings of "resurrection men" are far more "creepy" in their effect than the imaginative horrors of Dickens and Robert Louis Stevenson. A correspondent has asked to be referred to such literature. The fullest account of the doings of the "resurrection men" in England is to be found in the Report of the Royal Commission which led to the passage of the Anatomy Act in 1832. The principal witness was Sir Astley Cooper, and in Bransby Cooper's life of his famous uncle (published by J. W. Parker in 1843) there is a good deal about the relations of surgeons and anatomists to the men who supplied them with "subjects." The late Mr. J. B. Bailey published the *Diary of a Resurrectionist*, which shows the body snatchers engaged in their unhallowed work. The darker side of that work is shown in George MacGregor's *History of Burke and Hare* (Hamilton Adams and Co., 1884); an account of these miscreants is also given by Dr. H. Lonsdale in his *Life of Robert Knox the Anatomist* (Macmillan, 1870).

We have received a *List of Official Chemical Appointments held in Great Britain and Ireland, in India and the Colonies*, compiled by direction of the Council of the Institute of Chemistry, and under the supervision of the Proceedings Committee, by Mr. Richard B. Pilcher, Registrar and Secretary of the Institute. The document not only shows the increasing appreciation of chemical investigation by Departments of State, Colonial Governments, local authorities, and public institutions throughout the British Empire, but also includes a very complete list of the names of the professors and teachers of chemistry in universities, colleges, and technical schools. In this manner it bears evidence of the progress made by local authorities in the promotion of scientific education. The publication is the first of its kind connected with the practice of professional chemistry, and, although it is intended primarily for the use of professional consulting and analytical chemists, it is hoped that it may also be found a useful book of reference to public authorities and others interested in the applications of chemistry to purposes of State, and in the promotion of higher education in the science.

Lord Holland's *Further Memoirs of the Whig Party*, lately published, contain some interesting sketches of distinguished members of the medical profession in the latter part of the eighteenth century. Of Erasmus Darwin, grandfather of the author of the *Origin of Species*, and himself poet as well as physician, we are told that his "medical practice, singular and startling, was not successful."

His fame in Derbyshire and the adjacent counties was extensive, and not confined to the ignorant or the credulous. With an unwieldy person, uncouth manner, and large tongue, his appearance and conversation captivated strangers, and his more solid qualities attached a numerous body of friends. He was surrounded by admiring disciples. They imbibed, together with a taste for minute and curious observation in physical philosophy, great intrepidity in the search of truth, and not less zeal in diffusing it.

Darwin, it may be remembered, was the author of a poem entitled *The Loves of the Plants*, which was parodied by Canning in *The Loves of the Triangles*, published in the *Antijacobin*.

Of James Currie, the Liverpool physician, now better known perhaps as the biographer of Burns, Lord Holland says:

In his own profession he was distinguished for a new, bold, and successful application of cold water in certain stages of fever; and on matters of politics, science, and philosophy he

had acquired great provincial authority. Some popular letters on the effect of war upon trade, printed with the name of Jaspar Wilson, were with justice attributed to him, and added not a little to his reputation.

Of Dr. Thomas Beddoes, who was Reader in Chemistry at Oxford when Lord Holland went to college, we learn that he was a man of science and of genius, but by no means successful as a lecturer:

His figure and delivery were ungraceful, his language inflated and ambitious, and he was so singularly awkward in the mechanical part of his experiments that they generally failed, and he was then compelled to proceed in his discourse on the hypothesis that the result had been the reverse of that which the eyes of his audience would have led them to believe.

Beddoes is probably now remembered chiefly as the discoverer of Humphry Davy, who assisted him in his Pneumatic Institute, and whom he placed on the path that led to fame. We gather from Lord Holland that Beddoes anticipated the fundamental dogma of Christian Science:

He seriously maintained the non-existence of bodily pain. It was the mere effect of education, and a child properly trained for that purpose would find it a pleasurable sensation.

More logical, however, than Mrs. Eddy, Beddoes held that "what we consider as pleasurable sensations might by an opposite system of discipline from that usually practised, be rendered odious and disagreeable and abhorrent to our desires." Of John Hunter, Lord Holland has much to say. The ardour or intrepidity of mind, which was "the mainspring of his actions throughout life, and the real cause of his inquiries, discoveries, and celebrity," betrayed him occasionally into acts of imprudence and passion, and subjected him, even in his professional practice, to the imputation of sacrificing his patients to his theory:

His enemies, who were many and virulent, no doubt took some pains to blacken him; but there is no denying that his judgement was occasionally clouded by an irascible and tenacious temper.

Even on subjects outside his sphere of intellectual work he was "positive, dogmatical and angry," and it is hinted that he allowed political feeling to influence his judgement as to the fitness of candidates for professional positions and for admission to scientific societies. He had the vanity of the self-made man, and once told Lord Holland in so many words that he thought himself a greater man than Isaac Newton. It is interesting to find John Hunter playing on the patient's imagination in his medical treatment:

A childish love of paradox, or an obstinate adherence to an opinion hastily enounced, made him deny the efficacy of mineral springs. He contended that an artificial mixture of the same ingredients, or even the pure element alone, heated to the same degree of temperature, would produce the same effects as Bath waters taken at the spot. Whenever they failed to do so it was, he maintained, the fault of imagination. He assured me, in proof of his opinion, that to one patient in London (I think his own wife) he had prescribed common hot water, allowing it to be so, without any success; but that when he had filled Bath bottles with the same water and pretended that they were received by the coach, she, after boiling them, derived all the benefit from them that she had expected from a course of the real waters drank fresh at the Pump Room.

Lord Holland says he always found Hunter extremely agreeable in conversation, owing, he supposes, to the fact that the great surgeon "somewhat hastily and very erroneously" inferred a turn for studies congenial to his own from the very unfeigned homage he perceived the young nobleman to pay to his talents and celebrity.

In the *Medical Record* of June 9th, Dr. John Knott of Dublin treats of circumcision. He says the statement has been made, apparently on good grounds, that circumcision is the most ancient of all the surgical operations. Various writers have, from time to time, tried to determine its earliest appearance in a single tribe or territory. Till recently the earliest introduction of circumcision was generally attributed to the Mosaic injunction of the practice among the "chosen people" as a distinctive and sacred rite. But this view was shaken to its foundation by the publication of the results of the researches of Welcke, who found a true specimen of circumcision in the person of the mummified Amen-en-hab, who lived between the years 1614 and 1553 B.C.; and has been even more hopelessly demolished by the discovery of the widespread existence of the practice among the aborigines of the Australian Continent and of the Malayan Archipelago. Philostorgius has left on record his testimony to the existence of the practice among the Arabs as early as 342 B.C. At the present day circumcision reigns over part of the Balkan regions, and over Asia Minor, Persia, and a great part of India. Its prevalence all over Northern Africa has been attributed by some writers to the influence of the example of the Mohammedans; but this view is negatived by the fact that it is as diligently observed by aboriginal tribes which have no contact with Islam. An attempt has been made by Zobirowski to give some further probability to the Islamic, or at least Oriental, source of the prevalence of circumcision in the Northern Zone of the Dark Continent by an endeavour to show that it is practised only by the tribes which also possess plants of Eastern origin—such as millet, rice, or sorgho (boura); this fact, if duly substantiated, would favour the view that the custom gradually radiated through Africa from an Egyptian focus. The conclusion has, however, been definitively rejected by some of the most competent critics on the subject. The very remarkable prevalence of circumcision over so large a proportion of the area of the African Continent is also shown in its employment by the Christian Abyssinians, as well as by the Bogos and the Copts. It has been suggested that the first of those bodies probably adopted the practice originally from their Jewish neighbours. It is an interesting association of the conservatism of the operation—or ritual observance—that Ludolphus, in his historical and descriptive account of Abyssinia, mentions the employment of stone knives by the Alnajas of that country in circumcising; as is the present practice of the aboriginal Australians and the North American Indians, and was the ancient practice of the Jews and the Egyptians. We are told by recent explorers that the Marolongs of South Africa always operated with a "fire-stone" (meteorite) till their routine of life was disturbed by the encroachments of European civilization. Now they circumcise with an assegai. Mussel shells are still employed in parts of Polynesia. Schudt refers to an instance of the employment of a stone knife by Jews in circumcision as late as 1726. That the custom existed in the mysterious land of the Nile from time immemorial is an historical fact now well established. Egyptian circumcision was not for the *profanum vulgus*; it was the distinctive physical stamp of the elect and the learned. There appears to be no doubt that the ritual operation of circumcision in the palmy days of the Pharaohs indicated admission of the boy who had just reached the age of puberty into the "pure" order of the priesthood. Dr. Knott goes on to discuss, with great ingenuity of reasoning and much curious learning, the significance and objects, hygienic, ritual, or sacrificial, of circumcision.

In a recent number of the *Annales des Sciences Psychiques* Professor Lombroso gives an account of two haunted houses which he has studied. He was asked in November, 1900, to investigate some strange occurrences which had taken place at the house of Signor Pavarino, Via Pescatori, Turin. Cups and jugs were mysteriously upset and thrown to the ground, to an accompaniment of loud knockings on the walls and the ringing of bells in different parts of the house. As usual in such manifestations, there was a young lady who was the object of the particular animosity of the spirits; she was struck by unseen hands, and pinched to such an extent that her body was covered with bruises. Her sister, who slept in the same bed, was not interfered with in any way. Other disturbing phenomena were the clash of swords mingled with shouts and groans, lights seen in unlighted rooms, and remarkable vagaries indulged in by an Alpine hat. These things, all of which were vouched for to the inquiring professor by trustworthy witnesses, went on for eight months. Then the scene changed to a house in the Via Bava, adjoining the Via Pescatori, where the crockery began to skip about, the pans and kettles joining in the "brawl." Unwilling to be out of the movement, the bottles in the cellar tried to trip it on the light fantastic toe, but collisions were so frequent that they smashed each other to pieces. Lombroso went down into the cellar and lighted five candles, thinking—why, he does not tell us—that a supernatural spirit would avoid the light; "instead of which" he saw three empty bottles roll about, as if pushed by a finger,

and break close by him. He could discover nothing to account for these orgies among vessels which had till then borne an unblemished character. With characteristic *naïveté*, however, he tells us that the wife of the owner of the house went away from home about that time. During her absence the crockery gave up their riotous living, but when she came back things were soon as bad as before. Then a man-servant was sent away, and again peace reigned in the house, "leaving it to be supposed, since no other hypothesis is probable, that he was the medium through which the phenomena were rendered possible." In May, 1903, Lombroso was asked to investigate another mysterious affair in the family of a printer named Mignotti, also in Turin. When one of his children, a little boy, went to bed at night loud knockings were heard on the wall next to which he lay. A careful examination was made by Lombroso with the help of another doctor and the police. It was found that as soon as the boy went to sleep the knocking became "very vague and indistinct." In this case even Lombroso was convinced that the boy was the "immediate cause," though beyond a high fever, when the manifestations were most frequent, he was in other respects a normal child. He pathetically confesses his inability to explain these marvels. As in each case, however, his own statements clearly point to a human agency, most people will probably be of opinion that he has himself, though all unconsciously, furnished sufficient explanation.

THE PLAGUE.

Prevalence of the Disease.

India.

During the weeks ended July 14th and 21st, the deaths from plague in India numbered 326 and 896 respectively. The principal returns are: Bombay Presidency, 168 and 200 deaths: Bengal, 27 and 14; United Provinces, 9 and 14; Punjab, 100 and 38; Mysore State, 16 and 45. In Burmah during the two weeks in question 480 persons died of plague. In the Central Provinces and Central India no deaths from plague were reported during the period in question.

In the city of Bombay, during the weeks ended July 26th and August 2nd, 39 and 38 persons were attacked by plague, of whom 39 and 32 died.

The Plague Research Laboratory, Parel, Bombay, has, in accordance with the orders of the Government of India, been designated the "Bombay Bacteriological Laboratory," and the officer in charge will be known as "Director, Bombay Bacteriological Laboratory."

Australia.

Brisbane.—During the weeks ended June 23rd, 30th, and July 7th, one case of plague was reported on June 20th. The patient, a Chinese cook, died on the 21st.

Rockhampton.—No cases of plague reported during the weeks in question.

The last plague-infected rat was found in Brisbane on June 25th and at Rockhampton on May 13th.

South Africa.

No case of plague reported during the weeks ended July 14th, 21st, and 28th. At East London and at King Williamstown rats and mice have been found to be plague infected. At Port Elizabeth a mouse was found to be plague-infected on July 19th.

Mauritius.

During the weeks ended July 26th, August 1st, there was 1 case of plague, with 1 death. During the weeks ended August 8th and 15th fresh cases 1 and 3; the deaths from the disease being 1 and 2 respectively.

Hong Kong.

During the weeks ended July 28th, August 4th and 11th, the fresh cases of plague numbered 5, 5, and 2; the deaths from the disease were 6, 4, and 2 respectively.

Persia.

Dr. Schneider, President of the Conseil Sanitaire of Persia, has issued a special note on the progress of the plague. It is stated that, on the whole, the situation in Sistan has considerably improved, the number of cases having much diminished. The epidemic now exists only in various villages in the region situated to the south-west of Nosretabad, and sanitary measures have everywhere been feasible, except in two villages where the inhabitants have threatened the medical officers, and riots have occurred. Cordons have been established round each infected village, but these have not prevented the spread of the malady, which was later brought to Djerguel in the Khorassan by shepherds flying from the infection and passing along the frontier of Afghanistan by desert routes not under observation. The disease, however, has apparently now stopped in this town, but Dr. Schneider points out with regard to this and the Sistan outbreak that the present diminution in the number of cases may merely own a seasonal cause, and it is more than probable that, on the return of the cold weather, the malady may once more resume its epidemic character.

MEDICAL NEWS.

The late Professor Tarnowski, the distinguished Russian dermatologist, has bequeathed his estate for the establishment of a sanatorium for sick medical practitioners.

The fourth Portuguese Congress for the Prevention of Tuberculosis will be held at Oporto from April 4th to 9th, 1907.

Under the will of the late Lord Masham, the Children's Hospital and the Royal Infirmary, both of Bradford, receive sums of £2,000 and £1,000 respectively.

Among the public buildings destroyed by the recent earthquake at Valparaiso are stated to be three hospitals belonging to the British, the American, and the German communities.

The Latin-American Medical Congress will be held at Monte Video, Uruguay, in January, 1907. In connexion with the Congress there will be an exhibition of surgical instruments, chemical and pharmaceutical preparations, etc.

The health commissioner of New York, Dr. Thomas Darlington, has organized a series of shows, to be held in parks and public recreation places, in which the ravages of tuberculosis and the methods of combating it will be interspersed with the ordinary stereopticon views. The shows will be under the direction of Dr. John S. Billings, jun., and Dr. B. H. Walters.

Medical Magistrate.—Francis B. Rutter, M.D., Dewes House, Mere, Wilts, has been appointed to the Commission of the Peace for the County of Wilts.

University of Tokyo.—The number of students on the books of the Imperial University of Tokyo in the academic year 1905-6 was 4,517. Of these 641 belonged to the Faculty of Medicine.

A Medical Prison Governor.—Dr. Pollitz, Physician to the Lunatic Department of the public prison in Münster, Prussia, has been appointed Governor of the prison. This is said to be the first appointment of the kind in Germany.

Medical Inspection of Schools in Austria.—The Austrian Ministry of Education has issued an order establishing a service of medical inspectors for elementary schools. They are to look after the health of the children, and note their development. The remuneration is at the rate of 40 crowns (£1 13s. 4d.) a year for each class.

Twelve Merit Grants for Vaccination.—Dr. John Hutchinson, formerly of Claybrook, and public vaccinator of the No. 2 District of Lutterworth Union, has obtained the merit grant. This makes the twelfth time in succession the grant has been awarded him. During the twenty-five years he held the post his work was inspected twelve times, and on each occasion the merit grant was awarded him. When leaving Claybrook Dr. Hutchinson's old patients made him a presentation consisting of a beautiful tea and coffee service of solid silver.

The Nightingale Fund.—From the report for the year 1905 it may be concluded that all goes well with the Nightingale Fund. A considerable balance was carried forward to the year 1906 after paying the expenses of the training school at St. Thomas's Hospital and making a grant to the Metropolitan Nursing Association for the training of nurses for district nursing work, and allowing for the accounts outstanding but not received. The report contains a list of a large number of appointments obtained by nurses trained by the Fund, and shows that there remained in the Home at the end of the year 51 nurses still undergoing training. We notice that altogether there were 135 nurses on the books of the school at one time or another during the year: 39 were discharged as unsuitable for a nursing career, or left from other causes; 15 left during their first six weeks. The percentage on the total number admitted may seem large, but this is as it should be, for if a woman is deemed unsuited by the authorities for a nursing career, the sooner she is told so the better. If women found to be unsuitable were turned away from all training schools with equal promptitude the general efficiency of nurses as a body would certainly be increased.

British Medical Journal.

SATURDAY, AUGUST 25th, 1906.

THE CIRCULATION VIEWED FROM THE PERIPHERY.

The subject selected by Sir James Barr for the Address in Medicine has during recent years aroused intense interest, partly on account of the widespread conviction that most of us die from diseases which have their origin in organic derangements of the peripheral circulation, and partly because the invention of new instruments of research and the discovery of adrenalin have made it a prominent subject for discussion, adrenalin itself being regarded by some as sufficient to form the foundation of an entirely new pathology of the blood pressure.

The orator wasted no time in apologies for his choice, but plunged at once into his subject with all the enthusiasm of a man who has devoted to it a large part of his time and thought. Beginning with the capillaries, he examined the physiological relations of the circulation in capillaries, arterioles, arteries, and veins, discussing the special characters of the circulation in the brain, lungs, liver, kidneys, and spleen, and expressing with decision his opinion upon each question raised in the course of this review. Some he has solved to his own satisfaction by simple instruments invented by himself, while of others insusceptible of direct investigation he offered mathematical proofs.

The velocity of the blood in the capillaries he has estimated by compression with the flat end of a glass rod 10 mm. in diameter, timing with a stop-watch recording fifths of seconds the period of the return of the blood; the velocity per second is obtained by dividing the radius of the rod (5 mm.) by the time; by such means he calculates it to be from 0.5 to 25 mm. per second. He has found the effect of gravity on the capillary pressure to vary enormously in different individuals, and to depend largely upon the vasomotor mechanism. He gives as an illustration the occurrence of cold feet in bed, which, while primarily attributable to the want of *vis a tergo*, is immediately caused by the fall in the arterial and capillary pressure following upon the assumption of the horizontal position; hence the treatment should be to strengthen the heart and to raise the head and shoulders in bed. Wherever there is diminished velocity local asphyxia may occur, as in Raynaud's disease; this affection depends really upon diminished blood pressure and not upon vasomotor spasm, which can be only secondary and in consequence of the diminished velocity. Where there is diminished velocity there is increase of CO_2 and of viscosity, but the latter does not count for much as an impediment to the circulation. The real *vis a fronte* is the vasomotor mechanism of the arterioles. If it were not for this we should be always liable to syncope whenever we changed our position, but by its means the cardiac energy is stored up and transmitted to the capillaries. Where there is defective vasomotor action the circulation slows and the area becomes congested, as Sir James Barr tells us happens in orthostatic albuminuria, which is caused by defective vasomotor action involving the entire splanchnic area. Taking as a test for their existence the action of adrenalin, he denies the presence of vasomotor nerves in the vessels of the brain, heart, and lungs, so that the circulation in all these situations has to depend entirely upon the heart. He explains the absence of oedema of the feet under ordinary circumstances by an apparatus consisting of a U-shaped tube made of indiarubber, having both limbs very wide, and a short connexion made of very fine tubing; if a hole be made in each of the three tubes and one of the limbs connected with a water tap, it will be found that the water comes out with force from the hole in the proximal limb, with less force from the hole in the distal limb, but does not escape at all from the hole in the fine tube which represents the capillary; the energy there is all converted into velocity. In a healthy individual the arteries of the lower limb are firmly contracted, and although the pressure is high the mass of blood on which it acts is relatively small, and the energy in the capillaries is largely converted into velocity.

The physiological relations of the arteries are all the more interesting as "after the age of 50 arterio-"sclerosis directly or indirectly kills more people than "any other disease." Sir James Barr believes that the current estimates of the mean velocity in the human aorta are far too low, and that it is because it is so much higher than generally estimated that there is such a prevalence of arterial disease. So long as the vessels are elastic they store up the force connected by the heart's impulse and transmit it to the capillaries, but when they have become rigid they no longer do this, and drugs which increase the force of the heart's beats become dangerous; hence the objection to the use of digitalis in disease of the aortic valves caused by extension of atheroma. General arterio-sclerosis is the consequence of general high arterial pressure, such as occurs in chronic granular kidneys, but local increase of pressure which may result from emotional causes acts chiefly upon the aorta, stretching it and thinning it; it was compared by the orator to putting a tap into a main water pipe, which he says is not generally allowed by the municipal authorities, but "it is more difficult to legislate "for the vasomotor system of an emotional individual." As the Address is devoted to the peripheral circulation, the heart is dismissed in a few words, and Sir James concludes somewhat abruptly. It may perhaps have been a somewhat difficult subject to follow for those of his hearers who had not kept themselves abreast of the modern work on the physics of the circulation, or who were unacquainted with the use of those instruments of research which after all are not often used outside the wards of a hospital. Nor would the mathematical demonstrations prove easier to assimilate on the spur of the moment; but the address will well repay the trouble of being read at leisure, as it is in every way worthy of the occasion on which it was delivered.

THE ADDRESS IN SURGERY.

In his address on the surgery of the central nervous system, Sir Victor Horsley emphasizes the importance of early operation. In cases which suggest the existence of gross organic disease of the brain, surgical treatment should not be regarded as a last resource, but ought to be adopted promptly so soon as it has been found that a probationary period of two or three months' medicinal treatment has not been productive

of any beneficial result. The necessity for an early surgical consultation in these cases is still far from being generally recognized, and consequently irremediable mischief is often done which might be avoided, if only it were realized how much might be accomplished by early surgical intervention.

The well-known characteristics of intracranial disease are that it is liable to produce optic neuritis, which usually ends in total blindness, and that it may concomitantly cause severe headache and vomiting. All these symptoms are dependent upon pressure, and "can be completely palliated or "wholly removed by making a sufficiently free opening "in the skull and dura mater." Upon the causation of optic neuritis by increase of the intracranial tension Sir Victor Horsley speaks categorically: in no case of optic neuritis which is not of toxaemic or anaemic origin should the process be allowed to continue after it has once been diagnosed: and if blindness results a heavy responsibility rests on the medical adviser who failed to recommend so simple a procedure as opening the dura mater. But for surgical intervention to be efficacious we must not wait until secondary changes of a permanent character have developed in the disc: it is in the earlier stage, when the loss of vision is dependent simply on the swelling of the disc, that the sight is not only saved but largely improved by making an opening into the subdural space. Sir Victor Horsley quotes from his own experience instances where unnecessary suffering has been caused owing to ignorance, on the part of the responsible medical adviser, of the relief which surgical intervention would have afforded. To quote a significant example, a lady developed symptoms of cerebral tumour with acute optic neuritis, and was told by a neurologist that nothing could be done surgically. After treatment with the iodides, the neuritis subsided into complete atrophy and blindness, while the cerebral lesion gradually retrogressed. "This "calamity," says Sir Victor Horsley, who was consulted when it was too late, "would have been wholly avoided "by operating to relieve the optic neuritis, even if "nothing further had been attempted to deal with the "lesion itself."

Passing from these relatively simple palliative measures, which have for their object the relief of intracranial tension, to curative operations which aim at the extirpation of the lesion, the lecturer proceeds to consider the extent to which permanent loss of function is likely to obtain after operations on various regions of the brain. In dealing with the cerebrum, special motor functions, he finds, cannot be restored if the whole of their cortical representation be removed; the same thing is also true of the hemianopic representation of sight and probably of the other special senses. But the higher sensory representations and the intellectual functions are, on the contrary, not permanently abrogated by the destruction of any one part of the cerebral hemisphere, though it is obviously desirable to inflict as little injury as possible, and never to remove more than is absolutely necessary. The cerebellum, too, shows a remarkable power of recovering function after severe surgical treatment. A case is quoted where a large cerebellar tumour was removed eleven years ago; the tumour was situated in the right lateral lobe of the cerebellum, which was in consequence markedly compressed, and probably the dentate nucleus was also affected. The patient is now a healthy young man, and the only indication of any loss of physiological function is that he exhibits a slight unsteadiness of the hand when he is particularly fatigued.

With regard to the various types of tumours which have to be dealt with in the surgery of the brain, the least hopeful, as might be anticipated, are those which are of a malignant nature. On the other hand, permanently good results can be obtained with "all tumours "which, growing from the meninges, penetrate the "brain, or which are encapsulated, such as fibromata, "myxomata and endotheliomata, tuberculomata, and "gummata." But in malignant disease the Queen Square series of cases shows that recurrence was observed in no fewer than 20 out of 23 cases. The two main difficulties in dealing with these malignant cases are that they are not generally diagnosed until they have attained a considerable size, and, as they grow diffusely through the nerve tissues, it is very difficult and often impossible completely to extirpate them. It is interesting to find, however, that occasionally the mere exposure by operation of these tumours without their removal appears to cause them to retrogress, and Sir Victor Horsley quotes three instances which seem to be of this nature.

The description of the technique which the lecturer adopts in his operations will be read with great interest. Chloroform is used as the anaesthetic, and is administered with the aid of the Harcourt regulator, by means of which the exact percentage of chloroform vapour inhaled is completely under control. The object aimed at is to produce narcosis strictly in accordance with the nerve excitations it is intended to drown, and thus to avoid contributing to the patient's discomfort by giving unnecessary quantities of the drug. Two per cent. is given before the incision of the skin and the reflection of the flap, which constitute the period of maximal pain: the dose is then lowered to 1 per cent. during the removal of the bone, slightly raised for the incision of the dura mater, which is a sensitive membrane, and then reduced to less than 0.5 per cent. whilst the relatively insensitive encephalon is being dealt with. Finally, the percentage is raised to about 0.7 or 1 for the closing of the wound. Special stress is laid on the importance of constantly irrigating the wound with saline solution, or 1 in 10,000 sublimate, heated to a temperature of 115° F. This has a twofold object: it lessens the risk of shock by the prevention of cooling by radiation from the brain exposed in the wound, and it is a most valuable means of arresting haemorrhage. Many other important technical points are dealt with, including the use of oxygen for the control of venous and capillary oozing, the avoidance of vertical pressure in opening the skull, and the special safeguards against sepsis which are requsite, owing to the exceptionally feeble resisting power possessed by the central nervous system against the invasion of micro-organisms. For these and other matters our readers must consult the full text of the Address. They will find it a valuable record of the methods by which Sir Victor Horsley has achieved his brilliant reputation as master of this most difficult branch of modern surgery.

But there is one aspect of this subject which calls for special remark because the medical man is too apt to take it for granted, and the layman often fails to realize its significance. The magnificent work which is now being accomplished in the surgery of the brain is rendered possible by knowledge acquired by means of animal experiment. Were it not for the laborious experimental researches to which Sir Victor Horsley and others have devoted themselves during the last twenty years, successful diagnosis and treatment of these cases would be impossible. These are the facts about which discussion is needless

and controversy is impossible. From these facts, too, there directly springs an unmistakable lesson in medical ethics. It is the duty of every member of our profession to do his utmost in the endeavour to save human life and relieve human suffering, and in the pursuit of this object it is frequently necessary to acquire knowledge by means of experimental investigations upon animals. So long as these investigations throw further light upon the treatment of disease, they must necessarily be pursued; there is no alternative and no question for debate; in the furtherance of the art of healing, vivisection is a moral necessity. Like the average layman, the medical man knows what his duty is and does it; he has no intention of being thwarted in the serious business of life by the meddlesome interference of those who raise an outcry against vivisection, sometimes with an honest enthusiasm kindled by misleading statements, sometimes from mere pleasure in a hobby which induces a gratifying sense of militant self-righteousness, and occasionally from the still less worthy motives of the professional agitator.

THE ADDRESS IN OBSTETRICS.

The Address in Obstetrics, delivered by Dr. Walter Griffith at Montreal, falls into three parts. First, we have a retrospect of the addresses in obstetrics at former meetings of the Association; then a consideration of the difficulties attending the teaching of midwifery in London at the present time; lastly, a eulogy of the late Dr. Matthews Duncan.

The first two parts are valuable more from the *obiter dicta* that enlivened them than from the intrinsic interest of their subjects. Dr. Griffith referred to Dr. Swayne's address in 1863, in which the use of chloroform in labour, then a novelty to many, was discussed. Dr. Griffith's comment is that "apparently very many "practitioners of to-day . . . not having been taught "the proper methods of administration, allow many a "patient to suffer severely during labour without affording them the relief that chloroform can give." We know that very many women to-day are delivered without chloroform; but we had thought the reason was that chloroform caused doctors such extra anxiety and loss of time that most of them require for giving it a larger fee, and that poor women prefer to economize and bear the pain. But if it is really because medical men do not know how to give chloroform, a severe censure on the medical schools is implied. We commend this matter to the consideration of the Society of Anaesthetists.

Dr. Griffith holds it to be impossible for London medical students to be taught clinically in maternity hospitals. To meet the requirements of the continually increasing number of women from all parts of the country seeking to be trained as midwives the capacity of the London lying-in hospitals is fully taxed. The students, "under "more or less organized supervision," learn their midwifery in extern maternities. "Even in the best "organized of these maternities," says Dr. Griffith, "the supervision and instruction of the students are "very inadequate. . . . It speaks well for the general "standard of common sense that so few calamities "occur." But defective as these maternities are, yet Dr. Griffith holds that when attended by students *who have had the necessary preliminary clinical teaching* these extern maternities provide the most important and valuable training that any medical student can obtain, for, as in private practice, he is then placed almost entirely on his own resources. He consequently begins to acquire a feeling of personal responsibility. As these outdoor maternities exist, and are likely to do so for a good many years to come, it is well to have their value recognized.

Nevertheless, Dr. Griffith urges that to put midwifery teaching on a proper basis "it is in the first place "essential that the clinical teaching be given in "hospitals provided for the purpose." Lying-in wards in a general hospital would do, if there were enough beds to ensure a continuous stream of cases. Dr. Griffith is "convinced that it is of the greatest "advantage to teachers and pupils that medical "students be taught their duties at the same "time and place as monthly nurses and mid-"wives." The advantages appear to be that the students learn some of the details of nursing, and the nurses learn how much more the doctors know than they do. There is at least one London hospital in which the students are regularly instructed in the more common details of nursing, and if Dr. Griffith's address leads to the further adoption of this practice he will have done good. The orator expressed the opinion that teachers of midwifery have been looked down upon—partly because labour is generally a natural process, partly because many lecturers on obstetrics have had very little obstetric experience, while others have had very large experience but no scientific training. He holds that the teacher of obstetrics should be the person actually in charge of the lying-in wards and extern maternity department. This would cause the teaching to devolve upon the younger members of the staff. We need not comment further on this point, for we discussed the subject in an article on the recommendations of the General Medical Council's committee which we published in our issue of June 9th, page 1363.

Then we come to one of the most important of Dr. Griffith's *obiter dicta*. He would like to see the great hospitals financed by the State, but "administered "by the existing Board of Managers under the general "supervision of a responsible Central Hospital Board "or Commission." We scarcely believe that any Government would find the money to build, equip, and maintain hospitals, and yet leave the hospitals exempt from Government control. We hope it will be long before politicians lay hands on our public hospitals. We know not where a finer illustration could be found of the superiority of private to municipal control than in the intelligent enterprise which has hitherto directed our hospitals. We do not want them to become pawns in the political game, either at St. Stephens or in the borough councils.

Dr. Griffith thinks the time has come for a thorough revision of the arrangements for all systematic lectures; that the present regulations involve "unnecessary "labour to the lecturer, and too great a call on the time "and attendance of the student." He does not go much into detail as to the changes he would make. But there is only one change which the present teachers cannot make, and that is to abolish lectures. The examining bodies require the student to attend so many lectures on certain subjects. So long as the instruction is given, it is open to the lecturer to arrange it in any way he pleases; he may read, interrogate, dictate, relate cases as he likes. He may treat the whole of his subject briefly, or a part of it fully.

Some of the older members of the profession may remember Dr. E. E. Barron. That gentleman held classes in every subject in which the College of Surgeons and the Society of Apothecaries then held examinations. A student who paid the fee for one of these classes was entitled to attend it until he passed the

examination. Dr. Barron's method was to walk up and down and dictate notes. When a member of his class consulted him as to his chance of passing the examination, his reply was, "Do you know your notes?" Dr. Barron was an able and efficient teacher, but he did not teach medicine and surgery—he only taught how to pass examinations. If systematic lectures were abolished, we much fear the result might be the rise of teachers like Dr. Barron, to whom students would go to be helped through their examinations, instead of, as now, following their teachers in the wards and out-patient room, and being there shown what has been talked about in the theatre. Nothing can be worse for medical education than inducements to students to forsake the wards.

It was a very happy inspiration that led Dr. Griffith to devote a part of his most interesting address to an appreciation of the life and work of Matthews Duncan. When we look back to Duncan and his contemporaries, the only one with whom a comparison can be drawn is his great teacher, predecessor, and colleague, Sir James Simpson. Duncan began his professional career without the advantage (or disadvantage) of inherited wealth. The accident which directed his ability to that which became the work of his life was that when he was newly qualified and looking for something to do, Simpson was in want of an assistant in his private practice. A common friend sent Duncan to him; and Duncan became first his assistant, afterwards his rival in private practice. He was the only one of Simpson's assistants who started in practice in Edinburgh. The others who became eminent—Storer, Priestley, Watt Black—never put themselves in the field against Simpson. One consequence was a sort of personal antagonism between Simpson and Duncan. Some antagonism between competitors in practice there always will be; but in this case there was not only the clashing of material interests, but opposition in the mental characteristics of the two men. Simpson was a man of inexhaustible energy, of intense vitality, of restless activity, versatile, many sided; capable of scientific work of the highest order, but often in too much of a hurry to finish off his work as well as it might have been done; essentially a man of the world, a man of business, but a great man. Duncan was a man of the academic type; a man whose habit was to think and write with the greatest precision. His work was of far higher quality than that of Simpson, although in variety and originality he may have been overtopped by his famous master. His removal to London was a loss to the Edinburgh School of Medicine of a robust, masterful, and inspiring personality. His advent to London raised obstetric teaching all round. As Dr. Griffith says, "By his teaching "and example he transformed the teaching of obstetrics "and gynaecology from an almost insignificant position "to one of the greatest importance." "This transformation was due not only to his learning and greatness as "a teacher, . . . but also to the greatness of character "which made it impossible for any one to be brought "into contact with him, either in hospital or palace, "without feeling that the branch of the profession "which he practised was as noble and dignified as "that practised by the greatest physicians and "surgeons."

Perhaps in the first of the sentences we have quoted Dr. Griffith somewhat unduly depreciated London obstetrics and gynaecology before the coming of the great Scotsman. Duncan often expressed to pupils and friends his admiration of the work of Braxton Hicks. But it is nevertheless upon the whole true that Duncan, "not only in the ward and class room, "but in every relation of life, raised the standard of "the science and practice of obstetrics to a position "which, at least in London, they had never before "attained."

KING EDWARD VII SANATORIUM.

As there appears to be some doubt both among the members of the medical profession and of the general public as to the class of cases eligible for admission to this institution, we are requested to state that by the wish of His Majesty the King the Sanatorium is primarily intended for the accommodation of those persons of slender means among the educated classes who are suffering from early pulmonary tuberculosis and who are unable to pay the charges of private sanatoriums. For such patients 86 beds are reserved, at a charge of two guineas per week, both sexes being admitted in equal numbers. It is also the King's wish that those persons of larger means who can afford to pay for treatment should not be entirely excluded from the advantages to be derived from this institution, and fourteen beds have accordingly been reserved for them, for which a charge of eight guineas a week is made.

SIR ALEXANDER SIMPSON.

THE work done by Sir Alexander R. Simpson during his long tenure of the Chair of Midwifery in the University of Edinburgh has earned for him the highest reputation among those most competent to judge of its value, and the estimate formed by his professional brethren has had the seal of public approval set upon it by the well-deserved distinction recently conferred upon him by his Sovereign. Professor Simpson was, however, more than a teacher of world-wide fame; in the moral as in the intellectual sphere, his influence has always made for righteousness and for the betterment of his fellow-men. It is felt by many of those who have had the largest opportunities of appreciating what his work and his example have been to his profession and to the community for whose benefit he has laboured so long and so strenuously, that a memorial which should link his name with some foundation having for its object the relief of the poor and suffering would be especially fitting. Accordingly an effort is to be made to collect funds for the endowment of a bed in the Royal Maternity Hospital, Edinburgh, an institution in which the Emeritus Professor is known to take the warmest interest, and which bears the name of his famous uncle, Sir James Simpson. The amount required for the purpose will be nearly £1,000. Any sums that may be contributed beyond the amount required for the endowment of the bed will be applied in the making of a personal gift to Sir Alexander and Lady Simpson, or in such way as may be agreeable to them. It is hoped that the presentation will be made early in October. Among the members of the Committee are Sir William Turner, Professor Halliday Croom, Dr. John Playfair, President of the Royal College of Physicians, Dr. C. W. MacGillivray, President of the Royal College of Surgeons of Edinburgh, Dr. J. O. Affleck, President of the Medico-Chirurgical Society, Dr. J. W. Ballantyne, President, and Dr. Berry Hart, a former President, of the Edinburgh Obstetrical Society, Dr. James Ritchie, President of the Edinburgh Medical Missionary Society, Sir Thomas Fraser, Sir Henry Littlejohn, Professor McKendrick, Professor Annandale, Professor Mitchell Stalker, Lord Aberdeen, Lord Overtoun, and many leading representatives of the ministry and other professions. The Honorary Treasurer of the

Fund is Mr. John Nicholson, Manager of the Clydesdale Bank, George Street, Edinburgh, to whom contributions may be sent.

WARNING NOTICES.

At its usual place in the advertisement columns (p. 51) will be found a warning notice in respect of certain appointments which are at present vacant. They relate to posts in connexion with which controversies are at present in progress between members of the medical profession established in the locality and those who have the appointments and their occupants in their hands. Those who may be offered any of the positions indicated and feel primarily disposed to accept them would be well advised to seek first for information concerning them from the gentleman whose name and address are in each instance supplied. They will thus acquire full knowledge of the work which they are invited to undertake, and of the conditions under which they can count upon having to perform it should they accept it. For the rest the only remark for which the notices call this week is that they are increased by one. The addition relates to the Mickleton District of the Shipston-on-Stour Union in Gloucestershire, a somewhat too familiar item in the list, and one which only temporarily vanished a few weeks ago. Its reappearance is illustrative of the eccentricities of that remarkable person, the Poor-law Guardian, and more particularly of the light-hearted, irresponsible fashion in which those who represent the Shipston-on-Stour Union acquit themselves of their duties towards the ratepayers and the poor. Only a month ago that body decided to end a long-standing controversy by reappointing its former occupant to the post of medical officer of the Mickleton district on the terms for which he had stipulated with the approval of all his colleagues and of the Oxford Division of the British Medical Association. The medical man in question duly forwarded a letter of acceptance, only to learn that at the very next meeting of the guardians these volatile Bumbles had changed what they doubtless considered to be their minds, and were resolved to waste more public money by advertising for other candidates. We say "waste" because, on the whole, it seems very unlikely that any one not already established in the district will be persuaded to accept the appointment. The Local Government Board do not appear to approve of the amalgamation of the area with any other; therefore the salary they have to offer is very small, and there is nothing in the district itself to attract an outsider. This the guardians must know for themselves by this time, a fact which makes their recent change of front all the more foolish. It is fair, however, to say of them as a whole that the change probably does not represent the wishes of the majority, but merely those of some particular guardian whose influence at the meeting on August 11th happened for the moment to be in the ascendant. While on the subject of controversies in connexion with contract practice, it may be pointed out that in the Supplement to this issue will be found the full text of the manifesto now being distributed amongst the miners in the Ebbw Vale district, of which an account was given last week. It is a clear statement of fact, and if those to whom it is addressed can be persuaded to study it for themselves, it seems more than probable that this very superfluous controversy will be settled by arbitration, as originally arranged.

THE BOOM OF THE BONESETTER.

The great sea serpent and the gigantic gooseberry have for some reason lost their vogue as journalistic attractions in the "dull season." Their place has been to a certain extent taken by the marvels of Lourdes, but the most conspicuous substitute for the great sea serpent is the bonesetter. For some years past he has made his appearance in certain newspapers at this time with unfailing regularity. There seems to be a fashion in bonesetters as in everything else. A year or two ago it was Rae, the "Collier-Surgeon" of Blantyre; then came the "bloodless surgeon," Mr. H. A. Barker; now a new "star" has come on this great stage of fools. This is Mr. Frank Matthews, whose triumphs of "manipulative surgery" have been celebrated in a style worthy of the subject in the *Daily Mail*. Unlike your common bonesetter who scorns anatomy, Mr. Matthews, we learn, has studied that science for twenty-five years. His knowledge of the human frame is said to be unrivalled, but as his studies seem to have been pursued at veterinary colleges, we cannot help feeling some curiosity as to how his knowledge was acquired. The horse is not an altogether satisfactory subject for the study of human anatomy, and even

> Dissections made on the bodies of swine,
> As likest the human form divine,

are apt to be misleading. The sphere of "manipulative surgery" would appear to be a sufficiently large one; it is, we are told, "the best remedy for such ailments as "dislocations of the shoulder, elbow, and knee; dis-"locations and slippings of the hip, fixed wrists, flat-"foot, displacements of the ligatures (*sic*) of the "neck, slipping of the cartilage of the knee, "nervous disorders, certain phases of paralysis, "white swellings, displacement of the small bones of "the feet, ankles, etc." We do not know whether Mr. Matthews has read Molière; if he has, he might say of his treatment what M. de Pourceaugnac's apothecaries said of their remedy, *C'est bénin*. The secret of successful bonesetting is, we are assured, gentle manipulation. With what looks like a side blow at some brethren of the craft, we are asked to note how different Mr. Matthews's method is from "the general idea of an abnor-"mally violent man, a shriek of pain, and then in certain "lucky instances (which are promptly reported in the "newspapers) a restoration of the use of a limb to a faint "and exhausted patient." It is disappointing to find that the gentle manipulator's implied objection to newspaper reports of bonesetters' cures is only a homage which he pays to abstract righteousness, for his own successes are freely vaunted by the sacred bard who sings his praise. In some artless confidences to another interviewer, Mr. Matthews made the modest claim that so far he has been uniformly successful in his methods of treatment. There can be no doubt that bonesetters, with the boldness of ignorance which rushes in where angels fear to tread, have occasionally cured cases that have baffled skilful surgeons. The atheistical Greek philosopher, when he was shown the votive offerings of persons who, by the supposed mercy of the gods, had escaped the dangers of shipwreck, asked, "But where are the records of those that were "drowned?" The same question might be asked in regard to the results of the bonesetters' work, for they are not all so "uniformly successful" as Mr. Matthews's claims to be. Most practitioners have seen terrible examples of their handiwork. How comes it, then, that so many people believe in them? Professor Howard Marsh shall tell us. "A bonesetter," he says, "may score, not "because the surgeon is at fault, not because the bone-"setter has done the least good, but because he says, "and the patient believes, that he knows more about "bones than any surgeon. When going to the fountain "head in a frame of mind in which they are ready to "believe that mountains are about to be cast upon the "sea, patients find, as they watch the bonesetter, that he "grasps the case without a moment's hesitation. They "at once draw their own conclusions. What a contrast!

"The surgeon seemed puzzled, and had the left arm "uncovered as well as the right, although the left had "nothing whatever the matter with it; he appeared to "hesitate and go over the ground again, and, after "groping about in the dark, to fail absolutely in finding, "not only which particular bone it was, but that any "bone of whatever sort or kind was out. What a dis-"appointment! what a waste of time and of a fee thus "to have bought at the wrong counter! The bonesetter, "with a steady glance so penetrating that he could "evidently see the bones as clearly as a skiagram "could show them, with a shrug of the shoulders which "meant that the patient had been a poor victim, and "the surgeon a clumsy ignoramus, meddling with "things which he had better have left alone; and with "a punch with his thumb, which at once disclosed the "'tender spot,' was master of the situation. Here "was another case in which a 'button' of the "back was out, or in which the deltoid had slipped "round from the outer to the inner side of the "ankle. All this to a surgeon who knows that what "has been said is a myth from beginning to end is "aggravating enough; but it is worse still when a "person, who has been grossly imposed upon, com-"pletely believes what has been asserted." As an instance of the credulity of such persons, Mr. Marsh says he lately heard of a mother who was firmly convinced that her child had been cured, by a bonesetter, of old infantile paralysis; and of another case in which an osteopath, after putting in a bone at the outer margin of the orbit, promised that the patient would soon begin to see with her glass eye. And she believed it!

THE LATE DR. SCHAUDINN.

A MOVEMENT has been set on foot in Germany to raise a memorial fund to be applied for the benefit of the widow and children of the late Dr. Schaudinn, who, owing to his untimely death, have been left in straitened circumstances. An English Committee, consisting of Professor Clifford Allbutt, Sir Michael Foster, Mr. Jonathan Hutchinson, Professor Ray Lankester, Sir Patrick Manson, Professor Osler, Mr. John Tweedy, and Professor Sims Woodhead, has been formed to co-operate with the German promoters of the scheme. By the death of Schaudinn protozoology, which in his hands showed such brilliant promise of development, has suffered an almost irreparable loss. There could be no more fitting memorial of a life given to the advancement of knowledge than a provision that will place those who depended on him above the reach of want. Subscriptions may be paid to Mr. Adam Sedgwick, Treasurer of the Fund, New Museums, Cambridge, or direct to the Schaudinn Memorial Fund at Messrs. Barclay and Co.'s Bank, Cambridge.

MEDICAL INSPECTION OF SCHOOLS IN AMERICA.

TWENTY years ago the medical inspection of schools had its first beginnings in Philadelphia, from which it has now spread over the United States. The results have been so satisfactory that a further development of the system is contemplated. We learn from the *New York Medical Journal* that at the suggestion of a committee composed of a few prominent neurologists, alienists, and sanitarians, the Pennsylvania Society for the Prevention of Cruelty to Children has decided to make an important sociological experiment. It had already, says our contemporary, been ascertained by the Board of Health, through a special medical commission, that fully 50 per cent. of the backward and truant children were suffering from defective eyesight. Children thought to be stupid are found to be able to keep up with their classes when properly fitted with spectacles. Others have been found to be suffering from adenoid growths in the nasopharynx, with commencing spinal curvature or other conditions susceptible of easy correction. On the other hand, not a few have been found to be really feeble-minded, if not imbeciles, and these have been sent to suitable institutions. In co-operation with the Board of Health, the Board of Education, and the Court for Juvenile Delinquents, the Pennsylvania Society for the Prevention of Cruelty to Children has now undertaken this work, under the direction of the committee of physicians. A daily clinical service has been established in Philadelphia where the bodily and mental condition of school children will be fully investigated and appropriate treatment, including operations when necessary, will be recommended. It is expected that the aggregate number of children to be dealt with will not be far short of ten thousand in the coming year.

ENTERIC FEVER IN INDIA.

WE learn from the *Times* that Lord Kitchener presided at the first meeting of the newly-formed standing committee for the purpose of investigating and advising on enteric fever in India and its prophylaxis, held at Simla on July 31st. Surgeon-General Gubbins, P.M.O. of the Forces in India, is *ex officio* President of the Committee, which consists of eight medical officers nominated by the Commander-in-Chief, and four nominated by the Home Department. In addressing the committee, Lord Kitchener said that the three principal diseases whose ravages crippled the troops were malaria, venereal disease, and enteric. With regard to the two former they had made very successful progress in limiting the evils; the same could not be said of the third. Last year there were 1,146 admissions to hospital and 213 deaths from enteric; and for the first half of the current year there had been 513 admissions and 126 deaths. The ravages of cholera in the army were now happily a reminiscence of the past, and if they were equally energetic in stamping out enteric he had great hopes that they would succeed in bringing that scourge in turn eventually under control. The general lines on which they should work were, he thought, fairly clearly defined, but the details of elaboration formed the crux on which he hoped the advice and effort of the committee would be of the greatest assistance. He suggested, as the main lines for action, sanitation in cantonments and barracks, isolation of enteric patients, detection of the origin of an outbreak or a single case, inoculation and blood examination. Of course sanitary reforms meant the expenditure of money, but money would not be wanting if they could be sure that they were working on right lines. The detection of the origin of enteric outbreaks was a question of the gravest importance, and also one of great difficulty; yet some conspicuously successful results had ensued from immediate and careful deductions persistently followed up. Early diagnosis was absolutely essential, for it made possible early prophylactic measures. Commanding officers and the whole military machinery of a unit should be associated with the medical officer in the search for the originating cause, and the precautions to be adopted should be communicated to all concerned. Antityphoid inoculation was still in its infancy, and though they had sufficient data to justify them in introducing the system generally, he looked forward to great improvement in its operation. The medical profession sometimes expressed surprise that this safeguard against dangerous disease was not more willingly adopted by the troops. But if they wished to make inoculation popular their efforts should be directed to making its application less painful and unpleasant, even at the expense of some reduction in the period of immunity. Since the South African war the dose injected had been reduced con-

siderably, with good results, and he asked whether they could not go a step further in the same direction. If all discomfort could be avoided in the process of inoculation, an immune period of six months might be sufficient, instead of the two years the profession now aspired to. They might then look for universal inoculation of all soldiers arriving in the country, it being in their early months in India that young soldiers were most subject to enteric. Finally, he assured the committee that their views and opinions would be received with the greatest interest, and in the confident anticipation that their labours would contribute to the important work of stamping out enteric among the British soldiers in India. This interesting deliverance shows that in Lord Kitchener our army in India has a chief who is fully alive to the importance of the medical branch of the service and in active sympathy with its work. It is something new to hear from a Commander-in-Chief that the whole military machinery of a unit should be associated with the medical officer in the search for the originating cause of an outbreak of enteric fever. It is a good hearing, too, to learn from military lips that the precautions to be adopted should be communicated to all concerned. But something more is needed: the precautions must be not merely communicated but enforced, and it is just here that the existing system fails. Till commanding officers are held responsible for disregarding the advice of their medical officers, the prevention of disease in armies in the field must always be more or less nugatory. This is the great lesson of the Russo-Japanese war, and when Lord Kitchener takes in hand the reform of the British army we trust he will show that he at least has learnt that lesson.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

At a dinner given by Sir Alfred Jones, K.C.M.G., President of the Liverpool Chamber of Commerce, to Sir John Rodger, K.C.M.G., Governor of the Gold Coast, on August 17th, Professor Ronald Ross, responding to complimentary references to the services of the Liverpool School of Tropical Medicine, said that the school had undertaken confidently, with the help of the King of Greece, to abolish malaria from that country, where it was a greater scourge than even in West Africa or Italy, and, in his opinion, worked more mischief than could ever be attributed to the Turk. He hoped Britain would help the Greeks in this noble movement. Dr. Todd, who has recently returned from the Congo where he has been investigating sleeping sickness, said that the school proposed to establish a professorship as a memorial to Dr. Dutton, who lost his life while engaged in research on the Congo, and that £3,000 had already been subscribed. It was stated also that the King of the Belgians had asked Sir Alfred Jones to present to him at a luncheon at the Palace at Brussels the leading workers of the school, on August 23rd. The Professor of Tropical Medicine, the Chairman of the Professional Committee, the Walter Myers Lecturer, the Director of Tropical Research at the Laboratories at Runcorn, the Dean of the school, and several others, will, it is hoped, be present. The King has on several occasions shown that he takes a keen interest in the work of the school, of which he has been a generous supporter.

THE DEBT THE PUBLIC OWES TO MEDICINE.

In a recent number the *Standard* published an article on English medical education, by Dr. Goldmann, *professor extraordinarius* of the University of Freiburg in Baden, in which he makes some just criticisms of English medical education, and aptly compares our system with that of Germany. He contrasts our medical schools—self-supported, or dependent on the precarious help of the charitable public, none too sympathetic where research is in question—and the German universities, amply equipped and generously endowed by a wise paternal government with all that is needed to enable teachers and students to engage in the work of research. In a German university, according to Dr. Goldmann, research stands first; by it the young lecturer earns his promotion to a chair, and by the reputation gained in this way the professor at a small university trusts to obtain in time a call to a more famous school and to a larger sphere of work. In Germany, too, owing to the social consideration enjoyed by the university teacher, success in practice does not tempt the professor to desert his university; great physicians, surgeons, and specialists consider it a privilege to teach, and manage to find time not only for teaching the undergraduates, but for training their assistants, stimulating the junior lecturers, and continuing their own investigations. In one respect he admits the superiority of English schools, for while the tendency in Germany is to teach the student the theory of medicine, in England he is taught its practice. While the German student at the end of his five years' course is rarely fit for practice—and the new regulations for medical study have emphasized this by enjoining him to spend one year in a public hospital before being licensed to practise—the English student receives a better practical training, and is more fitted to enter practice at the end of his term of study, but at the expense of his theoretical training. This is a defect that, unfortunately, can rarely be remedied in after-life, but practical skill is acquired daily, and must be improved by the experience of each succeeding year. In the opinion of Professor Goldmann, it is time the British public, as represented by the Government, awoke to a sense of its duty to the claims of medical education, that it realized the hopelessness of properly-equipped medical schools being self-supporting, the urgency of their claim on Governmental assistance, and that it acknowledged the debt that the public owes to medicine. Whereas throughout Europe civilised governments of all types—autocratic, monarchical, and democratic—alike recognize the claims and provide more or less liberally for the needs of medical education, in our own country both the great parties ignore it; and of the paltry sum which the national exchequer allots in aid of higher education none goes directly to our medical schools, although a few may benefit indirectly owing to their connexion with colleges which receive a share of the grant.

CAESAREAN SECTION FOR PUEPERRAL ECLAMPSIA IN A CHILD UNDER 13.

The value of Caesarean section as a means of speedy delivery in cases of puerperal convulsions has been much discussed. According to the experience of Halliday Croom, Wanner, and others, the maternal mortality is high, though certainly the mother's condition is often desperate when the operation is undertaken. Dr. Boldt[1] recently reports one fatal case of a kind which, fortunately, cannot occur frequently. He was consulted about a child, 12 years of age, in the fifth month of pregnancy. The pelvis was generally contracted, the conjugate 2½ in. There was some objection to induction of abortion. Term was expected in the third week of August, 1905. On August 9th the child was taken into hospital, Dr. Boldt proposing to perform Caesarean section on the 12th. The urine was found to be albu-

[1] Kaiserschnitt wegen schwerer puerperaler Eklampsie, ausgeführt an einem zwölf Jahre acht monate alten Kurde mit engen Becken, *Monatschr. für Geb. u. Gyn.*, May, 1906, p. 612.

minous, with hyaline casts. On the 10th violent convulsions set in with very acute oedema of the lung: within one hour and a half of the first fit Dr. Boldt operated, opening the uterus and extracting child and placenta precisely two minutes after the abdominal incision was commenced. The patient was sent back to her bed twenty-nine minutes after the commencement of the Caesarean section. Primary relief from the symptoms was almost instantaneous, but unfortunately the fits and oedema of the lung recurred within a few hours, and the patient died fourteen hours after the operation. She was 12 years and 8 months old. The infant lived. At the necropsy on the mother much pericardial effusion was discovered, and the lungs were oedematous with pleural adhesions on the right side. The kidneys showed all the signs of very acute parenchymatous nephritis; the ureters were much dilated. The urine passed after the first fit was full of casts and solidified on boiling. The nature of the acute nephritis in this pregnant child is instructive in respect to the question of the nephritis of pregnancy and the relation of all forms of nephritis to puerperal eclampsia.

MEDICAL MINISTERS IN SPAIN.

It may be remembered that an eminent Spanish physician, Dr. Cortezo, held the portfolio of Public Instruction for a short time in the earlier part of the present year. He was succeeded by another member of the medical profession, Dr. Alejandro San Martin, Professor of Surgery in the Madrid Faculty of Medicine. Before long he in turn resigned and was followed by a physician, Dr. Amalio Jimeno Cabanas. While congratulating him on the greatness which he has achieved, we venture to express a hope that his official life will be longer than that of his immediate predecessors.

AN AMERICAN NATIONAL PUBLIC HEALTH SOCIETY.

We learn from the American journals that a national society for the preservation of the public health is to be formed for the purpose of fighting quacks and vendors of adulterated food. The announcement states that, following up recent exposures in regard to the meat trade, the indiscriminate sale of alcohol and narcotics and dangerous poisons under the name of patent medicines, and the alarming conditions made known by the Pure Food Bill, a great many philanthropists and religious associations have issued a call for a conference of public-spirited men and women, to be held in New York city on November 15th, to discuss ways and means of organizing a society to obtain and disseminate accurate information concerning practices and conditions of every kind that are dangerous to the public health and morals, to prevent quackery, criminal practices in the healing art, adulteration of drugs, and the sale of narcotics and alcohol under the guise of proprietary remedies.

In connexion with the celebration of the quatercentenary of the foundation of the University of Aberdeen, the University of St. Petersburg has conferred its honorary membership on the Lord Rector, Sir Frederick Treves.

The Roumanian Government has introduced a Bill prohibiting the marriage of persons suffering from incurable syphilis, consumption, or epilepsy.

The first sanatorium of the National Association formed to establish and maintain sanatoriums for workers suffering from tuberculosis, the foundation stone of which was laid by Her Royal Highness Princess Christian of Schleswig-Holstein in July, will, it is announced, probably be ready for use by the end of the year. The sanatorium is situated at Benenden, Kent.

ANNUAL GENERAL MEETING.

[By Cable.]

The Annual General Meeting of the British Medical Association in Toronto opened on Tuesday, August 21st. Technically it was an adjournment from the General Meeting held in Caxton Hall, Westminster, on July 24th, and as the discussion of the report of Council and other business which must be laid before the Annual General Meeting was then concluded, the members assembled in Toronto were able to devote themselves at once and entirely to the scientific and social sides of the annual gathering.

Owing to the large number of speakers who have expressed their intention of taking part in the discussions in the Sections and the numerous papers accepted, the Sectional officers have in most instances arranged that the Sections shall meet on four days—Tuesday, Wednesday, Thursday, and Friday. All the Sections met in the rooms assigned to them on Tuesday morning with the exception of Dermatology.

The Address in Obstetrics, published at p. 423, was delivered by Dr. W. S. A. Griffith on Tuesday evening in the Convocation Hall.

The Address in Medicine, published at p. 401, was delivered by Sir James Barr on Wednesday afternoon.

The Address in Surgery, published at p. 411, was delivered by Sir Victor Horsley, F.R.S., on Wednesday evening. It was illustrated by lantern slides of the photographs reproduced in this issue.

The meeting is very largely attended. The number registered up to Wednesday midday was 1,800. The attendance includes a large proportion of Canadians.

The inaugural meeting was held in the new Convocation Hall, which is not yet quite completed; it was gaily decorated in honour of the occasion. After prayer had been offered by Principal Knox, the President, Mr. G. C. Franklin, briefly expressed the pleasure felt by the British Representatives at the reception accorded them. He introduced the new President, Dr. Reeve, to whom Dr. Starr presented a gold badge. Mr. Franklin was elected Vice-President, on the motion of Dr. Stewart of Halifax and Sir Thomas Barlow. Representatives of the Council, the Representative Meeting, and the Branches, and of Universities and Colleges were presented; also the President of the American Medical Association and the French, German, and Swiss delegates. The Mayor of Toronto welcomed the Association and congratulated Dr. Reeve on his election to the presidential chair. Dr. Irving Cameron, Chairman of the Reception Committee, Dr. McPhedran, President of the Canadian Medical Association, and Dr. Bingham, President of the Ontario Medical Association, also welcomed the Association. Sir Victor Horsley was elected Vice-President on the motion of Dr. Grasset, of Toronto, seconded by Dr. Macdonald, of Taunton (Chairman of the Annual Representative Meeting). Sir Victor Horsley, in acknowledging the honour, referred to the Imperial aims of the Association. Dr. Reeve, in his Presidential address, dwelt on the cosmopolitan character of the meeting. He reviewed the early history of the British Medical Association, and made particular mention of the scientific scholarships awarded by it. He went on to sketch the progress of medicine during the last decade, especially in regard to diet and digestion. A vote of thanks to the President for his address was moved by Dr. Henry Barnes (Carlisle), seconded by Dr. Roddick (Montreal). A vote of thanks to the Mayor and city was moved by Mr. Franklin and seconded by Sir James Barr.

Scotland.

Post-graduate Courses at the Glasgow Royal Infirmary.

The members of the staff of the hospital, with the hearty co-operation of the managers, have now arranged a third series of post-graduate classes. These are to be opened on September 4th by Major George Lamb, M.D., I.M.S. The subject of his address is the Etiology of Plague, one to which he has devoted much attention and original research. The rapid advances which have taken place not only in our knowledge of pathology and the treatment of disease, but also in the more exact methods of diagnosis, render it necessary that those who desire to keep themselves abreast of the time should see what is being done in our great hospitals. The constant changes going on in every department of medicine are known to the great majority of practitioners only through medical societies and the medical press. Private reading fails to supply all their wants. With the assistance of men who have had large experience in special branches of work, they must renew their student life from time to time alongside their compeers and see and handle the appliances now in use. In Germany, Austria, France, and America the value and need for post-graduate study has been recognized, and the want has been met by the establishment of large colleges especially devoted to that purpose. In London also the Medical College and Polyclinic is doing excellent work. This year the staff of the Royal Infirmary have taken the matter up, and have organized a series of practical and clinical classes. The first and second series have already proved very successful, and have been well attended. The third course will include in all about one hundred and twenty meetings, and the subjects are:

1. Clinical Medicine: J. Lindsay Steven and T. K. Monro, M.D.
2. Clinical Surgery: John Barlow, F.R.C.S., H. Rutherfurd, M.B., and A. N. McGregor.
3. Demonstrations on Diseases and Injuries of the Eye: A Maitland Ramsay, M.D.
4. Diseases of the Bladder and Kidney: David Newman, M.D.
5. Diseases of the Ear: J. Kerr Love, M.D.
6. Diseases of the Throat and Nose: Robert Fullerton, M.D.
7. Haematology: W. K. Hunter, M.D.
8. Gynaecology: Balfour Marshall, M.D.
9. Practical Pathology: Charles Workman, M.D.
10. Bacteriology: David McCrorie, L.R.C.P.

In our advertising columns will be found an announcement of the courses, and a copy of the syllabus may be had by making application to Dr. Maxtone Thom, Superintendent of the Royal Infirmary.

Birmingham.

The General Hospital.

The statistical report of in-patients of the General Hospital for 1905, which has recently been published, shows that the number of medical patients admitted to the hospital during the year was 1,450; of these, 585 were cured, 486 relieved, 122 unrelieved, and 183 died. There were 32 cases of enteric fever and 54 of acute rheumatism. On the surgical side the number of patients admitted was 3,549, and of these 2,125 were cured, 1,018 relieved, 117 unrelieved, and 279 died. In the report there is a list of 2,206 surgical operations, in which is given the nature of the operation, the age and sex of the patient, the result of and remarks upon the operation, and the name of the operator.

There were 177 cases of appendicitis treated in the hospital, and of these 60 died. Two cases of acute haemorrhagic pancreatitis occurred in the year. A large proportion of the deaths on the surgical side was due to burns and scalds, for out of 176 cases admitted 87 died from these causes.

The number of cases of cancer treated as in-patients during 1905 was 168. The breast was most frequently affected, the number being 42. Some of the other organs affected were: Rectum, 24; stomach, 18; uterus, 15.

The registered number of administrations of anaesthetics was 3,310, being 309 more than in 1904. The mixture of E_2C_1 is the one by far most frequently employed, but it is to be noted that the use of chloroform alone has markedly increased. Nitrous oxide is now almost exclusively used in the Dental Department. Five deaths occurred during anaesthesia, and of these 2 were in small children in the last stage of diphtheritic dyspnoea; 1 death occurred in a man aged 20, to whom chloroform was being administered for removal of an extensive malignant tumour of the upper jaw; the other 2 deaths took place during the administration of E_2C_1, 1 being in the case of a woman aged 26, suffering from general peritonitis, the other in a woman aged 18, suffering from septicaemia due to a large abscess in the neck.

The report of the X-ray and Light Department shows that during the year 442 radiographs were taken, and that over 60 patients were treated for cancer, rodent ulcer, lupus, and other skin diseases. Over 1,600 exposures were given with satisfactory results. In the Dental Department 443 patients were treated.

At the Jaffray Branch Hospital the number of patients treated was 274, and of these 138 were cured, 50 much relieved, 12 relieved, 4 unrelieved, 11 died, and 7 were transferred to the General Hospital.

Midland Counties' Home for Incurables.

The new wing of the Midland Counties' Home for Incurables at Leamington is now open. The ceremony was performed some weeks ago by Her Highness Princess Louise of Schleswig-Holstein (Princess Aribert of Anhalt). The building has long been insufficient to supply the requirements of the neighbourhood. By the new wing 20 beds are added, and in all 110 patients can be accommodated. The wing is one of the two memorials to the late General Radcliffe; the other is a chapel not yet built but in progress.

Annual Health Report of Birmingham.

In the Annual Health Report for 1905 there is shown to be a considerable decrease in local mortality. Dr. Robertson, the Medical Officer of Health, points out that although much of this may be traced to the better and healthier conditions under which the people now live, certainly the climatic conditions have a considerable part in it. A great number of the deaths are due to carelessness and ignorance, and this is especially so in regard to the feeding and rearing of children. Of every 1,000 children born, 155 died. Inasmuch as the birth-rate all over England is on the decline, it is of the first importance that this wastage of human life should be ended. The means to prevent this must be largely educational, and thus the operation of them will necessarily be slow. However, the passing of the Midwives Act will be an additional weapon in fighting infant mortality. By this Act the sanitary authorities may be able to ensure that midwives instruct working-class mothers as to the feeding and rearing of their babies. The birth-rate has decreased in Birmingham in the last three years as much as 18 per cent.

Warwick County Asylum.

According to the annual report of Dr. Miller, Superintendent of the Warwick County Asylum, there appear to be now 1,042 patients maintained, and of these 469 are men and 513 women. There are 37 private patients. There were 7 congenital cases under 15 years of age. Dr. Miller again urges the inadvisability of sending children to the asylum, which is not suitable for their reception. The attempt to lease a large house near Birmingham for children unfortunately fell through, owing to the Lunacy Commissioners insisting on a 60 years' lease. A villa on the asylum estate would probably meet the need. The physical condition of the patients admitted is generally very bad. The verandah for phthisical patients on the female side has been continuously occupied during the year, and 55 patients have generally been confined to their beds.

Several new buildings have been finished, of which the chief are a new male dormitory for 25 patients, a large weaving shop, tailors' and bookbinders' shops, and an admission block for both sexes. Also the old house for the steward has been turned into a nurses' home. There have been additions to the female wards, and new messrooms for the female staff, and for the senior officers of both sexes. Leigh House, the new private home, is in

working order, though not full with paying patients. The work of laying out the grounds is being performed by male patients and attendants. It will meet the need of those unable to pay the high rates of private asylums.

Bequest to Birmingham Institutions.

The trustees of the late Mrs. Poncia have allocated £500 to each of the following institutions: Children's Hospital, Eye Hospital, Orthopaedic and Spinal Hospital, Ear and Throat Hospital, Dental Hospital, General Dispensary, Lying-in Charity, Nursing Association, Moseley Hall Convalescent Home: and £200 to each of the following: Women's Hospital, Skin and Urinary Hospital, Birmingham and Midland Counties Sanatorium.

South Wales.

New Isolation Hospital.

A new isolation hospital was opened on August 18th, midway between Llantrisant and Tonyrefail, erected by the Llantrisant and Llantwit Fardre Rural District Council, the ceremony being performed by Mrs. Godfrey Clark (Talygarn). Mr. Evan John, J.P., presented Mrs. Clark with a gold key, a gift which she gracefully acknowledged in a few words. She then declared the institution open to the public. Subsequently, at the invitation of Mrs. Clark, all present sat down to luncheon. Among the guests were Dr. T. H. Morris, C.C., Chairman of the Education Committee of the Glamorgan County Council; Dr. W. N. Davies, Medical Officer of Health; D. Naunton Morgan, F.R.C.S.I. (Gilfach Goch); Mr. Gower Morgan, the Council's engineer; and Mr. Spicket, Clerk to the Council; and Alderman E. H. Davies, J.P., of Pentre; there was also present a number of the members of the Rural District Council. Alluding to the hospital, Mr. Clark referred in glowing terms to their engineer, Mr. Gower Morgan, who had designed the hospital and superintended its construction. Replying to the toast of his health, Mr. Gower Morgan gave the following details of the institution: The buildings consist of five blocks, and are on an ideal site, situated 500 ft. above sea level, the ground sloping from north-east to south-west. On the left of the entrance is the administrative block, which is capable of providing accommodation for double the present arrangements. The laundry block is on the right side of the entrance, and includes space for the ambulance, the infected goods room, disinfected goods room, and washing rooms. It is fitted up with steam laundry plant, and in this block the whole of the hot water required throughout the institution is heated. The pavilion block contains eight beds, and is capable of being used for twelve beds. A feature of the institution is the position of the mortuary, which is effectually screened off from the other buildings. The sanitary arrangements are of the most modern type throughout and a steam disinfector (Equifex) is also provided.

CORRESPONDENCE.

PUERPERAL MORBIDITY.

Sir,—For the last five months, following the address of Dr. Peter Horrocks on the Midwifery of the Present Day, the old and familiar contest concerning the best method of conducting cases of midwifery has been waged in your columns. The disputants have been mainly divided into those who hold with Dr. Horrocks that some 90 per cent. of cases of midwifery are normal and do not need any assistance from the attendant, and those who are apostles of what they term "advanced" midwifery, under which title they frequently make use of forceps to deliver the baby.

These two methods are so strikingly opposed, that it seems strange that there is no manner by which preference between the two can be made. A dispute concerning such divergent practices is scarcely profitable unless it admits of arguments which are more convincing than individual cases, personal prejudices, or theoretic deductions. I cannot but think that this discussion will only be limited by the patience of the Editor, unless some common basis, by which to measure the success of the different methods, is adopted. In this discussion the basis tacitly admitted by both parties has been one of mortality. I have already urged at the Leicester meeting of 1905 the futility of thus estimating success. I then pointed out that one hundred years ago at the Rotunda Hospital the mortality of certain individual years actually compared favourably with that of the present time. All available evidence, however, goes to show that the morbidity was disastrously high, and, when groups of 10,000 confinement cases of that date and this are compared, the mortality was enormously greater. It is for these reasons that I can see no final issue to this discussion, unless a mortality standard is discarded and a morbidity standard substituted.

Fortunately we have an authoritative definition of morbidity laid down by the British Medical Association in 1906. A case is to be classed as morbid if the temperature, taken with a half-minute thermometer for three minutes in the mouth about the hours of 8 a.m. and 5 p.m., rises twice to 100° F. between the second and eighth day. The unstable period of the first twenty-four hours after the birth of the child is not taken into account.

The advocates of "advanced" midwifery may object that a general practitioner has not time to visit his patient twice a day in order to fulfil the above requirements. I fully sympathize with this objection, but feel that men who cannot make accurate observations have not a full right to oppose those who can. In the Rotunda Hospital during the year 1905, 1,904 confinement cases were conducted and their success measured by the British Medical Association standard of morbidity. They showed a morbidity of 8.5 per cent. If practitioners interested in this subject will abstain from further controversy until they have observed a series of 100 cases, as a minimum, based on the British Medical Association standard, and if they can then show better results than ours, it will behove us to carefully reconsider our position.

The advocates of "advanced" midwifery may also object that trifling morbidity is of no importance. But I hold it as proved that a raised temperature is a sign of an abnormal state of health, and the more perfect technique incurs fewer such cases of abnormal health. I am not of the opinion that the decrease of the period of suffering due to the application of forceps in any way compensates for a later infection of pathogenic organisms: and I look forward to a time when, by a strict comparison of results such as I have advocated, obstetricians will perforce agree to be the servants rather than the patrons of Nature.—I am, etc.,

E. Hastings Tweedy,
Dublin, Aug. 15th. Master, Rotunda Hospital.

THE PREVENTION OF DIFFICULT LABOUR.

Sir,—Throughout this discussion I have not noticed any reference as to the supposed influence of special dietary or limitation of diet during pregnancy on the prevention of difficult labour, in so far as these tend to diminish the size and weight of the fetus. Also, with the exception of a few lines in Webster's *Obstetrics*, I have not seen any reference whatever in recent works on obstetrics to this most important subject.

Prochownik is stated to have obtained very successful results by limitation of and special diet, and Paton is reported to have had favourable results in the case of guinea-pigs.

I should very much like to know the opinion of some obstetrical hospital authorities and also of general practitioners who have had practical experience of the methods described. I am, etc.,

August 18th. Conjugate.

GOAT'S MILK FOR INFANTS.

Sir,—In the *Daily Telegraph* for August 15th the following report appeared:

Goat's Milk for Infants.

Yesterday, at the Battersea Coroner's Court, Mr. John Troutbeck held an inquest on the body of Tomasso Cammindillo, aged 7 months, son of an ice-cream vendor, living in Sheepcote Lane, Battersea. . . . It appeared that the child, which weighed only a little over 4 lb., had been fed for six months on goat's milk, and the father explained that he resorted to this because he considered it lighter than cow's milk. Dr. Freyberger said death was due to malnutrition. Goat's milk was worse than skimmed milk, and did not contain sufficient

fat or sugar. A verdict of "Death from natural causes" was recorded.

It would be interesting to know where Dr. Freyberger obtained the analysis which enabled him to state on oath that "goat's milk was worse than skimmed milk, and did not contain sufficient fat or sugar."

Turning to Stevenson and Murphy's *Treatise on Hygiene and Public Health*, I find the percentage constituents of human, cow's, and goat's milk given as follows:

Milk.	Total Solids.	Proteids.	Fats.	Lactose or Milk Sugar.	Salts.	Water.
Human	12.59	2.29	3.78	6.21	0.31	87.41
Cow's	12.83	3.55	3.69	4.88	0.71	87.17
Goat's	14.29	4.20	4.78	4.46	0.76	85.71

whereas the composition of skimmed milk is given as proteids 4.03, sugar 4.04, fat 1.09, and water 90.12 (pp. 427 and 436, vol. i).

On reference to Pavy's *Treatise on Food*, 2nd edition, p. 185, we find the statement that:

"The milk of the cow . . . the most closely approximates to that of woman, but is rather more highly charged with each kind of solid constituent. Next follows the milk of the goat, which, taken altogether, is again rather richer.

These references are, I think, quite sufficient to prove what I had hitherto believed was a matter of common knowledge—namely, that goat's milk is rich in all the constituents of a perfect food, and not to be compared to skimmed milk as a form of nourishment.

That it is also a useful food for children is shown by the following extract from Dr. Eustace Smith's classical book, *The Wasting Diseases of Infants and Children* (sixth edition, pp. 43, 44):

"With some children, in spite of all possible precautions, cow's milk, however carefully it may be prepared and administered, cannot be digested. . . . In such cases, if there are objections to a wet nurse, recourse must be had to the milk of some other animal, and preference should be given to a milk which contains a smaller proportion of casein than that found in the milk of the cow, such as goats' or asses' milk.

The milk, it is true, has an unpleasant smell; but the sense of smell is not well developed in children (Holt's *Diseases of Childhood*, p. 27), and infants do not appear to mind the disagreeable odour.

Dr. Freyberger must be little interested in preventive medicine, or he would have gathered from the many papers on Malta fever which have appeared during the past few months that in Malta the *only* milk available is goat's milk.

As a practitioner specially interested in medical jurisprudence I have always, for the sake of scientific accuracy, advocated the employment of specially skilled persons in medico-legal work, and one must therefore hope that Dr. Freyberger's evidence is incorrectly reported, in which case he will have a well-founded grievance against the newspapers.—I am, etc.,

R. J. Blackham, D.P.H., R.C.P.S.Lond.,
Aug. 17th. Captain, R.A.M.C.

THE REGISTRATION OF NURSES.

Sir,—Seeing that I am situated on the uttermost outskirts of the controversy in regard to the proposed registration of nurses, I write this letter with the greatest diffidence.

I believe that one of the chief reasons why a great number of medical men are so strongly opposed to registration of nurses is that as a result of registration a number of nurses would be able by degrees, if they wished, to form a sort of "practice" for themselves, and so take work out of the hands of the general practitioner.

For, supposing for instance a nurse to be living in a country district, she could allow it to become very well known that she is a "qualified nurse," and the result is bound to be that by degrees she will be called to see various children, and, later on, adults, for minor ailments such as the doctor would have otherwise been called to see.

It seems to me, therefore, that a system of registration is required which, while giving the nurses their proper status in relation to the public, in relation to the lay woman who dons a nursing uniform and calls herself "nurse," and in relation to each other, will at the same time not place in the hands of the nursing profession a power to work independently of, and even in opposition to, the general practitioner—only calling to him when there is danger of a death certificate being required or a major operation being needed.

My suggestions, therefore, are:

1. That a central committee or Board should be formed, with the constitution of which this letter is not concerned, merely suggesting that all parties should be fairly represented, and that the Board should be responsible for efficient working to some Governmental department.

2. That registration of nurses should take place only through some hospital or nursing institution. (Hereinafter the word "institution" implies either or both.)

That any institution wishing to have the right to grant certificates (which certificate should give the nurse the right to get herself registered) should send an application to the Central Board, together with a fee of £5 or £10 or other fixed sum. The application should also be accompanied by certain information in regard to number of beds, character of instruction given to nurses, length of training required, sets of examination questions set to nurses, etc.

The Board may then grant to such institution a certificate which shall give power to that institution to confer certificates of registration. Certificates from the Board to the institutions shall be of three classes for general work and two classes each for infectious and lunacy work, and nurses registered by each institution shall be registered only in the class corresponding to the certificate which their hospital holds.

The Board shall (by means of subcommittee) pay occasional visits to institutions holding their certificates, and shall require (if they think fit) sets of examination papers, and even the actual answers given, to be submitted to them occasionally.

If the Board does not consider the institution applying to be up to a standard suitable for certificate, the Board shall refuse it and return a portion of the fee paid. The institution shall have the right to apply again every twelve months.

If the Board is doubtful as to whether an institution should receive such certificate, or is doubtful which class of certificate to give, it may appoint a subcommittee to visit that institution; after their report the Board shall give or refuse a certificate.

3. Any nurse who, at the end of her training, receives a certificate from such institution shall be entitled, on payment of a fee—say, 10s. per year—to have her name registered in the *Nurses' Register* under the class in which she holds a certificate, and with the name of her hospital added after her name.

I would also desire—though it sounds at first impossible—that some arrangement could be made whereby any medical practitioner could—if he wished to do so, and was prepared to pay some settled fee to show his bona fides—report to her hospital any nurse who, in his opinion, had systematically interfered with his practice either by taking certain minor cases, by giving medical advice, or in other ways. I would like to see some rule which would render the nurse liable to have her certificate removed or suspended if it was proved that she had been guilty of such interference with another profession—a profession from which that same nurse, it must be remembered, has learned all the medical knowledge she possesses; but, at the same time, I would also have established an exceedingly heavy penalty against any medical man who, having brought such a charge, is unable to substantiate it, at least so far as to show him justified in bringing it. There is no doubt that if a charge of this sort was made by a doctor against a nurse to the hospital from which she was registered, that hospital, for its own good name, would strictly investigate the case, and if either party was still dissatisfied, appeal could be made to the Board, who would have power to deal with the dispute and to inflict punishment, if they thought fit, upon any one or more of the parties—upon the general practitioner, if he be shown to have brought a malicious or unfounded charge; upon the nurse, if she be proved to have done wrong; and upon the hospital, if it has not dealt justly in the matter

after being appealed to. The penalty to the hospital might be that its power to grant certificates be removed or suspended, excepting to such nurses as were at the moment undergoing their training thereat.

Unless one can bring into the system some method—as above indicated—by which the *esprit de corps* of the hospitals themselves will be involved in any charge of misdemeanour against a nurse who has gone out from the parent body, then I believe that there can be little or no control over the enormous number of nurses who would be scattered about throughout the country armed, indirectly, by law with a power that can—and doubtless in some cases will—work great harm to that hard-worked body of men, the general practitioners.

Some advantages of this system of registration of nurses would be that:

1. Competition between the hospitals for the right to give "first-class" certificates would raise the general standard of efficiency.

2. Any one desiring a nurse could be sure of getting a fully-qualified one, and one of whatever "class of certificate" he desired, according to the fee he was prepared to pay and according to the character of the case to be nursed.

3. No institution would be able (as at present) to send out for private work nurses with insufficient training who may thus endanger the reputation of more efficient and longer-trained members of the same profession.

4. The nurse would be provided with a power behind her ready to assist her in case of injustice or imposition.

The fees above mentioned are mere suggestions, but it would be easy to arrange them so that they would cover all expenses, including the provision of a fund for inquiries and for assisting the hospitals to hold their inquiries when needed.

I must apologize for this long letter, but I was led to write it because so many to whom I mentioned the subject seemed to be without definite opinion upon it, or had heard only the arguments of one side. *Audi alteram partem* is a good motto, and this letter might possibly suggest to some one a scheme that would meet the views of both supporters and opponents of registration of nurses.—I am, etc.,

T. Basil Rhodes
(Medical Superintendent, Baguley Sanatorium for Infectious Diseases).

August 15th.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

Sir,—With regard to that part of the proposed new Education Act which provides for the medical inspection of school children, it seems to me that if the public are to get anything like value for the money expended, two things will require very special and very careful consideration, to wit: (1) the nature of the inspection and (2) the proper persons to whom such inspection is to be entrusted.

With regard to the first of these, it would, I think, be well, in order to arrive at uniformity and a satisfactory result, that the system to be followed should be prescribed, and that proper books should be kept in order to register the different matters that may be thought necessary to constitute a thorough medical school inspection. What these matters should be I do not at present presume to say, but they ought to be settled before the second point is considered—namely, Who are the proper persons to carry out the inspection?

In the case of large towns, and where a great number of children have to be dealt with in a circumscribed area, the duty will no doubt be entrusted to special officers who will practically be "whole-timers," but in urban and rural districts it is difficult to see how the medical officers of health are to be passed over, having regard to the fact that they are most likely, through the Infectious Disease (Notification) Act and other channels, to know most about the conditions affecting child life.

Some time ago I wrote a paper entitled, State Obligations in Matters of Public Health, in which I pleaded for a State Department of Public Health, with a Minister at the head to look after all matters affecting the public health of the nation. With such a department the duty of looking after the medical inspection of school children would have been much simplified. Perhaps it is not too late yet to hope that something may be done in this direction. We vote millions annually for the destruction of human life. It is time the State rose to a full measure of her obligation with regard to the protection of the same.—I am, etc.,

Workington, Aug. 13th. John Highet.

Sir,—I am pleased to see that the Education Department has listened to the voice of the profession and decided to provide inspection of school children, but would be glad to know upon what lines the inspection is to be worked.

The counties—at any rate mine (Kent)—have after many years at last acknowledged that the onus of providing a certificate of unfitness to attend school in the case of a sick child is on them and not on the parent, and, in consequence of this, offer to pay the profession 1s. for each certificate given. My attention was first called to the matter by finding that a *confrère* was visiting patients that I was attending and certifying that they were, or were not, fit to attend school. On my writing him he replied that he understood that he had been appointed certifying medical officer by the county. On making further inquiries I found that the county left the selection of the certifying medical officer to the village barber, who sent his own medical attendant; further, that it was said freely in the district that if the children were ill the same doctor must be sent for, as he had to attend all school children. Ultimately my protests resulted in an agreement between us not to certify under 2s. 6d. and an acknowledgement that there was no real appointment. I wrote to my County Councillor, who wrote to the Chairman of the Education Committee, and ultimately got a letter saying that the Committee would sanction the payment of 2s. 6d. where the examination is absolutely necessary for the purposes of the Committee; and, further, declining to let the parent ask his own medical man to grant the certificate. This, of course, shows at once that the certificate is not on the same lines as the notification of infectious disease, but is to be the outcome of a special examination, and yet the miserable fee of 1s. is offered.

Is the examination of school children to be arranged on the same lines, and is the selection of examiner to be in the hands of the village sweep or the school charwoman? It behoves us to know.

I have in vain endeavoured to get my Branch and Division of the British Medical Association to take up this matter of school certificates. Surely you, Sir, will not leave me to the degradation of having to visit, examine, and report on the health of a child, at the call of the village barber, for the sum of 1s., without at least giving voice to the cry of a

August 12th. Poor Rural Practitioner.

THE CONDITION OF THE URETHRA AFTER PROSTATECTOMY.

Sir,—Mr. J. W. Thomson Walker—if I interpret correctly his letter in your last issue—believes that the cells composing the lining membrane of the prostatic channel after complete healing in a case of prostatectomy are derived neither from proliferation of remaining portions of glandular prostatic tissue, on the one hand, nor from extension of bladder and urethral epithelium, on the other. In that view Mr. Walker may be right, or he may prove wrong. Meantime, he will not think me discourteous if I simply note his view without attempting to discuss it. Further data are necessary, I think, ere discussion can lead to deductions of value. Apart from that, also, I have no wish to be drawn into another correspondence on prostatic surgery.—I am, etc.,

Glasgow, Aug. 20th. Jas. H. Nicoll.

THE RIVA-ROCCI APPARATUS FOR RECORDING BLOOD PRESSURE.

Sir,—Recently I was attending a lady, aged 70, who was suffering from pneumonia. She had been ill about eleven days. The consolidation was unilateral, and she was apparently holding her own. Being uncertain, however, as to whether sufficient stimulant was being administered, and, following Osler (sixth edition, p. 177), I took her blood pressure. The apparatus used was the Riva-Rocci, which from other references in Professor Osler's work is evidently the method intended in the

paragraph indicated. The patient was not disturbed in any way, raised no objection—in fact, rather joked about the performance, which altogether took perhaps a couple of minutes. The record was reassuring—130 mm.

I had hardly left the house before I was hurriedly summoned back to find her alarmingly ill. She was collapsed, almost pulseless, blue, cold, and shivering. The temperature was normal, as it has practically been all along. Ether subcutaneously, hot bottles, and oxygen—not that I attach much importance to the latter—soon mended matters and restored the *status quo ante*, save that the respirations for a time ran up to 50 instead of 35 to 40 as previously. The patient is not at all neurotic or liable to functional attacks, and nothing of the kind has occurred, except perhaps on the first day of the illness.

Some time ago Sir James Barr pointed out in the British Medical Journal that all patients do not regard the performance with equanimity, and I have found, in the consulting room, that some are a little upset by it, and I do not now use it if any signs of nervousness are shown. I have never before, however, seen anything serious, yet my case looked very like cause and effect. It may have been coincidence, but, whether or not, my patient's condition has decidedly put me off the Riva-Rocci in just those cases where information is most needed.

A point against the occurrence being due to mere nervousness is that the patient takes no notice of the oxygen paraphernalia, in spite of the fact that the usual stopcock, so difficult to regulate without sundry hissings and noises, is in use.

It is quite possible that under certain conditions the disturbance of the circulation in an extremity may react badly on the patient. But I fail to see how a stoppage of a few seconds could do so. Perhaps some of your readers can enlighten me on the point.—I am, etc.,

Finchley, N., July 22nd. Vincent Moxey.

TRANSPOSITION OF VISCERA.

Sir,—With regard to the frequency of this condition, it may be of some interest to state that in notes of rather more than 10,000 examinations for life insurance I find two typical cases of transposition of viscera recorded. The applicants were young men of average physique, apparently enjoying good health, and were accepted for insurance. One of them had been told as a child that his heart was misplaced, the other was entirely ignorant of any abnormality. It would be interesting to know if the duration of life is likely to be in any way affected in such cases, but I am unaware of any statistics bearing on this point.—I am, etc.,

London, Aug. 10th. W. E. Risdon, M.D.Lond.

THE VESICAL SPHINCTER.

Sir,—In his interesting article upon this subject Mr. Leedham-Green might have added corroborative evidence to his views upon the function of the internal sphincter by citing the condition found during suprapubic cystotomy or digital exploration of the female bladder.

The strength of the ring of muscle surrounding the internal meatus is at once apparent when the attempt is made to insert the finger through it.

To dilate this orifice requires considerable force, and it is almost inconceivable how it could be "taken up" into the bladder when that organ becomes distended.—I am, etc.,

Glasgow, Aug. 11th. Alex. MacLennan.

UNIVERSITIES AND COLLEGES.

SOCIETY OF APOTHECARIES OF LONDON.

At a meeting of the Court of Assistants held at the Society's Hall, Blackfriars, on Tuesday, August 14th, E. Parker Young, M.R.C.S., L.S.A., was chosen as Master, and George Wilks, M.B., M.R.C.S., L.S.A., and F. Gordon Brown, M.R.C.S., L.S.A., Surgeon to the City of London Police, were elected respectively as Senior and Junior Wardens for the ensuing year. The customary votes of thanks were given to the outgoing Master, Surgeon-General J. H. Jeffcoat, and the Wardens.

The Court unanimously resolved that the Freedom of the Society should be conferred upon Alderman T. B. Crosby.

OBITUARY.

OSCAR THOMAS WOODS, M.D.(Dub.)

MEDICAL SUPERINTENDENT, CORK DISTRICT ASYLUM.

The death of Dr. Oscar T. Woods, Medical Superintendent of the Cork District Asylum, has caused widespread regret amongst a large circle of friends, not only in the City and County of Cork, but also in Kerry, where for fourteen years he was Medical Superintendent of the Killarney Asylum. Born in Birr, King's County, fifty-eight years ago, Dr. Woods from his early years displayed an ability which gave indication of a future brilliant career. He was educated at Trinity College, Dublin, where he took the degree of B.A. in 1868, and that of M.B. in 1869; in the same year he became Licentiate of the Royal College of Surgeons, Ireland, while six years later he took the degree of M.D. at Dublin University. He began his career in asylum work by accepting an appointment as medical officer to the Warwickshire Asylum. There he served for three years with the most marked success and won for himself high encomiums. He was then appointed to the responsible position of Medical Superintendent of the Kerry County Asylum at Killarney. For eleven years he served there, when a similar position became vacant in the Cork District Asylum and he came forward as a candidate, but was defeated by Dr. Thompson Dwyer, who held the post for three years only, when he died. Dr. Woods was again candidate, this time with success, and for the past seventeen years he has filled the position with credit to himself and to the committees of management. Recognized throughout Ireland as a very able officer, Dr. Woods discharged his arduous duties with the highest possible skill and painstaking devotion and care. From year to year, both at Killarney and Cork Asylum, he made many improvements in dealing with acute insanity in asylums, and as his experience increased, these became more elaborate, and many of them will prove a lasting gain and benefit. In 1901–2 he was elected President of the Psychological Association of Great Britain and Ireland, a very high distinction, and on the same occasion he read a long paper dealing with the criminal responsibility of the insane, which was strikingly original and thoughtful. It was during Dr. Woods's superintendence that the annexe at Youghal was built for chronic mental patients, and much physical and mental energy were expended in making this building the success it is.

At the meeting of the Cork Corporation reference was made to Dr. Woods's worth. The Lord Mayor proposed that a vote of sincere condolence should be forwarded from the Corporation of the City of Cork, remarking at the same time that the late Dr. Woods was not only a splendid doctor, but a splendid medical superintendent. The motion was carried in silence, and the Town Clerk was ordered to forward an expression of the Council's sympathy and regret to Mrs. Woods and family in their sad bereavement. The remains were taken to Birr for interment in the family burial ground. Dr. Woods leaves a widow, two sons, and four daughters. His eldest daughter died about two months ago, and her father's devoted attendance on her when his own health was failing seemed to hasten on his fatal illness.

On Saturday, August 11th, at a largely-attended meeting of the Cork medical profession, it was proposed by Professor Ashley Cummins and seconded by Dr. T. Gelston Atkins, in most feeling terms, that a vote of condolence expressive of the sincere regret felt by the colleagues of the late Dr. Woods at his early demise should be conveyed to Mrs. Woods and family. The motion was passed silently by the members present.

JAMES ALTHAM, M.B., C.M.Edin.,

PENRITH.

By the death of Dr. James Altham of Penrith on August 13th the profession in the North of England has lost a widely-known and highly-respected member. Born fifty years ago, he studied at Edinburgh University, graduating M.B., C.M. in 1880. He then went to act as Assistant to Lord Lister at King's College Hospital; and to this association, of which he was naturally proud, he no doubt owed much of the ability he afterwards displayed as an operating surgeon. Later he studied surgery in Paris, and on returning to England became House-Surgeon to

the Royal Surrey County Hospital. Subsequently he practised in the South of Scotland, and finally settled in his native town of Penrith, where he built up an extensive general practice. His knowledge of surgery brought him considerable consulting work from neighbouring practitioners. He was Lecturer and Examiner for the St. John Ambulance Association, and made contributions on surgical subjects to medical literature. As Secretary of the Border Counties Branch, 1889-95, and President, 1896, he did much in the interests of the Association. In 1897 he was joined in partnership by Dr. D. C. Edington. As Chairman of the Local Entertainment Subcommittee and as a member of the Executive Committee he took an active part in the arrangements for the annual meeting of the Association at Carlisle in 1896.

The son of Quaker parents, Dr. Altham maintained the traditions of his family in political and social affairs. He was a strong Liberal and threw himself with vigour into political work. The present dominant position of the Liberal party in Cumberland and Westmorland owed much to his strenuous advocacy. It is well known that on two occasions he was pressed to allow himself to be nominated as the Liberal candidate for Mid-Cumberland, but his attachment to his professional work prevented him from accepting nomination. It is worth recording that it was to a great extent owing to his influence that the Speaker was not opposed at the late general election. Dr. Altham was keenly interested in social matters, and was for some years a member of the Penrith School Board and of the Penrith Urban District Council. As a total abstainer he was a friend and ardent admirer of the late Sir Wilfrid Lawson, and frequently wrote and lectured on the evils attending the use of alcohol. As a speaker, his straightforward manner and his quiet humour made him very popular, and always obtained for him an attentive hearing. On all subjects in which he was interested he spoke strongly, and he worked hard for what he thought to be right. He was held in very high regard even by those who were strongly opposed to his views, and he was trusted and esteemed by his professional colleagues. The purity of his motives and the consistent nature of his life accounted for this. An earnest student of the Bible, he nevertheless made no parade of his religion, yet those intimate with him know that the keynote of all his work was his simple though intense Christian faith. It is by this standard, and by this alone, that he himself would have wished his life and actions to be judged.

His funeral took place at the burying ground of the Society of Friends at Penrith, and the large and representative attendance at the impressive though simple ceremony was a proof of the affection and regard in which he was held. The sincere sympathy of many, both within and without the medical profession, will be extended to his widow and three daughters.

Mr. John Thomas Jones died at his residence, Bronygraig, Corris, on July 25th, in his 69th year. A native of Carnarvonshire, he received his professional education at Anderson's College, Glasgow, and the University of Aberdeen, qualifying as M.R.C.S. and L.S.A. in 1863. He subsequently commenced practice at Dowlais, but thirty-three years ago he settled at Corris, where he held the appointments of Surgeon to the Corris Slate Quarries and Medical Officer to the Talyllyn District of the Dolgelly Union. Mr. Jones was noted for his kind-heartedness and generosity to the poor and his *bonhomie*. No charitable object ever came to his notice without receiving his ready help. He was a Churchman and a Conservative, and took great interest in political and social questions, but always preferred, wisely, not to take active part in such matters. He was a thorough Welshman, and loved the Welsh language and literature, and was especially conversant with Welsh poetry. The late Professor Alfred Hughes, Professor of Anatomy at King's College, London, and founder of the Welsh Hospital in South Africa, commenced his professional career as a pupil with Mr. Jones, and they formed a life-long friendship. Mr. Jones was a regular attendant at the meetings of the North Wales Branch, and in the year 1900 he was offered the presidency of the Branch; but, being of a somewhat retiring disposition, he declined the office, which he would have undoubtedly filled with honour to himself and the Branch. Mr. Jones was a widower, and leaves one son to mourn his loss. The funeral took place on Saturday, July 28th, when the remains were interred at the Corris Churchyard.

We regret to record the death of Mr. William Thomas, which took place suddenly on August 8th at his residence, Rhianva, Nevin, in his 45th year. The son of the late Captain Evan Thomas, of Nevin, he received his medical education at the London Hospital, taking the M.R.C.S. and L.R.C.P. in 1892. Returning to his native home, he commenced practice, which he carried on with much success up to the time of his death. Being of a genial and kind-hearted disposition, he was well liked by all who knew him. He held the appointment of Surgeon to the Gwylwyr and Nevin Bay Quarries, and Public Vaccinator to the Pwllheli Union. In addition to his professional work, Mr. Thomas took a keen interest in public affairs. A staunch Liberal, he rendered great services to Liberalism in South Carnarvonshire. He was the Chairman of the Nevin Parish Council, and was one of the prime movers in connexion with the new waterworks recently opened. He also took special interest in educational matters, and at the time of his death was the Chairman of the Pwllheli District Education Committee. Mr. Thomas was unmarried, but leaves a large circle of relatives and friends to mourn his loss. The funeral, which was a public one, took place at Nevin on Saturday, August 11th.

Deputy Surgeon-General Henry Fowle Smith, M.D., died at Graitney Hall on August 5th, aged 82. He joined the Army Medical Department as Assistant Surgeon, March 23rd, 1847; was made Surgeon, January 12th, 1855; and Surgeon-Major, March 23rd, 1847. He retired from the service with the honorary rank of Deputy Surgeon-General, October 17th, 1888. Throughout the Crimean campaign in 1854-5 he was attached to head quarters, not being absent a single day from duty; he had medical charge of the staff belonging to the Adjutant-General and Quarter-master-General's departments, and was subsequently on the personal staff of Sir James Simpson and Sir William Codrington; he was present at Bulganac, Alma, Balaclava, Inkerman, and the siege and fall of Sebastopol; he had received the medal with four clasps, the 5th Class of the Order of the Medjidie, and the Turkish medal.

Colonel Henry Walker Butler Boyd, F.R.C.S.I., Indian Medical Service, died at Bombay, suddenly, on July 16th, at the age of 55. He entered the Bombay Medical Department as Assistant Surgeon, March 11th, 1876, and became Brigade-Surgeon-Lieutenant-Colonel, March 31st, 1896. He has no war record in the Army Lists.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are Dr. F. Roser, of Branau, Bohemia, formerly a member of the Austrian Chamber of Deputies, aged 87; Dr. Ots y Esquerdo, of Madrid, a well-known specialist in mental diseases; Dr. W. P. Brandegee, a well-known laryngologist and aurist of New York, aged 42; and Dr. A. Hutchins, for many years physician to the Brooklyn Hospital, New York, aged 71.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

NATIVE MILITARY HOSPITALS IN INDIA.

Fed Up writes: The following appears among recent India Army Orders:

315. *Medical Administration (Native Army).* India Army Orders Nos. 231 and 388 of 1903 are cancelled, and the following substituted:

With a view to increased economy and efficiency, His Excellency the Commander-in-Chief is pleased to direct the following modifications in the medical administrations of hospitals:

1. All medical officers, hospital assistants, ward orderlies, and hospital followers will continue regimental as at present; and officers commanding units will continue in every respect to exercise absolutely the same disciplinary control as they now do; and all regimental customs as regards hospitals will continue as heretofore.

2. The senior Indian Medical Service officer of each

station, however, will be competent to detail all Indian Medical Service officers, hospital assistants, ward orderlies, and regimental hospital establishments for any medical or sanitary duties he may consider necessary, provided this does not interfere with regimental arrangements—that is, field firing, parades, etc.

3. All hospital buildings for native troops, together with all their medical and surgical stores, drugs, instruments, and hospital equipment, will be under the charge of the senior Indian Medical Service officer of the station, who will be responsible to the divisional or brigade principal medical officer for their maintenance in a thoroughly efficient condition.

4. The senior Indian Medical Service officer of each station will, under the orders of the officer commanding the station, allocate the accommodation for the sick as occasion may require, keeping the men of each unit in separate wards or groups of beds, contagious cases excepted.

5. The medical, surgical, and hospital stores for the use of native troops in each station will be amalgamated into single central store, with small branch stores for urgent requirements at hospitals too far from the central store for convenience.

Steps are being taken, and will shortly be published, to alter existing scales when more than one regimental hospital exists in a station. The surplus will then be returned to store. By doing away with the present duplication of identical stores in the hospitals of units, it is hoped that it will be possible to supply extra instruments, etc., the necessity of which is recognized.

6. The purchase of extra drugs and hospital supplies, now made separately for each unit by its medical officer, will in future be made by the senior Indian Medical Service officer of each station.

7. Returns of sick will continue to be submitted separately for each unit as at present.

8. All cases of discipline originating in hospital will be disposed of by the soldier's own commanding officer, on the report of the regimental medical officer.

It will be seen from this Order that the Commander-in-Chief, perhaps with the advice and assistance of the higher military medical authorities in India, has endeavoured by a trifling change to increase the efficiency while reducing the cost of the administration of native military hospitals. It is curious how nowadays economy always accompanies increased efficiency. The Army Order talks glibly of doing away with a duplication of identical stores, as if there will be a reduction in the annual expenditure on these articles, an item which is at present very small. It is not realized that as, practically speaking, none of the drugs and stores except field hospital stores, which are not referred to in the Order, used in military hospitals deteriorate, there can be no waste under present circumstances, except what results from dishonesty on the part of subordinates, a thing which will not be affected by the new arrangements. How, therefore, any economy can be affected it is hard to see. As to efficiency, it is generally recognized by I.M.S. officers of any experience that the station hospital system which obtains with British troops is the more efficient of the two, and more economical in regard to the cost of the medical staff. The Army Order in question does not touch the inefficiency of the present system on account of the wretched hospitals and the still worse equipment, or the excessive cost of the regimental system, which requires a medical staff twice as large in some stations and half as large again in others, as would be required if station hospitals for native troops were introduced. Such tinkering with the regimental system as this Order involves is useless. If anything is to improve the administration of native military hospitals it will be in the direction of introducing the station hospital system, by which alone can any real efficiency with, perhaps, a certain amount of economy, be effected.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS) (LONDON COMPANIES).

In the list of officers present with the R.A.M.C.(Vols.), as reported in the British Medical Journal of August 18th, the name of Captain E. W. Herrington was accidentally omitted.

HOSPITAL AND DISPENSARY MANAGEMENT.

BRIGHTON COUNTY BOROUGH ASYLUM, HAYWARDS HEATH.

The second annual report of the Medical Superintendent of this institution, Dr. Edward B. C. Walker, shows that there were in the asylum on January 1st, 1905, 852 patients and that the same number remained on the last day of the year. During the year 165 cases were admitted, of whom 151 were first admissions. Of the total admissions 75 were the subjects of first attacks within three months of admission and 14 more within twelve months of admission; in 29 the attacks were not first attacks within twelve months of admission; in 18 the attack, whether a first attack or not, was of over twelve months' duration on admission, and the remainder were either of unknown duration (21) or congenital cases (8). They were classified according to the form of mental disorder into: Mania of all kinds 70, melancholia of all kinds 54, dementia (secondary and senile) 12, general paralysis 18, acquired epilepsy 2, and cases of congenital or infantile defect 8. The various etiological factors of the insanities in these admissions were ascribed in the following numbers: Alcoholic intemperance in 16 (or 9.6 per cent.), venereal disease in 3, previous attacks in 31, old age in 5, "moral" causes in 15, in 72 no cause could be assigned, and in 33 hereditary influences were ascertained. During the year 59 were discharged as recovered, giving a recovery-rate on the admissions of 39.1 per cent, 24 as relieved, 13 as not improved, and there were 69 deaths, giving a percentage death-rate on the average numbers resident of 8.2. The deaths were due in 27 cases to cerebro-spinal diseases, including 12 deaths from general paralysis, in 23 to chest diseases, with only 6 from pulmonary consumption, in 10 cases to abdominal diseases, and in 9 to general diseases, including 5 from old age. There were two serious accidents during the year, one of these, a case of general paralysis, dying seven days after a fall, being the occasion of the only inquest which was held; and the general health appears to have been good throughout the year.

JOINT COUNTIES ASYLUM, CARMARTHEN.

On January 1st, 1905, there were resident 674 patients, including 51 private patients. The average number resident during the year was 664, which, from the remarks of the Medical Superintendent, Dr. Edwin Goodall, was evidently in excess of the proper accommodation of this asylum. All of the wards, he says, with one exception on the female side, contained more patients than they should have done, so far as day space is concerned. During the year, 105 cases were admitted, of whom 13 were not first admissions. In 49 the attack was a first attack within three, and in 8 more within twelve, months of admission; in 16 the attack was a "not first" attack within twelve months of admission, and the remainder were either of more than twelve months (8), or congenital cases (3), or of unknown duration (20), on admission. In one case the patient was not insane on admission. The admissions were classified as to the forms of mental disorder into: Mania of all kinds 28, melancholia 16, dementia 22, delusional insanity 19, confusional insanity 5, general paralysis 5, acquired epilepsy 5, congenital or infantile defect 4, and stupor, moral insanity, and "not insane," each 1. As to the probable causes of the insanities among the admissions, the previous supposed etiological factors were ascertained in the following numbers: Alcoholic intemperance 9, venereal disease 1, previous attacks 17, hereditary influences 23, congenital defect 9, puberty, change of life, and old age, 8, "moral causes" 20, accident or injury 4, and in 18 no cause could be assigned.

Dr. Goodall says that the family and personal history was investigated as fully as possible in 91 cases. In 46, or 50.5 per cent., there was found either a heredity of insanity or of allied disorders of the nervous system. This proportion Dr. Goodall considers an under-statement of the truth. During the year 44 were discharged as recovered, giving the highly satisfactory recovery-rate on the admissions of 45.8 per cent., or, exclusive of transfers, of 46.31 per cent.; 6 as relieved, 11 as not improved, 1 as not insane, and there were 57 deaths. The deaths were due in 15 cases to cerebro-spinal diseases; in 19 cases to chest diseases, including 4 cases of phthisis, 1 of general paralysis and phthisis, and 1 of general paralysis and pneumonia; in 9 cases to abdominal diseases, with no deaths from dysentery, and the remainder to general diseases. Notwithstanding, therefore, the presence of overcrowding, no deaths had to be recorded from asylum dysentery, and the deaths from tuberculous disease were few. With the exception of epidemic influenza, the general health was good, with no occurrence of zymotic disease, and no serious casualty occurred during the year. Only one inquest was held, and that on an elderly patient who was admitted in feeble condition and died on the following day from heart disease.

The Lunacy Commissioners visited the asylum in April, 1905, and their report refers, amongst other matters, to delay in carrying out their suggestions of the preceding year, owing to the continuance of a dispute between the local authorities, to whom the asylum belongs, to the overcrowding present at their visit to the extent of an excess of 37 patients, and to the fact that in 21 per cent. of the deaths the bodies exhibited bedsores.

MEDICO-LEGAL AND MEDICO-ETHICAL.

DENTAL ADVERTISING.

W. W. writes to draw our attention to the comment made by the Editor of the *British Dental Journal* on the facts upon which we commented last year (August 12th, 1905, p. 364), when we said that we should certainly consider it as advertising for a dentist to allow tooth powders and soaps to be exposed for sale labelled "according to the formula of

Mr. A. B." or "recommended by Mr. A. B., L.D.S." He says that the opinion of the Editor of the *British Dental Journal* and our own are "very much opposed to one another," and he urges that "if there is such a difference between medical and dental ethics, an authorized statement of the differences should be formulated by those in charge of such matters, and placed before the general practitioner, but if there is no difference between general medical and dental ethics, an authoritative dictum should be pronounced to that effect."

*** After reading the comment of the Editor of the *British Dental Journal* we think it is clear that he disapproves of the practice, but hesitates to make a pronouncement which might be made the basis for further proceedings. Our correspondent's remarks show that he is under the mistaken impression that there is some fundamental basis for ethics, which is unfortunately not the case. History shows that it undergoes marked changes from time to time, no doubt usually of a progressive kind, but not always, so that any rule must be regarded as limited by time and circumstances; it is therefore quite possible to conceive that the medical and dental professions occupy different ethical planes in connexion with this question, and that what one may regard as advertising the other may not. In our opinion the question submitted to us is one for the dentists to settle for themselves.

VALUATION OF A PRACTICE.

R. H. writes that his indoor assistant proposes to buy a quarter-share of his practice, which is worth about £1,000 per annum. What should be paid down for his quarter-share? or, if he cannot do that, is there any easy-payment scheme by which he could work it off? He speaks of expenses of his practice, motor car, etc.; he wishes to know if this would affect the quarter-share.

*** We can only advise our correspondent, on ordinary business principles; if a partner buys a quarter-share of a practice he would expect to receive a quarter of the profits and pay a quarter of the expenses. With regard to a quarter-share of a practice of £1,000 a year as described in his letter, we cannot quote a value. Shares of practices are, as a rule, worth from one to three years' value, but very rarely the latter. The case seems to be one for settlement between the assistant and principal, and when this has been arrived at it should be put into the hands of a respectable solicitor to ensure that the terms are all legally valid.

VALUE OF AN INTRODUCTION.

It is inquired what would be the value of a practice with an income for the last three years averaging £350 to £400 per annum, the selling practitioner only giving a day now and again to introduce the buyer to patients, but visiting them all and introducing the buyer to them until things were running smoothly?

*** It is to be feared the value would not be very great; it would certainly not be more than a year's purchase, taking the average of the three years.

PARTNERS AND *LOCUM TENENS*.

A. AND B. are in partnership, A. having two-thirds and B. one-third. B. is taken ill, necessitating his absence from the practice for two months, and he puts in a *locum tenens* to carry on his share of the work. Is A. responsible for two-thirds of the payment for this *locum tenens*, as B. claims?

*** As under the terms of partnership A. receives two-thirds of the profits and naturally has to pay two-thirds of the expenses, it would be singular if salary paid to a *locum tenens* for doing the work of a sick partner would not be properly regarded as expenses in carrying on a medical practice. B.'s claim would seem to be ordinary common sense.

SECRET COMMISSIONS.

A CORRESPONDENT sends us a circular headed "The Ebor Educational Agency, York," giving an address at 10, St. Oswald's Terrace, York. It is merely signed "The Secretary," but it is an impudent request to our correspondent to utilize his position as a medical practitioner as a tout for this agency. The circular says: "We are agents for most of the best private schools in England, also several on the Continent. Our business is to introduce pupils to these schools, and our desire is to use the best means possible to find pupils. All we wish you to do is when on your daily rounds to ascertain in the ordinary course of conversation, without letting the parents think you are interested in the matter, whether they are likely to be sending their sons or daughters away to school, and to forward their names to us, together with any other particulars you can give us. . . . For every pupil we place at a school through your introduction we give you a guinea."

*** We hope that there is no truth in the claim made in the circular that "we have many doctors in different parts of the country now acting for us," as nothing could be more unworthy of the position of trust which medical practitioners occupy in relation to the families they attend than that they should make use of information gained by them for such a purpose.

SUPERSESSION.

G. GARDNER.—B.'s claim is tantamount to refusing the right of the patient to decline the services of his assistant, which is unreasonable. A. seems to have acted in the right way, and we do not understand why B. refused to resume attendance.

GRATIS ATTENDANCE UPON MEDICAL MEN AND THEIR FAMILIES.

S. L. GILL asks whether it is "professional for a consultant to charge a fee for visiting a medical man's wife in consultation with her own medical attendant?"

*** There is no obligation to see medical men or their families without payment. Although it is constantly done, it should be regarded as a favour and not as a right.

MEDICAL ADVERTISING.

E. R. B., after declaiming against the curse of giving credit, expresses his desire to make his practice almost entirely a cash concern, and therefore asks whether it would be illegal or unprofessional to resort to (1) putting "Cash Doctor" on his red lamp outside the surgery; (2) getting a large card, with bold print on it, to be hung in the surgery, stating that all he does is "For Cash"; (3) having small cards printed, stating that he is strictly a cash doctor, which he can hand to his would-be patients at the first interview or after the first visit.

*** (1) Yes; (2) no; (3) yes, as they would probably be handed about and regarded as a form of advertisement.

PUBLIC HEALTH
AND
POOR-LAW MEDICAL SERVICES.

CORONERS AND MEDICAL OFFICERS OF HEALTH.

THE Coroner for South-West Lancashire, Mr. Samuel Brighouse, appears to have gone somewhat out of his way at the Haverford explosion inquest a few weeks ago, to repel what he considered an attack on him by the Medical Officer of Health of Bootle.

According to a newspaper report he seems to have thought the occasion a suitable one for making some comments of a caustic nature on the recently issued annual report of the Medical Officer of Health (Dr. W. Naylor Barlow), so far as it affected his conduct as coroner in disposing with inquests after preliminary investigation of non-certified deaths.

The section of the report referred to was, said the coroner, "instructive, amusing, and inaccurate." The part which "amused" the coroner was "that which ascribed to the lady sanitary inspector and the medical officer an ability to determine that all infants whom they had not seen either alive or dead would have lived if the mothers had received the lady's instructions as to feeding and care."

Reference to the report itself, which is before us, shows the coroner's jibe to be quite unjustified. The report was dealing with the objections to the long period of grace (forty-two days) during which the registration of a birth may be deferred, and during which about 30 per cent. of all deaths of children under 1 year old do actually take place: and it goes on: "In not a few cases when the lady sanitary inspector visits houses with the intention of giving instruction (where needed) on infant feeding, etc., she finds the child is dead and buried, and often has died from some complaint which proper instruction and advice might have prevented, and the child's life have been saved.

"It is probable that many a life could be saved to the State if births had to be registered within a week."

We fail to see anything "amusing" in this opinion of Dr. Barlow's that many lives (not *all*, as the coroner incorrectly quotes him) could be saved by a little timely instruction and advice from a competent lady inspector.

On the contrary, we feel sure that any one who knows how incredibly ignorant of the management of babies many young mothers are, in these days of much schooling and little home life, will fully agree with Dr. Barlow and heartily support his suggestions in favour of earlier registration, so that mother and child may be brought under inspection before the baby is dead and buried.

In another paragraph of the report Dr. Barlow draws attention to the fact that there were 38 cases of uncertified deaths in 1905 (the coroner says 48) as to which no inquests were held, and expresses in perfectly general terms, and in quite moderate and impersonal language, his strong opinion—which our readers know is substantially ours also—that "inquests should be held in every case where the death is uncertified, that is, when no doctor was present during the last illness, unless the coroner can satisfy himself that there is no necessity for an inquest, not from the report of a policeman or coroner's officer, but from a report from a medical man who knows the deceased, and may have attended him quite recently" (p. 12).

We fail to see in this, or, indeed, in any other part of the report, any attempt to paint the coroner very "black," and we cannot understand why he should resent these very temperate criticisms on a system rather than an individual.

As to the system, we do not believe that Mr. Brighouse, or any other coroner, would pretend that it is perfect. Even if it could be maintained that a policeman is an ideal investigator of the circumstances under which a person may have died suddenly, or have been found dead, there is no obligation on the coroner to give such information as has been obtained to the Registrar. Indeed, neither the coroner nor his officer is expected to do so. The printed form which the Registrar-General supplies to coroners for use in such cases baldly states that "The circumstances connected with the death of————, which is said to have taken place on————, have been reported to me, and I do not consider it necessary to hold an inquest respecting such death." The Registrar-General seems to discourage the coroner from giving any information or opinion as to the cause of death, and the result is that the Registrar gets his information from the relatives alone, which, as Dr. Barlow points out, is "most unsatisfactory from every point of view—medical, legal, and scientific."

We should have had little cause to complain as to the substance of Mr. Brighouse's defence had he taken his stand on the difficulty of complying with Dr. Barlow's counsel of perfection, so long as the law and the coroner's machinery remain what they are.

We are quite aware that many, if not most, coroners hold that, under the existing law, they have no absolute right to hold inquests on every uncertified death. The statute requires that they should have reasonable cause to suspect that the death was "sudden" and from an "unknown" cause, and they are unable to regard the latter condition as satisfied by the mere absence of a medical certificate. That being so, they must make such inquiries as they can with the only machinery at their service—the handy, though by no means infallible, constable or coroner's officer.

We believe that most coroners admit that the present system of death certification is unsatisfactory, although they contend that in practice it works better than might be expected, and they are not opposed to the recommendations of the Medico-Political Committee presented to, and adopted by, the Annual Representative Meeting of the British Medical Association at Leicester last year, and approved again by the meeting of the same body this year in London.

As these recommendations now stand, we believe them to be acceptable to the great majority of coroners, and we have good reason for hoping that before very long they will be embodied in the desired legislation. So long, however, as the present system exists medical officers of health are bound to call attention to its defects, and coroners, if they are wise, will support the medical officer of health in demanding amendment, rather than attempt, by feeble ridicule based on misquotations, to throw discredit on honest effort to diminish the fearful loss of young life, from causes more or less preventable, to the detriment of the State which both officials serve.

SEWAGE DISPOSAL.

SICCIM writes: Can you give me any information on the following points with reference to the system of sewage disposal adopted by some Continental towns where the sewage is dried and converted into "poudrette"? In this method: (1) Is the urine collected with the faeces? (2) Is any earth or other material used in the pails in which the matter is collected? (3) If the urine and faeces are collected together, are they mixed in any way before being spread out on the ground to dry, or is the urine run off? (4) Is the sewage taken directly from the collecting pails and spread out to dry when it is fresh, or is it allowed to undergo fermentation in a tank for some time? (5) Is the resulting dried matter powdered or sold *en masse*?

*** (1) The urine is collected with the faeces. (2) No earth is placed in the pails, but when the latter are emptied into tanks the contents are mixed with sulphuric acid in order to fix the ammonia. (3) There is no mechanical mixing of the urine and faeces. The urine is not run off. (4) See No. 2 above. (5) The dried matter is not powdered.

UNDER the will of the late Mr. Thomas Wood, of East bourne, the Great Northern Central Hospital receives a direct legacy of £2,500, and a share in the residue estate estimated to be of equal value.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the JOURNAL, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone, unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

MANUSCRIPTS FORWARDED TO THE OFFICE OF THIS JOURNAL CANNOT UNDER ANY CIRCUMSTANCES BE RETURNED.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL, and not at his private house.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, London.* The telegraphic address of the MANAGER of the BRITISH MEDICAL JOURNAL is *Articulate, London.*

TELEPHONE (National):—
EDITOR, 2631, Gerrard. GENERAL SECRETARY AND MANAGER, 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

CACCUS is in difficulty as to what lamps he should use for his 6-h.p. De Dion car. He has two paraffin side lamps, which do not give sufficient light for narrow country lanes, and is told that acetylene side lamps dazzle the driver. The head lamps advertised appear very expensive, heavy, and most difficult to fix. He would be very grateful for the advice of any member who has satisfactorily solved a like difficulty.

THE CHOICE OF A MICROSCOPE.

COUNTRY PRACTITIONER asks for advice about the purchase of a microscope and accessories for bacteriological and blood work. He ought to obtain catalogues from some of the well-known London firms and from the Cambridge Scientific Instrument Company, Cambridge, and then make a selection. He needs for his microscope two eyepieces, one giving a low and one a medium magnification, and three objectives, a low power, a medium power, and a high power (⅟₁₂ in. oil immersion lens). In ordering the medium power he should state that he wants to use it for blood counts, in order to obtain a lens which gives the requisite amount of free working distance. Different makers vary very considerably in their scale of charges for both stands and objectives. It is not necessary to purchase one of the most expensive stands. The less expensive objectives are often good, but they are apt to vary; objectives turned out by a maker who is able to command a high price for them have the advantage of being all equally good.

ANSWERS.

ARSENIC.—The literature of industrial arsenical poisoning is scattered and scanty. The subject is dealt with in *Poisons: their Effects and Detection*, by A. Wynter Blyth, published by Griffin and Co.; in *Dangerous Trades*, edited by Thomas Oliver and published by Murray; in recent Annual Reports of the Chief Inspector of Factories; also in *Poisons Industriels* (Paris: Imprimerie Nationale); and in the Reports of the Dangerous Trades Committee of the Home Office.

A. W. HARRISON, M.D.—Constable and Co. have published a book by H. C. Jones on *The Electrical Nature of Matter and Radio Activity*, which should meet our correspondent's requirements; 8s. net. The Cambridge University Press publish one on *Radio Activity*, by E. Rutherford; 12s. 6d. net. *Radium and all about it*, by Bottone; Whittaker and Co., 1s. net, is semi-popular. The most-read books on electricity are *Medical Electricity*, Lewis Jones; H. K. Lewis, 12s. 6d. net. *Manual of Practical Medical Electricity*, Dawson Turner; Ballière, Tindall, and Cox. The *Manual d'Electrothérapie et d'Electrodiagnostic*, by Albert Weil, published by Félix Alcan, and recently reviewed in the BRITISH MEDICAL JOURNAL, is an excellent book. In *Light Energy*, Cleaves, published by Rebman, an account of many forms of electrical and radiant treatment is to be found.

RATIO OF PRACTITIONERS TO POPULATION.

SPHINX.—It cannot be said that there is any "proportion of medical practitioners to population generally recognized as expedient." Too much depends upon the precise constitution of the population, its average means, the number of casual visitors, the energies of the practitioners concerned,

the extent to which their services are requisitioned by persons in neighbouring districts, etc., for any rule to be laid down. In the particular instance quoted, however, it would be reasonable from experience elsewhere to expect to find at least ten medical men in actual practice. Taking one town and its neighbourhood with another, and excepting as far as possible medical men not in regular practice, it would seem that it takes a population of about 1,500 to support one medical man.

REDUCING AGENTS IN URINE.

DR. S. M. HEBBLETHWAITE (Leeds) writes: "Sussex," I think, will find the urine normal when his patient has left off taking syr. glycerophosph. co. (B.P.C.) a few days. A very great number of things cause slight reduction of copper solutions. I have seen a similar reduction in the urine of a patient taking "Parrish's food."

MIDGE BITES.

DR. ARTHUR W. THOMAS (Boscombe) writes: In answer to "Badly Bitten," tincture of pyrethrum dabbed on exposed parts, hand or face, etc., I have always found a sure preventive; anyhow it is in the New Forest, where stinging creatures abound. Or, if the smell is not objected to, eucalyptus oil used in the same way is very useful.

DR. J. HEPWORTH (Penmon, Beaumaris) writes: In answer to "Badly Bitten," in the JOURNAL of August 18th, he will find that essential oil of citronella applied to the skin in very small quantity will absolutely prevent midges, flies, etc., even settling. As this is a volatile oil, the effect only lasts for an hour or two, but as a very small quantity is required a small bottleful of it can be carried in the waistcoat pocket, and the oil applied with the cork.

PRESERVATION OF SPHYGMOGRAPHIC TRACINGS.

SENEX writes: All that "Delta" (BRITISH MEDICAL JOURNAL, August 18th, page 399) needs to do is to dip the tracings on smoked paper into photographic varnish and dry on a piece of blotting paper, when they will be permanent: before dipping, write with a pin on the smoked side the name, date, hour, and pressure used, which data will also be preserved. I keep the varnish in a tall cylindrical glass about 2 in. diameter and 8 in. high, with a widish heavy base and ground surface at top, which is easily and quickly closed by a plate of glass laid on it. It only wants a little added to it at long intervals to keep it full. I have used this arrangement for more than thirty years.

MR. J. HAWKSLEY (Oxford Street, W.) writes: In reply to "Delta" (BRITISH MEDICAL JOURNAL, August 18th), a convenient fixing varnish for smoke tracings is made by dissolving 2 oz. of gum dammar in 20 oz. of benzine. For short tracings, about 6 in., it is best to use a 10-oz. wide-mouthed bottle; immerse the tracing and slowly withdraw it, and pin it up vertically; it dries dead—that is, not shiny—in a few minutes, and is not sticky.

DR. F. G. GARDNER (Warwick) writes: "Delta" should dip his tracings, after making all necessary notes thereon, in tr. benz. co. or tr. guaiaci simp., and allow them to dry. This simple process will make them permanent. I have some now before me taken twenty-one years ago, preserved as suggested, and they are in perfect condition. I presume "Delta" smokes his papers with burning camphor.

MEDICAL SONG BOOK.

E. B. M. writes: In reply to "B flat or sharp," he would probably find his requirements met by *The Scottish Students' Song Book*, a work published by Bayley and Ferguson, of 14, Paternoster Row, and 54, Queen Street, Glasgow. It contains a selection of songs eminently suitable for social evenings, and not exclusively Scottish.

AN ANTISEPTIC FOR THE HANDS.

DR. R. ALEX. SHANNON (Orpington, Kent) writes: I would suggest to "Dunelm" the following: R Yellow soap, common soft soap, āā 4 oz.; acid. carbolic. (Calvert's No. 5), 8 oz. Mix the yellow soap, in shavings, with the soft soap and carbolic acid, and dissolve with gentle heat. Some years ago I read of the above in the BRITISH MEDICAL JOURNAL as described by Dr. Beatson of Glasgow, and termed by him "Carbo-sapol." I like the preparation very much, as it leaves the hands soft and clean. For years past it has been made up for me by the General Apothecaries' Company. I was very glad to read the prescription for glycola given by one of your correspondents.

MOTOR CAR.

R. M. writes: In answer to "Member," who contemplates getting a small car, I should strongly recommend him to get the 6-h.p. Rover car, at £125. I have one of these cars, and it is giving very satisfactory results. It is certainly the simplest and most reliable car I know. Should "Member" live in a hilly country, the 8-h.p. car of the same make would be advisable.

THE ADAMS-HEWITT MOTOR CAR.

DR. LLOYD SMITH.—The only report which we have actually received of this car has been from a dissatisfied user. On the other hand we have been informed that several medical men are using it with entire satisfaction. As being a car likely to appeal to medical men on account of its simplicity and its moderate price, we have had one out for a trial trip, and were quite satisfied with its performance. It climbed a very steep hill on that occasion without difficulty, is very silent for a single cylinder car, and its mechanism is both simple and ingenious. The address of the Adams-Hewitt Company is 147, Queen Victoria Street, E.C., and their works are at Bedford.

VENTILATING CHURCHES.

DR. H. STANLEY (St. Leonards-on-Sea).—The only book of which we know in which the ventilation of churches is fully dealt with is a little work by the late Dr. Jacob, of Leeds, entitled *Ventilation*. London: Society for Promoting Christian Knowledge. 1s.

NOTES, LETTERS, ETC.

MIDWIFERY OF THE PRESENT DAY.

DR. HENRY MONTEAGLE (Pendleton, Manchester) writes: Dr. Bert. Jordan is in error when he thinks I doubt the accuracy of his statistics. I never dreamed of doubting the statistics of Dr. Mears, who applies forceps in 80 per cent. of his cases. But neither have I a shadow of doubt that the forceps too often lacerate and bruise, cause chronic inflammation and death. Failures are not paraded by those who have them. I would commend to Dr. Jordan the words of Dr. Ranken Lyle on this subject in the BRITISH MEDICAL JOURNAL of July 14th: "The practice advocated by Dr. Mears is, in the hands of others less experienced than himself, undoubtedly fraught with the greatest calamities both for mothers and infants. I have the most ample proof of this, and were I to put on paper the description of some cases I have seen as the result of such practice, even Dr. Mears, I am convinced, would feel thoroughly ashamed of his 'up-to-date midwifery.'" These are serious words from a university teacher, not to be explained away by foolish debating quibbles. "Advanced" men may be skilful and personally successful, or they may not: but, in any case, their influence, so far as it goes, on the hundreds of inexperienced medical men throughout the country tends in this matter to unnecessary mutilation and death. Leave natural cases to Nature.

A FLOATING EXHIBITION.

A NOVEL kind of exhibition will be opened at the end of next month, when a large ship, specially designed for the exhibition of commercial products and manufactured articles of all kinds, will start from London on a year's tour. During this time it is proposed to visit all the principal ports in the world, the first stop being made at Montreal. Besides the exhibition halls there are 200 first-class cabins in the ship which will be occupied by the representatives and agents of the various firms interested, and among them, doubtless, will be those of some of the larger instrument manufacturers and chemical firms. The arrangements are in the hands of the Floating Exhibition Syndicate, 96, Victoria Street, Westminster, London, S.W.

A NEW INKSTAND.

MR. EDWARD DARKE, of 14A, Great Marlborough Street, London, W., has submitted for inspection a new form of inkstand, called the Napier. It is so arranged that there can be no spilling even if the vessel be turned upside down, and yet by a simple half turn of the top the dipping cup at once fills with clean ink. Another strong point is that the ink in the reservoir is protected from evaporation, a decided attraction in these days of fountain pens, when inkpots are often little used for days and weeks, and prove to be dried up just when they are needed.

HAY FEVER.

DR. J. WESTON BULL, (Scheveningen, Holland) writes: May I, at this time, call attention to Dr. Koster's (Leiden University) treatment for hay fever, which consists of a 3 per cent. solution of potassium chlorate, to be used for the eyes, nose, and pharynx thrice a day—the eyes by an eye-dropper or bath, the nose by pouring it in from a teaspoon, allowing it to run into the pharynx and hawking it up. Gargle also the throat as deeply as possible, and continue treatment from May to mid-July.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under ...	...	...	...	£0 4 0
Each additional line ...	...	...	...	0 0 6
A whole column ...	...	...	...	2 13 4
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An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication; and if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Poste Restante* addressed either in initials or numbers.

EDUCATIONAL NUMBER.

SESSIONS 1906-1907.

THE PROFESSION OF MEDICINE.

The choice of a profession is the most momentous step in a man's life, for a mistake in regard to this matter can seldom be wholly rectified; and even if it does not wreck his career, it will prevent the complete fulfilment of the possibilities of achievement, for himself as well as for others, that lie in him. Nothing can be more disastrous than for a man to find himself, when it is too late to escape, condemned to a way of life which he dislikes or for which he secretly knows himself to be unfitted. What one may suffer from having wrongly chosen medicine as a profession may be learnt from that painful book, Veresaieff's *Memoirs of a Doctor*. Yet how many every year enter upon it because they think it affords an easy way to a dignified position with a competence earned without apparent trouble, or because a student's life, as painted by a fancy fed on idealized accounts of an extinct Bohemia, seems to them more attractive than an office stool. Yet there is no profession for which a special vocation is more necessary—if the pursuit of it is to be anything better than a dreary, it may be a hateful, task—than medicine. Hence it behoves the young man before whom the various paths of life stretch towards an unseen goal to remember the solemn words of Goethe:

> Choose well; thy choice is
> Brief and yet endless.

The path of medicine, though it leads to what to some is a land of promise, is beset with pitfalls and strewn with stones of stumbling. Many who enter on that path have reason, when they have gone too far to retrace their steps, to make the sad but unavailing reflection, *Si jeunesse savait!* It is with the object of letting youths who, for whatever reason, feel drawn to medicine know what is before them that we endeavour here to state plainly the terms of the vital problem for which they have to find a solution.

The Question of Personal Fitness.

We have said that a special vocation is needed in those who would practise the art of healing, and the truth of that statement will be evident to any one who considers the exacting and often disagreeable nature of the work that has to be done. The Spaniards have a proverb, *Mas sucio que ojos de medico* (dirtier than a doctor's eyes); and, indeed, the medical practitioner has to see, and also to touch, to smell, and to hear things that offend the senses of the rudest of mankind. And it must not be thought that, in the words of Horatio, custom makes this in the doctor a property of easiness. Natural disgust may be conquered by scientific curiosity and the pity for suffering, developed to its highest point by professional training, sweetens tasks in themselves unspeakably foul. But it is not every man who can so far discipline his senses as to be able to endure the sights and sounds of the hospital ward and operating theatre, the hovel and the slum. Anaesthesia has, indeed, robbed surgery of the horrors which before the days of Morton and Simpson made the possession of nerves of steel necessary for its practice, but enough still remains to make it repugnant to men of high-strung sensibility. To many midwifery is distasteful, and it involves an amount of work of a character that severely taxes the bodily strength. It may be said in general terms that the strain of professional life is so great that only an exceptionally sound constitution can bear it without giving way. The consulting physician or surgeon in busy practice leads a life of almost unremitting labour, made more burdensome by the anxiety inseparable from heavy responsibility. For the most part, however, he is able to renew his stock of energy by a fairly adequate holiday. On the other hand, the general practitioner, except for two or three weeks in the year when he perhaps leaves his practice in the hands of a *locum tenens* of whom he knows little or nothing, is never off duty, but has to hold himself in readiness by night as well as by day, on Sundays as on weekdays, for any emergency. He must have the "two o'clock in the morning courage" by which Napoleon set such store; that is, he must be in possession of all his faculties, and be prepared to deal promptly and effectively with a case of bleeding from injury, impending asphyxia from diphtheria, or a difficult delivery, in the middle of the night, often without assistance, not infrequently with an imperfect instrumental outfit and an almost total want of necessary appliances. Even the strongest must in time break down when he has to hold himself ever in readiness to fight single-handed against all the powers of disease. In addition to all this he has to run a constant risk, for himself and his family, of infection to which of course he is much more exposed than other people. He bears no charmed life, as the public would fain believe, and he has often to meet the danger when—owing to want of food, fatigue or cold, or all three combined—he is least able to withstand attack.

In considering the fitness of a young man or woman for the medical profession, therefore, the bodily constitution must be taken into account. The medical curriculum of the present day makes very serious demands on the physical stamina of the student. A vast number of things have to be learnt in a short time, the work of the dissecting room and hospital ward has often to be done under depressing conditions, and the spectre of examination follows the student everywhere like a shadow. When to this is added that opportunities for exercise are generally few, and the time that can be given to amusement or relaxation of any kind is scanty, it will be seen that a somewhat exceptional physique is required to carry the candidate for admission to the medical profession through the strenuous work and manifold worries of the modern student's

life. The successful doctor is generally a man above the average in physical development; this is probably to be explained by the fact that he represents the survival of the fittest, the weaklings having succumbed to the stress of student life. A great lawyer was asked what quality most conduced to success in the legal profession; his reply was, "Animal spirits." We are inclined to apply this to medicine; certainly without the physical "fitness" of which animal spirits are the expression, the doctor is likely to bring gloom and despair into the sick room and disappointment into his home.

In regard to intellectual endowment, any man of average abilities can, with industry and adequate opportunities, gain admission to the medical profession. Without entering on the vexed question of the relative advantages of a classical and a "modern" education as a preliminary study, it may be stated generally that the broader and sounder the intellectual training a man brings to the study of medicine, the stronger will be his grasp of its principles, and the more free at once from "bookish theorick" and from rule of thumb will be his practice. The advantage to a medical practitioner of the mental culture that comes from a wide knowledge, not only of books but of men, cannot be overestimated. As Letamendi said, the doctor who knows only medicine does not even know that; to reverse a famous saying, he may know his trade but cannot know his art.

Last, but very far from least, come the moral qualities. It was well said by Nothnagel that only a good man can be a good physician. Carlyle, who had no love for the profession, yet called it a priesthood; and, indeed, its duties are little less sacred than those of the ministers to the spiritual needs of mankind. The physician's consulting room is the confessional of modern life. A doctor holds in his hands not only the issues of life and death, but of peace or discord, love or hatred, in families. He is exposed to temptations of various kinds beyond the generality of men. He may suffer much from ungrateful patients, from foolish or malicious critics, and, alas! from false brethren. But these things will only momentarily ruffle the serenity of his spirit if he bears in mind what Ian Maclaren has said: "Happy is the man "who can just go straight on to his goal regard- "less of what is to left or right of him, heeding "little what others do or say so long as he satisfies "his own mind and conscience, and convinced that "so acting his object will be attained. Valuable as this "spirit is in every condition of life which necessitates "much intercourse with fellow men, in no profession "—I think I may say in no occupation—does it more "conduce to a happy life than in medicine." No walk of life offers greater scope than medicine for the highest development of moral character. The readiness to render assistance, irrespectively of any other consideration than the need of him who asks for it; the alleviation of sorrow as well as the relief of physical suffering; the courage which never shrinks from meeting infection or from incurring necessary responsibility in the endeavour to ward off death or ease pain; the determination which refuses to yield to the enemy until the struggle is over; the generosity, discretion, cheerfulness, patience, and sympathy which characterize practitioners worthy of the name, go far to redeem human nature from the reproaches of cynics. Even Swift said of the physician who was the noblest as well as one of the brightest of the wits of Queen Anne, that if the world had in it ten men like John Arbuthnot he would burn his *Travels*. The sympathy of medical practitioners is not so much an emotion as a motive; it is not, indeed, a sentiment expressing itself in sighs and tears, but a feeling manifesting itself in active effort for the relief of the sufferer who is in need of help.

Commercial Aspect of Medicine.

The profession of medicine is a path to fortune only for the few. This fact should be clearly recognized by all who think of adopting it as a career. It has the great advantage, however, that no practitioner who is willing and able to work need starve. The generations of men follow each other like the leaves of the forest. The eternal sea of birth and death ebbs and flows unceasingly, and wherever birth or death is taking place there is a sphere for the exercise of the knowledge and skill which are the means of livelihood of the medical practitioner. Few, indeed, there are who become what a business man would consider even moderately rich by the exercise of their profession. The average income of the British practitioner has been variously estimated at £200 to £400 a year, but a fairly successful man will earn from £500 to £1,000. The pecuniary disadvantages of medicine as a profession are the long and costly period of training, and the more or less prolonged time of waiting after qualification before the practitioner can count upon anything like an adequate income. Then the working expenses—including house, carriage, and what may be called professional equipment—are so heavy in proportion to the gross income of a man in active practice that the chances of being able to save, even to the extent of the return of the capital expended in his education, are in a large proportion of cases slight; while reasonable provision for old age, after family expenses are met, is difficult and too often impossible. That which is the legitimate boast of the profession, but, from the financial point of view, one of its most serious drawbacks, is that the true doctor is working to reduce the incidence of disease in general, and is thus directly helping to destroy the sources of his income. It is the chief glory of the medical profession, however, that success in its pursuit is measured not by the money earned, but by the good done to our fellow men, and the quantity of new truths added to the sum of knowledge.

The Profession in its Intellectual Aspects.

That which distinguishes a liberal profession from a trade is that it is not a mere means of livelihood, but affords the fullest scope for the exercise of the highest intellectual powers. From the intellectual side there is no career which affords larger opportunities of intellectual achievement or greater pleasure in work for its own sake than the profession of medicine. The training that must now be gone through is in itself one of the best means of exercising and developing the highest faculties of the mind. Of all men doctors should be the farthest removed from superstition and bigotry. The constant contact with the grim realities of their practice tends to make them indifferent to the futilities and ineptitudes which occupy so large a space in minds destitute of scientific culture. They are concerned with things, not words; their aim is, in the words of Matthew Arnold, to see things as they really are, and they are in the happy position that their profession makes it necessary that they should aim at absolute truth undisturbed by prejudice or false sentiment. All through the active life of practice the mind is kept healthy and vigorous by the exercise of the powers of observation, analysis, and judgement. A doctor who loves his work will find that it brings its own reward exceeding great.

The Profession in its Social Aspects.

The doctor has little time to give to the pleasures of society, and much of his work is of so intimate a nature that the cultivation of extra professional relations with his patients is apt to be embarrassing to both sides. This to a certain extent tends to deprive him of the social status which is his due. On the other hand, his general influence is probably wider than that of any other profession, and although he has not yet gained any appreciable political influence, his special knowledge and trained faculty of dealing with facts have already given him a certain indirect power in the State, and must give him increasing importance as civilization advances. The rise of the profession in social position during the last half-century has been very great. This is due to the enormous advances in medicine and surgery that have been made during that period, and to the increasing appreciation by statesmen and by the public of the part which sanitary science plays in the prosperity of the nation and the development of the Empire. Another factor in raising the status of the profession has been the great improvement that has taken place in the education, general as well as professional, of medical practitioners.

Conclusion.

To sum up: The medical profession affords a fairly certain means of livelihood with unrivalled opportunities for that all-round development of the faculties which makes the cultured man; moreover, it opens a field for the exercise of his faculties in which he will have the sense of doing good with greater certainty, perhaps, than in any other. Medicine, if practised in the right spirit, whether or not it brings wealth or dignity, cannot fail to give that highest earthly good—the sense of a life spent in the service of one's fellow men.

As an encouragement to those about to enter a profession which, honourable and satisfying as it is in many ways, has its full share of difficulties and trials, we may be allowed to quote the noble tribute paid to it by one who had more opportunities than fall to the lot of most men of knowing medical practitioners as they are. In the dedication to *Underwoods* Robert Louis Stevenson writes: "There are men and classes of men that stand "above the common herd: the soldier, the sailor, and "the shepherd not infrequently; the artist rarely; "rarelier still, the clergyman, the physician almost as a "rule. He is the flower—such as it is—of our civiliza-"tion; and when that stage of man is done with, and "only remembered to be marvelled at in history, he will "be thought to have shared as little as any in the "defects of the period, and most notably exhibited the "virtues of the race. Generosity he has, such as is "possible to those who practise an art, never to those "who drive a trade; discretion, tested by a hundred "secrets; tact, tried in a thousand embarrassments; "and, what are more important, Heraclean cheerfulness "and courage. So it is that he brings air and cheer into "the sick room, and often enough, though not so often "as he wishes, brings healing."

THE PORTALS OF THE PROFESSION.

There are, unfortunately, in this country many portals of admission to the medical profession, and the degree of strictness with which they are guarded varies very widely. Yet much depends on the choice of a portal. *Non omnia possumus omnes*, and a candidate may easily through want of proper guidance choose one guarded by such "formidable shapes" as to be to him impassable; hence time and energy which might more profitably be expended in some other direction are wasted in efforts foredoomed to failure. On the other hand, he may select a portal which too late he finds does not open the way to the goal of a legitimate ambition. If such mistakes are to be avoided, the advice of some one who knows the ground thoroughly is almost indispensable. Nothing can take the place of counsel of this kind, but to those who do not know where to look, the following general remarks may be useful.

The Question of a Degree.

The first thing to be decided is whether the candidate is to aim at a university degree or to rest content with a qualifying diploma. Formerly the problem was one in which the question of ways and means was an important factor, but now that well-equipped universities lie everywhere close at hand, a degree is within the reach of all. If a candidate is ambitious to become a consulting physician, he must, besides obtaining a degree in medicine from a recognized university, become a Member of one of the Royal Colleges of Physicians of London, Edinburgh, or Dublin, according to the part of the United Kingdom in which he proposes to practise. If he intends to devote himself to surgery, he must obtain the Fellowship of one of the Royal Colleges of Surgeons. In other spheres of practice a diploma which constitutes a legal qualification in medicine, surgery, and obstetrics is sufficient. There can be no doubt, however, that the title of "Doctor" is a professional asset of very considerable value, and that the designation "M.D." appended to a practitioner's name gives him a distinct advantage in the eyes of the public.

The Choice of a Medical School.

Apart from considerations of locality and expense, the choice of a school is generally determined by the reputation of the staff and the opportunities and arrangements for clinical study offered by the hospital. In regard to the former point, it is right to point out that the reputation—even if it be world-wide—of the consulting staff should not be taken into account in arriving at a decision, as, with few exceptions, they take no active part in the work of teaching. The same remark applies in lesser degree to the senior members of the acting staff, as they are for the most part compelled by the exigencies of their private practice to leave the teaching largely in the hands of their junior colleagues. In regard to the size of the hospital, it must be pointed out that a large number of beds is not always an unmixed advantage; where the number of patients is not excessive, individual cases can be studied more attentively. The chief consideration, however, is that there should be a sufficient supply of good teachers, and that opportunities for practical work in medicine, surgery, obstetrics, and gynaecology should be abundant.

The choice of a school may in some instances be determined by the chance of securing an entrance scholarship. In the event of a student, owing to unforeseen circumstances, wishing to migrate to another school in the middle of his curriculum, the only difficulty likely to arise is that he has probably paid a "composition fee" to a particular hospital.

The Cost of Medical Education.

The important question of the cost of a medical education resolves itself into the fees for lectures, laboratory work, and hospital training, and the cost

of living during the five years of the present curriculum of study.

The composition fee for all the necessary classes at most schools, including hospital practice, may be taken as something between £125 and £150; the exact figures for the different schools may be found elsewhere in the present issue of the BRITISH MEDICAL JOURNAL. The cost of living is greater in London and in the older universities of England than at the newer provincial universities, or at those of Scotland and Ireland. Speaking generally, the cost for the whole curriculum may be taken as something between £600 and £1,000, the precise amount varying both with the particular place of study and with the individual student's habits, mode of life, and success in passing examinations at the proper times.

In counting the cost of medical education the manifold helps available for the reduction of expense should not be ignored. At nearly all the schools there are entrance scholarships, and there are besides other pecuniary aids peculiar to individual schools, having perhaps their highest development at the present day in the Scottish Universities; in addition to these there is a large number of open scholarships and prizes. Detailed information and advice as to the medical curriculum will be found in the following pages.

PROSPECTS IN THE PROFESSION.

IT has been said that one of the advantages offered by the medical profession is that a man of ordinary steadiness can always make a living in it. Moreover, he can generally count on securing a livelihood as soon as he is, in a professional sense, fledged. At the same time he is laying the foundation of that structure of first-hand knowledge of things which every man must build for himself, gaining experience and acquiring that confidence in his own resources which, like Falstaff's sack, enables a man to put his knowledge in act and use.

THE START.

Comparatively few men can at once settle down in the comfortable certainty of a sufficient practice, inherited or purchased, and as a general rule it is advisable that young doctors should make themselves acquainted with the methods and practice of other schools than the one in which they have been trained. As Dr. Johnson said, "An Athenian blockhead is the worst of blockheads," which is only an emphatic way of saying that the best academic training should be supplemented by wider experience.

The newly-qualified practitioner will do well, therefore, to serve for a time as a resident officer or clinical assistant in a hospital; further, he may with great advantage, like Ulysses, see the manners and customs of many men by travel as a ship's surgeon or by serving four years in the Royal Navy. In any case, if his sphere of work is to be general practice he should learn the important details which make up the conduct of a medical business, and which cannot be learned in schools or hospitals, by working as assistant in a busy practice.

The particular line a man will follow in his life-work to a large extent depends on his opportunities and aptitudes. If he can afford to wait and has the necessary equipment, then he will probably develop into a physician or surgeon, or a specialist in a more limited sense. If his tastes lie in the direction of general practice he will be wise to distribute his interests and energies over the whole field of medicine. Operative surgery, which in a town may usually be delegated to others, is, to a considerable extent, a necessity for every one engaged in country practice; and the country doctor, placed far away from professional assistance, is, without doubt, the general practitioner in his highest development.

Besides general and consulting practice, other opportunities for good work and fair remuneration are offered by the Public Health Service, in which medical men have to initiate and direct the practical applications of preventive medicine, which has a most intimate relation with the social well-being, prosperity, and future development of the nation and empire. The Navy, the Army, and the Indian Medical Service all offer certain attractions, not the least of which is the certainty of a fair pension at the end of a relatively short term of service. The Colonial Service, the Prison Service lunacy appointments, and resident Poor-law appointments also offer advantages which are not to be obtained by the general practitioner; most of them, however, have certain drawbacks. Particulars of all these spheres of practice are given in this issue of the JOURNAL.

THE WAITING TIME.

The most trying time of the medical man's life, from the beginning of professional study onward, is probably that in which he is waiting for practice. It is then that he may be tempted to allow himself to be farmed by the commercial combinations known as co-operative Friendly Societies; at this period, therefore, it behoves him to be most vigilant in detecting and resolute in avoiding that which is evil or even doubtful. For the young consultant waiting for practice teaching posts in the medical schools private tuition, and various kinds of literary work, may help to provide at least a living wage while he awaits the dawn of a day of larger things. For the man who does not care to buy a practice or a partnership, or who has no private income, there are Public Health appointments, Poor-law appointments, including that of public vaccinator, certain workmen's clubs, and other similar means of finding an opening to general practice. A public appointment, indeed, is often of very great value, even though it bring in no immediate pecuniary advantage.

CONCLUSIONS.

It is a sound principle of conduct that the newly-qualified man should associate himself in as hearty a manner as possible with the practitioners already established in the district by attending the meetings of the local Divisions of the British Medical Association, and in other ways showing a disposition to cultivate friendly relations with his brother practitioners and combine with them in their efforts for the common good. Every one of us owes a duty to his profession as well as to the public; and a man who stands aloof in selfish isolation from the struggles of his brethren fails in that duty, and within the measure of his personal influence, whatever it may be, weakens the power and lessens the dignity of his profession.

A practitioner of medicine should, to the best of his knowledge and ability, strictly follow the code of etiquette accepted by the profession, for he may be assured that it has its root in a principle which works for the general good, while for his real success nothing in the end will prove more helpful than a faithful adherence to the spirit of the rule, "Do as you would be done by."

MEDICAL EDUCATION.

GENERAL MEDICAL COUNCIL.

The profession of medicine, including for the moment in that term the practice of dentistry, is ruled as a whole by the General Medical Council, which holds its sessions at its head quarters in London (299, Oxford Street, London, W.), and has branch offices in Scotland (54, George Square, Edinburgh) and in Ireland (35, Dawson Street, Dublin).

Besides supervising generally the practice of medicine, surgery, and dentistry, it guards the portals of admission to the profession by deciding the terms upon which aspirants shall be recognized as medical students, the education which they must receive, the minimum number of years for which it must be carried on, and the general nature of the examinations by which its proficiency shall finally be tested by the universities and corporations which have authority to issue degrees and diplomas and licences entitling the holder legally to practise as a medical man or as a dentist.

Regulations in respect of these matters have been compiled, and a summary of those which have more particular application to the intending medical student follows, and should be carefully studied. The primarily important thing to note about them is that they entail (1) the production of proof of a certain degree of proficiency in matters of preliminary or general education; (2) application for registration as a medical student either at the head quarters office in London or at one of the branch offices in Edinburgh and Dublin.

Preliminary Education.

The subjects, of which proof of efficient knowledge must be produced by applicants for registration as medical students, are as follows:

(*a*) *English:* Grammar; paraphrasing; composition; questions on English history and geography.

(*b*) *Latin:* Grammar; translation into English from unprescribed Latin books; translation into Latin of a continuous English passage, and of short idiomatic English sentences. In the case of natives of India or other Oriental countries, whose vernacular is other than English, a classical Oriental language may be accepted as equivalent to Latin.

(*c*) *Mathematics:* Arithmetic; algebra, including easy quadratic equations; geometry, including the subject matter of Euclid, Books i, ii, iii, and simple deductions.

(*d*) One of the following subjects:

(α) *Greek:* Grammar; translation into English from unprescribed Greek books; translation into Greek of short idiomatic English sentences; or

(β) *A modern language:* Grammar; translation into English from unprescribed books; translation of a continuous English passage, and of short idiomatic English sentences.

The Council considers it a sufficient testimonial of proficiency in these subjects if the applicant can show that he has passed one or other of the following tests:

I.—University Examinations held in the United Kingdom.

A.

Final Examination for a Degree in Arts or Science of any University in the United Kingdom.

B.

University of Oxford:
- Junior Local Examinations. Certificate to be endorsed as fulfilling the Council's requirements.
- Senior Local Examinations. Certificates to be endorsed as fulfilling the Council's requirements.
- Higher Local Examinations. Certificates to include the required subjects.
- Responsions. Certificate to be supplemented by others showing that the required mathematical subjects have been passed.
- Moderations. Certificates to include the required subjects.

University of Cambridge:
- Junior Local Examinations. Certificate to be endorsed as fulfilling the Council's requirements.
- Senior Local Examinations. Certificates to be endorsed as fulfilling the Council's requirements.
- Higher Local Examinations. Certificates to include the required subjects.
- Previous Examination. Certificates to include the required subjects.
- General Examination. Certificates to include the required subjects.

Oxford and Cambridge Schools' Examination Board:
- Lower Certificate Examinations. Certificates to be endorsed as fulfilling the Council's requirements.
- Higher Certificate Examinations. Certificates to include the required subjects.
- Leaving Certificate. The required subjects to be passed at one time.

University of Durham:
- Examination for Certificate of Proficiency. The required subjects to be passed at one time.
- Matriculation Examination of the Faculties of Science, Letters and Music. The required subjects to be passed at one time.
- Senior Local Examinations. Certificate to include the required subjects.

University of London:
- Matriculation Examination. Certificate to include the required subjects.

Victoria University of Manchester, University of Liverpool, and University of Leeds:
- Matriculation Examination. Certificate to include the required subjects.

University of Birmingham:
- Matriculation Examination. Certificate to include the required subjects.

University of Wales:
- Matriculation Examination. The required subjects to be passed at one time.

Universities of Scotland:
- Preliminary Examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Medicine and Surgery. The required subjects to be passed at one or not more than two examinations.
- Preliminary Examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Arts or Science. Certificates to include the required subjects.

University of St. Andrews:
- Final Examination for the Diploma of LL.A.

University of Dublin:
- Principal Public Entrance Examinations. The required subjects to be passed at one time.
- Examinations for the First, Second, Third, or Fourth Year in Arts. Certificate to be signed in the approved form by the Medical Registrar of the University.

Royal University of Ireland:
- Matriculation Examination. Certificate to include the required subjects.

II.—Government Examinations held in the United Kingdom.

Scottish Education Department:
- Leaving Certificate Examinations: passes in Lower Grade. The required subjects to be passed at one or not more than two Examinations.
- Leaving Certificate Examinations: passes in Higher Grade or Honours. To include the required subjects.

Intermediate Education Board of Ireland:
- Middle Grade Examination. The required subjects to be passed at one time.
- Senior Grade Examination. Certificates to include the required subjects.

Central Welsh Board:
- Senior Certificate Examinations. Certificates to include the required subjects.

III.—Examinations by Chartered Bodies held in the United Kingdom.

College of Preceptors:
- Examinations for First-class Certificate. The required subjects to be passed at one or not more than two examinations.
- Preliminary Examination for Medical Students. The required subjects to be passed at one time.

Educational Institute of Scotland:
- Preliminary Medical Examination. The required subjects to be passed at one time.

Royal Colleges of Physicians and Surgeons in Ireland:
- Preliminary Examination. The required subjects to be passed at one time.

IV.—Examinations held out of the United Kingdom.

University of Malta:
- Matriculation Examination.

University of Calcutta:
- First Examination in Arts.

University of Madras:
- First Examination in Arts.

University of Bombay:
- Matriculation Examination.

Punjab University:
- Intermediate Examination in Arts.

University of Allahabad:
- Intermediate Examination in Arts.

Ceylon Medical College:
- Preliminary Examination.

University of M'Gill College, Montreal:
- Matriculation Examination.

College of Physicians and Surgeons of the Province of Quebec:
- Matriculation Examination.

Universities and Colleges of the Province of Ontario:
- Departmental Arts Matriculation Examination. Conducted under the direction of the Provincial Education Department.

University of Manitoba:
- Matriculation Examination.

University of New Brunswick, Fredericton:
- Matriculation Examination.

College of Physicians and Surgeons of New Brunswick:
- Matriculation Examination.

Dalhousie College and University, Halifax, Nova Scotia:
- Matriculation Examination.

Provincial Medical Board of Nova Scotia:
- Preliminary Examination.

Newfoundland Medical Board:
- Preliminary or Matriculation Examination.

University of Melbourne:
- Matriculation Examination.

University of Sydney:
- Matriculation Examination for the Faculty of Medicine.
- First Year Examination in Arts.
- Senior Public Examination.

University of Adelaide:
- Senior Public Examination.

University of Tasmania:
- Senior Public Examination.

University of the Cape of Good Hope:
- Matriculation Examination.

University of Otago:
- Preliminary Medical Examination.

University of New Zealand:
- Preliminary Examination for Medical Students.

Foreign Universities in Europe:
- The German Abiturienten-Examen of the Gymnasia and Real

gymnasia: Examinations entitling to the French Diplomas of Bachelier ès Lettres and Bachelier ès Sciences, and other corresponding Entrance Examinations to the Universities in Europe.

Egyptian Government:
Examination for the Secondary Education Certificate.

*** (a) No Certificate from the Indian and Colonial Bodies in the foregoing Section (iv) is accepted unless it shows that the Examination has been conducted by or under the authority of the Body granting it, includes all the subjects required by the General Medical Council, and states that all the subjects of examination have been passed at one time; and copies of the form of the required Certificate are supplied by the Registrar of the Council for the purpose.

Registration of Medical Students.

In addition to showing that he has passed one of these examinations, any person applying for registration as a medical student must (1) produce satisfactory evidence that he has attained the age of 16 years; (2) show that he has commenced medical study at a university or school of medicine or at a scientific institution recognized by one of the licensing bodies approved by the Council. The commencement of a course of professional study will not be reckoned as dating earlier than fifteen days before the date of registration.

Application for registration should be addressed to the Registrar for the division of the United Kingdom in which the applicant is residing—England and Wales, or Scotland, or Ireland. It must be made on a special form which can be obtained on application at the offices either of the Medical Council itself, or of one of the various licensing bodies and medical schools, and when forwarded it should be accompanied by the certificates as to age and general education. In the event of any person desiring to be exempted from the regulations in respect of registration he should address himself to the Registrar at the head quarters of the Council in London.

The regulations with regard to registration apply equally to medical and dental students, with the exception that in the case of the latter pupilage with a registered dental practitioner may be regarded as a commencement of professional study.

Professional Education.

It is only from the date which appears against his name in the *Students' Register* that the medical student's career officially begins; thereafter five years must pass before he can present himself for the final examination for any diploma which entitles its lawful possessor to registration as a qualified medical practitioner under the Medical Acts.

There are, however, certain important exceptions to this rule: thus (1) to meet the circumstances brought about by the dates at which sessions of the medical schools commence and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. (2) The Council will also recognize as the first of the five years one passed at certain approved universities and scientific institutions, a list of which is hereafter given, where the subjects of physics, chemistry, and biology are taught. (3) Those also are deemed to have completed the first of their five years who are graduates in arts or science of any university recognized by the Medical Council, and who, having spent a year in the study of physics, chemistry, and biology, have passed an examination in these subjects for the degrees in question. In any case the period of five years must be one of bona fide study, and during its course education in the following subjects must be pursued and examinations passed:

(i) Physics, including the Elementary Mechanics of Solids and Fluids, and the rudiments of Heat, Light, and Electricity.
(ii) Chemistry, including the principles of the science, and the details which bear on the study of Medicine.
(iii) Elementary Biology.
(iv) Anatomy.
(v) Physiology.
(vi) Materia Medica and Pharmacy.
(vii) Pathology.
(viii) Therapeutics.
(ix) Medicine, including Medical Anatomy and Clinical Medicine.
(x) Surgery, including Surgical Anatomy and Clinical Surgery.
(xi) Midwifery, including Diseases peculiar to Women and to newborn Children.
(xii) Theory and Practice of Vaccination.
(xiii) Forensic Medicine.
(xiv) Hygiene.
(xv) Mental Disease.

The following is a list of the Universities (including their Colleges and Medical Schools) and other places in the United Kingdom and abroad at which professional studies may be commenced under the regulations of the Council:

I.

University of Oxford.
University of Cambridge.
University of Durham (including the Durham College of Medicine, and the Durham College of Science, Newcastle-on-Tyne).
University of London (including the following Medical Schools and Colleges: St. Bartholomew's Hospital, Charing Cross Hospital, St. George's Hospital, Guy's Hospital, King's College, London Hospital, St. Mary's Hospital, Middlesex Hospital, St. Thomas's Hospital, University College, Westminster Hospital, London (Royal Free Hospital) School of Medicine for Women, Bedford College, Royal Holloway College, Royal College of Science).
Victoria University of Manchester.
University of Wales (including University College of Wales, Aberystwyth; University College of North Wales, Bangor; University College of South Wales and Monmouthshire, Cardiff).
University of Birmingham.
University of Liverpool.
University of Leeds.
University of Sheffield.
University of Aberdeen.
University of St. Andrews (including University College, Dundee).
University of Edinburgh.
University of Glasgow (including Queen Margaret College).
University of Dublin (including Trinity College).
Royal University of Ireland (including Queen's College, Belfast; Queen's College, Cork; University College, Dublin; Queen's College, Galway).

II.

Bristol: University College.
Edinburgh: School of Medicine of the Royal Colleges, Surgeons' Hall School. Medical College for Women.
Glasgow: Anderson's College, St. Mungo's College, Western Medical School.
Dublin: Catholic University Medical School. Royal College of Surgeons' Schools of Surgery.

III.

Bradford: Technical College.
Brighton: Technical Day College.
Bristol: Merchant Venturers' Technical College.
Cambridge: Girton College, Newnham College.
Cheltenham: Ladies' University College.
Derby: Technical College.
Dublin: Royal College of Science for Ireland.
Exeter: Royal Albert Memorial College.
Halifax: Municipal Technical School (Day Classes).
Huddersfield: Huddersfield Technical College (Day Classes).
Hull: Municipal Technical School (Day Classes).
London: Birkbeck Institute, East London Technical College, Central Technical College, Westfield College, Polytechnic Institute, Battersea (Day Classes).
Nottingham: University College.
Plymouth: Municipal School of Science (Advanced Day Classes).
Preston: Harris Institute.
Reading: Methodist College.
Southampton: Hartley College.
Swansea: The Swansea Technical College (Day Classes).

Cape Town: South African College.

In addition to these places it may be noted that there are a number of ordinary schools which certain of the licensing bodies recognize as providing efficient education in chemistry, biology, and physics; they therefore admit persons who have attended courses at such schools to their own examinations in these subjects without demanding further proof of study. The time, however, which these students thus spend is not allowed to count as part of their five years' professional education unless they have previously passed an approved examination in general education, and in no case is more than six months allowed to count.

Wherever the first of the five years is spent the next three must be passed at one of the schools of medicine recognized by any of the licensing bodies enumerated in the Schedule to the Medical Act of 1858. The final or fifth year the Council recommends should be devoted to clinical work, and may be passed at any public hospital or dispensary at home or abroad which is recognized by any of the licensing bodies; moreover, six months of it may be passed as a pupil of a registered practitioner who satisfies any of the said authorities that he has opportunities of imparting practical knowledge.

Special Considerations.

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in sufficient detail, but before leaving this part of the subject the steps which the aspirant should take may finally be rehearsed in their due order: (1) Pass an examination in arts; (2) enter himself at a medical school or other scientific institution recognized by the Council; (3) get himself registered as a medical student; (4) pass a minimum of five years in

studying certain prescribed subjects: (5) meanwhile pass sundry examinations, and, finally, at the end of the fifth year one which will entitle him to receive at the hands of a licensing body a legal authority to practise.

The Arts Certificate.—There are, however, other important considerations; thus, it is not a matter of indifference what certificate of proficiency in general education, or arts, the student obtains. The General Medical Council, it is true, will accept any of those which have been mentioned at page 465, and this, too, is the case with practically all the college corporations in England, Scotland, and Ireland. But all the licensing bodies are not equally accommodating; some of the universities require that their own ordinary matriculation should be passed, others have special matriculation examinations for those wishing to join their medical faculty, and a third and larger number will accept any arts degree and certain matriculation examinations, as well as several other of the tests entered in the Council's list.

The first thing, therefore, the future medical student should, if possible, decide is at what degrees or diplomas he intends to aim, and then find out what arts certificate will be required. The points he will take into consideration in this connexion have already been discussed at page 463. If he cannot decide this question in advance, the best course probably would be to matriculate at London University. It is a high-class examination, but, as now rearranged, gives a wide choice of subjects, and has the advantage of being accepted as ample testimony to general education by a much larger number of bodies than in any other matriculation examination.

The Minimum Period.—Another point to remember is that the period of five years mentioned is a minimum; a good deal more may be required even by the man of good abilities and reasonable industry. Besides these qualities a student to obtain a registrable qualification in the minimum period of five years, or fifty-seven months, must have a certain amount of good luck; in other words, he must keep in good health through every term, and never fail at a single examination. Otherwise it is almost inevitable that his career as a student should be prolonged for a greater or smaller number of months beyond the possible minimum; thus, for instance, a student before presenting himself for any examination has to get what is called "signed up" for the subjects covered by that examination. This means that his teachers have to certify that he has attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place, he may miss a sufficient number of them to make it impossible for him to be "signed up."

Then, again, should a student fail to satisfy the examiners at some examination, he cannot present himself again for re-examination for at least three months. This fact generally entails further consequences because, apart from the student's success at the next stage in his career being imperilled by his having to give up some time to restudying the subjects in which he has failed, the majority of Examining Boards insist upon a definite interval elapsing between a student passing one examination and his presenting himself for that which should follow it. For instance, the Conjoint Board of England demands that at least twelve months must pass between success at the examination in chemistry, physics, and biology, and that in anatomy and physiology. Then, again, many Boards refuse to recognize lectures and classes which have been attended at a date anterior to that at which the student has passed the requisite examination in earlier subjects. Failure at an examination may thus not only mean deferment of the date of examinations, but deferment of the commencement of the student's study of certain subjects. It is thus exceedingly easy for a student to fail to qualify in five years, and, as a matter of fact, probably the majority of students take longer than that period. Nevertheless, every student should start his career in the belief that he will complete his work in the minimum period and with the determination to do so.

Furthermore, in speaking of the minimum period, it is to be remembered that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine and Surgery or a diploma of one of the Royal Colleges. These are quite sufficient for the purposes of general practice or for entering the services, etc., but those who wish to take the higher qualification, for instance, the F.R.C.S.Eng., must prolong their work for another year or more. So, too, must they who desire to convert their Bachelorship into an M.D., if doing so entails further formal examination. This is not always the case, for at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age and has practised his profession for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended at the time he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which, more or less, covers his expenses.

The Normal Course.—In conclusion it may be convenient to sketch the general fashion in which the student will pass his five years or more, but discussion of this need not be prolonged, because once a student has entered at a school, and decided at what degrees or diplomas he wishes to aim, the dean of the school will guide his steps in every particular.

Whatever the precise final goal, the path thereto is in all cases identical in broad outline. Practically it is divided into three stages, the conclusion of each being marked by an appropriate examination. In the first stage the student acquires a more or less extensive knowledge of the preliminary sciences, chemistry, physics, and biology; in the second he studies anatomy and physiology; and the third he devotes to the real work of his future life, medicine and surgery and their branches. During each of these stages the student must attend not less than the prescribed number of lectures and classes to ensure getting "signed up" in the subjects of the stage, and do a certain amount of practical work. As for the examinations at the end of the stages, these are known by different titles by different examining bodies, but "preliminary science," "intermediate," and "final" are in common use. Some bodies demand that the student should pass in all the subjects of one stage at one time; others allow the candidate to present himself in each of the subjects separately, thus multiplying the actual number of examinations but limiting their scope. There are also differences in the requirements of the different licensing bodies as to the length of each stage, but practically all demand that the second shall be longer than the first, and the third than the second. By the length of the allotted stage the candidate may gauge the comparative importance the licensing body attaches to the subjects within it, and the difficulty of the tests it will impose, and he may feel certain that the time allotted is none too much.

In any case it should be the aim of the student to get through his first two stages as quickly as his abilities and the regulations will allow; and, as a rule, he should have completed the first stage by the end of his first year, and the second stage not later than the end of his third year. He will then have two years in which to prepare for his final examination, and it will prove a very crowded period, for he has to get into it not only medicine and surgery proper, but many other allied subjects, such as midwifery, pathology and bacteriology, forensic medicine, gynaecology, therapeutics, and many others. In the first of the final two years he should complete his formal lectures, and thus have the fifth year at his disposal for entirely practical work and private study; during these two years, too, he will really take part in the work of his hospitals by holding clerkships and dresserships in the wards and out-patient department for the periods laid down by the licensing bodies. Then at length, after perhaps a few weeks of special coaching, he will be ready to present himself for his final examination, which the regulations of most bodies will allow him to divide into two or more parts. The final examination passed in its entirety, he will be able to claim registration as a qualified medical practitioner at the hands of the General Medical Council and become an independent personage. There is still room for him to continue a student's career if he will, apart from the higher qualifications to which reference has been made, for it may seem to him worth while to devote time to acquiring greater knowledge of some particular branch of medicine, such as ophthalmology or laryngology, or to undergo the courses of study necessary to obtain a diploma of special proficiency in questions of public health or in tropical medicine,

accounts of which may be found in another part of this issue. Points such as these, however, the student will be fully capable of deciding for himself when he has reached the point to which our account has now brought him. The next matters to be considered, therefore, are the requirements in detail of the different licensing bodies, and what they offer in the way of degrees and diplomas.

THE ENGLISH UNIVERSITIES.

UNIVERSITY OF OXFORD.

THERE are two degrees in Medicine (B.M. and D.M.) and two degrees in Surgery (B.Ch. and M.Ch.). The degrees B.M., B.Ch., may, under favourable circumstances, be obtained in six or seven years from Matriculation.

B.A. DEGREE.

The degrees of B.M. and B.Ch. are conferred only on candidates who have taken the B.A. degree, for which residence for three years within the University is necessary; the examinations, however, for the degrees in Arts and Medicine may be passed in any order, provided the subjoined regulations are complied with.

The degree of B.A. may be obtained in either of the following ways:

(*a*) By passing Responsions (or one of the Examinations which are accepted as equivalent); Moderations, a Scripture Examination, or, in the event of a candidate objecting, an examination in some substituted book; and the Final Pass School in three subjects, two of which may be the same as two in the Preliminary Examinations in Natural Science.[1]

(*b*) By passing Responsions; an additional subject in Responsions, the Scripture Examination; some of the Preliminary Examinations in the Natural Science School,[1] or the Preliminary Examination and the School of Jurisprudence, or the Honour School of Mathematics in the First Public Examination; and one of the Final Honour Examinations.

Responsions and the additional subject may be passed before a candidate is a member of the University;[2] Moderations and Scripture can be passed in or after the second term; the Final Pass School may be taken any time after Moderations; a Final Honour School may be taken at the end of the third or within the fourth Academical year—that is, twelve or sixteen terms respectively; the Preliminary Examinations of the Natural Science School may be taken as soon as Responsions have been passed.

DEGREES IN MEDICINE AND SURGERY.

To obtain the degrees of B.M., B.Ch., the following examinations must be passed:

Preliminary.—The preliminary examination in (1) Mechanics and Physics, (2) Chemistry, (3) Zoology, (4) Botany, of the Natural Science School.[1]

Professional.—There are two professional examinations held twice a year, at the end of Michaelmas and Trinity terms. Each examination will begin on the Thursday in the eighth week of full term. The subjects of the first B.M. examination are Organic Chemistry, Human Anatomy, Physiology, Materia Medica, and Pharmacy. Candidates who have previously obtained a First or Second Class in the Final Examination in Physiology or Chemistry are exempt from further re-examination in those subjects. Candidates who have passed the First Examination are admitted at any time, subject to the production of certain certificates to examination in Pathology or in Forensic Medicine and Hygiene. But no candidate is admitted to examination in Medicine, Surgery, and Midwifery until he has attained the twenty-fourth term from the date of his matriculation (six years), and these subjects must be passed at one and the same examination.

D.M. Degree.—A B.M. who has entered his thirty-ninth term is admitted D.M. on presentation of a dissertation approved by the appointed professors and examiners.

M.Ch. Degree.—An examination for this degree is held in June. The candidate must have entered his twenty-seventh term.

[1] The four subjects of the Medical Preliminary Examinations are four of the subjects in the Natural Science Preliminary, and can be commenced directly after passing Responsions.

[2] Membership is constituted by Matriculation, and by becoming a member of a College or Hall, or a non-collegiate student.

Fees.—University: B.A., £7 10s. B.M. and B.Ch., £14. D.M., £25. M.Ch., £12. Every Master of Surgery, being otherwise duly qualified, is entitled without further payment of fees to supplicate for the Degree of Master of Arts, and every Master of Arts, being otherwise duly qualified, is entitled without further payment of fees to supplicate for the Degree of Master of Surgery. Also an annual fee to the University of £2 for the first four years, reduced to £1 when the B.A. is taken. College fees (varying in amount) on taking degrees and for the first four years of membership. Tuition fees, £21 to £30. The cost of living for the four University terms cannot be stated at less than £120.

Scholarships, etc.—The several Colleges grant scholarships of £80 a year tenable for four years in Natural Science, Chemistry, Physics, and Biology. Exhibitions of varying value are also awarded in these subjects. Particulars can be obtained on application to the College tutors. A Radcliffe Travelling Fellowship of £200 a year, tenable for three years, is conferred annually; candidates must have taken the B.M. degree. A Philip Walker Studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of research in Pathology.

TEACHING.

The several Colleges provide their undergraduate members with tutors for all examinations up to the B.A. degree. In addition, the University provides the following courses of instruction:

Preliminary Examination.—Courses of lectures and demonstrations in Elementary Mechanics and Physics, in Inorganic Chemistry, in Animal Morphology, and in Botany are given at convenient periods, and are open to members of the University intending to proceed to a medical degree.

The Rolleston Memorial Prize of the value of £70 is awarded biennially for research in Natural Science (including Pathology). Candidates must be graduates of the University or graduates of the University of Cambridge.

Degree of B.A.—The Course of Instruction for the Final Honour Examination in Physiology consists of lectures and practical work, and extends over two years. It is intended for students who have passed the Preliminary Examination in other subjects.

First B.M.—The instruction in Human Anatomy is by lectures and demonstrations; the dissecting room is open daily, and dissection may be continued during the vacation. The course of instruction in Physiology consists of a course of lectures extending over three full terms, a course of practical instruction in Histology during three terms, and a course of Elementary Physiological Chemistry, with practical laboratory work during two terms. Instruction in Organic Chemistry is given in the Chemistry Department.

Second B.M.—Lectures on Materia Medica and practical instruction in Pharmacology are given during the summer term, and clinical lectures and tutorial instruction and demonstrations in Physical Diagnosis in Regional Anatomy are given in each term at the Radcliffe Infirmary. Lectures in Pathology and practical instruction in Bacteriology and Pathological Histology are given throughout the year in the Pathological Department.

Elementary instruction in Medicine will be given by the Regius Professor of Medicine and the Lichfield Lecturer at the Radcliffe Infirmary, and elementary instruction in Surgery by the Lichfield Lecturer in Surgery at the same place.

UNIVERSITY OF CAMBRIDGE.

BACHELOR OF MEDICINE (M.B.) AND BACHELOR OF SURGERY (B.C.).

A STUDENT proceeding to this degree must (1) reside in the University during the required portion of each of nine terms, (2) pass (or obtain exemption from) the Previous Examination, (3) pursue medical study for five years.

There are three examinations for the degree of Bachelor of Medicine. They are partly in writing, partly oral, and partly practical. The examinations take place twice in the year, in the Michaelmas and Easter terms.

The First Examination is divided into two parts: 1. Chemistry and other branches of Physics. 2. Elementary Biology. These two parts may be taken together or separately. Before admission to this examination the candidate must have passed (or obtained exemption from)

the Previous Examination. He must also produce certificates of diligent attendance on a course of lectures in Chemistry, and of practical instruction in Chemical Manipulations.

The Second Examination includes Human Anatomy and Physiology. Before admission to this examination the student must have passed both parts of the First Examination, must have practised dissection during six months, and must produce certificates of diligent attendance on a course of lectures on each of the following subjects: 1. Human Anatomy. 2. Physiology.

The Third Examination is divided into two parts, called the First part and the Second part respectively. Before presenting himself for either part, the student must have passed the Second Examination. The First part includes: (1) Pharmacology, (2) General Pathology. The Second part includes: (1) Principles and Practice of Surgery, (2) Midwifery and Diseases Peculiar to Women, (3) Principles and Practice of Physic. The student, before admission to the First part, must produce certificates of attendance on one course of lectures in each of the following subjects: (1) Pharmacology, and (2) General Pathology; he must have attended the practice of a recognized hospital for six months. In the Second part the student may present himself for examination in any two or in all of the Sections 1, 2, and 3. A student who satisfies the examiners in two of the sections may be exempted from further examination therein; but his name shall not be included in the list of successful candidates until he has satisfied the examiners in the remaining section. The candidates are informed of the result but their names are not published. Before admission to the Second part a candidate must produce evidence that he has completed the five years' course of medical study and obtained certificates of diligent attendance on one course of lectures in each of the following subjects: (1) Principles and Practice of Surgery, (2) Midwifery, (3) Principles and Practice of Physic, (4) Medical Jurisprudence; he must also have attended the Medical and Surgical Practice of a recognized hospital (with clinical lectures), including certain special hospitals and asylums, during three years at least. All candidates must also produce certificates of attendance during three months on (1) practical instruction in Pharmacy and Dispensing, (2) clinical instruction in Fevers at a general or special hospital, (3) proficiency in Vaccination from an authorized vaccinator appointed by the Local Government Board, (4) of having attended twenty cases of Midwifery, (5) of having at a recognized hospital acted as Dresser or House-Surgeon for six months, as Clinical Clerk or House-Physician for six months, and as *Post-mortem* Room Clerk.

Act for M.B.—After these examinations have been passed, an Act must be kept in the schools in the following manner: The Regius Professor of Physic assigns a day and hour for keeping the Act, of which public notice has to be given eight days before. The candidate reads a thesis, composed by himself, on some subject approved by the Professor; the Professor brings forward arguments or objections for the candidate to answer, and examines him orally on questions connected with his thesis, as well as on other subjects connected with medicine of a more general nature.

B.C.—As the Third Examination includes operative and clinical surgery, the degree of Bachelor of Surgery is conferred upon candidates who pass it without further examination and without the Act. The degree of B.C. is thus a registrable qualification in Medicine, Surgery, and Midwifery.

Doctor of Medicine (M.D.).

This degree may be taken by an M.B. of three years' standing, or by an M.A. of four years' standing, who has been engaged in medical study for five years at least. In the latter case certificates of attendance on lectures and hospital practice for the M.B. must be produced, and the examinations for the M.B. must be passed. In either case the candidate keeps an Act by reading an original thesis upon which he is examined, and writes a short extempore essay upon one of four topics (at his choice), relating severally to Physiology, Pathology, Medicine, or State Medicine.

Master in Surgery (M.C.).

This degree is granted to a candidate who has completed all that is required for the degree of B.C. at least three years previously; the candidate is either (1) examined in Pathology, Surgery, Surgical Anatomy, and Surgery Operations, the examinations being both written and practical; or (2) submits books or writings constituting original contributions of merit to the science or art of surgery.

Dates, Fees, etc.

The dates of examinations are announced early in the Michaelmas and Lent terms. Each candidate pays £2 2s. to the Registry of the University on giving notice of his intention to offer himself for either part of the First or Second, and £3 3s. for either part of the Third Examination for M.B., but any student who has been exempted from further examination in two of the sections in the Second part shall be required to pay a fee of £2 2s. on admission or readmission to examination in the remaining section. He pays £3 3s. examination fee for M.C. Schedules defining the range of subjects in the First M.B. Examination, and of the Pharmacology and General Pathology in the Third Examination: also schedules for the necessary certificates, and a list of the schools of medicine and hospitals recognized by the University, may be obtained on application to the Registrary of the University, the Registry, Cambridge.

UNIVERSITY OF LONDON.

Under the regulations of the University of London, as now constituted, the degrees obtainable in the Faculty of Medicine are those of Bachelor of Medicine and Surgery, Master of Surgery, and Doctor of Medicine in six different branches.

All students of the University, it is to be remembered, are divided into two classes, Internal students and External students. An internal student is one who, having matriculated at the University, or otherwise obtained registration as an undergraduate, is pursuing a course of study approved by the University in a School or Schools, or under one or more of the Teachers, of the University. An external student is an undergraduate who is pursuing his education in some other way.

The standard of education required from those who present themselves for degrees, whether as internal or external students, is, as far as possible, the same; but the regulations which affect them differ to some extent. The information which hereinafter follows applies to those who propose to proceed to medical degrees as internal students, and who have not yet commenced their work. Those who propose to study elsewhere than at one of the constituent schools of the Faculty of Medicine of the University should obtain the regulations which apply to them from the External Registrar. There are a few conditions under which exemption may be obtained from examination in certain subjects, or the intervals between examination abbreviated, but to the vast majority of students they have no application.

It may be stated here that under no circumstances whatever can a degree after examination be granted to any one in less than three years after the date at which he passed the matriculation examination or obtained registration in some other way, and that External students of the Faculty of Medicine must pass not less than five years in professional study subsequent to matriculation, unless they are registered medical practitioners of a certain age and standing. Four of those years must be passed after the Preliminary Scientific Examination, Part I, at one or more of the medical institutions or schools at home and abroad recognized by the University for the purpose: and one year at least of those years must be passed at one of the schools situated within the United Kingdom.

The normal course of an Internal student of medicine is as follows: After matriculation he pursues approved courses of instruction in Chemistry, Physics, and Biology, and then at the end of his first year goes up for the Preliminary Scientific Examination (Part I). This passed, he goes up at the end of six months for the Examination in Organic Chemistry, known as the Preliminary Scientific Examination (Part II). The rest of the second and third years he spends on approved courses of Anatomy, Physiology, and Pharmacology, including Materia Medica and Pharmacy, and then at the end of his third year as a medical student, presents himself for the Intermediate Examination. The next two years he devotes to approved courses of Instruction in Medicine, Surgery, Midwifery, and Diseases of Women,

Pathology, Forensic Medicine and Hygiene, and at the end of his fifth year he is eligible to present himself for the final examination for the M.B., B.S. degree, success in which will entitle him to registration as a qualified practitioner. This five years' course, however, is liable to be prolonged by failure at any stage, as there is a minimum space of time fixed between passing one examination and attempting the next.

The Matriculation Examination (see Note p. 471) takes place three times in each year—namely, in the months of January, June (or July), and September. Application for admission to it must be made on a special form about six weeks beforehand, and must be accompanied by a certificate showing that the candidate will have completed his sixteenth year at the date on which the examination commences. It is a written examination, but the examiners are not precluded from putting viva voce questions to candidates if they should think fit. To pass the examination candidates must show a competent knowledge of five subjects, of which one must be English (one paper of three hours), another Elementary Mathematics (two papers of three hours each), and a third either Latin or Elementary Mechanics or Elementary Physics (Heat, Light, and Sound), or Elementary Chemistry or Elementary Botany. The other two may be selected from any of those in the following list, except, of course, those in which the candidate may have already been examined. Unless Latin has already been taken, one of them must be a language—Latin, Greek, French, German, Arabic,* Sanscrit,* Spanish,* Portuguese,* Italian,* Hebrew,* Ancient History, Modern History, Logic, Physical and General Geography, Geometrical and Mechanical Drawing, Mathematics (more advanced than in the compulsory examination), Elementary Mechanics, Elementary Chemistry, Elementary Biology (Botany), Elementary Biology (Zoology),* Elementary Physics (Heat, Light, and Sound, or Electricity and Magnetism). Candidates who desire to be examined in the subject against which an asterisk is affixed must give at least two months' notice. The names of the successful candidates are published in two lists, a first division and a second division. Communications concerning this examination must be addressed to the Principal of the University.

The Preliminary Scientific Examination, Part I, takes place twice in each year, commencing on the third Monday in January and on the second Monday in July. It consists of two papers in Inorganic Chemistry, two in Biology, and two in Physics, and there are practical examinations in Inorganic Chemistry, Physics, Botany, and Zoology, not exceeding three hours in any one subject; examiners are also at liberty to test candidates viva voce. A student must present himself for examination, either in all of the three subjects together, or in Physics and Chemistry together, or in Biology alone. It is a pass examination only, and the list of successful candidates is published in the alphabetical order of their names.

The Preliminary Scientific Examination, Part II, takes place twice a year, namely, in January and July. It should be passed not later than the end of the second year of study, but cannot be passed within six months of the passing of Part I of the same examination. It is a pass examination, and consists of a three hours' paper in Organic Chemistry, and three hours' practical work, the examiners being at liberty also to test any candidate by viva voce questions.

The Intermediate Examination in Medicine takes place twice a year, commencing on the third Monday in January and the first Monday in July. Candidates must have passed Part I of the Preliminary Scientific Examination at least two years and Part II at least one year previously. The subjects of examination are Anatomy, Physiology, and Pharmacology. In Anatomy there will be two papers, dissection, and an oral examination. In Physiology, two papers and a practical examination not exceeding six hours in length, which will include the preparation and identification of histological specimens, and the performance of simple experiments illustrating points in physiology and elementary physiological chemistry. In Pharmacology there will be one paper and an oral examination, which may include recognition of Materia Medica specimens. It is a pass examination, and the names of the successful candidates will be published in alphabetical order, but any subjects in which a candidate may have distinguished himself will be appended to his name if he has passed in all the subjects at one time. Candidates who have failed in one subject only at this examination may offer themselves for re-examination in that subject, if permitted to do so by the examiners. Three scholarships, one of the value of £40 in Anatomy, another of the same amount in Physiology, and one of £30 in Pharmacology, may be awarded by the examiners to any candidate who, having passed the whole of the examination at one time, has been awarded marks of distinction in one or more subjects; as a rule, no candidate will be allowed to receive the income of more than one scholarship at the same time.

The Final M.B., B.S. Examination takes place twice a year, commencing on the last Monday in October and on the first Monday in May. No candidate will be admitted to this examination unless he has completed the course of study prescribed in the schedule or within two academic years from the date of passing the Intermediate Examination in anatomy and physiology.

The subjects of the examination are Medicine (including Therapeutics and Mental Diseases), Pathology, Forensic Medicine and Hygiene, Surgery, and Midwifery and Diseases of Women. The subjects may be divided into two groups, one of which shall comprise Medicine, Pathology, Forensic Medicine and Hygiene; and the other Surgery and Midwifery and Diseases of Women. Either group may be taken first at the option of the candidate, or the groups may be taken together. The examination in Medicine will consist of (*a*) two papers each of three hours' duration, (*b*) a viva voce examination on cases, (*c*) an examination of a patient with a written report on the case, and (*d*) an oral examination on the whole subject. In Pathology there will be a paper, a viva voce and a practical examination in clinical laboratory work, while in Forensic Medicine and Hygiene there will be a paper and an oral examination.

In Surgery there are (*a*) two papers, each of three hours' duration, one on Surgery and the other on Surgical Anatomy and Pathology, (*b*) a clinical examination on cases, and (*c*) an oral examination on Surgical Pathology, (*d*) another on Surgical Appliances and Surface Marking. In Midwifery and Diseases of Women there will be one paper and a viva voce. Only candidates who show a competent knowledge of all the subjects comprising a group will be passed. There will be no separate examination held for honours, but in the list of successful candidates the names will be divided into an honours list and a pass list, in each of which the names will be placed in alphabetical order. Only those, however, who have passed the whole examination at one time will be entitled to a place in the honours list. In this list the subjects in which they have distinguished themselves will be appended to the names of the successful candidates. The examiners will be empowered to recommend the award of a University Medal to the candidate who has most distinguished himself in the whole examination.

A diploma under the seal of the University, constituting a licence to practise, will be delivered to each candidate when he has passed in both groups of the examination.

DOCTOR OF MEDICINE.

The examination for the degree of Doctor of Medicine is held twice in each year, commencing on the first Mondays in December and July. Every candidate must have passed the examination for the M.B., B.S. of this University unless he became M.B. before May, 1904. Candidates may present themselves for examination in any one of the following branches: (1) Medicine, (2) Pathology, (3) Mental Diseases, (4) Midwifery and Diseases of Women, (5) State Medicine, (6) Tropical Medicine; and, if they wish, may pass also in another branch at a subsequent examination. Candidates for Branches 1 to 4 who have taken honours at the M.B., B.S. examination in the subject in which they present themselves for the M.D. degree, or who, subsequently to taking the M.B., B.S., have conducted a piece of original work approved for the purpose by the University, or have had such exceptional experience in the Branch in which they present themselves as may be approved by the University, may present themselves for the M.D. examination one year after taking their Bachelor's degree. Other candidates must show that they have taken the degree of M.B., B.S. not less

than two years previously; and as regards candidates in Branches 1 to 4 either that they have held for at least six months a resident or non-resident medical appointment at a hospital approved for this purpose, or that they have been in qualified practice for not less than five years, or that as regards Branches 2 and 3 they have held in the one case a pathological and in the other an asylum appointment in an institution approved by the University. In each examination for the M.D. in Branches 1 to 4 there will be (1) two papers on the special subject of the branch; (2) a Clinical Examination; (3) an essay to be written on one of two given subjects connected with the branch. In Branch 1 there will also be a paper on Pathology, and in Branches 2, 3, and 4 a paper in Medicine, while in Branch 2 a Laboratory Examination will be substituted for the Clinical Examination held in the other branches.

The regulations concerning candidates in Branch 5 (State Medicine) and Branch 6 (Tropical Medicine) will be found in their appropriate places in the articles devoted to these subjects (page 518 and page 514).

Master of Surgery.

The examination for the degree of Master in Surgery will take place twice in each year, commencing on the same dates as the foregoing, and the general regulations already quoted with regard to the M.D. will practically apply to it, surgery being substituted for medicine. In addition, he must produce evidence that he has held a surgical appointment at an approved institution for at least six months. The examination will consist of (1) two papers on Surgery (one of which may be a case for commentary); (2) an essay to be written on one of two subjects which may be selected from any branch of surgery; (3) two papers on Surgical Pathology and Surgical Anatomy; (4) a Clinical Examination; (5) operations on the dead body; (6) an oral examination at the discretion of the examiners. Competent knowledge in every subject of the examination must be shown in order to pass.

For the M.S. Degree and all branches of the M.D. a candidate is at liberty to forward a thesis or copies of published works embodying the result of independent research in the subject in which he presents himself for a degree and also any printed contributions to the advancement of professional knowledge published either separate or conjointly. If the examiners consider such thesis or works of sufficient merit they are empowered to exempt a candidate both from the practical and written part of the examination in the case of candidates for the M.D. in Pathology, but from the written examination only in the case of other candidates. They also have power to award a University medal to the candidate who at the examination in any branch passes with most distinction.

Fees.

For Matriculation.—£2 for each entry.

Preliminary Scientific Examination.—Part I: £5 for each entry to the whole examination, and £2 for each subject when less than the whole examination is taken at one time. Part II: No fee for first entry, £2 for each subsequent one.

Intermediate Examination.—£10 for each entry to the whole examination, and £5 for re-examination in one subject.

M.B., B.S. Examination.—£10 for each entry to the whole examination and £5 for examination or re-examination in either group.

M.D. and M.S. Examinations.—£20 for each entry.

Note.—The following persons may obtain registration as Internal or External Students on presentation of documentary evidence as to their condition and a payment of £2: Graduates of such British, Colonial, and foreign universities as are approved by the Senate for that purpose, and those who have passed all the examinations required for a degree in those universities, also women who have obtained Tripos certificates granted by the University of Cambridge, and women who have obtained certificates showing that, under the conditions prescribed by the Delegacy for Local Examinations at Oxford, they have passed the Second Public Examination of that University or have obtained honours in the Oxford University Examination for Women in Modern Languages, and students who hold the Scotch School Leaving Certificate, having passed on one and the same occasion, in the Higher or Honours Grade in all the subjects required by the regulations for the Matriculation Examination, and those who have obtained at an *Abiturien-Examen* the *Zeugniss der Reife* from a Gymnasium or a Real-gymnasium within the German or Austrian Empire, or the *Maturitäts Zeugniss* of a Swiss Gymnasium or *Oberrealschule*, or the *Eidgenossische Maturitäts-Zeugniss* of Switzerland, or the Leaving Certificate of a Gymnasium of the Russian Empire. Their standing as students will date from the Matriculation Examination immediately preceding the date on which their registration was complete.

UNIVERSITY OF DURHAM.

The University of Durham grants six degrees in the Medical Faculty—M.B., M.D., B.S., M.S., B.Hy., D.Hy. The degrees of M.D., B.S., and M.S. are granted only to M.B. graduates of the University. The degrees B.Hy. and D.Hy. are granted under certain conditions to graduates in medicine of recognized Universities (see pp. 521.) The University also grants a diploma in Public Health. These degrees are open both to men and women. It is hardly necessary to say that every student intending to attend the University of Durham College of Medicine, Newcastle-on-Tyne, would do well to pass the necessary matriculation examination, and qualify himself to obtain the degrees of the University.

Degree of Bachelor of Medicine (M.B.).

Preliminary Examination in Arts.—In addition to the Certificate of Registration, a candidate must pass the Preliminary Examination in Arts for the degree in Medicine of the University of Durham or show either (1) a certificate of graduation in Arts in any university in the British Empire; or (2) a certificate of having passed the First Public Examination for the Degree of B.Litt of the University of Durham; or (3) (*a*) The First Public Examination in Arts of the University of Durham; (*b*) the University of Oxford Moderations; (*c*) the University of Cambridge Previous Examination; (*d*) the University of Cambridge General Examination; (*e*) the Matriculation Examination of the University of London; (*f*) Durham Senior Local Examination; (*g*) the Oxford or Cambridge Senior Local Examination; (*h*) Oxford and Cambridge Joint Board Examination (Higher Certificate). Particulars as to the Preliminary Examination of the University of Durham can be obtained from the Rev. Henry Ellershaw, M.A., Secretary of the Examinations, the University, Durham, to whom the fee (£1 10s.) is payable.[1]

The Preliminary Examination in Arts is held thrice yearly, in January, March, and September. The next examination will be commenced on September 18th, 1906.

N.B.—After March, 1907, the Matriculation Examination of the University will be substituted for the Certificate of Proficiency and Preliminary Examinations in Arts of the University.

The Matriculation Examination will be held in Durham and at Armstrong College, Newcastle-upon-Tyne, and will be commenced on Tuesday, September 25th, 1906: Tuesday, March 19th, 1907; and Tuesday, September 24th, 1907. Candidates, on entering their names for examination, must state whether they wish to be examined in Durham or Newcastle-upon-Tyne.

The subjects will be found on pages 32 and 33 of *Calendar*.

Students shall be exempt from this Matriculation Examination who have passed one of the following examinations, provided that the Regulations of the General Medical Council regarding the Registration of Students be complied with:

- The Graduation Examination in Arts of any University of the British Empire.
- Oxford Responsions.
- The Cambridge Previous Examination.
- The School Leaving Examination of the University of London.
- The Matriculation Examination of the University of London.
- The Joint Matriculation Examination of the Victoria University, Manchester, and the Universities of Liverpool, Leeds and Sheffield.

[1] Candidates from Indian Universities must have passed a Matriculation Examination at one of the Indian Universities, and will have to reside for one academic year at the University of Durham College of Medicine at Newcastle-on-Tyne before presenting themselves for the M.B. Degree Examinations, in accordance with the regulations on pp. 74 to 81 of the *Calendar*. If the Matriculation Examination at the Indian University did not embrace Latin and either Persian or Sanskrit then it will be necessary for the candidate to produce evidence that he has passed in Latin and one of those subjects, or in Greek, within twelve months of his presenting himself for the examination for the Degree in Medicine.

The Preliminary Examination of the University of Birmingham.
The Matriculation Examination of the University of Wales.
The Preliminary Examination of the Joint Board of the Scottish Universities.
The Durham Senior Locals.
The Oxford Senior Locals (Honours).
The Cambridge Senior Locals (Honours).
The Higher Certificate of the Oxford and Cambridge Joint Board.
The Senior Certificate of the Central Welsh Board.

N.B.—Candidates who claim exemption on the ground of having passed an examination recognized by the University as equivalent, must forward their certificates or some satisfactory proof of the subjects in which they have passed to the Secretary of Examinations, and must pay the fee of £1 10s.

Students who have satisfied the requirements of the General Medical Council upon some Examination other than one of the above, to be exempt on passing, at one and the same examination, in three subjects of the Matriculation Examination. These three subjects must be passed before commencing medical study, and one of the three must be a language other than English. In the case of a student who spends only one year at Newcastle, these three subjects must be passed at least one year before he appears for his final examination in Medicine and Surgery.

Curriculum.—The curriculum extends over five years, of which at least one must be spent in attendance at the University of Durham College of Medicine, Newcastle-on-Tyne, and in the clinical practice of the Royal Infirmary there. First and second year students (dating from registration) are not required to comply with the regulation regarding attendance on hospital practice. Students are recommended to carry out the curriculum on some such plan as the following:

First Winter: Anatomy, Dissections, Chemistry, Physics, Elementary Biology. First Summer: Practical Chemistry, Practical Physics.

Second Winter: Anatomy, Physiology, Practical Physiology, Dissections. Second Summer: Practical Histology, Practical Pharmacy, Materia Medica, Therapeutics, and Pharmacology.

Third Winter: Public Health, Pathology, Practical Pathology, Hospital Practice, with Clinical Lectures. Third Summer: Medical Jurisprudence, Hospital Practice, with Clinical Lectures.

Fourth Winter: Medicine, Surgery, Midwifery and Diseases of Women and Children, Regional Anatomy, Hospital Practice, with Clinical Lectures. Fourth Summer: Ophthalmology, Practical Midwifery, Hospital Practice, with Clinical Lectures.

Fifth Winter: Medicine, Surgery, Regional Anatomy (if not previously attended), Infectious Diseases, Hospital Practice, and Clinical Lectures, Practical Midwifery (if not previously attended). Fifth Summer: Clinical Lectures, Mental Diseases, Operative Surgery.

Professional Examinations.—There are four professional examinations conducted in writing, practically, and viva voce, each held twice a year (April and September). *First Examination:* Elementary Anatomy and Biology, Chemistry, Physics. *Second Examination:* Anatomy, Physiology, Materia Medica, Therapeutics, and Pharmacology. *Third Examination:* Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology. *Final Examination:* Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery, Midwifery, and Diseases of Women and Children. The *Calendar* of the University of Durham College of Medicine, Newcastle-on-Tyne, contains synopses of the subjects of the examinations and examination papers. Applications for further information should be addressed to Professor Howden at the College. A candidate who has passed the First and Second Examinations of the University will be exempt from the First and Second Examinations of the Conjoint Board in England. Candidates who have completed part of their curriculum elsewhere may pass their First, Second, and Third Examinations *previously* to entering at the College of Medicine, Newcastle-upon-Tyne, and previous to passing the Preliminary Examination in Arts or Matriculation Examination of the University.

DEGREE OF DOCTOR OF MEDICINE (M.D.).

A candidate for this degree must have been engaged in practice for at least two years subsequent to obtaining the degree of M.B. in the University of Durham, and must satisfy the University as to his knowledge of Greek or German. The candidate is required to prepare an essay, which must be typewritten, based on original research or observation, and is subject to examination on the topic of his essay. For particulars as to the degree of M.D. for medical practitioners of fifteen years' standing, without curriculum, see p. 517.

DEGREES IN SURGERY.

Bachelor of Surgery.—A candidate must have passed the examination for the degree of M.B.(Dunelm), and have attended courses of lectures on Operative Surgery and on Regional Anatomy. He is required to perform operations on the dead body, and to show practical acquaintance with the use of surgical instruments and appliances.

Master of Surgery.—A candidate must have obtained the degree of B.S.(Dunelm) at least two years previously, and have been engaged in practice for that period. The subjects for the examinations are Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations, Clinical Surgery.

DEGREES IN HYGIENE (B.HY., D.HY.).

For the regulations as to these Degrees, see pp. 518-519.

FEES.

Preliminary Arts and Matriculation Examinations for Degrees, £1 10s. First, Second, and Third Professional Examinations (M.B.), each £5. Final (M.B.), £10. Examination for the degrees of M.D., B.S., and M.S., each £5, in addition to a payment to the University of Durham for each degree of £6 6s.

VICTORIA UNIVERSITY OF MANCHESTER.

Matriculation.—A candidate for the Matriculation Examination is examined in (1) Latin; (2) Mathematics; (3) English Language, Literature, and English History; (4) Two of the following, one of which must be a language: i, Greek; ii, French; iii, German; iv, some other modern language approved by the Board of Studies; v, Elementary Mechanics; vi, Chemistry; vii, Geography or Natural History. Candidates who propose to present themselves in Italian or Spanish, or in a modern language not included in the list, must give notice to the Secretary, Joint Matriculation Board, Owens College, Manchester, on or before March 1st in the year in question.

Matriculation.—Before matriculating, which consists in signing the University Register, candidates must produce proof that they are registered students of the University, or of a medical school recognized by it.

DEGREES OF BACHELOR OF MEDICINE AND OF SURGERY (M.B., CH.B.).

Curriculum and Residence.—Five years must be spent in study at a recognized medical school subject to registration as a medical student; of these five years two at least must be passed in the University, and one of these two years must be subsequent to passing the First M.B. Examination.

First M.B. Examination.—Candidates must have attended during at least one year courses of lectures and laboratory work in each of the subjects of the examination—namely: Part I. (*a*) Physics; (*b*) Chemistry. Part II. Biology (Animal and Vegetable Morphology, Physiology, and Laboratory work). Part III. Materia Medica (including Practical Pharmacy). The three parts may be taken together or separately.

Second M.B. Examination. — Candidates must have attended winter courses in Anatomy and Physiology. The subjects of the examination are: (1) Anatomy; (2) Physiology.

Third M.B. Examination.—Candidates must produce certificates of having attended, in a recognized medical school, courses of instruction in the following subjects: (*a*) Pathology (including Practical Pathology). (*b*) Pharmacology and Therapeutics. (*c*) Hygiene. Pathology may be taken separately.

Final M.B. Examination.—The subjects of examination are as follow: Medicine, Systematic and Clinical (including Mental Diseases and Diseases of Children, in which subjects separate papers will be set). Surgery—Systematic, Clinical, and Practical. Midwifery and Gynæcology

(including Practical Gynaecology). Forensic Medicine (including Toxicology). Forensic Medicine may be taken separately.

Degree of Doctor of Medicine (M.D.).

A candidate must have obtained the degree of M.B. at least one year previously. He must present a printed dissertation, and may be examined on any subject connected therewith.

Degree of Master of Surgery (Ch.M.).

A candidate must have obtained the degree of M.B. at least one year previously, must have been engaged in the study of Practical Surgery in the interval, and have held a surgical appointment for not less than six months in a hospital or other public institution. He must also produce certificates of having attended special courses in Operative Surgery, Bacteriology, and Ophthalmology.

Fees and Dates of Examination.

Matriculation examination, £2; re-examination after failure, £1. First, Second, Third, and Final M.B. Examinations, each £5; re-examination after rejection, £2. M.D., £10; Ch.M., £5 on examination, and £5 on the conferring of the degree.

The Matriculation Examination is held in July (also for schools) and September. The First M.B. Examination is held in June and July, also in September and December; the Second in December and March; the Third in July, December, and March; the Final in March and July; and that for the Ch.M. in July.

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham confers the degrees of M.B., Ch.B., M.D., Ch.M., and also a B.Sc. in the subject of Public Health. The course for the Bachelor's degrees extends over five years from the date of registration with the General Medical Council. As a rule, the first four of these years must be spent in the University, but the Senate has power of recognizing attendance at another University as part of the attendance qualifying for these degrees, and of recognizing examinations passed at such other Universities as exempting from the examinations in Chemistry, Physics, and Elementary Biology. In the case of such students at least three years must be spent in attendance upon classes at the University. The fifth year may be spent at any other school or schools of medicine recognized by the University.

Degrees of Bachelor of Medicine and Bachelor of Surgery.

The student must have passed either the Matriculation Examination of the University or one of the following examinations, which will be accepted in lieu thereof, *for the present*. (*a*) The Previous Examination of the University of Cambridge. (*b*) Responsions of the University of Oxford. (*c*) The Matriculation Examination of any other University in the United Kingdom. (*d*) The leaving Certificate (Higher) of the Oxford and Cambridge Boards. (*e*) The Oxford or Cambridge Junior Local Examinations (First or Second Class Honours). (*f*) The Oxford or Cambridge Senior Local Examination (Honours). (*g*)[1] The College of Preceptors Examination for First-class Certificate. Matriculation Examinations are held in June and September in each year, the Regulations for which may be obtained from the Registrar.

First Examination. — Chemistry, Physics, and Elementary Biology. One year's lectures with practical work.

Second Examination.—Anatomy and Physiology. Two winters' and one summer's dissections with lectures in Anatomy; one winter course and one summer course of lectures and practical work in Physiology.

Third Examination. — Pathology and Bacteriology, Materia Medica and Practical Pharmacy. In the former subjects one course of lectures and practical work during the winter session, with a practical course during the summer session. In the latter subjects one course of lectures and practical work during the summer session.

[1] Not accepted after October 1st, 1906

Fourth Examination (at the end of the fourth year).—Forensic Medicine, Toxicology, and Public Health.

Final Examination. — Medicine, Surgery, Midwifery, Gynaecology, Therapeutics, Mental Diseases, and Ophthalmology. Attendance on General Hospital for a year after the passing of the Fourth Examination, also attendances at Fever Hospital, Lunatic Asylum, Vaccination, courses of Ophthalmology, Medical and Surgical Anatomy, and Operative Surgery.

Degrees of Doctor of Medicine and Master of Surgery.

Candidates for either of these Degrees will be required to comply with the following regulations:

For the Degree of M.D.—Every candidate for this degree shall present a thesis embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below, and in addition he will be required to pass a general examination in Principles and Practice of Medicine. It will be in the power of the Board of Examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations. A thesis may be presented in any of the following departments of study: (*a*) Anatomy, including Comparative Anatomy, (*b*) Physiology, (*c*) Human or Comparative Pathology, (*d*) Bacteriology, (*e*) Pharmacology, (*f*) Therapeutics, (*g*) Medicine, (*h*) Mental Diseases, (*i*) Preventive Medicine or Public Health, (*j*) Toxicology, (*k*) Legal Medicine, (*l*) Midwifery.

For the Degree of Ch.M.—Candidates are required to comply with the following regulations:

At the end of one year from the date of having passed the final M.B., Ch.B. Examination, candidates will be eligible to present themselves for the higher degree of Master of Surgery.

Candidates for this degree will be required to comply with the following regulations:

1. Every candidate shall present a thesis embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below; in addition the candidates will be required to pass a general examination in Principles and Practice of Surgery, and to perform operations on the cadaver.

2. It will be in the power of the Board of Examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations.

3. The candidate may be examined in that department of the medical curriculum from which the subject of his thesis is chosen, and the examiners may require to see the notes of original observations on which the thesis is based. (*a*) Surgery, (*b*) Pathology, (*c*) Bacteriology, (*d*) Gynaecology, (*e*) Ophthalmogy.

Degree in Public Health.

For the Regulations for this Degree and for the Diploma in the same subject, see p. 522.

Fees.

Matriculation, £2; First Examination, £2; Second, £2; Third, £2; Fourth, £2; Final, £2. Admission fee to Degrees of M.B., Ch.B., £6. The composition fee, £85, is inclusive and payable in four annual instalments—namely, £25, £25, £15, and £20 at the commencement of each year. This fee covers all the courses necessary for the degrees of this and other Universities and the ordinary qualifications of the Licensing Boards. It does not include, however, courses for Public Health Diplomas, nor those for the Preliminary Scientific Examination of the University of London, nor the additional courses required for the Fellowship of the Royal College of Surgeons, and other such higher diplomas and degrees.

Entrance Scholarships.—Sands Cox, 40 guineas awarded to the candidate who obtains the highest marks at the June Matriculation Examination. Sydenham Scholarships, one or more annually, restricted to orphan sons of medical men, elected by the Council, on the recommendation of the Medical Faculty, 40 guineas.

The Winter Session begins on October 1st, 1906, and terminates on March 23rd, 1907.

The Summer Session commences on April 15th, 1907, and terminates on June 29th, 1907.

Further particulars may be obtained by application to Professor Gilbert Barling, Dean of the Medical Faculty, at the University.

UNIVERSITY OF LIVERPOOL.

FACULTY OF MEDICINE.

STUDENTS may enter for the degrees of the University of Liverpool, or may study for the degrees and qualifications of the other licensing bodies.

The student must pass either (1) the University Matriculation Examination, or (2) the Final Examination for Graduation in Arts of any University in Great Britain and Ireland; or (3) the Matriculation Examination of the University of London; or (4) the Higher Certificate Examination of Oxford and Cambridge Joint Board; or (5) the Senior Local Examination of Oxford or Cambridge, with honours; or (6) some other examination of equal standard accepted by the Joint Matriculation Board. The course of study, subsequent to passing the Matriculation Examination and having been registered as a medical student, extends over five years. The degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and Surgery must have attained the age of 21 years on the day of graduation. At least two of the five years of medical study must have been passed in the University, and one year at least must have been passed in the University subsequently to the date of passing the First Examination. The other three years may be passed at any college or medical school recognized for this purpose by the University. Candidates must pass three examinations, entitled respectively the First Examination, the Second Examination, and the Final Examination. The fee is £5 for each examination. The subjects of the First Examination are (1) Chemistry—Inorganic and Organic; (2) Biology (Zoology and Botany); and (3) Physics. The examination is divided into two parts, namely (1) Chemistry and Physics, and (2) Biology; and candidates may pass in these parts separately. The subjects of the Second Examination are (*a*) Anatomy and Physiology (including Physiological Chemistry and Histology), and (*b*) Materia Medica and Pharmacy. Candidates may pass in (*a*) or (*b*) separately. The subjects for the Final Examination are: (1) Pharmacology and Therapeutics; (2) General Pathology and Morbid Anatomy; (3) Forensic Medicine and Toxicology, and Public Health; (4) Obstetrics and Diseases of Women; (5) Surgery, Systematic, Clinical, and Practical; and (6) Medicine, Systematic and Clinical, including Mental Diseases and Diseases of Children. Candidates may either present themselves in all the six subjects of examination on the same occasions or may pass the examination in two parts, the first part consisting of two or three of subjects (1), (2), and (3); the second part consisting of the remaining subjects. Candidates for the first part of the examination must have completed the fourth winter of medical study in accordance with the regulation of the University.

Degrees of Doctor of Medicine and Master of Surgery.—No candidate will be admitted to the degrees of Doctor of Medicine or Master of Surgery unless he has previously received the degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examinations for those degrees. Candidates for the degree of Doctor of Medicine are required to furnish three copies, preferably printed or typewritten, of the dissertation or published work which they desire to submit to the University. The subjects of examination for the degree of Master of Surgery are: (1) Surgical Anatomy, (2) Surgery, (3) Operative Surgery, (4) Clinical Surgery, (5) Ophthalmology, and (6) Pathology and Bacteriology.

Diplomas.—Diplomas have been instituted in Public Health (D.P.H.), Tropical Medicine (D.T.M.), and Veterinary Hygiene (D.V.H.). Special diplomas are granted in Anatomy, Bacteriology, Bio-Chemistry, and Parasitology after a course of study of three terms in the subject chosen and allied subjects.

Medical School Buildings.—Spacious and well-equipped class rooms and laboratories have been provided for the practical study of all the important scientific subjects which form the basis of medicine.

Medical Research has also been endowed with several new laboratories in which students can pursue research work after graduation.

All the laboratories and class rooms are situated close together, communicating with one another, and are made up of four large blocks of buildings which form one side of the College quadrangle.

The most recent additions are the Johnston Laboratories for Experimental Medicine, Bio-Chemistry, and Comparative Pathology, and the new building recently completed for Anatomy, Surgery, Toxicology, and the Dental subject.

The departments of Physiology and Pathology are accommodated in the large block provided by the generosity of the late Rev. S. A. Thompson Yates in 1898.

The Anatomical Department is situated in a separate block and has a complete suite of rooms, including a large and well-stocked museum, and a well-lighted dissecting room on the upper floor, measuring 70 ft. by 40 ft.

Hospitals.—The Clinical School of the University now consists of four General Hospitals—the Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, and the Stanley Hospital; and of five Special Hospitals—the Eye and Ear Infirmary, the Hospital for Women, the Infirmary for Children, St. Paul's Eye and Ear Hospital, and St. George's Hospital for Skin Diseases. These hospitals contain in all a total of 1,127 beds. The organization of these hospitals to form one teaching institution provides the medical student and the medical practitioner with a field for clinical education and study which is unrivalled in extent in the United Kingdom. All the hospitals are within easy access from the University; those which are situated at any distance are readily reached by the tramway service of the city. The period of hospital practice extends over the last three years of medical study. During the first two years of this period no student will be permitted to change his attendance from one general hospital to another except at the commencement of an academic term. It is a regulation of the school that not more than five of the six terms of these two years shall be spent at any single general hospital. During the final year of hospital practice a student is permitted to attend the practice of all the general hospitals without restriction. The regulations demand only that his attendance shall be regular and to the satisfaction of the Hospital's Board. There are a large number of appointments to House Physicianships and Surgeonships both at the general and special hospitals which are open to qualified students of the school. These appointments (20) in most cases carry salaries varying from £60 to £100 per annum.

Applications for further information regarding the Clinical School should be addressed to the Dean of the Faculty of Medicine.

Fellowships and Scholarships.—Fellowships, Scholarships, and Prizes of over £1,000 are awarded annually. A Holt Fellowship in Pathology and Surgery, of the value of £100 for one year, is awarded annually by the Medical Faculty to a senior student possessing a medical qualification. The successful candidate is required to devote a year to tutorial work and investigation in the Pathological department. A Holt Fellowship in Physiology, awarded under similar conditions, of the value of £100 for one year. A Robert Gee Fellowship in Anatomy, awarded under similar conditions, also of the value of £100 for one year. An Alexander Fellowship for Research in Pathology of the annual value of £100, renewable. A Johnston Colonial Fellowship in Pathology and Bacteriology (£100 a year, renewable). A John W. Garrett International Fellowship in Physiology and Pathology (£100 a year, renewable). An Ethel Boyce Fellowship in Gynaecological Pathology (£100 a year, renewable). A Stopford Taylor Fellowship (£100 a year, renewable) in Dermatological Pathology. A Thelwall Thomas Fellowship (£100 a year, renewable) in Surgical Pathology. Two Lyon Jones Scholarships, of the value of £21 each for two years, are awarded annually—a Junior Scholarship, open at the end of the first year of study to Liverpool University students in the subjects of the first M.B. Examinations, and a Senior Scholarship, open to all students in the school at the end of the second or third year of study, in the subjects of Anatomy, Physiology, and Therapeutics. The Derby Exhibition of £15 for one year is awarded in Clinical Medicine and Surgery in alternate years. Students may compete in their fourth and fifth years. In 1907 the subject will be Clinical Medicine. The Torr Gold Medal in Anatomy, the George Holt Medal in Physiology, the Kanthack Medal in Pathology, and the Robert Gee

Book Prize, of the value of £5, for Children's Diseases, are awarded annually.

Entrance Scholarships.—Two Robert Gee Entrance Scholarships, of the value each of £25 per annum for two years, are offered annually for competition. The holder is required to take out the Science Course for the University Degree in Medicine.

Communications should be addressed to the Dean, Professor Benjamin Moore, M.A., D.Sc., the University, Liverpool.

Liverpool Dental Hospital and School of Dental Surgery.—The University grants a Diploma in Dental Surgery (L.D.S.) and Degrees in Dental Surgery (B.D.S. and M.D.S.). The courses of systematic instruction are given in the University buildings, five minutes' walk from the Dental Hospital. The two institutions are now closely associated, and the management of the curriculum is in the hands of the Board of Dental Studies. At the Dental Hospital recent alterations have been made, and, as it now stands, this school offers advantages to students which are not excelled anywhere. The ground floor of the building contains the following: Extraction room, with all needful appliances; anæsthetic room specially reserved with every convenience, and a large waiting room for patients. The first floor has a large Board room and a very comfortable students' room set apart exclusively for the use of students. The whole top floor of the building has been thrown into one fine, airy, and well-ventilated operating room. This room will accommodate upwards of thirty operating chairs, which are of the "Morrison pattern," and each of which has a special electric light suspended before it. In the basement a very convenient work room has been fitted up, containing the necessary requirements, and there are commodious lavatories for students. A new Laboratory for practical mechanical work has also been constructed so as to meet the requirements of the curriculum. It is adequately furnished with all the modern appliances of a dental workshop. A skilled dental mechanic has been engaged, and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry. The times of the lectures at the University are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital practice. The staff of the hospital includes twelve honorary Dental Surgeons, a Demonstrator, two Anæsthetists, two House-Surgeons, and a Curator. Fees for two years' hospital practice, £21. Apprenticeship: A limited number of apprentices are admitted annually; fees for three years, £105. Further information may be had from the Warden, Mr. W. H. Gilmour. The various Medical and Dental lectures are given at the University of Liverpool. The anatomical department has been removed to a new building, comprising a spacious Dissecting Room and a Museum which contains an excellent collection of skulls illustrative of human and comparative dental anatomy. Fees: The composition fee for the diploma course (L.D.S.) is, Chemistry and Physics, £11 11s.; all other lectures £50, in two instalments; and for the degree course (B.D.S.) £67 10s., for all lectures (including Chemistry, Physics, and Zoology), in three instalments; two years' Dental Hospital, £21; General Hospital Practice, £10 10s.; three years' Mechanical Instruction (pupilage), £105.

School of Tropical Medicine.—Courses of instruction are given in Tropical Diseases, particulars regarding which may be obtained from Mr. A. H. Milne, B 10, Exchange Buildings, Liverpool. A diploma in Tropical Medicine is now granted by the University.

School of Veterinary Medicine.—A school of Veterinary Medicine in connexion with the University was opened in October, 1904; full courses of instruction for the Veterinary curriculum will be provided and students will be prepared for the M.R.C.V.S. A diploma in Veterinary Hygiene is now granted by the University.

Public Health Department.—This is located in a separate building known as Ashton Hall, in which full courses of instruction are given to D.P.H. students.

School of Pharmacy.—Complete courses of instruction are provided, adapted to the requirements of candidates preparing for either the Minor or Major examinations of the Pharmaceutical Society of Great Britain.

Prospectuses and further information may be had on application to the Dean of the Faculty of Medicine, University of Liverpool.

UNIVERSITY OF LEEDS.

THE degrees granted in the Medical Faculty of the University are Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

Candidates for the M.B., Ch.B., must show that they will have attained the age of 21 years on the day of graduation, and that they have attended courses of instruction approved by the University for not less than five years, two of such years at least having been passed in the University subsequently to the date of passing the First Examination.

The examinations to be passed are the Matriculation, the First, the Second and the Final, examinations.

Candidates presenting themselves for the Matriculation Examination in the Faculty of Medicine are required to satisfy the Examiners in: (1) English (language or literature), and English history; (2) Mathematics; (3) Latin; (4) two of the following, one of which must be a language: (*a*) Greek, (*b*) French, (*c*) German, (*d*) some other modern language approved by the Board, (*e*) Elementary Mechanics (*f*) Chemistry, (*g*) Geography or Natural History.

Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's own examination.

FIRST EXAMINATION.

Candidates for the First Examination are required to have passed the Matriculation, and to have attended during at least one year the following courses of instruction either in the University or in an institution recognized for this purpose by the University: (1) Chemistry, Inorganic and Organic; lectures and laboratory work. (2) Biology (Zoology and Botany); lectures and laboratory work. (3) Physics; lectures and laboratory work.

The examination consists of two parts—Part I being Physics and Chemistry, and Part II Biology. In each subject laboratory work is included, but the two parts can be taken separately. The names of the successful candidates are published in alphabetical order.

SECOND EXAMINATION.

Candidates for the Second Examination are required to have passed the First Examination, and to have attended complete courses of instruction approved by the University in Anatomy and in Physiology during four terms; in Materia Medica and Pharmacy for one term. The certificates must show (1) that dissection has been practised during five terms at least; (2) that laboratory instruction approved by the University has been received in Physiology; (3) that practical instruction approved by the University has been received in Materia Medica and Pharmacy. The examination is in two parts, which may be taken separately or together. Part I consists of Anatomy and Physiology, practical work being included. Part II, Materia Medica and Pharmacy, includes the recognition of drugs and compounding of medicines.

FINAL EXAMINATION.

The Final Examination may be divided into two parts. Before presenting himself for the first part the candidate must have passed the Second Examination and completed eleven terms of medical study, and before appearing for the second part must have completed his fifth year. In either case the candidate must furnish certificates showing that he has attended courses of instruction approved by the University at the University or in a medical school approved for this purpose by the University. The required courses of instruction are as follows:

(i) Pharmacology and Therapeutics, one term.
(ii) Pathology and Bacteriology, three terms.
(iii) Forensic Medicine, one term.
(iv) Public Health, one term.
(v) Obstetrics and Gynæcology.
(vi) Systematic Surgery, two terms; Practical Surgery, two terms.
(vii) Systematic Medicine, four terms (including one term each Mental Diseases and Infectious Diseases).

As regards hospital work, proof must be furnished—

1. In Medicine and Surgery, of having attended the medical and surgical practice of a hospital or hospitals,

approved by the University, during at least three years, of which years two at least must be subsequent to the date of passing the Second Examination, except when exemption has been granted by the Senate, after report from the Board of the Faculty of Medicine. Clinical Medicine, two years of clinical lectures. Clinical Surgery, two years of clinical lectures.

2. In Pathology and Morbid Anatomy, of having attended during at least twelve months, demonstrations in the *post-mortem* room of a hospital, including practical instruction.

3. In Obstetrics, of having attended during not less than one month the indoor practice of a lying-in hospital or ward, and of having personally conducted not less than 20 cases of labour, subsequently to having acted as In-patient Dresser and Clinical Clerk.

4. In Gynaecology, of having, during at least three months, received in either a general or a special hospital, approved by the University, such clinical instruction in the diseases peculiar to women as shall be approved by the University.

5. Of having received clinical instruction in diseases of the eye, ear, throat, and skin.

6. Of having acquired proficiency in vaccination.

7. Of having acted as a Dresser for six months in the Surgical wards, as a Clinical Clerk for six months in the Medical wards, and as a Clerk for three months in the *post-mortem* room of a hospital recognized by the University.

The subjects of the Final Examination are as follows:

(i) Pharmacology and Therapeutics.
(ii) Pathology and Bacteriology.
(iii) Forensic Medicine and Toxicology and Public Health.
(iv) Obstetrics and Gynaecology.
(v) Surgery: Systematic, Clinical, and Practical.
(vi) Medicine: Systematic and Clinical, including Mental Diseases and Diseases of Children.

Candidates may either present themselves in all the six subjects of examination on the same occasion, or may pass the examination in two parts, the first part consisting of two or three of the subjects (i), (ii), and (iii); the second part consisting of the remaining subjects.

Candidates who fail to satisfy the Examiners in the first part must either present themselves again in the subjects as selected, or in all the three subjects of the first part, or in all the six subjects of examination.

The names of candidates who have satisfied the examiners in the first part of the Final Examination are published in alphabetical order.

The names of candidates who have satisfied the Examiners in all the subjects of the Final Examination and are recommended for degrees shall be published as follows:

1. Those awarded First Class Honours.
2. Those awarded Second Class Honours.
3. Those who have satisfied the Examiners.

In each list the names are placed in alphabetical order.

DOCTOR OF MEDICINE.

At least a year from his Final Examination must elapse before an M.B., B.Ch. can present himself for the M.D. degree.

The candidate is required to present a dissertation, and, if the dissertation be accepted, to pass an examination. The dissertation, of which the subject must previously have received the approval of the Board of the Faculty of Medicine, must embody the results of personal observations or original research, either in some department of medicine, or of some science directly related to medicine, provided always that original work, published in scientific journals, or in the Proceedings of learned societies, or separately, shall be admissible in lieu of or in addition to a dissertation specially written for the degree. Candidates will be required to write a short extempore essay on some topic connected with medicine, and to answer questions on the history of medicine. They will also be examined orally on the dissertation or other work submitted. Any candidate may be exempted from a part or the whole of the examination if the Board of the Faculty so decide. No candidate will be admitted to the degree unless his application, after report from the Board of the Faculty of Medicine, shall have been accepted by the Senate.

The names of successful candidates are published in alphabetical order.

MASTER OF SURGERY.

Candidates for the Ch.M. degree must hold the M.B. and Ch.B., and have passed the examination for those degrees at least one year previously.

In addition, they must furnish evidence deemed satisfactory by the University that since taking the degree of Bachelor of Medicine and of Surgery they have held for not less than six months a surgical appointment in a public hospital or other public institution affording a full opportunity for the study of practical surgery. They must also give notice of their intention to present themselves for this examination to the Registrar before June 1st in writing and pay the fee. In addition, they must furnish certificates:

1. Of having attended a special course of instruction on Operative Surgery, approved by the University, and of having personally practised the principal surgical operations on the dead body.

2. Of having attended a systematic course of instruction including practical work approved by the University on Bacteriology.

3. Of having attended a course on Ophthalmology and of having received instruction in Ophthalmic Surgery approved by the University.

The subjects of examination are Surgical Anatomy and Surgery, Operative Surgery, Clinical Surgery, Ophthalmology, Pathology, and Bacteriology.

TIMES OF EXAMINATION.

1. The Matriculation Examination is held twice in each calendar year, in July and in September.
2. The First Examination in June and in September.
3. The Second Examination in March and in July.
4. The Final Examination (Part I) in March and July, (Part II) in July and December.

FEES.

1. The fee for the Matriculation Examination is £2; for each subsequent examination, £1.
2. The First Examination, £5; for each subsequent examination, £2.
3. For the Second Examination, £5; for each subsequent examination, £2.
4. For the Final Examination, £5; for each subsequent examination, £2.
5. For the examination for the Degree of Ch.M., £5; for any subsequent examination, £3.
6. A fee of £5 on application and £5 on the conferring of the Degree of M.D.
7. A fee of £5 on the conferring of the Degree of Ch.M.

The dates of the payment of fees will be as follows: For the Matriculation Examination in July the first day of June, and in September the first of that month; for the other Examinations held in March, July, September, or October, the first day of the month; for those in June the fourteenth day of May. Cheques and orders should be made payable to "The University of Leeds."

ENGLISH MEDICAL CORPORATIONS.

THERE are three medical corporations in England—the Royal College of Physicians of London, the Royal College of Surgeons of England, the Society of Apothecaries of London. The College of Physicians issues (*a*) a licence: (*b*) a diploma of membership, and from its Members selects (*c*) its Fellows without examination. The College of Surgeons issues a diploma (*a*) of Membership, (*b*) of Fellowship, both after examination. Except, however, in the case of persons who already hold a registrable qualification from some other body, and who have complied with certain requirements as regards passing further special examinations, neither body any longer issues its diplomas separately. In order to comply with the law affecting registration as it now stands, these two Royal Colleges have united to form the Conjoint Board of England, with its head quarters on Victoria Embankment, and this body holds a series of examinations at intervals. After passing these, the candidate is recom-

mended to each College in turn as being a fit person for its recognition, and in due course receives two diplomas, one as a Licentiate of the Royal College of Physicians (L.R.C.P.) and the other as a Member of the Royal College of Surgeons (M.R.C.S.).

The Society of Apothecaries grants its diploma separately, the letters used to indicate its possession being L.S.A. An agitation, so far fruitless, has been for a considerable time in progress with a view to altering the title of the diploma, because some of those who hold it consider that it does not sufficiently indicate that they are qualified to practise all three main branches of medical work—medicine, surgery, and midwifery.

CONJOINT EXAMINING BOARD IN ENGLAND.

A candidate who desires to obtain the Licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to pass three professional examinations, and to produce evidence of having passed through a stated course of instruction at a recognized medical school. The full period of five years must be spent in professional study after passing the required preliminary Examination, of which six months may be spent at an institution recognized by the Board for instruction in Chemistry and Physics. A list of such institutions will be supplied on application. The candidate must pass an examination in subjects of Preliminary Education at the hands of one of the bodies mentioned at page 465.

First Professional Examination.

The examination consists of four parts: (1) Chemistry, (2) Physics, (3) Elementary Biology, (4) Practical Pharmacy.

A candidate must pass in Parts I and II together, but he may take the remaining parts at different times, or he may present himself for the whole at one time, *or he may take Practical Pharmacy at any time during the curriculum.*

A candidate is required to produce evidence of having received instruction in each of the above-mentioned subjects. (Note.—In the case of students who commence their professional studies after June 1st, 1904, certificates must be produced of 180 hours' instruction and laboratory work in Chemistry, 120 hours' instruction and laboratory work in Physics, and 120 hours' instruction and laboratory work in Biology. These courses need not be completed within one year, nor need they run concurrently, and they may be commenced or attended before the candidate passes the required preliminary examination in general education.) A candidate referred in any part or parts will not be admitted to re-examination for three months. If referred in Chemistry and Physics or Biology he must produce evidence of further instruction. A candidate who produces evidence of having passed an examination for a degree in Medicine or any of the subjects in this examination at a university in the United Kingdom, India, or a British colony will be exempt from examination on the subjects in which he has passed. (Synopses of the subjects of the First Examination are issued by the Conjoint Board.)

Second Professional Examination.

The subjects of this examination are Anatomy and Physiology, and both must be passed at the same time. A candidate must have attended during two winter sessions and one summer session (or fifteen months during the ordinary sessions) at a recognized medical school lectures on Anatomy, Physiology, and a course of Practical Physiology and Histology, and have dissected for twelve months during the ordinary sessions. The study of Anatomy and Physiology before the dates of passing Parts I, II, and III of the first examination is not recognized. If rejected, a candidate, before being admitted to re-examination, must continue his studies at a recognized medical school for not less than three months.

Third or Final Professional Examination.

This examination consists of three parts: Part I, Medicine, including Medical Anatomy, Pathology, Practical Pharmacy,[1] Therapeutics, Forensic Medicine, and Public Health; Part II, Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances; Part III, Midwifery and Gynaecology.[2] The examination may be passed at one time or in each part separately. Evidence of attendance at courses of instruction in the subjects of the three parts must be produced, and also of attendance on twenty labours. The candidate must have passed the Second Examination two years previously, and have spent five years in professional study subsequent to passing the required Preliminary Examination. A rejected candidate must produce evidence of further instruction during three months.

All applications with reference to the examinations for the Licence of the Royal College of Physicians of London and for the diploma of Member of the Royal College of Surgeons of England should be addressed to the Secretary, Examination Hall, Victoria Embankment, London, W.C. (telegraphic address, "Conjoint," London), from whom also synopses of some of the subjects can be obtained.

Regulations for Colonial, Indian, or Foreign Candidates and University Candidates.

A person holding a Colonial, Indian, or foreign qualification which entitles him to practise in the country where such qualification has been obtained is, after a course of study and examination equivalent to those required by the Regulations of the two Royal Colleges, admissible to the Second and Third or Final Examinations, without any interval. Members of an English, Scotch, or Irish University are under certain conditions eligible for admission to the Third or Final Examination two years after passing at their University the subjects included in the First and Second Examinations of the Board.

A Doctor or Bachelor of Medicine or Surgery of an Indian, Colonial or foreign University recognized for the purpose, who shall have passed at his University in the subjects of the First and Second Examinations will be eligible for admission to the Third or Final Examination two years after passing in the said subjects.

Fees, Dates, etc.

First Examination, £10 10s. Re-examination, Parts I and II, £3 3s.; Parts III and IV, each £2 2s. *Second Examination*, £10 10s. Re-examination, £6 6s. *Third Examination*, £21. Re-examination, Part I, Medicine, £5 5s. Practical Pharmacy, £2 2s. Part II, Surgery, £5 5s. Part III, Midwifery and Diseases of Women, £3 3s. Members of an English, Scottish, or Irish University, £5 5s.; for the diplomas, £36 15s.

The examinations are held in January, April, July, and October. A book of questions set at the several examinations is published annually, and can be obtained from Messrs. Taylor and Francis, Red Lion Court, Fleet Street, London, E.C.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

Licentiates.—Candidates for the Licence are now subject to the regulations of the Conjoint Examining Board in England.

Members.—The Membership of the College is granted after examination to graduates in Medicine of recognized Universities, or to Licentiates of the College, being above the age of 25 years, who do not engage in trade, do not dispense medicine, and who do not practise in partnership. Under the provisions of the Medical Act of 1886 the diploma of Membership is not registrable at the present time as a primary qualification, and is therefore granted only to persons already registered, or who have passed the Final Examination for the Licence.

The examination, which is held in January, April, July, and October, is partly written and partly oral. It is directed to Pathology and the Practice of Physic, and is conducted by the President and Censors. Candidates under 40 are examined in Latin, and either Greek, French, or German. Candidates over 40 are not so examined, and the examination in Medicine may in their case be modified under conditions to be ascertained by application to the Registrar. The fee for the Membership is £42, but if the candidate is a Licentiate the fee is the difference between what he has already paid and £42. In either case £6 6s. is paid before examination.

[1] Candidates who have previously passed in Practical Pharmacy will not be re-examined in that subject at the Third Examination.

[2] Candidates may present themselves for examination in Midwifery and Diseases of Women at any time after the completion of the fourth year of professional study at a medical school, and not less than one year after the passing of the Second Examination, on production of the required certificates.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Membership.—Candidates who registered on or after October 1st, 1884, are now subject to the regulations of the Conjoint Board.

Fellowship.—The Fellowship of the College of Surgeons is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations—the first in Anatomy and Physiology, which may be passed after the third winter session; the second, chiefly directed to Surgery, which may be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of Graduates in Medicine and Surgery of not less than four years' standing, of universities recognized by the College for the purpose, who are required to attend for one year the Surgical Practice of a general hospital recognized by the College, after obtaining their degrees.

Fees.—At First Examination: £5 5s. At Second Examination: £12 12s. Diploma fee: Members, £3 3s.; non-Members, £13 13s. Further information can be obtained on application to the Secretary, Examination Hall, Victoria Embankment, London, W.C.

SOCIETY OF APOTHECARIES OF LONDON.

THE examinations are Primary and Final. The Primary Examination is held quarterly, on the first Wednesday, and on the Monday and Thursday in the same week, in the months of January, April, July, and October. The Final Examination is held monthly.

Primary Examination.—This examination consists of two parts: Part I includes (*a*) Elementary Biology; (*b*) Chemistry, Chemical Physics, Practical Chemistry; (*c*) Pharmacy. A synopsis indicating the range of the subjects in the examination will be sent with the regulations on application. This examination may be passed after registration as a medical student. No professional studies commenced before registration will be recognized as part of the medical course. Should the candidate not succeed in passing in all the subjects of the examination, he will be referred only in the subject or subjects in which he fails. Part II includes Anatomy, Physiology, and Histology. This examination cannot be passed before the completion of twelve months' Practical Anatomy, with demonstrations. These subjects cannot be taken separately except in the event of the candidate having previously passed in one. A schedule of the Primary Examination, to be obtained of the Secretary, must be signed by the Dean of the Medical School or other authority. Candidates will be excused any or all the subjects of the Primary Examination on producing evidence that they have passed equivalent examinations before an examining body recognized by the Society. Candidates referred in Anatomy will be required to produce evidence of further work in the dissecting room before being admitted to re-examination.

Final Examination (Sec. I).—This examination consists of three parts. Part I includes: The Principles and Practice of Surgery, Surgical Pathology, Operative Manipulation, Surgical Anatomy, Instruments and Appliances. Part II includes: (*a*) The Principles and Practice of Medicine (including Therapeutics, Pharmacology, and Prescriptions), Pathology, and Morbid Histology; (*b*) Forensic Medicine, Hygiene, Theory and Practice of Vaccination, and Mental Diseases. Part III: Midwifery, Gynaecology, and Diseases of Newborn Children, Obstetric Instruments and Appliances. Sec. I of the Final Examination cannot be passed before the expiration of 45 months after registration as a medical student, during which time not less than three winter sessions and two summer sessions must have been passed at one or more of the medical schools connected with a general hospital recognized by the Society.

Final Examination (Sec. II).—This examination consists of two parts. Part I, Clinical Surgery; Part II, Clinical Medicine and Medical Anatomy. This examination cannot be passed before the end of the fifth year.

Information as to the details of the course of study required may be obtained on application to the Secretary, Court of Examiners, Apothecaries' Hall, Blackfriars, E.C. The examination offices are open from 10 to 4, Saturdays 10 to 1.

Fee, £21.—Primary Examination, £5 5s.; Final Examination, £15 15s.

THE SCOTTISH UNIVERSITIES.

IT will be convenient to give the regulations for Edinburgh in detail, and then briefly to indicate points of difference as regards the other three Universities.

UNIVERSITY OF EDINBURGH.

The following regulations apply to all who began their studies after October 1st, 1892:

Four degrees in Medicine and Surgery are conferred—namely, Bachelor of Medicine, Bachelor of Surgery, Doctor of Medicine, and Master of Surgery. The degree of M.B. is not conferred separately from Ch.B., and vice versa, but M.D. and Ch.M. are separable.

PRELIMINARY EXAMINATION.

This must be passed before beginning medical study: the subjects are: (1) English;[1] (2) Latin, Translation and Parsing, Prose Composition, Grammar and Sentences; (3) Elementary Mathematics, Arithmetic,[2] Algebra, and Geometry, Euclid, Books i, ii, and iii (or their equivalents with easy deductions); (4) Greek (Translation, Sentences, and Grammar), or French, or German. [One paper will be set in French and one in German. The papers will be of a lower standard than those set in these subjects in the Arts and Science Preliminaries. The time allowed for such paper will be three hours. The papers will comprise questions in grammar, translations, a piece of English for translation, and some short sentences.]

Excellence in one or more subjects will in some measure compensate for deficiency in others. The examination is conducted by a joint Board of the four Universities, and will be held from September 28th to October 4th, 1906, and from March 29th to April 4th, 1907, and these dates apply to all the Scottish Universities. The standard of examination corresponds pretty nearly to the certificate of the Scotch Education Department, or the Lower Certificate of the Oxford and Cambridge Schools. Candidates are required to pass in all the necessary subjects at one or not more than two examinations. The examinations of a large number of bodies are taken as equivalents to the preliminary; these will be found on pages 529-531 *of the University Calendar* (Regulations of the Joint Board of Examiners). The fee is 10s. 6d. each time, and is to be sent with the schedule to Mr. James Dowie, the University Clerk, not later than September 21st, 1906,[3] and March 1st, 1907. The schedules can be had on and after September 7th, 1906, and February 15th, 1907.

REGISTRATION.

The student must register within fifteen days after the commencement of medical study. There is no fee. Forms and information may be had from Mr. James Robertson, 54, George Square, Edinburgh, or at the office of the Faculty of Medicine. Candidates for registration must produce evidence that they have attained 16 years of age.

PROFESSIONAL EDUCATION.

The course extends over five years. During the first four the student must attend Elementary Botany, Elementary Zoology, Physics, Practical Chemistry, Practical

[1] In English no set books are prescribed, nor is a general knowledge of the life and works of the greater authors expected of candidates, but one or two questions may be set, giving an opportunity to candidates to show a knowledge of famous literary works. The historical questions will not be confined to any period, but will cover the whole of British History, and will be set in such a way as to give an opportunity to candidates who have confined their studies to a single period to show their knowledge. A single three hours' paper will be set, containing an Essay, a Paraphrase, two questions on History, two on Geography, four on Grammar (including correction of sentences, parsing, analysis of sentences, and derivations), two of a literary and general kind. Eight answers will be required. The Essay, the Paraphrase, one answer on History, and one on Geography, will be compulsory.

[2] *Arithmetic* (including Vulgar and Decimal Fractions, Proportion, Percentage, Square Root, Simple Interest); *Algebra* (including Fractions, Factors, Square Root, Equations of the First Degree, Simultaneous Equations of the First Degree, Easy Quadratics, and problems leading to the above Equations).

[3] A student whose native language is not English may substitute his own language for either French or German, and may substitute any other classical language for Latin or Greek.

Physiology, Practical Pathology, and Medical Jurisprudence, during courses of not less than 2½ months each, a course of Public Health of 30 lectures; Practical Anatomy during two courses of not less than 5 months each; Chemistry, Anatomy, Physiology, Pathology, Surgery, Materia Medica and Therapeutics, Medicine, and Midwifery, and the Diseases of Women and Infants, during courses of not less than 5 months each. During the fifth or final year he must be engaged in clinical study for at least 9 months, and must attend a 9 months' course in Clinical Medicine and Clinical Surgery. In all, before graduation he must have attended, for at least three years, a hospital which accommodates not fewer than 80 patients, and possesses a distinct staff of physicians and surgeons, and he must have acted as clerk in the medical and dresser in the surgical wards of such a hospital. He must have had approved opportunities of studying at a hospital *Post-mortem* Examinations, Fevers, and Ophthalmology. He must have had a course of Operative Surgery. Every candidate must attend one of the three following courses: (1) A six weeks' course of clinical instruction in the Diseases of Children; (2) a course of instruction, of at least 18 meetings, in diseases of the Larynx, Ear, and Nose; (3) a course of clinical instruction in diseases of the skin, of not less than 20 meetings. He must have attended a course of 25 meetings on Practical Pharmacy, a course on Mental Diseases, been properly instructed in Vaccination by a certificated public vaccinator, have attended 12 cases of labour, or had 3 months' attendance at a lying in hospital, and have personally conducted 6 cases. Certificates for these various courses must attest regular attendance and due performance of the work of the class. The fees vary from 1 to 4 guineas for each class, and the total minimum cost in class, examination, and other fees for the M.B. and Ch.B. may be set down as £150. Two of the five years' course must be taken in the University of Edinburgh. For students beginning their course in winter there may be given the following minimum curriculum for the degrees of M.B. and Ch.B., with suggested order of study and examination:

First Winter Session: Chemistry, Practical Chemistry, Physics,[4] and Anatomy (Lectures), Examination in Chemistry, Practical Chemistry, and Physics. First Summer Session: Elementary Zoology and Elementary Botany, Examination in Elementary Botany and Elementary Zoology.

Second Winter Session: Practical Anatomy, Physiology, Practical Physiology, Surgery,[5] Hospital and Clinical Surgery after Christmas.[5] Second Summer Session: Practical Physiology, Practical Materia Medica, Practical Anatomy, Hospital and Clinical Surgery.

Third Winter Session: Materia Medica, Practical Anatomy, Anatomical Demonstrations, Examination in Anatomy, Physiology, and Materia Medica and Therapeutics (the last may be postponed to the end of the following summer). Third Summer Session: Practical Pathology, Clinical Medicine, Hospital, Examination in Materia Medica and Therapeutics (if not previously taken).

Fourth Winter Session: Pathology, Medicine, Midwifery, and Diseases of Women and Children, Clinical Medicine (with Clerkships), Hospital, *Post-mortems*, and Dispensary, Examination in Pathology. Fourth Summer Session: Forensic Medicine, Public Health, Ophthalmology, Infective Fevers, Diseases of Children, or Larynx, Ear, and Nose, or Skin, Hospital and Clinical Medicine, Dispensary, Mental Diseases.

Fifth Winter Session: Clinical Medicine, Hospital, Infective Fevers, Vaccination, Practical Midwifery.

Spring Vacation and Fifth Summer Session: Operative Surgery, Examination in Surgery and Clinical Surgery, Medicine and Clinical Medicine, and Midwifery, Forensic Medicine and Public Health.

PROFESSIONAL EXAMINATIONS.

These are four in number, and the first three may be taken in sections as indicated above.

First.—Botany, Zoology, Physics, Chemistry, taken any time after the full specified course in these subjects.

Second.—Anatomy, Physiology, Materia Medica, and Therapeutics, at the end of the third Winter.

Third.—Pathology.

Final.—Surgery, Clinical Surgery, Medicine, Clinical Medicine, and Midwifery, Forensic Medicine, and Public Health at the end of the fifth year.

Failure in one subject does not involve failure in the other subjects of that division. Candidates must be 21 years of age before admission to the degrees of M.B. and Ch.B.

[4] Three months' course.
[5] Or in Third Winter Session.

Examination Fees for M.B. and Ch.B.

	First Time.	Re-entry.
	£ s. d.	s. d.
Preliminary	0 10 6	10 6
First Professional	6 6 0	
Any two Subjects of Ditto ...	3 3 0	
Second Professional	6 6 0	£1 1s. each time for each subject
Anatomy and Physiology ...	4 4 0	
Materia Medica, etc.	2 2 0	
Third Professional	2 2 0	
Final	8 8 0	

N.B.—Surgery and Clinical Surgery count as two subjects, Medicine and Clinical Medicine as two subjects, and Forensic Medicine and Public Health as two subjects.

DEGREE OF M.D.

The candidate must be M.B. and Ch.B. of Edinburgh, must have been engaged for one year in the medical wards of a hospital, or at scientific work at a recognized research laboratory, or in the military or naval medical services, or for at least two years in general practice, and must be 24 years of age. He must write a thesis on a subject not exclusively surgical, and he will be examined in Medicine, and in some of its special departments. The fee is £10 10s., and the re-entry fee £5 5s.

DEGREE OF CH.M.

The candidate must be M.B. and Ch.B. of Edinburgh, have worked one year in the surgical wards of a hospital, or been engaged in scientific work, or in the military and naval medical services, or for at least two years in practice not confined to medicine. He must be 24, must submit a thesis on a subject not exclusively medical, will be examined on Surgical Anatomy, Operations on the Dead Body, Clinical Surgery, and some of its special departments. The fee is £10 10s.

For further details the student is referred to the *University Calendar* (published by Mr. Thin, South Bridge, Edinburgh, price 3s., post free 3s. 4d., or the *Medical Programme*, price 2d., also published by Mr. Thin, or to the Dean of the Faculty of Medicine, University of Edinburgh).

REGULATIONS FOR GRADUATION OF WOMEN.

When granting recognition to medical schools or teachers for the medical instruction of women, the University Court requires that the classes shall not be mixed classes, except on special cause shown.

The University Court has recognized the Medical College for Women, 20, Chambers Street, Edinburgh, as a medical school whose course of instruction qualifies for graduation in Medicine. Every candidate must produce evidence of having satisfied the conditions with respect to the preliminary examination and registration as medical students, and will be examined in all the subjects necessary for graduation by the Examiners of the University in which she takes her degree. All students not matriculated students of the University attending this school for purposes of graduation must, at the commencement of each year of such attendance, enter their names in a book to be kept in the University for that purpose, paying a fee of the same amount as the matriculation fee paid by students of the University, and having, in respect of such payment, a right to the use of the library of the University.

UNIVERSITY OF GLASGOW.

THE regulations are essentially the same as those given above for Edinburgh.

PRELIMINARY EXAMINATION.

The dates of the next two Examinations are the same as those given under Edinburgh. Fees, 10s. 6d. each time. Names to be given in and fees paid by September 10th, 1906, and March 8th, 1907, to the Assistant Clerk, Matriculation Office. The extent of the Examination will be found under Edinburgh.

REGISTRATION.

Printed form of application may be had from the Assistant Clerk at the Matriculation Office, and this must be transmitted to Mr. James Robertson, Scottish Branch Registrar, 54, George Square, Edinburgh.

PROFESSIONAL EDUCATION.

The minimum cost is about £148, and the course is the same as at Edinburgh.

FEES, ETC.

The total examination fees for M.B., Ch.B., are the same as for Edinburgh, but are differently distributed. The fee for the First and Second is £6 6s., and for the Third and Fourth £5 5s. each. In the event of a candidate being rejected in any of these he may be admitted once to re-examination without payment of further fee, but for a second and for each subsequent re-examination a fee of £2 2s. may be charged.

The regulations at length may be had post free on application to the Assistant Clerk, Matriculation Office, or will be found in the *Glasgow University Calendar* for 1906-7, published by James Maclehose and Sons, 61, St. Vincent Street, Glasgow, price 3s., post free 3s. 6d.

Queen Margaret College, which provides a course of instruction for women, is now an integral part of the University.

UNIVERSITY OF ABERDEEN.

THE regulations are essentially the same as for Edinburgh

PRELIMINARY EXAMINATION.

The next Preliminary Examination will be held on precisely the same dates as are given under Edinburgh, and the subjects are the same. Names must be intimated, and the fee (10s. 6d.) paid ten days previously, to the Secretary of the Medical Faculty, Marischal College.

PROFESSIONAL EDUCATION.

The candidate before admission to his Final Examination must produce certificates to the effect that he has attended for at least three years the medical and surgical practice of a general hospital; attended courses in clinical medicine and clinical surgery of not less than nine months each; attended courses in mental diseases and in practical pharmacy; and the out-practice of a hospital, or the practice of a dispensary; that he has acted for a period equal to a winter session both as a Clinical Clerk and Surgical Dresser; that he has attended no fewer than twenty-five necropsies and taken part in some; that he has attended for not less than three months a fever hospital of at least forty patients, and has had a three months' course on Disease in Children, and the same in Ophthalmology. The total usual cost for M.B. and Ch.B. is about £150.

The fees for Professional Examinations are: First, Second, and Third, each £5 5s.; Final, £7 7s.

Further information will be given by the Secretary of the Medical Faculty, or will be got in the *University Calendar* for 1906-7, published by the University Press, Limited, Aberdeen; price 3s. 6d., or post free 3s. 10d.

UNIVERSITY OF ST. ANDREWS.

United College, St. Andrews: University College, Dundee.

PRELIMINARY EXAMINATION.

THE dates of the next two examinations are September 28th to October 4th, 1906, and March 24th to 29th, 1907. Fees, 10s. 6d. each time. Examination schedules to be returned, filled up, and fees paid by September 15th, 1906, and March 13th, 1907, to the Secretary of the University.

REGISTRATION.

Printed forms may be obtained from the Secretary, and must be sent to the Scottish Branch Registrar.

PROFESSIONAL EDUCATION.

The United College, St. Andrews, offers classes in the subjects of the first two years of the medical curriculum: University College, Dundee, for the full period of five years.

BURSARIES AND SCHOLARSHIPS.

United College, St. Andrews.

A list of Bursaries and Scholarships open to competition during session 1906-7 may be obtained on application to the Secretary of the University.

The Bursaries are allocated in the order of merit, the most valuable ones being given to those students who obtain the highest marks in the Preliminary Medical Examination, and who are prepared to take two *anni medici* at the United College, St. Andrews.

University College, Dundee.

A list of Bursaries and Scholarships open to competition at this College during Session 1906-7 may be had by applying to the Secretary of the College.

FEES, ETC.

The total fees for M.B. and Ch.B. are the same as for Edinburgh (22 guineas). The fee for the First Division is £6 6s., and is payable in two instalments of £3 3s. The fee for the Second, Third, and Fourth Divisions of the Professional Examinations are respectively £6 6s., £4 4s., and £6 6s., and are payable in instalments at the rate of £2 2s. for each subject. A fee of 10s. 6d. is charged to all candidates who, having been previously registered, present themselves for re-examination in any one subject.

DEGREES OF M.D. AND CH.M.

The regulations and fees for these will be found under Edinburgh.

THE SCOTTISH COLLEGES.

THE three medical corporate Colleges in Scotland—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons in Glasgow—now co-operate to hold a series of examinations, after passing which the student is presented with the diplomas of all three Colleges. Each College grants its single qualification only to persons who already possess another and opposite qualification (see below).

CONJOINT EXAMINING BOARD IN SCOTLAND.

A CANDIDATE who passes this series of examinations is granted the diploma of each of the co-operating bodies, and is entitled to register the three diplomas under the Medical Acts, and to write after his name—L.R.C.P.Edin., L.R.C.S.Edin., and L.F.P.S.Glasg.—qualifications which are recognized by the army, navy, and other public services.

PRELIMINARY EXAMINATION.

The Educational Institute of Scotland conducts special preliminary examinations in Edinburgh and Glasgow for the Colleges. The next examination will be held on September 6th, 7th, and 8th, 1906, and names must be in and fees paid by September 2nd. Full particulars may be obtained from S. M. Murray, Esq., 40, Princes Street, Edinburgh, Secretary of the Institute. The entire examination must be passed at one period. A cheque on a private account will not be received in payment of fees. The Preliminary Examination may be passed before any of the Boards recognized by the General Medical Council. A list is given on pp. 53 to 56 of the *Calendar* of the School of Medicine of the Royal Colleges, or in the printed Fasciculus of Regulations.

PROFESSIONAL CURRICULUM.

The course of study after registration as a medical student must occupy not less than five years and comprise five winter and five summer sessions; but graduates in Arts or Science of any recognized University who shall have spent a year in the study of Physics, Chemistry, and Biology, and have passed an examination in these subjects for the degrees in question, shall be held to have completed the first of the five years of medical study. Professional studies commenced before registration will not be recognized, except in the case of Physics, Elementary Biology, Chemistry, and Practical Chemistry. The fifth year must be devoted to practical clinical work, and six months of this year may be spent as a pupil of a registered practitioner.

The following order of study is recommended as conforming generally to the sequence of examinations, but is not imperative:

First Summer: Physics, Elementary Biology. First Winter: Chemistry, Practical Chemistry, Junior Anatomy, Dissections. Second Summer: Histology, Dissections. Second Winter: Anatomy, Dissections, Physiology. Third Summer: Pathology, Materia Medica, and Hospital Practice. Third Winter: Surgery, Hospital Practice, with Clinical Surgery. Fourth Summer: Midwifery and Gynaecology, Medical Jurisprudence

and Public Health, Hospital Practice, with Clinical Surgery. Fourth Winter: Medicine, Hospital Practice, with Clinical Medicine. Fifth Summer: Hospital Practice, with Clinical Medicine, Insanity, Practical Midwifery, Eye Diseases. Fifth Winter: Hospital Practice, Dispensary, Fevers, Vaccination.

Students are also recommended to study in the fifth year the following subjects: Operative Surgery, Diseases of Children, Ear and Throat, Skin.

Professional Examination.

During the five years of the professional curriculum the student has to pass four examinations. Each examination is held six times in each year, four times in Edinburgh and twice at Glasgow, and a candidate may present himself at either place. An interval of not less than three months must elapse between the passing of any two successive examinations. Candidates may enter for all the subjects of an examination at one period, or may enter for any division of subjects. If the latter, a higher percentage is exacted. Schedules showing the course of study followed must be submitted before the examinations to one or other of the Inspectors of Certificates: In Edinburgh, Mr. James Robertson, solicitor, 54, George Square; in Glasgow, Mr. Alexander Duncan, B.A., LL.D., Faculty Hall, 242, St. Vincent Street, to whom all inquiries as to professional examinations should be addressed.

First Examination.—This examination may be passed at any time after registration as a medical student by any candidate who has attended the obligatory courses. The examination consists of three parts: (1) Physics, (2) Chemistry, (3) Elementary Biology, and each division may be taken separately.

Second Examination.—This examination may be passed at any time after the end of the second year by a student who has attended courses of Anatomy, Physiology, and Dissection for six months each. The subjects of the examination are: (1) Anatomy and (2) Physiology, including Histology. A candidate may pass in one subject while failing in the other.

Third Examination.—The student must have attended a course of Pathology and of Materia Medica before presenting himself for this examination, the subjects of which are (1) Pathology, (2) Materia Medica and Pharmacy, which must be entered for together.

Final Examination.—The student must be 21, and may not pass this examination till the end of the fifth year. The subjects are: (1) Medicine, including Therapeutics, Medical Anatomy, and Clinical Medicine; (2) Surgery, including Surgical Anatomy, Clinical Surgery, and Diseases and Injuries of the Eye; (3) Midwifery and Diseases of Women and of Newborn Children; (4) Medical Jurisprudence and Hygiene. Candidates may also be examined on Diseases of Children, Diseases of the Ear and Throat, Insanity, Vaccination, etc. The examination may be taken in divisions at different times or all at once. Candidates may obtain exemption from one or more subjects though failing in the others.

Table Showing the Fees for the Conjoint Examinations in Scotland.

The Figures signify Pounds Sterling.

	Whole Examination.	Re-entry for all Divisions.	Re-entry in one or two Divisions.	Entry for one Division.	Re-entry for one Division.
Preliminary	1	½	—	—	—
Professional First ...	5	3	2½	2½	2
,, Second...	5	3	2	—	—
,, Third ...	5	3	2	—	—
,, Final ...	15	5	—	—	—

The total minimum cost for Lectures and Examination Fees for the Conjoint Examinations is about £152.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

Licence.—The Licence is only granted as a separate qualification (in Medicine) to persons (of either sex) who already possess a qualification in Surgery recognized by the College for the purposes of the examination. A candidate, who must not have been rejected within three months by any Licensing Board, is subjected to written and oral examination in Medicine, Clinical Medicine, Materia Medica, Midwifery, Medical Jurisprudence, and Public Health. The fee for the examination is £15 15s.; t is held on the first Wednesday and succeeding days of each month except September and October. A special examination can be obtained on showing cause and paying £5 5s. extra. Eight days' notice must be given by all candidates to the Secretary of the College, from whom further particulars can be obtained.

Membership.—The candidate, who must be a Licentiate of a College of Physicians, or Graduate of a British or Irish University, and 24 years of age, is examined in (1) Medicine and Therapeutics, and in (2) one of the following subjects chosen by him: (*a*) One or more departments of Medicine specially professed; (*b*) Psychological Medicine; (*c*) General Pathology and Morbid Anatomy; (*d*) Medical Jurisprudence; (*e*) Public Health; (*f*) Midwifery; (*g*) Diseases of Women; (*h*) Diseases of Children; (*i*) Tropical Medicine. Further particulars as to other formalities can be obtained from the Secretary. A candidate 40 years of age and ten years in practice *may be excused* any part of or all the examination by the Council. The fee paid by a Licentiate of the College is £21. Fee for others, £36 15s. The examination is held quarterly (October, January, April, and July), and application must be made a month previous to the date of examination.

Fellow.—A member, aged 25, and of at least three years' standing, may be elected a Fellow; he pays £64 18s. (including stamp duty). Women are not yet admitted to the Membership or Fellowship. Under certain exceptional circumstances a practitioner of standing has been and may be elected to the Fellowship of the College without examination.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

Licence.—The Licence is only granted as a separate qualification (in Surgery) to persons (of either sex) who already possess a recognized British, Irish, Colonial, or Indian qualification in Medicine. A candidate, who must not have been rejected by any other Licensing Board in Surgery within three months, is examined on one day by written papers, and on a subsequent day orally, on specimens in the wards of a surgical hospital, and may be required to operate on the dead body. The fee is £15 15s., of which £10 10s. will be returned to unsuccessful candidates, and is payable to Mr. James Robertson, Clerk to the College, 54, George Square, Edinburgh, from whom further particulars may be obtained, and to whom eight days' notice must be given. A special examination can be obtained on showing cause. The fee is £20, of which £10 will be returned to candidates remitted on examination.

Fellowship.—A candidate must have the diploma of the Royal College of Surgeons of Edinburgh, England or Ireland, or of the Faculty of Physicians and Surgeons in Glasgow, or the Surgical degree of one of the universities of Great Britain and Ireland, the Licence in Medicine, Surgery, and Midwifery of the Society of Apothecaries of London and the Apothecaries' Hall, Dublin, registered under the Medical Act, 1886; the Surgical degrees of the following Universities: Sydney, Melbourne, Adelaide, New Zealand, Calcutta, Bombay, Madras, Punjab, Canada; must be 25 years of age, and must have been engaged in practice for two subsequent years at least. All Candidates are examined in Surgery, Surgical Anatomy, including Clinical and Operative Surgery, and one optional subject. The optional subjects recognized by the College are (1) Ophthalmic Surgery, (2) Aural, Nasal, and Laryngeal Surgery, (3) Dental Surgery, (4) Midwifery, (5) Gynaecology, (6) Surgical Pathology and Operative Surgery, (7) Advanced Anatomy, (8) Advanced Physiology, (9) Pathology and Bacteriology, (10) Medical Jurisprudence, (11) Public Health. The examinations are written, oral, and practical. Three weeks' notice must be given to Mr. James Robertson as above, from whom full particulars may be obtained. A petition signed by two Fellows of the College, one of whom must reside in Edinburgh, must be presented. Failing this, an application to the President's Council, with testimonials, to be allowed to appear for examination, must be made. The fee is £30 to those who hold the diploma of Licentiate of the College, and £45 to others (no stamp duty is payable on the diploma). Registered practitioners, aged not less than 40, and who have been in practice for not less than twenty years, and who have specially distinguished themselves in their profession, may under certain circumstances be elected without examination. Women are not admitted to the Fellowship.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

Licence.—The Licence is only granted as a separate qualification to candidates who already possess a recognized British, Irish, Colonial, or Indian qualification in Medicine. Candidates are examined in Surgery (including Clinical Surgery) and Surgical Anatomy. The fee is £15 15s. The examination is held quarterly. Further particulars can be obtained on application to Alexander Duncan, B.A., LL.D., Faculty Hall, St. Vincent Street, Glasgow.

Fellowship.—Every candidate must be qualified for two years, and aged 24. The ordinary mode of admission to the Fellowship is by examination and subsequent election. The subjects of examination are either (*a*) Medicine (including Clinical Medicine, Medical Pathology, and Therapeutics); or (*b*) Surgery (including Clinical Surgery, Operative Surgery, Surgical Anatomy, and Surgical Pathology); and one of the following at the option of the candidate: (1) Anatomy, (2) Physiology, (3) Pathology, (4) Bacteriology, (5) Midwifery, (6) Diseases of Women, (7) Medical Jurisprudence, Surgery, in one of its following branches, (8) Ophthalmic Surgery, (9) Aural, Laryngeal, and Nasal Surgery, (10) Dental Surgery; Medicine, in one of its following branches, (11) State Medicine, (12) Psychological Medicine, (13) Dermatology. Four examinations are held annually (January, April, July, October). Fourteen days' notice must be given. The fee is £30 unless the candidate desires to qualify to hold office, when it is £50. In the case of a Licentiate of the Faculty, £25 and £15 respectively.

Four Fellows may be elected in each year "in virtue of distinction," and without examination. They must not be less than 40 years of age, and ten years qualified.

THE IRISH UNIVERSITIES.

UNIVERSITY OF DUBLIN.

THE University of Dublin grants two degrees in Medicine (M.B. and M.D.), two in Surgery (B.Ch. and M.Ch.), two in Midwifery (B.A.O. and M.A.O.). A candidate for any one of these degrees must be a graduate in Arts and have passed the Previous Medical Examination.

The following schools, in addition to the School of Physic, are recognized by the Board of Trinity College—the Schools of the Royal College of Surgeons in Ireland, the Schools of the Catholic University.

DEGREE IN MEDICINE.

The following conditions must be fulfilled in order to qualify for the degrees in Midwifery (B.A.O.), Surgery (B.Ch.), and Medicine (M.B.): The student must be of B.A. standing, and his name must be for at least five (academic) years on the books of the Medical School, reckoned from the date of his matriculation. He may carry on his Arts course concurrently with his Medical course, and he need not have taken his B.A. before presenting himself for his Final Medical Examinations, but he cannot have the Medical degrees conferred without the Arts degree. The following courses must be attended:—Lectures: Winter Courses: Systematic Anatomy, Descriptive Anatomy, first year; Descriptive Anatomy (with Dissections), second year; Applied Anatomy (with Dissections), Chemistry, Surgery, Physiology (two courses), Practical Physiology, Practice of Medicine, Midwifery, Pathology. Summer Courses: Practical Chemistry, Practical Histology, Botany (Lectures and Practical), Zoology (Lectures and Practical), Materia Medica and Therapeutics, Medical Jurisprudence, and Hygiene, Operative Surgery, Practical Pathology. Term Courses: Physics (Michaelmas, Hilary, and Trinity Terms). The student must attend three courses of nine months' attendance each on the Clinical Lectures of Sir Patrick Dun's or other metropolitan hospitals recognized by the Board of Trinity College. One year at a recognized London or Edinburgh Hospital or two years at a recognized county infirmary or recognized Colonial hospital previous to the commencement of their metropolitan medical studies may be allowed, on special application to the Board of Trinity College, to count as equivalent to one year spent in a recognized metropolitan hospital. The following examinations must be passed: The Preliminary Scientific, including (*a*) Chemistry and Physics, (*b*) Botany and Zoology, which may be passed together or at different times; the Intermediate Medical, Part I, including Anatomy, Physiology, and Histology, all to be passed at one time; the Intermediate Medical, Part II, including Applied Anatomy (Medical, Surgical, and Obstetrical) and Applied Physiology, both subjects to be passed at the same time; and the Final Examination. The Final Examination is arranged as follows: First Part—Medical Jurisprudence and Hygiene, Pathology, Materia Medica and Therapeutics; examination for both Sections are held in October and June; liceat fee £5. Second Part—Midwifery, Gynaecology, Medicine—Clinical Medicine, Medicine, Mental Disease (oral): Surgery—Clinical Surgery, Operations, Clinical Ophthalmology, Surgery. One Section of the Second Part must be passed in Trinity Term of the fifth year or subsequently; the other two in any part of the fifth year if the corresponding curriculum be completed. Subject to this provision the Sections of the Second Part may be taken in any order. Liceat fee £5, to be paid when entering for whichever the candidate takes first.

Degree of M.D.—The candidate must have passed all the qualifying Examinations in Medicine, Surgery, and Midwifery, and have taken, or have been qualified to take, the degree of B.A. three years previously. He must read a thesis before the Regius Professor of Physic.

Degree of M.Ch.—The candidate must be a B.Ch. of not less than three years' standing, and have been engaged in practice for two years. Graduates of ten years' standing may be given a special examination.

Degree of M.A.O.—The candidate must have passed the qualifying examination in Medicine, Surgery, and Midwifery. The examination is specially directed to Obstetrics and Practical Gynaecology.

UNIVERSITY DIPLOMAS.

The University grants diplomas in Medicine, in Surgery, and in Obstetric Medicine. A candidate must have completed two years in Arts and five years in medical studies.

Diploma in Medicine.—The medical course and examination are the same as for the degree of M.B., excepting that attendance is not required on lectures on Botany and Zoology, and that the candidate is not examined in those subjects.[1]

Diplomas in Surgery and in Obstetric Science.—The examination and courses necessary for these diplomas are the same as for the degrees of B.Ch. and B.A.O. respectively.

FEES.

Matriculation, 5s.; M.B., B.Ch., B.A.O., £17; M.D., £13; M.Ch., £11; M.A.O., £5; L.M., L.Ch., L.A.O., £11.

A schedule containing the Regulations of the curriculum can be obtained on application to the Registrar of the School of Physic in the University of Dublin.

ROYAL UNIVERSITY OF IRELAND.

THE University confers the following: Medicine—Bachelor of Medicine, M.B.; Doctor of Medicine, M.D. Surgery—Bachelor of Surgery, B.Ch.; Master of Surgery, M.Ch. Obstetrics—Bachelor of Obstetrics, B.A.O.; Master of Obstetrics, M.A.O. Public Health—A Special Diploma. Mental Diseases—A Special Diploma.

The course for these degrees must be of at least five medical years' duration; but graduates in Arts or Science who have spent a year in the study of Physics, Chemistry, and Biology, and have passed an examination in these subjects for the degrees in question, will be held to have completed the first of the five years of medical study.

Students who commenced their medical studies after January 1st, 1892, must furnish evidence of having been registered by the General Medical Council, as Students in Medicine, for at least 57 months, before being admitted to the M.B., B.Ch., B.A.O. Degrees Examination. No one can be admitted to a degree in Medicine who is not 21 years of age. All candidates for these degrees, in addition to attending the lectures and complying with the other conditions to be from time to time prescribed,

[1] A diplomate in Medicine on completing his course in Arts, and proceeding to the degree of B.A., may become a Bachelor of Medicine by attending the lectures on Botany and Zoology, passing the Previous Medical Examination in those subjects, and paying the degree fees.

must pass the following examinations: The Matriculation Examination (information as to which may be obtained from the *University Calendar*. Dublin: Alex. Thom and Co. London: Longmans, Green, and Co. Price 2s. 6d.; by post, 3s. Extracts can be obtained: Arts, etc., 4d.; Medicine, 2d.), the First University Examination, the First Examination in Medicine, the Second Examination in Medicine, the Third Examination in Medicine, the M.B., B.Ch., B.A.O. Degrees Examination.

The course of medical studies is divided into five periods of one medical year each, during which periods the students must attend such courses of lectures and hospital instruction respectively, and comply with such other conditions as the Senate shall from time to time order.

When a student has fully completed the course of medical studies prescribed for any year, he may proceed with the studies assigned to the year next following without passing the corresponding examination.

There must be an interval of at least one medical year between the passing of one examination and the being admitted to the examination next subsequent. But the Senate may, under special circumstances, allow a candidate to present himself for his following examination within a less interval.

The Senate may allow any candidate who so desires to present himself for the Third Examination in Medicine, and for the M.B., B.Ch., B.A.O. Degrees Examination at the same examination period, provided that an interval of three medical years shall have elapsed from the time of passing the Second Examination in Medicine, and provided that such candidate shall have completed the entire course of studies, etc., prescribed for the five years of the medical curriculum.

First Examination in Medicine.—Candidates may present themselves for this examination after an interval of one academical year from the time of passing the Matriculation Examination, provided they have already passed the First University Examination and completed the First Year of the Medical Curriculum. Candidates at this Examination must answer in the following subjects: Natural Philosophy; Systematic Chemistry; Botany: Zoology. The Examination in each subject consists of three parts: (*a*) A Written Examination; (*b*) an Oral Examination; (*c*) a Practical Examination, except in Chemistry, in which the Practical Examination forms part of the Second Examination in Medicine. Special importance is attached to the practical part of the Examination. The subjects are: Natural Philosophy; Chemistry; Organic Chemistry; and Botany and Zoology. Schedules are given in the *Calendar*.

Second Examination in Medicine.—Candidates may present themselves for this examination after an interval of one academical year from the time of passing the First Examination in Medicine, provided they have completed the Second Year of the medical curriculum. The subjects are: Anatomy, Physiology, Practical Chemistry. Schedules may be found in the *Calendar*.

Third Examination in Medicine.—Candidates may present themselves for this examination after an interval of one academical year from the time of passing the Second Examination in Medicine, provided they have completed the third year of the medical curriculum. The subjects are: Anatomy, Physiology, Materia Medica, Pharmacology, and Therapeutics.

M.B., B.Ch., B.A.O. Degrees Examination.—Candidates may present themselves for this examination after an interval of such period, not being less than one academical year from the time of passing the Third Examination in Medicine, as the Senate may from time to time prescribe, provided they have completed the entire medical curriculum. This examination consists of three parts: (*a*) Medicine, Theoretical and Clinical, including Therapeutics, Mental Diseases, Medical Jurisprudence, Sanitary Science, and Medical Pathology; (*b*) Surgery, Theoretical, Clinical and Operative, including the use of instruments and appliances: Surgical Anatomy, Ophthalmology, and Otology (candidates at this examination must exhibit reasonable proficiency in the use of the Ophthalmoscope and Laryngoscope), Surgical Pathology; (*c*) Midwifery and Diseases of Women and Children. All candidates must enter for and go through the entire examination, but a candidate may be adjudged to have passed in any of the foregoing parts in which he satisfies the examiners. Upon completing satisfactorily his examination in all three divisions, the candidate, in addition to the parchment diploma recording his admission to the M.B., B.Ch., B.A.O. Degrees, will receive a certificate of having passed a qualifying examination in the subjects of Medicine, Surgery, and Midwifery.

Honours.—Special examinations for honours are held in connexion with these examinations.

M.D. Degree.—Candidates may present themselves for the examination for this degree after an interval of three academical years from the time of obtaining the M.B., B.Ch., B.A.O. Degrees; but in the case of candidates who have obtained a degree of the University in the Faculty of Arts an interval of two academical years shall be sufficient. Candidates at this examination must answer in the following subjects: (1) Medicine; (2) Pathology. The examination in each subject consists of: (*a*) A Written Examination; (*b*) an Oral Examination. In addition every candidate must diagnose at the bedside at least three medical cases and prescribe treatment. He must also write detailed reports on at least two cases to be selected by the examiners, and discuss the questions arising thereon.

M.Ch. Degree.—Candidates may present themselves for the examination for this degree after an interval of three academical years from the time of obtaining the M.B., B.Ch., B.A.O. Degrees; but in the case of candidates who shall have obtained a degree of the University in the Faculty of Arts an interval of two academic years shall be sufficient. Candidates at this examination must answer in the following subjects: (1) Surgery, Theoretical and Practical, including Ophthalmology and Otology; (2) Surgical Pathology; (3) Surgical Anatomy and Operative Surgery, with the use of surgical instruments and appliances. As far as practicable there will be a Written and Oral Examination in these branches, and in addition every candidate will be required to diagnose at the bedside at least three surgical cases, and prescribe treatment. He must also write detailed reports on at least two cases, to be selected by the examiners, and discuss the questions arising thereon.

M.A.O. Degree.—Candidates may present themselves for the examination for this degree after an interval of three academical years from the time of obtaining the M.B., B.Ch., B.A.O. Degrees; but in the case of candidates who shall have obtained a degree of the University in the Faculty of Arts, an interval of two academic years shall be sufficient. Each candidate must furnish satisfactory evidence that since graduating in Medicine he has (1) had personal charge of at least twenty cases of labour, and (2) attended during a period of three months the practice of a Clinical Hospital for Diseases of Women, where at least six beds are in constant occupation, or in a special ward of a General Hospital where such cases only are treated, and containing at least six beds in constant occupation. Candidates at the examination must answer in the following subjects: (1) Midwifery; (2) Diseases of Women and Children; (3) Pathology; (4) the Use of Instruments and Appliances. The examination in each subject consists of (*a*) an Oral Examination, with practical illustrations, including use of instruments and appliances; (*b*) a Written Examination; (*c*) a Clinical Examination, as far as practicable.

Exhibitions and Scholarships.—The following Exhibitions may be awarded annually by the Senate: At the First Examination in Medicine, two First-class of £20 each and two Second-class of £10 each. At the Second Examination in Medicine, two First-class of £25 each and two Second-class of £15 each. At the Third Examination in Medicine, two First-class of £30 each and two Second-class of £20 each. An Examination for a Travelling Scholarship in the Faculty of Medicine, value £100, is held in October. The subjects are, in rotation, (1) Anatomy and Histology, and (2) Physiology and Pathology. Candidates who have obtained the M.B., B.Ch., B.A.O. Degrees, either in the year of the Scholarship Examination or in the year immediately preceding, are alone eligible. Dr. Henry Hutchinson Stewart Medical Scholarships are awarded as follows: (1) One Scholarship of the annual value of £10, tenable for three years, for competition in the subjects of the Second Examination in Medicine. (2) One Scholarship is of the annual value of £50, tenable for three years, for competition among medical graduates of not

more than three years' standing, for proficiency in the knowledge of Mental Diseases. In October, 1906, there will be offered for competition among the graduates in Medicine of the University one Medical Studentship, tenable for two consecutive years, of the annual value of £200.

Fees.—The fees for the various examinations are as follows: Matriculation, £1; First Examination in Medicine, £1; Second Examination, £1; Third Examination, £1; M.B., B.Ch., and B.A.O. degrees, £2, and on being admitted to degree, £10: M.D. degree, £5; M.Ch. degree, £5: and M.A.O. degree, £5.

THE IRISH COLLEGES.

CONJOINT EXAMINING BOARD IN IRELAND.

The diplomas of the two Irish Colleges are now granted upon terms and after examinations settled between the Colleges.

Preliminary Examination.—Examinations in general education, which fulfil the requirements of the General Medical Council, are accepted by the Colleges (see p. 465). The Preliminary Examination of the Colleges themselves is held in spring and autumn, and seven clear days' notice must be given to Alfred Miller, Secretary of the Committee of Management, Royal College of Physicians, 6, Kildare Street, Dublin. Preliminary Examinations for the commencement of medical study of the Royal Colleges of Physicians and Surgeons for 1906 will be held on Wednesday, September 26th, and following days, and Wednesday, October 31st, and following days. Prospectus can be had on application.

Professional Examinations.

There are four Professional Examinations:

The *First Professional Examination* may be passed not earlier than the end of the first winter session. It consists of two Parts: I, Chemistry and Physics; II, Biology.

The *Second Professional Examination* consists of two Parts: I, Anatomy; II, Physiology and Histology.

The *Third Professional Examination* may be passed not sooner than the end of the third year of medical study. It consists of three Parts: I, Pathology; II, Materia Medica, Pharmacy, and Therapeutics; III, Public Health and Forensic Medicine.

Candidates are recommended to present themselves at the same time in all the subjects of each of the above examinations, but may present themselves in one or more of the specified divisions separately, provided they have completed the curriculum as far as concerns the subject or subjects in which they present themselves.

The *Final Professional Examination* may be passed not sooner than the end of the fifth year of medical study. A candidate may present himself in all the subjects at one time, or in one or more in the following groups: (*a*) Medicine, including Fevers, Mental Diseases, and Diseases of Children; (*b*) Surgery, including Ophthalmic and Operative Surgery; (*c*) Midwifery, including Diseases of Women and Newborn Children, and the Theory and Practice of Vaccination. A student at or after the end of his fourth year may present himself in any one of the Divisions I, II, or III, provided he has completed his curriculum as far as concerns the group in which he presents himself. But one of these groups must be deferred till the end of his fifth year.

Four complete years of Medical Study must be attended at a recognized Medical School after passing the First Professional Examination and before completing the Final Examination.

Curriculum.

The curriculum, as above stated, extends over five years, and its general arrangement can be gathered from the subjects of the examination, which are arranged to test the student's progress. Full details may be obtained on application to the Secretary as above.

Fees.

Preliminary Examination, £2 2s., except in the case of matriculated pupils of the Royal College of Surgeons, who pay £1 1s.; re-examination, £1 1s. First Professional Examination, £15 15s.; Second, £10 10s.; Third, £9 9s.; Final, £6 6s.; Re-examination fee is £2 2s. for each Division.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

This College continues to issue its Licence in Medicine and the Licence in Midwifery to registered medical practitioners whose names appear on the *Medical Register* of the United Kingdom.

Licence in Medicine.—The subjects of examination are: Practice of Medicine, Clinical Medicine, Pathology, Medical Jurisprudence, Midwifery, Hygiene, and Therapeutics.

Licence in Midwifery.—The subjects of examination are Midwifery and Gynaecology. Registered medical practitioners of five years' standing are exempted from the examination by printed questions.

Fees.—Fee for the Licence to practise Medicine, £15 15s. Fee for examination for the Licences in Medicine and Midwifery, if obtained within the interval of a month, £16 16s.—to be lodged in one sum.[1] Fee for special examination for the Licence to practise Medicine, £21. Fee for examination for the Licence to practise Midwifery, £5 5s. Fee for special examination for the Licence to practise Midwifery, £10 10s. The admission fee, less the sum paid to the examiners, will be returned to rejected candidates. The examination for these licences are held in the week following the first Friday in February, May, and November. Notice must be given, and the schedule transmitted at least four days before the first Friday in each of the above months to the Registrar of the Royal College of Physicians of Ireland, Kildare Street, Dublin, from whom further information can be obtained. A special examination can be obtained under conditions which can be ascertained from the Registrar.

Membership.—The examinations for the Membership are held in January, April, July, and October, and are now open to University Graduates in Medicine and Licentiates in Medicine of the Royal Colleges of Physicians.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Licence.—Candidates who hold registrable surgical diplomas, including the Licence of the Apothecaries' Society of London, granted since October, 1886, are admitted to examination without further evidence of study, but candidates who hold medical qualifications only, including the L.S.A. granted before October, 1886, will be required to produce certificates of two courses of lectures in Anatomy and Dissections, one course of Practical Physiology, one course of lectures in Surgery, and one course of Operative Surgery.

Subjects.—Candidates are examined in Surgery, Clinical Surgery, Operative Surgery, Surgical Appliances, and Ophthalmic Surgery. The examination is partly written, partly viva voce, and partly practical. The fee is £26 5s., of which £5 5s. is retained by the College if the candidate be unsuccessful. The fee for a special examination is £31 10s.

Diploma in Midwifery.—A diploma in midwifery is granted after examination to persons possessing a registrable qualification. Candidates must produce evidence of (*a*) attendance on a course of lectures on Midwifery and Diseases of Women and Children in a recognized school; (*b*) attendance on six months' practice of a recognized lying-in hospital or recognized dispensary for lying-in women and children, and (*c*) of having conducted at least thirty labour cases. The fee for the examination is £15 15s., of which £5 5s. is retained by the College if the candidate is unsuccessful.

Fellowship.

A candidate for the Fellowship must make application to the President and Council to be admitted to examination, and, if the Council decide to entertain the application, it must lie on the table for at least a fortnight for consideration before it is put to the Council for approval. All the required evidences of study or qualification, fees, and testimonials as to character must be submitted previously to its being so considered, and the candidate will then, if approved by the Council, be admitted to the next Sessional Examination or to a Special Examination if

[1] Any candidate who has been rejected at the examination for the Licence in Medicine loses this privilege, and will be required to pay the full fee of £21 5s. for the Licence in Midwifery.

granted by Council, at such date as the President may fix. In order that these regulations may be carried out, candidates are required to enter their names with the Registrar at least one month before the date of examination.

Periods of Examination.—Sessional Fellowship Examinations commence, as far as arrangements permit, on the third Monday in February, May, and November. Special Examinations may be granted at other times except during the months of August and September, when the College is closed for the Summer Recess, by the Council if it sees fit, on sufficient cause being shown.

Grades of Examination.—Candidates for the Final Fellowship Examination are divided into two grades: (1) Licentiates or graduates in Surgery of less than ten years' standing. (2) Licentiates or graduates in Surgery of more than ten years' standing. Students not either Licentiates or graduates in Surgery are permitted to present themselves for the Primary Examination under Grade 1 at the end of their third winter course of dissections.

Grade 1.—Candidates are required to pass two Examinations—Primary and Final. But candidates may present themselves for the Final Examination immediately after passing the Primary part, provided they have complied with the necessary regulations. The subjects for the Primary Examination are: (*a*) Anatomy, including Dissections; (*b*) Physiology and Histology; those for the Final are: (*a*) Surgery, including Clinical and Operative Surgery; (*b*) Surgical Pathology.

Grade 2.—The subjects of examination are: (*a*) Surgical Anatomy; (*b*) Surgery, including Clinical and Operative Surgery; (*c*) Surgical Pathology.

Fees.—Grade 1: For Licentiates of the College—for Primary Examination, 15 guineas; for Final Examination, 10 guineas. For Licentiates in Surgery of other licensing bodies—for Primary Examination, 25 guineas; for Final Examination, 15 guineas; for Students of the College, Primary Examination, 5 guineas; Final Examination, 20 guineas; for Students of other licensing bodies, Primary Examination, 10 guineas; Final Examination, 30 guineas. *Grade 2:* Licentiates of the College, 25 guineas; Licentiates in Surgery of other licensing bodies, 40 guineas. Extra fee for Special Examination, 10 guineas. In case of rejection, 10 guineas in addition to the special fee, if such has been paid, is retained by the College, and is not allowed in the fees for re-examination. In the case of Fellowship candidates who fail to present themselves for the examination at the time fixed, without having previously given at least a week's notice of their withdrawal, 5 guineas of the fee is retained by the College.

Regulations and entrance forms can be obtained from the Registrar at the College, Stephen's Green West, Dublin.

APOTHECARIES' HALL OF IRELAND.

The Licence of this Hall is granted to students who present certificates of having fully completed the course of study as laid down in the curriculum, and who pass the necessary examinations. The diploma of the Apothecaries' Hall of Ireland entitles the holder to be registered as a practitioner in Medicine, Surgery, and Midwifery; with also the privileges of the Apothecary's Licence.

There are four professional examinations, the total fees for which amount to 21 guineas. Ladies are eligible for the diploma.

Registered medical practitioners will receive the diploma of the Hall upon passing an examination in the subject or subjects not covered by their previous qualifications, and on paying a fee of 10 guineas; if Medicine or Surgery be required 5 guineas extra will be charged.

The fees payable for each examination are as follows: First Professional, £5 5s.; Second, £5 5s.; Third, £5 5s.; Final Examination, £6 6s.

If a candidate gives three clear days' notice of his inability to attend, he may present himself at the ensuing examination without any further fee.

Allowance is made to the candidate for each professional examination which he has completed at any other Licensing Body, except the Final. If he has passed only in some of the subjects in a given examination, he has to pay the whole of the fee for that examination.

The fees for re-examination are: For each subject, £1 1s., except in the subjects of Chemistry, Pharmacy, Surgery, Medicine, Second Anatomy, Physiology, Pathology, and Ophthalmology, the fees for which are £2 2s. each.

The fee for the Third and Final or Final alone is £15 15s. when the other examinations have been taken elsewhere.

All examination fees are to be lodged in the Sackville Street Branch of the Royal Bank of Ireland to the credit of the Examination Committee.

Applications and schedules, together with bank receipt for the fee, must be lodged with the Registrar, Apothecaries' Hall, 40, Mary Street, Dublin, at least fourteen clear days before the day of examination.

There are four Examinations—First, Second, Third, and Final. The first three are held quarterly on the Third Monday in January, April, July, and October; the Finals are held in January and July. The First Examination includes Biology, First Anatomy (Osteology), Physics, Theoretical and Practical Chemistry, with an examination at the bench. Pharmacy is put down in this examination, but it may be taken at any of the first three examinations. Candidates holding a pharmaceutical licence are exempt from this subject.

The subjects for the Second Professional are: Anatomy of the whole body (the examination in the subject is practical), Materia Medica and Therapeutics, Physiology, and Practical Histology.

The Third Examination consists of Pathology, Materia Medica, if not taken at Second Examination, Medical Jurisprudence, Hygiene.

The Final Examination consists of Medicine, including clinical and oral; Surgery, including operations, clinical and oral; Ophthalmic Surgery, including clinical and oral; Midwifery, and Gynaecology.

Candidates who desire to obtain the Letters Testimonial of the Apothecaries' Hall of Ireland must, before proceeding to the Final Examination, produce evidence of having been registered as medical students for fifty-seven months; also of having attended courses of instruction as follows:

One course each (of six months) of the following: Anatomy (Lectures), Chemistry (theoretical), Midwifery, Practice of Medicine, Physiology, and Surgery. Dissections, two courses of six months each.

Courses of three months.—Materia Medica, Medical Jurisprudence, Chemistry (practical), Practical Physiology and Histology, Operative Surgery, Physics, Clinical Ophthalmology, Biology, Clinical Instruction in Mental Disease, Pathology, and a course in Vaccination.

Medico-Chirurgical Hospital, twenty-seven months, to be distributed at the student's own discretion over the last four years of study. The candidate may substitute for nine months in this hospital attendance six months as a resident pupil. He will be required to present a certificate of having taken notes of at least six medical and surgical cases recorded under the supervision respectively of a physician and surgeon of his hospital.

Three months' study of Fever—which may be included in his twenty-seven months' Hospital Attendance—in a Hospital containing Fever Wards and having taken notes of five cases of Fever—namely, either Typhus, Typhoid, Scarlet Fever, Small-pox, or Measles.

Six months' practical Midwifery and Diseases of Women during the winter or summer of the third or fourth year at a recognized lying-in hospital or maternity.

Three months' practical Pharmacy, in a recognized Clinical Hospital or a recognized School of Pharmacy, or a year in the Compounding Department of a Licentiate Apothecary or a Pharmaceutical Chemist.

Each candidate before receiving his diploma must produce evidence that he has attained the age of 21 years.

Each candidate must produce evidence of having before entering on Medical Studies passed a Preliminary Examination in General Education recognized by the General Medical Council, and of having been registered by that Council as a Student in Medicine. Certificates of Medical Study will not be recognized if the commencement of the course to which the certificate refers dates more than fifteen days prior to such registration, except in the subjects of Physics and Biology. This registration is not undertaken by the Hall, but the student should apply to the Registrar of the General Medical Council that he may be so entered.

The details of the course of education required and syllabus of the Examinations will be supplied on application to the Registrar, at 40, Mary Street, Dublin.

NOTES ON MEDICAL SCHOOLS AND COLLEGES.

LONDON.

IT can scarcely be said that at present the head and forefront of medical education in London is the London University, but this certainly is what should be the case and undoubtedly what will eventually come to pass. After all, only a few years have passed since the University awakened to the possibilities open in this direction, and since the Senate evinced any desire to occupy the position indicated; and still fewer since the latter set to work to fit the University to fill it. In doing so it incidentally touched a good many sensitive official organisms and awakened many controversies which, though now more or less extinct, have in some degree retarded reform. Nevertheless much has been effected, the Medical Faculty of modern London University being formed by the twelve general hospitals of London to which medical schools are attached, while the staffs of these hospitals and schools, together with the representatives of some of the special hospitals, constitute its teachers and members. There is now, therefore, a direct and organic relation between the leading hospitals of London and its University such as has never existed before. This is about all that can be said at present, for though the effect of the reconstitution or reconstruction of the Medical Faculty cannot in the long run fail to be very far-reaching, it is impossible to point to any other very material change which has so far resulted. The anticipation that the Medical Schools would relieve themselves of the necessity of giving instruction in the earlier subjects of the medical curriculum by combining to provide for this at a common centre has so far scarcely been justified, for only two formerly independent schools have seen their way to falling in with the idea. These are St. George's and Westminster, which have connected themselves with the two centres for preliminary and intermediate studies formed respectively by University College and by King's College. The other schools have decided that neither they nor themselves would gain anything from the plan. Their own expenses, it is considered, would not be diminished, while from the student's point of view it is argued that any shortening of his connexion with Alma Mater would be a severe loss to him. Without his total expenditure being lessened, he would forfeit many of the advantages which are gained by years of connexion with a great institution and by becoming unconsciously imbued with its spirit and traditions. It is also pointed out that another inevitable result would be difficulty in maintaining at the schools those athletic and other clubs which do so much to render the student's life pleasant and to maintain his health, for such institutions can only flourish so long as they have support and co-operation in their working from students belonging to all the five years.

Another anticipated outcome of the reorganization was of a less definite nature, and it is not easy to appreciate the degree to which it has come to pass. It is certain, however, that all the London medical schools now arrange their courses and classes so as to meet the requirements of those who are seeking London University and other degrees better than formerly. It is undoubtedly the case, too, that the student of to-day at a London medical school has the advantages of seeking a degree brought to his notice more clearly than was once the case. There was a time when only the more ambitious men set themselves to win the degrees of the London University, and only those esteemed more able and more industrious by the school authorities were advised to take up this path—one not only difficult but devious, and beset with a totally unnecessary number of pitfalls. All this, however, is now altered, and though the standards of the University are in no respect lowered, the candidate is less hampered in his progress by red tape. More and more men, therefore, may be expected to take this route towards a registrable qualification. Should they traverse it successfully, they will have no cause to regret what extra work is entailed, since the Bachelorship of Medicine and Surgery of this University is everywhere regarded as being as good evidence of mental ability and solid work as any young medical man can offer. It is also to be noted that of late years most of the London schools have greatly improved their accommodation and all that constitutes the machinery of education: and this fact, together with the reorganization of the Medical Faculty, is already telling in restoring to London its former popularity as a place both of early and advanced medical study. This is entirely as it should be, for, in spite of the excellent education which provincial Universities now provide, London is certainly entitled to be regarded as the Mecca of all those who wish to learn the best in the best possible way. It offers, indeed, so many facilities, both to the beginner and to the man who is almost ready to qualify, that any medical student of fair ability who has no special reason for electing to study at one of the provincial centres may properly be advised to join a London school.

CHOICE OF A SCHOOL.

Little guidance can be given in these columns as to choice of one school rather than another, for such choice must depend largely on personal factors. In a general way, however, it may be said that while to the student of the day it may perhaps be almost a matter of indifference to what school he belongs, there is often in after-life a certain advantage in having been an alumnus at one of the more celebrated schools. Information as to the fees which the different schools demand and the scholarships, prizes, and junior appointments which they offer will be found in the following columns, and should be carefully studied by those who have no personal reason for preferring one to the other. The courses which they provide are fundamentally the same, and in all of them the arrangements made are such as to meet the requirements of students of every class—of those who are aiming at the diplomas of the Conjoint Board or the Apothecaries' Society not less than of those who have London or other university degrees in view. At all, too, it may be noted, special facilities are offered to men who have commenced their professional education at the older universities, Oxford and Cambridge. Apart from these facts, the only point to which attention can usefully be directed is that on personal inquiry and investigation reason may perhaps be found for regarding the teaching accommodation and general arrangements for students at some schools as superior to those at others.

ST. BARTHOLOMEW'S HOSPITAL MEDICAL SCHOOL.

The Hospital contains 744 beds.

Appointments.—Clinical Clerks to the Physicians and to the Physician-Accoucheur, and Dressers to the Surgeons and in the Casualty Department are chosen from the students. Clerks and Dressers are also selected from the students to attend in the out-patient rooms, in the special departments (Ophthalmic, Orthopaedic, Gynaecological, Laryngological, Aural, Dermatological, Electrical, and Dental), and in the *post-mortem* room. Chief Assistants and Clinical Assistants are selected from qualified men and appointed yearly, to help in the special departments just named. Ten House-Physicians and ten House-Surgeons are appointed annually. During their first six months of office they act as "Junior" House-Physicians and House-Surgeons, and receive a salary of £25 a year. During their second six months they become "Senior" House-Physicians and House-Surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident Midwifery Assistant and an Ophthalmic House-Surgeon are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Two Assistant Anaesthetists are appointed annually, and receive salaries of £120 and £100 a year respectively. An Extern Midwifery Assistant is appointed every three months, and receives a salary of £80 a year.

There is a residential college within the precincts of the Hospital.

The ground—10 acres in area—provided for the use of the members of the Students' Union, is at Winchmore Hill, within easy reach of the Hospital.

Special classes for students preparing for the Preliminary Scientific and other Examinations for the M.B., M.D. of the Universities of London, Oxford, and Cambridge, and for the higher surgical degrees at the same Universities, including the M.S.Lond., First and Second F.R.C.S.,

M.Ch.Oxon., and M.C.Cantab. Special laboratory instruction for the D.P.H. of Cambridge, Oxford, Durham, and London is also given.

Entrance Scholarships.—Five Entrance Scholarships will be awarded after an Examination to be held on September 25th, 1906, and following days. The subjects of examination and conditions of eligibility for these Scholarships are: (1) Two Scholarships, value £75 each, in no fewer than two nor more than three of the following subjects—Chemistry, Physics, Botany, Zoology, Physiology, and Anatomy, limited to students under 25 years of age who have not entered on the medical or surgical practice of any London medical school. (2) One Scholarship, value £150, in not fewer than three of the following subjects—Chemistry, Physics, Botany, Zoology, and Physiology, limited to students under 21 years of age who have not entered on the medical or surgical practice of any London Medical School. (3) The Preliminary Scientific Exhibition of £50 will be given for the second best examination in the same subjects and under the same conditions as (2). (4) The Jeaffreson Exhibition in Mathematics, Latin, and one other language—Greek, French, or German—and of the value of £20. The value of the Scholarships and Prizes is nearly £900 annually.

Communications must be addressed to T. W. Shore, Esq., M.D.Lond., Dean of the Medical School, St. Bartholomew's Hospital.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

The Charing Cross Hospital Medical School is one of the Schools of Medicine of the University of London; it is situated in the very centre of London, and easily accessible from all parts. It is within three minutes' walk of the Royal Dental Hospital of London. The Lectures are given at hours to suit both General and Dental Students. The Hospital and Convalescent Home at Limpsfield contain 300 beds. Over 2,000 cases pass through its wards each year, and some 22,000 out-patients and casualties are treated. There are Special Departments for Mental Diseases, Midwifery, Diseases of Women, of Children, of the Skin, Eye, Ear, Throat, Nose, and Teeth, for Orthopaedic cases, X Ray, and for Electrical Examination and Treatment. New Biological and Physics Laboratories have recently been established in the school, and the Pathological Laboratory has been considerably enlarged.

Appointments.—In the Medical School Demonstratorships and Assistant Demonstratorships (when they fall vacant) are open to students of the school and carry honoraria. The Curator and Pathologist is appointed annually, and receives £100 a year. Medical, Surgical, and Obstetric Registrars to the Hospital are appointed annually, the two former of whom receive £40 a year each, with luncheon in the Hospital. Six House-Physicians, six House-Surgeons, and two Resident Obstetrical Officers are appointed each year on the recommendation of the Medical Committee, after competitive examination. They are provided with board and residence in the Hospital. Assistants to the Roentgen-ray and to the Electrical Departments are appointed every six months. They receive an honorarium of 12 guineas, with luncheon at the Hospital. Clinical Clerks and Dressers are appointed in all the general and special departments of the Hospital. Arrangements can be made for students who have not entered for the entire medical curriculum to hold the posts of Clerk and Dresser. Every student holds in turn the appointment of Pathological Assistant, and assists at the necropsies. The above appointments are open without any additional fee.

Entrance Scholarships.—Five Entrance Scholarships, of the respective value of 100 guineas (Livingstone Scholarship, founded in memory of the late Dr. Livingstone, a former student of this school), 60 guineas, 55 guineas (Huxley Scholarship, founded in memory of the late Professor Huxley, a former student of this school), 40 guineas, and 30 guineas, are open to students commencing their medical curriculum. Three of these (100 guineas, 60 guineas, and 40 guineas) are open to all general students,[1] one (55 guineas) is reserved for the sons[1] of medical men, and one (30 guineas) is open to Dental Students only. All these Scholarships are awarded annually at the commencement of each winter session, after a competitive examination in the following groups of subjects: (1) English, including Language, History, and Geography; (2) Latin and any one of the following three languages—Greek, French, and German; (3) Mathematics, including Arithmetic, Algebra, and Geometry; and Mechanics, including Statics and Dynamics; (4) Inorganic Chemistry and Experimental Physics, including Acoustics, Heat, Magnetism, Electricity, and Optics; and (5) Animal and Vegetable Biology. No candidate may offer himself for examination in more than three of the above groups of subjects, the selection of the groups being left to the candidate. Students who join in the summer session have the same privileges as regards scholarships, medals, and prizes as those who join in October of the same year. The value attached to each group of subjects is 1,000 marks. No credit will be given for any paper in which the candidate obtains less than one-fifth of the total marks. Candidates must be under 25 years of age on the first day of the examination, and must give notice to the Librarian of their intention to compete, and of the groups in which they offer themselves for examination, on or before Saturday (10 a.m.), September 22nd, 1906. The examination will commence at the School on Monday, September 24th, at 9 a.m., and will continue during the two following days. The successful candidates will be required to enter forthwith for their complete medical education at the Charing Cross Hospital.

One Epsom Scholarship, giving a free education, is, each winter session, placed at the disposal of the Royal Medical Benevolent College at Epsom, to be competed for by foundation scholars who have passed the Preliminary Scientific M.B. Examination of the University of London.

Two University Scholarships, of the value of 72 guineas each, are open to students from the University of Oxford who have passed the first M.B. Examination, to students of the University of Cambridge who have passed the second M.B. Examination, and to students of the University of London who have passed the Intermediate Examination in Medicine, and who have not entered at any London Medical School. Subjects: Anatomy and Physiology, including Histology. The examination for these Scholarships, which will be partly practical, will be held at the school on September 25th and 26th. Candidates must give notice to the Librarian of their intention to compete on or before Saturday (at 10 a.m.), September 22nd, 1906. The successful candidates will be required to enter forthwith at the Hospital for the completion of their curriculum.

Fees.—These may be paid in one sum as a composition fee of 115 guineas for general students; 61 guineas for dental students; and 74 guineas for university students, or by sessional payments of 15 guineas every winter session and 10 guineas every summer session as long as the student remains in the school, with an entrance fee of 10 guineas.

Further information may be had of the Dean, Dr. Christopher Addison, Charing Cross Hospital Medical School, Chandos Street, Strand, London, W.C.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.

The Hospital contains 351 beds, of which 205 are devoted to Surgical and 146 to Medical cases.

Appointments.—The following paid appointments, amongst others, are open to students after they have held house office: Medical Registrarship, at £200 per annum; Surgical Registrarship at £200 per annum; Curatorship of the Museum at £200 per annum; Assistant Curatorship at £100 per annum; Obstetric Assistantship, Resident, at £50 per annum; two Demonstratorships of Anatomy, each at £50 per annum; the post of Senior Anaesthetist at £50 per annum; the posts (2) of Junior Anaesthetists, each at £30 per annum. Dresserships to the Surgeons and Clinical Clerkships to the Physicians are open without fee to all students of the Hospital. A large number of House Office Appointments, which may be held for six, twelve, or eighteen months, are open without fee to every perpetual student of the Hospital, and are made strictly in accordance with the merits of the candidates.

Instruction.—All the work for preliminary and intermediate subjects is done at King's or University Colleges, the St. George's Hospital Medical School being devoted entirely to the teaching of clinical subjects. Great attention is paid by members of the staff to individual

[1] Those who enter for their entire medical education.

teaching. A number of Special Courses are given in which the requirements of University and other Examinations receive careful attention. The following may be cited as examples: (1) Elementary Bacteriology, (2) Advanced Bacteriology, (3) Clinical Pathology, (4) Systematic Pathology, (5) Histological Pathology and Morbid Anatomy, (6) Operative Surgery, (7) Public Health, (8) Tropical Diseases. Special Test Examinations and Classes are held by members of the staff for all examinations.

Entrance Scholarships—in Anatomy and Physiology 70 guineas and £50—are awarded at the commencement of each winter session. The William Brown Exhibition of the value of £100 per annum (tenable for two years) is awarded by examination to a perpetual pupil of the hospital every second year. The William Brown Exhibition of £40 (tenable for three years) is awarded by examination to a perpetual pupil of the Hospital every third year. Other prizes to the value of £200 are awarded annually to the students of the Hospital.

The School possesses an Amalgamation Club, with well-fitted Reading, Smoking, and Luncheon Room, on the Hospital premises. Students have the advantage of a well-filled Library of Medical and Scientific Books, which is kept thoroughly up to date. A Register of Accredited Apartments, and a list of Medical Men and others willing to receive St. George's men as boarders, may be seen on application to the Secretary.

Fees.—First year (Preliminary Science or First Conjoint) £26 5s., or £21, according to course. Second and third years, £57 15s. in one sum, or £63 in two equal instalments. Fourth and subsequent years, annual composition fee, £31 10s. Entrance fee for University students, £10 10s.

Further information may be obtained from the Dean of the Medical School.

GUY'S HOSPITAL MEDICAL SCHOOL.

The Hospital contains 602 beds in constant occupation; an additional 50 beds have been opened on the medical side of the Hospital. Thirty-one beds are set apart for diseases of the eye, and 40 for the most urgent and interesting medical cases, which form the subjects of the weekly clinical lectures. There is a special ward of 32 beds for the reception of cases of diseases of women and for cases of difficult labour. Beds are also allotted to the Throat and Ear Departments, and a small additional ward for children will shortly be opened.

Appointments.—All appointments are given without extra payment, and according to the merits of the candidates, as determined by a committee of the medical staff. Eight Assistant House-Physicians, 8 House-Physicians, 24 Assistant House-Surgeons, 8 House-Surgeons, and 2 Ophthalmic House-Surgeons are appointed annually. The House-Physicians and House-Surgeons hold office for six months each, and receive free board and lodging in the college, as also do the Resident Obstetric Assistants, of whom 3 are appointed annually, each holding office for six months. Every student is provided with rooms and commons in the hospital during the period of his "take in" as Dresser. In addition to the Clerkships and Dresserships in the medical and surgical wards, students are appointed to the posts of clinical assistant, dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, dermatology, otology, electricity, anaesthetics, and dentistry. More than 150 additional appointments have been added to the list of those annually open to students of the Hospital, the majority of them being in the special departments.

The College, fronting the east gate of the Hospital, provides accommodation for 60 resident students. It contains a dining hall, reading rooms, library of general literature, and gymnasium for the use of the residents and of the members of the Clubs' Union. The athletic ground at Honor Oak Park is reached from the Hospital in 20 minutes.

The new Gordon Museum of Pathology, the Wills Library, and the new school buildings in general afford unrivalled opportunities for a liberal education and for research.

Scholarships, Prizes, etc.—Two Entrance Scholarships in Arts: One of the value of £100 open to candidates under 20 years of age, and one of £50 open to candidates under 25. Subjects: English, Latin, Arithmetic, Algebra, Euclid, and either Greek, French, or German. Three Entrance Scholarships in Science: One of £150 and one of £60, open to candidates under 25, and one of £50 to University students who have completed their study of Anatomy and Physiology. Subjects: Anatomy, Physiology, Chemistry, Practical Chemistry, Biology, and Physics. These examinations begin on September 22nd; names must be sent in on or before September 14th. Junior prizes for general proficiency, £20, £15, £10; Arthur Durham prizes for dissection, £15, £5; Hilton prize for dissection, £5; Michael Harris prize for Anatomy, £10; Sands Cox Scholarship for Physiology, £15 for three years; Wooldridge Memorial prize for Physiology, £10; Beaney prize for Pathology, £34; Treasurer's gold medal in medicine, Treasurer's gold medal in surgery, and the Golding-Bird gold medal and scholarship for Bacteriology (£20) are awarded annually after competitive examination. The Gull Studentship in Pathology and the Beaney Scholarship in Materia Medica, of the annual value of £150 and £31 10s. respectively, are awarded without examination to enable research to be carried on in these subjects.

Special classes are held for the Preliminary Scientific and Intermediate M.B. Examinations of the University of London and for the First F.R.C.S.Eng.

Special teaching is also provided to meet the requirements of the Universities of London, Oxford, and Cambridge in General Pathology and Pharmacology.

Fees.—For particulars of new scheme for payment of composition fees apply to the Dean.

KING'S COLLEGE MEDICAL FACULTY.

The curriculum at King's College is now divided into two parts: (1) For Preliminary and Intermediate subjects of study; (2) Advanced or Final studies. The subjects under the first head are taught in the class rooms and laboratories at the College; those under the second at the Hospital. The fees and prospectuses of the two divisions are now separated. Full particulars can be obtained by application to the Dean of the Faculty of Science (Medical Division), Professor Peter Thompson, or to the Dean of the Hospital (Mr. Peyton Beale). The Deans attend daily (Saturdays excepted) for the purpose of seeing students and their friends. Any letters addressed to them during the vacation will receive early attention.

The Hospital contains 220 beds in daily use.

Appointments.—Resident Medical Officers, Clerks, and Dressers are chosen from the students, and the former have rooms and commons free. Two Sambrooke Registrarships, Medicine and Surgery, of the annual value of £50 each, are open to students who have held resident posts in the Hospital. There are also Senior Medical, Surgical, and Gynaecological tutors. Clinical assistants are appointed in the Ophthalmic, Ear, Throat, Skin, and Dental Departments.

Entrance Scholarships.—1. Two Warneford Scholarships, for the encouragement of previous education, each £100 value; subjects of examination—Mathematics, Classics, Divinity. 2. One Sambrooke Exhibition, of £100, open; subjects of examination—Mathematics, Elementary Physics, Inorganic Chemistry, Botany, and Biology. 3. Rabbeth Scholarship, value £20, in July, for best evidence of early scientific training. 4. Two Scientific Exhibitions, open, given annually, in October, by the Clothworkers' Company, value £60 and £40, for proficiency in any four of the following subjects: Mathematics, Mechanics, Physics, Chemistry, Botany, Geology, Mineralogy, and Zoology, will be open to all candidates who are under the age of 19. 5. Medical Entrance Scholarship, of £50, instituted for students who propose to take their degree at Oxford, Cambridge, or other British University, having already passed the examination of that University in Biology, Chemistry, and Physics.

During the curriculum Scholarships and Prizes of the value of £300 are open to students.

For conditions of scholarships and subjects of examinations apply to the Deans, or the Secretary, King's College, who will send full prospectus post free. Examinations commence September 20th.

Fellowship Examinations of the Royal College of Surgeons.—Special classes for the Final Examinations are held, and a special prospectus regarding these classes will be forwarded on application to the Dean.

University of London.—A special class for the Matricula-

tion Examination will commence on September 27th. Classes for the science subjects are held by the Professors of the Science Faculty of King's College, and students avail themselves of their laboratories.

Athletic Club.—All students are entitled to the privileges of the Athletic Club, which manages a large recreation ground of the College at Wormwood Scrubbs.

London Hospital Medical College.

The Hospital contains 929 beds.

Appointments.—The salaried appointments open to students are those of Medical Registrars (2), Surgical Registrars (2), Medical, Surgical, and Obstetric Tutors; Senior Dressers to Out-patients; Clinical Assistants in the Medical, Surgical, Ophthalmic, Aural, Light and Skin, Orthopaedic, and Electrical Departments. There are also 5 Resident House-Physicians and 7 Resident House-Surgeons, 2 Accoucheurs, 6 Receiving-room Officers, 2 Emergency Officers, and 3 Pathological Assistants. Also unpaid Clinical Assistantships in the various special departments. In addition there are numerous Assistantships and Clerkships, and Dresserships in the various departments.

Scholarships and Prizes.—The following is a list of Scholarships and Prizes: *At Entrance:* Price Scholarships in Science, £120; in Anatomy and Physiology, £60; Entrance Scholarships in Science, £60 and £35; Epsom Scholarship, £126; Buxton Scholarships in Arts, £30 and £20. *After Entrance:* Anatomy and Biology Scholarships, £20; Anatomy and Physiology Scholarship, £25; Letheby Prizes, £30; Scholarships in Clinical Medicine, Surgery and Obstetrics, £20 each; Duckworth Nelson Prize, £10; Hutchinson Prize, £40; Sutton Prize, £20; Sir Andrew Clark Prize, £26; Anderson Prizes, £9; Out-patient Dressers' Prizes, £60; Practical Anatomy Prizes, £10; Douro Hoare Prize, £5; Wynne Baxter Prize, £5 5s.

A special course for the D.P.H. will commence at the beginning of the winter session.

Special classes for the Preliminary Scientific and Intermediate M.B.Lond., the Primary and Final Fellowship, and other examinations are held. Those for the Final and Primary F.R.C.S. commence on September 1st.

Fees.—The composition is 120 guineas. A reduction of 15 guineas is made to sons of medical men.

New Buildings.—The new departments of Bacteriology, Public Health, Chemistry, and Biology, the new Pathological Institute at the Hospital, and the new Out-patients and Special Departments are now completed and in full use. New Students' Rooms have been added, and a Garden and Fives Court opened for the use of the members of the London Hospital Clubs Union.

Information may be obtained from the Warden, Mr. Munro Scott, at the London Hospital Medical College, Mile End, E.

St. Mary's Hospital Medical School.

The Hospital at present contains 281 beds. The new wing, the ground floor of which, comprising the new out-patient department, was opened in 1893, is now completed, and will be furnished and opened as soon as the necessary funds are forthcoming. This will raise the total number of beds to 341, and will include additional Operating Theatres, a new Clinical Laboratory and Clinical Theatre. A new X-ray Department has recently been established in the Out-patient Department of the Hospital. The situation of the Hospital, in the centre of the residential districts of Paddington, Bayswater, and North Kensington, renders it especially convenient to students who wish to reside in the immediate vicinity, and a register of approved lodgings is kept in the office of the Medical School. The Athletic Ground (8 acres) is situated at North Kensington, and is easy of access from the Hospital.

All clinical appointments in the Hospital are free to students of the Medical School, the term of office in each case being of four months' duration, and the Resident Medical Officers are chosen by competitive examination. Six House-Physicians, six House-Surgeons, four Obstetric Officers, and two Resident Anaesthetists are appointed each year, and receive board and residence in the Hospital.

Entrance Scholarships in Natural Science.—One of £145, one of £78 15s., two of £52 10s., and two of £63 (open to students of any British University) are awarded annually by competitive examination in September.

The Laboratories.—The Physiological Department comprises a Lecture Room specially constructed for practical demonstrations, separate laboratories for Physical Physiology, Chemical Physiology, and Histology respectively, and smaller rooms for research work. Demonstrations on Chemistry are given in the Chemical Lecture Theatre in conjunction with the systematic lectures, and a laboratory is provided for the study of Practical Chemistry, Inorganic and Organic. A special laboratory has recently been provided for the classes in Physics. The classes in Bacteriology and Pathological Histology are held in the Laboratory Class Room, which accommodates 56 students.

There are two large and well-equipped Bacteriological Laboratories, and provision is made for instruction and research in Chemical Pathology, for which a special laboratory is available under the direction of the Lecturer on Pathological Chemistry.

During the past year a department for Therapeutic Inoculation has been instituted under Sir Almroth Wright, F.R.S., the work being carried on in two special laboratories in the Museum Buildings.

Special Tuition.—In addition to systematic courses of Lectures and Demonstrations, special tuition is provided for the Intermediate and Final Examinations of the Universities of Oxford, Cambridge, and London, and for the Primary and Final F.R.C.S.

Preliminary Scientific Course.—A complete course of instruction in Chemistry, Physics, and Biology, recognized by the University of London as an approved course for Internal Students, is held throughout the year, and students may join in October, January, or April.

Fees.—The composition fee for students is £140 if paid in one sum, or £145 if paid in four instalments. University students who have completed their examinations in Anatomy and Physiology are admitted on payment of a composition fee of 60 guineas (£63) paid in one sum, or 65 guineas (£68 5s.) if paid in two annual instalments. University Students, prior to completing their examination in Anatomy and Physiology, pay an annual fee of 25 guineas (£26 5s.). Separate courses of Lectures, Laboratory Work, or Hospital Practice may be taken.

The School Calendar and full information can be obtained from the Secretary, St. Mary's Hospital Medical School, Paddington, W.

Middlesex Hospital Medical School.

The Hospital contains 340 beds. A wing containing 40 beds and special research laboratories is entirely devoted to patients suffering from cancer. It offers unrivalled opportunities for the study of this disease, both in its clinical and pathological aspects.

Appointments, etc.—Eighteen Resident appointments are open annually to competition among pupils of the Hospital. The officers reside and board in the Residential College free of expense. There are two Casualty Medical and two Casualty Surgical Officers appointed annually. Six House-Surgeons are appointed every year at intervals of two months, after examination; the six House-Physicians are also appointed annually at similar intervals; they must have a legal qualification, or hold a Broderip Scholarship. An Obstetric House-Physician (qualified to practise) is appointed every six months. Non-resident Physicians' Assistants are appointed in the various out-patient departments. In the out-patient department the appointments are: Dresser to the Assistant Surgeon and to the Dental Surgeon, Clerk to the Assistant Physician, Dresser to the Ophthalmic Surgeon, Clerk in the Department for Diseases of the Skin, Clerk in the Department for Diseases of Women, and Dresser to the Throat and Ear Department. There are also Extern Midwifery Clerks and *Post-mortem* Clerks. The appointments are so arranged that every student may during his course hold all the Out-patient and In-patient Clerkships and Dresserships. Each student must have held an out-patient clerkship and dressership before being eligible to hold in-patient clerkships or dresserships. No student can be appointed to any office until he has passed the Second Examination of the Examining Board in England or its equivalent. Clinical Assistants are appointed in the Children's, Ophthalmic, Skin, and Throat and Ear Departments.

Entrance Scholarships.—Two Entrance Scholarships, value £100 and £75 respectively, are open to all gentlemen commencing their medical studies in May or October, 1906. The successful candidates must become general students of the school. Examination on September 24th, 25th, and 26th. Candidates must send in their names to the Dean, stating the three subjects they select, on or before September 15th.

University Scholarship.—An annual Entrance Scholarship, of the value of £50, is open to students of the Universities of Oxford and Cambridge who have completed the curriculum for or passed the examinations in Anatomy and Physiology. Subjects: Anatomy and Physiology, including Histology. The examination takes place on September 24th and 25th. Application to be made on or before September 15th. Students joining the school in the previous May are eligible to compete for the Entrance and University Scholarships in that year.

The Freer Lucas Scholarship is annually awarded on the nomination of the head master to a pupil of the Epsom College who has passed the Preliminary Scientific M.B. Examination.

Fees.—The composition fee is 145 guineas for London University students. For students who have passed the Preliminary Scientific (London University), 120 guineas. For students taking the Conjoint diploma, 135 guineas. For members of universities and others who have completed their anatomical and physiological studies, 70 guineas; dental students, 54 guineas.

Further information may be obtained from Mr. J. Murray, the Dean.

The Residential College is situated in Cleveland Street, W., and has its frontage in the Hospital Garden; it accommodates about 20 students.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

The Hospital contains 603 beds. It is built on the system of separate pavilions, which are connected by a covered and an open-air corridor. There are separate wards for the treatment of diseases peculiar to women, of diseases of the eye, and of children under 6 years of age. The Hospital and School are situated along the banks of the Thames between Westminster and Lambeth Bridges, an open-air terrace running the whole length of the buildings facing the Houses of Parliament. There are now four chief Operation Theatres for the Surgical Wards. Besides these there are five other fully-equipped theatres for operations in the various departments of the Hospital. A Clinical Laboratory is provided, in which all the more difficult methods of diagnosis—bacteriological, chemical, and microscopical—are carried on under the direction of a Superintendent.

The Clinical Lecture Theatre is reserved entirely for the delivery of Clinical Lectures and Demonstrations. Its central position in the Hospital makes it possible to illustrate the lectures by patients from the wards and out-patient rooms. Provision is also made for the exhibition of lantern slides, where patients may not be available. The Theatre has also been specially adapted for ophthalmological, laryngological, or microscopical demonstrations. Throughout the academical year Clinical Lectures are delivered here on Medicine, Surgery, and the various special branches of study. The Department for Out-patients has been rearranged, and now consists of a series of rooms, among which are two large, well-ventilated Clinical Theatres provided with ample sitting accommodation, so that large numbers of students are enabled to follow closely the practice and teaching of the out-patient staff.

The new Casualty Department comprises a spacious receiving hall, which runs the whole length of the department, and from which on the one side open out the male and female sorting and waiting rooms, whilst on the other are a number of smaller rooms for the examination and treatment of patients. Isolation rooms for infectious cases are placed outside the lodge door. The whole department is tiled, efficiently lighted and fitted throughout on the most modern lines. The ventilation is on the Plenum system. In connexion with it there are an Accident Ward of 20 beds for the reception of urgent male cases, a small but complete operation theatre, and two isolation wards. During the twelve months ending December 31st, 1905, the number of patients admitted into the hospital amounted to 6,451. In the same period 19,738 out-patients have been treated, and in the maternity department 1,941 women have been attended at their own homes. Casualties to the number of 116,116 attendances were treated during the same period. Great care is taken in selecting the out-patients from all applicants for treatment.

The *School Buildings*, which are separated from the Hospital by a quadrangle containing a lawn-tennis court for the use of the residents, comprise numerous theatres, laboratories, and class rooms, and are well adapted for the modern teaching of large bodies of students in the subjects of the medical curriculum. A large library and reading room and a very complete museum are open to all students from 9 a.m. to 5 p.m.; Saturdays, 2 p.m. The new club premises, opened in 1894, contain a dining room and smoking and reading room supplied with daily and illustrated weekly papers, and a gymnasium. A cloakroom with lockers, and a lavatory with bath rooms are in the main school building. Students are thus able to spend the whole day at school, all meals being obtainable at a moderate tariff, and they are further provided with facilities for exercise and recreation. A ground of more than nine acres in extent is provided at Chiswick. It can be reached in forty minutes from the hospital; it is admirably adapted for football, cricket, lawn tennis, and athletic sports. It is provided with a pavilion, where refreshments can be obtained.

Scholarships.—Three entrance Scholarships will be offered for competition in September, namely: One of £150 and one of £60, in Chemistry, Physics, and Biology, for students who have not received instruction in Anatomy or Physiology; one of £50 in any two of the following subjects: Anatomy, Physiology, or Chemistry for students who have completed their examinations in Anatomy and Physiology, for a medical degree in any of the Universities of the United Kingdom, and have not entered as students in any London medical school. Copies of the examination papers of last year may be obtained on application to the Medical Secretary. Applications must be sent in not later than September 13th, with a certificate of birth and of Preliminary Examination, and with a notification of the choice of optional subject. Numerous scholarships, prizes, and medals are open for competition throughout the whole career of a student, including a Fellowship of £100 given by the Salters' Company for research in Pharmacology, and the Louis Jenner Research Scholarship of the annual value of £60 for Pathological research.

Appointments.—All Hospital appointments are open to students without charge. A Resident Assistant Physician and a Resident Assistant Surgeon are appointed annually at a salary of £100 each, with board and lodging. Two Hospital Registrars, at an annual salary of £100 each, are appointed yearly. The tenure of these offices may be renewed for a term not exceeding two years. Two Resident Casualty Officers are appointed half-yearly at a salary of £100 per annum. An Obstetric Tutor and Registrar is appointed each year at an annual salary of £50. Four House-Physicians, two House-Physicians to Out-patients, four House-Surgeons, four House-Surgeons to Out-patients, two Obstetric House-Physicians, two Ophthalmic House-Surgeons, and eight Clinical Assistants in the special departments are appointed every three months, and hold office for six months if recommended for re-election. Clinical Clerkships and Dresserships to the in-patient and out-patient departments are available to the number of 400 each year.

Fees.—The Entrance Fee for First or Second Year's Students is 20 guineas; for Third Year's Students 10 guineas. The annual Composition Fee is 30 guineas. For Preliminary Scientific Students the fee is 16 guineas. Extra charges are made for materials required in practical courses.

University Examinations.—Special Courses of Instruction for the Preliminary Scientific and Intermed. M.B.Lond. for the Oxford and Cambridge Examinations, and for the Primary and Final F.R.C.S. are held throughout the year. St. Thomas's Hospital is one of the Medical Schools of the University of London.

Lodgings.—A register of lodgings is kept by the Medical Secretary, who has a list of local medical practitioners, clergymen, and others who receive students into their houses.

Further information may be obtained on application to Mr. G. Q. Roberts, M.A.Oxon., Secretary, St. Thomas's Hospital, Albert Embankment, S.E.

University College.

At University College there are practically two independent schools—one for medical students who have still to acquire their knowledge of the preliminary sciences and of anatomy and physiology; the other for those who have passed their Preliminary Science and Intermediate Examinations, and are preparing for the Final. A student who joins the first school can eventually pass on into the second, or, if he prefers it, can complete his curriculum at any other of the constituent schools of the Medical Faculty of the University of London; or, indeed, at any place for medical study recognized by the body at whose diplomas and degrees he is aiming.

Composition Fees.—These at the first school are as follows:—For the Courses required by the University of London: (1) For the Preliminary Scientific Course, 25 guineas, entitling to one attendance. (2) For the Intermediate Course, 55 guineas if paid in one sum, 60 guineas if paid in two instalments of 30 guineas each. This fee entitles to attendance on Anatomy and Physiology during three years, and to one attendance on Organic Chemistry, Pharmacology, and Materia Medica. For the Medical Education required by the Examining Board in England and the Society of Apothecaries: First Examination, Parts I, II, III, 20 guineas, entitling to one attendance; First Examination, Part IV, and Second Examination 55 guineas if paid in one sum, and 60 guineas if paid in two instalments of 30 guineas each. This fee entitles to attendance during three years.

Scholarships.—Connected with the school are the following: The *Bucknill Scholarship* of 135 guineas, won by open competition in chemistry, physics, botany, and zoology; the successful student must join both schools. Two *Entrance Exhibitions* in the foregoing subjects, each of the value of 25 guineas; the successful students must join the first, but not necessarily the second, school. The *Cluffe Memorial Prize* of £15 for proficiency in anatomy, chemistry, and physiology. An *Epsom Free Medical Scholarship* for proficiency in the subjects of the preliminary scientific examinations, awarded on the nomination of Epsom College. The *Schäfer Prize* in Physiology, value £18. The *Sharpey Scholarship* of £105 for proficiency in biological sciences. The *Morris Bursary* of £16 for two years, available by nomination to sons of deceased professional men.

Those who join the second school carry on their studies in the new Hospital built by the late Sir Blundell Maple; though in use for some time past, it has only been entirely completed lately, and is to be formally declared open by the Duke of Connaught in November. New buildings are also in course of erection, which will contain complete accommodation in the way of class and lecture rooms for the ordinary students of this second school as well as for post-graduates who may join it.

Scholarships.—Connected with the second school are two *Entrance Exhibitions* of 80 guineas each, awarded after a competitive examination in anatomy and physiology; the *Atkinson Morley Scholarship* of £45 a year for three years; awarded after examination in the theory and practice of surgery; the *Atchison Scholarship* of £55 a year for two years; the *Filliter Exhibition* in pathology of £30; four *Fellowes Medals* in clinical surgery; the *Bruce Medal* in pathology and surgery; two *Tuke Medals* in pathology, and the *Erichsen Prize* for practical surgery of ten guineas.

Appointments.—Eight House-Physicians, eight House-Surgeons, four Senior and four Junior Obstetric Assistants, and two Ophthalmic Assistants are selected annually by examination from among the senior students who have a medical qualification. The House-Physicians and House-Surgeons reside in the Hospital for a period of six months, and the Senior Obstetric Assistants for three months, receiving free board and lodging.

Fees.—For the Final M.B., B.S. course, 80 guineas if paid in one sum; 82 guineas if paid in two instalments as follows: First year 50 guineas; second year 32 guineas. This fee entitles to attendance on Lectures and Hospital Practice during three years, and to one attendance on Practical Pathology and Practical Surgery. Vaccination and attendance at a Fever Hospital are not included. Students who obtain a medical qualification within three years of the time of commencing this course are not required to pay an additional fee for further attendance. This course of instruction is also suitable for the corresponding examinations at the Universities of Oxford, Cambridge, and Durham.

For the Medical Education required by the Examining Board in England and the Society of Apothecaries: For the course required for the third examination, 80 guineas if paid in one sum, and 82 guineas if paid in two instalments as follows: First year 50 guineas; second year 32 guineas. This fee entitles to attendance on Lectures and Hospital Practice during three years and to one attendance on Practical Pathology and Practical Surgery. Pharmacy, Vaccination, and attendance at a Fever Hospital are not included. Students who obtain a medical qualification within three years of the time of commencing this course are not required to pay an additional fee for further attendance.

Several gentlemen connected with the College receive students to reside with them. A register of boarding residences is kept in the office of the College for the convenience of students; the residences are not under the control of the College authorities.

Those desiring further information about either school should apply either to the Dean of the Medical Faculty or to the Principal of University College.

Westminster Hospital Medical School.

The Hospital contains upwards of 200 beds.

Appointments.—A Medical and a Surgical Registrar are appointed annually, each with a salary of £50. Two House-Physicians, three House-Surgeons, one Assistant House-Physician, one Assistant House-Surgeon, and a Resident Obstetric Assistant are appointed after examination and are provided with rooms and commons, except the Assistant House-Physician and the Assistant House-Surgeon, who are provided with commons only. The Assistant House-Physician after three months' service becomes House-Physician for a further period of six months, and the Assistant House-Surgeon, after two months' service, becomes House-Surgeon for a further period of six months. Clinical Assistants to the Assistant Physicians and Assistant Surgeons, and to the officers in charge of special departments, are appointed from among qualified students. Every student must perform the duties of Out-patient Dresser for four months, and afterwards hold the office of In-patient Dresser for four months. He is also required to serve two terms of four months each as Clinical Clerk to In-patient Physician. Two Pathological Clerks are appointed every four months to assist in the *Post-mortem* Room. No student is eligible as an In-patient Dresser or Clinical Clerk until he has passed the Second Examination of the Conjoint Board, or an equivalent examination. Clerks and Dressers in the Special Departments of Hospital Practice are periodically appointed. So far as vacancies permit students of other hospitals are admitted to In-patients' Dresserships or Clerkships.

Scholarships.—The following Scholarships are offered for competition during the year 1906-7: *In September, 1906:* Three Scholarships in Arts, £60, £40, and £30: Scholarship in Arts for Dental Students, £20; two University Scholarships in Anatomy and Physiology, £40 and £30; two Natural Science Scholarships, £60 and £40: Free Presentation, open to pupils of Epsom Medical College. *In April, 1907:* two Scholarships in Arts, £60 and £40; two University Scholarships in Anatomy and Physiology, £40 and £30; two Natural Science Scholarships, £60 and £40.

Fees.—The composition fee is 120 guineas for the course required by the Conjoint Examining Board, and 140 guineas for that of the University of London.

Further information can be obtained on application to the Dean at the Westminster Hospital Medical School, Caxton Street, Westminster, S.W.

London (Royal Free Hospital) School of Medicine for Women.

The Hospital contains 165 beds, all of which are available for clinical instruction. There are separate departments for Obstetrics, Diseases of Women, Diseases of the

Eye, Throat, and Ear, Skin, and classes for instruction in Anaesthetics, Bacteriology, etc., in addition to the ordinary Clinical Lectures and Demonstrations and Tutorial Classes. Students also attend the practice of one of the Fever Hospitals of the Metropolitan Asylums Board, and receive special instruction in Lunacy at one of the hospitals under the Asylums Board of the London County Council: they are also admitted to the practice of a number of special hospitals.

Appointments as House-Physician and Surgeon, Surgical and Medical Registrars, Anaesthetists, Medical Electrician, Radiographer, Curators of the School and Hospital Museums, and Clinical Assistants and Demonstrators in various subjects are open to students after qualification.

Scholarships.—An Entrance Scholarship value £30, and the St. Dunstan's Medical Exhibition value £60 a year for three years, extendible to five years, are offered for competition at the end of September in each year. The Bostock Scholarship, value £60 a year for two or four years, is awarded by the Reid Trustees on the result of an examination held in May by the University of London. The holder of the Scholarship must enter the London School of Medicine for Women. The Stuart Mill Scholarship, value £30 a year for four years, the John Byron Bursary of £20 a year for two years, the Helen Prideaux Prize of £40, the Mabel Webb Research Scholarship of £30 for two years, the Fanny Butler Scholarship of £14 10s. a year for four years, together with many other scholarships and prizes, are offered on sundry conditions. Various Missionary Societies also offer scholarships on certain conditions, and assist ladies who wish to go to India as medical missionaries.

The Course of Study includes preparation for the whole course required by the University of London, the Royal University of Ireland, the Conjoint Boards of Scotland and Ireland, and the Society of Apothecaries, London; also for the greater part of the course required by the University of Durham and the other Universities of England which admit women to their degrees, and the University of Glasgow. Special classes are held in preparation for the Preliminary Scientific Examinations of the Universities of London and Durham.

School Buildings.—The entire School has been rebuilt and greatly enlarged. The laboratories are large and well-lighted, and are fully equipped for the Preliminary Scientific and Intermediate M.B. work required by the University of London. There are also a large Library and Common Room for the use of the students, and sets of chambers to accommodate seventeen students.

Fees.—University of London, Preliminary Science Course, £25; course for Intermediate and Final M.B., £135; course after Intermediate M.B., £86. Composition Fee for course of study for other qualifications, £140.

Full particulars as to Curriculum and Scholarships can be obtained from the Secretary, Miss Douie, M.B., 8, Hunter Street, W.C.

Cooke's Medical School, London.

The School is prepared to admit to its supplementary work all who may wish to join the same, but in regard to its curriculum work it does not receive more than half a dozen students in the course of the year; these have special advantages both as regards anatomy and physiology. The fees, we are informed, are but slightly in excess of current charges.

The operations of Surgery are performed on the dead body. Such courses are recognized for army promotion, for the Indian Medical Service, etc.

The School, which is open all the year round, possesses a good collection of anatomical models, physiological and chemical apparatus, and gentlemen preparing for the higher examinations (F.R.C.S.Eng., M.B.Cambridge, Oxford, London, etc.) receive special instruction in the more difficult subjects.

PROVINCES.

The medical schools in England, outside London, which give instruction in the full medical curriculum, are those of the Universities of Oxford, Cambridge, and Durham (University of Durham College of Medicine, Newcastle-on-Tyne); the Victoria University of Manchester; the University of Liverpool; the University of Birmingham; the University of Leeds; the University of Sheffield; and University College, Bristol.

As for Oxford and Cambridge, the opportunities for obtaining a good knowledge of the Preliminary Sciences and of Anatomy and Physiology at these ancient seats of learning are unsurpassed; the teaching staffs are distinguished, and the laboratories are most completely equipped. The same, too, may be said with equal if not greater truth in respect of the teaching of pathology. There is no essential reason, indeed, why a student should not complete the whole of the curriculum at either of these schools, but this is not very commonly done. The reason is that the hospitals are comparatively small, so the authorities encourage the students so soon as they have completed the first two stages of their career to join some London medical school, and thus spend the balance of their time in a city where the opportunities for gaining clinical experience are great and varied.

At many of the London schools special arrangements are in existence to meet the case of the men who thus join them after their preliminary studies have been completed. Full information of such arrangements can be obtained upon application to the Deans of the respective schools.

The arrangements and appliances for laboratory and other forms of instruction at the Victoria University, Manchester; at the University of Birmingham; at the University of Liverpool; at the University of Leeds; at the University of Sheffield; and at University College, Bristol, are all very complete, and it is quite common nowadays for students to go through their whole curriculum at these centres.

The Medical School of the University College of South Wales and Monmouthshire at Cardiff confines its work to giving instruction in the subjects of the medical curriculum which belong to the first three years, and is well arranged for this purpose.

The General and Queen's Hospitals, Birmingham.

The practices of the two Hospitals are amalgamated for the purpose of Clinical Instruction. The Hospitals have a total of upwards of 450 beds for the treatment of Medical, Surgical, and Special cases. There are special departments for Gynaecological cases, and for the treatment of Diseases of the Eye, Throat, and Ear, each department having beds assigned to it. Besides these special in-patient departments, there are at the General Hospital special out-patient departments for the treatment of Dental and Skin cases, while attached to the Queen's Hospital is a large Maternity Department. During the last year more than 7,500 patients passed through the in-patient wards of the two hospitals, while the out-patients numbered more than 90,000. The Medical and Surgical Staff of the hospitals attend daily, and give Clinical Instruction in the Wards and Out-patient rooms between the hours of 9.30 a.m. and 1.0 p.m. Clinical Lectures in Medicine, Surgery, and Gynaecology are delivered every week during the Winter and Summer Sessions. Ward Classes are also held by the Physicians and Surgeons for the instruction of Senior Students, the times being announced in the Hospital Time Table of Clinical Instruction. Senior and Junior Tutorial Classes in Medicine and Surgery are also held weekly for the instruction of the Junior Students. Surgical Operations are performed by the various Surgeons and Special Officers daily in the Operating Theatres attached to each hospital. *Post-mortem* Examinations are made daily by the Pathologists, and Demonstrations on recent morbid anatomy specimens are held at regular intervals. A complete Radiographic Department exists at the General Hospital, fully equipped with all necessary apparatus, and the treatment of patients by means of the Roentgen Rays and the Finsen Light is carried on daily.

Scholarships and Prizes Connected with the Faculty of Medicine.—Ingleby Scholarship.—The Ingleby Scholarship, value £10, is offered annually to the candidate who obtains at the June Final Examination the highest marks in the subjects of Midwifery and Gynaecology. *Walter Myers Travelling Studentship.*—Holders of this Studentship, which will be awarded early in October in each year, must be under the age of 30 years at the date of application, and

must possess the degrees in Medicine and Surgery of the University of Birmingham. They must also possess the degree of B.Sc., obtained either at the University of Birmingham or London, or Oxford or Cambridge, should such degree be obtainable at either of those Universities. They must study for a year at one of certain Universities in Germany, and any papers that they may publish must appear under the name of the Walter Myers Studentship. The Studentship, which will be of the value of £150, will only be awarded should a candidate of sufficient promise present himself. The subjects in which the student may pursue investigations are pathology or clinical medicine, combined with pathological research. The studentship may be prolonged over a second year, but at a diminished stipend. *Russell Memorial Prize.*—This is a prize of books awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University, shall pass the best examination in the subject of nervous diseases. *William Richards Memorial Prize.*—This prize, value £3 3s., which belongs to and is adjudicated upon by the University Medical Society, is awarded to the student member of the society who shall send in the best paper during the year, such paper to be read at a meeting of the society. *Sands-Cox Scholarship.*—This Scholarship, value £42, is awarded to the candidate amongst those entering as students of the Faculty of Medicine in the month of October, who shall have obtained the highest marks at the Matriculation Examination in the previous month of June.

(*a*) No candidate shall be elected whose age exceeds 19 on the first day of the examination. (*b*) No candidate shall be elected who shall not have attained to a position in the first class, and satisfied the Examiners that he has shown sufficient merit for the award. (*c*) The payment shall be made in two annual instalments, and in the form of remission of fees. (*d*) The second instalment shall not be paid until the scholar presents a certificate from the Dean, showing that his first year's work has been satisfactory.

Queen's Scholarships.—Queen's Scholarships of the value of £10 10s. each are allotted annually, on the recommendation of the examiners, to the students taking the first place at the Second, Third, Fourth, and Final University Examinations respectively. *Sydenham Scholarships.*—One or more Scholarships of the value of £42 each are offered annually.

The scholar or scholars will be elected by vote of the Council on the recommendation of the Faculty of Medicine. The scholarships are limited to the orphan sons of legally-qualified medical men on entrance as first-year students of the University. The orphan sons of former students of the Birmingham Medical School will have priority of election. No Sydenham Scholar will be elected whose age exceeds 23 years on the day of election. The scholarship may be held for three years, subject to good behaviour; and one third of the Scholarship will be paid annually.

Clinical Prizes.—The following prizes are given annually by the Clinical Board: Senior Medical Prize (£5 5s.) for students during their final year. Senior Surgical Prize (£5 5s.) for students during their final year. Junior Medical Prize (£3 3s.) for students before the commencement of their final year. Junior Surgical Prize (£3 3s.) for students before the commencement of their final year. Midwifery Prize (£4 4s.) for students during their final year. *Entrance Scholarship for Dental Students.*—One will be offered annually of the value of £37 10s. It will be awarded to the student who, entering for the Dental Degree of the University in October, or having entered not earlier than the previous April, shall pass the best examination in the subjects studied during his apprenticeship.

Appointments open to Past Students.—At the General Hospital: One Resident Medical Officer, salary £70 a year: a degree in Medicine is necessary. One Resident Surgical Officer, salary £100 a year; must be F.R.C.S. One Resident Pathologist, salary £50 a year. Two non-resident Casualty Assistant Physicians, salary £50 a year. Two non-resident Surgical Casualty Officers, salary £50 a year. Two non-resident Anaesthetists, salary £50 a year. Five House-Surgeons, office tenable for six months, £50 a year. Two Assistant House-Surgeons, salary at the rate of £40 a year. Three House-Physicians, tenable for six months, £50 a year. One Resident Medical Officer at the Jaffray Branch Hospital, salary £150 a year. One Resident Assistant at the Jaffray Branch Hospital (post vacant early in April, July, October, and January), tenable for three months. At the Queen's Hospital: Three House-Physicians (posts vacant in January and April). Three House-Surgeons (posts vacant in January and April). One Obstetric and Ophthalmic House-Surgeon (post vacant in April and October). These appointments are tenable for six months. Salaries at the rate of £50 per annum, with board, lodgings, and washing. One Resident Dresser (post vacant on the first day of January, April, July, and October, tenable for three months); candidates must previously have attended all their lectures, etc., and need not be qualified. At the City Workhouse and Workhouse Infirmary: Five Resident Medical Officers. At the Birmingham General and Branch Dispensaries: Eight Resident Surgeons. At the Birmingham Lunatic Asylums: Five Assistant Medical Officers. At the City Fever Hospitals: Three Assistant Medical Officers. At the Children's Hospital: One Resident Surgical Officer, one Resident Medical Officer. At the Birmingham and Midland Eye Hospital: Three Resident Surgeons. At the Orthopaedic and Spinal Hospital: Four Clinical Assistants (non-resident). At the Ear and Throat Hospital: One House-Surgeon, four Clinical Assistants (non-resident). There are also four non-resident Poor-law appointments in the gift of the Board of Guardians.

University College, Bristol: Faculty of Medicine.

The lectures and instruction given in the Faculty of Arts and Science of University College, Bristol, are adapted to the various Preliminary Examinations, including the Preliminary Scientific Examination of the University of London; and students can complete in Bristol the entire course of study required for the medical and surgical degrees of the University of London, the diplomas of the Royal College of Physicians of London and the Royal College of Surgeons of England, and of the Apothecaries' Society of London.

Students of the College are admitted to the Clinical Practice of the Bristol Royal Infirmary and the Bristol General Hospital conjointly, and consequently both these institutions are open to all students.

The Infirmary and the Hospital comprise between them a total of 470 beds, and both have very extensive Outpatient Departments, Special Departments for the Diseases of Women and Children, and of the Eye, Ear, and Throat, besides large Outdoor Maternity Departments and Dental Departments. Students may also attend the practice of the Bristol Royal Hospital for Sick Children and Women, containing 104 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is therefore 614. Very exceptional facilities are thus afforded to students for obtaining a wide and thorough acquaintance with all branches of Medical and Surgical work. Each student has the opportunity of personally studying a large number of cases and of acquiring practical skill in diagnosis and treatment.

Appointments.—Royal Infirmary: House-Physician, House-Surgeon, Junior House-Physician, and Junior House-Surgeon; Clinical Clerks and Dressers, also Ophthalmic, Obstetric, and Pathological Clerks are appointed. The Dressers reside in the Infirmary in weekly rotation. *General Hospital:* House-Surgeon, Assistant House-Surgeon; Assistant House-Physician, and Casualty House-Surgeon; Clinical Clerks, Dressers, and Obstetric, Ophthalmic, and Pathological Clerks are appointed. The Dressers reside in the Hospital in rotation free of expense.

Scholarships and Prizes.—(1) Medical Entrance Scholarships (£75) after examination in subjects of general education. (2) Martin Memorial Pathological Scholarships, two of £10 each. (3) Tibbits Memorial Prize, value 9 guineas, for proficiency in Practical Surgery. (4) Committee Gold Medal for fifth-year Students for general proficiency. (5) Committee Silver Medal for the same. (6) Augustin Prichard Prize, value about 7 guineas, for proficiency in Anatomy. (7) Henry Clark Prize, value about 11 guineas, for general proficiency. (8) Crosby Leonard Prize, value 7 guineas, for proficiency in Surgery. (9) Suple Surgical Prize, a Gold Medal and 7 guineas in money. (10) Suple Medical Prize, a Gold Medal and 7 guineas in money. (11) Henry Marshall Prize, value about £12. Dresser's Prize. (12) H. M. Clarke Scholarship, value £15, for proficiency in Surgery. (13) Sanders Scholarship, value £22 10s., for general proficiency. Prizes and certificates are also awarded in the various classes of the College.

Fees.—The composition fee for the College courses and Hospital Practice is 133 guineas (or 140 guineas in two instalments, 80 guineas payable at beginning of first session, and 60 guineas at beginning of second year). Dental Composition Fee, 60 guineas.

Clinical and Bacteriological Research Laboratory.—This Laboratory has been established with the view of enabling medical men in the West of England to obtain reliable information and reports upon pathological material, to assist them in the clinical investigation of cases presenting obscure symptoms, and to afford them the opportunity of personally carrying out investigations.

Full information can be obtained on application to the Dean of the Medical Faculty, Professor Edward Fawcett, M.D., University College, Bristol.

UNIVERSITY OF LEEDS SCHOOL OF MEDICINE.

The Medical School which forms the teaching centre of the Medical Faculty of the University of Leeds is situated in immediate proximity to the General Infirmary where students sufficiently advanced receive their clinical instruction. The buildings were opened in 1894, and contain excellent dissecting rooms, several well-arranged laboratories for Physiology, Pathology, and Bacteriology, three lecture theatres, and several smaller class-rooms. In addition there are a library and reading-room and two museums, one being devoted to Pathology and the other to Anatomy. The comfort of the students is secured by a common-room and a refectory in which they can take meals. It is estimated by the authorities that the approximate cost of medical education to a student in this University is £188, plus, of course, the expenses of living during the five years covered by the curriculum. The General Infirmary has over 482 beds in constant use, and includes gynaecological and ophthalmic wards and a large new out-patient department. The Ida Semi-convalescent Hospital and Robert Arthington Hospital, Cookridge, attached to the Infirmary, has over 40 beds. The West Riding Lunatic Asylum at Wakefield is also open for the study of Mental Diseases. Students can, in addition, attend the practice of the Leeds Public Dispensary, the City Fever Hospitals (100 beds), the Hospital for Women and Children, and the Leeds Maternity Home.

Appointments.—Senior Anaesthetist, £50. Five Anaesthetists, £25 each. Medical Registrar and Surgical Registrar, at £25 each per annum. The Resident Medical and Surgical Officers, each at £150 per annum. The Casualty Officer, at £125 per annum. The Resident Ophthalmic Officer at £100 per annum. A Resident Obstetric Officer at £50 is attached to the Gynaecological Ward and an extensive external maternity department. A Resident Medical Officer is appointed every six months for the Ida Semi-convalescent Hospital (honorarium, £30). Six House-Physicians, each holding office for six months, and seven House-Surgeons holding office for six months. Physicians' Clerks and Surgeons' Dressers are appointed for six months; Ophthalmic and Aural Dressers, Gynaecological Ward Clerks, Gynaecological Out-patient Clerks, Maternity Clerks, Assistant Physicians' Clerks, Laryngological Clerks, and Assistant Surgeons' Dressers, Assistant Ophthalmic Surgeons' Dressers, Dressers in the Casualty Room, *Post-mortem* Clerks, and Laboratory Assistants for three months. A Clinical Pathologist (£200 per annum) has charge of the new pathological laboratory. Appointments are also open to students at the Leeds Public Dispensary (three Resident Medical Officers, with salaries commencing at £80), at the Hospital for Women (House-Surgeon, honorarium £120, and Anaesthetist £25), and at the West Riding Asylums.

Entrance Scholarships.—The University awards annually a Scholarship on the results of the July Matriculation Examination in the form of a free admission to the lectures and classes covered by the composition fee. Candidates must have passed the first (Scientific) Examination of the University, or the Preliminary Scientific (M.B.) Examination of the London University. The Infirmary also awards a scholarship on the results of the First Examination of the value of 40 guineas in the form of a free admission to the clinical teaching of the Infirmary.

Fees.—The composition fee for the University courses is £71 0s. 6d. (for Students who have passed the Second Examination 41 guineas), and for the Infirmary £42.

Further information can be obtained from the Dean, School of Medicine, Leeds, or from the Secretary of the Faculty, General Infirmary, Leeds.

THE VICTORIA UNIVERSITY OF MANCHESTER: MEDICAL DEPARTMENT.

The Royal Infirmary contains 292 beds; associated with it are the Convalescent Hospital (136 beds) and the Royal Lunatic Asylum at Cheadle, accommodating, with its branches, 430 patients.

Appointments.—The following appointments are made: A Surgical Registrar, at £80 per annum, and an additional £30 is paid to that officer when acting as Surgical Tutor; a Pathological Registrar, at £100 per annum; a Medical Registrar, at £70 per annum; a Director of the Clinical Laboratory, at £200 per annum; an Assistant Director of the Clinical Laboratory, at £50 per annum, and an additional £25 per annum is paid to the present holder of this appointment for undertaking the *x*-ray treatment of disease; Assistant Medical Officer and an Assistant Surgical Officer, each at £50 per annum; an Anaesthetist, at £50 per annum; an Assistant Anaesthetist at £50 per annum; a Third Anaesthetist is appointed for six months, 30 guineas; an Accident House-Surgeon is appointed for three months, 20 guineas; Resident Medical Officer, one year, £150 per annum; ditto, at Cheadle, one year, £150 per annum; Resident Surgical Officer, one year, £150 per annum; an Assistant Medical Officer at the Convalescent Hospital at Cheadle is appointed every six months, at a salary of £80 per annum; two House-Surgeons and two House-Physicians are appointed every three months for a term of six months. The House-Physicians and House-Surgeons and Resident Assistant at Cheadle must possess a qualification which can be registered. Four or more Clinical Clerks are attached to each Physician and Assistant-Physician, and to the Obstetric Physician, and four or more Dressers to each Surgeon and Assistant-Surgeon, and to the Ophthalmic Surgeon, and four or more Clerks to the Pathological Registrar, two Clerks to the Director of the Clinical Laboratory, and a number of Clerks, not exceeding six, are appointed to assist the Medical Officer for Home Patients. Accident Room Dressers will be appointed every three months, and will hold their appointments for three months; there will be three Senior Dressers and twelve or more Junior Dressers, the former selected from students who have acted as Dressers in the ward for a full period of six months. Additional Clinical Clerks are appointed to assist in the departments for the Diseases of the Eye, Ear, and Throat.

Entrance Scholarships.—Rogers and Seaton Scholarships (in alternate years), £40 per annum, tenable for two years. Subjects: Greek and Latin. Credit given for knowledge of Geometry, Algebra, French, German, and English. Examination, May, 1907. Dalton (entrance), two of £40, one of which will be awarded annually, except in such years as a Cartwright Scholarship is awarded; tenable for two years. Subjects: Geometry (Euclid I to IV and VI, or the subjects thereof); Algebra (as far as the Binomial Theorem, inclusive); Plane Trigonometry (to Solution of Triangles); Elementary Analytical Geometry, the Conic Sections. Credit given for knowledge of Classics and Modern Languages (including English); Examination in May, 1908, Cartwright Scholarship £35 per annum, tenable for three years; subjects as in Dalton. Examination in 1912, Hulme, three of £35, one of which will be awarded annually, tenable for three years. Examination in May, 1907. Subjects: English Language (Grammatical Structure and Outlines of Its History); English Literature (an Essay on some subject of English Literature), and Modern History (Outlines of English History and Geography); with at least two of the following: Latin (Translation at sight; Grammar and Easy Composition); Greek (ditto); French (ditto); German (ditto). Credit given for knowledge of Mathematics (Geometry and Algebra). James Gaskill, two of £35, one of which will be awarded annually, and tenable for two years. Examination in May, 1907. Subjects: Mathematics—Geometry (the subjects of Euclid, I to IV and VI); Algebra (as far as the Binomial Theorem inclusive); Plane Trigonometry (to Solution of Triangles); Elementary Mechanics, including composition and resolution of forces in a plane, centre of gravity of simple bodies, uniform acceleration, direct impact, the elements of

Hydrostatics, Boyle's Law. Chemistry: Inorganic Chemistry; Practical work, including preparations, analysis of mixtures of inorganic salts, easy quantitative analysis. Credit given for knowledge of Classics, elements of English Language, Literature, and History; French, German. Dora Muir Scholarship £25 per annum, tenable for three years, and open to the competition of women students only. Awarded triennially. The scholarship will be awarded on the results of the Examination for the Entrance Scholarship, and candidates may elect to take such papers as they desire from amongst those set for other Entrance Scholarship Examinations, with the sanction of the Senate. Next competition in May, 1908. Sir J. P. Kay-Shuttleworth Scholarship, £30 per annum, tenable for three years, open to the competition of scholars from Sedbergh School, Giggleswick School, and Burnley Grammar School. Next competition in May, 1909. Subjects: Geometry, Algebra, Trigonometry, Chemistry, Practical Chemistry, and Mechanics, as in the James Gaskill. Theodores Modern Languages Exhibition, £15, awarded annually. Examination in May, 1907. Subjects, French and German. Two Dauntesey Medical Scholarships, value £35, tenable for one year. Candidates must not have attended lectures in a medical school. Subjects of examination: Zoology, Botany and Chemistry. The successful candidates must enter for the full course of medical studies at the University. A Matriculation Entrance Scholarship of the value of £30 per annum, and tenable for three years, is awarded to the duly qualified competitor who stands highest at the July Matriculation Examination.[1] Grammar School Scholarships, two or three of not less than £15 or more than £30 per annum, tenable for three years, open to scholars of the Manchester Grammar School between the ages of 16 and 20. Subjects: Mathematics with Classics and Physical Science in alternate years. A subject for an English Essay will be set each year. Entrance Scholarships in Medicine.—Two each of the value of £100 will be awarded annually for proficiency in Arts and Science respectively. The award will be made on the proofs of proficiency shown. Robert Platt Physiological Scholarships: Two of £50 each, tenable for two years, awarded as an examination in Physiology, Histology, and Comparative Anatomy. Robert Platt Zoological and Botanical Scholarship—£50 for one year, but renewable for a second year—awarded to the candidate who shows most promise for prosecuting original research in Zoology and Botany. Other Fellowships, Scholarships, and Exhibitions varying in value from £15 to £100 are also offered for award. Honorary Research Fellowships: Tenable for two years, conferring the right of free use of university laboratories, awarded generally in October, on application, with evidence of capacity for independent investigation. Open to students of the University only:—Leech Fellowship: One of £100 awarded annually for excellence and promise in one or more of the subjects of the Second or Final M.B. Examination. Graduate Scholarship in Medicine: One of £25 to £50, tenable for one year, is awarded annually on the results of the Second Examination for the Degrees of M.B. and Ch.B. Robert Platt Exhibitions in Physiology: Two Exhibitions of the value of £15 each are offered annually for the competition of first and second years' students in Physiology. Robert Platt Biological Exhibitions: One or more Exhibitions, each of the value of £15, for the promotion of the study of Biology, are awarded on the results of the class or University degree examinations. Sidney Renshaw Exhibition in Physiology: An Exhibition of the value of £15 is offered annually for the competition of students in Physiology. Professor Tom Jones Exhibition in Anatomy, of the value of £25, is offered annually for competition to first year's students in Anatomy. Dumville Surgical Prize: Value £15. The Prize will consist of Books or Surgical Instruments at the option of the successful candidate at an examination on Systematic Surgery, Practical Surgery, Surgical Anatomy, and Surgical Pathology. Professor Tom Jones Memorial Surgical Scholarship: Value £100, and tenable for one year, will as a rule be offered for competition triennially. Candidates must be graduates in Medicine and Surgery of the University of Manchester, or have passed the Final Conjoint Examination of the Royal College of Physicians and Surgeons of England, and must have spent at least three years of their course of Medical and Surgical study at the University. No special examination is held for the Scholarship. The next award will be made in September, 1907. Turner Medical Scholarship: Value £20, offered annually to the competition of students who have completed a course of medical study in the University extending over a period of not less than four nor more than five years, in which all the subjects of the examination shall have been included. The subjects are: Medicine, Pathology (written and practical), Obstetrics, Practical Surgery, Ophthalmology, Forensic Medicine, Public Health. John Henry Agnew Scholarship: Value £30. This scholarship is open to the competition, annually, of all students in the Medical Department who have pursued a regular course of medical study in the University extending over a period of not less than four years or more than six, and who have attended the course of lectures on Diseases of Children, and is awarded on the results of an Examination on Diseases of Children, Medical and Surgical.

Class Prizes, etc.—Medals and Certificates are awarded on the results of the Class Examinations in each of the subjects included in the curriculum.

Clinical Prizes.—The Bradley Memorial Scholarship in Clinical Surgery, of the value of £20, and two Clinical Prizes, value 6 guineas each, are awarded annually to students of the Royal Infirmary.

Gold Medals are awarded for dissertations of sufficient merit by candidates for the degree of M.D. Future arrangements are under consideration.

Full particulars as to Fellowships, Scholarships, and Prizes will be found in the *Calendar*.

Fees.—The composition fee for the University courses is £70, payable in two instalments of £35 each.

Prospectuses may be obtained from the Registrar, Mr. E. Fiddes, M.A.

[1] This announcement must be taken as provisional, arrangements being at present under consideration.

University of Sheffield: Faculty of Medicine.

The Winter Session 1906-7 will commence in the new University buildings on Wednesday, October 3rd. The University was opened on July 12th, 1905, by His Majesty King Edward VII. The plan of the building is that of four blocks enclosing a quadrangle 154 ft. by 110 ft. The medical department occupies the entire north wing overlooking the quadrangle on one side and Weston Park on the other. The Department of Anatomy occupies two-thirds of the upper ground floor, together with a portion of the lower ground floor, where the reception and storage room is situated. The dissecting room has been designed and equipped to meet all the modern requirements of the student of Anatomy, and is well lighted by six large windows, and floored with non-porous polished oak parquetry blocks. The lecture theatre accommodates 50 students, and is provided with a lantern of modern type illuminated by the electric arc. The anatomical museum has a gallery which is set apart for morphological and anthropological specimens, the floor space affording accommodation for bones, models, spirit specimens, and dissections. Research laboratories are provided for the professor and demonstrator. The physiological department occupies the first floor. In the general laboratory—a large, well-lighted room—accommodation is provided for microscopical work at a bench running the whole length of the laboratory beneath the windows. The space behind is occupied by separate movable tables, each equipped for the purposes of experimental work, an arrangement which permits of the students working either singly or in small groups. The fixed equipment of the room is designed to provide power for machinery, gas, electricity, and water wherever the tables may be situated. The second laboratory, for chemical physiology, is fitted with benches, fume cupboards, etc., for the same number of students as are provided for above. In addition, a large portion of this room is devoted to and equipped for work of a more advanced type. Opening into this laboratory are a balance room and two rooms fitted for photography, spectroscopy, etc. Opportunities are afforded for research work in three special rooms; one beautifully lighted by windows in two of its walls for general research, another which can be darkened for optical work, and a third (in the basement) is provided with the solid pillars, etc., necessary for work with delicate instruments requiring great stability. In the lecture theatre, seating fifty students, a large amount of space has been left for the demonstration of experiments, and is

equipped with the larger pieces of apparatus necessary for such work. The pathological department occupies the whole of the upper floor, and in this, as well as in the anatomical and physiological departments, no space is taken up by corridors, the plan being for the majority of the rooms to lead from one to the other. The students' laboratory, a large and lofty room, is equipped with every modern appliance for microscopical and bacteriological work. The lecture theatre has sitting accommodation for about fifty students. An incubating room, built into the centre of this department, is a special feature; it is so arranged that it can be kept at a constant temperature, thus replacing the ordinary incubating ovens. There is a spacious and well-lighted pathological museum, with gallery. The professor and demonstrators are provided with several research laboratories. The photographic and store rooms are situated in the roof and turrets. Well-furnished lecture rooms for other subjects, and the materia medica museum are on the upper ground floor, and the library of the Medico-Chirurgical Society, to which students have access, is on the ground floor beneath, on the level of the quadrangle.

Clinical instruction in Medicine and Surgery is given at Sheffield Royal Infirmary and the Royal Hospital, and in Midwifery and Gynaecology at the Jessop Hospital for Diseases of Women (80 beds). Students are also admitted to the practice of the Borough Fever Hospitals and the South Yorkshire Asylum. The Royal Infirmary contains 255 beds, including Ophthalmic Wards (30 beds) and departments for Diseases of the Skin and of the Ear, Nose, and Throat. The Royal Hospital contains 165 beds, and Dental and Ophthalmic departments, and special out-patient departments for Diseases of the Skin, Nose and Ear, Eye, Throat, and Mental Diseases.

Dental Department.—A complete course of instruction in the subjects required for the L.D.S. is given, Dental Hospital practice being taken out at the Royal Hospital. The three years' course of Mechanical Dentistry may be taken out in the Dental Laboratory of the same institution.

D.P.H. Course.—The courses of instruction for the D.P.H. are recognized by the Universities of Cambridge and London and by the Royal College of Surgeons.

Persons of either sex are admitted to the degrees of the University.

Scholarships, etc.—An Entrance Scholarship of the approximate value of £100 is awarded on the results of the Matriculation Examination of the Joint Matriculation Board held in July. The "Kaye Scholarship" (being the interest on £900) for second-year students is awarded annually under certain regulations. A gold medal in Clinical Medicine and Surgery is awarded by the Clinical Committee. Medals and Certificates are awarded annually.

Fees.—The composition fee, if paid at the commencement of medical study, is £80, payable in three annual instalments of £24, £28, £28. The composition fee for Hospital Practice is £36 15s. in one payment, or £18 18s. on commencing Hospital Practice and £18 18s. twelve months later.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-ON-TYNE.

A New Wing has been added to accommodate the departments of Physiology and Bacteriology. It also contains a Students' Gymnasium and a set of Students' Union Rooms.

Appointments.—Assistant Demonstrators of Anatomy and Prosectors for the Professor of Anatomy, Assistant Physiologists, Pathological Assistants, Assistants to the Dental Surgeon, and Assistants in the Eye Department, Throat and Ear Department, and Department for Skin Diseases are elected annually. The Assistant Demonstrators of Anatomy receive £5 each; the others are unpaid. Four times in the year Clinical Clerks and Dressers are appointed for three months.

The New Royal Victoria Infirmary, containing upwards of 400 beds, has recently been opened by H.M. King Edward VII. In the new Infirmary adequate accommodation will be provided for the study of the various special subjects, in addition to the ordinary Clinical work.

Scholarships.—A University of Durham Scholarship, value £100, for proficiency in Arts, open annually at the beginning of the winter session to intending students. The Dickinson Memorial Scholarship, interest £400, with a gold medal, for Medicine, Surgery, Midwifery, and Pathology, open to perpetual students in their fifth year. The Tulloch Scholarship, interest of £400 annually, for Anatomy, Physiology, and Chemistry for students at the end of their second year. The Charlton Memorial Scholarship, interest of £700 annually, open to full students entered for the class of Medicine, at the end of their fourth or fifth winter. The Gibb Scholarship, interest of £500 annually, for Pathology, at end of summer session. The Goyder Memorial Scholarship, proceeds of £325; subjects: Clinical Medicine and Clinical Surgery. Luke Armstrong Memorial Scholarship, proceeds of £680, for best essay on some subject in Comparative Pathology. The Scholarship is open to all graduates in Medicine or Hygiene, and candidates for these degrees who have spent at least six months at the University of Durham, and whose age does not exceed 30 years. The Stephen Scott Scholarship in Surgery, interest on £1,000 annually. The Heath Scholarship. The late George Y. Heath, M.D., M.B., D.C.L., F.R.C.S., President of the University of Durham College of Medicine, bequeathed the sum of £4,000 to found a scholarship in surgery, the interest to be awarded every second year. First award in 1896. The Gibson Prize in Midwifery and Diseases of Women and Children, interest on £225.

Fees.—The composition fee for the College course is 72 guineas.

UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE: SCHOOL OF MEDICINE, CARDIFF.

This College, which is one of the Colleges of the University of Wales, has, since its foundation in 1883, prepared students for the Preliminary Scientific Examination of the University of London, and for the corresponding examinations of other licensing bodies. In 1893, Chairs of Anatomy and Physiology, and a Lectureship in Materia Medica and Pharmacy were established, making it possible for students of medicine to spend three out of the five years of prescribed study at Cardiff. Arrangements with the Managing Committee of the Cardiff Infirmary give students of the College the privilege of attending this large and well-ordered Hospital, which is situated within five minutes' walk of University College. Many students, especially from Wales and Monmouthshire, avail themselves of the opportunity thus afforded to pursue the earlier part of the medical curriculum near home.

All classes, at the College and at the Infirmary, are open alike to both men and women students over 16 years of age.

The courses of instruction given at Cardiff are recognized as qualifying for the examinations of the Universities, Royal Colleges, and other licensing bodies of Great Britain and Ireland.

Having spent two or three years in study at Cardiff, and having passed the examinations corresponding to these years, a student may proceed to London or elsewhere and complete his qualifying course for a University Degree or for a College Diploma.

Students preparing for the Preliminary Scientific and Intermediate Examination in Medicine of the University of London may compound for their three years' instruction at Cardiff by paying a single composition fee of £57 10s., or by paying £13 13s., £28, and £2, at the beginning of their first, second, and third years respectively.

Students preparing for the First and Second Examinations of the Conjoint Board for England, or for the corresponding examinations of the Conjoint Board for Scotland, or for those of the Society of Apothecaries, may compound for their classes by paying a single composition fee of £41 10s., or by paying £20 and £24 10s. at the beginning of their first and second years respectively.

In 1899 a department of Public Health was established, and Lecturers in Bacteriology and in Public Health and Hygiene were appointed. Medical men preparing for a Diploma in Public Health and Hygiene can attend complete courses of Lectures and Laboratory instruction in this department. These courses are recognized by the Universities of Cambridge and London, by the Royal Colleges of Physicians and Surgeons, and by Victoria University.

Students preparing for a University Degree in Medicine

can, with some additional work in the first three years of their study, take courses qualifying for the B.Sc. degree in the University of Wales.

A course of Lectures to Midwives, adapted to the requirements of the Central Midwives Board, under the Midwives Act, was commenced in October, 1904. The Lectures are suitable both for pupil midwives and practising midwives, as well as for nurses who desire to enter for the examination for certification under the Act.

Scholarships and Exhibitions.—A considerable number of scholarships and exhibitions are open to students of Medicine. The examinations for these take place in September (see Syllabus of Examination, which may be obtained on application to the College Registrar).

Further information may be obtained by application to the Dean of the Faculty of Medicine.

SCOTLAND.

University of Aberdeen.

The Faculty of Medicine comprises twelve chairs, from which instruction is given in all the main branches of medical science, namely, Botany, Zoology, Physics, Chemistry, Anatomy, Physiology, Materia Medica, Pathology, Forensic Medicine, Surgery, Medicine, and Midwifery. Special opportunities for practical instruction are afforded in the laboratories and museums attached to these departments. Clinical instruction is obtained in the Royal Infirmary (accommodating 200 patients), the Royal Lunatic Asylum (700 patients), the Sick Children's Hospital (75 patients), the City Fever Hospital (100 patients), the General Dispensary, etc. (10,000 out-patients annually), and the Ophthalmic Institution (1,600 patients annually). Courses of practical instruction are given in Diseases of Children at the Sick Children's Hospital; in Fevers at the City Fever Hospital; in Insanity at the Royal Asylum; in Diseases of the Ear and Larynx at the Dispensary; in Diseases of the Eye at the Infirmary and Eye Institution; in Diseases of the Skin at the Royal Infirmary. The fee for each University course is, as a general rule, £4 4s.; and for a second attendance, £3 3s. Matriculation Fee, both sessions, £1 1s.; summer session alone, 10s. 6d.: Royal Infirmary, Perpetual Fee, £6; or, first year, £3 10s.; second year, £3. The winter session begins on October 16th, 1906. Bursaries, Scholarships, and Fellowships, to the number of fifty, and of the annual value of £1,180, may be held by students of medicine in this University. They range from £8 to £100 per annum, and are tenable in most cases for two or three years.

Edinburgh University.

Practical Instruction.—The following means are afforded for practical instruction: Royal Botanic Garden, Herbarium, and Museum; Zoological Laboratory and Museum of Science and Art; Physical Laboratory; Chemical Laboratories; Dissecting Room, Bone Room, and Anatomical Museum, Physiological Laboratory, Medical Jurisprudence Laboratories; John Usher Institute of Public Health; Materia Medica Museum and Laboratory; *Post-mortem* Department of the Royal Infirmary; and University Pathological and Bacteriological Laboratory: Royal Infirmary of fully 800 beds; Royal Hospital for Sick Children, with nearly 100 beds; Maternity Hospital; City Fever Hospital, with nearly 400 beds; Mental Diseases at Royal Morningside Asylum; Tutorial Classes of Practice of Physic, of Clinical Medicine, and Clinical Surgery, Surgery, and Midwifery.

Fees.—The Sessional Fee for Zoology, Botany (Garden Fee, 5s.), Chemistry, Anatomy Lectures, Physiology, Pathology, Materia Medica, Medical Jurisprudence, Surgery, Medicine, Midwifery and Gynaecology, Clinical Surgery (Winter), Clinical Medicine (Winter), is £4 4s. each. Second Course, £3 3s. Third Free. A perpetual ticket taken at the beginning of the first year is £6 6s. Physics, Practical Chemistry, Advanced Practical Physiology, Practical Pathology, Clinical Surgery (Summer), Clinical Medicine (Summer). Practical Anatomy (Winter), Operative Surgery, Obstetric Operations, Practical Materia Medica, including Pharmacy, Pathological Bacteriology, Experimental Pharmacology, Vertebrate Morphology and Comparative Embryology are £3 3s. Practical Botany (besides Garden Fee of 5s.), Elementary Practical Zoology (besides charge of 10s. for Laboratory expenses), Practical Physiology (Experimental), Practical Physiology (Histological), Practical Botany (Advanced), Practical Zoology (Advanced), Practical Anatomy (Summer), Anthropology, Anatomy Demonstrations, Diseases of Children, Diseases of the Eye, Diseases of the Larynx, Ear, and Nose, Diseases of Tropical Climates, Clinical Instruction on Diseases of the Skin, Regional Anatomy, Physiological Chemistry, Invertebrate Zoology, Organic Chemistry, Mental Diseases, £2 2s. Applied Anatomy (medical and surgical), £1 1s. Vaccination, £1 1s. Matriculation Fee, £1 1s. for each year, or 10s. 6d. for a Summer Session. Library opens from 10 to 4: Saturdays, 10 to 1.

Fellowships, Scholarships, Bursaries, and Prizes open to competition in 1906-7:

Fellowships.

1. *The Leckie-Mactier Fellowship* of about £74 per annum, tenable for three years, open to M.B.'s of not more than three years' standing. Examination in November, 1907. Names to be entered before October 15th.

2. *The Allan Fellowship in Clinical Medicine and Clinical Surgery*, of about £52, awarded annually, after competitive examination of the six candidates who obtained the highest marks in the subjects named in the Final Examination.

Funds for Research.

1. *The William Dickson Travelling Fund*, of the annual value of £90, usually divided into grants of varying amounts.

2. *The Earl of Moray Fund for the Promotion of Original Research.*—The annual income is about £630, available for payment of the actual expenses of original research.

3. *Carnegie Post-graduate Scholarships* (£100), *Fellowships* (£150) *and Grants in Aid for Research in Medicine.*—Application forms from the Secretary to the Trust, 14, Hanover Street, Edinburgh. These to be returned by May 1st.

4. *Four M'Cann Medical Research Scholarships*, each of £100 for one year, but may be renewed for a second year, open to all graduates of not more than two years' standing, after examination in Therapeutics, Public Health, Physiology, and Physiological Chemistry. Nomination necessary. Forms (to be returned by September 1st, for examination in October) and particulars from M'Innes, M'Kenzie, and Lockhead, 7, Gilmour Street, Paisley.

Scholarships.

1. *Vans Dunlop Scholarship*, of £100, tenable for three years, to be awarded in either October, 1906, or March, 1907, to the candidate who at the Medical Preliminary Examination has obtained the highest number of marks.

2. *The Thomson Scholarship* of £40 for four years, after examination in Botany, Zoology, and Elementary Mechanics, at beginning of First Winter.

3. *Sibbald Medical Scholarship* of £40, tenable for three years, for highest marks in Chemistry, Botany, Zoology, and Physics.

4. *Two Crichton Scholarships for Research*, each of the value of £100, tenable for one year, with power of re-appointment, one in Materia Medica and one in Pathology.

5. *The Mouat Scholarship in Practice of Physic*, of about £57 (partly in money and partly in the form of a bronze medallion) for the highest marks in the class of Medicine and in that subject in the Final.

6. *The Murchison Memorial Scholarship*, annually. Proceeds of £1,000 for proficiency in Clinical Medicine. Examination in Edinburgh in 1907.

7. *The Buchanan Scholarship*, £40 annually, for proficiency in Midwifery and Gynaecology.

8. *The James Scott Scholarship*, about £34 annually, for proficiency in Midwifery.

9. *The Ettles Scholarship in Medicine*, £32 annually, to the most distinguished graduate.

10. *Two Hope Prize Scholarships*, each £30, for one year, for excellence in Chemistry.

11. *The Houldsworth Scholarship*, £49 annually, tenable for one year, with power of re-election, for promotion of research in Pharmacology in that department in the University.

12. *The Grocers' Company of London* offer Scholarships of £300 a year, with an allowance to meet cost of apparatus and other expenses in connexion with Research Work, tenable for one year, but renewable for a second or third year. Apply to the Clerk to the Grocers' Company, Grocers' Hall, London, E.C.

Bursaries.

1. *Town Council Bursaries.* A number are vacant. Apply City Clerk, Council Chambers, Edinburgh.

2. *The M'Cosh Graduate's Bursary*, of about £172, and *M'Cosh Medical Bursary*, of about £12 7s. 10d. Tenable for one year. Both for research.

3. *Two Sibbald Bursaries*, of £30 a year, tenable for three years.

4. *Two Thomson Bursaries*, £25 each, tenable for four years.

5. *Five Grierson Bursaries*. Three of £20 and two of £10. Preferential in the first place.

6. *Two Mackie Bursaries*, each of about £29, tenable for one year, awarded at end of first, and end of second *annus medicus*.

7. *Two John Aitken Carlyle Bursaries*, each £29, tenable for one year.

8. *Four Mackenzie Bursaries*, each of £8, awarded annually in Practical Anatomy.

9. *Renton Bursary*, £20, tenable for one year, with restrictions.

10. *Two Crichton Bursaries*, £50 each, tenable for four years, for Scottish Students.

Prizes.

1. *The Medical Faculty Gold Medals*, given to M.D.'s whose theses are deemed worthy.

2. *Ellis Prize in Physiology*, value about £100, for the best Essay or Treatise on "Excretion" sent to the Dean of the Faculty of Medicine before April 30th, 1907.

3. *The Neill Arnott Prize*, £39 annually.

4. *The Beaney Prize*, for highest marks in Anatomy, Surgery, and Clinical Surgery in the Professionals, £32 annually.

5. *The Cameron Prize*, £80, awarded annually for "any highly important and valuable addition to Practical Therapeutics" in the course of the five years preceding the award.

6. *Two Gunning Victoria Jubilee Prizes*, one in Obstetrics, and one in Forensic Medicine and Public Health, each of the value of £50, awarded at graduation in July, 1907.

7. *The Conan Doyle Prize*, of about £32, awarded annually to the most distinguished graduate of the year from South Africa.

8. *The Wightman Prize in Clinical Medicine*, £15 annually.

9. *The Pattison Prize in Clinical Surgery*, £11 annually.

10. *The Robert Wilson Memorial Prize in Chemistry*. Silver medal and about £7 annually.

11. *The Dorothy Gilfillan Memorial Prize* of about £11 annually to the most distinguished woman student in the Final M.B., Ch.B.

12. *Gray Prize Essay Fund*. Subject, number, and amount of prizes will be posted at the University gate in March.

13. *The Lord Rector's Prize*, £26 5s.

Lectureship.

The Swiney Lectureship in Geology, value £144 per annum, tenable for five years, is open to graduates, and is in the patronage of the Trustees of the British Museum.

Full particulars of all these will be found in the University *Calendar* for 1906-7, price 3s. net, or in the *Medical Programme*, price 2d., to be had from Mr. Thin, 55, South Bridge, Edinburgh.

EDINBURGH ROYAL INFIRMARY.

There are over 900 beds and 100 at the Convalescent House at Corstorphine. For last year the in-patients numbered 11,016, and the out-patients 34,564. Instruction is given in all the special departments of medicine and surgery, in gynaecology, eye, ear, throat, and nose affections, diseases of skin, dental work (extraction, stopping, and artificial cases), the administration of anaesthetics, electro-therapeutics, hydro-therapeutics, and *x*-ray work, etc. Women are admitted and receive special and separate tuition on both the medical and surgical sides. Nine resident physicians and ten resident surgeons (three of whom are entirely set apart for the out-patient department) are appointed every six months. They live in the hospital free of charge, save for laundry. They must be registered. Thirty non-resident clinical assistants are also appointed for six months in the various departments. The Physicians and Surgeons appoint their own clerks and dressers, and assistants in the Pathological Department are appointed by the Pathologist. Fees: Six months £4 4s.; one year, £6 6s.; perpetual ticket, £12 if paid in one sum, or £12 12s. if by separate payments.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.

The teaching is similar to that of the Scottish Universities, and the students receive similar certificates at the close of each session. The courses on the special subjects not included in the curriculum of the Examining Boards are also conducted by teachers specially qualified in each branch, and have for the last quarter of a century formed a special feature of the School.

This School of Medicine is composed of Lecturers licensed by the Royal Colleges of Physicians and Surgeons, and also recognized by the University through their *licentia docendi*, who, for the sake of convenience, lecture in separate buildings near at hand to the Royal Infirmary. The Lecturers form one body, are all subject to the same rules and regulations, and enjoy the same privileges. A new constitution and set of regulations have recently been drawn up, in virtue of which a medical corporation has been formed, recognized by both Royal Colleges; the government of the School is placed in the hands of a Governing Board consisting of five members elected by the Royal College of Physicians, of five members elected by the Royal College of Surgeons, and of five members elected by the Lecturers in the School. This Board, with the assistance of the Standing Committees of the School, supervises the whole management, and specially the maintenance of the efficiency and discipline of the School. The different buildings at present utilized for the purposes of lecturing are the following: (1) Surgeons' Hall, Nicolson Street; (2) Minto House, Chambers Street; (3) Nicholson Square; (4) Marshall Street; (5) the New School, Bristol Street; and other places.

MEDICAL COLLEGE FOR WOMEN, EDINBURGH.

Clinical instruction in the Royal Infirmary qualifies for graduation in the Universities. Precisely the same facilities for medical study are given as to male students in the School of Medicine, Edinburgh. Arrangements, fees, and regulations are similar. All the teachers are qualified lecturers of the School, and their courses admit to the various qualifying bodies for women. The lecturers are also recognized by the University of Edinburgh as giving courses admitting to the degrees of M.B., Ch.B. In the case of those proceeding to such degrees, the same fees as those in the University must be paid. The classes, with the exception of those in the Royal Infirmary, are open to all ladies, whether taking a full medical curriculum or not. Prospectus and all information from the Secretary, 20, Chambers Street (Minto House).

UNIVERSITY OF GLASGOW.

The whole course of study required for graduation at the University of Glasgow can be passed in the Medical School of that University. Besides work of a practical and clinical kind in the hospitals, practical courses are conducted in the laboratories of the following departments: Surgery, Pathology, Public Health, Pharmacy, Physiology, Anatomy, Chemistry, Zoology, Physics, and Botany, the Botanic Garden and the Hunterian Museum being also open to students. New buildings and equipments have recently been provided for Botany at a cost of £20,000, for Practical Anatomy at £14,000, for Operative Surgery at £9,900, as well as for Pathology, while very large additions, costing nearly £12,000, have been made to the Chemistry Laboratory, rendering it probably the most extensive in Scotland. New class rooms and laboratories are now in course of erection for the departments of Physiology, Materia Medica, and Medical Jurisprudence and Public Health, to cost with equipment upwards of £60,000. The University has of late been making efforts to extend and improve the accommodation, especially the laboratories, of the medical departments, to strengthen the teaching staff, and to encourage post-graduate and research work.

Partial Study elsewhere.—Only two of the five years need be spent at the University; the remaining three may be spent in such university or schools, or under such teachers, as are recognized by the University Court.

Bursaries.—Bursaries confined to the Medical Faculty amount in annual value to about £950, while bursaries in any Faculty, amounting to about the same annual sum, may be held by students of medicine, a number of both sets being open to women. Some are definitely restricted to women. Several valuable scholarships may be held by medical students who have graduated in Arts.

Hospitals.—Three very extensive General Hospitals in the City afford exceptional opportunities for clinical instruction, namely, the Western Infirmary (416 beds), near the University, and attended by the bulk of the men students; the Royal Infirmary (622 beds); and the Victoria Infirmary (180 beds); while the Royal Asylum (460 beds), the Royal Hospital for Sick Children (74 beds), the Maternity Hospital (34 beds), the Glasgow Eye Infirmary (100 beds), the Fever Hospitals at Belvidere (680 beds), and Ruchill (540 beds), and other institutions, afford facilities for the practical study of special branches

Fees.—The matriculation fee for each year is £1 1s. In most cases the fee for each University Class is £4 4s., but in some cases it is £3 3s. For hospital attendance students pay an entrance fee of £10 10s. at the Western Infirmary, with an additional fee of £3 3s. for each winter and £2 2s. for each summer clinical course; while at the Royal Infirmary the fees for the first year are £10 10s. and and the total fees £21. The University fee for the four professional examinations is £23 2s. (£6 6s. for each of the first and second examinations, and £5 5s. for each of the third and fourth). For the whole curriculum, the fees for matriculation, class attendance, Hospital attendance and professional examinations, amount to about £150.

Public Health.—An ordinance empowering the University to confer the degrees of B.Sc. and D.Sc. in Public Health received the sanction of the King in Council on May 20th, 1903. To be eligible for these degrees candidates must be graduates in Medicine of a University of the United Kingdom, or of some other recognized University.

The Women's Department of the University (Queen Margaret College).—The course of study, degrees, regulations, fees, etc., are the same as for men. Women students have their own buildings with class rooms, reading room, library, etc., and are mainly taught in classes apart from male students, but have all the rights and privileges of university students. Their clinical studies are taken in the Royal Infirmary, where wards are reserved for their exclusive use, and in its dispensaries; also in the Royal Hospital for Sick Children; the Glasgow Ear Hospital; the Hospital for Skin Diseases; the Royal Asylum, Gartnavel; the City of Glasgow Fever Hospitals, Belvidere, and Ruchill; and the Glasgow Maternity Hospital.

Scholarships and Bursaries at Queen Margaret College.—The Arthur Scholarship, annual value £20, tenable for three years. Open to competition by medical students of first year at the First Professional Examination in October, 1907. This Scholarship is the gift of Mrs. Arthur, of Barshaw, and is restricted to women medical students. The following Bursaries are open to students of both sexes: The Dr. Thomas Gibson Bursary, annual value £36, tenable for four years. Open to medical students who are preparing for service as medical missionaries in connexion with the Church of Scotland. Next vacancy in 1906. It will be awarded to the eligible candidate who has gained the highest number of marks in the First Professional Examination. One Logan Bursary, annual value £17, tenable for four years; appointment by the Senate. Next vacancy, 1909. The Mackintosh Mental Science Bursary in Medicine, of the value of £31, is awarded annually to the student (of either sex) attending the class of Insanity, who stands first in an examination in that subject, to be held in June—the Bursar to continue the practical study of the subject to the satisfaction of the Faculty of Medicine. The William Gardiner Bursary, annual value £14, tenable for two years, will be awarded after the autumn professional examination to the candidate who has passed in Physiology at the Second Professional Examination, and whose aggregate of marks in that subject and in Chemistry and Physics of the First Professional Examination is the highest. It is open in 1907. The following are tenable in any Faculty: Two Pratt Bursaries (each £20 and tenable for four years), both open in 1906, and two Taylor Bursaries (each £7, tenable for four years), one of which is open in 1906. Three Armagh Bursaries (£48 each), one open in 1906 to students taking honours in Classics in the Final Examination for the degree of M.A., tenable for two years; and also one for honours in Mental Philosophy, tenable for three years. Five Andrew and Bethia Stewart Bursaries (£50 each, tenable for three years, in Medicine or Law); one is vacant in 1906; candidates must have taken the M.A. degree of Glasgow. There is a special Examination. Nine Glasgow Highland Society's Bursaries, for students of Highland descent, of the annual value of £25, and tenable for five years; two are vacant in 1906. The Buchanan Society Bursaries have, in the meantime, been suspended. The directors have reserved power to award to Arts, Science, and Medical Students, Bursaries tenable at Scottish Universities, the amounts, conditions, and periods of tenure being in their discretion. The Carnegie Trust for the Universities of Scotland is empowered to pay the whole or part of the University ordinary class fees of students of Scottish birth or extraction, under conditions given in the College prospectus. The Dobbie Smith Gold Medal is awarded annually for the best essay on a prescribed subject within the Science of Botany. The Brunton Memorial Prize of £10 is awarded annually to the most distinguished graduate in Medicine of the year. The University Commissioners have issued an Ordinance to make regulations for the admission of women to certain other Bursaries, Scholarships, and Fellowships. Scholarships and Fellowships are offered by the Carnegie Trust in Science and Medicine for post-graduate study. Miss Galloway will supply details. See Prospectus for 1906-7.

Class and Examination Fees.—The class and hospital fees for the subjects enjoined by Ordinance as constituting a five years' course of study and clinical work amount to about £110 5s. To this must be added £5 5s. for matriculation fees (£1 1s. for each of five years), £23 2s. for examination fees, and £5 1s. for registration as a medical practitioner.

Board for Students.—A House of Residence for women students, Queen Margaret Hall, is situated near the College. The cost of board and residence is from 17s. to 25s. per week, according to accommodation. Full information can be obtained from Miss Galloway, Queen Margaret College, or from the Lady Superintendent, Queen Margaret Hall, Bute Gardens, Glasgow.

For further information male students may apply to Mr. W. Innes Addison, Matriculation Office, Glasgow University: women students to Miss Galloway, Queen Margaret College, Glasgow, W., from whom copies of the prospectus may be had.

ST. MUNGO'S COLLEGE (MEDICAL SCHOOL OF THE ROYAL INFIRMARY), GLASGOW.

This Infirmary, which is the largest in Glasgow, is situated in Cathedral Square, Castle Street, and has car communication with every part of the city. St. Mungo's College is in the Infirmary grounds (see Section "Medical Schools with full curriculum)."

The Infirmary has, including the Ophthalmic Department, over 620 beds, the average number occupied in 1905 being 600. When the reconstruction of the Infirmary, which was begun a year ago, is completed, it will have about 700 beds. There are special beds and wards for Diseases of Women, of the Throat, Nose, and Ear, Venereal Diseases, Burns, and Septic Cases.

Wards are set apart for the teaching of women students.

At the Outdoor Department the attendances in 1905 numbered over 62,000. In addition to the large Medical and Surgical Departments, there are Departments for Special Diseases—namely, Diseases of Women, of the Throat and Nose, of the Ear, of the Eye, of the Skin, and of the Teeth.

Five House-Physicians and nine House-Surgeons, having a legal qualification in Medicine and Surgery, who board in the Hospital free of charge, are appointed every six months.

Clerks and Dressers are appointed by the Physicians and Surgeons. As a large number of cases of Acute Diseases and Accidents of a varied character are received, these appointments are very valuable and desirable.

A fully-equipped Electrical Pavilion was opened a few years ago, and year by year the latest and most approved apparatus for diagnosis and treatment has been added.

The fees for hospital attendance, including Clinical

Lectures and Tutorial Instruction, attendance at the Outdoor Department, at the Pathological Department, *Post-mortem* Examinations, and the use of the Museum, which has recently been rearranged and catalogued, are as follows: For one year, £10 10s.; for six months, £6 6s.; for three months, £4 4s.

Students who have paid fees to the amount of £21 to the Glasgow Royal Infirmary shall be permitted to attend, in any subsequent year or years, one Winter and one Summer Course of Instruction in the Infirmary without further payment; and Students who have paid to any other Hospital in the United Kingdom fees, being not less than £21, in virtue of which they are entitled to attend without further payment, shall be admitted as Students of the Royal Infirmary on payment of £3 3s. for six months, or £1 11s. 6d. for three months.

GLASGOW: ANDERSON'S COLLEGE MEDICAL SCHOOL.

Classes are conducted in all the subjects of the five years' curriculum. Hospital Practice and Clinical Lectures in Western or Royal Infirmary: Pathology in Western or Royal Infirmary: Vaccination and Dispensary Practice in Western or Royal Infirmary Dispensary. These classes qualify for all the Licensing Boards in the United Kingdom. They are also recognized by the Universities of London, Durham, Ireland, Glasgow, and Edinburgh (the latter two under certain conditions which are stated in the School *Calendar*). The courses (Lectures and Laboratory) in Public Health are also recognized by the University of Cambridge.

The new buildings are situated in Dumbarton Road, immediately to the west of the entrance to the Western Infirmary, within two minutes' walk of that institution, and four minutes' walk of the University.

The Carnegie Trust pay the fees of students at Anderson's College on conditions regarding which particulars may be obtained from the Secretary, Carnegie Trust Offices, Edinburgh.

A *Calendar* containing full particulars of the School may be obtained from the Secretary to the Medical Faculty, Anderson's College, Dumbarton Road, Partick, Glasgow.

Class Fees.—For each Course of Lectures (Anatomy, Ophthalmic Medicine, and Surgery, Aural Surgery, Diseases of Throat and Nose, and Mental Diseases excepted), first session, £2 2s.; second session (in Anderson's College), £1 1s.; afterwards free. For Practical Classes, in Chemistry, Botany, Zoology, Physiology, Pharmacy, first session, £2 2s.; second session, £2 2s. Reduced joint fees in Zoology and in Botany, for Lectures and Practical Class when taken in same summer session, £3 3s.; for either course separately, £2 2s. Anatomy Class Fees.—Winter: First session (including Practical Anatomy), £4 4s.; second session (including Practical Anatomy), £4 4s.; third session, £2 2s.; Summer: Lectures and Practical Anatomy, £2 12s. 6d.; Lectures alone, £1 11s. 6d.; Practical Anatomy alone, £1 11s. 6d.; Osteology and Practical Anatomy, £2 12s. 6d.; Osteology alone, £1 11s. 6d. Operative Surgery, £2 12s. 6d. Public Health Laboratory, £11 11s., or with Lectures, £12 12s. Ophthalmic Medicine and Surgery (including Hospital Practice).—Aural Surgery, Diseases of Throat and Nose, and Mental Diseases, £1 1s. Matriculation Fee.—For the year, 10s.; for one class alone in winter session, 5s., and for the summer session alone, 5s. Western Infirmary.—Fees: For Hospital Attendance, £10 10s.; for Clinical Instruction, winter session, £3 3s.; summer session, £2 2s. Students who have completed their Clinical course elsewhere shall be permitted to enter for a six months' course of the Hospital only on payment of a fee of £2 2s. Pathology, £4 4s. Practical Pathology, £3 3s. Pathology Demonstrations only, £1 1s. Vaccination fee, £1 1s. Royal Infirmary.—Fees: Hospital Practice and Clinical Instruction, first year, £10 10s.; second year, £10 10s.; afterwards free. Six months, £6 6s.; three months, £4 4s. Pathology, both courses, £4 4s. Vaccination fee, £1 1s. Attendance at the dispensaries of the Western and Royal Infirmaries is included in the hospital fee. Eye Infirmary.—Fee: Hospital Practice and Clinical Instruction, including Lectures at the College, six months, £1 1s. The session opens on Thursday, October 18th, 1906.

UNIVERSITY COLLEGE, DUNDEE.

Some information as to this College will be found under the head of University of St. Andrews.

The new medical buildings, containing laboratories and work rooms for Anatomy, Physiology, Materia Medica, Pathology, Ophthalmology, Public Health, Medicine, Surgery, and Gynaecology are now open.

Dundee Royal Infirmary.—The Infirmary contains 300 beds, with a special ward for the treatment of diseases of children. Four Resident Qualified Assistants are appointed annually. Clinical Clerks and Dressers are attached to the physicians and surgeons, and students are appointed to assist in the *post-mortem* room. Out-patients are seen daily at 9 a.m. There is an Intern and Extern Maternity Department connected with the Infirmary. The instruction given at the Infirmary is recognized for purposes of graduation by all the Scotch Universities, the University of London, the University of Cambridge, the Royal University of Ireland, and by the Royal Colleges of England and Scotland. Further information on application to the Medical Superintendent.

Dundee District Asylum.—The appointments include two qualified Resident Assistants and two Resident Clinical Clerks. Clinical instruction is given.

Fees.—The fee in the case of most of the classes is 4 guineas for systematic and 3 guineas for practical classes. The hospital ticket is 3 guineas a year or 2 guineas a session. The total fees for the five years' curriculum amount to about 100 guineas.

IRELAND.

THERE is a choice of six Schools for those who desire to prosecute their medical studies in Ireland. These are the School of Physic in the University of Dublin, better known as Trinity College, Dublin; the Schools of Surgery (including Carmichael College and Ledwich School), carried on under the supervision of the Royal College of Surgeons in Ireland; the Catholic University School of Medicine, Dublin; and the Schools belonging to the three Queen's Colleges of Belfast, Cork, and Galway respectively. For clinical instruction the choice is equally satisfactory and varied, though the hospitals themselves are comparatively small. In deciding at which of them to do the greater part of his later work the student will best be guided by the advice of the teachers of the school he has first joined.

SCHOOL OF PHYSIC IN IRELAND, DUBLIN.

This school is formed by an amalgamation of the medical school of Trinity College and of the Royal College of Physicians; the King's Professors of Institutes of Medicine, Practice of Medicine, Materia Medica, and Midwifery being appointed by the latter.

Clinical instruction is given by the staff of Sir Patrick Dun's Hospital. The following Hospitals are also recognized by the Board of Trinity College: Adelaide Hospital, Royal City of Dublin Hospital, Dr. Steevens's Hospital, House of Industry Hospitals, Jervis Street Infirmary, Mater Misericordiae Hospital, Mercer's Hospital, Meath Hospital, the National Eye and Ear Infirmary, St. Mark's Ophthalmic Hospital, St. Vincent's Hospital, Richmond Asylum, St. Patrick's Hospital.

CATHOLIC UNIVERSITY MEDICAL SCHOOL.

Prospectuses and further information about this school, which provides complete courses of lectures as required by the examining bodies, may be obtained from the Registrar of the School, Cecilia Street, Dublin, who has written a very useful *Guide for Medical Students*. The total fees for school and hospital courses is £160, payable as the courses are taken out.

THE SCHOOLS OF SURGERY OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Schools of Surgery are attached by Charter to the Royal College of Surgeons, Dublin, and, as now conducted, include the famous old Carmichael and Ledwich Schools. They are carried on within the confines of the College itself, and are specially subject to the supervision and control of the Council.

The buildings used for educational purposes have been reconstructed, the capacity of the dissecting room nearly trebled, and special Chemical, Pathological, Bacteriological,

Public Health, and Pharmaceutical Laboratories fitted with the most approved appliances, in order that students may have the advantage of the most modern method of instruction. The entire building is now heated by hot-water pipes, and lighted throughout by the electric light. A refreshment room is also open, where students can have luncheon.

Women students are accepted, special rooms being set apart for their use. It is to be noted also that all the lectures and courses of practical instruction may be attended by medical students who are otherwise unconnected with the College.

Prizes.—Among the prizes annually awarded are: The Barker Anatomical Prize (£31 10s.); the Carmichael Scholarship (£15); the Mayne Scholarship (£8); the Gold Medal in Surgery, and the Stoney Memorial Gold Medal in Anatomy; Class Prizes of £2 and £1, accompanied by silver medals, will also be given in each subject.

The next session begins on October 1st, terminating on March 31st, while summer lectures and classes commence on April 1st, and are carried on until June 30th.

Prospectus and *Students' Guide* will be forwarded post free on written application to the Registrar, Royal College of Surgeons, Dublin.

Queen's College, Belfast.

The courses of study meet the requirements of the Royal University of Ireland and other examining bodies. The class fee is £2 except in a few cases. The total cost of the medical curriculum of the Royal University of Ireland, including examination fees and perpetual fee for the Royal Hospital, but not including fees for the special hospitals, is about £95. It amounts to about the same for the course of the Conjoint Board in Ireland.

Clinical instruction is given at the Royal Victoria Hospital. An entirely new hospital containing 300 beds was opened in July, 1903. *Fees*, six months, £7 7s; nine months, £9 9s; Perpetual, £21 in two instalments. The Maternity Hospital, the Ulster Hospital for Women and Children, the Hospital for Sick Children, the Ophthalmic Hospital, the Ulster Eye, Ear, and Throat Hospital, the Union Hospital and the District Lunatic Asylum, are open to students.

Prizes.—(1) Ten medical scholarships each year, value £20 each; (2) two Dunville studentships (one each alternate year), value £145 each; (3) one Andrews studentship each alternate year, value £145; (4) numerous sessional prizes.

The College contains laboratories in connexion with the departments of Biology, Chemistry, Physiology, Pathology, Anatomy, and Physics and Materia Medica.

All the medical classes are open to women students.

A Students' Union provides dining room, reading room, library, and various recreation rooms.

A pamphlet containing full information can be had free on application to the Registrar, Queen's College, Belfast.

Queen's College, Cork.

The arrangements in the Faculty of Medicine are made chiefly with reference to the requirements of the Royal University of Ireland, but students proceeding for the examinations of the Conjoint Boards of England, Scotland, or Ireland, the Society of Apothecaries of London, or the Apothecaries' Hall of Ireland, can arrange the courses of Lectures which they attend, and the order in which they attend them, to meet the requirements of those bodies. Certificates of attendance in the College are also accepted by the University of Cambridge. The total fees for the College Lectures and Hospital attendances required by the Royal University of Ireland amount to about £85.

Clinical instruction is given at the North and South Infirmaries (each 100 beds). Students can also attend the Mercy Hospital (60 beds), the Cork Union Hospital, the County and City of Cork Lying-in Hospital, the Maternity, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglinton Lunatic Asylum. The session at Queen's College extends from October to April inclusive (twenty-seven weeks), but arrangements have been made for the delivery of some of the three months' courses of lectures during the months of April, May, and June. The Hospitals are open to students in May, June, and July also.

The College contains Laboratories in the Departments of Biology, Chemistry, Physiology, Pathology, and Materia Medica and Pharmacy, and there are a Botanic Garden and Plant Houses in the grounds.

Scholarships and Prizes.—Eight Medical Scholarships, two in each of the first four years, of the value of £25 each, and in the fifth year the Blaney Scholarship of the value of £32, and a Senior Exhibition, value £30. Three Exhibitions, one in Practical Medicine, one in Practical Surgery, and one in Practical Midwifery, each of the value of £15. Book prizes at the sessional examinations.

Further information (free) can be obtained in the College Regulations, or on application to the Registrar, Queen's College, Cork.

Queen's College, Galway.

The Lectures of the Professors in the Medical School of Queen's College, Galway, and the Clinical Instruction in the Galway Hospitals, are recognized as qualifying for the Diplomas of the Royal Colleges of Physicians and Surgeons of Ireland, England, and Scotland, and for the Medical Degrees of the University of London and the Royal University of Ireland.

Clinical teaching is carried on in the Galway Hospital, established as a Public General Hospital (in the place of the County Galway Infirmary) by Act of Parliament (1892).

In addition to this, the Galway Fever Hospital[1] is open to Students of the Clinical Class. Here opportunities are afforded for studying the various forms of Fever and Zymotic Disease admitted during the College Session. The Medical Faculty has also made arrangements with the medical officers for the admission of students to the Galway Union Hospital. This Hospital affords an extensive field for the study of all classes of disease, acute and chronic. A special ward is set apart for the diseases of children, in which students will have an opportunity of studying this important class of cases. Opportunities for extra practice and vaccination are afforded at Galway Dispensary, No. 1. Students whose names are on the Clinical Roll of the Galway Hospital may attend any of the above-named institutions without further charge.

For further information as to the arrangements for clinical teaching (which are liable to alteration) applications should be made to Professor Pye, Honorary Secretary of the Medical Staff of Galway Hospital.

CLINICAL HOSPITALS OF DUBLIN.

Sir Patrick Dun's Hospital.

Sir Patrick Dun's Hospital is in connexion with the School of Physic of the University of Dublin, and is situated in Grand Canal Street. The practice of the hospital is open to students of medicine attending schools other than the School of Physic; its certificates are recognized by the Royal University in Ireland and the Royal Colleges of Surgeons of England, Scotland, and Ireland. The Winter Session begins on Monday, October 1st. Clinical instruction is given daily by the physicians and surgeons. Special classes for students commencing their studies will be held in the wards during the months of October, November, and December. They will embrace the elements of Medicine and Surgery, including note-taking. The operating theatre, which has recently been erected, is thoroughly in accord with the requirements of modern surgery. Clinical teaching on the Diseases of Women is given twice a week, on Tuesday and Friday. There is a special wing devoted to fever cases, and regular clinical instruction is given by the members of the medical staff throughout the winter and summer sessions. Pathological and Bacteriological Demonstrations are given on Fridays during the winter and summer sessions in the new Pathological Laboratory. A new department has been opened for the special treatment of Throat, Nose, and Ear diseases. Instruction will be given in these subjects, and in the use of the Laryngoscope and Otoscope, to Senior Students on Tuesdays and Fridays. In the new and enlarged *x*-ray department opportunities are given the members of the Hospital Class of seeing the various applications of the *x* rays to the diagnosis and treatment of injury and disease. In the out-patient departments opportunities are afforded for the

[1] The Royal University and other Licensing Bodies require a certificate of attendance for three months at a hospital devoted to the treatment of fever.

diagnosis and treatment of the numerous minor ailments not met with in the hospital wards. Demonstrations are given upon Diseases of the Skin.

Appointments.—A Resident Surgeon, with salary, is appointed annually. The election takes place at the end of December. Four Resident Pupils are appointed each half-year. Six Surgical Dressers and six Clinical Clerks are appointed each half year.

Prizes.—The Haughton Clinical Medals and Prizes. Clinical Medals and Prizes will be awarded in Medicine and in Surgery respectively, in accordance with the will of the late Rev. Samuel Haughton, M.D., S.F.T.C.D., dated July 11th, 1894. Candidates who fail to obtain these Medals and Prizes will be awarded Special Certificates in Medicine and in Surgery, provided they show sufficient merit.

Fees.—The fees are as follows: Winter and Summer Session, £12 12s. Winter Session (six months). £8 8s. Summer Session (three months), £5 5s. The fees will be received by Dr. Edward H. Taylor, Honorary Secretary, or by any other member of the Hospital Staff.

RICHMOND, WHITWORTH, AND HARDWICKE HOSPITALS.

These hospitals contain 312 beds: 110 for surgical cases, 82 for medical cases, 120 for fevers and epidemic diseases.

There are special clinics for diseases of the eye, ear, throat and nose, and diseases of women.

Appointments.—A Resident Surgeon and a Resident Physician are appointed every year, receive a salary, and hold office for one year. Eight Resident Clinical Clerks are appointed four times a year, and provided with furnished apartments, fuel, etc. These appointments are open not only to students of the hospitals but also to qualified and unqualified students of other hospitals.

The Richmond Lunatic Asylum, containing over 1,200 patients, adjoins these hospitals, affording facility for the study of mental diseases.

Further information can be obtained from the Honorary Secretary, Dr. J. O'Carroll, 43, Merrion Square East, or the Honorary Treasurer, Sir William Thomson, C.B., 54, St. Stephen's Green East, Dublin.

ADELAIDE MEDICAL AND SURGICAL HOSPITALS.

The hospitals contain 140 beds. A House Surgeon and Physician, resident and salaried, is appointed yearly, and four resident pupils are selected half-yearly.

Further particulars may be obtained from Mr. F. T. Heuston, 15, St. Stephen's Green North, Dublin, or any of the members of the medical staff.

ROYAL CITY OF DUBLIN HOSPITAL.

This hospital, in addition to the general Medical and Surgical Wards, contains special wards for Ophthalmic and Aural cases, Diseases of Women, and Diseases of Children. There is also an isolated building for the reception of infectious cases. An entirely new operation theatre has been constructed in accordance with the most modern surgical requirements. Roentgen-ray and Lupus Lamp Departments have been installed.

Appointments.—Clinical Clerks to the Physicians and Dressers to the Surgeons are appointed from the most deserving of the class, and certificates awarded for the faithful performance of their duties. Medical and Surgical Resident Pupils are appointed, and special certificates awarded if merited. A Resident Medical Officer is appointed annually.

For detailed prospectus or further particulars apply to Mr. G. Jameson Johnston, F.R.C.S.I., Honorary Secretary, Medical Board, 13, Lower Fitzwilliam Street, or at the Hospital.

JERVIS STREET HOSPITAL, DUBLIN.

Jervis Street Hospital, from its close proximity to the docks, quays, and large factories of Dublin, receives a large number of urgent cases and accidents, and consequently the facilities for Clinical Instruction are very great. About 120 beds are available. There is a largely-attended General Dispensary, besides special Dispensaries for Gynaecology, Eye, Ear and Throat, etc. Clinical Instruction is given daily both in the wards and dispensaries. Systematic courses of Lectures are given, and illustrated by cases in every branch of Surgery and Medicine. The students attending this Hospital can attend free lectures on Diseases of Infancy and Childhood, and on Orthopaedic Surgery and appliances, at the Children's Hospital, Temple Street, which contains 85 beds. This facility to acquire a knowledge in Children's Diseases is not afforded to the students of any other Clinical Hospital in Dublin. Two Resident Surgeons and twelve Resident Pupils are appointed annually. Clinical Clerks and Dressers are also appointed periodically.

Two Scholarships, value for £12 12s. each, are open for competition at the beginning of the Session, one for Senior Students and one for Junior Students. These Scholarships are open to all Students. Entries can be made up to and including November 13th, which is the last day for entering. All particulars of these Scholarships can be obtained from the Honorary Secretary, Medical Board, or any member of the Medical Staff.

In addition, a Gold Medal in Clinical Medicine and Gold Medal in Clinical Surgery are open for competition to Senior Students, and a Prize value £3 3s. to Junior Students of the Hospital at the end of the Session.

MATER MISERICORDIAE HOSPITAL.

This Hospital, established in 1861, now contains 345 beds. In addition, there is a Convalescent Home at Beaumont, Drumcondra. There are special departments for Gynaecology, Ophthalmic Surgery, Diseases of the Throat and Nose, Diseases of Skin, Medical Electricity, Dentistry, and Pathology.

Two House-Physicians, six House-Surgeons, and sixteen Resident Pupils are elected annually.

Entries can be made with, and fees paid to, the Registrar, Dr. Martin Dempsey, 35, Merrion Square. A prospectus containing in detail the arrangements for Clinical instruction, prizes, etc., may be obtained from the Secretary of the Medical Board.

MERCER'S HOSPITAL.

This hospital, founded in 1707, is situated in the centre of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal College of Surgeons, the Catholic University School of Medicine, and within five minutes' walk of Trinity College. It contains 120 beds for medical and surgical cases, and arrangements have been made with the medical officers of Cork Street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution, and become eligible for the posts of Resident Pupils, etc. There is a large Out-Patient Department, and a special department for Diseases Peculiar to Women. There are also special wards for the treatment and study of children's diseases. During the past few years the hospital has undergone extensive alterations in order to bring it up to modern requirements.

Appointments.—A House-Surgeon is appointed annually. Five Resident Pupils, each for six months, and Clinical Clerks and Dressers are appointed monthly from amongst the most deserving members of the class.

Fees.—Winter, six months, £8 8s.; summer, three months, £5 5s.; nine months, £12 12s.

For further particulars apply to R. Charles B. Maunsell, M.B., F.R.C.S., 32, Lower Baggot Street, Dublin.

DR. STEEVENS'S HOSPITAL.

This hospital, situated at Kingsbridge, contains over 200 beds. Three new wards have recently been opened. It affords exceptional advantages for clinical instruction; owing to its position amongst manufactories and railway works a large number of casualties are always under treatment in the institution, while there are to be found occupying its beds at all times numerous cases of acute and chronic medical and surgical disease. There is a ward entirely devoted to venereal diseases, and a detached building for fever cases: in connexion with the hospital is a newly-built extensive out-patient department, with separate clinics for diseases of the eye and ear, skin, throat, teeth, and diseases of women. In addition to these special dispensaries, a general dispensary is held daily. Every opportunity is afforded to the students to become thoroughly familiar with the modern appliances used in diagnosis and treatment of disease. There is also a fully-equipped X-Ray Department and a fully-furnished Pathological Laboratory. Operations are performed on Tuesday, Thursday, and Saturday. Gynaecological opera-

tions on Wednesday. There is accommodation in the hospital for four medical, six surgical, and two specialist (Gynaecology and Ophthalmology) resident pupils, who are provided with separate furnished rooms, with coal and gas, and also a comfortable common sitting-room for meals, which can be obtained at a reasonable rate.

Fees.—Hospital practice, nine months, 12 guineas; six months, 8 guineas; three months, 5 guineas: Residence: Each three months, 10 guineas, which includes fee for hospital practice and certificate.

A prospectus and particulars may be obtained from the Resident Surgeon at the hospital, or from William S. Haughton, M.D., Honorary Secretary, 30, Lower Fitzwilliam Street.

St. Vincent Hospital,

The hospital contains 165 beds, and has attached to it a crowded dispensary and three special dispensaries. The whole practice of the hospital is available for clinical instruction, which is carried on during the session in the most systematic manner, from 9 to 12 o'clock in the forenoon. Two successive classes, and a special class for junior students, visit the wards each morning under the guidance of the physician and surgeon on duty, by whom instruction at the bedside is given in various details of diagnosis and treatment, and every facility is thus given to students for learning the practical part of their profession. Lectures are delivered on special subjects, and operations are performed in the theatre. The number of major operations performed during the nine months ending June 30th has been upwards of 700. *Post-mortem* examinations are made in the pathological theatre, and frequent opportunities are given for the examination of morbid specimens. There is a museum in connexion with this department. Instruction is also given daily in the dispensaries, from 10 to 12 o'clock, on a great variety of cases, the treatment of such diseases as are there met with forming a most important part of every practising physician's daily work. Two resident medical officers and 16 resident pupils are appointed annually from amongst the most deserving members of the class. The fees for clinical attendance are the same as at the other Dublin hospitals. Special arrangements have been made with the Fever Hospital, Cork Street, and with other hospitals for providing senior students with clinical instruction in infective fevers, as required by the Licensing Bodies, without extra charge. A new *x*-ray apparatus, of the latest pattern, has been added to the *x*-ray department, and a specialist appointed to take charge of it. Further particulars can be obtained on application to the Honorary Secretary of the Medical Board, Patrick J. Fagan, F.R.C.S.I., 31, North Frederick Street, Dublin.

Meath Hospital and Co. Dublin Infirmary.

This Hospital was founded in 1753, and now contains 160 beds available for clinical teaching. A building containing 40 beds for the isolated treatment of fevers is attached to the hospital.

The Certificates of this Hospital are recognized by all the universities and licensing bodies of the United Kingdom.

Six Medical Clinical Clerks and twelve Surgical Resident Pupils and Dressers are appointed every six months, and a House-Surgeon and two Clinical Assistants are elected annually.

The session will open on October 1st.

A prospectus giving the complete arrangements for the Medical and Surgical Classes for the coming session may be obtained from the Honorary Secretary of the Medical Board, Mr. William Taylor, 47, Fitzwilliam Square, Dublin, or at the Hospital.

Rotunda Hospital.

Master—Dr. E. Hastings Tweedy.

This institution consists of two distinct hospitals, and is the largest Maternity as well as Gynaecological Hospital in the British Empire.

A recently constructed annex contains 40 beds for the treatment of diseases of women.

Over 2,000 patients are admitted annually to the maternity wards, a similar number are attended at their own homes, whilst over 14,000 patients are attended in the out-patient department.

A new Pathological Laboratory has become an important feature of the hospital.

Clinical instruction includes daily lectures and practical demonstrations in Midwifery, Gynaecology, and Cystoscopy.

The diploma from this hospital is granted to pupils on their passing an examination, after a period of six months' attendance on the practice of the hospital.

Paid clinical clerks are appointed (by examination) from amongst qualified men who have obtained the hospital diploma.

The new residential quarters have recently undergone complete renovation and now afford comfortable accommodation. The grounds of the hospital contain asphalt and grass courts for lawn tennis and croquet.

Pupils can enter at any time for a period of one month or longer. The hospital offers exceptional opportunities for qualified practitioners of any nationality who desire to take out a course of post-graduate instruction.

Fees.—Intern pupils: Six months, £21; three months, £12 12s.; two months, £9 9s.; one month, £6 6s. Extern pupils: Six months, £10 10s.

Royal Victoria Eye and Ear Hospital, Adelaide Road, Dublin.

This hospital is an amalgamation of the two institutions which have heretofore given special instruction in ophthalmology separately—namely, St. Mark's Ophthalmic Hospital and the National Eye and Ear Infirmary. This hospital, which was opened in February, 1904, contains 82 beds. Clinical instruction in diseases of the eye, including the use of the ophthalmoscope, is given daily. Operations are performed daily as occasion requires. Instruction in aural surgery is also given. Special classes for practical instruction in the use of the ophthalmoscope, etc., and for the demonstration of cases, are formed from time to time.

CLINICAL HOSPITALS.

Opportunities for clinical instruction and study are afforded by many hospitals which are not directly connected with any medical school, and to these the post-graduate student, and in many cases the student in the fifth year of the curriculum, will find it to his advantage to resort, since they offer great facilities for gaining practical clinical experience. The following pages contain brief particulars as to the more important of them.[1]

London.

At most of the special hospitals in London, as well as at the general hospitals to which medical schools are attached, clinical instruction and appointments as clinical assistants can be obtained. In addition, they all have at shorter or longer intervals resident appointments to offer in the way of resident medical officerships, house-physicianships, and house-surgeoncies. These are usually paid appointments, which may be held for periods varying from six months to a year. Notices of the vacancies as they occur appear in our columns, and there is never any lack of candidates, since the holder is in a particularly favourable position for gaining either general or special experience.

General Hospitals.

Great Northern Central Hospital, Holloway Road, N.—This hospital is recognized by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the medical curriculum. The hospital contains 162 beds, all of which are at present occupied. The large rectangular and circular wards, each of which contains 20 beds and 4 cots, the operation theatre, and an additional out-patient department, general and special, and the pathological departments, have all been erected since 1887. A second operation theatre and a new surgery block containing two observation wards, patients' waiting hall, examining rooms, and surgery proper, were opened last year. An electrical department and children's ward are now being arranged for. Medical practitioners are invited to attend the general and special practice of the hospital. Clinical Assistants (qualified), Clinical Clerks, and Pathological

[1] For Clinical Hospitals in Dublin see p. 501.

Clerks are appointed in the general and special departments, and may receive certificates at the end of their terms of office. There are five Resident Medical Officers, one Senior and two Junior House-Surgeons, Senior and Junior House-Physicians, also Pathologist, Registrar, Casualty Officer, and four Anaesthetists. Full particulars of and rules for these appointments can be obtained from Dr. T. J. Horder, M.D., F.R.C.P., Honorary Secretary of the Medical Committee.

London Temperance Hospital.—The Hospital contains 100 beds. The medical and surgical practice is open to students and practitioners. Appointments (vacancies for which are advertised in the medical journals): Surgical and Medical Registrars, Resident Medical Officer, one Assistant Resident Medical Officer and Assistant House-Surgeon. For particulars as to hospital practice and classes apply at the hospital.

Seamen's Hospital Society.—Dreadnought Hospital, Greenwich, 250 beds. Branch Hospital, Royal Victoria and Albert Docks, 50 beds. Dispensary in the East India Dock Road, and at Gravesend. The London School of Tropical Medicine is attached to the Seamen's Hospital Society, and is situated within the grounds of their branch hospital in the Royal Victoria and Albert Docks. In this hospital are constantly to be found many cases of tropical disease, and opportunities are afforded to students and others to study Practical Surgery and Diseases Incidental to Tropical Climates. Over 600 students have joined the school since October, 1899, of which number 40 were women graduates. The London School of Clinical Medicine, for qualified practitioners only (established 1906), is also attached to the Seamen's Hospital Society, and is situated at the Dreadnought Hospital, Greenwich. The curriculum includes all branches of Medicine and Surgery. The supply of material affords exceptional facilities for practical instruction in Operative Surgery and in Pathology on the Cadaver. (See also p. 516.)

West London Hospital.—This hospital possesses some 160 beds, and, besides having a large out-patient department, the work of which is subdivided among the different special branches of medicine and surgery, it treats annually between two and three thousand in-patients. The excellent opportunity it affords for clinical study will be found fully described at page 510 in the article on post-graduate work.

North-West London Hospital, Kentish Town Road.—This hospital, which was established in 1878, provides 50 beds. It is a general hospital. There are two spacious wards for men and women respectively. The children's wards contain 15 cots; a yearly average of 44,000 attendance of out-patients. The special departments include: (1) Diseases of women; (2) diseases of the eye; (3) diseases of the skin; (4) dental. There are two resident officers; an honorarium at the rate of £50 per annum attaches to each post. Operation day, Thursday at 2 30 o'clock. Further particulars from the Secretary at the hospital.

Tottenham Hospital.—Full information as to the attractions of this hospital as a place for clinical study, and as to the manner in which its valuable resources are utilized, will be found at page 510 in the article on post-graduate work. The district in which the hospital is situated has been growing rapidly of late years, and attendance in its various departments annually increases.

CHILDREN'S HOSPITALS.

The Hospital for Sick Children, Great Ormond Street, W.C. (Medical School recognized by the University of London for the study of Children's Diseases), contains 222 beds, divided into 87 medical, 97 surgical, and 38 for special and infectious cases, besides 38 beds at the Convalescent Branch, Highgate. The hospital having been recognized by the Conjoint Board for England as a place where, under the new curriculum, six months of the fifth year may be spent in clinical work, the practice is arranged to meet this need, and is open to students who have completed four years of medical study, and also to qualified medical men. Appointments are made every three months to six Medical Clerkships and six Surgical Clerkships, which are open to students at the hospital. Lectures or Demonstrations, given once or twice every week during both winter and summer sessions, are open, free of charge, to medical practitioners. The sessions are of ten weeks' duration, and begin in October, January, and March. Fees for hospital practice, three months, 3 guineas; perpetual ticket, 5 guineas. Certificates of attendance granted. Prospectuses and further information will be forwarded on application to the Dean, Dr. Voelcker, or to the Secretary, at the hospital.

Paddington Green Children's Hospital.—Number of beds, 46; average number of beds daily occupied, 37; average number of in-patients, 668; average number of out-patients, 16,415. Daily attendance of the Medical and Surgical Staff. There are six Clinical Assistants, each Out-patient Physician having two Assistants. There is a Convalescent Home attached to the Hospital at Fair View, Slough, with accommodation for 16 children in the winter and 24 in the summer months.

East London Hospital for Children, Shadwell.—The hospital contains 120 cots. Two House-Surgeons and two House-Physicians (holding office for six months) are appointed annually. This hospital is recognized by the Conjoint Board for England as a place of instruction for students, at which six months of their fifth year under the new regulations may be spent in clinical work. The following opportunities for the study of the diseases of childhood are offered to gentlemen who have completed four years of medical study, and to those who are already qualified: The practice of the hospital (in the out-patients' department) is open to students every day (except Saturdays), at such hours as the physicians or surgeons for the day are attending. The in-patient practice is open to students holding clerkships or dresserships in the hospital, and to students not holding appointments during the attendance of the physicians and surgeons. A certain number of Clinical Clerks and Dressers are appointed every three months to each physician and surgeon. Gentlemen who wish to hold these appointments must have completed their fourth year of medical study. They are eligible for reappointment at the end of three months. Practitioners and students are admitted to the practice of the hospital in both the wards and out-patient department, and clerkships and dresserships can be obtained. Any additional information may be obtained on applying to Mr. H. Betham Robinson, M.S., F.R.C.S., 1, Upper Wimpole Street, or to Mr. W. M. Wilcox, the Secretary, at the hospital.

North-Eastern Hospital for Children, Hackney Road, Bethnal Green.—The hospital now contains 125 beds. Patients in 1905: In-patients, 1,609 (535 under 2 years of age); out-patients, 27,733; new cases, 75,637 attendances. There are special Dental, Eye, Skin, and Roentgen-Ray Departments. Particulars of facilities for attending Medical and Surgical practice can be obtained on application to Mr. T. Glenton-Kerr, Secretary.

The Belgrave Hospital for Children.—The Hospital has accommodation for 40 children and a very extensive out-patient service. A very large number of infants under 12 months old are admitted. Medical and Surgical Out-patients are seen at 9 a.m. on Mondays, Tuesdays, Thursdays, and Fridays. Clinical Assistants to the Out-patient Staff are appointed from time to time.

LYING-IN HOSPITALS AND HOSPITALS FOR WOMEN.

Queen Charlotte's Lying-in Hospital and Midwifery Training School.—This hospital receives over 1,600 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing Obstetric complications and Operative Midwifery, on account of the very large number of primiparous cases—upwards of three-fourths of the total admissions. Clinical instruction is given. Certificates of attendance at this hospital are recognized by all Universities, Colleges, and Licensing Bodies. Pupil Midwives and Monthly Nurses are received and specially trained. *Fees.*—Medical Pupils, £8 8s. for four weeks, exclusive of board and lodging; Pupil Midwives, £35 for five months. Pupil Nurses, £24 for sixteen weeks, inclusive of board and lodging. The new residence for Medical Pupils opposite, and in telephonic communication with, the hospital is now open. *Terms.*—Full board and residence, £1 15s. per week.

Samaritan Free Hospital for Women, Marylebone Road, N.W.—The Samaritan Hospital treats diseases peculiar to women only. It has 51 beds. It receives qualified practitioners as Clinical Assistants in both in-patient and

out-patient departments; fee £3 3s. per quarter. Lectures are given by the Medical Staff on Thursdays at 3 p.m.; admission free.

Hospital for Women, Soho.—In connexion with the Out-patient Department there has been for some years a well-organized Clinical Department. To meet the want increasingly felt by medical men of a more accurate knowledge of the diseases peculiar to women and of more extended opportunities for examining gynaecological cases, gentlemen are appointed to act as Clinical Assistants to the Gynaecologists to out-patients. The appointments are open to qualified medical men. The Hospital contains 60 beds. In the Out-patient Department there were over 4,000 new cases during the past year, the total number of out-patient attendances being 15,778. This large number affords exceptional opportunities for examining and studying most of the varieties of the diseases of women. Clinical Assistants are entitled to receive notice of all operations performed within the Hospital, and every facility is afforded them by the Gynaecologists in the Out-patient Department of obtaining experience in diagnosis and treatment and the practical use of instruments. Fee for one month, 3 guineas; for each subsequent month, 2½ guineas. A certificate is given at the end of a three-months' course. Any further information can be obtained by writing to the Dean at the Hospital.

Ophthalmic Hospitals.

Royal London Ophthalmic Hospital (Moorfields Eye Hospital), City Road, E.C.—The hospital was founded in 1804 in Charterhouse Square; in 1821 it was moved to a larger building in Blomfield Street, where the work was carried on until 1899; in 1899 the present building in City Road was opened. It contains 138 beds for in-patients, which were occupied during last year by 2,051 persons; twenty beds were closed for want of funds; in the same year the out-patients were 42,336, and the attendances 127,873. Operations are performed daily from 10 a.m. to 1 p.m., and four surgeons attend on each day. Students are admitted to the practice of the hospital. *Fees*, for six months, £3 3s.; perpetual, £5 5s. Courses of instruction in the following subjects are given at the hospital periodically: (1) The Use of the Ophthalmoscope; (2) Errors of Refraction; (3) External Diseases of the Eye; (4) Surgical Anatomy of the Eye; (5) Pathology of the Eye; (6) Motor Anomalies; (7) Examination of the Eye; (8) Operative Surgery; (9) *X*-Ray work; (10) Clinical Lectures. A composition fee of £10 10s. will entitle students of the Hospital to a perpetual ticket, and will admit them once to all the above Lectures and Demonstrations except the classes in Operative Surgery and *X*-Ray work. Students of the Hospital are eligible for the offices of House-Surgeon, Refraction Assistants, or Clinical and Junior Assistants. Junior Assistants are appointed every three months. Any further information will be furnished by Mr. Robert J. Bland, Secretary.

Royal Westminster Ophthalmic Hospital, King William Street, West Strand.—The hospital has been recently modernized throughout; it contains 40 beds and an out-patient department. The practice is open to practitioners and students from 1 to 4 p.m. daily. Special instruction is given in the Diagnosis, Pathology, and Treatment of Eye Affections, including the Operations on the Eye, the Treatment of Errors of Refraction, and the Use of the Ophthalmoscope. *Fee:* Six months, £3 3s.; perpetual, £5 5s. For particulars apply to Mr. Grimsdale, F.R.C.S., at the hospital.

Royal Eye Hospital, Southwark.—This hospital contains 40 beds and 2 cots. The new patients in the out-patient department number over 25,000 yearly. Operations are performed and patients seen daily at 9 a.m. and 2 p.m. Qualified practitioners and students are admitted to the practice of the hospital. Courses of instruction in Ophthalmology are given at the Hospital during the Summer and Winter Sessions. Fee for each course £2 2s.; including three months' Hospital Practice, £5 5s. Qualified students of the hospital are eligible for the offices of Registrar and House-Surgeon, may also be appointed Clinical Assistants for six months, and are eligible for re-election. Further particulars may be obtained from Mr. Edwin Easton, Acting Secretary, at the hospital, Southwark, S.E.

Central London Ophthalmic Hospital, Gray's Inn Road, W.C.—This hospital has 26 beds, and possesses facilities for clinical teaching daily. Last year there were 12,891 new cases. Classes of instruction in the use of the Ophthalmoscope, with demonstrations on cases, and also Classes on Refraction, are given during the winter months commencing in October. The out-patient work begins at 1 o'clock, and operations are performed daily between 1 and 4 o'clock. For full particulars apply to the Secretary, Mr. Harry R. S. Druce.

Fever and Small-pox Hospitals.

Students are admitted to study at the Fever and Small-pox Hospitals of the Metropolitan Asylums Board after they have completed the third year of medical education, provided they have held the offices of clinical clerk and dresser, and have obtained the sanction of the authorities of the medical school to which they belong. The minimum duration of the course of study at the fever hospitals is two months, and the ordinary course of study at the small-pox hospitals consists of twelve demonstrations. At the fever hospitals the student may attend three days and must attend two days a week (a register of students and the number of attendances of each individual being duly kept at the asylums to which they are told off); at the small-pox hospitals the dates and times of demonstrations are notified to students who have entered for a course. They must abide by the rules laid down as to disinfection and other matters, and must satisfy the Board of Management that they are sufficiently protected against small-pox by vaccination or otherwise. A certificate signed by the medical superintendent of the hospital at which attendance is made, and countersigned by the Clerk to the Board, is granted to a student when he has satisfactorily completed the course of study. Qualified medical men are admitted under similar terms and conditions, except that the sanction of the authorities of the medical school is not required in their case.

Fees.—Fever hospitals, two months, £3 3s., and £1 1s. for every additional month; small-pox hospitals, £4 4s. for the course of 12 demonstrations, or (for qualified medical men only) £1 1s. per demonstration, or £2 2s. per course of three demonstrations.

Courses of instruction in the treatment of fevers are usually held three times a year, beginning in January, May, and October respectively; and information as to the classes is furnished to each of the recognized medical schools in the metropolis.

Courses in connexion with small-pox are held from time to time as circumstances permit.

Other Special Hospitals: London.

Bethlem Royal Hospital.—Two Resident House-Physicians are appointed twice a year for six months from recently-qualified medical students. Students of general hospitals and qualified medical men are allowed to attend for clinical instruction for three months on payment of a fee. Post-graduate courses are given from time to time.

Hospital for Consumption and Diseases of the Chest, Brompton.—The hospital has been recognized by the Conjoint Board for England as a place where, under the present curriculum, six months of the fifth year may be spent in clinical work. There are 318 beds in the two buildings constituting the hospital, and a special throat department. Pupils are admitted to the in-patient and out-patient practice of the hospital. Courses of lectures and demonstrations will be given during the year. Clinical Assistants are appointed to the Assistant Physicians in the out-patient department, and Clinical Clerks are appointed to the Physicians in the wards. These appointments are tenable from three to six months. The fee for the practice of the hospital is £1 1s. for each month, or £2 2s. for each period of three months, or a perpetual fee of £5 5s.

City of London Hospital for Diseases of the Chest, Victoria Park.—There are 164 beds. The practice of the hospital, both as regards in-patients and out-patients, is open to students and medical practitioners. Certificates of attendance in the medical practice of this hospital are recognized by the London University and London medical examining Boards. Information as to medical instruction can be obtained on application to Dr. Clive Riviere, Secretary to the Medical Committee, at the hospital.

National Hospital for the Paralysed and Epileptic, Incorporated by Royal Charter, Queen Square, Bloomsbury (University of London).—This Hospital, with the Finchley branch, contains 200 beds and cots. The out-patient practice and lectures are free to students and practitioners. Ladies who are post-graduates are admitted to the lectures. Lectures and demonstrations are given on Tuesdays at 3.30 in three courses—spring, summer, and winter—and the physicians for out-patients attend every Monday, Tuesday, Wednesday, and Friday at 2. Surgical operations are performed on Tuesdays and Fridays at 9. The hospital is a school of the University of London, and has been recognized by the Conjoint Board for England as one of the places where part of the fifth year of study may be spent. The Physicians for in-patients attend at 2.30 on Monday, Tuesday, Wednesday, and Friday. Clinical Clerks are appointed to them for three months. All communications regarding clinical clerkships, lectures, and hospital practice should be addressed to the Secretary at the hospital.

Hospital for Diseases of the Throat, Golden Square, London, W.—The hospital contains 40 beds for in-patients. There is an annual out-patient attendance of nearly 50,000. Minor operations are performed daily (except on Mondays). Practitioners and medical students are admitted to the practice of the hospital at a fee of 5 guineas for three months, 7 guineas for six months, or 10 guineas for perpetual studentship. Each course may commence at any date. Special terms are granted to medical men in actual practice who can only attend the hospital once or twice weekly. Clinical Instruction in the Diagnosis and Treatment of Disease is given daily in the Out-patient Department from 2.30 to 5 p.m., on Tuesdays and Fridays from 6.30 to 9 p.m., and on Mondays at 9.30 a.m. Systematic courses of lectures, with Clinical and Pathological Demonstrations, are given in the Winter Session, and are free to students of the hospital. From amongst the students Junior Clinical Assistants are selected, whose duty it is to assist the member of the staff to whom they are appointed. Students are also eligible for the Senior Clinical Assistantships (four), on whom considerable responsibility falls.

Central London Throat and Ear Hospital, Gray's Inn Road.—The hospital contains accommodation for in-patients, and, in addition to new operating theatres, has a very extensive out-patient department (over 50,000 attendances yearly), which is open daily to all medical practitioners and students for the purpose of Clinical Demonstration and Instruction. Fee, for three months' attendance, 3 guineas; for six months, 5 guineas. Courses of practical demonstrations on the special diseases treated at this hospital are held during both the winter and summer months by members of the staff. The dates of these demonstrations are announced in the medical journals prior to their commencement. They are open to qualified practitioners and advanced students of medicine on payment of 1 guinea for each course of six classes, with an additional guinea for attendance upon the out-patient hospital practice if desired. Operations on in-patients and on out-patients are performed on Tuesdays and Fridays at 2 p.m. Considerable attention is given to scientific work, particularly with regard to the pathology and bacteriology of the diseases of the ear and upper respiratory passages. Full particulars will be supplied on application to the Dean at the hospital.

Metropolitan Ear, Nose, and Throat Hospital.—The hospital was founded in 1838, and is situated in Grafton Street, Tottenham Court Road. The out-patient department is open daily at 2.30 p.m. to practitioners and students for acquiring clinical instruction and technical knowledge. Operations are performed on in-patients on Tuesdays, Wednesdays, and Thursdays at 9 a.m. Fee for one month's attendance at the hospital £1 1s., and for three months £2 2s. During the forthcoming session demonstrations will be given by members of the staff on the pathology and treatment of diseases of the ear and respiratory passages. Short practical classes will also be held in clinical pathology and surgical anatomy. Weekly clinical lectures are given by the staff on the special diseases treated at the hospital; the date, time, and subject of these lectures are previously announced in the medical journals. The lectures are free to all medical practitioners and students.

Royal Ear Hospital, Dean Street, Soho, W.—Courses in Diseases of the Ear and Nose are given by the members of the staff throughout the teaching year. The teaching is of a practical character, and the number of students is limited. Clinical Assistants are also appointed. The new building is now open, and eight clinics are held every week. The surgeons visit the wards daily. For full particulars address the Honorary Secretary of the Medical Board, Mr. J. H. Chaldecott, L.R.C.P., F.F.P.S., 60, Harley Street, W.

St. Peter's Hospital for Stone and Urinary Diseases (Henrietta Street, Covent Garden).—Qualified medical men and students are admitted free to the practice of this hospital, which contains 32 beds and has a large out-patient attendance (41,756 for 1905). New cases, 3,921. Operations are performed and consultations held on Wednesdays and Fridays at 2. Clinical instruction is given regularly by members of the staff. In-patients admitted in 1905, 385.

The Hospital for Diseases of the Skin (52, Stamford Street, Blackfriars, S.E.)—This hospital was founded in 1841 as a special school for the study of diseases of the skin, and for improvements in their treatment. Its practice is free to practitioners and students. It is open daily for out-patients at 2 p.m. and on Wednesday evenings at 7 o'clock. Last year 7,755 new cases were seen, and 19,871 attendances made. Practical courses of cutaneous histopathology and on the diagnosis and treatment of diseases of the skin and syphilis are held at frequent intervals. Each course may commence at any time. There are fully-equipped pathological and light departments. Clinical assistants are appointed from time to time.

St. John's Hospital for Diseases of the Skin (Incorporated).—The Out-patient Practice (at 49, Leicester Square, W.C.) is open free to the medical profession every week-day from 2 to 4 p.m., on presentation of their cards to the Medical Officer in attendance. The X-ray Department is in operation on Mondays and Fridays from 1.30 to 4. Chesterfield Lectures are given free. The In-patient Department, with 45 beds, is at 238, Uxbridge Road, W. Further particulars may be obtained from Mr. George A. Arnaudin, Secretary-Superintendent of the hospital, 49, Leicester Square, W.C.

LIVERPOOL.

The following hospitals have made arrangements for clinical instruction:

Royal Infirmary.—The Royal Infirmary is directly adjacent to the University and the Medical School, and contains 300 beds. The present building, completed in 1890, has been brought thoroughly up to date, and is one of the best appointed hospitals in the kingdom. *Fees:* The fee for a perpetual ticket is 40 guineas, payable in two instalments. There is no extra fee for clerks and dressers or for Clinical Lectures. *Appointments:* A Medical and a Surgical Registrar are appointed annually, with a salary of £100 each. Ten Resident Medical Officers are appointed every six months. They receive board and lodging, with private sitting room, in return for their services. Full particulars may be obtained from the Secretary of the Medical Board, G. G. Hamilton, M.B., F.R.C.S., 34, Rodney Street, Liverpool.

Royal Southern Hospital: Clinical School.—The hospital contains 200 beds; there is a children's ward, and beds are appropriated to the diseases of women, and also for cases of tropical disease in connexion with the Liverpool Tropical School. Clinical teaching is given at the hospital, and arrangements have been made to render it both thorough and systematic. The members of the staff visit the wards daily, and clinical lectures are given each week. Tutorial classes are also held each day, at which the junior students are instructed in the methods of diagnosis, and the seniors are prepared for their final examinations. The Pathological Department has a good laboratory attached, in which the students receive practical instruction. *Appointments:* In addition to the usual clinical and *post-mortem* clerkships, two resident posts of Ambulance Officer are awarded every three months to the students whom the Board may consider most suited to hold them. *Fees:* Perpetual, £26 5s.; one year, £10 10s.; six months, £7 7s.; three months, £4 4s. *Board* (exclusive of fees for Hospital Practice), £15 15s. per quarter. The practice of the hospital is recognized by all examining bodies.

Further particulars may be obtained from the Dean, Mr. Newbolt, 42, Catherine Street, Liverpool.

David Lewis Northern Hospital, Liverpool.—An associated Clinical School of the Liverpool University (see United Hospitals Clinical School, Liverpool), recognized by all Examining Boards and Universities; 246 beds. Winter Session and Clinical Lectures commence on October 1st. Students of the School are appointed to Clinical Clerkships and Dresserships at the commencement of each session. Special arrangements are made for graduates who desire to undertake clinical research as clinical assistants. A fully-equipped laboratory is attached to the hospital. House-Surgeons and Physicians (salaried) are appointed from time to time. For all information as to time-table, curriculum, fees, etc., application should be addressed to the Secretary to the Medical Board at the hospital.

United Hospitals Clinical School, University of Liverpool.—This Clinical School has been formed by the association of the following hospitals for purposes of clinical instruction: The Royal Southern Hospital, the David Lewis Northern Hospital, the Stanley Hospital, the Eye and Ear Infirmary, the Hospital for Women, the Infirmary for Children, St. Paul's Eye and Ear Hospital, and St. George's Hospital for Skin Diseases. These hospitals contain in all 840 beds. During the twelve months ended December 31st, 1905, the number of patients admitted to the hospitals was 9,428; the out-patients who attended during the year numbered 83,677. The object of the scheme of co-operation which these hospitals have adopted is that of utilizing to the greatest advantage the large amount of valuable material which they contain. The regulations which govern this co-operation have received the approval of the University. The full prospectus may be obtained on application to the Honorary Medical Secretary, Mr. Keith Monsarrat, 11, Rodney Street, Liverpool. The hospitals are so situated as to be easy of access from the University and from one another. While holding the appointments of Medical Clerk and Surgical Dresser students are not permitted to transfer their attendance from one hospital to another during term, but during the fifth year the courses of instruction at all the hospitals are open to them. Clinical Clerks and Dressers to in-patients and to out-patients are appointed at the beginning of each session. In each of the three general hospitals senior students are appointed to accident duty, and while holding this appointment they are provided with board and lodging in the hospital. Students are appointed assistants in the clinical laboratories and to the pathologists at the different hospitals, and during the fifth year act as clinical clerks in the special hospitals or in the special departments of the general hospitals. Medical and surgical tutors are appointed annually in the three general hospitals. There are eleven House-Physicians and Surgeons in the general hospitals, two at £100 per annum, two at £80, two at £70, and five at £60. Resident Medical Officers are also appointed from time to time in the special hospitals. *Fees:*—Perpetual ticket for hospital practice, including clinical lectures, £26 5s.; three months' hospital practice, £4 4s.; six months, £6 6s.; twelve months, £10 10s. The school is recognized by the Universities of Oxford, Cambridge, London, and Liverpool, and by the Conjoint Boards in England and Scotland.

Eye and Ear Infirmary, Myrtle Street.—The infirmary contains 65 beds. Evening courses of Lectures on Refraction and Medical Ophthalmoscopy and Diseases of the Ear are delivered at this infirmary during the winter months by the honorary medical staff. Students of medicine of Liverpool University have free access to the practice of the infirmary. Out-patient dresserships may be obtained on application to the Secretary of the Medical Board. The infirmary is recognized by the Conjoint Board as a teaching institution.

Liverpool Infirmary for Children.—During the building of a new hospital of 100 beds the work of the infirmary is being carried on in temporary quarters with 18 beds. In-patients (1905), 309; new out-patients, 12,489; attendances, 57,755; the new out-patient department was opened in January, 1903. The practice of the hospital is free to students, and clinical instruction is given by the medical and surgical staff. The hospital is affiliated to the United Hospitals Clinical School. For further particulars apply to the Secretary of the Medical Board.

Manchester.

The facilities for clinical study afforded by the Manchester Royal Infirmary have already been indicated at page 494 in the article on provincial medical schools. Other places at which clinical instruction is provided are the following:

Manchester Children's Hospital, Pendlebury, near Manchester.—The hospital at Pendlebury contains 168 beds, and 24 beds at the Convalescent Home, St. Anne's-on-the-Sea. The medical staff see out-patients daily at the Out-patients' Department, Gartside Street, Manchester, at 9.30 a.m., and visit the hospital at 10 a.m. and 5 p.m. The practice of the hospital and out-patients' department is free to students accompanying the medical staff.—Secretary, H. J. Eason, F.C.I.S.

Royal Eye Hospital.—The hospital contains 110 beds. The medical staff attend daily from 9.30 to 11. Clinical instruction is given to students. Further particulars can be obtained from the Secretary, Mr. W. S. Prophet.

St. Mary's Hospital's for Diseases of Women and Children, Whitworth Street West Branch.—One hundred beds, including 40 for the reception of lying-in cases, especially those attended with difficulty or danger. In the out-patient departments students are taught the various methods of examination and diagnosis, and the use of gynaecological apparatus, while in the wards they have an opportunity of becoming familiar with the diagnosis and treatment of graver cases, and of witnessing more important gynaecological and obstetrical operations. The number of maternity cases attended annually is over 4,000. The hospital possesses a library, presented by the late Dr. Radford, consisting of nearly 5,000 volumes, chiefly on subjects connected with obstetrics and gynaecology. There is also a museum, containing a large number of pathological specimens, and a valuable collection of deformed pelves, casts, obstetric instruments, and anatomical models. The gynaecological practice of the hospital is free to fourth and fifth years' students. The fee for the midwifery practice, including tuition and three weeks' residence in the hospital, is 6½ guineas. Only eight students are received at one time, thus allowing each one ample opportunity of attending the number of cases of labour required by the examining bodies. Application must be made to the Secretary at the hospital.

Manchester Northern Hospital for Women and Children.—The hospital is situated in Cheetham Hill Road, near the centre of the town, and contains 67 beds. Out-patients are seen daily at 8.30, and the wards are visited at 9 a.m. Secretary, Mr. Hubert Teague, Barton Arcade, Manchester.

Newcastle-on-Tyne.

Hospital for Sick Children.—There are 70 beds in the hospital, besides an isolated block for infectious and doubtful cases. There is a large out-patient department. The practice of the hospital is open free to all students or qualified practitioners. The number of in-patients in 1905 was 671. The out-patient department is carried on in buildings recently erected in the central part of the city, which are being at present extended at an outlay of £10,000. The number of out-patients in 1905 was 14,685, with 26,778 attendances.

Infirmary for Diseases of the Eye.—This hospital contains 20 beds. Its out-patients number 6,100 annually. Clinical instruction is given daily from 11 a.m. to 1 p.m.

Sheffield.

Jessop Hospital for Diseases of Women.—The number of beds is 72; in the Diseases of Women Department 54, and in the Maternity Department 18. Students can attend the practice of the hospital, and be supplied with cases of midwifery. (See also p. 495.)

Bath.

Royal United Hospital.—The hospital contains 130 beds, and is recognized by the Royal Colleges of Physicians and Surgeons as a medical school. It contains a library and an excellent museum, in which are a large number of interesting specimens, both in Pathology and Comparative Anatomy. Fees for attendance: Twelve months, £10 10s.; six months, £5 5s. (Temporary pupils can also, by permission of the honorary staff, attend the practice of the hospital by the payment of £1 1s. for each month.) Instruction in Practical Pharmacy for three months,

£3 3s. For further particulars apply to the Secretary, Mr. J. M. Sheppard, F.C.I.S.

BIRMINGHAM.

Birmingham and Midland Hospital for Skin and Urinary Diseases.—The practice of the hospital is open to medical students who have passed their anatomical and physiological examinations, and to registered medical practitioners. The fee for a course of three months is 5 guineas. Further particulars may be obtained from the Secretary at the hospital.

BRADFORD.

Bradford Royal Infirmary.—The hospital contains 220 beds. Non-resident pupils are received, and have every opportunity of acquiring a practical knowledge of their profession under the superintendence of a House-Surgeon and House-Physician. One year's attendance is recognized by the Examining Boards. *Fee:* Perpetual, £10 10s.

BRIGHTON.

Sussex County Hospital.—The hospital contains 190 beds (130 surgical, 60 medical), with separate wards for children and separate blocks for diseases of women and for cases requiring isolation; and the Out-patient Department is attended by 1,100 to 1,300 patients weekly. It is recognized by the College of Surgeons and by the Conjoint Board as a hospital where part of a course of Dispensing may be taken. Pupils are admitted to the clinical teaching at a fee to be agreed upon. Further information may be obtained from the House-Surgeon.

CANTERBURY.

Kent and Canterbury Hospital.—The hospital contains 104 beds. Over 700 in-patients and 1,200 out-patients attend every year. Lectures are delivered weekly during term time to the students of St. Augustine's Missionary College on Practical Medicine by Dr. Harold Wacher, and on Surgery by Mr. T. W. Reid.

DERBY.

Derbyshire Royal Infirmary.—The Infirmary will accommodate 225 patients. Pupils are admitted to the practice of the Infirmary at £10 10s. a year.

DEVONPORT.

Royal Albert Hospital.—The hospital contains 52 beds, and 6 additional for emergency cases only. A course of Practical Pharmacy is given by the Dispenser on payment of a fee of £5 5s.; pupils of the medical staff can attend this course on payment of £2 2s. The number of in-patients admitted during the twelve months ended September 30th, 1905, was 747. In the Casualty Department first aid was given to 2,582 persons, to 1,154 of whom further treatment was afforded. The out-patients treated in the Ophthalmic Department numbered 919.

EDINBURGH.

Royal Victoria Hospital for Consumption.—Excellent opportunity is afforded for the clinical study of Diseases of the Chest. Special clinics by the staff are arranged from time to time, both in the hospital itself, which contains over 50 beds, and in the extensive outdoor department, which has its head quarters at the Royal Victoria Dispensary for Consumption, 26, Lauriston Place, close to the University. The number in attendance at these clinics is limited. The fee is £2 2s. for a few weeks' course. Application for places has to be made some time in advance. Two medical appointments in connexion with the hospital are vacant every six months: (1) Resident Physician; (2) Non-resident Clinical Assistant for the outdoor department. The vacancies occur usually in April and October.

Royal Edinburgh Hospital for Sick Children.—The hospital stands in Sciennes Road, about seven minutes' walk from the Medical School and Royal Infirmary, contains over 115 available beds, and is fitted with modern improvements. There are some 1,900 in-patients and 25,000 out-patients' attendances yearly. No cases of infectious disease are admitted. The out-patient department (medical and surgical) is conducted in a building adjoining the hospital, and is well equipped. Systematic clinical courses of instruction, at a fee of £2 2s., which qualify for the University and other examinations, are given at various times throughout the year by the ordinary physicians and surgeon. Students may enter at any time. Four resident appointments are made half-yearly. The Registrar of the hospital, Dr. James Burnet, will supply particulars.

Edinburgh Eye, Ear, and Throat Infirmary.—Open daily at 6, Cambridge Street, at 1 p.m., for Eye Diseases; on Monday, Thursday, and Saturday at 12 for Ear Diseases; on Tuesday and Friday at 4 for Throat Diseases. There is a small infirmary of six beds in male and female wards. In-patients, 82: out-patients, 3,894.

Edinburgh Royal Maternity and Simpson Memorial Hospital has 40 beds, about 400 in-patients and 520 out-patients yearly. Daily clinics are given by the physicians and assistant physicians. Two House-Surgeons are appointed for each quarter. The Milne Murray Home in connexion with the hospital is a residence for students taking their midwifery practice. *Fees:* The hospital fee is £4 4s. per month, and the residency fee 25s. per week. There is meanwhile accommodation for twelve students. The intern and extern practice of the hospital is reserved for the students in residence.

Edinburgh City Hospital for Infectious Diseases at Colinton Mains contains 600 beds, a large number of which are available for teaching purposes. Qualifying courses of instruction are given by the Consulting Physician, Dr. J. O. Affleck, and the Medical Superintendent, Dr. Claude B. Ker, during the winter and summer sessions. The fee is £1 1s.; 2,600 patients.

Royal Asylum, Morningside, Edinburgh.—There is a clinical field of 500 beds, comprising all the wards except those for private patients. Students have the opportunity of personally coming in contact with and examining the cases, so as to learn the modes of dealing with patients suffering from mental disease; they are exercised in diagnosis and the drawing up of certificates, the aim being to enable them to recognize its early stages, to distinguish its varieties, to adopt suitable treatment, and to advise the relatives as to sending the patient to an asylum. The course extends through the last month of the winter session and the most of the following summer session, and the fee is £2 2s. Dr. Clouston is the Lecturer on Insanity for the University of Edinburgh.

EXETER.

Royal Devon and Exeter Hospital.—The hospital contains 200 beds, including a Special Children's Ward. There are a Library, Museum, and *Post-mortem* Rooms. A new Operating Theatre was opened in 1906. Attendance on the practice at this hospital qualifies for all the Examining Boards. Arrangements may be made by which students can attend Midwifery. For further particulars apply to the House-Surgeon.

West of England Eye Infirmary.—This infirmary contains 64 beds. Arrangements can be made for students at the Exeter Hospital to attend the practice of the Eye Infirmary.

GLASGOW.

Royal Hospital for Sick Children.—This hospital, containing over 100 beds (26 of which are at the country branch at Drumchapel) for the non-infectious diseases of children, is open for clinical instruction, as is the dispensary or out-patient department. Students, by paying the fee of £1 1s., are entitled to the practice of the hospital and dispensary for twelve months from the term of entry. In-patients, 1,000: out-patients, 9,866. Further particulars may be had by applying to the Resident Medical Officer, 45, Scott Street, Garnethill. The Dispensary is at 11, West Graham Street (within 3 minutes' walk of the hospital).

Glasgow Western Infirmary.—This hospital adjoins the University of Glasgow. Number of beds, 416. The Clinical Courses are given by the Physicians and Surgeons, each of whom conducts a separate class, and students may attend whichever they select at the beginning of the session. Special instruction is given to junior students by tutors or assistants, and Clinical Clerks and Dressers are selected from the members of the class. Special wards are set apart for Diseases of Women and for Diseases of the Skin. In the Out-Patient Departments there are special clinics for Diseases of Women and for diseases of the Throat, Ear, and Teeth. All the courses of clinical instruction are recognized at the University of Glasgow and other Boards in the kingdom. Nine Resident Assistants are appointed annually without fee from those

who have completed their course. *Fees.*—(1) Every Student shall pay a fee of £10 10s. for hospital attendance, and this shall be kept quite apart from the fees for clinical instruction. (2) Every Student shall pay £2 2s. for each summer, and £3 3s. for each winter session of clinical instruction, or such other fees as may be fixed from time to time by the managers in conjunction with the University Court. (3) Students who have completed their clinical course elsewhere shall be permitted to enter for a six months' course of the hospital only, on payment of a fee of £2 2s. In-patients, 6,179; out-patients, 24,577.

Glasgow Eye Infirmary.—This infirmary is situated at 174, Berkeley Street, and 80, Charlotte Street, and has 100 beds. Dispensaries open daily at 1 p.m. Operations performed on Monday and Wednesday at 10 a.m. and 2 p.m., and Friday at 9 a.m. and 2 p.m. Fees for six months, 1 guinea. In-patients, 1,659; out-patients, 25,232.

GLOUCESTER.

General Infirmary and Gloucestershire Eye Institution.—The hospital contains 140 beds. Resident and non-resident pupils are admitted by the General Committee on the recommendation of a member of the Medical Board. Each pupil pays in advance £10 for the first half-year and £5 for every subsequent quarter, or portion of a quarter, of a year. Each resident pupil has board and lodging in the house, for which he pays in advance 26 guineas for the first half-year, and 13 guineas for every subsequent quarter, or portion of a quarter, of a year. Each pupil pays in advance to the House-Surgeon a fee of £5 5s. for instruction, and a further fee of £3 3s. for every subsequent year or portion of a year. One year spent at this hospital, after passing a preliminary examination, is recognized by the Royal College of Surgeons.

LEICESTER INFIRMARY.

In this infirmary there are 200 beds, of which some 191 are in constant use. Of these beds, 42 are in a special annexe known as the Children's Hospital. There are five resident medical officers, and in addition two resident dressers are appointed every six months. The latter receive an honorarium of £10 10s. at the end of their term of office. The work of the hospital, especially on the surgical side, is very extensive, four operating theatres being in use. There is also a large out-patient department; it is fitted with rooms for the accommodation of the members of the staff in charge of the various special departments, and is one of the most complete and best equipped Out-patients' Departments in the kingdom. The present south-east wing is now in course of demolition, and on its site will be constructed a modern wing containing 50 additional beds. The cost will be about £17,000.

LINCOLN.

County Hospital.—The hospital contains 125 beds and 5 isolation beds. The House-Surgeon is allowed to take two pupils, on terms arranged between the Weekly Board, himself, and the pupils. A fee of not less than £10 10s. is paid by every pupil to the hospital. The House-Surgeon is responsible for the conduct of his pupils. The pupils remain in the hospital only when occupied in performing or observing the actual work of the hospital.

NORTHAMPTON.

General Hospital.—There are 166 beds and a large out-patient department. Out-pupils are received, and have every opportunity of acquiring a practical knowledge of their profession. Instruction is also given in Anatomy, Materia Medica, and Pharmacy. Non-resident pupils are taken at a fee of £10 10s. annually.

NORWICH.

Norfolk and Norwich Hospital.—The hospital contains 220 beds. Students (non-resident) are admitted according to the following scale: For three months, £3 3s.; for six months, £5 5s.; as permanent students, £8 8s. The resident officers are a House-Physician, House-Surgeon, Assistant House-Surgeon, and Second Assistant House-Surgeon.

NOTTINGHAM.

General Hospital.—The hospital contains 241 beds. The Honorary Staff introduce pupils to witness the practice of the hospital on payment of £10 10s. annually in advance. The pupils receive instruction from the Resident Medical Officers.

PORTSMOUTH.

Royal Portsmouth Hospital.—132 beds. One year's attendance is recognized by the Examining Boards. For particulars as to fees apply to B. Wagstaff, the Secretary of the Committee of Management.

SOUTHAMPTON.

Royal South Hants and Southampton Hospital.—This institution was established in 1838. The out-patients' building was erected in 1887. The number of beds is 130. The in-patients number about 1,700 a year, the out-patients about 7,500. Large additions to buildings, including new isolation wards, new operating room, a new ward block, and a steam laundry, and new night casualty receiving room and nurses' home for 44 nurses have been completed. The hospital has been registered by the Royal Colleges of Physicians and Surgeons as a "Medical School."

STAFFORDSHIRE.

Staffordshire General Infirmary.—There are 75 beds. The pupils of medical practitioners resident in the county of Stafford are allowed to witness the medical and surgical practice of the infirmary, and to be present at operations. The pupils of the officers of the institution are admitted to these privileges gratuitously, those of other practitioners on the payment of £10 10s. with each pupil.

North Staffordshire Infirmary and Eye Hospital.—The Infirmary has accommodation for 216 patients, including children's wards, eye department, and special ovarian wards, electrical and *x*-ray departments. The attendance of pupils at this infirmary is recognized by all the Examining Boards. Particulars as to fees, etc., may be obtained from the Secretary and House-Governor, Mr. Albert E. Boyce, F.C.I.S., A.L.C.A., Hartshill, Stoke-on-Trent.

WINCHESTER.

Royal Hants County Hospital.—The hospital contains 108 beds. The Physicians and Surgeons are allowed to introduce a certain number of pupils; the Resident Medical Officers may also receive a pupil, for whose maintenance a certain sum, to be fixed by the Committee, is payable annually in advance. Pupils of medical men not on the staff of the hospital may, with the consent of the Committee, become out pupils and see the practice of the hospital, under the direction of the Resident Medical Officer, on the payment of £10 10s. for one year, or £21 for unlimited attendance.

WOLVERHAMPTON.

Wolverhampton and Staffordshire General Hospital.—There are 200 beds. It is recognized by the University of London, the Royal Colleges of Physicians and Surgeons, and other examining Boards. The in-patients number 2,550 and out-patients 19,985. The operating theatre, pathological laboratory, and *post-mortem* room are new and well equipped. Special departments for children, gynaecology, ear, throat, and nose diseases, electro-therapeutic and *x*-ray departments. There is an excellent library. The resident officers are a house-physican, house-surgeon, assistant house-physician, and assistant house-surgeon. Pupils are allowed to witness the whole of the practice of the hospital and to be present at operations, and have every opportunity of acquiring a practical knowledge of their profession. Fees: £3 3s. a quarter, £10 10s. the first year, and £5 5s. subsequent years. A course of practical pharmacy is given by the dispenser. Fees, £3 3s. for three months. Application should be made to the Secretary of the Medical Committee' Staff.

YORK.

York County Hospital.—The hospital contains 150 beds, including children's ward, eye department and *x*-ray apparatus. Non-resident pupils may be introduced by the Honorary Medical and Surgical Officers, or by the Resident Staff (which consists of a House-Physician and a House-Surgeon) on terms to be arranged with the Honorary Staff. Pupils visit the wards with the members of the Honorary Staff (the House-Physician and House-Surgeon are present at the operations and *post mortems*), and are instructed in the elements of minor surgery by the House-Surgeon in the casualty department. The in-patients number about 1,400 annually, and the out-patients 11,000, who make 44,000 attendances. Further particulars may be obtained from the Senior Resident Officer.

MEDICAL EDUCATION OF WOMEN.

YEAR by year the number of women who adopt a medical career increases, and, at any rate so far as the passing of examinations is concerned, the success of women medical students as a body is unquestionable. As a rule they are ambitious in the qualifications they seek, and in the lists of successful candidates at the examinations for London degrees there are usually several women to be found well placed.

Their choice of qualifications is, however, no longer limited, for there are now few licensing bodies which refuse to receive them. Those which do grant them their degrees or diplomas are all the Universities of England, with the exception of the Universities of Oxford and Cambridge; the Universities of Scotland; the Royal University of Ireland, and Trinity College, Dublin; the Society of Apothecaries, London, and the Conjoint Boards of the Royal Colleges of Physicians and Surgeons of Scotland and Ireland.

They are, of course, subject to the ordinary regulations of the General Medical Council (see page 465) as regards their education, and can pursue the latter either at certain schools only open to women, or at ordinary schools where they do their work more or less in common with the men students.

The schools which admit women only are the London (Royal Free Hospital) School of Medicine for Women, which is one of the constituent schools of the Medical Faculty of the University of London; the Edinburgh Medical College for Women (see page 498, and Queen Margaret College, Glasgow (see page 499). Women are also admitted to the Schools of Medicine conducted in connexion with the Universities of Dublin, Durham, Liverpool, Manchester, Birmingham, Leeds, Sheffield, and Aberdeen; the Catholic University, Dublin, Bristol University College, and also to special classes at the School of Medicine of the Royal Colleges, Edinburgh; the Schools of Surgery of the Royal College of Surgeons in Ireland, and of the Queen's Colleges of Belfast, Cork, and Galway. Students of the University of Glasgow receive their education at Queen Margaret College, which is an integral part of the University. Two years only of the medical curriculum can be taken at the United College, St. Andrews; the remaining three years are taken at University College, Dundee, where the whole five years can be passed if desired. Women can also attend classes for the first three years of the medical curriculum at University College, Cardiff.

It may be noted that there are a good many medical charities in London which are now staffed partly or entirely by women practitioners; thus at the Royal Free Hospital two of the visiting staff of the gynaecological department are women, and so, too, are the pathologist, the anaesthetist, and four of the residents; the Victoria Hospital for Children also has women on its staff; while at the New Hospital for Women, the Clapham Maternity Hospital, and the Canning Town Hospital all honorary and resident officers are necessarily women. There are also a good many infirmaries, fever hospitals, and asylums at which women are eligible for appointment. A certain number of London medical societies likewise admit women doctors to their membership or fellowship; the chief are the Obstetrical and the Gynaecological, the Anaesthetists and Anatomical.

As regards the London School of Medicine for Women some further particulars will be found at p. 491 in the article on London medical schools. The prospectus of this school contains an article worth reading by any woman who thinks of becoming a medical student, whether she proposes to join this or any other school.

POST-GRADUATION STUDY.

ONE result of the enormous growth of medical and surgical science and art in recent years is that a practitioner who is unable to keep himself practically acquainted with the details of that growth finds himself after a time at a decided disadvantage. The facility with which he gets through his ordinary everyday work may deceive a man for a time into thinking that he knows all he need, but, sooner or later, if his mind is at all awake, he must become conscious that he is behind the times. He finds that other men around him, carrying on the same line of practice, are employing methods of treatment of which he knows nothing, and instruments of which he barely knows the names; and, moreover, that when he meets his colleagues in consultation or elsewhere they regard diagnosis and prognosis in the light of knowledge which is not shared by himself. Apart from this, it is of importance to remember that it is chiefly by keeping the mind in a receptive condition that it is best able to utilize knowledge already acquired, since the reception of even one new idea often causes links of association to form with many others, and so increases the professional power of the practitioner. Moreover, there are many special departments of medicine and surgery of which medical students are not required by the regulations of examining bodies to make any very profound study; in after-life, however, when they have left examinations behind them, and have settled down in practice, they often find themselves so placed that more knowledge of some one or other speciality would be of the greatest advantage to them. Dexterity, for instance, in the use of the ophthalmoscope, the laryngological mirror, the aural speculum, or in the performance of minor operations may not only lead to a man's assistance being sought by other practitioners, but enable him in his own practice and with entire justice to the interest of his patients, to dispense in a great many cases with the services of a consultant. Such extra knowledge may often be acquired at a very small expenditure of time and pains, and yet bring in a hundredfold return. Besides this there are certain new branches of study, of which the medical practitioner who desires to do justice alike to himself and to his patients should at least know something. For instance, *x*-ray and other forms of electro-therapeutic work continue to assume greater and greater importance; and though it would scarcely be advantageous that a man in general practice should attempt to undertake them himself, it is desirable that he should have sufficient acquaintance with their principles and possibilities to be able to answer questions and advise his patients in respect of them.

Finally, there is in post-graduate study the very important advantage that, by having his mind brought into contact with those of other progressive students of medical science, the inevitable tendency of the isolated worker to fall into mental ruts and to come under the dominion of fixed ideas is counteracted.

Of late years efforts have been made to obtain practical recognition of the force of these considerations in the case of officers of the army and navy; these have met with considerable success, and it rests with other classes of medical practitioners to apply the same arguments to their own cases. They have done so of late years with increasing frequency, with the result that the demand for facilities for post-graduate study has been met in the ways of which details are given below. By those medical men who are unable to keep in touch with medical schools or get into touch with post-graduate courses, a persevering effort may be made to keep their medical capital in a steadily-growing state by means of recent book and magazine literature alone. In this connexion, in particular, reference may here be made to the many valuable libraries open to medical men. In London the library of the British Medical Association is conveniently situated, and is especially rich in recent works; the superb library of the Royal College of Surgeons in Lincoln's Inn Fields is courteously opened to all practitioners who go through the formality of obtaining a card of introduction from a Fellow or Member; the library of the British Museum is also available on easy conditions; the library of the Royal Medical and Chirurgical Society may be consulted after obtaining an introduction from a Fellow, and the library of the Royal College of Physicians may be utilized after complying with certain easy conditions. Outside London there are well-stocked libraries in connexion with the universities, and others of great value, such as that of the Royal College of Physicians of Edinburgh, to which recourse may be had by suitable persons.

LONDON.

Of late years the organization of instruction of a kind specially suited to the needs of the qualified man has been greatly improved, and now, perhaps, leaves little to

be desired. There are four main systems of which the post-graduate may take advantage: (1) The London Post-Graduate Association has established a system by which cards of admission are issued giving the right to the bearer to avail himself of the clinical instruction of the majority of the teaching and of a great many special hospitals. At the former the post-graduate is present at the demonstrations given to ordinary students, but at the latter those who attend are principally qualified men. (2) There is the excellent arrangement made by the London Polyclinic by which cases of interest and rarity are examined and demonstrated in consultation with some of the leaders in the profession; in connexion with it a number of practical classes are conducted, which cover all branches of medicine and surgery. (3) Certain general hospitals throw open and limit their practice to qualified men, and at some of them excellently arranged post-graduate medical schools have been organized to meet the requirements of their visitors. Among the latter may be mentioned the West London Post-graduate College, associated with the West London Hospital in Hammersmith Road, W.; the North-East London Post-graduate College, associated with the Tottenham Hospital, at South Tottenham, N.; and the London School of Clinical Medicine, which opened its doors this year and is carried on at the Dreadnought Hospital, Greenwich, S.E. (4) Clinical assistants are appointed in many of the special hospitals of the metropolis, such as the Brompton Hospital for Consumption and Diseases of the Chest, the Great Ormond Street Hospital for Sick Children, the National Hospital for the Paralysed and Epileptic, the Royal London Ophthalmic Hospital, the Golden Square Hospital for Diseases of the Throat, the Bethlem Royal Hospital, the Blackfriars Hospital for Skin Diseases, the Chelsea Hospital for Diseases of Women, and several others.

London Post-Graduate Association.

The wealth of London in material for clinical study is of course enormous, and the object with which the London Post-Graduate Association was started, now many years ago, was to throw open to the general body of medical practitioners all that is most useful and attractive in it.

To fulfil this purpose it entered into arrangements with the principal medical schools of London and with the administrators of the leading special hospitals of such a nature that it is now able to issue a ticket which admits the holder to all the clinical instruction provided in these institutions. Armed with this ticket, a medical man can enter freely any of the institutions concerned, becoming to all intents and purposes one of their students, and having as much right to visit their wards and attend in their out-patient departments as if he were once more in his salad days, and back within the familiar walls of his old school. He can thus get as much clinical instruction in the wards and in the special and general out-patient departments as he pleases, and the operating theatres and the *post-mortem* rooms are equally open to him.

The fact that one ticket admits him to so many hospitals is a decided advantage, for if interested in one particular branch of work he can follow that up throughout the day in different institutions, instead of having to limit his study of it to one or two days a week. A further useful point in the system is that it affords practitioners an opportunity of becoming acquainted with the different methods of a large number of specialists, and of noting the different ways in which men all equally eminent in their particular line deal with cases much of the same type; there could be no better way, indeed, to getting abreast with the results of modern research and into touch with current thought in medicine and surgery than by attending various hospitals with the help of a ticket from this Association.

The institutions thrown open are, among general hospitals, Charing Cross, Guy's, King's College Hospital, Middlesex, St. George's, St. Mary's, St. Thomas's, and University College and Westminster. Among special hospitals, the Brompton Hospital for Diseases of the Chest, the Hospital for Sick Children (Great Ormond Street), the National Hospital for the Paralysed and Epileptic, the Royal London Ophthalmic Hospital, and the London School of Tropical Medicine. The fee for a ticket lasting three months is 10 guineas, while for 15 guineas one for six months is issued.

Further particulars about this Association can be obtained from the Secretary, London Post-Graduate Association, Examination Hall, Victoria Embankment, London, W.C.; if application is made in person, the visit should be paid between the hours of 11.30 a.m. and 1 p.m., or between 2 p.m. and 3 p.m.

London Medical Graduates' College and Polyclinic.

This institution, familiarly known as the Polyclinic, opened its doors some seven years ago, its work being executed on quite original lines. Their soundness became very early apparent, and large numbers of practitioners now attend its classes, and avail themselves of the various forms of instruction which the College offers.

The work is carried on in a building in central London, which is well arranged and readily accessible from all quarters. It stands at the corner of Chenies and Ridgmount Streets, its postal address being 22, Chenies Street, W.C. This street, it will be remembered, runs at right angles to Tottenham Court Road, crossing Gower Street.

The building is everywhere fitted with electric light, and there is a lift to all floors. The ground floor is given up to the class rooms, which are furnished with blackboards and various other appliances for clinical instruction. In one of them is a large and powerful Roentgen ray apparatus, which is frequently requisitioned in the diagnosis of fractures and deformities. When occasion requires, the dividing partitions of the rooms can be removed and a classroom of fine proportions thus provided.

On the first floor is a library, a reading room, and the consultation theatre, and on the upper floor is found an excellent laboratory for bacteriology and clinical pathology, each table being provided with its own set of reagents and test tubes, and its Bunsen burner. Besides these rooms there is in the basement an important annexe in the shape of a dark room. Against the walls of this are placed 12 seats, each separated from the adjoining one by a partition, and each having its own electric light that can be used in varying strength, naked or shaded. In this room twelve patients can be examined simultaneously, but separately from each other, with the ophthalmoscope, laryngoscope, or other instrument of precision, and their indications demonstrated. An adjoining room is fitted with appliances for instruction in ophthalmic cases, such as type tests, working models of eyes, stereoscopes, lenses, etc.

Another important part of the College is the Museum, situated at the side of the building, and devoted to clinical illustrations. Portraits and models of diseased conditions find their place there, and the newest medical and surgical instruments and appliances of all kinds, which can be examined at any time, form a marked feature of this department of the College. The museum has been enriched by a unique collection of valuable pictures of disease, especially skin disease, most of which are painted from life, together with many other specimens of rare clinical value, which have been placed at the service of the Polyclinic by Mr. Jonathan Hutchinson, F.R.S., and the museum has been appropriately named after him the Hutchinson Museum.

Perhaps, however, the most characteristic feature of the school is the system of consultations. These take place every afternoon, and patients attend them either at the invitation of the management, or may be brought by practitioners who are members of the school. Besides the excellent opportunities for teaching which these consultations afford, they provide occasion for discussing cases and studying exceptional forms of disease by the most recent methods of diagnosis. Notes are taken of the cases, and are supplemented on occasion by photographs or other portraits of the rarer morbid conditions.

On Mondays, Tuesdays, Wednesdays, and Thursdays of each session at 5.15 p.m., formal lectures are delivered on medicine, surgery, and their branches. Of practical classes there are four sessions in the year, each lasting six weeks, while a vacation course takes place every September.

Provision is also made for those who are reading for the higher qualifications, special tutorial classes being conducted. Full particulars of all the work done may be

obtained on application to the Resident Superintendent, 22, Chenies Street, W.C.

WEST LONDON POST-GRADUATE COLLEGE.

This institution has its head quarters at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The College started in a small way in 1895, but soon broadened its basis. In a few years' time it was seen that it was going to be a great success, and that a building specially designed for the work would be required. Thus the present building was opened in 1901, and is provided with lecture halls, reading and writing rooms, and accommodation of all sorts for the convenience of post-graduate students. The success of the enterprise called others into existence, but they have in no wise checked its success, but merely stimulated the authorities to further efforts, the net result being that during the last four years the number of medical men who have yearly entered their names on its books has averaged over 200.

The College and Hospital are in the Hammersmith Road, about two minutes' walk from the Hammersmith Stations of the Metropolitan, District, and South-Western Railways, while Kensington (Addison Road) Station can be reached by a ten-minute walk or omnibus; Shepherd's Bush, the terminus of the Central London tube, is very little farther away. Omnibuses from all parts of London pass the doors, and close by run the electric cars from Hampton Court, Twickenham, Hounslow, Uxbridge, and Ealing.

As for ward work, the students accompany the senior staff on their visits to the wards at 2.30 p.m. daily, and also go round with the resident medical officers in the morning. Out-patient work begins at 2.15 p.m. This department is large, and affords ample facilities for post-graduates to see and examine patients. The out-patient work is subdivided into various special departments dealing with diseases of the eye, ear, throat, nose, skin, orthopaedics, *x*-ray work, electro-therapeutics, gynaecology, and medical diseases of children. Clinical assistants are appointed from among the post-graduates, and practical classes are formed as required. The size of the latter is limited so as to ensure that each student shall have full opportunities of gaining experience in methods of examination and treatment.

Special classes are also held in medicine, general practical surgery, intestinal surgery, surface anatomy, and blood and urine analysis, and finally in operative surgery. For the latter the College holds a special licence, and classes in this subject are arranged as often as material is available, each consisting of four members.

Operations take place at 2.30 p.m. daily, the surgeons often availing themselves of the assistance of the student, and in any case making arrangements so that they can see what is going on perfectly. The Anaesthetists give instruction in the administration of different anaesthetics on the operating days, students being allowed to administer them under supervision, while special classes are held in each session.

Post-mortem examinations are performed at noon, separate demonstrations of recent specimens being given at the same hour on Monday during each session. The pathological laboratory is in charge of a pathologist who attends during the whole day. In bacteriology and microscopy special instruction is given on three mornings a week, the students working at other times under the general guidance of the pathologist.

Lectures of a practical kind are given daily (except Saturday and Sunday) at 5 p.m. The series include courses on Public Health and Insanity by specialists not otherwise connected with the Hospital. In the latter subject instruction is also given at certain asylums.

The arrangements of the College may be said to be equally suited to those who are preparing themselves for examination for the higher degrees and diplomas, to the needs of officers in the different Services on study leave, who attend in large numbers, and to those medical men in ordinary practice who desire to get themselves up to date in general medicine and surgery, or to make a special study of some particular branch of work. The College, it may be noted, is in a residential quarter, and there are plenty of good lodgings in its neighbourhood. Practitioners working within its walls can receive telephonic messages, take tea in the afternoon, and may smoke in its reading and writing rooms.

The fees are as follows: Hospital practice, including all ordinary demonstrations and lectures, £1 1s. for one week, £2 2s. for one month, £3 3s. for six weeks, £5 5s. for three months, £8 8s. for six months, £12 12s. for one year, and £25 for a life ticket. Those who cannot attend the whole of any particular course can attend any ten lectures or demonstrations given during the session for a fee of £1 1s. Every year in August there is a special vacation class lasting four weeks, for which the fee is £2 2s. Three months' instruction in the administration of anaesthetics costs £2 2s. Subscriptions for any course can be taken out from any date.

All communications concerning the school should be addressed to the Dean, Post-graduate College, West London Hospital, Hammersmith, W., from whom also a full prospectus can be obtained by any person holding a medical qualification.

THE LONDON SCHOOL OF CLINICAL MEDICINE.

(For Qualified Practitioners only).

The School Buildings, Lecture Rooms, Pathological Laboratories (two), Museum, Operative Surgery Classrooms, etc., are in the Dreadnought Hospital at Greenwich, and the whole hospital of 250 beds, with its Out-Patient Departments, is open to students from 10 a.m. till 5 p.m.

Medical, Surgical, and Special Department In-patient Clinics are held upon every afternoon except Saturday, by the senior members of the staff, and operations are performed daily, whilst out-patients in the Medical, Surgical, and Special Departments are demonstrated by the Assistant Physicians and Assistant Surgeons daily in the forenoon.

Practical Classes are arranged three times a year in the following subjects: The Practice of Medicine, the Practice of Surgery, Diseases of the Eye, Diseases of the Throat, Nose, and Ear, Diseases of the Skin, Diseases of the Nervous System, Operative Surgery, Clinical Pathology, Microscopy, and Bacteriology, Mental Diseases, Radiography, Dental Surgery, the Administration of Anaesthetics, Hygiene and Public Health, Gynaecology, Surgical Diseases of Women, Surgical Diseases of Children, Medical Diseases of Women, Medical Diseases of Children, Applied Anatomy, Midwifery.

Three sessions, of ten weeks' duration, are held in each year, beginning on January 15th, May 1st, and October 1st.

Every variety of disease may be studied in the wards and out-patient rooms of the Hospital, at the Dispensaries, and at the affiliated hospitals.

Male patients only are received as in-patients by the Seamen's Society, but arrangements have been entered into with the Royal Waterloo Hospital for the reception of Graduates who desire instruction in diseases of women and children; with the Bethlem Hospital for those who require tuition in mental disease; and with the General Lying-in Hospital (York Road) for the prosecution of study in midwifery.

These Hospitals are situated on the south side of the river, are directly linked to the Dreadnought by both railway and tramway, and are affiliated to the London School of Clinical Medicine.

The Certificates of the School are recognized by the Admiralty, the War Office, and the University of London (for the higher degrees).

The supply of material affords exceptional facilities for practical instruction in operative surgery and in pathology on the cadaver. The hospital also offers a wide field for the study of venereal diseases, and there is a special department with open-air wards for the treatment of tuberculosis.

Appointments.—There are two House-Physicians and two House-Surgeons at the Dreadnought Hospital, Greenwich, and a Senior House-Surgeon and House-Surgeon at the Branch Branch Hospital. The pay of these offices varies from £50 to £100.

The Prospectuses, Syllabuses, and other particulars can be obtained on application to the Secretary, Seamen's Hospital, Greenwich, S.E., or from the Medical Superintendent, Dr. C. C. Choyce, at the School.

North-East London Post-Graduate College.

The head quarters of this post-graduate school are situated at Tottenham Hospital, one situated in the midst of what is now a densely-populated neighbourhood containing about a quarter of a million inhabitants. Its precise situation is South Tottenham, N., where it is within a few minutes' walk of South Tottenham Station on the Midland Railway, Seven Sisters Station on the Great Eastern Railway, and Tottenham Hale on the Great Eastern main line. It is also readily accessible from Finsbury Park and Hackney by electric tram, and by corresponding means may be reached easily from Dalston, Edmonton, Hackney, Holloway, and other parts of North London.

The College is recognized by the University of London as a place for advanced study for the M.D. and M.S. degree, and the arrangements for the convenience of men who are thus working, or who are general practitioners desirous of getting themselves into touch with modern methods, are good. There is provided for their use a reading and writing room, and they can obtain afternoon tea and receive telephonic messages; similarly there is a reference and lending library for their benefit, and a museum and pathological laboratory in which they can work. The hospital as a whole certainly affords excellent facilities to qualified medical practitioners who wish to take part for a time in the work of an active general hospital, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental, and the administration of anaesthetics. Throughout the sessions into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff in the lecture room, in the wards, in the various out-patient departments, and in certain affiliated institutions. Operations are performed every afternoon of the week, except Saturday. Special classes are arranged in Gynaecology, the Surgical Diseases of Children, including Orthopaedic Surgery; Diseases of the Throat, Nose, and Ear; Diagnosis of Diseases of the Chest, Diagnosis of Diseases of the Nervous System, Ophthalmoscopy and Refraction, Analysis of Gastric Contents, Clinical Examination of the Blood, Diseases of the Skin, Abdominal Surgery, Radiography, Anaesthetics, Bacteriology, and Medical Electricity. In all these classes the numbers are carefully limited, so as to give every member full opportunity for work.

As for fees, these are as follows: One guinea for a three months' course of study in any one department, which may be begun at any time; a fee of 3 guineas admits to the whole practice of the hospital for a similar term (one month, 2 guineas), and a perpetual ticket for the practice of the hospital may, for the present, be obtained on payment of a fee of 5 guineas. Medical practitioners who have attended a three months' course in any department are eligible for appointment as Clinical Assistants in those departments. A certificate, signed by the staff, may be obtained at the end of three months' hospital attendance.

Additional information about the College and its work can be obtained on application to the Dean of the Post-graduate College, Dr. A. J. Whiting, 142, Harley Street, London, W., who will also supply a prospectus and a syllabus of the lectures and demonstrations to be given during the next formal session.

University College.

Classes in Pathological Chemistry intended for the advantage of qualified practitioners and advanced students are held by the Professor of this College in this subject. Each course is practical, and includes demonstrations and lectures on the principal points brought out by analysis in the diagnosis and prognosis of disease. Each member of the class is given the actual material to analyse, and from results obtained is required to make the diagnosis, which is corrected if necessary. Thus each man not only does the ordinary class analysis, but he learns to apply his results to practice. Each course includes the analysis of the saliva, stomach contents, faeces, urine, calculi, and pathological fluids, and in the lectures the chemical changes which occur in disease are fully discussed, and as far as possible explained. The laboratory is open from 9 a.m. to 5 p.m., so that the practical work can be done at the hours most convenient to those attending the class. The next class will commence in October. The fee for the class, including apparatus and material, is £5 5s. A department is also fitted up for research work, and is open to all researchers at the fee of £1 1s. a month. A record of the research work is kept. Several workers have received grants from the Scientific Grants Committee of the British Medical Association.

Charing Cross Hospital.

Special series of clinical lectures and practical demonstrations, exclusively arranged for the convenience of practitioners and post-graduate students, are given at the hospital throughout the sessions of the medical school. The lectures for the year are arranged in three courses, each course consisting of twenty meetings, and lasting ten weeks. Two of these courses are held during the winter and one during the summer. The class meets on Tuesdays and Thursdays in the Board-room of the hospital, and proceeds thence to the wards or to the department in which the demonstration may be held. The fee at present charged for each course of twenty lectures is 2 guineas, or 1 guinea for either day alone. The first of the two winter courses of the ensuing academical year will commence on October 4th next, and will be conducted by the members of the medical and surgical staff. Practitioners wishing to join the class can receive any further information as to the dates and subjects by communicating with the Honorary Secretary of the post-graduate course at the hospital.

Cambridge.

Special arrangements for advanced study and research were made in 1896 in the University of Cambridge. Graduates of other Universities may be admitted to the University of Cambridge as advanced students. They may pursue courses of advanced study or research, literary or scientific, under the direction of the University teachers, and may become members of colleges without fulfilling the same conditions as are imposed on junior students. Advanced students may, if they wish, obtain a certificate of proficiency in research, or may proceed to the degree of B.A. or LL.B. under certain conditions. In their third or some subsequent term of residence up to the tenth they may become candidates for certain parts of the Tripos (Honour) Examinations, among others the Natural Science Tripos, Part II. Having satisfied the examiners, and after residence of six terms in all, they are admissible to the degree of B.A. or LL.B. The Certificate of Research may be obtained after residing for three terms (one academical year), and when the student has completed six terms' residence he is admissible to the degree of B.A. The facilities for advanced study and research offered by the University include the University Library and the Philosophical Library, while each of the seventeen Colleges possesses its own Library, as do also the respective Natural Science Departments. The department of Zoology and Comparative Anatomy includes a museum of zoology and a laboratory for animal morphology and elementary biology. The new department of botany contains a comprehensive herbarium and a museum of specimens illustrating the morphology and life-history of plants. There are also laboratories and class-rooms fitted for experimental work, while the Botanic Garden contains a large and varied collection, with numerous plant houses and a botanical laboratory. The department of Human Anatomy contains a spacious dissecting room, a museum, osteological room, and a number of rooms for special study and research in anatomy, histology, and physical anthropology; upon the last-named subject special courses of lectures are given. The department of Physiology contains a number of rooms provided with electric light and motive power, and with abundant and complete appliances for all kinds of practical work. Special rooms are set apart for histology, chemical physiology, and experimental inquiries, including psycho-physical researches. The new department of Pathology and Hygiene is well equipped for the study of the processes and results of disease and for bacteriological teaching and investigation. The Humphry Museum contains a fine collection of specimens illustrative of morbid anatomy. The surgical portion is of special importance, and includes a large number of interesting specimens presented by the late Sir George Humphry. The Pharmacological Museum

and Laboratory possesses a complete collection of the official materia medica and ample appliances for experimental and chemical research on the nature and uses of medicinal substances. Lectures on clinical medicine and surgery are given at Addenbrooke's Hospital by the staff. The departments of Chemistry and Physics are very completely furnished, and several of the colleges also possess chemical laboratories. Certain scholarships are open, including the John Lucas Walker Studentship for Pathology, the Balfour Studentship for Animal Morphology, and the Coutts Trotter Studentship (at Trinity College) for Physiology and Experimental Physics. Special arrangements for Advanced Students have been made by most of the Colleges. Further particulars may be obtained from the Registrary of the University, the Registry, Cambridge.[1]

EDINBURGH POST-GRADUATE VACATION COURSE.

This course has been entirely recast for this year. It will extend from Monday, September 17th, to Saturday, October 6th. The fee for the course will be 6 guineas; any three series of demonstrations, lectures, or clinics may, however, be attended on payment of 3 guineas. Arrangements have been made whereby those attending the course may, if they wish, obtain accommodation and board in the University Hall. The inclusive fee for board and lodging will be 30s. per week. As rooms will be allocated according to priority of application, early intimation should be made to the Secretaries, Messrs. Whitson and Methuen, C.A., 21, Rutland Street, Edinburgh.

A syllabus, containing a time-table of the course, with details as to the subject-matter which the individual teachers propose to take up, may be obtained on application to the Honorary Secretary, 23, Drumsheugh Gardens, Edinburgh.

It is proposed to supplement the syllabus by issuing at the beginning of each week throughout the course a leaflet containing additional information for the ensuing week. The Executive Committee will therefore be greatly obliged if all those who come to Edinburgh with the intention of attending the course will immediately on their arrival notify their address to the Secretary, the Faculty Office, University New Buildings.

The subjects to be dealt with in the course are: Anaesthetics, by Dr. Luke; Bacteriology, by Dr. W. T. Ritchie; Diseases of the Blood, by Dr. Lovell Gulland; Diseases of Children, by the Staff of the Sick Children's Hospital; Diseases of Ear, Nose, and Throat, by Drs. McKenzie Johnston, Logan Turner, and Farquharson; Diseases of the Eye, by Drs. George Mackay, E. W. Sym, J. V. Paterson, and Arthur Sinclair; Gynaecological Operations, by Dr. N. T. Brewis; Diseases of the Heart, by Dr. G. A. Gibson; Diseases of the Lungs, by Dr. R. W. Philip; Medical Clinics, by Drs. Byrom Bramwell and William Russell; Neurology, by Drs. Alexander Bruce, Graham Brown, and Edwin Bramwell; Pathological Anatomy, by Dr. Shennan; Surgical Pathology, by Mr. Wade; Diseases of the Skin, by Dr. W. Allan Jamieson; Modern Gastric Methods, by Dr. F. B. Boyd; Surgical Clinics, by Messrs. Cotterill and Cathcart; Surgical Outpatients, by Mr. Miles; Surgery of the Urinary Tract, by Mr. David Wallace; Examination of the Urine, by Dr. J. D. Comrie; Venereal Diseases, by Mr. Alexis Thomson; and a Clinical Lecture on Harelip, Cleft Palate, and Plastic Operations on the Nose and Face, by Professor Annandale. In addition lectures will be given by Dr. Byrom Bramwell on The Medical Examination for Life Assurance; by Dr. David Lawson, on The Opsonic Index of the Blood, its Value in Diagnosis and Treatment; by Dr. Andrew Davidson, on Tropical Diseases in Britain in Past and Recent Times; by Dr. Clouston, on The Certification of the Insane and Certain Medico-legal Aspects of Mental Disease, with Clinical Illustrations; by Dr. J. W. Ballantyne, on Infant Mortality in Relation to the Falling Birth-rate; and by Professor Harvey Littlejohn, on The Medico-legal *Post-mortem* Examination: Some conditions Liable to give Rise to Erroneous Conclusions.

There will also be Clinics at Leith Hospital, and a Demonstration by Dr. Clarkson at the Larbert Institute for Imbecile Children.

The Executive Committee desire to draw the attention of graduates to the fact that instruction may be obtained as heretofore throughout the year in a number of subjects.

TRINITY COLLEGE, DUBLIN, SCHOOL OF PHYSIC.

During the summer session a three weeks' post-graduate course is given. This course includes instruction in Clinical Surgery and Medicine, Ophthalmology, Diseases of the Throat, the Nose, and Ear, Diseases of the Skin, Operative Surgery, X Rays, Anatomy, Pathology, Gynaecology, and Cystoscopy. The fee for this course is £5 5s., and arrangements are made by means of which a limited number of the class can live in College rooms and dine in Hall at a charge of £1 per week. Full particulars regarding the classes can be obtained by application to Dr. Alfred R. Parsons, Hon. Secretary, Lower Fitzwilliam Street, Dublin.

School for the Royal Army Medical Corps, Royal Navy and Indian Medical Services.—This School was started in May, 1904, with the sanction and support of the Board of Trinity College, and a number of lecturers were appointed in the various subjects of the examination. The object of the School is to enable Irish medical students who desire to adopt the Army or Navy as a profession to prepare themselves in Ireland. The large number of the class each session is a proof that this object has been attained. The classes, which are largely practical, include instruction in Clinical Medicine and Surgery, Pathology, Theoretical Medicine and Surgery, Midwifery, Operative Surgery (on the cadaver), Anatomy and Physiology. The practical classes meet in the various departments of the Medical School, Trinity College, where the lectures are also given. Clinical instruction in connexion with the course is given at one of the Dublin hospitals. The classes are held twice each year. Further particulars and a prospectus of the course may be obtained by application to Dr. C. A. K. Ball, Hon. Secretary, 12, Lower Mount Street, Dublin.

BELFAST.

During the summer session special classes are formed in bacteriology, clinical pathology, pathological neurology, and chemical physiology, and during the winter facilities are afforded to medical men to work at these subjects in the pathological and physiological laboratories. Lectures and demonstrations are given from time to time in the Anatomical Department on the Advanced Anatomy of the Nervous System, or in some department of applied anatomy.

MISCELLANEOUS SPECIAL DEPARTMENTS.

Apart from the organized systems of post-graduate work which have been described, it is not difficult to obtain opportunities for the study of any of the branches of surgery and medicine, especially in London. On application to almost any institution which devotes itself to the treatment of one or more special classes of disease, it will be found that the authorities are willing to make arrangements for a qualified practitioner to attend their wards and out-patient departments. In the case of general hospitals which have special departments for light treatment, laryngology, otology, orthopaedics, etc., and which have medical schools attached, it may be rather more difficult, as there are usually plenty of claimants for instruction. However, by making personal acquaintance with the surgeons or other medical men in actual charge of the work, these difficulties may usually readily be overcome by any man who seems likely to benefit by the opportunities afforded him. At the majority of special hospitals, moreover, and at not a few of those whose work is more or less of a general character, the post-graduate may obtain entry on a definite official footing, having duties assigned him as a clinical assistant. In such case of course he is in a peculiarly favourable position for perfecting himself in the particular work in hand. Details as to the majority of the hospitals which appoint clinical assistants and the like, but are unconnected with any medical school, will be found in the article on Clinical Hospitals at p. 503.

[1] *Guide for Advanced Students*, compiled by Dr. Donald MacAlister, tutor of St. John's College, and Linacre Lecturer in Medicine, has been printed by the Cambridge University Press, and can be obtained (price 6d.) from any bookseller.

TROPICAL MEDICINE.

It has, of course, always been recognized that there are many diseases and conditions which are either peculiar to warm climates or at least so prevalent therein as to supply the greater part of the work of a medical practitioner in tropical and subtropical regions. No scientific methods, however, were formerly employed in their investigation, and it was only by actual clinical experience that any real knowledge of them could be gained.

During the past ten or twelve years, however, the problems of tropical medicine have occupied some of the acutest minds and most highly-trained laboratory investigators, with the result that progress has been immense and knowledge has been acquired of a sort which can be handed on to others. In addition to this, the importance of the subject has been grasped alike by the medical profession, by commercial firms engaged in tropical enterprise, and by local and home Governments. Consequently, a demand for opportunities of obtaining instruction in tropical medicine arose, and was met by the institution of two schools of tropical medicine, the one at London and the other in Liverpool. Particulars of these schools will be found below, and it is to be noted that not only have they met a demand for instruction from medical men with no knowledge of tropical disease, but they have created amongst those whose practical experience of medical work in hot countries is great a strong desire to be in a position to investigate the conditions with which they have to deal upon strictly scientific lines. The general outcome is that the whole character of medical work in the tropics and the Colonies has vastly improved. The movement owes no small measure of its success to Mr. Joseph Chamberlain, who during his tenure of office as Colonial Secretary did all in his power to encourage it. His marked interest was inherited by his successor, Mr. Alfred Lyttelton, and the change of Government has happily not altered the leanings of the Colonial Office in this direction. The net result has been that for two or three years past it has been and still is expected of every candidate for the Colonial Medical Service that he shall pass through either one school or the other before his appointment is finally approved. A further and interesting development is the institution by some of the examining bodies of a diploma in tropical medicine. The nature of the work required will be gathered from the particulars given later on with regard to the diplomas granted by Cambridge and Edinburgh Universities. It seems quite possible that the possession of some such diploma may eventually be demanded by all employers who have medical appointments in the tropics in their gift. Still stronger testimony to the position which the study of tropical diseases has attained, and to the practical and scientific value to be attached to it, has within the last year been afforded by the University of London, which has now made tropical medicine one of the subjects in which a candidate can proceed to the M.D. degree.

University of Cambridge.

The Cambridge Examination takes place twice a year, in January and in August. The following are the requirements:

Any person whose name is on the *Medical Register* is admissible as a candidate to this examination, provided

(I) That a period of not less than twelve months have elapsed between his attainment of a registrable qualification and his admission to the examination;

(II) That he produce evidence, satisfactory to the Syndicate, that he has diligently studied pathology (including parasitology and bacteriology) in relation to tropical diseases, clinical medicine and surgery at a hospital for tropical diseases, and hygiene and methods of sanitation applicable to tropical climates.

As evidence of study and attainments a candidate may present to the Syndicate (1) any dissertation, memoir, or other record of work carried out by himself on a subject connected with tropical medicine or hygiene, (2) any certificate or diploma in public health or sanitary science he may have obtained from a recognized Examining Body. Such evidence will be considered by the Syndicate in determining whether he is qualified for admission to the examination, and by the Examiners in determining whether, if admitted, he shall be included in the list of successful candidates.

The examination will have reference to the nature, incidence, prevention, and treatment of the epidemic and other diseases prevalent in tropical countries. It will comprise the following subjects:

1. The methods of pathological and bacteriological investigation. The examination of the blood. The characters, diagnosis, and life-history of animal and vegetable parasites. The examination, chemical and microscopic, of poisonous or contaminated foods and waters.

2. The origin, pathology, propagation, distribution, prevention, symptoms, diagnosis, and treatment of the epidemic, endemic, and other diseases of tropical climates, including—Malaria; blackwater fever; trypanosomiasis; relapsing fever; dengue; yellow fever; plague; tetanus; beri-beri; dysentery and hepatic abscess, cholera, enteric fever, Malta fever, and specific diarrhoeal affections of the tropics; diseases due to cestode and other worms; filariasis; bilharzial disease; specific boils, sores, and other cutaneous affections; mycetoma; ophthalmic affections of the tropics; affections caused by poisonous plants and animals, and by poisonous weapons; sunstroke.

3. The general effects on health in the tropics of seasons and climate, soil, water, and food; personal hygiene, acclimatization; principles of general hygeine, with special reference to food supplies and water supplies, sites, dwellings, drainage, and the disposal of refuse; the sanitation of native quarters, camps, plantations, factories, hospitals, asylums, gaols, pilgrim and coolie ships; principles and methods of disinfection.

The examination is partly in writing, partly oral, and partly practical and clinical. The clinical part will be conducted at a hospital for Tropical Diseases, at which cases will be submitted for diagnosis and comment.

Every candidate is required to pay a fee of 6 guineas before admission or readmission to the examination. A candidate who, after being approved for admission, fails to present himself at the examination, will not have the fee returned, but will be entitled to present himself without further fee on one subsequent occasion.

Every candidate who passes the examination to the satisfaction of the examiners will receive from the University a Diploma testifying to his knowledge and skill in Tropical Medicine and Hygiene.

London University.

Tropical Medicine is now one of the parts through which graduates of the University of London can proceed to the M.D., being number 6 of the six optional subjects of special study. Candidates for this degree in this (Branch 6) must have taken the M.B., B.S. degrees not less than two years previously, unless subsequently to that event they have either conducted a piece of original work approved for the purpose by the University or have had such special experience as may be similarly approved; in either of these two cases the interval may be diminished to one year. All candidates alike must either have attended for not less than one academic year a complete theoretical and practical course on Tropical Medicine at a school approved for that purpose or have been engaged for not less than two years subsequently to taking their degrees in hospital, official, or private practice in regions where tropical diseases prevail. The examination eventually to be passed, a paper on General Medicine, one on Tropical Medicine, one of the Tropical Pathology and Hygiene, the writing of an essay, and clinical and laboratory tests.

The Schools of Tropical Medicine approved by the University are the London Tropical School of Medicine and the Liverpool Tropical School.

University of Edinburgh.

Diploma in Tropical Medicine and Hygiene (D.T.M.&H.).—Graduates in Medicine and Surgery of this University are eligible for examination for the diploma on the expiry of a period of six months after they have obtained these degrees. They must produce evidence of having attended approved courses of instruction in Practical Bacteriology, including the Pathogenic Micro-organisms of Tropical Diseases, in Diseases of Tropical Climates, including the zoological characters and the life-history of disease-carrying insects, in Tropical Hygiene, and in the clinical study of cases of Tropical Disease, and certificates of proficiency in the methods of conducting *post-mortem* examinations, and of preparing reports on them. Regulations for the diploma will be found on pp. 458-459 of the *Calendar* for 1906-7. The examinations are held in January and July. The fees for the first and any subsequent appearance are: Practical Bacteriology, £1 1s.; Diseases of Tropical Climates, £1 1s.; Tropical Hygiene, £1 1s.; Tropical Clinical Medicine, £1 1s. Total, £4 4s.

London School of Tropical Medicine.

The London School of Tropical Medicine is under the auspices of the Seamen's Hospital Society. The School Buildings, Laboratories, Museum, Library, etc., are within the grounds of the Branch Hospital, Royal Victoria and Albert Dock; Station, Connaught Road, Great Eastern Railway.

Opportunities are afforded to students and others who may be desirous of studying diseases incidental to Tropical climates before entering the services or going abroad. In the hospitals of the Society are to be found cases of Tropical disease such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, beginning October 1st, January 15th, and May 1st respectively.

The Laboratory, Museum, Library, etc., are open daily, and clinical instruction is given daily in the wards of the hospitals.

Prospectus, syllabus, and other information can be obtained on application to the Secretary, Seamen's Hospital, Greenwich, or to the Medical Superintendent, Dr. C. W. Daniels, at the School.

Certificates are granted after examination to those who complete a full course.

Resident chambers are available for students, who must be qualified or in the fifth year of their medical studies.

Prize.—The Craggs Prize of £50 is awarded yearly.

Incorporated Liverpool School of Tropical Medicine.

This school was established in Liverpool in 1899. Sir Alfred Jones, K.C.M.G., is Chairman. It is carried on in conjunction with the University of Liverpool and the Royal Southern Hospital for the purposes of research and clinical teaching respectively. A special ward at the hospital has been set apart for the reception and treatment of Tropical Diseases, and facilities for investigation and study are given in the Johnston Laboratories of the University.

The school has organized many important medical research expeditions to West Africa, the Brazils, Egypt, and the tropics. Professor Rubert Boyce, M.B., F.R.S., is Dean of the School, and Mr. A. H. Milne, B.A., is the Secretary.

PSYCHOLOGICAL MEDICINE.

The treatment of mental disease, or psychological medicine, gives employment to a large number of medical men, and forms a distinct career of a kind which is attractive to many. It cannot at present be regarded as a "service," as those who at present follow it, if not occupied in private asylums, are in the employ of various independent county and other councils. The formation of a general service, so far as the public asylums are concerned, may yet come, and the attractions of the work as a career may then be increased. Pensions are granted under certain conditions and after a certain length of service.

The study of mental diseases has long been a compulsory subject in the medical curriculum, lectures and attendances at a recognized asylum being necessary before a diploma or a qualification from a university can be granted; but the method in which the instruction is given has of late years greatly improved, and the facilities which exist for its pursuit, even by those not exclusively devoted to alienism, are now very considerable. Further impetus, moreover, has been given by the adoption by the University of London of Mental Diseases as one of the subjects in which an M.D. can be obtained. In addition to such arrangements, instruction in Psychology itself may now be obtained at several educational institutions in London. Thus, a course of instruction in Psychology is given at St. Bartholomew's, King's, University College, and also at the City of London College and the Birkbeck Institution, while at the former places there are also courses of lectures and practical demonstrations in experimental psychology of a character suitable for students preparing for the M.D. Examination of the London University. As for Therapeutic Psychology, lectures in mental diseases are given at the following London hospitals: at St. Bartholomew's by Dr. Claye Shaw, who gives demonstrations at St. Luke's Hospital, close by; at Guy's Hospital by Dr. Craig, at St. Thomas's by Dr. Percy Smith, at St. Mary's by Dr. Hyslop, the practical demonstration in connexion with all three courses being given by the respective teachers at the Bethlem Royal Hospital. The Lecturer at the London Hospital is Dr. Kennedy Will, who gives practical teaching at St. Luke's Hospital; at the Middlesex and University College Hospitals, Dr. Mickle (the clinical demonstration being given at Grove Hall Asylum); at Charing Cross, Dr. Mercier (demonstrations at Camberwell House Asylum), at the Westminster Hospital, Dr. Robert Jones, and at the Royal Free Hospital (for women students); Dr. Mercier (demonstrations at Colney Hatch Asylum); at St. George's Hospital, Dr. Tuke (demonstrations at Hanwell Asylum); at King's College Hospital, Professor White (practical teaching at Dartford Asylum in Kent). Finally it is to be noted that the Post-Graduate College of the West London Hospital has two lecturers—namely, Dr. Robert Jones, who demonstrates at the London County Asylum, Claybury, and Dr. R. H. Cole, who demonstrates at Hanwell; while Dr. Stoddart gives a course of Post-Graduate Lectures with demonstrations at the Bethlem Royal Hospital. In addition a certain number of resident clinical assistantships are to be obtained at Bethlem and at St. Luke's Hospitals.

As regards corresponding work away from London, lectures are given usually by the medical superintendent of some asylum in the neighbourhood of the medical schools in the provincial centres, clinical instruction being given at the institution of which he is in charge. At some of these facilities are offered for students either before or after qualification to hold clinical posts for three months or longer.

In Scotland lectures in connexion with Edinburgh University are held at the Morningside Asylum. In Glasgow Dr. Oswald, of the Royal Asylum, conducts courses of lectures on insanity for University students, while Dr. Marr delivers the McIntosh Lectures on Psychology at St. Mungo's College.

In Ireland corresponding arrangements exist, while the Royal University of Ireland grants a diploma for proficiency in the treatment of mental diseases under the following conditions:

The diploma is conferred only on graduates in medicine of the University.

Candidates must give notice, in writing, to the Secretaries of their intention to present themselves, and must pay the prescribed fee of £2 at least one month previous to the examination.

Candidates who satisfy the examiners will be required to pay a further fee of £3 before the diploma is conferred.

The subjects for this examination are those required by the Hutchinson Stewart Scholarship for proficiency in the treatment of Mental Diseases.

In conclusion, reference must be made to the Medico-Psychological Association of Great Britain and Ireland. This body grants a certificate in Psychological Medicine, after a course of instruction according to the rules of the Association, to candidates duly registered under the Medical Act. The examinations are held in London, Scotland, or Ireland, once a year or periodically, the fee being £3 3s., and serve to test the candidate's knowledge of insanity and his ability to undertake the care and treatment of the insane. The Medico-Psychological Association urges that every medical practitioner should have a competent knowledge of these subjects, and further believes that it is a distinct advantage to candidates for appointments in the Poor-law or other Service, such as the Prison Service, that they should be able to adduce evidence of competent knowledge of the subjects included in the examination.

Its scope is as follows:

1. General symptoms and signs of insanity. Mental competence. Fitness to be at large.
2. Causes of insanity.
3. Forms of insanity:
   - (1) States of weak-mindedness:
     - (*a*) Idiocy and imbecility.
     - (*b*) Dementia.
   - (2) States of stupor.
   - (3) States of depression.
   - (4) States of exaltation and excitement.
   - (5) Systematized delusions and hallucination.
   - (6) Impulsive and "moral" insanity.
   - (7) General paralysis.

4. Chief accessories of insanity:
   (1) Suicidal tendency.
   (2) Homicidal tendency.
   (3) Refusal of food.
   (4) Degraded and perverted habits.
5. Association of insanity with developmental periods; with the reproductive function in its various phases; with epilepsia and convulsive states; and with the bodily conditions.
6. Morbid anatomy.
7. Certification of the insane and other medico-legal aspects of insanity.

Only registered medical practitioners are eligible for the certificate, but it is not necessary that candidates should be registered, or even qualified, before presenting themselves for examination. They may take the examination before graduation, but they will not receive the certificate until they possess a registrable qualification. The examinations qualify for the Gaskell Prize, value £30, and £10 10s. and a bronze medal are offered by the same Association to asylum assistant medical officers for the best dissertation on any clinical or pathological subject relating to insanity. The Hack Tuke Memorial Prize is also awarded for an essay upon a subject connected with insanity.

DEGREES FOR PRACTITIONERS.

At one time it was almost the universal custom for medical students educated in London not to seek a university degree, and as that custom still prevails to a considerable extent, a very large proportion of medical men in actual practice in England possess diplomas to practise but not degrees in Medicine. The question of whether a medical man not known to be a pure surgeon should be addressed as "Doctor" or "Mr." is one which the general public has settled, as it settles most things, for itself and according to its own view of the proprieties; but nevertheless, those who have not taken a degree often regret their inability to sign themselves "M.D.", and that they have no legal title to the term "Doctor." Hence, some universities have issued special regulations under which the degree of M.D. is granted to practitioners of a certain standing under special conditions. The regulations of these universities are stated briefly in the following paragraphs. The University of Brussels also grants the degree of M.D. to practitioners after examination, without restriction as to residence or curriculum; but this degree is not registrable on the *Medical Register* if obtained subsequently to June, 1886.

University of London.

Registered medical practitioners of not less than three years' standing, and not less than 25 years of age, who pass, or have already passed, the Matriculation Examination, or who are entitled to claim registration as students of the University without examination in virtue of any of the conditions described in the note on page 471, and who pass, or who have already passed, the Preliminary Scientific Examination, Parts I. and II, may proceed to the Intermediate and M.B., B.S. Examinations without the intervals prescribed by the regulations on producing certificates that they have gone through the courses of prescribed study at any time previously; subject to the proviso that no degree of the University can under any circumstances be granted by examination to any one in less than three years after passing the Matriculation Examination or after admission by the University of the candidate's right to exemption therefrom.

University of Durham.

The degree of M.D. is granted by the University of Durham to registered practitioners of not less than fifteen years' standing, who have been qualified and in practice for that period, upon the following conditions without residence: The candidate must be 40 years of age, and must produce a certificate of moral character from three registered medical practitioners. If he have not passed previously to the professional examination in virtue of which his name was placed on the *Register* an examination in Arts, he is examined in Classics and Mathematics; if otherwise, he is required to translate into English passages from any one of the following Latin authors: Caesar, *De Bello Gallico* (first three books), Virgil, *Aeneid* (first three books), or Celsus (first three books).

Professional Examination.—The candidate must pass an examination in the following subjects; i. Principles and Practice of Medicine, including Psychological Medicine, Hygiene and Therapeutics; ii. Principles and Practice of Surgery; iii. Midwifery and Diseases of Women and Children; iv. Pathology, Medical and Surgical; v. Anatomy, Medical and Surgical; vi. Medical Jurisprudence and Toxicology. The examination is conducted by means of printed papers, clinically and viva voce, at the College of Medicine, Northumberland Road, Newcastle, and in the Royal Infirmary, Newcastle. The classical portion of the examination may be taken separately from the professional on payment of a portion (£10 10s.) of the full fee.

Foreign and Colonial Practitioners.—Natives of India or the British Colonies are placed on the same footing as natives of Great Britain. Natives of India must produce evidence from an Indian university that they have passed within one year an examination in Latin.

Fees.—The inclusive fee is 50 guineas; if a candidate fail to pass, 20 guineas are retained, but if he present himself again, 40 guineas only are required.

Dates, etc.—The examinations are held twice a year, towards the end of April and of September. Notice, accompanied by the fee and certificates, must be sent to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-on-Tyne, at least twenty-eight days before the commencement of the examination.

University of Brussels.

British practitioners of medicine holding medical and surgical qualifications are, in common with legally-qualified practitioners in other countries, admissible without further curriculum to the examination for the degree of M.D. of the University of Brussels.

Examination.—The examination is divided into three parts. The "First Doctorate" includes Medicine, Pathology (with microscopical examination[1]), Therapeutics, Mental Diseases, and Diseases of Women and Children. The "Second Doctorate" comprises Surgery, Midwifery, Hygiene, and Medical Jurisprudence. The "Third Doctorate" consists of clinical examination in Medicine and Surgery, examination in Midwifery with the *mannequin*, Ophthalmology, Operative Surgery (amputation, ligature of arteries in the dead subject), and Regional Anatomy with Dissections. Special importance is attached to practical knowledge. The examination is conducted in French through an official interpreter, but most of the examiners, it is stated, speak English fluently. The examination is viva voce, but a written examination may be obtained on paying a special fee of £1 for each part.

Dates.—The examinations take place on the first Tuesday in November, December, February, May, and June. It is desirable that the candidate should arrive in Brussels on the previous Saturday before 2 p.m. at latest. The whole examination (First, Second, and Third Doctorate) may be got through in about a week, and seldom exceeds eight to ten days.

Fees.—Candidates are required to leave their diplomas with the Registrar of the University prior to the examination. The fees are: For inscription of name, £8 12s.; for examination, £13; for legalization of diploma, 8s.; total, £22. If a candidate fail in the first part of the examination the fees for the second and third are returned to him; if in the second, the fees for the third. A rejected candidate may present himself again in three months on paying the examination fees, provided his second appearance be in the same academic year (October 1st to June 30th); otherwise the matriculation fee must be renewed—that is, the fee for inscription of name.

Further particulars may be obtained on application to the Secretary of the University, Brussels. There is an Association of British Graduates of the Brussels University, and the Honorary Secretary, Dr. F. H. Edwards, of Camberwell House, Camberwell, S.E., will be pleased to give information or receive applications for membership. An article containing a full description of everything concerning the degree was published in the British Medical Journal on September 15th, 1888.

[1] More microscopic work is now required than formerly.

PREVENTIVE MEDICINE

THE division of medicine known as Sanitary Science, or State Public Health or Preventive Medicine, has been increasing in scope and importance for many years past, and now offers a career to men to whom any other path in the profession of medicine might prove distasteful. Strictly speaking, the terms indicated mean the work of a medical officer of health, and they are used more particularly in connexion with the special diplomas in Sanitary Science, State Medicine, or Public Health, one or other of which a Medical Officer of Health for a district of any importance must now possess.

More recently, however, another kind of work has arisen which might equally be classed under the general heading of Preventive Medicine. It is the outcome of a general recognition that the conditions of modern life in highly advanced States are intrinsically inimical to the physical well-being of those who are subjected to them, and of a belief that the dangers which arise, particularly from educational pressure on the young, demand special measures for their avoidance. This work has not yet reached the stage of precise definition, still less that of demanding special training or diplomas, and its nature will be sufficiently indicated by a reference to the Educational Committees of the country. Many of these already offer appointments of considerable value to medical men in connexion with the public schools, and their number is likely to increase.

Reverting once more to State Medicine or Public Health in the conventional sense of the term, the following is a summary of the legal requirements. A medical officer of health of any county or of any single or combined district with a population at the last census of 50,000 or more, or of any metropolitan district, or the deputy of any such officer, must be legally qualified for the practice of Medicine, Surgery, and Midwifery, and also be either registered in the *Medical Register* as the holder of a diploma in Sanitary Science, Public Health, or State Medicine, under Section XXI of the Medical Act, 1886, or have been during three consecutive years preceding the year 1892 a medical officer of a district, or combination of districts, in London or elsewhere with a population according to the last published census of not less than 20,000, or have been, before the passing of the Local Government Act, 1888, for not less than three years a medical officer or inspector of the Local Government Board.

The position of medical officers of health as a whole cannot be considered a satisfactory one, inasmuch as that a large number of those holding the smaller appointments or a combination of small districts are only appointed year by year and are liable to be dismissed if they do not please those who form or can influence local authorities. This must often be the case, for if a medical officer of health does his duty it must often be impossible to avoid treading severely on the toes of landlords, manufacturers, and other persons of local importance.

The value of the work of a medical officer of health when well done is, however, now becoming so generally recognized that there is some prospect that the Legislature will soon step in and make it impossible for any medical officer of health to be dismissed except with the approval of the Local Government Board.

In the meantime there are many appointments in connexion with the larger towns and under the county councils which are permanent, well paid as compared with many other forms of medical work, and in other respects of an attractive character to many men. It should be added, too, that the Local Government Board itself has a staff of medical inspectors, whose initial salary is £500 a year.

Public Health work, of course, is of quite a special character, and it is desirable that any one who wishes to adopt it as a career should turn to it comparatively early, though not before he has obtained some experience of the work of a general practitioner. In any case, it is essential he should obtain a diploma in Public Health, and the choice of diplomas now open is considerable. Having done this, the next best step for a man who looks to public health as a career is to try to obtain an assistantship to an officer in charge of a large borough or district.

In their general nature the examinations of all the bodies which grant diplomas in Public Health are the same, though they differ somewhat in their reputed difficulty. All of them aim at excluding any candidate who does not appear to have a thorough knowledge of his work in theory and in practice, for the regulations of the General Medical Council demand that the granting of a diploma in Sanitary Science, State Medicine, or Public Health shall be proof of the "possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health." The tests, in short, are supposed to constitute an Honour and not a Pass Examination. The following constitute the requirements of the General Medical Council:

I.

The Council will not consider the diplomas in question to deserve recognition in the *Medical Register* unless they have been granted under such conditions of education and examination as to ensure (in the judgement of the Council) the possession of a distinctly high proficiency, scientific and practical, in all the branches of study which concern the public health; and the Council, in forming its judgement on such conditions of education and examination, will expect the following Rules to have been observed:

Rule 1.—A period of not less than twelve months shall have elapsed between the attainment of a registrable qualification in medicine, surgery, and midwifery, and the admission of the candidate to any examination, or any part therefor, for a Diploma in Sanitary Science, Public Health, or State Medicine.

Rule 2.—Every candidate shall have produced evidence that, after obtaining a registrable qualification, he has during six months received practical instruction in a laboratory or laboratories, British or foreign, approved by the Licensing Body granting the diploma, in which Chemistry, Bacteriology, and the Pathology of the diseases of animals transmissible to man are taught.

Rule 3.—Every candidate shall have produced evidence that, after obtaining a registrable qualification, he has during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under Rule 2) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration, under the supervision of

(*a*) In England and Wales, the Medical Officer of Health of a county or of a single sanitary district having a population of not less than 50,000 or a Medical Officer of Health devoting his whole time to Public Health work; or

(*b*) In Scotland, a Medical Officer of Health of a county or counties, or of one or more sanitary districts having a population of not less than 30,000; or

(*c*) In Ireland, a Medical Superintendent Officer of Health of a district or districts having a population of not less than 30,000; or

(*d*) In the British Dominions outside the United Kingdom, a Medical Officer of Health of a sanitary district having a population of not less than 30,000, who himself holds a registrable diploma in Public Health; or

(*e*) A Medical Officer of Health who is also a teacher in the department of Public Health of a recognized medical school; or

(*f*) A Sanitary Staff Officer of the Royal Army Medical Corps having charge of an army corps, district, or command, recognized for this purpose by the General Medical Council. The districts and commands thus recognized are:

Aldershot.	Home.	Northern Command (late Punjab).
Salisbury Plain.	Eastern.	Eastern Command (late Bengal).
Southern and South-Eastern.	North-Eastern and North-Western.	Secunderabad and Burmah Divisions (late Madras).
Western.	Scottish.	
Dublin and Belfast.	Gibraltar Command.	
Cork.	Western Command (late Bombay).	
Chatham and Woolwich.		

Note (1). The certificate of an Assistant Medical Officer of Health of a county or of a single sanitary district having a population of not less than 50,000 may be accepted as evidence under Rule 3, provided the Medical Officer of Health of the county or district in question permits the assistant officer to give the necessary instructions and to issue certificates.

Note (2). Provided that the period of six months may be reduced to a period of three months (which shall be distinct and separate from the period of

laboratory instruction required under Rule 2), in the case of any candidate who produces evidence that, after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on Public Health Administration, given by a teacher or teachers in the Department of Public Health of a recognized medical school.

Note (3). A candidate who shall have produced evidence that he has himself held for a period of not less than three years an appointment as Medical Officer of Health of a sanitary district within the British Dominions, and having a population of not less than 15,000 may be exempted from the requirement of Rule 3.

Rule 4.—Every candidate shall have produced evidence that, after obtaining a registrable qualification, he has attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration.

Note (1). Methods of administration shall include the methods of dealing with patients at their admission and discharge, as well as in the wards, and the medical superintendence of the hospital generally.

Note (2). In the case of a Medical Officer of the Royal Army Medical Corps a certificate from a Principal Medical Officer under whom he has served, stating that he has during a period of at least three months been diligently engaged in acquiring a practical knowledge of hospital administration in relation to infectious diseases, may be accepted as evidence under Rule 4.

Rule 5.—The examination shall have been conducted by examiners specially qualified; it shall have extended over not less than four days, one of which shall have been devoted to practical work in a laboratory, and one to practical examination in, and reporting on, subjects which fall within the special outdoor duties of a Medical Officer of Health.

The Rules 2, 3, 4, as to study, shall not apply to medical practitioners registered or entitled to be registered on or before January 1st, 1890.

Conjoint Board in England.

The Royal College of Physicians and the Royal College of Surgeons conjointly give a diploma in Public Health. The examination of this Board, consisting of two parts, is held in the months of January and July in each year. Candidates must pass Part I before being admitted to Part II. Candidates may enter for Parts I and II separately, or at the same time, but no candidate's name will be published until he has passed in both parts of the examination. Candidates before admission to Part I must be at least 23 years of age, and at least 24 before admission to Part II. Candidates must produce evidence of having complied with the requirements of the General Medical Council, but the practical sanitary work and the study of infectious diseases may be deferred until Part I has been completed. The examination in each part will be written, oral, and practical.[1] The fee for each part is £6 6s., and must be paid three days prior to the day on which the examination commences. A candidate who fails to satisfy the examiners in either part may present himself again at the examination on payment of a fee of £6 6s. The diploma awarded is entitled "Diploma in Public Health of the Royal College of Physicians of London and the Royal College of Surgeons of England." A candidate intending to present himself for either part of the examination must give fourteen days' notice in writing to the Secretary, at the Examination Hall, Victoria Embankment, W.C.

SYLLABUS FOR THE EXAMINATION.

Part I.

The first part of the examination has reference to the general principles of sanitary science, and comprises the following:

The elements of chemistry, physics, and geology. Methods of examination of water and air for hygienic purposes, including a knowledge of analytical methods and the interpretation of results. The chemical composition of foods, and the usual forms of adulteration. The laws of heat and the elements of pneumatics, hydrostatics, and hydraulics, in their relation to warming, ventilation, water supply, and drainage. Principles of building construction in their application to dwellings, hospitals, schools, etc. Meteorology in relation to health; meteorological instruments, their construction and use. The general principles of sanitary engineering, including the disposal of sewage and refuse. The reading and interpretation of geological and ordnance survey maps. The microscopical examination of foods and the detection thereby of the common forms of adulteration. The methods of bacteriological analysis, and the bacteriology of water, air, food, and soil. Disinfectants, their chemical and bacteriological efficacy and use. The general pathology of infections and the diseases of animals that are transmissible to man. Nature of immunity and protection from infectious disease.

Part II.

The second part of the examination has reference to the application of the Principles of Sanitary Science, and comprises the following subjects:

Laws and statutes relating to Public Health, including the model By-laws of the Local Government Board. General epidemiology, with reference to the origin, pathology, symptoms, propagation, geographical distribution, and prevention of epidemic, endemic, and other diseases at home and abroad. Unwholesome trades and the diseases to which they give rise, and the prevention of nuisances arising therefrom. Nature and origin of parasitic diseases. Nuisances injurious or dangerous to health. Causes and conditions which produce climate, general effects of climate, acclimatization. Effects on health of overcrowding, vitiated air, impure water, polluted soil, and bad or insufficient food. Duties of sanitary authorities and their officers.

Vital statistics:—Calculation of population, birth-rate, marriage-rate, and death-rate; mortality from zymotic diseases; sickness-rate; relation between occupation and mortality; life tables, their construction and interpretation of the value of statistical facts, averages, and methods.

The Laboratories recognized by the Board for the courses of Laboratory instruction are:

London.—St. Bartholomew's, Guy's,[1] London, University College, King's College, Charing Cross, St. George's, St. Mary's, St. Thomas's, Westminster, Middlesex.
Birmingham.—The University.
Brighton.—Technical School.
Bristol.—Medical School.
Cardiff.—University College.
Leeds.—The University.
Liverpool.—The University; School of Science and Technicology.
Manchester.—Victoria University.
Newcastle-on-Tyne. — University of Durham College of Medicine.
Portsmouth.—Municipal Laboratories.
Sheffield.—University College.

Books of questions set at the examinations for the diploma in Public Health during the years from 1887 to 1904 may be obtained on application to Messrs. Taylor and Francis, Red Lion Court, Fleet Street, London, E.C. Price 6d., post free 6½d. each.

University of Oxford.

The examination, which is open to all persons who possess a medical qualification, is in two parts, conducted partly in writing, partly viva voce, and is in each subject partly practical. The first part comprises the application of Chemistry and Physics to General Hygiene. The second part comprises the following subjects: General Pathology, with special relation to Infectious Diseases; the Laws Relating to Public Health; Sanitary Engineering; Vital Statistics. Both parts may be taken together at the same examination, or they may be taken at separate examinations; but no one is deemed to have satisfied the examiners in Part II unless he has satisfied the examiners in the subjects of Part I. The fee for admission to each part is £5. A diploma is issued to every candidate who has passed in both parts of the examination, but no diploma or certificate is given under any other circumstances. Candidates must have satisfied all the rules

[1] The practical examination in Part II may include a visit to, and report on, some selected premises.

[1] Practical Hygiene only.

of the General Medical Council of the United Kingdom relating to the admission of candidates for diplomas in Public Health which are in force at the time of the examination.

UNIVERSITY OF CAMBRIDGE.

Two examinations in so much of State Medicine as is comprised in the functions of Medical Officers of Health will be held during the year 1906 7, in October and April respectively. Each examination will consist of two parts. The next examination for Part I will begin on October 3rd, and for Part II on October 8th.

Any person whose name is on the *Medical Register* is admissible as a candidate to this examination, subject to his conformance to the requirements of the General Medical Council as stated at page 465.

A candidate who previous to January, 1902, was admitted or was qualified for admission to the examination, or who had already entered on the course of study prescribed by the Regulations in force before that date, will continue to be admissible on presenting the certificates required under the old Regulations.

The First Part of the Examination will have reference to the General Principles of Sanitary Science, and will comprise the following subjects:

The elements of chemistry and physics: methods of chemical analysis, and in particular the analysis of air and water. The laws of heat and the elements of pneumatics, hydrostatics, and hydraulics, in their application to warming, ventilation, water supply, and drainage. The geological and other conditions determining the healthiness of sites for dwellings. Sources, storage, and purification of water supply. The elements of meteorology in relation to health. Principles of building construction in their application to dwellings, hospitals, and schools. The disposal of sewage and refuse, and the general principles of sanitary engineering. Disinfectants, their chemistry and use. The chemical and microscopical examination of foods, and the detection of the commoner forms of contamination. The methods of bacteriological investigation and analysis. The bacteriology of air, water, food, and soil. The general pathology of infection, and of the diseases of animals that are transmissible to man.

The Second Part of the Examination will have reference to State Medicine and to the applications of Pathology and Sanitary Science, and will comprise the following subjects:

Laws and Statutes relating to Public Health. The model By-laws of the Local Government Board. Sanitation of dwellings, schools, factories, and workshops, and of villages and towns. Inspection of slaughterhouses, cowsheds, etc. Inspection of meat and other articles of food. General Epidemiology, with special reference to the origin, pathology, symptoms, propagation, geographic distribution, and prevention of the epidemic, endemic, and other infective diseases both of temperate and of tropical climates. The methods applicable to the medical investigation of epidemics. Effects on health of overcrowding, vitiated air, impure water, polluted soils, and bad or insufficient food. Unwholesome trades and occupations, and the diseases to which they give rise. Nuisances injurious or dangerous to health. The effects on health of season and climate. The principles and methods of Vital Statistics in relation to Public Health.

The foregoing schedule is not to be understood as limiting the scope of the examination, which will include every branch of Sanitary Science. No candidate will be approved by the examiners who does not show a high proficiency in all the branches of study, scientific and practical, which bear upon the duties of Medical Officers of Health.

All candidates will be examined in the provisions of the English Statutes relating to Public Health, but any candidate will be given an opportunity of showing a special knowledge of other Sanitary Laws in operation within the British Empire, provided that, *when applying for admission to the Examination, he give notice* of his desire, and indicate the special law he proposes to offer.

The examination in both parts will be oral and practical as well as in writing. One day at least will be devoted to practical laboratory work, and one day to oral and practical examination in, and reporting on, subjects connected with outdoor sanitary work.[1]

Candidates may present themselves for either part separately or for both together at their option; but the result of the examination in the case of any candidate will not be published until he has passed to the satisfaction of the examiners in both parts.

[1] The Examination Papers set at former Examinations can be obtained at the Cambridge University Press Warehouse, Ave Maria Lane, London. Price 1s. each net, or by post 1s. 1d.

Candidates must before admission to either part of the examination produce evidence of having satisfied Provisions 1, 2, and 4 of the Rules of the General Medical Council, and before admission to Part II, evidence of having satisfied Rule 3.

Every candidate will be required to pay a fee of six guineas before admission or readmission to either part of the examination, but candidates who have presented themselves before the year 1896 will be readmitted to either part on payment of a fee of five guineas.

Every candidate who has passed both parts of the examination to the satisfaction of the examiners will receive a diploma testifying to his competent knowledge of what is required for the duties of a medical officer of health.

Candidates who desire to present themselves for the examination and the courses of study in the University must send in their applications on forms supplied for the purpose, and transmit them with the fees to J. W. Clark, M.A., Registrary, University of Cambridge, for the April examination on or before March 17th and for the October examination on or before September 15th. The necessary certificates must be sent to the Registrary so as to reach him not later than 10 a.m. on March 30th and September 28th respectively. Cheques should be crossed "Barclay and Co., Ltd." The fee for either part of the examination cannot be returned to any candidate who fails to present himself, but he will be entitled without an additional fee to be a candidate on one subsequent occasion.

Courses of lectures, laboratory instruction, and practical sanitary administration, covering all the work required, are given in Cambridge by persons appointed by the Syndicate.

The following courses of practical laboratory instruction have also been approved:

The University Laboratories, Cambridge.
London Hospital Medical College.
St. Bartholomew's Hospital Medical College.
King's College, London.
University College, London.
The Royal Army Medical College, London.
Victoria University of Manchester.
Durham College of Medicine, Newcastle-on-Tyne.
The University of Birmingham.
University College, Liverpool.
St. Mary's Hospital Medical College.
Charing Cross Hospital College.
University College, Bristol.
Yorkshire College, Leeds.
Guy's Hospital Medical School.
St. Mungo's College, Glasgow.
The University of Edinburgh.
The University of Glasgow.
Anderson's College Medical School, Glasgow.
The University of Aberdeen.
Middlesex Hospital Medical School.
The Royal Southern Hospital, Liverpool.
The Royal Colleges, Edinburgh.
Surgeons' Hall, Edinburgh.
Lister Institute of Preventive Medicine.
Trinity College, Dublin.
Queen's College, Belfast.
St. Thomas's Hospital Medical School.
Westminster Hospital Medical School.
University College, Cardiff.
University College, Sheffield.
Catholic University Medical School, Dublin.
St. George's Hospital Medical School.

Applications for further information should be addressed to Dr. Anningson, Walt-ham-sal, Cambridge, Secretary to the State Medicine Syndicate.

LONDON UNIVERSITY.

Graduates of London University can obtain a registrable Public Health qualification by passing Branch 5 (State Medicine) of the six branches of medicine out of which candidates for the M.D. degree of this University can select their special subject. They must show that they have taken the degrees M.B., B.S. not less than two years previously, and that subsequently to taking those degrees they have had (1) six months' practical instruction in an approved laboratory; (2) six months' practical instruction from a medical officer of health, of which three must not coincide with the laboratory work, and three months' practice at a hospital for infectious diseases. The interval between passing the M.B., B.S. and proceeding to the M.D. State Medicine may be reduced to one year, subject to conditions corresponding to those affecting Branches 1, 2, 3, and 4. The examination will consist of two papers in State Medicine (including Hygiene and Forensic Medicine), one paper in Medicine, an essay to be written on one of two subjects of State Medicine, and a practical examination extending over two days, one of which will be devoted to laboratory work and the other to practical examination in, and reporting on, subjects which fall within the outdoor duties of a medical officer of health; a viva voce is also possible.

University of Durham.

The University grants a Diploma in Public Health (D.P.H.) and the degree of Bachelor in Hygiene (B.Hy.) and Doctor in Hygiene (D.Hy.).

Degree of Bachelor in Hygiene (B. Hy.).—The candidate must be a registered medical practitioner, a graduate in medicine of a recognized University, and not less than 22 years of age. He is not admissible until after the lapse of at least twelve months from obtaining his first registrable qualification. He must have spent six months of professional study subsequent to the attainment of a registrable qualification in attendance at the University of Durham Colleges in Newcastle-upon-Tyne, in the following manner: (*a*) Three months' course of lectures on Comparative Pathology, with practical work in the Bacteriological Laboratory. (*b*) Three months' practical instruction in the Chemical and Physical Laboratories. This course must not be concurrent with the three months' course of lectures on Comparative Pathology, with practical work in the Bacteriological Laboratory. Outdoor Sanitary Work: (*c*) Six months' practical study of outdoor sanitary work under a medical officer of health, as required by the rules of the General Medical Council: unless the candidate be one who has himself held appointment as a Medical Officer of Health under conditions not requiring the possession of a Sanitary Diploma under the Local Government (England and Wales) Act, 1888. The period of six months may be reduced to a period of three months, as described by Note 2 in Rule 3 of the Regulations of the General Medical Council (the period of laboratory instruction required under Rule 2) in the case of any candidate who produces evidence that, after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in Sanitary Law, Sanitary Engineering, Vital Statistics, and other subjects bearing on Public Health Administration, given by a teacher or teachers in a department of Public Health at a recognized medical school. (*d*) Every candidate must have complied with the requirements of the General Medical Council indicated in its Rule 3 and added notes. (*e*) Course of lectures on Public Health unless he has attended such a course before obtaining a registrable qualification.

The examination is divided into two parts, which may be taken together or separately. Some parts of the examination will be viva voce and also practical.

Part I.—*Sanitary Chemistry:* The Examination of Air for Sanitary purposes. Water for Sanitary purposes. Milk and Food. Practical Examination in Chemistry as applied to Public Health.

Physics: The Principles of Physics in their application to warming, ventilation, water supply, and drainage. The Elements of Meteorology. Viva voce examination in Chemistry and Physics, Comparative Pathology, etc. Knowledge of Comparative Pathology, Methods of Propagation, and Prevention of Microbic and Parasitic Diseases intertransmissible between Man and the Lower Animals; Morphology of Microbes and Animal Parasites Methods of Microscopical Examination and Artificial Cultivation of Micro-organisms. The Bacteriological Examination of Water, Air, and Earth. Practical Examination.—The candidate will be expected to show a practical acquaintance with the usual methods of Bacteriological examination, and to be able to recognize specimens of Animal Parasites and Pathogenic Bacteria. There will also be a viva voce Examination in the above subjects.

Part II.—*Sanitary Legislation:* Most of the Statutes relating to Public Health will be found in Knight and Co.'s *Public Health Acts* (latest edition), and the By-laws in the work under that title, by the same publishers. Vital Statistics.—Nosology.—Definition, Nomenclature, and Classification of Diseases. Climatology, Meteorology. Geographical Distribution of Health and Disease over the Globe, and in different Urban and Rural Districts of the United Kingdom. Sanitary Medicine. Practical Hygiene.

The preparation of Sanitary Reports and other Duties of a Medical Officer of Health. The candidate will also be required: (*a*) To pass an examination on medical clinical cases at the City Hospital for Infectious Diseases or elsewhere; (*b*) to draw up outlines for Annual or other Reports of a Medical Officer of Health; (*c*) to report upon the condition of some actual locality; (*d*) to describe the construction and use of Hygienic Apparatus and Sanitary Appliances; (*e*) to examine submitted specimens with the microscope; (*f*) to describe submitted specimens of Diseased Organs and Tissues (Human and other); (*g*) to inspect and describe specimens of Meat or other articles of food.

He must give at least twenty-eight days' notice to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates. The fee for the examination is £10 10s., and for the degree, £6 6s.

Degree of Doctor in Hygiene (D.Hy.).—The candidate must be a Bachelor in Hygiene, and must have been engaged for two years subsequent to the date of his acquirement of that degree, in practice, as a medical officer of health. He must write an essay on some practical hygienic subject, selected by himself and approved by the Lecturer on Public Health, and he will be examined thereon. The essays must be forwarded to the Lecturer on Public Health one month before the date of the examination. The fee for the examination for the degree of D.Hy. is £5, and for the degree £6 6s.

Diploma in Public Health (D.P.H.).—The candidate must be a registered medical practitioner not less than 22 years of age. Unless he was registered or entitled to be registered on or before January 1st, 1890, he must have spent six months of professional study subsequent to the attainment of a first registrable qualification in attendance at a recognized medical school, in the following manner:

(*a*) Three months' course of lectures on Comparative Pathology, with practical work in the bacteriological laboratory. (*b*) Three months' practical instruction in a chemical laboratory. This course must not be concurrent with the three months' course of lectures on Comparative Pathology, with practical work in the bacteriological laboratory. (*c*) Six months' practical study of outdoor sanitary work, under a medical officer of health, as required by the rules of the General Medical Council. Regulation (*c*) to be omitted in the case of a practitioner who has himself held appointment as a medical officer of health under conditions not requiring the possession of a Sanitary diploma under the Local Government (England and Wales) Act, 1888. (*d*) Three months' attendance—after obtaining a registrable qualification—on the clinical practice and instruction of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration. (*e*) Course of lectures on Public Health. Regulation (*e*) to be omitted in the case of a candidate who has already attended the course before obtaining a registrable qualification.

The regulations for examination are the same as those for the Degree of Bachelor in Hygiene. The fee for the examination and diploma is £10 10s.

Victoria University of Manchester.

The University grants a diploma and a degree (B.Sc.) in Public Health. In the Public Health Laboratories (York Place) instruction is given adapted to the requirements of (1) candidates preparing for the examinations of the various universities and examining bodies for the diploma of Public Health; (2) candidates preparing for the degree of B.Sc. in Public Health of the University of Manchester; and (3) medical men or students wishing to undertake research in Pathology, Bacteriology, Sanitary Chemistry, etc., or to take post-graduate courses of Clinical Pathology and Bacteriology.

Communications regarding classes should be addressed to the Director of the Public Health Laboratories (York Place), Oxford Street, Manchester. Entries for classes should be made with the Registrar, and fees paid to the Bursar.

Diploma in Public Health.

The examination is held twice yearly, about the middle of January and the middle of July. It is in two parts, and is written, oral, and practical.

A candidate, before entering for Part I, must present satisfactory certificates of having attended an approved course of instruction[1] in Public Health, and of his compliance with Rules 1 and 2 of the General Medical Council,[1] and that the courses and laboratory work indicated have been completed either in the University or in some medical school or college approved by it.

Candidates, before entering Part II, must present certificates of having complied with Rules 3 and 4 of the General Medical Council's requirements.

The two parts may be taken separately or at the same time, but no candidate can be admitted to Part II unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination.

The fee for each part is £5 5s., and must be paid on or before December 15th or July 1st in each year. For any subsequent examination in the same part the fee will be £3 3s.

[1] May be modified in the case of practitioners qualified before 1890.

Every candidate who has passed both parts of the Examination and who is legally registered will receive a Diploma in Public Health.

Part I.

The subjects of examination are as follows:

1. *Chemistry as applied to Public Health.*—(*a*) Chemistry, with special reference to the examination of air and water; (*b*) Methods of qualitative and quantitative analysis; (*c*) Elements of Heat, with special reference to warming, ventilation, and meteorology; (*d*) Meteorological Instruments and their use.

2. *Etiology of Disease.*—(*a*) Pathology of Epidemic and Endemic Diseases, including diseases of animals communicable to man; (*b*) Influence of unwholesome food, air, water, occupation, dwelling, climate, season, soil.

3. *Practical Pathology and Bacteriology.*—(*a*) Practical Bacteriology, detection and cultivation of vegetable parasites, bacteriological analysis of air and water; (*b*) Recognition of parasites and of the lesions which they produce in man; (*c*) Recognition of diseased meat.

4. *Microscopy as applied to Public Health.*—(*a*) Foods, their adulterations, contaminations, and parasites; (*b*) Air and Water, their microscopical impurities.

Part II.

The subjects of examination are as follows:

1. *Public Hygiene.*—(*a*) Water Supply; (*b*) Drainage, Sewerage, and Disposal of Refuse; (*c*) Construction of Dwellings, Schools, Hospitals, including their warming and ventilation; (*d*) Geological data referring to the above; (*e*) Interpretation of plans.

2. *Sanitary Law and Administration.*—(*a*) Domestic and General Sanitation of houses, villages, and towns; (*b*) Regulation of offensive, dangerous, or unhealthy trades and occupations; (*c*) The prevention and control of epidemic disease by isolation, disinfection, vaccination, and other methods; (*d*) Statutes and By-laws relating to Public Health.

3. *Vital Statistics.*

4. *Sanitary Reporting.*—The candidate will be required to visit and report upon the sanitary condition of some locality assigned to him by the Examiners.

Order of Examination.

Part I.

The examination will include:

1. A three hours' written examination on Chemistry as applied to Public Health.
2. A four hours' practical and oral examination on Chemistry as applied to Public Health.
3. A three hours' written examination on the Etiology of Disease.
4. A four hours' practical and oral examination on Bacteriology, the Pathology of infectious diseases, diseased meat, and the use of the microscope as applied to the examination of food, air, and water.

Part II.

The examination will include:

1. A three hours' written and oral examination on Engineering as applied to Public Health.
2. A three hours' written examination on Sanitary Law and Administration, and on Vital Statistics.
3. Sanitary reporting.
4. Oral examination on the above subjects.

Candidates preparing for the D.P.H. Examination of the University will find it convenient to arrange their attendances in one of the following ways:

1. Beginning in October: Laboratory work from October to March; Outdoor Sanitary work from January to July; Hospital for Infectious Diseases, three months before, during, or after the period of study in the Laboratory.

2. Beginning in January: Laboratory work from January to July; Outdoor Sanitary work from March to October; Hospital for Infectious Diseases, three months before, during, or after the period of study in the Laboratory.

3. Beginning in April: Laboratory work from October to March; Outdoor Sanitary work from April to October; Hospital for Infectious Diseases, three months before, during, or after the period of study in the Laboratory.

4. Beginning in July: Outdoor Sanitary work from July to January; Laboratory work from October to March; Hospital for Infectious Diseases, three months before, during, or after the period of study in the Laboratory.

Candidates are recommended to begin either in October or July, rather than in January or April.

Candidates who have not attended a course of lectures on Public Health as part of the medical curriculum should attend either the general course given during the summer session or the advanced course of lectures on Public Health.

Candidates beginning in July or October may present themselves for examination the following July.

Candidates beginning in January may present themselves for examination the following January.

Degree of B.Sc. in Public Health.

1. Candidates must be graduates in Medicine of this University or of some other University recognized for the purpose.

2. Candidates must produce certificates of attendance at courses of study in the University extending over not less than two years subsequent to their graduation in Medicine, and must have passed an examination in the subjects prescribed by the regulations.

1. The courses of study include:

(1) The subjects of the diploma in Public Health. (2) An approved advanced course in two of the following subjects: (*a*) Comparative Pathology, (*b*) Physics and Meteorology, including Climatology, (*c*) Chemistry, (*d*) Biology, (*e*) some other Science.

2. Candidates must produce certificates of having attended six months, day by day, with a medical officer of health recognized for this purpose by the University; such period may include the attendance at a Fever Hospital.

3. The candidates must have passed the examination for the diploma in Public Health, either at the end of the first year or second year of study, and must have attained in that examination a standard approved by the Faculty of Science.

4. Candidates must present themselves for examination in the two subjects under (2) at the end of their course of study.

Candidates preparing for the B.Sc. degree must, after attending the D.P.H. courses, apply for admission to two of the following departments: Comparative Pathology, Chemistry, Physics, Biology (Botany and Zoology), where they must devote one year to the study of the subjects indicated to them by the professor in charge of the department.

UNIVERSITY OF BIRMINGHAM.

The University grants the degree of B.Sc. in Public Health, and also a diploma.

(1) Candidates for the diploma must be registered under the Medical Act. (2) The examinations will be held in the months of January and June, and will consist of two parts. No candidate will be allowed to pass Part II until he has passed Part I. (3) Candidates may enter for Parts I and II separately or at the same time. (4) The examination in each part will be written, oral, and practical. (5) Candidates intending to present themselves for either part of the examination must give notice in writing to the Registrar of the University on the date prescribed in the Calendar. (6) The fee for each part of the examination is £2; admission fee to the degree or diploma £6.

Candidates registered under the Medical Act on or before January 1st, 1890, will be allowed to sit for examination on producing certificate of registration. Other candidates will be admitted to examination in Part I on producing evidence of being at least 23 years of age, and of having in all respects complied with the requirements of the General Medical Council. Unless, however, the candidates are graduates in Medicine of the University of Birmingham, or past students who have taken out the whole of their curriculum in the Birmingham Medical School, they must attend the special courses of instruction indicated in Rule 2 and Note 2 of Rule 3 of the requirements in the University of Birmingham itself.

The B.Sc. in Public Health.

Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health by conforming to all the requirements laid down for candidates for the diploma in Public Health, except that after graduating in Medicine all courses of study must be taken out in the University, and they must, in addition, have attended a three months' course of Geology in the University.

The examination for the degree is not the same as that for the diploma, a considerably higher standard of knowledge being exacted.

The whole of the instruction, with the exception of outdoor sanitary work, required for the degree and diploma in Public Health can be taken out in the University. Fees: Sanitary chemistry, £8 8s.; caution money deposit, £1; bacteriology, £4 4s.; incidental fee, £1 1s.; geology, £2 2s.; public health lectures, £2 2s.

UNIVERSITY OF LEEDS.

This University gives a Diploma in Public Health, the regulations laid down in respect of it being in accordance with the requirements of the General Medical Council. Special courses of instruction in all the subjects involved have been arranged, and these are equally available either to those preparing for the Diploma of the University itself or to those having other corresponding diplomas in view. The arrangements include lectures in Public Health, Sanitary Chemistry (including practical instruction and study of the Laws of Heat and the use of meteorological instruments), courses of Bacteriology, and attendance at hospitals for infectious diseases. The practical work in sanitation is carried on under the Medical Officer of Health for the City. The fee for the latter course is £10 10s.; those for Sanitary Chemistry, Bacteriology, and hospital attendance being £5 5s. each, while a registration fee of £1 1s. is charged to those who have not previously been students at the University.

UNIVERSITY OF EDINBURGH.

This University confers two degrees in science in the Department of Public Health, namely, Bachelor of Science (B.Sc.) and Doctor of Science (D.Sc.)

Bachelor of Science.—Two examinations must be passed, and the candidate must produce evidence of having complied with the regulations of the General Medical Council (see p. 518), and have taken a degree in Medicine in the University of Edinburgh or in a University recognized by it. The subjects of the First Examination are: (1) Laboratory work, practical, written, and oral: (2) Elements of Experimental Physics; (3) Geology, written and oral. The Second Examination cannot be taken sooner than six months after the first. The candidate must have attended a course of lectures (50 at least) in the University of Edinburgh, or in a university recognized by the Court. The subjects of the Second Examination are: (1) Sanitation; (2) Sanitary Law; (3) Vital Statistics; (4) Medicine in its bearings on Public Health; and the examinations in these subjects are taken at one time. (A detailed syllabus is given in the *Calendar*, pp. 312-314. The time-table will be found at pp. 324-326 of the *Calendar*.) The examinations are held in March and July. The fee for each examination is £3 3s. Further particulars may be obtained on application to the Dean of the Faculty of Science at the University Matriculation Office, where the schedules for examination are issued and the certificates of candidates examined.

Doctor of Science.—Bachelors of Science in the Department of Public Health may, after the lapse of five years, proceed to the degree of Doctor in the same Department on presenting a thesis on some subject in the Department of Public Health, or a published memoir of works, and are required to pass an examination in Public Health, and in such of its special departments as may from time to time be determined. (Candidates for D.Sc. in Public Health may appear for examination in any one of the departments of knowledge required for the degree of B.Sc. in Public Health. They are required to submit the subject in which they propose to be examined for approval at least two months before the date of the examination.) Every such thesis must be certified by the candidate to have been composed by himself, and must be approved by the examiners. The thesis must be lodged with the Dean of the Faculty of Science on or before December 1st, and the subject of examination must be submitted before January 20th. The examination will take place about the end of March. The fee is £10 10s.

UNIVERSITY OF ABERDEEN.

The University grants a diploma in Public Health. Candidates for the diploma must have graduated in Medicine in the University, or in a University in the United Kingdom, one year before they receive the diploma; and they must produce evidence of (1) having complied with the regulations of the General Medical Council (see p. 518); (2) of having attended an infectious fever hospital, containing no fewer than 50 beds, for six months; (3) of having obtained, under a competent teacher, during not fewer than ten meetings of not less than one hour each, practical instruction in the drawing and interpretation of plans; (4) if not a graduate in Medicine of Aberdeen University, of having attended a course in the University in one or more of the subjects embraced in the examination for the diploma. The examination consists of two parts: Part I (*a*) Physics, Engineering, and Meteorology; (*b*) Chemistry, Microscopy, and Bacteriology. Part II (*a*) General Hygiene; (*b*) Sanitary Law and Vital Statistics. The examination (which is written and oral) is held in March and July, and notice must be given to the Secretary of the Medical Faculty two weeks before. A detailed synopsis can be obtained from the Dean of the Medical Faculty, or will be found in the *University Calendar* for 1906-7. The fee, which must be paid at the time of giving notice, is £5 5s. The fee for re-examination, £1 1s.

UNIVERSITY OF ST. ANDREWS.

The University grants a diploma in Public Health. Candidates must have been in possession of a medical degree of this University or of a University of the United Kingdom for at least twelve months previous to admittance to examination. There are two examinations: First, in Chemistry, Physics, Bacteriology, and Meteorology; secondly, in Sanitation, Sanitary Laws, Vital Statistics, Epidemiology and Endemiology and Pathology of Infectious Disease. Fee for each examination, £5 5s.; for re-examination, £1 1s. A synopsis of the subjects of examination and books recommended will be found in the *University Calendar*.

Further information will be given by the Secretary of the University, or will be found in the *University Calendar* for 1906-7, published by William Blackwood and Sons, 45, George Street, Edinburgh, price 2s. 6d., or post free, 2s. 10d.

UNIVERSITY OF GLASGOW.

The Faculty of Science now grants two degrees in Science as Applied to State Medicine—B.Sc. Public Health and D.Sc. Public Health.

Candidates for the B.Sc. must be graduates in medicine of a University of the United Kingdom, or of some other University recognized for the purpose by the University Court, and must be matriculated for the year in which they appear for examination. The preceding courses of study and practical experience exacted of them are those prescribed by the General Medical Council, with the following expansions or additions:

After graduating in medicine they must have received practical instruction, including instruction in Chemistry, Bacteriology, and the Pathology of the Diseases of Animals transmissible to man, for at least twenty hours per week during a period of not less than eight months, of which at least five consecutive months must be in the Public Health Laboratory of the University of Glasgow, and the remainder in the aforesaid Laboratory, or in a Public Health Laboratory recognized for the purpose by the University Court. They must have attended either before or after graduation in Medicine, such courses on (*a*) Physics and (*b*) Geology, either in the University of Glasgow or elsewhere, as would qualify for graduation in Science or Arts in the said University; or have attended in said University or any other Scottish University in addition to the course in Physics qualifying for graduation in Medicine, such further course in Physics as the Senatus Academicus, with the approval of the University Court, shall deem necessary, and such a course in Geology extending over not less than three months, as the Senatus with the like approval shall deem sufficient and appropriate.

Subsequent to graduation they must have attended two separate courses in Public Health, one course dealing with Medicine and consisting of seventy-five meetings of the class, the other with Engineering and consisting of twenty-five meetings of the class, each in its relation to Public Health, in such manner as the Senatus Academicus, with the approval of the University Court, shall determine.

A three months' course of instruction in Mensuration and Drawing at the hands of a teacher recognized for the purpose is also required.

The examination is divided into two parts, and not less than six months must elapse before a candidate successful in the first part can present himself for the second.

The first part covers (*a*) Public Health Laboratory work, (*b*) Physics, and (*c*) Geology, if an examination in Physics or Geology, as the case may be, qualifying for graduation either in Science or Arts has not previously been passed by the Candidate.

The second part (*a*) Sanitation, including reports on dwellings, workshops, hospitals, and sanitary schemes generally, (*b*) Sanitary Law, (*c*) Vital Statistics, and (*d*) Medicine in its bearings on Public Health, and the examinations in these subjects shall be taken at one time.

Candidates for the D.Sc. Public Health, must have held the B.Sc. Public Health for not less than five years, present an approved thesis, and pass such examination as the University Court may prescribe.

CONJOINT BOARD IN SCOTLAND.

The Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow will grant a conjoint diploma in Public Health, after examination by a Board on which these bodies are represented. Candidates qualified before 1890 will be admitted without evidence of special instruction (though even in their case such instruction is strongly recommended). Candidates must produce evidence of attendance (subsequent to obtaining a registrable qualification) for six months at a Public Health Laboratory approved by the Board, and for six months under a Medical Officer of Health of a county or of a large urban district. Every candidate must produce evidence of having attended for three months the practice of a hospital for infectious diseases subsequent to the date of his medical qualification. There are two examinations, and candidates may present themselves for both of them at one period or for either examination separately. The First Examination embraces the following subjects in their relation to Public Health: Laboratory Work, including Chemistry and Bacteriology, Physics, and Meteorology. The Second Examination includes: (*a*) Report on premises visited; (*b*) examination at fever hospital: (*c*) examination at public abattoir; (*d*) epidemiology and endemiology (*e*) vital statistics and sanitary law; (*f*) practical sanitation. The various subjects of both examinations are detached and limited by synopses given. The laboratory work embraces not only Chemical Analyses, but also Microscopical Examination, Bacteriology, Parasites, etc. At the Second Examination each candidate is required to submit a report on the sanitary condition of premises to which he may be sent for the purpose, and is examined on the Acts of Parliament included under "Sanitary Law." The fee is £12 12s., or £6 6s. in respect of each examination; and candidates referred are readmitted on a fee of £3 3s. in respect of each examination. The examination is held in Edinburgh or in Glasgow, there being two periods of examinations yearly—October and May. The examination in October, 1906, will be held in Edinburgh. Applications for examination in Edinburgh to be sent to Mr. James Robertson, 54, George Square, Edinburgh; and in Glasgow to Mr. Alexander Duncan, B.A., LL.D., 242, St. Vincent Street, Glasgow, not later than fourteen days before the examination day. The regulations and synopses of subjects may be had on application to either Mr. Robertson or Dr. Duncan, or may be found in the *Calendar of the School of Medicine of the Royal Colleges, Edinburgh*, issued by the Secretary, R. N. Ramsay, Solicitor, 27, Forrest Road, Edinburgh.

UNIVERSITY OF DUBLIN.

The diploma in Public Health is conferred after examination upon M.D.'s or graduates in Medicine and Surgery of Dublin, Oxford, or Cambridge. The name of the candidate must have been on the *Medical Register* at least twelve months before the examination, and, subsequently to registration, the candidate must have completed six months' practical instruction in a laboratory approved by the University; must have studied practical outdoor sanitary work for six months under an approved officer of health, three of which must be distinct from the time spent in laboratory work, and must have studied for three months in a fever hospital, in which opportunities are afforded for becoming acquainted with methods of administration. [This condition does not apply to candidates registered or entitled to be registered on or before January 1st, 1890.] Examinations are held in December, March, and June, and candidates are required to send in their names at least a week before the first day of the examination to the Registrar of the School of Physic, from whom a full syllabus of the examination can be obtained. Candidates who have registered since January 1st, 1890, are required to make application for permission to present themselves for examination to the Board of Trinity College, submitting at the same time certificates of the required courses of study. The subjects of examination are: Hygiene and Epidemiology (paper); Chemistry (paper and laboratory); Physics and Meteorology (oral); Sanitary Engineering (paper and practical); Vital Statistics and Public Health Act (paper); Bacteriology and Pathology (paper and practical).

Further particulars can be obtained on application to the Registrar of the School of Physic, Dublin.

ROYAL UNIVERSITY OF IRELAND.

Candidates for the Diploma in Public Health of this University must be graduates of its Medical Faculty of not less than twelve months' standing. In addition, they must show that subsequent to graduating they have gone through the prescribed courses of study, and in other respects satisfied the requirements of the General Medical Council in respect of candidates for registrable diplomas in public health. The examination is divided into two parts: (1) Physics, Chemistry, Meteorology, Sanitary Engineering, and Architecture; (2) Bacteriology, Hygiene, Sanitary Law, and Vital Statistics. Each part is oral and practical as well as written. Application for admission to the examination must be made on a printed form and lodged with the Secretaries, the Royal University of Ireland, at least one month before the date of examination. A fee of £2 must be sent simultaneously, £3 more being paid by the successful candidate before he receives his diploma.

CONJOINT EXAMINING BOARD IN IRELAND.

A diploma in State Medicine is granted by these two Colleges after an examination conducted by them jointly. Candidates are required to comply with the requirements of the General Medical Council (see p. 518). The regulations as to study do not apply to practitioners registered or entitled to be registered on or before January 1st, 1890. The examination comprises the following subjects: State Medicine and Hygiene, Chemistry (including Chemical Physics), Meteorology and Climatology, Engineering, Vital Statistics, Law, and Bacteriology. In addition to written papers, the candidates will be examined orally in Hygiene, and practically in the reading of plans, sections, and scales, as well as in Analytical Chemistry, with special reference to air, water, and food, including the use of the Microscope, and in Bacteriology. They will also be required to read meteorological instruments, and to explain their construction, and will be called upon to make a practical Sanitary report.

The candidate must return his name to Alfred Miller, Secretary of the Committee of Management under the Conjoint Scheme, Royal College of Physicians, 6, Kildare Street, Dublin, two weeks before the examination, and lodge with him a testimonial of character from a Fellow of either of the Colleges or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh. If he has been registered subsequent to January 1st, 1890, he must lodge, in addition, a schedule, setting forth that he has attended the necessary courses of instruction as laid down in the Regulations.

The examination is divided into two parts, which may be passed either together or separately. The examination occupies six days.

The fee for examination is £10 10s., for re-examination £5 5s.; the examinations begin on the first Monday of the months of February, May, July, and November.

A special examination for the diploma may, at the discretion of the Committee of Management, be granted on payment of £15 15s. in addition to the ordinary fees mentioned above—except during the months of August and September—and on giving a notice at least one fortnight before the date of the proposed examination.

Detailed Regulations and Schedules can be obtained from the Secretary.

INSTRUCTION AND LABORATORY CLASSES.

Courses of lectures and laboratory instruction to suit the requirements of candidates for diplomas in Public Health have been organized at the following among other schools, and could probably be arranged for at all of them. In this connexion it is not to be forgotten that the chemical and bacteriological examinations for many of the health diplomas are now so practical and the time allowed so short, that unless a candidate—even though familiar with the duties of a M.O.H.—has a considerable amount of the manipulative dexterity only to be acquired by work in a laboratory, he would not be likely to satisfy the examiners.

LONDON.

St. Bartholomew's Hospital.	London Hospital.
Charing Cross Hospital.	Middlesex Hospital.
St. George's Hospital.	St. Mary's Hospital.
Guy's Hospital.	St. Thomas's Hospital.
King's College.	University College.

PROVINCIAL.

Cambridge University.
University of Birmingham.
University of Liverpool.
University of Leeds.
University of Durham College of Medicine, Newcastle-on-Tyne.
University College, Bristol.
Victoria University, Manchester.

IRELAND.

School of Physic, Dublin.
Catholic University School of Medicine.
Royal College of Surgeons, Schools of Surgery, Dublin.

SCOTLAND.

University of Edinburgh.
University of Glasgow.
University of Aberdeen.
St. Mungo's College, Glasgow.

THE PUBLIC SERVICES.

THE ROYAL NAVY AND ARMY AND THE INDIAN MEDICAL SERVICES.

General Regulations.

The following are the general rules governing admission to these services:

All candidates must be between the ages of 21 and 28 years, must possess registrable qualifications to practise medicine and surgery in Great Britain and Ireland, and must be adjudged by the Medical Board appointed for the purpose to be physically fit for service, must submit to an examination by a Medical Board into their physical fitness before being admitted to the entrance examination. This examination takes place before permission is accorded to competitors at the entrance examinations. Special attention is given to the candidate's power of vision. A moderate degree of myopia is not considered a disqualification, provided that it can be corrected by glasses during operations, and that no organic disease of the eye exists.

Testimony has also to be furnished, or is sought by the authority concerned, with regard to the candidate's moral and general character, and the Secretary of State in each service reserves the right to refuse permission to compete to any candidate.

As the prospect of a medical officer in one of these services attaining to the highest administrative grades depends to a large extent upon the regulations with regard to compulsory retirement at the age of 55, if below a certain grade at that age, there is a distinct advantage in entering the service at as early an age as possible.

The attractions of the Royal Army Medical Corps and of the Indian Medical Service have of late years been materially increased owing to the introduction of reforms advocated by the British Medical Journal, and, in addition to improvements in pay, both services now offer considerable scope for the work of a man who has special ability in some one or other branch of medicine or surgery. The fact, too, that both from the Royal Navy and the Royal Army Medical Corps it is possible for an officer to retire with a gratuity of £1,000 while still under 30 is calculated to meet the needs of men who initially have not sufficient capital with which to establish themselves in practice.

THE ROYAL NAVY MEDICAL SERVICE.

A candidate for admission to the Royal Navy Medical Service must be between 21 and 28 years of age, age to be verified by a copy of birth registration, or by a declaration before a magistrate by parent or near relative. He must also produce a certificate of moral character, up to date, and a recommendation signed by a clergyman or magistrate to whom he has been for some years personally known, or by the President or senior Professor of the College at which he was educated. He must be registered under the Medical Act in force as qualified to practise medicine and surgery in Great Britain and Ireland. He must declare—(1) His age and date and place of birth; (2) that he is of pure European descent, the son either of natural-born British subjects or of parents naturalized in the United Kingdom[1]; (3) that he labours under no mental or constitutional disease or weakness nor any other imperfection or disability which may interfere with the most efficient discharge of the duties of a medical officer in any climate; (4) that he is ready to engage for general service at home or abroad; (5) whether he holds or has held any commission or appointment in the public service; (6) that he is registered under the Medical Act in force as duly qualified professionally, and what diplomas, etc., he holds. He must be free from organic or other disease, and his physical fitness for sea service will be determined by a Board of medical officers, who are to certify that his vision comes up to the required standard, which will be ascertained by the use of Snellen's test types.

The certificates of registration, character, and birth must accompany the declaration, which is to be filled up and returned as soon as possible, addressed, "O.H.M.S.," Director-General Medical Department, Admiralty, 18, Victoria Street, London, S.W.

The entrance examination consists of two parts: in Part I, *Compulsory* (*a*) Medicine, including materia medica, therapeutics, and general hygiene (marks 1,200); (*b*) Surgery and surgical anatomy (1,200). The examination in Medicine and Surgery will be in part practical, and will include, beyond papers, the examination of patients and pathological specimens, a knowledge of bacteriology, the performance of operations on the dead body, and the application of surgical apparatus. The attention of candidates is especially drawn to the importance of the section of Operative Surgery, as a competent knowledge in this subject is essential in order to qualify for a commission.

No candidate will be considered eligible who has not obtained at least *one-third* of the maximum marks in each of the above *compulsory subjects*.

Part II, *Voluntary*, consists of two divisions: (*a*) French and German (300 marks each); a knowledge of modern languages being considered of great importance, all candidates are urged to qualify in them; (*b*) Natural Sciences (Zoology, Botany, Chemistry, Physiology, Geology, and Physical Geography, 300 marks each); the two latter subjects are combined for the 300 marks. No candidate will be allowed to present himself for examination in more than two of the (*b*) subjects. Total attainable marks 600 in each division. A number less than one-third of the marks obtainable in each of these *voluntary subjects* will not be allowed to count in favour of the candidate who has qualified in the *compulsory subjects*.

The examination in Chemistry will include the general principles of inorganic and organic chemistry; the preparation and properties of the chief non-metallic and metallic elements and their compounds; the preparation, properties, and classification of the more important compounds, such as marsh gas, ethylene, acetylene, methyl and ethyl alcohols, glycerine, ether; formic, acetic, lactic, and oxalic acids; cyanogen and cyanides; carbohydrates; fats; proteids.

The examination in Physiology will comprise the minute structure and functions of the various tissues and organs of the body; the physiology of the blood; the nature of food and the processes of its digestion, the mechanics of the circulation and respiration; the physiology of nutrition, secretion, and excretion; animal heat, the nature of sensation, volition, reflex action, inhibition and influence of the nervous system on other organs and their functions.

Zoology.—The examination in Zoology will include the general principles of biology and a comparison of animals with plants; the distinctive character of the larger groups of animals—the protozoa, coelenterata, vermes, anthropoda, mollusca, echinodermata, and vertebrata—as illustrated by common types; the elements of embryology; animal parasites.

Botany.—The examination in Botany will comprise the general principles of the morphology and physiology of low forms of life—for example, torula, bacteria, spirogyra, moss, fern; the general morphology of flowering plants; diagnosis of the more important British natural orders; medicinal plants.

Geology and Physical Geography.—The examination in Geology and Physical Geography will be limited to general principles, such as: The relations of the earth to the rest of the solar system, nature of the earth's crust, and the chief kinds of rocks, general configuration of land and water, mountains, plains, lakes, rivers, islands, glaciers and icebergs, the ocean currents, tides, winds and storms, dew, rain, climate, volcanoes, earthquakes, distribution of animal and vegetable life.

The appointments announced for competition will be filled from the list of qualified candidates arranged in order of merit; but should it at any time be considered expedient to grant commissions beyond those periodically competed for, the Admiralty has power to admit annually:

[1] If any doubt should arise as to this question, the burden of clear proof that he is qualified will rest upon the candidate himself.

(*a*) Two candidates, proposed by the governing bodies of Schools of Medicine in the United Kingdom, who have satisfactorily filled the office of house-surgeon in a large civil hospital for at least six months.

(*b*) Not more than six candidates, according to requirements, specially recommended by the governing bodies of such Colonial universities as may be selected, and whose qualifications are recognized by the General Medical Council.

Candidates so proposed are to be approved by the Director General of the Medical Department, and are to be certified by the governing body proposing them as duly qualified according to the regulations in force for the entry of candidates.

In cases of Colonial nominations, registration of professional qualifications as required by first paragraph above, may be deferred until after the arrival in England of a candidate who has been passed on the station, but a commission as Surgeon will not be granted until the certificate of the Registrar of the General Medical Council has been produced at the Medical Department of the Navy.

Candidates from schools at home will be required to pass a physical examination in London, which will be arranged by the Medical Director-General. Colonial candidates will have to pass a physical and test examination before a Board of Naval Medical Officers on the station.

Copies of the Regulations for entry of candidates for commissions in the Medical Department of the Royal Navy will be furnished on application to the Medical Director-General, Admiralty, 18, Victoria Street, London, S.W.

Successful candidates immediately after passing the examination will receive commissions as Surgeons in the Royal Navy, and will undergo a course of practical instruction in Naval Hygiene, the diseases of warm climates, bacteriology, surgery of gunshot wounds, etc., radiography and the photography in connexion with it at Haslar Hospital. Three prizes of the approximate value of £10 each will be awarded at the close of each session at Haslar to the students who have shown the greatest proficiency, and their seniority in the service will depend on the marks obtained at the examination in London, and at the termination of their studies at Haslar. Surgeons entered without competition will take seniority next after the last surgeon entered by competition. A fee of £1 will have to be paid by each candidate to entitle him to take part in the competition.

Surgeons are only required to provide themselves with a regulation case of pocket instruments, a stethoscope, and three clinical thermometers. All other instruments are provided at the public expense.

Promotion.—(1) An inspector-general of hospitals and fleets will be selected from among deputy inspectors-general who have in that rank three years' full-pay service, and have not declined foreign service unless with the sanction of the Lords Commissioners of the Admiralty. (2) A deputy inspector-general of hospitals and fleets will be selected for ability and merit from among the fleet surgeons. (3) (*a*) Subject to the approval of the Lords Commissioners of the Admiralty, the rank of fleet surgeon will be granted to staff surgeons at the expiration of eight years from the date of promotion to staff surgeon if recommended by the Medical Director-General and if they have not declined service except for reasons which in the opinion of the Lords Commissioners of the Admiralty are satisfactory. (*b*) Special promotions to this rank will be made at the discretion of the Admiralty in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and not exceed the rate of one in two years, or a total number of six at any one time of fleet surgeons so promoted. (4) (*a*) The rank of staff surgeon will be granted to surgeons at the expiration of eight years from the date of entry, subject to the recommendation of the Medical Director-General and the passing of a qualifying examination after the completion of five years from date of entry. (*b*) Special promotions will be made at the discretion of the Admiralty to the rank of staff surgeon in cases of distinguished service or conspicuous professional merit, such promotions not to exceed one a year, or a total of eight at one time on the staff surgeons' list. No officer will be so promoted unless he passes the examination prescribed for the other surgeons, but in such a case five years in rank will not be required for so doing. These officers will attain the rank of fleet surgeon after eight years' service as staff surgeon. (*c*) When a surgeon's promotion to the rank of staff surgeon has been retarded by failure to pass the qualifying examination, he will, should he pass and be promoted, be dealt with as follows: He will be granted the seniority of staff surgeon he would have received had he passed in ordinary course. He will reckon service for increase of full and half pay only from the date of appointment to full pay as staff surgeon. If on half pay, or placed on half pay when promoted, he will receive the lowest rate of half pay of the new rank from the date of passing the qualifying examination. Where delay in passing the qualifying examination is due to unavoidable circumstances, special consideration will be given. (*d*) The examination for promotion to the rank of staff surgeon will be held by the Examining Board, to which a naval medical officer will be attached to conduct the examination in naval hygiene. The subjects of examination will be in writing, and will include Medicine, Surgery, Pathology, General Hygiene, Naval Hygiene. Earlier promotion to the rank of staff surgeon may be granted to those surgeons who before entry have held the post of resident medical or surgical officer to a civil hospital of not less than 100 beds for a period of not less than six months, provided their conduct and professional abilities have been favourably reported on during the time they have served in the navy. They may be granted from six months' to one year's seniority, according to the time they have held their civil appointments as house surgeons, but in no case will more than one year's seniority be granted. This only applies to officers who enter by competition. Candidates who at the time of entry into the navy hold or are about to hold posts as resident medical or surgical officer in a recognized civil hospital will be allowed to complete their time in these appointments, provided it does not exceed twelve months. The time served will reckon for increase of full and half pay and retired pay or gratuity on retirement or withdrawal, except that no officer will be allowed to retire on a gratuity until he has completed four years' service, exclusive of the time spent as resident medical or surgical officer. Pay from Naval Funds will not be granted during the holding of the appointment.

Relative rank is accorded as laid down in the *King's Regulations* and *Admiralty Instructions*, and also in the official *Quarterly Navy List*.

Full Pay and Allowances.—The rate of pay of surgeons is on entry £255 10s. a year; after four years' full-pay service, £310 5s. a year; after eight years' full pay service or on promotion to staff surgeon, £365; after twelve years' service, £438. Fleet surgeons on promotion, £492 15s. a year; after 4 years' full-pay service in that rank, £547 10s.; after 8 years' full-pay service, £602 5s.; and after 12 years' service, £657; Deputy Inspector-General, £766 10s. a year; Inspector-General, £1,300, consolidated. The Inspectors-General at Haslar, Chatham, and Plymouth Hospitals, are granted an allowance of 10s. a day as charge pay. Deputy inspector generals, fleet surgeons, and staff surgeons in charge of certain hospitals receive charge pay of 7s. 6d., 5s., and 2s. 6d. a day respectively. The senior medical officer—fleet or staff surgeon—of ships bearing the flags of flag officers commanding foreign stations and the Channel and Atlantic fleets receive an allowance of 5s. a day. An allowance of 2s. 6d. a day may be granted to the senior medical officer of ships bearing the flag of flag officers not commanding stations or fleets and to ships flying the broad pennant of commodores. Medical officers conducting the course of instruction at Haslar Hospital will receive the following allowances: The two senior officers employed upon this duty £150 a year each; the junior officer assisting, £50 a year; the junior officer instructing the sick berth staff £50 a year; the officer instructing the sick berth staff at Plymouth, £50 a year. The following charge allowances may be granted to medical officers in charge of hospital ships: if above the rank of fleet surgeons, 5s. a day; if of the rank of fleet surgeon or junior, 3s. 6d. a day. The fleet and staff surgeons serving at the Admiralty and the Marine Rendevous will be granted hospital allowance of £53 a year in addftion to the usual lodging money. Hospital allowances for naval medical officers at home and

abroad, in lieu of provisions for themselves and servants, and for fuel and lights, are as follows: Deputy inspector-generals, at home, £67; abroad, £112; fleet or staff surgeons, at home, £53; abroad, £112; surgeons at home, £39; abroad, £108. Medical officers employed elsewhere than at a hospital, and not victualled in kind, receive an allowance of 1s. 6d. a day in lieu of above.

Half Pay.—Surgeons under 2 years' full-pay service, 6s. per diem; after 2 years' full-pay service, 7s. per diem; after 4 years, 8s.; after 6 years, 9s.; after 8 years, or on promotion to staff surgeons, after 12 years, 12s.; after 14 years, 13s.; after 16 years, and on promotion to fleet surgeon, 14s.; after 18 years, 15s.; after 20 years, 17s.; after 22 years, 18s.; and after 24 years, 20s. Deputy inspector-general on promotion, 25s.; after 2 years' full-pay service in rank, 27s.; after 4 years, 29s. Inspector-general, 38s.

Retirement.—Compulsory retirement will be as follows:

Inspector and deputy inspector-general of hospitals and fleets.	At the age of 60, or if unemployed for three years. The Admiralty reserves the right to extend the age of retirement of an inspector-general of hospitals and fleets in the interests of the public service to 62 years.	To be retired at any age if physically unfit for service.
Fleet surgeon, staff surgeon, and surgeon.	At the age of 55, or at any age, if he has not served for three years.	

Gratuities and retired pay will be awarded on retirement and withdrawal on the undermentioned scale:

Rank.	Gratuities.	Daily.	Yearly.
	£ s. d.	£ s. d.	£ s. d.
Surgeon, Staff Surgeon, and Fleet Surgeon:			
After 4 years' full-pay service	500 0 0	—	—
,, 8 ,, ,,	1,000 0 0	—	—
,, 12 ,, ,,	1,500 0 0	—	—
,, 16 ,, ,,	2,250 0 0	—	—
Fleet Surgeon:			
After 20 years' service	—	*1 0 0	365 0 0
,, 24 ,, ,,	—	*1 2 6	410 12 6
,, 27 ,, ,,	—	*1 5 0	456 5 0
,, 30 ,, ,,	—	*†1 10 0	547 10 0
Deputy Inspector-General	—	1 15 0	638 15 0
Inspector-General	—	2 0 0	730 0 0

* To obtain this rate an officer must hold the Commission of Fleet Surgeon.

† Or on compulsory retirement at the age of 55.

Voluntary retirement and withdrawal will be allowed as follows:

(*a*) Every officer will have the option, subject to their Lordships' approval, of retiring after twenty years' full-pay service on the scale of retired pay, or with a gratuity, as laid down above.

(*b*) At the expiration of 4, 8, 12, or 16 years' full-pay service, every officer will be permitted, subject to their Lordships' approval, to withdraw from the Naval Service, receiving a gratuity on the scale laid down above. The name of an officer so withdrawing will be removed from the lists of the Navy, with which all connexion will then be severed.

(*c*) Voluntary retirement and withdrawal at the discretion of their Lordships will be allowed, as a rule, only when an officer is unemployed or serving at home. Under very special circumstances, however, it may be permitted in the case of an officer serving abroad, provided he pays the passage of his successor to relieve him.

(*d*) Applications from officers, not entitled to retire or withdraw, to resign their commissions, will receive every consideration, but no officer will, as a rule, be permitted to resign under three years from the date of entry.

NOTE.—This necessary "subject to their Lordships' approval" for those voluntary or optional retirements, withdrawals, and resignations has of late very greatly qualified them. Loss of full-pay service from sickness or inability to obtain service from no default of the officer, peculiar to the navy as compared with the army, delays these so-called voluntary retirements and withdrawals. An officer retired with less than 20 years' service on account of disability contracted in and attributable to the service, will receive half-pay of his rank or with the consent of their Lordships a gratuity on the scales previously given, but such an officer will not be entitled to receive any special compensation for the disability in addition to the gratuity as above, unless he has received a wound in action or has been injured in duty, when extra gratuity or pension may be awarded.

An officer retired with less than twenty years' service on account of disability, contracted in but not attributable to the service, will receive:

(*a*) If he has over eight years' full-pay service, either a gratuity on the scale given in paragraph above, or half-pay, according as their Lordships think fit.

(*b*) If he has less than eight years' full-pay service, such gratuity as their Lordships think fit, not exceeding the rate of £125 for each year of full-pay service.

Under circumstances other than those specified, and other than misconduct, neglect of duty, etc., an officer retired with less than twenty years' service will not be allowed half-pay or retired pay, but will receive a gratuity on the scale laid down above, if he has eight years' full-pay service; should his full-pay service not amount to eight years, a gratuity at the discretion of the Admiralty.

The power vested in their Lordships of granting reduced rates of half-pay and retired pay in cases of misconduct is extended to the award of gratuities on retirement, and the gratuity awarded will be reduced to such an amount as is thought fit.

An officer retiring after twenty years' full pay service will be eligible, if recommended by the Medical Director-General for distinguished or meritorious service, to receive a step of honorary rank, such step to be awarded at their Lordships' discretion, and not to confer any claim to increase of retired pay or of widow's pension.

All retired officers will be liable, till the age of 55, to serve in time of declared national emergency, in a rank not lower than that held on retirement, even if only honorary rank.

This liability will not exist in cases of withdrawal on the conditions specified under voluntary retirement previously.

Retired officers will receive special consideration as regards appointments on shore connected with the Admiralty, now filled by civilians.[1]

The special attention of candidates is directed to the following rules under which officers are allowed to withdraw from the service after four years' full-pay service in the Royal Navy, with the advantage of joining the Reserve of Naval Medical Officers:

After four years' service in the Royal Navy, an officer, if he wishes, may pass from active service to the Reserve of Naval Medical Officers, when he will reap the following advantages:

I. He will be granted a gratuity of £500 on passing into the Reserve.

II. His name will be retained in the Navy List; he will retain his naval rank and be entitled to wear his naval uniform under the regulations applying to officers on the retired and reserved lists of His Majesty's Navy.

III. If he agree to remain in the Reserve for four years, he will receive a retaining fee of £25 per annum. If, at the expiration of this period, he agree to remain in the Reserve for a further period of four years, he will continue to receive the same retaining fee.

Should an officer prefer it, however, he may simply enter the Reserve for a period not exceeding eight years, with power to give six months' notice of his intention to resign his position at any time (in which case he will receive no retaining fee). He may also adopt this method of reserve service after the expiration of four years served under the conditions referred to in (III), by renouncing his retaining fee for his last four years' service in the Reserve.

No officer will be allowed to remain in the Reserve for a longer period than eight years.

Officers of the Reserve will be liable to serve in the Royal Navy in time of war or emergency. When called up for such service they will receive the rate of pay, namely, 17s. a day and allowances, to which they would have been entitled after four years' service on the active list.

Widow's Pension.—When an officer retires, or withdraws, on a gratuity, his widow and children will have no claim to pension or compassionate allowance.

Miscellaneous.—A special cabin will be appropriated to the fleet or staff surgeon or the surgeon in charge of the medical duties in each ship.

Special regulations have been made as regards the

[1] Recently this has been the case more than formerly.

mess expenses of medical officers appointed to the several divisions of Royal Marines for limited periods.

Every medical officer will be required to undergo a post-graduate course of three months' duration at a metropolitan hospital once in every eight years (should the exigencies of the service permit), and this as far as possible during his surgeon's, staff surgeon's, and fleet surgeon's period of service. While carrying out this course the medical officer will be borne on a ship's books for full pay, and will be granted lodging and provision allowances, and travelling expenses as for service under the Regulations to and from his home or port; the fees for each course (not exceeding £25) will be paid by the Admiralty on the production of vouchers at the end of the course. The medical officer will be required to produce separate certificates of efficient attendance in the following:

I. The Medical and Surgical Practice of the Hospital.
II. A course of Operative Surgery on the Dead Body.
III. A course of Bacteriology.
IV. A course of Ophthalmic Surgery, particular attention being paid to the Diagnosis of Errors of Refraction.
V. A practical course of Skiagraphy.

ENTRIES FOR TEMPORARY SERVICE.

THE following are the regulations for the entry of Surgeons for Temporary Service in the Medical Department of the Royal Navy during war or emergency: They must be registered under the Medical Act as qualified to practise Medicine and Surgery in Great Britain and Ireland; they must produce certificates of good character; they must be reported physically fit after medical examination; and their age must not exceed 40 years.

PAY AND ALLOWANCES.

Full Pay.	Half Pay.
22s. a day. £401 10s. a year.	10s. a day. £182 10s. a year.

Note.—Half-pay is for sickness and extra leave only.

To be granted 30 days' advance of pay on joining a ship after appointment.

To receive the same allowances as are payable to permanent officers of their rank.

Lodging money at the rate of £50 a year is usually allowed when employed on shore without quarters in the United Kingdom, and £24 a year in lieu of rations. In cases, however, of temporary employment on shore, the lodging and provision allowances will be at the rate of 3s. 6d. and 1s. 6d. per day respectively.

If quarters are provided in a medical establishment, an allowance is granted in lieu of provisions, for self and servant, and for fuel and lights at the rate of £39 a year in the United Kingdom, and £108 a year abroad.

UNIFORM.

Each surgeon to provide himself as follows:
1. Frock coat, waistcoat, and trousers.
2. Undress coat.
3. Uniform cap.
4. Mess jacket and waistcoat.
5. Sword and undress belt.

All as specified in the Uniform Regulations.

To cover the above each officer accepted for service will receive an equipment allowance of £20 (payable on the officer being called up for active service).

The following instruments must be provided by the surgeon:
A pocket case of instruments.
A stethoscope.
Three clinical thermometers.

MESSING.

Surgeons will be allowed, when attached to ships in commission, the ordinary ship's rations; but will have to pay about 2s. a day towards the maintenance of their mess as wardroom officers.

PENSIONS FOR WOUNDS AND TO WIDOWS, ETC.[1]

In the event of surgeons engaged for temporary service being wounded in His Majesty's Service, gratuities or pensions, varying in amount according to the injuries sustained, will be granted, on the basis of the awards in similar cases of naval officers.

Should temporary-service surgeons be killed in action, die within six months of wounds received in action, or meet their death by acts of the enemy, the following pensions and allowances will be granted to their widows, children, etc.:

[1] Unmarried candidates will be preferred.

In addition to the foregoing pensions, the widows and children of officers killed in action will be granted the following gratuities:

Widows.—One year's pay of their husband's corresponding rank in the Royal Navy.

	Widows.		Children up to the Age of 18 for Boys and 21 for Girls.		Widowed Mothers Dependent on their Sons, if the latter left no Widows or Children.	Orphan Sisters Dependent on their Brothers, if the latter left no Mothers, Widows, or Children.
	Killed in Action.	Drowned, etc., by Acts of the Enemy.	Killed in Action.	Drowned, etc., by Acts of the Enemy.	Killed or Drowned, or Suffered Violent Death by Acts of the Enemy.	Killed or Drowned, or Suffered Violent Death by Acts of the Enemy.
	£	£	£	£	£	£
Surgeon	80	65	12 to 16	10 to 14	50	50

Each unmarried child, under the age of 21, one-third of the gratuity paid to the widow.

These pensions and gratuities can be given only in cases of injury or death caused by acts of the enemy, and not on account of injury, disability, or death, which may result from carrying on the ordinary duties of the service.

CONDITIONS OF SERVICE.

To engage for six months certain, but the liability to serve will be limited to five years.

To serve when and where required from the date of signing the declaration.

To be liable to immediate discharge for misconduct or incompetency.

To rank with, but after, surgeons in the permanent service.

To be under the general rules of the service as regards discipline, etc.

To receive two calendar months' notice of services being no longer required.

To be granted a gratuity of two calendar months' pay on discharge, if not discharged for misconduct or incompetency.

Voluntary resignation of appointment will be allowed subject to the convenience of the service, but the gratuity of two calendar months' pay on discharge will be thereby forfeited.

ROYAL ARMY MEDICAL CORPS.

A CANDIDATE for a commission in the Royal Army Medical Corps must be 21 years and not over 28 years of age at the date of the commencement of the entrance examination. He must possess, under the Medical Acts in force in the United Kingdom at the time of his appointment, a registered qualification to practise. He must fill up a form of application and declaration, which can be obtained on application to the Director-General, Army Medical Service, 68, Victoria Street, London, S.W., and submit it to the Director-General in sufficient time to permit of reference to the medical school in which the candidate completed his course as a medical student.

The Dean, or other responsible authority, of such school will be requested by the Director-General to render a confidential report as to his character, conduct, professional ability, and fitness to hold a commission in the Corps, and to this report special importance will be attached. After the form of application and the confidential report above alluded to have been received, the Director General will decide if the candidate may be allowed to compete for a commission in the Royal Army Medical Corps. If approved, he will then be examined as to his physical fitness by a Board of Medical Officers, in accordance with regulations which can also be obtained from the Director-General. The entrance examinations are held twice in the year, usually in January and July. The Secretary of State reserves the right of

rejecting any candidate who may show a deficiency in his general education.

An entrance fee of £1 is required from each candidate admitted to the examination, and is payable at the conclusion of his physical examination, if pronounced fit.

A candidate successful at the entrance examination will be appointed a lieutenant on probation, and will be required to pass through such courses of instruction as the Secretary of State shall decide, and, after passing the examinations in the subjects taught, and satisfying the Director-General that he possesses the necessary skill, knowledge, and character for permanent appointment to the Royal Army Medical Corps, his commission as lieutenant will be confirmed. The commission will bear the date of the officer's appointment as lieutenant on probation.

Entrance Examinations.

Candidates will be examined by the Examining Board in medicine and surgery. The examination will be of a clinical and practical character, partly written and partly oral, marks being allotted under the following scheme:

	Maximum Marks.
Medicine (written).	
A. Examination and report upon a medical case in the wards of a hospital	125
B. Commentary upon a case in medicine ... (Three hours allowed for A and B together.)	125
Medicine (oral).	
A. Clinical cases; clinical pathology	75
B. Morbid anatomy and morbid histology ... (One-quarter of an hour allowed for each table.)	75
Surgery (written).	
A. Examination and report upon a surgical case in the wards of a hospital	125
B. Commentary upon a case in surgery ... (Three hours allowed for A and B together.)	125
Surgery (oral).	
A. Clinical cases, including diseases of the eye; surgical instruments and appliances ... ... (One-quarter of an hour allowed for this table.)	75
B. Operative surgery and surgical anatomy ...	75
Total marks...	800

The following headings are published as a guide to candidates in drawing up their reports on cases:

(*a*) A brief history of the case as given by the patient, including such points only (if any) in the family or personal history as have a distinct bearing upon the present illness or incapacity.
(*b*) A detailed account of the subjective symptoms and physical signs elicited by the candidate's personal examination of the patient, noting the absence of any which might be expected to be present in a similar case.
(*c*) Where there is any reasonable doubt in the mind of the candidate as to an exact diagnosis he is to give the alternatives, with his reasons for making the selection.
(*d*) A commentary upon the case as a whole, pointing out the symptoms which may be considered typical, and those which appear to be unusual or only accidental complications.
(*e*) Suggestions as to treatment, both immediate and possibly necessary at a later date.
(*f*) A forecast of the progress and probable termination of the case.

Similarly the commentary on the report of a case submitted to the candidate should discuss:

(*a*) The family and personal history and other conditions preceding the development of the condition described.
(*b*) The relative significance of the physical signs, symptoms, other indications of disease noted, and the general clinical aspects of the case.
(*c*) The diagnosis, with reasons for selection of the most probable, when a positive diagnosis cannot be attained.
(*d*) The treatment—dietetic, medicinal, operative, etc., including a criticism of the plan adopted, and alternative schemes of treatment in cases of disagreement.
(*e*) The morbid appearances, and an account of the *post-mortem* examination (if any).

The examination will be held in London, and will occupy about four days.

Having gained a place in this entrance examination, the successful candidate will undergo two months' instruction in hygiene and bacteriology, after which they will be examined in these subjects. The maximum number of marks obtainable at this examination will be 100.

On completion of the above course lieutenants on probation will be ordered to proceed to the Dépôt of the Royal Army Medical Corps at Aldershot for a three months' course of instruction in the technical duties of the Corps, and at the end of the course will be examined in the subjects taught. The maximum number of marks obtainable at this examination will be 100.

Examinations for Promotion.

Lieutenants before Promotion to Captain.

(For Lieutenants appointed after March 31st, 1901.)

This examination may be taken at any time after completing 18 months' service, and will be held in the military district in which the officer is serving.

The subjects of this examination, which are detailed in the *King's Regulations*, are as follows:

1. Regimental duties.
2. Drill.
3. Military law.
4. Duties and accounts connected with military hospitals and their supplies.
5. Other duties of executive medical officers.

Captains before Promotion to Major.

(For Captains promoted to that rank after July 27th, 1895.)

Captains will be examined under the rules laid down in the next paragraph, and will be eligible for acceleration in their promotion to the rank of major under Article 352 of the Royal Warrant, subject to the following restrictions:

(*a*) The acceleration which can be gained by a captain promoted to that rank in January, 1896, will be limited to six months, and an officer gaining this acceleration will take precedence after the last captain promoted major on completion of twelve years' service.
(*b*) The acceleration which can be gained by a captain promoted to that rank in July, 1896, will similarly be limited to twelve months, and an officer gaining this acceleration will take precedence next after the last captain promoted to that rank in January, 1896, who may have gained six months' service.
(*c*) A captain promoted to that rank in January, 1897, can gain the full acceleration, but will take precedence after any captain promoted to that rank in July, 1896, who may have gained twelve months' acceleration.
(*d*) Officers gaining acceleration under (*a*) will take precedence *inter se* in order as they have obtained a special certificate or passed in the 1st, 2nd, or 3rd class, and a similar course will be followed under (*b*) and (*c*).
(*e*) In all other cases an officer who gains accelerated promotion will be placed for precedence after the last officer (whether subject to acceleration or not) promoted approximately three, six, twelve, or eighteen months before him.

This examination, which may be taken at any time after completing five years' service, will be held in London on the termination of a period of special study. The examination will consist of written papers, essays, oral and practical examinations in the following subjects, which are detailed in the *King's Regulations*:

1. Medicine, including specific fevers.
2. Surgery, including skiagraphy.
3. Hygiene.
4. Bacteriology and tropical diseases.
5. One special subject from the subjoined list, to which additions may from time to time be made:
   (*a*) Bacteriology, including the preparation of antitoxins.
   (*b*) Dental surgery.
   (*c*) Dermatology, including venereal diseases.
   (*d*) Otology, including laryngology and rhinology.
   (*e*) Midwifery and gynaecology.
   (*f*) Operative surgery, advanced.
   (*g*) Ophthalmology.
   (*h*) Psychological medicine.
   (*i*) State Medicine.

Captains serving in that rank before July 27th, 1895, will be promoted under the old regulations contained in Appendix I, Regulations for Army Medical Services, and will not be eligible for acceleration.

Majors before Promotion to Lieutenant-Colonel.

(For Majors promoted to the rank after March 31st, 1895.)

This examination, which may be taken at any time after three years in the rank of major, will be held in the military districts in which the officer is serving at times which will be duly notified.

The subjects of this examination, which are detailed in the *King's Regulations*, are as follows:

1. Military law.
2. Army medical organization.
3. Sanitation of towns, camps, transports, and all places likely to be occupied by troops in peace or war; epidemiology and management of epidemics.
4. The laws and customs of war, so far as they relate to the care of the sick and wounded.
5. One special subject from the subjoined list to which additions may from time to time be made:
   (*a*) Medical history of important campaigns.
   (*b*) A general knowledge of the Army Medical Services of other Powers.

PAY, ADDITIONAL PAY, AND CHARGE PAY.

The following are the rates of pay, additional pay, and charge pay of the officers of the Army Medical Staff and Royal Army Medical Corps, etc., as laid down in the new Royal Warrant.

A lieutenant-colonel appointed one of the Honorary Physicians or Honorary Surgeons to the King shall receive pay at the rate laid down for a colonel of the Royal Army Medical Corps when qualified for promotion to that rank.

A captain of the Royal Army Medical Corps holding the brevet rank of major shall receive pay at 2s. a day in addition to the rates laid down for a captain.

Pay.

ARMY MEDICAL SERVICE.	Inclusive of all Allowances except Field and Travelling Allowances.
At Head Quarters.	Yearly. £
Director-General	2,000
Deputy Director-General	1,500
Assistant Director-General	850
Deputy Assistant Director-General	750

	Exclusive of Allowances.
At Other Stations.	Daily. £ s. d.
Surgeon-General	3 0 0
Colonel	2 0 0
Lieutenant-Colonel	1 10 0
Lieutenant-Colonel specially selected for increased pay after at least 8 years' service abroad	1 15 0
Major	1 3 6
After 3 years' service as such ...	1 6 0
Captain	0 15 6
After 7 years' total full-pay service ...	0 17 0
After 10 years' total full-pay service ...	1 1 0
Lieutenant on probation and lieutenant ...	0 14 0
Adjutant of the Royal Army Medical Corps (Volunteer)	The pay of his rank.
Quartermaster	As a quartermaster of infantry.

Additional Pay.

Officer not serving on the head quarters staff appointed a member of the Advisory Board ... ... £150 a year.

Officer serving as Secretary of the Advisory Board and Nursing Board ... ... £100 a year.

	Daily. s. d.
Officer under the rank of lieutenant-colonel holding an appointment as specialist	2 6
Quartermaster in charge of the medical stores at Woolwich...	2 6

Charge Pay.

(*a*) Officer in charge of a general or other hospital; or of a division of a general hospital:

	Daily. s. d.
If in charge of at least 50 beds	2 6
,, ,, 100 ,, ...	5 0
,, ,, 200 ,, ...	7 6
,, ,, 300 ,, ...	10 0
(*b*) Officer in command of the depôt, Royal Army Medical Corps	5 0

The senior officer of the Army Medical Service with an army in the field—

A rate to be fixed by the Secretary of State according to the magnitude of the charge.

	s. d.
In a command abroad—	
The senior medical officer, if the number of soldiers is 1,500 or upwards	5 0

EXTRA-DUTY PAY.

An officer of the Royal Army Medical Corps, appointed to act as adjutant or quartermaster of the Royal Army Medical Corps (Militia) during preliminary drill or training, shall receive extra-duty pay at the following daily rates:

	s. d.
Acting Adjutant	2 6
Acting Quartermaster	2 0

RESERVE OF OFFICERS.

On the completion of three years' service, an officer of the Royal Army Medical Corps may be permitted by the Secretary of State to become an Army Reserve officer for a period of seven years, and while so serving he shall receive pay at the rate of £25 a year.

With the sanction of the Secretary of State such officer may be allowed to return to the active list, and if the period he has been in the Reserve of Officers amounts to at least one year, and not more than three years, he shall be allowed to reckon one-third of such period towards promotion, gratuity, and pension.

PAY DURING SICK LEAVE.

An officer of the Army Medical Staff or Royal Army Medical Corps may be allowed full pay during sick leave of absence under certain conditions.

Household Troops.

The rates of pay of medical officers of the Household Troops are as follows:

	£ s. d.
Brigade-surgeon-lieutenant-colonel ...	1 15 0
Surgeon-lieutenant-colonel	1 10 0
Surgeon-major	1 3 6
After 3 years' service as such ...	1 6 0

Retired Pay.

An officer of the Army Medical Service may be permitted to retire, in cases in which such retirement may be deemed expedient by the Secretary of State.

Army Medical Staff.	Daily. £ s. d.
Surgeon-General	2 0 0
Royal Army Medical Corps and Medical Officers of Household Troops.	
Colonel	1 15 0
Lieutenant-colonel, or surgeon-lieutenant-colonel of the Household Troops—	
After 20 years' service	1 0 0
,, 25 ,, ...	1 2 6
,, 30 ,, ...	1 5 0
Lieutenant-colonel, after having been in receipt of the increased pay allowed under the terms of the new Warrant, for 3 years, or brigade-surgeon-lieutenant-colonel of the Household Troops—	
Under 30 years' service	1 7 6
After 30 ,, ...	1 10 0
Major, or surgeon-major of the Household Troops—	
After 20 years' service...	1 0 0
After 25 years' service, if his service reckoning for promotion is insufficient to qualify him for promotion to the rank of lieutenant-colonel under Article 351	1 2 6
Major or captain—	Gratuity.
After 5 years' service in the rank of captain ...	£1,000
After 10 *years' service if the officer was commissioned before the date of the Warrant* ...	1,250
After 3 years' service in the rank of major, *or, if the officer was commissioned before the date of the Warrant, after* 15 *years' service* ...	1,800
After 6 years' service in the rank of major, *or, if the officer was commissioned before the date of the Warrant, after* 18 *years' service*...	2,500
Surgeon-lieutenant-colonel or surgeon-major of the Household Troops—	
After 15 years' service...	1,800
,, 18 ,, ...	2,600

RETIREMENT ON ACCOUNT OF AGE, OR LIMITATION OF PERIOD OF SERVICE.

Conditions of Retirement.

The Director-General of the Army Medical Service shall retire on completion of the term of his appointment; and the retirement of other officers of the Army Medical

Service (except quartermasters) shall be compulsory at the following ages:

Surgeon-General	60
Colonel, *promoted to the rank on or after the date of the Warrant*...	57
Colonel, *promoted to the rank before the date of the Warrant (subject to Article 558)*	60
Other officers...	55

A major shall retire on completion of 25 years' service; or, if he fails to qualify for promotion, on the completion of 20 years' service.

A captain or lieutenant shall retire on completing 6 months' service on the supernumerary list.

It shall be competent to the Secretary of State to place a medical officer on the retired list after 30 years' service.

SCALE OF RETIRED PAY.
Director-General Army Medical Service.

After 3 years' service as Director-General—

	Yearly.
With 30 years' service	£1,125

RETIREMENT ON ACCOUNT OF MEDICAL UNFITNESS.
Conditions of Retirement.

An officer of the Army Medical Service placed on the half-pay list on account of medical unfitness shall, if not previously retired, be retired from the Army at the expiration of five years from the date on which he was placed on the half-pay list, or if reported by the regulated medical authority to be permanently unfit for duty, on the officer's application, at such earlier date as may be decided by the Secretary of State.

An officer, whether on full or half pay, placed in detention as a person of unsound mind, shall be retired from the army, with the retired pay to which he would be entitled if reported by the regulated medical authority to be permanently unfit for duty. If his disability was not caused by military service, and he is not entitled to permanent retired pay by length of service, he shall receive temporary retired pay equivalent to the half pay, and temporary retired pay, if any, which he would have received if his disability had been other than insanity.

SCALE OF RETIRED PAY.
Director-General Army Medical Service

	Yearly.
Under 3 years' service as Director-General, and after not less than 30 years' service ...	£875

The full text of the new regulations, with appended matter, may be obtained on application to the Director-General, 68, Victoria Street, London, S.W.

INDIAN MEDICAL SERVICE.

CANDIDATES must be natural-born subjects of His Majesty, of European or East Indian descent, between 21 and 28 years of age at the date of the examination, of sound bodily health, and, in the opinion of the Secretary of State for India in Council, in all respects suitable to hold commissions in the Indian Medical Service. They may be married or unmarried. They must possess, under the Medical Acts in force at the time of their appointment, a registrable qualification to practise both medicine and surgery in Great Britain and Ireland. If the candidates are natives of India they must also submit a certificate as to their age and nationality; this must be on a certain form which can be obtained from the India Office, and must be signed by one or other of certain Indian officials duly named thereon.

They must sign and send in to the Military Secretary, India Office, Westminster, so as to reach that address by the date fixed in the advertisement of the examination, a declaration in prescribed form stating their desire to be admitted to the Service, their readiness to proceed on duty as soon as gazetted, and that they are suffering from no form of mental or constitutional disease or any other imperfection or disability that can interfere with their entire efficiency as medical officers. Some particulars as to their education, medical qualifications, and previous careers have also to be supplied in the declaration. At the same time the candidate must furnish:

(*a*) Satisfactory proof of his age.

(*b*) A recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits, and likely in every respect to prove creditable to the service if admitted; and a certificate of moral character from a magistrate, or a minister of the religious denomination to which the candidate belongs.

(*c*) A certificate of having attended a course of instruction for not less than three months at an ophthalmic hospital, or the ophthalmic department of a general hospital, which course shall include instruction in the errors of refraction.

(*d*) Some evidence of having obtained a registrable qualification.

Natives of India and those educated in that country must also produce a certificate, signed by the Director-General, Indian Medical Service, that the candidate is a suitable person to hold a commission in the Service.

The Secretary of State for India in all cases reserves the right of deciding whether the candidate may be allowed to compete for a commission in His Majesty's Indian Medical Service.

The physical fitness of each candidate will be determined by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to pass the tests[1] laid down by the Regulations.

Every candidate must also be free from all organic disease, and from constitutional weakness, or other disability likely to unfit him for military service in India.

On proving possession of the foregoing qualifications, and on payment of a fee of £1, the candidate will be tested by the Examining Board in the following subjects, the highest number of marks obtainable being distributed as follows:

	Marks.
1. Medicine, including Therapeutics	1,200
2. Surgery, including Diseases of the Eye	1,200
3. Applied Anatomy and Physiology	600
4. Pathology and Bacteriology	900
5. Midwifery and Diseases of Women and Children ...	600
6. Chemistry, Pharmacy, and either Botany or Zoology	600

The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside. The examination in chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy, and practical hygiene. Either botany or zoology can be taken at will, the candidate stating his choice when submitting the declaration already mentioned. As regards these two subjects no syllabus is issued, the questions put being such as to test the candidate's general knowledge of them.

No candidate shall be considered eligible who shall not have obtained at least one-third of the marks obtainable in each of the above subjects, and one-half of the aggregate marks for all the subjects.

After passing this examination, the successful candidates will be required to attend one entire course of practical instruction at the Army Medical School and elsewhere, as may be decided, in:

(1) Hygiene, (2) Military and Tropical Medicine, (3) Military Surgery, (4) Pathology of diseases and injuries incidental to Military and Tropical Service.

This course will be of not less than four months' duration.

The candidate's commission as lieutenant will bear the date on which the course of instruction commences, but his rank will not be gazetted until he has passed the final examination.

During this period of instruction each candidate will receive an allowance of 14s. per diem, with quarters, or, when quarters are not provided, with the usual allowances of a subaltern in lieu thereof, to cover all costs of maintenance; and he will be required to provide himself with uniform (namely, the regulation undress uniform and the

[1] These are as follows: (1) If a candidate can read D = 6 at a distance of 20 ft., and D = 0.6 at any distance selected by himself with each eye without glasses, he will be considered FIT. (2) If a candidate can only read D = 24 at 20 ft. with each eye without glasses, his visual deficiency being due to faulty refraction which can be corrected by glasses which enable him to read D = 6 at 20 ft. with one eye, and D = 12 at the same distance with the other eye, and can also read D = 0.8 with each eye without glasses at any distance selected by himself, he will be considered FIT. (3) If a candidate cannot read D = 24 at 20 ft. with each eye without glasses, notwithstanding he can read D = 0.6, he will be considered UNFIT. N.B.—Snellen's test types will be used for determining the acuteness of vision. Squint, inability to distinguish the principal colours, or any morbid condition subject to the risk of aggravation or recurrence in either eye, may cause the rejection of a candidate.

mess dress of a lieutenant of the Indian Medical Service, as described in Indian Army Regulations, vol. vii, with Sam Browne belt, but without the sword).

A lieutenant on probation who is granted sick leave before the completion of his course of instruction and final admission to the service will receive furlough pay at the rate of 10s. 6d. a day for the period of his sick leave.

Candidates will be required to conform to such rules of discipline as may from time to time be laid down.

At the conclusion of the course, candidates will be required to pass an examination in the subjects taught during the course of instruction.

A lieutenant who, before the expiry of one month from the date of passing his final examination, furnishes proof of his election to a resident appointment at a recognized civil hospital, may be seconded for a period not exceeding one year from the date on which he takes up such appointment, provided that he joins it within three months of passing his final examination, and that he holds himself in readiness to sail for India within fourteen days of the termination of the appointment. While seconded he will receive no pay from Indian funds, but his service towards promotion, increase of pay, and pension will reckon from the date on which the course of instruction for lieutenants on probation commences.

Before the commission of a lieutenant on probation is confirmed he must be registered under the Medical Acts in force at the time of his appointment.

Officers appointed to the Indian Medical Service will be placed on one list, their position on it being determined by the combined results of the Preliminary and Final Examinations. They will be liable for military employment in any part of India, but with a view to future transfers to civil employment they will be allowed a choice according to their positions on the list between the following civil areas: Madras and Burmah; Bombay with Aden; Upper Provinces (United Provinces, Punjab and Central Provinces); Lower Provinces (Bengal, Eastern Bengal and Assam). An officer transferred to civil employment, though ordinarily employed within the area of his choice, will remain liable to employment elsewhere if the exigencies of the service require it.

In considering these regulations it is not to be forgotten that the examinations are competitive, and that no candidate is permitted to take part in them more than three times.

Examinations for admission to the Service usually take place twice in the year, in January and July, the date and number of vacancies being notified in the newspapers. Candidates cannot be supplied with copies of past examination papers.

PASSAGE TO INDIA.

Officers on appointment are, when possible, provided with passage to India by troop transport; when such accommodation is not available, passage at the public expense is provided by private steamer, or a passage allowance granted, if preferred.

Any officer who may neglect or refuse to proceed to India if ordered to do so within two months from the date of terminating his course of instruction, or within 14 days of the termination of his hospital appointment if the Secretary of State for India has permitted him to hold one, will be considered as having forfeited his commission, unless special circumstances shall, in the opinion of the Secretary of State in Council, justify a departure from this regulation.

PAY PREVIOUS TO ARRIVAL IN INDIA.

The rate of pay drawn by Lieutenants of the Indian Medical Service previous to arrival in India is 14s. a day, but a Lieutenant (1) who has been permitted by the Secretary of State to hold a hospital appointment will receive no pay while holding it: (2) who is detained by illness in this country will be paid at the rate of £250 a year from the date on which he would otherwise have embarked until the date of embarkation, and at the rate of 14s. a day during the voyage to India.

Pay at the above rate is issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate is also made prior to embarkation, which is adjusted in India in accordance with the rate shown in the general paragraph later on respecting pay and allowances.

GRADES AND PRECEDENCE.

The grades of officers in the Indian Medical Service are six in number, namely:

1. Surgeon-General (ranking as Major-General[1]).
2. Colonel.
3. Lieutenant-Colonel.
4. Major.
5. Captain.
6. Lieutenant.

PROMOTION.

A lieutenant's commission dates from the day on which his course of instruction commences. He may be promoted to captain on completion of three years' full-pay[2] service from date of first commission, but after completing eighteen months' service and before promotion to the rank of captain he will be required to pass an examination in military law and military medical organization, the result of which may affect his promotion.

A captain is promoted to major on completion of twelve years' full-pay[2] service, but this promotion is accelerated by six months in the case of officers who fulfil certain specified conditions.

A major is promoted to lieutenant-colonel on completion of eight years' full-pay[2] service in the rank of major.

All promotions from the rank of lieutenant-colonel to that of colonel, and from the rank of colonel to that of surgeon general, are given by selection for ability and merit.

On appointment as Honorary Physician or Honorary Surgeon to His Majesty an officer below the rank of Colonel is promoted to that rank, remaining supernumerary until absorbed. For distinguished service in the field an officer of the Indian Medical Service may receive substantive or brevet promotion.

TENURE OF OFFICE IN ADMINISTRATIVE GRADES.

The tenure of office of surgeon-generals and colonels is limited to five years. Colonels, if not disqualified by age, are eligible either for employment for a second tour of duty in the same grade, or for employment in the higher grade of surgeon-general by promotion thereto. Absence on leave in excess of eight months during a five years' tour of duty involves forfeiture of appointment.

PAY AND ALLOWANCE.[3]

The following are the monthly rates of Indian pay drawn by officers of the Indian Medical Service from the date of their arrival in India:

Rank.	Unemployed Pay.	Grade Pay.	Staff Pay.	In Officiating Medical Charge of a Regiment.	In Permanent Medical Charge of a Regiment.
	Rs.	Rs.	Rs.	Rs.	Rs.
Lieutenant	420	300	150	425	500
Captain	475	400	150	475	550
,, after 5 years' service	475	450	150	525	600
,, after 7 years' service	—	500	150	575	650
,, after 10 years' service	—	550	150	625	700
Major	—	600	150	725	800
,, after 15 years' service	—	750	150	825	900
Lieutenant-Colonel	—	900	350	1,075	1,250
,, ,, after 25 years' service	—	900	400	1,100	1,300
,, ,, specially selected for increased pay ...	—	1,000	400	1,200	1,400

NOTES.—(a) Unemployed pay is drawn by officers of less than 7 years' service who are not holding officiating or substantive charge of native regiments. Officers of more than 7 years' service draw grade pay alone when unemployed. Staff pay is the pay of a command, and is drawn in addition to grade pay. (b) Horse allowance is granted to officers in substantive charge of cavalry regiments at the rate of Rs 90 a month to lieutenant-colonels and majors, and Rs.60 a month to captains and lieutenants.

[1] The Director-General, Indian Medical Service, will rank either as Major-General or Lieutenant-General, as may be decided in each case by the Secretary of State for India in Council.

[2] Time (not exceeding one year) passed on temporary half pay reckons as service for promotion and pension in the case of officers placed on half-pay on account of ill health contracted in the performance of military duty.

[3] Under present arrangements officers of the Indian Medical Service who are not statutory natives of India receive exchange compensation allowance to compensate them for the fall of the value of the rupee. The allowance consists of an addition to their salaries (subject to certain limitations) equal to half the difference between their salaries converted at (1) 1s. 6d. the rupee, and (2) the average market rate for each quarter.

The principal administrative appointments are held by colonels and surgeon-generals on the following consolidated salaries:

Colonel, from Rs. 1,800 to Rs. 2,500 per mensem.
Surgeon-General 2 @ Rs. 2,200 „
„ 2 @ Rs. 2,500 „
„ 1 @ Rs. 3,000 „

Specialist pay at the rate of Rs. 60 a month is granted to officers below the rank of lieutenant-colonel who may be appointed to certain posts.

The salaries of other substantive medical appointments in the civil and military departments are consolidated and vary from Rs. 450 to Rs. 2,000 per mensem.

Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2,250 per mensem.

Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment.

Except in the administrative grades and in certain special appointments, medical officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

No officer, however employed, can receive any staff allowance in addition to his unemployed or grade pay unless he has passed the examination in Hindustani known as the "Lower Standard." The passing of this examination does not of itself bring any increase of pay to an officer, unless appointed to a substantive or officiating charge; but failure to pass disqualifies an officer, even when holding such substantive or officiating charge, from receiving any portion of the staff allowances of the appointment.

Surgeon-Generals and colonels, on vacating office at the expiration of the five years' tour of duty, are permitted to draw in India an unemployed salary of Rs. 1,350 per mensem in the former, and Rs. 1,000 in the latter case, for a perod of six months from the date of their vacating office, after which they are placed while unemployed on the following scale of pay:

	Surgeon-General Per diem. £ s. d.	Colonel Per diem. £ s. d.
After 30 years' service on full pay	2 5 0	1 14 0
„ 25 „ „	2 5 0	1 10 0
„ 20 „ „ or on promotion, should this period of service not be completed	2 0 0	1 8 0

Leave Rules.

(The paragraphs printed in italics apply only to officers on military employ.)

Officers of the Indian Medical Service below the rank of Colonel may be granted:

1. Privilege leave under such regulations as may from time to time be in force.
2. *Leave out of India, for no longer period than one year, capable of extension to two years' absence from duty, on the following pay:*

	£
On first appointment	250 *a year.*
After the commencement of the 10th year's service for pension	300
Ditto, ditto, 15th ditto	450
Ditto, ditto, 20th ditto	600
Ditto, ditto, 25th ditto	700

3. *Leave in India but for the period of one year only, on full military pay and half the staff salary of appointment.*

No extension of leave involving absence from duty for more than two years, whether taken in or out of India, can be granted except on specially urgent grounds and without pay.

An officer unable on account of the state of his health to return to duty within the maximum period of two years' absence (unless, as under the foregoing paragraph, he is specially granted an extension of leave without pay) is placed on temporary half pay or the retired list, as the circumstances of the case may require. An officer is also liable to be placed on half pay or the retired list should his health require an undue amount of leave, whether in or out of India.

Leave may be granted at any time, but solely at the discretion of the civil or military authorities in India under whom an officer may be serving.

An officer on leave, whether in India or out of India, is required to rejoin at once on being recalled to duty, unless certified by a Medical Board as unfit to do so.

Officers of the Administrative Grades may be granted one period of leave not exceeding eight months during their tenure of appointment.

Extra furlough may be granted to officers desirous of pursuing special courses of study at the rate of one month's furlough for each year's service up to 12 months in all.

Honours and Rewards.

Officers of the Indian Medical Service are eligible for the military distinction of the Order of the Bath and for other orders, British and Indian, and for good service pensions.

Six of the most meritorious officers are named Honorary Physicians, and six are named Honorary Surgeons to His Majesty.

Retiring Pensions and Half Pay.

Officers of the Indian Medical Service are allowed to retire on the following scale of pension on completion of the required periods of service:

	Per Annum. £
After 30 years' service for pension ...	700
„ 25 „ „ „ ...	500
„ 20 „ „ „ ...	400
„ 17 „ „ „ ...	300

Service for pension reckons from date of first commission, and includes all leave taken under the rules quoted. (See also Note 2 on p. 532.)

A surgeon-general, after three years' active employment in that appointment, is entitled to retire upon a pension of £350 per annum, in addition to that to which he may be entitled under the above scale.

A colonel is entitled, after three years' active employment in that appointment, to retire upon a pension of £125 per annum, in addition to the pension to which he may be entitled under the above scale, and after five years of such employment on an additional pension of £250 in all.

In each of the cases stated in the two foregoing paragraphs eight months' absence on leave is allowed to count towards actual service in those grades.

A surgeon-general or colonel who has completed his term of service and has reverted to British pay may reside in Europe, at the same time qualifying for higher pension.

With a view to maintain the efficiency of the service, all officers of the rank of lieutenant-colonel and major are placed on the Retired List when they have attained the age of 55 years; the Director-General, Indian Medical Service, when he has attained the age of 62 years, and all other surgeon-generals and colonels when they have attained the age of 60 years. But a lieutenant-colonel, who has been specially selected for increased pay, if he attains the age of 55 years before he becomes entitled to the pension for 30 years' service, may be retained until completion of such service; and in any special case where it would appear to be for the good of the service that an officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council;

Officers placed on temporary or permanent half-pay on account of ill health as described in the paragraphs concerning leave, are granted half-pay at the following rates:

	Rates of Half Pay.	
	Per Diem.	Per Annum.
	s. d.	£ s. d.
Under 5 years' service	6 0	109 10 0
After 5 „ „	8 0	146 0 0
„ 10 „ „	10 0	182 10 0
„ 15 „ „	13 6	246 7 6

An officer of less than three years' service, although he may be transferred to the half-pay list under the general conditions of transfer, will not be granted any half pay unless his unfitness has been caused by service.

INVALID PENSIONS.

An officer who has become incapacitated for further service in India on account of unfitness caused by duty may, after he has been two years on temporary half-pay, be granted an invalid pension on the following scale:

	Per Annum. £
After 16 years' pension service	272
„ 15 „ „ „	252
„ 14 „ „ „	232
„ 13 „ „ „	212
„ 12 „ „ „	192

As already stated in the footnote on page 532, time not exceeding one year passed on temporary half pay reckons as service for promotion and pension in the case of an officer placed on half pay on account of ill health in the performance of military duty.

Officers of the Indian Medical Service are liable, after retirement on pension before completing thirty years' service, to recall to military duty in case of any great emergency arising, up to 55 years of age.

WOUND PENSIONS.

Officers are entitled to the same allowances on account of wounds received in action and injuries sustained through the performance of military duty, otherwise than in action, as are granted to combatant officers of His Majesty's Indian Military Forces holding the corresponding military rank.

FAMILY PENSIONS.

The claims to pensions of widows and families of officers are treated under the provisions of such Royal Warrant regulating the grant of pensions to the widows and families of British officers as may be in force at the time being.

The widows and families of officers are also entitled to pensions under the Indian Service Family Pension Regulations, for the benefits of which all officers must, as a condition of their appointment, subscribe from the date of their arrival in India.

PRISON MEDICAL SERVICE.

THE prison department consists of two branches—the convict service and the local prison service. These are now practically amalgamated, and the officers of each branch are freely interchangeable. In the case of the smaller prisons the medical officer is usually a local practitioner, but in the case of the larger prisons the medical officers are appointed by the Convict Prison Board or the Prison Commission, and form practically a special service. The Chairman of the Board is Sir Evelyn Ruggles-Brise, K.C.B. Application for employment may be made to the Board on a special form, which, we understand, can be obtained from the Secretary, Major E. G. Clayton, Prison Commission, Home Office, London, S.W.

The number of vacancies is not large and the prospects of promotion are bad. This is due in part to the fact that the rate of pay of the higher appointments depends upon the number of prisoners in the particular prison, and that the total number of prisoners in the country is not increasing in proportion to population.[1]

Convict Service.—Four deputy medical officers at £250, rising to £300; four medical officers at incomes ranging from £300 to £550.

Local Prison Service.—Ten deputy medical officers at £350, rising to £300; ten medical officers at £200; three medical officers at £250; three medical officers at £300, rising to £390; six medical officers at £400, rising to £550. Quarters, or an allowance in lieu, are granted to those who give their whole time to the service.

MEDICAL APPOINTMENTS IN THE COLONIES.

1. MEDICAL appointments are from time to time filled up by the Colonial Office in the following Colonies and Protectorates: British Guiana Jamaica, Trinidad, Windward Islands, Leeward Islands, British Honduras, Fiji, Sierra Leone, Gambia, Gold Coast, Lagos, Northern and Southern Nigeria, East Africa and Uganda Protectorates, British Central Africa, Somaliland, Ceylon, Straits Settlements, the Federated Malay States, Hong Kong, Mauritius, Seychelles, Cyprus, Gibraltar, St. Helena, and the Falkland Islands. In Ceylon, Jamaica, and Mauritius, vacancies are almost always filled locally by the appointment of qualified native candidates. As a rule officers are required on appointment to undergo a three months' course of instruction at the London or Liverpool School of Tropical Medicine, and to obtain a certificate of proficiency before taking up their appointment.

It is for the West Indies and the East and West African Colonies and Protectorates that medical officers are chiefly required.

2. The majority of the West Indian appointments involve medical charge of a district, including, as a rule, the care of a hospital, poorhouse, asylum, or other institution, and free attendance on the aged and children.

N.B.—*Passage money on first appointment, and leave of absence on half-pay (in addition to the ordinary annual vacation on full pay, not exceeding three months in two years), are granted only in the cases specified in the Colonial Regulations. Leave on half pay is not granted before the completion of six years' service, except on the ground of illness or urgent private affairs. With regard to pension, medical officers are usually on the same footing as other Government servants; but in cases where private practice is allowed the rule is that they are not usually entitled to pension.*

3. The following is a short account of the appointments in the separate colonies:

British Guiana.—37 appointments. Candidates must have held for at least six months a resident medical appointment in some public institution. Officers are appointed on two years' probation as assistant medical officers, and are paid a salary at the rate of £300 per annum with quarters, without the right to private practice. After serving for two years, officers may be appointed to the permanent staff; there are three junior posts on the permanent staff at £400 and eleven at £400 to £500. Every medical officer appointed to a district or to act in charge of a district will receive a travelling allowance at a rate varying with the nature of the district. He is allowed private practice. No more than £30 is allowed for passage money on first appointment. There is a Widows' and Orphans' Fund in the colony to which all Government servants are compelled to subscribe at the rate of 4 per cent. on their salaries. The Governor now has the power to appoint private practitioners to perform the duties of medical districts on temporary agreements, and in recent cases vacant appointments have been filled in this way, but it is not proposed to make such appointments in future.

Jamaica.—The appointments, 54 in number, are mainly district appointments with private practice allowed; the salary paid by Government varies from £100 to £250 per annum. New-comers are, in some cases, attached for a while to the public hospital in Kingston, and given an allowance at the rate of £200 per annum, but not permitted to undertake private practice. Some medical officers receive a varying capitation allowance for attendance on immigrants. There is a Civil Service Widows' and Orphans' Fund established by law, to which all medical officers are obliged to subscribe at the rate of 4 per cent. on their salaries.

Trinidad and Tobago.—In Trinidad there are 32 appointments. Under the terms of the Ordinance regulating the medical service, officers are appointed in the first instance on two years' probation as supernumeraries. They receive a salary of £250 per annum with furnished quarters, and are usually attached to the Government hospital; the salary assigned to the district appointments, to which they are promoted as vacancies occur, is £300, which is increased to £400 and upwards by various allowances for horse, house, or otherwise. These posts carry the right to private practice. After every five years' service an officer is given an additional personal allowance at the rate of £50 per annum. All officers hereafter appointed are required to contribute 4 per cent. of their salaries to the Widows' and Orphans' Fund. In a few districts a system has been introduced by which the work is performed by private practitioners under temporary contracts.

In the island of Tobago there are three district appointments with salaries of £250 per annum with quarters.

Windward Islands (Grenada, St. Lucia, St. Vincent).—The twenty-two appointments are, with few exceptions, district

[1] Intending applicants would do well to consult a memorandum prepared for the use of the Parliamentary Bills Committee of the British Medical Association, and published in the BRITISH MEDICAL JOURNAL on April 23rd, 1892.

appointments with the right to private practice attached; the salaries paid by Government vary from £250 to £400, with allowances in certain cases. The Governor has the power to transfer a medical officer from one island to another at his discretion.

Leeward Islands (Antigua, St. Christopher, and Nevis, Dominica, Montserrat, Virgin Islands).—The twenty-five appointments are of the same nature as in the Windward Islands. An officer when first sent out is not appointed to a particular island, but to the service of the Leeward Islands, with a salary of £250, and the Governor decides as to the district which is to be allotted to him. He is liable to be transferred at the Governer's discretion to any medical district in the Leeward Islands, and in certain districts may be required to perform magisterial duties. The medical officers receive fees for successful vaccinations, *post-mortem* examinations, attendance and giving evidence at courts of justice, certificates of lunacy, and, in the larger islands, for burial certificates. They are also allowed private practice.

British Honduras.—There are four medical appointments (besides the principal post of Colonial Surgeon). One of the medical officers is paid $1,458 a year, two are also district commissioners, and receive $1,944 for the combined posts of medical officer and district commissioner, and one receives $750 a year and is entitled to private practice but not to pension. Unless they already possess a diploma of Public Health, medical officers are liable to be required before they join the colony to undergo a course of instruction at a laboratory of Public Health or analogous institution. The dollar = about 4s. 2d.

Fiji.—The medical service has recently been reorganized, and officers appointed in future will be styled Government Medical Officers, and receive a salary of £300, rising by annual increments of £10 to £400. They will be allowed private practice, so far as is consistent with the proper discharge of their duty to the Government. They will be required either to take charge of hospitals or of districts, at the discretion of the authorities. The posts will be pensionable. As at present arranged, there will be ultimately fifteen of them, in addition to a Senior Medical Officer (who at present receives £450 and £50 allowance for house rent), and a Chief Medical Officer (£600 a year).

Government Medical Officers will be given free quarters or an allowance in lieu thereof.

Ceylon.—The Principal Civil Medical Officer receives £1,250, rising by annual increments of £50 to £1,400 per annum. There are an Assistant Principal Civil Medical Officer on £750, rising by annual increments of £50 to £850, and a Medical Superintendent of Lunatic Asylum on £600 to £800. The Registrar of the Medical College, Colombo, and the Director of the Bacteriological Institute receive £450 to £600; the Surgeon-in-Charge of the General Hospital, £600 to £800.

There are nine Provincial Surgeons (Rs. 6,000 to Rs. 8,400), twenty-nine First Grade Medical Officers (Rs 3,600 to Rs. 5,400), thirty-six Second Grade (Rs. 1 800 to Rs. 3,000), and fifty-five Third Grade (Rs. 1,200 to Rs. 1,800). Private practice is allowed to the subordinate officers, but the Provincial Surgeons may take only consultation practice. The Medical Service of Ceylon is mainly recruited from among gentlemen born in the island but possessing British diplomas.

Straits Settlements.—Two house-surgeons in the General Hospital, Singapore, and one in the General Hospital, Penang, on £300 rising to £360, with free quarters. There are ten other subordinate posts in the Medical Department, with salaries varying from £300 (rising to £360) to £780 (rising to £900). Some of these posts have free quarters attached, and the holders of some are allowed private practice within limits. The salary of the Principal Civil Medical Officer is £1,000; he receives also £200 a year as Inspector-General of the Medical Institutions in the Federated Malay States.

Federated Malay States.—There are 17 district surgeons on salaries of £420, rising to £540. There are also four State surgeons, on salaries varying from £480 (rising to £540) to £720 (rising to £840). The House-Surgeon at the General Hospital, Kuala Lumpor, Selangor, is paid £300, rising to £360. A Medical Officer is attached to the Regiment of Malay States Guides, his salary being £360 to £480.

Medical officers have no claim to private practice, and the enjoyment of it will be strictly subject to the permission of Government. The private practice to be obtained is limited, Government officers, the wives and families of certain classes of officer, and in some States the employés of neighbouring mines, being attended free. There are two assistants in the Institute for Medical Research, on salaries of £360 to £420. These are non-pensionable, and the holders are eligible for appointment as district surgeons. A Health Officer and Bacteriologist is also attached to the Institute, salary £600.

Hong Kong.—Principal Civil Medical Officer, £800, rising to £1,000. There are two health officers of the port, four medical officers of health, and four assistant surgeons, with salaries of £480, rising to £720. Most of these appointments are pensionable. Private practice is not allowed, and free quarters are only given in a few cases. The Government Bacteriologist receives £500, rising to £600, and his assistant £360 rising to £420.

In Hong Kong, the Straits Settlements, and the Federated Malay States, officers whose salaries are fixed in sterling are paid locally in dollars, at a rate of exchange fixed monthly by the Government and based on the average exchange value of the dollar during the preceding month.

Mauritius.—There is a Head Quarters Staff consisting of a Director (Rs. 10 000), an Assistant Director (Rs. 8,000), two Sanitary Wardens (Rs. 6,000), one Assistant Sanitary Warden (Rs. 5,000), an Assistant Medical Officer, Port Louis (Rs 5,000), a Police and Prisons Surgeon (Rs. 6,000), and a Health Officer (Rs. 5,000). There is also a Medical Inspector attached to the Immigration Department.

In the rural districts there are various medical officers, most of whom receive Rs. 6,000 a year, and are not allowed private practice.

Free quarters are not given in most cases. The service is mainly recruited locally.

N.B.—*There are Widows' and Orphans' Pension Funds in Ceylon, Straits Settlements, the Federated Malay States, Hong Kong, and Mauritius, to which all permanent Government servants are called upon to subscribe at the rate of 4 per cent. on their salaries.*

Officers in the service of Mauritius are required annually to contribute 2 per cent. of their salaries towards their pensions.

Seychelles.—There are four medical appointments. The Government Medical Officer receives Rs. 4,500. The Assistant Government Medical Officers receive Rs. 3,000. The holders of these latter appointments have free quarters. Private practice is allowed.

Gibraltar.—There is a surgeon of the Colonial Hospital receiving £275, £55 as Medical Officer of the Civil Prison and Lunatic Asylum, and horse allowance of £42, with private practice. There is also an Assistant Surgeon with a salary of £300 per annum, but without private practice, who is Police Surgeon, Port Surgeon, and Surgeon to the Port Office without additional emoluments.

Cyprus.—There is a Chief Medical Officer paid at the rate of £500 per annum, two District Medical Officers paid at the rate of £250 per annum, and one paid at the rate of £200, rising by £10 a year to £250, all enjoying private practice, and receiving 2s. per diem forage allowance; these are the only medical appointments in the island which are open to English candidates.

St. Helena.—The Colonial Surgeon receives £300 per annum, and £30 horse allowance. Private practice is allowed.

Falkland Islands.—There are two appointments, one of which is paid at the rate of £300 per annum, with £25 as Health Officer, and the other at the rate of £200 per annum, with £36 as Deputy Postmaster. The holder of the latter post is required to enter into an agreement with the West Falkland Medical Association, in accordance with which he renders professional services to the members of the Association and their families, their employés and their families, in return for £200 a year and certain payments by the employés. Private practice is allowed to both officers.

East Africa, Uganda, British Central Africa and Somaliland Protectorates.—The salary of a medical officer in these protectorates is £400 per annum, rising to £500 per annum by annual increments of £20. There are twenty appointments of this rank in the combined medical staff of the East Africa and Uganda Protectorates, seven in British Central Africa and two in Somaliland. In East Africa and Uganda there are also two appointments as Assistant

Principal Medical Officer at a salary of £550 per annum, rising to £600 per annum by annual increments of £25, and certain special appointments at salaries of £600 or £650 per annum. The salary attached to the appointment of Principal Medical Officer is £800 per annum, rising to £900 per annum by annual increments of £50, in the case of East Africa and Uganda, and £500 per annum, rising to £600 per annum by annual increments of £25, in the case of British Central Africa.

Medical Officers are permitted to take private practice on the understanding that they give precedence to their official duties.

Free passages are provided to the Protectorates. Under the present leave regulations officers are entitled to two months' leave on full pay every year, subject to the exigencies of the service, and are allowed to accumulate this leave up to six months—that is, if they remain at their posts for 2½ years they are entitled to six months' full-pay leave with a free passage either way. These regulations may shortly be modified.

Officers appointed are required to undergo a three months' course of instruction at the London School of Tropical Medicine or the Liverpool School of Tropical Medicine, and to obtain a certificate of proficiency before proceeding to the Protectorate.

4. All applicants for medical employment in these Colonies must be between the ages of 23 and 35,[1] and must be doubly qualified; preference will be given to those who have held hospital appointments as house-physicians and house-surgeons; certificates of moral character and of sobriety will be required, and every officer before being appointed will be medically examined by one of the consulting physicians of the Colonial Office: Sir Patrick Manson, 21, Queen Anne Street, Cavendish Square, London, W.; Dr. Andrew Davidson, 11, Morningside Place, Edinburgh: and Dr. Hawtrey Benson, 57, Fitzwilliam Square, Dublin.

5. In addition to the ordinary medical appointments in these Colonies vacancies also occasionally, though very rarely, occur for which specialists are required—for example, to take charge of a lunatic asylum—and the particulars of chief medical officer in some of the larger Colonies have not been given, as the headship of the Medical Department in such Colonies, requiring administrative as well as professional qualifications, is not reserved to the ordinary medical staff of the same Colony, but is often filled up directly by transfer, and sometimes from outside the service.

6. Applications for medical employment in these Colonies from persons in the United Kingdom must be addressed to the Assistant Private Secretary, Colonial Office, Downing Street, S.W. Out of the total number so applying a list of candidates will be made, who will be considered as vacancies occur, but no promise whatever can be held out that candidates, even if they are placed on the list, will eventually receive an appointment. It is not possible to forecast either the number or the nature of the vacancies which will arise in the course of any given year, and it is not expected that candidates should hold themselves in readiness by refraining from other employment, as usually, when selected for an appointment, they can be allowed sufficient time to make their preparations and to terminate their existing employment.

7. Information as to the West African Medical Staff is given in a separate memorandum below.

8. *South Africa.*—Medical appointments in the Bechuanaland Protectorate and Basutoland are made only on the recommendation of the High Commissioner for South Africa, who usually appoints local candidates. Appointments of medical officers to the South African Constabulary are made by the High Commissioner on the recommendation of the Inspector-General. The Secretary of State does not select candidates for these appointments, and no register of candidates is kept at the Colonial Office.

Medical appointments in the Transvaal and Orange River Colony are only made on the recommendation of the Governor of those Colonies. The supply of candidates in the colonies is understood to be sufficient, and it is not anticipated that there will be any demand for the services of medical men from this country for ordinary appointments. Information as to the conditions of practice in these Colonies can be obtained from the Emigrants' Information Office, 31, Broadway, Westminster, S.W.

Medical appointments in the Cape and Natal are made only by the Colonial Governments. Information with regard to appointments in these Colonies can be obtained from the Agent-General for the Cape, 100, Victoria Street, S.W., and the Agent-General for Natal, 26, Victoria Street, S.W.

Appointments in Rhodesia are made by the British South Africa Company, 2, London Wall Buildings, E.C.

[1] In the case of East Africa, Uganda, British Central Africa, and Somaliland, preference will be given to candidates who are over 25 years of age. In the case of Fiji preference will be given to candidates who are under 30.

INFORMATION FOR THE USE OF CANDIDATES FOR APPOINTMENTS IN THE WEST AFRICAN MEDICAL STAFF.

1. The medical services of the West African Colonies and Protectorates (namely, the Gambia, Sierra Leone, the Gold Coast, Southern Nigeria, and Northern Nigeria) form one service under the above name. All the medical officers for the service are selected by the Secretary of State for the Colonies, and are on one list for employment and promotion.

Salary and Allowances.

2. The grades and salaries of medical officers are shown in the following table:

Grades.	Gold Coast, Southern Nigeria, Northern Nigeria.			Sierra Leone.			Gambia.		
	Minimum Salary.	Annual Increment.	Maximum Salary.	Minimum Salary.	Annual Increment.	Maximum Salary.	Minimum Salary.	Annual Increment.	Maximum Salary.
	£	£	£	£	£	£	£	£	£
Principal Medical Officer ..	1,000	50	1,200	800	50	1,000	—	—	—
Deputy Principal Medical Officer ..	700	25	800	—	—	—	—	—	—
Senior Medical Officers ..	600	20	700	600	20	700	500	20	600
Medical Officers	400	20	500	400	20	500	400	20	500

3. The allowances are as follows:

(*a*) *Duty Pay.*—A Deputy Principal Medical Officer or Senior Medical Officer receives duty pay at the rate or £100 a year while acting for the Principal Medical Officer.

In the Gambia a Medical Officer while acting for the Senior Medical Officer in charge of the Medical Department receives duty pay at the rate of £50 a year.

Duty pay at the rate of £60 a year is also paid (1) to each Deputy Principal Medical Officer or Senior Medical Officer while employed in Ashanti or the Northern Territories of the Gold Coast, and (2) to not more than two officers of either of those ranks in Northern Nigeria, when similarly employed in outlying districts, at the discretion of the High Commissioner.

(*b*) *Horse or Hammock Allowance.*—An allowance of 2s. 6d. a day is paid to every medical officer for personal conveyance while on duty at his station, for any periods during which he was required by Government to keep, and has actually kept, a horse, carriers, etc., for the purpose.

(*c*) *Transport of Stores.*—The Government carries free of cost a reasonable amount of stores for every medical officer, the amount in each case being fixed by the local Government.

(*d*) *Travelling.*—Medical and other officers travelling on duty in a Colony or Protectorate are entitled to repayment of any actual out-of-pocket expenses which they may necessarily have incurred. In some cases, in lieu of the repayment of expenses, a travelling allowance is given, which is estimated to cover the average cost of travelling.

(*e*) *Field or Bush Allowance.*—An allowance of 5s. a day is paid to all medical officers, whatever their rank, while employed in the field or bush, away from recognized stations. Officers, while in receipt of this allowance, are not entitled to any repayment or allowance under (*d*) above.

(*f*) *Allowances on a Military Expedition.*—All medical officers, whatever their rank, while employed with a military expedition, will be paid an allowance of 10s. a day; and they will also be given free rations, or an allowance of 3s. a day in lieu of rations, whenever other officers employed with the expedition are given free rations or an allowance in lieu of rations. While in receipt of these allowances medical officers will not be entitled to any repayment or allowance under (*d*) and (*e*) above.

(*g*) *Outfit Allowance.*—An allowance of £12 is paid to every medical officer before his departure on first appointment for the purchase of camp outfit (*see* under "Outfit.")

(*h*) *Special Allowances.*—Allowances varying in amount up to 10s. a day are paid to medical officers detailed for certain

special duties—for example, sanitary duties in large towns, the charge of laboratories for research, etc.

Medical officers when acting as Assistant District Commissioners on the Gold Coast, in addition to performing their medical duties, receive duly pay at the rate of £80 a year, and when acting as District Commissioners in Ashanti at the rate of £140 a year.

LEAVE OF ABSENCE, PASSAGES, ETC.

4. Medical officers are in general subject to the Colonial Regulations in force for the time being, Chapter XVIII of which contains the rules specially applicable to West Africa. A brief summary of these rules is given here for convenience.

5. The ordinary tour of residential service is one year, followed by leave with full pay during the voyages to and from England, and for four or two months clear in England, according as the officer is returning for further service in West Africa or not. If an officer is detained beyond the year, additional leave is given with full pay for ten days in respect of each completed month beyond twelve, whether he is returning or not. If he is invalided before the end of the year, the leave with full pay is for the voyages and for ten or five days in respect of each completed month, according as he is returning or not. Leave granted on the understanding that an officer will return is known as "return leave," and any pay drawn in respect of such leave is liable to be refunded if he does not return.

6. Leave may be extended for a limited period with half or no pay on the ground of ill health, or without pay on other grounds.

7. Free passages are given to all officers who are granted leave as above. A free passage is also given on first appointment, subject to the officer signing an agreement under which he is liable to refund its cost if he relinquishes his appointment for any other reason than physical or mental infirmity, or is removed for misconduct, within three years from the date of his arrival in West Africa.

8. Half pay is given during the voyage out on first appointment.

9. Fuller information on these points will be found in the Colonial Regulations, which are published in the annual Colonial Office List (Messrs. Waterlow and Sons, Great Winchester Street, E.C., price 10s. 6d.), or may be consulted on application at the Colonial Office; and a copy of Chapter XVIII may also be obtained free on application to the Colonial Office.

10. The general conditions of service for civil servants in the West African Colonies and Protectorates are set out in African (West) No. 759, a copy of which can be obtained from the Colonial Office.

11. The period of probation for medical officers is one year, instead of the three years usual in other cases.

PRIVATE PRACTICE.

12. All medical officers, except the Principal Medical Officer, in each Colony or Protectorate, are allowed to take private practice, provided that it does not interfere with the faithful and efficient performance of their official duties, but it is within the power of the Governor or High Commissioner to withdraw or suspend the privilege in such places and for such periods as he may consider desirable.

OUTFIT.

13. *Instruments and Drugs* and all medical appliances are supplied by the Government. Medical officers are not required to provide themselves with microscopes, which are supplied, when necessary, by the Government.

14. *Camp Outfit* on the following scale must be taken out by every medical officer, and an allowance of £12 is given towards its purchase. Information as to outfit is contained in the *West African Pocket Book*, a copy of which is given to every officer selected for an appointment in the West African Medical Staff.

UNIFORM.

15. In Northern and Southern Nigeria there is a field dress prescribed for medical officers in common with other civil officers, particulars of which will be found in the *West African Pocket Book*. In the other Colonies there is a similar field dress which any medical officer may wear if he wishes to do so, and which the Governor may order to be worn by any medical officer if he considers this desirable.

QUARTERS.

16. At all the recognized stations free single quarters are provided for medical officers, or an allowance is paid in lieu of quarters. Information as to the nature of the quarters, the amount of furniture supplied, etc., will be found in the *West African Pocket Book*.

PENSIONS AND GRATUITIES.

17. The ordinary regulations relating to pensions and gratuities for West African service can be consulted at the Colonial Office, but for convenience a brief though necessarily incomplete account of them is given here.

18. On attaining the age of 50 years, or after 18 years' service (of which at least 12 must have been residential), an officer is qualified for a pension calculated at $\frac{1}{60}$ of the last annual salary for each year of service.

19. If invalided after a minimum of seven years' service, he is qualified for a pension calculated at the same rate.

20. If invalided before completing seven years' service, he is qualified for a gratuity not exceeding $\frac{1}{4}$ of a month's salary for each six months of service; provided that he has been confirmed in his appointment, and that he is specially recommended by the Governor or High Commissioner for such gratuity.

21. For the purpose of calculating the *amount* of these pensions and gratuities, leave of absence without salary is not counted, while leave with half salary is counted half.

22. In addition to the ordinary regulations, an officer of the West African Medical Staff enjoys the following special privilege. At the end of nine years (of which not less than six must have been residential) he will be permitted to retire with a gratuity of £1,000, or at the end of 12 years (of which not less than eight must have been residential) with a gratuity of £1,250. All claims to pension are, however, forfeited on the receipt of such a gratuity.

APPLICATIONS FOR APPOINTMENTS.

23. Applicants for appointment as Medical Officers in the West African Medical Staff (the higher grades will usually be filled by promotion from the lower) must be British subjects of European parentage, and between 25 and 35 years of age; they must possess a complete double qualification, and must be on the *Medical Register*.

24. Preference will be given to unmarried candidates. Married ones are not excluded; but it should be remembered that passages for wives and children are not provided by the Government, that houses for them are rarely available, and that, except in the case of an officer dying on active service, no provision is made by the Government for a widow or orphans.

25. Candidates should, in the first instance, apply in writing to the Assistant Private Secretary to the Secretary of State, Colonial Office, Downing Street, London, S.W., stating generally their qualifications and enclosing a certificate of birth. A form of application will then be forwarded to them to fill up and return together with testimonials.

26 Candidates whom it is proposed to select for appointment will have to be medically examined by one of the medical advisers of the Colonial Office (or, in the case of those residing in a Colony, by a medical officer appointed by the Colonial Government), and no appointment will be made unless the candidate is declared to be physically fit for service in West Africa.

27. Candidates for medical appointments in West Africa are allowed to express a preference for any particular Colony or Protectorate, and their wishes in this respect will be borne in mind and met as far as possible, but they are liable to be posted in the first instance, or transferred afterwards if necessary, to any other West African Colony or Protectorate at the discretion of the Secretary of State.

28. Transfers from one Colony or Protectorate to another will, however, be made as seldom as possible, and will usually be restricted to the following cases:

(i) If an officer is appointed in the first instance as supernumerary to the establishment in one Colony, or Protectorate, pending the occurrence of a vacancy in another Colony or Protectorate.

(ii) If an officer applies himself for transfer in the same grade.

(iii) On promotion.

(iv) Temporary transfers in cases of emergency.

INSTRUCTION IN TROPICAL MEDICINE.

29. Every candidate selected for appointment will, unless the Secretary of State decides otherwise, be required to undergo a course of instruction for two or three months either at the London School of Tropical Medicine, Royal Victoria and Albert Docks, E. (near Connaught Road Station), or at the Liverpool School of Tropical Medicine at University College, Liverpool. The cost of the tuition, fees, board, and residence during such instruction, amounting to a maximum of £48 8s. 10d., for three months, will be borne by the Government; and a daily allowance of 5s. (but no pay) will be paid to each candidate during the course, and may be continued subsequently up to the date of embarkation. These payments will be made subject to the candidate signing an agreement by which he will be bound to refund them (1) if he declines to accept an appointment in any of the Colonies or Protectorates for which he may be selected by the Secretary of State, (2) if he fails to obtain the certificate referred to in the next paragraph, or (3) if he relinquishes the West African service for any other reason than mental or physical infirmity, or is removed for misconduct, within three years of the date of his arrival in West Africa.

30. Every candidate sent to either of the schools is required to obtain a certificate showing that he has satisfied the school authorities with regard to his regularity of attendance, progress, and proficiency, and for this purpose to undergo any examinations which they may consider necessary; and *if he fails to obtain such a certificate, he may not only be called upon to refund the payments made to him or on his behalf* (as provided in the previous paragraph), *but his selection for the West African Medical Staff may also be cancelled.*

31. Half pay begins from the date of embarkation.

32. If a medical officer has for any reason not taken a course of instruction prior to appointment, he is required to take it during his first leave of absence, and to obtain the certificate

before he can be confirmed in his appointment. In this case the tuition fees will be paid by the Government, and he will be allowed his railway fare from his place of residence to the school at the commencement of the course and back again on its conclusion, together with an allowance of 2s. 6d. towards his lodging expenses if he requires to sleep away from his place of residence in order to take the course. But no further allowance in respect of board or residence, nor any other daily allowance, will be given in addition to pay.

33. The seniority of Medical Officers is reckoned generally from the date of their embarkation in this country, but in the case of those who have taken a course of instruction before proceeding to West Africa, a period is added equal to the period during which they have actually been under instruction. This addition, however, is only made for purposes of promotion, and does not affect pensions, gratuities, or increments of salary. Seniority alone does not, moreover, give any claim to promotion.

BRITISH PRACTITIONERS ABROAD.

The following notes give some indication of the conditions under which medical men possessing British degrees or diplomas are at liberty to carry on regular practice outside Great Britain and Ireland.

FOREIGN STATES.

Austria.—It is necessary to pass the State examination, or to obtain a University Degree in Medicine, a necessary preliminary to which is naturalization as an Austrian subject. Recognition of foreign diplomas may be obtained on passing certain examinations.

Belgium.—Permission to practise must be obtained by foreign practitioners through a duly appointed Medical Board. So stringent are the formalities that it is held by His Majesty's Minister at Brussels that the difficulties are prohibitive. No foreigner has, as a matter of fact, received permission to practise since 1893.

Bulgaria.—Foreign medical graduates are sometimes granted permission to practise after passing a viva voce examination conducted in the Bulgarian language.

Denmark.—Foreigners are allowed no privilege in respect of exemption from examination.

Egypt.—Permission to practise is accorded by the Director-General of the Sanitary Department to registered British practitioners upon proof of identity and a certificate of good character from the British Consul-General.

France.—The degree of M.D. obtained by examination before a French faculty (Paris, Montpelier, Nancy, Bordeaux, Lyons, Lille, or Toulouse) is required. This regulation applies to Algiers. The degree however, confers the right to practise only if it has been obtained on precisely the same conditions as those to which French students are subject—that is to say, before registration as medical students they must produce evidence of having passed the examination for the French diploma of Bachelor in Classical Education (Arts and Philosophy) and the Certificate in Physical, Chemical, and Natural Science, and they must go through the regular curriculum of professional study, and must pass all the five professional examinations required of French students. The degree of M.D. is still obtainable by holders of British diplomas under the old conditions of exemption, at the discretion of the Minister of Public Instruction, from any preliminary examination in Arts and Sciences, and from portions of the professional curriculum or examinations. The degree obtained in this way will not, however, confer the right to practise in France, or in any of its Colonial possessions The hospitals and laboratories are still freely open to foreigners; and for those who may wish to obtain the purely honorary M.D. degree the facilities offered in the way of dispensation from preliminary examinations are even greater than heretofore. Application for such exemption must be addressed to the Minister of Public Instruction, to whom the documents showing the examination passed by the candidate in his own country, and the degrees or qualifications possessed by him, must be submitted Fees to the amount of £69 must be paid. The *Progrès Médical* (14, Rue des Carmes, Paris) publishes a "Students' Number" every year about November, in which full information is given as to teaching and examinations in every medical school in France.

Germany.—Any person may practise medicine in this country, but does so at his own peril unless he has passed the Staats-Examen. The latter alone confers recognition as a legal medical practitioner, and must be passed even by those who are already graduates of German Universities. It takes place every year in November, and can be held by a Medical Board of Examiners at any German University. The application of a candidate for admission to the Examination must be accompanied by certificates of admission to the University from a German Public School, and of at least nine half-yearly terms of medical study at a German University. The candidate must also have passed the previous medical examination, and immediately afterwards have taken out at least four half-years' study at the University. He must also have taken practical part for at least two half-years in medical, surgical, and midwifery clinics, have personally attended two labour cases in the presence of his teacher, have had half a year's practice in an ophthalmological clinic, and have been instructed in vaccination, and acquired dexterity in its practice. The Examination comprises the following subjects: Anatomy, Physiology, Pathological Anatomy and General Pathology, Ophthalmology and Surgery, Medicine, Midwifery and Gynaecology, Hygiene. It is very similar to most qualifying examinations in this country, but the clinical part is a better test for general practice than is the case in most of our examinations. In both the medical and the surgical parts the candidate has, on two succeeding days, to examine a patient in the presence of the examiner, to give the etiology, diagnosis and prognosis of the disease, and to arrange a plan of treatment, immediately after which he draws up a report of the result, which is countersigned by the examiner; then, on the same day, he prepares a critical report at home, which is presented to the examiner next morning, with the date and the candidate's signature affixed. During the next seven days he has to visit both the patients assigned to him at least once, or if required by the examiner, twice daily. He must also write an account of the progress and treatment of the disease, and in case the patient dies within the seven days, he must give a written opinion of the cause of death. A similar clinical examination is held in ophthalmology and in midwifery, and the candidate's knowledge of children's diseases and of mental diseases also tested. The Government reserves to itself the right to exempt from this examination men of medical distinction under certain conditions, but the latter have no application to foreign medical men. Very occasionally also certificates of study at other than German universities and medical schools are accepted in lieu of some of those described herein.

Greece.—A State examination must be passed, but graduates of foreign schools may take their examination in French or German.

Holland.—Foreigners are required to pass the State examination, but registered English medical men are entitled to exemption from part of it.

Hungary.—An English diploma does not entitle one to practise in Hungary without certain formalities of confirmation, owing to the fact that there is no International Convention between England and that country.

Italy.—A foreigner must (*a*) obtain an authorization (*abilitazione*) from one of the Royal Universities of Italy; or (*b*) if he desires to practise only among foreigners he is at liberty to do so. In Italy medical studies are conducted in Government Universities under the immediate supervision of the Ministry of Public Instruction in Rome. There are several universities, one in each of the most important centres of the Kingdom, such as Rome, Turin, Naples, Genoa, Palermo, Pavia, Pisa. There is only one medical degree in Italy, and it is that of Doctor in Medicine and Surgery. The title is conferred by the Rector of each University in the name of the King. The examination can be passed at any of the universities, and the students can transfer themselves from one to the other. An original thesis must be presented.

Monaco.—The following British qualifications are, for the purposes of medical practice in the Principality of Monaco, considered equivalent to the French Diploma of Medicine; the degree of Doctor of Medicine of the University of "the United Kingdom of Great Britain," and the diplomas of Fellows of the Royal Colleges of Surgeons and Physicians of London, Edinburgh, Dublin, and of the Faculty of Physicians and Surgeons of Glasgow. Every application for leave to practise must be accompanied by the diplomas of the applicant or by copies of those documents certified as correct either by a Consul of the Principality or by the Mayor of Monaco. The applicants must enter into an undertaking to live in the Principality and to practise their profession during the whole or part of the months of May, June, July, August, September, and October, agreeably to Article 1 of the Ordinance of May 29th, 1894.

Portugal.—The State examination must be passed.

Norway.—The State examination must be passed. The Government may, however, grant permission in individual cases to persons who produce satisfactory evidence that they possess the requisite knowledge.

Roumania.—The State examination must be passed (viva voce).

Russia.—Foreign medical men must pass a comprehensive examination at the Medical Academy of St. Petersburg or one of the universities of Russia, and must know Russian. Those who have not a B.A. degree must pass an examination in general education, and in Greek and Latin.

Servia.—No permission to practise can be obtained by any one other than a Servian subject irrespective of examinations.

South America.—All the foreign States in the South American continent require any one who seeks permission to practise to pass an examination, irrespective of any degrees which he may hold; the examinations are conducted as a rule in Spanish.

Spain.—The Spanish law of September 9th, 1857, gave to the Government, acting on the advice of the Council of Public Instruction, power to recognize medical studies pursued abroad, and to grant to persons holding a regular diploma obtained in another country the temporary right of practising medicine in Spain. On the downfall of Queen Isabella a more liberal spirit prevailed, and on February 6th,

1869, Señor Zorilla issued a decree declaring that foreign degrees should be held as equivalent to Spanish, and granting foreign doctors the right to practise in Spain on production of their diplomas and payment of 500 pesetas (£20). This Ministerial order has recently been rescinded. A Royal decree, dated November 7th, 1902, revives the law of 1857, but suspends its application till a new ordinance has been promulgated. The present position is that foreign medical men must qualify in the same way as Spaniards, the time necessary to do so being accorded to those already established in practice.

Sweden.—The State examination must be passed. Some reduction in curriculum may be granted.

Switzerland.—A qualified English practitioner desiring to practise in Switzerland, even if he practise only among his own countrymen, is required to pass the Federal examination in that country. The degree of Doctor of Medicine does not give the right to practise. The Federal examination may be passed at Basle, Zürich, or Berlin in German, and at Geneva or Lausanne in French. The applicant is advised to obtain from one of his teachers in this country an introduction to a professor at the university at which he proposes to pass the examination. His proper course would be to call upon the Rector of the University. We are informed that every information would be afforded, and that no difficulties are placed in the way of candidates. At the University of Zürich, the three examinations which it is necessary to pass are held as a rule at the following periods of the year: *First Examination:* End of January and mid-September. *Second Examination:* End of January and mid-September. *Third Examination:* Beginning of January, end of May, and beginning of October. At Basle the next examinations are in October. At Geneva the examinations are held in the third week of October and in the second week of July, at the opening and conclusion respectively of the winter and summer session. At Lausanne the examinations take place as follows: *First and Second Examinations:* April and October. *Final Examinations:* February and March, and June and July.

The United States.—Each of the States has its own laws and regulations; some of them will admit any man to the Register who holds a diploma or degree wherever obtained; the majority require the candidate for registration to submit to an examination. An attempt to bring about reciprocity between the States is now proceeding. Changes are frequent, and any one proposing to practise in America should address special inquiries to the Medical Board of the State in which he desires to settle for information as to the regulations in force.

Turkey.—An examination in the chief branches of medicine and surgery must be passed at Constantinople (fee, £4 10s.) Before being admitted to the examination the candidate must present a diploma from a medical school recognized by the Government of the country in which it is situated.

BRITISH COLONIES AND DEPENDENCIES.

AUSTRALASIA.

South Australia, New South Wales, Queensland, Western Australia.—Medical men holding British medical degrees or diplomas entitling them to registration in the United Kingdom under the Medical Act of 1858 can obtain admission to the Register in these Colonies upon furnishing proof of identity with the right holders of the qualifications produced, and upon payment of any fees that may be for the time being in force.

New Zealand, Tasmania.—A Register is maintained by the Colonial Medical Council, and admission thereto can be obtained upon equivalent terms to those indicated in the foregoing paragraph.

AFRICA.

Cape Colony, Natal.—Application for permission to practise must be addressed to the Colonial Secretary of either Colony, who will grant it upon the recommendation of the Colonial Medical Council concerned. The recommendation is always made in the case of medical men who produce proof that they are the rightful owners of degrees or diplomas entitling them to registration in Great Britain and Ireland under the Medical Act of 1853. The fee for registration in Cape Colony is £5 and in Natal £1.

Transvaal, Orange River Colony.—The regulations are of a corresponding character to those indicated above.

Rhodesia.—A licence to practise costs £5, and is accorded to the legal holders of degrees and diplomas entitling them to admission to the *Register* in Great Britain or Ireland upon application to the Administrator of Rhodesia.

NORTH AMERICA.

Nova Scotia.—This colony admits to its Register any person in lawful possession of a certificate of registration by the General Medical Council of Great Britain.

Prince Edward's Island.—All persons duly registered by the General Medical Council of Great Britain and Ireland can obtain registration in this colony.

British Columbia.—The College of Physicians and Surgeons of British Columbia, which is the licensing body of this province, admits to its Register all persons who are registered to practise in Great Britain under the Imperial Medical Act, and who have not lost the benefit of such registration by any misconduct or otherwise.

Ontario.—Practitioners who have been on the *Register* of the General Medical Council for five years may be registered in this colony on payment of the fees and on passing the Intermediate and Final Examinations. Those who have not been five years in practice must pass all the examinations.

Quebec.—The College of Physicians and Surgeons at Quebec is the licensing authority for this province; is prepared to admit to its Register persons who are already registered in Great Britain, provided that the possession of a diploma granted in the province of Quebec privileges its holder to registration in the United Kingdom. At present this is not the case; so, before admission to the Register in this colony, a British registered practitioner must pass sundry professional examinations, and in addition may be subjected to an examination in the subjects of General Education.

CROWN COLONIES.

In the Crown Colonies, including Ceylon, the Straits Settlements, Mauritius, British Guiana, and the West Indian Islands, and many other of the smaller British possessions scattered throughout the world, no difficulty is raised to the practice of medicine and admission to the *Register*, if one is kept, in the case of any medical man who is in a position to prove his qualification to registration under the Medical Act of 1858.

DENTAL SURGERY.

REGULATIONS OF THE GENERAL MEDICAL COUNCIL.

Candidates for a diploma in Dental Surgery are required to produce certificates of having been engaged during four years in professional studies, and of having received three years' instruction in Mechanical Dentistry from a registered practitioner, or at some dental hospital where instruction is given in this subject. One year's bona-fide apprenticeship with a registered dental practitioner, or one year's instruction at a dental hospital, after being registered as a dental student, may be counted one of the four years of professional study. The three years of instruction in Mechanical Dentistry, or any part of them, may be taken by the medical student, either before or after his registration as a student; but no year of such mechanical instruction will be counted as one of the four years of professional study unless taken after registration. Dental students are subject to the same regulations as regards preliminary examination and registration as medical students, but professional study may commence by pupilage with a registered dental practitioner.

It is now open to them to obtain either diplomas or degrees, and an account of the various bodies which grant either one or the other, and their special requirements, follow. Candidates can obtain the necessary instruction in special dental subjects (the general subjects being attended at some general hospital), at the Dental Hospital of London (apply to the Dean at the Hospital, Leicester Square, W.C.); or at the National Dental Hospital and College, London (apply to the Dean, the National Dental Hospital, Great Portland Street, London, W.); at the Dental School of Guy's Hospital (apply to the Dean at the Medical School, Guy's Hospital, S.E.); at the University of Birmingham (apply to the Dean of the Medical Faculty, University of Birmingham); at Owens College, Manchester (apply to the Registrar, Owens College, Manchester); at the Liverpool Dental Hospital and School of Dental Surgery (apply to the Dean of the Medical Faculty, University of Liverpool); and at the Devon and Exeter Dental Hospital (apply to the Honorary Secretary of the Hospital). The Scottish Schools of Dentistry are the Incorporated Edinburgh Dental Hospital and School (apply to the Dean, 31, Chambers Street, Edinburgh); the Glasgow Royal Infirmary, Dental Department (apply to the Dean of the Faculty of Medicine, Mr R. T. Kent, St. Mungo's College, Glasgow); and Anderson's College Medical School, Glasgow (apply to the Secretary, Mr. D. M. Alexander, 97, West Regent Street, Glasgow). The Irish Schools of Dentistry are the Dental Hospital of Dublin (apply to the Dean) and Trinity College, Dublin (apply to the Registrar).

Royal College of Surgeons of England.

Candidates who register as Dental Students after January 1st, 1897, are required to pass three examinations—the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination—and to produce the following certificates before admission to the several examinations:

PRELIMINARY SCIENCE EXAMINATION.

1. Of having received instruction at an institution recognized for the purpose in Chemistry, Physics, and Practical Chemistry.

This instruction may be taken prior to the date of registration as a dental student.

2. Of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent practitioner, or under the direction of the superintendent of the mechanical department of a recognized dental hospital, where the arrangements for teaching Mechanical Dentistry are satisfactory to the Board of Examiners in Dental Surgery. In the case of qualified surgeons evidence of a period of not less than two instead of three years of such instruction will be sufficient.

This instruction may be taken prior to the date of registration as a dental student.

3. Of registration as a dental student by the General Medical Council, 299, Oxford Street, London, W.

4. Of having attended at a recognized dental hospital and school—

(*a*) A course of lectures on Dental Metallurgy.
(*b*) A course of Practical Dental Metallurgy.
(*c*) A course of lectures on Dental Mechanics.
(*d*) A course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns.

SECOND PROFESSIONAL EXAMINATION.

5. Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a dental student.

6. Of having attended at a recognized dental hospital and school—

(*a*) A course of Dental Anatomy and Physiology.
(*b*) A separate course of Dental Histology, including the preparation of Microscopical Sections.
(*c*) A course of Dental Surgery.
(*d*) A separate course of Practical Dental Surgery.
(*e*) A course of not less than five lectures on the Surgery of the Mouth.[1]
(*f*) A course of Dental Bacteriology.
(*g*) A course of Dental Materia Medica.

7. Of having attended at a recognized dental hospital, or in the dental department of a recognized general hospital, the practice of Dental Surgery during two years.

8. Of having attended at a recognized medical school—

(*a*) A course of lectures on Anatomy.
(*b*) A course of lectures on Physiology.
(*c*) A separate Practical Course of Physiology.
(*d*) A course of lectures on Surgery.
(*e*) A course of lectures on Medicine.

9. Of having performed dissections at a recognized medical school during not less than twelve months.

10. Of having attended, at a recognized hospital or hospitals, the Practice of Surgery and Clinical Lectures on Surgery during two winter sessions.

11. Of being 21 years of age.

Note.—Professional study prior to the date of registration as a dental student is not recognized except in the case of Chemistry, Physics, and Practical Chemistry, and of instruction in the details of Mechanical Dentistry (see Clauses 1 and 2), and will not be counted under any circumstances in lieu of part of the four years' study subsequent to the date of registration as a dental student, required by Clause 5.

Examinations.

The Preliminary Science Examination consists of Chemistry, Physics, and Practical Chemistry, and will be identical with Part I of the First Examination of the Examining Board in England. Candidates may present themselves for this examination before entering at a dental school on production of certificates of having received instruction in chemistry, physics, and practical chemistry. A candidate who produces satisfactory evidence of having passed an examination for a degree in Medicine, conducted at a University in the United Kingdom, in India, or in a British Colony, on the subjects of the Preliminary Science Examination, will be exempt from that examination.

The First Professional Examination consists of Mechanical Dentistry and Dental Metallurgy. Candidates who have passed the Preliminary Science Examination may present themselves for the First Professional Examination for the Licence after the completion of six months' attendance at a recognized dental hospital and school, on production of the certificates already specified.

[1] These lectures may be given either at a recognized dental hospital and school, in which case the lecturer must be a qualified surgeon practising surgery; or they may be given at a recognized medical school, and may form part of the course required by Clause 8 (*d*).

At the Examination in Mechanical Dentistry candidates will be required to provide themselves with the following instruments, namely: Wax spatula, double-ended; sculptors; gouge and handle; vulcanite files; gold files; pliers, pin roughing and bending and snipe-nose; cutting nippers; braces and handles; fret saw; one Melotte's moulding outfit; one Bunsen burner (laboratory); fine saws; chasers; special 12-in. blowpipe for mouth; solder tweezers; crown holder; shears, curved; collar pliers, N.P.; pin nippers, plain; riveting hammer; dividers 4½ in.

The following instruments will be supplied by the hospital at which the candidates are to be examined—namely, hammers for striking up plates, horn mallets, ordinary casting materials and apparatus.

A Synopsis of the Examination in Dental Metallurgy, which will be conducted by written paper, will be found on page 14 of the Regulations.

The *Second Professional Examination* consists of:

Part I.—General Anatomy and Physiology, General Pathology and Surgery.

Part II.—Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery.

The Examination is partly written, partly practical, and partly oral.

The Written Examination in Part I comprises General Anatomy and Physiology, General Pathology, and Surgery; and in Part II Dental Anatomy, Physiology, Dental Pathology and Surgery.

The Oral Examination in each Part comprises the several subjects above mentioned, and is conducted by the use of preparations, casts, drawings, etc.

At the Practical Examination in Part II candidates may be examined:

(*a*) On the treatment of Dental Caries, and may be required to prepare and fill cavities with Gold or Plastic filling or material, or to do any other operation in Dental Surgery.
(*b*) On the Mechanical and Surgical Treatment of the various irregularities of Children's Teeth.

Candidates who have passed the First Professional Examination at least six months previously may present themselves for the two parts separately, or they may take the whole examination at one time. Before presenting themselves for Part I they must produce the certificates required under Section I, Clauses 8, 9, 10, and 11, and before taking Part II the certificates required under Section 1, Clauses 5, 6, and 7.

Candidates who have passed the Second Examination of the Examining Board in England, or who shall produce evidence of having passed the Examination in Anatomy and Physiology required for a Degree or other qualification in Medicine or Surgery registrable under the Medical Act of 1886 will be exempt from re-examination in those subjects in Part I.

Candidates who are Members of the College, or who have passed the examination in Surgery of the Examining Board in England, or who produce evidence of having passed the Examination in Surgery for a Degree or other qualification in Medicine or Surgery, registrable under the Medical Act of 1886, will be exempt from examination in Surgery and Pathology in Part I.

The holders of all degrees or Licences in Dental Surgery recognized by the College will be admitted to the First and Second Professional Examinations together, without passing the Preliminary Science Examination, provided they produce evidence (*a*) of having passed a satisfactory Preliminary Examination in general education, (*b*) of having completed the curriculum of professional study required by Section I of these Regulations, (*c*) of having passed the required Professional Examinations for their Degree or Licence in Dental Surgery.

The following are the Degrees and Licence at present recognized:

D.D.S. University of Harvard.
D.D.S. University of Pennsylvania.
D.D.S. University of Michigan.
Licence of the Dental Board of Victoria.

The Preliminary Science Examination will be held in January, March, or April, July, and October in each year.

The First and Second Professional Examinations will be held in May and November in each year.

Fees.—The fee for the diploma of the Licence in Dental Surgery is 20 guineas, and is payable in the following manner—namely:

		£	s.	d
Preliminary Science Examination.	Each admission ...	3	3	0
First Professional	,, ,, ...	2	2	0
Second ,,	(Part I ...	2	2	0
	(Part II...	3	3	0
Amount payable before grant of diploma	... ...	10	10	0
		£21	0	0

N.B.—All applications with reference to the Examination for the Diploma in Dental Surgery should be addressed to Mr. F. G. Hallett, Secretary of the Examining Board in England, Examination Hall, Victoria Embankment, London, W.C.[1]

ROYAL COLLEGE OF SURGEONS IN IRELAND.

Candidates for the Licence in Dental Surgery are required to pass three examinations—namely, *Preliminary* (in General Education) *Primary Dental*, and *Final Dental*.

Primary Dental Examination.—Every candidate is required, before admission to the Primary Dental Examination, to produce evidence (1) of having passed a recognized Preliminary Examination, and of having been registered as a medical or dental student by the General Medical Council; (2) of having, subsequently to registration as a dental or medical student, attended at a recognized medical school (*a*) one course (six months) lectures on Practical Anatomy, including Dental Anatomy; (*b*) two courses (six months each) Demonstrations and Dissections; the certificate must include a statement that the candidate has dissected the head and neck at least three times; (*c*) one course (six months) lectures on Chemistry; (*d*) one course (six months) lectures on Physiology, including Dental Physiology; (*e*) one course (three months) lectures on Materia Medica; (*f*) one course (six months) lectures on Surgery; (*g*) one course (six months) lectures on Medicine; (*h*) one course (three months) Practical Chemistry, including Metallurgy; (*i*) one course (three months) Practical Physiology and Histology, including Dental Physiology and Histology, human and comparative; (3) of having attended Clinical Instruction at a recognized general hospital for one year. Primary Dental Examination, £10 10s.; Re-examination, if rejected, £5 5s. Fees are not returned to candidates who may fail to present themselves without having given two days' previous notice to the Registrar, or who may have been rejected. All fees are to be lodged to the credit of the Royal College of Surgeons at the Bank of Ireland. A rejected candidate will not be again admitted to examination until after a period of three months.

Exemptions.—Candidates who produce evidence of having passed the Second Professional Examination of the Conjoint Scheme, Royal Colleges of Physicians and Surgeons in Ireland, shall be permitted to present themselves for the Primary Dental Examination on the production of Certificates of having attended Clinical Instruction at a recognized general hospital for one year. One course (six months) of Lectures on Surgery, one course (six months) of Lectures on Medicine, and one course (three months) of Lectures on Materia Medica, and shall be exempt from all the subjects of the Primary Dental Examination, except surgery. The fee for these candidates is two guineas.

Subjects of Examination.—Candidates who have passed in Chemistry and Physics at a First Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or an equivalent Examination, recognized by the College, are exempted from examination in these subjects, at the Primary Dental Examination. Candidates will not obtain credit for passing any part of the examination unless they pass at the same time in at least two of the following subjects, save in case they need a lesser number to complete their examination. 1. Physics: Heat, Electricity, and Light (as in Ganot's *Natural Philosophy*). 2. Chemistry, including Metallurgy; Elementary Chemistry (inorganic), including Metallurgy, as found in Roscoe's *Lessons in Elementary Chemistry*, with a practical Examination in the Laboratory. 3. Anatomy: The Bones, the names and positions of the principal Muscles, Blood Vessels, and Nerves; the elementary anatomy of the Viscera, of the Thorax and Abdomen, and of the Brain and Cranial Nerves; the anatomy of the Mouth and Jaws, and parts in relation thereto. 4. Physiology and Histology: An elementary knowledge of the functions of Digestion, Circulation, Respiration, and the Nervous System; and an elementary knowledge of Histological Structures, the Physiology and Histology of the Mouth and the organs related thereto. 5. Surgery: Inflammation, its varieties and consequences; Fracture, Dislocations, and Injuries of the Mouth, Face, Jaw, and Parts in relation thereto, their immediate and remote effects; Surgical Diseases of Blood Vessels, Diseases of the Mouth, Bones, and Joints thereof, Wound Infection, Pyaemia, Septicaemia, Use of Anaesthetics, Accidents therefrom, and their treatment.

Final Dental Examination.—Candidates must produce evidence of having passed the Primary Dental Examination of this College, or the Third Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination recognized by the College. Candidates are required to produce certificates of having attended subsequent to registration as a dental or medical student: 1. The following courses of lectures recognized by the College: Dental Surgery and Pathology (two courses), Dental Mechanics (two courses). 2. For two years the practice of a dental hospital recognized by the College, or of the dental department of a general hospital so recognized. 3. Of having been engaged during four years in Professional Studies. 4. Of having received three years' instruction in Mechanical Dentistry from a registered dentist.[1] Candidates holding a diploma in Surgery will be admissible to the Final Dental Examination on producing certificates of having attended: 1. One course of lectures on Dental Surgery and Pathology. 2. One course of lectures on Dental Mechanics. 3. For one year the practice of a dental hospital recognized by the College, or the dental department of a general hospital so recognized, where such attendance has been subsequent to the date of diploma. This remission (3) has been made on the understanding that the surgeon devotes his whole time to dental work. 4. Of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a registered dentist. Candidates are examined in: Dental Surgery—Theoretical (including Dental Pathology), Clinical, and Operative. Dental Mechanics—Theoretical, Clinical, and Practical (including the Metallurgy of the workshop). Candidates must pass in all the subjects at the same time. Final Dental Examination.—Candidates holding the L.R.C.S.I., or students who have passed Primary Dental or Third Professional Examination of the College, £10 10s.; re-examination, £5 5s. Fees for Final Examination of all other candidates, £26 5s. Re-examination, £10 10s. Extra Fee for Special Examination, £5 5s. Fees are not returned to candidates who may fail to present themselves without having given two days' previous notice to the Registrar, or who may have been rejected. All fees are to be lodged to the credit of the Royal College of Surgeons at the Bank of Ireland. A rejected candidate will not be again admitted to examination until after a period of three months. The Council has power to admit to examination, *sine curriculo*, candidates whose names are on the *Dentists' Register*, published under the direction of the General Medical Council, and who are unable to furnish the certificates required by the foregoing regulations, on presentation of the schedule of application as hereinafter set forth, accompanied by any certificate they may have of general or professional education, and by the required fee. The application of the candidate for examination shall be made on a form, obtainable at the College, setting forth a certificate, signed by two Fellows, Members, or Licentiates of a College of Surgeons, and by two Licentiates in Dental Surgery in the Royal College of Surgeons in Ireland [or two members of the British Dental Association, or of the Odontological Society], to the effect that applicant is of

[1] A Book of Questions set at the Examination for the Licence in Dental Surgery for the years from 1892 to 1900 may be obtained on application to Messrs. Taylor and Francis, publishers, Red Lion Court, Fleet Street, London, E.C. Price 6d. each, post free 6½d.

[1] The three years' instruction in Mechanical Dentistry, or any part of them, may be taken by the dental student, either before or after his registration as a student; but no year of such instruction in Mechanical Dentistry shall be counted as one of the four years of professional study unless taken after registration. One year's bonâ-fide instruction from a registered dentist after being registered as a dental student may be counted as one of the four years of professional study.

good moral character, has been for five years engaged in the practice of Dentistry, is a registered dentist, and has not, during the past two years, attracted business as a dentist by advertising or other unbecoming practices. The examination and fees are the same as for the Final Dental Examination of other candidates.

UNIVERSITY OF BIRMINGHAM.

Degrees in Dentistry—namely, Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.) and a diploma in Dental Surgery (L.D.S.)—are granted by the University of Birmingham. All candidates for the degrees must pass the same Matriculation Examination as that required from candidates for medical degrees. The Degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained the Licence in Dental Surgery of the University or from some body legally entitled to confer such qualification. The candidate is not eligible for the degree until a period of twelve months has elapsed from the passing of his examination for the Licence in Dental Surgery. Of this period at least six months must be spent in the dental department of a general hospital approved by the University. *A.* In addition to the Licence in Dental Surgery, the candidate must produce evidence that he has attended the courses required by medical students of the University in the following subjects, and passed the examinations held in the same for medical and surgical degrees: (*a*) Chemistry and Practical Chemistry, (*b*) Physics and Practical Physics, (*c*) Elementary Biology, (*d*) Anatomy and Practical Anatomy, (*e*) Physiology and Practical Physiology. *B.* That he has attended the following courses: (*f*) One Special Course of Lectures on Medicine, (*g*) One Special Course of Lectures on Surgery, (*h*) Pathology and Bacteriology; and has passed the examinations for candidates for Dental degrees held in each of these subjects. *C.* That he has attended courses in: (*k*) Dental Histology and Patho-Histology; (*l*) Comparative Dental Anatomy; (*m*) Dental Surgery and Prosthetic Dentistry. *D.* That he has received instruction in the Clinical Examination of living cases at the dental department of a general hospital for a period of not less than six months. The final examination will deal with the subjects in Classes *C* and *D*. On the expiration of twelve months from the date of passing the examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery. For this degree candidates will be required to submit a thesis containing original work and investigations in some subject connected with Dentistry, which thesis shall be submitted to examiners to be nominated by the Advisory Board. The degree will be awarded or withheld according to the report of these examiners.

Regulations.

Candidates for the Diploma of Licentiate in Dental Surgery are required to pass such a preliminary examination as may from time to time be required by the General Medical Council for registration as a dental student. There are four examinations, and before admission to the Final Examination they are required to furnish evidence (i) of having attained the age of 21 years, and (ii) of having been engaged in professional study for a period of at least four years subsequent to the date of registration as a dental student by the General Medical Council.

First Examination.—Candidates before presenting themselves for the First Examination are required to furnish (i) a certificate of registration as a dental student by the General Medical Council, and (ii) certificates of having satisfactorily attended courses in the prescribed subjects for the First Examination—namely, (*a*) Chemistry, Lectures and Laboratory work (six months); (*b*) Physics, Lectures and Laboratory work (six months).

NOTE.—Attendance upon these courses may be made at any Institution recognized for this purpose by the University.

Second Examination.—Candidates before presenting themselves for the Second Examination must have passed the First Examination, and are required to furnish certificates of having served for a period of not less than three years' pupilage in mechanical dentistry, either with a registered dentist or in the mechanical laboratory of a dental hospital recognized for this purpose by the University, and of having attended in the University the following courses for the Second Examination: (*a*) Dental Mechanics Lectures (three months); (*b*) Dental Metallurgy Lectures and Practical (six months); (*c*) Dental Materia Medica Lectures (three months).

Third Examination.—Candidates before presenting themselves for the Third Examination must have passed the Second Examination, and are required to present certificates of having attended in the University the following courses prescribed for the Third Examination, namely: (*a*) Anatomy, Lectures (six months); (*b*) Anatomy, Practical (twelve months); (*c*) Physiology, Lectures (six months); (*d*) Physiology, Practical Histology (three months); (*e*) Human and Comparative Dental Anatomy, Lectures (six months); (*f*) Dental Histology, Practical (three months).

Final Examination.—Candidates before presenting themselves for the Final Examination are required to have passed the Third Examination, and to furnish certificates of having attended in the University, or in a Hospital recognized for the purpose by the University, courses of instruction in the subjects prescribed for the Final Examination, namely: (*a*) Medicine Lectures for Dental Students (six months); (*b*) General Surgery Lectures for Dental Students (six months); (*c*) Dental Surgery, Lectures (six months); (*d*) Dental Pathology and Bacteriology, Lectures (three months); (*e*) Dental Pathology and Bacteriology, Practical (three months); (*f*) Clinical Dental Surgery (six months); (*g*) Clinical Medicine and Surgery (at a recognized General Hospital for twelve months); (*h*) the practice of a Dental Hospital or the Dental Department of a General Hospital recognized by the University for a period of two years.

An Entrance Scholarship, value £37 10s., is awarded annually at the commencement of the Winter Session.

The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board.

UNIVERSITY OF LEEDS.

The degrees of Bachelor of Dental Surgery (B.Ch.D.) and Master of Dental Surgery (M.Ch.D.) are granted by the University. Candidates for the degree of Bachelor of Dental Surgery must have passed the Matriculation Examination, and pursued thereafter approved courses of study for not less than five academic years, two of such years at least having been passed in the University subsequently to the date of passing Parts I and II of the first or hospital attendance, or both, as may be prescribed by the Regulations of the University. No candidate shall be admitted to the degree who has not attained the age of 21 years on the day of graduation. Three examinations, First, Second, and Final, must be passed. The First Examination, which is held twice a year, consists of three parts: Part I, Physics, Chemistry; Part II, Biology; Part III, Dental Mechanics, Dental Metallurgy. Candidates are allowed to pass in each part separately.

Candidates who passed the Intermediate Examination for the degree of Bachelor of Science, and have in that examination satisfied the Examiners in Chemistry, in Physics, or in Biology, are, on payment of the difference between the fees required for the two examinations, regarded as having satisfied the requirements of Parts I and II of the First Examination for the degree of Bachelor of Dental Surgery in those subjects in which they have passed.

The subjects of the Second examination, which is held twice a year, are: Anatomy, Physiology, Dental Anatomy and Physiology, Dental Materia Medica. The subjects of the Final examination, which is held twice a year, are: Dental Surgery, Dental Pathology and Bacteriology, Operative Dental Surgery, Medicine and Surgery. Candidates are required, before presenting themselves for the Final examination, to have passed the First examination not less than two years previously, to have passed the Second examination not less than six months previously, and to have attended courses of instruction in accordance with the Regulations of the University. The University also grants a Diploma in Dental Surgery (L.D.S.). Candidates for this are required to present certificates showing that they have attained the age of 21 years, that they have attended courses of instruction approved by the University extending over not less than four years, and that they have completed a pupilage of three years, two of such

years at least having been taken before the First Professional examination. They must satisfy the Examiners in the several subjects of the following examinations:

A Preliminary examination in Arts; a Preliminary examination in Science; the First Professional examination; and the Final examination.

The requirements of the Preliminary examination in Arts are fulfilled by passing an examination recognized for this purpose by the General Medical Council. The Preliminary examination in Science is held twice yearly, in April and in September or October. The subjects are Chemistry and Physics. The subjects of the First Professional Examination are Dental Metallurgy and Dental Mechanics. The Final examination consists of two parts:—Part I: Anatomy, Physiology, Dental Anatomy and Physiology, Dental Materia Medica. Part II: Surgery, Dental Surgery, Pathology and Bacteriology, Operative Dental Surgery (Practical). Candidates must pass in Part I before being examined in Part II, and may pass the two parts separately. The examination in Part II is held immediately after that in Part I, so that the two parts may be passed, if desired, in immediate succession.

Candidates, before presenting themselves for examination in Part I, are required to have passed the First Professional examination not less than one year previously, and to have attended courses of instruction recognized by the University, as follows: Anatomy lectures, two terms; Practical Anatomy, three terms; Physiology lectures, two terms; Practical Physiology, one term; Dental Anatomy and Physiology lectures, one term; Practical Dental Histology, one term; Surgery lectures, two terms; Special Surgery of the mouth, six lectures.

Candidates, before presenting themselves for examination in Part II, must have passed in Part I, and must produce evidence of having (1) completed four years from the beginning of their pupilage; (2) spent three years in pupilage; (3) completed two years' Medical and Surgical practice at hospitals recognized by the University; (4) completed two years' Dental Hospital practice; (5) attended courses of instruction recognized by the University, as follows: Medicine, one term; Dental Surgery and Pathology lectures, one term; Dental Bacteriology lectures, one term; Operative Dental Surgery lectures, one term; Six Special Anaesthetic demonstrations; Dental Materia Medica, one term. The certificates of Medical and Surgical practice must show that practical instruction has been received in Medicine and Surgery, and in the administration of Anaesthetics.

The fees for lectures, practical and clinical work have not yet been finally fixed, but they will be on a similar scale to those charged by other schools. A prospectus containing full information as to classes, examinations, and regulations, in connexion with Degrees and Diplomas, may be obtained on application to the Dean of the Faculty of Medicine, Dr. Albert S. Grünbaum.

Victoria University of Manchester.

Examinations in Dentistry.—The degrees of Bachelor of Dental Surgery (B.D.S.) and Master of Dental Surgery (M.D.S.) are granted. All candidates are required to have passed the Matriculation Examination as prescribed for the Faculty of Medicine, and to have pursued four courses of study and to have satisfied the Examiners in the four corresponding examinations entitled respectively: (*a*) The First Examination; (*b*) the Second Examination; (*c*) the Third Examination; (*d*) the Final Examination.

First Course and Examination.—Candidates, before presenting themselves for the First Examination, are required to furnish certificates of having attended during at least one year courses of instruction in each of the subjects of the course, in accordance with the University Regulations for attendance, and to have passed the Matriculation Examination or such other Examination as may have been recognized by the Joint Matriculation Board in that behalf. The subjects of the First Course and Examination are: (*a*) Chemistry, Inorganic and Organic; (*b*) Physics; (*c*) Zoology. Candidates may pass in (*a*), (*b*), and (*c*) separately.

Second Course and Examination.—Candidates, before presenting themselves for the Second Examination, are required to furnish certificates of having attended the Prosthetic Laboratory work of an approved Dental Hospital during not less than two years, and certificates of having attended courses of instruction in each of the subjects of the Course in accordance with the University Regulations for attendance. They are also required to have passed the First Examination. [Until October 1st, 1910, these two years may be taken in the laboratory of a registered dentist.] The subjects of the Second Course and Examination are: (*a*) Dental Mechanics; (*b*) Dental Metallurgy.

Third Course and Examination.—Candidates, before presenting themselves for the Third Examination, are required to furnish certificates of having attended courses of instruction in each of the subjects of the Course in accordance with the University Regulations for attendance and to have passed the Second Examination. The subjects of the Third Course and Examination are: (*a*) Anatomy; (*b*) Physiology and Histology; (*c*) Dental Anatomy (Human and Comparative), and Dental Histology.

Final Course and Examination.—Candidates, before presenting themselves for the Final Examination, are required to furnish certificates of having attended courses of instruction in each of the subjects of the Course in accordance with the University Regulations for attendance and to have passed the Third Examination. The subjects of the Course and Examination are: (*a*) Surgery and Pathology; (*b*) Dental Surgery and Pathology, and Dental Materia Medica; (*c*) Dental Prosthetics and Orthodontia; (*d*) Operative Dentistry.

Degree of Master of Dental Surgery.—The Degree of Master of Dental Surgery may be conferred, not less than one year after attaining the Degree of Bachelor of Dental Surgery, *either* (*a*) on presentation of a dissertation on some subject connected with Dentistry, *or* (*b*) on examination. The examination will be on one of certain Dental subjects or groups of Dental subjects to be determined subsequently by the Faculty.

Candidates who have obtained before October 1st, 1905, a dental qualification recognized by the General Medical Council, and who have pursued their studies for such qualification at Owens College or the University and at a recognized Dental Hospital, may be allowed to obtain the degree of Bachelor of Dental Surgery after passing the Third and Final Examination.

Diploma in Dentistry.—A Diploma of Licentiateship in Dental Surgery (L.D.S.Manc.) is also granted. All candidates for the Diploma are required to have passed such a preliminary examination as may be from time to time required by the General Medical Council for registration as a Dental Student. All candidates for the Diploma are required to have pursued four courses of study and to have satisfied the Examiners in the four corresponding examinations entitled respectively: The First Examination, the Second Examination, the Third Examination, and the Final Examination.

First Course and Examination.—Candidates, before presenting themselves for the First Examination, are required to furnish certificates of having attended at least one course in each of the subjects of the examination, in accordance with the University Regulations for attendance, and to have passed such preliminary examination as may have been recognized by the Ordinance of the University in that behalf. The subjects of the First Course and Examination are: (*a*) Chemistry, Organic and Inorganic; (*b*) Physics, including Mechanics.

Second Course and Examination.—Candidates, before presenting themselves for the Second Examination, are required to furnish certificates of having attended, subsequently to registration, the Prosthetic Laboratory work of an approved Dental Hospital for not less than two years, or of having served an apprenticeship to a registered dentist, and certificates of having attended courses of instruction in each of the subjects of examination in accordance with the University Regulations for attendance. They are also required to have passed the First Examination. The subjects of the Second Course and Examination are: (*a*) Dental Mechanics; (*b*) Dental Metallurgy.

Third Course and Examination.—Candidates, before presenting themselves for the Third Examination, are required to furnish certificates of having attended courses of instruction in each of the subjects of examination in accordance with the University Regulations for attendance, and to have passed the Second Examination. The subjects of the Third Course and Examination

are: (*a*) Anatomy; (*b*) Physiology; (*c*) Dental Anatomy and Dental Histology.

Final Course and Examination.—Candidates, on presenting themselves for the Final Examination, are required to furnish certificates of having attended courses of instruction in each of the subjects of the examination in accordance with the University Regulations for attendance, and to have passed the Third Examination. The subjects of the Final Course and Examination are: (*a*) Surgery; (*b*) Operative Denistry; (*c*) Dental Surgery and Dental Prosthetics.

UNIVERSITY OF DUBLIN.

The University of Dublin grants both a Degree and a Licence in Dental Surgery. To obtain the former, candidates must have taken a Degree in Arts; the Licence is awarded to duly qualified persons who have passed the Public Entrance Examination of Trinity College, Dublin.

The Licence.—Before passing the Entrance Examination in Trinity College or immediately after doing so students are advised to begin their three years' course of instruction in Dental Mechanics, and to devote all their time during one year to this subject. Dental Mechanics may be learnt in the Mechanical Department of the Dental Hospital, where a fee of £100 is charged, or from a registered dentist, in which case the fee charged is a matter of arrangement.

Having passed the Public Entrance Examination in Trinity College, students should register themselves as Dental Students at the Registrar's Office in the Medical School, and commence the following course of study, in addition to continuing their work in Dental Mechanics.

First Year.—

Winter Session—

Anatomy Lectures	£3 3 0
Chemistry Lectures	2 2 0
Physics Lectures	—
Dissections...	5 5 0

Summer Session—

Materia Medica	3 3 0
Practical Chemistry and Metallurgy.	3 3 0
	£16 16 0

Second Year.—During this year students should attend Clinical instruction at a recognized general hospital, and continue their attendances at the classes in the Medical School as follows:

Winter Session—

General Hospital	£12 12 0
Physiology Lectures	3 3 0
Surgery Lectures	2 2 0
Dissections	5 5 0

Summer Session—

Histology and Dental Microscopy ...	5 5 0
General Hospital	—
	£23 7 0

Students should pass the Previous Dental Examination as soon as possible after the completion of the above courses.

The subjects of the Previous Dental Examination are: (1) Anatomy, Physiology, and Histology; (2) Physics, Chemistry, and Metallurgy; and (3) Materia Medica. All these subjects may be passed at one and the same time, or each group may be passed separately.

Third Year.—Having passed the Previous Dental Examination, Students should join the Dental Hospital, and attend the Classes and Lectures given there. In this year they should also attend the Course of Lectures in Medicine at the School of Physic.

Dental Hospital	£15 15 0
Medicine Lectures...	3 3 0
Anatomy Lectures (in Trinity College) ...	2 2 0
	£21 0 0

Fourth Year.—Students should continue their attendance at the Dental Hospital, and prepare for the Final Dental Examination at the end of this year:

Dental Hospital .	£12 12 0 + *x*

N.B.—The probable value of (*x*) will be £2 2s.

Before being admitted to the Final Examination, Students are required to produce certificates of having received three years' instruction in Dental Mechanics, and of satisfactory attendance on the Lectures in the following subjects: (1) Dental Surgery and Pathology (two courses); (2) Dental Mechanics (two courses); (3) Orthodontia; and (4) Dental Anatomy. Certificates of regular attendance (12 months) at a hospital recognized for Clinical Instruction, and of satisfactory attendance during two years at the Dental Hospital, are also required. Students must have passed the Previous Dental Examination in all its parts, and have attained the age of 21 years.

The subjects of the Final Examination are:

Medicine.	Dental Surgery and Pathology.
Surgery.	Dental Mechanics.
Dental Anatomy.	Orthodontia.

The fee for the Final Dental Examination is £5.

The total fees in order to obtain the Licence are—

Dental Mechanics	£100 0 0
Entrance Fee—	
Trinity College	15 0 0
Lecture and Laboratory Courses, Trinity College	25 14 0
General Hospital (one year)	12 12 0
Dental Hospital (two years)	32 11 0
	£195 17 0
Examination fee	5 0 0
	£200 17 0

The Degree.—The course of study recommended in the case of candidates for the Degree in Dental Surgery is the same as that stated above for the Licence, with the addition of:

Pathology Lectures	£2 2 0
Pathology, Practical	2 2 0
Bacteriology	3 3 0
	£7 7 0

which should be taken out in the fourth or fifth year.

Before presenting themselves for the Final Examination for the Degree candidates must (1) have passed the examination for the B.A. degree; (2) have attended satisfactorily the courses indicated above; and (3) must have had their names on the books either of the Medical School or of the Dental School for a period of not less than five years. They must also have passed the previous Dental Examination in all its parts, and have attained the age of 21 years.

The subjects for the Degree Examination are: Medicine, Surgery, Pathology, Bacteriology; Dental Anatomy, Human and Comparative; Dental Microscopy, Dental Surgery and Pathology, Dental Mechanics, and Orthodontia.

The fee for the examination is £5.

The Board of Trinity College is willing to consider applications, on the part of qualified practitioners and others, for recognition of courses taken previous to the establishment of the Degree and Licence, in case they proceed to complete the course.

OWING to the demands on our space made by the large amount of matter relative to medical education, to which this issue of the BRITISH MEDICAL JOURNAL is devoted, we have been compelled to hold over numerous communications of various kinds. On this ground we ask contributors and correspondents to excuse the delay in publication that must necessarily occur.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under	£0 4 0
Each additional line	0 0 6
A whole column	2 13 4
A page...	8 0 0

An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication; and if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

President's Address

DELIVERED AT THE

SEVENTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION,

BY

RICHARD ANDREW REEVE,

B.A., M.D., LL.D.,

DEAN OF THE MEDICAL FACULTY OF THE UNIVERSITY OF TORONTO; PRESIDENT OF THE ASSOCIATION.

I THANK you first of all for the honour of the office which I have been called upon to fill. The thought of such a thing never came to me in dreams by day or visions of the night, and, if it had taken shape, it would have flitted from the mind as one scanned through the vista of years the long roll of men of high repute who had sat in this chair. One could not but feel that the success of the Montreal meeting was warrant for this venture. I must avow at the outset that any credit for such success as may attend the second visit of the British Medical Association to Canada—and the prospects are bright—must rest largely upon those who have freely given most valuable help in various ways. One need hardly add that it has been indeed a labour of love to bring from their posts of duty and busy round in the old homeland the select and elect of our profession. We greet and welcome you, not only for your own sakes as men whose names are already household words, or doubtless soon will be, but as worthy sons of worthy sires. For if Bacon, Shakespeare, Newton, Faraday, Kelvin, Clerk, Maxwell, J. J. Thomson, and other lights of literature, science, and philosophy in the British firmament were blotted out, there would only be a partial eclipse, for would not Hunter, Harvey, Sydenham, Jenner, Simpson, and Lister present a resplendent galaxy?

Our gathering to-day is in a sense—limited it may be—a cosmopolitan one. International comity has always prevailed in our profession. Disease knows no distinction of country or race, and is the common lot of humanity. In the face of a ubiquitous foe it is natural that mankind should be as a unit in defence, and that the confraternity of the healing art should be undivided. The recognition of English talent and experience on the part of the late Emperor of Germany, and by the British Sovereign in the case of that master of the science and art of bacteriology, Koch, and the action of the United States in calling to its counsels British experts in tropical medicine upon the threatened invasion of yellow fever—these are graceful and forcible proofs in point. And we are glad, in obedience to the unwritten code and by means of this gathering, to cement the tie that already binds the great Anglo-Saxon people and those of the land of professional culture and erudition, France and Germany. Our *confrères* from the United States delight to honour the names of Physick and Rush, Wood and Warren, Biglow and Bowditch, Alonzo Clark, Flint, Weir Mitchell, and others; and yet I am sure they are not one whit behind the Briton of Britons here to-day in their respect for the great men of the British school, from Harvey to Lister, who have laid the world under tribute. We in turn delight to honour Laënnec, Bichat, Corvisart, Trousseau, Charcot, Pasteur, Langenbeck, Virchow, Billroth, and Koch.

The Association, which has just met on this occasion for the second time in its history outside of Great Britain and Ireland, was founded in 1832 in Worcester, and had a membership of 140. It was reorganized in 1856, and took its present name. It has now a membership of 20,000, grouped in many Divisions and Branches in the old country and in various parts of Greater Britain. We have with us an honoured member from Egypt and one from New Zealand.

The JOURNAL, which is published under the aegis of the Association, takes rank as a leading exponent of the thought and researches of the profession and the practice of the healing art. It forms a strong bond of union amongst its members, who rightly value it as a depository of knowledge and a most useful medium for the exchange of opinion and the discussion of live topics that concern the profession and the public. The Editor may well felicitate himself upon the weight of its influence in moulding public opinion, and in safeguarding the interests of the profession. Those who recall the crusades of the antivaccinationists and antivivisectionists will agree that the JOURNAL is at once a faithful sentinel and a doughty champion.

It would be interesting, did time permit, to trace the growth of this great organization from its early days to its present commanding position. But I must at least call attention to an incident of the first meeting, which explains much of the valuable work done in these years. Steps were taken to secure special studies on anatomy and the chemistry of the animal fluids. The researches on these subjects reported the next year were the first of a long series made under the auspices of the Association, which so far has given of its funds about $70,000 to meet in part the expense involved. This feature of the Association's work forms a bright chapter in her history, and is in marked contrast to the apathy and lack of support of the Government, whose attitude in this regard has often to so many seemed unintelligible. Nothing seems more certain than that money spent in such a cause yields a thousandfold return or more.

THOUGHTS ON A DECADE IN MEDICINE.

The last decade is more than ten years. We are the heirs of the ages, and though the dead past may and should be buried, the living past with its germs of truth, its seed of thought is in these latter days bearing fruit quietly, it may be, but as surely as the dawn is wont to creep on into day.

The falling of the apple set in motion a train of thought in Newton's mind which led to gravitation, but it was as if just then his mental eye had been lit up by a ray which had sped for ages from the source of light. Many years were surely compressed into the decennium in which Lister and Pasteur, Koch, Metchnikoff and Behring, with genius and untiring energy in quest of truth, solved their mighty problems and gave the world such talismanic words as antisepsis, asepsis, immunity and serum-therapy.

The work of Pasteur, Lister, Koch, and others proved not only a vast boon to man and beast, but a grand object-lesson to mankind, and recent years have seen the result in princely gifts in the interests of science and humanity. Scientific medicine cannot fail to profit largely, for medicine as a science does not stand alone; it rests upon biology, physiology, chemistry, physics, psychology, etc.; and the various laboratories that now exist, or are to be in the near future, mark the dawn of even a brighter era, let us hope, than the brilliant epoch of the last ten or twenty years. There is yet much to be done ere the millennium comes. True, nursing has become a fine art; diphtheria has been largely robbed of its terrors, and, though rampant, is curable; the mortality of typhoid has been reduced one-half; but the fatality of cancer has steadily increased; the white plague stalks through the land, and the death-rate of infants, owing mostly to intestinal troubles, is still very high, and not on the decrease. Indeed, without being pessimistic, one might almost surmise with what surprise old Hippocrates would rise and rub his eyes as he inquired, "What! is there any sickness left, and can you not cure every one yet?" One thing this hoary sage would perhaps not know—the masses of mankind require to be protected against themselves. One almost feels as if the hands had gone back on the dial of the world's progress when one recalls that at Jenner's centenary the city where his method of vaccination had come into vogue was in the throes of an epidemic of small-pox due to the ignoring of his great discovery. Public opinion, of course, stands for what men think, or others think for them, and there is yet ample scope for State medicine to ply its persuasive powers until men think aright about matters which affect the well-being of the community, and the presumed welfare of the individual shall not stand against the weal of the masses. Unfortunately, none are so blind as those who will not see. This is too often the crux; and it would seem that in the matter of vaccination people deliberately close their eyes to the plain force of facts, and cherish the delusion, "better bear the ills we have than fly to others that we know not of.' Compulsory vaccination seems to many a harsh and doubtful expedient, but what it has done in Germany it

can do the world over; and the dictates of wise prudence and the lessons of ample experience show conclusively that it should be enforced. Here a true paternalism of the State with the active support of the profession should override so-called conscientious scruples. Done under the rules of asepsis, as it always should be, and with the use of pure vaccine, now always to be had, the risk is practically *nil*.

The work of the past decade has given the profession itself some new ideas in regard to the mechanical and the chemical processes of digestion. New laboratory methods by Cannon of Harvard and Pawlow of St. Petersburg have cleared up some moot points. That the stomach is a receptacle and a sort of churn is old news, but that the first part is a mere receptacle, and the other a kind of "mill," which is perforce the more common seat of mischief, requiring surgical treatment, may not be.

Time has but served to emphasize what has now been shown by research the value of thorough mastication and the avoidance of mental states which would divert nervous energy, and interfere with digestion by cutting off the "appetite" juices, as shown by Pawlow's studies.

A notable work embodying the basis of a change of faith and a new practice is that by Chittenden of Yale on *Physiological Economy in Nutrition*, giving the results of the most exact and elaborate studies. Too much food not only means loss of vitality in the disposal of it, but entails a positive risk from the resulting poisons (toxins) ere these products of metabolism are finally got rid of. Chittenden has shown that one-half or one-third of the nitrogenous (protein) food ordinarily taken suffices, and, of course, with the minimal tax upon liver, kidneys, and digestive tract. This economy is therefore a real and not a fictitious thing, at once wise and provident. Much of the joy of living depends upon a good digestion, and in these days of wear and tear and carking care the less of useless work to be done because of faulty diet the more of energy to spare for life's duties. Chittenden urges the importance of a fuller knowledge of dietary standards which, as he points out, are "altogether too high." It has been shown by Lauder Brunton, Minkowski, Vaughan, Novy, and others that various nitrogenous waste products, the result of proteid katabolism, as creatin, creatinin, xanthin, adenin, etc., in fact, the various leucomaines, ptomaines, etc., are toxic in their effects. And then as to uric acid, of which we hear so much, whatever its genesis—endogenous, exogenous, or synthetic—or its actual rôle in the economy, it is safe to say there will be the less formed and requiring excretion the less proteid or nitrogenous food is taken. And though we cannot deny that rheumatism, at least the acute, is due to the agency of a special microbe with its specific toxin, doubtless the congenial soil for its operation may be greatly reduced as just indicated. In this day there should be some boon for the legions of rheumatic subjects, which they are denied. Not so deadly as the white plague, rheumatism causes much more pain and misery in the world than tuberculosis. The question of nutrition concerns all mankind. The right food for infants and adolescents is of more moment than for adults, and the wise physician will not forget that the young are apt to err in ignorance or be sinned against, while older folk are wont to transgress, in spite of light. It will be well when the teachings of the laboratory and college halls have become common property. There will be then more plain living and high thinking and less repining on the part of the masses on account of their enforced moderation. Whether we will or no, people will try to meet their own need as to food and physic in what they think is the best way. It is the prerogative duty of the profession to show that Nature's laws, rightly interpreted and adopted, are the only safe guide to good living—not men's whims, fads, and fickle appetites or ingrained habits; and that much of the money that goes for patent foods, as well as the millions spent on patent medicines (so-called), are, as a rule, misspent. Thirty-five per cent. of all deaths are under 5 years. A large proportion of the infants and other very young folk who die would be saved if properly fed. Proper food and hygiene are the hope of future generations. There is a great field for missionary work by the profession.

The furnishing of clean pure milk to communities is one of the greatest boons to humanity of recent years. Pediatric societies in the United States have done good service in this regard through the agency of certificates, and the example is a good one. There are many infants' foods, and, let us hope, not a few of these good ones, but there are some which are not; so-called meat extracts, for example, have little nutritive value. And the need of care is shown by the warning of Sir Thomas Barlow given in 1894, that "condensed milk or even sterilized milk is not an efficient substitute for the natural food of the infant, and that infantile scurvy may be caused by their sole use." And animals have been found to rapidly die when fed on a mixture of all the supposed constituents of milk. There is an "unknown quantity" even here.

The past decade has been marked by an increase in the debt medicine owes to physiology and physiological chemistry, and by a sense of the growing importance of the latter, which, on account of its recognized status and value, is now made a subject of study in the course of medicine. The bio-chemistry of the cell and its nucleus goes on apace, and many of the proteids can now be prepared in a purely crystalline form, showing the great complexity of the living protoplasmic molecule. I may be pardoned for saying that it would be strange indeed if the rightful relation of physiology and physiological chemistry to medicine were ignored, when the head of the department had done pioneer work of high order in this line. As Professor Newell Martin, of honoured memory, long ago pointed out, "three great advances in medical thought were due to researches in physiology and biology, that (*a*) disease is the result of a change in the structure of some one or more material constituents of the body leading to normal action; (*b*) the establishing of the cell doctrine, that each one of us is made up of millions of little living units"—each cell with its own properties and processes in health and disease—the basis of the epoch-making "cellular pathology" of Virchow; and "(*c*) the germ theory as to the causation of an important group of diseases. To the last we owe already antiseptic surgery and the development of bacteriology and its practical bearing." He adds that "though inflammation is the commonest and one of the longest-studied pathological states, we really knew nothing about it before the experimental researches of Lister, Virchow, and Cohnheim, and that all we really know about fever is built on similar researches of Claude Bernard." The value of physiology to medicine is shown in another light by a remark of Ludwig: "It is remarkable that a great proportion of all the physiological work of Great Britain has been done by men who have become successful hospital physicians and surgeons." We have proof that this very proper sequence has been kept up, in the person of one who is with us to-day and who had gained well-earned repute by his researches in physiology ere he had won his spurs as one of the leading surgeons of the day, respected on both sides of the Atlantic, Sir Victor Horsley. Professor Osler, to whom the remark quoted was made, is an apt illustration on the other hand, of a physician of the highest repute who first made his mark as a physiologist. So much to point a moral. Twenty years ago the cry was raised that there was too much science and not enough of professional training in the medical course: I doubt if that voices the sentiment to-day. Is there not good ground for the belief that the time spent at science as taught now should prove of peculiar and lasting value, that it gives the medico an abiding zest because he has a training and a grasp which keep him in touch with the scientific side of medicine and put him on a higher plane through life.

So-called empiricism had its day and it is, in fact, not yet over, and no one can deny that with but little more than their five natural senses and the use of their wits, our forefathers in the profession gave the race in their time good service. And none to-day are more ready to pay their tribute than those whose researches and experiments, and whose good fortune it is to have many instruments of precision, give them right to speak with authority. *Pari passu* with the growth of more exact knowledge of the causes and nature of disease has come, perforce, from the studies which have led to it, more faith in the native powers of the human body and in the value of the aid which can be given by nursing, dieting, etc. Perhaps this is why one who is the peer of any in the science of medicine should stay his hand when he comes to the art thereof and tell us that "the advanced school

of the present values a few well-tried medicines and certain of quality and action as highly as ever; and, again, the modern treatment of disease relies very greatly on the old so-called "natural" methods, diet, and exercise, bathing and massage." It would seem, therefore, that practical medicine in so far as drugs are used has not quite kept pace with the knowledge of the causes and processes of disease. *Per contra*, serums are drugs, and one of them alone, the diphtheria antitoxin, has wrought a magic not seen since the days of the Great Healer himself. But to get the best results later studies have shown the importance of early resort to it, for it is only the free toxins that can be reached. It is now found also that much larger doses should be used; they are much more effective and are innocuous, and not age but severity should regulate the dose.

That pneumonia is always a septicaemia and its specific microbe always present in the blood, gives the clue to its prevalence and high mortality, greater indeed than of yore, doubtless owing to the large and increasing percentage of dwellers in cities and towns. A protective and curative serum or "vaccine," as in the case of diphtheria or typhoid, is the hoped-for remedy. The discovery of a specific microbe in cerebro-spinal meningitis, which now and again becomes epidemic and creates havoc, and of the mode of entrance of the infection by the nose and throat, and of the trial of repeated lumbar punctures and injections of diphtheria antitoxin, with uncertain results, are features of interest in this serious malady, which, by the way, is not at all as fatal as some suppose. The occurrence of two great wars recently has given added interest to the study of the causes and course of treatment of the various diseases, especially typhoid fever, which have prevailed amongst troops in former campaigns. In the Spanish war typhoid became epidemic in camps in both Northern and Southern States. "Infected water was not an important factor in the spread of typhoid fever in the national encampments of 1898," and, again, flies were unquestionably carriers of infection—a fact of primary importance owing to some features of camp-life.

Bacilluria has been cut short by urotropin.

A variety of fever, paratyphoid, has been separated from the small group of typhoid infections simply because of the presence of a specific bacillus (not the Eberth), for, clinically, the two are identical. Here we find another example of the rôle of bacteriology in fixing the identity of disease.

Of very great interest bacteriologically, and of far-reaching import therapeutically, is the discovery by Wright and Douglass of the substances in the blood fluids called opsonins, which prepare the microbes for ingestion and digestion by the leucocytes (phagocytes), and that the serum acts upon the microbes, that is, is bacteriotrophic, and not upon the leucocytes, bactericidal. By an ingenious comparative test Sir A. E. Wright gets what he terms the "opsonic index," and by the "vaccine," which is prepared from cultures of the typhoid bacilli sterilzed by heating for 10 or 15 minutes at 60° C., and which is injected internally, secures at least a modified immunity, which may persist for at least two years. This method has been tried on a large scale on British troops in India and South Africa, and after a careful study of the results has been commended by the Secretary of State for War. As Trudeau says, "Sir A. E. Wright has made a brilliant contribution to our knowledge of the mechanism of artificial immunization, and a striking attempt at the practical application of exact laboratory methods to the treatment of disease."

A most interesting if not fascinating chapter in the history of modern medicine is that of the rôle of protozoal parasites of the blood as the cause of specific fevers; and to the members of the Association now enlisted in the Schools of Tropical Medicine of Liverpool and London is the credit largely due for the very important and most valuable results already accruing.

Major Ronald Ross's discovery that malaria is conveyed by mosquitos, which act as an intermediate host, has not only led to successful measures to practically eradicate malaria with its attendant evils, but has given the clue to the cause of yellow fever and its treatment, etc. The first positive proof that the *Stegomyia* was the carrier of the infecting agent of yellow fever was given when Carroll, in July, 1900, offered himself for a test experiment with a self-sacrifice worthy of all praise. He had a very narrow escape, but Lazear of the American Commission, and Myers of Liverpool lost their lives. That the labors and sad deaths of these heroic men were not in vain is amply attested by the remarkable vigour and success with which the recent plague was stamped out, and the exemption secured by Havana and other pest centres.

Preventive medicine as the result of this decade's work alone gives sure promise of saving more lives and sparing more misery than could universal peace. Indeed, to give effect to its benign sway, is worthy the highest ambition of the greatest statesmen.

It is clear gain in any department of knowledge carefully to collect the facts or data and correctly group them. This requires a philosophic insight which dips far beneath the surface and searches out the origin and hidden relations of things.

Here one must congratulate Professor Adami upon the framework of his devising in which rests a system that "is an ingenious combination of the strictly embryological and histogenetic principles of classification." Each term employed implies not only the general histological characters of the tumour but also its origin from the germinal lays.

Adami sums up the state of our knowledge in regard to the all-important subject of inflammation:

1. In addition to the well-known rôle of leucocytes in ingestion and digestion of bacteria (Metchnikoff) there are substances which prepare the leucocytes for their work—for example, opsonins (Wright). Bacteria may also undergo destruction without phagocytosis. Here the bacteriolytic substance (cytase) acts upon the death and breaking up of cells that are potentially phagocytic. It, however, cannot act without the intervention of a second intermediary body (fixateur) present in the medium.

Certain leucocytes secrete and discharge substances which, if not directly bacteriolytic, are preparatory and essential for the destruction of the bacteria. In all organic enzyme action for the development of the complete cycle at least three factors are requisite. Enzyme action may arise in a series of different chemical compositions.

Since our meeting in 1897 bacteriologists have added to the list of microbic diseases, and it now stands: (*a*) Diseases due to animal parasites—namely, malaria, yellow fever, relapsing fever, trypanosomiasis, and "Texas" fever. (*b*) Those due to various bacteria—typhoid, tuberculosis, tetanus, plague, cholera, elephantiasis, leprosy, anthrax, and pus infection.

Surgery.

Cast-iron rules in medicine and surgery, save as to a few cardinal principles, are not in order, and therefore one of the questions of surgery, and it is often *the* question, namely, when to operate, still remains a moot point for the family physician and the surgeon. Some years ago at the Congress in Washington the physicians took the aggressive in regard to appendicitis, while the surgeons rather favoured caution. Now, one might say, the attitude is reversed. More than ever, possibly, is it held that the surgeon must be much more than a surgeon. Manual deftness, operative dexterity *per se*, should be no passport to fame. The processes of disease and the effects of injuries often need most careful study and a deep insight into the relation of things ere action be taken. Some years ago the elder Chiene of Edinburgh, as guest of the American surgeons, struck the keynote of modern surgery, in one of its aspects, when he told us that his clinical laboratory was the first essential in his armamentarium. Surgeons are now studying the blood and counting the white blood corpuscles to get the clue they require, and also test the fluid taken from around the spinal cord similarly (lumbar puncture).

Putnam of Boston holds that the surgery of the brain and spiral cord at least should be done preferably, if not only, by men who are well versed in physiology as it is now known.

Not to weary you with details, surgery in now invading, if possible, more vital spots, as—for example, the heart. Indeed, our respected friend, Sir Victor, gets down very close down to the medulla oblongata; but, then, he is a physiologist.

The *x* ray, owing to improved mechanism and increased experience in the use of it, reveals with fair certainty the early stage of aneurysm, tuberculosis of the lungs, and

atheroma of even small vessels. It also gives clearer light in regard to internal organs generally, as the very instructive and beautiful demonstrations of Dr. Cummings in the Museum gives proof. In treatment it is taking fresh ground as the handmaid to medicine and surgery, and as a substitute for the knife in certain cases.

Gentlemen, your visit finds us at an important if not critical stage in the "making" of a nation; and we need hardly assure you that the profession will do its full share in this regard, as the academic training and knowledge of men and things on its part well qualify it to do.

I am proud to be able to say to those who visit us that in no part of the world are the best traditions of medicine and surgery held in higher esteem than by the profession of Canada; and in no part is there less tendency to bow down to false gods. We are facing problems some of which you have solved. Our aim here is to raise the standard of the profession still higher. Unfortunately, the Roddick Bill embodying the principle of Dominion registration did not carry. The efforts of Dr. Roddick in this behalf have made his name a household word in the profession. Let us hope that ere long the Act will be in force, so that the credential thus obtained will be a passport to all the Provinces of this great Dominion.

As in the cross-section of some mighty tree Nature has writ indelibly in annular rings the history of its early growth, be it of two or three thousand years, so that one can read as on an open page the infallible record reaching back through cycles of years—in the same way we can trace the growth of a tiny seedling in the dim past to the great growing tree of medical knowledge of our own day, whose leaves are indeed for the healing of the nations. What matters it if it be not yet quite symmetrical, and show signs of vigorous growth at some past epoch and of a dormant state at others? If we can see scars which show that the hand of the faithful pruner at this stage or that in its growth did not spare the tree but showed a purpose in the pruning, sap and vitality thus seemingly lost only giving strength and better fruitage to the other portions—if we can see that from time to time, and much of late, branches of other sort grafted into the essence of its life, it is even now a thing of beauty which will not only live and grow but be a joy for ever.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

SECTION OF ANATOMY.

Arthur Robinson, M.D., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE TEACHING OF ANATOMY IN UNIVERSITIES AND MEDICAL SCHOOLS.

It is a rule of the British Medical Association that Presidents of Sections are not expected to deliver any formal address in opening their Sections, and it is decreed that any introductory remarks they may make shall be compressed into a period of fifteen minutes. These are wise rules, for in most Sections the time available at the Annual Meeting is not sufficient for the amount of work to be done, and it is essential, therefore, that every reader of a paper or opener of a discussion shall condense his remarks as much as possible, giving to the members present at the meeting only the essence of his subject, and leaving the details for publication in the Journal. In our Section this year we have a wealth of important material to be considered. This being the case, it would obviously be unwise that your President should encroach unnecessarily upon time already too short. Still, within the limits wisely imposed by our authorities, and without entrenching too much upon the time set apart for our more direct work, this appears to me to be the proper time to draw your attention, as workers in the field of human anatomy, to a point of importance, which we may not neglect if we desire to keep human anatomy in its proper place as a living science, whilst at the same time we are careful not to lose sight of its practical importance as a technical subject in a medical curriculum.

Human anatomy appears to have been studied at first by men of an inquisitive turn of mind, who desired to know as much as possible of themselves and their fellows. They were men of the educated class of their time, and it is not improbable that they may have hoped that a knowledge of the structure and arrangements of the various parts of the body would be of service in an attempt to meet and avoid those infirmities and diseases which they knew as the precursors and possible causes of death, just as similar knowledge enabled them to preserve and improve other mechanisms with which they were acquainted. Whether this was so or not, the knowledge gradually acquired was utilized by those who undertook the treatment of injuries and diseases of the human frame, and gradually the study of the details of human anatomy passed at first into the hands of the priesthood, who provided for the bodies as well as the souls of their flocks, and afterwards into the hands of the members of the medical profession. This was the natural course of events, for it is clear that the man who desires to regulate, protect, improve, and repair any instrument must know thoroughly all its main features and as many of its minute details as possible. The treatment of the body having fallen into the hands of a special group of men, it naturally followed that they must teach the details of their profession, and, consequently, human anatomy, which is a basis subject, has been taught for the most part in medical schools which may or may not have been associated with universities, and it has been taught almost entirely by medical men.

Under these circumstances, there has been danger that the science might be shorn of its wider limits and reduced to a technical level, the human body being looked upon merely as an object possessing certain definite structure and arrangements of parts which must be studied by the physician and surgeon merely for the purpose of localizing and treating diseases and injuries.

In more than one place the science has been debased to this level, and there is still a tendency in some quarters to decry any wider view and to insist that the medical student shall be taught only the technical details of human anatomy—that is, the positions of organs and parts and their relations to each other. This view is tending to become more prominent in association with the increasing demands which are being made upon the medical student's time from many sides, and it is usually pressed by those who are of the opinion that most of that time should be spent in seeing cases and watching or taking part in their treatment. Nothing could be more harmful, nothing could be more fatal to the best interests of the medical profession and the public than the general adoption of such a view. It would result in the medical man becoming a mere technician—that is, a man whose value is limited by the number of cases he has seen and treated. The medical man thus taught would be very much in the position of the working mechanic who can do well everything he has been taught to do or has seen done, but who is absolutely useless when he is desired to do something new which requires general as well as special knowledge.

Fortunately, there have always been in the medical profession many broad-minded men who have recognized that the man who has a wide knowledge of general principles is better adapted to meet unexpected circumstances than one who is merely provided with a memory of a certain number of observed facts, and luckily the opinions of our broader-minded colleagues have hitherto prevailed. The result has been, so far as anatomy is concerned, that in a large number of well-equipped medical schools and medical departments of universities the teaching of anatomy has passed into the hands of specialists—that is, into the hands of men who have spent the greater part of their lives in the study of the subject and who are enthusiasts in its teaching and study, looking upon man as the highest outcome of Nature and considering him and his relations, therefore, as worthy of the most careful study.

There are clear signs that this will be still more the case in the future. We recognize that it must be so; nevertheless, though we see that the movement is in the

right direction, we must not minimize the danger which lies in the path and which will be inimical to the best interests of medical students if it is not carefully guarded against. The danger is that specialists occasionally lose sight of the practical applications of their subject and work at and teach only its more scientifically interesting features. It is a danger which exists in the cases of all subjects taught by specialists and it is one that must be carefully avoided in the case of anatomy, for the majority of the students of anatomy are, and so far as we can see always will be, medical students, who in most cases take up the subject merely as the means to an end. The danger will be avoided if the electing bodies of teaching institutions will take care to appoint as teachers only men who have been through the medical curriculum and who understand the needs of the profession and its students, and if the men thus appointed will keep in touch with their colleagues who are practising the art of medicine and surgery. They can do that in many ways, of which one of the not least important is taking part in the meetings of medical associations, and thus keeping touch with the general knowledge of the profession and its relationships to their own special branch, and on that account it is important that there should always be an Anatomical Section at the annual meeting of the British Medical Association.

It should, however, be remembered that the object of a medical curriculum is not to turn out a finished anatomist any more than a finished physician or surgeon, for that is an impossibility in the time through which the curriculum extends. The object should be to give the men passing through the curriculum a wide knowledge of the principles on which they must rely in the practice of their profession, a sufficient knowledge of the details to prevent them making any serious mistake when they first begin to depend upon themselves, and a sufficiency of general knowledge to enable them to take their places as members of a community who are able to appreciate the interests of their fellows, and, what is not least important, an understanding of man's place in Nature and his relationship to Nature's general laws. The amount of detailed knowledge which it is possible to acquire within the period of a medical curriculum is not sufficient to enable a practitioner of medicine to cope successfully with all the various conditions he will meet in his practice, but if he has been thoroughly grounded in general principles, and in the universal laws which govern animal life, and if he possesses a moderately fair amount of brain power, he will not only be able to deal satisfactorily with all the cases he meets, but he will also be capable of recording observations in a proper manner; he will also be able to balance evidence, to guard against fallacies, and he will probably do something to advance the general knowledge.

It should, therefore, be the object of anatomists to avoid entangling medical students in a superfluity of detail. They should insist upon a thoroughly sound knowledge of the general relations and arrangements of the more important organs and parts of the body, a good knowledge of the general principles which underlie the relationships and arrangements and the advantages derived from them. They should endeavour to make their students acquainted with the general laws of growth and development and with abnormal conditions so far as they are produced by deviations from general laws of growth and development, and carrying on the work done in the Biological Department, they should draw attention to man's relations to other animals in all cases where such relations are evident, and are instructive of the methods by which man has been evolved and the means by which he retains his place in the world. In addition, however, they must see that their students acquire a sufficient knowledge of the detail of the various parts of the body and their relationships to enable them to deal successfully with any emergency of daily life; but, with this exception, it is more important that the students should know the general principles upon which the various systems and organs are constructed, and those on which they are modified, than that they should memorize details which they can look up at any time, whenever necessary, in the numerous good textbooks which are now at every one's disposal. It is not necessary to enter here into details of the things which should be strongly impressed or into details of those which should be passed lightly over, for we can all easily recall examination questions which show both the right and the wrong trend of thought, but I would strongly urge that if we wish to do well for our medical students and the medical profession as a whole we should deal more with general principles and less with detail than has generally been the case in the past.

SECTION OF LARYNGOLOGY AND OTOLOGY.

J. Dundas Grant, M.D.Edin., F.R.C.S.Eng., President.

PRESIDENT'S INTRODUCTORY REMARKS.

DANGERS TO OTOLOGY, Etc.

While gratefully acknowledging and appreciating the great honour which I have received in being appointed to preside over this Section, I feel very deeply the responsibility devolving upon me. It is my duty to enable everyone who has something to impart to have an opportunity of doing so, and in order that this consummation may be attained in the limited time at our disposal I must ask you to support me in my endeavours to compress and direct our discussions.

Dangers to Otology.

Our programme, though fairly comprehensive, has, as it happens, a comparatively small proportion of it devoted to otology proper. It is too late to rectify this, and though I am personally to some extent responsible for it, I feel that it is to be regretted. I will content myself with expressing the hope that the dazzling brilliancy of the results of our modern surgical otology may not be allowed to divert our gaze from the minute details of intra-aural technique. The former are answerable for the saving of many lives from danger, but the latter enable us often to prevent our patients from running into those dangers. The aurist who, as Professor Lucae has said, can cure the largest number of cases without recourse to major operations is the one most deserving of credit. When danger is present or threatening there is no stronger advocate for operative interference than myself.

I am happy to say that our programme includes a paper by Dr. Bacon, of New York, on the question as to how far it is advisable to adopt conservative methods in the treatment of aural diseases, and one by Dr. Clarence Blake on the value of blood-clot as a primary dressing in mastoid operations, both of which are certain to be both suggestive and informing. In the Museum also you will be interested to see a stereoscopic view of a human labyrinth prepared by Dr. Albert Gray, of Glasgow, showing a calcareous patch in the vestibule, while in the Section of Anatomy Dr. Shambaugh will describe the development of the stria vascularis and the circulation in the labyrinth of the pig in continuation of the work with which he is so thoroughly identified. We can only hope that others of our Anglo-Saxon *confrères* will be encouraged to investigate the internal ear.

Let us remember that the ear is primarily an organ of hearing, and cultivate the accuracy and patience in examination and dexterity and delicacy of manipulation upon which our success in relieving our patients and, may I say, in making our own reputation so much depends.

On Ethics.

Although a Scotchman, and as such naturally ready to "improve the occasion," I am not going to give you the typical "ethical" lecture. For my part, I find that so much of my time and attention is required for the correction of my own shortcomings that I have been unable to occupy myself with those of my neighbours. I would suggest as a good rule to "mind your own ethics and leave other people's alone."

The Receptive Frame of Mind.

Another rule which we may apply to our present meetings is to concentrate our attention on what is best in whatever our confrère is imparting rather than in trying to find arguments against what he advances. We may thus lose the opportunity of making dialectical "hits" and of scoring for the moment rhetorical "points," the

fallacy of which is subsequently realized, but too late for the mischief to be undone.

By trying to understand and assimilate what is best in papers and speeches I have read or listened to, I have acquired an amount of useful working knowledge of our subject which my limited powers of original insight would never have enabled me to attain. May I suggest this receptive frame of mind as the most profitable one in which to start? At the same time it is quite necessary to be on the alert for the detection of fallacy, whether unintentional—for we are liable to err—or intentional, because it is human to wish to gain one's point. With your help I shall make it my proud duty to try and keep our discussion clear of both.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

A. H. FREELAND BARBOUR, M.D., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE RELATION OF GYNAECOLOGY TO THE WORK OF THE GENERAL PRACTITIONER.

GYNAECOLOGY holds out one hand to the general practitioner and the other to the specialist. She has her grand manner, in which, adopting the style and tools of the surgeon, she rivals him in brilliance of work; yet I am not sure but she is greater when, in the guise of the family physician, she cares for the health of the mothers and growing daughters of the community. She is equally at home with the brilliant operator and the sagacious practitioner; and when honours go round, will the greater fall to the operator in his theatre furnished with every appliance and waiting for his patient, or to the practitioner in his gig starting on a long drive across the moor?

Gynaecology as a speciality is sufficiently in evidence in the programme of work of this Section, and therefore I devote the few minutes of this introductory address to the relation of gynaecology to the work of the general practitioner.

The medical student starts with a wrong idea of gynaecology, for which the term "diseases peculiar to women" is in part responsible. Instead of applying the general principles of pathology to pelvic diseases, he thinks that these have a special pathology. He fails to recognize that apart from the peculiarities of the anatomical structures involved, and the physiological changes implied in menstruation, there is no difference between salpingitis and appendicitis, or that epithelioma of the cervix does not differ from epithelioma of the lip. The difficulties which beset clinical teaching in gynaecology send him into practice inadequately prepared to deal as efficiently with diseases of the reproductive system as with those of other systems in the female; and this insufficient equipment develops in the mind of the laity the idea that a special knowledge is required to deal with disease in this part of the body, a special knowledge as distinct from the experience which comes to a man as the result of having devoted his attention to one branch of medicine.

Now, from one point of view, there is no more reason to treat gynaecology as a speciality than obstetrics, which is admitted to be part of the work of the general practitioner. A moment's consideration will show that the great majority of gynaecological cases must be at first in the hands of the general practitioner. A married woman expects to be treated in the first instance by the physician who attended her at her confinement, and it is for him to say when she should pass beyond his care. The examination of her case is at first in his hands, the diagnosis of her condition rests with him, and the routine treatment of chronic cases, of what we might describe as minor gynaecology, should be relegated to him.

The recent remarkable development in operative gynaecology has led to the idea that the surgical aspect of gynaecology is gynaecology itself. But this is only one side of it; it has what I might call its medical aspect also.

The term "specialty" applied to gynaecology raises the question as to what we mean by a specialty. Gynaecology is not a specialty in the same sense as mental disease, or even diseases of the eye. When a case of mental disease presents itself the practitioner at once recognizes that here is a case which does not belong to him. And the same is largely true of diseases of the eye. Specialism in gynaecology, apart from major gynaecological operations, is more akin to specialism in diseases of the heart or lung, in which, by devoting special attention to affections of one system, and gaining a wider experience in it than falls to the general practitioner, the physician has come to be recognized as an authority on diseases of a given system.

From this point of view it may be said that the way to the specialist in gynaecology passes through the domain of the general practitioner, and that the specialist is to be called in when the general practitioner recognizes that he has not the training or experience to enable him to diagnose or to treat successfully his patients. This view of the subject requires a higher standard of knowledge than he at present possesses, and we stand at the parting of the ways. Is gynaecology to be relegated to the post-graduate course, to be studied only by those who have a bias towards it? Or is it to be made an integral part of the student's training, so that at its termination he will know at least the elements of clinical gynaecology. Of clinical as distinct from systematic, which implies that every student must be taught clinically, and, when possible, examined clinically. I know the difficulties which the latter proposal implies, but from the relation of the diseases of women to obstetrical work, from the reasonable expectation of the general public, from the very nature of the case, this seems to me to be the road along which we must advance at this parting of the ways.

While emphasis has been laid on the teaching of gynaecology to the student as against its postponement to a post-graduate course, a word is necessary as to the manner of presenting it. While taught as a specialty it should be taught in relation to medicine, surgery, and midwifery, the tripod on which the practice of medicine rests. If these three subjects were represented by three circles, side by side, gynaecology is a fourth intersecting the three. The defect in medical education at present is that each subject is taught as it is in itself instead of in its relation to the other subjects of the curriculum. If the teacher in each subject kept before him the relation of his subject to all the others the student would not be in a hurry, as he is at present, to escape from an over-burdened curriculum into general practice. He would begin to be interested in knowledge as an end in itself. At present the utilitarian, which passes readily into the mercantile, bulks too largely in his mind. Aristotle makes the important distinction between what is useful or yields revenue and what is liberal or tends to enjoyment. The study of medicine, if taken in the proper way, might become a liberal education while not ceasing to be a professional one. But I have wandered from my text. My object was to suggest to those who have to do with the teaching of this subject a method of presenting it.

There is another aspect of the same question which I would venture to lay before my colleagues who are engaged in the practice of gynaecology, and that is the necessity of taking a broad view of a case. Specialism is a peak in a mountain range and its development is subject to the same law. A broad foundation must be laid for knowledge, remembering that the height of a hill is related to the breadth of its base. Some rise, like Fujiyama, abruptly from the plain, volcanic in nature, produced by a sudden outburst of imprisoned force. Such are the geniuses of the medical profession. More usually, however, a peak is produced by a gradual process—for Nature is rarely in a hurry—which leads to its appearance as a member of a mountain chain. The specialist is slowly differentiated from his fellows like a peak in the Rocky Mountains.

SECTION OF OPHTHALMOLOGY.

R. MARCUS GUNN, F.R.C.S., President.

PRESIDENT'S INTRODUCTORY REMARKS.

GENTLEMEN,—After crossing wide seas it is a privilege to find oneself among friends—friends who speak one's own tongue, and who are equally and simultaneously engaged in similar work. In such a meeting as is now being held

in this city there must be great advantage, and I value very highly the honour of being asked to preside over our Section.

Among the instructions I received on taking this office one is prominent, that I was not expected to give a regular address; in fact, gentlemen, you do not come here for any such purpose, but we are all met to compare notes and have our suggestions and opinions weighed, compared, and criticized.

Before proceeding to our regular business, however, it is fitting that we should remind ourselves and think for a moment of the great loss that Canadian ophthalmology has sustained, since the last Annual Meeting of this Association, in the death of Professor Buller of Montreal. Trained at Moorfields, he held office as House-Surgeon there for a considerable time, and some of my earliest recollections of the hospital are associated with this period. Buller left there a record of good work well done. His position and his work in Montreal are known to us all, and his striking personality was familiar to most here. It seems but yesterday since he, in collaboration with Dr. Casey Wood of Chicago, brought to our notice the effects of poisoning by wood-alcohol in a memoir that is already classical. But, apparently in full vigour, he was claimed by an insidious disease which found no remedy, and, as we bitterly remember to-day, Professor Buller is no longer with us.

It is part of my duty to draw your attention to certain rules which must guide our discussion and papers.

[The President here read the rules.]

We welcome most heartily all our visitors, and certainly not least our esteemed colleagues and professional brethren from the United States of America. We are glad that so many have been able to join us here, and in your name I invite them most cordially to consider themselves for the time being members of our meetings, with all privileges, and under the same rules of procedure as ourselves.

SECTION OF PHYSIOLOGY.

Professor W. D. Halliburton, M.D., F.R.S., President.

PRESIDENT'S INTRODUCTORY REMARKS.

PROTEID NOMENCLATURE.

Among the usages of our Association, there is at least one which I feel sure will commend itself to all present, and that is the abolition of formal introductory addresses by Presidents of Sections. Such addresses have too often a tendency to degenerate into platitudes, they are usually inordinately long, and consume time which might be more profitably spent. I think this year our Section has good reason to congratulate itself, both on the quantity and quality of the communications promised, and one only hopes we may have time to do ample justice to them all. I propose to set a good example by doing my best to adhere to the time limit prescribed for individual papers.

It has been regarded as fitting that your President's paper should occupy an early place on the programme, and may I take the opportunity of uttering, in a single sentence, a word of welcome to the numerous visitors who grace our proceedings by their presence? It is a matter of congratulation and satisfaction to the Association in general and to this Section in particular how many distinguished visitors we have with us, not only from the neighbouring great Commonwealth of the United States, but also from beyond the seas.

In the subject I have selected for my communication I appear before you as a delegate from a Joint Committee of the Physiological and Chemical Societies of England appointed to consider the question of proteid nomenclature, and of which I was appointed chairman. The report drawn up by this Committee has been already received and criticized by the two Societies concerned, but it has been felt before its recommendations are likely to meet with acceptance that some expressions of opinion should be obtained from other nationalities. It is specially desirable that uniformity in terminology should be adopted by the English-speaking nations, and if our friends in France and Germany can also see their way to fall into line so much the better.

It is one's earnest hope that by such means the present confusion, which is so great a stumbling-block to writers, teachers, and especially to students, may be removed. I fear, however, that past attempts to secure uniformity of nomenclature have not been attended with very great success. Some years ago the Chemical Society in London appointed a Committee to formulate nomenclature, but their recommendations have never been universally adopted by those who write and speak English. They suggested definite meanings, for instance, to certain terminations; for example, *ol* is the affix selected for alcohols, *ine* for basic substances, *in* for materials of more indefinite structure. Yet we still see leucine and choline spelt without the final *e*, and gelatin with it. In America, where we should have anticipated some amount of support, the old non-conforming conscience has asserted itself, and the tendency there has been in the direction of Germanizing rather than Anglicizing chemical names; creatine is spelt kreatin, sulphur appears as sulfur, and the final *e* in chloride, sulphate, and other salts is usually absent. There is no harm in the phonetic replacement of *ph* by *f*, or of the hard *c* by *k*, but the words chlorid, bromid, and bromat strike the conservative Englishman as being neither euphonious or rational.

But to return from this digression to the particular case of the albuminous compounds. A great change is coming over our chemical conceptions of these substances, and when Emil Fischer's important work upon them is concluded a further revision of nomenclature will no doubt be necessary. The Committee I have referred to were quite aware of this, and recognize that what they now suggest can be only temporary; still, even as a temporary measure, some uniformity is advisable, and certainly the time is not yet ripe for coining strictly chemical names. When that time arrives one can hardly doubt that many of the old familiar terms will still remain, just as many of us still continue to use such names as corrosive sublimate, oil of vitriol, and lunar caustic.

The object of the Committee's recommendations has been as far as possible to retain existing terms, and to reconcile the way in which they are employed in Great Britain, America, and the Continent of Europe. An initial difficulty met the Committee in the selection of the general name for the whole group. The term "proteid," used for it in England, is restricted to a subgroup (the conjugated proteids) by the Germans. The word "albuminoid," still employed by analytical chemists in England, and also by French physiologists in the same sense, is in Germany and also by English physiologists restricted to the heterogeneous group, of which gelatin and keratin are instances. The word "albumin" is fairly universally bestowed on a subgroup; its adoption as a family name would make the present confusion worse, and there is no adequate English translation of the homely German term "Eiweissstoff."

After much debate the word "protein" was recommended as the general name. It is at present so used in America and to some extent in Germany (*Proteinstoffe*). This word has the advantage of admitting of the derived words, "protease," "proteose," etc., and it has, after all, the ring of familiarity. We have therefore suggested the abolition of the term "proteid."

The subclasses, beginning with the simplest, would be as follows:

1. Protamines.
2. Histones.
3. Albumins.
4. Globulins.
5. Sclero-proteins.
6. Phospho-proteins.
7. Conjugated proteins.
   (*a*) Gluco-proteins (for example, mucin).
   (*b*) Nucleo-proteins.
   (*c*) Chromo-proteins (for example, haemoglobin).

For Classes 3 and 4 (albumins and globulins) a general term would be advisable, especially from the teachers' point of view. We have not been fortunate enough to find one which would prove acceptable. The expression "heat-coagulable proteins" which was suggested has two disadvantages: First, it is too long; and secondly, it is inaccurate, for other proteins—for example, histones and some nucleo-proteins—are also coagulable by heat. At one time the Committee seriously thought of the word "albugin," a neutral word which simply means white.

We owed the word to the researches of Dr. F. G. Hopkins, who discovered it was first used in the seventeenth century in adjective form by Sir Thomas Browne, the author of the *Religio Medici*:

> . . . . for eggs, I observe, will freeze in the albuginous part thereof.—*Vulgar Errours* (1646).

The word also lingers in histology in the expression "tunica albuginea."

But the new word met with such a universal chorus of disapproval that we dropped it like a hot potato, and we still await a suggestion for a word to take its place.

For Class 7 we still retain the double-barrelled expression "Conjugated protein," mainly because we were not sufficiently lucky to hit upon a single descriptive word. The term implies that here we have to deal with substances in which the protein molecule is united to a prosthetic group. We have ruled out of this class the vitellin-caseinogen group and put them in a separate compartment labelled "Phospho-proteins" (Class 6); the prefix "nucleo-" frequently used in relation to these substances is incorrect and misleading.

The new word "sclero-protein" replaces the word "albuminoid" (gelatin, keratin, etc.) as employed by English and German physiologists. The prefix indicates the skeletal origin and often insoluble nature of its members.

Coming next to products of protein hydrolysis (a term preferable to proteolysis), the Committee recommend that these be classified as follows:

1. Infra-proteins.
2. Proteoses.
3. Peptones.
4. Polypeptides.

Infra-protein replaces albumin*ate* (acid-albumin, alkali-albumin). The termination *ate* implies a salt and so is objectionable. These first degradation products are obtainable from both albumins and globulins, and after much consideration the Committee recommend the prefixing of "infra" (or possibly "meta" which some prefer) to the word "protein" as an indication of comparatively slight chemical alteration.

The term "proteose" includes albumose, globulose, gelatose, etc. The subdivision of these into proto-, hetero-, deutero-proteoses, etc., and the various modifications of Kühne's original classification were considered by the Committee, but they have wisely determined that at present the whole matter is in too unsettled a state for any final nomenclature to be proposed.

The household word "peptone" is not likely ever to disappear from chemical literature. We, however, propose that it should be restricted to those further products of hydrolysis which cannot be salted out from solution, but which nevertheless still give the biuret reaction.

In the course of the discussion on this subject we were confronted with the discovery that there are certain vegetable proteins which have hitherto been regarded as peptones which do not give the biuret reaction. It seems impossible at present to bring exceptional substances of this kind into any general classification, and the same is true for those curious vegetable proteins, such as gliadin, which are soluble in alcohol.

The polypeptides are still further on the down-grade, though most of those we are acquainted with are the synthetical products of amino-acids which Fischer has prepared. They do not as a rule give the biuret reaction, but their exact relation to the peptones is still undetermined.

In conclusion, the Committee considered a few special cases of terminology. They had, for instance, some difficulty in assigning to fibrin its proper place in their classification, but ultimately put it among the derivatives of globulins, for its mother substance, fibrinogen, is a member of that group.

They had no difficulty about caseinogen and casein, and strongly urge the continued use of these words in the sense now employed in the majority of English textbooks, that is, caseinogen for the principal protein of milk, and casein for its coagulated condition brought about by the rennet ferment.

In the case of the muscle proteins they are equally unanimous that the original terms, of which I am the unhappy parent, should be adhered to. The new words introduced by v. Fürth have only produced confusion, especially among students. The terms to be adopted should therefore be "paramyosinogen" and "myosinogen" for the proteins of the muscle-plasma, "soluble myosin" for v. Fürth's soluble myogen-fibrin, and "myosin" for the final product.

I am quite aware that it will not be easy in a meeting like this to adequately discuss the numerous points raised; the present occasion must be regarded rather as a preliminary feeler on the question, and we propose to submit the matter to various societies of physiologists, among others to the American Physiological Society, for careful consideration and report.

SECTION OF SURGERY.

Sir Hector C. Cameron, M.D.Glas., President.

PRESIDENT'S INTRODUCTORY REMARKS.

Gentlemen,—I congratulate myself, and still more I congratulate you that, by request of the Executive of the Association, the Presidents of the various Sections will abstain from delivering any formal addresses in opening this morning, the business of their respective Sections. I recognize fully the wisdom of this decision and most willingly bow to its requirement. But I feel that I should ill requite the kind favour which has placed me in the honourable position I occupy, and should do but scant justice to my own feelings, were I not now, in a single sentence, to say to you how very greatly indeed I appreciate the distinction thus conferred upon me.

It is a high honour, under any circumstances, to be invited to fill such an office. But I cannot help thinking that both the interest and the sense of honour attached to it are greatly enhanced when the Association, deserting its ordinary home circuit, justifies its imperial character by accepting an invitation to visit one of the chief cities of the Greater Britain across the Seas—one of the most important centres of this great Dominion of Canada.

We who practise our profession in Great Britain and Ireland are never forgetful of the great and daily increasing debt which surgery owes to those who cultivate its science and art on this side of the Atlantic; and we therefore naturally look forward with keen anticipation to the benefits which cannot fail to accrue to all of us from the instructive and valuable intercourse which we shall have here with our Canadian brethren, as well as with those American surgeons who will do us the honour of attending our meetings.

You will perhaps here permit me to offer to the latter a most hearty and fraternal welcome. We trust they will take a full share in all our discussions, giving us the benefits of their experience and of those opinions which they are so well qualified to express on the various important and interesting subjects which are to be brought before us. These subjects constitute, I think, a promising programme, provided and arranged for us by the zeal and industry of our Secretaries.

With their continued assistance, as well as with the countenance and help of the Vice-Presidents of the Section, I hope to be able so to guide and regulate the business that our meetings may prove—what I am sure they can hardly fail to prove—a source of the highest interest and value to all of us.

Without further preface, gentlemen, I invite you to proceed with the work of the Section.

SECTION OF THERAPEUTICS.

Donald MacAlister, M.A., M.D., D.C.L., LL.D., F.R.C.P., President.

PRESIDENT'S INTRODUCTORY REMARKS.

AN IMPERIAL PHARMACOPOEIA.

By order of the Council of the Association, "Presidents of Sections are requested not to deliver a formal address in opening their Sections, as complaints have been made of want of time for sectional work." I obey the order with

alacrity. But I am allowed a few "introductory remarks," provided they are brief and informal.

First, then, let me express the pleasure which we who come from the Old Country feel in meeting once more on Canadian soil. We remember the impulse to corporate expansion, the realization of our Imperial responsibilities as a profession, that came to us when the Association met at Montreal. The force of that impulse is still felt among us. It was good, it *is* good, for us to be here; not only that we may meet face to face with those of our kinsmen beyond the seas whose names are associated in our minds with good work ably done for the advancement of our common science, but also that we may be braced by breathing your larger air, and by coming into closer touch with your strenuous vitality. We therefore count on returning to our tasks at home heartened by the knitting of new and of old friendships, and strengthened by the transfusion of fresh vigour, of new thoughts and influences, from you who are here engaged in fashioning a sister nation. We have come to learn rather than to teach, and thus it has been the endeavour of my colleagues and myself to procure for our Section as many contributions as possible from this side of the Atlantic, and from both shores of the great lakes. We trust that you will find us teachable. That we have journeyed so far in search of knowledge is at least an indication that we are not yet incurably affected with insular sclerosis, not yet wholly refractory to the new ideas and unfamiliar experiences which you are ready to communicate.

In the second place, I would seize the occasion to say a word on behalf of the *British Pharmacopoeia*. As Chairman of the Committee that is charged with the preparation of our national medicine-book, it is not inappropriate that I should seek to interest this Therapeutic Section, and particularly the Canadian members of it, in our work for the profession. The time for the next revision is approaching, and we desire to make the new book a better expression of our ideal than has hitherto been practicable. Forty years ago the Medical Council declared that in the *Pharmacopoeia* it desired "to afford to the members of the medical profession and those engaged in the preparation of medicines throughout the British Empire one uniform standard and guide, whereby the nature and composition of substances to be used in medicine may be ascertained and determined." In 1898, with the help of the medical and pharmaceutical authorities throughout the British dominions, the first effective steps were taken to produce a work adapted to the general and the local requirements of all parts of the Empire. Our efforts were materially aided by a Canadian Committee, under the leadership of Dr. Blackader, one of your Vice-Presidents. In the *Indian and Colonial Addendum* of 1900 a further step was taken to meet the needs of particular localities outside the United Kingdom. Medicinal plants and other substances which had been suggested for inclusion by colonial authorities, but which were little known and little used at home, were therein dealt with, and official sanction was given to their local employment. At the instance of the North American Colonies such additions to the *materia medica* as couchgrass, arnica, cotton-root bark, grindelia, black haw, wintergreen, sesame oil, and turpeth were introduced, and suitable preparations containing them were described. But it was added that "with regard to the sources, preparations, and properties of some of these drugs, further investigation, especially in the countries in which they are found, is much to be desired." And a hope was expressed that their official recognition would conduce to research of this kind.

Since that date the new United States *Pharmacopoeia* has been issued (1905). The British Committee has observed with gratification that it exhibits a marked tendency to uniformity with the *British Pharmacopoeia*, and that it includes just such information about some of the "North American" drugs of the *Addendum* as was desired. It also embodies the conclusions reached by the International Congress on Pharmacopoeial Unification, which with Professor H. C. Wood I was privileged to attend as the Government delegate at Brussels in 1902. These conclusions have now been ratified by an international agreement between the various pharmacopoeial authorities of the civilized world, and have already been observed in framing the new Pharmacopoeias of Austria, Holland, Belgium, Spain, and the United States. I need not say that they will also be embodied in the next *British Pharmacopoeia*. They refer solely to the unification of the strengths of drastic or poisonous drugs and preparations. They seek to secure that throughout the world medicines which bear the same name, and whose potency demands that they shall be used with cautious precision, shall mean the same thing, and shall possess the same determinate strength. *Maxime interest ut medicamina heroica non in unius tantum nationis, sed in omnium gentium cultarum officinis eadem sint*, says the new *Pharmacopoeia Belgica*.

Though we are still far from realizing the dream of a single International Pharmacopoeia, applicable to the whole world of medicine, the results of the Brussels Congress go far to minimize the dangers to the public which in these days of travel attend the lack of agreement between the various national standards. When they have been fully carried into effect, a traveller whose prescription contains "dilute hydrocyanic acid" will no longer receive it of 1 per cent. in France, 2½ per cent. in Belgium, and 10 per cent. in Spain. At present "syrup of chloral" may contain from 2 to 10 per cent., and "tincture of cantharides" from 5 to 20 per cent. of the active ingredient, according to the country where they are dispensed.

Differences of tradition and environment will long preclude the complete harmonization of the numerous national pharmacopoeias; but no such differences stand in the way of adapting the *British Pharmacopoeia* to the needs of all the nations and peoples that are included within the world-wide dominion of Greater Britain. To bring about that adaptation is the aim of the General Medical Council, and we seek the willing and sympathetic co-operation of our brethren beyond the seas that we may attain it. Through the India Office and the Colonial Office at home, I have sent a circular letter to each of the seventy Administrations of the Empire, inviting the considered suggestions of their respective medical and pharmaceutical authorities towards the improvement of the *Pharmacopoeia* from this imperial point of view. In particular, advice is sought as to the permanent inclusion of the drugs dealt with in a tentative manner in the *Addendum* of 1900. From over thirty Colonial governments answers to my circular have already been received, and these contain much useful information for our guidance. But, so far as I am aware, no answer has yet been sent from this great Dominion. Did modesty allow, I should be glad to think that you are silent merely because you are perfectly satisfied with the book as it is, and have no desire to alter it in any way. I am privately assured that that, at least, is not the reason.

May I therefore take advantage of my temporary position to say that without Canadian co-operation we must fall short of our ideal? The new *Pharmacopoeia* will be condemned to antenatal mutilation. Might not a representative Committee be formed under the auspices of this and other medical associations of the Dominion for the purpose of formulating your special requirements, and of affording us the advantage of your special knowledge and skill? The Committee at home will welcome your suggestions, and will give them its most careful consideration. In Canada you have experience in the use not only of the *British Pharmacopoeia* and its *Addendum*, but also of the United States *Pharmacopoeia*, and the French *Codex*. You can point out to us what discrepancies between these have proved to be of serious importance in practice, and how they may best be reconciled. You can tell us what non-official drugs are in widespread use among you, and therefore call for recognition in order that their characters and preparations may be exactly defined. You can inform us what articles in the *Pharmacopoeia* are practically obsolete in this country, in order that we may have proper data for deciding as to their omission. Forms of adulteration or contamination with which we are unfamiliar at home may be within your experience; these we should know about when we are revising our standards and tests of purity. Questions of this kind, and others which will emerge on systematic inquiry, are scarcely to be compassed by the home Committee without Canadian assistance. I am sanguine that, after this straight hint, the assistance will not be withheld.

Medical Reciprocity.

Before we proceed to the business of the day, allow me a few words on a kindred subject. The co-operation

between the Dominion and the United Kingdom, which I have suggested, need not be limited to the preparation of an Imperial Pharmacopœia. Some of us would fain see it extended to the whole field of medical study and practice. You may be aware that by our Medical Act of 1886, a person who holds a recognized Colonial medical diploma granted to him in a British possession, who is of good character, and who is legally entitled to practise in that British possession, is also entitled, without examination in the United Kingdom, to be registered in the *Medical Register*. But before a Colonial diploma can be thus "recognized," the Privy Council must be satisfied that the British possession in question affords to home-registered practitioners such privileges of practising there as to His Majesty may seem just. And by an Act of 1905 it is further provided that for this purpose a Province or State in a larger Federation shall be deemed a distinct possession, and therefore entitled to apply for recognition on its own account. Orders in Council have already been issued, applying the Act to New Zealand, the States of Australia, the Provinces of India, Ceylon, and Malta, all of which grant medical diplomas of their own. And as these diplomas have been recognized by the General Medical Council, their holders are at once made capable of registration in the British *Register*, and of acquiring all the rights and privileges which registration confers. A similar enactment exists in relation to foreign countries, and already the Kingdom of Italy and the Empire of Japan have been admitted to corresponding privileges. But, with one exception, the provinces of Canada have not yet applied for admission, and to that extent the medical federation of His Majesty's dominions is incomplete. The exception is Nova Scotia, to which the Medical Act was extended by an Order in Council on May 11th in the present year. The Medical Council learned with great satisfaction of the step thus taken by the Maritime Province, and it looks forward with interest to like applications from the other great Provinces of the Dominion. I am aware that on your Statute Book there stands a Medical Act of 1902, which, were it in operation, would go far to complete the confederation of the provinces by providing for their common action in medical matters, and by assimilating and extending their professional privileges. And I am also to some extent aware of the internal difficulties that have hitherto prevented the Act from coming into effect. But these internal difficulties need not affect the question of imperial recognition and reciprocity. Under our recent legislation each Province can negotiate for itself with the home authorities, as Nova Scotia has done. It need not wait for the others. His Majesty in Council is the arbiter as to the justice of its claim to be included in the medical federation of the Empire, and to be granted the wider citizenship which that implies.

As things stand, however willing the powers at home may be, a medical graduate of Ontario or Quebec cannot legally hold a medical appointment in the naval or military service of the King. He cannot be appointed surgeon to a British ship, or to any hospital or other public establishment, body, or institution in the United Kingdom. He is ineligible as a medical officer of health; he cannot so much as be a candidate for one of our diplomas in hygiene or State medicine. And lastly, he may not use his degree as a qualification for private practice in the United Kingdom or in any of the British possessions—and they are not few—that are governed by our Medical Acts. These disabilities must often be irksome, and the more because, so far as Canadians are concerned, they are now self-imposed. The Imperial Parliament at least has opened the way for their removal. The next and only remaining step has to be taken by the provincial authorities.

Every year Canadian graduates come over to study and to obtain diplomas at home. When I observe your splendidly-equipped medical schools and hospitals, I cannot help wishing that a strong reverse current might be set up, and that our own students and graduates might acquire the habit of crossing the Atlantic to complete or to supplement their medical education in Canada. That mutual recognition of professional qualifications would further and foster this tendency I am convinced; and I am not less sure that such educational interchanges would exert a powerful influence for good, not only upon us but upon you. Sympathy comes from mutual understanding; there is nothing so divisive as mutual ignorance.

I close, therefore, on the note with which I began. We value these occasional meetings outside our islands because they lead to our better knowledge of each other, and so strengthen the bonds of brotherhood which unite us. But the meetings are too rare to accomplish all that is desirable in this kind, and many of us are middle-aged and more before we can take advantage of them. If we could but have more intercourse, and have it younger, our mutual sympathies and affections would be warmer still. It is for this reason that I have risked your impatience by wandering a little from the proper subject-matter of our Section. Let us now return to Therapeutics.

ANNUAL GENERAL MEETING.

ADJOURNED GENERAL MEETING, TUESDAY, AUGUST 21ST.

THE chair was taken at 2.30 p.m. by Mr. GEORGE COOPER FRANKLIN, F.R.C.S., retiring President.

INSTALLATION OF PRESIDENT.

The meeting, which was held in the new Convocation Hall of the University of Toronto, was opened with an invocation by the Rev. Dr. MCLAREN, Principal of Knox College, Toronto, after which

Mr. FRANKLIN said: Mr. Mayor, Ladies and Gentlemen,—I need hardly say how great a pleasure it is to me to find myself in this beautiful city to-day, and to have been enabled to take the chair on this occasion for the last time at the end of my year of office as President of the British Medical Association. I do not propose to detain you at any length this afternoon; we have a great deal of work to get through; but it is my duty as well as my privilege as *laudator temporis acti* to refer for a few minutes to the past year's work. I do not think that it is generally known that the work of the British Medical Association is so important and so extensive as it is; nor is it known how much time, work, and devotion are given to it by these gentlemen, in busy practice, who manage to be members of Council, members of Committee, Representatives, and so on. I could speak from the point of view of the ordinary member until a year ago, but now I can speak from the point of view of one who has seen and admired the excellent and most responsible work that is being done. During the past year the rebuilding of the office in the Strand has been decided on, and I think a building will appear at the corner of Agar Street which will be worthy of the Association. The matter of the Royal Charter no doubt will be satisfactorily settled this year. Perhaps I ought not to specify the work of any of the Committees in particular, but I think that the Medico-Political and Ethical Committees deserve as much praise as can be bestowed upon them. I very much regret that Dr. Langley Browne, Chairman of Council, is not here. I have a letter in my pocket from him in which he regrets his inability to come. I may say in his absence that we all appreciate his hard self-denying work in the interests of the British Medical Association. Before I leave the chair, I would like to say that the kindness and courtesy of the officials towards myself have been most marked. Any slight success that may have attended my efforts towards the furtherance of the objects of the British Medical Association I put down to the help I have had from Mr. Guy Elliston, Mr. Smith Whitaker, and Dr. Dawson Williams, our accomplished editor. Gentlemen, we find ourselves to-day in this most beautiful city of Toronto. We who have come from England have begun well by having had a delightful voyage, and now we find ourselves in a lovely country (rather warm)—[laughter]—with the kindest possible hospitality showered upon us. Everything is in order for a most prosperous meeting. We had a good meeting last year at Leicester—anyway, we Leicester people did our best—and now you must go one better. It is now my privilege and pleasure to introduce to you our new President, Dr. R. A. Reeve, Dean of the University. It would hardly become me, in his presence, to discuss his high professional attainments and his conspicuous abilities, but I vacate the chair with the utmost certainty that its honour will be upheld and its dignity increased by the

accession of Professor Reeve of Toronto University. [Applause.]

Dr. Reeve then took the chair.

Dr. F. N. G. Starr, in presenting the President with his badge of office, said: Sir, when the British Medical Association had reached the age of 65 years it seemed good that some Canadian blood should be introduced into its internal economy, and our esteemed friend, Dr. Roddick, was elected to the high office of President. The effect was so startling that again, but nine years after, the Land of the Maple is selected as a place of meeting, and to the elevated post of President there has been elected one whom all Canadians respect and admire, and one whom to know is to love—our own Dr. Reeve. [Applause.] Those of us living in Canada feel that an honour has been done the profession here in your election to the President's chair, and those of us who know you best realize that the Association will be benefited by the contact. I have the honour, Sir, to present to you the badge of office, a locket bearing the "Arms" of the City of Toronto and of the University. Inside the locket I have taken the liberty of placing the first photograph, taken from things as they are, of your very own child, Convocation Hall. [Renewed applause.]

Delegates.

The President called upon Dr. Starr to read the names of delegates, as follows:

Vice-Presidents—Dr. Henry Barnes, President at Carlisle, 1896; Dr. T. G. Roddick, President at Montreal, 1897; Dr. T. D. Griffiths, President at Swansea, 1903.

Representatives from the Council of the Association—Dr. D. Goyder, Bradford; Dr. J. Groves, Carisbrooke; Dr. James Hamilton, Glasgow; Dr. T. A. Helme, Manchester; Sir Victor Horsley, F.R.S., London; Dr. J. A. Macdonald, Taunton; Dr. C. G. D. Morier, London; Dr. C. R. Straton, Salisbury; Mr. J. Lynn Thomas, C.B., Cardiff; Dr. W. J. Tyson, Folkestone; Dr. Norman Walker, Edinburgh; Mr. Sinclair White, Sheffield; Dr. D. J. Williams, Llanelly.

Delegates from Representative Meetings—Dr. William Ewart, London; Sir Victor Horsley, London; Dr. Boyd Joll, London; Dr. R. L. Langdon Down, London; Dr. J. A. Macdonald, Taunton; Dr. C. R. Straton, Salisbury; Dr. D. J. Williams, Llanelly.

Delegates from Branches of British Medical Association.—Dublin—Dr. Thos. Donnelly, Dublin; Dr. O. C. J. Delahoyde, Dublin. Metropolitan—Dr. F. J. Smith, London. Midland—Mr. C. J. Bond, Leicester; Dr. Astley V. Clarke, Leicester. Edinburgh—Dr. Logan Turner, Edinburgh.

Delegates from Universities and Colleges—Glasgow—Sir Hector Clare Cameron, Professor John Glaister. Sheffield—Dr. Sinclair White. King's College—Professor Halliburton, Dr. G. F. Still. St. Andrews—Dr. Dow. Royal College of Physicians, Edinburgh—Dr. G. A. Gibson. University of Liverpool—Sir James Barr, Professor Sherrington. Cambridge University—Professor Clifford Allbutt, Dr. Donald MacAlister. University of Durham College of Medicine—Mr. G. Grey Turner, London University—Dr. Rose Bradford. Bristol Medico-Chirurgical Society—Dr. Watson Williams. Medical officers of health societies—Dr. Samuel Browne, Warwick.

American delegates—President American Medical Association, Dr. W. J. Mayo. American Medical Psychological Association—Dr. Geo. Ross, Richmond, Va.

American Medical Association—Dr. A. E. Macdonald, New York; Dr. C. W. McCaskey and Dr. K. K. Wheelack, Fort Wayne, Ind. Department of Public Health and Marine Service—Dr. R. Woodward.

Delegates from Colonial Branches:—Bermuda—Lieut.-Col. Rainsford. Dr. Eldon Harvey. Halifax—Dr. John Stewart, Dr. Geo. M. Campbell. Griqualand West—Dr. Jane Ruthven, Johannesburg. Melbourne—Dr. A. Grant, Melbourne, Australia. Montreal—Dr. T. G. Roddick. New Zealand—Dr. Davis. South Australia—Dr. C. T. Drummond Morier. South India and Madras—Dr. C. B. Rama Rao, Madras: Dr. Barabi, Bombay. Saskatchewan—Dr. Low, Dr. McLeod, Dr. Thomson.

The following visitors from the Continent of Europe were also received:—Professor Aschoff, Freiburg, Germany; Dr. Delezenne, Paris; Professor Delsaux, Brussels; Dr. Lapicque, Paris; Dr. Nicloux, Paris; Dr. Nicolle, Professor Justice Gaule, Zurich.

Mr. Franklin.

Dr. John Stewart (Halifax): Mr. Mayor, Mr. President, Ladies and Gentlemen,—It is my privilege to move a vote of thanks to the retiring President of the Association:

> That Mr. George Cooper Franklin, F.R.C.S., be, and he is hereby elected, a Vice-President of the British Medical Association for life, in accordance with By-law 38, for his distinguished services to the Association.

The services of the retiring President have been of a distinguished character. In the first place, it must raise him above the rank and file of even Presidents to take the reins in Leicester, take the saddle in Leicester, and come over to Toronto—a long ride even for a medical man. And then, again, those of us who heard his address last year must feel that a debt of gratitude is due to him for the very effective view he then took of medical education, and we in Canada feel that the greatest credit is due for the service he rendered to the profession along educational lines. In addition to that, I think the happy manner in which Mr. Franklin opened the proceedings to-day is very much to his credit, and I have very much pleasure in moving the vote of thanks.

Sir Thomas Barlow: I have much pleasure in seconding this resolution. Mr. Franklin stands for a branch of our profession representing not merely the rank and file of those who have stood by the Association through thick and thin, but also stands for the English profession. I second this with very great pleasure.

The President put the motion, which was carried unanimously amidst applause.

Mr. Franklin: Mr. President, Ladies and Gentlemen,—I beg to express very emphatically my sincere thanks for the honour which has just been conferred upon me.

Addresses of Welcome.

The Mayor of Toronto (Mr. Emerson Coatsworth) said: Mr. President, Ladies, and Gentlemen,—Some one said to me the other day, "I see you are going to speak and welcome the British Medical Association; I suppose you are preparing an elaborate address for the occasion." I did not make my reply then, but I began to think that something special might be expected of me. However, I got a letter since then from my friend Dr. Starr suggesting that perhaps I should not make any speech at all; so, between the two of them, what am I going to do? I might find myself in the position of the man who was very much troubled with indigestion and his wife undertook to cure him, and she gave him morphine. She cured him, but had to do the Spring ploughing herself. Now, I have got some Fall ploughing to do after a while and I want to do it myself, so I think I will abide by Dr. Starr's suggestion and not attempt any address this afternoon, lest he should take me in hand afterwards. I can assure you that I, on behalf of the citizens of Toronto and on behalf of the Council of the Corporation of Toronto, extend to you, ladies and gentlemen, one and all, a very hearty welcome to the Queen City of the West. We are delighted to have you come to see us. We trust you have had a pleasant journey coming, as some of you have come many thousands of miles, and we hope also that you will have a pleasant and agreeable stay in our midst. While you are in the City of Toronto we will do all in our power to make your visit pleasant. We appreciate very much the visit of so distinguished a body as the British Medical Association, and we trust and have no doubt that the mingling together in this city at the present time of members of the medical profession from all parts of the globe will result in a great deal of good both to the profession itself and also to humanity. We are very much indebted to your honourable profession. I suppose there is no class of people who come nearer to the daily life of the people than the medical profession, and as I look around I am sure I can take our own medical men as an index of probably the whole profession. I can assure you it is often a matter of great gratification to me as Mayor of the City of Toronto to see how they are prepared to sacrifice themselves individually for the benefit of the community. I have in many cases seen the most painstaking and most generous care where there was little or no expectation of fee or remuneration. We realize the great work that is being done by your profession, and we watch with interest the progress that is being made towards the cure of tuberculosis and other diseases. We are trusting that Providence will guide you,

and that sooner or later you will arrive at the grand end towards which you are working. I congratulate you, Mr. President, on your election. We always think there are good things in Toronto, and, of course, it would not be anything but right for me to say that we appreciate the fact of your selection as President in Toronto. I know of Dr. Reeve's high standing as a medical man, and I know that his administration of the affairs of your Association will justify the selection you have made. Again I extend the welcome of the city to you. I cannot do anything more than simply echo and repeat the welcome I have given, and hope you will have a good time, and that your visit here will produce good results.

Professor IRVING H. CAMERON, M.B., F.R.C.S., LL.D. (Chairman Reception Committee): Mr. Mayor, Mr. President, Ladies and Gentlemen,—It is the indisputable duty of the Reception Committee to let the deed speak, and since more eloquent tongues than mine have been wisely selected to give you greeting from the Province, and from the City, and from the University, there seems to remain no excuse for me, even if I had the inclination, to stand long between you and the President's address. Suffice it, then, here and now to say that those of us who wear the badge of green and purple, feel it to be, not only our bounden duty, but also our very great privilege, to be informed upon matters which may concern you, and we trust that you will manifest a just appreciation of our dutiful services by commanding us on all occasions. Let me add one word of salutation borrowed from that immortal idyl, sacred to the past history of this Continent, whose composition and incomparable recital we must justly credit to our cousins across the border, but whose beautiful traditions and pathetic legends belong to us—"It is good for us, O, Brothers, that you came so far to see us." To our open hearts and wigwams you are welcome! May the Gitchie Manitou have you in his keeping while you sojourn with us, and bring you, returning with filial piety and devotion to the care and protection of your own *Lares et Penates*, safe again home.

Dr. ALEX. MCPHEDRAN (President Canadian Medical Association): Mr. Mayor and President, Ladies and Gentlemen,—It falls to my lot, and it is my pleasure as well as my privilege, to extend to all here a hearty welcome to this small country of Canada. In the name of the Canadian Medical Association we bid you a very hearty welcome, I might say a warm welcome. I hope you will find it not only really warm in an atmospheric sense, but in the hearts of the people here as well, and I am sure it is as warm as you would wish it. They have a good reputation. We have been gratified here in Canada that you have come on a second visit; the last time it was to Montreal. This year you give us very peculiar pleasure in Toronto particularly, as well as in Canada. The members who visited us the last time in Montreal remember what an excellent time the Montreal profession gave them. The Mayor has given you the freedom and courtesy of the city. I extend to you the courtesy of Canada, and invite you to be citizens temporarily, and, if you wish, permanently. I assure you you may go further and fare worse. To the profession who have come from what we call the Motherland we have to extend a very hearty welcome. We appreciate their kindness in coming so far at so great a sacrifice. We must include with them—for of course they are part of the British Empire—those who have come further still, from India, from Australia, and from the Isles of the Sea, and we thank them most heartily for coming so far to visit us. To our friends from Germany and France we also give a hearty welcome, and we hope they will enjoy their stay to their heart's fullness, and that they may wish to return again at their first opportunity. A word of welcome also to our friends across the line—from the United States. We always welcome them to see us, and we see them frequently. I cannot welcome them better than to say that we count them among our best friends. Personally some of my best friends, indeed a great number, live there, men whom I meet frequently and delight to meet, and I hope they will find themselves quite at home at this time. They come annually to us. They come to catch our fish, to shoot our game, to holiday in our backwoods of Muskoka, in the north and west, which is the playground of Eastern America. I hope they will feel themselves equally at home here, that they will find our doors ever on the latch and the string on the outside. Since this Association met in Canada nine years ago the advance in medicine has been phenomenal. We are on surer ground to-day than ever before, and the public expect a great deal more of us. In fact, this afternoon his Worship the Mayor told me that the public were looking for some phenomenal announcement. I was sorry to disappoint him, but I told him I was afraid they would not get any such thing as that. I told him that all science advanced as the tree grows, imperceptibly—not by leaps and bounds, but that each advance meant the most painstaking work and the most unlimited research. However, the nine years that have just passed have been far in advance of anything that we anticipated ourselves, and, of course, far in advance of what the public anticipated. The next nine years, I believe, will bring us very much greater advance still. With this advance in science there is an increased responsibility on our shoulders, and, therefore, the existence of this Association is justified to meet the demands made by them upon us, and to increase the welfare of humanity. I sincerely hope that many of you will be able to accept the invitation to make Canada a home for a little time; that you may not only see Toronto and the eastern part of the Dominion, but the western part as well. We have no conception ourselves of the unlimited resources of this country, and I am afraid you cannot gain a true conception in your short stay. Some of you came across with a very limited idea of the extent of our country. One gentleman said, "We wish to spend two weeks here—one week attending the Convention, and the remaining week we wish to visit Quebec, Niagara Falls, the Rocky Mountains, and then Yellowstone Park." I have no doubt his geography has improved since then. If he would take six months, he might do it well—perhaps less—but it would take him a long time. The country is so enormously large, so enormously rich, in a financial way even, we are almost afraid to brag of it. We hope you will realize this, and realize at present that you are citizens of this great country.

Dr. GEORGE A. BINGHAM (President Ontario Medical Association): Mr. President, Ladies, and Gentlemen,—On behalf of the Medical Association of the Province of Ontario, I desire to extend to you all a hearty welcome. It is entirely unnecessary for me to recapitulate what has been so well said by my *confrères*. I can only hope that the members of the British Medical Association and the other guests may return to their homes after this meeting stimulated to do even better work than they have done in the past. I wish to assure you that one result after meeting on this side of the water will be—not only in the Province of Ontario, but throughout the length and breadth of this broad Dominion, from the Atlantic to the Pacific—to inspire the rank and file to renewed efforts to develop the scientific and practical aspects of our profession, and in this way add to the sum total of human happiness and possibly diminish the sum total of human misery.

SIR VICTOR HORSLEY.

Colonel GRASSETT (Toronto): Mr. President, Ladies and Gentlemen,—I have much pleasure in moving:

> That Sir Victor Horsley, F.R.C.S., F.R.S., be, and is hereby elected, a Vice-President of the British Medical Association for life, in accordance with By-law 38, for his very distinguished services to the Association.

I think, Mr. President, the way the name of Sir Victor Horsley was received by this audience when his name came up early in the course of the proceedings was the best endorsement of the wisdom of this Association in making him a Vice-President for life, because it showed that in an audience of medical men his name was familiar and in an audience of the public his name was familiar. All I can say is that throughout the length and breadth of Canada, in the medical profession, there is no name that stands for surgery better known than the name of Sir Victor Horsley. I am not in such a position as to see the work of the Association itself, but I have no doubt that this Association honours itself in honouring Sir Victor Horsley with the office of Vice-President for life. [Applause.]

Dr. J. A. MACDONALD (Taunton): Mr. President, Mr. Mayor, and Ladies and Gentlemen,—It gives me a great deal of pleasure to second this resolution, because I suppose no one in the Association knows so much of the work of Sir

Victor Horsley in the interests of the Association as I do. I have been associated with him since this Association was reorganized in the various work he has undertaken in connexion with the Association, a great amount of work for a man who is as busy as he, a man whose work is not alone of London or of England, but of the whole world. It is astonishing how he has been able to devote so much of his time, and to do so much as he has in the past years, and at the same time attend to his scientific work. The work done for the Association is known to very few people; but as Chairman of the Medico-Political Committee he has devoted himself heart and soul to the work. I have very much pleasure in seconding this resolution, because it is suitable that a meeting so worldwide as this should recognize the worldwide fame of Sir Victor Horsley.

The resolution was carried unanimously.

Sir Victor Horsley: Mr. Mayor, Mr. President, Ladies and Gentlemen,—In expressing my deep thanks to the Association for the honour they have conferred upon me it is really quite difficult to find adequate words. A great deal of water has flowed under the bridge during the last four years. The facts that the Mayor has spoken to us of—the essential interests of the medical profession itself, and the essential interests of the public—due to the public from the profession—those double interests, were not fully met by the Association, but you reorganized your Association four years ago, and you enabled it to become a particularly representative institution. Now, ladies and gentlemen, when in this garden city one feels an especial joy in also realizing that an institution which has thus been made representative should at the same time exemplify its Imperial character. We hope in the Old Country to see the Association embrace within its membership every member of the profession, and we cannot do this in its entirety unless we have the reciprocal assistance of every member of the profession throughout the whole Empire, and therefore on this occasion, this afternoon I hope, at any rate an opportunity has been accorded to us of raising this subject before us, so that we can go away from this great, this enjoyable, meeting, feeling that we are on the threshold of a new British Medical Association, which shall promote the interests of the medical profession throughout the whole Empire, and at the same time carry on its beneficent work of furthering the interests of humanity. [Applause.]

President's Address.

The President delivered his address, which is published at p. 545.

Dr. Henry Barnes, LL.D. (Carlisle): Mr. President, Ladies and Gentlemen,—To the fact that I happen to be the senior Vice-President of the Association attending this great meeting I owe the distinction of being selected to make the customary vote of thanks to our distinguished President:

> That the best thanks of the Association be given to Richard Andrew Reeve, M.D., for the scholarly and interesting Presidential Address on the occasion of the seventy-fourth annual meeting.

I accepted this task with some misgivings, but these were at once removed when I heard I should have the support in moving this of a distinguished Canadian, Professor Roddick. Coming as I do from an old historic city, a city in England which was the site of a British settlement before it was a Roman station, which is the only city which has been added to the Crown of England since the Norman Conquest, which dates its history from the time of William Rufus, I have been much delighted with the evidence of material progress and enterprise since I entered this great Dominion of Canada. Two things which struck me particularly have been the industry and the temperance of the people. Everybody seems to have something to do, and they have no will to indulge in intoxicating liquors, which is a common practice in the Old Country. I cannot help but think that this meeting, consisting as it does of medical men from all parts, must have a material influence in leading to the consolidation and unity of the Empire—a unity for which Canada has made such great sacrifices. It is not my first visit to Canada. Nine years ago I had the pleasure of being present at a meeting in this city, and I cannot help but think that since that date the impetus that has been given to the study of science has been amplified by the additional resources for teaching in this great University. But there is one thing I would like to refer to very briefly: When I was here last I found two rival medical schools; now these rivalries have been removed, and there is only one school, a united school in this University. I understand that much of the credit for this union is due to the Dean of the College, the distinguished President of the British Medical Association. It may not be out of place to say that the British Medical Association is, I believe, the largest medical association in the world. During the last forty years I have attended many meetings, probably a greater number of annual meetings than any one here present, and I have constantly listened to presidential addresses, but a more able, more scholarly, or more interesting address than the one we have just heard from Dr. Reeve I think I never listened to. It has been customary in previous years for the Association to elect as its President some distinguished man at the place where the meeting of the Association was held. At Toronto it has taken a new departure, however. It has selected a distinguished member of the profession whose reputation is great on both sides of the Atlantic. With these few brief remarks I have much pleasure in moving the resolution.

Dr. T. G. Roddick, LL.D., F.R.C.S. (Montreal): Your Worship, Mr. President, Ladies and Gentlemen,—I have very great pleasure indeed in seconding this motion. I come from the small town of Montreal, and I may say we feel to-day smaller than we ever did, for the reason that this is a far better meeting, I can conscientiously say, than the one we were able to put up in the City of Montreal nine years ago. I have no doubt the next time we may do a little better than Little York, but to-day Little York, the City of Toronto, may be considered one better. I have also listened, like my friend Dr. Barnes, with very great pleasure indeed to the able address of Dr. Reeve, and, as he said, this address and everything about this meeting justifies the selection made by the profession of this city in making Dr. Reeve the President of the Association. The habit which the British Medical Association has recently got into of coming to Canada we hope will be continued. I have always felt, Sir, that the visits of the British Medical Association to Canada constitutes the best immigration scheme that could possibly be imagined. In fact, I think myself it would pay the Dominion Government to transport 1,000 members of the British Medical Association from the British Isles every five or seven years in order to be able to see our great country. I made that statement on one occasion in the House of Commons, and the Government, Sir Wilfred Laurier, and Mr. Fielding took it so seriously that they gave us $5,000 towards the Montreal meeting. I understand they were still more seriously impressed this time, for I believe they have given you $10,000, so that the figures are coming up. I have no doubt whatever that a proposal such as I have suggested just now would meet their views exactly. Doctors may tell fairy tales to their patients—and I am afraid they sometimes do—but the doctor who returns from Canada and who is consulted about this country by men having sons and nephews and others whom they intend to send are not likely to tell fairy tales. They are likely to give a truthful statement, and that is that we have here one of the greatest countries under the sun. I think that the King himself must be our friend. His Majesty I may tell you is the patron of the British Medical Association, and we have with us to-day two of his physicians, Sir William Broadbent and Sir Thomas Barlow, and may it not be the case that these gentlemen are here to spy out the land? I have the impression myself that they are going back to tell His Majesty exactly what they saw and found in Canada, and I believe that they will make such an impression upon him that within a year or two we may expect His Majesty himself to visit this country. They will be able to tell him that the ocean is not rougher and more dangerous than it was in 1860 when he crossed here last. They will be able to tell him that the villages which he saw in 1860 are now thriving towns. They will be able to tell him that the towns and cities that they visited by steamers and by railway were equal to any in the great eastern route, and they will be able to tell him that they found here the most loyal nation that it is possible to find, and I am sure that every member of this Association

would return if he thought that he could serve one of the most tactful, one of the most benevolent, one of the most peace-loving kings that ever reigned on earth. I have very great pleasure then in seconding the resolution, and as it would hardly be seemly for the President to put this himself I have been requested to do so, and I second the motion that the best thanks of the Association be given to Richard Andrew Reeve, M.D., for his scholarly and interesting Presidential Address on the occasion of the Seventy-Fourth Annual Meeting of the British Medical Association.

The resolution was carried unanimously by a standing vote, and three cheers and a "tiger" were given for Dr. Reeve.

The PRESIDENT: I thank you most heartily.

VOTE OF THANKS.

Mr. GEORGE COOPER FRANKLIN, F.R.C.S.: It is my privilege to propose that the best thanks of the Association be given to his Worship the Mayor of Toronto and the Municipal Council of the City of Toronto.

Sir JAMES BARR, M.D.: We heartily appreciate the generosity of the City of Toronto as expressed by the Mayor.

The motion was carried unanimously and three cheers and a "tiger" given for his Worship the Mayor and the Corporation of the City of Toronto.

The meeting then adjourned until the evening.

THE ADDRESS IN OBSTETRICS.

The PRESIDENT introduced Dr. W. S. A. GRIFFITH, M.D., F.R.C.P., who delivered the address on the Teaching of Obstetrics which was published in the BRITISH MEDICAL JOURNAL, August 25th, p. 423.

Dr. CHARLES G. HASTINGS (Toronto): Mr. President, Distinguished Guests, Ladies and Gentlemen,—It affords me a very great deal of pleasure to propose the thanks of this Association for the able and instructive address which we have received from Dr. Griffith. I am sure we all realize, especially those engaged in obstetric practice, that there is no subject more deserving of our serious consideration. There is no subject which probably has been more neglected and to which less serious consideration has been given than that of obstetrics, notwithstanding the advance that has been made in many branches of the science of medicine. There are numbers of practitioners who treat obstetric cases who have given very little consideration to these important conditions. I think we all realize that there is no time in a woman's life in which she is more deserving of our consideration than in the lying-in chamber. I think there is no more appalling picture to those who have had the misfortune to witness it than a death in the lying-in chamber, a young family deprived of a mother, and all that that term implies, for we must remember that it is the hand that rocks the cradle is the hand that rules the world.

Professor GARDNER (McGill University, Montreal): Mr. President, Ladies and Gentlemen,—It gives me very great pleasure to second this motion. I was greatly pleased to hear Dr. Griffith emphasize certain important things which the public do not yet realize. Hospitals, every one realizes, have been instituted to relieve the sick poor, but a great and important part of the public do not clearly realize that hospitals have another function, and that is the training of medical men, and further, the training of nurses. Now it is not too much to say that every individual in the community, whatever his social condition, is interested in the pregnant and lying-in woman being properly and scientifically cared for. I have much pleasure in seconding the motion.

The PRESIDENT put the motion, which was carried unanimously.

Dr. GRIFFITH: Mr. President, Ladies and Gentlemen,—I have occupied so much of your time already that I will do no more now than thank you for so kindly listening to what I have endeavoured to make you hear. I only hope that the efforts of every one will be directed along the same lines—the improvement of the teaching for obstetrics.

Wednesday, August 22nd, 1906.

THE ADDRESS IN MEDICINE.

Sir JAMES BARR was introduced by the President at a meeting held in the afternoon, and delivered the address on the Circulation viewed from the Periphery, which was published on August 25th, p. 401.

The PRESIDENT: Ladies and Gentlemen, I have now very great pleasure in calling upon Dr. Donald MacAlister, of Cambridge University, Chairman of the General Medical Council of Great Britain, to propose the resolution of thanks to Sir James Barr.

Dr. DONALD MACALISTER: Mr. President, when I came into this room I determined to view Sir James Barr and the circulation of the blood from a peripheral standpoint, and accordingly I got a modest seat at the side. It was not long, however, before I was surprised and gratified to observe you point me to a seat in front. I accepted the compliment with great cordiality, but I found I had not been seated there more than a minute or two when a little piece of paper was placed in my hands. However, I have very great pleasure indeed in accepting the task placed in my hands. I am very glad to move a resolution the terms of which I will read to you, because it enables me to express my own pleasure at the address we have just listened to. A good many years ago I was a mathematician, and from that I went into physics, and then to physiology, and so to pathology, and so to medicine, and my study led me to take a great interest in the mathematics of the circulation, and I spent many long nights in trying to find out hydrostatics of the circulation; but, as Sir James Barr says, there are some things you cannot get into the calculations. Although I do not agree with Sir James Barr in some of his conclusions, I admire his courage in placing before you his original ideas, and in giving so carefully-worded a statement. It is a compliment to any audience to have such a paper placed before them. It has been followed with interest, and I am sure that those of us who are less skilled will be only too glad to read in full in the JOURNAL the carefully-expressed statements in which he has formulated that which he read to us, and which is still more interesting because of the mysteries about which he did not read. It gives me, therefore, very great pleasure to move this vote of thanks:

> That the best thanks of the Association be given to Sir James Barr, M.D., F.R.C.P., for his able and interesting Address in Medicine on the circulation viewed from the peripheral standpoint.

Sir WILLIAM BROADBENT, Bart., K.C.V.O., M.D.: Mr. President, Ladies and Gentlemen,—I have particular pleasure in seconding this resolution—pleasure on many grounds. To begin with, we know that Sir James Barr is nothing if he is not original. We have had this question of the circulation discussed from a quite original standpoint, and the question which he has taken up—the peripheral standpoint—is really the one which is of greatest importance, because it is as ministering to the peripheral circulation that all these questions of blood pressure, of arterial constriction, of vasomotor regulations—it is in their influence upon the peripheral circulation that their importance lies. The whole of the circulation is, of course, for the purpose of ministering to nutrition, and the nutrition of the tissues is dependent on the action of these capillaries. The whole of the circulation behind these capillaries is for the purpose of regulating the blood pressure in the capillaries themselves, for the purpose of nutrition. Sir James Barr has quoted me as stating that the resistance in the circulation is in the capillaries. My standpoint is that the resistance is determined in the capillaries. It begins in the capillaries, and the resistance in the arterioles is entirely determined by the blood pressure and the requirement of the blood pressure in the capillaries. I have never for a moment denied that the principal resistance is in the arterioles, but this resistance has for its purpose the regulation of the capillary pressure. We have come to study the circulation in this respect as if the blood pressure were the important thing in itself. It is an important thing itself, mainly because it is a means of regulating the capillary pressure, and in that way the supplying of nutritive material to the tissues themselves. And so again this question of the viscosity of the blood—it is not viscosity of the blood, as you can measure it outside the body; it is not the relation, the cohesion between the blood capillaries themselves: it is the cohesion of the blood and the capillary wall which is the matter of real importance, which you cannot demon-

strate by experiments outside. It is this intangible, vital relation which underlies the whole question of the circulation. The great value of this address is that it calls attention to this peripheral circulation. It is another element of value in my eye that it presents so many debatable points. There are any number of questions on which I do not agree with Sir James Barr, and only regret that we have not the opportunity of threshing them out. Of course it would require careful consideration beforehand to do this. I think one of the great advantages of an address of this kind is like one's own hospital experience. When you are going around with a class of students you have to make your diagnosis, and very often you find your diagnosis entirely wrong when you come to the *post-mortem* room. Those are occasions of the greatest good to the student and to you, and I think that the address, which abounds in so many points for controversy, is a most valuable one. The whole of this meeting will be impressed, I think, with the importance of the questions of the circulation which we shall discuss in the various Sections, and one of the most valuable contributions will be this most admirable address by Sir James Barr. I have great pleasure in seconding this motion.

The President put the motion, which was carried unanimously with applause.

Sir James Barr: Mr. President, Ladies and Gentlemen,—I am very much indebted to you for the kind attention which you have given to my address. It required a certain amount of courage in the first place to present the address, because I felt, dealing with a physical subject like this—a physical subject which perhaps is better studied than presented as an address—it would perhaps have been better if it had not been delivered at all. I beg to thank you very sincerely for the vote of thanks you have given me to-day.

Address in Surgery.

The meeting adjourned until the evening, when Sir Victor Horsley read the Address in Surgery, which was published in the Journal of August 25th, p. 411. At its conclusion,

Professor I. H. Cameron, M.D. (Toronto): Mr. President, Ladies and Gentlemen,—This is a very unexpected but distinguished honour that has been placed upon me since I have come into this room. What I shall say, however, shall be from the heart and not from the head, and if I should not say what I should say, I must crave your indulgence. Sir Victor Horsley, as you are all aware, has been a pioneer in surgery, and therefore nobody has been a fellow to him. He has been the most daring operator on the nervous system that I know of, and to see him operate one would think that he had a perfect contempt for the bony envelopes of the nervous system, a contempt which has been justified from our present knowledge. Nearly all the work I have done in connexion with the nervous system has been with chloroform in consequence of the advocacy of Sir Victor Horsley, and I am sure that all of you, when you know that he advocates it, will be impressed and more apt to test it. I have seen Sir Victor Horsley use hot water, as he has told us this evening, with great freedom, and I have seen the benefits produced which he has described to us. Those of us who knew the late Dr. Aikins will remember that when he was operating and expecting a large amount of haemorrhage he surrounded the patient with a lot of hot-water bottles, and sometimes he used also a rubber cap circulating the hot water through it. And also I may say, because it is not in your textbooks, that in performing some of these operations Dr. Aikins used to put a ligature around the limbs, which had the result of keeping in the body a certain amount of blood, and also served the purpose of requiring less anaesthetic to be used. I want to impress upon you the debt of gratitude we owe to Sir Victor Horsley on account of his presence here, because his time is so fully occupied. When he is not operating he is conducting experiments in the laboratory. I have had the honour of having seen three of his operations, and if you were to see them you would have a still greater respect for the operator. The reason Sir Victor Horsley does not quote from literature is that he is the literature, and very good stuff it is too. I can only say in conclusion that Dr. Keen of Philadelphia, who is the only parallel of Dr. Horsley on this Continent, was asked to move this vote of thanks, and I am sorry he is not in my place. However I am very pleased to move:

> That the best thanks of the Association be given to Sir Victor Horsley for his striking and instructive Address upon Surgery, on the technique of operations on the central nervous system. [Applause.]

Professor Keen (Philadelphia): Mr. President, Ladies, and Gentlemen,—I have been for a number of years a member of this Association, and have had very many pleasant occasions in connexion with its meetings, but I can truly say that I never had a more pleasing duty placed upon me (unexpectedly, however), nor one that is more agreeable to me, than to second the vote of thanks to my old friend, Sir Victor Horsley of London.

The President put the motion, which was carried unanimously with applause.

Sir Victor Horsley: Ladies and Gentlemen,—I thank you very much indeed. Any pleasure which you may have felt has been an honour to me. I have expressed before the difficulty I have felt in adequately representing my feelings in appreciation of the honours which have been placed upon me, but, as regards the address, I can say with Sir James Barr, whether you like it or not you have got it, and what I have not read to you can still be read in the columns of the Journal. I cannot conclude without once more on this great historic occasion, thanking you and your mouthpieces, Professor Cameron and Professor Keen, for the vote of thanks which you have given me.

THE SECTIONS.

BRIEF SUMMARY OF PROCEEDINGS.

The character and scope of the work of the different Sections will appear from the following short summary of the proceedings. A full report of the discussions and of the various papers read in the Sections will be published in due course.

Section of Medicine.

Tuesday, August 21st, 1906.

The President, Sir Thomas Barlow, Bart., K.C.V.O., on taking the chair, said that he appreciated the great honour of being asked to preside at one of the Sections of the meeting of the Association at Toronto. He drew attention to the kindness of their Canadian brethren in allotting the subjects, and putting the English and United States members so prominently on the lists. Dr. Percy M. Dawson, Associate Professor of Physiology in the Johns Hopkins University, in opening a discussion on blood pressure in relation to disease, said that he spoke as a representative of the science lying midway between physics and medicine. A knowledge of the output and of the work of the heart was of primary importance. The questions to be asked were—Is the body receiving a normal amount of blood? and Is the heart being overtaxed? When the expression "blood pressure" was used, it was necessary to specify whether systolic or diastolic pressure was meant. In the determination of the systolic output, he arrived at the conclusion that although we could not say, owing to the uncertain cause of the dicrotic elevation, whether central or peripheral, that the mean change in pressure was proportional to the mean change in velocity, that is, to the systolic output, yet it was approximately so. In the determination of the work of the heart, he concluded that under normal conditions the mean pressure in the aorta was approximately equal to the diastolic pressure in the brachial artery *plus* one-third of the pulse pressure in that artery. In the determination of the blood pressure in the brachial artery, he dwelt upon the instruments being accurate, and the necessity for ascertaining both systolic and diastolic pressure in a graphic manner. Dr. G. A. Gibson (Edinburgh) recognized the value of the work on blood pressure done in America. The blood pressure depended on the initial energy of the heart and the tone and elasticity of vessels; the effect of the amount of blood was too uncertain a factor, and the viscosity did not probably have much influence; the tactus eruditus was not sufficient. The

estimation of blood pressure might be attempted by instruments reaching the part, by circular pressure, by the tint of the skin, and by obliterating pulsation; he preferred the sphygmomanometer. It was necessary to have clear conceptions of the normal limits of blood pressure, which were very wide and influenced by many factors. Sir William Broadbent thought the chief value of these instruments was educational. The transudation of liquor sanguinis could only be affected by pressure, so there must be intracapillary pressure, and it was in the capillaries themselves that the resistance which determines the outflow of nutrient fluid to the tissues resided. In the sense of cohesion between the blood and the capillary walls the viscosity was the main cause of the resistance which produced pressure. Permeability was another important factor. The blood supply was determined by the requirements of the tissues, and the basis for the clinical significance of variation in the blood pressure was essentially the presence of some normal or abnormal constituent. The significance of a reduction of pressure when it arose from diminished heart propulsion was very different from its significance when it arose from lowered peripheral resistance, and clinical examination should ascertain whether a change of pressure was due to central or peripheral causes. Professor Clifford Allbutt said that the term "arterial sclerosis" was not the name of a single distemper, but pertained to morbid histology; he divided the causes into three: (1) toxic, (2) hyperpietic, where excessive pressure was in excess for years, not due to kidney mischief, and (3) involutionary, as in old age. In established hyperpiesis, two kinds of vessels were found, the straight vessel with small diameter and the laxer vessel with more tortuosity or the "leathery artery;" one state generally predominated. In involutionary arterio-sclerosis, the arteries often attained a greater degree of tortuosity than in hyperpiesis, but life was threatened less than mental and bodily activity. Dr. J. Mackenzie (Burnley) showed a large number of illustrations of the forms of heart failure consequent upon long-continued high arterial pressure, and pointed out the nature of the causes of the failure from the various functions of tonicity, excitability, rhythmicity, contractility and conductivity. Dr. Lindsay Steven (Glasgow) said there were two clinical varieties—transient and persistent; the latter was always associated with Bright's disease the primary cause in all was toxic. Professor Alex. McPhedran (Toronto) related several interesting cases illustrating the value of ascertaining the blood pressure, and the result of the administration of some vaso-dilator. Dr. G. W. McCaskey (Indiana) insisted upon the great importance of arterial spasm. Dr. Stengel (Philadelphia) reported cases suggesting a relation of arterio-sclerosis to continued fever and repeated chills; he mentioned abdominal types of arterio-sclerosis, and spoke of the association of albuminuria with general arterio-sclerosis. Dr. Ewart (London) spoke on the relation of chronic disease of the arterial wall to the pathological and physiological factors of increased arterial tone.

Wednesday, August 22nd.

After the joint discussion on overnutrition and undernutrition with the Section of Physiology, Dr. L. F. Barker read a paper on the amino-acids and metabolism. He dealt with the presence of these in various forms of albumen, and with some investigations as to their presence in various ordinary foods. Some had been artificially prepared by the chemist. In digestion the long-chain series were gradually broken up into smaller; and then, still in the alimentary canal, were built up again for the blood serum. Cells were thus fed upon a constant diet, and built up into still longer chain series. This breaking down was found in resolving pneumonia, and probably explained the origin of diabetes by splitting off of some of the amino-acids. Dr. W. B. Thistle (Toronto), in a paper on the treatment of typhoid, advocated early purging on the principle of elimination. Dr. Calwell said his experience invariably was that cases with diarrhœa were much more dangerous than those with constipation: and Dr. Thos. McCrae (Johns Hopkins Hospital) agreed that the effect by purgation was on the whole unfavourable. Professor McPhedran said the kidneys were the eliminatory organs, not the bowels, and that purging, he believed, did harm. Dr. Barker pointed out that a person may be apparently quite recovered from typhoid and still be discharging millions of the bacilli. Dr. Hamilton advocated both antiseptic and purgative plans. Dr. Thistle replied.

Joint Meeting of the Sections of Medicine and Physiology.

Wednesday, August 22nd.

Sir Thomas Barlow, President of the Section of Medicine, took the chair at a joint meeting of these two Sections to discuss overnutrition and undernutrition, with special reference to proteid metabolism. Professor Russell H. Chittenden (Yale) said that dietetic customs were not necessarily right; instinct should not be put above the guidance derived from scientific investigation. The object of food was to repair waste, to furnish energy, and in the young to provide for growth. Food must be sufficient to establish equilibrium in weight, to keep up that strength of body and mind essential to good health, to maintain the highest degree of physical and mental activity with the smallest amount of friction and the least expenditure of energy, and to heighten the resistance of the body to disease. This was the ideal diet. Certain dietary standards had been generally accepted and were universally quoted. Modifications were made to meet the requirements of age, sex, body-weight, and activity. The ordinarily-accepted 112 grams of proteid food with fat and carbohydrates to yield 3,050 calories was based upon the conviction that man's instinct and craving afforded a reliable index for his nutritive requirements; but they were really simply estimates of actual food consumption. From his extensive experiments he arrived at the conclusion that the normal requirements were really only one-half the existing standard—that is, 0.1 gram of nitrogen per kilo of body-weight daily, instead of the customary 0.23 gram of nitrogen per kilo of body-weight was sufficient to keep an individual for four years and a half without visible detriment in activity, and with great gain to the economy. The experiments were with a group of professional men, next with eleven soldiers, and thirdly with a group of university athletes. Experiments he was conducting at the present time did not support the results of former experiments on dogs, and tended to show that they could do with a smaller proteid supply. He thought there were more people suffering from over-eating and overnutrition than from the effects of alcoholic drink. Professor Halliburton said each animal had its own coefficient as regards its requirements; experiments must be made on men and women. He recognized that Professor Chittenden was the first to conduct such experiments on a sufficient scale and for a sufficient time. Amongst the poor and in the East it was the underfed that suffered most. The proteid required was not absorbed as peptone, but was still further broken up; a small part repaired the waste; the larger part acted as a source of energy. To leave too narrow a margin was dangerous; it was not physiological to take only the bare necessary. An infant took ten times its apparent physiological requirement. He referred to the good results which follow a large proteid diet in cases of phthisis and some nervous diseases. He suggested that other substances in small amounts derived from large quantities of proteid might be necessary for continued bodily well-being. Dr. Otto Folin (Waverley, Mass.) spoke of the fallacy of accepting generally-followed customs as true standards. We should acknowledge our ignorance of the subject, and rely only on the evidence of carefully conducted experiments. Dr. R. Hutchison (London) looked at the question from the clinical point of view. The proteid minimum was not the proteid optimum; other bodies besides proteids were taken with a large proteid diet, and must be considered, too. The class of bodies acting as proteid sparers were also important. There was the large question of idiosyncrasy to be considered. The index of overnutrition was the deposition of fat, and what was the optimum amount of adipose tissue must be determined. Some bodies, too, are more economical workers than others, and require less food. Professor Lapicque (Paris) spoke of the influence of climate on diet, and on the splitting up of proteids into different substances. Dr. G. B. Rama Rao (Madras) referred to the thousands in India of excellent bodily and mental capacity who

never touched animal food. Sir James Grant (Ottawa) said that the people in Canada required more food than those of India. The Chairman expressed the high appreciation they all felt of the value and interest of the discussion. There was no doubt Professor Chittenden's experiment would modify the views of both profession and public. But there were many other facts. How was it that a child did well for a time on cereals, then failed, but exhibited marked improvement as soon as it was put on flesh? Was there not a place in the economy for a surplus of food? He thought it was not a mere matter by balancing. Dr. Chittenden replied; he said he did not attempt to settle questions, he raised them.

Section of Surgery.

Tuesday, August 21st.

Sir Hector C. Cameron, the President of the Section, delivered his brief address of welcome (see p. 552) to upwards of 200 members. The special discussion on the treatment of enlarged prostate was opened by Mr. J. Lynn Thomas, C.B., who exhibited an instrument for elevating the prostate and so facilitating its removal through a suprapubic opening. Dr. George A. Bingham (Toronto) followed with an exhaustive paper on the subject. He stated that the modern suprapubic operation could not be properly called "total prostatectomy," and that it differed merely in detail from the procedure practised by the late Mr. McGill of Leeds. He was strongly in favour of Bottini's operation for cases too advanced for enucleation. The choice of route by which the prostate should be approached should be decided by the condition present. When the middle lobe was alone involved and projected into the bladder it should be dealt with suprapubically. In other cases the perineal route was to be preferred. Both speakers laid stress on the importance of treating septic cystitis when present before proceeding to enucleation. An interesting discussion followed, Dr. W. S. Mayo (Rochester) Dr. Ochoner (Chicago) and several other American speakers favoured the perineal operation as being safer and giving more satisfactory results than the suprapubic method. Dr. Murray McLaren read a paper on posture as an aid in surgery, and Dr. A. Beverley Welford a paper on fracture-dislocation of the spine.

Wednesday, August 22nd.

Mr. Sinclair White (Sheffield) opened the special discussion on the surgical treatment of cirrhotic ascites in a paper which dealt fully with the anatomical and pathological data on which the operation of epiplopexy is based. He regarded the ascitic effusion as mainly a passive one brought about by the contraction of Glisson's capsule on the terminal branches of the portal vein. Ascites did not appear even in advanced cases of cirrhosis if there was an abundant collateral circulation. Omental fixation was the most important step in the operation, and drainage for eight days was desirable. An analysis of 227 recorded cases of the operation showed a death-rate of 33 per cent., and a symptomatic cure in 37.3. per cent. In 28 per cent. the remote result of the operation was disappointing, resulting either in failure or slight improvement. Dr. John Stewart (Halifax) and Mr. George Gray Turner (Newcastle-upon-Tyne) followed with papers on the subject. Mr. Turner was of opinion that only a small proportion of ascitic cases were suitable for operation. He advocated drainage with strapping of the abdomen. Dr. James Bell (Montreal) read a paper on the operative treatment of irreducible luxations of the semilunar cartilages. He advocated transverse section of the patella in order to gain a full view of the joint. Four cases, all successful, were narrated. Papers were read by Dr. Francis J. Shepherd (Montreal) on intestinal resection for tuberculous ulceration, and Dr. George Armstrong (Montreal) on Banti's disease.

Section of State Medicine.

Tuesday, August 21st.

Dr. I. J. Montizambert took the chair and welcomed the members present, briefly acknowledging the honour conferred upon him. Dr. Dixon, Health Commissioner of Harrisburg, Pa., read a paper containing a summary of experiments made during the last seventeen years, with a view to the preparation of an antitoxin suitable for the human subject. Having regard both to the chemical and bacteriological aspects of clinical phthisis, the object was to isolate an antitoxin which could safely produce the same results in human beings as had already been obtained in animals. Dr. Roberts, Health Officer of Hamilton, On., read a paper consisting of an admirable summary of the measures for the prevention of tuberculosis to be taken by the State, the municipality, and the individual respectively. The difficulties which attend the practice of notification and the grave need for the hearty co-operation of the general practitioner were emphasized, and the further need of sanatoriums alluded to. Dr. Roberts, in conclusion, gave an account of the preventive measures which may be carried out under present conditions. Dr. Gilchrist, of Nice, read a paper upon the analogies between pulmonary phthisis and chronic influenza. The object of the paper was mainly directed to a criticism of the specificity of tuberculosis bacilli, and to an attempt (based upon the work of Gautrelet) to support the claims of bio-chemistry to be a means of showing analogy in disease. Dr. Probst, State Board of Health, Ohio, read a paper on the doubtful phases of tuberculosis. The questions of infection by the ingestion of milk or meat which is partially tuberculous; the value of detention from school which is only partial; and the inconsistence of all partial measures were discussed, and it was pointed out that the great difficulty in any large measures, either for the cure or prevention of tuberculosis, was that medical men did not yet agree on even general principles. A short paper by Dr. Homan, of St. Louis, on the dangers of dust in domestic houses, hotels, and clubs was read by the Secretary. Dr. Probst spoke very fully on the need for better home treatment of tuberculous patients. Dr. Stevens (Renfrew, near Glasgow) spoke of the methods adopted there for the education of the poor, and of certain personal experiences in his own family of the value of fresh air. Professor Glaister (Glasgow) described the difficulties of living outdoors in Scotland all the year round, and discussed the dust question indoors and out. Dr. Barrie spoke of the need for educating the people in a better method of breathing, and Dr. Woodward (United States Marine Hospitals Service) detailed the methods of that service as regards hospital and sanatorium treatment. Dr. Dixon made some remarks on disinfection, and on the employment of tuberculous milkmaids. Dr. Manley spoke of the difficulties met with in England in getting compulsory notification, and Dr. Holton (Vermont) said that similar difficulties were met with in his State. Dr. Roberts (Hamilton) made a few additional remarks on the importance of schemes for the housing of the working classes in preventing tuberculosis. Dr. Groves (Isle of Wight) spoke of the need for educating the people in few and simple words. He preferred a life in a tent with proper treatment, and education by skilled nurses as to the mode of living, to the expensive modern sanatorium.

Wednesday, August 22nd.

A paper by Dr. Hill (the Health Laboratories of Minneapolis, Mich.) on water supplies from a sanitary standpoint, was read in his absence by Dr. Wesbrook, Director of the Health Laboratories of Minneapolis. The paper dealt with the essentials of a public water supply as regards, purity, amount, and price, as well as good appearance. The employment of water experts by all municipalities to secure these essentials, the need for efficient supervision, and the control of municipal authorities by the State were then discussed. Finally, the responsibility of Local Boards of Health in maintaining a pure water supply was examined in detail. Dr. W. J. Robinson (Guelph, Ontario) read a paper on artificial purification of water supplies, dealing with the construction and working of sand filters, and the rate of filtration in various types of filters. The principles of chemical and mechanical filtration were also discussed, and the experience of two American cities in the lowering of the death-rate from typhoid fever dating from the adoption of a proper system of water filtration described. Dr. Holton (Secretary of Vermont State Board of Health) read a note on water supplies dealing with the check upon waste by meter, the need for purity, the various sources of supply, the danger of watershed contamination, and the consequent need for some form of filtration. Professor Starkey (Professor of Hygiene, McGill College, Montreal)

gave an abstract of his paper dealing with the classification of natural and artificial water supplies and with the pollution of rivers and its prevention. Dealing specially with the Ottawa and St. Lawrence rivers, he pointed out the gradual and steady increase during four years of the number of bacterial colonies per c.cm., although the chemical analysis was above suspicion. Professor Glaister (Glasgow) discussed the importance of pure water in relation to disease prevention. He traced the history of water supplies in large English communities, noting the use of reservoirs and the difficulty of dealing with each individual case. He also pointed out that in Great Britain there was abundant legal power to deal with the pollution of rivers. Filtration, he said, had hitherto failed to remove the discoloration of peaty and moorland waters. Dr. Nasmyth made a few remarks upon the duties and responsibilities of local authorities in regard to water supplies, quoting his own experience in Scotland. Dr. Bryce followed on the same lines, and discussed the relative merits of preventing pollution, and of combating its results by filtration. Dr. Probst (Ohio) spoke of the necessity for a central authority to enforce the law for preventing the pollution of rivers, and pointed out that the legal powers in Ohio were ample for that purpose. Dr. Groves (Isle of Wight), who as Vice-President had replaced the President in the Chair, spoke of the difference between well waters and river waters as regards the persistence of pollution. He also impressed strongly on the meeting the necessity for complete municipal control of the source of the water supply. Professor Harcourt, of the Agricultural College of Guelph, Ontario, commenced the debate on milk by a paper on the control of milk supplies. Professor Glaister then read a synopsis of his paper on the administration and control of milk supplies, referring more especially to the character of so-called milkborne diseases and their actual causation, and to the need for further legislation and the establishment of a better milk standard. Dr. Cooper Pattin (Norwich, England) also read a short paper on the same subject.

SECTION OF PHYSIOLOGY.

Tuesday, August 21st.

THE first day's business began with a joint discussion with the Section of Pathology on the rôle of the nucleus in nutrition. Professor J. G. Adami opened the discussion by referring to the great part played by the Toronto school in nuclear physiology, and especially to the work done on the subject by Professor A. B. Macallum who had been a pioneer. Professor Adami gave a general account of the physiology and pathology of the nucleus. The nuclear matter, he said, conveyed and determined or controlled the inherited peculiarities of the individual; this property, he contended, was contained in the chromosomes, variations of which in a nucleus might determine particular conditions in the individual; sex was probably a matter of chromosomes. The nucleus was absolutely essential for the growth and reproduction of a cell; cells that had lost their nuclei by natural or artificial means might survive and might ingest and elaborate food substances, but could not form new cell substance, grow or multiply. Changes in the form and structure of nuclei had been found as the result of physiological activity. The nucleus governed the higher synthesis and initiated and determined the formation of zymogens in gland cells. Reference was made to pathological changes of the nucleus described in tumour growth. Professor Adami concluded by surmising the presence in nuclei of ultimate molecules of living matter or "biophores" which in turn gave rise to biophores "*omne biophorum ex biophoro ejusdem generis.*" Professor A. B. Macallum next spoke of the great importance of the nucleus. He showed lantern slides of the nuclei of some of the lower forms of life in which the questions presented by the nuclei were simpler. The nucleus had a special chemistry of its own, its compounds were very complex, and it presented the peculiarity of containing no free inorganic materials. Dr. Gustav Mann (Oxford) referred to the changes produced in the nucleus by different foods, and the slowing of its activity by drugs. Professor E. Wace Carlier (Birmingham) expressed the belief that many of the changes were merely ordinary changes of growth, and that the nucleolus was extruded from the cell after it had attained a certain size. Dr. H. E. Roaf (Liverpool) spoke of the changes seen in cancer growths, and Professor Sims Woodhead (Cambridge) referred to the influence of poisonous substances on the nucleus. Dr. Bashford (London) said that abnormal forms of cell division were comparatively rare in cancer. There was a continuous growth of cells and rapid division. The cells in cancer had an enormous power of deriving nutriment. Professor W. D. Halliburton then delivered the address on proteid nomenclature, published on p. 551. Professor E. Delezenne (Paris) read a paper on the pancreatic digestion of albuminoids and on the action of salts on the activity of pancreatic juice. Dr. S. P. Beebe (New York) spoke on nucleo-proteid immunity, and emphasized the difficulty of producing pure proteid serum. Antiserums could not be made absolutely specific. Antithyroid serum was especially active. Professor G. T. Kemp (University of Illinois) described the modes of preparing specimens of blood, showing blood plates and the reactions shown by them to some of the more important microchemical tests.

Wednesday, August 22nd.

After the joint discussion on overnutrition and undernutrition with the Section of Medicine, Dr. Otto Folin (Waverley, Mass.) read a paper on the metabolism of kreatin and kreatinin. Small amounts of these substances were given at intervals to normal individuals. The absorption of kreatin was not followed by increased nitrogenous output, and there was no increase in the excretion of kreatinin. He believed that kreatin acted as a food in a special way, and was not converted into kreatinin. Dr. Lafayette B. Mendel (New Haven, Conn.) spoke on chemical studies of growth, and discussed the chemical changes that take place and the period at which substances like purin bodies, cholesterin, and enzymes appear in the growth of the embryo. He also discussed the influence of diet on growth. Dr. H. E. Roaf (Liverpool) read a paper on the effect of ions on growth and cell division. The work had been done conjointly with Professor B. Moore and Professor E. Whiteley. They examined the eggs of the sea urchin grown in sea-water modified by the addition of certain salts. Living cells were found to be very susceptible to change of certain ions, increase of acidity affects growth, neutral salts unless concentrated have little effect. Dr. Reid Hunt and Dr. R. de M. Taveau (Washington) read a paper on the physiological action of certain choline derivatives, and exhibited charts illustrative of their effect on blood pressure. Professor C. F. Hodge (Clark University) concluded the meeting with papers on the structures and physiological functions of *Amœba proteus* and, with Professor M. F. Duncan (Clark University), on differentiation of contractile protoplasm.

SECTION OF PSYCHOLOGY.

Tuesday, August 21st, 1906.

A PAPER by Dr. Diefendorf (Connecticut), dealing with the etiology of general paralysis, was read, in the absence of the author, by Dr. A. T. Hobbs (Guelph, Canada). Dr. Diefendorf's material was from 172 cases in the Connecticut Asylum, during the seven years 1898-1905. In this period the percentage of general paralysis to all other forms of insanity did not show any tendency to rise, and varied between 7.8 per cent. and 5.4 per cent. (these last figures being for the year 1904-5). He found, however, that there was a distinct tendency for the number of female general paralytics to increase. He discussed statistically the more specific causative factors, and assigned the greatest importance to syphilis, but considered that alcohol might be as capable of producing general paralysis as syphilis. The paper was briefly discussed by the President, by Dr. C. K. Clarke (Toronto Asylum), Dr. T. J. W. Burgess (Verdun Asylum, Montreal), Dr. H. W. Mayer (Chicago), and Dr. H. W. Miller (Massachusetts). Dr. J. Mickle then opened a discussion on general paralysis, dealing with the delimitation of the disease, under the chief headings of symptoms, morbid anatomy, and pathogenetic relations. Dr. W. Aldren Turner referred to the etiological connexion between general paralysis and tabes dorsalis, and stated that, in his opinion, the evidence pointed to syphilis as the great predisposing factor in both disorders, but also suggested that an exciting cause was to be sought for, such as trauma, alcoholism, nervous stress, or possibly, in

view of Ford Robertson's researches, intestinal auto-intoxication. Dr. L. Harrison Mettler (Chicago) believed the variable views held in regard to the ultimate outcome of general paralysis were due to the emphasis laid respectively upon the clinical manifestations, or upon the pathological findings. He held that, pathologically, general paralysis was another phase of the tabetic process, that it was a primary cortical neuronic degeneration, and that from this point of view the prognosis of general paralysis was bad. Dr. J. D. O'Brien (Massilon) referred to some experimental work he had undertaken with reference to the bacteriology of general paralysis on the lines of Dr. Ford Robertson's views. He obtained an organism similar to the Klebs-Loeffler bacillus in over 95 per cent. of general paralytics, but in other forms of insanity in only 2 per cent. Animals inoculated developed congestive seizures and other physical symptoms of the disease, and *post-mortem* examinations revealed lesions similar to those seen in early general paralysis. Dr. A. T. Schofield (London) read a short paper on the new psychology, and the meeting terminated.

Wednesday, August 22nd.

Dr. C. K. Mills (Philadelphia) started with a brief review of the literature and of personal observations concerning hallucinations and delusions, taking the view that these symptoms regarded from the psychiatrical standpoint never occurred as the result of the irritation, instability, or destruction, or combination of these, caused by lesions limited to cortical areas or centres of the senses conditioning these phenomena. The phenomena when they rose to the plane of insane hallucinations required for their explanation, disruption or dissociation of the mechanisms which associated not only these centres with each other, but with other parts of the brain. He reviewed many personal cases of coarse focal disease, and then took up the question of diffuse destructive, degenerative disease, such as cerebral syphilis and progressive presenile dementia and general paralysis, in which hallucinations and other genuine insane phenomena are present. He referred also to the observations of K. Schäffer and Soemmerling on lesions of general paralysis in their relations to association and projection areas; also to personal observations on the anatomical and morphological peculiarities of the cerebral surface in cases of paranoia and in low types of brain generally; here the preponderance of arrest and aberration was most noticeable in the great association regions. He suggested the classification of insanity on the bases of: (1) Structural arrest or embryonal apotentiality; (2) course and prognosis, especially as conditioned by developmental periods; (3) election of cerebral mechanisms by exciting causes, bacteriologic or toxic. The paper was briefly discussed by Dr. C. H. Hughes and Dr. L. H. Mettler (Chicago), and replied to by Dr. Mills. Dr. John Turner called the attention of members to a microscopical demonstration of his method of staining the central nervous system, which was on exhibition in the Pathological Museum, and he then gave a lantern demonstration of his findings in the blood and nervous systems of epileptics. The subject was briefly discussed by Drs. Spratling and C. K. Mills. Dr. Spratling apologized for not being able to give his kinetoscope exhibition, but gave instead a short account of the technique of the process and exhibited one of the films. Dr. W. Aldren Turner (London) opened the discussion by reading a paper upon psychical epileptic equivalents. Reference was made at the outset to the various psychical conditions which have been described and classified as equivalents of epileptic seizures, and to the views of Lombroso, Aschaffenburg, and others, who have sought to enlarge the range of epileptic phenomena, by including many psychical states under this term, and thus minimizing the value of spasm or convulsion as the primary feature in epilepsy. Dr. Turner showed that only those psychical conditions, which are met with as pre-convulsive and post-convulsive mental states, should be described as "equivalents" when they occur without antecedent or succeeding spasm or convulsion. With this definition in mind he classified the following psychical states, when occurring in the interparoxysmal periods in epileptics, as genuine psychical epileptic equivalents: (*a*) Psychical epilepsy, observed in its two forms of short psychical attacks and the prolonged attacks known as epileptic ambulatory automatism; (*b*) epileptic mania, including the impulsions; (*c*) dreamy mental states of a psychasthenic character, comparable to those psychoses to which Janet has applied the term "psycholepsy": (*d*) catatonic stupor; (*e*) temporary delusional states; (*f*) miscellaneous phenomena, such as narcolepsy, automatic laughter, etc., conditions which should more properly be regarded as psychical epilepsy or as substitution psychoses. Dr. Julius Mickle dwelt upon the enormous number of mental states which occurred as epileptic equivalents and also upon the difficulty of diagnosing in some cases between epileptic equivalents of certain kinds and conditions which are part of many cases of epilepsy, and, on the other hand, mental besetments or psychasthenic obsessions. Dr. Spratling referred to the extreme rarity of pure psychical attacks without epileptic phenomena, which in his experience occurred only in 0.2 per cent. of all attacks, whereas the mixed form, psychic and epileptic, occur in 5 per cent. He considered the dreamy state as over-estimated; it usually represented an intellectual aura preceding an attack. He took exception to the incurability of psychic epilepsy. He considered, in reference to the study of epilepsy, that neuropathology had had its day. They were now at Cray Colony engaged in searching the body of the living epileptic for the cause of epilepsy. He considered that the convulsion was the salvation of the epileptic mind. Dr. W. G. Spiller (Philadelphia) referred to Friedmann and Oppenheim's attempts to separate from epilepsy certain groups of cases usually classed as epilepsy. Dr. Spiller described a case under his observation for five or six years which might be regarded as one of psychic epilepsy, but which he considered as belonging to the psychasthenic group of cases.

Section of Paediatrics.

Tuesday, August 21st, 1906.

After some introductory remarks by the President, Dr. Robert M. Lovett (Boston) read a paper on osteogenesis imperfecta, a congenital condition in which multiple fractures, chiefly of the long bones, occurred during intra-uterine life or in infancy. As many as 113 fractures had been recorded in a newborn child in one case. A case was reported in which ten partial or complete fractures occurred up to the age of 5 months. The child died of a general affection at the age of 10 months. Pathological examination showed very marked changes in the bones, the periosteum forming separate plates of non-laminated dense bone, with oval instead of stellate bone cells, and large marrow spaces in place of Haversian canals. Photomicrographs showing these pathological conditions were exhibited. Dr. Ewart (London) read a paper on abdominal atony in rickets. As the medicinal treatment for this affection he recommended small doses of castor oil daily, and considerable doses of hypophosphites. Externally he advised massage, friction, and electricity, and showed two elastic abdominal belts which he found useful in treatment, as they acted as a stimulus to respiration, supplied a hypogastric support, and tended to prevent gastric dilatation. The President, Dr. Sutherland, did not approve of large doses of hypophosphites, but agreed in giving castor oil and in dietetic treatment. Dr. Edmund Cautley (London) thought the use of an abdominal belt would only aggravate the condition, by lessening the activity of the abdominal muscles. Dr. Kauffmann (Birmingham) recommended urotropin as an intestinal antiseptic in these cases. Dr. H. Ashby (Manchester) read a paper on the medical aspect of pneumococcal infection. He emphasized the importance of a suitable condition of soil for the implantation of the pneumococcus, and said that if the discovery of this micro-organism had not yet led to any very practical results as regards serum treatment, it had taught the great value to individual patients of fresh air. This had been exemplified by the success attending the treatment of pneumonia complicating measles and whooping-cough in open-air shelters. He pointed out the frequency of pneumococcal meningitis, and described several typical cases. In conclusion, he considered that a greater care of infant life, better nutrition, purer air, a levelling-down of the slums and a levelling-up of the slum mother, would do more than aught else to lower the mortality of pneumonic infection. Dr. Stuart McDonald (Edinburgh) spoke about the

pathological aspect of pneumococcal infection, and pointed out that the pneumococcus was the most potent disease-producing germ in children next to the tubercle bacillus. There was a greater tendency to general septicaemia from pneumococcal infection in children than in adults, in which respect they behaved more like rabbits or mice. The subject was discussed by the President, Dr. Jacobi (New York), Dr. Machell (Toronto), Dr. Bier, and Dr. Cautley. All deprecated excessive medicinal treatment in pneumonia, and Dr. Jacobi pointed out that in his experience the prognosis of pneumococcal meningitis was not nearly so severe as some authorities considered.

Wednesday, August 22nd.

Dr. C. L. Starr (Toronto), in a paper on the treatment of tuberculous abscess, reviewed the treatments by aspiration, by injection of germicidal agents, and by excision of the entire abscess sac—as advocated by Watson Cheyne. The latter he considered a perfect method of treatment in the limited number of cases to which it was applicable. He protested against the common method of treatment by incision and drainage as advocated by most textbooks and even in recent works on orthopaedic surgery, as such abscesses when drained invariably became septic. A certain number of cases could be treated by the expectant method, the patient being placed in the recumbent position, and the affected limb firmly fixed. In favourable cases absorption might occur. When operation was necessary he adopted the method of incision, evacuation of contents, curetting of wall, and closure of wound. A report of 25 cases treated by this method, presented to the American Orthopaedic Association in 1891, received a good deal of unfavourable criticism, but he was now able to report 30 additional cases treated by this method, which he considered gave better results than any other treatment. The abscess should be incised freely, the contents evacuated, the wall wiped with 10 per cent. iodoform gauze, aided by the curette, the cavity cleaned as perfectly as possible, the wound closed with deep sutures, and firm pressure by antiseptic dressings applied. He had discontinued swabbing the abscess cavity with pure carbolic acid and filling it with iodoform emulsion, as at first recommended. Dr. Blackader (Montreal) read a paper on rheumatism in children. He emphasized the fact that in childhood purely arthritic manifestations of rheumatism might frequently be wanting, and might be replaced by tonsillitis, chorea, pleurisy, muscular pain, exudative erythema, and epistaxis. According to the statistics of the Collective Investigation Committee of the Association, tonsillitis was associated with rheumatism in 25 per cent. of all cases, while the records of the Vanderbilt Clinic of New York gave the proportion as 35 per cent. Recent inoculation experiments by Fritz Meyer in Germany and Frissell of New York pointed to the tonsils as the pathway for the entrance of the rheumatic organism. Hence, careful attention to the condition of the tonsils was especially demanded in all children with rheumatic tendency. All authorities agreed that subcutaneous fibrous nodules, so frequently observed in England, were rare in America. With regard to treatment, Dr. Blackader laid stress on prophylaxis, the correction of tendencies to anaemia, and the avoidance of over-fatigue. Rest in bed and frequent examinations of the cardiac area he considered most important, though the prognosis of endocarditis was better in children than in adults. Subsequent discussion showed a general consensus of opinion that subcutaneous fibrous nodules were not so common as rheumatic manifestations in America as in England, and also that their prognostic significance was not so grave as used to be believed. The American speakers did not seem to have so much faith in salicylate treatment of rheumatism as is customary in Great Britain. The last business of the session was a discussion on laryngeal stenosis in infants, held conjointly with the Section in Laryngology and Otology, and reported under that head.

SECTIONS OF PAEDIATRICS AND LARYNGOLOGY.

Wednesday, August 22nd.

A JOINT meeting of these Sections was held, with Dr. Dundas Grant in the chair, to discuss congenital stridor (laryngeal and tracheal). Dr. Logan Turner (Edinburgh) stated the various theories advanced in connexion with the etiology of the affection: (1) The presence of adenoid vegetations, (2) compression of the trachea by an enlarged thymus, (3) congenital malformation of the upper aperture of the larynx, (4) an acquired deformity of the upper aperture of the larynx, the result of a disturbance of the co-ordination of the respiratory movements. He held the last-mentioned view. Dr. Ashby, who followed, expressed the opinion that the condition was a neurosis. He showed the larynx of an infant the subject of stridor. It had died of pneumonia. The larynx was normal and the thymus not enlarged, and he considered that the stridor was produced at the vocal cords. Dr. Edmund Cautley also showed the larynx of an infant that had suffered from laryngeal stridor. There was close approximation of the edges of the epiglottis and of the arytenoid cartilages. He regarded the persistence of the stridor during sleep as against the theory of a neurosis, and supported the view that the condition was due to a congenital malformation of the upper laryngeal aperture. Dr. Jacobi (New York) said that a theory must not be built on the observation of a single case. At the autopsy of a case of purring stridor and very moderate dyspnoea he had found hypertrophy of the mucous membrane and submucous tissue about the insertion of the arytenoid cartilages. Dr. Gibb Wishart (Toronto) had seen some six cases. The last was that of a child less than one day old in which the stridor was present during sleep, and cyanosis occurred at intervals if it were laid upon its back. The epiglottis fell backwards. This child was doing well by simply watching the position in which it was placed. In another child the epiglottis was sucked backwards over the glottis during inspiration. Tracheotomy was performed, and the parts viewed from below were found normal; this child recovered. Dr. Brown Kelly (Glasgow) maintained that the croaking was not due to vibration of the aryepiglottic folds, as commonly held, but to the vibration of a loose flap of mucous membrane on the summit of each arytenoid. Further, that the stridor and respiratory embarrassment did not always arise from a common cause. He reported the case of an infant suffering from congenital stridor on which he performed intubation, with the result that the stridor was abolished but the respiratory difficulty was unaffected. The upper portion of the thymus was subsequently removed by Mr. R. H. Parry, but as the operation had been quite recently performed an opinion could not yet be expressed as to the ultimate result. Dr. Dundas Grant had seen two cases, one of which was undoubtedly due to the falling backwards of a very lax epiglottis. Dr. E. Fletcher Ingals (Chicago) had been able to get a good laryngoscopic view of one case, and had found the walls of the opening of the larynx constantly sucked in with inspiration. Dr. MacCuen Smith (Philadelphia) considered that in these cases one of two conditions must be present—namely, a faulty development of the cartilaginous portion of the larynx, or an insufficiency of the muscles whose function it was to keep the larynx open during inspiration. Dr. G. A. Sutherland (London) at the *post-mortem* examination of a case of congenital stridor had found the entrance to the larynx reduced to a slit. He objected to inco-ordination being advanced as an explanation, as there was no other sign of it. The question to be settled was whether the malformation found in several cases after death was primary or secondary. Dr. Peyre Porcher expressed the opinion that congenital stricture was due to general cachexia.

SECTION OF ANATOMY.

Tuesday, August 21st.

AFTER the President of the Section (Professor Arthur Robinson, Birmingham) had delivered the short address which is published on page 548, Professor J. Playfair McMurrich (University of Michigan) made a preliminary communication upon valves in the iliac veins; he had found them in a fairly large percentage of the cases he had examined, though their presence was usually denied. Professor Robinson stated that in a series of 6 cases he had been unable to find the valves. Professor Huber (University of Michigan) demonstrated

the origin of the arteriae rectae of the kidney from the efferent vessels of the glomeruli and the forms which the urinary tubules assume in various mammals. He obtained his results from corrosion preparations and reconstruction of sections. Professor Donaldson (Wistar Institute) read a paper based on the work of his pupil, Dr. Ranson, on the architecture of the spinal ganglion, showing that there were in it three groups of cells which were differently affected by section of the posterior primary division of the nerve. Professor Huber (University of Michigan) pointed out that the connexions of some of the cells might be other than those suggested by Professor Donaldson. Dr. R. R. Bensley (University of Chicago) showed that instead of the two groups of glands usually described in the stomach there were three groups in man, as in other mammals—cardiac, fundus, and pyloric glands—of which the foremost were produced by degeneration, and their extent in the human stomach was small. He also brought forward the work of his fellow-student, Mr. Lane, showing new reasons for believing that the cells of the islands of Langerhans in the pancreas are quite distinct from the cells of the tubes and acini of the gland. In addition, he read an account of the work of Mr. J. Sundwall on the structure of the cells in the lachrymal and Harderian glands of mammals. He suggested that the different cells might possibly produce different components of the secretion. Professor Donaldson pointed out that cells of very different structural characters could also be found in the living epithelium of the ventricles of the brain, whilst the secretion was of the most simple nature; and, in replying, Dr. Bensley admitted that at present there was no proof that the cells he had described possessed different functions.

Wednesday, August 22nd.

Professor A. M. Paterson (Liverpool) read a paper on mechanical supports of the pelvic viscera, in which he deprecated the usual descriptions of the pelvic fascia, pointing out its essentially simple arrangement, and its great practical importance. He showed that the genito-urinary organs in the anterior part of the perineum were fixed by the fascia, whilst the rectum was quite free. Dr. Waterston (Edinburgh), Professor McMurrich (Michigan), and Dr. Jenkins (London) discussed some of the points raised, but were in agreement with Professor Paterson on all essential matters. Dr. Waterston (Edinburgh) described the chief anatomical features and physiological characters associated with mongolianism, and emphasized particularly the small size of the cerebellum, medulla, and pons, the relatively large size of the cerebrum as a whole, and the peculiar smallness of the first temporal convolution. Professor Donaldson (Philadelphia) suggested that the proportions of the segments of the brain indicated younger age conditions; and Professor Primrose (Toronto) commented on the practical importance of the information brought forward. Professor Bardeen (Wisconsin) reported experimental evidence that Roentgen rays produced effects on nuclear capabilities; spermatozoa affected by their influence were capable of fertilizing ova, which afterwards developed into embryos, but the embryos thus produced always became monstrosities, the parts most affected being the nervous, vascular, and alimentary systems. Dr. Bensley (Chicago) and Dr. Streeter (Baltimore) commented upon the special effects; and in replying Professor Bardeen pointed out that the results of the rays' action did not become apparent till cell differentiation commenced. Dr. Streeter (Baltimore) described the results of his experimental removal of otic vesicles and their ganglia and nerves from tadpoles. He found that the movements of young tadpoles were due entirely to spinal reflexes, but that after development of the otic vesicles and their nervous apparatus the spinal reflexes were controlled by the auditory apparatus, and when this apparatus was entirely removed on both sides, the animal was no longer able to preserve its equilibrium. This incapability was found also when the otic vesicle was transplanted, and gained nervous connexion with the more anterior part of the brain. Dr. Jenkins (London) discussed the morphology of the hip-joint, but on account of want of time could not enter into the practical application of his research; and Dr. Gladstone (London) gave an account of a symelian monster.

Section of Ophthalmology.

Tuesday, August 21st, 1906.

This Section, which was very well attended, was opened by a short prefatory address by the President, Mr. Marcus Gunn, in which he welcomed all present, and dwelt with regret on the severe loss sustained by ophthalmic science in the death of Dr. Buller of Montreal. Mr. Lawford then opened the discussion upon rare forms of choroiditis. His desire was to elicit opinions, especially as to the etiology of some forms of choroidal disease, rare in his experience, which he proposed to bring before the meeting. He grouped his remarks around three classes of cases: the first, a class closely resembling syphilitic disseminated choroiditis; the second, a series to which the term "localized exudative choroiditis" might be applied; and the third, a class of cases which might be called "family choroiditis." Mr. Hill Griffith drew attention to three rare forms of choroiditis, one of which he termed "choroiditis with descemitis," and the other a form of plastic localized exudation; the third variety was that commonly known as coloboma of the macula. Mr. Stedman Bull (New York) had seen a number of cases of localized choroiditis, non-syphilitic in origin, and always situated near the optic disc or macula. Mr. Arnold Lawson quoted two cases, one resembling the condition described by Mr. Hill Griffith as choroiditis with descemitis, and the other a case of bilateral choroidal degeneration the result of diminished vitality due to chronic dyspepsia and severe pyorrhoea alveolaris. This case improved greatly upon removal of the teeth and the substitution of a good false set. Dr. Risley (Philadelphia) drew attention to choroiditis the result of disease of one the bony sinuses of the skull, and related the history of a case. He also thought that prolonged eyestrain might be a causative factor in some cases of choroiditis. Dr. Webster Fox (Philadelphia) narrated a rare case of choroiditis which seemed to follow an outbreak of cholesterine crystal formation in and about the macula. Dr. Verhoeff (Boston) read a paper upon obstruction of the central retinal vein, with lantern demonstration of cases. He gave the results of anatomical examination of six cases. Dr. Casey Wood (Chicago) read a paper on some recent cases of death and blindness from wood-alcohol poisoning. This paper possessed special features of interest for Englishmen, as the disease is practically unknown in England. Dr. Killen read a short paper upon the irrigating apparatus of the late Dr. McKeown for the removal of unripe cataract, and described its practical application. The business of the morning was concluded by a paper by Mr. Freeland Fergus upon binocular vision.

Wednesday, August 22nd.

The meeting was again very well attended, and over a hundred members were at one time present. The morning was largely occupied by a discussion upon sympathetic ophthalmitis, which was introduced by Dr. Burnham (Toronto), who confined himself to the treatment of the eye sympathetically inflamed and the transmission of the disease from one eye to the other. He advocated treatment by the combined method during the quiescent period before the onset of inflammatory symptoms. Mr. Arnold Lawson, who followed, discussed the question from the point of view of preventive treatment. He advocated the formation of a committee to inquire into and collect evidence on the points raised, and summarized the matter in the form of five practical questions. Dr. Stirling (Montreal) then gave a brief outline of the disease from a pathological standpoint, and pointed out that definite progress had been made in the course of the last twelve months in the matter of assigning a specific origin to the disease. Dr. Theobald (Baltimore) held that distension and tortuosity of the retinal vessels, especially of those below the disc, was a premonitory sign of inflammation beginning at the posterior pole of the sympathizing eye, and that a similar condition of the lower subconjunctival vessels heralded inflammation of the anterior segment of the globe. Dr. Weekes (New York) spoke of the condition of the uveal tract in cases of sympathetic ophthalmitis occurring many years after the initial lesion. Dr. Verhoeff (Boston) thought that recent infection of the

scar by micro-organisms furnished a possible explanation of cases in which the disease arose after a quiescent period of many years. Dr. Connor (Detroit) advocated treatment by saturating the patient with large doses of sodium salicylate. Dr. Colin Campbell (Toronto) believed in the theory advanced by Dr. Verhoeff. He cited a case in which the disease followed a chronic marginal ulceration of the cornea without any perforating wound. Dr. Albert Baker (Cleveland) narrated a case in which the disease followed a pyogenic infection of a cataract wound induced possibly by his assistant having been in recent attendance upon several cases of erysipelas. Dr. Risley (Philadelphia) had noted that in cases of true sympathetic irritation the symptoms often seemed to have a definite relation to strain upon the ciliary muscle of the injured eye. Dr. Gordon Byers (Montreal) narrated a case of sympathetic disease following upon Mules's operation. The symptoms arose a fortnight after operation and one month after injury. Dr. E. L. Jones (Cumberland) drew attention to the efficacy of subconjunctival injections of corrosive sublimate (1 in 3,000) in normal salt solution, 30 minims being used for an injection. Dr. Freeland Fergus read an interesting paper upon sympathetic degeneration characterized especially by a concentric contraction of the field of vision. The condition was unaccompanied by any obvious inflammation of the eye, and, although the loss of vision was sometimes considerable, yet it never led to blindness. The contraction of the field remained permanent. Dr. Jackson (Denver) read a paper upon accommodation after middle life, and pointed out that there was often a great difference in the accommodative power of elderly people at any particular age.

SECTION OF LARYNGOLOGY AND OTOLOGY.

Tuesday, August 21st, 1906.

THE President (Dr. Dundas Grant) having delivered a short opening address, a discussion on operations for the correction of deviations of the nasal septum was opened by Dr. StClair Thomson (London), Dr. John O. Roe (Rochester, N.Y.), Dr. G. R. McDonagh (Toronto), and Dr. Otto T. Freer (Chicago). The opening papers well represented the views held as to the respective merits of the different methods. Dr. StClair Thomson, in an interesting communication, advocated generally Killian's method; his remarks were illustrated by drawings and photographs. Dr. Roe advised the correction of other abnormal conditions of the nasal passages before interfering with the septum, the careful selection of an appropriate operation for each case, and the refraining from employing the submucous procedure when other operations would be preferable. Dr. McDonagh discussed some of the various operations, and detailed those which in his own experience had seemed most satisfactory. Dr. Freer showed the instruments devised by him for the operation under discussion. He deprecated the impression that the operation is easy. The production of anaesthesia by the application of cocaine crystals, the reversed L incision, the objection to the swivel knife, the removal of the crista incisiva by forceps, and other points in the technique of his own method were dealt with. A long and interesting discussion followed, in which Drs. Ballenger, Tilley, Chevalier Jackson, Smurthwaite, Price Brown, M. C. Smith, Stucky, Mosher, Phillips, Coakley, Casselberry, and Watson Williams took part. The President, in summing up, stated that the probable outcome of the discussion would be a judicious eclecticism. Mr. Hugh E. Jones (Liverpool) and Mr. Thurstan Holland (Liverpool) showed an excellent radiogram and specimen of exostosis of the frontal sinus. Dr. H. P. Mosher (Boston) demonstrated a slide showing a partial partition on the outer wall of the sphenoid.

Wednesday, August 22nd.

Dr. Henry Smurthwaite (Newcastle-on-Tyne) read a paper on headache associated with pathological conditions of the middle turbinal. When the bony conformation of the middle turbinal caused it to be close to, or in contact with, the septum, a slight degree of turgescence, or hypertrophy of the mucous membrane of the opposing surfaces, gave rise to pressure. This in some patients was accompanied by one or more of the following symptoms: Tightness across the bridge of the nose, a feeling of pressure above the eyes, pain radiating from the inner canthus and side of the nose towards the infraorbital or supraorbital canal, round the eye, causing lachrymation, or passing up over the forehead and scalp to the occiput. From a consideration of the nervous supply of the nose it was evident that pressure on the middle turbinal or septum might, by transference, give rise to pain in other regions supplied by the first and second divisions of the fifth nerve. Several cases were referred to in which relief from symptoms such as those mentioned was obtained by removal of the anterior end of the middle turbinate. Dr. Perry G. Goldsmith (Belleville, Ont.) read notes of a series of cases of frontal sinus suppuration, illustrating some of the difficulties met with, the complications which sometimes took place, and the measures adopted to produce what might be considered fairly good results. Dr. Herbert Tilley (London) read a paper on the diagnosis and treatment of suppurative lesions in the nasal accessory sinuses, in the course of which many interesting questions were opened up. In cases of antral suppuration the points of distinction between those of dental and of nasal origin, the significance of pain in a tooth during irrigation of the cavity, and the misleading effect of deviation of the septum in causing pus to appear on the nose anteriorly, were dealt with. The author preferred the Caldwell-Luc operation with the following modifications: (1) Removal of the whole inner wall and curetting of lower anterior ethmoidal cells; (2) removal of diseased mucous membrane; (3) closure of the bucco-antral wound; (4) no packing; (5) syringing nasal cavities. In frontal sinus suppuration the best results had been secured by a simplification of Killian's operation, the only difference being that the floor of the sinus was not removed. Osteomyelitis of the frontal bone had been due to the neglect to remove the fronto-ethmoidal and ethmoidal cells at the time of operation, so that the higher sinus had been reinfected, and the pus thus retained under tension had invaded the diplöe of the frontal bone. In three cases deep-seated pain in an ear otherwise normal was a very definite symptom of sphenoidal sinus disease. An animated discussion followed the reading of these two papers. Dr. Hanau W. Loeb (St. Louis) gave an interesting demonstration of serial sections of heads and of reconstructions, by means of which he showed how it was possible to reproduce the sinuses in their proper relations, giving an anterior, lateral, and superior view, so that the various cavities could be compared with each other and with those of other heads. Dr. C. G. Coakley (New York) made a communication on skiagraphy as an aid in the diagnosis and treatment of diseases of the accessory sinuses of the nose, which was illustrated by an exhibition of excellent negatives.

SECTION OF THERAPEUTICS.

Tuesday, August 21st, 1906.

THE President, Dr. Donald MacAlister, opened the proceedings by delivering the address published on p. 552. Professor T. G. Brodie (London) then opened a discussion on the pharmacology and therapeutics of the kidney. Dr. Brodie devoted the time at his disposal to the consideration of recent work upon the mechanism of the secretion of the urine, and showed that the balance of evidence tended to favour the view that the secretion was essentially due to cellular activity and not the result of simple filtration. He based his argument on the results obtained from the analyses of the gases contained in the blood coming to and flowing from the kidney. Increased activity was accompanied by increased gaseous metabolism and increased consumption of oxygen. With all diuretics it was essentially a stimulation of the activity of the renal cells. This view was confirmed by a review of work recently done on the renal activity of the frog. Owing to a double blood supply it was possible to study the action of the glomerulus and the tubules apart from one another, and thus it was possible to show that the direct stimulant action was exerted upon the glomerular rather than the tubular structures. The discussion was continued by Dr. Rose Bradford, who agreed with the main conclusions of Dr. Brodie. Dr. V. E. Henderson (Toronto), who followed, was inclined to think that the circulatory changes in the kidney had more importance

than Dr. Brodie was inclined to attach to them, but that they in themselves were of course insufficient to explain the production of large quantities of urine, and that the sources of supply of the necessary fluid must be sought in the condition of the tissues. Dr. A. O. J. Kelly (Philadelphia) read a paper on the treatment of acute nephritis, in which he insisted upon the importance of prophylactic treatment in acute infectious diseases and during the puerperium. In developed nephritis milk was probably the best diet, but absolute starvation for two or three days was of distinct value. He used milk in smaller quantities than was customary, and increased its caloric value by adding cream and cereals. In idiopathic nephritis with oedema large quantities of water were detrimental. Salt-free diet was useful in certain cases. Dr. E. Lefevre (New York) read a paper on the treatment of uraemia, and dealt in a most interesting manner with the pathology of the condition. The possibility of a nephrolysin was discussed, and the fact that in certain diseases of the liver symptoms analogous to those of uraemia occur was mentioned. In the discussion that followed Dr. N. S. Davis (Chicago), Dr. Solis Cohen, and Professor Oliver T. Osborne (Yale University) took part.

Wednesday, August 22nd.

The first paper was one by Dr. G. W. Ross (London) on opsonins and bacterial vaccines. The general theory of opsonic action and the effect of suitable doses of vaccine were briefly stated. The good results obtained in tuberculous infections, empyema, and malignant endocarditis were illustrated by case charts. This paper was discussed by Dr. S. Solis Cohen (Philadelphia), Dr. Lefevre (New York), and Dr. Thomas Horton (Torquay). Dr. T. L. Coley (Philadelphia) then read a paper embodying the results of a clinical investigation of the action of various drugs on vascular hypertension. The effect was measured by the sphygmomanometer. The drugs tested included iodides, aconite, nitrites, salicylic acid, quinine, mercury, and arsenic acid; the experiments were carried out in individuals representing various degrees of arterial tension. In the ensuing discussion Dr. W. E. Dixon pointed out that most of the drugs tested had no marked vascular action. He advocated the use of a drug with a central action such as sparteine. Iodides and thyroid gland were recommended by Dr. Osborne (Yale), who had found thyroid gland preparations useful in hypertension occurring in people over 45 years of age and in many gouty conditions. The respective spheres of hygienic and medicinal measures in the treatment of pulmonary tuberculosis formed the subject of a paper by Dr. Solis Cohen (Philadelphia). Sanatorium treatment was apt to crystallize into routine, while the correct treatment of tubercle required strict individualization. Medicinal treatment was of considerable value. Then followed Dr. F. E. Stewart (East Orange), who explained the working of the collective bulletin system as applied to the newer materia medica. Following this, Dr. W. E. Dixon (Cambridge) communicated a paper on drug fallacies, in which he pointed out that serious inconvenience resulted from the present fashion of coining new trade names for the same drugs. Many elegant and tasteless preparations contained scarcely a trace of the drug which was supposed to be the active basis of the preparation. This was true of many preparations of copaiba. He advocated the physiological standardization of the glucosidal heart tonics, and stated that many of the ordinary preparations of ergot sold in England had no action. This paper gave rise to keen interest, and was discussed by Dr. J. Rose Bradford, Dr. E. H. Long (Philadelphia), Dr. Solis Cohen (Philadelphia), and Dr. F. E. Stewart (East Orange). Dr. Lefevre (New York), in discussing physiological standardization, stated that in New York a few drug businesses were being bought up by extraneous interests, who did not insist that the preparations came up to the physiological standard they claimed. Dr. MacAlister explained the method adopted by the Pharmaceutical Committee of the General Medical Council. The meeting was brought to a close with a paper which was read, in the absence of Professor A. R. Cushny (London), by the Secretary.

Section of Dermatology.

Wednesday, August 22nd, 1906.

After a few general remarks, Dr. Norman Walker delivered his opening address on the place and position of dermatology in the medical curriculum, which will be published in a future issue. Dr. Walker's address was discussed by Drs. J. C. Johnston, Gilchrist, and G. H. Fox, who were all in agreement that the teaching of skin diseases should be essentially a practical study of the more common skin affections encouraging the independent judgement of the student and educating his powers of observation. Dr. Norman Walker suitably replied. Dr. J. Nevins Hyde (Chicago) gave a summary of his paper on the influence of light hunger in the production of psoriasis. In this he set forth five propositions for discussion:—(1) Psoriasis never affects the lower animals because they are never screened from daylight by artificial coverings. (2) If psoriasis in man is the result of light exclusion, then the number of persons affected will be relatively small. In this connexion he mentioned that psoriasis occurred in from 0.2 to 1.0 per cent. of the population. (3) The topographical distribution of psoriasis should coincide with that of least daylight; that this was so, he said, there could be no doubt. (4) The disease should be localized to light-excluded parts. (5) If the preceding propositions were true, the treatment should be by illumination. Dr. Hyde's paper was followed by an animated discussion in which his views met with considerable adverse criticism. Dr. Dühring disagreed entirely with Dr. Hyde as to the etiology of psoriasis, and stated that local treatment of any kind was very unsatisfactory. The disease, certainly not parasitic, was to be combated by general internal treatment. Dr. L. D. Buckley (New York) agreed with Dr. Dühring that local treatment was inadequate, and that the disease depended on an altered metabolism permitting of the growth of as yet unknown organisms. Dr. Ross (Halifax), however, supported Dr. Hyde, and mentioned the cases of psoriasis among coal-miners at Cape Breton. Professor G. H. Fox (New York) and Dr. W. T. Corbett (Cleveland) both remarked on the apparent immunity of the negro race, the latter maintaining the importance of local surface irritation as an exciting etiological factor. Dr. Robertson and Dr. Gilchrist (Baltimore) were the last speakers in an interesting discussion, Dr. Gilchrist affirming its probable parasitic origin, and strongly asseverating the importance of treatment by Roentgen rays. Dr. J. C. Johnston, in a paper on bullous eruption, contended that the facts pointed to a single basis for all bullous eruptions, and dismissed the tropho-neurotic theory of origin as unproved. In all bullous eruptions there were symptoms characteristic of intoxication, followed later by a secondary anaemia. Indicanuria, always characteristic of metabolic disturbance, was invariably present in all cases. The most suitable treatment, therefore, was a limited nitrogenous intake, laxative and diuretic prescriptions, together with exercise, hot-air baths, and pilocarpin. The success of this treatment supported his contention that bullous eruptions of all kinds were autotoxic in origin, the result of altered proteid metabolism, resulting in the production of toxins having a specific action on vascular walls. The paper was discussed by Dr. Buckley and Gilchrist, the latter giving an interesting account of an investigation made by him some years ago into artificial urticaria. Portions of artificially produced urticarial skin were excised and examined, and found to be the seat of numerous polymorphonuclear leucocytes, fragmentation of nuclei, and oedema. Bullous eruption showed the same results, but with more oedema and less fragmentation, with intense indicanuria. Drs. Dühring, Hyde, and the President also took part in the discussion, and the meeting was brought to a close by a lantern demonstration of sections of diseased skin by Dr. J. A. Fordyce.

The Postmaster-General and the Blind.—Under powers granted him by a recent Act, the Postmaster-General has drawn up a special tariff of charges applicable to the correspondence of the blind of the United Kingdom and to the transmission of literature printed in Braile and other allied types. In order to confine the benefit of the considerable reductions made to those for whom they are intended, all postal packages sent at the reduced rate should bear a special label issued by the British and Foreign Blind Association, 206, Great Portland Street, London, W., which has been largely instrumental in securing this concession for the blind, and will endeavour to see that it is not abused.

OVARIAN PREGNANCY

(WITH NOTES OF A CASE).

BY

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THE once vexed question as to the possibility of primary ovarian gestation has now been settled. The conversion of two such sceptics as Mr. Bland-Sutton and Dr. Clarence Webster may be regarded as evidence that the reality of ovarian pregnancy has been proved beyond all doubt. We owe a deep debt of gratitude to Madame van Tussenbroek for her careful investigation of the first completely proven case. Its occurrence, however, is extremely rare, and every example deserves careful investigation and publication. As far as we have been able to determine, something like 10 authentic cases have been already recorded, the list of which is given in the first ten references at the end of this paper.

In spite of some opinions to the contrary, we feel confident that primary deposition and development of a fertilized ovum within ovarian tissue is an extremely rare occurrence. It has been frequently stated that many of the published cases of ovarian haematomata probably originated in gestation sacs; the statement has been based on the fact that microscopical examinations have not been made of such ovarian blood collections. Although entirely agreeing with the necessity of microscopy in all such conditions, we still adhere to our belief that ovarian gestation is very rare indeed. Many cases of ovarian haematomata have been subjected to microsections, and have been carefully examined. Quite recently Smallwood Savage published a series of 7 cases, and H. W. Wilson a series of 8 cases, in which, after full investigation, they did not discover a trace of evidence to show that they arose in gestation sacs.

The following case is one of ectopic gestation which, the authors feel satisfied, arose within the substance of the ovary. Although rupture of the sac with almost complete escape of all fetal elements had taken place at the time of operation—a fact which rendered complete proof a matter of some difficulty—we submit the case to the profession as one of primary ovarian gestation:

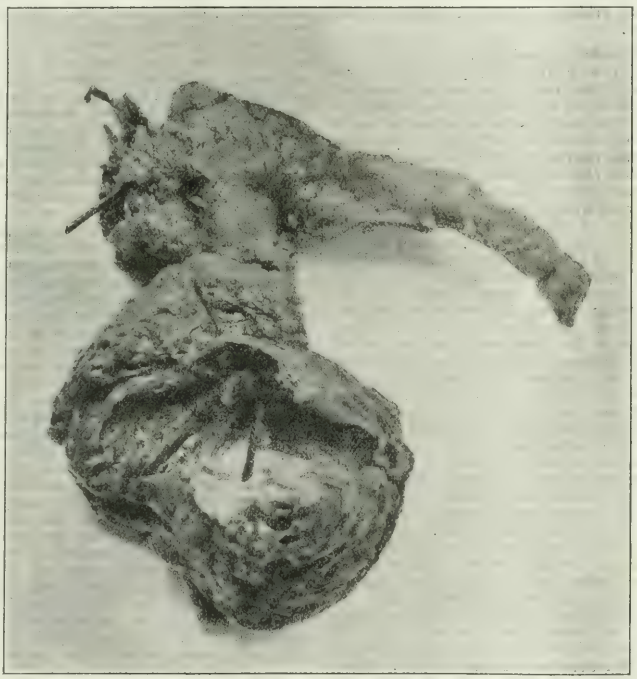


Fig. 1.—Fallopian tube and ovary, showing the oval cavity in posterior surface of the ovary. Gestation sac.

AUTHORS' CASE.

Clinical Report.—Mrs. P., age 35, was admitted into Queen's Hospital, Birmingham, under the care of one of us, on October 13th, 1905. She presented a letter from her medical attendant which stated that she was "suffering from subacute appendicitis." She was a healthy-looking, well-preserved woman of medium height. She had been married eight years, had borne two healthy children (the youngest being 18 months old), and had experienced one miscarriage four years ago. Her two full-time pregnancies and confinements had been quite normal. Since her last pregnancy menstruation had been quite regular up to a few weeks of her present illness, her normal flow lasting four days. Her last regular menstruation occurred on August 21st, 1905. She missed her regular period in September, and thought that she was pregnant.

On October 2nd, when her period was fourteen days overdue and immediately after visiting the watercloset, she was taken with severe pain, "like strong labour pain," in the lower abdomen. She became "very faint," pale as death, cold and clammy. She was carried to bed and her doctor was immediately called in. Stimulants and sedatives were administered, and she soon became easier and better. Shortly afterwards she began to vomit, and this continued throughout the day. On the following day "her period came on." She lost a great deal with "shreds and little pieces." This continued for seven days. The pains recurred from time to time, and were most severe in right lower quadrant of the abdomen. She vomited after every meal up to the time of her admission. The bowels acted regularly, and there was no trouble over micturition.

On admission she complained of severe abdominal pain, not confined to any particular area, but more in the lower half of the abdomen than elsewhere. She was vomiting biliary fluid and half-digested milk. She was markedly pallid, and looked extremely ill. The abdomen was rigid in its lower half, more especially on the right side. The rigid area was everywhere tender, but most so on the right. On palpation there was a sense of deep resistance in the right iliac region, but no definite tumour could be made out through the rigid abdominal wall. Per vaginam there was a hard doughy mass over the vaginal roof, very tender to pressure, especially marked on the right side. There was still a little brownish-red discharge from the vagina. Temperature was 98°, pulse 92 per minute, and respirations 24 per minute. On the following day she was seen by one of us; the above physical signs were confirmed, and a diagnosis of ruptured tubal pregnancy was made.

She was removed at once to the theatre for operation. A 4-in. vertical incision was made to the right of the middle line through the rectus muscle. On opening the peritoneal cavity, about 2 pints of porter-like fluid escaped, and still more was mopped up from the pelvis. A mass of firm clot as large as a fist was removed from the deepest part of the pelvic cavity, being bounded by firmer fibrinous clot, which formed the walls of an almost perfect cavity. The uterus was larger than normal, but was otherwise healthy. The right Fallopian tube was normal from end to end; fimbriae free and unattached. The right ovary was enlarged, and was incorporated with, and formed part of, the walls of the sac in which the above-mentioned blood clot lay. A ragged opening was found in its posterior surface towards the pelvic cavity, and it was from this surface that the bleeding had evidently occurred. The ovary and tube were therefore tied off with silk close to the uterus and removed. The left ovary and tube were quite normal; they were brought up to the surface and submitted to the inspection of several medical men who were present. They were not removed. The pelvis was cleaned up with dry mops and the wound was closed. The patient made an easy

recovery. On October 21st an offensive vaginal discharge commenced, which lasted three days, and then entirely ceased. On November 4th she left hospital quite well, and has remained so up to date.

Macroscopical Appearances.

The specimens were immediately secured by one of us for full investigation, and the following description was made within an hour of their removal. The parts to be described consist of an oval portion of firm blood clot and a Fallopian tube with the ovary attached.

Blood Clot.—The blood clot removed from the pelvic cavity was roughly oval in shape, and tolerably firm in consistence. It had the following measurements: 6.2 cm. by 3.5 cm. by 3.5 cm. Portions of its surface are covered by a thin fibrinous smooth covering, whilst other surfaces represent broken sections of ordinary blood clot. Sections of the blood clot show that it consists almost entirely of old coagulated blood interspersed with fragments of white fibrous-like tissue. There is no evidence of a fetus, or of any well-formed membrane to the naked eye.

The Fallopian Tube, from cut surface to fimbriated extremity, measures 4.75 cm. in length, and has a calibre at its widest part of not more than 0.7 cm. The surface of the tube is everywhere smooth and covered by smooth peritoneal lining. There is no evidence of a rupture at any point. The inner four-fifths of the tube is more or less straight and uniform in calibre. Close to the fimbriated extremity is an elbow-shaped bend well seen in the photograph: the calibre of the tube, however, is not greater than normal at this point. This elbow appears to have been caused by mechanical action due to a traction upon the fimbriated extremity, probably as a result of old inflammatory reaction. The fimbriae, though perfectly free, are dwarfed and stunted. The ostium abdominale, though readily observable, is not more patent than usual. Attached to the lower pole of the fimbriated extremity is a small hydatid of Morgagni.

The Ovary.—The ovary is attached by a well-marked mesentery to the outer portion of the Fallopian tube. Its measurements are as follows: Length, from apex to base, 4 cm.; breadth, hilum to opposite border, 4 cm.; thickness, between two surfaces, 1.5 cm. The arrangement of the relationships of the ovary will follow the lines of His and Waldeyer's description of the normal ovary. What His and Waldeyer would describe as the inner surface of the ovary has, by an inward hinge-like bend of the mesovarium, come to look anteriorly, and is closely applied to the posterior surface of the broad ligament. What these observers describe as the outer surface has come to look backwards. Whether this was the normal relation of the right ovary, or the result of the pathological condition present, we cannot say. Our description will be intelligible when we say that the outer surface of Waldeyer corresponds to the posterior surface, and the inner surface of Waldeyer to the anterior surface of this specimen. The anterior surface of the ovary everywhere presented a smooth, glistening covering, the upper hemisphere being white and corrugated like a normal ovary. The lower hemisphere was plum-coloured, but smooth and corrugated. At the most dependent part of this surface there were a few tiny blood clots loosely adherent. The posterior surface presents features of special interest, and requires a more detailed description. This surface is entirely devoid of any smooth covering. It is of a dark-red colour and has blood clot attached to its circumferential border. It is roughly divided by a deep transverse cleft into an upper and a lower half. This cleft is oval in shape, and gradually shelves from its depth towards the upper pole of the ovary above and towards the lower pole below. The extreme margins of the cleft are raised above the level of the surface of the ovary proper to a height of 0.8 cm.; this is well seen in Fig. 2, which shows a transverse section of the cleft. The greatest length of this oval cavity is 3.23 cm., the breadth at its widest point is 2.5 cm., and its greatest depth is 2 cm. The cleft in the ovary is so deep into the ovarian substance that the tissue separating the depth of the cleft from the anterior surface of the ovary is only 0.76 cm. in thickness. It is quite evident that the cavity in the posterior surface of the ovary has been a segment of a much larger cavity which was probably originally situated within the ovary, and which had gradually expanded until the posterior surface had given way and allowed the contents to escape into the peritoneal cavity. The cavity still left in the ovary when examined was lined with a plum-coloured glistening covering, thrown up into a complicated series of folds and depressions well seen in Fig. 1. There was little or no dark blood clot adherent to the deeper surface of the cavity. Around the circumferential margin, however, were fragments of clot which could not be detached. Bulging from the lower half of the ovary into the cavity is a rounded body about the size of a filbert nut. This proved, when the ovary was sectioned, to be a large corpus luteum. This body appeared to be quite distinct from the cavity, although it had to some extent become undermined by the deepest part of the cleft (see Fig. 2).



Fig. 2.—Vertical section through the ovary, showing the gestation sac and corpus luteum below it.

Microscopical Appearances.

The Blood Clot from the Pouch of Douglas.—This was mainly composed of non-nucleated blood cells crowded with leucocytes. There are extensive areas of almost pure leucocytes, especially at the margin of the clot, and large tracts of fibrin crowded with leucocytes. Scattered irregularly throughout the clot are clusters of chorionic villi in various degrees of preservation (see Fig. 3). The connective tissue matrix of the villi is generally oedematous, and there is no evidence of vessel formation in them. Many of them are covered with two or more layers of cells, which represent Langhans's cells and occasional syncytial cells. Many of the syncytial cells, however, are scattered loosely in the meshes of the clot. Other villi are covered with one layer of cells with well-marked nuclei representing Langhans's cells only. Others, again, show this layer as a homogeneous covering with faintly-stained nuclei, and others, again, are covered with a swollen homogeneous covering staining brown with van Giessen and red with eosine, without any nuclei being visible. Many of the villi are surrounded by hosts of leucocytes.

There is no trace of a fetus, no representative of amnion or decidua anywhere visible in the clot.

The Fallopian Tube.—Sections were made from several parts of the ampulla and the fimbriated extremity. The lumen shows no dilatation anywhere (see Fig. 4). The muscular tissue of the tube shows neither hypertrophy nor atrophy in any of the sections. The mucous coat is covered by a single layer of columnar, ciliated epithelium exactly resembling that of the healthy tube. There is no proliferation of the epithelium, and no decidual cells seen in any of the sections. A mild degree of leucocytic infiltration exists, especially in the subperitoneal and perivascular tissues. The vascularity of the tube is slightly increased, especially in the

subperitoneal zone, and is most marked in the sections taken from the fimbriated extremity. The vessels show a mild degree of endothelial proliferation: this is particularly marked in the smaller vessels.

The Ovary.—Serial sections were made of almost the entire ovary. The ovarian stroma in the region of the hilum consists of dense fibrous tissue packed everywhere with enormously hypertrophied blood vessels with dense hyaline walls. The ovarian stroma generally is more fibrotic in type than is the

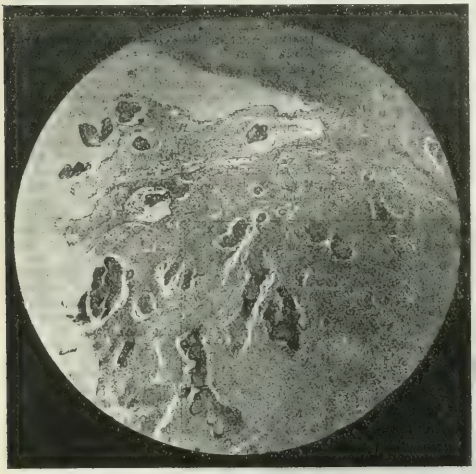


Fig. 3.—Showing numerous chorionic villi in blood clot from pouch of Douglas.

normal ovary, suggesting that it has been the seat of a mild chronic inflammation. The stroma is composed chiefly of spindle and polyhedral cells whose nuclei stained very deeply. In certain parts there are large swollen cells somewhat resembling decidual cells. There appear, however, to be all gradations between the ordinary stroma spindle cell and these large rounded cells.

There are very few Graafian follicles to be found anywhere,

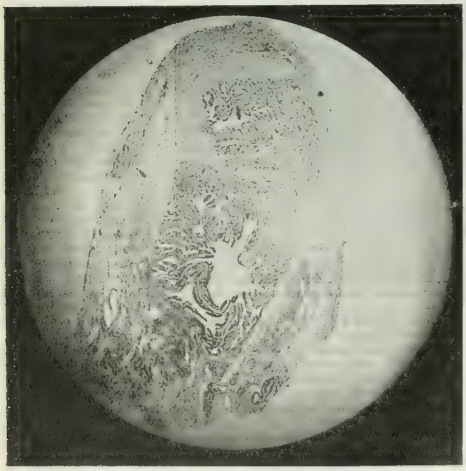


Fig. 4.—Section across the Fallopian tube near the fimbriated extremity.

and these are immature, frequently compressed, and exhibit degenerative changes. The cells of the stratum granulosum usually show no regular arrangement, and are frequently crowded together into one group towards one side of the follicle. In almost all there is a catarrhal folliculitis.

There is only one corpus luteum seen in the entire ovary, and this will be described later. Several small corpora albicans are scattered irregularly throughout the ovarian stroma.

The belt of ovarian stroma surrounding the gestation sac has undergone a peculiar transformation. Here the stroma is more reticular and looser in texture. It is arranged in a concentric manner, so that the long axis of the spindle cells and the delicate reticular tissue lie parallel to the surface of the cavity. The stroma is intensely vascular and shows many points of blood extravasation. The blood vessels are enormously dilated, thin-walled, and they present more the appearances of blood sinuses (see Photomicrograph 5). They

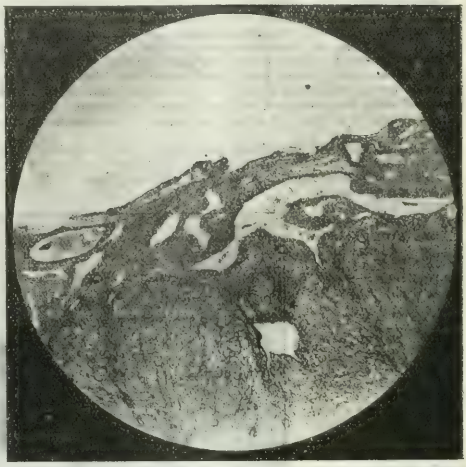


Fig. 5.—Showing the vascular sinuses in the wall of gestation sac, with corpus luteum below.

possess little or no muscular tissue, but are lined with a well-marked endothelial covering showing in many a distinct proliferation. Many of the blood sinuses open directly into the gestation sac. The stroma cells of this portion of the ovary are irregularly scattered amongst the reticular tissue and blood sinuses. They are chiefly spindle or swollen, rounded cells which have a large, deeply-staining nucleus and faintly-staining protoplasm. There are no Graafian follicles to be

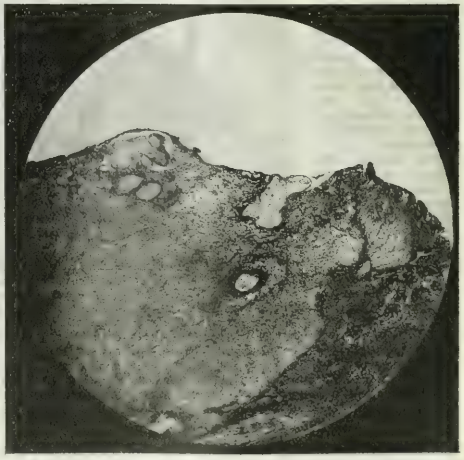


Fig. 6.—Showing chorionic villi embedded in fibrin within the gestation cavity.

found in the narrow belt of ovarian tissue surrounding the sac.

The gestation cavity itself is lined in part by a ragged surface, consisting of open-mouthed sinuses and fine reticular tissue. Large areas, however, are covered with a clear, fibrinous-like deposit closely adherent to the surface of the sac. At several points well-marked chorionic villi are embedded within this fibrinous deposit (see Photomicrograph 6). At no point, however, do chorionic villi penetrate

to the ovarian stroma. Although fibrin and blood clot are adherent to the surface of the ovary at other points than within the sac, chorionic villi are only found within the actual gestation cavity.

Bulging into the gestation sac from the lower half of the ovary is a large corpus luteum composed of large lutein cells, and showing a stellar, fibrous centre, which shows moderately advanced vascularization. The corpus luteum is perfectly intact, and is separated from the gestation sac everywhere by

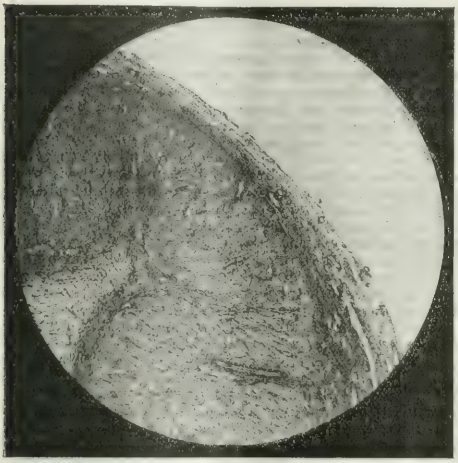


Fig. 7.—Showing corpus luteum, its stage of vascularization, and its proximity to the gestation sac.

a thin layer of loose highly vascular ovarian stroma (see Photomicrographs 6 and 7). The gestation sac is situated on the upper surface of the corpus luteum, and its deepest part has largely undermined the corpus and lies behind it. It is in that portion of the gestation cavity adjoining the corpus luteum and close to the surface of the ovary that chorionic villi are most abundant. The villi are embedded in fibrinous deposit, and are separated from lutein cells by fibrin and a thin layer of ovarian stroma. There are no lutein cells

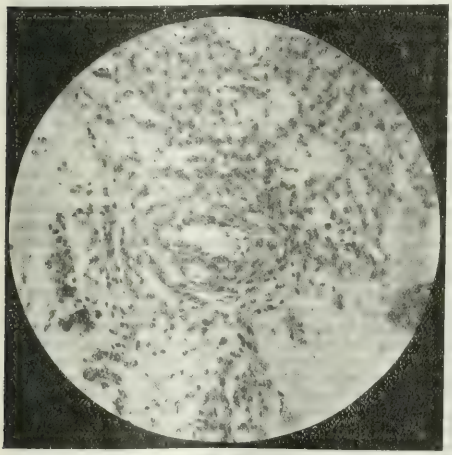


Fig. 8.—Showing proliferation of the endothelium of a blood vessel.

visible anywhere except in the intact corpus luteum just described. There is no trace of decidual cells in any part of the gestation cavity and no representative of the amnion.

REMARKS.

The rupture of this sac, with almost complete evacuation of fetal elements placed some difficulty in the way of determining its real nature. The history of the case with its amenorrhoea, the passage of blood and shreds per vaginam, the recurrent abdominal pain, together with the physical signs, are typical of ectopic gestation. This was the diagnosis made before laparotomy was performed. The operation revealed severe intraperitoneal haemorrhage and a pelvic haematocele incorporated with the right ovary. The right appendages were removed. The left appendages were carefully inspected and were universally admitted to be healthy. The cavity in the right ovary was seen before the appendages were removed to be adjacent to the pelvic haematocele, and no doubt formed part of its wall.

In reviewing the clinical facts revealed by operation, we naturally felt that there were several pathological conditions which might possibly explain them. Of these, the following occurred to us: (1) A ruptured ovarian haematoma; (2) uterine abortion, complicated by a ruptured ovarian haematoma, or cyst, or a traumatic tear of the ovary; (3) a tubal abortion with either a ruptured ovarian haematoma or cyst, or accidental tearing of the ovary at the operation; and (4) a ruptured primary ovarian gestation.

In order to arrive at a satisfactory conclusion it was necessary to explain three things which might or might not be due to the same cause, namely, (1) the point from which the profuse peritoneal haemorrhage arose; (2) the pathological process producing that haemorrhage; and (3) the nature of the cavity in the right ovary.

During the course of a careful microscopical examination it soon became clear that the facts could only be explained in one way. The finding of chorionic villi in the pelvic haematocele practically dismissed causes Nos. 1 and 2, and, at the same time, determined that the case was, in whole or in part, one of ectopic gestation.

If tubal in origin, it must have arisen in either the left or the right side, and the cavity in the ovary still remained to be explained. We are satisfied that the right-sided position of the haematocele and the generally-admitted healthiness of the left appendages readily dismiss the possibility of it being a left-sided tubal pregnancy. It is evident that it did not arise as a right tubal pregnancy, because of its healthy macroscopic appearances, and because of the entire absence of any microscopic reaction—vascular, chorionic, or otherwise—in it suggestive of a tubal gestation. There was not the slightest reaction of the tubal mucosa in any of the many sections made comparable to a decidua. We are quite aware, however, that salpingeal decidual formation is very fragmentary in true tubal pregnancy. It was now possible to go a step further in the diagnosis and exclude cause No. 3.

The final stage of the investigation was the examination of the ovary, and especially of the cavity situated on its posterior surface. The naked-eye appearance of the cavity, with its raised edges, its shelving base, its deep plum colour, and the microscopic arrangement of the connective tissue stroma lining it, together with the fact that the cavity was seen before removing the appendages, entirely dismissed the possibility of this cleft being caused by operative violence. We found nothing in the cavity to suggest that it arose either as a corpus luteum or Graafian follicle cyst. Happily for us, the sac had not entirely emptied itself, and we were able to find, by careful serial sections, a few chorionic villi embedded in fibrin lining the cavity. We then felt justified in arriving at the conclusion that this was a case of primary implantation of a fertilized ovum within the substance of the ovary, and that by gradual distension and thinning of the part nearest to the surface rupture of the sac followed with expulsion of the mole into the pouch of Douglas. The macroscopical evidence in support of this view is found in certain characters of the space—namely, its raised edges, its shelving base, its depth within the ovary, its deep plum colour, and all the negative changes in the tubes. The microscopical evidences in favour are to be found in the numerous chorionic villi found in the mole which was seen to be incorporated with the cavity, the presence of the villi in the fibrin lining the sac, the intense vascularity of the adjoining ovarian stroma suggestive of an intervillous circulation, and all negative evidence of pregnancy in the right tube.

It is probable that on October 2nd, when the sudden abdominal pain with collapse occurred, the gestation sac then ruptured and severe abdominal haemorrhage took place. In the intervening twelve days, between this onset and the operation on October 14th, recurrent

smaller haemorrhages supervened, with almost complete stripping of the chorion and fibrinous lining of the sac.

To return to the three questions which we set ourselves to answer at the beginning of the investigation, we can confidently assert, first, that the seat of the haemorrhage was the open sinuses of the ovarian cleft; secondly, that the pathological process causing that haemorrhage was the phagocytic action of the fetal trophoblast, with subsequent stripping of the chorion and fibrin from the opened vessels in the ovarian gestation stroma; and thirdly, that, as must necessarily follow, the cleft in the ovary is a gestation sac at one time situated entirely within its substance.

One of the most important points brought out in this case is the relation of the corpus luteum to the gestation sac. We think that there can be little doubt that the large corpus luteum, which is in a fairly advanced state of vascularization, represents the Graafian follicle from which the pregnancy arose. Yet it remains quite intact and separated from the gestation sac everywhere by a thin layer of ovarian tissue.

In reviewing those previously recorded unruptured cases, in which careful microscopic examinations were made, we find that in three of them—namely, Leon and Holleman's, Freund and Thome's, and Webster's—no lutein cells were found in the gestation sac; whereas in four of them—namely, van Tussenbroek's, Thompson's, Kelly and McIlroy's, and Anning and Littlewood's—lutein cells were present in the wall of the sac. If we include our own case, one-half of the gestation sacs contained lutein cells and the other half did not.

As far as we can find, this is the only specimen of ovarian gestation which shows a corpus luteum corresponding in age to the pregnancy and quite distinct from the gestation space. Therefore, it probably has a very direct bearing upon the somewhat doubtful question as to where fertilization takes place in ovarian pregnancy, and what is the exact site at which a fertilized ovum settles and develops in the ovary.

Although penetration of Graafian follicles by spermatozoa has been observed in rabbits, so far as we know it has never been definitely proved in the human subject. We would hesitate to believe that spermatozoa can penetrate into an unruptured follicle until absolute proof is forthcoming. It is quite possible, however, for the male element to project itself into a ruptured follicle and fertilize the ovum *in situ* previous to its extrusion. It is still more easy for fertilization to take place when the ovum has been expelled on to the surface of the ovary.

In those cases where lutein cells are found in the gestation sac the ovum must either have been fertilized in the follicle, or, if fertilized at the mouth of the follicle, it must have returned by phagocytic action or otherwise into the follicle where further development has taken place.

In those cases where no lutein cells are found in the sac the presumption must be that the lutein cells have either been rapidly absorbed by the trophoblast, or, after fertilization, the phagocytic ovum has burrowed into quite another part of the ovary.

The phagocytic power of the fertilized ovum is now well authenticated, but we do not know how early after fertilization this phagocytic property can assert itself. Hence, the site of final lodgement and development of the ovum in an ovarian gestation does not necessarily correspond to the point where fertilization took place. In the case just recorded the probable sequence of events would appear to be as follows: The act of fertilization occurred either whilst the ovum was inside the open-mouthed ruptured follicle, or after that ovum had been expelled on to the surface of the ovary. In either case, the ovum came outside upon the surface and did not migrate directly upwards into a higher part of the ovarian stroma. We infer this because, although serial sections were made, there is not the slightest solution of continuity in the thin layer of ovarian stroma which separates the corpus luteum from the space in which the gestation occurred. The ovum was probably expelled on to the surface fertilized or unfertilized, and possibly owing to superficial adhesions, or by settling into a crypt or depression on the surface of the ovary, it then, by virtue of its phagocytic action, sank deeper into the ovarian stroma at a higher level than the corpus luteum. Whatever the mechanism may have been, the fact seems established that ovarian gestation is not necessarily always follicular.

There was nothing discovered in this specimen to represent the fetus. This is not surprising, seeing that the ovum in ectopic gestation very readily perishes, and in this case it might have been lost or overlooked in the peritoneal haemorrhage. In many of the unruptured cases no ovum was found, and in those where it was discovered it was frequently undergoing decomposition.

For a similar reason, perhaps, we could find no microscopical remains of an amnion. Even in the unruptured cases of Thompson and of Leon and Holleman no true amnion was discovered.

We could find nothing comparable to a decidua in the sac. This was also the case in the six specimens investigated by van Tussenbroek, Thompson, Leon and Holleman, Webster, Freund and Thome, and by Kelly and McIlroy.

We discovered nothing in the ovarian stroma which we could regard as a decidual reaction such as Webster found in his case, and which he claims to represent Müllerian segregations within the ovary. We found large cells, oval or irregularly stellar in shape, with a well-stained nucleus and feebly-stained protoplasm, but they appeared to be swollen connective tissue cells, and there seemed to be all gradations between these large cells and the normal oval or spindle ovarian stroma cells. There were also groups of cells somewhat resembling decidual cells, which we regarded as cells of the membrana granulosa lying within flattened degenerate and immature Graafian follicles.

It seems to us that Webster's assumption that primary gestation can only occur where Müllerian tissue exists, and that these groups of cells which he and others have found in the ovarian stroma are decidual in nature and Müllerian in origin, is going further than the facts warrant. We know now that cells resembling decidual cells have been found during uterine pregnancy, not only under the uterine serosa, the subserosa of the pouch of Douglas, the rectum, the Fallopian tubes, and ovaries, but also by Penkert, Schmorl, and Prochownik in the omentum, by Hirschberg on the vermiform appendix, by Amos, Fisch, and Schmorl under the parietal peritoneum, and by Taussig on the small intestine which was adherent to a pregnant uterus.

Whether Webster is prepared to claim that all such decidual reaction represents misplaced Müllerian tissue we do not know. The assumption certainly is largely discredited in view of this widespread distribution. The onus of the proof that these cells are Müllerian rests with him, and not with the sceptics of his theory as Webster seems to suggest. The explanation of this widespread decidual reaction made by Taussig in his able paper on Ectopic Decidual Formation seems to us a much more feasible one. He thinks that, seeing that this reaction occurs only in regions more or less closely approximated to the uterus and tubes, and that the presence of adhesions between other organs and the uterus and tubes in a pregnant state favours decidual formation in the former, it is a transformation of the connective tissue cells in these parts induced by the pregnant state. In the ovary the decidual cells are derived from the stroma cells, in the omentum from the fat cells, and in the subserosa from the connective tissue cells of that structure. What this transforming influence is due to, whether to nerve influence or to the absorption of some internal secretion from the uterus or ovaries, we cannot say.

Finally, we would like to draw attention to the attempt made by the ovarian stroma immediately adjacent to the gestation sac to cope with the demand for nourishment on the part of the ovum. We found, as did most of the other observers, that the chorionic villi found within the space did not reach the ovarian stroma, but were embedded in fibrinous clot lining that space. The vessels of the stroma, however, had undergone a marked dilatation suggestive of intervillous spaces, and many of these spaces exhibited a degree of endothelial proliferation comparable to the trophospongia of Hubrecht, and which he regards as characteristic of pregnancy.

In conclusion, we desire to thank Professor Leith for his kindness in allowing us the use of his photomicrographic apparatus in the preparation of the photographs which illustrate this paper.

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MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF INFANTILE DIARRHOEA.

As during the extreme heat infantile diarrhoea appears to be exceptionally prevalent, I hasten to invite attention to a method of treatment which appears to have acted like a charm in the few cases in which I have tried it.

Immediately the case is seen a suitable diet is prescribed, and the good old-fashioned half-teaspoonful of castor oil is given to sweep away any fermenting particles of food. As soon as this has acted, ʒss to ʒj, according to the age of the patient, of infusion of quassia is given as an enema, a small glass syringe being used for this purpose. If necessary, the injection may be repeated two or three times at intervals of three or four hours. In the few cases in which I have had an opportunity of trying this treatment the diarrhoea ceased after the first injection. This may, of course, have been a mere coincidence. On the other hand, it may have been directly due to the action of the quassia; and I am anxious that others should give the treatment a trial and record the results. If it is desired to give a more astringent preparation, decoction of haematoxylon may be substituted for infusion of quassia.

The use of quassia or haematoxylon in this way was suggested by the failure of other methods of treatment, and by a recollection of the great benefit occasionally obtained from enemata of nitrate of silver in the acute diarrhoea and dysentery of adults in the tropics.

G. H. Younge, F.R.C.S.I.,
Lieutenant-Colonel R.A.M.C.(Ret.).

TRANSPOSITION OF CAECUM AND APPENDIX.

A few days since I operated upon a male child, aged 15 months, for a large inguinal hernia on the left side. The sac contained the caecum and appendix. The appendix was about 3 in. in length and perfectly healthy. The caecum was completely covered by peritoneum and freely movable.

There was no evidence of transposition of any of the other viscera. It is well known that the caecum may be found upon the left side, but its presence in the left inguinal hernia is sufficiently unusual to deserve record.

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Surgeon to Out-patients, Queen's Hospital, Birmingham.

SERUM IN MALTA FEVER.

As we are yet without a specific for Malta fever, and, indeed, without means of influencing the course of the disease, the following note may be of use:

A European patient was sent up here early in the summer for change, having had Malta fever for over three months. He had marked anaemia, had an attack of dysentery, some dropsy, and transient purpura. On the 138th day of the fever he was given about ʒvj of horse serum which had been heated to 55° C., as practised by Petit for the encouragement of phagocytosis in bacterial invasions (see Metchnikoff's Harben Lecture in June, 1906, number of *Journal of Preventive Medicine*).

For the previous three weeks the patient's temperature came down in the mornings for a short period to 99°, and nearly every evening was up to 103°. On the 139th day his temperature went to 100° for a short time, and on the 140th day it did not rise above normal all day. He had no fever afterwards, but, most unfortunately, congestion of the left lung appeared on the 143rd day and carried him off in three days. Of course, this sudden cessation of the fever may have been only a coincidence, but in a disease like this every chance is worth seizing. I wish that I had known of the treatment earlier in the case.

H. A. Haines, Lieutenant-Colonel, R.A.M.C.
Dalhousie.

REVIEWS.

A MEDICAL TRAVELLER.

Under the title of *Around the World via India*,[1] Dr. Nicholas Senn has republished a series of letters sent by him to the *Journal of the American Medical Association* whilst on a tour of the Pacific Islands, Australasia, and India during the summer of 1904. The book is most interestingly written and full of instruction. In the opening chapter the author insists on the great usefulness of travel for the purposes of post-graduate study. By touring about the world, and observing medical and surgical work in all kinds of places and under every possible condition of climate, race, and environment, a practitioner may gain more useful knowledge than by reading any amount of textbooks. Dr. Senn deals systematically with each country he visited. After giving a short description of the country and its inhabitants, he treats of the medical aspect of each individual city or town, the status of the profession therein, the number of hospitals, their fitness for the work they are called upon to perform, and the manner in which that work is performed. He touched first at the Hawaiian Islands, and his description of the leper settlement on the island of Molokai throws a new light on the lives of these poor outcasts from society. He pays a touching tribute to the splendid work done there by Father Damien and his courageous assistant, Brother Dutton, who is still toiling in the same vineyard "free from the loathsome disease after an uninterrupted service of twenty-three years." Dr. Senn urges the United States Government to convert the whole island into a colony for lepers from all parts of the world, and to found a laboratory there having a "recognized scientist at its head," with the object of discovering a remedy for this awful disease. Since Dr. Senn's visit, Dr. Walter R. Brinckerhoff, of the Pathological Department of Harvard Medical School, has been appointed Director of this leprosy station; we may, therefore, look forward to some real advances in our knowledge of this hitherto inscrutable disease. The author proceeds to detail the diseases most prevalent in the island of Honolulu, the capital of Hawaii. The hygiene and sanitation are supervised by a Board of Health, the country being divided into districts with a medical officer over each. He was very favourably impressed by the work done by the practitioners in these islands; he gives a useful hint to young doctors on the outlook for a place of settlement by adding that the number of medical men is ample for their requirements. The author's next place of call was Samoa. His account of the people, their liability to certain forms of disease—especially to elephantiasis in the male—make very interesting reading.

Auckland, New Zealand, was the next port of call. Dr. Senn is well satisfied with the hospital, and gives an account of some interesting cases he saw in its wards. He comments on the fact that of forty medical men in practice in Auckland, thirty-nine are general practitioners, there being only one specialist, and he takes the eye and ear for his province. We learn that the British Medical Journal is the chief source of information in medical subjects for the medical men of New Zealand.

From New Zealand Dr. Senn crossed over to Sydney, which struck him very favourably, whilst the country round "surpassed all my expectations." He gives a very good account of the various hospitals in the place, and reproduces some figures from the operating records, which show that the surgery of Sydney compares well with that of America and Europe. He concludes his account of Sydney with the following interesting remarks:

The doctor's social standing in Australia is much superior to our own. His financial possibilities compare well with that of any other country. A fair average fee for a capital operation is 250 dollars; a maximum 500 dollars; consultation from 10 to 25 dollars; and visits average 2.50 dollars; obstetric fee from 10 dollars to 25 dollars. There are several men in Sydney whose annual income amounts to 30,000 dollars. The country practitioners, of course, do not fare so well, but their expenses are so much less that at the end of the year their bank account makes a fair showing. The relations between the members of the medical profession are cordial, and the commercial element is not nearly as rampant as with us. The requirements for entrance are not at all stringent.

[1] *Around the World via India.* By Dr. Nicholas Senn. Chicago: American Medical Association Press. 1905.

Dr. Senn travelled from Sydney to Melbourne, and after giving a brief account of his impressions of the city he proceeds to deal with each of the large hospitals in turn. He gives a glowing account of the Melbourne Hospital and the medical and surgical work performed there, quoting figures to show how efficiently this is carried out. He urges, however, the charitably-disposed citizens and the Government to provide the institution with ample means to bring it more up to date "to carry out its humane intentions on a larger scale in the future." He gives a brief account of Professor Bird's operation for hernia, which he commends to the "earnest attention of surgeons." An account of the other three large hospitals, the Alfred Hospital, the Melbourne Hospital for Sick Children, and the St. Vincent's Hospital, follows; the latter is conducted by the Sisters of Charity, and is the only denominational hospital in Melbourne. In all cases he quotes figures to show with what measure of success the hospital work is conducted. The St. Vincent's Hospital receives a special meed of praise, inasmuch as the surgical records show a mortality of only 1.6 per cent., which, as Dr. Senn remarks, "is a record which cannot be surpassed."

Our author next travelled to Adelaide. One chapter is devoted to medical education in Australia, each of the three universities, Sydney, Melbourne, and Adelaide, being dealt with in turn. Dr. Senn's opinion of medical teaching in Australia may be gathered from the following passage:

> From what has been stated, it must become clear to any one that the Australian universities offer to medical students advantages and opportunities equal to, if not superior to, any of the medical schools of America or the United Kingdom. It would be folly for any Australian medical student to cross the ocean in either direction in search of something better, because, if he did, he would certainly meet with keen disappointment.

Ceylon is the subject of the next chapter. The island should be interesting to medical men owing to its supplying the world with cinchona bark. Owing to the presence of a large amount of moisture the climate is very trying to the white man. Dr. Senn deals at some length with the people and the diseases which claim the most victims, and then proceeds to describe the city of Colombo and the General Civil Hospital. He has no fault to find with that institution, except that he considers the operating theatre out of date, and poorly equipped for modern aseptic methods. He also paid a visit to Kandy, the General Hospital there coming in for high commendation for the excellence of its work.

From Ceylon Dr. Senn sailed to Madras, where he visited the Madras Medical College and the Government General Hospital. In connexion with the latter some very interesting notes are given on the subject of the prevalence of carcinoma in India, which Captain Niblock, I.M.S., who has made a special study of the subject, attributes to the habit of betel-chewing common among the natives. This conclusion has been arrived at from the fact that the mouth is by far the most commonly-affected part. Dr. Senn also gives some interesting facts and figures relating to abscess of the liver. The excellence of the surgical treatment at this hospital may be gauged by the figures, a total of 6,281 patients operated on showing a mortality of only 1.9 per cent. Three of these operations are described in detail.

In connexion with Calcutta the Bengal Medical College and its curriculum are described at length, showing its wide sphere of usefulness. The General Hospital is quite satisfactory, except that the operating theatre is hardly up to modern requirements. Dr. Senn gives an account of some of the cases most commonly to be met with in this hospital, and he exclaims:

> What an excellent place Bombay or Calcutta would be for a great school for the study of tropical diseases! The material is here and not in London or Liverpool, and, if utilized to greatest advantage, it must be studied here, and not thousands of miles away from where the diseases had their origin.

From Calcutta our author travelled inland to Jaipur, where he had an opportunity of seeing the Indian native as he is, uninfluenced by frequent contact with Europeans. Dr. Senn does not consider the Mayo Hospital in that city to be quite up to date, but the most serious fault he has to find is the lack of an adequate number of trained female nurses. He strongly urges the foundation of a training school for nurses as the best remedy. The records demonstrate clearly the skill of Lieutenant-Colonel Pank in the face of numerous difficulties. He is director of the institution, and performs the major portion of the operations himself, including gynaecology and ophthalmology.

Bombay and its hospitals and the Grant Medical School next come under observation. Dr. Senn describes the dissecting room belonging to the school as "unquestionably the finest in the world," but he is not satisfied with the pathological and chemical laboratories. The final examination at this college he considers to be quite a severe one. He concludes his remarks concerning the college with a description of the most interesting specimens in the Pathological Museum. The Jamsetjee-Jeejeebhoy Hospital, the leading institution of Bombay, he thinks, should be pulled down and entirely rebuilt. The nursing, he says, is inadequate and a new operating theatre with a complete set of instruments is sorely needed. He is, however, loud in praise of the new wings —the Sir Dinshaw Petit Hospital for Diseases of Women and Children and the Motlaibai Maternity and Ophthalmic Hospital. In addition he paid visits to the Homeless Leper Asylum at Matlunga, which does splendid work among these poor people, and the Bubonic Plague Hospital and the Plague Research Laboratory at Parel. Some interesting facts are given regarding Haffkine's antiplague serum; antivenenes against snake-bites are prepared also at this laboratory.

In regard to medical education in India, Dr. Senn considers that the teaching power is inadequate in all the schools, and consequently the men are overworked. He cites as an instance the case of Lieutenant-Colonel Dimmock, I.M.S., of Bombay, who is Director of the Jamsetjee Jeejeebhoy Hospital, Principal of the Grant Medical College, and Professor of Obstetrics, Gynaecology, and Diseases of Children—"enough work," says the author, "for five men under the circumstances." He goes on to say that "the men of the Indian Medical Service who are engaged in medical teaching are overworked and underpaid, and they are the men who do more for India than any other class of men." It is interesting to note that the native medical students are keener in practical work than in scientific research.

The closing chapters of the book are devoted to a review of the chief "sights" of India visited by the author, the people, their art and their customs. As the tour of 4,000 miles through India was made in the height of summer, the author naturally found the climate distressing and at times unbearable. Although one has the advantage of avoiding the rush of globe-trotters, Dr. Senn strongly advises other people not to follow his example in choosing that time of the year for a tour through India.

The book is profusely illustrated from photographs, and is interesting from cover to cover. We commend it to the attention of our readers, not only on account of the medical information which it contains, but also for the sake of the accounts of the countries and cities visited by the author.

PHYSIOLOGY.

A BOOK so well known as Professor G. N. STEWART'S *Manual of Physiology*[2] needs no further recommendation from us. We have expressed our high appreciation of the work when former editions have been issued. In chronicling the appearance of the fifth edition, we will only add that its previous high standard is fully maintained. Although it is not many years since its predecessor appeared, it has been necessary to insert a considerable amount of new matter, especially in relation to the blood, digestion, and the central nervous system. In the chapter on blood, we note a very excellent summary of the newest views on the vexed question of coagulation which have recently been put forward by Morawitz. In connexion with digestion, the discoveries of Pawlow, Bayliss and Starling, and others are adequately treated. The central nervous system is always a busy field for investigators, and it is impossible to summarize briefly all the new facts brought out by recent research. Professor Stewart, while not omitting to mention anything new of real importance, maintains a conservative attitude in

[2] *A Manual of Physiology.* By G. N. Stewart, M.D., D.Sc., etc., Professor of Physiology in the University of Chicago. Fifth edition. London: Baillière, Tindall, and Cox. 1906. (Demy 8vo, pp. 929, 395 illustrations. 15s.)

accepting the latest speculations in many subjects. This in a students' textbook is manifestly correct, though we think in one or two places—for instance, in connexion with the work of Chittenden and Folin on proteid metabolism, he errs on the side of caution. We congratulate the author most heartily on the steady success of his excellent work.

On previous occasions when we have had occasion to notice Professor Salkowski's well-known practical guide to physiological and pathological chemistry,[3] we have pointed out how unsuitable a book it is as a laboratory guide to English students. Its lack of system is its weak point, and it would be impossible to use it in any well-regulated practical classes. At the same time it should be found in every physiological laboratory as a work to refer to in connexion with analytical methods. The present edition follows the same plan as its predecessors; many new methods have been introduced, and two new chapters added: one on alcoholic fermentations, the other on autolysis. Both of these are short, and we are somewhat surprised at this, especially in connexion with autolysis. The autolytic method is now so largely used, has given such valuable results, and is connected so closely with Professor Salkowski's name that we should have anticipated that it would have been treated in a more adequate manner. The book has evidently, in spite of its imperfections, filled a want in Germany, otherwise it would not have reached a third edition.

Dr. Frederick Busch, professor of physiology at Buffalo, has published an excellent *Laboratory Manual of Physiology*.[4] Much of the work included, however, cannot be done by, but only demonstrated to, the student in this country. In his practical study of physiology the medical student of America has a great advantage over the English student, owing to the fact that he can carry out the great fundamental experiments on mammalian animals instead of being limited to the study of frogs' muscles and hearts. In America the course of practical physiology includes all the important experiments on the circulation, respiration, cerebral localization, secretion, and the study of the effect of removal of the pancreas, thyroid, suprarenal glands, etc. The students work in fours, and the animals are, of course, thoroughly anaesthetized, and the experiments overlooked by trained teachers. Most valuable experience is thus gained as to the giving of anaesthetics, the cool execution of operative proceedings, etc. In England the student gives his first anaesthetic and makes his first tracheotomy not on a cat but on a child.

YELLOW FEVER.

In a report by Boyce[5] to the Government of British Honduras upon the outbreak of yellow fever in that colony in 1905 there is a good summary of the recent researches on this subject, and also a detailed account of the latest quarantine regulations that have been formulated to combat its spread. The first chapter, dealing with the individual epidemic in Belize, contains probably the most interesting and important facts of the whole report. Amongst other things, it shows that, although the connexion between certain mosquitos and yellow fever was proved more than five years ago, a British colony situated in the dangerous zone still clings to the antiquated ideas of a past age, and sits slumbering on with millions of *Stegomyia fasciata* breeding in its main town, without apparently ever having made the slightest attempt to wage an antimosquito crusade against them. It also indicates how difficult it is to distinguish clinically the first cases of yellow fever from malignant malaria—a point which cannot be too strongly insisted upon. It is one which has cropped up repeatedly in the past, and is sure to do so often in the future. The author states the remedy for such a state of affairs on page 5 when he writes that "no stone should be left unturned to obtain an autopsy in any suspicious case," and he might have added by a competent and trained individual. If the cases, J. W. C. and Miss B., had been examined *post mortem*, as they should certainly have been, much valuable time would have been gained, and many of the mosquitos that had bitten them could have been destroyed and thus prevented from infecting others. Chapter III, dealing with the mosquito survey of the town of Belize, is interesting as a good example of the lethargy we have already commented upon. If it were not so serious it might even be amusing. Exactly similar conditions, it may interest the author to know, prevail in all the British West Indian islands, and they are equally liable to be infected with yellow fever at any time. The chapter on the new quarantine laws is a useful incorporation for the report, especially the part dealing with the Federal and State quarantine in the United States. Dr. Boyce's report is a distinctly valuable one, and we hope it will not go the way of so many of its predecessors, into the well-known pigeonhole. On the contrary, it should be acted on by the British Government, and should stimulate them to try at least to keep up to the times, and not be left so hopelessly in the lurch by the Americans in regard to the sanitation of yellow fever.

MALTA FEVER.

Malta or Mediterranean fever, so called from its prevalence in those parts, has long been known to exist in many other parts of the world as well. Lamb and Pai[6] describe cases from India, and have cleared up any dispute as to the true nature of those by growing the specific organism. Though doubts have from time to time been thrown on the value of the serum agglutination method for the diagnosis of this disease, one certainly agrees with the authors of the memoir that this test, when properly and rigidly controlled, is of the greatest value, and should always be used to differentiate Malta fever from other fevers which clinically simulate it. Their figures for their controls clearly prove this. A considerable number of cases were studied, these being divided into two groups—namely, (1) those in which the *M. melitensis* was isolated from the spleen during life, and (2) those in which the diagnosis rested on the clinical history and the serum agglutination reaction. The first group contains 11 cases, and the tests applied to those, based on the work of the Special Commission which has been and is still investigating this disease in Malta, show that there is not the slightest doubt about the correctness of their conclusions. The cases under review occurred in Ferozepore, but a note at the end of the memoir indicates that other places in the Punjab are also affected. It will be interesting to note if the authors follow out the distribution of the disease in goats and other animals in subsequent communications. Accurate work, such as is contained in the paper, is very important for the elucidation of the obscure fevers found in tropical and subtropical regions, and the writers are to be congratulated on their very successful effort.

NOTES ON BOOKS.

Of the *London Manual*,[7] which, edited by Mr. Robert Donald, has now made its tenth annual appearance, but little need be said. London nowadays is such a congeries of different authorities that no man can keep track of their precise work and their precise formation without a reference book of this description constantly at his side. Mr. Donald gives a general sketch of the government of London, and follows this up by an account in detail of the work of each body, giving the name and address of every member of the various committees by which their duties are carried out. All the information contained is from official sources, or has been officially revised.

[3] *Practicum der physiologischen und pathologischen Chemie.* [Practical Guide to Physiological and Pathological Chemistry.] By Dr. E. Salkowski. Third edition. Berlin: A. Hirschwald. 1906. (Demy 8vo, pp. 328 M 8.)

[4] *Laboratory Manual of Physiology.* Professor F. C. Busch, B.S., M.D. London: Bailliere, Tindall, and Cox. 1906. (Crown 8vo, pp. 215; illustrations 47. 6s.)

[5] Report to the Government of British Honduras upon the Outbreak of Yellow Fever in that Colony in 1905; together with an account of the distribution of the *Stegomyia fasciata* in Belize and the measures necessary to stamp out or prevent the recurrence of yellow fever. By Rupert Boyce, M.B., F.R.S. London: J. and A. Churchill. 1906. (Fcap folio, pp. 104. 3s. 6d.)

[6] Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New Series. No. 22. *Mediterranean Fever in India: Isolation of the Micrococcus Melitensis.* By Captain George Lamb, M.D., I.M.S., and Assistant Surgeon M. Kesava Pai, M.B., C.M. Madras. Calcutta: Office of the Superintendent of Government Printing, India. 1906 (Demy 4to, pp. 22. 1s.)

[7] *The London Manual for 1906.* London: Edward Lloyd, Ltd. 1s. 6d.

TUNBRIDGE WELLS AS A HEALTH RESORT.

By FRANCIS RILEY, M.D., B.S.Lond., F.R.C.S.Eng.

THE history of Tunbridge Wells dates from the days when the dissolute Dudley, Lord North, discovered the chalybeate springs in the early part of the seventeenth century, and was advised by his London physicians to drink the water as a restorative to his jaded energies. The experiment was an unqualified success. He came, he drank, and was cured. Others, emboldened by the happy result, hastened to try the new "cure," and the small township which sprang up in the vicinity of the Wells became the fashionable resort of the wits and brilliant society figures of the day. An old print shows Dr. Johnson promenading with David Garrick, William Pitt, Earl of Chatham, Speaker Onslow, and other notabilities of the eighteenth century. In addition to its fame as an inland watering place, the salubrity of the climate and the picturesque nature of the surrounding country have gradually attracted a large and increasing number of permanent residents, who have thus given to the town its distinctive feature as a residential health resort, and a place of refuge against the inroads of sickness and the infirmities of old age.

Situated as it is upon the bed of sandstone known as the Hastings Sands, at a height of nearly 400 ft. above sea level, and towards the eastern side of the island, Tunbridge Wells possesses the elements which go to make a dry and bracing climate. Its position towards the south coast (thirty miles from Hastings) tempers the keenness of the easterly breezes and reduces the chilling effect of the elevation, so that the climate may be described as exhilarating and mildly bracing. Its healthiness, as well as its picturesqueness, is greatly enhanced by the magnificent stretches of common—about 250 acres in extent—which penetrate to the very centre of the town, and supply abundant life-giving atmosphere to every part. The pine woods which abound in the vicinity also contribute to the tonic and invigorating effect of the climate, and suggest the suitability for the open-air treatment of tuberculous and allied diseases; for, owing to the southerly situation, it could be carried out all the year round.

The beneficial effects of the climate are fully borne out by the returns of the medical officer of health for the borough. For the last six years the death-rate has fallen below 13.0 per 1,000, and, when it is remembered that a considerable proportion of the population is made up either of invalids attracted by the salubrity of the climate or of the aged and retired who desire to spend their declining years amidst pleasant surroundings, these figures are sufficiently remarkable. In the year 1905 more than one-half the total number of deaths took place over the age of 60, and no less than 30 per cent. over 70 years—a striking testimony of the influence of the climate in promoting longevity. At the other end of the scale the abnormally low rate of infantile mortality—72 per 1,000 births in 1905—demonstrates the suitability of the climate for children; as to this the medical men of the town are fully agreed. Some credit, too, should no doubt be ascribed to the almost entire absence of deaths from zymotic diseases, in itself a tribute to the excellent system of sanitation which prevails in the town.

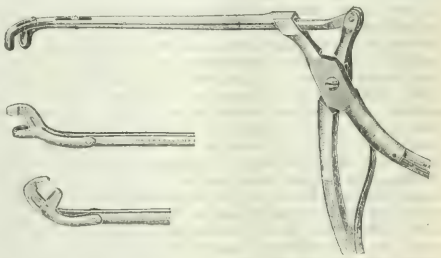
The therapeutic indications of the Tunbridge Wells climate may be briefly summarized: First and foremost it is especially suited to diseases of the respiratory organs. The mildness and tonicity of the atmosphere, the height above sea level, and the gravelly nature of the soil are of great value in the treatment of bronchitis and bronchial asthma, as well as in the open-air treatment of consumption and surgical tuberculosis. Cardiac diseases are benefited by the bracing atmosphere, as well as by Nauheim baths and massage to be obtained at the Spa baths. The number of gentle ascents are of value in the treatment of obesity and fatty heart by the Oertel method of hill climbing combined with hydrotherapeutic and other measures. The clearness and mildly bracing effect of the atmosphere renders it peculiarly valuable in the treatment of nervous diseases, more especially those attended with mental depression, such as cases of melancholia, hypochondriasis, and neurasthenia, and the early stages of general paralysis. Diseases of the digestive organs are also beneficially influenced; appetite is restored and the desire for exercise stimulated. Cases of anaemia also benefit by the bracing air combined with internal treatment, and the climate is particularly valuable in convalescence after surgical operations, and was often recommended for this purpose by the late Sir Spencer Wells. In most children's diseases, especially those attended with malnutrition and general debility, a favourable influence may confidently be predicted.

The good effects of the climate are enhanced by the very attractive nature of the town and its surroundings. The stretches of open common, 450 ft. above sea level, in and around the town, open out lovely views of the neighbouring country. On every side are to be found woodland and pastoral scenery scarcely surpassed in any other part of England, with the hop-fields, for which Kent is famous. Pine woods also and picturesque villages and places of interest abound in the vicinity. The unique promenade, known as the Pantiles, is a never-failing source of attraction, where excellent music is provided during the season, which extends from June to October. Entertainments and theatrical performances are also provided for the amusement of visitors at the opera house and the "Great Hall."

Mention must also be made of the chalybeate waters, to the discovery of which Tunbridge Wells owes its name and existence. They contain on analysis about 4 gr. of carbonate of iron per gallon, with sulphates of potash and soda, and chlorides of sodium and calcium, and are of undoubted efficacy in the treatment of anaemia and allied disorders. They are largely drunk by visitors, and it is to be regretted that their use has, no doubt partly on account of the position of the springs, been allowed of recent years to fall into comparative neglect. The borough council is now, however, seeking Parliamentary powers to obtain full control of them, and there is every probability that in a short space of time the waters will become a greater source of attraction and benefit to visitors than is the case at present.

MEDICAL AND SURGICAL APPLIANCES.

Punch-forceps for Operations on the Maxillary Antrum and other Accessory Nasal Sinuses.—Messrs. Mayer and Meltzer have for some time considered the question of forceps for making a large opening into the maxillary antrum by the nasal route, and have constructed punch-forceps, from the design of Mr. Carwardine of Bristol, which appear to have given satisfaction to several practitioners who have used them. The complete set consists of four pairs of punches; two of these are downward-cutting, for enlarging the right and left antral openings respectively in a downward direction; the third is direct in cutting action; and the fourth reversed, to enlarge the opening backwards and forwards. They consist essentially of a strong hook and guide, the distal part of which is curved and ends in a male cutting blade. The sliding female blade of the punch-forceps is hinged to a thrusting shaft, to obtain lateral movement with a maximum of power.



The downward-cutting punches are sufficiently powerful to remove the inner wall of the antrum down to the floor of the nasal fossa, where it is thickest; the direct and reversed ones are intended for removal of the remainder of the inner wall of the antrum. Though designed for operations by the nasal route, they are also useful for operations through the canine fossa. The direct-action punch-forceps may be used for other purposes in addition; and they are powerful enough and have been found useful for removing the base of the sphenoidal sinus for dependent drainage of that cavity.

PROFESSOR VON BEHRING'S TREATMENT OF TUBERCULOSIS.

As recently stated in the Journal, a party of French doctors has been visiting some of the principal medical centres in Germany. On August 14th they were at Marburg, and Professor von Behring took the opportunity of delivering to them an address on the immunizing treatment as applied to tuberculosis. He said:

We are gathered here in the State Institute, but we shall presently visit another institute of a private character founded about ten years ago for the study of experimental antituberculous treatment. No method by means of which an advance in the struggle against tuberculosis could be hoped for was to be excluded from our Marburg researches. It was, however, mainly our intention to apply the results of the researches of immunization against diphtheria to tuberculosis, that disease which is the most terrible scourge of humanity. Experimentally it is possible to immunize persons susceptible of contracting the diphtheria of Bretonneau in three different ways. I will here enumerate the three methods of immunization in the order in which I discovered them nearly twenty years ago.

1. The first manner of immunization is that by which Jenner, 120 years ago, produced immunity against smallpox by finding a weakened virus in cows—vaccination or vaccine. It is I who applied the method of Jenner, afterwards generalized by Pasteur, to diphtheria, by artificially attenuating the virulence, that is to say, the morbific energy of Loeffler bacilli by means of an iodine preparation. With this I inoculated guinea-pigs, rabbits, sheep, oxen, and horses with satisfactory results. It is this method which I also found efficacious as an antituberculous vaccination, by experiments on bovines, applying Koch's bacilli, obtained from a human source, which are not generally virulent for the bovine race. This method of jennerization I published on September 12th, 1901, at Stockholm, on the occasion of the first Nobel festival.

2. The second method is not carried out by living virus, but by the toxin produced by the virus. For instance, to immunize a horse against diphtheria, first of all there is injected under the skin a very small quantity of diphtheria toxin, and then the dose is doubled daily. With our diphtheria toxin, which is very strong, we begin with a ten-thousandth of a cubic centimetre, increasing gradually, in the course of four to six weeks, to a litre—that is to say, a dose ten million times stronger than the initial one.

According to Pliny, King Mithridates was well acquainted with the principle of this method of immunization, with this difference, that he did not inoculate under the skin the poisons against which he immunized himself, but introduced them into the stomach. We can show that Mithridates's method of immunization is applicable to certain infectious bacterial poisons, and I myself have used these successfully in the tuberculosis of sheep and other animals. From these data it follows that we should call this immunization mithridatization, or mithridatism. In our own day mithridatization was introduced by Koch into medical science. Koch habituated tuberculous human beings to his tuberculin. Ehrlich experimentally used some poisons of venomous plants for mithridatization.

It is of the greatest importance that animals mithridatized against the poison of diphtheria should be likewise immunized against the bacilli; on the other hand, individuals in whom tolerance to tuberculin has been established are not immunized against the tuberculosis caused by Koch's bacilli. I have, however, succeeded in obtaining from tubercle bacilli a toxin differing from Koch's tuberculin; this is Tulase. By means of tulase I have found that immunization against living tubercle bacilli can be produced.

3. The third manner of immunizing, which I published in 1890, is serum-therapeutic immunization. The discovery of that method is very curious. It is very closely connected with my studies on iodoform published twenty-five years ago. These investigations led to the conclusion that the disinfectant and antiseptic efficacy of that remedy did not rest on its antibacterial but on its antitoxic effect. Pus and infected exudates are made inoffensive by contact with iodoform, provided the iodoform becomes dissociated under the influence of bacterial products. Later I made researches on the antibacterial efficacy of serums, and these studies led me to the conception that in the blood of infected organisms which get well spontaneously antibacterial bodies develop, and that those bodies might be the cause of the cure and the consecutive immunization. This idea has become very fertile; but by more exact examination made on animals immunized against diphtheria I could not discover antibacillary forces either in the blood or in the serum from the blood. On the contrary, I found a disinfecting mechanism analogous to that of iodoform. The soluble diphtheria toxin discovered by Roux is rendered harmless by the serum of mithridatized animals.

The analogy of the antitoxic serum with the antitoxic action of iodoform gave rise to the notion that the antitoxic agent of the blood can be employed as a therapeutic remedy. The outcome of that idea has been the inauguration of serumtherapy against diphtheria and other infectious diseases.

You see that mithridatization has numerous relations with serumtherapy. It is the indispensable condition for obtaining antitoxic serum. On the one hand mithridatic immunity, on the other serum-therapeutic immunity, must be referred to the antitoxic antibodies. Nevertheless, in mithridatic immunity the antibodies are the result of the activity of the cells and living organs, whilst serum-therapeutic immunity is produced without any co-operation of the cells which remain completely passive.

This is why we may distinguish with Ehrlich mithridatization as "active immunization" from serum-therapeutic immunity as "passive immunity."

It is easy to understand that active immunization is longer and more dangerous in attainment than passive immunization. Consequently, if we have at our disposal a serum-therapeutic method to use against an infectious disease, that will naturally be the preferable method. We do not, for instance, treat diphtheria mithridatically, or according to the Jenner-Pasteur method.

From this point of view, after the discovery of an active immunization against tuberculosis which is recognized as practicable against bovines, and which might doubtless be also applied to man, at any rate in principle, where do we stand in regard to tuberculosis? Shall we in a short time have an antituberculous and antiphthisical serumtherapy?

I must confess that there does not appear to be room for too great a hope of this. I am persuaded that active immunization will remain the preferable method for tuberculosis, combined perhaps with a serum analogous to the method of Lorenz of Darmstadt for *rouget du porc*.

My researches in that direction are in progress, but I cannot at this moment say to what practical results they may lead.

Up to the end of the experimental studies in the laboratories, in addition to jennerization by means of bovo-vaccine for bovines, I have tried mithridatization in sheep, especially by means of tulase.

The tulase that you see here as a perfectly clear liquid, nevertheless contains the somatic substance of Koch's bacilli which can be stained by the method of Ziehl and Gram. The preparation of tulase, which is very complicated, consists in treatment of the bacilli with chloral. Consecutively to that treatment, the TC of the bacilli, to which reference was made in the discourse which I delivered at Paris on October 7th last year, becomes modified in such a way that after the application of the tulase, not only by intravenous and subcutaneous injections, but also by introduction into the stomach, the cells engulph the TC and transform it into the hypothetical substance TX, which, as I believe, produces at once antituberculous immunity and hypersensibility to Koch's tuberculin.

In persons who are not yet infected with the tuberculous virus, immunization by tulase is produced only after four months, but it appears that in persons already tuberculous and hypersensitive to tuberculin the metamorphosis of TC into TX occurs more rapidly. It is especially for this reason that we are able to count on a curative efficacy in tulase, as I have found in the case of sheep with localized tuberculous affections in the eye, on the skin, and in the lungs. As far as I can judge from my experiments on sheep, the introduction of tulase into the stomach will be preferable to subcutaneous

injections. But the reports of clinicians, according to which the tuberculosis and scrofulosis of children are likely to be curable by treatment with tulase, are based solely on observations of the therapeutic effects produced by subcutaneous injections. The introduction of tulase into the stomach in the form of feeding with immunizing milk (*Immunmilch*) is being tried in some clinics, but I have not yet received reports of results from the clinicians.

It is necessary in this connexion to point out that after the discovery of the antidiphtheria serum, and the first therapeutic trials thereof, four years elapsed before the remedy was placed at the disposal of practitioners.

In the case of bovo-vaccine, too, after the discovery of it as vaccine, the lapse of several years was necessary before it was applied in general practice.

We cannot yet state exactly when the new mithridatic remedy against tuberculosis will have been sufficiently tested scientifically by clinicians to be given to practitioners. In any case, till I know exactly the best method of application, and the dosage of tulase suitable for man, it will not be sold, but only given gratuitously to hospital clinics under conditions as to which Dr. Siebert in my private institute will give you particulars, which are already printed, but have not yet been published.

[According to our Berlin correspondent, these conditions are: A special course in von Behring's laboratories, to be gone through by the assistant of any clinician wishful to obtain and use the new remedy.]

MALARIA RETURN.

IN the House of Commons on Friday, May 4th, 1906, Major Seely asked the Under-Secretary of State for the Colonies "whether he can grant a return showing the measures taken in the Crown Colonies and Protectorates to eradicate malarial fever, and the results as shown by the health statistics of the inhabitants." Mr. Winston Churchill, in reply, said: "The honourable member's wish has been noted, and the Secretary of State is instructing the Advisory Board for the Tropical Disease Research Fund to consider how it can best be met." In a letter addressed to us by Professor Ronald Ross, which was published in the BRITISH MEDICAL JOURNAL of May 19th, p. 1194, attention was called to the action taken in the matter by the Colonial Office. By the courtesy of Professor Ross we are now enabled to publish the text of a circular which has been issued by Lord Elgin:

[*Circular.*]

Downing Street,
6th June, 1906.

Sir,—I have the honour to transmit to you the accompanying copy of a question asked in the House of Commons by Major Seely, requesting the grant of a return of the measures taken in the Crown Colonies and Protectorates to eradicate malarial fever, together with a copy of the reply returned.

2. I am anxious not to trouble your Government with the compilation of unnecessary statistics, and still less do I wish to hamper the practical work of combating malaria by requiring elaborate returns. I would desire, however, to meet, as far as possible, Major Seely's wishes. I recognize that the publication of annual or periodical reports showing what has or has not been done in the different Colonies and Protectorates to put into practice the preventives and remedies which have been abundantly tested by scientific experts is one method of ensuring steady progress. I propose, therefore, to adopt the following procedure:

3. It has been contemplated to issue annually a report of the work done by means of the funds subscribed by certain Colonies and Protectorates, and administered by the Advisory Board of the Tropical Disease Research Fund, which was constituted by my predecessor. I would suggest that the Advisory Board should utilize in their annual report, which would be issued early in each calendar year, any reports on the measures taken to eradicate malarial fever, yellow fever, and other mosquito-borne diseases which Colonial Governments may be able to supply. The Report of the Advisory Board will be for the academic year, 1st October to 30th September, and it would there be sufficient if a section dealing with these measures could be inserted in the usual annual medical report of each Colony or Protectorate which is, or should be, always received at the Colonial Office before the autumn of the succeeding year.

4. This special report or section of a report would be supplementary to, and not in substitution for, the returns now included in the annual report. It should give a concise account of the nature and cost of all measures of the kind indicated which have been begun or were in progress during the period in question, whether by legislation, public works, education, sanitation, or otherwise, and it should, if practicable, give figures showing the comparative salubrity of different localities, and the varying rates of death or disease from malaria, etc., among the several classes of the community. Any really accurate and trustworthy figures as to the results of precautions taken against mosquito-borne infection should be of value.

I have the honour to be, Sir,
Your most obedient, humble servant,
ELGIN.

The Officer Administering the Government of ——

OPENING OF THE MEDICAL SCHOOLS.

THE arrangements for the opening of the Winter Session in the Medical Schools and Colleges in the United Kingdom, as far as they are at present completed, are as follows:

LONDON.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The Winter Session will begin on Monday, October 1st. Beyond the usual Old Students' Dinner, which will be held on the same evening in the Great Hall of the hospital at 6.30 for 7 o'clock, there will be no inaugural ceremony. At the dinner the Chairman will be Dr. Ormerod.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The Winter Session will commence on Monday, October 1st, by the delivery of the Sixth Biennial Huxley Lecture on Recent Advances in Science and their Bearing on Medicine and Surgery, at 4 p.m., by Professor Ivan Petrovitsch Pavloff. The Old Students' Dinner will take place on the evening of the same day at 7.30 p.m. at the Hotel Cecil.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.—The Winter Session will begin on Monday, October 1st. The Prizes will be distributed by the Lord Bishop of Bristol, followed by the Inaugural Address at 3 p.m. The Annual Medical School Dinner will be held the same evening at the Whitehall Rooms, Hôtel Métropole, at 6.30 for 7 p.m., the Chairman of the evening being Mr. T. Clinton Dent.

GUY'S HOSPITAL MEDICAL SCHOOL.—The Winter Session will begin on Monday, October 1st. The first meeting of the Pupils' Physical Society will be held on October 13th, at 8 p.m., preceded by a House Dinner in the College Dining Hall at 7.30 p.m.

KING'S COLLEGE, LONDON.—The Winter Session will begin on Tuesday, October 2nd, with an Introductory Address, and the Distribution of Prizes. The Old Students' Dinner will be held in the evening at the Hotel Cecil at 7 p.m. Professor Nestor Tirard, in the chair.

LONDON HOSPITAL MEDICAL SCHOOL.—The Winter Session will commence on Monday, October 1st. In the afternoon, between 3 and 5 p.m., the honorary staff will hold a reception at the College of Old Students. The Annual Dinner will be held at Prince's Restaurant on October 1st, at 7.30 for 7.45 p.m., the chair being occupied by Dr. John Holroyde of Rochester.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—The Winter Session will begin on Monday, October 1st, with an Introductory Address by Dr. N. H. Alcock, Lecturer on Physiology and Vice-Dean of the Medical School. The Annual Dinner will be held on Tuesday, October 2nd, at the Whitehall Rooms, Hôtel Métropole, at 7 p.m. Dr. M. Handfield Jones will take the chair, and past and present students are equally invited to attend.

MIDDLESEX HOSPITAL.—The Winter Session will commence on Monday, October 1st. In the afternoon, at 3 o'clock, an Introductory Address will be delivered by Dr. H. Campbell Thomson, and on its conclusion the prizes awarded during the past year will be distributed by the Right Hon. the Lord Mayor of London. The Annual

Dinner of past and present students will take place the same evening at 7 o'clock at the Trocadero Restaurant, Mr. Henry Morris, President of the Royal College of Surgeons, in the chair.

St. Thomas's Hospital Medical School.—The Winter Session will open on Tuesday, October 2nd, without any formality. The Annual Dinner, which all former and present students are invited to attend, will take place the same evening, at 7 o'clock, at the Hotel Cecil. Dr. Arthur Newsholme, M.O.H. for Brighton, will be in the chair.

University College, London.—The Winter Session of the Medical Faculty will commence on Tuesday, October 2nd, when an Introductory Lecture will be given at 4 p.m. by Professor R. J. Godlee, M.S., F.R.C.S. The Old Students' Dinner will be held the same evening, at the Hotel Cecil, when the chair will be taken by Professor G. D. Thane.

Westminster Hospital Medical School.—The Winter Session will begin on Monday, October 1st. There will be no introductory address. The Annual Dinner will take place on the same evening at the Trocadero Restaurant; the chair will be taken by Dr. F. de Havilland Hall.

London School of Medicine for Women.—The Winter Session will open on Monday, October 1st, when Professor Byers, of Belfast, will deliver an address on Medical Women and Public Health Question.

London School of Tropical Medicine.—The Winter Session will commence on Monday, October 1st, when an Address will be delivered by Colonel Kenneth MacLeod, I.M.S., at 3 p.m. On the same evening will take place the Annual Dinner of the students of this school at the Hotel Cecil at 7 p.m., and His Grace the Duke of Marlborough will occupy the chair.

PROVINCES.

University of Birmingham.—The Winter Session will commence on Monday, October 1st. By way of inaugurating the session a *conversazione* will be given in the buildings appropriated to the Medical Faculty. The Dean and members of the Faculty will receive the guests, and music and exhibitions of a suitable character will be given in the various departments.

University College, Bristol.—The Winter Session will commence on Monday, October 1st. The Prize Distribution by Professor A. Macalister will take place at 4 p.m. on Tuesday, October 2nd, and the Annual Dinner the same evening.

University College of South Wales and Monmouthshire, Cardiff.—The Winter Session will begin on Tuesday, October 9th. There will be no formal inauguration of work.

University of Leeds.—The Winter Session will open on Monday, October 1st.

University of Liverpool.—The Winter Session will begin on October 2nd, without any formal ceremonial.

Victoria University, Manchester.—The Winter Session will begin on Tuesday, October 2nd, by an Address by Professor Donald MacAlister of Cambridge.

University of Durham College of Medicine, Newcastle-on-Tyne.—The Winter Session will commence on Monday, October 1st.

University of Sheffield.—The Winter Session will commence on Wednesday, October 3rd, but no introductory address will be given. In the evening the Annual Dinner will be held as usual.

SCOTLAND.

University of Edinburgh.—The Winter Session will commence on Tuesday, October 16th.

Medical College for Women, Edinburgh.—The Winter Session will commence on Tuesday, October 16th.

Edinburgh Extra-Academical School.—The School will open on Tuesday, October 16th.

University of Aberdeen.—The Winter Session will commence on Wednesday, October 17th.

University of St. Andrews.—The Winter Session will commence on Monday, October 15th.

University of Glasgow.—The Winter Session will be opened on Thursday, October 18th. The Winter Session of Queen Margaret College Medical School for Women will begin on Thursday, October 18th.

Anderson's College Medical School.—The Winter Session will open on Thursday, October 18th.

St. Mungo's College, Glasgow.—The Winter Session will open on Thursday, October 18th.

University College, Dundee.—The Winter Session will open on Monday, October 15th.

IRELAND.

University of Dublin: School of Physics.—The Winter Session will commence on Monday, October 1st.

Royal College of Surgeons in Ireland: Schools of Surgery.—The Winter Session will commence on Monday, October 15th.

Queen's College, Belfast.—The Winter Session will begin on Tuesday, October 16th.

Queen's College, Cork.—The Winter Session will begin on Tuesday, October 16th.

LITERARY NOTES.

Messrs. Macmillan announce the publication of a volume in which Sir Lauder Brunton has gathered a number of his essays on medical subjects. Several of the papers were written in conjunction with Sir Joseph Fayrer, Mr. D'Arcy Power, and other medical men. "One reason for this," says Sir Lauder Brunton, "is that I like working with others who are interested in the same subject as myself."

The Society for the Study of the History of the Sciences and Medicine, recently founded in Berlin, has already a membership of nearly 100. The Society has received a large donation to be applied in the yearly award of prizes.

The *Transactions* of the First International Surgical Congress, held in Brussels last September, has just been published by Hayez of that city. The editor is Dr. Depage, General Secretary of the Congress.

Messrs. J. and A. Churchill have just issued a *Short Practice of Medicine*, by Dr. R. A. Fleming, Lecturer on Medicine in the School of the Royal Colleges, Edinburgh. It contains 770 pages, and some of the illustrations are coloured. The work aims to give the student what is really necessary for his examinations and to serve as a summary for the practitioner.

Under the title *Author and Printer*, Mr. F. Howard Collins has compiled a guide for authors, editors, printers, correctors of the press, compositors, and typists. The work is described by its author as an attempt to codify the best typographical practices of the present day. Mr. Howard Collins has had the assistance of many authors, editors, printers, and correctors of the press, and his "code" has been approved by the Master Printers' and Allied Trades' Association of London, the Edinburgh Master Printers' Association, the Belfast Printing Trades Employers' Association, and the Executive Committee of the London Association of Correctors of the Press. We heartily commend the book, which is published by Henry Frowde, to the attention of those—and, as our own correspondence testifies, they are a numerous body—who take an interest in questions of spelling. We commend it all the more earnestly at present in view of the chaos which the recent ukase of the masterful President of the United States seems likely to introduce in the orthography of our English speech.

Mr. L. M. Griffiths has gathered up in a little volume (J. W. Arrowsmith, Bristol) some notes contributed by him to the *Bristol Medico-Chirurgical Journal*. Their starting-points were the words having a medical interest which have a place in the *Promptorium Parvulorum sive Clericorum*, the first English-Latin dictionary, which was written about 1440, and the *Catholicon Anglicum*, an English-Latin wordbook dated 1483. As a specimen of the interesting matter to be found in Mr. Griffiths's delightful booklet, we may cite his treatment of the word *Agnaylle*, which occurs in the *Catholicon* without any Latin equivalent. According to Mr. Sidney J. H. Herrtage, who edited the work for the Camden Society, till the seventeenth century there is no instance of the word being used to denote anything else than a hard corn, but in modern literature the word has sometimes become confused with hangnails. Mr. Griffiths justly complains that the Sydenham Society's *Lexicon*, "in which better things might have been expected," defines *agnail* as "a term applied to the shreds of epidermis which separate from the skin covering the root of the nail, and which, on being torn, give rise to a painful state of the

fingers." Elsewhere a light that will be new to many is thrown on the nature of the "fistula" of which the King in *All's Well that Ends Well* was cured by Helena. The disease from which the monarch suffered was not, it appears, a *fistula in ano*. There can be little doubt, Mr. Griffiths points out, that Shakespeare took the story of the play from Painter's *Palace of Pleasure*, in which the passage from Boccaccio's *Decameron* containing the mention of the King's malady is translated from the Ninth Novel of the Third Day as follows:

> The Frenche Kyng had a swelling upon his breast, which, by reason of ill-cure, was growen to a Fistula, and did putte to marveilous paine and grief.

Under a mistaken notion of the situation of the fistula Bowdler, who took upon himself the task of expurgating Shakespeare, excised the whole passage! Mr. Griffiths's little book extends only to A—Ei. We hope that before long he will give us the rest of the alphabet.

At the annual meeting of the British Medical Association held at Bristol in 1894, Dr. Yeats quoted a letter by Thomas Carlyle, written to Messrs. Sutherland and Knox, an Edinburgh firm of publishers, in acknowledgement of a book entitled *The Healing Art the Right Hand of the Church*. Dr. Yeats described the book as written by a medical man for medical men. The author concealed his personality under the *nom de guerre* "Therapeutes." The letter was published in the BRITISH MEDICAL JOURNAL at the time, but it may interest some of our younger readers to have their attention called to it:

> Chelsea, 25th February, 1859.
>
> Dear Sir,—I have received your book, which you were kind enough to send me, and I beg to return you thanks for the same. It is a book (unlike many that come to me here) of a serious nature, the fruit of long study, meditation, inquiry, and evidently of perfect conviction on your part.
>
> I believe, and have long believed, the essential idea it sets forth to be not only true, but of the very highest importance to mankind, namely, that the Physician must first of all be a priest (that is to say, a man of pious nobleness, devoted to the service of the Highest, and prepared to endure and endeavour for that same, taking no counsel of flesh and blood, as the theory of Priests is)—first of all, a real priest, and then that the whole world should take supreme counsel of him, as it does of its real or imaginary Priests or Pontiffs this long while back, and follow said counsel as the actual will of God—which it would be were the Physician what I say.
>
> It is curious to remark that *Heilig* in our old Teutonic speech is both Holy and also Healthy; that the words Holy and Healthy, as our antique fathers understood them, are one and the same. A thousand times has that etymology risen sorrowfully upon me, in looking at the present distracted position of affairs, which is horrible to think of, if we look earnestly into it, and which cannot well be spoken of at all. We, sure enough, have completely contrived to divorce holiness (as we call it) from health, and have been reaping the fruits very plentifully during these fifteen hundred years.
>
> The notion of bringing our present distracted anomaly of a Physician into union with our ditto ditto of a Priest, and making them identical is of course extremely chimerical; nor can one easily say what ought to be the first step towards bringing each of them back from his anomalous, imaginary condition and nearer to veracity, and the possibility of coalescing. But I am very glad to see the idea started, in any form, under any vesture, and heartily wish you success in bringing it home to men's minds.
>
> I remain, yours truly,
>
> T. CARLYLE.

The *Journal of the Ceylon Branch of the British Medical Association* from July to December, 1905, is a record of sound scientific work which reflects great credit on the members. Miss Mary N. Fysh, M.B., contributes an account of "a simple and riskless method of treatment of prolapse of the uterus"; Dr. William Wijeysakere describes the present position of ankylostomiasis in Ceylon; Dr. H. Huberty treats of papain, its characters and uses; Dr. Sinnetamby reports a case of achondroplasia in which Caesarean section was successfully performed; Dr. S. C. Paul writes on the operative treatment of hydrocele; Dr. Sinnetamby discusses a recent epidemic outbreak of dysentery and diarrhoea in Colombo, and contributes notes on astereognosis. In a paper of special interest, A. Willey, D.Sc., F.R.S., deals with the identification of poisonous snakes in Ceylon. The *Journal* is well edited by the Honorary Secretary, Dr. M. Sinnetamby.

MEDICAL NEWS

THE 1906-7 session of the Royal Medical and Chirurgical Society of London will commence on Tuesday, October 23rd, at 8.30 p.m.

LIEUTENANT-COLONEL H. G. HATHAWAY, R.A.M.C., who was dangerously wounded at Diamond Hill, South Africa, on June 11th, 1900, has been awarded a permanent wound pension of £100 a year.

THE general meeting of the German Medical Press Association will be held at Stuttgart on September 19th, when Professor Posner will present a report of the proceedings of the Association during the past year. Professor Posner will also read a communication on the spelling of foreign medical words. Dr. Schwalbe will discuss the question of the payment of authors, and will submit a black list of authors.

MEDICAL LEGISLATORS IN PORTUGAL.—At the recent elections in Portugal fifteen representatives of the medical profession secured seats in the Chamber of Deputies. The total number of deputies is 155.

TYPHUS FEVER GERM.—The Mexican Government has offered three prizes, each of the value of £4,000, for (1) the discovery of the typhus fever germ; (2) the mode of its transmission to man; (3) a successful preventive or curative serum or other effectual remedy. Communications should be addressed to the Secretary of the Medical Academy, Dr. Cosio, Ortega 9, Mexico.

INTERNATIONAL DENTAL CONGRESS.—The International Congress of Dental Surgeons, which was held in Geneva in the early part of August, passed resolutions urging the co-ordination of the legal requirements for dental practice in all countries; and the institution of an inquiry into the value of the diplomas granted by various schools of dental surgery. The Congress further passed a resolution insisting on the importance of mechanical instruction as a supplement to theoretical teaching.

THE INVESTIGATION OF SYPHILIS.—The Simon Fund of £5,000 for the furtherance of research on syphilis has been divided between Professor Neisser of Breslau, who receives £3,800, Dr. J. Siegel, who receives £900, and Dr. Lesser, to whom £300 has been awarded. The trustees of the Pettenkofer Fund, at a meeting recently held at Munich, unanimously awarded the prize founded in memory of the great hygienist to Dr. Schaudinn for his discovery of the parasite of syphilis. The amount (£60) has been paid to Dr. Schaudinn's widow.

VOLUNTARY NOTIFICATION OF BIRTHS.—Dr. J. F. Sykes, Medical Officer of Health for St. Pancras, has issued a notice to the effect that the borough council has resolved to adopt tentatively during three months a system of voluntary notification of births, and to pay the father, doctor, midwife, student, or other person attending upon the mother the sum of one shilling for notifying to the medical officer of health, at the St. Pancras Town Hall, a birth within forty-eight hours of its occurrence in the borough. The notification first received is to be the one accepted.

A LADY MEDICAL OFFICER.—Miss Frances Margaret Harper, M.B., Ch.B.Edin., and D.P.H.Camb., has been appointed assistant medical officer at St. Helen's. The appointment of a lady doctor was decided upon by the St. Helen's Health Committee with the idea that her work should practically place her at the head of the lady sanitary inspectors. Among her duties will be to educate midwives, teach women at mothers' meetings, and give instruction in day schools and to women teachers.

THE PREVENTION OF CONSUMPTION.—A society, to be known as the White League, has been founded for the suppression and prevention of tuberculosis in the State of New Jersey. Some 4,000 persons die of the disease in the State every year; this figure represents a higher death-rate from tuberculosis than is found in any other State in the American Union. In addition to distributing leaflets and other measures for the enlightenment of the public mind, the White League will make a systematic effort to obtain the names of all sufferers from tuberculosis in the State, with the view of helping the State Health Department in the suppression of the disease.

British Medical Journal.

SATURDAY, SEPTEMBER 8TH, 1906.

MODERN DIET.

Few problems are of greater importance to the physical and mental well-being of a race than that of its diet. The economic progress of a nation cannot be ensured unless the individuals of which it is composed are sufficiently nourished, for both the capacity to work and the power to resist disease are dependent upon the supply of an adequate quantity of suitable food. Under ordinary biological conditions the problem settles itself. Animals choose their own food, within certain limitations, and man, within similar but wider limitations, has been accustomed to do the same.

A very little consideration is sufficient to show that a more or less successful existence is possible upon dietaries of the most various kinds. It is not desirable to be either overfed or underfed, but in each of these conditions life can be supported and work done. This being so, medical science is expected to provide some general rules which shall give guidance upon the matter, especially since, with the modern growth of communities, it is often necessary to draw up schemes of diet for large institutions where the liberty of individual choice is restricted. When we consider that the food which is most suitable for any individual depends upon a large number of factors—such as race, climate, age, sex, habits, weight, and activity—it is clear that no hard-and-fast rules can be laid down; there has, nevertheless, been a general agreement among scientific workers as to the nature and amount of food which should be taken by the average man. This may be fairly represented by Voit's standard of 3,050 large calories per day for a man of 70 kg. weight doing moderate work. The more modern estimate of Atwater of 3,500 calories is still more liberal. On the other hand, Professor Chittenden, as the result of his interesting and painstaking experiments upon himself, Mr. Horace Fletcher, and a number of soldiers and athletes, has come to the conclusion that it is neither necessary nor desirable to take so much food as this, 2,600 or 2,700 calories sufficing for an energetic and useful life. Still more striking than the reduction of the amount of food as a whole was the small quantity of proteid in the dietary of Chittenden's subjects. These experiments have called forth a great deal of interesting discussion in this and other countries, and have led to a careful examination of the principles upon which our diets have been constructed.

Leaving for the moment the question of the amount of proteid, it must not be forgotten that by the law of the conservation of energy, to which the human frame, like the rest of the known universe, is subject, the energy which is furnished by the body must depend upon the value of the food consumed. If a man eats more than is needed for his requirements, the extra amount of food digested is added to his body, usually as fat. If he eats less, he loses weight. If his weight remains constant, his diet, provided that a sufficient period of time be considered, must correspond accurately with the energy used up in the various activities of his tissues. The caloric value of the food, then, as Professor Gotch emphasized at the meeting of the British Association at York, is of the greatest importance, and must not be lost sight of in discussing the interesting problem of the proteid supply. Under ordinary circumstances the factors which determine the amount of energy needed by the body are muscular bulk and muscular activity. In accordance with this we find that the quantities of food taken by those who are free to choose their diet depend upon their occupation. Professor Benedict, of the Wesleyan University, Connecticut, in a searching criticism of Chittenden's position in the *American Journal of Physiology* for August, gives the following averages drawn from European and American dietary studies:

Subjects.	Fuel Value	Proteid.	
	Calories.	Total Grams.	Digestible Grams.
People with active muscular work (lumbermen, athletes, etc.	5,500	175	160
People with ordinary muscular work (carpenters, farmers, labourers, etc.	3,300	115	105
People with light muscular work (professional and business men, clerks, etc....	2,700	100	92

These averages show very strikingly the relation between the muscular activity of the individual and the caloric value of his diet, and they are exactly what is to be expected from the theory of the conservation of energy. How, then, are Professor Chittenden's results to be explained? His most striking case was that of Mr. Horace Fletcher, upon whose metabolic exchange observations were made for six days. During that time Mr. Fletcher carried out severe muscular exercises, and from calculations of his food Chittenden concluded that his daily consumption of energy was only 1,700 calories, and, since he did not lose weight, that this was sufficient for his needs. Benedict has, however, since been fortunate enough to have the opportunity of observing Mr. Fletcher in a respiration calorimeter, and thus to control calculations made from the chemical analyses of the intake and output by actual measurement of the heat given off from the body. He found that the average output of Mr. Fletcher when resting was 1,896 calories in an experiment of three days, the lowest figure obtained being 1,802 calories, on a day when he was exceedingly inactive. During this time food was taken of the value of 1,357 calories, and Mr. Fletcher was therefore losing body tissue, as was proved by the analysis of the excreta. Benedict concludes, therefore, that when Mr. Fletcher was doing hard muscular work in Chittenden's laboratory his caloric output was much greater, and his food supply still more inadequate, and he explains the fact that the weight remained constant by a retention of water in the body, replacing the one or two pounds of body fat which would be broken down during this short period. He suggested further that the other subjects of Chittenden's experiments took more food than they thought for most of the experimental period, but that during the days on which the food was accurately measured and the excreta analysed they unconsciously ate less than usual; also that the caloric value of the diet being calculated and not directly estimated was probably higher than is stated.

Leaving now the question of the gross fuel value of the food to consider the constituents of the diet, we know that carbohydrate and fat are as foodstuffs largely

interchangeable, with the proviso that whilst life can be indefinitely supported upon carbohydrate and proteid without fat, a diet of proteid and fat only cannot be endured by most people for more than a short time. A considerable difference of opinion exists as to what quantities of proteid, the most essential constituent of the three, are desirable. We use this word advisedly, for it must be frankly acknowledged that the amount of proteid which can be regarded as absolutely necessary for the continuance of life is exceedingly small. This has been shown by human experience, and also by many metabolic studies, especially those of Hirschfeld, Landergren, Kumawaga, Sivén, and by the prolonged experiments of Chittenden. One hundred to a hundred and twenty-five grammes a day has usually been regarded as a suitable quantity, but Chittenden holds that a useful and active existence can be supported upon a diet containing only 55 grams of proteid, and further that his own health, during a period of two years, was improved on this regimen. The soldiers and athletes observed by him also carried on active lives, though not to the point of fatigue, upon a diet containing a low proportion of proteid. Benedict argues that the soldiers, being drawn from a hospital corps, had not been subject to the rigid regulations of the trooper before they came under Chittenden's care, and that their improvement in condition during the experiments may be attributed to the extremely regular life which they led as much as to the low proteid diet. With regard to the athletes, he points out that if the diet had been found to increase their chances of winning events for their University they would not, after the experiments, have returned to their former diet, which, in the main, they have done. In reply to the contention that more work is thrown upon the kidneys with a diet containing more proteid food, he replies that there is no definite evidence that the healthy kidney is damaged by dealing with ordinary quantities of nitrogen.

Mr. Seebohm Rowntree's York statistics, though not furnishing such low figures as those of Chittenden, showed that the amount of proteid taken by the poorer inhabitants of that city was below the usually accepted standard; but, as Dr. Hopkins pointed out at the British Association, the bread-winner of the family would eat more than the average, and the women and children less. Dietetic standards are usually constructed for a man of 70 kg., and this must not be forgotten when applying them to those of less than this weight, for it is a striking fact that many of the experiments upon low diets have been carried out upon people of small bulk. When we consider the bearing of proteid food upon the performance of hard work we are confronted with the fact that the energy for muscular contraction is furnished from non-nitrogenous substance; it is nevertheless true, as is demonstrated by Benedict's table given above, that those who habitually perform hard, muscular work consume more proteid, if it is available. His figures show that this is true of the Japanese and of the Chinese upon the pacific coast of the United States. In the Japanese navy, as a result of experiments in which the whole of the men on one battleship were sent a voyage upon a diet containing 91 grams of proteid a day, and their health compared with those upon another ship which did the same voyage, with rations containing 155 grams, it was found that beri-beri was much less frequent upon the larger quantity of proteid, and this is now included in the present diet of the Japanese sailor. The experiments upon animals quoted by Benedict are extremely interesting in this connexion. Dogs cannot endure a low proteid diet. Pigs, whose digestive system is often likened to that of man, do not do well on it, and the pork becomes poor in quality. In Haecker's experiments on cows at the University of Minnesota two groups of ten cows were fed for a period of three years, one on the usual diet, and one on a diet containing a low proteid ration. At the end of two years the latter group had lost weight, but as far as physical tone was concerned no differences could be detected; but in the third winter the cows on a low proportion of proteid began to fail. They fell off in flesh, and their coats became harsh, and it was found necessary to increase the proteid. Professor Benedict goes on to say that the negro and the poor whites of the southern States and the labourer of southern Italy all live on diets poor in proteid, and that their sociological condition and commercial enterprise are on a par with their diet.

It will be of great interest to see the replies made to these very pertinent criticisms by the advocates of a low proteid diet. They have definitely shown that no immediate harm results to healthy individuals from such a diet. This is of considerable importance, for it follows that in diseases involving the kidneys and digestive organs the restriction of proteid which is sometimes necessary can be made without fear. There is no doubt also that some people take excessive amounts of proteid and of food generally, to the detriment of their health, particularly by increasing the body weight to an undesirable degree. We do not think, however, that it has been proved that a diet containing proteid in a much smaller proportion than that of 100 grams a day for an adult of 70 kilograms, is permanently beneficial either to the individual or to the race, and especially for those whose occupations require considerable muscular exertion. It appears, on the contrary, from the evidence at present at our disposal, that such a permanent reduction is not without possible danger to the virility of the nation.

THE CAUSES OF ARTERIAL HYPERTENSION.

Since it has been recognized that there are morbid conditions in which the blood pressure remains persistently above the normal limit, the subject has attracted attention from clinical observers, who have been impressed by its relation to many of the gravest pathological conditions, and have realized that if its causes could be accurately determined and removed, a great step would be taken in the direction of diminishing the dangers of advancing years and prolonging the duration of human life. The factors that obviously govern the condition are (1) the energy and rapidity of the heart's action, and (2) the peripheral resistance which has to be overcome in driving the blood from the arteries into the veins. The importance of the former is diminished by the fact that by the action of the vasomotor regulating mechanism any increased force or frequency of the heart is followed automatically by relaxation of the peripheral arterioles so that the blood flows more easily into the capillaries. It is, therefore, in the periphery that the causes of increased arterial tension have been most diligently sought. The theories which have been put forward to account for increased peripheral resistance are four: (1) Some alteration in the physical condition of the blood, causing it to flow with greater difficulty through the capillaries, a condition which is realized by any alteration in the relative densities of the blood plasma and the blood corpuscles whereby the latter no longer occupy the axis of the blood stream; (2) organic thickening of the walls of the smaller vessels accompanied

by a generalized diminution of their lumens—a view which was put forward by Gull and Sutton, but which has not stood the test of histological investigation; (3) such a destruction of capillary areas as would reduce the total space into which the blood could be driven, which was the theory of Traube, who believed that the destruction of a large number of the capillaries in the kidneys could account for the rise of blood pressure in chronic Bright's disease; (4) the vasomotor, or stopcock action of the arterioles, the theory of Sir George Johnson, which, in spite of obvious objections, has always proved attractive, and has perhaps had more numerous supporters than any other of those enumerated. The stopcock action of the arterioles is the undoubted cause of sudden rises of blood pressure, and its production has of late years had a good deal of light thrown upon it by the discovery of adrenalin, which, when injected into the blood, causes contraction of the arterioles and raises the arterial tension. A theory has been propounded by M. Vaquez according to which the over-action of the suprarenal capsules is an essential factor in the production of increased arterial tension, and this has been supported to some extent by the results of anatomical investigations (Widal and Boidin); these have shown that in certain cases of increased tension these bodies have presented an adenomatous hyperplasia, which has been naturally accepted as a sign of their increased functional activity. It is said that in long-continued cases of hypertension there is, in nine cases out of ten, an increase in the weight of the suprarenal capsules (Aubertin and Ambard). Another observer (Loeper) has found that it is possible to produce atheroma in rabbits by the prolonged injection of adrenalin. In a recent article[1] Dr. L. Ambard has drawn attention to these facts in order to dispute their application to the problem of persistent high arterial tension. In his opinion all toxins, however and wherever derived, act only by causing a temporary rise in the arterial blood pressure. According to him, every case of transitory hypertension is accompanied by a retention of chlorides; he believes such attacks may be prevented by a diet from which chlorides (sodium chloride) are excluded, and he suggests this as a means of distinguishing between the transitory and the permanent forms of hypertension, which is a somewhat circular argument. Permanent hypertension, according to him, results almost without exception from renal causes; the admitted exceptions are diabetes and Graves's disease, although in the last the state of the blood pressure is not constant. Hypertension of renal origin may be divided into the *reducible* and *irreducible* forms; the first occurs in subacute and acute attacks of nephritis, and runs parallel with the amount of the oedema and albuminuria. On the other hand, the irreducible form is met with in atrophic nephritis, and is only temporarily reducible by such means as bleeding or the production of acute oedema. He recognizes also a mixed type corresponding to a mixed condition of the renal lesion. In the reducible form of hypertension the removal of the chlorides from the diet is only followed by a slow fall in the blood pressure proceeding proportionately to the disappearance of the oedema and albuminuria, while in the mixed form it never reduces the pressure to the normal level, and, finally, in the atrophic form it is absolutely without influence.

The high arterial tension in so far as it is caused by the contracting kidney, in the opinion of Dr. Ambard, results from the resistance which the circulation meets with in the kidneys; his theory differs from that of Traube by attributing the increased resistance, not to the destruction of a capillary area, but to the loss of the glomeruli which, according to recent researches (Lamy, Mayer, and Rathery) are so many little renal hearts playing an important part in carrying on the renal circulation, but he admits that whatever may be the part played by the resistance of the kidney it is not a sufficient explanation of the rise of blood pressure, and he concludes that at the present time we must be content to leave this question unsettled.

[1] *La Semaine Médicale*, 1906, No. 31.

STANDARDIZATION OF PHARMACEUTICAL PREPARATIONS.

The great advances which have been made of late years in our knowledge of the action of drugs are evident from even a cursory examination of recent works on pharmacology. As a result a stimulus has been given to the teaching of this subject, and its great importance in the medical curriculum is now recognized in our schools. We may fairly ask whether the scientific preparation of the drugs used in daily practice has kept pace with researches upon their action. Definite chemical compounds such as magnesium sulphate or morphine are available in a pure form and the dose can be accurately measured, and it is no less desirable that in the administration of ordinary tinctures and extracts owing their action to the presence of an alkaloidal or other compound, the proportion of this substance should be known. With this object in view some of the more powerful medicines in the *Pharmacopoeia* are standardized by chemical means. The determination of the amount of strychnine in the compounds of nux vomica leaves little to be desired. It is doubtful, however, whether the estimation of morphine in opium gives the best possible measure of the power of that drug, for there is a not inconsiderable quantity of other active alkaloids. In the preparation of belladonna, ipecacuanha, and quinine the total alkaloids are determined by titration or weighing, and in tincture of jalap the amount of resin.

There remain many active drugs of the strength of which there is no real guarantee; such are digitalis, strophanthus, squill, ergot, lobelia, male fern, thyroid extract, the vegetable purgatives, aconite, hyoscyamus, and stramonium. We may, perhaps, exclude the three last named, for from aconite aconitine is prepared, from hyoscyamus and stramonium the alkaloids hyoscine, hyoscamine, and atropine, and these substances may come to take the place of the crude drugs. From digitalis substances purporting to be pure principles have been obtained and extensively tried, but most observers are agreed that better results follow from the infusion and tincture than from the samples of digitalin and digitoxin at present on the market. The careful methods of preparation employed by pharmacists are a sufficient safeguard against such an uncertainty of composition as might render the use of these unstandardized medicines dangerous. On the contrary, such drugs as digitalis, thyroid extract, and stramonium are used daily with the greatest success, and lead to an incalculable alleviation of disease. Nevertheless it is evident that these medicines are not employed under the most advantageous circumstances permitted by the present state of science. The application of pharmacological knowledge at the bedside is deprived of much of its force by the want of exact information as to the real strength of a tincture or an extract. Valuable time is thus wasted, for an insufficient dose is at first prescribed in order to avoid the

possibility of giving more than is necessary or desirable.

Owing to the great complexity of organic products, accurate standardization by chemical procedures is not at present possible in all cases, although with the examples before us of the daily employment of such substances as strychnine and caffeine, we have good reason to look forward to the extraction in a pure form of the active principles of all drugs, and to their use under constant conditions of dosage and composition. In the meantime, and especially where we are dealing not with alkaloids but with the more elusive glucosides, such as those of digitalis, strophanthus, and squill, physiological standardization seems to be the only alternative. Pharmacologists have determined the lethal dose of most drugs for animals, per kilogram of body-weight, and by a comparison with these figures the strength of any preparation can be ascertained and adjusted to a definite standard. This method is used in the manufacture of antitoxins. It may be objected that figures obtained from animals, and particularly from cold-blooded animals, such as the frog, are not applicable to man. We believe that this argument has no further force, since while the same drug may affect different species in a different degree, and frequently does, a preparation which is of double strength for one animal will be of approximately double strength for another. Thus, although the susceptibility of an animal for a drug might be less or greater than that of a man, nevertheless, if the lethal dose of a preparation of the drug for that animal were ascertained, it would give a reliable guide to the strength of the tincture or the extract. Again, the variations of susceptibility which occur in different species have been carefully ascertained for the animals used in pharmacological researches as compared with man, and can be fully taken into account, and when necessary allowed for. Indeed, the standardization of drugs by the physiological or bio-chemical method has great advantages over the purely chemical, for in the former we are dealing with the same kind of reaction as that to which the drug owes its medicinal effect, namely, the reaction of the living tissues.

In the case of digitalis, strophanthus, and squill we have recently referred to the great necessity for the adoption of a physiological standard, such as that obtained by determining the lethal dose for a frog of a given weight, under constant conditions.[1] In the administration of thyroid extract, or of ergot, if the desired effect be not produced, it would be of special value to be certain that the preparation used was not at fault. Although we must recognize that the drugs under discussion cannot be so exactly measured as pure substances, yet we have a right to expect that such accuracy as the present state of chemical and pharmacological science can afford should be at the disposal of every practitioner of the healing art.

OUT-PATIENT DEPARTMENTS AND THE PUBLIC INTEREST.

AN account of a species of conference on some points in hospital administration between formally appointed representatives of the medical profession in Hampstead and the Chairman of the Council of Hampstead General Hospital, which will be found in the SUPPLEMENT to this issue, is worth perusing, because *mutatis mutandis* the resolutions submitted and the arguments by which they were supported are more widely applicable. Nowadays it is or should be everywhere recognized that the establishment of a new hospital, or the material enlargement of the scope of an older institution of the same general kind, is a very serious matter apart from the prospects of obtaining adequate financial support; and when it is proposed to add out-patient work to such institution the question demands still more anxious thought. The evil that many of these departments have done and are doing to the public and the medical profession alike is indisputable; so too is the tendency they exhibit to assume the rôle of the Frankenstein monster and manage their masters, while even at the best it is doubtful if the needs which they are to fulfil would not be much better met by well-managed casualty departments working in conjunction with the provident dispensaries, Poor-law institutions, and the general body of private practitioners in their neighbourhood. Another suggestion made—that there should be a service as well as an age limit for members of the honorary staff—is of particular interest, for it seems not unlikely that a cry for such a reform may sooner or later be heard in many places. In towns of insufficient size to afford scope for the work of consultants properly so called, it is a principle for which it must be admitted there is much to be said, since its adoption would give a much larger number of men a chance of increasing their hospital experience and the general standard of professional ability at the service of the local public would thus be raised. It might be expected, moreover, to help to put an end to more than one anomaly; there are towns, for instance, where the medical institutions are very close boroughs and in which no one but members of certain firms have much chance of appointment under any circumstances. There are others likewise where, amongst the profession at any rate, it is perfectly well known that one or more posts on the local hospital are filled by decidedly inferior men who under present circumstances cannot possibly be displaced. When, too, there are many men of equal ability, it is scarcely fair that a few of them should be singled out for hospital appointments and for long periods of years should enjoy the prestige of their position to the detriment of their professional brethren in the locality; in a good many places there is a growing feeling that this matter urgently requires revision. The principle of a service limit is already in practice, it is to be noted in at least one place abroad. All appointments to the staff are made for two or three years only, each member retiring automatically in turn, but being eligible for reappointment after the lapse of a given time. Such a plan is deemed salutary, since good men are elected as often as opportunity presents, and the inferior ones, so soon as their term of office is completed, drop out for good and all. The claim made at Hampstead for the allotment of beds in which patients can be treated by practitioners not on the regular staff is also to be noted; it is merely an extension of the cottage-hospital principle, and in accord with the recent movement for hospital provision for those who belong to the lower stratas of the middle rather than to the poorest classes. Several other points of interest were raised at this conference, and the outcome remains to be seen. So far as Hampstead is concerned, the only real choice appears to lie between adopting the system advocated at the meeting, and treating the institution as one provided for the common benefit of all London, and therefore staffing it with ordinary consultants alone to the exclusion of all local practitioners. For such an addition to the metropolitan institutions there is certainly no justification, nor is there apparently any movement in its favour; indeed, the question would not have arisen had it not been for the initiative of one of the Distributing Funds which was manifestly misinformed as to the feeling in the locality. On the other hand, there seems a consensus of opinion that there is plenty

[1] BRITISH MEDICAL JOURNAL, June 23rd, 1906, page 1494

of room for an institution of a local character; and, this being the case, it seems improbable that so progressive a community as Hampstead will be content to borrow its hospital system from old-fashioned institutions elsewhere—to adopt, in short, what may be regarded as decadent principles, which fail to secure the greatest good of the greatest number, including the local well-to-do inhabitants on whose contributions the hospital will mainly depend.

MEDICAL INSPECTION OF LONDON SCHOOL CHILDREN.

It was announced in some newspapers a week or two ago that as soon as the pupils of the London elementary schools reassembled after the summer holidays an "interesting medical departure" was to be made by the London County Council. It was said that to test the accuracy of statements that had been made as to the prevalence of consumption among London school children, all the children in certain selected schools were to be measured and weighed and to have their chests examined. We have made inquiries into the matter, and find that the statements made are products of the journalistic imagination working on the slender basis of a resolution which appeared in a recent agenda paper of the Council. No general examination of school children is contemplated. The investigation of cases reported as phthisis, consumption, etc., was, we are informed, started some time ago in a few schools; most cases were found free from disease, or such affections as were present were trivial. Work, however, was stopped by the fact that in a few cases, where children had been excluded on account of heart or lung disease thus detected, objections were made by medical men and others to such examinations of children stated to be suffering from tuberculosis, or apparently affected with the disease. At present the school authorities have no legal power to have a child examined; consequently it was thought better that, in cases in which it seemed expedient that a detailed examination should be made, the parents' permission should first be asked. Necessarily, this could not be done without the use of a considerable amount of red tape. It was therefore resolved to try the plan of having a full medical examination of all the children in a few schools made in order to see whether the data thus obtained would justify the adoption in all the schools of a regular system of examination. The work will be carried on during the present year and part of next, and the results will be fully set forth in reports to the Education Committee of the London County Council and in the annual report of the medical officer for next year. It is now stated that Sir Edwin Cornwall has expressed his belief that there is work for one doctor and two nurses in every one of the Council's large schools in London. He has pointed out that one of the uncontentious clauses of the Education Bill provides for an extension of medical inspection in schools, and he hopes that when the local authorities have more power in the matter they will try to remove the reproach which at present attaches to our system, or rather lack of system, of health inspection in our schools. The Chairman of the London County Council can bring the influence of his great office to bear in securing the important reform which he advocates, and he may count on the support of the medical profession in bringing it about.

UNION IS STRENGTH.

Tow Law is a little place in the north of England whose chief claim to medical fame has been that for some time past its mining population has practically stood alone in Cumberland and Northumberland in estimating the value of insurance against the medical expenses of sickness as sixpence a fortnight for each family, or as three half-pints in terms of cool and bitter. Recently its title to celebrity in this connexion has increased, for we learn that having resolved not to pay the ninepenny rate requested, it has dispensed with the two medical men formerly employed and handed over the care of its multiple mining personality and of its aggregate mothers, bairns, babes, and odd relations to what is commonly but incorrectly termed a blackleg. Of the real age of this term we are not certain, but as used by our great-grandfathers and by Byron and the elder Disraeli, it meant a welsher; we, however, of course employ it in the very restricted sense of one who lacks either the *esprit de corps* or other desirable quality which leads most self-respecting men to fall in with their fellows in resisting oppression or in other efforts for the common good rather than snatch an opportunity of personal gain. In this case the individual in question—a Dr. John Campbell, formerly of Swinefleet—while anticipating that his position will not be devoid of "unpleasantness," seems to be free from qualms of conscience because he does not belong to the British Medical Association and therefore has his hands untied. The reasoning is curious, because membership of the Association merely accentuates, and does not add anything to the moral claims of the medical profession as a whole to the loyalty of each medical man to his fellows. Possibly, however, Dr. Campbell is aware of this fact, but considers that all general claims of a moral nature are outweighed by those of charity—that charity which is of the non-altruistic and strictly domiciliary variety. This being so, the medical profession in the North may very possibly apply the same reasoning to the situation, and deem that in their case the first duty imposed by charity is that of helping Dr. Campbell to realize as fully as he anticipates the unpleasantness of a position of professional isolation. The chief interest of the matter lies, however, in the view that this gentleman takes of membership of the Association; and since *jas et ab hoste doceri*, all members of the Association should take the lesson afforded to heart and regard it as a duty to the profession to bring into the fold any of their neighbours who at present stand outside. We have no doubt that if Dr. Campbell had been gathered in some time ago he would not have placed himself in his present unfortunate position, but would loyally have fulfilled the obligations he believes to underlie membership, and there are probably many who similarly require the stimulus of membership of a definite organization to bring their sense of duty towards the general body into play. Every one, therefore, who belongs to a society having the general good of the profession for its object should act as the recruiting agent of that society. Otherwise the profession will never attain that solidarity which alone can save it from being crushed by outside combination.

THE OVERLYING OF INFANTS.

A long and interesting conference, brought about so far as the British Medical Association is concerned, by Dr. C. H. W. Parkinson, Chairman of the Public Health Committee, was held on July 23rd, on the subject of the overlying of infants and deaths from burning resulting from children being left alone in rooms with lighted fires and unprotected grates. The subject is one which the Public Health Committee had under consideration some little time ago, and it decided to take it up again in conjunction with the Coroners' Society, when it learned that this body, of which Dr. Parkinson, as coroner for Wimborne, is a member, was interesting itself in the matter. The steps taken took the form of a meeting between six members of the Executive Committee of the

National Society for the Prevention of Cruelty to Children, three representatives of the Coroners' Society, and three from the British Medical Association. The whole subject with its surrounding difficulties was very thoroughly discussed, the net result being that it was decided to take some step towards amending the Prevention of Cruelty to Children's Act, 1904, in such fashion as to cover the points. The precise form of the amending Bill and the steps to be taken to ensure its acceptance by the Legislature were left for settlement at a later date between the three bodies concerned. From what passed at the meeting, however, it seems probable that the course adopted will be to make the death from suffocation of a child under 3 years of age as a consequence of its sleeping in the bed of its parents or other adults, as also the death of any child under 10 years of age from burning or scalding consequent on its being allowed access to an unprotected and lighted open fireplace, *ipso facto* evidence of neglect in the sense in which the term is used in the Act mentioned. A resolution to take "some step" towards legislation for the suppression of an evil would in many connexions not be regarded as a very promising decision, but in this particular instance a more encouraging view may be taken. All the conferring bodies have expert knowledge of the matter, and in the minuteness with which they discussed the domestic circumstances, human instincts and weaknesses, and other factors which contribute to bring about these deaths, and the difficulties surrounding legislation aimed against what may be termed domiciliary offences, there is assurance that whatever amending Bill they may finally promote will be well thought out and be likely to be accepted by both Houses without hesitation. The whole subject is one which was discussed at considerable length in these columns a year or two ago; so on the present occasion it is unnecessary to do more than draw attention to the enormous number of deaths which yearly take place, owing to the two causes under discussion. If the public at large realized that at least sixteen hundred babies are killed every year from overlying, or at all events are found dead from suffocation in the beds of adults, coroners' juries would be more disposed, perhaps, to endeavour to fix blame in some effective manner on the adults concerned; nor are the figures in respect of deaths from burning and scalding of young children less appalling. There is very little doubt, too, that many of these overlain infants are done to death not perhaps intentionally, but at least wilfully; mothers taking them into their beds when they themselves are under the influence of drink. The crying need for legislation is further emphasized by the fact—well brought out by Dr. Parkinson—that it sometimes happens that not merely one but several children are overlain in succession by one and the same mother, who yet in the present state of the law escapes scot free. It is not, of course, that there is really no law by which these cases can possibly be met, but that the only course open to juries is to find the parents guilty of manslaughter, or worse. This they are unwilling to do; so, beyond being censured by the coroner, the parents, in the vast majority of cases, have little to fear. Should the amending Bill indicated be passed, however, such censure will become a matter of real moment. "Neglect" under the Act of 1904 will then be established, and the Society, if it thinks wise, will be able to get the parents fined or imprisoned by a magistrate.

SLEEPING SICKNESS.

On August 23rd the Committee of the Liverpool School of Tropical Medicine were received in audience by the King of the Belgians in the Palace at Brussels. Among those present were the President (Sir Alfred Jones, K.C.M.G.), Professor Ronald Ross, C.B., Professor Boyce, Dr. J. W. W. Stephens, Dr. J. L. Todd, and Dr. Evans. His Majesty listened with close attention to the statements made by the representatives of the School as to the spread of sleeping sickness in Africa and the necessity of checking it. He agreed that the question was one of international importance, and expressed his readiness to do all in his power to relieve both the white and black population from the dread of the scourge. He invited the Liverpool School to submit to him a scheme for the prevention of the disease, and promised his co-operation if it were in any way feasible. He expressed in warm terms his appreciation of the work now being carried on by the School and of the manner in which its expeditions are worked. At the close of the conference the King conferred the Order of Leopold upon Professor Ross, Professor Boyce, and Dr. J. L. Todd. The conference was followed by a luncheon at the Palace to the representatives of the Liverpool School. Among those present were Baron Wahis, Governor-General of the Congo; Commandant Liebrechts, Secretary-General of the Home Department, and other leading representatives of the Brussels Administration. The Kasaï Company has placed at the disposal of the Congo Government an annual amount of £2,000 in aid of the studies and researches which are undertaken to protect the Congolese natives against this frightful disease. The Congo Free State and the Société d'Etudes Coloniales have done good work in the way of prophylactic investigation, and a bacteriological institute, founded at the State's expense at Leopoldville, has also done much in the same direction. The additions to its funds received from King Leopold and from the Kasaï Company will make it possible to enlarge the Institute and increase its working equipment. Five doctors will be appointed in connexion with the Institute; two of them will travel inland, one remain at Leopoldville, and the other two act as a reserve, held in readiness to proceed inland when summoned.

SANITATION IN PANAMA.

PROFESSOR RONALD ROSS has kindly communicated to us an interesting letter received by him from Colonel Gorgas, Chief Sanitary Officer, Canal Zone, Panama, to whom he recently paid a visit. It may be remembered that some time ago that distinguished sanitarian's work was greatly hindered by the interference of a Board which exercised its authority in a spirit of sheer perversity and ineptitude which our own War Office in its most unregenerate days could scarcely have rivalled. Mr. Roosevelt's strenuous intervention set Colonel Gorgas free from bondage to those petty tyrants, and notwithstanding reports to the contrary that have been circulated, doubtless for political purposes, by certain American newspapers, the work of exterminating the scourges which have darkened the isthmus as with the shadow of death, is being carried out with gratifying success. Colonel Gorgas says that the results of the mosquito work have been all that could have been desired. Yellow fever has been done away with. Since December, 1905, there has been only one case in the isthmus; and in the city of Panama, which used to be a very hotbed of the disease, there has not been a single case since last November. There has been a good deal of malaria, but on the whole the total amount has not been large. In the three months, April, May, and June, there was among the 5,000 whites an average of 1 death a month from malaria. Among the 23,000 negroes during the same period the monthly average number of deaths from the same cause was 8. June, July, and August falling in the middle of the rainy season, are the

heaviest malaria months in Panama; but (writing on August 9th) Colonel Gorgas says: "The total daily sick-"rate is very small, running from 15 per 1,000 in April "to 50 per 1,000 in July." "Fifty per 1,000," he adds, "is about what our army averaged last year," and we agree with him in thinking that this is "a most excel-"lent showing for a force in Panama." It is encouraging to learn that he thinks that every year the conditions, as far as malaria is concerned, will improve. In regard to yellow fever, Panama affords as striking an object lesson as Havana of the incalculable benefit to mankind that has followed the discovery of the cause of the disease and the manner of its transmission. The glory of the work which has had this striking consummation is shared by several men. The credit of the conception belongs to Dr. Carlos Finlay, who propounded the idea many years ago without attracting from the profession any attention but an occasional contemptuous notice. More fortunate than many true begetters of new truths, Dr. Finlay, at the meeting of the Pan-American Medical Congress held at Havana in 1901, was acclaimed by the assembly as the author of the discovery which has already been so fruitful of good effects. Dr. Carter was another pioneer in the work which was brought to completion by the American Commission. Untimely death snatched the reward from the hands of Walter Reed and Lazear, but Drs. Carroll and Agromonte still survive. It would, we think, be a fitting acknowledgement of the work of these four men if the Nobel Prize were divided among them. It will scarcely be denied by any one conversant with the facts that their work is of far greater importance than that of several to whom the prize has been awarded in the past few years. The only original research work whose practical results can be held to compare with it is that which has brought malaria, that monster which till lately claimed so vast a tribute of human lives, within the control of man.

HOLIDAYS AND REST.

The value of rest was never more thoroughly appreciated by the medical profession than in these days of strenuous life and universal high pressure. We are therefore indisposed to accept the accuracy of the account given in a contemporary lay paper of the opinions of certain West End practitioners who are stated to have been interviewed by its representative, and to be "unanimously in favour of a holiday of "new interests and active pursuits." No one, we are told, even "attempted to offer either excuse or justifica-"tion for the lounger"; and one heroic person is reported to have gone so far in the advocacy of his extreme views as to express his desire to "compel all "people who lead sedentary lives to spend their holidays "in garden-digging or stone-breaking," while those who are constantly engaged in manual labour "should "undergo a severe course of mathematical training—a "little strenuous but nevertheless invigorating." It is impossible to avoid the suspicion that this philosopher was quietly enjoying himself by "pulling the leg" of the newspaper man; but, however this may be, such opinions are not worthy of serious discussion, and do not represent the real trend of medical thought. In passing we would venture to enter a mild protest against the growing custom of pressmen seeking interviews with medical men with no better justification than the pursuit of copy, and to express our opinion that the dignity of the profession would not suffer if such interviews were granted less readily. The doctrine of holidays, according to the *Tribune* and its medical friends, is that modern work being so specialized as to exercise only particular organs or parts of organs, it ought to be the main object of a holiday to afford an opportunity to bring these disused parts into play. But plausible as such a proposition may seem to the uninstructed public, we think it could hardly have been advanced by any one who had pondered to his profit over the facts daily brought to his notice in the course of medical practice. Man is not a polyzoön, but a homogeneous organism all of whose parts are intimately united together by the medium of a highly-developed central nervous system upon which all its functions depend. The supply of vital energy or nervous force, or by whatever name we call the power by which our bodies live and move and have their being, is a strictly limited quantity, liable to exhaustion if expended at too great a rate, and then only to be restored by food and rest. Holidays for the young may be merely opportunities for amusement; but as people grow older amusement recedes before the growing need of rest. To call this "laziness" is to use inappropriate language, no more fitting than to call a man "lazy" who goes to bed after a hard day's work. Laziness is not cessation of work, but neglect of duty; a tired man knocks off work and rests, if he is wise; but if he is not, and that is often the case, he picks himself up with a dose of alcohol and spends his evening in some fresh form of exercise and excitement. Such a mode of life ends sooner or later in a breakdown. It is the result of an excessive tax on his store of nervous energy, and is as commonly seen among those who work with their hands as among brain-workers; neither has a monopoly of the evil. The only remedy for it is rest, sometimes in bed, sometimes on shipboard—the ideal of a restful holiday for those who love the sea. Sometimes the rest may be taken in the form of a quiet lounge at the seaside or at some bracing inland health resort, or at a Continental spa not yet given over to bridge and heavy dinners, but still pursuing the wise routine of simpler days. After such a rest in many cases the tired man returns to work refreshed as by a good night's sleep.

THE MILITIA CAMP ENTERIC OUTBREAK.

The sharp outbreak of enteric fever among the officers of the Militia battalion of the Loyal North Lancashire Regiment at Fleetwood is a little startling, but still more decidedly interesting. When enteric fever appears in a community in epidemic form, there are nearly always initial difficulties in tracing the outbreak to its source, and this localized epidemic at Fleetwood is likely to prove no exception to the general rule. As usual, several more or less plausible suggestions have been put forward, but it is useless to consider them until the real facts, and all the facts which can possibly have any bearing upon the matter, have been officially ascertained. To do this must necessarily take some time if all sources of possible error are to be eliminated. What prima facie appear to be the circumstances are as follows: Some seven or eight officers towards or at the end of their annual six weeks' training developed enteric fever, no cases appearing among the men. Men and officers alike were all camped in a field near Fleetwood; this, earlier in the year, had been used by other troops, among whom there are not known to have been any cases of suspicious illness. The camp water was drawn from the Fleetwood supply by a special pipe. The Fleetwood water is believed to be of unassailable quality, and the town itself to be entirely free from typhoid. From the common camp water pipe a special pipe was laid to the officers' mess, and in this there were some leakages; likewise the service was not constant; finally, water for some culinary purposes was stored in a field water-cart stated to be one of those used in South Africa. It would obviously be easy to base more than one theory of causation on these circumstances, but it would be futile to do so until the accuracy of the account has been tested in all par-

ticulars and many other additional facts ascertained—for instance, the exact sequence of the attacks and the personal habits and earlier history of those who first fell ill. At first sight it would appear that the problem presented by so definitely localized an outbreak should prove readily soluble, but though it may be hoped this will prove the case, it is by no means certain. Meantime the occurrence is, from the public standpoint, not an unmixed evil, for it will help to bring home the extreme readiness with which a regiment may be totally disorganized by enteric, and the immense facultative value of the precautions in respect of it which the Army Council now shows a disposition to favour. In this connexion it is to be noted that one of the leading military publications seems to have been confused by the flyborne theory of enteric fever. That attacks of enteric fever are sometimes due to infection of food by flies is scarcely a proved fact, but only a very credible theory. On the other hand, it is an indisputable fact that infected water is the common though not the only source of infection, and the immense importance of a pure water supply is in nowise lessened by the fact that some attacks may be due to infected food and not to infected water. It is not to be forgotten, moreover, that the radius of the flying range of flies is ordinarily limited to a few hundred yards, so the fly theory serves chiefly to emphasize the importance of selecting uncontaminated ground for camps, and of dealing habitually with all excreta on modern scientific lines. Flies, then, though they may remain nasty, will no longer be noxious.

INTERNATIONAL CONFERENCE ON TUBERCULOSIS.

THE fifth International Conference on Tuberculosis is being held at The Hague (September 6th, 7th, and 8th). The programme of discussions includes one on channels of infection, introduced by Professor Calmette of Lille, Dr. Flick of Philadelphia, Professor Spronck of Utrecht; one on the specific treatment of tuberculosis, to be introduced by Dr. Brown of Saranac Lake, Professor Maragliano of Genoa, and Dr. Wassermann of Berlin; and one on notification, to be introduced by Dr. Herman Biggs of New York, Dr. von Glasenapp of Rixdorf, Dr. Holmboe of Christiania, and Dr. Nathan Raw of Liverpool. Other subjects proposed for discussion are tuberculosis in the army, to be introduced by Drs. Fischer of Berlin and Martin of Brussels; tuberculosis and prostitution, introduced by Professor Spillmann of Nancy; tuberculosis in prisons, by Drs. Hervé-Lamotte of Beuvron and Kuthy of Buda-Pesth; and the cost of sanatoriums, by Professor Klebs of Chicago, Dr. Lorentzen of Copenhagen, Dr. Pannwitz of Berlin, Dr. Schmid of Bern, and Dr. Walsh of Philadelphia; and tuberculosis in childhood, by Drs. Dietrich of Berlin, Léon Petit of Paris, and Schlossmann of Dresden.

WARNING NOTICES.

READERS in search of an appointment should turn to page 51 of the advertisement columns in this issue, as they will there find some important notices in respect of several. Each of these relates to a place in which a controversy is at present in progress between the medical practitioners already established in its neighbourhood and those who have the appointment and its occupant in their hands. The total number of notices is twenty-one, and those who may at first feel attracted by any one of the appointments to which reference is made would do well to defer applying for it until they have got a little inside information about it from the gentleman whose name and address are supplied in connexion with it. They will thus acquire full knowledge of the work which they are invited to undertake and of the conditions under which they can count upon having to perform it should they accept it. The total of twenty-one includes two notices which make their appearance for the first time. One relates to East Hetton in the North of England, and the other to Chesterfield in the Midlands. At the latter place the medical practitioners in the neighbourhood decided some time ago that the rate paid by members of local Friendly Societies ought not to be less than five shillings a year, and requested the societies to make arrangements with their members accordingly. Instead of doing this, however, the societies formed what they called the Chesterfield District Medical Association with a view to beating down their medical officers to the old unremunerative rate. In this they were unsuccessful, and a somewhat specious advertisement has appeared in a Manchester paper seeking applications for appointment as medical officer to the Chesterfield Medical Association. Chesterfield itself seems to have been unaware of the fact, but the advertisement was fortunately observed by the active Secretary of the Stockport Division, who promptly met it with a counter advertisement, and also drew the attention of a member of the Midland Medical Union to the case. The Union has taken the matter actively in hand, and is now co-operating with the Medico-Political Committee and the Derby Division of the British Medical Association.

AN UNVERIFIED REFERENCE.

IN a leading article entitled, The Profession of Medicine, published in the BRITISH MEDICAL JOURNAL of September 1st, p. 462, the following passage was quoted and attributed to Ian Maclaren: "Happy is the man who "can just go straight on to his goal regardless of what "is to left or right of him, heeding little what others do "or say so long as he satisfies his own mind and conscience, and convinced that so acting his object will "be attained. Valuable as this spirit is in every condition of life which necessitates much intercourse with "fellow men, in no profession—I think I may say in no "occupation—does it more conduce to a happy life "than in medicine." The passage was taken from an address on the relations of medical men to each other, by Dr. Roderick Maclaren, Consulting Surgeon to the Cumberland Infirmary, which appeared in the JOURNAL of February 4th, 1905. We apologize to Dr. Maclaren for the mistake, which affords an excellent illustration of the value of the maxim left by the dying scholar to his pupils—"Verify your references."

AN international committee for the organization of tours of medical study and observation has been founded. The President is Professor Kossmann of Berlin.

THE Huxley Lecture at Charing Cross Hospital will be delivered this year on Monday, October 1st, at 4 p.m., by Dr. Ivan Petrovitch Pawlow, Professor of Physiology in the University of St. Petersburg.

PROFESSOR BEHRING, we learn from the *Matin*, the newspaper which first published the announcement of his discovery of an immunizing and curative remedy against tuberculosis, has decided that the time has come for a practical trial of the remedy, to which he has given the name "Tulase." The preparation will, it is stated, be supplied gratuitously on certain conditions to hospital clinicians who apply to Professor Behring's assistant, Dr. Siebert, at the Professor's private institute at Marburg.

ANNUAL MEETING NOTES.

The Annual Meeting of the British Medical Association in Toronto has been a great success in respect both of the numbers attending, the scientific work done, and the opportunities for social enjoyment. The University buildings are situated in a park, and excellent rooms for all the Sections were found either in the class-rooms of the main building, or in some of the detached University institutes. Facing the chief entrance to the main building at the other side of a carefully-kept lawn stands the new Convocation Hall, not yet finished, but brought sufficiently near completion to afford an admirable auditorium for the general addresses. Temporary seats were erected tier above tier, and the walls were gaily decorated with bunting. The brightness of the scene at the opening meeting on Tuesday, when Dr. Reeve was installed in the chair and delivered his Presidential Address, was enhanced by the brilliant colours of the academic costumes worn by many of those present. But it must be confessed that the gown and hood were a sore trial to the flesh, for Toronto, along with Eastern Canada generally and the North Eastern States, suffered during the week from a heat wave which was found trying even by those accustomed to Canadian summers, and almost overpowering by members from Great Britain, who numbered about three hundred. The number of Canadian members present was large, and a considerable body of medical men from the United States were present as visitors, taking their full share both in the work and in the amusements of the week.

The arrangements made for the registration of members' names, for the supply of information, and generally for all the thousand-and-one details which, though small in themselves, yet do so much to facilitate business and to promote the comfort of members, had been carefully thought out; and Dr. F. N. G. Starr and his colleagues as Honorary Local Secretaries, Professor J. J. MacKenzie and Dr. D. J. Gibb Wishart, are to be congratulated on the complete success of their efforts. Dr. Starr gave his time and energies unstintingly, and his unfailing kindness, courtesy, and readiness to assist every one has been universally recognized and highly appreciated. He was ably and energetically assisted by Dr. Malcolm Cameron of Toronto.

The exhibition of medical and surgical appliances, drugs, and foods was arranged in a series of large rooms on the first floor of the main University building. These rooms were thronged morning and afternoon, and among the exhibitors were many of the principal Canadian and American purveyors, and several British firms.

On Tuesday, August 21st, the members were invited in the afternoon to a reception at Government House by the Lieutenant-Governor and Mrs. Clarke, and in the evening to a garden party in the quadrangle of the University by the President of the Association, Dr. Reeve, and Mrs. Reeve. The reception in the afternoon was attended by almost the entire body of visitors and by considerable numbers of physicians and ladies residing in Toronto. Notwithstanding the great heat all over Eastern Canada, so intense that the dock labourers in Montreal had to suspend work, the hearty welcome extended to the guests, the beautiful decorated grounds, and the thoughtful provision made for the enjoyment of visitors, gave universal satisfaction. In the coolness, or rather the mitigated warmth, of the evening, the President and Mrs. Reeve received large numbers of the members. The grounds were tastefully illuminated, and light refreshments were provided, iced drinks being in particular request. Earlier in the evening Sir Victor Horsley was entertained at a complimentary dinner by Dr. Herbert A. Bruce (Toronto), among the numerous guests being the Hon. W. M. Clarke, the Hon. Sir W. Mulock, K.C.M.G., the Hon. J. J. Foy, the Mayor of Toronto, President Hutton, Mr. Lynn Thomas (Cardiff), Mr. Sinclair White (Sheffield), Mr. Charles Bond (Leicester), and many others.

On Wednesday, August 22nd, a severe thunderstorm occurred early in the afternoon, followed by a prolonged drizzle which acted disastrously on the three garden parties to which members of the Association were invited—at the residence of Mr. and Mrs. H. C. Cox in Queen's Park; at the General Hospital, by the Chairman and Board of Trustees; and at Annesley Hall for the lady visitors. At all places very few were able to take advantage of the hospitality offered, but those who were able to do so thoroughly appreciated the kindness and courtesy of their hosts. In the evening the City Hall was the scene of a great reception by the Mayor and City Council. The visitors, after being presented to the Mayor and Mrs. Coatsworth, were free to inspect and admire the many beauties of the fine building in the company of their Toronto friends. The courteous and indefatigable Secretary, Dr. F. N. G. Starr, had thoughtfully enlisted the services of over a score of gentlemen, who conducted guests over the hall, pointing out its interesting features and explaining the numerous paintings which adorn its walls. Many of these paintings are portraits of past mayors, whose history throws a vivid light not only on the rise and development of the city but of the whole of Canada. The large centre and north-west court rooms were open and used as conversation and resting rooms, and music was provided by the Grenadiers' band and the Queen's Own orchestra. The reception was attended by almost the whole of the members of the Association and other visitors, and also by the principal residents in Toronto, including the Controllers, Aldermen, the Crown Attorney, Colonel Dennison, Dr. Daniels, M.P., the heads of the Medical Faculty, and many others.

At a luncheon given to the members of the British Medical Association by the Ontario Branch of the Dominion Alliance, in the Gymnasium, University Buildings, Toronto, on August 22nd, speeches were delivered by Sir Victor Horsley and Professor Sims Woodhead. Sir Victor Horsley, introduced by the Chairman, Mr. C. D. Massey, dwelt first on medical men as pioneers of social reform, and then passed to a survey of the attitude of medical men in general to alcohol as a drug. A census taken by Mr. Spence for Canada showed that as a whole the medical profession in the Dominion were hostile to the disuse of alcohol as a drug. A similar professional opinion had obtained in the Mother Country, but there could be no question that this hostile feeling was passing away. He exhibited charts showing that whereas in 1862 no less than £8,000 was spent in London hospitals on alcohol as a drug, in 1902 the amount had dropped to less than £3,000. At the same time, the cost of the milk consumed in these hospitals had risen from £3,000 to £8,000. These figures, he said, were evidence of a notable change in opinion due in its inception to the views of surgeons, and in particular to one great surgeon, Lord Lister. Sir Victor Horsley then referred to the work of the British Medical Temperance Association and to the efforts of the British Medical Association to bring about State legislation with a view to the compulsory teaching of hygiene and temperance in public schools. Professor Sims Woodhead described the con-

stitution and aims of the British Medical Temperance Association and the similar aims and ideals which obtained in Canada. After describing the gradual disuse of alcohol as a drug, not only in the surgical cases mentioned by Sir Victor Horsley, but in medical cases in which alcohol used to be considered a sheet-anchor, he said that in the lower animals alcohol interfered with the production of immunity, and that it was only reasonable to conclude it had the same effect on man. He made an eloquent appeal for the union of Canada with England in the matter of temperance reform, and urged the medical men in Canada to co-operate with the British Medical Temperance Association in this work.

Ireland.

DUBLIN SANATORIUM FOR CONSUMPTION.

ON August 24th a special meeting of the Municipal Council of Dublin was held for the purpose of considering a motion to establish a sanatorium on the châlet system for the treatment of consumptives, and of the levying for this purpose of a rate of a penny in the £ by the combined sanitary authorities of the city and county of Dublin. The Lord Mayor presided.

Alderman Bergin said that in respect of the death-rate from tuberculous disease Dublin held a very unenviable position in comparison with the rest of Ireland, and Ireland as a whole was in an unenviable position as compared with the rest of the United Kingdom. Nearly 1,000 persons died every year in Dublin from consumption. In Dublin consumption was not scheduled as a compulsorily notifiable disease. Any one who studied the figures given by the Registrar-General in his report to the Lord Lieutenant would feel that it was time Dublin and other local bodies took steps to combat the ravages of consumption. The Public Health Committee was aware that patients in an advanced state of consumption occupied the same room, and sometimes the same beds, as healthy persons. In a few instances the Committee had cases removed to the Refuge at Nicholas Street, where they were temporarily treated. The city hospitals rarely kept consumptive patients who were hopeless. It was desirable to isolate such cases, if possible, so as to prevent the dissemination of much tuberculous infected matter. The Public Health Committee sought the permission of the Council to hold a conference of the health authorities of the city and county of Dublin, and a meeting was held, with the result that the conference submitted a report recommending the establishment of sanatoriums for the city and county of Dublin. In the scheme referred to in the report of the conference, accommodation for about 100 patients would be provided after the lapse of a few years. Allowing a period of two months for treatment and improvement of health at the sanatorium, 500 or 600 patients could be dealt with annually. From the calculation that they had made they were satisfied that they could acquire a site and put up forty châlets out of the first year's expenditure at the rate of a penny in the £ on the rates. In the second year they could double the number of châlets and maintain the patients as well on the produce of a penny in the £.

Mr. Sherlock, in seconding, said he thought the Council would have the full approval of the ratepayers of Dublin in any scheme that had for its object the checking of the ravages of consumption in the city, where the death-rate was mounting up steadily. He suggested that the General Council of the county councils should take into consideration the advisability of planting the country with wood, which would be the best means of preventing consumption.

Mr. James Brady said this was a move on behalf of the medical profession. There were plenty of hospitals already in Dublin, and he did not see why some of them should not be made available for the treatment of consumptive patients instead of their being occupied, as they were, by paying patients from the country. The motion was, in his opinion, only another attempt to find new means of spending the ratepayers' money without any resulting advantage or benefit.

Dr. M'Walter said that in his opinion the motion was one of the most important ones that had come before the Council. He believed that Alderman Bergin was right in advocating the châlet system, which, roughly, meant the erection of wooden buildings, not of too costly a kind, which after a certain number of years could be burned down if the sanitary authorities so desired. He hoped that the Council would unanimously pass the resolution.

Mr. Harrington, M.P., said he considered that the question was one which should be made the care of the State. There was no use in looking to the existing hospitals to deal with this question. They must have a specially-devised hospital specially equipped to meet the requirements of the particular scourge. Since the State neglected its duties in the matter, it was but right that the Corporation should take action and at once grapple with this greatly-increasing tuberculous disease.

Mr. Murray said he opposed the scheme only on financial grounds. He was afraid it was only getting in the thin end of the wedge, and that the extra rate would be not only a penny but sixpence in the £. What was wanted was to improve the dwellings of the masses of the poor population. Mr. Sherlock had said that the rates had been reduced, and would be further reduced.

The resolution was carried by 22 votes to 6.

IRISH LOCAL GOVERNMENT BOARD.

The report of the Irish Local Government Board for the year ending March, 1906, is full of interesting matter. Amongst the most interesting items are the reports of the inspectors. Dr. Bigger makes an exhaustive report upon certain experiments carried out in the South Dublin Union Hospital by Dr. Dunne with Professor Denys's tuberculin on tuberculous patients, but we cannot find in the report any warrant for regarding it as an improvement upon ordinary methods.

Some of these inspectors express their opinions frankly as to the ineptitude and incompetence of the local governors. We allude more especially to the two lady inspectors of boarded-out children. These are models of what such reports should be, and they express as plainly as words can the fatuity of leaving the lives and destinies of these poor waifs in the hands of men whose one idea is to cut down the rates, whose constant cry is the inability of the poor ratepayer to contribute another farthing, while it is known that for every penny he contributes to the relief of the poor he spends twelve pennies in drink.

This year the Board admits that outdoor relief has increased by £6,000, but it tries to minimize these figures by attributing some of the increase to the Relief of Distress Act of 1905. The Irish peasant has become so used to doles, largely through the abuse of the Medical Charities Act, that pauperism is not regarded as any stigma, and few would refuse a contribution from the rates. The report admits that 1 in 41 of the population is in receipt of Poor-relief, and we do not think that the asylum population is included in these figures.

The Local Government Board has been trying to induce the local governors to pay their medical officers reasonable salaries and has furnished these bodies with reams of good advice; these efforts have resulted in 26 Boards out of 159 Boards adopting graded salaries, three of which are in the Province of Ulster. Starting, as a rule, at £120, they go up by three or five yearly increments to £160 or £180; but probably most of the present generation of doctors will have long joined the majority before the other 133 Boards fall into line.

The attention of the Board having been called to the rate of infant mortality in workhouses, a card of instructions for infant feeding to the medical officers has been issued. The instructions given on the card entirely fail to pay due regard to the conditions under which children have to be reared in these institutions and of modern methods of infant feeding. We observe that no copy of this card is included in the report, which was, perhaps, wise under the circumstances.

The notification of infectious human disease makes slow progress. The domestic animal being of more importance than the human in Ireland, the notification of infectious disease in cattle, horses, sheep, and pigs is compulsory and rigidly enforced, while the notification of human disease permissive, with the natural result that only 124 rural district councils and 77 urban councils have put it in

force, and in the majority of these it is only nominally so. Comment seems superfluous. In connexion with this it may be noted that the Registrar-General for Ireland addressed a letter to the Local Government Board complaining of the large proportion of uncertified deaths, and the Board has called upon the dispensary doctors who are the registrars to exercise more care. The real cause, however, is entirely overlooked.

Pat. O'Grady takes sick and sends "the woman" to the dispensary for a bottle. The bottle does no good, and he comes to the conclusion that it is "Kismet," and troubles no more about doctor's medicine. In due time Pat. goes over to the majority, is waked and decently buried, and "the woman" comes to register the death. If asked for symptoms, she declares he died of a surfeit or some other ailment unknown to the nomenclature of diseases. No certificate is required for burial, so that the registrar can only enter "uncertified." We should think that at least 25 per cent. of the deaths in rural Ireland come under this category, a large proportion being young children. But foul play is exceedingly rare, and we question if any harm results, except to the accuracy of the Registrar-General's statistics, and, so long as the medical profession is compelled to supply this information gratuitously, so long will these statistics be inaccurate and misleading.

We find that up to last March 20,000 labourers' cottages have been built, most of them with an acre of ground attached. This is a step in the right direction, for the housing of the Irish labourer has hitherto been atrocious.

An Act of the last session of Parliament has greatly simplified the procedure to be adopted by the local Boards in the acquisition of the ground and the erection of these cottages, a procedure hitherto so tied up with red tape, that at least a third was added to the expense of each cottage in legal costs.

The new labourers' cottages are much superior to the average farmers' dwellings, and will in the future, we think, be chiefly occupied by that class, for the emigration of the labourer goes on as usual, and the only wonder is that it is not doubled, for the prospect before the Irish agricultural labourer is a life of toil at a miserable and uncertain wage, and death in the workhouse if he survives too long.

There is much interesting matter in this report upon the high roads of Ireland, which since they passed into the hands of uneducated peasants have deteriorated to an extent that renders many of them unfit for wheeled traffic. The space at our disposal forbids us to do more than allude to this, though it is of the utmost importance to members of the profession whose business compels them to discard the donkey-cart, the ordinary chariot of their masters. In a few counties the main roads have been brought into fair order, but in the greater part of Ireland they are unfit for fast traffic, and rural practitioners are mostly debarred from what would vastly lighten their labours—the modern motor.

Scotland.

Dr. Matthew Hay on Alcoholism.

The Aberdeen Branch of the British Women's Temperance Association not long ago submitted to the Aberdeen Town Council a proposal to issue placards and circulars for the purpose of calling the attention of the public to the dangers arising from the abuse of alcohol. The Public Health Committee requested the Medical Officer of Health to draw up a circular on the subject. At a recent meeting Dr. Hay submitted the draft which he had prepared. The circular, which is based on the evidence given before the Commission on Physical Deterioration, points out the danger of the immoderate use of alcoholic liquors in any form. The Committee approved of the circular, and resolved to recommend that it should be circulated throughout the city. The following is the text of the circular:

"The Lord Provost, Magistrates, and Town Council, in pursuance of the recommendations of the Government Committee on Physical Deterioration, desire to direct the serious attention of the citizens to alcoholism, as, in the words of the report of the Committee, 'a most potent and deadly cause of physical deterioration.' The following statements are based on the evidence submitted to the Committee on Physical Deterioration. Alcoholism, or chronic poisoning by alcohol, may arise from the habitual and immoderate use of alcoholic liquors in any form, although not taken in such quantity as to cause actual drunkenness. Alcoholism shortens life. The mortality among abstainers is only about one-half to one-third of the mortality among persons in occupations where drinking is prevalent. It causes many serious diseases, such as paralysis, inflammation of the stomach, liver, and kidneys, and frequently paves the way for consumption. It greatly reduces the chances of recovery from serious illnesses. It is one of the most common causes of insanity. Its effects may descend to the children, in whom bodily and mental weakness and disease may be the result of alcoholism in the parents. It brings misery to the home, neglect of duties, and disinclination for work. It is an active cause of loss of employment and of poverty. It is the chief source of crime. In short, alcoholism is one of the greatest enemies to personal health, to family happiness, and to national prosperity."

Training Schools for Midwives.

Among the Parliamentary papers issued on August 31st was a return showing the names of institutions approved as training schools for midwives by the Central Midwives Board, and the number of midwifery cases treated by each during the twelve months previous to the Board's approval. The particulars of the Scottish schools are as follows:

Name of Institution.	No. of Cases, Internal.	No. of Cases, External.
Aberdeen Maternity Hospital	98	238
Dundee Maternity Hospital	297	745
Edinburgh Royal Maternity Hospital ...	395	520
Glasgow—Eastern District Hospital ...	80	*Nil.*
Glasgow—Western District Hospital ...	80	*Nil.*
Maternity Hospital, North Portland Street	660	2,705

Birmingham.

Child Life on Canal Boats.

Dr. Doig McCrindle, Assistant Medical Officer of Health for Birmingham, has issued, jointly with the Inspector of Schools, a very important report on the conditions under which children are brought up in canal boats. He, at the outset, approves of the rigor with which the Acts in connexion with canal boats are carried out, but he shows that these regulations do not go far enough as regards the lives, health, and education of the children. The mortality among children was about 30 per cent. in the 60 boats examined. The children numbered 98, of whom 38 were under 5 years of age, and the adults 128. Only boats carrying children of school ages were examined. There were only fore and aft cabins in 36 of the boats, and these carried 181 persons—that is, 5 to a boat. All the cooking is done in the after-cabin, and in the cold weather it is the living room. It is 5 ft. high as a rule, 8 ft. 6 in. long, and 6 ft. 6 in. wide. Thus 63 cubic feet per person is obtained on the average. The fore cabin has, as a rule, even less cubic space and is used as the sleeping room. In ordinary life 300 cubic feet to each person in a lodging-house is allowed, but in the diminished air space given above the child has to live. The foul effluvia in the canal water is not to be forgotten. The only means of ventilation besides the door is a movable panel in the bulkhead, but as it is over the bed it is frequently put out of use, and nearly always so in the wet and cold weather.

It was very difficult to obtain information as to the rate and reason of the high mortality. In 19 boats no information could be obtained at all. In the rest 269 children were said to have been born, of whom 77 had died in infancy. One death appeared to have resulted from accident, the rest from "wasting disease" and diarrhoea.

For pecuniary reasons the services of the children are in great demand on the boats. Boys and girls of 6 and 7 and upwards drive horses on the tow-path, while the parent sits in the boat and steers. As time is of value the pace is kept up continuously, and thus many miles in wet and fine weather have to be covered by the unfortunate

children. When older they open and shut the lock gates. Thus when other children are at school these help to earn their parents' bread.

The absence of privacy causes a growing carelessness and indifference to the moral aspect of life. Where modesty exists, the inevitable result is uncleanliness; and when cleanliness exists, modesty must suffer accordingly.

The opportunities for education are *nil*. The children grow up, as a rule, on the boats, and in turn marry others who have done likewise. So an endless canal-boat-living race is kept up—a race freed from any civic responsibility, unattached to any locality, and carrying their families with them. A compulsory Education Act for these children should be carried out, and the abuses would then largely cease.

Health of Worcestershire.

Mr. G. H. Fosbroke, the Medical Officer of Health for Worcestershire, has just published his annual digest of the annual reports of 30 medical officers and 32 sanitary inspectors in the county. The area of the county is 473,328 acres; 54,769 acres are urban and 418,559 rural. The estimated population in 1905 was 385,610—214,874 urban and 170,736 rural. The birth-rate of the county has shown a marked decrease. The highest rate during the past ten years was that for 1901, when it was 28.9 per 1,000; last year it was 25.8. There has, however, been a large decrease in the county infant mortality, the rate for last year being the lowest on record. The county death-rate for 1905 was 13.2, which is the lowest on record, and this rate was identical both in the urban and in the rural districts. Among the chief causes of the infantile mortality are placed factory work by women and ignorance as to the care and feeding of infants by mothers. Gratifying results are reported in many districts of the work which is being done by health visitors in removing the chief cause of the deaths among infants.

Mentally-Defective Children in Birmingham.

A report of the Education Committee with regard to mentally-defective children has just been published. An "after-care" subcommittee was formed in May, 1901, with the object of keeping a record of the subsequent history of children who leave the special classes for defectives, and of assisting them as far as possible to find work. The Committee has reported upon 223 cases, and of these 148 are mentally defective, 50 deaf, and 25 cripples. Of the 148 mentally defective, 28 are earning wages varying from 3s. to 12s. per week, average weekly wages 6s. 7¼d.; 3 work with their parents and receive no wages; 31 are doing no work; 9 were dismissed from special schools as incapable of improvement; 8 are in institutions, but only 1 in an asylum; 10 are in workhouses; 43 have been lost sight of; 34 before attaining the age at which they can legally leave school; 9 have been transferred to ordinary schools; 7 are dead.

With regard to the 28 who are earning wages, it seems that 16 have a good chance of becoming self-supporting. The others will probably never earn more than the low wages of boys and girls, and some of them may get into serious trouble through their vicious tendencies. All of these would be capable of doing remunerative work under supervision in an industrial or farm colony. A few of those who are doing no work are in good homes, but they are incapable of learning anything, and so on the death of their parents they will become dependent upon charity or the rates. Many of those, however, who can do no work are living in degraded homes; some are subjected to cruelty and others lead immoral lives. With regard to the children who are incapable of improvement in special schools, the number is really much larger than appears in this report, as by far the greater number of imbeciles are refused admission to special classes, and so never come under the notice of the After-Care Committee. A list of these cases is kept, and an endeavour is made to get them taken by the guardians and sent to proper asylums.

In most cases where the children have been lost sight of, it is due to the whole family removing into another district, where the Elementary Education (Defective and Epileptic Children) Act, 1899, has not been adopted, and no After-Care Committee formed. The families of these children are often of the very lowest class and continually on the move. The only remedies seem to be that the Act should be made compulsory, and that the defective children of parents who have these marked wandering propensities should be placed in boarding-schools.

The After-Care Committee states that, after five years' experience of defectives, a large percentage of the feeble-minded require permanent supervision for the following reasons: (1) To enable them to contribute to their own support; (2) to save them from vicious habits; (3) to save them from harsh treatment at home and in the streets; (4) to prevent them becoming drunkards, criminals, and prostitutes; (5) to prevent them giving birth to children who can only grow up to be a further burden to the community.

Manchester.

Cremation in Manchester.

Up to September 3rd there have been 1,000 bodies cremated at the public crematorium since this institution was opened in 1902. The annual number has risen from 30 in 1893 to 92 in 1903. In 1893, in Liverpool there were 35 cremations, and in Birmingham only 3. It appears that the number of cremations in Manchester in 1893 represents about one-fifth of the total in Great Britain. Thus the progress is slow. The public has not yet realized that in deaths from highly-infective diseases this is the only proper plan for disposal of the dead bodies.

New Asylum for Lancashire.

The Lancashire Asylums Board, at its meeting at Preston on August 30th, received the report of a Special Committee appointed to consider the character and plan of the new asylum to be erected at Whalley. The report stated that there were probably between 13,000 and 14,000 certified lunatics in the county, of whom about one-fourth were housed in workhouses. Some of these undoubtedly ought to be receiving asylum treatment. A discussion arose as to the "block system" *versus* the "villa system." The architect pointed out that "the latter plan would cost per bed between £15 and £30 more than for the block system." It was agreed that in the first instance a reception hospital for 50 males and 50 females, together with an administrative block suitable for an asylum for 2,000 patients, with wards and hospitals attached for about 500 acute and curable cases of each sex, should be erected. In the first instance provision would be made for 1,100 patients. It was agreed that the plans for the extension should be so arranged as to leave it open for villas being built to accommodate 600 patients if the Board so decide.

The Spitting Nuisance at Preston.

The Health Committee of Preston recently issued a useful public notice regarding the effects of alcohol. At present it is conducting a vigorous campaign against the spitting nuisance. Cards pointing out the dire effects of this foul habit are being distributed, and bills posted in various parts of the town, and in mills and workshops, urging the public not to spit. The dangers attendant upon smoking are greatly increased by constant spitting, as the saliva is thereby wasted. It is proposed to place suitable notices in the tramcars, pointing out that spitting is not only hurtful to the spitter but annoying to others.

Langho Institute for Sane Epileptics.

On September 3rd the Earl of Derby opened a new institution—the first of its kind in England—for the reception of sane pauper epileptics at Langho near Blackburn. The establishment was erected by and is under the direction of the Joint Committee of the Manchester and Chorlton Boards of Guardians. Though there are many voluntary institutions in the country for this purpose, this is the first State or Poor-law institution of its kind. It appears that there are in England about 60,000 persons suffering from epilepsy. The estate comprises 166 acres, and at present buildings have been erected for the accommodation of 272 patients and staff. Six homes have been provided, three for each sex, and they will accommodate 40 inmates each.

Apart from the cost of the land (which amounted to £13,267), an expenditure of £75,500 has been authorized on the buildings, and up to now the 16 buildings erected have cost £78,000. The "villa" system has been adopted.

South Wales.

An Insanitary Village.

The village of Cefn Coed-y-Cymmer contains about 4,000 inhabitants, the local authority being the Vaynor and Penderyn Rural District Council. The Council has spent nine years in discussing the question of sewering the place and sweeping away the death-traps; meanwhile typhoid fever has never been absent from the sunny village, so picturesque but so insanitary. That the Council has not succeeded has not been entirely its own fault. It wanted to buy three acres of otherwise useless land for sewage disposal works, but the owners asked £2,500 for this land, a price which the Council considered fabulous, and said so. Then the price was reduced "without prejudice" to £1,000, provided a 20-ft. roadway should be cut alongside the land and reserved for Messrs. Crawshay Brothers. The Council offered £700 for the land, and negotiations are now in progress for the purchase of a site. The Council's scheme, which has had the provisional approval of the Local Government Board, is estimated to cost £7,758. There are hopes that if this scheme is carried out building operations will receive a stimulus, for apart from the entire absence of sewers, Cefn is a most desirable place of residence. A frequent electric car service connects it with the borough of Merthyr, and to the westward is some of the most delightful country in South Wales. An excellent supply of water is obtained by arrangement with the Merthyr Corporation, and there is a gas service from Merthyr.

Brynmawr Sewage Disposal.

Last May Major Norton, Local Government Board Inspector, held an inquiry at Brynmawr into the application of the District Council for sanction to borrow £7,195 for purposes of sewerage and sewage disposal. The Council proposed abandoning the use of Rhonos Farm for the treatment of the sewage, and providing in its place septic tanks and filters. The Council recently received a letter from the Local Government Board suggesting that it would be well for the Council to obtain from their engineers comparative estimates of the cost of the proposed scheme as amended on lines suggested by the Board, and of a scheme for putting Rhonos Farm and the existing works in an efficient condition. The Board pointed out that the Rhonos Farm scheme should provide (1) The carrying out of such work for securing efficient treatment of the sewage by irrigation, (2) the construction of storm-water filters, and (3) the reconstruction of the outfall sewer. If the Council decide, after reconsideration upon the former scheme (the septic tanks and filters), the Board suggested it would be sufficient to design the works on the basis of a population of 7,500, the works being so arranged as to admit of easy extension when necessary. In connexion with the Rhonos Farm alternative scheme, the agent of the Beaufort Estate wrote to the Council stating that the work could not be done without practically taking a new pipe track over the quarries and going considerably up the hill, and that he could not at present advise His Grace the Duke of Beaufort to allow any new track to be laid down, on account of the quarries and the feeling in the neighbourhood against the continuation of the sewage farm. The agent further says that the only alternative to the Rhonos Farm and septic tanks schemes he could suggest in the event of a large increase in the population would be to convey a portion of the sewage into the Western Valleys sewer.

Health of Newport.

In his annual report for the past year, issued on August 22nd, Dr. Howard Jones, Medical Officer of Health, Newport (Mon.), deals at length with the housing question in the borough. Basing his estimate on a population of 72,880, he says that the number of persons per house averaged 5.8. In spite of the fact that there is no scarcity in the number of dwellings in the borough, there is an undoubted need for cheap cottages for the labouring classes who are in receipt of small wages. Among the insanitary conditions, 195 houses were discovered in a dirty condition, 100 houses in a dilapidated state, and a large number with defective drainage systems. There were 42 cases of overcrowding; these were remedied for the time being. The common lodging-houses in the town had increased owing to the large number of navvies employed at the Alexandra Dock extension and the Western Valleys sewerage works. During the last few years a large number of leases had expired, and many others were about to follow. During the last year or so previous to the date of expiration of such leases landlords naturally objected to repairing property about to be pulled down, and the average tenant paid scanty respect to such property, consequently a large number of these premises deteriorate very rapidly and become insanitary during the last stages of their existence. The Dilapidated Houses Subcommittee had visited various districts, with the result that repairs were carried out. The death-rate was 15.8 and the birth-rate 31.3. The loss of life among the infant population of the town was still excessive, largely due to ignorance and want of appreciation of the importance of domestic hygiene on the part of mothers, which pointed to the necessity for the instruction of school girls in these matters. The future of the national physique was largely in the hands of the girls attending the elementary schools of the day. The question of training them in their future duties was, therefore, a national question and should be treated as such, and given preference in the school syllabus over many of the subjects which at present occupied the attention of the elder girl scholars. The infantile mortality-rate was 126.2 per 1,000 registered births. Dr. Jones states further that they are troubled annually during the spring with an objectionable fishy smell in the water. This originates at the reservoirs, and is most marked in the mains which have a sluggish flow, particularly those with no terminal circulation. In past years the smell has been greatly reduced by liberal flushing of the mains and by sluicing away the lower layers of the reservoir waters. After consultation with the Waterworks Committee, it was decided to try the copper sulphate treatment. Within half an hour of the treatment a large quantity of small white flocculent coagulum was observed in the water, which gradually sank. This was evidently vegetable albumen coagulated by the cupric sulphate solution. Within twenty-four hours there was a marked improvement in the water, both on the surface and at a depth of 10ft. In a few days the water was brilliantly clear. The waterworks inspector found as a result of the treatment that the deposit in the tower screens decreased to such an extent that there was less deposit in three weeks than there was in three days in previous years, although much less sluicing had been done. They had been entirely free from this trouble this year, and there was every prospect of immunity.

Typhoid Fever at Pontypool and Panteg.

For twenty years there has been an almost entire absence of zymotic diseases from the area of the Pontypool and Panteg Councils, particularly typhoid fever. In May of this year, however, several cases of typhoid were notified, and since then over thirty cases have been notified in Pontypool. At present ten cases are under treatment by the medical officer, Dr. S. B. Mason, and the medical practitioners of the town. Sixteen cases are also reported in the Griffithstown district, two of which proved fatal. Up to the present every effort to trace the origin of the outbreak has failed. Samples have been taken of milk and water, and these have proved satisfactory. At Pontypool samples of water have been taken from three different sources, and two of these were reported as being admirably suited for domestic purposes. Of a sample taken from a house situated in the district in which the outbreak is most marked, the analyst gave a doubtful report. The chemical analysis indicated a fairly good water, but the nitrates were rather excessive for a "first-class" water; still it would pass as a fairly good sample for domestic purposes. Bacteriologically examined he found it to contain just under 800 organisms per c.cm., amongst these being 5 per c.cm. which were liquefying organisms. He could not find the typhoid bacillus. He was unable to condemn the supply, but regarded with suspicion the presence of the liquefying organisms. The Council has issued circulars advising the inhabitants to boil both the milk and water prior to use. In the Panteg Council's area Drs. Essex and Milligan have visited a number of cases, and are of opinion that the water was the only factor common to all the cases, and of this

samples are being taken. At a meeting of the Council the members were of opinion that the water from the Penyrheol reservoir should be shut off, stating that it was very thick.

PONTYPRIDD WATER SUPPLY.

The question of the water supply at Pontypridd was raised at a meeting of the Pontypridd Board of Guardians held on August 29th. A letter was read from the master of the workhouse, stating that the supply was inadequate to the requirements. During the day it was insufficient for cooking and washing purposes, and at night it was cut off altogether—a serious matter in case of fire breaking out. It was resolved to instruct the Clerk to write in the first instance to the Pontypridd Waterworks Company in the matter, and, in the event of the reply not being satisfactory, to place the information before the Local Government Board.

India.

ENTERIC FEVER IN INDIA: APPOINTMENT OF A STANDING COMMITTEE.

As already stated in the BRITISH MEDICAL JOURNAL, the Standing Committee appointed by the Government of India to consider the prevalence and prevention of enteric fever in India held its first meeting on July 31st and subsequent days in the United Service Institute, Simla. The following officers who constitute the Committee were present: Surgeon-General W. L. Gubbins, M.B., C.B., M.V.O., V.H.S., A.M.S., Principal Medical Officer, His Majesty's Forces in India (President); Lieutenant-Colonel J. T. W. Leslie, I.M.S., Sanitary Commissioner with the Government of India; Colonel R. H. Forman, R.A.M.C., Principal Medical Officer, Bombay Brigade; Colonel D. ffrench-Mullen, I.M.S., Principal Medical Officer, Sirhind and Jullundur Brigades; Lieutenant Colonel T. P. Woodhouse, R.A.M.C.; Lieutenant-Colonel D. Semple, R.A.M.C. (retired), Director of the Central Research Institute of India; Captain Greig, I.M.S., on Special Duty, Central Research Institute of India; Captains L. W. Harrison, E. Blake Knox, M.D. (Secretary), J. B. Smallman, and Lieutenant E. J. H. Luxmoore, of the Royal Army Medical Corps. Major A. R. Aldridge, R.A.M.C., Sanitary Officer, Army Head Quarters, was also present as expert in army sanitation.

His Excellency the Commander-in-Chief (Lord Kitchener) opened the meeting with an address, the substance of which was given in the JOURNAL of August 25th, p. 448.

The Committee then carefully considered enteric fever with reference to its prevalence amongst various classes of individuals and communities in India. Statistics and evidence from the army medical reports, the annual reports of the Sanitary Commissioner and others from the year 1856 being placed before them. The various sources of infection, excreta, fabrics, food, drink, etc., were then carefully considered and discussed in every detail, and lines of present prophylaxis and a campaign for future prevention laid down. In the matter of cantonment sanitation the Committee had the advantage of the presence of the Inspecting Officer of Cantonments (Lieutenant-Colonel Thornhill, C.I.E.), whose views on this matter were of great assistance. The subject of antityphoid inoculation was fully dealt with. It is hoped the decisions arrived at and the line of action laid down will have marked beneficial results not only to the health of the army, but also to the community at large. The Committee after five full days' sitting adjourned until the middle of October, when reports on the practical working of its various resolutions will be further examined and if necessary added to.

DOCTOR AND PATIENT.

The Government of India have recently, we learn from the *Indian Medical Gazette*, had under their consideration the question of the obligation of a medical officer of Government to supply, on a demand made by the patient's official superior, information regarding the nature of the illness of a Government servant whom he is attending in his official capacity. After a full consideration of the matter they have arrived at the conclusion that when the particulars of a Government servant's illness are required in the interests of Government by his official superiors, the Government medical officer who has dealt with his case in his official capacity may be required to supply them without infringing the relations which ordinarily obtain between a patient and his medical adviser. They are, however, impressed with the objections to confidential communications between the official superior and the medical adviser of a subordinate, and, since the information in question must almost invariably be required in connexion with the grant of leave, they think it advisable that it should ordinarily be demanded, if at all, from the subordinate himself, who can obtain it from his medical attendant in the way in which the somewhat analogous statements required to support an application for leave on medical certificate are obtained. Any cases of the kind which may in future arise should be dealt with in the manner suggested above.

South Africa.

METEOROLOGICAL CONDITIONS AND ENTERIC FEVER IN NATAL.

IN the discussion of the causation of such a disease as enteric fever two sets of factors need consideration: those relating to the vehicle, whether water, milk, or other food, in which the contagion is conveyed, and those relating to the seasonal and climatic conditions which favour the occurrence and periodic recurrence of the disease. On the latter subject Dr. Watkins-Pitchford, the Assistant-Bacteriologist of the Natal Government, has published an interesting report illustrated by coloured plates. The seasonal incidence of enteric fever in Natal is peculiar in that it attains its maximum not in the late autumn and early winter, as in Great Britain and the United States, but in November and December, before the summer temperature has reached its maximum. Dr. Watkins-Pitchford argues with reason from this circumstance that the heat of summer cannot be an essential factor in the production of the "enteric season."

In this country it has been stated that the prevalence of enteric fever as well as that of diarrhoea is determined by the arrival of the 4-ft. earth thermometer at a temperature of 56° F. Dr. Watkins-Pitchford's figures show that the 4-ft. earth thermometer even in the depth of winter of 1904 did not fall below 57.2° F., and it may be inferred that the annual accession of enteric fever has no essential dependence upon any fixed soil temperature.

The charts bring out that the rainy season and the entire season coincide, and that very heavy rains were followed by a rise in the notifications. This sequence of enteric fever upon the onset of heavy rains, Dr. Watkins-Pitchford points out, appears to occur also in England and the United States. On this point a comparison between Cairo and Pietermaritzburg is interesting. The average annual rainfall of the former is 1.18 in., of the latter 41.69 in. In Cairo, although the rainfall is so small, December and January are termed the rainy months, and enteric fever, according to Dr. Sandwith, is most rife in Cairo in January, February, and March. Thus in both places the rainy months immediately precede and coincide with the first part of the enteric season, and we may say that epidemic enteric fever "is usually a consequence of rainfall rather than that of any other meteorological condition."

SPECIAL CORRESPONDENCE.

VIENNA.

Contaminated Fruit, Ice-cream, and Flowers.—Suction in Nasal Pyorrhoea.—The Health of Vienna.

EVERY year with the coming of the hot summer days complaints are made to the authorities as to the condition of fruit offered for sale in certain suburban markets. Some magistrates and high Governmental officials are inclined to take an enlightened view of the question, and recent complaints have therefore unexpectedly resulted in energetic action being taken against the fruit nuisance. The hawking with vegetables, fruit, butter, and other perishable articles of diet has been stopped, except in certain outlying districts. Of 120 samples of such articles

taken at random from the street hawkers' stalls, 106 were found unfit for human food. In addition to the withdrawal of the hawkers' licences, the shopkeepers and wholesale fruit vendors were warned that in future fruit must not be left exposed to street dust and insects, but must be covered with gauze or kept in well ventilated premises. Microscopic examination of the skins of plums and pears derived from a much patronized fruit shop showed that the main source of contamination was dust containing fragments of granite (from the street pavement) and horse-dung. The next step was the suppression of all unhygienic ice-cream factories, the products of which are also hawked about the streets. The conditions found in these factories in some places were so sickening as to justify immediate action. It was found that some of the street vendors made the ice-cream in their only room, which served as kitchen, bedroom, factory, and hospital. An epidemic of diphtheria was traced to one Italian ice-cream manufacturer. Now, only such pastry shops and coffee-houses are allowed to make and sell ice-cream as possess proper facilities for making it with reasonable precautions for ensuring cleanliness. A third group of hawkers which was the object of attention of the sanitary authorities were the flower hawkers, mostly women of mature age, who sell their flowers by wandering from street to street. As they are in the habit of keeping the flowers cool and moist by sprinkling them every now and then with jets of water from the mouth, they were ordered to get more adequate apparatus for this purpose. In a similar way, the vendors of butter, green vegetables, meat, and bread were instructed to comply with the rules of modern hygiene and sanitation.

At a recent meeting of the Society of Laryngology, etc., Dr. Weil gave details of the results of suction in the treatment of nasal pyorrhœa. By means of a series of cavities made to imitate the natural conditions present in the nose and the accessory sinuses, he was able to demonstrate that suction cannot be expected always to empty such sinuses of their contents. If the opening is situated very high, or if the cavity is full and the opening at its bottom, no effect whatever may be produced; but if there is liquid and air at the same time within the cavity, then the liquid can be got out by suction. There is, however, a serious danger that pus or other infectious material lying just in front of the ostium of the cavity may, after suction, be driven into the sinus by the current of air entering the hollow spaces; the tube, if it is wide and patent, has been known to become infected in this way. Therefore Dr. Weil, who himself has seen several cases of one-sided or bilateral middle-ear inflammation caused by therapeutic suction, warns the profession against employing a method so uncertain and so dangerous.

The report of the Board of Health for the past week shows the remarkable and unusual fact that there was not one single death from intestinal disease; even the death-rate of the newborn and infants under 1 year was extremely low, and the number of deaths did not reach 50 per cent. of the number of births, namely, 747 against 949. The mortality was 13.1 per 1,000, while the total for the year 1905 was 18.7 per 1,000. The reason for these favourable conditions, which are shown also in the bulletins of the hospitals, seems to be the constant high barometric pressure, combined with the many hours of sunshine uninterrupted by air currents. The disinfecting properties of the solar rays have a very beneficial action on all sorts of germs, as is shown by the absence of whooping-cough, pneumonia, bronchitis, and angina. The examination of the water proved also its good quality —7 microbes to the cubic centimetre, as against 19 to 25 in winter.

BERLIN.

Visit of French Doctors.—The Medical Department of the Cultus-Ministerium.

The French medical visitors to Berlin have come and gone. All arrangements had been carefully made beforehand by a special committee—von Bergmann, von Leyden, Körte, Kossmann, Kuttner, Sonnenburg, and others—so that the few days available were fully utilized. The Rudolf-Virchow Hospital—now close on completion—made a profound impression on the visitors, not only by its huge dimensions and the perfection of its general arrangements, but also by the beautiful lines and picturesque grouping of its buildings. At the "urban" municipal hospitals the visitors watched some operations performed by Körte, and they showed much interest in the open-air sanatorium (*Liegehallen*) arranged on the roof of one of the buildings. Von Bergmann received them in the University surgical clinic, of which he is the director, and, speaking in French, sketched the history of the institute, naming his three predecessors: the elder Graefe, Dieffenbach, and von Langenbeck. He subsequently exhibited some cases of special interest, and led the way to the Poliklinik—one of the largest in existence. The new buildings of the Charité Hospital were also visited, and likewise the Koch Institute and the Pathological Institute with its famous museum. Kossmann did the honours of the Langenbeckhaus, and explained the objects for which it was founded—chiefly to be a central point of meeting for the profession. In the new institute for post-graduate medical study, which bears the name "Kaiserin Friedrich," the visitors laid a wreath at the base of the late Empress's bust, and from here a telegram of thanks for the hospitality accorded them was sent by the French visitors to the German Emperor at Cronberg. Several other medical establishments were inspected—the military hospital at Tempelhof, near Berlin, the great lung sanatoriums at Beelitz, and several noteworthy private clinics. Nor were the ladies of the party idle during their stay in Berlin. Under the guidance of a special ladies' committee they went to see that model institute, the municipal home for babies, in the Kürassier Strasse, as well as the municipal bureau for advice and assistance to mothers of young children, and the open-air day sanatorium for children, in the forest at Sadowa, near Berlin, besides visiting many of the chief Berlin "lions." Banquets and various entertainments brought together ladies and gentlemen of both nations in the evenings, and the after-dinner speeches were marked throughout by a tone of special cordiality and heartiness.

Several of the Prussian *Aerztekammern* (representative bodies of medical men) have combined to petition the Government that the posts of (1) Director of the Medical Department in the Cultus Ministerium, of (2) President of the Scientific Committee, be in future filled by medical men, and not, as at present, by jurists. In a historical retrospect the petitioners quote no less an authority than Frederick the Great, who refused to ratify the appointment of a candidate, with the words: "How can a man of law suit such a post? He knows nothing at all of the business . . . the man needful is a good and sensible medicus." Frederick's shrewd good sense was acted upon until near the middle of the last century; since then the posts have been given to jurists, in accordance with the practice which prevails in most Prussian Government offices—always excepting the War and Naval Ministries, of course!

CORRESPONDENCE.

HOSPITAL REFORM.

Sir,—The Hospitals Committee has forwarded to the Hospital Boards throughout the country, a copy of the "Model Principles of Hospital Management," which it has carefully drawn up, with a request that these principles may be considered: (1) With a view to an expression thereon; (2) with a view to their incorporation in the regulations of the hospital. The object of these principles is to put a check on the existing abuse of our hospitals.

It is certain that if the Hospital Boards to whom we appeal are convinced that the medical men in the district are in earnest in the matter they will carefully consider the proposals, but not otherwise. It is of the utmost importance, too, that the physicians and surgeons on these Boards should realize that their medical brethren are in earnest.

I would suggest, therefore, that our Divisions should arrange meetings at an early date, to consider what action should be taken to attempt to ensure the proposals a full and careful consideration. In some cases it might be advisable to request the Hospital Boards to allow a small deputation of general practitioners to be present when the proposals are discussed; or other means might be adopted

to prove that the practitioners in the district are thoroughly interested in the subject.—I am, etc.,

Oxford, Sept. 3rd. W. COLLIER.

STRYCHNINE IN HEAT STROKE.

SIR,—The present great heat makes suggestions of treatment useful. Eleven years ago, after an exceptionally hard field day in a very hot August, two men were brought into the field hospital insensible, supposed to be under the influence of drink.

As their pupils were unequal, their breathing slow and shallow, and their condition becoming more urgent, I was asked by the O.M.O. to see them. In addition to the above symptoms their skin was burning, pulse slow and compressible; both had full bladders, though one had evidently passed water involuntarily.

With these symptoms, and as there neither was any history nor smell of drink, and knowing the unusual exertions and the intensely hot, airless atmospheric condition, I suggested they were cases of heat.

A catheter was passed, ice freely applied, and one began to show symptoms of returning consciousness. The other became steadily worse, his pulse became slower, his respiration failing. I injected 7 minims of liq. strychninae. The result was almost magical.

Two years later, in a militia camp, I had a similar case, but the man was much older (37) and a free drinker; he had been pulling strenuously in a prolonged tug-of war on a hot, moist, airless day. Half an hour later he had repeated desire to pass water; then lay down in his tent, and in another half-hour had a severe convulsion. I saw him nearly at once in his tent; he was unconscious; hot, burning skin; unequal pupils, which did not respond to light; slow, shallow breathing; slow, compressible pulse.

He was taken to the hospital, freely douched with water, but became steadily worse, respiration chiefly. The ward master, a sergeant of the R.A.M.C. who had been in India and Egypt, told me he would die. Remembering my former case I injected strychnine with the best of results.

I have now had 9 severe cases of this kind; 7 have had unequal pupils; 2 that had contracted pupils had clammy skins. In each case I have injected strychnine or strychnine and atropine with excellent results. I follow with calomel and a simple saline with nux vomica. In every case it has taken thirty-six to forty-eight hours before the pulse has recovered, and in every case there has been great debility and muscular pains. The cases of those over 30 years old have been the more troublesome.

None of the 9 cases have been cases of syncope; all have been the result of sustained work on hot, moist days. I now advise all men who shoot in August, or who become stale in hot weather, to take nux vomica daily.—I am, etc.

Bletchley, Bucks, Sept. 4th. P. B. GILES.

"KISSING THE BOOK."

SIR,—In the correspondence which has been going on in the *Times* on the subject of "Kissing the Book," the discussion has turned principally upon an attempt to introduce the Scotch system of swearing by holding up the hand.

It is always better in such matters, if possible, to keep to the established customs of a country, and no valid objection has been raised to "kissing the Book" except the sanitary one, *the danger of contagion*. My object in writing is to suggest that all difficulty and danger on this account could be easily avoided without altering the established custom. It would only be necessary to have the binding of the book made with a slight metal frame, so arranged that the cover or covers could be slipped in and out at pleasure. The cover, for economy sake, might be of coloured cardboard—a supply being kept at hand—and a clean cover slipped into the metal frame for each fresh swearer, and then thrown away.—I am, etc.,

HORACE DOBELL, M.D. (ret.).

Parkstone Heights, Dorset, Sept. 2nd.

APPENDICITIS OPERATIONS IN THE BIRMINGHAM GENERAL HOSPITAL.

SIR,—In the BRITISH MEDICAL JOURNAL for August 25th, p. 451, the statement appears that during 1905 "there were 177 cases of appendicitis treated in the hospital, and of these 60 died." This is incorrect. If your informant will look up p. 19 of the statistical report of in-patients published by the General Hospital he will find that 126 cases of non-suppurative appendicitis were operated upon without a death, and 51 cases of appendix abscess with 19 deaths. Of these 19, 15 were suffering from general peritonitis on admission to the hospital.—I am, etc.,

Birmingham, Sept. 1st. E. L. BUNTING, Acting R.S.O.

THE UNIVERSITY OF LONDON.

SIR,—As a candidate for the present senatorial election at the University of London I have received a number of very interesting letters. I should be obliged if you would allow me hospitality in the columns of the BRITISH MEDICAL JOURNAL to comment more especially upon those which express opinions adverse to those I have enunciated.

Many of my correspondents, especially amongst metropolitan graduates, seem to hold views which may perhaps not unfairly be summed up in the following series of propositions: The "Man in the Street" likes his family practitioner to have the right to call himself "doctor," and makes no nice discrimination as to whence the right is derived; the student of a metropolitan medical school suffers from an inability, owing to the supposed severity of the examinations of the University of London, to call himself "doctor" at the conclusion of his studies; to this cause is ascribed the undeniable yearly decrease in the number of medical students coming to London. Let us therefore (say these exponents) reserve the really severe tests for the M.D. and M.S., and make of our M.B., B.S. degree a qualification of which the standard shall be so low that it will afford no obstacle to any student who is not a congenital idiot. We shall in this way draw to London once again an affluence of students, and, incidentally, we who are teachers in the medical schools may cherish the perfectly legitimate hope that we may no longer be obliged to teach students for nothing. Let us also hope that the dear foolish public will go on thinking that the degrees of the London University remain, as they used to be, a hall-mark of incorruptible excellence. "Populus vult decipi," in short, "decipiatur."

Now the fallacy of this reasoning lies in the fact that though the public may be fooled for a time, it cannot be fooled for ever; and the latent intention is an essentially dishonest attempt to trade upon a past reputation. It is comparable to the trick of the fraudulent printseller, who relying upon the ignorance of his customer, foists upon him a modern faked imitation of a rare engraving as a "proof-impression." And it is surely *naïveté* run riot to suppose that diminution of quality will not inevitably be followed by diminution of prestige. Those outstanding rocks, the M.D. and M.S., on the integrity of which we are so insistently urged to build our confidence, must in turn yield, as indeed they show present signs of doing, to the attrition of the prevalent desire to win success without working for it; and it may conceivably come to pass that the possession of a degree in the University of London will be, in place of a distinction, an opprobrium, and a reproach.

I assert fearlessly that the very severity of the London degree, *with its corresponding prestige*, attracted to London the best type of student from the whole country and from abroad. The present dearth of medical students in London is surely more rationally to be explained by the growth—the healthy and commendable growth—of a local patriotism, all the deeper because it is local and circumscribed, in the large towns such as Liverpool, Birmingham, Manchester, Leeds, Sheffield, and Cardiff, a recent development which has resulted in the foundation and endowment of universities in these centres, and the consequent diversion from London of students who would have previously come here. It is useless to deny this tendency. Individualism is an essentially English trait, which has been most conspicuous when our history has been most glorious. It was an essentially Greek trait at an epoch when Greece so greatly excelled in every department of human effort that I have heard an eminent scholar utter the paradox that the average citizen of Athens in the time of Pericles was as far superior to the average European of to-day in mental fertility and endowment, in practical wisdom and in artistic achievement, as the average European of to-day imagines himself to be superior to the African

negro. It is the lack of this healthy individualism and local patriotism which has made it possible for London to be described as "an agglomeration of villages and vestries; an irresponsible jellyfish," and which renders our great metropolis the prey of a local government too stupid even to be corrupt.

And this leads me to allude to another controversy, in which it seems to me that very ill-advised action has been taken by the governing body of the University. The metropolitan medical schools have venerable and great traditions. They are illustrated by glorious names, and each affords to its body of students a nucleus of passionate attachment which it is of the first importance to retain. The Central Institute of Medical Sciences, which at some chimerical epoch is prescribed to replace the medical schools in the earlier and formative period of the student's career, is as little likely to engender an exalted patriotism as the meridian of Greenwich, which we have been authoritatively informed no sane man would die for. It is surely more consonant with our wise English slowness to build on the foundations so laboriously laid rather than to root up and destroy them for what is at best a risky experimental change. It would be far better, it seems to me, to develop the existing material by a system of central inspection and subsidy, where those may be necessary, of this preliminary teaching in the medical schools rather than to attempt to carry out what must remain only a partial solution of the difficulty, since it is certain that the greater schools will not assent to the proposed amalgamation of the preliminary studies, and the movement in this direction will have to reckon with a consistent, implacable, and well-grounded hostility from those important institutions which have refused their adherence to the centralization scheme.

With apologies for this lengthy and, I fear, largely unwelcome irruption on your space, I am, etc.,

London, W., Aug. 23rd. E. Graham Little.

THE TEACHING OF MIDWIFERY.

Sir,—I have read with much pleasure the letter of Dr. Tweedy, published in the British Medical Journal of August 25th, because it is the first offer on the part of a teacher of midwifery during the present controversy to test the value of the different methods. Hitherto the teachers do not seem to have realized that we who practise what we term advanced midwifery have at one time tried the method they teach, and, finding Nature in a large number of cases most unkind to civilized women, have gradually learned the way to help with perfect safety. The teachers, on the other hand, have never tried our method, and are therefore not in a position to condemn it, especially when we most positively state that the results are perfect.

I would ask Dr. Tweedy to make his test much more stringent, for by so doing he will be in a position, with his immense advantages, to bring about a revolution in midwifery teaching, and put an end to the demand for such an old-fashioned institution as a midwife.

Let Dr. Tweedy take 100 cases of lingering labour with normal presentation and treat half of them according to the present prevailing fashion and the other half with early chloroform and forceps, and note the results. To make the tests complete it would be necessary for him to personally use the forceps in each case, and not to do so until he had fully dilated the os with his hand; to pull continuously, and regardless of all tradition, in the line of the least resistance; to safeguard the perineum by pushing with one hand while pulling with the forceps in the other; and again to defy tradition by carrying out this process fairly rapidly; to express the placenta immediately after the birth of the child, or, if it failed to come with expression, to take it away with the hand completely; to subsequently squeeze down the uterus forcibly, and to use no douching, at any rate before delivery. If these conditions are carried out, and if Dr. Tweedy will subsequently personally take all notes and temperatures in the two sets of cases, I am certain he will find no *post-partum* haemorrhage, less after-pains, less temperature, and better results in the forceps cases.

Such a test would be more satisfactory than that proposed by Dr. Tweedy, because many people look with some suspicion on the uncorroborated statements of general practitioners; and, on the other hand, we who have had considerable experience of hospital work look with a certain amount of suspicion on hospital temperature charts and histories that have not been personally taken by the physician in charge.

In conclusion, I would like to quote four recent typical cases such as constantly occur in general practice:

1. A woman in the eighth month of pregnancy with eclampsia but not in labour. I placed her in the cab I was using, took her to our local infirmary, had her anaesthetized, dilated the os with my hands, and delivered the child with the forceps. No more fits occurred, and the woman was discharged within a fortnight without having had any bad symptom or rise of temperature. Half an hour completed the operation.

2. Case of placenta praevia lateralis and haemorrhage: Woman aged 40, small and delicate; the legs and feet had been swollen for months and the woman confined to the house; youngest child 12 years old. One of my colleagues gave chloroform, and I found the os the size of a shilling, and rigid. The dilatation with my hands was a tedious and cramping operation, occupying a quarter of an hour. When the os was fully dilated there was a rush of blood, and I immediately seized a foot and brought it down. The child was very large, and I had to pull vigorously and continuously for ten minutes to get the body delivered, and then speedily brought away the after-coming head with the forceps, and the placenta with the hand. The time occupied from entering to leaving the house was forty-five minutes, and the woman made a complete and uninterrupted recovery.

3. On leaving the above case I was called to a primipara in the country, and on examination found the os the size of a two-shilling-piece and rather rigid, and the presentation occipito-posterior. The woman had been in labour twelve hours, and the pains were strong. I gave chloroform and dilated the os with my hands, corrected the position, and delivered with the forceps, the time from entering to leaving the house being thirty-five minutes. Recovery complete and rapid.

4. A very small primipara, where I knew there would be some trouble, so I took with me a medical friend who was anxious to see the advanced method practised. My friend gave chloroform, and I found the os the size of a five-shilling-piece, and easily dilated with the hand; position occipito-posterior, and easily corrected. I applied the forceps, and used heavy and continuous traction for fifteen minutes, when the child was born. There was not the slightest tear in the perineum, though the child was of average size and the parts so small that it seemed impossible for the perineum to escape. Recovery was perfect, and the time occupied from entering to leaving the house thirty minutes.

I quote these cases simply as samples of what constantly occurs in private practice, and because in Cases 1, 2, and 4 the mother's life would certainly have been in danger if prompt action had not been taken; and in these cases also my evidence can be confirmed by my medical brethren who assisted me by giving the chloroform.

I am not advising unskilled men to adopt this method without proper training, but I most earnestly ask teachers with the resources at their command not to disregard positive evidence of this kind. In their skilled hands no possible harm can come to the patients if they try the method suggested; and if they find it satisfactory, there is no reason why the teaching should not be so altered that no medical man should be allowed to practise who is not qualified to deal with any obstetric emergency, as well as to give help in any case, however slight, of delay. Surely the deplorable results of unskilled interference justify my contention; and, moreover, the prestige of the profession would naturally be raised if the public knew that the advent of the doctor meant speedy and painless delivery to the suffering woman without the slightest danger to herself or her offspring.—I am, etc.,

North Shields, Aug. 28th. F. C. Mears.

THE THEORY OF HYPERPYRAEMIA.

Sir,—By hyperpyraemia Dr. Hare[1] denotes a blood state in which the circulating fluid contains an excess of carbonaceous (fuel) material. We have no direct evidence of

[1] *The Food Factor of Disease*, 1905.

the existence of such a condition, nor does Dr. Hare propose any theory as to its chemical nature. But in his work *The Food Factor in Disease* he brings forward a large mass of clinical evidence for the existence of this blood state as a factor in the causation of many morbid conditions.

In a short notice of this book[2] no account is taken of the clinical argument, which, in the opinion of higher authorities than myself, goes far to prove Dr. Hare's thesis by indirect methods. It is urged, fairly enough, that there is no direct evidence of the existence of hyperpyraemia; and the reviewer goes so far as to say that, in default of such direct evidence, the theory cannot be expected to receive serious consideration.

Whether such an attitude can be regarded, when considered dispassionately and without prejudice, as a legitimate one must depend on the view that one takes of the state of our knowledge of carbon metabolism, and of the chemistry of the carbonaceous constituents of blood serum. If this knowledge is regarded as clear, definite, and even approximately exhaustive, then the attitude of your reviewer is quite justified. If, on the other hand, it is very imperfect, doubtful even on fundamental points, and for the greater part wholly unknown, then any clinical evidence should be accepted, and indeed welcomed, for what it may be worth.

If Bernard's theory of glycogenesis be accepted without modification, and the liver glycogen be regarded as converted wholly and simply into glucose, there is a difficulty in the way of Dr. Hare's theory; for on Bernhard's theory the fuel material of the blood is glucose. Hyperpyraemia, there are reasons to believe, is in some if not in all instances merely the presence in excess of some normal constituent of blood serum, which serves a physiological purpose as fuel material; but this constituent cannot be glucose, for it is a striking clinical fact that on the onset of glycosuria the morbid phenomena attributed to hyperpyraemia (bilious attacks, migraine, asthma, etc.) tend to disappear.

On the other hand, Dr. Pavy[3] has brought forward strong reasons for disbelieving that in the healthy individual glycogen passes into the circulation as glucose. He urges that any such rise in the proportion of glucose in the blood as would attend the passage of, say, 500 grammes of carbohydrate daily to the tissues would inevitably be attended by pathological glycosuria; for if relatively small amounts of glucose be injected into the blood stream, only a proportion is absorbed, and an abnormal degree of glycaemia and glycosuria persist for hours. Again, sugar is present in healthy blood in minute proportion, and as a corollary in healthy urine also. If the kidneys cannot prevent the occurrence of physiological glycosuria—which can only be regarded as a waste of nutritive material—they cannot be expected to prevent the passage in greater proportions of sugar when higher degrees of glycaemia are present.

Dr. Pavy has shown that not only may carbohydrate be built up into protoplasm by the yeast plant, but carbohydrates may be recovered from proteids by chemical treatment, and he regards it as a constituent of the proteid molecule. Further, he suggests that the proteid molecule is provided with side chains to take up carbohydrates, and that as glycogen is converted in the liver the "sugar is taken on as a side chain by a proteid constituent of the blood and transported to the tissues."[4] Thereby the entry of large numbers of comparatively small and highly diffusible glucose molecules into the circulation and the consequent glycosuria are avoided.

On this supposition there is abundant room for the pyraemic constituent of the blood serum postulated by Dr. Hare. It would be legitimate—if it were necessary—to imagine more than one blood proteid capable of taking up sugar and of taking it up to various degrees of saturation. Unless Dr. Pavy's arguments can be overthrown and this special hypothesis proved to be unreasonable, there is no physiological reason for declaring the theory of hyperpyraemia unworthy of serious consideration.—I am, etc.,

A. JEFFERIS TURNER, M.D.Lond., D.P.H.Camb.

Brisbane, June 9th.

[2] BRITISH MEDICAL JOURNAL, April 7th, 1906.
[3] *On Carbohydrate Metabolism* 1906.
[4] Ibid., p. 68.

THE EVAPORATION OF CHLOROFORM DURING INHALATION.

SIR,—In Dr. Levy's very interesting communication on the Evaporation of Chloroform during Inhalation, published in the BRITISH MEDICAL JOURNAL of August 4th, occurred a statement that rather surprised me, coming from the pen of a practical anaesthetist, and to which I expected to have seen some exception taken in the following week's JOURNAL. On page 243 Dr. Levy says:

> A similar consideration applies to the mitigation of the somewhat raised mean vapour tension in hot weather. In such circumstances the whole of the liquid is evaporated more rapidly and at a higher tension; but, provided that the same number of respirations is allotted to each application of chloroform as suffices for its complete evaporation during cooler weather, then at all temperatures a given quantity of vapour is mixed with a given quantity of air and the resulting average in the lungs will be almost the same.

I confess to finding a little difficulty in following Dr. Levy, but I take this to mean that in practice, other things (the patient, the depth and duration of anaesthesia, etc.) being equal, the same quantity of chloroform will suffice in hot weather as in cold. This, however, must be quite contrary to Dr. Levy's experience in the operating theatre. It surely must be a matter of common knowledge that more chloroform is required to produce the same effect in summer than in winter. Without having the luxury of a laboratory to experiment in, one can observe that if a wet sheet is hung before the fire the steam comes off on the side towards the fire, the warm side. The same applies to chloroform vapour, and in cold weather it tends to evaporate more from the surface towards the patient's face; in hot weather the conditions are changed, and in addition to evaporating very much faster, it does so very much more freely from the outer surface of the mask into the surrounding air, being wasted on those who do not want it. To such an extent do I find this the case, that my practice in the summer is, wherever possible, to maintain anaesthesia by means of the Junker apparatus, timing each stroke of the bellows with inspiration, thereby economizing chloroform and considerably enhancing my own comfort.

With the conclusions at the end of Dr. Levy's paper I agree theoretically; he certainly shows how, roughly, one may give a definite percentage of chloroform from a mask. But the difficulty is that in practice it is impossible for one man to be counting drops, etc., and properly watching his patient and attending to his requirements.—I am, etc.,

London, Aug. 14th. G. A. H. BARTON.

BACTERICIDAL ACTION OF COMPOUNDS OF SILVER.

SIR,—The investigations of Dr. Marshall and Dr. Macleod Neave, published in the BRITISH MEDICAL JOURNAL of August 18th, are particularly valuable, in that they show clearly which of the many silver compounds on the market have at any rate a prima facie usefulness based on bacteriological grounds. In the last paragraph of their paper the authors allude to the good clinical results reported with argyrol and collargol, and assert that this cannot be due to any bactericidal action.

With this conclusion it would be difficult to disagree, but I think it is not well to accept scattered clinical reports in too uncritical a spirit. As to argyrol, I cannot speak definitely; but some years ago I investigated the bactericidal properties of collargol, and published the results in the *Bristol Medico-Chirurgical Journal* for 1903. My laboratory experiments led to the same conclusion as those of Dr. Marshall and Dr. Macleod Neave—namely, that the bactericidal action of collargol is practically *nil*. I therefore investigated the clinical literature, and was able to collect accounts of 44 cases. From a critical review of these cases I came to the conclusion that in cases proved to be septicaemia and pyaemia in man collargol had no effect, and that in toxaemic cases the effect was mainly seen in a fall of temperature very similar to that produced by hydrotherapy and certain antipyretic drugs. In half these cases, however, the substance was inert. No animal experiments have ever demonstrated the bactericidal effect of collargol intravenously. I should hardly be surprised if an investiga

tion of all the clinical reports on argyrol led to similar conclusions.—I am, etc.,

J. M. FORTESCUE-BRICKDALE, M.A., M.D.Oxon.

Clifton, Sept. 3rd.

THE COLOUR OF THE HAIR IN OVARIAN DERMOIDS.

SIR,—Two months ago (June 9th, page 1377) you published a short note from me giving details of an ovarian dermoid removed in St. Thomas's Hospital, the note being sent to supplement a short article by Mr. Shattock on the origin of these tumours, and to provide Mr. Bond with information which he had asked for in your columns. I should like now to add the following details of a somewhat peculiar dermoid removed by myself three weeks ago in the Great Northern Central Hospital. The patient was a married woman, 47 years of age, and the tumour was a dermoid of the left ovary, the size of a fetal head at term, which had undergone torsion of the pedicle to the extent of 360 degrees.

The dermoid was filled with hair which was obviously of two distinct shades, very dark brown at one pole and tawny at the other. At first I thought that both shades of hair were attached to the wall of the cyst, but more careful examination showed that this was not so. The dark-brown hair was growing from a patch of skin the size of a florin, and it gradually shaded off, until at the far pole it was distinctly tawny in colour. This reddish hair was pressed very closely against the wall of the cyst, but was not attached to it. The tumour contained no cartilage, bone, or teeth.

The woman's hair was very dark, streaked with grey. She could not tell us the colour of her father's hair, as he was already grey in her earliest recollection.—I am, etc.,

London, W., Aug. 14th. R. HAMILTON BELL.

MANAGEMENT OF A CASE OF LABOUR.

SIR,—I have read with the very greatest pleasure your abbreviated report of Dr. Purslow's Ingleby Lecture on Natural Labour (BRITISH MEDICAL JOURNAL, June 30th, 1906, p. 1512). The teaching is so plainly and concisely laid down, that it must do good when compared with some recently-published ideas. I have carried out the procedure recommended in all my hospital and other cases for some years, except that I have not specially raised the shoulders and that I always wash out the vagina with an antiseptic for about a week. I find this is especially necessary in hot climates. Does Dr. Purslow do this in an ordinary case?—I am, etc.,

W. WATSON PIKE, F.R.C.S.I., etc.,
Lieut.-Col., R.A.M.C.

Mayunyo, Upper Burmah, Aug. 8th.

THE TREATMENT OF PULMONARY OEDEMA.

SIR,—Having perused Dr. Wethered's interesting and instructive address on pulmonary oedema, I should like to suggest the use of calcium chloride in addition to the line of treatment he advocates, more especially in cases characterized by a hydraemic condition of the blood. The increase in the coagulation power of the blood which follows the administration of this drug will tend to check the transudation of blood serum through the vessel wall; and this, combined with measures calculated to quicken the circulation through the pulmonary vessels and encourage lymphatic drainage, will fully meet the requirements of treatment.

Regarding the causation of pulmonary oedema, it appears to me that the physiological fact that the processes which favour coagulation of blood in the lungs are relatively feeble is one of importance which has some direct bearing on the development of this condition. Ludwig and Pawlow have shown that if blood is passed frequently through the pulmonary circuit without being allowed to enter the systemic vessels it loses its power of clotting. Pulmonary oedema is preceded by active or passive congestion—in other words, by the retention of blood for a variable period of time in the pulmonary circulatory system, a condition of things which favours the gradual abolition of its coagulation power. This, associated with a gradually-increasing intrapulmonary vascular tension, will encourage the transudation of blood serum into the surrounding tissues, and may be regarded as the chief etiological factor in the production of pulmonary oedema.

I have at present under observation a man aged 64 who is recovering from an acute left-sided pleuropneumonia. The inflammatory process was followed by a somewhat extensive pleural effusion, the dullness extending from the lower scapular and subscapular regions behind to Traube's space in front. At this stage his illness betrayed certain features which gave rise to considerable anxiety. Scattered rhonchi were heard over the right lung in front, and moist crepitations over the base behind, where the percussion resonance had become somewhat impaired. These signs were regarded as due to failure of the circulation in the right lung with commencing oedema, and this was further borne out by the character of the breathing and the nature of his cough and expectoration. As his friends strongly objected to paracentesis being performed, I prescribed calcium chloride in 15-gr. doses, combined with liq. strych. to be taken thrice daily. At the same time he was given a blue pill night and morning, and was freely stimulated. From this date he commenced to improve. The physical signs in the right lung disappeared in a few days, and at the end of three weeks pleuritic friction was audible over the left lower lobe behind.

I was very much impressed with the effect of calcium chloride in this case, first in clearing up the physical signs in the right lung, and secondly in bringing about complete absorption of the effusion in the left pleural cavity. I should add that the idea of using calcium chloride in pleural effusion was first suggested to me by reading the letter written by Dr. Herbert Evans in the BRITISH MEDICAL JOURNAL of June 9th.—I am, etc.,

H. HYSLOP THOMSON, M.D.

Bridge of Weir, N.B., Aug. 22nd.

ACTINOMYCOSIS OF THE ABDOMINAL WALL.

SIR,—I notice with interest that Mr. Cuff attributes the pelvic infection in the case of actinomycosis he describes in the BRITISH MEDICAL JOURNAL of July 21st to the perforation of the gut wall by part of a husk of an ear of wheat, which he says was discovered in one of the abscess cavities, and which, from his account, must have been swallowed at least nine months previously.

As, by a somewhat curious coincidence, a comparable case of pelvic actinomycosis of my own was published in the corresponding issue of the *Lancet* I naturally feel interested in the view Mr. Cuff takes concerning the path of infection.

One would almost have supposed it likely that such a foreign body as Mr. Cuff describes would have been altered out of recognition after its passage through the digestive canal and subsequent long sojourn in an abscess cavity.

I should have expected, too, a great multiplication of *B. coli communis* around any such foreign body that had made its way out of the descending colon. In my own case, as soon as the sinus became offensive I found evidence of the invasion of a great many bacterial forms, together with fig seeds. I concluded that the abscess invaded the gut from without.

But I am still at a loss to understand exactly how the organism of actinomycosis made its way into the pelvis. I rather expect that micro-organisms may have ways and means of threading paths within the body of which we know very little.—I am, etc.

Cheltenham. EDGAR TREVETHICK.

THE INNERVATION OF CEREBRAL BLOOD VESSELS.

SIR,—As your leading article in the BRITISH MEDICAL JOURNAL of August 25th adequately describes the vigour and directness of Sir James Barr's Address in Medicine at the Annual Meeting of the Association, it is perhaps unnecessary for me to make any comment on it as a whole. There is, however, one point on which I should like to correct Sir James Barr's impressions. In referring to the innervation of the cerebral vessels, he mentions my having found vessels to be innervated in which many had failed to find nerves, and on the assumed absence of which some had constructed certain theories of the intracranial circulation. So far I have no fault to find with Sir James Barr's statement. But why the immediately

following qualification?—"If so" (that is, if I have found such nerves), "they must be very scanty, and perhaps only serve a trophic function." With their function at present I am not concerned. Of their abundance and indistinguishability from all other vascular nerves I desire to assure Sir James Barr. They are open to his inspection should he be curious to satisfy himself on their number and character, and wish to cogitate upon their possible utility in the economy of Nature. Their function, I would humbly suggest, is that of other similar nerves on blood vessels, and should not be greatly surprised if physiologists some day came to that conclusion, notwithstanding the present behaviour of adrenalin as set forth in Sir James Barr's address.—I am, etc.,

London, W., Aug. 27th. ALEXANDER MORISON.

THE ALLEGED INFECTION OF REPRODUCTIVE CELLS.

SIR,—Mr. Pernet[1] very properly insists that transmission of a disease germ "in the egg" is not the same thing as "in the reproductive cells." I was no doubt wrong in using the more inclusive expression in reference to Pasteur's discovery in the case of pébrine. I must confess to having no special knowledge of Pasteur's work, and was merely availing myself of what I suppose is the current description. A specialist who was kind enough to search Pasteur's writings for evidence that pébrine could be carried by the spermatozoa had, however, informed me that he could find no statement of such an occurrence. Mr. Pernet's distinction is obviously of great physiological importance, but as regards the disturbing influence which the transmission of a pathogenic organism may have on the course of heredity—the point I was concerned with—the exact mode of transmission is of less immediate consequence. In the pedigrees of some family diseases there are features so unlike any ordinary phenomena of transmission that the possibility of the influence of such organisms seems just worth considering, though such a suggestion is in any case exceedingly remote.—I am, etc.,

Cambridge, Aug. 14th. W. BATESON.

MEDICAL ARRANGEMENTS ON PASSENGER SHIPS.

SIR,—Dr. Hugh Bayly, in his letter of July 21st, refers mainly to the insufficient medical equipment of the ocean liners.

There is another aspect of the subject which he hardly touches upon, but which is of vast importance both to the travelling public and the medical profession. Why should a first or second class saloon passenger expect to find medical attendance in mid-ocean for less than he could have it in his own home? Why should steamship companies engage a medical officer at £10 per month and sublet his services as part of the value they give for the passage money?

It is a bad variety of contract practice, unfair to the medical officer and also to the passenger, who frequently requires the services of an experienced sea-going physician and which, as a rule, he cannot get, since, the pay being so inadequate, good men will not remain long enough in the service to become specialists in the treatment of complaints at sea.

If, however, a small fee, say 10s., was payable for each consultation by the first and second class passengers very soon a high class of experienced medical officers would be called into existence. In fact the appointment of ship's doctor would become one of the prizes of the profession. The expenses being so small and the fees considerable, good men would make it their calling for life, and ships would be sought after for the sake of their doctors.

£10 per month would not be too much for companies to pay for attendance on their crews and steerage passengers.

Many travellers at present are deterred from paying the doctor, as they do not like offering him a gratuity such as they give to their stateroom steward, and it is undesirable that a medical gentleman should be compelled to accept as a gratuity what ought to be his legitimate fee. To go fully into this subject would occupy too much of your valuable space, but I am sure that it only requires properly setting before the public and the steamship companies and a fresh and well-paid field of practice would be opened to many of our profession who at present find it hard to make a living.—I am, etc.,

W. D. WATERHOUSE, LL.D., L.R.C.S.I.

Westcott, Surrey, Aug. 27th.

[1] BRITISH MEDICAL JOURNAL, July 28th, 1906, page 224.

THE PREVENTION OF DIFFICULT LABOUR.

SIR,—Your correspondent, "Conjugate," will find a full account of Prochownik's dietary in Edgar's *Practice of Obstetrics*, first edition, page 693, whilst Prochownik's original paper is to be found in the *Centralblatt für Gynäkologie*, 1889, No. 33.

I have in one instance made use of this method of treatment, and although no conclusions can be drawn from a single case, still a few particulars may be interesting. The patient possessed a simple flat pelvis with an (estimated) conjugata vera of 3½ in. Two children had been born alive after prolonged and difficult labours terminated by forceps. During the third pregnancy I saw the patient for the first time, and suggested the use during the last two months of the limited dietary recommended by Prochownik, explaining at the same time the reasons for its use. The patient was a lady of intelligence, and she at once saw the point, adopted the dietary, and persevered with it to term, despite considerable suffering from thirst. Some compensation for the latter was given by the disappearance of the dyspepsia which had been troublesome for several months. Labour came on at term, and in five hours a living child was expelled by the natural powers. It weighed 7 lb., and presented two peculiarities: (1) Excessive moulding of the head was noted at the time of birth; twenty-four hours later, when the shape of the head had returned to the normal, it was observed that the sutures were in reality linear membranous gaps, the edges of the bones being separated from each other by intervals varying from ½ to 1 cm.; (2) there was a total absence of subcutaneous fat, the skin being more or less wrinkled. In all other respects the signs of maturity were present, and the child has thriven well since its birth.

I am inclined to think that the average maternity hospital patient would not long submit to the dietetic restrictions. She will certainly not do so in her own home, and even were there facilities for keeping her in hospital during the later months of pregnancy I doubt whether she would have the necessary intelligence and resolution to carry the treatment to its conclusion.—I am, etc.,

Liverpool, Aug. 27th. ARTHUR J. WALLACE.

SIR,—In your issue of July 28th I notice a statement by Dr. Lovell Drage as follows: "Looking back at my records I find the commonest cause of arrest is short cord. In the most pronounced case the cord was wound round the trunk of the child so many times that I had the greatest difficulty in delivery with forceps." If the cord was wound round the trunk of the child many times, surely it must have been a very long cord and not a short one. But this by the way.

What I desire to point out is, that the length of the cord can have no effect whatever in causing difficulty in delivery. During each contraction of the uterus, placenta, cord, and fetus move all together in one compact solid mass, and, during the descent of the fetus, the placenta and cord also descend exactly at the same rate. The distance between the origin of the cord in the placenta and its insertion at the umbilicus of the fetus is exactly the same when the head of the child is born as it was before the os uteri commenced to dilate. After the child's head is born and during the extraction of the body, a very short cord may cause a slight difficulty, but this cannot be the case during the delivery of the head.

Dr. Drage seems to imagine that the placenta is a fixed point somewhere in the abdominal cavity of the mother, to which the fetus is attached by means of the umbilical cord, something like a ship at anchor.—I am, etc.,

Swansea, Aug. 21st. F. KNIGHT.

THE Hon. Sir W. Bisset Berry, M.D., Speaker of the Cape House of Assembly, celebrated his 67th birthday on July 26th, receiving the congratulations of both sides of the House on the occasion. Sir Bisset is a graduate of Aberdeen, where he took the M.D. degree in 1861.

OBITUARY.

JOHN CAMERON, M.D., F.R.C.P.,

LIVERPOOL.

We regret to announce the death of Dr. John Cameron of Liverpool, at the advanced age of 88. He was born in London, studied medicine at Dublin and Glasgow, and was admitted a Licentiate of the Royal College of Surgeons of Edinburgh as long ago as 1839. In 1843 he took the degree of Doctor of Medicine at the University of Glasgow. He became a Member of the London College of Physicians in 1859, and was elected a Fellow in 1873. Dr. Cameron was for many years one of the leading physicians of Liverpool. He was lecturer on medical jurisprudence and toxicology, and afterwards on the principles and practice of medicine in the Royal Infirmary School of Medicine. He was Consulting Physician to the Royal Southern Hospital. He was a member of the Liverpool (Western) Division of the Lancashire and Cheshire Branch of the British Medical Association. Dr. Cameron's connexion with the Liverpool Medical Institution was remarkable for its length and intimacy. He joined it in 1839, and on March 15th, 1899, a gathering was held to celebrate the diamond jubilee of his membership. He had been a member of the Council for many years; he was twice general secretary; in 1868 he was elected vice-president, and he held the office of president in 1872-3. For fifty years he was continuously in office as trustee, and no official attended more closely to his duties. The Diamond Jubilee gathering, presided over by Dr. Macfie Campbell, then president, was attended by a thoroughly representative gathering of the profession. Congratulatory telegrams were sent by Sir Seymour Haden and Sir Dyce Duckworth. Dr. Cameron's opinion was greatly valued by his professional brethren, but it is to be feared that the fruits of his ripe experience have died with him, for he wrote little. He was a man of amiable character, and very popular among all classes of people.

ALEXANDRE HERZEN, M.D.,

PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF LAUSANNE.

Dr. Alexandre Herzen, Professor of Physiology in the University of Lausanne, who died on August 24th, was the son of the celebrated Russian publicist and novelist of the same name ("Iskander"). Professor Herzen was born on June 25th, 1839. Besides adding considerably to the literature of physiology by his own original works, he published several lectures of a more or less popular character, and he also edited the collected works of the late Professor M. Schiff. Professor Herzen was well known to most British physiologists, as he was a regular visitor at the International Physiological Congresses which are held triennially. On these occasions A. Herzen usually usually gave a graphic account of the work done for publication in medical journals. A. Herzen's original works deal with the physiology of digestion and with reflex functions. Moreover, he took a deep interest in educational subjects.

G. A. MORACHE, M.D.,

PROFESSOR OF FORENSIC MEDICINE, UNIVERSITY OF BORDEAUX.

We regret to announce the death of Dr. Morache, Professor of Forensic Medicine in the University of Bordeaux. Born at Saint Denis in 1837, he began his medical career in the French navy. After some years he entered the army, and was sent to China on a special mission, in which he acquitted himself with conspicuous success. He embodied his experiences and observations in a book entitled *Pékin et ses Habitants*. He was appointed Professor at the Military Hospital of Val-de-Grâce in 1868. He did excellent service during the Franco-Prussian war, and afterwards resumed the duties of his chair, which he continued to fill till 1874. He was then sent to Oran, and in 1878 was appointed Principal Medical Officer at Bordeaux. He rose to the rank of inspector in 1892. Meanwhile he had been chosen to occupy the Chair of Forensic Medicine in the University of Bordeaux.

Professor Morache was the author of a treatise on military hygiene, and of works on birth and death, marriage, and the medical profession. He was a man of wide information and of marked independence of mind.

JAMES BROWN McCAW, M.D.,

RICHMOND, VIRGINIA, U.S.A.

Dr. James Brown McCaw, the oldest physician in the city of Richmond, if not of the State of Virginia, died on August 13th, at the age of 83. He was born in Richmond on July 12th, 1823, and graduated in medicine at the University of the City of New York in 1844. After practising in his native city for 57 years he retired from active life in 1901; on that occasion a banquet was tendered him by the Academy of Medicine and the united profession of Richmond, and in token of the esteem and honour in which he was held by his fellow townsmen he was presented with a loving cup. He had been successively Professor of Chemistry and of Practice of Medicine in the Medical College of Virginia for many years; served as Dean of the Faculty for twelve years; and at the time of his death was President of the Board of Visitors of the College. He was also one of the founders of the Medical Society of Virginia, and at one time President of the Richmond Academy of Medicine. For many years he was President of the Mozart Society of Richmond, and it is said that few did more to stimulate interest in music and art in his native city than he.

On the outbreak of the Civil War Dr. McCaw was made Surgeon-in-Charge and Commandant of the Chimborazo Hospital at Richmond. He practically developed the institution from the bare ground to one of the largest military hospitals the world has ever known; in it during the four years of the war no fewer than 76,000 soldiers were treated. Here, with poor facilities and scant medical supplies, the success in operating and the number of recoveries was remarkable, and when Richmond was entered by the Federal forces the hospital was turned over to them in perfect working order. A full account of the history of Chimborazo Hospital and its medical officers will be found in the *Virginia Medical Semi-Monthly*, 1904-5, ix, 148 et seq. Dr. McCaw was Editor of the *Virginia Medical Journal* from 1853 to 1861, and in 1864 he became Editor of the *Confederate States Medical and Surgical Journal*, of which only fourteen numbers appeared (1864-6). This was the only medical journal that appeared under the Confederacy.

Dr. McCaw was a typical Virginia gentleman of the old school, devoted to the highest interests of his native city and State, and few practitioners have been so universally beloved in their community as he.

Dr. McCaw married in 1845 Miss Delia Patteson of Richmond, and of this marriage nine children were born, of whom six survive. Of these, two sons, Dr. David McCaw of Richmond, and Major Walter D. McCaw, Surgeon, U.S. Army, are members of the medical profession, representing the fifth generation of a remarkable line of Virginia physicians. Major W. D. McCaw is at present Librarian and Officer in Charge of the Library of the Surgeon-General's Office, having succeeded the late Major Walter Reed in that position in 1903.

We regret to announce the death of Margaret Smith Bell, L.R.C.P.I., L.R.C.S.I., which occurred at Belfast towards the end of August. Dr. Bell, with her husband, Dr. J. Douglas Boyd of Oldham, had been spending a holiday at Portrush, partly on account of the health of Mrs. Boyd, who had been suffering from an obscure throat trouble. At the home of her sister, Dr. Elizabeth Bell, Dr. Margaret Bell underwent two operations, but she never rallied. She was 42 years of age, and leaves an infant son. Dr. Bell was a daughter of the late Mr. Joseph Bell of Killeavey Castle, Newry. She served in the Ulster Hospital for Children and in the Eye, Ear, and Throat Hospital of Belfast. Dr. Bell came to Manchester in 1893, where she soon acquired a large practice, chiefly among women. The number of women practitioners in Manchester is not large, nor was Dr. Margaret Bell the first woman to begin practice in that city, but she, perhaps, did more than any one to modify the prejudice which at one time in that, as in other cities, militated against the work of women in this department. She was a co-opted member of the Midwives Supervisory Committee and Medical Officer both of the Ancoats Day Industrial School and "The Grove" Retreat, Fallowfield. Alike on account of her sterling worth and on account of her professional skill she will be greatly missed by a large circle of friends and patients.

By the death of Dr. Isidor von Neumann, Professor of Syphilidology in the University of Vienna, which occurred suddenly on September 1st, Austrian medicine has lost one of its leading representatives. He was born in 1832 at Misslitz in Moravia, and took his Doctor's degree at Vienna in 1858. In 1861 he qualified as *Privatdocent* in dermatology and syphilidology; in 1873 he became Professor Extraordinarius, and in 1881 Ordinarius in the same subject. He was head of the clinic of skin and venereal diseases. In 1903 he resigned his chair. Professor Neumann was one of the most distinguished of Hebra's many distinguished pupils. He was the author of a textbook on skin diseases with an atlas, and of a handbook of syphilis.

Professor Marshall Ward, D.Sc., F.R.S., died at Torquay, at the early age of 52, after a long and painful illness. Medical students who studied botany at Owens College during the early Eighties under the late Professor W. C. Williamson will remember Marshall Ward, who acted as his assistant, and who took such an active part in the work of that department. He began his studies as a field botanist, but he soon became a disciple of the Darwinian school. At the age of 20 he studied under Huxley at South Kensington, and there he devoted much of his time to cryptogamic and physiological botany. Afterwards he worked in Würzburg under Professor Sachs, whose *Lectures on the Physiology of Plants* he translated. In 1883 he was appointed Assistant Lecturer in Botany at Owens College, and two years later he was appointed Professor of Botany in the Forestry School at Cooper's Hill. In 1895 he was elected Professor of Botany at Cambridge. Nine years ago, when the British Association visited Canada, Dr. Ward was president of the Botanical Section of the Toronto meeting. Besides numerous original papers on botanical subjects, on the organism in vinegar, on the disease of the coffee plant, his best-known works are *The Oak, Timber and Some of its Diseases, Diseases of Plants, Grasses,* and the articles "Schizomycetes" and "Bacteriology" in the *Encyclopaedia Britannica*. He also lectured with much acceptance at the Royal Institution, London, notably on the influence of light on micro-organisms.

We regret to announce the death of Dr. James Fraser, which occurred suddenly from heart failure at Sutton Coldfield on August 23rd, at the early age of 39. The news came as a great shock to a very wide circle of friends and patients. He graduated at Aberdeen University as M.B. and Ch.B. He had practised at Sutton Coldfield upwards of seventeen years, first as an assistant, secondly as a partner, and thirdly by himself. By his great sympathy with sorrow and suffering he endeared himself to all his patients. He was a keen worker, a shrewd observer, and quickly gained the confidence of those under his care. He possessed in no small degree the *suaviter in modo* and the *fortiter in re*. The large attendance at his funeral testified to his popularity. He leaves a widow and a daughter 8 months old. A. H. E.

Surgeon Herbert Bartlett Simpson, R.N., H.M.S. *Sealark*, died on August 28th, at Diyatalawa, Ceylon (Naval Camp), of enteric, in his 29th year. He was appointed Surgeon, November 21st, 1902.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are: Dr. Philip Dospranikoff, Professor of Anatomy in the University of St. Petersburg, aged 78; Dr. Nina Rodrigues, Professor of Forensic Medicine in the University of Bahia; Dr. W. E. Taylor of Honolulu, President of the Hawaiian Medical Society, and formerly Professor of Surgery in the University of California, and President of the San Francisco Medical Society, aged 69; Dr. Guyot, Representative of the Rhone Department in the French Senate, aged 76; Dr. Gouraud, formerly Physician to the Paris hospitals; and Dr. Emile Yot, President of the Medical Society of Versailles.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

MEMBERS OF ORDERS OF KNIGHTHOOD, Etc.

The Army Council notifies that the names of the recipients of the Distinguished Service Order, or of an Order of Knighthood, who have ceased to hold any military rank are only retained in the Army Lists conditionally on reports of existence being forwarded to the Secretary of the War Office on January 1st and July 1st of each year. All who have not complied with this regulation should at once send such a report, and should in future furnish similar reports on the dates above specified. These reports are necessary in order that the lists of recipients of Orders may be kept as accurate as possible. Colonial and Indian papers are requested to copy this notification.

A FRENCH BOARD OF MILITARY HYGIENE.

By decree dated August 6th the French Minister of War has established a Superior Board of Military Hygiene and Epidemiology. The Board is to consist of seventeen members, of whom nine are civilian practitioners and eight medical officers of the army.

THE PAY OF R.A.M.C. COLONELS.

Another P.M.O. writes: A letter written by "P.M.O." in the British Medical Journal of July 28th is most misleading. He states: "Generals, R.E. officers, A.S.C. officers, Paymasters, other than P.M.O.'s, are seemingly competent to decide what is or is not necessary for the cure or prevention of disease." Of the above-mentioned officers the general alone has the power to decide, though he may take the opinion of the other officers on his staff. The P.M.O. is his staff officer on medical matters, and if this officer is worth his salt, the G.O.C. will be guided by his opinion on medical matters in preference to that of the other staff officers. At least such has been my experience of all general officers under whom it has been my good fortune to serve. With regard to pay. A P.M.O. in India draws about Rs.300 a month more than the selected lieutenant-colonel in charge of the largest station hospital, and of these large hospitals there are very few. In England the difference is not so much, but if the allowances of a full colonel are added, his pay exceeds that of a selected lieutenant-colonel in charge of the largest station hospital. However, an increase of pay at home appears to be called for. It is true that if a P.M.O. in India goes on general leave his pay drops to Rs.1,000 a month, but he can go on privilege leave for sixty days a year on his full pay, which ought to be sufficient for any man who wishes his work not to be subservient to his pleasure.

Pica writes: Whilst sympathizing with "P.M.O.s" hard lot under what he calls Bedlam-like administration, one cannot help noticing the selfish disregard of his juniors which has been the real cause of so many of the troubles of the Royal Army Medical Corps. The Government have at the point of the bayonet been compelled to pay medical officers a minimum living wage. This wage has of course been calculated on the home standard; on arriving in India the young officer finds that the increase in his pay is so little that it hardly meets his increased insurance rate, let alone the increased expense of living; while his friends in the cavalry, gunners, and line are receiving about double what they would receive at home. A lieutenant-colonel of artillery receives at home about £400 a year; a captain R.A.M.C. at home receives roughly the same. If they both proceed to India the colonel receives Rs.1,500 per mensem, the captain Rs.500.

I append a table showing increase of officers' income on proceeding to India. The pay of officers is liable to variation; it depends upon the duty he is engaged upon. The following will be found to be approximately correct. It is compiled from the Pay Warrant and Allowance Regulations:

Rank.	Corps.	Home Pay.	Indian Pay.
		£	£
Lieutenant	Royal Army Medical Corps	320	500
Captain	Royal Army Medical Corps	350	600
Major	Royal Army Medical Corps	605	600
Lieutenant	Army Service Corps	300	400
Captain	Army Service Corps	420	500
Captain	Royal Engineers	365	720
Captain	Royal Artillery	240	420
Captain	Indian Army	—	540
Major	Indian Army	—	740

Is "P.M.O." correct in describing the Government as Bedlamites? I think the Government played a pretty hand when they compiled our pay; but as for our own ability to guard our interests—well, the above table will allow any one to form their own conclusions.

MEDICO-LEGAL AND MEDICO-ETHICAL.

"DR. MASINA'S HOSPITAL," BOMBAY.

We have received a report of "Dr. Masina's Hospital," Bombay, for the year 1905, issued in English and Gujeratee, together with a printed copy of an official correspondence which passed in 1902 between Mr. H. M. Masina and sundry officers of Government relative to a lectureship on diseases of the ear, nose, and throat connected with the Grant Medical College and the Sir Jamsetji Jijibhoy Hospital. It appears that an arrangement was made between Colonel Hatch, principal of the College and Senior Surgeon to the hospital, and Mr. Masina, that a Professorship of Diseases of the Ear, Nose, and Throat should be established, and His Highness the Gaekwar of Baroda gave a donation of Rs.5,000 for this purpose. Mr. Masina seems to have had some concern in the offer of this sum. At any rate he acknowledges that his appointment to the proposed Professorship was one of the considerations which induced His Highness to give the money. Accordingly he was nominated to the post, and a salary of Rs.200 a month was proposed. This would have used up the money in two and a half years, but evidently more was expected from the same source. Mr. Masina laid down certain conditions on which he was prepared to accept the office, and proceded to Vienna and London to qualify himself for its duties. The Surgeon-General reported to the Government of Bombay on the matter, and a resolution was issued accepting Mr. Masina's candidature, but reducing the remuneration to Rs.1,000 a year, defining the office as a lectureship, and indicating certain facilities for clinical instruction which the officers of the hospital were directed to afford. Mr. Masina did not approve of these arrangements, which he considered derogatory and humiliating, and tendered his resignation, which was accepted. The correspondence covers eighteen quarto pages, and is rather unpleasant reading. On the part of Mr. Masina it reveals a spirit of egoism and self-assertion, and a decided inclination to rail at the Indian Medical Service, which seems to be a perpetuation of the carping Bahadurji tradition. On the other side the tone is civil and friendly. Mr. Masina is a Licentiate of Medicine and Surgery of the Bombay University, and a Fellow of the Royal College of Surgeons of England. He held for thirteen years the office of Honorary Surgeon in the Jamsetji Jijibhoy Hospital, was a tutor in surgery in the Grant Medical College for fifteen years, and examiner in anatomy and surgery for the Bombay University for four years. He seems, therefore, to be an able and prominent practitioner of Bombay, and appears to have been successful in private practice. The hospital which bears his name was started in 1902. The aims and objects of its foundation are said to have been explained in the reports for 1903 and 1904, but from the information conveyed in the report for 1905 it seems to be an anomalous sort of institution. It is defined to be a private hospital, "to a certain extent a charitable institution." The work is carried on in two rented houses, one being a general, and the other an obstetric, hospital, and a third house has been rented for a convalescent home. These buildings accommodate 90, 35, and 20 patients, but the number lodged falls considerably short of these figures. The founder, owner, manager, and principal medical officer is Mr. Masina, and the place is run by him mostly on the pay principle, patients contributing according to their means. In 1905 815 persons were treated, of whom 578 paid more or less, and 237 were free patients. Over 80 per cent. of the patients were Parsees, the remainder being Hindus, Mohammedans, and Christians. The number of midwifery cases was 362, and of operations 357. As far as can be gathered from the statistics, which are somewhat vague, the work of the hospital seems to have been active and successful. Outdoor relief is given, apparently gratuitously. The institution is supported mainly by the Parsee community, and it is carefully explained, in order to obviate decrease in Parsee donations and subscriptions, that patients of other castes and sects are provided for by money obtained from these. The profit earned by the hospital, or the excess of payments by patients over cost of keep, is credited to Mr. Masina, as well as fees received on account of professional services rendered by him. The money thus obtained is spent on the hospital, and Mr. Masina claims credit for not taking it; in fact, he says that the hospital is run at a loss to him. The hospital may and probably does accomplish good work, but in view of its charitable or quasi-charitable character it would seem preferable to place it under the control and management of a Board composed mostly of non-professional public men. Funds for endowment and building are being collected, and these are very properly placed in the hands of trustees. We would strongly advise Mr. Masina to alter the name of the hospital, place it under lay government, and strictly limit himself to purely professional duties.

FEE FOR ASSISTING MIDWIFE.

A correspondent asks what steps should be taken to recover a fee when summoned by a midwife to assist in a maternity case, the patient being too poor to pay anything.

*** It is difficult to see how a fee could be recovered under such circumstances.

THE OBLIGATION TO ATTEND.

Dr. C. A. K. Renshaw writes that it is a well-established fact that it is open to any medical practitioner to refuse to attend a case when summoned, but he wants to know what his position would be if, having gone at the first urgent summons, he declined to go a second time on account, for example, of the unlikelihood of his being paid for his services. He thinks that the clearing up of this point would be of wide interest in his neighbourhood.

*** No liability to continue in attendance is involved in the compliance with an urgency call, but if the practitioner summoned thinks that the case will require further medical treatment and does not wish to go again, he should tell the friends that they must make other arrangements for the future treatment of the case.

DISSOLUTION OF PARTNERSHIP.

Urgent.—A. and B. are in partnership. For certain reasons A. gives B. the required notice that he wishes to dissolve. After a few days A. changes his mind and sends B. a note saying he had decided not to dissolve. There is nothing in the deed saying that once notice had been given it cannot be withdrawn. Can B. legally make A. adhere to the original notice?

*** If A., in accordance with the deed of partnership, gave his partner B. a notice of dissolution, and if B. at the time accepted the same, A. has no power to withdraw the notice. As a rule, a notice of dissolution given in accordance with the terms of the deed *ipso facto* puts an end to the partnership under conditions which should be accurately and clearly laid down in the deed.

PROFESSIONAL RESPONSIBILITY.

Dr. Charles J. J. Harris.—Just as our correspondent doubtless claims to have acted conscientiously and in what he believed to be the best interests of the patient, so he must credit his colleague with like motives. There cannot be an absolute rule that no part of the body may be amputated when it is possible by other means to effect a cure, as among the working classes there may be good reason for preferring a speedy cure to a course of treatment which would have involved longer postponement of working efficiency, and as the part in question was a toe, the patient's request to have amputation performed does not seem to have been unreasonable. Finally, as our correspondent declined to operate, his colleague was at liberty to take over the case, especially as our correspondent had discharged the patient from his wards.

PRINCIPALS, *LOCUM TENENTES*, AND MEDICAL AGENTS.

Retrospect writes: During the last thirty years I have acted, in order of time, as *locum tenens* for about three years, have been a principal for nearly twenty-three years, am now acting again as *locum tenens*, and in a few weeks intend to enter on another practice on my own account, so my experience has been varied and extensive. I have engaged gentlemen to act for me as *locum tenens*, and have acted as such myself. First of all, with reference to medical agents and their fees, my opinion both from the principal and *locum tenens*' point of view is this, that the fairest and most satisfactory offices to deal with are those which charge a uniform fee of half a guinea to each side. The principal who is willing to pay his share of the fee as a rule secures a more reliable and trustworthy representative in his absence, while, on the other hand, the agents who do not charge the principal usually take care to exact a larger fee from the *locum tenens*, especially when the engagement extends to a month, or over that period. This system, needless to say, tends to drive many good *locum tenentes* away, only to seek engagements through those offices where the principal pays half the office fee. Writing now as one who has been and about to become a principal again, I may be allowed to say that a reliable and trustworthy *locum tenens* soon knows his worth, and how his services have been appreciated and sought after by those he has acted for; consequently he resents having to pay a larger fee than half a guinea for an engagement, especially when tips to servants in each house when leaving, and other expenses, such as living in an hotel in town when disengaged, are taken into consideration.

MEDICAL COMMUNICATIONS TO THE LAY PRESS.

T. R. Macdonald.—We agree with our correspondent that as a general rule medical men should not send communications on professional subjects to the lay press, but there are matters which it may be the duty of medical men to bring before the public. We are disposed to regard a short note on the diminished death-rate from phthisis based on an examination of the Register, and a reminder of the part played by improved sanitary conditions in producing this desirable result, as likely to be useful, and, at any rate, unobjectionable from a professional point of view.

REVIEWS OF MEDICAL BOOKS IN THE LAY PRESS.

E. C. BARNES.—There is no definite rule against sending medical books for review to the lay press, and instances might be quoted from the highest quarters. No censure, therefore, can be expressed in regard to the case sent by our correspondent, although we agree with him that it would be much better if there were a rule that books dealing with the diagnosis and treatment of disease should be sent for review only to the medical journals.

CIRCULARS TO PATIENTS.

J. R. E. AND ETIQUETTE.—Circulars may be sent to patients on the purchase or sale of a practice or of a death vacancy, or to intimate a change of address, and we think they might be so worded as to serve both purposes. The main point is that care should be taken that they do not go to the patients of other practitioners.

MULTIPLE DOOR-PLATES.

THOMAS RICHMOND, L.R.C.P.E., writes to thank us for the "definite pronouncement" made on this subject, and suggests that the Branches or Divisions should take action in some form against those doctors who have several name-plates on property other than their own immediate residences.

*** We would suggest to our correspondent that he should send to the Medical Secretary particulars of cases known to him, not for publication or for the purpose of action being taken, but in order to afford the Ethical Committee evidence of what is going on. The more common the practice the less justification would there be for anything like public censure of individuals. Any improvement must come from raising the general standard of professional opinion.

MEDICAL MEN AND MIDWIVES.

FORCEPS.—The question of advertising by midwives is one for the Midwives Board; so long as a midwife is on the Register we do not think the General Medical Council would consider a charge of covering in relation to her. The conduct of the practitioner may be brought before his Division, and the midwife reported to the Board for misconduct, provided proper evidence can be obtained to support the charges made.

THE ETIQUETTE OF CONSULTATIONS.

E. F. M. writes: A. is attending B.; B. writes to C., a consultant, asking him to see her, and C. appoints the following day, telling B. to ask A. to meet him. This A. is unable to do, owing to a previous engagement, and of this C. is informed; nevertheless he pays the visit, and afterwards calls on A., although he knows that A. is out. A. asks: Is this action on C.'s part in accordance with medical etiquette?

*** In our opinion C. was wrong to fix a time for his visit without communicating with A. to ensure the arrangement being possible to both; or when he knew that A. could not attend, he should have proposed another time. All that he did afterwards was vitiated by this initial mistake, but we assume that his call on A. was inspired by the hope that he might find him at home, and that by an explanation things might be put right.

THE PURCHASE OF A DEATH VACANCY.

A DOCTOR buys a practice which is a death vacancy. Is it usual for the instruments to be included in the practice thus sold, they not being mentioned separately or previously? The widow selling her late husband's practice gives no introductions to the patients in any way whatever.

*** If the death vacancy were of little value it would be quite reasonable on the part of the buyer to stipulate that the instruments, drugs, etc., should be included in the price paid. But if a sale has been completed without any mention of instruments, drugs, etc, the buyer cannot claim to take them on any ground of equity, even if he finds the value of the practice to be less than he thought it was.

DEATH CERTIFICATES.

YORKSHIRE wishes to know whether there is any legal obligation on a medical practitioner to fill in the spaces of a death certificate.

*** A medical practitioner who has attended a patient in his or her last illness is under a legal obligation to furnish the registrar of the district with a certificate certifying to the best of his belief the cause of the death. In filling out this certificate he may use his own words, and is not compelled to follow any directions laid down as to spaces on certificate. These directions, however, emanate from the Registrar-General, and it would be much better if all medical practitioners followed them, as it would make it possible for a much more scientific table of the causes of death in this country to be drawn out.

THE PUBLIC ADVERTISING OF MEDICAL CLASSES.

OBSCURE sends us a cutting from a Glasgow newspaper containing a long advertisement of the post-graduate classes to be held this autumn at the Glasgow Royal Infirmary, in which the names of the lecturers are displayed in capital letters. He comments on the appearance of this advertisement in a lay newspaper where it comes under the notice of the public, while, he says, it has not appeared in the medical papers. He asks our opinion, and adds: "Those members of the staff of the Royal Infirmary who figure so prominently in this post-graduate show are generally regarded as perfect martinets in the matter of public medical advertising."

*** We agree with our correspondent that it is undesirable that the names of the lecturers should have been published in this advertisement, if it was deemed necessary to insert it at all in the lay press. It sets a bad example to those who have greater temptations to seek practice by undue means.

ACTION OF A SUBSTITUTE.

PERPLEXED acted quite rightly. He should not spoil the effect of his just conduct by any shade of regret that he did not try to keep the patient. He is, of course, entitled to be paid for such services as he rendered.

INSURANCE OF CARRIAGE.

VICTORIA writes that he keeps his carriage at a livery stables from which he has horse and man by the hour. He asks what is his liability, and should he insure?

*** Our correspondent ought to see that the jobmaster is properly insured against losses by fire; he would be wise, too, if he came to a distinct understanding with the jobmaster that the man-servant sent to drive him was the latter's, and not the doctor's, servant. The worst claims arising in a doctor's work are those for damages caused by the groom driving over some person, and these would have to be paid by the doctor unless he could show that the defendant was not his servant.

PUBLIC HEALTH
AND
POOR-LAW MEDICAL SERVICES.

GLYCERINATED CALF LYMPH.

A PRELIMINARY report on the results of sustained subjection of glycerinated calf lymph to temperatures below freezing point has been presented to the Local Government Board by Dr. Frank R. Blaxall and Mr. H. S. Fremlin. The experiments were, in the first instance, undertaken to determine whether the active agent of vaccine lymph could withstand without loss of potency temperatures below the freezing point. Afterwards they were directed to ascertain whether sustained subjection of glycerinated calf lymph to a temperature 5° C. below freezing point could be utilized as a means of maintaining a reserve and store of lymph without risk of loss of its specific activity. The experiments were commenced in January, 1900. The conclusions arrived at are as follows:

1. In glycerinated lymph, the active agent of vaccine not only can withstand freezing, but can survive a temperature 180° C. below freezing point for a considerable time, and this without loss of potency.

2. Glycerinated lymph can be retained in a cold store at − 5° C. for a year without diminution of its potency, whereas glycerinated lymph, stored at 10° C. for a year, parts with its activity to an uncertain but considerable extent.

3. Sustained subjection to cold appears to be in no sense hostile to the active agent of vaccine; that, on the contrary, lymph thus dealt with was capable of producing excellent vesicles on calves, and that the results obtained with it in human vaccination were wholly satisfactory.

PUBLIC MORTUARIES.

AT an inquest in Battersea on September 4th, the Coroner remarked on the deficiencies of all public mortuaries in London in respect of provision for keeping bodies in a fit state for examination. In the Paris Morgue, as also in some hospital *post-mortem* rooms, a freezing apparatus was provided, but he did not suppose that this very necessary arrangement would be found in the public mortuaries of London so long as there was such a remarkable division of authority. At present one

authority appointed and paid the coroner, another paid for his court, a third provided the mortuary, and a fourth paid for the burial of the corpse. Hence there was continued confusion, and no one was in a position to provide everything required for the proper conduct of an inquest.

WEI-HAI-WEI.

From the Colonial Office Report on Wei-hai-Wei it appears that health conditions in the territory are very satisfactory. There has been no serious disease during the year; among the Chinese contagious disease is rare, and usually of a mild character. Even minor ailments are uncommon, and the health of the white residents and visitors has been exceedingly good. A slight outbreak of small-pox occurred in the city itself, but did not spread, free vaccination being carried out by Government vaccinators. The Chinese are at present hardly ripe for compulsory vaccination, the men often refusing it on account of its stopping their work, but their objections are being gradually overcome, and on the island and the adjacent territory some 7,500 persons were vaccinated. There were only six cases of malaria. The disease is not endemic, and no *Anopheles* mosquitos have as yet been found. Almost all the diseases are recorded in the appendix of the statistics of the hospitals as being of a mild type. Enteric has not yet been noted as an endemic malady, and tuberculosis is very rare, being mainly seen in the Japanese, who are stated to be specially prone to it, and particularly to its most rapid forms. Pneumonia and pleurisy are also infrequent. There are two Government civil hospitals, which admitted 116 in-patients and 5,797 out-patients during the year. The Chinese are beginning to realize their utility, and to increase their confidence it is proposed to train four natives of Wei-hai-Wei in the practice of Western medicine. The meteorological returns show a maximum temperature of 93° F. in July, and a minimum of 12° F. in February. The rainfall is about 40 in., the rainy season being from July to October. The climate is a good one, and is considered as peculiarly suitable to fruit growing, and it is hoped that the territory may eventually become a main centre for the growing of orchard fruit for Shanghai and other ports.

INCIDENTAL EXPENSES OF COUNTY MEDICAL OFFICERS OF HEALTH.

When the Local Government Act of 1888 enabled the newly created county councils to appoint specially qualified medical advisors, no statutory provision was made for the adequate remuneration of these officials, nor was the county authority required to provide any clerical assistance or office accommodation, or to refund any out-of-pocket expenditure necessitated by official business. It was no doubt felt by those responsible for the framing of the Act that the county councils would look at the question in a broad-minded manner, and would not deal in a niggardly spirit with gentlemen who, it was hoped and intended, should be of high standing in their profession. To their credit, be it said, most of the county councils who have appointed medical officers of health have fulfilled this anticipation. In the case of some councils, notably that of the West Riding of Yorkshire, not only clerical but professional assistance has been freely given to the county medical officer of health, and he has been provided with ample office accommodation. The travelling expenses and other disbursements of the medical officers have been variously treated by different councils. In some counties, such as Worcestershire and Glamorgan, a fixed annual sum is voted for these expenses, while in others the moneys actually expended are refunded. Where the latter system is in operation difficulties have arisen when the county accounts came to be audited, for the auditor requires to see receipts for the amounts said to be paid away. These would obviously be difficult to produce when the payments were for railway or cab fares. This difficulty has arisen in the Surrey County Council, and it is satisfactory to learn that at the last meeting of the Council it was decided to allow Dr. Edward C. Seaton, who has been Medical Officer of Health to the Council since 1891, an annual sum of £150 for the payment of his official expenses, including the provision of an office, the cost of which, amounting to £50 yearly, has hitherto, it appears, been borne by Dr. Seaton himself. This action of the Surrey Council may be commended for imitation by some other county councils.

HEALTH STATISTICS OF ESSEX.

In his annual report for 1905, Dr. Thresh, the County Medical Officer, gives particulars of the vital statistics of Essex Administrative County and a summary of the reports of the different medical officers of health.

The population for the middle of 1905 is given as 941,759 for the whole administrative county, 694,400 for the urban districts, and 247,359 for the rural districts. The most densely-populated districts are in Leyton, East Ham, and Walthamstow, with 40.5, 37.1, 26.8 persons per acre respectively. The average in the urban districts is 6 3 persons per acre, and only 1 person per 3 acres in the rural districts.

Twenty-four thousand nine hundred and sixty-nine births were registered in the county, 18,955 in urban and 6,014 in rural districts. These figures give a birth-rate of 27.3 in urban, 24.3 in rural, and 26.5 for the whole administrative county, showing a still further decline under previous years, the mean for 1890-3 for the county being 28.6

Eleven thousand three hundred and forty deaths were registered in the county, giving a crude death-rate of 12.1 and a corrected death-rate of 11.8. For urban districts the crude rate was 11.7 and the corrected 12.1, and for rural 13.15 crude and 11.3 corrected death-rate.

As Dr. Thresh points out, four remarkably low death-rates have now been recorded in succession—that is, 12.6, 11.9, 13.2, and 12 1 for 1902 to 1905 respectively.

Of the deaths, 1,219 were due to the seven principal zymotic diseases—a rate of 1.29 per 1,000, compared with 1.52 for England and Wales. This rate is well below the average of previous years.

Unfortunately the mortality from cancer is steadily increasing. For 1891-1900 the rate for the county was 0.66 per 1,000; for 1901 it was 0.69, and for the last four years it was 0.68, 0 70, 0.71, 0.76 respectively. When the figures are corrected for age and sex distribution, the cancer death-rate is higher in urban districts.

For tuberculous diseases the rates are almost identical for urban and rural districts—that is, 0.835 and 0.830 per 1,000 respectively. There is no public sanatorium in the county, and voluntary notification is only in force in a few districts.

As regards infantile mortality, the new Local Government Board table supplies valuable information. The three most prominent causes of this mortality in Essex, as elsewhere, were premature birth, atrophy or debility, and diarrhœa. A much larger proportion of premature births occurred in the rural districts than in the urban, and nearly as large a proportion of deaths resulted from atrophy and debility.

Only 3 cases of small-pox were notified during the year. Scarlet fever was especially prevalent, 4,563 cases being notified, a number considerably higher than for any of the previous nine years. The deaths per 100 cases in the urban districts averaged 1.7, and in the rural 2.1. The severity of the disease varied very considerably in the different areas, but on the whole the disease was very mild.

The number of diphtheria notifications (1,453) was well below the average, and in proportion to the population was lower than in any year since notification commenced. It was 1.7 per 1,000 population. The case-mortality was slightly under 10 per cent.

Typhoid fever continues to decrease, and the notified cases during 1905 were only about half the average of the preceding ten years. During 1905, 311 cases occurred in the urban districts, with 53 deaths (fatality 17 per cent.), and 87 cases, with 17 deaths (fatality 20 per cent.) in the rural districts. The decrease is particularly marked in the Thames Valley area, where the larger proportion of cases usually occur.

Measles and whooping-cough were both extensively prevalent during 1905, causing 210 and 244 deaths respectively, in the Administrative County.

In the county, 8 urban districts and 5 rural districts are without isolation hospitals. Dr. Thresh devotes a number of pages of his report to a consideration as to how far isolation hospitals in Essex have justified their existence. From the figures adduced he concludes that as regards prevention of infection they have been in the main failures, almost entirely due to the prevalence of mild cases which escape recognition and notification.

The second part of the report consists of a summary of the reports of the different medical officers of health in the Administrative County.

MIDWIFERY FEES TO MEDICAL OFFICERS.

A District Medical Officer has been engaged to attend two women in their confinements, each of whom produced an order signed by the relieving officer, where the nature of the case was described as "confinement." Both these patients did without the services of the medical officer. The clerk to the guardians declines to sanction payment for these cases. Our correspondent asks, What should the medical officer do?

*** We are not aware of any Poor-law regulation which definitely settles the question as to whether a district medical officer can claim his fee when, after having been engaged for midwifery, his attendance has not subsequently been called for. By the Consolidated Order of July, 1847, however, it would appear that he can have but little legal claim, as the Local Government Board has stated generally that in order to be entitled to a fee for midwifery the medical officer must have attended the case *in or immediately after* childbirth, or so soon after as to be able to render the patient that assistance which is requisite in such cases.

POOR-LAW MEDICAL OFFICERS AND PAUPER HOSPITAL PATIENTS.

Alpha writes in reference to our reply to "Omega" (British Medical Journal, August 18th, p. 398), asking if in such cases as that described the question does not arise whether the proper course is "not to send the patient to the local hospital, but, if available, to the Poor-law infirmary."

"Alpha" further asks whether the guardians are not presumed to make adequate arrangements for the treatment of such cases, and to what extent (if any) should the funds of a hospital be requisitioned in relief of the rates.

*** "Alpha's" letter opens up wide questions which can only be briefly replied to here. Poor-law medical officers, especially those in rural districts, have frequently urgent cases thrown upon their hands, where their responsibility is sometimes extremely serious. Many cases of strangulated hernia may be regarded as belonging to this category. It is often very difficult to convince the poorer class of patients, and not infrequently even the better classes of the public, of the necessity of regarding all cases of strangulated hernia as being of urgent and grave character, but under such circumstances it is the first duty of the medical attendant to take care that the plan adopted for the relief of these patients is that which is best adapted to safeguard the lives of the patients. In the absence of information to the contrary, we are ready to assume that "Omega" did, in the case in question, full justice to his patient by having him removed to the nearest general hospital where the necessary treatment could be adopted, and this with little or no delay. We are very much inclined to question whether the general arrangements of Boards of Guardians in rural districts are really such as to enable cases of strangulated hernia always to be dealt with in the way that the urgency of the case demands, and beyond this is the fact that it might be verging on an infringement of statute law if arrangements were made for sending all pauper cases requiring operation to a parochial or union infirmary on that account. The spirit of the advice emanating from the Local Government Board on this point has hitherto certainly been of adverse character. "Alpha's" last question as to the propriety of the funds of a general hospital being requisitioned for the relief of the rates cannot be discussed here for want of space.

DISTRICT MEDICAL OFFICER AND PUBLIC VACCINATOR APPOINTED MEDICAL OFFICER OF HEALTH.

J. C. N., who is a district medical officer and public vaccinator, says he has just been appointed medical officer of health to the rural district council, and the Local Government Board require that the district medical officer should *not* hold the health appointment. He asks if he can retain the vaccination appointment when he resigns the district medical officership.

*** The resignation of the appointment of district medical officer does not necessitate the giving up of the position of public vaccinator. Our correspondent, however, should remember that the last-mentioned engagement with the guardians was effected by a special contract, the terms of which enable either of the parties concerned to put an end to the contract at any time, by giving to the other party twenty-eight days' notice in writing of their intention to end it.

DISTRICT MEDICAL OFFICER AND BOARDED-OUT CHILDREN.

J. R. A., to whose previous communication we replied (BRITISH MEDICAL JOURNAL, August 11th, 1906, page 336), writes again saying that he has since been informed by the Chairman of the Boarding out Committee of his union that the guardians have dispensed with the quarterly visits of the district medical officer to these boarded-out children, and that they have thereby saved the expense of such visits. This being so, he asks whether these guardians can call upon him to attend such children, who do not properly belong to his district, without extra remuneration.

*** We assume that our correspondent has entered into a contract with the guardians of his union to attend all paupers *residing in his district* when called upon to do so by a written or printed order of the guardians, or by a relieving officer of the union, or by an overseer; and, if this assumption is correct, it must be evident that any or all boarded-out children (if they belong to his own union) can, while residing in his district, claim his medical attendance when ill, and this without extra remuneration. To enable them to do this, however, they ought to be provided with the necessary written or printed authority from a relieving officer or overseer. The question as to the propriety of Boards of Guardians dispensing with the usual quarterly visits of the medical officer to boarded out children is a wide one, and as to it there is much difference of opinion. The plan is, we believe, only exceptionally adopted; it has not the approval of all, even if it has that of any, of the inspectors of the Local Government Board, and it is far from having gained our own commendation.

POOR-LAW MEDICAL OFFICER.—We understand that the grievances of our correspondent have already been considered by the out-door medical staff of his parish council, by the Council of the Scottish Poor-Law Medical Officers' Association, by the Council of his Division of the British Medical Association, and by the members of his Division, and that they are at present under consideration by his Branch. We can only advise our correspondent to abide by the decision of the bodies which have had his case under consideration.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF MANCHESTER.

FROM the annual report of the Vice-Chancellor of this University for the year 1905-6 we gather that the total number of students in the Faculty of Medicine was 307. Of these, 169 were working in preparation for the degree examinations of the University, 14 for the University of London, 8 for other universities, including Cambridge, Edinburgh, and Glasgow, 8 for the Fellowship of the Royal College of Surgeons of England, 52 for the examinations of the Conjoint Examination of the Royal Colleges of Physicians and Surgeons of England, 8 for the triple qualifications of the Scottish Colleges. There were 27 students in the dental department, 4 in the pharmaceutical school, and 25 in the department of public health. There were 12 women students in the Faculty of Medicine. We note with satisfaction that the Council of the University is now proceeding with the erection of a new hall of residence for the accommodation of about forty students. Allusion is made in the report to the valuable work done by the Committee of Publications in the issue of several new medical works.

HOSPITAL AND DISPENSARY MANAGEMENT.

SOMERSET AND BATH ASYLUM, WELLS.

THE annual report for the year 1905 of Dr. G. Stevens Pope, the Medical Superintendent of this Asylum, shows that on January 1st, 1905, there were 907 patients in residence, being 8 in excess of the numbers at the beginning of the previous year. By December 31st, 1905, the number had, however, dropped to 750 on account of a considerable transference of patients (75 male and 79 female) to the Cotford Asylum, whose extensions were completed in April, 1905. During the year 188 patients were admitted, of whom 159 were first admissions. In 74 cases the patients were the subjects of first attacks within three, and in 22 more within twelve, months of admission, 30 were not-first attacks within twelve months of admission, and the remainder were either of more than twelve months duration (42), congenital cases (11), or of unknown duration (9) on admission. The admissions were classified as to the form of mental disorder into: Mania of all kinds, 66; melancholia of all kinds, 49; dementia, mainly senile dementia, 34; general paralysis, 9; acquired epilepsy, 10; and cases of congenital or infantile defect, 20. With reference to the probable causes of insanity, the following etiological factors are recorded in the statistical tables: Alcoholic intemperance in 12, or 6.3 per cent.; venereal disease in 7; old age in 30; change of life, 7; previous attacks, 37; hereditary influences were ascertained in 37; and congenital defect in a further 19; in 35 no cause could be assigned, and in 28 the insanities were ascribed to various "moral" causes. During the year 87 were discharged as recovered, giving the unusually high recovery-rate, for a county asylum, of 50.8 per cent. on the admissions; 167 as not improved (mainly to the Cotford Asylum), and there were 91 deaths. The deaths, giving a death-rate on the average numbers resident of 11.1 per cent., were due in 31 cases to cerebro-spinal diseases, including 12 deaths from general paralysis; in 15 cases to chest diseases, excluding 9 cases of pulmonary consumption who are given in the list of general diseases; 24 to senile decay; 16 to general diseases, including 9 cases of tuberculosis of lung and 1 of another form of tuberculosis; 3 to Bright's disease, 1 to strangulation of bowel, and 1 to Addison's disease. There were no deaths from accident, but three inquests were held, in all cases death being found due to natural causes. The general health throughout the year was satisfactory both as regards patients and staff, though there were several cases of dysentery, three of which ended in death, and eight casualties sufficiently serious to be reported. Neither mechanical restraint nor seclusion had to be resorted to during the year.

A BELGIAN RADIOGRAPHICAL SOCIETY.—A medico-radiographical society has recently been founded in Belgium. The president is Dr. De Nobele. There are in Belgium more than forty medical practitioners who have taken up radiography as a speciality.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original Articles and Letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone, unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any Circumstances be Returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the EDITOR of the British Medical Journal is *Attiology, London.* The telegraphic address of the MANAGER of the British Medical Journal is *Articulate, London.*

Telephone (National):—
EDITOR, 2631, Gerrard. GENERAL SECRETARY AND MANAGER, 2630. Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

C. L. G. would be grateful for any information about the sanatorium at Brixen in the Tyrol.

Dr. Corben (Chepstow) would be glad to be informed what is the best literature on the physical aspect of the responsibility of: (*a*) Parents; (*b*) the State towards children.

A Member whose wife suffers from rheumatoid arthritis would be much obliged if any other member could advise him as to a suitable place in Cornwall for her to winter.

Wanderer would feel much obliged if any member could inform him what line of steamers ply along the Mediterranean that take a ship's surgeon on the voyage. He is desirous of having a change for a month down the Mediterranean, and thinks possibly he might be able to obtain a ship's surgeoncy for the trip.

Sussex will be grateful for suggestions as to where a doctor's widow of limited means can find an environment abroad suitable for herself and daughter, who is asthmatic and emphysematous. They would have to reside there permanently, means not being sufficient to permit of wintering only. Would prefer not to be too far from England.

Madame will be very grateful for any information regarding Shanghai from any reader who has been in residence in that place. The chief points are regarding: (1) Climate; (2) sanitation; (3) diseases prevalent; (4) living and house rent expensive? (5) suitable place for an English doctor; (6) what society; (7) any special dangers that one must avoid.

Ptosis writes: Referring to Sir James Barr's excellent lecture in the British Medical Journal of August 25th, would he or any other reader say what, if any, treatment should be adopted in the state of arterial relaxation? I have a patient aged 40, thin, in whom for the last eighteen years the carotids have pulsated visibly, while the left temporal pulsates visibly and is extremely tortuous. There is no murmur and no hypertrophy. He was many years ago a heavy drinker and smoker. His health is fairly good, though he is not a robust man.

The M.D. Brux.

A correspondent writes that there is an impression in the minds of some that the M.D. Brux. granted to practitioners after examination is not quite a sound one. He would be glad of an expression of opinion on the point.

*** Such an impression is nearly certain to arise in some quarters, because the degree is a foreign one, and as such cannot be registered. There is, however, no true ground for this impression, the soundness of the examination for the M.D. Brux. being quite equal to that of the medical examination held at other Continental universities for their medical degrees.

Admission to the Bar.

D. P. H. would like to know some particulars concerning the examinations for barrister-at-law, including the curriculum, fees, etc., required.

*** To become a barrister it is necessary to become a member of one of the Inns of Court. They are four in number—Lincoln's Inn, Middle Temple, Inner Temple, and Gray's Inn—and the fees payable at each are about the same, except that Lincoln's Inn is slightly more expensive, and Gray's Inn a little cheaper than the others. When the Inn has been decided upon the candidate must get a form of recommendation signed by two barristers of the Inn, and he must himself sign a statutory declaration that he labours under none of the disabilities there scheduled; he must also pay entrance fees to the amount of about £40, and deposit either £100 as a security for commons, etc., which will be returned to him on his "call," or, if a university man, he may furnish a security to this amount, in the shape of a bond given by any respectable householder. After completing these preliminaries the candidate becomes a member of his Inn. He must now before being "called" keep twelve terms, and, as there are only four terms in the year, three years must elapse from the time of entering the Inn before he can be "called." To keep a term it is necessary to dine six times in the common hall of the Inn during that term, but if a university man the candidate need dine only three times. Two professional examinations must also be passed: one in Roman law, and the other in the various branches of English law—namely, equity, common law, the law of personalty and realty, and the principles of evidence; there is also an examination in constitutional English history. After passing these examinations, and keeping twelve terms, the candidate is entitled to his "call," but it is necessary to get a Bencher of the Inn formally to propose it. The fees payable on being "called" amount to nearly £100.

ANSWERS.

H. M.—*Hypnotism: its History, Practice, and Theory.* by Dr. J. M. Bramwell (London: Grant Richards, 1903, 18s.), might meet our correspondent's requirements.

Dr. S. H. Robinson.—(1) We are unable to add anything to the statements made in the abstract of Dr. Moschcowitz's paper on the preparation of dry iodine catgut which appeared in the Epitome of February 24th, 1906. (2) We cannot give any information about the insurance company as to which our correspondent asks. As, however, there are so many reliable companies in this country, we should strongly advise him to have nothing to do with an unknown company.

Golden.—The following list may meet our correspondent's requirements: *Deaf-Mutism.* By J. K. Love, M.D., and W. H. Addison, A.C.P. Glasgow: J. Maclehose and Sons. 1896. 9s. *Lessons for Deaf and Dumb Children.* By W. Van Praagh. London: Published by the Author, 11, Fitzroy Square, W. *Education of Deaf-Mutes.* By Thomas Arnold. In two volumes. Northampton: Published by the Author, 27, St. Paul's Road. *Exercises in Articulation.* By Arthur Kinsey. London: W. H. Allen and Co.

Instruction to Stretcher Bearers.

Surgeon-Captain.—For the first-aid part of the instruction our correspondent would find the following useful: The official *First Aid* textbook of the St. John Ambulance Association (1s. 6d.); *First Aid in Accidents,* by Collie and Wightman, published by G. Gill and Sons, 13, Warwick Lane, E.C. (9d.); and *First Aid to the Injured and Sick,* by Warwick and Tunstall, published by John Wright and Co., Bristol (2s. 6d.). For stretcher drill the following may be recommended: *A Manual of Ambulance,* by J. S. Riddell, C.M., M.B., fifth edition. London: C. Griffin and Co., 1904 (4s.) *Stretcher Drill Illustrated,* by J. J. de Zouche Marshall, second edition. Teddington: Published by the Author, 1904 (3s.).

Lamp for Motor Car.

Dr. J. L. Rentoul (Lisburn) writes: In answer to "Caccus," I can assure him he can with safety and comfort convert his two oil side-lamps into acetylene ones. I have used a 5-h.p. automobile car for almost two years with acetylene side lights and find no inconvenience. A friend of mine who "puts up" his car in my yard uses the same light in similar positions. His car is a 6-h.p. De Dion. I have not had the slightest trouble with my lights, nor have they in any way caused "dazzling" of my sight. "Caccus" can with little expense get his oil lamps converted into acetylene ones if he uses one "generator" for his two lamps and takes the gas from it to lamps. This is what I did in my case.

Dr. S. C. Ironside (Fochabers, N.B.) writes: With reference to "Caccus's" letter asking for advice as to a head-lamp for his 6-h.p. De Dion, I can recommend Lucas's "Autolite," which with bracket (easily fitted by any blacksmith) costs £5 5s. It gives quite a sufficient light for any one not wishing to travel over twenty miles an hour.

Motor Cars for Medical Men.

Dr. E. G. A. Walker (Ightham, Kent) writes: Seeing an inquiry in the British Medical Journal of August 18th from "Member" as to a good reliable car for a medical man, I can confidently recommend the "Cadillac." I bought one this year, and have now run 1,500 miles and have had no involuntary stop; the car is very easy to drive and look after, my coachman having been the only person

who has ever attended to it. It is economical to run, as I get an average of twenty-six miles in this hilly country on a gallon of petrol. The price also compares very favourably with most cars, and for absence of noise and vibration it is truly remarkable.

ALCOHOL.

ETHYLIC.—The following list may be of use to our correspondent: *Narcomania*, by Norman Kerr, third edition (London: H. K. Lewis, 1894, 7s. 6d.); *Scientific Valuation of Alcohol in Health*, Major O'Gorman, M.D., 1s. 6d.: *Alcohol and Public Health*, Dr. J. J. Ridge (London: H. K. Lewis, 2s.); yearly volumes of the *Medical Temperance Review*, 2s. 6d. per annum; the *Scientific Temperance Handbook*, by F. R. Cheshire, F.L.S., F.R.M.S., 3s.; the *Rôle of Alcohol*, Professor E. McD. Cosgrave, 3d. The following are published by the Lees and Raper Memorial Fund, 20, Tothill Street, Westminster, S.W.; (1) *The Effect of Alcohol upon the Human Brain*, by Sir Victor Horsley, 4d.; (2) *Recent Researches on the Action of Alcohol in Health and in Sickness*, by Professor G. Sims Woodhead, 4d.; (3) *Labour and Drink*, by the Right Hon. John Burns, M.P., 4d. Mr. Burns is also the author of *Brains Better than Bets or Beer* (London: Kent and Matthews, 180, Wandsworth Road, S.W.).

EMBALMING.

IN reply to "Omega," the representative of the Anglo-American School of Embalming writes: We should advise your correspondent to communicate with the Buckhout and Breed Chemical Company, Limited, of 45, Grafton Street, Tottenham Court Road, London, W., who own and control the Anglo-American School of Embalming, which teaches the art of the sanitary preservation of the dead, as practised very extensively in the Western Hemisphere. The system is simple, convenient, and effective, altogether lacking those disagreeable features accompanying the science as practised in former years. The above school grants diplomas to pupils who pass their examination. The classes are held usually in terms consisting of about three or four weeks, much depending upon the number attending. The fee is £5 5s. for the course. At the present time no classes are in prospect in the North of England, but they undertake to teach privately without extra fee at their offices in London. The British Embalmers' Society, which has branches throughout Great Britain, grants certificates to those who pass their examination only. Full particulars can be had of Mr. H. A. Sherry, Secretary, 1, Upper Park Place, London, N.W.

NOTES, LETTERS, Etc.

DIPLOMA IN PUBLIC HEALTH.

WE are requested to add the Royal Institute of Public Health to the lists of places approved for laboratory instruction for the diploma in Public Health given in the BRITISH MEDICAL JOURNAL of September 1st, p. 520 and p. 524.

SUNSTROKE OR WASP STING?

NOT A JUNIOR writes: The following experience has a special interest at this time and season. On Saturday, September 1st, at about noon, I was stopped by a policeman and asked to look at a man who had just fallen in a fit in a shop close by. I found a stout, very red-faced man of about 40 years of age, lying unconscious on the floor of a small shop, with a number of people standing over and fanning him. He was rather cyanosed and breathing stertorously. The woman in the shop said he was a country carrier (his horse and cart stood outside), and had brought a parcel into the shop, and that he was then stung by a wasp, for which they applied soda, and the next minute the man fell on the floor and became unconscious at once. On examination, I found he was breathing at about six to seven a minute, getting rapidly cyanosed, and with no perceptible pulse at the wrist. On auscultation, I could hear faint tictac-like sounds, about 120 to the minute. His eyes were closed, conjunctivae insensitive, pupils about usual size but insensitive to light, eyes turned sharply to left and fixed; limbs flaccid. I expected to see the man die very shortly. The thermometer stood at 90° (this is no exaggeration, as records in various places show). The man's appearance was that of a plethoric alcoholic subject, and he had driven in about eighteen miles that morning. It looked like a clear case of sun or heat stroke, in a thirsty subject and on a thirsty day. I sent for some ice, which was to be had close at hand, and packed it round his head, and while it was being fetched I bled him from the arm about 5 oz. to 10 oz. He did not bleed as freely as I wished. In about twenty minutes he showed signs of revival—not in his appearance, but by slight restless movements, and the limbs, which had been flaccid, became somewhat rigid. In ten minutes more he was breathing about 15 a minute, and was beginning to groan. I then left him, instructing the constables to take him to the hospital in the ambulance in half an hour. About an hour later I saw him at the hospital. He was shouting and struggling violently and persistently, and yet aimlessly. He is a powerful man, and it took four to keep him on the bed. He then had no perceptible pulse at the wrist. The house-surgeon then took about a pint of blood from him on my instructions. In the evening I saw him in a quietly delirious state, his pupils somewhat dilated (? loss of blood). The next morning he was more rational, but dazed. He told me he had had headache, but I could get no more out of him. This morning I saw him: he is quite himself, and feels pretty well, and wants to get up. He tells me he has no recollection of anything after entering the shop; *that he is and always has been a total abstainer* (corroborated), and that he has been stung by wasps five or six times before and on each occasion he has become unconscious for some hours, and has been delirious afterwards. The man's appearance and occupation, and the heat, combined together to mislead me badly, and I have reason to feel thankful that the man has not suffered by the treatment.

WEAVER STING.

SURGEON E. B. KENNY, M.B., R.N. (H.M.S. *Redbreast*, East India Station), writes: In the BRITISH MEDICAL JOURNAL of July 7th, p. 23, there is a note on the treatment of weaver sting by H. Muir Evans, M.D. It interested me very much, as last year, off Hastings, I was fishing and had the misfortune to hook a weaver, and not knowing the venomous properties of this fish I got stung on the inner aspect of the left thumb. The wound was small and bled fairly freely, and at first did not trouble me much. In about fifteen minutes the pain was very severe, and the amount of local disturbance was very much in excess around the wound. I immediately went below, bound a handkerchief tightly round the wrist, opened up the wound with lancet and put crystals of pot. permang. into it. Meanwhile the pain was so intense that fainting almost occurred. I left the handkerchief and crystals in position for about half an hour, when the pain became less. The wound bled freely meanwhile. Finally I fomented the wound with boric acid lotion and put on a bandage. The pain kept up to some extent for about three hours. Next day there was a slight enlargement of glands in the axilla, but there was no pain. The inflammation around the wound had subsided, and no further trouble occurred, except that the wound, which was very superficial, took several days to heal. Fortunately none of the other members of the ship's company suffered, although several weavers were subsequently caught. The fish referred to is not more than 6 in. or 8 in. long and very prettily marked. The spine which caused the trouble in my case was situated at the posterior part of the gill. The saving condition in this case was the prompt treatment, and unwittingly I averted serious trouble, since I was unaware that poisonous fish of any kind frequent home waters. On inquiring locally I learned that several weavers had been caught during the summer and that one or two fishermen were treated in hospital, having had serious trouble from the venom.

PRACTICE IN CEYLON.

AN ordinance was passed by the Legislative Council of Ceylon in July, 1905, and approved by the Governor on the last day of the same month, bringing into existence a medical register. This ordinance has now come into force, the register being kept by the Ceylon Medical College. Admission to the register is essential for all persons who desire to obtain legal standing as qualified medical practitioners, and any person not registered who takes or uses any title implying that he is qualified, or who practises or professes to practise for gain, is made by the ordinance guilty of a punishable offence. The only exception is in the case of persons who practise medicine according to native methods; they are allowed to continue to do so provided that they do nothing to induce the public to believe they are qualified to practise according to modern scientific methods. Persons entitled to be registered under the Medical Acts of the United Kingdom, and actually so registered, can claim to be registered by the Ceylon Register. Other persons are registered on a certificate of the Council of the Ceylon Medical College, but in the case of persons claiming admission on the strength of a degree or qualification issued by a foreign State or country, the Council may not issue the necessary certificate unless such foreign State or country is one which allows persons to practise within its territory on their showing they are registered and entitled to practise in Ceylon.

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N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF STATE MEDICINE.

FREDERICK MONTIZAMBERT, M.D., D.C.L., President.

A DISCUSSION ON TUBERCULOSIS.

OPENING PAPERS.

I.—SAMUEL G. DIXON, M.D.,

President of the Academy of Natural Sciences of Philadelphia; Commissioner of Health of the Commonwealth of Pennsylvania.

THE PREVENTION OF TUBERCULOSIS.

SCIENCE knows no limitation of race, language, or geography. The earnest scientist rejoices in the discovery of every new truth, whatever the nationality of the patient searcher who was so fortunate as to unearth it. On the other hand, the discoverer is willing and eager to share his newly-acquired knowledge with his fellow investigators throughout the broad domains of the earth, regardless of nationality or birthplace. If this is true of science in general, it is true in a greater degree of our own beloved science of medicine. By the devotees of no other is the grand conception of the brotherhood of man so completely and so practically recognized.

Especially has the growing custom of holding medical and hygienic conventions, conferences, and congresses in the various great cities and scientific centres of the world, thus affording members of the profession opportunities for personal as well as literary intercourse, contributed to the strengthening of this *entente cordiale*.

This is the second time that this Association has met on American soil, and again it holds out a hand of kindly greeting to its brethren across the imaginary line which separates two great nations, distinct indeed politically, but one in all that constitutes unanimity of sentiment, harmony of aspiration toward a nobler and truer life, and community of labour for the advancement of medical science, and hence of humanity at large.

I appreciate the courtesy extended to me in having been requested to appear before this distinguished body, and to contribute my humble mite towards the great treasury of knowledge which it is constantly amassing.

Nine years have elapsed since your last assembling on this continent. In that brief space of time what changes have taken place! The science of bacteriology, then comparatively in its infancy, has taken its place as one of the most important departments of medicine. Serumtherapy, then cherished by but a few enthusiasts, the butt of crass medical wits, has established itself firmly as a therapeutic method of no uncertain value. By its means it has been found possible not only to prevent the spread of some of the most serious communicable diseases to a considerable extent, but also to greatly lessen their mortality.

In March, 1882, came the startling announcement of one of the great masters in bacteriology—Koch—that he had discovered the micro-organism of the tubercle. This announcement was received with acclamation throughout the scientific world, for it held out a hope that, through the means of this discovery, a possibility might have been created of checking the ravages of a disease which was responsible for the destruction of human life to a far greater extent than any other.

The years slipped by, however, and no sign was given from any of the great laboratories of the world. In the summer of 1889 I visited London to study the technical methods used in the bacteriological laboratories of King's College and the College of State Medicine. While working in Professor Klein's College, I was staining a smear of tubercle bacilli which had been kept in a tube from an incubator to which the students had free access, the temperature, therefore, was by no means constant. At first club-shaped bacilli developed; then gradually, the tube having been allowed to remain at the temperature of the room for several hours out of the twenty-four, for a few days considerable variations from the form heretofore recognized were disclosed to my astonished eye.

The impression made upon my mind was a profound one. I felt convinced that the irregularity in growth might properly be designated as an involution form. Some of these forms were club-shaped, some curved, and some branched. Did they not represent bacilli of attenuated virulence and reduced strength? If so, might they not be availed of in establishing a tolerance for the tubercle bacillus in animals and even in man? The more deeply I pondered over this discovery, the more thoroughly was I convinced that there was a valuable truth concealed in it. On my return to America I immediately instituted a series of experiments, with the result that I was able to produce a less virulent culture than had hitherto been recognized. I felt no hesitation, therefore, in giving these results to the public, which I did in the columns of the *Medical News* of Philadelphia in a memorandum entitled, "Possibility of Establishing Tolerance for the Tubercle Bacillus." This article appeared on October 19th, 1889, and was accompanied by a cut representing tubercle bacilli in other forms than those before recognized. I then said:

> In considering a means for overcoming infection by tuberculosis, it is possible that a condition of tolerance to the action of the tuberculous bacillus must first be established. To this end two hypotheses may be suggested.
>
> First. It is possible that by a thorough filtering out of bacilli from tuberculous material a filtrate might be obtained and attenuated so that by systematic inoculations a change might be produced in living animal tissues that would enable them to resist virulent tubercle bacilli.
>
> Secondly. To bring about a chemical or physical change in living tissues that would resist tuberculous phthisis, it is possible that inoculations with the bacillus would have to be made; yet before this could be done the power of the virulent bacilli would have to be diminished, otherwise the result would be most disastrous.

I considered it possible that the unrecognized forms shown in the cut might perhaps represent the condition of bacilli necessary to prove the truth of the second hypothesis, particularly as animals inoculated with these organisms have survived subsequent inoculations with virulent tubercle bacilli.

This was, so far as I know, the first note proclaiming that an active campaign had been opened on the tubercle bacillus, and specifying in terms of considerable definiteness the means whereby the war was to be carried into the enemy's country.

Later in the same year (1889) I delivered an address before the New Jersey Sanitary Association on the general subject of "tuberculosis," in which I stated that guinea-pigs inoculated with this attenuated virus would "resist the action of virulent virus for months at least."

Professor Koch announced in August, 1890, that he had succeeded in developing a substance which had the power of preventing the growth of the tubercle bacillus in man. At that time, however, no hint was given of the method of preparation of the new substance.

On September 6th of the same year an article from my pen appeared in the *Medical and Surgical Reporter* of Philadelphia, in which, referring to my first announcement, I said:

> It will probably be interesting to the scientific world to know that the results published last October have been corroborated by a series of inoculations of the prepared virus into guinea-pigs, rabbits, and opossums, after which they have resisted matter so virulent that all animals not previously inoculated with the changed virus took on tuberculosis when inoculated with such matter.

On November 15th, 1890, I announced through the *Philadelphia Times and Register* "That, following out the hypotheses advanced in my terse article in the *Medical News* of October, 1889, had given the most brilliant results."

Three days later I took occasion to lay before the Academy of Natural Sciences of Philadelphia a report summarizing more in detail my work of investigation on the tubercle bacillus in the bacteriological laboratory of the Academy, and stating that animals treated with the involution form of tubercle bacilli continued to resist injections of virulent bacilli.

Realizing the danger of introducing live tubercle bacilli into the human economy, I was with many others labouring to obtain the active principle that would produce immunity. To accomplish this, I submitted the tubes containing tuberculous bacillary growths to the action of ether, and also of a saturated solution of chloride of sodium. The filtrates were then passed through a Pasteur filter without pressure. This active principle, when subcutaneously injected into tuberculous animals, caused a febrile reaction. The tissue in the immediate neighbourhood of the tubercles became hyperaemic, and the symptoms manifested resembled those produced by the introduction of the original mass. This was published in the *Medical News* of Philadelphia, January 17th, 1891.

On May 15th of the same year I had the honour of delivering the annual address before the State Board of Health of Pennsylvania, on the occasion of the Fifth State Sanitary Convention, and selected for my special theme, Tuberculosis, its Causes and Effects, its Treatment and Prevention. In this address I touched upon the question of the relationship between the bovine and the human bacillus of tubercle, and expressed myself as follows:

Scientifically it will be of particular interest to have the bovine and human tubercle bacillus differentiated, yet for all sanitary purposes we will have to consider the tubercle bacillus of the cow accompanied with its nidus as being destructive to human life; for it is well established that the bacillus of man will produce in the lower animal economy—such as the cow, dog, guinea-pig, opossum, etc.—the deadly malady, and that the bacillus of the cow will also bring about a like disturbance in the same line of animals; and, further, bacilli from the rabbit, etc., will in turn reproduce tuberculosis in the cow.

The bovine tubercle bacilli are much more virulent in the lower animals than those of human origin.

In a paper entitled, Possible Relationship Between the Tuberculous Diathesis and Nitrogenous Metabolism, read before the Academy of Natural Sciences of Philadelphia, November 26th, 1894, I called attention to the antagonism of nitrogenous products to the tubercle bacillus, and to its propagation in the tissues of human beings. The idea that those who suffer from gout rarely develop tuberculosis is an old one, and apparently not without substantial foundation. Hence I argued that, as in gout the tissues are overcharged with metabolic nitrogenous products, the direct introduction of such matter prepared in the laboratory of Nature might bring about a condition in the tissues of those suffering from tuberculosis which would render them resistant to the tuberculous process. I was able to announce successful results in a few cases of lupus vulgaris by the use of taurin, creatin, urea, uric acid, and similar products, and at the same time called attention to a vegetable product very similar to urea named thiosinamin, which had just come into use abroad as a therapeutic agent for tuberculosis.

I further called attention to the possibility of establishing a lithemic habit involving excessive assimilation and metabolism of proteid substances together with increased oxygenation, in order to antagonize or substitute a tuberculous diathesis involving deficient assimilation and decreased oxygenation.

One of the most important events in the history of the campaign against tuberculosis in America in recent years has been the inauguration in Philadelphia of that magnificent foundation, the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis, of which Dr. Lawrence F. Flick, the Medical Director, has just issued the annual report for the second year, ending February 1st, 1905. The careful analysis of the conditions, sociological as well as medical, of the 1,561 patients treated is worthy of study. A number of valuable reports and monographs, prepared by members of the medical staff, are therein published. One of these is by Dr. Leonard Pearson, who is also veterinary surgeon of the institute, and is entitled, A Review of Recent Investigations and Observations upon the Immunization of Animals against Tuberculosis.

Referring to the tuberculin of Koch, he said:

It was at last established that while tuberculin has a specific effect upon the lesions of tuberculosis, and in some cases causes the lesion to become encapsulated, to recede, or to disappear, this effect is by no means constant, and is not sufficiently frequent to make this mode of treatment of practical value.

Some modified tuberculins have been produced by Koch, E. Klebs, von Ruch, von Behring, Buchner, Hirschfelder, Maragliano, and others, but none of them has been sufficient to render an animal immune to tuberculosis permanently or to a practical degree.

The investigations of Stroebe, Arloing, Courmont, Nicolas, Spengler, Hahn, Baumgarten, Maragliano, Babes and Broca, Ferran, Niemann, McFarland, Patterson, von Behring, Dixon, Grancher, Ledoux-Lebard, Hericourt and Richot, Trudeau, McFadyean, and Schlegel are all referred to, more or less in detail. He then goes on to say that "Progress in this line did not occur until efforts were made to immunize animals against living tubercle bacilli by the use of living tubercle bacilli by Dixon in 1889," as published in the *Medical News* of October 19th, 1889.

In the *University Medical Bulletin* of April, 1905, Drs. Pearson and Gilliland published an article upon cattle infected with tuberculosis, giving a line of experiments which consisted in treating them by intravenous injections of a suspension of living human tubercle bacilli, the results of which went to prove a marked curative power of such treatment in young growing animals.

Dr. H. P. Ravenel's report after a visit to Maragliano's laboratory is to the effect that from a laboratory standpoint the experimenter has succeeded in producing a serum which protects experimental animals against the poisons of the tubercle bacillus. The curative value of this serum is not so well established. This latter view is supported by clinical reports on this subject presented by three members of the medical staff of the institute—Drs. Joseph Walsh, William H. Stanton, and H. R. Landis. Five cases were placed under treatment. As compared with other cases under observation at the same times, the results could not be said to be in favour of the serum treatment.

Dr. Ravenel refers to the fact that in the autumn of 1903 Dr. Alexander Marmorek, at that time connected with the Pasteur Institute in Paris, announced that he had produced a serum which was vaccinal and curative.

"The true toxin," he holds, "is formed by very young, or what he terms primitive, bacilli." This may be so, yet my work has demonstrated that the toxin is also produced by old or involuted or degenerated bacilli; therefore, if we fail to obtain a prophylactic serum and have to continue the use of the bacilli themselves to produce immunity, the involution form will be preferable to the young, vigorous micro organisms, as there will be less danger of their reproducing themselves and overcoming the animal economy before they produce immunity.

As stated in his Investigations on the Experimental Illness caused by the Inoculation of Degreased Tubercle Bacilli,[1] Cantacuzene, experimenting on guinea-pigs, only used dead bacilli of bovine origin, as they prove more fatal than those of human origin. The bacillary bodies were isolated from their environment and completely cleansed and degreased. This was accomplished by paper filtration and prolonged washing in normal salt solution, drying in a vacuum, and then submitting to the successive action of methyl-alcohol and benzine in a Soxhlet apparatus in continuous circulation.

The general symptoms and cellular reactions after the inoculations both of fatal and non-fatal doses were most carefully noted both macroscopically and microscopically in the various organs, tissues, and fluids, including the blood.

Additional experiments were made by submitting the degreased bodies to the action of Gram's iodo-iodurette solution before inoculation.

His conclusions in brief are:

1. Dead tubercle bacilli completely degreased are toxic. A sufficient dose is followed by speedy death.

2. In non-fatal doses the inoculation is followed by an illness from which the animal recovers completely in about three months.

3. The inoculated animal reacts typically to tuberculin for several weeks.

4. Degreased bodies of tubercle bacilli treated by Gram's solution lost their toxicity.

5. We can hasten enormously the resorption of the degreased bodies and of the tuberculous neo-formations by daily injections of iodide of potassium, which stimulate

[1] *Annales de l'Institut Pasteur* of Paris for November 21st, 1905.

to a high degree the phagocytic properties of the mononuclear leucocytes.

This brief review of the work done during the last seventeen years in search of a cure for and a prophylactic against tuberculosis demonstrates that immunity can be produced in the lower animals at least; yet so far our profession stands in this field of research about where it did at the beginning of that period.

We have not been wholly successful with our extracts, but with the bacilli themselves a higher degree of immunity has been attained. For this reason I have taken the liberty on this great occasion to sum up the results accomplished in order to fix upon the minds of us all just where we stand, and to plead with you that we may unite with renewed energy in the search for the active principle, so that we may venture to use it upon the human economy without incurring the danger that must attend the introduction of the bacilli themselves in our present state of knowledge.

The Commonwealth of Pennsylvania, covering a domain of 45,000 square miles, and maintaining a population of seven millions of people, has recently passed a great health law, which confers upon the Commissioner of Health both the funds and the authority to pursue original investigations in search of a means to combat tuberculosis. With this opportunity granted me, I have been working on the preparation of a serum the composition of which I am tempted to impart because of the occasion, even though my results are not ready to report upon. The suggestion may, however, prove inviting enough to my co-workers to tempt them to follow out my line of thought and experiment to either a positive or a negative result. Should the former be obtained I shall be content, in view of the great good which will accrue to humanity regardless of credit to myself.

II.—James Roberts, M.D.,
Medical Health Officer, Hamilton, Ontario.

Three main principles have already been established beyond the possibility of dispute:

1. That tuberculosis can be prevented.
2. That it can be arrested.
3. That it can be cured.

Of these, the first is the most important.

While Koch's discovery in 1882 enabled us to affirm that tuberculosis is an infectious disease and gave us the specific germ, the fundamental causes were established years before that date. Overcrowding in the tenement houses of the slums, dusty and dirty public places, dark and dingy alleys, personal uncleanliness and filth, lack of sunlight and vitiated and polluted air, were the conditions under which it was firmly believed the specific virus worked its fatal effects.

The achievement of Koch was a wonderful stimulus to increased activity along the lines of improved hygiene and sanitation, which were lessening so materially the mortality from the disease; and although the sanguine among us are hoping for something startling to be evolved from the laboratories of such indefatigable workers as Maragliano, Koch, and von Behring, others more conservative look for no revolution in methods of prevention for quite a few years to come.

The prevention of tuberculosis is a question of national importance. It has been estimated that there are within the confines of this fair Dominion of Canada fully 40,000 consumptive individuals alone, not to speak of those suffering from the various other lesions by which the disease manifests itself, and that for 8,000, or 20 per cent., of this number, death is the final scene in many, many instances to a dismal and gruesome tragedy.

It has been further demonstrated that a large percentage of these fatalities occur during the maximum wage-earning period of life, so that, setting aside any humanitarian considerations whatsoever, the family calamities, the individual woes and heartbreakings, and calculating the value of a human existence at a minimum sum, the annual levy for the satisfaction of this inexorable usurer depletes our exchequer to the extent of 8,000,000 dollars.

Through the efforts of the Canadian Association for the Prevention of Consumption and other Forms of Tuberculosis, the question of how to lessen this terrible death-rate has been touched upon at least by both sections of the Federal Government.

In spite of the complexity of the problem, or any expenditure which it might entail, it is devoutly to be wished that some definite practical line of action will be decided upon. The Federal authorities are in duty bound to contribute something more substantial than a small allowance to assist in defraying the expenses of the Canadian Association. An active and aggressive educational campaign instituted by the highest legislative body in Canada would be of signal service. It ought to be prepared to vote annual subsidies towards the erection and maintenance of provincial sanatoriums, and such other institutions and agencies as may be found beneficial or necessary to accomplish the desired end.

The Ontario Government offers a grant of 40 per cent. of the cost of the erection; should any municipality decide to provide itself with its own sanatorium, such grant not to exceed 4,000 dollars, and to further contribute 1½ dollars per week towards the maintenance of each patient. In so far as I am aware, with the exception of our own municipality of Hamilton, no county or city in the province has availed itself of this provision, and yet the mournful fact remains that deaths to the number of between 2,000 and 3,000 annually are referable to tuberculosis.

Dr. Hodgetts, Secretary of the Provincial Board of Health, in one of his quarterly reports for 1905, computes the monthly financial loss attributable to this cause at 100,000 dollars, deploring at the same time "that the public endure this grievous and irreparable loss of relatives and friends without making any effort to provide for the checking of the disease."

Nova Scotia, down by the sea, has established the first and only Government sanatorium in Canada. The time is surely opportune for each and every one of her sister provinces to emulate her laudable example. We think that one large and well-endowed institution of this kind in each of the great subdivisions of our country, besides its illustrative and educative value, will be an object lesson to the different municipalities when each shall have assumed its legitimate responsibility by establishing one of its own.

The creation of a provincial Cabinet Minister of Health as head of the Department of Public Health, and invested with extensive powers of control over the inspection of factories and workshops, the inspection of hospitals, charitable institutions and prisons, the inspection of immigrants, food inspection, the sanitation of towns and cities, would facilitate co-operation of provincial and municipal health Boards, and strengthen the hands of the latter in their fight against communicable diseases.

And yet, after the Federal authorities have dealt with this subject as a national one, after the provinces have done all that they feel permitted to do towards the establishment of special sanatoriums for consumptives, and have exercised a controlling influence over the spread of the disease, in the final struggle against it we must look to those smaller governmental units the municipalities, aided by philanthropy and Christian charity, to bear the brunt of the battle and to dislodge and conquer the enemy.

When I say philanthropy and Christian charity I intend no tautology and desire no repetition. "Philanthropy," in the words of a distinguished writer, "is like a woman admiring herself; charity is a mother with a child in her arms." Modest endeavour, even in a city of 65,000 inhabitants, often furnishes one with passing experiences that justify the truth of this remark.

It cannot be too often emphasized that every case of tuberculosis means the introduction within the body from outside of a parasite which is foreign to it, is prejudicial and is destructive, and yet, I fear, in the general anxiety to arouse the physicians and the public from an indifferent and lethargic attitude to one appreciative of their responsibility in the checking of this disease much injustice has been done, many a cruel punishment inflicted. I venture to submit from not a few amusing experiences, some of very recent date, that of all the phobias that ever seized upon the profession or the laity the fear of tuberculosis threatens to become at once the most ludicrous and most pitiful. "A half-truth is a dangerous weapon in the hands of an ignorant person." Some distorted and dishevelled and widely-circulated half-truths have got foothold even in high places.

In these days one hesitates even timidly to suggest that

heredity as a factor in the causation of tuberculosis has been underestimated, and that in the matter of magnifying person-to-person infection the pendulum has swung too far. The belief in transmitted vulnerability of tissue even is not laid much stress on by those who, being unable to demonstrate anatomical lesions, would therefore ascribe to hereditary transmission a very subsidiary rôle. Still, if the *post-mortem* table teaches anything, it teaches the ubiquity of the germ. If the sanatorium teaches anything, it teaches its impotence in the presence of sunlight, fresh air, and good food. The lesson to be learned from the prevalence of the disease in the slums is not only the facility and ease of infection from person to person, but the heightened virility of the germ from its repeated cultivation in suitable media, and the lowered resistance of its victims from (1) poorly paid, long hours of work in badly ventilated workshops and factories; (2) meagre opportunities for respite and rest in airless, sunless, insanitary hovels commonly designated homes.

Far be it from me to advise or counsel an attitude of indifference toward the infective agent. On the other hand, I desire soberness and calmness in considering the question of direct infection, and would wish it to be regarded in its proper perspective as a menace to be guarded against by the avoidance of those conditions of overcrowding and insanitation which make it a possibility. I fain would mitigate to some degree that attitude of aversion with which society regards the unfortunate victim of this disease, and which tends to overwhelm him on every side by treating him as a leper and an outcast, overlooking at the same time, because of an inadequate comprehension of its significance, the almost universal distribution of the virus, and the potential resources of normal tissues for dealing with direct infection.

Condensation in the centres of population seems to be unanimously agreed upon as the factor of prime importance in the causation of tuberculosis. Without going into statistics it may be safely predicated that the residential quarters of the working classes with the greatest number of souls to the acre help most to swell the mortality tables, and to influence the spread of the disease.

Alcohol is probably just as often the result, as it certainly is the cause, of wretched home surroundings in a great percentage of cases, and is a potent factor in the incidence of consumption. Wretchedness engenders ignorance, ignorance engenders filth, filth engenders vice; wretchedness, ignorance, filth, and vice combine to foster and perpetuate disease.

How to obviate this tendency to congestion in the centres of industrial activity is a problem intimately connected with the entire question of social reform, and is one not easily solved. Carlyle said that we had a great country here in America, because we had a big piece of land for every individual. In Canada this remark is literally true to-day, and we are one of the greatest countries in the world because the needs and comforts of the average citizen are more generously supplied, and with less exertion and anxiety, than in any other country on the face of the globe; and yet in our growing cities the same conditions that exist in Europe and the larger cities of the United States are already beginning to obtain, and if we do not look out in time are almost sure to predominate. Perhaps the fever for locomotion, the building of electric roads, and speedy and easy means of transit between the suburbs and the centre, will furnish themselves the solution of this great problem.

Ignorance, you will notice I intimated just now, exerts a great influence in the spread of tuberculosis, and ignorance can only be rooted out by education in its broadest sense. "Old beliefs die hard, and habits established in early life are hard to overcome." We look not to the present but the next generation of parents and teachers for the instruction of our children in the elemental rules that govern and pertain to their health.

Leaving aside the consideration of the general conditions which make for the prevention of this disease, I wish to submit for your discussion a few of the effective measures against the specific cause.

We began our municipal campaign against the aggression of tuberculosis on the assumption that no individual, and especially no consumptive individual, has a right to contaminate his or her surroundings by expectorating in public places. At first the by-law forbidding this was studiously infringed upon by that type of thoughtless, careless individual who sees nothing reasonable in that which he cannot comprehend, and who resents very vigorously any fancied interference with his personal liberty or licence. I feel moderately safe in saying that to-day spitting on sidewalks is not one quarter as prevalent as it was ten years ago; and still on behalf of the Board of Health we are looking forward to a more rigid enforcement of this regulation in the future than there has been in the past.

Compulsory notification of phthisis has not met with the hearty response on the part of the profession which its importance deserves, and which the present-day knowledge of the disease would have led us to expect. It is difficult to get physicians to send in reports of their better class of patients, except in case of death, when we find both friends and physicians most eager to have the premises disinfected; in fact, disinfection after death by the Board of Health is taken advantage of almost without exception. This compulsory notification entails very few real hardships, and no insurmountable difficulties if the work of the medical officer of health is not partially paralysed by lack of co-operation and intelligent sympathy on the part of his practising *confrères*.

The herculean task which Biggs has assigned himself of eradicating tuberculosis from the tenement district of New York, the manner in which he has set about it, and the success already achieved leaves no room for cavil as to the advisability of compulsory notification. The warfare waged by the Health Board of New York has not been surpassed or equalled by any other city. "In the first year after the passing of laws requiring the report of tuberculous cases," says Biggs, "45 cases were reported, in the next year 7,000 cases, and in 1904 19,000 cases." What is the meaning and significance of each of these reports? It means that for every message of distress sent into head quarters a messenger of mercy and comfort is dispatched for immediate relief.

Bear in mind that the present is not a time for dealing in glittering generalities. Discussions on social reform and plans for the amelioration, by means of legislation, of the conditions under which the industrial classes live and labour are all very well in themselves, but the actual existing state of affairs—the darkness and filth and starvation—are always calling for and demanding instantaneous action. No body of workers has been of such signal service in dealing with this phase of the question as the district visiting nurses. The work of these brings them into immediate and direct contact with the sufferings calling for alleviation. It requires the exercise of heart and eye and hand, elicits patience and Christian fortitude, and, judging by the work accomplished in many of the American cities, develops these qualities to a remarkable degree.

This work has been carried on successfully for several years in Montreal, Toronto, and Ottawa, and only recently through the influence of the Board of Health has been started in our own municipality. At present over 90 per cent. of consumptives are obliged to be treated in their homes. As long as this remains true the nurse's work of teaching, feeding, nursing, educating and converting the home into a miniature sanatorium for facilitating the entrance of fresh air and sunshine will be of pre-eminent importance.

"Municipal sanatoriums for the poor" is only in its infancy. It is a large and serious problem, and furnishes in itself ample material for a lengthy discussion. We hope to see in this country at no distant date a municipal sanatorium on the outskirts of each of the larger cities, and that contiguous counties throughout the province will combine for a similar purpose.

A recent summary of the work of the principal sanatoriums in America published in the *Medical Record* leads to the conclusion that in diminishing the death-rate from consumption the work of the sanatoriums has been rather insignificant. But then it ought to be remembered that they have been slightly utilized in the treatment of the poor, who are the main instrumental agents in the distribution of the poison.

It has been said that a consumptive, for the sake of those dependent on him, ought to remain at home as long as precautions are taken. Ultimately these sufferers get worse, become helpless, become a burden to their friends, and die, leaving their families unprovided for. We need

to get them into a sanatorium in the early stages, both for the sake of themselves and their friends, and we ought to maintain them there until they are recovered enough to work or until hope of recovery is abandoned.

Such institutions must be municipal in the strictest sense of the word, and may in part, but must not chiefly, depend on private beneficence. They must be municipal in the sense that their maintenance and equipment are as incumbent on the corporation as the support of a civic hospital.

It is a sad state of affairs when a family is deprived of its breadwinner, but is sadder and productive of greater distress when the breadwinner becomes a burden.

The Germans have lengthened the period of maintenance in sanatoriums by their system of compulsory insurance.

For the very advanced and hopeless cases—those for whom the struggle is over—nothing is better adapted than the wards of a general hospital, specially set apart to meet their last requirements: nursing, a little attention, with a little solicitude thrown in.

The protection and control of milk supplies, and the medical inspection of schools as factors in the eradication of this disease, will be very fully dealt with in papers before this Section. The advisability of the latter is being generally discussed in this country, and it would seem superfluous to say that in a land where every child is educated at the expense of the State we are heartily in favour of the rising sentiment to have a part of his education fit him both mentally and physically for the best possible service to the State.

In conclusion, I can only say that in the annals of medicine the forces enlisted for the saving of human life and the prevention of human suffering have never encountered a more formidable problem than the "prevention of tuberculosis"; so insidious in its onset, so protean in its manifestations, so disastrous and fatal in its results, the white plague causes more untimely deaths than any other agency.

Its prevention is the end in view with which some of our most patient workers toil in the fertile fields of an ever-widening domain, the aim of the busiest practitioners in their round of continuous and of frequently unremitting labour, the goal of the modern sanitarian, the product of the past century and of its last few decades only, the guardian of the urban population, and destined to play a mighty part in twentieth-century medicine.

I wish again to emphasize that the prevention of this disease is intimately bound up with the great social and economic problems of every country.

Jacobi, quoting Virchow, says: "The physicians are the natural attorneys of the poor, and these problems should largely be solved by them."

For this reason we hope that the place and influence in medicine of the good old general practitioner will long survive; that he will be, besides a student of medicine and a practical humanitarian, a more intelligent student of the sociological questions that are agitating the minds of men; that when these have reached a satisfactory solution with the progress of the century and are matters for the memory of the historian, he will be found to have espoused the cause of the sick, the down-trodden, and the oppressed.

III.—A. W. Gilchrist,
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Nice, France.

SOME GENERAL ANALOGIES BETWEEN TUBERCULOSIS AND INFLUENZA.[1]

The analogies existing, it has seemed to me, between the two great affections that have attracted, especially within the last few years, the attention not only of physicians but of the world in general, may be conveniently considered in the following order:

I. *Both diseases have prevailed in epidemic and in endemic forms.* The earliest historical mention of tuberculosis is to be found, as is well known, in the works of Hippocrates. Medical history,[2] on the other hand, tells us that consumption of the lungs may be traced with certainty in the writings of every period as far back as the earliest attempts of the ancient world to deal with medicine. In neither case, however, is there seen any attempt to distinguish different forms of the disease. How then, you may ask, is the acute form of tuberculosis to be recognized, how is the epidemicity of the disease to be established? By reasoning from analogy which, in the absence of direct evidence, is the only resource at our command. And happily for our purpose, this proof is of an ample and convincing character, as all those who have considered the question at any length will probably be willing to admit. I do not speak of evolutionary arguments of a Spencerian form, those that a writer like Sir William Collins would employ,[3] nor of the investigations of bacteriology which still remain deficient in method and extent; I allude to the attributes assumed by tuberculosis when the disease is implanted by the members of a civilized society in the midst of primitive and susceptible races. It is not necessary to insist upon this point. The eloquent statistics of Hirsch and of Hauser[4] have merely to be consulted in an appreciative and critical spirit, the pathetic pages of Robert Louis Stevenson—who tells us of the disease spreading like fire through the Samoan valleys—to be read in a similar light, to establish the fact I have invoked. There can be no doubt that under favouring circumstances tuberculosis may become sufficiently virulent to prevail in epidemic form.

Becker, in that philosophic spirit which is so characteristic of the German literature of the period, has given us an interesting and suggestive description of the epidemics of the Middle Ages.[5] "Great epidemics," he tells us in the preface to his account of the sweating sickness, "are epochs of development wherein the energies of mankind are exerted in every direction. Does not this reflection apply to a disease like influenza? I have asked myself the question, and thought I could reply in the affirmative. Influenza seems to have attended that more amicable attitude which is observable in our times in the intercourse of nations. After the desolating diseases of interminable periods of armed conflict and exhausting strife, we have for the first time a disease associated with the arts of peace. It marks a period of transition. While communications were difficult and movements slow over the vast expanses of Central Asia, influenza made its appearance periodically only and in pandemic and epidemic form; with the progress of the nineteenth century and the parallel spread of communications, the excursions of the disease became more rapid and more continuous, scarcely a year of this period being free from some general or partial outbreak;[6] while towards its end, with the establishment of closer and more intimate international relations, the world witnessed that great invasion which still prolongs its effects. Influenza is a disease of railways and steamships, of factories and of marts; it is a disease of social, religious, and industrial relations, Becker would doubtlessly have said; he would have pointed to the Trans-Siberian railway as a factor in its presence; he would have accused the telegraph, the newspaper, and the telephone as accomplices of its nervous forms; he would have denounced the growing artificiality and luxury of the times as abettors of the evil; and who would contend that he might not be right?

I have just said that the last great invasion of influenza is prolonging its effects. Does this mean that these results are to be permanent—that the disease, though necessarily lower in intensity, will be modelled on the great social diseases of the past? Is it to have a well-marked individuality and assume more than a subsidiary and varying rôle? Speculative as the view may appear, it is not without argument in its support. But this development must be left for another occasion.

II. *Tuberculosis and influenza are both respiratory diseases.* (*a*) The recent and remarkable investigations of von Behring and his school, which point to the fact that in pulmonary consumption the source of infection in a large proportion of cases is situated in the intestinal tract, do not alter the significance of this statement. Tuberculosis remains essentially a respiratory disease.

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[1] Dr. H Sandwith, in a valuable clinical paper, has compared and contrasted influenza and dengue.—*Lancet.*

[2] Hirsch.

[3] See Specificity and Evolution in Disease. Address to Abernethian Society. Lewis, 1884.

[4] *La Défense Sociale contre La Tuberculose.* Madrid. 1898.

[5] New Sydenham Society.

[6] *Pendant ce siècle l'histoire de la grippe n'a été qu'un perpétuel recommencement.*—L. Gaillard.

It is necessary also to insist upon this point in respect to influenza, because many writers, both in the early days of the prevalence of the disease and again at a more recent period, have regarded the complaint as essentially nervous in character. This opinion has probably arisen from the inadequate conception formed of the physiological function of respiration, a function which should include—and this view is necessary for our present purpose—those assimilative processes, mainly hepatic in character, which are principally concerned in the supply of oxidizable material to the pulmonary and allied organs. From this point of view, where the trophic and reflex centres are called upon to preside over important processes nervous symptoms would be especially prominent; but these symptoms would not constitute the disease. The same remark applies to the gastro-intestinal disturbances which, due, as in febrile conditions generally, to a hepatic reflex, are so often conspicuous in influenza. Their rôle is secondary and subsidiary. The recent investigations into the connexions between the absorbent lymphatic tract and the cerebro-spinal system may be mentioned in this connexion. With the knowledge derived from this source[7] the presence of the early and often urgent cerebral and spinal symptoms to which we have referred would cause no surprise.

(*b*) *Chronic tuberculosis displays a tendency to produce excavatory lesions, chronic influenza to produce plastic and consolidating lesions.* This statement applies in tuberculosis to the lesions of both the upper respiratory tract and of the pulmonary area. Whether, in fact, the parts affected be the naso-pharyngeal investment, the accessory auditory tract—which, it should be remembered, is ancestrally respiratory in function—or the region of the larynx, the rule remains the same; just as in the case of the pulmonary tissues, the lesions are destructive. In fact, theoretically it might be said that in pure uncomplicated tuberculous[8] lesions the tendency to fibrous degeneration is relatively as uncommon as the tendency to excavatory lesions in influenza.[9]

The concluding half of the heading to the present section constitutes the second fact I have attempted to establish in this paper, the first being, it will be remembered, the epidemicity of tuberculosis. And, as in the former case, we must ask ourselves whether the ascertainable facts are such as to warrant the assumption of such chronicity. Are the facts of Finkler giving the title of "Chronic Influenza" to a section of his recent exhaustive monograph[10] on the disease, of Pfeiffer, Wassermann, Netter, and Glénard implying the presence of the same morbid state, of Galliard invoking a "constitution grippale," sufficient proof of its actual existence? I have ventured to think that they are, and if any doubt, I may add, exists on the subject, and the further evidence to be gathered from the general conception pervading this paper be thought inconclusive, I hope on another occasion, in urging more particularly the claims of evolutionary medicine, to give the contention further support.

It is not easy, except presumably for the expert pathologist, to follow Finkler in his detailed description of the chronic pulmonary conditions we are considering. One fact, however, is very clear, and, what is more, is important for our purpose—the tendency of these lesions is to exercise an obliterative action, as effectual in its way in limiting the range and activity of the respiratory organ as the destructive lesions of tuberculosis. Finkler had observed these cellular pneumonias, as he calls them, for some years before influenza presented itself in the great pandemic form of 1889-90. Some were acute and rapidly fatal, just as acute and just as fatal as the "grippes streptococciques" of some earlier French authors[11] or the erysipelatous pneumonias of more recent writers[12]; others were singularly mild.[13] With the advent of epidemic influenza these lesions lost their purity of type, at least, temporarily, and seemed to merge into influenzal affections, acute and chronic, dominated by the bacillus of Pfeiffer. Pfeiffer himself, according to Finkler, has described these latter chronic conditions, showing, in particular, cases where alternate segments of pulmonary tissue were infiltrated by cellular elements or by caseous tuberculosis; and Leichtenstern very similar conditions.

But I fancy I hear you object, Are not these forms to which you are referring really tuberculous in nature; are they not ordinary cases of latent tuberculosis?[14] Not necessarily so by any means, as Finkler himself has ably shown,[15] nor so far, I hope, as the general principles of pathology I have invoked enable us to judge. They are no more forcibly tuberculous than the commensal germs present in tuberculous cavities convert a phthisical lesion into one known by any other name.

(*c*) *Their respective micro-organisms are aërobic and successfully cultivated in general on blood serum and haemoglobin respectively.* The fact of the specificity and the biological characters of the tubercle bacillus being definitely established obviates the necessity for anything but the briefest reference to this portion of our subject. The bacillus of tuberculosis, as we have already implied, behaves essentially as a respiratory ferment. The same remarks apply to the biological characters of the bacillus of influenza; on all sides this micro-organism is recognized as one of the most characteristic members of the haemophilic group of bacteria. It is far otherwise, however, with its specificity. And this constitutes a very remarkable fact, which may be discussed in this place. How is it, indeed, we may again ask, that a micro-organism which since its discovery in 1892 has been looked upon as the specific agent of influenza, which is designated in the textbooks, as well by Dieulafoy and Osler as by Nothnagel and Clifford Allbutt, as the efficient cause of the disease, should now find its specificity denied? Why, with its loss of specificity, is it treated opprobriously by the pathologist as commonplace and vulgar, and degraded even to the rank of a mere parasite? These are questions, you will say, that the physician can ask but that he cannot answer; they are problems that only the councils of esoteric pathology can solve. But in the meanwhile do not similar questions, greater even in importance, press all the more urgently and significantly for consideration? Great epidemics, we have already said, are epochs of development. May not this be true of general pathology in our time? May not the fact of Pfeiffer's coccobacillus having suddenly disappeared to give place to the *Micrococcus catarrhalis*, the fact of well-defined influenzal conditions evolving under the auspices of the ordinary germs of pneumonic lesions associated or not with enterococci and other allied species, the fact of the tetragene and the zoogloeic paratetragene[16] assuming sudden importance in similar clinical circumstances, lead to the conclusion that bacteriological teaching stands perhaps in need of reform? Does not the fact of different organisms presiding in different geographical regions over confessedly identical conditions point to specificity itself, as Sir William Collins urged over twenty years ago, demanding expression in more scientific form, awaiting definition in newer terms? May it not be, again, that disease to-day, evolving amidst greater biological and sociological complexity, can no longer assume the form and action of primitive and even historical disease; that bacteriological species are fluctuating, as de Vries would say,[17] and still in process of evolution?[18] And finally, do not all these questions imply that medicine, with its triple basis—clinical, anatomical, and bacteriological—is inadequate, and that the times are ready for the advent of a renovated humorism[19] evolved from the rich and promising field of bio-chemical research? The consideration, brief as it must necessarily be, of the next portion of our subject—

(*d*) *They display the same tendency in their urinary and*

[7] St. Clair Thomson, Cerebro-spinal Rhinorrhœa, BRITISH MEDICAL JOURNAL, September 25th, 1899. Cuneo's experiments are described in Millian's book on the cerebro-spinal fluid.

[8] This view regards tuberculosis as a chemical agent productive of abnormal alkalinity of the tissues.

[9] Clifford Allbutt mentions these excavatory lesions in influenza.

[10] In *XIXth Century Practice of Medicine*.

[11] See discussion on Influenza, *Bull. Soc. Méd. des Hôp.*, 1905; also Bezançon's Papers, March 2nd and 16th, and October 19th, 1905, ibid.

[12] Comby, Laboulbène.

[13] As one local epidemic observed by Wassermann.

[14] Bezançon, amongst others, has thought so.

[15] Finkler mentions several cases where his diagnosis of non-tuberculous phthisis was considered by his colleagues to be wrong. The subsequent history of the cases justified his view. This history includes the account of some autopsies.

[16] Bezançon, loc. cit.

[17] The Mutation Theory.

[18] This is a fact that Professor Ray Lankester seems to have forgotten in his remarks on Darwinism and Disease in his last Presidential address.

[19] See Boinet, *Les Doctrines Médicales*, for this expression.

respiratory bio-chemistry—may lend some support to these views; for the only specificity implied will be a chemical specificity. Let us, then, examine in this light the able paper written by Gautrelet—one of Bouchard's chemical assistants—during the great epidemic of 1889-90, entitled *Les Urines dans la Grippe*. Gautrelet arrives at the following conclusions. The clinical facts observed, he says, can be reduced to three points:

1. Congestions (hepatic, pulmonary, renal, splenic, uterine, medullary, cerebral, ocular, etc.).

2. Neurotic pains (generalized) or neuralgia.

3. Partly paresis or paralyses (cardiac, pulmonary, of the lower extremities, etc.).

And as all our numerous urinary analyses, he continues, display a definite concordance, we can state that the constant and dominant urological data in these cases have been:

(*a*) The diminution of urinary volume.

(*b*) The considerable increase of general acidity.

(*c*) The presence of indican.

—all indications that the physiological characteristics of the reigning epidemic have been a well-marked state of organic hyperacidity.

The equally definite urological character of tuberculosis, on the other hand, is marked hypoacidity, which does not involve more than an apparent contradiction, for the result in both cases is the same—excessive hyperacidity like excessive hypoacidity leading to deficiency of assimilative activity.

The tendency to similarity in the respiratory characters may be seen in the following two analyses. In the first, a case of congestive grippe with slight pleuritic effusion, the figures gave: Percentage of $CO_2 = 3.9$, of total oxygen absorbed = 5.5—thus leaving 1.6 absorbed by the tissues. In the second, a case of tuberculosis also accompanied by pleurisy, the centesimal proportions were 3.8, 4.8, and 1.0.[20]

When we consider that the influenzal patient was improving,[21] and that in the case of tuberculosis there was a large purulent pleurisy, the above figures are sufficiently significant.

III. (*a*) *Both are infectious diseases.* The fact is so generally recognized that discussion is unnecessary. (*b*) *Neither confers immunity:*[22] *both predispose, on the contrary, to subsequent attacks.*

Here again opinions are unanimous, nor have the recent investigations on opsonins modified the prevailing view.[23]

IV. *Both distinctly affect the functions of relation.* (*a*) *By exciting rheumatic symptoms*—infectious rheumatism (Osler, Galliard, Roux, Dutil)—in the one case, and *rhumatisme tuberculeux* (Poncet) in the other. The only point that, perhaps, requires explanation in this paragraph is that concerning Poncet's conception of tuberculous infection giving rise to well-defined rheumatic lesions. Dr. Poncet declares—and his views find considerable support in the school of Lyons—that there exist morbid conditions indistinguishable from rheumatic processes except from the fact that the affected parts give the reaction to tuberculin. Professor Fournier, following an obvious analogy, proposes calling these lesions para-tuberculous. (*b*) *By giving rise to meningeal and other nervous complications.* All the authorities on the subject (Goodhart, Netter, Marie, etc.,[24]) implicitly agree that influenza gives rise to a form of meningitis almost as characteristic, except for the diversity of the bacterial flora it furnishes, as the well-known tuberculous affection.

The intimate relations—anatomical, functional and ancestral—that exist between the upper respiratory tract and what might be called the neural gland, connexions already discussed on another page, render this last analogy between the two respiratory affections we have been comparing readily conceivable.

Similar considerations explain the nervous disturbances of various character, attributable to medullary influences that are displayed in both influenza and tuberculosis. But we have in addition the fact, remarked by Gautrelet,[25] and which I have invariably confirmed myself, that indicanuria[26] is a prominent feature of both morbid conditions.[27] This symptom, judging by the analogies of rheumatism, points to medullary congestion and consequent pressure.[28]

I have one word only to add as a conclusion. If certain parts of this paper may seem to have been deficient in clearness, or unnecessarily subtle, it is perhaps because the principle that has presided over its conception is drawn from a biological, and hence to some extent an unfamiliar, source. I have been much more indebted, in fact, for the ideas I have attempted to develop to Herbert Spencer, Sir W. Collins, and the evolutionary school, to bio chemists like Armand Gautier and Gautrelet, to comparative pathologists and physiologists like Wiedersheim and Woods Hutchinson, than to any of the conventional medical authorities I may have quoted.

It is this biological principle that enables me to condense the preceding pages into these words: Influenza is a disease of ancestral respiratory functions; tuberculosis a disease affecting these functions in their more recent and actual phylogenetic stage.

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[20] From Robin and Binet, *Archives Gén. de Méd.*, July, 1898.

[21] This remark is made to explain the larger absorption of oxygen by the influenzal patient.

[22] An article by Dr. Ross of Toronto and the Victoria Park Hospital, in the BRITISH MEDICAL JOURNAL of July 7th, 1906, on the opsonic index, having drawn my attention, I wrote to this author, who kindly answered as follows: "Concerning Pfeiffer's bacillus and opsonic investigation of influenza, I feel quite certain that no such investigations as you have suggested have hitherto been undertaken, but am of the opinion that important information might very readily emerge from such a study. On clinical grounds one has suspected the bacillus of influenza of preparing the way for the tubercle bacillus, but further than that I think it difficult to go. It might, however, be decided definitely by an opsonic investigation."

[23] Dr. Bulloch thinks that if in influenza any immunity exists it must be slight and evanescent. See discussion at Hunterian Society, BRITISH MEDICAL JOURNAL, quoted by Bezançon, loc. cit.

[24] See Wiedersheim, *Structure of Man*, translated by Howes, and Leon Jammes, *Zoologie Pratique Basée sur la Dissection*. Neither the clinical observations of St Clair Thomson (the cerebro-spinal fluid, its spontaneous escape from the nose) nor the experimental researches of Cuneo and Millian (see André's *Thèse de Paris*, 1905) seem to have been directed towards the fact of the circulatory freedom that presumably exists between the mesenteric system and the medullary canal. The study of Wiedersheim and especially of Jammes's valuable book points to an embryological connexion of this kind, while comparative physiology would look upon the functional relation as probable. We may add here that von Behring's investigations, to which reference has previously been made, on the probable paths of infection in tuberculosis, are likely to lead to this interesting question being experimentally elucidated.

[25] Loc. cit.

[26] Huxham, quoted by Becker, Galliard. Netter, is curiously enough one of the only old writers who noticed the character of urine in influenza. It will be remembered that indican is a chromogen. Huxham speaks of clear urine without uratic deposits.

[27] This remark applies more to acute tuberculosis. It may here be mentioned that the fact has not been lost sight of in the course of this paper that an acute complaint has often been compared with a chronic condition—acute influenza with chronic tuberculosis.

[28] See Widal's case of grippal meningitis in *Paris Méd. Jour.*, July, 1906.

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SOME DOUBTFUL PHASES OF THE TUBERCULOSIS QUESTION.

IN the revolution of our ideas regarding the cause of tuberculosis, it was perhaps inevitable during the settling period that many phases of the whole question of tuberculosis should be still in doubt. It may possibly serve a purpose to bring forward some of the unsettled points in the cause, prevention, and cure of this highly interesting disease, with special reference to the public.

It should be borne in mind, I think, that these matters are of more than academic interest. The keynote of all that has been said in the last ten years as regards the prevention of tuberculosis is education of the masses. The medical profession must necessarily be the teachers in such a movement, and until the subject is stripped of all essential errors we must often pursue devious and misleading paths.

The people have a vital interest in all questions bearing upon the *cause* of tuberculosis. We feel quite sure that there are many and varied causes, and that these are of different potency. We can agree, perhaps, though not with entire unanimity, that the *Bacillus tuberculosis* plays the principal rôle. There is great diversity of opinion, however, as to just how this parasite is communicated from one person to another, and by what path or paths it usually enters the body. Is it ever or frequently ingested? Behring says that practically all human tuberculosis is so caused, milk being the vehicle. Koch stands almost directly opposed to this view. The great mass of the medical profession is somewhere between these extremes, but would be far from agreeing upon where to draw the line.

Millions upon millions of dollars have been spent in the inspection and slaughter of cattle to protect the

public against tuberculosis. Has it been wisely spent? Was it necessary? Would greater protection have been secured if these vast sums had been turned in some other direction? The writer is strongly of the belief that there would have been.

Another doubtful phase of this part of the subject has recently been made prominent in our Chicago meat inspection scandal. The health officer of that city has been severely criticized for permitting beeves with a localized tuberculosis to be sold after the removal of the affected part. Both medical and lay journals joined in this condemnation. How shall we guide the public in this? A large percentage of our cattle are tuberculous. Is it necessary to destroy them? While the danger from eating such meat is probably slight or none at all, most of us, I think, would not knowingly partake of it. There is something repugnant about the thought of eating meat or drinking milk from a diseased animal, be it tuberculosis or some other disease.

We have taught the public that tuberculosis, in nearly all cases, is communicated from one person to another, directly or indirectly. How much danger is there in ordinary association with one who is affected with this disease?

This is a point of the most vital interest to the public. What counsel shall we as medical advisers give to protect the public from dangerous exposure without unnecessarily curtailing the liberty or privileges of the millions of unfortunate victims of this widely-prevalent and long-lasting disease? In some of the States pupils and teachers have been prohibited from attending school. If necessary to exclude them from school is it safe to permit them to go to Sunday school, to church, to the theatre, or to any public gathering? Shall we also prohibit an indoor worker who has tuberculosis continuing his occupation?

Medical men have advocated requiring railways to provide separate cars for consumptives. Is it consistent to ask for such separation and then allow those invalids to go, after a short journey by rail, to hotels and other public houses?

The conservative members of the profession who attempt to teach the masses will probably say that such measures of exclusion are not necessary, and above all if care is taken in all cases to have no dried sputum. It is pointed out by others that aside from the impossibility of having the sputum properly cared for in the careless and unrecognised cases, we have the danger of droplet infection, as pointed out by Flügge.

The ultra-contagionists, on the one hand, are responsible for the new disease, phthisiophobia, while the other extreme, who hold tenaciously to theories of thirty years ago, allow cases of tuberculosis to develop and die with no precautions to protect those about the patient.

It is so difficult to fix the exact occasion of infection in any particular case, that to determine the degree of danger from association with a consumptive is, perhaps, insusceptible of scientific proof. This danger must vary in different cases according to precautions taken and the hygienic surroundings of the patient. It would seem possible, however, for us to practically unanimously agree upon certain general conclusions—for example, as to the necessity for keeping consumptive teachers and pupils from the public schools.

All are now agreed that seed and a favourable soil must come together to produce tuberculosis. Our information is very meagre as to just what it is that makes the human soil favourable for the growth of the tuberculous seed. We know that heredity is likely to produce this tissue proclivity, yet our views have been greatly modified upon this point, and we are far from agreement as to just how much weight we should give to this as a predisposing cause. With a disease as prevalent as tuberculosis it is to be expected that we will find in many cases a history of the disease in some of the blood relatives of two generations. When we consider the number of cases that develop where no hereditary influence can be discovered, we can hardly claim it proved that in cases where we do find a family history of tuberculosis that it was because of this, in considering any particular case, that the disease developed.

An interesting but unsettled question much discussed of late is the rôle alcohol plays in the production of tuberculosis. There is a vast difference between the use of alcohol and alcoholism. There is also much difference between alcoholism, or the excessive, continuous use of alcohol, in the different classes of society. To the poor workman alcoholism brings bad and insufficient food, exposure, and a miserable, unhygienic habitation, each, in all probability, a potent factor in the etiology of tuberculosis. That alcohol in and of itself is responsible in any great degree for the production of tuberculosis is unproved.

If we turn our attention to the prevention of tuberculosis, widely dissentient views, especially as to the efficacy of various preventive measures, are found. In the first place, there is a difference of opinion as to whether chief attention should be given to destroying the seeds of tuberculosis or to cultivating a resistant soil that will give to humanity greater immunity to the disease.

We point with much satisfaction to the fact that tuberculosis is rapidly decreasing within recent years in most civilized countries. Perhaps the majority would ascribe this to improved hygienic and social conditions. The people are better fed, better housed, and we have thereby created a more resistant soil. We find, however, that while this happy diminution in the death-rate from tuberculosis is going on in England, France, Germany, the United States, and some other countries, this is not true in Austria nor Hungary. Is this because in these countries there has been no betterment in hygienic and social conditions such as is claimed for the other countries where decreasing rates prevail? This does not seem probable.

In England most attention is given to the hospitalization of advanced cases. In Germany the sanatorium treatment of early cases takes precedence, while in France the removal of infected children to seaside hospitals has been the chief work of the general Government.

Is the efficiency of these general preventive measures dependent upon the character of the people of these various countries?

If some province or State should wisely decide to devote a hundred million of dollars to the extermination of tuberculosis, would its medical men be able to agree upon essential points in determining how this sum should be spent? I fancy not.

If we consider the cure of tuberculosis, what agreement do we find among medical men? The method of treatment of any particular disease is largely a matter of individual experience, and we do not expect physicians to be in perfect accord upon this question. But we are now considering this matter solely as it relates to the public, who have a right to expect that certain broad principles should be agreed to and generally followed.

The evidence in favour of antitoxin for the cure of diphtheria is now so overwhelming that the author, for one, believes that a physician who never uses it in any case is guilty of criminal malpractice. He also believes that the practitioner who treats cases of pulmonary tuberculosis with drugs in closed rooms to the exclusion of modern hygienic, dietetic measures practised in sanatoriums, is equally guilty. That thousands of cases are still so treated no one will deny.

But it is to the difference in, and therefore doubtful phases of, the treatment of tuberculosis in sanatoriums to which attention is especially called. In the first place there is no agreement as to the best style of buildings for a sanatorium. Naturally location, climate, and other factors determine this to some extent, but there are certain features that receive different treatment upon which, it would seem, all might agree.

Should patients at all seasons and in all climates sleep entirely out of doors? In many sanatoriums this is made possible but not obligatory. That is, provision is made for both indoor and outdoor sleeping for all patients. We can all agree that patients cannot have too much fresh air; also that the air indoors is never equal in purity to that out of doors. If the author might venture an opinion, it would be that the majority of patients may with advantage, if properly protected, sleep out of doors in all temperature conditions, and that sanatoriums should be constructed with that end in view.

We find different ideas, which have been given permanent form in the construction of sanatoriums, as regards the advisability of permitting patients to congregate indoors. For instance, in some places no chapel or amusement hall is provided. Is this necessary or wise?

Attention is simply called to differences of opinion and

practice as regards forced feeding. One would think that there had already been sufficient experience along this line to enable us to agree upon a general rule.

The dietetic use of alcohol in the treatment of tuberculosis is looked at very differently in different countries. In the United States it is used very little, while in Germany, France, and some other European countries, it is a daily ration. The customs of the different peoples no doubt largely account for this, but we ought to be in a position to know whether alcohol is of benefit or not in the treatment of this disease.

There is great difference in the amount of rest and exercise permitted in the various sanatoriums. While this must, as a matter of course, be a question of individual judgement in individual cases, it should be possible to agree whether it is better in general to give a patient six months' rest, with only sufficient daily exercise to keep appetite and nutrition to the highest possible point, or whether the best practice is to get exercise or work up to something near what will be required of the patient after his discharge.

All who are actively engaged in preventive medicine will agree that the general practitioner (at least in my country it is so) stands in great need of instruction in the various phases of the tuberculosis question. While it is true that much is still doubtful, our stock of knowledge as regards this disease has vastly increased in the last fifteen years. This information has not yet become common property of the medical profession, judged by the usual management of the disease in the home. We still have hordes of tuberculosis victims sent on aimless journeys in search of climatic conditions as a cure for their disease. We still have patients drugged in closed rooms at home, with no word of warning to them or to their families to protect them against infection.

The title of my paper has seemed to authorize the easy position of a questioner. To most of the questions raised positive answers would no doubt be given by many of those present. I venture the assumption, however, that a unanimous opinion would scarcely be expressed as regards any one of them. I would urge more frequent and fuller exchanges of experiences by those in active work in the various phases of the entire tuberculosis question as a means of removing the many doubtful essential points that still surround the subject.

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THE DUST PROBLEM,

AS PRESENTED IN DOMESTIC HOUSEHOLDS, CLUBS, HOTELS, AND CERTAIN OTHER ESTABLISHMENTS.

THE scientific demonstration of the identity of the organism that is specifically responsible for the development of tuberculosis, together with the accumulative proofs as to the ways and means by which the infection is spread, has centred upon the dust question an interest and importance second to no other when the wide reach of this form of lung disease is borne in mind.

There is agreement among authorities that the sputum expectorated by consumptives, and becoming dried and powdered, constitutes the principal means by which the infection is extended, the precise manner in which the recipient acquires it—whether by inhalation, ingestion, or inoculation—being of secondary importance, but that pathogenic lodgement must necessarily take place in one or more of these several ways. The seriousness of the situation is increased by the fact ascertained by competent observers that the vitality of the infecting germ retained within doors may endure unimpaired for several months.

This form of particulate infection, then, being capable of and adapted to dissemination by air currents, is liable to be found within the average domestic domicile everywhere that the airborne sputum can reach, and the methods in vogue for the care and treatment of interiors thus invaded, or those infected from within, assume instantly an aspect of importance for weal or woe that cannot be gainsaid or idly set at naught.

The acceptance by the medical world of the truth of the discovery of the *Bacillus tuberculosis* was spontaneous and significant, and upon this foundation our practical work and professional faith have been securely builded for more than a decade, but notwithstanding such acceptance, and the wide teachings that have followed by means of the public press in all of its divisions and classes, there still exists among people presumably intelligent an amount of ignorance on this subject, an indifference or inertia as to the observance of precaution and prevention which would fairly go to show that household customs have changed but little as yet; while in larger fields, as hotels, clubs, office buildings, and the like, the methods pursued are oftentimes as unenlightened and dangerous as they were twenty or more years ago.

For a number of years it has been the lot of the writer to be in a position to observe at close range the practices pursued in the domestic administration of certain large clubs, hotels, etc., and as a result of such observation the conviction has been formed that such places constitute a real seeding ground for tuberculosis among members, guests, and employés, chiefly through the inattention or incompetency of those charged with their physical care and business management.

Whether the conduct of household service generally has changed for the better in this respect to any perceptible extent I am unable to say with any degree of positiveness, but the common broom and feather duster seem to be still wielded in residences, and to hold sway there as the chosen emblems of that which is at best but a farcical performance in the domestic menage.

The word "farcical" is used deliberately, for not only is the pretence of cleaning by broom and duster of that nature, even to ordinary observation, but, viewed in the light afforded by special knowledge of the nature of dust as found in our population domiciles, the situation changes and becomes most serious, for the tragedies of consumption follow fast on the heels of blind inefficiency or cheerful ignorance in the everyday dealing with that which may be termed the "prince of the powers of the air" in its broad relation to human health and life.

In view of what is known of the *Bacillus tuberculosis*, it is no more necessary to prove to a body like this the reality of danger from flying infected dust than it is to demonstrate the multiplication table—sanitary observation, microscopical findings, laboratory tests, and clinical experience are all in agreement here; hence the question of the hour is, How shall the perilous nuisance of dust-making and dust-raising within doors be abated?

One of the vices of American house-furnishing is the lavish spread of carpetings, and, these being fastened to the floors, afford secure lodgement to all kinds of dirt conveyed by human or other animal agency, or by the wind, and in such position cannot be cleaned in any proper sense by the ordinary domestic operations. Further harbourage for dangerous mobile matters is found in hangings, curtains, upholstered furniture, etc.

It is through the crude, old-time attempts at so-called cleaning in such places that the chief sanitary offence is given, and direct danger to health and life arises, and in illustration a glance at some experiences personal to the writer may perhaps be permitted here.

Some years ago in St. Louis an athletic club for men was formed, a special appeal being made to the younger men to join for the sake of their health, the widely-announced aim of the organization being the upbuilding, development, and strengthening of the body by all manly games, athletic sports, and exercises. The response was encouraging, and a membership mounting into the thousands was secured.

A large building was hired for a club-house and elaborately furnished in the conventional way, even the dining-room floor being heavily carpeted, as were also a large number of sleeping rooms intended for members and guests. The institution was well patronized, and carpets, etc., soon began to show evidence of use and wear.

As a member it was found convenient by me at times to take breakfast there, and on such occasions I was too often confronted by the unpleasant fact that the domestic ordering of the club had not been completed before it was opened for business; in short, the sweeping of carpets and dusting of furniture went on alongside of tables where meals were being served.

Respectful representation to the management against this practice availed nothing, and this was followed by emphatic protest and vigorous remonstrance, which was received with equal unconcern. The disparity between the loudly-trumpeted purposes of the club and this confirmed dangerous feature of its housekeeping being too glaring for reconcilement, resignation of membership was the only recourse remaining, and this was quickly put into effect.

The paradox was thus presented of an institution catering especially to a younger generation, conducted by average business men, and ostensibly established for the promotion of physical health employing through dull ignorance or perverse inattention methods of internal management which in disease-producing influence must largely defeat its avowed objects, and subject its heedless or unsuspecting patrons to most serious peril—one hand practically undoing the work of the other: what was built up by day being destroyed by night.

That such a situation is not exceptional personal experience and observation has confirmed in another club of one thousand members made up of business and professional men, the women and children of their families being also admitted to its social privileges.

Here the same antiquated and pernicious methods are adhered to, the establishment scarcely ever being opened clean and in order, but confusion, dirt, and danger prevail on the principal floors, sometimes till an advanced hour in the morning. Successful business men compose its board of directors, but the reign of ignorance respecting such a simple health proposition is as absolute here as it was in the same institution a quarter of a century ago.

Without specifying particulars the same conclusion has been reached with respect to hotels, office buildings, and business concerns where extensive carpeting is in evidence —the twin sceptres of the domicile, broom and duster, seem to be undisputed, and securely holding their place.

The limitations of time and circumstance here do not permit any extended notice of the morbid developments observed among employés in atmospheres of daily domestic dust, but of those places in which medical scrutiny has been exercised longest and most closely, the confident statement can be made that while, of course, many contributory influences are involved, yet the pleurisies, pneumonias, bronchial catarrhs, and cases of tonsillitis and influenza occurring among patrons and helps find a sufficient explanation in the local conditions, and undoubtedly these ailments prepare the way for the tuberculous infection that easily and commonly follows.

This infection is spoken of by some as a disease prone to originate in the poorer quarter of a city, but its presence there is, I am persuaded, due to the fact that many wage-earners in clubs, hotels, and the like places are drawn from such localities, and medical observation shows that after a time physical deterioration takes place among those employés most exposed to dust, and that this is usually evidenced by coughs and other evidence of respiratory ailment.

That insidious peril from such cause can lurk in the often luxurious furnishings of places of the kind mentioned is hardly thought by those most liable to be affected, but the contention that they are real and formidable seedling places for tuberculosis can, I believe, be established as truth upon sufficient examination by any one so disposed.

If so much be conceded, the question then recurs as to the necessary measures of prevention, and it will readily be seen that these require the total banishment of broom and duster and any other implement or device by which dust is set afloat; and, if carpetings are to be retained, the adoption of mechanical appliances by the use of which no flying matter will be allowed to escape—this, if necessary, to be followed by the wiping of exposed surfaces and furniture with soft cloths.

The vacuum or pneumatic method of cleaning should be made compulsory by law in every hotel, club, office building, theatre, church, school, and business establishment; this provision as a sanitary adjunct having become just as necessary a part of the house equipment as are those similarly supplied for heating, for ventilation, for fire protection or fire escape.

As to changes needed in ordinary methods in private houses to meet the demands of wholesome living, and framed in the light of to-day, that is a domain concerning which others must speak, but it would appear that amendment in this direction is a very necessary part of the movement for better health. This, however, is a phase of the problem that first and last lodges itself with the housekeepers of all civilized lands, and upon them must rest the responsibility for its final and rightful determination.

The city mentioned in which the clubs, etc., are situated whose delinquencies in a certain respect have been pointed out is said to be the most representative of all American municipalities, in the sense that the different races and nationalities composing its population are more evenly blended than in any other place of nearly the same size: hence sanitary faults existing there would probably be found present in other cities also. The indoors dust problem therefore becomes one of more than local importance, and must concern peoples and populations everywhere who may be liable to fall under the influence of like unwholesome conditions, becoming, in fact, continental if not international in scope.

DISCUSSION.

Dr. F. J. Montizambert (President of the Section) said: In compliance with the official request that Presidents of Sections do not deliver a formal address in opening their Sections, I shall confine myself to an expression of my grateful appreciation of the honour conferred upon me by the Council in appointing me President of this Section, and to the extension of a most cordial welcome to those who have come to take part in our proceedings.

Dr. Alexander Gilchrist said: I would like to ask Dr. Dixon whether he may not have taken an effect for a cause. In referring to the well-known antagonism between gout and tuberculosis he has supposed that the accumulation of nitrogenous products in this diathesis is the effective agent in the inhibition or attenuation of tubercle. Is not this accumulation itself due to constitutional biochemical conditions? Is it not one of the characters present in that arthritic or hyperacid temperament so well described by French general pathologists? It is the hyperchloruration with the consequent increase of osmosis and the hyperacidity characteristic of the gouty diathesis more especially which leads to nitrogenous retention.

[Dr. Dixon here rose and disputed the contention. Dr. Gilchrist continued:]

I still contend that the primary condition is one of the mineral constituents of the blood and the fluids of the body. The question has a practical bearing. In the early stages of tuberculosis, often before any pulmonary symptoms are perceptible, the assimilative functions are plainly defective. The general organic acidity is diminished and with it the secretion of hydrochloric acid by the stomach. It is at this stage, the stage of demineralization, that the treatment suggested by the view I have supported becomes important. The exhibition of hydrochloric acid and of the acid phosphates is suitable to this early phase of the disease, more important perhaps, theoretically at least, than the purely dietetic treatment. It is later that the administration of abundant nitrogenous food becomes necessary.

Dr. Samuel Dixon said: I cannot assent to Dr. Gilchrist's views. The administration of sufficient nitrogenous food to repair the waste caused by the disease must be guided by the symptoms.

Dr. Probst said: I have sometimes thought that it would not be best in the long run for the human race if some serum or antitoxin were found which would prevent tuberculosis. As one of the essayists said: "The prevalence of tuberculosis varies directly as the density of the population, density being accountable for bad hygienic conditions productive of this disease." If tuberculosis has a purpose, it is to teach the people the penalty for breaking hygienic laws. Improved sanitary surroundings and hygienic conditions will gradually advance the race, physically, mentally, and morally, and tuberculosis is our great teacher in bringing this about. Brehmer said he started out to cure tuberculosis with the theory that the conditions that prevent the development of tuberculosis were the ones most likely to cure it—namely, fresh air, proper food, and a right relationship between labour and rest. We should teach people the importance of these measures in the production of this disease. I have tried to interest my friends, especially the architects, in so building their houses that the entire family may sleep out-of-doors as much as possible, which may easily be done for a few hundred dollars. Instead of trusting to the discovery of some antitoxin to prevent tuberculosis let us teach the prevention by right hygienic conditions, which will at the same time protect them from many other diseases.

Dr. J. Barr Stevens (Renfrew, Scotland) said: I wish to call the attention of those present to the illustrated

calendar and postcards drawn up by Dr. W. Stevens, M.O.H. of Renfrew, with a view to the instruction of the people there on the advantage of open windows as a preventive of consumption. Whatever tends to cure consumption tends equally to prevent it. This is illustrated by the history of my father's recovery from pneumonia forty years ago, which was achieved by fresh-air treatment as described by Dr. Cormack of Belfast in his work on *Rebreathed Air*, published about that time.

Professor GLAISTER, M.D., F.R.S.E. (University of Glasgow), said: The whole question of the prevention and repression of tuberculosis is a world-wide one, and may be said to cover the conditions of life in populous cities. The subject may be discussed from a great variety of points of view, of which I desire to examine one or two. From the point of view of the sanitarian there are two main forms of consideration—first, the measures which may be and perhaps ought to be enacted or adopted by the State, and next the treatment of individual sufferers, particularly among the working and poorer classes. Regarding the first, it has been recognized officially by the Scotch Local Government Board that tuberculosis is an infectious disease, and that Board has recommended local authorities to adopt regarding the disease similar measures to those provided in the Public Health Acts for any other infectious disease, including notification, isolation either at home or in hospital, disinfection, and the attention of the sanitary department generally. In addition to such measures as these, others must be adopted for the education of the people generally. This has to some extent been done already by many local authorities by the circulation of written pamphlets indicating the true nature of the disease and the means by which it is spread, and in some instances also by popular lectures. In addition, many societies and institutions, such as those in Great Britain, for the prevention of tuberculosis have been doing excellent work. With respect to populous places such as London, Glasgow, or Montreal, municipalities ought to adopt stringent measures for the prevention of smoke nuisances and street dust nuisances, since the former produce respiratory troubles which give the tubercle bacillus its chance and the latter probably carry it. The prevention of expectoration in public places and public vehicles is not merely desirable but essential, since the desiccated sputum contains the organism in abundance. Reference has been made to the advisability of educating the population to live under more open-air conditions. This would be very excellent provided that the atmosphere which they would be compelled to breathe were reasonably pure.

Dr. R. M. WOODWARD (Surgeon to the United States Public Health and Marine Hospital Service) said: The service to which I have the honour to belong has established a sanatorium at Fort Stanton, New Mexico, to which all tuberculous patients are transferred from the various hospitals. The inmates live in tents, and climatic treatment is mainly relied upon. In transporting patients "tourist sleeping-cars" are used wherever possible, each man being given his own drinking-cup and plate, a specially-constructed spit cup with a supply of carbolic acid for disinfection, and a set of printed regulations which are read over and explained to him on starting. The results obtained at this sanatorium have so far been excellent.

Dr. ROBERTS (Health Officer of Hamilton, Ontario) said: I should like to add a few words on one or two matters. They are the possibility of a better house for the working man outside the city area, and the need of the working class for a proper holiday. We need a holiday and know its value. How much greater value would it be to the working class? A working day not exceeding eight hours, a sanitary home in fresh and unpolluted air, and a regular period of relaxation from work is a necessity if a man is to do good work.

Dr. GROVES (M.O.H. Isle of Wight) said that to one who had been a victim of tuberculosis it was the practical which appealed. Medical health officers and medical men might do their best with their literature and oral directions, but they only reached a mere fraction of those suffering from phthisis, and of this fraction the majority of those to whom they appealed did not fully comprehend the teaching they received. The ideal would be attained only when every phthisical patient was receiving instruction in an institution in which they lived more or less for a time, and in which their environment brought them into harmony with those laws of health obedience to which alone would cure them or prolong their lives. Such institutions existed in all countries, and we knew the effect which even a short residence in them had upon the patients; they showed that they had learned how to live and how to avoid infecting others; they had become missioners in these matters in their homes and to those with whom they came into contact; but they were palatial places for the most part, which cost enormous sums of money to build and to maintain, and into which admissions could not be obtained until after from three to six months, which represented a serious loss of time. When admitted the patients paid from 10s. or 12s. ($3) and upwards weekly for their maintenance. They were not available for the great mass of the people, therefore. Now, the community had to pay for their own protection. Inexpensive settlements or camps should be provided, it may be of rough boarding or of canvas, as in England, into which the patients were admitted, or would be admitted as a matter of course. If they were able to work they might enter them at night, and if not, they might remain in them by day and go home at night; or they might spend a certain number of weeks in them. It was absurd to suppose you could isolate phthisis or shut out those infected from the community. It was for the community to see to it that those who had the poison were taught how best to act under the circumstances for the protection of their fellows and for their own benefit.

A DISCUSSION ON THE CONTROL OF WATER SUPPLIES.

OPENING PAPERS.

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THE BASIC FACTORS OF PRESENT-DAY WATER SUPPLY PROBLEMS.

SOME few communities on this continent possess public water supplies that are above reproach in all respects, but an overwhelming majority of the communities, large and small, especially those of the newer western portions of Canada and the United States, are, or ought to be, in more or less constant trouble on this score. Much attention has been given by sanitarians of late years to milk supplies, and very properly so, but milk presents its most urgent problems in a relatively few cities of the largest size, having great slum districts, dependent upon the dairies of large areas of country and therefore with serious transportation problems to face. Milk problems are of little pressing and immediate importance as a rule in communities of less than 20,000 to 50,000. Water supply problems, on the other hand, occur in all sizes of communities, from cities of the largest size down to single isolated households.

It is the object of this paper to review briefly the chief factors which are common to the water problems which at this moment confront hundreds of separate communities in this country. These problems may be classified technically as those of installation, of maintenance, and of extension, but common to all three are the basic factors, the securing of water, sufficient in amount and suitable in quality, at a practicable price. If in any given case amount, quality and price can be adjusted satisfactorily, the problem for that case is settled. In most communities, unfortunately, the available range of each of these factors is usually limited and the decision finally reached must be a compromise rather than a choice. It is for this reason that the greatest care and intelligence as well as training are necessary in handling them. Each of the main factors of amount, quality, and price, has subsidiary factors and all are generally interdependent. Thus the amount of supply must be calculated for all daily uses and for emergencies, such as fires; for the present population, for sudden transient influxes, and for permanent increase of population in the future. The source of supply must be measured at its minimum as well as at its average and its maximum, and the prospects of its maintenance, increase, or diminution in the future must be estimated. Under "quality" must be considered the physical and chemical fitness of the supply for the industrial uses of the community and for its

domestic necessities; finally, also its hygienic fitness for drinking purposes. Under "quality" also the aesthetics of a supply are more important than has been yet generally conceded, for if an otherwise suitable water be of a colour, taste, or odour to which the population are unaccustomed, serious objections are likely to arise, and it has often happened that the installation of a hygienically pure but discoloured or distasteful water has influenced the inhabitants to the use of good-looking and palatable but infected wells, springs, etc., with resulting sanitary disaster. Under "price" must be considered, besides an infinity of technical detail, the financial ability of the community and also its financial willingness. The interrelations of amount, quality, and price are intricate, the first two often having an inverse relationship, and the third changing with each new combination of plans and specifications drawn up in the effort to adjust them. In the installation of a supply, the practicability of its maintenance and extension must be considered, while in the maintenance of a supply the practicability of extension later on must be provided for. In each of these subdivisions both technical and executive difficulties must be met—the technical corresponding with "what to do," the executive with "how to get it done."

The "what to do" factor is a problem that may always be solved through careful investigation on the spot—by the engineer to determine where and how to secure the proper amount, by the analyst and the sanitarian to determine suitability of quality, and by the financier in close co-operation and conference with the other two to determine price. The "how to get it done" is the great difficulty, for communities are, as a rule, unwilling to proceed systematically and directly in rapidly-moving orderly sequence, under the guidance of experts, to the desired goal. Communities usually prefer to talk, delay, evade, discuss, hesitate; to listen to the conscious charlatan, to the unconscious charlatan, to the enthusiastic amateur—to anybody and everybody, except those whose training and experience are of the order to command attention. Communities confronted by a water problem often act as very many individuals do when confronted by disease—they discredit and distrust the advice of the trained and experienced professional man as being interested and more or less biassed by his profession, while they flock—who can say why?—to the blatant street-corner vendor, as if he were pre-eminently disinterested and unbiassed. It is human nature to do this, and, however illogical or unreasonable it be, it forms one of the basic factors in water supply problems and must be recognized and faced as such. Therefore, next in importance, for the purpose of this paper, to the securing of satisfactory amount, quality, and price, comes the question of who shall determine what is satisfactory in each case.

The water engineer in private practice is a large factor in the water problems of this continent, and many of these private practitioners are of the highest standing and efficiency—men of well-known names and well-known accomplishments, men who have made by their own research the science of water supply as it exists in America. Very frequently these men are themselves, or have associated with them, notable sanitary water experts, and their training makes them also fully capable financiers regarding water supply installation, extension and maintenance, so that all these basic factors are safe in their hands. But technically capable as so many of these distinguished men are, and infinitely superior as their completed work is on the average to that done by the local authorities of the communities that reject outside aid, they bear to the communities for which they act somewhat the relation which a lawyer bears to his client—to please his client and gain his client's ends are essentials to success. However upright and legitimate the lawyer's practice, he is nevertheless a special pleader, and a judge is required to see that the rights he wins for his client are not at the expense of the rights of others; to see that even-handed justice and not special privileges are accorded; to correlate and adjust the different striving interests and secure an average of proper treatment for all. This analogy, far from perfect as it is, illustrates fairly well a great necessity in public water supply problems at the present time—that is, an authoritative supervision of the water supply problems of all communities which shall be officially as well as technically of such weight as to compel sanitary action, to direct and control sanitary action, and to secure co-ordinate and equal justice, and the same high standard of result for all communities.

Provincial and State Boards of Health in Canada and in the United States are slowly acquiring these powers. For a long time merely advisory, permitted legally only to point the way which communities should follow, such Boards are gradually arriving at power to compel communities to act for the communities' own good. But as these added responsibilities are taken on, properly and legitimately, unquestionably in the best interests of the communities themselves and of the country as a whole, it becomes increasingly necessary that provincial and State Boards of Health should equip themselves fully for the purpose, not alone with sanitary experts, but with engineering corps capable of the fullest engineering investigations, the supervision of construction, and the estimation of expenditure. Many such Boards already possess sanitary experts of a high order—notably those of the State of Massachusetts in the United States, and of the Province of Ontario in Canada. But less attention has been paid to the development of the equally important engineering supervision of water supplies by such Boards, and the State of Massachusetts is still, as it long has been, the only notable exception in this regard. In the newer portions of the country, at least, such an engineering corps could, and probably would in many cases, assume not only supervision, but also furnish basic advice in general, if not the complete plans and specifications, after selecting the source of supply.

In proceeding logically to the solution of a problem of installation or extension the total sources of water available to a given community should be determined by a preliminary engineering survey, in which amount and price should be chiefly considered. Those sources thus shown to be possible should then be examined by the water analyst for industrial quality, and by the sanitarian for potability, before any final decision is made. At times the order of investigation may be reversed with advantage, the sanitary survey preceding the engineering. Usually a supply intended for any purpose other than for drinking, such as purely industrial use or fire protection, should be potable also, or else should be so arranged as to be inaccessible to the public (as has been done by having a double system of piping, one for fire protection only), or, finally, should be so unpalatable that it cannot, and will not, be used for drinking, as in certain seacoast cities which supply sea water for fire purposes. Repeated and bitter experience has shown that no amount of mere warning, or other such seeming safeguard, is sufficient to prevent the use of a hygienically objectionable water for drinking purposes if it be both available and palatable. For this reason also the reinforcement in emergencies of a good water with impure water, frequently done as a measure for fire protection, very often results in outbreaks of typhoid fever, because the general population of the ordinary community will not heed or remember warnings given concerning the temporary infection of a supply in this way. A basic principle of water supply is that the public must not be trusted to protect itself against infected water delivered to it by the community. A public water supply for whatever exclusive purpose it may be designed, if it be also available and palatable, must be hygienically pure at all times, incapable of even transient infection, if the public health is to be properly safeguarded.

The writer will not attempt to follow the intricate technical details of the engineer or the financier in determining how the supply finally settled on should be obtained and conducted to the community, nor the minutiae of the analyst's work. In general terms, the basic factor of purity is not the mere exclusion of actual infection, but the exclusion of actual and of potential danger of infection—that is, of actual or potential sewage contamination. Actual danger usually can be determined analytically by the bacteriologist and by the chemist; actual danger may be—potential danger generally must be—determined by a thorough sanitary survey of the source of the water, with full quantitative, topographical, geological, and meteorological data concerning the supply and its surroundings.

It is unquestionably best to secure a supply already free from contamination, and immediately to institute

measures necessary to its preservation in that condition. When it is impossible to secure a wholly uncontaminated source, adequate measures for the removal of existing contamination may at times promise the restoration of the supply to a proper standard. Failing both initial purity or complete reformation, purification must be resorted to. It must be constantly remembered and continually insisted on, however, that the artificial purification of a contaminated water supply can only be regarded as satisfactory when the purification plant is of the best quality, when it is so installed that interruptions to the service are impossible, as by duplication of all essential parts, and, finally, when the supervisor is a man of thorough training and reliability, excluded from political influence, and with a free hand to maintain efficiency constantly at the highest level. Some of the worst typhoid epidemics in recent American history have resulted from temporary interruptions of the operation of purification plants, and great numbers of purification plants are undoubtedly continuously run at far less than the efficiency which ought to be attained.

The final factor in water supply problems which the writer wishes to discuss is that regarding the placing of responsibility for failure to supply pure water. At the present time, if a waterborne outbreak occurs, more or less public clamour may be made, but usually, if made at all, it is made against the local Board of Health. Yet nine times out of ten the local Board of Health has no control of the water supply, except in the abatement of minor nuisances, or as advisers of the local water department. Proposals for the installation, maintenance or extension of the supply are likely to be carried out by the water department or water company without serious regard to the advice of the local Board of Health. It must be admitted that the local Board of Health, composed usually of one medical man and a more or less chance aggregation of laymen, is often wholly incompetent to pass judgement upon a question of water supply, and this is entirely well known to the average water department, which usually contains at least one technically trained engineer. Without final authority and without experience though they be, the local Board of Health, which is scoffed at for its warnings, so long as no outbreak occurs, is roundly abused when an outbreak develops. Yet as a rule it is the water department or water company which is directly to blame, if indeed the blame does not attach much more directly to the community as a whole, because of niggardliness, lack of foresight and general carelessness in the original conception, installation and maintenance of the plant itself.

It seems to the writer that one of the most urgent needs of the present water supply problems of this country consists in the development of a general sense of responsibility on the part of the community, and, to secure this, there should exist some powerful stimulant, direct or indirect, to compel municipalities, under penalties that may be felt, to see that their water supplies are well installed and well maintained. Amount and price are basically controlled by commercial and domestic necessity. It is true that local authorities do not always correlate them with these alone, although the necessity for fire protection and the wants of various industries drive communities more or less directly along the paths of virtue in these respects. But sanitary purity is a matter left chiefly to the humanity or self-interest of the community, and as a rule neither of these is in a sufficiently high state of development to induce radical reforms of a tedious or expensive character.

The agitation requiring non-poisonous milk has been going on for some years, and the courts now recognize the legality of punishing milkmen for the sale of milk not up to certain sanitary standards. Of course, milkmen have been fined during many years for adulteration, watering, etc., but milk so altered has lost commercial rather than sanitary value, and the punishment has been meted out on these grounds. Patent medicines must now in many of the United States bear upon their labels a complete statement of the materials they contain. Even canned goods are now compelled in many instances to fulfil certain standards, and these are, at least nominally, sanitary, not commercial, standards.

In the midst of all this agitation for certified purity, driving the private producer of foodstuffs and beverages into a corner and compelling not only commercial honesty but hygienic purity, why should those escape who furnish the most largely used commodity for internal consumption—that is, the communities themselves? If beer is to be inspected, analysed, and excluded if insanitary, if certified milk is the cry, and the milk producer is to be fined for delinquencies, why should not communities be required to furnish certified water to its citizens, and to suffer penalties for failure? What the writer proposes is a general demand amongst sanitarians for the development of legal responsibility on the part of communities for the water they supply to themselves. Let it be recognized that public water improperly collected or handled may propagate typhoid fever throughout the whole population as surely as—more surely than, indeed—milk improperly collected and handled will produce diarrhoea amongst the young children of the population; that such infection of water is much more easy to control and prevent than the parallel infection of milk; that the community which supplies typhoid-poisoned water to its consumers is as guilty as—really much more guilty than—the milkman who supplies bacteria-poisoned milk to his customers; and that the community should be punished (with the intent of reformation) just as surely and swiftly as the milkman.

The writer proposes, then, that all communities should be forced by law to ascertain and keep prominently before its citizens and guests the sanitary status of its water supplies in the form, say, of prominently displayed advertisements in the local newspapers, hotels, restaurants, etc., and that failure to maintain a water supply, if it be thus advertised as pure, in a condition which will exclude the development of typhoid fever as a result of its use be evidence sufficient to allow action for damages from all persons suffering from typhoid fever contracted within the community limits. The community which, to escape liability for damage suits, must be constantly stultifying itself in the eyes of its own citizens and of visitors as possessing, using, and offering for sale a dangerously polluted water, must lack all pride or hope for progress if it continues to endure this avoidable stigma. On the other hand, the community which can justly state that its water supplies are above reproach will hold the confidence of its citizens and of travellers, and be able to exploit this asset with the backing of the law.

That a community should thus guard its own citizens and be responsible for damages in case of failure is no new principle. One may successfully sue one's own town or city for a broken leg if the accident can be shown to be due to negligence or the omission of ordinary reasonable precautions for the protection of the individual on the part of the community.

It may be said that the community does not compel the use of the water it supplies, and therefore should not be held responsible. But neither does the community compel a citizen to fall into an improperly-guarded excavation in the public street. The mere possession of a public street by a community carries with it the implication that it is offered for use, and that such use will be free from unusual risks. So should it be with a water supply. Practically also a community does force the use of the water it supplies, if only by not providing a choice. Indeed, the writer knows of at least one large city which supplies badly sewage-polluted water to its citizens, and yet prevents under penalty the use by those citizens of private wells, not more and often much less polluted than the water which the city in question thus forces upon its own citizens. In communities where the water supply is in the hands of a private water company the action would lie of course against the water company rather than against the community. Whether the particular method here advocated or some other be adopted, the principle of the responsibility of the community or water company to supply pure water, and the imposing of a penalty for failure to do so is the most important advance required in the whole range of water problems at the present moment. It is no longer a question as to "what to do"; the real problem now is "how to get it done."

Leaving these basic factors to their own working out in the future, what is the immediate duty of the sanitarian confronting an outbreak of typhoid fever known to be waterborne? Clearly to notify all citizens that the water is infected, and to indicate the one immediate and radical remedy lying in the hands of all consumers—the boiling

of all water which in any amount or for any reason is permitted to pass the lips. But in most cases of typhoid outbreak it will not be known at first that the outbreak is beyond doubt from water; there are many other possible sources to be considered also. In some communities the admirable plan of continuous analysis of the water supply at frequent intervals is followed. In such cases the results, not of a single hurried investigation under present conditions, but of continuous leisurely investigation spread over previous months and years, is immediately available in case of need. In such communities, indeed, waterborne epidemics of typhoid can hardly occur unawares. But in most communities such accumulated data regarding the water supply will not be available, and therefore it will not be known usually offhand whether or not the water supply is infected. Even if it is known to be contaminated this fact alone does not carry with it the assurance that the water supply is in truth responsible for the outbreak. The investigation of the outbreak case by case, as outlined beyond, will surely indicate the true source. Meantime, and until the specific source is found in the particular outbreak under consideration, the following "shotgun prescription" may be given, in the form of newspaper announcements, placards scattered about the community, and even as circulars addressed to the individual householder.

The following is the form of preliminary notice used by the Minnesota State Board of Health, on notification of the existence of a typhoid outbreak and preliminary to investigation:

To the Citizens of.....

TYPHOID FEVER is EPIDEMIC in.....

The Minnesota State Board of Health is investigating this epidemic to find its exact source. Meantime govern yourselves as follows:

1. TYPHOID FEVER is contracted solely by the MOUTH. If you do not put the poison of typhoid fever into your mouth YOU WILL NEVER CONTRACT TYPHOID FEVER. Therefore, WATCH THE MOUTH.

2. DO NOT EAT OR DRINK ANYTHING (water, milk, oysters, fresh vegetables, or anything else) UNLESS it has been first BOILED, BROILED, BAKED, WASHED, FRIED, or otherwise THOROUGHLY HEATED through and through.

3. DO WITHOUT ALL FOOD OR DRINK which has not first been thus heated. (Canned or bottled foods or drinks are not included in this.)

4. If living in the same house with a typhoid fever patient, DO NOT HANDLE YOUR OWN FOOD, or food intended for any one else, even if it has been heated, except with HANDS that have been THOROUGHLY WASHED with soap and very hot water (preferably also with antiseptics—ask your physician about the antiseptic to use). WASH BEFORE EVERY MEAL in this way and before cooking, serving, or eating ANYTHING.

The poison of typhoid fever does not show itself for *two weeks* after it enters the body. Therefore for the next two weeks, typhoid cases may develop from typhoid poison already taken in. But any case which develops on and after (a date two weeks later than the date of the placard) will be due SOLELY TO NEGLECT of this notice and failure to carry out minutely the directions here given.

Such a notice, while of immediate value as an emergency measure preliminary to and during the sanitary investigation, often indicates also the only procedures which can be instituted for many months, even after the investigation is satisfactorily concluded; for it very frequently happens that the existence of typhoid in a community, whether originating from the water supply or not, depends on conditions which require for their reformation the voluntary radical (and therefore slow-moving) mental and physical action of the community as a whole. If, for instance, the water supply comes from a badly sewage-polluted stream, from which the community has taken drinking water for years without much typhoid, but which has been suddenly badly infected from an upstream typhoid outbreak, it may take months, even years, of consultation, discussion, etc., before the local authorities are convinced and decide to reform or change the supply, and subsequent months or years to secure the proper engineering and sanitary data and to adjust to them the finances of the community. If it came from flies carrying into exposed kitchens and dining-rooms the excreta of typhoid patients from adjacent privy vaults, the whole community must change its manner of living. Of course when central government authority can compel immediate action, all this will be changed, but even so the mere physical operation of remodelling a water supply or a community takes time, and in the interval the community must be instructed to protect itself. It is true that few communities will heed such a notice, but at least the sanitarian's conscience will be clear if it be given.

The investigation of a water supply suspected of furnishing typhoid bacilli, together with its other ingredients, should be as complete from the sanitary side as the initial investigations concerning a new supply, already briefly outlined. No supply should receive anything but condemnation if examination shows that sewage bacteria, alive and in their natural sewage condition, are found continuously in it, or if the circumstances are such that fresh and active sewage bacteria may at intervals readily be admitted to it. But the proper investigation of a typhoid outbreak, as already stated, does not begin with such examinations of the water supply. There is no object in going through this laborious and time-consuming task before evidence is adduced to show that the water supply is properly to be suspected.

A typhoid outbreak should be handled first of all by the publication of a notice in the general lines of that already given, for this notice, if followed out by the citizens, will cut short the outbreak immediately. In the breathing spell thus secured full information concerning the patients involved must be obtained, either from the attending physicians, if these are reliable and willing to co-operate, or directly from the patients or the patients' family by the investigator himself. Such information involving, besides complete identification data for each patient, the local conditions under which each patient lives, his association with previous cases, the sources of the drinking water, milk, fresh vegetables, oysters, etc., used by the patient within three weeks previous to becoming ill, ought to be sufficient in the aggregate, if carefully studied and collated, to fix the responsibility for the outbreak, or at least narrow down the possibilities to one or two sources. The study of these sources in detail—historical, physical, and analytical—should follow; and if the work be complete and thorough, an absolutely convincing etiology can usually be established. Too often in typhoid outbreaks the investigation begins with

LABORATORIES OF MINNESOTA STATE BOARD OF HEALTH, MINNEAPOLIS, MINN.

Complete Typhoid Fever Hygienic Data to date of .....

Filled out by Dr. ..... on (date) .... (address).

Name in full (write legibly).	Age (if not known exactly, state whether young, middle-aged, or old; adult, schoolboy or girl, child or infant).	Sex (M. or F.).	Nationality of himself, also of father and mother (if of foreign parents, give as German-American, Irish-American).	Occupation (give as exactly as possible).	Place of work when taken sick (name of firm, etc., and address, town, block, lot, or street, and number of house or ship).	Residence when taken sick (name of owner, and number, street, and block; lot, town, or camp).	Present address (town, block, lot, street, and number, mine, or camp).	Date first seen by physician (month and day).	Date first sick (month and day).	Where living during three weeks before taken sick (all places with dates).	What intimate associate as sick with typhoid (mother, father, husband, wife, fellow boarder, friend, etc.).	Present address of such associates.	All sources of milk used by patient (name of milkmen and address) during three weeks before sick.	All sources of drinking water used by patient (name and location of wells, streams, lakes, ponds, or other water supplies) during three weeks before sick.	Present status of case (running, recovered, convalescent, dead).	Physician's view of channel of infection.	Remarks.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

analyses of the water supply and drifts along for weeks, without investigation of the cases themselves or the institution of any measures for the prevention of continued infection. The water is then condemned or approved as the case may be. If the water is irreproachable, the investigation may take other directions, still without treatment of the actual epidemic situation. If the water is condemned, the local authorities are notified, the situation is discussed for a time, the epidemic exhausts itself, and everything is forgotten—until next time! The method here suggested seems logical and effective, since it prescribes a course of procedure which, if followed out, will stop the outbreak at once, leaving the investigation of the source to be conducted along logical and definite lines to a final conclusion.

A set of blanks for the use of physicians or health officers, furnished by the Minnesota State Board of Health for securing the hygienic data concerning typhoid patients for the investigation of such outbreaks is given on p. 622.

The present weakness of the most logical and well thought-out methods of this kind lies in what has been already outlined—the lack of public faith in and obedience to official hygienic advice, combined with lack of official hygienic authority to compel the observance of the advice, whether believed in by the citizens or not. The chief satisfaction to be gained from measures directed to the elimination of typhoid infection by proffering good advice to the community involved consists in the feeling of duty logically and completely fulfilled, so far as present conditions allow. It is the individual citizen who suffers most by neglect of such official hygienic advice, and it is on him that the chief responsibility rests and will continue to rest, until a stage of civic development is reached which will give the official hygienist the power to enforce instead of merely to advise what is known to be right.

II.—W. J. Robinson,
Health Officer, Guelph, Ontario.

ARTIFICIAL PURIFICATION OF WATER SUPPLIES.

Water may be artificially purified by filtration or by distillation. As the method by filtration is the only one practicable for the treatment of large quantities of water, I propose to confine my remarks exclusively to this system.

There are two great systems of water filtration, namely, the slow sand or English filter bed system, and the mechanical or American filter system.

In the past these have been called rival systems; but numerous experiments and the practical operation of many filters lead to the conclusion that this term is hardly applicable at the present time. Each system has its own special field of usefulness.

For the treatment of very turbid and muddy waters the slow sand filter is inadequate. This turbidity can only be removed satisfactorily by a chemical process. On the other hand, for the treatment of polluted but comparatively clear waters the sand filter yields the best hygienic results.

An English filter bed in its simplest form may be described as a watertight reservoir suitably underdrained and filled to the depth of 5 or 6 ft. with filtering material composed of gravel and sand. The bottom layer is composed of gravel, carefully selected, for a depth of about 12 in. This gravel plays a very small part in the purification of the water, and is chiefly useful in providing for the lateral movements of the water to the underdrains. On top of the gravel is placed about 12 in. of coarse sand, and then follows from 2 to 4 ft. of finer sand. The quality and character of the sand are a matter of the greatest importance to the efficiency of the filter. Sand containing much carbonate of lime is objectionable as tending to harden the water. Very fine sand has greater purifying power, but, on the other hand, the filter clogs quicker and the sand is more difficult to wash, thus adding to the operating expenses of the filter.

The water is allowed to pass slowly and evenly through the fine sand, leaving the bulk of its suspended matter on top, forming the "*Schmutzdecke*," or dirt cover, of the Germans. This dirt cover contains not only the suspended matter but also a gelatinous material produced by bacterial action. This gelatinous material is probably the most important constituent of the sand filter, for in it the various bacteria found in the water become entangled and destroyed. It more or less fills the pores of the filter bed, enclosing the bacteria and the sand particles, and catches and holds fast in its sticky surface not only suspended matter of various kinds but also the new bacteria which come on the filter and start to work their way down through its pores. It is by these imprisoned bacteria that organic matter either in solid form or in solution is attacked and destroyed.

In the early days of sand filters it was thought most important that the beds should be kept clean; but the results soon showed that the beds were most efficient when at their dirtiest. A new filter is of very little use until it "ripens" for work; that is, until the nitrifying organisms have firmly established themselves and the bacterial jelly envelops the sand grains.

However desirable it may be to have sand filters dirty they must be cleaned at frequent intervals by scraping and removing the upper layer of dirty sand, otherwise the filter becomes impervious to water. This is done by labourers with wide sharp shovels, and the dirty sand is thrown into a portable hopper and quickly removed to the sand washer by an ejector. This ejector is a recent improvement, and tends to lessen the cost of handling the sand. The sand when washed need not be replaced on the bed until the total thickness is considerably reduced.

The interval between cleaning depends to some extent on the character of the raw water. With turbid and muddy water the filter soon becomes clogged, and must be cleaned more frequently than with clear water.

The modern tendency seems to be with turbid water towards some preliminary treatment either by rapid filtration, by sedimentation, or by the use of a suitable coagulant. By some such process the turbidity is to a great extent removed, the time between cleaning is lengthened, and the rate of filtration considerably increased.

The engineering structure containing the filter bed varies in size, in shape, and in method of construction, according as the preference of the constructor and the necessities of the case may demand.

Of whatever material the filter is built it must have watertight sides and bottom, otherwise there is a constant loss of water from the filter when the ground water is lower than the water in the filter, and under reversed conditions the ground water comes in and mixes with the filtered water.

It seems to be generally admitted that, in any country where the winter temperature is much below the freezing point, a frost-proof cover is absolutely essential to the efficiency and economical management of a filter. Although this adds largely to the first cost, the additional security of operation, and the possibility of employing the labour required constantly without stopping for any weather is a practical advantage which goes a long way towards off-setting the original outlay. Indeed, so great are these advantages that the present tendency is towards a cover even in mild climates.

The underdrains of a filter are simply useful in collecting the filtered water, and play no part in the purification. Tile drains of various dimensions, with ample openings for the admission of water at low pressure, appear to answer every purpose. The tiles must be completely covered by the gravel layer, indeed the size of the tile often regulates the depth of the gravel.

Rate of Filtration.—On the Continent of Europe the rate of filtration is commonly limited to 2.5 million gallons per acre daily. In England the rate seems to be a little higher. In the United States, as a result of the experiments at Lawrence, Mass., and elsewhere, 3 million gallons per acre per day have been generally used as the standard rate, although for the filtration of clear and but slightly polluted water the rate has sometimes been twice as great.

By the use of preliminary filtration the Philadelphia purification works are at the present time filtering at the rate of 6 million gallons per acre daily.

At South Bethlehem, Pa., the water first passes through scrubbers which contain coarse gravel, coke, and a layer of sponge at the rate of 28 million gallons per acre per day. About 75 per cent. of the bacteria are removed by these scrubbers. The water then passes to the filters proper, which are operated at a uniform rate of 7 million gallons per acre per day. It will [illegible]

The cost of the preliminary treatment is more than counterbalanced by the reduced area of the filter and the reduced cost of operating.

The mechanical or American filter system had its origin in the United States, and was first used in paper mills to remove from the water the larger particles which would otherwise affect the texture and appearance of the paper.

This system differs in many essential features from the sand filter previously described; chiefly, however, in the rapid rate of filtration, and in the fact that a small quantity of some coagulant must be added to the water before it is admitted to the filter. The coagulant, usually sulphate of alum, combines with the carbonates in the water, producing the following chemical reaction:

$$Al_2(SO_4)_3 + 3CaCO_3 + 3H_2O = Al_2(OH)_6 + 3CaSO_4 + 3CO_2$$

The aluminium hydrate thus formed is a white flocculent, jelly-like precipitate, and has a similar action in clearing water to that of white of egg in clearing coffee.

The coagulant is the all-important feature of mechanical filtration, for without it we have only a rapid straining of the water, with little or no bacterial efficiency whatever. The coagulant is first of all dissolved in a large mixing tank, and is then allowed to mix with the water in the coagulating or settling basin in the desired proportion; usually about 1 gr. to the gallon, but with turbid or very highly-coloured waters three or four times this quantity is required.

The coagulating basin must have sufficient capacity to allow the water to remain long enough for the chemical reaction to be completed. In this basin, also, a certain proportion of the heavy magma produced by the coagulation settles to the bottom, and in doing so carries with it a considerable part of the suspended matter and about 75 per cent. of the bacteria found in the water.

Danger to health from the use of alum is not to be apprehended, because in a properly-managed plant no trace of alum reaches the filtrate. In order to produce the aluminum-hydrate jelly upon which successful filtration depends, the alumina sulphate admitted to the water must be entirely decomposed. Alum found in the filtrate shows a useless waste of material, and can only take place where inefficient management is provided, or where the alkalinity or hardness of the water is not sufficient to properly decompose the alum. In the latter case soda ash must be added in whatever quantity is necessary to produce the required results. If the water possesses sufficient hardness and time has been given for the chemical reaction to be completed, no alum will ever be found in the filtrate.

The water is now admitted to the filter, which is essentially a large tank or cylinder made of wood, iron, or concrete, partially filled with a uniformly fine sand.

At the bottom of the filter is the strainer system, usually surrounded by several inches of gravel. This system is made as coarse as is possible without allowing the sand to pass through.

All the suspended matter, germs as well as inorganic material, is entangled in the jelly-like precipitate, and remains on the surface of the sand.

Thus, in the mechanical filter an artificial inorganic jelly is formed which takes the place of the bacterial jelly of the English filter bed. In this system, however, its action is either mechanical or chemical, in the other it has a bacterial effect as well.

The precipitated hydrate not only entangles the germs and suspended matter, but also unites with the colouring matter of the water, producing a nearly colourless filtrate.

When the sand in the filter becomes clogged it is washed by a reverse current of water forced by pressure through the strainer system at the bottom. In the older type of filters the sand at the same time was loosened by means of a revolving rake or agitator; in the latest type the sand is stirred up by means of a current of compressed air introduced through the strainers. The results of this appear to be as good as when rakes driven by power are used, while the application in large plants is much simpler and cheaper.

Under ordinary conditions a filter of this type must be cleaned at least once in twenty-four hours. It requires upwards of 5 per cent. of the total filtrate to do this, and takes from three to five minutes to complete the operation. After the washing a certain amount of the filtrate is wasted so as to get rid of all the dirty water in the sand.

Rate of Filtration.—This is from thirty to forty times greater than that of an English filter bed, or upwards of one hundred million gallons per acre per day, or, in other words about seventy gallons per square foot of filtering surface per hour. The rate of filtration is regulated by devices similar to those of a sand filter and must be kept as constant as possible.

Efficiency of Mechanical Filters.—This depends entirely on the use of coagulants, without which they simply act as strainers and have little or no bacterial efficiency. With careful coagulation the removal of colour and turbidity is complete. The experimental researches which were conducted at Pittsburg for a period of six months in the year 1898, with water which contained on an average 11,531 bacteria per c.cm., show that 98.26 per cent. of the bacteria were removed. During this same period a sand filter receiving the same water showed a slightly higher bacteria efficiency, removing a little over 99 per cent. of the bacteria.

Filter plants in actual operation are not likely to receive the same careful attention to detail as during such a test as this. When such attention is not paid the efficiency of the filter suffers in proportion. A mechanical filter is not an automatic machine, and under no circumstances should it be installed unless careful and expert management is provided.

The cost of constructing and *operating* filters, either slow sand or mechanical, varies so much in different localities, and from so many different circumstances, that it is scarcely possible to give any definite estimate without taking into consideration all the local conditions.

In general terms, however, it may be said that to build a sand filter one acre in extent upwards of sixty thousand dollars will be required. A mechanical filter having the same capacity will cost about forty thousand dollars.

As a general rule, the operating expenses for a sand filter are very much less than for a mechanical filter; indeed, the difference is so great that in the end the sand filter will prove the most economical, notwithstanding the original cost.

Filtration from the Hygienic Standpoint.—Any improvement in the water supply of a large city is followed by an immediate reduction in the typhoid fever death-rate, and also the general death-rate is lowered to a much greater extent than can be accounted for by the lessened typhoid fever deaths.

Statistics collected from many sources show that this reduction is as great in those cities using the water of polluted rivers after filtration as in those cities which have changed their supply from polluted rivers to pure unpolluted streams.

Taking the cities of Hamburg (Germany), Lawrence, (Mass.), and Albany (N.Y.) as examples, we find that for a period of five years before filtration was installed the average death-rate per annum from typhoid fever was ninety for each one hundred thousand inhabitants. For a period of five years immediately after a system of filtration was established in these cities the average death-rate from typhoid fever per annum was only twenty for each one hundred thousand. The deaths from all causes in these three cities for the five years preceding filtration averaged 23.57 per thousand, and for five years after the installation of filtration the annual average fell to 18.6 per thousand. While it may be assumed that the whole reduction in typhoid fever death-rate is due to the improved water supply, it cannot be denied that other causes than pure water have contributed to lower the total death-rate of these cities. Improved general sanitary conditions in similarly situated cities without filtration, during this period, reduced the annual death-rate by 1.37 per thousand.

The results may be tabulated as follows:

	Per 100,000 inhabitants living.
Reduction in total death-rate with introduction of filtered water	497
Normal reduction due to improved sanitary conditions	137
Decrease in death-rate due to change in water supply	360
Of this, reduction in deaths from typhoid was...	70
Reduction in deaths from other causes than typhoid fever	290

The inference to be drawn from these figures is that where one death from typhoid fever has been avoided by the use of better water, three or four deaths from other causes have also been avoided. It is not easy to explain how the water is connected with the deaths other than those from typhoid fever, but it seems to me in all probability, if the vital statistics of these cities were closely examined, it would be found that the reduction was chiefly among infants; impure water, to my mind, being a very fruitful cause of the excessive infant mortality rate.

While the hygienic results achieved by the filter plants which have been best constructed and best operated have been all that could be desired, Allen Hazen makes the statement that the results of the great majority of filter plants in the United States have been inferior, and that beyond reasonable doubt sickness and deaths have been caused by the use of imperfectly filtered water. This statement applies, I think, more particularly to the use of mechanical filters, which have been established in very large numbers in that country.

It is my conviction that the vast preponderance of mechanical filters in the United States is due not so much to their supposed superiority as to the persistency of the ubiquitous salesmen who invade any town where the question of filtration arises, and very often finds an easy prey in the average municipal alderman, who, ignorant of all scientific knowledge of water filtration, can easily be persuaded that one or other of the numerous filters manufactured is the most suitable.

I venture to say that three-fourths of the mechanical filters in existence have been thus installed without any engineering opinion being sought.

Ready-made goods of various kinds fill a very useful purpose in the world's economy, but ready-made filters should be looked upon with the greatest suspicion.

III.—Henry D. Holton, A.M., M.D.,
Secretary, Vermont State Board of Health.

WATER SUPPLIES.

The necessity of pure water for all domestic purposes is one that is recognized everywhere as a question that must be met by most municipalities. The answer will vary in different locations. The first consideration to be met is quantity. The prodigal use of water in municipalities in North America is notorious. It varies from 40 to 200 gallons per capita. The use of meters for measuring the amount used by each family, thus requiring them to pay for the water they use or waste, is a satisfactory check. The second and paramount requisite is its purity. This must be determined by repeated chemical and bacteriological examinations under the various conditions that the particular source may be subject to.

Water supplies for towns and cities must be derived from two sources—first, from the wells, sometimes called artesian, and surface wells; secondly, from running streams, lakes, or ponds of water. The surface or shallow wells are very likely to become polluted from the near-by stables or other outbuildings and from the family sewage. The deep, or artesian, are also subject to similar contamination. If the water at first is of good quality, it may subsequently become so polluted as to be unfit for domestic use. The source of this pollution may not be in the vicinity, but from a considerable distance; in fact, it is nearly, if not quite, impossible to determine whence the source.

The expense of boring several hundred feet is such that a municipality in very many cases cannot afford an experiment which may result in failure to find pure water and at the same time a sufficient and lasting quantity.

We have known in several instances that the supply has suddenly become so meagre or so contaminated that it had to be abandoned. A custom exists of discharging sewage of individual houses, villages, and cities into streams of water both small and large; as these streams drain an area which is likely either constantly or at intervals to pollute the water to such an extent as to make it unsafe for domestic use, the result of this state of affairs is that the watershed must be cleared of all sources of possible pollution, usually at a very large expense. This being done, the fact remains that unless this watershed is properly policed polluting material of different characters will find its way into the water of the stream, with perhaps disastrous results. In this view of the case it would seem much better to have provided in the first instance a slow sand filtration. Apparently the time has passed for discussing the efficiency of these filters. Their use for a long period of years under a variety of climates with turbid, clear, or polluted water has proved their efficiency in giving a clear water, having removed 99 per cent. of the bacteria. Care must be taken in their construction and operation. For small towns where the water must be used for fire purposes, where a sufficient area cannot be found for the construction of a filter without losing the head required, there are efficient mechanical filters which, if properly constructed and operated, may be used as a satisfactory substitute for the sand filter. The question of clearing the streams of sewage is one of great interest. The purification of sewage by sand filters, thus removing not only the offensive odour but rendering the effluent clear and free from bacteria has been demonstrated. Here the element of expense must be considered, especially for small towns or cities.

Personally, I do not believe that persons or municipalities can acquire any rights to do or perform an act detrimental to the public health by reason of having for a long series of years been continually committing such an act without any protest. At the present time there are no records of any decisions of the courts upon this point that I have been able to find.

Various States have laws which prohibit the pollution of the sources of domestic water supplies at the present time, but these laws are not retro-active.

IV.—T. A. Starkey, M.B.Lond., D.P.H.,
Fellow of Royal Sanitary Institute, London; Professor of Hygiene, McGill University, Montreal.

GENERAL WATER QUESTIONS.

In a great measure the health of a community depends upon its water supply. As one authority has tersely put it, the health of a place is as good as its water supply. These statements are equally true whether of individuals or of communities. Although this knowledge has been existent for ages, and the admonitions to people to take great care of their water supply have been voiced for generations, still it seems very necessary to reiterate the advice to people of the present day.

When you cogitate over the matter it does seem strange that most people of to-day, and, in fact, every age, positively decline to avail themselves of the experiences of the generations before them, to profit by these experiences, and to take advantage of them in the care and arrangement in their water supplies.

This curious mental attitude towards this important question on the part of the people—individuals as well as communities—is common to all countries, but more especially to young ones—that is, countries which have been newly settled.

It seems as if a community had the same attributes and characteristics, mentally speaking, as the proverbial young man who will not be guided by the experiences of older men—they must go through the mill themselves before they appreciate things. So it is with young communities: they insist on going through the mill—but at what a cost of lives!

It is this latter toll of lives which is always exacted during the process of gaining experience with regard to water questions that makes the whole subject so difficult to comprehend.

I have talked with city and town councillors and with private individuals about their water supplies and the consequences connected with the non-observance of certain well-founded rules of procedure, with reference to the guarding of the same, and, without exception, have been struck with the amount of knowledge they evinced with reference to this subject—they knew full well all the disastrous results that would come either upon their own heads or on those of their townfolk on account of the omission of regulating and guarding the water supply.

Many of you must have had numerous experiences similar to mine, and you must have thought the same as I do, What is the power or motive which influences intel-

ligent and thinking men to fly in the face of reason in this fashion?

I have tried to answer this question to myself many times, and I have formed the following opinion: Money and personal kudos in the eyes of the public have a great deal to do with it where town or city councils are concerned.

Some city councils will shirk the momentous question of providing the citizens with a pure and wholesome water supply on the grounds that they (the particular council in question) will not be the ones to saddle the city with an enormous water debt. They say things have been going on for many years, and can well continue to do so until their term of office ends. Let the new city council take on the burden, and the credit of mulcting the citizens in a large debt. This is an example of kudos.

Turning to the money side, several examples of the attitudes of councils may be given. First, the cost is considered to be so great as to be prohibitive, and the people must go on as they are, heedless of the number of lives lost on account of this neglect. A time comes when the city or town is stricken with some fearful waterborne epidemic, then the populace arises up and demands the necessary improvements to safeguard the public health at any cost. Secondly, I regret to say there are a few councils swayed by motives of personal interest. I have seen several instances where the councillors have had the dangers thoroughly pointed out to them, and the people have given them full power and instructions to carry out the necessary improvements, still the council have not heeded these, but have contented themselves with some trumpery makeshift which led to the gain of some interested party. It is impossible to imagine the mental attitude of men capable of such demeanour.

It is a matter of consolation to know that such men are few, but where one or two of them exist in a council you will find they are usually men who are able to make their power felt.

With this little preamble I must now turn to the substance of this paper.

I wish to treat of the sources of water supply in general, considering them in classes, their liability to pollution in some respects, and the steps which ought to be taken by all public bodies to preserve the general health.

The sources of supply may be classed as follows:

1. Lakes and artificial reservoirs.
2. Wells and springs.
3. Rivers.

Lakes.—At present there are not very many instances of lakes being used as a source of water supply, except those which are controlled and guarded as to their watershed. Unless lakes are carefully guarded they are very liable to pollution by surface drainage, and by the entry of small streams which are often contaminated. The results of lake infection have been well instanced quite lately in a newly settled district in this country, where the lake was used as a source of water supply. Previous to the inroad of settlers this lake water was pure, but it took about six months for the numerous settlers on the banks of this lake to contaminate the water—result, a fearful outbreak of typhoid.

The town of Plymouth in Pennsylvania supplies an instance of the wholesale contamination of the water in a reservoir by the accession of a very small amount of surface drainage which happened to be infected with typhoid germs.

However, lakes properly guarded as to their collecting area are excellent sources of water supply.

Wells and Springs.—We may consider these together, seeing that the source of the water in the subsoil layers is practically the same for both.

In the case of superficial wells the water derived from the first subsoil layer is liable to very speedy pollution where settlement of people takes place.

These sources of water supply are mostly used in country places, and being so liable to contamination are, in the majority of cases, polluted. The water is, undoubtedly, the cause of many infections, particularly where milk supplies are involved.

With reference to deep wells—and here we include the artesian wells and deep springs—it may be said that the water derived from the very deep strata is usually very pure and wholesome, but I should like to dwell for a moment on one or two particular instances showing how such good water may be badly contaminated and practically ruined by some oversight. This is usually due to want of knowledge on the part of the individual who constructs a well.

Not long ago I came across a small town the people in which obtained their water from superficial wells. At the time I refer to, pollution of these superficial wells became so bad as to be answerable for many cases of typhoid fever. Some of the more intelligent residents had foreseen the danger, and, being aware of the fact that pure water is usually to be obtained at a great depth, they bored some deep artesian wells, tapping the water in the deep underground layers. But they forgot one essential; they never lined the upper part of the boring in order that the contaminated water in the more superficial strata should be prevented from gaining access to the boring, and so contaminate the purer water from below. The owners of these wells pointed with pride to them, and considered themselves perfectly safe from the risk of infection. You can imagine their feelings when they had to be disillusioned and the true state of affairs explained to them. I may say that the analyses of these waters, both chemical and bacteriological, showed very marked pollution. At the same time, it may be interesting to note that the water in the superficial layers supplying the superficial wells was one of the worst polluted and most dangerous it has ever been my lot to examine. On the other hand, samples of water from the deep strata were very pure and wholesome.

We may conclude this section with the remark that deep well water is usually a safe source for drinking supplies, provided proper care is taken to prevent contamination by the water from the superficial layers.

Rivers.—We may classify rivers for the purposes of this paper into large and small. Of course, this distinction is quite arbitrary, as we must have instances which are transitional in regard to size.

However, there are certain statements which will apply to both cases; in fact, the arguments will stand for both, with the proviso that, when speaking of pollution, it is understood that a small river will obviously show signs of pollution much more rapidly than a large one, owing to the difference in volume of water which acts as a diluent.

It may be taken as an axiom that where a population settles along the banks of a river pollution soon occurs, and renders the water dangerous in a more or less marked degree. Most people know that this must take place, but still remain perfectly passive until a tremendous outbreak of some preventable disease—for example, typhoid—occurs, when they set matters to rights as regards utilizing the river water for drinking purposes. The people understand perfectly well that they ought to have carried out the improvements earlier, but shirked their responsibility. As far as my observation goes, when such urgent alterations have been called for, it has generally cost them far more money to execute it with rapidity than if they had tackled the problem earlier and taken their own time over it. I have in my mind several instances of this kind occurring in towns situated on the banks of small rivers. I may say that I could give you instances of towns situated in every province of this Dominion which are examples of the case in point.

Turning now to a more particular consideration of large rivers, I think this is the most important part of the question which we have before us, from the point of view of Canadians, because it is on this source of water supply that many of our large cities depend; also, it is the last of the old standbys to fail the people, and they are very loth to relinquish it, in spite of all evidence accumulating daily, pointing with a very plain finger to the danger which is slowly but surely coming to them.

Of course, in speaking of utilizing rivers for drinking water I always refer to the water in this discussion as being used in its natural unfiltered condition. There are two large rivers in particular in Canada which supply many towns along their banks with water for drinking purposes; they are the St. Lawrence and the Ottawa. They are both very large in volume of water, and it is on this point that the stubborn ones take their stand and try to lull themselves and others into a false sense of security. The argument always brought forward is that the volume of water in these rivers is so great as to render it impossible for the comparatively small amount of sewage which

these rivers receive to make any material difference in their potability. Coupled with this is the very prevalent idea that such large rivers are capable of purifying themselves after a flow of some miles. Now let us consider these two statements a little more closely. We may dismiss the latter very briefly by saying that the old idea of self-purification is now given up by almost all scientific men. Like all old tenets, there is a certain amount of truth in this one—namely, that a river can purify itself is true from a chemical point of view.

Unless the dilution of the polluting material be too small we all know how water, provided it be well aërated and thoroughly mixed up is able to oxidize, or reduce to ultimate fixed products which are harmless, all those unstable highly complex substances of an organic nature which are characteristic of sewage. This purification or nitrifying process is precisely the same as takes place in the soil, though in a much less degree. It is on this fact that the modicum of truth in the old belief above quoted is founded; but in later days, since the science of bacteriology has so advanced, we now know that this purification concerns only the inanimate organic matter, and in no way refers to the bacterial life of the water, beyond the dilution which takes place when a liquid containing numerous micro-organisms is largely diluted with a volume of fresh water containing but few bacteria. In spite of this dilution, however, it is thoroughly well established that the life of organisms is very prolonged in such surroundings, and we know it for a fact that such organisms as typhoid and colon bacilli can exist for a long period in a water containing only a few micro-organisms.

It is here and in this manner that the old fallacy is exposed. The chemist rapidly loses trace of all pollution in a large and quickly flowing river, but the bacteriologist can pick up traces of that pollution miles below the point where the chemist has lost it. This was proved a few years back in the case of the Ottawa River by the late Professor Wyatt Johnson, who conducted the bacteriological examination, and Professor Ruttan who executed the chemical side of the analyses. Three years ago I had the same experience with the Ottawa water. The chemical examination showed the water to be of a pure standard, but the bacteriological examinations gave results which would classify the water as suspicious.

I should like to bring to your notice some figures connected with the St. Lawrence and Ottawa Rivers water. They show the yearly average of the bacteriological content of the waters for the last four years, and I think you will gather from these data that pollution of these two rivers is slowly but surely progressing:

St. Lawrence.

	Number of Colonies per c.cm. on Gelatine.	
1903 ...	90	Only on one occasion last year did
1904 ...	130	I ever obtain any organisms of
1905 ...	145	a suspicious nature, then only
1906 ...	168	"suspicious," not "conclusive." Chemical examinations always good.

Ottawa.

1903 ...	106	In higher reaches of Ottawa I
1904 ...	210	several times found colon and
1905 ...	212	other intestinal organisms. In
1906 ...	240	lower reaches near Montreal only once or twice each year are dangerous organisms to be found. Chemical examinations always good.

Westmount Water (which is practically Ottawa River water from front of Montreal Island).

1903 ...	240	Intestinal organisms frequently
1904 ...	316	isolated from small quantities
1905 ...	313	of water. Occasionally even
1906 ...	360	chemical examinations show evidences of recent pollution.

This Westmount water is rather interesting, because, as I have already remarked, it is Ottawa water coming round the front of Montreal Island and receiving in its course fresh additions of sewage.

The numbers I have given to you are averages for each year. During the winter time the number of bacteria diminishes markedly. At odd times throughout the year the number of colonies per c.cm. takes a marked jump, and in the case of the Ottawa River I have had it up to 1,000 and more. As may be supposed, the numbers usually increase after rain, which promotes surface washing.

In criticizing these results I do not think that the small numbers of bacteria in the St. Lawrence water can be put quite on the same level as those obtained from the Ottawa. I take it one cause of this is the low temperature of the St. Lawrence water, which is somewhat inimical to the rapid growth of organisms. Again, the volume of water in the St. Lawrence is larger than that in the Ottawa, especially during the summer months, and naturally the Ottawa would therefore be more sensitive to additions of sewage or drainage. Finally, the Ottawa River water contains ingredients which are more favourable to the growth of bacteria.

As a contrast, or better a forecast, of the ultimate condition of the Ottawa and St. Lawrence Rivers, I may quote the instance of the Red River at Winnipeg. That city has for years been drawing water from the Red River for drinking purposes. Along its course, owing to the increase of population, the amount of sewage daily pouring into it has been steadily on the increase until it has reached such a pitch that the water is now decidedly dangerous to drink. In fact, during the last year or two the city has been forced to go into quite extensive alterations in its water service, owing to several outbreaks of typhoid fever, directly attributable to the consumption of the polluted water in the Red River.

I do not bring these instances of the St. Lawrence and Ottawa Rivers forward as attempting to prove that these waters are decidedly dangerous at the present moment to utilize in their natural condition for drinking purposes. My aim has been to prove that all rivers flowing through an inhabited country will slowly but surely become more and more polluted as time goes on, and to lead up to the question as to whether it is a wise policy for the people and their representatives to continue in their contention that these river waters are safe in the near future.

In Montreal and Westmount, for instance, something has to be done very soon to provide a better and more extensive service. Is it good policy on the part of the authorities to temporize, that is, to adopt some measure or scheme which shall get them out of difficulties for a time only? Would it not be better in the interests of the people to adopt some improvement which shall secure a good and a wholesome water supply for all time to come? The latter requisite is a contingency which many people know full well will have to be faced in the near future, and the longer such a complete scheme is postponed the more will it cost the public, owing to general increase of prices in every direction.

I could enumerate quite a number of towns situated on rivers from which the drinking water is obtained, towns in which precisely similar conditions prevail at the present day to the ones I have enumerated above.

I do not wish in any sense to be an alarmist, but I think that this matter of contamination of water supplies cannot be brought to the notice of the public too often, in order that they may realize what contingencies will have to be faced in the near future.

Control and purification of public water supplies are the problems which are rapidly looming up before the people of Canada. Neglect of these two principal safeguards will of necessity entail dire consequences.

Unfortunately we have numerous instances of the results of this neglect as to water supplies amongst our neighbours in the United States. In the more populous parts, those which have been settled for a long period, as compared with Canada, the people there have already reached the stage to which we ourselves are rapidly approaching.

You are all familiar with the classic instances of Plymouth, Butler, Lawrence, Philadelphia, and many others in which waterborne diseases became so rife that purification systems had to be installed—since which time these places have been saved these dreaded afflictions in no small degree. The people of Canada must not shut their eyes to such terrible lessons; unless they take all precautions, their turn will come as surely as night follows day.

In this country there seems to be somewhat of an aversion to purification of drinking water, probably on account of the outlay of money necessary and, on the other hand, a leaning towards taking natural unfiltered

water in preference. This latter plan is quite consistent with good sanitation, but it involves thorough control of the watershed which supplies the water. I may say that in nearly every instance this method is only applicable to lakes or reservoirs, wells and springs. As to rivers it is wellnigh impossible to control them and prevent drainage from gaining access.

I am sure that my friend Dr. Hodgetts (Provincial Health Officer of Ontario) can give you numerous instances from his experience on this important subject. He can quote you cases in which he has watched the gradual growth of a place, the people of which took their drinking water from some river under primitive conditions, and coincident with the increase of population the gradual rise of waterborne diseases due to the pollution of the water.

A very eminent sanitarian, Professor Glaister of Glasgow, has given it as his opinion that *any* water receiving sewage is not safe for drinking purposes unless it be filtered before using. In support of his statement he quotes instances in all the principal countries of Europe and also cases in America. The Royal Commission in England has also given a similar verdict, and has proved that a river during a course of 200 or 300 miles is not capable of self-purification from a bacteriological point of view. The polluting material may be diluted, but it is only a question of time for the pollution to become so great as to render the water dangerous.

These opinions are applicable to all classes of water supplies, whether river, lake, or well. As I have already pointed out, lakes, wells, and springs can be controlled and safeguarded, but rivers scarcely ever.

In view of this summing up, it is a logical conclusion with reference to rivers which receive sewage at different points along their course that it will become necessary for communities obtaining water from such rivers for consumption to institute some system of purification. It must come to it sooner or later. It is therefore right that this important question in its entirety should once more be brought to the notice of medical men, more especially the members of the profession in Canada, because they, by virtue of their profession, have such a powerful influence over the members of their respective communities, and it is to them in the first place that people always look for advice on such momentous matters.

It is to be hoped, therefore, that all medical men will endeavour to inculcate in the minds of the public the principles of safeguarding the sources of water supply, and that they will point out the dangers that are ahead, and not wait until those dangers have arrived at their door before attempting to remedy any defects in their water systems.

DISCUSSION.

Dr. Probst (State Medical Department, Ohio) said: Practically all States have laws against the pollution of water supplies, but they are not enforced. It is better to have the State approve all sewerage systems and public water supplies, as in Ontario. Ohio has for many years done this through its State Board of Health, which was recently upheld by the Court in refusing permission to a city to use a certain water without filtration. Mechanical filters might be efficient, but in some regions waters contain so much fine sediment that slow sand filters cannot be used. We have no right to give a positive assurance that the introduction of filters will greatly reduce a high typhoid mortality; for example, Washington, D.C., has had efficient filters for two years, but their high typhoid-rate continues. This simply means that the unfiltered river water had not been the cause of their typhoid; and we must not forget that the causes of typhoid are many.

Dr Oldright (Toronto) said: In a few days many of you will be visiting the beautiful Muskoka lakes, and I want you to help us by using your influence in conserving the existing healthfulness of the district by excluding from the waters of the lakes all and every pollution from passenger boats, private launches, and domestic sources. We have never had any serious epidemic or endemic disease in Muskoka, and we want you to endorse our position that it can only be by the watchful and careful adoption of such measures that we may hope for a continuance of this immunity. The members of the Section may be interested to hear some of the features in perhaps the newest set of filter beds. The number of filter beds is being more than doubled, and I was fortunate in arriving a few days before the new ones were put into use, thereby seeing their construction. They are abandoning the layers of gravel and broken brick and stone, thus saving space for an increased depth of sand, and this rests on a foundation of a porous cement laid to the thickness of an inch or a little more on a framework of a thick plate of iron or steel divided by ribs into squares apparently of 12 in. to 15 in. The plate under the cement is perforated by numerous small holes and rests on strong rows of vitrified brick (?) material, leaving run-ways for the filtered water between the iron plate and the cement bottom of the filter tank. You will remember that in the early days of filtration on the large scale, frequent renewal of the top sand was recommended, and then the Massachusetts people, to whom we owe so much, promulgated the theory, since generally held, that the filter bed did not attain a fair degree of efficiency until a gelatinous film had formed on its surface; M. Tartary smiled and said, "I used to believe that once, but one day a horse fell into the filter bed, and floundered all over it. I do not believe that theory any more." And they now do not fear frequent scraping of the surface, and do not wait for the flow of water to be greatly lessened in quantity before removing the top. There was so much to hear and see that I did not ask him whether that incident was the only ground of his change of belief, but gathered that he had been taking observations before and after renewal. The water, after running through a series of these tanks, passes into a small tank or passage way divided by a wall into two compartments, from each of which is an outlet pipe, one of which we shall call "A," leading to a reservoir for water sufficiently purified to be potable, and the other which we shall call "B," not yet pure enough. By means of a sluice valve in the partition wall the water may be allowed to flow in the direction of "A," or of "B," as desired. Which it shall be is determined daily by an analysis of the water as it enters the first compartment: by "A" it goes to a reservoir for distribution; by "B" to a reservoir from which it is again pumped on to the filter beds, to receive further purification. The circuit is so arranged as to give the water aëration, in addition to that obtained in the filter beds themselves.

Professor Glaister (Glasgow) said: I base my remarks on this subject on two propositions: First, that an abundant and pure water supply is a necessity of modern life; and, next, that a pure water supply is the first line of defence against cholera, enteric fever, and dysentery. The installation of the water supply to a community is bounded by a variety of conditions, and particularly by availability of source and character of water, and by sufficiency of flow. Much depends upon whether the owner of the supply is a local authority or a company working for profit; fortunately for Scotland, the latter case is now very rare, most towns having their own supply. The efficient supervision of supply should be thus: (1) The protection of the gathering ground, either by outright purchase of watershed and lake or the purchase of the lease rights and right of examination of such gathering grounds, as in the case of Glasgow; (2) the periodic and systematic inspection of the gathering grounds to prevent new sources of pollution; (3) the periodic and systematic examination of the water chemically and bacteriologically, the records of which must be carefully filed for comparison.

Dr. Nasmyth (M.O.H. Fifeshire) said: The duty of a medical officer of health is to advise local authorities to supply water in abundant quantities, of good quality, and at a reasonable price. Streams, rivers, and lakes which are used or to be used as water supplies ought not to be polluted by sewage in the expectation that attempts at filtration will render them fit for use. No system of sewage purification yet known can guarantee absolute safety from the germs of disease. Legislation as it pertains to Scotland has not yet prevented gross pollution of streams because of the fear of injuring trades and industries.

Dr. P. H. Bryce (Public Health Officer to the Department of the Interior, Ottawa) said: In my official capacity I have been instrumental in supervising 125 public water supplies in the province, and their general purity is shown by the fact that there were not more than 400 deaths from

typhoid in a population of 2,225,000. This is largely due to the prevention of the pollution of sources. In many instances filtration may be necessary, but the essential principle is to prevent pollution at the source; further than that the householder must be taught proper methods of disposing of his sewage and house refuse safely. This is amply illustrated by the experience of the Muskoka district, which has been strictly supervised, and which I regard as a valuable asset to the province. It has been possible by small sewage schemes to provide safely for hotels and boarding houses, and thus in a population on Muskoka of some 20,000 people cases of typhoid are rare; indeed, many times less than in regular settled rural communities.

Dr. Groves (M.O.H. Isle of Wight), in closing the discussion, contrasted the conditions which obtain in England with those of Canada and the United States in the matter of water supply. The solution of the problem was to be found at the heads of the rivers and their tributaries, and not in the rivers themselves. The waters should be protected in the rock itself from which the springs issued by the purchase or protection of the collecting area, collected in reservoirs, and piped to the possibly distant point of distribution. He described the control exercised by the Local Government Board in granting to sanitary authorities sanction to borrow money for water supplies, and insisted that such a necessity of life should be in the hands of the community.

(To be Continued.)

THE SECTIONS.

BRIEF SUMMARY OF PROCEEDINGS.

The character and scope of the work of the different Sections will appear from the following short summary of the proceedings. A full report of the discussions and of the various papers read in the Sections will be published in due course.

Sections of Medicine and Therapeutics.

Thursday, August 23rd, 1906.

At a joint meeting of the Sections of Medicine and Therapeutics, Sir Thomas Barlow, President of the Section of Medicine, in the chair, Dr. Aschoff (Freiburg) spoke of the researches of himself and of Dr. Tawara, his pupil, into the morbid anatomy of the heart with respect to hypertrophy and other myocardial changes in valvular disease and in acute infections. One hundred and eleven hearts had been systematically examined; in only a very small number of cases was sufficient change found to account for the feebleness found during life. After long investigation he arrived at the conclusion that the cause must be sought elsewhere than in the inflammatory processes, in anaemic necrosis or infarcts, or in interstitial reaction. Two possibilities presented themselves: the work given to the heart by valvular affection increased more and more, until even the hypertrophied muscle failed to meet the demands, or there was a permanent increase of peripheral resistance. On the other hand, the demands might not increase, but the heart still failed, owing to the groups of muscle fibres, which were of especial significance for the action of the heart, being attacked. Dr. Tawara had examined with especial attention the bundle of His in hypertrophied hearts. Dr. Aschoff then gave a full demonstration of this bundle, and pointed out the difference in the histology of these conducting fibres from other cardiac fibres. He pointed out probable congenital anomalies, and related two illustrative cases, one of severe sclerosis of the region, and the other of fatty deposit, in which heart-block occurred. These fibres were not hypertrophied in proportion to those of the rest of the heart. Dr. J. Mackenzie (Burnley) said he had been long searching for such light as Dr. Aschoff had given them. He gave a diagrammatic representation of the auricular systole, the A-C interval (intersystolic), and the ventricular, and said that heart-block resulted when the conduction from the auricle to the ventricle was interfered with. Dr. Mackenzie explained his continuous sphygmograph, registering pulse and pulsation in neck, and related notes of some cases. Varied results came from the administration of digitalis, and this was explained by the varying lesions of the heart sustained; in one case the administration of digitalis and swallowing of any fluid both induced temporary heart-block. Dr. Erlanger (Baltimore) related some experiments on dogs. The effect of gradually applied pressure on the bundle of His was partial heart-block. Destruction of the bundle, and that alone, resulted in complete heart-block, when there was complete independence of auricle and ventricle; the stimulation of the accelerator acted on both, but the vagus more markedly on the auricle, less so on the ventricle. Sudden compression was followed by sudden stoppage of the ventricle, which was relaxed and gradually became distended by the auricular contractions, when it slowly began to contract again. Atropine in heart-block accelerated the auricle but not the ventricle. The unconsciousness might be due either to brain or to heart. Arrhythmia might be caused by depression of other functions of the heart increasing auricular rate, which was auricular tachycardia; also by diminution of the irritability of ventricular muscle by the administration of strychnine and of antiarin. Dr. Gibson (Edinburgh) said heart-block could be demonstrated not only by the tracings which were now employed, but also by the fluorescent screen, the capillary electrometer, and occasionally by auscultation, as the auricle gives faint but distinct beats. He related a case which he had had under observation for some time, and on which he finally obtained a *post-mortem* examination; he had shown previous to death partial heart-block, with a surprisingly high systolic pressure of 170 and a low diastolic pressure of 70. There was found to be total adherent pericardium, but the muscles in the four chambers, and at their junctions was healthy, with the exception of the band itself, which was severely affected. A large number of tracings and lantern slides were shown, which demonstrated the above facts. Under atropine, in another case, the auricular systole was 275 and the ventricular only 36. Dr. W. S. Morrow (Montreal) related two cases of arrhythmia that occurred in Montreal, which might be mistaken for heart-block; one was a failure of contractility induced by too frequent a rate of heart beat in which the size of the beat was not proportional to the length of the preceding pause, and the venous pulse was more frequent than the arterial pulse, but the waves were so small that time relation and cause was impossible. The other case was one of auricular extra-systole occurring in a boy aged 13, which disappeared spontaneously. He thought Mackenzie's "ventricular wave" should really be called the "onflow wave." Sir James Barr (Liverpool) gave very full notes of a case of heart-block, and showed some tracings with Mackenzie's continuous sphygmographs and some lantern slides; the pulse at times fell to 18, and occasionally disappeared altogether for twenty seconds. Taking a deep breath always induced an attack. He was of opinion that the stimulus of the heart was the pressure of the contained blood.

Section of Medicine.

Friday, August 24th, 1906.

Dr. F. J. Smith read a paper on the treatment of typhoid. He advocated much greater latitude in the matter of diet than generally allowed; perforation and haemorrhage had other causes than food. Hard, indigestible food with sharp edges should be avoided; food such as milk, if injudiciously given, might develop fermentation and tympanites. The temperature was not the paramount guide. The patient's inclination was to be fully considered. His deaths numbered 24 in 113 cases, but only 4 of these took place after solid food. He advocated water and fruit juice if the tongue was foul, and the patient disinclined for food; otherwise early feeding of a liberal nature. The average stay of his cases in hospital was 48 days; that of his colleagues was 57. Dr. McCallum (Ontario) said it was hard to know what was a solid diet; what was solid in the mouth might be fluid in the intestine. Dr. R. Hutchison (London) said it was not altogether a mechanical question, there was a chemical element, probably connected with the antiseptic action of the lactic acid developed in milk diet. Dr. McCaskie joined in the condemnation of routine all-milk diet, and referred to the large masses of casein found in the intestine; milk diet was not so very safe. The President remarked on the beseeching way patients

with typhoid occasionally asked for other food, and said he thought this should not be put aside. The liability to thrombosis might be due to milk diet; it was difficult to exclude the mechanical danger; patients bolted food. He advocated Trousseau's method of scraping beef, and putting hot strained broth upon it; also meat or fish put through a sieve. Fruit juice was also of great value. Cleaning of the tongue often followed the administration of a little solid; a fluid diet diminished the salivary action. Dr. Smith replied. Dr. D. G. Spiller (Philadelphia) read a paper on a case of syringomyelia extending from the sacral region of the spinal cord, through the medulla oblongata, on the right side of the pons and right cerebral peduncle to the upper part of the right internal capsule (syringobulbia). Dr. Campbell Meyers asked Dr. Spiller how he explained the loss of disturbance of sensation if, as had been recently stated, the sensation of pain was conducted by the lateral columns. Dr. Spiller said he had come to the conclusion that the fibres of pain sensation ascended in the tract of Gowers. Dr. J. J. Putnam (Boston) read a paper on a comparison of certain modern philosophic doctrines with reference to their bearings on the therapeutics of psychasthenia. Dr. S. Flexner (New York) read a paper on the serum treatment of cerebro-spinal meningitis. He referred to the epidemic in Greater New York in 1904-5, when, out of about 4 000 cases, 3,429 died; and his investigations as a member of a health commission appointed to examine into the nature of the epidemic showed that it was caused by the *Diplococcus intracellularis*. This organism showed constant features. Details of his examinations, experiments, and investigations generally were given. An antitoxin was made from monkeys, and 1 c.cm. of this substance, when injected into the spinal canal of a monkey which had already received an otherwise lethal dose, prevented death. Subcutaneous injection did not answer so well. The same symptoms could be produced in monkeys by repeated suitable injections of the toxin as were found in chronic cases in the human being. Dr. Lindsay Steven (Glasgow) said that this disease had been extremely rare in the United Kingdom till March of the present year, when a mild epidemic in Glasgow had induced the authorities to include it among the notifiable infections. Dr. MacFarlane (Albany) said he believed the pharynx was the site of entrance. It was impossible to inject fluids in large quantities into the spinal canal which would gain admission to the cerebral cavity; this would explain the limitation of experimental meningitis to the spinal canal. The best treatment was probably repeated tapping of the canal. Dr. George Doch (Ann Arbor) read a paper on paracentesis of the pericardium. He said no matter what precautions were taken, paracentesis was always dangerous; he advocated the left costo-xiphoid space as the best site for puncture; fluid was often obtained in one posture which was not in another; incision was also valuable. Dr. J. Bradford McConnell (Montreal) referred to a very successful case of tapping followed by subsequent incision and drainage. The President referred to *post-mortem* experience, which showed that fluid and fibrin collected at the back of the heart; he favoured incision as superior to aspiration. Dr. Doch replied. Dr. Hugh A. McCallum (London, Ont.) read a paper on gastric neurasthenia, which gave rise to considerable discussion; Dr. Putnam, Professor McPhedran, Dr. Walsh, and Dr. Calwell joined, and Dr. McCallum replied. Dr. Campbell Meyers (Toronto) read a paper on the pre-insane stage of acute mental disease, in which he advocated special wards and treatment for such cases, and detailed the advances that had been made in Toronto. Dr. Putnam supported the contention, thinking the movement and principle necessary and desirable. The President then delivered a few words of thanks to the Toronto members, and closed the session. Professor McPhedran proposed a vote of thanks to Sir Thomas Barlow for his conduct in the chair, which was passed with acclamation.

SECTION OF SURGERY.

Thursday, August 23rd, 1906.

DR. WILLIAMS (Rochester, N.Y.) showed a patient suffering from Banti's disease. The spleen was much enlarged, and there was marked anaemia. Symptoms had been observed for upwards of five years. Dr. Dow (Regina, Sask.) showed a patient on whom arthroplasty of the hip-joint had been performed. Dr. Murphy (Chicago) explained the technique of the operation, the essential feature of which is to introduce a layer of fascia and fat between the ends of the divided femur. Dr. Ingersoll Olmsted (Hamilton) read a paper on the surgical treatment of ulcerative colitis. He advocated appendicostomy and subsequent irrigation of the diseased colon with a weak solution of nitrate of silver introduced through a catheter passed down the lumen of the appendix. Dr. Weir (New York), who was the first to perform appendicostomy for this disease, discussed the paper. Dr. W. J. Mayo (Rochester, Minn.) opened a special discussion on the surgical treatment of duodenal ulcer. Contrary to what has hitherto been taught, duodenal ulcer is fairly common, at least 40 per cent. of all ulcers of the stomach and duodenum being of the latter kind; 95 per cent. of duodenal ulcers extend up to the pylorus, or within ¾ in. of it, and are often wrongly diagnosed to be gastric. In 188 cases 73 per cent. were males. The causes producing duodenal ulcer are similar to those which induce ulceration of the stomach, and of these hyperacidity is the most important. The symptoms of duodenal ulcer are very similar to those of gastric ulcer, but the pain and muscular rigidity are situated to the right of the mesial line. Gastro-jejunostomy is the operation of choice for chronic duodenal ulcer. For acute perforation transverse suture of the ulcer area with pelvic drainage should be resorted to. Gastro jejunostomy may be done at the same time, but generally speaking it is safer to do this at a second operation. Of a total of 188 duodenal cases, 175 were operated on for chronic ulcer with 2 deaths, 10 for acute perforation with 4 deaths, and 3 for repeated acute haemorrhages with 1 death. Mr. George Cooper Franklin (Leicester) emphasized the importance of intense agonizing pain with local rigidity of the abdominal muscles as evidence of a perforated duodenal ulcer. Dr. B. E. McKenzie (Toronto) read a paper on the treatment of congenital club-foot. He advised the postponement of operative treatment until the end of the first year of life. He deprecated heroic methods of treatment and claimed ideal results from simple tenotomy followed by mechanical appliances. Cases to illustrate the value of his method were shown. Mr. Harold Stiles (Edinburgh) criticized the paper, and announced himself to be a strong believer in the value of tarsectomy. Dr. Herbert A. Bruce (Toronto) and Dr. H. W. Carson (London) read papers on the treatment of appendicitis.

Friday, August 24th.

Professor William G. MacCallum (Baltimore) read a paper on the surgical relations of the parathyroid glands. He said it had been conclusively proved both by experiments on animals and observations in man that the acute tetany which sometimes followed operation on the thyroid gland was due to removal of the parathyroid bodies. Their number and position varied somewhat, but four separate glands could usually be found, and their commonest site was around the inferior thyroid vessels. Sir Victor Horsley discussed the paper. Mr. C. Hamilton Whiteford (Plymouth) exhibited a perineal stop for retaining a rubber catheter after external urethrotomy. Dr. Perkins (Toronto) showed a female suffering from multiple tumours of both breasts. Mr. Jenkins, F.R.C.S. (London), read a paper on the causation of congenital dislocation of the hip. He believed that in most cases it was due to defective development of the upper part of the acetabular rim. Mr. George Gray Turner (Newcastle-on-Tyne) read a paper on intestinal obstruction in association with the vermiform appendix. Mr. C. J. Bond (Leicester) opened the special discussion on the treatment of acute septic peritonitis by reading a most exhaustive paper. He called attention to the great importance of the diaphragmatic portion of the peritoneum in the absorption of fluids and in phagocytosis. The first lines of defence against peritoneal infection were the cells of the endothelium and phagocytosis. If these break down infection passes directly into the blood stream by way of the vascules as opposed to the lymph channels. Chemical peritonitis is not seen clinically, and that due to gonococcal infection is usually mild in character. The infection following ruptured gastric and duodenal ulcers

is not highly virulent, but requires immediate operation. Irrigation was beneficial where the peritoneum contained foreign bodies capable of being removed by flushing, such as bloody gastric or duodenal contents, faecal matter, pus, bile, or urine, but harmful in cases of fibrinous sticky exudate, and when used to wash away a turbid exudate containing active phagocytes or when instrumental in spreading infection. Free drainage or tamponage was essential in the treatment of local abscesses, necrosis of the bowel, and in cases where the primary focus of invasion could not be satisfactorily dealt with. It was most important to avoid all unnecessary injury to the endothelium. The paper was discussed by numerous speakers, including Dr. Wm. Howitt, Guelph; Drs. Murphy and Ochsner, Chicago; and Dr. W. J. Mayo, Rochester. The proceedings of the Section terminated in a hearty vote of thanks to the President, Sir Hector C. Cameron, proposed by Sir Wm. Hingston and seconded by Dr. Murphy. The number of members who attended the Section was unusually great, and large as was the room provided for their use, there was uncomfortable crowding during the last two meetings, when upwards of 500 were present.

Section of Obstetrics and Gynaecology.

Tuesday, August 21st, 1906.

After the delivery of the President's introductory address, which was published in the British Medical Journal of August 25th, Professor Adam H. Wright (Toronto) read a paper on concealed accidental haemorrhage. He dealt only with the type of concealed haemorrhage which occurred in the latter part of pregnancy, before the effacement or dilatation of the cervix. Five cases had come under his observation. The main purpose of the paper was to show that in a certain number of cases the symptoms were due to shock alone, not to loss of blood. *Accouchement forcé* was extremely dangerous, and treatment by friction, electricity, nitro-glycerine, amyl nitrite, ergot, quinine, rupture of membranes, steel dilators, dilating bags, and the vaginal plug should be avoided. Dr. Wright said he gave morphine for the shock to the extent of 1 gr. in one hour; the drug should be given before profound shock was established. The President, Dr. W. S. A. Griffith, said cases might be divided into two groups: those in which the haemorrhage was little and the danger little, and those in which it was great and the danger great. The first was common, the second very rare. It was the treatment of the latter that raised the chief points for discussion, especially in cases in which the cervix was tough and undilatable. In such a condition, section of the uterus, especially vaginal, was the best method when circumstances allowed. In multiparae with a soft dilatable cervix, bipolar version with normal dilatation was the best method. Dr Temple (Toronto) said he had never seen a case calling for such radical treatment as vaginal or abdominal Caesarean section. Dr. Murdoch Cameron (Glasgow) said he had never seen a death from accidental haemorrhage. In no circumstances should Champetier de Ribes's bag be used, and he would not entertain the proposal of Caesarean section. Drs. Gardner and Goodall (Montreal) read a paper on chronic metritis and arterio-sclerosis of the uterus. From a study of nine cases they were able to distinguish two groups, the characteristics of which were described in detail. In discussing the paper, Dr. Barber said that nothing short of hysterectomy was of any avail in uterine arterio-sclerosis. The results of a study of 146 consecutive cases of ventrifixation of the uterus were presented by Dr. Arthur E. Giles (London). The paper was discussed by Drs. Todd Gilliam (Ohio), J. Wesley Bovée (Washington), S. N. Hay (Toronto), E. C. Dudley (Chicago), Temple (Toronto), and Gardner (Montreal).

Wednesday, August 22nd.

Dr. Charles A. L. Reed (Cincinnati) introduced a discussion on changes in uterine fibroids after the menopause, considered with reference to operation. His conclusions were: (1) That the only safe place for a fibroid of the uterus, however small or large, soft or hard, recent or old, was outside the patient's body; (2) the menopause was a poor surgeon; (3) certain fibroids should be submitted to operation without reference to the nearness or remoteness of the menopause; (4) only in cases in which there was some condition unconnected with the tumour itself, and making operative intervention dangerous, should the leave-alone treatment be adopted; (5) patients who chose a waiting policy should be warned of its danger and kept under frequent observation. Dr. J. T. W. Ross (Toronto) protested against Dr. Reed's conclusions. A fibroid was only an outgrowth of the muscular tissue of the uterus, and cancerous change rarely if ever occurred. The removal of a small fibroid from a young married woman was a serious operation. Dr. Byford called attention to the small number of deaths recorded as due to changes in fibroids in comparison with the large number of such tumours. The discussion was continued by Dr. William L. Reid (Glasgow), Professor Murdoch Cameron (Glasgow), Drs. D. W. Gardner (Montreal), H. O. Marcy (Boston), J. Evans (Montreal), the President, and Dr. J. Price (Philadelphia). In a paper contributed by Dr. H. L. Reddy (Montreal) the indications for Caesarean section other than pelvic deformities and tumours, were dealt with. The paper was discussed by Drs. A. McDiarmid (Chicago), Professor Murdoch Cameron (Glasgow), the President, and Dr. W. Gardner (Montreal). Dr. Thomas S. Cullen (Philadelphia) gave an epidiascopic demonstration illustrating the degenerative changes in uterine myomata, accompanied by a brief pathological dissertation.

Thursday, August 23rd.

The meeting opened by a discussion on the appendix vermiformis in relation to pelvic inflammation, introduced by Dr. Helme (Manchester). The points on which the author invited discussion were the following: (1) That the association of appendicular and pelvic disease is due to contiguity rather than continuity of structure; (2) that the accidental inward direction or pelvic position of the appendix is the chief factor in this association; (3) that the appendix or the pelvic organs may provide the primary source of disease; (4) that appendicitis is a frequent source of dysmenorrhoea and its associated mucous colitis; (5) that association of appendicitis with pelvic disease is the exception and not the rule; (6) that the appendix is not a vestigial structure but a highly differentiated portion of the intestinal tract, and plays an important part in intestinal digestion; (7) that the systematic removal of the appendix during laparotomy for pelvic disease in the absence of evident disease is not justifiable. The following gentlemen joined in the discussion: Dr. Tod Gilliam (Columbus, Ohio), Dr. Lapthorne Smith (Montreal), Dr. Arnold Lea (Manchester), Dr. Carstens (Detroit), Dr. Temple (Toronto), Dr. Lockhart (Montreal), Dr. Holmes (Chatham, Ontario), and the President. Dr. Lockyer (London) spoke on the relationship of appendicitis to pregnancy, its effect on pregnancy, the prognosis of this disease to mother and child, and the treatment of cases in which pregnancy is complicated by appendicitis. The President gave a lantern demonstration of the anatomy of labour, which was much appreciated but called for no discussion. Professor Murdoch Cameron (Glasgow) read a paper on antistreptococcus serum in puerperal septicaemia. The author advocated the use of this serum for certain types of puerperal fever, more especially those in which there had been no great laceration of the soft parts. With respect to the latter, he argued that the serum could not be expected to combat the results of traumatism as well as those of infection. This paper was not discussed. Dr. Evans (Montreal) read a paper on the treatment of eclampsia, in which he drew attention to Edebohls's operation of renal decapsulation for eclamptic anuria, mentioning successes obtained by means of this operation by Edebohls and others. Helme's lumbar puncture, introduced with the idea of reducing intracranial pressure, had not met with success. The various forms of drug treatment were fully discussed. Dr Gilliam described in detail his operation for uterine displacement.

Friday, August 24th.

The meeting began with a discussion on Dr. Evans's paper on eclampsia which he read on Thursday, August 23rd. Dr. Temple (Toronto) strongly favoured bloodletting; uses morphine but objects to chloral. In cases where the cervix is easily dilated he delivers, but does not do so if the os is rigid. Drs. Fenton and McIlwraith (Toronto) and Dr. Reddy (Montreal) also joined in the discussion. Dr. Arnold Lea showed a vaginal drainage tube and tents. Dr. Lewis S. McMurtry (Louisville, Ken-

tucky) read a paper on the surgical and serum treatment of puerperal sepsis, which elicited a full discussion by the following: Dr. Arnold Lea, Dr. P. E. Trusdale (Massachusetts), Dr. Fenton (Toronto), Dr. Charles A. L. Reed, Dr. Francis H. Stuart (Brooklyn, New York), Dr. David J. Evans (Montreal), and Dr. J. F. W. Ross (Toronto). Professor Murdoch Cameron read a paper on ectopic pregnancy, and Dr. J. F. W. Ross (Toronto) read a paper on a study of seventy cases of ectopic gestation. These two papers were discussed together by Dr. Dorsett (St. Louis), Dr. Lewis S. McMurtry (Louisville), Dr. John Edgar (Glasgow), Dr. A. E. Giles (London), Dr. Lockhart (Montreal), and Dr. T. S. Webster (Montreal). On all four days the Section of Obstetrics and Gynaecology was attended by a very large number of members, averaging from 150 to 180.

SECTION OF STATE MEDICINE.

Thursday, August 23rd.

DR. SERGEANT (M.O.H. Lancashire, England) opened the discussion on milk supplies by calling attention to the need for further and more stringent regulations both as to cowkeeping and as to milk standards. This must be done by the State, and no option in the matter should be left to the local authorities. Dr. Bryce explained the steps taken in Canada for the inspection of the sources of milk supply, and expressed an opinion that the system in theory was a good one, and, even if the practice was behind the theory, still good work was being done. Dr. Groves alluded to the standard set in Denmark, and desired that other countries should imitate the example. He gave details of the means adopted to ensure cleanliness in the milkman and in the cow and its surroundings. This was enforced by the Milksellers' Association, and not by the Legislature. Dr. Harcourt said that in his opinion the question rested largely with the consumer, who should demand a purer system of milk production. Dr. Hewlett read a paper in which he dealt fully with the devolution of authority to the county councils for the purpose of enforcing the Dairies, Cowsheds, and Milkshops Order. He then spoke of the need for chilling the milk after being drawn from the cow, and the great need for some improvement in the methods of transit. Co-operation would be a most desirable method of getting these improved methods put into operation. The following resolution was unanimously passed:

> That this Section recommends to the Local Government Boards of England, Scotland, and Ireland, and to the Provincial Boards of Health in Canada, that the time has now arrived when the existing provisions of the law with regard to the housing of dairy cattle, milk storage, and milk distribution, and the periodic inspection of such cattle and dairies should be more strictly enforced upon local authorities.

Dr. J. J. Cassidy (of the Ontario Board of Health, Toronto) next read a paper on the hygiene of the home, which he commenced by laying down the conditions which should prevail in the erection of houses as regards aspect, foundation, etc. He then passed to the construction of floors and to the great need for efficient plumbing. There should be no carpets in bedrooms, no wallpapers, and no unrounded corners and angles. Meanwhile, the kitchen and offices also should receive considerable attention. Miss Helen MacMurchy, M.D. (Toronto), read a most interesting paper on the history of school inspection, and alluded to the Bill now before the House of Commons. She then proceeded to discuss methods and details of school inspection. Medical inspection must be the work of qualified medical men and should receive adequate remuneration. A medical inspector would require tact and discretion, besides kindness in dealing with children. Dr. Cassidy then dealt with the natural development of the child and the need for teaching cleanliness, the proper preparation of food, and the necessity for proper rest and sleep. Dr. Wm. Scott, B.A. (of the Principal Normal School, Toronto) read a paper in which he dealt with the essential duties of medical inspectors, and explained the satisfactory working of daily or weekly medical inspection. He also spoke of the objections raised to medical inspection mainly of a financial nature. Such objections had been raised even in such a city as Berlin, Germany. Others had objected to any interference with the children, and medical men had also raised objections to any interference with their patients. Dr. Nasmyth (Fifeshire) spoke of the necessity for medical inspection, and related what was being done in Scotland. Dr. Stevens (Renfrew) also spoke on the conditions prevailing in Scotland. Dr. Webster (Toronto) spoke of the necessity of the care of the mouth and teeth among school children. Dr. Groves (Isle of Wight) wished to put forward the limitation on the rights of the medical officer of health to inspect schools. Dr. Herbert Adams (Toronto) spoke of the need for public inspection of school children's teeth, and could not see that any reasonable objection to such inspection could be raised.

Friday, August 24th.

Dr. Bryce (Chief Medical Officer, Department of the Interior, Ottawa) commenced the proceedings by a paper on the need for international co-operation of emigrants and immigrants. He quoted the immigration statistics of Canada and the difficulties of chronic pauperism of Great Britain, as evidenced by the Poor-law statistics. He then alluded to the various statutes which had been passed in various countries for controlling the undesirable element which is inevitable in all the countries of the world. The problem of the insane, as shown by the arrangements existing between the U.S.A. and Canada, was fully explained. Dr. Bryce concluded by an eloquent appeal for the co-operation of England in the improvement of the condition of the emigrant and for a complete interchange of official arrangements. Dr. Janet Drennan (St. Thomas's, Ontario) read a paper on State control of health, in which she pleaded for a better recognition by the State of its duty towards the health of the people, and desired to include in the scope of the Health Department all hospitals and asylums, and, indeed, all the members of the medical profession. The speaker also alluded to the growing prevalence of the habit of taking all sorts of drugs without medical supervision, and to the necessity for more knowledge in this matter. She concluded by giving a sketch of the methods by which the whole of the medical profession should be controlled and organized by the State. Dr. Woodward (Marine Hospital Service of the U.S.A.) spoke very warmly of the merits of Dr. Bryce's paper, emphasizing the importance of co-operation with the European States. He considered that there was insufficient attention paid to emigrants passing through a country, and that some greater facilities should be afforded to the inspection officers of the country of destination. Dr. Hutchinson (Westmount, Quebec) called attention to the great need for a better control of the sale of patent medicines. Dr. Oldright added a few remarks on the same subject. The President (Dr. Montizambert) closed the discussion by a cordial appreciation of Dr. Bryce's work, and spoke of the improvement in the relations existing with the officers of the United States as regards the admission of immigrants represented by full acceptance of Canadian quarantine certificates by the United States authorities after an examination of the methods in use at ports of arrival. Dr. Mussen (Liverpool) spoke of the methods of inspection practised in that port with regard to emigrants, and more especially to transmigrants, who constitute a very large proportion. He also expressed his thanks to the Health Officers of the Canadian Immigration Department for their unfailing courtesy. Mr. McGill, B.A., B.Sc., etc. (Assistant Analyst of the Inland Revenue Department), read a paper on the use of food preservatives, with a view to legislation on the subject. He dealt at length with the various forms of chemical food preservatives, and also as to the need for proper limitation of added substances, and for efficient labelling. Dr. H. L. E. Johnson (Trustee of the American Medical Association, Washington) read a short paper on the national supervision of food. He spoke at some length of the dangers of adulterated foods and patent medicines. He went on to advocate in detail the need for collecting under a system of uniform legislation in every State all the duties which could possibly be assigned to Boards of Public Health, and also the appointment of all public health officers by merit and not for political reasons. Dr. Spooner (Liverpool) read a paper on sailors' food. The question of diet was still a matter of contract between the master and the crew and was not, as was popularly supposed, regulated by the State. He went on to describe in detail the principal deficiencies and defects in the ordinary diet. The inspection of the Board of Trade was at present inefficient because it was not supported by any medical knowledge or bacteriological examination. He

concluded by a number of practical recommendations. Professor Glaister commenced the discussion by an eulogy of Mr. McGill's paper and described the findings of the English Committee on the subject. He criticized the use of salt as a preservative and pointed out that its use was not free from objection. Dr. Homan asked whether Mr. McGill was content to accept the recent legislation passed in the U.S.A. Mr. McGill in reply spoke briefly upon the difference between condiments and preservatives and regretted that he was not in a position to criticize recent legislation. Dr. Atkinson (Hong Kong) read a short paper on plague.

Section of Physiology.

Thursday, August 23rd, 1906.

Dr. Louis Lapicque (Paris), speaking in French, opened the day's proceedings with a paper on the electrical excitation of nerves and muscles. He described an ingenious piece of apparatus for exciting muscle-nerve preparations during definite but short periods of time. The results of his experiments show that the duration of the stimulus affects the form of the response of muscle. Du Bois-Reymond did not use sufficiently accurate apparatus to recognize these differences. Professor Sherrington (Liverpool) discussed the paper, and Dr. Lapicque replied. Professor W. E. Dixon (Cambridge) then described the production in heart muscle, after prolonged excitation of the vagus, of a substance which has a powerful inhibitory effect when perfused through the heart of a frog. He believed that the vagus acts on the heart by chemical means. Remarks were made by Professor Carlier and Dr. Meltzer, and Professor Dixon replied. Dr. S. J. Meltzer, with Dr. John Auer (New York), next read a paper on the vagus reflexes upon oesophagus and cardia. A general reflex contraction of the oesophagus took place on stimulation of the vagus; but the thoracic part required stronger stimulation than the cervical, and its contraction was delayed. A reflex in the cardia followed the completion of the deglutition reflex and stimulation of the peripheral end of the vagus. Professor J. S. Macdonald (Sheffield) discussed the structure and functions of nerve fibres as revealed by a study of the currents of injury. In teased preparations of nerve fibres a weak solution of neutral red was found to indicate the passage of the current of injury, and the distribution of the particles of stain was seen to be regular and uniform, and to correspond with the distribution of potassium as figured by Professor Macallum. Professor Macdonald suggested that many of the granules of nerve cells and secreting glands might turn out to be merely the indications of the presence there of inorganic salts. Professor Macallum, Professor Sherrington, and Dr. Gustav Mann spoke on the subject. The next item was a demonstration by Sir Victor Horsley and Dr. R. H. Clarke (London) of an apparatus for localizing and stimulating or destroying by electrolysis points inside the cerebellum. By means of this instrument localized areas of grey matter in the deep nuclei of the cerebellum were destroyed, and as a result of investigations thus made they concluded that the only efferent motor centres in the cerebellum are those for movements of the head and eyes. The cortex cerebelli was relatively inexcitable, and was a sensory receptive apparatus. Dr. Mott (London) then showed a series of lantern slides illustrative of the morphological characters of different areas of the cortex cerebri in primates, and compared some of the latter with types found in some of the forms of insanity in the human subject. Dr. Mills spoke and referred to work of a similar nature done in America. Dr. H. E. Roaf and Professor C. S. Sherrington described the localization of cortical centres for the opening and closing of the jaw, and the effects of stimulating them after the injection of tetanus toxin into the sheath of the facial nerve. The toxin lowered the threshold value of stimulation and afforded another example of reciprocal innervation. Dr. Meltzer and Sir Victor Horsley spoke, and Professor Sherrington replied. The last paper was by Dr. Sutherland Simpson and Dr. Herring (Edinburgh), and related to the paths of sensory conduction in the spinal cord. Partial lesions of the cord showed that sensations of heat and pain can pass along any part of the cord, and were abolished only by complete transverse lesions.

Friday, August 24th.

Professor C. C. Huber (United States) showed lantern slides of reconstruction models of the tubules of the kidney. Differences in the anatomical structure of the tubules were considered by him to indicate the probability of each part possessing a distinct function. Professor F. S. Lee (New York) spoke of the causes of fatigue in certain pathological states, and showed lantern slides illustrative of the action of skatol, indol, and other chemical substance on the production of fatigue of muscle. Professor J. J. R. MacLeod (United States) gave the results of a series of experiments on experimental glycosuria in dogs, in which the sugar content of the blood was examined in preference to that of the urine. Professor Yandell Henderson (New Haven, Connecticut) described the condition of acapnia as a factor in shock. A diminished carbon dioxide content of the blood produces tachycardia, the aëration of the blood is too great, and the condition of shock is often the result. Dr. Alexi Carrel and Dr. C. C. Guthrie (Chicago) spoke of the methods of transplantation of blood vessels, limbs and glandular organs. Successful examples of these operations were shown. Dr. Maurice Nicloux (Paris) described a method of estimating the amount of chloroform in tissues, and gave the results of investigations on the quantity present in different organs at various stages of chloroform anaesthesia. Dr. Percy T. Herring and Dr. Sutherland Simpson (Edinburgh) presented a paper on the lymphatics of the liver. The lymphatics were found by them to be confined to the connective tissue, and to follow the distribution of the hepatic artery. The liver lymph is secreted at the peripheral parts of the lobules by the liver cells. The liver cells are permeated by fine channels, which carry plasma to them from the blood vessels. Dr. W. S. Morrow (Montreal) showed a number of tracings of the negative or venous pulse. He analysed the pulse wave and discussed the origin of its several components. Professor T. G. Brodie (London) then discussed a theory of the functions of the glomeruli and tubules of the kidney. He brought forward evidence to prove that neither filtration nor diffusion could account for the phenomena of secretion by the kidney. He believed that the glomerulus was so arranged as to produce a pressure head in the kidney tubule, and that it acted mechanically in driving urine from the tubules. Dr. V. E. Henderson and Dr. Herring criticized the paper from the point of view presented by the evidences of comparative anatomy and embryology. Professor Brodie replied. Dr. Velyen E. Henderson (Toronto) read a paper on renal excretion. Experiments led him to believe that not only the activity but also the state of the blood and tissues in regard to their content in water and salts must be known before one could draw any conclusions from the secretion in any individual case. Professor Brodie spoke, and Dr. Henderson replied. Dr. F. H. Scott spoke of work done with Dr. R. H. Aders Plimmer (London) on a method of liberation of phosphorus from nuclein compounds. Some of the results obtained were discussed. The President, at the close of the business, made a few remarks on the success of the meeting, and the work of the Section concluded.

Section of Psychology.

Thursday, August 23rd.

Dr. Crothers (Hartford) read a paper on the insanity of inebriety. He considered the term "alcoholism" misleading, as in many cases the use of alcohol was a symptom and not a cause; he would substitute the term inebriety. The insane inebriates were the periodic drinkers, who were always the subject of a psychosis, and the continuous drinker the most diseased of all. The so-called "moderate" and steady drinker was the most devitalized and degenerate of all users of alcohol. The whole subject must be studied medically before any real progress could be made. Dr. Hobbs (Guelph) had little faith in the therapeutic treatment of inebriety. The only rational method should be a long period of confinement, with a building up of the physique and discharge for a period of probation. Dr. Adolph Meyer (New York) thought we should recognize the differences of individual qualification in dealing with the subject. The Swiss Institution at Elliken showed the excellent results of a man convinced of

his cause, not of a pessimist. The two years' limit of detention was merely a means of obtaining any legislation at all. Dr. Langdon Down (London) called the attention of the meeting to the report of the Medico Political Committee of the British Medical Association recommending an amendment of the law in England in the direction of compulsory detention in an inebriates' home for a considerable period of any person through habitual inebriety doing damage to himself, his health, or his affairs, causing public disturbance, and reducing his family to poverty. Dr. J. J. Williams (Ontario) thought that a desire to be sociable, the meeting of old associates, etc., accounted for fully 40 per cent. of those who took alcohol to excess, and that these were mostly good business men who did not neglect their work. An important discussion on dementia praecox, in which many members took part, was introduced by Dr. C. K. Clarke, of the Toronto Asylum. Dr. Adolph Meyer (New York) and Dr. F. X. Dercum (whose papers will appear in the JOURNAL in due course) Drs. A. Robertson (Glasgow), A. T. Schofield (London), E. N. Brush, A. T. Hobbs (Ontario), Spratling (New York), and L. H. Mettler (Chicago) took part in the subsequent discussion. The views of different speakers showed the usual wide divergence met with whenever this debatable subject comes up for discussion. Dr. Farrar (Baltimore) read a thoughtful paper on types of devolutional psychoses; and, in the absence of the author (Dr. R. R. Rentoul, of Liverpool), a paper on the proposed sterilization of certain mental degenerates was read by one of the members. Dr. Rentoul stated that the proportion of degenerates to the population was 1 to 1,000, and he advocated compulsory vasectomy or salpingotomy (in females) in the case of idiots, imbeciles, lunatics, epileptics, confirmed vagrants and tramps, prostitutes, and the children of the above, as the only means to prevent race failure. The alternatives—killing of the degenerates, supplying degenerates with the means to prevent conception, or lifelong incarceration—he did not consider practicable.

Friday, August 24th.

Dr. A. T. Schofield (London) opened a discussion on mind and medicine, which gave rise to a lively debate. He briefly referred to the fact that although the great influence of mind as a force in medicine was everywhere recognized and practised, it was nowhere systematically taught. The whole field was left to be exploited by quacks. He urged that the morning of the last day of the sectional meetings in each year should be devoted to papers and discussions on the study of the sound mind in relation to disease as distinguished from the study of insanity. Professor Mark Baldwin dwelt on the importance of the study of normal psychology for medicine. The old associational psychology based on schemes of nervous mechanism was giving place to a view which recognized the constant influence of mind and body each upon the other. It was the duty, not merely the right, of the medical profession to keep pace with progress of general psychology. He suggested that two great ideas of current psychology recently worked out should be embodied in medical training. First, that of function, upon which the recent theories of suggestion, habit, etc., are based, and second, that of genesis or evolution, which is revolutionizing psychological theory. Dr. N. Brush (Baltimore) had had an opportunity of watching the work of two surgeons, each well trained, each doing good work. One always inspired confidence in his patients that they would recover, with good results; the other produced a feeling of gloom, apprehension and doubt in the minds of his patients, with less favourable results. He referred to the fact that in both France and Germany this matter was receiving great attention. Dr. J. Mickle said that notwithstanding the imperfections of our knowledge it was certain that a large part of medical and surgical practice had for long been in reality suggestion; the degree of ability of the medical man to inspire hope of recovery and belief in its coming being in a considerable degree a measure of his success in treatment. Drs. E. Ryan (Ontario), Cassidy (Ontario), Hobbs (Ontario), and Buck also took part in the discussion. Dr. Schofield briefly replied, and then, in the absence of the author, read a paper by Professor Paul Dubois (Berne) on rational psychotherapeutics. Dr. Ryan (Ontario) read a paper on the application of modern hospital methods to the treatment of insanity, and Dr. Mohr (Ontario) on occupation as a factor in the treatment of the insane, which was briefly discussed by Dr. Miller and Dr. Hughes and the proceedings then terminated.

SECTION OF OPHTHALMOLOGY.

Thursday, August 23rd, 1906.

THERE was a capital attendance at the third day, and a very interesting morning's work was accomplished in a crowded room. The weather continued very hot, but this in no way seemed to interfere with the general interest in the proceedings. The greater part of the morning was occupied by a discussion upon lachrymal stricture and its treatment. It was introduced by Dr. Osborne (Hamilton), who was followed by Dr. Risley (Philadelphia) and Dr. Theobald (Baltimore). Dr. Osborne very graphically discussed the various forms of treatment in vogue and dwelt upon the merits of the operation of extirpation of the lachrymal sac. Dr. Risley was anxious that the merits of the old conservative treatment of lachrymal stricture should not be forgotten, and impressed the importance of recognizing anatomical anomalies as a causative factor of the disease. Dr. Theobald was as convinced as ever of the merits of his treatment of stricture by dilatation with large probes, and gave his hearers a thorough insight into his methods. As regards extirpation of the sac, he had personally not given that method of treatment a trial. Several speakers joined in the subsequent discussion. The general impression received was that most of the speakers looked upon extirpation of the sac as a sort of *dernier ressort*, to be recommended only when experience or trial had shown the impossibility of cure by more conservative means. One was rather struck by the very general lack of enthusiasm with regard to the operation of extirpation, and the little that was said of many points of interest with regard to it, especially as regards the technique and the after-condition of the patient as regards complete relief or otherwise from epiphora. The remainder of the morning was occupied by three papers. The first was read by Dr. Eugene Smith upon extraction of the anterior capsule of the lens. He strongly recommended this method of dealing with the capsule in cataract extraction, and showed a special pair of forceps that he had designed for the purpose. He found that after several hundred extractions of cataract in which the anterior capsule was treated in this way, a subsequent discission was only necessary in about 3 per cent. of cases. The second paper was read by Mr. Ernest Maddox (Bournemouth), who introduced a very handy little pocket receptacle for ophthalmic knives, which may be seen at Messrs. Weiss of Oxford Street. The third paper was one by Dr. Lucien Howe (Buffalo) on secondary insertion of the recti muscles.

Friday, August 24th.

A welcome change from the extreme heat of the three preceding days did not produce a corresponding increase in the attendance; but this being the last day of sectional meetings, and three good days' work having already been very closely attended, probably accounted for a rather smaller though a still goodly attendance. Dr. Duane (New York) read a paper upon tenotomy of the inferior oblique muscle, with a consideration of the different conditions that may call for the operation. The paper was exceedingly carefully worked up, but its detail is too abstruse to give a satisfactory abstract of the contents, and readers of the JOURNAL must look out for a full report of it elsewhere. Suffice to say that, whilst the operation certainly relieved the diplopia in the cases cited, it did not appear to have abolished it in any case. It makes very little practical difference to a patient if the double images are 2 ft. away or 6 in. Indeed the latter condition is rather worse in its confusing effect than the former, and we were struck by the thought that probably Dr. Duane's patients would have received more practical benefit by shutting off one eye in cases irremediable by other methods than by his operation. Dr. Sterling Ryerson (Toronto) read a paper on the surgical treatment of trachoma. He considered expression and graftage the two best methods of treatment, and pointed out the importance of steady perseverance with local applications after operative measures had been

undertaken. It was only in certain cases that operation was called for, and in the papillary variety of the disease he looked upon Darier's treatment as very satisfactory. Dr. Dunbar Roy narrated a case of orbital phlegmon simulating a malignant growth commencing in the ethmoidal cells. He dwelt on the important correlation between diseases of the accessory nasal sinuses and symptoms of orbital and ocular disturbance, and urged the necessity of ophthalmologists being in full touch with all the methods of nasal sinus treatment. Dr. H. V. Würdmann exhibited a very neat and handy little "transilluminator," which presented very definite advantages over other similar instruments already introduced. The morning's discussion was upon visual tests in public services. Dr. Williams (Boston) introduced that part of the discussion which appertained to the railroad and marine services, whilst Mr. Arnold Lawson opened the portion dealing with military service. Dr. Williams, in a very careful and exhaustive paper, dealt with the American regulations and methods of testing the men of the railroad service. Mr. Arnold Lawson first discussed the needs of an army with regard to eyesight, as gathered from an exhaustive inquiry into the regulations for eyesight laid down by the various countries of Europe. He then went on to the practical application of these needs as carried out in the English regulations, and suggested certain alterations. Dr. Jackson (Denver) pointed out that there was a certain pale green band in the spectrum, which served as a test of red-green blindness, and if a shade corresponding to this band was used in testing for colour-blindness, evasion was almost impossible. It was very necessary, therefore, to include this shade as a primary test. Mr. Freeland Fergus, speaking of eyesight tests for navigation, said that in his opinion it was essential for a man who had the duties of a pilot to perform to have a good light-difference sense. Without that it would be quite impossible for him to pick up the land on a dark night. An interesting general discussion followed, in which many members participated, and the session of the Ophthalmological Section of the British Medical Association's meeting for 1906 was finally closed by the passing of a cordial vote of thanks to Mr. Marcus Gunn, the President of the Section.

Section of Paediatrics.

Thursday, August 23rd, 1906.

The meeting was occupied by a discussion on the treatment of entero-colitis in children, and the modification of infant feeding in milk laboratories, etc. The discussion was opened by Dr. Kerley (New York) in a paper on the prevention of acute intestinal diseases in summer. In his opinion the chief etiological factors of the disease were climate and environment, a disordered gastro-intestinal tract, and improper food. He emphasized the importance of education in the prophylaxis of the disease. Mothers should be taught how to feed their children before the hot weather came on, farmers should be educated as to the supreme importance of cleanliness in the dairy, doctors should be educated in the proper methods of infant dietary, and consumers should be taught that pure milk could not be obtained in towns for less than 12 to 15 cents a quart. He considered that the mortality from infantile diarrhoea would continue until municipalities established milk dépôts at a financial loss and appointed women to instruct mothers how to feed and care for their children. Dr. J. L. Morse (Boston) followed with a paper on the dietetic treatment of entero-colitis. He said that the object to be aimed at was such an arrangement of the food as would starve the bacteria without starving the baby. At the commencement of treatment food should be entirely stopped. Children could bear the withdrawal of food for twenty-four to seventy two hours, or even longer, if as much water was given as they would normally get in their food. If they would not take it by the mouth it should be administered with a tube or per rectum, and if not retained by stomach or intestine, must be administered subcutaneously as normal saline solution. When food could be resumed by the mouth he preferred to give it in the form of pasteurized buttermilk. Dr. La Fétra (New York), in discussing the medicinal aspect of treatment, said that the chief indications were: (1) To keep up the nourishment of the system without adding to the intestinal irritation; (2) elimination, by the use especially of sulphates of soda and magnesia, calomel or castor-oil in some cases, and colon irrigation or lavage of the stomach, if specially indicated; (3) to allay the inflammation. He considered that atropine ($\frac{1}{100}$ gr. hypodermically every two hours) was an excellent remedy, and also that opium was most valuable, and not as much used as it ought to be. Dr. Shaw (Montreal) read a most interesting paper on a study of the absorption of fats in infants. He fully described his methods of experimenting, and illustrated his paper by several charts and diagrams. The last paper was by Dr. Ralph Vincent, on the milk laboratory in relation to medicine. He gave details as to the establisment of the Walker-Gordon milk laboratories and of the infants' hospitals, London, where gastro-intestinal disorders of children are treated almost entirely by the modification of milk, to the practical exclusion of drugs. He was particularly severe upon the host of patent infants' foods, and considered that medical men who recommended such substances failed in their duty to the community. The discussion which followed was taken part in by Drs. Ashby, Putnam, Blackader, Riddell, Benedict, and Knox.

Friday, August 24th.

A most interesting discussion took place in this Section on congenital pyloric stenosis. The medical aspect was introduced by Dr. Edmund Cautley. He directed attention to two groups of cases: (1) Functional pyloric spasm, the main feature of which was severe and continued vomiting, without any gastric dilatation or pyloric tumour. Such cases were extremely likely to give rise to an erroneous diagnosis of congenital hypertrophic stenosis. (2) Congenital hypertrophic stenosis. He had had 16 cases under his own observation. Almost all occurred during the first three months of life, generally in the first month. Lack of appetite might be the first symptom, but was often overlooked. Vomiting was the chief characteristic; in typical cases two or more meals were kept down, and then the whole lot brought up forcibly. Constipation was usually present; the child wasted progressively, sometimes with extraordinary rapidity, and the general appearance was one of lethargy. The physical signs were—visible peristalsis, dilatation of the stomach, and a tumour in the region of the pylorus about the size and shape of a filbert. The pathological condition was a true hyperplasia of the circular muscular fibres of the pylorus. He believed that the outlook in these cases was extremely bad if treatment was purely medical, even when the obstruction was incomplete. In a doubtful case the food should be as simple as possible, $\frac{1}{120}$ gr. of cocaine or ½ minim of tinct. opii should be given every hour. If there was no improvement in a few days the stomach should be washed out daily with a weak alkaline solution. When the diagnosis was certain, operation should be undertaken at once. He regarded the stretching operation as unscientific and dangerous, and considered that pyloroplasty afforded the best results. Dr. Cautley showed specimens and photomicrographs in illustration of the subject. Mr. Harold Stiles of Edinburgh treated the subject from the surgical aspect. He reviewed the anatomical conditions, and stated that without exception all the cases he had operated on showed thickening of the circular muscular fibres. He distinguished a class of cases intermediate between the spasmodic and the truly hypertrophic ones. In these intermediate cases he recommended the operation of divulsion, but in severe cases he preferred pyloroplasty or gastro enterostomy. He gave details of the operation, laying particular stress on the following points: A good anaesthetist was absolutely essential; on no account should carbolic acid or any other antiseptic be applied to the skin for any time previous to operation; the incision should not be too large, and great care should be taken in inserting the sutures to close the wound. In conclusion, he urged that valuable time ought not to be wasted in medical treatment, but that patients should be submitted to early operation. Dr. Putnam (Boston) gave details of a case which had been successfully treated by forcible dilatation. Dr. Robert Hutchison expressed profound disagreement with the views of Dr. Cautley and Mr. Stiles. During the last two years he had seen 8 well marked cases of the disease, all of which recovered under medical treatment, and he did not think that patients should be submitted to early operation. Dr. Ashby said that he did not feel justified in urging operation in these cases. Remarks

were also made by Drs. Kerley, Primrosé, Vincent, Machell, Porter, and the President, and Dr. Cautley and Mr. Stiles briefly replied. The business of the Section concluded with a paper by Dr. Albert E. Vipond (Montreal) on the glandular system in infectious diseases. He discussed in detail the significance of enlargement of the lymphatic glands in the various infectious diseases, and pointed out that as this enlargement appeared some days before the development of the disease it formed a valuable aid to diagnosis and enabled isolation to be carried out more effectually than could otherwise be done.

SECTION OF LARYNGOLOGY AND OTOLOGY.

Thursday, August 23rd, 1906.

DR. GEORGE E. SHAMBAUGH (Chicago) demonstrated celloidin casts of the labyrinth of the ear, showing blood vessels. Dr. George A. Richards (Leicester, Mass.) reported two cases of abductor paralysis. In one of these a child, in consequence of fright, immediately suffered from loss of voice and inspiratory dyspnoea. The vocal cords were found in contact. Tracheotomy relieved dyspnoea. Dr. Mosher showed a speculum for inspection of the pyriform sinuses and upper end of the oesophagus. A discussion on the indications for the ligation of the jugular vein in otitic pyaemia was opened by Mr. Hugh E. Jones (Liverpool) and Dr. J. F. McKernon (New York). Mr. Jones expressed the opinion that the first essential in the treatment of otitic pyaemia was the rapid and complete eradication, so far as that was possible, of the primary focus in the temporal bone and of the secondary focus or foci (if present) in the sinuses, bulb, and vein, without at the same time accidentally causing a spread of the infection. The measures necessary for this depended upon the duration of the disease and the seat of the infection. Dr. McKernon maintained, first, when pus has broken down clot is found upon opening any portion of the sigmoid sinus, ligation should be done at once without further manipulation; secondly, in adult cases with typical sinus symptoms, primary ligation should be the first step, to be followed by evacuation of the sinus contents. Dr. S. MacCuen Smith (Philadelphia) read a communication on the pathogenic influences of aural lesions on systemic disease. Some serious diseases of the ear and their complications were frequently overlooked until the local lesion was made manifest by a discharge from the external auditory canal, or, as more frequently happened, at the autopsy. This mistake was especially frequent in so-called malaria or typhoid malarial cases, and those simulating meningitis. The importance of an examination of the blood to determine the process of pus formation, especially the degree and value of leucocytosis in its relation to the percentage of polymorphonuclear cells, was referred to. Dr. Gorman Bacon (New York) read a paper entitled, To what Extent is it Advisable to Adopt Conservative Methods in the Treatment of Aural Diseases? Abstracts of cases were given, with conclusions, in regard to those suitable for operative interference. Too many cases of chronic otorrhoea were operated upon, and conservatism was advocated. Dr. Clarence John Blake (Boston) discussed the value of the blood clot as a primary dressing in mastoid operations. In a series of clinical investigations, undertaken for the purpose of determining a substitute for the prolonged packing of the mastoid cavity after surgical evacuation of its contents, it was found that by careful and complete removal of diseased tissues, the resultant cavity being allowed to fill with fresh blood and the post-aural wound being then closed by suture or by apposition, primary healing was accomplished in some cases; and in others, when the clot became infected and broke down, a crop of healthy granulomata resulted, with more speedy healing under light packing than took place in similar cases packed immediately after operation.

Friday, August 24th.

Dr. Alice G. Bryant (Boston) read a paper on the use of the cold wire snare in the removal of hypertrophied tonsils, and showed instruments devised for the operation. Dr. Chevalier Jackson referred to 6 cases in which he had to ligature the carotid after removal of tonsils. Dr. Leland in severe cases of tonsillar haemorrhage scratched the bleeding surface with his finger nail, a procedure which he found very effectual. Dr. Tilley and Dr. StClair Thomson had each had only 2 cases of haemorrhage giving any anxiety; their experience evidently differed from that of their transatlantic confrères. Dr. V. Delsaux (Brussels) submitted a paper entitled, Subperiosteal Abscess of the Forehead, complicated with thrombo-phlebitis of the superior longitudinal sinus, extending to the lateral sinus and jugular vein of the opposite side—meningitis; death; necropsy. A discussion on the laryngeal disturbances produced by voice use was opened by Dr. Middlemass Hunt (Liverpool) and Dr. W. E. Casselberry (Chicago). Dr. Middlemass Hunt classified the subject as follows: (1) Use of voice throughout its whole compass at definite degrees of pitch and usually for short periods of time, for example, singers. The lesions found were hyperaemia and muscle paresis. (2) Use of voice for long periods but with prolonged intervals of rest, for example, preachers and public speakers. The lesions were chronic congestion, phonasthenia, and neurotic disturbances. (3) The daily use of the voice for many hours at a stretch, for example, teachers. The usual changes were laryngeal nodules in women and fibromata in men. (4) The violent use of the voice for long or short periods and in unfavourable surroundings, for example, hawkers, drill sergeants, auctioneers. The pathological conditions found were submucous haemorrhages, muscle rupture, and pachydermia. (5) The use of the voice for long or short periods, but at an unnatural pitch or in an unnatural manner, for example, actors in certain rôles, choir masters, and falsetto singers. The changes found were congestion, hypersecretion, and benign growths. The classification of lesions was, of course, not strict. Dr. Casselberry classified the laryngeal disturbances produced by voice use as vascular, cellular, and neuro-muscular. Emphasis was laid on the need of rest in hyperaemia excited by strenuous voice use, and the importance of treating diseases of the pharynx and nose in order to preserve the voice under maximum use was referred to. Among the cellular disturbances, cases were cited of "singer's nodes" in speakers and shouting children, and of papilloma and angioma in similar classes. The neuro-muscular disturbances embraced unilateral paresis of the cords and spastic aphonia. Dr. W. Peyre Porcher read a paper on inflammatory nasal obstruction as an etiologic factor in the production of sputa. The author endeavoured to prove that in cases of profuse expectoration with nasal obstruction, and with no signs of chronic bronchitis or pneumonitis, the secretion passed down from the nose and naso-pharynx, collected in the sacculi laryngis, and was expelled as nummulated sputa. Aural polypi were also attributable for maintaining inflammation resulting from pathological conditions in the nose. An expression of opinion was sought in regard to the above, with the result that eighteen affirmative and twenty-four negative replies were received. Dr. Chevalier Jackson (Pittsburg) contributed a paper on thyrotomy and laryngectomy for malignant disease of the larynx. Thyrotomy was advocated for early intrinsic disease. The author's results had been 14 successive thyrotomies without mortality, with 11 cures and 3 recurrences requiring total laryngectomy. As a last resort laryngectomy was recommended in only 8 out of 29 cases. The results were 8 consecutive cases without operative mortality, 3 hemi-laryngectomies without recurrence, 5 total with 3 recurrences, 1 cure, and 1 too recent to record. The technique was entered into fully.

SECTION OF DERMATOLOGY.

Thursday, August 23rd, 1906.

THE proceedings for the day were opened by a clinical demonstration, conducted by Dr. Graham Chambers, of cases illustrative of the treatment of ringworm by means of a preliminary epilation by *x* rays, followed up by the usual treatment. Excellent photographs and enlarged photomicrographs of blastomycosis were also shown by Drs. J. Nevins Hyde and William T. Corlett. Dr. A. R. Robinson read a paper on errors in the treatment of cutaneous cancer, in which he strongly maintained the necessity of treating cases by no fixed rule, but according to the individual characteristics, the underlying morbid processes being probably different in the different affections. Treatment should further be varied according to the site and depth of the lesion; excision, for example, being unsuited to facial cutaneous cancer, and *x*-ray treat-

ment of no effect where the deeper structures were involved. These rays had, he considered, been far too widely employed, and ought to be restricted to certain specific forms. In their employment he strongly advocated removal of superficial layers and nodules by caustics prior to the application of *x*-ray treatment. He was followed by Dr. Norman Walker, Professor Sherwell (New York), who stated that he had found arsenic of value after removal, preventing, he believed, the return of cancerous growths, and Dr. F. G. Fox, who thought that the speaker had laid too little stress on curetting. Drs. J. Nevins Hyde, L. D. Bulkley, W. T. Corlett, W. F. Breakey, and Dr. Gilchrist (Baltimore) also spoke. Dr. R. W. Taylor (New York), speaking of the evolution of intraprimary syphilides, showed that after infection the whole organism became immediately affected, the syphilitic process being an extremely rapid one, diffused not by lymphatics but by the blood, and that successive chancres were syphilitic from the outset, their site being probably determined by trauma or other local causes. With Dr. Taylor's views all of the succeeding speakers, including Dr. Nevins Hyde, Professor S. Sherwell, and Dr. L. D. Bulkley, were in practical agreement, the essential inference being drawn that the old classification of primary and secondary stages did not correspond in reality to the disease process. Dr. Gilchrist then read clinical notes of a rare case of pityriasis rubra followed by gangrene of the extremities, no ascertainable cause for the gangrene being discovered, and Dr. W. T. Corlett (Cleveland) described an interesting case of dermatitis vegetans, the latter paper being discussed by Dr. Wende (Buffalo).

Friday, August 24th.

This day's meeting, after cases of pemphigus vegetans and foliatus had been demonstrated at the morning clinic, was opened by Dr. L. D. Bulkley, who read a paper on the wrong and the right use of milk in certain skin diseases. Although a natural food, milk, he said, was often badly assimilated by the subjects of various skin diseases. The ordinary laboratory theories of milk digestion seemed to him to require revision, and, personally, he believed that milk might be absorbed without any preliminary caseation and digestion. Some years ago intravenous injection of milk was successfully employed in debilitated subjects. Milk given alone at the body temperature, one hour before meal times, that is, during the alkaline period of stomach contents, was, he believed, absorbed directly by the vessels of the stomach, and milk thus ingested would be found to agree well with patients unable to take it in the ordinary way. After long experience he had found the prescribing of milk in this way, coupled with a restricted and mainly vegetable diet, of the greatest benefit in cases of acne, eczema, and urticaria. Dr. Bulkley's paper was referred to briefly by Drs. Dühring and Sherwell, but neither criticized nor discussed at any length. Dr. Graham Chambers (Toronto) next opened a discussion on the etiology of eczema, in which he first noticed the wide divergence of opinion on this point. He then commented upon the frequent association of eczema and asthma, and traversed the views of Dr. Hall (Sheffield), who considered that infantile eczema was due to external irritation. Dr. Chambers instanced as important etiological factors heredity and malnutrition. The paper was ably discussed by Dr. Norman Walker, who in opposition to Dr. Chambers laid stress on the importance of external irritation, and, so far as treatment was concerned, strongly deprecated a certain tendency in some to "treat the names of diseases," amusingly animadverting to the patent medicines which inundated British medical practitioners. Dr. Bulkley, who supported Dr. Chambers in his view of the internal origin of eczema; Dr. Dühring, who distinguished sharply as to origin between eczema and dermatitis; and Dr. Sherwell, who also considered eczema of constitutional origin and therefore requiring internal as well as external treatment, then spoke. One of the most important papers read during the meetings of this Section was an account given by Dr. J. C. Rankin (Belfast) of his work, in collaboration with Dr. Houston (Belfast), on opsonins and skin diseases. He recorded the markedly beneficial results in certain skin diseases, notably lupus, acne, and other lesions due to staphylococci, obtained by an elevation of the opsonic index. Lupus, for example, with a low index was particularly insusceptible to Finsen or *x*-ray treatment, but after elevation of the index rapid healing resulted from these same agents. He then read notes of some remarkable cases which had been under treatment for many years which, after opsonic treatment, yielded at once to ordinary remedies. Dr. Rankin's able paper was discussed by Dr. Norman Walker, Dr. Gilchrist, and Dr. Dühring, their remarks being markedly congratulatory. Dr. Dühring then proposed a vote of thanks to the President of the Section, which was seconded by Dr. Gilchrist, and brought the meetings to a close.

Section of Pathology and Bacteriology.

Tuesday, August 21st.

The work of the Section was opened by a joint discussion with the Section of Physiology on the physiology and pathology of the nucleus. Professor Halliburton presided. The proceedings are described in the paragraph on the Physiology Section. The Pathological Section then resumed in the room reserved for it, and Professor Adami took the chair. The first paper was by Dr. R. M. Pearce and H. C. Jackson (Bender Hygienic Laboratory, Albany, N.Y.), on the production of somatogenic cytotoxins by the injection of nucleo-proteids. These observers had immunized rabbits to nucleo-proteids from the washed kidney and pancreas of the dog. This serum was injected into dogs intravenously in doses of 2 c.cm. per kilo of body-weight. A control serum prepared by injecting cow's pancreas was used. Also, to more sharply limit the problem, attempts were made to immunize with nucleic acids obtained from kidney and pancreas respectively. The resulting serums caused general disturbance, with action most marked in the kidney. These lesions were therefore the result of a toxic substance having a more or less general action, with more special action on the chief excretory organs. They could not be said to be specific in their action. Dr. A. S. Warthin (Ann Arbor, Michigan) agreed with the authors as to the non-specificity of such serums. Dr. W. W. Ford (Johns Hopkins University) read an important paper on an antitoxin for poisonous mushrooms; he had separated from one of the non-poisonous fungi a haemolysin identical with that present in *Amanita phalloides*, the deadly variety, and argued that the toxic properties of the latter could not be attributed to the haemolysin. He detailed the preparation of the true amanita toxin, and described, in addition to a toxalbumen and alkaloid, a third toxic element. For Dr. Ford's work the fungi were collected in the Blue Ridge Mountains, Pennsylvania. The paper was discussed by Drs. Bashford and Aschoff. Dr. Wilfred H. Mainwaring (Indiana University), in his paper on the application of physical chemistry to serum-pathology, argued that in the present state of knowledge it was impossible to apply physical chemistry to serum phenomena, as the latter were much too complex for accurate quantitative measurement. Professor Robert Muir (Glasgow) and Dr. W. B. M. Martin read a paper on the combining properties of opsonins of normal serum. They had tested the three chief varieties of "immune" bodies (amboceptors), those obtained by the injection of (1) red cells, (2) serum, and (3) bacteria respectively, and had found that the combination of receptor + immune body removed the opsonin of normal serum as tested by an emulsion of *Staphylococcus aureus*. They held that the thermolabile opsonins of normal serum belonged to the group of complements. While maintaining that the increased opsonic power produced by immunization might be due to more of the normal opsonin being brought into contact with the bacterium, they admitted the possibility of a further explanation. They found a striking resemblance in the diminution of haemolytic, bactericidal, and opsonic action produced by the different methods of absorption, but at present they preferred to express no opinion as to the identity or non-identity of the substances producing these effects. Professor Sims Woodhead and Dr. G. W. Ross also spoke on opsonins.

Wednesday, August 22nd.

Dr. J. F. Smith (London) read a paper on gastric erosions, contributed by Dr. Miller (London University) and himself. The authors believed that the essential point in the first stage in probably all cases of acute gastritis or gastric ulcer is inflammation of the lymphoid

follicles in the submucous coat of the stomach, and that subsequent events—haemorrhage, gross ulcer (acute or chronic), perforation, etc.—depend entirely upon the relative power of the inflammatory factors *versus* the reparative power of the mucous membrane of the stomach. The main work of the Section on this day consisted of a series of important papers on the etiology and history of malignant new growths. Dr. Clowes (Gratwick Laboratory for Cancer Research, Buffalo) recorded some interesting results as to the resisting power of experimental cancer cells to strong germicidal agents. His paper, however, was mainly concerned with the question of immunity to experimental cancer. He had obtained immunity only by the agency of living cancer cells. His results confirmed his previous contention as to the immune condition of mice spontaneously recovered from experimental cancer, but he denied that control of this artificially-produced immunity had yet been obtained or that it was possible to draw any deductions as to the treatment of cancer in man. Dr. E. F. Bashford gave a general description of the investigations under the Imperial Cancer Research Fund. The statistical inquiry had afforded no evidence of endemic cancer or of increase in malignant disease generally. Professor H. R. Gaylord (Buffalo) had met with three cases of sarcoma of the rat in one year in a cage in which had been previously kept rats with transplanted sarcomata. These three positive cases occurred in eight rats exposed in the cage. He had also located a cage in the establishment of a dealer from which in three years no fewer than 66 spontaneous mouse tumours were obtained. During this time the stock was completely changed. Professor Ewing and Dr. Beebe (New York) presented a preliminary report of a study of the action of salt solution, nucleo-proteid antiserum, susceptible blood and immune blood upon the cells of the infectious lymphosarcoma of dogs. Dr. F. G. Bushnell (Brighton) gave a communication on structural continuity of new growths; and Professor Warthin (Ann Arbor, Mich.), in a paper on leucoblastomata, expressed the opinion that the various leukaemic conditions were essentially neoplastic. A demonstration on uterine fibroids was given by Dr. Cullen to the combined Pathological and Obstetric Sections.

Thursday, August 23rd.

The meeting was opened by Dr. Hamilton Wright's paper on beri-beri, Professor J. J. Mackenzie (Toronto) presiding. Dr. Hamilton Wright restated his conclusions that beri-beri was an acute infectious disease, and that the disease usually began by an invasion of the gastro-duodenal region by a bacillus; further, that the organism remained local, and that the remote effects of the bacillus were induced by an extracellular toxin produced at the local lesion. There was never a bacteriaemia; unfortunately, however, we were apparently no nearer the isolation of the specific micro-organism. Dr. J. J. Kinyoun also spoke. In reply to a question by Dr. Novy, Dr. Hamilton Wright replied that he believed that the common cause of infection was contamination of food, etc., by faecal excreta. The second item was a paper by Professor M. Nicolle (Paris) on infection and intoxication in experimental glanders. The author detailed the results of an extended series of inoculations by various routes of glanders bacilli, alive and dead, into guinea-pigs. In a second paper by Professor Nicolle, on hypersensibility and immunity in experimental glanders, he pointed out that the serum of infected guinea-pigs offered no agglutinating power nor coagulating power much superior to that of normal animals, while the serum of immunized guinea-pigs possessed, to a much more marked degree, these two properties, which moreover were quite independent of one another. On the other hand, the serum of immunized guinea-pigs did not possess any greater therapeutic power than that of normal guinea-pigs. Dr. O. J. Kaufmann next presented a communication on the urinary excretion of potassium iodide in various morbid conditions. The general conclusions drawn from 30 clinical experiments were that the amount of potassium iodide excreted by the kidneys furnished a measure of deficient renal activity in some cases whose urea secretion failed to give such measure. It was shown that the amount of potassium iodide eliminated bore no relation either to the quantity of urine or to the amount of chlorides excreted. The actual estimation of the amount of iodide was not laborious, and was easily applicable in clinical medicine. Dr. F. B. Turck read a paper on some further observations on the etiology and pathology of gastric ulcer with experimental production of gastric and duodenal ulcers in dogs with cultures of *B. coli*. The most important work of the Section was a discussion on the various forms of arterio-sclerosis, their classification and experimental production. The discussion was opened by Professor W. H. Welch (Baltimore), who gave a general introduction and dealt specially with the histological appearances in arterio-sclerosis. Dr. Klotz (Montreal) dealt specially with experimentally-produced lesions comparable to arterio-sclerosis in man. Degenerative lesions were produced by drugs causing increased blood pressure; the cause of the degeneration was apparently not the increase of pressure, but a direct result of the drug on the middle coat of the vessels; no intimal changes were produced. Intimal changes regenerative in nature were apparently due to bacterial toxins. Professor J. J. Mackenzie (Toronto), Dr. Pearce (Albany), Professor Aschoff (Freiburg), Professor Clifford Allbutt (Cambridge), and Professor Adami (Montreal) also took part in the discussion; and Professor Welch replied. The business of the Section was concluded by Dr. Ruffer with an important paper on the bacteriological diagnosis of Asiatic cholera.

Friday, August 24th.

The proceedings this day were opened by a paper by Professors Novy and N. E. Knapp (Ann Arbor) on relapsing fever and spirochaetes. Professor Novy gave an extremely interesting lantern demonstration. His main conclusions were: (1) That the organisms are bacterial and not protozoal; (2) that there are several distinct varieties of relapsing fever, probably three, a variety from Bombay differing markedly from that seen in New York cases; (3) that immunity to the disease can be produced in several of the lower animals, especially rats, and that a solid basis now exists for the prevention and cure of the disease in man. Dr. Mott then gave a lantern demonstration on the changes in the nervous system produced in chronic trypanosome infections. Special attention was given to the perivascular infiltrations, which the author regarded as quite characteristic. The next item on the programme was a communication from Professor Nicolle and F. Mesnil on the treatment of trypanosomiasis by the colours of benzidine. Owing to the varying action of these colours on different varieties of trypanosomes, the authors believe that a basis will be found for their differentiation by chromo-therapeutic methods. Professor Hewlett gave a communication on a beri-beri-like disease in monkeys and on the pathological histology of beri-beri. Dr. J. M. Beattie read a paper on *Rhinosporidium kinealyi* (Minchin), a sporozoon of the nasal mucous membrane, which he had obtained from Madras, and described certain stages in the life-history. Dr. W. E. de Korte's paper (communicated by Professor Hewlett) dealt with the virus of small-pox and vaccinia. Dr. J. R. Ballah described his experiments with vaccine lymph, dealing specially with the effects of dialysis of vaccine lymph and attempted culture of the vaccine organism. The last paper was read by Dr. J. M. Beattie, on the bacteriology of rheumatic fever. His conclusions were: (1) The results obtained by injections of streptococci are different from those produced by the *Micrococcus rheumaticus*; (2) *Micrococcus rheumaticus* cannot be regarded as an attenuated streptococcus nor acute rheumatism as an attenuated streptococcal pyaemia; (3) in uncomplicated cases of acute rheumatism the organism is not usually found in the blood or in the joint exudates. Before the Section adjourned, Dr. James Carroll (Curator of the Army Medical Museum) raised the question of an International Association of Medical Museums. Professors Adami, Leith, and Muir spoke in sympathy with the idea.

Section of Therapeutics.

Friday, August 24th, 1906.

The proceedings were opened by Dr. A. D. Blackader, Montreal, who read a paper on the value of alcohol in treatment. Under certain conditions alcohol might be used as a food, replacing carbohydrates and conserving proteid metabolism. It was not an efficient cardiac or respiratory stimulant for use over long periods. It might be of considerable value to the circulation by equalizing the peri-

pheral and internal distribution of the blood. Alcohol must be used with caution in infections of all forms, as too large quantities might interfere with the resisting power of the organism. Clinicians should recognize that the action of alcohol varied with the individual, and that its employment required discrimination and careful and frequent observation. The next contribution was from Dr. S. J. Meltzer (New York), upon the value of alcohol in treatment. He pointed out that the evidence of recent investigation was becoming more favourable to alcohol. Judiciously used the experience of the vast majority of medical men proved that alcohol not only did no harm, but distinctly benefited the patient. There were reliable experiments which showed that alcohol supported the development of immunity in experimental infections. Though exerting only a slight stimulating action upon the heart blood pressure, alcohol acted mainly by correcting the dangerous distribution of the blood in diseased states. By stimulating the inhibitory mechanism of the neuro muscular system the drug assisted the diseased body in obtaining the necessary mental and bodily rest. Dr. W. E. Dixon (Cambridge) described the special action of alcohol upon the heart. By eliminating disturbing influences he had been able to show that alcohol had a slight but constant stimulant action upon the circulation, though it had but little influence upon the rate of the heart. On the isolated heart there was an optimum dose which increased the work of the heart, but a slight increase in dose had the opposite action. Animals accustomed to the use of alcohol acquired the power of utilizing alcohol as a food, and it then acted as a distinct stimulant. In animals not under a general anaesthetic alcohol caused a constant rise of blood pressure. By a double action of dilating the superficial and contracting internal vessels a beneficial redistribution of the blood took place. The papers were discussed by Professor G. Sims Woodhead (Cambridge), Dr. W. H. Moorhouse (London, Ontario), Professor Osborne (Yale), Dr. L. S. Mason (New York), and Dr. J. Rose Bradford (London). The meeting then proceeded to the discussion of the second subject—namely, the place of materia medica and therapeutics in the medical curriculum. Papers were read by Professor J. J. Halsey (Tulane University, New Orleans) on the teaching of materia medica and pharmacology, and by Professor T. McCrae (Johns Hopkins Hospital, Baltimore) on the teaching of therapeutics. In the latter paper the method employed to teach the principles and practice of the healing art were much more elaborate and complete than any method in use in Great Britain. The Secretary then communicated papers by Professors Marshall (St. Andrews), Bradbury (Cambridge), and Wild (Manchester), showing the place and relative importance attached to the teaching of materia medica, pharmacology, and therapeutics in some of our teaching schools at home, and thus contrasting the American and British methods. The discussion was opened by Dr. Osborne (Yale) and continued by Professor Eli Long (Buffalo), who described the teaching methods in vogue at these universities. Professor Dixon (Cambridge), who spoke next, questioned whether English students would submit to such an elaborate course, and stated that the formal teaching of materia medica was unnecessary. Lastly, Dr. Blackader closed the discussion, basing his remarks upon the system pursued at McGill University, Montreal.

Section of Anatomy.

Thursday, August 23rd, 1906.

Dr. Ross E. Harrison (Baltimore) discussed the multicellular or unicellular nature of nerves and their connexions, and he laid stress on the futility of any method of investigation except the experimental. His experiments proved that the nerves were outgrowths of cells of the central nervous system and the ganglion cells, and when these are removed no nerves are formed. He gave an account of the work of Brans, and brought forward evidence to controvert it. He also asserted his belief in the primary reunion of divided nerve-fibres under certain circumstances. Professor McMurrich (Michigan) pointed out how the work of Dr. Harrison made it necessary to revise our ideas regarding the homologies of nerves and muscles. Professor Donaldson (Philadelphia) and Professor Bardeen (Wisconsin) having taken part in the discussion on points of detail, Dr. Harrison replied. Professor Lee (Minneapolis) gave an account of some of the early stages of development of *Geomys bursarius*, a specialized rodent, which had a very limited distribution. The development of this animal illustrated some interesting features of placental formation. Professor Robinson (Birmingham) welcomed the new facts which Professor Lee had brought forward for the consideration of those interested in the problem of principles underlying placental formations. Professor McMurrich asked for further information regarding allantoic development. Professor Patten (Sheffield) gave a lantern demonstration on some points of interest noted in a series of chimpanzee and gorilla skulls. Dr. Shambaugh (Chicago) described the development of the stria vascularis of the cochlea and demonstrated its epithelial nature. Professor Bardeen inquired about the period at which blood vessels appeared, and Dr. Harrison drew a parallel with the structure described in the stria vascularis and the dental pulp. Dr. Harvey (Chicago) gave an account of the (1) chromaffine characters of certain parietal cells; (2) a case of innervation of the M. rectus lateralis oculi with absence of the N. abducens; (3) a peritoneal anomaly simulating retroperitoneal hernia. With regard to the chromaffine parietal cells he showed that they were similar to the chromaffine cells of other organs, such as the suprarenal bodies which have been supposed to have very important functions. The details of his other communications will appear in the full report. On the motion of Professor Robinson, seconded by Professor Huber, a most hearty vote of thanks was given to Professor Primrose for his kind reception of the Section of Anatomy, and the members of the Section congratulated Professor Primrose on the excellence and completeness of the arrangements which had been made.

ANNUAL GENERAL MEETING.

University of Toronto.

Honorary Degrees.

A special Convocation of the University of Toronto for conferring honorary degrees in connexion with the meeting of the British Medical Association was held in the new Convocation Hall on August 23rd. President Hutton presided.

Dr. R. A. Reeve presented the following gentlemen to the President, who conferred upon them the degree of LL.D. (*Honoris Causâ*). In introducing them severally Dr. Reeve said:

Professor Thomas Clifford Allbutt, M.A., M.D., LL.D., Hon. D.Sc.Oxon, F.L.S., F.R.S., is known throughout the civilized world amongst the medical profession, and it would be a work of supererogation to dwell upon his qualities of mind and heart. Dr. Allbutt is the oldest professor of medicine in the University of Cambridge, and, if I may be permitted the remark, I would call him a sort of field-marshal of the profession.

A. H. Freeland Barbour, M.D., F.R.C.P.Edin., is co-editor of a magnificent work which embodies his researches and experience in the subject of gynaecology. He is at the same time directly or indirectly a sort of intermediary as it were in the matter of the George Brown Scholarship of our own University.

Sir Thomas Barlow, Bart., K.C.V.O, M.D., is known by his studies of the diseases of children, and as a physician of the first order, having been honoured by Her late Majesty with her confidence—he was her physician. He is now also Physician-in-Ordinary to the King's Household.

Sir James Barr, M.D., F.R.C.P., F.R.S.E, is one who has paid special attention to the heart, and is known to have introduced a new treatment in the matter of pleurisy. He is the leading representative, if I may so say, of the profession on the medical side in the north-west of England.

Sir William Henry Broadbent, Bart., K.C.V.O., M.D., LL.D.Edin. and St. Andr., F.R.C.P., F.R.S., is Physician to His Majesty the King, and known years ago by his researches and studies of the heart, and by a work on that subject.

George Cooper Franklin, F.R.C.S., retiring President of the British Medical Association, is a surgeon of high repute, and one who has done yeoman's service for the British Medical Association.

Professor William Dobinson Halliburton, M.D., F.R.S.,

is Professor of Physiology at King's College, London, and is one who is known very widely and very well as one of the leading physiologists of the world.

Sir Victor Horsley, M.B., F.R.C.S., F.R.S., Surgeon to the University College Hospital and to the Queen Square Hospital, London, is one who began his career by making special researches into the nervous system, and after he had won his spurs as a physiologist turned his attention to surgery, of which he soon became a master.

Donald MacAlister, M.A., M.D., LL.D., President of the General Medical Council of the United Kingdom, is one whom I may term the highest example of an all-round physician. He made his record as Senior Wrangler in Mathematics, and in first-class classics he is without a superior in the profession in Great Britain.

William Julius Mickle, M.D., F.R.C.P., is our own graduate in Arts and Medicine. Going to London he carved out a name and position for himself. He is well and favourably known as a writer and teacher in mental diseases, and is one of the leading alienists in Great Britain.

M. le Docteur Louis Lapicque, Maitre de Conférences à la Faculté des Sciences, Paris, is Professor of Physiology in the University of Paris. Dr. Lapicque stands high as a physiologist, and was a representative of the French School at the late gathering in London.

Professor Ludwig Aschoff, M.D., is now leaving the University of Marburg, Germany, where he has been a Professor, to occupy the chair lately held by that celebrated person, Professor Ziegler, to whom he is no doubt the worthy successor, or he would not have received the honour of being called to that position.

W. J. Mayo, M.D., is President of the American Medical Association—an announcement which suffices to show us he has the confidence of the profession in the United States, and that alone should be sufficient passport on this occasion, but I may be permitted to say that Dr. Mayo is an apt example of one in whom the deft hand is the willing instrument of the cunning brain. He is without a peer as a surgeon now in the United States. He resides in a comparatively small place, little more than a village possibly, in Minnesota, and yet that little town is better known, by virtue of the fact that Dr. Mayo resides there, than some of the more pretentious cities of the world.

Also I have the honour to present *in absentiâ* H. W. Langley Browne, M.D., Ch.B., F.R.C.S.Edin. He, as Chairman of the Council of the British Medical Association, by his labour in season and out of season on behalf of the Association, has commanded the high respect and esteem of that Association.

President HUTTON: I hereby confer the degree of Doctor of Laws (*Honoris Causâ*) upon Dr. H. W. Langley Browne *in absentiâ*. There are some universities which on these occasions render the distinguished men whom they receive every homage except that of audience. The University of Toronto, rightly or wrongly, has been on these occasions moved by other motives, and it prefers not only to see the distinguished men whom it honours itself by adding to its rolls, but to hear their voices, or to hear at least some voice from them. The words, for obvious reasons, cannot be very many. They may with perfect propriety be very few, but this University has refused, while extending to these distinguished men the freedom of her graduate roll, to withhold from them the freedom of speech. She has refused to impose upon these most honourable members of her body, the latest and most highly-developed organs which she has evolved, the obligation of silence, which in this particular she imposes, or shall I say tries to impose, upon other members of her body who are less honourable, and therefore I shall ask Sir William Broadbent first of all to say a few words, representing the British physicians who have just received the honorary degree.

Sir WILLIAM BROADBENT: Mr. President, it is the enviable privilege of seniority that gives me the honour of responding for my colleagues from England, the honour of thanking you in their name for the great honour you have conferred upon them by this degree. You have told us, Sir, that our words need be but few, but few or many they would be quite inadequate to convey our sense of appreciation of the great honour that has been conferred upon us. Some of us have had conferred upon us honours in our own country, but it is a quite new and unexpected thing that we should be honoured by a University in the New World. As I said, Sir, it is simply the privilege of age which places me in this position. The University to which I belong, the University of London, large as its name may loom in the imagination of the world, is still, one may say, only in its larval stage. It is still engaged in the development of the different faculties, of which a University like Toronto is in full possession when it springs into existence. We have here representatives of the older Universities. We have here Professor Allbutt, Professor of Medicine in the University of Cambridge, and quite properly he has been designated as one of the field marshals in the profession, whereas we who are associated with him occupy much lower positions. There is no position in the profession in England which is to be compared in dignity and antiquity and usefulness with those in the two Universities of Oxford and Cambridge, and we do not forget that Toronto occupies to other Canadian Universities a corresponding position. Professor Osler is now the Professor of Medicine in the University of Oxford, and is engaged in the rejuvenation of the faculty of medicine in that great University. We have also representatives of other universities which I need not mention. I am quite sure that neither in their name, nor in my own, can I do justice to our feelings, and I take advantage of the privilege of expressing our thanks in the fewest but heartiest possible words.

The PRESIDENT called upon Mr. G. C. Franklin to speak on behalf of the British surgeons.

Mr. FRANKLIN: I hardly know what to say, finding myself in this most unexpected position this afternoon. I feel, from the point of view of British surgery, that we in England can justly claim the commencement of what I may call the revolution in surgery, a revolution that it has been my fortune to see, and with England, of course, will always be known and mentioned the name of Lister, as the beginning of modern surgery. We have been extremely fortunate this year to have our meeting across the Atlantic, and here what do we find? I may say we find that the technique of antiseptic surgery has reached a completeness and thoroughness that I hardly think, speaking generally, we can find throughout England. I am glad to have this opportunity of saying that the British Medical Association came to a most wise decision when it accepted the very kind invitation from your beautiful City of Toronto; we shall go back to England knowing that the surgeons on this side of Canada are amongst the very foremost of the world.

The PRESIDENT called on Professor William D. Halliburton to speak on behalf of the physiologists.

Professor HALLIBURTON: Mr. President, Ladies and Gentlemen.—When I looked through the list of distinguished recipients of honours this afternoon, and found myself to be one of the unfortunate few who were to be asked to be audible, I was struck with astonishment why it should have been so ordered: I can only suppose that the real reason is that the University recognizes that medicine and surgery are ultimately built on certain sciences which are from that point of view of a more elementary nature. It is on behalf of those that I desire to thank you. The honour that has been done myself as a humble representative of physiology is, of course, extremely gratifying, but after all it is but a small thing when compared with the feelings that physiologists in general will experience in knowing that their science is recognized by the University as one of the main studies of medicine. I am not altogether a stranger to Toronto, but every time I visit this beautiful city I am struck with the energy which has been manifested in connexion with University matters, and learn with feelings of envy the apparent ease with which the University is able to get from the Government money. I understand that the sum which is annually granted to this University alone is considerably in excess of that granted to all the Universities of Great Britain put together. Canada has not an army and navy to support as the Old Country has, and that may be one reason why the money can be spent more usefully upon education. It was my good fortune nine years ago to be present in Toronto, though not in this building, at a gathering similar to this when degrees were conferred. I have forgotten most of the speeches which passed on that occasion, but there is one small fact that I happen to remember, and although it may not be new to many of you it may be to some, and that is the meaning

of the word "Toronto" I have been informed that it is an old Indian word which means a place of gathering, and I am quite sure that the British Medical Association could not have selected a town which better represents what it spells itself to be.

The President called upon Dr. Lapicque to speak on behalf of France, Germany, and the United States.

Dr. Lapicque, who addressed the meeting in French, expressed his pleasure at being permitted to attend such an important meeting, and his appreciation on behalf of himself and those whom he was asked to represent of the honour which had been bestowed upon them.

ANNUAL DINNER.

The annual dinner of the British Medical Association was held in Victoria Rink, Toronto, on the evening of August 23rd, 1906.

After dinner, the President (Dr. Reeve) gave the toast to "The King," which was responded to by the audience rising and singing "God save the King," followed by three cheers and a "tiger" for His Majesty.

The President introduced the Hon. William Mortimer Clark, K.C., the Lieutenant-Governor of Ontario, and the audience, before drinking the toast to "The Lieutenant-Governor of Ontario," rose and sang "Rule Britannia" and gave His Honour three cheers and a "tiger."

His Honour (the Lieutenant-Governor) said he felt deeply grateful for the cordiality of the toast and the honour that had been placed upon him, and also thanked Dr. Reeve for the kind manner in which he had introduced him. He felt a very deep interest in the city of Toronto, and also a very deep feeling of interest in the medical profession. In the part of the world where he came from the "doctor" was always received with veneration, and sometimes that feeling was carried very far indeed. He was reminded of a case in which it was said a man lay dying, while at his bedside was his wife, the doctor, and the minister. By-and-by the man seemed to pass away, and the conversation turned upon the virtues which are usually expressed on occasions of that sort which were supposed to convey consolation to the bereaved. They then began to talk of the possibility of the funeral being a very large one, owing to the great respectability of the deceased and the esteem in which he was held in the community, and then the conversation had naturally turned to the disposition of the man's property, and various suggestions were offered as to how he ought to have disposed of his money. The deceased apparently had listened with considerable interest to the remarks which had been made upon his character and the size of his funeral, but when it came to the discussion of his assets that was another thing, and he solemnly lifted up his head and said, "I'm no' dead yet!" This outrageous conduct on the part of the deceased was contrary to the sense of propriety in the good widow, who said, "Wish't, wish't; lie down, Jimmie; the doctor says ye are dead." His Honour went on to say that the interest he took in the medical profession to-day was perhaps due to his association with it in his youth in Edinburgh. He remembered that at that time the young men of the profession were distinguished for their remarkable activity, which had manifested itself in various directions, not always to the comfort of the police authorities. Year by year his interest had increased, and while in Edinburgh it had fallen to his lot to take charge of the business of the Royal College of Surgeons—attending all the meetings, keeping the minutes, and so forth, and also to write out the diplomas; and he thought it was quite possible that he had the honour of addressing some members of the profession whose diplomas might have been decorated with his signature; that was fifty years ago, however, and many of them no doubt were dead. Since that time his interest in the medical profession had not flagged, and by one of those strange turns of fortune he was now representing the Crown, welcoming the physicians to Toronto and Ontario. He assured the Association that he had never addressed a body of men from abroad with a more sincere desire to wish its members a more hearty welcome and God-speed in their undertakings and the exercise of their duties in the city of Toronto. The profession of medicine was one which commended itself to every one; it had for its object the alleviation of human suffering, and he knew from his personal experience that it was the desire of the profession to save those whom circumstances had placed in a position of distress, not looking for pecuniary rewards, and oftentimes taking for their only reward the sense of having done their duty to those who had been placed under their care. He knew that in the case of the poor the profession was always ready to exercise the very highest skill for those who were often entirely unable adequately to reward such services. In fact, the profession could say in the words of a distinguished Dutch physician—that the poor were their best patients. He felt very pleased to see so many Canadian country practitioners present at the meetings of the Association. Many of these gentlemen were necessarily precluded by their situation, and by the circumstances of their lives, from associating with distinguished members of the profession, and he hoped that the mingling of the members would be productive of much good. It must, he thought, be a matter of the greatest pleasure to be able to meet the men whom they had read of and to hear the living voices of those whom they regarded as their teachers. There was no doubt when they went back to their homes they would feel a fresh inspiration for their work and a fresh vim in the discharge of their duties. The power for good in such a visit could hardly be overestimated. The visitors would have found out that in this country there was an intense feeling in favour of Imperial unity. They would realise even in their short visit that the hearts of the people in Canada were one with the British Empire, and he hoped when the visiting members of the Association returned to their homes they would tell their friends and acquaintances of the spirit that prevailed in Canada in that regard. He had made frequent visits to Great Britain, and he had been most painfully impressed on some occasions with the dull, dead apathy which existed in Britain in reference to Canadian affairs. He thought it was an ignorance which was almost inexcusable, and it had often been painful for him to see the indifference with which Canada was looked upon by the people of London and Britain. As an illustration of this ignorance he mentioned that in his official capacity he had received letters from firms of lawyers of considerable eminence in Great Britain requesting him to have conveyances executed in the presence of the British Consul in Toronto. He had spoken of this fact to some medical gentlemen early in the day and when he returned he had found two such letters awaiting him, and so even to-day this opinion prevailed in some quarters. This was not as it ought to be. Sometimes men had come from Great Britain to inspire the Canadians with larger Imperial ideas and a closer relationship, and he had taken the liberty of informing them that he thought the education should be given to Britain first. In the position which he had the honour of occupying he had met with some strange cases of ignorance. He was reminded that some years ago in London a gentleman had spoken to him about his sons, who wished to have a larger opportunity for advancement. The father had stated that he wished to find some spot where they could find a suitable occupation, and that they were fond of outdoor life. He had informed the father, that being the case, that Calgary would be a good place where the boys might find a field for their abilities. The father had then inquired if there were good theatres in Calgary, as the boys were accustomed to attend a good theatre in London; he thought they could not get along if there was not something of the sort! This was an illustration of the ignorance to be met with in Great Britain. Even when he had spoken to some prominent men in England he was met with a careless and languid interest, and for this reason he was glad that so many of the best men of England had come across the Atlantic and could see for themselves something of what was going on in Canada, and could meet with members of their own profession and could see the intense mental activity manifested amongst them. He was glad to observe the interest manifested in the University of Toronto—a University of which the people of the Province of Ontario were justly proud, a University which was going ahead by leaps and bounds, and which he believed would be one of the greatest educational centres on the Continent of America. When the visitors from the Old Land came to go through the country itself they would find it to be a country of grainfields and vineyards, whose stones were iron and

whose hills were of brass. They could see on every hand manifestations of activity, both political and social, and he hoped, when they went to their homes and met with their friends in the Old Land, that they would do the best they could to dispel the ignorance which prevailed so largely, and to fill the minds of those about them with an enthusiasm for the great Province of Ontario and for the Dominion of Canada. Ontario was without doubt the premier province of the Dominion. He was sorry to see there was a tendency on the part of some to give the go-by to the Province of Ontario on account of having heard so much of the great wheatfields of the west. Did they but realize what the opportunities in the Province of Ontario were, they would be glad to tarry there. There were chances of development in the Province of Ontario which he believed were not to be found in any other province. The agricultural, manufacturing, and mining interests of the Province of Ontario were wonderful and almost beyond belief to any one who had not studied them. He had recently when in Portland observed the freight carried by the Dominion Line of steamers, and had been wonderfully impressed with the amount of merchandise coming from the Province of Ontario which was being shipped to England. It was the idea of some that the people of Canada were doing nothing for the British Empire, but such an idea was a mistake. It was said that the people of Canada did not support the army and navy, and there was some truth in this remark, but certain other things should not be overlooked. In the first place, a home was presented to the excess population of Great Britain, a home which the young men and women would do well to take possession of, where there were institutions similar to their own, under the protection of the same flag, and where the same civil and religious liberty existed. This was a matter of the utmost importance to the people of the Motherland which it would be well for them to realize more fully. Again, when the question of the food supply was considered, they should remember that in a year or two Canada would be able to supply the British Isles with all the food they required. These things being so, it was in the interests of Great Britain to support their navy in order to keep the connexion at all times open. There were many questions, he felt sure, which perplexed and harrassed the members of the medical profession in reference to disease, questions to which no answer seemed to be given to human asking, but he hoped that in these cases it might be, in the words of the Greek philosopher, only "that darkness which ushers in the morn." He trusted that the meeting together of the profession in Toronto would stimulate a greater interest, if possible, in matters of so much interest to mankind, and that it would conduce to the advancement of science both in Canada and Great Britain. The visitors had come but for a short stay, but they had seen their brethren in Toronto, and now knew what they were like. He hoped that when they returned to their homes they would not forget their visit to Toronto; that they would be brought back in peace and safety to their own shores.

The President called on Sir James Grant of Ottawa to propose the toast to "The Parliament of Canada," and read a telegram from Captain Trotter, A.D.C. to His Excellency the Governor-General of Canada, saying: "His Excellency will be obliged if you will convey to the President and members of the British Medical Association (and, of course, their guests) his regret that he is unable to accept your invitation to be with them to-night, and his very sincere hope that the visit of the Association to Canada may be followed with pleasant memories, and be fruitful of results to the people of Canada."

Sir James Grant said that the present was an important period in the history of the medical profession, for at no time in the history of the world had greater advances been made or more progressive ideas been formulated than those emanating from the leaders in the profession at the present time. He was glad to welcome such distinguished guests to Toronto, which was looked upon as a great centre of education and commercial prosperity. He saw evidences of progress and advancement on every hand; the people were well fed and thoroughly clothed. No beggar was found on the streets of the City of Toronto, and throughout Canada to-day evidence would always be found of happiness, of prosperity, and of contentment, and there was a conscientious desire in the hearts of the people to remain under the protection of the grand old crown of England. Members of the Association had left their homes not for the mere enjoyment of excitement, but as a noble body, anxious to discuss problems which would advance medical and surgical science in order to relieve, in the highest sense, suffering humanity. As a profession they were not looking after personal interests so much as the good of the patient, and the question of remuneration was a secondary consideration; and these were the qualities which made the British Medical Association a power in the community and in the world. Those who had come across the Atlantic would see a young country which was only in the early stage of development, and could judge something of its future by the evidence they saw of the unparalleled prosperity everywhere present. He would like to give the members of the Association a few facts to carry back to England with them, that they might be in a position to advance the interests of the Empire by giving a clear and concise and definite expression of opinion with reference to Canada. In 1837 there was not a single steam vessel plying from the Port of Montreal; to-day there were sixteen or eighteen different lines, and these great leviathans of the deep were now ploughing across the Atlantic and whitening the seas with the sails of commerce. In 1837 there were only sixteen miles of railway; there were to-day upwards of twenty thousand miles thoroughly equipped and in running order, extending like the arms of the octopus in every direction throughout the Dominion of Canada, and yet that would shortly be too little to handle the commerce of the future. Shortly there would be two more transcontinental lines, the McKenzie and Mann line, and the Grand Trunk Pacific line; both were being built at present, and had already opened up vast fields of both agricultural and mineral wealth, such as even the people of Canada did not dream of. There were towns and villages springing up all over the land, and, when these were a little further advanced, the carrying capacity of all the railways would be taxed to the utmost. In 1837 there were only 16 miles of canals; to day there were 142 miles, and shortly there would be added to this the Ottawa and Georgian Bay canal, which would be one of the greatest works ever accomplished by the people of Canada. The road that was now near completion from Winnipeg, by way of the Hudson's Bay to England, shortened the distance by some 1,300 miles as compared with the St. Lawrence route. Taking these facts into consideration, he felt that he could truthfully say that the young men of Canada had opportunities which were not to be found in any other part of the world. It had been suggested by some that Canada desired independence; some even went so far as to say that Canada desired annexation, but this was not the case; Canada desired to remain as it was at present, a portion of the British Empire. Canada had now the protection of the grand old British flag—the Union Jack—and while that was so there was nothing whatever to fear. The people of Canada and the people of Great Britain were one people and belonged to one Empire. There were great educational institutions in Canada, and as education was the basis of the prosperity of every people, Canada had nothing to fear. As to the American nation, it was loved and respected, and the people of Canada reciprocated with the United States in every possible way. Thousands of the sons of Canada fell in the army of the Republic fighting for the maintenance of the unity of that great Power, and they would do it again to-morrow provided it was right and proper. But to-day the people of Canada were loyal to the British Empire and long would it be so. None could help admiring the splendid position taken in recent diplomatic affairs by the far-sighted President of the Great Republic. He was able to bring about an arbitration to settle the troubles of two disputing countries, and Sir James Grant hoped that the example would be followed by every country throughout the length and breadth of the world in this progressive age. The people of Canada to-day were a united people. No one could doubt it who had seen the monument erected at Quebec to those two gallant generals, Wolfe and Montcalm. When the Republic of the United States established their independence one of their first ideas was to bring in the French element, but the French had clung to Canada and they were still here to-day. The French element was one of the strongest features in the prosperity of Canada, and he hoped that they would long remain

together as a friendly people associated in every work that tended to the development and forwarding of the prosperity of the Dominion. He saw before him to-night members of the medical profession from the United States. In conclusion, he could only say that he hoped as the maple leaf, the Canadian emblem, changed its colour from season to season, that the tender green of hope would end in golden fruition. He wished the British Medical Association every possible degree of success.

The toast of "The Parliament of Canada" was then given.

The Mayor of Toronto (Mr. Emerson Coatsworth), in responding to the toast, said that he was very happy, as the Mayor of the City of Toronto, to welcome so many visitors from the Old Land and the neighbouring Republic. On his numerous visits to the United States he had experienced the greatest courtesy, and he wished to return the compliment.

Mr. E. B. Osler, M.P., being called upon by the President, said that he felt sure, had Parliament been assembled in Ottawa, a unanimous resolution would have been passed welcoming to Canada the members of the British Medical Association. Sir Wilfred Laurier, in one of his happy moments, had said that the twentieth century was Canada's century, and no doubt he was quite correct in that statement. He suggested that if the members of the Association who were going to cross the continent, from the Atlantic to the Pacific, would keep their eyes open they would see something probably which had not been the lot of many in the world to see—they would see the making of a nation. They would see men from all the nations of the world going into the great North-West, most of them with only their hands, coming from great poverty to make their fortune in Canada. Within twenty or thirty years, he ventured to say, the destiny of Canada would be settled. He believed the future of Canada was most hopeful, and that it would soon become a great nation, and those who were on the watch would in their lifetime see possibly what had never been seen before, the making of a great nation—a colony rising to become a nation—a nation that would always be closely allied with the good or ill—the good he hoped—of the Motherland.

The President called upon Professor Goldwin Smith to propose the toast, "The British Medical Association." The Professor was greeted with cheers and the audience singing, "For he is a jolly good fellow."

Professor Goldwin Smith said that he felt himself unable properly to give expression to what should be said in proposing a toast to so important a body as the British Medical Association. He felt that if he were to attempt to dilate upon the achievements and improvements in medical science since he was a young man he might be told, as Dr. Johnson said to a flattering lady, "Madam, before you flatter me you should consider what your flattery is worth." However, he could truly say that, although he was unable to attend the lectures, he had been told by those who had attended that they would surely be productive of much good. When the visitors from England went back home the people of Toronto would remember that they had listened to the worthy chiefs of a most illustrious profession, men who were to be loved and revered. The improvements in surgery, and the increased skill in the treatment of disease that had taken place since he was a young man were really wonderful. The improvement was not alone in this regard, but also in respect to the training of nurses to assist in medical work. Since Darwin had made his great discovery a larger sphere of usefulness had dawned upon the profession, for it was now understood what human nature was, not compounded of a soul and body as separate things, but all had its origin in one germ and must be treated as one. This should not lead to materialism; far from it. Of all the friends he had known and loved none had been more respected by him than Professor Tyndall, and although Tyndall had always called himself a Materialist, a man less material or more thoroughly spiritual in his character he had never known. Therefore, it must not be supposed because we had reached material truth it was necessary to give up spiritual aspirations. With regard to the recent reorganization of the University of Toronto, Professor Goldwin Smith assured the members of the profession that the Senate had done what they could in the past, and hoped they would be able always to guard their privileges, realizing that those privileges were not the privileges of the profession alone, but the safeguard of society against empirical murder. Although it was right that truth should be accepted even if contrary to traditions, it was necessary to sift the truth from error. At one time he had wished to know more of what was commonly called "spiritualism," and accordingly he got an introduction to a most famous medium and paid his guinea. He had been shown into a room, and presently some one came in whom he knew at once to be a sister from across the border by her peculiar accent. A desultory conversation had followed, in which he supposed the medium was fishing for information. The medium had then said it would no longer be he who spoke, but the spirit of Winona. The conversation with the spirit of Winona had gone on for some time, when finally he asked the medium whether he had been married or not. The spirit had replied, "You seem to be alone in terrestrial world and yet not alone." The medium had then told him of a doleful failure of his nephew, who had been seeking for a Government appointment. He had drawn her on by appearing to think the information wonderful, but as he never had a nephew he went away perfectly satisfied with his investigation, and still remained a sceptic. This was a sample of the delusions of the present day which mankind had to be prepared to meet. He was sorry for the ignorance of Canada which apparently prevailed in the Old Land. He recalled that about twenty years ago he had seen pasted on the doors of a church in England a proclamation that the Colorado beetle if it came to England should be delivered to the nearest authorities, and the proclamation had begun with the words: "Whereas intelligence has been received from Ontario, Canada, that the territory around that town has been devastated . . ." [Laughter.] He recalled also giving an address in England when he had spoken of the warm feelings which existed in Canada towards the Mother Country. It was just after the settlement of the treaty on the Alabama question, and a gentleman, in replying to his speech, had said that he hoped, now that the Alabama question had been settled, there was nothing to divide the two countries from each other. [Laughter.] He was amused at one time when in England when his wife had been introduced to her maid as a Canadian. There had been a smile on the maid's face, and he found out afterwards that it had been caused by the maid thinking it a joke, because she had understood that all Canadians were red. [Laughter.] This lack of knowledge, however, was fast disappearing. The people of Canada knew little, for instance, of the politics of Australia; and it was probable there was not one Englishman in ten thousand who had any particular interest in Canada, and nothing more was to be expected than a good strong feeling of goodwill. He hoped that the members of the British Medical Association would go back to England and tell their friends that they had seen here a good and temperate and industrious people—a people worthy of any country.

Sir William Broadbent, in responding to the toast, said it was always awkward to begin a speech with an explanation, as an explanation usually raised more difficulties than it removed; but he felt that no explanation was possible why he should have been called upon to reply for the British Medical Association when there were present such distinguished representatives of that Association. He had personally no official position in the British Medical Association but he felt it a great honour and a great privilege to be allowed to convey the thanks of the Association for the toast which had just been so cordially received. The Association had received since its arrival in Canada every possible kindness, and if anything further could have been done to make them more highly appreciate their visit it was that the toast had been proposed by so distinguished a man as Professor Goldwin Smith. The highest praise was the praise of a man who was himself praiseworthy. He realized that it was impossible even by any stretch of imagination to get any adequate conception in so short a time of the extent, the resources, and the importance of Canada. All his fellow-members must confess to ignorance, but they would not confess to indifference, and they would all when they returned to England carry out the wishes and instructions which they had received. The Lieutenant-Governor had spoken of some reproach which

had been levelled against Canada, that Canada had not come forward to build warships, to support the army and navy; but, as he had already said on a previous occasion, the money could be employed to better purposes by developing the resources of the country; by the building of the railways and the canals which had been spoken of, and which were ministering to the prosperity of the Empire. The son who went about his father's business was a much better son than one who presented his father with a gold watch for which he had no sort of use. In the development of the resources of the country the people of Canada were rendering much better service to the Empire than if they were building a warship and paying for its maintenance. It had been suggested that the Association should change its name to "The Imperial Medical Association," but he thought that would be a mistake. He thought that the people of the Empire should all be Britons together, even when Canada had annexed the adjacent Republic. He had appreciated very much the kind words that had been said in appreciation of the profession by his distinguished friend Professor Goldwin Smith. In conclusion, Sir William said that within his recollection enormous strides had been made in the advancement of knowledge and in the powers of usefulness of the profession, and he trusted that this visit to Canada would be an inspiration to them all.

Dr. MACDONALD (Chairman of Representative Meeting), who also responded to the toast, said that he felt honoured in being called upon in the presence of so many distinguished members of the profession to respond to the toast "The British Medical Association." He could only echo the sentiments of Sir William Broadbent in his appreciation of the selection of so distinguished a man to propose the toast. The English members would take back to England the proudest remembrances of the reception they had received in Canada. Whatever feelings of coldness might be thought to exist in England, they did not exist in the great heart of Great Britain. They did not forget that in the Boer war Canada sent her sons to stand side by side with those of the Old Land against England's enemies. He thought that the great gathering to which he spoke was an evidence of the influence of the medical profession in the world. To its members fell the duty of relieving the sufferings of the people and of combating disease, and they had given their best energies and abilities to find out the best means of doing this. There was one respect in which he thought the British Medical Association had been asleep, and that was on the line of politics. He thought it was the duty of the Association to be a great political factor in the world, and that the British Medical Association was beginning to wake up to the fact that it had duties to perform in the political field. He assured the people of Canada that the Association appreciated the kindness which had been shown to it, and that the members present would carry back to Great Britain the warmest feelings of regard.

The PRESIDENT called upon Sir William Hingston, the oldest member of the British Medical Association in Canada, to propose the toast of "Our Guests."

Sir WILLIAM HINGSTON extended to the members of the Association from Great Britain and the United States and from all parts of Canada a hearty welcome. Science had no geographical boundaries. He felt that those who had come from the greatest distance, and who had sacrificed most in order to attend the meeting, should receive the very warmest welcome, and deserved special mention. Toronto had never given any body of people a warmer welcome—he thought nothing was wanting in that respect. As the evening was far advanced, he concluded with proposing the toast, which was received with applause, and three cheers and a "tiger."

The PRESIDENT called upon Dr. Mayo to respond for the profession in the United States; Professor Aschoff for the German profession; M. Lapicque for the French profession, and Dr. Mott for the English profession.

Dr. MAYO said he felt it a great privilege to express the good wishes and greetings from the American medical profession. The American profession had come up in goodly numbers to sit at the feet of the masters, the men whom they had all read about. He felt it a great privilege to have met such distinguished gentlemen face to face and to have listened to their words. Medical science had no country and no language, yet when science was expressed in the English language it was pleasant to the ears of those on this side of the Atlantic. He had heard it suggested that Canada might possibly annex the United States, but he felt bound to say that they had almost done it already. Were they to wipe out what had been done in Empire building in the United States by Canadians, were they to strike out the names of Canadians who had helped to make the name of the United States famous, there would be a gap left that would be ghastly indeed. Very many of the great men in the universities of the United States had come from Canada, and from no other country in the world had come to them so much talent and brain. He thanked the Association for meeting on this side of the Atlantic, and expressed the belief that all who had attended the meetings had received new ideals which they would carry away with them and make use of in the future.

Professor ASCHOFF expressed his warm appreciation of the honour which had been done to him in affording him an opportunity of addressing so many distinguished men. He confessed himself astonished by the greatness of Canada, which many of his countrymen were making their home.

Dr. LAPICQUE in a few words expressed his gratitude for the kind reception he had received.

Dr. F. W. MOTT regretted that Dr. Osler was not present. It was recognized in England what a great acquisition he was to the ranks of the profession. Dr. Osler's textbook was now in universal use. In London there were not such educational facilities as he saw in Montreal and Toronto; in London with a population of over six millions the University had only raised £50,000 towards a new medical institute, and that was given almost entirely by one man. He would go back very much impressed with Canada. Dr. Mott referred to the desirability of reciprocal registration of degrees. It was a very important matter indeed. In fact, a distinguished Canadian, who was an M.B. in Canada, had tried to obtain a diploma in England, and had not been able to do so because Canadian degrees could not be registered in England. It seemed to him ridiculous, and he hoped something would be done to remove what might well be considered a disgrace to English and Canadian medical men.

The PRESIDENT then called on Dr. Richardson, the oldest medical practitioner in Toronto.

Dr. RICHARDSON said there was no one present who had more cause for rejoicing than he had, for no one could appreciate more than he the importance of the present meeting. When he looked back to the time when he began to practise medicine, and then viewed the conditions to-day, all would understand how he appreciated the change that had taken place. In 1843, when he attended King's College, in Toronto, he had been the only student who had attended the whole course of lectures of Professor Beaumont. When he saw the wonderful progress that had been made, he was overwhelmed by the contrast, and asked what would it be one hundred years hence. He could mention one fact which would help the visitors to understand the progress that had taken place in Canada during the past fifty years. In 1856 his father had built a yacht for the conveyance of the public from Toronto to the town of Niagara, and to-day there was a magnificient line of steamers plying between these two points. He had met many of his old pupils at the meeting, and he was delighted to think that he could count so many of them as his friends.

Sir VICTOR HORSLEY, in response to cries for a speech, said that he would speak of what was uppermost in his mind at the moment. It had to do with what Dr. Macdonald had said about the future of the British Medical Association—not in the direction of the furtherance of science, but in another direction. Sir James Grant had spoken in justly scornful terms of the value of monetary recompense for medical work, and had said that our first duty was to our patients. While that was very true, there was also the economic question, which was one in which the reconstituted British Medical Association was taking a very active interest at home at the present time. The profession had to think of the recompense for the work of its members, and to ask whether those among their colleagues, who were not quite so fortunate as those there present, were receiving their just recompense. From an economic standpoint in the

Old Country it was found not to be so. The British Medical Association had recently published a volume on the subject, and had shown that recompense, which had undergone no change for thirty years, was not parallel to the general increase in the wage-earning capacity of the nation, which had certainly doubled, if not trebled, during the same period. The profession, therefore, in England—and it probably was the same in Canada—sought through the British Medical Association to raise the wage-earning capacity of the profession, and he could not, therefore, take advantage of the kind invitation without referring to this subject, which seemed to him most important, because it was a question of improving the personal conditions of each one. Not only that, but it meant that the occurrence of misfortune to the members of the great army of medical men could be prevented. He remembered that at a meeting of commercial travellers in a public-house, in accordance with the custom of that profession, when one extremely pursy gentleman was called upon either to sing a song or propose a sentiment, or pay the penalty of standing poisonous drinks all round, he elected to propose a sentiment, and his sentiment was, "Gentlemen, whenhever you're agoin' up the 'ill of hadversity may you never meet a friend acomin' down." [Laughter.] Those in Canada might be very prosperous and fortunate, but he was sorry to say that in the Old Country there were not a few of the brethren who were going down the hill of adversity. If all united in this great Association and decided what was a just recompense for a man's work, there need be no poverty in their ranks. From a long experience of teaching students, and of the far too frequent observation of the crippling a man suffered from having to obtain the money for his own education, he was confident that the State would be well repaid if it paid the cost of the education which every medical man should receive. [Hear, hear, and applause.] These might be academic points, but they were points which the Association was considering in the Old Country. He therefore asked those in Canada to unite in support of this work.

Mr. Franklin said that, as the retiring President of the Association, it was his duty and pleasure to propose the health of Dr. Reeve. He also desired to say how pleased he was in resigning his post as President to hand it over to Toronto's very distinguished citizen; he hoped that when he had fulfilled his year the President would be able to look back with as much pleasure and satisfaction as the retiring President could on the work that had been done during the past year, some of which had been mentioned by the various speakers. He, however, would like to say, in the presence of His Honour and Professor Goldwin Smith, that he really thought the English people knew more about Canada than those gentlemen thought. He was sure that among their class a great deal was known about Canada. They were in England very fond of a periodical called the *Spectator*, and the *Spectator* published articles about Canada, and contained occasionally letters from Mr. Goldwin Smith, which were read with great pleasure. He asked that with all heartiness and enthusiasm the health of the President of the British Medical Association (Dr. Reeve) should be drunk. The toast was received with enthusiasm and the singing of "He's a jolly good fellow."

Dr. Reeve said that the position he now held was the greatest that had ever fallen to his lot. He had entered upon the duties of the office with fear and trembling, but he was glad to learn from this intelligent and educated audience that he was a jolly good fellow. He now felt less fear and trembling, and was gradually approaching a condition of jollity. He was very thankful indeed to have received many expressions of appreciation of the efforts on the part of the profession in Canada to entertain right worthily the British Medical Association, and wished again to say that while of course, personally, he tried to do his duty, a great deal of the success of the arrangements—which from what they heard had worked pretty smoothly and successfully—was due to the united, cordial, and hearty efforts of the various members of the Canadian profession, mainly of those resident in Toronto. The success of the banquet was very largely due to the efforts and care of his good friend, Dr. Grasett. In conclusion, the President said that he hoped to learn more of the Association during the year of his incumbency, and he asked that in the meantime his heartfelt thanks would be accepted for the kind expression of wishes which had been voiced by the retiring President.

In response to calls for him, Sir Thomas Barlow said that he could only re-echo what his brethren had said. The British members were very thankful for the way in which they had been received and entertained, and would go back to their homes thinking of Canada in a very different manner to that in which they came.

In response to cries of "Barr," the President intimated that there was no bar to his speaking.

Sir James Barr said that he appreciated highly the manner in which he and his friends from the other side of the water had been entertained. He had been present at the Annual Meeting of the British Medical Association at Montreal, and so gratified was he with the meeting there that he was a strong advocate of the proposal to revisit Canada. He was a member of the Council of the British Medical Association when it was mooted that the Association should go to Canada, and that an invitation had come from Toronto; he strongly urged upon the Association the advisability of coming to Toronto. He did not think that any one had been disappointed; all had thoroughly enjoyed themselves, and would return to their homes with many pleasant reminiscences of the greatest colony in the British Empire.

REVIEWS.

THE DOCTRINE OF EVOLUTION.

The entire validity of evolution as an explanation not merely of the origin of species but of every form of cosmic heterogeneity, organic and inorganic—a belief fulminated against from the pulpits of yesterday—is to-day admitted by all. Whilst this is so there are, as every one knows, the gravest dissensions among evolutionists, both scientific and philosophical, as to the lines on which this "ordered change," as Dr. Saleeby in his book on *Evolution*[1] terms this evolutionary process, takes place, and, particularly among speculative philosophers, as to its inscrutable cause. To whichever field of human knowledge one turns, whether that of biology and the problems of heredity, astro-physics and the birth of worlds, psychology and the development of conscious intelligence, or comparative theology and the gradual elevation of religious concepts and creeds—in fact in every sphere of research, one finds the same evidences of an evolution of the more complex from the less complex, and the less complex from the simple, and in almost all the same cleavage of opinion as to its interpretation. What came, rather loosely, to be known as Darwinism, was for many years opposed by Weismann and his school, though the Jena biologist has largely modified his views within recent years; in the inorganic world "atomic evolution," since the discovery of radio-activity, has become the latest belief in opposition to the older theory of indivisible, perdurable ultimate material particles, and in philosophy and theology conflicting tenets and creeds as to the place and meaning of evolution are without end. Probably no man did more to synthesize the results of the various sciences, to co-ordinate their activities, and to explain their underlying unity of process than Herbert Spencer, and, itself the highest criterion of truth, to leave to posterity a conception so truly philosophic that fresh facts and added information do not disturb but fall naturally into line with a great and all-inclosing generalization. So many new sciences, however, have sprung into being since Spencer's *First Principles* was published, our conceptions of the nature of matter have so largely altered, so many of Spencer's conclusions have been called in question, and some indeed proved unwarrantable, that it is eminently fitting that the philosophy of evolution should be reconsidered in the light of latter-day information. This task Dr. Saleeby, a prolific writer and publicist from the point of view of the biologist, has undertaken in the volume before us. The author, who is a wholehearted adherent of Spencer's philosophy, shows an intimate acquaintance with every notable work on the problems of evolution, is at all times lucid and interesting, and, on many questions of social importance, such as religious beliefs, conduct, education, marriage, and eugenics, is refreshingly outspoken. The book, as one would expect, is written in easy flowing style, is never ambiguous, and is full of trenchant passages, and

[1] *Evolution: The Master Key.* By C. W. Saleeby, M.D. London: Harper Bros. 1906. (Demy 8vo, pp. 364. 7s. 6d.)

so holds the attention of the reader to the last page. Naturally a work which attempts to cover all phases of evolution—atomic, cosmic, individual, and social; which touches upon extremely controversial questions such as the nature of mind, determinism, the religion of the future, and, above all, our "knowledge of the unknowable," in a few hundred pages, can only do so in very discursive and somewhat superficial fashion. With regard to the "unknowable," an unfortunate term already subjected to enough destructive criticism, we note that Dr. Saleeby is only able half-heartedly to defend Spencer's designation:

To make any assertion about the unknowable is surely to assert that it is, in some measure, intelligible, and therefore in intimate relation with our intelligence.

Dr. Saleeby, then, concludes that "the Eternal is, in a limited sense, intelligible," though in an earlier chapter he had affirmed that

it is part of the evolutionary philosophy to demonstrate that Reality, or being, the thing that really is, can never be known by us; or, in other words, to assert that the quest of philosophy, in its highest sense, is necessarily foredoomed to failure. . . . In a late chapter we must discuss the evidence for this belief. Meanwhile let us take it that Reality is unknowable.

Dr. Saleeby, in his chapter "The Test of Truth," discusses Spencer's ultimate criterion of belief that "in the last resort we must accept as true a proposition of which the negation is inconceivable." Subjected to this test, what intrinsic validity has the proposition "Reality is unknowable," and what becomes of the author's inherently absurd conclusion that "the unknowable is semi-intelligible or partially knowable"? Surely it would have been more consistent both with evolutionary philosophy and with the author's later expressed opinion to have spoken of the "unknown" rather than the "unknowable." In reviewing a book so ably, and in parts brilliantly, written we are most averse from anything in the way of damaging criticism, but we cannot but recognize the difficulty of discussing far-reaching issues in limited space, and on the part of the author a certain airy disregard of the rational grounds of the beliefs of others, of which his dismissal of Leibnitz's famous theodicy in a few lines may be taken as an instance. This he stigmatizes as a "puerile conception," and says that

nowadays we are hardly likely to worship in place of the Unconditioned Condition of All Things a supposititious person who is conceived as "making the best of a bad job."

Dr. Saleeby is acquainted with Mill's *Essays on Religion*, so he must be aware that a belief in a limited God immanent—"becoming," as the metaphysicians say—is susceptible of argument as well as ridicule. Dr. Saleeby is at his best outside speculative philosophy, though even in the domain of the purely physical his work would have gained by a greater care in explaining authorities quoted. For instance, in speaking of the retardation of the earth's rotation by tidal influence he does not explain that the tides in question are internal as well as external tides, and that Professor Darwin's calculations depend upon the hypothesis, as yet unproved, that the earth is a viscous spheroid of definite density. This has been omitted, doubtless, because the author has been anxious to avoid over-elaboration in a work intended to be popular rather than scientific in treatment; but such explanations might very well have been given in footnotes. Notwithstanding these minor defects, this book and the series of small shilling handbooks on *Heredity*, *Organic Evolution*, *Psychology*, *Sociology*, and *Ethics*,[2] by Dr. Saleeby, forming part of the Shilling Scientific Series, and covering much the same ground as *Evolution: The Master-Key*, cannot but do good by opening to the paramount importance of the philosophy of evolution in every phase of life and thought the minds of many, who are only too prone to accept unthinkingly the dicta of authority.

THE PATHOLOGY OF PULMONARY TUBERCULOSIS.

In his work[3] on the cause and therapeutics of phthisis Professor VON BEHRING has put together a very useful historical survey of the earlier literature on the subject. He also enunciates at length his own views, which are now well known, as to the frequency of the absorption of tubercle bacilli by the alimentary tract in early life and the part they play in the subsequent development of pulmonary phthisis. All that need be said about these theories is that, in the opinion of the majority of observers, they attach an exaggerated degree of importance to the dangers and frequency of alimentary tract infection. On the question of the relationship between human and bovine bacilli Professor von Behring is strongly opposed to the recent doctrine of the Koch school. "The bacilli which Koch discovered to be the cause of human tuberculosis are," he declares, "indistinguishable in morphological and cultural characters from the bacilli which cause bovine tuberculosis." Again, with regard to the question of virulence for experimental animals, he says: "I find that there are some culture strains of human origin which possess a very low pathogenicity for the bovine, and others, again, which are as virulent or even more virulent for the bovine than many strains of bacilli which are of bovine origin, and I find that all arguments in favour of the doctrine that the bovine bacillus is innocuous to man rest upon a very slender basis." It is apparent, therefore, that this well worn controversy as to the inter-relationship of human and bovine tubercle bacilli is still very far from being settled.

Dr. SABOURIN, who is Director of the Sanatorium at Durtol (Puy-de-Dôme), propounds, in his volume on tuberculous bronchial embolism,[4] the doctrine that a certain variety of tuberculous pneumonia, not infrequently met with in cases of chronic phthisis, is caused by a bronchial embolism. He points out that there is a clear distinction between the primary tuberculous lesions in the lungs and tuberculous lesions of these organs secondary to the former, and originating from them. Primary tuberculous lesions are essentially nodular, the nodules being more or less confluent and more or less agglomerated at a given point. The secondary lesions, on the other hand, have the appearance of pneumonia. Caseous pneumonia has long been recognized in acute phthisis, but a somewhat similar condition which occurs in chronic cases has been to a great extent overlooked. This latter condition he calls necrosing pneumonia (*pneumonie nécrosante*), and it is to this form that he assigns a special pathological causation. It is, the author tells us, invariably a secondary manifestation of tuberculosis, and has as its immediate cause a bronchial embolism which is a bacillary product emigrated from the primary nodular lesion in the lung. Such pneumonias appear to be inevitably destined to necrosis and suppuration leading to cavity formation. The condition seems to be a lesion of fatigue or exhaustion, for it rarely if ever occurs in tuberculous patients placed under properly regulated hygienic treatment, and only exceptionally shows itself in cases of pulmonary tuberculosis properly treated in good time. The book contains numerous clinical notes of cases, but though the author speaks of the innumerable autopsies which are available, we have looked in vain for any records of *post mortem* examinations in proof of the assertion he makes as to the causation of this necrosing pneumonia. The later chapters of the book are devoted to the necrosing pneumonia in the region of the pulmonary fissures, or sulci dividing the lobes, which he considers to occupy an important place in the history of phthisis.

[2] London and Edinburgh: T. C. and E. C. Jack.

[3] *Beiträge zur experimentellen Therapie.* Heft iii. *Vorderne phthisiogenetische und phthisiotherapeutische Probleme in historischer Beleuchtung.* Von Professor E. v. Behring. Berlin: August Hirschwald. 1906. (Roy. 8vo. pp. 156.)

[4] *Les Embolies Bronchiques Tuberculeuses.* Par Dr. Ch. Sabourin. Paris: Felix Alcan. 1906. (Cr. 8vo. pp. 264. Fr. 4.)

PUBLIC HEALTH MEASURES FOR LONDON.—The London County Council proposes to seek from Parliament during its next session a number of new powers in respect of matters connected with sanitation and the public health. The principal points included cover milk inspection and its municipal supply, the compulsory cleansing of verminous persons, the sanitation of fried-fish shops and marine stores, the right to demand that tenement houses shall have water supplied on each floor and be equipped with places suitable for the storage and cooking of food, and the employment of a new class of trained food inspectors. A certain degree of novelty attaches to one power sought namely, that of requiring laundry owners to supply on demand the names and addresses of their customers, with a view to the tracing by sanitary authorities of possible sources of infection.

INTERNATIONAL HOUSING CONGRESS AT GENEVA.

In November, 1904, there was held in Paris, under the auspices of the Société Française d'Hygiène, an International Congress for the consideration of the sanitary condition of dwellings. The outcome of this gathering was the formation of an International Association for the promotion of hygiene and salubrity in dwellings. The second Congress of the Association was held in Geneva from September 4th to 8th, and was attended by about 250 foreign members and nearly as many Geneva residents. Although the majority of those present were from France and Switzerland, the international character of the meeting was maintained by the presence of delegates from Germany, Russia, Spain, Portugal, Japan, China, Austria, Greece, Hungary, Italy, Belgium, Egypt, Servia, Holland, and Great Britain. The next Congress will be held in Dresden in 1909.

The general scheme for the discussions, which had been found to work well in Paris, was followed at Geneva with two additional sections on art and decoration in relation to the wholesomeness of houses, and to sanitary administration, including legislation, sanitary offices, and statistics. Apart from these sections, the subject was discussed under three headings—dwelling houses, lodgings and places of assembly, and movable or temporary dwellings. Separate subsections discussed dwelling-houses from the point of view of middle-class urban houses, workmen's houses, and rural houses. Lodgings and places of assembly were discussed in reference to furnished lodgings and hotels, hospitals, military establishments, public halls, workshops and factories, and school buildings. Under the head of movable and temporary dwellings opportunity was found to consider not only the construction, from a hygienic point of view, of steamboats and railway carriages but also the cleanliness of streets and the question of lessening the amount of road dust. The sectional meetings were fairly well attended and the discussions well sustained.

At the general meetings the questions discussed were insanitary areas, the sanitary inspection and regulation of lodging houses, and systems of warming and ventilating dwelling-houses. Upon this last question a great deal of difference of opinion was shown, and although an attempt was made to commit the Congress to a definite expression of opinion in favour of one system, better counsels prevailed, and no resolution was come to.

Although there have already been held this year in Geneva thirty congresses, the social side of the meeting was in no way neglected. An official reception was given on one evening at the Palais Eynard, when M. Guillaume Fatio, the Chairman of the Organizing Committee, gave an account, illustrated by charming lantern slides, of the different kinds of houses to be found in Switzerland. Upon another evening M. Fatio gave a banquet to the members of the Congress and others in the grounds of his house on the banks of the lake, and on the last day of the Congress a dinner was given to the members by the municipal authorities. Special excursions were arranged for the days following the business meetings to Chamounix, Lausanne, Berne, Lucerne, Zürich, Bâle, Neuchâtel, and to the sanatorium at Leysin. The schools of the town, the cantonal hospital, and the newly erected maternity hospital were also open to inspection.

To the medical members of the Congress one of the most interesting visits was that paid to the Children's Hospital, which was founded seven years ago at Pinchât by Dr. E. M. Martin, who had previously practised for many years in Geneva. Dr. Martin had found that children suffering from chronic diseases laboured under a great disadvantage, because they could not be kept long enough in the general or children's hospitals. In 1899, therefore, he opened the Pinchât hospital, with accommodation for 25 children. The buildings are more or less detached, and the rooms are arranged quite in accordance with present-day ideas, full advantage being taken of fresh air and sunshine. Since its establishment 275 children have been treated, of whom 7 have died. There is no limit to the time of stay in the hospital, some of the patients remaining as long as four or five years. Of the 50 cases of hip joint disease treated, 26 were cured, 16 were considerably benefited, 2 recurred, 1 was complicated with Pott's disease, and 3 died. The cost of the establishment per patient is said to be about 2 fr. daily, and when the parents of the children can afford to do so, they pay 1 fr. a day. The whole expenses of the institution are, with this exception, defrayed by Dr. Martin.

LITERARY NOTES.

Mr. Heinemann will shortly issue, under the title of *Medical Hygiene*, the text of the Harben Lectures delivered this summer by Dr. Elie Metchnikoff. Professor Ray Lankester contributes an introduction.

Messrs. Nisbet and Co. have in preparation a new series of medical handbooks written by London teachers. They will be published under the title of *Modern Clinics*, in a compact form, and at low prices. Each volume will be confined to one special and limited subject, and will aim at giving the very latest results of investigation in that special field. Among works shortly to be issued by the same firm are a new edition of Mr. Stephen Paget's *Experiments on Animals*, and a book entitled *Alcoholism*, by Dr. W. C. Sullivan, Medical Officer at H.M. Prison, Pentonville. Both these books will be published in October.

Four commemorative volumes are to be issued by the University of Aberdeen on the occasion of the quatercentenary celebration. These are: 1. *The Roll of Graduates of the University of Aberdeen, 1860 to 1890, with brief biographical notices*, by Colonel William Johnston, C.B.; 2. *Studies on the History and Development of the University of Aberdeen*, edited by P. J. Anderson, Librarian of the University. Among the studies is one entitled, Four Centuries of Medicine in Aberdeen, by Professor Stephenson, M.D. 3. *Studies in the History and Art of the Eastern Provinces of the Roman Empire*, edited by Professor W. M. Ramsay; 4. *Studies in Pathology*, edited by Dr. William Bulloch. This volume, which has as a frontispiece a portrait of Professor Hamilton, contains: (i) Professor Hamilton, by William Leslie Mackenzie, M.A., M.D.; (ii) The History and Progress of the Chair of Pathology, by the Editor; (iii) The Alimentary Canal as a Source of Contagion, by Professor Hamilton, M.B.; (iv) A Remarkable Case of Bilharziosis, by Professor William St. Clair Symmers, M.B.; (v) Malformations of the Bulbus Cordis, by Arthur Keith, M.D.; (vi) The Administrative Aspects of Tuberculosis, by William Leslie Mackenzie; (vii) Paroxysmal Irregularity of the Heart, by Professor Arthur Robertson Cushny, M.A., M.D.; (viii) Researches on Certain Problems of Plague Immunity, by George Dean, M.A., M.B.; (ix) Experimental Study of the Immunity against *Bacillus pyocyaneus*, by the Editor; (x) On Epignathus, by Alexander Low, M.A., M.B.; (xi) A Contribution to the Pathology of Exophthalmic Goître, by George Mellis Duncan, M.B.; (xii) The Rat Theory of Plague Epidemics, by William Hunter, M.B.; (xiii) Some Experiments with Disinfectants, by Andrew Ross Laing, M.D.; (xiv) On Eck's Fistula, by Professor John James Rickard Macleod, M.B.; (xv) On the Action of Certain Bacteria in Producing Cell Necrosis, by George Ford Petrie, M.D.; (xvi) The Relationship between the Factors inducing Haemolysis and those inducing Phagocytosis of Red Blood Corpuscles, by Robert Donald Keith, M.A., M.D.; (xvii) An Experimental Inquiry into the Relationship of Leucocytosis to the Opsonic Content of the Blood Serum, by James Charles Grant Ledingham, M.A., M.B., and the Editor. (xviii) Immunity in Pneumococcal Infections, by George Grant Macdonald, M.A., M.D.; (xix) Note on the Bacteriology of some Diseases of Sheep, by James Milner Adams, M.A., M.B., and Bertie Ronald Gordon Russell, M.B.

The war of legitimate medicine against illegal practice is a very old one. One of the first acts of the Medical Faculty of the old University of Paris when it had secured for itself a separate existence was to make a statute *contra illicite practicantes*. Although this was done with the approval of the Church and the royal judges, the statute seems to have had no particular effect, for half a century later, in 1271, the Saluberrima Facultas, now fully constituted and eager to maintain its newly acquired privileges, issued a further denunciation of unlicensed practice. Jews were forbidden to practise medicine or surgery on the person of any Catholic Christian. Surgeons, apothecaries, herbalists, whether male or female, were forbidden to visit patients, to perform any operation, to administer any medicament, without the help and

sanction of a doctor, under pain of excommunication, imprisonment, and fine. Lastly, all students of medicine were forbidden, under like penalties, to visit the sick, "except a first time," and to prescribe medicine without the help of a Master. The interdict on medical practice by Jews was removed later, as may be gathered from a Royal Order dated 1362, by which it is enjoined that Jews must not practise without having passed the prescribed examinations. As for the surgeons, male and female, the order was the expression of the anxiety of the Faculty to keep them in their place, a battle which lasted almost to the Revolution. But in the reign of Philip the Fair surgery, as may be gathered from the wording of the statute by which he established surgeons as a guild, was freely practised by forgers, thieves, vagabonds, murderers, alchemists, and usurers. Notwithstanding these edicts unqualified practice was prevalent. In 1312 a woman called Clarice of Rouen was excommunicated for the illegal practice of medicine. Excommunication was a very serious thing in those days; it was a boycott of the severest kind, and had it been strictly carried out would have been equivalent to a sentence of death. Evidently, however, the penalty was mitigated in practice, either by the humane feeling of the fellow creatures who were forbidden to hold any kind of intercourse with those under the ban, or by the application of the eternal principle expressed by the French poet in the famous phrase, *Il est avec les dieux des accommodements.* This is shown by the fact that Clarice was time after time the object of ecclesiastical thunderbolts and apparently handed on her business as an unqualified practitioner to her daughter. There is a good deal of evidence of illegal practice in the Cartularies of the University of Paris, published by the learned Dominican, the late Père Denifle, and the pleadings of the accused make amusing reading. One famous quack, Jacoba, of Germany, who fell into the clutches of the law in 1322, boldly urged that the statute did not apply to her, but only to persons unskilled in the art of healing; the law, she said, in good set terms, was made for dotards, not for women like her under 30 years of age. The Faculty retorted in villainous Latin that she was *totaliter ignara artis medicinae.* It was charged against her that notwithstanding her ignorance she had prescribed potions (it was stated in evidence that one of her patients refused to take her physic *propter horribilitatem potus*), administered clysters, etc., whence there resulted danger of death to the patients and to herself a state of mortal sin. Quackery continued to be rampant, and in 1325 the University appealed to Pope John XXII, who declared unqualified practice was an abominable crime. In 1347 a further appeal was made to Pope Clement VI. All through the fifteenth century the Faculty waged war against quackery with the aid of the King and the law, as well as that of the Church. We fear, however, that it was more concerned about the maintenance of its own privileges than about the welfare of the people.

THE PLAGUE.

PREVALENCE OF THE DISEASE.

INDIA

DURING the weeks ended July 28th, August 4th and 11th, the deaths from plague in India numbered 562, 738, and 936 respectively. During the week ended July 28th the principal figures were: Bombay Presidency, 262; Bengal, 15; Eastern Bengal, 4; United Provinces, 16; the Punjab, 11; Central Provinces, 1; Central India, 2; Madras Presidency, 6; Mysore, 37; Burma, 208. During the week ended August 11th the principal figures were: Bombay Presidency, 387; Bengal, 21; United Provinces, 49; Central Provinces, 58; Mysore, 82, Burma, 187.

Rajputana, Kashmir, the Frontier Provinces, and Baluchistan remain free from plague.

AUSTRALIA.

Queensland.—During the weeks ended July 14th, 21st, 28th, and August 4th no cases of plague were reported in Brisbane. The last case occurred on June 20th. A few rats have been found to be plague-infected. The plague hospital at Rockhampton was closed on July 21st. During the week ended July 21st a case of plague (a child aged 6) occurred at Cairns. No plague-infected rats have been found.

SOUTH AFRICA

During the weeks ended July 14th, 21st, 28th, and August 4th, 11th, and 18th no cases of plague were reported in any part of South Africa. A few rats and mice have been found plague-infected at East London, King Williamstown, and Port Elizabeth.

MAURITIUS.

During the weeks ended August 8th, 15th, 22nd, and the two weeks ended September 6th, the fresh cases of plague numbered 1, 3, 6, and 13, and the deaths from the disease 1, 2, 4, and 13 respectively.

HONG KONG.

During the week ended August 19th the fresh cases of plague numbered 3, and the deaths from the disease 2. On August 29th clean bills of health resumed. The usual summer recurrence of plague would seem to be over. This is the twelfth year during which plague has recurred during the summer months in Hong Kong.

THE PUBLIC HEALTH OF BELFAST.

FOR a considerable time past the condition of Belfast, from a public health point of view, has been, as our readers are aware, a matter of grave concern to its thoughtful citizens. That a new city with all the advantages that great wealth, an equable climate, and a comparatively admirable situation can bring should always be the home of typhoid, and should have a death-rate from consumption twice as high as an ordinary English or Scottish town is, indeed, a matter demanding the closest inquiry.

Last March, at the annual meeting of the Ulster Branch of the National Association for the Prevention of Consumption, statistics were brought forward showing the deplorable death-rate from consumption in Belfast. A discussion followed in the public press, and shortly afterwards the resignation of the late medical officer of health brought matters to a crisis. The Belfast Citizens' Association, which was founded in 1905 for the promotion of efficiency, economy, and reform in municipal administration, held a public meeting, and urged that, considering the state of the public health of the city, a thoroughly efficient and experienced man should be appointed medical officer of health at a proper salary. On May 17th the Ulster Medical Society strongly expressed the unanimous opinion that, in the interests of the citizens of Belfast, and with the object of ensuring the confidence of the medical profession, and of bringing the health department of the city into line with what is being done in other cities of similar size and importance, it is absolutely essential:

1. That the new medical officer of health should be possessed of high skill, scientific knowledge, and thorough practical training and experience in public health—a subject which has now become a pure speciality.
2. That the present remuneration,* which is quite inadequate to attract suitable candidates, should be increased.
3. That in any rearrangement of duties, the new medical officer of health should be sole head of a department in charge of the health of the city in all its branches, and should alone be responsible to the Health Committee and City Council for the proper administration of all matters pertaining to the health of the city.

Deputations from the Society appeared before the Public Health Committee and the City Council of Belfast in support of these views. The Public Health Committee advised, in a report to the City Council, that the salary should be £800 a year, but the members of that body would only agree to £600. A Subcommittee appointed at the meeting of the Citizens' Association urged the Local Government Board, which has a power of veto in the matter, not to agree to this small salary, and the Local Government Board acquiesced in this view and requested the Council to reconsider the matter, on the ground that for a city of the size and importance of Belfast this sum was too small. After the receipt of this communication the Public Health Committee reaffirmed its former resolution, approving of £800 a year as the salary to be given to the new medical officer of health, and at a meeting of the City Council of Belfast, held on September 5th, the Chairman of the Public Health Committee moved:

> That it be a recommendation to the Council to rescind the resolution passed on July 2nd, fixing the salary of the medical superintendent officer of health at £600, and to fix the salary of that office at £800 per annum.

An amendment reaffirming the salary of £600 fixed by the Council was, however, moved and carried by 26 to 11 votes. It is significant that twenty-three members of the Cor-

* That is, £500.

poration were absent. It is surmised that the determination thus displayed by the City Council to run counter to the recommendations of its own Public Health Committee, and to the advice of the Local Government Board by fixing a salary altogether inadequate to the importance of the duties of medical officer of health to so large a city must be due to a desire to exclude high class candidates, so as to leave the way open for the appointment of some one irrespective of specialized experience in public health administration, who would be content with such inadequate remuneration. We trust that the Local Government Board will keep firm in this matter and again refuse to approve of the action of those whose standard of efficiency on questions of public health indicates such crass ignorance of the progress of science in the prevention of disease.

There is no other city of its size (350,000 inhabitants) in the Empire outside Ireland so hopelessly behindhand in the matter of public health as Belfast. Typhoid fever is such an ever-present disease that it may be said to be endemic; at the monthly meeting of the City Council, held on September 3rd, a deputation attended in reference to an outbreak of typhoid now prevailing in one of the best parts of the city, and urged that some adequate effort should be made to find out the cause of it, and to take measures, as regards the sewers and in reference to the control of milk, to prevent the occurrence of such epidemics in the future. There is always a very large amount of infectious disease in Belfast; for example, the statistics of the last available four weeks—August 11th to September 1st—show that 84 cases of scarlatina, 12 of diphtheria, 42 of typhoid fever, 26 of erysipelas—that is 194 in all—were notified, yet the new municipal hospital for infectious diseases is only now about to be opened for patients.

With a death-rate twice as high as that of any similar English or Scotch city from tuberculosis, the Corporation, though urged by the Local Government Board, have not yet erected a sanatorium. There is no control of the milk supply, the whole main drainage system is faulty and will need very soon a complete overhaul; little or nothing has been attempted to improve the hygiene of the elementary schools, the problem of infantile mortality has never been faced, and the pollution of Belfast Lough continues, despite the promise made to smooth the course of a Corporation Bill—that all the sewage would be rendered pure in three years, a period that has long since elapsed. Seeing the really pitiable condition of Belfast, the Citizens' Association and the medical profession urged the appointment of a capable, experienced specialist in public health matters to advise in the solution of these questions, and to try to remove from the city the discredit of being fifty years behind the times, but it almost seems as if the majority of the Corporation were callously determined to do nothing. Under such extraordinary circumstances the feeling is becoming more and more general that nothing remains but to demand the appointment by the Government of a Royal Commission to inquire into the condition of Belfast from a public health point of view, and to advise what should be done to remove the present deplorable and largely preventable condition of affairs, which all educated and thoughtful people, who see what has been accomplished elsewhere, regard as a disgrace to a comparatively new city like Belfast.

THE ANTITUBERCULOSIS CONGRESS.

At the Antituberculosis Congress, which was held last week at La Hague, 115 delegates, representing sixteen countries, attended. The object of the Congress was more especially to formulate measures to prevent the spread of tuberculosis.

At the opening meeting, which was presided over by Prince Henry of the Netherlands, Professor Calmette (Lille) delivered an address on the channels by which tuberculous infection gains admission to the body. He took occasion to eulogize the work of the late Professor Brouardel, who had taken a leading part in organizing a general struggle against the disease. M. Bourgeois, the French Minister for Foreign Affairs, was elected President-General of the Antituberculosis Association.

On the next day the question of sanatoriums for the people was under discussion. Dr. Heron advocated cheap institutions; Dr. Theodore Williams, on the other hand, thought that economy should not be carried too far. Some speakers expressed the view that slight cases might be treated in dispensaries.

Dr. R. W. Philip read a paper on the tuberculosis dispensary as a factor in the campaign against consumption. The dispensary as a factor in the campaign against tuberculosis was, he said, no longer on its trial. In any complete organization against tuberculosis the dispensary would be found to play a most important part. This had been his belief for many years. It was this that led to the foundation in 1887 of the Victoria Dispensary for Consumption in Edinburgh. Increasing familiarity with the idea had led to a widespread recognition of the significance of the dispensary. More recently, the rapid and apparently independent erection of similar institutions in Belgium, France, and Germany had been remarkable. By means of the dispensary he felt that access would be readily obtained to the foci of disease, not merely in the affected individual, but also in other members of the same household and in affected dwellings. The tuberculosis dispensary should be for every city or district the uniting point of all other agencies. It should not be an isolated institution, but form an integral part, indeed the centre, of a great network of operations. To the dispensary tuberculous patients of the poorer classes and patients with chronic colds or persistent ill-health should be invited. Tuberculous patients presenting themselves at infirmaries, hospitals, and other charitable institutions should be directed to the tuberculosis dispensary. The public should be made aware that the dispensary was prepared to answer all inquiries regarding tuberculosis, and to advise in a given case what was best to be done. The programme of the Royal Victoria Dispensary was as follows: (1) The reception and examination of patients at the dispensary, the keeping a record of every case, with an account of the patient's illness, history, surroundings, and present condition, the record being added to on each subsequent visit. (2) The bacteriological examination of expectoration and other discharges. (3) The instruction of patients how to treat themselves, and how to prevent or minimize the risk of infection to others. (4) The dispensing of necessary medicines, sputum bottles, disinfectants, and, where the patient's condition seemed to warrant it, foodstuffs and the like. (5) The visitation of patients at their own homes by (*a*) a qualified medical man, and (*b*) a special trained nurse, for the double purpose of treatment and of investigation into the state of the dwelling, the general conditions of life, and the risk of infection to others. (6) The selection of more likely patients for hospital treatment, either of early cases for sanatoriums, or of late cases for incurable homes, and the supervision, when necessary, of patients after discharge from hospital. (7) The guidance generally of tuberculous patients and their friends, and for inquiries from all interested persons on every question concerning tuberculosis. Dr. Philip said that from first to last the nurses' house-to-house visits had been most gladly welcomed by all types of patients. There could be no doubt that the system of domiciliary visitation by a specially-trained nurse, in co-operation with the doctor, had been a sanitary agent of great importance to the city of Edinburgh. About 1,000 reports were made annually regarding the home conditions of patients, and about as many notifications had been made to the city authorities. By means of the systematic record of the home conditions according to the schedule referred to, there had been accumulated a great mass of valuable statistics and information regarding the incidence of the disease in the district. Every year the extent of operations of the dispensary had steadily increased. Several towns and districts of Scotland had awakened to the large sphere of work which was compassable only by such an institution as the tuberculosis dispensary. Still more recently the Local Government Board of Scotland had emphasized in the strongest way the significance of the dispensary as an important element in the administrative control of pulmonary tuberculosis, and had strongly recommended local authorities to institute such dispensary or dispensaries on the model of the Royal Victoria Dispensary at Edinburgh. Much was to be gained by uniformity of action in such a

campaign. Dr. Philip had frequently had occasion to propose a scheme of organized operations against tuberculosis which might be uniformly followed in our larger centres. The organization, which implied notification in one or other form, should include: (1) A tuberculosis dispensary with the functions and relations I have attempted to outline; (2) a hospital or asylum for dying patients, chiefly in the interest of other persons; (3) a sanatorium or sanatoriums for selected patients who, with a view to cure of the disease, require a special regimen not procurable at their own homes; (4) colonies for the after-life and supervision of patients in whom the disease has been arrested, so as to make selected open air employment feasible and desirable. The various departments should be in close organic relation.

Herr von Glasenapp (Berlin) urged the general adoption of compulsory notification of tuberculosis. The question was referred to a committee, in view of the practical difficulties which stand in the way of the acceptance of such a measure.

Dr. Nathan Raw read a paper dealing with the public measures necessary for the prevention of consumption. In his opinion the two chief methods of infection were by direct contact with advanced cases and infected milk from tuberculous cows. Hence it was of the greatest importance that advanced cases of consumption should be isolated from the healthy and all tuberculous dairy cattle should be eradicated. The provision of consumptive colonies of an inexpensive nature for each large city or county would do much to prevent the spread of the disease to the healthy. By judicious legislation and encouragement to health authorities to adopt by-laws in their several districts the Government could do a great deal in the prevention of consumption. Every health authority in England had full power under the Public Health Act of 1875 to deal with tuberculosis in precisely the same way as other infectious diseases, such as typhoid fever. They might provide hospitals for their isolation or cure, but so far few authorities had acted upon this power, although a few municipalities were supporting and erecting sanatoriums. County councils, not being health authorities, could not act under the Public Health Act of 1875, but they had powers under the Isolation Hospitals Act to deal with tuberculosis, and there was at present an increasing desire on their part to take active steps both in prevention and treatment by the maintenance and support of sanatoriums in each county. The great workhouses and workhouse infirmaries of England contained thousands of poor consumptives who had worked as long as they were able, and then, as a last resource, found refuge in these places. Not only was separate isolation provided for them now, but in many instances the guardians were providing sanatoriums as a means of cure. The people must be educated as to the best means to be adopted in dealing with a member of the family who was consumptive. In a great many instances the open-air treatment could be carried on at home and isolation arranged for. The public ought to be encouraged to do this even if a small grant was required from the local rates. Compulsory and voluntary notification were now both in force in some districts.

MEDICAL NEWS.

WE are asked to state that medical practitioners desiring to attend the Huxley Memorial Lecture by Dr. I. P. Pawlow, Professor of Physiology in the University of St. Petersburg, at the opening of the winter session of the Charing Cross Hospital Medical School on Monday, October 1st, at 4 p.m., can obtain cards of admission on application to the Dean so far as the accommodation allows. The subject of the address, as already announced, will be Some Advances in Science, and Their Bearing on Medicine and Surgery.

ST. THOMAS'S HOSPITAL. The date of the opening of the Winter Session at St. Thomas's Hospital is Wednesday, October 3rd, not as given in the BRITISH MEDICAL JOURNAL of September 8th, p. 579. The Old Students' Dinner, at which Dr. Arthur Newsholme, Medical Officer of Health for Brighton, will preside, takes place at the Hotel Cecil on the evening of Tuesday, October 2nd.

LONDON SCHOOL OF TROPICAL MEDICINE.—The Winter Session of the London School of Tropical Medicine will open on October 1st. The Students' dinner will not take place on the same day, as stated in the BRITISH MEDICAL JOURNAL of September 8th, page 579, but on October 8th. The opening address will be delivered by Colonel Kenneth MacLeod on October 8th.

THE receipts of the Hospital Saturday Fund from January 9th to September 1st, mainly the result of weekly or other periodical collections in the industrial establishments, etc., of London, amounted to £11,475. The annual special collection has been fixed for October 13th.

IT is reported that the Army Order issued last June authorizing the enlistment of men for the Royal Army Medical Corps on the terms of one year's service with the colours and eleven in the reserve is not working satisfactorily. Some of the men have been discharged, and others will not be retained; on the other hand, it is believed that most of the suitable recruits would have been willing to join on the usual conditions of three years with the colours.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM.—A course of post-graduate lectures on diseases of the nervous system will be given at this hospital on Thursdays at 5 p.m., beginning on November 1st. Members of the medical profession are admitted on presentation of their cards.

CONGRESS OF HYDROLOGY.—The Eighth Congress of Hydrology and Climatology will be held at Milan from October 3rd to the 6th. Among the subjects proposed for discussion are the inclusion in the medical curriculum of teaching on hydrology and climatology; the origin and classification of mineral waters; the characters which so-called table waters should have as compared with mineral waters; the exportation of mineral waters.

PRIZE.—The Hungarian Minister of the Interior offers a prize of 1,000 crowns for the best work on the etiology of trachoma. Essays in competition, which may be written in Hungarian, German, French, or English, will be received up to December 31st, 1908. They should be addressed, Belügy-Ministerium I. Vár, Buda-Pesth. Printed works will be received, provided they were published for the first time in 1907 or 1908. The decision of the jury will be announced at the Sixteenth International Medical Congress to be held at Buda-Pesth in September, 1909.

THE Anglo-American Nursing Home at Rome, established in 1900, has already done much good work. It has a house in the Via Nomentana where patients are admitted if necessary, and it had last year a staff of eighteen nurses, who also attended cases outside the home. It is managed by a Committee of which the American Consul-General is Chairman, and is under the direction of an experienced English lady superintendent. The institution has two free beds, and admits patients who are not well off at reduced rates, but it has hitherto been self-supporting. The need for such an institution, however, has proved so great that the Committee are now appealing for subscriptions to build a annexe to the present house to contain twelve more rooms and an isolation pavilion for the reception of infectious cases, for which at present there is no provision. Subscriptions may be sent to the Honorary Treasurer, Mr. R. C. R. Young, Grand Hotel, Rome, and Mrs. R. Crawshay, 35, North Audley Street, London, W., will, we believe, be ready to answer inquiries.

THE TEACHING OF HYGIENE AND TEMPERANCE.—The first of what it is hoped will prove a series of special training courses is to be given in the Birkbeck College, Bream's Buildings, Chancery Lane, during Michaelmas term. The object is to give teachers in the public elementary schools and elsewhere the sort of knowledge they require in order to deal efficiently with hygiene and temperance, two subjects which have now been inserted in the Code by the Education Board. The training classes will be held once a week, a lecture of an hour being followed by another hour's practical work in the laboratory. The appointed lecturer is Dr. Claude Taylor, the fee for the course being two guineas. These courses have been arranged by the Board of Hygiene and Temperance, a body whose object is to promote the scientific teaching of these subjects, and to co-operate for that purpose with educational, health, and temperance bodies. The president, chairman, and vice-chairman are all well-known medical men; its honorary organizing secretary is Miss St. John Wileman, 54, Lanercost Road, Streatham Hill, S.W., who will be glad to receive donations from those interested in the matter, or to supply information in regard to what is being done.

British Medical Journal.

SATURDAY, SEPTEMBER 15th, 1906.

THE ANNUAL MEETING AT TORONTO.

The Annual Meeting in Toronto was one of the most successful and interesting in the history of the Association. In point of numbers it was one of the largest; it was attended by close on two thousand members and guests. Some three hundred members came from the British Isles, and there were members present from Branches in most of the more distant Colonies of the Empire; from every part of the great Dominion, from Nova Scotia and Quebec to British Columbia and the great North-West, came members eager to join in the work of the meeting and renew friendships interrupted, perhaps, since far-away student days in London, Edinburgh, Glasgow, Dublin, or Belfast. Finally, many foreign guests were welcomed to take their share in the activities of the meeting, by far the largest contingent, headed by the President of the American Medical Association, coming from the great Republic across the line.

Toronto is a busy, bustling city, the capital of Ontario and the commercial centre of that wide-spreading, fertile, and rapidly developing province, while its position on the great waterway from east to west, looking across Lake Ontario to the State of New York, has caused it to become one of the chief inland ports and forwarding centres on the continent. But its citizens had from an early period of its history the wisdom and foresight to devote ample space and sufficient funds to making provision for higher education; the University is one of the most conspicuous institutions in Toronto. Its buildings occupy one of the most important sites in the city, standing in a park hard by the fine house of the Provincial Parliament. On the north side of a broad lawn, the University campus, stands the main building, re-erected after a fire some thirty years ago, containing spacious lecture room and galleries and administrative offices. Facing it on the south is the new Convocation Hall erected mainly through the exertions of the graduates of the University, and close at hand are the buildings of the medical school, the school of anatomy, and various other institutes. In the Convocation Hall the general meetings were held, and crowded audiences assembled to hear the general addresses; in the other buildings excellent rooms were found, affording ample accommodation for all the Sections.

It was well that the accommodation was so ample, for the attendance in the Sections was unusually large, in some to be counted by hundreds. It was indeed a satisfactory feature of the Toronto meeting that the Sections concerned with general subjects were, as should always be the case, those most largely attended; men went ready to contribute their quota, indeed, but primarily to hear rather than to be heard, so that the interest of the discussions was well sustained. From the short accounts already published the impression will have been gathered that the work done in all the Sections reached a high standard, and this impression will be confirmed when the publication of the full reports which will appear during the next few months has been completed.

Apart from the value of the scientific and clinical work done during the week of the meeting itself, there were many other causes which contributed to make it a success. The local organization was as perfect as possible. In Dr. Reeve the assembly had a President whose unfailing courtesy and tact were recognized by all, and in Dr. Starr an Honorary Secretary whose organizing ability was surpassed only by his imperturbable good temper and skill in smoothing away all difficulties. Then every one who attended the meeting must have felt his heart warmed by the character of the reception in Toronto itself; every one, from the Mayor who welcomed the Association in more than one cordial speech, to the citizen without official position upon whom the stranger had no claim, seemed anxious to make all members of the Association feel that they were among those who were something more than friendly and hospitable; who, while they prided themselves on being citizens of no mean city, were yet prouder that they were fellow-countrymen of their visitors, and shared with them as brothers the responsibilities of empire. Again, Toronto is not only a great commercial city, it is also an important tourist centre. It is within a pleasant day's excursion of Niagara, and is at the head of the navigation through Lake Ontario, by the Thousand Islands, and down the St. Lawrence River to Montreal. It is only a few hours away from the Muskoka Lakes, in themselves alone capable of affording a playground to half a continent; and of many a stretch of still wilder country. To all visitors from the home countries the opportunity to see, and seeing, partly to realize, the great things already done in the Provinces of Quebec and Ontario, added a special charm to the occasion; while those fortunate enough to go West through the wheatlands of Manitoba and the rolling uplands of the North-West to the hills and forests of British Columbia were enabled still better to understand the solid grounds upon which the belief of the Canadians in the great future of the Dominion rests.

The large attendance of Canadian practitioners at the annual meeting and the interest aroused in the work of the British Medical Association encourage the hope that its membership may be increased and its organization extended and developed in the Dominion. At the present moment the number of members in Canada is far larger than it was a short time ago. This is, no doubt, due to the attraction of the annual meeting this year; a similar increment occurred as a result of the annual meeting in Montreal in 1897. But this increased membership was not maintained, and there is therefore reason to fear that the interest in the Association in Canada may die away unless its organization on a suitable basis is taken seriously in hand. On August 24th an informal meeting was held in the Parliament House, Toronto, when a number of Canadian members met to discuss the existing situation and future possibilities with some of the central office-bearers of the Association, including the present and the late Chairman of the Representative Body. It would be very much to the advantage of the British Medical Association as a whole if its organization in Canada could be placed on a solid and permanent basis. Such a result of the Toronto meeting would be the best reward of those who worked so hard for its success, for it could not fail to benefit the profession in the Dominion, consolidating its interests and tending to remove local or temporary sources of friction.

RETURN CASES OF SCARLET FEVER.

THE Metropolitan Asylums Board has recently issued a report by its Medical Investigator, Dr. F. M. Turner, on all the return cases of scarlet fever and diphtheria notified during the three years 1902, 1903, and 1904. The total number of patients sent home from the Board's hospitals after attacks of primary scarlet fever, was 35,516; this number Dr. Turner, for reasons which are duly set out, reduces, however, to 34,601, and then calculates the percentage of outbreaks following the discharge of a case as 3.27. He thinks that not more than one in ten of the alleged "return" cases can be regarded as coincidental, the remainder being really due to the arrival of the case from hospital. Patients discharged from convalescent hospitals, he concludes, give rise to proportionately fewer return cases than those sent out direct from acute hospitals, but on the other hand the classification of scarlet fever cases while in hospital has not yet caused any notable reduction in the infectivity rate. Nor is the connexion, he thinks, between a high infectivity rate and the state of the weather on the day of discharge close enough to indicate that a reduction would result from avoiding the discharge of patients on bad days. As regards diphtheria, the routine examination of patients for bacteria before discharge has not helped notably to reduce the infectivity-rate; so he thinks it would be useless to apply a similar routine in the case of scarlet fever patients.

With regard to the classification of cases, he expresses the opinion that the system has perhaps as yet hardly had a fair trial, and believes that there is good reason to hope that by sending all cases to convalescent hospitals before discharge the total infectivity-rate might be reduced by two-thirds.

The foregoing are Dr. Turner's own more formal conclusions, but various expressions of opinion may be found in the body of the report, and in connexion with the various charts and tables. It will be noted that Dr. Turner puts the proportion of true return cases among the total reported at a much higher figure than did Dr. Cameron, his predecessor in the office of investigator, but he agrees with him in thinking that the infectivity of patients detained from eight to twelve weeks is higher than that of those detained for periods shorter than eight weeks or longer than ten, as also in the belief that the infectivity-rate varies with the season of the year, being highest in autumn and winter. He confirms, too, what is now the general opinion, that there is little, if any, connexion between post-scarlatinal desquamation and infectivity. The question of the effect of nasal discharges on infectivity he has not investigated personally, but he gives a table of 1,000 cases in which the uncomplicated cases show an infectivity-rate of 2.0 per cent. against a mean infectivity-rate for the whole series of 1.5.

The general impression left by the report is that the prospects of the problem represented by return cases being solved by an examination of the records of the Metropolitan Asylums Board Fever Hospitals is not very great. The true etiology is far more likely to be worked out in some town which keeps all its scarlet fever patients in one hospital. In London the infecting case is discharged from one hospital, and the "return" case more often than not seems to go to quite a different institution. Investigation under such circumstances is very difficult, and the acquirement of personal experience on the part of medical officers of what type of case is most productive of returns becomes nearly impossible. Other sources of difficulty are cases in which scarlet fever is secondary to diphtheria or vice versâ, or in which the return case is apparently a cross infection, such as a scarlet fever convalescent giving rise to a diphtheria outbreak.

OUR BREAKFAST BEVERAGES.

MANY bad things have been said of tea and coffee, but we have never read a more serious indictment of them than that drawn by Dr. Charles Fernet in a recent number of the *Semaine Médicale* (No. 31, p. 421). He calls them "satellites of alcoholism," referring to Littré's dictionary for the definition of "satellite" as "a word "which is only used in a bad sense," "a man who is in "the pay or dependence of another to execute his "violent orders or to subserve his despotism." It seems harsh to call our familiar beverages by such a bad name, nor can we see that the definition hits the mark.

According to Dr. Fernet the abuse of coffee has increased recently in France, where it is now quite common for people to drink a litre or more of the infusion in twenty-four hours: this excess being especially frequent among women — laundresses, seamstresses, portresses, and cooks, who come in crowds to the hospitals with disorders solely attributable to this cause. It is more easily recognizable in females, since in them it is less often associated with the effects of alcohol and tobacco than in men. In even moderate quantities coffee causes general irritability and nervous excitement, hyperaesthesia, muscular agitation, palpitation, polyuria, and frequency of micturition. This he calls "acute caffeism," but the repeated and habitual use leads to "chronic caffeism," attended also by insomnia, gastric disorder, loss of appetite, dry tongue, distended stomach, eructation, morning vomiting, pyrosis, intestinal flatulence, gastro-enteralgia and constipation, or more exceptionally by diarrhoea. The dyspepsia terminates by complete atony of the stomach and intestines with grave disorder of nutrition. Even gastric ulcer may ensue, but the single case quoted followed the unusual habit of chewing coffee berries, and may have been merely a coincidence. In addition to the nervous symptoms already detailed, there may be tremor of the tongue, lips, or entire face, extending later to the limbs, and analogous to alcoholic tremor, cramps in the legs particularly at night, and hyperaesthesia with formication; a patient of Gilles de la Tourette imagined some one was constantly tickling his neck. Pruritus and pruriginous affections, he alleges, are largely due to the abuse of coffee; while neuralgia, diminution of sensibility, and anaesthesia may occur. Instead of coffee being an "intellectual drink" it produces temporary excitement followed by depression of mental power, so that those addicted to its use become emotional, timid, embarrassed, and are menaced by neurasthenia, with all its evil consequences. The heart's action is at first strengthened, but in chronic intoxication the contractions become slow and feeble and the pulse compressible, this feeble state of the circulation being accompanied by a liability to sudden flushing and profuse sweats. The urine is generally abundant and pale, and there is nocturnal pollakiuria due to arterio-sclerosis and interstitial nephritis. Impotence and sterility follow in its track, while the children of coffee-drinkers are ill-formed, ill-nourished, abnormally excitable, and often suffer from arrests of development. Brillat-Savarin is quoted as saying that "all fathers and mothers "should strictly forbid coffee to their children if

"they do not wish to have them dried-up, stunted, "little machines, old men and women at 20." Finally, in the caffeic cachexia, the face is pale or of a greyish earthy tint, wrinkled and unduly aged, while the eyes alone remain brilliant and the body is reduced to a skeleton. Voltaire was the type of a caffeomaniac; in this condition any disease—and especially infectious diseases—finds an easy prey. The quantity of coffee sufficient to produce these serious symptoms is not certain, but three or four small cups daily may be enough to cause chronic intoxication.

Tea, that "excellent China drink, approved by all "physicians," is, according to Dr. Fernet, as harmful as coffee, if not more so. Three or four cups of tea daily are by no means free from danger. The ill effects are due not only to the alkaloid it contains, but to the essential oil, which has a specially poisonous action. A single cup of tea may cause excitement and insomnia, while a stronger dose rarely fails to produce acute "theism," characterized by excitement, hyperaesthesia, palpitation, sweats, and frequent micturition; it may occasionally simulate delirium tremens, as in a case reported by Slater,[1] whose patient, a girl employed in the docks, was in the habit of chewing tea, like the girl described above who chewed coffee berries; but, as she consumed at least half a pound of tea daily, it seems somewhat strained to include this among the effects of tea-drinking.

Chronic "theism" is said to be well known in China and to English and American physicians; it is observed among tea-tasters, and is manifested by loss of appetite, dyspepsia, flatulence, gastric distension, gastralgia, and obstinate constipation, and may be accompanied by muco-membranous enteritis, with general disorder of nutrition. The influence of tea on the heart is more marked than that of coffee, as in certain nervous subjects a single cup may cause painful cardiac excitement. He refers to the cases reported by Stokes[2] which were due to the abuse of green tea. Of these the first, recorded by Dr. Percival, had a feeble, irregular, and intermittent pulse, with attacks of asphyxia recurring every five or six minutes; the second, furnished by Dr. Harvey, had a pulse which was "scarcely discernible and extremely irregular." The patient had drank a great deal of green tea during the whole of the preceding night, as he had sat up with an uncle who was to be off in the morning early by stage coach. The third case was observed by Stokes himself; the patient was in the habit of drinking strong tea in order to enable him to continue his intellectual labours during the night; in consequence he became subject to paroxysms of quick and rapid action of the heart which was neither irregular nor intermittent, but the attacks were accompanied by intense distress and oppression, with a painful sense of impending death. Other examples are quoted from the writings of Potain and Huchard. Among the cases recorded by the latter is that of a lady who often took four or five cups of tea while paying calls in the afternoon. She suffered from violent palpitation, with radiating pain at the heart coming on by day and by night; these symptoms ceased when tea was given up. Amongst other nervous symptoms are tremor, hyperaesthesia with irritation of the skin and excessive sensorial susceptibility. The temper often becomes irritable and violent, the patient talkative and noisy; tremor of the limbs, cramp and neuralgia appear without apparent local cause. Later on these troubles are replaced by nervous exhaustion with incapacity for work, muscular weakness, diffuse anaesthesia, loss of vision and hearing, and finally, like other intoxications of the same order, theism leads to a cachexia in which the face becomes pale and earthy, the body emaciated, the appetite lost, digestion difficult, the faculties of the brain diminished, movement painful and fatiguing, and the action of the heart feeble and slow, with attacks of palpitation; in fact, all the signs of premature decay.

That tea is to some persons a very potent poison is probably true. In a little book recently published, Professor Saundby[3] quotes "a distinguished member of "the medical profession," as saying: "Tea spoiled the "twenty best years of my life before I found it out. It "gave me awful pain, almost anginiform, with sense of "palsy and weakness of the limbs and a grey face, but "there was no obvious change of the radial pulse." The cases quoted from Stokes teach the same lesson. But though this may be admitted, to most people these beverages are harmless and salutary, and there can be little doubt that Dr. Fernet's article is somewhat tinged by exaggeration, though it is well to bear in mind that some of these ill effects may be encountered in practice from personal idiosyncrasy or excessive use of tea and coffee.

[1] *Lancet*, April 24th, 1891.
[2] *Diseases of the Heart and Aorta*, 1854, p. 517.

THE NEXT INTERNATIONAL TUBERCULOSIS CONGRESS.

The International Tuberculosis Congress takes place at intervals of three years, and the latest was held in Paris last autumn. The next, therefore, is due in 1908, and Washington has been selected as the place of meeting. It seems a far cry from now to the autumn of the year after next; but the American National Association for the Study and Prevention of Tuberculosis, which has general charge of the arrangements, evidently intends that this meeting shall be notable among congresses, and with laudable forethought has already got its plans something more than mapped out. As an initial step it set itself the task of collecting a sum of 100,000 dollars or some £20,000 towards the expenses, but resolved to get this amount in a fashion quite impossible in any country on this side of the Atlantic. In other words, the minimum subscription was placed not at five shillings but at five thousand dollars, in the belief that there would be no difficulty in finding at least twenty citizens of the United States ready for such an object to put their hands into their pockets to the tune of £1,000 each. Nor does it appear likely that these rose-coloured expectations will be falsified, for about half the sum desired is already in hand. There is a double object, however, in this early collection of the sinews of war. A sum of 100,000 dollars lying at interest at American rates for a couple of years will enable another scheme to be fulfilled. This is to award prizes of considerable value to the authors of the best papers sent to the congress on certain selected subjects, such as municipal control, bacteriological treatment, and sanatoriums, as also to antituberculosis societies which can show the largest increase in membership since the congress of 1905, and to the city, wherever situated, which can claim the greatest improvement in its phthisis mortality rates during a corresponding period. The exact subjects have not yet been finally determined, but it is understood that an announcement of them is to be expected before very long. A further novel suggestion which seems likely to be adopted is that by way of making it worth while for those in Europe to cross the water, and also of affording a certain latitude, the Congress shall officially last three weeks. Only the middle

[3] *Treatment of Diseases of the Digestive System*, p. 31.

week, however, is to be devoted to scientific meetings and discussions, it being proposed that the first week shall be given up by visitors to exploring some of the other great cities of the United States north of Washington, in which official arrangements will be made for their reception, and the third week to similar official visits to cities southwards. The idea is that there may be many who could reach Washington some little time before the scientific proceedings commence, but would have to leave immediately on their termination, while others could spare plenty of time afterwards, but none before, and that by placing the discussions in the middle week America will be able to show public hospitality to visitors of either class.

VICARIOUS PHILANTHROPY.

CHARITY is of many forms, the most general perhaps being that which stirs Jones to suggest that Robinson should do something. No class of men has better reason to know the extent and variety of this vicarious philanthropy than the medical profession, especially those among them whose lot it is to minister to the sick poor. It is assumed by the public that the services of doctors are to be given freely to any one who may be said to be in need of them, and on this assumption a section of the press is always ready to denounce them if they refuse to perform, without regard to their own advantage or convenience, what theologians call works of supererogation. There are no men of any profession of whom so much of this work is expected; and as a class there are probably none who respond so readily and so generously to the call of human brotherhood. On this characteristic of the profession the public, from the highest to the lowest, and in its corporate as in its individual capacity, has learnt to trade successfully. If once in a way a doctor, acting fully within his rights, refuses to allow himself to be imposed upon, what an outcry there is! Newspapers which do not disdain to stoop to pick halfpennies from the gutter fret themselves into a fever of artificial indignation, and people of whom no sacrifice is demanded find an outlet for the cheapest form of the enthusiasm of humanity in abuse of honourable men who sometimes are forced to remember that, if they are not themselves to burden the rates, the question of fees has to be considered. No one expects a lawyer to work for nothing, and it is recognized that he that ministers at the altar must live by the altar. Philanthropy is not looked upon as a part of the business of a butcher or a baker, yet these worthy tradesmen would scarcely regard it as a legitimate ground for forbearance if a doctor who failed to pay his bills should plead that he practised his profession in a pure spirit of philanthropy. They would tell him quite reasonably that he must not be philanthropic at their expense. But when they are invested with the dignity of guardians of the poor, the butcher and baker find an excellent opportunity of posing before the world as philanthropists at the doctor's expense. We have seldom seen the vicarious philanthropy of the guardian more unblushingly displayed than in a case reported in the *Tribune* of August 31st. A doctor who was summoned to a dying child asked the father whether he was prepared to pay a fee. On receiving a reply in the negative, the doctor told him to go to his clergyman and get a guarantee that he would be paid, promising to attend immediately if that were done. The child died unattended, and the guardians invited the doctor to explain his conduct. The doctor replied that he had not refused to attend, adding that had he had previous orders from the guardians to attend any case where he could not get the fee, he would have gone at once and referred to them for it. The guardians thereupon addressed a letter to the doctor in which they expressed "regret that any considera-"tion whatever should have caused their medical "officer to hesitate for a moment, much less to "refuse, to go at once to the assistance and possible "relief of a child suffering from such a terrible "accident." The question of payment was passed over in judicious silence. Many of the guardians, we are told, expressed righteous indignation at the conduct of the doctor. It turns out, however, that the child's father was not a pauper and therefore had no claim on the services of the medical officer. The guardians, in fact, had nothing whatever to do with the matter, and their condemnation of the doctor for acting, as the chairman himself admits, within his legal rights, was impertinent and somewhat pharisaic. We cannot help thinking that, in the circumstances as described in the *Tribune*, the doctor would have done well to render what help he could and left the question of the fee to be settled afterwards; and we cannot say that we admire either the sentiment or the style of the letter to the guardians in which he says that "a medical man is not "entitled to attend any one unless he had his fee or "had a guarantee for it, as he sold his services like any "workman did." But he has the excuse that if he did not think of his fee no one else would, both patients and guardians being too apt to forget that the labourer is worthy of his hire. For the fact that utter disregard of their own interests has come to be demanded of doctors by the public as a right, the medical profession, which gives its services so unstintingly to all who ask for them, has itself mainly to blame. It has accustomed people to getting for nothing that for which they should pay a fair price, and the public is scarcely to be blamed if it rates cheap that which the profession itself seems too often to treat as of little or no value.

THE AMBULANCE NEEDS OF LONDON.

As was stated some two months ago, the ambulance clauses in the London County Council's General Powers Bill were thrown out by the House of Lords, and it afterwards was revealed that this course met with the approval of the Government. The latter, it appeared, was in nowise unfavourable to the general object in view, but did not think that the powers sought should be granted until further inquiry into the matter had been made, and it was indicated that a conference would be arranged between the Home Office, the police, and the London County Council. We now learn that in anticipation of consideration of the matter in this way, the President of the Metropolitan Street Ambulance Association has written to the Home Secretary expressing the readiness of the Association to afford any assistance in its power in the way of laying before the conference the views of a body which has paid much attention to the question and is largely representative of medical men. Mr. Reginald Harrison has also put forward some general opinions of his own on the subject, believing quite justly that they cover the points on which there is general agreement. These are to the effect (1) that there is great room for improvement in the mode of conveying injured persons to hospital, it being indeed, in the words of Sir Cooper Perry, "very "painful to watch the arrival of accidents at hospitals "under the present system"; (2) that no ambulance system for London can be considered as approaching completeness unless it includes rapid transit vehicles—horse or motor power—by means of which injured persons can be rapidly and carefully conveyed with—if necessary—an accompanying "first aid" attendant to the house or hospital as the case may be; (3) that action should be taken with as little delay as possible, since, as time goes on, the dangers of the street are increasing *pari passu* with the development that is taking place in motor traffic of all kinds.

A HOSPITAL REFORMER.

An amiable lady who some time ago made herself notorious by the untempered zeal of her crusade against the vulgarities of the music-hall stage has written an article in a weekly paper in which she advocates the reform of hospitals with a warmth of feeling that appears to come from a soft heart uninhibited by a brain of tougher fibre. She deems it hardly consistent with sanity that we should allow our great hospitals to "remain where noise, dirt, and weariness are at their worst"; in contrast before her mind's eye there rises "a vision of beautiful grounds and sun-kissed lawns "where the wounded soldier of toil, whether male or "female, should heal him 'of his grievous wound,' and, "like Arthur of old, find Avilion (*sic*), but for his life, not "his death." We all can understand her objection to the association of hospitals with noise and dirt, although she apparently suffers more acutely than most people from the noises of the town. She quotes a letter of bitter complaint from a hospital patient, who writes, "I am "jarred and shaken, bumped and pounded, vibrated or "paralysed, by noises whose name is legion," and she supports his tale by referring to her own experience when she "was Sister in the huge hospital in the Mile "End Road"; yet she admits that "most of the "patients slept heavily." The truth is that most people soon become used to noises and do not notice them, and we believe she is altogether mistaken in supposing that healthy children, or indeed healthy persons of any age, become neurotic in towns owing to their sleep being disturbed by noise. It is the neurotic, whether child or adult, who is intolerant of noises, who complains of church bells, cock-crowing, and street music. If our hospitals were removed into the country these people would still find noises to grumble at, for even the letter she quotes says the sounds "inside were almost worse"; but no one disputes the advantage of suburban branch hospitals; it is mainly a question as to what proportion of the patients can be sent to them with advantage. A serious difficulty is that the tide of bricks and mortar flows so fast that it soon surrounds hospitals built in the suburbs, and the unfortunate experience of the Women's Hospital and the Jaffray suburban hospital at Birmingham shows that it is absolutely necessary to acquire a large area of land in order to secure a hospital from undesirable encroachment within twenty-five years of its erection. In the past the absence of means of communication compelled the hospital to be near at hand, but the development of tubes, tramways, and motor cars diminishes this difficulty every day. So far we may sympathize with the objects indicated by the writer of the article although we deprecate its querulous tone, which implies that only stupidity or indifference has stood or stands in the way of the realization of her dreams. Thus she says: "Our convalescent homes are "utterly inadequate to give a tithe of our sick poor in "hospitals the change and rest that is (*sic*) needed, and "ought to follow every attack of illness that detains in "bed"—as if this were always desirable even from the patient's point of view! But when she proceeds to inform her readers that medical schools should be separated from hospitals, so that "the poor should "no longer provide 'clinical material' for the blun-"dering of the young student and the experiments "of the fashionable physicians" we protest, and would remind her that the "blundering of the young student" is the indispensable prelude to the formation of the accomplished practitioner, who cannot be turned out ready-made without coming into contact with patients. She suggests a return "to the old system of apprenticing "the budding practitioner for a set term of years to "one or more older men in full practice"; though how this would prevent him from blundering or from attending the poor we do not perceive. The truth is we have to recognize that practical experience has to be acquired somehow and at some time; whether before or after qualification matters little, though we believe the public would prefer that some of it should be gained before the acquirement of a licence to practise. Still less is she happy in her suggestion that "practical "training in the art of nursing, and a year's study with "a dispensing chemist" should be made an important part of the medical student's curriculum. She anticipates that in some way these "drastic changes" would check the rush of "undesirables." Even if they did, the change would not be an advantage unless their places were taken by better men; indeed, the only result would be a shortage of qualified men whose room would be filled by the prescribing chemist, the bone-setter, and the quack. It is not easy to appreciate the character of a reformer of this class, for if we admit her to be honest we must do so at the expense of her knowledge and judgement; while if she knows better, how can such foolish misrepresentation be justified?

DIGESTION AND ABSORPTION IN THE STOMACH.

The favourable results of extensive resections of the stomach, both experimentally in animals and for the relief of disease in man, which have been reported of late years, may have led some to lay less value upon the digestive and absorptive functions of this organ, and to regard it mainly as a reservoir for food. This is far from the truth. The complicated movements which can be seen under suitable conditions by the x rays during digestion have been reported in the British Medical Journal.[1] It might be supposed that these would lead to a rapid and complete mixture of all the foodstuffs introduced from the mouth. But the researches of Grützner and others have shown that the gastric juice acts mainly upon that portion of the food which lies in contact with the mucous membrane, and that the digestive movements are adapted to pass on from the stomach only the dissolved substances whilst leaving the undissolved. Grützner[2] gave variously coloured foods to animals, and later cut frozen sections. There was no homogeneous mixture in the stomachs, the food being seen to be lying in layers, the outer part undergoing gastric digestion, and the inner being still subject to the action of saliva. It follows that the method of removal of a portion of the stomach contents by means of a sound is not reliable for the investigation of the progres of digestion, since there is no way of telling with accuracy from which part of the stomach the material was derived. A fistulous opening, again, made into the stomach itself, interferes considerably with the normal contractions of its muscles. A duodenal fistula, placed as near as possible to the pylorus, offers the best chance of obtaining the products of digestion for analysis in a fairly normal condition. This, however, is open to the objection that the exit of food from the stomach, which is normally regulated by digestion in the duodenum itself, will be interfered with, for the sphincter of the pylorus, having discharged a portion of acid chyme into the duodenum, does not again relax until this has been neutralized by the bile and pancreatic juice. So that if the contents of the duodenum are artificially removed, the sphincter will open more frequently and the stomach contents will be too rapidly discharged. This difficulty has been met by Tobler[2] by the following procedure: A dog having been fed upon 100 grams of flesh, the chyme is collected in successive portions from a duodenal fistula as it leaves the stomach, and preserved in the frozen state. Two days

[1] Epitome, 1904, vol. i, par. 374, Cannon.
[2] Grützner, *Pflüger's Archiv*, vol. cv, p. 463, 1905.
[2] *Zeit. für Phys. Chem.*, vol. xlv, 1905.

later a similar meal is given upon an empty stomach, and as each portion of chyme is collected from the fistula a roughly equal amount of that obtained two days before, having been thawed and raised to the body temperature, is inserted through the fistula into the peripheral part of the duodenum. In this way there is the least possible disturbance of the process of digestion, and the actual material which leaves the stomach is secured for chemical examination. This material was propelled through the sphincter in little squirts, about ½ c.cm. at a time. When the duodenum was filled with food, the discharge ceased, and began again in from five to twelve minutes. The stomach was found to completely empty itself in from three to three and a half hours. The examination of the discharged food showed that nearly all the material entering the duodenum was in the liquid state, only about 20 per cent. remaining still undissolved. Of great interest and importance was the observation that most of the chyme was in an advanced state of digestion, for the dissolved proteid was found upon analysis to consist of 80 per cent. peptone, and only 20 per cent. albumoses. A comparison of the proteid recovered from the duodenum with that taken into the mouth showed clearly that the function of the stomach was by no means only a digestive one, but that considerable absorption had taken place, amounting to from 20 to 30 per cent. of the total quantity of meat ingested.

AN INTERNATIONAL CONFERENCE ON CANCER.

After the opening of the Institute of Cancer Research at Heidelberg on September 25th an International Conference on Cancer will be held at Frankfort-on-the-Main on September 26th and 27th. The Imperial Chancellor, Count von Posadowsky, will be represented, and official representatives will be sent by the Imperial Health Bureau, the Prussian Cultusminister, the Bavarian, Saxon, Wurtemberg and Baden Ministers of the Interior, and the Senate of Bremen. Many scientific notabilities, German and foreign, are expected. The office of the conference will be at Berlin (Bendlerstrasse, 13) till September 21st; after that there will be an office in each of the towns in which the conference is to be held.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

It may not be generally known that two years ago the University of Liverpool instituted a diploma in Tropical Medicine. An examination has to be passed, which is held at the end of each of the three yearly terms by four internal and one external examiner. At present the examination is open only to registered British practitioners who have satisfactorily attended a full course of teaching in tropical medicine given by the University of Liverpool and the Liverpool School of Tropical Medicine; and by special permission of the Senate to qualified medical men of other countries who have attended the course. The subjects of examination are: (*a*) tropical pathology, parasitology, and bacteriology; (*b*) tropical hygiene and sanitation, including medical entomology; (*c*) tropical medicine. Three papers have hitherto been set at each examination—one on pathology; one on medicine; and one on sanitation, including medical entomology. Students are also examined practically and orally on all these subjects, and on clinical tropical medicine. The fee for the examination is £5 5s. Students who have passed it are granted by the University, in pursuance of a resolution of the Senate, a "Diploma in Tropical Medicine (written D.T.M.)" Six examinations have hitherto been held, and forty-seven candidates have obtained the diploma. It may be added that the course of instruction has recently been amplified by the inclusion among the subjects taught of medical entomology. The teacher is Mr. R. Newstead, and the course comprises about forty lectures and demonstrations.

COMPLAINTS AGAINST THE DOCTORS.

There is an old story at a provincial hospital that a newly-appointed and self-important member of the Board once entered the wards calling out, "Any complaints against the doctors?" The incident did not recur, but it is a favourite amusement with a certain type of people to make or invent grievances against the medical profession, and at this dull season of the year these find an echo in the newspapers. The *Derby Express* prints a letter from a correspondent who makes two complaints: First, that when he knocked up a doctor to come to his sick child he was met by the reply, "I am not your doctor; go to some one else." Although he "supposes he (the doctor) was within his rights," by some obscure mental process he is led to attribute the refusal to the operation of that bogey to the public, "medical etiquette," than which there is no more fearful wildfowl to some people. Every householder should, especially if he be the father of young children, be in such a relation to some medical practitioner that he may feel he has the right to summon him at any emergency, but it is unreasonable to expect a doctor to get up at night to attend people of whom he knows nothing, and who therefore probably belong to the large class that does not pay its doctors. There is no sound reason why every respectable and solvent person should not have a medical adviser upon whom he can rely at such times. Even a total stranger can get medical attendance through the keeper of the hotel or lodging-house who is known to the local doctors. Finally, few doctors would refuse to go if they were sure they would be paid, so that the tender of a fee would get over any difficulty from want of previous introduction. This great grievance, therefore, resolves itself into a simple question of cash payment! The second trouble is that if he calls in a doctor to see his servant he is refused information as to the nature and the cause of the illness, although he is "prepared to pay the bill." But if he expects to get this information, all he has to do is to explain, when the doctor comes, the footing on which he is to stand—that he is to see the patient on behalf of the master, who will pay the bill, so that when the doctor sees the servant he will say, "I am sent by your "master to see you; he wants me to do what I can for "you and to report to him afterwards. I suppose you "have no objection to my telling him the result of my "examination?" If the servant consents, the doctor examines him, treats him, and reports to his master but if he refuses, the doctor must return to the master to explain, unless in an urgent case, when he would do what was necessary and then go to the master; but he would in that case be obliged to say that he can tell him nothing. Even where consent is given it is desirable that the doctor should take care that the patient understands the nature of the report to be made and of its possible prejudicial effect to his interests if these are in question. If the doctor does not take these precautions, he is not only violating the spirit of the Hippocratic oath, but he is exposing himself to the risk of an action for any damage caused by his indiscretion.

EARLY MEDICAL LEGISLATION IN AMERICA.

In a short paper reprinted from the *Medical Library and Historical Journal*, Mr. C. P. Fisher, Librarian of the Philadelphia College of Physicians, states that at a recent auction sale of "Valuable Americana" the College of Physicians of Philadelphia obtained for its library a "Bill," printed by Thomas Bradford, 1794, entitled "An Act to regulate the Practice of Physic and

"Surgery within this Commonwealth." On referring to the "Journal of the first session of the fourth House of "Representatives of the Commonwealth of Pennsyl-"vania," it is found that this Bill was read a first time on March 24th, 1794, and was "ordered to be laid on the "table." A motion was made and passed that it should be brought up for its second reading on the Monday following, March 31st, but it was not read at that meeting, and no further reference to it can be found. In fact, no evidence can be obtained that any laws regulating the practice of medicine were enacted in Pennsylvania during the eighteenth century. The General Assembly of New York passed a law on June 10th, 1760, regulating the practice of medicine in the City of New York; and on September 26th, 1772, an Act was passed to "Regulate the Practice of "Physic and Surgery within the Colony of New Jersey." Virginia in 1639, and Massachusetts in 1649, had passed some laws relating to medical men, which were amended at later dates, but these were not general measures like those of New York and New Jersey. From the fact that the Pennsylvania Bill did not become law Mr. Fisher thinks it possible that the copy obtained by the College of Physicians of Philadelphia is extremely rare, probably unique. He therefore prints it in full as an early example of the efforts made for the advancement of the medical profession in the United states. The Bill provides that "no person shall "be permitted to practise Physic or Surgery within "this Commonwealth unless he shall first have received "from some College or University a Diploma con-"ferring on him the Degree of Doctor or Bachelor in "Medicine or unless he shall have previously undergone "an examination by a Committee appointed for that "purpose by the College of Physicians of the City of "Philadelphia consisting of three members of the said "College and after being examined and approved by the "said Committee shall have received a certificate "thereof signed by the President of the said College or "unless he shall have been examined and approved "by three physicians of known ability and integrity "consisting of Graduates of some College or "University or of Licentiates duly authorized to "practice according to the directions of this Act which "three Physicians shall be appointed at the request of "any Candidate by the President of the Court of "Common Pleas or by any two of the Judges of the "said Court in the County where the said Candidate "shall reside which said examiners shall if they "approve of the said Candidate sign and deliver to him "a certificate thereof and the same being countersigned "by the said President or any two of the Justices of the "said Court and recorded among the Acts of the said "Court shall entitle him to practice Physic and Surgery "within this Commonwealth." The penalty for exercising or practising the art or profession of a physician or surgeon "not being qualified" is a fine of £50 for the first offence and £100 for a second and every subsequent offence. Similar provisions are made for the regulation of the business of druggists.

NATIONAL DEGENERATION.

BEFORE we can hope to arrest the progress of national degeneration, it is evident that we require a clear statement as to the extent of the evil and its cause or causes. For these reasons, memoirs such as that recently published by Mr. David Heron[1] are invaluable. Mr. Heron has investigated the relations between fertility and various social conditions, employing those biometric methods of research which are fast transforming statistics into a branch of exact science. The material was afforded by official returns from the metropolitan area, and the following characters were taken as measures of wealth and education: (1) Number of professional men per 1,000 occupied males; (2) Number of female domestic servants per 100 females aged 15 and upwards; (3) number of female servants per 100 families. As measures of poverty and lack of culture the author used, among other criteria: (4) number of general labourers; (5) number of pawnbrokers, etc., per 1,000; (6) number per 100 living more than two in a room; (7) number of boys and girls aged 10 to 14 employed per 100 children between these ages. Correlating these characters with the birth-rate, he found for the year 1901 large *negative* values for the first group: -0.781 ± 0.051, -0.802 ± 0.046, -0.764 ± 0.064; and considerable *positive* values for the second group: $+0.517 \pm 0.095$, $+0.618 \pm 0.080$, $+0.697 \pm 0.067$, $+0.660 \mp 0.073$. Thus we have a close relation between fertility and socially or physically undesirable characters. That this is not mainly due to early marriages among the poorer classes is shown by ascertaining the "partial" coefficient of correlation for a constant mean age. The result shows that rather less than half of the relationship between birth-rate and low social status may be conditioned by the difference in mean age of possibly reproductive wives in the two groups. A similar analysis of the returns for 1851 shows that the intensity of the above-mentioned relationship has almost doubled in the fifty years. Indeed, on the assumption that the mean age of wives differed in the various social grades then as now, the correlation between low social status and fertility for 1851 would be explained by this alone. It being well known that infantile mortality is highest in squalid districts, it might be thought that the net fertility would not be greater than among the better classes. However, on correlating infant mortality with the number of surviving children between the ages of (1) 2 and 4, (2) 5 and 14, (3) 14 and 15, significant positive values were obtained. It is evident, therefore, that after making all possible deductions, "there is a very "close relationship between undesirable social status "and a high birth-rate," nor is the latter compensated by the higher death-rate. The importance of these conclusions is clear, the chief value of the study being the manner in which views long held by thoughtful persons are confirmed with quantitative accuracy. A few criticisms as to matters of detail will no doubt be forthcoming. Thus, Mr. Heron found a high correlation (0.594 ± 0.084) between the prevalence of phthisis and the birth-rate, and seems to regard the latter as partly dependent on the former. It is, at least, probable that the causation is reversed. Where the fertility is large, the spread of an infectious disease must necessarily be facilitated, particularly in districts where overcrowding prevails, the prevalence of phthisis depending on a high birth-rate, rather than the latter on the former. Again, the positive correlation between a high cancer death-rate and evidence of good social position may be partly conditioned by a greater accuracy of diagnosis where conditions of medical practice are relatively more favourable. Further biometric investigations as to the incidence of cancer are urgently needed, being only hampered by the imperfect provision now made by the State for a compilation and analysis of statistics. We congratulate Mr. Heron on the accomplishment of a useful piece of work, with which we strongly advise our readers to make themselves acquainted. It is to be hoped that the national importance of studies such as this may eventually induce even the British Government to establish a permanent Census Bureau staffed by officials conversant with modern statistical methods.

[1] *On the Relation of Fertility in Man to Social Status, and on the Changes in this Relation that have taken place during the last Fifty Years.* By David Heron, M.A. Drapers' Company Research Memoirs. Dulau and Co. 1906.

INTERNATIONAL CONGRESS OF HYGIENE.

The Fourteenth International Congress of Hygiene and Demography will be held in Berlin from September 23rd to to the 29th. The Organizing Committee has elected the following presidents and officers of the several sections: (1) Hygienic Microbiology and Parasitology: President, Professor Fluegge (Breslau); Vice-President, Professor Loeffler (Greifswald); Secretary, Dr. Weber. (2) Hygiene of Nutrition: President, Professor Rubner (Berlin); Vice-President, Professor Foerster (Strassburg); Secretaries, Drs. Ficker and Kisskalt. (3) Hygiene of Childhood: President, Professor Heubner (Berlin); Vice-President, Professor von Esmarch (Göttingen); Secretaries, Drs. Neumann and Leo Langstein. (4) Industrial Hygiene: President, Professor Renk (Dresden); Vice-President, Professor Carl Fraenkel (Halle); Secretary, Dr. A. Kayserling (Berlin). (5) Prevention of Infectious Diseases: President, Professor Gaffky (Berlin); Vice-President, Professor Koessel (Giessen); Secretary, Dr. Lentz. (6A) Hygiene of the Dwelling: President, Professor Gruber (Munich); Vice-President, Professor Gaertner (Jena); Secretary, Dr. Lennhoff, Editor of the *Medizinische Reform* (Berlin). (6B) Hygiene of Traffic: President, Dr. Schwechten, President of the German Railway Surgeons' Union; Vice-President, Dr. Blume, President of the Association of Baden Railway Surgeons; Secretary, Dr. Ramm. (7) Military, Colonial, and Naval Hygiene: President, Professor Surgeon-General Kern; Vice-President, Naval Surgeon-General Professor Ruge; Secretary, Staff Surgeon Kuhn. (8) Demography: President, Dr. van der Borght, President of the Imperial Statistical Bureau, Berlin; Vice-President, Professor Georg von Mayr, Under-Secretary of State (Munich); Secretary, Dr. Leo, of the Imperial Statistical Bureau.

THE ABERDEEN QUATERCENTENARY.

The King has approved the arrangements which the Corporation of Aberdeen have proposed for the Royal visit to Aberdeen on Thursday, September 27th, for the purpose of opening the new Marischal College buildings in connexion with the quatercentenary celebrations of the University. A great banquet will be given on the occasion by Lord Strathcona, who will entertain some 2,400 guests. A special temporary building, designed by the distinguished architect of the new Marischal College (Mr. A. Marshall Mackenzie, A.R.S.A.), is to be erected for the purpose.

HEALTH ON THE GOLD COAST.

Through the courtesy of the London medical adviser of a mining company which operates on the Gold Coast we have had an opportunity of examining a private report received from the medical officer attached to the mine and dealing with the health of the camp during the year 1905. The conspicuous point about it is that there was very material improvement in the average health of the European employés at the mine as compared with the previous year, and that this followed the adoption of certain reforms. During the year there were 136 Europeans in camp, 79 being sent from London after medical examination and 57 engaged locally, the daily average white camp population numbering 55.5. Among these men the total number of days' sickness was 602, or 4.4 days' illness a man, this being just half the loss in labour during 1904. From the tables supplied in the report it would appear that malarial fever accounted for about half the sickness, and gastro-intestinal disorders for about three-eighths of the balance. Only about half the men, however, had an attack of malarial fever, and, curiously enough, it was those engaged below ground who suffered most severely; this fact the report attributes to the circumstance that the Italian employés all worked in this section, and it is shown that the Italians in ratio to their number figure in the general sick list twice as often as the other nationalities (English, German, and South Europeans), owing to their personal habits and neglect of sanitary precautions. Some good charts included in the report show that the sickness curves attained their highest point in April, the month succeeding the rainy season, and that the characteristics of the malarial curve are strongly impressed on that of general sickness. The medical officer at the mine considers that the similarity of the malarial and general curves suggests a probability that a considerable portion of gastro-intestinal cases are a manifestation of malarial infection or are malarial in origin. It does not appear that in West Africa 1905 was an unusually healthy year in itself, and in explanation of the decreased sickness-rate at this particular mine it is stated that much greater attention than formerly was devoted to drainage and general sanitary arrangements. Stricter supervision was also maintained over the conduct of the men; hence alcoholic intemperance was exceptional, and coincidently some contagious disorders nearly disappeared. Furthermore, there was less overcrowding, and the objectionable practice of two men, one by night and one by day, inhabiting the same small apartment was abolished. These facts account for much, but we may suggest for ourselves that some part of the result is probably attributable to the personal exertions of the medical officer in charge of the camp, who, judging from the care with which his report is compiled, must take much intelligent interest in his work. Many commercial houses of late years have learned to appreciate the economic value in the conduct of their mines of medical advice and medical measures, and nowhere can it be better worth while to secure good medical advisers and to give executive medical officers a free hand in their arrangements, than in enterprises connected with such countries as West Africa. There, in the battle between health and disease, between efficiency and inefficiency, "climate," as elsewhere, undoubtedly counts for much, but personal factors and local conditions for a very great deal more.

The Society for the Study of Disease in Children announces that it will hold the first ordinary meeting for the coming session on Friday, October 19th, at 11, Chandos Street, Cavendish Square, W. The Wightman Lecture will be delivered by Dr. Frederick Taylor on May 17th, 1907.

A Bill making illegal the marriage of cousins, introduced into the Cape Assembly, was recently rejected by one vote. Four medical legislators—Drs. Hewat, Smartt, Vanes, and De Jager—voted for the Bill, while three—Drs. Jameson, Smuts, and Beck—voted against it.

We have to record with much regret the sudden death of Dr. John Henry Bell, of Bradford, which occurred at Morecambe on September 9th. Dr. Bell was well known as the chief British authority on anthrax as an industrial disease, and was the author of the articles on this subject in *Allbutt's System* and in Oliver's *Dangerous Trades*. We hope to publish a fuller notice of his life in an early issue.

The sixtieth annual report of the Commissioners in Lunacy for the year 1905 has just been issued. The total number of persons in England and Wales certified as insane on January 1st, 1906, was 121,979, an increase of 2,150 above the number recorded a year earlier. The increase was less by 404 than the annual average of the decennium, and by 657 than the quinquennial average, but was greater than the estimated increase in population. We hope to refer to the report more fully at a later date.

ANNUAL MEETING NOTES.

The Annual Meeting of the British Medical Association came to an end on Friday, August 24th, when the business of all the Sections concluded. The general meeting usually held on Friday afternoon in the Association week was abandoned, to the regret of some of the visiting members from Great Britain, who would have been glad to have taken the opportunity formally to put on record their appreciation of the welcome afforded to them by the City of Toronto, by the Lieutenant-Governor of the Province of Ontario, by the University of Toronto and its Medical Faculty, and by the members of the Association resident in Toronto. There was perhaps no need for such formal record, for the hosts must have understood without it that the warmth of the welcome was fully appreciated by the guests, and that they did not fail to recognize the generosity, care, and foresight with which all the arrangements of the meeting had been carried out. There were, indeed, certain counter attractions on that afternoon which might have limited the attendance at any formal meeting of men who, after four days' work in the Sections under somewhat trying meteorological conditions, were greatly disposed to accept the invitation to a garden party at their beautiful house given by Mr. E. B. Osler, M.P., brother of Professor William Osler, of Oxford, and Mrs. Osler, or to take the opportunity of visiting the Lakeside Home for Little Children on Toronto Island, at the invitation of Mr. J. Ross Robertson (President) and the trustees of the Hospital for Sick Children. The hospital itself is a fine well-designed and well-equipped building in the centre of Toronto, which owes much of its excellence to the unremitting efforts of Mr. Ross Robertson, the proprietor of the *Toronto Telegram*, who showed the deepest interest in the annual meeting of the Association, to the success of which he contributed not a little by his readiness to give help in every direction and on every occasion. The Lakeside Home stands in a breezy situation on the narrow island which shuts Toronto Bay from the Lake of Ontario, forming a capacious harbour used by the large steamboats which carry visitors to and from Niagara, and by many others trading on the lake. The



University of Toronto, Main Building.

Home, which the hospital owes to the munificence of its President, has been erected on a sandy strip of land, practically surrounded by water; it is cool in summer and is admirably adapted to fulfil its purpose of a summer home. It is built of wood, has airy, open wards simply furnished and floored with maple wood. Only patients of between 2 and 14 years of age are admitted, but exceptions are made in suitable cases. Most of the cases are surgical, convalescent after operation. There are two resident medical officers, and another who oscillates between the Home and the Children's Hospital. Mr. Ross Robertson kindly conducted visitors over the hospital, and the resident medical officers described many interesting and instructive cases.



Lakeside Home for Little Children, Toronto Island.

On the previous afternoon many members had paid a visit to the Island as the guests of the Empire Club. The morning had broken with a cloudless blue sky and faint haze, giving promise of another sweltering day, but after midday, when invited members were proceeding across the bay, the wind veered round to the north and a cooler air set in. Between five and six hundred guests sat down to the excellent lunch provided by the Empire Club, under the presidentship of Mr. James P.

Murray. In the middle of the lunch a violent thunderstorm occurred, accompanied by a sudden wind which before the windows could be closed upset "the fair cates and napery spread." Before the end of complimentary speeches, however, the storm had passed, leaving a pleasant coolness. After the President had proposed the toast of "The King," Mr. W. K. George, President of the Association of Manufacturers of Canada, in a fervently patriotic and eloquent speech, paid a graceful compliment to the medical profession, whose highest mission was, he said, to secure debts of undying gratitude. He concluded by giving the toast of "The Guests," coupling with it the names of Sir William Broadbent, Sir Thomas Barlow, Professor Sherrington, and Sir Victor Horsley. The last-named gentleman was unfortunately unable to be present, but the three other guests of honour made suitable replies, which were received with acclamation. All of their speeches embodied the earnest hope for a closer union of Canada and Great Britain, an admiration for Canada, its people and institutions, and a conviction that a true union was one of sentiment, character, and ideals no less than of material interests. Speaking for the members of the Association, all expressed in cordial terms their gratitude for the magnificent reception accorded to Toronto's guests. Several of the guests remained in the club ground for some time, but the majority left early to attend the presentation of honorary degrees in the Convocation Hall, or to visit the Lakeside Home for Children, by request of Mr. J. Ross Robertson and of its Trustees.

On Friday evening a reception was given by the Royal Canadian Yacht Club on the Island. It was attended by so large a number of guests that the capacity of the ferry boats was severely taxed.

The annual golf match between the members of the Association was played on the Toronto Golf Links on Thursday, August 23rd. The teams consisted of the Canadians against The World, and resulted in a victory for the Canadians by 9 to 5.

Canada.		The World.	
Primrose	1	Patterson	0
Ross	1	Coldham	0
Archibald	0	Muir	0
Springer	1	Norman Walker ...	0
Strachan	1	Glaister	0
McKenzie	0	Langdon-Down ...	1
Campbell	1	Leith	0
Cahoun...	1	Guthrie	0
Wylde	1	Crerar	0
Gilday	0	Kirkness	1
MacCallum	0	Freeman	1
Sutherland	0	Shannon	1
Lockart	0	Sanders	1
Bell	1	McDonald	0
Hood	1	Grimsdale	0
	9		5

Every member attending the Annual Meeting was presented with a well-written and beautifully-printed *Handbook and Souvenir of Canada*. A description of Toronto and its institutions properly occupied the lion's share of its space, but it contained adequate and well-illustrated notes on Quebec, Montreal, Kingston, Hamilton, and of the journey across Canada; in fact, the anonymous author, to quote his own words, "followed "the course of the traveller from the rock-bound coast "of Newfoundland to the sub-Arctic goldmines of the "Yukon," and pleasantly gave much information by the way. The numerous illustrations, very well reproduced from photographs, gave a good idea of the cities, the public buildings, and the holiday resorts of the Dominion.

The pathological museum of the meeting was arranged in five rooms; one large room on the ground floor contained the permanent pathological museum of the University. It has not yet been catalogued, but comprises a considerable amount of excellent material arranged in topographical order. Under the care of Dr. W. H. Watters, Professor of Pathology at Boston University, beautiful examples of pathological conditions were arranged in an upper room according to their anatomical distribution, always with an eye, however, to displaying the particular advantages of the method of mounting specimens employed by Dr. Watters. This method, which consists of embedding in gelatine was fully described by Dr. Watters in the *New York Medical Journal* of August, 1902. The specimens are first treated by Kaiserling's method and then placed in suitable glass jars, Petri dishes, or test tubes and mounted in gelatine containing potassium nitrate, potassium acetate, and a little formalin. When properly fixed and set, the result is a specimen of normal appearance in size and colour, in a perfectly clear and transparent medium, easily and safely portable, exhibiting all the parts in their normal relations, and unexcelled for purposes of teaching or demonstration. The great value of the method was exemplified by a series of thirty-five cases of gall stones showing the calculi *in situ*, almost all mounted directly after operation. Equally beautiful was a series of vermiform appendices from cases after operation. Here the inflamed and thickened walls, and the thorn or clump of pin-worms which in a few instances had acted as an exciting agent, were beautifully shown in clear and delicate detail. Even pus and blood were shown in the position of their occurrence without any smearing or indistinctness. One interesting exhibit was an example of cystic liver produced by the "gas bacillus," *B. aërogenes capsulatus*. Large sections through the cerebral hemispheres, in cases of cerebral haemorrhage, showing the blood in position in the lateral ventricles arrested attention, and there were also some excellent examples of enteritic bowel, so perfect that it was difficult to believe they were not absolutely fresh specimens. The durability of the process was well shown by a section from an anaemic infarct of the spleen, the first specimen prepared three years ago, and entirely unaltered since.

This room, and the walls of two other rooms, were hung with a series of photographs of clinical cases from Montreal by Drs. J. Stewart and Charles Martin on Facies in Disease. Some of these were very striking, and accurately typical of the categories they represented, for example, those of pseudo-hypertrophic muscular dystrophy, catalepsy, general paralysis, and melancholia. Particularly notable were the photographs by Dr. J. Stewart of a case of paralysis agitans, showing mask-face and reptilian stare, and another of the melancholic attitude. This series of photographs of facies in disease was continued into the next room (Room P), where also was a series of highly-magnified photomicrographs of experimentally-induced ulceration of the stomach and duodenum by Dr. Fenton B. Turck of Chicago. Dr. Carroll, of the Army Medical Staff, Washington, sent admirable enlarged photomicrographs of various bacterial flora. In the same room was a fine series illustrating experimental arterio-sclerosis in rabbits produced by the exhibition of barium chloride, adrenalin, diphtheria toxin, *B. typhosus*, etc., from McGill University, Montreal, which also sent a series of specimens of the concave-glass method of mounting pathological material. An adjoining room was devoted to skiagraphs prepared by Dr. S. Cummings,

of Toronto University. The negatives were arranged in rows forming windows in long cabinets illuminated from the interior. They were generally admitted to be perhaps the finest collection, from the point of view of technique, as yet shown, and included, in addition to numerous skiagraphs of fractures, dislocations, foreign bodies, and congenital malformations, beautiful negatives showing various morbid affections of internal organs, such as atheromatous arteries, calcified coronary arteries, empyema, tuberculous disease of the lungs and bronchial glands, and downward displacement of the stomach. Dr. Cummings was justifiably proud of a set of skiagraphs of the cranial sinuses which will doubtless prove of great value by furnishing guides to operation. Other interesting exhibits were sent by Dr. G. A. Gibson of Edinburgh, including a series of eight microscope slides showing heart muscle, and also photomicrographs and tracings of movement of heart and vessels in heart-block; a beautifully-executed series of hand paintings by Dr. Henry Smurthwaite of Newcastle-on-Tyne, showing various diseases of the larynx; a long series of slides of heart muscle were shown by Professor Aschoff of Marburg; and other exhibits were contributed by Dr. Jas. Mackenzie of Burnley, Dr. Brown Kelly of Glasgow, and Dr. Arthur Keith of London.

Dr. William Oldright, Professor of Hygiene in the University of Toronto, who took an active part in the meeting, threw open for inspection during the Annual Meeting the Museum of Hygiene which he is forming in the north wing of the Medical Laboratory. He has already collected a large number of articles, models, and diagrams illustrative of the modern methods of sanitation, including appliances in connexion with ventilation, heating, drainage, sewage, disposal of refuse, baths, water supply, foods, clothing, building materials, and school desks and seats. Professor Oldright desires it to be known that he invites contributions of sanitary appliances from those engaged in their manufacture or interested in this work. The Museum already provides for the benefit of students and others an instructive collection, which it is hoped will be still further increased by the response to an appeal which has been made by circular for gifts to the Museum.

On Wednesday afternoon a reception was given at the Toronto General Hospital by the Trustees, when the guests, to the number of between three and four hundred, were shown over the building, and learnt that it is proposed shortly to replace the present large building, which can make up 425 beds, by an entirely new hospital which is to embody every modern improvement.

On Saturday, August 25th, at the invitation of Sir Henry Pellatt, a large party journeyed by train to Niagara, where they not only had the opportunity of viewing the Falls, but also of going over the new power works now approaching completion on the Canadian shore. The building, erected close by the riverside about a quarter of a mile above the Falls, is in the Palladian style and possesses very considerable architectural merits, contrasting agreeably with the hideous factories, tall chimneys, and obtrusive water shoots by which the cliff immediately below the Falls on the American side has been defaced. For the Canadian power works a large coffer dam has been built, and the permanent dams are complete; a long, deep pit has been excavated under the power house and in it the huge turbines were being erected; from the bottom of the pit a large tunnel has been carried through the rock to the base of the Horse Shoe Falls, where its opening behind the great mass of falling water is invisible to the spectator on the bank. Most of the party descended the pit and walked through the tunnel until the water and spray could be seen descending over its mouth. It was a unique experience, and so soon as the turbines are set to work the tunnel is not likely again to be traversed by the foot of man for many years to come at least. The supports for the cables carrying the current the seventy odd miles to Toronto are already erected, and it is expected that the supply will be commenced within a few months. The visitors were entertained at lunch in the Clifton Hotel facing the Horse Shoe Falls, and afterwards went in electric cars down the Canadian side, from which the rapids and the whirlpool are viewed from above, and back by the American side, where the line runs in the gorge not far above the level of the water.

On Saturday also a large party went to the Muskoka Lakes. A special train took them to Muskoka Wharf, and a visit was paid to the Gravenhurst Sanatorium for Consumption. After inspecting the buildings and grounds, the visitors were entertained at lunch, and then embarked for the voyage up the Lakes, which extend far to the north, ramifying in every direction, and are studded with wooded islands innumerable. The love of a summer home has laid hold of the Torontoan as strongly as of the Londoner, and upon nearly every island stood the holiday house of some city dweller, with its little wooden jetty, to which were moored skiffs, canoes, and sometimes a motor launch.

Scotland.

Sanitary Association of Scotland.

The thirty-second annual Congress of the Sanitary Association of Scotland was opened at Leith this year on September 5th.

The Dust Problem.

Mr. Bryce took for the subject of his presidential address, Some Sanitary Problems Incident to Populous Centres. He contrasted the difference between the density of population possible in areas covered by high tenements with the more desirable arrangement for the extension of towns by the erection of small cottages, in terraces, etc. He considered the time was ripe for provisions being obtained whereby local authorities would be enabled to borrow money for the purchase of vacant land to secure the future development of the community, and ensure that ample provision was made for wide-open streets, and for the laying out of open spaces, gardens, and pleasure grounds at suitable intervals in growing localities. Passing next to sewage disposal, Mr. Bryce remarked that there was evidence that in investigation and experiment authorities were reaching solid ground, and that in the future expenditure in this department would not be so great. He then dealt with the disposal of refuse, the smoke question, and the problem of road dust. Road dust was more a national than a civic question, and had been much accentuated of recent years by the advent of the motor car. The dangers to health by breathing clouds of contaminated dust turned up by ordinary breezes or by the passage of a swift car were beyond all contradiction. Sir James Dewar had also emphasized the very harmful effects of the gases produced by the petrol engine and blown off by the exhaust pipe. Dust, however, was the great menace. It met us indoors as well as outside, penetrating insidiously into houses and shops, and on to food, sweets, fruit, milk, etc. It was well established that road dust contains the germs from excremental and other matters on the surface of the road, which were more or less injurious to health; and any manager of sewage works would bear him out in saying that the first foul washings of street refuse reaching the purification works during a rainstorm were of a most harmful character and very difficult to purify. From an engineering point of view there was not the slightest

difficulty in providing all that was required to put an end to the dust nuisance. The numerous experiments of surveyors and engineers in France, England, and Scotland had clearly proved that while a large abatement of the nuisance could be accomplished by the coating or sprinkling of roads with solutions, and painting with oil or tar, the almost unanimous advice of experts was to lay down roads of materials which would provide a waterproof surface and be non-productive of the objectionable dust.

The Wastage of Human Life.

A lecture on this subject was delivered by Ex-Baillie W. F. Anderson. He said the aim of sanitarians was not in the main to cure but to prevent disease. After a reference to the appreciation in which they held the efforts of members of the profession of medicine to prevent the diseases which it is their mission to cure, the lecturer pointed to the enormous strides public health had made during the last half-century, and painted a lurid picture of the state of matters in Glasgow when Professor Sir William Gairdner was appointed the first medical officer in 1862. In 1875 the death-rate of Glasgow was 30.8 per 1,000. When their death-rate was reduced by 1 it meant a saving in Glasgow of 800 lives per annum. Last year the death-rate was 13 per 1,000. Scarlet fever, diphtheria, typhoid, and consumption had vastly diminished; small-pox had nearly disappeared, and typhus was practically abolished. Yet to-day the infantile death-rate of this country was as high practically as ever it was, and in some parts of it worse than it was over forty years ago. Some people said it was a good job; it was the survival of the fittest; there was no use rearing delicate children. He declined to accept the theory that this must go on and that this state of matters was not curable. In Scotland the infantile death-rate was 25 per cent. lower than the death-rate of England and Wales. In England the death-rate from 1893 to 1902 was 152 per 1,000; in Scotland it was 127, and in Ireland it was only 104. Ireland was a poor country, and there most of the mothers gave the babies their birthright and suckled them. During the siege of Paris the death-rate among infants went down enormously because the mothers were confined to the houses. Illegitimate children died in infancy twice as quickly as legitimate children. The average for six years—from 1898 to 1903—in Glasgow of deaths of legitimate children was 139, while the death-rate among illegitimate children was 241. He thought there was no doubt a large measure of this mortality could be prevented. Again, the death-rate was swelled by the positive cruelty which was perpetrated on numbers of these children. During the five years from 1902 to 1906 the sanitary authority of Glasgow buried 641 so-called stillbirths, 218, or 34 per cent., of which were illegitimate. His contention was that a great many of these children were born living and were deliberately allowed to die, and the reason that no punishment followed this crime was because at the present moment stillbirths were not registered. The lecturer showed several series of pictures of children, some naturally fed, others fed on milk, and others on milk obtained from the Corporation dairy. He was not there to prove that food would solve the problem he had stated, but he thought it was one of the most important factors in the problem. He stated that he had got the city analyst to analyse thirteen varieties of largely-advertised food for babies and children, and most of these contained large quantities of starch, which some of them lost in the cooking. The birth of every baby should be notified within forty-eight hours, and he thought that the law ought to be strengthened so that mothers would not be allowed to work in factories up to the very hour of their confinement; mothers likewise ought not to be allowed to resume their work until they had satisfied the medical officer of health that they had made proper provision for the nursing of their little babes left at home. Then they wanted to put an end to the scandal that existed with stillbirths. These ought to be notified, like living births, and no child stillborn should be allowed to be buried until it had been seen by a medical officer of health.

Port Sanitation.

Dr. George N. Wilson, senior boarding medical officer, Greenock, introduced a discussion on port sanitation, in which he showed how far ahead America was over our own Government in the matter of their health reports. He urged that the Local Government Board should be empowered to draw up rules and regulations for the guidance of the marine architects, and to appoint sanitary experts to pass the plans before the ships were built; that all seaports should be required to have legally-constituted port sanitary authorities according to their size and importance, so that there might be no necessity for H.M. Custom officers to do sanitary work anywhere. He also advocated the inclusion of typhus, diphtheria, and other less serious epidemic diseases in the regulations. After some discussion a resolution was adopted making the Local Government Board regulations as to cholera, yellow fever, and plague applicable to small-pox. It was also resolved that for the more efficient administration of port sanitary authorities some system of notification was urgently called for, having for its object the concentration in a central International Health Office of all available information concerning epidemic disease occurring in the countries entering into the convention, and the distribution of this information to the several countries concerned.

School Children and Disease.

Dr. A. Campbell Munro, county medical officer for Renfrewshire, opened a discussion on the Utility or Otherwise of the Compulsory Notification of Measles in the Control of the Spread of Infectious Disease Amongst Children. He was satisfied there would be no great educational loss if the children were not admitted to school under the age of 6, and in the matter of the prevalence of infectious diseases, more particularly of measles and whooping-cough, it was distinctly detrimental to the public health interests of the community that children should attend school under that age. He moved three resolutions: (1) That in the opinion of this Congress Section 3 of the Infectious Diseases (Notification) Act should be amended to provide that in the case of measles only one certificate should be required, and only one paid for, in respect of cases occurring in a household within any period of four weeks; (2) that the operation of Section 57 of the Public Health (Scotland) Act involved unnecessary interference with school attendance, and that its stringency might with propriety be relaxed by the introduction of an alternative to the certificate that the patient is free from infection, and that the house and articles therein have been disinfected; (3) that a representation be made to the Scottish Education Department in favour of withholding the grant for school attendance in the case of children under 5 years of age, and of raising the lower compulsory age-limit from 5 to 6 years.

Dr. Cullen (Edinburgh) seconded the first resolution. Mr. John Lindsay (Deputy Town Clerk, Glasgow) moved the previous question, and Mr. Robert Lambie (Larkhall) seconded. On a show of hands, the previous question was carried by 74 votes to 29. The second resolution was carried unanimously. The third resolution was adopted by 50 votes to 45.

Next Meeting.

The Secretary read a letter from the Town Clerk of Aberdeen, inviting the Association to hold next year's congress in Aberdeen. The invitation was unanimously accepted.

SEASIDE HOMES.

The thirty-seventh annual meeting of the West of Scotland Seaside Homes at Dunoon was held in Glasgow on September 3rd. Sir James King, the President, who was in the chair, said that during the past year they had had 4,934 inmates in the homes. The great majority of these had returned home thoroughly restored to health, and only 135 had derived no benefit from the comforts of the homes, from the admirable and abundant food, from the beauty of the scenery, from the salubrious sea breezes, and the, in most cases, congenial society. Dr. Ritchie, their consulting surgeon, in his report, said that during the summer months the homes had been filled to overflowing, every bed and every cot being continually occupied. This was no new thing, and, in consequence, the directors had obtained plans for very considerable additions to the accommodation; these would cost nearly £6,000, but he was sure would not provide a building too large for the increasing number of applicants.

Ireland.

The Longford County Infirmary "Scandal."

Considerable interest has been aroused in medical circles in Ireland by the disputes which have been going on for months between the Committee of Management of the Longford County Infirmary and their medical officer.

Since the abolition of the fiscal duties of the Grand Juries by the Act of 1898 and their transference to the County Councils many of these medical institutions have fallen on evil days. Formerly they were supported by voluntary contributions plus an annual grant from the Grand Jury. Recent legislation has changed all that. The class which used to subscribe have largely been expropriated and the County Councils, like the Poor-law Boards, do not recognize the needs of modern hospitals.

The Medical Officer of Longford County Infirmary seeing, like many others, the steady deterioration of his hospital under the new régime, reported the defects again and again to his County Council Committee of Management, but all to no purpose. The Committee retorted by bringing grave charges of misconduct and insubordination against him, and eventually applied to the Local Government Board to hold an inquiry into them. This inquiry has been held by their inspector, Surgeon-Colonel Flynn, and his report has not met with the approval of the Committee of Management, for, while holding that there had been some irregularity in the management of the institution, such as getting one of the nurses to assist at an operation outside the hospital—a very venial offence in a country town where no other nurses are available in an emergency—Colonel Flynn acquitted Dr. Mayne of all the more serious charges.

It is a remarkable coincidence that two of the *causes célèbres* of medical circles in recent years should have occurred in two towns within a few miles of each other in the County Longford.

The Granard "scandal," to which we devoted considerable space years ago, arose in consequence of the medical officer of the Granard Union Workhouse having persistently demanded sanitary improvement in his hospital and a better system of nursing than that of untrained nuns. The Longford "scandal" was caused by the medical officer of that infirmary demanding sanitary improvements in his hospital. Both were put on their trial before Local Government Board inspectors. In the Granard case Mr. T. Healy represented the nuns, and cross-examined Dr. Rivers, the medical officer, for thirteen hours; probably the Longford Committee did not care to incur the expense of eminent counsel, for they contented themselves with a local solicitor.

On September 5th a meeting of the Committee of Management summoned by the medical officer to consider a report from him relative to the repairs required in the building was held in the infirmary, the Most Reverend Dr. Hoare, R.C. Bishop of Ardagh, presiding. Dr. Mayne's report having been considered, it was moved that the necessary works should be proceeded with, whereupon the Chairman proposed the following amendment:

> That this Committee is convinced that in consideration of the Local Government Board's report this hospital cannot be continued in existence with efficiency and credit to the county, and that this Committee wishes to report accordingly to the County Council, and to await their decision. This Committee suggests that the workhouse hospital may be utilized until a solution of the present difficulty is found.

He added that the position of affairs there that day was that the doctor's friends were in the majority.

After some warm interchanges caused by the Chairman's observations, the amendment was lost by four votes to three, and the county surveyor was directed to prepare plans.

Birmingham.

The General Hospital.

In a notice of the statistical report of in-patients of the General Hospital for 1905 there were two errors which must be corrected. It should have been stated that of the 177 cases of appendicitis treated in the hospital there were 51 in which suppuration had occurred, and of these 19 died. Among the rest of the cases of appendicitis, numbering 126, there was not a single death. The number of deaths from burns and scalds was 50, and not 87 as previously stated.

The Prevention of Summer Diarrhœa.

The Medical Officer of Health has issued a card containing rules to be observed for the prevention of summer diarrhœa among children. These rules are: (1) Breast-fed infants should not be weaned during this period. (2) Bottle-fed infants should only have milk which has been bought in a fresh condition, boiled, and stored in a clean, cool place. (3) The jugs and feeding-bottles used for the milk should be kept scrupulously clean by scalding. (4) Infants should not be allowed to crawl on the floor or courtyard where they can pick up dirt; their clothing, etc., should be kept very clean, so as to prevent their sucking anything dirty. (5) Diarrhœa is so rapidly fatal in young infants that whenever it commences medical advice should be sought at once and valuable time not lost. (6) By using common sense in keeping the house, yard, and everything in connexion with young children in a clean condition, it is certain that a large number of deaths can be prevented, and it will be greatly to the advantage of citizens if a special effort is made during the short period the warm weather lasts.

Bequests to Institutions.

The late Mr. Arthur Briscoe of Wolverhampton has left a very large sum of money for charitable purposes. Among the institutions that benefit by his bequests are the Wolverhampton Eye Infirmary and the Wolverhampton and Staffordshire General Hospital, to each of which he has left £2,000. He has also added £2,000 to the Endowment Fund of the Wolverhampton and District Hospital for Women, and he has bequeathed £1,500 to the Midland Counties' Home for Incurables at Leamington.

Leeds.

Conviction of an "Eye Specialist."

With some satisfaction, but without much hope that it will in any way stem the current of credulity on the part of the public, we note the conviction of a quack styling himself an eye specialist. At the Barnsley Police-court, one Noel Cody, said to have been a Texas cowboy, was charged with obtaining money on false pretences by professing to remove cataracts from the eyes of two persons. The case showed the usual gullibility of the public and the usual methods adopted by quacks, including the demand for payment in advance. The method of "cure" appears to have consisted in the dropping of a weak aqueous solution of starch into the eye. In a few minutes the cataract was removed by the operator licking the eye! When this cataract had been removed at a charge of 15s., the specialist said there was a second cataract in the same eye—truly an interesting state of affairs!—and offered to remove it at a charge of 20s. The prisoner said he was heartily ashamed of himself, and that it was his intention to return to America when he was arrested. This we hope he will do as soon as he has served the six months in prison to which an unsympathetic bench sentenced him.

North Wales.

Poor-law Conference.

The North Wales Poor-law Conference began on September 4th at Carnarvon. The chair was occupied by the Mayor. A paper on "Outdoor Relief" was contributed by the Rev. Arthur R. Alsop (guardian of the Cannock Union), who urged that as with railways so it should be with Boards of Guardians, each having its own management and imbued with a spirit of friendly rivalry, and each trying to do its best for its recipients of relief and for the ratepayers. Examining the question of who should be the recipients of outdoor relief, he contended that in the case of country unions it was the duty of every

guardian to make himself acquainted as far as possible with the particulars of any application for outdoor relief before it came before the Board; but whether in town or country, the Board must greatly rely on their relieving officer, who should have a sufficient—neither cheeseparing nor extravagant—salary. In his ideal Board he would give more power and discretion to the medical officer, especially as it was generally held that medical relief did not disfranchise. As the Guardians had the spending of other people's money, if they wished to be lavish let their weakness show itself with respect to their medical officer. In a sense he had immense power, but at the same time he was hemmed in, and had, for example, no power to compel authority to be given to him to attend upon a person. The doctor, with more latitude allowed him, might attend a case without bringing the recipient into contact with the more strict officialdom of the Poor Law. A poor person, he contended, should be in a position to go to the parish doctor without recourse in the first instance to the relieving officer or the overseer. All the items of expenditure by guardians were on the increase—almost necessarily so—but outdoor relief was the greatest call on the poor ratepayer's pocket, and salaries came to an enormous sum. The increase in the number of recipients of outdoor relief seemed also to be more than it ought to be. Incidentally the speaker mentioned the question of strikes, and urged that no Poor-law relief should be granted in cases arising out of strikes other than those where provision had to be made against absolute destitution. It would be as justifiable to give relief in such cases as to give rate aid to capitalists who stood in fear of strikes. In the discussion Mr. Prince, Chairman of the Holywell Board of Guardians, dissented from the opinion of Mr. Alsop that more power should be given medical officers, who already showed too great a tendency to "lord" it over relieving officers. Mrs. Elias also disapproved of granting increased powers to medical officers. Mr. Simon Jones, Chairman of the Wrexham Union, desired to obtain from the Chairman his opinion of the operation of the Workmen's Compensation Act upon the question of out-relief. In large industrial centres it was found that aged persons who were formerly considered quite acceptable as workmen were thrown out of employment and upon the rates, and replaced by younger men. The Chairman, speaking as an employer of labour, declared that, as far as his experience went, the Compensation Act was altogether unnecessary. It contained limitations which were unworthy of an Act of the kind. One was the silly limitation that no compensation could be given for a fortnight. The Compensation Act was so stringent, and so open to bogus actions, that the risk could not be run of employing old men. Miss Champreys, a member of the Conway Board of Guardians, read a paper on the treatment of young mothers in workhouses, including the question of rescue work. She insisted that something should be done to deal with the stream of young women who entered the workhouses. There were the feeble-minded women and children, the irreclaimable, and those who might be helped. She hoped that the Royal Commission on the Feeble-minded would advocate the detention of feeble-minded women under special medical certificate. As to the other two classes, let the guardians think of the low standard of life of the women who entered the workhouses as the result of their antecedents. Could not the guardians, who were also often district councillors, use their power in condemning the indecent overcrowding and insanitary state of some of the houses in their districts? Immorality was still great in this Christian country, though a marked improvement was perceptible. In North Wales alone the illegitimate births registered from 1893 to 1903 were 62 per 1,000, as against 40 per 1,000 for the whole of England and Wales. She believed that there was no rescue home in the whole of North Wales. The immorality among such a large number of domestic servants was a startling fact. Was it not the feeling of absolute loneliness and want of sympathy that often caused a servant's downfall? Not so much want of money as want of a friend. Mistresses could and should take greater care of their young servants as regards their free time and evenings out. In conclusion, Miss Champreys advocated the encouragement of more preventive work in the workhouse.

Australia.

THE MEDICAL SOCIETY OF VICTORIA AND THE VICTORIAN BRANCH.

THE negotiations having in view the amalgamation of the Medical Society of Victoria with the Victorian Branch of the British Medical Association have progressed so far that a draft scheme has been drawn up. Under it the land granted by the State to the Medical Society and for other scientific purposes would remain vested in trustees appointed by the Governor in Council, as would also the buildings on the land, with their furniture, fittings, and the library. Existing members of the Society would become members of the British Medical Association and of its Victorian Branch, and members of the Branch would share in the advantages provided by the Society.

CORRESPONDENCE.

THE UNIVERSITY OF LONDON.

SIR,—By the resignation of Dr. J. F. Payne, a vacancy has arisen among the members of the Senate representing Convocation. The University of London Graduates' Union, of which Sir Thomas Barlow is the President, has unanimously adopted Dr. Frederick Taylor as its candidate. As you are aware, Dr. Taylor is the senior physician to Guy's Hospital. He has for years taken an active interest in the welfare of the University, and he has done a great deal of good work in its service. His position in the profession, his long experience in teaching, and his intimate knowledge of the affairs of the University, make him a most desirable candidate. Dr. Taylor has been nominated, in accordance with the Standing Orders of the University, by the following ten persons: Samuel Gee, J. Mitchell Bruce, W. Hale White, Charles A. Ballance, Mary Scharlieb, J. F. Payne, F. de Havilland Hall, Charters J. Symonds, Rickman J. Godlee, W. Pasteur. An influential Committee is being formed to further Dr. Taylor's election, and in a few days we hope to send to the electors a letter we have received from him.—We are, etc.,

JAMES CALVERT, B.A., B.Sc., M.D.Lond., F.R.C.P.,
JOHN FAWCETT, M.D.Lond., F.R.C.P.,
Honorary Secretaries, Medical Section University of London Graduates' Union.

113, Harley Street, W., Sept. 10th.

SIR,—In respect to Dr. Graham Little's letter, and his summary of opinions expressed in letters addressed to him contained therein relating to the London degree question, I submit that there are many students London bred and born who are unable to obtain the degree of the London University, and yet are far removed from a state of congenital idiocy.

It is also a fact that the same amount of capacity and diligence expended in obtaining the conjoint diplomas of the Royal London Colleges would be rewarded with a degree elsewhere. No doubt local patriotism plays some part in denuding London of medical students, and that, were the University of London or the Royal Colleges to grant an ordinary pass degree of the same standard as the provincial universities, in other words, confer a degree on men who had obtained the standard of the conjoint diplomas of the Royal Colleges, many provincial students would still prefer to take their own local degree. But my argument is, why should not men bred and born in London and its suburbs, with a population equal to some of the sister counties of England, have the same facilities of obtaining a degree in London as the corresponding individuals bred and born have in Birmingham, Durham, Manchester, Edinburgh, Dublin, or Glasgow?—I am etc.,

London, S.W., Sept. 8th. F. W. COLLINGWOOD.

THE TEACHING OF OBSTETRICS.

SIR,—I am sorry to find so practical a teacher as Dr. Griffith perpetuating in his Toronto address the accusation which Dr. Dakin first brought against our profession, and which Sir John Williams supported.

Briefly the thesis of our accusers is this: Puerperal septic mortality (outside hospitals) is too high. Therefore

the general practitioner is to blame, and our system of teaching is wrong.

I ventured, Sir, some time ago in your columns to suggest that inasmuch as it is notorious that only a small percentage of midwifery cases are ever seen by a medical man, that the thesis was not only not proven, but rested probably on a wrong assumption, and I concluded my letter by asking for the evidence on which the verdict that had been pronounced on us was based.

That evidence has never been given, but your own columns since have teemed with letters from old and experienced practitioners indicating where the fault lies, that is in the cases that the doctor does not attend at the time of delivery.

The proceedings of the Central Midwives Board surely confirm this view.

Dr. Griffith himself, in speaking of the present system of extern midwifery departments, says of cases, mark you, attended by zealous but inexperienced students, under conditions frequently the reverse of ideal, "that it speaks well for the general standard of common sense that so few calamities occur."

Quite so! Why not leave the case at that, and apply the same standard to the interpretation of vital statistics, and the logical investigation of the true causation of a mortality which we all deplore?—I am, etc.,

Upham, Hants, Aug. 25th. James C. Hoyle, M.B., D.P.H.

THE ELECTRICAL RESISTANCE OF THE BLOOD AND URINE AS A TEST OF THE FUNCTIONAL EFFICIENCY OF THE KIDNEY.

Sir,—In your issue of July 28th, Dr. Dawson Turner writes on The Electrical Resistance of the Blood and Urine as a Test of the Functional Efficiency of the Kidney. It has obviously escaped Dr. Turner that the electrical resistance of the blood cannot be used as an index of its richness in salts (electrolytes), since it depends not only on the quantity and character of the salts but also on the proportion of the total volume of the blood which is occupied by corpuscles. These, as I showed a number of years ago,[1] and as was demonstrated independently by Roth, are practically non-conducting owing to their low degree of permeability by the ions of the plasma. Only when the relative volume of corpuscles and plasma (or serum) is known is it possible to use the resistance of blood as a measure of the concentration of salts in the plasma. My pupil, Mr. T. M. Wilson,[2] has described an arrangement by means of which the serum can be easily separated from such quantities of blood as are available for clinical studies and its electrical resistance measured directly. This resistance does vary approximately in inverse ratio to the contents of the serum in electrolytes. Mr. Wilson has determined the conductivity of the serum in numerous diseases. In pernicious anaemia he found, of course, a marked increase in the conductivity of the blood owing to the great diminution in the proportion of the total volume occupied by corpuscles. But there is no increase in the salts of the serum since its conductivity was not increased.—I am, etc.,

University of Chicago, Department of Physiology, Aug. 16th. G. N. Stewart.

THE PREVENTION OF DIFFICULT LABOUR.

Sir,—Your correspondence columns are scarcely intended for the enunciation of principles which can be obtained from textbooks. May I ask Dr. Knight to look up the Sydenham Society's translation of Spiegelberg's *Midwifery*? If he takes the trouble to do this he will readily ascertain that the length of the cord can have an effect in causing difficulty in delivery and will obtain a great deal of other useful information.

My statement was that the commonest cause of arrest in the descent of the child in cases where there is no disproportion between the size of the child's head and that of the pelvis was short cord. Short cord was a commonly used term in my school days for all those cases where the cord was so short as to produce interference with natural labour. An originally long cord when sufficiently shortened by twists round the body of the child, becomes a short cord for practical purposes.

Having taken some pains about the matter I am quite sure that short cord is a common, if not the commonest, cause for arrest in the class of cases noted above. I admit I may be wrong, but cannot make that admission until Dr. Knight can find something like a proof of inaccuracy in my conclusion.—I am, etc.,

Hatfield, Sept. 7th. Lovell Drage.

[1] *Centralbl. f. Physiologie*, Bd. xi, S. 332, 1897; *Journ. of Physiology*, vol. xxiv, p. 211; ibid., p. 356, 1899.

[2] *Amer. Journ. of Physiology*, vol. xiii, p. 139, 1905; ibid., vol, xvi, p. 438, 1906.

MEDICO-LEGAL AND MEDICO-ETHICAL.

DEATH CERTIFICATES.

Once Bit Twice Shy writes with reference to the reply under this heading in the British Medical Journal of September 8th, p. 604, in which it was said that it would be better if all medical practitioners followed the directions of the Registrar-General: In the past I have filled up death certificates as follows: "Primary cause, bronchitis; secondary, asphyxia," with the result that the local registrar always referred such ones to the coroner, resulting in more or less trouble. In one case I remember the coroner travelled twenty miles to make inquiries, and I was informed that although he did not think an inquest necessary, he told the relatives I had no business to put in the certificate such a cause of death as asphyxia, and was by no means complimentary in his remarks about me. I lost the family as patients. The coroner in question was a solicitor, which explains much, and no doubt he was well paid for a quite unnecessary journey. I have spoken to the local registrar about his action, and he has told me that his instructions are such that when a word which may indicate violence is used, although the primary cause mentioned may qualify it, he has no choice. In consequence, I now fill up my certificates as simply as possible, and I advise "Yorkshire" to do likewise until at least the regulations are altered.

Dr. T. F. Hugh Smith (Farningham, Kent) writes: To-day (August 23rd) a certificate of death was required for a labouring man who had been suffering from carditis and arteritis with symptoms of aortic aneurysm. He told me that he had had syphilis when in the army. The wife applied for the certificate, I therefore omitted the primary cause, syphilis, giving heart disease only. A few years ago the wife of a clergyman died with well-marked symptoms of alcoholic neuritis. I entered this on the certificate. The clergyman, though apparently physically fit for duty was unable almost entirely to do his work for more than a year. I learnt that this widower had been shocked upon seeing the cause of his wife's death written on the certificate. Since this grave effect was produced, alcohol and syphilis have been omitted as a rule, but on two occasions I have written stating the omission to the Registrar-General.

FEES FOR CLUB CERTIFICATES.

Fundus.—A club doctor or a hospital officer is expected to give club certificates without charge. We understand, however, that in the case submitted the patient is being attended as a private case and paying fees; the question, therefore, whether he should also be made to pay for his club notes depends, first, on his ability to pay, and, secondly, on our correspondent's conscience.

PRINCIPAL AND ASSISTANT.

An assistant has been receiving one quarter of the private fees instead of salary at a branch practice of which he had charge. He wishes to know whether he can claim his share of bills outstanding when he leaves on his own initiative.

*** If the agreement was that he was to receive one quarter of all private fees so long as he worked in the practice he is clearly entitled to his share of all fees paid for work done while he was assistant, whether such fees were paid before or after he left.

NOTICES OF MEDICAL PRACTITIONERS IN HOTELS.

Query writes that a medical practitioner residing about a mile from a hotel has put up a notice in the hall of the hotel to the effect that "Dr. ..... attends the hotel at 11 a.m. daily during the season," and he asks us to express an opinion whether this is in accordance with the recognized etiquette of the medical profession.

*** The question put by our correspondent is one of some importance, which has never been definitely settled. The regulation of these matters depends upon professional opinion and custom, and although we should like to see a rule established prohibiting such notices we cannot say that it exists. The case might be brought to the notice of the Ethical Committee.

NOTICES OF MEDICAL MEN IN THE LAY PRESS.

A CORRESPONDENT sends us a cutting from the *St. Helen's Reporter* for August 31st, in which there is an account of the retirement of a local doctor who announces that he intends to become private secretary to a gentleman, and that he has taken in a former medical practitioner in the town as a partner.

*** So far there is, perhaps, nothing to complain of in the announcement, as the subject of it appears to have taken a prominent part in local municipal work, but it is made the occasion for a genial notice of this practitioner and of his new partner. We regret to see that these notices of medical men in lay newspapers are becoming more and more common. The best way to control them would be through the local Division. Undoubtedly medical men are not always responsible for these notices, and it is difficult to bring home the responsibility; while, on the other hand, many newspaper editors resent any remonstrances addressed to them by the medical profession, and prefer to maintain their own standard of journalistic propriety.

THE RELATIONS OF MEDICAL PRACTITIONERS WITH CHEMISTS.

A DIVISIONAL SECRETARY asks whether it is desirable that a medical man should enter into a covenant with a chemist, and he quotes the following case:—"A medical man enters into an agreement with a chemist: the latter to send people to the former in exchange for the prescription. The chemist endeavours to detach the patients of other medical men, saying, 'Dr. A. is the best man in the town—go to him.' The chemist outside his shop systematically canvasses for Dr. A. Dr. A.'s attention has been drawn to this state of things, but he refuses to do anything to stop it. Is this ethically right? Is it not a bad case of canvassing? Ought the attention of the Ethical Committee of the Division of the British Medical Association to be drawn to the matter?"

*** No doubt systematic canvassing by a chemist for a practitioner is ethically wrong, but the evidence would have to prove that it was something more than the casual recommendation which chemists, like other people, are at liberty to give.

AN INTERFERING BONESETTER.

VERITAS.—A correspondent writes that a pauper, 76 years of age, fell and suffered an impacted fracture of the neck of the femur which was treated by him in the usual manner. On the following day a bonesetter removed the long splint that had been applied, and afterwards moved the limb in different directions, with the result that enormous swelling and oedema of the whole limb followed. The patient was fairly strong considering her age, and stood a good chance of getting over the accident if his treatment had not been interfered with. He wishes to know whether, if death ensues, he should get the police to take up the case.

*** Our correspondent does not say if he is the district medical officer. If so, he should report the improper interference of the bonesetter to his Board of Guardians. If death ensue he should refuse to certify, when the circumstances will be duly inquired into at the inquest which will follow in due course.

A QUESTION OF FEES.

A CORRESPONDENT writes that he was requested by the manager of a tramway company of a provincial town to examine and report upon two cases of persons who had been injured by tram cars, and were claiming compensation. Each case he was requested to see and report upon two separate occasions. For this he sent in an account of £8 8s. to the Corporation, and £2 2s. for each visit, consultation, and report. This account has been returned, with the request that a reduction should be made, on the ground that the charges were exorbitant. He would like to know if the charges are reasonable or not.

*** The charges appear to us perfectly reasonable, and seeing that our correspondent was not unlikely selected by the tramway company because he was surgeon to the local infirmary, it would appear that the directors of that company hold very mistaken views as to the value of professional services.

MEDICAL ADVERTISING.

NON-ADVERTISER.—If our correspondent is sure of his facts he should bring the matter before the local Division. The notice of a newcomer in a local paper is not unusual, and would excite no comment. If, however, our correspondent is sure the matter referred to was paid for, that is a very different matter, and the case is a proper one for inquiry by the Division.

THE DOORPLATE.

M. FELDMAN.—There would be nothing unusual in our correspondent putting a plate on the front of the house indicating that the entrance to his consulting rooms is round the corner.

PUBLIC HEALTH
AND
POOR-LAW MEDICAL SERVICES.

REDUCTION OF INFANT MORTALITY IN STEPNEY.

DR. THOMAS, the medical officer of health for the Borough of Stepney, reports on the work of Miss Forrester, the lady health visitor, as follows: "She visited and revisited the homes of 721 infants, 74 of whom died under the age of 1 year. The rate of mortality among infants she visited was therefore 102 per 1,000 births. This is very satisfactory when it is considered that this area was selected on account of its high mortality, and that the infant mortality for the whole of the Limehouse district in that period was 185 per 1,000 births. A large majority of these infants were suckled by the mother, only a few comparatively being fed entirely by artificial means. On the other hand, it is very difficult to find out from the parents to what extent breast-feeding was supplemented by oatmeal, biscuits, soaked bread, or 'just a little off what we have ourselves.' As a result of continuous teaching by the health visitor there is undoubtedly less ignorance on that point and more knowledge of the value of milk as an article of diet for the infant." Dr. Thomas goes on to say how difficult it is to get some mothers to understand that infants cry from other causes than hunger, and he insists on the evils of the "dummy," which is often given to the infant in a dirty state. Miss Forrester advised the mothers to discard the "dummy." He adds that the wasting diseases so common among babies in the East End, as elsewhere, are often due to overloading of the stomach with unsuitable food. Poverty and drunkenness in mothers are, he says, the two most distressing elements in the health visitor's work. The former produces ill-nourished mothers and the latter idle, careless, or indifferent ones. Both factors are to be reckoned with in the struggle against infantile mortality. Such an officer, says Dr. Thomas, can be of real benefit to mothers in teaching them the proper management of infants, and in thus tending to lower the high infantile mortality of a district. But first of all suspicion has to be allayed and her motives appreciated by the inhabitants. In consequence of the success of Miss Forrester's work in Limehouse she has been appointed for a further term of two years.

THANKS TO A MEDICAL OFFICER.

HONITON Board of Guardians (East Devonshire) passed the following resolution on September 8th:

> That it is the desire of the Board to express their appreciation of services rendered to patients committed to Dr. Pullin's care for a period now extending over fifty years, and that it is the unanimous wish of the guardians to tender their thanks to him for the kind attention and courteous manner in which the duties devolving upon him as medical officer for the Sidmouth district have been carried out. They trust that he may be blessed with good health, and enabled to carry on the useful work in which he has been successfully engaged for many years past for some time to come.

OBITUARY.

DR. FRANKLIN HEWITT OLIVER, who has lately died at the untimely age of 47, was for over a quarter of a century one of the best known and most popular men in the district of Shoreditch and Bethnal Green. He was the third son of Alderman Dr. Oliver, J.P. of Maidstone, who not long since was mayor of that town. He was born in 1859, and educated at Maidstone Grammar School under the late Rev. G. M. Gould, M.A., for whose memory he always retained the most affectionate regard. In 1883, after a successful career as a student at Charing Cross Hospital, he became a Licentiate of the Society of Apothecaries, and was appointed Resident Obstetric Surgeon to the hospital. In 1887 he was admitted a Licentiate of the Royal College of Physicians, London, and succeeded to the practice of the late Dr. Burchell in Shoreditch. His practice soon became one of the most extensive in the district, and included many public appointments. For many years he held the position of Chief Surgeon to the Royal Maternity Charity, and at the time of his death was also Surgeon-Accoucheur to the City of London Lying-in Hospital. He

was also Surgeon to the G and H Divisions of the Metropolitan Police, the Honourable Company of Ironmongers, etc. He was Honorary Medical Officer and Chairman to the Hoxton and Haggerston Branch of the Queen Victoria Jubilee Nursing Association, and gave his time and toil without stint to all its useful work. In all these branches of his profession he was ever active for good, and was popular and beloved by all with whom his work brought him in contact. He lived and worked amongst the toiling poor, to whom he was ever devoted and kind. They will miss him, and by them he will not soon be forgotten. It was pathetic to see how they gathered round his grave as the last expression of esteem and regard. Dr. Oliver was ill for two years, during the whole of which time he was confined to his bed. He suffered great pain, which he bore with splendid courage and quiet patience. He was literally worn out, and fell calmly on sleep. His remains rest in Abney Park Cemetery. He leaves a widow and two young children, one of whom is sorely afflicted.

Dr. John Kirkpatrick died at his residence in Toronto Ontario, on August 9th, from paralysis, from which he had suffered for the past two years. The late Dr. Kirkpatrick was a Canadian, a graduate of Victoria University Medical College in 1871, and a member of the Royal College of Surgeons, London, England. In 1876 he received an appointment from the Red Cross Society of England as Surgeon on the Staff of Baker Pasha, and saw active service during the war between Russia and Turkey in 1876, being Chief Surgeon on Baker Pasha's Staff. At the close of the war he was awarded the Order of the Medijieh of the 1st Class by the Sultan of Turkey in person. Later on Dr. Kirkpatrick received an appointment from the British Government as District Medical Officer in the British West Indies, where he resided for sixteen years, having charge of the Leper Hospital, St. Kitts, West Indies. He was the eldest son of the late John C. Kirkpatrick of Chippawa, Ontario, and a great-grandson of the Rev. Robert Addison, the first missionary to Canada from the Church of England.

Deputy Inspector-General Richard Dormer White, M.D., R.N. (retired), died at Folkestone on August 26th, aged 61. He was appointed Surgeon, April 1st, 1873; Staff-Surgeon, April 1st, 1885; Fleet Surgeon, October 24th, 1893; and Deputy Inspector-General on retirement, August 26th, 1902. He was Fleet Surgeon of the flagship *Raleigh*, and served in the Naval Brigade from the *Raleigh*, *Alecto*, *Magpie*, *Satellite*, and *Widgeon*, at Bathurst, on the River Gambia, West Coast of Africa, in February, 1894, in co-operation with two companies of the 1st West India Regiment, for the punishment of Fodi Silah, a rebellious slave-raiding chief (mentioned in dispatches, slightly wounded, C.B., medal with clasp). He received the thanks of the Admiralty for services in H.M.S *Cambridge*, 1873, and also those of the Medical Director-General for the journal kept by him when serving on the *Bullfrog* on the West Coast of Africa, 1884-5. He also served with Lord Sackville in exploring the hitherto unknown water-sheds of the Pilcomayo, on the borders of Bolivia and Paraguay.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are Dr. Oswald Vierorft, Professor of Internal Medicine and Director of the University Poliklinik at Heidelberg, aged 50; Dr. Jaumes, sometime Professor of Forensic Medicine and Toxicology in the Medical Faculty of Montpellier; and Dr. Frédéric Escanyé, formerly member of the French Chamber of Deputies for the Eastern Pyrenees, aged 73.

Messrs. Thomas Cook and Son give notice that their service on the Nile between Cairo, Assouan, and the Second Cataract will be worked during the coming season by eleven steamers. An arrangement with the Egyptian and Sudan Railways permits combined steamer and rail tickets to be issued. Messrs. Cook issue an illustrated pamphlet giving full particulars both of the regular round and of more extended trips.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original Articles and Letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone, unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any Circumstances be Returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the Editor of the British Medical Journal is *Aitiology, London.* The telegraphic address of the Manager of the British Medical Journal is *Articulate, London.*

Telephone (National):—
EDITOR, 2631, Gerrard.
GENERAL SECRETARY AND MANAGER, 2630. Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Etiology of Typhoid Fever.

Ajax would be glad to know of some work dealing exhaustively with the etiology of typhoid fever, particularly as to the less common ways by which *B. typhosus* may be conveyed.

*** We know of no one book which would fully meet our correspondent's requirements. In Clifford Allbutt's *System of Medicine*, vol. i (Macmillan), the article on enteric fever (and especially the bibliography) may be of use. Newman's *Bacteriology and Public Health* (Murray) deals largely with channels of infection from a bacteriological point of view (milk, water, oysters, soil); in respect of milk the *Bacteriology of Milk*, by Swithinbank and Newman, should also be consulted; for flies, reference should be made to the American War Department Report, 1900, and to Nuttall's work, and to the British Medical Journal 1901 and 1902 (Firth and Horrocks); for water, Corfield's Milroy Lectures, 1902; for oysters, Bulstrode and Klein's reports to the Local Government Board; for soil, Firth and Horrocks, Journal, 1902, ii, pp. 936-943, and the Medical Officers' Reports to the Local Government Board, 1898, 1899, 1900, 1901; for fried fish, London County Council Report, No. 719 (Hamer); for watercress, ibid., No. 852 (Houston); for personal contact and food, *Practitioner*, January, 1904.

ANSWERS.

Thackeray.—The following list of periodicals devoted to the study of tuberculosis may be useful to our correspondent: (1) *Tuberculosis*, the Journal of the National Association for the Prevention of Consumption and other forms of tuberculosis (London: Adlard and Son, St. Bartholomew Close, E.C. (2) *Zeitschrift für Tuberkulose*, Verlag von Johann Ambrosius Barth (Rossplatz 17. Leipzig). (3) *Beiträge zur Klinik der Tuberkulose* (A. Stuber's Verlag. Würzburg). (4) *Revue Belge de la Tuberculose;* Organe Trimestriel de la Ligue Belge contre la Tuberculose (61, Rue Aux Laines, Bruxelles). There is also in French *Revue de la Tuberculose*, but we regret that we cannot supply any information about it.

Sterilizer.—A separate sterilizer for instruments and another for dressings are preferable to a single apparatus for both. The instrument sterilizer is carried about and used at patients' houses and elsewhere immediately before operation. Dressings must, on the other hand, be prepared at home. All instrument makers provide a satisfactory and simple nickeled copper instrument sterilizer. For midwifery forceps the 14 × 8 size is necessary. A simple and satisfactory dressing sterilizer can be made out of an ordinary laboratory Koch's sterilizer. Into this fit two large wire baskets, and in these the dressings are placed. The dressings, coats, towels, etc., are packed loosely in calico bags, and if these are made of a double layer of calico the contents are satisfactorily protected from contamination. After having been exposed to a temperature of 100° C. in the sterilizer for an hour, the baskets

are taken out and placed near the fire; the dressings then dry very rapidly. More complicated forms of apparatus are of course obtainable. The best of all is the high pressure steam sterilizer. Schimmelbusch's boxes may be used instead of the bags, but they are no more efficient.

RHEUMATOID ARTHRITIS.

IF "Member," who asks for information regarding a place in Cornwall for a lady with rheumatoid arthritis, would contemplate the Isle of Man instead—the climate being very similar and temperature higher—a member of the British Medical Association there will be glad to give information. Terms very moderate.

EAU DES CARMES.

DR. C. R. EDMONDSON.—According to published formulae, Eau des Carmes is prepared by macerating balm (Melissa officinalis), lemon peel, cloves, cinnamon, nutmegs, coriander, and angelica root in proof spirit, and subsequently distilling.

ADMISSION TO THE BAR.

DR. W. H. WRIGHT, Barrister-at-Law (London) writes: To your reply to "D.P.H.," who is desirous of some particulars concerning the examinations for Barrister-at-Law, I would like to add that there are four examinations, in addition to the Arts examination, namely: (1) Roman Law, (2) Constitutional Law and Legal History, (3) Evidence and Procedure, both Civil and Criminal, and Criminal Law, (4) Equity, Common Law, and the Law of Real and Personal Property. Some years ago the examinations were fairly easy and the rejections few—Roman Law 2 or 3 and the other examinations some 8 or 10. When I passed my final, December, 1905, the figures were as follows: Roman Law, 130 entered, 80 passed, 50 rejected, and 3 candidates postponed for two terms; Constitutional Law, 132 entered, 89 passed, 43 rejected; Evidence and Procedure and Criminal Law, 107 entered, 89 passed, 18 rejected. Final, 112 entered, 85 passed, 27 rejected.

SHANGHAI.

IN answer to "Madame" (BRITISH MEDICAL JOURNAL, September 8th, p. 677), "Thalassa" writes: (1) Climate: In the summer the heat is very trying, and, generally speaking, is unsuited to European women, and most emphatically so to young children. There is a large migration to cooler places in Japan, North China, and the Upper Yangtse. In winter the cold may be excessive, furs being essential. Generally speaking, for healthy adults Shanghai may be called a healthy place. (2) Sanitation: In the British quarter this is quite excellent. The Medical Officer of Health is an exceptionably able man. (3) Diseases prevalent: Those of warm climates most to be feared are dysentery and cholera, which obviously, by adequate precautions, should not be contracted. Malarial fevers are not of a grave nature. Hay asthma is very prevalent in early summer. (4) House rent is not by any means excessive. Living is essentially cheap. (5) There is probably a very fair opening for an English practitioner, if married and able. (6) Society embraces all the European nations. An English family of good social status would experience no difficulty in obtaining an entrée to the most select circle, especially if provided with a few introductions to the leading practitioners or members of the Consular or Imperial Customs staff. (7) Danger: The diseases indicated must be guarded against: the Medical Officer of Health issues an excellent pamphlet for householders. The most careful precautions should be taken in respect to milk and vegetables, fruit or pork grown by the natives. Shanghai is not a good place for a youth unless very carefully supervised, and careful chaperonage is required for the "young person."

NOTES, LETTERS, Etc.

TRANSMISSION BY POST OF PATHOLOGICAL SPECIMENS.

WE have received the following notification bearing date September 11th:

The Postmaster-General has recently revised the regulations governing the transmission by post of deleterious liquids and substances sent for medical examination or analysis, and on and from the 1st proximo such specimens may be sent by Letter Post, without registration, by qualified Medical Practitioners and qualified Veterinary Surgeons under the following conditions:

1. That they are addressed to a Laboratory or Institute, public or private, or to a Medical Practioner or Veterinary Surgeon within the United Kingdom.

2. That they are enclosed in a receptacle hermetically sealed, which receptacle must itself be placed in a strong wooden, leather, or metal case in such a way that it cannot shift about, and with a sufficient quantity of some absorbent material (such as sawdust or cotton-wool) so packed about the receptacle as absolutely to prevent any possible leakage from the package in the event of damage to the receptacle.

3. That they are conspicuously marked "Fragile with Care," and bear the words "Pathological Specimen," and also the signature and address of the medical practitioner or veterinary surgeon who sends them.

The packets must on no account be sent by parcel post. Any packet of the kind found in the parcel post, or found in the letter post not packed and marked as directed, will be at once stopped and destroyed with all its wrappings and enclosures.

Any person who sends by post a deleterious liquid or substance for medical examination or analysis otherwise than as provided by these regulations is liable to prosecution.

It is recommended that if receptacles are supplied by a laboratory or institute to medical practitioners or veterinary surgeons, they should be submitted to the General Post Office, in order to ascertain whether they are regarded as complying with the regulations.

ASCARIS LUMBRICOIDES AND APPENDICITIS.

V. G. T. draws the attention of any readers interested in this subject to a paper entitled Appendicitis in the China Fleet, by Staff Surgeon F. H. A. Clayton, M.D., in the *Journal of Tropical Medicine* of February 1st, 1904, page 33, in which nematodes as possible etiological factors in the causation of appendicitis are discussed.

A USEFUL DOMESTIC APPLIANCE.

WE have received from Nurse Bennett of 34, Agnes Street, Waterloo Road, S.E., a specimen of a little sick room appliance of her own invention which, after some years of practical experience of its utility, she now proposes to launch on a commercial basis. It consists of a tinned-iron-lidded cover made in three sizes for use in the sick room, the nursery, or any place where preserved foods in tins and pots are used. Once these have been opened it is difficult under ordinary circumstances to keep their contents uncontaminated by flies and dust, but should prove easy with the help of one of Nurse Bennett's covers. Simple, therefore, as is the contrivance, it is nevertheless one of merit and utility.

VEGETARIAN RELIGIOUS ORDERS.

DR. N. A. BUTTERFIELD (District Surgeon, Underberg, Polela, Natal, S.A.) writes: *Re* your paragraph Vegetarian Religious Orders, I beg to state that I have had two years' close experience and connexion with the Trappists, both as medical attendant and as being a Catholic in creed myself. I have studied them and investigated their life, habits, and diet, and though I should be very backward in adopting it myself, as not suited to me individually, the great bulk of them are in absolute ideal health and strength, seldom ailing, capable of vast work mental and physical. Their life is very simple and very regular. A healthier body of men and women, with perfect equanimity of temper—this latter I lay great stress on—it would be difficult to find. Health beams in their eyes and countenance and actions. Only in sickness or prolonged journeys are they allowed any strong foods—no eats, eggs etc.—or any alcohol. They have a large place, "Reichenau," close to me.

THE TREATMENT OF TAENIA.

DR. MAXIMILIAN PFISTER, Assistant in the Medical Clinic (Heidelberg) writes, under date June 21st: Perhaps you will allow me space to make a few comments on Dr. Kingston Fowler's article on the above in the BRITISH MEDICAL JOURNAL of April 14th, p. 841. During many years the only and nearly always successful treatment of taenia used in the University Medical Clinic at Heidelberg has been as follows: A few hours after having taken an ordinary meal at noon, the patient is given 1 to 2 tablespoonfuls of castor oil. In the evening he only takes a cup of milk or tea without any solid food. If the bowels have not moved, he gets another dose of castor oil. Early on the following morning the patient takes within one hour 10 capsules, each containing 15 gr. of the extract of male fern. This is followed by a bottle of Hunyadi water, which the patient has to finish within two hours.

We see on the average from 15 to 20 cases a year in our wards, and in most the worm has been passed with the head, and failure has been very rare. We have never observed toxic symptoms produced by the drug. Owing to our good results with the above-mentioned treatment, Dr. Fowler's prolonged period of restricted diet seems to me unnecessary.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under	£0 4 0
Each additional line	0 0 6
A whole column	2 13 4
A page	8 0 0

An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication; and if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF STATE MEDICINE.

Frederick Montizambert, M.D., D.C.L., President.

(Continued from page 629.)

A DISCUSSION ON MILK SUPPLY.

OPENING PAPERS.

I.—R. Harcourt, B.S.A.,

Professor of Chemistry, Ontario Agricultural College, Guelph.

THE PROTECTION AND CONTROL OF THE MILK SUPPLY.

There are very few places in Canada where it is possible to procure a regular supply of milk that has been produced under really clean conditions, thoroughly cooled, and bottled in a proper manner. The methods commonly employed are so faulty, and the evils resulting from the use of impure milk so numerous and of such a serious nature, that any one interested in the public welfare should be anxious to bring about an improvement in the condition of this valuable food.

If the true value of milk as a food was more fully appreciated, it would be used much more freely. Chemical analyses and experience prove that among all our food materials there are none more wholesome than good pure milk. It is cheap, palatable, easily digested, and highly nutritious. Its value as an article of diet for children and invalids is fully recognized; but for adults in good health it is too frequently regarded as a luxury to be used as a condiment with tea, coffee, and fruit as an adjunct in cooking. Milk is, however, not only a condiment and beverage, but a food, and a very valuable one.

For some reason milk is commonly considered too expensive to be used freely, while, as a matter of fact, it is one of the most inexpensive of foods. It contains all the constituents required for building up and repairing the tissues of the body, for maintenance of heat and the production of energy. Furthermore, it furnishes these materials in about the proper proportion to satisfy the various needs of the body, and at a lower cost than they can be procured from many of our common foods. If we take heat as the basis on which to value foods, it will be found that a greater number of calories of heat can be obtained from a given sum of money expended on milk than on any other food, excepting some of the cheaper forms of cereal products and potatoes. Few people realize that the materials needed to nourish the body can be obtained from milk more cheaply than from meat, and that it will take the place of other food.

On the other hand, the very qualities which make milk such a desirable food also render it undesirable from another standpoint. It is a particularly fine media for the growth of bacteria; and, as a result of the manner of its production and the way it is commonly handled, it is subject to contamination with bad flavours, dirt, and all the myriads of germs usually associated with the dust that accumulates in the stable.

The two main points to be considered in valuing market milk are quality and purity. The average percentage composition of milk is about as follows:

Water				87.17
Fat	3.69			
Albumen ...	0.53			
Casein ...	3.02	Solids	Total solids ...	12.83
Sugar ...	4.88	not fat = 9.14		
Ash	0.71			
Total				100.00

Different cows yield milk varying widely in composition, but when the milk from a herd of cows is mixed it is fairly constant in composition from day to day. At the same time there are wide differences in the composition of the milk from different herds. The fat is the only constituent subject to wide variations, but investigations in our laboratory and elsewhere tend to prove that, while the percentage amount of solids not fat is fairly constant, it does increase and decrease somewhat with the amount of fat. Consequently the percentage of fat may be taken as a fair basis for valuing the milk.

The taste and purity of milk is influenced in many ways. Bad flavours may be given to it from the food eaten by the cow, by the foul air the animal is compelled to breathe, by the products of certain germs, or by the direct absorption of bad odours. Milk is practically never free from bacteria, and even with the utmost care it is impossible to altogether prevent further contamination. Under the usual conditions, hairs and scales from the body, dust from the udder, sides of the cow and from the air in the stable, and even dried particles of animal manure all loaded with germ life, find their way into the milk during the milking operations. When it is allowed to stand exposed in the stable until the milking is completed, as is frequently the case, more organisms are added. Further, when being delivered it is again liable to be contaminated from the dust of the roads. In some cases partially cleaned bottles taken from one house are filled at the wagon and delivered at the next. In these and many other ways milk may be contaminated with bacteria of various kinds and dirt of all descriptions. In fact it is quite probable that if a commission was appointed to investigate the condition of the milk supply a worse state of affairs would be found existing than reported of the United States meat-packing houses.

Fortunately there is a growing demand among a certain class of people for a better milk. In the past the local Boards of Health and other authorities dealing with the milk problem have specified that milk should contain a certain percentage of fat and solids not fat, but it has been only within comparatively recent years, and in a few districts, that any attention has been paid to the germ content. Many of the larger milk dealers have inaugurated a system of inspection, and are honestly endeavouring to furnish a pure article; but countless numbers of the smaller concerns that deliver directly to the consumer are practically under no inspection whatever.

Investigations and experience has shown that freshly-drawn milk that has been produced under strictly sanitary methods should contain only a few hundred bacteria to the cubic centimetre. It has been obtained so pure that at the end of twenty-four hours there were still less than 100 germs per cubic centimetre. In this case the utmost care was taken in every detail. The cows were even taken to the milker, who remained in a thoroughly disinfected room. Such milk will remain sweet for a long time, especially if kept at a low temperature.

Country milk produced under ordinary methods, but drawn from reasonably clean cows in clean stables, and kept at a low temperature, should not contain more than 5,000 to 20,000 bacteria per cubic centimetre when first placed on the market. Milk of this nature, if free from objectionable flavour, may be regarded as satisfactory for general consumption.

However, milk produced under conditions ordinarily prevailing is likely to contain 50,000 or more germs per c.cm. when first offered for sale. The number increases very rapidly at the ordinary temperature, consequently milk delivered in our larger towns and cities may often contain several hundred thousand, or even many millions, of bacteria per c.cm.

A large number of organisms in the milk indicates that the milk is old, or that it has been kept at too high a temperature, or that it has been produced under insanitary conditions. If the germs are chiefly lactic-acid organisms, the milk may be old, but not necessarily dirty. The presence of many liquefying organisms is an indication that filth of some sort has gained access to the milk, and that it may contain many other germs of a harmful nature.

The consumer has a right to demand that the milk furnished him shall be clean; that it will keep at least twenty-four hours after it is received, if kept at a temperature of 60° F., or below; that the flavour be not injured by improper feeding, careless methods of handling, or by the development of bacteria which cause bad flavours; that it contain no disease germs, or any form of preservative; and that the milk have a certain known composition which is uniform from day to day.

In order that the milk may conform to these requirements it is essential that the cows be healthy; that they get good food and water; that they be kept out of the filth of a dirty barnyard; and that they be stabled in a clean, well-lighted, and well-ventilated barn. The ceiling should be tight, excluding dust and chaff from above, the sides smooth, and the whole whitewashed annually. It is imperative that the udders be thoroughly cleaned before milking, and that every care be taken to prevent dust and dirt of all kinds from getting into the milk. As soon as the milk is drawn it should be removed from the stable to a milk-room, which must be some distance from the barn and so arranged that it can be easily cleaned and disinfected. There the milk should be aërated and cooled to about 40° F. If it is to be bottled for direct delivery, it should be done at once and kept at a low temperature until delivered. All utensils, cans, bottles, etc., should be thoroughly cleaned and sterilized. In fact, only the most careful attention to every detail of the work will ensure clean, pure milk.

At the present time the milk in this country is practically all sold by measure, either from the can or in the bottle. Selling milk in this way is unjust to the producer as well as to the consumer. While the fallacy of this system is apparent to a few, the majority of people seem to think that one quart of milk is worth as much as any other so long as it is sweet. The reason for this is partly a lack of knowledge as to what constitutes good milk, and partly because it is difficult to judge milk from its appearance; for this reason it is possible for dishonest producers to dilute their milk or remove part of the cream.

Governing bodies have attempted to overcome this difficulty by passing laws making it unlawful to change the composition of the milk. Where these laws have been enforced the dilution of milk to a great extent has ceased, but dealers have not been compelled to sell milk of a known composition, and surely the purchaser has a right to know the composition and consequently the food value of the article he is buying.

In some places a standard has been fixed, below which it is unlawful to sell milk. These standards seldom require more than 3 to 3½ per cent. of fat and 12 per cent. of total solids. This has not reached the difficulty, for it makes the sale of milk coming direct from some cows that give milk low in fat unlawful, while it is good wholesome milk, and a perfectly legitimate product when sold in its proper place. This system also hinders the man whose cows produce rich milk from getting the price he should according to its food value and cost of production, for milk containing a high percentage of fat is not only worth more but costs more to produce than milk containing a small amount of fat.

Other things being equal, the price of milk should depend on its composition. It is most unreasonable for milk containing but 3 per cent. of fat to sell for the same price per quart as 5 per cent. milk. Since fat in milk is the most variable constituent, the other solids remaining fairly constant, it is a comparatively simple matter to standardize milk. All that is necessary is to remove part of the fat, which is easily done by means of the cream separator, and then return it in sufficient quantities to bring the milk up to the desired standard. By use of the Babcock test and cream separator there is nothing to prevent the milk dealer from furnishing his customers with milk of a uniform or any desired richness, without regard to the quality yielded by the cow. In this way the dealer may supply milk containing 3, 4, or 5 per cent. of fat as may be required, and the price could be regulated according to the richness in fat. This method has a further advantage in that in passing the milk through the separator a part of the filth is removed.

Recently a grade of milk known as "certified milk" has been placed on the market. It is milk of a known composition, as clean and free from bacteria as science and skill can make it, and produced from an inspected herd. A good class of certified milk should not contain more than a few hundred bacteria per cubic centimetre, although some standards allow as many as 10,000. When milk of this grade is for sale, a public statement should be made certifying to the methods of production and the percentage of fat it contains, and means should be devised whereby the public may have the assurance that it is really all that it is claimed to be. Such milk should find a ready sale, even at the advanced price it would be necessary to ask for it. An effort should be made to get the public to inspect the dairies and see for themselves the condition of affairs. Physicians should also be willing to inspect the whole process of handling in order that they may be in a position to recommend the best milk to their patients.

Pasteurization of milk is now being extensively practised by most of the larger milk dealers. The milk handled by these companies is usually gathered from a large number of producers, and generally has a high bacteria count by the time it reaches the company's buildings. As such milk is frequently three, or even four, days old before it is actually used by the consumer, it is at once evident that pasteurization is necessary. But where the milk can be bottled immediately after it is drawn, and cooled and delivered direct to the consumer, there should be no need of pasteurization.

Various chemical preservatives are sometimes added to milk to prevent it souring. Some of these substances are undoubtedly harmful, others may or may not be, but I think all will agree that as milk is used freely by children and the sick, the addition of preservatives of any kind should not be countenanced, and every effort should be made to entirely prevent their use in any form or in any quantity in milk. Moreover, it has been abundantly demonstrated that milk can be kept long enough for all practical purposes without them, and that their use only serves to encourage slovenly slipshod methods of handling the milk.

In a word to the consumers, it may be stated that the producers are not altogether to blame for the present state of affairs. The consumers have not as a class made themselves familiar with the nature of milk in order that they may intelligently judge of its quality and understand the care it requires after it is delivered. They have not shown a disposition to encourage the sale of the pure article to the extent of being willing to pay more for it. A really good milk cannot be produced as cheaply as the ordinary kind, and when the price of milk is raised the consumer, not appreciating the added value, objects to paying the advanced price. This naturally discourages further efforts towards improvement. However, when consumers awaken to the true nature of the ordinary trade milk and realize the risk they are running in using it, and demand milk of known quality and purity, and are willing to pay for it, such milk will be supplied.

In conclusion, it may be stated that on every hand there is evidence of the need of closer inspection. Milk is an opaque substance which naturally hides impurities and adulterations, and is particularly liable to serious contamination. There are, and doubtless always will be, certain men in the milk trade who, from the slovenly methods they employ, are a disgrace to the business and a menace to the health of the community. A system of inspection should be instituted, and a standard of quality and purity for market milk should be set up, that will force these men out of business, encourage the careful producer and improve the quality of the milk offered for sale.

II.—JOHN GLAISTER, M.D., D.P.H.Camb., F.R.S.Edin., etc.,
Regius Professor of Forensic Medicine and Public Health, University of Glasgow: etc.

THE SANITARY CONTROL OF THE MILK SUPPLY.

THE supervisory control of the milk supply of populous places is dictated by two main reasons, namely: (1) The supply of a suitable article of food for all, and especially for infants and children; and (2) the supply of that food from healthy animals and in a pure state. A third consideration may be mentioned, namely, that the secretion of healthy cows be obtained in an unadulterated or unaltered state, either by the addition of water or preservatives or by the abstraction of fat.

The relationship of an impure or diseased milk in the causation of certain diseases may now be said to be fully understood, but the knowledge of that relationship was not realized in a day. The use of the term "milk-borne" to certain infective diseases indicates shortly that relationship.

The work of the late Ernest Hart—so long editor of the BRITISH MEDICAL JOURNAL—on the epidemics of disease generated by milk focussed the attention of the medical profession on the risks consequent upon milk obtained

under insanitary conditions. The opprobrium which so long attached to water in the production of enteric fever may now, with perfect justice, be transferred to milk; indeed, it may be said with strict accuracy that now epidemic outbreaks of this disease are almost entirely due to polluted milk supplies. Attention to the sources, surroundings, and character of water supplies by sanitary municipal and other public authorities has secured for our populous places, at least, pure and abundant supplies of that commodity. The problem has now been shifted in the direction of obtaining similar provisions respecting milk.

It is enough to say that the diseases which may arise from, or be propagated from, milk supplies are—enteric fever, scarlet fever, diphtheria, epidemic diarrhoea, epidemic sore throat, and tuberculous disease. Careful discrimination, however, must be exercised as to the intimate source of origin of these from the supervisory and administrative point of view.

These diseases may be said broadly to be divided into two main classes—namely, first, those which have their origin in the cow herself, and, secondly, those which have their origin outside the cow.

Under the former heading fall (*a*) tuberculous diseases, and (*b*) epidemic diarrhoea and epidemic sore throat. It must yet be held to be doubtful—certainly as not clearly proved—whether a disease corresponding to scarlet fever in man exists in the bovine species. It does not appear to me that the so-called Hendon disease and one or two more recently-recorded incidents prove the existence in the cow of a disease communicable to man exactly similar to scarlet fever. Whether, also, diphtheria exists as a constitutional affection of cows is still a moot question. Klein's experiments on this point are so well known that they may merely be named. Since these, however, other observers claim to have found the organism of diphtheria in milk. Of these may be cited Bowhill,[1] in connexion with an outbreak of diphtheria in South Wales, Eyre,[2] in connexion with a school outbreak, Klein in 1900, during the course of examination of 100 samples of London milk, and Dean and Todd[3] in 1901.

So far as investigation has yet shown the organism of tubercle is only likely to be found in milk when the udder, in whole or in part, is the seat of active tuberculous disease. It has not yet been demonstrated beyond doubt that the milk of a cow reactive to the tuberculin test, but whose udder is free from tuberculous disease, contains the tubercle bacillus.

The outbreaks of epidemic sore throat directly traceable to milk have probably their origin in the disease of the cow known as contagious mammitis. This disease, while manifesting itself as a disease of the udder, is a constitutional infection of the cow, the channel of infection being the milk ducts, and has been proved to be a streptococcal infection. In a recent case investigated by me the disease existed in the cows of a town byre or cowshed for over a year, the animals being infected in sequence. Samples of the milk examined bacteriologically were proved to contain streptococci in great numbers, which proved virulent and fatal to guinea-pigs. Of late years, since closer attention has been given to this affection of cows, several epidemics have been recorded from this cause by Pierce,[4] Kenwood,[5] French,[6] and Gray-Edwards and Severn,[7] and others.[8]

From sources outside of the cow proceed enteric fever, scarlet fever, and diphtheria. The first may be held to have its origin in the accidental or wilful addition of water containing the *B. typhosus*, or from contamination by dust of the milk vessels during transit, and the second and third, in the handling of the milk by those who suffer from these diseases, or who have been in recent contact with those suffering from these diseases.

By thus discriminating between the origin and sources of these communicable diseases, lines of administrative supervision and control become more clearly indicated.

Respecting the milk supply of large towns in Great Britain, a vast store of information was presented to the readers of the British Medical Journal during the year 1903, to which I would draw the close attention of those whose duty it is to deal with the milk supply.

If we review the likely sources of contamination of milk from the animal which yields it to the person who uses it, they will be found to be comprehended as follows in a chain or cycle—namely, milking place, cow, hands of milker, milking pail, mixing vessels, hands and clothing of mixers, and place of mixing, carts, transit vessels, railway dépôt, canal boats, milk dealers' vehicles, milk-shops, open counter vessels, milk cans, milk carrier, dust of shop, street, or home, and infant feeding-bottle.

Legislative Measures.

In Great Britain a large measure of legislative protection against impure milk has been already secured. By enactments in the Public Health Acts, the Contagious Diseases (Animals) Acts, the Dairies, Cowsheds, and Milkshops Orders, and other Acts, much has been done to assist in securing pure supplies. The weakest link in the legislative chain, however, is that which has relation to city supplies brought in from the country districts. The sanitary authority of a populous place has no authority, under existing legislation, to review the conditions of a country dairy which is within the administrative area of the county sanitary authority unless and until it has reasonable cause to believe that the milk therefrom sent has produced disease in members of the community. Surely, if preventive medicine be worthy of its name, the measures and powers needed should be to prevent the beginnings of disease rather than to come into operation merely after the mischief has been produced. When, moreover, we consider that the nature of the product of the cows demands rural conditions, and that the great bulk of our town supplies are inbrought from the country, surely some more stringent conditions of milk-getting are called for. To put the case at its mildest, dairy farms are not always what they might be and ought to be, and the operation of milking is not what it should be respecting conditions of cleanliness. The question at issue, therefore, is not simply one of contract between a country dairy farmer and a town milk seller; it is sometimes, indeed, a question of health and life to the milk consumers. If this view, then, be a reasonable one, surely it is a reasonable demand on the part of the public through their sanitary officers that the milk provided for their consumption has been obtained under the best hygienic conditions.

Leaving aside for the moment the question of the health of the animals—all-important as that undoubtedly is, but always on the assumption that that is secured—the prime desideratum of to-day is *clean* milk. Few, I make bold to say, who have closely studied this matter will affirm that town milk supplies are so gathered as to secure cleanliness of the product. In how many cases is the milk expressed from the udder without any preliminary cleansing of the hands of the milker, or of the udder and teats of the cow! In how many instances, also, does the milker proceed to this operation directly from a farm occupation without any preliminary toilet whatever! It cannot be pretended that milk thus obtained is clean milk; on the other hand, it contains from the start organisms which produce its rapid disintegration. The public has a right to demand that this valuable food should be got under the most cleanly conditions—conditions of the milking place, washing of the udder and teats, preparatory toilet of the milker, and clean storage and distribution places.

From close observation during many years of the operation of milking in various places by hand and by mechanical milking machines, I have become entirely converted to the advocacy of the milking machine. Milk thus obtained is never touched by hand until it reaches the consumer, and, from experiments made, such milk remains longer unacted upon by "souring" organisms. Moreover, such milking machines can be rendered sterile in the intervals of use.

Stringent regulations are demanded also with respect to milkhouses and dairies and places of distribution, because milk, being an organic fluid, rich in substances for rapid growth of organisms, is so readily contaminated by foul air and dust. What applies in this regard to country milk applies still more urgently to milk obtained from town cowsheds, in which the animals are compelled to live entirely abnormal lives.

1 *Veterinary Records*, No. 561, April 8th, 1899.
2 British Medical Journal, 1899, vol. ii, p. 586.
3 Ibid., 1902, vol. ii, pp. 194-205.
4 Ibid., 1903, vol. ii, p. 1492
5 Ibid., 1904, vol. i, p. 602.
6 Ibid., 1904, vol. i, p. 831.
7 Ibid., 1897, vol. ii, p. 339.
8 Ibid., 1904, vol. i, p. 1393.

Aitchison Robertson has shown this with respect to the milk supply of Edinburgh, which may be held to be no better and probably no worse than the supply of any other populous centre. He has pointed out from the examination of many samples, that the number of organisms in freshly-drawn milk from cows in cowsheds in Edinburgh ranges from 50,000 to millions per c.cm., whereas in specimens from good country dairies the number ranges from 1,000 to 30,000 per c.cm.

Too little attention is paid in some countries to the cooling of milk after it has been drawn from the cow. The effect of proper cooling is to limit the number and repress the activity of organisms, and Delépine has shown that properly cooled milk is less frequently pathogenic than milk which has not been so treated.

If one were to sum up the desiderata required of milk in the light of modern research, such would be as follow:

1. A guarantee at the hand of a qualified sanitary official, after inspection of premises, animals, and milking operations of every dairy farm sending milk to a city, that cleanly conditions had been secured, and that clean milk was being supplied. Such a guarantee in the hands of a milk-seller would command the confidence of the public and would be calculated to reduce milkborne disease.

2. The systematic official inspection of dairy farms and their water supplies; and

3. Registration, after inspection, of such farms, and of places of milk distribution in cities and towns.

The observance of such conditions as the foregoing might be tested by the establishment of certain standards, on the part of sanitary authorities, as have been outlined by Richards[3] as follows:

(*a*) A standard of cleanliness respecting amount of deposit of foreign matter;

(*b*) A bacteriological standard indicating the maximum number of organisms permissible in milk in summer;

(*c*) A standard of temperature to ensure the proper cooling of milk, and the maintenance of a low temperature during transit; and

(*d*) A prohibition of the sale of milk which, within six hours after purchase, could not be boiled without coagulating.

III.—H. COOPER PATTIN, M.A., M.D., D.P.H.,
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PROTECTION AND CONTROL OF MILK SUPPLIES.

IN the desultory observations I have the honour to address to you, knowing nothing practically of the conditions for securing the protection and the regulations for the control of milk supplies within your magnificent Dominion, I shall be dealing with milk supplies as we have to deal with them in England, and I propose to deal with their protection and control primarily from the administrative—one might almost say the distributive—standpoint. I do this the more readily because we have amongst us gentlemen who are much more competent than I am to speak authoritatively from what, to again define broadly, I will speak of as the bacteriological, the laboratory standpoint. You will be kind enough, then, to bear in mind the fact that, although my paper is read in Canada, such practical bearing upon the matter at issue as it may possess has relation to England rather than to that sister Commonwealth in the British Empire whom at home we salute as "the Land of the Maple."

It is not necessary for me to recapitulate to you the reasonings which give the State a claim to control and to regulate the milk traffic. This control it can effect either directly through its own officers or indirectly through local sanitary authorities. I am in favour of the control being effected by the local authorities directly, and by the State indirectly through peripatetic inspectors. That is, our State Public Health Department (when we have a real one) should satisfy itself by means of peripatetic inspectors that our local authorities are maintaining an effective control over their local milk supplies, and whenever this control falls below the minimum demanded by the State department, this latter should be empowered locally to enforce that minimum, and if need arise to supersede the defaulting local authority, and to surcharge it with the costs of such supersession.

The State can, and in the present state of public opinion now should, make applicable to the whole country statutory regulations; the purport of these should be to ensure (*a*) certain minimum standards of healthiness in all cows which are milked, and secure this by periodical veterinary inspections; (*b*) right construction and ventilation of all sheds used for milking (personally I am averse from milking in sheds at all); (*c*) cleanliness in the udders, teats, etc., of the animals milked, in the hands and garments of the milkers, and in the vessels used for milking; and (*d*) care in the protection from contamination of the milk at its source, in its transit, and in its distribution. The State can require that these minima shall be maintained, and require local sanitary authorities to enforce them. Such regulations can be made effective either by expanding the existing Dairies and Cowsheds Orders, or by means of a short Act of Parliament. The latter would, I think, be the more effective course. The minima aimed at certainly could not be lower than those now secured to certain London Companies by the provisions of their contracts. They would include, necessarily, untrammelled liberty to inspect at all times any cattle used for milk production, and power to prohibit the sale of the milk of any doubtful animal—power to prohibit the sale of milk altogether if the premises failed to reach the minimum standard in general cleanliness, or if there were a deficient, doubtful, or dangerous water supply. I think the best and at the same time the simplest course to adopt will be to make it compulsory for every producer of milk intended for the food of man to procure annually a licence from the local sanitary authority before he can engage upon the business of dairy farming, and then to make the granting, continuance, and renewal of this licence dependent upon the whole concern—cattle, premises, etc.—being placed and kept in a satisfactory condition.

It is no exaggeration to affirm that, given such a system of licensing, it will be possible to prevent, and within the space of one year, the use of any undesirable cow, unsuitable cowshed, or doubtful water, for cleansing the utensils, etc., provided that the supreme and the subsidiary authorities exert their powers with decision and rigour. In short, to secure the standard determined upon, in care and cleanliness, at the sources of the supply. Certain private dairy companies do this now, and what a private company can secure the State assuredly can enforce. I should also like to see a statutory regulation made applicable to the whole kingdom to the effect that all milk should be strained, or, better still, centrifugalized as soon as possible after it has been drawn from the cows, and then (after the separated cream and milk have been remixed) cooled down to and kept at a low temperature. Although straining through cotton, etc., gets rid of gross dirt, it is not nearly so effective a screening agency as is centrifugalization. Also I want to see additional regulations respecting the temperatures at which milk must be kept at the source, in transit, and at any dépôt from which it may be distributed. Below 45° F. and certainly below 40° F. bacterial activity is virtually inhibited; and at low temperatures milk can be kept in a condition of freshness for long periods.

Sanitary supervision of the actual milkshops would, as now, be part of the duty of the local authorities, and a more stringent standard of cleanliness might very well be enforced in these. The selling of milk from open vessels in general shops needs to be prohibited, for contamination of milk so sold is practically inevitable, not only with shop, but with street dust, and always there are the ubiquitous dirt-bearing flies. Very stringent penalties for neglecting to notify any infectious illness which may arise amongst those associated with the production and distribution of milk in any of its stages from the source to the consumer obviously will be provided for among the suggested statutory regulations.

It is, however, my belief that the most valuable regulation respecting the distribution of milk will be one to the effect that milk for human consumption shall be sold only in bottles or in vessels which can be stoppered or corked securely, or otherwise be protected from interference. (Each bottle or can to carry a label stating from what dépôt or farm the milk is derived.) This requirement inevitably will mean an increase in the cost to the con-

[3] *Public Health*, May, 1903, p. 462.

sumer; but, in my judgement, such increase in cost will be compensated for, and amply, by the warranty of cleanliness in source, and of absence of deterioration in distribution. Having received a bottle of milk, every householder at least can place it in a vessel of cold water and so keep it cool in hot weather. I know the difficulties of cleaning bottles which have contained milk; these would be lessened by asking each purchaser to fill the bottle with water as soon as it was emptied, all actual cleansing being effected at a dépôt, hot soda solution being used, followed by sterilization with steam. Where it is not practicable to bottle milk at its source—the practice to be preferred—after straining and cooling it the milk should be sent, at a low temperature, to a central receiving station or dépôt, be there centrifugalized, the separated cream and milk remixed, be bottled, and kept whilst in the dépôt and during distribution at the lowest practical temperature.

A possible method of controlling milk supply would be to require all milk which it was proposed to sell within a district to pass through, be examined in, and receive permits from a central dépôt—a sort of milk clearing-house. This would amount in practice to the establishment of a central dépôt similar in character and functions to those established by the large dairy companies in Copenhagen and London. Whilst I am quite in favour of sterilized milk being supplied, when ordered as a dietary medicament, by doctors, I am personally averse from encouraging unduly the preparation and dissemination of what is misnamed "humanized" milk, etc., and where sold it should, in my judgement, be restricted to children who, for valid reasons, cannot be suckled by their mothers; otherwise, you run the risk of encouraging what we wish to decrease, namely, artificial feeding. With adequate care in the handling and distribution of milk, the need for this "sterilized" type of lacteal nourishment is not likely to be urgent. Apart from its influence upon the nutritive value of milk, sterilization seems to me the wrong practice to enforce; it tends inevitably to promote carelessness in the handling of milk prior, at any rate, to sterilization, whereas what we want to encourage, and indeed to enforce, is a scrupulous, an exquisite cleanliness. Why should the farmer take special care with his milk if you announce, and quite wrongly, that you are going to make all foreign ingredients innocuous by sterilizing it?

As a matter of fact you do not get rid of the changes in the milk which have taken place prior to sterilization; all you can do is to stop further putrefaction or other bacterial activity, provided that, after sterilization, you keep the milk from contact with the air. Moreover, if sterilization at high temperature be the right treatment of milk, such sterilization to make it most effective *ought to be carried out at the source of supply*. For pasteurization in the hot months there is much more to be said.

My belief is that the final solution of our difficulties in establishing a real control of our milk supplies will be found in their standardization by a statutory minimum in quality, and by requiring local authorities to see that this is furnished, which, when the administration of the Poor Law becomes a part of their functions, it is probable they will effect most economically and efficiently by supplying it themselves. For if milk of the minimum statutory standard in quality is to be furnished, in bottles, at the lowest possible cost to the poor, it will be necessary to eliminate profit, and that is a method of trading we cannot expect from average private persons, however philanthropic.

In striving for the attainment of the standardization of our national life in the matter of milk supplies, our concern must be to determine upon a statutory minimum in quality, and to see that this is furnished. We parted for all time with the principle of leaving supply and demand to settle the selling of milk when we established a minimum for the guidance of magistrates (for example, the Board of Agriculture's 3 per cent. of cream, etc., standard), and to secure to the poor such minimum at the minimum cost only will become possible, in my judgement, by eliminating private profit. If milk of a quality above that of statutory minimum be required, that very properly in my judgement can be left to private enterprise, and I have little doubt that a highly-profitable business will reward the private supplier. But whatever method be followed in the control and supervision of the distribution of milk, unless the bottling of it, or its distribution in vessels which can be sealed securely, with the affixing of a label giving date and source, over the cork stopper, or lid—unless these regulations be enforced, in my judgement no matter how excellent may be our management of cowshed and dépôt, all our efforts to protect the actual consumer can be, and it is only too probable that they will be, rendered nugatory. The great risks of adulteration and contamination of milk arise in its progress from the cow to the consumer, in storage and distribution. To provide a public testing house for milk would in no wise guarantee freedom from adulteration or contamination *after* the milk had passed through the testing house; what it would guarantee would be that no milk then below the standard would be permitted to leave it. Unless the tested milk were sent round in bottles or other sealable vessels, the milk would be at the mercy of the distributor every bit as much as it is at present, and be as liable to receive drippings from his clothing in wet weather; and dust, etc., whenever he opens his cans to ladle out milk in dry weather. Even if a sanitary authority were to trade in milk in the ordinary way, that is peddle it from door to door, no more real protection would be afforded to the consumer. In fact we come back to our original requirement, namely, that milk for domestic use shall be sold only in bottles or other sealable vessels.

Protection from contamination *inside* the dwelling must be left to the purchaser.

DISCUSSION.

Dr. Sergeant (M.O.H. County of Lancashire, England) said: I notice that in the papers read yesterday on this subject there is a great consensus of opinion regarding the improper conditions in connexion with the milk supply which lead to serious contamination. It is somewhat surprising to hear that in Canada the trade is open to the same objections as in Great Britain. For a long time in my experience this important matter has been discussed and very little done, and in English districts, especially rural areas, the cowsheds are the same to-day as they were twenty-five years ago; and nothing will ever be effected until the local councils, which are composed of interested people, are replaced for this special duty by the county councils acting directly under the orders of the Local Government Board. They will then be able uniformly to enforce a code of by-laws which are now chiefly in abeyance. It may perhaps assist this movement for securing the greater purity of the milk if this Section expresses an opinion on the subject to be laid by the British Medical Association before the proper authorities.

Professor Harcourt (Royal Agricultural College, Guelph, Ontario) said: In the present constitution of Canadian legislatures, they cannot be expected to pass laws which are not backed by strong public opinion. At present the consumer is not yet sufficiently informed as to the nature and the possible contamination of milk, and until public opinion has been sufficiently educated to demand clean pure milk no great advancement can be expected.

Dr. Bryce (Chief Medical Officer, Ottawa) said: The matter of municipal milk inspection has always been one in which there have been many debated points. Some time ago a dispute between a city board of health and a rural body of milk dealers resulted in the passing of a Bill for the compulsory registration of all milk dealers. The intention of the Bill was good, but it has now drifted into a compromise under which the dairyman pays a small registration fee, and has the right to trade in milk; this places him under the control of the city medical officer, who has a right to inspect, and if matters connected with the dairy are not satisfactory the city officer will report to the rural health officer. In cases where a difference of opinion arises between the two health officers, the case may be referred to the Executive Health Officer of the Province, whose decision is final without any power of appeal. This fairly well supplies the necessary machinery; but it requires more or less local action from local health authorities before it becomes effective. The whole matter is dependent upon an educated public opinion; for instance, in 1896 the Legislature passed an Act unanimously empowering local Boards to require the application of

the tuberculin test to all cows supplying milk to the public. In 1897 it was intended to put the Act into force in Toronto; thereupon the dairymen of the neighbourhood of Toronto appealed to the Government, who asked the House to suspend the operation of the "Tuberculin Clause" for one year, which was done by the unanimous vote of the House. This annual suspension has been now renewed from year to year for ten years, and the system of milk inspection remains unaltered. "Knowledge grows, but wisdom lingers."

Dr. GROVES (M.O.H., Isle of Wight, England) said: I am a strong advocate for a standard of purity in milk, and I think the standards of Denmark and of the Copenhagen Co-operative Association are sufficiently high. It is very well to have laws, but unless laws are enforced by the responsible authorities they are of little or no practical value. The community must protect its own interests, and if people could but see the way in which milk is collected in England many of them would never touch milk again.

RESOLUTION.

The following resolution was proposed by Dr. SERGEANT, seconded by Professor GLAISTER, and, after a few remarks, carried unanimously:

That the Section of State Medicine strongly recommends to the Local Government Boards of England and Wales, Scotland, and Ireland, and to the provincial Boards of Health of Canada, that the time has now arrived when the existing provisions of the law with regard to the housing of dairy cattle, to milk stores, and to milk distribution, and the periodical inspection of such cattle and dairies should be more strictly enforced upon local authorities.

A DISCUSSION ON HYGIENE OF THE HOME AND STATE INSTITUTIONS.

OPENING PAPERS.

I.—J. J. CASSIDY, M.D.,

Member of the Provincial Board of Health, Toronto.

THE HYGIENE OF THE HOME.

IN erecting a dwelling-house, special efforts should be made by the builders to secure dryness of the site. If the ground is dry and firm, and, if possible, underlaid with gravel or coarse sand, the site will be a naturally dry and healthful one. It is generally directed that dwellings should be erected so as to face the south, but this rule can be observed only in a small number of houses, for, if the front faces towards the south, the back of the house must face towards the north. If it is possible to secure it, an ideal location would be one in which the corners of the house point north and south, for, in that case, every window must receive direct sunlight at some time during the day, whereas, with sides facing directly north and south, the windows of the former receive no direct sunlight and the rooms are dull and cheerless. In general it may be said that a house should be so situated as to receive plenty of light and air. Shadows of adjacent buildings and trees should be avoided, so as to ensure ample exposure to light, as the darkening of rooms, caused by obstructions to light, makes gloomy rooms, which are injurious to the eyesight and the health of the occupants. As far as possible, sunlight should penetrate into every room of the house at some period of the day. The general arrangement and design of the home should, therefore, be made to conform to these requirements.

Of the greatest importance is the character of the basement of the dwelling. The basement should extend beneath the entire house, and should, if subdivided, be provided with doors connecting all its subdivisions. Windows of sufficient size should be placed in the exterior walls of the basement, extending nearly to the top of the wall, so as to permit the entrance of light and the free circulation of the air.

Frank L. Packard, an architect, of Columbus, Ohio, says:

The excavation for the foundation of the house should be made at least one foot larger on all sides than the walls to be built within the excavation, and trenches should be excavated at least 8 in. below the basement floor. These trenches should be made about 6 in. wider than the walls of the foundations. Extending around the outside wall, and on a level with the bottom of the trenches, lay a 3 in. soft tile drain, with proper fall to carry off any water that may come down from the surface. Fill the trenches with good coarse concrete the full width and depth of the trenches. This is known as the footing-course—one of the courses of masonry at the foot of the wall, broader than the courses above. The walls of the foundations may be of stone, brick, tile, or concrete. In any event, they should be laid in mortar composed of good, sharp, clean sand and cement of good quality, all well bounded together, and all joints slushed up.

The foundation is intended to serve not only as a firm support to the building, but also as a barrier to the moisture and the damp air of the soil. Illuminating gas, escaping from leaking mains, has been known to enter a house by the basement. Besides, the air of the soil occupies the upper layers of the soil and fills all the interstices—as far down, at least, as the surface of the ground water. Decomposition and putrefaction are constantly going on in the soil, and the gases arising from these processes diffuse themselves through the soil. To prevent the entry of ground air or other deleterious gases into a basement, the late Colonel Waring of New York, an eminent engineer, said:

One of the safest materials for a cellar bottom and for the external packing of foundation walls is a clean, smooth, compact clay, which may be beaten into a close mass, and which has a sufficient affinity for moisture always to retain its retentive condition, for, when used in the damp atmosphere of a cellar or about a foundation, it seems to offer a good resistance to the passage of impure air. In the cellar, of course, it may be covered with concrete for cleanliness and good appearance; but 6 in. of clay, well rammed while wet, will impede the movement of air to a degree with which ordinary cellar concrete can furnish no parallel. When clay is not available a good smearing of asphalt over the outside of the foundation wall and a thick layer of asphalt between two thicknesses of concrete for the bottom of the cellar will afford a complete, though more costly production. Asphalt used in substantially the same way, if in connexion with a solid course of slate or North River blue stone in the foundation wall, above the ground level, will prevent the soaking into the structure of the moisture of a heavy soil.

Before the interior of the cellar is completed the waste-pipes and the drains for the plumbing fixtures and catch basins should be laid. The pipes should be of cast iron pipe, varying in size from 4 in. to 6 in., provided with the necessary traps, clean-outs, and vents. A cheaper method is to use No. 1 salt glazed sewer pipe, care being taken to see that the tile pipes are laid on a hard surface with a proper fall, and that all joints are well cemented. As a general rule moderately hard, well-burned brick is the most serviceable material for outside walls. Sometimes, in exposed situations, it becomes necessary to cover an entire brick wall with a protective coating of paint, or even with a sheathing of tin-plate, owing to the fact that an unprotected brick wall becomes wet through by driving rain and does not quickly become dry again. For protection against dampness and cold, external walls should be built with an intervening air space, which acts like a double window. The outer and inner faces of the wall are joined at intervals by bonding bricks or ties of various materials, including hard, non-porous bricks, glazed bricks, and iron. A superstructure made of painted clapboard is often drier than one of brick in an exposed situation. During hot weather clapboard walls are advantageous, because they cool rapidly after sunset. On account of the numerous joints and fissures in a frame wall, natural ventilation goes on through it very readily and to a considerable extent. The application of paint to walls of brick or wood, either within or without completely checks the passage of air through the walls and limits natural ventilation. On the other hand, calcimine offers little obstruction to the passage of air, Wall papers are almost midway between paint and lime coating in their obstructive effect on the passage of air through walls. In northern climates it will always be necessary to pay attention to the thorough construction of the walls of houses so as not to permit a too large amount of natural ventilation taking place through the walls and a too great waste of heat.

The inside of the walls of a house should be of lath and plaster, thus providing a dead air space, which is a non-conductor of heat or cold.

All door and window spaces should be made tight by means of felt strips and strips of zinc nailed and interlocked into the sheathing. The roof should be constructed so as to give a dead air space; it should be covered with

felt preparatory to receiving the weathering material, whether it be shingle, slate, tile, or metal.

All plumbing and gas-pipe fittings should be exposed, the pipes should be of the best wrought iron, put together with lead joints and tested so as to be airtight. The plumbing fixtures should be ventilated in the most approved sanitary manner, and the fixtures without being expensive should be of the best patterns.

The old-fashioned floors made of boards entirely too wide and with open joints are never used in the modern dwellings. Floors can be made of hard pine, as well as of oak or maple. Narrow boards, evenly matched, fitted with elastic filler, and well beeswaxed, cost no more than a good carpet. If desired, rugs, which are easily handled, can be laid on some of the floors.

In finishing the rooms, covered corners should be used at the base at the floor level, and the angles of the ceilings and walls should be covered. Good plaster is best for the walls and ceilings. Wall papers should be avoided; when necessary, paint and enamel should be used; rooms should be well lighted, the windows and doors extending well up to the ceiling. A judicious arrangement of the openings for light also provides for the ventilation of the rooms by supplying cross draughts and a good circulation of air. As things go, however, a room cannot be ventilated in stormy or cold weather, unless it is provided with a working chimney flue. Whatever the system of heating a house may be—stoves, warm air furnace, hot-water pipes—it will be found that the presence of chimney flues in the rooms will facilitate the regular escape of heated air and the entrance of fresh air. When a warm air furnace is used to heat a dwelling, it is found that it is difficult to warm rooms which have no flues, because, in order to provide for the easy entrance of warm air into the rooms, it is also necessary to provide for the escape of air from the room.

In probably no room in the dwelling is the evidence of correct hygiene looked for more expectantly than the bedroom. The ordinary hotel bedroom, or the bedroom in a good many houses, is not a thing of beauty, from the standpoint of hygiene it is frequently a source of sadness—dusty carpets, window curtains rarely cleaned, arsenical wall paper, redolent with tobacco smoke, are not conducive to healthy dreams. The bedchamber of the twentieth century is to be a picture of simplicity blended with taste. There will be no microbe-catching carpets to be dusted; just a washable rug beside the bed. The waxed floor will be mopped every morning with a damp woollen cloth. The ceilings and walls will be painted white with enamel paint. The window curtains will be of cotton or some other washable fabric, and will be frequently laundried. The iron bedstead, with its woven wire mattress will contain just the needful quantity of clothes.

It is to be hoped, however, that less pretentious portions of the home will not be neglected. In a way the most important parts of a dwelling are the basement and the kitchen. They should naturally receive more frequent attention and overhauling than the drawing-room, where, presumably, organic filth can rarely gain access.

The cleansing of the kitchen and its contents should be frequent and thorough. Garbage and refuse should always be kept under cover until removal, and this should be done methodically and at frequent intervals.

The automatic ventilation of the kitchen by a collecting cowl and heated flue is a praiseworthy feature of domestic economy. In Gouge's system of ventilation, the ventilating flue in the kitchen is heated by a gas jet situated at the bottom of the flue.

As care has been taken by the architects in building a house to prevent the ingress of ground air and other deleterious gases into the basement, the housekeeper should also pay the greatest attention to the hygiene of the surfaces of this part of the dwelling, where the general overseeing eye does not penetrate, as it does to the drawing room, where she receives her friends.

II.—Helen MacMurchy, M.D.,
Toronto.

MEDICAL INSPECTION OF CHILDREN ATTENDING ELEMENTARY SCHOOLS.

Introductory.

We are not sure that the health of our school children is on the whole satisfactory. Physical deterioration, as shown by the army recruiting statistics during the South African war, was traced back to the school child. The prevalence of nervous diseases in the twentieth century, as well as that nervous poverty and lack of staying power which we see daily and which begins to be evident at school age, is a serious problem. Meantime, the scientific mind and genius for organization and thoroughness so admirable in France, Germany, and other European countries have been happily used in schemes for medical inspection of schools. Japan, here as elsewhere, has taught us all a lesson, for that other little Island Kingdom has more than twice as many school doctors as all the rest of the world put together.

Nor can we be sure that school life is not positively injurious to health. We cannot say that the air of schoolrooms, as a rule, is pure. It is not good for children to sit quiet for long school hours—and school hours are long, we all know that. The higher the class in school attainment the worse the eyesight.

Morbidity among School Children.

Parliamentary commissions and other authorities [1] have recorded the following percentage morbidity among school boys and school girls:

School Boys.		School Girls.	
Great Britain ...	20	Great Britain ...	16
Denmark	29	Copenhagen ...	39
Germany	30	Denmark	41
Copenhagen... ...	31	Lausanne	43
Sweden	37	Germany	50
		Stockholm	62

an average morbidity for boys of 29 per cent. and girls 42 per cent.; and this morbidity, chiefly anaemia, neuralgia, headache, and indigestion, increased with the grade and the number of hours of school work.

I have very few Canadian statistics to offer you, but 20 years ago, when I was teaching in one of the secondary schools (collegiate institutes) of this city, I was so impressed with the unsatisfactory health of my class of girls from 13 to 17 years of age that I collected a few statistics, and published two papers on the subject in the *Canada Educational Monthly*, 1887 and 1888. I found that only 2 per cent. were free from headaches, 20 per cent. had headaches every day, 56 per cent. had headaches weekly and oftener. May I quote the concluding sentence of the first paper?

> If there were a physician to the schools, a medical officer say in each city or town, his services would be of great advantage.

Again, compulsory education sometimes means compulsory infection. One unrecognized case of mild or incipient diphtheria, measles, scarlet fever, or whooping-cough may be the means of carrying infection from the schoolroom to fifty other houses that very day. This, in itself, is a sufficient argument for the medical inspection of schools. We are bound to protect the child when we compel him to attend school. About 20 per cent. of the population of any civilized country are scholars or students—a large proportion. State medicine cannot ignore the claims of the coming generation, nor does it.

The Need of Medical Inspection.

The Organization Committee of the British Medical Association decided to ask Mr. Birrell, President of the Board of Education, to include in the new Education Bill systematic provision for the medical inspection of school children.

At noon on Monday, July 16th, 1906, Mr. Birrell received a deputation from the British Medical Association to ask him to make medical inspection of elementary schools compulsory. The Bill as it then stood gave local education authorities power, with the sanction of the Board of Education, to make arrangements "for attending to the health and physical condition of the children educated in public elementary schools." Mr. Tennant's amendment was as follows:

> It shall be the duty of every local education authority to make arrangements, in accordance with a scheme to be made by the Board of Education, for attending to the health and physical condition of the children educated in public elementary schools.

The sequel was a surprise. It would seem as if every man had already been persuaded in his heart of the value of and necessity for this reform, but every man was not

sure of his neighbour's opinion, either in the House or out of it. But that very day, in the afternoon, when the debate came on it was evident that the proposal had the support of both political parties and practically of the whole house. It was supported by Mr. Balfour, Sir W. Collins, Sir H. Craik, Sir W. Anson, Sir Gilbert Parker, and Mr. Masterman, and Dr. Macnamara said that if medical inspection were made compulsory that would be worth all the other provisions of the Bill put together. At 7 o'clock Mr. Birrell agreed to insert for the report stage of the Bill this subclause:

It shall be the duty of every local authority to provide for the medical inspection of every child on its application for admission to a public elementary school, and on such other occasion as the Board of Education may direct, or the local education authority may think fit.

This step marks progress. It is the opinion of the medical profession, represented by this Association, that there should be a Board of Education Medical Department, that medical inspection of elementary school children shall be compulsory, and that this inspection should be made on admission, recorded, and repeated during the child's school career.

Whatever be the final fate of this Education Bill of 1906, now before the House of Lords, there can be no doubt that either in this Bill or in its immediate successor medical inspection of school children will become law.

The morning paper of July 16th, as I write, contains the statement that the address of Dr. Jenkins, President of the Maritime Medical Association, at the annual meeting, Charlottetown, P.E.I., was mainly on preventive medicine, and dwelt on the medical inspection of school children, and on more attention being necessary to school sanitation and hygiene.

The Women's Co-operative Guild, with a membership of 22 000 working women, at the annual congress in June at Ipswich, passed a resolution in favour of medical inspection of school children, and almost all important sanitary and medical associations have done the same thing.

Public interest, always the dominant factor in reform, seems to be awake at last. We knew before in a sort of way, but we never realized before that the children of the poor (and that means a very large proportion of the children of the nation) are sickly, and stunted, and unfit because they go hungry and uncared for at school and at home.

An inspection of the school children of Glasgow was made in 1904, under the direction of Dr. A. K. Chalmers, M.O H., and the children were "graded," as it were, according to the size of house occupied by their parents—one room, two rooms, etc. It was found that the height, weight, state of nutrition, and mental capacity (teacher's opinion) followed closely this economic grading.

In Dundee 1,000 children were examined, and it was found that the average weight of boys of 13 years in schools for poor districts was 9 lb. less than in schools for wealthy districts.

This state of affairs must be remedied, for the sake of the Empire as well as of the individual, and the physician should be the pathfinder.

Finally, the sums paid for education are enormous. The burden of taxation is great, but how extravagant to squander money on teaching those who—from hunger, or disease, or fatigue—cannot learn. Medical inspection of schools is in the interests of economy.

History of the Movement.

Since the twelfth century physicians have visited schools from time to time as sanitary inspectors, but little progress was made in medical inspection until the nineteenth century, though medical inspection of schools is said to have existed in Poland 120 years ago. In France in 1833, 1837, and 1842 laws were passed relating to school physicians, and in Paris alone there are 128 school doctors. In 1874 weekly medical inspection of schools was instituted in Brussels, which has now 52 school doctors. Within the next twenty years Austria, Germany, Hungary, Holland, Belgium, Sweden, Switzerland, Russia, Portugal, Spain, Servia, and Roumania all made efforts in the same direction. Japan has had medical inspection of schools since 1893, and has now 8,424 school doctors, while Germany has 676, Austria 56, and Hungary 80. In Great Britain school medical officers have been appointed by 85 educational authorities, but 31 county authorities, responsible for 1,000,000 children, have not even discussed it yet, and 15 other counties, with 500,000 scholars, have indefinitely postponed action.

In the New World medical inspection obtains in the Argentine Republic and in most of the large cities of the United States. Boston in 1894, New York in 1897, Philadelphia, Washington, Chicago, and other cities have adopted it. There are now 500 or 600 school doctors in the United States of America (300 in New York).

Some efforts have been made in the same direction in Canada, chiefly in residential and private schools, which are usually in advance in such matters, but in other schools as well.

Appointment and Payment of School Medical Officers.

Appointments of medical school officers are made in different countries by the Government or by the education authorities, and sometimes the medical health officer of the county or city, with a great and just sense of the responsibilities of his office, does almost all that can be done. For example, in Liverpool Mr. F. J. Leslie, Chairman of the School Management Committee of the Liverpool Education Committee, testified before the Interdepartmental Committee on Medical Inspection and Feeding of Children Attending Public Elementary Schools (vol. ii, p. 39):

We have a particularly efficient Public Medical Officer, who considers that there is no limit to his energies. He does so much and we have let him do it.

Again, sometimes, as in Eastbourne and in Salford, the medical health officer is also, by appointment of the education authorities, school medical officer. Different methods, undoubtedly, may suit different countries best. Perhaps, in Canada, the best results would be got by the education authority appointing the medical health officer or one of his assistants, wherever possible, as school medical officer, a proportion of the salary of the medical health officer, or such assistant, being paid by the education authority.

There are objections to a school medical officer being in private practice. Two points here, however, require consideration. Medical inspection must be done by a duly qualified medical practitioner. The more the teacher knows, the better, but he or she should not be required to do more than carry out the directions of the physician. The teacher is overburdened already, and medical expert knowledge is the province of the physician alone. Secondly, this work of medical inspection is onerous, responsible, highly beneficial to the State and to the individual, and should be properly remunerated.

The annual salary of the school medical officer varies from nothing, as in Italy, or a merely nominal sum as in other countries, to about $1,000. In Manchester, the school medical officer, who devotes all his time to this work, receives £600, and in New York the chief medical inspector is paid $2,500.

Parents and the Medical Inspection of Children.

An essential condition of success in the school medical officer is that tact and goodwill and real interest in the work which secure the hearty and powerful co-operation of both parents and teachers. Let them all understand that the school medical officer is their friend.

If it can at all be secured the presence of the mother or father, when the child is examined, is a great gain. No printed circulars will ever impress on the parents' mind the fact that the child cannot see 6 ft. away, or that the spine is not straight, or that the weight is 10 lb. below the average, as well as seeing it with their own eyes will. This is one strong point of the French and German systems—the fact that all new pupils before admission must be examined. When people want to get their children into school, they will take some trouble about it. (We have found this system of examining all pupils on admission work admirably in the girls' residential schools and colleges in Toronto.)

As to objections and difficulties, they are almost unknown. Only one lawsuit is on record as arising from the medical inspection of schools. It was in Chicago: Judge Ball of the Superior Court held that medical inspection was constitutional, and the case was not appealed. School medical inspection, where it has once

been tried, has never fallen into disuse. Even where it is voluntary the majority avail themselves of it.

Training and Personal Qualifications.

The medical school inspector should have a special training in school hygiene and preventive medicine. Such courses, three months in duration, have been given in the University of Buda-Pesth since 1885.

A very successful course of lectures in school hygiene was begun in 1905, in the University College of South Wales and Monmouthshire, with 120 students in attendance. In the same year the College of Hygiene, erected and endowed at Dunfermline by Mr. Andrew Carnegie, was opened, and so strong is the feeling throughout Scotland of the need for such instruction that the hostel provided for teachers in attendance was filled to overflowing at once.

But, important as training is, nothing can surpass in importance the personal qualifications of the medical inspector. It was said of Sir Charles Hastings, the distinguished founder of the British Medical Association, by his lifelong friend Dr. William Farr of Somerset House, "He was a man of an eminently friendly disposition." Such should the school medical officer be.

What the Medical Inspector of Schools should Inspect.

A. The school building: Condition, ventilation, lighting, heating, seating, etc. Site and plan approved by central authority.

B. The instruction of candidates for teachers' professional certificates in the principles of preventive medicine and school hygiene. (Medical certificates.) Diffusion of knowledge among the general public. Popular lectures.

C. Physical and mental condition of child:

1. Simple anthropometry. Height, weight, chest measurement. Question of development as affected by up-bringing, underfeeding, malnutrition, housing, environment.
2. Eyes, ears, teeth. If necessary, private notification to the parent, with advice to consult family physician.
3. Signs of overpressure or fatigue; mental condition; studies; school hours; sleep; school gardens.
4. Infectious and other diseases.

A. The site and plan of a school building should be approved by the central sanitary authority, such as the Department of Public Health or the Minister of Public Health; but the building should be frequently inspected in regard to general condition—lighting, ventilation, heating, etc.

Seating is also important. The difference in the heights of children of the same age may vary from 6 in. to 11 in., and the seats should be adjustable to the bodies, not the bodies to the seats. The hygienic Swiss desks may be adjusted easily for height and slope. These desks and seats are regarded by good authorities as comfortable, constructed on correct principles, and generally satisfactory.

B. In London (England) and elsewhere the school medical officer examines candidates for appointments under the Board and gives medical certificates. Thus in 1904, of 3472 candidates for employment, 301 were rejected, deferred, or withdrawn.

Another great opportunity of school medical officers is in the instruction of candidates for teachers' certificates in the principles of preventive medicine and school hygiene. Any one who knows something of the fascinating history of preventive medicine for the last hundred years—its victories and its defeats, which are only victories yet to be won—cannot help but use this interesting material in teaching. Thus, as well as by popular lectures, the diffusion of knowledge amongst the general public is marvellously hastened. It was a master-stroke of Mr. Joseph Chamberlain, as Secretary of State for the Colonies, to write to the governors of all tropical and malarious colonies and to the chief Missionary Societies, under date of October 7th, 1903:

> It seems to me that skilfully-arranged lessons on the natural history of the causes of the most important tropical diseases might be made very attractive to children, and that such teaching would be of practical utility in the future.

This was soon proved, for example, in Lagos, where a course of popular lectures on mosquitos and malaria was given to the teachers. Then each teacher was provided with a clear glass bottle containing mosquito larvae for use in the schoolroom. Then the teacher explained this new knowledge to the children, making them count the larvae and watch their development day by day. The result was that in a fortnight school children might be found in every corner of Lagos hunting for mosquito larvae. Sanitary information that otherwise would have taken years to reach the popular mind in Lagos, had been indelibly impressed upon the members of each household by its school children in a few weeks. But it will be seen that this work in Lagos all rested on the initial course of lectures given to the teachers. Here is the opportunity of the enthusiastic and competent school medical officer. In the normal schools or training colleges, in courses of popular lectures, and in every other way he should have a chance to communicate to the teacher his own knowledge and enthusiasm, so that the full value of the school child as a sanitary reformer may be utilized and not thrown away as it is at present.

Tropical diseases are not the only diseases. The man in the street should know the cause of typhoid fever. He does not know it now. Nor are transmissible diseases the only subjects for popular lectures. There are many others. Certainly girls (perhaps boys too) in the higher classes of elementary schools ought to learn something of how to keep a child alive and well. But how shall they learn without a teacher? And when and where is there any provision for the instruction of teachers in this subject? It is time that we practically recognized that a great part of the business of life is to prepare our successors to bring up the next generation, and that this business must be taught and learned like any other business.

C. (1) Finally, here is the child. Look at him. Is he a healthy-looking specimen, or is he stunted, thin, and small-chested? Other information is valuable, but these three things are always essential in considering health. Height, weight, chest-measurement—they tell a tale.

Annual Report of Inspectors of Factories for 1900. The figures are given for 169 Boys and Girls employed in the Jute Mills in the heart of Dundee:

Sex.	Dundee. Age.	Dundee. Height.	Dundee. Weight.	Treves. Height.	Treves. Weight.
Boys	11-12	4 ft. 2 in.	62.8	4 ft. 5½ in.	72.0
Girls	11-12	4 ft. 3½ in.	63.0	4 ft. 5 in.	68.1

Compared as above with the averages given in Treves's *Physical Education* the contrast, as the Inspector says, is "remarkable."

Five Committees of the British Association for the Advancement of Science have dealt with this question from 1875 to the present time, and the results of this work, especially in enlisting public attention and interest, have been widespread. Still, though on the Continent, especially in France and Germany, these three simple measurements are carefully made and recorded and repeated at intervals, in our public elementary schools of Great and Greater Britain no attention is paid to these important matters. Is it not absurd to put a child into a class when his body is not fit to do the work of that class? The simple fact of the measurement being made and recorded and compared with a standard average would do a deal of good. Permanent records of these and other facts of the child's history should be preserved in the school by a simple card-index system.

When we have ascertained the height, weight and chest capacity of the school child, the next question likely is—"Why is he away below the average in one or more of these?" The question of physical development as affected by environment, housing, up-bringing, feeding, etc., cannot be passed by.

Mr. John Burns, in his eloquent address before the National Conference on Infantile Mortality (London, June 15th, 1906), said, "Concentrate on the mother," and in so saying, and directing attention to the home conditions, there can be no question but he was right. The first step towards improving home conditions would be to modify the present school system, so that children

would have impressed on them at school a "health conscience." They should know the connexion between cleanliness, pure air, good food, enough sleep, and health, and the girls at least should have some definite knowledge of the preparation of food and the care of little children.

It is the conclusion of the Joint Committee on Underfed School Children, constituted by the London County Council, which has just reported (July, 1906), that after thirty-five years of compulsory education—that is, after all the parents and most of the grandparents of our present school children have had compulsory education—the mothers of the industrial classes are no better fitted for their home duties than women of the same position were a hundred years ago. If that be so, the school system needs to be revised and modified.

In regard to the question of underfeeding, whether the cost be met by private benevolence or by public enactment (a method that many citizens think dangerous), there can be no doubt that, if the national physique is not to degenerate, the children of the poor must get enough to eat to enable them to grow big enough and strong enough to perform the duties of citizens in time of war and in time of peace. In Paris 8,000,000 meals annually are publicly supplied to poor children, the parents or friends paying the cost if possible. The *Spectator* states that the proportion of paid meals (⅓) is decreasing. On these and kindred subjects we should all avail ourselves of the best sources of information, no matter in what part of the Empire we dwell.

Mr. William Hall's experiment carried on in Leeds for the last three years is instructive. He estimated in January, 1906, that the average cost of each of the 300 meals per day which he supplied to a school in one of the poorest districts in Leeds was a penny.

Dr. Leslie MacKenzie's work on *The Medical Inspection of School Children* (Hodge and Co., Glasgow and Edinburgh) is invaluable. There is a very good little book on *School Hygiene* (in the Teachers' Professional Library), by Professor Edward Shaw of the University of New York (Macmillan); and there is Newsholme and Pakes's standard work. There are, above all, the Blue Books: The Report of the Interdepartmental Committee on Physical Deterioration, the Report of the Interdepartmental Committee on Medical Inspection and Feeding of Children Attending Elementary Schools, and the Statement of Information Collected by the Board of Education and the Foreign Office regarding Methods adopted in great Continental and American Cities for Dealing with Underfed Children. Of great value also are the Reports of Dr. Chalmers, Medical Health Officer of Glasgow, and the three Reports of Dr. James Kerr, Medical Officer to the Education Committee, London County Council.

The poor and unfit we have always with us. And in a country like Canada we have the physically degenerate of other countries, to a certain, though perhaps a small, extent. It is just a question, too, if we are not beginning to have unfit and unemployable of our own. Prevention is better than cure, and if we can, by timely measures directed to educational methods, medical inspection, and popular information, prevent the creation or increase of an unfit class, we shall have done something for our country.

C. (2) Next to the question of simple anthropometry comes the examination of the eyes, ears, and teeth of the child, because there is nothing that foils the best efforts of pupil and teacher so completely as imperfect sight and hearing, and nothing that more frequently causes physical degeneration than defective teeth.

EYESIGHT OF SCHOOL CHILDREN.

First of all, it was necessary to make a rapid examination of a large number of children in order to convince educational authorities of the large percentage of school children who cannot learn because they do not see well, and to force the public into doing something by drawing attention to the crying need. Accordingly, we have now reports in the literature of the subject of perhaps 1,000,000 children. A few examples may be given:

London: 600,000 children examined by eight physicians—10 per cent. found to have less than one-third of normal vision. Standard I, 54 per cent.; Standard VIII, 80 per cent. have normal vision.

Cohn has collected the statistics published by German observers:

Lower classes	...	22 per cent. myopia.
Upper classes	...	58 per cent. myopia.

Cohn says that myopia is a disease of school manufacture. He finds of myopia 1.4 per cent. in village schools, 10.3 per cent. in the middle schools, 26 2 per cent. in the gymnasiums, and 59 per cent. in the universities.

New York, 1904: 7,166 children examined—17 per cent. suffering from defective eyesight.

Philadelphia: In one school[3] it was found that 2 out of every 3 children had something wrong with their eyes.

Columbus, Ohio: Dr. Timberman reports in the *Ohio Sanitary Bulletin* that he examined 1,200 pupils in the high schools, and found that 40 per cent. had defective eyesight.

Dr. Sydney Stephenson thinks, from personal observations of 5,000 children in English Poor-law schools, that not more than 5 per cent. have myopia. In three residential girls' schools in Toronto we always examine the sight on admission. I find from 5 per cent. to 10 per cent. have defective sight, and usually they and their parents do not know it (I often find that girls from Manitoba and the West have better sight than city girls).

Here comes in one of the most important functions of the school medical officer in reference to lighting. Professor Cohn found that, other conditions being the same, the percentage of myopia varied from 1.8 per cent. in well-lighted to 15 per cent. in badly-lighted schoolrooms. Long school hours and close work strain the eyes of children, and the younger the child the more the eyes are strained. Fine needlework and niggling designs in drawing have a very bad effect.

In regard to the examination of the eyes the ideal thing would be to have the eyes of all children examined by an oculist. But this is a counsel of perfection at present. It could easily be secured that teachers, as part of their professional training, should be carefully instructed by a physician how to test each eye separately by the use of Snellen's test types. Then all those children whose eyes were unlike in vision, or whose vision fell below a certain standard, could be referred to the school medical officer for further examination. This would probably dispose at once of 80 to 90 per cent. of all school children, and the school medical officer could then examine the rest, and, if necessary, give the child a card on which the parents are informed that the child's eyes need attention, either from their family physician or from a hospital. It often happens, however, among the very poor, or very ignorant or very obstinate, that the matter ends here. The teacher, the school medical officer, and the hospital all do their part, but the parents fail to do theirs, and the child, after all, comes back to school without glasses, or, as in an instance given before the Inter-Departmental Committee, with the grandmother's spectacles on! The London County Council took counsel's opinion whether spectacles might be supplied at the cost of the ratepayers. But counsel's opinion was in the negative, and so the Association for Supplying Spectacles to Children in Elementary Schools has been formed, and is appealing to the public, as it will require an income of £200 a year to supply glasses to the children of the very poor—all others being expected to pay for glasses moderate sums of from 10d. upwards to dealers in spectacles, with whom special business arrangements have been made. Of course, there are good economical arguments against this, but I think it will stand the final test of the golden rule.

As Dr. Maitland Ramsay, speaking of the discoveries of Donders and Helmholtz, says, in the *Lancet* of July 7th, 1906:

> They are in our daily life of the utmost importance for persons of every age and of every class, and have value that will persist for all time. Few discoveries, indeed, have been more beneficial in their results, for no one can estimate the number of those who, in former days, would have been compelled to abandon their position, their prospects, and their duties in life, but who, through the prescription of suitable spectacles, have been restored to health, to happiness, and to usefulness.

After all, if it is going to help to make the difference (and it looks like it) between the good citizen and the degenerate, between the employed citizen and the unemployed—in a word, between the fit and the unfit—it would be higher political economy to find 2d. a day for two good

meals and 10d. once for all for a pair of spectacles out of all the wealth we have amongst us than to refuse the pence and suffer the imperial penalty.

Defective Hearing.

As to defective hearing, we have also a good many statistics. In London Dr. Cheatle examined 1,000 children of the Hanwell District School: Normal hearing, 432; middle-ear disease, 518; adenoids, 434; enlarged tonsils, 231. In Stuttgart, Germany, 5,000 children examined; 30 per cent. had defective hearing. Glasgow, Scotland, 600 children examined: 28 per cent. had defective hearing. In Chicago about one-sixth of the school children are so defective in hearing as to interfere with school work.

When we remember that some of the causes of deafness are removable, especially in childhood, and that, as in the case of adenoid growths, other great evils, such as mouth breathing, may at the same time be removed, it will be seen that we have here more good work for the school medical officer to direct.

The Teeth.

The condition of the teeth is closely connected with the question of physical degeneracy. It has been my duty for a year past to examine emigrants arriving in Toronto sent out by the British Women's Emigration Society I do not remember seeing one first class set of teeth in the year, and many of the girls, though undoubtedly above the emigrant average, had mouths in a shocking condition. In a report from Glasgow it is stated that in two schools not one child in attendance brushed the teeth daily, and in Germany only 2 per cent. of the children between 8 and 13 have perfect teeth.

Dr. Osler, in presenting the prizes to successful students at the Royal Dental Hospital of London last October, told them he thought there should be a dental surgeon attached to every public elementary school.

It is well known that a large number of army recruits are rejected solely on account of bad teeth. Russia, Belgium, Germany, Japan, all have more or less completely organized dental inspection and treatment.

In 1902 a dental clinic for school children was opened at Strassburg, attendance being compulsory and treatment free. The children receive toothbrushes, and are taught to clean their teeth three times daily. Since this clinic has been very successful, and there has been a marked improvement in the general health of the children, other German cities have followed the example of Strassburg.

Overpressure.

C. (3) The school medical officer would see more or less in his rounds of signs of strain and fatigue and overpressure, so easily carried beyond safe limits, especially in the young. Perhaps he could discourage the worship of Moloch, the God of Examinations, and other heathen deities. There was a very interesting movement a year or two ago by which residential school medical officers in Britain secured attention to the necessity of longer hours of sleep for schoolboys. There are those who need consideration of a different kind. There are in our schools occasionally children of feeble mental powers. It is waste of good time and money to try to teach them the "Three R.'s." But probably every child who ever gets inside a schoolroom could be taught something good in a special school—a residential school, and the school medical officer when he comes will help us to establish these special schools.

Infectious and other Diseases.

C. (4) Finally, there is the question of transmissible diseases. No argument is needed here. There is no quicker and surer way to spread disease and death than to let light, incipient, or unrecognized cases of diphtheria, measles, or scarlet fever attend school. House epidemics of children's diseases are usually traced to a child who has been infected at school, and fatalities under three years of age are often the result of infection from an older child going to school.

The presence of a school epidemic, indeed, has frequently been the starting point of the medical inspection of schools. In Berlin, Germany, it was an epidemic of measles. A public meeting was held and the following resolution passed:

> Laymen and physicians demand that each school have a physician assigned to it, to have charge of the general hygiene of the building, and be watchful over the health of the scholars; to see to the proper heating, ventilation, cleanliness, and, if necessary, disinfection of the building; to order the closing of the school when the heat becomes excessive and in time of epidemic; furthermore, to examine new scholars; in short, the school physicians should protect the scholars against the dangers of school life.

In Boston, Mass., it was an epidemic of diphtheria. The Mayor and Council were persuaded to make an appropriation in 1892. Delay after delay occurred, until the epidemic of diphtheria came in 1894. Then the Council delayed no longer, and in that one year the medical inspectors found in the schoolrooms and sent home seventy-three children who had diphtheria.

Infectious diseases are not the only ones that the school medical officer will see. The teacher will, in the course of professional training, learn much, and in association with the practical work of the school medical officer, learn more, but the teacher should never be expected to diagnose disease. That is our business. The life and health and money saved by this one department of school medical inspection is quite a sufficient reason, if one were needed, for this work.

Results of the Medical Inspection.

Before passing to the question of the results of the medical inspection of schools, I would like to say a few words about what has been done in Canada. In Nova Scotia the question has been agitated in the towns and cities, and in the provincial Normal School some elementary instruction is given to teachers to enable them to test the hearing and sight of pupils. In Ottawa, Dr. Macdougal King laid the subject before the School Board early in 1906, who now have it under consideration, and the plan was favourably commented on by the local press.

Montreal is still farther on. The Montreal Women's Club appointed a Medical Inspection Committee four years ago, with Mrs. Smillie of Westmount as Convener. This Committee, aided by the Provincial Board of Health, by professors of the Medical Faculties of McGill and Laval Universities, and by the citizens, at last induced the City Council of Montreal, early in January, 1906, to appoint seven physicians as medical inspectors of schools, and to make a grant of 3,000 dols. for this purpose. It is understood that some salary question has delayed the beginning of the work till next September. The Jewish citizens of Montreal fully appreciate the benefits of medical inspection of schools. They have had a school medical officer attached to the Baron de Hirch School for some ten years, at a salary of $50 a month. Every morning the teachers examine the children, and send any doubtful cases to the school medical officer. Special attention is paid to eyestrain and infectious diseases, etc., and the children themselves show great willingness to assist.

In Ontario this subject has repeatedly occupied the attention of the Ontario Educational Association, and the Provincial Board of Health. A School Hygiene Department has been formed as a section of the Ontario Educational Association, and a deputation from the Association interviewed the Hon. Dr. Pyne, Minister of Education, in February, 1906. The Minister received the deputation cordially, and assured them that he was in sympathy with their requests for more adequate provision for the teaching of hygiene in normal schools, the examination of the eyesight of pupils at the beginning of the school term, and the protection of school children from transmissible diseases.

The Public Health Act of Ontario (1 Edward VII. 1901, cap. 34) was amended in February and March, 1903, to provide that, whenever a case of diphtheria or scarlet fever has occurred in a child attending any school, the medical health officer shall personally, or through another physician, cause a daily examination to be made of all the children of the schoolroom for at least one week from the date of occurrence of the last case among such children. If any children are absent from such school, a medical examination shall be made of them in the same manner.

Under the direction of Dr. Sheard, the indefatigable health officer of this city, there are kept at his office in the City Hall three registers, giving the history of every case of diphtheria in the city. This is in addition to a careful bacteriological record of these cases. The first of these registers is a history by streets, and goes

back to the year 1892. In it the streets of the city appear in alphabetical order, and under each street number every case of diphtheria which has occurred in that house is entered, with the date. This is a most instructive record. In a great many cases it is found that when there has been a case of diphtheria in a given house, one or more cases usually followed in that same house, at varying intervals, such as one year, two years seven months, five years, etc.

The second register is a register of schools. Here we find the name of each school (private schools and schools for adults excepted) in the city. Under the name of each school is entered the name of any child in that school reported to the department as having had diphtheria, and also the name of the teacher in whose class the child is.

The third register contains the following information: Date, name of person having diphtheria, address, age, school, teacher, Sunday school, number of children in the house, where other children are, how case disposed of, when disinfected, remarks.

It will thus be seen how complete the control of the department is in the matter of preventing the spread of infection. A daily report is made to the principal of each school of the name and address of any one in his school district having diphtheria, and any children living in the same house as a person having diphtheria are excluded from school until the danger of infection is past.

In 1892, with the approval and assistance of Mr. James L. Hughes, public school inspector, Mr. Alexander F. Chamberlain, of Toronto (now Professor in Clark University, Worcester, Mass.) made elaborate scientific measurements of Toronto school children.

These valuable data were, in part, presented to the British Association at its Annual Meeting of 1897 in Toronto, and will be found in that report, pp. 443-9. They have also formed the basis of an article by Dr. G. M. West, Observations of the Relation of Physical Development to Intellectual Ability made on the School Children of Toronto, Canada (*Science* (N.Y.), U.S., vol. iv, pp. 156-9).

In the years 1884-5 Dr. G. Sterling Ryerson and Dr. Wishart, of this city, examined 10,000 children in all the Toronto schools, and embodied the valuable results of this examination in a report to the school boards. There was found 4 per cent. colour blindness, 2 per cent. myopia (a very low percentage, and most of these children were of foreign birth and parentage), and 6 per cent. hyperopia.

Dr. J. G. Adams, of this city, has spent twenty-five years of his life in an effort to preserve the teeth of the poor, and especially of school children. He has carried on for many years a dental hospital at his own cost. It is still in existence, at the corner of Elm and Terauley Streets, about a mile or more from Toronto University. Dr. Adams has examined 25,000 Canadian and American school children, and found only 1 to 5 per cent. with sound sets of teeth; 15 per cent. had fairly good teeth; 50 per cent. had many teeth decayed. Dr. Adams is a philanthropist. He has embodied the results of his lifework in an interesting pamphlet on *School Children's Teeth*.

An investigation into school morbidity in Toronto was made by Dr. John Fleming Goodchild, Secretary of the Hygiene Section, Ontario Educational Association, in March, 1906. There are some 50 public schools in Toronto, and Dr. Goodchild succeeded in getting reports from 35 of the largest schools, with an attendance of about 12,000 children. Total absence for all causes in March, 1906, 38,305 days; for illness, 24,725 days; absence caused by colds, 10,049 days; headaches, 1,459 days; "weakness and being run down," 1,042; mouth and throat troubles, 1,025; bilious attacks, 985; toothache, 921; measles, 875; bronchitis, 803; influenza, 797; diseases of the eyes, 719; whooping-cough, 598; diseases of the ear, 560.

In the West of Canada the day of the school medical officer has not come, except in Victoria and Vancouver, B.C., where the subject has received some attention.

It is too soon to attempt to sum up the results of the medical inspection of schools. But one good result has been the discovery of the school nurse, who in some cities attends at the school, cleanses, disinfects, and dresses the slight sores which so soon become serious, attends to the chapped hands, the chilblains, the unclean and infected heads, follows the children to the home, helps the mother, encourages personal cleanliness, and often takes the children to the dispensary. It has been shown that 98 per cent. of the children whom the school medical officer has to exclude may continue to attend school if the school nurse follows up each case and helps the mother.

The beginnings of a health conscience are to be felt. It begins to dawn on us that the Race is all right; it is we who do not do our part. Even in the poorest classes 85 per cent. of the children are born physically healthy. It is after birth that we—poor, untaught, and indifferent parents—spoil their chance of life and health.

Again, the mere fact of the parents' attention being directed to their responsibilities does good. In Edinburgh within forty-eight hours of the beginning of the medical inspection of schools, it was found that child after child came with a clean shirt, or had been specially bathed for the occasion. Public baths and other opportunities for cleanliness have increased in places where the medical inspection of schools flourishes.

The medical inspector of schools can save a great deal of sickness in contagious diseases alone. He can also save a great deal of suffering. Mrs. Burgwin, late Board of Education Inspector, tells of seeing a girl in Standard III who seemed, she thought, to be dying. The head mistress said, "Oh, all she wants is a glass of milk every day; she doesn't have enough to eat at home, and they sleep too many in a room." There was no school medical officer in that school, but the inspector induced the manager of the school to send the child to the doctor. The doctor's report was that the child was in a very advanced state of heart disease, and must never go to school again. Yet she had kept up with her class and done the work, certainly with great suffering to herself, for shortly afterwards the heart disease proved fatal. This is, no doubt, a very unusual case, but delicate children, and children with aching eyes and aching heads, unfit for work may, as a result of the expert knowledge of the school medical officer, be saved much suffering, which they cannot themselves describe, much less know how to relieve.

National efficiency rests on personal efficiency. The foundation of efficiency must be laid in early life, and few officials can influence individual and national health and happiness so much as the school medical officer.

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THE MEDICAL INSPECTION OF SCHOOLS.

IT would seem to be almost a work of supererogation to address an audience of doctors of medicine on the subject of medical inspection of schools, but experience shows that much missionary work must yet be done before school authorities, the general public, and even some members of the medical profession themselves have their present views so changed as to bring about this reform in school economy. It is with a view of showing what preventive medicine can do in saving expense and life to the community, as well as in aiding teachers in the work of school education, that this paper is presented.

The object of all school education is to develop the best type of the individual citizen—the best mentally, the best morally, the best physically—with a complete, all-sided, well-rounded-out, well-developed personality. It is impossible to rear such a type of citizen without the soundest physical basis—a strong, healthy body.

Every country owes two duties to its children—first, the preservation of their health, and, second, a sufficient education to enable them to discharge their duties as law-abiding citizens. To fulfil the second there are laws in most civilized countries compelling children to attend school. But is it not only illogical but also unjust to have compulsory attendance at school in the absence of proper inspection of children to determine whether they are in a physical condition to obey the law without permanent injury to themselves, and, it may be, without

endangering the lives of others? What warrant has any Government to compel children to face the danger of attending school, since it is well known and now recognized that schools are centres from which diseases are spread? One seventh of the population of any city or town is in school, and this seventh inevitably carries disease, if it finds it in the schoolhouse, into almost every family in the city or town. Is it not the height of absurdity for a State to take the most stringent precautions to prevent the spread of contagious diseases, on the one hand, and, as things are, to take the surest means of spreading the contagion on the other? The logical outcome of a compulsory school-attendance law is, it would seem, a compulsory inspection law by those competent to make such an inspection.

To this it may be replied that the law expects and requires teachers to do this work as part of their school-room duties. They are intelligent and anxious to prevent the spread of disease, and are desirous of acting wisely and well in their treatment of all their pupils. The good intentions of teachers are at once admitted, but good intentions unsupported by technical knowledge often lead to serious mistakes. Last winter a pupil attended one of the collegiate institutes in this city with his face a mass of pustules. All his teachers wondered what was wrong with him. They were intelligent and anxious to protect others in the room as well as themselves from the contagion of small-pox, but failed to exclude the pupil or even report the case. When the use of the rod was more common than now, and was regarded as a panacea for school peccadillos, an intelligent and conscientious teacher in this city thought to stop the nervous twitchings and restlessness of a pupil suffering from the early stages of epilepsy by administering a severe whipping.

In addition to not possessing the necessary knowledge and training to enable them to make a correct investigation, teachers are in general so intent upon the intellectual work assigned them that they are more than likely to overlook the physical needs of their pupils. Parents and school authorities abet them in this. The idea is abroad that schools are places where certain subjects are taught and certain books are learned—not places where human beings are developed. Parents and school officials alike hold the teacher responsible for the progress of his pupils in intellectual work alone. No one ever thinks of holding him responsible for any physical imperfections which may be developing in the child. Mothers pour their lamentations regarding the physical shortcomings of their children into the sympathetic ears of teachers. "Their children were never strong; they are not like other children accustomed to play and romp; they do not like rough games, etc." This is not done with a view of finding fault either with schools or teachers, nor that the teacher may exercise a wiser supervision over their physical development and their intellectual work, but rather that they may be exempted from physical exercise altogether.

Now the teacher can do far more in the physical than in the intellectual to train the child. He can do much to tone up the circulation, to stimulate the vital energies, to put the glow of health into every fibre, to breathe properly, and thus by purifying the blood do much to eliminate tuberculosis, to give the body strength to eliminate properly the poisonous waste matter that under sluggish action, supplemented by intellectual activity, opens the door to disease, to put the mind into a happy and resonant mood, to train the determining and executory powers, to cause the child to become decided and definite in his actions, and thus to make him more careful in all work, intellectual, moral, and physical; more careful with the multiplication table, more accurate and ambitious in all his doings; more truthful, more exact, and more earnest. But to do this efficiently and effectively the teacher must either be trained to understand the meaning and significance of *mens sana in corpore sano*, for example, that the best intellectual work cannot result unless under the best hygienic conditions, or there must be some one at his elbow, as it were, to remind him of this maxim and aid him by counsel in carrying it into effect. Should the teacher be required to add to his present responsibilities those of a skilful physician? Those who understand what is implied in an effective inspection of schools will tell you that this is absurd. Besides, long experience and observation have shown that specialization and concentration of effort are in the end the most effectual means in the accomplishment of any design.

Purposes of Medical Inspection.

What, then, it may be asked, are the purposes to be served by medical inspection of schools, requiring as it evidently does the appointment of an additional staff of school officials, and entailing a considerable increased outlay on the part of school authorities? This question may be best answered by inserting a copy of the duties of the medical inspectors of the public schools of Philadelphia.

Medical Inspection of Schools.

The duties of the medical inspectors in connexion with the public schools shall comprehend:

1. Sanitary inspection of the building.
2. Systematic examination of the pupils of public schools.

Sanitary Inspection of the Building.

(*a*) *As to Overcrowding.*—Under this heading give: Number of rooms; cubic capacity of each room; and number of occupants.

(*b*) *Methods of Heating and Ventilation.*—If the heating is by furnace, note if the air supplied comes from the cellar or by ducts from the outside. If the heating is by steam or hot water, note if there are provisions for ventilation by either the indirect or by the direct-indirect method. Note the temperature of the air in the rooms at the time of your visit. Give also the maximum and minimum temperature of the air in the rooms during the course of the day.

(*c*) *Illumination.*—State if the rooms are well lighted. State if light comes from above, behind, or over the heads or shoulders of the pupils. Give the number and facing of windows to each room, their size, and their relations to the pupils.

(*d*) State if the building is ordinarily clean or not. Note whether there are accumulations of sweepings, refuse, etc., on the grounds, playgrounds, or in cellars, cupboards, etc., and whether ice and snow have been removed.

(*e*) *Drinking Water.*—Note whether the pupils are supplied with raw, filtered, or sterilized water, and what provision is made for drinking vessels. Give an account of the condition of filter at the time of your visit. Note the condition of all sinks, etc., plumbing, etc. Is it possible for pupils to get raw water? Give number of sources and their location.

(*f*) *Toilets.*—Note the condition of water-closets, urinals, especially with regard to ordinary cleanliness, odours, etc. State if the toilet facilities are or are not sufficient for the number of pupils using them. Give number and location of closets and urinals.

(*g*) *Coat Rooms.*—Note the facilities for storing clothing and ventilation of same. Note whether lockers are or are not present. Note whether one or more hats, caps or coats, hang upon a single hook.

(*h*) *Cellars.*—Note the condition of the cellars. Are they clean, are they whitewashed, and are they or are they not used for storage? How are they lighted and how are they ventilated?

(*i*) *Playgrounds.*—Give size and general condition of the playgrounds (including the condition of sand pile). Are they adapted to the needs of the pupils?

(*j*) Note the character, quality, and quantity of cakes, candies, fruits, etc., sold about the school to the pupils.

(*k*) Summarize briefly the result of this inspection, and note the conditions which require betterment in the order of their importance.

(*l*) A monthly report shall be sent to the chief medical inspector as to whether suggestions for sanitary improvements have or have not been acted upon.

(*m*) A weekly report shall be sent to the chief medical inspector of all defects requiring immediate attention.

Duties of the Medical Inspectors in Connexion with the Inspection of School Children.

The inspector is to make arrangements with the principal for the use of a room in which to examine all children set aside as suspicious.

On making his first visit to a school, and after examining all the children set aside by the principal as suspicious, the inspector shall make a careful sanitary inspection of the building, as outlined in the preceding sheets. The results of this examination is to be forwarded to the chief medical inspector.

The medical inspector is to use every opportunity to instruct the teachers in the recognition of gross signs of sickness, and is to request the teachers to set aside in a particular room, if such be available, all pupils that in his or her opinion are carriers of contagion or require immediate medical aid.

The inspector will adopt the following routine in his medical examination of the school children:

(*a*) He shall visit each school in his district daily, beginning at 9 o'clock, at as early an hour as is practicable, and examine all children set aside by the principal as suspicious.

(*b*) On his daily visit to the last school on his list he shall, in addition to the immediate examination mentioned in paragraph (*a*), begin a systematic inspection of each child in the school, and preserve a card record of the same, be the child sick or well. He will continue this inspection with each school in turn of his district until a record of every child allotted to him has been made (in method of systematic examination).

The inspector is to exclude from school every child suffering from :

(*a*) Acute disease, be it contagious or not.

(*b*) Any form of disease that may be a menace to other children with whom it comes in contact.

(*c*) Any disease of sufficient gravity to seriously impede its work at school.

The inspector is to exclude from school all children who do not present evidence of successful vaccination. This is to be done regardless of the certificate that the child may have presented on its admission to school.

Whenever an unsuccessfully vaccinated child is excluded, the certificate presented by that child must be secured from the principal of the school, and forwarded with all data relating to the case to the chief medical inspector.

The official exclusion cards, properly filled out, are to be sent to the parents of every child excluded. These cards give the reason for exclusion, and state the conditions on which the child may return to school.

In case of children suffering from physical defects that are not of sufficient gravity to warrant exclusion from school, but which may materially impede their educational progress, the inspector is to notify the parents of the child in writing of its condition, and recommend that the child be given medical attention by either the family physician, the district physician, at a dispensary or in a hospital.

In the case of the systematic examination of all children in the schools, the inspector is to report in writing to the chief medical inspector the actual number (and the percentage) of children suffering from any defects whatever—namely :

Defects of vision : Myopia, hypermetropia, strabismus, and astigmatism.

Defects of hearing: Tests with watch and rule; inspect auditory canal.

Deformities : Spinal curvature, flat foot, etc.

Ophthalmic diseases : Acute and epidemic conjunctivitis, obstruction of lachrymal canal, trachoma.

Throat and nose diseases: Diphtheria, tonsillitis, mouth breathing, adenoids.

Cutaneous diseases : Eruptions, impetigo, itch, eczema, etc.

Diseases of thorax : Phthisis, asthma, bronchitis.

Diseases of malnutrition : Rickets, scurvy, tabes, etc.

Parasitic diseases of scalp and elsewhere.

When a child has been excluded from school because of one of the reportable diseases, the inspector is to call at the house of the child on the second or third day following exclusion, and inquire if it is receiving medical care. If not, he is to report the case to the chief medical inspector. If it is, he is to get the name and address of the attending physician, and send them, with those of the child, to the chief medical inspector.

In the examination of all children suffering from sore throats, the inspector shall adopt as a routine procedure the making of cultures for the isolation of *Bacillus diphtheriae* if it be present. These cultures, with a full record, are to be forwarded at once to the laboratory of the Board of Health for examination.

The medical inspector shall scrupulously respect the rights of the family physician, and shall forward to the chief medical inspector reports of his advice in connexion with all cases.

The inspector is to make a daily report of his work to the chief medical inspector.

Advantages of Medical Inspection.

The advantages of such a complete scheme of medical inspection are obvious. Attention may be called to the following :

1. Investigations conducted by well-trained experts have demonstrated again and again that many children attend school suffering from contagious disease. It frequently happens that a child may have diphtheria or scarlet fever or tuberculosis in such a mild form as not to attract the attention of one unaccustomed to diagnose these diseases. In the first month of medical school inspection in Boston 437 sick children were found at school, 37 being ill with diphtheria and 104 with scarlet fever. Such children are as capable of infecting the things with which they come in contact as if they were suffering from severe attacks. Medical inspection would at once exclude these from school and have the rooms disinfected. The accompanying table shows what was done in New York City in 1903, 1904, 1905.

2. Investigations regarding the eyesight and hearing of children show that there are many in the schools who are handicapped in their progress by defective sight, or hearing, or both. The mild forms and early stages of these ills often escape the unskilled observation of the teacher—a thing not to be wondered at when it requires special skill on the part of the physician to discover the defect. In the majority of cases of defective hearing neither parent, teacher, nor child, is aware of the defect. When it is understood that defective eyesight, imperfect hearing, and growths in the vault of the naso-pharynx are all too often the causes of abnormal stupidity and go hand-in-hand with poor talents, surely parents and School Boards will see to it that these causes of imperfect work, wasted effort, and failure to have adequate returns for legitimate expenditure, to say nothing of the effect upon the future progress of the country, will, as far as possible, be removed.

Report of Work Performed by Medical Inspectors of Schools in all Boroughs, City of New York, 1903, 1904, 1905.

	1903.	1904.	1905.
Number of visits to schools	103,301	101,766	88,964
Number of children examined	11,301,691	12,236,050	6,285,435
Number of children excluded	65,294	25,369	18,844
Reasons for exclusion :			
Measles	250	1,172	312
Diphtheria	530	155	74
Scarlet fever	66	55	47
Whooping-cough	364	187	351
Contagious eye diseases	32,522	10,624	8,833
Pediculosis	21,100	8,717	4,692
Chicken-pox	909	780	937
Contagious skin diseases	4,029	2,123	2,018
Miscellaneous	5,521	1,556	1,580
Total	65,294	25,369	18,844

The following table shows that these defects are not imaginary :

Table of Physical Record of Children in New York City from March 27th to December 23rd, 1905.

Number of children examined	55,332
Number of cases of bad nutrition	3,283
Number of cases of diseased anterior cervical glands	14,214
Number of cases of diseased posterior cervical glands	3,047
Number of cases of chorea	738
Number of cases of cardiac disease	895
Number of cases of pulmonary disease	600
Number of cases of skin disease	989
Number of cases of deformity of spine	485
Number of cases of deformity of chest	401
Number of cases of deformity of extremities ...	498
Number of cases of defective vision	16,394
Number of cases of defective hearing	1,296
Number of cases of defective nasal breathing ...	6,182
Number of cases of defective teeth	18,182
Number of cases of defective palate	698
Number of cases of hypertrophied tonsils	8,347
Number of cases of posterior nasal growths ...	5,119
Number of cases of defective mentality	1,210
Number of cases where treatment was necessary ...	33,551

3. Children are frequently troublesome and inattentive owing to overpressure and overfatigue. They are restless owing to the approach of some nervous trouble, as hysteria, St. Vitus's dance, or epilepsy. Needless to say that many teachers have neither the knowledge nor experience to enable them to deal wisely with such cases. They are intent upon the intellectual progress of the child, and view him from that standpoint alone. It often requires the wise counsel of a quiet, tactful, medical expert, who views schools and school work from an entirely different outlook, to keep the teacher from doing much permanent injury to such pupils. A thorough medical inspection dealing with the physical nature of the child will greatly improve the pathological conditions of childhood. It will tend to arrest and remove the evils of excessive brain work and long confinement, with deficient rest and sleep, together with a dietary improperly selected, poorly prepared, and inadequate to the nutrition of the growing child. It may be added that where medical inspection has been introduced, the well-to-do parents not only welcome it and act on the suggestions of the health inspector, but show their gratitude by writing letters of thanks as well.

4. In matters relating to the ventilation, heating, and lighting of the room, the proper position of the child, whether sitting or standing, the cleanliness of the children, etc., the medical inspector can do much to aid the teacher, not only by supporting his authority but also by making such suggestions as will enable him to make a proper use of the means available to maintain the general health of the pupils under him at the highest general average possible.

As an illustration of the effects of inspection on personal cleanliness the following instance is given:

In Boston, on a careful inspection of the heads of all the school children for the purpose of discovering *Pediculi capitis* a few years ago, it was discovered that one half of the children were found to be infected more or less with these parasites. In one room nine-tenths of all the children were infected. This salutary lesson in personal cleanliness will be long remembered by the children and parents, in many cases of the better class.

5. Under the stimulus of a daily medical inspection every teacher will become more and more expert in detecting any existing symptoms of illness among the pupils, and more and more skilful in his advice and treatment of any that may be ill. Parents will feel that, as far as may be, their children are less exposed to disease in school than formerly, and if taken ill will receive immediate and proper attention.

Thus medical inspection becomes of direct educational value to the community at large by bringing to the attention of all—parents in particular, the public in general—a knowledge of the common fundamental laws of health—a knowledge which will spread and deepen until it permeates the masses, and which must result in making much more intelligent citizens.

6. The medical profession itself is benefited. Many physicians are, from the nature of the case, tempted to grant certificates of fitness to attend school when their better judgement must tell them that they are not doing what is right to the community. But they have either to give the certificate or offend a patron. Examples may easily be given where classes have been reduced to a mere skeleton by a physician improperly granting certificates of fitness to attend school. The teacher must accept these, as the law now stands in Ontario, even though his knowledge of the case points to the fact that the certificate contravenes the regulation governing that particular disease.

Then, again, where medical supervision of schools exists, negligent physicians are stimulated to make prompt reports to the Board of Health of the city. This in itself is no small benefit in saving expense to the general community by preventing the spread of communicable diseases.

Medical Inspection in Other Countries.

As very little has been done in the way of medical inspection of schools in Canada, some notes on the progress of this reform in other countries will not be out of place.

Although this subject has actively engaged the attention of school authorities for a comparatively short time, yet at intervals it has been brought to the notice of the public for a considerable time. Peter Frank of Austria (1745-1821), in the beginning of the last century, discussed the proper equipment of schoolrooms and how best to give instruction in his system of complete medical police. In 1833 Sweden diminished the number of lessons and the hours spent at school for sanitary reasons. The subject of medical inspection of schools has since 1869 formed a topic of discussion at various scientific congresses.

In 1875 the medical examination of school children was given in charge to physicians in Würtemberg. Since that time school physicians have been appointed in many different cities throughout the world; thus, Cairo in Egypt since 1882 has had a school physician, together with two assistants, to supervise 5,000 pupils. Since 1888 school physicians have been required to visit each school in Chile at least once a month, to inspect the sanitary condition of the building and surroundings, to inform themselves of the condition of the health of the children, and to make a monthly report. In 1884, through the strenuous efforts of Dr. Coni and two colleagues, a law was passed in Argentina placing the medical supervision of schools in the hands of a medical superintendent, who must publish his observations regularly and deliver lectures on the principles of hygiene. Buenos Aires and other places have now introduced an organized system of medical school inspection.

In Japan all places of over 5,000 inhabitants are required to appoint school physicians, whose duties are defined by law. Among these is a monthly visitation of schools.

The past decade has seen a remarkable awakening in Europe regarding this subject. Belgium is one of the most advanced countries in respect to medical supervision. In Brussels, Antwerp, Louvain, Liége, and other cities, physicians are "required to keep constant watch over the sanitary condition of schools; examine the plans of buildings; supervise the carrying out of the rules relating to light, ventilation, and heat; examine the mental and physical condition of pupils; see that cases of infectious diseases are isolated in the respective families of pupils, and that the regulations for disinfection are carried out; determine when there is complete recovery from contagious diseases; acquaint teachers with the first symptoms of such diseases; and teach them first help in cases of accident." The results were so favourable that now dentists and oculists have been likewise appointed to examine pupils regularly.

In Germany there is great diversity of regulations regarding the work of inspection. In some States the work consists in remarking on the sanitary condition of the school premises; in others a careful examination of the children is made, and each pupil receives a certificate of health in which are specified the general physical constitution, height, weight, chest measurement, condition of skin, spine, sight, hearing, mouth, nose, speech; suggestions for treatment in school; information for parents and observations of teachers. In some only the feeble-minded and the stutterers are examined, as at Frankfort-on-the-Maine. In some, as in Baden and Hesse, visits are made once a year, and the inspectors must then report on the condition of health in the schools. In some, children have to be examined before being admitted to school, to determine their physical fitness for school work.

A very remarkable discovery was made by the medical inspection in the schools of Wiesbaden, namely, that

> Many infirmities, diseases, and predisposition to disease were found in children of large cities before their entrance into school, which after subsequent recognition were erroneously attributed to attendance at school; moreover, they imperilled the health of other pupils.

Thus the examination of *new* pupils revealed the fact that 7.6 per cent. of the children had curvature of the spine; 9 per cent. were predisposed to rupture; 13.6 per cent. were suffering from eye and ear complaints, etc.

Generally, in all German States, the school authorities have medical officials whom they consult when considering such questions as the fitness of plans for new buildings or renovations; the proper ventilation, lighting, and heating of rooms; suitability of sites and surroundings; nature of drinking water, etc.

The first regulations for the medical inspection of schools were formulated in 1833, in France. Since then the work has made such progress that by the law of 1892 the communal physicians of the poor are required to inspect the schools and pupils in the provinces. Now all the public educational institutions of the country have medical inspection.

The term "school physician" was first used in Sweden. The progress of medical inspection of schools there illustrates how this work grows from small beginnings, as the people appreciate its benefits. In 1863 pupils were examined to determine their fitness for gymnastic exercises; in 1874 the work of determining the suitability of the building so far as health is concerned was assigned to the school physicians, and since 1878, in addition to these duties, they have been required to examine the health of the children at the beginning of the term, and report the results.

In Norway since 1891 the health of all pupils is determined three times a year—in May, August, and December—and a report is drawn up in prescribed form by the Board of teachers and physicians, who are to give special attention to causes of absence, headache, and fatigue. In 1898 a law for school physicians was passed, in accordance with which they are to examine pupils, advise teachers in

all matters relating to the health of their pupils, inspect the hygienic conditions of schools, watch during instruction in drawing, writing, gymnastics, and manual work, examine all certificates from private physicians regarding illness or physical defects which would justify absence from school, and report to the school authorities at the end of the year.

In Austria-Hungary medical inspection of schools is a State institution, not a local affair as in most countries. The 359 State physicians must inspect schools, present suggestions, make a yearly detailed report upon sanitary conditions, apply preventives against contagious diseases in school, examine children before they are excused from studies and those suspected of contagious diseases, supervise the heating, ventilation, and seating, and see that the regulations regarding cleanliness and disinfection of buildings are attended to.

By means of State and district physicians, since 1899 Roumania has required that all school children be examined at least once a year, and that all school buildings be regularly inspected with reference to their construction and their heating, lighting, cleanliness, drinking water, etc. These physicians must also supervise all that touches in any way the health of the children, and must submit plans to the proper authorities for remedying evils and supplying existing wants.

Since 1871, in Russia, a physician has been appointed for each secondary school who supervises the pupils and the methods and sees that the gymnastic exercises are adapted to the general powers of the pupils. Several of the large cities have appointed special physicians for their schools; thus Moscow has six physicians in charge of health matters for its seventy-two elementary schools. At present there is a determined movement afoot for a general introduction of medical inspection.

Many of the towns and cantons of Switzerland have very complete regulations for the medical examination of the school children, the supervision of the physical environment of the pupils, the enforcement of the regulations in cases of infectious diseases, etc. Thus, in the canton of Zug, physicians must examine all pupils within fourteen days after admission to school; supervise the seating of pupils with reference to size, position of body, and near-sightedness; attend to the hygiene of the ear, eye, and voice; regulate intermissions, course of study, vacations during hot weather, home lessons, private lessons, physical exercises, dismission of children from school; inspect the buildings to determine their sanitary condition, etc.

In Great Britain a number of the larger places have school physicians whose chief duties consist in deciding upon the sanitary condition of the buildings, etc.

The present Education Bill leaves the medical inspection of all children in elementary schools optional, but representatives of all sections of public opinion united in asking that it be made compulsory. Some urged the institution of an anthropometrical survey in order, among other things, to determine the effect of intellectualism upon physique.

In the United States medical inspection of schools has been slow of adoption and limited in application. The completeness of inspection and the mode of conducting it vary greatly in different places. In some there is a daily inspection for the detection of contagious disease; others have periodic inspection; others inspection in regard to vaccination only, etc.

Since 1894 Boston has had an effective system of medical inspection of schools. The city is divided into districts, each with its own school physician, who has about 1,400 pupils to oversee. In addition to daily inspecting the schools and the children in the early part of the morning session, being authorized agents of the Board of Health, they see that the prescribed regulations regarding the isolation of cases of diphtheria and scarlet fever are observed. They must not prescribe, advise, or criticize anything beyond that which pertains to the isolation of the patient, and must not by word or act do anything to infringe upon the rights of the family or attending physician.

In 1895 Chicago introduced medical school inspection. The city is divided into districts with a medical inspector assigned to each. In addition to this there is a central office in charge of an educational expert to which all abnormal pupils are sent to be examined. The trouble is reported to the teacher, who is thus enabled to deal intelligently with him in school.

There must be a considerable number of such in every large centre of population. It would save many a teacher from nervous breakdown and many a pupil from being charged with troublesomeness if there was an expert who would ascertain the real cause—usually some physical one—of such abnormal conduct, and advise the teacher how to deal with him.

New York "has the most comprehensive and highly-developed system" of medical inspection of schools in the world. After a careful investigation in 1896 to ascertain to what extent school children were the means of disseminating contagious diseases, the Board of Health appointed 150 medical inspectors to take charge of the schools of the old city of New York. During the first year 6,829 children were excluded from attendance suffering from diseases of various kinds.

In 1902 sixteen oculists were added to the staff of inspectors, and the system elaborated and extended, the inspection being made much more thorough. During September, 1902, 10,567 children were excluded, many suffering from minor troubles.

It was soon observed that "either through ignorance or carelessness of parents many of these minor contagious ailments received no attention or treatment." To meet this difficulty, a corps of trained nurses was appointed to look after the children who required treatment for minor troubles, the children to continue at school. After school hours these nurses are required to visit those children who were absent on account of exclusion, and, where necessary, instruct their parents as to the best methods of treatment.

The Commissioner of Health says that as a result of the work of these nurses, 98 per cent. of the children that would have been excluded are enabled to continue in attendance, and this has been accomplished without exposing any of the associated children to the dangers of infection. The amount of work performed by the nurses is given in the following table:

	1903.	1904.	1905.
Number of visits to school	16,095	27,010	25,943
Number of visits to tenement houses ...	16,218	26,703	40,070
Number of miscellaneous visits	293	1,046	1,344
Total number of visits	32,606	54,759	67,357
Number of cases treated:			
Pediculosis	205,023	509,142	616,384
Contagious eye diseases	151,855	204,277	268,855
Contagious skin diseases	16,905	24,151	40,052
Miscellaneous	25,537	45,112	50,801
Total number of cases	397,320	782,682	976,092

In March, 1905, the system of medical school inspection was again reorganized by the New York Board. After the morning inspection and other duties have been attended to, the inspector devotes his time to making a complete physical examination of each child—the eyes, ears, teeth and hard palate are inspected; an examination is made for adenoid growths; a general record is made of the nutrition of the child, the glands, cardiac and pulmonary diseases, skin lesions, deformities of spine, chest, or extremities, etc.

Detroit has seventy schools inspected daily by a corps of ten physicians appointed by the Board of Health. Each inspector receives $250 per annum. Principals exclude pupils upon the written report of the medical inspector.

Newark, N.J., has daily inspection between 9.0 and 11.0 a.m. conducted by a corps of medical inspectors "under the joint direction and control of the Board of Education and the Board of Health. The number of medical inspectors, their appointment, rules for government, salaries, etc., are determined by the Board of Education; their immediate direction and control in the performance of their duties is left to the Board of Health. This joint control of the business of medical inspection of schools has been found in practice entirely feasible and altogether satisfactory."

Objections to Medical Inspection.

Such objections as the following were urged more or less strongly against medical school inspection in almost every place where it has been adopted.

Local school authorities objected because a careful inspection would make known the insanitary condition of the buildings, occasion great expenditure of money, and disturb the quiet and ease of many an unprogressive School Board. Thus, in 1893 the Berlin City Council rejected a measure for the examination and supervision of school children for the reasons that examination by physicians entailed loss of time, increased expense, disturbed instruction, implied distrust in the School Board, and that teachers themselves should exercise supervision.

Teachers objected on account of the interference with the orderly procedure of the classes due to the unwise and extreme demands of some medical inspectors upon the time of the pupils. But where the inspectors exercised tact, teachers soon recognized that these officials promote educational ends, and so the interest of teachers in behalf of the physical wellbeing of the children has grown.

Some parents objected because they did not like, they said, meddlesome interference with home education. Others objected because they were opposed to anything savouring of a doctor's dealing with their children. The objections of others were due to ignorance of the dangers and disadvantages of the modern school. These claimed that interference with their children was a mere meddlesome endeavour to give trouble.

Many doctors themselves were opposed to this reform because they believed that their private practice as physicians would suffer through the measures taken by the school physicians.

Although these objections all centre about the idea that the State is doing what it is the duty of the parent to do, they have no valid force when it is once admitted that it is the duty of the State to provide an elementary education for every child up to the age of 14. What is needed is an educational campaign to convince all of the great advantages that would ultimately result from a careful inspection, not merely for the presence of infectious diseases, but for the physical defects which experience has shown to be present in a large percentage of children before entering school, and which can be greatly minimized, if not entirely removed, by proper treatment at school.

It may be added that where medical inspection has received a fair trial parents are not only not opposed to this physical inspection, but even solicit it.

DISCUSSION.

DR. NASMYTH (M.O.H. Cupar, Fife) said: We have had some experience in Dunfermline with the College of Physical Education in School Hygiene; here teachers are taught school hygiene and physical drill, and all the children undergo medical examination. Besides this, St. Leonard's School for Girls at St. Andrews has for many years carried out physical training, and given much benefit to the health of the people. Personally I have carried out school inspection for many years, though there is no legal right for a medical officer of health to do so. Miss MacMurchy has read us an excellent paper, and, if she comes across next year and reads such another, she will receive a warm welcome at Exeter.

Dr. J. BARR STEVENS (Renfrew) said: I have found these papers on the medical inspection of schools most inspiring. To Miss MacMurchy especially my thanks are due for the suggestion that there must be co-operation between the doctor the parent, and the teacher. I myself have done little in the way of education in school hygiene by offering a prize for the boy and girl, aged from 13 to 14 years old, who have the best-kept teeth in the school at Renfrew. My experience is sad to tell: unless the subject is kept constantly before the pupils by the teachers, it is forgotten, and as the parents regard the whole matter as a joke the teeth are very much neglected, and the result of the prize has been very poor. The parents who come from Ireland or from the Highlands and the North of Scotland into the towns usually have good teeth, but their children have defective teeth, and in all probability the figures given by Miss MacMurchy for Canada are better than similar statistics for Scotland would prove to be.

Dr. GROVES (Isle of Wight), who had taken the chair in the absence of the President, summed up the debate in a few remarks in which he pointed out that at present we in England carried on school inspection at our own risk without any statutory authority. He was, however, convinced that the question was now taking a very practical form, and that a complete system of medical school inspection would soon be established. Such a system was badly needed, and nothing could be now more important to the future of any nation than the safeguarding and protection of the children attending common school.

PRESENT STATUS OF ANTITUBERCULOSIS WORK IN CANADA.

By J. H. ELLIOTT, M.B.,
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THE second meeting of the British Medical Association in Canada seems a most appropriate time to present a report of what is being done in the Dominion to combat tuberculosis, for it was in 1897, when the Association first met in Canada, that Dr. Barnes, the retiring President of the Association, Dr. Roddick, the President-elect, with others, journeyed to our northern highlands to assist in the opening of the Muskoka Cottage Sanatorium, which had been built by the National Sanitarium Association.

This Association was the pioneer in organized effort to check consumption in Canada, and this was the first sanatorium erected in Canada.

In the nine years which have followed much has been done by this and other organizations, while private individuals, municipalities, and the Governments of the various provinces are showing increased interest in the tuberculosis problem, and have given material assistance in the campaign.

In this paper I wish to review the various agencies at work, and to show as far as possible what has been accomplished.

My data has been secured from the secretaries of the various provincial Boards of Health, from the medical health officers of the towns and cities with population of over 5,000, and from the secretaries of the various Associations, while much has been written from personal knowledge.

There are now ten associations in Canada, with forty local branches, for the prevention and treatment of tuberculosis. Two of these are national in their scope, and have a number of active branches. Two provincial associations have been formed, and a number of local associations have been and are being organized throughout the Dominion.

The following list is as complete as I have been able to collect:

National.

National Sanitarium Association of Canada. Organized 1896. Thirty-two branch associations. Their Excellencies Earl and Lady Grey, Patrons; Lord Strathcona and Mount Royal, President; W. J. Gage, Esq., Chairman of Executive Committee; J. S. Robertson, Secretary, Saturday Night Building, Toronto, Ontario.

The Canadian Association for the Prevention of Consumption and other forms of Tuberculosis. Nine Branches. Organized 1901. His Excellency Earl Grey, Honorary President; Senator Edwards, President; J. M. Courtney, Esq., C.M.G., Honorary Treasurer; Rev. Wm. Moore, D.D., Secretary, Organizer, and Lecturer, 102, Bank Street, Ottawa.

Provincial.

British Columbia Antituberculosis Association; has numerous local branches. C. J. Fagan, M.D., Secretary, Victoria, B.C.

The New Brunswick Association for the Prevention and Cure of Consumption. Dr. Wm. Bayard, St. John, N.B.

Local.

Montreal League for the Prevention of Tuberculosis. President, Sir Geo. A. Drummond; Secretary, Dr. E. S. Harding.

Quebec League for the Prevention of Tuberculosis. Rev. Canon Scott, St. Matthew's Rectory, Quebec.

The District of St. Francis League for the Prevention of Tuberculosis. Secretary-Treasurer, Dr. E. J. Williams, Sherbrooke, Quebec.

Toronto Free Hospital for Consumptives. W. J. Gage, Chairman; J. S. Robertson, Saturday Night Building, Toronto, Secretary.

Hamilton Health Association.

Local Branches of the Canadian Association for the Prevention of Tuberculosis at Charlottetown and Summerside, P.E.I., Colchester Co. N.S., Sherbrooke and Montreal, Quebec, Ottawa, Toronto and Hamilton, Ontario.

Thirty-two local Branches of the National Sanitarium Association (see below).

NATIONAL SANITARIUM ASSOCIATION OF CANADA.

In 1896, when one of the founders of this Association wrote to the Toronto City Council offering to give $25,000 to build a home for consumptives, if the city would provide a site, a reply was sent suggesting that the money be devoted to building a wing to the Home for Incurables, so prevalent was the idea that consumption was incurable. When the Association was formed, its first efforts were directed to the establishment of a sanatorium in the delightful Muskoka region. To-day it has two sanatoriums there, one for paying patients, one for the poor. These institutions represent a capital outlay of $140,000 and provide beds for 160 patients. Over 2,000 patients have received treatment, the maintenance expenditure amounting to $400,000. Some of these patients have been maintained free of all cost for periods of six to twelve months.

The Association is endeavouring to do its share in checking the spread of this scourge through Canada. All contributions received are devoted to educational work and the maintenance of needy patients in the Muskoka Free Hospital for Consumptives. To further its work, thirty-two branch associations have already been formed in the following towns and cities. Their activity is shown in the fact that one-half are contributing funds to maintain one or more beds in the Muskoka Free Hospital.

BRANCHES OF THE NATIONAL SANITARIUM ASSOCIATION.

The following is a list of places where branch associations of the National Sanitarium Association have been established, the figures in brackets indicating such associations as have raised the requisite amount of $300 a year to endow a bed:

Acton	Orangeville
Brantford (1)	Oshawa (1)
Brussels	Ottawa (16)†
Belleville (1)	Picton
Cobourg	Port Hope
Campbellford	Peterborough (1)
Exeter	St. Mary's
Guelph (2)	Sarnia (1)
Georgetown	St. Thomas (1)
Goderich	St. Catharine's
Hamilton (12)*	Tillsonburg
Hanover	Walkerville (1)
Ingersoll (1)	Wingham (1)
Kincardine	Woodstock (1)
Lindsay (1)	Montreal (2)
London	St. atford

* A pavilion with twelve beds has been set aside for Hamilton and Wentworth County for the past two years, maintained during that period by the Hamilton Branch Association.

† Ottawa has contributed $4,300, which has been accepted by the Association to set aside two wards for eight patients each in the Muskoka Free Hospital for Consumptives. Ottawa not only has furnished this amount for the purpose named, but provides also for the maintenance of all patients sent under an agreement with the Association.

The following is a list of municipalities that have contributed the required $300 a year to endow a bed in the Muskoka Free Hospital for Consumptives for a period of twelve months. Allowing four months as the average attendance, this gives accommodation for three patients from these municipalities each year:

Brant Co., Ont.	Lambton Co., Ont.
Brantford City, Ont.	St. Thomas, Ont.
Chatham, Ont.	Lincoln Co., Ont.
Niagara Falls, Ont.	City of St. Catharine's, Ont.
Perth Co., Ont.	Oxford Co., Ont.

One hundred and two other municipalities have contributed amounts from $5 to $100 during the past year.

Last year there were admitted to the Muskoka Free Hospital for Consumptives, on order of the municipality, from:

City of Toronto	...	...	...	37 patients
,, Hamilton	...	...	...	21 ,,
,, Ottawa	...	...	...	10 ,,

Under statute enactment any municipality may make an agreement with the Association whereby the institutions of the Association shall treat its patients and the municipality may pass by-laws or issue debentures to raise money to assist this Association in its work.

To further its educational campaign the Association has arranged with the National Association for the Study and Prevention of Tuberculosis (U.S.A.) that the exhibition which was so successfully organized and held in New York last winter under its auspices, and which has since been held in a number of the principal cities of the States, should be transferred to Toronto, and this is now occupying the new Science Building of Toronto University.

Since this Association was organized the death-rate from tuberculosis in Ontario has fallen from 16 per 10,000 to 12 per 10,000. We cannot but think that this is in part due to the educational side of the work done.

CANADIAN ASSOCIATION FOR THE PREVENTION OF CONSUMPTION.

The Canadian Association for the Prevention of Consumption and other forms of Tuberculosis was organized in March, 1901, at the instance and under the patronage of the Earl of Minto, then Governor-General. The objects of the Association are fully set forth in the constitution then adopted.

Lectures have been delivered in all of the chief towns and centres, in Prince Edward Island, Nova Scotia, and New Brunswick; in Sherbrooke and the country round about, in the Province of Quebec; throughout the Ottawa Valley, on both sides of the river, in towns and cities on the St. Lawrence River; in North and South Grey, St. Mary's, London, Ingersoll, Woodstock, and several other places, including Sault Ste. Marie, in Ontario.

About 2½ million pages, bearing directly on the cause and prevention of consumption have been distributed. There are at present nine active branches; Charlottetown and Summerside, in Prince Edward Island; Colchester County, with head quarters in Truro, Nova Scotia; Sherbrooke and Montreal in Province of Quebec; Ottawa, Toronto, and Hamilton in Ontario, and the Association for the Prevention and Treatment of Consumption in British Columbia, with head quarters in Victoria.

In several smaller places, where there does not seem to be room for active organization, committees are at work distributing literature and placing leaflets wherever they seem likely to be useful.

At the last annual meeting of the Association several large committees were appointed to deal with the following subjects:

(*a*) Organization and work: to consider the best methods and lines for future development.

(*b*) How can we obviate the prejudice against the erection of hospitals and homes for consumptives, which are frequently regarded as sources of danger to the surrounding community?

(*c*) Care of public conveyances (steamships, railway carriages, street cars, etc.) to prevent the spread of consumption.

(*d*) Inspection of schools and examination of children.

(*e*) House-to-house visitation, instruction to sufferers, and early diagnosis.

As a sample of the reports of these committees, that of No. 4 is appended.

REPORT OF COMMITTEE NO. 4 ON MEDICAL INSPECTION OF SCHOOLS AND EXAMINATION OF CHILDREN.

Having regard to the most essential steps for the prevention of tuberculosis, your Committee begs leave to report:

1. That the proper sanitation of schools and the protection of the health of the children are among the matters of foremost importance worthy the urgent attention of the various education departments of the Dominion.

2. That only members of the medical profession have the preparation and the experience adequate to fully judge and accurately appreciate the sanitary condition of the schools, and that reliable observations as to the influence of the school and its exercises on the health of the young can be made only by school physicians.

3. That the inspection of schools is a State duty, and that the medical inspection of schools is a legitimate and all-important part of school inspection, and that, therefore, it is a grave responsibility of the education departments of Canada to take measures to protect the health of pupils in schools.

4. That it is specially advisable, among other things:

(*a*) That school physicians be appointed to supervise the sanitary conditions of school buildings and their appointments, examine into the health of teachers and pupils and advise them as to all hygienic measures necessary.

(*b*) That steps be taken to remove present insanitary conditions from schools in which they exist.

(*c*) That rules and instructions be issued as guides to teachers and pupils, aiming at the avoidance of practices and habits contrary to the spread of the disease, or the deterioration of physical vigour.

(*d*) That in order to prepare teachers to effectively co-operate with the school physician, they should be thoroughly instructed in the training schools in the principles of hygiene, physical development, and a knowledge of the dangers that commonly threaten the vigorous development of the young.

(*e*) That as the avoidance of alcoholic beverages is a strong factor in the prevention of tuberculosis, the attention of pupils should be systematically called to this fact.

(*f*) That a special medical examination be made on their (pupils) first entry into school, noting age, weight, height, constitution, state of nutrition, etc., and any significant physical and mental conditions; that it is desirable that at the first medical examination the mother be present to give information as to previous illness or predisposition, and to receive instructions as to the care of the pupil at home; that reports be made at regular intervals and copies sent to parents.

(Signed) R. L. H. Cowley,
Convener.

British Columbia Antituberculosis Association.

This Association is endeavouring to collect $100,000 to establish a sanatorium for the province. Local branches have been formed throughout the province to further this object. Several city councils have promised yearly grants toward such a sanatorium, and the Provincial Government is prepared to assist.

Montreal League.

The Montreal League for the Prevention of Tuberculosis was organized in the year 1903. It is carrying on an excellent campaign of instruction and relief. Much literature has been distributed, not only to patients and their families, but in schools, factories, and other institutions. Lectures have been held on the subject in more than thirty Protestant churches, and nearly all the Roman Catholic parishes of the city, as well as in several schools, working men's clubs, etc. Through the efforts of the Legislation Committee of the League a by-law has been passed prohibiting spitting on the side-walks.

All cases of tuberculosis reported to the League by physicians, from hospitals or otherwise, are visited more or less frequently as occasion requires by a qualified inspector, who distributes leaflets of advice, gives verbal instructions, supplies sanitary cuspidores, endeavours to provide better ventilation, and disinfects habitations after death or removal.

In the autumn of 1904 the League opened a dispensary especially for persons suffering from pulmonary tuberculosis, where physicians attend for some hours daily for consultation, and patients may be examined and receive advice and medicines. This branch of the work has grown steadily, is much appreciated, and promises satisfactory results. When thought advisable, patients are provided with nourishing food — eggs, milk, etc.—also warm clothing. For those who require nursing at home, the co-operation of the Victorian Order of Nurses is enlisted. Cases in an advanced stage of the disease who have no friends in the city are sent to an institution. The great need in this branch of the work is a sanatorium in a healthy situation for incipient cases. The work is supported by subscriptions from the public, aided by a municipal grant.

In the three years of its existence the League has dealt with about 700 cases of tuberculosis, some of whom have received continuous care and assistance for many months.

District of St. Francis League.

The District of St. Francis League for the Prevention of Tuberculosis, organized in 1903, is carrying on a campaign of education. Local societies or subcommittees are formed in each town or municipality of the district about Sherbrooke. The League arranges for examination of all sputum submitted and looks after all indigent patients.

Hamilton Health Association.

This Association has established this year the Mountain Sanatorium at Hamilton, for the care of patients from the city and from Wentworth County who are in the earlier stages of pulmonary tuberculosis. Far advanced cases are not to be admitted. Temporary buildings are at present in use. The Association has 100 acres of land, with funds of $35,000 to carry out its work. About 20 beds are already provided. There being no provision for far advanced cases, the Association maintains a visiting nurse to care for such cases in their homes, keeping in touch also with the local Board of Health.

Toronto Free Hospital for Consumptives.

This Association has been formed in Toronto to make provision for all patients with far advanced disease. It first provided beds only for the far advanced poor of the City of Toronto, but such has been the success of the undertaking that kind friends have made it possible for this Association to enlarge its scope, and it soon hopes to be able to accept the far advanced cases not only of Toronto, but to provide a number of beds for patients from elsewhere in Ontario. The hospital of this association is situated at Weston, Ont., overlooking the Humber Valley. It is the first institution in Canada to care for those advanced in consumption. With a capital expenditure of $50,000, beds for over 60 patients have been provided. In its first year 136 were cared for.

Provincial Measures.

British Columbia.

(Reported by Dr. C. J. Fagan, Secretary of the Provincial Board of Health.)

Notification laws have been adopted and are reasonably well carried out, as is also the antispitting by-law.

Local societies are formed all over the province, the objects of which are:

(*a*) To collect funds for the maintenance of a consumptive sanatorium.

(*b*) To look after the interests of local consumptives.

(*c*) To establish a course of lectures on consumption in public schools.

(*d*) To ask for a municipal grant from local authorities towards the maintenance fund.

(*e*) To ask clergymen to devote one Sunday sermon each year to health matters, the collection to go towards the maintaining of the sanatorium.

Cases of pulmonary tuberculosis are not admitted to the wards of public hospitals, but it is advocated that special provision be made for the handling of advanced cases by hospitals.

The Vancouver General Hospital has provided a special building for the handling of advanced cases, and it is hoped that other public institutions will do likewise.

At present there is no special hospital for the treatment of incipient consumptives, but I may state that a considerable sum of money has already been collected for building purposes, and most of the British Columbia towns have organized societies with the object of maintaining our sanatorium. Already a considerable sum is subscribed and promised, and I am satisfied from indications that we can depend on receiving a sufficient sum for maintaining an institution for our own tuberculous patients.

Disinfection after tuberculosis is attended to as it is after any other contagious or infectious disease.

All milk dealers must produce a certificate signed by the Provincial veterinary surgeon that the herd from which their supply is derived is free of tuberculosis.

Alberta.

(Reported by Dr. A. E. Clendenan, Provincial Health Officer.)

This province, being inaugurated September 1st, 1905, has not yet a Public Health Act such as is in operation in the older provinces, nor is there a provincial laboratory. Physicians and druggists are asked to report all cases known to them. Owing to the large number of consumptives coming to Alberta, many of whom are indigent, an effort will be made at the next session of the Legislature to enact that every case that enters must report his condition to the Government, and be prepared to either pay all expenses for maintenance or come provided for by the Governments of the other provinces of the Dominion Government.

It is hoped that in the new Public Health Act tuberculosis will be put as nearly on the same footing as other contagious diseases as is practicable, each case being reported in such a way that every affected person will be under the direct supervision of the Government, and be provided with literature and given such other attention as is necessary to eradicate the disease from the province.

An effort is on foot to organize a very considerable number of antituberculosis associations, such as exist to a limited extent in eastern Canada.

Approximately there are 200 cases of tuberculosis

amongst the Indians of the province reported by the Dominion Indian Reserve doctors to the Dominion Government. Since these cases are entirely under the control of the Department of the Interior, the ordinary means of combating tuberculosis are difficult of operation. The Indians and whites, however, mix but little.

MANITOBA.

The Provincial Board of Health, with the physicians of the province, are endeavouring to secure legislation for the erection of a provincial sanatorium.

The Provincial Laboratory examines all sputum submitted.

PROVINCE OF ONTARIO.

The Province of Ontario has enacted special legislation to assist in the erection of sanatoriums, providing one-fifth of the cost (up to $20,000) of a sanatorium erected by any municipality or recognized association. Three sanatoriums have received the help to date.

In addition to assisting in the initial cost, the Government grant assistance to the extent of $1.50 per week per patient for all public ward patients, in lieu of the ordinary hospital grant, which is about 15 c. per day.

At the last session of the Legislature $15,000 was voted the Muskoka Free Hospital for Consumptives to assist in its work.

The Provincial Laboratory examines all sputum free of charge.

QUEBEC.

(Reported by Dr. Elzéar Pelletier, Secretary of the Provincial Board of Health.)

In January, 1895, the Legislature set apart 400 acres in Trembling Mountain Park for sanatorium purposes, but nothing has been done to supplement this.

In June, 1905, 137 acres were granted for sanatorium purposes on Lake Edward, 1,200 ft. above sea level. Towards construction of the proposed sanatorium the Rev. Canon Scott reports $22,000 promised, conditional on $40,000 being raised.

Legislative enactments:

1. The Health Act enacts that open tuberculosis is to be notified to municipal authorities.

2. The by-laws made by our Board (under the authority of the same Health Act) renders disinfection obligatory after the death of a tuberculous patient.

3. The by-laws made by our Board respecting factories provide for lighting, cubic space, aëration and ventilation, evacuation of dust, etc.

4. Tracts and *Sanitary Bulletin* are distributed gratis.

The Provincial Board of Health has transmitted to the Government, for sanction, additional by-laws, which when duly sanctioned will:

(*a*) Make disinfection obligatory after the removal of a tuberculous patient (as well as already done after his death).

(*b*) Forbid spitting in streets, roads, public places, buildings, and conveyances.

(*c*) Provide for confiscation of meat from tuberculous animals, about on the lines suggested by the Royal Commission on Tuberculosis.

(*d*) In regard to habitations: Provide for (1) a minimum cubic space, (2) natural lighting, (3) prohibition of the use of cellars for day or night occupation, (4) minimum cubic space in night refuges, (5) open spaces around dwellings, (6) damp courses in certain cases.

(*e*) In regard to hospitals, homes, asylums, prisons, provide for cubic space and ventilation.

(*f*) In regard to dairies provide, among other things, for (1) the notification of tuberculous cases, (2) the isolation of suspected tuberculous cows until a veterinary surgeon has verified to the udder not being involved: the certificate to be renewed at least every three months and to be put aside whenever bacterial examination would show the existence of the bacillus in the milk.

(*g*) In regard to educational institutions, provide for cubic space, ventilation, natural lighting, prohibition of dry sweepings.

NEW BRUNSWICK.

The New Brunswick Medical Society and representative business men have met the Government urging the establishment of a provincial sanatorium. The Provincial Board of Health have made similar recommendation. The Government have as yet taken no definite action.

NOVA SCOTIA.

Nova Scotia has been the first and, so far, the only province in Canada to provide a provincial sanatorium for its patients. This is situated at Kentville, in the Annapolis Valley. Initial cost, $20,000; annual grant, $9,000: 20 beds. The province does not intend to provide beds for all, but has undertaken this work rather for its great educational value. The Provincial Laboratory examines sputum free of charge.

PRINCE EDWARD ISLAND.

No Board of Health regulations *re* tuberculosis.

MUNICIPAL AND LOCAL MEASURES.

Letters of inquiry were sent to sixty-two towns and cities with population of 5,000 and over, as recorded at the census of 1901, submitting the following questions:

1. Have you any special hospital or sanatorium for the treatment of cases of pulmonary tuberculosis?

2. Are cases of pulmonary tuberculosis admitted to the wards of all or any of your hospitals?

3. Have any special wards been provided for the care of these cases?

4. Have you a special dispensary for the treatment of tuberculosis? If so, kindly outline its organization.

5. Have you any local organization for the care of tuberculous patients in their homes?

6. Have you an antispitting by-law?

6A. Are notices posted without by-law?

7. Have you compulsory or voluntary notification of phthisis?

8. Does your Board of Health disinfect after tuberculosis, as after scarlet fever and other infectious diseases?

9. Other measures.

The replies received are tabulated on page 689.

SPECIAL HOSPITALS OR SANATORIUMS.

No municipality, so far as I can learn, has built a sanatorium or hospital for the care of its tuberculous patients. Local philanthropic organizations have made provision in some places, while some municipalities send their patients to existing sanatoriums.

Vancouver has a special building for tuberculous cases at its general hospital.

ADMISSION OF PATIENTS TO GENERAL HOSPITALS.

Six towns and cities have no hesitation in accepting tuberculous cases into their hospitals; 7 admit, but insist on patients being isolated, 1 or 2 using isolation wards; 4 admit only incipient cases. Other than Vancouver, no hospital has constructed special wards. In some tents are used.

Three cities have tuberculosis dispensaries; 5 cities have organizations for the care of the poor in their homes.

British Columbia has a provincial antispitting by-law. Of the 31 towns outside this province which have reported, 15 have antispitting by-laws, while 4 others have notices posted; in some, little attention is paid except by the street car companies.

Notification of cases is requested by the Provincial Board of Health in British Columbia; in other provinces, 6 have compulsory notification and 5 voluntary; 20 disinfect after death or removal of patient, or during course of illness if patient has been careless, where reported or requested.

LIST OF SANATORIUMS IN CANADA.

Ontario.—Muskoka Cottage Sanatorium, Gravenhurst; 85 beds. $12 and $15 weekly. For incipient cases. Dr. J. H. Elliott, Physician-in-Charge.

Muskoka Free Hospital for Consumptives, Gravenhurst; 50 to 70 beds. Free, or patient pays in part if able. For incipient cases. Dr. C. D. Parfitt, Physician-in-Charge.

The Mountain Sanatorium, Hamilton: 20 beds. Dr. A. D. Unsworth, Physican-in-Charge.

Toronto Free Hospital for Consumptives, Weston: 60 beds. For advanced and far advanced cases. Free, or patient pays in part if able. Dr. W. J. Dobbie, Physician-in-Charge.

Galt has provided a Swiss cottage for care of advanced cases.

Stratford has two tents for advanced cases.

Quebec.—Lahl Ghur, Ste. Agathe des Monts, for incipient cases; 20 beds. $14 weekly. Dr. Howard D. Kemp, Physician-in-Charge.

Camp of Montreal League for Prevention of Tuberculosis for Poor of Montreal.

Nova Scotia.—Provincial Sanatorium, Kentville; 20 beds for residents of province. Patients pay $5.00 weekly. Dr. W. S. Woodworth.

Wolfville Highlands Sanatorium; 10 beds. Private. Dr. G. E. DeWitt, Wolfville.

Alberta.—Calgary Sanatorium, Calgary; 16 beds. Private.

SEASIDE TREATMENT OF SURGICAL TUBERCULOSIS.

In Europe and the United States much attention is just now being drawn to the beneficial effect of the seashore on tuberculous children, and many seaside hospitals for children are being established. For many years the

Replies to Inquiries as to Municipal and Local Measures Adopted for the Prevention and Treatment of Tuberculosis.

	Population (census of 1901).	1	2	3	4	5	6	6A	7	8	9 (Other Measures) and Explanatory Notes.
YUKON:											
Dawson	9,142	No	Yes	No	No	No	No	—	No	No	None. Disease rather rare except in native Indians.
BRITISH COLUMBIA:											
Vancouver	26,133	Yes	No	No	No	No	Yes	—	Vol.	*x*	Literature sent to all cases reported. *x*, Where reported.
New Westminster	6,499	No	Yes	No	No	No	*a*	—	Vol.	Yes	Local Society raising funds for provincial sanatorium. *a*, Provincial by-law.
Rossland	6,159	No	Yes *b*	Yes	No	No	*a*	—	Vol.	Yes	*b*. To private wards only.
Nelson	5,273	No	Yes *b*	No	No	No	*a*	—	*c*	No	None. *c*, Provincial Board of Health provides for notification of all cases.
MANITOBA:											
Winnipeg	42,340	No	Yes *d*	Yes	No	No	No	—	Com.	Yes	Literature distributed. Considering sanatorium. *d*, Admitted to isolation wards.
ONTARIO:											
Hamilton	52,634	Yes	Very few	No	Yes	Yes	Yes	—	Com.	Yes	
Smiths Falls	5,155	No	Yes	No	No	No	No	—	No	No	None.
Chatham	9,068	No	Yes *e*	No	No	No	No	*f*	No	Yes	None. *e*, Incipient cases only. *f*, Local Board of Health notices.
Peterboro'	11,239	No	No	No	No	No	No	—	No	No	
Owen Sound	8,776	No	Yes *h*	No	No	No	Yes	—	No	Yes	None. *g*, Occasionally. *h*, Early cases only.
Stratford	9,959	No	No	Yes *i*	No	No *j*	No	—	No	Yes *g*	*i*. Two tents. *j*, Queen's daughters give special attention to tuberculosis.
Berlin	9,747	No	No	No	No	No	Yes	—	No	*k*	None. *k*, Where requested.
Toronto Junction	6,091	No	No	No	No	No	No	—	No	No	None.
Rat Portage	5,202	No	Yes *l*	No	No	No	No	—	No	No	*l*, Admitted to private wards only.
London	37,981	No	No	No	No	No	Yes	—	Vol.	Yes	
Brantford	16,619	No	No	No	No	No	Yes	—	Vol.	Yes	Literature sent to all cases reported.
Toronto	208,040	Yes *m*	No	No	Yes	Yes	—	—	—	Yes	*m*, Incipient cases sent on city order to Muskoka Free Hospital for Consumptives; advanced cases to Toronto Free Hospital for Consumptives.
Ottawa	59,928	No *n*	No *o*	No	No	Yes	Yes	—	Vol.	Yes	*n*, Local Auxiliary of National Sanitary Association arranges for admission of cases to Muskoka and Toronto Free Hospitals for Consumptives. *o*, A few hopeless cases admitted to isolation wards in one hospital.
Sault Ste. Marie	7,169	No	No	No	No	No	Yes	—	Com.	Yes	None.
Lindsay	7,003	No	No	No	No	No	Yes	—	No	No	None.
Collingwood	5,755	No	Yes *p*	No	No	No	No	Notices posted	No	*q*	None. *p*, Incipient cases admitted to private wards. *q*, When requested.
Sarnia	8,176	No	Yes	No	No	No	Yes	—	No	No	None.
Galt	7,866	Yes	No	No	No	—	—	—	—	—	Has Cottage Hospital for advanced cases one mile from town.
Belleville	9,117	No	Yes *r*	No	No	No	No	—	No	Yes	*r*, Sometimes admitted, but are generally isolated.
QUEBEC PROVINCE:											
Westmount	8,856	No	No	No	No	No	Yes	—	Com.	Yes	Working along lines of Montreal League.
Sherbrooke	11,765	No	No	No	No	Yes	Yes	—	Vol.	Yes	None.
Hull	13,993	No	No	No	No	No	No	—	No	No	None.
Quebec	68,840	No	Yes	No	No	No	No	Notices posted	Com.	Yes	Nothing but compulsory tuberculin test on cows.
Montreal	267,730	No	—	—	Yes	Yes	Yes	—	—	—	
NEW BRUNSWICK:											
St. John	40,711	No	Yes *s*	Yes	No	No	Yes	—	No	*t*	*s*, Hopeful cases only. *t*, When requested.
Fredericton	7,117	No	—	—	—	—	—	—	—	—	
NOVA SCOTIA:											
Truro	5,993	No	No	No	No	No	Yes	—	No	Yes	Literature sent.
Glace Bay	6,945	No	No	No	No	No	No	—	Vol.	No	None.
Halifax	40,832	No	Yes *u*	No	No	No	Yes	—	Com.	Yes	*u*, Incipient only admitted.
Yarmouth	6,430	No	No	No	No	No	No	—	No	No	
Springhill	5,178	No	Yes	No	No	No	No	—	No	No	
PRINCE EDWARD ISLAND:											
Charlottetown	12,080	No	Yes *v*	Yes *w*	No	Yes	No	Notices posted	No	No	None. *v*, Incipient cases admitted. *w*, One hospital admits occasional cases into a special ward.

Victoria Hospital for Sick Children in Toronto has during the summer months transferred all cases of surgical tuberculosis to the Lakeside Hospital on Toronto Island, with most satisfactory results. There is a special ward for tuberculous children in the Toronto Free Hospital for Consumptives at Weston.

DISPENSARIES.

1. Dispensary of the Montreal League for the Prevention of Tuberculosis, 691, Dorchester Street. Opened November, 1904. Open six days weekly. Last year 193 patients attended. When too ill to attend they are visited in their houses. Patients are supplied with all necessaries in the way of food and clothing.

2. Tuberculosis Dispensary and Clinic, Toronto General Hospital. Opened January, 1906. Visiting nurse visits all homes and reports surroundings and conditions. Patient given sputum flask, etc., with instructions. Food and clothing supplied when needed. Special wards available if necessary to bring patients into hospital. Houses reported to Board of Health for fumigation. When possible patients sent to sanatorium at Weston or Gravenhurst.

3. Tuberculosis Dispensary of Hamilton City Hospital. Opened 1906.

Brehmer Rest, Ste. Agathe des Monts, Quebec. Dr. A. J. Richer, Physician-in-Charge; Miss Barnard, Secretary, 33, Lorne Avenue, Montreal. Patients pay 4 dols. per week.

This sanatorium has been instituted for the care of patients who have no active tuberculosis, but who are convalescing from pneumonia, pleurisy, and typhoid fever, also patients with anaemia, debility, etc. Such institutions play an important part in the prevention of tuberculosis.

WHAT REMAINS TO BE DONE.

This summary of the antituberculosis work in Canada shows that much has been done in recent years. Each year new measures are brought forward, an increasing number each year, and yet we have little more than begun—much earnest work has yet to be done to secure a marked decrease in the death-rate throughout the Dominion.

There is still much apathy shown when active measures for the suppression of the disease are adopted—lax enforcement renders them useless. More than one local medical health officer has reported: "We have an anti-spitting by-law, but it is never enforced." In another town where no measures have been outlined, the health officer writes: "Public interest in this question is dormant. It is a labour of Hercules to even try to arouse it. Our Board of Health takes no interest in tuberculosis patients."

The work of prevention requires the co-operation of all the forces available. We must first deal with those suffering with the disease, for inasmuch as the disease is spread only from those having an open tuberculosis, we must concede (leaving out of discussion here the communicability to man of bovine tuberculosis) that the disease would soon all but disappear could all who have an open tuberculosis be placed under proper discipline, and all sputa and other bacilli-bearing discharges be destroyed.

This entails much work on the part of the physician who is attending the patient: full personal instructions must be given, and these instructions must be carried out. Leaflets of instructions to patients are very useful, but personal instruction is more efficient.

For those patients who will not follow the directions given, and are careless, special hospitals for detention are necessary, and such should be provided for such people as are wilfully unclean, and whose habits are such that they are spreading disease about wherever they may be.

Sanatoriums are a necessity for the care of those who cannot be kept under close supervision at home, or whose surroundings are not conducive to recovery—whether this be from insanitary conditions, the presence of meddlesome relatives and friends, or the thousand-and-one petty things which prevent a patient following the necessary out-of-door life and observing the prescribed rest or exercise. More sanatoriums are required throughout Canada, particularly for the poor who are not in a position to go far from home.

Separate provision should be made for incipient and far advanced cases.

Special dispensaries can do much for those who must continue at work, as in the case of the breadwinner in a poor family. The dispensary physicians and nurses can see that his house is suitable, and can assist in arranging for out-of-door sleeping, can see that he is provided with all necessaries, and also be assured that he is careful of those about him. The dispensary staff, too, should examine at intervals all of the family, so that any infection may be discovered while still a closed tuberculosis.

Physicians in attendance upon all cases, whether poor or in good circumstances, should endeavour as far as possible to see that all the members of the family are carefully watched—particularly so in houses where the patient has been known to be careless, or where, as is not infrequently the case, he has been suffering with an open tuberculosis the presence of which has not been suspected or recognized.

The members of tuberculous families should be given special instruction in hygienic living, and be warned of the dangers of lowered vitality, whether due to disease, overwork, poor food, or vice.

The physician should be proficient in diagnosis and should endeavour to make diagnosis early, remembering that under sanatorium treatment 75 per cent. of incipient cases recover, of moderately advanced about 15 per cent., and of far advanced cases barely 1 per cent. To state that the physician is often careless is unpleasant writing, but again and again we meet such cases. An instance such as the following is, unfortunately, far from uncommon. A young man came to me for examination and treatment. I found far advanced disease involving all of the left lung and half of the right, with well-marked cavity formation in the left upper lobe. There was also intestinal tuberculosis. Sputum 1 oz. daily, teeming with tubercle bacilli, and much elastic tissue present. I gave his mother a report, with necessarily an opinion of hopeless prognosis. He is the only son and she a widow. She writes:

It is all so uncalled for. I have had him under medical treatment for five months and all along urged that he have the best attention, and if his lungs were in danger I would send him away from home if necessary. I have been exceedingly anxious for four months and wanted a consultation, but my physician assured me only a few days before my son left home that there was nothing wrong with the lungs. I was so anxious, however, that I sent the sputum to the provincial bacteriologist the next day on my own account, with the result that my worst fears were realized.

No comment is needed. In my work I see this too frequently.

Notification of all cases of tuberculosis is necessarily a part of efficient work in the crusade, and where there is a live, earnest Board of Health which will co-operate with the physicians, no time should be lost in enforcing compulsory notification.

Local associations can do much in assisting the authorities. They can carry on an educational campaign, disseminate knowledge concerning the methods to be adopted for the prevention of tuberculosis, assist in movements for the erection and maintenance of sanatoriums, special hospitals, dispensaries, etc.

We must not forget that every measure that makes for a higher standard of living is of value in the campaign against tuberculosis. We should see that our houses, our towns, our cities, are rendered as sanitary as possible, admitting sunshine, avoiding dust-gathering rags and hangings, keep our streets clean, do away with the smoke nuisance, destroy insanitary buildings, inspect our schools, workshops, and factories, arrange for medical inspection of school children and of workmen in factories, especially those whose occupation predisposes to tuberculosis.

Our federal and provincial Governments must pay much more attention to the subject of human tuberculosis and make liberal and judicious appropriations to be expended along proper lines before much headway can be gained. Do we not feel rather ashamed that our Dominion Parliament expends yearly large sums to combat tuberculosis in cattle but has no annual appropriation to combat human tuberculosis, which carries off 10 000 of our citizens each year? It spends many dollars per head to bring in immigrants, but will make no expenditure to assist in stopping this large yearly migration.

Every individual, every municipality, every province, as well as our Federal Government, has a special duty in this crusade to fight a disease which has attacked over one-half of our homes.

By increasing the efficiency of the means now at our disposal, by the introduction of such measures where now none obtain, and by earnest, active, aggressive work of education our large annual mortality should soon show a marked decrease.

THE SIGNIFICANCE OF SOME ENLARGEMENTS OF THE THYROID GLAND.*

By A. F. MARTIN, M.D.Manch., Ch.B.Vict.,
LATE HOUSE-PHYSICIAN, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL.

My object in writing this is to attempt to explain the occurrence of some simple enlargements of the thyroid gland. The condition has been, if I may venture to say so, largely overlooked by medical and surgical authors. For convenience of description I shall adopt the term used by Robinson[1] as a generic term for all enlargements of the thyroid, namely, "thyreocele," to denote the condition I wish to emphasize. Etymologically the word just describes the condition, and means a swelling of the thyroid gland pure and simple. The characteristics of the swelling are as follows:

There is a fullness in the lower zone of the neck, sometimes symmetrical, but fairly frequently more marked on the right side than the left. In some cases it has amounted to a bulging disfigurement, and it has then attracted the attention of the patient. In other cases the neck is distinctly full, but, owing to absence of pain or inconvenience, the patient has either not observed it or has regarded it as of no importance. When fullness amounts to antero-posterior bulging, however slight, I have regarded it as a departure from normal, and I have taken it that the thyroid gland was enlarged. In some cases the bulging has been slightly pendulous, resting on the clavicles, and in others it has disappeared behind the clavicles and entered the thorax. The enlargement has been at first in almost every case a uniform one. The majority have been markedly soft and quite homogeneous, but some have shown nodules and thickenings, and these have become much more marked as the effect of treatment. It must also be remembered that, as a rule which admits of few exceptions, the enlarged thyroid is larger than external configuration alone will imply, since, besides coming forward, it sinks deeply into the neck.

The general condition of my cases has varied much. In the majority the aspect has been one of good health. In others nutrition has been of medium quality, and in a few the patient has appeared unhealthy. In no single instance have I observed any nervous excitement or instability at first. Their mental condition has been rather torpid, and some have suggested the hebetude of myxoedema. None of them showed at first any increase in pulse-rate or alteration in its quality from normal. In a few, complaint has been made of discomfort in the neck or even of actual dyspnoea on exertion, and in more than one there was slight noisy stridorous breathing at intervals. The skin has been normal in some of my cases, in others it has been remarkably dry, and in one actually scaly, the appearance in this case presenting some suspicions of myxoedema. Exophthalmos has been absent in all of them.

It is necessary to determine the pathological status of this thyreocele. Robinson states that the first point of departure from the normal thyroid is one due to hyperaemia, which he recognizes as being consequent upon other as well as on endemic causes. In this type he adds that the swelling is characterized by its temporary duration, and cannot be spoken of as "goitre." Should this hyperaemia be arterial and continuous, or repeated at frequent intervals, it will lead to a general enlargement of the gland, and an exaggeration of its normal structure. This he terms a simple goitre. The gland is soft and compressible it appears somewhat coarser in section, the vesicles are larger and contain an increase of the viscid secretion. I believe this process to be one of genuine overgrowth of normal tissue.

It will be remembered that Hürthle[2] showed that the colloid makes its way into the lymphatic spaces around the alveoli, and thus into the general circulation by means of minute canaliculi proceeding between the cells. It does not require much imagination to infer that when the cells become larger, due to increased physiological activity, these canaliculi tend to close by the contiguous pressure of the cells, and thus the gland will become overdistended and the alveoli dilated. At this stage the goitre is termed parenchymatous.

Repeated and prolonged hyperaemias will lead to an overgrowth of the fibrous stroma of the gland in proportion to the intensity of the hyperaemia. The process goes on, and some of the cysts increase much in size. At the same time encapsuled masses of gland tissue more or less completely developed, but some retaining the fetal type, which are present most probably in all glands, take on active growth, in their turn become cystic, and the evolution of the cystic adenoma or bronchocele is complete.

The cases that I have observed look and feel like a simple enlargement in which no gross change has taken place. Unfortunately for the interests of science, slight thyreocele is not a mortal disease, and a pathological investigation of it could only be made where the patient died of some intercurrent disease. It has not been my lot to meet with such an opportunity.

What, then, are the conditions which excite this overgrowth of the thyroid?

In order to determine them, these further points must be considered:

I. The function of the thyroid gland and its relationship to
  (*a*) Variations in metabolism occurring in
    i. Growth and development.
    ii. Irregular habits of body.
    iii. The performance of the female functions of menstruation and pregnancy.
    iv. Chlorosis.
  (*b*) Endemic influences.
  (*c*) Hereditary influence.
II. The treatment of thyreocele.

(i) Altered conditions of metabolism involved in growth and development. In a good number of my cases the swelling in the neck developed during childhood and before the onset of menstruation. In two the swelling was first noticed in infancy. It was coincident with a falling off of good condition, and improved with a recovery of normal good health.

The phenomena of myxoedema make it quite indisputable that the thyroid secretion, which beyond doubt is deficient in this disease, has a profound effect on the metabolism of the body.

The complete arrest of growth that occurs in cretinism, and the remarkable reawakening of growth and development which occurs on the exhibition of thyroid extract in this disease, support this view. Such cases have been reported by Thomson,[3] Byrom Bramwell,[4] and Murray,[5] and there is a case on record where growth occurred even after twenty years of secondary cretinism.

Murray quotes von Eiselsberg's experiments on three lambs. Two be submitted to complete thyroidectomy, and kept the third as a control. After three months the two weighed 28 kg., whereas the other alone weighed 35 kg.

The thyroid secretion stands out as a great and unique stimulant to general metabolism, and is intimately concerned with the stimulation of growth in the young.

I have repeatedly felt the thyroid to be much larger than normal, although not producing visible swelling, in the necks of children who have not reached their teens.

(ii) Even in these early cases, where rapid growth throws extraordinary strain on all glands concerned in metabolism, the second cause often is operating—namely, irregular habits of body, involving imperfect elaboration of effete material, and torpid excretion. The modern "cramming" of the Board schools, confinement in badly-ventilated buildings, lack of due exercise in many cases, and habitual constipation all tend to throw strain on the thyroid which regulates the output of urea, and stimulates the elaboration of the nitrogenous portion of tissue-waste. It must not be forgotten, either, in this connexion, that in the female sex it is a proved fact that excretion is poorly per-

* Read before the Staffordshire Branch of the British Medical Association, being extracts from a thesis for the degree of M.D. of the Victoria University of Manchester.

formed as compared to that of man. Thus Oliver[6] says, in discussing the greater frequency of lead poisoning in the female:

"In the female sex not only is metabolism less active, but excretion is not so well performed; women, for example, suffer more from constipation than men; and although they pass relatively as large a quantity of urine as men, it has a lower specific gravity, and is relatively deficient in solids, particularly in urea. The elimination of nitrogen, therefore, is not so perfect as in men, and it is disturbed by the return of each menstrual period. Add to the effects of diminished nitrogenous metabolism and to variations in renal excretion those of constipation and irregular, profuse, or scanty menstruation, and we probably have the explanation of the greater susceptibility of women to lead poisoning than of men."

(iii) When the age of puberty is reached, changes of a different character begin to operate. Growth is more active than ever, and with the onset of activity of the generative organs, the vitality of all parts of the organism is raised, and the glands involved in metabolism are put to unprecedented strain; especially is this so in the female sex. For, consider the constitutional phenomena of menstruation, which all point to a more active tissue change. Barnes, in a very clever paper, some years ago drew an analogy between the changes of menstruation and the changes of pregnancy and the puerperium, the one being a repetition of the other in many respects on a larger scale.

From this argument it is an easy step to pass to the necessity for increased thyroid function under the abovementioned conditions. That the thyroid does enlarge with menstruation is a well-established fact. It is stated to do so by many authorities, including Berry and Murray. Ord[7] is also strongly of this opinion, and says, moreover, that there can be no doubt of the frequent existence of an active congestion, bordering on an inflammatory condition, occurring in the thyroid gland at the time of menstruation.

In five of my cases this thyreocele has been observed within a few months of onset of menstruation. However it be in the case of a normal gland, I am quite convinced that changes occur in enlarged glands at the menstrual epoch. A good number of patients have assured me that their goîtres are larger during menstruation, and some experience attacks of dysphagia and dyspnoea during the period, and at that time alone. A history of difficult and painful menstruation has been obtained from a few of my cases.

Jenks[8] of Philadelphia in 1881 read a paper on the thyroid enlargement of menstruation and pregnancy, in which he detailed the story of six daughters of one family who, during the onset and regular establishing of menstruation which was difficult, developed a thyreocele, each in her turn. By the time they had reached a marriageable age the swelling had resolved. He had also observed three other similar cases. The abnormally large amount of utricular secretion which is reabsorbed in these cases will make further call upon the powers of excretion of the organism. Attention to the regular establishment of easy menstruation has been followed in his cases by marked decrease in size of thyroid.

If these phenomena of menstruation are of importance in metabolism, how much more so are those of pregnancy? The enlarged thyroid of pregnancy has been peculiarly neglected by English observers. French observers have paid attention to this matter. Natalis Guillot, Luton, and Tarnier observed and reported it. Since having my attention drawn to the point I have been able to examine the necks of a considerable number of women who were advanced beyond the fifth month of pregnancy. In only one was the thyroid not felt. None of these was conscious of any swelling in the neck.

Of my series of thyreocele, 9 gave a history of having first noticed the swelling in the neck during a pregnancy, 3 during the first, 2 after the second, 3 during the last pregnancy, and another on the morning after her first confinement. Those who had had several pregnancies after noticing the swelling all said, without hesitation, that the swelling increased with each successive pregnancy, and subsided, but never completely, after delivery; it always remained slightly larger than it was before the pregnancy. This hypertrophy is to be explained in the same way as those which have been dealt with above.

A study of the etiological tables of thyroid diseases will emphasize further the relatively greater importance of the thyroid function in women than men, which I believe to be due to the extreme tension and alteration of the usual conditions incident upon menstruation and pregnancy, for which there is no analogue in the male sex.

In the whole gamut of thyroid diseases the female is seen to be far more frequently at fault than the male. Thus Sir T. Watson, taking a total of three lists, found that out of 360 cases of thyroid disease, 330 were women. In myxoedema the comparison is more striking. In 370 cases collected by Murray, 322 were women. Run and Prudden[9] collected 150 cases, 113 of whom were women. From their table it is evident that between 35 and 45 years, and especially between 40 and 45 years of age, women are most prone to develop the malady. It is thus seen that the occurrence of the disease is coincident with the waning of the reproductive function, and with the end of the repeated strain upon the thyroid gland entailed in menstruation and pregnancy, where, as has been shown, changes in the thyroid of a quasi-inflammatory nature occur. In support of this it will be seen, too, that the disease is much more prevalent in parous than in nulliparous women. In 64 statement is made about family. Four were nulliparous. The 60 women had borne 300 children and had had 29 miscarriages. The quasi-inflammatory changes, it is not unreasonable to infer, lead on in some cases to atrophy and cirrhosis.

I have derived much valuable suggestion and help on the subject of the thyroid function in pregnancy from two papers by Oliphant Nicholson,[10] of Edinburgh, on Eclampsia and the Thyroid Gland. He refers to the function of the thyroid in the upkeep of metabolism and mentions Lange's work. Lange examined 133 pregnant women in the last twelve weeks of pregnancy, and found the thyroid gland hypertrophied partly or wholly in about 81.2 per cent. of them. This hypertrophy usually appeared somewhat earlier in multiparae (fifth month) than in primiparae (sixth month). The enlargement disappeared and reappeared with each successive pregnancy. When iodothyrin was administered in small doses to a pregnant woman who showed the hypertrophy, the gland diminished to its normal size within a fortnight; when treatment was stopped the gland almost immediately began to enlarge again. Of the 22 cases who did not show enlargement of the gland, 16 had both albuminuria and tube-casts (pregnancy kidney) which in six instances terminated in eclampsia, which was apt to recur in successive pregnancies.

Of the 108 women who had a normal thyroid hypertrophy, only two had albuminuria, and in these there was a history of renal disease previous to pregnancy. Verstroeten and Vanderlinden[11] have shown that pregnant cats require for the maintenance of their health larger thyroids than non-pregnant animals. After removal of more than four-fifths of the thyroid in pregnant animals, tetany occurs, which soon passes off under treatment with iodothyrin.

In the toxaemia of eclampsia the metabolism of nitrogenous bodies has not been continued up to the stage of urea formation. The process is stopped short at a point where the products are highly poisonous. The "defence organs," for whose competence iodothyrin is necessary, fail in their work. The kidneys are equal to the consequent extraordinary strain up to a certain point, when they strike work, and by their insufficiency produce eclampsia.

Nicholson records a series of cases, which he and others have since amplified, of genuine eclampsia and the pre-eclamptic state which were all alleviated in a most striking manner by the exhibition of thyroid extract. He believes that he has explained the phenomena of eclampsia in terms of thyroid inadequacy. One step further leads us to regard the hypertrophy of the thyroid gland as taking place in response to a call for an increased supply of thyroid secretion by the combined metabolism of mother and fetus. In four of my cases, in which the swelling in the neck was first noticed in pregnancy, the women gave distinct history of either eclampsia or genuine pre-eclamptic toxaemic symptoms. In these the thyroid function, possibly already taxed from other causes, was insufficient. In the rest, where pregnancy was normal in its course, the thyroid, although previously enlarged, was equal to all the demand made upon it. It is thus evident that the metabolism consequent upon menstruation and pregnancy is sufficient cause by itself for the development

of thyreocele; for the greater the physiological activity of an organ, and more especially the greater the variability of that activity, the greater is the liability to pathological change, following in the way described above as an ordinary hypertrophy.

(iv) That enlargements of the thyroid gland do occur in chlorosis I believe to be a proved fact. Berry states that it is so. Allbutt[12] quotes Lloyd Jones and others as having observed a fullness of the thyroid in chlorosis, but says that he will refrain from expressing himself until the incidence of thyroid enlargement in healthy women has been ascertained. I have examined the necks of 49 girls who came up to our out-patient department here, complaining of the symptom complex of chlorosis, more or less complete. Of these, 18 showed enlargement of the thyroid gland; in some it was much more marked than in others.

Allowing for liberal error, the percentage of enlarged thyroids in chlorosis still remains far in excess of the usual incidence of the affection in health. The type of swelling has been exactly similar to the type seen under other conditions, and the size has varied from a marked clumsy bulging to a slight enlargement which was only discernible on careful palpation. In some the enlargement has been a firm one; in others it was flaccid. The degree of chlorosis present has also shown no constancy. I have examined the blood quantitatively of 10 of the cases of chlorosis showing appreciable enlargement of the thyroid. I have found the condition of the blood to vary greatly, both in respect to the number of red blood corpuscles and percentage of haemoglobin.

Another point, too, is that whereas the chlorosis has improved rapidly with iron, the thyroid, apart from the administration of thyroid extract, has remained palpable and large, and has diminished much more slowly. What, then, is its significance?

In chlorosis oxidation is not thorough, waste products are retained in the tissues, and hence excretion is imperfect, constipation being a frequent symptom, and the urine being deficient. The headache is suggestive of an auto-intoxication from this cause. Further evidence of this is borne by the researches of Lloyd Jones.[13] He has shown that the specific gravity of the blood increases in both sexes until puberty. Thus the specific gravity of the blood of a child aged 2 to 3 years is about 1050, that of a youth of 17 is about 1058, and that of a young woman of this age is 1055·6 approximately. From this age the specific gravity in the male still rises, whereas in the female it falls or remains low until about 25 years of age, when it returns to about 1055 to 1056. He found that the blood serum is not altered in specific gravity; hence the change must be in the corpuscular elements and their haemoglobin contents. But, wherever be the change, it follows that this lowering of the specific gravity of the blood means a corresponding lowering of metabolism. Landois and Stirling prove that whenever the specific gravity of the blood falls the excretion of urea and carbonic acid fall. Reflection on the thyroid function of regulating the katabolic part of metabolism will show that in a condition of this sort the thyroid gland must be taxed to its utmost. It is easy thence to conceive that it will enlarge in those individuals whose thyroid gland in its normal state is only barely able to meet the demands of the healthy organism.

(*b*) The relationship of thyroid enlargement to endemic causes in this district opens up a wide field for discussion. I can only briefly summarize my conclusions:

1. The only common condition to all cases is the water, which has derived its contents from the rocks through which it has percolated, the town water being tapped from deep artesian accumulations.

2. The table supplied will show that in no case has the water shown much total solid impurity, comparatively speaking.

3. It is also seen that the cases have occurred indiscriminately on the sandstone and millstone grit.

4. If there is an endemic influence it is not contained in the lime and magnesium constituents, many waters being much harder and producing no goitre.

5. Its action is only a slight one, and may serve to merely accentuate the changes in the gland due to causes primarily mentioned.

Details of Water Supply compiled from information received from Mr. G. D. S. Harrison, Engineer to Staffordshire and Potteries Water Company.

The water is analysed every six months, and the following is a typical report from the County Analysts. The table also contains the incidence of cases in the various districts.

Name.	Hatton Supply.	Wall Grange Supply.	Meir Supply.	Stockton Brook Supply.
Quality of the Rock.	Sandstone.	Sandstone.	Sandstone.	Millstone Grit.
Towns Supplied.	Newcastle Stoke. Fenton (part).	Hanley. Etruria.	Longton, Fenton (part).	Cobridge, Burslem, Tunstall.
	GRAINS PER GALLON.			
Total solid matter dried at 212° F.	16.8	13.3	16.8	21.0
Free and saline ammonia	0.000	0.0007	0.000	0.000
Albuminoid ammonia	0.000	0.000	0.000	0.000
Nitric nitrogen	0.31	0.27	0.27	0.05
Combined chlorine	0.84	0.98	0.84	2.94
Oxygen absorbed in 4 hours at 80° F.	0.000	0.004	0.003	0.0009
Appearance	Clear	Clear	Clear	Clear
Colour through 2 ft *	—	—	—	—
Hardness before boiling	10.94°	8.48°	12.94°	10.39°
Hardness after boiling	6.30°	5.90°	5.70°	5.00°
Temporary hardness	4.64°	2.58°	7.24°	5.39°
Incidence of cases	*19 cases*	*6 cases*	*5 cases*	*16 cases*

* All a pale-bluish tinge.

Eight other cases lived out of the area supplied by the company, and drank either spring or well water.

(*c*) Heredity is potent in producing the condition in that the thyroid function is transmitted in a weak condition from the last generation, who, before the company's water supply was largely used, were badly affected by goitre, the "Staffordshire neck" being well known. Inherited weakness results in increased liability to morbid processes. The thyroid function being congenitally weak, the gland will be more liable to enlargement when taxed in the way above described. Twenty three of my 54 cases gave a history of antecedent thyroidal disease in the family, affecting most commonly the mother, sometimes the mother's sisters. In 10 of my cases other members of the patient's family, either sisters or brothers, were affected.

II. The successful medical treatment of thyreocele clinches my argument.

In the first place, I would point out that the condition is only amenable to medical treatment in its earlier stages. Where advanced secondary changes have occurred, such as the development of adenomata or large cysts, the case is undoubtedly one for surgical treatment. These are never materially reduced in size. Where the condition has not advanced beyond the stage of a moderately-distended parenchymatous goitre, and the feel of the gland is homogeneous and soft, good results have been obtained.

Secondly, all lines of successful treatment have supplied the organism with one or other of the elements contained in the thyroid secretion, whether it be by means of iodine applied externally to the neck, or internally as the crude tincture or the iodide of potash, or, again, by means of thyroid extract. The last is the method I wish to emphasize. I have employed it in 40 cases, with the following results:

In 12 cases the thyreocele has completely disappeared: in 13 cases it has been greatly reduced in size; in 15 cases the reduction accomplished has been slight. In most of the latter adenomata or cysts were present, and improvement consisted in a shrinking of the thyroid substance around the adenomata. The average length of treatment was about three months. As a rule, the effect began to manifest itself in about two to three weeks.

The method employed was to begin with a dose of about 5 gr. of the dried extract, and to increase this gradually until signs of a mild thyroidism were obtained—namely,

some quickening of the pulse, and an alteration in its quality, consisting of an increase in volume and a diminution in tension. Idiosyncrasy was found to play a large part in the action of the drug, some patients taking 20 gr. thrice daily with equanimity, whereas others were "thyroidized" by half the dose. The largest dose that could be borne without bad effects was persisted with for about three months, and then gradually decreased. Six patients were treated as in-patients, and these all showed prior to treatment, amongst other signs of hypothyroidism, a deficient excretion of urea. The urea percentage was often increased from about 1.5 per cent. to as much as 3.5 per cent., as estimated by Dupré's apparatus. This treatment was accomplished without any bad effect to the patient beyond some slight transient headache when on large doses, and more occasionally some palpitation, which disappeared on reducing the dose.

Edmunds[14] states that he has come to regard thyroid extract as a specific for sporadic goitre, and adds "If this is so, the enlargement of the thyroid must be an attempt at compensation." I think a more obvious explanation of its action is that, by supplying the organism with the thyroid secretion, it relieves the thyroid of all work and so gives the gland a chance of recovering its equilibrium, and of dealing with the excess of colloid, which, while the patient is under treatment, is no longer secreted in quantity. Or where the thyreocele has not reached the stage of well-developed alveolar distension, and is merely a hypertrophy of normal tissue, a call for this no longer existing, it resolves.

The following conclusions, then, are reached:

1. That a call for increased functional activity is sufficient cause for simple enlargement of the thyroid gland.

2. That such a call is frequently given by the metabolism of the organism in connexion with growth and development, with the performance of the uterine functions in the female, and with the chlorotic conditions of young girls.

3. That the phases of enlargement of the thyroid included under the term "thyreocele" are a response to such an appeal from one or more of the above causes in an individual whose thyroid function is feebly performed.

4. That as undue physiological activity is a potent cause for pathological change, so this simple hypertrophy, when necessitated for prolonged periods, lays the foundation of the pathogenesis of the degenerate cystic and adenomatous bronchocele.

5. That there is often some influence exerted by heredity upon the thyroid function.

6. Conclusions arrived at as regards a possible endemic cause for these cases in this district have been summarized above.

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SIMULATION OF MASTOID DISEASE.

By STEPHEN PAGET, F.R.C.S.,

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WITHIN the last few years I have had under my care, at the West London Hospital, two cases where the signs of acute mastoid inflammation were feigned. The patient, in each case, was a nurse. I am sorry that my notes are too short to be worth printing here, but I have a clear memory of the cases.

One patient, a nurse in a fever hospital, had been subject for some months to a very slight discharge from the left ear, and I had seen her two or three times, and had advised against operation. She had complained each time of pain behind the ear, even of severe pain. She went back to her work at the fever hospital, and was carefully treated and kept under observation. A few weeks later her temperature began to rise every evening. This evening rise, beginning at 100° F., slowly increased, till at the end of a week her evening temperature was 103° F. She was now admitted to the West London Hospital, with a view to operation; but the Sister, taking the temperature both in the mouth and under the arm, found it normal in the mouth and 104° F. under the arm. After a week or ten days the temperature became steady, the patient ceased to complain of pain and seemed in perfect health, and left the hospital.

The other patient, a nurse in a convent, had a very slight chronic discharge from the left ear, and, like the first patient, had complained greatly of pain behind the ear. It was known of her that she was "hysterical," and that she was in the habit of taking chloral. On her admission to hospital she had the appearance of a case of meningitis or of cerebral abscess. She lay in bed, day after day, in a state of lethargy, her eyes closed, her hands not moving. She seemed hardly to hear what was said to her, and, when she did answer, it was in a faint whispering voice, very slow. From time to time she moaned, complaining bitterly of pain, and flinching at the very lightest touch behind the ear; but mostly she lay like a log and seemed unconscious of all that was going on around her. Day after day she remained in this extraordinary state for nearly a fortnight. At the end of that time she began to have rapid convulsive up-and-down movements of the right hand and forearm, the side opposite to the affected ear. Even though we were sure that her general condition all these days had been that of a "neurotic" patient, yet I did not dare to leave her without an operation, so I opened the mastoid antrum, but found no pus. The operation perhaps improved the state of her mind, but of that I am not sure. Anyhow, in the course of the next few weeks, she slowly became more natural; the jerking of the arm did not return, and she left the hospital in fairly good health. A year later we heard that she had been admitted to another hospital, with the same set of symptoms, unable to walk or stand, hardly able to speak, and wearing spectacles made not of lenses but of plain glass.

I will not take up space here by any comment on these two cases. But they seem to me worthy of note, showing that we must be on guard against the feigning of the symptoms of mastoid disease. Especially we must not take pain by itself as proof that a mastoid operation is immediately necessary.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

PULMONARY ABSCESS CAUSED BY A TOOTH.

THE following case is of interest from the fortunate termination:

A. C., a young lady who consulted me, stated that she had been ill for about seven months. She complained of pain in the right side of the chest, with severe cough and profuse expectoration. Her previous health had been very good.

About seven months previously she began to cough. This was accompanied with pain in the right side of the chest, and soon afterwards expectoration of thick phlegm. She had difficulty in breathing. These symptoms increased in severity, and the patient lost a good deal of weight. She consulted several medical men and was treated at the Swansea Hospital as a case of phthisis pulmonalis. Her condition did not improve.

When I saw her, she appeared very ill, and was quite unable to leave her bed, she perspired freely, and was much emaciated. Her temperature continued at 101°. The cough was very troublesome and accompanied with expectoration of fetid pus. The movements on the right side of the chest were very much diminished. Vocal fremitus was diminished on right side of sternum. There was extensive dullness, from the right clavicle to the fourth rib. The apex beat of the heart was displaced downwards and to the left about 1½ in. There was undoubtedly an abscess in the lung.

Three days after I first saw the patient she had a very violent fit of coughing with a discharge of a large quantity of pus from the lungs. On examination of this there was found a second bicuspid tooth which she had had extracted by a dentist about seven months previously. This tooth must, of course, have been drawn into the glottis while she was under gas—she was quite unaware of the

fact—and lodged in one of the divisions of the right bronchus, where it had caused the formation of a large abscess.

After this the patient made an uninterrupted recovery. The lung has healed up. Owing to the contraction of the lung the heart has been drawn considerably to the right side, the apex being at least ½ in. to right of normal.

It was undoubtedly a very lucky chance which led to the expulsion of the tooth from a large cavity through what must have been a small opening, but this must have been due to the tooth being carried in the current of the thick, purulent contents of the cavity towards this small opening.

Swansea. JOHN D. DAVIES, M.B.

IS THE SO-CALLED SYPHILITIC STRICTURE OF THE RECTUM GONORRHOEAL IN ORIGIN?

It has been largely accepted that non-malignant stricture of the rectum is in the majority of cases syphilitic in origin. Putting aside those due to tuberculous ulceration or the spreading burrowing ulcers of ulcerative colitis, syphilis is cited as the cause of non-malignant stricture. Treves says (*System of Surgery*, vol. i): "We believe that tertiary syphilis is the most important cause of non-malignant stricture of the rectum."

Mr. R. J. Godlee in his clinical lectures maintained that the so-called syphilitic stricture of the rectum was gonorrhoeal in origin. It is much more common in women than men, and this might be explained by the closer proximity of the vagina to the rectum and the greater likelihood of infection from that source. Mr. Pearce Gould admitted to the writer that there was evidence in favour of this view. Another important point is that gonorrhoeal inflammation produces much fibrosis, and non-malignant stricture of the rectum is densely fibrotic. The following case is interesting because it illustrates the process of formation of stricture of the rectum in a case undoubtedly of gonorrhoeal origin.

W. C., aged 27, had gonorrhoea about eighteen months before he came under observation. He had been circumcised when a boy and the prepuce removed *in toto*, so that the discharge had free exit and there was nothing to prevent its dissemination. He came for advice because there was a discharge about the anus and at times a little pain and discomfort. On examination several warts were seen on the perineum and around the margin of the anus. On the left side there were two warts and a fistulous track running between them. At the operation subsequently performed, when this was slit up, a dense mass of fibrous tissue was found surrounding and beneath it. Through this a narrow fistulous track was found, and a probe was passed into this, when it was discovered that it proceeded 6 in. along the rectal wall, not parallel to the bowel, but slanting obliquely across it. No internal opening could be found, and with the finger in the rectum it was easy to make out that more than the mucous coat separated probe point and finger, so that the fistula was running in the muscular coat. On the opposite side of the anus there were two or three large comedones. A thick core could be squeezed out of these, and one being slit up was seen to extend completely through the skin. This was a very possible explanation of the origin of the fistula—namely, by gonorrhoeal infection through a follicle.

W. SIDNEY SWEET,
Heyfield, Australia. B.Sc., M.B., B.S.Lond., M.R.C.S.Eng.

TREATMENT OF CHRONIC X-RAY DERMATITIS.

Having had the misfortune of being a pioneer of this branch of science in New South Wales, I have shared with others the attendant reward of chronic dermatitis, affecting chiefly my fingers. My experience has been the same as my *confrères* so afflicted, so far as trying every conceivable drug in the *Pharmacopoeia* without any appreciable advantage. Eventually I dispensed with salves, and resorted to very fine sandpaper, which I used at first daily, and subsequently less frequently, with a marked benefit. I had a couple of painful warts and small ulcers which would not heal and caused excruciating pain. These I had excised, and, though the healing occupied three times the normal period, the result has been most gratifying. Drs. Maitland and Corbin, of Sydney Hospital, kindly removed them for me.

I can safely recommend this treatment to others, otherwise I do not think the warts will disappear or the ulcers heal for years at least. I trust that this information will lead others to follow this treatment, and would advise that no stitches be inserted, only strapping employed over the excised area.

L. HERSCHEL HARRIS, M.B., Ch.M.Syd.,
Honorary Assistant Surgeon and Senior Honorary Skiagrapher, Sydney Hospital; Lecturer in Skiagraphy, Sydney University Dental School, etc.

REPORTS

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

LONDON MISSIONARY SOCIETY'S HOSPITAL, JAMMAMALAMADUGU, SOUTH INDIA.

FIBROMYOMA OF THE OVARY.

(Reported by T. V. CAMPBELL, M.A., M.B., C.M.Edin., and E. W. LEWIS, M.B., Ch.B.Edin.)

On January 14th, 1904, Immam Bee, aged 30, came to the hospital complaining of a large tumour in the lower abdomen, which, though not painful, gave her a great deal of discomfort.

History.—A small tumour had been noticed in the umbilical and right lumbar regions one year and eight months previous to her admission. The patient became pregnant two months after the tumour was noticed, and went on to full time, being delivered of a living child seven months before her appearance at the hospital. The child only lived two days. After the pregnancy was over it was noticed that the tumour had increased very much in size. From this time to the time of admission the tumour grew rapidly in size and menstruation failed to return. The patient never suffered any pain from the tumour.

State on Admission.—The general health of the patient was good, but the lower portion of the abdomen was distended by a large tumour, the size of a football, which extended from the pelvis to the level of a seven months pregnancy. The tumour was hard, but felt as if it might be a tense cyst. On vaginal examination it was found to be separate from the uterus, which lay to the right and behind the tumour. When the tumour was pulled on, the uterus was felt to move also.

Operation.—On January 22nd, under chloroform, the abdomen was opened and the tumour removed. This proved to be solid and necessitated a 7-in. incision. There were three very firm adhesions, one with the omentum which had to be ligatured and cut. The pedicle was long and easily clamped and ligatured. The other ovary was found to be healthy, so the wound was closed. The patient made an uninterrupted recovery. No ascites was at any time present.

REMARKS.—On section the tumour appeared to the naked eye to be a fibromyoma, it exactly resembling a uterine fibroid in the distribution of the fibres in whorls. Microscopical section proved the tumour to be a fibromyoma. There was no sign of cystic degeneration to be seen anywhere throughout the tumour. The extreme rarity of this condition warrants the record of the case.

UNIVERSITY COLLEGE, LONDON.—The *Calendar* of University College Hospital Medical School (University of London), which has just been issued, in addition to the full particulars of the courses of study and to the detailed instructions to medical students, contains two chapters giving the outline of the history of University College, the medical school, and of the hospital. The history indicates the important part that the medical school has played in the development of medical education in London. There is an engraving of the new buildings of University College Hospital provided by the generosity of the late Sir Biundell Maple. They will be formally opened by His Royal Highness the Duke of Connaught on November 6th next. The *Calendar* also contains an engraving of the elevation of the new medical school buildings which the Council has been enabled to erect through the munificence of Sir Donald Currie. These buildings are being specially constructed with laboratories and research rooms for medicine, surgery, pathology, and other departments.

REVIEWS.

TEXTBOOKS OF GYNAECOLOGY.

TEN years have passed since the first edition of the *System of Gynaecology*,[1] which forms part of *Allbutt's System of Medicine*, was issued. Within that space of time its specialist editor, Dr. PLAYFAIR, and four contributors—Sir W. Priestley, Knowsley Thornton, Greig Smith, and Milne Murray—have joined the majority. In the preparation of the new edition Dr. EDEN has taken the place of Dr. Playfair, and the new issue is an eminent sample of good editing; and whilst we must admit that the articles of which it is made up have been judiciously renovated, we may add that its chief triumph as a work of editorship is its reduction to the extent of twenty-three pages. Reduction of bulk is distinctly an improvement in a work which still holds over 950 pages between its covers. Dr. Blacker replaces Sir W. Priestley as the writer of Pelvic Haematocele; Dr. Champneys discusses Sterility in place of Dr. Gervis; Professor J. W. Taylor's Ovariotomy replaces Greig Smith's contribution; and Professor Herbert Spencer has rewritten Knowsley Thornton's Hysterectomy. Drs. Eden and Teacher add to this edition an entirely new article—Chorionepithelioma—with fine microscopical drawings. We are glad to find an excellent contribution by Dr. Hellier—Gonorrhoeal Infection of the Female Pelvic Organs—a most important question. It is, apparently, the general surgeon, not the specialist well experienced in such matters, who still requires to be reminded that neglected gonorrhoea may prove as disastrous in women as in men. Noeggerath is vindicated by Dr. Hellier, who gives also a good account of diagnosis and treatment, deprecating indiscriminate operating on the Fallopian tubes. "Gonorrhoeal arthritis, for example, yields to time and treatment, and epididymitis is not considered to call for castration," says Dr. Hellier. True; and were gonorrhoea in the male treated as it sometimes is in the female, we should see strange developments. One of the most thoroughly-revised articles in this edition is that on Diseases of the Ovary. Dr. Herbert Williamson has assisted the original author, Dr. W. S. A. Griffith, very materially. The contribution is adorned with some original illustrations, and the pathology of inflammation and tumours is lucidly demonstrated. Mr. Alban Doran has rewritten Diseases of the Fallopian Tubes, omitting the tables of cases of primary cancer, the existence of that disease being now established on the evidence of over sixty reports. Some omissions noticeable in the first edition, in respect to pyosalpinx, etc., have been made good in this article and in Dr. Cullingworth's Pelvic Inflammation. Dr. Blacker's Pelvic Haematocele is an excellent contribution, and Mr. Bland-Sutton has evidently laboured hard to renovate his well-known Extrauterine Gestation. The paragraphs on ovarian pregnancy are instructive when we remember that no case satisfying modern pathological criticism had been reported in 1896. The author even now does not trust any recorded instance of ovarian gestation excepting Van Tussenbroek's. We need not say that Professor Taylor's Ovariotomy is a first-class surgical essay. The directions for after-treatment are judicious and intelligible. Abdominal Hysterectomy, rewritten by Dr. Herbert Spencer, deserves similar commendation. Neither of these writers—or, rather, rewriters—confuses the reader by overloading his essay with long details of numerous methods adopted by different specialists. To Dr. Spencer has fallen the harder task, as ovariotomy is an operation about which there is little left to dispute, whilst the most experienced and successful specialists would hesitate to say the same about hysterectomy for fibroids or cancer. The same writer contributes a separate article, Vaginal Hysterectomy and Colpotomy. The editors have very properly attached great importance to after-treatment, for not only is it discussed at length in the special articles to which we have already referred, but it is also made the subject of another contribution by Dr. Herman. There is also one more essay on a general subject of high importance, namely, Antisepsis and Asepsis in Relation to Gynaecological Surgery, by Dr. Eden. Both these contributions are lucid and practical, and add to the value of the *System*. Dr. Amand Routh is the author of some instructive notes on Minor Uterine Operations. He not only discusses electricity, the subject of a separate article by the late Milne Murray in the first edition, but instructs his readers about atmocausis. How far vaporization of the uterus has "come to stay" we cannot say; it has the disadvantage of adding much to the already overloaded armamentarium of the specialist. This brief review of the new issue of the *System of Gynaecology* will be sufficient to indicate that the editors have taken full advantage of their opportunities to make the second edition a distinct improvement on the first, a popular, widely read and freely quoted textbook.

There can be no doubt that *Gynaecological Diagnosis*[2] is a work which teaches the reader to think, and on that ground alone Dr. GILES deserves credit. The author encourages the student and practitioner to acquire sound clinical knowledge, more necessary for the beginner than minute pathology or details of new operations. He dwells in his introduction on the importance of diagnosis for the good of the patient and the credit and peace of mind of the doctor. "Once the diagnosis is established, the question of treatment is relatively easy," says Dr. Giles; he might have added, as his introduction is hortatory in character, that the beginner must not get into the habit of "establishing" diagnosis by exploratory incisions. The chapters on case-taking and examination of the patient are well prepared; we commend yet more that devoted to the use of instruments for diagnosis, because it is very short, and no special implements save the sound, the speculum, and the swab-holder are considered. Some critics may blame the author for omitting directions for the employment of the volsella, but it is a useless and even dangerous instrument in the hands of the inexperienced. He mentions the volsella as a bad aid to the passage of the sound, and that is all we hear about it in his pages. Dr. Giles is correct in saying "that the passage of the sound is purely a matter of direction, and that any resistance is to be the signal not for using more force, but for altering the direction." He states that "the most important contraindication to its use is when there is the slightest suspicion of the possibility of pregnancy," but he might have added that there are other contraindications almost as serious. The remainder of the manual treats of physical and subjective "leading symptoms," and although it is extremely difficult to teach their import in a book, Dr. Giles has done his best, and in consequence his manual is likely to prove of great use to those for whom it is designed. We are glad to find an entire chapter on Bearing-down, and the tabulation of its variable significance and of that of other symptoms, such as pain, dyspareunia, and haemorrhage, is a good feature in this manual. The chapter on haemorrhage has clearly been prepared with great pains, and the reader will be all the better for mastering it, but it is perhaps not quite so commendably simple as are the chapters on other symptoms. The inexperienced cannot readily grasp the relative value of grave and mild maladies, and as bleeding is so intimately associated with certain very definite and dangerous disorders, it is better to begin by teaching the student how to distinguish these disorders from each other, than to mix them up with uterine congestion and pyosalpinx.

We noticed the first edition of Dr. HIRST'S *Textbook of Diseases of Women*[3] in the BRITISH MEDICAL JOURNAL on

[1] *A System of Gynaecology by Many Writers.* Edited by T. Clifford Allbutt, M.A., M.D., LL.D., F.R.S., Hon. D.Sc.Oxon., etc., Regius Professor of Physic in the University of Cambridge; and W. S. Playfair, M.D., LL.D., F.R.C.P., Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital; and Thomas Watts Eden, M.D.Edin., F.R.C.P. Lond., Assistant Obstetric Physician, Charing Cross Hospital; Physician to In-Patients, Chelsea Hospital for Women; Physician to Out-Patients, Queen Charlotte's Lying-in Hospital. London and New York: Macmillan and Co. 1906. (Demy 8vo, pp. 949; 1 plate, 281 illustrations. 28s.)

[2] *Gynaecological Diagnosis*: a Manual for Students and Practitioners. By Arthur E. Giles, M.D., B.Sc.Lond., F.R.C.S.Edin., M.R.C.P.Lond., Gynaecologist to the Tottenham Hospital, Surgeon to Out-Patients, Chelsea Hospital for Women. London: Baillière, Tindall, and Cox. 1906. (Demy 8vo, pp. 212. 7s. 6d. net.)

[3] *A Textbook of Diseases of Women.* By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania, etc. Second Edition, with 701 Illustrations, many of them in colours. London: W. B. Saunders and Co. 1905. (Demy 8vo, pp. 741; 701 illustrations. 21s.)

June 17th, 1905. In welcoming the second edition we gladly renew our testimony to the high excellence of the work as a manual of surgical technique; but there are other things to be considered. Two things have been and are the bane of gynaecology. One is, mistaking health for disease. According to Dr. Hirst, endometritis is the commonest of the diseases of women, "because it accompanies all the other diseases of the pelvic organs." The practical rule from this would seem to be in every case curette. We do not hesitate to say that an endometritis so common as this is unknown to morbid anatomists. The other is the multiplication of operations without investigation of their after-results. At p. 300 we read that more than fifty different operations have been recommended for retroversion of the uterus. Shortening the round ligaments in the inguinal canal is recommended on the ground that "it is perfectly safe." We think that if Dr. Hirst would study the literature of his own country on this subject he would find reason for deleting this statement. Dr. Hirst has apparently no knowledge of the effect of simple dilatation of the cervix by bougies in dysmenorrhoea, for he recommends forcible dilatation with a four-bladed dilator left in the uterus for twenty-four hours. This sort of thing used to be done in England many years ago, but has long since been given up. As a guide how to operate this is a work of great value, but not as a guide when to operate.

The word "essentials" is rather a provocative title, because it invites the reader to consider not only whether the information given is correct, but whether it is essential. Dr. Ballantyne's work, *Essentials of Gynaecology*,[4] appears to be a reprint of his lecture notes. It consists of short disconnected sentences, such as would be sufficient for a lecturer's guidance. Some of the sentences are obviously such as need, and in a lecture would receive, oral elaboration. Thus, for instance, under Pelvic Peritonitis, Surgical Treatment, the reader is told "occasionally abdominal or vaginal section and drainage." A person who may be called upon to advise whether or not an operation should be done needs more definite instruction than this. Professor Clifford Allbutt has pointed out that it is one of the ever-existing hindrances to medical science that, as it were, the game is played with the cards under the table; and this remark applies more to gynaecology than to any other branch of medicine or surgery. It is this impossibility of public demonstration that causes errors to reappear from time to time. In this book we read at page 173 of "obstruction to the escape of the menstrual fluid at the sharp angle of the uterine flexion." Will Dr. Ballantyne tell his readers in his next edition where a uterus showing a sharp angle of flexion of its canal is to be seen? Matthews Duncan's statement that there is no more obstruction in the canal of an anteflexed uterus than there is in a bend of the river Thames is supported by every specimen that exists, so far as we know. Where knowledge is incomplete there is always a tendency in the writers of textbooks to trust to imagination and analogy, rather than admit ignorance.

MEDICAL DISEASES OF EGYPT.

The Medical Diseases of Egypt[5] is the title of a book, the first part of which has just appeared, by Dr. Sandwith, who practised until lately in Cairo. The preface narrates the scope of the treatise, which aims at three classes of possible readers—the Egyptian student of medicine, past and present; the newly-appointed English medical man suddenly placed in a position of responsibility in Egypt without any knowledge of what sort of diseases are likely to be met with in natives; and the large and increasing class in Europe and elsewhere who are interested in tropical diseases. Part I, that now before us, deals with the infectious disorders, and it is hoped that the second volume will complete this class of diseases and begin those of the nervous system. It is thus evident that the whole work will be somewhat large, as presumedly all the ordinary medical complaints of ordinary climates are met with in Egypt as well as those peculiar ailments which are limited to hot climates, ailments which are for convenience designated "tropical diseases." The designation is not quite correct, for some, and those perhaps the most important, occur in the subtropics, or even, under favouring circumstances, spread into temperate climes.

Dr. Sandwith assumes that his readers will be possessed of Dr. Taylor's or Professor Osler's handbooks of medicine; and, such being the case, diseases such as enteric fever, scarlet fever, measles, etc., might well have been omitted altogether, or much more briefly treated, in order to reduce the size of the book. Passing over those subjects, we come to chapters on infectious jaundice, relapsing fever, Malta fever, plague, bilharziosis, pellagra, and ankylostomiasis, all of which will be found to be exceedingly interesting and very fully written upon. The pathology of infectious jaundice still remains a puzzle, and we are inclined to side with the author when he contends that it has nothing to do with yellow fever. In discussing the question of insects as transmitters of the virus a curious mistake creeps in. *Culex fatigans*, it is stated, prefers the foul water of cesspools to breed in, and cannot be bred in clean water in a laboratory. As a matter of fact, however, this mosquito is one of the easiest to breed in the laboratory in ordinary water, and its usual natural breeding places are clean tub waters, the larvae of *C. fatigans* and *Stegomyia* often being found together. Probably the insect described has been wrongly named and belongs to some other species.

The cases of Malta fever recorded in the chapter on that subject are interesting in corroborating the wide distribution of this disease, but the remarks on epidemiology are already somewhat out of date, so quickly are new discoveries being made. The chapters on bilharzia, ankylostomiasis, and pellagra are perhaps the best in the book. They give a very good and accurate account of those diseases, and are quite up to date in all the most recent work. Before closing the review the chapter on Medical History in Egypt must be mentioned. It opens the treatise, and to those historically inclined it should prove not only interesting but distinctly useful.

Finally, the clear and lucid style in which the book is written is to be commended, and the many interesting and important medical facts so abundantly scattered throughout its pages will make it interesting to all medical readers, while it admirably fulfils the purposes for which it was written.

HYGIENE AND PUBLIC HEALTH.

When a work has reached its sixth edition in ten years the task of the reviewer is simplified, for he may with propriety confine himself to the particular features of the edition before him. In Notter and Firth's *Hygiene*[6] the chapter on water supplies and water analysis has been considerably enlarged, and now includes a very clearly-written account of the methods adopted in the bacteriological examination of samples of water. The section dealing with *B. coli communis* is graphically written, and the differentiation between this organism and *B. lactis aërogenes* very clearly described. When discussing the question of acquired immunity, the authors give an exceedingly fair summary of the different theories which have been advanced to account for this faculty. In connexion with Metchnikoff's theory, they express the opinion that phagocytosis may be the result rather than the cause of immunity. The much-debated subject of hospital isolation is not dealt with at any great length, but the opinion is definitely expressed that removal to hospital of the infected sick, so situated that their adequate isolation at home is impossible, is imperative in the interests of the community at large. Several pages have been added to the chapter on food, particularly valuable sections being those which refer to the nutritive value of foodstuffs and to dietaries. There is no question that this latest issue will fully uphold the reputation gained by the earlier editions of this small but comprehensive handbook.

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[4] *Essentials of Gynaecology.* By J. W. Ballantyne, M.D., F.R.C.P.Edin., F.R.S.E., Lecturer on Midwifery and Diseases of Women and Children in Surgeons' Hall, and in the Medical College for Women, Edinburgh, etc. Edinburgh and London: Wm. Green and Sons. 1905. (Demy 8vo, pp. 268. 5s.)

[5] *The Medical Diseases of Egypt.* By F. M. Sandwith, M.D., F.R.C.P., Consulting Physician to H.H. the Khedive and to Kasr-el-Ainy Hospital, Cairo. Part I. London: Henry Kimpton. 1905. (Demy 8vo. pp. 316. 7s. 6d.)

[6] *Hygiene.* By J. Lane Notter, M.A., M.D., and R. H. Firth. Sixth Edition. London: Longmans, Green, and Co. 1905. (Crown 8vo. pp. 505. 4s. 6d.)

Students reading for the public health diplomas are often in the first instance appalled at the extent of the section on public health law in the handbooks they are advised to read. There has been so much legislation by reference that it seems almost hopeless to obtain even a nodding acquaintance with the subject. The little work, *The Public Health Acts*,[7] by Messrs. M. and G. ELLIOTT, will therefore be welcomed as a convenient abstract. Many of the provisions of the Public Health and allied Acts which are of special interest to the medical officer of health are paraphrased, but it is a pity that reference is not made to the number of the section in the particular Act referred to. Cross references are very plentiful, and many references are given to important cases decided in the law courts. It is hardly to be expected that the public health laws could be dealt with exhaustively in a work of 150 pages, but there are a few rather glaring omissions. It is made to appear, for example, that the only conditions which allow of the compulsory removal of an infected patient to an isolation hospital are that he is without proper lodging and accommodation, whereas such removal may be required under three other circumstances. Slaughter-houses are only mentioned in connexion with the Public Health Acts (Amendment) Act, 1890. This is an adoptive Act, and is not in force in many parts of the country; and it is not made sufficiently clear that slaughter-houses licensed before the date of its adoption are licensed in perpetuity. On p. 38 it is stated that no person can erect or rebuild a dwelling-house in a rural district unless he has obtained a certificate that there is a supply of wholesome water within a reasonable distance; it should have been said that the house may be erected or rebuilt, but it cannot be occupied unless the conditions named are complied with.

DERMATOLOGY.

THE second edition of MRAČEK'S *Atlas and Epitome of Diseases of the Skin*[8] has been rearranged and enlarged, a number of new plates having been added. On the whole, the epitome gives a general survey of the subject, which will be found useful up to a certain point. A short account of dermatology such as this, however, needs, of course, to be supplemented by a full work of reference. As far as the text is concerned, one or two points must be touched upon. Sycosis should have been dealt with under the headings of coccogenic and hyphogenic sycosis respectively. Pityriasis rosea is a definite entity, and to mix it up with herpes tonsurans maculosus, as is done by the Viennese school, leads only to confusion, especially as pityriasis rosea is of great importance from the differential diagnosis point of view, mistaken as it frequently is for a syphilitic eruption. With regard to the plates, they are on the whole fairly satisfactory; but exception must be taken to Plate 3, which does not represent adenoma sebaceum, as stated in the text facing the drawing. Adenoma sebaceum is a totally different thing to the condition depicted. The necessity for such a plate as No. 31 (combustio cutis corporis) is not apparent in a work on dermatology; it would be more in its place in an atlas of medical jurisprudence. Plate 43 is misleading, for the crusted lesions shown are not what is commonly called cutaneous horns, but come apparently into the category of psoriasis rupioïdes, a very rare condition. Plate 115 is distinctly poor, especially for English practitioners, who have to deal mainly with ringworm of the *Microsporon audouini* variety.

In the double number of the New Sydenham Society's *Atlas*,[9] published recently, seven of the plates are devoted to elephantiasis as it occurs in English patients and in the tropics. The importance of dealing with cases in their early stages is insisted on (bandaging, evaporating lotions, quinine internally). As to the etiology, both in the home and the tropical instances, obstruction of the lymphatics is the essential point, whether brought about by the *Filaria sanguinis hominis* or in some other way. There is no doubt that microbic infection is a factor. Localized conditions of elephantiasis follow repeated attacks of erysipelas. The marked case of elephantiasis of the leg contributed to the BRITISH MEDICAL JOURNAL of March 29th, 1902, by Mr. Whitehead of Manchester may be referred to here. Among the other subjects dealt with are bilateral lupus vulgaris, morphoea of the forehead, accidental inoculation of an acne pustule of the face with vaccine, bilateral rodent ulcer, a series illustrating the so-called potato-like tumour of the neck, and figures showing a new blood fluke of man—the *Schistosoma cattoi*.

Still another little book on *Diseases of the Skin* has made its appearance.[10] It hails from Columbia's shores, and belongs to that class of book which may be described as the ox-in-the-teacup series. The subject is dealt with on alphabetical lines. In a little work of this kind, which does not pretend to be more than an epitome, there is nothing to say against the arrangement of the matter in this wise. The diseases are run through in a very sketchy manner, and, although the book is addressed to students and practitioners, they would be well advised to read about the ordinary run of skin ailments in a large and full work, which would always be a friend in need for reference in special cases.

NOTES ON BOOKS.

MR. CANTLIE has produced a very readable little book on *Physical Efficiency*,[11] a subject which should be of interest to all classes of readers. The influences of climate and environment upon the British race, and the modification which our national characteristics are undergoing, are undoubtedly matters worthy of much serious attention. The practical portion of the work is of more value; the clothing of children, the gross errors common in the diet of infants among the poor, and the use in all classes of the abominable infant's comforter, receive marked attention. A valuable chapter is added on exercise and the best forms in which to take it. The book contains prefatory commendations by Sir Lauder Brunton and Sir James Crichton-Browne.

Fourteen years ago *Outlines of Zoology*,[12] by Professor J. ARTHUR THOMSON, appeared and was at once recognized as good. A few years later it was revised and enlarged, and seven years ago a third edition, again revised and enlarged, was published. Now the fourth edition, further revised and enlarged, is before us. Revision and enlargement in a new edition of a zoological textbook are always necessary owing to fresh research, but in spite of the process having been carried out three times in the present work, the book is still of reasonable size. Its plan is somewhat different from that of other textbooks on the subject. The author starts with a general survey of the animal kingdom, working downwards from the highest mammals to the protozoa. Then follow five chapters upon physiology, morphology, embryology, palaeontology, and the doctrine of descent, after which we commence with the protozoa and work up to the mammalia by the usual type system. Then once more we revert to general matter in three chapters entitled, Comparative Physiology, Distribution, and Theory of Evolution. All parts of the book are of great merit, and the general chapters—including the one upon comparative physiology, which is from the pen of Miss Marion Newbiggin, D.Sc.—are most complete summaries of the subjects with which they deal. We would specially recommend these chapters to those who merely desire to read up the general outlines of biology. One excellent quality in the book is a special section in most of the chapters entitled Bionomics. Until recently this important branch of biology the inter-relationship of living things with one another and with their surroundings was scarcely touched upon, but it is now receiving much careful attention, thanks to the efforts of such eminent men as Professor Thomson.

[7] *The Public Health Acts*. By M. Elliott, LL.B., and G. Elliott, M.R.C.S., D.P.H.Camb. London: H. K. Lewis. 1906. (Crown 8vo, pp. 180. 5s.)

[8] *Atlas and Epitome of Diseases of the Skin*. By Dr. Franz Mraček. Second edition. Edited by Henry W. Stelwagon, M.D., Ph.D. Philadelphia and London: W. B. Saunders and Co. 1905. (Crown 8vo, pp. 281, 77 coloured plates, 50 illustrations. 16s.)

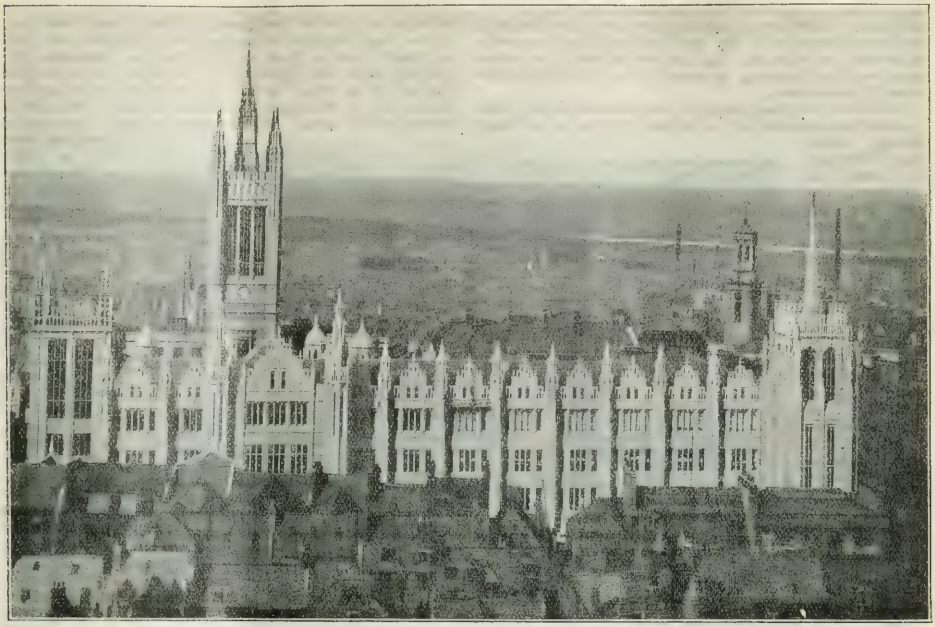
[9] *An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology*. Fasciculus XXIV ter, or XVIII of new series. London: H. K. Lewis. 1905. (Cr. folio, 19 plates, 1 guinea to non-subscribers.)

[10] *Diseases of the Skin*. By Alfred Schalek, M.D. London: Hodder and Stoughton. (Crown 8vo, pp. 225; 24 engravings. 4s.)

[11] *Physical Efficiency*. By James Cantlie, M.A., M.B., D.P.H. London: Putnam's Sons. 1906. (Cr. 8vo, pp. 230. 3s. 6d.)

[12] *Outlines of Zoology*. By J. Arthur Thomson, M.A., etc. Fourth Edition. Edinburgh and London: Young J. Pentland. 1906. (Crown 8vo, pp. 856. 12s. 6d.)

THE late Miss Sophia Harris of Southampton, whose will has now been proved, left £200 each to the York County Hospital and the Bradford Fever Hospital.



Marischal College: from the Spire of St. Nicholas Church.

The Quatercentenary of the University of Aberdeen.

THE NEW MARISCHAL COLLEGE.

There's an old University town,
Between the Don and the Dee,
Looking over the grey sand-dunes,
Looking out on the cold North Sea.

THE University of Aberdeen, which next week will celebrate with due pomp and circumstance the four hundredth anniversary of the beginning of its academic life, has a special interest for members of the medical profession. Its Faculty of Medicine has long been justly renowned and it has sent forth many men who have increased the sum of human knowledge, and whose fame has added to the lustre of their Alma Mater, and a vast number of practitioners who have battled valiantly against disease in town and country at home, and in the remotest parts of the British Empire.

To the English student of medicine of the early Victorian period Aberdeen was chiefly known as a seat of learning where the degree of M.D. could be obtained on somewhat easy terms. By a later generation, when the spirit of reform was already abroad, it came to be recognized as a place where the sons of Northern Scotland cultivated medicine to good purpose on a little oatmeal, but especially as a harbour of refuge for London students who, for one reason or another, found the doors of the Examining Board which then held its sittings in Burlington Gardens beyond their reach. Meanwhile, the old school was steadily working out its own salvation, till now in point of efficiency it is second to none in the kingdom. Its teaching has been brought up to the level of the highest modern standard, its provisions for the practical work which forms so large a part of medical education are not merely adequate but generous, and its degrees are a genuine stamp of knowledge, and can be got only by serious work. The new buildings which the King is to open on Thursday next combine beauty of structure with amplitude and convenience of internal arrangement to a degree for which scarcely a parallel can be found in Europe. A large part of these buildings is devoted to the teaching of medicine and the ancillary sciences, and to research. Some account of them will probably be interesting to many of our readers. To enable them to appreciate what has been accomplished by the public spirit of the citizens of Aberdeen, with the help of some generous benefactors, a sketch of the evolution of the University may here be given.

The University.

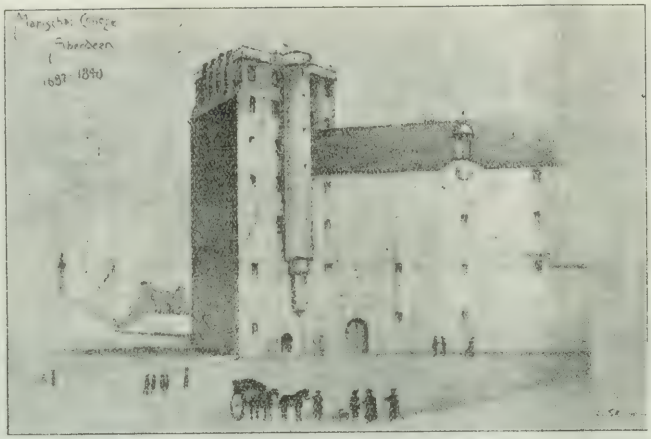
In the following abstract and brief chronicle of the life of the University of Aberdeen we have mainly taken Mr. John Malcolm Bulloch as our guide.[1] The University has had a troubled life, and its history is for a long time a record of quarrels and rivalries within, and alarums and excursions without, which make it confusing to all but the most indefatigable searchers in the dust heap of archaeology. One cause of the obscurity is that what is now the University, though originally one, was at a later period two. So it continued for more than two centuries and a half, till in the middle of Queen Victoria's happy reign it was definitively made one, and, let us hope, indivisible.

It must be clearly understood that King's College and Marischal College were never in any sense colleges of one university. They were two absolutely distinct universities, one of which, in fact, was founded by way of counterblast

[1] *History of the University of Aberdeen, 1495—1895.* London, 1895.

to the other. It is recorded that some Parliamentary wit once said, "Aberdeen is a great place, and, like England, has two universities." The point of the jokelet, properly understood, is against England, which only in recent years has been striving to remove from itself what was in reality a reproach.

The quatercentenary about to be celebrated is the four-hundredth anniversary of the formal constitution of King's College, which was the original University of Aberdeen. Before the fifteenth century rude Scotia had no university at all. The University of St. Andrews was founded in 1411, that of Glasgow in 1450. Then came that of Aberdeen at the close of the century. It owes its foundation to William Elphinstone, Bishop of Aberdeen, and like all mediaeval universities it was called into being by the Pope. The occupant of the Holy See at that time was Alexander VI of unholy memory, and his Bull erecting the University was given at St. Peter's in Rome on February 10th, 1494 (new style 1495). It is a fine specimen of Gothic pencraft and is preserved in good condition in the Muniment Room of King's College. In the document the Pope professes an ardent desire that the light of knowledge should be spread among a far northerly people almost cut off from the rest of the world by "firths and very lofty mountains." The new University was modelled on those of Bologna and Paris. Even at the time of its foundation there were two towns of Aberdeen—one on the Don, the seat of the Bishop's Cathedral, the other on the Dee, which was already a thriving seaport. Some historians express surprise that the old town was chosen as the seat of the new university, but it was natural that the Bishop should select the neighbourhood of his own cathedral for the purpose. In the Middle Ages all human institutions lay more or less directly under the far-spreading shadow of the Church.



Marischal College in the Seventeenth Century. *(From an old Print.)*

THE FIRST BRITISH CHAIR OF MEDICINE.

It is interesting to note that in the original constitution a "Mediciner" finds a place among the resident Doctors side by side with Professors of Canon and Civil Law. There was, therefore, from the very beginning not only a Faculty but a Chair of Medicine at Aberdeen. Mr. Bulloch says that the Chair of Medicine at Aberdeen is the oldest in Great Britain, there having been no Professorship of Medicine at Cambridge until 1540, nor at Oxford until 1546. Dublin comes nearly a quarter of a century later with a Chair of Medicine founded in 1618, while Glasgow (1637), Edinburgh (1685), and St. Andrews (1721) follow at long intervals Bishop Elphinstone was evidently anxious to encourage the study of medicine in his University, for the endowment of the chair is mentioned earlier than that of any other Faculty. In 1505 he promulgated the constitution of the College, which was dedicated to the Trinity and to the Blessed Virgin. It was at first called the University and College of St. Mary's; the name was afterwards altered to King's. The Chapel and the Tower surmounted by the King's Crown (see Special Plate) are the only parts of the original building now standing. The date of their erection would appear from an inscription on one of the doors of the Chapel to be 1500.

THE "MEDICINER."

The "Mediciner" appears among the permanent teachers as having a salary of 20 merks, less by one-third than the amounts paid to the Professors of Law. It should be added that, like the other professors, he was not obliged to reside within the college buildings, but had a manse where he taught. It is noteworthy that the first Principal of the University was Hector Boece, a scholar and historian of somewhat fertile imagination, who is said to have had some skill in medicine; at any rate it is related that he met Ferrerius at the bedside of the dying Abbot of Kingloss. Mr. Bulloch suggests that it may have been owing to Boece's influence that the founder Bishop gave his new University a Medical Faculty. It is likely



Marischal College in the Eighteenth Century. *(From an old Print.)*



enough, however, that as it was professedly modelled on the Universities of Paris and Bologna, the Medical Faculty was instituted as a natural part of the *studium generale*. The first Mediciner was James Cumyne, of whom nothing appears to be known but that, on the plea of poverty, he was granted the right of salmon fishing on the Don to eke out his income, the bulk of which was payable in victual or grain. What the Mediciner taught and how he taught it is, as Sir Thomas Browne said about the Song of the Syrens and the name Achilles took when he lived disguised among women, a puzzling question, though not beyond all conjecture; if he lectured at all, he did more than was done by his successors for nearly three centuries. Degrees were conferred on the presentation of a thesis, and the ceremony was, as in other mediaeval universities, followed by a banquet, at which the new doctor had the privilege of entertaining his teachers and masters. Mr. Bulloch says the Mediciner was the only layman in the professorial body. We do not know what authority he has for this statement, but we may point out that till about a century before the date of the foundation of the University of Aberdeen the doctors of medicine of Paris, on which it was modelled, were priests; there would have been nothing incongruous, therefore, in a clerical professor of medicine.



Marischal College circa 1840.

THE REFORMATION.

Soon after the middle of the sixteenth century the rising wave of the Reformation swept over the University. The old order of things passed away, giving place to a new, which for many years was a disorder like the reign of Chaos and Old Night. Commissions were appointed by the Kirk and by Parliament, and after much travail brought forth a "New Foundation," which, in the words of Mr. Bulloch, may be looked upon as "undoubtedly an expression of the aspirations of the Protestant Reformers." One of these aspirations seems to have been to reduce the University to a mere school of arts and divinity, for the Mediciner, together with the professors of law, was suppressed. Not many years later, when Episcopacy was for a time victorious over Presbyterianism in the University, Bishop Patrick Forbes restored the Mediciner, choosing for the office Dr. Patrick Dun. The Bishop's aim, however, seems to have been to make the University a school of philosophy, in which medicine should be relegated to an entirely secondary position. A long controversy and much intrigue ensued, in which a leading part was played by William Gordon, the "Mediciner," who fought stoutly for his science or his chair. Charles I wavered between the contending parties till, about the middle of the seventeenth century, Episcopacy was stamped out, and learning was treated as a vain thing. As showing the estimation in which medicine in particular and its professors were held in those troublous times, we may quote the following passage from a plea put forward by the upholders of the New Foundation:

> We most humblie request your lordships to try exactlie, both by the schollers and others, what fruit and benefit the country has received of the publik lectures in medicin and the canon law, these sundry years bygone, and what schollers the professours have had, either privat or publict, that the country be not gulled any longer be meer cifers and shaddous

BEGINNINGS OF THE MEDICAL SCHOOL.

William Gordon, who was Mediciner from 1632 to 1649, was neither a cypher nor a shadow. He appears, indeed, to have been a pioneer of medical education in Great Britain considerably in advance of his day. He taught anatomy, and insisted on getting the material necessary for its practical study. It is recorded that he not only "exercesed the students sufficientlie in the dissection of beasts," but made an application to the Privy Council in 1636 for the delivery of dead bodies to the "Colledge of Aberdeen." He asked that the municipal authorities should, as in other universities where medicine was taught, hand over to him bodies to be "publictlie anatomised." The Privy Council directed the Sheriff and the Town Councils of Aberdeen and Banff to deliver every year to the Mediciner "twa bodies of men, being notable malefactors, executte in thair bounds, especiallie being rebells and outlawis; and failzeing of them, the bodies of the poorer sort, dieing in hospitalls; or abortive bairns, foundlings; or of those of no qualitie, who hes died of thare diseases, and has few friends or acquaintance that can take exception."

Gordon's successor was Andrew Moore, who occupied the chair till 1672. After him came Patrick Urquhart, who held it for fifty-three years. Of them nothing is known beyond the fact that Urquhart began to give public lessons in medicine in 1719, and practised the art of embalming. Then began the long era of the Gregories, a family which is said to have produced no fewer than sixteen professors, mostly of mathematics and medicine. Three of them, a father and two sons, were successively Mediciners in the eighteenth century. By them a noteworthy innovation was made, for they lectured in English instead of Latin, as had previously been the rule. Dr. John Gregory, who became Mediciner in 1755, in succession to his elder brother James, inaugurated his reign by a series of introductory lectures dealing with the duties and qualifications of a physician. He made a strenuous effort to make the medical school a living thing, for we read that in conjunction with Dr. Skene he persisted in giving lectures for two sessions. Scarcely any students, however, took the trouble to attend them. James Gregory also urged on the authorities the establishment of a museum of natural history and the erection of a chemical laboratory and a dissecting room. By his transference to Edinburgh in 1776 the march of scientific progress in Aberdeen was checked. Another attempt to

institute a medical school was made in 1786; curiously enough, the pioneer in the movement was not a physician but the professor of Latin in King's College. He must have been an enlightened man, for, as a means to the end at which he aimed, he advocated the union of the two universities for the purpose.

THE FOUNDATION OF MARISCHAL COLLEGE.

While the old University of Aberdeen was in the melting pot of reform, a nobleman of great power in the State, disgusted with the futile labours of the Commissions, solved the problem for himself by a drastic method. This was nothing less than the foundation of a rival University in the New Town. To this purpose he applied the spoils of the famous Abbey of Deer and other church property which had come into his hands, and the defiant motto of the Keiths: "Thay haif said. Quat say that. Lat them say" was given to the institution, perhaps as the expression of its militant Protestant character. Marischal College came into existence in 1593. It had virtually the same constitution that the Reformers wished to impose on King's College. The Lord Marischal laid down that before admission every student had to subscribe the Covenant "before the Principal on entrance, before the Rector on matriculation, before the Dean of Faculty on graduation, and at least once a year." The entrance oath, which was not abolished till 1887, was described by the Universities Commissioners in 1836 as "directly calculated to exclude Roman Catholics." The College, as has been said, was founded with the proceeds of church property which had been given to the Earl Marischal by the King; not to be behindhand in generosity, the Town Council granted the Monastery of the Grey (Franciscan) Friars to be the home of the College. The pious founder and the doubtless not less pious Council may recall to irreverent minds the munificent person who

> Out of his great bounty
> Built this bridge at the expense
> of the county.

Protestant as it was, it is curious to read that Marischal College imitated the old University, and those on which that was modelled, by enforcing celibacy on its professors. It was stipulated, we learn from Mr. Bulloch, as late as 1626, when a professor was being appointed, that he "remaine a single persone and nowayes marie nor tak ane wyff so long as he remaine in the said office." The penalty of his acting on the Biblical maxim that it is not good for man to be alone was forfeiture of his chair.



Marischal College in the Nineteenth Century.

STEPS TOWARDS UNION.

From an early period of the seventeenth century it was felt that the existence of two rival Universities in one small city was not only an anomaly but a waste of power and a hindrance to progress. In 1641 they were forced into a semblance of union under the title of "King Charles's University." The union lasted—on paper—for some twenty years, and was not formally dissolved till 1661. In 1690 a Commission was appointed by the Scots Parliament to investigate the state of the Universities and to suggest educational reforms. They finished their labours in 1700, in which year Marischal College was first equipped with a Chair of Medicine.

After the political storm of 1715 the Aberdeen Universities were drastically "purged" of disloyalty. From that time the Colleges meddled no more with politics, but gave themselves to the expansion of the scope of their teaching so as to give a larger place to science and medicine. In this reform Marischal College led the way. It was not, however, till the middle of the eighteenth century that medicine was recognized as an important part of academic work in Aberdeen.

Meanwhile the need of union was making itself more and more felt, but a way could not be found to combine the incompatible elements. Between 1747 and 1787, no fewer than four schemes of union were brought forward. The first aimed at uniting the universities on the site of King's College; of the second, which was brought forward in 1754, we need only say with Dante, "Look and pass on," for by it medicine was to be abolished. The essence of the scheme, indeed, was not so much academic reform as increase of the professorial wage. The third scheme, proposed in 1770, aimed at enlarging the teaching equipment of the Universities. Marischal College was to be mainly a school of science in which a place was allotted to anatomy and medicine. In 1786 a fourth scheme was suggested by Ogilvie, the Professor of Latin at King's College, the primary aim of which was the establishment of schools of law and medicine. This too came to naught. Ogilvie, however, succeeded in enlisting the support of the physicians and lawyers of Aberdeen, and of the chief noblemen, and of all the Town Councils in the North of Scotland. Many years, however, were still to elapse before John Skinner's prophecy:

> And learning's long divided
> stream
> Shall run with double force

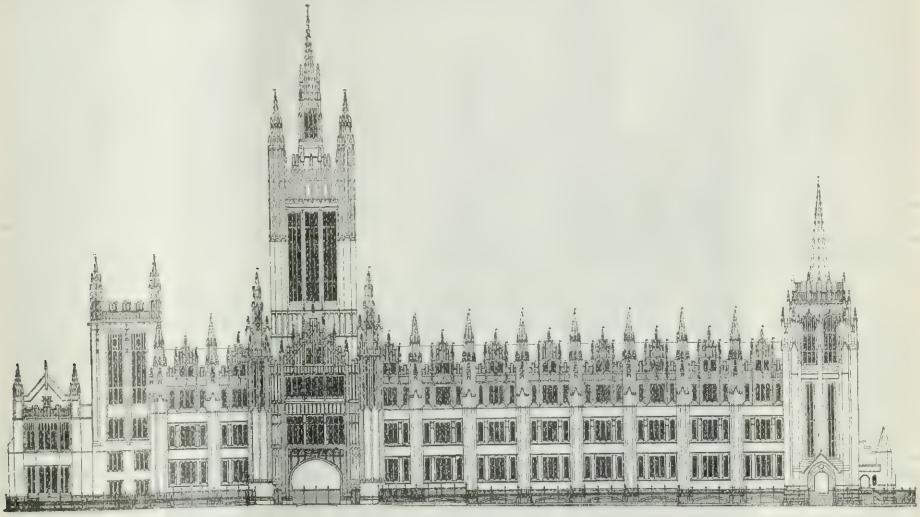
was fulfilled.

GRADUATION AT KING'S COLLEGE IN THE EIGHTEENTH CENTURY.

After the failure of these schemes of union each college tried to create a medical school for itself. At the time of Dr. Johnson's visit to Aberdeen the post of Mediciner seems to have been regarded mainly as a source of "decent subsistence" to a baronet who had no estate to support his title. Dr. William Chalmers, who was appointed in 1782, tried to galvanize the office into life. In 1787 he made the bold innovation of requiring candidates for the M.D. degree to answer an examination paper: it had previously been granted on the recommendation of doctors of repute. As an instance of the charitable manner in which it was given by King's College in the earlier part of the eighteenth century, we may recall the fact that George Cheyne, afterwards famous as a physician, was "allowed to be graduate doctor in medicine because he is not only our own countryman and at present not rich, but is recommended by the ablest and most learned physicians in Edinburgh as one of the best mathematicians in Europe." Chalmers also made arrangements to give a course of weekly lectures on anatomy and physiology, but his death in 1792 frustrated his good intentions. From that date till 1839 no lectures were delivered by those who held the office of Mediciner. In 1801, what was considered a movement of reform was made by a resolution that the degree of M.D. should be conferred only on such as could state that they had had nothing to do with the sale of quack medicines, and who would promise to continue equally virtuous in the future. A further step was taken in 1817, when it was resolved to ask for something in the nature of a guarantee that the candidate was not utterly illiterate, and had some elementary notions of scientific knowledge.

Aberdeen Medical Society.

It has been said that in the matter of scientific teaching Marischal College was the more progressive of the two Universities. In regard to medicine, however, it was for a long time more backward than its rival. Although three of the early Principals of the College—Patrick Dun, who had been Mediciner of King's College, William Moir, and James Leslie—were physicians, it was not till 1700 that a Chair of Medicine was created by William, ninth Earl Marischal. A professor was appointed in 1701, the Principal and other professors "having just and full knowledge of the said Dr. Patrick Chalmers his literature and qualifications for the said professor of medicine, received him publicly after he had delivered a prelection into his new office." His first lecture would seem to have been his last, and no further lectures were delivered from the chair till after the lapse of a century and a quarter. The first professor was succeeded by Dr. Matthew Mackaile, who kept a druggist's shop in the Castlegate. Towards the end of the eighteenth century twelve students, the most prominent among whom was James Macgrigor, afterwards chief of Wellington's medical staff, founded the Aberdeen Medical Society. This Society became closely associated with Marischal College without in any way forfeiting its separate existence. It not only afforded an opportunity for mutual improvement, but provided teaching in various subjects. It thus served the purpose of an extramural school and did much to promote medical education in Aberdeen.



Marischal College in the Twentieth Century.

A Joint School.

In 1818 the feeling that there could be no adequate medical school at Aberdeen unless the two Universities combined for the purpose again found expression. At the suggestion of Marischal College, a joint scheme of instruction was drawn up, in which the two Universities were equally represented. It had a fair trial, but after a flickering life of some twenty years it came to an end in 1839. One reason of its failure was that it aimed too high. In 1825 the joint Committee decreed that every candidate for the degree of M.D. should be not less than 25 years of age, and should have the degree of arts. So difficult was the attainment of the degree made, that between 1825 and 1839, that is, during the greater part of the existence of the joint school, only three students from King's and twenty-five from Marischal College succeeded in securing the distinction. Another reason of the collapse of the joint school was that the Mediciner at King's College could not be got to teach; he would only promise to begin lecturing as soon as "the most distant chance of benefit" offered itself. At Marischal College the Professor of Medicine had begun to lecture in 1823, but his newborn activity appears soon to have been quenched by lack of encouragement, as it is recorded that "he took fees only one session." In 1826 a beginning was made in the teaching of midwifery, but the accommodation for the lecturers was miserably inadequate.

Of the teaching about that time a notion may be got from Andrew Moir's account of his own student days. Moir was lecturer on anatomy at King's College; he was a man who in a larger sphere might have won a European reputation. He says:

> There was in my time no teacher who concerned himself in the least about the progress of his students, or who took any pains to instruct them. We mostly studied anatomy and practical surgery, and these we learned at the dissecting room, all groping our way as well as we could, and the older students assisting the less experienced. We never saw our teachers except at the lecture hours, and many of us were vain enough to think ourselves as wise as they were, or even vastly wiser. . . .
>
> In those days, if we had plenty of subjects, we thought all was right. Our knowledge of practical medicine, such as it was, we got at the hospital, and to the hospital shop we trusted for materia medica and pharmacy. About midwifery we never thought seriously, and chemistry we conceived we had learned long ago.*

Nevertheless, Sir Gilbert Blane, then head of the Navy Board of Health, is reported to have said that he had always found the young surgeons from Aberdeen particularly well informed.

In 1839 the short-lived union between the Colleges was dissolved. But the time was coming when outside pressure was to reinforce the efforts of those who strove to bring together the disjoined members into one body.

A Royal Commission.

In 1826 Sir Robert Peel had appointed a Commission to investigate the state of things in the Scottish universities. The Commissioners, who reported in 1830, suggested drastic reforms in the curriculum for arts degrees, the passing of examinations as a necessary condition of graduation, and in the case of Aberdeen the fusion of the two universities. The chief benefit looked for from this union was the creation of an efficient medical school After the failure of the joint school, both King's and Marischal, especially the latter, showed an increased activity in furthering their own development. In 1839, William Gregory was appointed Mediciner at King's College, being the fourth member of the family to hold the post. He was a son of the inventor of the well-known

* Quoted in *Aberdeen Doctors at Home and Abroad*. By Ella Hill Burton Rodger. Edinburgh and London. 1893.

powder, and had a considerable reputation as a chemist. His appointment was followed by the establishment of lectureships in anatomy, physiology botany, practice of medicine, midwifery and practical jurisprudence. At the same time Chairs of Anatomy and Surgery were created in Marischal College by the Crown; and in 1857 a Chair of Medical Jurisprudence was founded. The jealousy of the rival institutions was inflamed to the highest pitch. In 1850 an attempt was made on behalf of King's to show that Marischal College had no right to grant degrees, with the amiable implication that the medical degrees already granted were false coin. Marischal College triumphantly vindicated its title to all the rights and privileges of a University, all doubt as to which had been removed by a decision given by the House of Lords in 1745.

THE FUSION.

It was left for a later generation to witness the accomplishment of the union between the Colleges recommended by the Commissioners of 1826-1830. In 1835 Sir Robert Peel introduced into Parliament a Bill providing for their union under the title of "United University of Aberdeen," but this Bill was soon withdrawn. In 1837 another Commission was appointed and drew up another scheme of union, but this report led to no better result. Several other measures were attempted but proved abortive. At last, on September 15th, 1860, the long-delayed union was accomplished. That date marks the real beginning of the history of the University of Aberdeen. Medicine was then for the first time placed on a satisfactory footing. Since that time the development of the medical faculty has been continuous. The most eloquent witness to its success is the growth in the number of its students. In 1860 there were only 145; by 1893 the number had risen to 367.



Marischal College looking Southward.

ENLARGEMENT OF MARISCHAL COLLEGE.

It has already been said that Marischal College was first housed in an old friary. It was not a luxurious abode even at first, and within a century of the foundation of the College the buildings fell into ruin. From 1682 to 1712 a process of rebuilding went on, but the result was the reverse of imposing. By the middle of the century the buildings had become so dilapidated that they had to be restored and extended under the direction of William Adams, an architect of great reputation in that day (1737-41). Even the restored College was an ugly edifice, four stories high, with a wing as high at one end, and at the other a huge clumsy tower meant for an observatory. On the central building was a clock, and on the north wing was an inscription in Greek signifying that "Virtue is its own reward." One of the graduates of the College mentions "the prison-like dens of Marischal College and its unplastered walls."

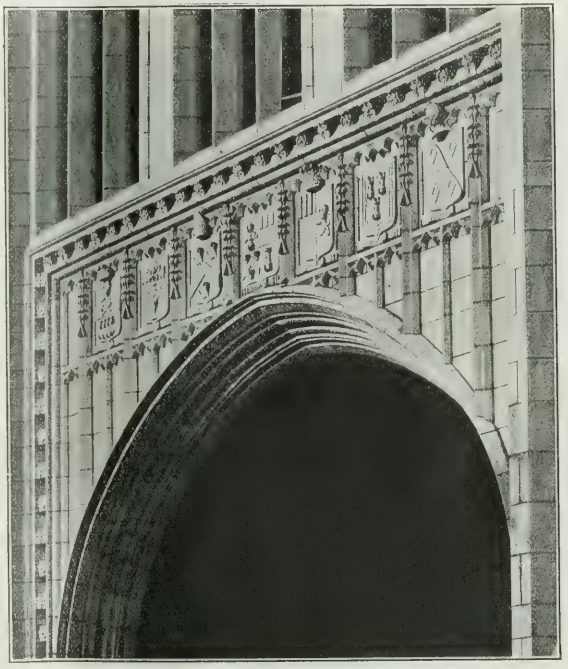
In the early part of the last century the expansion of the scientific teaching at the College made extension of the buildings urgently necessary. In 1834, after long opposition, the Treasury made a grant of £15,000, and in October, 1837, the foundation stone was laid with great ceremony. The buildings, which cost some £30,000, were completed in 1844; but the more active life that followed the fusion of the Universities manifested itself in growing demands for further extension. A scheme of this kind was framed in 1886, and the Government of the day was asked for funds, to which a very inadequate response was made. But the movement of development could not be checked, and in 1891 a large scheme of extension was devised to meet the requirements of modern scientific teaching, especially in the Medical School. Since that date various extensions have been carried out, culminating in the magnificent new buildings which the King is about to open. To the genius of Mr. A. Marshall Mackenzie, A.R.S.A. who planned the various extensions, Aberdeen owes a noble addition to its architectural beauties. The cost has been over £200,000, all of which, with the exception of £46,000 contributed by the State, has been raised by subscriptions. Among the donors the principal have been the late Dr. Charles Mitchell and his son, Mr. G. W. Mitchell, of the firm of Sir William Armstrong, Mitchell, and Company, a former student of the University, who gave about £40,000, and Lord Strathcona, who contributed £25,000.

The new buildings, which are to be opened by the King and Queen on September 27th, are said to be the largest granite pile in existence with the possible exception of the Escurial. They have a frontage of 400 ft., and extend backwards 600 ft.; the average height is 60 ft. They are built entirely of light grey granite in the perpendicular Gothic style of the period of Henry VII. Over the main archway is an exquisitely-wrought series of escutcheons, bearing the arms of the Earl Marischal, Bishop Elphinstone, the Mitchell family, Lord Strathcona, Old Aberdeen, the City of Aberdeen, and the University. In them are lodged the administrative department, con-

sisting of a meeting room for the University Court, the Faculty room, the principal's room, and secretaries' offices. There is also the Science Library, with a students' reading room, a professors' reading room, a law library, a librarian's room, and other apartments. The rest of the building is devoted to medicine, physiology, geology, education, comparative psychology, modern languages, and the College of Agriculture. The corridors and laboratories have dados of white glazed tiles. The lighting is by electricity. The ventilation is the Plenum system of mechanical ventilation and warming, by which fresh air is forced into the building by fans driven by steam engines, after being cleaned of all impurities by screens and warmed by steam pipes. The floors are of fireproof construction and laid with pitch pine flooring solid on the concrete to prevent noise. All the rooms are amply lighted by daylight, and in the basement patent luxfer glass has been used with good results. The fittings in the various laboratories and lecture theatres are of the most modern type.

Mitchell Hall.

The Mitchell Hall, which is used for graduation and other University functions, bears the name of the munificent donor. It is situated at the rear of the central buildings of the first floor; it is entered by the principal doorway under the Tower, and is approached by the principal staircase. The Hall measures 116 ft. by 40 ft. The floor is of parquet in polished oak and walnut, while the walls are done in polished Corrennie granite, set in gilded pointing. The shafts of the circular columns are highly polished, the moulding of the windows and arches in fine-axed dressed granite. The lower portion of the walls is panelled in oak, and around the entire length of the gallery runs a series of carved oak panels, in which the Tudor leaf predominates, tastefully alternated with thistles, roses, and shamrocks. The lofty groin oak ceiling is elaborately ribbed and bossed, and along the centre row runs a line of emblazoned shields of the benefactors of the University. An electric lamp is attached to each of the carved oak bosses in the ceiling. During the day the hall is adequately lighted by ten side windows of five lights each, and the great window at the east end of twenty lights. In this window the story of Marischal College is heraldically told in stained glass by Mr. P. J. Anderson, the University librarian. On the same level as the Mitchell Hall are the Picture Gallery, the Archaeological Museum, and the Natural History Museum. The Archaeological Museum was formerly the Library, and has now been fitted with dust-proof wall cases of suitable approved design. In it are kept the Wilson and Henderson collections, together with a very complete anthropological collection. The rooms are all connected by a spacious corridor on the north side. At the easternmost end is the Debating Hall, used by the various students' societies in connexion with the University. It also serves the purpose of a concert hall and reading room. There are also a room for the students' representative council, a dining hall, and a refreshment buffet, with a marble counter; a commodious billiard room, steward's room, smoking room, cloak room, and lavatories.



Marischal College: Escutcheons over Gateway.

The Mitchell Tower.

The Mitchell Tower, which dominates the whole building, rises to a height of 250 ft. from the lower, and 230 ft. from the upper, quadrangle. It is a square structure, measuring 39 ft. on each face. On each corner rises, from the ground level, an octagonal turret finished at the top with two tiers of crocketted pinnacles, terminating in a centre pinnacled spire, also crocketted. It contains a look-out chamber from which a magnificent view of the city, the country for many miles around, and the sea is obtained. The whole structure is of light grey granite. The beautiful effect of the Tower has been described as "200 feet of four-square precipice from which there leaps and crystallizes a spiry fretted crown of glittering pinnacles."

The Medical Departments.

The parts of the buildings allotted to medical science and related subjects comprise departments of medicine, surgery, midwifery, forensic medicine and public health, pathology, materia medica and pharmacology, anatomy, physiology, chemistry, botany, and zoology. Considerations of space will not allow us to describe each of these in detail; we must content ourselves with indicating their principal features.

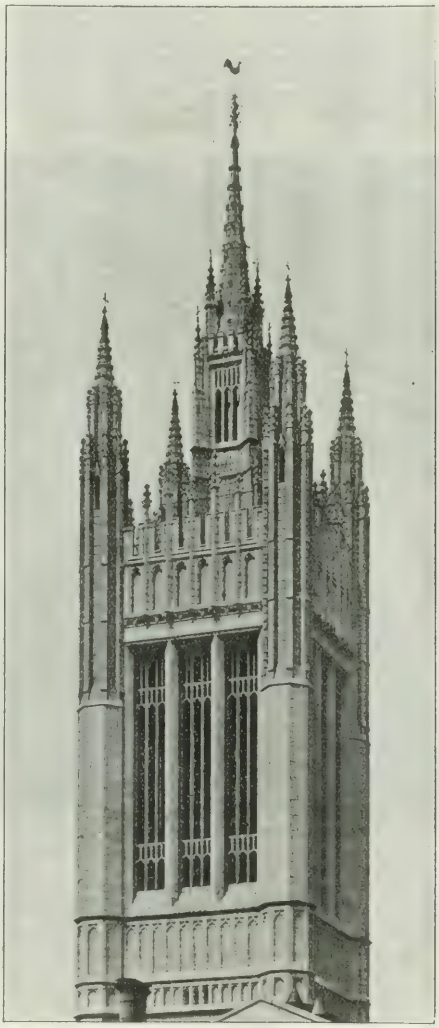
Medicine Department.

This department has its quarters on the ground floor. It consists of a class-room with seats for about 100 students; it is fitted with an optical lantern for the demonstration of diagrams and illustrations of various forms of disease. Opening out of the class-room is the professor's private room. In connexion with this are a small laboratory and museum for use in tutorial instruction and in examinations. There is also a dark room to be fitted with appliances for photomicrography, etc.

Surgery Department.

This department, which is on the first floor, comprises a lecture-room arranged so that demonstrations and lectures may be given to the greatest advantage. It has the shape of a right-angled parallelogram, forming exactly one-half of a square; the lecturer and demonstrators are in the centre of one of the long sides, while the students are seated on benches forming semicircles round that point. The provision for lighting is particularly good. Glass show cases for delicate instruments are arranged along the front row of benches, and tables for demonstrating surgical pathology, radiographic illustrations, and instruments are placed near the lecturer, with special apparatus, lamps, Wheatstone's stereoscopes and transparencies, etc., for radiograms. The electricity required in the demonstrations is provided by one switchboard, and

resistance for the *x*-ray coil, cauteries, electro-magnets, and motors, and a second for minor illuminating apparatus such as endoscopes for smaller cauteries, for galvanic and for faradic currents, and for electrolysis. These switchboards are enclosed in glass cases, and when in use cables are employed to connect them with the required apparatus. Behind the lecturer is the practical room, used for the teaching of practical surgery, minor surgery, splints, bandaging, ophthalmoscopy, laryngoscopy, etc. There, too, operative surgery is practised after having been demonstrated in the lecture-room. There is a small electricity room for actual work with *x* rays. A surgery museum has been formed out of the two pre-existing rooms. It has been painted entirely in white for the better illumination of its contents. There is the surgery museum consisting of 533 specimens collected by the late Professor Pirrie, many of them of great rarity; and the museum collected by the present Professor, Dr. Ogston, consisting of 1,161 specimens. A large number of these specimens have been given by colleagues and former graduates, and some are on loan from the Directors of the Royal Infirmary. On the ground tier some cupboards contain an ophthalmic collection presented by the late Professor Dyce Davidson. The floor space is occupied by diagram cases, models, larger apparatus, radiography apparatus, etc. The galleries are mostly reserved for surgical instruments and appliances, all of which are named and well displayed. There is a small photographic room, incomplete owing to want of funds, which is used only for actual work with photography, radiography, etc.



Spire of the Mitchell Tower.

Midwifery Department.

This department has a lecture room and a museum, situated on the south side of the Mitchell Tower. The museum contains a good collection of specimens, models, and instruments, to which students have free access. The practical work is conducted in connexion with the indoor and outdoor department of the Maternity Hospital, to which is attached a boarding-house in which students reside while they are on duty.

Forensic Medicine and Public Health.

The Department of Forensic Medicine and Public Health, which is on the first floor of the south wing, consists of a classroom, two laboratories, a museum, balance room, library, photographic room, attendants' workroom, with an additional room in the basement. One of the laboratories is fitted up as a private laboratory; the other is used chiefly for practical instruction to students preparing for the diploma in Public Health. Both are well equipped in respect of fittings and apparatus, and provide ample accommodation. The museum contains large accommodation for diagrams as well as for ordinary museum specimens.

Pathological Department.

This department is designed for the purposes of teaching and for research. The teaching portion of the building consists of a lecture theatre, a practical classroom, and a large museum. The practical room is large enough to accommodate the entire class at once, and is fitted up with the apparatus used in the demonstrations. The museum is a well-lighted room on the top flat. It is provided with a preparation room in which specimens are mounted, etc. A special feature of the museum is the series of painted casts of morbid organs made under the superintendence of Professor Hamilton. The other portions of the department are devoted chiefly to rooms set apart for special classes and for the use of research students. There are also a room for the professor and one for his assistants, a photographic chamber, workshops and storerooms and accommodation for animals.

Department of Materia Medica and Pharmacology.

Not many years ago this department consisted only of one medium-sized room, with a small one opening out of it. The former served the purposes of practical classroom and museum; the latter was used as a research laboratory. The department shared in the general extension of Marischal College, which took place in 1896, when a large and well-lighted laboratory, a separate lecture-room, a new museum and research laboratory and minor adjuncts were assigned to it. To provide for the ever-growing needs of the department a portion of the old physiological department has been annexed, whilst internal alterations within the existing building will make it possible to have a much better museum and practical laboratory.

Anatomy Department.

The anatomy department has a lecture theatre accommodating 250 students, and all the rooms in the department are well lighted by electricity, and plugs are fitted to supply a searchlight and a lantern for demonstrations. The theatre communicates directly with a large storeroom for preparations. There is a museum measuring 43 ft. by 28 ft., which contains an extensive collection of specimens. The dissecting room is light and airy, and measures 70 ft. by 50 ft. There are thirty tables, over each of which hangs an adjustable electric light. It is possible to have about 300 students at work at the same time in the room. A lift communicates with a large storeroom in the basement, and opening into the dissecting room is a small room for the demonstrators. The parquetry flooring of oak blocks sunk in pitch and laid upon concrete ensures cleanliness and warmth. Opposite the dissecting room is a large general laboratory, 60 ft. by 40 ft., for minute dissection, microscopic work,

embryology and osteology, as well as for an occasional examination hall. There are in addition smaller rooms used as research laboratories, and furnished with incubators, *x*-ray, photomicrographic and other apparatus. These communicate directly with the professor's private room. The department contains a museum for the large skeletons useful for comparative osteology. There is also an anthropometric laboratory, where observations of students are taken, and duly recorded, and where students are trained in the methods of taking and recording such observations. In the laboratory is also housed a large and valuable collection of objects illustrating the habits and customs of different races of mankind.

Physiological Department.

The Physiological Department is situated on the second and attic floors of the new front block. The following description is taken from an article entitled, Physiology: Old and New, contributed by Professor MacWilliam to *Alma Mater*, the Aberdeen University Magazine, of June 20th, 1906. In addition to an excellent lecture-room (with associated preparation room) there are three practical class-rooms specially adapted for the very different kinds of work comprised in the three branches of practical physiology—microscopical, chemical, and experimental. These class-rooms have been specially constructed and fitted in accordance with the special requirements in each case. The experimental room—to be equipped with shafting along the benches driven by an electro-motor placed in an adjoining compartment—makes provision for work with apparatus, recording-drums, etc. The casing along each bench is intended to store at the students' places all the apparatus they use, and so to economize service, etc.—an arrangement not given effect to anywhere else in this country as yet. A hand-lift between the two floors of the department will be very useful for the same purpose.

There are also rooms for advanced students (for B.Sc., M.B. Honours, etc.) and research rooms, one chemical and two experimental (one for graphic work and a second for other kinds of experimental work), a balance room, a histological store, a chemical preparation room, a workshop and machinery room, a sterilization room, and some small rooms for such purposes as photomicrography, developing, polarimetry and gas analysis. Stone slabs built into the walls have been placed at various points (lecture room, balance room, etc.) for the reception of certain pieces of apparatus which need to be specially steady, such as galvanometers, fine balances, etc. The paving of Broad Street with wood, to which the Town Council has agreed, is most important in regard to the diminution of vibration as well as the diminution of noise.

The attic floor, on which two of the practical class-rooms are placed, has the advantage of very excellent top lighting, as also has the lecture-room; the lighting of the practical class-room for histology and the preparation-room, on the second floor, is especially good. The histological class-room was placed on the eastern side of the building to avoid the trouble of direct sunshine while the microscope work is being carried on, and the lecture-room was put on the same side to be as far as possible from noisy Broad Street. Along the benches of the histological class-room electric plugs are provided to connect with table lamps for microscopic work. Special means were taken to ensure a high water pressure in the department—a very important matter, often a source of trouble in laboratories situated on upper floors.



Marischal College: Mitchell Hall.

When this department has been fully equipped with apparatus the place will be on a thoroughly good modern footing. Great developments have been going on in physiology everywhere; the provision of this new department marks an epoch in the history of the subject in this University.

Chemistry Department.

The new Chemistry Department occupies almost the whole of the extension towards Broad Street of the north wing of the quadrangle. The building is about 90 ft. in length by 60 ft. in breadth, and consists of three floors—a basement for storage purposes, etc.; a ground floor, constituting the Science Department; and a first floor, constituting the Medical Department, and containing the general lecture room. The walls of all the rooms, with

the exception of the library and the professor's room, are lined with white glazed bricks, relieved by an occasional row of yellow bricks of the same type. These white bricks, besides giving the rooms a very clean appearance, serve an important purpose in diffusing the light from the windows, and thus leading to the better illumination of the laboratories. The floors consist for the most part of pitch-pine parquetry, laid on concrete. The woodwork is of yellow pine varnished. The whole of the department is fitted with electric light. The ground floor constitutes the science department for advanced students working, for instance, for the degree of Bachelor of Science. There are advanced and junior laboratories abundantly equipped with every requisite for practical work. There are private laboratories; an operation room, where any experiments involving the use of complicated and bulky apparatus can be performed; a gas analysis room, which also contains provision for electrolysis work, a supply of electricity being got from the Corporation mains; and a combustion room. There are, besides, a private room for the professor, and a small lecture room, accommodating forty students, and provided with a demonstration table, with gas and water supplies and sink; a library and balance room, rooms for the storage of inflammable liquids, etc. On the first floor is a lecture room, which has accommodation for 220 students. There is a preparation room; a museum, containing a large collection of chemical substances and apparatus; and a general laboratory or practical class-room for junior and medical students. In this laboratory eighty-four students can be accommodated, but as there are twice as many separate drawers for holding the students' work, 168 students can be taken in two relays. Each student in the laboratory has 3 ft. of working space at one side of a bench, and he has the use of a drawer with a lock, a gas tap, and an evaporating niche, where fumes can be drawn off. Each pair of students share a set of reagents arranged on shelves in the centre of the bench, a sink, with water supply, and a rubbish shoot. Adjoining the laboratory is a room where two dozen well-ventilated chambers are provided for the preparation of sulphuretted hydrogen. A small staircase gives access to the roof of the building where are two small rooms, in which special experiments can be performed. The roof of the building also forms a convenient place for carrying out experiments involving the action of sunlight.



Marischal College: Physiological Laboratory.

Botanical Department.

This department has a lecture-room, seated to hold about 180 students. It is furnished with the usual modern equipments for botanical demonstrations, including electric appliances; a laboratory for practical work, seated to hold 56 junior students; another laboratory for senior or research students, accommodating 10 or 12; a museum formed to illustrate the classification, structure and function of the chief groups of plants, along with examples of useful products and of diseases of plants, all selected with particular reference to their usefulness as educational appliances. There is also a room intended as a laboratory for the professor; a small retiring-room for the professor is fitted with shelves and used to hold books of reference for the service of the department, including the senior students. Provision for growing plants or for chemical or physiological work on plants is now being made on the top of the North Tower. It will consist of a laboratory for chemical and physiological work, above which will be a room furnished as a greenhouse. From



MITCHELL TOWER.

the latter access will be obtained to the flat roof of the Tower, on which plants may be grown in summer.

Zoological Department.

The Zoological Department comprises a lecture room seated for about 200; an upper practical room, with tables accommodating about 30 students; a small room, which will be used for the departmental library; a provisional laboratory for advanced students, with tables for about six workers, and with wall cases for material for research. There is also a museum, with a small students' room for the study of specimens; adjoining this is the professor's work-room.

Natural Philosophy Department.

The Natural Philosophy Department is in three floors. The sunk floor contains, among other rooms, a workshop,



Marischal College: Dissecting Room.

a glass room, engine and dynamo room, icehouse, accumulator room, photographic dark room, and a couple of storerooms. The ground floor contains the students' laboratories, occupying five rooms, the professor's laboratory and private room, balance and library room, and a room for instruments used in practical work. The first floor contains the classroom, small classroom used for small classes and tutorial work, an instrument room, a preparation room, and two other rooms used for laboratory work.

Other Departments.

In addition to the departments devoted to medical science, the Marischal College extensions also include veterinary, geological, agricultural departments, with one of agricultural chemistry. A description of these does not fall within the scope of this article.

Some Famous Men.

Of the present professors in the Medical Faculty of the University of Aberdeen it would be unseemly to say anything except that severally and jointly they will bear comparison with the staff of any medical school in the United Kingdom. Of the famous doctors whom Aberdeen has produced we can mention only a few.

One of the earliest Aberdeen medical worthies of whom there is record is Dr. Morison, an alchemist, who wrote on the transformation of metals as well as on "The Popedom, and Increase of Depravity in Religion"; he was the intimate friend of Lord Bacon. His contemporary, Dr. Gilbert Jack of Aberdeen, who wrote *Institutiones Medicae*, became a professor at Leyden. Dr. James Leith, of an Aberdeenshire family, was Rector of the University of Paris, and practised in that city in the early part of the seventeenth century. Dr. Chamberlain, an Aberdonian, was surgeon to the Queen of James I. In the same century Dr. Thomas Forbes was Professor of Medicine at Pisa, and Dr. Andrew Cadenhead practised in Padua. Another Aberdeen doctor, Dr. Davidson, was Physician to King Casimir of Poland. Dr. Thomas Burnet, of the family of Burnet of Leys and of Burnet the historian, was Physician to King Charles II, James II, William III, and to Queen Anne.

Alexander Reed, who is said to have been the first to read "physical lectures to the Company of Barber-Chirurgeons at London," acquired a considerable reputation by his works on anatomy, especially a monograph on the muscles, which appeared in 1637, and a treatise on surgery published in 1634. He bequeathed his medical library to Marischal College.

Arthur Johnston, another seventeenth-century doctor who received his early training at Aberdeen, rivalled his

countryman. George Buchanan, as a writer of Latin verse; among his poems are at least two for which he found inspiration in professional subjects—one addressed to a young lady who had been disfigured by small-pox, and another to the Town Council pressing the claims of a midwife on the attention of the baillies.

John Arbuthnot, the famous physician to Queen Anne, and one of the brightest wits of that brilliant day, was probably educated at Marischal College, though he took his degree at St. Andrews.

Sir William Fordyce and Sir William Farquhar, Physicians to George III and the Prince Regent, and the intimate friend of Pitt, were Aberdeen men.

Of Sir James M'Grigor, whose memorial obelisk used to stand in the quadrangle of Marischal College, Wellington said that he was one of the most industrious, able, and successful public servants he had ever met with. The names of Neil Arnott, Keith the lithotomist, Pirrie, and Andrew Clark are still fresh in the memory of the profession.

WORDS OF THANKS.

In the preparation of this article we have been largely indebted to the active assistance of the distinguished architect of the new buildings, Mr. A. Marshall Mackenzie, A.R.S.A., who has most kindly supplied information about the extensions and most of the photographs from which the illustrations have been reproduced. Acknowledgement must also be made of the courtesy of Professor Ogston, who materially helped the writer. It is only fair to these gentlemen, however, to state that neither of the gentlemen named is in any way responsible for the article. To Dr. David Watson Geddie of Aberdeen special thanks are due for his permission to reproduce his two fine etchings of the Crown Tower of King's College and the Mitchell Tower of Marischal College; the reproductions are published as Special Plates. Admirable as works of art, they will also, we venture to think, be valued by old students of Aberdeen as recalling the days before their brows became wrinkled with professional cares.

A TIMELY HANDBOOK.

We have received from the Quatercentenary Publications Committee a copy of a *Handbook to City and University*, which appears appropriately at a time when the information which it supplies is likely to be in great demand. It did not reach us till our article was already in type, and we have not therefore had the opportunity of making the use of it we should otherwise have made. The authors are Mr. Robert Walker, M.A., Secretary of the University Court, and Mr. A. M. Munro, City Chamberlain. Mr. Walker deals with the University, Mr. Munro with the city. To those who desire fuller information about the University of Aberdeen than the limits of space available have allowed us to give we heartily commend this handbook. Mr. Walker's historical account of the University is most interesting, and the new buildings are fully described. Mr. Munro's contribution is an excellent guide-book to the Granite City which impresses every visitor by the beauty of its situation and the solidity of its buildings. The grey granite of which it is built gives Aberdeen a unique character of mingled strength and beauty. The volume is well printed and admirably illustrated. It contains a complete set of maps of the buildings of King's and Marischal Colleges. We congratulate both authors on the success with which they have carried out a task which, though doubtless a labour of love to them, must have entailed a considerable amount of serious work.

NOTES ON HEALTH RESORTS.

WE have received a copy of a well-illustrated guide to Guernsey, Alderney, and Sark, to which Dr. H. Draper Bishop, States Medical Officer of Health, has added a chapter on Guernsey as a health resort. Reading this in conjunction with the precise meteorological records supplied by Mr. A. Colinette, F.G.S., it may be concluded that Guernsey is warmer in winter and cooler in summer than any part of England, and that though its coast line exceeds 30 miles, there is no spot on the island more than 3 miles distant from the sea; its atmosphere must be well supplied, therefore, with such ozone as sea air affords. Dr. Bishop regards the place as bracing rather than relaxing, though in the south and west there are valleys in which climates of the relaxing type can be found. There are no statistics, it appears, which would enable a precise estimate to be made of the number of persons from England and elsewhere who have made the island their home by reason of lung trouble or other conditions of bodily ill-health, but Dr. Bishop believes it to be large, and that many of such persons permanently recover their health, and are able to do good and useful work in this sunny and pleasant spot. Zymotic diseases, including influenza, when they occur, are marked by extreme mildness of type. The water supply is excellent, and from the details given it would appear that the local authorities have taken full advantage of all modern methods for conserving the health of the population. Cases which Dr. Bishop considers do particularly well in Guernsey are those of persons suffering from tubercle or from bronchitis or renal affections. The place may likewise be commended as a residence for those whose trouble is merely neurasthenic. In the latter connexion he describes the concentrated beauty of the island and its historic and other attractions. The mental effect and consequent physical reaction they produce cannot but be beneficial in the extreme, he thinks, to the over-wrought seekers after rest, as well as to the healthy, and those fortunate persons who know not the sinister meaning of the word "nerves." It only remains to add that the place seems well provided with schools, as also with golf links and other amenities of modern life.

MEDICAL AND SURGICAL APPLIANCES.

Motor Goggles.—The motor goggles made by Messrs. Gamage, Holborn, London, E.C., differ a little from the ordinary form. The glasses are carried by two short oval tubes of aluminium which are perforated at the sides for ventilation, and are so shaped and padded at their back surfaces as to rest comfortably against the rim of the orbit; round the whole is a flap of kid which lies flat on the face, and affords an additional protection against the entry of dust, etc. The glasses are curved and large so as to afford good range of vision at the sides. The goggles are comfortable to wear and moderate in price.

Irish Linen Bandages and Ligatures.—Messrs. J. Clarke and Co., 8, Donegall Square West, Belfast, are making bandages of various descriptions and ligatures from linen yarn. The bandages are untearable, elastic, and do not deteriorate with washing. The material is very well suited for the purpose, and gives uniform pressure and support; it is likely to be particularly useful in cases where bandages are worn on the limbs for long periods, as in cases of varicose veins, and also for the many-tailed and other abdominal bandages. The ligatures are recommended as a substitute for silk, and the knot is good, but they will not stand as great a strain in tying as silk of the same size. They may be boiled several times without deteriorating; in the tissues they behave very much as silk does and are not readily absorbed.

A Sterilizable Pocket Lining for the Use of Consumptives.—A difficulty which has long been recognized in the care of consumptive patients is the risk of soiling the pocket in which the spitting flask or handkerchief is carried. Various suggestions have been made to obviate this risk, such as putting the soiled handkerchief—whether paper or linen—into a small box, or carrying it or the spittoon in a waterproof sponge bag. Dr. Harold Downes of the Bellefield Sanatorium, Lanark, has devised a sterilizable batiste detachable lining for the pocket, which is kept in its place by a button. It can be frequently removed and sterilized, a clean one being substituted. These linings are made by the Medical Supply Association, Edinburgh, at a cost of 3s. 9d. per dozen. They appear to be admirably adapted for their purpose. A second button, opposite the one at present provided for, seems to be required to prevent the flask, etc., from being accidentally inserted between the lining and the pocket.

THE PECULIAR PEOPLE.—We learn from the *Tribune* that a disruption has recently taken place among the Peculiar People. While the older generation clings to the doctrine of faith-healing, the younger members hold that it should be left to the individual conscience to determine whether a doctor shall or shall not be summoned in case of illness, and to the parents where the sufferer is a child unable to decide the question. The seceders call themselves the "Liberty" Peculiar People.

ANNUAL MEETING, TORONTO.

Annual Exhibition of Foods, Drugs, and Appliances.

The annual exhibition of pharmaceutical and dietetic preparations and surgical instruments and appliances was arranged in a series of rooms on the first floor of the main buildings of the University. The arrangements, which worked very satisfactorily, were made by a Committee of which Dr. A. Jukes Johnson was Chairman and Dr. W. A. Young Secretary.

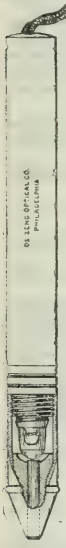
The exhibition was visited by a large number of persons, and much interest was shown in many of the exhibits.

Books.

A feature of the exhibition was the large number of stands showing medical books and publications; among the firms thus exhibiting were Messrs. D. Appleton and Co. of New York; Messrs. P. Blakiston, Son and Co., of Philadelphia; the F. A. Davis Company of Philadelphia; Messrs. Lea Brothers and Co. of New York; Lippincott Company of London, Montreal, and Philadelphia; The Medical Library and Historical Journal of Brooklyn, and the Rebman Company of New York. In all cases the most recent publications of the firms were shown and could be examined, a great advantage to possible purchasers. In this connexion mention may be made of the exhibit of the Library Bureau of Canada, which showed a system of vertical filing which can be used either for ordinary letters or for preserving in proper order for convenient reference all the records pertaining to a particular patient.

Instruments and Apparatus.

Of the surgical instruments exhibited by various firms perhaps the most interesting from the point of novelty were those in which the electric light was directly applied in connexion with the examining instrument. Among such appliances we noticed the luminous ophthalmoscope made by the De Zeng Standard Company of Philadelphia; in this a miniature electric lamp is placed at the front of the instrument beneath a condensing lens which directs the light upon an oblique mirror by which it is reflected into the eye in the form of a highly convergent pencil. The object is viewed from above the edge of the mirror, and the field is larger and better lighted than with ordinary ophthalmoscopes; owing to the fact that the instrument carries its own light it is particularly convenient for examining at the bedside. The same firm exhibited Würdemann's electric transilluminator, a small and very handy instrument to which current can be supplied either from a portable or pocket battery, or by means of a special attachment, from the main city supply. The instrument is very neatly made, and is particularly well adapted for the examination of the antrum and cranial cavities. The Habbe Therapeutic Lamp Company of Chicago showed lamps made by them for the therapeutic application of light and heat.



Würdemann's Transilluminator.

The Electro-Surgical Instrument Company of Rochester, New York, also exhibited electrically-lighted surgical instruments; and E. B. Meyrowitz, of New York and Paris, had an interesting exhibition, including specimens of Sachs's transilluminator and self-luminous ophthalmoscopes, as well as many other ingenious and well-made diagnostic and operating instruments.

Messrs. Down Brothers, of St. Thomas's Street, London, showed specimens of their well-known aseptic furniture for operating theatres and wards of hospitals, and a large series of surgical instruments of their own manufacture. Furniture suitable for hospitals and consulting rooms, and glass instrument cabinets for the surgery were exhibited by the Clark and Roberts Company of Indianapolis.

Mr. William Clark, of Farnham Centre, Quebec, showed for the Randall-Faichney Company an ingenious military hypodermic outfit, made entirely of metal and curved so as to fit the pocket. He also exhibited for the same firm a number of excellent syringes for various purposes; and for the Buzzell-Flanders Company of Boston sets of surgical dressings, sterile ligatures, catheters, etc.

The De Vilbiss Manufacturing Company of Toledo, Ohio, and Windsor, Canada, showed a series of atomizers, nebulizers, and powder blowers adapted to a special pump reservoir which was under complete control and appeared to work very satisfactorily. The Globe Manufacturing Company of Battle Creek, Michigan, also showed a series of nebulizers adapted to various purposes and automatically-controlled electric air pumps.

The Canadian Rubber Company of Montreal exhibited a series of rubber appliances for medical and surgical purposes.

The Bausch and Lomb Optical Company of Rochester, New York, showed microscopes and lenses manufactured by them. Microscopes and microscopical appliances were also exhibited by J. A. Carveth and Co. of Toronto and the J. F. Hartz Company (Limited) of Toronto and Detroit.

The arthromotor, which has already been seen at several previous annual exhibitions, was shown by Mr. R. G. Stevenson of New York, and the Dowsing Radiant Heat Company's apparatus was also exhibited in working order.

X-ray and high frequency apparatus of various types were exhibited by the Electro-Radiation Company of Boston, by the R. V. Wagner Company of Chicago and New York, by T. A. Houghton and Co. of Rochester, and by the C. F. Birtman Company, whose agents in Toronto were Messrs. Chandler, Ingram and Bell.

Pharmaceutical Preparations.

Messrs. Parke, Davis and Co. had an attractive exhibit illustrating the progress of pharmacy during the past decade and including specimens of various biological products, such as antidiphtherial serum, antitetanic dusting powder, and thyreoidectin, the dried blood serum of sheep and goats after extirpation of the thyroid gland, a preparation used in the treatment of exophthalmic goître. They also exhibited their typhoid agglutometer.

Messrs. Burroughs, Wellcome and Co. had an interesting exhibit including specimens of antidiphtherial and antistreptococcus serums; they also showed specimens of compressed bandages and dressings pressed and packed so as to occupy the smallest possible space and enclosed in sufficient protective covering.

Messrs. Fairchild, Bros., and Foster of New York exhibited, among other specimens, preparations of the pancreatic ferments for hypodermic injection, and also a preparation to which they have given the name of Holadin containing the total ferments of the pancreas for internal administration.

Messrs. Reed and Carnick, Jersey City, N.J., showed various organic preparations, including protonuclein and nephritin extracted from the cells of the cortex of the kidney; and Messrs. Armour of Chicago various organic preparations, including suprarenalin, powdered thyroid, and extract of red bone marrow.

Pharmaceutical preparations were also shown by Louis Ritz and Co. of Hamburg, by Messrs. C. J. Hewlett and Sons, London, by the Burnham Soluble Iodine Company, Auburndale, Mass., by Messrs. Rigaud and Chapoteaut of Paris, by Messrs. Allen and Hanburys, London, by H. and T. Kirby, Limited, of London, by the Lambert Pharmacal Company of St. Louis, by Duncan Flockhart and Co. of Edinburgh, by Messrs. K. Wampole and Co. of Perth, Ontario, by the New York Pharmacal Association, by the Palisade Manufacturing Co., Yonkers, New York, who exhibited specimens of hemaboloids, the Chas. Henry Phillips Chemical Co. of New York and London, by Messrs. Ferris and Co. of Bristol, and by the Abbott Alkaloidal Co. of Chicago.

Dietetic Preparations.

Among the dietetic preparations exhibited were such well-known products as Robinson's patent barley, Mellin's foods for infants and invalids, Horlick's malted milk, Allen and Hanburys' infant foods and liquid beef, Brand and Co.'s essences and meat juices, Bovril, the shredded wheat of the Natural Food Company, Niagara Falls, Callard's foods for diabetic patients, the Arlington

Chemical Company's beef peptonoids, Benger's food, and the products of the Ramage Milk Products Co. of Detroit.

Clothing.

The Aertex cellular underwear was exhibited by Wreyford and Co. of Toronto. Messrs. Irwin, of 356, Princes Avenue, London, Canada, exhibited an ingenious costume for infants, consisting only of three garments easily put on and easily removed; the first garment was made of light flannel lined with silk, the second of silk and wool, the third of silk lined with mesh, the object of the whole design being to give warmth with little weight. A diaper of special construction, consisting of absorbent material, was provided; the feet and legs were clothed with woollen boots. All the clothes were very light, well designed, and at the same time warm.

Mineral Waters.

Mineral waters were exhibited by the Apollinaris Company and also by the Canada Mineral Water Company of Ottawa, which showed specimens of Russell lithia water, a saline water containing a small proportion of lithium chloride.

Nova et Vetera.

POST-HIPPOCRATIC SCHOOLS OF MEDICINE IN RELATION TO CONTEMPORARY PHILOSOPHY.

In a former article we attempted to explain the relation of early Greek philosophy to early Greek medicine. Continuing the same line of inquiry, we now propose to see how far the schools of medicine immediately succeeding Hippocrates were dominated by the philosophic influences of the time, and were indeed the expression of them. Goethe says somewhere that there is a certain logic in the actions of men and women which enabled him in his youth to write correctly about things of which he had no experience, but which, on growing older, he found out to be true. Similarly, in reflecting on the history of the art of healing, we are led to conclude that there is a logical bond between the various activities of the human mind, so that a subject such as medicine, independent as it may seem, does not grow up and develop in isolation, separated off from the other creations of mental energy, but is of necessity connected with the prevailing philosophic theories of the day. Periods of constructive medicine are the outcome of periods of constructive thought, so that we must not expect any serious advances in the former when the latter is in a state of stagnation.

The death of Hippocrates (B.C. 357) coincided with the decadence of philosophy and the corruption of morals which ensued after the battles of Leuctra and Mantinea, when Greece fell into a general condition of intellectual flabbiness and moral laxity. From this mental paralysis medicine assuredly did not escape. Instead of advancing soberly along the path traced out for her by Hippocrates, she embraced wild theories and absurd practices. During the five hundred years which elapsed between the death of the great physician of Cos and the advent of Galen it would seem that medical knowledge was in the trough of the wave. No striking discoveries were made or illuminating principles enunciated during that period; men either lost themselves on the hill-tops of speculation or were engulfed in the quagmires of doubt. The lack of intellectual fibre so characteristic of this epoch was reflected in the medical schools, for when one department of a nation's mental life suffers, the whole is apt to suffer with it.

The first of the medical schools of this period to become famous was that of the Dogmatists. The name is not very happily chosen, but it was given to them by Galen, and has been followed by subsequent writers, so that it must be adopted for the sake of convenience. Roughly speaking, they occupy the century from the death of Hippocrates to the establishment of medical schools at Alexandria (357-264). The earlier representatives of this school, namely Dioxippus and Praxagoras of Cos, followed closely the doctrines of their master Hippocrates; they accepted his medical teaching without, however, in the least imbibing his spirit of sober scientific observation. Thus they adopted his humoral pathology and made it a most essential part of their system. According to this theory all diseases are explained by a mixture of humours which are four in number, namely, (1) blood, (2) yellow bile found in the liver, (3) mucus in the head, (4) black bile in the spleen. The medical treatment based upon this was that medicines work upon the predominating cardinal humours, some expelling mucus, others removing bile, etc. This theory controlled medicine for more than ten centuries, and eventually only gave way to the most modern views. Far more important for this school, however, was the influence of the Platonic philosophy. Having taken as their motto the saying of Hippocrates that "the physician who is also a philosopher is Godlike,"[1] they proceeded with commendable zeal to try and earn this title by a careful study of the *Timaeus*. This famous dialogue of Plato became their textbook of philosophy, and with disastrous results, for this work, though described by Jowett as obscure and repulsive to the modern mind, had the greatest influence over the ancient and mediaeval world.

The obscurity arises from the attempt to conceive the whole of Nature without any adequate knowledge of the parts, and from a greater perception of similarities which lie on the surface than of differences which are hidden from view. The conception of the world as a whole, whether a person or an animal, has been the source of hasty generalizations, yet the general grasp of Nature led to a spirit of comprehensiveness in early philosophy which has not increased but rather diminished as the fields of knowledge have become more divided.[2]

The Dogmatists had the acumen to perceive that a science of medicine must be based upon physiology; their error consisted in attempting to erect a complete edifice before there were materials suitable or sufficient for the foundation. The highly imaginative temperament of Plato led him into numerous fanciful speculations in physiology as in other matters, which his more prosaic followers regarded as intended to be rigidly scientific truth, whereas Plato himself probably looked upon them only as points of view or understood them in a metaphysical sense. Many instances occur in the New Testament where the humble followers of the Founder of Christianity put constructions upon His sayings which astonish us by their naïveté and literalness.

Apart from the general spirit of the Platonic philosophy, the following specific doctrines in particular influenced the Dogmatists:

1. General scepticism as to the reality of sensible objects which are in a state of perpetual flux.

2. Life consists in spirit and in fire; the heat of the blood is the source of the fire.

3. The want of proportion in the physical elements of the body is the immediate cause of all diseases.

4. The doctrine of final causes introduced into physiology.

Such fantastic conceptions, as may readily be supposed, led them into strange errors. Thus we find the intense admiration for Plato induced Dioxippus to defend the absurd notion that liquids passed into the lungs; while Praxagoras, who realized that the nerves were the organs of sensation, though he did not invariably distinguish them from blood vessels and ligaments, placed their origin in the heart because Plato regarded that organ as the centre of sensation.

This school attached great importance to the ether, and here we find the influence of earlier philosophers:

All space between heaven and earth is filled with a subtle vapour which is for mortals the principle of life and the cause of disease.

Pythagoras had thought the motive force of the body was aërial: Anaxagoras assigned to the ether a perpetual movement, while Heraclitus and Democritus regarded the soul as identical with the ether. The influence of Pythagoras was further seen in the importance attached by this school to the number 7 and its multiples. Thus, they thought that some of the solid parts of the child were already formed at the end of the twenty-eighth day, and that the fetus had reached the size of a bee on the thirty-fifth. The effect of this number was supposed to make itself felt not only before birth, but through the whole course of life.

Another striking factor in the development of this school was the influence of the Sophists. This had the

[1] Ἰητρὸς γὰρ φιλόσοφος ἰσόθεος. Hippocrates, Περὶ εὐσχημοσύνης.

[2] Jowett's *Introduction to the Timaeus*.

effect of giving an enormous importance to the power of talking, so that to be a skilled rhetorician was a sure passport to success as a physician. The ability to argue with ingenuity and subtlety about disease was thought more highly of than the possession of any practical knowledge. Men preferred frivolous speculations to careful and deep researches. Words have at all times exercised a great dominion over mankind, and the devil, in the form of Mephistopheles, was fully alive to this when he says to the student in *Faust:*

> Denn eben wo Begriffe fehlen
> Da stellt ein Wort zur rechten Zeit sich ein.

The ancients, however, were much more subject to this influence than the moderns, and were easily led astray by false analogies.

The later members of the Dogmatic school came under a very different influence, namely that of the Stoics, and they endeavoured to apply the principles of Zeno to physiology and pathology. The natural result of this was to give a materialistic turn to the Dogmatists, for, according to Stoicism, "all that exists is for that very reason matter, since bodies only are a reality." The animal body they regarded as the result of forces purely mechanical. The soul even has a corporeal nature; it comes into being with the body in the physical mode of generation; but the material is a part of the divine fire which decended into the bodies of men when they first arose out of the ether. This fire of the soul is nourished by the blood, and the governing part of the soul has its seat in the heart, the centre of the course of the blood.[3] This teaching of the Stoics was rather a violent change from the Platonic philosophy, and indeed the way in which the Dogmatists veered from one pole of thought to another helps to account for the fact that their practical contribution to medicine was so comparatively small.

Their great merit as a medical school lies in the fact that they made an attempt to found a scientific medicine. They continually sought for the hidden causes of disease, and though often their efforts were sufficiently fantastic and absurd, they kept alive faith in the powers of reason without which any scientific advance is impossible. The attempt to form a complete system of medicine was premature so long as the knowledge of the parts was so meagre and imperfect.

The Empirical School.

In sharp contrast with the school of the Dogmatists came the school of the Empirics. It arose in Alexandria about 280 B.C., and its founders were Philinus and Serapion, the pupils of Herophilus, whose name is well known, at least to all students of anatomy. Just as the Dogmatists regarded Plato as their philosophical guide, so the Empirics took Aristotle as their intellectual leader. The word "empirical" in connexion with medicine has an evil connotation. We must not suppose, however, that this school was empirical in the ordinary sense in which every ignorant and uneducated person is an empiric. The empiricism of this school and that of the vulgar have this much in common, that by each reasoning is banished from medicine. In the case of the ordinary man this arises from ignorance of the art of reasoning, whereas the physician of the Empirical school reasoned in the most subtle fashion so as to prove the futility of all reasoning. Readers of Marius the Epicurean may remember the passage in which Pater describes his hero as devoting a great metaphysical acuteness to proving metaphysical speculation impossible or useless.

> Abstract theory was to be valued only so far as it might serve to clear the tablet of the mind from suppositions only half realizable or wholly visionary and leave it in flawless evenness to the impressions of a direct and concrete experience.

Something of this kind constituted the intellectual background of the Empirical school at Alexandria.

Several influences contributed to bring this school into being:

1. Reaction against the Dogmatists.—A natural disgust was felt at the constant succession of theories founded on an absurdly small number of observations and at systems which had far outrun positive knowledge; the general confusion was increased by the subtleties and sophisms with which each opinion was defended.

[3] Zeller, *Outlines of Greek Philosophy.*

2. The immense commerce of the Ptolemies had brought to light a large number of new medicines, and we may assume that the market was flooded with them. The ancient vendor of drugs had this advantage over his modern counterpart, in that kings and princes took an interest in medical remedies which not even the most versatile of monarchs in our own day attempts to imitate. Thus Attalus III, King of Pergamus, studied poisons and their antidotes, even making experiments with them on condemned criminals. Nicomedes, of Bithynia, also employed his royal leisure in the study of medicines. Best known of all these royal patrons is, of course, Mithridates, King of Pontus. He is said to have taken a poison and an antidote every day in order to render himself immune to poisons. He also wrote a book on medicines and poisons. It is hardly astonishing, therefore, that many doctors thought more about trying new remedies than attempting to understand the nature and cause of disease.

3. The influence of Pyrrho and the Sceptics, who numbered many physicians in their ranks.— Pyrrho (fl 340) had accompanied Alexander to the East, and there, by means of the philosopher Anaxarchus, who went on the same campaign, he became acquainted with the Eleatic school of thought. This school, as represented by Parmenides, had constantly opposed the knowledge which comes to us by the senses to that which we acquire by the powers of the mind. Hence it was easy for Pyrrho to believe that the one avenue to knowledge was as uncertain as the other. For the Pyrrhonists it was impossible to know the true nature of things, for perception only shows us things as they appear and not as they are. The only correct attitude, therefore, which a man can adopt is that of a suspension of judgement (ἐποχή). This philosophy of Doubt had the effect of limiting investigation to the narrow sphere of sense knowledge. Sterile and unsatisfactory as such an intellectual standpoint must necessarily be in many aspects, its influence on medicine was, in a certain measure, beneficial. For, at least, it drew men's minds away from the speculative fog in which the school of the Dogmatists was fast losing itself, and brought them back to the humble task of observation, which must ever be the foundation of such a science as medicine. The Empirical school, therefore, limited the task of medicine to practical ends only, regarding it as futile to press forward to the ultimate causes of phenomena. They paid special attention to the totality of symptoms, without occupying themselves either with the nature of disease or its causes. According to them, medicine is concerned with the cure, not the cause, of disease; they did not want to know how we digest, but what is digestible. They adopted the unanswerable attitude of the practical man "that diseases are not cured by eloquence but by remedies" (*morbus non eloquentia sed remediis sanari*), and "that a man does not even become a farmer or a pilot by arguing but by practice" (*ne agricolam quidem aut gubernatorem disputatione, sed usu fieri*). They defined disease as "a union of symptoms which are observed always in the same way in the human body." The whole art and science of medicine became, therefore, reduced to a system of therapeutics. Three different methods were employed by them for finding out what particular treatment would get rid of a particular set of symptoms:

(1) A man's own observations—autopsy.
(2) Learning from his contemporaries and predecessors—history.
(3) In the case of new and strange diseases by drawing conclusions from those most similar to them—analogy.

These three methods were known as the Tripod of the Empirics. Later on a fourth method was added called 'Epilogism"; this was the process of inferring preceding events from the present symptoms. Thus the empiric might conclude from the extreme inflammation of a wound that it had been poisoned, and treat it accordingly, without falling into the dogmatic heresy of looking for hidden causes. Since the main object of medicine was not to understand disease, but to remove it (*non interesse quid morbum faciat, sed quid tollat*), they regarded the study of anatomy as superfluous, and some had the energy to write treatises showing it to be unnecessary. One other intellectual influence affected the Empirics, and that was the Aristotelian logic with its definitions and syllogisms. In spite, then, of their very practical maxims, they expended

as much mental energy in word-splitting, definitions of the pulse, etc., as ever the Dogmatists had done in their speculations as to the hidden causes of disease.

Empiricism by imperceptible gradations easily passes into charlatanism, and even this famous school resolved itself eventually into a search for specifics, the immediate result being the introduction of numerous strange drugs, for example, hare's heart, camel's brain, etc.

THE METHODICAL SCHOOL.

Intermediate between the schools of the Dogmatists and Empirics came that of the Methodists. This name is doubtless more familiar to English ears as the sobriquet jestingly given by a Christ Church undergraduate to the small group of friends who gathered round the brothers Wesley in Oxford in the middle of the eighteenth century on account of their regular manner of life and behaviour.[1] The name as originally given had, of course, reference to intellectual and not moral qualities. It was not very appropriate, though the founders of this school did perhaps commit themselves to a more definite and precise theory of disease than either the Dogmatists or Empirics had done.

The chief philosophic influence which guided the Methodists was that of the Epicureans: in fact it would hardly be too much to say that their whole system was the application of Epicureanism to medicine. The great exponent of this doctrine was Asclepiades of Bithynia, who, though not usually regarded as the founder of the Methodical school, was certainly its immediate forerunner, and, indeed, Themison of Laodicea, to whom is ascribed the honour of founding the school, was actually his pupil. Asclepiades, like the Epicureans, taught that the body of man was made up of innumerable atoms with pores. Health (*συμμετρία*) consists in the size, mass, arrangement, and movement of the atoms being normal and the width of the pores being normal. The object of the physician was to prevent the wrong relationship of the atoms to the pores; thus few medicines were required and certainly none of a drastic nature, but the application of ordinary physical, mechanical, and dietetic measures. The foundation of this school synchronizes with the migration of medicine from Alexandria to Rome as the centre of intellectual activity. Medicine was indeed long in making her way into Rome. Such an art was regarded not only as unnecessary for a strong and manly race like the Roman, but also as a despicable pursuit only practised and required by the effeminate and degenerate Greeks. Cato was the coryphaeus of this particular Chauvinism, for to him the Greeks and all their works were hateful, and he would have echoed the cry of the Trojan Laocoon, *Timeo Danaos et dona ferentes*. Some of his utterances seem to recall the strictures of Plato on physicians,[2] nor have such strictures ceased entirely in our own day. To Asclepiades is due the credit of having forced a way for medicine into Rome, but it had to appear along with literature and rhetoric in the garb of the philosophy which corresponded with the prevailing taste. This highly-accomplished physician, who, among other things was renowned for his eloquence, had the astuteness to perceive how the medical prejudices of the Roman citizens were to be combated, and therefore he founded a system of medicine quite opposed to the Hippocratic and all previous teaching which he used to ridicule, but in harmony with the general point of view of Roman life and thought, which was at that time mainly Epicurean though to some extent Stoical. Having thus, as we have seen, based his medical theory on the doctrines of Epicurus, he allowed his practice to be determined largely by the principles of Zeno. His aim was to bring back to the Romans the old manly life which they had lost and which they all the more keenly sought to recover. His therapeutic measures were therefore entirely in accord with this object, so that he used to recommend:

1. Less food and drink.
2. Rubbing the body.
3. Active and passive movements.
4. Great use of cold water, especially rain baths.

Themison of Laodicea and his successors continued this Epicurean teaching of Asclepiades: but they neglected the atoms and concentrated their attention on the pores, an abnormal condition of which is the cause of disease. The pores, according to them, are either in a state of too great relaxation (*ῥύσις*) or too great contraction (*στέγνωσις*); later there was added the idea of a mixed condition (*τὸ μεμιγμένον*). It was these three fundamental forms of disease which made up the famous "communities" (*κοινότητες*) of this school. Every illness is the expression of a "community" governing the whole body, the character of which may be recognized from the general condition of the body, and specially from the condition of the secretions. Therapeutics in their hands became a very simple matter; in any given case of illness it was only necessary to decide whether the pores of the body were contracted or relaxed and then to apply either laxative or astringent remedies accordingly. For the latter object they employed cold air and water, vinegar, alum, lead and chalk, while their laxative remedies consisted in venesection, cupping, leeches (which were first introduced by this school into European medicine), also poultices, fomentations, and warmth generally. Purgatives they rejected, maintaining that they only substituted the opposite form of disease. It will thus be seen that in therapeutics the school adopted the principle of *contraria contrariis curantur*, which is analogous but antagonistic to that of Hahnemann and homoeopathy. Such a theory as this must often have landed its exponents in a practical absurdity, as when the stricter members of the school held that even in cases of poisoning it was not necessary to consider the poison, but only the state of contraction or relaxation of the pores which it might have produced. Fortunately, perhaps, for the patients common sense frequently prevailed, so that the Methodists were not always consistent in the application of their principles. Thus Celsus gives us an instance of the physician Cassius, who, when summoned to a patient seized with fever and very thirsty, recognized that the condition had supervened on a drinking bout and made him drink cold water; when the water by mingling with the wine had tempered the force of it, he slept and sweated, so that the fever was removed. In acting with such readiness the physician did not trouble to consider whether the body was contracted or relaxed, but he was guided by the cause which preceded the onset of the evil.[6]

The Methodists as the medical exponents of the popular philosophy of the day had their full share of intellectual pride; thus Thessalus of Lydia, one of the most distinguished members of the school, considered that nothing had been known in medicine before his time. Reversing the famous aphorism of Hippocrates, he held that art was short and life was long, and undertook to teach his pupils medicine in six months, and on a monument in the Appian Way he styles himself "Conqueror of Physicians" (*ἰατρονίκης*). On the whole, the Methodists had closer intellectual affinities with the Dogmatists than with the Empirics. Like the former, they reasoned on general pathology, and admitted different classes of pathological states, for example, "the contracted" and "the relaxed," but they refused to search after hidden causes, confining their attention solely to such causes as were evident. Vague and uncertain as these pathological states undoubtedly were, they did at least constitute the basis of a medical system, whereas the Empirics rejected all system. There was, however, this in common with the Methodists and Empirics, that each school allowed itself to be guided by the general concourse of symptoms, but the Empirics admitted no reasoning between the symptoms and the line of treatment to be adopted, whereas the Methodists argued back from the symptoms to the state of the pores, and adapted their treatment accordingly. They both agreed in disregarding the study of anatomy.

The history of these three schools does not present us with any great names or epoch-making discoveries, and on the whole medicine cannot be said to have made any serious advance in the period with which we have been dealing. A reason for this may be found in the fact that the centre of gravity of philosophic thought had shifted

[1] "One person with less irreverence and more learning, observed, in reference to their methodical manner of life, that a new sect of Methodists was sprung up, alluding to the ancient school of physicians known by that name."—Southey's *Life of Wesley*.

[2] "Well I said and to require the help of medicine, not when a wound has to be cured or on occasion of an epidemic, but just because by their lives of indolence and luxury men fill themselves with waters and winds, as if their bodies were a marsh, compelling the ingenious sons of Asculapius to find names for diseases, such as flatulence and catarrh; is not this, too, a disgrace?"—*Republic*, Bk. iii.

[6] Celsus, Lib. I.

from the purely scientific contemplation of the world to the solution of practical questions, and philosophy became mainly valued as providing men with a refuge against the miseries of life. Interest became concentrated on the individual, and ethics took the place of physics. The Stoics and Epicureans seem to have accepted any view of physics which came easily to hand, without devoting their whole energies to the comprehension of the cosmos, as the pre-Socratic philosophers had done. Like Plato, they probably regarded the consideration of physics as a rational pastime only.

The most useful results would seem to have emanated from the Empirical school, perhaps because they were less dominated by theory; at the same time, from a wider standpoint, such a school must always be inimical to the ultimate progress of medicine. Some system must surely be better than no system, for at least it admits the possibility of a rational co-ordination of knowledge. Without a belief in the uniformity of Nature, which is hardly possible on a basis of pure empiricism, all science becomes a phantasmagoria of strange images, medicine a congeries of ill-assorted facts, and life itself intolerable to a rational being.

OLIVER WENDELL HOLMES AND SEMMELWEIS.

By Tiberius v. Györy, M.D.,

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In the columns of the British Medical Journal, November 4th, 1905. Dr. C. J. Cullingworth immortalized the memory of Oliver Wendell Holmes, one of the most eminent physicians of the pre-Semmelweis era, and revived his work concerning "the contagiousness of puerperal fever."

Who can tell how many women have been indebted for their lives to the precautions drawn up in his "conclusions" so warmly recommended by Holmes to his professional brethren! Posterity, therefore, is only doing Holmes justice in acknowledging its debt of gratitude by honouring his memory.

I have no desire to be a "wet blanket," nor do I wish to depreciate Holmes's merits, and this is certainly no place for an "apology" in defence of Semmelweis. But I fear there may be some who will consider Holmes's "conclusions" (if only at first sight) to be identical with the discovery and teaching of Semmelweis. And, if such were the case, we should be compelled in the name of justice to tear the laurel wreath of priority off Semmelweis's brow and present it to Holmes. For Holmes published his conclusions in 1843, whereas Semmelweis did not make his discovery until 1847. My fear that the results of the respective researches of the two men may be considered identical is increased by the fact that in 1902 Simon Baruch, of New York, actually declared for the identity and did not hesitate to deprive Semmelweis of all claims to priority in favour of Holmes.

On the present occasion it is my duty to show, in the light of objective truth, what connexion there is between the views of Holmes and the teaching of Semmelweis, or, rather, what are the merits of Holmes and what do we owe to Semmelweis. The answer will be found in a few data of the history of puerperal fever.

If we peruse the annals of this destructive, almost epidemic, complaint in the Forties—that is, immediately prior to the appearance of Semmelweis—we may recapitulate in brief the long story told in these passages as follows: The utmost chaos, an absolute want of method, prevailed in regard to the views, opinions, and precautions to be taken to prevent puerperal fever. A hundred different views were circulated at the time, a hundred various kinds of measures were taken to hinder the ravages of the disease, which was then considered epidemic. *Quot medici, tot scholae* may be said of that period. Among the many useless measures and erroneous views held at that time, only one theory appears in an advantageous light—namely, the theory of the contagiousness of puerperal fever. The advocates of this theory, though their views concerning the etiology of the disease were absolutely erroneous, displayed an activity in prophylaxis that was distinctly beneficial as preservative of life in certain cases of puerperal fever. In the Forties the most eloquent supporters of this theory, which later on they attempted to propagate all over Europe, were the British and American physicians.

Classifying puerperal fever as a contagious disease, the "Contagionists" took all possible precautions to prevent the supposed contagion being carried from living persons, or corpses either, to healthy women in childbed. In accordance with their theory they never by any chance went direct from a case of puerperal fever or from a patient suffering from the presumably infectious erysipelas to the bedside of healthy lying-in women; and as they believed that contagion survives the victim, they avoided passing straight from the dissection of victims of puerperal fever or erysipelas to the bedside of healthy women. The Contagionists were in this respect so conscientious, so scrupulous in taking the consequences of their theory, that they actually undertook long journeys before recontinuing their obstetrical practice. There were physicians who extended their precautions to cases of typhoid fever also.

The precautions of the Contagionists were the result of a false etiology, nevertheless they were beneficial to humanity. To-day we know well that the physician who is not very scrupulous after attending a case of puerperal fever can infect a woman in labour not by the specific contagion of puerperal fever, but by pyogenetic bacteria.

The experience made was right, but not the interpretation thereof; the etiology established by the Contagionists did not comprehend all possibilities, did not unite all the etiological factors discovered by Semmelweis.

It is a lamentable fact that even to-day there are obstetrical books in which the discovery of Semmelweis is considered to be merely a precise form of the "theory of corpse-virus." Semmelweis himself, who was well acquainted with the opinions and the precautions of the Contagionists, remarks about them:

> They acknowledged one portion of the truth, but not the whole truth, and there may have resulted out of the non-acknowledged part of the truth many cases of resorptional fever which might have been prevented."[1]

Prior to Semmelweis's discovery the English and American Contagionists saved many lives, which would have been sacrificed in the hands of physicians advocating any other of the many theories of the day.

No doubt it was an act worthy of acknowledgement and appreciation that Holmes published his essay on the contagiousness of puerperal fever, and that he reissued it later in pamphlet form recapitulating in the form of "conclusions" all precautions hitherto successful in preserving life, requiring and insisting upon their observance by his professional brethren.

Then came the year 1847. The "sun of puerperium had risen." Semmelweis discovered the whole, eternally true, etiology of puerperal fever. He discovered that puerperal fever and pyaemia are identical processes, proved that puerperal fever may result from the resorption of any decomposing organic substance. As is well known, Hebra and Skoda in their widely-circulated periodical, *Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien.* (1847-48) published the teaching of Semmelweis. In the year 1850 Routh familiarized the British profession with the causes of endemic puerperal fever, and in his publication reissued later in pamphlet form he produced proofs to convince his readers of the non-contagiousness of the same.

It was not merely Routh who informed the Contagionists of their error; Semmelweis himself, as we learn from his writings, wrote letters to his antagonists, the opponents of his teaching, attempting to enlighten them and convince them of the truth of his statements.

The first answer and the first refusal came from the Contagionists, especially from their principal advocate, Simpson of Edinburgh. For years, right up to his death, Semmelweis waged war against the Contagionists. They clung stubbornly to their old theory, considering puerperal fever to be a disease of a specific nature, which, as such, can be transposed from one individual to another; on the other hand, Semmelweis, identifying puerperal fever with pyaemia, put the etiology of the former on the broad basis of the latter. There is no publication of Semmelweis on puerperal fever which does not throw into relief the enormous difference existing, like a chasm, between his doctrine and the theory of the Contagionists. In a voluminous work published in 1860 he describes the nature of "the difference of opinion between me and the English

[1] Györy: Semmelweis gesammelte Werke, p. 477.

physicians on the question of puerperal fever."[2] Even in his "Open Letters," written towards the end of his life, many pages are full of his bitter, almost desperate, struggle against the Contagionists, a fact which proves that even in the Sixties the latter refused to accept his teaching, as well as that the doctrine of Semmelweis and the theory of the contagiousness of puerperal fever were not identical.

I have done my best to give a short explanation of the great difference between the doctrine of Holmes and that of Semmelweis—principally, as I mentioned in my introductory words, to prevent the resemblance between the two, that appears on a cursory glance, being mistaken for an identity. But I am ready myself to do historical justice to Holmes. It would be against all historical sense to deny the merits acquired by a prominent man or to deny him credit for the benefits he has conferred upon humanity merely because he was succeeded by another age and another man who discovered the whole truth.

But to do Holmes the justice due to him I must divide the activity of the Contagionists into two periods. In the post-Semmelweis period the Contagionists clung to the fragmental truth they had discovered, and prevented the spread of the teaching of Semmelweis, an action for which they deserve the greatest reproach. And in the pre-Semmelweis period, when all the myriad other theories did not contain even the germs of the truth, the Contagionists had already discovered a part of the same, and put a great number of women attended by them under the protection of an etiology that was well if only partially grasped but incorrectly interpreted.

That was the *glorious* period of the Contagionists. In rendering our tribute of gratitude to them for their activity in this period we must do particular homage to the memory of the most prominent man amongst them—to O. W. Holmes—because nobody did more to accentuate the urgent necessity of the salutary precautions known at that time, and formulated by him in his *Conclusions*. C. J. Cullingworth has rightly perpetuated his life and activity.

THE MEDICAL FACULTY OF LONDON.

[FROM A CORRESPONDENT.]

THE unrivalled wealth of London in clinical material and the high position accorded to its physicians and surgeons in the medical world would mark it out as the proper seat of a medical school which should be second to none in point of numbers, equipment, or renown. It was a natural expectation, therefore, that the reconstitution of the University of London, together with provision for the representation of the professorial bodies and schools on the Senate, and the organization of the teachers of medicine into a Faculty and Boards of Studies, would be at once the occasion for a marked development of the Medical Faculty of London and the opportunity for the concentration of the disunited efforts of a number of more or less efficient schools to form a Metropolitan School of Medicine. It is impossible, however, with a stroke of the pen, to convert institutions with long traditions behind them into integral parts of a University dating from yesterday. The very excellence of the work carried on in the medical schools of London under previous conditions increases the inertia which has to be overcome in attempting their improvement under a scheme in which the individuality of each school is subordinated to the interests of the greater Medical School of London.

In framing the regulations of the reconstituted University, the Commissioners, although refusing to take the responsibility of inaugurating any fundamental change in the conditions of medical teaching in London, laid down certain lines along which the Senate might proceed in this direction. The Senate of the University in its relation to the medical faculty has consistently followed the policy thus suggested, and since the final result of their action must be to effect a striking change in the medical curriculum of London students, some account of this policy may be of interest to readers of this JOURNAL. The art and the craft of medicine can be learnt only in connexion with patients, and, therefore, in the wards of the hospitals. Moreover, the science of medicine proper, including pathology in its widest aspects, cannot be dissociated from the practical study of cases, and it is important that every hospital school should be as perfectly equipped as possible for the study of morbid processes. As regards the other sciences of the medical curriculum, such as chemistry, physics, biology, anatomy, and physiology, the same necessity for attachment to the wards of a hospital does not exist; the system which has grown up in London of endeavouring to make every hospital school a medical faculty in miniature, is attended with grave disadvantages, and involves the saddling upon these schools of burdens which must diminish their efficiency in dealing with those studies which should form their chief occupation. If the teaching of these early subjects is to be more than a mere cramming process each subject involves an expenditure on staff and laboratories which it is impossible to meet out of students' fees. On the other hand, the system which until recently obtained, and under which each of these subjects was taught in all the twelve medical schools of London, involved a lack of economy both of material and labour, which served to exaggerate its defects. The Commissioners therefore suggested that the teaching of the preliminary and early medical studies should be concentrated in one or more centres under the University, and laid down in Statute 80 of the University of London Act, 1898, that "the Senate shall use its best endeavours, whenever practicable, to secure such common courses of instruction for internal medical students in the preliminary and intermediate portion of their studies, under appointed and recognized teachers at one or more centres." The aim and object of such a change is not only the improvement of the teaching of the early studies, and indirectly of the advanced medical studies, but also to bring every medical student in London during the first three years of his career within the influence of the University.

At the present time many of the London medical students have obtained an academic training in the medical sciences in the Universities of Oxford and Cambridge. Under a scheme such as that outlined by the Commissioners, the student who, for pecuniary or other reasons, desired to obtain his whole training in London, would be a student of the University (whether matriculated or not) and would spend his first three years in the University laboratories. He would then make his choice of the hospital which he considered most suitable for the pursuit of his clinical studies, including pathology.

The Senate of the University has adopted this scheme, and has already taken some important steps for its fulfilment. It is evidently impossible to single out any one of the hospital schools, as centres for the early studies, without inflicting some injustice on the others. Such centres must be under the immediate control of the university; the Senate must keep in its hands the selection of the staff and the direction of the finances. Such a transfer of responsibility is not possible in the case of the hospitals. With a view, however, to the better organization of the University, both University and King's Colleges have agreed to incorporation in the University, placing their whole resources at the disposition of the Senate, and establishing, as separate corporations, the hospitals and schools of advanced medical study, which previously formed part of these institutions. In University College most of the chief professorships in the preliminary and early medical studies are already endowed. It is, therefore, possible to equip and maintain these departments with a proper staff and equipment.

Although the incorporation of University College does not nominally take effect until January 1st, 1907, and that of King's College may be still further postponed, the Senate has already given evidence of its desire to carry out the scheme of the Commissioners by naming these two institutions as centres for preliminary and early medical studies. It might be objected that such an act was premature, since it is impossible to accommodate at these two institutions the whole of the medical students engaged in these studies. But the transfer from hospitals to university of scientific departments, which have taken years to establish, and involved considerable sacrifices on the part of the schools, cannot be effected in a day. At the present time, only the schools of St. George's and Westminster Hospitals have formally transferred their teaching of these subjects to the care of the University, and these, with the separated medical schools of University College and King's College Hospitals, represent the four purely

[2] Györy: Semmelweis, ibid, p. 83.

clinical schools of the Metropolis. Some time will probably elapse before all the other schools find it to their interest, as it must be to the interest of medical teaching in London, to give up the teaching of the early studies, and to concentrate their scientific efforts in the prosecution of the science of medicine and surgery.

In the meantime the Medical Faculty, which includes all the teachers in the London medical schools, has drawn up a scheme for the establishment of a third institue of medical sciences in the immediate neighbourhood of the University offices at South Kensington. A Committee of the Senate has been entrusted with the carrying out of this scheme, and has now, with the sum of £25,000 bequeathed by the late Mr. Brit, about £70,000 available for the erection of a suitable building. There seems no reason, therefore, for further delay in the establishment of a third centre for preliminary and early medical studies at South Kensington, which shall be able to accommodate an entry of 150 students yearly. By the removal of the boys' school from University College, buildings will be rendered available for the provision of increased accommodation in physiology, chemistry, biology, anatomy, and pharmacology, so as to admit with comfort a yearly entry of 100 medical students. The three University centres together will therefore be able to deal with a yearly entry of 350 medical students, which is greater than the total number of first year students in London.

Provision is thus made for the gradual transformation of the whole medical teaching in London, and we may confidently anticipate that within a few years the majority, and not a favoured minority, of the London medical students will be students of the University. It cannot but contribute towards the advancement of medicine in this country if the medical schools are freed in this way from the burden of the early medical studies and enabled to devote the whole of their laboratories and the scientific capacities of their younger men to the investigation of disease.

The student, on commencing his studies, will join a university centre, whether he intends to work for the London M.D. or for the diploma of the Royal Colleges. Here he will have his preliminary and early sciences, and only when he has completed his anatomical and physiological studies will he select the hospital school where he will spend the last two or three years of his curriculum, and to which he will bring wider views and higher ideals than if he had gone straight from school to his professional studies.

LITERARY NOTES.

Dr. Rodolfo del Castillo y Quartiellers, Ophthalmic Surgeon to the Instituto Rubio of Madrid, has recently published a work dealing with ophthalmology in the time of the Romans (*Oftalmologia en tiempo de los Romanos*). The learned author, whose name is well known to archaeologists by his *Epigrafia Oftalmologica Hispano-Romana*, and his monograph on the code of Hammurabi and ophthalmology in ancient Babylon, studies exhaustively the seals of Roman oculists. He devotes a whole chapter to that of Caelius Diadumenus, commonly known as the Madrid seal. Another chapter is given to the inscriptions on the tombs of Roman oculists. Of these, two, commemorating respectively Marcus Fulvius Icarus, of Aguilar (Cordova), and Albanius Artemidorus, of Chiclana (Cadiz), belong to Spain. Four chapters are devoted to the collyria used by Roman oculists, and in other chapters therapeutics, materia medica, and operations on the eye are treated of. A bibliography, extending to fourteen pages, and an epilogue bring the work to a conclusion. It should be added that Dr. Castillo is no Dryasdust, but a graceful writer who handles his subject in a manner that makes it interesting even to readers who are not specialists either in diseases of the eye or in archaeological lore.

Dr. Major Greenwood sings, in a poem reprinted from the *Medical Magazine*, of the Truthseeker, a huntsman who lived in the "Valley of Fond Delusion." One day when resting he thought he saw a wondrous bird whose beauty so ravished his eager mind that he determined to pursue it. But his search was vain till he met a sage who told him the name of the bird was Truth. To find it he must seek the land that greets the dawn of day,

> And in the Plain of "Bare Negation" night

must pass many a weary day and dreary night. If he manages to leave this plain he will find a lofty mountain range. His hopes are excited by the advice

> Then climb, and if 'tis thine to scale the height
> Thou shalt discover where Truth takes her flight,

only to be dashed by the discouraging announcement,

> But mortal man that height can never scale!

He may, however, get up a few score feet, and may then, as he is overtaken by death, secure

> One single feather from the "Bird of Truth."

Deterred by the prospect, Truthseeker stayed in his happy valley for a time, till the desire to find the bird of Truth drove him forth to climb the Mountain of Reality. He was a youth when he set out, but an old man before he reached the mountainside and began to climb. At the end he grasps something which brings a sweet and holy calm to his brow,

> But what the heavenly prize that him befell
> Nor I nor any mortal man can tell.

"What is truth? said jesting Pilate; and would not stay for an answer." If we read Dr. Major Greenwood's allegory aright, there is no answer to stay for. The reward of the search for truth is like that of the fox-hunter, not the quarry but the chase.

In a communication which appears in the *Echo Médical du Nord* of August 19th, Professor H. Folet, of Lille, gives some particulars, from two unpublished documents, as to the treatment of lunatics in France in the sixteenth century. In the Middle Ages mad folk were generally regarded as possessed of the devil. Vast numbers of lunatics were burnt as witches or sorcerers; others, in whom the disease was of a milder type, were allowed to wander about, the playthings of the thoughtless and the victims of the brutal. Till the introduction of more humane methods of treatment by Pinel in France, and by Tuke and Conolly in this country, the insane were dealt with as if they were criminals; they were loaded with chains, held fast by instruments of restraint, and unmercifully beaten if they were violent. In the sixteenth century those who escaped burning were treated by exorcisms and penances. In the therapeusis of insanity in France at that time the saints played a large part. Certain shrines were especially famous for the cure of madness. Lunatics were taken to the Church of Castel-Sarrasin, a little town of Haute-Languedoc, or to that of Bonnet in the Vosges. To Besançon crowds of mad folk went on the feast of the Holy Shroud, the idea being that no evil spirit could resist the touch of so sacred a relic. Each province had its own saintly specialist in mental diseases. In Brittany there was St. Gildas, who is mentioned by Rabelais; in the Bourbonnais there was St. Menoux; in the Haut-Rhin, St. Dizier. At Gheel in Belgium Ste. Dymphne enjoyed a very high reputation. Another celebrated shrine was that of St. Nazaire at Ablain near Arras. In the archives of Lille and in those of La Bassée M. Folet has found documents which give a glimpse of the ritual of healing at that shrine. In the Lille archives, under date 1483, there is record of a payment made to a locksmith for irons for the feet and hands, and a chain 4ft. long with a ring, for one Pietremmius, or Betremmieux, described as *insensé et furieux*. Later entries show that the unhappy lunatic was provided with clothes bought secondhand and taken to Arras to make his offering to St. Nazaire, and finally restored to his family. The whole procedure occupied twenty-two days, and a claim for payment on a higher scale than usual is made by those who had charge of him, for that the said Pietremmius was *fort homme et rude*. As to what passed at the shrine the document is silent. Some light on this part of the treatment is thrown by the other document, which records how in 1594 Jean Clays of La Bassée went mad. He does not seem to have been violent, for there is no mention of irons or of a chain. The municipal authorities decided to send him to Ablain. There fees had first to be paid to the Church and to the curé. Then during the space of three novenas (nine days of prayer), each beginning with a mass, the patient was taken every day to the church, where the curé read the Gospel to him. In addition to this the curé "wrote some letters of Monsieur Saint Nazaire" for the patient; what these "letters" were—whether special forms of prayer or soothing reflections supposed to be inspired by the saint

—can only be conjectured. Jean Clays being no better for the treatment, was taken back to La Bassée and lodged in the town prison, where he appears, from the accounts for his maintenance, to have remained for many months. Then no more is heard of him. Pilgrims to the shrine of St. Nazaire are few in these days of little faith, but the curé told M. Folet that the relics of the saint are still exposed in the church every year in the month of June. In the porch there is a stone seat where the patients sat while the religious rite was performed; attached to the wall are still to be seen some rings to which poor maniacs could be fixed by the chains with which they were loaded.

In a thesis recently presented to the University of Paris, Dr. Boyer de Choisy gives an interesting account of medical student life in that famous seat of learning in the sixteenth century. The relations between professors and students were cordial and familiar; they sat at the same table, mingled in games and sports, and too often joined in riotous behaviour. The fifteenth century student was a thirsty creature, as his songs abundantly testify. The following is a specimen:

Quicunque vult esse frater
Bibat bis, ter et quater
Bibat semel et secundo
Donec nihil sit in fundo
Et pro Rege et pro Papa
Bibe vinum sine aqua;
Et pro Papa et pro Rege
Bibe vinum sine lege.
Haec una est lex bacchica,
Bibentium spes unica, etc.

The students of the seventeenth century were not more temperate, if we may judge from the following song, which is taken from a collection of old songs published in 1640:

Je suis un docteur tousiours yvre
Qui tient rang inter sobrios
Et si jamais je n'ai veu livre
Qu'espistolas ad ebrios;
Et moy, de qui la panse esclatte
Nimis plenis visceribus,
J'ay les yeux bordés d'escarlatte
Et nasum plenum rubibus.
Et tousiours, tousiours chante
Qu'il vaut mieux avoir *vin* que trente.

The *International Code of Zoological Nomenclature* is the title of a pamphlet by Ch. Wardell Stiles, Ph.D., Chief of Division of Zoology, Hygienic Laboratory, U.S., Public Health and Marine Hospital Service, which was issued last year from the Government Printing Office, Washington. This code was adopted after several preliminary meetings and discussions at the fifth International Zoological Congress held at Berlin in 1901, and was adopted in printed form at the sixth meeting of the Congress held at Berne in 1904. It is the work of a commission composed of Raphael Blanchard of Paris, J. V. Carus of Leipzig, F. A. Jentink of Leyden, P. L. Slater of London, and C. W. Stiles. While not attempting to dictate to men of science what they shall or shall not do, the commission submits the rules to the serious consideration of all workers in the spirit expressed by Strickland in 1842, namely, "We offer them to the candid consideration of zoologists in the hope that they may lead to sufficient uniformity of method in future to rescue science from becoming a mere chaos of words."

MEDICAL NEWS.

THE first meeting of the 1906-7 session of the Clinical Society of London will be held on Friday, October 12th, at 8.30 p.m.

SIR HENRY D. LITTLEJOHN, LL.D., will deliver the opening lecture of the winter session of the Medical Graduates' College and Polyclinic, on Monday, October 1st, at 5.15 p.m. Subject, The Practice of Forensic Medicine. All members of the medical profession are cordially invited to be present.

A MEDICAL exhibition similar to that held last year will be opened on October 1st in the Royal Horticultural Hall, Vincent Square, Westminster, and will be continued from 11 till 6 daily on the four following days. The Secretary will be pleased to send a ticket of admission to any member of the profession who will address him care of the *British and Colonial Druggist*, 44, Bishopsgate Without, E.C.

CURRANTS, the chief contribution of Greece to the foodstuffs of the world, have in recent years lost some of the reputation which they formerly possessed, owing, apparently, partly to the ravages of disease, and partly to carelessness in the picking and handling of the fruit. With the assistance of the Greek Parliament serious efforts have in recent years been made to put the trade upon a sounder basis, and there is reason to hope that the gathering of immature fruit and insufficient drying—defects which have caused the condemnation of some consignments both in this country, in Australia, and in New Zealand—will cease. If this policy be carried out it is probable that we shall see a more extensive use of currant bread, a wholesome palatable article of diet, which used to be far more popular than it is at the present day.

BEQUESTS.—Under the will of the late Mrs. Ellen Amelia Rigge, of Spalding, Lincolnshire, the London Hospital and the Johnson Hospital, Spalding, divide half of the residuary estate, which is estimated to be of the value of £8,000. Under the will of the late Miss Janet Dai Hamilton, of West End Lane, N.W., the Corfu Hospital and the Corfu Dispensary each receives £250, sums of £50 going likewise to the Royal Infirmary, the Western Infirmary, and the Deaf and Dumb Institute, all of Glasgow.

CRIPPLED CHILDREN'S HAMPERS.—For special reasons the Crippled Children's Hamper Fund has been opened much earlier than usual this year, and His Majesty the King has sent his annual subscription of 10 guineas. The object of the Fund is to send a hamper of Christmas fare direct to every crippled child in London who cannot attend the annual Children's Banquet at the Guildhall. On an average 7,000 hampers are thus dispatched every Christmas, each containing enough to enable the child to act as host to its family for the day. Subscriptions should be sent to Alderman Sir William Treloar, 69, Ludgate Hill, E.C., who has now kept the scheme going for thirteen years.

ARRIVAL OF BARON TAKAKI IN JAPAN.—Baron Takaki, after his visit to the United States and Europe, arrived at Yokohama on July 16th. He at once proceeded to Tokyo, where he was received by the leading representatives of the medical profession of the Japanese capital, among whom were Professor Baron Saneyoshi, Surgeon-General Yamamoto, Surgeon-General Kagami, and Professor Kanasagi. A body of students of the Tokyo Charity Hospital Medical School, some 200 strong, were drawn up on the platform and welcomed their returning chief with shouts of "Banzai!"

FAVUS IN ROME.—A Society for the Promotion of the Study of Photo-Radiotherapy has been founded in Rome. Under its auspices an institute has been opened and placed under the direction of the Vienna dermatologist Dr. Rudolf Steiner. The municipal authorities have commissioned him to organize a scheme of systematic treatment of favus with the *x* rays in the province of Rome where more than 10,000 children are the subjects of the disease.

MEDICAL DEPARTMENT, UNIVERSITY COLLEGE, BRISTOL.—The annual prize-giving will take place on October 2nd in the Lecture Hall, University College, at 4.30 p.m. The prizes will be distributed by Professor Alexander Macalister. The same evening at the Royal Hotel, College Green, the Bristol Medical School annual dinner will be held. Dr. Frank J. Wethered will preside, and Professor Macalister will be the guest of the evening. Tickets for the dinner, which are five shillings each, may be had on application to F. H. Rudge, Royal Infirmary, Bristol.

ROAD DUST AND HEALTH.—In a recent letter to the *Sanitary Record* Dr. E. M. Smith, Medical Officer of Health for York, discusses the influence of road dust on health and draws attention to his annual report for 1905, in which he suggested that an increase of diphtheria noted in the district was not improbably due to the clouds of dust raised by automobile traffic. He believes that if the bodies of motor cars were raised two feet above the road and had level under surfaces they would cause no more dust than ordinary horse-drawn vehicles; he does not, however, seem disposed to give sufficient credit to the automobile industry for the efforts it is making very earnestly to discover the true cause of dust raising, and to modify the construction of cars in any way which may practically diminish the dust-raising qualities of cars, and yet not be incompatible with their capacity for rapid movement. Undoubtedly the dust problem will only be solved by a union of forces, and nothing which automobile manufacturers can do will prove thoroughly satisfactory until municipal engineers persuade their authorities to allow them to reconstruct roads in their areas on principles more suitable to the requirements of modern traffic than those which at present obtain.

British Medical Journal.

SATURDAY, SEPTEMBER 22ND, 1906.

INTERNATIONAL MEDICAL CONGRESSES.

EVERY three or five years vast gatherings of medical men of all nations are held at various places, under the illusion that a congress, however organized, must further science. In the past we have learned certain lessons, and it is fitting that these should be used to fashion our future plans. The lessons learnt at Madrid and at Lisbon, and, in fact, at all past International Medical Congresses, must be pondered, and a fitting comparison must be made with special Congresses if we would determine the cause of the shortcomings and find a remedy.

The International Medical Congress, under its present conditions, is a heavy undertaking, and it must be obvious that the organization and management can be efficiently carried out only by trained and experienced minds. The custom is to appoint a local committee of management for each Congress, and as none of the members have probably ever before served on an organizing committee of a like nature, it is tolerably safe to prophesy shortcomings, and the possibility of total failure must also be taken into account. The numerous departments of the Congress, the necessity of well-timed action, the thousand and one points which go to make such a meeting a scientific success, cannot possibly be anticipated by even the most intelligent men unless experience assists. "Darin liegt des "Pudels Kern," as Goethe said. In Lisbon undoubtedly many of the defects which were noticeable at Madrid were not apparent; nevertheless, very many improvements could have been suggested and carried into effect had the same committee organized both Congresses, and the little hitches and faulty management would have been to a certain extent obviated. If matters continue as they are, it is clear that as we pass from Lisbon to Buda-Pesth, and perhaps later to New York and Tokio, we shall only change the form of the defects, and not banish them.

In the first place, as we have several times pointed out, a permanent committee of suitable men having experience should be chosen, and it should be the function of this committee to arrange all International Medical Congresses. Such a committee would soon learn that it is necessary to get to work two or three years in advance, and that the method so much in vogue at present of leaving all the arrangements to the last moment is fraught with danger. The committee would learn that in order to ensure the smooth working of a Congress, hard and fast rules must be made and rigidly adhered to, in contrast with the present mode of having excellent rules to which almost innumerable exceptions are allowed. The committee would also be an excellent Board to discuss the dates and places of future meetings, and to consider whether it would not be wiser to split the large organization into several independent units.

Next the advisability or otherwise of retaining the present system of manifold simultaneous Sections has to be considered. It must be remembered that even the specialist will be interested in listening to good discussions on subjects which are not strictly within his province, but he, of course, will not miss being present in his own Section. And the man of general interests will possibly stay away altogether, owing to the difficulty in selection, if many important and interesting discourses are going on at one time. It is obvious that a Congress cannot be spread over a sufficiently long period to admit of only one Section holding its meetings at one time. Even if this were practicable, it would probably mean that the audience would be unmanageably large. The only alternative, therefore, is to give up general Congresses and to hold special Congresses for each department of medical science. Thus, medicine would have its Congress, and part of the time would be devoted to clinical work, part to pathological, and part to therapeutics. Surgery also would embrace three or four subsections; midwifery and gynaecology could also be grouped together; while the various special subjects such as laryngology, ophthalmology, paediatrics, and the like, would each have a Congress of its own.

The Lisbon Congress consisted of nineteen sections. The papers printed before the Congress began covered over 4,000 pages, and this did not represent one-tenth of the sum of the communications made. What was the upshot of all this enormous expenditure of ink and of the talk which followed? Some of the papers undoubtedly put scientific matters in an orderly way before the audience, and these were in consequence instructive; in a few others new work was brought forward, and possibly some fraction of this new material may ultimately prove valuable. Not a few papers were read merely for the purpose of bringing the authors once again before the notice of the Congress-visiting members of the profession, and of getting notices into the medical journals, perhaps also into the lay press. In short, of the vast amount of material, quite nine-tenths might with advantage have been dispensed with.

The experience gained at the Surgical Congress held at Brussels is invaluable. There the committee chose the subjects and speakers, and decided to refuse all volunteered communications. It was held that the aim should be to bring up subjects about which opinions differ in the various universities and teaching centres, and organize full-dress debates in which only men of recognized authority should take part. It was thought that the younger and less experienced men would be best employed in listening. Although this plan, if strictly adhered to, would tend to crush out new ideas and originality of thought, it was probably considered that the right place for these is the medical societies and journals. There can, we think, be no question that at Congresses it is necessary for the committee to make up the scientific programme, and extreme care should be used in selecting the exponents for each subject.

It is frequently said that one of the important functions of Congresses is to afford opportunities for meeting colleagues of other countries and exchanging opinions privately. This is certainly a good thing; but it is not the primary object of a Congress. It is no exaggeration to say that at least half of the members who inscribe their names on the roll of congressists do no work at all. On one occasion a member of a Congress was heard to say to another, "We must join this group "and be photographed, so that we can show them at "home how busy we have been"! Of course, no organization will force men to take a Congress seriously; but the question arises whether it would not be better to

limit the entertainments greatly, and to make all the social functions purely medical. We all no doubt appreciate royal and municipal entertainments, and the kindly and hospitable spirit in which they are offered to congressists. But if the scientific part of the Congress would gain by the elimination of this part of the programme, it ought to go. We are inclined to think that this would be advantageous.

In any case things must not go on as they have been going. The first step towards reform would be the formation of a small committee in each country. Then each national committee should nominate two or three really capable men, who have the gift of organization, to serve on a permanent Congress Committee; this done, we may look hopefully forward into the future.

HUMAN AND BOVINE TUBERCLE BACILLI IN ANTHROPOID APES.

In discussing the relationship between human and bovine tubercle bacilli, Professor E. von Dungern and Dr. Henry Smidt point out[1] that in all experimental animals the bovine bacillus has exhibited in a more or less marked degree a higher pathogenicity than the human bacillus. This has been found to be the case for bovines, sheep, goats, pigs, rabbits, dogs, cats, guinea-pigs, and monkeys. Consequently the view which has sometimes been brought forward that man is relatively insusceptible to the bovine bacillus involves the assumption that he differs in this respect from all the experimental animals hitherto investigated. These considerations have led the authors to institute upon anthropoid apes, as the nearest relatives to man, comparative tests of the virulence of tubercle bacilli of the *Typus humanus* and the *Typus bovinus*. Their experiments have been made upon two varieties of the gibbon, *Hylobates syndactylus* and *Hylobates agilis*, and have been carried out at Palembang in Sumatra. The material used for infection consisted of cultures representative of the two types of tubercle bacilli, which had been sent to them from Germany. The authors state that they have no reason to suppose that their viruses suffered any loss of virulence during transit, since they were all found to produce general tuberculosis in the guinea-pig in four weeks after subcutaneous inoculation with 2 mg. of culture.

The virulence of the viruses for the gibbon was tested both by subcutaneous inoculation and by feeding experiments. Three animals were inoculated subcutaneously with human cultures, three with cultures isolated from bovines, and two with cultures of the bovine type isolated from pigs, the dose employed being 10 mg. in all cases except one, where it was 5 mg. The result of these experiments was to show that the gibbon is susceptible in an equally high degree to all the strains investigated, including both those of the human and those of the bovine type. The infective process followed the same course in all the experiments. At the site of inoculation there was formed an inflammatory infiltration which in a few cases showed retrogressive changes, but in the majority of instances led to abscess and tumour formation. From the local lesion the infection spread by way of the lymph channels. Eventually the organisms found their way by this route into the thoracic duct, and thence invaded the blood stream, the consequence being that tuberculous foci were found in particularly large numbers in the liver and spleen. The lungs were less extensively affected, and in some cases were free from disease. In only one instance were the bronchial glands enlarged and caseous: in this animal the lesions in the lungs were exceptionally extensive. The mesenteric glands were affected only in three instances; in these cases the authors suggest that the infection travelled from the spleen. Microscopic examination showed that in almost all the cases lesions were present, in the liver and spleen, which were different in type from those usually found in human miliary tuberculosis. They had not the structure of typical tubercles, but consisted of rounded, necrotic foci composed of cellular débris and a sprinkling of leucocytes, and containing large numbers of tubercle bacilli. In most cases there was a complete absence of giant cells, nor was there any inflammatory reaction of the surrounding parenchyma. In short, the general appearance of the lesions gave the impression that the infective process was of a very acute type. Histological investigations did not reveal the slightest difference between the lesions produced by the *Typus humanus* and those produced by the *Typus bovinus*, neither as regards the number nor the microscopic structure of the nodules. The bacilli themselves exhibited some slight differences in morphology, the bovine bacilli tending to be somewhat shorter and thicker than the human; but these differences were not constant.

Three gibbons were fed with human culture, each animal receiving three successive doses, consisting of 0.2, 0.4, and 0.5 gram of culture. Three more gibbons were fed with cultures of the *Typus bovinus*. The first received a dose of 0.1 gram, followed by a dose of 0.2 gram; the second received three doses (0.15, 0.1, and 0.2 gram); the third was given a dose of 0.4 gram, and subsequently a dose of 0.2 gram. These experiments again showed that generalized tuberculosis can be produced in the gibbon after feeding, though the duration of the disease is somewhat longer than after subcutaneous inoculation. Four out of the six animals were infected, whilst the remaining two, which died 51 and 84 days respectively after the first feeding, showed no evidence of tuberculosis. In these feeding experiments the bovine bacilli proved to be as highly pathogenic as the human bacilli, an equal number of animals being infected in each set of experiments. In all four animals in which the infection was successful, generalized tuberculosis was set up, and lesions were found in both the spleen and liver. Microscopically, the lesions set up by the bovine bacilli and by the human viruses were indistinguishable from one another. It was observed that the formation of typical tubercles with numerous giant cells, and a zone of inflammatory reaction was much more frequently met with in these feeding experiments than after the subcutaneous inoculations, and it is suggested that the reason for this difference is to be found in the longer duration of the disease in the former experiments, owing, no doubt, to the fact that, when introduced by the alimentary tract, fewer bacilli succeed in penetrating into the organism.

The general conclusions, therefore, at which Professor von Dungern and Dr. Smidt arrive are that the gibbon is equally susceptible to infection with both types of bacilli, and, owing to the near relationship of this animal to man, it seems probable, though it cannot be regarded as definitely established, that a similar susceptibility to both varieties of the tubercle bacillus may be attributed to man. There was, however, in their feeding experiments, a difference in the anatomical distribution of the lesions to which they call attention. In both animals infected with bovine bacilli the small

[1] *Arbeiten aus dem kaiserlichen Gesundheitsamte*. Bd. xxiii, H 2. 1906.

intestine showed tuberculous ulcers, and the mesenteric glands were greatly enlarged and caseous, whereas in the two gibbons infected with human bacilli by feeding no tuberculous lesions could be found either in the intestine or in the mesenteric glands. In the latter animals the primary lesions were in the lungs, in the former the oldest lesions were obviously those present in the intestine and mesenteric glands. The authors suggest that this difference may be an indication that the two types of bacilli have a tendency, when introduced into the organism by the alimentary tract, to select different portals of entry for the initiation of the morbid process; but they admit that the number of their experiments is not large enough to justify any confident expression of opinion upon this point.

THE CAUSATION OF THE COMMON COLD.

Endemic, and at certain seasons of the year even pandemic, the common cold has to a great extent come to be regarded as inevitable. The obviousness of the disease, the absence of serious symptoms, and the rapidity with which recovery ensues in the vast majority of cases, are reasons why the average layman who has become infected with a cold fails to incur the expense of medical attendance. Having made up his mind to endure the discomfort, he goes about his avocation as usual until the malady passes off, or some serious complication develops, in which case recourse is had to his doctor.

It is largely owing to this mildness of the disease that study of the causation of the common cold has been neglected. Both those who occupy themselves with investigation of disease in the laboratory, and those who are concerned in watching the public health from the wider administrative standpoint have foregone investigation of the common cold in view of other diseases the influence of which upon the death-rate is more direct and obvious. Within recent years, however, two factors have indirectly raised the question of the etiology of the common cold even from this point of view. By reason of the circumstance that in epidemics, both of influenza and of cerebro-spinal fever, a nasal discharge is by no means infrequent, and also owing to the specific micro-organisms associated with the production of each of these two diseases respectively being present in such discharges, the differential diagnosis of influenza or of cerebro-spinal fever from cases of common nasal catarrh may be at times a matter of no less difficulty than importance. For the purpose of differentiation, recourse to bacteriology is necessary, and the question of the bacteriology of the common cold arises.

The discussion that has recently taken place in these columns on the bacteriology of the common cold has shown, so far, that the commonest micro-organism met with in the nasal discharge is *B. coryzae segmentosus*—a micro-organism belonging to the diphtheria group, and discovered by Dr. Edmund Cautley in the course of an investigation of influenzal colds undertaken for the Local Government Board in 1894-5. Cautley's observation has been confirmed by Gordon, Benham, and Prosser White, with the result that at the present time this bacillus has been found in an aggregate of 50 out of 56 cases examined. The evidence of etiological relationship between the bacillus of Cautley and the common cold, however, is still incomplete, as attempts to reproduce the essential symptoms with this micro-organism have hitherto failed. Moreover, bacilli belonging to the diphtheria group would appear to be not uncommon in the upper respiratory passages, and it has been suggested that the part played by *B. coryzae segmentosus* in the etiology of the common cold is altogether subordinate. Dr. Allen, who has put forward this view, states that he has found Friedlaender's bacillus present in the nasal secretion in the earliest stage of the disease in two out of three epidemics of common cold, and is accordingly of opinion that the part played by Friedlaender's bacillus is more important than that of the bacillus of Cautley.

Another micro-organism which occurs in some cases of the common cold is *Micrococcus catarrhalis*. This coccus, which is distinct from the common septic cocci and belongs to the same group as the gonococcus and meningococcus, has been shown to be the predominating organism in several epidemics clinically of an influenzal nature, but milder than true influenza. Discovered in Germany in 1890, *Micrococcus catarrhalis* appears to have been first isolated in this country in the course of an epidemic which occurred in the East Herts district last year, and was described in the British Medical Journal by Drs. Dunn and Gordon. Catarrh appears to have been the most common symptom in this Hertfordshire epidemic, but some cases developed an eruption generally of scarlatiniform nature, many developed stiff neck, herpes was not rare, and a few presented cerebro-spinal symptoms. The constant presence and abundance of *Micrococcus catarrhalis* in this outbreak, no less than the absence of the meningococcus, was of great value in demonstrating that the epidemic was not, as had at one time been suspected, cerebro-spinal fever, but more of the nature of influenza or, as Dr. Hamer has suggested in his Milroy lectures, of dengue. Subsequently, evidence that *Micrococcus catarrhalis* is met with in a proportion of cases of the common cold was furnished by Dr. Benham, who found it in the nasal secretion in 10 out of 27 cases examined by him at Brighton.

The question as to which of these three micro-organisms, *B. coryzae segmentosus*, Friedlaender's bacillus, or *Micrococcus catarrhalis*, is most frequently present in the common cold; the exact character of the infection at different stages, and the further question as to whether varieties of the disease can be clinically distinguished, are points that need further investigation.

Another factor in the production of the common cold of no less importance than the bacteriological element is the condition of the atmospheric environment. It must not be lost sight of that the part of the respiratory tract primarily affected in the common cold is the part with which inhaled air first comes in contact, namely, the mucous membrane of the nares. The reason why colds are exceedingly prevalent at certain seasons of the year and rare at others, and the exact nature of the relationship that undoubtedly obtains between the physical condition of the atmosphere in respect of temperature and humidity and the prevalence of colds is a matter that deserves much closer investigation than it has yet received. The responsibility of the stuffy atmosphere of a crowded room, railway carriage, or shop, for the spread of the common cold is part of the same problem, for deficient ventilation is undoubtedly as much to blame for the general spread of the disease as any other factor. Dust has been also indicted as the cause of a certain type of cold; but here again evidence is wanting. In addition to these factors, individual susceptibility must be taken into account, for some persons are remarkably immune whereas others are extremely susceptible. It is greatly to be hoped that further study of the common cold along these lines may shed more light upon its etiology, and lead to a successful system of prevention.

TAKING THE OATH.

THERE is a class of person which at present frequently supports very simple statements by expressing its readiness to take its Bible oath that they are true, but there are symptoms that if it continues to do so, it will soon not alone be unnecessarily emphatic but barely understanded of the people, which recks little of the history of terms. For the days of the Bible oath seem to be numbered. The seed sown by the medical profession, and tenderly nurtured for many years in these columns, has germinated, and there is ample evidence that the time of harvest is at hand. At least one occupant of the seat on the Benches of the High Court of Justice, to wit, His Honour Judge Snagge of the Northamptonshire Circuit, is now unwearying in his condemnation of the practice of kissing the book; others have caused notices to be posted drawing the attention of witnesses to the right they possess to be sworn by the Scottish method; finally there has recently been a considerable amount of correspondence on the subject in the *Times*. This is not the first time our contemporary has opened its columns to the discussion of the matter, but on this occasion the correspondence has been distinguished by the authoritative position of some of the writers and the absence of difference of opinion on the main point at issue. The English form of oath has, in short, been upheld by none as a particularly impressive ceremony, and the kissing of the book as practised has been condemned by all as nasty if not worse. The latter opinion is certainly that of all medical men, and with the view expressed in the former negative statement there is certainly no need to quarrel. Indeed, in the circumstances in which the majority of witnesses take their stand in the witness-box, it is probable that the clerk of the court is the sole real participant in the ceremony of the oath. If submitted to a time reaction test the witness might possibly come out well; but his rapid response to the order to kiss the book is often purely mechanical, and his association centres come so little into play that he barely seizes the meaning, much less appreciates the solemnity, of the antecedent words. This possibly may be of minor importance, because Sir Herbert Stephen, a Clerk of Assize of long experience and a good judge of the matter, is of opinion that most witnesses not belonging to the class of deliberate perjurers usually try to tell the truth, and would do so irrespectively of an oath. Nevertheless if an oath is to be administered at all it should not be a mere abracadabra, but a ceremony at once cleanly and impressive. In the Scottish oath there is certainly nothing to which even a hygienic fanatic could object, but as to whether it is impressive opinions may differ. The majority of English witnesses who have taken it are probably to be numbered among our own medical readers, and they will probably agree that in the languid style adopted south of the Tweed there is nothing very imposing; with the arm fully outstretched, as in its home of origin, the case may be different. Of the alternatives suggested—a new book for each witness, washable covers, etc.—none are very attractive, as they all, even the carefully thought out plan of Dr. Horace Dobell, involve more or less reliance on some understrapper of the courts, and it would be preferable that kissing of the book should be abandoned altogether. It may possibly be true that no case of illness has yet been traced to the practice, but it is undeniable that in this way not only dangerous but loathsome disease might readily be contracted. It is no doubt true that at present large numbers of medical witnesses accept the administration of the oath in its ordinary form, but this does not show they approve it. Many are doubtless unaware that it is open to them to be sworn in any other way, while others are deterred from objecting by a dislike of appearing peculiar, a motive to which Mr. Lowndes, one of the first, if not the first, medical men in England to take advantage of the Oaths Act of 1888, aptly alludes in a letter published in our correspondence columns this week.

AN ALLEGED DEARTH OF DOCTORS.

THE *Standard* has been trying to create a sensation by anticipating a future dearth of doctors, due to "a "steady and serious decline in the number of students "seeking to enter the medical profession during the "past ten years"—a decline which, it is said, has been of late even so marked as to cause "thoughtful men in "the profession to view the future with a good deal of "alarm"; it being generally recognized amongst them that "unless something is done to arrest this "decline Great Britain will suffer from a scarcity "of doctors in the future"! We take leave to doubt whether such alarm has been manifested by any considerable section of the "thoughtful" men in our profession. It is perfectly true that during the last ten years there has been a considerable falling off in the number of entries at the medical schools, but this is the natural reaction after the extraordinary rush into the profession which occurred in the previous twenty years, and which perhaps reached its maximum about sixteen years ago. We hold in our hands the slim volume of the *Medical Register* for 1875; it consists of 525 pages and contains 22,200 names, and we compare it with the bulky tome for 1906 containing nearly 1,800 pages with 39,060 names (75 per cent. more). Even allowing for the growth of population (1871, 31,845,379, and 1901, 41,605,220, an increase of about 33 per cent.), the number of medical men is not only absolutely but much relatively greater in proportion to the population of these islands than it was thirty years ago. It may be admitted that if the present depleted state of the medical schools continues there will be a dearth of doctors, but we have perfect confidence in the working of the laws of supply and demand to regulate this as it does other matters of the same kind. We do not believe that serious importance should be attached to any of the reasons given for this falling off, although it is perfectly true that the curriculum is longer and more expensive and that other walks in life offer in many respects greater attractions. Still less do we respect the reason which the real or imaginary medical man who supplies the *Standard* with its information finds to be the main cause of the unpopularity of the profession—namely, the difficulty which medical men find in obtaining payment of their fees. According to this authority "the third "of a doctor's book debts may be written down as bad. "People pay their butcher's and baker's bills regularly "who never seem to realize the necessity for paying "their doctors, and there is an unwritten law of the "profession which forbids a medical man to seek relief "by instituting county court proceedings against "defaulters." We do not know how far this estimate of the number of bad debts made by a medical man in general practice is or is not exaggerated, but it may be doubted whether it has any real deterrent effect upon those who feel a call to the profession of medicine. Nor do we rate highly the proposed remedy, which is to "raise the fees, which would make the profession more "lucrative, and so attract many to whom at present "sufficient inducements are not held out," for something has been done in this direction in recent decades. Some years ago we were told by an old medical practitioner occupying the highest professional position (surgeon to the principal hospital) in a large provincial town, that when he was young 2s. 6d. was the regular fee, while the senior physician

visited any one in town for 10s. 6d. In London up to a generation ago there was not a leader of the profession who would refuse to visit a patient for £1 1s., while not only have operations enormously increased, but the fees for them have risen also. The position of the general practitioner is another question; it seems certain that his fees have not decreased in actual amount; but, on the other hand, if they have grown at all they have certainly not kept pace with the general increase of prices in the commercial world; nor in their aggregate do the average fees of the average general practitioner of to-day secure for him a better position relative to his neighbours than that held by his grandfather. Moreover, in very many places he suffers from evils with which his predecessors never had to contend—the exacting requirements of friendly societies and clubs, and the competition of the out-patient departments of hospitals, one which is unfair to the practitioners affected by it, and extremely detrimental to the interests of the public.

BOARD SCHOOL CHILDREN AND SHOWER BATHS.

Godliness is a virtue which our masters seem indisposed to teach our children in the elementary schools, but possibly they may be more favourably inclined to that which stands next to it without being necessarily or even perhaps habitually its comrade—to wit, cleanliness. A paper read before the Medical Officers of Schools Association by Mr. Frederick Rose, Ph.D., may therefore be commended to the notice of the educational committees of county councils. Since in private houses the addition of a douche to the ordinary bath arrangements is a decidedly expensive undertaking, the suggestion of providing shower baths for school children may at first thought make the ratepayer shudder. He need not however be alarmed. The author offers excellent grounds for believing that the initial and permanent expenditure would be quite moderate, and to ourselves it seems something more than arguable that if all our children were fairly clean instead of more or less immoderately dirty, the bath-item rise in the rates would be counterbalanced by a drop elsewhere. There is an indisputable connexion between personal cleanliness and bodily health and fitness, especially in the case of those who live in more or less crowded habitations in doubtfully sanitary surroundings, and follow occupations which do not entail free perspiration, and thus help the skin to clean itself. On the other hand, it is by no means certain that a love of cleanliness, so obvious in the cat, is inborn in the human animal, and in any case most of us are the better for having the principle of cleanliness inculcated in our early youth, and full facilities for its practice provided as we grow older. There are, however, thousands of persons in London, not to speak of the country, for whom anything like a real wash is a matter of serious difficulty, and it is really remarkable how far short in this particular the modern municipality falls of its analogue in ancient times—at all events in the pre-Christian era, as later on in infidel countries—when the public baths played a very important part in the life of every city. In modern times, on the other hand, a municipality which can point to the possession of a swimming bath and a wash-house is inclined to look down upon its neighbours. Such things are all very well in their way, but a swimming bath is a place for the clean and not for the dirty (a fact which is commonly overlooked), and if the abolition of swimming baths meant an ample provision of cleansing baths for the people, we would gladly see every swimming bath in the kingdom closed. England, of course, believes itself to be the cleanest country in Europe, and possibly at one time it was so; those, however, who have studied the subject of late years must have at least a few qualms as to the foundation of the belief, for at many places on the Continent the arrangements in respect of public baths are vastly superior to anything of which the most advanced municipality in England can boast. If the question, "Why shower baths?" should be asked, the answer is easy: it is because when arrangements have to be made for the cleansing of large numbers of persons there is no other method which is at once so cleanly, so rapid, and so cheap. Hence it is that at nearly all places abroad where arrangements for school bathing have been made, the warm douche system has been adopted; a useful list of these towns will be found in Mr. Rose's paper.

THE PHYSICAL CHARACTERISTICS OF A BOMB-THROWER.

Dr. Antonio Lecha-Marzo, of the University of Valladolid, contributes to the Madrid *Revista de Medicina* an interesting account of the physical peculiarities of Mateo Morral, the author of the bomb outrage at the wedding of the King of Spain. At first sight, perhaps, the face is not that of a typical anarchist, but a closer examination reveals certain features which Lombroso and other criminologists have unhesitatingly declared to be degenerative. The brows overhung the face markedly, giving a somewhat sinister look, a feature which Lombroso points out as common in criminals occurring more than twice as frequently as in the normal person (26.7 per cent. as against 11 per cent.). Señor Juan Marro places the figure somewhat lower, but Mirabella, in a recently-published record of the physical peculiarities of 84 criminals,[1] assigns it a proportion of as much as 48 per cent. It is, however, much less marked in women. The chin was prominent, the lower jaw being strong and well shaped, rendering the man "underhung," a character frequently remarked in criminals, especially in men, being found, according to Peli, in about 38 out of every 100. The ears were a remarkable feature. They were asymmetrical, the left being normal, but the right was very pithecoid in appearance, the absence of helix and the general flatness and incomplete development of the cartilaginous folds being very noticeable. The ears were not much separated from the head, and were thus not the "handle-ears" so often seen in criminals and lunatics, but they were long and had the lobule rather adherent—the so-called "sessile ear"—which, with the flattened concha, is regarded by criminal anthropologists as suspicious. The nose was straight, but very deep at the root and deviated to the side—also characters of the criminal nose, according to Lombroso. The deviation, which was to the right, was considerable, and must have affected the nasal bones, for the right cheek was more or less concave and the left one convex, thus rendering the face asymmetrical. The chest was narrow and ill-developed; the hands were ape-like, long, and wide. Claude and Vidocq have dwelt on the frequency of this type of hand in murderers. Though of slight build Morral was muscular. His brain showed no abnormal characters, and was rather well shaped than otherwise, the frontal lobes giving indication of no lack of intellectual power.

MALARIA IN GREECE.

At a luncheon given on September 17th by Sir Alfred Jones, Chairman of the Liverpool School of Tropical Medicine, to Professor Savas of the University of Athens, Physician to the King of the Hellenes, a letter (we learn from the *Times*) was read from the Greek Minister in London, Mr. D. Metaxas, expressing gratitude for the effort made to assist in extirpating the plague of malaria in Greece. Dr. Savas said he desired to thank Princess Christian and the School for the efforts made on behalf

[1] *Archivio di Psichiatria*, xxvii, 1906, p. 1.

of Greece. Professor Ronald Ross said that, at the request of the Lake Copias Company, Limited, the Liverpool School of Tropical Medicine had made an investigation as to the prevalence of malaria in Greece. He went out to that country last May and found a very serious state of affairs. The population was practically confined to the valleys, the mountains being almost uninhabitable, and in these valleys he found a good deal of malaria. The statistics of the whole country showed that out of a population of, roughly, 2½ millions there were 250,000 cases of malaria every year, and the deaths were about 1,760. Last year the number of cases increased to 960,000, and the deaths to 5,916. Malaria was checking the development of rural life in Greece, and it was a very serious thing for the nation. He was of opinion that it was malaria which checked the life of ancient Greece, and that the disease was introduced, or at all events reinforced, at the time that Greece brought natives of Asia into the country. The movement initiated by Dr. Savas to deal with the plague was one which should recommend itself to all interested in the progress of civilization. Many illustrious persons, including Princess Christian, had already given their assistance, and he trusted that a great effort would be made to extirpate malaria altogether from Greece.

EXPLORATORY OPERATIONS.

THE silly season brings its usual crop of sensational correspondence in the newspapers, and the medical profession has not escaped its annual dose of calumny. The *Tribune* recently opened its columns to some so-called "Confessions of a Surgical Nurse," in which there are no confessions, but a malicious and untruthful account of the attitude of the medical profession towards those cases of internal disease which are more or less capable of being cured by surgical procedures. According to this authority the art of diagnosis is lost; every one is too busy to give the time and care that it demands: "The old skill in diagnosis is rare or non-existent. "When a patient is suffering from a deep-seated and "mysterious pain, recourse is had to the surgeon. "Of course, for the benefit of the patient, the disease is "diagnosed as this or that, but the operation is really "experimental. . . . If a pathological condition is dis- "covered, the surgeon removes the destructive agency, "and, provided that the system rallies from the shock "of the operation, a few weeks restore to perfect "health, while under purely medical treatment a long "and painful process might have produced only a "slightly beneficial effect." Except for the foolish complaint as to the lost art of diagnosis—sufficiently refuted by the existence of scores of diseases in our textbooks which were unknown a generation ago, but are now daily recognized—surgeons might be well contented with the handsome testimony afforded them, albeit somewhat at the expense of their colleagues, the physicians. The confessing nurse, however, goes on to add that things do not always turn out so well; sometimes no disease is found, but the patient dies—killed, nay murdered, it is implied, by the operative zeal of the surgeon! Worse than this, there are operations performed in our hospitals "which really amount to "nothing less than vivisection." As all operations performed on living patients must be in a certain sense vivisections, it is impossible to deny this. This amiable member of an honourable profession, however, goes on to say that these operations can have no other justification than the increased knowledge or experience which they bring to the operator, as the cases are hopeless—a charge wholly at variance with the natural reluctance of surgeons to interfere with cases which only increase their mortality average. Not content with this libel, she makes another statement obviously untrue, and introduced solely, we fear, for sensational effect, namely, that the rich patients have the option of declining to be "cut up," but "the poor patients in the "hospital wards have no such option," as if operations were ever performed on hospital patients without getting their own consent or that of their relatives! The article concludes with some ill-natured remarks about nurses, and a story of a nurse who nearly allowed a patient to die of haemorrhage, although it certainly is not usual for nurses to possess the skill to arrest bleeding such as that described even if she did find out it was occurring. We fear that the article is inspired more by malice than by zeal for the welfare of humanity.

"CHRISTIAN SCIENCE" AND LIFE INSURANCE.

WE learn from the New York *Medical Examiner*, which takes life insurance from the medical point of view as its province, that the editor of a periodical devoted to the same subject in its business aspects has been considering the question, Can an applicant for life insurance who admits that he would not use the services of a physician or surgeon in case of sickness or accident be a safe risk? He submitted the question to a number of officers of insurance companies, and the replies are interesting though not altogether conclusive. Of thirty-eight companies which were asked whether they took risks of the kind referred to without reserve, twenty-nine replied more or less definitely in the affirmative, and nine in the negative. The matter is, of course, looked at by the companies from a purely business point of view, and it is considered that the time has not yet come for a definitive solution of the question as to the influence which the refusal of medical aid may have on the expectation of life. From statements made by some of the insurance company officials, it appears that a preliminary question, How far do Christian Scientists really refuse the aid of medical science? must first be answered. Interesting sidelights are thrown by some of the replies on this and other points of Christian Science observance. Thus the secretary of one company states that "they are some- "times slow in calling in a physician for children; for "themselves they are not so inclined to wait." This is confirmed by the supervisor of another company, who says: "While a number of children have died from "lack of medical attendance, we believe that the older "people will give in to medical treatment when they "are themselves taken with any severe illness." The Christian Scientists are here charged with the most revolting of all forms of selfishness; if the accusation be true, the fact goes to show that the cult of Mother Eddy is even less Christian than it is scientific. One of the writers states that his company considers Christian Scientists as a class "substandard, for the reason that a "large percentage of this faith is composed of the "'lame, halt, and blind.'" But how comes it that there are so many risky lives among the followers of the prophetess who taught that no such thing as disease existed?

MISSED ABORTION AND MISSED LABOUR.

WHILST the retention of portions of fetal membrane after abortion and labour is of everyday occurrence, the retention of the fetus itself, the uterine contractions failing to expel it, is extremely rare. Plant[1] has recently reported two cases at a meeting of the Obstetrical Society of Leipzig. The first patient was 30 years of age, and had borne five living children. The period ceased in June, 1899; in October she felt very ill after running to catch a train. On December 7th she consulted Dr. Plant as the abdomen had not grown any larger after the strain. He found that the uterus had attained the bulk usual at the fourth month,

[1] Ueber Missed Labour (Missed Abortion) mit Demonstration, *Zentralbl. f. Gynäk*, No. 33, p. 933.

and watched the case. Some blood escaped at the end of January, and Dr. Plant noted that the uterus had not increased in size since the beginning of December. On February 5th, 1900, slight labour pains with trifling haemorrhage set in. The ovum, delivered by expression, formed a dry packet enclosing a flattened mummified fetus, and wrapped in the placenta, which was lardaceous in consistence. Gestation had been arrested about the third month. The after-history of this case is important; the curette had to be used on the fifth day of the puerperium on account of some haemorrhage, but there were no septic symptoms, and one year and a half later the patient was spontaneously delivered at term of a living child. The second patient was 28 years old, and had been seven times pregnant. Dr. Plant was called in on June 14th, 1905, on account of flooding and syncope after delivery. The patient had a brutal husband who seems to have struck her in November, 1904; the last period, at that date, had occurred on September 25th. On November 18th, shortly after the blow, blood came away from the vagina during defaecation and occasional haemorrhages took place throughout the further course of the pregnancy. About the beginning of March, 1905, the patient felt fetal movements which ceased at the end of a week. Then the abdomen and breasts diminished in size. The expulsion of the ovum on June 14th was not followed by any bad symptoms, the uterine cavity was washed out with lysol. The ovum lay in a big mass of clot, it did not smell fetid, the membranes closely invested a mummified fetus about 8½ in. in length; the placenta was lardaceous. Dr. Plant classifies the second case under missed labour, according to McClintock, as the fetus must have lived to the sixth month. This second patient declared that her previous delivery had taken place on August 18th, 1904, at the seventh month, that her husband had treated her roughly early in pregnancy, and with the same results as related above; that the abdomen thenceforward diminished in size; and that the ovum when expelled was even smaller than that delivered under Dr. Plant's observation. Thus the case was an instance of habitual retention of the fetus. Neither of Dr. Plant's patients was subject to any disorder or local condition which could explain the absence of the normal irritability of the gravid uterus. Since Oldham's classical case was published in 1847, Graefe collected 70 cases of retention of the fetus in the normal uterine cavity, including eleven instances under his own observation. Dr. Plant observes that although Pinard doubted the possibility of missed labour as late as 1893, the condition has been verified at necropsies and operations. Retention in cornual and extrauterine sacs do not come under the present category.

THE MOVEMENTS OF PLANTS.

Professor Bose has published recently some interesting researches on the movement of plants.[1] He has used a lever turning on agate points, and provided this with a mirror to magnify the movement, the mirror reflecting a beam of light on a screen. By this means he has succeeded in recording the remarkable rhythmic movements of *Desmodium gyrans*, the telegraph plant, that grows wild on the plain of the Ganges. This plant has trifoliate leaves. The two lateral leaves are small, and are inserted on to the petals by means of a motile organ—the pulvinus. These leaves execute continuously up-and-down movements, each of which takes two to four minutes to complete. Professor Bose has found that movements are not restricted to sensitive plants, but are generalized in all forms of plants. In the sensitive plants, the motile structures are so arranged as to produce magnified effects, which are strikingly visible to us. In ordinary leaves the refined methods ingeniously contrived by Professor Bose must be used to demonstrate the fact that they, too, move when stimulated. In radial structures such as stems movement can be seen either by unilateral excitation or by recording the length of a stem. For the purpose of excitation, and to avoid all shaking of the sensitive recording apparatus, a thermo-cautery, a condenser discharge, or light are used as the forms of stimuli. Professor Bose finds a close agreement between the contractile tissue of animals and plants. In both he finds a like effect—from fatigue, from alteration of temperature, and from the toxic effects of anaesthetics and other drugs, etc. An especially striking effect is the inhibition produced on the movement of the leaflets of the sensitive plant, mimosa, in the neighbourhood of the positive pole of a constant current. The extent of the contraction in some cases he found to be strikingly great. Thus the filaments of the stamens of Cynereae shorten by 8.22 per cent. of their original length. On excitation water is expelled from the excited cells and passes into the intercellular spaces. This water was observed by Pfeffer to well forth from the cut end of the filament. Professor Bose adduces experimental proof in favour of the view that the ascent of the sap is an excitatory phenomenon, that "its unidirectional "flow is due to the graduated passage from point to "point of the co-ordinated excitatory reaction, pro-"pelling water forward." This rhythmic excitation is initiated in the intact plant at its root by the stimulus of contact with the soil, the friction of the growing organ against rough surfaces, the excessive turgidity caused by the absorption of water, and possibly the chemical stimulus of substances present in the soil. Throughout the book Professor Bose supports such mechanical views of the phenomena which he has studied, and we regard the worth of his work as lying far more in his ingenious experiments than in the depth of his philosophical interpretation of his results. He concludes that all the various movements of plants which are seen in Nature under the action of external stimulus are but different expressions of a single fundamental response by contraction. He finds that, in mimosa for example, conductivity of an excitatory effect is not due to the transmission of a hydro-mechanical disturbance, as has been supposed, but takes place by the propagation of protoplasmic changes, and that the velocity of transmission is modified by various agencies in the same way as in animal tissues.

[1] *Plant Response as a Means of Physiological Investigation.* By Professor J. C. Bose. London: Longmans, Green, and Co. 1906. (Demy 8vo, pp. 781; 477 illustrations. 21s.)

INTERNATIONAL CANCER CONFERENCE.

An International Conference on Cancer Research will be held at Heidelberg and Frankfort on-Main from September 25th to the 27th. The proceedings will begin with the formal opening of the new Cancer Research Institute at Heidelberg on September 25th. The ceremony will take place in the presence of Their Royal Highnesses the Grand Duke and Duchess of Baden, and addresses will be delivered by Professor Troeltsch, Pro-Rector of the University of Heidelberg, and Professor von Leyden, President of the German Central Committee of Cancer Research. Professor Czerny will welcome the guests, and Professor George Meyer will present a report on the International Conference on Cancer Research. At later meetings addresses will be delivered by Professor von Leyden on the problem of the curative treatment of cancer in man; by Professor Czerny on unexpected recovery from cancer; by Freiherr von Dungern of Heidelberg on the value of specific serum reactions in

cancer research; by Dr. R. Werner of Heidelberg on the genesis of malignancy in tumours; and by Dr. Lewisohn of Heidelberg on the treatment of malignant tumours with the *x* rays. On September 26th the Conference will be continued at Frankfort, where the visitors will be welcomed by Professor Ehrlich. A report on the researches made in the Institute of Experimental Therapeutics will be presented, and the preparations collected in the Institute will be exhibited. Professor Herxheimer and Dr. Hubner of Frankfort will present a communication on the treatment of cutaneous carcinoma with these rays, and will demonstrate cases treated by that method in the Light Department of the Dispensary for Skin Diseases. Dr. Behla (Stralsund) will discuss the relations between water and cancer distribution. Among the other papers to be read is one by Dr. Leaf (London) on the cause of cancer of the breast (clinical), with some remarks upon the connexion between irritation and the production of malignant growth (experimental).

INTESTINAL OBSTRUCTION BY A MESENTERIC CYST.

A NOTEWORTHY instance of acute obstruction has been recently recorded by Dr. Murray MacLaren, of St. John, New Brunswick,[1] for the cause was a kind of abdominal tumour about which much has been written during recent years by F. S. Eve, Bégouin, Baumann, Dowd, and others, a good summary of the literature of the subject appearing in the January number of the *American Journal of Medical Sciences*. The complication described by Dr. MacLaren seems very unusual. A man, 65 years of age, was troubled for three days with symptoms of obstruction which became acute. At first he felt discomfort, flatus and faeces did not pass, and, after the administration of purgatives and enemata, vomiting set in which became faecal. He had hitherto enjoyed very good health, but two years previously an attack of pain in the abdomen occurred and lasted for a few hours, yet there was apparently no obstruction. He was sent into the General Hospital, St. John, when Dr. MacLaren noted that he was collapsed—the temperature was 97°, the pulse 80, the urine normal. The abdomen was painful and moderately distended. On rectal examination the prostate was found to be very prominent—in reality, it was pressed upon by a pelvic tumour. A median incision was made below the umbilicus; coils of distended and congested small intestine were exposed, and the caecum was seen to be collapsed. On following the ileum upwards for about 8 ft. or 10 ft. it was found to dip abruptly into the pelvis, where a fluctuating tumour could be defined. The operator drew up the portion of bowel which descended into the pelvis and found that the tumour rose with it, so that it was readily brought out of the incision. As it issued from the pelvic brim a sensation could be felt such as is experienced when a small ovarian cyst is extracted from the pelvis. The fluctuating tumour was a cyst rather less in size than a fist, it lay between the layers of the mesentery and touched a quarter of the circumference of the bowel. Dr. MacLaren found that by falling into the pelvis it had caused obstruction in two ways. From its attachment to the upper and anterior surface of the mesentery, when it descended into the pelvis it produced a horizontal rotation of the loop of small intestine from before backwards. There was clearly partial volvulus. Secondly, the cyst displaced into the pelvis dragged hard on the involved loop of intestine. The obstruction was therefore caused both by volvulus and traction. The cyst was enucleated without difficulty and without haemorrhage and the peritoneum brought over the bared area on the mesentery with catgut. The obstructive symptoms at once disappeared and the patient recovered. MacLaren claims his case as a unique example of complete obstruction due to the presence of a mesenteric cyst, although a tumour of this kind has been associated not infrequently with vomiting, constipation, tympanites, and pain; already Hochenegg has ascribed these symptoms to displacement of the tumour and consequent kinking or twisting of the bowel. These mesenteric cysts are usually situated well to the right of, and a little below, the umbilicus, and that was apparently the position of the tumour in MacLaren's case. It is easy to understand how a cyst so placed might slip into the pelvic cavity.

[1] Mesenteric Cyst with Acute Intestinal Obstruction. *Montreal Medical Journal*, December, 1905, p. 896.

ROYAL COMMISSION ON VIVISECTION.

THE promised Royal Commission on Vivisection has at length been appointed, and the names of the Commissioners were published in the *Gazette* of September 18th. They are: Viscount Selby (Chairman); Lieutenant-Colonel A. M. Lockwood, M.P.; Sir W. S. Church, M.D.; Sir W. J. Collins, M.D., M.P.; Sir John McFadyean, M.B., C.M., F.R.S.E.; Mr. Mackenzie D. Chalmers, C.B., C.S.I.; Mr. Abel John Ram, K.C.; Dr. W. H. Gaskell, M.D., F.R.S.; Mr. James Tomkinson, M.P.; and Mr. George Wilson, M.D., F.R.S.E. The Secretary is Captain C. C. Bingham, C.M.G. The terms of the reference are "to inquire into and report upon "the practice of subjecting live animals to experiments, "whether by vivisection or otherwise; and also to "inquire into the law relating to that practice and "its administration; and to report whether any, and "if so what, changes are desirable." The Commission is invested with the usual powers of such bodies. Viscount Selby is perhaps better known to the public as Mr. Gully, the late Speaker of the House of Commons. Colonel Lockwood has for a long time sat in the House of Commons as Member for the Epping Division of Essex; Mr. Chalmers has been Permanent Under-Secretary for the Home Office since 1903; Mr. Ram is Recorder for Wolverhampton; Mr. Tomkinson represents the Crewe Division of Cheshire. The medical profession is represented by Sir William Church, a past President of the Royal College of Physicians of London; Dr. Gaskell, of Cambridge, a distinguished physiologist; Sir John McFadyean, Principal of the Royal Veterinary College; Sir William Collins, and Dr. George Wilson, Medical Officer of Health for the Mid Warwick District. The list suggests that the Home Secretary found considerable difficulty in finding men to serve on the Commission. Whatever else may be said as to its composition, the antivivisectionists at least can scarcely complain that they are inadequately represented.

IT has been decided that the first Cremation Congress to be held in Belgium shall take place at Charleroi on October 7th, under the auspices of the Rationalist Federation.

A MONUMENT to Ignaz Semmelweis will be unveiled with appropriate ceremonial at Buda-Pesth on September 30th. A memorial tablet marking the birthplace of the distinguished physician will be unveiled on the same day.

IN the SUPPLEMENT for this week will be found an analysis of the results of all the examinations for admission to the Royal Navy, the Indian Medical Service, and the Royal Army Medical Corps held since the spring of 1902, together with an indication of the deductions which may be made from it with respect to medical education in the three divisions of the United Kingdom.

Scotland.

The Edinburgh Post-graduate Vacation Course in Medicine.

This course commenced on Monday, September 17th. Sir William Turner, who presided at the opening meeting held on the morning of that day, extended, in the name of the University, a hearty welcome to those attending the course. Dr. Byrom Bramwell, at the request of the Executive Committee, then made some remarks as to the scope and objects of the course. He pointed out that there had within recent years been a constantly increasing number of inquiries with regard to post-graduate work in Edinburgh, and that the idea of instituting a post-graduate course appeared to have come simultaneously to the authorities of the University and of the extra-mural school. Edinburgh possessed unique advantages as a centre for post-graduate work: a large general hospital, with abundant clinical material—a staff constantly engaged in medical teaching considerably larger than that of any other medical school in the kingdom, and, in addition, the proximity of the University, Royal Infirmary, and other hospitals, laboratories, and teaching institutions. It was a mistake to suppose that there was little post-graduate teaching going on in Edinburgh; on the contrary, a considerable number of post-graduate classes were in continual progress throughout the year in such subjects as diseases of the blood, chest, nervous system, ear, nose and throat, eye, gynaecology, etc. The number attending the present course was considerably larger than had been anticipated, and it was hoped that, under these circumstances, those attending the course would exhibit forbearance if for the first day or two there was overcrowding in some of the classes—a difficulty which would be met as speedily as possible by providing adequate accommodation. To judge by the enthusiasm with which the course has been received, there appears to be every reason to believe that it will prove eminently successful.

Partly with the object of increasing the public interest in the institution, and partly to increase the funds, a fête was held in the grounds of the Royal Victoria Hospital for Consumption, Edinburgh. There were illuminations, fireworks, and military bands.

Glasgow Children's Eyesight.

A report on the investigation made by Dr. H. Wright Thomson, dispensary ophthalmic surgeon in the Glasgow Royal Infirmary, regarding the eyesight of children attending schools in Glasgow, was recently presented to the School Board of that city. It shows that out of 52,493 children tested for visual acuteness, 18,565 were found to be below what is regarded as the normal standard, while out of these 18,565 defectives who were examined by retinoscopy 11,209 were found to be suffering from ocular defects. Dr. Wright Thomson suggests that an annual inspection by the teachers, followed by medical inspection of the children found defective, would soon cause all existing defects to be corrected, and would lead to the detection of those which develop during school life.

Dundee Royal Infirmary.

At a meeting of the governors of the Dundee Royal Infirmary held on September 10th, Mr. James Guthrie, who was in the chair, said they expected shortly to begin the treatment of patients in the Caird Cancer Hospital. Referring to the recent conference with the town and parish councils regarding the treatment of cases of consumption, he said the establishment of a municipal dispensary would be a great step forward. About 10 per cent. of the medical cases treated in the medical wards of the infirmary were cases of pulmonary consumption, while the number treated in the outdoor department was also very large. Much, however, required to be done to prevent the spread of the disease, and the infirmary directors would be glad to co-operate with the municipal authorities in mitigating the ravages of the disease. He moved the adoption of the reports. In seconding the motion, Principal Mackay said the work of the infirmary had gone on quietly, efficiently, and well. Referring to the proposed establishment of a tuberculosis dispensary, he said he had no doubt that they were going about the matter in the right way, for it was only by the co-operation of town councils, parish councils, and infirmary staffs that the work could be thoroughly carried out.

Epileptics at Bridge of Weir.

The Colony of Mercy for Epileptics in connexion with Quarrier's Homes is now ready for inmates. The first house is open, and a start has been made with twelve colonists, all young men, and it is proposed to fill up the house gradually as suitable applicants are brought forward. Only thoroughly sane young men, who are capable of taking part in healthy outdoor garden and farm work, will be admitted. Each colonist is expected to keep himself in clothes, and to pay a minimum sum of 10s. a week towards his expenses. It is not expected that the colony will be self-supporting, but, as funds become available, it is proposed to erect additional buildings for women and children. The present buildings are to be open for inspection by the public on Wednesday, September 26th.

Opening of the Bangour Asylum.

The Earl of Rosebery has consented, on the invitation of the Edinburgh District Board of Lunacy, to open the Bangour Village Asylum on Wednesday, October 3rd, at half-past twelve o'clock.

Ireland.

Public Health of Belfast.

A meeting of the Public Health Committee was held on September 13th, at which Dr. Clibborn, Local Government Board Inspector, was present. Dr. Clibborn called attention to the large number of deaths from diarrhoea; 39 had been reported from this affection during the week ending September 8th. The total mortality was 21.5, and that from zymotic disease was 7.0. In the corresponding week of last year the death-rate was 15.8, and from zymotic diseases 1.9. A letter was read from the Local Government Board formally sanctioning the salary of £600 per annum for the new medical officer of health; this sum had been fixed by the City Council, although its Health Committee had twice recommended £800; the letter further stated that the Board wished it to be clearly understood that their expression of sanction of the proposed remuneration, which was made in pursuance of the statutory requirements, must in no way be taken as implying that the Board concurred in the course which the Corporation had decided to adopt. The Board feared that in limiting the salary to £600 per annum the Corporation would fail to obtain applications from experienced and competent health officers; and, if this should prove the case, they trusted that the Corporation would refuse to make an appointment under such circumstances, and would reconsider the question of the salary to be attached to this important office.

Side by side in the daily press with the report of the meeting of the Council's Health Committee, is a report of a meeting of the Citizen's Health Committee; this meeting expressed the gravest dissatisfaction at the action of the Corporation in twice ignoring the recommendation of its Health Committee, and the repeatedly expressed opinion of the Local Government Board as to the necessity of adopting £800 a year as a salary; at both meetings of the Council 37 out of a total of 60 voted. The consideration of a deputation to the Council regarding an epidemic of typhoid in one of the districts of the city, and of the advisability of holding a public meeting was also taken up.

Amongst the advertisements of the same date in the local press is one asking for applications for the post of Medical Superintendent Officer of Health for Belfast; these must be lodged not later than September 22nd; that is, eight days are given for any local candidate to prepare. The same advertisement has been sent to at any rate two of the leading medical journals in England; as the meeting of the Committee was held on September 13th, the earliest possible insertion is the 22nd, that is, the last day on which applications are received; in other words, a candidate living in England, no matter what his qualifications, if he relies upon the medical press, will have to send his application by telegram!

DR. DARNELL'S EXPENSES IN TUGHAN *v.* DARNELL.

The following further sum has been received to aid in defraying Dr. Darnell's expenses in the case of Tughan *v.* Darnell; its acknowledgement has been delayed owing to absence from home of Dr. Calwell, one of the treasurers of the fund.

	£	s.	d.
Sums already acknowledged ...	348	11	6
Dr. W. R. Dawson (Dublin) ...	1	0	0
	£349	11	6

Liverpool.

HIGH DEATH-RATE: PREVALENCE OF INFANTILE DIARRHOEA.

At the meeting of the Health Committee on September 13th, Dr. Hope, the Medical Officer of Health, reported that the death-rate for the past week was 28.6 per 1,000, as against 18 6 for the corresponding period last year; 171 deaths were due to diarrhoea, and 187 infants had died under 1 year. In reply to a suggestion that the question of infant insurance might have something to do with the high death-rate in young children, Dr. Hope said that careful inquiries were made in Liverpool and other large towns some years ago, and it was found that insurance was not effected with the deliberate view of neglecting the children in order to get the insurance money. The present high death-rate was due to the diarrhoea mortality owing to the extreme heat. It had affected practically the whole of England, and at least nine or ten other large towns to a much greater extent than it had affected Liverpool; and he expected they would suffer for another week or so from the effects of the great heat. They in Liverpool had the satisfaction of knowing that, though the rate of mortality was high, it was considerably less than it was under, perhaps, less trying circumstances two years ago. In reply to a suggestion that pressure might be brought to bear on parents who were dirty and neglected their children, he said that the Corporation's powers were extremely limited in such cases. There was no city in Christendom, as far as he knew, certainly no city in Europe, which could produce anything like the squalor found in some of the back streets of Liverpool. It was one thing to endeavour to teach persons the advantages of cleanliness and another to coerce them into it, especially as there were no powers to interfere in that direction. There were powers to compel tenants as well as landlords to keep their houses clean, but with regard to the cleanliness of the people themselves, that was another matter and a difficult one. The point was intimately associated with the question of drink.

DR. HOPE ON THE INFLUENCE OF INTEMPERANCE ON THE INFANTILE MORTALITY.

Beyond any doubt the great squalor of some of the worst districts was almost entirely owing to drink. He did not mean to say that the people were always drunk, but they spent very much more on drink than they could afford, and the consequence was that they had not enough money to pay their rent or provide food and clothing for their children. They would have all these if they spent less money on drink. Take Hornby Street area, a limited area selected on account of the squalor and wretchedness and insanitary conditions, and yet within that limited area it was proved that these poor creatures were actually spending £5,000 a year in drink. It might be said, and it had been suggested, that the money was not spent by the people in the neighbourhood, but was spent by people who came in from other streets. It might be so partly, but against that it was a fact that there were forty-eight other licensed houses within 200 yd. of Hornby Street area. It could hardly be imagined that there was any inducement to the people who supported the 48 public-houses to come into the Hornby Street area to spend their money in drink. It was only common sense that if some part of that £5,000 were spent on clothes for the baby and food for the children it would be very much better, and there would be no need for straw or shavings for bedding or a soap box for furniture. The neglect of children was dealt with by the Society for the Prevention of Cruelty to Children, which said in its last report that not hundreds, but thousands, of cases of cruelty were every year investigated by it, the whole cause of which was drink. There was no reason to doubt that this was correct. This was one reason which made the work of the Health Committee so difficult. Dr. Fox, in his report to the United States Government upon the sanitary condition of Liverpool, said that there was no city which he knew which had done so much for its poor as Liverpool, and no city which he knew where the efforts of the sanitary and other authorities were so frustrated by the drinking habits and drinking facilities given to the people. That was what a stranger reported to his Government, and there was no reason to doubt that something of this must be true. If they could induce the women to drink less and to give better attention to their children, the Committee would be taking a step in the right direction. Beyond issuing a temperance poster, the Committee had done nothing to impress upon these people, directly or indirectly, the effects of intemperance upon the death-rate. It was not the function of the Committee to deal with the licensing question. Dr. Caton, a member of the Health Committee, said that in nearly every one of the schools the children were being taught systematically the deadly effects of drink upon themselves and the population generally. This would produce a great effect in time. The habitual drunkard was not influenced by placards; hope lay in teaching the children.

Leeds.

ANNUAL MEETING OF THE PUBLIC DISPENSARY.

At the annual meeting of the trustees and subscribers to the Leeds Public Dispensary the eighty-second annual report was presented and adopted. The figures are of special interest, since they represent a record of the second complete year of work in the new institution, which was opened in 1904. As might be expected, they show an increase of work. The total number of new patients was 41,847, an increase of 5,592. The total number of deaths was 322, which is less by 41 than the figures for the preceding year. Accident cases amounted to 5,161, or 712 more than the preceding year, and eye and ear cases to 1,644, an increase of 368. In the new nose and throat department, which was instituted in January, 112 cases were attended to. The new pathological department has been called on for investigations in 169 cases. The number of operations, not including those in the dental department, was 547, an increase of 242. The total number of attendances in the out-patient department was 115,251, and the number of dressings amounted to 23,730. One of the most important departments of the dispensary is concerned in the visiting of patients in their own homes; the work continues to increase, for the number of visits paid by the resident staff showed an increase of 1,116, and now stands at 16,182 for the year. The amount of work at the Southern branch shows that it was needed, for 3,889 new cases were attended and 1,014 visits made to the homes of patients, and the total attendances have amounted to 11,773. Cases of accident to the number of 116 have been attended to. The work of the Southern branch is being carried on in premises inadequate for the purpose, and the Board of Management is alive to the urgent necessity of building a thoroughly-equipped institution on the south side of the river. It will be remembered that a special appeal has been made for a sum of £25,000 to replace the large sums drawn from the invested funds for the erection of the new buildings of the central institution, and to meet the necessarily increased annual expenditure, as well as for the erection of an institution on the south side of the river. Of this sum, only about £4,000 has as yet been forthcoming, but it is confidently expected that the result of a systematic canvass will be attended with a large measure of success.

It is interesting to note a reference in the annual report to the new dental department which was opened in July, 1905, and has now therefore completed the first year of its existence. In the department there are six honorary dental officers, six honorary assistant dental officers, as well as the honorary consulting dental officer. One honorary dental officer and one honorary assistant dental officer attend each day, and dentistry in all its departments is carried on in a well-equipped suite

of rooms. Three medical men hold the positions of honorary anaesthetists in the dental department. There is a reference in the report to the post-graduate course, which was held in the dispensary by certain members of the honorary staff during the months of May and June. The Board states that it views with satisfaction the success of this effort, and considers that by such means the reputation of the dispensary is increased and the attractions of a position on the honorary staff enhanced.

Manchester.

Insanity in Lancashire.

At the quarterly meeting of the Lancashire Asylums Board it was unanimously resolved that in view of the alarming increase in the insane portion of our population immediate steps should be taken to inquire into the best means for preventing propagation by those mentally afflicted, with the view of securing legislation which could attain this end. The mover of the resolution, Mr. Harold Jackson, stated that those who were familiar with lunacy statistics would not be surprised at his action. Our asylums were conducted on the most humane lines possible, but that lunacy was increasing under our laws and regulations was an undoubted fact. Fifty or sixty years ago the insane received harsh treatment; many of them died at an early age, and few became parents. To-day it was very different. The insane were housed comfortably and looked after with the greatest care, and those who were "cured" were afterwards turned out to spread their affliction. According to the returns of the Lunacy Commissioners, in 1896 there was 1 lunatic to every 319 of the population; in 1905 there was 1 to every 285. The census returns for 1901 showed that there were 60,000 idiots in the United Kingdom, of whom nearly 19,000 were married or had been married, and that of the 117,000 lunatics 47,000 were married or had been married. The total number of lunatics and idiots who were married or who were widowers or widows was therefore over 65,000, and it was probable that most of them were helping to increase the tainted portion of the population. The medical authorities put down from 50 to 70 per cent. of the cases of insanity as due to heredity. Surely in face of these figures it was time that the law was altered. Many of the offspring of the people who were discharged themselves went to the asylums, and most of the rest helped to swell the criminal, the vagrant, and the inebriate classes. At present the asylums were discharging about 14,000 patients annually, with full liberty to marry and to spread their mental taint. Indeed, the saddest part of the whole story was that the more patients we "cured" in the asylums the more we spread the affliction. The increase in lunacy in Lancashire is so steady that it is no wonder some remedy is sought. In the county there are five asylums with a population of 10,617. Three years ago an asylum was erected at Winwick, near Warrington, for 2,000 patients, and, as stated above, another equally large establishment is required. Each of these asylums has cost £250,000. The cost of maintaining the patients comes on the poor-rate to the extent of 8s. 2d. per week. The cost of the asylums falls on the county and borough ratepayers. During the existence of the five Lancashire asylums, 6,016 persons were admitted, 4,994 were sent out into the world not improved, and 7,359 were only partially relieved. Thus it would appear as if Lancashire had to provide a new asylum every five years.

The Medical Superintendent of Whittingham comments on the situation in the following terms: "Each year only emphasizes more strongly than the preceding one the malignant influence of heredity. To it is to be attributed the chief factor in the causation of not only insanity, but of the hosts of feeble-minded and degenerate, and of those on the borderland who enjoy their liberty to the detriment and fear of posterity. The fact that the recovery-rate, notwithstanding our improved methods, has remained stationary, if not actually declined, would seem to indicate that the freedom with which the influence of heredity is allowed full play in the unprohibited marriages of those so tainted is steadily begetting a race of degenerates, and those of unstable equilibrium prone to insanity under the influence of even normal causes."

South Wales.

Bequest to Merthyr Hospital.

Mr. Joseph P. Pool, of Runnington, Penydarren Park, Merthyr, who died on September 1st last, in his will bequeathed £1,000 to the Merthyr General Hospital for the endowment of a bed, to be called in memory of his late wife, "The Sarah Panel Pool Bed." He has also bequeathed £200 each to the National Society for the Prevention of Cruelty to Children and to the Royal Society for the Prevention of Cruelty to Animals, and a large number of valuable books, together with several pictures, to the Merthyr Corporation for the free library.

Health of Glamorgan.

Annual and Quarterly Reports.

The annual report of Dr. Williams, Medical Officer of Health for the County of Glamorgan, has just been issued. It is stated that the question of the provision of isolation hospitals has continued to make considerable progress, and in a very short time there will not be a district in the county without means of isolating the infected sick. There are several matters that yet require attention by the Sanitary Committee—namely, the sanitary inspection of schools, the medical inspection of scholars, the provision of sanatoriums for the poorer consumptives, the veterinary inspection of dairy cattle and cowsheds, the inspection of meat and other articles of food; the amendment of the Rivers Pollution Prevention Acts or the promotion of a Bill with a view of obtaining a special Act; and the utilization of the powers conferred upon the County Council by the Glamorgan and South Wales Water Act. The statistical tables show that the population of the area increased from 517,246 in 1895 to 669,193 in 1905, the excess of births over deaths during the latter year being 12,410. There were 24,080 births registered in the administrative county during 1905, showing a birth-rate of 35.9, a slight decrease as compared with 1904. Among the individual districts the birth rates vary from 46.0 in Ogmore and Garw to 15.8 per 1 000, the highest being in the industrial and mining districts, and the lowest in agricultural and residential areas.

In England and Wales the rate was 27.2 per 1 000 of the population. The relatively high birth-rate in Glamorgan is doubtless accounted for by early marriages. The total number of deaths registered was 11,670, being at the rate of 17.99 and 15.87 per 1.000 in the urban and rural districts respectively. Merthyr Tydfil headed the mortality table with 22.0, and Cowbridge Borough footed it with 10.8. Of the total deaths, 4,020 were those of children under 1 year, and 1,808 of children above 1 and under 5 years, being equivalent to 34 4 and 15.4 per cent. respectively. The infantile mortality statistics form the most unsatisfactory feature of the year, varying from 204 per 1,000 in Merthyr Tydfil to 52.6 in Cowbridge Borough, the average rate for England and Wales being 128. The report incorporates the views of the various district medical officers on this high rate of infant mortality. Poverty, overcrowding, and the insanitary conditions of the homes of the working classes, the curse of alcoholism, improper feeding, and imperfect cleansing of bottles are amongst the chief causes mentioned by these officers, one of whom suggests that the State should make it compulsory that every woman, before being allowed to marry, should pass an examination on infant feeding and management, whilst another thinks that the subject should be taught to the senior girls in the elementary schools. Attention is called to the resolution of the recent conference on infantile mortality: that the Education Department be urged to add to its present scheme for training girls systematically in the senior classes in the principles and practice of personal hygiene, the elements of dietary, with special instruction in respect to the rearing of infants. Since 1895 fourteen isolation hospitals have been built, two are in course of erection, and three are in contemplation. Dr. Williams, reporting on the water supply, states that in the present session of Parliament the County Council promoted "A Bill to empower the Glamorgan County Council to make inquiries and surveys with a view to the utilization of water supplies in South Wales and to form water districts, and for other purposes." This Bill (as amended in Committee) has now become "An Act to empower the

Glamorgan County Council to make inquiries and surveys with a view to the utilization of water supplies in South Wales, and for other purposes." It is to be hoped that the county council, having taken this important and hitherto unprecedented step, and fully realizing, as it does, the great importance of providing the teeming population of its industrial and other centres with an adequate supply of pure and wholesome water, will utilize to the utmost the powers that Parliament has been pleased to confer upon it.

At the meeting of the Sanitary Committee of the Glamorgan County Council held at Cardiff on September 7th, Dr. Williams called attention in his quarterly report to the question of water supply and plumbism, and the following report from the Medical Officer of Health, Pontypridd, made to the Health Committee of the Pontypridd District Council with reference to the alleged lead poisoning in the district, was read:

July 10th, 1906. From observations made and inquiries instituted by myself, and from information supplied me by other medical gentlemen in the town and district, I have come to the conclusion that lead poisoning is very prevalent amongst the inhabitants of the district. Many cases of plumbism have come to my knowledge during the past month. The following are amongst some of the symptoms complained of by the sufferers: General lassitude, anaemia, unfitness for work, stomach troubles, including indigestion and vomiting, constipation, severe colic, pains in the limbs, and fatigue upon exertion. The ill effects in other instances—and these I regret to say, have been numerous—have been of a more grave character, as I have reason for believing that many cases of abortion have been induced by the taking of lead into the system. I attribute the illnesses above referred to to the drinking of water derived from the mains of the public supply of the Pontypridd Waterworks Company, as the samples of the water in question recently submitted for analysis unmistakably show the presence of lead in it. In order to prevent a continuance of the evil, or, rather, to mitigate it as far as possible, I recommend that all householders be advised to allow the water from their service taps to run a while ere making use of it for drinking purposes, as the water first drawn in the morning contains more lead than that drawn ten minutes or a quarter of an hour later. In proof of this, two samples of water analysed by Mr. Hughes, F.I.C., Cardiff, from houses in Trehafod Road, show that whereas at 6 a.m. the sample taken contained 0.31 gr. per gallon, that taken at 6.15 a.m. contained 0.17 gr. per gallon.

The waterworks manager stated to a press representative that the water in the mains was not affected in the least. The water was no doubt affected in the lead pipes, which were the property of the consumers. The Water Company's supply was absolutely free from any contamination in the mains, and here its liability ended. They had nothing to do with the lead pipes conveying the water to the houses. It ought to be pointed out, however, that the discovery of "plumbism" in this and other parts of the country is no new thing. Ever since the Public Health Laboratory in Cardiff was opened, some seven or eight years ago, the County Medical Officer and his staff have systematically examined samples of water from all the public supplies in the county, with a view to ascertaining the presence of poisonous metals, and the results of these analyses have been forwarded from time to time to the district councils concerned. Some eighteen months ago the presence of lead in the water in the Pontypridd District Council area was found in appreciable amounts, and the last quarterly report of the County Medical Officer of Health shows that early in 1905 at Hirwain, Merthyr, and various parts of the Rhondda dissolved lead was found in quantities varying from 0.04 gr. to ¼ gr. per gallon.

South Africa.

THE SUPPRESSION OF QUACKERY.

WE have received a copy of the *South African News* giving an account of a proposal which was brought before the Legislative Assembly to give a special licence in medicine to a Boer woman who claimed to be possessed of cures for cancer. The question was referred to a Select Committee, which, so far from supporting the proposal, pointed out the necessity for early legislation to alter and bring up to date the law regulating the granting of patents in the colony and their subsequent use, especially those of a medical nature: it also recommended that the woman in question should not be permitted to practise and expressed regret that the sale of such remedies should be tolerated. We congratulate the Legislative Assembly upon the good sense it showed; we are by no means sure that our own House of Commons as at present constituted would exercise as much wisdom if a case were put before it which received the same amount of popular support. The Editor of the *South African News*, while deploring the general use of quack medicines, points out that the real remedy is better and more general education and the foundation of a local medical school to supply medical men in sufficient numbers for the demand made for them, not only in towns but in the country districts. He urges the clergy and teachers of religion "who have influence with the people," to warn them against the folly of the use of such remedies. We should like to think that he is justified in his appeal: in England the same class figures amongst the warmest supporters of the quack and the nostrum vendor.

India.

A NEW SANITARY SERVICE FOR INDIA.

A REUTER message from Lahore, dated September 6th, states that in view of the continuance of the disastrous epidemics of plague, cholera, and small-pox, and the heavy perennial mortality from malaria, the Government of India has decided to create an entirely new service of sanitary engineers whose special province it will be to safeguard public health. A committee of experts has been appointed to consider the details of the scheme.

Lord Kitchener, who is said to be greatly concerned by the high percentage of preventable disease in the British Army, has instituted a system of lectures on sanitation, to be delivered during the cold seasons in every military station in India by specially selected officers of the Royal Army Medical Corps.

SPECIAL CORRESPONDENCE.

VIENNA.

The late Professor v. Neumann.—Poisonous Flies.—An Interesting Judgement.

THE Vienna University has suffered a heavy loss by the death of Professor Isidor v. Neumann, which was announced in the BRITISH MEDICAL JOURNAL of September 8th. He was found dead at his breakfast table by his wife, for whom he was waiting. His funeral was attended by representatives of the Government as well as of all the medical and scientific societies of Vienna. He was fond of a jest, and his wit was keen, and his lectures were full of humour and spirit. He was exceedingly popular both with students and professors, and with his patients.

Within a few days several cases of poisoning by flies have occurred in one district of the city, and in one instance the insect was caught. It was a specimen of the so-called blue horsefly, and it had undoubtedly been feeding on some carcass or dead body, for the symptoms following its sting were similar to those of poisoning caused by the human corpse. In all three cases the right arm was the seat of the initial lesion, and severe septicaemia set in within twelve hours. Operative measures were applied too late, and death ensued in all three cases. In Austria such fatal results are very rare, although in the southern parts of the empire, where the heat is subtropical and the sanitary institutions also approximate to tropical conditions, similar occurrences have been recorded many times.

To counteract the passive resistance of the country practitioners, who refuse to vaccinate at the present low rate of fees, the Diet appointed special country vaccinators. Complaint was made to the Government by several practitioners of the method employed by the new vaccinators to whom they imputed neglect of the necessary precautions. The result in one case was an action for libel. The case was heard in Vienna, and the vaccinator admitted that, as he was obliged to vaccinate at fifty-four different villages, he had left the after-treatment to midwives. The judge severely criticized such a way of dealing by

remarking, "If you cannot take care of the patients, you can refuse the post or demand a smaller number of vaccination stations." The negligence was proved, and the case was therefore dismissed, a verdict being given for the defendants. Consequently the Diet has received numerous requests from the appointed vaccinators to allot them smaller areas, as they found themselves unable to perform their task without infringing the requirements of the Vaccination Act. It is believed that this failure of the official attempt to counteract the passive resistance of the practitioners will be useful to the cause of the latter.

BERLIN.

International Congress of Insurance Medicine.—The late Professor Schaudinn.

A NUMBER of important, but largely doubtful and extremely subtle, questions have been ventilated and thoroughly discussed at the International Congress for Insurance Medicine that assembled in Berlin on September 12th, 13th, and 14th. The meetings were held in the fine building of the German Diet. Here high officials of the German and of the Japanese State Insurance Departments—jurists of note and medical men (including insurance specialists from far-distant countries)—met and exchanged experiences and opinions, and attempted to lay the foundations for an unanimity of procedure in the future. The Congress had two subdivisions: First came accident insurance and the great State organizations for compulsory insurance in their medical aspects, and afterwards private insurance companies and the duties and difficulties of their medical referees. So numerous are the problems concealed under these two headings that it is impossible, in a short letter, even to enumerate the titles of all the papers read, and, indeed, agreement could hardly be achieved on any single subject. On such questions as syphilis and life insurance, or accident supervening on ill-health, or malingering there were almost as many different opinions as speakers. Feilchenfeld (Berlin) formulated his perplexities in the neat phrase: "Though accident may be the cause of internal disease, yet internal disease may likewise be the cause of accident;" and Poëls (Bruxelles) was obliged to acknowledge that no satisfactory definition of the word "accident" had been obtained during the present congress, and he could only express the hope that its meaning might be exactly determined next year, when the congress will meet in Belgium.

Two official receptions, one in the building of the Reichstag (German Imperial Parliament) and the other in the City Hall, were given in honour of the Congress, and much private hospitality was shown the members and their ladies, notably a "henparty" lunch of a hundred ladies, given by Frau Professor Lassar, wife of the well-known dermatologist.

The Berlin Society for Social Medicine and Social Hygiene and for Medical Statistics held a special evening meeting, followed by a supper, in honour of the Congress. After welcoming his guests, Professor Mayet, President of the Society, gave a short account of the Society's aims. What is meant by "Social Hygiene" and "Social Medicine," he said, can best be illustrated by examples. A man, for instance, consults a doctor for a certain complaint; multiplication of similar cases, all engaged in the same sort of work, gives evidence of miners' disease. The establishment of this fact comes under the heading "Social Medicine." Now, if the doctor advises his consultant to take special measures for his protection, these are what is understood under the term hygienic; but should his advice and proposals go further and extend to the mine management, should they require special improvements in the methods of working, or improved apparatus for protection of the miners, these measures would have reference to a whole body of men—they would be social-hygienic measures.

Professor Mayet gave some further illustrations drawn from the struggle against tuberculosis, "in which great enterprise," he said, "medical men must join hands with statesmen, civil service officials, sick clubs, and insurance societies for disabled persons, technical experts, municipal authorities, and charitable institutions. Personal hygiene and therapeutics have to deal with the personal unit; social medicine with finding out the social, professional, or industrial circumstances which bring about the disease.

Dr. Leo, member of the Imperial Statistical Department, then read a paper on "insurance against the consequences of want of employment." The connexion between this subject and social medicine is not far to seek. It appears that the German Federal Governments have approached the question, weighing its *pros* and *cons*, and even working out plans for the possible realization of the great dream of our day: insurance for the unemployed.

In memory of the much lamented Fritz Schaudinn, the discoverer of the syphilis bacillus and unwearying investigator of protozoa, a medal bearing his portrait in relief is to be offered every two years for distinguished work in the field of microbiology. The institute for ships' and tropical diseases in Hamburg (where Schaudinn's latest researches were carried out) is to have the awarding of the medal in its hands.

CORRESPONDENCE.

HOSPITAL REFORM AND THE METROPOLITAN COUNTIES BRANCH.

SIR,—My attention has just been drawn to Dr. Shearer's letter upon the above subject appearing in your issue of July 7th, which I am sorry to say had previously escaped my notice.

With Dr. Shearer's views on the subject of hospital reform I am in entire sympathy, and it is certainly, in my opinion, one which the Metropolitan Branch as a whole might well take up. That this view is generally held is proved by the fact that the Branch have this year elected a Committee to deal with questions of hospital and charities abuse.

I have already called together the Committee for the purpose of considering what steps, if any, should be taken by the Branch in reference to the application by the Hospital Sunday Fund for a Royal Charter.

Dr. Ford Anderson has been appointed chairman of the Committee which, I think, is in itself a guarantee of thorough work.

I am quite sure that any suggestions on the subject of hospital reform from Dr. Shearer, Mr. Nelson Hardy or any other member of the Branch would receive the careful consideration of the Council and Hospital Committee.

A special meeting of the Council has been summoned for the purpose of considering the report of the Committee and to take such steps as the Council may consider advisable. Personally, I should like to see all out-patient departments limited to consultation work, and all patients refused attendance who do not produce a recommendation from their own medical attendant. This system is working successfully at the Bolingbroke Hospital, and is popular amongst the general practitioners of the neighbourhood. Departments thus carried on would save the hospitals an immense outlay and would be helpful to the general practitioners, whilst protecting their interests.

Mr. Nelson Hardy thinks the Branch has grown too big, and suggests subdivision. Whatever advantage subdivisions may have in other respects, I venture to think more influence could be exerted by a large Branch fairly representative of the profession in the Metropolis than by three or four Branches which might or might not combine together on the subject of hospital reform.—I am, etc.,

HUGH R. KER,
President of Metropolitan Counties Branch.

Balham Hill, S.W., Sept 13th.

THE REGISTRATION OF NURSES.

SIR,—Dr. T. B. Rhodes's letter on this subject published in the BRITISH MEDICAL JOURNAL of August 25th points out some of the evils attendant on the registration of nurses. If the Board he suggests be established and adopts his excellent propositions much good may be expected to result.

I venture to add another idea—that the terminology "registration of nurses" should be abandoned, for reasons patent to all registered practitioners, who would be competed against by "registered" nurses, and that the list should instead be of "certificated nurses." This would be

a great safeguard to struggling medicos, the nurses could be kept in their proper place and honourable status, while the public would not be deceived into believing that the nurses are "registered" in a like manner as medical practitioners.

Those at the top or in the upper branches of the medical tree may think this idea is a distinction without a difference, but the general practitioner knows where the shoe pinches, and dreads the advent of yet another set of unqualified practitioners being supinely permitted by our lax legislation.—I am, etc.,

Malvern, Sept. 12th. STANLEY HAYNES, M.D.

KISSING THE BOOK.

SIR,—I was surprised to read Dr. Horace Dobell's letter in your issue of last week. Most of your readers will be more disposed to agree with the writer of a leading article in the *Times* of the 23rd ult., that our oath-taking in England is a nasty mode which is wholly without defence. That mediate contagion by such articles as blowpipes, tobacco pipes, glasses, and cups has occurred is beyond doubt; that a book may convey infection is manifest, though it would be very difficult to prove. More than forty years have passed since I first gave evidence: the handling and kissing of a book in indiscriminate use always appeared to me most objectionable. In 1884 I gave evidence in a case of rape: the first witness was severely affected with constitutional syphilis. I was sworn on the same book that she and all the other witnesses had kissed. I selected a clean page of the opened book and kissed that, but the book ought to have been destroyed and a new one used.

The Oaths Act of 1888 permits every one to take the Scottish oath, which has everything to recommend its adoption in England. Nothing could be more distasteful to me than to appear singular and to be for years the only witness swearing with uplifted hand in our local courts. It is some consolation for me to feel assured that the Scottish form of oath has come to England to stay there, and I trust that all associates and other readers of the BRITISH MEDICAL JOURNAL who agree with me will show that they have the courage of their opinion by swearing in future with uplifted hand.—I am, etc.,

Liverpool, Sept. 15th. FRED. W. LOWNDES.

RELATIVITY IN INFECTIOUS DISEASES.

SIR,—In your leading article this week commenting on Dr. F. M. Turner's report on return cases in London during the years 1902, 1903, and 1904, you were able to devote but one sentence to the difficulties encountered through cross-infection. Now, as this report of Dr. Turner deals with a larger number of cases than any other investigator has yet reviewed, and as Dr. Turner has handled his figures in a particularly able and satisfactory fashion, the whole study stands out as by far the most considerable contribution yet made to the elucidation of the tiresome problem of post-hospital infection. I therefore trust that the evidence with regard to cross-infection, and the significance it gains from its setting, will not lightly be overlooked. In a paper published some three years ago on the "Borderlands of Scarlet Fever and Diphtheria" I tried to insist on the relativity of the terms scarlet fever and diphtheria as disease-names, and to argue that while the entities they denoted were sufficiently definite for rough practical purposes, their full connotation was really very wide. I went so far as to say that, far from scarlet fever being scarlet fever *et praeterea nihil*, there was no reason why a scarlet fever patient should not, under certain circumstances, transmit diphtheria and other throat-infections to his neighbours, and that, *mutatis mutandis*, the same was true of diphtheria. I remember that this contention was rather sharply criticized at the time. It was asserted against me that these diseases were specific, that they "bred true," and that to think otherwise was pathological heresy. My hypothesis that infectious diseases were complex conditions, syndromes rather than specific diseases, required as one of the conditions of its establishment that a person ill, say, with scarlet fever should be able to infect others either with the principal element in his malady, namely, scarlet fever, or with one of the lesser factors contributing to that malady, say, diphtheria, pyogenous tonsillitis, or what not, as the case might be. It equally required, on the theory of probabilities, that he should infect more people with his principal infection than with his subordinate one or ones, and, moreover, that he should even occasionally distribute both infections simultaneously either to the same or different people. In Dr. Turner's report these three points are definitely established. Scarlet fever patients, of course, most frequently infected others with scarlet fever, and diphtheria patients most frequently infected others with diphtheria, but after carefully discounting all extraneous factors, Dr. Turner found that 0.28 per cent. of scarlet-fever patients on their discharge from hospital initiated attacks, not of scarlet fever but of diphtheria, and that 0.29 per cent. of diphtheria patients under similar circumstances set up outbreaks, not of diphtheria, but of scarlet fever; and, more interesting still, in twelve other outbreaks following the discharge of scarlet fever patients, one or more of the infected ones suffered from diphtheria and and one or more from scarlet fever, whilst in five outbreaks following the discharge of diphtheria patients some of the sufferers had one disease and some the other. Again, in the section of the report entitled "Recurrent Outbreaks in the Same House," may be read accounts of six outbreaks, in which the returned sufferers signalized their return to the domestic fold by distributing scarlet fever and diphtheria to their friends and relatives with a want of discrimination almost bloodthirsty in its impartiality. Indeed, the close investigation of these diseases showed them to behave with a complete and callous disregard of all the recognized canons of infectious morality.

Surely this evidence is sufficient to shatter the old idol of "breeding true." The term is an unfortunate one at the best, and it always invited the pickaxe of the iconoclast. If it indicates a doctrine at all, that doctrine is so much discounted by exceptions that the sooner it is scrapped the better. What has been shown to occur in the case of scarlet fever and diphtheria is certainly true also of typhoid fever, and Dr. Hamer's admirable Milroy Lectures persuasively suggested similar inferences with regard to other diseases.

Now, if scarlet fever can "breed" diphtheria, what conclusion are we to draw as to the character of this scarlet fever? That it is an unnatural father? Or that a spurious paternity has been saddled on its innocent back? I think neither; I should prefer merely to consider that it leads a double life. Sometimes it comes in the garment of respectability, and sometimes, like the ghost of Hamlet's father, in questionable shape. When the main elements of the disease predominate, we all recognize it; when these elements are closely associated with others its real nature may be obscured, difficult or even impossible to recognize. In fact, in these infectious diseases, certainly also in typhoid fever, and probably in all, a complicated process of symbiosis is present, the various elements concerned reacting, these with those, and all with the tissues of the host. The summation, the resultant, the lowest common multiple, or whatever it is best called, produces the "clinical picture." Considering the numbers of artists at work, it is not surprising that some Whistler at times presents us with a clinical "nocturne" which we find it difficult to hang in our conventional academy and which brings despair into the heart of the catalogue maker. But it is just these eccentric productions that often supply the clue that leads us to understand the true inwardness of the conventions.—I am, etc.,

Outer Temple, W.C., Sept. 14th. HUBERT E. J. BISS.

RETURN CASES OF SCARLET FEVER.

SIR,—In your issue of September 15th, referring to my report on return cases, you state that I believe "that there is good reason to hope that by sending all cases to convalescent hospitals before discharge the total infectivity rate might be reduced by two-thirds."

In my report, however, I state "past experience leads to the hope that return cases might be reduced to about two-thirds or less of the present number by discharging all cases from the convalescent hospitals."

May I ask you to publish this correction?—I am, etc.,

South-Eastern Hospital, S.E., Sept. 17th. F. M. TURNER.

OUR BREAKFAST BEVERAGES.

SIR,—I am very much impressed by your article on this subject. Personally, I am in agreement with every word of Dr. Fernet's, and his experience quite accords with my own. All must admit that both tea and coffee are drugs. The essential element is an alkaloid—caffeine, of no energy value, a nitrogenous waste product allied to urea and uric acid, and, in plain words, a vegetable urine.

I have often seen women giving tea and coffee to babies. I was struck by this in a journey I recently made on an excursion steamer. The children coming to my hospital are often in a condition of great nervous trepidation, and on inquiry I invariably find the mothers admit to having given them either tea or coffee from an early period of their lives.

In these days of physical deterioration, it behoves the medical profession to look to this.—I am, etc.,

London, W., Sept. 17th. KENNETH CAMPBELL.

THE UNIVERSITY OF LONDON.

SIR,—I note in the BRITISH MEDICAL JOURNAL of September 15th that there is to be a contest for the vacancy in the medical representation of Convocation on the Senate of the University of London. As Faculty Secretary in Medicine of the University of London Graduates' Association, which is the largest organization of its kind connected with the University, I deem it my duty to bring to the notice of your readers the candidature of Dr. Graham Little, who has the unanimous support of the Council of my association. Dr. Graham Little has been nominated, in accordance with the standing orders of Convocation, by the following ten graduates—H. A. G. Brooke, William Radford Dakin, Frederic Durham, Alfred James Harrison, George Ernest Herman, Sidney Phillips, H. Betham Robinson, Sir James Sawyer, Ernest W. White, Walter Essex Wynter. A Committee has been formed to promote his candidature consisting of upwards of three hundred graduates. Dr. Graham Little, being a recognized teacher of the University and a member of the staff of St. Mary's Hospital, is well acquainted and in full sympathy with the needs of the internal student, while at the same time he is anxious to maintain the system of external degrees, and he is strongly opposed to any measures which may have the tendency to lower the high standard and prestige of the University degrees in medicine. He has for many years taken a great interest in the working of the University, and is willing to make the necessary sacrifices of time and energy required for the efficient fulfilment of the duties of a senator.—I am, etc.,

Croydon, Sept. 18th. A. PERCY ALLAN.

THE BY-EFFECTS OF HYSTERECTOMY AND OÖPHORECTOMY.

SIR,—My absence at Toronto has prevented me from replying earlier to Dr. Blair Bell's letter in the BRITISH MEDICAL JOURNAL of August 11th, page 331.

Dr. Bell refers to my remarks on the influence of uterine tissue on ovarian function, and asks how I know that no part of the uterine cornu was left behind. I can only reply that the whole of each uterine cornu from the os uteri up to and including a small portion of each Fallopian tube was removed; and I find that, after the operation of panhysterectomy (without salpingectomy) so performed, ovarian function continues undisturbed. From this I infer that the presence of uterine tissue, or endometrium, is not necessary for the continuance of ovulation.

Whether the operation of panhysterectomy *with* double salpingectomy would have a different result and abolish ovulation, or, in other words, whether the presence of Fallopian tube tissue in the case referred to is responsible for the result, is a matter for further investigation by experiment.

I can only say that up to the present I am inclined to think it is not so responsible. It is at any rate a suggestive fact that in one of the experiments on compensatory hypertrophy of the ovary (BRITISH MEDICAL JOURNAL, July 21st, 1906, p. 124) increased ovarian activity was associated with the removal of the whole uterus and one Fallopian tube and ovary.

The statement that "the cavity of the Fallopian tube and uterus may be regarded as one membrane," or as it should read, *as lined by* one membrane, although I believe true in regard to the rabbit, was made in reference to the subject of pregnancy, what I said was that for the purpose of this reaction, that is, the reaction between endometrium and trophoblast, the cavity of Fallopian tube and uterus may be regarded as one, etc. (ibid., p. 123).

With regard to the question of absorption into the circulation of the products of uterine or tubal secretion, Dr. Bell asks how I can reconcile my mind to expect that such fluid collected in the artificial hydrosalpinx would be absorbed into the circulation under pressure.

I had previously ascertained in 1899 that such fluid is collected or retained, not absorbed, under pressure, when from any cause the lumen of the tube or cornu is obstructed, and this fact is shown by the dilatation of the muscular canal containing the fluid. One of the objects of the present inquiry was therefore to ascertain whether if absorbed into the circulation, such fluid, or its dissolved constituents, has any physiological or pathological effect. I mention on page 123 that in nearly all cases of double ligature, with retention of saline fluid, some interference has occurred with the normal sequence of oestrus, coitus, impregnation, and the imbedding of fertilized ova in the endometrium of the healthy cornu. I think this fact does afford some evidence of the absorption into the circulation of some products, not necessarily the fluid itself, retained in the occluded canal.

In conclusion I wish to thank Dr. Bell for his friendly criticism.

I fully recognize the complexity of the subject and the fact that my investigations are incomplete and only cover a small portion of a very wide field, and I look with interest for the promised publication of Dr. Bell's detailed work.—I am, etc.,

Leicester, Sept. 17th. C. J. BOND.

THE MANAGEMENT OF A CASE OF LABOUR.

SIR,—I desire to thank those of your readers who have shown an interest in the report of my Ingleby Lectures on the management of a case of labour which appeared in the BRITISH MEDICAL JOURNAL of June 30th, p. 1512, and to take this opportunity of replying to the questions which have been raised.

"Aqua Fortis" (July 20th, p. 180) points out that I have omitted what is, in his opinion, a most important matter—namely, the sterilization by boiling of all the water used, and goes on to say that in his district the well water is polluted and unfit for use without boiling. Now, I entirely agree with him that, under those circumstances, boiling is a wise and necessary precaution; but in the case of the public supply of this and I think I may say of most large cities, the ordinary tap water may quite safely be used without preliminary boiling.

Lieutenant-Colonel Watson Pike, R.A.M.C., asks (September 8th, p. 599) what course I would pursue in regard to vaginal douching during the puerperium in an ordinary case. I regret that the abbreviated report to which you kindly gave insertion omitted all reference to this; but in the full report which appeared in the *Birmingham Medical Review* for the month of July will be found the following:

"Should a douche be used as a routine during the puerperium? This question has been discussed many times and is not yet decided. My own rule is that if the nurse is thoroughly capable and can be relied upon to administer a douche carefully, then the patient may with advantage be douched after the first forty-eight hours; but if there is any doubt as to the nurse's ability or attention to aseptic principles, then the patient is far safer without the douche.

"I have almost always found that patients have stated that they have derived comfort from the use of a vaginal douche during the puerperium, and they have liked it.

"A Higginson syringe should not be used for this purpose, but a reservoir douche or a funnel and tube."—I am, etc.,

Birmingham, Sept. 15th. C. E. PURSLOW, M.D., M.R.C.P.

UNDER the will of the late Honourable Reginald Algernon Capel, of Connaught Square, London, W., the Great Northern Central Hospital receives £1,000, and the West Herts Infirmary, the Herts Convalescent Home at St. Leonards-on-Sea, the Watford Hospital, and the Hospital for Diseases of the Chest, City Road, each a sum of £300.

MEDICO-LEGAL AND MEDICO-ETHICAL.

THE TRAINING OF MIDWIVES.

AN inquest was held in Battersea on September 14th on the body of a child which died the day following its birth, and resulted in a verdict of death from misadventure. The medical evidence given by Dr. R. S. Trevor, who performed the *post-mortem* examination, and by Dr. John Burch, who saw the child shortly before it died, showed that death was due to imperfect expansion of the lungs and the inhalation of fluid during delivery. From the lay evidence, as recorded in the *Wandsworth Borough News*, it would appear that the child when born four times made a noise which made a neighbour present think it had croup; it was rather blue, and was placed on its side, but otherwise received no special attention. The attending midwife, who stated that in 1890 she had received six months' midwifery training and had also had some experience of ordinary nursing, said she was aware that infants were liable to swallow fluid during birth, and that they should be inverted in order that it might flow out, and that artificial respiration was also sometimes required. She took neither of these steps on this occasion; she thought it was unnecessary, as the child was crying when she returned to it, after completing her duties to the mother. She had not subsequently sent for a doctor because she thought the child was doing well. Pressed on this point, she replied that she had often had cases in which a doctor had been fetched and the child lived for twelve months afterwards; on this the coroner rejoined, "That shows the value of sending for the doctor." The coroner, in summing up, said it was a matter of the gravest public importance that mothers should receive proper attention in their confinements. There could not be a subject more important; but we had a half-logical way of dealing with it. A good many mothers were attended by midwives only partly trained. They were trained for a few months like nurses, and the kind of education they received was only semi-scientific. Then these people obtained their certificates as midwives, got on the Register, and commenced practice as doctors of a sort in this line. There were rules laid down by the public authority as to what the midwife should do in certain circumstances. But in cases into which he had had to inquire since the Act came into working order, he found that midwives sometimes did not realize a great many of their duties. He had not the slightest doubt they did their best, but he thought their best was not always good enough. Sixteen years ago the midwife in this case had received her training, and had practised ever since without renewing her knowledge at all. There was apparently no reason why this child should not have lived if the condition alluded to had been dealt with. It was one that might very frequently happen in the course of practice. There was a recognized course to pursue, and one would think, in view of its frequent occurrence, that every midwife, if properly trained, would know how to pursue that course. One had to assume that midwives were capable of dealing with some abnormalities. In this it was quite clear that the abnormality was very marked, so much so as to be observed by a neighbour, who was not a midwife at all, but a married woman of experience. But the midwife took no action; she seemed to have formed the opinion that the child must be all right if it cried. They had been told that was a popular delusion, and the midwife ought to have known better. He did not say anything against her, but he wished to point out that cases of this kind were of frequent occurrence. Until midwives received a better education, and until steps were taken to examine from time to time the knowledge of registered midwives, these cases would continue. If midwives did not pass such examinations, or showed a deficiency of knowledge in general practice, they should be reinstructed.

THE USE OF MEDICAL NAMES IN TRADE ADVERTISEMENTS.

D. L. T.—We should advise our correspondent to write to the firm in question and ask them to discontinue the use of his name. In all probability they will accede to his request; if they do not he should consult a solicitor.

CARRIAGE OF ASSISTANT'S FURNITURE.

A CORRESPONDENT writes that an outdoor assistant, married, is being advertised for at a salary of £180 a year with half midwifery fees; a house is also provided. He wishes to know who pays the carriage of the furniture where the post is accepted by a medical practitioner.

*** In the absence of any agreement with the principal to the contrary, it is to be presumed that the assistant would have to defray the cost of the removal of his furniture.

DOCTOR'S LIABILITY FOR COACHMAN.

A LOCUM TENENS writes that he was driving with a doctor and his coachman to visit patients, he being in the capacity of *locum tenens* to the doctor. The coachman allowed the horse to slip down, and our correspondent was thrown out of the trap and seriously injured, being unable to do any work for many weeks. He wishes to know if the principal is not bound to compensate him for the damage done to him by his servant.

*** No doubt if the groom could be shown to have been guilty of negligence an action would lie against his master; but not for a pure accident. Such accidents as our correspondent describes are of frequent occurrence in medical practice. Usually the principal suffers, but sometimes it may be an assistant or *locum tenens*; in the latter cases it is usually presumed that the assistant or *locum tenens* voluntarily took on himself the risk of such accidents when agreeing to do the work required.

CONSULTATION ETHICS.

B. H. writes that a young man had been under his treatment for a few days for an abrasion of the skin over the knee-cap, which was being treated with boracic acid ointment, the limb being rested on a chair. His master, being anxious to get him back to work, took him to a neighbouring town to see a consultant, who sent by the brother of the patient a note to the following effect: "I looked at this youth before I ascertained that you had seen him. I have told the youth that he is going on all right; it would heal more quickly if he was in bed for a day or two with, I think, hot boracic foments." Our correspondent hears that the boy is in bed, and therefore infers that the advice suggested in the last paragraph of this letter was given direct to the patient, and he asks whether it was correct for the consultant to advise the boy after being informed that he was under the care and treatment of another practitioner?

*** Is it not more probable that the advice was given before the consultant had ascertained that the boy was under our correspondent's care?

A PARTNERSHIP PROBLEM.

A. sold to B. one-third of his practice at one year's purchase on an average of three years. In the event of A.'s death or retiring from practice B. was to take over the whole, paying for the two-thirds at the same rate. A. died. B. took the practice on the terms agreed. So far there is no dispute, but the following is the point at issue: When A. took B. into partnership he gave him one-third of the debts then owing, and net receipts were from the first divided in proportion to the partnership shares. Now B. contends that all debts owing at the time of A.'s decease are his, and that A.'s widow has no claim on them. Is B.'s claim reasonable or legal?

*** Such a claim is neither reasonable nor legal, and, in the absence of a clear agreement to that effect in the deed of partnership, could not be supported for a moment. The widow is clearly entitled to two-thirds of all book debts due at the time of her husband's death.

STARTING IN PRACTICE.

A CORRESPONDENT writes that he is about to start practice in a purely working-class neighbourhood, and would like to know: (1) The usual fee for consultation and medicine. (2) The usual fee for confinements. (3) The usual fee per visit. (4) How soon should he call on professional neighbours?

*** In such a practice as our correspondent would seem to indicate it is not possible to say what would be the usual fees. They vary in nearly every neighbourhood, being in some cases as low as 4d. a consultation with medicine, the visit being 1s. With regard to confinements the fee is from 7s. 6d. upwards, sometimes being as high as a guinea. With regard to calling upon professional neighbours, this should be done as soon as possible; but it is to be feared that a gentleman opening a practice of this kind in any district will be rather *persona ingrata* to the medical practitioners already established there.

THE PURCHASE OF A DEATH VACANCY.

A CORRESPONDENT who considers he has given too much for a death vacancy, and is of opinion that the instruments of his predecessor ought to pass to him with the practice, again writes and propounds the following questions:

1. Is not the £500 paid enough to include instruments?
2. Is not £500 more than is usually paid for a death vacancy?
3. Should not therefore the instruments be included?

*** These questions really have no bearing on our correspondent's claim to the instruments. In a previous issue it was pointed out that the question was, Were the instruments included in the sale or were they not? Whether they should or should not have been is entirely beside the mark. It can only be repeated that if there was no agreement as to instruments in the sale of the death vacancy, they do not pass with the practice.

OBITUARY.

JOHN HENRY BELL, M.D., M.R.C.S.,

CONSULTING SURGEON, BRADFORD EYE AND EAR HOSPITAL; CONSULTING MEDICAL OFFICER, BRADFORD ROYAL INFIRMARY.

The death of Dr. Bell, which occurred suddenly at Morecambe on September 9th, removes a notable Bradford medical man from a sphere which up to the very last was one of the greatest activity. Dr. Bell, who was 74 years of age, was busily engaged in attending to his practice on the Saturday morning, and during the course of the afternoon visited the Eye and Ear Hospital. He afterwards went on by train to Morecambe, where he spent a very happy evening with his wife and granddaughter. In the early hours of the morning he suddenly expired from heart failure.

Dr. Bell was born in Bradford, and received most of his education in the town. It was decided that he should enter the medical profession, and he was at first placed under the late Dr. Corrie of Thornton. In 1854 Mr. Bell went to reside in Leeds with Dr. Braithwaite, and during that time attended courses of lectures at the Leeds School of Medicine. In 1857 he took the diplomas of M.R.C.S.Eng. and L.S.A. Lond., and in 1861 the degree of M.D. at the University of St. Andrews. Shortly after obtaining his diplomas Dr. Bell started practice in a house only a stone's throw from the residence which he later on built for himself, and in which he lived up to the time of his death.



In October, 1858, Dr. Bell got his first great chance of medical practice in a remarkable case of poisoning by arsenical lozenges that occurred in Bradford. By a mistake on the part of a chemist about 12 lb. of arsenic were supplied to a confectioner with the result that 40 lb. of lozenges were made up, each containing about 9 gr. of arsenic. Five pounds of the sweets were sold in the market on a Saturday night and within twenty-four hours 225 persons were under treatment. Dr. Bell had some 60 patients to attend to, and his skilful treatment of these, no doubt, enhanced his local reputation.

Dr. Bell, along with the late Dr. Edward Bronner of Bradford, was one of the founders of the Bradford Eye and Ear Hospital; his enthusiasm for the work and his interest in the hospital never waned up to the time of his death. Although he retired from the position of surgeon in 1897, he retained the post of consulting surgeon up to the last. He was undoubtedly a great ophthalmic surgeon, and it was in no small degree due to his skill and devotion to the hospital that it has acquired the high reputation which it now holds over the whole of the north of England. Dr. Bell was nothing if not original. It would require many pages to discuss his investigations into the causes and treatment of eye diseases. But it should especially be mentioned that he was the first to draw attention to miner's nystagmus, and also to nystagmus in cerebellar disease.

Dr. Bell was appointed Honorary Medical Officer to the Bradford Royal Infirmary in 1875, and retained the position until 1895, when he became Honorary Consulting Medical Officer. Probably no more conscientious, painstaking, or devoted physician has ever been connected with a hospital. The marvel to all his friends was as to how he found time to attend to so many and such multifarious duties.

Dr. Bell was one of the original members of the Bradford Medico-Chirurgical Society, which was founded in 1863. It is no exaggeration to say that it owes its present leading position largely to the interest and fostering care which Dr. Bell always devoted to it. Dr. Bell was in constant attendance at its meetings during the whole course of his professional career.

He read numerous papers and took part in nearly all the important debates. His versatility of mind was extraordinary, and his papers travelled over nearly the whole domain of medicine and surgery. He was elected President of the Society in 1872, and gave an address on Some Fragments of Local Medical History. This proved of so much interest that the Society desired to publish it, but Dr. Bell could not be persuaded to consent to it. It was evidently his intention at some later period to write a compendious work on this subject. He was actually engaged in still collecting materials for this work at the time of his death. The writer read a letter written during the present month from a grandson of the late Dr. Macturk of Bradford, in connexion with a request of Dr. Bell's, that he would allow him to publish a picture of his grandfather in his contemplated work. It is to be hoped that this work of Dr. Bell may soon be published.

But the greatest of all Dr. Bell's work was in connexion with his investigations into the origin of woolsorters' disease and its connexion with the *Bacillus anthracis*. It was due to his careful and painstaking work, his profound and erudite researches—assisted by those of Professor Greenfield—that the connexion between the two was finally established. Although no positive cure for this condition, when once established, has yet been discovered, it is no exaggeration to say that Dr. Bell, through his researches, has been one of the greatest benefactors that the working man of Bradford has ever had. The careful and elaborate precautions which are now taken to prevent contagion by the bacillus are largely due to the assistance given by Dr. Bell in framing the necessary regulations. Even as long ago as 1881, this fact was duly recognized when the woolsorters of Bradford and district presented Dr. Bell with a gold watch and an embossed address "as a token of the regard in which he was held by those whose cause he had so nobly maintained." The number of lives saved through Dr. Bell's instrumentality has probably been far greater than those lost in fighting many of the great battles of history. Dr. Bell's articles on anthrax in *Allbutt's System of Medicine* and anthrax in relation to the wool industry in Oliver's *Dangerous Trades* are sufficient to show the interest and knowledge he possessed in connexion with this subject.

Time does not suffice to consider all the fields of work entered on by Dr. Bell. Sufficient has, however, been said to show that he was a constant and assiduous worker in the investigation of disease and on behalf of suffering humanity. His personal characteristics we in Bradford know so well; his integrity of purpose, his careful attention to detail, his curb on all hasty conclusions, his vein of playful satire, his unostentatious manner, and his

horror of tergiversation—all these and many more things could be said of him, but space forbids. To his contemporaries, and, if one might prognosticate, more so to his successors, he could be summed up in a single sentence as a "great and good man." J. M.

THOMAS HARRIS, M.D.Lond., F.R.C.P., MANCHESTER.

STUDENTS attending the Manchester Infirmary and in the Medical School generally will return to deplore the loss of one who, by his genuine worth, his teaching capacity, and his acknowledged pre-eminence amongst his professional brethren, had won their affectionate regard and sincere admiration. The death of Dr. Harris, following so soon after that of another distinguished member of the staff of the Medical School, comes as a great shock to all. Dr. Harris died at Brewood, in Staffordshire, on Saturday, September 8th, after a very brief illness. It appears that he was out shooting on a very hot day, and, after resting a day or two, returned to the sporting fields. He felt unwell, returned to Brewood, and, after a few days' illness, rapidly sank. Dr. Harris had not even in age reached half a century. He was one of the best-known and best-esteemed physicians in the city, where he passed practically the whole of his professional life. He studied chiefly at Manchester, but took an opportunity of working also at Würzburg. His academical career at Owens College was a brilliant one, and his successes at the University of London included first class honours in physiology (1878-9), while he took his M.B.Lond. with first-class honours in 1882, qualifying for the gold medal, and his M.D. in 1883.

Dr. Harris had the best possible training for a physician, for he was Registrar of the Infirmary and also Assistant to Professor Dreschfeld when he was Professor of Pathology in Owens College. Besides being Physican to the Infirmary Dr. Harris was the Physician in charge of the Throat Department in that Institution. He had secured for himself an acknowledged and pre-eminent position as a consulting physician, especially on diseases of the chest and respiratory organs. His publications were numerous, but perhaps his most important book is that on *Indurative Mediastino-Pericarditis* (1895). Whilst attached to the Pathological Department of the University he published a *Post-Mortem Handbook*. His other papers deal with thoracic affections, with tumours and diseases of the spinal cord. The subject of pulmonary phthisis he studied with special care. For many years and up to his death he was a Lecturer on Diseases of the Respiratory Organs in the University. When he gave a post-graduate course on this subject it was always well attended by practitioners.

Dr. Harris took no prominent part in the public life of the city, though he interested himself much in the "infirmary question," advocating the retention of the infirmary on the present city site. When this scheme was finally abandoned Dr. Harris became a loyal supporter of the scheme to build the new infirmary on the Stanley Grove site. He visited America, and made himself familiar with hospital construction there as well as elsewhere.

He was buried on Wednesday, September 12th, at Ashton-on-Mersey, in the burial ground of the Society of Friends. The funeral was attended by an extremely large number of persons. Dr. Harris leaves a widow and family. It will be hard to fill his place as a physician in the city and in the Infirmary, and as a teacher in the University and Infirmary.

BRIGADE-SURGEON CHARLES FREDERICK RICHARDS, M.B., late of the Royal Army Medical Corps, died on August 30th at Warrenpoint, co. Down, at the age of 67. He was the youngest son of the late Rev. Edward Richards, Rector of Clonallon, and entered the service as an Assistant Surgeon, October 2nd, 1866; became Surgeon, March 1st, 1875; and Surgeon-Major, January 1st, 1879, retiring with the honorary rank of Brigade-Surgeon, August 3rd, 1887.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the profession in foreign countries who have recently died are Dr. Andreas Högyes, Director of the Pasteur Institute, Budapest, aged 58; Professor Cohn, the well-known ophthalmologist of Breslau, aged 68; and Dr. Wilhelm Czermak, Professor of Ophthalmology in the German University of Prague, aged 50.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF CAMBRIDGE.

Tropical Medicine and Hygiene.

AT the summer examination for the diploma in tropical medicine ten candidates were approved, all of them being students of the London School of Tropical Medicine. Four were officers in the Indian Medical Service, three belonged to the Royal Army Medical Corps, one to the Indian Railway Service, and one to the medical staff of the Church Missionary Society.

UNIVERSITY COLLEGE, BRISTOL.

THE Council of University College, Bristol, has offered the Chair of Chemistry, vacated by Dr. Travers, to Dr. Francis Francis, D.Sc., Ph.D., F.I.C. Dr. Francis studied at University College, Liverpool (now the University), and at Erlangen, and has been Assistant Professor at University College, Bristol, since 1905. He has published many papers in journals of chemical societies both in England and Germany, among his most recent contributions being one on benzoyl nitrate, which describes a new method for the nitration of organic compounds.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

CORONERS' INQUESTS IN THE COUNTY OF LONDON.

THE report for 1905 of the chief officer of the Public Control Department of the London County Council contains statistical details of some interest relating to coroners' inquests held within the area of administration of the County Council. There are in the county of London twelve districts, presided over by eight coroners, one of whom (Mr. Troutbeck) has three districts, and two others have two districts each. The total number of inquests held in 1905 was 7,126, compared with 7,391 in the previous year, and with 7,574, the average number in the four preceding years. There were 405 inquests upon the bodies of children suffocated in bed with parents or others. In three instances an open verdict was returned, and in the remainder one of accidental death was recorded. It is to be regretted that in nearly one-half of the total number of inquests held the finding of the jury was death from natural causes. The value of mortality statistics is enormously lessened when over 3,000 deaths are thus vaguely classified. The disbursement at each inquest averaged in the whole county £2 10s. 5d., with wide variations in the different districts. Mr. Wynne Baxter, in the Eastern district, paid away at each inquest only £1 6s., while Mr. Troutbeck, in the South-Western district, disbursed £3 5s. 2d. The total expenditure in the county of London in 1905 upon inquests was £28,350, of which sum £10,390 was paid in coroners' salaries.

PROPOSED LEGISLATION AS TO DISEASED MEAT.

IT is announced that the City of London Corporation is to be asked by its Sanitary Committee to recommend the Local Government Board to introduce a number of reforms with regard to the inspection of meat. The existing laws are described as inadequate. The Committee suggests that the following points should be emphasized in the communication to the Government department:

1. The necessity of forthwith promoting legislation for the compulsory inspection at the time of slaughter of all animals (together with the viscera) intended for the food of man, as the only reliable system for the protection of the public, and insuring such inspection being made by a veterinary surgeon or other recognized expert.
2. That all meat found free from disease after such inspection should be officially stamped.
3. That all foreign meat be required to comply with the same standard as that of home-killed meat, and that the Government should be responsible for the maintenance of such standard.
4. That with regard to boxed and boned fresh meat, arrangements should be made for the exclusion from the United Kingdom of any class of meat which is packed in such a way as to prevent inspection or the possibility of the detection of disease, or which contravenes the recommendations of the Royal Commission on Tuberculosis.

The Committee is also of the opinion that public abattoirs should be provided and private slaughterhouses abolished.

SUCCESSFUL VACCINATION.—The Local Government Board has awarded the grant for successful vaccination to Dr. Sigismund H. Rentzsch of Week-St.-Mary, North Cornwall, for the fifth time in succession.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

HONORARY PHYSICIANS AND SURGEONS TO THE KING.

A SPECIAL Army Order issued from the War Office on September 15th, notifying various amendments to the Army Regulations, contains the subjoined:

The following shall be substituted for Article 362:

Six of the most meritorious officers of our Army Medical Service, on the active list, shall be named our Honorary Physicians, and six our Honorary Surgeons.

On appointment as one of our Honorary Physicians or Honorary Surgeons, an officer under the rank of colonel in our Royal Army Medical Corps may be promoted to the brevet rank of Colonel.

An officer shall relinquish the appointment of Honorary Physician or Honorary Surgeon on retirement.

MILITARY HOSPITALS.

AN Army Order recently published announces the following changes in nomenclature: The Prisoners' Ward in future to be the Detention Ward: the Detained Ward to be the Observation Ward; the Lunatic Ward to be the Mental Ward.

OPERATIONS IN NIGERIA AND EAST AFRICA.

THE *London Gazette* of September 18th contains dispatches received at the Colonial Office relating to operations in Northern and Southern Nigeria and in the East Africa Protectorate. Sir F. Lugard, the High Commissioner, in a dispatch dated April 28th last, forwards the report of Lieutenant-Colonel Hasler, who was in charge of the expedition dispatched to the Munshi country to punish the natives of that tribe who had looted and burned the Niger Company's store. Of the medical arrangements Lieutenant-Colonel Hasler says: They "were very good and complete. An outbreak of small-pox among the carriers looked serious at one time, but all suspicious cases were isolated, and the epidemic checked."

Sir Walter Egerton, Governor of Southern Nigeria, forwards a dispatch relating to the military operations carried out in the Protectorate during the dry season of 1905-6 under Lieutenant-Colonel H. C. Moorhouse.

In summing up, Lieutenant-Colonel Moorhouse, under date June 6th, 1906, writes:

"Dr. A. W. S. Smythe, D.M.O., Southern Nigeria Medical Service, when Lieutenant Irvine was dangerously wounded, as at Ijonnema, travelled with him by native canoe to Sapele, handed him over to the medical officer there, and returned immediately to the other wounded, making forty hours without a rest."

Dr. Collett, S.M.O., is also favourably mentioned.

Lieutenant-Colonel E. G Harrison, Commanding the Nandi Field Force, in his report dated February 28th, 1906, says:

"The medical arrangements made by the Principal Medical Officer and his staff were satisfactory. The health of the troops and transport porters was good throughout the period of operations. Exposure to cold and inclement weather accounted for the invaliding of six officers (15 per cent. of the British officers on the strength); the health of the remainder was, however, good."

Lieutenant-Colonel J. Hayes Sadler, Commander-in-Chief in the East Africa Protectorate, in a dispatch dated March 26th last, submits his final report on the Nandi Expedition, which resulted in the complete subjection of the turbulent Nandi tribes.

There is a short list of honours and promotions awarded for the services recorded, but the name of no medical officer is included in it.

HOSPITAL AND DISPENSARY MANAGEMENT

WEST SUSSEX COUNTY ASYLUM, CHICHESTER.

THE number of patients on the first day of 1905 at this Asylum was 735, of whom 528 were West Sussex cases, 197 out-county cases, and 10 private patients. Altogether there were 878 cases under treatment during the year, with an average number daily resident of 751, and at the end of the year there remained 750 inmates, of whom 531 were West Sussex cases, 205 out-county cases, and 14 private patients. The Medical Superintendent, Dr. H. A. Kidd, states that by March 31st, 1906, the inmates had increased to 770, all the beds being for the first time completely filled. During the year 143 cases were admitted, of whom 109 were first admissions. In 33 cases the attack was a first attack within three and in 17 more within twelve months of admission; in 32 the attack was a "not first" attack within twelve months of admission, and the remainder were either cases of more than twelve months' duration on admission (47) or congenital cases (14). Recovery was deemed probable in 22, possible in 29, improbable in 44, and impossible in 48. The prognosis in the great majority of cases was therefore very bad. The admissions were divided according to the forms of mental disorder into: Mania of all kinds 62, melancholia of all kinds 42, dementia 17, general paralysis 8, acquired epilepsy 4, and cases of congenital or infantile defect 13. As to the various supposed etiological factors in these cases, alcoholic intemperance was assigned in 23, or 16 per cent., previous attacks in 38, epilepsy in 12, old age in 16, the menopause in 3, various bodily diseases in 5, and "moral" causes in 12. Hereditary influences, direct, collateral, or remote, were ascertained in 60 out of 130, or 41.95 per cent., and congenital defect existed in 12 more. During the year 32 were discharged as recovered, giving a recovery-rate on admissions of 23.7 per cent., 16 as relieved, 4 as not improved, and there were 76 deaths. These deaths, which give a death-rate on the average numbers resident of 10.11 per cent., were due in 26 cases to cerebro-spinal diseases, including 13 from general paralysis; 35 from chest diseases including 23 from pulmonary consumption, and 15 from general and abdominal diseases. Altogether 24 deaths were due to tuberculous diseases, giving the high mortality from tuberculous diseases of 31.5 per cent. of the total deaths. Of the 23 cases dying from phthisis, however, 15 had the disease on admission or had had antecedent tubercle. One inquest was held during the year on an old man of 87 years who sustained a spontaneous fracture of the thigh and died three weeks after from congestion of the lungs. There were 6 non-fatal casualties, and the general health throughout the year was satisfactory.

HERTFORDSHIRE COUNTY ASYLUM, HILL END, ST. ALBANS.

THE patients belonging to Hertfordshire are, with the exception of a few patients boarded out in other asylums, distributed between the two asylums at Arlesey for the counties of Bedfordshire, Hertfordshire, and Huntingdonshire, and at Hill End for Herts. At the beginning of 1905 the Hertfordshire patients numbered 793, there being 440 at Hill End, 343 at Arlesey, and 10 at other asylums. On the last day of 1905 there were 482 Hertfordshire patients at Hill End, 346 at Arlesey, and 9 at other asylums, giving a total of 837, or an increase of 44 patients for the year. The total increase of Herts patients in the last six years has been at the rate of 30 3 per year. The available spare beds belonging to Hertfordshire—136 at the time of the Committee's report—will therefore soon be used up and further provision be required at Hill End. The report of the medical superintendent of this asylum, Dr. A. N. Boycott, for the year 1905, shows in tabular form the steady encroachment by Herts patients on the total excess of beds belonging to the county, and in addition states that, in addition to those in asylums, there were at the time of writing the report 86 Herts patients—either in workhouses or residing with friends—for whom asylum accommodation might at any time have to be made. On January 1st, 1905, there were 600 patients resident in this asylum. During the year 233 were admitted, and at the end of the year there remained 596. The total number under treatment during the year was 833, and the average number daily resident 581. Of the admissions 218 were first admissions, 39 were the subjects of first attacks within three and 19 more within twelve months of admission; in 26 the attack was a not-first attack within twelve months of admission, in 134 the attack was of more than twelve months' duration, and 15 were congenital cases. The admissions were classified according to the forms of mental disorder into: Mania of all kinds, 115; melancholia of all kinds, 48; dementia, secondary and senile, 47; general paralysis, 3; acquired epilepsy, 2; congenital or infantile defect, 17; and not insane, 1. As to the probable causes of the insanities in these cases, alcohol was assigned in 16, or 6 8 per cent.: venereal disease in 1; previous attacks in 33; old age in 21; epilepsy in 6; other bodily diseases in 10; and "moral" causes in 19. Hereditary influences were ascertained in 43, and congenital defect in a further 17. During the year 43 were discharged as recovered, giving a recovery-rate on admissions of 33.59; 11 as relieved, 143 as not improved, 1 as not insane; and there were 39 deaths. The deaths, giving a percentage death-rate on the average numbers resident of 6.71, were due in 11 cases to cerebro-spinal diseases, in 13 to chest diseases, in 4 cases to abdominal diseases, in 1 case to cancer, in 9 to senile decay, and in 1 case to asphyxia, a female general paralytic accidentally choking whilst taking tea. The general health appears to have been satisfactory. Neither seclusion nor mechanical restraint was employed during the year. Major casualties were few in number, and the general condition and management of the asylum were favourably commented upon by the Commissioners at their visit.

UNDER the will of the late Mr. John Hancock, of Exeter, the Devon and Exeter Hospital, the Exeter Eye Infirmary, the Exeter Dispensary, and the West of England Institute for the Blind each receive a sum of £100.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the JOURNAL, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone, unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

MANUSCRIPTS FORWARDED TO THE OFFICE OF THIS JOURNAL CANNOT UNDER ANY CIRCUMSTANCES BE RETURNED.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL, and not at his private house.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, London.* The telegraphic address of the MANAGER of the BRITISH MEDICAL JOURNAL is *Articulate, London.*

TELEPHONE (National):—
EDITOR, 2631, Gerrard. GENERAL SECRETARY AND MANAGER, 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

HORSEMAN asks to be referred to a short practical work on veterinary practice suitable for a medical man's use in his own stables, including questions of soundness and diagnosis and treatment of ordinary disease, such as wind-gall, spavin, ruptured tendon sheath, thorough-pin, side-bone, etc.

H. T. T. would be much obliged if any reader could inform him if there is a school for stammerers in which a teacher could learn how to teach children to overcome this defect. He refers only to children who are quite unable to afford residence at such schools themselves.

ANSWERS.

A. R.—A specimen of the grape-juice cordial has been obtained and examined with the following results: It is a liquid containing a large proportion of glucose and having acidity equivalent to 8 gr. of tartaric acid per fluid ounce. The low ash and the absence of potassium bitartrate appear to indicate that it is not prepared by concentrating grape juice. It contains salicylic acid as preservative. We may call our correspondent's attention to a note on the Mas-de-la-Ville non-alcoholic wine published in the BRITISH MEDICAL JOURNAL of June 9th, 1906, page 1353.

S. H. R.—(1) *Claudius's Method of Preparing Catgut:* The catgut is rolled on a holder and placed in a solution of the following composition: Potass. iodid. 1 gram, iodine 1 gram, distilled water 100 c.cm. In this solution it is left for eight days, when it is ready for use. The excess of iodine may be washed off immediately before in sterile water or some antiseptic solution. A modification of the method which is an improvement is the use of a spirituous instead of a watery solution of iodine—that is, iodine 1, sp. vini rect. 15. In this the gut remains in good condition for a long time. When many ligatures are employed in one wound the iodine should be washed off in sp. vini rect. before use. (2) *Giemsa's Stain:* 1 per cent. watery solution of azur-blau, 1 per cent. watery solution of eosin. For staining, take 1 c.cm. of the eosin solution and add 10 c.cm. distilled water; then add 1 c.cm. of the azur-blau solution. Stain for ten minutes or longer. The azur-blau can be obtained from Grübler.

STAINING VEGETABLE TISSUES.

I. W.—A very excellent general stain for histological sections of vegetable tissues is fuchsin in glycerine. The material should be hardened in alcohol. The sections, which can be quite satisfactorily cut by hand, are transferred from the razor to a drop or two of the fuchsin solution on the centre of a slide. After three minutes the section is washed with water on the slide until no more dye is extracted; a brush is best used for this purpose, the section itself not being touched. After the water is tilted off, a drop of glycerine is placed upon the section and allowed to remain until a further amount of the dye is extracted. The section is again washed with water, and finally mounted in glycerine. Another excellent stain is iodine solution. The colour, however, is not permanent. The iodine solution is placed upon the centre of a slide and the sections transferred to it from the razor; after staining, they are washed in water on the slide and mounted in glycerine. The iodine solution is thus prepared: Iodine 0.5 gram, potassium iodide 1 gram, distilled water 150 c.cm. The fuchsin-glycerine stain is made as follows: Glycerine 1 part, distilled water 1 part. Add to this enough of an alcoholic solution of fuchsin to give a claret colour. The alcoholic solution of fuchsin is made by adding a small quantity of the solid fuchsin to absolute alcohol in a test tube. For material (like moulds) that has not been hardened or "fixed" with alcohol the best means of staining is as follows: Take a solution of gentian violet in a test tube of distilled water of such a strength that the light can just be seen through it in the test tube. Filter a drop of this on to the centre of a slide, and transfer the material to be studied to the dye. After three minutes place a cover-glass on the preparation, without any washing or other treatment.

ALKALINE URINE.

A. L.—References to this subject will be found under the heading of "Reaction of Urine" in Hammarsten's *Textbook of Physiological Chemistry*, translated by Mandel; and in *Schäfer's Textbook of Physiology*, vol. i. pp. 574 to 580; and in *Allbutt's System of Medicine*, vol. iv. p. 285; also in the articles headed "Urine and Alkalinity" in *Quain's Dictionary of Medicine*, 1902 edition. An instructive article on the chemistry underlying the urinary reaction and the estimation thereof was published by Otto Folin in the *American Journal of Physiology*, vol. ix, 1903; there is also a small monograph, *Ueber Harnacidität*, by Fritz Sachs, München, 1903.

NOTES, LETTERS, ETC.

THE PURCHASE OF A MOTOR CAR.

DR. W. ROBERTSON (Leith) writes: From time to time one notices queries in your columns regarding reliable and moderately-priced cars. Perhaps you will afford me a little space in which I shall try to assist those who are in search of a reliable, well-designed, easily-controlled, and economically-maintained car. To clear the air a bit, let me say that I am not a wealthy medical man, nor do I expect to be any more than the earner of a decent living wage. Therefore, what I may have to say can well be passed over by those who boast of chauffeurs, elegant cars, and expensive upkeep. To cut a long story short, I had a little over £200 to spend, and for that sum I intended to invest in a new car. Advertisements allured me at the outset, but two motoring friends, each of whom drives and understands his own car, took me by the hand and conducted me last winter to London. There we examined the "cheap" cars with keenly critical eyes. I looked on and listened, somewhat mystified at the time by the technicalities indulged in. Fortunately I was able to follow the engineering features indicated to me, since I had dabbled a bit among wheels and tools. Three single-cylinder cars were mentioned, and a specimen of each tried and examined. Against these was pitted a small French car boasting two cylinders; it was comparatively unknown in this country, but had a splendid reputation in France. As a four-seater—and that took my fancy—it was listed at a sum a little short of £200. The best known of the single-cylinder cars seen was very noisy and small, with a splendid engine, and altogether very well made. It did not offer the value presented by its two-cylinder rival, and as regards silent running it could not be compared. A British rival was cleverly designed, but its engine was most inaccessible. Both models had their engines water-cooled, but pumps were called upon to propel the water, and a specially-driven fan was needed to keep the water below boiling point. This pump is a torment to many a motorist. The British car as a two-seater cost £200. Lastly, the ignition in each was from accumulators, which constantly require recharging and not infrequently give trouble at uncalled-for moments. When it came to a question of neatness and smart looks, the small French car with two cylinders had no rival amongst the single-cylinder cars examined. It had two bucket seats in front, a side entrance to the rear seats, which were roomy and could accommodate three persons. The power of the car was 8-horse. Needless to say my advisers chose this car, and for the following reasons: First, its engine was of the two-cylindor type, and therefore very flexible. Cooling was on the thermo-siphon principle, which when well designed, with pipes of goodly size, is second to none. It gives no trouble, and neither fans nor pumps are present to complicate the mechanism. The cooling was assisted by vanes set in a very large fly-wheel, the size of which added to the even running of the engine. The draught caused by this fly-wheel has to be felt to be appreciated. I have run over 100 miles at a stretch without a sign of overheating, a remark that certainly cannot be applied to engines cooled by pump-driven water or fans. I have two systems of ignition, a magneto of the high-tension type gear driven, not, be it remembered, driven by chains or belts—another very striking feature in a small car. My accumulators are never required. I flood the carburettor well, advance the throttle, and one turn of the starting handle sends the engine off. It is a perfect treat to know that one can get what is known as

a "fat" spark so readily. The control of the car is simple in the extreme; two levers on a sector on the top of steering handle actuate the throttle and spark. I may say that one plug on each cylinder takes the spark from the magneto or accumulators. Many expensive cars provided with two systems require two sets of plugs. The foot and hand brakes are very powerful, and act on the rear wheels, a most excellent and skilful arrangement. Lubrication is automatic and constant with the running of the engine. I can beat many well-known cars in a sprint along the level, and I have never met a hill which cannot be climbed by my clever little car, which has run over 1,000 miles with almost no damage to the tyres. The complete weight of the car is 15 cwt. As a two-seater, it costs much less than £200. It is a car that deserves attention. It is not widely advertised, and, lastly, it has run under an official trial over thirty-five miles to the gallon. My two friends were rather anxious to know how their advice had turned out. I can safely say, as I have said to them, that I have had infinite pleasure and satisfaction from my car, which is a sound engineering job. Another medical friend of mine has had as good an experience with the going and upkeep of his car. The name of the car is the "Gregoire." Its London agents are Osborn and Co., Great Marlborough Street. I drive my own car, which means much to engine and gears, but a handy man washes the mud off and keeps my brass work shining.

HANDKERCHIEFS AND HYGIENE.

WE have received from the Papkerchief Syndicate, 34, Fenchurch Street, E.C., some specimens of the paper handkerchiefs which the firm is now issuing. They are small squares of absorbent paper, very thin, but tough, which could certainly be used with great advantage in place of linen handkerchiefs, either by the sick or healthy. A little flat case is also supplied, which has a pocket for clean handkerchiefs and a receptacle in which to keep those which are soiled, until thrown into a fire or watercloset. The carrying about of ordinary handkerchiefs is an uncleanly habit and probably responsible for the dissemination of a good deal of disease. The "papkerchiefs" cost less to buy than it does even to wash those of the usual kind.

A SUGGESTION FOR TUBERCLE TREATMENT.

WE have received a communication on the subject of tuberculosis treatment, the lay writer of which, Mr. Norman J. Austin of Ramsgate, explains the personal reasons he has for taking an interest in the matter, and for believing that if his suggestions were adopted many useful lives might be saved. The time is past, he says, at which the matter has any direct importance for himself, but he is anxious for the ventilation of his idea, as perhaps it may come to the knowledge of some one in a position to secure for it an adequate practical trial. After dealing with the importance of the general subject and discussing various methods of dealing with tuberculosis on a large scale, he says:

"But there is one method that so far has never been tried—that is, emigration. Hundreds and hundreds of our countrymen affected with this disease have few or no friends. I have known cases that have entered our hospitals without a near friend in the world. Thousands and thousands would be only too glad to embrace the opportunity of a two or three years' stay abroad under favourable circumstances. Every encouragement is given to our best and strongest men and women to seek newer countries where work and better conditions abound. Why not to these also? The best that the medical profession has up to the present been able to do for us is to prescribe rest, or light employment, fresh air, plenty of nourishment, and perhaps a sea voyage or a stay abroad, etc. This to the rich man is quite possible, and more often than not he takes advantage of it; and, if taken in time, he is invariably benefited by it. But to the poor man it is not possible! The British Empire, of which we are all so proud, contains all sorts of climates, and the Government has at its disposal lands of every conceivable description, with climates to suit. Only quite recently it has offered the Jews large tracts for settlement. We know that in a suitable climate fresh air combined with plenty of nourishment and a contented mind will work wonders, and in many cases effect a cure, taken in time. Why should not (the Government finding the land, and placing means of transport at the authorities' disposal) an institution, or a settlement, be founded in connexion with the hospitals and sanatoriums of this country in some one of these now almost uninhabited islands or coast lands as near the sea as possible? Given a favourable climate patients could live out in the open, day and night, and under medical supervision, direction, and comfortable conditions, most of them could by some light occupation contribute considerably to their own maintenance, and be given an opportunity while regaining their health of once more taking their place as wage earners and citizens of the world, free from that everlasting dread of breakdown. Our sanatoriums are doing a grand work in England, but changes in the weather often undo the work of months. We know that every one affected with consumption is a continual source of danger, not only to himself, but to others around him. Consequently every patient removed from our thickly-populated towns must be a lessening of the evil. The actual cost of building and the expenses incurred for the upkeep of such a settlement would be much smaller than a similar institution at home."

The suggestion is practically for a tuberculosis settlement in some British colony. We cannot now think of any colony which would welcome such a settlement. In Canada, in Australia, and at the Cape, what to do with consumptive immigrants has become a very serious question.

GOAT'S MILK FOR INFANTS.

DR. T. DUTTON (London) writes: I cannot believe Dr. Freyberger could have uttered such an untrue, unscientific dictum "that goat's milk is worse than skimmed milk," as reported in the lay press. I thought every student of medicine knew that goat's milk is one of our best substitutes for human milk. If Dr. Freyberger did state the above at the inquest of a baby dying of malnutrition *re* goat's milk, he cannot have travelled in Ireland and Wales, where he would come across hundreds of perfectly-developed healthy infants entirely reared on goat's milk. In the BRITISH MEDICAL JOURNAL of June 23rd, page 1504, Dr. J. Lionel Stretton writes that at a crèche in Alexandria the matron stated the babies were fed direct from goats, "the babies are plump and rosy, need no medicine, rarely cry; just drink and sleep." In a paper read before the Woman's Agricultural Union at their annual meeting I strongly advocated the use of goat's milk, on account of the goat being an animal that appears to be entirely exempt from tuberculosis, and with ordinary care and attention to be very profitable animals to rear and keep in a small way for milk purposes. I thought Dr. Freyberger was a pathologist. I cannot connect pathology with goat's milk. I should think the medical practitioner's evidence who saw the child last would have been of greater value to the jury in arriving at a true verdict.

STINGING FISHES OF THE HOME WATERS.

DR. M. G. MCELLIGOTT, D.P.H. (Wigan), writes: Surgeon E. B. Kenny, R.N., of H.M.S. *Redbreast*, described in the BRITISH MEDICAL JOURNAL of September 8th, 1906, p. 608, a severe sting of the fish called the weever—surely not "weaver." Surgeon Kenny is to be congratulated on having got over the effects of what was apparently a very severe sting with almost the minimum of inconvenience and pain. This fish, of which there are two well-known varieties on our shores—namely, the long weever (*Trachinus draco*), which is about a foot in length, and the small weever (*T. vipera*)—stings with both its opercular and dorsal spines, and is quite capable of putting a strong man *hors de combat* for many days. I speak from painful experience of fish stings, having myself been stung on the foot by *Trigla lyra* while shrimping at Ballybunion on the Shannon estuary many years ago. I can quite corroborate Surgeon Kenny's description of the pain, which was of a most sickening character. Since then it has fallen to my lot to treat many cases of fish sting, some of which may possibly have been due to the weever, but some of which were likely enough the effect of the biserrate spine on the dorsum of the fire-flaire, a stinging ray (*Trygon pastinaca*), and others which were probably caused by the opercular spines of the gurnet or gurnard, of which one variety, *Trigla lyra*, is popularly known on the Kerry coast as the "piper," and can inflict a very severe sting indeed. My knowledge of the anatomy of these stinging fishes of the home waters is too limited to allow me to be dogmatic as to the presence or absence of a poison gland; however, I do not believe that one exists, but rather that the poisonous material injected is simply the acid mucus which surrounds the stinging spines. As to the treatment of such stings, I do not think that Surgeon Kenny's methods can be improved upon. It is quite well that we should know something about these venomous fishes, as both the weever and the grey and the red gurnard are highly esteemed as table fishes.

ONYALAI: A DISEASE OF CENTRAL AFRICA.

DR. A. YALE MASSEY (Ruwe, Congo Free State) writes: Onyalai is the native name of a disease occurring among the blacks of Central Africa. So far as I can learn it has not been seen in the white race. It seems to be sporadic in its incidence, and is regarded by the natives as very fatal. The disease was first described by me who reported a few cases in the *Journal of Tropical Medicine* of September 1st, 1904. Those cases were from Angola, West Central Africa. Recently, I have met the same disease on the River Lualaba, about 10 degrees south latitude. A well-nourished male, aged 25, complained of a swollen and painful face and bleeding from the mouth. Examination revealed a dozen or more vesicles, distended with blood, ranging from ¼ in. to ½ in. in diameter, situated in the hard palate and buccal mucous membranes. Some of the vesicles were umbilicated, and none could be emptied easily owing to the numerous trabeculae, and the semi-coagulated condition of the blood. The patient said that a few days previously he had been passing bloody urine; this was the most prominent symptom in one of the Angola cases. The patient was listless but would answer questions. In a week the vesicles had been absorbed, the swelling had subsided, and the patient was well. Sodium bicarbonate 40 gr. twice a day seems to be most useful treatment. Only a fluid diet can be taken.

A Living Drug Shop.

Dr. A. T. Schofield (Harley Street) writes: The following authentic list of the drugs prescribed and swallowed in considerable quantities in less than two years by a gentleman of advanced age suffering from slight nervous debility will be read with interest as an example of the intelligent and comprehensive use of the *Pharmacopoeia*. The list affords amusement combined with instruction. It is a noble protest against mere "placebos," and not the least gratifying part is that the patient is still alive!

1. *Drugs.*

Sodii bicarb.	Opoponax
Theriaca	Sulphur
Potass. nitras	Storax
Potass. iodidum	Euonymin
Potass. bromidum	Hydrargyrum

2. *Tinctures.*

Tr. gentian. co.	Tr. lupuli
Tr. serpentarii	Tr. lavandulae co.
Tr. cubebae	Tr. sumbul
Tr. valerian. am.	Tr. humuli
Tr. card. co.	Tr. buchu
Tr. laricis	Tr. coscinii (?)

3. *Spirits.*

Sp. amm. arom.	Sp. anthemidis
Sp. armoraciae co.	Sp. anisi
Sp. juglandi	Sp. aetheris
Sp. myristicae	

4. *Syrups.*

Syr. hemidesmi	Syr. marrubii
Syr. croci	Syr. tolutani
Syr. zingiberis	Syr. violae

5. *Infusions.*

Inf. serpentarii	Inf. aurantii co.
Inf. lupuli	

6. *Decoctions.*

Decoc. taraxici	Decoc. sarsae co.

7. *Aquae.*

Aq. anethi	Aq. carui
Aq. rosae	Aq. pimenti
Aq. cinnamomi	

8. *Extracts.*

Ext. taraxaci	Ext. sarsae liq.
Ext. artemisii liq.	Ext. lupuli
Ext. glycyrrhizae liq.	Ext. hyoscyami

9. *Trochisci.*

Troch. terebinthi

10. *Pilulae.*

Pil. scillae	Pil. galbani co.
Pil. gallae co.	

11. *Pulveres.*

Pulv. anisi fruct.	Pulv. cascarillae rad.
Pulv. stramonii	

12. *Liquors.*

Liq. serpentarii conc.

13. *Balsami.*

Balsam. peruviani	Balsam. copaibae
Balsam. gileadi	

No strychnine, acids, quinine, digitalis, iron, asafoetida, or valerian!

A Patient's Sensations.

Dr. Herbert de Carle Woodcock, D.P.H., etc., Honorary Physician, Armley Hospital (Leeds), writes: A man of heavy physical build, by occupation a van driver, and aged 60, consulted me in January of this year. He was, I found, in an extremely nervous state, fidgety about his work, troubled concerning some unrest at his place of employment, suffering from insomnia and dyspepsia, and causing his wife to fear for his sanity. He would commonly walk into my room and commence to strip without any preamble. He had certain morbid feelings in his belly and back, and he insisted upon my naming his trouble. A consultation and many exhaustive examinations were made. The investigation threw much light upon the case: it was evident that the patient was a melancholiac. After a short stay in hospital he went for a holiday, and gained in weight to the extent of a stone. In June I saw him again. I was shocked to find an enlarging liver and jaundice, and the progress of rapid malignant disease was such that in a month he had perished. The case inculcates the necessity of paying attention to the sensations of a patient.

Union is Strength.

Dr. T. M. Allison (Newcastle-on-Tyne) writes: The British Medical Journal of September 8th, p. 585, has an interesting leaderette on unity, which is "a consummation devoutly to be wished," and not a difficult one to attain. But how? By penalty. Penalty is the cement of unity. Make it infamous conduct (*a*) to accept less than ninepence per fortnight among mining or the usual charge among club patients; penalize (*b*) the acceptance of less than half a crown for private visits, the practitioner being allowed to give as many as are necessary; and (*c*) make it penal for a consultant to see any patient for a fee outside his own house except in consultation with a practitioner. Regarding (*a*) no comment is needed; all would be equal. With respect to (*b*), poor patients cannot pay half-crowns for every visit. It is not unprofessional to give visits to meet these cases: but it is unprofessional to charge sixpence or a shilling to attract the patients of others. And it would also become unprofessional if a man gave visits to allure patients, though that would be much less injurious than a deliberate undercharge, and would be easily checked by the danger of investigation. Regarding (*c*), this also needs no comment, except that it is much less likely to find favour in the eyes of our General Medical Council, as at present constituted, than the first two propositions.

"Proposed Sterilization of Certain Degenerates."

Dr. Robert R. Rentoul (Liverpool) writes: In the British Medical Journal of September 15th, p. 634, when giving a short summary upon the above paper, it is there stated that I placed the proportion of degenerates to the population as "1 per 1 000." A reference shows that I place it at "1 in 83, or probably 1 in 50." It is also stated that I suggest sterilization by either division and ligature of the vasa deferentia or of the Fallopian tubes. May I further state that I also propose division and ligature of the spermatic cords? This latter, by cutting off the blood supply to the testes, would lead to atrophy of these glands, and would consequently be applicable to all sexual perverts. On August 30th last, the Lancashire Asylum Board resolved: "That in view of the alarming increase of the insane portion of our population, immediate steps be taken to inquire into the best means for preventing the propagation of those mentally affected, with the view of securing legislation which would attain this end."

The International Medical Congress at Lisbon.

Dr. P. Heywood Hadfield, who was Surgeon of the ss *Ophir* at the time of the International Medical Congress at Lisbon, has published a souvenir of the voyage entitled *An Easter Cruise* (Published by the author: Ross, Herefordshire). It will appeal of course chiefly to those who were passengers on that occasion, but it will not please them alone, for the text is distinctly well written and interesting, while the very numerous photographs around which it is written have been splendidly reproduced by the London Stereoscopic and Photographic Company.

Sterilization of Catheters.

Member writes: The method of sterilization by suspension over formalin should not be tried without good reason. If there is any tenderness in the urethra, and perhaps whether or not, it brings on a very painful spasm. I tried it after smearing with a preparation by Martindale, and then with plain boiled olive oil. With either of these it caused spasm and severe pain. If this does not find acceptance with any one, let him try it on himself. I find when taking out of the suspender that it bites the lips. Would some of your correspondents suggest a method safe for the patient and the catheter, and which would not hurt or irritate the tender urethra?

An Expert Opinion.

In Grant-Duff's *Notes from a Diary, 1896-1901*, there is the following story: "We talked of mad people, and he (Mr. Boyle) mentioned that Professor Blackie, whom I used to know, and who was a wonderful compound of learning, insight, and eccentricity bordering on craziness, went one night to an asylum kept by a friend of his and gave an entertainment to the inmates, singing Scottish songs, dancing the Highland fling, and what not. Next morning an old woman, one of his patients, said to the doctor in charge: 'Wonderful are the ways of God! Only to think that I am shut up here and that yon body is going about loose!'"

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SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF PSYCHOLOGY.

W. Julius Mickle, M.D., President.

DISCUSSION ON GENERAL PARALYSIS.

OPENING PAPER.

By W. Julius Mickle, M.D., F.R.C.P.Lond.,
President of the Section.

THE DELIMITATION OF GENERAL PARALYSIS OF THE INSANE.

I am here to learn, not to teach. So wide is the subject of general paralysis of the insane that attempts to deal with it at large would plunge us into a bewildering host of details, whilst, on the other hand, to confine attention to a single small area of the subject is not one's ideal of a public discussion of the disease, which indeed, calls for wideness of view.

In thinking and writing on general paralysis of the insane, one is frequently arrested by a difficulty or doubt as to the inclusion of some cases within its fold. Nor can we fruitfully deal with certain varieties of actual cases until we are more capable of drawing the frontier lines between general paralysis and other morbid states. Until these are definitely drawn there is much the true bearing of which we cannot appraise, the real relationship of which remains vague, obscure, or doubtful.

Kindly join with me in a brief survey of a few factors in the delimitation of general paralysis, selecting from those which are comparatively few and simple, and more or less of wide import, for to rightly determine the marches of general paralysis with all other great neighbouring diseases would be a huge task beyond the present possibilities.

Nor is such delimitation simple; it is a complex study. Moreover the complexity runs on many lines, of which the chief only need be named here; that is to say, the making of relevant distinctions from, or striking of the survey-lines of the marches of general paralysis with, other diseases and this as regards:

I. Symptoms.
II. Morbid Anatomy.
III. Pathogenic Relations.

I. Thus, referring to the first of these, or delimitation as to semeiology, we have, for example, intensely interesting questions concerning mental degeneracy relatively to general paralysis. Also the equally engaging subject of the relations of cerebro-spinal neurasthenia thereto, and the striking of the frontier lines between both of them on the one hand and general paralysis on the other.

II. Coming now to the second of the great aspects just mentioned, of the delimitation of general paralysis, namely, that concerning morbid anatomy, a full discussion on this would consume more than all the time at our command. But later on I will reproduce my published summary and criticize certain views relating to this aspect of the subject. And I will also refer to cases I have met with presenting certain permanent disorders and defects, and constituting a termination of general paralysis of the insane unrecognized previously to the publication of my summary of the relevant cases.

III. The third aspect we mentioned of the delimitation of general paralysis concerns pathogenesis. If discussion was limited to this alone we would deal with the recent researches of Ford Robertson, Mott, and others, and the burning questions of the genetic relation of syphilis, alcoholism, etc., to general paralysis. All which must we mention, but the limit of time forbids us to tackle. Yet I refer here and now to my opinion of many years' standing and frequently expressed, that the insanity so widely (and especially in France and Germany) but inappropriately termed "acute delirium" is in some cases a severe acute brain disease producing clinically acute or hyperacute general paralysis of the insane and the relevant corresponding lesions. And that other clinical forms of acute (in time) or galloping general paralysis of the insane may have a microbic and toxic origin of a similar nature.

And, whilst it is true that the acute infections and concomitant intoxications are far more apt to produce confusional mental symptoms, there are also cases in which a more than merely fugitive clinical likeness to general paralysis of the insane arises in some examples of the acute microbic infections and intoxications; or, again, bromide or chloral or other subacute poisonings.

Setting aside such examples when obviously fleeting, it is a question well worthy of consideration whether one may, with Régis, take certain cases as being a general paralysis of the insane of regressive and temporary character; the cerebral lesions accompanying being those of diffuse meningo-encephalitis, and simultaneously both congestive and diapedetic, both parenchymatous and interstitial, and due to microbic or autogenetic intoxications, or to their concerted morbid workings. And for many years I have occasionally met with examples which raise the question whether general paralysis of the insane may well be lighted up by such agencies, for example, as severe influenza, chiefly acting on brain and nervous system.

With these few and brief remarks I pass from and will not recur to this third or pathogenetic aspect of the subject of the delimitation of general paralysis. And thus closes our preliminary view of a nosologic expanse we cannot fully or minutely divide and define.

We now pass to consider mental degeneracy and general paralysis in relation to symptoms, and the distinction between the two taken from that aspect of their study—namely, the first of the several great aspects already named.

Delimitation of General Paralysis with Relation to Degeneracy and Mental Degenerates as Regards Symptoms.

Among the questions of the delimitation of general paralysis as regards symptoms are those concerning degenerates; those which arise in relation to certain cases of imbecility, original paranoia, and their congeners. And it will be convenient to take those in which the mental symptoms, and especially the deliria, raise questions concerning their separation from, or their inclusion within, the domain of general paralysis of the insane.

Lest I be misunderstood, it may be well, at the outset, to restate that the fundamental and most important mental symptoms of general paralysis of the insane are those of its dementia; the indications of failure, loss, disintegration, dissolution of the personality, and of the mental processes, of those affected; showing themselves in various ways, and everywhere giving a special modification to all manifestations of the higher activities of the brain and nervous system generally.

But your brief attention is now sought to groups of cases in which this fundamental failure, disintegration, and dementia of general paralysis are less striking, and in which the earlier stages are very largely occupied by the presentation of various active deliria—various forms of aberrant mental activity; and this for the purpose of comparing and contrasting them with somewhat clinically similar manifestations in certain groups of degenerates.

If we take the delusions and insane delirious flights of general paralytics as sometimes, or in some cases, constituting a very striking characteristic of the mental phenomena of general paralysis, we have to bear in mind the characters of the fully-developed delusions of general paralytics—namely, that such delusions, when of full development, usually exhibit more or less of the characters of multiplicity—variableness, groundlessness, self-contradiction, tendency to the unlimited, failure of time and space notions, and autopsychism.

We shall not expect each and every one of these traits fully developed in all cases, and this especially in weak-minded folk who become general paralytic, but must allow for some failure of, or derogation from, full and complete elaboration.

It is convenient to divide the relevant cases into four groups:

1. Degenerates with deliria, but not marked physical signs, simulating G.P.I.

2. Recurrently alcoholized and deliriant degenerates simulating both the mental and physical symptoms of G.P.I.

3. Original paranoiac degenerates simulating both the mental and physical states of G.P.I.

4. Degenerates becoming true G.P.I.'s.

GROUP I.

The insane delirium, which draws attention in an individual case of this group of degenerates with deliria—but without very marked physical signs—simulating general paralysis, may be hypochondriacal mainly or partly, or may be chiefly of persecutory type, or may take other forms of depressive insane delirium, may be mixed and inextricably associated with—or in other cases, or at other times in the same case, be interchangeable with—expansive deliria of various subtypes, and more or less of their usual accompaniments. With more or less, we say, for in some examples the expansive delusions of such patients are not associated with all of the other phenomena usually observed in expansive general paralysis of patients originally of good or superior mental endowment—for example, some such phenomena as their friendly *bonhomie*, gracious bearing, and weakly inconsiderate and self-impoverishing generosity.

But whichever of the forms we have suggested in these few and concise terms is before us in a given case, we may find light by considering the whole available history of the patient, the age, the signs of degeneracy, the history (if available) of a tendency to light, transient, changeable mental disorder, going far back; the record, perhaps, of preceding similar attacks; the absence of any great real modification of the original character; the absence of any severe impairment of memory or declension of general intelligence from the inferior level usual to it in the particular patient considered; and the absence of any real so-called "special seizures," of the several varieties which so often are striking manifestations in general paralysis, and are partly of the mental, partly of the physical order; and, finally, the absence of any truly progressive very marked physical symptoms of general paralysis.

All these will usually enable us to make reasonable distinction between the two diseases; and if we decide that the case is not general paralysis, we have still to judge whether it is merely a transitory or recurrent or more permanent psychosis in a degenerate, or whether the case is one of the paranoia or systematized insane delirium of degenerates.

GROUP II.

In another set of cases the etiology and clinical aspect are somewhat different. Those composing this group are addicted to alcohol, and from time to time undergo attacks of delusional delirious excitation somewhat resembling conditions met with in some general paralytics, there being a rich variety of forms and changes which the deliria may undergo. But these recurrently-alcoholized and deliriant degenerate patients do not fully evince the characteristic somatic signs of general paralysis. As a rule, they have not the marked pupillary changes, the decisive motor disorders and failure, or severe tendon-reflex changes, like those so common in general paralysis, although in some of these conditions, such as the alcoholic, speech and pupillary inequality may confer some likeness to general paralysis; for we must reckon with the fact that a vast variety of anomalies of speech and of pupils can be produced by true general paralysis, and are producible also by other agencies—occur, therefore, in other nosological types, in reality, far asunder from general paralysis. Placed under hygienic care and treatment, bereft of alcohol, sobered against their will, the patients of this group soon recover for the time being; and so these wastrels oscillate between drunken freedom and salutary enforced detention and sobriety.

GROUP III.

Original paranoiac degenerates, simulating more or less both the mental and physical states of general paralysis.

There are some cases of original paranoia in degenerates with regard to whom I have confronted very considerable difficulty in relation to the diagnosis as regards the supervention, or not, of general paralysis. In them the physical signs have to be considered as much as, or even more than, the mental state; the speech, pupils, tendon-reflexes, gait, tremor, inco-ordination, and many other signs, may all, in turn, demand comparison with those produced in general paralysis, and the causative agencies of syphilis or of alcoholic soaking, or of both—each of which has been so fashionable in the alleged etiology of general paralysis—may be present in these cases also.

Especially is the difficulty enhanced when no history of the case is available, for the patient may have an independent, perhaps congenital, impediment or other affection of speech, or one accompanying a sclerotic condition of the relevant nervous apparatus. Working of the features, grimacing, clonic twitch or spasm during speech, may represent minor troubles not dependent on grave cerebro-spinal organic lesion. Alcoholic tremor, especially if without history, may add difficulty and beset us with fallacy; and a variety of morbid states may affect the gait and tendon reflexes, or impair manual and other co-ordination.

I will now relate an illustrative example of this group; but before doing so one must simply mention—

GROUP IV,

in which a certain progressing deterioration, both mental and physical, will set us rightly on the track of a true general paralysis of the insane, occurring in a person originally of defective mental endowment, an example of general paralysis occurring in a degenerate.

A summary of the case just mentioned, illustrating difficulties of diagnosis as to general paralysis in some original paranoiac degenerates in the third group, is as follows:

Male, aged 40, single, labourer; died three and a half years after certification of an intercurrent acute malady not germane to the present question.

At the time of certification the attack of mental disease was stated to be the first, and then of one week's duration; the patient to be neither suicidal nor dangerous nor epileptic, and the family history and cause of attack to be both unknown. Questions raised as to syphilis and cider drinking could not be definitely settled. But it was certified that he had delusions to the effect that he was a member of the parochial council with a large salary, and was possessed of much money, and that he had bought traction engines and had them at work on the roads, and that he propounded a scheme of building on a large scale; that, indeed, he talked much of expending large sums of money, in some instances millions, and was often writing imaginary cheques, one of which, produced, was an illegible scrawl with a postage stamp attached.

Admitted under my care, sixteen months later, he then weighed 120 lb., and stood 4 ft. 10½ in. high. Defective cranial development. Tongue tremulous on protrusion; increased knee-jerks, etc. At times speech was indistinct, slightly slurring, and with some quasi-emotional tremor and working of face and forehead. But at other times speech was rapid, voluble, shrill, and could be carried on for some considerable time without perceptible increase of speech defect. The pupils varied in action, sometimes being practically within normal range and condition, at other times acting more or less sluggishly to light and in accommodation.

Later on the right pupil was often dilated, and larger than the left one; but he had then become subject to a recurrent myoclonic twitch of right angle of mouth and right ala nasi when speaking, sufficient to account for that pupil condition. The knee-jerks continued to be practically about equal, and somewhat exaggerated. The hand-grasp was impaired; the recurrent speech-difficulties continued.

His delusions were numerous and varied. Some of them referred to spiteful attempts to kill him; to the alleged illegality of his detention, brought about by the mad acts of other people, and with the object of preventing him from farming, and of keeping him out of his (imaginary) ownership of property. So he would declare that his foes would not let him alone, but robbed him of his rights and land and freedom; and that they were both men and women, but chiefly the latter.

The hallucinations of hearing were at times numerous and vivid, and largely concerned spiteful talk against him, so that even when conversing with me he would hear them still continue their abusive tirades, and could point to the place whence the hallucinatory voices were then issuing; and at times would also see the hallucinatory speakers grinning at him, too. On some such occasions he also experienced vivid hallucinations of smell. Later he manifested delusions of having died and of having been buried and again restored to life.

Thus the case went on, often with talking aloud to himself, swearing at imaginary persons, delusions of following many and varying occupations, grossly expansive notions of his possessions, sales, and purchases, huge prices given by him

for horses, and enormous daily expenditure on his imaginary home and surroundings.

Intolerant of continued conversation on rational lines, he would break off into expansive or persecutory delusions, chafe at his detention, worry us about his discharge to enable him to pursue his delusionally alleged avocations, or would act as if pursuing them on his own property, shouting to, and making whip-cracking movements, at imaginary horses. Gross personality change occurred, and at times he spoke of himself in the third person. He died of an acute intercurrent disease, totally independent of the mental affection, three and a half years after being first placed under care.

To make a very brief summary of the necropsy, and omitting many details: Dura mater, nothing special. Olfactory bulbs smallish, but removed easily and in a complete state. Pacchionian bodies well marked. Pial vessels, ordinary posterior hypostasis. Pia arachnoid, slight opacity and thickening on superior surface, slight oedema of pia except in occipital region. Pia arachnoid also separating very easily, and no "adhesion and decortication" existing anywhere.

Except for slight brain-wasting anteriorly, as in chronic insanity, there was no gross organic change in the brain, which was of normal consistence (after three and a half years of institutional residence).

But the brain was small, and was imperfectly and aberrantly developed. The aberrations from normal type and due relationship chiefly concerned the inferior precentral sulcus; fissure of Rolando; external ramus of parieto-occipital fissure; cuneus, cuneate sulcus, and formation of a cuneolus; callosomarginal fissure; and subparietal fissure; the calcarine fissure; and a bridging cuneo-lingual gyral; some sulcus arrangements of parietal region. Right cerebral hemisphere (stripped), 16 oz.; left, 16½ oz.; cerebellum, 4¼ oz.; pons Varolii and medulla oblongata, ⅞ oz.; total, 37⅞ oz.

No granularity of fourth ventricle nor of any other.

Some of Magnan's cases relevant to this subject seem to be paranoidal dementia praecox; others, hypochondriacal and obsessive; others, morbid heredity with deliria preceding dementia of general paralysis; and some, recurrent alcoholic deliria.

Under delimitation of general paralysis as regards semeiology I had intended to deal also with cerebro-spinal neurasthenia; but it has been crowded out, as it requires much detail of consideration for any effective study.

Passing, therefore, to the second of the great aspects mentioned—namely, that of morbid anatomy relatively to the delimitation of general paralysis, allow me to begin by reproducing a very brief and concise summary I wrote relatively to this subject.[1]

That general paralysis is not a single form of disease, always alike, is so obvious that many attempts have been made to divide the field of observation, both as regards symptoms and as regards lesions. Hence attempts to describe varieties of general paralysis; also those which had as their aim the establishment of links between general paralysis and other affections; and those which led to the description of various forms of so-called pseudo-general paralysis. There have been conflicting tendencies on the one hand to specialize the realm of general paralysis, on the other, to widen its borders so as to include large clinical and pathological departures from the standard—then, perhaps, collocating them under an inclusive term as *the general paralyses*.

The last is the line followed in the publication under notice (by Dr. M. Klippel), which makes of the limits of the progressive general paralyses a very wide net, gathering in a vast shoal of cases, which last is divided into three principal groups. These groups are:

I. Primary inflammatory general paralysis; to a large extent corresponding to the so-called "classical" form of the disease as recognized by Bayle and others.

II. The secondary or associated general paralyses, namely, those secondary to, or associated with, *other* lesions, on which the inflammatory process of Group I becomes grafted; secondary forms of encephalitis being added to the preceding lesions as a result of secondary infection. The preceding "other" *lesions* may be: Specific luetic ones; or those of chronic alcoholism; or of atheroma of cerebral blood vessels; or the congenital brain malformations of degenerates or of idiots; or the brain conditions of chronic insanity.

III. The degenerative general paralyses, sometimes with specific lesions. Herein the lesions are non-inflammatory, and yet producing the clinical aspects of general paralysis. Should encephalitis supervene in any particular case of this third group, such case would thereby enter Group II.

The subject bristles with difficulties, and any reasonable attempt to solve them is to be welcomed. The inclusion of this third group is open to objection so long as the evidence for it remains insufficient; but the discussion of this aspect of the question would lead us too far afield.

To this quotation it need only be added now that I still do not accept the above third group of purely degenerative changes as being truly general paralytic, primarily. Nevertheless, degenerative changes are extensive, and often severe, in cases of general paralysis, of which degeneration is an essential effect and outcome, and constant coincident.

Lastly, and under this second great aspect—namely, that of the morbid anatomy—also may be taken certain cases of chronic mental defect and disorder, forming a rare termination of general paralysis of the insane, and taken here, inasmuch as the relevant morbid anatomy of the cases concerned is the chief decisive feature.

In my work on *General Paralysis*, second edition, p. 213, the terminations of the disease are stated as being "Death; chronic mental defect or disease; recovery. These are the three terminations proper possible to general paralysis." And at page 214 the second of these terminations is discussed, as follows, *verbatim:*

2. *Chronic Mental Defect or Disease.*—This termination of general paralysis is scarcely, or not at all, known, even to writers on the subject. Nevertheless, in a few cases general paralysis practically disappears; no decided physical signs remain, but mental health is not entirely regained. There is, permanently, some mental defect—a relative childishness and simplicity—perhaps with some irrelevancy and inattentiveness; or, it may be, some smiling, pleased self-satisfaction and a trace of fixed expansive idea. The patients, however, are able to work; are tractable, docile, useful, industrious; are physically strong, and, at least those I have seen, of large, athletic, and muscular frame. So they go on for many years; no return of motor symptoms; no special sensory symptoms; no marked change in the mental state from year to year. Perhaps in the appearance of their blood relations, or from the family history, we find reason to know, or to conjecture, the presence of an element of morbid heredity. At last they die of some intercurrent malady unconnected with general paralysis. At the necropsy we find in the meninges and brain thickenings, opacities, and adhesions—the traces and inactive relics of former lesions of general paralysis.

Here, I maintain, although the patient has not recovered his full mental powers, he has recovered from his general paralysis; he has recovered from that malady characterized essentially by the combination of psychic and somatic symptoms, and having a progressive course, however irregular, and however interrupted, that progression may be. A termination of the disease, therefore, has been attained. There seems to be no reason why such a patient should not still live and fulfil his limited rôle for twenty or thirty other years, or more. The patients of this kind under my care died of affections which were apparently quite unconnected with their former paralysis; and if the latter in any way, even remotely, conduced to death it was merely by its unfavourable influence on the vital powers in the past; so that, finally, the organism made, so to speak, a less sturdy and strenuous fight for life than would otherwise have been the case. Like as when an adhesive pleurisy has been entirely recovered from for years past, and the patient is subsequently attacked by cardiac or pulmonary mischief; the adhesions, although in themselves harmless, may have a prejudicial and hostile effect in the fight for life, by impeding the free movement of the lung, checking expulsive efforts to clear away secretions or effusions; promoting maceration, congestion, and the downward gravitation of fluids; and curtailing the recuperative forces of the parts. Yet the patient does not die of the original and long past pleurisy, or of pleuritic adhesions; if he dies, it is of the supervening and independent pulmonary, or cardiac, or other disease supposed. A condition in which chronic mental defect or disorder is the only perceptible abnormality is, therefore, one of the terminations of general paralysis. . . .

Again:

The cases of which I speak are practically new facts in general paralysis as far as I know.

The permanent speech and pupillary changes were moderate only.

In the cases illustrating the facts concisely summarized above the meningeal changes observed are comparable, as regards their extent and degree of severity, with those seen in certain examples of general paralysis cut off by some other disease comparatively early in the course of the formation of cerebro-meningeal adhesive and other changes. And they are further modified by the arrest of the morbid processes for many years, and their partial but marked supersession by the successful reparative efforts of the natural restorative tendencies of the organism, which, in the general-paralytic exemplars of my thesis, have for many years made successful struggle to avert the tendency to death, and have brought about the establishment of a capability of living a moderately useful, productive, active life by the patients concerned.

In their cases the wasting of the brain is moderate

[1] *Journ. Ment. Sci.*, 1899, p. 369.

only, and the pathological lesions have for years ceased as active disintegrative processes; the amount of compensatory intracranial cerebro-spinal fluid has not been notable—in some has been slight; and the very moderately or slightly thickened or opacified meninges are not markedly soaked or sodden. Granular appearance of ventricular ependyma is relatively very moderate or even slight or almost entirely absent. The brain cortex is not much atrophied, although showing a definite yet small degree of diminution in the frontal and in the anterior portions of the parietal region.

Making allowance for the febrile and toxic ending of the cases, no general severe local softening of the brain cortex has been present, but a degree of lessened consistence is still associated with the areas of old cerebro-meningeal "adhesion and decortication" in these cases. And at these areas, or islands so to speak, the functions of the brain cortex must be considerably damaged at least. These insular patches, or areas of cerebro-meningeal adhesion and decortication, have the varying irregularities of size, form, and depth so often observed in ordinary cases of general paralysis, but are not the theatre of active progressive, morbid, and still destructive changes; these last named have in them died down for many years past, and at the most the consumption is smouldering only, kept under and more than counterbalanced by the steady redintegrative working of the organism.

The meninges are moderately or slightly thickened and opacified in parts, especially at and about the old patches of adhesion and decortication. These patches are mainly in the frontal lobe, including its mesial aspect, and in the parietal region. And in one case there was also slight "adhesion and decortication" of the median portion of the cerebellum.

Pacchionian bodies may be well marked or decidedly increased in size; and in one case, in the anterior part of both middle fossae of the skull base, confronting the position of the anterior part of inferior temporal cortex, were eroded pits in the bone, packed with meningeal hypertrophic thickenings of Pacchionian type.

Considered as a progressive fatal general paralysis, by the pathological and clinical facts in the cases I adduce, the rule of the disease is broken, the key of the arch is gone; the descriptive term, progressive, does not apply.

The condition is not that of a long remission. It is a settlement into fixed mental lines and manifestations, at last unvarying from year to year, and capable of remaining so for decades; utterly uneventful, calm, complacent commonplace; unbroken by brain-storms; almost unruffled by any active mental symptoms. Some of those affected are very useful in simple regular work; such work as requires no very great degree of voluntary adjustment of action to changeable conditions, altering circumstances, and variable experiences, and imposing on the worker no burden of the initiative, or of moral responsibility. Mental reduction is there, and permanently; but not the course, more or less progressive on the whole, although liable to remission, observed in many ordinary general paralytics.

In them the disease often known as progressive general paralysis of the insane, has reached one of its possible terminations; not recognized before the summary with which I began was published in my work on the disease. And I submit the facts to your consideration.

DISCUSSION.

DR. ALDREN TURNER referred to the etiological connexion between general paresis and tabes dorsalis, and said that evidence brought forward on the question of causation should be considered from the point of view of both disorders. The evidence pointed to syphilis as the great predisposing factor in both disorders, but also suggested that an exciting cause was to be looked for, such as trauma, alcoholism, and nervous stress and strain. The observations of Ford Robertson would appear to open up the question of respiratory and intestinal auto-intoxication as possible factors in cases of otherwise unexplainable causation.

DR. L. HARRISON METTLER (Chicago, Ill.) said he believed the variable prognoses held in regard to the ultimate outcome of general paresis were due to the emphasis that was laid respectively upon the clinical manifestations or upon the pathological findings. Clinically there was a broadness of symptomatology, both psychic and somatic, that perhaps enabled us to include a great variety of dementias more or less under the term "general paresis." But when one turned to the pathological findings one was brought up to comparatively sharp limitations. At the present day they had a double process—interstitial and inflammatory on the one hand, and parenchymatous and degenerative on the other. Which of these processes was the anatomical basis of genuine general paresis, or were they both together behind this disease? If general paralysis was the whole double process, meningo-encephalitis, then they might be entitled to interpret the wide clinical findings as a single disease—general paresis. But what relation had this disease, then, with tabes dorsalis? Many believed that general paresis was another phase pathologically—another localization, as it were—of the tabetic process. Tabes, however, was now recognized as a primary systemic, degenerative disease; and if general paralysis was a sort of another phase of the tabetic process, then we were almost forced to regard the real general paresis as pathologically the primary cortical, neuronic degeneration. This view he was inclined to adopt, and was therefore almost forced, as it were, to say that the prognosis of general paresis—the general paresis with the system neuronic degeneration as its essential pathological basis—was bad and as a disease process it was decidedly progressive.

DR. JOHN D. O'BRIEN (Massillon, Ohio) was at present engaged in investigating the bacteriology of general paralysis on the lines laid down by Ford Robertson. He had isolated an organism diphtheroid in character, having morphological characteristics resembling the Klebs-Loeffler bacillus. This organism has been obtained from more than 95 per cent. of the cases of general paresis and from other types of insanities, differing from general paralysis in only 2 per cent. Lower animals inoculated have passed through attacks similar to congestive seizure, hemiplegia, and objectively typical paresis, while *post-mortem* examination revealed conditions similar to those seen in an early case of general paralysis. He had tried to produce a bacteriolytic serum: a goat was immunized, and a bacteriolytic serum obtained for use on dogs—dogs failing to receive the bacteriolytic serum with inoculation of virulent cultures of *B. paralyticans* died in a few weeks, while those obtaining bacteriolytic serum had up to the present time, barring some disagreeable actions, been in excellent condition. He had at present in course of immunization several young cows from which he hoped to obtain a bacteriolytic serum for use upon the human subject.

ETIOLOGY OF DEMENTIA PARALYTICA.

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BECAUSE of the uniform fatality of this prominent type of mental disease, the discussion of its etiological factors assumes the utmost importance. In the consideration of a disease so long and so well known as general paralysis of the insane, one naturally asks the question, Has any new light been shed upon its causation? In attempting to answer this question, I shall make use of 172 cases of this disease studied at the Connecticut Hospital for the Insane during the period from 1898-1905.

Representing as it does the only State institution in a State of 908 420 population, there is offered an unusual opportunity to study the insane in the lower and middle classes of society and in urban and rural communities. It has been reckoned with fair accuracy that this institution receives five-sixths of the total insane of the State.

In this period of seven years the percentage of paretics to all other insane has been:

	Per Cent.		Per Cent.
1898-1899 ...	... 6.1	1902-1903 ...	... 7.7
1899-1900 ...	... 5.8	1903-1904 ...	... 6.9
1900-1901 ...	... 7.8	1904-1905 ...	... 5.4
1901-1902 ...	... 6.9		

These figures certainly do not bear out the almost universal opinion that this disease is increasing in its prevalence and particularly in urban centres.

It is reported in Berlin and Munich that the male paretics average 36 and 45 per cent. respectively.

Kraepelin, however, observes that in his experience the disease has decreased in the last decade.

The proportion of male to female paretics averages 1 to 3 9 for the period of seven years. This indicates a strikingly high percentage of women, if one recalls that until recently the proportion has been universally regarded as 1 in 7 or 8. Bucholz, however, has already observed that that relatively high percentage of male paretics is falling off, and especially in cities.

A matter still more worthy of comment is the fact that among women there is a very great predominance of negress paretics. The ratio of negress paretics to white female paretics is 1 to 5.4, while the ratio between the negress and white female population of the State is 1 to 57, showing that from the standpoint of population the negress paretics are ten times more prevalent than they ought to be. The same high proportion does not exist between the negro and white male paretics. Here the proportion is 1 negro paretic to 43 white male paretics, while the proportion of negroes to the white male population is 1 to 62.

As to the apparent relative influence of rural and urban life upon the origin of dementia paralytica, we find that there is 1 paretic from the country to 5.4 from the city, while the proportion of rural and urban population is 1 farmer to 2 urbanites. Hence, viewed alone from the standpoint of the country and the city life, the latter seems twice as conducive to dementia paralytica. Several similar observations have been made. It is known that in the rural districts of Western United States the paretics represent only 1 to 2 per cent. of the insane, while in the Eastern urban centres the percentage reaches as high as 10 to 16 per cent. In Germany, according to Kraepelin, rural paretics are rare. Hoppe at Altscherlitz finds one paretic to 3,000 urbanites, but only 1 paretic to 9,000 farmers. Again, compare the 5.4 per cent. of paretics from the Tyrol and 45 per cent. of male paretics in Berlin.

In reference to occupation, we find that there is a distinct proneness to develop paresis in certain employments. The degree of proneness is as follows:

	Times.		Times.
Ship carpenters ...	11	Hostlers...	4
Hotel keepers	11	Railroad employés ...	4
Quarrymen	8	Janitors...	4
Hack and carriage drivers	8	Gardeners	4
Bakers	8	Insurance agents ...	4
Silversmiths	8	Oystermen	4
Electricians	6	Commercial travellers	3
Sailors	5	Masons	3
Saloon keepers ...	5	Mechanics	3
		Salesmen and clerks...	3

For instance, we find that the proportion of ship carpenters among the men employed is 0.14 per cent., while the proportion of ship carpenters among our insane men is 0.18 per cent., but the proportion of ship carpenters among our male paretics is 2 per cent. Again, among hotel keepers the proportion of paretics is eleven times greater than the proportion of hotel keepers among all our male insane, and six times greater than the proportion of hotel keepers among the employed men of Connecticut.

The proneness is evident but less marked in the following occupations: Soldiers, mail carriers, butchers, druggists, blacksmiths, plumbers, bookkeepers, and peddlers. There are also certain occupations that are singularly free from paresis, as servants, factory employés, farmers, and teamsters. Other occupations in which the freedom from paresis is less marked are rubber workers, carpenters, labourers, housekeepers, and brass and iron workers.

Among the women the striking fact is that 17 per cent. of the women are prostitutes. Naturally, it is impossible to determine the number of prostitutes in Connecticut, but the significance of this percentage becomes apparent if one considers that 17 per cent. of all the women in Connecticut between 15 and 55 years of age would be over 45 700. There probably cannot be over 1,000 prostitutes in Connecticut. Accepting this figure, one finds that the proneness is 45 times. If one examines closely into the importance of the prominent etiological factors in these several occupations which show such great proneness to paresis, it is evident that alcoholism and syphilis predominate in some; as, for instance, all of the quarrymen, bakers, silversmiths, electricians, hotel keepers, and ship carpenters and gardeners were addicted to excessive alcoholism, 80 per cent. of the hostlers, 80 per cent. of the mechanics, and 75 per cent. of the masons were also addicted to excessive alcoholism. Syphilis exists in all of the commercial travellers, saloon keepers, janitors (college), and electricians. Yet among the farmers —one of the occupations that shows a very little tendency to paresis—syphilis exists in all. Again, not a single prostitute was positively known to have had syphilis, though 60 per cent. were alcoholic.

But among the sailors we find alcoholism present in only 60 per cent. of the cases, and among railroad employés, insurance agents, oystermen, and clerks, all of whom show a distinct proneness to paresis, neither alcoholism, syphilis, head injury, or defective heredity exists in a prominent degree. Hence it is evident that all these various occupations have no common factor which would explain the proneness to paresis. On the one hand, syphilis is prevalent in some and alcoholism in others; yet occupations which fail to show a proneness exhibit these same factors in a corresponding high percentage. It may also be noted that in Germany an entirely different type of occupations predispose to paresis—namely, officers, merchants, railroad employés, and firemen.

As to the age of onset at which the disease appears, we find the average age is 42 years, the limits being 23 and 68; yet a larger number of cases appear between 35 and 40 than in any other half decade. In women the average age is 2 years younger than in men. A closer analysis, however, reveals the fact that almost one-third of the cases in women occurred between 30 and 35 years of age, and that the greater number of the remaining cases occurred between 50 and 55 years.

In view of the alleged importance of syphilis, alcoholism, and defective heredity, as etiological factors, it is worth while to consider whether these factors have any influence upon the age of onset. Following syphilis in men there is absolutely no variation, the average being 42 years, but in women the average is three years younger—that is, 39 years. Following alcoholism in men the average age of onset in men is the same, but in women it is two years younger. Syphilis and alcoholism existing as etiological factors together reduce the age of onset one year in men and four years in women.

Defective heredity appears to be a more potent factor, as it reduces in men the average age of onset one year (41), and in women two years (38). Heredity and alcoholism together appear to reduce the age of onset in men one year, and in women nine years. Heredity and syphilis appear to reduce the age of onset in men one year, in women six years. Our experience is more nearly in accord with the figures from Heidelberg, where the majority of 249 cases occurred between 40 and 45 years, but in both Berlin and Vienna the onset in the greater number of cases occurs between 35 and 40.

The average age of onset, according to most observers, is being lowered. Mickle finds an explanation for this in lowered national vitality. Our experience with women differs from that of Kraepelin, who claims that the age of onset in German women is rather later, as 71 per cent. occurred after 40 years. The report comes from Berlin that the age of onset in women is becoming earlier. In reference to the possible influence of the four important etiological factors upon the total duration of the disease, we find that the average duration of the disease in all cases that have died (137) is two years three months, while the cases in which syphilis existed is two years, syphilis existing alone one year five months, syphilis existing with alcoholism two years two months, syphilis existing with defective heredity two years one month. The duration of the disease in cases where alcoholism exists is two years two months, alcoholism alone one year eleven months, alcoholism with ear injury two years three months, alcoholism with heredity two years one month. The duration in cases where head injury exists is two years nine months, where head injury exists alone two years four months, in conjunction with heredity two years nine months. The duration in cases where defective heredity exists is two years and six months, where defective heredity exists alone three years six months. The only possible inference to be drawn here is that syphilis and alcoholism existing alone predispose to a short course.

In reference to nationality, we find that while there is a greater proneness for foreigners to become insane than natives—that is, while the foreigners represent only 25 per cent. of our population, they represent 38 per cent. of our insane—yet the natives of our land represent 63 per cent. of our cases of dementia paralytica, while the foreigners represent only 37 per cent. of the paretics. Of the various nationalities producing paresis out of proportion to their representation among the insane, we find that the Swiss present 4 times the number of paretics that they apparently should, based upon mere population; the English next, 2.3 times more; the Scotch, 2 times more; Hungarians, 2 times; the French, 1.5 times; the natives of the United States, 1.4 times; and Canadians, 1.03 times. The nations among which there is the least proneness are in order of their apparent immunity—Sweden, Ireland, Poland, Russia, Germany, Austria, and Italy—and these nations exhibit cases of dementia paralytica in less than their proportion in the general population. If one seeks an explanation for these observations among the special etiological factors of paresis, he finds only that 70 per cent. of the English paretics suffer from defective heredity; 70 per cent. of the natives of the United States of alcoholism; 83 per cent. of the Canadians exhibit alcoholism and 83 per cent. defective heredity. On the other hand, among the nations that exhibit no particular proneness to paresis, we find that 71 per cent. of the Irish are alcoholic, 77 per cent. of the Germans are alcoholic, and 100 per cent. of the Italians are syphilitic.

We now come to consider statistically the more specific causative factors—namely, in order of their importance: Syphilis, alcoholism, head injury, defective heredity, overwork, emotional shock, and heat prostration.

In our experience, syphilis assumes the most important position statistically, it having occurred in 52.5 per cent. of cases; while in all psychoses, including paresis, it occurs in only 9.3 per cent. of cases. It exists alone in only 7 per cent. of the cases. This percentage is not low when compared with the figures of some prominent investigators. Kraepelin, for instance, at Heidelberg, finds syphilis in only 34.4 per cent. of male paretics; Eisath, 34 per cent.; Hoppe, 34.6 per cent. men, 23.5 per cent. women; Gudden, at the Charité, 35.7 per cent.; Graf, 40 per cent.; Sprengeler, 41.5 per cent.; but Hirsch, at Vienna, reports 56 per cent.; Hunt, at Vanderbilt clinic, 59.4 per cent.; Soukhanoff, at Moscow, 61.5 per cent.; Jolly, at Berlin, 69 per cent.; Mendel, 75 per cent.; Raecke, 78 per cent.; Honberg, 86.9 per cent.; Bannister, 89 per cent.; Alzheimer, 90 per cent.; and Tchisch and Berkley are on record as saying that syphilis, either hereditary or acquired, antedates all cases of paresis.

It is worthy of note that Oebecke claims that syphilis antedates other psychoses in 12.5 per cent. of cases; Hoppe finds it in only 10.9 per cent. of men, and 2.6 per cent. of women, and Eisath 1.8 per cent. of cases. Jolly observes it in 15 per cent. of cases, and Mendel in 18 per cent. of other psychoses. In our own experience, it is found in only 5.5 per cent. of the cases. Peterson has determined that antecedent syphilis is 7 to 10 times more prevalent in paresis than in other psychoses, and Kraepelin notes that syphilitics are 17 times more prone to paresis than non-syphilitics.

The period of time which elapsed in our 25 cases between the syphilitic infection and the onset of paresis varies from 2 to 39 years, but averages 13½ years. Kraepelin in 21 cases found 8 where the time was less than 10 years, and 8 where the time was between 10 and 20 years. Bar in his cases places the limit between 3 and 26 years; Hoppe 3 to 23 years; Hirsch in 78 cases, 2 to 29 years, with an average of 15 years. Obersteiner calls attention to an average incubation period of 15 years, which corresponds closely to the age of onset in juvenile paresis, as well as the usual period existing before tertiary syphilitic lesions present themselves.

Excessive alcoholism was present in 60.2 per cent. of our cases of paresis. The true significance of this high percentage, however, becomes apparent when we learn that in only 34.3 per cent. of all our cases excessive alcoholism exists. This includes, of course, all of the alcoholic psychoses—namely, one-seventh of the total number of cases, in all of which alcoholism exists. Alcoholism existed alone in 20 per cent. of the cases. This very high percentage of alcoholism becomes all the more striking when one considers that only one other writer records alcoholism in anywhere near as large number of cases, and this is Oebecke, who finds it in 43 per cent. of cases. Hoppe remarks on the presence of alcohol in 28.5 per cent. of men paretics, and 5.9 per cent. of women paretics, contrasted with its existence in only 16.1 per cent. men and 1 per cent. of women in other psychoses. Bar records alcoholism in 20 per cent. of his cases. The predominance of alcoholism in Connecticut paretics certainly is most striking when compared with the 10 and 15 per cent. of cases presented by Paton, and the insignificant position given it by all American writers. Alcoholism and syphilis existed together in 24 per cent. of the cases.

Head injury, though existing in only 23 per cent. of the cases of dementia paralytica, comparatively speaking is one of the important etiological factors, as it prevails in only 12 per cent. of our total insane. It existed alone in 10 per cent. of our cases. Kaplan in 546 cases found trauma in 4.4 per cent., but in only 0.9 per cent. of these did the symptoms immediately follow the injury. In 43 per cent. of our cases the head injury immediately preceded the onset, and might be regarded as the exciting cause. Head injury coexisted with syphilis in 43 per cent. of the head injury cases, while alcoholism existed in 74 per cent. of the head injury cases.

Defective heredity occupies the next most important position statistically in the etiology of paresis. It exists in 41 per cent. of our cases; it exists alone in only 10 per cent. of the cases. This degree of defective heredity, however, assumes much less importance when we learn that defective heredity exists not only in 40 per cent. of our total insane, but even in 40 per cent. of normal individuals. Defective heredity exists alone in only 3 per cent. of our cases. Koller presents in his cases the highest percentage of defective heredity, having observed it in 70.9 per cent., but he also finds defective heredity in 59 per cent. of normal individuals. Naecke and Ziehen speak of 45 per cent., Kraepelin 50 per cent., Raecke 32 per cent., Hoppe 41.9 per cent. men and 39.2 per cent. women. With the exception of Pilcz, who finds it in only 18.7 per cent. of his cases, there is far more uniformity in this element than in either alcoholism or syphilis. Kraepelin ventures the statement that defective heredity is more prominent in younger paretics, allowing the inference that a defective endowment predisposes an earlier onset. In this matter we find in our cases that defective heredity alone reduces the age of onset in men one year, in women two years.

By some, insolation has been given prominence, but with us it occurred in only 1.2 per cent. of cases. Plumbism was certainly an important etiological factor in only one case, acquiring for itself the same relative position given it by Kaplan, Hirsch, and Mendel.

Physical and mental overwork, also emotional shock, occupy comparatively insignificant positions as assigned causes of paresis, existing as they do in only 4.9 per cent. and 3 per cent. of our cases. Certainly a very much larger percentage of individuals in our community throughout a more or less prolonged period of their lives are compelled not only to overwork, but also to undergo strain, burdened with anxiety and many times suffering from privation. Again, such conditions exist in countries and communities where dementia paralytica does not exist. Why, then, does paresis prevail uniformly and in a much larger percentage of cases? The contention of Binswanger and certain American writers that we have here a very essential factor cannot be readily affirmed. Such statements as "its direct exciting causes . . . appear to be mental overstrain and excesses," cannot be substantiated by clinical experience. While there is much to be decried in our present methods of living, even in Connecticut, it surely cannot be the over physical and mental exertion of our ship carpenters, hotel keepers, quarrymen, hack and carriage drivers, bakers, silversmiths, electricians, sailors, and saloon keepers that creates paresis.

The anxiety, worry, and stress under life of privation and poverty so frequently referred to as exciting causes, and particularly emphasized by Krafft-Ebing, play but a very insignificant rôle in our cases. Furthermore, it may be said that alleged importance of these facts was not confirmed by the experience of alienists during and following the Thirty Years' War or again during the French Revolution, and there was no apparent increase of the disease during these strenuous periods. Also, we

know that exhaustion brings about an entirely different type of psychosis—namely, a transitory disease process which ameliorates with treatment, and is not progressive and does not lead to dementia. The neurasthenia type of symptoms often encountered at the onset of paresis should rather be regarded as an expression of a brain already impaired, which is breaking under the stress of ordinary duties.

At this point it is proper to consider the influence of civilization upon which so much stress has been laid since the Moscow Congress in 1897, when Krafft-Ebing referred to civilization and syphilization as the all-important factors in the production of paresis. The fact that paresis does not exist in barbarian nations, that formerly paresis was comparatively unknown among the southern negroes, and again that Irish and Scotch Highlanders who are free from the disease in their native environment become afflicted upon moving into manufacturing communities, is regarded as strong evidence in favour of this theory. Again, only the Moroccoans who have had a sojourn on the Continent develop paresis, but Raecke claims that the assertion that paresis and tabes do not exist among barbarians is fast collapsing as we become better acquainted with these peoples, and that in reality these diseases are prevalent among these nations. The process of civilization is made up of many factors, but just what those particularly important factors are that determine paresis no one has had the courage to proclaim.

It still remains for us to discuss the true relationship of the various factors already noted to the disease process. The uniformity of the clinical picture and the course of the disease occurring in conjunction with a definite demonstrable brain lesion, together with the similarity of this anatomico-pathological basis to that which can be produced experimentally in test animals by inoculation with toxic material known to involve the nervous tissue, leads to the inference that in this disease we are dealing with a toxic material of some sort. Furthermore, the occurrence of this toxic substance is accompanied by a grave general disturbance of nutrition. Ample evidence of this may be found in the cardiac and nephritic lesions, the trophic disturbances, loss of body weight, blood changes, and increased fragility of the bones.

In paresis there occur certain distinct symptoms which are very suggestive of grave nutritional disturbances identical with those found in myxoedema and eclampsia—such as febrile episodes, also hypopyrexia, accompanied by certain blood changes, sudden and rapid loss of weight, and at another time voracious appetite, followed by rapid and excessive increase of weight. Such close relationship to diseases now believed to arise from disorders of nutrition is still more strikingly demonstrated in the paralytic attacks, which resemble similar manifestations in uraemia, diabetes, eclampsia, and alcoholic intoxication.

Accepting this view, then, how do the three statistically-important etiological factors—syphilis, alcoholism, and heredity—act in producing such disturbances of nutrition?

In the first place, defective heredity is presumed to act here, as in some other psychoses, by producing an increased susceptibility and lowered powers of resistance in the nervous tissue to untoward influences, whether they exist in the form of external agents, as trauma, or in the nature of some toxic substance.

In any discussion of the etiology of paresis the chief interest has for some time centred about syphilis. There are those who stoutly maintain that syphilis is the specific pathogenic factor of paresis, and, again, there are those who are just as certain that syphilis is not essential—indeed is no more important than several other factors.

The partisans of the syphilitic theory lay stress upon the (*a*) high percentage of paretics, formerly syphilitic; (*b*) infrequency of paresis among women, particularly virtuous women; on the other hand, its prevalence among prostitutes; (*c*) familial paresis following upon syphilitic infection; (*d*) the comparative frequency of paretics from urban communities, and its rarity in farming communities; (*e*) coexistence of tabes and paresis among syphilitic brothers, man and wife, and conjugal paresis; (*f*) tendency for individuals infected from the same source to develop paresis; (*g*) confirmed paretics do not develop syphilis when inoculated (now doubted by Marchand, Gabiana, and Garbini, who have reported 7 cases in which paretics did develop syphilis).

To these might be added, from our observations, the prevalence of paresis in our negresses, and also in certain occupations — ship carpenters, hotel keepers, saloon keepers, quarrymen, hack and carriage drivers, hostlers, bakers, silversmiths, etc., while the disease is infrequent among servants, factory employés, farmers, and teamsters. Again, we have the contention recently brought forward by Fournier that there appears to be less tendency for paresis to develop in syphilitics who have been well treated with mercury.

Finally, Raymond calls attention to the frequent co-existence of distinctly syphilitic lesions in brains showing also characteristic paretic lesions; and holds that in cases where the syphilitic lesion is wanting it has already existed, but has disappeared, leaving behind only the paretic lesion.

While there are some who find some sufficient evidence of the syphilitic origin of paresis in the above facts, there are others who draw an entirely different inference, and there are some who would even question the facts.

The strongest argument against the syphilitic origin of paresis is the fact that the geographical distribution of syphilis and paresis by no means coincides. While syphilis is very prevalent in Africa and among oriental nations, paresis does not exist there. In explanation of this, it has been claimed that syphilis in these lands is of a lighter form, or has been influenced by certain climatic conditions. The latter view assumes additional importance in light of recent observations by French physicians in Algiers, who have observed that only those natives develop paresis who acquire syphilis during a sojourn in Europe.

Another argument against the syphilitic origin is the fact that the essential syphilitic lesions have neither analogy nor relationship to those of paresis. The same is also true of the symptoms of the disease. Fournier and Raymond and Cornil dissent from this view and maintain that they have seen syphilitic lesions which were not localized and not cicatricial. Yet most pathologists do not attempt to establish an identity between the purely syphilitic process and paretic process, either in the character of the vascular lesions, the meningitis, or the broad extent of the destructive process. Moreover, some maintain that there is a clear differentiation between brain syphilis and paresis, in that brain syphilis is not characterized by speech disturbance, faulty writing, and there is a limited dementia, prevalence of hallucinations, and a very slow and non-progressive course. But when all the arguments *pro* and *con* are heard, it is evident that decisive proof is wanting, that paresis is a specific disease, as tuberculosis, or small-pox, or indeed syphilis.

That it is one of the important factors remains unquestioned. Syphilis probably produces a profound nutritional disturbance, which in turn creates a toxic material totally different from that existing in syphilis, which secondary product is the active factor. This theory is partially objectified by Motet and Hallopeau, who believe that the cerebral vessels are first smitten with the purely syphilitic lesion of either the gummatous or endo-periarterial type. Around these, as foci, there is produced those lesions characteristic of paresis, but with the evolution of the disease only the latter lesions persist. This theory gives room for the action of other causes, such as defective heredity or manner of living, which would create a predisposition to the second process, and might explain the absence of paresis in oriental countries where syphilis prevails. There, one factor—heredity or manner of living, which may be just as important as syphilis—does not exist.

From the statistical standpoint alcoholism occupies a place next to syphilis. Although we observed excessive alcoholism in 60.2 per cent. of paretics, we also noted excessive alcoholism in 34.3 per cent. of all our cases; hence the percentage of alcoholism above the average is only 26 per cent. As to the action of alcohol in the genesis of paresis, no better hypothesis can be offered than that presented for syphilis. The various forms of acute alcoholic psychoses are presumed to arise from a fault of metabolism produced by the ingestion of alcohol.

When one considers the variety of symptoms, from the picture of delirium tremens to that of alcoholic pseudo-paresis, it is not difficult to conceive that general paresis

can as well develop from alcoholism as the important etiological factor; in other words, alcohol may be as capable as syphilis of producing that toxic condition that vitiates the nutritive energy of the nervous tissue and allows the neurons to degenerate.

Comparatively speaking, defective heredity cannot, according to our observations, be accorded any more important position in the etiology of dementia paralytica than that which it occupies in any of the other psychoses. As long as defective heredity as determined "by the history of insanity, nervous disease, or any addictions, including alcoholism," exists abroad in our sane population to as large an extent as it does in our insane population, we cannot establish it as an etiological factor in paresis.

The lesser etiological factors—head injury, emotional shock, and possibly over-physical and mental exertion—act similarly to syphilis and alcoholism in preparing a favourable soil for the final progressive degenerative changes. Just what that material is which determines the disease process is still unknown. Robertson has suggested that it may arise in a toxaemia of gastro-intestinal origin—an important suggestion which needs corroboration. It is to be hoped that experimentation with the *Spirochaeta pallida* and the experimental inoculations of apes with syphilitic material, which promises so much, may ultimately disclose the absolute and proximate cause of paresis.

The PRESIDENT referred to the history of the views as to the etiology and pathogenesis of general paralysis. The early observers noticed the viniform, mental, and even physical symptoms of the disease; and finding a history of alcoholic excess and of alcoholic mental or mental and physical symptoms in some of the cases, attributed to general paralysis a frequent origin in alcoholic over-indulgence. Later on many observers noticed the frequency of the occurrence of general paralysis in syphilitic persons; and some, especially some Scandinavian observers, declared that syphilis was the most important factor of general paralysis—some of them even went so far as to say, "No syphilis, no general paralysis." Other observers, finding a history of rackety excess in every direction or of excessively strenuous life and work persistently carried on in excess and under great strain, declared that overstrain was the most important factor of the disease. The statistics contained in the paper were so numerous and complex that it would require deliberate study of them to enable one to criticize fruitfully. Those relating to the incidence of female general paralysis were of especial interest, and some of the conclusions of the paper seemed to present a not very usual experience in some respects as regards general paralysis in the female. Others seemed to promise light on the subject if correlated with the statistics of others drawn from wide areas.

Dr. C. K. CLARKE, from his experience in Ontario, could not agree completely with Dr. Diefendorf, especially in regard to the frequency of the disease or the proportion of males to females. In Toronto Asylum, where the population was urban, there was an average proportion of 30 paretics in a population which up to the present had been about 750. Among these just now there was but one woman—a doubtful case. In Rockwood Hospital, populated by patients from agricultural districts, the proportion of paretics was comparatively small. In both institutions nearly all paretics were syphilitic. Certainly in Canada the disease could not be said to be decreasing. He had been struck by the fact that since the day when Dr. Joseph Workman was at the head of the institution and when no case of paresis was left undiagnosed, the proportion had advanced in the most marked manner.

Dr. T. J. W. BURGESS said that in Montreal paresis was yearly increasing, and that at a very rapid rate. Daily, too, his belief grew stronger that syphilis must be the predominant factor, as scarcely a case of the many that he had seen during the past fifteen years had been free from that dread disorder. As regards its occurrence among women, he could but say that of the 2,000 admissions to Verdun Hospital since its opening in 1890 there had been only five female cases. *En passant* he would venture to suggest that the frequency of the disease among negresses, as detailed by Dr. Diefendorf, might be due to the increase of syphilis amongst that class. Prior to the great Civil War the negroes were a fairly virtuous race, being carefully looked after by their masters. Since the war they had been thrown upon their own resources, had become much less virtuous and much more subject to syphilis.

Dr. HAROLD N. MAYER (Chicago, Ill., U.S.A.) said the etiology of syphilis was practically insoluble from any available statistics. Figures taken from a large public asylum would largely exclude the wealthy class, who went to private institutions, hence there were in such tables a preponderance of the working population. No accurate statistics regarding the etiology of general paralysis were possible until a whole community could be studied in reference to the prevalence of this disease. In Chicago and the surrounding country it was certainly on the increase, but not in undue proportion.

Dr. HARRY W. MILLER (Taunton, Mass.) thought there were many debatable points in Dr. Diefendorf's paper. He could not recall offhand his statistics in relation to the prevalence of general paralysis among women, but the figures given by Diefendorf appeared unusually high. In a study of the statistics at the Taunton Insane Hospital he found the relationship between female and male as 1 to 8 or 1 to 9. He believed we were looking at the etiology of general paralysis in a more rational manner. There were undoubtedly more than one or two factors to be considered. They had still to consider and study the etiology in the different races and the effects of climate. The study of general paralysis among negroes might throw some light upon the etiology of general paralysis. He had had a limited experience among the Portuguese negroes from the Western Islands, and had had many insane in the Taunton Hospital from among these people who had emigrated to Massachusetts, but he could not recall one case of general paralysis. This might be only a coincidence, or it might mean something. It is of interest that these people as a class were not intemperate as far as alcoholism was concerned. He could not speak with authority as to the frequency of syphilis among them.

CEREBRAL LOCALIZATION AND THE STUDY OF PSYCHIATRY;

WITH ESPECIAL REFERENCE TO THE CEREBRAL MECHANISM OF HALLUCINATIONS AND ILLUSIONS AND THE CLASSIFICATION OF THE FORMS OF INSANITY.

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At the meeting of this Section of the British Medical Association held thirty-one years ago at Edinburgh, Dr. Alexander Robertson of Glasgow opened a discussion on some of the relations of cerebral localization to psychiatry, in a paper on the unilateral phenomena of mental and nervous disorders. Under these were included hallucinations and illusions, and certain peculiar cerebral phenomena supposed to be due to the separate and independent action of the two hemicerebrums. After referring to the observations of previous writers, the results of the personal investigation of 250 cases were given. It was found that in a small percentage of cases unilateral hallucinations or illusions were present, and that these were in a large majority of the cases referred to the left side. The apparent duality of the hemispheres, as illustrated by these cases, was discussed, and a comparison was made with non psychic cerebral manifestations, motor and sensory, especial attention being given to spasms of cerebral origin.

At the meeting of the International Medical Congress in 1881 contributions were made by the same writer, and also by Tamburini, on cerebral localization in its relations to insanity. Some evidence was adduced by Tamburini to show that hallucinations were caused by disease of the sensory cortical centres. Ferrier, in discussing Tamburini's paper, said that he believed that the correct explanation of the origin of hallucinations had been given in attributing them to irritation of the centres of sensation. Robertson's communication was largely along the same lines as that of 1875 before the Section of Psychology of the British Medical Association. A point of interest in his paper in connexion with what will follow in the present contribution was his reference to Sir James Paget's philosophical view on general pathology, especially as expressed in the

statement that "a part that is congenitally weaker or has been enfeebled by disease is apt to be affected first and to suffer most when a general morbid action arises in the system."

In 1888 I analysed the literature, comparatively meagre, of cerebral localization in its relations to insanity, including papers and the records of cases by Bevan Lewis, Sir James Crichton-Browne, Edward C. Spitzka, William Julius Mickle (this year the honoured President of the Section in Psychology), Bennett and Gould, Macewen and Magnan. It will not serve a practical end to here review this literature. It is sufficient to say that it was mostly concerned with cerebral localization as illustrated by lesions causing hallucinations and illusions, or at least subjective sense perceptions, through irritation of cortical sensory centres. Some of the papers contained data and suggestions of great interest and value. Both Crichton-Browne and Mickle made much use of the meningo-cortical adhesions and associated cortical changes in general paresis in their discussion of the sensory phenomena of this disease. Two or three points of special interest in Mickle's paper were the facts which he brought forward to show that the supramarginal (inferior parietal) convolution was affected more than the angular in those with visual hallucinations, and the adhesions were often well marked on the posterior parietal (superior parietal) lobule, and that the second temporal gyrus seemed to suffer more than the first in cases with auditory hallucinations taken collectively.

Several of the most important conclusions of Magnan with regard to individuals with auditory hallucinations who hear on one side disagreeable and on the other pleasant things, are of much interest to the student of the cerebral mechanism of hallucinations and illusions. These were that unilateral hallucinations on opposite sides in the same case were independent of local lesion; that they proved the double action and functional independence of the two hemispheres; and that their existence demonstrated separate sensorial centres in the cortex.

Since 1888 cases of hallucination and illusion, referred by the writers to gross lesions of the brain, have been reported, but the number is quite limited when the large list of coarse cerebral lesions recorded is taken into consideration. I shall not attempt a review of these cases, but shall content myself with reference to a few of them illustrating visual hallucinations, as this subject is discussed in the recently-published work on the eye and nervous system, edited by Dr. Spiller and Dr. Posey. It is well known that certain hallucinations of sight appear in the blind fields in cases of hemianopsia. Many cases of visual hallucination occurring with hemianopsia due to lesions variously situated have been recorded by Harris and others, most of these without necropsies. Bruns believes that spots or lines of light appearing before the eyes, or special hallucinations preceding or accompanying hemianopsia, may indicate a lesion of the occipital lobe. Bramwell records a case of multiple tumours in which, with other symptoms, flashes of light were especially brilliant in the right eye. The patient was blind during the attacks of flashes, and Bramwell attributed these flashes of light in the right eye to irritation of the left half vision centre. Tumours, however, were also present in the thalamus; and in another case recorded by Bramwell, in which the cicatrix of an old gumma was present in the outer surface of the posterior extremity of the occipital lobe, the patient had paroxysms which lasted from a half-minute to three minutes, which consisted of flashes of red and white light in the right eye, followed by lateral hemianopsia of the same side. Other cases are collected and referred to by Spiller, who concludes correctly that hallucinations of sight and of colour may be caused by disturbance of any part of the visual system from the eyeball to the cortical layer of the occipital lobe. It is to be understood that the word hallucinations is used here in a general sense as meaning false sense perceptions experienced by one who is either sane or insane.

Gross Lesions, if Strictly Focal, usually not Effective in the Production of Hallucinations and Illusions and Other Symptoms of Insanity

These contributions to the subject of hallucinations and illusions from the early and the more recent history of neurology and neuro-ophthalmology are brought forward partly for their positive, but more largely for what might be termed their negative value, in the discussion of the relations of cerebral localization to the subject of hallucinations and illusions of the insane. In the recorded cases in which the hallucinations were due to lesions isolated to certain centres, areas, or tracts of the brain, the hallucinations present, although prominent features in the symptomatology, were almost without exception not instances of hallucinations and illusions in the sense in which these words are used in psychiatric literature. They come more properly under the head of what are sometimes termed sane hallucinations and illusions—mistakes in sense perceptions capable of analysis and correction by the patient. I do not know of an instance in which a gross lesion isolated to a physiological centre or area of the cerebral cortex or extending only to a limited extent beyond such area or centre, in one otherwise possessing a normal brain, has caused an insane hallucination or illusion.

In the preparation of this paper I first thought it might be well to tabulate the large number of cases of focal cerebral lesion observed and recorded by me to emphasize this fact, but on further consideration this did not seem desirable. The personally recorded cases are easily accessible, and these are, at least in many instances, simply counterparts of other cases on record. I might, however, say in passing that it has been a matter of surprise to note the infrequency with which large and often dense tumours occupying and often reaching beyond the cortex and subcortex of visual, auditory, tactile, or stereognostic and other cerebral regions, have failed to give rise to hallucinatory and delusional phenomena as observed among the insane. I can recall instances in which transitory hallucinations have taken possession of patients suffering from destructive lesions, as tumours or areas of necrosis, of considerable size, and yet lesions which in a strict sense were focal. In one of my cases of large and gradually augmenting destructive lesion, involving eventually the left occipito-temporo parietal regions, the patient, in addition to transient mind-blindness to persons, places, and objects, suffered from temporary hallucinatory and delusional states. These always passed away in a short time. They appeared to arise during congested periods, due to the cerebral excitement which came on at times as the result of the mental struggle and distress from which the patient suffered because of his crippled sight, hearing, and speech.

Cases of personally-observed focal lesion have included examples of tumour, hemorrhage, softening from embolism or thrombosis, abscess, localized pachymeningitis, meningo-encephalitis, and encephalitis. In not a few instances these lesions were located in such a way as to irritate and to destroy in whole or in part the cortical centres for cutaneous and muscular sensibility, and the special senses. Often the lesions caused considerable transcortical destruction; nevertheless they were not in a true sense diffuse. In connexion with these cases such visual symptoms have been observed as photopsiæ, sensations of colour, the appearance of faces and forms, and temporary object blindness, including blindness for persons. Only in rare instances were the visual phenomena observed regarded as objective realities, and this only for a short time. Auditory symptoms have usually been such as tinnitus, comparable to that observed in peripheral aural lesions, and including such acoustic phenomena as the sounds of steam, birds, or bells, or music of different sort.

Hallucinations of voices rarely occur as the result of massive lesions restricted or nearly restricted to the auditory centres, but they are not unknown. My cases include examples of lesions of the temporal lobe from the retroinsular and first temporal convolution to the uncinate gyrus.

Tumours and other lesions of the lateral aspect of the parietal lobe have been somewhat frequently under observation, and in a number of instances I have had operations performed for the removal of neoplasms in this region. The symptoms have been such as hyperæsthesia to touch, pain, and temperature, impairment of the senses of position and movement, ataxia and astereognosis. While paræsthesias were common, in not one of these cases, as far as I can now recall, were hallucinatory phenomena in the domain of cutaneous and muscular sensibility present. Whatever sensory disorders were exhibited in these cases

of massive lesion of the parietal lobe—and these were often of a marked and distressing character, as when the patient was unable to recognize the position or movement of the limb, or was harrassed by persisting sensations of numbness, tingling, or formication—the abnormal sensations and negations of sensation did not arise to the plane of insane hallucinations or illusions, except in extremely rare instances. The peculiar tactile hallucinations experienced by the victims of cocainomania, or such persistent cutaneous hallucinations as those of crawling animals or of parasitic plants or bands of rubber growing from or spreading over the skin, such as I have occasionally studied among the insane, have never been observed in cases of small or large focal disease of the cutaneo-muscular cortex and subcortex, lateral or mesial. Cases reaching into the hundreds of tumour, haemorrhage and other focal lesion, limited or nearly limited to the motor cortex and subcortex, have come under investigation, but in none of these, except in patients insane from other cause, were hallucinations, delusions, or other strictly psychic phenomena present. Such lesions do not cause the so-called psycho-motor hallucinations.

The only region of the brain in which focal lesions have produced persistent psychic symptoms has been the prefrontal lobe. If these lesions are both extensive and deep-seated, disorders of memory, will, attention, comparison, and judgement may be present, and also sometimes hallucinatory and delusional states. The hallucinations and illusions are usually not of a striking character and may be absent.

The mental symptoms when present are more frequently produced by lesions of the left than of the right prefrontal lobe.

Coarse Cerebral Lesions when Diffuse Effective in the Production of Hallucinations and Illusions.

When in connexion with coarse lesions, insane hallucinations and illusions are present, the lesions are always more or less widely diffused over cortical and subcortical areas, and that such cases occur has been demonstrated by many observations. Apparently focal lesions sometimes cause such hallucinations and illusions in cerebral syphilis in which a gumma or multiple gummata have been found on necropsy. Some cases of this description would seem to contradict the assertions just made as to the ineffectiveness of focal lesions in the pathogenesis of mental symptoms, especially hallucinations and illusions; but if these cases are studied carefully, it will be found that the psychic phenomena find their true explanation not in the isolated focus or foci of disease, but in diffuse pathological processes or in the toxaemia which often plays so important a part in the symptomatology of brain syphilis. From a large experience, were it in accord with the plan of the present paper, I could bring forward many instances of cerebral syphilis with single or multiple foci, associated with widespread disease of vessels and necrosis and degeneration of cerebral substance, in some of which hallucinations, illusions, delusions, incoherence, or dementia have been present. These include many of the cases roughly classified as syphilitic pseudo-paresis, which has for its lesions:

> Pachymeningitis, leptomeningitis, meningo-encephalitis, cranial neuritis, and vascular disease, arterial, venous, and capillary, and not infrequently isolated gummata or a few more or less disseminated gummatous deposits. In addition to these primary lesions of pseudo-paresis, sooner or later, and usually soon, secondary softenings and indurations occur in various parts of the brain. In order that pseudo-paresis shall exist, multiple specific lesions must be present. An isolated syphilitic neoplasm or several such growths, disease of a single or several cranial nerves, gummatous meningitis in one or several places, and even widespread vascular disease—any one group of these lesions or any dual combination of such groups of lesions will not give us a symptom-picture that deserves the name of syphilitic pseudo-paresis; in other words, cerebral syphilis may exist in several well-known types and with serious symptoms, and yet the disease may not properly receive this designation. When vessels, membranes, nerves, and, above all, when the cortex become more or less implicated in an inflammatory disease due to syphilis, that affection will give, with more or less verisimilitude, the symptoms of degenerative general paralysis. (Cited from paper by the writer in 1899.)

In cases of this description, as in true general paralysis, any symptoms of cerebral disease, physical or psychic, may be present because of the widespread dissociating character of the lesions, or because of the toxaemia which may influence any, many, or all parts of the brain. The focal lesions often observed at necropsies in such cases, although these may be situated in sensory areas, are not—as they are sometimes supposed to be—the real, or at least only, cause of the hallucinatory phenomena exhibited by the patient.

In some cases of cerebral syphilis, not of the pseudo-paretic variety, mental symptoms may be associated with those which are clearly indicative of focal lesion or lesions, as, for instance, a case fully recorded by me in 1895, in which were present right oculo-motor paralysis with paresis of the left leg, and mental symptoms of a marked character. The necropsy showed on gross examination fibroid meningitis, diffuse endarteritis, multiple thrombosis, and localized softenings, while subsequent thorough microscopic investigation revealed the fact that scarcely a region of the brain was free from vascular disease, with its destructive and degenerative accompaniments.

Illustrations might be given of published investigations of cases of non-syphilitic progressive dementia, presenile and senile, of the manner in which mental integrity is impaired as the destructive disease is diffused over the projection and association fields of the cerebrum, and especially the latter.

One of my patients, who died at the age of 64, had, after the birth of her first child, an attack of mania; and later, when 23 years old, had chorea, which lasted several weeks. She changed somewhat in disposition after the age of 35, and ten years before her death began gradually to develop decided mental symptoms. These became of a more decided character about three years before her death, consisting in the main of periods of excitement and semi-apathy, persecutory delusions, with symptoms showing the gradual destruction of the intermediate and higher psychic powers, such as verbal amnesia, failure in orientation, loss of memory, and impairment of attention and judgement. A few months before death she passed into a state of pronounced dementia, with occasional spells of excitement. Thorough gross and microscopical examinations of this brain were made, the latter by Dr. Mary A. Schively. Changes in both the dura and pia arachnoid were present, showing low-grade meningitis, as was also widespread disease of the vessels, including miliary aneurysms. The microscopical examination summarized showed external and internal changes in the neuron; changes in the protoplasmic glia cells; changes involving the cortical and pial vessels, also the vessels at the base of the brain—multiple areas of softening and myelin degeneration. This case, which is not unlike others which have now been put on record in considerable number, is only cited as a contrast to those cases of focal lesion, sometimes single and sometimes multiple, in which mental symptoms, as the term mental is here being used, do not occur. The essentials for the production of hallucinations, delusions, and dementia were here present in the widespread disease, not only largely destroying but dissociating the functional fields of the cerebrum.

The influence of toxaemia on the brain of an individual with inherited predisposition to insanity, and one in which advanced arterio-sclerosis was present but in which no macroscopic focal lesions could be discovered, was illustrated in a case recently studied by Dr. C. D. Camp and the writer. This case, as indicated in the title of the article published in collaboration with Dr. Camp, was one of visual hallucinations and crossed amblyopia with vascular and degenerative lesions in the calcarine cortex and other portions of the occipital lobe, also with atrophy of the pregeniculae and optic tracts. I shall not go in detail into the interesting clinical history of this case, my only object in recalling it being to refer to the visual hallucinations which were present and their apparent pathological cause. The patient remained under observation in consultation for about three months. During the first two or three weeks the only signs of mental disorder were undue emotionality and excitability. She suddenly became violently delirious, and was the subject of the most vivid visual hallucinations, and of violent mania expressing itself in motor and other symptoms. She died exhausted and demented. The gross examination of the brain showed the arteries at the base of the brain intensely sclerotic, the convexity

and other regions being apparently normal. The pregeniculae were much atrophied; no areas of softening were found anywhere in the cerebrum. Microscopical examination of the vessels of all parts of the cortex showed slight thickening, with enlargement of the perivascular spaces. The following citation summarized the unusually interesting microscopical findings in the occipital lobe, to which, with the atrophy of the optic nerves and tracts and the general impairment of the brain through diffused arterio-sclerosis, can probably be referred the visual hallucinations and other evidences of acute delirious mania:

Sections from the cortex of various parts of each hemisphere, selected with a view to their functions, such as the posterior paracentral convolutions, the midprecentral opposite the second frontal convolution, the frontal poles, the quadrate lobules, and angular gyres were found to be normal by the acid-haematoxylin, acid-fuchsin, the Nissl, and Weigert-haematoxylin methods.

In sections from the calcarine fissure from each side was seen to be an intense congestion, with the formation of numerous very fine new capillaries. They were mostly in the second and third layers of the cortex, and the pyramidal cells in their vicinity appeared degenerated on examination by the Nissl method. Sections from the cortex of the lateral surface of each occipital lobe, near the occipital pole, showed areas not involving the whole section of a similar vascular appearance, as in the calcarine fissure, and probably a part of the same pathological process. The nerve cells in the location of these areas were of the pyramidal variety, but they had lost their normal shape and structure completely. The white substance beneath these areas appeared degenerated by the Weigert-haematoxylin method, and full of small holes as though nerve fibres had dropped out.

Sections from the white matter in the interior of the frontal lobes appeared perfectly normal by the Weigert-haematoxylin method, but sections of the white matter from the interior of the occipital lobes did not stain so well.

Part Played by Disturbance of the Associative Mechanisms and of the Balance of Function in the Symptomatology of Insanity.

If the insanities are essentially disorders of the brain, as all must admit in a final analysis of the subject, and if the brain is recognized not as an organ all parts of which are necessary to every function, or an organ one part of which is sufficient for all functions, but as an assemblage or confederation of separate organs or centres each of which is independent, or at least autonomous, it follows that the facts and principles of cerebral localization must play an important rôle in the solution of psychiatric problems, and especially in the elucidation of psychic symptoms, and the causation, duration, and prognosis of the different types of insanity. Notwithstanding this evident truth, as has just been seen in the brief review of the literature of hallucinations and illusions, one fact stands out clearly, namely, that irritation or instability of cortical centres for the sense perceptions is not sufficient in itself to account for the presence of those hallucinations and illusions which are of such character and such persistence as to be included in the psychiatric symptomatology. Something more than irritability or instability of isolated cortical centres is evidently necessary. This something must undoubtedly be sought for in the associating mechanisms of the cerebrum.

Attention has often been directed to the subject of the balance of pressure within the skull, and the necessity of maintaining this balance. Equally important is the balance of function which is present in every healthy brain. The psychic symptoms manifested by the insane, such as hallucinations, illusions and delusions, incoherence, excitement, and depression, are all dependent, or largely dependent, upon the disturbance or disruption of this cerebral functional balance, which is normally brought about and maintained through the neural mechanisms of association. This is not to say, as has been announced in antagonism to the doctrine of cerebral localization, that the brain is the organ of association. The brain is an organ of association, but it is also an organ of differentiated centres, and it is the existence of these which gives such a high degree of importance to the anatomy and physiology of cerebral association. In the development of our knowledge of cerebral localization by the modern methods of anatomical, physiological, and clinico-pathological research, it was altogether natural that the first important stage should be concerned with the discovery and locating of centres with special functions, and especially with the functions of cerebral projection.

By Meynert, however, and those who followed in his wake, attention was turned to the importance of structural associations, and systems of associating fibres, connecting gyri, lobes, and hemispheres were early demonstrated. The idea of associating areas and centres or regions containing convolutions especially concerned with functions higher and more complex than those of the projection areas was not fully grasped until the publication of the researches of Flechsig. To these investigations, now so well known, it is not necessary to refer here in detail. I need only say that the posterior association area of Flechsig, considered physiologically and psychologically, is to be regarded as a great area containing cerebral structures concerned with the concrete conceptual processes, while the anterior or terminal association zone is of higher psychic valuation, being concerned with abstract concepts and other complex intellectual processes. It is not improbable that a further and less general differentiation into intermediate and higher psychic areas will eventually be reached. Flechsig did not regard the prefrontal as the only terminal cerebral zone, but believed that other areas of similar structure and function were situated in other cerebral regions, especially in the inferior parietal and second and third temporal convolutions.

The recognition of the importance of the principle of association in the explanation of both normal and abnormal mental phenomena has been facilitated by the discovery of some and the suggestion of other of these intermediate and higher regions with associative or controlling functions. Mental symptoms are caused or conditioned not by lesions or disturbances of cortical projection fields, but by arrest, impairment, destruction, or serious disturbance of the cerebral structures concerned with association. Wernicke recognizes this fact in his theory of sejunction, or the disjoining of particular association fields. Sense deceptions, when these fulfil the requirements necessary for them to be regarded as insane hallucinations and illusions, are the result of functional or organic disruption between sensory projection areas and areas of higher and still higher development. We should not, however, dismiss a subject like that of the symptomatology of insanity, which has its distinctly practical bearings, with mere generalizations about the non-effectiveness of lesions and disturbances of the cortical projection fields in the production of morbid mental phenomena, and the pathogenetic effectiveness of these lesions and disturbances when association systems are attacked. We should turn to the consideration of the question whether any evidence has as yet been afforded as to the part played by associative mechanisms in the production of the clinical phenomena of insanity, and also to the question as to whether in the near future the outlook in this direction is hopeful.

In the earlier years of the period of cerebral localization—which was initiated by the suggestion of Hughlings Jackson, and took its first steps forward with the experiments of Hitzig and Fritsch, and of Ferrier—the observations already alluded to made by Crichton-Browne, Mickle, and others, pointed to the regions now known as the great cerebral zones of association as those earliest and most seriously attacked by the active lesions and the degeneration of general paresis.

The Lesions of General Paresis and their Relation to the Cerebral Association Areas.

It will be remembered by those familiar with the literature of this subject that Crichton-Browne prepared the brains of a number of general paretics by the nitric acid method. Placing the brains, enveloped in their inner membranes, in nitric acid, the latter are gradually destroyed, drop off, leaving the place where meningo-cortical adhesions were present indicated by a granular or mice eaten appearance of the cortex. Presuming that the symptoms and conditions presented by the paretic patients were in large part the result of the focal lesions thus indicated, striking facts were brought out with regard to cerebral localization. The lesions were most marked over the frontal lobe, using this word in the anatomical sense to include all parts of the hemisphere anterior to the central fissure and to the line of this fissure on the mesial aspect of the brain.

Dividing the frontal lobe into three belts by vertical lines (which would give practically what is termed by the writer the prefrontal, mid-frontal, and post-frontal lobes), Crichton-Browne found that the adhesions were most diffused and most marked in the prefrontal lobe; next in the post-frontal, and last, although they were still here markedly present, in the mid-frontal. The positions in which these lesions were most marked and dense were the anterior portions of the first, second, and third frontal convolutions. Adhesions were decided on the orbital surface. In the parietal lobe the adhesions were very marked, but did not present as much uniformity in their distribution as in the frontal regions, sometimes one or two portions, like the post-central and inferior parietal convolutions, largely escaping. As a rule, however, the parietal lobe was largely involved, and the angular gyrus seldom, if ever, escaped. The temporal lobe was the seat of adhesions of varying intensity and somewhat irregular distribution. A notable fact in Crichton-Browne's observations was the relative escape of the occipital lobe and the insula.

These observations of Crichton-Browne were not supplemented by subcortical investigations and comparisons, although the gyral and fissural appearances indicative of degeneration and atrophy were described, and corresponded roughly to the topography of the cortical adhesions. The specimens were all from patients dying after comparatively long continuance of the disease. One thing clearly indicated was that portions of the anterior and of the posterior association areas were the region of the brain first, and in the end most seriously, damaged.

Twenty-four years after the observations by Crichton-Browne a large pathological literature of general paresis having developed in the meantime, probably the most important paper bearing upon the relations of cerebral localization to general paralysis and to insanity in a general way was published by Karl Schäffer.

This paper was on the topography of cortical degenerations in general paralysis and their relations to Flechsig's association centres. The contributions contained the summarized results of the microscopical investigation of the brains of three typical cases of general paresis. The first two brains were examined by serial sagittal sections extending the whole length of the brain. In the third, serial sections of the entire length of the brain were cut horizontally. Both sets of sections were stained by the Weigert-Wolter's method. All three cases, both from the psychiatric and physical points of view, were typical. The findings in his first case were: (1) Relatively little degeneration in the central convolutions and the neighbouring portions of the frontal convolutions, the lips of the calcarine fissure, and the gyrus temporalis prefundus (retroinsular convolutions), and (2) high-grade degeneration in the polar and basal frontal convolutions, the entire parietal region (evidently including in this the superior and inferior parietal convolutions), the post-central convolution, the insula, and the temporal convolutions.

Schäffer found that the occipital convolutions outside of the region of the calcarine fissure were not as free from degeneration as the parts enumerated under 1, but were less degenerated than those mentioned under 2.

The results in Schäffer's second case, which was also studied by sagittal sections, were exactly similar to those obtained in the study of the first.

The third case was one in which tabes and general paralysis were typically illustrated in the same patient. The general results were similar in character to those obtained in the first two cases: (1) The lesser grades of degeneration were obtained in the central convolution as well as in the adjacent frontal convolutions (midfrontal region), in the cuneus, in the first and in the deep temporal convolutions, and in the subcortex; (2) high grade degenerations were found in the frontal (prefrontal), in the post-central convolution and post-parietal region (superior and inferior parietal lobules), in the insula, in the gyrus fornicatus, and the fifth, third, and second temporal convolutions.

While the topography of degeneration in this tabetic-paretic case generally followed the lines of the two preceding cases, it was of decidedly higher grade. It is worthy of note in connexion with the view that the motor region is precentral and that the post-central convolution in this case was the seat of comparatively high degeneration, that the patient was a tabetic as well as a general paretic, and the post central findings are in accord with those obtained by Campbell in his researches. The cortical fields for the special senses and the motor cortical area were comparatively free from degeneration, or, as Schäffer expresses it, were saved.

Schäffer remarks that his observations are in accord with some investigations of Siemerling, although Siemerling is known to be antagonistic to Flechsig's views.

Siemerling found in a case of general paresis that those cortical systems were most resistant to degeneration which myelated first; in other words, those contained in the projection systems, sensory and motor.

Schäffer remarks that those parts of the cortex escape which are especially the seat of degeneration in a case of amyotrophic lateral sclerosis and in addition those portions of the occipital and temporal lobes which are concerned with visual and auditory projection. He is inclined to include the post central convolution in the posterior association area, but this position is probably not correct. The post-central, while not motor as we formerly believed, is a portion of the sensory projection system, probably the seat of the different varieties of cutaneous sensory recognition, although it may be that in addition to this convolution certain portions of the mesial surface of the hemisphere are also concerned with these functions. Schaffer apparently fails to see the bearing of the greater degeneration of the post-central convolution in his tabetic paretic case.

Comparative Studies of Association and Projection Areas in Forms of Insanity other than General Paresis.

Eventually elaborate comparative studies of the brains of cases of dementia praecox, paranoia, melancholia-mania, hysteria, epilepsy, and other psychoses or neuropsychoses, similar to those of Schäffer on general paresis, will be made and will result in great additions to our knowledge of the underlying pathology of these forms of insanity and of mental disease in general.

Hysteria and epilepsy, in the study of pathogenesis, should receive consideration in connexion with some of the universally accepted forms of insanity such as melancholia-mania and paranoia. In this way clearer light will be thrown on the true nature of these affections, just as some of the forms of what will presently be called the teratological dementias are better understood if, as regards their structural causes, they are discussed in connexion with some of the well-known forms of organic nervous disease due to arrested development and chiefly physical in their manifestations.

With this momentary digression let me turn again to the question of the comparative studies of association and projection fields.

It is altogether probable that studies of paranoia and of dementia praecox, similar to those made by Schäffer and his forerunners in general paresis, will give results which will teach the same great lesson—namely, that the cerebral association zones are not only the first to give way, but are the parts of the brain which succumb in largest measure under the influence of inherited predisposition and exciting causes.

The investigation into these subjects should be not only of the microscopic morbid appearances and conditions, but should include careful anatomical and morphological studies of the cerebral surface and interior. These studies should indeed, whenever possible, precede the gross pathological and the histological investigation. Every gyrus and every fissure, whether primary, secondary, or tertiary, has its functional significance and its arrest significance in the interpretation of morbid clinical phenomena. Attention has, perhaps, been turned too much away from gross anatomical and morphological studies in cases of mental and nervous disease. The foundations of this too much neglected work were laid by Gratiolet, Ecker, Turner, Huxley, Wilder, and Parker, among others. Every elevation or depression of the cerebral surface under the influence of evolution receives its form and peculiar characteristics in obedience to the law of physiological and anatomical correlation. A thorough knowledge of fissural and gyral arrangement in standard human brains and of the tendency to depart from such standards in forms of mental and nervous disease, conditioned

by structural arrest, is necessary to the student of psychiatry.

Many years since I gave much attention to studying and recording gyral and fissural abnormalities and peculiarities in the numerous brains of low type which I then had frequent opportunities to investigate. Some of the most interesting results of these investigations were published by me twenty years ago. A comparison of such investigations with those on human brains of average and high type is in the highest degree instructive. In the brains of high type, such for example as those of Gauss and Helmholtz, and those more recently and elaborately studied by Wilder and Edward Anthony Spitzka, the preponderance in surface extent and elaboration of the cortical association over the projection fields is both striking and significant. Our first insight into the underlying pathology of paranoia, and perhaps other forms of insanity, is to be obtained by a careful study of the surface appearances. I found in the brains of paranoiacs, as in those of criminals, negroes and others of low grades of intelligence, fissural and gyral arrests and aberrations of the most striking character. The following citations from a recent paper will sufficiently emphasize the point which I here desire to make:

Many ape-like peculiarities were shown in the gyres and fissures generally, these being especially marked in the parieto-temporo-occipital region. The markings of the frontal lobes of both hemispheres in this brain were simple; the intraparietal fissure was unusually long and only partially bridged; the supramarginal (subparietal) gyre was small; the superior and inferior annectant gyres were somewhat aberrant. Wernicke's fissure (the homologue of the external perpendicular fissure of the ape) was clearly outlined, communicating with the supertemporal fissure, and other interesting peculiarities indicating low psychical development were present. . . .

In general, simplicity of structure, with well-defined and comparatively little-complicated fissures and gyres, point to a low type; simplicity of the frontal fissures and gyres in particular indicates an inferior order of brain. Unusual symmetry and atypical asymmetry are indicative of a low type. Normal human brains present atypical asymmetry.

Observations like those above cited, supplemented by others of a more thorough character, as those made by Spitzka, with the assistance of projection drawings, and these correlated with investigations similar to Campbell's histological observations on the localization of the cerebral functions, and Schaffer's on general paresis, will eventually do much to solve the numerous still unsettled problems of psychiatry.

Campbell's results have been chiefly of value in determining the position and limitations of the projection areas, but are not without great real and suggestive value for the association fields.

Cerebral Localization and Bacterial Infection.

In discussing with a neurological friend some of the views as to the part played by cerebral localization in the explanation of mental symptoms and in the classification of insanity, I was met by the remark that all or much of what I said might be true, but that it was not in this direction but in that of bacteriology and biochemistry we were to look for the next most important advances in our psychiatric knowledge. This may be accepted as in large part true, yet it must not be lost sight of that the localization of cerebral functions must here, as elsewhere, play its part. My paper starts with a reference to the early contributions of Dr. Alexander Robertson on some of the relations of cerebral localization to insanity. Recently, Dr. W. Ford Robertson, pathologist to the Scottish Asylums, discussing the pathology of general paresis, has contributed one of the most valuable series of papers on insanity which has appeared for several years. He brings forward facts elicited by experimental work of Dr. Lewis Bruce and of himself and his colleagues, Drs. M'Rae and Jeffrey, which go far to show that in all probability general paresis is due to bacillary infection. The researches detailed point to the diphtheroid bacillus or possibly a special bacillus for which Robertson has suggested the name *Bacillus paralyticans* as the cause of this disease and of the corresponding and often associated spinal affection, tabes dorsalis. It cannot be held that the contention of Dr. Robertson and his colleagues is as yet demonstrated, but their researches are of great importance, because not only of the facts determined, but also because of the suggestions contained in them. Briefly, their view is that the brain or certain portions of it, weakened by the direct or indirect effects of syphilis or other agency, succumbs to the assaults of a special form of bacterial infection. Accepting these views, cerebral localization here as well as elsewhere plays its part. It is not improbable that just as certain infections or toxins elect the peripheral motor neuron system for their assaults and give us well-defined clinical entities, such as Landry's paralysis and anterior poliomyelitis, so peculiar forms of toxines or of bacilli electing certain cerebral mechanisms, these being already predisposed by embryonal or acquired conditions, give particular types and subtypes of mental disorder.

Cerebral Localization and the Classification of Insanity.

A few words might be said in conclusion on the classification of insanity. The factors which should be considered in attempting a classification of insanity are:

1. The structural rests or aberrations due to heredity, which predispose the brain to mental disease.

2. The course and prognosis of the form of insanity—elements of age and development periods here largely entering.

3. The election of particular cerebral mechanisms by the exciting causes, bacterial or toxic, of the attack of insanity.

The best general subdivision of insanities is, I believe, into the teratological or abiotrophic and the pathological or acquired.

Under teratological insanities I would class first the dementias due to structural arrest (embryonal apotentiality), including (*a*) congenital idiocy and imbecility, (*b*) dementia praecox, (*c*) dementia choreica and other presenile dementias, (*d*) senile dementia.

Second, the insanities due to structural insufficiency, not of such degree as to produce primary dementia.

Under this head would be included (*a*) the melancholiamania group, (*b*) paranoia, (*c*) hysteria, (*d*) epilepsy, (*e*) psychasthenias.

The second great division is the pathological insanities. Under this head would be included: First, those due to diffuse destructive organic disease, as (*a*) the forms of imbecility or mental defect due to postnatal causes, (*b*) general paresis, (*c*) syphilitic insanity due to gross lesions and degenerations, (*d*) traumatic insanities; second, the insanities due to toxaemias and exhaustion.

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THE INSANITY OF INEBRIETY.

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The term "toxic insanity" describes a form of psychosis which is due to alcohol and other toxic agents. The term "alcoholism" refers specifically to conditions following the use of alcohol, and the term "inebriety," when used to describe a similar condition, is often inaccurate and vague in its meaning.

To call all drinking persons "alcoholics" is misleading. The impression from this term is that such persons are suffering only from toxic states due to the use of spirits. Where the first excessive use of spirits follows from head injuries, shocks, sunstrokes, infectious fever, or distinct

drains on the vitality, or from some profound exhaustion, this name is not accurate for the reason that it is not the cause. The use of spirits in many cases is only a symptom, although it may greatly increase the original causes.

The term "inebriety" more clearly describes the pathological condition which demands alcohol for its anaesthetic effect, and refers to some depressed state, or some psychic condition which consciously or unconsciously calls for relief which alcohol gives with satisfaction.

Evidently alcohol is not the cause, but merely a symptom, hence the condition must be one of disease and organized degeneration. Historically, this fact of disease was recognized in the early civilizations, and long before insanity was thought to be other than spiritual madness.

The psychosis or insanity of inebriety is a very old subject, but, strangely, it is practically unknown and ignored at present.

The theory still exists that the excessive use of spirits is a moral condition and a vice, and physicians following public opinion accept it as true and acquiesce to both the moral and legal means used to suppress it.

Recently a partial recognition of the diseased condition in extreme stages of inebriety has been conceded, but the means for cure are along the same lines, namely, vice, depravity, and free will.

A grouping of some of the facts of this disease, and particularly those which show the insanity of inebriety, will indicate how wide a field of practical psychiatry is still unoccupied.

To all ordinary observation a periodic drinker resembles the insane in contact and reasoning. Such persons use spirits to extreme toxic states for a brief period, then rigorously abstain for a period, and then relapse. This resembles acute mania in the dominance of the drink impulse overwhelming the mind and body for a period, then subsiding. It also resembles epilepsy in its sudden convulsive onset and inability to reason and control up to a certain point. Often the periodic drinker is unconscious of the import and meaning of these symptoms. He will suffer from insomnia, headaches, great irritability, intense nervous anxiety, and dread of loss. He will consult with physicians, believe he has serious organic disease, go off on vacations, make changes in his surroundings and business relations, then, all unexpectedly, will drink to great excess, and all these symptoms will disappear.

In most cases there are distinct premonitions of the drink storm in conduct, reasoning and appearance, which the friends recognize but the victim does not. A large class of the periodic drinkers seem to have some consciousness of the coming attack, and use means to avert it. They often go to hopitals and sanatoriums, particularly where they have had some experience before, appearing in a state of great fear and excitement, which quickly disappears. The storm is averted for the time being, and cases are always very hopeful. In many persons of this class of periodic drinkers the premonitory symptoms take on the form of reasoning manias. They make elaborate preparations in business affairs, providing in advance for their absence during the drink attacks.

A number of persons of this class have been noted by their unusual interest in reform work, both in church and hospital, or even in political affairs. This is noted by the unusual fervour, sincerity, and excitement which always ends in a drink storm. Often these conditions are veritable delusions and hallucinations, which are obscure and of short duration. In some there is great exaltation of mental activity approaching delirium; in others, there is great feebleness and stupidity resembling dementia. A number of cases under my care showed a remarkable exactness in the periodicity of the drink storm: thus, in one instance, the free interval was ninety-one days, four and five hours. In another this interval was 210 days; in the third, every two years, occurring exactly on July 4th. In these cases the drink storm broke out at the exact time predicted, or within a few hours of it, no matter what happened or what the conditions were. The storm, or drink attack, lasted from six to ten days, and was marked by an insane impulse to be continuously stupid and narcotized.

Another class seem to take on a different personality when drinking. The first glass of spirits brings out an entirely different character in reasoning and conduct. The previously moral, exemplary man suddenly becomes a moral pauper, a low criminal, an idiot, a tramp, an imbecile, and a great variety of other exactly opposite traits of character, which are dropped as soon as the drink excess subsides. Some very startling cases of so-called "cure" are often noted in the treatment of the periodic inebriate, particularly at the close of the drink paroxysm. There are certain atmospheric and electrical conditions which seem to be very active in precipitating the drink attacks. Thus one man never uses spirits except at the seashore; going back to the mountains, or to a certain elevation, he loses all taste for spirits, and becomes a total abstainer. Another has a continuous thirst for spirits in high elevations and on the mountains, which passes away at the sea-level. Climates where the sun shines most of the time, and cloudy, moist atmospheres, have been noted as influential causes in exciting the craze for spirits.

The largest class of these circular periodic drinkers are irregular as to the drink period and the free interval. The causes, both external and internal, have not been studied. In all cases there is usually an unstable, highly sensitive brain and nerve organization, with a tendency to exhaustion on the slightest occasions.

A clinical history shows that heredity is a very large factor in this instability and feeble pain-resistance; it also shows that injuries, irregularities of living, defective nutrition, sleep, and excessive strains and drains, with other causes, predispose to a convulsive condition of nerve energy and depression for which spirits is a grateful narcotic.

The disease and insanity of this form of inebriety is beyond all question, and is an unknown field of most fascinating interest. Another equally prominent form of psychosis is that of the inebriate who uses spirits regularly in so-called moderation.

The assertion that the so-called "moderate drinker" is the subject of a pronounced psychosis and fully as insane as the periodic inebriate will conflict with much of the modern teaching and theories of the day.

Recent laboratory research with instruments of precision, sustained by exact clinical studies, prove this assertion to be absolutely correct. The common theory that alcohol in small doses may be taken regularly without harm is not true, and it is now possible to measure the anaesthetic effect of alcohol and its depressing influence on the senses, the functional activity of the brain and the organs, and the nutrition of the nerve cells.

Exactly how small a dose can be traced by instruments of precision is not settled, but it is certain that the regular use of small doses can be positively measured in their accumulative effects. Instruments show that alcohol in small doses depresses the sight, hearing, taste, smell, and the touch, and lowers the functional activities of the organs, and the rhythmic circulation of the blood is disturbed, particularly in the brain.

Comparative studies of abstainers and moderate drinkers show in the latter derangement of nutrition, defective elimination, feebleness of control, and weakened heart's action; also depressed mental activity, faults of memory, lack of precision and muscular control, and lessened endurance. Repeated tests requiring exactness of thought and precision of muscular power by abstainers and persons using small quantities of spirits, clearly show the feebleness and debility of the drinker. Clinical studies and statistics bring other evidence showing that alcohol in small doses lowers resistance to microbic invasions and acute infectious diseases, and devitalizes the forces of both the mind and body. Hospital records point to a higher mortality from pneumonia, typhoid, and acute inflammations occurring in moderate drinkers, and that the prognosis of all diseases in this class is graver. These facts are within the observation of every one.

The accumulative action of alcohol used regularly on the psychic centres of the brain is marked by a degree of exaltation, particularly of the ego, and the development of an unreasoning confidence of strength and ability. In many instances this is a veritable delusion, in which inordinate self-esteem and false reasoning of the actual conditions possess the mind. When such persons occupy responsible positions their conduct and work becomes more automatic and mechanical and less original and more incapable of change and adaptation to new conditions. When the reasoning and judgement is clearly observed, mental inconsistencies, irregularities, and

defects are apparent. A little farther on sensory degenerations are pronounced, and defective co-ordinations and perversions of judgement associated with defective nutrition are noted. While these changes are not called insanity, in the broad meaning of the word, they are clearly psychopathic and neuropathic stages of degeneration.

Lower down in the scale, the moderate drinker has marked delusions of conduct and thought, considers himself persecuted, and his best friends untrue, loses consciousness of right and wrong, and still believes he has strength to accomplish anything he wishes. Delusions, hallucinations, and states of dementia with suicide are common terminations both to the periodic and the moderate drinker. In business circles this insanity, marked by mental and muscular incompetence, is recognized at once, and the person is relieved from all duty and responsibility. In the social and scientific world the moderate drinker is still regarded as sane and responsible; in one it is experience, in another it is theory.

Modern pathology indicates that the use of alcohol is followed by toxic states, and toxines introduced from without and formed within, producing poisoning and starvation. This, added to unknown physical and psychical conditions which alcohol covers up, is followed by a distinct psychosis and insanity.

It is also clear that the continued anaesthesia of the neurons and pain centres is destructive to protoplasm and nutrition. Also, that the continuous use of spirits is cumulative and corrosive in its effects; and farther, that the demand for spirits either periodical or continuous, is a symptom existing either before spirits were used or formed after. The practical question which concerns us all is the recognition of this disease, and the possibilities of its prevention and cure. Long ago, an earnest group of pioneers began to urge the theory that inebriety was a psychosis and insanity, which was curable as well as preventable. A long period of bitter opposition and denial followed the promotion of this theory. As in all great evolutions of truth, this first period of opposition was followed by a second one of credulity and partial acceptance. This is the realm where the quack flourishes.

To-day, quack institutions, so-called cures and specifics are heralded all over the country, and armies of poor victims are attracted by their pretentious claims. Time, test, and experience has brought these claims to judgement, and the profession realize that there are no specifics or discoveries of drugs to treat a psychosis so pronounced and complex as inebriety.

This wave of empiricism now passing away has done much to destroy the old theories of inebriety, and teach the world that this new army of diseased inebriates are curable by the use of exact means and measures along the lines of rational medicine.

The insanity of inebriety by its prevalence and extent appeals to every medical man in both city and country by the therapeutic possibilities, at present in outline, to take up this subject and bring it into the realm of exact science. Hospitals, asylums, prisons, almshouses, and charitable institutions of all kinds are filled with victims made so directly or indirectly by alcohol.

The disease of inebriety is being rapidly recognized in the world of finance, and the moderate and excessive user of spirits is put aside as incapable and unable to do exact work requiring full possession of the reason and senses. The quacks, with their mysteries and pretensions, confirm this, but in scientific medicine—except for a few pioneers who assert the inebriate to be devitalized, degenerate, and insane—there is not a single college where the teaching of these facts are considered worthy of attention.

Every medical man in the country is called upon to treat inebriety, and yet he is without practical knowledge of the psychosis of these cases, and the possibility of therapeutic help and cure. The great majority of the profession, whatever they may think, give their tacit consent and approval to the most stupid insane measures for prevention and cure. Over 100,000 inebriates die annually without anything being done for them, except along moral and legal lines. The question of cure and prevention is a scientific one, which only the trained physician can answer. The threatening aspect of this problem, from its hygienic and social sides, calls for a medical and scientific study, which all colleges, leaders, and teachers must supply, and this great army themselves appeal to us mutely for help. It is our duty as scientific men to take up this subject and point out the physical causes, and lift it out of the range of credulity and quackery into the field of exact science. The insanity of inebriety is an intensely practical and most vital subject for every physician.

Dr. Hobbs (Guelph) said he had but little faith in the therapeutic treatment of inebriety. The majority of cases relapsed. The only rational method should be a long period of confinement, with a building up of the physique, after which they should be allowed to go on a term of probation. If relapse should occur then the patient should be returned for a time and reprobated. The insanity of inebriety took upon itself three stages: (1) Defective will-power or insanity of the ego; (2) delusional stage, with delusions of suspicion; (3) dementia.

Dr. Adolf Meyer (New York) said we should recognize the differences of individual qualification in dealing with inebriety. The Swiss Institution at Ellikon showed the excellent result of a man convinced of his cause, not a pessimist. It chose a man convinced of its being worth while to enter into the individual causes and individual needs. The two-year limit of detention was merely a means of obtaining any legislation at all.

Dr. R. Langdon-Down (London) called the attention of the meeting to the report of the Medico-Political Committee of the British Medical Association recommending an amendment of the law in England in the direction of compulsorily detaining in an inebriate home for treatment for a considerable period of any person through habitual inebriety doing damage to himself, his health, or his affairs, causing public disturbance, and reducing his family to poverty; and providing for the right of any person likely to be affected by the conduct of the inebriate to set the law in motion. This showed the movement of professional opinion in England was on the lines of the reader of the paper, if not going quite so far.

Dr. J. J. Williams (Woodstock, Ontario) believed that it was more from the fact of a desire to be sociable when out at public functions or when meeting old associates, as many men—fully 40 per cent. of those who took alcohol to excess—drank when they chanced to meet old associates; and these men were mostly good business men, and would not neglect their hard work nor leave it any time for the express purpose of going on a drinking bout, and would immediately return to duty for months.

DISCUSSION ON DEMENTIA PRAECOX.

OPENING PAPERS.

I.—C. K. Clarke, M.D., LL.D.,
Toronto.

DEMENTIA PRAECOX.

That the importance of dementia praecox, viewed both from the standpoint of etiology and symptomatology, is very differently regarded in America by psychiatrists of undoubtedly high rank, is well illustrated by recent literature. In two important textbooks, published within the last year, we find the author of one disposing of the whole subject in three and a quarter pages; in the other no less than forty-one pages are devoted to an elaborate discussion of this vexed question.

Then, again, when one studies the classification of mental diseases in annual reports, he finds that in many instances dementia praecox does duty to an extent that is scarcely credible to those psychiatrists who are content to make haste slowly. That nearly 40 per cent. of the admissions to any institution are suffering from this form of insanity is difficult to accept, and yet that is what we are asked to believe. On this side of the Atlantic we are very apt to become radical at times, and as so many of our alienists, owing to methods of appointment, have lacked training in clinical work in hospitals for the insane, it is not to be wondered that, at times, ill-digested results are put forth as facts.

It is significant that as thorough an investigator as Kraepelin has never yet given an absolute definition of dementia praecox, although he has not hesitated to change his opinion many times regarding the groups of cases which should possibly come under this heading.

The difficulty in all of these discussions is that of sifting the wheat from the chaff, and of aiming at something definite regarding this idea of classification.

That the name is unfortunate goes without saying, especially if we are to include cases which cannot fairly be called precocious, and others which are written off the records as recovered. If the etymology of dementia is worth anything, it seems a pity to destroy the meaning of the term, and certainly precocious is not the word to use in connexion with advanced life. As a matter of fact, the name dementia praecox must only be regarded as tentative, and will perhaps answer all necessary purposes until modern clinical methods have been long enough in vogue to enable us to determine what scheme of classification is ultimately to be adopted.

That prognosis will be the basis of this scheme is generally believed, although excellent arguments against such a plan have been advanced.

Psychiatry is a most difficult study, and, as has been pointed out by Dr. Adolf Meyer, certain terms denote absolutely different trains of thought in different writers. Some of the younger authors have not as yet discovered the depth of the waters into which they have so bravely and enthusiastically plunged, but where so much admirable work is being done it would be ill-natured to criticize; and, after all, psychiatry as a whole requires just such devotees as those who are concentrating their energies on the study of dementia praecox.

The solution lies in careful clinical investigation, and until this has been carried on systematically for years the battle will go on with vigour, and the slain and wounded in the fray will not be few.

Nearly all alienists are agreed that what is so frequently called the "Kraepelin idea"—although it is questionable if the whole credit should be given to this eminent author—is the one that points to the most hopeful line of investigation to put psychiatry on a more solid basis than has yet been the case.

The great danger at present is that of squandering our energies in too many directions, and the violent efforts of many writers to bring widely-divergent classes of cases under the one heading are to be deprecated. Want of clearness has been the besetting sin of our science in the past, and if we are to adopt the Kraepelin departure we should do so with our eyes wide open to the difficulties and complications likely to be encountered.

To strain a classification to such an extent that 40 per cent. of the admissions of a hospital for the insane can be included under the heading "dementia praecox" is certainly adding little to science, but rather tending to befuddle the whole subject. That there is a place in our classification for dementia praecox most of us freely admit; that the three classical groups which so often merge into each other exist is abundantly evident to those who have puzzled for any number of years over the disappointing results in evolutional cases of insanity.

The experience of any alienist will enable him to easily classify the patients in whom the prognosis is absolutely unfavourable, but the more doubtful cases are not so easily disposed of, unless we are willing to accept recovery as proof positive that dementia praecox did not exist. If we may safely go that far in general paresis, why not in the other cases, if the pathological lesion can be as definitely traced and fixed? The allied states are the great difficulty and we should certainly be very conservative, and it would be well to go slowly in fixing their place until a good deal of the fog has been cleared away.

These remarks apply particularly to the hebephrenic and katatonic groups. Then, again with paranoiacs it seems a grave mistake to place all of these under the paranoid heading as some are inclined to do. While it is true that the term paranoia has been greatly overworked, in some quarters it has a place in psychiatric literature and conveys a definite meaning.

The statement is sometimes made that the paranoid cases appear much later in life than hebephrenic and katatonic varieties, but this will bear further examination and study.

My experience has been that such patients, who drift into institutions towards middle age, have as a rule, a history of dementia, occurring at the early, evolutional period, with symptoms so carefully masked and guarded that they are not suspected by the ordinary observer. Half of our difficulty in dealing with the diagnosis and prognosis is occasioned by the impossibility of getting at the earliest proofs of the mental change in the patient. Having seen a few cases develop, from the beginning, during my school days, a very pronounced belief that true dementia praecox is a disease taking several or, perhaps, many years to reach its final stages, is firmly fixed in my mind.

Then, again, we must remember that, until we thoroughly understand the pathological basis of this and other forms of degeneration, it cannot be possible to speak absolutely of symptom pictures, which are found in certain deterioration processes and simulated in others, where the prognosis is not unfavourable. To differentiate these at present is a difficult, if not impossible, task.

Dr. Adolf Meyer is undoubtedly right when he says that he would like to make the most of what Kraepelin's departure has added to psychiatry. He would insist on the desirability of singling out the cases, which are beyond all doubt in the experience of any alienist in accord with what Kraepelin describes; in other words, he would class as dementia praecox those cases in which there is no doubt about the completeness of the picture, and as "akin to dementia praecox" where the relation is more superficial.

In view of the fact that Dr. Meyer is here to speak from this text, and is to be followed by Dr. Dercum, whose recent contribution to the *Journal of Insanity* contains so much of interest in connexion with the subject, it is clearly a duty to leave the discussion of details to those who are so competent to deal with them, and merely refer to the broad generalities.

If it can be shown what is the pathological basis of the morbid conditions which make the genesis of dementia praecox at the evolutional epoch of youth to adolescence, a wonderful step forward will have been taken, and investigators must not overlook this, and I would ask Dr. Meyer and Dr. J. Turner particularly what hope we have of a solution of this most important problem? The morbid conditions must have a definite basis, and until we know what that is there must be no end of groping. As Clarence B. Farrar has so clearly pointed out, "their exact etiology is entirely obscure, and so long as this is the case, so long as the exact causes are unknown, which must be in operation in order that the disease may make its appearance, it is futile to assert that they may not become operative beyond as well as during the puberal epoch."

If it could be shown, for example, that the origin was purely toxic, a reasonable basis for treatment, on rational lines, or even for prevention, would exist. Without definite scientific knowledge this is scarcely possible, or even probable, and we cannot overlook the fact that the degeneratoin processes appear most frequently, if not altogether, in persons with a bad heredity. The toxic theory is, of course, one that has much to commend it, as certain of the developments in the course of dementia praecox apparently are the outcome of toxic conditions, but that this will prove to be the whole explanation is extremely doubtful. The problem is evidently a more complicated one than that; we must look for further light, not only to the clinicians but the pathologists in particular. Possibly the whole truth will not be known until the physiologists have made clear the functions of some of the glandular structures and their relation to the nervous system.

To the conservative mind the situation is not hopeless, and certainly if any form of mental trouble deserves careful and earnest investigation it is this, where the prognosis is so invariably bad. Still, the fact that many patients improve and a few recoveries are said to take place, should prove a stimulus to the most thorough and exhaustive study. And yet, are the facts regarding prognosis and treatment thoroughly digested?

In discussing these questions briefly in Boston, at a recent meeting of the American Medico-Psychological Association, I took it for granted that the term was to be used in a limited sense, with particular reference to the three classical forms as described by Kraepelin, rather than to the allied states about which so much is being said and written. It was thought well to be brief and cautious, as so much difference of opinion exists in regard to the proportion of dementia praecox admitted to various hospitals for the insane. Kraepelin places the percentage

at 14 per cent. or 15 per cent. Some enthusiasts in America state it at about 40 per cent.

Then, again, when the subject of prognosis is considered, the question, What is a recovery? at once crops up, and when we compare facts with statistics we are confronted by the suspicion that the word "recovery" conveys a very different meaning to alienists of varying mental types. Many of the so-called recoveries from dementia praecox should not be classified as such. Modern methods of clinical investigation have not as yet been long enough in use to enable us to speak definitely of the prognosis, and when it is remembered that very few alienists agree regarding the classification, it is reasonable to accept, to a certain extent, the ancient dictum which tends to a belief that dementia is a condition dependent on structural changes that preclude the hope of recovery.

Possibly to make such an actual statement is going further than is justified by actual facts, because certain cases which seem fairly to come under the heading "dementia praecox" recover; and yet the proportion is so small that they may almost be regarded as the exceptions which prove the rule.

When we consider that dementia praecox generally takes years in its development; in fact, has often reached what might be called the terminal stages when the alienist sees it, the reasons for the grave prognosis are at once apparent.

To assert categorically that this disease is incurable is of course going too far, and such a statement cannot be justified, but it is not beyond the strict truth to say that most of the so-called recoveries should be classed as cases of remission, or put under the heading "improved." That the term "remission" is to be applied to many of these conditions is sooner or later revealed; in fact, so many of these people are abnormal from an early age, that it is difficult to know what should be called the normal standard to judge them by. Possibly, the striking improvement that occasionally takes place in apparently hopeless demented katatonics, improvement so marked that they are able to accept a limited amount of responsibility in daily life, once more leads to errors in the classification of recoveries.

What science demands is an accurate statement of facts. It would be unwise, then, at this stage of investigation, to attempt to even approximate the percentage of recoveries from what is evidently one of the most incurable of all mental diseases.

Nothing more profitable than a discussion of this whole vexed question could concern this meeting, and we are fortunate indeed in having such competent authorities as those who follow me to throw new light on it.

II.—ADOLF MEYER, M.D., LL.D.,
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FUNDAMENTAL CONCEPTIONS OF DEMENTIA PRAECOX.

NOTWITHSTANDING the appearance of much divergence of opinion of those who speak and write, there are very few workers in clinical psychiatry who do not consider Kraepelin's creation of dementia praecox the greatest advance in psychiatry of recent times. The number of those who object on principle has, of course, been rather great; and the great bulk of objections really goes rather against the actual or dreaded misuse of the new concept and some of its misinterpretations, than against the principle itself.

Briefly stated the principle is an assertion that it is time to think of creating disease entities in psychiatry, with due utilization of our knowledge of the combination of cause, course, and outcome. In the older textbooks, and many of the recent ones, we look in vain for a truly helpful and convincing description of the factors which determine an unfavourable course of mental disorders. Instead of the usually hazy statements, Kraepelin has pointed out features which are common to a great number of the so-called terminal dements, and he has found them to exist from the very beginning in a very large number of all cases that ultimately deteriorate. The emphasis of these features, somewhat at the expense of the temporary pictures which have so far received the main attention, was a real stroke of genius.

The older symptomatic considerations have very largely failed to bring out the most vital factors. The tendency was to adapt the description of the symptom complexes to a conventional presentation of a transformation from the normal to the diseased condition. On such a ground we can understand some melancholias and some mamias, and even some states of bewilderment, as exaggeration of conditions belonging to our normal experiences. But as soon as we enter on things in which we can no longer appeal to the conventional experiences of the normal forming the scheme of traditional psychology, the description ceases to be as minute and faithful, and such terms as heredity and degeneracy, defective endowment, auto-intoxication, etc., are resorted to to replace what from the descriptive point of view appears as a disjointed mass. In this respect we are, I believe, ready for a decided progress. We can follow the normal instinct of description, that of showing the transformation from the normal, and, I believe, greatly to the advantage of a sensible comprehension of the situation.

Kraepelin's bold picture allows of a correct estimate of a very large number of cases which formerly partly resisted description and partly figured as doubtful with regard to their outcome and nosological position. Every alienist knows that he does meet cases in which from the very beginning the prognosis is poor, and to a very large extent these cases are the ones stamped by the signs of Kraepelin's deterioration process. Briefly stated, these signs, according to Kraepelin's differential diagnoses, were the appearance of negativism, of mannerisms and stereotypes, and especially of "Willensstörung."

From our present view point—and we must say that Kraepelin's last description has turned more emphasis on several of these points—we would ascribe as the essential features disruption of judgement, only insufficiently accounted for by any special mental or physical upset—that is, without any evidence of intoxication or other delirium, or without the manic-depressive thinking disorder, or the foundation of the hysterical or epileptic disorder—discrepancies between the mood and the general reaction, peculiar attention, disorders, and feeling of interference with thinking and deterioration in matters which are largely dependent on sound instinct, such as differentiation of the real and unreal, and the critique of imaginative material—all this in the face of relative clearness, so that we are forced to think of a fundamental deterioration or defect as the only means to account for so much perversion of instinct and reasoning. In connexion with this there appear a number of symptom-pictures, also met with occasionally as more or less adequate reactions, such as states of puzzle, of religious and mystic fascination, of automatic and stuporous states, such as can be in part obtained by hypnotic suggestion, or such as arise as psychasthenic and hysterical reactions, as we call them when they appear on sufficient and characteristic foundation. The insufficiency of the provoking factor, and the oddity and incongruity rather than the mere excess of what might be the result of a sufficient cause in an average person, constitutes one of the most important criteria for the estimation of the seriousness of the process.

Every individual is capable of reacting to a very great variety of situations by a limited number of reaction types, which we want to characterize briefly, without distracting ourselves by exhausting our natural interest over the classifications and traditions of logical and analytical psychology with its sensations, feelings, and will. We approach the facts directly from a simple empirical standpoint for what they are worth, for the conditions under which they arise, for what they can do, and for ways of modifying them for the better or worse. The full, wholesome, and complete reaction in any emergency or problem of activity is the final adjustment, complete or incomplete, but at any rate clearly planned so as to give a feeling of satisfaction and completion. At other times there results merely an act of perplexity or an evasive substitution. Some of the reactions to emergencies or difficult situations are mere temporizing, attempts to tide over the difficulty, based on the hope that new interests crowd out what would be fruitless worry or disappointment; complete or incomplete forgetting is the most usual remedy of the results of failures, and just as inattention and distraction correct a tendency to overwork, so fault-finding with others, or imaginative thoughts

or praying, or other expedients are relied upon to help over a disappointment, and, as a rule, successfully. Other responses are much more apt to become harmful, dangerous, uncontrollable—a rattled fumbling, or a tantrum, or a hysterical fit, or a merely partial suppression, an undercurrent, an uncorrected false lingering attitude, or whatever the reaction type of the individual may be. What is first a remedy of difficult situations can become a miscarriage of the remedial work of life, just as fever, from being an agent of self-defence, may become a danger and more destructive than its source. In the cases that tend to go to deterioration certain types of reactions occur in such frequency as to constitute almost pathognomonic empirical units. I would mention hypochondriacal trends, ideas of reference, fault-finding or suspicions, or attempts to get over things with empty harping, unaccountable dream-like frequently nocturnal episodes, often with fear and hallucinations, and leading to strange conduct, such as the running out into the street in nightdress, etc., or ideas of strange possessions with hallucinatory dissociations, or the occurrence of fantastic notions. All these appear either on the ground of a neurasthenoid development, or at times suddenly, on more or less insufficient provocation, with insufficient excuse, but often enough with evidence that the patient was habitually dreamy, dependent in his adjustment to the situations of the world rather on shirking than on an active aggressive management, scattered and distracted either in all the spheres of habits or at least in some of the essential domains of adjustment which must depend more or less on instinct or habit. On this ground reaction types which also occur in milder forms of inadequacy, in psychasthenia and hysteria or in religious ecstasy, etc., turn up on more inadequate foundation and with destructive rather than helpful results. We thus obtain the negativism no longer as healthy indifference and more or less self-sparing dodging, but distinctly as an uncontrollable unreasoning blocking factor. We obtain stereotypes not merely as substitutive reactions and automatisms on sufficient cause such as everybody will have, but, as it were, as a reaction of dead principle in a rut of least resistance. We see paranoic developments with the same inadequacy of starting point and failure in systematization, and in holding together the shattered personality, etc.

This presentation differs from Kraepelin's by starting from the premisses to the results. Kraepelin seems to despair of the possibility of a causal analysis, and merely puts down the formal results as the simplest guide which would most likely keep within the realm of natural history observation, and less likely seduce the alienist to relapse into the incarnate habit of making a plausible explanation for a result even if it should have to be at the expense of the facts of the case. Throughout his description of dementia praecox we meet with the emphasis of that relative clearness of the mental activities, as far as they go. His mode of presentation has, however, the disadvantage of failing especially in those cases in which this contrast is not as plain. There are undoubtedly cases which temporarily present the symptomatic earmarks of Kraepelin's dementia praecox that certainly do not belong to the group, and should be classed with true hysteria, true manic-depressive insanity, etc. The question then arises in the individual case whether the standard symptoms are fundamental or incidental, and the diagnosis finally turns on the balancing of cause and effect, and an estimate of the patient's elasticity, matters which, as far as I can see, have not been sufficiently emphasized by Kraepelin.

There is no doubt that many diagnoses of dementia praecox are made on ground of rule-of-thumb principles. This danger can be obviated by our taking a definite view of what diagnosis in mental disease means. Somehow physicians have always been more or less superstitious with regard to what they imply by diagnosis. Where they are on safe and easily controlled ground the diagnosis is plainly a brief term for the statement of fact. As one gets into ill-defined facts, the diagnosis becomes a name for what one would like to do, what one would like to know, etc., that is to say, an expression for a substitutive attitude rather than for the actually demonstrated facts. A diagnosis usually does justice only to one part of the facts, and is merely a convenience of nomenclature. In psychiatry the facts occur in very complex combinations, and therefore a one-word diagnosis is almost sure to fall short of what it ought to do, namely, short of presenting the actual facts in the case sufficiently to designate the etiological, symptomatic, prognostic, and therapeutic status. Psychiatry has not reached, and probably never will reach, the stage where a small number of one-word diagnoses would be more than a formal index. It is, of course, convenient to have them, and there is a temptation to discuss the names and write papers about them; but as a rule that does not add much to our knowledge in psychiatry, and only helps to undermine our standing beside other branches of medicine through the appearance of continual vacillation of mere opinions, of aberration from real investigation of the nature of facts and from the normal instincts of the physician, and of something really being devoid of sufficient practical importance. All the desires to pigeon-hole various forms of dementia praecox represent a sport which really distracts from the fundamental labour of psychiatry. G. Stanley Hall has very pertinently criticized the tendency and the absurdity of giving the group a name such as dementia praecox.* We should bear in mind that the concept of dementia praecox had better be looked upon as designating a perspective of deterioration, and, thereby, the most important feature in many cases. In many cases the deterioration is, however, not imminent, nor the most interesting feature; it is a result to be borne in mind and to be dreaded, but not as directly interesting as the process which threatens miscarriage. In a fairly large number of cases we should, therefore, designate the process not with the term of a possible or even probable outcome, but with one designating the principle at work—the hysteroid reaction, the abnormal habit reaction, the type of attention defect and of judgement defect.

As soon as we shall learn more about these specific factors of individual cases, the term which designates the perspective of the broad group will be replaced by terms designating the principles at work; but they will be quite different from the "confusion" and *Wahnsinn*, etc., of the present day, terms which must be sacrificed and will not be wanted again. We shall thus relegate the term "dementia praecox" to those cases which have in the very centre the stamp of deterioration; while cases in many ways akin to these, but with a less certain deterioration, will pass as allied to dementia praecox, as I have called them in order not to multiply nomenclature prematurely. The subforms such as the hebephrenic and the katatonic and the paranoid will in the main preserve a standing, but they will appear less important as we shall learn to single out the determining factors. As our knowledge will increase, combination terms designating etiology and reaction-type, and possibly a measure of the balance, will take the place of the as yet rather schematic types; but for the time being the small number of types taken over by Kraepelin from Kahlbaum and Hecker will be used without much hair-splitting.

Etiologically the constitutional make-up counts for a great deal, but not in the vague sense of heredity and degeneracy merely. There is much more to be had in the study of deterioration of the habits and undermining of instincts and their somatic components.

Therapeutically, this way of going at the cases will furnish the best possible perspectives for action. We stand here at the beginning of a change which will make psychiatry interesting to the family physician and practitioner. As long as consumption was the leading concept of the dreaded condition of tuberculosis, its recognition very often came too late to make therapeutics tell. If dementia is the leading concept of a disorder, its recognition is the declaration of bankruptcy. To-day the

* It would be much more satisfactory to keep the issue of deterioration as a principal perspective, and to work for greater precision in sizing up the factors which in one combination leads to one result and in another combination to another. It is probably not wise to take the muddle of nomenclature in psychiatry very seriously; but its realization ought to be a sign to begin to work at the other end. In trying to do this we abandon, of course, the easy road of making chains of plausible definite terms, which, as one of the most commendable features, has the soothing effect of making us believe that after all the principles are simpler than the facts themselves. Simpler they may be, but if made too simple they are not much of an achievement, and, alas! in their application they cease to be more than of casual interest, especially to those who actually do work with the insane. Nobody looks with more suspicion at these inventions of terminology than the active alienist himself, and we can safely say that for a while to come the best criterion of a profitable attitude of mind is whether we can hold the attention of the average working force of our hospitals and stimulate to activity and interest in the actual cases.

physician thinks in terms of tuberculous infection, in terms of what favours its development or suppression; and long before "consumption" comes to one's mind, the right principle of action is at hand—the change of habits of breathing poor air, of physical and mental ventilation, etc. In the same way, a knowledge of the working factors in dementia praecox will put us into a position of action, of habit-training, and of regulation of mental and physical hygiene, as long as the possible "mental consumption" is merely a perspective and not an accomplished fact. To be sure, the conditions are not as simple as with an infectious process. The balancing of mental metabolism and its influence on the vegetative mechanisms can miscarry in many ways. The general principle is that many individuals cannot afford to count on unlimited elasticity in the habitual use of certain habits of adjustment, that instincts will be undermined by persistent misapplication, and the delicate balance of mental adjustment and of its material substratum must largely depend on a maintenance of sound instinct and reaction type.

There is not much definition yet about the histological process which is the structural expression of the deterioration. Its slightness suggests a mere bankruptcy under anomalous or even ordinary demands with insufficient funds of adjustment. Many forms are so acute that they suggest a histologically well-defined crisis; but the data are still too slender—the neuroglia increase of the deeper cortical layers and various other findings.

For any settlement of the histological problem we need more data which would form a chain of events instead of mere fragments; and when we can say that we have the histological changes in the controllable intoxication well in hand, we may also be able to attack those much more subtle variations which go with the ordinary functional states. As long as we have not even solid ground with regard to such contrasts as sleep and wake states, or an alcoholic intoxication and the normal state, we must not try to stretch the histological facts of the dementia praecox types, not even with a compliment to the favourite notion of autointoxication—that simplifying formula which merely exalts the art of purging, and is meant to spare the physician the trouble of studying the more complex facts about the patient. Encourage the laboratory man to search every gland of the body, from the liver to the parathyroid, but do not spoil his pleasure in possible discoveries by saturating the atmosphere with stale autointoxication guesses. In his eagerness to get rid of prebiological conceptions of mind the disciple of Aesculapius believes he has to over-correct common sense, rule out mental reactions from the domain of legitimate study, and reduce all mental diseases to the paradigma of general paralysis. If he continues to believe that the only condition of mental health lies with the proper amount of indican and the ideal status of the parathyroid, and a few other glands which lack of knowledge makes a home for a wealth of theories, he misses his chance with the great percentage of simple dementias. Mind, like every other function, can demoralize and undermine itself and its organ, and the entire biological economy, and to study the laws of the miscarriage of its function and life is one of the conditions for any true advancement in psycho-pathology.

III.—F. X. Dercum, M.D.Philadelphia,
Philadelphia.

Dr. Dercum insisted upon the purely functional character of the symptoms at first and the lateness of the oncoming dementia. The fact of this change being functional explained the recovery occasionally observed. Dr. Dercum regarded the term "dementia" as objectionable, because it implied from the first a quantitative mental loss. Kraepelin himself regarded the term "dementia praecox" as purely a temporary expedient. Dr. Dercum was greatly impressed by the great factor of the neuropathy present in these cases, for neuropathy implied not only structural defects of development on the part of the nervous system but also arrest of the organism as a whole; so that all of the other tissues of the body—the bones, the muscles, the vascular apparatus, and especially the glands—were probably defective in their structural development. The organism as a whole was defective, and when such a one neared puberty and the strains of life accumulated, proper reaction and readjustment to the environment was inadequate and change of function became apparent. This change of function was doubtless related also to some abnormality of nutrition, whether the presence of a toxin or the absence of some necessary constituent of the blood. Two elements were of necessity present—a defective nervous system on the one hand and an abnormal nutrition on the other. Whether in a given case recovery ensued depended largely upon the extent to which the elements of arrested or defective development had been present. Dr. Dercum spoke also of the therapeutic methods applicable to early cases—namely, the application of the physiological measures, rest, full feeding, massage such as carried out in the ordinary rest cure, partial or complete. Patients so treated were most favourably placed for a detailed retraining, both mental and physical, and it was remarkable how much could be accomplished in some cases in which nutrition had been stimulated by the measures just alluded to.

DISCUSSION.

Dr. Alex. Robertson (Glasgow) stated that his position in the discussion of this subject was very much that of Dr. Dercum—namely, treating borderland cases. What struck him was the remarkable difference of opinion between distinguished observers on this subject. Take Bianchi in his late valuable work, who asked if there was any need for this new nomenclature, and who doubted the possibility of diagnosing the condition in many cases—that was the speaker's position. Thus, about six or eight months since, he was consulted in regard to a young man who presented many of the features delineated by Dr. Meyer so graphically. It would have been designated dementia praecox, but he was glad to be able to use a term which did not convey that idea of hopelessness which dementia implies. He used the term "adolescent insanity," which committed us to no absolute opinion—a great advantage at that stage. For instance, his patient just referred to showed many indications of recovery. He admitted that there were objections to the term "adolescent insanity," especially its vagueness; but, on the other hand, it was free from the very serious objection which could be properly urged against Kraepelin's term—namely, that this last committed us to the use of a term which conveys a conception of hopelessness which may be absolutely wrong.

Dr. A. T. Schofield thought all would agree with the last speaker, that if the term "adolescent insanity" held out more hopes of cure than dementia praecox, they should adopt it. Two years ago, at Oxford, there was a great discussion on this subject, and he believed they were reaching the same conclusions—that the diagnosis in dementia praecox could seldom be arrived at until the disease was so far advanced and incurable, that its symptoms were so vague and wide that most there, but for their age, would fall under the ban. He thought their thanks were specially due to the reader of this paper in delivering them from the treatment by mag. sulph. in all these cases. In his experience these cases frequently commenced by simple hysteria, and then, when there was a bad family history, by slow degrees the dementia became apparent, and when it proved to be incurable they called it dementia praecox. In his experience early diagnosis was of no great value, as it seldom carried with it any curative therapeutics.

Dr. Edward N. Brush said it appeared to him that they were bothering themselves about terms rather than conditions. It made no difference whether they called a case tuberculous or phthisical, it was the outcome which the patient and his family were concerned with, and in the mental cases it was the same question of prognosis which was most often put to them. Whether they put these cases under the term "dementia praecox" or "adolescent insanity" made no difference if they knew their cases, and they would never do that if they fixed their attention upon names rather than upon symptoms and etiological factors, whether these last be heredity, environment, training, or what not. The hopelessness of this condition had been touched upon. He granted that at present it was hopeless in a large measure, but possibly by more careful study of everything which entered into the life-history of individual cases, they might be able to take from this large group a certain number of cases for whom they might predict recovery, and whose recovery they might be instrumental in bringing about.

Dr. A. T. HOBBS desired to know how Dr. Meyer would harmonize the view of gradual deterioration of functions with Dr. Dercum's explanation by neuropathy and nutrition disorders.

Dr. L. HARRISON METTLER (Chicago) stated that this and all similar discussions led to want of definite knowledge, because they were trying to crystallize into a nosological entity a disease with definite symptomatology and etiology, something that could not be so crystallized. As Dr. Meyer had well shown, the question to be determined was the individual patient's reaction. This might be of a mere neurasthenic hysteroid type all the way up to a violent outburst. But this was a variation on the patient's own individual customary physical and psychical reactions. Normally, people's reactions depended upon so many factors—prenatal, natal, and postnatal, hereditary, disciplinary, and physiological—that in a matter such as was now being discussed they could not be determined by any thumb rule. When they could settle the question of psychosis upon physiological and disciplinary reactions, they would be able to do so when that psychosis was abnormal in character. They were far from this desideratum, though they could correct much by nutrition and proper discipline. All Kraepelin did was to show that so-called defectives, at about a certain age or period of stress, revealed their defectiveness, and that through the appearance of these defective manifestations these individuals were to be called and recognized as defectives to a certain and variable extent. In thus calling attention to this class of defectives all honour was due to Kraepelin; but, after all, neither he nor others who discussed this question seemed to the speaker to be making much progress in the constituting of dementia praecox into a nosological entity—a special disease. In fine, the whole question, it seemed to the speaker, was the question of the individual's particular symptomatic reaction rather than the well-known one of classifying him under a fixed, crystallized psychic disease, which, as he had said, could hardly, from the very nature of the case, be sufficiently defined for any real practical purposes.

REPLY.

In reply to the criticisms, Dr. MEYER said he should not object to the term "adolescent insanity" if it were more definite, and if there were not many cases that developed the same picture long after adolescence, although, of course, one might say that certain persons never reach or pass the adolescent stage. The contention of Dr. Schofield that many cases began as hysterias showed exactly that it would be more important to consider this fact and to make sure of an adequate treatment of hysteria, than argue about the advisability of calling the possible result of mismanagement "dementia praecox" or what not. Any point of view which led to a study of the actual factors at work would be of greater practical and theoretical value than trite medical speculation.

TYPES OF THE DEVOLUTIONAL PSYCHOSES.

By CLARENCE B. FARRAR (Baltimore),

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As a foreword to the subject of the epochal psychoses, one phase of which claims our attention in the present discussion, I should like to refer to several points of view from which the attempt has been made to interpret forms of insanity in general.

We have heard much of the warfare of the so-called symptomatologic and the clinical methods, and their varying fortunes are familiar to all. Of necessity the symptomatologic method came first, and until the emancipation of psychiatry from the blighting control of theology and the uncertain authority of speculative philosophy was guaranteed, it represented the only avenue of approach. In its most primitive form the symptomatologic method recognized but very few distinct diseases of the mind; these were assumed to be determined by the most conspicuous symptom in the disease picture, and naming this symptom constituted the diagnosis. Etiology, course and outcome of the psychosis, were of secondary importance in so far as the indentification of the pathologic condition of the hour was concerned. To what errors the symptomatologic method may lead is shown in the attempt of Lasègue to construct out of his *délire de persécution* a disease entity from the symptom picture alone without reference to subsequent course or termination. Indeed, Lasègue expressly stated that he had purposely avoided taking account of the fate of his patients, declaring that the disease was characterized and determined by the symptom complex of a certain stage. It is this view, often unconsciously followed, which has stood in the way of accurate discrimination and the deeper appreciation of the nature of mental disease processes even to the present day.

The beginnings of psychiatric differentiation we nevertheless owe to the symptomatologic method. It furnished the stepping-stone for the work of Pinel and Esquirol in launching the modern science, and culminated finally in the masterpieces of symptomatologic-psychologic analysis of Wernicke, the pilot-alienist, who died last year.

The clinical method was the outgrowth of the nineteenth century. It has been discovered that the peripheral appearances, for example, of mental depression or exaltation or of psychic enfeeblement, such as had stood for the earlier symptomatologic entities, were not sufficient for the determination of individual diseases, and that indeed these several states might occur in the most varied conditions, differing widely from each other in etiology, course and event. The clinical picture, therefore, began to take a biographic perspective of mental disease. The method was new and the way beset with diagnostic difficulties, and in the face of these the extreme conclusion was reached that there was but one form of mental alienation, the four-stage insanity of Zeller, of which the conditions of depression, excitement and weakness represented only different symptomatologic phases.

From this confusion of despair of the possibility of clinical differential diagnosis there was, however, soon a recovery in the attempts of distinguished clinicians in various countries to separate from the chaos of material certain so-called typical disease forms, taking into account the personal and family antecedents, the various etiologic factors, the entire course of the disease and the fate of the patients.

The clinical method has resulted thus in the setting up of a number of pathologic types, such as the *folie circulaire* of Falret, or the *folie à double forme* of Baillarger, the German successor of which is the *Manisch-depressives Irresein* of Kraepelin; the *Vesania Typica* or *Katatonie* of Kahlbaum, and the *Hebephrenie* of Hecker, the former being the natural successor of the four stage insanity of Zeller; the *Amentia* of Meynert; the *démence précoce* of Morel and Christian, and the *Dementia Præcox* of Kraepelin.

Assuming, as it does, that the course and outcome are the determining factors of the psychosis in contradistinction to the symptomatologic method which looks primarily at the disease state as it exists, the clinical method has been aptly described as offering a longitudinal section of disease, while the symptomatologic method offers only a cross section.

The growth of the clinical method was the best thing in psychiatry which the nineteenth century had to offer, and it brought with it sanguine expectations not destined to be entirely realized.

With the differentiation of certain typical disease patterns which large numbers of patients were found to fit by observers widely distributed, the hope was not unnatural that as knowledge accumulated and differentiation became still more accurate, new and independent forms would gradually be discovered, as a result of which the great bulk of undiagnosed material would finally be used up, each case being assigned in the course of observation to its proper pigeonhole, each with its label attached.

There are many who have realized that this psychiatric millennium is an impossibility, and who, seeing the decline and fall of previously accepted conceptions of disease entities and their replacing by others which tend to undergo the same fate, have become more or less discouraged, just as did the observers alluded to of the mid-nineteenth century of ever arriving at even an approximate classification of mental diseases.

It has been urged against the writers of textbooks of psychiatry that they concentrate their attention upon the so-called typical cases, leaving the obscure cases to their obscurity. Of these the attempt has been made to dispose of many by describing them as mixed forms, intermediate

or transitional forms, allied forms, combined forms, etc., *ad infinitum*, of the assumed typical forms. By these subterfuges the clinical method in the strict sense expresses its disappointment, and the question of purity and adulteration of psychoses becomes a serious one. Thus the position of the classification sceptics is strengthened.

But to classify is not in itself the aim and end of psychiatry. The excursion of the pendulum has covered fifty years, and there are signs that the point of the return swing is near. Already clinicians are taking a broader view of mental pathology than that which attempts to discover in every patient some definite disease-form.

This broader view may be described as the "biologic method." It comprehends the advances that have been made by both the symptomatologic and clinical methods, but its standpoint is less dogmatic. It looks at diseases of the mind not so much as stationary or transitory symptom-complexes, nor indeed alone as protracted manifestations of individual pathologic processes; it looks rather at the diseased personality in its entirety. It includes, therefore, both the symptomatologic and the clinical pictures, and something more. It is neither a cross-section nor a longitudinal section of disease, but embraces both, and takes the cubic measurements into the bargain.

The biologic method studies personality first and disease second, and not despairing at the ultimate futility of absolute clinical differentiation, it turns rather to the minute analysis of the perverted functions of individual minds, comparing them with each other point by point, both in health and disease. Under the influence of this conception, whatever further growth the symptomatologic and clinical methods are capable of will proceed to the best advantage.

Turning now to the epochal psychoses we find that they are a relatively modern product. The symptomatologic classification of cases of depression as melancholia, and of cases of excitement as mania, drew no fine distinctions between such conditions appearing in youth, in adult life, or in old age, and epochal differentiation did not go beyond the recognition of the terminal mental reduction of the aged.

But with the clinical observation that the course and outcome of psychoses in many points symptomatologically similar might differ with the time of life, and that the critical periods favoured the development of particular forms of alienation, there arose the concepts of adolescent and climacteric insanity. In the latter the epochal physiologic changes were assumed to stand in direct etiologic relationship with the mental derangement, and many varied forms were classed together under the general head of climacteric insanity, which was found not to be limited to the female sex, but to occur in men as well, at a corresponding or somewhat more advanced age.

The pathologic mental conditions of the grand climacteric are not, however, those of the senium proper, and we are thus accustomed to separate the psychoses of later life into two groups—the senile and the presenile forms, although the distinction does not always hold. That the age of the patients is not the distinguishing factor is seen in the fact that one may show evidences of senile decay at 45 or 50, while a second passes through an affect-psychosis with recovery at 70. Esquirol described two cases in the Salpêtrière of maniacal attacks in women over 80 years old who got well.

The earliest of the devolutional psychoses appear as a rule about the forty-fifth year, and fixing upon this as a purely arbitrary boundary, we shall have a period of a decade and a half or two decades during which occur morbid states predominatingly of a depressive type, many of which recover; and beyond which appear, by preference, the conditions with distinctly senile colouring.

It is obvious that all the psychoses occurring in the devolutional period are not necessarily of the devolutional type, and we must distinguish the accidental cases from the epochal. Under the former heading are to be included those cases which are known to occur at widely-separated ages. For example, well-characterized attacks of maniaco-depressive insanity, with or without previous phases of illness, may occur within this period. Isolated cases of late katatonia are also not unknown. Various intoxication and infection psychoses, the traumatic neuroses, the different organic and exhaustion states, amentia, hysteric and epileptic insanity, all of these may occur during the devolutional period as well as at other times of life.

Of the organic diseases, paresis, which appears in the majority of cases after a certain length of time following specific infection, occurs for the most part during the earlier prime of life. It may, however, for patent reasons also develop during the devolutional period, and in such instances is to be looked upon as an accidental psychosis, not dependent upon the regressive changes peculiar to the epoch. With the cardio-vascular psychoses the question is different. Arterio-sclerosis is in the bulk of cases the accompaniment of later life, and the pathologic mental states dependent upon it are therefore in a sense specific for the advanced devolutional period.

The insanity of arterio sclerosis appears under a variety of forms which seem to be the direct expression of the structural and nutritional changes in the central organs. On the other hand, nothing is more common in the senile and presenile types than that arterio-sclerosis should be present as a complicating factor without being the sole etiologic agent, and it is sometimes possible in such cases to trace the influence of the cardio-vascular condition in modifying the manifestation of the psychosis. But whether as primary disease or symptom, the separation of the morbid mental states of arterio-sclerosis constitutes one of the most important differentiations among the devolutional psychoses.

A second group of cases comprises the involutional sexual phrenopathies, including, perhaps, the presenile persecutory forms (*präsenile Beeinträchtigungswahn*, Kraepelin).

A third form is represented by the presbiophrenia of Wernicke.

With the mention of these types we shall pass at once to the group in which our present interest centres—the devolutional depressive forms.

First comes the condition of affect depression known as melancholia. Various observers have noted that the depressive psychoses in old people run a somewhat difficult course and depart symptomatologically from the depressive states of younger individuals, and have thus distinguished between the melancholia of later life and that of earlier years, but this view-point has become most conspicuous through Kraepelin, who draws a hard and fast line between the two conditions and reserves the term "melancholia" exclusively for the involutional cases.

The melancholia of Kraepelin is still a distinctly wide-mouthed receptacle, in spite of the fact that the disease concept is a very much narrower one than that of the melancholia of the symptomatologic school. Kraepelin includes under melancholia "all pathologic conditions of anxious depression in later life which do not represent phases of other forms of insanity." The breadth of the category is adequately expressed in the definition. It comprises cases of quiet affect depression (melancholia simplex); active cases with marked apprehensive anxiety (melancholia activa vel agitata), which may culminate in raptus melancholicus; and, finally, fantastic, depressive, delusional conditions, and even continued forms accompanied by depression and ending in progressive senile deterioration. It is in this broad field of symptomatologically heterogeneous conditions that we are endeavouring to discover types which may possibly be clinically distinct.

As to the relations between melancholia and the depressive phases of maniaco-depressive insanity, two conditions which Kraepelin wishes to see clearly distinguished as independent and individual diseases, there exist unreconcilable differences of opinion, and there are not a few who are unable to see in involutional melancholia anything else than one of the manifestations of maniaco-depressive insanity, modified, if you will, by the time of life. The peculiar ideas of sin, unworthiness, and future punishment which constitute one of the important symptoms of the involutional cases are by no means always present, and may also be encountered in young individuals. The same is true of the anxious affect state. Moreover, one of the emphasized diagnostic criteria of maniaco-depressive insanity, or circular depression—that of periodic recurrence—is not at all uncommon in involutional depression.

One would doubtless be near the truth in saying that involutional melancholia represents a condition of psychomotor and affect depression, such as may occur at any time of life, and that its peculiar colouring, by which it unquestionably differs from depressive cases in earlier

life, is due simply to the epoch. While, therefore, in these cases we confidently look for certain symptoms which are much less likely to be in evidence in younger individuals, and which may be said, therefore, to be in a certain sense specific, they are specific nevertheless only in the sense in which the old man, by reason of natural structural and functional alterations, acts and thinks differently from the young adult. Thus, while during the earlier and mid years of life the affect psychosis of choice is maniaco-depressive insanity, and during the later years a more or less specific form of depression occurs, yet some of the symptoms of this latter disease are not absent from youthful cases, and, correspondingly, definite attacks of maniaco-depressive insanity are not infrequent in the devolutional period.

The assumed clinical distinctions are rather biologic differences, and are closely associated with the psychologic metamorphosis of age. This view is further supported by the facts that in one instance a well-defined attack of circular depression may appear for the first time in later life and present the pathognomonic features of the psychosis—subjective insufficiency with affect depression, and psychomotor inhibition—while in a second case of maniaco-depressive insanity with recurring depressive attacks, the later phases may show unmistakable epochal modifications and take on more or less the complexion of involutional melancholia.

It is even possible to trace the metamorphosis. Take the feel of subjective insufficiency of circular depression. The normal adult lives in tense relation with the objects of his environment; he maintains himself in a state of ready adaptability; reactions follow quickly and easily, but nevertheless as a result of deliberation or at least with conscious approval. If now the ready succession of the psychic elements be functionally interfered with and consciousness remain unclouded, a subjective feel of insufficiency is the inevitable result.

In the patient overtaken in the devolutional period, on the other hand, with his waning relational tenseness and weakening powers of adaptation, whose reactions are rather those of habit and custom than of conscious deliberation and logical choice, under the influence of pathologic depression the subjective insufficiency becomes subconscious, and is reflected in a conscious uncertainty and insecurity which are the essential conditions of the anxious apprehensive states of certain of the devolutional cases.

Further, the objective symptom of psycho-motor inhibition in the circular cases is significant not only of a psychosis but of a time of life as well. Psychomotor inhibition is the outward expression of the resistance of a habitually active organ to hindering influences of a functional nature, it is the counterpoint of the life of action which struggles to make good, it is analogous to the brake on the wheels of an engine at full steam; it is therefore in a sense a positive symptom.

In the old man, on the contrary, the gauge is low and the wheels tend to slacken their speed, so that in the presence of pathologic depression the effect of the brake is less conspicuous, although not entirely absent, and there may thus result a condition of apparent indifference or even apathy which is characteristic of a group of devolutional cases. The positive symptom has been replaced by a negative one.

These observations, while in no wise under-reckoning the value of the clinical differentiation of epochal depressions, emphasize nevertheless the biologic consanguinity of these affect states at different times of life.

In the great group of depressive psychoses of the devolutional period there are unquestionably various subtypes, if not distinct clinical forms, and with a view to ascertaining in how far such a differentiation is justifiable, we have been following carefully in the Sheppard-Pratt Hospital in Baltimore a number of patients belonging to this group.

Our results, which thus far are imperfect, only partial, and thoroughly provisional, I have summed up very briefly and somewhat too schematically in the accompanying chart. An absolutely complete representation of the facts in such a chart would defeat its purpose in making it too wordy and complicated. In the present instance we have merely seized upon the important points as they appeared to us, and emphasized them. It must of course be understood that these observations are in an entirely fluent state, and have nothing to do strictly with what might be spoken of as final conclusions.

	Melancholia Vera.	Anxietas Praesenilis.	Depressio Apathetica.
Character	autopsychosis	allopsychosis	hypopsychosis
Primary sensation		×	
Secondary sensation		×	
Hallucinosis		×	
Psychic depression			×
Motor depression			×
Affect depression	×		
Apathy			×
Anxietas		×	
Subjective uncertainty		×	
Autoaccusation	×		
Religiose delusions	×		
Somatopsychic delusions	×		
Subjective insufficiency			×
Verbigeration		×	
Insight	poor	partial	fair.
Prognosis	fair	doubtful	fair.
Sex	both	female	male.
Course of psychosis	progressive	remittent	uniform.

A trite remark may nevertheless here be accented, and it is that in the symptomatologic analysis of cases there is no single characteristic which is pathognomonic of, or limited strictly to, any one disease-type. In the conditions we have been studying certain symptoms run through them all, although in varying degrees of intensity, some features being exaggerated in one condition and inconspicuous in another, while other symptoms, on the other hand, are so constant and so pronounced in a given disease state that taken together they lend a certain provisional definiteness of outline and colour to the picture.

Our cases have been analysed with regard to about 150 of the more important normal and abnormal elements of the mental life and physical status of the devolutional period. In our chart only a very few of the particularly representative elements have been indicated, and, as will be seen, they concern exclusively the psychic sphere. Other points will be referred to in discussing the individual conditions.

Under "true melancholia" we have included a fairly definite and well circumscribed clinical picture, with confines distinctly narrower than those of the involutional melancholia of Kraepelin. It comprises cases which, previous to the 45th year, are reported to have been mentally sound, but which during the fifth or sixth decade pass through one, sometimes two, attacks of affect depression lasting one or more years. Neither sex is spared. In women the psychosis may be associated with, or soon follow, the menopause. In such cases the patient may get well, and a number of years later suffer a recurrence from which she may or may not recover. The depression is unaccompanied by maniacal phases or symptoms.

Melancholia as here understood is characterized by fairly normal sensation and orientation, an affect depression which may lead to *odium vitae* and suicidal acts, a narrowed egocentric association, thought processes tolerably active within their confined circle, introspection, self-abasement, autoaccusation, exaggerated ideas of sins committed, often the unpardonable sin, and of future damnation. The chief lesion of consciousness is in the idea of the ego, and the disease may therefore be designated as an autopsychosis. Associated with this primary lesion, somatopsychic delusions, expressed as ideas of change and derangement in the patient's physical economy, are not uncommon. Consciousness is blackened by a deep-dyed religiosity; the patient is too wicked and vile to be tolerated among men, to be given food and drink, or even to be seen. He has sinned basely against his family, against mankind, and against the Most High. He has violated all the commandments, his vileness reeks to Heaven, his body will be destroyed by the most exquisite torture, and his perjured soul committed to the everlasting flames. Indeed, to make a realistic comparison, the whole picture is quite such as a susceptible individual might be expected to have presented after listening to the sermon of Jonathan Edwards on "Sinners in the Hands of an Angry God."

In all of these beliefs the patient displays a striking subjective certainty which admits neither of doubt nor of argument. It is the time of life to be dogmatic, and this tendency is reflected actively in the psychosis.

The depth of the lesion is shown in the autognosis.

Insight is very defective. The patient is persuaded that he is in full mental health—it is his soul which is lost, not his mind. He would to God it were nothing worse than a disease of the mind, but conscience convicts him otherwise. In this condition the feel of subjective insufficiency and incapacity common in the circular forms is likely to be inconspicuous or absent. The patient may believe himself quite capable of resuming and carrying on his usual occupation, and his reasons for not doing so are bound up in his autopsychic delusions.

The psychic inhibition which is at the bottom of the sense of the circular subjective insufficiency is not a prominent symptom in melancholia vera during the acme of the psychosis, while in the circular cases it is exactly at the height of the disease that it is most pronounced. During the prodromal and early stages of melancholia a mild degree of inhibition is common, and this is the rule, in fact, with all cases of affect depression; but with the development of the psychosis and the unfolding of the autopsychic ideas with concomitant egocentric narrowing of consciousness the pathologic thought processes tend to become more and more fixed and habitual and flow in their limited channels with the readiness of settled convictions, in the presence of which psychic initiative and deliberative choice are conceived not only as futile but unnecessary.

Finally, it is to be noted that in the cases under discussion a condition of the affect expressed as anxiety or apprehensiveness is seldom entirely lacking. It may appear only occasionally and in a mild form, or may reach such a degree of intensity as to make life very distressing to the patient. This anxiety is always recognized and understood by the subject as such, and is the logical outgrowth of the depressive content of consciousness with its stamp of absolute subjective certainty. It may be considered, therefore, in most cases rather as a secondary symptom psychologically determined than as a primary manifestation pathologic *per se*. The whole situation is perfectly illustrated in a remark which the physician so frequently hears from patients of this class: "You, too, would be worried and afraid and anxious if you had such thoughts as mine, and knew that they were true." The anxious affect does not depend upon clouding, disorientation, or hallucinosis. It is the natural expression of the dark thoughts which dominate consciousness, and is strongly coloured with pathologic remorse.

If now we look at the second group of cases representing a condition which, for convenience sake, may be spoken of as "anxietas praesenilis," we find a situation essentially different from that in melancholia vera. The disease occurs a little later in life, usually in the sixth or seventh decade, and the great majority of the patients are women. The morbid process is deeper seated and severer, and the outlook decidedly more dubious. It represents more specifically the regressive changes, both structural and functional, of later life.

Both primary and secondary sensation are involved, these terms being used in the sense of the primary and secondary identification of Wernicke, and a degree of disorientation is therefore the rule. Fallacious sensation is often present, usually in the form of sensory misinterpretations, but fleeting isolated hallucinations of hearing and sight may also occur.

The psychosis is pre-eminently the expression of severe defect in the power of mental assimilation and adaptation, and undoubtedly rests upon a considerable diffuse cortical change. Arterio-sclerosis is a not infrequent complication.

With the diminished power of quickly and correctly interpreting sensory impressions and reacting to them there is born a condition of subjective uncertainty and insecurity, a sense of strangeness, not-at-homeness of the ego in the presence of its environment. We see here a lesion in the relational sphere of consciousness, or the "allopsyche," and in this sense the condition may be spoken of as an "allopsychosis." To the patient the surrounding objects of the material world acquire a character of unnaturalness or even unreality, and this sense of objective strangeness and unreality may extend to include the patient's own body. Thus the ego finds itself lost and adrift in a sea of sensory unrealities and misinterpretations. These are uniformly of a depressive character, determined primarily, no doubt, by the dysphoria of organic ill-functioning of the devolutional period. From the subjective uncertainty and objective unreality there come fear and vague alarm, an involuntary and uncontrolled sense of apprehension in the face of every new impression. In proportion as the affect sphere of consciousness is active, this cloudy apprehensiveness may develop into a veritable panic of agonized fear, with lively motor agitation and a tendency to self-mutilation. This "status anxietatis" may persist, with slight remissions, for weeks or months, and represents the most essential character of the psychosis.

The condition is utterly dissimilar to the anxiety referred to in connexion with melancholia. There the feeling expressed a dread of awful things to come, clearly conceived and subjectively certain, complicated with anxious remorse for awful things in the past of which the patient accused himself of being the author. The situation was therefore one of apprehensive fear of the awful certainties of existence. Here, on the contrary, the feeling is one of dread and anxiety less of the future than of the present—alarm before the unknown, uncomplicated with remorse. It is a fear of the awful uncertainty of existence.

A further important distinction between true melancholia and the condition here described lies in the character of the content of consciousness itself. In anxietas praesenilis autopsychic ideas such as were described in melancholia play no part. There is no autoaccusation, no self-abasement, no alloistic self-blame. Religiose delusions with remorse and dread of future punishment do not enter the scheme. Indeed, in spite of their uncertainty, patients of this class regularly reply in answer to questions that they have no particular regrets regarding the past, and that they have done nothing for which they should suffer.

The autognoses of the two conditions placed over against each other well illustrate their differences.

From the melancholiac we should perhaps get something like this: "I have no complaint to make, I know my condition, my mind is clear. My body is diseased from my evil life, and my soul is in torment, but I deserve it all, and what I now suffer is not a circumstance to what is still in store for me. I have been false, unnatural, and wicked from my birth, the most sinful creature alive, and am to be made an example before the world. It is true. God has revealed it to me through the voice of conscience."

From the *anxieuse* we should have this: "I don't know what's wrong with me, I can't get right, nothing seems the same to me any more, and I always have such fears, such awful anguish. I don't know what makes it, I never did any one any harm. I don't know where I am. I don't know what to do, but this is not the right place, I don't belong here. Don't let any one kill me."

The facial expression of the *anxieuse* reflects the two chief elements, psychic uncertainty and fearful apprehension, displayed in the characteristic frontal *omega contraction*.

With the development of the psychosis the mental horizon may become progressively narrower. Initiative in thought and action is nil; all psychomotor activity assumes more and more the quality of the habitual; the habitual becomes the reflex; the reflex may become automatic. The laws of inertia hold, and reflex movements once begun tend to continue. Thus we get the symptoms of verbigeration and oft-repeated stereotyped motions of the body or its members, and these finally may assume a definite rhythmical form. These movements are thoroughly characteristic. They arise sometimes as a result of stimuli from without, at others with no discoverable cause, and still again from demonstrable processes going on within the patient's body. Thus, for example, during a state of severe anguish, the respiratory-rate is accelerated, and at the same time waving or beating movements of hands or arms may appear, keeping time with respiration; or the patient may utter an ejaculation of despair to the same rhythm, pronouncing the same word or phrase with identical intonation time after time with each respiratory excursion.

The subjective uncertainty and the tendency to reflex rhythmical expression favour the development of a degree of suggestibility such as would be quite foreign to the true melancholiac. Thus in certain cases the automatism of verbigeration may be interrupted by the observer, and the set phrases of fear replaced by others at suggestion, even quite contradictory to the former expressions, and out of keeping with the affect tone. This phenomenon,

in which the general bearing and the countenance reflect uncertainty and anguish, while on the lips is a phonographically-repeated phrase of confidence and joy, is very striking indeed.

One or two concrete examples of the character of the rhythmical verbigeration in anxietas praesenilis may still be given. They display at the same time perfectly the fundamental characteristics of the psychosis. One woman, in whom the sense of subjective insecurity was extremely pronounced, repeated frequently this phrase over a period of four years:

I don't know where to go, nor what to do;
Nor what to do, nor where to go;

giving to the words a chanting rhythm which never varied.

Another female patient, a German, chanted in the same manner the following:

Ich weiss nicht wo ich bin—
Und wer ich bin—
Und was ich bin—
Und wie mir ist.

During the earlier part of the course of the disease the anxious affect tone may be fairly constant, merely showing variations in intensity. Later there appears to be a tendency to remittence, or, indeed, an alternation of states, in which periods of acute anguish with sensory misinterpretation, motor unrest, and rhythmical verbigeration, alternate with intervals of quiet in which the face is relaxed and the patient lies tolerably motionless, inaccessible, even mute.

Sleep is as a rule very much better with these patients than with melancholiacs, and the appetite may even be ravenous. The tendon reflexes are regularly exaggerated, sometimes greatly so. The pupils are usually small and slightly sluggish. Temperature is a trifle subnormal, pulse moderately accelerated in most cases, and the blood pressure elevated. A varying degree of arterio-sclerosis is common. In some instances a definite parallelism can be demonstrated between the intensity of the anxious affect and the height of the blood pressure, treatment directed towards lowering the blood pressure and pulse-rate also relieving to a degree the pathologic affect. While, therefore, in many instances the connexion between cardio-vascular condition and mental state is unmistakable, yet this does not hold for all, and in typical cases such as we have been describing the arterio-sclerosis should perhaps be considered only as a complicating factor.

It is impossible here to outline completely the clinical picture of anxietas praesenilis. There will be occasion to recur to the subject later, and we shall therefore leave it for the present with this preliminary sketch. It has seemed to us to be clearly distinguishable from melancholia proper, although most authors mention its characteristics or part of them only in common with those of the latter disease. The prognosis is distinctly less favourable than in melancholia vera.

There remains to refer briefly to a third form of devolutional depression which differs in certain essential features from both of the previously described types. It appears to attack men by great preference and in its general character may be described as an apathetic psychomotor depression.

Individuals who all their lives have been accustomed to arduous physical toil, or sometimes close mental application with the worries of commercial life, and who continue their labours unmodified or perhaps with increasing responsibilities into their later years, sometimes sink gradually during the devolutional period into a state of inertia, indifference, and mild depression, withdrawing from their usual occupation and becoming taciturn, unsociable, morose, or even resistively perverse. Occasionally the onset appears to be fairly sudden after some unusual exertion, exposure or worry, when the patient declares that it is of no use any longer, he cannot keep up the unequal struggle, he has played his game out, he is used up and done for.

We have to do here undoubtedly with the expression of accumulated fatigue through years of monotonous labour with insufficient variation, recreation, and recuperation. The actual situation is often fairly appreciated by the patient himself, and his autognosis may be tolerably accurate, although his mental state does not allow him to seek explanations or trace connexions between causes and effects.

In the feeling of subjective insufficiency we see a symptom not encountered in either of the two forms already described, but common in the affect depression of circular insanity. To this latter type, however, the apathetic depression of senescence bears little resemblance. It presents no suggestion of maniacal symptoms either as phases or complications; it shows no vivid affect, and the psychomotor inhibition of the circular cases is replaced by a simple psychic depression. It is not so much a question of the overcoming and suppressing of a tendency to action such as would be characteristic of earlier years; it is rather a more or less complete lapsing of the action impulse altogether. The change is thus pre-eminently a biologic one, as has already been suggested.

Sensory falsifications play little or no part in the development of the psychosis. At the beginning the patient may entertain vague ideas of harm befalling him, but they are uncertain and fleeting, and do not lead to the development of an anxious state. He may even be mildly self-accusatory in that he upbraids himself for his sloth. For the most part, however, he remains quiet and uncommunicative, expressing neither hope, nor fear, nor desire, although commonly enough a mild degree of nostalgia is present, even though not actively voiced.

It is the rule to observe in the condition we are considering a certain amount of subjective uncertainty. This, it will be remembered, is one of the cardinal symptoms of anxietas praesenilis. The setting of this element is, nevertheless, quite different in the two psychoses. In anxietas praesenilis the sense of uncertainty is closely associated with a degree of disorientation and mental anguish, usually with conspicuous disturbances of secondary sensation, and unaccompanied by well-marked conscious insufficiency. In depressio apathetica, on the other hand, sensation and orientation are usually intact, and the uncertainty is accompanied by apathy instead of anxiety. Indeed, the fundamental lesion here is in the relational warmth of the ego to its environment, in the patient's interest in life and its activities and pleasures; as a result of which, together with a fairly-preserved insight, suicidal tendencies may become manifest, though they usually lack the energy of execution. Moreover, the failing interest and weakened voluntary attention bring it about that mental impressions are faint and easily lost. Objects of the environment are not vividly reflected in consciousness, and it results that the external world becomes to the ego to a certain degree cold and colourless, distant, vague, or unreal. This sense of distance or vagueness is, however, distinct from the objective unreality of anxietas praesenilis. There this symptom was determined by misinterpretations with disturbed affect, a para-condition; here it is an element of diminished psychic activity, a hypo-condition. Indeed, the whole condition of apathetic depression impresses one as negative rather than positive, both subjectively and objectively.

From all of these factors it follows that a certain defect of memory is seldom entirely missed in patients of this class, showing itself chiefly as a disturbance of the recording faculty. Of this defective recollection of current happenings the patients are themselves conscious, and it contributes its part to the feeling of uncertainty before mentioned. There is no tendency to confabulation—the filling up the gaps in memory with fictitious circumstances.

In general bearing the patients are for the most part listless and indifferent. Their voluntary movements are few, slow, weak, without purposeful direction. Their power of initiative and decision is almost nil. Sleep and appetite are usually fair. Muscle tone is diminished and the tendon reflexes are likely to be weak. Blood pressure and pulse are, as a rule, low, unless there be a marked degree of arterio-sclerosis. The prognosis appears to be relatively good.

In the foregoing discussion of certain clinical types of the devolutional psychoses the subject is by no means exhausted. So far as our material has furnished evidence it has seemed to us that these types were worthy to be considered separately, but as has been said our results are incomplete and distinctly provisional. What may be the ultimate relations of these various forms to each other, and to the senile psychoses proper, as well as to the other possible undifferentiated forms, remains matter for continued observation.

PROPOSED STERILIZATION OF CERTAIN MENTAL DEGENERATES.

By Robert R. Rentoul, M.D.,
Liverpool.

[Abstract]

In this paper Dr. Rentoul again brought forward his proposal that certain degenerates should be sterilized in order that the propagation of insanity and degeneracy may be checked. He quoted statistics showing the great prevalence of insanity and mental deficiency, and suggested that there should be compulsory notification by physicians and others called in of every case of insanity mental degeneracy, suicide, and attempted suicide, to the Lunacy Commissioners. In no other way could reliable statistics be secured, for it was to be noted that the number given by the Census and by the Lunacy Commissioners varied by some 23,000, and on one given day.

The studies of Down, Beach, Tuke, Shuttleworth, Barr, and others showed that there was a deeper depth than that of ordinary lunacy. They had called attention, not to the idiot, imbecile, and lunatic, but to the "feeble-minded," "mentally backward," and "defective" child. It was calculated that in England at least 1 per 1,000 of the population between the ages of 5 and 14 was feeble-minded—that is, 88,346. Others had placed the total at 105,000, of whom only one-third could be made self-supporting.

No surgeon should be allowed to operate without the written permission of the Lunacy Commissioners, nor should any surgeons operate unless specially licensed by the Commissioners. A full annual report should be laid before Parliament. Dr. Rentoul quoted some opinions in support of his proposal.

MIND IN MEDICINE.

By A. T. Schofield, M.D.,
Honorary Physician, Friedenheim Hospital, London.

The psychology of twenty years ago in England was well described by Professor James as "a general study of raw facts and a superficial classification on a mere descriptive level," with an entire absence of any comprehensive survey of the whole range of psychic phenomena.

Psychology at that time was indeed largely hide-bound by its rigid adherence to the ancient shibboleth, "mind is consciousness and consciousness is mind." In 1888, however, at a meeting of many leading psychologists in London, it was definitely decided that no such limitation is possible, and that consciousness is not mind, but is an attribute or function of it; and since then, little by little, by means I need not now detail, the whole range of mind has gradually been brought into view. Before the "new psychology" we were in the position of sailors who, seeing a peak rising out of the ocean, call it an island. Now we are as scientists who have discerned that that part which we can see is but the top of a great coral mountain, the greater part of which must ever be invisible. These two parts, then, stand for the conscious and unconscious regions of the mind.

The value of this discovery lies in this. For the first time it gives intelligible explanation of physical phenomena of psychic origin, which yet were produced as in hysteria by unconscious means; it opens up that part of mind that has almost unlimited power over the body for good or ill; it explains to us who and what "Nature" and the *vis medicatrix Naturae* are, and in short, for the first time brings the study of the sound mind in relation to disease well within the scope of this Section, which has hitherto been so given up to alienists and the study of the unsound mind, that the attendance has mostly been limited to those interested in these questions. The great science of medical psychology must be placed on a wider and more scientific basis, and I submit that the time has now come for the definite study of the whole range of mind in relation to medicine.

Medical psychology, therefore, can no longer be limited to pathological psychology, but must embrace the whole study of the connexion of the sound mind with disease both in cause and cure. It is, indeed, true that this connexion is everywhere tacitly acknowledged, everywhere exploited by quacks, and yet that it is nowhere taught in our schools, or scientifically studied. For although psychotherapy in some forms is fitfully and more or less unconsciously practised by nearly every medical man, we read in our Journal that "it is not learnt in hospitals"; in the *Lancet* that "it is not in our textbooks"; while Dr. Woods, in the Hunterian Oration, remarks: "the therapeutic methods taught in the schools are purely physical, and the young practitioner leaves the hospital a rank materialist." High authority exists for the value of the single eye, and yet it is impossible to see a subject *as it is* save by stereoscopic vision. The two eyes that see at once, the psychical and physical, can alone give to the physician the grasp of any case of human disease. If this be true, it is surely important for our educational pundits to consider whether they are acting with honesty and wisdom when they turn out men by the score to practise medicine who have perhaps not devoted one single hour of their five years to a study of one of the greatest of therapeutic agencies—"the force of mind."

I believe that the time has come when this state of ignorance must no longer be suffered to exist, and this is why I have for many years past read a paper at each meeting on this subject, and why, with the able aid of Professor Osler and other friends, this discussion has been arranged for this session.

The times, too, are now propitious for such an advance, for not only is the subject of the relations of mind and body everywhere in the air, but in scientific and professional circles psychological physiology has enlarged our concept of the close connexion of the psychic and the physical, while, as I have said, psychology itself, no longer confined to the study of the conscious, is widening and deepening, and embracing the study of the whole range of psychic phenomena, more particularly those of the subconscious regions where lies the directing force of the *vis medicatrix Naturae*, and of all somatic phenomena.

The active treatment of the body in disease by forces within itself, guided and directed from psychic centres under the various names of Nature, the *vis medicatrix Naturae*, etc., by means of antitoxins, phagocytes, etc., is widely recognized and used, and has just received a great impulse from the study of opsonins, and their bearing on disease. Indeed, every thoughtful doctor must recognize as he stands by the sick bed, that a greater physician than he has already been called in. Many recent utterances, and notably those of Sir F. Treves, concur in regarding nearly all symptoms of disease as intelligent efforts of this internal power for the preservation of the organism.

The reasons, therefore, for now demanding the professional study of the connexion of the (sane) mind and body in disease are powerful, numerous, and cogent. It is the simple truth to say that no day passes in a doctor's life but what he and his patients suffer to some extent for want of scientific grasp of this subject, and it is within my personal knowledge that patients' lives have been lost for want of any knowledge of this great therapeutic power on the part of the physician.

What I desire is that this great subject shall be approached with an earnest and unflinching determination to ascertain the whole truth of these psycho-physical relations, steering clear, on the one hand, of the repulsive exaggerations and distortions that everywhere abound, and have sadly scared many honest seekers; and, on the other, of the deadly inertia resulting from professional prejudice that has hindered all progress; and, further, to teach the truth on the subject to all our students, and thus equip them in a far different way from what is done at present for their daily fight with distressed and diseased bodies and spirits. To this end I would suggest as subjects for study and lectures in the ordinary medical or post-graduates' course the following seven points:

1. General study of the interdependence of mind and body; first of all in health, thus taking up the great question how, as a whole, the body lives; and then in all manner of disease; with a general enumeration and consideration of the various psychic agencies that may act as causes of disease—predisposing or exciting—and another list of the various ways in which the mind may act therapeutically.

2. Study of temperament and mental states, and their relation to disease, compatible with sanity and yet of a pathological aspect; such would include various nervous

states and phases, and mental backgrounds and habits of thought—fixed, mobile, and erratic.

3. The bearing of character, education, social status, and environments on the cause and cure of disease, and especially in the power to aid or retard the action of psycho-therapeutics.

4. The psychology of drugs, natural remedies, and the whole range of therapeutics. This is a little known subject, and will repay a study which shows to what an unsuspected extent many well-known natural remedies owe their efficacy to their psychic rather than their physical qualities.

5. The study of the *vis medicatrix Naturae* in all its powers and aspects, and in what ways the physician may aid or retard its operations.

6. Scientific study of all forms of psycho-therapeutics—direct and indirect, and of all forms of suggestion and autosuggestion.

7. Lastly, I would suggest a careful study of the psychology of the physician, and the psychic effect of his personality, his character, his words, and his environment. For this we may take as our text Sir James Paget's well-known words: "Nothing appears more certain than that the personal character, the very nature, the will of each student, has a far greater force in determining the career than any other help or hindrance whatever."

I close with a practical suggestion made last year, and repeated now to this Section, one which I venture to think if adopted would greatly widen the scope and add to the interest of this Section, and bring many more thoughtful and earnest men to join our discussions. It is, "That the morning of the last day of the Sectional Session in each year should be devoted to papers and discussions on the study of the sound mind in relation to disease, as distinguished from the study of insanity, which, so far, has almost monopolized this Section."

Professor J. MARK BALDWIN, Ph.D., D.Sc., LL.D., said: The importance of the study of normal psychology for medicine is emphasized by recent advances in general psychology. The old association psychology, based on schemes of nervous mechanism, is giving place to a view which recognizes the constant influence of mind and body each upon the other. The facts of suggestion, emotional contagion, etc., must be incorporated in the body of medical doctrine. It is the duty, not merely the right, of the medical profession to keep apace with progress of general psychology, for incompetent men are using the newer results without caution and often dishonestly and fraudulently. I suggest that two great ideas of current psychology recently worked out should be embodied in medical training: First, that of function, upon which the recent theories of suggestion, habit, etc., are based; and second, that of genesis or evolution, which is revolutionizing psychological theory. By evolution mind and body have arisen together, and theories of diseased function, no less than of healthy function, must take account of this constant connexion and correlation, together with the variations in both mind and body.

Dr. EDWARD N. BRUSH (Baltimore) regretted that he had been asked to speak upon the subject, as it was one upon which he felt that he had little real knowledge, or at least little that was formulated. Long ago, even in his student days, the matter was one which attracted his attention. He had an opportunity of watching the work of two surgeons, each well trained, each doing good work; one always inspired confidence, his patients confidently expected to recover; while in the track of the other followed gloom, apprehension and doubt. Since then in hospitals, as a resident member of the staff or as medical director, he had constantly observed the difference in the confidence and hopefulness awakened by different members. One man predicting to a patient a good night's sleep proved a good prophet, while others neither by prediction nor prescription could drive away insomnia. The statement of Professor Baldwin that the matter had received too little attention was correct, both as to the United States and England. In France and in Germany, however, it was attracting that attention from many physicians which it deserved. Kraepelin first at Heidelberg, now at Munich, Sommer at Giessen, and others had in their psychiatric clinics well-equipped laboratories for investigations in physiological psychology, and the observations there made were regarded as important, as were those conducted in the laboratories for clinical or pathological research, or at the bedside. He hoped that the suggestions of Professor Baldwin and Dr. Schofield would be fruitful.

Dr. EDWARD RYAN (Ontario) said they must be careful not to allow the discussion to degenerate into the discussion of theories or cults. Nor should they allow theological discussions to be introduced in any way. There was no doubt that mental exaltation was a valuable adjunct to the physician and surgeon, but no amount of exaltation would destroy the bacillus of the various toxic diseases. It might, and did, prevent shock and depression, and thus assist the physician.

Dr. CASSIDY (Toronto) said that hysteria seemed to be taking possession of many cultivated persons, and this accounted for the growth of Christian Science. Doctors had been too earnest in the past in applying potent drugs to all cases, even in neurasthenia. It would be preferable to resort in many cases to the placebo and persuasion than to treat neurasthenic patients with potent drugs.

Dr. BUCK (York, England) suggested that Dr. Schofield should give specific instances to illustrate his points so that the public at large should receive information as to the psychical methods pursued by the quacks who preyed upon humanity throughout the world. Considering that thousands of dollars were extracted weekly by single individuals in the United States, it would inspire confidence if the people generally understood that the medical profession thoroughly understood the influence of mind over body and that these "specialists" simply existed for the purpose of filling their individual exchequers rather than benefiting the human race. They all knew that the personal influence of the doctor, as shown by the work of Sir W. Gull, was of the greatest value, perhaps more than that of drugs, and it was very important that "suggestion" and other legitimate methods should be taught by our professors of therapeutics.

Dr. HOBBS (Guelph, Ontario) said that he had taught a number of patients to sleep with veronal, sulphonal, or some other powder placed on a chair by their side, thereby producing sleep by its mere presence.

The PRESIDENT said that notwithstanding the imperfections of our knowledge it was certainly the fact that a large part of medical practice and a considerable part of surgical practice was and had for long been in reality suggestion. The degree of ability of the medical man to inspire hope of recovery and belief in its coming being, in a considerable degree, a measure of his success in treatment. Moreover, the teaching of mental disease to the student was not so wide of the mark as alleged. And this was supported by reference to the subjects of the evolution of mind and the teaching of psychology in that relation and by reference to the functional point of view, on which medical ignorance had been alleged.

Professor C. H. HUGHES, M.D., Dean of the Medical Department, Barnes University, St. Louis, said auto-suggestion and the suggestion and hopeful assurances of those in whom they had faith, especially by the skilful physician presumed to know the condition of the patient and probable result of his treatment, were of undoubted great value, and all physicians exerted this influence more or less, according to the confidence they enjoyed and their reputed skill. But for the ignorant to employ confident suggestion without warrant of skill or knowledge was to give hope without legitimate ground therefor, as though one should assure a man that he would recover from hunger without giving food. The entoning of the over-presiding psychic neurone, and securing of its most potent influence through the remainder of the neuraxis and its relations to the body viscera, was an important essential in neurotherapy and psycho-neurotherapy. It had long been recognized that hope of recovery, which came from confidence in the resourcefulness of the physician, aided by the actual chemical and physiological influences of his remedies, favoured prompt recovery; while hopelessness unfavourably influenced the results of treatment, retarding and thwarting them often. From all large clinical experience it must be admitted that, while it was criminal to offer cure without the real resources of true therapeutic science to co-operate, it was also not good practice to not give the patient the benefit of hopeful

curative suggestion in its entoning influence on the organism through the mind and brain.

Reply.

Dr. Schofield said that the President had called attention to the fact that everywhere suggestion, etc., was used. This was exactly his point—that psycho-therapeutics was everywhere practised empirically, but nowhere scientifically taught. There was no doubt that quacks exploited for their own ends, and frequently in an unjust and unlawful way, a great scientific and therapeutic principle, which was still everywhere ignored in our teaching and our textbooks.

RATIONAL PSYCHO-THERAPEUTICS.

By Paul Dubois, M.D.,

Professor Extraordinary of Psychotherapie, University of Berne.

Physiology teaches us that our tissues, our organs, react to exciting influences, some natural and some artificial. These latter (mechanical shock, chemical or thermal action, and electricity) do not interest us because they can be substituted for natural stimuli, a fact which shows the mechanical nature of such physiological reactions that have to do with the sense organs, sensory, motor, vasomotor, secretory and trophic nerves. The will in its centrifugal action—that is to say, when it causes the contraction of a muscle, or group of muscles—can itself be regarded as belonging to the mechanical order, seeing that the same movement can be produced indifferently by an electric current or a voluntary impulse. The reactions of the sensory centripetal organs are elementary; they duly form the first links in a chain of physiological and psychological phenomena, and it is only in these movements called "reflex" that one sees a motor reaction follow a sensory stimulus without mental intervention.

In the complex life of men and animals, the true stimulus, the condition, the *sine qua non* of all our sensations, the determining agent of all our volitions, the efficient cause of our automatic movements, and of our emotions, is the mental representation, the idea. We know nothing precisely of the nature of this impulse; we cannot determine whether it may not be after all reducible to a mechanical action; but we contend that it cannot be replaced by an artificial stimulus, and that we cannot apply to this excitant the physical means of examination proper to experimental physiology. An idea is not born by an electric stimulus in the cerebral cortex; one cannot estimate in kilograms the determining value of a motive. A sensation awakened by peripheral stimulus is not fully perceived by the conscious "ego," unless it be accompanied by a mental image, just as all actions presuppose the existence of a mental representation of the act. There is here an intervention of the mentality, and we call these phenomena "psychic," to distinguish them from physiological reactions of a physical order. Nothing happens in our material organism without reacting on our psychic functions; physiological processes act on the cerebral functions—either directly, by somatic means (vascular or nervous intoxications), or indirectly, in awakening mental images. It is this that we are accustomed to speak of as "the influence of the body on the mind," of "the physical on the mental."

Inversely, nothing passes in our mentality without reacting on the functions of the varied physiological apparatus. We should do wrong to limit this law to true emotions; the smallest thought betrays itself, either by mimicry, or by functional reaction, of which the subject may be unconscious. It is the influence of the mind on the body. It follows that bodily maladies have a direct or indirect influence on our states of mind, and that mental troubles modify the functions of our organs.

Daily observation demonstrates that every mental representative causes a corresponding sensation, or determines the contemplated act; if a contrary mental representation does not stop the reaction by interference with the primary mental image. When our mental representations are equal to the reality of things, our sensations are normal, and determine motor and physiological actions which are also normal, adapted to their useful end for the individual or for the race. But even in the state called normal there is a source of error, and our sensations do not always correspond to the reality. The mental image, defective from the start, provokes at once emotional states, and secondarily irregular acts and functional troubles. The individual is then drawn along with increasing rapidity in a widening spiral by mental representation inadequate to the reality leading to exaggerated reactions, and the result of these disorders gives rise to new fears. These latter arise all the more readily in proportion as emotion interferes with the judgement, and leads to errors. Man cannot avoid this disorder, beginning by the idea and going on to actions and functional troubles, but by the exercise of a sound reason; this submits mental ideas to a severe criticism, and does not leave them until the motive, the feeling that causes the action, is revealed.

The same man often enters this dangerous spiral but knows how to draw back when he sees where he is, or discovers the error of the primary mental image, or the results that have flowed from this succession of psychic and physical acts (idea, emotion, acts, body reactions; the fresh ideas, emotions, etc., etc.). If, then, on account of hereditary or acquired mentality, the individual suffers from any weakness of intellect (in which include ethics, of such importance in life) he is less able to exercise this rational control; easy slave of erroneous mental images, he becomes the prey of the emotion which upsets his judgement, and is drawn along the fatal spiral.

We find the same psycho-physiological mechanism:

1. In the emotional states of the normal man.
2. In various psychoneuroses (neurasthenia, hysteria, hystero-neurasthenia, slight hypochondria and melancholia, states of mental dis-equilibrium with fears and obsessions).
3. In psychoses.*

In affirming this etiology, in common with all these mind troubles, accompanied by functional disorders, I do not pretend to exclude the influence of the body. On the contrary, it is demonstrated that various psychological and pathological processes (puberty, menstruation, menopause, the critical age, senility, constitutional maladies, intoxications, auto-intoxications, etc.) can alter the cerebral function and affect the psychic life. But as one cannot conceive an emotional impulse without a determining mental image, precise or vague (for example, fear without idea of danger), one recognizes in all these reactions of healthy or diseased man the importance of the primary intellectual phenomena, antecedent to feeling, to emotional movement, to motor reactions, and to functional troubles.

The result is that, while reserving a considerable share to physical methods and hygiene, designed to combat physical disorders, which are exciting causes of psychopathies, one must base all prophylaxes of these latter on the education of the reason. If it be a question of those already affected, it is on re-education that the remedy for their ills must be founded. That is to say, a rational psychotherapy, a moral orthopaedy, should be applied to all those mental troubles which, in a long incline, extend from the pure ideal white of absolute sanity to the blackness of insanity. This education of the spirit should not be artificial and obtained by circuitous methods, such as those of hypnotism, or suggestions on waking, but by such processes of "persuasion" as are always employed where one has to infuse into one's equals just ideas and moral views. To assure the cure of the sick it is not enough to correct their logical defects, one must also teach them a philosophic conception of life, in the stoical sense, so that they can adapt it to their case.

* With regard to paranoia, Bleuler has said: "The states affected (emotional) that one observes are secondary to distracted ideas, and further—under the influence of a chronic emotional state, errors occur through the same mechanism which, in the healthy, leaves them a prey to emotion."—*Affectivität, Suggestibilität, Paranoia*, Von Professor E. Bleuler, Professor Psychiatrie, Zurich.

Antivaccination in America.—Under the auspices of the Pennsylvania Antivaccination League a State Conference was recently held in Philadelphia to consider the advisability of carrying the question of compulsory vaccination into the coming political campaign. According to the New York *Medical Record* the League published a letter from a Pittsburg doctor, who wrote that over fifty medical practitioners in that city had announced their support of the proposed federation of all the antivaccination societies in Pennsylvania. The members will be urged to pledge themselves to support only candidates who will promise to work for the repeal of the compulsory vaccination law.

CEREBRAL AND OPHTHALMIC COMPLICATIONS IN SPHENOIDAL SINUSITIS.

A Contribution Founded on Two Cases with Autopsies.*

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Introductory.

The frequent origin of intracranial complications from suppuration in the ear is now generally appreciated, but a similar association has not yet been fully established between the brain and the nose.

Scanty Researches of Cerebral Infection from the Nasal Sinuses.—Indeed, some researches would imply that such a relationship is comparatively rare. Gowers considers that nasal disease is an occasional but rare cause of cerebral abscess.[1] Treitel looked through the records of 6,000 autopsies, and found 21 cases of cerebral abscess. Of these, 7 originated from the ear, and 3 from suppuration in the frontal, or the frontal and ethmoidal, cavities.[2] Wertheim found 127 instances of intracranial suppuration in the records of 10,394 *post-mortem* examinations, and 14 were stated to be of nasal origin.[3] Although an analysis of 9,000 autopsies in Guy's Hospital revealed 57 cases of intracranial mischief from ear disease, Newton Pitt could only find one case of cerebral abscess due to nasal suppuration.[4]

But we have only to recollect the frequency with which pus is met with in the nasal accessory cavities at *post-mortem* examinations, to prepare us for the possibility of this association being more frequently demonstrated, when the accessory sinuses of the nose are systematically examined in all *post-mortem* examinations with intracranial inflammatory lesions.

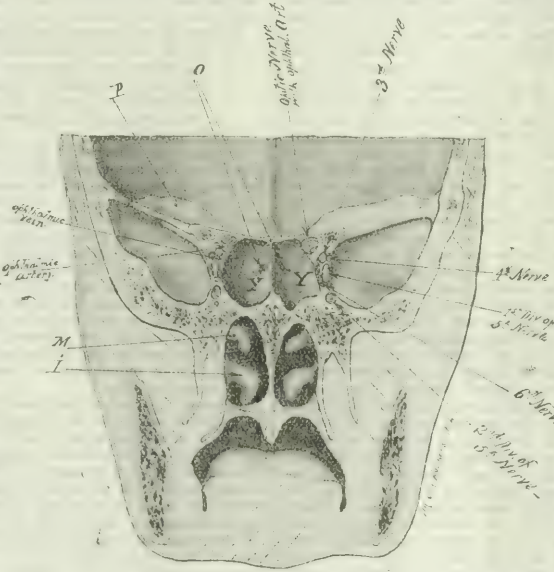


Fig. 1.—Frozen section of anterior half of head, cut immediately in front of chiasma. Viewed from behind. *P.* Orbital roof of frontal sinus. *O.* Ostium sphenoidale. *Y.Y.* Right and left sphenoidal cavities. *I.M.* Inferior and middle turbinals.

Frequency of Nasal Suppuration.

The *post-mortem* observations of Harke,[5] E. Fraenkel,[6] Lapelle and Martin,[5] and Kiaer[6] furnish us with statistics which show sinus disease in 30 per cent. of all subjects coming to the dead-house. T. S. Kirkland, of Sydney, examined 22 subjects who had died from pneumonia, and in 11 of these (that is, 50 per cent.) pus was found in one or more accessory cavities, and always in the sphenoidal sinus.[7] Many statistics agree that the sphenoidal sinus is, next to the maxillary, the most frequently diseased; and, as Lermoyez observes, "sphenoidal suppuration is not rare; it is only its diagnosis which is uncommon." The relations of the sphenoidal sinus to the base of the brain, the orbit, the cavernous sinus and its contents, are well shown in the drawing of a transverse section, for which I am indebted to my friend C. R. Holmes, of Cincinnati. (Fig. 1.)

In the two cases which I am able to put on record, the sphenoidal origin of intracranial suppuration is fully established. In one case it assumed the form of acute suppurative basic meningitis; and in the other, that of thrombo-phlebitis of the cavernous sinus. In both cases the diagnosis was made during life, and was confirmed by *post-mortem* examination. I will give the records of both cases, before offering any comments or deductions.

Case I (No. 17 in the Bibliography, vide Appendix). *Sphenoidal Sinusitis. Acute Suppurative Meningitis. Death. Autopsy.*—F. D., a working man, aged 36, was sent to me at the Royal Ear Hospital on April 26th, 1901, by Dr. George Wale, of Croydon, for pain in the head, with a history of ear trouble. He said that the right ear drum had been ruptured by a blow two years previously. A month before admission to the hospital he was attacked with influenza and acute earache on the left side. Dr. Wale, on seeing him on March 26th, was struck by his look of extreme illness, and his marked sleeplessness. The left drum ruptured about March 29th, and he went on syringing it for a fortnight and returned to work. When seen on April 19th, he complained of intense frontal headache and also of a recurrence of deep-seated pain referred to his left ear; but Dr. Wale could find nothing there to explain it, and so sent him up to my clinic. He had not told Dr. Wale anything about nose trouble, but on admission to the hospital he gave a history of discharge from the nose for "as long as he could remember," with occasional severe headaches. The discharge ran chiefly into the back of his throat. He said there was no bad smell in his nose, but that the discharge had occasionally tasted bad, and for the previous fortnight—since he had felt so much worse and almost sleepless from pain—it had tasted worse.

His headaches had been chiefly frontal. They began about 9.30 in the morning and left him about 3.30 in the afternoon; recently his headaches had also been referred to the lower occipital and left temporal region. We heard, later, that his "pals" had looked upon him as "a bit off his head" at times. The first thing that struck me was his stricken look of severe illness. He was very pale. Pulse 92. Temperature 98.8°. The pupils were not dilated, but were equal and reacted normally. There was no vomiting, rigors, or staggering.

Ears.—The right drum was quite normal and showed an old inferior cicatrix. The left drum was perforated and exuded a slight, mucoid, non-fetid discharge. The posterior half was still bulging, and was therefore incised.

Nose.—The left nasal chamber was quite healthy. In the right the middle turbinal was hypertrophied, with some inflammatory thickening in the ethmoid region, and there was curdy pus on the roof of the cavum pharyngeum on the right side.

The diagnosis was made of septic infection, and probably early meningitis, from suppuration in the right sphenoidal sinus.

Next day—April 27th—it was noted that he had hardly slept on account of the headache. The temperature was still normal, but on the following day it had gone up to 102.2°. He had not slept all night from the severe headache "behind the eyes and on top of the head." He complained of a "rotten egg" taste from the back of the nose, and the nasal conditions were confirmed on re-examination. His nose was well cleansed regularly, and he was given calomel and chloral.

On the third and fourth days after his admission, the temperature varied from 100° to 101° F. The pulse varied; it was noted once to be 62. The heart and lung sounds were normal. There was no tenderness over or below the mastoids, and the discharge from the left ear had, under antiseptic treatment, become very slight, and the drum was closing.

His mental condition was rapidly changing; he became irrational, dull, and indifferent, and the nurses found it difficult to keep him in order or "get anything out of him."

I decided that it was useless to open his sphenoidal sinus, as diffuse meningitis must have already started. I saw no reason to operate on either ear.

* Abstract of a paper published in full in the *Medical Society's Transactions*, vol. xxix, London, 1906.

On April 30th—his sixth day in hospital—his temperature was 101°. He had been restless all night, getting out of bed, and trying to dress himself. His cerebration was slow, and it was difficult to hold any communication with him. He complained of being deaf, and that everything was misty before him. There was diplopia, with left internal strabismus, and occasional nystagmus. The pupils were medium, the right somewhat dilated. The optic discs were slightly hazy. During the day the patient became very deaf, and only answered questions when roared at. The right membrana tympani remained as when previously examined. The left one was seen to be closing; it was not bulging or injected. There was no mastoid tenderness on either side. The tuning-fork appeared to be hardly audible by conduction, on the right side, but was still heard on the left. He could swallow well, and kept asking for drink. Marked right facial paralysis developed. The temperature was 102° to 103°; the pulse 98; the arteries were noted to be thickened. On the following day, May 1st, it was noted that the left pupil was more dilated than the right. He was intelligent at times, but gradually became more comatose and died that evening, a week after he had walked to the hospital.

I regret that there is no mention of the urine, but I think it must have been free from albuminuria, or the fact would have been noted.

At the *post-mortem* examination there was a large quantity of pus at the base of the brain, more copious on the right side, and tracking up to the vertex. Upon removing the brain there was no evidence of extradural abscess, or of caries or necrosis in the middle or anterior fossæ of the skull. The nasal accessory sinuses were laid open by an antero-posterior saw cut, passing into the foramen magnum behind, and down to the glabella in front. The cut passed a little to the left of the middle line, and permitted the two halves of the skull to be opened like a book and the sinuses to be examined from above downwards. As the right sphenoidal sinus was opened a quantity of muco-pus escaped from it into the naso-pharynx, which was seen to be bathed in the same sort of secretion. The lining of the sinus was thickened, purplish, and sodden, instead of being thin, white, and glistening like the inside of an oyster, which is the condition in health, a condition which was found in all the other accessory sinuses on both sides.

The temporal bones were removed and the middle ear was subsequently found to be quite healthy. The brain was normal, except for the suppurative meningitis already described. The pus from the base of the brain was seen extending down the spinal canal. No evidence of disease was met with in the thoracic or abdominal viscera.



Fig. 2.—Thrombosis of the cavernous sinus (Case II). Shows the œdema of the eyelids, proptosis, chemosis, ophthalmoplegia, and commencing ulceration of the conjunctiva.

Although there was in this case no macroscopic evidence of direct meningeal infection, there can be no doubt that the patient died from infection of the meninges from pus in the right sphenoidal sinus, where there had long been a latent suppuration which had lately been reinforced in virulence by influenzal infection. In many of these cerebral infections—whether of aural, ophthalmic, or nasal origin—infection appears to spread by the lymphatics, so that instead of a local infection by contiguity, a veritable sowing of the cerebro-spinal fluid with microbes takes place.

Case II (No. 21 in the Bibliography, vide Appendix). *Sphenoidal Sinusitis. Streptococcal Infection. Purulent Thrombosis of the Cavernous and other Venous Sinuses of the Skull. Marked Proptosis and Chemosis from Retro-Ocular Abscess. Death. Autopsy. Duration* 33 *days.*—A strong, healthy-looking scullery maid, aged 16, complained of pain on the top of her head on February 6th, 1905, and during the following days she was sick, had a shivering attack, and her eyelids were noticed to be swelling. On February 15th she was first seen by Mr. W. F. Lace, of Sutton-at-Hone, to whom we are much indebted for his careful notes of the early stages.

The eyeballs were then prominent, and there was some chemosis of the right conjunctiva. Eyesight was normal. The pupils were equal and small. Both upper eyelids were tense, discoloured, and œdematous-looking. There was tenderness on pressure at the upper and inner angle of the right orbit. Temperature 102° to 105°.

There was no history of blow, sting, or other local infection; no evidence of any ear mischief; and, although inquired for, there was no abnormal nasal discharge.

During the next five days the temperature remained high, even reaching 105°, while the pulse varied from 90 to 116. Stiffness of right side of neck, backache, and a general feeling of soreness were complained of, together with inability to turn over in bed. On the eleventh day of her illness distinct fullness and tenderness were detected along the right sterno-mastoid muscle, but no glands could be felt.

On the thirteenth day of her illness the patient was admitted to King's College Hospital, under Mr. Boyce Barrow. When left alone she lay perfectly quiet on her back; she appeared rather sleepy, but was quite rational, and all her senses were normal. Any attempt to raise her head or turn her to one side excited pain in the neck and back of the head. The proptosis and chemosis were so marked (Fig. 2) that the eyelids could not be closed. The right upper eyelid was reddish-purple and œdematous, while the chemotic conjunctiva projected above the lower eyelid, and was dry and commencing to ulcerate from exposure. The left upper eyelid was discoloured and less swollen, and the conjunctiva, although protruding slightly, was not ulcerated but simply dry. Optic neuritis was found by Mr. Cargill to be present in both eyes. The ears were examined by Mr. Arthur Cheatle, and found to be quite normal. There was no swelling or tenderness over any of the nasal accessory sinuses, but on examining the nose I found pure pus on the right side far back in the middle meatus, and descending from the olfactory cleft. On the left side there was some muco-pus deep in the middle meatus. The general condition of the patient prevented an inspection of the post-nasal space, or the application of the tests by transillumination, posture, etc.

The patient was quite rational and very clear on the point that she had never had a discharge or any disagreeable smell from the nose, neither had she been subject to headaches.

Although the pus in the middle meatus might come from any of the accessory sinuses, I had no doubt, in view of the proptosis, that the right, and possibly the left, sphenoidal sinuses were diseased, and had caused purulent thrombosis of the cavernous sinus.

Examination of other organs added nothing to our information. There were no physical signs in the chest or abdomen; the spleen was not enlarged; the urine was healthy. The tongue was moist, and there was no sickness. The leucocytes numbered 36,000. There were two rigors within twenty-four hours of admission, the temperature running up to nearly 106°, while the respirations were 28, and the pulse 116 (vide chart).

As the large, smooth, elastic swelling in the upper part of the neck on the right side—under the sterno-mastoid—had become more marked, Mr. Barrow decided to explore it under a general anæsthetic. This was done on February 21st (that is, two days after admission and the fifteenth day of the illness). No definite abscess cavity was found, but a large number of glands with numerous points of pus in them were explored and removed. The right jugular vein was explored, and was not thrombosed. There were no symptoms on the left side of the neck.

While the patient was under the anæsthetic, Mr. Barrow kindly invited me to further explore the nose and carry out any procedure I thought desirable. With the aid of Killian's long nasal speculum the middle meatus and the olfactory cleft on the right side were cleaned and inspected. It was then quite easy to see the ostium of the sphenoidal sinus, with pure yellow pus oozing from it. The middle turbinal was therefore removed, the front wall of this sinus was broken down with Grünwald's forceps, and the opening further enlarged with Volkmann's sharp spoons. The sinus was seen to contain pus and thick mucus. This was all wiped out, and the cavity was lightly packed with a strip of iodoform ribbon gauze. It was not expected that the patient would allow this to remain in long, and she pulled it from her nose the next morning. However, she permitted the house-surgeon to syringe the sphenoidal

sinus twice daily, and he had no difficulty in introducing a large Eustachian catheter into it to a depth of 3 in. from the anterior naris.

The orifices of the sinuses on the left side—and particularly that of the sphenoidal—were inspected in the same manner, but only some slightly purulent mucus was seen, and as there was no recurrence when it was wiped away, it was decided to leave that side alone.

These procedures confirmed the diagnosis as to the original point of infection, but no improvement was expected to result from them—and none occurred. The proptosis and chemosis became more marked (Fig. 2). The pupils were equal and reacted to light; sometimes they were found widely dilated, and at other times they were medium-sized. The congestion of the upper lids became so intense that it was impossible to raise them, and owing to the proptosis it was difficult to estimate the amount of movement in the eyeball. But paralysis of the sixth nerve developed, and weakness of all the other ocular muscles on the right side. Ten days later (that is, on March 3rd) Mr. Barrow made incisions through the conjunctiva and evacuated pus from behind the eyeball on each side.

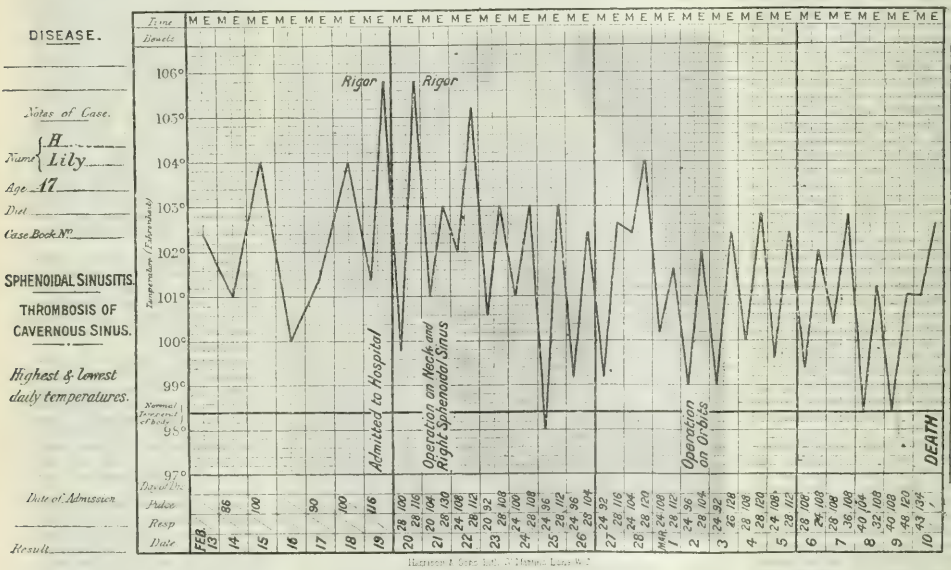
Bacterioscopic examination of this pus, made by Dr. Emery, showed a very large number of streptococci in long chains, which were matted together to form tangled skeins. No other organisms were seen. Swabs were inserted into the right sphenoidal sinus and removed covered with muco-pus. This was found to contain large numbers of streptococci, and a few staphylococci. Cultures of blood removed from the right basilic vein remained sterile.

In view of the fact that the original focus of infection was now freely drained, and that the purulent thrombosis was so extensive, it was deemed useless to try the effect of anti-streptococcic serum. There was no recurrence of vomiting or rigors, but, although conscious, the patient became more irritable, and apt to cry out with the pains "all over her." The conjunctiva commenced to ulcerate, and some opacity commenced in the right cornea. Weakness and drowsiness increased; the respirations became quick and irregular; and without any development of fresh symptoms the patient died on March 10th—about a month from her earliest symptoms, and a little over a fortnight from the opening of her sphenoidal sinus.

The *post-mortem* examination was made by Dr. Dalton twenty-one hours after death. On removing the skull cap there were no signs of meningitis, but a trace of pus was found below the membranes at the base of the cerebellum. This had probably escaped from the right petrosal sinus, which had been wounded in cutting through the tentorium. The cavernous sinuses, the petrosal sinuses, and the lateral sinuses were filled with almost undiluted yellow pus. The pus in the right cavernous sinus was mixed with red blood. The superior longitudinal sinus was normal. There was no disease visible in the floor of the middle or anterior fossae of the skull.

On opening the nasal accessory cavities the following sinuses were found quite healthy—namely, both frontals, both anterior ethmoidal cells, and both maxillary antra. The left sphenoidal sinus was not much larger than a pea, and it and the adjoining posterior ethmoidal cells showed traces of apparently recent muco-pus. There was no visible alteration in the mucous membranes. The right sphenoidal sinus was big enough to hold the end of the little finger. (The sphenoidal sinus is not fully developed before the age of 20 to 25 years—this patient's age was 16). Its mucous membrane was discoloured, greyish, thickened, and studded with polypoid hypertrophies. Its bony walls were also greyish in colour, but not appreciably softened. It contained some pus, but most of its secretion had apparently drained into the post-nasal space, as the pharynx was full of yellow muco-pus. In its anterior wall was the free opening made during life. A portion of the bony wall and mucous membrane was removed for microscopic examination, and several cultures were taken. The adjoining posterior ethmoidal cells were not visibly altered and contained a little muco-pus. There was also pus at the back of both orbits. The thoracic and abdominal viscera were normal.

Pus taken from many situations—both sphenoidal sinuses, both cavernous sinuses, the right petrosal sinus, both orbits around the optic nerves, etc.—was found in all cases to contain streptococci similar to those seen during life. In film preparations they appeared quite pure, but a few contaminations occurred in the cultures. Sections of the sphenoidal mucosa,



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My best thanks are due to Mr. Barrow for allowing me to publish this case, and to his house-surgeon, Mr. Gompertz, for the care with which he followed it and the notes he has kindly supplied.

REMARKS.

The evidence demonstrating the possibility of cerebral infection from sphenoidal suppuration is of recent date. Less than twenty years ago the very extensive researches of Berger and Tyrman only revealed one case in which death was due to this infection.[7] I have, therefore, made a search through literature, and though doubtless incomplete, I trust the result may help to a more general recognition of the conditions under consideration. This would appear to be the first effort in English to demonstrate that a sphenoidal origin of cerebral infection is not uncommon, although in German we have the excellent monograph of R. Dreyfus,[8] and for many references I am indebted to the very full article of my French colleague, Dr. Toubert.[9]

The present collection of cases is also the largest which has yet been made. Dreyfus, in 1896, recorded 13 cases, and Toubert, in 1900, gave epitomes of 24. My researches

have yielded 40 cases, in addition to my own, in which death from intracranial complications was due to septic infection from the sphenoidal sinus. In selecting these cases I have rejected all others in which the cerebral invasion was due to traumatism of the sphenoidal sinus, tumours originating in it or traversing it, syphilitic, tuberculous,[11] or other specific processes, or where there was any possibility of the intracranial complications being due to suppuration in any other accessory cavity.[12] I have also omitted those in which the sphenoidal sinus showed disease during the spread of infection from the nasal to the cranial cavity, as occurs in the course of sporadic or epidemic cerebro-spinal meningitis or meningo-encephalitis.

As regards the ophthalmic complications, only those have been considered which were associated with the cerebral invasion. I have not included cases where the sphenoidal sinusitis affected the eye only, and fatal consequences did not therefore ensue.[13]

These 40 cases are so extremely interesting and instructive that I have made a rather full abstract of them. But I have placed them in an appendix to this article, where they can readily be consulted by those who wish to verify the conclusions I have drawn from them.* They are arranged in chronological order, in different groups according to the most prominent intracranial lesion. With the addition of my own 2 cases, they yield 42 cases, which fall under the following headings:

Meningitis.—In 17 cases this was the only or the predominant lesion.

Thrombosis of the Cavernous Sinus.—In 4 cases, including my second one, this was the primary complication.

Thrombosis and Meningitis.—In 13 cases, although the thrombosis was the principal lesion, it was associated with basic meningitis. With the addition of the previous 4 cases of thrombosis, we see that either thrombosis of the cavernous sinus or basic meningitis may result with equal frequency as a complication of sphenoidal suppuration.

Intracranial Abscess.—One case.

Meningeal Septicaemia.—Two cases. This title is given by Toubert to cases where the anatomical changes are trifling or even entirely absent, and where cerebral death is due to sphenoidal affection, generally occurring rapidly (two to seven days).

Encysted Abscess of Dura Mater.—One case.

Haemorrhagic Encephalitis (part of a general septicaemia).—One case.

Phlebitis of the Cavernous Sinus (giving rise to pyaemia).—One case.

Intracranial Haemorrhage.—One case.

Suppurative Encephalitis.—One case.

Symptoms of Sphenoidal Sinusitis.

Discharge.—The symptoms of sphenoidal suppuration can only be briefly referred to, and merely in so far as they lead up to the study of cerebral complications. In numerous cases the symptoms are vague, and many are common to pus in any of the accessory cavities. They may be grouped into three classes, as they affect (*a*) neighbouring regions, (*b*) more distant organs (digestive tube, lower respiratory tract, etc.), or (*c*) the general health.

As regards the sphenoidal sinus, the most common symptom is that of more or less purulent catarrh, frequently post-nasal.

There may be cacosmia or anosmia. The nasal discharge may never be profuse, or atrophic rhinitis may have been present for several years. But a very striking and important fact is that patients may deny any nasal or post-nasal discharge, although the diseased mucous lining found *post mortem* shows that the disease must have been of some standing. Still more noteworthy is it that expert rhinologists, to whom the idea of sphenoidal suppuration occurred, failed to detect it. Thus, Beek notes the absence of pus (Case 33), Toubert carried out anterior and posterior rhinoscopy with care, and no suspicion of sphenoidal disease was suggested (Case 11); while Bronner notes that there was "never much discharge from the nose, and on careful inspection absolutely no subjective or objective symptoms of disease of the sphenoidal sinus," except long-standing anosmia; yet the *post-mortem* examination showed both sphenoidal sinuses to be full of pus and granulation tissue (Case 20). Doubtless the explanation of this is that the outpouring of pus from the sinus may be intermittent, and that in many cases it is difficult to sound and wash out the cavity without a preliminary operation on the middle turbinal.

Pain or neuralgia may be absent, intermittent, or severe. Occasionally it resembles migraine. The pain of suppuration in a sphenoidal sinus is not referred to any regular and definite point. It may be frontal, occipital, or temporal. It may even be referred to the side of the head opposite the affected side. Sometimes it is said by the patient to be "in the ear," but, as I have also been consulted by a patient with acute maxillary sinusitis for "earache," this location affords no definite help. Perhaps the only pain which is characteristic of sphenoidal disease is when the patient states that it is deep in behind the eyes. It may be so intense as to cause complete insomnia.

Pain may be entirely absent until the onset of endocranial infection. It is then rarely wanting, is generally acute, but varies much in distribution. This variation doubtless depends on the nerves involved in the extension. It may be on the vertex, at the back of the occiput, or deep behind the eyes. The latter is probably the only characteristic type. But extremely interesting, because so misleading in practice, are the cases in which the pain is distinctly located in some of the other accessory cavities. Thus in one case it was so fixed in the frontal sinus that the cavity was opened, only to be found healthy. In the case of Rouge (Case 36) the pain was referred to the maxillary antrum; this was opened and found healthy, and the autopsy showed the sphenoidal sinus to be diseased. Pain behind the ear was complained of in one case, while in no less than five cases it was located in the ear itself. This pain was so marked that in three cases it led to the mastoid being opened, and I would call particular attention to the fact that in each of these cases the operator was a skilled otologist. The symptoms were so suggestive of thrombosis of the sigmoid sinus that this vein was opened needlessly in two cases. It is to be remembered that otitis may coincidently be present.

Fever is absent in chronic cases. It is generally present in acute or complicated cases.

General Symptoms.—The general health is more or less disturbed in all cases of nasal suppuration, either from direct absorption or from the penetration of pus into the respiratory or digestive tracts. Although one of my cases was described as a strong, healthy-looking girl, the other impressed his medical attendant, Dr. Wale, with this look of extreme illness, and, on his admission to the Royal Ear Hospital, this pale, stricken look of severe illness was most noticeable. F. Furet points out that even extensive fronto-maxillary suppuration never brings about the chlorotic hue, the livid pallor, which is often observed in females suffering from this form of sinusitis. He also calls attention to the fact that disturbances of general health are apt to be particularly noticeable in sphenoidal sinusitis, and are not in relation either with the quantity of pus absorbed or with the local lesions.[14]

Affections Simulated by Cerebral Infection from the Sphenoidal Sinus.—It is interesting to tabulate the cases where the name of the disease for which the patient was admitted is given. This I find in 13 instances is as follows:

Phlegmon of cheek—1 case (No. 34).
Solid tumour of maxillary sinus—1 case (No. 36).
Ear disease—4 cases (Nos. 14, 17, 19, 50).
Frontal sinusitis—one case (Case 32, sinus opened, no pus).
Syphilitic periostitis of orbit—1 case (No. 23).
Delirium tremens—2 cases (Nos. 22 and 24).
Croupous pneumonia—1 case (No. 6).
Acute miliary tuberculosis—1 case (No. 37).
Tuberculous meningitis—2 cases (Nos. 31 and 42).
Tonsillitis and possible diphtheria—1 case (No. 18).
Tetanus—1 case (No. 3).
Typhoid fever—1 case (No. 11).

Symptoms of Cerebral Infection.

Thrombosis of the Cavernous Sinus.—The onset of thrombosis of the cavernous sinus is indicated by various symptoms, which are well illustrated by the record of my own case. Frequently they are obscured by co-existing meningitis. Special attention might be directed to the following: Pyaemic temperature, rapid pulse, and profuse

* Full abstracts of these 40 cases are printed in the *Medical Society's Transactions.*

perspiration usher in the spread of infection. Rigors occur in many cases. Headache is common. It is generally acute, and sometimes the pain is referred to the side of the head, to the back of the ear, or to the frontal region.

Sickness may occur, and its absence has been noted (No. 20).

Hebetude and delirium may pass into drowsiness or a torpid condition and coma; or consciousness may be retained. Convulsions may occur. Dysphagia has been noticed (No. 26). Inflammation of the glands of the neck was a comparatively early symptom in my own case; swelling of the palate has been noted in one case, and swelling of the cheek occurred in several (Nos. 22, 25, 26, 31, and 33). In cases so rapidly fatal that death may occur within three days, any eye symptoms are limited to one side and are so slight that a diagnosis is hardly possible (Case 19). The cavernous sinus may contain pus, but if not thrombosed, there is an absence of chemosis, proptosis, and ocular paralysis (Case 16).

Eye Symptoms of Thrombosis of the Cavernous Sinus.—But, generally, the possibility of thrombosis of the cavernous sinus is first suggested by the condition of the eyes. The three chief ophthalmic changes are (*a*) papillary oedema, (*b*) chemosis, and (*c*) exophthalmos. They develop within 6, 10, 12, or 16 days from the onset of symptoms indicating the spread of infection. It is possible that neither proptosis nor chemosis may occur in a rapidly fatal case (No. 19), yet both were noted in 14 cases. In 3 cases the oedema and proptosis diminished during the progress of the case. This proptosis and chemosis may be present on both sides when it is first noticed, but it generally starts on one side and develops in the other, one, two, three, five, or six days later.

There may be anaesthesia, or ulceration of the conjunctiva, or opacity of the cornea.

Paralysis of the ocular muscles generally occurs, but in one case the movements were good (No. 31). In Case 25 (James Russell) the ocular symptoms developed under observation, and followed each other in regular order, the proptosis not making its appearance till several hours after the orbital paralysis had become complete.

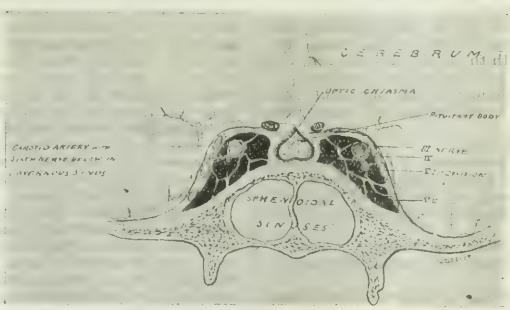


Fig. 3 (semi-diagrammatic).—Coronal section, through sphenoidal sinus, to illustrate immediate relationships with cavernous sinus and its contents, optic nerve, and base of brain.

The condition of the pupils varies. They may be normal, unequal, small and not reacting to light, dilated, dilated and not reacting, or, in medium dilatation, with only slight oscillation. Doubtless the explanation of these observations lies in the fact noted in my own case, that the condition of the pupils varies, for I sometimes found them equal and reacting, and at other times medium sized or widely dilated.

The fundus may be normal in rapid cases or at the commencement. Later on there may be congestion of the retinal veins, papillary stasis, papillary oedema, papillary atrophy, or optic neuritis. The absence of papillitis (Case 20), or of swelling or neuritis (Case 31), has been observed.

It is difficult in most cases to test the vision; it may be good (Cases 20 and 31), or there may be complete blindness (Case 25).

Tenderness of the eyeball may be met with.

Macewen fully describes thrombosis of the cavernous sinus, and states that it may be induced by infective inflammation in any of the nasal accessory sinuses; but he does not record any case in which the sphenoidal sinus was the primary source of infection.[15]

Henry Roth reports three cases of thrombosis of the cavernous sinus, one at the early age of 6, but without a *post-mortem* examination. In none of them is there a report of examination of the ears, or of an exploration of the sphenoidal sinus.[16]

E. W. Dwight and H. H. German have reported four cases of thrombosis of the cavernous sinus, and state that two were infected from the skin of the face or neck, one from the middle ear, and one from the frontal sinus. They give a very complete bibliography of 178 other cases reported in literature.[17] But, unfortunately, the value of all these observations is greatly diminished by the absence in nearly all cases of a clinical or *post-mortem* examination of the nasal accessory sinuses.

Only too often is the source of infection attributed to some lesion on the nose or upper lip, a carious tooth, or a phlegmon of the face or neck, when it is quite open to consideration that the true source was a collection of pus in the sphenoidal sinus, with its much more direct anatomical connexions with the cavernous sinus.

Meningitis.—The onset of meningitis will be marked with the usual symptoms, though these will vary with the intensity and extent of the infection. I would, therefore, only draw attention to a few noteworthy points: While pain in the head is one of the most usual, yet this may be misleading, if it is referred to the ear, as it was in five instances (Cases 10, 14, 15, 17, 30). Rigidity and tenderness of the neck appear when the meningitis extends to the spinal cord.

A change in the character of the patient may be an early and possibly misleading symptom. He may be thought crazy, or become taciturn or irritable.

The presence of albuminuria must not be allowed to disconcert the diagnosis (Cases 4, 24, 25, 27, 31). It may be slight, and there may be hyaline casts, although at the *post-mortem* examination the kidney shows only passive congestion. The amount of albuminuria may even be considerable, while only traces of congestion are found afterwards in the kidney under the microscope (Case 26). The evidence of the spread of sepsis was, in several cases, clinical only, and not pathological—rigors, delirium, high temperature, rapid tendency to sinking.

The eye symptoms in cases of meningitis due to sphenoidal suppuration vary in different cases. Exophthalmos, or immobility of the eye, rarely occur. While the eyeball itself may not be tender, there may be pain on pressing it backwards. Diplopia and nystagmus are met with. Strabismus may be present or absent. Ptosis may occur.

The pupils may be equal and reacting, dilated, unequal, or more dilated on the affected side. The retinal veins may be gorged and the optic nerve cloudy or congested.

The progress of the case, when intracranial infection has started, is sometimes very rapid. In one instance the patient was unconscious in twelve hours and dead within four days (Case 12). In others it occurs at the end of five months, fifteen months (Case 35, intracerebral abscess), or 2½ years (Case 38, encysted abscess).

In cases of meningitis death may occur between four and thirty-five days (Case 15), although it has been delayed for five months (Case 1). In cases of thrombosis the duration of the disease varies from five to thirty-one days.

PATHOLOGICAL ANATOMY.

The *post-mortem* findings will vary (*a*) according to the duration and extent of the disease in the sphenoidal sinus, and (*b*) according to the route, the intensity, and the extent of the cerebral infection. Of these 42 cases now published together, the source of the infection has been demonstrated by necropsy to have been in the sphenoidal sinus in forty-one instances; in the forty-second case this connexion was proved during life. (Case 28.)

In most cases pus was found in the sphenoidal cavity. But this pus may have drained away just before or after

death, or at the moment of making the autopsy (Case 17). In such instances confirmatory evidence of the sphenoidal sinusitis is found in the condition of its mucous lining or bony walls.

If the infection of the sinus is recent, and death occurs rapidly, the mucosa may be quite healthy. But, generally, the membrane shows degenerative changes, proving that the disease in the cavity is of some standing. The lining of the sphenoidal sinus may even be found detached and floating in pus (Cases 18, 24, 34, 42).

There was caries, necrosis, or osteo-myelitis of the bony walls of the sphenoidal sinus in a number of cases. Caries, with perforation of the roof or sides of the sphenoidal sinus, was found in 10 cases. But much more remarkable are the cases in which infection has spread from the sinu to the cerebral cavity without any visible lesion of th anterior or middle fossae (Cases 11, 12, 13, 17, 18, 19, 20[9] 21, 24, 34, 42).

The pituitary body may be surrounded with pus or may have become puriform. An abscess may be met with outside the dura, within the dura, between the layers of the dura, or in the brain.

Pus may be found at the apex of the orbit, or in the pterygo-maxillary fossa, and may occur in the middle ear (Cases 3, 11, 36). It is this coincident suppuration in the ear which has misled the diagnosis in some cases. Intracranial haemorrhage is a lesion rarely met with (Cases 24 and 41).

Haemorrhagic encephalitis—part of a general septicaemia—has occurred (Case 39). The cavernous sinus may present phlebitis, giving rise to pyaemia (Case 40), or its contents may be puriform without being thrombosed (Case 16).

The absence of gross lesions in the cranium may be associated with what Toubert describes as meningeal septicaemia—a condition which may occur in acute (Case 37) or in protracted (Case 36) cases.

The longitudinal sinus escapes in most cases. It is only noted in one instance, where it was probably not infected from the sphenoidal sinus, but from an ulceration on the upper part of the vomer.

But the most common lesions met with in cerebral infections from the sphenoidal sinus are: Thrombosis of the cavernous sinus, and purulent basic meningitis.

The pus was noted to be offensive in six cases.

Pneumonia was also present in one case, in which the tonsils were soft and infiltrated (No. 3). Finally, there may be the evidence of general pyaemia, originating from the sphenoidal sinus via the cavernous sinus (Case 40).

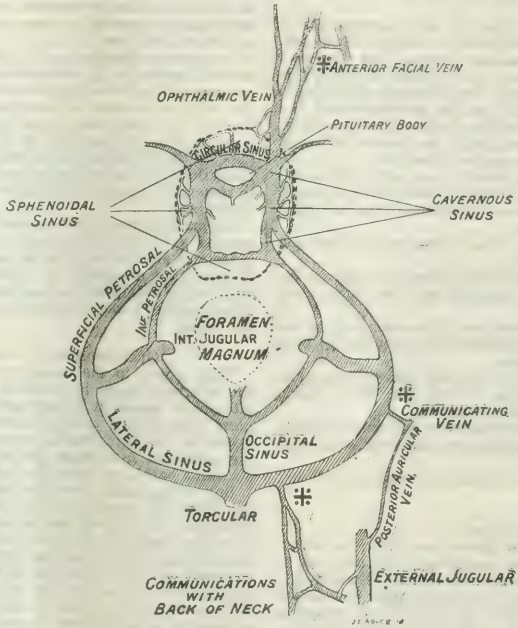


Fig. 4.—Diagram to show communication of veins of cavernous sinus with venous sinuses of the cranium; showing also interrelation of transverse and cavernous sinus with external veins. The asterisks (*) mark the anastomoses of the intracranial venous system with the veins of the surface. (Modified from Leube.)

Bacteriology.

In several observations the infecting organism has been demonstrated. Pure cultures of streptococci have been obtained from the sphenoidal sinus and from the thrombus in the cavernous sinus or the pus in the base of the brain. Staphylococci have been found in the sphenoidal cavity and in the blood—in both situations in pure culture. Micrococci have been seen in the fluid removed by lumbar puncture, grouped in pairs, and in diplococci or in chains in the pus of the sphenoidal sinus. The pneumococcus of Friedlaender may occur in pure culture. The pneumococcus occurs in the pus both of the sphenoidal sinus and the meninges. In one case virulent *Diplococci pneumoniae* were found, not only in the sinus and the meninges, but also in the sphenoid bone itself, and in another a streptothrix was obtained from the meningeal pus.

Pathogenesis.

In considering the evolution of these intracranial complications, space will not permit of our studying the etiology of sphenoidal sinusitis itself, so I would only draw attention to the records of four cases which suggest that the pyogenic organism might originally have entered the system through the tonsil (Cases 3, 11, 18, 26).

In regard to the onset of endo-cranial complications we have to study why and how they occur.

Why? It would appear that the virulence of the microbe and the diminished resistance of the patient must be the chief factors. Neither the long duration, nor the degree of disease in the sphenoidal sinus, seems to cause it. Retention of discharge, from obstruction of the ostium sphenoidale, is often invoked as a cause. But in both the cases I record there was a free outpouring of pus.

How? Perforation of the base of the skull, when it occurs, is sufficient to explain how the pus comes in direct contact with the meninges or venous sinuses. An abscess, extradural or intradural, may form the connecting link. More difficult is the explanation in those cases where this direct transference is not apparent.

As to the Route.—From the mucosa of the sphenoidal sinus to the subarachnoid space, there are three possible channels: (*a*) direct transference through the bone, (*b*) by the veins, or (*c*) by the lymphatics.

(*a*) *The route through the bone*, when it is destroyed by osteitis or necrosis, is evident. This channel of direct continuity is also demonstrated in the case of Ortmann (No. 18), where the bone was not perforated, but typical *Diplococci pneumoniae* were found in the sphenoid bone itself—as well as in the pus of the meninges and of the sphenoidal sinus. Once the bone is invaded, the infection, of course, becomes much more serious, as diploë offers no resistance to its spread (vide Fig. 1).

(*b*) *By the Veins.*—The possibility of this route is rendered evident by recalling the veins of the diploë, and by a reference to Fig. 4, which shows the connexion between the veins of the sphenoidal mucosa and those of the cavernous and circular sinuses, and the ophthalmic vein.

The roof of the sphenoidal sinus may be only 1 to 2 mm. thick, and Zuckerkandl has found physiological defects in the bony wall, placing the mucosa of the sinus in direct contact with the dura. He had found similar dehiscences, placing the sheath of the cavernous sinus and the mucous lining of the sphenoidal cavity in contact. Here the wall is thin as notepaper, and Sieur and Jacob[13] have found numerous vessels running through it from the sphenoidal to the cavernous sinus (vide Fig. 4). These defects in the

roof of the tympanum have been much more studied than similar anomalies in the nose.

In some cases prolongations of the sphenoidal sinus may reach as far as the pterygoid process, and the pus may filter across the pterygo-maxillary fossa, reach the zygomatic fossa, and even point at the level of the first large molar tooth. Moreau, who points this out, makes the suggestion that in this way a swollen face, or a gumboil, may be an early symptom of a sphenoidal sinusitis spreading beyond its boundaries.

(c) *By the Lymphatics.*—But the above venous channel, although it would explain the route in my case of thrombosis, would be less satisfactorily invoked in the case of meningitis. To explain the route of infection in such cases, the lymphatics have been considered as possible channels—based chiefly on the works of Key and Retzius,[19] and the later investigations of Cunéo and André.[20] The lymphatics of this region communicate with those of the endocranium, and also with the peripharyngeal ganglia. Hence the possibility of a sphenoidal empyema being caused by an infectious angina. (Compare Cases 3, 11, 18, 26.)

In Zörkendörfer's case (No. 4) the pneumococci of Fraenkel-Weichselbaum were found in the meningeal pus, and in the pus of the sphenoidal sinuses. But they were not found in the blood, nor in the heaps of leucocytes within the blood vessels, nor in the substance of the brain. From this it is concluded that the penetration of the diplococci did not follow the blood stream, but passed by the lymph stream, or direct through the tissues, although the latter showed no change to the naked eye.

Sinus thrombosis attacks chiefly the cavernous sinus, spreading via the circular sinus to that of the opposite side, as well as forwards to the ophthalmic vein, and sideways to the petrosal sinuses.

Summary of Pathogenesis.—The following is an epitome of the above considerations:

1. Infection of the cranial cavity depends largely on the virulence of the infective organism, and the diminished resistance of the individual.

2. Neither the long duration, nor the extent of pathological changes in the sphenoidal sinus, appears to be a prime factor in this extension.

3. Infection of the cranial cavity takes place through the perforation of the bony walls, through the bone diploë, through the veins, or by the lymphatics.

4. Thrombosis of the cavernous sinus and basal meningitis are the commonest consequences, and occur with equal frequency.

5. Other complications are much less frequent (vide list on p. 771).

Prognosis.

These cases illustrate the grave complications which may arise in a patient who complains of nothing, or, at most, nothing more than post-nasal catarrh. Even if it is diagnosed that this "catarrh" originates in the sphenoidal sinus, we are at present loth to recommend operative measures in the absence of much discomfort. Data are wanting to show the mortality of this form of empyema. Yet, in future, we cannot tell a patient with sphenoidal sinusitis that there is no harm in leaving it alone. Pus in this cavity apparently is fraught with more danger than in any of the other pneumatic spaces of the skull. Its anatomical relations are most delicate and intimate. It resembles the mastoid antrum in not having its ostium at a dependent point, but it is much more inaccessible, and the onset of secondary complications is far less definite. The maxillary sinus is rarely the originator of cerebral lesions, and there is no excuse for not treating this cavity as soon as pus is found in it. The frontal sinus possesses the great advantage of having its ostium at the most dependent point, and by freeing the access to this point we facilitate drainage, and lessen the risk to the cranial contents. It seems to me that suppuration in the sphenoidal sinus should never be left untreated. The opening in the anterior wall can be enlarged, and suitable measures will often result in completely curing the discharge. If not entirely arrested, the establishment of a free communication with the nose will relieve the patient of many symptoms, and will diminish the risks, otherwise inseparable, from fresh infection of the cavity.

In early cases of relapsing cyclitis, in choroiditis, and even in early glaucoma, Ziem claims that treatment of the causative or contributory nasal suppuration will cure, or contribute to recovery.

Ophthalmic changes induced by sphenoidal disease may be cured if the infection has not spread by the cavernous sinus or ophthalmic vein. In a case of sudden, unilateral blindness, produced by exudation into the optic sheath, the eyesight has been restored by opening and draining the sphenoidal sinus.[21] In a remarkable case recorded by C. R. Holmes, there was total loss of sight in one eye from retrobulbar inflammation. Although no pus could be seen by anterior or posterior rhinoscopy, and although the patient when questioned denied any annoyance from nasal catarrh, yet the sphenoidal sinus was opened; thick creamy pus was evacuated, and vision was restored.[22] In both these cases there was some exophthalmos, and the eyeball was tender.

When the meninges are affected, it is suggested by Stanley Barnes (Case 16) that if a lumbar puncture withdraws a thick or yellow fluid, operation would be useless. But that, if the cerebro-spinal fluid is only slightly turbid, an operation would not be contraindicated. He thinks Kernig's symptom is uncertain, and that stiffness of the neck may be present in these cases without meningitis, as it was in my case.

Even early operation on the sphenoidal sinus, as in the case of Flatau (No. 7), fails to arrest a meningitis, and in my case of thrombosis the free and continued drainage of the original source of infection produced no visible benefit. In three other cases operation on the sphenoidal sinus gave no relief (Nos. 28, 34, 40). In Bronner's case (No. 20), the injection of antistreptococcic serum appeared, if anything, to make the patient worse; though it is fair to remember that the pathogenic organism had not been recognized.

Suppurative meningitis appears at present to be beyond surgical skill; but in cases of early threatening meningeal invasion I should in future be inclined to freely open and disinfect any suppurating sphenoidal cavity. The ease with which this could be done, and the facility with which after-treatment was carried out was noticeable in one of my cases.*

Operation on Cavernous Sinus.

With regard to the possibility of operation when only the cavernous sinus is involved, Dr. Dwight, in one case, attempted operation by approaching it through the temporal bone, by the route recommended by Krause in his operation for intracranial resection of the trigeminus. He succeeded in opening the sinus, but the patient died six and a half hours after the operation.

But if approached from its cerebral surface the cavernous sinus is opened through the wall where the most important structures are situated (Fig. 4). Grünert[23] therefore suggested that the best route was via the nose and the sphenoidal sinus, and this idea had independently occurred to Luc,[24] who has shown that it can be satisfactorily carried out on the cadaver with good prospect of success in the living subject. He approached the sphenoidal sinus by first traversing the maxillary sinus from the canine fossa. An important point of his researches is that although he always succeeded in making a large opening into the sphenoidal cavity, he was never able to break through its lateral wall into the cavernous sinus—if he had approached it by the maxillary cavity on the same side. It was, in fact, impossible to apply the chisel perpendicularly to the lateral wall of the sphenoidal cavity, and each attempt resulted in its entering the cranial cavity, either at the posterior extremity of the cribriform plate or beside the anterior clinoid process. However, on approaching the sphenoidal sinus by traversing the maxillary cavity of the *opposite* side, he succeeded in every instance in opening the side of the sella turcica and penetrating the cavernous sinus, without injuring the nerve trunks lodged in its outer wall, the sixth nerve, or the carotid.

If the ophthalmic vein is already thrombosed, or if the infection originated from the orbit, it will in addition be necessary to open the orbital cavity by the route suggested by Krönlein. The zygomatic border is temporarily resected, so as to allow of removal of the deeper part of the external orbital wall, and thus permit of access to the

* E. A. Crockett, in the *Boston Medical and Surgical Journal*, January 25th, 1906, publishes a case of meningitis successfully treated by drainage of the subdural space. The infection was from the ear.

summit of the orbit, where the ophthalmic vein and its principal afferent branches are reached.

If the patient's life is to be saved by operation it must be by undertaking measures before the septic phlebitis has extended beyond one cavernous sinus—an extension generally indicated by the development of ophthalmic symptoms on the opposite side. Perhaps the above suggestions may prove helpful to those who are called on to treat this grave complication.

TREATMENT.

I think that at present our knowledge justifies us in advising any patient with pus in a sphenoidal cavity to have the orifice of it enlarged, and the sinus drained and treated, both for the relief or cure of the suppuration, and as a preventive of intracranial complications. Fortunately, this can be done without external operation and with less serious risks than attend operation on the frontal sinus. The Roentgen rays promise to help us materially both in diagnosis and treatment.

The treatment of these accessory nasal cavities is a delicate matter, and this record suggests that the rhinologist is not necessarily responsible for the fatal intracranial complications which may rise. Secondary infections may be precipitated by surgical traumatism, but, also, they may be simply coincident.

CONCLUSION.

In conclusion, if the association of sphenoidal sinusitis with disease in the orbital and cranial cavities has not been hitherto more fully substantiated, this is partly due to the fact that neither physicians nor surgeons attach much importance to the condition of the nasal cavities, either at the bedside or on the *post-mortem* table.

Records not infrequently appear in our journals of cases in which physicians express surprise at meeting with a case of apparently primary meningitis. Or we read of a surgeon trephining a skull for symptoms of "cerebral compression," and at the necropsy he expresses his astonishment on discovering suppurative basal meningitis, which he is unable to track through the bone to the middle ear or elsewhere.

Another reason why this association is overlooked is that patients will frequently attend a rhinologist, or a throat clinic, when their nasal suppuration or their upper air passages causes them discomfort, but when complications supervene they are apt to go elsewhere and give no history of their nose or throat trouble.

I hope that, in view of my findings, pathologists will more regularly carry the *post-mortem* examination through to the neighbouring pneumatic spaces of the nose. No *post-mortem* examination is really complete without an investigation of the nose and its accessory sinuses. I venture also to urge that in cases of headache, neuralgia, and intracranial inflammation, and in the presence of thrombosis of the ophthalmic vein or cavernous sinus, these cavities should be examined as regularly as are the ear and the eye.

It is only by the collection of a large number of data, clinical and *post mortem*, that we will learn how often these sinuses are diseased, and which are the most frequently affected. I look forward to our thus securing much valuable information in regard to the association of nasal suppuration with diseases of the eye and the brain, as well as with more distant parts.

APPENDIX.

BIBLIOGRAPHY OF 42 CASES OF CEREBRAL AND OPHTHALMIC COMPLICATIONS OF SPHENOIDAL SINUSITIS.

CLASSIFICATION OF CASES.

(Each Group in Chronological Order.)

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REMARKS UPON THE PNEUMOTOXIN.

By ALLAN MACFADYEN, M.D.

(From the Bacteriological Department, King's College.)

THE pneumococcus is an important agent in the production of disease in the human subject. It is the most frequent cause of acute lobar pneumonia, having been found in about 80 to 90 per cent. of the cases examined. The organism likewise invades the pleura and the blood, and appears in the bile, urine, milk, etc., whilst pneumococcal infections outside the respiratory tract are constantly met with—for example, in meningitis, peritonitis, pericarditis, endocarditis, otitis, conjunctivitis, etc. The organism is also one of the exciting causes in the forms of acute catarrh clinically grouped as "influenza."

The pneumococci, in the variety of morbid conditions they are capable of producing, resemble a kindred group of micro-organisms—the streptococci.

The virulence of the pneumococcus is subject to wide variations. The most virulent forms are met with in acute inflammatory processes, and the virulence may be preserved and increased by passages through susceptible animals. The strains of pronounced virulence lead on injection to a fatal septicaemia in one to three days, those of feeble virulence simply to local lesions. In experimental work upon the pneumococcus it is essential to use cultures of undoubted and tested virulence.

Whilst acute pneumococcal infections are accompanied by symptoms of a severe toxaemia, little of a definite character is known with regard to the specific poison of the pneumococcus.

The attempts that have been made to obtain a soluble poison from cultures of the organism have not led to encouraging results. The toxic properties of filtered cultures are feeble, and large amounts are required to produce any morbid effect. The specific nature of the soluble poisons that have been described still remains a matter of doubt.

G and F. Klemperer,[1] in the course of a careful experimental inquiry, employed a variety of methods and of material. The toxins obtained were not of a very potent nature, as doses up to 24 c.cm. were necessary to produce a lethal effect in rabbits. These observers regarded such poisons as specific, and used them for the preparation of an antitoxic serum. The toxic and antitoxic effects were of a feeble character, and large quantities of the filtered broth cultures were necessary to produce an active immunization of animals.

Foà and Scarbone[2] and Scabia[3] conducted experiments on similar lines, but these did not yield any more striking results. Pane's[4] investigations upon a soluble poison were practically negative, and led him to ascribe little importance to the action of a poison in pneumonia.

Mennes,[5] working with highly virulent strains of the pneumococcus, found that the filtered cultures possessed little toxicity. It was only in large doses that filtered or heated cultures produced a lethal effect. Broth cultures, which had been heated to 62° C. for twenty minutes, caused on injection fever, loss in weight, and at times diarrhoea, but the results were inconstant. Rabbits treated with the toxins were in some instances resistant to a fatal dose of the pneumococcus. Mennes also immunized the goat and horse with heated, then unheated, broth cultures and the blood of infected rabbits.

In the case of the horse, its serum protected against the pneumococcus and the broth toxin, which produced fever and loss in weight. Mennes does not appear to have worked with an acutely lethal toxin, and this detracts from the value of his results.

Isaeff[6] also found that sterilized cultures in general possessed feeble toxicity, and were not fatal in doses equivalent to 3½ per cent. of the animal's weight. On the other hand, the blood of infected rabbits yielded a filtrate toxic on intravenous injection, and sometimes lethal in doses equivalent to 1 per cent. of the body weight—that is, about 10 c.cm. per kilogram of rabbit. A dose of 10 c.cm. rendered rabbits immune to the pneumococcus but not to the toxin. Sterilized broth and serum cultures in amounts of 10 to 50 c.cm. produced a rise in temperature and loss in weight. Isaeff concludes that "one cannot admit the existence of an antitoxic property of the blood in animals vaccinated against the pneumococcus." The toxins obtained by Isaeff were, however, not sufficiently powerful to justify the conclusion drawn from his experiments with them.

Carnot and Fournier[7] describe toxic dialysates obtained from cultures of the pneumococcus after concentration by drying *in vacuo*, and by precipitation with phosphate of lime.

The antipneumococcic serums prepared by Pane, Washbourn,[8] and Römer[9] by the injection of various strains of pneumococci protected animals against multiple lethal doses of virulent pneumococci. No antitoxic action has been claimed for these serums.

The efforts to obtain potent soluble poisons from fluid cultures of the pneumococcus have not proved successful, nor have the soluble poisons described shown much value as immunizing agents. None of the experiments in this direction, it may be added, furnishes any conclusive proof of the existence of a genuine secreted toxin. There can be little doubt that the essential pneumotoxin is of the endocellular type, and that it is this toxin contained within the body of the organism which is to be regarded as the more important factor in the possible production of any antitoxic immunity.

As few direct experiments have been made in this important direction, it may be of interest to put on record the results I have so far obtained.

The object of the experiments was, in the first instance, to extract a toxin from the bodies of the pneumococci by means of the cold grinding method successfully employed in the case of typhoid, cholera, and other organisms.[10] The pneumococci were isolated from the human subject, and their virulence raised by passages through the rabbit. The cultures were made directly from rabbits which had died of a pneumococcic septicaemia. The heart's blood of the animals was spread over the surface of nutrient agar in Roux bottles. This procedure favoured a rapid and good growth of the pneumococcus, the cultures after two to three days' incubation at blood heat furnishing ample material for each experiment. The resultant mass, after trituration of the cocci, was taken up in 1 in 1000 caustic potash solution, then spun and filtered. If care is taken to use pneumococci of marked virulence for grinding, acutely toxic filtrates of their cell juices are readily obtained. The strains in which a loss of virulence had occurred did not yield cell juices of any marked toxicity; for example, 1 c.cm. on intravenous, and ½ c.cm. on intracerebral injection did not affect rabbits, nor did 1 c.cm., ½ c.cm., and ¼ c.cm. kill guinea-pigs or mice on intraperitoneal injection; on the other hand, the filtered cell juices from virulent strains killed acutely in the above doses. The parallelism between virulence and toxicity was unmistakable, and is further illustrated in the figures given below. It was found that by regarding this point one was in a position to obtain not only constantly toxic cell juices from the pneumococcus, but also to increase the toxicity by further exaltation of the virulence of the organism.

The toxicity of the filtered cell juices was tested on rabbits, guinea-pigs, and mice, the majority of the experiments being made on the guinea-pig. The following figures illustrate the results obtained after three to eight passages of the pneumococcus through the rabbit.

A.—Filtered Cell Juices of the Pneumococcus Directly Isolated from the Rabbit.

Rabbit.—1.0 c.cm. intravenous. Acute diarrhoea and death.
" 0.5 " " No effect.
" 0.2 " intracerebral Dead.
Guinea-pig.—2.0 c.cm. intraperitoneal. Dead.
" 1.0 " " "
" 0.5 " " "
Mouse.—0.1 c.cm intraperitoneal. Dead.
" 0.5 " " "
" 0.3 " " "

B.—Filtered Cell Juices of the Pneumococcus after Passages through the Rabbit.

Rabbit.—1.0 c.cm. intravenous. Dead.
" 0.5 " " Very ill.
Guinea-pig.—1.0 c.cm. intraperitoneal. Dead.
" 0.5 " " "
" 0.4 " " "
" 0.1 " " "

C.—Filtered Cell Juices of the Pneumococcus after Further Passages through the Rabbit

Guinea-pig.—1.0 c.cm. intraperitoneal. Dead.
" 0.5 " " "
" 0.1 " " "
" 0.05 " " "

The toxic effects were of an acute character, the animals dying in twelve to eighteen hours. The main *post-mortem* appearance consisted in a more or less acute congestion of the lungs. The filtered cell juices contained about 5 mg. of solid matter in each cubic centimetre.

The above experiments will be sufficient to prove that it is possible to extract an acutely lethal toxin from the bodies of virulent pneumococci, and one of much greater potency than the soluble toxins described by previous observers, inasmuch as the ascertained minimum lethal dose was about $\frac{1}{4}$ mg.

The endotoxin of the pneumococcus is sensitive to the action of heat. A filtered cell juice heated to 55° C. for an hour failed to kill in doses of 0.5 and 1 c.cm., whilst 2 c.cm. only caused death at the end of five days. The unheated juice was acutely lethal in doses of $\frac{1}{5}$ c.cm.

The prolonged action of chloroform vapour is also injurious to the toxin. After an exposure of one hour to chloroform vapour, 0.5, 1, and 2 c.cm. did not kill the test animals, the lethal dose of the untreated toxic cell juice being $\frac{1}{5}$ c.cm.

The immunizing experiments with the above toxin of the pneumococcus are at present in progress, and will form the subject of another communication upon the feasibility of producing an antitoxic serum.

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RUPTURE OF INTERSTITIAL TUBAL PREGNANCY: HYSTERECTOMY.

By G. BERTRAM HUNT, M.D., B.S.Lond.
SURGEON TO THE SCARBOROUGH HOSPITAL.

Although the formation of a gestation sac in the wall of the uterus is the rarest form of tubal pregnancy, the condition is one of general interest, as it is liable to unexpectedly present itself to any one who is called upon to open the abdomen for intra-peritoneal haemorrhage.

History.

A. H., a multipara, aged 30, was seized with sudden pain in the left side of the lower abdomen with faintness while getting up from bed at 8 a.m. The menstrual periods had been quite regular up to six weeks previous to seizure. Since the time of the omitted period there had been frequent but slight pain in the left pelvic region. The last pregnancy had been three years ago. From the onset of the acute pain the abdomen became more generally tender and the collapse increased. There was no haemorrhage from the vagina.

Dr. Murray, who was called to the patient, made a diagnosis of ruptured tubal gestation and ordered immediate removal to the Scarborough Hospital.

Condition on Admission.

On admission the collapse was very marked, pulse 120 to 130, running; face and extremities cold, clammy and blanched. The abdomen was fixed, distended and tender. Palpation revealed a sort of boggy resistance. Strychnine was given hypodermically and an infusion of a pint of saline with 5 minims of adrenalin made under the breasts.

Operation.

Owing to the prompt action of Dr. Murray the patient was submitted to operation within four hours of the onset of the attack.

The peritoneal cavity when opened was found to contain a large quantity of blood clot. On bringing first one tube and then the other into the wound without finding any sac or abnormality, I thought that the diagnosis was erroneous and that the bleeding had some other source. The uterus, however, was felt to be distinctly enlarged, and on bringing it up a small ruptured sac full of clot was seen projecting from its wall just above the point of emergence of the left tube. Being unexpectedly confronted with a condition which I had previously merely heard of as a pathological curiosity, I saw no way of effectively stopping the bleeding but by removing the uterus. The patient was accordingly placed in the Trendelenburg position, and with Dr. Salter's assistance the uterus, with the left tube and ovary, was amputated from the cervix, the right ovary being preserved.

Result.

The after-history was entirely uneventful, the patient making a good recovery.

Description of Specimen.

On dividing the removed uterus an oval sac about 1 in. in its longest diameter was seen lying in the wall of the womb and slightly projecting from its surface, in connexion with and immediately above the uterine portion of the left tube. The sac, which had a rent about $\frac{1}{2}$ in. long on its peritoneal surface, was full of soft, friable tissue infiltrated with blood. No trace of the embryo was found. The cavity of the uterus was enlarged and empty, and the uterine mucosa thickened. The left ovary contained a large corpus luteum.

Cases of interstitial gestation are rare (1 to 77 of all cases of ectopic gestation, Martin), and when ruptured lead to exceptionally profuse bleeding owing to the wall being formed by vascular uterine tissue. The condition is also of interest practically, as the operation required when rupture occurs is necessarily different from that performed in ordinary cases of tubal gestation.

Although my patient made a good recovery after removal of the uterus, even more rapid than a simple case of ruptured tubal gestation I treated by removal of the tube and ovary a short time ago, yet one cannot help feeling that hysterectomy may be rather a severe operation to perform on a gravely collapsed patient, and possibly entails more mutilation than absolutely necessary. This feeling was rather strengthened by reading a case reported by Battle,[1] in which, finding a condition of ruptured interstitial pregnancy very similar to the present, he scraped out the sac and brought the uterine peritoneum together over it with Lembert sutures, the patient making a good recovery. Other cases in which the treatment consisted in removal of a wedge-shaped piece of uterus, including the sac, bringing the raw surfaces together by suture, are quoted from Franqué[2] and Hofmeier.[3] However, one is relieved to find that hysterectomy, which was the treatment adopted on the spur of the moment, is recommended by some.[4]

The surer prevention of any further haemorrhage after removal of the uterus seems to me to render it advisable if the patient is operated on early enough to stand it; and when one considers how often tubal gestation appears to repeat itself, the natural reluctance to inflict the increased mutilation, especially in a woman who already has children, will be much lessened.

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MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL.

NERVOUS SHOCK.

On March 12th last the patient, a stolid unemotional Scotchman, was travelling on the London and North-Western Railway to Preston, when the carriage in which he was seated ran off the line. It "telescoped" into a van in front, which had also become derailed without turning over, and the front of the carriage was slowly but steadily forced into within a foot of the patient's chest. He received no physical injuries, and for some hours felt perfectly well. He then became "nervous," and the night subsequent to the accident appears to have been one of undiluted horror. He returned to London on the 14th, and I saw him for the first time on the 16th.

The nervous symptoms were then particularly well marked and typical of the condition. He had a startled appearance, was perspiring freely, respiration much increased, pulse 120, general tremor, and there was some slight headache. He was unable to sleep, the remembrance of the gradual telescoping of his carriage being so vivid as to become a complete mental obsession. He complained of some dimness of vision and the pupil reaction was rather sluggish. There was no digestive disturbance except for some loss of appetite. He was, of course, unable to concentrate his attention on any mental work, but there was no impairment of memory.

He was given nerve sedatives, and veronal as a hypnotic. He thus got some sleep, but otherwise the condition remained practically unchanged for three days. The excessive perspiration and the rate of respiration then began to diminish, and the pulse fell to 100. The tremor still persisted, and he was very nervous at crossing a street, though curiously enough he did not object to train journeys. His weight did not decrease, and gradually he

was able to do without any hypnotic. He remained, however, for about four months unable to concentrate his attention on his work, which was that of a consulting engineer. This was the only symptom which persisted beyond two months, all the others having slowly subsided without any particular treatment except rest and tonics. This case is interesting in so far as it illustrates almost all the cardinal features of this somewhat protean disease, only two of the better known symptoms being absent, namely, photophobia and digestive disturbances.

London. R. L. Guthrie, M.A., M.D.

NUTMEG POISONING.

Some time ago I received an urgent message about 11 p.m. to see a woman who had been taken ill during the evening, and was said to be dying. I found the patient, a woman of about 34, in bed; she was perfectly conscious though markedly collapsed. Her face was very white, with pale mucous membranes, and her hands, feet, nose, and legs nearly up to the knees stone cold and clammy. She was restless, and complained of a weight on the chest. The pulse, about 98, was very small and weak. Respiration was shallow, and rather rapid and irregular. The pupils were normal.

The history was that she had been quite well until that afternoon, when she had taken, on the advice of a neighbour, one whole nutmeg, crushed up, and swallowed with some water. This was by way of treatment for menstrual "irregularity." The nutmeg was taken about 5 p.m., "just before tea," and about 8 p.m. she began to feel "queer," becoming rapidly worse and so giddy that she could not stand. About 10.30 p.m. she had vomited, and since then had felt a little better. The vomited matter was shown me; it contained bile, with some mucus and a quantity of the nutmeg, of which it smelt strongly.

I administered a dose of liq. strychninae hypodermically, covered her up with blankets, and had hot bottles applied. She also took and retained some hot whisky and water by the mouth. She was not given an emetic in view of the amount already vomited and the state of collapse. After about an hour she was distinctly better, and said she could sleep. Next day she was apparently quite well except for the feeling of weakness.

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Thornton Heath.

TUBERCULOUS CERVICAL ADENITIS.

The child in the following case, aged 6 years, was first seen on April 29th, 1905, when she had been suffering for a week with a swelling on the left side of the neck. There was a distinct tuberculous history on the father's side. On examination a gland was found to be much enlarged. It was lying midway between the angle of the jaw and the clavicle, and was about the size of a hen's egg. There was great pain and tenderness, but no fluctuation. By May 6th, however, fluctuation was distinct, so the abscess was opened and the cavity drained. The discharge continued for ten days, when it was observed that the whole gland was beginning to break down. By May 29th it had become entirely disintegrated, leaving a raw, granulating, spongy surface, 1¼ in. long and ⅞ in. wide, and raised for a considerable height above the surrounding skin. It was treated with lotions and ointments until June 17th, without any benefit whatever. It was then suggested that the child should be put under chloroform, and the part thoroughly scraped, but as the parents refused consent, *x*-ray treatment was begun. From June 17th till July 28th the part was subjected to fifteen irradiations, each lasting fifteen minutes. No violent reaction took place, but the granulating surface became less and less, until finally healing was complete.

Penryn, Cornwall. Alex. Gregor, M.D.

Under the will of the late Mr. John Fyfe of Aberdeen, which has now been proved, the Aberdeen Royal Infirmary receives a legacy of £1,000.

The Investigation of Syphilis.—Professor Neisser (Breslau) has been commissioned by the German Imperial authorities to pursue his researches on syphilis, and will accordingly start on a second expedition to Batavia in November. He will be accompanied by Drs. Halberstädter, von Prowazek, Bruck, and Siebert.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ST. BARTHOLOMEW'S HOSPITAL.

LEAD AS AN ABORTIFACIENT: A FATAL CASE.

[By J. G. Priestley, M.B., House-Physician.]

There have been several communications in the British Medical Journal during the last six months upon the subject of lead, taken in the form of diachylon, as a means of procuring abortion. Dr. Hall and Dr. Ransom, in a statistical paper (British Medical Journal, 1906, i, 428), give the bibliography up to that date, and mention that 10 deaths were ascribed to it. Since then Wrangham (ibid., p. 556) and Jollye (ibid., p. 620) have recorded cases, an inquest is noticed at Sheffield (ibid., p. 769), and lately (ibid., ii, p. 334) there is an account of the trial and sentence of a vendor of diachylon pills. These particular pills, on analysis, contained diachylon 50 to 70 per cent., with aloes to prevent constipation, and boric acid. In other cases diachylon ointment, which in Hebra's prescription contains one-fifth of its weight as lead oxide (*Extra Pharmacopoeia*, Martindale and Westcott), but less if made according to other formulae, has been bought in the mass and taken in irregular lumps. Dr. Ransom, in the paper cited, writes that "the symptoms described fall into three groups:

"1. Those of acute lead poisoning, such as colic, vomiting, or encephalopathy.

"2. Those attending abortion, such as metrorrhagia and metritis.

"3. Those of chronic lead poisoning, such as anaemia, headache, and occasionally wrist-drop."

This use of diachylon appears sufficiently uncommon in London to warrant my recording a fatal case of encephalopathy, which was doubtless due to this cause.

Elizabeth M., 30, housewife, was admitted on August 3rd, 1906, into St. Bartholomew's Hospital, under Dr. Herringham for severe headache. She was quite well three weeks before, but then began to complain of slight headache, beginning in the occipital region, which has ever since been getting worse. A few days later she began to vomit, and this also has become more frequent. She has had no fits or unconsciousness. She does no work but that of her own house. She has had three children—the youngest 5 years old—and two miscarriages—the last fifteen months ago. There is no history or sign of syphilis. Catamenia ceased three months ago. She is evidently in great pain and tosses on the bed. She vomits a clear fluid frequently. She has been very constipated. She is remarkably pale. The breath is foul, and on the gums is a definite lead-line. The tongue is dry and furred.

In the right eye the optic disc is swollen to 2 D. and the whole fundus blurred, but the veins are not much engorged. In the left eye, which is highly myopic, the optic disc is also swollen. There are several opaque white patches of choroidal change on the temporal side, probably due to the myopia (Note by Mr. Coventon, Ophthalmic House-surgeon).

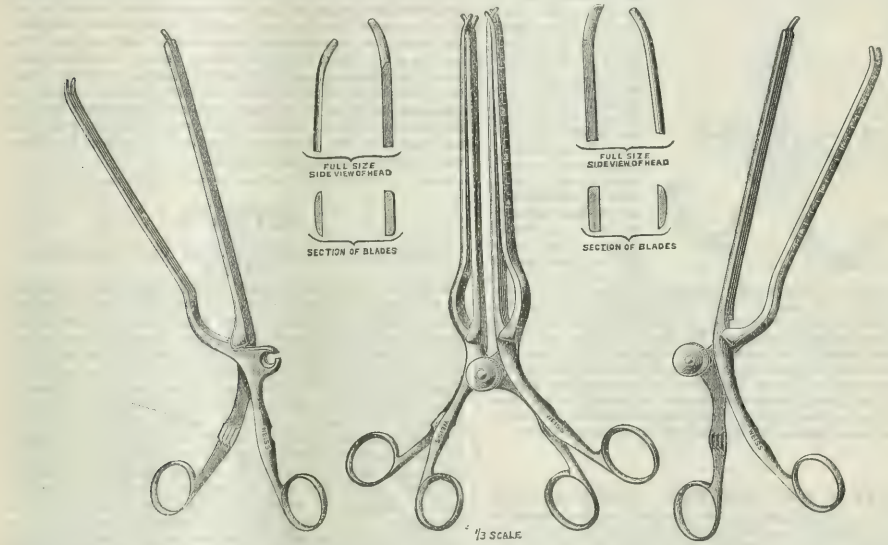
Temperature normal; pulse 70; no squint nor any other form of paralysis; knee-jerks present; viscera natural; no albuminuria. Since no cerebral tumour would account for the blue line, she was at once treated for lead poisoning. We could not obtain any history of her having taken lead, but we learned that she had had a somewhat similar illness before her miscarriage in 1905.

On August 9th she aborted, and complained of numbness, tingling, and weakness of the right hand and forearm. That morning she could not hold her medicine glass. No further change took place, and she died comatose on August 14th.

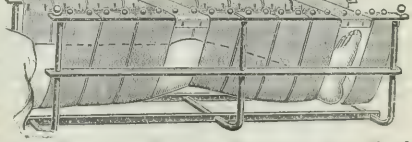
The dissection showed as usual some flattening and dryness of the brain, and haemorrhages in the gastric mucous membrane; the liver and kidneys showed slight fatty degeneration; the other organs were natural. No further information was obtained at the inquest.

MEDICAL AND SURGICAL APPLIANCES.

New Pattern Gastro-enterostomy Clamp.—Dr. T. Gelston Atkins, Surgeon, Cork South Infirmary, writes: The accompanying woodcuts show a new pattern gastro-enterostomy clamp that I have recently devised and used in my last ten cases of gastro-jejunostomy with complete success. The clamp is a twin forceps, each forceps consisting of a male and female blade. The male blades are straight, and fit into the female by an interlocking joint, which keeps the forceps firmly together when in use. The internal surface of this and the female blades are longitudinally grooved, so as to take a firmer grasp of the tissues. The female blade has a double curve, one a long and slight curve, extending from the tip to the beginning of a more acute and short curve. When the mass of stomach and intestine is grasped between the blades, this double curve in the female blades brings the two blades almost parallel, and so exerts even *pressure*—not compression—on the tissues between them. This firmly fixes the tissues, and also produces complete arrest of the circulation, so that they act as a haemostatic forceps during the time the sutures are being inserted. Both female blades are marked off in quarter inches, thus enabling the incisions in both stomach and bowels to be accurately measured—a point of importance in the neatness of the operation. The handles of both forceps are turned away at an obtuse angle, so that when the forceps are locked together as a twin clamp, there is a clear space at this end as well as at the other—a point of great importance, as both ends and under surfaces of the anastomosis can be examined without separating the clamps, and the packing under the line of sutures can be more easily adjusted. The two forceps are joined together by a single slot and screw which enables the surgeon to easily and quickly join them and separate them again, without any undue stretching of the line of anastomosis. The gastric forceps is considerably stronger than the intestinal (vide sections in woodcut). These forceps are designed to be used *without* any rubber covering of the blades, and after removal they leave no mark of their presence on the tissues, so that no possible injury of the tissues by pressure can take place. The accompanying drawings show the various parts of the forceps and sections of the blades. The blades are 5 in. in length—the entire clamp measures about 10 in. The following advantages I claim for these forceps: (1) They act as perfect clamps, holding the stomach and bowels together perfectly steady while suturing; (2) they act as haemostatic forceps; (3) they are not so clumsy or heavy as other patterns, and can be used without the aid of the assistant holding them together or without the blades being covered with india-rubber; (4) the inch scale ensures accurate length of incisions in stomach and intestine; (5) the position of the handles gives free access to both ends of the anastomosis while the forceps are in position, and enables the packing to be accurately adjusted; (6) they can be easily and quickly applied and separated; (7) they can be used for any form of ileo-colostomy or entero-anastomosis. The clamp has been made from my drawings by Messrs. Weiss and Sons, with their usual care and accuracy, and I have to thank them for carrying out my views so perfectly.



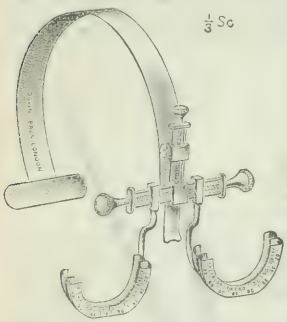
Universal Leg Splint and Cradle Combined.—Dr. Chevers, of Manchester, writes: The splint shown in the sketch consists of a white enamelled metal frame, 32 in. in length, 7 in. in depth, and 9 in. wide. Along the top on each side is fixed a row of brass studs, which serve to secure a series of ten straps. These straps are each 3 in. wide, and are buttonholed or eyeletted so as to be adjustable to half an inch. They are made of pegamoid, and may therefore be sterilized by boiling. The advantages claimed for the splint are as follows: (1) It requires no padding, thereby saving time and material. (2) By means of the adjustable straps it is adaptable to any size, shape, or length of limb. (3) It is of the greatest convenience when heel pressure has to be relieved, which, in case of either a short or long limb, can be easily effected by removing the strap at the location of the heel, so that a space is left. (4) One of its greatest acquisitions is the elevation of the limb with steady, graduated support to the whole under surface, which is attained by graduating the length of the straps on which the limb rests. If the foot should project above the splint, an adjustable guard is provided to remove the weight of the bedclothes off the toes. (5) It is obvious, also, that by regulating the straps the splint can, if required, be used as a double inclined plane. (6) One or more of the straps may be used over, instead of under, the



limb, so as to keep the limb or amputation stump fixed in case of a restless patient or child. (7) If alternate straps are lowered nearly to the floor of the splint but not touching, so that the leg still swings, and the other ones buttoned perfectly tense across the top of the splint, the splint then acts as a perfect cradle, and all pressure of the bedclothes is removed. (8) When excessively wet dressings are required to be applied to the limb, such as evaporating lotions, they can be kept in place without the use of a bandage (which only absorbs the moisture and interferes

with evaporation), and by the application instead of one or more of the non-porous pegamoid straps, and by placing a dressing tray within the splint under the suspended leg, it acts as a receptacle for the drippings from the moist dressings. (9) The placing of the straps over the limb very much facilitates the keeping of an ice-bag in position. (10) The construction of the splint is such that it may be perfectly cleansed. I have had frequent and various uses for the splint over a period of three years, and have found it of the greatest service. It is manufactured by Messrs. James Woolley, Sons, and Co., Limited, Surgical Instrument Makers, of Manchester.

A New Form of Lens Trial Frame.—F. P. S. Cresswell, B.Sc., B.S.Lond., F.R.C.S Eng. (Cardiff), writes: I have devised the following form of trial frame for lenses to be used when testing young children. All the present forms in use fail to keep on a child's face, owing to the fact that they depend upon keeping in position by resting on the child's nose; this in most young children is too small (the bridge not being prominent enough) to give sufficient hold. The present form is designed to obviate that difficulty, the frame being entirely dependent from a head spring band, such as is already in use with a laryngoscopist's forehead lamp. The frame can be fixed easily in position on the child's face, and then finally adjusted by two simple screw movements, the one to alter the distance between the lenses, and the other to raise or lower them so as to get the lenses properly centred. The front of the band ends in a notch which fits just above the bridge of the nose, not to support any weight, but merely to ensure putting the frame straight. I have had one in use now for twelve months, and find it most satisfactory, although since then I have had some slight improvements made. Messrs. Down Bros., London, are the makers of the instrument.



MEDICINAL AND DIETETIC PREPARATIONS.

Ovaltine.—In judging of the merits of a food material from its composition, it is not sufficient to take into consideration the proportions of proteid, fat, and carbohydrate present; regard must also be had to the particular form in which these constituents exist, owing to the great differences of assimilability among members of each of these groups. The natural foods, eggs and milk, form a pattern to which makers of prepared foods have for some time striven to approximate, and, broadly speaking, the more satisfactorily these natural products can be incorporated in the composition of a food, the more adequate will the latter be for employment in those cases where it is desired to supply nourishment with the least possible quantity of superfluous matter. The food now before us, which has recently been placed on the English market under the name of "Ovaltine," is stated to be composed of malt extract, dried milk, eggs, and cocoa, and it is especially claimed for it that it contains active lecithin; the latter, as a phosphorus-containing, nitrogenous substance produced in the animal organism, is of great importance. The results of our analysis bear out these statements; lecithin may be extracted from this food by the action of solvents only, showing that it exists in the free state; the presence of considerable proportions of fat and proteid was also proved. The food is in the form of a dry, granular powder; it is prepared for consumption by merely mixing with warm milk, or milk and water, making an agreeable beverage, with the taste of malt extract and cocoa. It is recommended as a breakfast beverage, and also as a nourishing food for children, nursing mothers, convalescents, the aged, etc.

UNDER the will of the late Captain George Bennett Gosling, King Edward's Hospital Fund for London receives a legacy of £600.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—At a meeting held on September 13th, Dr. YOUNG in the chair, Dr. RUTHERFORD showed a most interesting temperature chart of the case of a child. It would go down daily to 96° F. and rise to 103° F. It was like that of a quotidian ague; the case was really one of influenza. When the temperature was rising the child ceased to eat, when it got down to 102° F. it began again to have appetite, and so right on to normal. It had liquid indigestion, and did much better on solid food. It got well eventually after two months' illness. He also showed photographs of a double congenital dislocation of the hip and of a case of scoliosis. The latter was treated by means of a splint and exercises; one of the latter was going about on all-fours and turning always to the side opposite the curvature, so as to uncurve it.—Dr. JOHN JEFFREY read a most interesting paper on fulminating appendicitis, with notes of a case in a boy upon whom he had operated. The paper was much appreciated, and Dr. Jeffrey thanked for bringing the case before the Division.—Dr. HENDERSON showed a tuberculous knee in a child successfully treated by the congestive method. It was much regretted that time did not permit of Dr. Henderson reading his paper, but this was held over until next meeting.

REVIEWS.

TREATMENT OF DISEASES OF THE DIGESTIVE SYSTEM.

PROFESSOR SAUNDBY'S manual on the *Treatment of Diseases of the Digestive System*[1] is written strictly from the point of view of the practical clinical physician. In the introduction, which fills some forty pages, directions are given as to the examination of the patient, as to the administration of test meals, their subsequent examination and the interpretation of the results, as to the use of the stomach tube, as to the value of acids, alkalies, electricity, and other therapeutic measures, and as to the influence of the general mode of life and of diet upon the digestive organs. In the remaining eighty pages of text the signs, symptoms, diagnosis, and treatment of diseases of the oesophagus, stomach, intestines, and rectum are discussed in order, and a number of useful formulae are collected in an appendix. In a short but comprehensive note on the indications for operative interference in diseases of the stomach, Professor Saundby lays it down that surgical aid is immediately required in impermeable stricture of the oesophagus, perforated gastric ulcer, subphrenic abscess, foreign bodies in the stomach, and pyloric tumour with symptoms of pyloric obstruction. With regard to recurrent haemorrhage from the stomach, he appears to approve the conduct of those surgeons who refrain from operating, remarking that, as a rule, the application of an icebag to the epigastrium and rectal feeding are followed by recovery. Gastric ulcers, he says, generally recover under medical treatment, the indications for operation being, in addition to perforation, intense pain or persistent vomiting, which does not yield to medical treatment; haemorrhage may suggest, but does not indicate, operation, while haemorrhage from a duodenal ulcer calls for gastro-enterostomy; simple dilatation of the stomach, however great, if the stomach empties itself in eight months, does not, he holds, call for operation, but a longer delay, indicating pyloric stenosis, or the complication of tetany, both call for the interference of the surgeon. With regard to cancer, early operation is recommended, but the difficulty of diagnosis is recognized. The book is written with fullness of knowledge and experience, and is inspired throughout by a sane judgement and shrewd common sense.

Mr. HERBERT J. PATERSON has published his Hunterian Lectures delivered in February, 1906, in a volume entitled

[1] *The Treatment of Diseases of the Digestive System.* By Robert Saundby, M.D., M.Sc., LL.D., F.R.C.P. London: Charles Griffin and Co. 1906. (Crown 8vo, pp. 133. 3s.)

Gastric Surgery.[2] The first lecture and part of the second are devoted to the operation of gastro-jejunostomy. Without contributing anything new to the subject, Mr. Paterson presents the various problems which surround it in a lucid manner, and shows a thorough acquaintance with contemporary work. Rapid changes in practice and technique are taking place in the surgery of the alimentary tract, and the fact that already after a few months some portions of this work are out of date shows how much the subject is alive. Writing to-day, Mr. Paterson would no doubt alter some of his arguments regarding the comparative merits of anterior and posterior gastro-jejunostomy, and would devote more space to discussing the "no loop" operation of Petersen. There is no mention of Kocher's gastro-duodenostomy, which deserves notice in connexion with other similar procedures which are discussed. Of much interest are the author's observations on the effect of gastro-jejunostomy on metabolism; he found that the unabsorbed nitrogen of the food-stuffs did not in any case amount to more than 2 per cent. above the amount usually passed by a healthy individual. Although the observations were only four in number, they may certainly be accepted as important evidence going to show that gastro-jejunostomy does not materially interfere with the digestion and absorption of food. They conflict with Jöslin's two observations on the same matter. The section on infantile pyloric stenosis presents a useful summary of the results of operative treatment in this condition, which, in the author's opinion, show the general superiority of gastro-jejunostomy over pyloroplasty and other procedures. At the end of the third lecture an outline is given of the present position of the operative treatment of gastric cancer. Mr. Paterson pleads for less pessimistic views on the part of English surgeons. It is a fact that a rapid improvement in immediate results has taken place during the last few years, so that now the mortality of gastrectomy, in competent hands, is under 20 per cent. Further advance depends largely upon earlier diagnosis, and Terrier (quoted by the author) has summed up the matter by saying, "As soon as medical men grasp the necessity of early operation the results will be good." The appeal in this sentence is of course hackneyed, but it is by no means yet out of date. Mr. Paterson has expended much pains upon the collection of statistics giving results of gastric operations, and he deserves the gratitude of surgeons for the tables which he gives in the appendix. He also describes here the preparation and after-treatment of cases of gastric operation and the technique of anterior gastro-jejunostomy. The lectures would have been more valuable if an attempt had not been made to cover so much ground. Gastric ulcer is adequately dealt with, but the section on gastric cancer is much condensed. It is in the discussion of results that the author has been best equipped, and his investigations in this direction make the lectures a welcome addition to the literature of gastric surgery.

THE PHYSIOLOGY OF DIGESTION.

The lectures on *Recent Advances in the Physiology of Digestion*,[3] published by Professor E. H. Starling, were delivered by him during Michaelmas term, 1905, in accordance with a resolution of the Council of University College, London, that in recognition of a generous gift by the Mercers' Company in aid of the physiological work of the College a course of lectures should be given each year dealing with original investigations made in the department. Naturally the Jodrell Professor was the proper person to deliver the first course of what we hope will be a long series, and equally natural was it that he should choose the physiology of digestion for his theme. Great and important as have been the contributions made by Professor Starling, Dr. Bayliss, and their co-workers to this branch of knowledge, we are glad that he has not restricted himself to an account of their researches only, but has given a sufficient and intelligible statement of the entire subject as it presented itself to his mind at the time these lectures were delivered and prepared for the press.

Lectures I and II deal with the changes that food-stuffs undergo in the process of digestion, which amount practically to their being taken to pieces in order to fit them for use in building up the tissues of the animal into whose body they are introduced. Thus, albuminous food is not only converted into albumoses and peptones, but into the yet further stages of amino-acids, starches and cane sugar, into glucose and fats, into fatty acids and glycerine. These chemical changes are all alike hydrolyses, or the taking up of one or more molecules of water; the agents effecting them being ferments, of which, as each change is specific, there are a great number. Besides the ferments there are other essential aids which increase the velocity of the reactions called catalysers, and the extraordinary energy of these processes is further explained by the physical state of the bodies concerned which are present as colloidal solutions. The velocity of the change is found to be inversely proportional to the concentration of the ferment but directly in ratio to its amount, but it diminishes in process of time until it stops altogether from the formation of an antiferment which may be the end-body of the fermentation, for example, lactase and maltase are checked by galactose and glucose. This checking is explained by an adaptation of the theory of Ehrlich, the ferment consisting of a proteid group with two side chains, of which one—the *haptophore*—is peculiarly fitted to anchor the ferment to the body to be attacked; while the other—the *zymophore*—is responsible for the resulting changes. This zymophore may be altered or destroyed without affecting the haptophore.

Another method by which ferment action may be checked is by reversal of the chemical process, as in the case of methyl acetate and water, which form methyl alcohol and acetic acid, while acetic acid and alcohol form methyl acetate and water, the interaction being determined in either direction by altering the amount of one or other of the four substances. The combination between the ferment and antiferment is explained as being physical, not chemical; it is called adsorption, an example being the taking up of iodine by starch.

The reader may be glad to leave these obscure problems of physics and chemistry to turn to the more familiar terminology of the subsequent lectures, which deal with the secretion and conditions of action of the various digestive juices and with the mechanism of the various parts of the alimentary canal. The secretion of saliva is under the control of the nervous system, and may be produced by psychical stimuli, as in the familiar mouth-watering at the thought of food, but the secretion of gastric juice, while mainly effected by the same means, is also caused locally by the action of certain "peptogens," always present, for example, in extracts of meat or soup, as was long ago pointed out by Schiff. The secretions of the pancreas and the intestinal glands are wholly dependent upon these local chemical stimuli or *hormones*, and are not at all under the influence of the nervous system.

Secretin is the name given by Starling and Bayliss to the hormone discovered by them in extract of the duodenal mucous membrane, which when injected into the blood causes a flow of pancreatic juice; it also stimulates the flow of bile and the succus entericus, but the gut itself secretes a special hormone. Trypsin, the proteolytic ferment of the pancreatic juice, is not found in this secretion when pure, but is present only in the potential form of trypsinogen, which is converted into trypsin by the action of enterokinase, a ferment formed by the intestinal mucous membrane, and well named by Pawlow a "ferment of ferments." Another interesting point is that the time at which the various digestive juices are formed after the taking of food differs; thus, the flow of saliva is instantaneous and copious, as is that of the gastric juice, the amount diminishing after the first two hours, but the flow of the pancreatic and intestinal juices reaches its maximum in the third hour. The adaptation of the various elements of the pancreatic juice announced by Pawlow, such as trypsin to meat diet, amylase to bread, and lipase to fat, has not been confirmed, the case that seemed strongest, that of lactase, having been disproved

[2] *Gastric Surgery*, being the Hunterian Lectures delivered before the Royal College of Surgeons of England on February 19th, 21st and 23rd, 1906, by Herbert J. Paterson, M.A., M.B., F.R.C.S. London: Baillière, Tindall and Cox. 1906. (Demy 8vo, pp. 181, 5 figs., 2 plates. 6s. net.)

[3] *Mercers' Company Lectures on Recent Advances in the Physiology of Digestion.* By Ernest H. Starling, M.D., F.R.S. London: Archibald Constable and Co., Limited. 1906. (Cr. 8vo, pp. 156. 6s.)

by the work of Bièrry and Plimmer. The islets of Langerhans, of which we have heard so much recently as the parts of the pancreas especially related to the production of the internal secretion concerned in the assimilation of glucose, and whose destruction has been said to be the cause of diabetes, turn out to be merely stages in the growth of the pancreatic alveoli, all parts of the gland reverting to this condition as the result of activity, so that there is a constant formation and disappearance of these islets; the relation of the pancreas to diabetes remains an unsolved problem. The salts of the bile possess the important property of doubling the proteolytic and amylolytic action and trebling the fat-splitting power of the pancreatic juice, while they are the most powerful of cholagogues.

The mechanism of the pylorus, which has been somewhat of a puzzle in the past, is explained in the following way: It is relaxed by the presence of acid chyme in the stomach, contracted by the presence of acid chyme in the duodenum, and relaxed again when this is neutralized by the alkaline pancreatic juice. The movements of the stomach consist of (*a*) tonic contraction of the fundus, and (*b*) peristaltic contraction of the antrum pylori, until ultimately the stomach assumes the shape of a curved tube. The movements of the small intestine are also of two kinds: (*a*) segmental contractions, which do not propel the contents onwards; and (*b*) peristalsis, which propels by alternating movements of contraction and dilatation, the former being always above, and the latter below. In the caecum there are peristaltic and antiperistaltic movements which cause an active circulation of the contents up and down, extending from the caecum into the ascending colon, and to a less extent into the transverse colon; in the sigmoid the contents rest, while the rectum is the organ for expelling them.

We have endeavoured to give some idea of what a storehouse of valuable facts these lectures are, and we hope this summary will induce readers to go to the original for an account of the researches upon which these conclusions are based. The work done at University College under Professor Starling's direction has been most valuable, and such results are a noble return for the munificence of the Mercers' Company; we hope imitators may be found among the wealthy corporations and merchant princes of the wealthiest and largest city in the world, who up to the present have been singularly unmindful of its educational requirements.

IMMUNITY AND PREDISPOSITION.

It is with authority that Professor Jacoby writes on the experimental basis of immunity and predisposition[4], for he is himself a well-known worker in this field. In a book of only 158 pages an exhaustive treatment of the subject is not to be expected, and the author explains that his chief aim has been to make his reader acquainted with observations and experiments and to draw a sharp distinction between them and the hypotheses or conclusions arising therefrom, while stating these latter where it appears profitable to do so. As a supporter of Ehrlich's theory, the questions which arise are naturally regarded from this aspect, but it seems a pity that more space is not given to a consideration of Metchnikoff's work. The importance of Wright's work on the opsonins seems hardly to be appreciated at its proper value, while that of Neufeld with Rimpau and Töpfer in the same direction, although of later date, is given priority of position. Beyond these criticisms there is hardly a fault to be found with the book. The portion most of interest to the physician is naturally that relating to the practical treatment of disease. Jacoby is not an enthusiastic supporter of vaccine treatment, perhaps through lack of clinical experience and of Wright's methods. Certain points frequently overlooked are suitably emphasized, for example, that the amount of passive immunity may not necessarily correspond to and be solely dependent on the amount of antiserum injected; that active immunity is not represented merely by the amount of antitoxin formed, but also by an altered condition of the cells; that toxins must not generally be regarded as proteids and that toxins and antitoxins are entitled to their appellations only when regarded in relation to each other. It is a book which can be strongly recommended to those wanting an impartial and clear exposition of the questions of immunity and disposition, so far as at present elucidated.

[4] *Immunität und Disposition und ihre experimentelle Grundlagen.* Von Dr. Martin Jacoby. Wiesbaden: Bergmann, 1906. (Demy 8vo, pp. 158. Two curves and five figures in the text. 4s. 8d.)

The work on *Infection, Immunity, and Serumtherapy*[5] by Dr. Ricketts is a more ambitious attempt "to present the general principles and the important theories and facts in as simple manner as possible." The book contains, in addition, a fairly complete account of the various pathogenic organisms, including those associated with sleeping sickness and syphilis. Directions in technique are also given, but they might be fuller with advantage. For instance, a hollow slide is not always available for the serum reaction, but there are various extemporaneous devices by which the difficulty may be overcome. The historical notes are often erroneous, especially those about sleeping sickness, and names are often misspelt—for example, Nepreu and Dolflein. But taken altogether the book forms a complete and valuable summary of the experimental work on the subjects indicated in the title.

[5] *Infection, Immunity, and Serumtherapy.* By H. T. Ricketts, M.D. Chicago: American Medical Press Association. 1906. (Crown 8vo, pp. 610.)

ANATOMY.

The fourth section of the *Edinburgh Stereoscopic Atlas of Anatomy*,[6] edited by Dr. David Waterston, includes twenty-four photographs of surface views and dissections of the upper extremity, eleven views of dissections of the thorax and abdomen from behind, and sixteen photographs of preparations of the perineum and pelvis. The photographs vary both in clearness and usefulness, but all are good representations of conditions and relations demonstrated by dissection in a formol-hardened subject. The fifth section contains seven photographs of dissections of the brain designed to display the central lobe, the basal nuclei, and some of the bundles of association fibres; ten views representing surface appearances and dissections of the head designed for purposes of cranio-cerebral topography; and twenty-seven photographs of surface views and dissections of various parts of the head and neck. The photographs vary both in clearness and usefulness, but all the views of dissections are good representations of the conditions and relations which can be demonstrated in formol-hardened bodies. On the whole, the subjects utilized for the purposes of the fourth and fifth sections of the *Atlas* present fairly typical conditions, but the user of the photographs must ever bear in mind that each photograph represents the arrangement of parts found in one body only. Therefore, as variations are numerous, he must not expect to find exactly similar conditions in any other body he examines, but must always be prepared to meet more or less marked modifications. Both the fourth and fifth sections of the *Atlas* fully maintain the high standard to which reference was made in these pages when the previous sections were placed in our hands (see British Medical Journal, April 8th, 1905; November 4th, 1905; and March 10th, 1906), and the figures which represent dissections of the posterior part of the brain and the upper part of the spinal cord from behind are amongst the best of the whole series. The dissections of the association fibres of the cerebrum have been beautifully prepared, and should prove of considerable value to those who have to localize cerebral lesions, but for the ordinary student of anatomy they will have little interest.

[6] *The Edinburgh Stereoscopic Atlas of Anatomy.* Edited by D. Waterston, M.A., M.D., F.R.C.S.E., F.R.S.E. Section IV. Edinburgh: T. C. and E. C. Jack. 1906. (25s.)

Dr. Buchanan's object in publishing his *Manual of Anatomy*[7] is "to combine a manual of practical anatomy with a textbook of systematic anatomy, and so furnish students with a complete treatise on the subject." He claims also to have dealt with embryology "by appending to the description of each viscus and organ a concise account of its development." The book is to appear in two volumes, and the first, which is now before us, deals with osteology, the upper limb and the lower limb. The parts which constitute in this volume the manual of practical anatomy

[7] *Manual of Anatomy.* Systematic and Practical, including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S.Glas. Vol. i. Osteology; Upper Limb, Lower Limb. London: Baillière, Tindall and Cox. 1906. (Demy 8vo, pp. 596; 266 illustrations. 12s. 6d.)

appear at the ends of the sections devoted to the upper limb and the lower limb as a series of pages of small print, unaccompanied by any explanatory figures. It is possible that younger students will find some difficulty in utilizing the advice given, for though with regard to various dissections he is told what to do, he is frequently not told how to do it. The systematic part of the book does not appear to contain anything new either in substance or arrangement. The descriptions are short, generally correct, and as uninteresting as those usually found in anatomical textbooks, whilst the concise accounts of development are not in all cases as clear and definite as could be wished; it is scarcely to be expected that they will stimulate the student's desire for further information. In a volume of this description the author has, of course, the right to express his own opinion upon a disputed point, but it is questionable whether he is wise to assure students that he has kept constantly in mind examinational requirements, and then to assert that there are six centres of ossification for each half of the lower jaw and to make no reference to work of his anatomical colleagues who hold opposite opinions of a very decided character. The paper used in the book is thin, the text is distinct, the figures are numerous and clear, but all are not strong; the indications of muscular attachments to bones are on the whole correct. There are, however, exceptions; it is to be noticed that the adductor longus is represented as possessing a round tendon of origin, which is not the case. The origin of the pectineus differs as a rule from that shown in Fig. 127, and the external head of the gastrocnemius does not usually rise in the position indicated in Fig. 134. Other attempts have been made to combine in one book instruction in systematic and practical anatomy, and whether this will be more successful than some of its predecessors it is difficult to say; local success it will probably have, but general success is more doubtful.

The first part of the third section of Dr. Sobotta's atlas of descriptive human anatomy,[8] which constitutes the fourth volume of Lehmann's medical atlases, deals with the heart, the topography and distribution of the blood vessels and nerves, and with the central nervous system. This part, like those which preceded it, consists of a series of beautifully-coloured plates and figures, which are accompanied by short descriptive paragraphs indicating the most important points in the illustrations. The dissections have been excellently conceived and executed, and the plates in which they are depicted are beautiful examples of the reproducer's skill, not only as regards the representation of anatomical relations, but also on account of the excellent blending of the colours. This part of the atlas will undoubtedly prove very useful to practitioners who cannot often get the opportunity of examining dissected material, as well as to students preparing for examinations.

Mr. C. R. Whittaker's *Essentials of Surface Anatomy*[9] gives within a small compass the main points of surgical and surface anatomy which the student preparing for an examination requires to fix in his memory. In the first two sections the surface marking of the blood vessels and nerves is described, and in the remainder the regions of the body are taken in order, and the position of the organs and other structures indicated. The book is carefully written and concise, and avoids for the most part any of the elaborate methods found in some larger works. The only instance in which the author departs from this rule is in the choice of Chiene's method of cranio-cerebral topography which is certainly not one easily committed to memory. Absolute accuracy in marking out the relations of the cranial contents to the surface is not possible, and fortunately is not necessary; the best and simplest method is that which takes the bony points of the cranium, and with as few lines and angles and bisections as possible defines the usual relations between these and the intracranial structures which are surgically important. It is a pity that no standard method of marking out the regions of the abdomen has yet been agreed upon by anatomists. The intertubercular plane is now generally accepted, but the plane parallel to and above this is differently drawn in different works. Mr. Whittaker carries it through the lowest points of the tenth costal cartilages, that is to say, he makes the subcostal plane the lower boundary of the epigastric and hypochondriac regions. The transpyloric plane is the one adopted in most recent textbooks of surgical anatomy. This handbook is interleaved for notes; a student who will use it with a pencil and a subject will find it useful in refreshing his memory on the most important points of surface marking.

Dr. Triepel's little book upon the derivation and pronunciation of anatomical terms[10] is very interesting and useful, but it would have been more useful had it been more complete, many terms, especially those used in craniological descriptions, being omitted. The alphabetical list of terms, in which the derivation and pronunciation is dealt with separately, is preceded by an introduction, in which the author discusses the general rules upon which the terms have been built up and the general rules which should guide the pronunciation. He is particularly severe in his denunciation of the use of the *k* sound instead of the *c* sound in such words as "encephalon," where the *c* is written. Dr. Triepel's notes and suggestions will prove very useful to all who have to use anatomical terms and who wish to use them in a correct manner.

The third volume of *Studies in Anatomy from the Anatomical Department of the University of Manchester*,[11] edited by Professor A. H. Young, contains a series of ten interesting papers of which seven have been published previously either as a whole or in part. Those which now appear for the first time are a paper on the Morphology and Development of the Human Sternum, by Dr. J. Dunlop Lickley; The Development of the Optic Nerve of Amphibians, by Dr. J. Cameron; and the Nerve Plexuses of *Troglodytes niger*, by Dr. C. W. S. Saberton. The volume is well got up, and is evidence of the continuation of the excellent work which has been carried on for so long a period under Professor A. H. Young's supervision, and has been encouraged and stimulated by his own work.

NOTES ON BOOKS.

Mr. Keith Monsarrat has translated and published, under the title, *Indications for Operations in Disease of the Internal Organs*,[12] the treatise by Professor Hermann Schlesinger of Vienna, the French translation of which was reviewed in these columns on April 22nd, 1905. It was then said that the book was a really useful addition to the practitioner's library, easy of reference, clear in expression, and deserving wide popularity. We therefore welcome Mr. Monsarrat's effort to increase the number of its readers. The indications for operation on the nervous system and the thoracic and abdominal organs are treated seriatim in twenty-four chapters, and there is an interesting appendix on the general influence of operations on the body, another on operations on diabetics, and a chapter on nervous arthropathies, arthritis deformans, and osteomalacia. A third appendix on the indications for the induction of premature labour seems a little superfluous. The translator has carried out his task well, and his text is clear and idiomatic.

The sixth volume of the *Medical and Surgical Report of the Presbyterian Hospital in the City of New York*[13] is dated January, 1904, but has only just reached our hands. However, it was perhaps worth awaiting, as it contains some excellent papers by members of the senior and junior in-

[8] *Lehmann's medizinische Atlanten.* Band iv. Atlas der deskriptiven Anatomie des Menschen. Von Dr. Med. Sobotta. III Abteilung. 1 Lieferung. Das Nerven und Gefässsystem des Menschen. München: J. F. Lehmann. 1906. (Crown 4to, pp. 598; 628 figures. M. 16.)

[9] *Essentials of Surface Anatomy.* By Chas. R. Whittaker, L.R.C.S., L.R.C.P. London: J. and A. Churchill. 1906. (Demy 8vo, pp. 40. 2s. 6d.)

[10] *Die anatomischen Namen, ihre ableitung und Aussprache.* Von Dr. H. Triepel. Wiesbaden: J. F. Bergmann; and Glasgow: F. Bauermeister. 1906. (Cr. 8vo, pp. 81. 2s.)

[11] *Studies in Anatomy from the Anatomical Department of the University of Manchester.* Vol. III. Edited by A. H. Young, M.B., F.R.C.S. Manchester: University Press. 1906. (Demy 8vo, pp. 289; 23 plates. 10s.)

[12] *Indications for Operations in Disease of the Internal Organs.* By Professor Hermann Schlesinger, M.D. Authorized English Translation by Keith W. Monsarrat, M.B., F.R.C.S.Edin. Bristol: John Wright and Co.; London: Simpkin, Marshall, and Co. 1906. (Demy 8vo, pp. 486. 9s. 6d.)

[13] New York: Trow Directory Printing and Bookbinding Co. (Demy 8vo, pp. 331.)

patient and out-patient staffs. They are all based almost exclusively on cases which have been observed in the institution, and several of them are elaborately illustrated. Included is a paper by Dr. John Howland on the pathological anatomy of Shiga bacillus infection of the intestines in infants, to which the Broden Prize was awarded. A chapter on the general work of the institution for the year, including a reasonable amount of statistical information, would add to the interest of these reports.

The new edition of *Paton's List of Schools and Tutors*[14] is the ninth in succession of a book which is certainly of decided utility to parents and others who have to select schools for boys and girls; moreover, in addition to specific information concerning the majority of the best English schools, there are some useful chapters with regard to the early education of young people whose course in life is already mapped out. Some useful classified indexes relating to schools of different type—preparatory, girls', and the like—are supplied, but a general index seems to be required as well; without it those in search of information about a particular school of which the name alone is known may perhaps have to go through all the lists to find it.

An official *Report of the Proceedings of the National Conference on Infantile Mortality*,[15] which was held last June, has now appeared in booklet form. The papers which it contains, some seventeen in number, are for the most part well worth reading, and the volume as a whole may be commended as a mine of information to those not already versed in the latter-day aspects of a question of universal importance.

We have received the second edition of a pamphlet, entitled *The Plague in India*,[16] which has been compiled by a layman, RAI BAHADUR LALA BAIJNATH, a judge of one of the lower Indian courts, with the assistance of Surgeon-Major V. D. VASU, of the Indian Medical Service. The original sources of information are various writers on the subject, and the selection of views on the causes, prevention, and cure of the disease seem to have been well put together. There is, perhaps, no great utility in the work in its English form, but we understand that it has appeared also in the Urdu, Hindi, and Bengali languages, and in these its circulation among the natives of India cannot fail to make for good. The persistence of plague is still something of a mystery, but at least we know a good deal about contributory causes, and in the removal of some of them this pamphlet should largely assist, and is therefore to be regarded with approbation.

A little pamphlet on the alcohol question which we have received from the author, the Rev. N. H. LOUWYCK of Adelaide, South Australia, carefully abstains from direct discussion of its moral and social aspects, and thus justifies the title, *The Effects of Alcohol on the Human System*.[17] These are set forth with sufficient clearness to be apprehended by those to whom the author addresses himself, and there is little if anything in the statements made for which excellent authority could not be quoted. In the past the temperance cause has suffered greatly from tall talk, so this attempt by a cleric to treat the subject from the colourless standpoint of impartial science is one to which we wish success.

Of the new edition of the *Extra Pharmacopoeia*[18] but little need be said, since it is the twelfth in succession of a work the value of which has long since been fully appreciated by those for whom it is written. The editors—Mr. W. HARRISON MARTINDALE and Dr. W. WYNN WESTCOTT—seem to have done their work very thoroughly, and to have spared no pains to make the volume a very complete guide to such modern remedies or foreign official preparations as have not yet been included in the *British Pharmacopoeia*. The book is still of a handy pocket size, although it now contains useful accounts of organotherapeutic remedies, vaccines, antitoxins, opsonins, and bacteriological and clinical laboratory methods. Even Giemsa's plan of staining the spirochaete of syphilis finds a place.

The report of the Medical Mission Auxiliary for the year 1905-6 has now been published under its habitual title of *Preaching and Healing*.[19] Included in it is an account of the annual meeting, some observations from the Medical Committee, a very detailed list of contributions, and more or less brief accounts of the progress of each of the medical missions. Apparently there are some fifty of these now at work, and in the descriptions given of their work there is much that is likely to arouse interest and well-merited sympathy. The financial portion of the report, on the other hand, will strike most business men as decidedly lopsided, the income account covering over 100 pages, as against a very uninforming statement of expenditure.

[14] London: J. and J. Paton. 1906. (1s. 6d.)
[15] London: P. S. King and Son. (1s. 6d.)
[16] Meerut: The Vaishya Hitkari Office. 1906. (Fcap. 8vo, pp. 64, 4 annas.)
[17] Adelaide: Miss A. Doyle. 1906. (Fcap. 8vo, pp. 20. 2d.)
[18] London: H. K. Lewis. 1906. (Fcap. 8vo, pp. 1045. 10s.)
[19] London: Church Missionary House. 1906.

VENTILATION PROBLEMS.

THE HOUSE OF COMMONS.

To students of public health problems or even to those who during the past quarter of a century have been steady readers of the more serious dailies, the ventilation of the House of Commons must seem a threadbare subject; of an odour more ancient and musty than any the most cantankerous M.P. has ever alleged to characterize "the House." It is a little depressing, therefore, to be faced with a brand new and ponderous Blue Book devoted to its consideration, but decidedly invigorating to find that the subject has been dealt with on totally new lines and in quite original fashion.

The Blue Book in question is an appendix to a Parliamentary paper containing certain recommendations of a Committee appointed to advise on the ventilation of the House of Commons, and in it Dr. M. H. Gordon gives an account of the investigations on the result of which those recommendations were founded. These investigations, which were the outcome of some inquiries made by a Select Committee in 1903, lasted two years, and in their conduct Dr. Gordon says he had the great advantage of the co-operation of Dr. W. H. Hurtley, Lecturer in Chemistry at St. Bartholomew's Hospital, of Mr. R. G. K. Lempfert of the Meteorological Office, and of Dr. John Aitken, F.R.S. Furthermore, the investigation of the quantity and distribution of air was carried out conjointly with Mr. Arthur P. Patey, Resident Engineer of the Houses of Parliament, to whose co-operation and experience of the working of the system Dr. Gordon ascribes much of whatever value this portion of the report may possess.

SUBJECTIVE AND OBJECTIVE DISCREPANCIES.

The Select Committee, of which mention has been made, caused a limited number of chemical and bacteriological experiments to be carried out, and these showed that, from the point of view of contained carbonic acid and the number of bacteria apparently present, the air of the House compared favourably with that of other buildings. The Committee, however, recommended a general inquiry into problems of ventilation, for there was a discrepancy between these results and those of the subjective tests applied daily but unintentionally by members themselves. It was a common experience that the air lacked freshness, and possessed some quality productive of a feeling of lassitude and heaviness in persons who had to breathe it for a long time. Hence, His Majesty's Office of Works decided to investigate the whole question *de novo*, and entrusted the direction of the inquiry to Dr. Gordon.

Much that the report contains is of local interest only, or, in other words, bears solely upon the House of Commons itself, and much more will appeal chiefly to bacteriologists. There remains, however, not a little which is of general interest.

MODERN VIEWS OF VENTILATION.

This is the case in respect of the initial section in which Dr. Gordon discusses the objective and subjective tests to which reference has been made, and the general factors on which depend those atmospheric qualities which we know conversely as stuffiness and freshness. In this, perhaps, there is nothing quite original, but it is worth perusal, because the outcome of old and recent investigations into the subject are collated and weighed. To begin with, the author quotes Billings's definition of ventilation as "the continuous or more or less systematic changing or renewal of the air in a room or other closed space."

It involves the introduction of the comparatively pure external air in continuous currents, the diffusion of this air throughout the room, and the constant removal of a corresponding volume of the air which has become contaminated

by vapours, gases, particulate matters or odours, or which has had its temperature raised within the apartment.

Billings's dictum on bad ventilation also finds place:

When in any room occupied by human beings there is a definite unpleasant animal or musty odour perceived by a person whose sense of smell is of the usual acuteness, and who enters the room from the fresh outer air, then continuous breathing of the air producing such odour will be injurious to health.

Starting from this point, and dealing with various ventilation standards, Dr. Gordon then shows that de Chaumont's original standard of 2 volumes per 10,000 respiratory carbonic acid should still be maintained in any building capable of being ventilated by modern methods. He quotes Aitken's experiments to show that the offensive organic matter in inhabited places is gaseous and particulate, and considers how far it is possible to estimate its amount by any objective test. The carbonic acid index, though necessarily very rough, owing, amongst other things, to different ways of diffusion, is practically the only one of a chemical character which has yet been suggested.

In this connexion it is shown that no objective test of offensive organic matter in a room would probably ever quite equal in delicacy that of the subjective feelings, and he supplies a table which shows how very far normal sense of smell exceeds in acuteness any other means at present used to demonstrate the presence of minute particles of matter in various connexions.

Substance.	Smallest Part of a Gram Detected.	Reagent.	Authority.
Musk	0.000,000,000,000,000,01	Human sense of smell	Berthelot.
Iodoform ..	0.000,000,000,000,01	Do.	Do.
Sodium ..	0.000,000,000,03	Spectroscope	Bunsen and Kirchoff.
Lithium ...	0 000,000,001	Do.	Bunsen.
Nitrate	0.000,000.001	Hosvay's reagent.	Warington.
Saliva	0.000,000,1–1	Culture test (streptococci)	Gordon.
Carbonic acid	0.000,1–1	Usual range	Pettenkofer.

According to these figures, it would appear that the human sense of smell is about a million times as delicate an index of the presence of musk as is the spectroscope of sodium; while the latter test exceeds in delicacy the ordinary chemical test for exhaled carbonic acid by about the same extent. As the sense of smell is a frequent means by which the efficiency of ventilation is judged by the public, it is well to bear in mind the enormous delicacy of this test as compared with objective tests at present available.

Freshness and Stuffiness.

In another paragraph Dr. Gordon discusses what are the factors which result in the unpleasant sensations experienced by the occupants of a crowded room. It has of course long been recognized that a just balance between heat production by the human body and its elimination depends largely on the temperature and humidity of the surrounding air, and that if both of these reach a high level, heat retention will result with its attendant discomforts and even dangers. Hitherto, however, it has been generally believed that under ordinary conditions of life what first makes an atmosphere of an overcrowded room feel oppressive is the gaseous or particulate matter exhaled by those present. This belief the author shows to be erroneous by quoting the observations published somewhat recently by Flügge, Paul, Heymann, and Ereklentz respectively. These prove that subjective recognition of the fact that a room is badly ventilated is brought about mainly by the temperature and humidity conditions of its atmosphere, and that if these are kept below a certain height, no disturbance from remaining in crowded rooms results, even though the proportion of exhaled carbonic acid exceed that ever recorded as having been found in an occupied room. Haldane's experiments as to the precise point at which the effect of air temperature and humidity is reflected by a definite rise in body temperature are also adduced; in a still atmosphere the point is a wet-bulb temperature of 88° F., and in moving air one of 93° F.

Exhaled Organic Matter.

Knowledge of the amount of organic respiratory impurity in the air nevertheless remains of interest; and since there is no way of estimating it except that of taking the amount of excess CO_2 as its index, the conclusions drawn are sometimes supplemented by using Frankland's method of determining quantitatively the micro-organic contents of the air. This, however, is of no value except as a rough guide in judging the general cleanliness of the atmosphere, since the amount of air usually examined is less than even a single person exhales in a minute, and many organisms do not grow in gelatine at 20° C. Dr. Gordon, therefore, cast about for a better way in which to bring bacteriology to bear on the subject. It is to the mouth, throat, and upper air passages that certainly most of the impurities present in respired air are due; and by getting a clue to the amount present and derived from these sources, more than one point of interest may be ascertained—the potential danger to occupants of a chamber from pathogenic organisms liable to be found in the parts indicated, and the effect of ventilation in removing them. Since any such organisms are likely to be found in saliva, Dr. Gordon made it his object to discover the extent to which droplets of saliva emitted during speaking, coughing, or other acts are present in respired air, and based his plan of action on the fact that one particular organism, the *Streptococcus brevis*, is constantly present in human saliva, and can be identified with such certainty as to be a reliable evidence of the presence or absence of saliva. The test, it appears, is so delicate, that even a particle of saliva so minute as one ten-millionth of a c.cm. can be detected. As for the precise way in which Dr. Gordon made use of this fact we must refer readers to the report itself, merely stating that his working scheme was of a most elaborate and painstaking character, and that the account given of it will be found full of interest to bacteriologists and others engaged on ventilation problems.

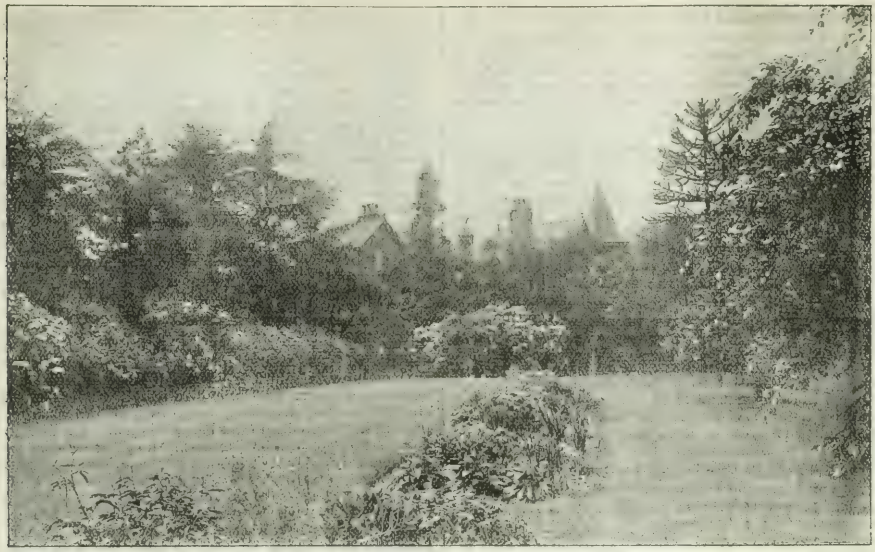
Conclusions.

The general results may, however, be indicated. They show that droplets of saliva are likely to be found in the air of all rooms whilst talking is going on; that they remain suspended in the air for a considerable time before settling down, and that they may be wafted by air currents such as exist in ordinary rooms, even when windows are closed and when there is no artificial ventilation, to considerable distances—to a distance, that is, much greater than the length of an ordinary chamber, and such as can only be found in public halls, churches, and the like. These experiments were further confirmed by inoculating the mouths of certain speakers with a culture of *Bacillus prodigiosus*, and noting the extent to which culture dishes exposed at various distances were infected. In addition to these saliva experiments, the air of the House was also examined for impurities due to other sources than respiration, and, by using the *B. coli*, the *B. enteritidis sporogenes*, and the *B. mycoides*, it was proved that its atmosphere was vitiated by the presence of faecal matter almost certainly derived from horsedung, and that this was brought into the House on the boots of members.

Since this is the case in the House of Commons, the ventilation of which is the constant care of a large and skilled staff, and in which the air, as judged by ordinary chemical and other tests, is decidedly good, these conclusions are very suggestive in regard to the conditions which must prevail in theatres, churches, lecture rooms, and other places where speaking is going on.

The details of the investigation are certain to be of great utility to all those whose duty it is to arrange for ventilation on a large scale, and the report is an excellent piece of work, on the production of which Dr. Gordon and the Office of Works are alike to be congratulated.

London Medical Exhibition.—We are informed that tickets of admission to the Medical Exhibition which, as announced in the British Medical Journal of September 22nd, is to be opened in the Royal Horticultural Hall, Westminster, on October 1st, are being sent to every medical practitioner residing within a twenty-mile radius of London whose name is on the *Medical Register* for 1906. We are requested to state that the Secretary will be pleased to send a ticket to any member of the profession practising in the provinces who may happen to be in London during the time the Exhibition is open.



BOARDING SCHOOL FOR FEEBLE-MINDED CHILDREN.

THE Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-Minded has recently been enabled to purchase the mansion and estate known as Warford Hall, near Alderley Edge, Cheshire, for the purpose of receiving feeble-minded boys between the age of 7 and 16 years at an inclusive annual charge of sixty guineas a year. The new boarding school is intended to meet the case of that large class which, while not a suitable object of charity, is yet not in a position to pay the fees commonly required in private homes. The Society already possesses homes for poorer children, who are partially paid for up to the age of 16 by local authorities. The deficiency on the poorer children's upkeep after they have reached the age of 16, when public assistance ceases, is met by voluntary contributions and the proceeds of the farm, etc. It is believed that it will be possible to make Warford Hall rather more than self-supporting, and any surplus will go towards meeting deficiencies arising from the other department of the Society's work.

Warford Hall is a modern mansion with accommodation for forty boarders, matron and staff; it stands in a park of sixty acres in extent, the property of the Society; there is ample space for outdoor games, while the district is one of the healthiest in Cheshire. The hall contains spacious dining rooms, recreation rooms, dormitories, schoolrooms, conservatory, etc., and is fully equipped with all the requisites for a first-class boarding school. The children will be suitably instructed and their welfare attended to by an experienced staff, and the large experience of the Society and its staff and officers will be available in the conduct of the establishment. The children in the private boarding school at Warford Hall will in all respects be kept entirely apart from the children maintained in the general homes of the Society. Dr. Surridge, of Knutsford, is the medical officer of the school, and Dr. Henry Ashby is the Honorary Consulting Physician. The governing body has for its president Sir T. Thornhill Shann, while among its members are several medical men, including Dr. A. Brown Ritchie, Medical Officer to the City of Manchester Education Committee. The school will be under the inspection of Dr. Eichholz, H.M. Inspector to the Board of Education. No child that is an imbecile, an epileptic, or suffering from an incurable physical ailment or disease will be admitted, but the children taken will be such as cannot be properly taught in ordinary schools but are still capable of training and instruction. Some idea of the character and situation of the house may be gathered from the photograph here reproduced.

Communications with regard to the school should be addressed to Miss Mary Dendy, 13, Clarence Road, Withington, Manchester. It is stated that provision for care after the children have become too old to remain in the home may be made by arrangement.

LUNACY IN ENGLAND AND WALES.

ACCORDING to the *Sixtieth Report of the Commissioners in Lunacy for England and Wales*,[1] recently issued, the number of certified insane persons under care on January 1st, 1906, in England and Wales was 121,979, of whom 9,802 were private patients, 111,256 pauper patients, and 921 criminal lunatics. Of the total number, 89,342 were maintained in county and borough asylums, 17,742 in workhouses and metropolitan district asylums, 7,973 in registered hospitals, licensed houses, and in naval and military hospitals, 776 were in the criminal lunatic asylum at Broadmoor, 528 were private single patients, and there were 5,618 outdoor pauper lunatics. For purposes of comparison we subjoin a table showing the relative distribution of patients in 1904 and 1905.

Year.	County and Borough Asylums.	Workhouses and Metropolitan District Asylums.	Registered Hospitals, Licensed Houses, and Naval and Military Hospitals.	Broadmoor Criminal Lunatic Asylum.	Private Single Patients.	Outdoor Pauper Lunatics.	Totals.
1904	87,091	17,806	8,090	795	521	5,562	119,869
1905	89,342	17,742	7,973	776	528	5,618	121,979
Increase	2,251	—	—	17	7	56	2,150
Decrease	—	64	17	—	—	—	—

These figures relate to the total insane, but, con-

[1] London. 1906. Eyre and Spottiswoode. Price 3s. 3d.

sidering only the pauper insane, an interesting point is dwelt upon by the Commissioners, who contrast their relative distribution in 1859, the first year for which there are accurate statistics, and that existing at the present time. In 1859 the proportion detained in asylums, hospitals, and licensed houses was 56.2 per cent., whereas on January 1st, 1906, this had risen to 84.9 per cent. On the other hand the proportion detained in workhouses in 1859 was 25.4 per cent.; now it is 10 per cent., or, including with workhouses the metropolitan district asylums, 16 per cent. This mean proportion of 10 per cent. is considerably exceeded in certain counties and boroughs, notably Bristol (33.4 per cent.), Salford (31.30 per cent.), Sheffield (26.2 per cent.), and Manchester (25.1 per cent.), but the County of London maintains more than one-fourth of its pauper insane in the metropolitan district asylums and only $\frac{1}{300}$th in workhouses. Further, the outdoor pauper insane have dropped in the same time from 18.5 per cent. of the total pauper insane to 5 per cent., having decreased in actual numbers from 5,798 to 5,618.

The Increase of Insanity.

The report shows a total increase in the number of the certified insane of 2,150 over the numbers of the previous year. This increase compares favourably with the increments of the three previous years, which were 2,630 for 1904, 3,235 for 1903, and 3,251 for 1902. Further, it is less by 404 than the annual average increase for the decennium ending December 31st, 1905, namely, 2,554, and less by 657 than the average increase for the latter half of this decennium, namely, 2,807. Compared with 1904 the private patients have increased by 162, the criminal lunatics by 9 and the pauper patients by 1,979, the increase in the private patients being greater by 79, but the increase of the criminal lunatics being less by 26 and that of the pauper patients by 527, than in 1904. This shrinkage in the increase of pauper and criminal insanity, small though it may be, is highly satisfactory, and this is supported by the fact that in county and borough asylums the proportion of private patients to the total number therein has risen from 2.7 to 2.8 per cent. during the year. As to the fluctuations of pauper insanity in counties and boroughs the Commissioners say that, as compared with the previous year, there has been in the 63 administrative counties a net increase in 40 counties amounting to 1,360 in all. In 20 counties there has been a net decrease amounting to 166, and in three counties—Hereford, Rutland, and Somerset—neither increase nor decrease. London county shows by far the largest increase, amounting to 305. Middlesex, Essex, Kent, Surrey, and the West Riding of Yorkshire, also show considerable increases. Of the 72 county boroughs an increase, amounting to 769 in all, occurred in 54, a decrease amounting to 109 in 14, and in 3, Chester, Hastings, and South Shields, neither increase nor decrease. Of the 19 boroughs 11 showed an increase, amounting to 70 in all; in 7 there was a decrease amounting in all to 31, and in 1 borough there was neither increase nor decrease. Turning to the general question of the increase of insanity since 1859, the total number of certified insane has risen from 36,762 to 121,979, a rate of increase equivalent to 231.8 per cent., the general population having increased during the same interval at the rate of 75.4 per cent. Taking only the past ten years there has been during that period a total increase of the certified insane of 26.5 per cent. This increase, however, is, as is shown by a table furnished by the Commissioners, not only variable, but steadily declining—that is, the increase has been mounting more slowly for some years. Corresponding to this absolute increase, the ratio of the insane to population is increasing at a lessened rate. On January 1st, 1906, the total certified insane in England and Wales stood to the estimated population in the proportion of 1 to 283, as contrasted with 1 to 285 of last year, 1 to 288 of 1903, and 1 to 314 of ten years ago—that is, the proportion of insane persons to the community, per 10,000, has risen from 31.89 to 35.31 during the decade. The increase in population during this period has been 10.8 per cent., and in the total number of insane under care 22.7 per cent. Thus, the number of insane persons under care, both numerically and relatively to population, is still steadily increasing, though, of course, this is not necessarily indicative of an increasing growth of actual occurring insanity. To this point we shall refer later.

From the point of view of the ratepayers, however, this increase may be taken as an actual increase of insanity, particularly as the increase is practically confined to the pauper class. This is clearly brought out by Chart II, facing p. 6, showing the comparative variations in the proportion of the insane to total population from 1859 to 1906. In 1859 the ratio of *private* patients per 10,000 population was 2.38. This rose in 1879 to 2.97, then fell to 2.67 per 10,000 in 1897, since when it has risen slowly, and—with the exception of last year, when there was a drop of 0.01 per 10,000—steadily, to the present proportion of 2.84 per 10,000. The ratio of *pauper* lunatics, on the other hand, has risen without intermission from the 15.95 per 10,000 of 1859 to the present figure, for January 1st, 1906, of 32.20 per 10,000. Doubtless the question of an actual increase of insanity is insoluble by purely statistical methods; but of these latter, the occurrence of insanity, as shown by the ratio of first admissions to population, furnishes the most reliable index. The Commissioners' report does not contain information respecting this ratio for the years prior to 1898; but Table III, Appendix A, shows that in 1898 this ratio per 10,000 population was 4.92. This increased steadily to 5.76 in 1902, and since then has declined to 5.21, the ratio for 1905. Thus, so far as statistical evidence goes, these figures tend to show that for the last four years *occurring* insanity has not been on the increase relatively to population, and that the considerable absolute and relative increase of insane persons under care is to be explained by accumulation consequent on increasing longevity of asylum inmates, increased certification, and so on.

Admissions.

Last year the Commissioners were able to report a hopeful drop of 75 in the number of admissions, as compared with 1903. This year the fall in numbers is still greater, the admissions, 21,622 in number, being less than those of 1904 by 520, the ratio per 10,000 of population falling from 6.56 to 6.33. Of the total number of admissions, 2,328 were private patients, 19,093 pauper patients, and 201 criminal lunatics, as contrasted with the 2,455 private patients, 19,450 pauper patients, and 237 criminal lunatics of 1904. The ratio of admissions per 10,000 of population have all dropped from those of last year, most noticeably in the pauper class—namely, from 5.76 to 5.59. The total admissions were again fairly evenly divided as to sex, the numbers being males 10,493 and females 11,129. The females thus furnished 51.47 per cent. of the total admissions, which though greater than the annual average percentage for 1900-4 of 51.0, is less than the proportion of females in the total certified insane on January 1st, 1906—namely, 53.88 per cent. These figures therefore show, as the Commissioners point out, that the disproportionate number of patients of the female sex does not imply a greater liability to insanity, but only a greater tendency to accumulate in asylums in spite of a higher recovery-rate than that of the males. With regard to age amongst the admissions, the Commissioners again point out an increasing proportion of persons above 65 years of age, the ratio per 10,000 of population being, for ages 15 to 34, 7.9; 35 to 64, 12.6; and 65 years and upwards, 14.8; whereas the ratio of persons of 65 years and upwards admitted during 1899-1903 was 14.3, and in 1884-8 9.9 per 10,000 of population.

As regards marriage, the various ratios for the five years 1900-4 were: Males, single, 41.8 per cent.; married, 47.3 per cent.; widowed, 9.9 per cent.; and females, single, 38.1 per cent.; married, 45.0 per cent.; widowed, 16.6 per cent.

Of the total admissions in 1905, 17,796, or 82.3 per cent., were first admissions—a proportion exactly the same as last year and almost the same as that of 1903. This is well above the average proportion for the five years 1900-4, which was 72.7 per cent. In Table XXIV the Commissioners show by a yearly average for the years 1900-1904 the forms of mental disorder in the admissions, giving the following proportions: Mania 40.7 per cent., melancholia 30.5 per cent., delusional insanity 4.1 per cent., general paralysis 6.6 per cent., primary dementia 2.9 per cent., secondary, senile, and organic dementia, 9.8 per cent., and congenital or infantile mental deficiency 5.4 per cent.

THE PROBABLE CAUSES OF INSANITY.

In Table XXIII the probable causes which were assigned in the admissions during the five years 1900-1904 are shown by a yearly average. Of these the most noteworthy are, alcoholic intemperance in 16.7 per cent. of the male and 8 5 of the female private patients, and in 23.3 per cent. of the male and 9 3 per cent. of the female pauper patients, forming a slight decrease on the proportions given last year; venereal disease in 6.7 per cent. of the male and 0.3 per cent. of the female private patients, and in 4 2 per cent. of the male and 0.9 per cent. of the female pauper patients; privation and starvation in 0.67 per cent. of the whole; old age in 6.97 per cent.; previous attacks in 18.97 per cent.; puberty in 1.2 per cent.; the menopause in 3.7 per cent.; accident or injury in 2.25 per cent.; various bodily diseases in 12.15 per cent.; and "moral" causes in 24.4 per cent. Hereditary influences were elicited in 22.6 per cent. of the private and in 22 per cent. of the pauper patients, and a further congenital defect ascertained in 3 per cent. of the private and 5.45 per cent. of the pauper patients. With regard to the hereditary factor, the Commissioners have collated their various county and borough returns and by grouping them amongst the counties have obtained results which show, they consider, that considerable variation exists in this respect—it being necessarily assumed that the inquiries into the family histories of the patients have been prosecuted in the various districts with the same amount of skill and energy. With regard to Occupation and Causation of Insanity, they have analysed the returns from four asylums whose patients are drawn from agricultural communities, and, by contrasting these with the averages from all asylums, have found that in the four counties in question religious excitement, sexual excess, sunstroke, privation, old age, hereditary influence, and congenital defect were above the mean, and domestic trouble, adverse circumstances, mental anxiety, shock, and intemperance in drink were below the mean. During the five years 1900-4 the annual average number of patients admitted with general paralysis was 1,397, constituting 5.9 per cent. of the total private and 6.6 per cent. of the total pauper admissions.

DISCHARGES.

During 1905 the number discharged as recovered was 3,170, giving a recovery-rate on the admissions, exclusive of transfers and readmissions under Section 38, of 37.79 per cent., as compared with the 36.67 per cent. of 1904, or, with the average for the ten years ending December 31st, 1905, of 37.66 per cent. As regards sex, the recovery-rate was again higher in the females (41.18) than in the males (34.18), and was highest in the naval and military hospitals (62 96) and lowest at the criminal asylum, Broadmoor (16.33). The recovery-rate for county and borough asylums in England and Wales was 37.02, as compared with 36.25 of the year previous. These recovery-rates, however, undergo some qualification by a consideration of the readmission rates. During 1900-5 an average of 3,760, exclusive of transfers, were readmitted yearly, amounting to 17.4 per cent. of the admissions, and as much as 37.1 per cent. of the annual discharges. These annual discharges comprise both discharges as "recovered" and "not recovered"; but even if—to look at the matter in its most favourable light—it be assumed that the readmissions include all those discharges as not-recovered, there remains a surplus amounting to 20 2 per cent. of the recovered. The returns made to the office of the Commissioners are inadequate for an accurate estimation of the proportion discharged recovered who return to asylums, but the Commissioners consider that rather more than one-third of the total discharges, including one-fifth to one-fourth of the discharged as recovered, are subsequently readmitted.

DEATHS.

The deaths during 1905 numbered 9,450, as compared with 9,285 of the previous year, and gave a death-rate on the average numbers resident of 9.88 per cent., which, though lower than the 9.95 per cent. of 1904, is still slightly above the average for the decade (9.87 per cent.). The highest death-rate was 10.94 for the metropolitan licensed houses, and again the lowest that at Broadmoor—of 2.75. The death-rate for the county and borough asylums was 10.08—precisely the same as the average for the decade.

Tables XIV and XIVA of the Report, in which the deaths are given, not as above, but as 9,475 in number, set forth the causes of death. In 2,992 the deaths were due to cerebro-spinal diseases, including 1,644 deaths from general paralysis; in 1,029 to heart disease and in 412 to diseases of blood vessels; in 421 to respiratory diseases, excluding tuberculous lung diseases; in 185 to diseases of the digestive system, in 427 to diseases of the urinary system; in 2,949 to general diseases, including 1,276 deaths from pulmonary tuberculosis, 60 from general tuberculosis, and 65 from other forms of tuberculous disease. There were thus 1,501 deaths from tuberculous disease, or nearly 16 per cent. of the total deaths. There were also 200 deaths from epidemic diarrhoea, 64 from violence, and 943 from ill-defined or non-specific causes, including 923 from old age. A comparison of death-rates amongst the insane and those of the general population is drawn by the Commissioners, who show by a graphic chart, facing page 10, the strikingly higher mortality of the insane at all age-periods from 15 to 65 and upwards, and, by a table on the following page, that this higher mortality holds good for practically all causes of death. Phthisis pulmonalis, for example, is the cause of death in 1.71 per 1,000 of general population, but of 15.3 per 1,000 of the insane; heart disease accounts for 2.1 per 1,000 of the population and 10.75 per 1,000 of the insane; chronic Bright's disease 0.43 per 1,000 of population and 4.14 per 1,000 of the insane; and cancer 1.28 per 1,000 of the population and 2.76 per 1,000 of the insane.

GENERAL HEALTH.

The Commissioners are again able to report the comparative freedom of the asylums in this country from any marked epidemic invasion, apart from dysentery, which is endemic in some asylums, and influenza. During the year there were in the county and borough asylums 1,106 cases of dysentery, giving an incidence-rate of 12.5 per 1,000, as compared with 11.8 in 1904. Had, however, the returns from one asylum been excluded in both years, the rates would have been: for 1904, 14.9, and for 1905, 11.3 per 1,000. The Commissioners state that the returns are somewhat disheartening, and show an increase in incidence of dysentery in some asylums which is not counterbalanced by a decrease in others, and thus make it impossible to say that dysentery in asylums is on the decline. With regard to tuberculosis in county and borough asylums, the Commissioners again institute a comparison between the death-rates in (*a*) asylums of over 1,000 inmates; (*b*) asylums of between 500 and 1,000 inmates; and (*c*) of less than 500 inmates, without showing, however, any notable increase in the proportion of deaths from tuberculous diseases in the larger asylums.

AVERAGE WEEKLY COST.

The average weekly cost per patient in county and borough asylums for the year ending March 31st, 1905, was as follows:

In county asylums	...	...	...	10s. 1½d.
In borough asylums	...	...	...	11s. 1½d.
In both taken together...		...	...	10s. 4½d.

The cost in county and borough asylums has thus fallen by ¾d. from last year.

The report of the Commissioners also contains a return showing the total expenditure upon public lunatic asylums up to January 1st, 1904, with other particulars relative thereto, for England and Wales, Scotland and Ireland. From this we see that the total cost for buildings and land up to the date specified was—for England, £19,167,418; for Scotland, £2,276.318; and for Ireland £2,998,631. The cost per bed of buildings and land works out at—England, £223 11s. 9d.; Scotland, £298; and Ireland, £179 7s. 5d.; or an average for Great Britain of £222 8s. 5d. per bed.

THE new wing of the University of Durham College of Medicine, Newcastle-on-Tyne, is to be opened on October 4th by the Duke of Northumberland.

IN modification of the Indian Home Department notification, dated February 2nd, 1894, it is notified that the appointment of Honorary Assistant Surgeon to the Viceroy will in future terminate on the departure from India of the Viceroy who makes it, unless it ceases earlier on the holder's retirement from the service.

Nova et Vetera.

THE HEALING ART IN JAVA.

Dr. H. Bohatta has recently published an essay[1] giving many interesting details of native medical practice that may be gleaned even to-day in Java, owing to the fact that Netherland colonies are administered as far as possible without disturbing national customs and habits.

Although Java very early came into contact with India, the medical practice of the latter country had little effect upon Javanese methods. In Java the influence of evil spirits is believed to be a potent source of disease, especially among children, while, unlike other islands of the Archipelago, winds and serpents are viewed with little concern. Massage, a truly native custom, occupies the same important position that it does elsewhere in the East. Dreams are of vital importance in determining prognosis: "If a tiger bite or spring upon the dreamer, death is near." "If in a dream musk, roses, incense, or other sweet-smelling substance be held in the hand, health will be soon restored." Drugs are almost entirely of vegetable origin, while charms and exorcisms are in daily use.

Medical practitioners in Java are of two sorts, *Doctors ajawa*—natives who have had a European medical training and are duly qualified—and the *Dukuns*—the genuine native medicine men and women, for women form no small proportion. They are much beloved, and age—and therefore experience—is more highly valued than skill or learning. They are called in on all sorts of occasions; in cases of illness to expound dreams; in cases of robbery to discover the culprit, to drive off evil spirits from those setting out on a journey, and so on. They know potent incantations, possess charms with healing properties, file teeth, arrange festivals, etc. They divide illnesses into either a cold or hot variety, and treat them with ointments and poultices, medicines and pills, charms and incantations; stress is laid upon dietetics, but from surgery they stand aloof, treating fractures with internal medicines and poultices.

The Dukun supplies his own drugs, consisting of leaves, barks, roots, fruits, etc., which are used as powders, extracts, or decoctions, occasionally supplemented by purchases in the market place from Chinese druggists or merchants. Dosage is fairly definite, most use being made of the uneven numbers 3, 5, 7, and 9. Measures in common use are a finger's length, a finger-joint's length, a handful (the woman's hand is invariably employed), a tea or table spoonful, a *deut's* weight, a nit's size, etc. The shape or colour of some drugs is taken as indicating the disease in which they may be useful, for example, the yellow root of *Curcuma zedoaria* is a cure for jaundice, the red bark of *Coesalpinia sappan* a remedy for haemorrhagic diarrhoea. Massage is applied with much dexterity; kneading, either with the thumb or the fist, being used over all the parts where nerves may be compressed, while muscles are vigorously rubbed with the oiled hand.

According to native ideas the spirit may be temporarily separated from the body, and this frequently happens at night, when all that the spirit sees or suffers is recognized as a dream. Illnesses are explained as a separation of the spirit from the body, the charms and spells of the doctor being an effort to drive back the wandering spirit. A spirit no longer able to enter a dead body swells the number of those already in the air, who seek to enter another body, manifesting themselves as disease or delirium, or sucking the blood of children or pregnant women during sleep. Mankind is universally enveloped by spirits who dwell in trees, glades, mountains, water, and air. The spirits who kill women during parturition are particularly dreaded. They go by the name of *Pontianaks*, and are figured as lively, laughing, beautiful women with long flowing hair and a hole right through their bodies. The *Penang galen*, female spirits who can leave the body at night, and are composed only of head and entrails, suck the blood of women in labour. The *Puwaka* is a spirit dwelling in trees, striking with epilepsy those who loiter in their neighbourhood; *gendruwo*, a little man with an enormous head, goggle eyes, and grinning mouth, frightens children by shaking trees and so on.

[1] Special supplement to the *Wiener medizinische Wochenschrift* (No. 42, 1904).

Protection against such influences is, of course, important, and immediately after delivery—a time of special risk—the mother is given a small bundle of cocoa leaves upon which to lay her head, while all around her are strewn flowers and fruit, together with a knife that she must use for forty days. Children wear amulets and various offerings are made to the different spirits. Among the charms may be noted: Water that has been laid on some particular place—for example, a dead man's grave—thereby acquiring a healing property; a brush made of various twigs used at marriages, circumcisions, or for sprinkling the sick with healing water; an egg or other round body—for example, a ball of wax, rolled under the patient's body to drive away illness; and so on. To determine the end of an illness, a stem of *Curcuma longa* is split into two, and laid upon the finger; a charm is muttered and the pieces allowed to fall to the ground. If one rests on the round side and the other on the cut flat side the augury is favourable.

Much importance attaches to midwifery and the care of the pregnant woman; a feast offering is made at the third, fifth, seventh, and ninth month. During pregnancy no eggs, spiny fish, or shrimps must be eaten, since these cause false pains or very painful labours. The wife must not leave the spoon in the salt, lest the labour be a difficult one, must not stop any irritation lest the child have very large eyes, must not injure or kill any animal lest the child be deformed or marked, must not sit upon the rice-stamp for fear of painful confinements. After birth, the cord is tied 2 to 3 cm. above the navel and cut with a sharp piece of bamboo; for forty days the Dukun massages the abdomen to bring it to its proper shape, binding it round from the breast to the hips with long strips of material.

Dr. Bohatta has transcribed some prescriptions from a Dukin prescription book, and gives also a list of drugs and their preparation and uses, paragraphs on mental and epidemic disorders, the hospitals, and a note on the native veterinary practices. The whole essay will be found most interesting by the student of medical history, medical folk lore, and magic.

LITERARY NOTES.

Opportunely with the appointment of the Royal Commission on Vivisection comes the announcement of a new and revised edition of Mr. Stephen Paget's well-known book, *Experiments on Animals*. It will be published early in October by Messrs. Nisbet and Co.

Messrs. John Wright and Co., Bristol, will very shortly issue a complete set of large midwifery diagrams designed by Dr. Victor Bonney. The set comprises 160 figures upon 24 large sheets, uniform with the *First Aid Diagrams* issued by the same firm.

The *International Medical Review* is the title of a new periodical, the object of which is said to be "to establish a permanent exchange of professional knowledge and experience among the medical practitioners of the whole civilized world." It will appear at first in English, German, French, Italian, Portuguese, and Spanish. A Russian edition is contemplated. The *International Medical Review* will be published quarterly at Berlin under the editorship of Dr. Hugo Neumann.

The Walter Scott Publishing Company will issue in October a work entitled *Race Culture or Race Suicide?* by Dr. Robert R. Rentoul of Liverpool. The work is described by its author as "a plea for the unborn." The causes of degeneracy are discussed in twenty-one chapters, and suggestions are made for the prevention of an increase of degeneracy.

Messrs. W. B. Saunders and Co. announce for early publication a new work entitled *Surgery, its Principles and Practice*, edited by Dr. W. W. Keen of Philadelphia. The complete work will extend to five octavo volumes of about 800 pages each, and will contain over 1,500 original illustrations. There are sixty-five contributors of various nationalities, all recognized as authorities in the several provinces.

Dr. Ludwig Feinberg of Berlin has written a work entitled, *Die Erreger und der Bau der Geschwulste, insbesondere der Krebsgeschwülste*. As its title imports, it deals with the exciting factors and the soil in relation to the development of tumours, especially those of malignant character. The work is in two

volumes, one of which is an atlas of microscopic drawings from original preparations. The atlas has already appeared; the volume containing the text will be published shortly. They can be obtained only through Gebr. Unger, Bernburger Strasse 30, Berlin, S.W.

Messrs. Macmillan have in preparation a work, entitled *Alcohol and the Human Body: A Study of Modern Knowledge on the Subject*, by Sir Victor Horsley and Miss Mary Sturge, M.D. The same publishers will also issue the first series of *Collected Papers on Circulation and Respiration*, by Sir Lauder Brunton (announced for October 2nd); *Studies in the Bacteriology and Etiology of Oriental Plague*, by Dr. E. Klein; *The Clinical Study of Epilepsy*, by Dr. W. Aldren Turner; and *Some Points in the Surgery of the Brain and its Membranes*, by Mr. Charles A. Ballance.

The eleventh volume of the second series of the *Index Catalogue of the Surgeon-General's Office* (Mo-Nystrom), which has recently been issued, is a striking illustration of the rapid growth of medical literature. The library now contains 155,292 bound volumes and 271,851 pamphlets. The *Catalogue* further indicates the directions in which the greatest advance has been made, and the trend of medical work. Thus it is interesting to note that the mosquito, which occupied but a twelfth of a page in the first series, has five pages all to itself in the new series. The increased attention given to the nervous system is shown by a corresponding extension of the bibliography. The space occupied by the subject is greater by nearly a hundred pages of titles, and this would be augmented by more than sixty pages if the headings of nerves, neurology, neuritis, neuralgia, neuroses, and the like were included. The literature of diseases of the nose has also grown very largely, extending to more than eighty pages.

Medicine for August quotes the views of Benjamin Franklin on cold and influenza, which show that he anticipated the doctrine of the "open window." He held that influenzas which were usually classed as colds do not arise, as a rule, from either cold or dampness. He pointed out that savages and sailors, who are often wet, do not catch cold, and that the disease called a "cold" is not caught by swimming. He maintained that those who live in the forest and open barns or with open windows do not catch cold, and the disease called a "cold" is generally due to impure air, lack of exercise, or overeating. The following passage shows that he considered common colds to be contagious, as well as influenza: "I have long been satisfied from observation that, besides the general colds now termed 'influenza,' which may possibly spread by contagion as well as by a particular quality of the air, people often catch cold from one another when shut up together in close rooms and coaches, and when sitting near and conversing so as to breathe in each other's transpiration, the disorder being in a certain state."

A correspondent asks who is the author of the well-known lines:

> God and the doctor we alike adore,
> But only when in danger, not before:
> The danger o'er, both are alike requited.
> God is forgotten and the doctor slighted.

They are attributed by J. Cordy Jeaffreson, in his *Book About Doctors*, to Alexander Pope, although we cannot find them in the works of that poet.

In a report of the well-known *Clinique Nationale Ophtalmologique des Quinze-Vingts* of Paris, Dr. Constantin Golesceano gives by way of introduction a historical sketch of the treatment of the blind. In Egypt a corporation of the blind took part in funeral ceremonies. In Greece blind children were thrown into a pit, where they were left to perish. With the advent of Christianity the lot of the blind changed. In the fourth century Saint Basil founded a hospital for the blind; in the fifth Saint Linus founded one at Saint Cyr; in the eighth century there were similar institutions at Cherbourg, Bayeux, and Caen. In 805 Charlemagne decreed severe penalties against those who ill-used the blind. In the thirteenth century there were refuges for the blind at Rouen, Chalons, and near Orleans. At Chartres there was one known as Les Six-Vingts (six score). In Paris the institution known as the Quinze-Vingts (fifteen score) was founded by Saint Louis, in whose reign the blind formed a powerful congregation of "Brethren." Between the time of Saint Louis and that of Louis XVI the institution acquired considerable wealth and obtained valuable privileges from the Sovereign. The right to beg in churches was from an early period granted to the members of the corporations for the blind in Paris and Chartres. Bearing the fleur de lys as a badge, they used to walk up and down the nave of Nôtre Dame during the services, praying aloud and indicating the saint of the day to the faithful. In 1771 Valentin Haüy, brother of the famous crystallographer, seeing some blind people made a show of in a Paris fair, was moved to pity and set on foot a movement to better their lot. With the help of influential backers he founded an institution for their education. His efforts were successful, and the creation of his charity weathered the storm of the Revolution. In 1802 it was by Ministerial decree amalgamated with the Quinze-Vingts; but it soon recovered its independence. Other institutions for the education of the blind were founded in Paris by the Sœurs Aveugles de Saint-Paul and the Frères Saint Jean de Dieu. In 1886 the Société d'Assistance pour les Aveugles was established, mainly owing to the efforts of M. Péphau, Director of the Hospice des Quinze-Vingts.

A special number of *Alma Mater*, the Aberdeen University magazine, has been issued in honour of the Quatercentenary. By way of prelude, Mr. R. C. Macfie, M.A., M.B., conjures up the buried past, and sees as in a vision the Grey Friars chanting where Marischal College now stands. He summons from the dead the King who wore the iron belt, Bishops Elphinstone and Dunbar, and the Earl Marischal.

> Four hundred years have passed away
> Since Friars black and brown and grey
> Gave place to Science and to Art.
> * * * *
> Yet even four hundred years have won
> Some victories over pain and death.

Mr. Maarten Maartens, LL.D., contributes a tale entitled, "The Ring: a Bit of Dutch Religion"; Mr. Thomas Hardy, LL.D., sends some lines on Aberdeen; Sir James Crichton-Browne, too (like Byron), "subsides into poetry," with a variant on the theme of "Dulce Domum." Mr. J. D. Symon, M.A., sings of "The City of Dreams." Mr. J. M. Bulloch, the historian of the University, discusses the evolution of the student as a factor in its life. A large part of the number is, as is natural, devoted to reminiscences. Dr. George Skene Keith tells of Marischal College as it was seventy years ago, while the Very Rev. William Walker, Dean of the Diocese of Aberdeen and Orkney, describes King's College in the late Thirties. Dr. J. Donaldson, Principal of the University of St. Andrews, recalls his memories of Marischal College between 1846 and 1850, and Dr. David Ferrier gives his recollections of King's before and after 1860. Dr. Robertson Nicoll writes of the country student forty years ago. Dr. Arthur Keith, Lecturer on Anatomy at the London Hospital, discourses on life at Marischal College in the Eighties, and Mr. John Hay Lobban writes of a nearly corresponding period at King's. Dr. Leslie MacKenzie, Medical Member of the Local Government Board for Scotland, recounts the story of the birth of the Students' Representative Council. Mrs. Rachel Annand Taylor tells of the coming of the women students. Professor J. Arthur Thomson, under the title of "Photographs—Possible and Impossible," gives some telling literary snapshots of places and scenes. Professor J. Wight Duff contributes a scholarly article on sonnets from the antique, illustrating the subject with some excellent translations. The number is admirably illustrated, and presents a handsome appearance worthy of its varied and interesting contents.

In the *Century Magazine* for September Dr. Robert Bennett Bean deals with the negro brain. He begins by pointing out that the negro race is now considered to be one of the oldest races in the world, evidences of its existence in prehistoric times having been discovered recently throughout Africa, Australia, and Oceanica. The negro brain is smaller than the Caucasian, the difference in size being represented in both grey matter (nerve cells) and white matter (nerve fibres). Assuming that grey matter and white matter respectively represent nerve cells and fibres numerically, the possibilities of developing the negro are therefore limited, except by crossing with other races. This has been done to such an extent in times past that it is difficult to determine whether a pure negro really exists in America. Dr. Bean states that observations made on thousands of

negroes throughout the Middle Atlantic and Middle Western States, extending over many years, and the critical examination of more than 100 brains from a representative element of the negro population, enable him to classify the American negro in two large groups. One of these comprises the great majority of the negroes of the South, and the physical and mental characteristics of this group indicate purer negro blood than the other. The other group, which is decidedly in the minority, is largely distributed through the North, and shows traces of previous minglings of races, the individuals being commonly designated as mulattoes. Dr. Bean has made a comparison of brains from these with forty-nine brains of American Caucasians. These brains were from a representative element of the American negro population, and from the lower classes of the whites, especially the white females, who belonged to a notably low social class. The brain of the negro male is demonstrably smaller than that of the Caucasian male. The brains from the females of the two races are virtually of the same size. The average weight of twenty-two male negro brains, weighed by different men, at various times, in divers places, with different systems and under dissimilar conditions, is 1,256 grams. The average weight of ten female negro brains of a like assortment is 980 grams. Waldeyer gives the average weight of twelve negro brains in the fresh state as 1,148 grams. These are European records, the brains having been obtained from native tribes of Africa and elsewhere. It is evident that the brain of the American negro weighs more than the native African, no doubt because of the greater amount of white blood in the American negro. It has been found that the weight of the brain in the American negro varies directly in proportion to the amount of white blood in the individual, those less than one-half white having smaller brains than the pure negro. The brain weights of more than 4,000 individuals of various Caucasian nationalities collected by Marshall of England, Retzius of Sweden, Bischoff and Marchand of Germany, Matieka of Bohemia (Slavs), and others, show an average of about 1,400 grams for males and about 1,250 grams for females. It is evident, then, that the Caucasian brain is larger than the negro brain, and in a mixture of races the brain weight resulting is directly in proportion to the amount of Caucasian blood in the individual, other things being equal. The size and shape of the front end of the brain are different in the two races, being smaller and more angular in the negro, and larger and more rounded in the Caucasian. The convolutions of the Caucasian brain are more elaborate and the fissures are deeper than in the negro brain, while the relative amount of white matter is greater in the Caucasian brain. Dr. Bean holds that his investigations have established the facts: (1) That the Caucasian brain is heavier than that of the negro; (2) that the relative quantity of the white fibre is greater in the Caucasian than in the negro; and (3) that the anterior association centre (front end of the brain) and the front end of the corpus callosum are larger in the Caucasian than in the negro. The first two propositions are held to corroborate the statement made previously that the negro brain contains both less grey matter and less white matter than the Caucasian. The white and the black races are, therefore, antipodal in cardinal points. The one has a large frontal region of the brain, the other a larger region behind; the one is subjective, the other objective; the one a great reasoner, the other pre-eminently emotional; the one domineering but having great self-control, the other meek and submissive but violent and lacking self-control when the passions are aroused; the one a very advanced race, the other a very backward one. The Caucasian and the negro are fundamentally opposite extremes in evolution. Dr. Bean's conclusion is as follows:

> Having demonstrated that the negro and the Caucasian are widely different in characteristics, due to a deficiency of grey matter and connecting fibres in the negro brain, especially in the frontal lobes, a deficiency that is hereditary and can be altered only by intermarriage, we are forced to conclude that it is useless to try to elevate the negro by education or otherwise except in the direction of his natural endowments. The way may be made plain to the black people, and they may be encouraged in the proper direction, but the solution of the question still must come from within the race. Let them win their reward by diligent service.

MEDICAL NEWS.

The initial meeting of the session of 1906-7 at the Medical Society of London is to take place on Monday, October 8th. The incoming president is Mr. C. A. Ballance, who will deliver an address entitled Then and Now in Surgery.

The New Sydenham Society will hold its annual general meeting on Monday next, at 4.30 p.m. It is the forty-seventh in succession, and will take place at the house of Mr. Jonathan Hutchinson, 15, Cavendish Square, W.

Mr. Charles S. Tomes, F.R.S., will distribute the prizes of the Royal Dental Hospital of London at a *conversazione* to be held at the Royal Institute Galleries, Prince's Hall, Piccadilly, on Friday, October 19th, at 8 p.m.

The subject of Dr. Leonard Mark's Presidential address at the West London Medico-Chirurgical Society next Friday evening is to be art and medicine. It will be illustrated by lantern slides of pictures with a medical interest to be found in British galleries.

We are requested to state that it has been decided that the opening address of the winter session of the West London Post-graduate College, to be delivered by Mr. Keetley, shall be given on Wednesday, October 10th, at 4.30 p.m.; not on Thursday, October 11th, as previously announced.

The post-graduate clinical lectures at the National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury, recommence on Tuesday next at 3.30 p.m. The first lecture, dealing with local lesions of the spinal cord, will be delivered by Dr. Collier.

The King has been pleased to approve of the reappointment of Obadiah Johnson, M.D., to be an Unofficial Member of the Legislative Council of Southern Nigeria.

Hospital for Children's Diseases.—The winter session at the Hospital for Children's Diseases, Great Ormond Street, will begin on October 4th, when Dr. Garrod will deliver the opening lecture on Some General Considerations of Disease as it Occurs in Children, at 4 p.m. On October 11th Dr. Thompson will lecture on Infantile Asthma and its Treatment. Lectures and demonstrations will be given free to medical practitioners every subsequent Thursday at 4 p.m.

Gresham Lectures.—Four lectures on "Prophylactics in Medicine" will be delivered on October 2nd, 3rd, 4th, and 5th, at 6 o'clock, by Dr. A. T. Schofield (for Dr. Symes Thompson, the Gresham Professor), at Gresham College, Basinghall Street, E.C. Lecture I will deal with Personal Prophylactics, Lecture II with Domestic Prophylactics, Lecture III with Public Prophylactics, and Lecture IV with Unconscious Prophylactics. The lectures are open free to the public.

A Sanatorium and Market Garden.—The Open-Air League whose General Committee includes the Duke and Duchess of Marlborough, Lord and Lady Iveagh, Lord Monk Bretton, Sir Edward and Lady Sassoon, Sir Edmund Hay Currie, the Hon. W. F. D. and Lady Esther Smith, and Mrs. Humphry Ward, and whose Advisory Committee includes Drs. James Goodhart, George Heron, Wilfred Hadley, Percy Kidd and Vaughan Harley, was formed early in the present year to provide inexpensive sanatorium accommodation for the consumptive poor, to educate the public as to the advantages of the open window, and to find occupation for consumptives, cured in sanatoriums, that will enable them to escape the dangers which they must incur if they return to the unsuitable conditions under which their health broke down. It is announced that the League will open its first sanatorium colony at Great Clacton, Essex, in the course of a few weeks. The institution will be conducted by Dr. John Chapman. The sanatorium will accommodate twenty-five patients in the incipient stages of the disease, who will be taught practical market gardening. They will be kept in residence sufficiently long to enable them to recover their health and to fit them either independently or in association with the work of the League to earn a livelihood away from the dangers of town life. It is estimated that the total expenditure will barely exceed £1,500 a year, or an average inclusive cost of 25s. a patient weekly, and it is expected that even this figure will be reduced by the value of the work of the inmates. In the meanwhile the League appeals to the public for further funds. Fuller particulars of the objects of the League may be obtained on application at the offices of the Open-Air League, 79, Harley Street, W., and contributions will be gratefully received by the Honorary Treasurer (Lady St. Helier) or by the Honorary Secretary, Dr. Charles Reinhardt.

British Medical Journal.

SATURDAY, SEPTEMBER 29TH, 1906.

THE NOSE AND THE BRAIN.

THE nose was believed by the ancients to be a kind of wastepipe by which superfluous liquid was discharged from the brain; hence a cold was looked upon as a provision for the cleansing of the brain (*purgamentum cerebri*). It was not till the middle of the seventeenth century that this error was finally dispelled by Conrad Victor Schneider, who showed that the source of the discharge in nasal catarrh was not the ventricles of the brain, but the mucous membrane which now bears his name.[1] The notion that the nose is a conduit for the escape of peccant humours from the brain survived almost to our own day. It was pleaded as a justification for the vile habit of snuff-taking that it helped to clear the brain, and in old days the profundity of a theologian was measured by the amount of snuff that lay in the folds on the front of his cassock. Napoleon, it is well known, carried snuff in the capacious pockets of his waistcoat, and his example used to be quoted by snuffers. The higher criticism has thrown doubt on this as on so many other legends, and it is now said that Napoleon only put his snuff to his nostrils and then let it trickle through his fingers to the ground.

If the nose, however, has lost its prestige as a subsidiary part of the cerebral mechanism, it has in these latter days acquired a new importance as a possible starting point of suppurative processes that may extend into the interior of the skull, setting up most formidable complications. The knowledge of this particular correlation between the nose and the brain is one of the most recent advances in pathology; and as it has clinical applications of great interest and importance it is worth while to give a brief exposition of what is known of the subject.

It is not many years since attention was directed to the frequency with which septic infections of the brain originate from pyogenic processes in the middle ear or mastoid antrum. This knowledge speedily became the common property of the profession, so that the examination of a case of suppuration of the brain or its meninges is no longer regarded as complete unless the condition of the ears has been investigated. Indeed, pus in the middle ear is now found to be responsible for the greater number of cases of cerebral and cerebellar abscesses, and to what good purpose this knowledge has been applied in practice is shown by the number of cases already on record in which life has been saved by the timely provision of an outlet for the accumulated matter.

This being the case, it is somewhat remarkable that attention has yet scarcely been aroused to the existence of a like connexion between nasal suppuration and intracranial formation of pus. Yet the frontal, ethmoidal, and sphenoidal cavities offer a much more extensive base of infection than the air spaces of the temporal bone, and they are certainly in as close communication with the intracranial contents, either by contact or by the blood and lymph channels. Investigations into the subject have been few, and pyogenic processes in the meninges or brain are still not infrequently entered in our case-books as "primary" or "idiopathic." The majority of cerebral abscesses are certainly met with in the middle cerebral lobe or the cerebellum. In this area the ear plays an important part as a pus-distributing centre, and nasal suppuration could hardly be invoked as the original focus. But anterior basic meningitis, thrombosis of the anterior venous sinuses, and collections of pus in the anterior cerebral lobes are met with and in such cases the ear is less likely to have acted as the poison centre, and the nose would *a priori* appear to be the most probable source of infection.

How is it that this promising corner of the field of inquiry has almost escaped the search-light of the pathologist? Three causes may be suggested: In the first place the detection of pus in the accessory sinuses of the nose is not an easy matter and is still limited to the practice of experts; secondly, these sinuses are not regularly and methodically examined at all *post-mortem* examinations; and thirdly, it has not been realized that infection may pass from these air cells of the face to the cranial contents and traverse the bone without leaving any visible track or connexion.

In the forthcoming *Transactions* of the Medical Society there will be published an extensive and well documented communication on this subject by Dr. StClair Thomson. From an abstract which is published at page 768 it will be seen that he firmly establishes the not infrequent relationship between nasal suppuration and intracranial infection. He deals only with the investigation of cerebral complications arising from the sphenoidal sinus, and we believe his paper is so far the most complete study of the subject in any language. Disconnected observations are scattered through medical literature. In 1896 Dreyfus collected the records of 13 cases; and in 1900 Toubert published a paper founded on a collection of 20 cases. Dr. StClair Thomson now summarizes the records of no less than 42 cases in which intracranial suppuration was undoubtedly caused by pus in the sphenoidal sinus. The two cases which form his personal contribution to the statistics of the subject are particularly valuable, as they were most accurately observed; and they are of special importance as illustrating the two chief forms assumed by sphenoidal infection of the intracranium, that is to say, thrombosis of the cavernous sinus and basic meningitis.

Many important points are brought out in the discussion of the pathogenesis of these secondary developments. It is impossible within the limits of a short article to dwell on all these; we can only indicate some of the most important of them. These may be summed up in a series of propositions as follows: (1) Sphenoidal sinusitis may be so latent as not to attract the attention of the patient. (2) Intracranial infection may take place without obstruction of the mouth of the sinus, and appears to be due to fresh infection or diminished resistance; the symptoms of this extension are apt to simulate delirium tremens, pyaemia, enteric, pneumonia, tuberculosis, mania or meningitis, and may also be misleading, since acute pain in the ear is not infrequently complained of. (3) Preventive treatment—free drainage of any suppurating nasal sinus—appears to be indicated in all cases. When infection spreads through disease of the bony walls of the sphenoidal sinus, attention at the *post-mortem* examination is, of course, drawn to the primary source

[1] Liber primus de catarrhis quo agitur de speciebus catarrhorum et de osse cuneiformi per quod catarrhi occurrere finguntur. Wittebergae, 1660.

of trouble; but it is clearly shown by Dr. StClair Thomson that the bone may remain unaltered, though the infecting organisms have traversed it by either the lymph or blood streams.

The results of this investigation should limit for the future the record of cases which physicians have hitherto felt compelled to report as "primary meningitis." On the other hand, surgeons will now in many instances look to the accessory nasal cavities for an explanation of some of the cases of "cerebral pressure" in which their aid is invoked. Dr. StClair Thomson's work also throws much light on septic thrombosis of the cavernous sinus, the etiology of which hitherto given has often been very problematical.

The profession will, we are sure, look forward with interest to the results of Dr. StClair Thomson's studies on the other accessory nasal cavities.

THE GOSPEL OF RECREATION.

The ancient adage that "all work and no play makes Jack a dull boy" has been universally accepted as the pithy expression of a truism concerning which there can be no serious diversity of opinion. But, like many other generalizations, this maxim is open to a varied interpretation according to the precise meaning which is attached to the premisses from which it is deduced. In its literal reading it lays itself open to the reproach of being a *reductio ad absurdum*. All work is impossible and no play equally so; dullness, therefore, cannot be the consequence of conditions which never arise. Work and play are correlatives of human existence, and the one is as necessary to health and happiness as the other. The problem which has ever baffled philosophers and philanthropists is the relation which ought to exist between them. Work at the present day is a very different conception from work as it was understood a century ago. Then, the rest and recreation which must be the counterpoise of every form of physical or mental effort took their proper part in the daily life as a matter both of course and of custom. But now the activities of the world have become so intensified, the struggle for supremacy or ascendancy both between men and nations is so keen, and the scramble for wealth and all the benefits it is supposed to confer is so absorbing, that work of one kind or another has come to enter disproportionately into the routine of social and commercial progress. Moreover, the quality of the work which twentieth-century necessities demand is entirely different from what it was in the days of our ancestors. The feverish haste which characterizes our age insists that work shall be done not only well but quickly, and this implies a concentration of energy and a persistence of effort which necessarily result in an amount of wear and tear greater than the machinery of the human frame has ever previously been exposed to.

A change has in consequence arisen in the conditions and circumstances under which the rest which is needed for recuperative purposes must be obtained. A new gospel of recreation has been preached from many texts, and its latest exponent is Sir James Crichton-Browne, the President of the Sanitary Inspectors' Association. He asserts that "a 'nip' of "Blackpool, or, better still, a long pull of it, alleviated "brain-fag and the ailments that resulted from over-"work without any ulterior consequences of an unde-"sirable kind." The choice of Blackpool as the particular climatic tipple recommended to the worn and weary was no doubt meant as a delicate compliment to the town in which Sir James chanced to deliver his presidential address to the Association over which he reigns. The essential ingredients of his prescription are rest, fresh air, quietude, and change of environment. Theoretically we agree that, if not continued over too long a space of time, such conditions best fulfil what is most essential to the large majority of overwrought humanity for restoring to their proper balance tired muscles and fagged nerves. As sleep is Nature's restorative against each day's expenditure of energy, so a temporary spell of idleness, passed amidst irreproachable hygienic surroundings, must be the ideal remedy for supplementing what ordinary sleep is unable, unaided, to overtake.

We have not much sympathy with the theorists who propound the expenditure of some fresh form of energy as a vicarious method of restoring other energies that are spent. It is inconceivable that waste produced by one form of work can be eliminated by the addition of waste which must result from further exertion, even if that exertion be put forth by a portion of the body which, it is assumed, is still fresh. Surely when fatigue overtakes a man, from whatever source it emanates, the interdependence of his organs and tissues makes it unlikely that only his overwrought muscles, or his tired-out nerves, as the case may be, bear the burden! The whole organism must suffer for the sins of its component parts, and any gospel of recreation, to be effective, must proclaim a doctrine of righteousness which shall purge not one organ or tissue only, but the whole body from its physiological sins. After the primary and essential rest has performed its cleansing offices, the tastes and inclinations of every individual must be a law unto himself by which the regulation of his remaining time of leisure should be guided. To most men the essence of a holiday is freedom from restraint, and the unfettered opportunity of following in one's own way the bent of one's own inclination. Museums, picture galleries, cathedrals, and ancient abbeys have their attractions for some; the seclusion of the country and all the varied charms of Nature best harmonize with the taste of others; to a few repose and variety are found in the contemplation of bustling crowds of people and busy haunts of men; and to many, sports or games afford the most agreeable preventive of ennui. To legislate on one plan for all is futile; to inculcate the paramount necessity of a proper equivalent of restful inactivity for the whole body is, we believe, the essential kernel of every scheme of successful recreation. The evidences are sufficiently clear that the present strain of life is telling adversely upon the physique of the nation, and the declining birth-rate, which Sir James Crichton-Browne so deeply deplores in the earlier part of his address, is one of the most threatening signs of national decadence. If the penalty of our higher civilization is increasing nervous instability, diminished fertility is not a surprising sequel.

Recreation is more than ever a necessity to those who carry on the work of the world; but in whatever form that recreation is sought its essential element should be rest, and for a limited period the more that rest partakes of idleness the better.

THE BITTER CRY OF THE "RUINED DOCTOR."

Under such sensational headings as "Ruined Doctors" and "The Doctors' Hard Case," the *Evening News* has lately published letters from medical practitioners complaining of the insufficient remuneration which they think rewards the labours of the medical profession. This they

attribute to various causes, some finding it in the competition of hospitals, others in that of the consulting or prescribing chemist. One, who signs himself "Medicus Peregrinus," writes in glowing terms of modern advances in the manufacture of disinfectants, so that one is surprised to find that the letter is not a concealed advertisement. He believes the falling off in medical incomes to be due to the influence of disinfection in diminishing the prevalence of zymotic diseases, notwithstanding the recent spread of epidemics of plague, influenza, and typhoid in the face of all that sanitation and disinfection can do to check their course. Even the admitted diminished mortality from phthisis can scarcely be attributed to disinfection, although general sanitary progress may justly claim to have played some part in it. There is much evidence that infectious diseases come and go in tidal waves, and when we are congratulating ourselves upon diminished mortality as the result of improvements in our dwellings, our drainage, and our water supply, it is often the result of the subsidence of the epidemic virulence under conditions of which we are ignorant. Certainly, the terrible manner in which influenza and plague have attacked the present generation should make us modest in estimating the power we possess over the spread of epidemic diseases.

A chemist has the hardihood to defend those of his trade who prescribe remedies for their customers on the ground that it is a legitimate reprisal for the dispensing of doctors. He says: "When doctors give up dispens-" ing their own medicines and give chemists a chance of " earning a living by dispensing, then prescribing amongst " chemists will cease." But there is no fair analogy between the two cases. Dispensing by doctors may or may not be expedient, but it is their traditional right, for as is well-known, the modern general practitioner is the lineal successor of the apothecary of fifty years ago, whose practice he inherited and whose trade customs he was obliged to maintain. In dispensing his medicines he is merely supplying drugs with whose nature and action he is familiar, and whether he makes up medicines himself or employs a dispenser to do so, it cannot for a moment be suggested that he is going outside matters within his competence, or undertaking work for which his training and special knowledge do not fit him. On the other hand, the training of the chemist is solely in pharmacy; any knowledge he may have of the therapeutic action of drugs is merely book knowledge. He can have no practical acquaintance with disease; he has had no clinical training and no opportunity of acquiring diagnostic skill. If he attempts to treat the sick, it can only be by treating symptoms, and we know what disastrous results follow that method.

Perhaps the most common conditions for which chemists are consulted are cough, diarrhoea, and pain. A cough may be due to a simple condition, such as catarrh, or to a severe organic disease, such as pleurisy or phthisis or aneurysm. Diarrhoea may be a simple irritation due to errors of diet, or a symptom of typhoid fever, dysentery, ulceration or cancer of the bowel. Again, the chemist cannot distinguish the pain of neuralgia from that caused by local inflammation or morbid growth. Such practice cannot be defended for a moment, but the difficulty is to formulate a rule which would not interfere with the chemist's legitimate business. Probably all chemists would maintain that if asked to supply a cough mixture, an astringent or an analgesic, they may fairly give one or other of the safer official preparations possessing these properties, but they might admit that a line should be drawn at such a case as a man entering a chemist's shop and saying, "I am suffering from a cough, or looseness of the " bowels, or pain, and I want you to give me something " for it." The two cases differ very little except in the manner of putting them: and consequently it is extremely difficult to draw up a regulation which can with certainty restrain the unscrupulous.

That doctors are at present passing through bad times is undoubtedly true, for it has been estimated that during the last three years their incomes have fallen off 25 per cent., although there has been some improvement since 1904, which all look back upon as the lean year. The causes of this depression can hardly be those alleged by the correspondents whose letters we have quoted, for they were in operation long before the period mentioned; we must, therefore, look for more recent conditions to supply the answer. We believe the chief causes to have been, first, the gradual dying down of the epidemic of influenza which in 1900 caused a mortality of over 16,000, but in 1904 killed only 5,694; and, together with this subsidence of epidemic sickness, we have had mild winters, accompanied by a decrease of the type of illness which we may call "seasonable." The second cause is the depression of trade resulting partly from the frightful cost of the war, which was felt most acutely after the extraordinary war expenditure had ceased and trade had returned to its normal channels, and partly the normal reflux after the high-water mark that trade had reached just before the war.

If this be a correct view of the causes of the crisis through which we are passing, it is obvious that not much can be hoped from the remedies recommended by the writers in the *Evening News*, even if it were possible to put them into immediate operation. It may be hoped, however, that with the revival of trade and the freer circulation of money, medical practice will regain its normal level of prosperity.

There is no immediate fear that we shall suffer from permanent want of employment in spite of the optimistic talk of chairmen of Health Committees, who are pleased to regard every fall in the death-rate as due to themselves and their buckets of whitewash.

Man is still far from having attained to mastery over the microbe, and is as unable, or at least unwilling, as ever he was to control those passions and appetites which engender in him a perennial crop of ailments, all of which contribute to the support and maintenance of the medical profession.

THE ABERDEEN QUATERCENTENARY.

As these pages are passing through the press the King is opening the new buildings of Marischal College, Aberdeen. Our account of the ceremony must therefore be deferred till next week. The celebrations began on Tuesday last with religious services in King's College Chapel. Delegates from America, Austria, Belgium, Denmark, Egypt, France, Germany, Holland, Italy, Japan, Norway, Russia, Sweden, Switzerland, Syria, and all the British Universities and principal educational institutes are in attendance. A reception was held in the Strathcona Hall, which was attended by about five thousand delegates and graduates. Lord Strathcona, Chancellor of the University, welcomed the visitors. Among the delegates we note the names of Colonel David Bruce, R.A.M.C.; Professor Howard Kelly, of Johns Hopkins University, Baltimore; Professor Sir T. McCall Anderson, of Glasgow; Dr. William Bulloch, of the London Hospital; Professor A. R. Cushny, representing the University of Michigan; Professor Rudolf E.

Kobert, of Rostock; Dr. William Murrell, of the Westminster Hospital; Professor Alexander Macalister, of Cambridge; Dr. Walter Leaf, of London; Sir J. A. Russell, Inspector of Anatomy for Scotland; Professor Arthur Thomson, of Oxford; Mr. Andrew Clark, of the Middlesex Hospital; Sir Douglas Powell, President of the Royal College of Physicians of London; Mr. H. R. Swanzy, President of the Royal College of Surgeons in Ireland; Dr. James E. Galloway, representing the London Society of Apothecaries; Mr. Thomas Bryant, of London; Dr. John Playfair, President of the Royal College of Physicians, of Edinburgh; Professor Pawlow, of the Imperial Academy of Military Medicine, St. Petersburg; Sir James Crichton-Browne; Dr. J. P. Steele, of Florence; Professor Sir Thomas Fraser, of Edinburgh; Professor Oscar Liebreich, of Berlin; Professor W. Stirling, of Manchester; Professor Sir William Whitla, of Belfast; the Director-General of the Medical Department of the Royal Navy; Professor A. D. Waller, of London; Sir Christopher Nixon, of the Royal University in Ireland; Dr. W. L. Reid, President of the Faculty of Physicians and Surgeons, Glasgow; Professor Ronald Ross, of the Liverpool School of Tropical Medicine; Dr. G. H. Savage, of London; Mr. George Cooper Franklin, ex-President of the British Medical Association; Sir John Williams; Professor Hugo Kronecker, of Bern; Professor John Cleland, of Glasgow; Professor Clifford Allbutt, of Cambridge; Dr. Donald MacAlister, President of the General Medical Council; Professor Trendelenburg, of Leipzig; Professor J. William White, of the University of Pennsylvania; Professor A. S. Grünbaum, of the University of Leeds; Professor Ferdinand Hueppe, of Prague: Professor Cesare Lombroso, of Turin; Professor Sir William Turner, Principal of the University of Edinburgh; Dr. T. S. Clouston, of Edinburgh; Dr. W. Hunter, of London; the Director-General of the Army Medical Service; Professor G. D. Thane, of University College, London; Sir John MacFadyean, President of the Royal Veterinary College, London; Sir William J. Smyly, President of the Royal College of Physicians, Dublin; Dr. Charles Watson McGillivray, of the Royal College of Surgeons, Edinburgh; Professor F. Loeffler, of Griefswald; Sir Dyce Duckworth, of London; Dr. Frederick Taylor, of London; Mr. Francis Jaffrey, of London; and Mr. F. G. Parsons, of London. In the list of presentations for the honorary degree of LL.D. we note the following names: Sir James Crichton-Browne, Lord Chancellor's Visitor in Lunacy; Dr. W. Einthoven, Professor of Physiology, Leyden; Herbert Mackay Ellis, Director-General, Naval Medical Service, London; Carl Flügge, Professor of Hygiene, Breslau; H. J. Hamburger, Professor of Physiology, Groningen; Ferdinand Hueppe, Professor of Hygiene, Prague; Howard A. Kelly, Professor of Gynaecology, Johns Hopkins University, Baltimore; Surgeon-General Sir Alfred Keogh, K.C.B., Director-General, Army Medical Service; Rudolf E. Kobert, Professor of Pharmacology, Rostock; Casimir Kostanecki, Professor of Anatomy, Cracow; Hugo Kronecker, Professor of Physiology, Bern; Sir Francis H. Laking, Physician in Ordinary to His Majesty the King; Oscar Liebreich, Professor of Pharmacology, Berlin; Friedrich Loeffler, Professor of Hygiene, Griefswald; Cesare Lombroso, Professor of Psychiatry, Turin; Donald MacAlister, President, General Medical Council; A. B. Macallum, Professor of Physiology, Toronto; Sir John Macfadyean, Principal of the Royal Veterinary College; Edmund Owen, Vice-President, Royal College of Surgeons of England; Rev. George E. Post, Professor of Surgery in Johanite Hospital, Beirut; Sir Richard Douglas Powell, Bart., K.C.V.O., President of the Royal College of Physicians, London; Guglielmo Romiti, Professor of Anatomy, Pisa; Professor Ronald Ross, C.B., Liverpool School of Tropical Medicine; Frederick Trendelenburg, Professor of Surgery, University of Leipzig; Sir William Turner, K.C.B., Principal of the University of Edinburgh: J. William White, Professor of Surgery, Pennsylvania University; and J. W. van Wijhe, Professor of Anatomy, Groningen.

MARISCHAL COLLEGE MEDICAL SCHOOL.

A very remarkable proof of the excellence of the medical teaching at Marischal College, Aberdeen, some years before its fusion with King's College, is given in Messrs. Robert Walker and A. M. Munro's *Handbook to City and University*, of which a brief notice was given in the last issue of the British Medical Journal. In 1855 the appointments in the East India Company's Medical Service were thrown open to competition, and this supplied a trustworthy public test of the work done by such pioneer teachers of medicine at Marischal College as Macgillivray, Nicol, Clark (and his substitute Brazier, afterwards Professor), Pirrie, Macrobin, Ogilvie-Forbes, Francis Ogston, and others. How well Marischal College stood the test is shown by the high places taken by its sons in the competition for these coveted appointments. It is noteworthy that some of them had only just reached the lower limit of age for admission, and it must be remembered that at that time no higher limit was imposed on the candidates. In the first competition, held January, 1855, out of twenty-eight candidates, George Marr, M.D. (Mar. Coll.), took the first place. Again, in the second competition, held July, 1855, out of fifty-five candidates, William Walker, M.A., M.D. (Mar. Coll.), secured the first place. In immediately subsequent years, the second place was gained by Alexander Vans Best, M.D., in January, 1857; the fourth place by Sydney C. Courtney, M.D., in January, 1858; and the third place by William Farquhar, M.D., in May, 1858. In addition to these, high places were secured by many other Aberdeen medical graduates during these and following years. It may be mentioned that Dr. William Walker, who took the first place in July, 1855, rose to be Acting Surgeon-General with the Government of India, and acquired fame in the administration of the jails of the North-West Provinces. The joint report on the *Jails of India*, issued by him and Dr. Lethbridge, is still the accepted authority on that subject. Dr. Walker, who was, we believe, a brother of Mr. Robert Walker, now Secretary of the Aberdeen University Court and Registrar, died in 1893.

THE "CURE" OF SLEEPING SICKNESS.

It was recently announced by a Belgian newspaper that two Europeans, who had been under treatment for sleeping sickness in the Walermall Hospital with atoxyl combined with strychnine, had been completely cured. We earnestly hope this may prove to be true, but it is well to point out that the remedy has already been on trial for a considerable time. It was used, we believe, in the case of the late Lieutenant Forbes Tulloch. In a letter which appears elsewhere, Professor Ronald Ross points out that the drug was first suggested and used in sleeping sickness by Drs. Thomas and Breinl of the Liverpool School of Tropical Medicine. On the initiative of the authorities of the School large quantities of atoxyl have been sent out to the Congo, where several patients are now under treatment with the drug. The results have, so far, been apparently successful; but, as Professor Ross points out, it is too early to formulate any final conclusion on the subject. Further cause for suspension of judgement is shown by the experience of Sir Patrick Manson, who, we are informed, has at

present three patients under treatment by this remedy. In two of them the trypanosomes can no longer be found in the blood. When last heard of the patients had gained flesh, and were free from fever and other symptoms, and appeared to be quite well. When, however, by way of testing the reality of the apparent cure, 2 cubic centimetres of blood taken from one of the patients were injected into a monkey, the animal developed trypanosomiasis. In the third case great improvement has taken place in the general health, but every month or so trypanosomes reappear, and there is a slight return of fever. Unless, therefore, the same blood test has been applied with negative results in the two Belgian cases, there is serious reason to doubt whether they can be regarded as definitively cured. A word may be said as to the dosage of atoxyl as given in the *Daily Mail*, which works out at something like 12 gr. as a dose, repeated every five hours. In Sir Patrick Manson's cases 2½ gr. of atoxyl were given every third day, and even with this comparatively small amount toxic symptoms were produced, and the dose had to be diminished. It is to be feared that any one following out the line of treatment laid down in our contemporary might find himself in an unpleasant position. No importance, we believe, is attached by Sir Patrick Manson to the strychnine and cold douches, which are said to be part of the treatment adopted in the Belgian cases. He has, however, known two cases of trypanosomiasis in which recovery took place while the patients were taking arsenic. It is by no means clear that this was anything more than a coincidence.

CANCER RESEARCH AT FRANKFORT.

THE first part of the Records from the Royal Institute for Experimental Therapeutics at Frankfort[1] is devoted to cancer research, and contains an account of the work done by Professor Ehrlich and Dr. Apolant on mouse tumours. Dr. Apolant describes the results of three years' investigations upon the histology and histogenesis of the epithelial tumours which occur spontaneously in mice and can be propagated by transplantation. He has observed that the very slowly developing tumours are always of the pure papillary type, whilst the alveolar carcinomata are characterized by a rapid growth, and he has also found that the same tumour strain may exhibit structural alterations which correspond to modifications in the rate of growth; hence he concludes that histological structure is partly a function of developmental energy. Particular interest attaches to Dr. Apolant's account of the transformation of carcinomata into sarcomata during the course of propagation. Professor Ehrlich describes a rare case of a chondroma in a mouse which proved to be readily transmissible, and also contributes an article on the general results to which investigations on mouse carcinomata have led. It is encouraging to find that he expresses a hopeful opinion of the efforts which are being made to produce in experimental animals immunity against malignant disease.

A FAMOUS MEDICAL EXPLORER.

WE learn from the *Scottish Co-operator* that a public meeting was held at Selkirk recently to consider the most appropriate means of commemorating the centenary of the death of Mungo Park, the famous African traveller and explorer, who was a native of Selkirkshire. Mungo Park was born on September 10th, 1771, at Fowshiels, a hamlet a few miles from Selkirk. His father was a small farmer, who was in a position to give his large family a good average education. In his fifteenth year the lad was apprenticed to Dr. Thomas Anderson, a surgeon in Selkirk. Three years later he entered Edinburgh University to complete his medical studies. When he had obtained his diploma, Park turned his steps towards London, where he already had a brother-in-law, who introduced him to Sir Joseph Banks. That famous Maecenas of science got for him an appointment as assistant-surgeon in one of the East India Company's vessels. Park made a voyage to Sumatra which occupied a year, and gave him abundant opportunities of adding to his scientific knowledge. On his return he presented Sir Joseph Banks with some rare and valuable specimens of plants which he had discovered, and read a paper to the Linnean Society, describing previously unknown fishes of the Indian seas. Some years before, an Association for the promotion of means to open up West Africa, and to explore the basin of the Niger, had been formed. Explorers previously sent out by the Association had failed, and two of them had been murdered. At the age of 24 Park, who was of powerful physique, offered his services to the African Association, and was accepted. His instructions were to find the source of the Niger, and visit the principal towns on the route. On May 22nd, 1795, he sailed from Portsmouth, and about a month later the ship entered the Gambia. Fourteen days later he arrived at Pisania, where a British trading station had been established. From that place early in December, with only two servants, he set out on his long journey through a country almost completely shrouded in mystery. After encountering many hardships, he at length saw the "long sought for majestic Niger, glittering "in the morning sun, as broad as the Thames "at Westminster, and flowing slowly to the east-"ward." For five days he followed its course; but his horse broke down, and he could not suppress the apprehension that he, too, would in a short time "lie "down and perish, in the same manner, of fatigue and "hunger." He made up his mind to retrace his footsteps, and, after innumerable thrilling adventures and trials, he reached St. John's Harbour, where he took passage in a British mail boat, and on December 22nd, 1797, arrived at Falmouth. He went home to his mother's house, where he wrote an account of his travels. For the next two years he practised as a country doctor, but his dreams were of Africa and its possibilities yet undeveloped. On January 30th, 1805, he once more set out to explore the Niger, this time at the head of an expedition fitted out by the Government. Forty-four Europeans in all comprised the expedition. Climate and privation worked havoc in the expedition, and when at last the Niger was reached, of the forty-four Europeans who had started, only five remained—three soldiers (one deranged in his mind), Lieutenant Martyn, and Park. To discover the termination of the Niger was now Park's object, and on November 19th, 1805, the little band set out, never to return. Years passed without any news of the travellers. It was not till four years later that a man who had been Park's guide from the Gambia threw light on the mystery. From the very start, it appeared, they had been harassed and tormented by hordes of natives on the banks, drawn thither by the reports of the great wealth which Park had on board. Near a town called Bussa the attacks of the natives increased in violence. Only four white men now remained, and they fought against overwhelming numbers. At last the four white men tossed their muskets into the river. Park took hold of one soldier, Martyn of the other, and together they jumped into the seething waters of the Niger. It was doubtless Park's intention to make a last daring attempt to escape, but he found his death in the great

[1] *Arbeiten aus dem königlichen Institut für experimentellen Therapie zu Frankfurt A.M.* Herausgegeben von Prof. Dr. P. Ehrlich. Heft I. (*Aus der Abteilung für Krebsforschung.*) Jena: Gustav Fischer. 1906. (Roy. 8vo, pp. 102; 6 plates. M. 9.)

river which had so fascinated him. The medical profession may well be proud that it can claim such a hero as a member.

THE LOCAL GOVERNMENT BOARD.

By the courtesy of the Medical Officer to the Local Government Board, we have received this week a copy of the medical supplement to the thirty-fourth annual report of the Local Government Board, 1904-5. As usual, it is a volume of much interest, containing a vast amount of material of great utility for reference purposes. It begins, like its predecessors, with the report of the Medical Officer himself, giving accounts of what has been done by the Medical Department in connexion with various International and Imperial commissions and reports on vaccination and the scientific investigations which have been going on during the year; the progress of plague and cholera in different parts of the world and general administrative matters at home likewise receive notice. There are also three appendices, the first of which is devoted to statistics and to reports by various medical inspectors on work done by them. The second appendix consists, as usual, of the scientific reports which have been received from the experts habitually employed by the Local Government Board. That of Dr. Klein is a further statement relative to transmission of plague in the rat—a subject with which he has previously dealt on several occasions; while Dr. Houston devotes himself bacteriologically to deep-well water, upland water, and cow dung; and Dr. Gordon describes a bacterial test whereby particles shed from the skin may be detected in air. There are two papers by Dr. Martin—one dealing with the chemical products of the *B. enteritidis sporogenes* and their physiological action, and the other with the action of the specific agglutinins formed by the *B. coli*, the typhoid bacillus, the paratyphoid bacillus, and *Proteus vulgaris*, on each of these several micro-organisms named. The third appendix is an account by Dr. Green of his continued studies of chloroformed calf vaccine. Some of the papers in the second appendix are illustrated by plates. At a later date we hope to give a fuller account of the contents of the volume.

A CASE OF EXHUMATION.

The medical man principally concerned in the exhumation case, of which a report appears in our Medico-Legal columns this week, is to be congratulated on its happy and inevitable result, and most decidedly deserves the indignant sympathy of his colleagues on the annoyance and inconvenience to which he has very unnecessarily been put. The grounds put forward for the exhumation and the holding of an inquest were of the very flimsiest character. Six months and more had elapsed since the death of the deceased, a woman aged 63, well known to have suffered from heart disease and to have been a chronic invalid for many months before her death; its cause had been duly certified by a medical man with twenty years' high repute in the locality, and nothing whatever had since transpired to throw doubt on the correctness of the statements which he had made. To order exhumation under such circumstances is a strong step, and the coroner himself recognized that there was nothing in the facts alleged in the sworn application for an inquest to justify its being granted; he finally gave way, apparently only because the medical man concerned offered no objection. Seeing that the death was ascribed, though without any reasonable ground, to incorrect treatment on his own part, it was natural that the medical man should refrain from offering any objection to a complete investigation of the matter, however much annoyance it might entail; he was, therefore, quite right to make no demur, even if it seemed likely under the circumstances that any objection on his part would carry weight. It was by the coroner himself that objection should have been raised and upheld, but possibly he thought that, once the matter had gone so far as the formulation and swearing of an affidavit, it was better for all concerned that it should be thoroughly threshed out, and perhaps he was right. In any case, the result is satisfactory, but we think means should be found of protecting medical practitioners from annoyances of a similar kind whether inspired by fussiness or less avowable motives. The person who initiated the proceedings might, by a calm consideration of the circumstances, have reached for himself the same conclusion as the jury. It would be a needless and most serious addition to the anxieties of the general practitioner if the bodies of all his patients were liable to be dug up and scandals thereby started in his locality, merely because he had failed to please some one or other of the relatives.

A CHANCE FOR MEDALISTS.

The attention of those who are on the outlook for appointments may again be directed this week to a notice which appears at page 55 in our advertisement columns. It is a warning notice in respect of appointments at sundry places in which disputes are in progress between the local profession as a body and the persons who have the appointments in their hands, and who will be the masters of their eventual occupants, if any. Any one who may feel attracted by an offer of an appointment which reaches him from any of the places mentioned, and which is of the general nature indicated, would do well to apply first for information respecting it to the medical man whose name and address are given in connexion with each notice. He will then learn the true nature of the work which he is asked to undertake and the conditions under which he is likely to have to carry it out if he accepts its responsibility. The list this week contains twenty-three entries, and, with one exception, all refer to ordinary contract medical practice, for the most part within the United Kingdom. One only is a fresh notice, and some of the circumstances connected with it are worth relating. It has reference to an appointment in Glamorganshire, where a medical man is wanted under a plan by which it is hoped to replace contracts with medical men in private practice in the locality by a medical association worked by laymen. It cannot be said that those responsible for the prospective arrangements err on the side of aiming too low. Perhaps it is unkind to other medical corporations to make the fact public, but it seems that these persons will be satisfied with nothing less than the qualifications conferred by the London University and the Royal College of Surgeons of England. Moreover they insist that the graduate must not be a mere M.B., or an ordinary Member of the College, but a full-fledged M.D. of the University and a Fellow of the College. It does not seem probable that there will be any sudden rush of persons thus happily qualified to South Wales, but if any one possessing the diplomas mentioned should feel tempted to apply for the appointment vacant, it would be well for him to pause, unless in addition he has obtained high honours at his examination. We make this suggestion because it is stated in the advertisement that those who have the appointment in their hands will give the preference to a gold medalist, a man who whether *post hoc* or *propter hoc* is capable of performing major operations, while, above all other things, he must be a total abstainer. Competition for the appointment seems likely, therefore, to

be somewhat limited, and the successful competitor will certainly be a person of great distinction apart from the fact that the local profession may take steps to ensure him that isolation which is the common accompaniment of greatness.

THE NOISE NUISANCE.

THE crusade against noises in London, and especially those brought about by motor omnibus traffic, is being carried on actively, and this is as it should be. We are somewhat afraid, however, lest its ultimate success may be imperilled by that well-recognized enemy of all good causes, *trop de zèle*. There is no occasion to invent new terms such as "mobusthenia," to represent our hospitals as rendered half useless by the prevalence of noise, or to depict every motorist as an incipient maniac. Motorists doubtless have their faults, but these at present are not really in question, for the ordinary motorist has little to do with the present issue. The person in fault, who is contributing to add to the evils of life in London, and who should be the object of attack, is the motor manufacturer, who has failed hitherto to produce an approximately noiseless machine. The attack on noise is general, but we have picked out motors as the real cause and proper object of the present crusade, because there is strong ground for believing that London as a whole is no noisier, and possibly much quieter than the London of twenty years ago, a city which many inhabit nowadays merely for a few hours out of the twenty-four, but in which our fathers dwelt throughout the year with perfect satisfaction to themselves. For one thing, wood pavement and asphalte roads have nearly everywhere replaced the cobbles and granite settings of the past; and perambulant costers have greatly diminished in number, while only a very bold specimen of the breed would venture to indulge in the raucous cries of his predecessors. Furthermore, the muffin bell has ceased to jingle in all but a few isolated quarters; the restaurants have taken over the German bands; and, judging by the frequency with which they are encountered, there must be a severe slump in the hurdy-gurdy, and even the piano-organ market. London as a whole, and minute by minute, is certainly as quiet as it was, though in saying this we in no wise imply that the movement against noises in London should not be sedulously and actively carried on. There are noises and noises, as also a point at which every noise practically ceases to exist for the individual concerned, since it can only be said to be existent for him, because its cessation and not its continuance disturbs him. There are, in short, many persons to whom the intense quiet of the countryside is primarily as disturbing to the nerves as is the constant rumble of the London streets to the occasional visitor from the depths of the country, and others whom sleep leaves as soon as certain familiar sounds cease. No saving clauses, however, exist in respect of some factors of the general noise to which we are at present subjected. These are the sudden fusillades precisely imitating revolver shots to which many motor-driven vehicles give rise, the shrieking resentment of steel when ground on steel, and the aggressive thumping of the motor cycle. These are intermittent sounds to which no one, however indifferent to continuous noise, can grow accustomed, and they are well calculated not only to annoy every one and disturb the thoughts of normal workers but may really upset those who from one cause or another are already in a condition of morbid nervous tension. The vibration caused by the heavier motor vehicles is another point deserving attention, for some persons are very alive to sensations of this character, and find them at least as disturbing as sound, however loud and sudden.

TUBERCULOSIS AND LIFE INSURANCE.

AT the Congress of Medical Officers of Life Insurance Companies recently held in Berlin special attention was given to the question of predisposition to tuberculosis. Reports on this subject were presented by Martius of Rostock and Gottstein of Berlin. The former showed that in the case of applicants personally quite free from any trace of disease, but showing family predisposition in the shape of a parent or two brothers or sisters affected, the mortality from phthisis reached 24 per cent., while it was only 12 per cent. of the total mortality of the other members of the same society, the Gotha Company. As the figures utilized were large, the conclusion seems justified that healthy persons with such hereditary taint present a risk of becoming tuberculous which is twice as great as that of other persons. On the other hand, Gottstein studied the means by which it is possible to determine a predisposition to tuberculosis among persons not actually diseased. He thinks that family predisposition must be admitted when one or both parents or brothers or sisters are dead from or seriously affected by tuberculosis. The points in the physical condition of the applicant which he considers most important are (1) the girth of the thorax, which should not be sensibly less than half the height; (2) when in addition to this there are other defects; (3) when the weight of the body is very much below the average without any satisfactory cause; (4) where there is paralytic thorax or the thoracic deformity described by Freund and Rothschild—shortening and early ossification of the cartilage of the first rib; old tuberculous affections of other organs, such as the lymphatic glands in the neck; on the other hand, he attaches no importance to anaemia or leanness, unless accompanied by other symptoms; (5) the mode of life, social position, and occupation are of obvious importance. Poëls of Brussels compared the mortality of persons refused on account of tuberculosis with those accepted, the proportion being two to one in the company to which he is attached. The subject is one of great importance, and it is to be hoped that the Congress will carry out its intention of studying the question further in the light of the abundant statistics which must be available if the various insurance societies will permit them to be used.

UTERO-PARIETAL FISTULA AFTER CAESAREAN SECTION.

CAESAREAN section is not without its risks, and may be followed by one or two troublesome complications, although the after-history is as a rule satisfactory. Dr. Gummert, of Essen, has recently reported before a medical society an instance of a singular complication.[1] A year previously the patient underwent operation, the uterus being laid open by a transverse incision in the fundus, on Fritsch's principles. The uterine wound was closed with interrupted and continuous catgut sutures. For eight days there was fever, but the patient was discharged from hospital three weeks after the Caesarean section. At that date the fundus was adherent to the parietes at the level of the umbilicus and the abdominal cicatrix appeared to be sound. A few weeks later, however, an abscess as big as a hen's egg developed in the cicatrix at the point of adhesion of the fundus. It was entirely neglected by the patient herself, a deep fistulous tract developed, and she did not seek medical relief until the complication became intolerable owing to the discharge of menstrual blood through the fistula. Dr. Gummert excised the tissue around the entire length and depth of the fistula. The earlier stages of the operation were attended with difficulty, owing to adhesions of mesentery and small intestine. The part of the fistula which traversed

[1] Uterusbauchdecken-Fistel, *Monatsschr. f. Geb. und Gyn.*, June, 1906, p. 847.

the uterine wall was wide enough to admit the operator's finger: it was closed with three interrupted catgut sutures whilst the parietes were sutured in layers. The operator was uncertain whether the primary infection was in the patient or in the catgut employed for the Caesarean section. He denied that the complication in any way discredited the transverse fundal incision. The advocates of the usual vertical incision will hardly agree with Dr. Gummert. Thus Dr. Whitridge Williams in his well-known textbook *Obstetrics*, declares that "the intestines and omentum "are more liable to become adherent to the uterine "wound with the transverse than with the longitudinal "incision. It is urged that the fundal wound is less "likely to be followed by adhesions between the uterus "and the anterior abdominal wall. This is no doubt "correct, but, at the same time, should infection of the "uterine wound occur with the former (transverse) "incision virulent material is more liable to gain access "to the general peritoneal cavity, while, if it occurs with "the latter (the longitudinal incision), the abscess has "more chance of opening through the abdominal wound." Such is the opinion of an eminent obstetrician; in Gummert's case there were intestinal and omental adhesions, precisely the complication which Whitridge Williams believes to be the more probable after Fritsch's incision has been made. Yet, on the other hand, the abscess in this instance found its way directly to the abdominal wound, as readily as though the uterine incision had been longitudinal and closely applied throughout its entire length to the parietes.

ACTION OF THE ROENTGEN RAYS ON THE HAIR.

In the *Revue Scientifique* of August 4th Professor M. A. Imbert of Montpellier, whose work since 1896 has necessitated his constant exposure to the action of the *x* rays, relates his personal experience of the influence of these rays upon the pigmentation of the hair of the beard and head. His hair began to lose its pigmentation as long as thirty years ago, and he can remember that at least twelve years ago every trace of pigmentation had disappeared from his beard. But recently the pigment has gradually returned, a fact which has evoked many comments and caustic pleasantries from his friends, and he is now enabled to say without fear of contradiction that, at quite a modest estimate, he has become rejuvenated to the extent of some fifteen or eighteen years. He assures us that exposure to the influence of the Roentgen rays is the only possible cause to which this enviable improvement in his appearance is attributable, and cites, in confirmation, a similar result which he has obtained, in conjunction with Dr. Marquès, upon a patient who submitted to radiotherapeutic treatment at their hands. The patient in question was a man 56 years old, whose hair on the head and beard was almost completely white. He was suffering from lupus on the left side of the face of twelve years' standing. *X*-ray treatment was applied to the ulcerated surface and the ordinary precautions for protecting the adjacent regions from exposure to the action of the rays were purposely omitted. Cicatrization was obtained over a considerable part of the affected tissue, but it was found that in a short time the hair about the temporal region fell off. It speedily returned, however, grew as thickly as before, and, with the exception of very few hairs, exhibited a strong black pigment. In the left frontal and parietal regions and in the left side of the moustache, upon which the *x* rays were not so directly concentrated, none of the hairs fell out, but they all acquired a considerable amount of pigment. The result was that a remarkable degree of asymmetry was produced between the darkly pigmented hair on all the left side of the head and face and the bleached appearance on the right side, which was only slightly influenced by the *x*-ray treatment. Professor Imbert's observations are not of sufficiently long standing to enable him to say how long this restoration of pigment persists, but it certainly remains for many months, and may, he suggests, continue for years. After the hair is cut or the beard shaved, pigment reappears in the new growth; the action of the rays, therefore, appears to have produced a genuine rejuvenation. There is no accepted scientific explanation of the mode by which this action takes place, but the author suggests that the rays may possibly paralyse or kill the "chromophages" of Metchnikoff. These are cells which are present in the neighbourhood of the hair roots and possess the power of devouring and removing pigment granules; it is possibly owing to the inhibition of this power that a renewal of pigment deposition takes place. We learn from the same journal (p. 157) that Professor Ullmann, a dermatologist in the University of Vienna, claims the priority of this discovery of the restoration of hair pigment by the action of the *x* rays. He published an address on the subject in 1903.

THE REGENERATION OF NERVES.

In a paper recently read before the Royal Society, Drs. Mott and Halliburton and Mr. A. Edmunds publish further researches on the regeneration of nerves, and support the conclusion, to which their previous work pointed, that the axis cylinder, which is the essential portion of a nerve fibre, has an exclusively central origin. They recognize the neurilemmal activity in the peripheral portion of a divided nerve, and regard the changes which here take place as providing a preparatory scaffolding for the development of new nerve fibres, but they are unable to accept the view, recently advanced in opposition to the old Wallerian doctrine, that the peripheral portion is the actual site of origin of new, functionally active nerve fibres. For the work which they now record they have devised experiments in which union of central and peripheral ends of nerves was prevented, and have also made observations on transplanted pieces of nerve, the degeneration of regenerated fibres, the rate of medullation in regenerating nerves, and the influence of stimulus on regeneration. These experimental methods approach in different ways the question as to whether the regeneration of nerve fibres is autogenetic or not, but in no case has any evidence been forthcoming of auto-regeneration. The facts recorded, taken in conjunction with those published by such observers as Ramon y Cajal and Langley and Anderson form, on the other hand, strong evidence in favour of the Wallerian doctrine that new nerve fibres are growths from the central ends of divided nerve trunks. The experimental data adduced by observers who support the opposite view are easily explained as due to accidental and unnoticed connexion of the peripheral segments with the central nervous system by means of other nerves cut through in the operation. If such connexion is effectually prevented, real regeneration of structure and restoration of function never occurs. What takes place in the peripheral segment of a divided nerve is a multiplication, elongation, and union into long chains of the neurilemmal cells, and the same change is even more vigorous at the central termination of the cut nerve. This neurilemmal sheath has a nutritive function, and at the central end this function is effective, and provides for the nourishment of the actively lengthening axis cylinder. At the peripheral end, unless axons reach it, it is ineffective in so far as any real new formation of nerve fibres is concerned. If, however, the axons reach the peripheral segment, the work of the neurilemmal cells has not been useless, for they provide the supporting and nutritive elements necessary for its continued and successful growth.

This neurilemmal activity appears to be essential, since without it, as in the central nervous system, regeneration does not take place.

THE INCIDENCE OF APPENDICITIS IN THE SEXES.

In the *Deutsche medizinische Wochenschrift* of August 9th Dr. Karrenstein gives some interesting figures as the result of his study of the alleged relative immunity of women to appendicitis. It is generally taught that the disease is more common in men than in women, and this doctrine is supported by the figures of Roux, who out of 670 cases had 53 per cent. males and 47 per cent. females; by Haemig's 241 cases, 70 per cent. males and 30 per cent. females; by Sonnenburg's 1,000 cases, 63 per cent. males and 37 per cent. females; and by Barbier's 616 cases, 76 per cent. males and 24 per cent. females; but he objects to this apparently imposing mass of statistics that they are founded on hospital cases, and that the number of males admitted to hospitals is generally greater than of females. He has therefore collected the whole of the cases of appendicitis observed at the Charité Hospital in Berlin from 1874 to 1902, and from the Hamburg hospitals from 1889 to 1902, and has calculated the proportion of patients in each sex to the total number of men and women respectively admitted during the same periods to these hospitals. The result is that at the Charité the females come out only slightly inferior to the males, and in the year 1899 show even a higher proportion, 4.23 per mille as against 2.92 per mille, but he finds that in the same hospital the female sex shows a smaller liability to acute gastro-intestinal affections, to influenza and tonsillitis—diseases which appear to play a part in the causation of appendicitis—and he therefore attributes the diminished tendency of women to appendicitis to their relative immunity to these diseases. In the Hamburg hospitals the result is the reverse, for there women show a greater liability to appendicitis than the men, and conformably they also show a relatively high rate of acute diseases of the alimentary canal—influenza and tonsillitis. His conclusion is that women contract appendicitis as frequently as men provided they are exposed to the same predisposing causes and noxious influences.

MACERATED FETUS LIVING TWENTY HOURS.

The fact that a living child may be born entirely divested of its epidermis is of some importance, especially for medico-legal reasons. The possibility that it may survive its birth for some hours must, for similar reasons, be taken into account. In April last Dr. Lacasse read notes of a case to point at a meeting of the Société Anatomique de Paris.[1] A woman, aged 26, was delivered at term at the end of her first pregnancy. The child was, it appears, illegitimate, but there was no evidence of any taint in either parent. Some show of blood had been observed in the second and third month, and the size of the uterus when labour set in was much below the normal standard. The presentation was right occipito-posterior, the membranes ruptured twelve and a half hours after the beginning of labour, and the liquor amnii was very scanty but perfectly opalescent and free from odour. Ten minutes later the child was born spontaneously, the placenta, very heavy, coming away forty minutes after the fetus. The fetus was a female, weighing a little under 3½ lb.; instead of its weight in proportion to that of the placenta being as six to one, the fetus weighed 1,700 grams and the placenta 530 grams, hence the suspicion of syphilis was strong, but the placenta did not present the characteristic appearances of specific taint. The fetus was completely macerated save for a few patches of epidermis on the scrotum (*sic*) and back; it was of a bright red colour. There were no bullae on the palms and soles, but some areae of cutis even deeper red than elsewhere were noted on the outer side of the right thigh and over the right scapula. Dr. Lacasse suspected that they represented incipient pemphigus, and concluded that the true condition was diffuse pemphigus, the heavy placenta being the sole symptom strongly suggesting syphilis. Although the infant died twenty hours after its birth, it cried lustily at first, looked about, and was in fact quite lively.

[1] Enfant macéré ayant survécu 20 Heures, *Annales de Gyn. et d'Obstét.*, August, 1906, p. 503.

A BIOLOGICAL RADIUM LABORATORY.

An institution bearing the name of "Laboratoire Biologique du Radium" has been at work in Paris since July 1st under the direction of Dr. Louis Wickham, Surgeon to St. Lazare. It is intended for the study of radium and its applications to medicine. The institution, thanks to the munificence of a wealthy manufacturing chemist, M. Armet de Lisle, is equipped on a lavish scale. It comprises a physical laboratory; a chemical laboratory; a laboratory of experimental medicine, pathology, and bacteriology, and a clinical department, partly for gratuitous, partly for paying patients. Already, it is said, some interesting therapeutic results have been obtained.

PLASTER OF PARIS BANDAGES.

The common every-day implements of surgery are so familiar that we are apt to employ them without question, as to whether they are capable of improvement or not. It is just as well, however, that from time to time they should be overhauled and, if possible, improved. The plaster of paris bandage is a case in point. It has lately been the subject of a most thorough scientific research by Dr. Rolando O. Meissenbach of Buffalo, N.Y.[1] Having the good luck to have the elaborate testing apparatus of the Massachusetts Institute of Technology at his disposal, Dr. Meissenbach was able to submit his material to thorough tests of its tensile strength, of its resistance to crushing, of its porosity and of its setting time. The results, which are given in a series of tables, show that we did not all of us know all there is to know about gypsum. There are many points of interest in the paper, but the most important practical detail is the fact that the addition of 5 per cent. of Portland cement "materially strengthens the bandage "in all of its essentials, that is, increases the crushing "force, tensile strength, and at the same time reduces "the time of set and density." The strongest dressing of all proved to be one in which the plaster was wetted with a 5 per cent. solution of dextrine, but this has the very great disadvantage of setting very slowly. When time is not a main object, as for instance in making a "Gypsbett" for multiple tuberculous bone lesions, this mixture might be used with profit. Contrary to general opinion, it was found that chloride of sodium, alum and sulphate of potassium act identically. One per cent. of salt hastens the set, while 2 per cent. retards it appreciably.

[1] *The American Journal of Orthopaedic Surgery*, vol. iv, No. 1, July, 1906.

The annual service of the Guild of St. Luke will be held in St. Paul's Cathedral on Wednesday, October 17th, at 7.30 p.m.

We regret to announce the death of Dr. Henry Tweedy of Dublin, which took place last week at the advanced age of 96 as the result of an accident. Some account of his life, one closely and happily connected with medical mission and other forms of philanthropic work for very many years in Dublin, will appear in a later issue.

Canada.

The Meeting of the British Medical Association.

The meeting of the British Medical Association in Toronto is over; nothing is left but memories, and samples on the office shelf, and weary officials, and an occasional inquiry from Winnipeg or New York about stray luggage. To Canada and to the profession in Canada it has been a notable event, and its results, we are sure, will be far-reaching, as well from a national as from a scientific standpoint. Names known at the head of articles or on the title-page of textbooks have become living personalities, and the books and articles will be received in the future with a strong prepossession; theories we thought dry are instinct with life in the memory of the discussions by the masters of two continents, and many good resolutions have been made to follow the stream to the fountain head of study abroad. Once more the man from the homeland has vindicated himself, and we will talk less than we did of insular prejudice and failure to appreciate the despised "colonist"; another bond in the welding of the Anglo-Saxon race has been forged in the lecture rooms of the medical laboratories, on the lawns, and in the clubs of Toronto, where our brother from the south met our brother from over the sea.

When we flatter ourselves on the success of the meeting we do so on account of the witness so kindly borne by our visitors, whom we know to be candid. In such a large meeting, with its diversified interests, with a new and inexperienced management, there have been difficulties and hitches, but in all essential particulars the arrangements were suitable and satisfactory. The programme was notable in the vast range of important questions discussed, in the eminence of the representatives from three nations taking part, and in the high scientific standards maintained. Perhaps the man from the cross roads thought that the opsonic index would be of little avail in an emergency in a saw mill, but he learned that accurate and extensive scientific knowledge was the index of notable success in the profession he honours, and he listened; indeed, the attendance at all the Sections was extremely good, often exceeding the capacity of the rooms. The city looked her best, the weather was too hot for comfort, but we were glad to convince the Englishman that Canada really has a subtropical climate; the entertainment and amusement provided was varied and included every one.

Toronto is particularly well suited for entertaining a large convention, a fact evidenced by the great number meeting here every year, and the inadequacy of hotel accommodation at the height of the tourist season was supplemented by the opening of several large residential colleges whose students were absent on vacation, and by the entertainment of many of the guests in private homes. The proximity to the water allowed of many delightful side-trips, and easy accessibility from all parts of Canada and the United States brought many visitors from both sides of the line. The Ontario Medical Association and the Canadian Medical Association arranged their meetings for the same week, and after necessary business adjourned to allow their members to attend the larger congress. The meeting of so many of the leaders in the profession from the United States and Great Britain gave an international character to the assembly, and afforded a much enjoyed opportunity for direct exchange of ideas; sometimes also for a crossing of swords, since medical views *de minimis* are somewhat different on the two sides of the Atlantic.

Among the many entertainments offered the members mention should be made of the garden parties given by Mr. and Mrs. H. C. Cox and by Mr. and Mrs. Osler, to which all members and their friends were invited. A golf match was arranged between the British and Canadian enthusiasts on the links of the Toronto and Lambton Clubs, resulting in a victory for the visitors. On Saturday Sir Henry Pellatt entertained a large party, going by special train to Niagara, where they were given an opportunity of examining the immense plant for the development of electric power. Another large party went to Muskoka, where they were entertained by the summer residents of this great playground.

The stimulation given to scientific medical research by the meeting, the general information acquired by those in attendance, and the sympathy and interest aroused among those engaged in a common work in so many different parts of the world are only the most patent results. The better acquaintance and understanding among so many of the intelligent citizens of Britain, Canada, and the United States, which could not be brought about in any way so well as meeting for a week of work and pleasure, and the knowledge of our country, its people, ideals, aims, and resources which the British members have gained and which the British people will gain through them, will, we doubt not, be most important factors in the maintenance of peace, cementing the bonds of loyalty, and aiding in the solution of the great imperial problems of the century. Ignorance has always been the parent of misunderstanding, and acquaintance is necessary to any friendship.

As to practical results to the Association, time will show whether we can keep alive the flame lit by this meeting. In the past, distance and diversity of circumstance have prevented the local branches from attaining strength. How much of their failure was due to ignorance or jealousy it would be hard to say, but a determined effort will be made to put the Association in the place it should occupy, seconded, we have reason to believe, by the General Executive, in every way in their power. The advantages that would accrue from a universal British registration were canvassed during the meeting; a general association representing adequately all parts of the Empire will be the means most likely to further this end.

The thanks of the whole Association are due to Dr. F. N. G. Starr, the Secretary in charge of local arrangements, for his unselfish and untiring labours, as well as to all others who gave time and work to aid. The souvenir book presented to each member has been much admired, and is a very handsome specimen of the "descriptive pamphlet."

Sydney.

Municipal Milk Dépôts.

At the suggestion of the City Council, the Town Clerk has presented a report on a proposal to establish municipal milk dépôts in the city. This report deals exhaustively with the whole subject, and shows how extensive and beneficial these dépôts have been in the cities of Britain, France, the United States, and other countries. It appears, however, that the Council possesses no legal authority to establish and maintain such dépôts; and while there can be no doubt that any means of guaranteeing the quality of the milk generally would be advantageous, the usual method of careful and frequent analysis of milk and prosecution of defaulters seems all that can be done at present. In the concluding part of this report it is stated that the provision of a municipal milk dépôt, whilst in some respects desirable, will have no effect in reducing infant mortality in regard to carelessness, ignorance, and drunkenness of parents, which are admitted to be contributory causes; and however much theoretically it may seem desirable to put into the hands of parents milk which is sterile, yet unless the other contributory causes are satisfactorily dealt with, it would appear that little or no improvement can possibly result. Sydney is among the healthiest cities in the world as far as infantile mortality is concerned, so that there is no pressing need for the dépôts, but at the Town Clerk's suggestion it was decided to recommend to the Council that in the event of a Bill being brought before Parliament, the Council should endeavour to obtain the necessary powers to establish such dépôts, if they deemed it desirable to do so.

Spitting on the Footpaths.

Last year the Board of Health addressed a circular letter to all municipal councils suggesting that they should pass a by-law forbidding spitting on the footpaths and any other such places, and pointing out that such spitting was now recognized as an important cause of the prevalence of tuberculosis. At the last meeting of the Board a return was laid on the table which showed that the municipalities addressed numbered 192; 16 of them had already passed such a by-law, 20 had made a by-law in response to the letter referred to, while 7 still had the expediency of passing one under consideration; 10 replied that they did not think it necessary, these ten being rural munici-

palities. No reply was received from 139. It was decided by the Board that, in the first place, municipalities in the metropolitan districts which had not made the by-law should be again addressed, it being evident that in some of these, at any rate, the by-law ought to be adopted in the general public interest. The hesitation shown by these local authorities was not easily understood, the fact being that the by-law, although likely to be extremely useful if it were enforced, could not be considered to be a cause of hardship to any person, or even to be irksome, quite apart from the question of disease; in fact, it was only a provision for more cleanliness and decency.

Protection of Children.

A change of considerable importance to the well-being of the children who are boarded out privately with foster-parents is about to be made through the co-operation of the Royal Alexandra Hospital for Children with the State Children's Relief Department, which administers the Children's Protection Act. This Act, which has been in operation for some years, is designed to prevent baby-farming, and prohibits the payment of other than weekly payments for those adopted. Children under 3 years of age who are placed with foster-parents under a weekly payment must be registered, and are thereafter visited by the inspectors of the Department, whose duty it is to see that they have proper food, nursing, clothing, sleeping accommodation, etc. The custodians, moreover, are supplied with a printed copy of instructions on the feeding of infants, compiled by the Board of Health. In addition to this oversight, it has now been arranged that all the children under 12 months, whether apparently ill or not, within a radius of two miles of the Children's Hospital, shall be examined at the hospital once a fortnight, and their condition specially noted and prescribed for. By this means it is hoped that the preliminary symptoms of disease will be immediately detected, and appropriate remedies applied before any serious condition develops.

Epidemic of Scarlet Fever.

Scarlet fever is very prevalent in the city and suburbs just now, and the strain on the accommodation at the Coast Hospital has been accentuated recently by the large number of cases admitted weekly. The number of cases notified for the whole of the State during the fortnight ended August 11th was 223, the highest record for any fortnight since February 25th, 1904, when the notification reached 266. The total number of cases reported for the whole State for the first six months of this year was 1,002, as compared with 5,358 cases for the whole of 1903, 4,056 in 1904, and 1,773 in 1905, so that, taken as a whole, the number of cases notified this year is comparatively small. The deaths in the present epidemic have not reached more than about 1 or 1½ per cent. of the cases. The spread of the disease has not been definitely traced to infection of the milk supplies, but is apparently due to infection in the ordinary way.

Health of the Metropolis.

The annual report for the year 1905 of Dr. W. G. Armstrong, the Medical Officer of Health for the Metropolis, states that, with the single exception of diphtheria, which was rather more prevalent than in recent years, infectious diseases have been remarkable for the slight degree in which they have had incidence upon the population. The general death-rate of Sydney and suburbs from all causes per 1,000 living has further declined to 10.17, or, when corrected by the inclusion of metropolitan deaths in benevolent asylums outside the metropolis, to 10.99 per 1,000, and is the lowest on record. The infant mortality has also further declined, and was the lowest on record. This rate has now been falling regularly for several years in Sydney; in fact, the principal factor in the production of the low general death-rate for the year was the great decline in the mortality of young children. For this the absence of epidemics of such infectious diseases as measles and whooping-cough, and the extraordinary fall in the mortality from diarrhoeal diseases are largely responsible. No localized outbreaks of any of the infectious diseases occurred which attained to any degree of importance. Typhoid fever was less prevalent than ever before since it was made a notifiable disease. Scarlet fever, which was very prevalent during 1903 and 1904, abated considerably during 1905. Dr. Armstrong remarks that it is satisfactory to report that an increased number of the suburban local authorities have during the year done something towards checking the adulteration of food, particularly milk, in their districts. The deaths of children under one year in the metropolis numbered 1,236, equal to a rate of 89 per 1,000 births, the lowest rate on record in Sydney. The rate for the whole of New South Wales during the same year was 81 per 1,000 births. The actual number of infantile deaths recorded in the metropolis was 80 less than in 1904, and the proportion they bore to the total deaths of all ages was 22.9 per cent., compared with 23.9 per cent. in 1904.

Victoria.

A Hospital for Acute Mental Diseases.

Action has been taken, we learn from the *Australasian Medical Gazette*, on the recommendation of Dr. Jones, the Inspector-General for the Insane, for the provision of a new hospital for the treatment of acute cases of mental disorder. Plans have been prepared for an institution of this kind to be erected upon a portion of the Maribyrnong Estate recently purchased by the Government. The site chosen is a small plateau, very convenient to Melbourne, being 3½ miles from the Ascot Vale railway station. It is estimated that the first portion of the building will cost from £35,000 to £40,000. This will give accommodation for 124 beds in two wings, each providing for 62 beds. There will also be a large central kitchen and administrative buildings. Each ward will contain some single rooms, a dining-room, and a kitchen, in which the smaller meals can be prepared. There will also be two dormitories, which open one into the other, so that one attendant can observe both. Attached to each ward will be a properly cross-ventilated sanitary spur. The hospital is intended for acute cases in which there is a prospect of a speedy recovery. Our contemporary expresses the hope that before long similar institutions will be provided in the other States of the Commonwealth.

Alcohol in Patent Medicines.

The attention of the Victorian Government has recently been called to the large percentage of alcohol contained in some patent medicines. The question was raised whether storekeepers who sold them ought not to be prosecuted for a breach of the licensing laws. The matter has been considered by the Cabinet, and reports read showing that some of these medicines contained as much as 40 per cent. of alcohol. An opinion of the Crown Solicitor was also read. It was decided to ask the Chief Secretary to institute a test prosecution.

Scotland.

The Scottish Local Government Board and Preservatives in Milk.

The Local Government Board for Scotland, on September 21st, issued a circular calling attention to the subject of the addition of preservatives to milk. The Departmental Committee of the Local Government Board for England, in its report, stated that preservatives were objectionable on the ground of public health, and were also unnecessary for the purposes of the milk trade. The Board accordingly suggests that the local authority should cause samples of milk to be taken with a view to ascertaining the presence of substances commonly in use as preservatives—for example, formalin and boron preservatives. Milk traders should be warned by the local authority, who would take action under the Sale of Food and Drugs Act in instances where preservatives were reported in milk, and should thereafter, when the presence of any added preservative was reported in a sample of milk, regard the case as one for the institution of proceedings under these Acts. The Board had been advised that the presence in milk of formalin to an amount that was ascertained by examination within three days of collecting the sample to exceed 1 part in 40,000 (1 part of formic aldehyde in 100,000) raised a strong presumption that the article had been rendered injurious to health, and that the purchaser had been prejudiced in the above sense. Similar presumption was raised where boron preservatives

were present in milk to an amount exceeding 57 parts of boric acid per 100,000, or 40 gr. of boric acid per gallon. The addition of preservatives to skimmed milk, separated milk, and condensed milk should be watched and controlled on similar lines.

Edinburgh Post-graduate Vacation Course in Medicine.

The President of the Edinburgh Obstetrical Society and Mrs. J. W. Ballantyne gave an "At Home" on the evening of Wednesday, September 26th, in connexion with the Post-graduate Vacation Course now in progress at Edinburgh.

Ireland.

Queen's College, Belfast: President's Annual Report.

The President of Queen's College, Belfast, the Rev. Dr. Hamilton, has lately issued his report for the year 1905-6. The year has been one of success and a source of congratulation. The students' numbers have increased in all faculties, and they continue to hold their own in the examinations of the Royal University; the Better Equipment Fund has now reached the respectable figure of £70,000. The President expresses the regret of all on the resignation of Dr. Whitaker, Lecturer on State Medicine, and of Dr. Mair, Riddel Demonstrator of Pathology, to which latter post Dr. W. J. Wilson has been appointed. Amongst the improvements which are in process of completion through the Equipment Fund are new chemical laboratories, a museum of sanitary science, an enlargement of both the physiological and the pathological laboratories, a new pharmaceutical laboratory, a new lecture theatre specially fitted for the requirements of operative surgery, a new biological laboratory, and a new materia medica museum. All these improvements come out of a sum of £10,800, the half of which was given by the Treasury on condition of the remaining half being given by the Trustees of the Fund; it had been intended to devote the proceeds of the whole of the Equipment Fund to the provision of additional teachers and to the library. One cannot but regret that, when so many of the students seek Germany and France after their graduation, and in view of the charge of provincialism which is not infrequently brought against us, some provision for the teaching of French and German for medical students and graduates should not be provided.

The Post of Medical Officer of Health of Belfast.

At the weekly meeting of the Public Health Committee of the City Council on September 20th the Chief Clerk reported that he had sent the advertisements for applications for this vacancy to the British Medical Journal and to the *Lancet*, but that by the return of the orders he discovered that they were too late for insertion in the issue of September 15th. At once he had the advertisement printed on slips, one of which he posted on September 15th direct under cover addressed to the Medical Officer of Health of each of thirty-three towns, and on the 17th to twenty more, of all of which he gave the names; subsequently copies were sent to the various universities and colleges. This action he had taken on his own responsibility. The Committee approved of the course adopted by the Chief Clerk. It will be remembered the last day for receiving applications was September 22nd.

Cork District Lunatic Asylum.

The most important business at the monthly meeting of the Cork Lunatic Asylum, held on September 18th, was the election of a resident medical superintendent in the room of the late Dr. Oscar Woods. The candidates for the position were: Dr. James Cashman, first Assistant Medical Officer, Cork District Asylum; Dr. John Fitzgerald, third Assistant Medical Officer, Cork Asylum; and Dr. J. J. Fitzgerald, Resident Medical Superintendent, Carlow Asylum. The Chairman, Mr. Barry, M.C.C., in proposing Dr. Cashman, who had been acting Resident Medical Superintendent during the illness of the late Dr. Woods said he did so on the principle laid down by some of the most important public bodies, who were of opinion that the proper course, when a position became vacant, was to promote the person who would next be most entitled to it. Dr. Cashman had served a long time under the apprenticeship of the late Dr. Woods, and, in the opinion of the Chairman, Dr. Cashman was thoroughly deserving of the promotion. Rev. Dr. O'Mahony seconded the proposal as the representative of the Rev. Dr. O'Callaghan, Roman Catholic Bishop of Cork, who thought Dr. Cashman well fitted for the post. Dr. J. J. Fitzgerald was then proposed by Rev. Dr. Brown, Roman Catholic Bishop of Cloyne, who dwelt on his academical distinctions and the good work he had done in his special province of practice. In particular, he stated that Dr. J. J. Fitzgerald had been chosen by the Royal Commission on the Care and Control of the Feeble-Minded, to act as Medical Investigator in the county and city of Cork. Bishop Brown, however, before proposing Dr. Fitzgerald of Carlow, protested against the election being held that day, as being clearly illegal; it was in direct opposition to the provisions of the Act of Parliament, which require that the salary of the Resident Medical Superintendent should be sanctioned by the Lord Lieutenant before the office was filled. Alderman O'Riordan next proposed the election of Dr. John Fitzgerald, adding that if he were elected they would have the advantage of two medical officers, as his wife was also a doctor. Dr. Kelly, Bishop of Ross, supported the candidature of Dr. J. J. Fitzgerald, Carlow. A poll was finally taken between Drs. Cashman and John Fitzgerald, both of Cork Asylum, and resulted in ten votes each. The Chairman gave his casting vote to Dr. Cashman, who was declared elected and thanked the members for having placed him in that important position. Bishops Brown and Kelly did not vote.

Sanitary Officers.

One of the three Subcommittees of the Joint Poor-Law Committee which was brought into being at the beginning of this year by the Irish Committee of the British Medical Association in conjunction with other bodies, is the Public Health Subcommittee. Its duties are to see to the preparation of evidence as to the difficulties under which Sanitary officers in Ireland at present do their work, and as to the sources of the irritation which they often very justly feel. The preparations being made are in anticipation of a visit of the Poor-Law Commission to Ireland, an event which may be expected to take place within the next year, and is certainly to be regarded as pregnant with results of immense importance to all medical men in any way connected with Poor-law work or sanitation in Ireland. Hence the Public Health Subcommittee is now actively at work, and amongst other things has issued a circular asking for the co-operation of all Sanitary officers. In this it is very truly stated that the faithful, honest, and impartial discharge of his duties by a Sanitary officer often places him at variance with members of the sanitary authority, who are his masters, as also with individual members of the community. Each Sanitary officer is therefore asked to keep a precise record of the work done by him during the year beginning on April 1st last, showing the number of reports made by him, the number of notices served, and, as far as may be, the number of miles travelled; likewise the numbers respectively of inspections of dairies and cowsheds, of houses disinfected, of prosecutions undertaken, and of any other duties that he may have been called upon to discharge. At the end of the year it is intended to supply each officer with a form on which he can readily fill in the details that are required. It is earnestly to be hoped that Sanitary officers will comply with the requests thus made to them, and co-operate with this subcommittee in the most hearty fashion. It is quite certain that the position of themselves and their successors will be determined for an untold number of years by any recommendations which this Commission may be induced to make, and no pains should be spared to ensure that the evidence laid before it in respect of the hardships at present suffered by Sanitary officers shall be equally impressive in its matter, its quantity, and its form. It would be a thousand pities, therefore, if officers of the service in Ireland allowed this opportunity to escape, and, either from slackness or any other cause, failed to supply the information required. Any officer who by accident may not have received the circular to which reference is

made would do well to address a postcard to Dr. Samuel Agnew, Lurgan, who has under aken the duty of Honorary Secretary to this particular Subcommittee; the Honorary General Secretary of the whole Conjoint Committee is Professor White, of Dublin.

Manchester.

NEW SCHEME FOR HOSPITAL FOR CONSUMPTION.

THE Charity Commissioners have under consideration a scheme of administration for the Manchester Hospital for Consumption and Diseases of the Throat and Chest and the Crossley Sanatorium at Delamere. The real estate at Dunham Massey includes over 8,000 square yards of land with the hospital buildings, and over 600 square yards of land in Hardman Street, Manchester, together with 73 acres at the Sanatorium near Delamere. The personal estate amounts to £16,000 in respect of the Hospital for Consumption, and over £63,000 in respect of the Sanatorium, making together about £80,000. Under the scheme the endowments of the two hospitals are to be consolidated and managed as one institution. There will be sixteen trustees, who will be entitled to hold office for life.

MANCHESTER ROYAL INFIRMARY.

The Chairman of the Lay Board, at its meeting on September 25th, paid a high tribute to the valuable services of the late Dr. Thomas Harris, and expressed the great sorrow of the Board owing to his loss. For the post of Superintendent, vacant by the death of Mr. W. L. Saunder, there are 160 applicants. The progress of the new building is being well maintained. Over 700 men are employed in its construction, while 50,000 bricks and 300 tons of stone are delivered every day. The following sums have been received since the last meeting of the Board: From the trustees of the late Mr. James Holden of Rochdale, £5 000; £3.026 from the executors of the late Mr. Alex. W. Mills, architect, of Bowdon; and £1,080 from the treasurer of the Manchester and Salford Hospital Sunday and Saturday Fund. Dr. E. S. Reynolds was appointed full Physician, vice the late Dr. Harris.

South Wales.

CONSUMPTION TREATMENT.

AT a meeting of the Pontypridd Board of Guardians, Dr. Ivor Davies (Porth), referring to the plans for the new infirmary, strongly advocated a special block being set apart for consumptive patients. Those, like himself, who attended the meetings of the Relief Committee could not have failed to see that it was absolutely necessary that special accommodation should be provided. Merthyr had made provision to deal with this disease, and other authorities had moved in the same direction. Any money spent in the way he indicated would mean economy to the community in the end. The Chairman remarked that nothing had been definitely settled as to the proposed new building, and Dr. Ivor Davies would have ample opportunity to bring the matter forward again.

CARDIFF INFIRMARY.

A meeting of the Board of Management of the Cardiff Infirmary was held on September 12th, Dr. Wallace in the chair. The Secretary stated that he had received a telegram from Colonel Bruce Vaughan, who could not, unfortunately, be present that day, asking him to announce the following amounts towards the fund for remodelling the out-patient department received or promised since the last meeting: Previously acknowledged, £5,075 8s.; Earl of Plymouth, £100; Mr. Henry Radcliffe, £50; Penrhwceiber Colliery workmen, £30; International Colliery Friendly Societies, £20; Garth Merthyr Colliery workmen, £17; Nixon's Navigation Colliery workmen, £10 10s.; Mr. Harry Webb, £10; Mr. Walter Scott, £10; Aberdare District South Wales Miners' Federation, £10; Dinas Powis Flower Show Stall, £6 6s. 11d.; Blaengarw Friendly Societies' Demonstration, £5 10s.; R. M. Burge, £5; Treherbert Constitutional Club, £4 4s.; Cartwright's Lodge of South Wales Miners' Federation, £1 15s.; National Telephone Company's employés, £1 5s. 3d.; Blaenant Colliery workmen, £1 1s. Total, £6 358 0s. 2d; still required, £1,641 19s. 10d. There had practically been no effort made during the past two months to complete the fund on account of the holidays, but it was earnestly hoped that every one would unite now to assist the object, as the original offer of £1,000 was conditional on the balance being raised during the present year. A grave necessity exists (went on Colonel Bruce Vaughan's statement) for carrying out this work, which has in a measure been lost sight of owing to the fact that the main feature is the out-patient department. That is, that the scheme will provide fourteen additional bedrooms for nurses—urgently needed, as for a considerable time past new departments have been added to the hospital, more beds opened, and quite recently permission given for the introduction of extra beds into the wards, without corresponding accommodation being provided for additional nurses and servants. At the present time we have only 51 nurses, and only 49 beds for them, and the matron has to take care to find room, by arrangement of holidays and drafting nurses to Porthcawl when the children are there, and so on. The position would, indeed, be serious if we had an outbreak of illness amongst the nurses, as no accommodation exists for a sufficient reserve to efficiently staff a large hospital and one so continually hard-worked as the Cardiff Infirmary. The question of increased accommodation for nurses was referred to the Nursing Committee. Hearty thanks were accorded to the Earl of Plymouth and the other donors in the above list.

SWANSEA GUARDIANS AND NURSING INSTITUTE.

At a meeting of the Swansea Board of Guardians, held on September 13th, a letter was read from Lady Llewellyn asking for the usual donation of £75 towards the Swansea Nursing Institute, but the proposal to pay it was opposed by Miss Dillwyn, who disagreed with the principle of making the whole of the ratepayers pay towards a charity, whether they wished it or not. It was pointed out that 3,720 visits were paid to parish patients by the district nurses last year, and the resolution to continue the subscription was passed, only Miss Dillwyn dissenting.

MILK PRESERVATIVES.

Dr. E. Walford, Medical Officer of Health of the City of Cardiff, reported to the Health Committee, in accordance with the recommendations contained in a circular letter of the Local Government Board, dated July 11th, that he had caused the milksellers to be notified that action would be taken under the Sale of Food and Drugs Acts in instances where preservatives are reported in milk. Printed notices to this effect had been posted up in different parts of the city.

THE TYPHOID FEVER OUTBREAK IN MONMOUTHSHIRE.

At the monthly meeting of the Panteg Urban District Council, held at Pantymoile on September 11th, the Medical Officer of Health, Dr. Essex, stated that he attributed the outbreak of typhoid fever in the district solely to the water. There had been 18 fresh cases notified since the last meeting, thus bringing the total number of cases which had occurred in the district up to 26. The district generally was in a healthy situation and the surroundings good. A number of samples of milk had been taken and found satisfactory, and left no doubt as to their purity. The supply of water, however, was insufficient, and to this might be attributed the illnesses. Owing to the shortage of water, the water company had, in his opinion, passed water of questionable purity into their supply.

The water in the storage reservoir was exceedingly low and full of sediment, which had probably passed into the supply. Near the northern end of the district there was a well in a very foul condition, and a sample of water taken from the spout near the Panteg works was also found to be impure. The analysis of a sample taken from a well near the gasworks and from two other places indicated the water to be badly polluted by animal matter. A member stated that, in view of the three analyses, all of which condemned the water, he thought that the Council should take steps to close the well. Some 6,000 to 7,000 people had been having water from that supply, and he proposed that they at once apply for a closing order for

the well, and that they call upon the gas and water company to disconnect their pipes from the well. This motion was seconded, and the matter was ultimately referred to the Sanitary Committee.

The Sanitary Condition of Haverfordwest.

The report of the Medical Inspector of the Local Government Board on the sanitary condition and administration of the borough of Haverfordwest, with special reference to the recent prevalence of enteric fever, has been issued. The inquiry was made consequent upon a report that 32 cases of enteric fever had occurred in the borough from October 13th, 1905, to January 17th, 1906, and that it had not been found possible to trace any cause common to all the houses affected. The existing water supply is derived from three sources, that from one of these being used for street watering, carriage washing, etc. The Crowhill supply is derived by means of pumping from a shallow well, and the surveyor is of opinion that the river water gains access to the well by means of percolation. Dr. Hancock says that "the engineer's house is situated some 100 yards or less from the well, and the sanitary arrangements of this dwelling are bad in the extreme. Seven people reside in this house, which is undrained." Reference is made to a row of cottages immediately opposite to, and some 60 yards away from, the reservoir, the public road intervening. These "are in an extremely insanitary condition, and at one of these cottages three cases of enteric have recently occurred. At these cottages there is no system of drainage, neither is there any provision for taking away the slop water." The general condition of the dwellings of the poor, "which form a large proportion of the inhabited houses of the district, is unsatisfactory." The yards and back premises are generally ill-paved, ill-drained, and dirty. Pigs are quite commonly kept in proximity to dwellings, and constitute a grave nuisance. The refuse disposal is stated as "unsatisfactory, both as regards method and efficiency." The Medical Officer of Health (Dr. Brigstocke) is exonerated from blame. He is said to "take an active interest in his public health duties. Though alive to the general insanitary circumstances of the borough, his hands are tied by the inaction of the Town Council, to whom, as his annual reports show, he has made repeated representations in respect of insanitary conditions affecting the health of the people." Dr. Hancock states that the Council should at once take steps to abate the many serious nuisances existing in their district. To this end a properly trained and fully-qualified inspector of nuisances should be appointed; "measures should at once be taken to remedy the existing insanitary conditions which endanger the purity of the water, both at its source and in its conveyance and distribution to the town"; there should be a better system of excrement disposal; an isolation hospital, including a properly-equipped laundry, disinfecting apparatus, and mortuary should be provided; the Council should revise their by-laws; and Part III of the Public Health Acts Amendment Act, 1890, and the Infectious Diseases Prevention Act, 1890, should be adopted.

Medical Women in Russia.—The school of medicine for women in Moscow seems to be very popular among female candidates for the profession. About a thousand applications have been received, but the school has accommodation only for one hundred and fifty.

"Newspaper Doctors."—The Jefferson County Medical Association, Kentucky, the 200 members of which are chiefly practitioners of Louisville, at a recent meeting unanimously adopted a resolution in condemnation of the practices of the "newspaper doctors." The resolution called on all the members of the Association to refuse to give details to reporters in relation to any medical subject unless an undertaking were given that the name of the informant should be suppressed. The Secretary was directed to take note of every newspaper notice in which a practitioner's name was mentioned. A notification of the passage of the resolution was sent to the newspapers, which were invited to help in the enforcement of the rule. As an illustration of the assistance in this direction which is likely to be given by newspapers, it may be mentioned that the morning after the meeting the local papers published an account of the proceedings, and made special mention of two interesting papers, the names of the authors being promulgated *urbi et orbi*.

CORRESPONDENCE.

THE TREATMENT OF TRYPANOSOMIASIS.

Sir,—Many statements having been made recently in the lay press to the effect that trypanosomiasis has been cured by various persons by the means of atoxyl, I should like to point out that this drug was first suggested and used by Drs. Thomas and Breinl, of this school, for the purpose referred to. A full account of their experiments was given in the *Proceedings of the Royal Society*, November 9th, 1905, vol. 76, and also in our publications, Memoir XVI. At the instance of this school large quantities of the drug have been sent to the Congo, and several patients are now under treatment with it. The result has been an apparent success so far, but it is of course too early to speak definitely as to the final result, because it is well known that patients may survive for several years, even without treatment and yet ultimately succumb. For example, we have had cases under observations for four years without a fatal result.—I am, etc.,

Ronald Ross,
Professor of Tropical Medicine.

The Incorporated Liverpool School of Tropical Medicine, Sept. 21st.

IS THE BEST USE MADE OF CONSUMPTION HOSPITALS?

Sir,—The following case would appear to answer the above question in the negative. Whether it is exceptional or only an instance of many others I must leave your readers to form their own opinion:

Mrs. E. R., aged 25, no children, applied for admission to one of the Woolwich Borough Council's beds at the Peppard Sanatorium, and was admitted on January 9th, 1906. On admission she had puerile breathing at the right apex, increased vocal resonance, voice husky, shallow breathing of left lung. Her weight was 8 st. 8 lb. She was unable to perform her household duties. She had haemoptysis six months before.

She was discharged two months later, when there was marked improvement in tone and general condition; and her weight was 9 st. 4 lb.

On visiting her two months later, I found she maintained the progress which she had made, had neither cough, dyspnoea, nor debility, and was able to perform her household duties, which were slight; she was living in a rural part of the borough, continuing open-air treatment and going out every day riding on a greengrocer's cart. In other words, her circumstances were as good as could be wished for.

To my surprise she told me she had been to a consumption hospital in London, and had been told that they would take her in and make a cure of her. I strongly represented to her the undesirability of her accepting the offer of a bed, and stated that she would be better if she continued as she was doing, and that she would only keep a more deserving patient out. She did not, however, take my advice, and I have just received a letter from her in which she expresses herself as follows;

I am pleased to tell you I am feeling fairly well. Still, I went into ——— Hospital to give it a trial and stayed there for seven weeks, and after I had been there about five weeks the doctor told me there was no sign of consumption, so I asked him what was the matter with me, and he said I was suffering from debility. As soon as I found that out I asked to come home again, or else the time to stay in there is three months. I must say I did not feel any better for my going, in fact, not so well as I am out at home.

Probably the physician who admitted her to the hospital did not know under what good circumstances she was living at home; and this is just the point to which I wish to call attention—namely, that hospital authorities should as far as possible obtain information as to the home circumstances of patients. Personally I should always be glad to give such information on application, and I do not think it would be difficult to obtain it in most boroughs if the proper steps were taken.

Obviously in this case not only was no advantage gained by the patient in question, but some one of many much more deserving cases was prevented from making use of the bed.—I am, etc.,

Sidney Davies,
Medical Officer of Health.

Woolwich, Sept. 18th.

TREATMENT OF CHRONIC X-RAY DERMATITIS.

SIR,—Dr. Herschel Harris's note on this subject, published in the BRITISH MEDICAL JOURNAL of September 22nd, is interesting from the fact that he advocates excision of the warts in this most painful disease. In a paper which I read at the annual meeting at Oxford, and which was subsequently published in the JOURNAL, whilst I advised the use of sand-paper in the early stages of the disease, I condemned excision as being dangerous; moreover, I was supported in this contention by several speakers who followed me. In Dr. Harris's case the proceeding appears to have been successful, and I can only conclude that the disease in his case was not of long standing. This is borne out by his statement that he had a "couple" of warts removed. In cases in which the disease is advanced and the warts numerous I am of opinion that excision is an exceedingly dangerous proceeding.

My object in writing this note is not for the purpose of contradicting Dr. Harris, but in the hope that some further suggestion for treatment may be forthcoming. Despite all methods of protection, my hands are steadily getting worse. I have not experienced a moment's freedom from pain for more than two years, and at times the pain is so severe that I am rendered absolutely incapable of work, either mental or otherwise. In the cold weather I am unable to dress myself, and the pain experienced cannot be expressed in words. On the back of each hand I have from fifty to sixty warts, many of them confluent. In order to excise these it would be necessary to remove the whole of the skin from the backs of the fingers, and from the greater portion of the hands.

Drugs have so far failed to give me the slightest relief: moreover, I find that ointments, as a rule, are injurious. The warts are so sensitive and painful that it is impossible to remove them with sand-paper. I therefore resort to the application of a treble-strength lotion of lead and opium in the form of a poultice; this softens the warts, so that they can be removed by scraping with a knife. For two or three days after such an application the pain is increased, but the fingers are rendered much more pliable and mobile. The increased pain experienced after this treatment is due to the fact that in removing the warts small sores are left; these are easily dried up by the application of glutol.

The excruciating, ever-present pain appears to be due to a permanent irritation of the cutaneous nerves, which nothing relieves, and which is intensified by holding the hands in a dependent position, and by cold. The pain is of a neuralgic character, it never ceases, and is intensified from time to time by sudden stabs and jumps of such severity as to make one cry out. I have so far received so little relief from any method of treatment that I have given up all hope; nevertheless, I shall be most thankful to any of your readers who can offer me a suggestion. In conclusion, I adjure all those engaged in *x*-ray work to protect themselves before it is too late.—I am, etc.,

JOHN HALL-EDWARDS, L.R.C.P.,
President of the British Electro-Therapeutic Society.
Birmingham, Sept. 26th.

"ORAL SEPSIS" IN SCARLET FEVER.

SIR,—In my letter to you of February 24th I called attention to the fact that Dr. Hunter drew a comparison between his mortality-rate at the London Fever Hospital and other fever hospitals, and I showed his mortality-rate to be statistically without value. I further stated that particular attention had been paid to the condition of the gums, and teeth, and mouth generally by, at any rate, some, in contradistinction to Dr. Hunter's allegation that hitherto patients have been allowed "to soak in their oral sepsis." I further said that I was surprised that, in Dr. Hunter's experience, "usually no care has been taken to remove this source of infection."

Dr. Hunter, in his reply to my letter, to put it shortly, says he did not compare, or did not mean to compare, and yet a few lines further on he again speaks of his low mortality. Further, he challenges me to refer your readers and himself to any papers or treatises, even the most recent, where the sepsis is emphasized, or even mentioned, as an important factor in causing complications in the disease.

In my letter to you of July 8th I drew attention to Dr. Hunter's second statement about his low mortality-rate, and I refer him to a sentence in Nothnagel's *Encyclopaedia of Medicine*, stating that "great emphasis should be laid upon the care of the mouth." I also refer him to an article on Measles in *Clifford Allbutt's System of Medicine*, written in 1897, in which the subject is specifically spoken of; the words are these: "Much may be done to prevent the occurrence of otitis"; and with this object antiseptic mouth-washes, syringing or spraying the nose and naso-pharynx, are advocated.

Dr. Hunter, in his last letter, makes little of the bare statement in *Nothnagel's Encyclopaedia*, and ignores altogether the quotation from *Clifford Allbutt's System*—I presume because it occurs in an article on measles. I think it is fairly obvious that medical men would apply the same reasoning to scarlet fever as to measles, and I think it is, on the whole, unlikely that Dr. Theodore von Jürgensen had not read this article. He might still, for very good reasons, be "greatly concerned about the source of these septic infections."

Dr. Hunter, in his last letter, in referring to the eleven words, "Great emphasis should be laid upon the care of the mouth," says: "If Dr. Thomson is satisfied, I have nothing more to say." The way in which Dr. Hunter has already misquoted my statements is almost pathetic, but this speculative inference, which is quite wrong, amuses me.

Dr. Hunter says he asked me to justify my statement that particular attention had for many years been paid in the Asylums Board Hospitals to the condition of the gums, etc., by evidence. Dr. Hunter first made the assertion that patients were allowed to soak in their "oral sepsis," and I believe it is usual for an individual who makes a charge to be able to show some proof for his statement. I pleaded not guilty to the charge for myself and some others, and the individual who made the charge has had the calmness to ask the accused to prove himself and these others not guilty. Dr. Hunter accuses his medical brethren of neglecting foul gingivitis and abscesses round the teeth, and it is only too obvious that he cannot know the practice of the vast proportion. He appears to judge from the fact that the subject is little written on, and he assumes that this being so, nothing is done. I imagine very few medical men would rush into print to say they had treated a case of foul gingivitis because it happened to contract scarlet fever. It is only too evident that they would treat the condition and conclude that every other medical man would do the same from the point of view of common sense only.

Dr. Hunter in his last letter says that "oral sepsis" is "the most prevalent, the most proximate, and the most overlooked source of septic infection in this disease." I am very glad to learn this, and, as the statement is an emphatic one, I must ask Dr. Hunter to produce some proof.

The proof is certainly not contained in his clinical lecture.—I am, etc.,

FREDERIC THOMSON.
Fountain Hospital, Tooting, S.W., Sept. 22nd.

RELATIVITY IN INFECTIOUS DISEASES.

SIR,—The letter of Dr. Biss in the BRITISH MEDICAL JOURNAL of September 22nd, page 732, on the infection of scarlet fever and diphtheria is very interesting, but I venture to think that the facts quoted are capable of a more probable explanation than that of a theory of the metamorphosis of specific infections. It is well known that the Klebs-Loeffler bacillus has been found in apparently healthy fauces, and I feel sure that an examination of a large number of healthy children would show that it is fairly common in them. Given this fact, it is easy to see that any inflammation of the fauces, such as occurs in scarlatina, might stir into activity the already-present diphtheria bacillus. Perhaps this is the explanation of the sporadic cases of diphtheria one meets with, in which no source of infection can be traced; the disease being lighted up by some simple faucial catarrh.

As to the cases of alternating infection Dr. Biss quotes, these might very well be due to the superior activity of either infection, assuming a mixed one, acting on subjects of different degrees of susceptibility.

As scarlatina, at the present time, as far as I know, has only a clinical existence for us, and is extremely variable, we have no means of proving that any apparent case is scarlatina at all.

No doubt the clinical picture presented by any disease whatever is the resultant of the pathological and physiological forces at work therein, but this very obvious truism is surely no argument in favour of the transformation of scarlatina into diphtheria or vice versa.—I am, etc.,

A. CAMPBELL STARK, M.B., B.S.Lond.

Manor Park, E., Sept. 25th.

THE CAUSATION OF EPILEPSY.

SIR,—The meeting of the Psychological Section of the British Medical Association on August 22nd, as reported in the BRITISH MEDICAL JOURNAL, raises a question which has not had the consideration that its importance demands, namely, "the cause of this defect," the result of which is seen in upwards of a hundred thousand lunatics in our asylums.

Dr. Spratling—certainly one of the best epileptologists we have—said that "he considered in reference to the study of epilepsy, that neuropathology had had its day. They were now at Cray Colony engaged in searching the body of the living epileptic for the cause of epilepsy." I do not go quite so far as that, but I do think that there has been too little chemical research, at any rate as regards epilepsy.

I am not surprised that such is the case with many of the asylums with a barely adequate, or rather inadequate, staff; what time have they for research? It appears to me that the time has come when we ought to have a thoroughly competent chemist attached to each asylum to carry out research work. I am quite aware that it will cost money, so did stamping out small-pox, but the actual financial gain from that expenditure has been enormous, and no one can say that an equally profitable result might not arise from more research work in our asylums. The great manufacturers find that it pays them to employ chemical experts, and I believe that it would pay the ratepayers to follow their example.

No one has a greater admiration of the great work that has been and is being done by English alienists and epileptologists, but I am afraid that in research work there is a danger of other countries being before us. "Wake up, England!" applies in this case, as in many others, and I hope this question will be considered not only by the profession but by those who are responsible for the administratration of the asylum to see if we cannot do something more to mitigate the misery resulting from "this effect defective."—I am, etc.,

Didsbury, September 12th. JNO. MILSON RHODES.

ROYAL NAVAL AMBULANCE TRAINING.

SIR,—The disposal of wounded in any naval action is one of much interest. I suggest for consideration that in the hold of a Royal naval hospital ship all the material for base or field hospital, including tents, should be stowed away. After an action in any place distant from a naval base it should be possible to land the wounded and pitch a hospital for them on shore, at any rate as a temporary measure.

To meet this method of disposal of wounded as well as for other reasons I suggest that annually a detachment of Royal Naval Medical Officers and Royal Naval Sick-berth Staff be sent to the Royal Army Medical Corps Training School at Aldershot to be trained with the Royal Army Medical Corps in field hospital and ambulance training for land operations.

A very marked interchange of knowledge between naval and military officers is now going on in all combatant matters of the two services. I think good would result if the medical services also co-operated more fully with each other. Their interests are essentially the same, and the more they see of each other the better for the State, in my opinion.—I am, etc.,

London, W., Sept. 10th. GEORGE EVATT.

A SIDELIGHT ON MEDICAL EDUCATION.

SIR,—The statistics of the results of the examinations for admissions to the public services certainly give rise to reflection. I venture to predict that if 25 per cent. of the examiners were Scotch teachers and the examinations were held in Scotland, the excellent position of the English colleges, as shown in the statistics, would disappear.—I am, etc.,

Worcester, Sept. 24th. A. FOSTER, M.D.Edin.

METEOROLOGICAL CONDITIONS AND ENTERIC FEVER.

SIR,—Your reference to Dr. Watkins-Pitchford's work on the seasonal and climatic conditions which favour the incidence of enteric fever in Natal[1] (which I have not yet seen), interests me for the reason that in 1896-97 I did a good deal of work on this subject in Maritzburg, the results of which were published as an appendix to the *Army Medical Report* of 1898, and republished in the *Journal of the R.A.M.C.*, vol. v, where p. 495 and the two following pages will be found to contain a statement of my conclusions on this question.

I pointed out the coincidence of the enteric season with the rainy season and the increase in the admissions after heavy rain (as Dr. Watkins-Pitchford has now done) and further that the evidence suggested that variations in the rainfall from year to year were factors in the production of epidemic years or the reverse. I also arrived at the conclusion that the correlation between the rainfall and the prevalence of enteric was significant while the correlation with the temperature was not significant.

But although, throughout the area of the summer rains in South Africa, including Natal, the Orange River Colony, the Transvaal, and Eastern Cape Colony, this correlation between rainfall and enteric appears to hold good, this is by no means the case in Western Cape Colony (in the area of winter rains), and certainly not in Capetown. Here the cases notified between July, 1893, and June, 1897, form a curve which on the whole rises as the rainfall decreases; their maximum is after the maximum temperature, and the fall in the fever curve coincides with the first rise of the rainfall curve—that is to say, the conditions are in every respect the inverse of those in Maritzburg. I have been unable to get any really useful information regarding the seasonal distribution of enteric fever throughout the western part of Cape Colony outside the Cape Peninsula; such as I have suggests an irregular seasonal distribution. But the information is so imperfect that it is hardly worth considering. Capetown has, of course, a water supply (I believe not an exclusive supply) which is probably above suspicion, so that the direct contamination by surface washings during the rains is largely diminished.

Turning to Bermuda, where enteric fever has been very prevalent, Major Cockerill's report[2] shows a very complicated relationship between rainfall and prevalence of which the true meaning is not easily seen.

Again, in India, where the meteorological conditions vary considerably in different areas, there appear to be two, or probably three, types of relationship between rainfall-temperature and enteric fever, none of which coincide with the Natal relationship as far as I have gone. I am at present working on a considerable mass of material collected for this purpose from our Indian statistics.

Fascinating as the simple relationship between rainfall and enteric is, I do not think that we can as yet accept it as a general proposition. From such work as I have done in the comparison of our different garrisons abroad, I am sure that we have to distinguish between two main types:

1. Countries with a well-marked wet and dry season:
   (*a*) Hot and wet season coincide.
   (*b*) Hot and dry season coincide.
2. Countries with a more even distribution of rainfall throughout the year.

But this question is extremely intricate, and the material for its solution is not abundant as yet. The manner in which it is to be attacked is certainly by the careful investigation of the conditions in small areas and the comparison of results afterwards.—I am, etc.,

R. J. S. SIMPSON,
London, S.W., Sept. 10th. Lieutenant-Colonel, R.A.M.C.

THE TEACHING OF OBSTETRICS.

SIR,—The letter of Dr. J. C. Hoyle, in the BRITISH MEDICAL JOURNAL of September 15th, calls attention to the tendency on the part of certain authorities to cast the blame for the continued occurrence of puerperal sepsis in private practice on the attending physician. I should

[1] BRITISH MEDICAL JOURNAL, September 8th, 1906, page 594.
[2] *Journal of the R.A.M.C.*, vol. iv, 1905, p. 783.

like to support his contention from my own experience of the cases of that disease which are admitted to hospital in Manchester.

It is, I think, undesirable to generalize when we have a test which enables us, in the majority of cases, to decide when any given patient was infected; that test is the length of the interval elapsing between delivery and the onset of the pyrexia or the initial rigor.

When this occurs within forty-eight hours of delivery the presumption is (excluding gonorrhoeal cases) that infection took place shortly before or at that time.

Even in this it is not possible to say that the physician was directly responsible for the infection. Whenever a medical man was in attendance, the presumption is that there was a midwife, nurse, or benevolent neighbour present also; she will have made internal examinations, possibly with greater frequency than the physician, and in some cases, at all events with less regard to the necessity for asepsis.

When the latent period is four or five days, or even longer, it is exceedingly improbable, judging from the analogy of other wound infections, that infection took place at the time of delivery. Here inquiry should be made rather as to the frequency with which vaginal douches have been given by the nurse, and the manner of their administration. The frequency with which the *Bacillus coli communis* is found in the uterus in these later cases suggests also that the external genitalia have not been treated as the orifice of a surgical wound, and have not been adequately protected from infection either from the patient's own rectum or from contact with dirty clothes.

For these cases the physician cannot primarily be held responsible, though he may have neglected to give precise directions for the after-treatment of the case, for who can adequately supervise the ignorant and careless persons with which the parturient woman is sometimes (I do not say always) associated?

There can be no doubt that in our own patients a latent period of forty-eight hours or less is relatively uncommon, the proportion being only about one-sixth of all cases.

Undoubtedly some of the worst cases clinically, that one sees have been caused by undue wounding of the parts by the careless or unwise application of forceps, or by the performance of intrauterine manipulations without adequate anaesthesia or assistance. There are a few others, but not many, where the placenta has been incompletely removed (the physician being in attendance), but these together form the smaller and not the greater part of our cases.

In a short time the reports of the recently-appointed medical officers to the various Midwives' Supervising Committees in the country will be available, and it is to be hoped that we shall find therein materials on which to base more precise statements on the causation of puerperal sepsis than have been unfortunately made in the the past.—I am, etc.,

A. KNYVETT GORDON, M.B.Cantab.,
Medical Superintendent,
Monsall Hospital.

Manchester, September 17th.

THE VALUE OF CALCIUM IODIDE AND CALCIUM CHLORIDE IN THE TREATMENT OF ULCERS.

SIR,—I have read with much interest the paper on the above subject by Dr. G. A. Stephens in the BRITISH MEDICAL JOURNAL of July 21st (which has only just reached me in this distant land), but I think many general practitioners would be glad if Dr. Stephens could find time to go a little more fully into the treatment of the cases he published. No mention is made of the general treatment; and yet I presume the internal administration of calcium salts was not the only thing done for these patients.

It would be interesting to know whether they were put on any special diet and whether stimulants were allowed: but of far greater importance is the question of local treatment and rest. What did the local treatment of the ulcers consist of, and were the patients kept in bed, or were they allowed to walk about?

To us here "in the wilds" these are very important points, as some of our patients have to travel enormous distances, often over 100 miles to see a doctor; and these we may not see more than once in three months. In the meantime all we can do for them is to keep them supplied with medicines. Therefore it is absolutely essential that we should give them very careful and minute instructions as to general treatment the first time we see them.—I am, etc.,

J. K. K. BENJAMIN.

Vryburg, S. Africa, Aug. 12th.

THE ELECTRICAL RESISTANCE OF THE BLOOD AND URINE AS A TEST OF THE FUNCTIONAL EFFICIENCY OF THE KIDNEY.

SIR,—I am grateful to Professor G. N. Stewart for calling my attention in your issue of September 15th to the fact that the electrical resistance of the blood does not depend solely upon the salts present, but also upon the proportion of the total volume of the blood which is occupied by corpuscles. I was, of course, aware from experiments made by me on artificial urines prior to 1892[1] that the presence of non-electrolytes such as sugar and albumen would slightly increase the resistance, but this effect can for practical clinical purposes be disregarded in the presence of the dominating influence of the salts. I must also express my thanks to Mr. T. M. Wilson for drawing my attention to his conductivity measurements and freezing-point observations on blood and serum in pernicious anaemia and other diseases. He confirms, I am pleased to see, the observation I made a number of years ago[2] as to the increased conductivity of the blood in pernicious anaemia, but he disagrees with me as to the cause. Whether this increased conductivity be due to the diminution in the corpuscles, or to the increase in the salts, or to both, it is of importance in throwing light on the pathology of the disease.

Much more, however, can be learned as to the renal efficiency by ascertaining the ratio which I have termed the "haemorenal salt index"—namely, by comparing the electrical resistance of the blood of a patient to the electrical resistance of his urine taken at one and the same time. Thus in pernicious anaemia the index is only a fraction of what it is in health, due to the diminished resistance of the blood and the increased resistance of the urine. Dr. F. C. Hopkins[3] found a marked diminution in the salts of the urine in 5 cases of pernicious anaemia. But it will be chiefly in surgical affections of the kidney that the method will be in combination with cryoscopy, of use in ascertaining the renal capacity. I append the notes of a case of Dr. Alexis Thomson of tuberculous kidney. The secretions were examined for me by Dr. A. C. T. Woodward.

The resistance of the blood was very high, and amounted to 153 ohms; the resistance of the urine (not coloured blue) segregated from the left diseased kidney amounted to 93.5 ohms, or more than double the average normal resistance. The resistance of the urine (coloured blue) segregated from the right healthy kidney was 62.9.

The haemorenal salt index of the diseased kidney was:

$$\frac{153}{93.5} = 1.6.$$

The haemorenal salt index of the healthy kidney was:

$$\frac{153}{62.9} = 2.4.$$

No allowance has, however, been made for the different rates of secretion of the two kidneys; had this been taken into account, as it ought to have been, there might have been a much greater difference. The result, however, so far as it goes, shows that the haemorenal index of the diseased kidney was below the normal—1.6 instead of 2; while the index of the healthy kidney was above or quite up to normal—namely, 2.4 instead of 2—because it was taking on some of the work of its fellow. No doubt more accurate information as to the salt concentration of the blood could be obtained by separating the serum, but this would be difficult when dealing with the very small quantity of blood—namely, 5 c.mm., which is all I require to draw from a patient, in addition to 5 c.mm. of his urine, in order to measure the ratio I have termed the haemorenal salt index.—I am, etc.,

DAWSON TURNER.

Edinburgh, Sept. 20th.

[1] *Proceedings Royal Society of Edinburgh*, December 21st, 1891.
[2] *Manual of Practical Medical Electricity*, 4th edition, chapter on Electrical Diagnosis; also *Nature*, July 13th, 1899.
[3] *Guy's Hospital Reports*, 1891-2.

MEDICO-LEGAL AND MEDICO-ETHICAL.

AN EXHUMATION AND AN INQUEST.

AN inquest was concluded on September 24th at Buckhurst Hill on the body of Mrs. Elizabeth Oliver, a widow of 63, who died on December 1st, 1905, and was buried six days later. The body was exhumed two months ago for the purpose of an inquest which was assembled and then adjourned in order that *post-mortem* examination and an analysis of the contents of the stomach might be made. Before ordering exhumation the coroner held a private inquiry at which he stated that he saw no reason himself for exhuming the body, but as the brother of the deceased desired that an inquest should be held and the medical man concerned in the matter offered no objection, he thought that an autopsy had better be made.

At the proceedings on September 24th, as reported in the *Daily Telegraph*, *Morning Post*, and other papers, the coroner read the affidavit of the brother of the deceased. This, besides reference to money matters which the coroner said had nothing to do with the matter in hand, included a statement that Dr. Adams, the attending medical man, was in great haste to get the body buried; it then went on to state that in the deponent's belief the death of the deceased was due either to the administration of improper drugs or to incorrect treatment, the nature of which he was unable to describe. This belief was grounded on the lingering character of his sister's illness, and on the facts that she was kept in bed when she was to all appearances healthy, and that Dr. Adams would not answer questions about her. An affidavit from the wife of this deponent was also read; it stated, among other things, that Dr. Adams never gave her a definite answer when she asked how her sister-in-law was going on, and that the deceased had said that the medicines given her made her sick, but that she must obey the doctor. The medical certificate given by Dr. Adams was also put in evidence; it said that death was due primarily to muscular degeneration of the heart, and secondarily to cardiac failure. The deceased's brother was cross-examined as to the contents of his affidavit. After attention had been drawn to inconsistencies between certain of its allegations and known facts, he was asked whether the real reason why he had made trouble was not that he was disappointed at what he received from the deceased's estate. He denied this, stating that he had expressed dissatisfaction with the medical treatment long before the funeral. His sister was entirely under Dr. Adams's influence, so that she would not listen to other people's opinions, and Dr. Adams always avoided him when he wanted to know anything about his sister.

Evidence was also given by a sister of the deceased woman's late husband and by her maid. The former said she knew the deceased suffered from heart weakness, while the maid denied that her mistress was always sick when she took her food or medicine; it was milk, she thought, which made her sick; she was naturally not a robust woman, and often suffered from spasms. She had been confined to her room for fifteen months before her death, up to the occurrence of which her mind was perfectly clear. The death, so far as she knew, did not occur at all unexpectedly.

Dr. C. E Adams, in giving evidence, said he had been in practice at Buckhurst Hill for twenty-one years, and had attended both Mr and Mrs. Oliver, the former dying in 1902. It was not a fact that the deceased was a robust woman; she had been delicate as long as he had known her. When he first began to treat her in 1898 it was for dyspepsia. Some three years later symptoms of cardiac degeneration and weakness supervened; they continued right to the end, some pneumonic trouble also arising finally. It was tricycle riding which probably set up the heart weakness, and latterly her only chance of living was to stay quietly at home and maintain a strict diet. The patient had been seen by his *locum tenens;* he had also in 1904 caused Dr. Rose Bradford to be called in consultation, who agreed entirely with the treatment being carried out. On two occasions he had given a preparation of citrate of iron with a small quantity of arsenic as a blood tonic, and had also sent her drops containing Indian hemp. The deceased's brother had never suggested that his treatment was not proper, and there was no suggestion of any sort made against him until after her death. Her condition rendered it imperative that her diet should be of the simplest character, but there was no limit as to the quantity. The only person to whom he could give his instructions about the management of the case was her sister-in-law, and he had never resented questions put to him by her about the deceased. The certificate he had given was a perfectly proper one. As to the burial, he had had nothing to do with it, and there was no hurrying about it whatever. The deceased was quite aware that he never expected to cure her, and the sickness which had been mentioned was the natural result of her condition.

Evidence was also given by Dr. W. H. Willcox, Home Office Analyst, and by Dr. Frederick John Smith, Professor of Forensic Medicine at the London Hospital. The former said he had examined the stomach, portions of the liver, part of the intestines, and some liquor taken from the coffin; there was no evidence whatever of any irritant or corrosive poison, while as for non-irritant poisons he had carried out chemical tests, prepared extracts, and injected them into animals, and no poison was found. Dr. F. J. Smith, who made the *post-mortem* examination, said that the medical certificate was perfectly and strictly correct, and that the treatment described was well suited to the case.

The jury, after a short deliberation, returned a verdict stating that the correctness of the certificate of death given by Dr. Adams was proved, and that there was no ground for attributing unprofessional conduct to him. The coroner ended the proceedings by stating that he did not see how any other verdict could have been given.

COVERING AN ADVERTISING MASSEUR.

A CORRESPONDENT sends us a cutting from the *Karkoura Star* of New Zealand, containing the advertisement of a masseur who announces that he is to be consulted at the residence of a medical practitioner, the said practitioner being a qualified and registered medical man, and said to be acting as *locum tenens* for another man equally qualified and registered; both of them seem to be members of the Association and of the New Zealand Branch. There is, in addition, an objectionable editorial paragraph about the masseur, in which he is spoken of as having a "great reputation for curing almost every ill man is heir to with his wonderful hygenic (*sic*) system and massage treatment," and it is said that he has "effected many wonderful cures in sciatica, rheumatism, lumbago, etc." Finally, it is said that "he intends staying here only a few weeks, and those requiring his services should lose no time in consulting him at the residence of Dr. ——————." The advertisement appears to be one which we should not approve in this country, and the association of a registered medical practitioner with a masseur who advertises in this way seems open to grave objection; but the case should, in the first instance, be considered by the New Zealand Branch.

MULTIPLE DOORPLATES.

PLYMOTHIAN writes that, adopting our suggestion on this subject, he hopes that any practitioner interested in the matter will send particulars of cases coming within his knowledge to the Medical Secretary, so that the Ethical Committee may form some idea of the extent to which this form of advertising is carried on, as he thinks the sooner the method is stamped out the better for the medical profession.

EALING writes: A great deal of feeling exists amongst the practitioners here against multiple plates—introduced by a few newcomers. In outlying districts in the country such a system has been in force many years; but in a London suburb, overflowing with medical practitioners, it is looked upon with much disfavour. The subject, however, will, ere long, be brought before the local Division, and a resolution moved.

VALUATION OF A COLLIERY PRACTICE.

A CORRESPONDENT writes that he wishes to sell his practice, which is a colliery one. He wishes to know whether one year's purchase would be a fair sum for such a practice. Again, if the practice be sold for a year's purchase, is it usual for drugs and fittings to pass with the practice?

*** Many colliery practices are worth no more than a year's purchase. With regard to drugs and fittings, they do not usually pass with the practice, but are paid for extra.

RECEIPTS FROM PRACTICE AFTER PURCHASE.

A CORRESPONDENT asks when, in the event of a vendor selling a practice, the receipts of it become payable to the purchaser?

*** If the purchaser has bought the book debts in addition to the practice, then he is entitled to all receipts immediately on entering into the practice. If he has not purchased the book debts, then on entering into the practice he is entitled to all receipts for work done by himself, but not to payments for work done by his predecessor which had not been made at the time of his buying the practice.

LIABILITY FOR FEES.

J. R. P. writes that a few months ago a youth employed at a local mill was brought to his surgery by an employé, who delivered to him an order form asking him to examine the youth, who had met with an accident. This order form was signed by the manager of the mill. Our correspondent examined him as directed and found many injuries, requiring treatment for weeks. On sending in his bill, about £7, payment was refused. He wishes to know whether he should claim his professional fees from the boy or his employer.

*** The order signed by the manager would only justify attendance on that occasion, for the cost of which the manager or millowner is undoubtedly liable. The rest of the account is only legally recoverable from the parents of the patient who on their part can recover the same from the millowner, especially if the condition of the mill was as stated

THE ADVERTISEMENT OF MEDICAL SCHOOLS IN THE LAY PRESS.

H. writes to say that he has before him the advertisement columns of a London evening paper in which there is a detailed statement of the educational classes offered to medical students by the University of London, with in each case the name and academic distinctions of the teachers, including a baronet, a knight, and at least one physician who has held the post of Censor in the Royal College of Physicians. He therefore thinks if the Glasgow authorities are to be denounced they are not alone at fault.

*** We are sorry if this is the case, but we can only repeat our regret that such advertisements of individuals should be published in the lay press. We are no respecters of persons, but we can only deal with the instances that are brought to our notice.

CHEMISTS' ADVERTISEMENTS.

T. R.—We do not know that there is any objection to chemists advertising their business so long as they do not claim to treat diseases either by spectacles or otherwise. The examples sent to us do not appear to go beyond these limits. If our correspondent can procure a copy of the booklet we will examine it.

MEDICAL ADVERTISING IN INDIA.

TERA TORNA sends us a copy of the following advertisement:

PLEASE NOTE.

Phezoze M. Dastur (late partner D. M. Dastur and Co.)
After 16 years continued practice and experience in sight-testing retinoscopically, is now working under the name and style of

Phenze (*sic*) M. Dastur and Co.,
Oculists and Opticians,
7, Hornby, Row, opposite General P.O.

The only firm in Bombay offering their patrons free services of duly qualified ophthalmic surgeon from the Royal Westminster Ophthalmic Hospital, London, and the Ophthalmic Hospital, Vienna, holding genuine degrees of M.R.C.S. England, and L.R.C.P. London.
Entirely new stock of spectacles.
Exceptional testimonials, etc.

*** The name given does not occur in the *Medical Register* for this year, but such advertising by a medical man holding the qualifications referred to should be brought to the notice of the licensing bodies whose diplomas he holds.

ACCIDENTS TO DOCTOR'S GROOM.

A CORRESPONDENT asks if a doctor is liable for accidents to his groom under the Workmen's Compensation Act.

*** No; the Act, we believe, does not include servants of this description.

BRANCH SURGERIES

G. P. writes that in the small town in which he practises he lives at one end, and that the less populous; he is consequently renting a room in a more centrally situated house, where he can be consulted at certain hours: and he asks whether any ethical objection can be taken to his placing on the gate of the house a brass plate with his name and hours of consultation.

*** We think not.

WHAT CONSTITUTES "BEING IN ATTENDANCE"?

P. J. writes: Would you kindly enlighten me on the following ethical point? Mrs. X. called to ask me to visit her husband. In the course of conversation she mentioned that he had, within the past few days, been twice to see another practitioner, but they were not satisfied with the result. Hearing this, I declined to attend. Was I correct? I am told that a medical man cannot be considered in attendance unless calling at the patient's house, and that I need have had no scruple in obeying the call.

*** In the circumstances described we think P. J. might quite properly have attended the case.

FEES OF MEDICAL WITNESSES.

P. H. S. WRITES: I recently had to attend the assize court as a witness. I attended to give evidence before the grand jury. I was next summoned by the police to attend again on another day, when the case did not come on. I then attended a third day, when the case was tried. I have previously always received £1 1s. for each day of attendance. I found subsequently that but £1 1s. was allowed me. A letter to the Clerk of Assize produces a reply to the effect that the allowances are strictly in accordance with the scale for witnesses living within three miles of the court and detained not more than half a day—that is, 10s. 6d. for two attendances: he refused to recognize the second attendance, as I was summoned by the police in mistake. I should be glad if you would kindly tell me if this is correct, and if not to whom one should look for rectification. I understood that recently the fees allowed had been increased rather than decreased owing to the action of the British Medical Association.

*** P. H. S. has been very badly treated, but we are afraid he has no redress. The second day's attendance ought to have been allowed him, but the "discretion" allowed to taxing masters and clerks is very great, and from their decision there seems to be no appeal. The fee of 10s. 6d. for attending to give evidence at the assize court is ridiculously inadequate. The Departmental Commitee which a few years ago reported on the subject thought it too small a fee for police-courts, and recommended levelling up of the latter, instead of which it seems as if assize fees were to be levelled down to the police-court rate. We believe that before long representations will have to be made to the Home Secretary about the unsatisfactory working of the new scale of allowances.

QUESTIONS OF ADVERTISEMENT.

I. M. S.—(1) The book to which our correspondent draws attention is apparently of American origin, and, at any rate, the author is not a registered medical practitioner. (2) We do not think there is much to complain of in the catalogue of the Calcutta chemists suggesting that microscopical specimens may be used at *conversaziones*, as we presume they mean those connected with medical schools and medical societies, at which it is quite common in this country to see such exhibits. (3) We agree with our correspondent's protest and regret that the *United Service Gazette* shou'd join in puffing the antirheumatic jewellery, although we have no doubt that the paragraph to which he alludes was paid for as an advertisement.

INDICATING SPECIALITY ON DOORPLATE.

OCULUS writes that his practice is limited to ophthalmic surgery, but there is nothing on his doorplate or elsewhere to indicate this. He would like to describe himself as Surgeon Oculist or Ophthalmic Surgeon. He says one of his neighbours is described as Surgeon, another as Physician and Surgeon, another as Surgeon Dentist and another as Dental Surgeon. He does not see that the indication of his speciality would be in any worse taste than those quoted, and he asks for our advice.

*** In our opinion dentists belong to a distinct profession, and therefore are justified in indicating it on their doorplates. With regard to the others they seem to us to afford a dubious precedent.

SECRET COMMISSIONS.

W. A. CARLINE, M.B.—If our correspondent had sent us the letter in which the offer of secret commission was made, we should have been able to comment upon it, but the documents submitted do not afford any evidence of the kind, and are the sort of thing which finds its natural resting place in the wastepaper basket. We have repeatedly expressed our disapproval of tradespeople sending circulars to medical men asking for their recommendation in favour of their wares, and we believe that not long ago we did so with reference to the circulars of the firm of which our correspondent complains.

THE WAYS OF INSURANCE AGENTS.

A CORRESPONDENT sends us a letter received from an insurance agent which runs as follows:

"Dear Sir,—Referring to my conversation of some short time ago, we have decided to appoint a doctor to a district if he will take out a certificate for not less than £500 under table G.20 or G.25, instead of making him take up shares in the corporation. Of course we should be glad if he would take out some shares. Shall be pleased to hear from you.—Yours, etc."

*** It is a common practice of insurance agents to try to induce medical men to take out policies by offering to appoint them medical examiners to the company. As, however, they repeat the proceeding from time to time with fresh dupes, those who listen to them do not benefit so much as they hoped.

A MUSEUM OF VOICES.—The French Government has begun to form a collection of phonographic records of voices of famous singers. These will be preserved in a museum.

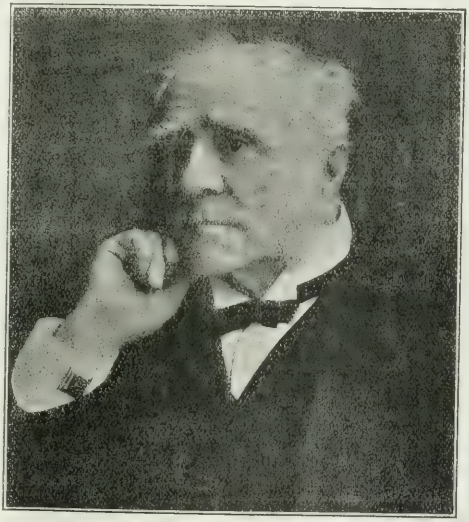
OBITUARY.

JAMES EDWARD NEILD, M.D.

(With Portrait.)

The death of Dr. J. E. Neild on August 17th has removed one who has been a central figure in the social life of Melbourne for the last fifty years. Born at Doncaster, Yorkshire, England, in 1824, and there educated, he entered the brewing business of his father, but very shortly afterwards relinquished it to be apprenticed to his uncle, a leading medical practitioner in Sheffield. He then was enrolled at University College, London, and obtained a qualification which entitled him to practise. Settling in London, he participated in the great political movements of the day. Personally acquainted with John Bright, he took an active interest in the agitation for the repeal of the Corn Laws. He strongly supported the demands of the Chartist leaders, and was the only student of University College who refused to be enrolled as a special constable when the Chartist agitations occurred.

He accepted an appointment as Medical Officer to the Rochdale Infirmary, but as he insisted on introducing anaesthetics and other reforms he came into conflict with the authorities and resigned. The appreciation of his services was indicated by a number of the governors presenting him with a valuable piece of plate. In 1853 Dr. Neild sailed for Australia, and was appointed as Medical Officer at Grafton by the New South Wales Government. Attracted by the glowing accounts of the gold discoveries he tried his hand at gold digging, but the demands on his medical services were so great that all his time was occupied in giving professional advice. Returning to Melbourne he became partner with his brother-in-law (Mr. Long) as a chemist. This position he occupied for a short period, and taking his M.D. degree in the Melbourne University, and shortly after his B.S. degree, he devoted himself to the practice of his profession. The University employed him as a lecturer on forensic medicine, a position which he filled to within a short period of his death. For six months he held the position of Medical Officer of Melbourne, and subsequently the position of Coroner. Dr. Neild was brought before the public prominently by his pathological work. During his life he made over 8,000 *post-mortem* examinations, thus gaining an experience which he used to good purpose in his forensic work. It was his skilled evidence which led to the conviction of a man for the murder of his wife, although Dr. Neild did not see the body until it was exhumed some weeks after a verdict of accidental death had been recorded at a magisterial inquiry. Before he was executed the man admitted his guilt. Again Dr. Neild was the means of saving a man from hanging. The victim was a young married woman, who had been found lying in her house with a stab in her throat. A knife recently washed fitted exactly into the wound. Broken fragments of crockery on the floor indicated a struggle, and the husband was unable to give an intelligible account of the occurrences of the previous night. He was arrested for murder and a complete circumstantial case appeared to have been made out. On examination of the body by Dr. Neild, there was found embedded in the joints of the vertebrae at the bottom of the wound a tiny fragment of crockery, broken in such a way as to leave an edge of enamel as sharp as a razor. An examination of the blood-stained pieces on the floor showed that this fitted exactly to the end of a larger piece, making a very fair imitation of an antique Venetian dagger. The woman had apparently fallen on the crockery, which had broken in the neck and killed her.



For a long period Dr. Neild was a literary contributor to the leading papers, and held for years the position of dramatic and musical critic on the *Argus*. Under the pen names of "Christopher Sly," "Tahite," "Jaques," and others, he wrote articles which earned for him a reputation far beyond Australasia. He also assisted in starting the Melbourne *Punch*, and was a collaborator with Marcus Clarke, Adam Lindsay Gordon, Whitworth, Kendall, Whitehead, and R. H. Horne. Dr. Neild was prominently associated with the Medical Society of Victoria; he was its president in 1868, and afterwards its honorary secretary, a position for which his literary ability eminently fitted him. He was also one of the founders of the Victorian Branch of the British Medical Association, in whose welfare he took a personal interest until shortly before his death. He was a many-sided man, with the spirit of the reformer very active in him.

> His life was gentle; and the elements
> So mix'd in him, that Nature might stand up,
> And say to all the world, "This was a man!"

Dr. Richard Davies Evans, of Llandilo, who died recently comparatively young in years, was widely known in South Wales, and exceedingly popular in Llandilo and its locality. Born at Dowlais, he began his medical education at St. Mary's Hospital, and completed it at Guy's, which he quitted in 1894, after obtaining the diplomas of M.R.C.S.Eng. and L.R.C.P.Lond. Not long afterwards he settled down at Llandilo, and within a few years had built up an excellent practice of a mixed character. At the time of his death he was medical officer of health for the district, and held appointments as surgeon to the Park Mills, medical officer to several friendly societies, and medical referee to the Royal and other assurance companies. A generous man with a pleasant manner, he brought to bear on all he did both industry and ability, and besides being professionally keen, took an especial interest in what may be called the outdoor life of the locality. He was often to be seen in the hunting field and at Eisteddfod, and early joined the Llandilo company of the 1st Welsh Regiment, in which he held a commission as surgeon. It was, indeed, on his return from camp at Salisbury that he developed the pneumonia which ended his useful life at the early age of 41. At a meeting of the District Council the day before his funeral warm testimony to his character as a private practitioner was borne by several members, while in reference to his services to the Council he was spoken of as a true, straightforward man, who had done a great deal of good to the town. Dr. Evans was a member of the South-West Wales Division of the British Medical Association, and at one time we believe was its Honorary Secretary. Dr. Evans had been married for eight years, and deep sympathy is felt for his widow and young children.

Members of the Association, and of the Lancashire and Cheshire Branch in particular, will learn with regret of the death of James Grierson Gledhill, M.B., C.M., and L.S.A., Barrister-at-Law. Dr. Gledhill was an active member of the Lancashire and Cheshire Branch during those years when the Midwives Bills excited the interest and active opposition of the Branch, and during the active work of the Branch, which culminated in great

changes in the constitution of the Association. He was an ardent supporter of the long-standing agitation for the reform of the Medical Acts, and held and expressed strong views on the question of medical versus legal coroners. Dr. Gledhill had a deep knowledge of English law, and gave freely of his knowledge whenever the opportunity arose for furthering the interests of the medical profession. Some three years ago he was seized with an attack of paralysis, from which he never fully recovered, and has since then resided with his brother at 8, Hermit Road, Canning Town. He died on September 15th at the age of 52.

DAVID HENRY GOODSALL, F.R.C.S.,

SURGEON, METROPOLITAN HOSPITAL; CONSULTING SURGEON, ST. MARK'S HOSPITAL.

DAVID HENRY GOODSALL, whose name is closely associated with rectal surgery, died suddenly on Friday, September 14th, at his residence, Devonshire Place, W. In the early part of the year he had suffered from symptoms of heart disease, which subsided, so that he had recently been able to attend to his professional duties—indeed, on the very morning of his decease he operated at the Metropolitan Hospital.

Mr. Goodsall was born at Gravesend on January 4th, 1843, and educated at St. Ann's School. He was the second son of four brothers, two of whom are living, one of the survivors being Dr. Fredk. Goodsall, now in practice in the City. His father, relatively late in life, was a medical student at St. Bartholomew's Hospital, where he met with a tragic end, dying from the effects of a *post-mortem* wound when about to present himself as a candidate for the Membership Examination at the College of Surgeons. He left a widow and four sons wholly unprovided for.

When about 14 years of age Goodsall was apprenticed to Mr. Manley, a chemist near Aldgate, and from that early period of his life he maintained himself entirely by his own exertions. He entered the Medical School of St. Bartholomew's early in the Sixties, and, we are informed, was excused the usual fees, because the wound which proved fatal to his father was inflicted by one of the staff. During the whole period of his studentship he acted as assistant to Mr. Ingleby, who practised in Finsbury Square. Many of the passing generation of English doctors began the study of their profession as Goodsall did, but very few of the coming generation start in this manner. The old system had its advantages, not only for the young man put upon the house-staff of a hospital, but also and more surely for the beginner in private practice. At least we are sure that it was so with Goodsall.

From September, 1869, to April, 1870, in the days when Dr. Greenhalgh was Physician-Accoucheur Goodsall held the appointment of Midwifery Assistant at St. Bartholomew's Hospital. He began his duties with considerable previous experience gained when working with Mr. Ingleby, and, as he understood the science as well as the art of obstetrics, he discharged the duties of his appointment to the complete satisfaction of his chief and of his pupils.

When David Goodsall's term of office had expired in the spring of 1870, he was already twenty-seven years of age, and well matured by hard experience, as well as by diligent study. His personal appearance and his serious but kindly manner could not fail to inspire patients with a confidence which those competent to judge know to have been well deserved. At the same time, he was of a most genial disposition, and having attained an age at which geniality can be controlled, he made many firm and judicious friendships. Thus, like Sir Henry Thompson, Knowsley Thornton, and others who have come to the front, Goodsall enjoyed the advantages of beginning his independent professional career when no longer a youth.

Goodsall soon made the very best use of these advantages. Hardly had he left St. Bartholomew's Hospital in 1870 than he was elected house-surgeon to St. Mark's Hospital, and so well did he gain the approval of his seniors that they made him assistant surgeon in 1871. He became full surgeon in 1888 and did not retire until fifteen years later, in 1903, when he had reached the limiting age of 60. After his retirement he continued to interest himself, up to the day of his death, in all things connected with St. Mark's Hospital.

Almost coincidently with his tenure of office at St. Mark's, David Goodsall held a surgical appointment at the Metropolitan Hospital, now in the Kingsland Road. He was elected Surgeon with charge of in-patients and out-patients to that hospital in October, 1872, when its address was Devonshire Square, City. In January, 1892, he became Senior Surgeon, dying in harness, as we have above explained, nearly fifteen years later. He had served on the Committee of Management since 1887, and as Trustee since 1888. For about ten years, up to the time of his decease, Goodsall was Surgeon to St. Saviour's Hospital. Owing to his business-like habits as well as to his skill he was very popular with governors and managers of charitable institutions.

He wrote many interesting memoirs on rectal disease, scattered amongst medical journals, the transactions of societies, and hospital archives. A report entitled the Notes of Twenty Cases of Foreign Bodies in the Rectum appeared in the twenty-third volume of the *St. Bartholomew's Hospital Reports*, 1888; it includes careful observations about the time that a bone takes to pass from the mouth to the rectum. In the succeeding volume will be found a good clinical paper bearing the name Six Cases of Sinus over the Sacrum and Coccyx, and the twenty-eighth volume includes a short but instructive note on the important subject, Fissure, Non-syphilitic and Syphilitic, of the Rectum and Anus. Much of the matter contained in these widely-diffused essays is included in Goodsall's chief work, prepared with the co-operation of Mr. W. Ernest Miles, and entitled *Diseases of the Anus and Rectum*. The first volume was issued in 1900, the second was not published until last year. It is an excellent textbook, mainly based on the long experience of the senior author. The passages on operations devised by contemporary specialists were submitted to their scrutiny before publication. Amongst these authorities on rectal surgery is one whose meteoric career ended so early and so sadly within recent years. Goodsall had the good fortune to live to an age which allowed of a long record of experience. His observations on left iliac colostomy in the second volume, issued in 1905, make us reflect how surgery has advanced since 1870, when David Goodsall joined the staff of St. Mark's Hospital.

Goodsall was a member of the Marylebone Division of the Metropolitan Counties Branch of the British Medical Association, and of course a Fellow or Member of several societies, especially, as we may correctly say, of the Medical Society, to which he served the office of Treasurer, and was Chairman of the House and Finance Committee for nineteen years. He qualified as M.R.C.S. in 1868, became L.R.C.P. in 1870, and a Fellow of the College of

Surgeons in 1872. In the year 1870 he obtained the now long abolished diploma of Licentiate of Midwifery; it was much prized forty years ago, so that there were 434 Licentiates living last year according to the College *Calendar*, although the examinations for the Licentiateship were discontinued over thirty years since.

David Goodsall was not only a surgeon of distinction and a high authority on the treatment of rectal disease, but also an excellent man of business. He was a director of the Western Telegraph Company for many years and was one of the chief agents in raising it to the high position which it holds at the present day.

Goodsall married about fifteen years before his death; his widow and one child, a son about 7 years of age, survive him. His remains were cremated at Golder's Green on Tuesday, September 18th.

We regret to announce the sudden death of Major T. Birt, R.A.M.C., youngest son of the late Thomas Birt, M.D., of Leamington, at the age of 44. On September 17th, while cycling near Reading with a brother officer, he was thrown from his bicycle on attempting to take a sharp turn at the foot of a long hill. He fell on a bank against a projecting furze stump, injuring his abdomen. He was taken to the Royal Berks Hospital, Reading. The symptoms were at first latent. In twelve hours, however, peritoneal inflammation was suspected. In the absence of Mr. Maurice, of the visiting staff, and on the advice of Mr. Walters, of the consulting staff, Mr. Barker was called in. He quickly arrived from London, and performed laparotomy twenty-two hours after the accident. He discovered a little opening in the small gut through which faeces had extravasated. Peritonitis was already advanced. Death took place next day. Major Birt received his early education in Leamington. He entered the Birmingham Medical School, where he gained the Queen's Scholarship, and honours in anatomy. He filled surgical posts at the General Hospital, Birmingham, and the County Hospital, York. He then joined the medical service of the army, in which he continued for nineteen years, up to the time of his death. During a tour in India he won distinction in the Chitral campaign. He was of muscular build, a good oar and horseman, and an intrepid swimmer. When quartered at Queenstown he nearly lost his life in attempting the rescue of a soldier by plunging into a sea so boisterous that the act struck onlookers with horror. His professional judgement was sound, and his opinion much sought by his colleagues and patients. He won popularity with officers and men wherever he went, and his loss is deeply regretted by his family and a large circle of friends in all parts of the world. The funeral took place at Reading on September 22nd. Brother officers from Aldershot, Chatham, and London were present. Floral tributes were beautiful and numerous.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

PHTHISIS AND THE POOR LAW.

We learn from the *Morning Post* that the Lewisham Union Board of Guardians has decided to convene a conference of representatives of the several Metropolitan Boards of Guardians to consider the advisability of applying for special legislative powers with the view of placing consumptive cases for proper classification and treatment in hospitals or asylums to be provided for by the Metropolitan Asylums Board or some other central authority. The Lewisham Board, it is said, has been led to take action in the matter by the fact that the infirmary in that Union is at present stated to be overrun by cases of phthisis, some fifty consumptives being treated in two wards and in the open air on the balconies and in tents. It is stated further that members of the staff have been affected. The Guardians feel that the matter is not one for the Union to take up single-handed, as the provision of special accommodation might induce consumptives to take up residence in the Union.

GLASGOW PARISH COUNCIL.

Dr. Thomas Russell, Poor-law Medical Officer, Shettleston and Tollcross District, desires to express his grateful thanks to his professional colleagues and others who have withdrawn their applications for the appointment in his favour. He wishes to take this opportunity of thanking them all for their unanimous sympathy and support.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

A SOCIETY OF MILITARY MEDICINE.

A French Society of Military Medicine has recently been founded with the approval of the Minister of War. Its object is the study of all questions pertaining to the health of troops and the organization of the medical service of armies. Foreign medical officers on the active list are eligible for corresponding membership.

THE ENNO SANDERS PRIZE.

At the meeting of the Association of Military Surgeons, held in Buffalo in the early part of the present month, it was announced that the Enno Sanders prize had been awarded to Major Pilcher for an essay on the Training of the Medical Officer of the State Forces to best qualify him for Local Service and for Mobilization with National Troops.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF DURHAM.

The following candidates have been approved at the examination indicated:

Anatomy, Physiology, and Materia Medica.—*I. P. Jackson, A. H. Bower, L. F. Browne, J. G. Campbell, B.A., H. A. Cooper, R. C. H. Francis, P. A. Galpin, R. V. Khedkar, E. P. Martin, Theresa de G. Miller, Ruth Nicholson, R. Raffle, C. E. Reindorf, H. W. Sykes, G. H. Wood.

* Second-class honours.

Chemistry and Physics.—Eva Lumb, I. Bainbridge, J. A. Caulcrick, Helen G. Clark, R. V. Clayton, J. Haire, J. P. Higham, H. T. Hunter, G. E. W. Lacey, S. Littlewood, E. H. Shaw, S. Worthington, J. C. Young.

Elementary Anatomy and Biology.—Eva Lumb, E. W. Blake, E. Jessie Ramsbotham, Madeline R. Shearburn, Olivia N. Walker.

HOSPITAL AND DISPENSARY MANAGEMENT.

HEREFORD COUNTY AND CITY ASYLUM.

The report for the year 1905 of this asylum shows that the enforced admission of numbers of cases of simple dotage and bodily infirmity from old age is still going on, resulting in overcrowding, increased expenditure, and serious detriment to patients who might otherwise benefit by proper care and supervision. "If the difficulty," says Dr. C. S. Morrison, the Medical Superintendent, "was simply a question of some personal inconvenience requiring extra effort on the part of the staff to reduce the daily recurring experience of unsatisfactory makeshifts, perhaps the inconvenience could be suffered with greater equanimity, and any remedy involving expenditure indefinitely postponed, or at least for a time set back, until other circumstances arose in conjunction with it to make it more acceptable; but the attempt really is, and has been for the past three years, to fill into a pint a quart measure, with the same futile result and the same acquisition of unprofitable wisdom. While we wait efficiency is threatened, and proper care and supervision unattainable for the different classes of patients, who are often in urgent need of greater care than they receive."

In the meantime cases have to be boarded out in other asylums. During the period that patients have had to be boarded out in the past the actual cost to the county has been £4,222 in excess of what it would have been had there been sufficient accommodation in this asylum. The Asylum Committee, in view of these facts, suggested to the guardians concerned that these cases might be suitably treated in workhouses if some simple alterations and additions were made. Unfortunately this suggestion has not been favourably entertained. In these circumstances, the Commissioners say, there does not appear to be any alternative to further asylum extension. It remains to be seen, however, how long the public will put up with this deflection of public moneys from the purpose for which they were set apart by permitting asylums to be filled up by patients unable to benefit by it.

Altogether there were 621 cases under treatment during the year, giving an average number resident at any time of 536. On the male side there was a daily average excess of two beds above the number provided, and sometimes six. Of the 94 new admissions, only 29 were the subjects of first attacks within three months of admission. 20 more were first attacks within twelve months of admission, in 13 the attacks were not first attacks within twelve months of admission, and the remaining 32 were either of more than twelve months' duration (22) or congenital cases (10). No less than 22.91 per cent. of the male admissions and 23.91 of the female were over 60 years of age, and a very large proportion were in bad bodily health and condition, 24 having well-established organic heart disease with arterial changes, 13 advanced arterio-sclerosis, 13 were chronic alcoholics, 4 suffered from constitutional syphilis, and 12 females had thyrogenous complications, and many others suffered from other disorders. During the year 24 were dis-

charged as recovered, giving a recovery-rate on admissions of 28.9 per cent., which is as much as could be expected considering the nature of the admissions; 16 as relieved, 2 as not improved, and there were 34 deaths. The deaths, giving a percentage death-rate on the average numbers resident of 6.3 per cent., were due in 11 cases to cerebro-spinal diseases, in 8 cases to chest diseases, in 4 cases to abdominal diseases, and the remainder to general diseases, old age, and in 1 case to a cut-throat, self-inflicted. No deaths were due to asylum dysentery, and 6 of the total number, or over 17 per cent., were due to tuberculous disease. Dr. Morrison in his report draws the attention of the Committee to the necessity for erecting a shelter for consumptive patients, so that they may be out-of-doors all day, whatever the weather. It is to be expected that Dr. Morrison's suggestion will soon be put into effect and, further, the need recognized of making separate provision for tuberculous cases by night as well as day.

During the year 1 patient and a nurse suffered from typhoid fever, having, in the case of the patient, a fatal termination. The asylum also suffered from a severe epidemic of measles in the early part of the year, and also 43 patients were attacked by epidemic diarrhoea, all cases recovering. In this connexion Dr. Morrison thinks that a second outbreak of dysentery was cut short by the adoption of Dr. Bevan Lewis's plan of administering at short intervals a saline purgative to all inmates.

EAST SUSSEX COUNTY ASYLUM, HELLINGLY.

THE annual report for 1905 of this institution shows that on January 1st, 1905, there were 1,017 patients resident in the asylum, that 1,290 were under treatment during the year, and that 1,002 remained on December 31st. During the year 273 cases were admitted, of whom 253 were rate-paid and 20 private patients. Of the total, 223 were direct admissions, and there were 51 transfers from other asylums. In 99 cases the patients were not-first admissions. Taking the direct admissions as a whole, the Medical Superintendent (Dr. F. R. P. Taylor) says that they could not be looked on as offering a favourable prospect of recovery. Of the males, 20 per cent., and 25 per cent. of the females were over 60 years of age on admission. The difficulty of providing for these senile cases is discussed by Dr. Taylor, who considers that many of them are sent quite rightly to asylums, but that others should not be retained in workhouses, suitable accommodation being provided by the Boards of Guardians. Of the total admissions, 104 were cases of first attacks within three, and 30 more within twelve months of admission; 59 were cases of not-first attacks within twelve months of admission, and the remainder were either of more than twelve months (21), or of unknown duration (37), or congenital cases (22). They were classified as to the forms of mental disorder into: Mania of all kinds, 105; melancholia of all kinds, 65; dementia, 41; general paralysis of the insane, 21; acquired epilepsy, 8; and cases of congenital or infantile defect, 33. As to the probable causes of the insanities in the admissions, alcoholic intemperance was assigned in 30, venereal disease in 4, previous attacks had existed in 50, hereditary influences were ascertained in 75, old age, and puberty and the climacteric were ascribed in 48, various bodily diseases and disorders in 26, "moral" causes in 56, and in 57 no cause could be assigned. With regard to the above statistics, Dr. Taylor comments on the difficulty of eliciting reliable information, but out of the 103 direct male admissions histories were obtained in 71 cases, and of the 120 direct female admissions in 75 cases. From these 146 cases a heredity of insanity was obtained in 69, or over 47 per cent., and a history of alcohol in 26, or 17.8 per cent. An alcoholic history, however, was obtained in 21 of the males, or nearly 30 per cent. Dr. Taylor adverts to the difference between this percentage and that of last year, and says "it is difficult to know how to explain this, but on going through the causation list one is struck by the common association of 'heredity' and 'previous attack' as predisposing causes, and 'alcohol' as an exciting cause. This would seem to indicate that those with an hereditary unstable nervous system are peculiarly susceptible to the action of this poison, *for apparently many of those people do not drink to any great excess.*" These italics are our own, and it would seem to be a pertinent question to ask on what grounds alcohol came to be recorded as a cause. During the year 91 cases were discharged as recovered, giving a recovery-rate on admissions of 32.8 per cent., 24 as relieved, 96 as not improved, and 77 died. These deaths giving a percentage death-rate on the average numbers resident of 7.3, were due in 15 cases to cerebro-spinal diseases, including 11 deaths from general paralysis; in 37 cases to chest diseases, including 16 deaths from pulmonary consumption; in 4 cases to abdominal diseases, with 1 death from dysentery; in 19 cases to general diseases, including 14 from senile decay; and 2 deaths from local diseases, rodent ulcer and necrosis of bone. No deaths were due to accident. The patient dying from dysentery was the only patient who suffered from this disease for the period of almost one year, this freedom from dysentery being due, in Dr. Taylor's opinion, to immediate and permanent isolation. No inquests were held during the year, the asylum was free from serious casualties, no restraint or seclusion was required in any case, and the general health throughout the year was good.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the JOURNAL, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone, unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

MANUSCRIPTS FORWARDED TO THE OFFICE OF THIS JOURNAL CANNOT UNDER ANY CIRCUMSTANCES BE RETURNED.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL, and not at his private house.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, London.* The telegraphic address of the MANAGER of the BRITISH MEDICAL JOURNAL is *Articulate, London.*

TELEPHONE (National):—
EDITOR, 2631, Gerrard. GENERAL SECRETARY AND MANAGER, 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

F.R.C.S. writes: I am proceeding to one of the healthiest parts of the Transvaal, possessing one of the finest climates in the world, to trade and hunt, and will have my head quarters near one of the native commissioners. The place is away from civilization, in a pure atmosphere, and the life will be free and healthy. I am willing to take charge of one or more young gentlemen suffering from incipient phthisis or psoriasis. Suffers from the latter disease make wonderful recoveries in the climate I speak of. I am an experienced traveller and know colonial life well.

STAFF SURGEON R.N. writes: I proposed to send my wife, who has suffered from sacral neuralgia and some slight sciatica after a confinement two years ago, to Droitwich to take the brine baths about the middle of October. I should be much obliged if you would let me know: (1) If October is too late in the year. (2) Is it advisable to be under medical supervision there? (3) Is there a hydro there? (4) Would you consider Droitwich the best place to send my wife to, there being a history of gout in her family? if not, kindly say which place in England you recommend. She has had various drugs, massage, blistering, and electricity in the form of the constant current, with little benefit.

*** (1) No, unless the weather is unfavourable. (2) Yes, certainly. (3) Yes. (4) The patient should be seen by a physician and the whole matter entered into in the usual way.

MOTOR AND SENSORY TRACTS OF THE SPINAL CORD.

G. D. asks to be recommended a book on the anatomy and physiology of the motor and sensory tracts of the spinal cord, with especial reference to the pain and temperature paths.

*** In addition to the textbooks on general anatomy and neurology, our correspondent might consult *The Nervous System*, by L. F. Barker (New York: D. Appleton and Co.); and C. Jakobs's *Atlas of the Nervous System* (London: W. B. Saunders and Co.).

ANSWERS.

SERUM.—Our correspondent will find the information he requires in *A Short Treatise on Antityphoid Inoculation*. By Dr. (now Sir) A. E. Wright. London: Archibald Constable and Co. 1904. 3s. 6d.

A. H. S.—Earlswood Asylum, Redhill, Surrey, would, we think, be the best institution for the case referred to by our correspondent. Terms and forms of application to be obtained from the Secretary, Mr. H. Howard, 36, King William Street, London Bridge, E.C.

PETROL.—Information as to the nutritive value of petroleum will be found in a paper entitled, Is Petroleum Emulsion of any Nutritive Value? by Dr. Robert Hutchison, published in the BRITISH MEDICAL JOURNAL of March 25th, 1899, p. 24. His conclusion was that "petroleum, even when given in the form of emulsion, is not absorbed at all, and as a consequence can have no nutritive value."

THE CLIMATE OF LISBON.

M.B. LONDON.—We have referred our correspondent's question to Sir Hermann Weber, who writes: The simplest way of answering, perhaps, will be that I transcribe the paragraph on "Lisbon" contained in *Treatment of Disease by Climate*, which is a translation of my contribution, "Klimatotherapie," to von Ziemssen's *Handbuch der allgemeinen Therapie*. The paragraph is in vol. iv, p. 94, 1885, of *Von Ziemssen's Handbook of General Therapeutics*. (Smith, Elder and Co)

"Lisbon, on the Western or Atlantic Coast of Portugal (Lat. 38° N., long. 9.8° W.), was once famous as a winter resort, but has been all but forgotten as such. . . . The mean temperature of the year is 60° F., of winter 51°, spring 58°, summer 69 5°, and autumn 62 2°. The relative humidity is 71 per cent. Rainfalls to the amount of 29.35 in. annually, and the number of rainy days is 112. Living and house accommodation are good; but there are sudden changes from damp to dry, and from cold to warm weather, and winds blow sometimes with great violence. Invalids requiring care should, therefore, not be sent there, particularly as the social intercourse and the attractive surroundings are apt to tempt them to be indiscreet."

As to your correspondent's special question "for a person suffering from bronchial asthma," my own experience is decidedly unfavourable. Infinitely better it is with regard to Grasse (near Cannes), which is indeed probably the best climate for the great majority of such cases in winter, especially at the sunny situation of the Grand Hotel, 1,100 ft. above sea level. Pau, though colder and less sunny than Grasse, is likewise much preferable to Lisbon.

MEDICAL ATTENDANCE ON SOLDIERS ON FURLOUGH.

DR. J. PIRIE.—Civilian practitioners should send in their accounts for attendance on soldiers on furlough at the end of each quarter. They should be addressed to the Principal Medical Officer of the Command in which the soldier was residing when on furlough.

ETIOLOGY OF TYPHOID FEVER.

LIEUTENANT-COLONEL C. J. W. TATHAM, R.A.M.C. (retired), writes: "Ajax" (BRITISH MEDICAL JOURNAL, September 15th) would probably find what he requires in the undermentioned work: *Enteric Fever in India and in other Tropical and Subtropical Regions: A Study in Epidemiology and Military Hygiene*. By Ernest Roberts, M.B., D.P.H., Major I.M.S. Published by Thacker, Spink, and Co., Calcutta. 1906. Price Rs. 12. The etiology of the disease is very fully discussed.

VETERINARY BOOK FOR DOCTORS.

DR. S. PRICE HOSEGOOD (North Walsham) writes: I believe that "Horseman" would find the following book suitable to his requirements, namely: *Horses and Stables*. By Lieutenant-General Sir F. Fitz Wygram. Longmans, Green and Company. Price 2s. 6d.

IN reply to "Horseman" Dr. Carey Coombs (Castle Cary, Somerset) writes: I have used *Courtenay's Veterinary Medicine and Surgery* (Baillière, Tindall and Cox, London) for twenty years with satisfaction. It is a technical book for veterinary surgeons.

THE M.D. PARIS.

PROTOPLASM.—The degree of M.D. Paris confers the right to practise in France only if it has been obtained on precisely the same conditions as those to which French students are subject—that is to say, before registration as medical students they must produce evidence of having passed the examination for the French diploma of Bachelor in Classical Education (Arts and Philosophy) and the Certificate in Physical, Chemical, and Natural Science, and they must go through the regular curriculum of professional study, and must pass all the five professional examinations required of French students. The degree is still obtainable by holders of British diplomas under the old conditions of exemption, at the discretion of the Minister of Public Instruction, from any preliminary examination in Arts or Sciences, and from portions of the professional curriculum or examinations. The degree obtained in this way will not, however, confer the right to practise in France or in any of its Colonial possessions. The hospitals and laboratories are still freely open to foreigners; and for those who may wish to obtain the purely honorary M.D. degree the facilities offered in the way of dispensation from preliminary examinations are even greater than heretofore. Application for such exemption must be addressed to the Minister of Public Instruction, to whom the documents showing the examination passed by the candidate in his own country and the degree or qualifications possessed by him must be submitted. The examinations are conducted in French. Fees to the amount of £69 must be paid. The *Progrès Médical* (14, Rue des Carmes, Paris) publishes a "Students' Number" every year about November, in which full information is given as to examinations.

NOTES, LETTERS, ETC.

MEDICAL OFFICERS IN SOUTHERN NIGERIA.

WEST AFRICA writes: I see in your issue of June 30th some remarks from "Africanus" about the West African Medical Service as a whole. With these I agree, especially as regards the representation of the Colonial Medical Service in the Colonial Office by one or more of the senior medical officers. How can laymen appreciate the affairs of a profession? But especially I wish to point out the very great grievances which the Southern Nigerian medical officers—and, I presume, the Lagos officers—are suffering under the new amalgamation scheme. I may say that all the medical officers out here feel these grievances very much and are most dissatisfied. In every department except the medical there is increased pay for the senior officers, and a number of these senior posts have been newly created. For example, we get provincial and assistant provincial commissioners, engineers, treasurers, etc. To these posts are attached extra "duty pay" whilst serving on the coast, equal to one-fifth of the salary. Now, no alteration has been made in the medical service at all; in fact, our earnings are to be lessened—for example, not only is no duty pay given to any medical officer, but the travelling allowances are to be dropped from 15s. a day to 5s. in the case of district medical officers, 20s. a day to 10s. in the case of the deputy principal medical officers and the senior medical officers. Why we fail to get the duty pay I cannot imagine, for the doctor does his duty out here as well, and, I venture to affirm, better than the officers of any other department. In fact, he is the one factor which makes it possible for a white man to live out here at all. To show how we are affected as regards the amalgamation, I give a list of the pay in the various departments in a separate list attached to this letter for your comparison. I have not entered into all the appointments in each department, or into all the departments, but the list is sufficient. Now one of the most senior posts has been swept away altogether—that is, the medical officership of one of the Colonies. Why has no senior post been created instead? The number of senior medical officers (five) is absurdly small for this large territory, and it should be increased. Another thing: Although the present principal medical officer is a member of the Legislative Council, he is not so by right of office; this right of office should be his as much as the Financial Commissioner, Attorney-General, etc., for the very reason that our profession wants representation. Add to the above the noticeable tendency there is to restrict all allowances and private practice (of which latter there are but very few places where any exists), and you will, I am sure, agree that we are being very badly done by out here, and that some action should be taken. It would be a great boon if your valuable JOURNAL would take up this matter. I need only say that I warn all young medical men from joining this service whilst the present state of affairs exists.

MEMBER OF THE WEST AFRICAN MEDICAL STAFF writes: I write in the hope of calling your attention, and that of the profession generally, to the very unfair treatment meted out to the doctors serving under the Southern Nigerian Government. The recent amalgamation of this Protectorate with Lagos has been the occasion of a readjustment of the allowances payable to officers of various departments for special services. For instance, the travelling allowance has been reduced from 15s. to 5s. per diem. By way of compensation, a "duty allowance" at the rate of £100 per annum has been granted to officers of all departments, to the exclusion of the medical, the excuse being put forward that doctors are fully recompensed by being allowed private practice. Nothing could be more unjust, for in most districts the amount of private practice obtained is pitifully small, and in certain localities only represented by an occasional "dash" of a few fowls or a goat! In other districts a handsome addition to one's salary may be gained by private practice, but these posts are only given to senior men of the service. A fair arrangement would be that in those districts where a certain salary is not guaranteed by the various trading establishments, "duty allowance" should be granted to the doctors also, equal, at least, to that paid to second-class officers in other departments. A Government doctor "on the coast" starts with a salary of £400 per annum, which compares unfavourably with the £600 per annum (and all found) paid by the West African mining companies. Members of our profession contemplating risking their lives in West Africa should take note of this, and give Southern Nigeria a wide berth until a more equitable recognition of our claims is established.

LAY CONUNDRUMS.

DR. GEORGE H. R. DABBS (London) writes: A patient said to me the other day, "Did you ever know a man or woman with a big stomach who, unless becoming suddenly thin, lived to an age which might be called 'old'?" I pass by his phrase "stomach" as meaning "abdomen," and I know what he meant as to "becoming suddenly thin," and forgive him the "bull" involved in his cross-query, to confess that in my experience I have not known the large abdomen associated with old age. I wonder what the general experience is. The observations, correct or incorrect, of laymen on professional matters are of some interest now and then. For example, an old patient of mine, some years ago, asked me if I had observed how commonly the prominent "Adam's apple" was associated with appendicitis cases. On the instant every case I could recall seemed to bear out his suggestion. Subsequent observation has not borne it out, but remarks of these kinds often set one thinking, and there can be no harm in thinking them out.

"A FAMOUS DENTIST IN AJMER."

UNDER this title Mooneer Khan, dentist, Madar Gate, near Jubilee Tower, Ajmer, has circulated the following remarkable advertisement:

"I make the most reliable English teeth, very fancy and strong that can ever be had in the market. The teeth made by me can be safely used by every religion. They are affixed by an easy way with a fine spring. I possess many certificates in behalf of the art. Terms very moderate, from Rs. 1 to Rs. 10 each. Old teeth repaired at moderate cost. A trial solicited."

Undenominational, or Cowper-Temple, teeth present a novel conception, reminding one of the clerical tailor who assured the curate as regards the length of the coat which he was fitting on, "This, sir, is a coat in which you may hold any doctrine." Mooneer Khan's teeth are warranted to masticate without prejudice any food their fortunate possessor may conscientiously chew or eschew. The advertisement has translations in Urdu and Nagri adapted to the comprehension of the native trader.

TAKING THE OATH.

IT is satisfactory to note that the Scotch oath as a substitute for the English form and the kissing of the Testament seems to be growing popular in the extreme Northern counties. To a large extent this seems to be due to the action of Dr. Andrew Legat, who often takes the chair at the South Shields magisterial court. He insists upon a choice between the two oaths being offered to each witness and will not allow those who adhere to the English fashion to pass off thumb as Testament kissing. On several occasions, too, he has drawn the attention of those present in court to the scientific reasons underlying the movement in favour of abandonment of the English form of swearing witnesses. If all medical magistrates took the same course the progress of the reform would doubtless be greatly accelerated.

DR HERBERT C. MAJOR (Bedford) writes: In the recent discussion upon this subject I have not noticed any reference to the French mode of procedure. Yet I venture to consider that this might with advantage be adduced. Many years ago, in the court of justice of a French provincial town, I had an opportunity of observing the administration of the oath there. A brief description may be of interest to some of your readers; this may be given in a few words. The witness, standing before the judge, was thus addressed:

Judge: Witness, what is your name? (Witness replied.)

Judge: What is your age? (Witness replied.)

Judge: Raise your right hand. (Witness did so.)

Judge (with marked seriousness): You swear before God that you will tell the truth.

That was all. Yet, surely, quite sufficient. I recall thinking at the time how far preferable to our own procedure was the brief and simple yet impressive ceremony described; preferable, even, as it seemed to me, to the Scotch method, of which I was also cognizant.

DIET AND DISEASE.

MR. HOPE GRANT, F.R.C.S.E. (London, E.C.), writes: In the suggestive and critical leader on "Modern Diet" in the JOURNAL of September 8th, p. 581, when referring to Professor Benedict's researches, you remark "it will be of great interest to see the replies made to these very pertinent criticisms by the advocates of a low proteid diet." Now, it appears to me no reply is necessary. Such advocates as Dr. Babagliati and Professor Chittenden admit life can be sustained on 60 grams of proteid (with proportionate carbohydrates) and 160 grams; but maintain that whereas the former proportion confers immunity from disease, the latter predisposes to or ensures its onset. They even go further, and assert that disease can be cured in those accustomed to the higher diet by resort to the lower. They have proved their points to the satisfaction at least of a large following, and all that remains now is to await the verdict of the medical world. Meanwhile, an unmistakable sign of the trend of that in this country is to be found in the Diet Number of your contemporary *The Practitioner*, where the prevailing note is one of warning against the danger of repletion. The results of experiments made on animals leading such wholly unnatural lives as pigs, dogs, and cows, should be accepted with considerable reservation. The reason of the resumption of ordinary diet by Chittenden's men is obvious, and it is conceivable that a proposition to determine "how much" food life could be sustained on, would be received with enthusiasm by an immense number of people willing to "suffer for the cause."

NATIONAL EDUCATION.

WE have received a pamphlet published by Alexander Lamb, printer, Leyton, in which Dr. A. Todd-White, formerly a lecturer under the London School Board, details a very interesting and carefully worked-out scheme of national education. Its main feature is that education should be centrally, not locally, controlled, and be a Government, not a county, charge, and that there should be three grades of Government schools. Grade I should be for the sons and daughters of professional men with small incomes, the parents paying 5s. a week for a school year of forty weeks, and all subjects usually taught at good private schools being included in the curriculum. Grade II should be for children of small tradesmen, poor clerks, and better-class workpeople, the parents contributing 1s. a week—the subjects taught being such as would enable the pupil to pass the first examination of the College of Preceptors, technical education being included and swimming and drill compulsory. Grade III should be for the children of the poorest classes, education, breakfast and dinner, and a distinct form of dress being all free, and the curriculum including the ordinary subjects of elementary education, in addition to cooking, gardening, swimming, and drill. The age limit in Grade I should be 18, and 16 in Grade II, and 14 in Grade III, the initial age in each case being six years. For other details we must refer readers to the pamphlet itself.

BICYCLE SADDLES.

DR. J. HOPE POTTER (Taunton) writes: The following method will render *any* bicycle saddle perfectly comfortable. Take a thin piece of board 7 in. by 3 in., cover it with strong canvas on one side, leaving the canvas slack; insert between canvas and wood, say, 6 in. of inner tube with valve attached. Insert wood, etc., between seat and springs of saddle; pump. This gives an air pad to sit on, and prevents sagging. If additional comfort is required, fit a tube with a stop on the seat pillar to allow for slight rocking of the saddle. This prevents back of thigh levering one on to peak of saddle, which occurs when riding high and forward. Those who place the saddle well back do not require this fitment. My old saddle can by these means be rendered absolutely comfortable. I will be pleased to give fuller details to any one interested.

IS THE TOOTHBRUSH A NECESSITY OR A LUXURY?

TRAVELLER writes: Fashion teaches men to regard the toothbrush as a necessity to all who wish to keep their teeth clean, but experience teaches that the finger is equally efficient, it lasts longer and is less expensive. It has other advantages: it is absolutely free from danger and cannot be mislaid or lost. No one can borrow or steal it. A toothbrush that is moulting is a source of danger, as loose bristles may stick in the glottis and cause choking. Excellent tooth powder can be procured at a trifling cost, composed of equal parts of prepared chalk and powdered orris root. I hope this suggestion may be useful to Boards of Guardians who do not consider that ratepayers' money should be used to provide toothbrushes for their uninvited guests.

NEW TESTS FOR SOBRIETY.

THE following words, according to the *Wine Trade Review*, have been registered as designations of whisky: "Cracyarisotbelleditionment," "Agaphyon," "Sempermicklement," and "Skabrigdantyfuge." The ability to order any one of the brands in question might well be taken as conclusive proof of sobriety. These words would be useful as tests in cases of alleged or suspected drunkenness.

DUTY.

A CORRESPONDENT who has sent a short paper on the cause and prevention of cancer signed as above has omitted to enclose his or her card.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under	£0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication; and if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

Introductory Address

ON

THE GENERAL MEDICAL COUNCIL:

ITS POWERS AND ITS WORK.

Delivered at the Victoria University of Manchester on October 2nd, 1906.

By DONALD MacALISTER, M.A., M.D., B.Sc., D.C.L., LL.D.,

Linacre Lecturer of Physic, University of Cambridge; President of the General Medical Council of the United Kingdom.

It happens that I have never myself had to listen to what is called an "Opening Address." But I have read a good many, and they have not always caused me to regret my deprivation. At Cambridge and at St. Bartholomew's, where I was a medical student, these ceremonial orations were not in favour. At the beginning of the session we met as usual, and set to work at once. I hope that before this hour is over you will not be tempted to wish that the like custom prevailed in Manchester. It may reassure you if I say that I do not propose to offer you a formal exhortation. Time and temperament have precluded me from trying to emulate the eminent leaders of the profession who in past years have discoursed to you from this place. My aim will be humbler and perhaps more practical. I propose to speak informally, but as I trust not loosely, on various matters concerning our common profession and its government with which at one time or another it behoves us all to be acquainted, and about which many mistakes are made—for want of knowledge.

When I was honoured with the invitation to address you at the beginning of a new academic year, I was told that my audience would consist chiefly of medical students and practitioners—"with a sprinkling of intelligent laymen." That information—or warning—had something to do with my choice of a subject. For the General Medical Council has points of interest for students, practitioners, and laymen alike; and my only fear is that I may fail to make them as interesting as they really are. My chief difficulty lies in the misconceptions that exist regarding the Council's powers and its work. I seldom take up either a professional or a non-professional paper that touches upon medical matters without finding evidence of these misconceptions. Sins of commission—more often sins of omission—are freely laid to the Council's account, of which, from its very nature and constitution, it cannot be otherwise than guiltless. It is scolded for doing what the law says it *shall* do. It is bitterly reproached for leaving undone what the law gives it neither power nor means to do. It is spoken of at one time as the parliament of the profession; yet it has no authority to legislate for anybody, and it cannot make even a by-law for any but its own proceedings. At another time it is scornfully described as a "doctors' trade union": yet it cannot legally levy an annual subscription, or say a word on the matter of rates of pay, or hours of work, or disputes with employers; it offers no pecuniary benefits or strike-pay, and it *can* be sued in the courts like any other corporation. I venture to think that such a "union" would hardly be thought to deserve the name by the energetic organizers of Lancashire and Cheshire trades.

The Council is, in fact, neither a parliament for making professional laws nor a union for protecting professional interests. It may surprise some of you to learn that when the Council was created, nearly fifty years ago, the declared purpose of the Legislature was not to promote the welfare of professional men or professional corporations—it was not to "put down quackery," or even to advance medical science. The object in view was simply the interest of the public. The preamble of the Act of 1858 consists of two lines only:

"*Whereas it is expedient that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners: Be it therefore enacted . . .*"

The preamble, as you see, recognizes two kinds of practitioners, the "qualified" and the "unqualified." Up to that time no easily-understood line was drawn between the two, and when the public desired to make a choice, they were frequently at a loss. The Act set up machinery for, as it were, "hall-marking" the qualified practitioner, so that he might easily be recognized when his services were required. But the public were left free then, as they are free now, to seek "medical aid" from the unqualified practitioner if they liked. And the unqualified practitioner was left free then, as he is free now, to practise for gain among those who chose to employ and pay him. He was forbidden, under penalties, to pretend that he was qualified, by taking a title he did not possess; he might not use the courts for the recovery of his charges; he could not give a valid certificate of death; but except for these and a few other not very inconvenient disabilities, he was untouched by the new law.

On the other hand, the "qualified" men, as a set-off to their new legal status and official recognition, were subjected to a new central control, educational and disciplinary. They obtained no monopoly of practice among the public in general. They were afforded no special "protection" against the competition, not always scrupulous or insignificant, of the uncontrolled unqualified practitioner. Indeed, for a time those of them who were educated and licensed by medical schools and corporations were in a sense exposed to greater competition than before. For at the outset all who claimed to have practised before a certain date in 1815, whether they had been educated or not, were enrolled among the qualified. In this way a number of elderly practitioners, who had no licence or diploma whatever, were accorded the same legal status as the rest, and practised side by side with them. These of course have now disappeared; but their existence must not be forgotten when we are considering the so-called "privileges" of the profession which were conferred in 1858.

The qualified practitioners might fairly have claimed that it would be good for the public, as well as for themselves, if monopoly of practice, and protection against the competition of the untrained, *had* been conferred upon them. In other countries, and in other parts of the King's Dominions, the restriction of practice to the qualified is with general consent and approval enforced by law. Any unqualified person who habitually and for gain practises or holds himself out as practising any branch of medicine is liable to severe penalties. But in these days of "Christian Science" and "Nature Cures" and "Bile Beans," it requires a good deal of optimism, and some resolute ignoring of the signs of the times, to believe that in this free (and easy) country legislation to that effect is either probable or possible in the near future.

The result, foreseen or unforeseen, of Acts passed since 1858 has been rather the other way. An unqualified *person* can be restrained from using a title, such as "physician" or "dental surgeon," which implies qualification and is reserved by law for qualified men. But if he takes to himself six other persons as unqualified as himself, and registers the compound individual as a joint-stock company, it is held that, in England at least, he can call himself what he likes. He is no longer a "person," but a corporation—with the usual and highly-convenient negation of soul or body. Thus the distinction set up by the Medical Act is blurred by the operation of the Companies Act. The public may well be excused if they think they are dealing with qualified practitioners when they seek advice at the establishments, legally incorporated, of "Dr. Galen Aesculapius Jones, Limited," or "Professor Smith and Co., Consumption Specialists," or "Tooths, Cash Dentists." Strenuous efforts have been made, within and without Parliament, to get this remedied, but so far without much success. The Legislature is in fact very tender towards unqualified practitioners of every kind—so long as they do not presume to practise *law*. The lawyers have seen to it that *that* profession at least is sacred.

I have mentioned that in 1858, when medical men were first officially registered, every one who claimed to have been in practice some forty years before was enrolled, even though he held no diploma or other certificate of competency. The vested right even of the unqualified was thus carefully respected. A similar thing happened

twenty years later, when dentists were enrolled, and to-day the *Dentists' Register* is made up, to the extent of nearly one-half, of men with no other qualification than "in practice before July 22nd, 1878." Four years ago, as the outcome of a bitter cry for the better regulation of midwives, whose want of skill and cleanliness brought suffering and death to countless mothers and infants, the Midwives Act was passed. Again all women went on the roll who applied, and had been in practice for a year—trained and untrained together. Those who did not choose to go on the roll were allowed two or three years more during which they could use the title of midwife, though unenrolled or uncontrolled. And not until 1910 will it be illegal for a woman, who is not enrolled and has no certificate of training, to practise for gain that perilous office, perilous, I mean, to those who place their lives in her hands.

All this care for the unqualified can, I have no doubt, be excused on political and legal grounds. That I am not concerned to deny. I mention it to illustrate the general temper of our lawgivers, and of their constituents also. We all of us in our hearts incline to distrust the rule of the expert, and we rather admire the amateur. Most of us flatter ourselves that in one way or another we are something of amateurs ourselves. It is more than a half-truth to say that England would rather be free, free even to let itself be injured or befooled, than under compulsion to be sober, or healthy, or secure. And so long as this mood prevails, I do not see much chance for the Bill that is to "put down quackery" with a strong hand. Parliament may go so far as to "distinguish" the trained from the untrained practitioner; it will then leave you free to make your choice—at your own risk.

The instrument which Parliament set up for the purpose of marking the distinction is called the *Medical Register*. And the making and keeping of this Register is entrusted to the *Medical Council*. On the Register are placed the names of those who have passed certain tests of professional fitness. These are called *Registered Practitioners*, and these alone the law declares to be duly or legally qualified. The Council has to see that the tests of professional fitness actually applied by the Examining Bodies to aspirants for registration are "sufficient." They must ensure that those who pass them possess "the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery." The Council has also to see that no registered person, who by crime or misconduct has become unworthy of the legal status which registration confers, shall remain on the *Register*. In other words, the two great functions which the Council in the public interest discharges are, first, to prevent the unfit from gaining access to the *Register*, and, secondly, to remove the unworthy from it. Except as to a few subsidiary matters, such as the preparation of the *Pharmacopoeia*, the control of Diplomas in Public Health, the scrutiny of the Midwives' Rules, and the like, all its powers and all its work in relation to the medical and dental professions have reference to these two functions. It is a Council of *Education* and a Board of *Registration*.

It is a Council of Education, but it neither teaches nor examines. It cannot lay down a code or curriculum compulsory on all medical students. It cannot inspect a single medical school. Its statutory powers are strictly limited. It can order the visitation and inspection of the various examinations held by Universities and corporations in the United Kingdom, for the purpose of testing candidates for their respective medical degrees or diplomas. And it can require from these bodies information concerning the course of study, and the age of candidates, which they prescribe. If from the inspection of the examinations or the information supplied as to the curricula, the Council comes to the conclusion that either are "insufficient," it has no power to disallow them or to order that they shall be amended. It forwards its report to the body concerned, takes note of any observations the body may make thereon, and if it is still convinced that the training or the test is "insufficient," it brings the question before the Privy Council.

In this and in other matters the Council is in close administrative relation with the Privy Council. If in anything the Medical Council neglects its duty, the Privy Council may formally direct that the duty *shall* be performed, and may in default itself perform it. In the case before us the Privy Council has power to supplement as well as to supersede. It can do what the Medical Council is unable to do. If it sees fit it can declare that an "insufficient" diploma shall be no longer recognized as legally registrable; and, if circumstances alter, it can rehabilitate the diploma and make it valid again.

The Medical Council is also a Board of Registration. In fulfilment of this function, partly by the force of necessity, and partly in virtue of the interpretation of the law by Judges, it has become a professional Court of Justice, a domestic forum for the trial and determination of grave charges brought against registered practitioners in their professional capacity. By successive judicial decisions it has been laid down that in its procedure the Council, sitting as a Tribunal, must as nearly as possible follow the forms and rules customary in other courts. But it has no authority to compel the attendance of witnesses, to administer oaths, or to call for the production of documents. It has only one judgement to give when a charge is proved to its satisfaction, namely "guilty of infamous conduct in a professional respect"; and only one sentence when judgement is given, namely "erasure from the *Register*." From this sentence and judgement, given after proper inquiry and without malice, the High Court of Justice has pronounced that there is no appeal. In the earlier years of the Council's life its decisions were frequently called in question before the ordinary courts of law. The results were on the whole fortunate, for while its actual findings as a professional court were never reversed, the judgements delivered on these appeals not only defined, but in effect expanded the jurisdiction of the Council. They laid down its procedure, they interpreted broadly the meagre language of the Statute, and they settled beyond dispute the finality of its decisions on all causes within its competence.

All the Act says is: "If any registered medical practitioner shall be convicted in England or Ireland of any Felony or Misdemeanour, or in Scotland of any Crime or Offence, or shall after due Inquiry be judged by the General Council to have been guilty of Infamous Conduct in any professional respect, the General Council may, if they see fit, direct the Registrar to erase the name of such medical practitioner from the *Register*." In 1863 the Lord Chief Justice and his colleagues of the Queen's Bench laid it down that this clause "makes the Medical Council sole judges of whether a medical practitioner has been guilty of infamous conduct in a professional respect; and this Court has no more power to review their decision than they would have . . . of determining whether the facts had justified a conviction for felony or misdemeanour under the first branch of the section. . . . The Council is the tribunal to whom the Legislature has left the decision, as being the best judges in the matter, and this Court cannot interfere."

In another appeal Lord Justice Bowen declared that, provided "due inquiry" had been made by the Council, "the jurisdiction of the domestic tribunal, which has been clothed by the Legislature with the duty of discipline in respect of a great profession, must be left untouched by Courts of Law."

Referring to the language of the Statute, Lord Justice Fry added: "'Inquiry,' and 'judgment,' and 'guilt' are all words which express and which are relevant to a proper form of judicial proceedings, and therefore, although this body proceeds by different rules of evidence from those on which Courts of Law proceed, I cannot for a moment doubt that the Council were proceeding judicially; nor can I help adding that the manner in which the Council has proceeded on this inquiry, as on all other inquiries, shows that the Council are fully aware that they are performing judicial duties, and endeavour evidently to perform them in a very admirable manner."

These and like judgements settled the jurisdiction and the procedure of the Council sitting as a tribunal. The meaning and scope of the statutory verdict of the Council—"guilty of infamous conduct in a professional respect"—were given by the definition of the Court of Appeal in 1892. "If it is shown that a medical man, in the pursuit of his profession, has done something with regard to it which would be reasonably regarded as disgraceful or dishonourable by his professional brethren of good repute and competency, then it is open to the Council to

say that he has been guilty of 'infamous conduct in a professional respect.'"

I have given these important decisions at length for two reasons. They show, in the first place, the position assigned by the law to the Council's judicial inquiries and the range of its jurisdiction. In the second, they illustrate the process of legal development by which three words in the Act of 1858—"inquiry," "judged," and "guilty"—have inevitably led the Council to become a Court of professional discipline, with duties and powers which were certainly not explicitly set forth in the Statute, if, indeed, they were implicit in the intentions of the Legislature. The guardianship of the *Register* and of its accuracy, then committed to the Council, had in it the potentiality of a wider and weightier stewardship. The Council of Medical Registration had no choice but to grow into the High Court of Medical Conduct; and observe that the development came about as the result of a series of judicial interpretations. A study of the earlier minutes of the Council shows how tentative, how hesitating, how half-unconscious were its first steps towards the assumption of judicial functions. It hardly knew that it was a judicial tribunal *in posse*: it scarcely realized what precautions as to procedure were necessary to make its inquiries "due" within the meaning of the Act. The course the evolution actually took is, however, exactly that by which the Common Law of England has reached its present form. As Sir Henry Maine (*Ancient Law*, Chap. II) reminds us: "We in England are well accustomed to the extension, modification, and improvement of law by a machinery which, in theory, is incapable of altering one jot or one line of existing jurisprudence. The process by which this virtual legislation is effected is not so much insensible as unacknowledged. . . . We do not admit that our tribunals legislate; we imply that they have never legislated, and yet we maintain that the rules of the English Common Law . . . are coextensive with the complicated interests of modern society."

The development of the germ provided by the Legislature has been from within as well as from without. The decisions of the Courts of Law have caused the Council to expand into a recognized and independent tribunal. Its own judgements in a succession of actual cases, decided by it after due inquiry, have gradually built up a body of precedents and rulings which may fairly be decribed as forming the Common Law of Medicine. I said at an earlier stage that the Council had no power to legislate, or to make by-laws except for its own proceedings. That is strictly true of the Council considered as an enacting body. It is equally true of the ordinary Law Courts; we do not regard them as parts of the Legislature; they do not enact new statutes. But, as we have seen, they do in effect *develop* law if they do not claim to make it. And the developed law may be and indeed is more comprehensive and more adaptable than the statute law of which it professes to be no more than the interpretation.

The Judges' definition of professional misconduct, like their definition of the province and jurisdiction of the Council itself, contains within it a principle which is in essence evolutionary and progressive. Whatever may be reasonably regarded as disgraceful or dishonourable by professional men of good repute and competency, is "infamous conduct" in the technical sense. As the standard of professional competency becomes higher, as the conscience of men of good repute becomes ethically more exacting, so the area within which the Council can exercise its discipline expands. And thus it has come to pass that practices which, forty or fifty years ago, were so common and so lightly regarded that they excited little notice and less reprehension, are now repugnant to the general sense of the profession, and are sternly repressed by the Council. I may take two instances to illustrate my point.

Formerly, in certain parts of the country, it was customary for a qualified man in large general practice to employ a number of unqualified persons as his assistants. These, as they acquired a certain amount of rule-of-thumb experience, were gradually entrusted more and more with the sole care of patients. The practitioner sometimes did not see the patient until it was time to sign a death certificate in order to avert an inquest. Individual cases of gross abuse were one by one brought before the Council and condemned. Others, in which various forms of evasion were attempted, followed upon these: and as they arose these ingenuities were severally met and dealt with. At length it was made clear to those who clung to the evil tradition, that their practice was too dangerous to be profitable, and that the "unqualified assistant" must go. Having accumulated a sufficient body of experience regarding the mischief which had to be eradicated, the Council summed up all in a "warning notice" respecting the professional offence of "covering." All qualified practitioners were notified that the abuse of their qualifications, whereby an unqualified person was enabled to treat patients as if he were qualified, under "cover" of his employer, was in its nature fraudulent and dangerous to the public, and that such an offence rendered them liable to be judged guilty of infamous conduct. The result was remarkable. Unqualified assistants were dismissed wholesale, often no doubt at the cost of some hardship to individuals, but in the end for the good of the public and of the profession alike. The evil, from being almost endemic in particular districts, became sporadic, and is now fast passing away. The general conscience, which tradition had somewhat dulled, is now alert. Cases of "covering" by medical men have almost ceased to be reported to the Council; though in the dental profession, which is still in the stage of transition, they are somewhat more frequent.

The "warning notice" was not in form a law or regulation made by the Council; it was merely a condensed statement expressive of the successive judgements of the Court. But it served its purpose, and its authority has not been impugned.

More recently the practice of issuing objectionable advertisements or of employing or sanctioning the employment of canvassers with the object of procuring patients was brought before the Council in connexion with particular flagrant cases. Each case had to be dealt with on its own merits—or demerits. The character of the objectionable advertisements varied; in some cases the canvassing or touting was direct: in others it was carried on through the agency of a club, or association, or dispensary. Sometimes the case was strenuously fought, in others the accused practitioner preferred to discontinue the practice complained of, and submitted himself to the clemency of the Council. Once more when the time was ripe, and the various forms assumed by the mischief were fully apprehended, a "warning notice" was issued as before. This pointed out the public detriment and professional discredit attaching to such unworthy methods of attracting practice, and gave notice that practitioners who employed them, or sanctioned their employment, were liable to the penalty of erasure from the *Register*. A similar notice had already been issued to dentists, as the result of a series of cases duly heard and determined. In this instance the Council had the support of the Court of Appeal, given in certain important judgements relating to an advertising dentist of some notoriety.

These examples—and I could add to their number—illustrate my statement that even with its apparently limited powers as a Court, and notwithstanding the apparent inadequacy of the Statutes which govern it, the Council does in fact formulate, and by formulation makes explicit, fresh applications of the law to the growing complexity of modern conditions. And, what is more important, in doing so it carries with it the consensus and approval of "professional men of good repute and competency." The average conscience is quickened, and what was once tolerated is in the end repudiated and discountenanced.

The experience of the Council on the judicial side of its work has been singularly paralleled on the educational side. There, too, positive *powers* that are seemingly meagre and inadequate have not prevented it from developing an *influence* which is real and potent.

Its powers only enable it to visit and inspect examinations, and to call for information as to courses of study: it is not authorized to prescribe or to amend either. It cannot itself disallow an "insufficient" curriculum or an "insufficient" test: it can only report its opinion to the Privy Council. These are the limits imposed on its educational action by the terms of the Medical Acts, and at first sight they are narrow enough. But in practice they have proved to be more efficient than they seem in theory; and the "long result of time" has gone far to make them

adequate for the purpose. This result has been reached as in the other case, by a gradual process of evolution, and by the exercise of moral pressure. It is dependent in great measure on three factors, one the constitution of the Council itself, another the loyalty and conscientiousness of the teaching and examining bodies, and the third the publicity of the Council's minutes and proceedings.

Let me say a little first about the Constitution of the Council. As you all know, the testing of students in medicine, and the granting, to those who pass the test, of medical diplomas and degrees, have been entrusted by the State to Universities and to certain professional Colleges and Societies within the United Kingdom. Some of the Universities are of great antiquity and repute, like Oxford and Cambridge: others are modern, and filled with high ambition, like Victoria and Birmingham. The professional Colleges of Physicians and Surgeons are all of considerable age, with traditions of service to the cause of medicine that extend over centuries. Altogether there are now twenty-four bodies which are legally entitled to test candidates and to confer diplomas. In England and also in Ireland two of the bodies, and in Scotland three, have combined for examination purposes to form three Conjoint Boards, one in each division of the Kingdom. But for all other purposes the bodies preserve their autonomy, and make their own regulations. To the fifteen Universities it is probable that a sixteenth, namely the University of Wales, will shortly be added.

Each of the twenty-four Licensing Bodies, as they are called, appoints a member of the Medical Council. Five members are appointed directly by the Crown, on the advice of the Privy Council, and five members more are appointed by direct election, under a universal suffrage, by the registered practitioners resident within the kingdom. The total number of members is thus at present 34. Of these, 14 only are required by law to be medical practitioners themselves. The Crown and the Universities may appoint laymen if they like. They have not chosen to do so; but the freedom reserved to them illustrates what I have already remarked on, namely, that Parliament in creating the Council had in mind the safeguarding of general public interests, not of professional or scientific interests. Indeed, it was at one time proposed that one of H.M. Secretaries of State should be the President of the Council. One of my predecessors, Sir Henry Acland, used to maintain that the Crown should appoint to the Council lay members of the House of Lords, such as the late Earl of Shaftesbury, as being persons of knowledge and experience of public affairs who were independent of transitory politics (*Royal Commission Blue Book*, 1882, page 5). They would, in his opinion, increase the administrative efficiency of the Council, correct its tendency to professional bias, and be always at hand to bring forward in Parliament measures of medical importance. You will see how remote from Sir Henry's mind was the conception of the Council as a mere union of doctors for professional ends. We have travelled a long way from his point of view; whether for better or worse it is not for me to say—at least on this occasion. But the original idea on which his view was based is not without significance, and it survives in this, that in the Universities generally it is not the medical faculty that appoints the member but the academic body, whatever that may be. In my own University of Cambridge, the member is elected by the Senate, *more burgensium*, that is, as the members of Parliament are elected. The Senate numbers over 7,000 graduates in all the faculties, and each has his voice and vote. When I was first returned to the Council I had, like better men, to pass through the ordeal of an election contest. The five members directly elected by the practitioners of the three countries were added in 1886. In 1882 a Royal Commission had reported as follows: "While we insist that the reason of the existence of the Medical Council is the interest of the public, we cannot but recognize the vital interest of the whole Medical Profession in the Constitution of that Body. It seems to us highly important that the Profession should have full and complete confidence in the Council, and seeing that the governing Bodies of the Medical Corporations, which now elect members of the Council [and which alone, be it remembered, are required to elect medical men] can hardly be said to represent the great majority of practitioners, we think it advisable to give the general practitioner an effective voice in the Body which will be the principal authority of the Medical Profession. We see no reason to suppose that the members elected by direct representation will be less eminent than those nominated either by the Crown or the [proposed] Divisional Boards" [of the three parts of the kingdom]. The Commission accordingly recommended that four members should be directly elected, two for England and one each for Scotland and Ireland. The Act, when it came, was framed on a somewhat different basis, and gave three members to England instead of two.

Please observe the main reasons alleged for the introduction of the directly elected members: it was "highly important that the Profession should have full and complete confidence in the Council." Exactly the same reason may be assigned for the arrangement, also sanctioned in 1886, by which each one of the Licensing Bodies was granted an effective voice in the counsels of the principal authority. For in their case also it was important that they should have such "full and complete confidence in the Council" as would make them ready to co-operate with it in matters of medical education. The new Act conferred no new coercive powers on the Council. Its numbers were increased, the extent of the qualifying examinations was enlarged and better defined, the scope and method of the inspection to which they were subject were more fully expressed. But the Council as before could only in the last resort report to the Privy Council any deficiencies it discovered. The law in fact contemplated that reasonable uniformity and stringency in the existing tests were to be brought about not by autocratic compulsion but by common action for a common end. To use the language of a recent Bill, "peaceable persuasion in a reasonable manner" was to be the main motive force entrusted to the Council, so far as Medical Education was concerned. Ardent reformers cried then, and have often cried since, for speedier and more drastic powers. But after all is not the method adopted by Parliament characteristically British? "Government with the consent of the governed"; "freedom limited only by necessary checks on the abuses which would destroy the freedom and efficiency of others." These are general maxims of our statecraft in regard to other departments of our corporate life. And the State thought well to apply them to the regulation of our profession also.

By its new Constitution then, in which (1) the State on behalf of the people, (2) the profession itself, and (3) the several bodies which educate, test, and maintain the repute of the profession, possess each of them an effective voice, the Council became better adapted than before for its purpose of regulating the training of medical men. It became in fact a better *Council* of Medical Education. The duty and responsibility of appointing not obedient *delegates* but good *members* were imposed on each of its constituent bodies and sections. Their credit rather than their narrower interest was involved in the selection they made. For the influence wielded by any member of the Council within its walls ultimately depends on his character and capacity as a man among his brethren, and not on the dignity or power of the body which sends him. That influence is instantly weakened and discounted if he comes burdened with a mandate or hampered by a pledge. He must be a voice, and not merely an echo.

I need not labour this point. Its importance must be obvious. But I would add two remarks before I leave it. However important may be the essential independence of the members considered as components of a Council of Education, it becomes more than important, it becomes vital, when we view them in their judicial capacity. In Scotland the Judges of the Supreme Court are finely described as Senators of the College of Justice. In our medical tribunal the Councillors must also be regarded, and regard themselves, as for this purpose members not of this or that College, University, or Association, but of a "College of Justice" only. "Clothed by the Legislature with the duty of discipline," as Lord Justice Bowen expressed it, anything like fear or favour, partiality or ill-will, mandate or pledge, becomes more than a defect, it amounts to a disqualification for judicial functions.

And, in the second place, I would bear testimony that during the twenty years which have elapsed since the

Constitution of the Council was readjusted, and over which my knowledge of it extends, the electing bodies have been singularly successful in realizing the idea I have indicated. The special gifts of the members chosen have varied, and fortunately varied, as much as their individual opinions and experience; but all have contributed elements of value to the corporate life, and to the corporate character which is its essence. Projects have often been framed for altering the Constitution of the Council, so as to give less or greater preponderance to some fancied "interest" or other. What is always undemonstrated in these schemes is that they will bring about the appointment not merely of *different* members but of *better* members, having regard to the one supreme interest—the interest of the public. It is with this essential question that our people and our Parliament are primarily concerned, and yet this is the very question on which, in my opinion, no clear evidence has yet been vouchsafed.

I have said above that the *Constitution* of the Council was a factor in the development of its educational influence. I have given you a sketch of what the Constitution *is*. Let me next consider briefly how it reacts upon the Council's work.

As regards education, the principle sanctioned by the Legislature is that laid down by the Royal Commission of 1882. "It would be a mistake to introduce absolute uniformity into medical education. One great merit of the present system, so far as teaching is concerned, lies in the elasticity which is produced by the variety and number of educational Bodies. Being anxious not in any way to diminish the interest which the teaching Bodies now take in medical education, or to lessen their responsibility in that respect, we desire to leave to them as much initiative as possible. In certain matters of general importance, such as the duration of study, and the age at which a student should be permitted to practise, common regulations ought, we think, to be laid down; but we wish to record our opinion that nothing should be done to weaken the individuality of the Universities and Corporations, or to check emulation between the teaching institutions of the country." In other words, competition between a multiplicity of teaching bodies, as such, tends to the advancement of education. The institution which, *caeteris paribus*, affords the most efficient teaching will have the best reputation, and be the most resorted to. The interest involved in the competition is the interest of improvement.

As regards examination, to put it mildly, this interest is not so clear. I put it to the unregenerate instincts of the students before me. If, as they will probably be ready to declare, all examinations are essentially evil, would it not be wise to choose the least? Will not the most popular Examination Board be that which offers the easiest test? If the same hall-mark is impressed on 9-carat gold as on 22, why waste precious metal in working up to the higher standard? Reasoning of this somewhat crude kind commends itself to the natural man, and many of the criticisms that we hear are based on nothing more profound. It takes little account of other facts of professional economics, which are nevertheless of decisive importance. Thus, the supposed hall-mark is *not* the same in the two cases. Examining Boards, no less than medical schools, in the end depend for popularity on their reputation for efficiency. If a Board is notoriously easy-going, not students only, but their teachers, and their parents, and the profession, and the public, know it. The practitioner finds that he can only get a 9-carat diploma from that Board, and he pretty soon learns that he starts on his career with the stamp of a 9-carat man. Conscious as we are of each other's imperfections, we are all sure that our *own* merits deserve more than the minimum of recognition, whether in this imperfect world they receive it or not. And so the easy-going Board becomes the object of resentment instead of loyalty among those it has licensed, and loses not only its public prestige, but the corporate backing and support of its Licentiates. In its own interest the Board has to recognize that it is hurtful, not helpful, to have the reputation of being over-lenient; and I may add, as a matter of statistical fact, that even in older days, before the full operation of this law was observed, the easiest examination was not the one which attracted the most students.

In so far, however, as the *primary* tendency of competing examinations might be regarded as downwards rather than upwards, the State has established a check. It has affirmed the principles (1) that a certain minimum of stringency shall be required; (2) that the minimum shall always be such as to secure efficiency in the practice of the essential branches; and lastly (3), that to admit of the gradual rise of the minimum with advancing needs and advancing knowledge, the practical definition of it from time to time shall be left to the General Medical Council with the concurrence of the Privy Council.

It is here that the Constitution of the Council tells in favour of these self-acting—or, as I called them just now, economic—forces which tend to raise the standard of both teaching and examination. Every Board has its member on the Council. The Council informs itself by inquiry and inspection of the actual requirements of each in respect of training and of testing. If it appears, let us say, that England is at a given moment too lax in any particular, and that students are in consequence likely to pass to England from Scotland and Ireland, the members from these sterner regions are at once on the alert. They are not usually deterred from speaking their minds by any overmastering awe of the majesty of English universities or corporations. They have a common interest in urging that the alleged laxity shall be remedied. The English Boards, even if they were united in a solid conspiracy of Saxondom, have only 12 votes out of 34. If the case against them is made out to the satisfaction of the members elected by the Government and the practitioners respectively, the English combination is powerless to prevent the carrying of a resolution that the fault ought to be amended. And so far as a resolution of the Council can do it, amended it would be. This is an imaginary instance: I don't say that anything exactly like it has ever happened, though, changing "names and numbers," examples not *unlike* it could be cited. I am concerned only to give you what the engineers call a "force-diagram" of the Council's Constitution, as it operates, and was no doubt intended to operate, in questions of the kind.

Unrestricted individual competition, to continue the mechanical metaphor, would as some think make all examining bodies gravitate to the lowest possible position. By bringing all the bodies together, in the persons of their chosen members, round the Council table, the play of forces is so altered that the position of normal and stable equilibrium is now somewhere about the centre of gravity of the whole. The *average* standard of all replaces the former *minimal* standard, and the average tends to be that which "men of good repute and competency," having regard to all the circumstances, think reasonable and "sufficient." If it is not so high as some might think attainable, it is a good deal higher than what, without our machinery, would actually be attained.

Suppose now that the Council has passed a resolution for the improvement in some particular of the requirements of one or more of the constituent bodies. The resolution does not come as an order from an autocratic bureau—*sic volo, sic jubeo*. It comes from a Council on which the body concerned has as much voice as any other. It is like the utterance of the International Conference at the Hague, in which all the nations are represented, and in whose proceedings all take a part. You, as one of the nations, may not wholly agree with the utterance: but you feel that you can give it the most careful consideration and even embody it in your own national practice or legislation, without derogating one whit from your proper dignity or sacrificing a jot of your rightful independence. You act on the impulse not of servile submission, but of *noblesse oblige*. You gave the Council the highest sanction in your power by sending a member to represent you; you would expect the minority to respect its decisions had you been in the majority: you can do no less yourself even if you for once are in the minority.

From the point of view of the Council as a corporate entity, it is also of inestimable advantage that each of its constituent bodies is represented upon it. Its members, in one aspect of their functions, are so many envoys from the Universities and Corporations. Each is in immediate touch with his Governing Body: he is by hypothesis in good standing and influence there, or he would not have been chosen. While he is an envoy *of* the body, he becomes in turn an envoy of the Council *to* the body. From

his own knowledge of the course of the discussion, the arguments used, the examples proposed for imitation, he is in a position to explain and commend the Council's decision to his colleagues at home. He can make clear the scope and bearing of resolutions that are not always, I regret to say, self-explanatory.

It is, I am convinced, largely owing to the representation of the bodies upon the Council, and to the potent motives which, with our British temperament, we deduce from that representation, that the influence of the Council with the bodies so far outmeasures its actual powers. The only compulsion to which the bodies have been subject is the internal compulsion of a high self-respect, which makes them unwilling to do less than their compeers for the common good. In a multitude of instances, even this compulsion has been eased of all constraint by the fuller sympathy with the Council's motives and objects which the loyal mediation of its members has induced.

Whatever may have been assigned as the reason for it in past times, the fact is worthy of mention here that during its forty-eight years of existence the Council has only once had to express its final verdict of "insufficiency" with respect to any one of the licensing boards, and to report that verdict to the Privy Council with a view to judgement. The board in question no longer exists. It is, therefore, only just to give full credit to the loyalty and conscientiousness of the bodies, in setting forth the factors which have facilitated the Council's task of maintaining the educational and examinational standard of the profession.

The third factor I propose to mention to-day is the publicity of the Council's minutes and reports. About twenty years ago, in a notorious case, an attempt was made to restrain the Council from publishing its proceedings in relation to a penal inquiry. The attempt failed utterly. The "privilege" of the report in question was amply sustained. The Lords Justices of Appeal said:

"The report is a report of proceedings which actually took place; proceedings within the jurisdiction of the Council; a report of proceedings where the facts had been ascertained; a *bona fide* true report without any sinister motive: a report of a matter of a public nature; a report of proceedings in which the public are interested, and in respect of which they are entitled to information. . . . We have come to the conclusion that the publication of these proceedings, being true, accurate, and *bona fide*, is privileged."

Now if it is for the public advantage that proceedings relating to the character of a particular person should be published, it may well be held that it is still more for the public advantage that reports and proceedings relating to the action of a responsible corporation in the exercise of its public functions should have the like publication. Thus when one of the examinations has been inspected, the Inspector's report, with the remarks of the body concerned, and the remarks of the Examination Committee on both, are presented to the Council, and when duly received, are printed in its public minutes. The report is full and detailed, the strong points and the weak points of the examination are described and commented on, ample materials are furnished whereon to base the judgement of the Inspector, the Committee, and the Council as to its sufficiency or insufficiency. The whole is discussed in the presence of the public and of the reporters of the various journals, and the decision can thus be criticized with knowledge of its grounds. The net result is certainly beneficial. If a body is commended for some new and valuable feature in its methods, for an examination-experiment which has proved successful, the commendation is public, and the credit of the body is enhanced. The other bodies have the opportunity of learning from the success of the pioneer body, and of adopting the improvements themselves. In this way a virtue is not only praised, it is propagated. It is twice blessed: it blesses the bodies that (thanks to their free initiative) were wise enough to discover or invent it; it blesses also the bodies that offer it the sincere flattery of imitation.

On the other hand, if a clear defect or insufficiency is revealed, the body concerned hears of it, the profession hears of it, the public hears of it. The criticism it calls forth is echoed and re-echoed; and the criticism is not always over-tender or under-pungent. It may in fact be so irksome to self-complacency, so disturbing to conventional dignity, that even a dignified and self-complacent body of men, who are convinced that they are "not as other men," and are persuaded that they "need no repentance," will generally find it expedient to take serious account of it. The forces called into play thus tend to eliminate the defect, or even to convert it into a redundancy of merit, before the next inspection. Please remember that I am not trying to hint at particular examples. I am only, as before, showing how the machinery may be expected to work, and illustrating my thesis that by its intrinsic construction it works for the advancement of professional education and the upward development of the minimum standard.

A few outstanding examples will suffice to make clearer the results which all these factors in co-operation have gradually brought about. The successive judgements of the Council in disciplinary cases made it necessary that, for the information and guidance of the profession, it should formulate its view of certain courses of conduct in the so-called "warning notices." These, as we saw, were not laws enacted, but only law interpreted and declared. In regard to education, the Council had no authority to lay down a compulsory curriculum applicable to all. Strictly speaking it could only consider on its merits each curriculum proposed by any one of the bodies, and pronounce it "sufficient" or "insufficient." If "insufficient" the body must in theory try again and again, until the Council was ready to say "sufficient." The inconveniences of this method are apparent, and out of them arose a virtual appeal to the Council to say, in general terms and beforehand, what *would* be sufficient. In this way the Council was impelled to formulate a statement of what subjects should be included in a sufficient course of study, and how many years at least should be spent in pursuing it. Thus, without formal enactment, yet with general consent and assent, first the four years' and later the five years' curriculum came into being. It is not prescribed by a ukase; in form it professes to be nothing more than a "requirement" for sufficiency, or a "recommendation" to the licensing authorities, but for practical purposes it has the same effect as if it were an authoritative regulation. All the bodies observe it, yet not as of law but as of grace.

Again, there is absolutely nothing in the Medical Acts about the general or non-professional education of medical students; nothing about matriculation or preliminary examinations; nothing about a volume that nearly touches many of you—I mean the *Students' Register*. I hope I shall not undermine your respect for that important document by making this admission. The Royal Commissioners of 1882 thought that the preliminary education and registration of students should be made a matter of statute. They said:

"We agree in the opinion universally held by the witnesses that every intending medical student ought to pass an examination in general education before entering on medical study. . . . As the purpose of this examination is only to test the possession by the candidate of a reasonable amount of general culture, its subjects should not be of a technical or professional nature. . . . The general scope of the examination should be subject to the approval of the Medical Council, but the conduct of the examination should be left to the Universities or such other bodies as may be approved by the Medical Council. . . . We consider that the full period of medical study should be passed after the date of registration. The registration of medical students ought, we think, to be placed under the charge of the Divisional Boards [of the three kingdoms], and an officer of each Board should keep a list of the names. . . ."

But somehow the necessary provisions for giving statutory effect to these recommendations did not get embodied in the new Medical Act which followed the Commission. The recommendations practically described a system that had already grown up. As you have heard, the plan was universally approved by the witnesses examined, and they were many and representative of all shades of medical opinion. How had it grown up, and by what authority then—and now? We searched the Acts before for the potential germs of the Council's judicial

development, and we found them in three words—"inquiry," "judged," and "guilty." The germs of the quasi-legislation of the Council on students' registration and preliminary education and professional curriculum lie in the words "courses of study" and "ages." As to the sufficiency of these, the Council is to form, and if necessary to report to the Privy Council, its opinion. Let us suppose that the Council's opinion is that no course of study should be less than five years long, and that no one should be licensed till he is twenty-one years of age. That means, first, that the beginning of the course should somehow be marked in a definite way, and, secondly, that it should not be begun before the age of 16. To ensure that these conditions are fulfilled in the case of every student who after the age of 21 applies for the registration of his diploma, the Council must either ask each of the twenty-four bodies to keep its own register of students' names and ages, and keep it open to the Council's inspection day by day, or, what is vastly more convenient for everybody, it must institute a Central Register of its own. As students often pass from one university or school to another, the former plan would require the establishment of a students' clearing house for the ratification and exchange of local certificates of registration. The latter plan saved all this, and so it was adopted. Then arises the question, On what conditions shall a student be entered in the Central Register? What must he do before he is invested by the Council with the rights and privileges—if any—of a registered medical student? At a very early stage most if not all of the bodies had insisted that every one of their own students should first show, in some way satisfactory to themselves, that he had enough general education to justify his admission to a liberal profession, and to profit by the scientific and technical training that prepared him for it. The Central Register had no chance of acceptance by bodies like these unless it was based on the same principle. Thus the Council was impelled to require a sufficient certificate of preliminary education as a prerequisite. Again the question of "sufficiency" led to the defining of a minimum requirement, and to the enumeration of the authorities whose certificates as a matter of fact fulfilled the requirements. Without its seeking, the Council had thus to embark on inquiries concerning general as well as professional education, and indirectly to exert an influence on the former as well as on the latter. To this day the time of two great Committees, on Education and on Students' Registration, is largely taken up with this subject; and the Council's requirements in regard to "arts" have risen, are rising, and are bound to rise still higher.

Time fails me to tell you in detail by what curious stages, through what disputes and controversies, along what educational by-paths, the present arrangement has been reached. It is still transitional, there are still difficulties in the way, it is not yet perfect. But on the whole it is making for progress, for the uplifting of the educational status, and thereby of the social status of the profession. And its improvement is fortunately the concern not of the Council only, but of medical men themselves. It is entirely to their credit that so many of them should be eager for a more rapid advance than the Council finds to be practicable. It has to carry a large number of bodies with it; the pace of the march has to take account of the slower as well as of the faster of these; and, as you know, it has no real power to drive—it can only lead.

Let me make a last confession in closing. The Medical Council as an instrument of professional government is not ideally perfect. Perhaps no human organization, with the possible exception of the Victoria University of Manchester, is perfect. But it may be said for it that it did not start *de novo*, full-armed and potent like Minerva from the brow of Jove. Like every British institution it was built on old foundations of tradition and vested right and sacred privilege. It was not a creation but an adaptation. That it had within it, however, the seed of life, the germ of growth and expansion, my informal sketch of some phases in its half-century of history has I hope convinced you. Whether its future be one of continued evolution, or of sudden and complete revolution, it has not wholly failed in the task committed to it. The work it has succeeded in accomplishing has not been measured by the scanty powers it originally received.

Introductory Address

ON

MEDICAL WOMEN AND PUBLIC HEALTH QUESTIONS.

Delivered at the London (Royal Free Hospital) School of Medicine for Women (University of London) on October 1st, 1906.

By Professor BYERS, M.A., M.D., M.A.O. (Hon. Causâ.).

Allow me to return warmest thanks to the Dean and Council of this medical school for the honour they have done me in inviting me to give the introductory address of this session. I feel that this compliment has been paid me because they must have been aware that, owing to my early upbringing and my long and intimate association with those whose constant aim has been to help women to carry out their special mission and vocations, as well as from my own personal conviction, I have at all times been in favour, not only of the higher education of women, but of their being allowed perfect liberty in the selection of a profession.

Early Struggles of the School.

My memory carries me back to the time of the early struggles made by your predecessors to obtain facilities to study medicine, for a pupil of my revered mother—Mrs. Margaret Byers, LL.D., the Founder and Principal of Victoria College, Belfast—Miss A. R. Barker (the daughter of a highly-respected medical man who practised at Aldershot), was one of that courageous band of women who, in the Seventies of the last century, after a gallant fight on their part, were driven from Edinburgh. Miss Barker studied subsequently in France, where she graduated M.B. of the University of Paris in 1877, and the year after (1878) she obtained by examination the Licence of the King and Queen's College of Physicians (now the Royal College of Physicians) of Ireland, and in this way became entitled to be registered by the General Medical Council of Great Britain and Ireland, and to enter legally upon the practice of medicine. The action of the Irish College of Physicians in opening their examinations to women in 1877 was a great step in advance in the movement for the medical education of women, because those who after examination obtained the diplomas of this licensing body in that year were the first women to be registered since the then Miss Garrett (who afterwards as Mrs. Garrett-Anderson was for twenty years Dean of your School) took the licence of the Society of Apothecaries, London, in 1865. After she had done so, the Society of Apothecaries made a rule that no certificates of instruction would be received by them unless issued from a recognized medical school, and, as at that time all British medical schools refused to receive them as students, this rule prevented other women following Miss Garrett's example. The early women students of medicine in this way owed much to the enlightened action of the Irish College of Physicians, just as in later years the University of Dublin has given great help to women who have been art and science students at Oxford and Cambridge.

My first duty is, in the name of the Dean and Council, to welcome those of you who come here for the first time this session. You are entering a medical school which, though it may be in years one of the youngest of the metropolitan institutions, has made remarkable progress. When it was opened in this same month in 1874 there were 14 students, now there are 180. At its origin no general hospitals in London would give facilities for clinical instruction to the students attending the school, none of the examining Boards would accept the certificates of attendance at the school (although the teachers had been already recognized), and the buildings in which the school was housed were, to say the least, not very prepossessing. Now, in the Royal Free Hospital and in the New Hospital for Women, not only have the students the most ample opportunities for acquiring a practical knowledge of disease in all its forms, but they also enjoy the advantage of obtaining posts on the residential and visiting staffs, and all the licensing Boards which examine

women with the exception of the University of Edinburgh and the Colleges of Physicians and Surgeons of England, accept the certificates of attendance; and the school is provided with splendid buildings, good lecture rooms, and very fully-equipped laboratories: it is endowed with valuable scholarships, and is affiliated as one of the constituent schools of the Medical Faculty of the University of London.

VALUE OF A SCHOOL TRADITION.

Such remarkable progress and such splendid results were the outcome of unwearied efforts on the part of the founders, benefactors, and teachers of this school. By their unceasing labours a tradition has been created in connexion with what has been fairly styled the mother school of all British medical women, which meant that all who had a part in its remarkable growth and development had striven to do the very best they could. Nothing does more for a university, a college, or a medical school than the possession of such a tradition, and it was the duty of all the students, junior or senior, so to do their work and so to act as to maintain and, if possible, to intensify this tradition, so that when, after the completion of their studies, they began their life-work, the very fact that they had been at the London School of Medicine for Women indicated not alone that they had obtained a thorough knowledge of medical science, and had gained the power of using this knowledge effectively, but that they had also acquired the habit of study, which, when once established, belongs to students for the rest of their lives—and the love of learning for its own sake, in contradistinction to the mere amassing of technical and empirical details for some specialized use. The object of their training in that school was not merely the acquisition of facts, but, what constituted a much higher form of education, the correct use of these facts, and the development of the intellectual power of perceiving the due relation and proportion between them, a faculty or capacity which was a great gift, and which really constituted what was termed judgement.

THE POWER OF OBSERVATION.

Many of the subjects they would all study there were of importance—apart altogether from their technical or utilitarian value as bearing on the science of medicine—as a mental training, and as tending to cultivate what was of such paramount importance to all doctors—the power of observation. One of my most respected teachers, the late Dr. Gordon, Professor of Surgery, Queen's College, Belfast, who did so much to clarify and differentiate surgical injuries at the lower end of the radius and at the neck of the femur long before the days of radiography, a man as remarkable for his simplicity of character as for his originality of mind, said to me shortly after I had graduated in medicine, "What you have to do now is to observe," a piece of advice somewhat similar to that given in a more amusing way by the great Sydenham in the seventeenth century to one of his pupils, Sir Richard Blackmore, who asked him what books he should read for the study of medicine: "Read *Don Quixote*," said his master. What the immortal English physician—*medicus in omne aerum nobilis*—meant to convey by this philosophic jest was that the mere reading the opinions and views of others was of little value to a doctor compared with the discipline and training which he enjoyed when he himself recorded facts and made personal observations; or, to quote his own words, fortunately preserved for us in one of the MSS. of his distinguished pupil, the noted Irishman, Sir Hans Sloane, who founded the British Museum, and who, in 1727, succeeded Sir Isaac Newton as President of the Royal Society: "I have been very careful to write nothing but what was the product of faithful observation, and neither suffered myself to be deceived by idle speculations nor have deceived others by obtruding anything upon them but downright matter of fact"—sentiments which reflect the influence of Sydenham's intimate friend and counsellor, the great thinker, John Locke; or when leading his pupils into the wards of St. Bartholomew's Hospital: "In entering this place, even this vast hospital, where there is many a significant, many a wonderful thing, you shall take me along with you and I will be your guide. But it is by your own eyes, and your ears, and your own minds, and, I may add, by your own hearts, that you must observe, and learn, and profit. I can only point to the objects, and say little else than, 'See here, and see there!'"

During the five years of the medical curriculum (in Germany and France it is six) you have, indeed, many subjects to study, for unfortunately the tendency has been to add more and more to the number of these branches, without deleting any, with the result that, I fear, there is a great danger at present that insufficient time may be given to those specially important subjects—surgery, medicine, and midwifery (including diseases of women and children)—which are to be the real business of your lives. It is ridiculous to ask any student to devote less than three of the five years of the medical curriculum to hospital, pathological, and clinico-laboratory work, and I welcome the recent action of the Students' Practical Midwifery Committee of the General Medical Council, and trust, as a result of their report and recommendation, that midwifery will in the future be studied clinically in the same way as medicine and surgery.

Let me advise you all to do your work systematically and in the regular order arranged by your teachers, and let me urge you to do fully the work of each year in the corresponding year (unless prevented by illness), and to pass your examinations at the stated periods in your course. Speaking of examinations, let me congratulate the teachers of the school on the great success of the students at the recent Intermediate M.B. of the University of London, not only on the unusually large number of passes, but on the distinctions given, which were nine out of twenty-five. One student of this school, I believe, took distinctions in all three subjects, and two divided the Scholarship in Pharmacology; while at the Preliminary Science Examinations of the University of London all the students of this school passed—ten in Part I, and fourteen in Part II. From my position as an examiner in the Royal University of Ireland, I can speak in the highest terms of some of the candidates from your school who have from time to time come under my notice in that institution, and I may be allowed to mention especially Miss Fleury, who, at the Spring M.B. examinations, 1890, was first of First Class, and was awarded a £40 exhibition; and Miss H. Russell (now Mrs. H. Dill Smyth), who, at the same examinations in 1891, was the highest on the Honour List.

FUNCTIONS OF A MEDICAL SCHOOL.

In the hospital wards study the patients themselves (you will see the importance of this in your after work) as well as the diseases from which they suffer, and do not forget what one of America's greatest physicians has written:

> Our best have owned the rare dramatic power
> Which gives to sympathy its lifting hour;
> Go learn of them, the masters of our art,
> To trust that wise consultant called the heart.
> There are among us those who haply please
> To think our business is to treat disease,
> And, all unknowing, lack this lesson still:
> 'Tis not the body but the man is ill.

Avail yourselves of every opportunity of seeing those things (morbid anatomy and pathology) which you will not be able to observe so frequently once you are established in practice. But while advising you, as medical students, to study especially the practical side of your profession, let me warn you against making the serious mistake—in this utilitarian age—of sacrificing the "equable education of all the faculties," as culture has been defined, for the mere cramping purposes of a profession. A school like yours has many functions.

1. It is a place for the creation and dissemination of knowledge.

2. It is also a technical school where you can obtain that specialized knowledge of your profession which will enable you in after-years to make a living.

3. It is also a place where some of you can devote yourselves to the study of original research, a work which is regarded as of pre-eminent import in a German medical school, and which should in the United Kingdom establish a claim for Government assistance. Medical research is of value in many ways: it tends to advance the knowledge of the science of medicine, and is, in this way, often of priceless importance to the State; it enhances the prestige of a school in which such work is accomplished, and, individually, it establishes the reputation of those engaged in it, and often ensures their being appointed as teachers in medical schools or in universities.

I am in the fullest sympathy with all these admirable objects, but I am sure your teachers feel with me that to stop short with any one or even all of them would be to take a very narrow view of what your school really should do. Above and beyond all these duties, this school aims at making the best of all that is in each of the students, and at cultivating in them the judicial faculty and the power of analysis, and at developing character, so that, apart from the necessary technical or professional education, your school endeavours to maintain among its students the highest ideals of life and conduct, and to create in them, at a time when their brains are easily influenced, a sense of trusteeship which will arouse a high public sentiment that it is their duty to try to make the world a little better than they found it, and to work for the betterment of human beings who surround them. In other words, the training you receive here—by the reading of books, by the influence and example of your teachers, by your own observation, and by the interaction of one type of student upon the other—should make you, what is the highest aim of all education, good citizens, who feel they are inspired with a self-imposed trust for the benefit of others.

Great Opportunities for Women.

There never was a time in which greater opportunities were presenting themselves to women than at present; and as her Excellency Lady Aberdeen, wife of the Irish Viceroy and President of the International Council of Women, remarked in an address delivered last year in Belfast to the students of Victoria College, what was needed were properly-trained women of character to take advantage of these opportunities. As President of the International Council, she said she was in an excellent position for knowing how everywhere they heard the same cry for women with education, women with trained powers, women of character, to take up the work ready to their hands.

In addition to those students who are still attending this school, there are also here to-day those who have obtained their medical qualifications and who are soon to begin their professional work. There never was a more interesting time in which to start practice, and certainly there was no period in which medical women had greater opportunities than now. In every department of medicine there were still many unsolved riddles full of interest for those imbued with the true scientific spirit; while, owing to the great advances in preventive medicine, and especially in the direction of its relationship to the State, many pressing public health questions were awaiting solution, in which, I believe, to use the words of the last report of the Council of this school, "As time goes on the peculiar fitness of highly-trained medical women for public service will become more and more apparent."

Public Health Problems and Medical Women.

Let me point out a few of the many public health questions in which medical women may find ample scope for work.

1. *Medical Inspection and Supervision of School Children.*

Whatever differences of opinion there may be in regard to the new Education Bill, it represents—thanks largely to the efforts of the medical profession—an enormous advance in one direction, in that by it the principle has been established for the first time in England that it is the duty of the State to look after the health and to promote the development of children compelled to attend school. This has been accomplished by the House of Commons agreeing to three most important points:

(*a*) Compulsory medical inspection of children at entrance to the public elementary schools.

(*b*) Repetition of inspection "on such other occasion as the Board of Education may direct or the local education authority may think fit."

(*c*) The creation of a medical staff at the Central Education Department to advise the Board of Education.

There can be no doubt that in regard to the care of the health and physical condition of the school children, England has not taken, for so far, her proper position among the great nations of the world; but, owing to what experts have pointed out as having been done in other countries, and in face of the facts revealed in the recent Report of the Interdepartmental Committee on Physical Deterioration, the nation is at last waking up.

(*a*) The examination of the children on their entrance to the schools would reveal the question whether they were suffering from mental defect or from disease injurious to themselves alone, or it may be to others (from mild attacks of scarlatina, ringworm, diphtheria, whooping-cough, etc.); if of a non-contagious nature, whether it was likely to be increased by school attendance. In Germany, if a child of six (the time children go to school there) is in such health that the doctor thinks it will be injured by commencing school life, he puts off its entry for a year. At this time, also, anthropometric observations could be made as to the height, weight, and chest capacity of the children to test their development, and to observe if it was normal for their age, and to ascertain whether, in the case of an undersized child, the undeveloped condition was, from the associated history, probably due to faulty up-bringing, wrong feeding, bad housing, unhealthy environment, or malnutrition. In this way facts would soon be accumulated bearing on the question of the physical degeneration of the nation.

There is a growing belief that many children at present attending our town and country elementary schools are suffering from disease, but so far we have no accumulated scientific information on this point, but we argue that it must be true from the experience of other nations quite as healthy as England. It has been shown by Mr. T. G. Horsfall (President of Manchester and Salford Association for the Improvement of the Homes and Surroundings of the People) that in the Scandinavian countries not only was there a great deal of disease among the primary school children, but that schools equally as well managed and equally as well provided as those in this country might increase the amount of disease among the children. In 1890, in only three German towns (Leipzig, Dresden, and Nuremberg), were there school doctors, and at that time their duties were simply to examine the school buildings and the arrangements of the school from a sanitary point of view. It was the report read in Berlin in 1890 by Professor Axel Key of Stockholm on the results of his own examination of Swedish school children, and those of Professor Axel Hertel's examination of Danish school children, which led German towns to begin to appoint school doctors. Key showed that of children on entrance to the elementary schools in Stockholm as many as 30 per cent. were sickly, and of those who had been attending school for some years 60 per cent. were sickly. He also pointed out that Hertel had found in Denmark that 30 per cent. of the children on commencing school were sickly, and of those who had been at school some years as many as 50 per cent. As a result of Professor Key's report, an examination was made at Wiesbaden, which demonstrated that on a certain date 25 per cent. of the school children were sickly; at the present time there are school doctors in more than 130 German towns. It was in 1893 that medical inspection of school children was begun by Japan, and it is said there are now over 8,000 school doctors in that most progressive country. In Berlin, in 1904-5, 8½ per cent. of the children were put back when about to enter the primary schools. Similar results as to the unhealthy condition of school children have been brought out in St. Louis, Berlin, and in Vienna. Mr. Horsfall says in no German town had it been found that 50 per cent. of the children in the elementary schools were in good health; 10 per cent. were found to be seriously unwell. In Chemnitz, where public health matters were well looked after, only 7.9 per cent. of the children in elementary schools were described as healthy and well fed. In Stuttgart, 34 per cent. suffered from rickets, and 29 per cent. were underfed. A large proportion suffered from decayed teeth. Disease of the heart might also exist among school children, which could be only ascertained by medical examination.

(*b*) The repeated inspection of children during their school career would show whether school attendance was causing or increasing certain diseases, such as curvature of the spine, rickets, scrofula, headaches, anaemia, nervousness, shortsightedness, and whether the dullness and deafness of some might depend on the presence of adenoids. Dr. Hartmann of Berlin says that statistics show that, of every 100,000 German children, more than 25,000 have ear troubles, and that half of these were due to curable throat affections.

(c) The creation of a central medical department of the Board of Education was to correlate the reports of the local medical inspectors, and to keep them informed of what was being done in other countries.

It has been suggested that this medical inspection of schools might be done either by special officials or the medical officer of health or by general practitioners. Their duties would be not merely to inspect the school children, but to look after the school buildings as to their general sanitary condition (heating, lighting, ventilation, seating, etc., and, in the case of the erection of new institutions, the site and plan, etc.), and to superintend the syllabus as to the instruction of candidates for teachers' certificates in the principles of hygiene, preventive medicine, and temperance.

Every health reformer feels that a great deal more must be done in the elementary schools to teach children the simplest rules of how to live, the importance of fresh air and of pure water, and the relative nutritive value of the various kinds of food which are ordinarily used. The Manchester education authority took a distinct step in advance when in 1902 they appointed a lady to give a course of six lessons with demonstrations to the older girls in the schools on the care of the infant, in which such practical questions as the washing, dressing, feeding, and general management of young children, are discussed.

It is clear that, having settled the important question that school children are in the future to be medically examined, the central or local educational authorities will be obliged to take the further necessary step in the evolution of this great State problem, that is, they must arrange what is to be done for those found on examination to be sickly. Broadly speaking, these may be divided into two groups:

1st. The genuinely feeble-minded, if indeed not imbecile, children will have to be sent to suitable institutions.

2nd. Arrangements will have to be made for dealing with school children whose abnormal physical condition can be readily remedied, namely, those requiring proper spectacles (in America fully 50 per cent. of the backward children, it is said, suffer from defective eyesight), children with adenoids (each of these abnormalities—easily made right—often produce an apparent stupidity and backwardness), those with commencing spinal curvature, or with any other defect susceptible of easy correction. Quite recently the Americans, with that practical adaptiveness for which they are so noted, have decided to take this further step in the development of their school system of inspection, and a most important experiment is about to be tried in Philadelphia, where a couple of decades ago inspection of schools first began in America, by the Pennsylvania Society for the Prevention of Cruelty to Children, in co-operation with the Board of Education, the Board of Health, and the Court for Juvenile Delinquents. A daily clinic has been started in Philadelphia, where the elementary school children will be examined as to both their mental and bodily condition, and suitable treatment, including operations when required, will be recommended. It is believed that probably as many as 10,000 children will be dealt with under this scheme during the coming year.

Surely in such important State work there are ample openings for medical women, and their special capacity for undertaking such work has been already recognized by the London County Council giving 6 of the 20 appointments as assistant medical officers—whose duties are to inspect the elementary school buildings and to report on the health of the children—to former students of this school.

2. *Infant Mortality.*

Another very pressing public health problem in the solution of which medical women will be of enormous help is infantile mortality, by which is meant the deaths of children under 1 year.

That infantile mortality is one of the greatest national health problems we have to face is clear from the fact that in England and Wales about 120,000 deaths of infants (or 145 per 1,000 births) occur in the first twelve months of life, of whom one-half are within the first three months, and of these a half die within the first six weeks after they are born. One-tenth of all the children born in Ireland die before they attain the age of 1 year. Indeed, it may be said that more children die in the first week after birth than in the second, and so on in an inverse proportion, progressively. This terrible wastage of infantile life is all the more serious from the fact that contemporaneously with such a stationary mortality amongst children we had in Great Britain a gradually falling birth-rate. In England and Wales the birth-rate was one-fourth less now than twenty-five years ago. In 1901 the birth-rate for England and Wales was 28.5 per 1,000 living, then the lowest rate since the civil register was established, and 1.4 per 1,000 below the mean-rate in the ten preceding years. In 1905 it had fallen still further to 27.6. In 1904 London had the lowest recorded birth-rate, 27.9 per 1,000, since the introduction of civic registration, although the marriage-rate has not varied much in that city since 1881, being 17.6 per 1,000 thirty-three years ago and 17.0 in 1904. In the decade 1851-60 the average birth-rate in London was 33.6. In 1905 the rate had fallen to 27.1 per 1,000. In Scotland there was also a continuously marked decline, most conspicuous in Edinburgh, which had in 1905 the lowest birth-rate of the cities of Scotland (22.9), Perth coming next lowest (24.0), while Greenock and Glasgow head the list (30.5 and 30.7). This birth-rate in Glasgow is less than the previous year, 31.4, and is lower than any previously recorded. There is only one large English town reported with a lower birth-rate in 1905 than Edinburgh—namely, Bradford—with 21.0. A falling birth-rate is a most alarming national question, but its significance is greatly intensified by the fact that among the children born there is still such a high stationary mortality.

The Prevention of Infant Mortality.

In the solution of the problem of infant mortality we have learned much from France, where it is only natural that, from the persistently low birth-rate, the most completely organized methods—far ahead of anything yet attempted in the United Kingdom—have been adopted to prevent the ravages of infantile mortality; indeed, the recent National Conference on Infantile Mortality was brought about by the fact that British visitors at the "Congrès International des Gouttes de Lait," held in Paris in this month last year, were so impressed with the vigorous way in which France was attacking the problem, that they decided, after consultation with representative people, to summon a conference in England on the question.

What is known as the Huddersfield scheme—and already it has shown splendid results—arose from what the Mayor, Mr. Benjamin Broadbent, saw on a visit to Villiers le Duc, a village in France, in the Côte d'Or, near Dijon.

The causes of infantile mortality may be grouped under two heads:

1. Those antenatal causes that act before the child is born which tend to diminish its vitality, so that it is born premature or feeble; or which so deteriorate the mother's health that she is unable to nurse her offspring. Apart from morbid conditions and intemperance, these causes are mainly the result of poverty.

2. Conditions that come into action after child-birth, of which the principal is the substitution of defective feeding—the result of careless and ignorant motherhood—for the breast.

In the solution of the problem of infantile mortality we must, first, devise means to help the expectant mother, so that she may have a healthy child and be able to nurse it. In Villiers le Duc every woman having her home in the village, and who is "not in possession of sufficient means to allow her to take upon herself the expense of the measures necessary to secure, as far as possible, not only her own life but also that of the child about to be born, shall have the right to acquire the help of the village authority," which is provided for her, both midwife and doctor being paid; and the woman gets a franc per day during six days, not counting the day of confinement, if she remains in bed. During the last decennial period (1882-1905) there has been no infantile mortality, and not a death followed any confinement in Villiers le Duc. MM. Schneider at their great gun and armour-plate works at Creuzot, in Saone et Loire, not only raised the salaries of expectant mothers among their employées, but have arranged that they are properly advised and medically attended, and they are not allowed to work after the middle of pregnancy or to return until they are

quite fit, as certified medically. As a result there are in their municipality a diminution in premature births, much fewer infantile deaths, and an increase of breast-feeding of, it is said, 80 per cent.

Secondly, we must encourage in every possible way the mothers to nurse their children, and try to convince them not only that this is the cheapest, but the best and safest way of bringing them up. When we see how in this country even strong, healthy mothers in all classes are neglecting the duty that Nature has imposed upon them, have we doctors, who know so well the immense superiority of breast-feeding over bottle-feeding, not been remiss in our duty to the nation? How is it that our thrifty French neighbours, old and valued friends, are going back to Nature's method? Is it not remarkable that our new allies, the Japanese, with their passion for imitating the best they see in any country, have wisely drawn the line at this method of rearing children? for 99 per cent. of the Japanese infants are still nourished by their mothers.

Is it not noteworthy that in France it has been found that in districts where the infants are brought up by hand there are twice as many young men who are physically unfit at 20 for army service, as in districts where natural feeding is the rule; and that German observers have pointed out that when a mother loses completely the power of suckling her children her daughters also lack the power and that women, one of whose parents has been a drunkard, are often unable to nurse their offspring? Does it not show how splendidly the French are trying to solve the problem of infantile mortality when we find that in Paris there are restaurants where a mother can get food free, provided she is poor and is nursing her infant? It is interesting in this connexion to note that in France "the Roussel law" prohibits the administration of solid food to a child under 12 months without the express direction of a medical man.

For those who are unable to nurse their infants the health authorities must provide a supply of milk, the purity of which, in its production in the dairies, in its handling, and in its subsequent distribution, should be guaranteed by the supervision of a central Government authority, and the mothers must be taught the correct principles of hand-feeding.

These infant milk dépôts, which have been opened by several municipalities (Liverpool, Battersea, Bradford, Dundee, Glasgow, etc.), have really sprung from two French organizations—the *Consultation de Nourrissons* ("Consultation for Infants") and the *Goutte de Lait* ("drop of milk"), the term obviously having reference to the preparation of small quantities suitable for a single meal.

The first fully-developed *Consultation de Nourrissons* was established by Professor Budin in 1892, when he was head of the maternity at the Charité Hospital, Paris, the idea being: (1) To receive infants each week up to the age of 2 years in order to examine and weigh them and to advise the mothers; (2) to encourage the mothers by every means to nurse their children; and (3) to give good milk in exactly-calculated quantities when the mothers have insufficient or no nourishment. In Paris there are seven *Consultations de Nourrissons* supported by the Assistance Publique, in addition to those at the maternity hospitals; and now they exist in a large number of the French communes, and at the last meeting of the French Académie de Médecine, held this June, Professor Budin made an interesting communication showing the most brilliant results obtained by the spreading of these *Consultations* all over France. As a consequence, far more mothers than formerly nurse their children in France, and there has been a remarkable corresponding fall in infantile mortality. Infantile diarrhoea, which formerly carried off so many children, especially in hot seasons, has practically disappeared, and stronger, healthier children, with greater resisting power to disease, are growing up. The *Goutte de Lait*—which is an offshoot of the *Consultations de Nourrissons*—is practically a milk dispensary from which infants are fed on milk under medical supervision. It is mainly intended to nourish those infants for whom breast-feeding is impossible. Just as in the *Consultations de Nourrissons*, the babies are weighed and examined at regular intervals and their progress noted by the medical superintendent of the organization. The main distinction between the maternity hospital and other *Consultations de Nourrissons*, and *Gouttes de Laits* is found in the circumstance that the children in the former are under supervision from the time of their birth, while in the *Gouttes de Laits* the children may have fallen into ill-health before the mothers bring them there. In the maternity hospital organizations the mother is sometimes induced to bring her infant in the hope of a gift, either of money or clothing, for her child.

If milk dépôts are established in any place, I hold it must be made clear that they are not shops where milk is simply retailed to any mother applying. No mother should be supplied with milk from them unless she presents a medical certificate that she cannot nourish her child, and these milk dépôts should be rather educational centres—"Schools for Mothers," where they must bring their infants at regular intervals to have them weighed and to see how they are progressing, and where they can receive hints as to the feeding of their children. Acting upon the recommendation of their Public Health Committee, the London County Council has quite recently determined to seek in the next session of Parliament powers to enable the Metropolitan Borough Councils to provide and sell milk for the food of infants.

The expectant mothers must be personally seen and advised, and in the case of those not visited, there must be an early registration of births, not as is now the custom in England and Ireland, where legally a child's birth need not be officially registered for six weeks, a period during which one-fourth of the deaths of infants in the first year of their life occurs. In Huddersfield, those whose duties are to give the mothers advice as to the nursing and rearing of their offspring, who encourage them in every way to follow Nature's method of bringing up their own children, and who inquire into infantile deaths in their districts, are fully-qualified medical women, of whom there are now two—Dr. Prudence E. Gaffikin and Dr. Catherine L. Boyd—both old pupils of my own. They visit the mothers and their babies as soon as the births are notified, a payment of 1s. being made to the person first notifying to the medical officer of health the birth of any child within forty-eight hours of such birth (in their new Bill the Corporation of Huddersfield have had it enacted that it is the father or midwife who must notify). The voluntary lady helpers (of whom there are seventy), members of the Huddersfield and District Public Health Union, keep the cases under observation for a year, leave with the mothers leaflets embodying recommendations for the rearing of the infants, and where it appears necessary invoke the aid of the medical women health visitors, who in special cases may order "dry" milk.

In the present campaign, to get rid of the terrible and, to a large degree, preventable sacrifice of infant lives, we need the help of many organizations (municipal, nursing, hospital, and philanthropic), and I am confident medical women will take in the future a large share of the work, and it is significant that at the recent National Conference on Infantile Mortality the following resolution was passed:

> That in the opinion of this Conference the appointment of qualified women specially trained in the hygiene of infancy is necessary as an adjunct to public health work.

Such are a few of the pressing public health questions of the present time in the solution of which I feel certain medical women are peculiarly well fitted to take a prominent part. How better can the facts we have mentioned be brought home to the people than by women, and especially by women who have received a scientific medical education?

The Profession of Medicine.

Let me warn you all that you are entering a profession in which success depends upon the most constant and exacting attention on the part of its members, whether you devote yourselves to private practice, or, with more ambition, aim at becoming teachers connected with either this or other schools, or engage in public health work. The profession of medicine has many drawbacks, yet who that is really interested in it would change it for any other? Is there any profession more useful and more unselfish than ours, and is there any other body of men and women of whom it can be said to a greater extent that they are both the friends and advisers of their

patients? Whatever may be our lot in the future, let us all recollect

> Our ancient lesson will be ever new:
> That priceless lesson will be ever true;
> Time did not teach it, time will change it not.
> This, this shall last though all our lore's forgot.
> To give what none can measure, none can weigh,
> Simply to go where duty points the way;
> To face unquestioning the fever's breath,
> The hundred shadows of the vale of death:
> To bear Christ's message through the battle's rage,
> The yellow plague, the leper's island cage,
> And with our noblest "well to understand
> The poor man's call as only God's command."
> Ay, under every century's changing sky
> Shall the Greek Master's triple signal fly—
> Faith, honour, duty—duty calmly done,
> That shouts no self-praise o'er a victory won:
> One bugle note our only battle call,
> One single watchword, Duty! that is all!

There is no monotony in our work; and, while trying to prevent disease, as well as to prolong life and to relieve suffering, we have frequent opportunities afforded us of training and developing our intellectual faculties, the result of which is apparent, above and beyond mere professional knowledge, in general culture, an inestimable possession, which is found in that community of men and women of all nations and of all classes who, as Sidney Whitman writes, are "united by sympathy of thought and ideas in a harmonious all-round conception of life, its dignity, its loftiest aims." We can also constantly observe, in its protean aspects, the most interesting of all studies—human nature.

Let us practise our calling as much as possible free from every trace of narrowness, bigotry, or superstition: let us be tolerant of the opinions of all races and sects, ever keeping before us the glorious example of Him who went about doing good, in the hope that to each of us it may come

> As on thy task-field closed the day
> In golden-skied decline,
> His angel met thee on the way,
> And lent his arm to thine.

Introductory Address

ON

KING'S COLLEGE HOSPITAL: A RETROSPECT.

Delivered at the Opening of the Medical Session, October 2nd, 1906.

By T. PRIDGIN TEALE, M.A.Oxon., F.R.S.,

consulting surgeon to the general infirmary at leeds.

Fifty-four years ago I sat in this hall of King's College listening to the opening address of my first medical session; a time preceding the Crimean war and the Indian mutiny, when ideas as to the improvement of hospital construction and sanitation, if they existed at all, were in their infancy.

It is just over twenty-two years since I became, along with my friend and colleague, Mr. Wheelhouse, Consulting Surgeon to the Leeds General Infirmary, and had the privilege, whilst ceasing to be full surgeon, or to take any serious responsibility in clinical teaching, of being able to use six beds for patients ordered in by myself.

I need hardly say that this right I used fully with advantage to myself in keeping in touch with advancing surgery, and I venture to hope with no countervailing detriment to the work of the hospital or medical school.

Now, however, I have gradually withdrawn from the active practice of my profession and have become a looker-on. As such, may I not claim the privilege of making the subject of this address a looking backwards, rather than a critical review of the present, or a forecast of the future?

Indeed, I feel justified in so doing, inasmuch as I am one of a very small number now living who have seen through and taken part in the greatest revolution in surgical and medical practice and in medical education that probably the world has ever known, and one of a still smaller band of men whose student life began in the original King's College Hospital, who, having witnessed the replacement of the old by a new one, your present hospital, are still living to wish God-speed to the magnificent new building of which the plans have been worked out by your architect, Mr. Pite.

The very name, King's College Hospital, is an epitome of its history. When the medical school of King's College was first established it had no hospital of its own, its students being dependent upon the hospitality of an alien hospital, not conveniently situated for students working at the College in the Strand.

Feeling the need of a hospital of their own, at a more convenient distance from the school, and under the control of the staff, the authorities purchased the old Clement Danes Workhouse, flanked by a disused burial ground as an "open space."

Such was the hospital to which I came as a student in 1852, graced by the perfect surgical manipulation of Fergusson, by the consummate clinical teaching of Todd, and the exquisite and delicate surgery and fine diagnostic instinct of Bowman. As my contemporaries, most of them my seniors, I recall Hulke, George Lawson, Christopher Heath, Samuel Dougan Bird, Conway Evans, William Preston Goodall, now passed away; and Buzzard, Edward Liveing, and Duffin still amongst us. Partridge, anatomist and artist, was Fergusson's colleague as a surgeon: Budd was Todd's colleague as physician; Henry Lee was assistant surgeon along with Bowman; George Johnson and Guy were Assistant Physicians, and John Wood in the dissecting room at the College was the prince of anatomical demonstrators.

As a transition, I doubt not the makeshift hospital worked well; certainly there was great clinical enthusiasm amongst us, and the most was made of opportunities by the students of that day. Yet this did not blind the authorities to the inadequacy of the building and of the accommodation for patients, an inadequacy which you will appreciate with a sort of horror when I tell you that the theatre served the double purpose of providing for operations and for *post mortem* examinations, the dead-house being placed beneath a trapdoor in the floor of the operating theatre.

It was during my studentship that your present hospital was commenced, and the first portion was completed and brought into use in my final year, the initial year of the Crimean war.

Fine as your building is, and planned as it was in accordance with the views of hospital construction then prevalent, it had the disadvantage of being designed on the plans of the block buildings, when economy of space was deemed imperative, and when windows on one side of a ward were all that were called for.

It was just a few years too early. Nursing, as a calling which needed careful training, was just coming into being, and I remember that in the new wards recently opened ladies came for a short training in nursing before going out to join Miss Nightingale in the hospitals of the Crimean war.

I have just had the privilege of looking over the hospital, guided by Mr. Peyton Beale, whose father, the last survivor of my teachers at King's, has but recently passed away. I was struck with the very great difficulties with which the committee have had to contend in order to meet even approximately the increasing and exacting demands of modern practice, teaching, and nursing, and the remarkable way in which in such a contracted area these demands have been met.

If your present hospital has lost, by having to be built too soon to benefit by modern ideas of construction, the new one will now benefit by the experience gained during the active period of hospital construction of recent years, and so may become the most perfect building of the kind in the kingdom.

The motive, that is the moving force, which has brought about the decision of your council to take the bold step, and to face the pecuniary responsibility and effort of building an entirely new hospital on a distant site south of the Thames was the change that has come over this neighbourhood and the shifting of population, so that the present building has become, so to speak, stranded, and out of the way of the poor who need such an institution in their midst. But it seems to me that, had this not been the case, and had the demands of the neighbourhood

continued at the high level of former days, the question of a new hospital on a larger site must have become still more urgent, so great are the demands of the modern developments of medicine and surgery, and the requirements of teaching in the prolonged medical course.

By the courtesy of Mr. Pite, I have looked over the plans for your new building, and I cannot but admire the courage of your Committee in aiming at an equipment so complete, and the skill with which, provisionally at any rate, the varying and exacting demands of every department have been met.

Your old workhouse hospital served its purpose in its day, was the scene of the advanced surgery of its time, and was the sphere of work of one of England's greatest clinical teachers, Todd, and one of our greatest surgeons, Fergusson. Its cost was probably under £100,000, and it had probably 100 beds. Your new hospital will be planned in the first instance for 408 beds, with a possible increase to 600, and the preliminary estimate of cost is £366,712.

What a contrast! And what a lesson can be learned from its consideration! Let me endeavour to read the lesson by the light of the hospital I am myself familiar with, and of which I possess the annual reports of the last forty-five years. I select the Leeds Infirmary because I can speak of what I know, and I take it to be a type illustrating changes and advances which are common, more or less, to hospitals, not only in England, but all over the world, so free is the intercommunication between nations and so cordial the intercourse between medical men who are using their best faculties for furthering the science of their profession.

There are three aspects under which this lesson can be studied:

A. The history of the Leeds Infirmary during the last forty-five years.

B. A comparison of the operations recorded in the annual reports of the Infirmary, taking for this purpose five periods of five years each.

C. A consideration of the factors which have contributed to this development and these results.

A. The Evolution of the Leeds Infirmary.

In March, 1864, I was elected surgeon in succession to my father, and within a few days the foundation stone of the new Infirmary was laid by Mr. Kitson, Mayor of Leeds; five years later we commenced work in the new building. After much discussion, some of it animated and heated, the decision had been made not to patch up and enlarge the old building on an inadequate site of three acres of inconvenient shape, but to build a new hospital on a fresh site of five acres, and planned on the best-known principles of the day. The leading principle which was then coming to the front was the pavilion system, which secured light and air on each side and at the end of every ward. The first hospital built on this plan, I believe, was the Lariboisière Hospital in Paris. The next I believe, and certainly the first in England, was in course of construction from the designs of Captain Douglas Galton, one of the pioneers of sanitary science in this country. The Committee selected Gilbert Scott as architect, and he, with the late Dr. Chadwick, Senior Physician to the Infirmary, visited hospitals in England and on the Continent in order to collect data on which our new building should be planned. Sir Douglas Galton placed his plans of the Herbert Hospital at Woolwich and his trained knowledge most generously at the service of the architect and Committee. The result was a building which in general arrangement of parts, had it to be planned anew on the present site, could hardly be surpassed now. Faults there were in detail, and as new needs arose these have been corrected. Drains were laid in all directions under buildings, and sanitary conveniences, except as regards the wards, were placed where they ought not to be. Indeed, sanitary science of house drains was not violated—it was simply non-existent. Eight years after the opening of the new building I read in the report of the Infirmary for 1877 the following sentence:

> During the year the Board have given great attention to the sanitary arrangements of the hospital. The system of drainage has been altered so that the waste pipes from the lavatories, sinks, and baths have been disconnected from the soil drains and carried outside the building. The soil pipes have been ventilated and a great number of other alterations have been made, all contributing to better light and ventilation and to the prevention of the possibility of any escape of sewer gas into the wards.

This period of the late Seventies was the time when the medical profession was waking up to the fact that a great proportion of the illness with which it had to deal was the direct result of faulty sanitary arrangements in the dwellings of their patients. Further reconstructions of drainage have taken place from time to time, and now I feel sure that the sanitary condition of the hospital is not far short of, even if it does not reach, the best standard of the present time.

Let me illustrate the evolution of the Leeds Infirmary by the consideration of three departments—out-patient, nursing, and operation theatre.

1. *The Out-patient Department.*

In the old Infirmary out-patients had to wait in the entrance hall at the bottom of the main staircase leading up to the wards. Cold and comfortless for those waiting, such an arrangement could not but impair the air of staircases, corridors, and wards. The patients were "seen" in a room of moderate size, the three physicians on one day and the three surgeons on another day sitting together in a crowded room, with one very small retiring room. In the new hospital this imperfect arrangement was replaced by a large well-lighted waiting room, with three rooms for the surgeon and three rooms for the physician, and a separate entrance and exit for the out-patients, who were thus cut off from the hospital proper. For many years this served its purpose admirably. But in medicine and surgery science and the requirements of practice advance, staff and patients increase in number, and these provisions of 1869 became inadequate. In 1892 an extension of the Infirmary was made at a cost of £48,000. This included as a main feature one of the most complete out-patient departments then in existence.

This department consists of a large central hall surrounded by separate suites of rooms for medical, surgical, gynaecological, and ophthalmic patients. Each compartment as well as the dispensary opens direct into this hall, and an out-patient operating theatre is provided for the surgeons, and a second for the ophthalmic surgeons with rooms for the recovery of patients after anaesthetics. Thus the arrangements for the treatment of out-patients were raised in the course of less than twenty-five years from being amongst the worst in the kingdom to a position second to none.

2. *Nursing.*

The old system of nursing was in full play during the early years of my surgeoncy, and came to an end with the removal to the new building in 1869. It is appalling to look back on the night nursing. Two elderly women had charge, one of each floor, with its six wards large and small, and their chief function probably was to summon the resident medical officer in case of a death—not to keep alive a poor creature hovering between life and death.

One of the day nurses coming on duty at four or five in the morning would rouse the male patients by "Now my lads arise and shine." Training of course was unheard of, and the nurses were under the charge of and were engaged by the resident medical officer, a young recently qualified man, and the housekeeper matron.

In 1869 came the "superintendent of nurses." The Board would not have a "lady superintendent" or a "sister" at any price, and the domestic arrangements were placed in charge of a housekeeper. This was the beginning of better things, but it was three years before we had a "lady superintendent" thoroughly trained and experienced in nursing.

3. *The Operating Theatre.*

Need I say much as to the "Operating Theatre," the development of which, as elsewhere, was gradual? In the old Infirmary—one theatre—and no room annexed for any purpose. In the new building of 1869 only one theatre with a small lobby for the staff was provided.

There was no anaesthetic room. Anaesthetics were administered in the theatre itself, not only entailing loss of time, but exposing the patient to the pain of facing an audience gathered to witness the operation he was about to undergo. There was no recovery room nor room for

the staff. For illumination at night ordinary gas-burners: no electric current either for illumination or other purposes. Cases occurring at night, smashes of limbs, strangulated hernia and such like, were operated on in the wards by the aid of large tallow candles. From this initial stage improvements and additions went on until in 1897 the old theatres were replaced by our new ones, embodying all the best known arrangements and appliances, and built at a cost of over £6,000.

B. WORK DONE AND RESULTS.

So far I have spoken of structure and management. Let me now deal with the second aspect under which our lesson can be viewed, the "work done and results," taking the facts from the annual record of the operations by the surgeons, and excluding for the sake of simplicity those done in the gynaecological and ophthalmic departments.

For this purpose I have taken five periods of five years each—five half-decades—commencing with 1861 and ending with last year.

Nothing, I think, could afford a more perfect picture of the progress of surgery or justify more completely the outlay on the improvements of hospital structure and management than these remarkable records, from which, at the risk of being tedious and of departing from the custom of introductory addresses, I will venture to bring before you certain telling facts. And here I must apologize to an audience largely composed of lay persons interested in the welfare of the King's College Medical School for dealing for a time with matters essentially professional.

As I stated before, I have taken and compared five half-decades, 1861 to 1865, 1871 to 1875, 1381 to 1885, 1891 to 1895, and 1901 to 1905.

These statistics I propose to deal with from four points of view:

1. The increase in the actual number of operations recorded.

2. The increase in the nomenclature of operations—that is, the introduction of operations new to surgery.

3. The gradual oncoming and progressive increase in the number of cases operated upon under certain selected headings.

4. The progressive diminution of death-rate in nearly all the great classes of operation.

1. *Increase in the Number of Operations.*

I will, in the first instance, compare the first year and the last year of the series, not the half-decades.

In 1861, 211 operations are recorded with 16 deaths (1 in 13); in 1905, 2,544 operations with 142 deaths (1 in 18). And this number does not include the operations in the gynaecological or ophthalmic or casualty departments: the deaths of 1905 include 83 deaths out of 829 cases of accidents (1 in 10), and 57 deaths out of 1,715 (1 in 30).

2. *Increase in Nomenclature of Operations.*

In 1905 there are 90 names of operations which do not appear in 1861, and 1,153 operations, nearly half, were performed which were not thought of, many of which could not have been undertaken at that earlier period.

3. *The Introduction and Gradual Increase of certain Classes of Operation.*

The term "abdominal section" appears for the first time in the second half-decade, 1871 to 1875. Under this heading neither rupture nor hysterectomy, nor operations on the kidney or appendix are included. The numbers are—none in the first period, 2 in the second, 67 in the third, 279 in the fourth, 1,258 in the last.

Let us take another class, "Operations on lymphatic glands." These appear first in the third period, 1881 to 1885, as 28, in the fourth period as 462, in the fifth as 429. "Operations for appendicitis" appear first in the fourth period, 1891 to 1895, as 25 in number, in the fifth period as 540.

"Operations for the radical cure of rupture," when not strangulated, and therefore not in an acute condition. These first appear in the second period, 1871 to 1875, as 3 in number, in the third period they are 13, in the fourth 225, and in the fifth 790.

So much for the increase in numbers.

4. The fourth point which I bring before you, and the most telling, is the *progressive diminution of fatality.*

Let us take first "ovariotomy" and its kindred operations. In the first two periods, out of 86 cases 1 in 3 proved fatal; in the last period, out of 195 cases 1 in 21 proved fatal.

To return to "abdominal section," which includes operations in dangerous conditions, such as obstructed bowel and perforations of stomach and intestine, we find that in the third period, 1881 to 1885, out of 67 cases more than half were fatal; in the fourth period, out of 267 cases 1 in 3½ was fatal; in the fifth period, out of 1,258 cases 1 in 4 was fatal.

"Operations on the kidney": Of 38 cases in the fourth period, 1 in 4½ was fatal; of 132 cases in the last period 1 in 12 was fatal.

"Radical cure of hernia": Of 225 cases in the fourth period fatality was 1 in 11: in the fifth period, out of 790 cases the fatality was 1 in 197.

"Strangulated hernia": In the first two periods the fatality was nearly 1 in 2; in the third, 1 in 3; in the last two, 1 in 5.

The last illustration shall be taken from "amputations." If amputations for accidents and for disease are grouped together the results work out as 1 death in 3½ in the 1860, 1 in 5¾ in the 1870, 1 in 6½ in the 1880 and 1890, and 1 in 10 in the 1900 periods. If amputation for disease alone is taken a somewhat similar progressive diminution occurs.

There is one remarkable fact in reference to amputations which demands notice. Whereas in every other instance of operations of which for the purpose of this address I have taken out the figures there is a progressive and often very remarkable increase in the number performed, there is in the number of amputations a progressive and very marked diminution. The figures for the last four half-decades are, in the case of accidents, 166, 113, 91, 84: in the case of accident and disease combined the numbers are 316, 291, 261, 208.

What can be the explanation? Two things probably concur in producing this result. One that severe accidents calling for amputation are probably more rare owing to the falling off in new railway construction in the neighbourhood and also to the more stringent laws in reference to protection of machinery and the Employers' Liability Acts. The second, and probably the leading factor may be that, by the aid of improved conditions pervading hospitals and improved methods, many limbs can now be preserved which in former days would have been condemned to amputation as the only safe course.

Have we not here a striking picture of the progress of surgery and of its results? It now remains to complete the lesson by a consideration of—

C. THE FACTORS WHICH HAVE RENDERED POSSIBLE SUCH RESULTS, AND THIS ENORMOUS INCREASE IN THE NUMBER OF OPERATIONS JUSTIFIABLE.

First of all came the recognition that the source of nearly every blood poisoning disease, such as erysipelas, pyaemia, and the like, the curses of surgery, was something introduced from outside, a germ which could be introduced into the body and multiply and produce destructive changes tending to impede repair or to destroy life. The new doctrine, thanks to the labours of Pasteur and Lister, rapidly spread, in spite of non-acceptance and even opposition on the part of some surgeons. The word went forth to fight the germs, which were assumed to be all pervading—in the atmosphere as well as in wounds. Hence followed—and a valuable step in progress it proved—the "antiseptic" period, when the carbolic spray was used to form a protective atmosphere about the patient, and chemicals were used to preserve the dressings and wounds from septic influence.

Then came the science of Bacteriology which has unmasked for us the natural history and source of the baneful germs, and in the case of many of them has taught us where they are to be found, and how they are to be excluded; in fact, it has laid the foundation of "aseptic" surgery, which aims at the exclusion of germs rather than at their destruction after they may have gained a foothold.

This, then, is the meaning of the elaboration of design in a modern hospital.

Sanitary science has taught us how to keep the air of our wards pure and to secure the most perfect cleanliness. Hence the polished floors and walls, the corners rounded, the abolition of cornice ledges and of every place where dust, possibly germ-laden, may lodge. This is the meaning of the careful arrangements of the operating theatre, clean washing coats for surgeons and staff, cleanliness of person of patients and attendants, sterilization of water, dressings, swabs, and instruments.

These are the means which, aided by the accumulating knowledge and skill of surgery, have led to the astonishing results I have already laid before you.

May we not now take stock of our position?

Let us consider where we, as medical men, stand compared with those early days I have spoken of.

In 1852, fifty-four years ago, sanitary science was a sealed book to nearly every medical man in the kingdom, and to nearly every architect and builder, and the sanitary engineer had not arrived. At that time chloroform was the only anaesthetic, and was used sparingly and timidly, and, under the influence of Dr. Snow, Anaesthetist to King's College, was winning its way into favour. Now anaesthetics are used freely, and, thanks to the introduction of ether, can be used for examinations and operations which, without anaesthetics, would have been out of the question, or hardly justifiable.

In 1854 came the ophthalmoscope, introduced into the Royal Ophthalmic Hospital, Moorfields, from Germany by the late Dr. Bader. This opened out a world of discovery in ophthalmic science, and, thanks to the work of Professor Clifford Allbutt, it has proved a valuable addition to the clinical resources of the physician. As surgery gave the ophthalmoscope to the physician, so in turn the physician gave the clinical thermometer to the surgeon. And here the profession is again under obligation to Clifford Allbutt, who, perceiving the possibilities of clinical thermometry, saw at the same time that the long thermometers in a wooden case carried under the arm would never come into general use, and at one stroke rendered everyday use of it practicable by reducing the size to a "pocket edition," and inventing, or procuring the invention of, the recording index.

Next came the laryngoscope—at first a sort of toy and looked upon as a fad, but now claiming a special physician and a full share in the suite of six rooms assigned to the "ear and throat section."

And what shall we say about electricity in all its bearings? At one time the profession looked askance at its votaries, with suspicion as to their scientific aims, and with some doubts as to their perfect honesty. The truth that underlay the imperfect early attempts to utilize its power has gradually commanded the attention of the profession and enlisted earnest scientific workers in its service; and now we find in the instructions to the designer of your new hospital a requirement for a suite of not less than nine rooms to be devoted to radiography, treatment by x rays and Finsen light, electrical treatment, massage, and gymnastic treatment.

Truly, these are powers but recently incorporated in the resources of the profession, and new means by which, if used well, wisely, and intelligently, mitigation can be won for the ills of suffering humanity.

My theme has held me so long that time is not left for the consideration of the bearing of all these changes and expansions on medical education. I might have pointed out how much has been done to mitigate the increased demands of expanding knowledge by improved methods of teaching and by the development of opportunities of practical work, entailing increased cost in time and money on the part of medical schools and students. I might have deplored the increased number and increased stringency of examinations, so crippling to the best kind of study, and the helplessness hitherto of the authorities in facing and rectifying an excess which is an almost universally acknowledged evil.

May I be permitted to conclude this retrospect with the words of one of our greatest men, Sir James Paget, who, in his address to the International Medical Congress in London in 1881, said:

"We that can read in memory the history of half a century might look back with shame and deep regret at the imperfections of our early knowledge if we might not be sure that we held, and sometimes helped onward, the best things that were in their time possible, and that they were necessary steps to the better present, even as the present is to a still better future.

"Yes, to a far better future; for there is no course of Nature more certain than is the upward progress of science. We may seem to move in circles, but they are the circles of a constantly ascending spiral: we may seem to sway from side to side, but it is only as on a steep ascent, which must be climbed by zigzag."

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF DERMATOLOGY.

NORMAN WALKER, M.D., F.R.C.P.Edin., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE PLACE OF DERMATOLOGY IN THE MEDICAL CURRICULUM.

IN the first place I have to express my appreciation of the very great honour the profession in Canada has bestowed on me in asking me to preside over these meetings.

There are not many who are so intimately associated as I have been with the ins and outs of the arrangements of the Annual Meeting, and I can assure the dermatologists of Canada that while I admit that they could have got one more worthy they could not have got one more appreciative of the honour. It is a matter of great regret that the near approach of the International Congress in New York has prevented an adequate British, or rather Great British attendance at this meeting. But at any rate, I do feel that it is not inappropriate that you should have asked a native of that country to which Canada has owed so many of its leading men to preside over your meetings on this occasion.

In addition to the members of the Association, we welcome to our meetings the dermatologists of the other great branch of the Anglo-Saxon race. Lord Rosebery is the author of the happy phrase of "all the Britains"; at this meeting we welcome "all the Anglo-Saxons."

As a member of the Annual Meeting Committee since its inception, I am of course cognizant of the rule that the introductory remarks of the President of a Section are not to occupy more than fifteen minutes, and it would ill become one responsible for the administration of the rule to even come near breaking it. But I am equally aware that some introductory remarks are usually expected, and, though I fervently trust your expectations are not high, I fall in with the usual custom.

There are at present no very burning questions in dermatology, and its praises and its progress have been hymned so often that I do not propose to add another verse to the harmony. I might have sketched the history of our branch of medicine in Canada, but at a distance of 3,000 miles the necessary information would have been difficult to get. I did think that the connexion between Scotland and Canada was so close that an account of dermatology in Scotland might not be altogether inappropriate, but on second thoughts I abandoned the idea. The subject with which I propose to fill up the remainder of my fifteen minutes is the place and position of dermatology in the medical curriculum.

I have often noticed in those general addresses, which many of the leaders of our profession are so happy in delivering, that their counsels often amount to a glorified account of the practice and custom of the school with which they are or have been associated. This line I shall endeavour to avoid; it is not, I fear, humanly possible altogether to avoid reference to it.

I sometimes reflect that with all our progress in medical education the student of my time, now a quarter of a century ago, had some advantages. There was then in Edinburgh no skin department, and all the physicians

and surgeons taught a little dermatology. It might not be very profound, it might not be very much, but it was a little and often. From the day of his first introduction to the surgical out-patients to his last visit to the medical wards he was always liable to run up against some skin case, and I can look back to a great deal of useful knowledge picked up in these old days. From Sir Douglas Maclagan and Dr. Claud Muirhead I learned many things which have proved to me of much practical value.

Now, under our modern system of organization, all the cases are sorted out; the surgeon is busy with his gastro-enterostomies and the physician with his complicated nerve cases, and dermatology is taught—better I hope—but compressed into far too short a period. In this, of course, it is not singular; the arrangement of a medical curriculum is a thorny subject, and though one does not sympathize with, one can understand those who share the attitude of Lord Melbourne: "Can't you leave it alone!" I do not propose to use my precious moments in discussing the whole curriculum from my limited text—I shall have abundant opportunity for that when I get home—but only from the standpoint of the dermatologist to indicate the scope and position which I believe the subject will most usefully fill.

Though generally regarded as a Radical of the extremest type I nevertheless proclaim my belief in the systematic lectures. I think it has been overdone in the past. I think it is overdone in many subjects, notably anatomy, at the present, but fifteen years' experience of teaching has convinced me that it is underdone in dermatology.

The various branches of medicine have grown so great that the teachers of all the subjects find their time too short, and they give what they have to the subjects which to them appear of the greatest importance. Knowing that there is a teacher of dermatology, the lecturers on medicine, on pathology, and on therapeutics quite naturally devote their limited time to the subjects which to them appear of the greatest importance. Even in those exceptional cases where the teacher of medicine has a "leaning to skins," the half-dozen lectures into which he vainly tries to compress the whole subject of dermatology are so condensed as to be practically valueless.

The teachers of dermatology of to-day must grasp this new state of affairs, must rise to the demands on them and teach their students the groundwork of the anatomy and physiology, the pathology and the therapeutics of the skin on which alone with the mortar of common sense he can rear the structure of a practical knowledge of dermatology.

In the necessary bustle of an out-patients' clinique one gives utterance to a large number of useful scraps of information, but when the seed falls on stony ground the resulting crop is unsatisfactory. I believe that ten or twelve systematic lectures enable a student to profit much more by whatever clinical instruction he may afterwards receive.

At what period in the curriculum should dermatology be taught? I am, of course, abundantly aware that the teachers of almost all the special subjects wish to have the student at as late a period as possible in his career. It is, fortunately, not my duty to decide between the conflicting interests, but I think all teachers of dermatology will agree that students should have had a course of medicine and, of course, surgery before they try to learn skins. On the other hand, if they come to us too late students miss the opportunity of applying the knowledge they may acquire. In our nominally five years curriculum, I believe the best time for students to take the class of dermatology is the fifth summer. They have had medicine in the preceding winter, and in their fifth and last winter they can at the out-patient cliniques build on the foundations laid.

Should dermatology occupy a regular place in the medical curriculum?

Should it form part of the degree examination?

To the first question I return an unhesitating affirmative. A practical knowledge of skin diseases is invaluable in general practice; it often throws a searchlight on an obscure medical case, and my experience in general practice taught me that capacity to treat skin diseases successfully was greatly appreciated by patients. Let me quote and apply some advice of your own Osler:

In one of those charming essays of his, referring to the advantages of general culture, he says: "In no profession does culture count for so much as in medicine, and no man needs it more than the general practitioner, working among all sorts and conditions of men, many of whom are influenced quite as much by his general ability, which they can appreciate, as by his learning, of which they have no measure." If there is any department of medicine where the patient is in a position to judge of the results of the doctor's treatment it is in the diseases of the skin, and, though I am sure Osler never thought that his words would be twisted into a plea for the importance of dermatology, I think he would admit that the application is not inapt. May I, in passing, just say how much I have enjoyed those addresses, and advise all who have not read them to do so forthwith.

I think we may regard it as accepted that instruction in diseases of the skin should form part of the regular curriculum.

To my second question I have more difficulty in responding. Some I know hold that unless there is an examination in the near distance students will not devote any real attention to a subject. I have not so poor an opinion of the student; and I am a very convinced believer in education irrespective of examinations. My experience teaches me that if a teacher makes his subject interesting he need have no fear but that students will attend his classes. The student of to-day is as different from the Bob Sawyer type as it is possible for him to be. I sometimes think he is too serious, and if I make the male pronoun embrace the lady students I am quite sure of it. In Edinburgh the University Court has ordered that of the special subjects of diseases of children, diseases of the ear and throat, and diseases of the skin, the student must present certificates in two. These certificates must testify that the student has duly performed the work of the class, and are generally spoken of as D.P. certificates. I believe that with a little more strictness in their issue these D.P. certificates might take the place of a special examination. "What should the teachers of dermatology teach the ordinary student"? It is obviously absurd to attempt to teach all students up to a specialist level, and, if I may be so bold, I will state that in my opinion that is the mistake into which teachers too often fall. To them, as to teachers in other departments, it is the rare, the out-of-the-way cases that are specially interesting, and there is a tendency, too often yielded to, to give an inordinate share of time to these and to neglect the hammering away at the common things which the ordinary graduate will have to deal with in his daily round. Do not let me be misunderstood; when unusual cases turn up we ought to give the students the advantage of seeing our difficulties, of appreciating the fact we experts have to reason out the diagnosis, but we should not pass over the common eczemas without going thoroughly into each case and telling why we order such and such a treatment.

In addition to lectures and cliniques I have a very firm belief in what you call on this side of the Atlantic "Quiz" classes. It may be objected that the plan is not possible to carry out with large classes. I believe I am the authorized teacher of the largest number of students in the English-speaking world, and I refuse to accept that excuse. It is quite possible so to split up one's class that every student has to undergo two or three cross-examinations, and nothing in my opinion is so good for the student as to be cross-questioned before his fellows as to the why and the wherefore of his replies. It is not only the student who benefits from the Quiz class. Many a time the critical student causes one furiously to think, and no teacher is born to his work who is not a better teacher each succeeding year.

I know that I have been perhaps unduly personal in these remarks. Perhaps I shall be pardoned when I reveal the fact that next winter it falls to me to reach the summit of a Scotsman's ambition, namely, to teach his subject in his Alma Mater, and I am anxious to get all the help I can to do it well.

It was therefore with much satisfaction that I noted the Secretaries had put down my introductory remarks as a subject for discussion. I had no wish to preach a sermon to which no one had the right to reply; and I hope that those present, many of them of much greater experience than your President, will freely give us their criticisms and suggestions on his old world views.

Dr. J. C. Johnston (New York) said he was in general agreement with Dr. Norman Walker's views, but considered that it was impossible to give an adequate account of skin diseases in ten or twelve lectures. The students should be first thoroughly drilled in symptomatology, and this followed by thorough pathological teaching. Further, he strongly supported the President in advocating "quiz" lectures, and also in restricting the teaching to that concerning the common skin diseases.

Dr. T. C. Gilchrist (Baltimore) outlined the very practical method of teaching employed by him at the Johns Hopkins University. Each student was given a list of the common forms of skin diseases, and shown cases and told to work out each case by himself, thus cultivating his power of observation and at the same time compelling him to reason out each case from his knowledge of general pathology. After three months' training of this kind from six to ten cases were shown to the whole class and diagnoses invited. Following this, each case was gone over by the lecturer, thus reversing the ordinary didactic procedure. Only the common forms were shown, no attempt being made to turn out specialists, but only to give a fair knowledge of common skin affections.

Dr. G. H. Fox (New York), who warmly supported the procedure employed by Dr. Gilchrist, thought that as a general rule too much stress was laid upon the therapeutic and not enough on the diagnostic side of clinical teaching in skin diseases.

THE INFLUENCE OF LIGHT-HUNGER IN THE PRODUCTION OF PSORIASIS.

By James Nevins Hyde, A.M., M.D.,
Professor of Diseases of the Skin, Rush Medical College, Chicago.

Psoriasis is one of those cutaneous affections the nature and relations of which have been clouded with obscurity. The several pathological conditions which have been recognized by competent observers in the psoriatic skin have only been excelled in number and variety by the factors which have been invoked to explain its etiology. Nor are the clinical phenomena of the disease less conspicuous in a wide variation from classical and accepted symptoms to those which apparently have little, if any, connexion with the usual types.

A part, certainly, of this confusion is due to the relative frequency of psoriasis among cutaneous disorders. This proportion in Europe is set down approximately as between 5 and 9 per cent.; in this country as between 3 and 4 per cent. An affection occurring in no fewer than a million and more of patients, whose cases have been registered in almost every populous portion of the globe, on *a priori* grounds alone might be assumed as likely to occur at times among the cachectic, the asthenic, those suffering from other disorders, such as tuberculosis, syphilis, or the eruptive fevers, and even from other dermatoses, including those produced by both the vegetable and the animal parasites. On the other hand, evidence is not wanting to show that psoriasis occurs among the most vigorous men and the most comely women, persons in whom the skill of the physician can recognize only those aberrations from a healthy type which are sufficiently common in every physiological condition.

At the outset, therefore, of any discussion bearing upon the significance of psoriasis, it is imperative that the outlook be large and that no special stress be laid upon the mass of facts, considerable though it be, bearing upon the departures from type, and the frequent exceptions to the rule of evolution of the disease. Many of these exceptional phenomena have been fully studied and conscientiously recorded. Others are the fruit of crude observation and defective analysis. In yet others the word "psoriasis" has been so loosely employed as a designation that the reports of its occurrence in rare manifestations are highly misleading.

The Statistical Reports of the American Dermatological Association from the year 1878, when the first return was made, to the year 1903 include 465,063 cases of diseases of the skin, among which were tabulated 13,979 cases of psoriasis, showing a proportion of about 3 per cent. The accuracy of these figures, after deducting allowance for inevitable errors, is confirmed by the percentages recorded in a series of successive years; those, for example, of the last seven years ranging pretty regularly from 2.480 to 3.135. This indicates that in the cities from which the experts making up these tables have gathered their facts the number of persons suffering from psoriasis is on an average nearly the same for each year. The cities represented in these returns are Boston, Chicago, Montreal, Cleveland, Buffalo, and Detroit, among the cities of the North; and New York, Brooklyn, Philadelphia, Baltimore, Washington, St. Louis, Atlanta, Cincinnati, and New Orleans in the nearer South. It is understood, of course, that these figures do not represent the exact number of persons suffering from psoriasis in the towns named, but only the cases falling under the observation of experts, where the diagnosis was assured and the record trustworthy.

If the figures for each of these cities are collated for the year of the last census of the United States—namely, 1900—and they be compared with the population of the same towns as given in the official tables, the results, if not accurate, at least enable one to make an approximation to the proportion of people in any given American community affected with the disease in question. Assuming that the experts in the cities named saw but one-fourth of all the cases of the disease occurring in the year named, it may be estimated that between $\frac{1}{100}$ and $\frac{1}{500}$ of 1 per cent. of the population were thus afflicted.

It is purposed in the pages which follow to call attention to certain facts which tend to explain some of the questions relating to the origin of psoriasis. In this attempt consideration will be had chiefly of the widely-recognized types of the disorder, those generally accepted as characteristic, to the practical exclusion of its rarer and exceptional manifestations. It is well at the outset to accept the demonstrated facts of psoriasis as distinguished from what has been advanced as true of the disease upon a less satisfactory and conclusive basis.

The eruptive symptoms, in greater or smaller number, occur by the development of superficial or somewhat elevated scaling papules in clustered patches, varying from one to many scores, often covering almost the entire body surface, but yet, according to most observers, unless the type is changed to that of exfoliative dermatitis, invariably sparing some areas of the skin. The size of these lesions varies from that of a pinhead to patches covering an entire limb or other portion of the body. The scales are commonly freely shed from the surface, and when artificially removed by the curette expose beneath, first, superficially, a thin film of smooth, glistening aspect, and, more deeply, a surface which bleeds at one or more points. The scales are typically of a dull, whitish hue (mother-of-pearl, nacreous), but differ greatly according to the colour scheme, the age, and the sex of the subject. They may be brilliantly whitish or yellowish, or much darker in brunettes of an advanced age. The patches, determined by both extension and coalescence of individual lesions, are commonly well rounded or oval; at times, by the mere fact of coalescence, they exhibit odd-looking gyrations, half circles of partly-healed patches fusing with similar lunar-shaped adjacent scaling discs.

The sites of most frequent occurrence of psoriasis on the body are the scalp, the extensor faces of the upper and lower limbs, especially the elbows and knees, the sacral region, the back of the trunk, and the abdomen. More rarely the backs of the hands and the feet, the progenital region in both sexes, and, still more rarely, the palms, the soles, and the face are involved. At times the scales are exceedingly abundant, heaped up, as upon the scalp and elsewhere, so as to form elevated rupioid accumulations. The patches are, as a rule, well defined in outline; they are rarely the seat of subjective sensation; they may develop rapidly or very slowly; may come and go in an apparently indeterminate manner; may persist or disappear for a lifetime; may leave the subject of the disorder free from any of its manifestations for months and even for years.

It is also established that for the most part psoriasis begins as a childhood disease. Cases are on record where the symptoms developed in the first few weeks of existence. It may, however, first occur in mature years, and even in old age. It is an affection usually much aggravated in cold or wintry weather, though exceptions to this are noted.

Chief among the histological findings are rete-hyper-

plasia and inflammatory changes in the papillary body, the order of sequence of these not being determined.

Respecting the rarer and less characteristic phenomena supposed to be evidences of the disease, may be enumerated a long list of acute inflammatory changes, found, for the most part, in a scratched, excoriated, or artificially-irritated skin; agglutination of the scales by an exudate; the occurrence of symptoms after ingestion of drugs (biborate of sodium—Gowers); after vaccination; after traumatism of widely-differing characters; after tattooing; as an inheritance; in the rheumatic and gouty; after mental shock and the nervous influences exerted by ingestion of the narcotico stimulants; as also during pregnancy and lactation.

Respecting the explanations of the disease advanced by authors, there is a not inconsiderable group of these who hold to its parasitic origin; of others who claim for it a neuropathic cause; and, lastly, of those who entertain the belief that it is a systemic affection of obscure nature. More than thirty years ago, George Gaskoin of London, in his work, wrote a chapter of twenty-two pages upon the causes of psoriasis, with a result no more convincing to the reader than any of the more modern chapters devoted to the same subject.

A comparison of the divergent opinions put forward respecting the etiology of psoriasis would have little worth in this connexion. The most of them have been given to the scientific world in medical publications. As to their value, the recent statements of Messrs. Beurmann and Raymond may be held as expressing the general verdict when they declare, "We do not know the true cause of psoriasis." Blazhevski, writing in the same year, remarks: "Long ago Auspitz said that no man knew what psoriasis is; and this pessimistic view was true then and is now." Finally, Balzer writes: "In spite of recent researches on the etiology of psoriasis, we have not yet determined its true nature."

In the pages which follow the attempt is made to indicate certain lines along which may be found a rational explanation of most of the symptoms of the disease. Briefly, there are facts pointing unmistakably to the conclusion that psoriasis is an expression in the skin of the human body of its resentment against long-continued exclusion of light from the surface.

In a paper published by me in January of the current year, I attempted to make it clear that cancer of the skin was due, in a certain proportion of sensitive subjects, to the influence of actinic rays of light upon the over-exposed integument. In the following pages an effect is to be described which might almost be termed the reverse of that expressed in the proposition which precedes. The effect is a reactionary protest in the skin of certain peculiarly susceptible individuals against the entire exclusion of light from the surface of the body.

PROPOSITION I.

Psoriasis is a disease that never affects the lower animals, whether these be feral or in a state of domestication, for the reason that the integument of such animals is very rarely screened from the light by artificial covering.

The basis of this broad affirmation may be found in every well-considered textbook on veterinary medicine, as well as in every wide experience. It is true that in certain works, notably in the excellent *Dictionnaire Vétérinaire*, published in Paris in 1906, Messrs. Cogney and Gobert devote several paragraphs to a disease termed by them "psoriasis." But their description indicates very clearly that the disorder to which this title is given has nothing whatever in common with psoriasis of man. It affects, say they, the folds of the body; is productive of considerable pain and itching; is often complicated with fissures and cracks; is not rarely formed in a patch from which blood exudes, and which may exhibit crusts; lastly, it leaves scars, and may terminate with the production of an elephantiasic condition.

In the well-known reports of scientific progress made to the French Minister, MM. Beclard and Axenfeld, reviewing the entire field of veterinary medicine, make no mention of the disease. Brown, in his *Complete Farrier*, evidently knew nothing of it; and, as if to sum up the whole, Friedberger and Fröhner declare positively that they have never seen such a disease in animals, and that the affection to which the term "psoriasis" is applied by some veterinarians is one that in man is named "eczema."

Here, then, is a noteworthy fact and one certainly demanding explanation. It will not suffice to urge that animals are exempt from this disease because they live more closely to nature and conform more rigorously to natural laws. As a matter of fact, *per contra*, the lower animals, both in a wild state and in domestication, are subject to an extraordinary number of diseases common to them and to man. One is tempted in this connexion to cite the phrases of the great English dramatist, even though first set forth in a wholly different relation: "Have not animals eyes, hands, organs, dimensions, affections, passions? Are they not fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same summer and winter, as man? If you prick them, will they not bleed? If you poison them, will they not die?"

Some diseases, indeed, from which animals suffer in common with man are comprised in a list where there is scarce an exclusion save psoriasis. Every one knows that tuberculosis, pneumonia, diabetes, meningitis, rickets, typhoid, variola, many forms of skin diseases, and an enormous number of affections due to animal and vegetable parasites and to pathogenic micro-organisms, are illustrations of a much larger number which might be cited in this connexion. What, then, is the reason for this singular exception to this rule of communism? There can be but one reasonable explanation; it is that animals do not clothe their bodies with artificial covering; in other words, with garments which exclude the play of light from the body surface. Though proof is not at hand, it may well be doubted whether primitive man ever suffered from the disease under consideration. Psoriasis is as old as the Books of Moses, yet it is probable that many generations of men had worn clothing made of the skins of slaughtered beasts before that wise lawgiver described the first rude efforts of man to make himself a garment, and Gehazi was cursed with a psoriasis that sent him from the presence of his master as "white as snow."

PROPOSITION II.

If psoriasis in man be an expression of resentment on the part of the skin against the partial or total exclusion of light from its artificially-covered surfaces, it is clear that the number of persons whose skin is thus abnormally sensitive is relatively small.

In the paper to which reference has been made above, I showed that not more than 5 per cent. of persons whose skins were irritated by actinic rays of light ever developed cancerosis of that organ. It has been already pointed out that psoriasis is represented by a proportion of between 3 and 8 or 9 per cent. in the list of dermatoses. When an attempt is made to ascertain the percentage of individuals suffering from psoriasis in a healthy community in any part of the world, the figures given must be enormously reduced; probably, as suggested above, to between $\frac{1}{10}$ and $\frac{1}{16}$ of 1 per cent. A consideration such as this is of special importance when the etiology of any disease is under discussion. The untrained mind, in an effort to grasp the value of any agent shown to be pathogenic, at once concludes that all men and all women alike are subject to its invasion. A keener insight into the conditions governing the operation of any such agency discriminates between them.

As a matter of fact, all men and all women and children can no more invite psoriasis than they can cancer. A special sensitiveness of the skin of a certain small group only of subjects is essential to the development of these affections. In other words, many more than 99 per cent. of human beings clothe themselves daily with garments which partially exclude the sunlight, and do not suffer in their persons as a consequence of this deprivation. In the small minority the skin rebels and psoriasis follows. At the present time science cannot distinguish between these two classes before the event of efflorescence, nor even after the event can the sensitive difference between the two be recognized. It is possible that some of the enormous number of causes which have been cited as effective in the production of psoriasis may be able to arouse the specially sensitive skin to its psoriatic protest, such as malnutrition, vaccination, mental shock, affliction, asthma, bronchitis, rheumatism, gout, scrofula, exhaus-

tion, climatic effects, etc., no one of which, in all probability, *per se* is sufficient to induce the disease, seeing that hundreds of thousands of persons annually endure all these and more without exhibiting traces of the affection under discussion. White, for example, in an analysis of 5,000 cases of diseases of the skin, remarks of 152 cases of psoriasis that the great majority of the patients were "perfectly healthy in every other way so far as could be ascertained."

PROPOSITION III.

If psoriasis be a resultant of light-hunger in the skin of certain abnormally sensitive subjects, because of the greater or less degree of exclusion of light resulting from artificial covering of the body, the disorder should be most prevalent and most severe at those seasons of the year and in those countries in which sunlight is least abundant.

The statistics of psoriasis bear with unmistakable emphasis upon the truth of this proposition. In all countries the disease is most prevalent and most severe in winter weather, the cold apparently operating adversely upon the integument. But it is precisely at the seasons of the year when the nights are longer than the days, and when the brilliant rays of the summer are exchanged for the colder and often clouded light furnished by the sun during the brief time it is above the horizon, that the disease is most formidable. It is at these times, also, for few garments worn by man are absolutely light-proof, that heavier and thicker clothing is provided in order to ensure warmth for the body. It is unnecessary to add that the coarseness of woollen garments worn in such seasons is responsible for much of the aggravation of symptoms experienced in cold weather.

There can be no question in the mind of any man of more than provincial experience that psoriasis is much more prevalent in the countries of the North than in the South; and is far more often developed in the white than in the negro race. Among the thousands of naked blacks seen by me in South Africa I can recall but one instance of well-defined psoriasis, and this I had not the opportunity of studying. Morris reports that the disease is very rare in the tropics. In Scheube's *Diseases of Hot Countries* it finds no mention.

PROPOSITION IV.

If psoriasis be a resultant of light-hunger in the skin of certain abnormally sensitive subjects, because of the total or partial exclusion of light from protected portions of the body, the localization of the disease in the integument should be largely determined in the regions of such exclusion.

In making a general survey of those parts of the surface of the body where the lesions of psoriasis are most commonly evolved, two considerations of importance must be borne in mind. Attention has already been directed to the first, which is that the records of the disease embrace such wide variations from every rule that the only safe course to be pursued in the study of its genesis is to limit observation to the strictly classical types of the disease. All said and done, an enormous number of accidents, and even other diseases, have been enwrapped with the literature of psoriasis. The second consideration is of equal importance. It was first distinctly formulated by Kaposi, but even before his date was well recognized by the men of an older generation. It emphasizes the important fact that the skin, which is the seat in one region of a dermatosis productive of irritation, frequently displays lesions in another solely as the result of the induced irritability. Thus, a man with a broad area of dermatitis over the chest may exhibit lesions of the skin of the face, for the sole reason that the slightest externally operating agent may induce phenomena in the irritable condition of the general skin. Now, it is true that, as a rule, psoriasis is not a disease accompanied by many or marked special subjective symptoms. The skin which it involves rarely itches; but it is none the less certain that psoriatic patients often complain bitterly of the discomfort induced by the disease. Their skin is often the seat of considerable soreness, tenderness, at times even of pain, when not productive of severe itching, as in certain forms of lichen planus and eczema. Similarly, there can be no doubt whatever of the fact that a patient with a severe, more or less generalized, and even classically-developed psoriasis, may exhibit lesions in localities often wholly spared by the disease, solely because of the resultant irritability.

Traversing, then, for a moment, the localities on the body surface where psoriasis is displayed in typical manifestations, it is obvious that if the skin were left wholly unprotected by artificial covering, these are the precise localities where the rays of light would most readily fall. In other words, the skin expresses its resentment at deprivation of light in those regions where, in a state of nature, there is given amplest opportunity for the influx of light. If one may employ a figure of speech in this connexion, it can be said that psoriatic patches seem to skulk about all shaded parts where the skin is exposed, and to venture boldly upon open areas where the skin is covered. A brief examination of the regions of preference of the disease will clearly substantiate this fact.

The scalp is one of those regions where the lesions of psoriasis are most actively and most abundantly displayed. While it is rare to find the scalp absolutely free while the other regions of the body are extensively invaded, it is none the less true that patients, few though they be, are occasionally encountered who have never had the scalp affected, and who have yet extensive manifestations of the disease elsewhere. Still rarer are those subjects who, after having suffered for years, have throughout enjoyed exemption of the scalp.

When this special region and its immediate precincts are studied with care it will be found, as a rule, that in well-marked instances the scales are piled high in more or less circumscribed heaps over most of the region, but chiefly over the vertex, the front of the scalp, and, somewhat more rarely, over the occipital surface. This area of preference, it will be at once apparent, is the part in both sexes covered by the hat during the portions of the day spent out of doors. The light is excluded by the headgear to an extent sufficient to very materially fall short of that supply which is furnished to the heads of the lower animals. When either in man or woman the hat is removed from the head for any length of time it is when the person is indoors and there is diminished access of sunlight. From the point of view of the hygiene of the scalp of this selected class of susceptible persons, it would have been preferable if the hat had been worn indoors and the head exposed outside of the house.

A striking commentary on the accuracy of these observations is furnished by the frequently-recognized fillet, band, or ribbon of diffuse scaliness which in many patients is spread evenly over the upper portion of the forehead immediately adjacent to the edge of the scalp and to a distance below. This frontlet very rarely indeed covers the entire forehead, but extends only for a short distance from the margin of the scalp downward—in point of fact, about as far as the hat or other head covering furnishes a shade from the light. This is exceedingly characteristic of many cases, and one with which every student of these facts is perfectly familiar. It is illustrated in many portraits of the disease. The special point of significance in this connexion is the often exceedingly abrupt line of demarcation extending transversely along the upper third or middle of the forehead where the protection furnished by the hat ceases and the play of open-air light begins. This is one of the illustrations referred to above, where the disorder may be said to lurk or to skulk near a point of hiding.

A scarcely less conspicuous illustration of the same point is furnished in psoriatic patients affected with excessive baldness of the vertex of the head and neighbouring parts. While it is true, as in many of the exceptions noted in these pages, that the bald head of the psoriatic subject may be, as an exception to the rule, thickly sprinkled with scaling discs set at a distance from the fringe of hairs about the temple and occiput, this is certainly the exception to the rule and occurs chiefly in those who work indoors. Most often these subjects are suffering so extensively from the affection that the skin elsewhere than in the chief sites of the dermatosis displays lesions by reason of reflected irritability. In the majority of all such cases, however, the picture is that of a replica of the fillet or riband at the upper forehead described above. A large patch may linger at the border of the scanty hairs left upon such bald heads, one segment of the disc lurking in the hair and the other timidly encroaching upon the abnormally glabrous surface; or, as in the case of an elderly gentleman recently shown me by

my colleague, Dr. Ormsby, in illustration of these facts, there is a complete ring of psoriatic scales encircling the bald vertex, but absolutely limited to the region of the thin hairs bounding the denuded area.

As if to emphasize the truth that the affection is one of protest rather than a pathological process bringing deterioration and destruction in its train, there can scarcely be named an affection of the scalp which works so little havoc with the growing hairs. Year after year in these patches psoriatic scales may come and go, at times encasing the scalp to a degree suggesting a carapace or a skull-cap, and yet the hairs continue to push without hindrance and with no more thinning than might be expected in a scalp not encumbered with its burden of mortar-like concretions.

In this connexion the experience of the officers of Christ's Hospital in London possesses special interest. In a letter addressed to me in response to a recent note of inquiry, and dated July 17th, 1906, I am informed that since the foundation of the charity in the year 1552 approximately 50,120 children have been admitted to the hospital. The medical officers report that but few cases of psoriasis have occurred, and that the scalp has been affected in no case save when there have been body lesions. It is well known that the youths benefited by this institution are required to keep the head uncovered in the open air; and the conclusion is irresistible that the degree of immunity thus secured is due to the exposure of the scalp to the light.

The lesions of psoriasis may be recognized lurking in close proximity to the hairs of other hirsute parts of the body, especially in the pubic regions in men and the axillary spaces in both sexes. Here, as in the scalp, so insignificant is the involvement of the hair follicles that a localized alopecia almost never results.

The face of most men and women, during the greater part of the time spent out of doors, is exposed to the light. If the premisses laid down in the earlier portion of this paper be sound, the face should be of all regions of the body that most free from invasions of psoriasis. This is one of those clinical facts which rest upon world-wide experience. To deny it were to deprive the diagnostician of the rich fruit of observation and experience. In the vast majority of all cases of this disease, occurring at all ages and under enormously differing conditions, the face is of all regions most likely to be completely spared.

Here, also, it is to be freely admitted, exceptions occur. In a very mild form, close inspection will at all times detect two, three, or possibly half a dozen insignificant, superficial, thinly-scaling discs, each scarcely larger than the head of a pencil, on the upper cheeks or temples, over the nose, rarely over the lower face. Yet, when the irritability is great, and the disease is elsewhere aggravated, even this rarest of localities for the display of the eruption may be unmistakably, and even severely, involved.

By the law the operations of which it is here attempted to recognize there should be no true psoriasis of mucous membranes, seeing that these line closed cavities. Such is the verdict of the vast majority of careful writers on this subject. Kaufmann, in 133 cases of psoriasis, found no oral lesions. The dictum that so-called instances of psoriasis of the mouth are symptoms of some other disease is accepted by the scientific world at large. The enormous possibilities of confounding the mucous patches of syphilis, the leucoplasia of the tobacco mouth, and, even more difficult of diagnosis, the lesions of lichen planus oris, have placed the so-called psoriasis linguae beyond the pale of discussion under this title.

After the face, the parts of the human body most exposed to light are the hands. These organs should stand second in the list of those least liable to invasion if light-effects possess efficacy in protection from the disease. This is one of those clearly-determined facts which admit of no contradiction. The wearing of gloves throughout the entire year by women of the leisure class, by men during the cooler weather of the autumn and winter, and even by labouring men in many kinds of out-of-door work at all seasons, constitutes a liability. The hands may be very severely attacked in certain special cases, but as a rule, without any question, they are spared. Nor is it without a striking significance that when the hands are actually attacked, the backs of the hands, which naturally are more exposed to the light, suffer more than the palms, a fact of interest as indicating that it is not the softness, relative tenderness, nor vulnerability of the back of the hand, as distinguished from the thicker palm, which invite the incursions of the malady, for, as explained below, the reverse occurs in the flexures of the joints as contrasted with their extensor surfaces. It is the part which is destined to receive the light-impulses which suffers; and it is the part which, in a state of nature, is relatively shaded from the light which is spared. The exposed hands are, indeed, often involved when the covered feet are exempt.

In a special consideration of the palmar and plantar regions, one must accept with reserve the generalizations usually put forward in this connexion. Every one knows that the palms and soles are the frequent seat of the scaling syphilodermata; and these have been mistaken for psoriasis time beyond number. The fact that such a term as "syphilitic psoriasis" of the hands was once permitted to pass without challenge in medical literature is the best commentary on this confusion and misconception. It is true that psoriasis may and does affect the palm and the sole, but, as already suggested in these pages, these cases are those where the hands and feet have shared in a general irritability of the skin, stimulating the spread of the efflorescence to unwonted excursions.

Psoriasis affects the nails in between 10 and 20 per cent. of cases with definite symptoms, though these organs are so liable to accidental infection with micro-organisms, and their diseases and malformations are so often produced by syphilis, that until a recent date much confusion has obscured the subject. One or all nails may be slightly or seriously involved, either of the hands or the feet, or both. In one type there is a distinct patchiness of the nail-bed visible through the translucent plate, the latter undergoing secondary changes, losing its lustre, becoming furrowed, changed in hue, up-tilted, with a heaping up of scales beneath its free border, increasing in friability, breaking away at the point so as to expose the nail-bed, undergoing detachment from the latter or separating from the nail-folds at the sides of the plates. These last at times are completely shed. Setting aside the obvious diversity of symptoms in this list, a variability not recognized in most of the pictures of psoriasis, emphasis should be placed upon the fact, already noted, of the confusion which has clouded the consideration of this question. I believe that my records indicate with clearness that most of the unmistakable instances of psoriasis of the nail (those the nature of which is practically assured by the concurrence of typical symptoms elsewhere on the body) are seen in women. The indoor occupations of most persons of that sex, and their general habit of covering the hands with gloves when out of doors, might account for a part of the mischief. Decidedly more cases of psoriasis of the nails of the hands are recorded than of the feet.

The localization of patches of psoriasis elsewhere (for example, on the extremities) is of special interest. Crocker, in his excellent article on this subject, formulates the experience of all observers: "Symmetrical in the main, it selects, in the vast majority of cases, the extensor surface of the limbs, especially the tips of the elbows and knees." This is a remarkable fact. Generations of physicians have studied the phenomenon, thus far without satisfactory explanation. There are many variations from the rule, but that it is actually the rule is attested by the weight of evidence furnished in every public clinic of the world.

The most commonly offered explanation of the fact is that the elbows and knees and the extensor parts adjacent are irritated by friction. Objection to such an explanation is offered, first, in typical localizations of the disease in these regions where for special reasons there was no possibility of such irritation; as, for example, in Schütz's case, in which a child of thirteen months exhibited this special peculiarity. Even more convincing, however, is the evidence furnished in the psoriatic hand. Without doubt the palms, far more than the backs of the hands, endure pressure, trauma, and irritation; yet the palms are almost universally spared in psoriasis, while the dorsum of these organs, if involved at all, bears the weight of the attack. If it be responded that this is a matter of course, seeing that the relative thickness of the palm protects it, and the proportionate thinness of the skin of the dorsum makes it more vulnerable, the elbow

and knee above the palm and the sole bear important testimony to the contrary. Here the disease selects the thicker integument for its field of evolution, abandoning almost wholly the softer areas of the bend of the elbows and the popliteal spaces. Briefly, the selection, if it be permitted to continue the figure, is in favour of the outer aspect of the entire limb, irrespective of local irritation and of the dimensions of the integument, with special attack on the denser tissue of the parts about and near the elbow and the thinner dorsum of the hand, and with simultaneous avoidance of the softer parts on the inner aspect of the joint and of the tougher surface of the palm.

The obvious explanation of this feature of psoriasis is furnished by a study of light effects. The erect body, nude, standing in a natural posture, exposes to the light the outer, and relatively shades the inner, faces of the limbs. If in a group of persons of special susceptibility there be such a trophoneurosis, centrally or peripherally declared, as "light-hunger," the protest of the skin should be most emphatic in the regions where, in a state of nature, the light would be most generously distributed. These are the regions of selection in psoriasis.

Very much the same view may be taken of the lesions of psoriasis as they occur on the trunk. While there are the usual variations from the rule, here the same explanation is suggested by a study of most of the classical forms of the disease. The back is generally more considerably attacked than the front of the chest and the belly, as Andry points out, especially the sacral region, where, in an enormous number of cases, a patch is formed—often, indeed, well nigh the sole patch visible upon the trunk. Kaposi called attention to the frequent parallelism of lesions in rows following the course of the ribs; this usually with diminishing size and number of lesions from behind forward.

If man still walked prone, on all fours, as his primordial ancestor may have moved, whether in such a posture exclusively or only at times, as when engaged in climbing trees, it is obvious that the parts of his body most freely bathed in light would be those outlined by psoriasis on the back and limbs. The surface markings of not a few of the lower animals map out these regions with sufficient distinctness. A conspicuous example is furnished by the fawn of the fallow-deer, before the mature skin has been inured to the sun-beat, and thus has become more evenly tinted. The face, belly, and flexor surfaces of the limbs are almost wholly unspotted. The back and extensor aspects of the extremities exhibit well-defined circular markings. It is, of course, to be remembered, in making any such comparison, that in four-footed beasts the flexor aspects of the limbs do not represent the humero-radio-ulnar articulations, and the femoro-tibio-fibular, but, instead, the radio-ulnar-carpal, and tibio-fibular-tarsal joints.

Many of the rings, spots, flecks, and stripes of the more highly prized furs, whether originating from mimicry, sexual selection, protection from attack by stronger animals, or otherwise, are represented in charts of psoriatic skins. That light plays a master part in their production goes without saying. Woodruff points to the fact that "the colour is immaterial as far as respects the protection from the light of the underlying protoplasm." Taylor's law, that "animals are painted by Nature darkest on those parts which tend to be most lighted by the sky's light, and vice versa," might almost be urged as the rule in any classical case governing distribution of the lesions of psoriasis. Even the chromatophores of the chameleon produce their colour effects under the same general provision of Nature for the purpose of protection from light.

Proposition V.

If psoriasis be a resultant of light-hunger on the part of the skin of certain individuals because of the greater or less degree of exclusion of light from the covered portions of the body, the effective treatment of the disease would be by illumination of the regions chiefly involved.

The light treatment of psoriasis has been in vogue since radiotherapy has been accepted as an efficient method of treating certain dermatoses. The literature that has accumulated on the subject of the management of the disease by this measure is voluminous. There can be no question in the mind of an expert who has seen psoriatic lesions vanish under the play of the x rays that the treatment is one which not only speedily removes the symptoms of the disease but actually accomplishes this end after almost every other device has proved a failure. There is abundant record of instances where the discs and patches of psoriasis, after persisting for years in one region, have been completely removed after even brief exposure to this form of light energy. The relations of the x rays to the frequencies of the solar spectrum need not here be discussed. That all light rays are interconvertible is one of the axioms of science.

The disadvantages of radiotherapy as a means of treating psoriasis are many and often serious. The lesions of the disease, however prompt to disappear under the ray treatment, in the end too often recur. The dangers incidental to the exposure to the tube of the large surfaces of the body often implicated in the disorder cannot be ignored. Aside from the severe x-ray dermatitis which in certain cases has resulted, the well-known possibilities of eventual production of cutaneous atrophy, pigmentation, alopecia, telangiectasis, and even in rare cases (as in the three reported by Mendes da Costa and others) epithelioma, have all been amply set forth in literature. Special attention is directed, however, to the very strong argument in favour of the existence of light-hunger in certain skins furnished by the total disappearance of symptoms when that hunger has been appeased, even by an artificially transmuted form of light energy.

There remains to be considered a reasonable, and to a limited degree practical, form of treatment of the disease by securing the direct play of sunlight on the body surface.

For the greater part of ten years I have been treating psoriasis by exposure of the skin to sunlight, in the face of not a few, some of them well-nigh insurmountable, obstacles. The poorer class of hospital and dispensary out-patients in this latitude apply for treatment chiefly at a season of the year when the disease is aggravated by the conditions which then prevail. Efforts to secure for the most of these sufferers relief by sunlight exposures in warmed rooms have been largely thwarted by the fact that for weeks at a time in the centres of population direct sunlight is not available, both because of the cloudy and stormy days common at the season named, and also because, when the sky is not thus obscured, only a dim light percolates through the smoke of a large city and through the dingy window-panes of houses, not many of which offer the southern exposures which for the purpose in view are most desirable. Something has been accomplished, but not sufficient to establish a sound basis for positive conclusions.

The class of people both willing and able to devote themselves with enthusiasm to the method of securing relief here advocated, is relatively small. None the less, some of these under my observation have accomplished noteworthy results. A few have removed to the South, where throughout the winter season they have been able to secure light treatment under extremely favourable circumstances; and there are few who have not thus succeeded in obtaining marked relief of symptoms, and often reasonably prompt relief, for years after. Women and children thus treated have exposed the nude body to the sun's rays in warmed apartments; occasionally men have found resorts where they have subjected the person to the direct light of the sun in sufficiently warmed air. One of the most conspicuous and brilliant of these results was obtained by a young male adult who had suffered from psoriasis for years and who was determined to avail himself of the chances of relief described. He visited one of the south-western parts of the United States, and spent several weeks in a locality where he was secure from observation by others, where he was thoroughly warmed during the necessary exposure, and where, during the greater part of each day, in a complete state of nudity, he amused himself on the banks of a stream by catching the fish which there abounded. He returned with a clean skin, which, during the two years following, while he was under observation, did not fail to retain its wholesomeness.

Solaria have not yet been equipped with a special view, to the management of psoriasis. There can be but little doubt, however, that institutions of this character

installed with a view to securing the best of both climatic and sunlight effects, would be capable of affording enormous relief to a large number of sufferers who would avail themselves of its advantages.

The fact that what may be termed "light-hunger" under special circumstances may influence the human skin, is to be accepted with the distinct understanding that that influence is exerted in only a small percentage of individual cases. The enormous majority of all men and women do not bleed to death from the prick of a pin; nor succumb to a second variolous attack; nor exhibit toxic symptoms after ingestion of small doses of quinine. That a small proportion of human beings actually do thus suffer is a proof not so much of the virulent character of the noxious agent as of the special sensitiveness of the exceptional class.

There is good reason to believe that the phototaxis of the skin, when it is normally active, exerts an inhibitory influence upon the interplay of the elements of which the integument, or, at least, its more superficial portions, is composed. Under the influence of light the molecules of matter swing in proper rhythm. If the light be wholly or partially withheld by covering the body with clothing, as a rule no marked perversion occurs. But in the few, when such inhibition is wholly or partially prevented by the interposition of a light screen, the skin rebels.

The very character of this rebellion stamps its incitement as unique. In the field of pathology, single causes, for the most part, induce diseases that are of a single type. Such, for example, is the case with scarlatina, tinea versicolor, and erythema solare. But diseases which may be originated by several of many causes, such as dermatitis, eczema, and erythema, display a wide variation in the character of the eruptive phenomena.

Now, psoriasis, among all dermatoses, is remarkable for the uniformity of its lesions. No other cutaneous disorder is superior in what may be termed the general purity of its symptoms. All its true types resemble each other; the enormous majority of all its exceptions are explicable on the ground of interference or accident. Its lesions in all parts of the world are so characteristic that its diagnosis is extremely facile. Such a distinct uniformity points to a very generally operating single cause.

In the limited class of human beings who suffer from psoriasis, the eruption, due to air-hunger of the skin, is really in the nature of a departure from the normal, due to a lack of some inhibitory agency rather than to a toxic agent, or to a parasite, or to a grave perversion of normal processes. The disease is as remarkable for what it does not do as for what it actually does. It is an inconvenience, often a sore and burdensome one, but it does not tend to produce an ulcer, an infective focus, a tumour, nor a disastrous nerve lesion. Neither does it, in the many, damage the general health. When it passes, no scar results, and the skin is as though there had been no ailment. Epithelioma has developed in the sites of psoriatic patches, as in the cases recorded by Pozzi, Cartaz, White, and others. The most of these cases are complications of verrucous patches occurring after psoriasis of the dorsum of the hands, and are all subject to the possibility of having been produced by arsenic administered for relief of the psoriatic condition. Arsenic has been determined to be effective as a cause of epithelioma in a typical instance under my observation, and similar cases have been recorded by Hartzell and others. Among all diseases, psoriasis is best entitled to position as an affection of the skin exclusively. Thousands annually bear its burden without relief and with no great complaint. Toilers in the field, brown and brawny, women in the home, comely of feature and mothers of sound children, vex their souls in sheer impatience of their burden, which comes and goes often in each case without appreciable cause. These facts point with emphasis to the existence of a single factor, one which is similar in all parts of the world, one which operates freely in all classes of society and in all with similar effect.

If there be a light-hunger of the skin a need of some inhibition that shall restrict parakeratosis, the too active formation of horny layers in the epidermis—too ready an interchange between the elements of the papillary body and the epidermis—that hunger should be awakened at the early period of life. Such is the case with psoriasis. Abraham and Audry have called attention to the striking fact already cited—that it is for the most part a disease of childhood. Viewing the mass of patients in early, middle, and later life who exhibit extensive and severe symptoms of the disease, one is apt to lose sight, when the history is taken, of the statements made as to the early age when the scaling was first apparent. The tender skin of children, encompassed with an artificial case, oftenest and most distinctly expresses its resentment at such treatment. It has been said of man that his life represents in miniature the evolution of the human race, from the savagery of boyhood and the semi-civilization of youth to the refinement of the mature man. Thus it may be that in the immaturity of the body of a small number of human beings there is an atavism toward the primaeval ancestor upon whose backs and limbs, whether he moved on four feet or two, the sun shone unrestricted and with grateful touch.

Only the narrowest and most superficial view of this subject will awaken the suspicion that the prime agent in the production of psoriasis to which the facts here cited undeniably point, is trivial, remote, or undemonstrable. Light energy is of such inestimable moment that the damage resulting from its complete withdrawal would surpass, to the point of insignificant comparison, the havoc wrought by pathogenic microbes and their toxins. The working of a mighty law, rather than the enunciation of an academic principle, is embodied in the fact that the play of light on its surface is essential to every form of life that animates the earth. From the rising of the sun, even to the going down of the same, the hydrocarbons and the proteids are not more needful for the sustenance of man than is the light that bathes his body. An absolute denial of his imperative demands for food, for heat, for air, for light, always spells death. It is not, therefore, a cause for either wonder or doubt that among certain members of the human family even a partial failure to meet these demands may elicit a protest in the terms of disease.

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DR. LOUIS A. DÜHRING (Philadelphia) stated that his experience would not lead him towards the views expressed by the reader on the subject of the influence of light in general upon psoriasis. He had never observed any noteworthy cases which seemed to indicate that the disease was in any way distinctly cured by light. There was no doubt that the disease was more prevalent in some countries than in others, with a marked tendency in favour of the colder climates. Thus McCall Anderson of Glasgow had shown by ample statistics many years ago that it was notably more frequent in Scotland than perhaps in any other country, while observers in the United States were agreed that it was comparatively rare in the Southern States of North America. It was, however, highly probable that food, diet, and mode of life had much to do with its causation, and that free secretion and elimination from the surface of the skin favoured its non-development. The influence of diet and the elimination of certain effete or other products from the general economy in this disease was not sufficiently appreciated. As to the curative or beneficial effect of the Roentgen rays there could be no question in some cases; but in other cases, in Dr. Dühring's experience, it failed, and might even produce severe and unfortunate inflammatory action at a moment when entirely unexpected, as in a case lately observed. He, therefore, could not recommend these rays as a therapeutic measure. Proper internal remedies and treatment were much more useful in this disease than local treatment, the latter, even when successful, seldom

proving lasting. He further expressed his opinion that the disease was certainly not parasitic in origin, the real causal factor being a disturbance of the economy.

Dr. L. Duncan Bulkley (New York) agreed entirely with what Dr. Dühring had stated in regard to the internal causation of psoriasis as opposed to any local causation. He believed that the eruption was due to metabolic changes of which we understood as yet but little, though they were often demonstrable by a careful analytical study of the urine. He believed, however, that probably the exciting cause of the special lesions lay in the omnipresent ordinary micro-organisms of the skin, although special organisms had never been isolated, and they knew certainly that the eruption was not contagious; but, from the character of the lesions and their mode of development, he believed that there was a micro-organism at work when the soil was suitable. In other words, there must have been a certain change in the system before the eruption could appear. He believed that with proper treatment a certain proportion of cases of psoriasis were curable under sufficiently prolonged internal treatment; but, as in the case of syphilis, which formerly was treated irregularly and symptomatically, and now was submitted to at least two years' continuous supervision and treatment, so in psoriasis at least two years' continuous internal treatment—dietetic, hygienic, and medicinal—was required. He stated that he had seen the eruption fade away and disappear under the internal use of large and increasing doses of strong nitric acid after meals, and also from the full and repeated administration of tartar emetic. He complimented Dr. Hyde on his presentation of a most interesting subject, and hoped that the valuable and suggestive paper would lead to a fuller understanding of the disease. He would, however, as disproving the effect of light-hunger in the production of psoriasis, call attention to the rather common appearance of the eruption on the backs of the hands, which were seldom covered, and further, its almost entire absence on the dorsal surfaces of the feet, which were always covered.

Dr. James Ross (Halifax, Nova Scotia) referred to a series of cases under his care at the Halifax Hospital. These cases, seven or eight in number, were marked cases of psoriasis, and were interesting in view of Dr. Hyde's hypothesis in that they were all coal miners at Cape Breton, whose occupation precluded daylight during every hour of the day's work. None of these cases had suffered from psoriasis previously to becoming coal miners.

Dr. G. H. Fox (New York) drew attention to the comparative immunity of the negro race from psoriasis. He stated that he had photographed nearly every common as well as many rare dermatoses in negroes but never yet had he been able to obtain a photograph of well-marked psoriasis in a negro, though lichen planus and other affections more or less squamous in type were very common. He added that possibly the naked savages of Africa were free from psoriasis on account of exposure of the skin to sunlight, and that the negroes of North America inherited this peculiarity.

Dr. William Thomas Corlett (Cleveland) also had never seen psoriasis in the negro though he had seen many skin diseases in this race. He thought that the etiology of psoriasis must be divided into predisposing and exciting causes. As to the first, we knew nothing; concerning the second, light absence, and local irritation might both be mentioned, and he cited cases in which the distribution of the eruption was limited to regions covered by the bands of skirts, suspenders, etc. He believed that sunlight influenced the eruption, causing it at times to disappear. He had not yet noticed any marked benefit from internal treatment.

Dr. A. H. Robinson (New York) regarded psoriasis as the result of structural changes in the epidermis of a person whose rete cells were capable of undergoing special changes when acted upon by injurious agents, either from within or without, hence exogenous or endogenous toxaemia, deficient alkalinity of the system, malfermentative processes in the small intestine, etc., were all causes of psoriasis. Any external injurious agent, toxic or traumatic, could produce the lesions in persons predisposed, especially if in conjunction with deficient alkalinity. The lesion thus being viewed as an inherent character of the epidermal cells, the eruption, even when apparently cured, was bound to recur if the exciting condition were reproduced.

EVIDENCE OF THE EXISTENCE OF AN AUTOTOXIC FACTOR IN THE PRODUCTION OF BULLOUS DISEASE.

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In order to prevent misconception as to the limits of the group under consideration it is necessary to define its limits, especially as I am not inclined to confine the discussion to those diseases whose lesion is commonly a bleb. In that case dermatitis herpetiformis would have to be ruled out. The bulla is a convenient and striking clinical sign, and "bullous disease" is a term no more misleading than dozens of others in our nomenclature.

The bulla is, besides, not always the lesion of a bullous disease in the latter's narrower meaning as a group cognomen. It occurs as an accident in the course of many disorders as unrelated as erysipelas, erythema, lichen planus, and syphilis. These, of course, are nothing more than accidents of excessive serous exudation, as are those which occur in infections of the skin, generally by pus organisms, from without or by the blood stream. In this category I should include bullous impetigo, cases of infectious dermatitis exfoliativa with serous exudate, post-vaccinal eruptions at times, and cases like those of Howe and others occurring in the course of or after variola. Very rigid bacteriological tests should be used in the exclusion of the infectious processes. Cultures should be made from blood as well as bleb. They are not always successful, even in competent hands and when infection is known to be present.

Having excluded accident and infection, there remains a quartet of diseases whose title to a place here no one would think of disputing, pemphigus, dermatitis herpetiformis, pompholyx, and epidermolysis bullosa. Hydroa vacciniforme is very nearly allied to them all; prurigo is even closer kin to dermatitis herpetiformis, and non-infectious dermatitis exfoliativa, which is not related histologically to the parakeratoses, is to my mind as unquestionably a member of the group as pemphigus foliaceus, whether it shows surface exudate or not. I should like to include a few other dermatoses, but I have already offered ground enough for a dispute.

It is probably not expedient or desirable at this late day to change the terminology in this speciality. If we understand the hair-splitting clinical differences the terms are intended to convey, it is sufficient. My object is not to advocate reform of this sort, but to suggest that the basis of all bullous disease is the same—an opinion which finds confirmation in the fact that there exist unclassifiable, border-line cases which link together members of the group. Not only does pemphigus vulgaris shade into pemphigus foliaceus or vegetans and the varieties of dermatitis herpetiformis interchange in one or succeeded attacks, but pompholyx in time may become herpetiform dermatitis and the latter pemphigoid. There is no difference between the prurigo of Hebra or of Besnier and that of pregnancy or Hodgkin's disease. The prurigo of pregnancy is also herpes gestationis, an aberrant Dühring's disease. Dermatitis exfoliativa has the same anatomical basis as pemphigus foliaceus. We are forced to grant that for the present epidermolysis stands alone, but time will show whether some of the cases do not eventuate in exfoliating disease of one form or another.

The inevitable deduction to be drawn from this fact of intermutation would appear to be a common basis of causation.

Infection is granted generally to play no part here. Trophoneurosis may safely be dismissed as an explanation until the time when trophic nerves can be demonstrated as part of the innervation of any structure except striated muscle. Vasomotor neurosis doubtless plays a part in the production of the lesion in the sense of inhibition of the vaso-constrictors, but back of that lies the circulating toxic body acting directly on the nerve terminations or ganglia. The action of known intoxicants introduced from without in producing lesions like those of dermatitis herpetiformis or pompholyx (for example, quinine) or of pemphigoid eruptions (bromine and iodine) shows that the idea is not altogether fantastic. Granting the possibility and eliminating exogenous poisons, the

inference is plain that if one exists it must be endogenous, the product of the body chemistry. We claim some familiarity with the results of failure or excessive production of the internal secretions, and can dismiss this possibility in considering the causation of bullous disease. Failure in carbohydrate metabolism produces no such condition, so far as is known, nor does that of the fats, even if the doctrine of acid intoxication is accepted, which is far from being the case. Hence the derivation of the toxic agent is narrowed to failure in proteid metabolism or in that of the inorganic body compounds, perhaps both.

It remains to be seen what evidence can be adduced in favour of this view. Animal experiment is attended with a good deal of difficulty because of the scarcity of material, of the toxic action of foreign serums, and of the impossibility of securing the same reaction in animals as in man. In animals immunized to human blood probably nothing short of a lethal dose of serum from the bleb or blood of pemphigus would produce any appreciable lesion. That does not preclude the possibility of procuring an antiserum which will be efficacious in the handling of this disease.

The other members of the group, except an occasional instance of dermatitis exfoliativa, are hardly serious enough to warrant even the small risks attendant on such a procedure.

Indication of Intoxication in the Clinical Course of Bullous Disease.—The expectation is reasonable that these indications will be discovered more readily in the prodromal period or at the time of onset. Partial immunization undoubtedly takes place later, and while the skin lesions may remain, the operating cause is doubtless gone. The severity of the attack, of course, determines the character of the prodromal period. In practically all bullous disease, except epidermolysis, there may be (I have seen it in severe cases of pompholyx) a symptom complex, which every one associates with intoxication: malaise, anorexia, vomiting, pain in head, joints, or muscles. The actual onset may be ushered in by a chill, followed by a rise of temperature to 102°. The skin is dry and dirty yellow, the urine scanty and high coloured, and the blood and blebs show eosinophilia. The last, to my mind, is due to the direct action of the poison on the eosinophile myelocytes of the marrow. Its occurrence in the animal parasitism would suggest this. In a case of prurigo of Besnier under my care it ran as high as 30 per cent. Later in the attack a secondary anaemia appears.

Records of autopsies are lacking in all of these disorders except pemphigus and dermatitis exfoliativa. In them the findings are those which are common to all toxic processes, infectious or not. They are parenchymatous degenerations, granular or fatty, with on occasional sclerosis such as Kaposi[1] found in the posterior columns of the cord of his oft-quoted case. The diarrhoea, which is often the direct cause of death, depends on no striking lesion, but it may also be a symptom of gangrenous colitis having a bleb basis. The case of epidermolysis which has been under the care of members of the New York Dermatological Society for twenty years, is now developing symptoms of multiple sclerosis from which it is to be expected that degenerations are in the cord developing. It may be said that pemphigus patients do not die until late in their disease, and that the degenerations may result from absorption from the skin lesions, as in burns or from terminal infections by pus and other organisms. The latter is often true towards the end, but it is hard to see how the serum of bullae uninfected could be very poisonous. Moreover, the disease progresses when the patients are kept in continuous baths, the bullae open and structural changes begin in the body long before its resisting power is sufficiently weakened to permit the entrance and growth of bacteria.

If these diseases are toxic and the effect is evidenced everywhere in the body by lesions we recognize as having such a basis, it is time we ceased to regard them as skin diseases or as anything but general systemic disorders whose ordinary expression on the skin is the bleb.

The favourite argument of those who claim a neurotic basis for bullous disease is the constantly repeated story of shock in the causation. I have seen it many times myself, but it only adds another link in the chain of corroboration of the theory of autointoxication. Shock shows its effect nowhere so plainly as in the gastro-intestinal system. We know what effect emotion has upon our digestion and every one is familiar with the experiments which showed that a dog's digestion processes may be stopped in midcareer by shock. I have no space for the citation of cases, but they are numerous and interesting enough. The rôle of shock is by no means so emphasized in pemphigus as in dermatitis herpetiformis and pompholyx. The marked toxic phenomena, such as haematuria and gastro-intestinal crises which Osler[2] described in connexion with the erythema group, I have not seen and can find no record of in the bullous group. Pigmentation, a marked sequel of dermatitis herpetiformis and at times of pemphigus, is a metabolic phenomenon generally recognized for some time past in just such phases as these.

Recently I have been struck by the dietary errors commonly encountered in Dühring's disease. In the case of a waiter with a typical vesico-papular disease, two attacks followed within twelve hours from an over-indulgence in heavy meats. The patient recognized the fact himself, but seemed unable to resist the temptation of a proteid debauch. I cannot satisfy myself that alcohol plays any part in the production of these eruptions; it merely aggravates the itching and general discomfort.

If this group has an autotoxic origin, and the autointoxication lies in proteid metabolism, it is conceivable that it may arise in three ways: First, in the intestines as a failure of digestion and the consequent absorption of fermentation products; second, in the liver, following failure of synthesis of nitrogenous compounds into urea under its own or the ferments of other organs; lastly, by failure of elimination of poisonous products, or even of normal products of metabolism by kidneys and skin. Any one, or all three, processes may be at fault.

INDICATIONS OF INTOXICATION IN THE RESULTS OF URINE EXAMINATION.

Naturally, one turns first to the urine for evidence of systemic poisoning. It seems to be thoroughly established now that up to the point of actual suppression the relative proportions of nitrogen compounds are not altered in the urine through change in its own structure, and, further, that the ordinary products eliminated, such as uric acid, urea, the amino acids, and kreatinin, are non-toxic to the human organism in any proportion in which they are likely to occur. The same is true of acetone, beta-oxybutyric acid, and the rest of the compounds regarded as urinary indices of the hypothetical state of "acidosis."

Not long ago the old routine of heat and nitric acid and Fehling's solution was thought amply sufficient as a urinary examination. A little later methods of urea estimation came into vogue so faulty—for example, the bromide test—that the results are useless even if the theory on which the analysis was made (that a decrease in its amount pointed to a retention and intoxication) had not been utterly baseless. In these latter days urine analysis has passed out of the hands of the clinician and into those of the chemist. Mine have been done in the chemical and clinical laboratories of Cornell Medical College, under the most approved and laborious methods, with no results save one to be mentioned.

There are many data necessary for the proper interpretation of the results of the analysis of the nitrogen partition—urea, uric acid, kreatin and kreatinin, and the undetermined nitrogen containing the amino acids among other compounds. Ewing and Wolf[3] have compiled a table from Folin's[4] work which shows the normal range of percentages of these substances. Their dictum may be accepted that any wide deviation from these figures indicates serious disturbance. The percentages vary with the sex and the individual, his weight, the amount of proteid he consumes, and his habits, sedentary or otherwise. Since he comes when his metabolism is disturbed, it is impossible to do more than estimate his normal percentages for comparison. The urine, like the blood, should be taken (a twenty four hour specimen) in the beginning of the attack, or, better, in the prodromal period, because variations in the percentage soon adjust themselves while the intoxication goes on. (The patients can tell accurately when an attack is impending, chiefly by the burning in the sites of predilection.) Lastly, it is apparent that in a person chronically intoxicated an

exacerbation will produce very little variation from the normal, whereas in one in fair health a rise in any percentage will be abrupt and its fall equally sharp.

The analyses have been done in my cases of dermatitis herpetiformis, pompholyx, and prurigo at all stages, but oftenest during the height of the disease, I regret to say. They have shown practically nothing, except in one case of herpetiform dermatitis, in which, among the undetermined compounds, 9 per cent. of colloidal nitrogen was found—three times the normal amount. This refinement of analysis is so great that I am afraid to attach importance to it, although the specific poison may be contained in the colloidal compounds. I include one analysis to serve as an example from a case of pompholyx at the height of a recrudescence of the eruption:

Volume	1,130 c.cm.	Specific Gravity 1018	
	%		%
Total nitrogen...	1.059	11.93 grams per day	
Urea nitrogen...	0.859	9.7 ,, ,,	81.1
Ammonia nitrogen	0.051	0.69 ,, ,,	5.7
Kreatin nitrogen	0.045	0.49 ,, ,,	4.1
Uric acid nitrogen	0.020	0.23 ,, ,,	1.9
Undetermined nitrogen...	—	0.87 ,, ,,	7.1

Indican present. No trace of acetone or diacetic acid. Epithelial shreds, cells, and urates. (Very slight variations from normal percentages. The individual is small, sedentary, and a light eater.)

In spite of the fact that this elaborate analysis of the nitrogenous elements in the urine has not given the clear evidence of toxicity which it was expected to do, the work has not been useless. Chemists, clinical pathologists, clinicians are all agreed that there is one substance whose presence in the urine is always an indication of autointoxication. This is indican, which is a sulphur- as well as nitrogen-containing compound. It is invariably present in untreated cases of the bullous group. The colour reaction with the ferrocyanide test is, as elsewhere, generally blue, but I have met with the red reaction several times in pompholyx. Engman[5] has recently reported a series of cases of dermatitis herpetiformis in which he found indicanuria, but he failed to attach any significance to it as an indication of autointoxication. Like the French, he seems content to add it with eosinophilia to the list of symptoms of Dühring's disease. I should regard the hematoporphyrinuria described in hydroa vacciniforme as being in the same line as indicanuria.

We are not yet familiar enough with the normal percentages of the inorganic constituents of the urine to draw any deductions from a close analysis. A great variation from normal would be as clear an evidence of metabolic disturbance as in the nitrogen partition. The discovery could not be connected with the causation of the disease in any event to my thinking, but it is well to remember that a substance non-toxic in health may add materially to the disturbance in a body already diseased. Lactic acid, whose presence has been noted in the toxaemia of pregnancy, has not been sought for in our cases. Its significance would be probably that of an increase of chlorides, for example. The same would be true of an oxaluria.

It appears utterly futile now to speculate on the nature of the poisons in any intoxication. If, for instance, they are ferments or antiferments they will probably never be isolated. Fortunately, their nature is of purely academic interest to medical utilitarians. We will be able to handle the cases in all likelihood without that knowledge.

Evidence of Intoxication to be Drawn from the Results of Treatment.

Every one knows the effect of purely local treatment in bullous disease. Continuous baths, medicated or not, serve no better purpose in pemphigus than to keep the surface clean and ameliorate discomfort. The various applications recommended in dermatitis herpetiformis, pompholyx, and dermatitis exfoliativa do no more; the attack subsides when the toxic elements cease to operate for a time.

In these conditions and in all prurigo types, I have practically ceased to treat the disease locally after the surface is cleaned. Antipruritics are also stimulants, and generally contraindicated. Menthol in alcohol (3 per cent.) is about as far as I care to go. After the patient's blood and urine have been examined, a treatment is instituted which can be described by one word—elimination—and is, of course, no different from that used in other intoxications. First of all, the nitrogen intake is strictly limited, prohibited if possible, and starch in the form of fresh fruit and vegetables proportionately increased in order to decrease the amount of work thrown on the organs responsible for proteid metabolism. After one or two administrations of grey powder, a saline cathartic sufficient in amount to secure one movement daily is given. In addition we employ saline diuretics, and water must be taken practically *ad lib.* for a time—at least three quarts daily outside of what is taken at meals. In serious cases lavage of the colon becomes a necessary adjunct. The patients are directed to be in the open air as much as possible, and to exercise as much as possible within the limit of fatigue. In this class, as in other intoxications, when the condition becomes chronic these measures are rarely enough. The skin should be called in to help in elimination by means of the hot-air cabinets followed by a needle bath or douche, and the administration by mouth of pilocarpin ($\frac{1}{10}$ to $\frac{1}{20}$ gr.) four times a day. In prurigo the bath is followed by inunction of tar in some form.

Under this routine indicanuria and eosinophilia disappear in a few days or weeks, and the itching becomes much less intense. There is a cessation in the formation of new bullae, and healing begins, which is a process independent of the cause, and consequently requires a time varying with the skin attacked. I have seen dermatitis herpetiformis cut short in full efflorescence, and its relapses and those of pompholyx aborted when elimination was begun in time. A great deal depends on the intelligent co-operation of the patient. Patients who indulge at the table will never rid themselves of these minor bullous diseases. The secondary anaemia always calls for the exhibition of iron.

The case is different and incomparably worse with pemphigus, and there, it seems to me, we are justified in employing additional means. An antiserum would be rather ridiculous in prurigo or pompholyx. I have had no opportunity for the experiment, but there is no theoretical reason why one should not be obtained from animals, preferably goats, previously immunized to human serum. The case becomes hopeless when a septicaemia is added to the original intoxication. Beebe's work has just placed in our hands a powerful agent for influencing proteid metabolism in the form of nucleo-proteids of the thyroid which he has succeeded in separating. When their use passes the experimental stage they will doubtless be found necessary adjuncts to the treatment of obstinate bullous cases, perhaps epidermolysis bullosa. (His work is in progress.)

Mechanism of the Production of the Bulla.—If the autotoxic theory is correct, there is no need to refer bullous formation to the central nervous apparatus. So far as the skin is concerned (very likely the same process goes on in the internal organs) the poison first paralyses the superficial plexus of blood vessels through inhibition of the vaso-constrictors in areas determined by local conditions, but in general the points of predilection, elbows, knees, sacral and scapular regions. The vessel walls are unchanged and no thrombi form. As the serum exudes in greater or less quantity, the lesion is erythematous, papular, papulo-vesicular, or bullous. In a frank bulla the amount is relatively enormous, and the path of exit, the tissues being unable to retain it, is easier outwards. Consequently, aided by the contraction of the arrector muscles, it is forced in quantity into the meshes of the epidermis. In spite of a great deal of careful search I have never been able in well-prepared specimens to satisfy myself of any epidermic cell changes preceding the formation of the bulla. I have found no trace of acantholysis or of granular degeneration such as Elliot[6] described in epidermolysis. In the fully-formed bulla there is plenty of granular detritus, precipitated serum, albumen and broken down blood and tissue cells, but its appearance follows, does not precede, the lesion. In a fresh bleb the prickles are found fairly intact. The bullae are epidermic, but their exact

site varies. Sometimes the whole epidermis is carried ahead of the serous exudate; sometimes separation takes place between the basal and first layer of prickle cells; in other instances the split occurs anywhere, often between rete and granular layer. This is equally true of pemphigus, dermatitis herpetiformis, pompholyx and epidermolysis. The vesicle of prurigo is seemingly always intraepidermic. Fluid collections, when they occur in dermatitis exfoliativa, are indifferent as to site.

The inference to be drawn from these facts, the sudden outpouring of considerable quantities of serum, its swift passage through the papillary layer aided by contraction of the skin muscles, the absence of cell changes in the epidermis and the indifference as to situation there, is that the process is as purely mechanical as any vital change can be. After the epidermis is torn apart, cytolysis does occur, particularly in case of contamination by pus organisms.

The exact location of the bulla is evidently determined by local structural weakness; a rupture due to confinement beneath the impermeable horny layer. When the cornified cover of a bulla is torn after dissection by the fluid beneath, pemphigus foliaceus occurs.

There is nothing which resembles the serous tide of eczema with its hydropic degeneration resulting in the constant phenomenon of parakeratosis. This is an additional reason for the inclusion in this group of dermatitis exfoliativa, in which the scales consist of loosened but normally-constituted epidermis. In pemphigus vegetans the warty growths have no more significance than in other conditions in which they have been seen, such as eczema. The vegetations result from constant irritation and resultant growth in an epithelium deprived of its normal restraint of such activity. We all recognize this feature, as well as the dissection of epithelium in pemphigus foliaceus, as an indication of the extreme gravity of the disease, whether from the severity of the intoxication or failure of the patient's resisting power matters very little.

Conclusion.

In face of the clinical evidence of systemic poisoning, which is known to be non-bacterial, the occurrence of eosinophilia and indicanuria and the improved results of elimination treatment, it seems to me hard to escape the conclusion that we are dealing with an autointoxication, and, further, that that intoxication has its origin in the failure of the proteid metabolism. We are safe in assuming that in the course of the process there is elaborated, possibly among many other toxic bodies, one with an action on vessel walls as specific as that of snake venom or the nettle. It operates, probably, everywhere in the body as well as in the papillary layer of the skin. The ultimate conclusion is inevitable that the skin lesions are local expressions of a general disturbance, and that the bullous group is only a striking variation from the general run of the poisonings which have their origin in perversion of the body processes.

References.

[1] Kaposi, *Diseases of the Skin*, English translation, p. 397. [2] Osler, *British Journal of Dermatology*, vol. xii, 1900, p. 227. [3] Ewing and Wolf, *American Journ. of Med. Sciences*, vol. cxxxi, April, 1906. [4] Folin, *Amer. Journal of Physiology*, 1905. [5] Engman, *Journal of Cutaneous Diseases*, vol. xxi, 1903, p. 216. [6] Elliot, *Transactions of the American Derm. Assoc.*, 1899.

DISCUSSION.

Dr. L. Duncan Bulkley (New York) entirely agreed with regard to the autotoxic factor in bullous and other dermatoses, and expressed his indebtedness to the speaker for presenting on a scientific basis what he had for many years taught clinically. He considered there could be no question as to the effects of faulty metabolism induced frequently by intestinal fermentation. In years past, when seeing large numbers of patients in dispensary practice, he continually met with numerous cases of erythema multiforme, often presenting many bullae, occurring so frequently amongst immigrants that the disease was often alluded to as "morbus immigrantium." In these cases there had been the disturbances due to ocean travel, constipation (often for a week), etc. In these the eruption yielded at once to treatment directed to liver and intestinal relief. He had for many years carried out investigations into the urine in cases of skin disease, and he believed that there were changes in the urine, other than and often before albuminuria or glycosuria, which were of the greatest significance with regard to the treatment of many cutaneous affections.

Dr. Gilchrist (Baltimore) understood, he said, by the phrase "altered metabolism" a lack of elimination, and was in agreement with the speaker that this played an important part in the production of bullous eruptions. As to the underlying pathology of bullous eruptions, he gave an interesting account of some investigations carried out by him some years back. First, after the artificial production of urticaria in suitable subjects, the hives were excised and examined and found to exhibit numerous polymorphonuclear leucocytes, with fragmentation of nuclei and oedema. Secondly, bullous eruptions presented the same phenomena, only with more oedema and, of course, intense indicanuria.

Dr. Louis Duhring (Philadelphia) expressed his general agreement with Dr. Johnston as to the otiology of many cases of bullous disease, and considered that autointoxication following disturbances in the gastro-intestinal tract was the most potent factor in these cases. Whilst many were in one sense neurotic in origin, it appeared to him probable that the nervous system was affected secondarily through the alimentary defect. He further alluded to the influence of shock in producing bullous eruptions, doubtless by interfering with the functions of the abdominal organs, and so producing autointoxication. In this way shock was the primal cause of some skin affections, such as dermatitis herpetiformis and also acute generalized lichen planus, and were therefore to be treated not by local remedies, but by attention to the nervous system.

DEMONSTRATION BY LANTERN SLIDES.

By J. A. Fordyce, M.D.,
Professor of Dermatology in the University and Bellevue Hospital Medical College.

The following is a list of slides shown:

Squamous Celled Epithelioma of the Leg, following Injury.—(1) Showing proliferation of the cells of the outer sheath of a hair follicle. (2) Showing deep invasion of the cutis by the tumour cells in a state of active pearl formation. This histological evidence of malignancy was borne out by the very rapid course of the growth clinically.

Squamous Celled Epithelioma of the Thigh, after a Burn, or the So-called Marjolin's Ulcer.—(1) Burn was received when the patient, now 46, was only 3 or 4 years old. The ulcer which resulted healed and broke down several times during the course of forty or more years, and at the time the slide was made was 3 or 4 in. in size with a knobby surface, and here and there islands and streaks of new epidermis. (2) The relatively benign character is probably explained by the resistance of the sclerotic connective tissue which sharply limits the epithelial growth.

Squamous Celled Epithelioma of the Leg.—(1) Another prickle-celled tumour in a state of active growth. (2) Showing one of the pearls in detail.

A Metastatic Carcinoma of a submaxillary lymph node from carcinoma of the tongue.

Epithelioma on a *psoriatic* base, of the rodent ulcer type. The multiple tumours were relatively benign.

Cylindroma of the Scalp.—The cells are similar to those of the basal layer of the epidermis, but much smaller than the usual rodent ulcer. Groups of cells are surrounded by connective tissue which has undergone hyaline degeneration, and they show the same change in their midst.

Another so-called *Cylindroma* of the mucous membrane of the mouth, which is also a basal-celled epithelioma.

A Basal Cell Epithelioma showing a reticulated growth with degeneration (a cylindroma).

Lenticular Cancer of the Skin over breast secondary to a duct carcinoma.

Relapsing Rodent Ulcer in scar tissue back of ear. Lymph node over the mastoid process involved at the same time.

Sweat Gland Tumour.—Clinically the lesion resembled a morphoea, situated on the cheek close to the lip. About half an inch distant the patient, a woman aged 72, had a naevus which had undergone epitheliomatous transformation. The cells have a clear cytoplasm and deep staining nuclei with a tubular arrangement, and in places can be traced to the coil glands.

Angio-sarcoma of the Abdominal Wall.—Showing the new-formed blood channels, spindle cells, and sarcoma reticulum.

Angio-sarcoma, or Perithelioma, illustrating the growth about the vessels.

Angioma Hypertrophicum.—The irregularly-shaped and dilated blood spaces are separated by connective-tissue septa. The structure of the tumour closely resembles erectile tissue.

Idiopathic Multiple Haemorrhagic Sarcoma—Kaposi Type.—A fully-developed tumour in the corium, composed of closely-packed spindle cells and a connective-tissue reticulum.

Blood vessels are numerous, and an abundance of blood pigment is seen under the microscope.

Endothelioma (?) developed in scar tissue of a lupus vulgaris of the arm.

Paget's Disease of the Nipple.—Showing the swollen and vacuolated cells of the epidermis.

Keloid.—Removed from the neck of a man about 25 years old with the clinical diagnosis of sarcoma or keloid. Besides the dense hypertrophied collagenous bundles, the interesting feature is the grouping of plasma cells about the small vessels.

Naevus Papillaris of the Thigh.—(1) Showing the characteristic naevus cells in the upper layers of the corium; (2) a warty naevus of the thigh, the papillary outgrowths containing the naevus cells. The rete is everywhere very much thinned, while the corneous layer is tremendously hypertrophied.

Molluscum Fibrosum.—(1) A clinical picture of the tumours and pigment spots; (2) a microscopical section of one of the growths, showing the loose and cellular character under high power.

Molluscum Contagiosum.—(1) A section of the central portion of the tumour at right angles to the skin, with fully-developed molluscum bodies; (2) a cross-section of a lobule bounded by fibrous septa, with the bodies in their various stages of evolution.

Universal Lichen Planus.—This section shows a somewhat thickened epidermis and an infiltration in the upper portions of the corium.

Lichen Planus of the Mouth.—This lesion removed from the mucous membrane of the inner side of the cheek does not differ in its essential features from the foregoing.

Hypertrophic Lichen Planus of the Leg.—There is a hyperplasia of all of the epidermic layers. The cellular infiltration in the papillary bodies is made up chiefly of lymphocytes and plasma cells with scattered mast cells.

Sclerosis in Hypertrophic Lichen Planus.—Showing the dense fibrous tissue and thickening of the vessel walls.

Lichenization of the Skin of the Leg in a Patient with Leucokeratosis of the Mucous Membrane of the Cheek.—The epidermis is hypertrophied, notably the corneous layer, and the infiltration instead of being confined to the papillary layer, as in lichen planus, is more diffusely scattered through the corium, being densest about the vessels.

Leucokeratosis of the Tongue with Deep Carcinoma.—There is an enormous overgrowth of the rete with an inflammatory infiltration of the corium.

Lupus Vulgaris.—(1) A typical picture with endarteritis, granulomatous infiltration and giant cell formation. (2) A deep-seated nodule having giant cells with a double row of nuclei.

Serpiginous Lesion of the Thigh (Lupus or Syphilis?).—(1) Scattered foci of plasma and giant cells. (2) A deep-seated nodule showing giant cells with a double row of nuclei.

Lupus Erythematosus, with atrophic epidermis, degenerated corium and cellular infiltration.

Atrophy of the Skin.—An insane woman with delusions that she had a bone disease which she sought to cure by the application of acids to her skin.

Feigned Eruption produced by Carbolic Acid.—Microscopically the sections show loss of papillae, a marked thinning of the cutis with absence of elastic fibres in its upper portions; below the fibres are still intact.

Epidermolysis Bullosa.—(1) A bulla with the epidermis lifted from the underlying papillary layer. (2) A case with pseudo-milia in a child 3 years old. The slide shows cross sections of the cysts which are connected with the sudoriparous glands.

Dermatitis Vegetans.—(1) Erosions, fissures, and ulcerations about the mouth and chin. A superficial reticulated scarring has succeeded similar lesions about the scalp and right side of the face, and the skin over the neck and upper part of the chest is also the site of cicatricial formation and pigment changes. (2) The skin over the legs is thickened, reddened, and the seat of a papillary growth interspersed with numerous miliary abscesses. The right leg presents a pseudo-elephantiasic appearance. (3) Histologically, the main features were a hyperplastic epidermis containing miliary abscesses or vesicles, the contents of which were chiefly eosinophiles, with a dense infiltration of the same cells in the corium. The slide gives a highly magnified view of an epidermic vesicle with the eosinophiles.

Pemphigus Vegetans.—Vegetating lesions on the neck, in the axillae, on the abdomen, the inner side of the thighs and the genital region.

An Undetermined Tropical Ulceration involving the nose, pharynx and larynx. Woodsman, 44, in whom disease began thirty years ago as a slightly inflamed nodule which in course of time would break down and discharge one or two drops of pus, then become crusted. The lesions varied in size from a split pea to a silver dollar, producing by their coalescence a large gyrate patch, which gave the appearance of resolution in the centre and extension at the periphery. A slight degree of suppuration was always present, which was followed by healing and scarring. Cicatricial formation was very marked, especially on back, buttocks, and chest. The scalp was also involved. He also had one or two sebaceous cysts. His previous history was excellent. He was under observation for two years, during which time mixed treatment produced no effect, but marked improvement followed the use of cod-liver oil. Microscopically the coil glands were involved in a degeneration which gave them the appearance of imperfectly-developed giant cells. There was a marked proliferation of fibroblasts, and the infiltration was largely made up of plasma cells.

Dermatitis Herpetiformis—Papular Type.—Disease began twelve years ago on chest, and soon involved entire body. It came out in crops with intense itching. Subsequently he had about three acute attacks each winter, the initial one beginning in the autumn and subsiding somewhat before the second appeared. The present eruption began last November over buttocks and axillary line, then spread to rest of body without regular order or sequence. Without entirely disappearing, he had another acute attack in March. The extent of the rash diminishes each year, though irritation and itching are the same. His urine showed a faint trace of albumen and indican. His leucocyte count was 11,000: eosinophiles, 15 per cent.; polynuclears, 55 per cent.; large lymphocytes, 10 per cent.; small lymphocytes, 15 per cent.; large mononuclears, 5 per cent.

Mycosis Fungoides.

Premycosic Stage of Mycosis Fungoides: Pigmentation.

ERRORS IN THE TREATMENT OF CUTANEOUS CANCER.

By Dr. A. R. Robinson,
New York.

Dr. Robinson, who read only an epitome of his paper, stated in the course of his introductory general remarks that it was impossible to lay down any special treatment of universal application in cases of cutaneous cancer. The treatment in each case should be determined by the individual characteristics presented by the growth, the nature, extent, depth, and site of the lesion. With regard to general constitutional treatment, he had found so far no evidence of any satisfactory result from internal medication, though he considered that very possibly a future opening up great possibilities lay in this direction, particularly by influencing the general economy by the secretions of ductless glands. He was, however, convinced that the imbibition of alcohol by the subjects of cutaneous cancer seriously hindered the good effects of treatment. The treatment, of whatever kind, should be directed to complete and thorough removal of the growth with the least possible deformity. The mode of removal depended entirely on the character and site of the lesion—for example, flat growths should not be excised, but caustics and Roentgen rays employed. The Roentgen rays had, however, in his opinion, been far too widely employed, almost justifying their designation as race suicide machines; they should be restricted to certain specific forms, and their use preceded by agents capable of lowering the vulnerability of the parts.

Dr. Norman Walker, who opened the discussion, said he spoke as a convert to Dr. Robinson's views. Years ago, when working at the subject of rodent ulcer, he was a whole-hearted advocate of excision, but gradually he had forsaken it and now trusted to the curette, *x* rays, and caustics. He wished to put in a word for a caustic which Dr. Robinson had omitted to mention—namely, chromic acid, the use of which he had learned from Dr. Allan Jamieson, and which now took first place in his procedure. The after-results of scraping and caustics were much better than those of excision or the actual cautery. He felt, however, the responsibility of advising the method to students and always impressed upon them the absolute necessity of being thorough.

Dr. S. Sherwell (Brooklyn, N.Y.) agreed with Dr. Robinson in a general way as to the propriety of general surgery in pendent parts, as penis, ear, etc., but ordinarily, in the portions in which epithelioma is generally encountered, general operative procedure was the worst possible. The caustics, of which acid nitrate of mercury was his (Dr. Sherwell's) favourite escharotic, are by far the more preferable. He operated in these growths about twice a week, preceded by very vigorous curettage, and this, in his hands, had seldom been followed by recurrence. Dr. Sherwell also believed in the systematic administration, after operation, of arsenic in some form continued at times in increasing doses for long periods. He believed that this had a certain, not to say decided, inhibitory action on the embryonic cacoplastic tissue growth in epitheliomata and sarcomata.

Dr. G. H. FOX (New York) agreed that all the methods mentioned by Dr. Robinson had their value, but he thought the curette, or, better still, the dental burr (whose use he had long advocated in lupus) was of the greatest value in removing the bulk of morbid tissue preparatory to the use of escharotics or *x* rays. The currette or burr alone would often suffice to remove a small epithelioma if thoroughly employed, as unfortunately was seldom the case. It was the bottom and not the top of the growth which should be scraped.

Dr. J. NEVINS HYDE called special attention to the importance of selecting a different method of treatment in the several regions of the face. He agreed with Dr. Fox in thinking that the curette deeply venturing into the tissues was effective in the removal of the indurated ring frequently existing at the border of the epitheliomatous patch. He had no knowledge of any effective treatment of epithelioma by internal remedies such as thyroid extract, but limited internal treatment to regulation of diet.

Dr. L. DUNCAN BULKLEY agreed with the reader of the paper as to the choice of methods in various regions. He wished particularly to emphasize the pernicious influence of alcohol in these cases, and considered its use should be absolutely interdicted. He also extolled the value of a purely vegetarian diet in cancer, both of the skin and the internal organs, as he had for many years observed the beneficial influence of a restricted nitrogenous diet. Also he wished to draw attention to one point not mentioned by Dr. Robinson: that was the harmfulness of silver nitrate in epitheliomata, and earnestly urged that this agent should never be applied to any epithelioma of the mucous membrane or of the skin at any period.

Dr. W. T. CORLETT (Cleveland) wished to add to the other modes of removal mentioned that by electrolysis, and Dr. W. F. Breakey (Ann Arbor, Mich.) had found very satisfactory results follow the application of strong ointments of pyrogallic acid.

THE EVOLUTION OF INTRAPRIMARY LESIONS OF SYPHILIS: SUCCESSIVE CHANCRES AND PRODROMAL SYPHILIDES.

By ROBERT W. TAYLOR, A.M., M.D.,

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AMONG the many necessary revisions and modifications of our early conception of syphilis is one relating to the development of the disease in the primary period. Until recent times it has been thought and taught that the initial chancre and its satellite adenopathies were the only observable and tangible evidence of the infection, and that the climax of the disease was reached at the date of general secondary systemic manifestation at the end of the primary period. An eminent authority has said that "the initial lesion or accident develops on the site of infection, and for a certain time remains isolated and solitary, during which time it constitutes, or appears to constitute, the unique expression of the disease." In other words, there has been, and is, an innate conviction in many minds that in the primary stage of syphilis the disease is in a latent or nascent condition, and that it only becomes undeniably constitutional when the onset of generalized manifestations shows itself.

Accumulated study and experience have shown the fallacy of these contentions, so that now we know that the syphilitic poison, when implanted in virgin tissues, infects the part at once, and from the original focus rapidly diffuses itself through the entire system.

The most salient facts concerning the early existence of systemic infection have been brought out by the study of the development of a succession of initial lesions following the appearance of the exordial or inaugurating chancre at various intervals before the date of the general explosion—in other words, in the classical primary period. These anomalous initial lesions have been by French authors termed *chancres syphilitiques successifs*, and they are to-day recognized as true pathological entities. The evidence of these lesions is the first undoubted fact to prove that in the primary stage of syphilis the parts contiguous with the primary infecting focus, as well as in all parts of the body, are amenable to infection. These successive lesions are then really evidence of intraprimary syphilitic infection.

Then, again, other evidence of the early diffusion of the syphilitic poison is undeniably presented by the appearance of lesions which I have called prodromal localized or precocious syphilides. Thus, therefore, there are two orders of proof to favour the contention that in the primary stage there are local or quasi-generalized superficial lesions which may be grouped together under the title of intraprimary lesions. These are successive chancres and prodromal localized syphilides.

1. SUCCESSIVE CHANCRES.

Like all innovations, the contention that syphilitic lesions are multiple and may appear in distinct crops met hearty denial, but the forthcoming proof was irrefragable. Attention was called to the fact that by experimental inoculation the bland secretion of the hard chancre would produce on its bearer localized papular lesions with syphilitic attributes. Though these lesions have been called hard chancres, in strict accuracy they may be termed precocious syphilomas. Bumstead and I developed them many years ago, as also have W. Boeck, Bidenkap, Sperino, and Fournier, and, in recent months, Queyrat in Paris. There has, therefore, been accumulated such a vast amount of direct and analogical evidence as to the existence of intraprimary subinfections that further discussion is void. The inoculated lesions are found to be papular, nodular, and erosive, and usually rather small, hence called by some aborted chancres; but in some cases they are as large as the parent chancre.

In clinical practice the occurrence of successive chancres is usually due to simultaneous or later infections from a single source or autoinfection. In some cases it is probable that the successive chancres are due to identical secretions derived from another syphilitic individual, in which case the victim is poisoned from two sources. These cases, therefore, may be termed those of hetero-infection.

Cases of successive chancres acquired in coitus are largely those of doubt and perhaps haphazard, and analyses of them are always attended with difficulties and uncertainties, caused by the patient's carelessness, inadvertence, and ignorance, and often by his own uncleanliness. In the absence of a clear history the surgeon is often at a loss to determine why, in a given case, one chancre is followed by another or several at irregular intervals.

The most satisfactory class of these cases is seen in healthy women who give the breast to one or perhaps two actively infected syphilitic infants. The child infects the woman at irregular intervals.

In many cases it is probable that at a given coitus infection of several parts of the body is simultaneously produced.

In some cases the evolution of the lesions may be synchronous, but in others, for various reasons (particularly owing to the thickness and resistance, as well as succulence and vulnerability, of the tissues), they appear in irregular crops. In many cases there are ports of entry scattered over the whole body, such as insect bites, abrasions, minute fissures, acne papules and pustules, eczematous spots, perhaps of acarian origin, itching points over the face, head, nose, and ears, hypogastrium, thighs, and even legs, anus, and arms.

Moreover, many men and women are careless in the matter of personal nicety and cleanliness, and having chancres on their genitals carry secretion by their fingers or some inanimate agent at various times to the different lesions of continuity, and thus reinfect themselves sometimes in several or many places. Then, again, it often happens that sexual indulgence and depraved acts of coitus may cause chancres not only on the sexual organs, but also on other parts the seat of erotic sexual manipulation and gratification.

I will begin with personal recitals.

CASE 1.

A healthy man addicted to drink had impure and exuberant coitus. In twenty days he noticed a chancre of the prepuce, which when I saw it was a typical chancrous erosion. It gradually increased in size, accompanied by subjacent infiltration. Seventeen days after its onset a small, red, round scaling patch appeared on the lower lip. This increased in

area, depth, and extent, and developed into the annular chancrous erosion on the lip. Five days later (twenty-two days after onset) a small chancrous erosion appeared below the mother chancre, and was soon surrounded by an annular ring. This was followed in five days (twenty-seventh after onset) by a similar lesion lower down. Twelve days later an oval, parchment-like chancrous erosion ¾in. long appeared on the cutaneous layer of the penis, behind the glans and over the raphé. This man had had a single coitus, and he declared in the sexual act his consort, who was afterwards found to have exuding condylomata of the vulva and ulceration of the lips, had bitten him on the lower lip, producing temporary pain. He had carefully avoided touching other parts of the body when dressing his chancre.

Here, then, was the case of a man with an initial lesion, which was followed by five lesions, four of the penis and one on the lip.

Case II.

A lad, 18 years old, had in 1894 coitus, which was followed in twenty days by a chancre with inguinal adenopathies, which soon became typically encrusted. Twenty-one days after the onset of the mother chancre a second erosive lesion developed on the dorsum of the penis behind the first, and became of goodly size. Somewhere about the time of the appearance of his second chancre this youth was violently kissed and bitten by another *puella publica*, and as a result in ten days he had a chancrous erosion of the lower lip, which was followed in about a week by a smaller lesion of the upper lip. Fifty-eight days after the appearance of the mother chancre general syphilitic manifestations showed themselves.

This was a case of successive chancres unmistakably due to hetero-infection, the first *puella* causing his two genital chancres and the second one the two labial lesions.

Case III.

A man, aged 48, had two hard chancres on the penis and glans with an incubation of twenty-two days. These were followed in seventeen days by an enormous chancre under the umbilicus, which was of oval shape. Great adenopathy. This man, who was intemperate in his habits and careless, had an unusually long penis. He had been bitten by insects, and had an excoriation from scratching on the hypogastrium. The successive chancre was due either to the transference of the secretion from his penis to his abdomen, or else through contact, when in liquor, of the penis with that region.

Case IV.

A man, aged 39 years, had three chancres of prepuce and sulcus coronarius with an incubation of eighteen days, which was followed in twelve days with typical synchronous lesions on the upper lip and the lobe of the right ear. He had had coitus with a woman ascertained to be syphilitic, who in her erotic dalliance had bitten him about the head.

Case V.

A man had typical chancre of the upper lip with an incubation of twenty days, which was followed in nine days with similar lesions of the right ala nasi and penis. The ganglionic reaction about the neck was well marked before the appearance of the genital chancre, which was soon accompanied by elephantine enlargement of the inguinal glands. I have recently learned that this man had buccal and penile coitus with an infected woman. Strange to say, the exordium of his syphilis began in his lip, and the penile lesion was a successive chancre.

Case VI.

A man, after an incubation of twenty-one days, had a typical indurated chancre of the glans which enlarged and sclerosed the whole distal part of the organ. In eighteen days two chancres, one on the right forefinger and the other on the left thigh, both typically indurated, were observed. In this case the patient thought that perhaps he had infected his finger while fondling his consort's genitals. At the same time he had an itching spot on his thigh.

In women it is probable that successive chancres are less frequently encountered than in men. I have met a number of instances, but two cases are so striking and interesting that their brief recital is warranted. In each instance I was able, after much care, to elicit a full and unsatisfactory history, and it is eminently worthy of record.

The first woman, a fat and amorous blonde, aged 30 years, had repeated sexual indulgence in depraved ways with two men, one markedly syphilitic, the other the supposed victim of the disease. The woman's experience is, to my mind, unique. She had a chancre of the fourchette of much extent. In four days a chancre appeared at the right margin of the axilla. Five days later chancre of the anus was complained of. In eight days two chancres of the inner and coapting surfaces of the two breasts appeared as small excoriations. In fifteen days a similar lesion developed to the right and around the umbilicus. In eighteen days a chancre of the upper lip appeared, and two days later infiltration of the right tonsil was complained of.

In each instance it is possible that infection was caused by repeated libidinous pastimes with the two syphilitic men. This woman presented peculiarly severe generalized adenopathies and suffered for years with grave syphilis. She was a confessed alcoholic.

A female, aged 22, had coitus with a syphilitic man, and as a result had a characteristic hard chancre of the left labium minus. Ten days later a large, irregular chancre appeared on the left side of the neck over the middle of the sterno-cleido-mastoid muscle. Eight days later a run-around, as she called it, appeared at the margin of the nail of the right index finger and developed into a typical hard chancre. Inguinal, axillary, and cervical adenopathies developed characteristically. In forty-five days a typical small miliary syphilide appeared.

In this case the woman's hard chancre resulted from a similar lesion of the penis; the cervical lesion was caused by the bite of the man (who had buccal mucous patches) during coitus. The woman attributed her digital chancre to her ministrations to the penis of her syphilitic lover, of whom she was very fond.

In medical literature a number of interesting cases of successive chancres are reported, but I think those detailed are sufficient.

The date of evolution of the successive chancres may be 5, 10, 15, 20, 30, and in one case it was said to be 42 days after the first chancres. It is very rare indeed to observe the development of a successive chancre later than ten days before the appearance of secondary manifestations.

There is a special form of consecutive chancre which is deserving of mention, and due to coaptation of parts, the first one being the seat of a chancre. This is seen upon the scrotum, or internal surface of thighs, or upon the hypogastrium in cases of chancre of the penis which by accident impinges on these parts, and in women on one side of the vulva, the opposite one being the real lesion.

2. Intraprimary Prodromal Syphilides.

It is well-known that in general the evolution of the secondary stage of syphilis follows, in a quite orderly manner, the second period of incubation in from six to twelve weeks. In an early[1] communication I stated that prior to the secondary climax it was exceptionally found that a limited prodromal specific rash might appear. I wrote as follows:

Unusual Mode of Evolution.—The appearance of a general eruption is looked upon as the indication of constitutional infection, but the first eruption may be limited, and a general rash may not be developed for several weeks. In some cases only two or three dermal lesions can be found at the usual (precocious) date of invasion. Should the eruptions be erythematous the spots soon become coppery, and remain in a chronic condition; if papular, the papules are sluggish, and usually leave a pigmented spot. In connexion with these scanty lesions the patient may suffer from syphilitic pains in the head, in the bones, etc., and perhaps may have erythema of the fauces and high temperature. Within two to six weeks the usual general eruption follows.

These personal illustrative cases are appended:

Case I.

A man, aged 33, had coitus about June 1st, 1871; on August 10th he noticed a small, split-pea-sized nodule, with a brownish necrotic surface on the left side of the fraenulum. At the time the inguinal ganglia were distinctly enlarged. (Ulcer had probably existed ten days, certainly not longer; consequently the period of incubation was fully sixty days.) On August 25th, 1871, a flat papule of a dark coppery colour appeared just over the left eyebrow toward the median line, and a similar one developed on the margin of the umbilicus. Fourteen days from the appearance of these *avant-courriers* a general roseola and constitutional symptoms were observed. The two single papules ran an indolent course, scaled, and left coppery pigmentations, which were very persistent. This was the first time I observed this peculiar mode of evolution of syphilis.

Case II.

Female, aged 25, infected between September 4th and 5th, 1888, by her husband. On October 5th I found a flat, indurated chancre on the inner aspect of the right labium majus. Patient thought the lesion began about September 20th, and was afterwards under constant supervision. On November 18th a small scaling papule began on the right naso-labial sulcus, and a similar one on the neck, at the middle of the anterior border of the right sterno-cleido-mastoid muscle. The ganglia of the body were at the time enlarged, the inguinal to a much larger degree. No other lesion on any part of the body. December 3rd, a general roseola, with malaise and severe nocturnal headache. The papules on the nose and neck

became enlarged, flat, and scaling, and lasted until the influence of mercurial treatment for the general manifestations was felt. They then slowly subsided, leaving brownish pigmentations, which are to-day (April 26th, 1889) still faintly visible.

CASE III.

A man, aged 52, had coitus January 24th, 1889, followed by indurated chancre on the left side of the penis about February 10th, and ten days later by inguinal adenopathy. On March 26th, two good-sized conical papules appeared on the wrist over the styloid process of the left radius, and four on the corresponding palm. These ran an indolent course, became scaly, and left pigmentations. Three weeks after the appearance of these prodromal papules, a characteristic erythematous syphilide over the whole trunk and minute papules in the scalp were noticed. Indurated nodule still present on the prepuce.

In hunting through my records I have found three other cases, which I will briefly transcribe:

CASE IV.

A man having chancre of penis had, eighteen days after its appearance, four somewhat diffuse but typical papules on and beyond the nucha. He wore a tight collar, which constricted the neck. Three weeks later generalized syphilis.

CASE V.

A woman had hard chancre of the fourchette; twenty days later applied a capsicum plaster over the sternum and another over the liver for pains. After the subsidence of the resulting erythema small typical papules appeared at irregular intervals on the areas for two weeks. Later on general syphilis.

CASE VI.

A woman had hard chancre, and during its course she was bitten by mosquitos about the face and back of hands. When the hyperaemic lesions had subsided, numerous small miliary papules developed on their site, fully twenty in number, which persisted until after the date of generalized syphilitic manifestations. Mercurial treatment cured all the lesions.

My friend Dr. H. G. Klotz hunted thoroughly through all medical literature and could not find any other information on this subject; hence he cited me as the pioneer. He reported two cognate cases.[2]

These cases belong in the same category with successive chancres, and are evidences of the early infection of the whole system. It is very probable that the starting point of these prodromal lesions is a mild traumatism or some local stimulation. Their nature can be readily understood if we possess an accurate knowledge of the pathology of syphilis.

Causation.—What is the pathogenesis of these chancres? Writers on this subject are rather vague in their statements as to their causation, and it is from implication rather than from definite statement that their ideas are grasped. It is perfectly plain that they look upon the initial lesion of syphilis as at first and for a limited time a localized infection.

In explaining the occurrence of successive chancres most authors lay stress on a supposed immunity of syphilitic tissues to autoinfection which is said to be present before the evolution of secondary manifestations, and to be lost after the culmination of that event. Concisely summed up, the contention may be stated as follows: Syphilitic infection is said to be for a time centred in the initial chancre, and that it invades the tissues rather slowly by way of the lymphatic circulation. In this developing period, before the whole organism is infected, the tissues generally are yet vulnerable to the syphilitic virus, which elsewhere may cause similar lesions to the original infecting chancres. Later on, when general infection is established, this supposed immunity is lost and the virus ceases to act on the system. My own convictions on this subject are diametrically opposite to those just recited, and it is my conviction that from the start the whole organism is infected. It requires several weeks, however, before the intensity of the infection can be said to be complete.

My own studies have convinced me that the syphilitic infective process is from the very start a quite rapid one. The poison strikes directly for the blood vessels, and, causing there its peculiar changes, runs along them with astonishing rapidity and diffuses itself systematically throughout the body. The occurrence of successive chancres and of intraprimary precocious syphilides, therefore, does not show that the parts invaded are the seat of an immunity due to their not yet being syphilitically infected, but on the contrary that these parts are from the onset actively syphilitic, and that the tissues react moderately well to the repeated early specific infection either as a result of experimentation or in clinical practice. Traumatism undoubtedly is largely the cause of all these lesions.

The foregoing studies have saliently brought out the question as to the date at which syphilis becomes constitutional, and they seem to undoubtedly point to the conviction that the disease is systemic from the very date of its inception.

When we come to sum up the knowledge elicited in these studies, it seems that the following conclusions are warranted:

1. That by the autoinoculation of the secretion of the hard chancre in the primary period a proliferative lesion, resembling a secondary papule rather than a true chancre is produced.

2. In many cases a syphilitic is infected several times following a first infection, and a succession of primary lesions is produced.

3. In some cases infection of one or more portions of the body, usually extragenital, is produced by a second syphilitic individual or donor a short time after the development of the initial lesion.

4. Infection of a patient by a second syphilitic a short time after his or her virgin or primary infection occurs in exceptional instances.

5. Successive syphilitic lesions run a regular course, and do not usually portend malignancy.

6. The view that syphilitic infection is for a time local, and that there is an immunity to further early specific neoplasms in contiguous parts, is based on a false conception of the course of syphilitic infection. The poison of syphilis acts promptly, early, and progressively, and is a potential factor until its culmination is achieved in the developed systemic secondary stage.

7. The claimed immunization in primary syphilis is a chimera and founded on false pathology.

8. Though in general syphilis pursues a tolerably orderly course and its general exanthematic manifestations appear at the classical secondary climax, sparse precocious exanthemata may not infrequently be observed.

It is probable that these precocious intraprimary manifestations of syphilis will be found limited to the tegumentary structures; but it must be remembered that in the later days of the primary period evidence of general infection may sometimes be observed, as in cases of precocious specific neuralgias, rheumatism, meningeal disorders, cephalalgias, and renal and liver congestion. Histological studies of the foregoing lesions should be carefully made. They may develop important facts.

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[1] Bumstead and Taylor, *The Pathology and Treatment of Venereal Diseases*, Philadelphia, 1883, p. 559. [2] *Journal of Cutaneous and Genito-urinary Diseases*, September, 1889, p. 321 et seq.

Dr. J. NEVINS HYDE referred to his introduction to Merson's volume on syphilis, in which he took the ground that the original distinction between so-called primary, secondary, and tertiary syphilis had served its term. He had, he said, photographed patients covered with a syphilitic exanthem, showing also scars resulting from immediate excision of both primary sclerosis and glands, and he referred also to the interesting facts relating to the occurrence of chancres in patients who had been previously infected years before.

Dr. S. SHERWELL (New York) spoke of a case seen by him during the past week, in which a married woman, aged 35, had an initial lesion about three years ago on the vulvar labia and also, by autoinfection, a chancre on the upper lip a few days later. Both chancres were subsequently cured, and now an apparent chancre had reappeared on the upper lip, a recurrent or redux manifestation. Probably this was a gummatous lesion, resembling to some degree an epithelioma, but distinguished from this by certain earmarks—for example, its relative softness, and also by the relative infrequency of epithelioma of the upper lip, as pointed out by Sir James Paget.

Dr. L. DUNCAN BULKLEY, after some general remarks, alluded to the fact that every one occasionally encountered indubitable cases of reinfection. These, however, and such cases as had been mentioned by Dr. Taylor, were exceedingly rare, and in the great majority of cases one

infection protected against further infection. He agreed, also, that the moment the virus of syphilis touched an abraded surface the poison entered the system and was immediately circulated, returning, however, to make the original site of infection a point of special attack, forming the chancre. Every one now recognized that the general eruptions of the skin were only individual manifestations of the virus which affected equally every organ of the body.

A CASE OF PITYRIASIS RUBRA,

FOLLOWED BY GANGRENE OF THE LEFT FOOT AND THE DISTAL HALF OF THE RIGHT HAND.

By T. Caspar Gilchrist, M.D.,

Baltimore.

The patient, a white woman, 36 years old, was admitted in the autumn to the University Hospital of Baltimore, for asthma. As far as tuberculosis and syphilis were concerned, the history was negative. The patient had had the usual ailments of childhood—namely, measles, chicken-pox, scarlet fever, mumps, and whooping-cough. At 26 years of age she had an attack of typhoid fever, and two years later was laid up with pneumonia.

The asthmatic attacks were occasionally severe, and the patient could not lie down in bed comfortably, but had always to sit up. The hospital report was as follows: The patient when admitted seemed to be a well-built woman about 5 ft. in height, eyes bright, reflexes all normal, skin in good condition and of good colour, the tongue and alimentary canal was in fair condition; heart sounds normal, condition of lungs revealed the presence of râles all over both organs.

After being in the hospital three weeks the patient showed marked improvement, and was discharged. In two weeks' time she returned with a generalized eruption, which she said began suddenly four or five days previous on the legs, arms, and body, rapidly spreading to the face, and so becoming universal. A feeling of debility and depression preceded the outbreak. There was no previous history of any cutaneous eruption nor of any rheumatism. The whole skin assumed a bright red colour, and rapidly scaled, the scales being papery and so profuse that handfuls could be gathered in the bed each morning. The general health was good, the tongue being red, but the bowels were constipated when patient was admitted.

On examination the patient's entire skin was of a uniform brilliant red colour, covered with profuse large and small thin papery scales which could be easily rubbed off, and were especially numerous over the extremities. There was absolutely no sound skin anywhere. On removal of the scales no red points could be seen with a lens, as in psoriasis. The scales were largest on the hands and feet, large on the body, and small on the face; they were practically free at all the edges, and there was no tendency to form crusts. The skin was not perceptibly thickened, but was much warmer than normal, and was dry under the scales. There were no marked subjective symptoms, except chilliness and a feeling of stiffness and slight tenderness of the skin. The perspiratory functions were not interfered with. The general health was apparently in fair condition, but soon after admittance an attack of diarrhoea set in which did not last long, but was followed by constipation. The nails became affected later by the heaping up of the epithelium beneath them, which was followed by thinning of the nail substance. Examination of the blood showed the presence of leucocytosis and a slight eosinophilia. The urinary analysis was as follows: Specific gravity 1020, no albumen, no sugar, acid, few epithelial cells, urates, and oxalate of lime. There was a slight general glandular enlargement.

During the next week the patient's condition continued about the same, the scaliness being just about as profuse, but the colour of the skin assumed a deeper red. The patient now complained of pain in the fingers of the right hand and in the left foot. The pain in the finger was quite marked for two or three days before anything could be seen. On the third day there was noted a marked anaemic condition of the fingers, which were cold to the touch, and circulation was quite feeble. Every effort was made to promote circulation by massage and artificial heat, but the process could not be stopped by any of the means adopted. The very marked anaemic condition changed into one of cyanosis, and gradually gangrene began in the little finger and spread to the other three fingers, to the second phalangeal joint on the palmar and dorsal surfaces. The left foot had been attacked in the same way, and by the fifth day the fingers and the whole of the left foot presented the features of a moist gangrene, which in about three days gradually dried and formed a dry gangrene.

The urine in the meantime had been examined at regular intervals, and now showed a few pus cells as well as epithelial cells and mucus, but no albumen or sugar. During this period the temperature rose and fell irregularly, rising as high as 101°, and falling as low as 98°. Soon after the line of demarcation had been well and definitely formed the patient was operated on by Professor Randolph Winslow, who amputated the foot at the ankle and the diseased portion of the fingers of the right hand.

The patient had been relieved of the pain when the gangrene had appeared, but it had recurred just previous to the operation, which of course caused its disappearance.

Recovery from the operation was fairly rapid, but the skin disease continued about the same. The hair had gradually fallen off the scalp as well as the eyebrows. The scaliness was not perhaps quite so profuse, and she did not now complain of any subjective symptoms except slight itching. Her appearance at this stage was that of quite an old woman, and it would require quite a stretch of imagination to believe that the patient was only 36 years old. Since the patient now continued in a chronic but much improved condition, and had quite recovered from the operation, she was sent to the almshouse, where she stayed for some months. During all that period, about seven months, the skin remained dry, scaly, and redder than normal. No bullae formed during the course of the disease, nor did any weeping occur, and very little complaint was made of any asthmatic attacks. Since the patient would not allow any skin to be excised, the pathological histology could not be investigated.

The treatment was chiefly symptomatic; she was kept in bed and given very nutritious and easily assimilable diet; saline purgatives were used to keep the bowels regular, and externally mild oily preparations were applied.

The case is an interesting one, and worthy of record because of the peripheral gangrene of the right hand and left foot. The gangrenous process was noted from the very beginning, and could not be prevented or stopped in its course. There were no indications of any kind which gave one a clue as to the cause of this process, but it was probably due to a peripheral endarteritis.

Severe complications accompanying this disease have been recorded before, among which may be mentioned numerous cold abscesses forming under the skin and probably in the brain (Crocker and Pernet) and in two cases (Kaposi and Vidal) small cutaneous gangrenous patches on the sacrum, thighs, and shoulders, but I have not seen up to the present any reference to such severe gangrenous processes as occurred in this case. It is unfortunate that the patient was lost sight of, as it is not known what the termination was, whether she died or recovered, although she was heard of twelve months after the commencement of the skin disease, and she was still in the same chronic non-febrile scaly condition, and the scalp was practically hairless. I have seen four other cases of pityriasis rubra, but they were all what may be described as normal cases, and are not worthy of any special reference.

Dr. J. Nevins Hyde stated that gangrenous accidents in pityriasis rubra were not remarkable in view of the lowered vitality of the patients. He further inquired of Dr. Gilchrist whether carbolic acid had been employed locally in the treatment of this case, and reminded the gentlemen present of a paper by Dr. Hannington of Boston, in which had been described cases of gangrene following the use of carbolic acid externally in susceptible subjects, even when used in small doses.

Dr. Gilchrist, in reply, stated that carbolic acid had been employed in this case, but in such dilute solution and for so short a period that any connexion between its use and the gangrene could not be imagined.

DERMATITIS VEGETANS.

REPORT OF A CASE AND COMPARISON WITH OTHER CASES REPORTED.

By WILLIAM THOMAS COBLETT, M.D.,
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IN 1887 a peculiar eruption came under observation which did not conform to any of the types of cutaneous diseases with which I was familiar, while it corresponds in some respects to cases since reported under various names, by Hallopeau,[1] Perrin,[2] Hartzell,[3] Wende,[4] and Jamieson.[5] At the last meeting of the American Dermatological Association additional cases were reported by Pusey and Fordyce.[6]

The case herein reported stands out quite unique in my experience, but on account of the limited opportunity of studying the affection it has not previously been placed on record.

V. L., male, aged 7 months, was seen in consultation with Dr. S. F. Kelly, February 16th, 1887. The father was born in Dublin, but knows nothing of his parents, as they died when he was a child. From the age of 9 he followed a seafaring life until a few years ago, when he settled in Cleveland. No history of any previous diseases could be obtained. He had three children by a former marriage, who are reported to be well. His second wife, the mother of the patient, was about 25 years of age, and had been subjected to "fits," which were said to be a family trait. These attacks varied as to frequency, sometimes appearing more than once in a day. The family physician regarded the condition as a species of hystero-epilepsy. He had treated her for these attacks from time to time, although for many months he had not given any form of bromine.



When the first child was about 3 months old a "rash" appeared, which in the course of a month or more developed into large papules, which merged, forming elevated plaques, varying in size from a lentil to a silver dollar, and elevated above the surrounding skin from ¼ in. to ½ in. The base was overhung by the growth, which resembled a condyloma or young mushroom. There was no history of a bullous eruption associated with the disease, although there were a few pinhead-sized collections of pus, giving to the eruption somewhat the appearance of a sponge, suggesting the lesions seen in bromidism. These small pustules, however, were not a constant or conspicuous feature, as the pus more commonly oozed from the fissures which divided the individual papules of which the cauliflower growths were composed. Neither was the formation of pus abundant or sufficiently constant to attract special notice. Little or no itching was complained of, and the mucous surfaces were not involved. No tendency to a symmetrical disturbance was observed. The general health seemed but little affected. It resembled a bromide eruption, excepting that the pus was less abundant than is commonly observed; and as neither the mother nor the child had been taking the drug this diagnosis was excluded. Syphilis was thought of, but likewise excluded. An opportunity of seeing the case again did not occur, although the family attendant subsequently informed me that the ammoniated mercury ointment which was employed, was followed by a gradual subsidence and finally a complete disappearance of the eruption. The whole course of the disease occupied about a year. No relapse has taken place. Distinct scars are left, which are accentuated when the patient becomes cold. The patient has had no other illness of importance, and has developed into robust manhood.

I had an opportunity of examining him on August 19th, 1906. He is an athlete and the scars resemble burns. They are well defined at the margin and the cicatrized area is studded with pin-head-sized depressions, suggesting the scar following vaccination. These are situated on the cheeks and to a less extent on the temples. A few smaller ones are likewise found on the forearms, and two or three on the trunk, while the most conspicuous and broadly disseminated are met with on the outer aspect of the legs. In outline they vary, although in most instances they tend to become oval or irregular.

While in the Museum of the Hôpital St. Louis at Paris some years ago, I was impressed by a certain similarity which one or two of Baretta's models bore to the case I had seen. In the *International Atlas of Rare Skin Diseases*, No. 111, 1890, also appeared an illustration of Hallopeau's case which was slightly suggestive, but not until the photograph of Wende's case was seen and the admirable description given by Jameson appeared, did I recognize a distinct counterpart of my own case.

In reviewing the cases thus far reported, the question naturally arises as to whether or not we have to deal with special diseases, or whether the prominent feature of cutaneous hypertrophy or cauliflower growth is a condition occasionally met with in various diseases of the skin. In the cases reported by Hallopeau, the bullous nature of the eruption suggested pemphigus, which led this observer, in a subsequent report of five cases collected, to treat of them under Neuman's disease or pemphigus vegetans. While Wickham's[7] case of *Variété pustuleuse et Végétante de la dermatite herpétiforme de Dühring*, presented before the Dermatological Society at the Hôpital St. Louis, December 10th, 1891, and subsequently reported by Brocq[8] under dematitis herpetiformis of Dühring, presented the essential characters of dermatitis herpetiformis; on the other hand, the cases of Hartzell, Wende, and Jamieson present a type which, with the case here shown, bear a closer resemblance to dermatitis papillaris capillitii and kerion.

While there is a striking resemblance between the plate of Hallopeau's case previously cited and Hartzell's illustration, there is a marked variation in clinical symptoms. In most of the cases collected by Hallopeau the mucous membranes were involved, while this is not mentioned in the case reported by Hartzell. Further, the exudative feature, while absent in Hartzell's case, was a prominent symptom in the cases reported by Hallopeau. Again, Fox reported two cases of a "rare papular disease affecting the axillary region," which was accompanied by intense pruritus. Itching has been a prominent symptom in most of the cases reported in the adult. In infants the eruption has most frequently followed eczema seborrhoicum. Of those the first three cases were reported by Perrin. These were followed by Wende's two cases. During the same year, in Jamieson's case, no mention is

made of any preceding eruption, and in the present case a "rash" was said to be its direct antecedent. Eczema seborrhoicum in an adult aged 50 preceded the vegetating dermatitis in one of Hallopeau's cases.



Scars, twenty years after attack of dermatitis vegetans.

From the wide range of symptoms associated with vegetating dermatitis, it would seem that there are several varieties of the affection, or that the vegetative process is a peculiar feature induced by various pathological conditions of the skin. That it is, as Jamieson suggests, of pyogenic origin seems highly probable, but until more is known concerning its etiology its position as a disease *sui generis* must be held in abeyance.

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Dr. Grover W. Wende said: The report given by Dr. William T. Corlett undoubtedly refers to a unique case, dermatitis vegetans. I have reported two cases, as referred to by the speaker, and have more now under consideration. His case and my own possess many features common to all of the same nature, but there are many points in mine that do not correspond with the description given by Dr. Corlett, or with the previous report made by Dr. Jamieson. In my case, instead of beginning as a papule, the condition started as a small pustule, the base of which took on this vegetating growth. The pustular feature would disappear in a few days, and the growth would go on until it had attained a certain size, when some of them would stop, while others would continue developing. The etiology has been carefully inquired into, but nothing definite has been discovered. The condition is undoubtedly due to some form of pus infection. The cases respond to treatment in from two to six weeks.

ON THE WRONG AND RIGHT USE OF MILK IN CERTAIN DISEASES OF THE SKIN.

By L. Duncan Bulkley, A.M., M.D.,

Physician to the New York Skin and Cancer Hospital; Consulting Physician to the New York Hospital, etc.

Milk is Nature's specially prepared food, containing all the elements necessary to nutrition, marvellously combined, upon which animals of many species depend during early life. Milk is also more or less used by man in adult life, both in sickness and health, and *a priori* should be a desirable form of nutriment, and should be of value at all times.

But the experience of every one shows that the contrary is often the case, and one continually meets with those who affirm that they cannot take milk as it makes them "bilious." It has occurred to me so repeatedly to observe its bad and its good effects in different patients, that I have long paid especial attention to the matter, and I desire to present some of the results of many years' observation and record; for, according to my experience, neither the medical profession nor the laity quite appreciate some of the points which are very clear to me.

There must, of course, be some reason why so perfectly prepared a food is not always properly assimilated by adults, when in childhood it forms such a precious element of diet, under almost all circumstances. The explanation is found, I think, in the changed character of the digestion and metabolic processes in the adult, which gradually lead up to gout, gravel, diabetes, tuberculosis, cancer, and many degenerative conditions belonging to adult life.

There is much yet to learn in regard to the processes of digestion, anabolism, and katabolism, and it is possible that some of the accepted theories, based on laboratory studies, will have to be revised before we reach a perfect understanding of the modes and methods by which ingesta are transformed into living tissue, and the integral elements composing them are again cast off in other form as effete products.

For many years I have observed in hundreds of cases that milk has acted very differently upon the system under different conditions and in a manner which could not be explained upon the basis of the commonly-accepted ideas regarding the digestive processes. I ventured, therefore, some years ago[1] to offer certain suggestions in regard to the direct absorption of milk, under certain circumstances, without its undergoing the ordinary processes of caseation and digestion; and daily experience, now for many years, together with clinical attestations from very many physicians in all parts of the country, confirm me most strongly in the correctness of the proposition, although exact physiological proof satisfactory to all in regard to the steps of the process has not yet been furnished.

In order that what may be said later on the practical bearing of the subject shall be perfectly understood I must briefly state the supposed physiology of the process, and in doing this I must to some extent repeat what I have already written on the subject.[2]

Some years ago a number of persons reported the successful intravenous injection of milk, not once but repeatedly, to the great benefit of depleted patients. In this process the milk enters the veins directly, mingles with the blood, and goes first to the lungs without previous digestion such as takes place in the alimentary canal; of this there can be no doubt, therefore ordinary digestion is not necessary for the assimilation of milk.

This intravenous injection and assimilation of milk, without previous aid of the digestive organs, led me to consider, many years ago, the possibility of introducing it otherwise, in such a manner that it could reach the lungs first without passing through the portal vein to the liver, where in adults it is so liable to excite the condition popularly known as "biliousness."

Recognizing the similarity of milk to chyle, formerly called "milk juice," from which it is hardly distinguishable under the microscope, it was remembered that the latter was taken up by the lacteals, and discharged into the venous blood in the subclavian vein and vena cava, thence reaching the lungs. The question then arose if the milk, already in a state of perfect emulsion, could not pass through the same channels through which the elements of the chyle were absorbed without the process of coagulation, caseation, and subsequent gastro-intestinal digestion.

The problem, then, was to administer the milk at such a time and in such a manner that it would escape the acid and fermentative elements in the stomach during the process of digestion, and so avoid being curdled before it could be absorbed.

Physiologically, it is well known that the stomach in health does not ordinarily secrete gastric juice except

under the stimulus of food. At a varying period after the taking of food, the time being dependent upon the amount and quality of food taken and the activity of digestion, the stomach has finished its task. Absorption of certain elements has already taken place, other portions have been passed on to the intestines for further action, and the organ is found empty, awaiting cause for further activity. At this period the stomach loses its turgid colour, becomes paler and quite flaccid, and its surface is bathed with more or less of an alkaline solution, forming what is known as the "alkaline tide."

This alkaline tide occurs at varying periods of time after the ingestion of food, dependent upon many circumstances; it may begin an hour or so after a very small amount of digestible food, or it may be delayed four, five, or even many more hours after a very heavy or unusually indigestible meal, or with very weak or sluggish digestion. This should constantly be borné in mind in connexion with our subject, otherwise mistakes, errors, and harm will surely result. It is only when this "alkaline tide" is perfectly secured and utilized that the method of giving milk to be recommended later can be successfully carried out.

Remembering, then, that the blood was alkaline, the chyle alkaline, and normal milk also alkaline, and that the cavity of the stomach was in an alkaline condition at certain times, it was believed that if the milk could be presented to the gastric absorbents in an alkaline state and at blood temperature immediate absorption would take place. To accomplish this it must, of course, be introduced quite apart from all solid food or any substance or condition which could excite gastric secretion. Even the least amount of acidity from a preceding meal would coagulate some of the milk, and so start the whole process of caseation and digestion, and defeat the desired purpose of direct absorption.

The idea, therefore, is to give milk alone, pure or diluted with boiling water, at the body temperature, just after the alkaline tide has set in, or during its continuance, and to avoid food or any substance which could call forth gastric secretion until after its absorption has been fully accomplished. It is manifest that this plan is entirely opposed to the practice of eating a cracker with the milk, or even to the addition of an egg, whisky, etc.

I have been thus particular in detailing the supposed physiological basis of the plan of taking milk which I advocate because, while it may not fully accord with many of the accepted views of gastric and intestinal action, there is absolutely no question as to the practical bearing of the matter, as attested by hundreds of patients who cannot take milk in any other way, and by dozens of physicians of high standing, who have adopted it as a working theory.

Coming now to the practical application of the principles and practice already stated, I may say that while many patients can and do take milk in any way desired, I am constantly meeting those with the most different affections of the skin who are positively harmed thereby, and who experience the greatest benefit from a proper regulation of the habits in this particular. I also see many others who had long avoided milk, because of its deleterious effects, who gained in every way when this valuable addition was made to their nutritive elements in the manner described.

It is especially in acne that I have seen the prejudicial effects of milk as ordinarily used. In many cases a muddy skin will indicate sluggish digestion and faulty metabolism, and the gain, after correcting the milk error, will be far greater than would be expected from the treatment employed. So commonly have I observed this that I now invariably include the matter of the proper use of milk in my dietary directions in this disease.

Eczema also will often be found to be aggravated by the faulty use of milk, likewise urticaria, and indeed all eruptions with any element of a congestive or inflammatory character, and even psoriasis will do far better if this matter is attended to. For milk, as ordinarily and carelessly used, will continually produce imperfect liver action, and induce a faulty metabolism which renders many affections of the skin more rebellious.

In regard to the good effects which I have constantly seen manifested in innumerable patients with many different diseases of the skin from the exactly proper use of milk in the manner here advocated, it is hard to speak without exhibiting too much enthusiasm. After an experience with it for over twenty years, and with a most varied and most difficult class of patients to handle, and with some temporary failures, I assert that, when perfectly carried out, results can be obtained which are often marvellous; there is hardly a single fact in medicine or feature in therapeutics of which I am more confident.

I will not weary you with cases, of which I could cite a very large number, and I hardly know how best to present the subject in reference to special diseases.

It is, however, in eczema that I have, perhaps, seen the greatest gain; I allude, of course, to the more serious cases, which are often an indication of a nervous or more or less general breakdown of the system. Time and again the patients have assured me that there was such an evident refreshment and sense of restoration from it that they have looked forward for the exact hour for the milk with much pleasure. It is a very common practice with me to order it taken while in bed, an hour before breakfast, the patient then lying still for a quarter or half an hour before dressing. In this way many who had previously begun the day tired, find themselves in a very different condition. The milk one hour before the noon and evening meal also proves most acceptable, and by taking off the fatigue of the day renders the meal less likely to disagree. When feasible I have patients lie down and rest half an hour after drinking the milk, taking a nap if possible. Milk is also often most serviceable taken later in the night, if wakeful or restless from itching, provided no food or even medicine shall interfere with the exact operation of the plan recommended.

Acne cases, when severe, will also often present a degree of debility which will render the eruption very obstinate, and the value of the milk treatment as detailed is frequently manifested in a striking manner.

The same may be said of many patients with cutaneous disorders, for it must be remembered that we have primarily to treat the patient rather than the disease, using special medication, general or local, as may be indicated. Even in such a matter as excessive loss of hair there is generally a nutritive fault, which can often in a large measure be remedied by the addition of milk to the diet on the plan advocated, and frequently in severe or malignant syphilis the same is true.

A few words may be added in regard to some practical features of our subject. It frequently happens that after full directions have been given, and it was supposed that the matter was fully understood, patients have returned with the statement that the plan was not successful, and that the milk disagreed with them, as it always had done. In such instances I have constantly found that in some way the proposed absorption of the milk had been interfered with; and it will often be difficult at first to succeed in getting patients to carry out the plan exactly. For it must be remembered that the smallest amount of gastric juice or acidity will cause some portion of the milk to be coagulated, and when the digestive process has once begun, even in the slightest degree, it must go on until all the milk has been attacked and digested.

In many instances I have found that the patient, following the advice of a former physician or friends, has taken a small amount of food, as a cracker, with the milk. Again, some will put an egg in the milk, or add whisky, rum, or brandy, and so in many ways I had to correct operation of the plan interfered with. I have also known of harm being done by cream which has risen, and had been stirred in the milk, causing flakes, or by the slightest scum, caused by boiling the milk, and even by some foreign substance accidentally in the milk; these small solid particles, being incapable of immediate absorption may cause the secretion of gastric juice, and so start the process of digestion.

It repeatedly happens that the milk is taken too soon after a meal, while the stomach is still acid, and so the desired end is defeated. Or, when a long enough interval of time has elapsed, it has happened that, owing to a sluggish digestion, or to some especially indigestible article, the milk has come upon the products of a former meal, and not during the alkaline tide. Thus, patients will often take milk at half past ten or eleven in the morning, or at three or four in the afternoon, because at that time they had experienced a faint and "gone feeling," and mistook the uncomfortable sensation of delayed

digestion for hunger. It, will, therefore, often be very difficult to be quite sure that the stomach has reached the alkaline condition, at which time only can the milk be taken with advantage. My rule is not to have it taken longer than an hour before the coming meal, and occasionally it can be taken thirty minutes before.

Occasionally, if the digestion is sluggish, it will be necessary to administer pepsin or other digestives very freely and repeatedly in order to ensure an empty stomach early enough. At times, if there is any doubt as to the alkalinity of the stomach, I give one or more full doses of bicarbonate of soda half an hour or more before taking the milk; also a little soda may be put in the milk if there is any question as to its alkalinity.

The temperature of the milk is also an element of importance. When taken too cold or too hot, the effort of the stomach to bring it to the proper temperature for absorption will often seem to start gastric secretion, and a sensation of pressure and discomfort will follow, quite different from the agreeable feeling accompanying its proper use. The milk should be gently warmed to 100° F., not boiled, and it is often desirable to effect this by the addition of about one-third its volume of boiling water. Cream should never be added; indeed, it sometimes happens that too rich milk, as, from Jersey cows, disagrees, so that dilution with boiling water renders it more easily absorbed.

Many of these points—and more could be mentioned—may seem trivial and unnecessary, but long experience in following the plan advocated has convinced me that in this, as in so many other matters in dermatology, the closest attention to details is of the utmost importance.

Milk when taken successfully on the plan advocated, not only does not interfere with the appetite for the following meal, but often increases it in a surprising manner, as I have observed in dozens of patients; and this happens for reasons which are readily understood. The process of secretion from the glands of the stomach and other organs depends largely upon osmosis and blood pressure. By the quick absorption of the milk the pressure in the capillaries is increased, and a richer blood is also offered for the production of gastric juice, while a certain amount of nervous relief is given, enabling a more adequate supply of nerve energy to the digestive organs.

Of course, this method need not be confined to patients with diseases of the skin, and many physicians to whom I have detailed this method in times past have subsequently given me glowing accounts of its value in many conditions exhibiting depraved nutrition.

References.

[1] Bulkley, The Absorption versus the Digestion of Milk, *Journ. Amer. Med. Assoc.*, December 17th, 1898. [2] Bulkley, *On the Relations of Diseases of the Skin to Internal Disorders*, Rebman Company, 1906, p. 112 et seq.

Dr. Louis A. Dühring, after thanking Dr. Bulkley for his interesting paper, dwelt upon the fact that in certain forms of such disorders as eczema, psoriasis, and acne milk was of distinct value; and, further, that in these same diseases there was often a disorder of the gastro-intestinal tract. In chronic cases of eczema the seat of the internal disturbance was more often in the small and large intestines than in the stomach; hence such preparations as pepsin and the like were not appropriate, but acids, hydrochloric and nitric, more frequently of value. It would seem, he said, that the reader of the paper advised the taking of milk rather as an adjuvant to the regular amount of food than as replacing a meal. Dr. Bulkley's observations, however, were well worthy the attention of all who had to treat rebellious chronic cases of inflammatory diseases of the skin, especially eczema, psoriasis, and acne.

OBSERVATIONS ON THE ETIOLOGY AND TREATMENT OF ECZEMA.

By Graham Chambers, M.D.,
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Although eczema is so common, and in practice a consideration of the disease is such an everyday occurrence, all, I believe, are of the opinion that we know comparatively little about its etiology, and in its treatment our therapy is directed in a somewhat empirical manner. The negative character of our knowledge concerning its etiology has so impressed dermatologists that it is sometimes made use of in defining the disease. "Eczema is a term commonly applied to any wet or scaly inflammation of the skin, of the cause or nature of which the observer is ignorant," writes one author. To account for this dearth of knowledge there are several reasons, one of the principal of which being the probable composite character of the affection which, in the parlance of physicians, is designated eczema. We recognize certain varieties of eczema which do not appear to bear a close relationship to one another. Thus, for instance, the eczema of old, emaciated persons with degenerated skins is surely not the same disease as the eczema of infants, usually well nourished and frequently excessively fat; nor is the vesicular variety, which so frequently occurs on the hands and feet, likely to be the same affection as the dry, chronic, papular type.

In studying the etiology of eczema and the relationship which the various varieties bear to one another, one might have expected valuable information from histological examination of the lesions. This has not proved to be the case, as the microscopic appearances of sections of the lesions of the various types, as well as of the different forms of traumatic eczemas are more or less alike. Biochemical methods may prove of greater value in this regard. At the present, when we are almost wholly in the dark with regard to the relationship of these varieties, it would be well to drop the term "eczema" as a name of a simple disease. If we retain it, let the term "eczemas" be a group designation for all the varieties, including those of traumatic as well as those of non-traumatic or unknown origin. This would indicate a pathological but not necessarily an etiological relationship, a condition in keeping with our present knowledge of the eruptions.

The consideration of eczema as a disease characterized by various types of eruption of manifold origin has had no doubt a great deal to do with the diversity of opinion, both as regards its etiology and treatment. With regard to the etiology of eczema, one can obtain from writings on the subject very few definite statements on which there is unanimity. Hereditary influence is held by some writers to be an important etiological factor, while it is wholly disregarded by others. Some physicians look upon the eruptions as manifestations of constitutional disturbances. If this opinion were limited to the primary lesions of infantile eczema and to some of the eruptions observed in persons with strong so-called arthritic diathesis I would agree with them. Others believe that external irritation by bacterial growth, soaps, hard water, cold winds, actinic rays, etc., is the main if not the exclusive causative factor of eczema. There are several observations and considerations in favour of this view—such as the existence of traumatic eczemas, aggravation of the eruptions by scratching and other forms of irritation, the curing of many eczematous eruptions by local medication alone, etc. Still, there is insufficient evidence for one to form a definite conclusion with regard to local irritation as an etiological factor in every variety of eczema. There are others, again, who hold the opinion that nervous disturbances are important factors in the origin of the disease. Thus the profession is divided into three or four schools with regard to this subject. In an inquiry into the origin of eczema we should keep this in view. In this paper I shall not consider the subject of nervous disturbances as etiological features, but limit my observations on the etiology of eczema to the following:

1. Hereditary predisposition.
2. Disturbances of nutrition and metabolism.
3. Local irritation.

Hereditary Predisposition to Eczema.

In discussing the etiology of eczema, some authors give much prominence to hereditary susceptibility to the disease. They believe that there exists what is called an arthritic diathesis, a condition which predisposes the person in whom it is present not only to eczema, but also to many other affections such as asthma, chronic bronchitis, migraine, gout and renal calculus. A person with strong arthritic inheritance may during life suffer from several of these affections. In youth he is subject to migraine; in adolescence and in early adult life to asthma, bronchitis, and eczema; and in middle life and old age to

gout. Although disposed to all these diseases, he has the advantage over the average person in being little susceptible to tuberculosis. I may state in this connexion that, according to my experience, eczema is rarely seen in tuberculous patients.

With regard to the nature of this diathesis we know very little. Bouchard believes that a sluggishness of nutrition is its basis. Landouzy takes a similar view and calls it bradytrophy.

As it seemed to me very desirable to come to some definite conclusion with regard to the existence of this diathesis and its importance in the etiology of eczema, I have collected some statistics bearing on the subject. In the inquiry I proceeded as follows:—I found that it was impossible to draw any inference from the occurrence in family histories of most of the diseases in which arthritic diathesis is supposed to be an etiological factor. Bronchitis is due to a variety of causes. Migraine frequently closely simulates several periodic affections of the stomach. The manifestations of gout, at any rate in this country, are not well defined. Renal calculus is not always of the same kind, and is usually not sufficiently chronic to form a lasting impression on the minds of members of a family from whom data can be obtained. The only member of the so-called arthritic group which appears suitable for the purpose of the inquiry is asthma. It is a well-defined disease picture. Both the subjective and objective symptoms are so characteristic, that if a case has occurred in a family every member is usually aware of it. Moreover, a member of the present generation is usually able to tell whether any member, at least of the first preceding generation, suffered from the disease. If asthma had occurred in two generations, the present with the first or second preceding, then I considered that a hereditary predisposition to it was present, and made inquiry as to the occurrence of eczema in the families.

The observations were briefly as follows: Among 52 asthmatic patients there was a hereditary predisposition in 23. In the histories of these 23 families there were 8 in which no record of the occurrence of eczema could be obtained. In 8 eczema occurred once, in 4 twice, in 3 thrice.

Another observation which I think is quite common is the association of eczema and asthma in the same patient. According to my experience, the eruptions in these cases are very irritable and are frequently very difficult to cure.

These observations appear to indicate there is a relationship between asthma and eczema.

DISTURBANCES OF NUTRITION AND METABOLISM AS ETIOLOGICAL FACTORS OF ECZEMA.

With our present incomplete knowledge of nutrition and metabolism an investigation of these subjects is extremely difficult. The only way that we can proceed is to study the results of clinical experience and try to determine how the cause of the disease is modified by different states of nutrition and by various systems of dietary regulations. The observations should be made separately in each variety of eczema. The eczema of infants is particularly suitable for observations in this connexion as it is a fairly well-defined disease. Moreover, many physicians have the impression that nutritive disturbances are important factors in its etiology. Dr. A. D. Hall (Sheffield), who made an inquiry into the etiology of infantile eczema, does not hold this view. He examined 60 infants suffering from eczema with observations practically as follows:

1. Sex: More males than females.
2. Family history: Nothing suggestive.
3. Age: Most of the cases began during the second, third, and fourth month.
4. Site of first appearance: The head in 90 per cent. of cases.
5. Distribution: Usually symmetrical.
6. Season of year: More frequent in colder months.
7. Food: 86½ per cent. breast-fed.
8. Vaccination: No suggestive relation.
9. Dentition: Eruption usually precedes first dentition.
10. 15 per cent. had rickets.
11. Nutrition: Nutrition usually good. In most of the cases there was no vomiting, colic, or diarrhoea. Constipation was somewhat common.
12. Signs of external irritation: Eruption usually began on exposed parts of head; more frequent in colder than in warmer weather. The patches on other parts of the body are less severe, and tend to disappear directly the original patches recover.

From these observations and from other considerations concerning the origin and spread of traumatic eczemas he draws the inference that infantile eczema is probably due to external irritation. He also suggests that eczema in infants, as well as eczema in adults, is a form of reaction, not existing in most people, of the neuro-cutaneous apparatus to external irritation. These, then, are his observations and inferences therefrom. With the former I agree with the exception of his observations on family history and nutrition. According to my experience mothers of eczematous infants are more frequently neurotic than women in general. With regard to nutrition I have found infants with eczema, especially at its commencement, well nourished and frequently excessively fat. This appears to have some relation to the causation of eczema, as a diminution in weight, as a rule, facilitates treatment. For instance, two infants, respectively three and four months old, suffering severely from eczema contracted whooping-cough. This resulted in loss in weight. The eczema soon disappeared. If the eczemas were caused by external irritation alone I see no reason why the infection of whooping-cough should cause improvement. If a disturbance of the neuro-cutaneous apparatus is a factor, then one would expect an affection such as whooping-cough to aggravate rather than lessen the disturbance.

Another infant suffered severely from eczema from the third to the sixth month. It then developed bronchial trouble and lost weight, and the eczema disappeared. The child died in the ninth month of pulmonary tuberculosis. Observations such as this, together with the beneficial result usually obtained by diminishing the diet in the treatment of infantile eczema, have produced in me the impression that overfeeding is an etiological factor. This view seems to me to be supported by the infrequency with which eczema is observed in marasmus and other diseases characterized by malassimilation. If we should take for granted that disturbances of nutrition are causative factors of eczema, then we must decide whether it is digestion, or an act further on in nutrition, which is disturbed. Clinical examination does not give much aid. As a rule the infants are well nourished. Constipation is somewhat common. According to my observations the stools very frequently show signs of imperfect digestion, such as being green or too light in colour, containing undigested curds, etc.; but these signs are common in infants, and therefore are of little value in determining the nature of the cause of eczema. It seems to me that if infantile eczema were caused by digestive disturbances, then it would be more common in marasmus and tuberculosis, diseases in which there are invariably marked symptoms of indigestion. On the other hand, if we accept the view that a plethoric condition produced by overfeeding is an etiological factor, then the disturbance must be weakness of the metabolic functions. This appears to me a probable explanation. During the first six months there is a very rapid increase in weight. The average weight of a male child at birth is about 7½ lb., at six months about 16 lb., at twelve months about 20 lb. During the first six months an infant doubles in weight. During this period, at least during the earlier part of it, the digestive functions, both amylolytic and proteolytic, are weak, and it is quite possible that nutritional functions of the liver, pancreas, etc., are likewise undeveloped. The fact that a child at this age usually receives very little exercise may also be a cause of the defective metabolism. These, I believe, are factors in the causation of the primary patches of infantile eczema. This theory explains the behaviour of eczema in association with diseases characterized by loss of weight; the usual appearance of the eruption during the first six months; the tendency to improve at the end of the first year; and the benefit received from diminishing the dietary. According to my view, therefore, disturbances of nutrition are important factors in the development of infantile eczema. I may also add that I believe that external irritation by bacteria, cold winds, etc., aggravate the primary eruption.

In adults one also sees cases in which a similar disturbance of nutrition appears to exist. Thus it is very

common to observe a rapid increase in weight concomitantly with the appearance of eczema; and, according to my experience, a diminution in weight in these patients facilitates treatment. Recently I have had under my care two cases of eczema running courses which suggested a relationship between the condition of nutrition and eczema. In one (patient aged 72) the eczema began about twenty years ago. It was situated on the hands, feet, face, and occasionally other parts of the body. The eruption was usually dry. About eighteen months ago symptoms of cirrhosis of the liver appeared. The patient lost a great deal in weight and the eczema disappeared. The second was a younger man, aged 44, habits irregular, addicted to alcohol. Suffered from eczema, almost general at times, for eight years. Had asthma attacks. About two years ago marked symptoms of hepatic cirrhosis developed. There was considerable loss in weight. In a few months the eczema completely disappeared.

External Irritation as an Etiological Factor of Eczema.

All who have studied the origin of eczema agree that external irritation is a very common if not a constant factor in the development of the eruptions. The following observations and considerations should convince any one of the truth of this statement:

I. The existence of the so-called traumatic eczemas. These are indistinguishable histologically and clinically from eczema of apparently non-traumatic origin. Relief from irritation together with the application of a soothing remedy, or even with the ordinary toilet of the skin, produces a cure.

II. Irritation by scratching invariably aggravates an eczema.

III. Parts exposed to irritation, such as the hands and neck, are common sites.

IV. The majority of cases of eczema can be cured by local application alone.

You will observe that there is nothing in these observations from which inference can be drawn that external irritation is the exclusive cause of any variety of eczema. Even in the traumatic eczemas there must exist a predisposition, as only a small proportion exposed to the irritant suffer from the disease. This susceptibility to eczema appears to be a very variable condition. Thus the person may be susceptible to irritation by only one of the many substances which commonly cause traumatic eczema. Again, we meet persons suffering from traumatic eczema apparently caused by very uncommon forms of irritation. For instance, I am acquainted with a scientist who always suffers from eczema of the hands whenever he handles frogs.

The part played by bacteria in the production of the eruptions of eczema has been the subject of a great deal of discussion among dermatologists. Some believe that eczema is of microbic origin; others think that organisms do not cause but are common agents in aggravating the eruption. Most hold the latter view. It seems to me that this is especially true of infantile eczema. All are agreed that the diseased skin of an infant is particularly susceptible to inoculation by pus germs; and it is probable that other organisms find it a favourable pabulum for their growth. In connexion with this subject I have made some observations which are interesting to me. They are as follows: On two occasions I have observed a dermatitis on the breasts of women nursing infants suffering from eczema of the face and scalp. The eruptions on the breasts were no doubt due to irritation produced by the head of the child coming in contact with the breasts during nursing. The patches were slightly scaly. In one case there was no sign of pustulation. In the other there were two papulo-pustules present in the patch. Both patches were about 2 in. in diameter. The application of an antiseptic ointment to the breasts cured the dermatitis in both cases. I have also observed similar-looking patches on the body of infants themselves, and I think that it is quite possible that infantile eczema may sometimes be extended in this manner. The question is, Was the eruption on the breast caused by the presence of bacteria or by some unorganized substance present in the scales and crusts on the infant's head? In favour of the latter view, I may mention the experiment of Bockhart, who produced a dermatitis resembling eczema by the application of the toxin of *Staphylococcus pyogenes aureus*. I may also mention the theory as to the origin of eczema in general advanced by Leslie Roberts (Liverpool). According to this the dermatites of eczema are caused by substances produced by destructive metabolism of epithelial cells. These experiments and theories suggested to me that possibly as a result of irritation of the epithelial cells a substance of the nature of a harmone was produced, and that this was absorbed and produced lesions in other parts of the body. However, experiments with preparations made from scrapings of eczematous patches have produced negative results.

Treatment of Eczema.

According to my experience, combined constitutional and local treatment gives the best results.

The local treatment is most important in the majority of cases. In following this out we should keep in mind the pathological condition, and make our therapy as rational as possible. We should particularly remember that the eruption is a dermatitis; that the mucous layer is oedematous, and owing to vesication, exfoliation of corneous layer and fissuring is more or less exposed to external irritation. If one examines an acute eczema on the hand with a magnifying glass or binocular microscope the unprotected condition of the mucous layer can readily be observed. In vesicular eczema the fibrinous exudate protects, to a certain degree, this layer. It also appears to act as a hydroscopic and emollient agent, for if it is removed by washing, shortly after the affected part feels dry and readily fissures. There is another character of the exudate which has a disadvantageous influence in treatment. I refer to its acting as a pabulum for the growth of germs. This is a most important consideration in treatment. Taking into consideration these characters, as well as the inferences to be drawn as to the aggravation of the eruption by irritation, the indications for treatment of any case of eczema in which the mucous layer is exposed are as follows:

1. To reduce the inflammation of the skin.
2. To soothe and protect the skin, and particularly the mucous layer.
3. To adopt measures to bring about normal keratinization of the epidermis.

In the early stages of acute eczema the second indication should be our main guide in the local treatment. The question is, What is the best method of soothing and protecting the skin? In this connexion there is much difference of opinion with regard to the value of aqueous preparations. Some authors advise against washing an eczema. At the same time they state that calamine lotion and other aqueous preparations are very useful in treatment. This appears somewhat inconsistent.

There is no doubt that washing an acute eczema is usually harmful. What is the reason? The following appears to me a probable explanation. When an acute eczema is washed with water the fibrinous exudate on the surface of the skin is removed. As soon as the skin dries it becomes less pliant, and readily fissures, which tends to increase the subjective symptoms. If this is the explanation, then aqueous preparations when used should be applied continuously. Again, in selecting the local application, the one which is most soothing to the mucous layer. Theoretically, a normal saline solution should be soothing; and, according to my experience, if it is applied continuously, this is the case. During the last two years I have frequently used with success this preparation in the treatment of eczema. In making the application cheese-cloth in 8 to 10 ply is moistened with the solution and applied to the patches. To prevent drying the moist dressing is covered with oiled silk. The dressing should be changed twice a day. In cases in which the eczema is impetiginous I add boric acid in sufficient quantity to the normal saline solution to make about 1 in 60. At each change of dressing it is well to wash the affected parts with the solution. As soon as the skin, by its colour, smoothness, the absence of crusts, etc., shows diminished inflammation and improved keratinization I discontinue the dressing and apply a soothing ointment such as Lassar's paste. Subsequently a mildly stimulating ointment may be required.

Dr. Louis A. Dühring complimented Dr. Chambers on his admirably concise exposition, and stated that one of the most interesting and important points with regard to

the local lesions was their differential diagnosis from the varied forms of local inflammation resembling eczema. Such latter cases he was disposed to regard as dermatitis. Such dermatitis, due to local irritation—heat, cold, alkalies, and the like—might, and sometimes did, pass into true eczema. But it was by no means true that every dermatitis was an eczema; the lesions of true eczema, whether running an acute or a chronic course, demanded more than local treatment to effect a cure. Certain chronic cases were to be cured only by proper dietetic and other internal treatment, directed in many instances to the abdominal viscera and the nervous system, both of which in a state of disorder were potent and generally unrecognized factors in rebellious and chronic eczema.

Dr. L. DUNCAN BULKLEY (New York) said that it would be impossible to properly discuss the many interesting points brought out in Dr Chambers's excellent paper, but that he agreed in the main with almost everything that had been said. But, while all must agree that local agencies had much to do with the actual eruption of eczema in many cases, still one saw very many instances where no local irritation could be made out, even with the most careful study, and also innumerable occasions in which there had been the same local irritation with no eruption, and even in the same individual at different times. He was daily more and more convinced that sufficient care and investigation could discover the systemic disturbances, as along metabolic and neurotic lines, which really lay at the bottom of the eczema, or the tendency of the skin to take on an eczematous dermatitis under certain local stimulation. Moreover, the constant observation of long-standing cases of eczema yielding completely under proper dietary, hygienic, and internal medicinal management, with little or no local treatment, or with such measures as had previously proved ineffectual, convinced him of the correctness of this view, even though one might not be able to determine and define exactly the nature of the internal cause of eczema. He wished again to emphasize the very great value of milk, used exactly according to the method which he had just advocated in his paper, in cases of eczema which were at all extensive or rebellious.

Dr. S. SHERWELL supported Dr. Chambers in his views of the etiology of eczema, but Dr. NORMAN WALKER, in summing up the discussion, criticized a certain tendency to be led away by single ideas and pet theories, and was afraid that they were apt at times to blind men to other important factors. In the present instance he wished to lay stress on the preponderating importance in the etiology of eczema of external irritation.

THE BLOOD IN RELATION TO SKIN DISEASES.

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THE following notes are taken from some work done by us where the blood, using Wright's methods of examination, gave important indications for treatment.

In the list of the opsonic indices of 34 cases of acne and other conditions where a staphylococcus was isolated from the lesion, the index will be observed to be low:

1. R. M.	...	0·50	18. M.	...	0·84
2. T. C.	...	0·52	19. L. M.	...	0·73
3. T. G.	...	0·53, 0·56	20. F.	...	0·86
4. M. M.	...	0·81, 0·85	21. J. L.	...	0·69
5. A. J.	...	0·64	22. S.	...	0·78
6. L.	...	0·42, 0·51	23. G.	...	0·93
7. G.	...	0·64, 0·53	24. B. L.	...	0·72
8. B.	...	0·60	25. R.	...	0·64
9. C. L.	...	0·66	26. P.	...	0·51
10. B.	...	0·58	27. D.	...	0·65
11. E. A.	...	0·88	28. M. W.	...	0·60
12. C.	...	0·83	29. P.	...	0·50
13. W.	...	0·89	30. B. P.	...	0·45
14. M.	...	0·61	31. J. M.	...	0·84
15. D.	...	0·81, 0·81	32. C.	...	0·40
16. S. G.	...	0·80	33. M.	...	0·47
17. Mc.	...	0·93	34. P.	...	0·45

Case 26 (P.) may be cited as an illustration; for the last five years he had suffered from staphylococcic lesions. It was found that his opsonic power was low, and that it could be raised by injections of staphylococcic vaccine, and that while his opsonic index was high, the lesions always improved. He got seven or eight injections; at the end of the course of inoculations he was entirely free from any skin lesions, except a little persistent pustular eczema on his wrists. As he was going to London, he was advised by us to see Professor A. E. Wright, who found that the alkalinity of his blood was below normal. He put him for ten days on sodium lactate, and the eczema completely disappeared.

After inoculations practically all these cases rapidly improved, though some relapsed; in a few the failure to get a good result was obviously due to defective technique. At one time we thought it might be possible to regulate the doses by observing the clinical condition of the patient. The following case illustrates the necessity of proper control of the inoculations:

L. M., aged 18, acne for three years, numerous small abscesses on the face, general health good.

May 22nd, 1905, Index 0.73, inoc. ½ c.cm. vaccine containing 1,200 millions dead staphylococci.
May 27th, 1905 ,, 0.82, inoc. 1 c.cm.
June 7th, 1905 ,, 0.67
June 8th, 1905 inoc. 1 c.cm.
June 12th, 1905 ,, 0.60
June 21st, 1905 inoc. 1¼ c.cm.
June 22nd, 1905, fresh pustules and severe relapse.

Here we gave too large doses and did not observe the curve of the index, the third and fourth inoculations having been given in the negative phase.

In lupus the opsonic index with tubercle bacilli gives important aid. Here the index is variable, as may be seen by the list:

1. F.	...	0·90	10. E. F.	...	1·62
2. G.	...	0·94	11. Mc.	...	1·10
3. B.	...	1·00	12. R.	...	1·40
4. W.	...	0·92	13. P.	...	0·59
5. F. E.	...	1·3	14. A.	...	0·67
6. R.	...	0·77	15. A. D.	...	0·20
7. W.	...	0·76	16. M. W.	...	1·00
8. W. O.	...	0·60	17. W.	...	0·66
9. Mc. N.	...	0·86	18. M. K.	...	1·00

With a persistently low index a case will not do well by Finsen or any other treatment. If by carefully-regulated inoculations, however, we raise the opsonic power, the improvement is marked. The following case is an illustration:

A young gentleman, with lupus of the nose, had been treated by distinguished dermatologists for years, finally by Finsen treatment at Copenhagen. Under this treatment the disease healed rapidly, except an ulcer on the ala, on which many exposures were given; after six months he came home with this spot unhealed. After resisting some further Finsen treatment his blood was examined, and his index was 0.86. Two inoculations were given, after which the ulcer looked healthier, and two tuberculous glands in the axilla became smaller, one eventually disappearing. One Finsen treatment was now given, and the part healed entirely in ten days. He reported himself again two months later, and no nodules could be found in the scar.

Some cases of lupus erythematosus do very well with Finsen treatment. In one case which did not do well, the index was found to be low to tubercle; three separate determinations gave indices 0.7, 0.64, and 0.65. Another case of erythematosus which has been slow to respond to treatment had an index of 0.7. We are at present trying the effect of Finsen treatment combined with tuberculin inoculations for cases of erythematosus with a low index.

The determination of delayed coagulability of the blood may give an important indication. In the case of erythematosus mentioned above, on first giving Finsen treatment (a quarter of an hour exposure) the part treated rose up in huge blisters, requiring three weeks to heal. This again occurred after the second treatment. As the coagulation time was found to be prolonged, the patient was put on calcium lactate the day before treatment, with the result that she has had several exposures since with little or no blistering.

Two other cases which showed much blistering had calcium lactate before treatment with great benefit.

Another case which reacted severely to the light treatment and did not improve by taking lime salts was found to have a normal coagulation time.

A young medical man who had tried a great number of applications for an oedematous rash and tenderness coming on after shaving was quite well after taking calcium chloride for one week.

In those dermatoses associated with serous effusions

when the coagulability of the blood is found diminished, the soluble salts of lime have been rapidly beneficial. The certainty with which they act in such cases leads one to think that an investigation into the rôle of the salts of the plasma will lead to great increase in our knowledge of many problems in dermatology at present obscure, and to improved scientific methods of dealing with them.

SECTION OF STATE MEDICINE.

Frederick Montizambert, M.D., D.C.L., President.

(Continued from page 691.)

THE INTERNATIONAL CO-OPERATION IN THE INSPECTION OF EMIGRANTS AND IMMIGRANTS.

By Dr. P. H. Bryce,
Medical Officer, Department of the Interior, Ottawa.

The subject of emigration as a remedy for some of the ills incident to the social and industrial conditions in Europe, sometimes resulting from war, at others from depressed agriculture, but oftenest due to industrial depression and changes in manufacture from hand-made to machine goods, has from time to time during the past century engaged the attention of legislators in England and the different Continental countries; and has never ceased to be one of the directions in which philanthropists, sociologists, and Municipal Councils and Poor-law Boards have looked for the solution of the problem of pauperism, which has ever been present with them.

In England, after the close of the Napoleonic wars, the subject of the unemployed became acute, and in 1819 Parliament made a grant of £50,000 to send emigrants to South Africa. In the discussion in the House then, Mr. Hume proposed that parishes having able-bodied paupers on the rates should assist them to emigrate, and, if unwilling, they should be deported forcibly. In 1830 the subject again came up in the House, by a Mr. Horton presenting a petition from the parish of Frome, asking for means to assist in the emigration of certain paupers willing to emigrate, and pointing out incidentally that of 14,000 persons in the parish, one-third habitually or casually received relief. In 1834 an Act was passed providing for assisted emigration regularly, through an added rate limited to half the regular assessment of a parish, and that such emigrants be tried and imprisoned if they returned within five years. It is apparent from these illustrations that the problem of the emigration of the surplus population of Great Britain has existed for a century; and it is hardly necessary to say that during the middle half of the century Germany, Austria, and the Norse countries have seen the same problem arise, which has in the last twenty-five years again appeared in Italy and Russia.

But while the emigration problem has thus existed, the immigration problem has similarly been developed. In 1800, the population of the United States was 5,316,377, while all Canada in 1829 had but 911,229 of population. Manifestly the room for settlers in both these countries was great in these early years of the century, and there is abundant evidence to show that the Governments of both were seeking immigrants.

The Hon. Samuel Smith, in the speech at the opening of the Legislature of Upper Canada in 1818, referred to the grants which His Majesty's Government was making to assist emigration, and he expected the House would consider means to assist immigrants to defray the cost of location. Referring to the great immigration of 1832, the Governor, Sir John Colborne, in his speech to the House, thought that the province ought to be more widely advertised.

Later reports, whether in Canada or in the United States, especially after the railway era had been entered upon, amply prove that the question of obtaining immigrants became even a more acute one than that of sending out emigrants. Such, indeed, continued to be the situation until the year 1891, when commercial disaster and the resulting hard times checked the movement to the United States, which had become enormous, while the thousands obtaining relief at soup kitchens in many American cities caused some observers to suspect that it was possible to get too many immigrants—"too much of a good thing." To what proportion immigration to the United States had reached may be judged by the fact that they received 570,876 in 1892, which fell again as low as 217,786 in 1898, showing how sensitive is the immigration barometer to changes of supply and demand.

With the return of commercial prosperity this decline has not only disappeared, but there has been further a yearly increasing wave, which reached more than 1,000,000 in 1905.

Thus immigration to the United States was:

1898	229,299	1902	648,743
1899	311,715	1903	857,046
1900	448,572	1904	921,315
1901	487,918	1905	1,026,499

That the question of immigration remained a practical one for Canada may be judged from the fact that although a steady stream of immigrants flowed almost unchecked into Canada from 1830 to 1855, yet the opening of the cheap lands of the United States prairies, there being no Manitoba till 1870, and no railway there until fifteen years later, all resulted in making the halt in immigration to Canada as to the United States, setting in with the commercial crisis of 1857, almost continuous until 1898.

Thus, whereas 54,123 came to Canada in 1842, and as many as 109,680 in 1857, and 43,376 in 1854, the number fell to 6,689 in 1859, and reached its highest again in 1883. It was then 53,566, and subsequently varied as shown by the following figures:

1897	20,016	1902	67,397
1898	30,742	1903	128,364
1899	44,543	1904	130,331
1900	44,697	1905	146,266
1901	49,149	1906	189,064

That the problem remains a permanent one for Britain, as for other European countries, is illustrated by the fact that within the limits of the 1,400 Poor-law Boards of England and Wales alone, on September 30th, 1905, there were 766,168 paupers (240,345 indoor and 525,853 outdoor) or 22·4 per 1,000, and that England received in 1905 some 196,529 immigrants from the Continent. The chronic nature of this pauperism is seen in the fact that the number of poor per 1,000 was 28.0, 25.5, and 23.2 for the years 1879, 1886, and 1895 respectively. Nevertheless, emigration from England was nearly 2,000,000 during the past five years:

1901	302,575	1904	453,877
1902	386,779	1905	459,917
1903	—		

It must be remembered that the natural increase alone of population in the British Isles is annually some 600,000.

That similar conditions in other countries of Europe, due to over-population and social and political disturbances, have and are adding force to the ever-gathering stream of emigration, is seen in the emigration to the United States, which in 1905, from three countries alone, amounted to 679,069.

Thus:

Austro-Hungary...	...	...	275,693
Italy ...	...	...	221,479
Russia...	...	...	181,897
Total	...	...	679,069

But enough has been seen to make plain that we have a large international problem before us, permanent in the very nature of things, inasmuch as its very elements are those of a humanity struggling from the boundless fens, with their impenetrable mists, of a hopeless social and political mediaevalism into the clearer light of a modern humanitarian and industrial noonday. Half of a century of science has made the situation possible. The peoples of the Continent have, within a quarter of a century, "seen a great light," and whereas Garibaldi's "Italia libera" had not 50,000 of her sons in America when his flag was raised, they are now counted by millions. Similarly, Austria's feudal, stolid conservatism, for centuries the mother of Kings and Emperors, she, too, is changed by the "day of Sadowa" and the "resistless force of things"; and Russia also, spinning ever "down the ringing grooves of change," has begun recently to add to the ethnical diluvium which nations, if not continents yet to be, must lead at their debouchures into the sea of mankind by devious courses—*chenelles écartés*, as we call them, or hidden channels—so as to form those pleasant "islands of desire" in their deltas, while all the while

carefully guarding, as they must, against their impeding the broad, deep native currents in their onflow to the sea.

It is, however, apparent that to uphold the clouds and mists that pour their streams on those eastern hillsides is impossible; to dam the flood is only to make the destruction later inevitable: and hence we must, if possible, so regulate the waters as they advance that there shall be no flood; and to this point, for a few moments, I propose to address myself.

It was not till 1900, after the serious falling-off of immigration in 1898, that the United States authorities, aroused by a general prevalence of trachoma in the schools of the poorer districts of New York, took up seriously the question of the medical inspection of immigrants. Since 1873 a consolidated Immigration Act had been in force in Canada with admirable provisions for restricting the immigration of physical and mental defectives, paupers, and vicious classes; but so few had been the immigrants in recent years that not until 1902 did their increasing number and the restrictive action taken at the United States ports indicate to the Canadian Government the necessity for medical supervision. An amendment to the Act was passed in that year providing for medical inspection and the exclusion of those "suffering from dangerous or loathsome disease," or for their being landed for treatment under specified conditions.

For years the people of England had been protesting against the wide open door to Continental immigrants, which in increasing numbers had for twenty years been coming from the disturbed and impoverished provinces of Poland and Russia; and after its introduction in 1904 and again in 1905, the Aliens Act went into operation in Great Britain in 1906.

I need not here go into the provisions of these several Acts farther than to state that they are all in principle the same, and are based upon much older Vagrancy Acts, which for hundreds of years regulated or attempted to regulate, whether in England or on the Continent, the army of mendicants so admirably pictured by Charles Reade in *The Cloister and the Hearth*. This principle is the same which exists in every Quarantine Act, every public health law, and every municipal by-law. It is simple, intelligible, and fair, and briefly stated is:

"That the control of the undesirable element, produced by and belonging to any nation or community, is a duty peculiar to that nation or community."

The adoption of this preamble, therefore, in the Act of any country would appear equally to have as its corollary:

"That it is *contra bonos mores*—in other words, bad form—to allow, *et a fortiori* to encourage, the emigration or migration of 'undesirables' from one nation to another."

If, then, we have in this Section medical officers representative of the three English-speaking peoples especially referred to in this legislation, it ought not to be difficult for a committee of such to draw up a resolution, declaring its adhesion to the principle, a recognition of the desirability of its adoption, and the possibility of having the principle practically enforced. It may, indeed, be interesting to some to know that to some small extent practical co-operation between the Immigration Department of Canada and that of Great Britain and the United States already exists. Thus, for many years there has come to Canada a selected number of children from homes, such as Barnardo's, and they have been admitted to Canada on the distinct understanding that they were to be regularly inspected in their locations by officers of these homes; and, further, that they were to be inspected through the Canadian Department of Immigration for the Local Government Board of England and at its expense, and that undesirables should be returned by the home or society. The work for years has been admirable and has gone on without friction and to the satisfaction of all.

Again, for several years, at Canadian ocean ports, representatives of the United States Immigration Department have been given every facility for inspecting arriving immigrants destined to the United States. This work has been adjusted so as to harmonize with the Canadian immigration regulations, and I may say, after three seasons' observation and oversight of the medical section of the work, that it has gone on with ever-increasing completeness and effectiveness, to the advantage of both Governments and the growth of an *entente cordiale* between the officers in a difficult scientific work.

For the past season, with a view to extending the completeness of the medical supervision, the Canadian Department suggested—and the suggestion was gladly and courteously accepted—that a Canadian medical officer be stationed at Ellis Island, New York, in the interests of the Government, in the case of immigrants via that American port, destined for Canada. This co-operation has similarly been effected without hitch, and again to the cultivation of a better understanding and more effective action in a common work.

But the scope of this field of work must necessarily widen if we are to successfully deal with the many problems which arise.

As in any average 1,000 of a population, in any country, some 3 are insane, so we must expect in the many thousands of migrants passing yearly between Canada and the United States, that there will be a number who become in either country a charge upon some Province or State.

For several years the United States Act has had a provision whereby any alien becoming a charge upon the public within three years may be returned to his own country. This applies whether to the diseased, pauper or criminal classes. The operation of this provision promised to be harsh and extremely irritating and was liable to give rise to serious Border misunderstandings. Fortunately it was found possible to extend the *entente* already established, and instead of a United States officer arriving at some boundary railway station and standing some helpless and homeless lunatic against the north side of the line for support, an arrangement was amicably arrived at, whereby no deportation by one Government was to take place until after correspondence. An officer from the north would relieve the officer from the south of the necessary, though undesirable, "white man's burden," while the compliment, on the other hand, has been returned of some "undesirable" who had lived previously in some State of the Union being received at the border in his migratory passage, like the birds southward to a warmer climate to the tune of the old saw,—

> What a fine thing
> Is a lute with one string!

Nothing has given the officers of the two Governments greater pleasure than to stimulate the growth of a co-operation, which may be said now to be, so far as laws make possible, complete all along the line. The time has not come, but it will come as the exact and extended working powers under the remodelled "Canadian Immigration Act" become better known and put in operation, under which the inspection carried out by an officer of either Government will be accepted, stamped "good" by the other. Given the *entente*, science makes the next step readily practicable, and I am pleased to say that in the unofficial co-operative work which for two years has been carried on by United States and Canadian officers there has been found no political entanglement, making an *impasse* necessary or possible.

When our fathers "crossed the sea" it required a month; now when our brothers come it takes five days. Standing on the eastern shore of Canada, hearing the "moaning of the homeless sea," I am actually nearer and more in touch with officers in Liverpool than at its western limit, Vancouver. I hope many of our visitors will witness the proof of this before they return to Britain.

It will not, then, seem strange if, after what I have said of co-operation, I say that such will be just as possible between Canadian and British immigration officers and those of other European and foreign countries.

I have, in the opening paragraphs, indicated what the problem of emigration is constantly forcing British and other European municipal and general governments to deal with in the very nature of things: and how, growing out of these conditions, come the facts which as immigration units we have to deal with. Canada has in the past ten years done much, very much, for her immigrants, and Canada gladly says further: "and our immigrants have done much for us." Surpluses, bounding revenues, smiling wheatfields, bursting granaries, which you gentlemen will all see, are speaking daily to us, and we do not forget; but there is ever that *immota mo'es*—that 700,000 English unemployed, with its

constant x (the unemployable) always there, which Canada, very busy Canada, just now has not time to teach how to work; and since our "Great Mother" has not learned, Canada modestly—for it is so hard for Canada to be modest nowadays—says she is afraid she does not know how, even if she had time. At present, we have this year just a round 200,000 to digest, and though perhaps from performances during the past five years we may have some grounds for feeling like one-eyed Polyphemus, that fabled Cyclops, who

> Seized, crushed, and devoured a brace of the Greeks,
> As a Welshman would swallow a couple of leeks;

yet, nevertheless, we have our limit.

We do want organized, scientific, municipal, borough, and local government co-operation, whereby lads and lasses, and plenty of fathers and mothers, too, whether in "homes," which they reach through no fault of their own or anybody's—God's will is enough—or in towns, who are willing and fit to come to Canada to better themselves, may be assisted to do so; for I have a sympathetic and pitying contempt for the selfishness (unconscious), based on ignorance, of those Canadians who, having a million square miles of available lands and six people to each mile, are not willing to help countries which, like Britain, have populations of 300 to the square mile. They always remind me of the story from the Californian slope, where, in a riot of railway navvies, amongst whom were Chinamen, there was from time to time heard the slogan, "Americky for the Americans, be gorra!"

But we do wish to feel that the practical sentiment of every medical health officer and every borough officer is that the "no goods," at least, will not be sent to Canada. We have not had much to complain of in the past, and are quite ready to deal with the drifters who do come of their own accord, but would like if at ports of departure orders did exist, if necessary, made under clause 8—that interesting clause of the new Aliens Act—making a definite medical and character certificate necessary before any booking agent or steamship company could embark passengers.

The melancholy sight is weekly seen of the hopelessness and despair of some who are turned back; and in large degree it need not be. It were far better if, in view of the growing permanent nature of the work in Britain, there were created a Government Board of Emigration, as in Italy, which has in a most remarkable and systematic manner dealt with the whole subject of emigration.

But the needs, possibility, and practicability of co-operation between Britain, the United States, and Canada in this work have been sufficiently illustrated to allow the future to indicate wherein practical work may be accomplished. No field of work presents more difficulties, few greater interests or more permanent results for honest scientific work than this.

> The greatest study of mankind is man.

If I have been in any way successful in giving the subject practical interest, I shall be more than pleased.

THE STATE CONTROL OF HEALTH.

By Jennie G. Drennan, M.D., C.M.,
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Some, if not all, of the ideas contained in this paper may appear to be of a Utopian nature; but is not Utopia, after all, a state, which however impossible of present attainment, is assuredly attained in the future? and then the wonder is, not at our attaining of it, but at our past consideration of it as a madman's delusion or a dreamer's idle dream. Our present-day achievements would, to our ancestors, have been incomprehensible; so the future developments of the race to us, but perhaps not quite so much so, for as we evolve wonderment decreases, and we, more than they, are prepared for advancements. These ideas advanced to-day may in the light of the future prove that a madwoman's delusion or a dreamer's idle dream may be a verity. The object of a paper at such an assembly as this is not to present old ideas with which all must agree, but rather to advance new thoughts, which cause perhaps adverse criticism, and stimulate new controversy. We do not assemble here to feast upon old hashed and rehashed mental pabulum, but rather to replenish our minds with new food for another year's meditation.

The title of a paper should be so clear and concise as to at once convey to the hearer's mind the exact meaning of the subject; but, unfortunately, at the outset, this title may require some explanation, this not being necessary from any fault of the author or hearer, but due rather to the fact that in the process of evolution conditions change, and terms applied to them therefore become inapplicable for the present. I had at first decided upon the title "The State Control of Medicine," but on further consideration I determined that that of "The State Control of Health" would be more applicable to our ideas of to-day; this is the day of Preventive Medicine—Health; that was the day of Curative Medicine—Disease; this is our aim, however short we fall of it; that was theirs.

The State should be as a mother to the public—a mother ever watchful, anxious, and solicitous concerning the welfare of her charge—and in no one respect should she be so careful as over the health of the people, for by the healthfulness of the community millions of money may be saved for her exchequer. There is no necessity for me to go into any details concerning the cost of disease to the State and to the individual; it is one of our national drains, and a drain which should not be if we but knew how to live; it is one of the heavy prices we pay for civilization. The public must be taught how to live, and this can be accomplished effectively alone by an organized system—a health army, as it were. If the State were as solicitous of preserving health as it is of preserving peace, it could be done, and would be done in a short time. Health is every man's birthright, but health is not alone an individual matter; it is a State consideration. Disease does not alone affect the individual; it affects the whole State; it is found in palace and hovel alike, and no one entirely escapes its ravages.

The public, at the present, is quite satisfied that there are medical men to cure it when it is ill, and that it has a Department of Public Health, but it does not demand more—that is, a Department of Public Health, an organized army to banish disease and preserve health, and watch over every individual with constant care. Such may, perhaps, be regarded as a herculean task; but much more could be done than is being done, and Hercules did not live alone for once, but he still lives. Ideas change with time. Disease was once regarded as a manifestation of Divine pleasure or displeasure, individual or collective as the particular case might be. But to-day, although the idea still prevails in some primitive minds, still the rank and file refuses to acknowledge this supernatural agency, and the wisest and most advanced place the cause, where it rightly belongs, to the failure to observe the laws of health. We are developing so rapidly, that time and thought have not been sufficiently given to how we should best live. In the money-mad rush and the too hasty culture acclimatization we have failed to do as we ought to have done, and our sins have been many. Those in the foremost ranks of the profession to-day no longer expend all their time and energy in the curing of disease, however necessary that may be, but rather they direct their energies to the prevention of disease and the preservation of health. The "health profession" should be the term of the future.

Every condition of life must have its system. Nature has systematized efforts; civilization must have them. The educational system of a State never attains any degree of perfection until it is thoroughly organized, and all classes are benefited. John Knox did more for Scotland by his system of free schools than by any other of his reforms, and thereby he ranks as Scotland's greatest Scotchman. Our present Department of Public Health should be enlarged and made to embrace all means which are for the maintenance of the health of the people. As it now stands, it is altogether too inadequate; it copes with only a small fraction of that which should be its work; it should have full control of the whole medical profession and all institutions therewith connected. Our hospitals and asylums and charitable institutions never reached any degree of efficiency until they were placed under State control—the individual is too selfish to be entrusted with such—the beef trusts and other such concerns of the present day bear ample evidence to this assertion, and as in everything else, so with health. Under this new order of things the Department of

Public Health should have control over every practising physician; he should be employed by it. In every municipality, however large or small, according to its size and population, there should be a standing army of medical men fully equipped for the work, every one with his special duties assigned to him; there should be a regular head quarters for these in every such municipality, and all hospitals and institutions should be under the control of the department. A physician's duty should be to regularly visit his own district and to maintain it in a state of health, curing the diseased—for there will always be some such—and teaching the well how to keep well. He should not wait until he is called upon, but as an inspector he should go in regularly. The physician over such a district should be a general practitioner, but at head quarters there should be specialists whose services may be sought for special cases. There should be an expert bacteriologist and pathologist. A band of well-trained nurses could materially aid in this work—to a certain extent in the large cities this is being done by nurses, teaching the mothers in the tenement districts and visiting the public schools. The appointing of physicians to examine school children is also another step in this same direction, and the signpost finger points in this direction. The old time family physician, who was paid so much every year to look after the health of the family, was only a prototype of what will be.

Man has always, to a certain extent, claimed the right to be his own physician, and, if not his own, to choose his own. While he does so wisely, this freedom of choice may be satisfactory; still he may not use wisdom in his choice, for all so called fully-qualified men are not, in the highest acceptance of the term, such; for in our profession there are wolves in sheep's clothing as there are in all other walks of life, and commercialism ranks high in some instances; but it is not so much to this rather insignificant phase that I wish to attract attention, but rather to the fact that the public is largely entrusting its health, its birthright, to the care of the patent medicine rogues—men who, with no thought for the public welfare, decoct and sell medicines, their only purpose being the amassing of immense wealth for themselves, a few thousands of which may later on be left to some charitable institution, within the walls of which are victims of their ignorance and greed. If the public—it is often a stubborn child to teach—could be taught, by striking examples, that it is being deceived by these impostors, a step would be taken in the right direction. If it were made a crime for a man to take a dose of medicine unless authorized to do so by his physician, he might afterwards acknowledge the folly of his error. Education will ever accomplish more than legislation, but often legislation must precede it, for some will not learn save under penalty. The public has not been taught as it should have been in this respect; man is taught everything else under the sun but how to live properly. Before an effective State control of health can be effected our legislative assemblies must be purged of any element which will tend to retard reform, namely, a senator, whose millions have been made by a patent pill, cannot be a honest representative of the people, a man desirous of maintaining the health of the public, for he lives and lives alone by their disease. Such is a disgrace, and when at the funeral of such a man a physician is chief mourner one needs turn aside and sigh for truth and honesty, and wonder if it will ever be thus, and that always "money shall make the mare go."

The only men and women allowed to practise medicine, or rather to maintain the health of the public, should be those authorized to do so by the State, employed by it to do so, and all others should be punished for attempting to do so. These should be carefully selected. To say that under this new order no abuses would exist would be asserting too much. As it stands to-day all physicians do not succeed alone on account of their medical ability, but many rather by their personal magnetism—a quality not to be despised—and their commercial ability. In these cases, while they stand high in the estimation of the general public, they fall far below the standard in the eyes of the members of the profession. These by an organized system of State control could be weeded out; for then it would be necessary for them to keep up to the times—for examinations should be held at regular intervals—those not life-long students would soon fall out of the lists. Now as it stands the profession is an unorganized army of men and women engaged largely in the curing of disease, whereas it should be a large organized army engaged in the preserving of the public health. Both public and profession would be benefited by this system—the former would receive the best service available, and the physician would be given a better opportunity to advance. He would have a stated salary—and a sure and definite salary means much to the young practitioner. Then, moreover, every physician would have certain hours on duty—preferably eight, leaving him the other sixteen for rest, recreation, and study. The practitioner who is on duty all the time, as is now the case unless he be consultant or specialist, is a perfect slave to his calling. A regular yearly vacation would be given, and at stated intervals of four or five years he should be given an opportunity for a year, or at least three months, to attend some of the hospitals and schools of the leading medical centres. Why is it that so many of the young men to-day seek medical appointments in the army and navy? Because there there is an organized system. Old age could be provided for by a pension system. This system would remove commercialism from the profession, and tend to bring ability to the front.

In order to maintain an organized system of this nature money would be required, but this could be placed on a basis much the same as that for the maintenance of any other public institution. It would in the end cost the State much less to maintain it in a state of health than as it now is. Perhaps in this one phase of life more than in any other the principle of the rich man paying for his poorer brother could be and should be employed, for in the end the former would be benefiting himself by lessening the menace to his own life by disease.

The legislatures are attempting to discover a correct definition for the term "practice of medicine," but so far they have not succeeded, and under the existing conditions are not likely to do so; but if it were made a crime for any one, even the man himself, to interfere with the rights of this organized system for the preservation of health, this might be accomplished; for then no one but one of this organization could attempt to prevent disease, cure disease, or maintain health by any means whatsoever.

LEGISLATION REGARDING FOOD PRESERVATIVES.

By A. McGILL, B.A., B.Sc., F.R.S.C., etc.,
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MANUFACTURERS very reasonably ask that the Department of Government which is charged with the administration of the Food Act should define as clearly as possible its attitude towards the use of preservatives in food. They claim that without preservatives their business as packers of meat and fruit products would be destroyed, or at least seriously handicapped. They believe that the chemical substances employed by them are harmless in the quantities used. They wish to use nothing that makes their products unwholesome; they desire to do nothing illegal, and they wish to be definitely instructed as to the conditions under which they may use preservatives and have a guarantee of security against being charged with adulteration under the food laws.

It is inconceivable that legislation in the matter of preservatives in foods should be absolutely prohibitive. Common salt, sugar, vinegar, wood smoke, and many other antiseptic substances, whose use goes back further than the memory of man, would have to be excepted. It follows that any laws in this regard must be specifically permissive—that is, must name the substances which are permitted to be used—or must be specifically prohibitive; whence, by inference, any article not named for prohibition will be regarded as available to the manufacturer until such time as its name is added to the schedule.

In some countries the law requires that the fact of a preservative being used, and its name and amount, shall appear on the label. This is good so far as it goes, but in the absence of further control it assumes an amount of knowledge and discrimination on the part of the purchaser which is unreasonable. At the same time, I regard it as right and necessary that the presence of a preservative and its name should always be announced on the label, and this for two reasons: First, that the physician may be able to direct the regimen of his

patient; second, that the manufacturer who puts up his goods without a chemical preservative may get due credit.

The manufacturer is naturally desirous to secure cheapness and efficiency in the preservative he uses; and under the term efficiency I include not only the possession of high antiseptic power, but such qualities as tastelessness, colour, harmlessness to health, etc. The experience of recent years shows that new substances, claiming to possess these characteristics, are being offered from time to time. Is the public to take the risk of testing the harmlessness of such new claimants for favour; or shall we make it illegal to use any new antiseptic until such time as we may feel justified in adding its name to a schedule of substances specifically permitted to be used?

Manufacturers claim that such action would seriously handicap the search for desirable preservatives. The question is worthy of consideration. I must confess that my own opinion is favourable to the making everything of the nature of a food preservative illegal in use, unless specifically permitted. I am aware that under such conditions many largely-used preservatives such as borax, boracic acid, benzoates, etc., would have stood a poor chance of demonstrating their efficiency and comparative harmlessness. But we are now in possession of a sufficiently large number of effective antiseptics to enable us to delay additions to the list until we have had time to make a careful study of the properties of any new substance offered for trial. In other words, we cannot afford to risk a trial which shall involve possible injury to the public health.

I am, for this reason, in favour of specific permission in the legalization of preservatives. But this is not enough; the matter of quantity must be considered. The older preservatives—such as salt, vinegar, wood smoke, and others—possess such decided taste or smell as fixes safe limits, so far as quantity is concerned, while their comparative inefficiency as antiseptics makes them practically harmless in excess. It is not so with modern antiseptics. These are for the most part devoid of taste and smell; or, if bitter (like sodium benzoate) or pungent (like formaldehyde), are so powerful in their germicidal properties that they are effective in quantities too small to be detected by taste or smell. It is quite easy to understand that either through want of knowledge, or want of care, a manufacturer may add a harmful dosage of such a preservative, the consumer being unable to judge in the matter. The very potency of our modern preservatives, by virtue of which they can be employed in small amount, is a reason for carefully limiting the amount.

If the two principles which I have laid down be accepted, it remains to make out a schedule of preservatives which may be used in foods. Perhaps it might suffice to include under a single heading the older preservatives, although this would be open to some lack of definiteness. We might name, for example, as permissible without percentage limitation, sugar, salt, vinegar, wood smoke, alcohol.

Saltpetre (nitrate of potash), although among the older preservatives, can scarcely be regarded as sufficiently harmless to the system to permit of its employment without limitation, although its taste is so characteristic as practically to fix a limit. There remain to be considered a long series of substances, the most important being: Boracic acid and borax, sulphurous acid and sulphites, benzoic acid and benzoates, salicylic acid and salicylates, hydrofluoric acid and fluorides, silicofluorides, formaldehyde, saccharin, beta-naphthol (hydronaphthol), asaprol (abrastol), hydrogen peroxide, etc.

In a report presented to the Department of Inland Revenue in July, 1905, but only now published, I have attempted to sum up, as briefly as possible, the evidence available regarding the properties of these preservatives, with a view to paving the way for a consideration of possible legislation. I am able to place in your hands copies of this report, and shall very briefly refer to such additional information about this subject as I have obtained during the past year. I may preface the following abstract by saying that I feel justified in bringing this subject to the notice of the British Medical Association, inasmuch as the question of preservatives in food is one which eminently interests your profession. Indeed, I may go further, and say that it must depend upon you to decide what substances, if any, are permissible as food preservatives; and also to fix limits beyond which they shall not be used. It is the duty of the chemist to ascertain what preservative, if any, is present in the samples submitted to him, and in what amount it is present. But we must refer the question of physiological potency to the physician, whose profession brings him into daily touch with this aspect of the matter.

Before quoting references to the known and recognized chemical preservatives, it may be well to note that a great many articles recommended for preserving foods are sold under trade names, apparently in an attempt to disguise their true character. These are invariably found on analysis to consist of mixtures, including one or more of the chemical substances which have been already named. The following list may be given in illustration:

J. Kochs (*Apoth. Ztg.*, 1905, 886): *Oetkers' Salicylic Acid for the Household* is a mixture of nearly equal parts of salicylic acid and sugar.

Hydrin: Schlegel (*Bericht der Untersuchungsanstalt Nürnberg*, 1904, 45) shows that a preservative sold under this name consists of benzoic acid, milk sugar, common salt, and sodium phosphate.

Kölner Pokelsalz, according to Schaffer (*Bericht des Kantons Chemikers Bern*, 1901, 9), consists of 62.89 per cent. chloride of sodium, with saltpetre, cane sugar, and sodium benzoate.

Zeolith, with 60.58 per cent. common salt, contains fluoride, phosphate and acetate of sodium, and traces of sulphates, and sand and dust.

A preservative for dry milk consists of bicarbonate of soda and benzoic acid.

Macinato di Sausa, a preservative for cattle feed, consists of ground olive stones. Benzoate of sodium and impure saltpetre were sold as preservatives for foods in Basel (1904).

Matthes and Müller (*Zeit. für Untersuch Nahr und Genussm.*, 1905, 541) discuss a preparation sold as *Seeths Neues Hacksalz*, and highly recommended by the German Butchers' Union. This article consists of sodium benzoate 20 per cent., sodium phosphate 75 per cent., and aluminium nitrate 5 per cent.

Hoffmann, R. (*Apotheker Ztg.*, 1904, 78): *Fruktol* has been put upon the German market with a certificate from Dr Lebbin attesting it to contain no preservative substances forbidden by law. Directions are given to add from 1 to 1¼ per cent. to fruit juices. *Fruktol* is a 12½ to 13 per cent. solution of formic acid, with some sulphuric acid and organic matter apparently sugar.

Werderol is a very similar preparation. Hoffmann finds that 5 c.cm. of official formic added to 1 kilog. of raspberry juice is an efficient preservative.

Baier (*Bericht des Untersuchungsamtes der Landwirtschaftskammer für die Provinz Brandenburg*, 1903-4): *Nadol* is a mixture of benzoic acid and sodium benzoate.

Carnit is an aluminium acetate solution containing sugar and saltpetre.

Matthes and Müller (*Bericht des Nahrungsmittel-Untersuchungsamtes*, Jena, 1903 4, 13) found preservatives on sale having the following composition:

Eminent: Common salt 85, sugar 5, saltpetre 5, spices 5 (chiefly pepper).
Nova: Commercially pure sodium acetate.
Zeolith: Sodium fluoride 0.4, sodium phosphate 15, sodium chloride 51, sodium acetate 17, water 16 4 per cent.
Es ist Erreicht: Saltpetre, common salt, and phosphate of soda.
I Conservesalt: Benzoate of soda, common salt, and a little saltpetre.
II Conservesalt: Sodium benzoate, phosphate, chloride, and a trace of saltpetre.
Brilliant Conservesalt: Sulphate of alumina, benzoate, and phosphate of soda.
Spice Salt: Sodium sulphite 6 per cent., and also saltpetre, common salt, paprika, pepper, and carraway.
Cassalin: Sugar, common salt, sulphate of alumina, sodium phosphate and benzoate.

Schwartz, F. (*Jahresbericht des Chemischen Untersuchungsamtes Hannover*, 1902, 14), found preservatives of the following composition on the market:

No. 1.—Starch ... ... 0 62 per cent.
Common salt ... ... 25 79 ,,
Boracic acid ... ... 30 48 ,,
Saltpetre ... ... 39 15 ,,
Water ... ... 5 96 ,,

No. 2.—Aluminium acetate ... ... 100 grams per litre
Saltpetre ... ... 15 ,, ,,
Sugar ... ... 15 ,, ,,

No. 3 consisted of two fluids and a mixture of salts:
(1) Aluminium acetate ... 100 grams per litre
Saltpetre ... ... 25 ,, ,,
Sugar ... ... 15 ,, ,,
(2) Dilute tincture of benzoin
Salt mixture: Common salt 2 parts
Cane sugar 1 part

No. 4.—Common salt	22.7	per cent.
Saltpetre	75.7	,,
Sugar	1.3	,,
Water	0.1	,,

Borax and Boracic Acid.

Bassenge (*Zeit. exper. Pathol. und Therap.*, 1905, 113) found that 2 per cent. of boracic acid did not hinder the development of pathogenic bacteria in flesh.

Rost, E. (*Arch. Internat. Pharmacodyn. Therap.*, 1905, 291), concludes a very exhaustive series of experiments regarding the excretion of boric acid in these words: "Practically the whole of the ingested boric acid is eliminated by the kidneys."

Liebreich (*Therap. Monatsch.*, 1904, 416) finds that a certain amount of boric acid is got rid of through the skin, and quotes Wiley to the same effect.

There is, however, no room to doubt that the statements of Rost as to elimination of boric acid are essentially correct. The chief portion—in most cases nearly the whole—of the boric acid is eliminated by the kidneys.

Dr. von Ramner (*Zeits. f. Untersuch. Nahr und Genussm.*, 1905, 405) points out the difficulty of carrying out the German law regarding boric acid in meat products, in face of the strong convictions of experts who believe it to be harmless. He also demonstrates the impossibility of carrying out the law in its prohibition of alkaline earth hydroxides and carbonates.

Formaldehyde.

Liebreich (*Therap. Monatsch.*, 1904, 59) considers the question of using formalin as recommended by v. Behring for the eight-day preservation of unboiled milk in proportion of 1 in 5,000. He contends that experiments in which large amounts of formaldehyde are used prove nothing as regards the healthfulness of formaldehyde in minute amount as recommended by v. Behring. The former employ the disinfectant power of the reagent, while the latter make use of its restraining power (*Erhaltende Kraft*). Dr. Liebreich holds that the prohibition of formalin in meat does not make its use in milk illegal.

Chester and Brown (*Bull. 71, Del. Agr. Expt. Ston.*) conclude, as the result of extended experiment, that the addition of formaldehyde to milk in amount not exceeding 1 part in 40,000, and the holding of the milk at temperatures between 60° and 70° F. will improve its sanitary quality by preventing rapid and objectionable fermentations, and there is no reason to believe that in this proportion any marked injury could result to the person consuming it.

Trillat (*Bull. Soc. Chim.*, 1905, 386) has shown that formaldehyde is produced in combustion, and varies in amount with the material and the conditions of burning. Thus 1 kilogram of firewood burned in glass gave 27, in copper 1,800, and in ordinary dish 320 mgr. of formaldehyde. Sugar gave 700 mgr. per kilogram, and in presence of copper gauze 5,760 mgr. Smoke was shown to have a germicidal effect on various kinds of bacteria. The use of smoke for preserving meats was shown to be dependent on formaldehyde, together with creosote, etc.

Hydrogen Peroxide.

Amberg (*Jour. Biol. Chem.* 1, 219) says: "While there is some doubt as to whether hydrogen peroxide can bring about a complete sterilization of raw milk in every case, and while the amount of this substance needed for the preservation of milk during a given period of time is uncertain, its harmlessness seems to justify its trial as a milk preservative."

LESS KNOWN PRESERVATIVES.

As regards the less known preservatives, Chevy (*Bull. de Therap.*, C. IX., 108) finds that hydrofluoric acid in the ratio 1 in 5,000 prevents fermentation in milk, soup, and wine.

It may be mentioned that Neuder (*Chem. Zeit.*, 1904, 857) claims priority in the discovery of this substance as a food preservative, and also for the mode of using it, which involves its separation from fluids containing it by precipitation with lime.

Jean Ferdinand (*Rev. intern. fabrificat.*, 1903, 159) is of opinion that the study of fluoride of sodium as a butter preservative is deserving of attention. From 10 to 15 grams per 100 kilos. of butter suffices, and this small quantity would be certainly made insoluble by reaction of lime salts naturally present in drinking water and other foods.

Basic Acetate of Alumina.

Chace (*Jour. Am. Chem. Soc.*, 1904, 662) has found basic acetate of alumina in imported sausages. It is claimed that the alumina exists in a condition in which it is insoluble, and hence harmless to the system. Chace carried out experiments to determine the truth of these claims. He found that from 70 to 80 per cent. of the alumina was dissolved from these sausages by action of pepsin; and he holds that this is sufficient to fully condemn the use of the article named as a food preservative.

Sulphites.

Holley (*Jour. Am. Chem. Soc.*, 1906, 994) finds, as the results of work upon a large number of samples of sausage meats and dried fruits, the following:

1. The amount of sulphites mixed with meats to preserve them is much larger than is generally supposed.

2. The amount of sulphites recovered in analysis is about one-fourth of that originally present.

3. Cooking sausage meat does not convert the sulphites into sulphates, as claimed.

4. With dried foods, which have been bleached with sulphurous acid, the amount remaining unoxidized in the fruit is large.

The following general remarks on the use of preservatives may find place here.

Price, T. M. (*Centralbl. Bakteriol.*, 1905, 65): Calves of two weeks old were fed for two nine-day periods with preserved milk, parallel experiments with normal milk being carried out.

Digestion of Protein and Fat as Compared with Normal Milk.

Treatment of Milk.	Protein.	Fat.	Remarks.
Normal milk	normal	normal	—
Formaldehyde 1 in 10,000	0.76	0.96	per cent. excess.
Salicylic acid 1 in 1,000	5.07	3.71	,, ,, defect.
Boric acid 1 in 1,000	1.73	0.03	,, ,, ,,
Borax 1 in 675	1.30	0.02	,, ,, ,,

It will be seen that the formaldehyde treatment did not injuriously affect the digestibility of the milk, while the other treatments did so in marked degree; the salicylic acid being specially harmful. Two calves fed for two months on formaldehyde and boric acid treated milks continued to increase in weight.

The influence of formaldehyde upon the digestive ferments was studied with the following results:

Milk was treated with formaldehyde in the proportions given.

Digestive Action.

Enzymes.	Not Affected.	Disturbed.	Stopped.
Rennet	1 in 2,500	1 in 1,875	1 in 500
Pepsin	1 in 125	1 in 50	1 in 25
Pancreatin	1 in 2,000	—	1 in 1,500
Steapsin, fat digesting ferments	—	1 in 50	1 in 35

Using Potato Starch.

Ptyalin	1 in 1,500	—	1 in 1,250
Amylopsin	—	1 in 1,000	1 in 500

Bouillon cultures of *Bacillus acidi lactici*, *B. subtilis*, *B. coli* were killed by formaldehyde in six hours by a ratio of 1 in 1,560, and in seventy-two hours by a ratio of 1 in 1,870.

The smallest amounts of the following preservatives found effective in preserving milk for forty-eight hours were:

Borax	1 in 675
Boracic acid	1 in 1,000
Salicylic acid	1 in 1,000
Formaldehyde	1 in 20,000

M. Fayolle (*Bull. Scien. Pharmacolog.*, 1904, 172: abst. *Zeit. für Nahr u. Genussm.*, 1905, 374), after referring to the demonstrations of the consulting Committee of Hygiene, as proving interference with assimilation and reduction of activity of the digestive ferments, due to preservatives in foods, says: "A partial prohibition is insufficient. Only a general law which shall make the addition of such preservatives a punishable offence can be effective."

R. G. Eccles (*Amer. Jour. Pharm.*, 1904, 506) contends that the opposition to the use of preservatives is based on

theoretical considerations. He asserts that statistics prove that countries in which the use of preservatives is forbidden show a higher percentage of deaths due to diseases of the digestive tract than those in which no laws against preservatives exist.

H. Leffmann (*Amer. Jour. Pharm.*, 1904, 503) acknowledges that a certain degree of injury to health results from the use of most modern preservatives. But he contends that this is not the proper way to look at the question. No preserved food is as good as a fresh food, and even boiling renders albumen less digestible. Desiccation, smoking, pickling, have still more marked effect in hindering the digestibility of food. It is therefore an arbitrary and unreasonable conclusion to condemn the newer preservatives while allowing the old. What evidence shows that common salt is harmless in food? What proof have we that benzoate of soda is more objectionable than the residues from wood smoke?

In his evidence given before a Committee of the House of Representatives in February of this year, Dr. Wiley refers to conclusions reached as the result of a practical feeding test, extending over three or four months, with twelve young men, whose food was treated with benzoic acid:

The most pronounced symptoms during the preservative period were burning sensations in throat and oesophagus, pains in stomach, some dizziness, bad taste, and when the limit of endurance was reached the subject suddenly became nauseated and ill. In all cases but one there was a material loss of weight. And that this bad effect was continued during the after-period shows the persistence of the after-effect. Only two of the members of the class immediately showed an increase in health after the suspension of the preservative.

Speaking of salicylic acid, Dr. Wiley says:

There has been a general consensus of opinion throughout the world that salicylic acid is a very harmful substance, and this prejudice is perhaps greater than against any other material employed for preserving purposes. That salicylic acid should be singled out especially for condemnation among preservatives does not seem to be warranted by the data which have just been presented and discussed. That it is a harmful substance seems to be well established by the data taken as a whole. It is, however, a harmful substance of very minute virulence.

Dr. Wiley stands out clearly for the prohibition of all chemical preservatives in food; he makes a distinction between condimental preservatives and chemical preservatives, but I fear that it may sometimes be difficult to mark the dividing line. He recognizes that exceptional cases may occur when the employment of a preservative may be the lesser of the evils, for example, prolonged voyages, or exploration, sieges, etc. Dr. Wiley's attitude is altogether admirable, as the expression of a high principle of ethics, but it may be questioned whether we may absolutely ignore the economics of a matter of this kind. The cost of foodstuff to the consumer is often a reason for his choice of the second best, and there is no doubt that the cost of placing many kinds of food on the market is greatly lowered by the use of preservatives. The wealthy will always be able to command fresh foodstuffs, or to pay the higher prices required to meet the cost of packing in the best methods known to art, but the poorer classes of the community may be compelled to do altogether without certain desirable foods or use these as preserved by one or other of the so-called chemical preservatives. When we consider that the excretion of most of these substances falls chiefly upon the kidneys, and recognize the fact that kidney disease of one kind or another is a main cause of the loss of vitality in middle life, and indeed figures very largely in mortality records, we cannot but feel that the legalization of potent germicides in food products is a matter of the most serious kind.

NATIONAL SUPERVISION AND STANDARDIZATION OF FOOD.

By H. L. E. Johnson, M.D.,
Washington, D.C.

The relation of pure food to the health of a nation is equally important with good government of a nation.

Each succeeding year shows an increase in the efforts of hygienists aid governments to protect the individual in the matter of his food, but at the same time you will observe the slow but steady progress of food producing and controlling corporations in their adulterating, embalming, misbranding and counterfeiting processes, culminating in the disgusting and nauseating revelations of the past few months, which have shaken faith throughout the civilized world in the purity of almost every article of food and drink. Proprietary drug compounds are, in many instances, either inert, wholly false in their claimed composition, dangerous to health or habit producing. Under various names they are hawked about, through a variety of methods, leaving in their wake disappointment, poverty, complicated illnesses, habitues and mental wrecks.

Wealth greed of the tariff-protected corporations and their almost unlimited opportunities for fraud, gives birth to these abuses. Ignorance on the part of the laity of the facts, or lack of appreciation of the health effects, together with the failure of the physicians and hygienists to educate the public in these matters, fosters this state of affairs.

Publicity is the potent remedy for these evils. The food of a nation should be as genuine as the nation's bonds and currency. Counterfeiting of either should be a felony and as such should be severely punished. Because of its application to present conditions I quote from the report of the Committee of the Pan-American Medical Congress on "Departmentof Public Health for the United States" adopted at Mexico City, Mexico, November, 1896, the following:

We further recommend:

The passage of uniform national and State laws regulating the importation, exportation, sale, inspection, and standard of meats, fruits and food stuffs, water supply, ice, milk, and beverages, prohibiting adulteration and providing adequate penalty for violation.

The passage of uniform laws, national and State, regulating the manufacture, importation, exportation, and sale of drugs and chemicals, with provision for their inspection and penaltics for their adulteration. And a further provision requiring the labelling with exact formula all proprietary medicines and compounds, and providing penalties for violation.

The passage of uniform laws, national and State, regulating the sanitation of railroad cars, both steam and street, barges and ships, steam and sail, public vehicles, ambulances, laundries, slaughter-houses, morgues, hospitals, and dispensaries, jails, and reformatory institutions, with penalties for violation.

The passage of uniform laws, national and State, regulating the hygienic management of contagious diseases, personal and house quarantine, vaccination, hygiene of dentistry, barber shops, public baths, and gymnasiums, amusement halls, migration of tramps and profligate persons, disposal of dead bodies, garbage, and sewage, draining of land, and removal of weeds and decaying vegetation, and providing penalties for violation.

The passage of uniform laws, national and State, providing for and regulating disinfecting plants, steam, dry heat, and chemical, for mails, foreign and domestic, clothing, bedding, money, persons, etc. Bacteriologic laboratories, animal industry and inspection plants, State and national hospitals, and retreats or sanatoriums for the treatment of habitues, inebriates, venereal, tuberculous, and insane persons, with special laws for commitment to and discharge from the same. District nursing for the poor, sick, obstetrical, contagious diseases, etc.

The passage of uniform laws, national and State, providing for the appointment of State and national medical experts and the punishment of medical crimes.

The passage of uniform laws, national and State, regulating State and inter-State medical, surgical, and dental practice, which will protect the same as a science and not as a trade.

We further recommend adequate appropriation of money by the several States and the General Government for the scientific investigation of public health matters in this and foreign countries, and the suppression of diseases, endemic and epidemic.

We further recommend that appointment to and the tenure of medical offices shall depend upon professional ability and efficiency, and not upon political influence.

Respectfully submitted.

Henry L. E. Johnson, M.D.,
President, Committee on Department of Public Health.

The health of the public, through an appropriate department of the Government, should be efficiently protected, and all food, beverages, drugs and drug compounds, their preparation, preservation, storage, and sale, should be standardized and regulated. International standardization should and can be made universal by treaty with the several Powers.

Opposition to standardization and control emanates principally from the large dividend paying, tariff pro-

tected corporations, who, when reforms are urged, make their usual threat "to increase the cost to the consumers," and in other ways obstruct and defeat proposed remedial legislation.

Cold storage foods, undrawn poultry, canned goods, and meat packers' productions offer a broad field for medical and hygienic investigation, for determining food etiology, and placing responsibility, in connexion with the alarming increase in intestinal diseases, deaths from appendicitis, and the so-called "acute indigestion." A few successful legal actions, civil or criminal, based upon established bad food causation, of illness or death, would promptly drive disease-producing foods from the market.

From a politico-industrial point of view, the recent legislation in "the States," providing for pure food and meat inspection, is excellent so far as it goes, but from a medico-hygienic standpoint is not entirely efficient or satisfactory, as it tends to conserve the financial interests of the producer and jeopardize the health of the consumer, by delaying the operation of the Food Bill, and by omitting the date of slaughter, production and inspection from the Government certificate or label, thereby placing an immense quantity of meat and meat products, prepared under presumably careless and objectionable methods, now in cold storage or warehouse, on an equality with, and indistinguishable from, recent products prepared under careful Government supervision.

An identical inspection stamp or certificate will be placed alike on meat slaughtered five years and that slaughtered one month, without any distinguishing marks to guide the innocent purchaser.

Thus, the consumer is deprived of his right of selection, choice, and exact knowledge of meat and meat products, by the absence of dates of slaughter and inspection.

Meat slaughtered and kept in cold storage five or ten years may be wholesome at the time of inspection, but how much longer will it keep so? The Government's certificate given in such cases, is legally final, but such a guarantee is at least doubtful as to healthfulness.

The American people contributing this year, from their tax funds, the vast sum of three millions of dollars to enforce this special legislation designed to correct inexcusable irregularities of meat-producing corporations, should have, irrespective of political faith, supported the demands of their President, and insisted on further protection in their health, through adequate inspection, dating certificates or labels, and severe penalties for violations.

SAILORS' FOOD.

By W. SPOONER, L.R.C.P.Lond., M.R.C.S.,
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THE question of diet is intimately connected with the health of seamen, and I propose in this paper to point out wherein the quantity and description of food usually named in the dietary scales is neither fitted to maintain the general health of sailors nor adapted to their special calling. I shall particularly trace the connexion between the food supplied and that disease which used to be, and to some extent still is, the special scourge of the mercantile marine—namely, sea scurvy. There are some diseases which seem to defy the appliances of preventive science, but scurvy is not one of them; it is caused essentially by improper food, and I look upon it as a disgrace that in this present scientific age, this enlightened twentieth century, "with all its appliances and means to boot,' such an eminently preventable disease should exist at all.

In my capacity as Medical Inspector of the Board of Trade I have, particularly in the earlier portion of my career, held official inquiries into the cause and origin of outbreaks of scurvy all over the United Kingdom, and I have never failed in tracing them directly to the nature of the food supplied. In every report I made to the Board of Trade—and these are still on record—I persistently drew their attention to the necessity of a radical change in the dietary scale, until at length they requested me to draw out a scale which I considered would be satisfactory. I will allude to this scale presently.

There is a common impression that the food scales signed for by the crew at the commencement of their voyage are fixed by the Board of Trade. This, however, is altogether a mistake; it is entirely a matter of contract between the master and the crew, and the Board of Trade merely see that the scale is inserted in the articles of agreement. Thus these scales possess no higher sanction than that of antiquity. Like that good old, eminently respectable disease, gout, they have been handed down from generation to generation, and date from some remote period in ancient history (perhaps Mr. Noah might have been the original author), when nothing better could be obtained. The following is a specimen of this good old-fashioned kind of food which many of our sailors have to put up with even now:

Scale of Provisions to be Allowed and Served out to the Crew during the Voyage.

	Bread.	Beef.	Pork.	Flour.	Peas.	Tea.	Coffee.	Sugar.	Water.
	lb.	lb.	lb.	lb.	pt.	oz.	oz.	oz.	qt.
Sunday	1	1½	—	½	—	⅝	½	2	3
Monday	1	—	1¼	—	1	⅝	½	2	3
Tuesday... ..	1	1½	—	½	—	⅝	½	2	3
Wednesday ..	1	—	1¼	—	½	⅝	½	2	3
Thursday ...	1	½	—	½	—	⅝	½	2	3
Friday	1	—	1¼	—	½	⅝	½	2	3
Saturday	1	1½	—	—	½	⅝	½	2	3

Substitutes at the Master's option.

The above scale is by no means exceptional, but is the one signed for by the crew in the majority of sailing ships, and, although it might perhaps rejoice the soul of Mr. Banting, it cannot be considered of a luxurious nature. It is quite true that on many ships some extras are allowed; thus, very often a fresh mess, composed chiefly of soup bouilli, is given on Sundays in addition; occasionally preserved meat is substituted once a week for salted; sometimes 1 lb. of butter is served out per week in lieu of the odd ½ lb. and ¼ lb. of meat, whilst some extravagant shipowners have even gone the length of giving marmalade and pickles. In the articles of agreement at the different shipping offices skeleton scales are now kept ready printed at the instance of the Board of Trade, and in these scales are a number of blank columns to be filled up if the shipowners desire. These columns are headed respectively, Soup Bouilli, Preserved Meat, Preserved Vegetables, Rice, Oatmeal, Butter, Molasses, etc. Until the last few years, however, and even now very frequently, as far as I have been able to ascertain, these columns remain blank, and the above articles are conspicuous only by their absence. Even if the shipowners allow any of them, they will not give the sailors the right to insist on them by signing a bond.

In considering the above scale of diet, it at once becomes apparent to the scientific inquirer that it has been constructed with a total disregard to the physiological wants of the system; that, in addition to its monotonous character, its excess of salt meat and lack of vegetables, the proportion of the different ingredients is altogether wrong. I will consider these points seriatim.

1. The monotony of the diet. The human organism is so constituted as to imperatively demand variety. "Variety is the very spice of life that gives it all its flavour." Salt beef one day and salt pork the next, given for months in dreary succession, will injuriously affect the most hardened stomach and render it incapable of digestion.

2. The excess of salt meat. Even if the meat be good in quality it cannot fail to be injurious if given day after day. The very process of salting has the effect of depriving the meat of some of the soluble constituents, such as the organic acids, the alkaloids and extractive matters, and renders the residue hard and indigestible. It is also probable that some of the salts of potash are replaced by those of soda. It must also be remembered that salt, like charity, may cover a multitude of sins; and previously unwholesome and unsound meat may have its noxious properties concealed by being salted. And frequently it happens that meat which when raw was apparently sound, when boiled and placed on the table renders it at once obvious both to the nostrils and the palate that "there's something rotten in the State of Denmark." Since 1893, however, most ships have their

provisions inspected by surveyors specially appointed by the Board of Trade, and who, I may say, are selected from the ranks of those who have been apprenticed to the provision trade. Bad food is now the exception. There is no doubt whatever that food in an incipient stage of decomposition is a very powerful agent in the development of disease. First of all, diarrhoea, dysentery, or putrid fever will appear, to be followed by an attack of pure scurvy. I have often noted this in the course of my inquiries. I have suggested in my diet scale that for at least three days in the week preserved meat, either beef or mutton, should be substituted for salt. I may remark here, as I shall have no time to enter fully into the subject, that the recent revelations as to the insanitary methods pursued in canning meat at Chicago came upon me rather as a shock, and caused me to doubt whether I had done right in these recommendations—whether the remedy was not worse than the disease; whether, in fact, the choice between salt and preserved meat was not something like being placed between Scylla and Charybdis. But as one swallow does not make a summer, it does not follow that all tinned meats are necessarily bad. Indeed, the recent analyses made in England seem to indicate that the bulk of canned meat is pure. Moreover, it is too late in the day to think of doing without this meat. It has come to stay. It is impossible to go back altogether to the old salt junk. I think, too, we must accept all the wild talk about the enteric fever which prevailed so largely in the Transvaal and the Cuban wars being caused by tinned meat with the proverbial *grano salis*. However, there is no doubt the disclosures were bad, and prove that when sanitary considerations come into conflict with the almighty dollar they are apt to go to the wall. And I think President Roosevelt deserves the thanks of the civilized world for fearlessly bringing these evils to light. Systematic inspection and frequent analyses are the only means to adopt. The Board of Trade has a number of food inspectors, but I would suggest to them (and as I am now out of harness I have no personal axe to grind) that the inspectors should be under the control and guidance of a medical expert trained to bacteriological investigation. They have at present no medical adviser at Whitehall; this should be altered. This in passing.

3. Deficiency of vegetable food. It has been abundantly proved, in my opinion, that the true cause of scurvy is a deficiency of the salts found in fresh vegetables, and there are many cases on record where an outbreak of this disease has been quickly stopped by simply giving a few raw potatoes. It is true that there is at present a school which attributes scurvy entirely to ptomaine poisoning, and which has made experiments on monkeys to prove its case. Monkeys, however, are herbivorous animals Had the experiments been made on the human subject I should have more faith in the results. My experience has been that scurvy is caused entirely by lack of vegetable food. It is therefore of the utmost importance that a sufficient quantity of fresh vegetables should be put on board a ship to last for at least the first two or three months of a voyage. And whenever there is a possibility of putting into a port, these should be replenished. In all cases, when the fresh vegetables are exhausted, preserved vegetables, either potatoes, carrots, onions, or pickles, should be given instead.

4. Improper proportion of the different ingredients. It is well known that a proper scale of diet should contain a due admixture of the nitrogenous or flesh-forming constituents, comprising vegetable albumen, fibrin, and caseine, and animal flesh and blood; and of the non-nitrogenous, carbonaceous, or heat-producing substances, comprising fats, sugar, starch, gum, etc. Numerous experiments have established the fact that the nitrogenous should bear to the non-nitrogenous ingredients about the proportion of one to five. According to Dr. Lyon Playfair, a man doing active but not excessive hard work (like a sailor's) requires daily about 5.5 oz. of flesh forming food, and 26.3 oz. of carbonaceous, the ratio being as 1 to 4.8. In the scale allowed in the navy the flesh-formers equal 5 oz. and the heat-givers 20.4 oz., the ratio being as 1 to 4; whilst in the army the flesh formers equal 4.2 oz, and the heat-givers 22.06 oz., the ratio being as 1 to 5.2. Now I have calculated the amount of these ingredients in the ordinary scale of the merchant sailor, according to the table of Dr. Playfair, the fat, sugar, and starch being reduced to one equivalent—namely, that of starch; and I find it consists of 6.912 oz. of flesh-formers and 22.416 oz. of heat-givers, the former standing to the latter in the proportion of 1 to 3.3. Thus it appears that the diet of sailors contains a greater amount of nitrogenous food than is required for a man in active labour, greater even than a navvy employed in the very severe work of a railway cutting consumes. And this is owing to the excessive quantity of animal food. In the navy the men are allowed only 1 lb. of fresh, or ¾ lb. of salt meat. And in troopships the daily allowance is ¾ lb. of salt meat for four days in the week, and ¾ lb. of preserved meat the remaining three days. There is no doubt that too much animal food, particularly when there is no severe muscular labour, is injurious to health. It will produce a state of plethora of the system and cause derangement of the liver, and a predisposition to blood diseases. I am of opinion that 1 lb. of salt meat, or ¾ lb. of preserved meat, which is without bone, is ample for all requirements. The saving thus effected may advantageously be expended on other articles.

Bearing in mind, therefore, the principles I have now enumerated, I drew out a scale for the Board of Trade which I considered, though by no means perfect, would answer the purpose sufficiently well. I endeavoured to combine physiological correctness with a due amount of economy. I have the scale here, but it will scarcely be necessary to read it seriatim (see p. 864).

The chief points in which it differs from the old scale are the following: Preserved meat is substituted for salt meat three days in the week. The quantity of meat altogether is reduced. Potatoes and carrots either fresh or preserved, butter, rice, oatmeal, marmalade, raisins, molasses, suet, and pickles are added. I have calculated the respective quantities of nitrogenous and carbonaceous ingredients in the above scale, and find that it contains 6.144 oz. of the former, and 29.376 oz. of the latter; the ratio being as 1 to 5. I have also estimated the price, and find that it does not exceed 1s. per day, which certainly cannot be considered excessive; the old scale would cost about 11d. per day. The Board of Trade issued a circular on the subject, written by the late Mr. Thomas Gray, in 1883, Dep. Paper No. 75, in which this scale was recommended to all shipowners, but was not made compulsory. It has also been inserted in every edition of the *Ship Captains' Medical Guide*, a small book edited by myself, and authorized by the Board of Trade, until this year. Although not made compulsory, it effected a marked improvement in sailors' food; and many firms adopted it in part though not *in toto*. That the result was beneficial the following statistics will show:

Outbreaks of Scurvy reported to the Board of Trade during 15 Years.

Year.	Outbreaks.	Year.	Outbreaks.
1875	88	1883	51
1876	69	1884	27
1877	80	1885	36
1878	84	1886	31
1879	93	1887	40
1880	92	1888	19
1881	99	1889	20
1882	60		

It may be observed that the scale was circulated in 1883, and that since that date the number of outbreaks have been reduced by more than half. These facts speak for themselves, and are something more than coincidence. This scale was the only one recommended by the Board of Trade till 1902, when a Departmental Committee drew up a new scale which is now authorized. This Committee, I may mention, contained no medical man (Government departments like to ignore them if possible), but was strengthened by the addition of a representative of the Sailors' Union, and by a lady whose name I forget. The scale they drew up was on similar lines to my own, but somewhat more costly and more complicated. The scale is reproduced on p. 864.

You will observe that it differs from my own in various particulars. Thus it contains 7¾ lb. of meat per week instead of 5¾ lb., besides ¾ lb. of fish; 9 lb. of bread and flour per week, instead of 8 lb.; half the quantity of oatmeal, and half the quantity of peas. It contains about the same quantity of vegetables, but in addition 6 oz. of haricot beans, and 8 oz. of tinned tomatoes. It is on the whole a good scale, but one which I myself at the time should not have dared to propose without fear of raising

Proposed Victualling Scale to be Served Out to the Crew per Day, in Addition to the Issue of Lime Juice and Sugar Required by Law. (By Dr. Spooner.)

	Biscuit.	Flour.	Beef.	Pork.	Preserved Meat.	Peas.	Preserved Potatoes.	Preserved Carrots.	Butter.	Oatmeal.	Rice.	Marmalade.	Sugar.	Raisins.	Molasses.	Suet.	Pickles.	Tea.	Coffee.
	oz.	oz.	lb.	oz.	oz.	pt.	oz.	oz.	oz.	oz.	oz.		oz.					oz.	oz.
Sunday	12	8	—	—	12	¼	—	3	2	—	—		2					½	1
Monday	12	—	1	—	—	—	2	—	—	4	—		2					½	1
Tuesday	12	8	—	—	12	—	—	8	—	—	—		2					½	1
Wednesday	12	8	—	12	—	¼	2	—	2	—	4		2					½	1
Thursday	12	—	—	—	12	—	—	8	—	4	—		2					½	1
Friday	12	8	1	—	—	—	2	—	2	—	—		2					½	1
Saturday	12	8	—	12	—	¼	2	—	—	—	4		2					½	1
	lb.	lb.		lb.	lb.			lb.				lb.		lb.	pt.	oz.	oz.		
One man per week	5.4	2.8	2 0	1.8	2.4	1	8	1.8	6	8	8	1	14	½	2	4	4	1	7

SUBSTITUTES.

Fresh meat to be given instead of salt and preserved as long as possible after leaving port.
Fresh potatoes, carrots, etc., 3½ lb. per week, instead of preserved vegetables, as long as they last.
Oatmeal may be substituted for rice in cold weather, and vice versa in hot weather.
Preserved onions may be substituted for preserved carrots.

a storm. But since then the Sailors' Union has become a power in the land, and Jack is as good as his master, if not better. I endeavoured to combine economy with efficiency, but in the new scale economy is a secondary consideration. For my own part, I do not consider so much meat at all necessary, as I said just now, and I doubt if it will all be eaten. But what does that matter to the sailor? If he can't eat it himself, why he will give the fishes a chance. I do not know whether this scale is now to be made compulsory. I have been absent from England for three months, whilst the Merchant Shipping Bill has been passing. If it is not made compulsory, I am afraid the additional cost will make it for the most part a dead-letter. If it is made compulsory, I question whether the shipowners will appreciate it. But there is no doubt that Jack will be in clover, and better fed than he has ever been before. Better far than his brother in the navy, or his cousin in the army, or many of his relations on shore. More power to his elbow!

Scale of Provisions Drawn up by the Mercantile Marine Committee, 1902, and Recommended by the Board of Trade.

	Soft Bread.	Biscuit.	Salt Beef.	Salt Pork.	Preserved Meat.	Potatoes or Yams.	Preserved Vegs.	Flour.	Peas, Split.	Peas, Green.	Haricot Beans.	Rice.	Oatmeal.	Tea.	Coffee.	Cocoa.	Sugar.	Butter.	Marmalade.	Jam.	Syrup.	Fish, Dry, Fresh, or Preserved.	Milk, Condensed.	Suet.	Pickles.	Tomatoes, Tinned or Fresh.	Bacon.	Water.
	lb.	lb.	lb.	lb.	lb.	lb.	lb	lb.	oz.	oz.	oz.	lb.	oz.	oz.	oz	oz	lb.	lb.	lb.	lb.	lb.	lb.	lb.	oz.	pt	oz.	lb.	qts.
Sunday	1	—	½	—	¼	1	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Monday	—	1	—	1	—	1	—	—	3	—	—	¼	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Tuesday	1	—	1½	—	—	1	—	½	—	—	3	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Wednesday	—	1	—	—	½	1	½	½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Thursday	1	—	—	1	—	1	—	—	3	—	—	¼	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Friday	—	1	—	—	½	1	¼	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Saturday	1	—	1½	—	—	1	—	½	—	3	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Weekly	4	3	3	2	2½	7	½	2	6	3	6	½	4	1½	2	2	1½	½	½	½	½	½	½	4	½	8	½	28

Raisins, 1 oz.; currants, 1 oz.; dried figs, 1 oz.; apple rings, 1 oz. Weekly.
Fine salt, 2 oz.; mustard, ¼ oz.; pepper, ¼ oz.; chicory, ½ oz.; curry powder, ¼ oz.; onions, 3 oz. Weekly.
In harbour soft bread is always to be issued.
Within the tropics 1½ lb. preserved meat, or 3 lb. fresh meat, is to be substituted for the 2 lb. salt pork.
In sailing ships, after six weeks from home ports, 1 lb. preserved potatoes may be substituted for 7 lb. fresh potatoes.
Fresh vegetables may be substituted in the proportion of ½ lb. to the oz. preserved vegetables.
Stokehold hands to receive oatmeal and 1 qt. water extra daily while under steam.

Substitutes and Equivalents—not to be used without reasonable cause.

Fresh meat ...	1½ lb.	To be considered equal.	Split peas ...	6 oz.	When issued with meat rations.
Salt meat ...	1 „		Flour ...	12 „	
Preserved meat	2 „		Rice ...	12 „	
Coffee ...	½ oz.	To be considered equal.	Raisins ...	...	In equal quantities.
Cocoa ...	½ „		Currants ...	...	
Tea ...	¼ „		Dried figs ...	...	
			Apple rings ...	...	
Flour ...	1 lb.	To be considered equal.	Marmalade ...	8oz	To be considered equal.
Biscuit ...	1 „		Jam ...	6 „	
Rice ...	1 „				

In port, 1½ lb. fresh meat and ½ lb. fresh vegetables daily in lieu of salt and preserved meat, and preserved vegetables, whenever procurable at prices not excessive.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF POISONING BY PENNYROYAL: RECOVERY.

On August 5th, at 8.15 p.m., I was sent for to see a young married woman who had suddenly been taken ill. It appeared that, having gone a week beyond her time for menstruating, she had taken some "pennyroyal tea," an infusion she had made herself from threepennyworth of pennyroyal, with threepennyworth of rum added to it. This had had no effect on her in any way, so, on the evening I saw her she had taken threepennyworth of "essence of pennyroyal," procured at the nearest herbalist's, again adding threepennyworth of rum. This was taken at 7 o'clock, soon after eating a hearty tea. Ten minutes after swallowing this essence she began to feel strange, and started to go upstairs; feeling worse, however, she sat on the bottom step and began to retch; only about a teaspoonful of clear, watery fluid came up (saliva). She then became unconscious. When I saw her she was apparently unconscious, pale, cold, pulse 76 and small; conjunctival reflex present, pupils moderately dilated and equal, light reflex absent. With difficulty she could be roused now to a partially conscious state, her tongue was coated with white fur, her breath smelt strongly of pennyroyal and peppermint (evidently used to flavour the "essence"), she was very thirsty, the throat felt dry; there was no pain in the stomach; her chief symptom was a very marked feeling of numbness and tingling in her hands: this was not present in her feet. I induced free vomiting with mustard and hot water, the vomit was her tea, partially digested, with the same smell of pennyroyal and peppermint as was noticed in the breath, but much more strongly marked, scenting the whole room. She felt much better after being sick, but was still unable to stand or walk. She talked strangely and at random, but could be got to answer questions sensibly. She was put to bed, warm drinks and a little stimulant given, and external heat applied; in about four to five hours she fell into a quiet natural sleep. Next day when I called she was very much better and had got up; she still felt a little dizzy and light-headed, but the tingling and numbness had gone. A week later she had still not started to menstruate. I might mention that she is the very reverse of a nervous or neurotic subject.

I examined the essence of pennyroyal at the herbalist's; it was a clear liquid having the smell already noticed; the dose on the printed label on the bottle was given as ½ to 2 drachms; it was retailed at 6d. an ounce, so that she had taken half an ounce.

In the *British Pharmacopoeia* of a good many years ago, pennyroyal was, of course, official, the essence being made from the essential oil, strength 1 in 10, and probably most of the "essences" now sold are of this strength, though some are 1 in 20.

In view of the widespread habit, amongst women of the working classes, of taking preparations of pennyroyal, and their firm belief in the harmlessness of it, the case seemed to me worth recording, as serious illness was indubitably caused by it, even though recovery was never, perhaps, in doubt.

Bury. P. F. Braithwaite, M.B.Lond.

RUPTURE OF THE VAGINA IN LABOUR.

In the British Medical Journal for July 21st, Drs. Campbell and Lewis record two interesting cases of rupture of the vagina in labour, observed at Jammamalamadugu in South India. If the writers had enjoyed the facilities for reference which we have at home, they would have been able to find a fair amount of literature on this subject, which a similar case recently under observation has led me to investigate. My patient was a soldier's wife, aged 41, and she had borne six children previously, two being stillborn. Her seventh labour began on Friday, April 26th, 1906, in the afternoon. She was attended by a midwife. During the night and on Saturday morning the pains were described as being "fairly strong, but not out of the way." About 1 p.m. the pains ceased and she complained of pain in the left hypochondrium, but no marked change in the patient's condition was noticed. At 3.30 a medical man was summoned. He found the head on the perineum, and he easily extracted the child with axis-traction forceps. The placenta was delivered with little trouble, and there was very little haemorrhage. After delivery he noticed an abnormal mass in the vagina, which he recognized as omentum, and which he pushed up. I saw her at his request on the 30th, about forty-eight hours after delivery. She was a fairly well nourished woman. She looked ill, but not extremely so. She was suffering from symptoms of sepsis of moderate severity, but there were no indications of general peritonitis. The lochia were not excessive nor fetid. On vaginal examination I found a mass in the vagina consisting of tumefied omentum with a loop of bowel above. The hand, passed into the vagina, came upon the sacral promontory directly. There was a large transverse tear in the posterior vaginal fornix, the vagina being torn away from the posterior edge of the cervix. The sharp upper end of the vaginal wall was clearly felt. The posterior lip of the cervix was ragged. After pushing up the prolapsed omentum, I managed with some difficulty to suture the centre of the vaginal wall to the cervix. Then I introduced a gauze packing on either side of the wound. The child was a full term male. The condition of the patient grew worse and she died about twenty-four hours later.

I questioned the midwife carefully, but formed the opinion that no undue force had been employed by her, and that she was to be blamed only for not summoning assistance earlier.

There are on record about 100 cases of such rupture of the vaginal fornices in labour, and a large proportion of them have apparently been spontaneous. Hugenburger, who described this condition in 1875, gave it the name of "colpaporrhexis." A good paper will be found in the *Monats. f. Geb. u. Gyn.*, Bd. XIII, Hft. 4, by Dr. M. Kaufman of Lodz. In this he describes two cases observed by himself, both of which recovered. Additional references will be found in the *Encyclopaedia of Obstetrics and Gynaecology*, by Saenger and von Herff, art. "Kolpaporrhexis." The mortality of vaginal rupture has been estimated from 62.5 per cent. to 72.5 per cent., that of uterine rupture at 73.5 per cent. In vaginal rupture the bleeding is not usually serious, unless the broad ligament be torn. In uterine rupture the retraction of the uterus tends to close the tear and to prevent prolapse of the viscera, but the vaginal tear remains patent and the intestine can descend.

The causes of rupture of the vagina are practically the same as those of rupture of the uterus, but Freund, who has investigated the subject, holds that in rupture of the uterus there is usually a fixing of the lower uterine segment, as by the cervical wall being nipped between the presenting part and the bone, or by some rigidity or cicatricial condition of the parts, and he says that when the cervix is free to dilate it is the vagina that ruptures under the given conditions, and not the uterus.

As to treatment, it is probably best to suture and drain with gauze, except when the fetus has passed into the abdominal cavity, when abdominal section is the better plan.

J. B. Hellier, M.D.,
Obstetric Physician, Leeds Infirmary; Lecturer on Gynaecology, University of Leeds.

[Since the above was written Winckel has published the second part of the third volume of his *Handbuch der Geburtshülfe*, and this contains an exhaustive article on the subject by R. v. Braun Fernwald of Vienna, with some 115 references. The importance of pendulous abdomen and of previous artificial fixation of the uterus as causes of vaginal rupture are pointed out. A case is quoted from Baumbuch of a woman who in three successive pregnancies suffered from rupture of the vagina, with escape of the fetus into the abdomen. The fetus was extracted in each case per vaginam. The woman made a good recovery in each case.]

A CASE OF *POST-MORTEM* CAESAREAN SECTION.

The following is a short account of a *post-mortem* Caesarean section which I performed about the year 1887, when I was one of the residents at the Manchester Workhouse Infirmary at Crumpsall.

A middle-aged woman, multipara, was between six and seven months pregnant when admitted for chronic pulmonary and cardiac disease. Her condition varied from

time to time, but it gradually grew worse, and she died near to the end of "term." When it was seen that the end was near, all preparations were made the night previously. Death took place at 8 a.m., and the operation at 8.8 a.m. The fetus on delivery did not breathe, but the heart was beating. Artificial respiration, etc., was commenced and continued for forty-five minutes, so long as cardiac sounds could be detected.

The result was negative. The abdominal parietes were very thin. The placenta was not wounded although its free anterior edge was close to the line of incision into the uterus. Examination of the uterus afterwards showed that the placental site, which was on the left side, reached from the fundus to the lower part of middle zone. The internal os was plugged with tenacious mucus; there was no shortening of cervix.

Preston. J. DUNCAN HOWE, M.R.C.S.

A CASE OF RECURRENT UNCONTROLLABLE VOMITING ENDING IN DEATH.

ON January 18th, 1906, I was summoned to a house in Kirkby to visit a little girl about 6 years of age; for two days she had been suffering from sickness which resisted treatment on the part of the mother. In March, 1905, I attended the same little girl for an attack of a similar nature, and, as it quickly yielded to the orthodox treatment adopted in such cases, I had no doubt that the present attack would soon be at an end. The mother, on my first introduction to the child, had informed me that in her earlier years and as a baby she had been liable to recurrent bouts of sickness at intervals of two or three months, which always yielded to treatment; "bilious attacks" she called them, which no doubt they were. On this occasion the sickness continued intermittently until April 29th, a space of fifteen weeks, when the child died from wasting and exhaustion—starvation. During this time everything medicinal and every treatment likely to



give a beneficial result was tried: bismuth, salicylate of soda, calomel in doses of a sixth of a grain, tincture of iodine with glycerine (prescribed by a consultant), etc.; also pot. bromide dissolved in nutrient enemata, on which solely dependence had to be placed, as it was found necessary after many trials to give the stomach absolute rest. The foods tried by the stomach consisted of: Benger's food, very weak meat juice (extracted from fresh beef each night and morning), with barley-water, whey, and other foods of an equally non-irritating character in the smallest quantities. I might add that three consultants (chosen by the parents) at different times saw the little one with me, but in no case did the line of treatment suggested avail anything. Iced fluids by the stomach were tried at the beginning, and later very hot water, but neither treatment had any permanent effect, though both served at the time to do some little good.

No constitutional disturbance in the form of increased temperature or quickened pulse was present at any time throughout the illness. There was no evidence in any shape or form which would lead me to suspect cerebral trouble, nor was there any severe pain or tenderness of a local character. Towards the end of the illness the little one undoubtedly suffered somewhat for about a week, but the pain was more that of exhaustion. I forgot to say that when all else failed, I washed the stomach out without any favourable result. *Post-mortem* evidence revealed the following condition of things, which I leave to Dr. D. Moore Alexander, who made the examination for me, to describe himself:

The body was extremely emaciated, and the adipose tissue had disappeared from the subcutaneous tissues, and the great omentum contained a remarkably small amount. Upon opening the abdomen, the stomach presented in the incision, and was greatly dilated, extending down below the level of the umbilicus to the intertubercular plane. On closer examination it was found that this dilatation extended to the right and involved the first, second, and the first division of the third portions of the duodenum. The gut in these regions was hugely dilated, and it was difficult to determine exactly where the pylorus ended and the duodenum began. The cause of this dilatation was found in a twist which had occurred at the junction of the two divisions of the third part of the duodenum, immediately beyond the spot where the gut is crossed by the mesenteric vessels, which can be seen in the photograph.

There were some old adhesions of great strength and toughness all around and the glands in the vicinity were enlarged; some of these were examined microscopically and showed inflammatory changes, but no signs of tubercle. The most interesting point of the condition is that as this part of the duodenum has a peritoneal covering only upon its anterior aspect and is firmly bound down to the posterior abdominal wall, the twist was very probably a congenital formation, a theory which is favoured by the clinical history of the case.

The photograph shows the duodenum with the head of the pancreas in its concavity and the superior mesenteric vessels proceeding down to cross the third part. The twist will be noticed to have occurred just beyond this point.

Maghull, near Liverpool. J. F. GORDON, M.D.

A CASE OF OVARIAN PREGNANCY.

AFTER reading the article on ovarian pregnancy in the BRITISH MEDICAL JOURNAL of September 8th, p. 568, I think the following case may be of interest.

A nullipara, aged 30, gave the following history. Menstruation had always been regular, the period occurring once a month, lasting seven days and being free from pain. The last period, however (which had ceased about two days before she sought advice), had continued for ten days, had been profuse and had been accompanied by the passage of shreds of membrane. During the whole of this period she had experienced pain in the lower half of the abdomen which had persisted and increased up to the time of seeing her. There was neither vomiting nor obstruction of the bowel. There was a history of occasional attacks of biliary colic accompanied by slight jaundice. On examination the abdomen was considerably distended but resonant all over. Pain and tenderness were present in the lower half of the abdomen. No localized mass could be felt through the parietes; a bimanual examination was not possible, but by internal examination the uterus was located in normal position and Douglas's pouch felt to be distended and somewhat resistant. There was no vaginal discharge then or subsequently; there were no mammary signs of pregnancy. The temperature was 101° and pulse 120. Possible causes of the condition, including extra-uterine gestation and perforation of a viscus, were discussed with Drs. Davis and Cardinall, who both concurred in the necessity for operation. With their kind assistance, therefore, the abdomen was opened a few hours after the patient was first seen.

Dark blood, to the approximate amount of 1½ pints, welled up immediately, and the pelvis was found full of recent clot. The source of bleeding was seen to be a ragged cavity in the left ovary. With this exception the pelvic organs were normal, and there were no adhesions anywhere. The left ovary and tube were removed, the parts cleansed, and the abdomen closed. The patient made a good recovery, but when convalescent developed acute trouble in her gall bladder, which required surgical treatment. She has now been in good health for some months.

The report of the Clinical Research Association was as follows:

"This ragged cavity is a gestation sac. The wall is formed of ovarian tissue lined with fibrin and blood clot,

in which are embedded several chorionic villi and masses of fetal epithelium. As the corresponding Fallopian tube is free of the gestation sac, it is very probable that the specimen represents an ovarian pregnancy. However, it is too much damaged for a positive opinion on this point."

From all the facts considered together, it seems reasonable to presume that this was a case of very early ovarian pregnancy.

Sidcup, Kent. R. R. Law, M.D.Cantab.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

RADCLIFFE INFIRMARY, OXFORD.

A FATAL CASE OF PERITONITIS AND SEPTICAEMIA, PROBABLY PNEUMOCOCCIC IN ORIGIN.

(By H. C. Lecky, M.A., B.M., B.Ch.Oxon., late House-Physician.)

A. B., aged 27, was admitted on November 22nd, 1905, to the Radcliffe Infirmary, Oxford, under the care of Dr. Brooks. The patient complained of pains in the "stomach," which he had had for about four weeks and were now getting worse. He did not appear to be very ill, and could give a clear account of his illness. He stated he was a labourer in the fields, and had been quite well and in his usual good health up to October 22nd, 1905. He then caught cold and stayed in bed for two days. On the first day he had two severe attacks of shivering followed by sweating; on the second day he had one similar attack. There was no vomiting. At the same time he had some sharp pain in the right flank, which was severe enough to double him up. He went to his work daily for the next three weeks—that is, up to November 14th—but the whole time he had a bad cough, and the pain in the right side was almost continuous. It sometimes left off for an hour or so. Sometimes the pain was so severe that he had to stop work and lean over something to obtain relief. On November 14th he went to bed and remained in bed for the greater part of every day up to November 22nd, when he came into the infirmary. There was never any sickness. He had severe headaches from time to time, and there was a general aching in his limbs from November 14th onwards. He had four shivering attacks in the week before November 22nd. The bowels were open regularly every day, and nothing abnormal was noticed in the faeces. He had never been jaundiced, and the urine had never been coloured red. He had had no dyspnoea, and no severe pain on coughing or on taking a deep breath. The patient's past history was a good one, and threw no light on the present illness. The family history was not obtained.

State on Admission.—The patient was lying comfortably in bed, and was well nourished in appearance. The face and ears were hot, flushed, and slightly cyanosed, so much so as to immediately arrest one's attention. No rash on any part of the body. Tongue slightly furred. Temperature 101°; pulse 100, tension and volume normal; respirations 28, but in no way embarrassed; arteries a little thickened. No physical signs of disease were discovered in the chest, with the exception of a short systolic murmur, best heard over the inner end of the third left intercostal space. The lungs appeared quite normal. No signs of thickened pleura or fluid. The abdomen looked quite normal, and palpation was easy. There was some abnormal tenderness in both loins and in the right flank, but it was more especially marked in the right renal region. No tenderness at all in the right iliac region. No mass could be felt anywhere. The spleen and liver were not felt. No haemorrhages were seen in the skin. No typhoid spots. Knee-jerks brisk and equal. There was a slight cough. Urine showed a cloud of albumen, an excess of urates, no casts, and no pus cells.

Progress.—For the next six days the patient's general condition did not alter. The temperature chart was very irregular, varying between 100.5° and 103°, but on two occasions dropped to 98.4°. The pulse varied between 80 and 100. The respirations were always a little rapid, varying between 28 and 36. The patient sweated very profusely at night, but the skin was generally dry during the day. The extraordinary flushing and slight cyanosis of the face continued as a marked feature in the case. The stools were rather loose, contained mucus, were light yellow in colour, and certainly suggested typhoid; generally about two motions a day. He passed about 45 oz. of urine a day. He always slept well, and never had any headache. Mind always perfectly clear.

On November 28th, 1905, the abdomen was found to be slightly tender all over, but especially so below the costal margin in the left axillary line, where there was also some resistance. The spleen and kidneys were not felt. On November 30th a slight impairment of resonance at the right base was detected, with some increase of fremitus and vocal resonance. On other occasions some very slight signs were detected, which would probably never have been noticed if the diagnosis had been certain. On these slight lung signs, the increased rate of respiration, the flushing and cyanosis of the face, the pyrexia, and the absence of other symptoms, Mr. Gibson made a diagnosis of pneumococcic septicaemia. The blood showed a leucocytosis of 23,480 whites, 7,320,000 reds, 103 per cent. haemoglobin. The differential count showed 83 per cent. polymorphonuclear leucocytes. The Widal reaction was negative. The hands of the patient, and to a less extent the whole body, had a very peculiar musty smell. The tongue remained always slightly furred.

On December 4th the stools quite altered in character, and became more formed and darker yellow, almost brown in colour.

On December 7th a definite mass could be felt below the left costal margin between the mid-axillary and the nipple lines. It was very tender and did not move on respiration. There was no bulging or fullness in the left loin. In the next few days this rapidly increased in size, and on December 11th the mass was incised by Mr. Symonds, and a large quantity of very foul-smelling thin pus was evacuated. The mass was found to be retroperitoneal, and on account of its position, and the very foul smell, it was thought to be a perinephritic abscess, infected from the bowel.

The wound continued to discharge a large quantity of foul pus, which for the first few days had a distinctly faecal smell. The temperature varied between 101° and 98° up to December 26th. It then began to come down, and was normal from January 1st to the 7th. On January 8th it rose to 100°, and a fluctuating swelling appeared above and just outside the right sacro iliac synchondrosis. This was incised, and a small amount of thin purulent fluid was evacuated. As this did not heal up the incision was enlarged, and a long sinus was found leading down to bare dead bone. Shortly after this he began to complain of a good deal of pain in the right leg, which he kept slightly flexed on the abdomen. His general condition became very much worse, with a rising temperature. There were no rigors. On January 30th a fluctuating swelling appeared in the right groin, which was opened above Poupart's ligament, and was found to have an extensive area in front of the iliacus muscle, and following its course down into the leg. A very large quantity of pus was removed.

The patient collapsed very shortly after this operation, and died on the same day.

Leave was not obtained for a complete *post-mortem* examination. The operation wounds were enlarged, and the abdomen and its contents were examined. The coils of small intestine over the lower half of the abdomen and the pelvic cavity were extensively matted together with old and recent adhesions. There was no free fluid. The most marked change was at the brim of the pelvis, where the descending colon was also involved in the matting together of the intestines. The coils of intestine in the upper half of the abdomen were quite free from any infection, and their surface was smooth and shiny. The alimentary canal—stomach, small and large intestine—was opened from end to end, and no evidence of ulceration was found anywhere. The appendix and caecum were healthy. In one or two places the wall of the intestine looked extremely thin, not unlike old healed typhoid ulcers. Microscopical examination, however, did not show any loss of substance or presence of fibrosis. The kidneys and spleen were rather large but otherwise

healthy to the naked eye. No renal stone was discovered. The bladder was healthy.

It was impossible to trace out the connexions of the various retroperitoneal abscesses owing to the scope of the examination being limited. Microscopically the diagnosis was cleared up by finding diplococci—which morphologically could not be distinguished from pneumococci—in the adhesions between the coils of intestine. No other organisms were found in the sections, and none were seen in the kidneys or spleen.

REMARKS.—The case is interesting owing to the difficulty of diagnosis, as well as to the comparative rarity of the condition. The history of the attacks of pain on the right side pointed to either appendix trouble or to renal colic; but it is noticeable that there was never any vomiting, and, in addition, that there were definite rigors, which, as a rule, are not associated with the commencement of either of these conditions. When seen in hospital, the cyanosis of the face, which remained so persistently, and the increased rate of respiration, were signs which pointed to some other diagnosis. The slight diarrhoea, with almost peasoup stools, and the pulse-rate disproportionately slow to the temperature, made one keep typhoid fever in view. But the presence of leucocytosis, the negative Widal reaction, and the general condition of the patient, were points against this conclusion. When the abscess was opened the diagnosis appeared to be clear: either an appendix abscess which had tracked up or a perinephritic abscess. However, the gradual decline of the patient and the opening up of several more abscesses showed that there was some much more general agent at work. The nature of this was only revealed by the microscope, when Mr. Gibson's original diagnosis was confirmed.

I am indebted to Dr. Brooks and to Mr. Symonds for permission to publish these notes.

SUNDERLAND INFIRMARY.

A CASE OF COCAINE POISONING.

(Reported by CECIL B. F. TIVY, M.B., B.Ch., B.A.O., R.U.I. Senior Resident Medical Officer.)

THE following case is of some interest as an addition to the already-published cases of cocaine poisoning, and may serve as a warning to younger members of the profession who might overlook the danger of using the drug in their anxiety to save their patients pain.

A patient, T. H., male, 56 years of age, was admitted to the Sunderland Infirmary on Sunday evening suffering from retention of urine caused by a stricture. He was sent up by a local practitioner who had made unavailing attempts to pass a catheter, and in so doing had caused considerable haemorrhage. My colleague, Mr. Laverick, made a further attempt at catheterization, but failed, and he reported to me that there were one or more false passages, and that the urethra was in a very inflamed condition. The patient was then given a hot bath, followed by a morphine suppository gr. ¼, and was then able to pass a little urine. This process I ordered to be repeated later, and the patient gained sufficient ease to enable him to get some sleep.

On visiting him in the morning, I found that the patient was still in great pain and his bladder quite full, being palpable a handbreadth above the pubes.

I resolved to get a small catheter or bougie into his bladder if possible, and to save the patient some of the pain and so facilitate the process, I decided to inject some solution of cocaine into the urethra beforehand. I therefore injected half a drachm of a 10 per cent. solution of cocaine hydrochloride with a glass syringe into the urethra in the ordinary way, telling the patient to hold the penis in his fingers to prevent escape.

I then left the patient with the wardsman who was attending me, and turned to wash my hands, but before I could get to the end of the ward the man called to me, and I returned immediately. I then found the patient in a state of clonic convulsion, with his back arched, and jumping up off the bed. His jaws were moving spasmodically, and he had bitten his tongue. His face was somewhat cyanosed and his breathing very spasmodic and slightly stertorous. The eyeballs were fixed and the lids half closed. I could not feel a pulse at the wrist, but his arms were jerking so forcibly that it was not easy in any case. I put my ear to the chest and heard the heart beating. His breathing rapidly became shallower and the convulsions lessened in force, and in about a minute respiration ceased, the cyanosis increasing; I put in a gag, pulled out his tongue, and began artificial respiration, and the Sister brought me a hypodermic syringe of brandy which she injected while I continued the respiration. I also had a hot stupe put over the heart, but when I listened again the beats had ceased. I persevered with artificial respiration for a quarter of an hour and had the brandy repeated but with no effect, as the patient never rallied, and was, I believe, dead in about three minutes from the time of injection.

I made a *post-mortem* examination the next day and found all the organs fairly healthy. The kidneys were congested but not diseased, the spleen was enlarged and fleshy, and the liver showed signs of cirrhosis. The heart had apparently stopped in systole, as all the chambers were empty. The heart muscle was a bit flabby, but otherwise healthy, and all the valves were normal.

An inquest was held and a verdict of death from cocaine poisoning returned.

I have not had much opportunity of looking up authorities on cocaine poisoning, but I have come across a record of one case of a similar nature where the patient had 2½ gr. injected into the urethra with fatal effect. My patient had 3 gr.

I may add that I have used this solution on several former cases; in fact, I had some doubts as to whether it would serve my purpose in this case, as I had used some out of the same bottle for two cases about six months ago, and I expected it would have deteriorated. I believe the patient must have been unusually susceptible, and the laceration of his urethra caused by the instruments used, made the absorption very rapid. The dose was hardly an excessive one, in the light of my former experience, and I find that Caird and Cathcart (*A Surgical Handbook*) recommend that 2 drachms of a 5 per cent. solution should be used for this purpose, which is double what I used.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

JAMAICA BRANCH.

AT a meeting held on Monday, March 26th, Dr. BRONSTORPH related a case of removal of the prostate in a man aged 92. For ten years he had suffered. He had been taught by his medical attendant to pass a soft gum elastic catheter, and so he relieved his occasional attacks of retention of urine. On April 3rd, 1905, he passed the catheter for the last time, and on withdrawing it was, to use his own words, washed in blood; no urine came. On the 4th Dr. Bronstorph saw him, and on examination found his prostate enlarged, bladder extended to his umbilicus, and blood issuing from his meatus. He passed a large-eyed French gum elastic catheter into the bladder (the old man had no stricture); only blood came. The bladder was filled with urine and large blood clots. A perineal section was performed, but the finger could not reach the bladder on account of the enlarged prostate, and no urine came through the large rubber tube passed through the perineal wound into his bladder. The bladder was at once opened suprapubically, the clots of blood turned out, and with a gush the bloody urine escaped. The capsule of the prostate was then nicked with a pair of scissors, and with his index finger Dr. Bronstorph enucleated the gland, which, when removed and weighed, was found to be 5 oz. The bleeding was not very severe; the abdominal wound was stitched up, leaving the bladder free. A large-sized drainage tube was passed through the lower angle of the abdominal wound into the bladder, a safety pin run through the tube to prevent it slipping in, and a pad of gamgee tissue put over all, and kept in place with a binder. The recovery was uninterrupted, and the temperature never rose above 100° F. Except to bathe his perineum Dr. Bronstorph took no notice of the wound in it. The drainage tube kept slipping out of his bladder, and caused some annoyance, but it was always replaced. Dr. Bronstorph never washed out the bladder, and did nothing more than keep the old man clean and dry. His sleep every night was sound; in five days he could sit up unaided in bed, and

was allowed to sit up on the night chair. In twenty days the drainage tube was removed, and the old man could make water as freely as when he was a boy. In five weeks from the day of the operation he was able to walk to church and sit and stand, kneel throughout the service, and to drive in his buggy to the city and transact business.

Dr. P. O. Malabre related a case of uterine pregnancy. On September 26th Mrs. X. consulted him for persistent nausea with queer indescribable sensations in the abdomen. She had one child, aged 8, and there was a history of a miscarriage about six years ago. Since then she had menstruated regularly until the middle of August. The uterus was enlarged and seemingly pregnant. She improved under treatment until October 20th, when she had an attack of acute pain in the right iliac region running up into the epigastrium. There was slight haemorrhage from the uterus and the os could partly admit the tip of the finger. Bleeding continued with occasional small clots until the next morning, when she apparently aborted, and on his visit he was shown a "clot" about the size of a small hen's egg of undoubted decidual tissue which had come away a couple of hours previously. There was no sign of an embryo, but as the "clot" had been wrapped up in a piece of paper it was dry and could not be examined satisfactorily. Occasional sharp attacks of abdominal pain, which the patient always ascribed to "wind," still continued, and there was frequent distressing vomiting of thick bile-stained fluid. The uterus remained flabby, and there was a distinct but variable area of dullness in the right iliac and hypogastric regions. On October 29th, she was seen by a neighbouring practitioner in consultation, and about a teaspoonful of decidual tissue and granulations scraped away from the posterior uterine wall, which could be felt distinctly roughened. The area of dullness seemed to entirely disappear under the anaesthetic. The next day the patient developed jaundice, which rapidly became profound and the stools very pale. Coincident with this the severe pains vanished and the patient seemed in every way better until November 6th when the pains returned and there was constant complaint of "bad feelings," always relieved by vomiting. The temperature, which had not hitherto been above 90° F., began to fluctuate between 100° and 102° F. There was general abdominal tenderness with an area of indistinct dullness in the hypogastrium and towards the right side, with the flanks resonant. The patient's condition got slowly but steadily worse, and on November 10th, after further consultation, laparotomy was performed by Dr. Lockett at 6 p.m. The patient bore the operation badly and died at 3.30 a.m. the next day. The possibility of ectopic gestation was fully recognized and discussed in consultation, but under chloroform the physical signs which seemed to have been present a few minutes before entirely disappeared, and a filling of the right fornix, which seemed to be detected on one or two occasions, was not confirmed. The diagnosis seemed to lie between localized peritonitis (possibly appendicitis) and gall stone plus abortion. No gall stone was ever detected, but the author thinks many of the symptoms could be explained on this hypothesis. The "abortion" was no doubt a spurious decidual membrane in the uterus, while the impregnated ovum had lodged in the right tube, ultimately escaping by a gradual rupture into the peritoneal cavity. Note by Dr. Lockett: Abdomen opened right side of rectus; general peritonitis; gall bladder and ducts normal; in the umbilical and hypogastric region, among a large quantity of recent blood and old clot, an eight-weeks fetus in unruptured amniotic membrane was found attached to a solid round placenta, which in turn was attached in region of right cornu and tube; haemorrhage after removal with difficulty controlled on account of the friability of tissues.

Photographs.—Dr. Lockett showed the following: (1) A child, aged 11, before and after myxosarcoma removed from left nostril by taking down the skin of nose and then replacing it. (2) A child with abnormal development of bones of one leg; a rudimentary tibia extending from knee-joint to a dimple on middle of shin and a rudimentary fibula extending half up the leg from the external malleolus. (3) A man with a large flat keloid occupying area of beard. (4) A simple cyst of breast filled with blood in a woman, aged 65; no sign of malignancy to present time, four months after. (5) A woman with an enormous solid enlargement of thyroid, reaching down to middle of sternum.

REVIEWS.

THE TEACHING OF PHYSIOLOGY.

The practical teaching of physiology has always been hedged about with many difficulties. Apart from the restrictions imposed by the prejudices of the unscientific, there are always the limiting influences of time, expense and convenience, particularly when the subject has to be compressed within the boundaries of the medical curriculum. Of late years a further element of doubt has arisen as to this form of teaching in England. It is suggested that instead of choosing experiments which may ultimately be of use in clinical work physiologists have too rigidly followed the old lines and have contented themselves with varying, and no doubt improving, the procedures described thirty years ago in Burdon-Sanderson's *Handbook for the Physiological Laboratory*. In such circumstances it cannot fail to be instructive to compare our methods with those of Continental workers, and we are hence inclined to commend Dr. Fuchs's manual on practical physiology[1] to the notice of teachers of physiology in this country. It relates solely to experimental physiology, and is to be supplemented by a similar volume on the chemical part of the subject written by one of the author's colleagues. It is expressly stated that the book is intended for the use of those who are learning physiology in preparation for the study of medicine, and the writer asks, most pertinently as we think, why the use of the ophthalmoscope and the laryngoscope and the auscultation of normal heart and breath sounds should not be taught until the student is commencing clinical work. Each department of practical physiology should receive equal attention; this is by no means the case in English works on the subject, which devote an inordinate amount of space to the experiments on muscle and nerve, and in particular to electrical demonstrations, which usually fail—being of great technical difficulty—and are, medically speaking, quite purposeless. This temptation Dr. Fuchs has avoided, so that these subjects do not occupy more than one-fifth of his pages. He has also, according to his own statement, left out vivisectional experiments, though we find that he includes descriptions of such procedures as extirpation of the cerebral hemispheres of the pigeon. A noteworthy point is that many of the experiments, particularly with regard to the heart and circulation, are performed upon the rabbit instead of the frog; the advantages of this are obvious, since the manipulations are both easier, owing to the greater size of the animal, and more directly applicable to human physiology. Each section is preceded by an enumeration of the instruments required, and the descriptions are accurate and concise, although their compression precludes any effort at literary form. The illustrations are mainly from photographs, and are both clear and well chosen; those of dissections have the further advantage of being life-size. English teachers of physiology will do well to study this book, and, if we may venture to hint it, the author might also improve a future edition by including some of our own methods. Thus, for example, the estimation of haemoglobin is given according to Fleischl and to Sahli, but the preferable procedure of Haldane is not mentioned. Mutual concessions might lead to the production of an ideal work on practical physiology for medical students.

PHYSIOLOGICAL CHEMISTRY.

Dr. Emil Abderhalden has recently published a course of thirty lectures, in which he gives us an admirable account of the present position of physiological chemistry. He has selected only those foundations of his science which yield themselves to a clear and definite exposition, and has eschewed all isolated facts, which, important

[1] *Physiologisches Praktikum für Mediziner* [Practical Physiology for Medical Students.] By R. F. Fuchs, M.D., Physiological Tutor in the University of Erlangen. Wiesbaden: J. F. Bergmann; and Glasgow: F. Bauermeister, 1906. (Demy 8vo, pp. 261; 93 illustrations. 7s. 6d.)

[2] *Lehrbuch der physiologischen Chemie (in dreissig Vorlesungen).* By Dr. Emil Abderhalden. Berlin: Urban and Schwarzenberg. 1906. (Demy 8vo, pp. 787. M. 18.)

as they may be to researchers, cannot be correlated at present with other observations and put in their proper value and light. The lecturer aims at promoting independent thought and stimulating research, and in this he certainly succeeds. He treats first of the carbohydrates and of their synthesis and decomposition in plants and animals; next of the fats and then of the proteids. He discusses fully the modern views of proteid digestion, absorption, and synthesis in the animal body, a subject to which he has himself made important contributions. It is now generally recognized that the proteids are broken down by the ferments pepsin, trypsin, and erepsin into their "building stones," the amido-acids, etc., that they are absorbed in this form, and are not resynthesized into blood proteids, as has been taught hitherto, but carried to the tissues as amido-acids. Each organ, the muscles, the secreting and metabolic glands, picks out of the blood the "building stones" necessary for the making of its own individual protoplasms and enzymes. From the greater part of the absorbed amido-acids—not used for building—the nitrogen is split off rapidly and without loss of energy, and is converted into urea, while the carbon-holding residue is retained and utilized for the production of energy, in place of an equivalent energy value of fat or carbohydrate. This decomposition takes place without that preliminary conversion of the food proteid into tissue proteid, contrary to the view which has been upheld by Pflüger. Thus the excretion of urea bears the closest and most immediate relation to the amount of proteid eaten. Accepting these views, we see how the suitability of a proteid as a food depends on the "building stones" it contains. Not all proteids contain stones of the same value. More is required than a mere equivalent of nitrogen to cover the loss of nitrogen from the body. Gelatine, as is well known, cannot suffice as the sole proteid element in the diet, and we know that it lacks certain important radicles. So, too, zein prepared from maize can be made more adequate by the addition of the "building stones" it lacks. Each tissue of each animal has its own characteristic proteid and preserves its composition; the casein of cow's milk is not exactly similar to that of woman's milk; the building stones of the two caseins slightly vary. The serum proteids of different animals seem to rough chemical tests the same, but by the "biological test"—the precipitin test—they are obviously different. If we feed an animal on a proteid especially rich in one building stone—for example, zein, rich in glutaminic acid—the serum proteids preserve their characteristic composition—they do not become richer in glutaminic acid. For the production of such a substance as adrenalin some particular building stone may be required which is not present in all proteids. These ideas are of great import, and open up new fields of speculation. One of the most interesting and instructive lectures of the proteid series is that on the chemical structure of the nucleo-proteids and their decomposition products. The following lectures treat of the isodynamic values of proteid, fat, and carbohydrate in the diet; on the inorganic foodstuffs; on oxygen and oxidation. There follows an excellent account of the modern views concerning ferments and catalysis and the functions of the digestive glands, and this section is followed by an account of the blood and lymph, of excretion, of the metabolism of the whole body, and the relation of the single organs one to another. The book is a model of clear exposition, and worthy of careful study.

Professor ROCKWOOD, of Iowa University, has published a second edition of his *Laboratory Manual of Physiological Chemistry*.[3] In no subject has advance been greater than in that treated of in this book, and Professor Rockwood has therefore revised the whole and added new material. The manual is clearly arranged and well written, and gives the student a brief explanation of the facts observed as well as the directions for experimental work. It seems surprising that Professor Rockwood should altogether omit from the section on carbohydrates so important and valuable an instrument as the polarimeter.

Professor EMIL FISCHER is engaged on a work of world-wide importance. His previous researches on the sugars and on uric acid, epoch-making as they were, sink into comparative insignificance compared to that which will in time result in a knowledge and possibly synthesis of the albuminous molecule. The volume he has just published on amino-acids, polypeptides, and proteids,[4] is a collection of his memoirs on this subject which have hitherto been scattered through various journals; it will be most convenient both to those engaged in similar work, and to those otherwise interested in a branch of chemistry so intimately associated with the problems of life, to have them collected in compact form. The papers number seventy-four in all, and include those by Abderhalden and others working under Fischer's supervision and inspiration. The quantity of the work is obvious; its high quality can only be appreciated by specialists, and the vast amount that remains still undone can be realized best by those engaged in the task, notably by Professor Fischer himself. The title page does not inform us this is the first volume of a series, but those who are accustomed to follow chemical research in the journals will know that already a large number of papers have appeared from the Berlin laboratory which would form a very respectable second volume. In a leading article which appeared in the BRITISH MEDICAL JOURNAL some months ago (January 27th, 1906, p. 221), the underlying drift of this important series of researches was indicated; it is therefore unnecessary to go into that again. The reading of the details will be confined to a few. We must be content here with uttering in the proper spirit of reverence our deep appreciation of what has hitherto been done, our congratulations to Professor Fischer and his co-workers, and our hope that they may be spared to continue their labours and bring them to fruition.

HUMAN EMBRYOLOGY.

A USEFUL book for medical students is the *Development of the Human Body*, or a *Manual of Human Embryology*[5], as the author, Professor MCMURRICH, calls it. The first edition appeared in 1902, and the second, which is revised and enlarged, has just been published. A work on human anatomy and development almost of necessity gets quickly out of date owing to the numerous researches which are being carried out, so that three or four years is about the limit to which a single edition can usually run. The present edition is therefore for the time being right up to date. The author has most successfully avoided discussion of doubtful points, which would be out of place in a textbook, using excellent judgement in the particular views he adopts, but as a rule referring shortly to other opinions, and for this purpose using a smaller type. The value of the book is also greatly enhanced by the very complete bibliography at the end of each chapter. The arrangement of the subject is good. First, there is a general though very short introduction dealing with protoplasm and the cell; this might have been extended with advantage. Professor McMurrich adopts the "framework theory" of the structure of protoplasm—that of Frommann, Heitzmann, Schmitz, Leydig, Klein, and others—and refers in a short footnote to Bütschli's "foam theory," but no mention is made of the not necessarily extinct ideas of Flemming and Altmann. The rest of the book is divided into two parts, the first dealing with general development, of which the first two chapters are very complete expositions upon spermatogenesis and oögenesis. The second part, entitled "Organogeny," considers the development of the various systems of the body. Although the book deals with human development, the comparative anatomy and development of the lower animals is constantly referred to, smaller type being used for these references. The medical student has so many textbooks at the present day that we hesitate to recommend another to his notice. We think, however, that this book will repay him for the trouble of reading it.

[3] *A Laboratory Manual of Physiological Chemistry*. By Professor E. W. Rockwood. Second edition. Philadelphia: F. A. Davis Company. 1906. (Crown 8vo, pp. 229. $1.)

[4] *Untersuchungen über Aminosäuren, Polypeptide und Proteïne* (1899-1906). (Investigations on Amino-acids, Polypeptides, and Proteids.) By Emil Fischer. Berlin: J. Springer. 1906. (Demy 8vo, p. 770. M. 16.)

[5] *The Development of the Human Body: a Manual of Human Embryology*. By J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy in the University of Michigan. Second edition. London: Rebman, Limited. 1906. (Demy 8vo, pp. 539. 14s.)

The Huxley Lecture

ON

RECENT ADVANCES IN SCIENCE AND THEIR BEARING ON MEDICINE AND SURGERY.*

By IVAN PETROVITCH PAWLOW, M.D.,

PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF ST. PETERSBURG.

The Scientific Investigation of the Psychical Faculties or Processes in the Higher Animals.

[After some introductory remarks Professor Pawlow proceeded:]

For a consistent investigator there is in the higher animals only one thing to be considered—namely, the response of the animal to external impressions. This response may be extremely complicated in comparison with the reaction of animals of a lower class. Strictly speaking, natural science is under an obligation to determine only the precise connexion which exists between the given natural phenomenon and the responsive faculty of the living organism with respect to this phenomenon—or, in other words, to ascertain completely how the given living object maintains itself in constant relation with its environment. The question is simply whether this law is now applicable to the examination of the higher functions of the higher quadrupeds. I and my colleagues in the laboratory began this work some years ago, and we have recently devoted ourselves to it almost completely. All our experiments were made on dogs. The only response of the animals to external impressions was a physiologically unimportant process—namely, the excretion of saliva. The experimenter always used perfectly normal animals, the meaning of this expression being that the animals were not subjected to any abnormal influence during the experiments. By means of a systematic procedure easy of manipulation it was possible to obtain an exact observation of the work of the salivary glands at any desired time.

It is already well known that there is always a flow of saliva in the dog when something to eat is given to it or when anything is forcibly introduced into its mouth. In these circumstances the escaping saliva varies both in quality and quantity very closely in accordance with the nature of the substances thus brought into the dog's mouth. Here we have before us a well-known physiological process—namely, reflex action. It is the response of the animal to external influences, a response which is accomplished by the aid of the nervous system. The force exerted from without is transformed into a nervous impression, which is transmitted by a circuitous route from the peripheral extremity of the centripetal nerve through the centripetal nerve, the central nervous system, and the centrifugal nerve, ultimately arriving at the particular organ concerned and exciting its activity. This response is specific and permanent. Its specificity is a manifestation of a close and peculiar action of the external phenomena to physiological action, and is founded on the specific sensibility of the peripheral nerve-endings in the given nervous chain. These specific reflex actions are constant under normal vital conditions, or, to speak more properly, during the absence of abnormal vital conditions.

The responses of the salivary glands to external influences are, however, not exhausted by the above-mentioned ordinary reflex actions. We all know that the salivary glands begin to secrete, not only when the stimulus of appropriate substances is impressed on the interior surface of the mouth, but that they also often begin to secrete when other receptive surfaces, including the eye and the ear, are similarly stimulated. The actions last mentioned are, however, generally considered apart from physiology and receive the name of psychical stimuli. We will take another course, and will endeavour to restore to physiology what properly belongs to it. These exceptional manifestations unquestionably have much in common with ordinary reflex action. Every time that there is a flow of saliva attributable to this cause, the occurrence of some special stimulus among the external influences may be recognized. On very careful exercise of his attention, the observer perceives that the number of spontaneous flows of saliva forms a rapidly diminishing series, and it is in the highest degree probable that those extremely infrequent flows of saliva for which no particular cause is at first sight apparent are in reality the result of some stimulus invisible to the eye of the observer. From this it follows that the centripetal paths are always stimulated primarily and the centrifugal paths secondarily, of course with the interposition of the central nervous system. In the first place, they arise from all the bodily surfaces which are sensitive to stimulation, even from such regions as the eye and the ear, from which an ordinary reflex action affecting the salivary glands is never known to proceed.

It must be observed that ordinary salivary reflexes may originate not only from the cavity of the mouth, but also from the skin and the nasal cavity. In the second place, a conspicuous feature of these reflexes is that they are in the highest degree inconstant. All stimuli introduced into the mouth of the dog unfailingly give a positive result in reference to the secretion of saliva, but the same objects when presented to the eye, the ear, etc., may be sometimes efficient and sometimes not. In consequence of the last-mentioned fact, we have provisionally called the new reflexes "conditioned reflexes," and for the sake of distinction we have called the old ones "unconditioned." Every conditioned stimulus becomes totally ineffective on repetition, the explanation being that the reflex action ceases. The shorter the interval between the separate repetitions of the conditioned reflex the more quickly is this reflex obliterated. The obliteration of one conditioned reflex does not affect the operation of the others. Spontaneous restoration of the obliterated conditioned reflexes does not occur until after the lapse of one, two, or more hours, but there is a way in which our reflex may be restored immediately. All that is necessary is to obtain a repetition of the unconditioned reflex—as, for instance, by pouring vinegar into the dog's mouth and then either showing it to him or letting him smell it. The action of the last-mentioned stimuli, which was previously quite obliterated, is now restored in its full extent. If for a somewhat long time—such as days or weeks continuously—a certain kind of food is shown to the animal without being given to him to eat, it loses its power of imparting a stimulus from a distance—that is, its power of acting on the eye, the nose, etc.

We may, therefore, say that the conditioned reflex is in some way dependent on the unconditioned reflex. At the same time we see also the mechanism which is necessary for the production of our conditioned reflex. When an object is placed in the mouth, some of its properties exercise an action on the simple reflex apparatus of the salivary glands, and for the production of our conditioned reflex that action must synchronize with the action of other properties of the same object when the last-mentioned action, after influencing other superficial parts of the body that are sensitive to such stimuli, arrives in other parts of the central nervous system. Just as the stimulant effects due to certain properties of an object placed in the mouth may be associated as regards time with a number of stimuli arising from other objects, so all these manifold stimuli may by frequent repetition be turned into conditional stimuli for the salivary glands. It must be remembered that in feeding a dog or forcing something into its mouth each separate movement and each variation of a movement may by itself represent a conditioned stimulus. If that is the case, and if our hypothesis as to the origin of the conditional reflex is correct, it follows that any natural phenomenon chosen at will may, if required, be converted into a conditioned stimulus. Any ocular stimulus, any desired sound, any odour that might be selected, and the stimulation of any portion of the skin, either by mechanical means or by the application of heat or cold, have in our hands never failed to stimulate the salivary glands, although they were all of them at one time supposed to be ineffective for such a purpose. This was accomplished by applying these stimuli simultaneously with the action of the salivary glands, this action having been evoked by the giving of certain kinds of food, or by forcing certain substances into the dog's mouth. These artificial conditioned reflexes, the product of our training, showed exactly the same properties as the

* Delivered at Charing Cross Hospital on October 1st, 1906.

natural conditioned reflexes previously described. As regards their obliteration and restoration, they followed essentially the same laws as the natural conditioned reflexes.

Up to the present time the stimuli with which we had to do were comparatively few in number but were constant in action. Now, however, in another more complicated portion of the nervous system we encounter a new phenomenon—namely, the conditioned reflex. On the one hand, the nervous apparatus is responsive in the highest degree—that is, it is susceptible to the most varied external stimuli, but, on the other hand, these stimuli are not constant in their operation and are not uniformly associated with a definite physiological effect. The introduction of the idea of conditioned reflexes into physiology seems to me to be justified because it corresponds to the facts that have been adduced, since it represents a direct inference from them. It is in agreement with the general mechanical hypotheses of natural science. It is completely covered by the ideas of paths and inhibition, ideas which have been sufficiently worked up in the physiological material of the present day. Finally, in these conditioned stimuli, looked at from the point of view of general biology, there is nothing but a very complete mechanism of accommodation or, which amounts to the same thing, a very delicate apparatus for maintaining the natural equilibrium. There are reasons for considering the process of the conditioned reflex to be an elementary process—namely, a process which really consists in the coincidence of any one of the innumerable vague external stimuli with a stimulated condition of any point in a certain portion of the central nervous system. In this way for the time being a path is made by which the stimulus may reach the given point.

Although there are differences in the time required for the establishing of the conditioned reflexes, some proportionality may be perceived. From our experiments it is very evident that the intensity of the stimulation is of essential importance. In contradistinction to this we must state with regard to acoustic impressions that very powerful stimuli, such as the violent ringing of a bell, were not, in comparison with weaker stimuli, quick to produce conditioned increase of function in the salivary glands. It must be supposed that powerful acoustic stimuli produce in the body some other important reaction which hinders the development of the salivary reaction.

What is it that the nervous system of the dog recognizes as individual phenomena of external origin? or, in other words, What are the elements of a stimulus? If the application of cold to a definite area of the skin acts as a conditioned stimulus of the salivary glands, the application of cold to another portion of the skin causes secretion of saliva on the very first occasion. This shows that the stimulus of cold generalizes itself over a considerable portion of the skin, or perhaps even over the whole of it.

Stimulation by musical sounds or by noise in general is remarkably convenient for determining the discriminating or analytical faculty of the nervous system of the dog. In this respect the precision of our reaction goes a great way. If a certain note of an instrument is employed as a conditioned stimulus, it often happens that not only all the notes adjoining it, but even those differing from it by a quarter of a tone, fail to produce any effect. Musical *timbre* is recognized with similar or even much greater precision.

We have hitherto spoken of the analytical faculty of the nervous system as it presents itself to us in, so to say, the finished condition. We have now accumulated material which contains evidence of a continuous and great increase of this faculty if the experimenter perseveres in subdividing and varying the conditioned stimulus, and thereby makes it coincide with the unconditioned stimulus. Here, again, is a new field of enormous extent. In this material relative to the conditioned stimuli there are not a few cases in which an evident connexion between the effect and the intensity of a stimulus can be seen. As soon as a temperature of 50° C. had begun to induce a flow of saliva it was found that even a temperature of 30° C. had a similar effect but in a much less degree. Trial was then made of combinations consisting of stimuli of the same kind and also of stimuli of different kinds. The simplest example is a combination of different musical notes, such as a harmonic chord, which consists of three notes. When this is employed as a conditioned stimulus each two notes together and each separate note of the chord produce an effect, but the notes played two and two together accomplish less than the whole, and the notes played separately accomplish less than those played in pairs. The case becomes more complicated when we employ as a conditioned stimulus a combination of stimuli of different kinds, that is, of stimuli acting upon different kinds of susceptible surfaces. Only a few of such combinations have been provisionally experimented with. In these cases for the most part one of the stimuli was a conditioned stimulus. In a combination in which rubbing and cold were employed the former was preponderant as a conditioned stimulus while the application of cold taken by itself produces a hardly perceptible effect. But if an attempt is made to convert the weaker stimulus separately into a conditioned stimulus it soon becomes an energetic conditioned stimulus. If we now apply the two stimuli together we have before us an evident case of them acting in combination. The following problem had for its object to explain what happens to an active-conditioned stimulus when a new stimulus is added to it. In the cases that were examined, the action of the pre-existing conditioned stimulus was hindered when a new stimulus of a like kind was added to it. A new odour of a like kind hindered the operation of another odour which was already acting as a conditioned stimulus; a new musical note similarly hindered the operation of the note previously employed which was a conditioned stimulus. After a conditioned stimulus had been applied, together with another one which inhibited its action, the action of the first one alone was greatly weakened and sometimes even stopped altogether. This is either an after-effect of the inhibiting stimulus which was added or it is the obliteration of the conditioned reflex, because in the experiment of the added stimulus the conditioned reflex is not strengthened by the unconditioned reflex. The inhibition of the conditioned reflex is also observed in the converse case. When you have a combination of stimuli acting as a conditioned stimulus—in which, as has been already stated, one of the stimuli by itself produces almost no effect—frequent repetition of the powerful stimulus by itself without the other one leads to a powerful inhibition of its action, even to the extent of its action being almost destroyed. The relative magnitudes of all these manifestations of stimulation and inhibition have a very close connexion with their dependence on the conditions under which they originate.

Experiments have been made in the production of conditioned reflexes by traces or latent remnants both of a conditioned and of an unconditioned stimulus. The method was that a conditioned stimulus was either allowed to act for one minute immediately in advance of an unconditioned stimulus or it was even applied two minutes earlier. Conversely, also, the conditioned stimulus was not brought into action until the unconditioned reflex was at an end. In all these cases the conditioned reflex developed itself; but in the cases in which the conditioned stimulus was applied three minutes before the unconditioned one, and was separated from the latter by an interval of two minutes, we obtained a condition which was quite unexpected and extremely peculiar, but was always repeated. When scratching was applied to a particular spot—for instance, as a conditioned stimulus—after it began to produce an effect it was found that scratching of any other place also produced an effect, just as in the case of cold or heat applied to the skin, new musical sounds, optical stimuli, and odours. The unusually copious secretion of saliva, and the extremely expressive movements of the animal attracted our attention. It may appear that this manifestation is of a different kind from those with which we have hitherto been occupied. The fact was that in the earlier experiments at least one coincidence of the conditioned stimulus with the unconditioned one was necessary, but on the present occasion manifestations which had never occurred simultaneously with an unconditioned reflex were acting as conditioned stimuli. Here an unquestionable point of difference naturally comes to light, but at the same time there is also to be seen another essential property of these manifestations which they have in common with the former ones—that is, the existence of a very sensitive

point in the central nervous system, and in consequence of its position this point becomes the destination of all the important stimuli coming from the external world to make impressions on the receptive cells of the higher regions of the brain.

Three characteristic features of this subject make a deep impression upon him who works at it. In the first place, these manifestations present great facilities for exact investigation. I am here referring to the ease with which they may be repeated, to their character of uniformity under similar conditions of environment, and to the fact that they are capable of further subdivision experimentally. In the second place, it is inevitable that opinions formed on this subject must be objective only. In the third place, the subject involves an unusual abundance of questions. To what departments of physiology does it correspond? It corresponds partly to what was in former days the physiology of the organs of special sense and partly to the physiology of the central nervous system.

Up to the present time the physiology of the eye, the ear, and other superficial organs which are of importance as recipients of impressions has been regarded almost exclusively in its subjective aspect; this presented some advantages, but at the same time, of course, limited the range of inquiry. In the investigation of the conditioned stimuli in the higher animals, this limitation is got rid of and a number of important questions in this field of research can be at once examined with the aid of all the immense resources which experiments on animals place in the hand of the physiologist. The investigation of the conditioned reflexes is of very great importance for the physiology of the higher parts of the central nervous system. Hitherto this department of physiology has throughout most of its extent availed itself of ideas not its own, ideas borrowed from psychology, but now there is a possibility of it being liberated from such evil influences. The conditioned reflexes lead us to the consideration of the position of animals in nature; this is a subject of immense extent and one that must be treated objectively.

Broadly regarded, physiology and medicine are inseparable. Since the medical man's object is to remedy the various ills to which the human body is liable, every fresh discovery in physiology will sooner or later be serviceable to him in the preservation and repair of that wonderful structure. It is an extreme satisfaction to me that in honouring the memory of a great physiologist and man of science I am able to make use of ideas and facts which from a unique standpoint affording every prospect of success throw light upon the highest and most complicated portion of the animal mechanism.

Introductory Addresses

AT THE

OPENING OF THE MEDICAL SCHOOLS.

UNIVERSITY COLLEGE, LONDON.

By Rickman J. Godlee, M.S., F.R.C.S.,
Holme Professor of Clinical Surgery.

THE PAST, PRESENT, AND FUTURE OF THE MEDICAL SCHOOL OF UNIVERSITY COLLEGE.

[Abstract.]

Mr. Godlee began by explaining the conditions which led to the foundation of University College, or, as it was then called, the University of London, in 1826. He compared the educational difficulties of that period with those of the present day. The impossibility of obtaining a University education at Oxford and Cambridge without subscribing to the articles of the Church of England and taking other oaths prevented Nonconformists and others from entering these seats of learning. The idea of founding a secular University in London suggested itself to the school of Jeremy Bentham, the philosophical Radicals, and the Whigs, and was ultimately brought before the public in a letter from Thomas Campbell, the poet, to Henry Brougham, which was published in the *Times*, February 9th, 1825. Some extracts from the letter were given. The object of the University was said to be "the advancement and promotion of literature and science by affording to young men residing in, or resorting to, the cities of London and Westminster, the borough of Southwark, and the counties adjoining, adequate opportunities for obtaining literary and scientific education at a moderate expense." The scheme raised great opposition from the Churchmen and Tories, but it rapidly proved to be a great success. The part first opened was the Faculty of Medicine, which immediately attracted large numbers of students. There was no hospital attached to the University, but Charles Bell (afterwards Sir Charles Bell), and Dr. Thomas Watson (afterwards Sir Thomas Watson), who were on the staff of Middlesex Hospital, were professors at the University, and the students of the University were allowed special facilities for obtaining clinical instruction at the Middlesex Hospital. A dispensary was started at No. 4, George Street in 1828. It was called the "University Dispensary," and was under the aegis of the University. The North London Hospital was founded in 1833, and was completed in 1846. In 1836 its name was changed to "University College Hospital," and in 1851 to "North London or University College Hospital," by which it is known at the present day.

The state of medical education at the beginning of last century was then described, and it was shown how imperfect and unscientific was the teaching of that time. The medical profession was usually entered by the portal of apprenticeship, and the qualifying diplomas required only a very insufficient amount of training. A very small proportion of medical men obtained university degrees, and these were mostly sought either on the Continent or at the Scottish universities. The University of London aimed at modifying the course of education by making the attendance at systematic lectures the primary object of the earlier years, and by rendering this part of the instruction thorough and sound. It was hoped also that medical students would take up a course of instruction in arts before starting on their medical career.

In 1836, when the present University of London was founded, the institution in Gower Street was incorporated by Royal Charter under the name of University College, London, resigning at the same time one of its early ambitions—namely, that of being allowed to grant degrees.

Some description was then given of the old hospital, which was defective from a sanitary and hygienic point of view. Projects for rebuilding it were discussed from 1886 to 1896, when Sir John Blundell Maple provided the funds with which the present hospital was built.

A brief account was then given of the steps leading to the modification of the University of London, which rendered it a true teaching university, and of the absorption by it of University College. When this took place it was felt to be impossible, or inadvisable, for the University to undertake the management of the hospital and the teaching of the advanced medical subjects. It thus b came necessary that these should be separated from University College and fused in a new corporation. This was accordingly agreed to, on the understanding that the University should undertake to conduct the teaching of the preliminary subjects, including anatomy and physiology, to all comers in the College as before. The school of advanced medical studies is to be accommodated in a building now in course of erection, the cost of which will be defrayed by the gift of £100,000 from Sir Donald Currie.

The advantages and disadvantages of this plan of separating the teaching of the advanced from that of the earlier medical subjects was fully discussed. It is a new one as far as this country is concerned, but there are indications that some other medical schools may be disposed to adopt the same course. The lecturer then described in some detail the precise position of the new corporation, its capacity, equipment, and objects, and stated his views as to what its prospects and functions should be. It was pointed out that in spite of the large sums of money which have been given, it might almost be said in consequence of them, still more was wanted for endowment. This was always urgently required for the hospital, and it was difficult to put any limit to its needs. The requirements of the school were more moderate, and if it proved successful and attracted a sufficient number of students its chief need would be the endowment of the chair of pathology. This in order to make the department

really first rate would require a sum of £100,000. The view was expressed that although the teaching of pathology ought not to be separated altogether from that of clinical medicine, it was advisable that the professor should be sufficiently remunerated to enable him to devote most of his time to his subject. There should also be provision for capable assistants and the prosecution of original research.

The lecturer concluded with some general observations to the students.

MIDDLESEX HOSPITAL.

By H. CAMPBELL THOMSON, M.D., F.R.C.P.

HOSPITALS AND THE PUBLIC.

[ABSTRACT.]

AFTER some introductory remarks, Dr. Thomson proceeded:—The position of a hospital is generally determined by the needs of a locality, but the benefits which can accrue from an institution of this kind have no such territorial limitations. Through education and research, both of which, where circumstances permit, it is the function of every hospital to encourage, it becomes possible to disseminate throughout the whole world the knowledge gained in the causation and treatment of disease.

It is not an easy matter for a hospital to carry out with fairness even its first duty of relieving the sick poor; for if the definition of poverty be made too generous, the efforts of charity in one direction are marred by the creation of injustice in another. Emergencies excepted, the legitimate qualifications for charitable medical attention are sickness and poverty. Considering the advantages offered by friendly societies and the small fees which practitioners are always willing to accept from those whom they know to be in needy circumstances, it might be thought that the numbers who would present themselves for continuous free treatment would not be unduly large. Unfortunately, this is not the case, and the use of hospitals by those who have not the proper qualifications continues to inflict a wrong on those who give and those who have a right to receive. By this abuse of charity the already depleted funds are unfairly drained, the members of the medical profession are defrauded of what they have every right to earn, and the recipient of the charity learns to take a false view of the object of hospitals and the position of the medical profession in relation to them. It is no wonder if, in these circumstances, practitioners have come to look askance upon hospitals, and to regard their extension with alarm instead of welcoming it as a helpful ally in difficult cases, and as a means of bringing relief to the genuine poor, with whom the whole medical profession will ever continue to be in sympathy.

Closely bordering on those who are legitimate subjects for charitable medical relief there is, however, a very large class whose position it is not easy to define and from whom at present a considerable proportion of out-patients are drawn. The members of this class are for the most part in a position to pay small sums for continuous attendance either directly to the private practitioner or through the medium of clubs, dispensaries, and other similar societies. Their circumstances are, however, frequently such that they are unable to meet the expense of any further advice they may reasonably desire, and to provide means for consultations for such patients, while they continue to remain under the care of the practitioner of their choice, should be one of the main objects of the out-patient department of a hospital.

The metropolitan hospitals have grown up as isolated institutions independent of any central control and each one having been largely dependent for its survival on its own individual efforts; it has too often been found advantageous, and perhaps even necessary, to encourage a large attendance of out-patients in order to display to the public the needs of the institution and the great want it is supplying.

It is true that in some instances there has been a semblance of excluding unworthy patients by the employment of inquiry officers, but the difficulty of disposing of the question in this manner must be obvious. Wealth will always be a relative term, and for such an officer to decide justly on the evidence available whether this or that family should, in the varying conditions of life, fairly sacrifice a part of their savings or wages to pay for medical advice is not practicable.

It is to be hoped that the committees of the great central funds will, by stamping their approval on well-managed institutions, gradually lead the public to realize that quality is as important as quantity, and that the number of patients is by itself no guarantee of good work. Nowhere is this recognition more needful than in the out-patient departments, where the methods employed are necessarily, from the pressure of work, too often monotonously mechanical. Therapeutic measures are undergoing great changes, and for the knowledge of physical exercises, electricity, heat, and light, and the many other methods of treatment which have become such important adjuvants to drugs to be applied properly to individual patients it is essential that the cases should be selected and limited.

The most promising solution of this great out-patient problem seems to be in the correlation of all the different forms of medical relief for the poor. It is encouraging to know that such a movement is now on foot by which it is proposed to bring about an affiliation between the hospitals and the provident dispensaries. In this way patients who are not of the poorest classes will find it within their means to provide for their general medical attendance, and the hospital out-patient department will be open to them for further advice without the necessity of their becoming regular patients.

Where circumstances permit, it is the duty of those who have the privilege of working in hospitals to impart to others the practical results of their experience. Before, however, the student can hope to understand the application of the principles of medicine and surgery it is necessary that he should have become learned in anatomy and physiology and have gained some elementary knowledge of chemistry and biology. Since a knowledge of anatomy and physiology was required by scarcely any one who did not afterwards intend to study medicine, the means for acquiring it naturally came to be provided as near as convenient to the hospital wards to which the student would eventually proceed. Hence it happened that anatomy and physiology came to be taught in connexion with certain hospitals, and the hospital and its school was able to offer a complete curriculum to intending students.

This attachment between school and hospital, though necessarily close, did not impair the actual independence of either, for the internal affairs of the school, including the management of receipts and expenses, were controlled by the lecturers. Thus medical education was carried on by semi-private enterprise.

As years went on the progress of science kept making increasing demands upon the financial resources of the schools, while at the same time, owing mainly to the multiplication of provincial teaching centres, the number of students entering the London schools for the full curriculum began to diminish. Finally, in most of the London schools, expenditure exceeded income, and medical education ceased to be self-supporting. The hospital authorities, fully aware how helpful a school and a hospital are to one another, decided in most cases to assist the schools, and in our own instance an amalgamation of the two institutions was successfully effected.

Thus the second stage of the medical education question was entered upon when the schools passed out of the control of private enterprise into the hands of the hospital representatives of the public.

The question whether the hospitals are the proper bodies to subsidize the schools, and the conditions under which this should be done is a matter which has been brought before the public so recently that I need not refer to it in detail. It will be sufficient to mention that when, owing to the requirements of King Edward's Hospital Fund, it became necessary to obtain the individual permission of subscribers to be allowed to devote, if necessary, some proportion of their donations to objects related to our school, the almost unanimous response in the affirmative showed clearly that the value to the public of the educational side of the hospital had not been lost sight of. The essential fact which it is necessary to realize is that medical education of such a standard as the public of to-day rightly demands, has ceased to be a remunerative undertaking. Nor would the financial aspect be altered in principle by teaching anatomy and physiology (with which the expenses are largely connected) at fewer centres, for even if some economies could be effected by centralization, which is by no means certain, a deficit would still

require to be met either by endowments or annual subsidies.

At first sight the obvious remedy for this state of things is to raise the fees. It may be argued that a student who is entering a profession, at the practice of which he hopes to gain a livelihood, may justly be called upon to pay all the initial expenses. In answer to this I would, in the first place, remind you that the student has already been heavily penalized by the addition of a fifth year to the curriculum, and, in the second place, the rewards which the profession has to offer are unfortunately not so great as to allow of any material increase in the present initial outlay.

Economic laws hold good here as elsewhere, and any attempt materially to increase the cost of medical education would not only lead to a depletion in the numbers of students, but would tend to make money rather than brains the condition of entry.

But, it may be said, if an increase in cost of education results in there being fewer doctors, the fewer men will, with less competition in private practice, earn larger incomes, and so the increased cost of education will soon be equalized. Such a view ignores the requirements of the State for a constant supply of medical men for the army, the navy, the poor, and other public appointments. If entry into the profession were made more expensive, the emoluments of all these posts, in addition to those of private practice, would have to be increased to provide against deficiency. Whether this would be beneficial or otherwise is another matter; all I am at present concerned to point out is that the medical profession is subject to the same inexorable laws as are other means of earning a livelihood, and that at the present time the cost of entry is as great as the prospective rewards will bear.

The only way to place medical education in London on a sound basis is by endowments such as have already been forthcoming in many provincial centres, and in our own case a Medical School Fund, headed by the munificent gift of £1,000 from Mr. Henry Morris, has already been created. It is proverbially difficult to arouse Londoners to interest themselves in local affairs, but, with such a splendid beginning, followed, as it has already been, by other generous contributions, it is permissible to hope that a capital sum will soon be raised the interest of which will be sufficient to relieve all anxieties for the future.

Lastly, a few words may be said about the relations of the public to the third great function of a hospital, that of promoting the knowledge of causation and treatment of disease for the benefit of the community. Apart from the advancement of medicine and surgery, which has from time to time followed the exertions of individual members of the staff, this hospital is constantly officially engaged in contributing its quota to medical science. Above all, the research work at the Middlesex Hospital is especially identified with the investigation of the causation and treatment of cancer. The unrivalled opportunities for observing the different stages of this dreadful malady carry with them the solemn responsibility of making every effort to gain an insight into its nature, a responsibility which the Governors and honorary staff have fully appreciated.

Laboratories have been fitted out, and there day by day and year by year a skilled body of earnest and systematic workers, under the able directorship of Dr. Lazarus-Barlow, are striving to answer the riddle which has baffled science for so long. This is not the moment to detail the far-reaching character of the investigations. Those who care to study them will find them recorded in the *Archives of the Middlesex Hospital*, which appear at intervals during the year. Requests for the Cancer Numbers of the *Archives* are received from all parts of the world, and without them no investigator would consider his reference library complete. No price is too great to pay for the promotion and restoration of health, and if side by side with relieving the sick poor the great hospitals, by teaching and revealing the science of medicine, are administering to the health of the world at large, then the moneys contributed not only serve a charitable purpose, but bring returns to the givers more precious than any other investments can ever yield.

If every one would only realize that the standards of clinical work, education, and research carried on at the hospitals are just as important to him as to those who actually attend for treatment, and if, acting on this realization, would give a sum, however small, that could be depended upon regularly, then the financial crisis which threatens at no very distant date to drive the hospitals on to the rates would be successfully averted.

Every effort should be made to encourage people to take a personal interest in the hospitals and to visit those to which they subscribe. They would then see for themselves that nothing that skill and money can provide is spared to promote the comfort and welfare of the patients, and that the "horrors of a hospital" have no existence outside the imagination of those who have never been inside them.

ST. MARY'S HOSPITAL.

By N. H. Alcock, M.D.Dub.,
Lecturer on Physiology and Vice-Dean of the School.

THE THEORY AND PRACTICE OF MEDICAL EDUCATION.

[Abstract.]

Although this subject has been debated so often and at such length I have considered that it may be of interest to examine carefully the reasons that have led to the evolution of the medical curriculum as we see it to-day, dealing first with the general principles underlying the whole question, and then studying only the application of these principles to the preliminary and intermediate sciences.

The Actual Work of the Medical Profession.

I have endeavoured to ascertain the actual work which the general practitioner does by asking several such members of the profession each to note down 100 consecutive cases. Five of these lists were then analysed and tabulated, taking Osler's classification of disease (with some additions to include surgical cases) as the basis of the analysis. For comparision I have added 100 consecutive cases from an eminent consulting physician.

(The tables are here only given in abstract. For the details of the cases the full paper must be consulted.)

The particular point that I wish to call attention to is that the preliminary and intermediate sciences are much more useful *indirectly* in the treatment of these cases than *directly*.

Theories of Education.

Very briefly considered, the theory is that medical education should consist of two parts: (1) Studies which give a broader outlook and teach scientific methods; for

Table showing Comparative Frequency of Disease in 500 Consecutive Cases from Five General Practitioners in London (2), Essex, Middlesex, and Norfolk, and in 100 Consecutive Cases (× 5 for comparison) from Consulting Physician (London).

	1. Specific Infective Diseases.	2. Animal Parasites.	3. Intoxications, Sunstroke.	4. Constitutional.	5. Digestive System.	6. Respiratory System.	7. Circulatory System.	8. Blood and Ductless Glands.	9. Kidneys.	10. Nervous System.	11. Skin and Nails.	12. Suppurations, Abscesses, Poisoned Wounds	13. Dislocations, Fractures, Sprains.	14. Other Injuries, Wounds, Cuts, Accidents.	15. Tumours.	16. Midwifery, Gynæcology.	17. Eye, Ear.	18. Not Classified.	19. Uncertain Diagnosis.	Total.
General Practitioners..	32	0	10	21	130	29	19	12	13	29	24	37	19	24	3	41	20	27	14	500
Consultant (× 5)	95	8	15	25	115	35	40	15	10	95	5	5	0	0	10	10	0	15	10	100×5

example, biology. (2) Studies in which the actual facts are required in practice; for example, clinical medicine.

As these two classes of subjects are used in different ways, there should be a corresponding difference in the manner of teaching them.

If we consult the medical curriculum as given in any college calendar, we will note for our present purpose three points:

1. All the universities and colleges have adopted schemes which comprise the same subjects.

2. Five years are officially allowed to complete the course; as a matter of fact, the time is insufficient. The student in the great majority of cases takes six to seven years before he has received his official hall-mark, and usually one year after this is spent as house-surgeon, assistant, or some similar appointment before he starts on his own account. The total time is probably between seven and eight years.

3. Science takes three years, less than half this time.

These three points require careful consideration.

First, as the subjects have been adopted more or less by general consent, they are probably sufficient, provided that the student has had before matriculation a good elementary education.

Under the second and third headings different opinions have been expressed, and the view has been put forward that the time spent and the amount of each subject attempted is too great. I have carefully sought the opinion on this matter of many general practitioners, as it might be supposed they would feel more accurately than any one else the defects of the present system. The opinions I received surprised me a little, but on consideration it will be seen that they really follow in order from the theoretical view already stated. Briefly, the practically unanimous opinions were—

1. That the preliminary and intermediate subjects were of great value.

2. That this value is an indirect one—most of the men did not retain any knowledge of the facts learnt (some reservations were made as to parts of anatomy and physiology).

3. The answer to the question, Which man had found most useful? differed; all the subjects were chosen in turn.[1]

4. There was a unanimous opinion against any shortening of the curriculum.

Now, I venture to suggest that these collected opinions should carry considerable weight. It has often been said that the curriculum should be shortened and simplified. The medical practitioners I asked held very strongly a contrary view. It was represented to me that many of the grievances in practice arose from there being let loose too many young men, and that the future of the medical profession would be much better served if fewer men of a better class were qualified. This view seems a reasonable one, and as a result of this inquiry and of these opinions, I have accepted the postulate that the time taken shall not be lessened.

A Suggested Reform.

The problem is, then, how to teach science in the way that will be of most educational value, and we are given, as at present, three years in which to teach it. It is not possible at this stage to give more than the barest outline of the proposed scheme, and in any case the details would have to be considered by the teachers in the separate subjects; but the idea is somewhat as follows:

In the first year of medical study, biology, chemistry, and physics would be taught, and at the end of the year an examination passed in these subjects. In the second year would come anatomy and physiology. If at the end of this year the student had made satisfactory progress, he would be permitted to spend the next year in advanced work in any one of these subjects. At the end of the third year he would pass an examination in anatomy, physiology, and the "advanced" subject he has chosen. He will then proceed to his clinical work, taking with him, it is hoped, a knowledge of scientific methods which he would apply to his clinical studies. The particular advanced subject the student would choose would depend on the goal for which he was aiming. I would admit the widest possible choice, it being clearly understood that the actual anatomical and physiological facts acquired for clinical work had been already learnt in the two preliminary years. By this redistribution of time and study the standard would not be lowered; on the contrary, the quality of work would be better, and in the year of advanced study the student would receive a most valuable training that is at present left out.

In conclusion, I am very glad to be able to announce a benefaction which I hope may be stepping stone to the realization of this scheme. An anonymous benefactor through Dr. Collingwood has offered to pay £100 per annum for a Student's Research Scholarship in physiology and a further sum of £100 per annum for the expenses of the research or for a second scholar for a period of two years. I am sure you will all join with me in returning our heartiest thanks for such a welcome present.

This brings to a close the consideration of the teaching of the preliminary and intermediate sciences as they bear on the practice of medicine. You have seen the question from a new standpoint and I hope you will not lightly brush aside the suggestions made as a direct result of the facts that have been collected and the representations made by men who have passed through the curriculum, who have discovered by experience the bearing that their training has on their daily life and know better than any one else the needs of their profession.

[1] I imagine this means each man used the particular science he knew the best. Perhaps, also, that it is the scientific method that is valued, and not any branch of science in particular.

OPENING OF THE WINTER SESSION AT THE MEDICAL SCHOOLS.

ST. BARTHOLOMEW'S HOSPITAL.

THE October Old Students' dinner at St. Bartholomew's took place on Monday evening, and, as has now been the case for several years past, was the only event in the way of ceremonial to mark the commencement of a new academic year. In accordance with ancient custom, the dinner was held in the Great Hall in the western block, reached by a staircase decorated by Hogarth, and adorned by paintings of many of those on the long list of celebrated physicians and surgeons who have served the hospital in the past and taught within its wards. There is no finer chamber of the same character in the City of London, and no hall in any university which chimes in better with the feeling which brings men together on such occasions—the desire to revive old friendships, to renew old acquaintanceship, and a love of their Alma Mater. On this occasion the chair was taken by Dr. J. H. Ormerod, now one of the senior physicians, and the assembly included as guests Professor Osler, Sir Alfred Keogh, Director-General of the Army Medical Department, Mr. Danvers Power, Honorary Secretary of the King Edward's Hospital Fund, and Mr. Acton Davis, the Senior Almoner of the Charity. After the health of His Majesty and the Royal Family had been duly drunk the Chairman proceeded to deal with the toast of the evening, "St. Bartholomew's and its Medical School"; in his speech allusion was made to the early and recent history of the hospital, and the election of the first holder of the research scholarship in surgery recently established in memory of Luther Holden was recorded. Note, too, was made of the fact that the gold medal of the University of London at the examination for the Mastership in Surgery had been carried off by a student of the hospital, while seventeen other students had become M.D. and forty-four had graduated M.B. at Oxford, Cambridge, London, or Durham; in addition the Jacksonian prize had also fallen to the school. In the latter during the past year very material improvements had been effected in connexion with the laboratories provided for the study of the preliminary sciences, and there was now less reason than ever why the school should be a party to any concentration scheme instead of remaining, as it always had been, a complete medical school by itself. The toast was acknowledged by Mr. Acton Davis, who announced that it was anticipated that the new out-patient buildings would be ready for occupation by the time old students again assembled at their annual dinner, and that the erection of the pathological block would be taken in hand very shortly. The task of proposing the health of the visitors fell to Mr. Butlin, and the toast was acknowledged on behalf of the guests present by Professor Osler. The last toast of the evening was one to the Chairman himself.

which was proposed by Dr. Norman Moore, and very warmly received. An adjournment was then made to the library for general conversation.

CHARING CROSS HOSPITAL.

The annual dinner of past and present students of Charing Cross Hospital was held at the Hotel Cecil, London, on October 1st, with Dr. William Carter of Liverpool, in the chair. Dr. Carter had on his left hand Professor Ivan Petrovitsch Pawlow of St. Petersburg, and on his right Lord Kilmorey, the Chairman of the hospital. After the usual loyal toasts had been duly honoured, Lord Kilmorey proposed the toast of "Charing Cross Hospital Medical School," and urged the grave necessity of extricating the hospital out of its present financial difficulties. He hoped that before long the hospital would be in a satisfactory position. The hospital was attacked by cranks of all kinds. Some of these people said the hospital must be removed from its present position because it was noisy. No one knew that better than the hospital authorities, and especially the patients. At any rate, the motor omnibuses must be kept out of King William Street; they went backwards and forwards groaning down that street, and caused so much noise that the patients in the wards could not sleep, and this naturally retarded their recovery. Some of the cranks who attacked them said why not remove the hospital to a position where there would be no noise; but why should the existence of the hospital, planted as it had been in its present position for so many years, be wiped out? If that were done, the interest of those who now supported the hospital would be lost. This toast was responded to by Dr. Christopher Addison, who said that the last two years had been a critical time for medical schools. Times had been critical also at other medical centres, for he was informed that Professor Pawlow had not given any lectures at St. Petersburg for two years, for the reason that there had been no students to form classes. Not so many years ago it was thought that the London medical schools were in the van of progress, and that the provincial medical schools might be treated as a negligible quantity. The provincial schools, however, had set their house in order, and the number of medical students had diminished in London. The London medical schools then woke up to the fact that they were behind the times, and spent much money with the idea that efficiency was the same thing as equipment. Charing Cross Medical School, however, had kept its head, and had remedied the defects that were found to exist, with the gratifying result that it had ended the past year with a surplus. Dr. T. W. Eden submitted "The Guests," which was replied to by Professor Pawlow and Mr. R. M. Pattisson, of the Chancery Bar. The proceedings ended with a speech by Mr. James Cantlie proposing the health of the Chairman, which was suitably acknowledged.

ST. GEORGE'S HOSPITAL.

The annual dinner of St. George's Hospital Medical School was held on Monday night in the Whitehall Rooms of the Hotel Métropole, Mr. Clinton T. Dent, F.R.C.S., Senior Surgeon to the Hospital, being in the chair. One hundred and twelve past and present students and their friends sat down to dinner. The usual loyal toasts having been drunk with enthusiasm, the Chairman proposed "The Prosperity of the Hospital and the Medical School," the toast being responded to by A. William West, Esq., Treasurer of the Hospital, and by the Dean of the Medical School. The Chaplain to the Hospital, the Rev. P. Waddington, then proposed "The Health of the Lord Bishop of Bristol," the Orator of the day, who had delivered the inaugural address, and presented the prizes during the afternoon. Dr. Rolleston gave the toast of "The Past and Present Students," which was responded to by Mr. G. C. Peachey for the past students, and by Mr. J. A. Torrens, Senior House-Physician, for the present students. Dr. G. F. Blandford proposed "The Health of the Chairman," and, this having been suitably acknowledged, the formal proceedings terminated. It was announced during the evening by the Dean that the entry into the Medical School was better than it had been during the past two years, and that there were indications that the recently inaugurated Clinical School would ultimately be a success.

KING'S COLLEGE HOSPITAL.

The annual dinner of the old student's of King's College Hospital was held at the Hotel Cecil on Tuesday, October 2nd, under the presidency of Professor Nestor Tirard. The company numbered about 100, and as visitors were included General Lord Methuen, Chairman of the Hospital Committee, Sir Charles Ollivant, K.C.I.E., the Rev. Dr. Headlam, Principal of King's College and Vice-Chairman of the Hospital Committee, Mr. Charles Awdry, Treasurer, and Mr. W. A. Pite, architect of the new hospital. The staff was represented amongst others by Drs. Pritchard, Phillips, Dalton, Silk, StClair Thomson, Crawfurd, Still, and Sir Hugh Beevor, and by Messrs. Cheyne, McHardy, Burghard, Beale, Cargill, and Carless. Old friends foregathered from all parts of the country, coming from places as far apart as Plymouth and King's Lynn, Southsea and Harrogate. The R.A.M.C. was represented by Colonels Sloggett, C.M.G., and Bond, and by Major Vipan, and the I.M.S. by Major Castor. Letters and telegrams arrived and greetings were exchanged with the old students of University College Hospital and of St. Thomas's Hospital who were dining under the same roof.

In giving the toast of the evening Professor Tirard commented on the new meaning which was to be attached henceforth to the words "King's College Hospital and its Medical School." Two factors had been looming large in the evolution of medical teaching in London during the past few years, namely, the centralization of the earlier studies and decentralization in hospital distribution, and both of these had had a large influence in connexion with King's College Hospital. Hitherto the medical faculty had been completely equipped with the usual anatomical and physiological departments in which the earlier studies had been carried on. Now the clinical school of the hospital was entirely dissociated from the departments of anatomy and physiology, which were thereby free to form one of the centres to which students from other hospitals were being sent. The present hospital was in full working order, and, though cramped for space and somewhat limited as to out-patient material, owing to the many changes which had taken place in its surroundings, yet the old spirit of enterprise and energy was present as of yore. Clare Market was gone; the old "Black Jack" had disappeared; the Strand Lane was transformed, and the neighbourhood around the hospital was so altered as to render it difficult for old students to find any recognizable landmarks: yet the work of the hospital was going on, and they were there to share confidence and wish success to it in all its future enterprises. The coming transference to South London was referred to both by Dr. Tirard and by Lord Methuen, who responded to the toast, and pointed out that whilst there was an earnest desire to attain the ideal in hospital construction, yet that it was essential that the future work of the institution should not be hampered by a large debt, and called on the Principal of the College to translate into Latin as a motto for the Committee the old homely adage, "Cut your coat according to your cloth." He called on Old King's men to do all they could to help in the furtherance of this work. The toast of "The Visitors" was proposed by the Chairman and replied to by Sir Charles Ollivant, who had acted as Chairman to the Elizabethan fête last year: a sum of £6,500 had been handed over to the Building Fund as an outcome of this effort. "The Chairman" was given by Colonel Sloggett; and a pleasant and genial evening was closed by an appreciative reference to the work of the Chief Secretary of the dinner, Dr. Silk.

THE LONDON HOSPITAL.

The old students of the London Hospital were formerly wont to hold their annual festival within the walls of the attached College, but a year or two ago with the growing popularity of the dinner, not to speak of the increased importance of the school, the need was seen for other arrangements. A happy thought then led to a proposal which was tried last year for the first time and proved so successful that it was again adopted this week. The staff were "at home" at the hospital on Monday afternoon ready to greet old friends and pupils and to show them the improvements effected, and in the evening all dined

together in the restaurant at the Savoy Hotel under the very successful chairmanship of Mr. John Holroyde of Rochester and Chatham. There were altogether close upon two hundred old students and guests present, and the prevailing tone was one of strong *esprit de corps* and very explicable pride in the modern achievements of the London Hospital and its school. The first after-dinner event was the preparation and dispatch of a telegram in the name of those present to the President of the Hospital, Queen Alexandra. It read as follows: "At the annual dinner of the old students of the London Hospital the toast of your Majesty's health has been drunk with the utmost enthusiasm, and in the fervent wish expressed that your Majesty may long be spared to your country, and that the assistance your Majesty has been so graciously pleased to extend to the London Hospital, of which your Majesty is president, may always continue." This done, the Chairman introduced the toast of the evening, tracing the early history of the London Hospital, and describing with pride its remarkable development in the last two decades. The changes which had taken place had been many and great, but these had always been in the direction of improvement, and they could now boast that their hospital, in point of organization, equipment, and administration, was second to none; furthermore the rebuilding scheme, which had been in progress for nine years and was now complete, had made theirs certainly one of the most perfect and up-to-date hospitals in the world. Instinct with the spirit of modern thought and science, the facilities which it provided for teaching and study were unequalled. In attempting to define the foundations of its success, he alluded to the untiring exertions of Mr. Sydney Holland, whose absence on the occasion was much regretted, and to his ingenuity in devising new plans of bringing in money, and expressed satisfaction that the school had resolved to continue its existence as an independent institution, providing for its students all the education demanded. He was answered by Lord Stanley, the Treasurer, who continued the same theme. The sole disorder from which the London suffered was one common to all hospitals—shortness of money; but the London Hospital was less a sufferer in this respect than many of its fellows, for sufficiently simple reasons—Mr. Holland, who never lost an opportunity of providing the hospital with the sinews of war, and their own efficiency. It was because people knew that they stood for efficiency that they had suffered less than others in the matter of subscriptions. But they were suffering none the less; and, curiously enough, one reason for this was to be found in their thoroughness. There were some who thought that efficiency could only mean cheapness, but that was not the case. If they saw that a bed at "The London" cost, say £100, while a bed at another hospital cost £50, they were inclined to think that they would do twice as much good by giving £100 to the cheaper hospital. But there was no bigger fallacy than that, for at the London Hospital they were determined to be abreast, if not ahead, of the times, and they had in mind not merely the cure of the individual, but the benefit of suffering mankind throughout the world. That necessarily meant that learning and teaching at the London Hospital were expensive, and others were learning at their expense. Of that they were glad, but at the same time subscriptions should not be withheld from them on that account. As a remedy for the shortage of money they must not for a minute contemplate State aid; it would not spell either economy or efficiency. A reply also came from Mr. E. Hurry Fenwick on behalf of the Medical Council of the Hospital, who alluded to the vast difference between the position held by the school at the present date and thirty odd years ago. A whole wall was now devoted to trophies wrested from those who at one time rather despised the school; the King and Court chose their surgeons from among its old students; and even Aberdeen at its quatercentenary had taken its Rector from their ranks. For this result they had largely to thank the cordial co-operation between the General Committee of the Hospital and the Medical Council. The health of the Chairman having then been drunk on the proposal of Mr. Mansell Moullin, a final toast not in the list was moved and honoured, one in just acknowledgement of the skill shown by the organizers of the evening's entertainment, Dr. Bertrand Dawson and Mr. Furnivall.

ST. MARY'S HOSPITAL.

The annual dinner of the past and present students of St. Mary's Hospital Medical School was held at the Hotel Métropole on Tuesday night. The chair was taken by Dr. M. Handfield-Jones, Obstetric Physician to the Hospital, and some 120 old St. Mary's men were present. After the usual loyal toasts had been duly drunk the Chairman proposed the toast of the evening, "St. Mary's Hospital, its School, and its Alumni." This was received with much enthusiasm, and acknowledged by the Dean of the School, Dr. H. A. Caley, who called attention to the recent successes achieved by St. Mary's, and in particular to the great number of students whom the brilliant work of Sir Almroth Wright has attracted to the Pathological Department. Response was also made on behalf of old students by Dr. Martley in a speech of which the humour was highly appreciated. Formal speech-making did not, however, last long, and a very pleasant evening was spent in exchange of reminiscences and items of personal news, and in listening to a capital selection of songs and recitations.

MIDDLESEX HOSPITAL.

THE annual dinner of past and present students of the Middlesex Hospital Medical School took place at "The Trocadero" on Monday, October 1st. Mr. Henry Morris was in the chair, being supported on his right by Major-General the Right Hon. Lord Cheylesmore, C.V.O., Chairman of the Weekly Board, and on his left by Sir Richard Douglas Powell, Bart., M.D. The Middlesex Hospital has the unprecedented and enviable distinction of simultaneously possessing on its consulting staff the President of the Royal College of Physicians and the President of the Royal College of Surgeons, and the knowledge that both were to be present on this occasion added unique interest to the proceedings and attracted a large gathering. After the loyal toasts Mr. Morris rose to propose the toast of the evening, "Success to the Middlesex Hospital and its Medical School." In forcible language, he expressed his earnest hope that the hospital and its medical school might ever continue to be closely associated the one with the other, and urged those present to do all in their power to place the school on a firm financial basis by exerting all their energies to further the interests of the special Permanent Endowment Fund already established for this purpose. Replying to the toast, Lord Cheylesmore briefly touched upon the work of the hospital during the past year, and pointed out that the most strenuous efforts were being made in the direction of economy, consistent, of course, with unimpaired efficiency. With regard to the school, he said, he had always regarded it as an integral part of the hospital, believing that such a relationship ensured, as no other arrangement could, the advancement of medical science and the provision of efficient service to the hospital itself, and if they were disunited the prestige of the hospital would be seriously affected. Other speakers were Dr. Lazarus-Barlow, the Director of the Cancer Research Laboratories, Lieutenant-Colonel Russell, and Mr. M. L. Hine. Sir Richard Douglas Powell proposed "The Visitors," which was responded to by Chevalier Wilhelm Ganz. The health of "The Chairman," proposed by Dr. W. Essex Wynter, was enthusiastically received, and drunk to musical honours, and so a very successful evening terminated.

ST. THOMAS'S HOSPITAL.

THE annual dinner of the old St. Thomas's students was held at the Hotel Cecil on Tuesday night, with Dr. Arthur Newsholme, of Brighton, in the chair. Covers were laid for over 150 guests and the spacious banqueting hall of the Hotel Cecil was well filled, and the dinner, as duly announced on the invitation cards, was followed by a *conversazione*, which, however, did not commence until a somewhat late hour. The Chairman, in proposing the toast of "St. Thomas's Hospital and Medical School," referred to the eminent men who had been connected with that institution, and his concluding remarks that St. Thomas's Hospital, with its great traditions and its magnificent buildings, had reason to be proud of its past, and could look forward with hopefulness and confidence to the future, were received with great

applause. The Treasurer, Mr. J. G. Wainwright, in rising to respond to this toast, must have felt gratified at the friendly greeting that he received from the audience. He referred to the Chairman, Dr. Newsholme, as a scientific student of the hospital, who had made his mark in the world not only by his technical knowledge, but also by the great power of organization of which the sanitary administration of Brighton was an evidence. Speaking of the school, he said the excellence of its laboratories was a well-recognized feature, and plans had been prepared for the provision of in-patients and out-patients in connexion with diseases of the throat, skin, and ear. It was feared, however, that the financial position of the hospital would cause delay in the completion of this work. A hospital school council had been established, consisting of five members of the staff, five governors, two lecturers, and one representative of the Senate of the London University, for it was thought that the strengthening of the lay or business side of the school by the addition of the five governors would be of great advantage in the practical working of the Medical School. Mr. J. H. Fisher, the Dean, also responded to the toast, and expressed his opinion that the school council would be of great value in the conduct of the work of the school. The health of the Chairman having been duly toasted, the less formal proceedings of the *conversazione* commenced.

UNIVERSITY COLLEGE HOSPITAL.

The old and present students of the Faculty of Medicine, University College, held their annual dinner on Tuesday at the Hotel Cecil, this being the last occasion on which they will so meet. As the old Faculty of Medicine is about to be merged into London University, the next gathering will consist of old and present students of University College Hospital and its Medical School. This fact was itself sufficient to bring together an unusually large number of men, apart from the circumstance that the chairman of the evening was Dr. George Dancer Thane, the Professor of Anatomy, and especially familiar as Sub-Dean of the Faculty of Medicine. After proposing the toast of His Majesty the King, Professor Thane described the influence which the College, with its instinct for liberalism in matters of education, had exerted upon medical instruction in this country, and how it had helped to secure for medicine due dignity and importance. Progress depended upon several factors, and University College Hospital and its new Medical School were, thanks to the munificence of the late Sir Blundell Maple and of Sir Donald Currie, fully equipped with most ample and adequate buildings. Moreover, the traditions of the Faculty of Medicine had been upheld, and had secured a continuance in the *personnel* of its teaching staff of the high ideals and ability which had characterized so many of their illustrious predecessors. But one further factor was needed—the money to keep the hospital and its school amongst the foremost of the medical schools and hospitals of the metropolis. Ten years ago probably no one ever dreamt that the Medical Faculty would be enriched by gifts of such sums as £300,000 for the erection of the required buildings, but as they now had the buildings the teachers must not be hampered for want of funds. It rested with the old and present students to use their influence and to arouse interest in the minds of farseeing benefactors, and to secure a sum of not less than £100,000 for the purposes of endowment. Pathology was the basis of all medicine and surgery, and each one present should endeavour to arouse the sympathy of the laity towards the endowment of pathological study within the walls of their medical school. The Dean of the Medical School (Dr. Sidney Martin), who replied, pursued the same topic; the fees paid by medical students were totally inadequate to meet the demands of the extremely costly systematic instruction in pathology; it was a duty to the public that all developments in diagnosis and treatment should be thoroughly tested, and this was impossible unless adequate endowments of the pathological laboratories attached to the hospitals were provided. The remaining toasts were in honour of London University and the Chairman. The latter was proposed by Professor Herbert Spencer, who pointed out the immense debt of gratitude they all owed to Professor Thane for his twenty-one years of service as Sub-Dean. During the evening music was provided by Dr. Frederick T. Roberts, whose songs have come to be quite as important a feature in the success of this annual meeting as the dinner itself, and also by Dr. P. D. Turner and Dr. A. H. Mason.

WESTMINSTER HOSPITAL.

The annual dinner of past and present students of the Westminster Hospital was held on October 1st at the Trocadero Restaurant. The chair was occupied by Dr. de Havilland Hall, who presided over a large and representative gathering of men. After the loyal toasts had been duly honoured, the Chairman proposed "The Westminster Hospital and Medical School." The Dean, Mr. Percy Paton, in replying, was able to assure the old students of the very satisfactory working of the new arrangement with King's College Science Department for the teaching of the earlier subjects of the curriculum. He was able to state that the school was in a fair way to a further period of prosperity. Of one thing he was certain—that in the education provided for the student at Westminster they were offering a very good article at a very good price—he might say, at an improving price. Dr. Hunt (Wolverhampton), who replied on behalf of the past students, said that he had that day been round the hospital wards and special departments, and was much impressed with the completeness of the equipment and with the great facilities for clinical work of every description now possessed by the students. The toast of "Our Guests" was given in an amusing speech by Dr. Bertram Abrahams, and was coupled with the name of Dr. Berry Ball. Dr. Frederick Palmer proposed the health of the Chairman, who acknowledged the honour in suitable terms. A suggestion was bruited that for a year or two the annual dinner should be held in May or June, to facilitate the attendance of country practitioners and those in the services. An expression of opinion on this point by Westminster men is desirable.

SCHOLARSHIP AWARDS AT THE MEDICAL SCHOOLS.

St. Bartholomew's Hospital.—At the medical school of this hospital the £150 *Junior Entrance Scholarship* has been divided between R. G. Hill and C. T. Neve; while the winners of the two *Senior Entrance Scholarships*, each of the value of £75, are A. E. Stansfeld, of St. John's College, Cambridge, and A. C. Sturdy, of Pembroke College, Cambridge. Of the two *Entrance Exhibitions*, that in Preliminary Science and of the value of £50, has been awarded J. W. Trevan, and that in Arts, the *Jeaffreson Exhibition*, of the value of £20, to C. Bilderbeck.

Charing Cross Hospital.—The following awards of entrance scholarships have been made at the medical school of this hospital. The *Livingstone Scholarship* of £110 was won by N. C. Lake; the *Hurley Scholarship* of 55 guineas by H. Smith, and three *Entrance Scholarships*, of 60 guineas, 40 guineas, and 30 guineas respectively by R. F. Eminson, A. E. Huxtable, and M. Parker. University Exhibitions of 36 guineas each have also been allotted, one to F. C. Davies of Cambridge University, and the other to E. A. Ramsden of the University of Oxford. The *Epsom Scholarship*, valued at 115 guineas, was allotted to B. F. Eminson, on the nomination of the Head Master of Epsom College.

Guy's Hospital.—The five entrance scholarships at the medical school of this hospital have been awarded as follows: The *Junior Science Scholarship* of £150 to F. Cook, and that of £60 to E. G. Schlesinger, G. T. Smith, Dulwich School, receiving a certificate; the *University Scholarship* of £50 to A. H. Crook of Christ's College, Cambridge, C. C. Holman receiving a certificate; the *Scholarship in Arts* of the value of £100 to W. A. Young of Colfe Grammar School, Lewisham, and that of £50 to H. Webb of Rossall School, N. E. Farr of St. Paul's School being allotted a certificate.

London Hospital.—At the medical school of this hospital, the various entrance scholarships have been allotted in the following manner: *The Price Scholarship in Science*, of the value of £120, to H. B. Walker; and the corresponding in *Anatomy and Physiology*, value £60, to

E. J. Fearnsides of Cambridge University; the *Science Scholarship* of £60 to F. Sanders and that of £35 to R. A. Rowlands. The *Epsom Scholarship*, valued at £120, was awarded on the nomination of the Head Master of Epsom College to R. K. Mallam.

ST. MARY'S HOSPITAL.—The four open scholarships in *Natural Science* at the medical school of this hospital have been awarded as follows. The scholarships of the value of £145 and £78 15s. respectively have been divided equally between G. Roche Lynch, of St. Paul's School, and R. G. Sparkes, of Felsted School; the winners of the other two, each of the value of 50 guineas, are A. Murray Stuart, Cheltenham College, and P. Withers Green, Epsom College. Of the two *University Scholarships*, each of the value of 60 guineas, one has been awarded to W. D. Hopkins, B.A., Trinity Hall, Cambridge, and the other divided equally between F. G. Caley, B.A., Pembroke College, Cambridge, and G. H. Drew, B.A., Christ's College, Cambridge. The *Epsom College Scholarship*, of the value of £145, was awarded, on the nomination of the Head Master, to T. W. W. Powell.

UNITED KINGDOM POLICE SURGEONS' ASSOCIATION.

THE annual meeting of this Association was held at the Medical Institute, Birmingham, on September 26th.

REPORT OF COUNCIL.

The following report of Council was received and adopted:

Your Council has pleasure in presenting to the members of the United Kingdom Police Surgeons' Association the twelfth annual report. The subject of medical witnesses' fees has again been engaging the attention of the officers of your Association during the past year, and they have been working in cordial co-operation with the British Medical Association and the Subcommittee of the Medico-Political Committee, on which body several of them have seats.

It appears to your Council that the time has now come when the new Home Secretary might be asked to receive a deputation on the subject of the unsatisfactory working of the Order of his predecessor on medical witnesses' fees, which took effect from the end of December, 1903. During the two and a half years which have elapsed it has been found that while in some places the declared intention of the Order that there should be a considerable increase in the allowances to witnesses giving professional evidence has been carried out, in others the so-called discretion allowed to the Court, which is exercised usually by one of the clerks, leads to no increase at all, and in some cases even to a reduction. When medical witnesses have complained they have been told that the maximum fees allowed in the Home Secretary's Order were intended only for special cases, such as the President of the Royal College of Physicians or College of Surgeons being summoned to give evidence at the Sessions. On more than one occasion half a guinea only has been allowed for giving evidence at quarter sessions under the four hours clause of the new rules, so that the effect in those cases has been to level down the fees at assizes or quarter sessions to the police-court rate, instead of levelling the latter up to the assize or quarter sessions rate, in accordance with the recommendation of the Departmental Committee and the declared intention of the late Home Secretary that there should be a "considerable increase."

Your Council is of opinion that it should be represented to the Home Secretary that the "discretion" left to taxing officers or clerks has served in many cases to defeat the intention of the Order made by his predecessor in 1903, and that for this purpose he should be asked to receive a deputation at the beginning of the next Session of Parliament.

The Treasurer's accounts have been audited, and show a balance in favour of the Association of £44 16s. 9d.

Election of Officers.—The following were elected officers for 1906-7: *President*: J. F. Craig, M.A., M.B., Birmingham. *Vice-Presidents*: Sir H. D. Littlejohn, M.D., Edinburgh; H. W. Oulton, M.D., Dublin; F. W. Lowndes, M.R.C.S., Liverpool. *Treasurer*: H. Nelson Hardy, F.R.C.S.Edin., Southgate Villa, Finchley, London, N. *Honorary Secretaries*: W. H. Whitehouse, M.D., Keston House, Aston Road, Birmingham; W. Powell, M.R.C.S., Cheltenham. *Council*: Henry Barnes, M.D., Carlisle; J. Paul Bush, C.M.G., Bristol; J. M. Harper, M.R.C.S., Bath; W. J. Heslop, F.R.C.S.Edin., Manchester; T. F. Higgs, M.D., Dudley; E. K. Houchin, L.R.C.P., London; L. Maybury, M.D., Portsmouth; J. T. J. Morrison, F.R.C.S., Birmingham; H. W. Roberts, M.R.C.S., London; W. M. Roocroft, L.R.C.P., Wigan; C. Templeman, M.D., Dundee; T. Wallace, M.D., Cardiff.

THE PLAGUE.

PREVALENCE OF THE DISEASE.

INDIA.

DURING the weeks ended August 18th, 25th, and September 1st and 8th the number of deaths from plague in India amounted to 1,451, 2,113, 2,522, and 3,134 respectively. The principal figures are: Bombay Presidency, 879, 1,288, 1,388, and 1,850; Bengal, 70, 97, 115, and 83; United Provinces, 109, 164, 49, and 163; Central Provinces, 99, 109, 190, and 362; Madras Presidency, 8, 100, 9 and 10; Burmah, 182, 132, 112, and 92; Central India, 0, 197, 303, and 362. Baluchistan and the Frontier Provinces remain free from the plague. The worst area in the Bombay Presidency was Poona City, with 439 seizures and 399 deaths. Bubonic plague in monkeys and cats is reported from two districts in the United Provinces. In the jungles a number of wild animals are reported to have died of the disease.

AUSTRALIA.

Brisbane.—No plague reported between June 20th and August 25th. A few plague-infected rats continued to be found as late as August 20th.

SOUTH AFRICA.

No plague in man reported the weeks ending August 25th, September 1st and 8th, in any part of South Africa. With the exception of one plague-infected rat met with during the week ended September 1st at East London, none of the many rats and mice bacteriologically examined were found infected.

MAURITIUS.

During the weeks ended September 13th, 20th, and 27th, the fresh cases of plague numbered 11, 13, and 16, and the deaths from the disease 7, 7, and 10 respectively.

HONG KONG.

Clean bills of health were resumed for Hong Kong during the last week of August. Only one case of plague reported during the week ended August 26th; the case proved fatal.

MEDICAL NEWS.

LONDON SCHOOL OF TROPICAL MEDICINE.—We learn that the entry for the coming session at the London School of Tropical Medicine is the largest so far recorded. The number of students is now 39, the number of nationalities represented is also greater than it has ever been, there being among the students medical graduates from France, Greece, Italy, Finland, the United States, Nicaragua, and Honduras.

ON the invitation of the Committee of the David Lewis Epileptic Colony, the Medico-Psychological Association of Great Britain and Ireland (Northern and Midland Divisions) will hold its meeting on Thursday, October 11th, at the Colony, near Alderley Edge. Previous to the meeting the members will be entertained at luncheon by Mr. S. L. Helm, and it is proposed that in the evening they shall dine together in Manchester.

MEDICAL SOCIETY OF LONDON.—The proceedings of the Medical Society of London for 1906-7 commence on Monday next, when there will be a general meeting at 8 p.m., followed by a ordinary meeting. At the latter the incoming president, Mr. C. A. Ballance, will deliver his presidential address, and a paper on Actinomycosis of the Appendix will be read by Mr. T. H. Kellock.

GUILD OF ST. LUKE.—At the medical service of the Guild of St. Luke, which, as already announced in the BRITISH MEDICAL JOURNAL, will be held at St. Paul's Cathedral on Wednesday, October 17th, at 7.30 p.m., the Rev. Canon Newbolt will preach. The choir will be provided by the London Gregorian Association.

CONGRESS OF MIDWIVES.—A congress of midwives was recently held at Dusseldorf, at which 228 associations, with a collective membership of 11,301, were represented. The discussions were not confined to midwifery, but ranged over a wide field, comprising such matters as measures for the reduction of mortality at birth and the use of antiseptics.

SEAMEN'S HOSPITAL SOCIETY.—Dr. Fleming Mant Sandwith and Dr. C. W. Daniels have been appointed physicians to out-patients of the Seamen's Hospital Society, with duties at the Branch Hospital, to which is attached the London School of Tropical Medicine.

British Medical Journal.

SATURDAY, OCTOBER 6TH, 1906.

THE GENERAL MEDICAL COUNCIL AND ITS WORK.

In choosing the work of the General Medical Council for the subject of his introductory address to the Victoria University, Dr. Donald MacAlister perhaps had in view the tastes of the older section of his hearers rather than those of the student. We welcome this innovation, for it is difficult to frame an address to those who are on the threshold of their studies which shall not partake of the nature of a sermon in disguise, and there is no one in a position to give so good an account of the working of the General Medical Council as one who long served as the Chairman of its Business Committee, and now occupies the honoured position of its President. Moreover, that which Dr. MacAlister had to say was expressed in happy words, which make the address pleasant reading, and will serve to promote a truer estimate of what the Council is and what it is not than the bulk of the profession has hitherto formed.

The keynote of his discourse is that the work of the Council has undergone expansion in the past, and that its scope is still enlarging. This does not mean that the members of the Council in its earlier days neglected their duties, or that they failed to carry out the plain provisions of the Act which brought them into being. These provisions were, however, in many respects vague, and obliged in some sense the Council to make and formulate its own work. Just as an Act of Parliament dealing with ordinary legal cases is by no means fully operative until its interpretation has been settled by decisions in the Courts—by what is called judge-made law, though of course the judges cannot legislate—so it has been with the Council. Some points have had to be settled by appeal to legal tribunals, and various important decisions have been given; other points and new lines of work have grown out of the procedure of the Council itself, which has, though in a less authoritative way, determined the meaning and scope of phrases in the Act, and has on the whole kept pace with the march of professional feeling in the direction of a more rigid standard of professional conduct. To give a concrete instance: In 1858 a very large number of persons were placed upon the *Register* and given the full status of qualified medical men merely because they had been in practice prior to that date. Obviously at that period, considering how many of these persons were on the *Register*, no great stringency in the matter of employment of unqualified assistants would have been consistent. But as time went on death removed the majority of persons so registered, and professional feeling advanced; the matter of unqualified assistants was taken up, their employment was declared to be unprofessional, and has been virtually stamped out. So, too, in respect of advertisement, the influence of the Council has been extended into a sphere of action at first untouched. To borrow Dr. MacAlister's words, "The Council does in "fact formulate, and by formulation make explicit, "fresh applications of the law to the growing com- "plexity of modern conditions. . . . The average "conscience is quickened, and what was once tolerated "is in the end repudiated and discountenanced."

So, too, in educational matters, the actual powers given to the Council by the Act seem on their strict interpretation to be singularly inadequate. But an influence which has been potent has gradually brought about desirable changes, and, again to use Dr. MacAlister's words, "in practice they have proved "to be more efficient than they seem in theory, and "the 'long result of time' has gone far to make them "adequate for the purpose."

Space forbids our following in greater detail Dr. MacAlister's exposition of the steady evolution of the Council's scope and work, and we must pass to another and more vexed question—that of the constitution of the Council. He reminds his hearers that, although it has never been done, laymen can be appointed by the Crown and by the universities; he further recalls, what is not so generally known, that the late Sir Henry Acland, in his evidence before a Royal Commission in 1882, actually urged the appointment of some lay members as tending to correct any tendency to professional bias. And, indeed, in most, if not in all, of the universities, it is not the Medical Faculty but the academic body which elects the representative on the Council. All this is in harmony with the view, so often and so authoritatively expressed, that the General Medical Council exists for the interests of the public and not of a class. Thus it appears that Dr. MacAlister is not fully in accord with the views expressed by the British Medical Association as to the constitution of the Council, and thinks that in a laudable anxiety to promote the interests of the profession, and, through these, the interests of the public, the spirit of English legislation has been a little lost sight of. He strongly deprecates the return to the Council—which, if it is to command respect, must exercise its judicial functions with an absolutely open mind—of any persons pledged to the support of a line of policy sketched out for them beforehand. In this respect, it is pointed out, the Council stands upon a different plane from any merely legislative assembly which has not imposed upon it the duty of trying cases.

With respect to the ultimate effect of a competition downwards in the stringency of examinations Dr. MacAlister makes an interesting remark. He says that as a statistical fact in the old days, when there was less uniformity of standard, it was not the lowest examinations which attracted the greatest number of students. The evil, when it had gone far enough, had a tendency to cure itself, in that the student did not desire to be hall-marked as of a lower standard of acquirement than his fellows. On the other hand, a notoriously easy examination always attracted the worst of the candidates who had little hope of getting any other qualification, and did admit a certain number who should have been excluded. We do not understand him to mean that this check is of itself sufficient, as he goes on to point out how the action of the General Medical Council has operated in raising standards.

The General Medical Council has its critics, ourselves amongst the number. Dr. MacAlister would be the last to admit that his discourse is to be read as an apologia for the Council; but if for a moment it may be viewed in that light, it must be admitted to be at once a temperate and powerful one. It has, moreover, a special interest and importance as bringing into prominence aspects of the Council's work not in everyday evidence.

OCCUPATION FOR MEDICAL WOMEN.

When the pioneer energy and enthusiasm of Dr. Elizabeth Garrett-Anderson enabled her, in spite of strenuous and powerful opposition, to acquire the right of registration as a duly-qualified practitioner of medicine by obtaining the licence of the Society of Apothecaries, the bulk of mankind, in common with the large majority of the medical profession, gravely shook their heads at an innovation which it regarded as dangerous to the foundations of our social fabric. Woman's sphere in life, it was contended, was entirely and uncompromisingly domestic; her physique and accomplishments disqualified her from taking part in the business or professional life of the world; her temperament and endowments unfitted her for bearing the burden of responsibility or the strain of vital emergencies; in short, her function in the plan of life was to bear children, nurse them tenderly, bring them up respectably, and create in their hearts that affection for parents and home which constitutes the main strength of a nation. Fifty years ago, when Miss Garrett started on her successful career as a woman doctor, the conditions of existence in this and other countries were very different from what they are now: and, as the Dr. Garrett-Anderson who is so widely known to-day, that lady may be congratulated on having lived to see her hopes realized to an extent far beyond what her critics ever believed possible. To many, the idea of medical women is still alien to their sense of the fitness of things, but it cannot be denied that the early prejudices have almost disappeared, and that the women members of our profession are slowly but surely establishing for themselves a position in our midst which is not only honourable but useful. We confess that we are not yet sufficiently "advanced" to be able to approve of their indiscriminate employment as physicians and surgeons. In certain departments of work there can be no doubt that they may not only compete with their brethren, but may come to excel them. For the management of labour, for the treatment of diseases peculiar to their own sex, and for those special fields of work where delicacy of manipulation and refinement of method are qualities preeminently conducive to success, the natural aptitude of women ought to fit them for useful careers. On the other hand, in the wider field of medicine and surgery the new woman has still forces and biassed opinions to contend with which militate against any present likelihood of her achieving more than a limited acknowledgement of her services. The world is moving on with such rapidity that another half century may see her emancipation from this circumscription of her energies: the old-fashioned barriers that separate, in so many ways, the one sex from the other may ultimately be completely demolished; but in the meantime the disciples of Dr. Garrett-Anderson and of others who have become leaders among female practitioners of medicine, have to content themselves with a gradual evolution towards the fuller day which they hope lies before them. The remarkable achievements of those who have led the van and climbed to the summit of this movement amongst women, indicates possibilities which may well serve to stimulate the energies and strengthen the courage of those who have become qualified practitioners, or who, as undergraduates, are now struggling towards that achievement.

All medical women, whether students or registered practitioners, have cause to be grateful to Professor Byers, of Belfast, for his championship of their cause. In the lucid and sympathetic address which he delivered this week to the students and graduates of the London School of Medicine for Women, and which is published at p. 823, he lays before them his carefully thought out and wisely considered views on their responsibilities and prospects. He especially directs their attention to the inducements which the inevitable extension of our Public Health Acts will offer in the way of suitable work and reasonable remuneration. We are in complete accord with Professor Byers that, along the lines which he indicates, there is future scope for the exercise of women's natural gifts combined with their professional attainments. We agree with him that for them "there "never was a more interesting time in which to start "practice," though we are not sure that his doctrine "that never was there a period in which medical "women had greater opportunities than now" is quite sound. None the less, the trend of events seems to justify the hope that ultimately his prognostications may be amply fulfilled. The difficulties which women experience in entering into competition with men in general or special practice are still great; and until sick and ailing humanity divests itself of its present conviction that men are, by Nature and inheritance, more fitted than women to deal with the crises and complexities of illness in its more acute and complicated phases, it will continue indisposed to transfer to women, in any great measure, that confidence and trust which it now unhesitatingly reposes in its medical advisers. All this may be remedied in time, but in the present stage of their advancement, as the youngest branch of an ancient profession which hitherto has been exercised solely by men, it behoves women to avail themselves of every opportunity to invade the new fields of medical labour which are specially suited to them and which offer chances of distinction along byways which must be created to meet the necessities of sociological development. The practical suggestions of Professor Byers open out on their horizon chances for promotion undreamt of by those to whom they owe the first inspiration of practical medicine as a work to which women might advantageously devote their lives.

At the recent meeting in Toronto of the British Medical Association, Dr. Helen MacMurchy devoted an introductory lecture to the Medical Inspection of Children attending Elementary Schools, in the course of which she elaborated one section of the subject of occupation for medical women more comprehensively dealt with by Professor Byers. We fear Dr. MacMurchy goes too far when, in advocating the employment of teachers for elementary schools, she contends that "girls, perhaps boys too, in the higher classes of "elementary schools, ought to learn something of how "to keep a child alive and well"; or when she hazards the bold doctrine that "the man in the street should "know the cause of typhoid fever." Children of an age to be at elementary schools have a serious enough task to face in mastering the foundations of education, and the man in the street is too much engaged with the stern realities of earning his livelihood to find time to investigate the intricacies of bacteriology. "A little knowledge is a dangerous thing," and, so far as the laity, youthful or adult, is concerned, it is sufficient for them to be familiarized with the ordinary maxims of cleanliness and godliness, without attempting to inculcate a smattering of subjects which can be properly appreciated only by those whose understandings are carefully and specially cultivated.

At the present moment the profession of medicine is

overcrowded, and is passing through an experience of vexatious and extraneous competition which is making it difficult to earn an income, and almost impossible, except for a very small minority of men, to gain anything more than a competence. This fact should not be lost sight of by young women who contemplate with longing eyes a professional life as an escape from the less ambitious duties pertaining to the fireside. Not without advantage might they be reminded of the famous Abernethian exclamation: "Heaven help you! "What is to become of you all?"

THE FUTURE OF THE MEDICAL PROFESSION.

At the beginning of a month which witnesses the enrolment of many hundreds of fresh candidates for admission to the medical profession, it is natural to surmise what prospect lies before them. Closely connected with this is the question what position medicine as a livelihood occupies in the estimation of those who, for good or ill, have already adopted it, and who, moreover, have had more or less ample experience of what it has to offer in either direction. Here the old saying, *Quot homines tot sententiæ*, is applicable, and the direction of general opinion on the point may best, perhaps, be judged by remembering the proposition laid down by a profound, if bucolic, philosopher, and, in a figurative sense, watching the gyrations of the nearest straw.

This straw may, in the present instance, be found in the complete change observable in latter-day opening addresses at the medical schools. Not so very long ago it was customary for the orators on these occasions to indulge in the practice known in America as "talking through one's hat." Neophytes were encouraged to traverse the final portals of medicine as rapidly as might be, by speakers who painted the attractions of the scene that lay behind them—mental, moral, physical, and financial—in very gorgeous hues. This is rarely now the case, the time at disposal being commonly devoted to the consideration of some subject which has little connexion with the immediate occasion, while any words addressed directly to the recruits present are limited to a description of the zeal they will have to show if they wish to pass their examinations.

That there is ground for discontent with the present position of medicine is indubitable, and the force of the objections which may be urged against it as a career for those who are dependent on their own exertions for a livelihood is not lessened by the fact that in none of the liberal professions are the attractions altogether what they were. Whatever advantages membership of these conferred in days when class distinctions were still jealously maintained have now disappeared. On the other hand, while the standards of life have been raised from bottom to top of the social ladder, the wage-earning value of mechanical occupations has greatly increased, and the facilities for making large incomes in commercial and allied careers have certainly not diminished.

Professional men of all kinds are therefore relatively poorer than they used to be; and medical men in addition have reasons for grumbling which are all their own, and which inevitably tend to obscure certain advantages that might be claimed when striking a balance between the attractions of one profession and another. Such degree of overcrowding as exists may be said to be common to all professions, and is inevitable in medicine while so many portals of entry to it exist, and the standards of preliminary general education are, as pointed out by Dr. Gordon in our correspondence columns, kept so low as they now are.

But many of the disadvantages from which medical men suffer are quite peculiar to them. They belong to a profession which is in its nature the least protected of any, and which only of late years has made any serious endeavour to organize itself for self-defence; a profession, moreover, which has been, and inevitably was, the very first to suffer from the advances of modern civilization and from the progress of science. To take the latter first, Medicine is the one profession whose members are constantly and proudly engaged in cutting their own throats for the public weal. For this act of self-sacrifice the credit is due less to those who preach the gospel of sound living out of the Bible of modern science from the housetops than to the rank and file of practitioners who in their daily rounds constantly urge its practice, endeavour to turn every advance in scientific knowledge to the advantage of their patients, and are ever ready to recognize when they have done all they can and to summon to their assistance some one who perchance may know something more. Without their active co-operation, which they give to their own hurt, all sanitation would stand still, the value of all scientific discoveries would be nullified in their medical relation, and the morbidity and mortality rates of to-day would be as high as they were fifty years ago.

They suffer, too, from the progress of civilization; it has brought with it the cheap printing press, multiplied the possible readers of quack advertisements without diminishing their gullibility, created contract practice, and brought into existence that misguided philanthropy which scatters medical charities broadcast, and showers its benefits indiscriminatingly alike on the just and the unjust. These are some of the factors which combine to lessen the present attractions of medicine as a career for men without private means at their disposal, which make the financial life of many practitioners one of extreme difficulty, tempt others to stray from the path of strict professional morality, and promote a feeling of dissatisfaction throughout the profession. The position of things, in short, is such that there are not wanting those—in America as well as here—who hold that the day of the general practitioner is over, and that twenty years hence the hierarchy of medicine will no longer number him amongst its priests.

It is perfectly true that at the present time everything connected with the art of medicine is undergoing a great change, and this, coupled with the transformations in progress in the general body politic, is the real source of the hardships to which a large proportion of medical men are now undoubtedly subjected. The net outcome, however, still remains to be seen and it is by no means certain that the attractions of medicine from a financial point of view will continue to be as slight in the future as at the present time they undoubtedly are. It is highly probable that we may see a vast extension of what may be called the official side of medical life; a multiplication of medical officers of health, of official pathologists, of school medical officers, of medical inspectors of all kinds, and the creation of numerous official posts which at present have no existence. All this, however, by no means necessarily implies the extinction of the general practitioner. Apart from the fact that he is to medicine what the solicitor is to law, just those very circumstances which at present make his existence tolerable, in spite of its many hardships, and which give him an

advantage over all other professions alike, will beyond doubt ensure his continued existence in the future.

The general practitioner is not a mere prescriber of drugs and distributor of academic advice, but a living power and an ever active beneficent influence in the community in which he dwells; for the most part he is the confidant of those who consult him, and he is aware that what he says, however unpalatable it may be, will as a rule consciously or unconsciously affect the actions of those in whom he interests himself. His patients are equally aware of the fact, though they may occasionally deny its existence, explain it away, or attempt to minimize its effect in some other way; the time invariably comes when again they take advantage of it. In this there is nothing strange, for under one name or another the general practitioner has existed from the earliest ages; many of the instincts, indeed, which account for his existence are primaeval, and will persist, whatever other changes evolution may bring about in the profession.

The voice of the general practitioner will therefore continue to be heard in the land, and if any of those who now speak in the name of medicine are to be silenced, we should be inclined to select as the most likely victim the consulting physician. Not a year passes but some portion of the territory hitherto his own is annexed by the operating surgeon or by one of the various special branches of medicine; of late years, too, the clinical pathologist with his microscope, his test tubes, and his balances, has shown a tendency to replace him in many connexions. But possibly the greatest danger for the pure physician lies in the vastly-increased attainments of the rank and file of the profession. When the consulting physician came into existence there was nothing between him and the old-time apothecary, and the difference between them, alike in general culture and in professional knowledge, was commonly as great as now exists between the prescribing chemist and the general practitioner of the modern school. This is now entirely changed, for a general practitioner studies at the same universities, in the same wards, in the same laboratories as the pure physician, and with growing frequency takes precisely the same degrees. In the days to come, therefore, he may find that all the assistance he requires can be got from the surgeon, the specialist, or pathologist.

INTERNATIONAL CANCER CONFERENCE.

THE International Cancer Conference was held at Heidelberg and Frankfort on the Main last week. The Grand Duke of Baden attended the opening meeting. A specially notable feature in the proceedings was the formal opening of the institute for the study of cancer, of which Professor von Czerny is the initiator, and of which he has consented to undertake the direction for five years. In the address which he delivered on the occasion the distinguished surgeon described the objects and work of the institution, which is to serve the double function of hospital and research laboratory, the two departments being kept quite distinct. "We preach the gospel of "the curability of cancer," he said; and in the spirit of hopefulness thus expressed the institution will be conducted. Hopefulness was also the *Leit-motiv* of the speech in which Professor von Leyden brought the proceedings to a close. He said the progress made in the investigation of cancer, which was to be attributed to the experiments on animals, justified the hope that before a very long time had elapsed it would be possible successfully to combat the scourge. Of the communications made we hope to give some account in later issues. In the meantime we hail a most important addition to the forces now directed to the solution of the cancer problem. Professor von Czerny has resigned the Chair of Surgery which he has held for many years with commanding ability in order that he may be free to give himself up to the task he has undertaken. The profession will look with confidence to results being obtained under his direction which will be of the highest value to mankind. Patriotism, of course, leads us to wish that the secret of cancer may be wrested from Nature by one of our own countrymen. But the realm of medical science has no frontiers, and we shall welcome the discovery with equal enthusiasm wherever it may come from. Of the new enterprise just solemnly inaugurated at Heidelberg we heartily say *Quod felix faustumque sit!*

THE HOSPITAL SATURDAY FUND.

WE gather from a publication issued at intervals by the Hospital Saturday Fund that the yearly appeal is already in progress and will terminate on Saturday next, October 13th. It appears too that in September Mr. W. G. Bunn, who has acted as secretary of the Fund for the past seventeen years, tendered his resignation on the ground of ill health, and that it was regretfully accepted by the Board. The same number contains some interesting statistics prepared from the returns received by the Fund and relating to the work done in 1905 by all hospitals and dispensaries and other institutions which have applied for assistance this year. From these it would appear that last year 31 general hospitals in London, not including St. Bartholomew's, took into their wards as many as 74,172 persons, and that in their out-patient departments 542,229 separate cases were treated, in addition to 584,719 persons who received treatment in their casualty departments; moreover, 55,695 visits were paid to patients in their own homes, presumably in connexion with maternity work. Altogether there are included in the returns statistics relating to 152 institutions, which a short calculation shows to have together treated no less than 1,953,477 persons. Doubtless many individuals who help to swell the general total figured in all three lists—in-patients, out-patients, and casualties—but even if due allowance be made for this fact, the immense extent to which the general public relies upon the hospitals for medical treatment is obvious. Nor should it be forgotten that apart from St. Bartholomew's Hospital, returns from which certainly raise the figure by at least 100,000 patients more, and from maternity work, which is not included in the calculation likewise, the figures to be found in the statistics do not cover the work done either by the Poor-law dispensaries and infirmaries or by the hospitals of the Metropolitan Asylums Board. Amongst the hospitals classed as "General," we notice the Antivivisection Hospital, a small institution in Battersea. Doubtless those who are responsible for its existence conduct it according to their lights, but we have no hesitation in saying that its title is essentially a misnomer, and that it would be difficult ethically to justify its adoption. It would be quite impossible to carry on medical or surgical treatment on lines which can have been regarded as modern any time within the last fifty years without taking advantage of discoveries due to vivisection. A final point of interest in this publication is a notice of motion in the agenda for the next Board meeting, calling attention to the fact that on the system now in force for assessing awards to hospitals those which by introducing economies have lessened their expenditure receive less than formerly, although they do the same work. Obviously, therefore, the regulations of the Fund require overhauling.

THE HUXLEY LECTURE.

Professor Ivan Petrovitch Pawlow, the celebrated Professor of Physiology at the University of St. Petersburg, delivered the Huxley Lecture at Charing Cross Hospital on October 1st. The substance of the lecture is published elsewhere. The function took place in the out-patient hall of the hospital, which was crowded with an enthusiastic audience. The Professor was welcomed on his arrival in a small room adjoining the hall by an informal reception committee, consisting of Lord Kilmorey (Chairman of the Hospital), Sir A. Rücker, Professor Starling, Dr. Pavy, Professor Gotch, Dr. W. V. Bayliss, Dr. Mott, Mr. Waterhouse, and Dr. Bosanquet. When Professor Pawlow was conducted into the hall by Lord Kilmorey, the reception accorded to the eminent physiologist was so hearty that it seemed to take him by surprise. In a few words Lord Kilmorey introduced the lecturer to the audience, and Professor Pawlow then proceeded to deliver his address. He spoke in German, and took for his subject the scientific investigation of the psychical faculties or processes in the higher animals. At the conclusion of the address, Sir A. Rücker, Principal of the University of London, moved a vote of thanks to Professor Pawlow. He assured him that the interest in his address was not confined to the walls of Charing Cross Hospital, but the University of London as a whole was delighted to welcome so distinguished a representative of Russian science. Professor Starling, in seconding the vote of thanks, said that the address bore out the old statement as to the close connexion that existed between the advance of science and the advance of methods at the disposal of scientific investigators. Great strides had been made in the science of physiology by the introduction of anaesthetics which had abolished pain from the physiological laboratory. The use of anaesthetics necessitated the introduction of abnormal conditions into an experiment, but Professor Pawlow had now taught them how to experiment on the living animal in perfect physiological condition without pain, without anaesthetics, and without even discomfort. Lord Kilmorey formally expressed the thanks of the meeting to Professor Pawlow, who replied in a few words suitably acknowledging the compliment.

THE VETERINARY PROFESSION AND MEAT INSPECTION.

At the opening of the winter session at the Royal Veterinary College, Professor H. A. Woodruff delivered an address in which he said the College was for the first time receiving a Government subsidy of £800 per annum; and it might be asked, What is the jutification for this grant of public money, especially at the present moment, when mechanical traction is rapidly displacing the horse on every hand? He claimed for the profession and for the College that never were their best men turned out so well equipped, and never were they more needed than at the present time. Quite recently the need for efficient inspection of meat and meat products had been brought home to them by the loathsome disclosures of the meat-packing industry in Chicago. It was remarkable that the man in the street, who held up his hands in pious horror at Chicago, appeared utterly unconscious that in this country, excepting a few enlightened cities and towns, there was no regular system of meat inspection at all. Veterinary surgeons knew better than any one else what this meant. They knew that carcasses of animals affected with tuberculosis, anthrax, pyaemia; with trichinae and cysticerci; with malignant tumours and febrile diseases; or those of immature or unborn calves, or of animals hurriedly killed to prevent them dying of disease—which would be condemned if submitted to an efficient inspection—were dressed and exposed for sale with impunity. The medical officer of health was far too busy a man to spend much time in this work, and was the first to admit his inability properly to inspect live animals or to recognize many of the diseases with which animals may be affected. The report of the Royal Commission in 1898 recommended that wherever practicable veterinary surgeons with some pathological training should be employed as meat inspectors and that all meat inspectors should pass an examination. In the Public Health (Scotland) Act of 1897 it was specially laid down that a veterinary surgeon might be appointed as meat inspector, and, further, that in any proceeding with regard to a living animal the medical officer or sanitary inspector must be accompanied by a veterinary surgeon. That was not the only direction in which the veterinary surgeon could help. A pure milk supply was more important than sound meat. One of the most serious questions for public health authorities was the high rate of infantile mortality. He was aware that contamination after the milk left the cow's udder was the chief source of danger, but it was unquestionable that the cow herself might be a very serious source of danger. He hoped that the recommendations of the last Royal Commission on Tuberculosis might be made the basis of new legal enactments. The important points were: (1) Compulpulsory notification of all udder diseases; (2) the conferring of powers upon local authorities to inspect not only cowsheds and byres within their own district, but also any outside cows and byres from which milk is obtained; (3) the substitution of "shall" for "may" in the clause of the Milkshops, Dairies, and Cowsheds Order which authorizes a local authority to appoint an inspector and make regulations for inspection. The Chairman, Lord Carrington, said the services of the veterinary profession were never more needed than at the present time. The revelations as to the qualifications of the meat inspectors were certainly somewhat astounding, and he thought they might very well be brought before the notice of the London County Council. What they had heard with regard to the milk supply made him congratulate himself that the Local Government Board dealt with that, and not the Board of Agriculture. He thought every one would agree that the regulations should be uniform.

LEPROSY IN GENEVA.

The reported revival of leprosy in Switzerland lends additional interest to an account of that scourge as it affected Geneva in the Middle Ages, which is given by Dr. Léon Gautier in his recently-published work entitled *La Médecine à Genève jusqu'à la fin du XVIIIe Siècle*. There is no record of the existence of any leper house in Geneva before the fifteenth century, but there can be little doubt that Switzerland had not escaped a disease which spread extensively through Italy as early as the sixth century, and was the subject of royal ordinances in France in the eighth. The great diffusion of leprosy which followed the Crusades brought leper houses into being. At Geneva two were established within the walls of the city and several on the outskirts. In these asylums lepers were interned after examination by physicians and surgeons. By the beginning of the fifteenth century great abuses had crept into the administration of the leper houses. The funds were misappropriated by the superintendents, who were the parish priests, and lepers were left at large in such numbers that segregation was little more than nominal. Then a reformer appeared in the person of Vitelleschi, Bishop of Corneto, afterwards Cardinal. The parish priest continued to be the head of the leper houses, but two arms were provided—a manager and a treasurer. These were laymen, and it was expressly provided that the former should be married but without

young children; if his wife were barren, so much the better. The object of this provision was to remove from them the temptation to divert to the advantage of their offspring the funds contributed for the benefit of the poor lepers. As the disease was looked upon as incurable, no medical treatment was provided. Any one convicted or even suspected of leprosy was confined to the asylum under pain of excommunication. He had to contribute his share towards the maintenance of the institution, and if he had no money he was sent out to beg from church to church till he had collected the required amount. The ritual of admission to a leper house resembled that of reception into a religious order. It took place in the chapel in the presence of all the officials. The patient was shriven, gave his property to the house, and took an oath of obedience to the ecclesiastical ordinary. He was then formally presented to the other lepers, who touched his hand in sign of brotherhood. A sort of love feast followed, at which the newcomer was entertained by the others. Husbands and wives were not wholly parted, but a leper could not remain outside the walls of the asylum more than three hours on any day. In the daily life of the inmates religious exercises occupied a large place. The community was a kind of republic in which all the members, women as well as men, could discuss their affairs on a footing of perfect equality. They elected some of the officers of the establishment, but had no power to change the general scheme of administration. By the middle of the sixteenth century leprosy was practically extinct at Geneva. The last two lepers of whom there is any record died about 1570; from the close of the century there is no further mention of leprosy in the archives of the city. It can scarcely be said that leprosy was stamped out in Geneva; it seems to have gradually died out, owing to causes of which nothing is definitely known. It is clear at any rate that segregation, applied so laxly as it seems to have been, could have had little to do with the extinction of the disease.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

A COMPLIMENTARY luncheon to Professor Ronald Ross, C.B., Professor R. Boyce, and Dr. J. L. Todd, in recognition of the decoration recently conferred on them by the King of the Belgians for the work done by the Liverpool School of Tropical Medicine, was given on October 1st by the Lord Mayor of Liverpool. In proposing "Our Guests," the Mayor reviewed the work done by them and by the School. The Tropical School had only been in operation since 1899, and by 1905 £48,200 had been collected. Never was money more profitably spent than this £48,000. Sixteen expeditions had been sent out to tropical and subtropical countries. About 900 cases of various tropical diseases had been treated in a special ward in the Royal Southern Hospital, Liverpool. Sir Alfred Jones, in seconding the toast, read a translation of a letter from the Secretary-General, Congo Free State, dated Brussels, September 28th. It stated: "You made reference to the fact that "if His Majesty Leopold II would consent to make an "annual subscription of £1,000 for a period of five "years the Liverpool School of Tropical Medicine "would be relieved of pecuniary difficulties. I "have the honour to inform you that His "Majesty the Sovereign King, responding to this "appeal, has authorived me to place at your disposal "a sum of £1,000. We hope that this subscription will "not be the last which might be made to the institute." The toast was suitably acknowledged by Professor Ross and Dr. Todd. The Lord Mayor directed that the following telegram should be sent to King Leopold:—"Grand Marichal de la Cour, Brussels. Please convey to "His Majesty the King of the Belgians the very hearty "thanks of myself and the School of Tropical Medicine "for the decorations conferred upon Professors Ross, "Boyce, and Todd, and our warm appreciation of his "Majesty's generous donation towards the noble work "of stamping out disease. Am now giving luncheon "party in honour of the three professors, and we present "our respectful thanks to his Majesty.—From the Lord "Mayor of Liverpool."

CONTRACT MEDICAL PRACTICE.

In a great many localities within the British Isles and in several places in the colonies acute controversies are in progress on the subject of contract medical practice between local medical practitioners and those who represent the societies or associations which are in need of medical assistance for their members. A list of the more important of these will be found at page 60 of the advertisment columns of this issue. The circumstances in each case differ more or less in minor particulars, but the one feature common to all of them is that at all the places mentioned the medical profession is quite united on the subject and is acting almost as one man in the steps which it is taking. Those, therefore, who are in search of appointments and who receive an offer of a post will do well, before going further, to turn to the advertisement to which reference has been made and ascertain if the post in view appears therein. If it does, it would be to their own interest that they should communicate with the medical man whose name and address are given in connexion with it, for they will thus learn the precise nature of the work which they are offered, and the conditions, both external and internal, under which they will have to carry it out should they accept its responsibility. The localities which are entered in the list number 23, but it might be well to mention that it is reported on good authority that contests of a similar character are commencing in some other neighbourhoods. Thus, practitioners in the neighbourhood of Sedgley, in Staffordshire, have resolved no longer to accept a smaller fee than 4s. a year from members of Friendly Societies and workmen's clubs. This very small sum the managers of the clubs in the area are so far indisposed to pay, and they are likely, therefore, to endeavour to import medical assistance from elsewhere. Possibly they may succeed in doing so, but inasmuch as the local profession is united on the point, the position which any incomer would occupy would be one of distinct unpleasantness. Similar considerations apply to Worcester, where several years ago the local profession resolved to have nothing to do either with the clubs or with medical men who worked for them. They were influenced in this decision by the fact that the clubs overwork and underpay those who serve them, as also by the consideration that there are plenty of men already established in general practice in the city and its suburbs quite ready to supply the working members of the community with medical attendance in return for a reasonable remuneration.

SYPHILIS AMONG THE CONQUERORS OF MEXICO.

IN the *Journal of the Association of Military Surgeons of the United States* for September, Captain Henry du Rest Phelan, formerly Assistant Surgeon of United States Volunteers, says it is still a debatable question whether syphilis was introduced into Europe by the conquerors of the New World on their return home, or whether it was first spread over the shores of America by the followers of Hernando Cortes. It is interesting to note that although various nations have tried to throw on each other the discredit of originating the disease, it has not yet been called the *morbus Mexicanus*. Yet Jourdanet, who translated the history of the conquest of New Spain by that stout old

campaigner, Bernal Diaz, holds that an ailment which affected the soldiers was undoubtedly syphilis acquired from Mexican women. This view is strongly opposed by Captain Phelan. He points out that Cortes sailed from Cuba on February 10th, 1519, at the head of 508 soldiers, and that he reached the city of Mexico on November 8th of that year, and it is argued that during that period they were too busily engaged in the service of Mars to have had much time to spare for the worship of Venus. Bernal Diaz relates that on November 12th, 1519, the Spanish chief with a few followers visited an Aztec temple in the city. One hundred and fourteen steps led up to the shrine. In coming down, several of the Spaniards complained of severe pains in the groins and thighs, which were covered with sores and *bubas*. Several of Cortes's officers were disabled by the disease, and some of them died. A similar affection appears to have been common among the rank and file; we hear of seven men who after a severe march from Vera Cruz reached the city of Mexico suffering from *bubas* and swollen bellies. What were these *bubas?* Nowadays the term means nothing more than glandular swelling, and does not necessarily carry with it the connotation of syphilis. Captain Phelan is inclined, "from the nature of the expedition, the climate of "the lowlands, the symptoms of the disease and "the name by which it was known," to believe that the affection was framboesia, which also goes by the name of *bubas*, and which has many points of affinity with syphilis. The buboes, the ulcers, the pains in the bones and in the joints, for the relief of which the soldiers had recourse to warm baths, might as well, says Captain Phelan, have been due to framboesia as to syphilis. To this it may be replied that they might as well have been due to syphilis as to framboesia. Apart from the fact that some authorities regard framboesia as a form of syphilis, Captain Phelan's argument, which proceeds wholly on the "high *a priori* road," seems to us quite inconclusive. His defence of the Mexican women is chivalrous, but, as the Cambridge wrangler said of *Paradise Lost*, it proves nothing. On the other hand, the case against them is equally weak. It has been shown by the unimpeachable testimony of antique bones presenting characteristic lesions that syphilis was not unknown in Peru at a very remote period of human history. It is difficult, therefore, to see on what ground immunity from the disease can be claimed for the Mexicans.

INDIAN PHARMACY.

At the opening of the School of Pharmacy, Sir George Watt, Reporter on Economic Products to the Indian Government, gave an interesting account of pharmacy in India. He said that in all the important towns of India there were chemists' shops owned by Europeans or natives, but worked purely on European lines in the compounding and dispensing of the ordinary drugs with which all were familiar. But there were peculiarities. All the important pharmacists' shops were dispensaries, and each had attached to it a doctor. The doctor examined and prescribed, and the only fee paid was the charge for medicines. Further, they all had aërating manufactories connected with them. All the European chemists were manufacturing chemists. The native was more a herbalist than a chemist, and combined to a large extent the trade of grocer. He sat in a booth and dispensed from a multitude of mysterious boxes, jars, and bottles his medicines and charms, and was as willing to supply criminal poisons as harmless preparations, for he asked no questions. Although some of his medicines were decomposing, he would never dream of throwing them away. A halo of mystery surrounded his life. He had not acquired his knowledge at a college of pharmacy, but had inherited it. The sources of information relating to Indian drugs were hardly known. Only three natives had written anything of any value on the subject. As it might take 200 years before Western medical skill could reach the 300,000,000 inhabitants of India, it was our duty to investigate the indigenous drugs, with a view to pointing out those most suited for the dangerous diseases to which the vast majority were liable, and that did not imply the substitution of foreign drugs. The natives had a remarkable knowledge of their own drugs. The subject had relation to dairy processes, and of these, too, their knowledge was of a very high order. The sterilization of milk had been practised by the natives of India from time immemorial. They universally boiled their milk, etc., either for two or three consecutive hours or repeatedly at short intervals, and they procured curds from cold milk. A curious practice of theirs was to smoke their milk-jars over cowdung fires, but whether to preserve the milk or for some other reason was not clear. Their butter was invariably clarified before being used, but they did not use it with bread but only as a sort of dripping; it was said to improve with age. Clarified butter 100 years old could be obtained; a traveller once once had some 400 years old presented to him. It was highly probable that one of the chief ingredients of the famous ancient ointment was butter, or ghee, of this kind.

SANATORIUMS FOR WORKERS.

The postal branch of the National Association for the Establishment and Maintenance of Sanatoriums for Workers suffering from tuberculosis held a conference on September 29th. The Association are building a sanatorium at Benenden, Kent, where an estate of 252 acres has been acquired. The eastern wing of the institution will be ready for the reception of patients early in January. Fifty-two beds have already been taken by the various societies of workers, and it is expected that when the building is finished and ready for inspection other beds will be endowed. The object of the conference was to consider the proposed rules of the postal branch of the National Association. There was a large gathering of representatives, men and women, of all classes of postal service. The Postmaster-General, Mr. Sydney Buxton, M.P., was also present. Mr. C. H. Garland submitted a report. It stated that the Postmaster-General's consent and approval was obtained to the subscriptions being collected by means of deductions from salary. The actual number of bonâ-fide subscribers was stated at 32,000. The present Postmaster-General had given his consent to the allocation of fine funds to the building fund of the sanatorium under certain conditions, and it was hoped that a considerable sum might be derived from this source. The Provisional Committee sent a cheque for £250 to the National Association as a first donation from the Post Office employés towards the building fund. They also engaged twenty-five beds in the projected sanatorium at an annual cost of £1,625. The income of the Society would provide ample funds for this and all purposes, and leave a good surplus for use in case of emergency. Mr. Buxton said he was glad the movement for the provision of sanatoriums for consumptive patients was making great progress throughout the kingdom. Hitherto these hospitals had been available only for patients in a position to pay a considerable sum. The present movement was started by the workers themselves on a self-help basis, so that every subscriber to it could obtain at a cheap rate proper treatment for tuberculosis. He was delighted to see from the report of the Provisional Committee that the postal branch of the movement was a great success. His predecessor in office, Lord Stanley, took a warm personal interest in the movement, and did his best to smooth the path

of the Provisional Committee in its initial operations. He hoped they would allow him to say that he likewise was deeply interested in the movement. It was a most gratifying circumstance that so far 32,000 postal servants had become subscribers, and had consented, from January 1st next, to deductions being made from their wages and salaries in aid of the fund. Dr. T. D. Lister (of the Council of the National Association) said a notion prevailed—and it was by no means confined to non-medical circles—that treatment for tuberculosis in a sanatorium consisted of putting the patient out of doors in a draught, and letting Nature kill those who could not stand it. It was nothing of the sort. A sanatorium was one of the most delightful places in the world in which one could spend a holiday. Mr. W. G. Bunn (Honorary Secretary of the National Association) said that, if the example set by the postal service was followed by other large bodies of workers, they might hope to see the day when tuberculosis would disappear from the list of diseases.

DYSENTERY IN ASYLUMS.

THE prevalence of dysentery in asylums and its persistence almost exclusively in these institutions in spite of a rigid conformity to the most modern standards of hygienic requirements has quite rightly attracted much attention. This year, in their report for 1905, the Commissioners say that their returns from county and borough asylums are disheartening, and that it is impossible to state that this disease is on the decline. Last year, in noticing Dr. Bevan Lewis's report for 1904, we drew attention to the very gratifying results which had ensued upon the treatment Dr. Bevan Lewis had instituted in these cases, directed to a removal of what he affirmed was the real cause of the trouble, that is, bowel atony following long-continued constipation. Prior to the commencement of his treatment, in the last three quarters of 1902 and the first two quarters of 1903, there were 94 cases of asylum dysentery and 27 deaths. After the treatment had been instituted there were in the last two quarters of 1903 and the first two quarters of 1904, 15 cases and 2 deaths, and in the two last quarters of 1904 and up to the end of July, 1905, 6 cases and 1 death. Dr. Bevan Lewis now reports that during the whole of 1905 there were but 3 cases of this disease and no death, and it is of great interest that in 2 of the 3 cases their admission to the asylum took place only nineteen and six days prior to the onset of the colitis, leaving open the possibility of their having contracted the disease before admission, and that the third case had obstinately refused the special treatment advised. These figures speak for themselves, and when it is remembered that during 1905 there were under treatment in county and borough asylums no less than 1,106 cases of dysentery, of whom 247 died, it seems only reasonable to hope that this treatment may be given a fair trial on a wide basis over a prolonged period. Obviously the success of this treatment in no way disproves the potency of other factors which have been instanced, such as a deficient innervation or the overgrowth of bacterial flora in the intestine, but in any case the practical extinction at Wakefield of such a fertile cause of trouble in other asylums is sufficient reason for the extended application of this treatment in similar institutions.

THE honorary degree of Doctor of Laws has been conferred by Harvard University on Sir Thomas Barlow and Professor C. S. Sherrington.

ON October 3rd the Earl of Rosebery, Lord Lieutenant of Linlithgowshire, opened at Bangour in that county an asylum on the villa or segregate system which the Lunacy Board of Edinburgh has established for the care of the insane poor of that city.

Scotland.

ABERDEEN UNIVERSITY QUATERCENTENARY.

THE quatercentenary celebrations at Aberdeen University which occupied almost the whole of last week passed off most successfully and it is the general opinion that both Town and Gown rose to the occasion in a splendid way. The attendance of guests, delegates, graduates and students was very large, and, favoured with a week of perfect weather every function, both indoor and outdoor, proved of a most enjoyable and brilliant character. The celebrations started with a commemoration service in the chapel at King's College, part of Bishop Elphinstone's original building. Never did the old chapel contain such a brilliant audience, and the solemn character of the service was quite in keeping with the occasion and made a deep impression on all fortunate enough to get invitations to be present. On the afternoon of the same day (Tuesday, September 25th) a great procession of delegates, graduates, guests, students, and others, to the number of about 3,000, from Marischal College to the Strathcona Hall, took place. As the route of the procession extended over a mile an excellent opportunity was given to the public to see a most brilliant array of academic costumes gathered from all the principal universities in the world. The reception of delegates which took place immediately after the procession was a most striking function. The delegates representing the universities of each nation were received by the entire audience standing up while the band of the Gordon Highlanders played the appropriate National Anthem. Many short but eloquent speeches were delivered, and the greatest enthusiasm prevailed throughout an assembly numbering between four and five thousand persons. Many of the delegates, too, were the bearers of congratulatory addresses from their respective universities, and these were presented with due ceremony on the occasion. In the evening the Corporation of the City gave a banquet in the Music Hall, and the students held the never-failing torchlight procession.

On Wednesday honorary degrees of D.D. and LL.D. were conferred in the Mitchell Hall, Marischal College, on about 130 distinguished delegates representing all nations. Among those upon whom the degree of LL.D. was conferred were a large number of distinguished medical men; their names appeared in the last issue of the BRITISH MEDICAL JOURNAL. In the afternoon a great reception and athletic sports were held at King's College, which were attended by a huge crowd, and in the evening a reception in the Art and Sculpture Galleries and a students' ball were both very largely attended. On Wednesday evening, and also on Friday evening, the Aberdeen Medico-Chirurgical Society gave dinners to distinguished medical guests and delegates. On the former evening Professor Ogston was chairman, and on the latter Dr. Angus Fraser. Both proved most enjoyable functions, a most hearty tone prevailing right through, showing the fraternity existing amongst medical men all the world over. The speeches, short as they had to be, showed the strangers' keen appreciation of the Aberdeen Medical School, its past history, its present position, and its future prospects. Thursday was the crowning day of a famous week. On that day his Majesty the King, accompanied by the Queen, honoured the University and the city by coming to declare the new buildings open. The scene in the quadrangle at Marischal College, where was gathered together a crowd of 4,000 people, is not likely to be soon forgotten. It is noteworthy that an appropriate and timely recognition was given to the Royal Army Medical Corps (Volunteers) on this occasion, the University Company, under command of Major Scott Riddell, M.V.O., being chosen to act as a guard of honour to receive the King at the entrance to the quadrangle. The King was graciously pleased to inspect part of the new buildings before he left. In the evening was held the great Strathcona banquet about which so much has been written. Suffice it to say that it was a perfect success in every way, and it must have gladdened the heart of the grand old Chancellor to see how well his hospitable idea was worked out, and how fully every one enjoyed the great function. The arrangement of the guests according to year of graduation was a most happy

idea, and allowed of many unexpected reunions, and the directory of guests' names and the tables at which they would be found seated allowed many men to meet who might have passed through the rest of the crowded functions without having so much as hailed or even seen each other. Friday forenoon was taken up with excursions. In the afternoon the directors and medical staff of the infirmary held a reception, which was largely attended by medical men. In the evening the celebrations had fitting finish in a huge reception at Marischal College, when the whole buildings were thrown open, and an opportunity of seeing the laboratories, museums, etc., new and old, were afforded to the guests. This is but a summary of the more important events of a crowded week suitably celebrating a great occasion. It was inevitable that on such an occasion the past should be much dwelt on in the speeches delivered. This is as it should be, for tradition counts for much in the influence of a university, and Aberdeen has a record of which it may be justly proud. It was gratifying, too, to hear so much appreciation by competent critics of the present condition of things. No university, however, whatever its past record, can afford to live on that past, and this is fully appreciated in the northern university. On brains and hard work, after all, the success of a university depend more than on fully equipped and elegant laboratories, valuable and, indeed, necessary as these are under present conditions. Though seriously handicapped in the past by scanty accommodation and insufficient equipment, Aberdeen University may now look forward confidently to a future in which it will accomplish even more than the past records show, and the University will be strengthened and encouraged in the task by the judicious eulogy and good natured criticism offered by so many famous men during the past week.

St. Bartholomew's Greeting to Aberdeen.

The following is the text of of an address presented by Sir Dyce Duckworth to the University of Aberdeen in the name of St. Bartholomew's Hospital, London, on the occasion of the recent quatercentenary celebrations:

Universitati Aberdonensi.

Schola Medica Sancti Bartholomei Apostoli apud Londinenses S.P.D.

Quarto jam saeculo diem referente natalem Universitatis vestrae, gratulatur vobis animo libentissimo Schola Hospitii Sancti Bartholomei, et bona omnia et fausta precatur.

Mittimus feriarum vestrarum non modo testem sed etiam participem, collegam nostrum, Dyce Duckworth, equitem auratum, emeritum Hospitii nostri medicum.

Non enim sumus immemores, inter alumnos Aberdonenses qui doctrinâ ac virtute Universitatis suae annales exornaverunt, complures in re medicâ illustres Scholae nostrae ampliorem famam contulisse.

Nihil ergo, viri doctissimi, hodie auspicatius arbitramur quam doctrinae sedi tam insigni in posterum per saecula plurima fortunam in dies feliciorem exoptare.

Valete!

The Laboratory of the Edinburgh College of Physicians.

By the appointment of Dr. Noël Paton to the Chair of Physiology in the University of Glasgow, the post of Superintendent of the Laboratory of the Royal College of Physicians of Edinburgh has become vacant. The appointment of Professor Paton's successor must arouse much interest in Edinburgh medical circles; the post is an important one, while the effect of the choice of the successor must inevitably be felt by Edinburgh practitioners generally, and no less directly by those men in whose cases time and inclination permit of study along the lines of laboratory research. The post, so far, has been held by a physiologist pure and simple; will it continue to be so held, and is it desirable, all things considered, that it should be so held?

To many Edinburgh practitioners the facility for perfecting and confirming clinical pathological work through the co-operation of a skilled pathologist as Superintendent would be a great boon. For such a purpose a man skilled in bacteriology, chemistry, and morbid histology is essential. By the appointment of such a man, and by his personal superintendence of specimens submitted and methods employed, reliance could be placed upon the satisfactory completion of pathological procedures.

Again, the subject of original research is a most important one. For those men who seriously and thoughtfully, after due consideration, set themselves a definite task and honestly grapple with problems of research, what is required is facility for work, guidance, perhaps, as to objective and method, and assistance in manual and mechanical procedures. These requirements the Laboratory of the Royal College of Physicians has long prided itself upon supplying. But conditions change, and necessities become more imperative. The future facility for work, it is to be hoped, will be equal to that of the past, but it is equally to be hoped that the manual assistance will be greater.

As to the subject of guidance, consideration must be had of other centres of research in the city. Connected with the University we have the laboratories of pathology and of physiology. In both much routine work has to be carried out, but in both facilities for work are offered. Of late years, under the able superintendence of Professor Schäfer, the physiological laboratory has offered increased facilities for work, and in the near future it is expected that additional accommodation will still further enhance the scope of work. In the pathological laboratory and the Infirmary laboratory facilities for outside workers are necessarily somewhat limited, more particularly when it is borne in mind that medical research is, in the main, conducted along the lines of pathological investigation.

With a pathologist as Superintendent—a young energetic man with a broad-minded grasp of the true relationship between medical research and medical practice—the laboratory of the Royal College of Physicians will be in a condition to foster research along lines at once natural and productive; and, great as has been the value of the laboratory in the past, there seems to be no reason why the immediate future should not witness a still further extension of its usefulness and a still fuller facility for the carrying out of original work.

The Royal Infirmary, Edinburgh.

Within the next few weeks the duty will devolve upon the Managers of the Royal Infirmary, Edinburgh, of electing an assistant physician, an assistant physician to the Skin Department, and an assistant surgeon to the Ear and Throat Department. For all of these posts several candidates are in the field. Evidences are not wanting at the present time to show that radical changes are imminent in medical thought and life in Edinburgh.

The excellence of Edinburgh during the past years, and at the present time as an undergraduate school, is very generally admitted. But this very excellence undoubtedly has its drawbacks. To be an excellent teacher of students, to have the power of lucidly expounding, carefully systematizing, and successfully instilling into the minds of undergraduates the rudiments and broad principles of medicine, is a great gift. But undivided or excessive energy along such lines undoubtedly tends to curb advance in other directions.

Undergraduate teaching tends to solidity, to thoroughness, to a broad grasp of our present knowledge of medical science, but Edinburgh surely has room also for originality of thought. A post on the staff of the Royal Infirmary is a position conferring considerable facilities and advantages on its occupant, and the hope may be expressed that in the selection of candidates consideration may be had of medicine in all its aspects.

Fifeshire Medical Association.

Professor Osler was the guest of the Fifeshire Medical Association at its annual meeting held at Cupar on September 28th, and delivered an address on pneumonia. The President of the Association, Dr. Norman Walker, was in the chair, and there was a large attendance. Professor Osler said that whether or not pneumonia had increased in this country, there could be no doubt there had been a very considerable increase in the larger cities of the United States. It alone of all the acute infectious diseases remained resistant to the powerful and effective efforts which had been made against the other acute infections. He pointed out that if careful *post-mortem* examinations were made in hospital, the

incidence of pneumonia would be enormously increased. The mortality from pneumonia remained high amid all the changes that had taken place in their conception of the disease. They could not get statistics lower than 25 per cent., and in a series of 658 cases which came under his observation the mortality was 30.3 per cent. The disease was most in evidence in the wintry season, and reached the maximum point in March. For the prevention of the spread of the disease he advised isolation and notification and the paying of greater attention to the mouth—oral hygiene. The pneumococcus was largely spread through the sputum: hence the need for oral hygiene. An instance was given of the tests being applied to certain subjects for pneumococci, and the only man found free from the organism was a tobacco chewer. These men were working in a laboratory, and it was said to the tobacco chewer that if he gave up chewing he would be as bad as the rest. He did give up, and at the end of three months his sputum had sufficient pneumococci in it to kill a cat. He returned to his "quid," and that, said Professor Osler, was the only good he had ever known to follow chewing tobacco. The Professor concluded by giving several hints regarding the cure of the disease.

A SANATORIUM FOR INVERNESS-SHIRE.

A representative meeting was held at Inverness on September 22nd in furtherance of the steps being taken for the establishment of a sanatorium for consumptives in Inverness-shire. The Macintosh of Macintosh, Lord-Lieutenant of Inverness-shire, presided, and among those present were: Lord Lovat, the Hon. Margaret Fraser of Lovat, Mrs. Macintosh of Macintosh, Lady Macdonald of the Isles, and Miss Macleod of Macleod. The Macintosh, in an opening address, said he knew from the statements made by their county medical officer that Inverness-shire was sadly cursed by consumption. On the west coast, owing to the redundant population and the inadequacy of the houses in many instances, the disease had a peculiar field for further progress. He held that if one or two consumptive patients who might be treated under proper care in the sanatorium could go back and preach the gospel of sanitation, it would do far more good than any number of lectures or the issuing of printed matter. He had been desired by the Hon. Margaret Fraser of Lovat to state that the amount it was proposed should be raised was £600 a year, and that of this sum £400 had been promised in annual subscriptions. The sum of £750 had been promised in donations towards the building fund, and of this sum £450 had already been received. This left £750 still to collect. He might state that an anonymous donation of £1,000 had been placed to capital account. The site for the sanatorium, which was to be erected two miles from Aberchalder Station, on the Invergarry railway, had been kindly granted by Lord Lovat. On the motion of The Macintosh, seconded by Provost Ross, the following four trustees were appointed: Sir Arthur Campbell, Orden; Mr. John A. Dewar, M.P. for Inverness-shire; Lord Lovat; and Sir Samuel Scott, of Harris. The Hon. Margaret Fraser of Lovat said it was hoped that the sanatorium would be begun in October, and be ready for patients by April, 1907. If £800 a year should be forthcoming, the question of the advisability of having a resident doctor at the sanatorium might be considered.

NORTH OF SCOTLAND PHARMACISTS.

On September 26th the North of Scotland Pharmacists entertained at dinner Mr. R. A. Robinson of London, President of the Pharmaceutical Society of Great Britain. Mr. J. F. Tocher, F.I.C., of Peterhead, who was in the chair, in proposing the health of the guest of the evening, recalled the fact that, in regard to dispensing, Jacob Bell in his day noted that in Aberdeen and Scotland medical men prescribed and pharmacists dispensed. It seemed to be the peculiar illusion of the working-class English to look upon a medical practitioner as a sort of a pharmacist and a pharmacist as a kind of medical man. Otherwise they would not go to the first so often for drugs and to the latter so much for advice. Good treatment in industrial England seemed to be measured by the rate of flow of medicaments in the alimentary canal. He was not quite sure whether Robert Louis Stevenson was not poking fun as much at the medical practitioner as at the chemist when he wrote that

> Ben, when Robin chose to roam,
> A rising chemist was at home,
> Tended his shop with learned air,
> Watered his drugs and oiled his hair,
> And gave advice to the unwary
> Like any sleek apothecary.

When chemists did give advice in Scotland, it was, when ill, to go to the medical man, since his profession was medicine. Mr. Robinson, in reply, said he was very glad that they were getting the help of the medical profession, and that in Scotland their functions were properly divided—the doctor prescribed, and the pharmacist prepared the medicines. Professor J. Arthur Thomson, in replying to the toast "The University of Aberdeen," said it was his idea that there should be in the immediate future some closer touch between the University curriculum and the pharmaceutical students' needs. Provost Alexander (Banff), in giving "The Medical Profession," said that while the University of Aberdeen had sent forth men who had made a reputation, equally deserving of fame were those who had remained in Aberdeen and helped on that higher education which she enjoyed to-day. There were no more energetic or sympathetic medical practitioners than those who were to be found in Aberdeen and the north-eastern counties. He referred with satisfaction to the excellent and cordial relationship that had ever existed between their own and the medical profession.

Ireland.

ROYAL UNIVERSITY.

WITH deep regret we note the death of the Very Rev. Monsignor Molloy, Vice-Chancellor of the Royal University of Ireland. He was attending the Aberdeen celebrations, and was found dead in bed in his host's house. Dr. Molloy was a well-known figure in Dublin. He was widely cultured, and there was probably no one who could present more attractively to a popular audience some of the scientific subjects which he made his special study. As Rector of the Catholic University he was highly esteemed. He was broad-minded and very tolerant, and he numbered among his closest friends men of all creeds and of all shades of politics. On the death of Lord Morris he was elected by the Senate to succeed him as Vice-Chancellor, and he added to his reputation in that office.

MEATH HOSPITAL, DUBLIN.

Sir Lambert Ormsby will deliver the introductory address at the Meath Hospital on Monday, October 8th, at 4.30 p.m., and Mr. J. S. McArdle at St. Vincent's Hospital on Tuesday, October 9th, at the same hour.

HEALTH OF BELFAST: CITIZENS' MASS MEETING.

A public meeting of the citizens was held on the evening of September 27th; it had been summoned by a Committee of 36—12 elected by the Citizens' Association, 12 by the Citizens' Health Committee, and 12 by the Malone and Windsor district, in which an epidemic of typhoid fever has lately been giving rise to much alarm. It was calculated that over 1,500 people were present, and the audience was of a very representative character. Mr. Robert Thompson, J.P., occupied the chair. The speaking was vigorous, and emphasized the various points which have been brought before the public during the last four months. There were a large number of medical men on the platform. The first resolution was proposed by the Rev. John Irwin and seconded by Dr. Alex. Dempsey, J.P., supported by Mr. H. S. Woods, and passed unanimously:

> That the present condition of matters relating to public health in the city of Belfast affords ground for serious dissatisfaction and alarm, and demands immediate attention from the responsible authorities.

The following resolutions were also passed practically unanimously:

Moved by Mr. John Sinclair, seconded by Mr. William Hayes:

> That the action of the Corporation in fixing the salary to be paid to the new Superintendent Officer of Health at £600 per annum, notwithstanding the repeated recommendations of their own Health Committee, of the Local Govern-

ment Board, and of the citizens, as also the refusal of the Corporation to make previous experience a condition of the appointment, is unsatisfactory and the remuneration offered is inadequate.

Moved by Rev. Dr. Murphy, seconded by Mr. Edwin Squire:

That the further action of the Corporation in stipulating that all applications must be lodged by September 22nd, notwithstanding that the necessary advertisements did not reach the two leading medical papers—namely, the *Lancet* and the British Medical Journal—in time for insertion before that date, was most injudicious and unfair to intending candidates, and renders it inadvisable to proceed with the appointment on October 1st.

Moved by Mr. T. F. Shillington, seconded by Mr. John Murphy:

That copies of these resolutions be sent to the Lord Lieutenant, the Chief Secretary, the Lord Mayor, the Town Clerk, each member of the Corporation, and to the Local Government Board, and that a deputation from this meeting appear before the Corporation on October 1st, and, failing a postponement and final satisfactory settlement regarding the appointment, the organizers of this meeting are hereby authorized to act with the Citizens' Health Committee in taking such steps as may be necessary to apply for a Royal Commission of Inquiry into all matters pertaining to the public health of the City of Belfast.

A Dispensary Election in Limerick.

At a meeting of the Limerick Board of Guardians, held on September 26th, the election of a medical officer for the Cahirconlish Dispensary was proceeded with. There was a crowded attendance of guardians, friends, and supporters of the candidates—Dr. C. Waters, Cahirconlish, and Dr. John Corby, Graigue. On a division, Dr. Corby was, amidst great excitement, declared elected by 45 votes to 41. Some disturbance took place at the end of the Board room between the supporters of the doctors, which the Chairman tried to settle by pointing out that as they were not now fighting the English, but between themselves, they should behave better. Eventually some policemen intervened and stopped the disturbance.

Manchester.

Pauper Lunacy.

A conference between the Lancashire Asylums Board and representatives of the Boards of Guardians of the county was held at Preston on September 27th to discuss "how far it is possible by a closer co-operation between the Asylums Board and the Boards of Guardians to reduce the cost of the maintenance of pauper lunatics." That cost is increasing every year, and all the asylums are practically full at present. Asylums, of course, are greatly more expensive institutions than workhouses. This expenditure is justified in the case of patients who are likely to benefit from the asylum treatment. The question was discussed whether "chronics" could not be properly accommodated, either in special buildings administered in connexion with an asylum or in workhouses. The conference was unanimous as to the desirability of distinguishing between the curable and the incurable, and resolved:

That it is desirable in the interests of the ratepayer that pauper lunatics who are considered incurable should be maintained and housed in a less expensive state than those for whom there is some chance of recovery.

The question as to means to be adopted to carry out the resolution led to a long discussion. It is not intended to transfer the cost of maintenance of the lunatics from the county rate to the poor rate. The chief point in debate was not who should pay but who should provide the accommodation. The Clerk of the Chorlton Board held that it was very desirable that lunatics should be removed from workhouses altogether, if that were possible, and that special accommodation should be provided for them. It appears that it costs 9s. 1d. per week to keep a lunatic in an asylum. After discussion the following resolution was carried on a division:

That as far as possible it is desirable that Boards of Guardians should make agreement with the Asylums Board for the maintenance of harmless chronic cases, and so far as the Guardians do not make such provision the same should be made by the Asylums Board on a specially economical scale.

It was further resolved that the Asylums Board should have power to provide reception hospitals, to which all lunatics could be sent for treatment and observation before they were certified for asylum or workhouse treatment. A deputation was appointed to lay the resolutions before the Home Secretary, the Lunacy Commissioners, and the Local Government Board.

Epidemic of "Pink-eye."

During the past month there has been in the City of Manchester an epidemic of "pink-eye" amongst horses. Since the outbreak a large number of horses have fallen victims. The railway companies and big firms of carriers have suffered most.

Newcastle-upon-Tyne.

Final Examinations for Degrees.

The final examinations for degrees in medicine and surgery were concluded last week, the successful candidates receiving their degrees at a Convocation held at the Armstrong College, Newcastle-upon-Tyne, on September 29th. For the first time the clinical examinations were conducted in the Royal Victoria Infirmary. Here the candidates in medicine were welcomed by the President of the College of Medicine, who, in a few appropriate remarks, congratulated them on being the first candidates to be examined in the New Infirmary, the wards of which during the fine summer weather then prevailing looked extremely pretty. Already the work has migrated to the new building. The removal of the patients from the old infirmary, although a difficult task, was accomplished without any mishap. The new matron, Miss McCall Anderson, has taken up her duties, and already the influence of her knowledge, wide experience, and general tact is being felt in the several departments of the institution.

Convocation at Armstrong College.

The Convocation at the Armstrong College on September 29th was a marked success, the brilliance of the gowns and hoods lending brightness of colour and variety to the scene. Honorary degrees were conferred upon Lord Ravensworth, Sir Arthur Bigge, Professor Lebour, Professor Raleigh, and others. After Convocation an adjournment was made to the library, where Sir George H. Philipson, as Chairman of the Gurney Memorial Fund, invited the President of the Armstrong College (Dean Kitchin) to unveil a bust placed to the memory of the late Principal Gurney, who from 1894 to 1904 laboured unceasingly to promote the interests of the College of Science and to advance the cause of education generally.

Extension of College of Medicine.

On October 4th the Heath wing of the College of Medicine was opened by his Grace the Duke of Northumberland. The foundation stone of the main building was laid by the father of the present Duke in November, 1887. When the late Dr. George Yeoman Heath, a former President and Professor of Surgery in the college, died, he bequeathed £6,000 to the college for the erection of a residential hall and £5,000 to found and endow the Chair of Comparative Pathology. As difficulties were experienced in carrying out Professor Heath's wishes regarding the residential hall, it was decided on judges' orders that the legacy should be devoted to the structural extension of the college. Accordingly a handsome wing has been erected in which are rooms for the Students' Union, and a suite of well-equipped laboratories for physiology and bacteriology. Towards the expense of £15,000 spent on the building and its furnishings, the legacy left by Dr. Heath, with its accrued interest, has been applied. The building reflects the greatest credit upon the architects, Messrs. Dunn, Hansom, and Fenwicke, and especially upon Mr. Ellison Fenwicke, who has been an almost daily visitor during its erection. The laboratories of Professor Oliver and Professor Murray are extremely well lighted and are furnished with the latest appliances, thanks to the care and attention given to the necessary details by Messrs. Ramsbottom and Hutchins, the demonstrators in charge of these departments respectively.

Chairs of Pathology and Surgery.

With Dr. Bolam's promotion to the Chair of Pathology the Pathology class will now become a winter course instead of a summer course as heretofore. It will meet this winter for the first time under the new arrangement.

In the Chair of Surgery Professor Page will have the assistance of Mr. J. Rutherford Morison as a colleague. Mr. Morison enters upon his duties this winter.

Bristol.

Report of Medical Officer of Health.

The annual report for the year 1905 of the Medical Officer of Health has recently been issued, and, as usual, contains much interesting and valuable information. Bristol seems to be for ever extending its boundaries, 13,000 persons upon an area of 5 347 acres having been swept into the city by the most recent extension, making the population at the end of 1904 to reach 354 000 persons on 17,000 acres. This increase accounts for a great rise in the number of children attending public elementary schools, the medical inspection of which is now engaging the attention of the Education and Health Committees. At the end of 1905 66,153 children were attending schools, and a useful set of rules have been drawn up for the management of infectious and communicable diseases. During the year a municipal lodging-house was opened, providing 120 beds at a cost of over £7,000. The average weekly attendances number 392.

Ambulance Service.

The ambulance service (except for infectious cases) in Bristol is not under the management of the Corporation, and the available carriages are tabulated on one page. This is no doubt as it should be, but it does scant justice to the enormous amount of work, done at a minimum of cost, the ambulance does. It is procurable at all hours of night or day, and will compare very favourably both in efficiency and management with any such service in the country. Over 3,000 cases were carried in the ambulances in 1905. The Corporation ambulance for the removal of infectious cases is situated in Canons Marsh. The latest vaccination returns available are for 1904, and show that the percentage of successful results to births is 68.76. Bristol boasts of 245 "conscientious objectors."

Vital Statistics.

During 1905 there were 9,649 births (253 of which were returned as illegitimate), giving a birth-rate of 26.9, a slight increase on the previous year, but continuing the decrease shown since 1881. The excess of births over deaths was 4,363. The deaths amounted to 5,286, giving a general death rate of 14.74 per 1,000 living (15.58 in 1904). Of these deaths, 1,182 were children, an infant mortality-rate of 122.4, which is lower than that of 1904, but does not reach the unusually low rate of 1903 (116.3).

Infectious Diseases.

The value of intenotification of small-pox was well illustrated in May, 1905. Dr. Davies reports that in that month he received information that small-pox was abroad in the country around Bristol, and in anticipation he prepared the small-pox hospital. On May 13th a case was notified from the workhouse, another on the 15th, a third on the 25th, and a fourth on June 2nd. All these cases recovered. On June 6th another appeared, and he was traced to have slept at a lodging house with thirty-five other men. From this case 5 contact cases followed, 4 being sufficiently ill to be obliged to go into hospital. The fifth escaped, but was heard of in a public-house with the eruption well out. The means to catch the man and possible contact cases were energetic, but the man appears to have escaped and only infected two persons. The type of the disease, according to Dr. Davies, is exceptionally mild, and hence very liable to be overlooked. In all, 13 cases were notified in the year. Scarlet fever showed a decreasing prevalence, and was of a mild character. In all, 1,085 were notified, with 39 deaths, a case-mortality of 3.5. The number of cases of enteric fever notified was the lowest on record, only 76, with 13 deaths, case-mortality 17. Of diphtheria 1,021 cases were notified, with 59 deaths, the case-mortality (5 7) being the lowest yet recorded. Bacteriological examination of 6,530 specimens were made for diphtheria, and the bacillus was found in 1,396. Infantile diarrhoea caused 169 deaths, so that the death-rate from this disease was 36.0, a low rate compared with other towns. One doubtful case of typhus was notified. Deaths from measles were 180, and from whooping-cough 123. Pulmonary tuberculosis accounted for 407 deaths, thus continuing the decrease that has been observed for some years. Notification of this disease was adopted in September, 1905, and in the four months 330 cases were reported. In a table showing the occupation of these patients the boot, shoes and leather trade showed the greatest number, institution and home cases excepted. The disease was most fatal among labourers, domestic servants coming second. The report of the Waisley Sanatorium, to which 171 patients were admitted, shows that of the 45 discharged, 28 were much improved, 11 a little improved, and 6 not improved. Dr. Davies again calls attention to the small amount of accommodation the city has for infectious cases compared with other great towns, in all 202, whereas calculated on the basis of 1 for 1,000 population it should have 358. This, he states, results in a large number of persons suffering from these diseases being left at home for want of sufficient beds, thus vitiating the chances of effectual control. He advises 21 additional beds at Lower Hill and also at Clift House. The report includes others from Dr. Fletcher on Ham Green Hospital and Mr. Pauli on Lower Hill Hospital. Under the Inspector of Nuisances report is a statement concerning the slaughterhouses; it is that with 117 of these houses and only two inspectors, proper inspection is impossible, though over 32 tons of meat were condemned as unfit for food, as well as 10,000 tins of canned meat salvaged from fire but advertised for sale. The report concludes with the usual useful weather report.

CONTRACT MEDICAL PRACTICE.

Undercutting Tactics.

We have received from a medical man in the north of England two advertisements cut from local papers in respect of which an opinion is asked. One of these purports to be from a medical man who states that he is well qualified and a total abstainer, and that he seeks an appointment as a colliery club doctor at 6d. a fortnight. In the other, a young practitioner seeks a partner, who must be an abstainer, in a colliery club practice at 6d. a fortnight likewise. Our correspondent says: "What view, do you think, would the General Medical Council take in the case of any medical graduate who resorted to such tactics to obtain a club practice even on approved subscription terms, not to speak of the attempt to 'blackleg' by underselling established practitioners who are maintaining the 9d. rate?" We can only conjecture what view the General Medical Council would take of these advertisements if brought before its notice as a body, but it is safe to assume that its members as individuals would greatly regret their insertion, and the spirit, or want of proper spirit, which prompts them. The first seems a frank case of touting, and the second is probably the same thing in a different guise, for it is scarcely likely that any one really in search of a partner would advertise for one in the columns of a local paper. To attempt to obtain a colliery club appointment in this fashion would in any case be a questionable proceeding, and to do so in a neighbourhood in which it is well known that local practitioners as a body are standing out for the 9d. rate is something worse.

Under the will of the late Miss Martha Nicol Harcourt Armstrong of Malvern, Epsom College receives a bequest of £2,000. It is directed that this shall be applied to the foundation of a scholarship tenable for three years at either Oxford or Cambridge University, and that it shall be known as the Robert Armstrong Scholarship in memory of the father of the testator.

Mr. Thomas Barnes-Williams, formerly of Piccadilly, London, and Cliftonville, Margate, who died on August 8th, left £2,000 to be applied towards the prevention and treatment of cancer in any manner deemed suitable by a lady mentioned in the will.

THE REPORT OF THE MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD, 1904-5.

The following is a summary of the more interesting articles contained in this report.

Transmission of Plague in Rats.

Dr. Klein has continued his investigations of this subject, and reports some new observations on the transmission of infection in rats by way of the alimentary tract. Most investigators have found that they met with little or no success when they attempted to produce plague in rats and other susceptible animals by feeding them with plague cultures or with fresh organs of animals dead of plague. Dr. Klein, too, had repeatedly fed guinea-pigs, rats, and mice with both cultures and tissues without obtaining any positive results. It then occurred to him that the reason of failure probably was that the bacilli were destroyed by the secretion of the stomach during digestion. He suspected that if the bacillus could reach the small intestine in a living state its power of multiplication would not be interfered with, but might, on the contrary, be assisted by the alkaline reaction of its environment. In order to test this hypothesis he devised feeding experiments in which the plague bacilli were administered in a dry state along with the food, or at least were sufficiently protected to enable some of them to pass through the stomach unscathed. He employed gelatine cultures which were from two weeks to two months old, and had become dried, though they still contained active bacilli, and found that this material, either alone or when mixed with wheat or rice and then well dried, was capable of producing infection when given as food to rats, mice, and guinea-pigs. Similar results were obtained when the dose consisted of pieces of plague organs which had been mixed with wheat, rice, or flour, and then dried. A considerable percentage of the animals became infected, death resulting between the fourth and sixth day. It was found that the infection took place in the ileum at or about Peyer's glands. In this locality there was haemorrhage with great multiplication of plague bacilli; this condition was found not only in the cavity of the intestine and on the free surface of the mucous membrane but also within the villi themselves and in all parts of the intestinal wall; it also spread to the mesenteric glands, which, in turn, infected the vascular system of the other viscera with crowds of bacilli. These results, therefore, confirm Dr. Klein's hypothesis that rats and other animals can readily be infected by feeding, provided that the virus is sufficiently protected to pass through the stomach without being killed. There is clear evidence that both the intestinal and renal excreta of animals infected in this way contain numerous bacilli and hence it is obvious that in natural infection such excreta would, when mixed and dried with foodstuffs, provide a ready means of spreading the contagion. These investigations have a further significance; they suggest the possibility that human beings might contract the disease through the intestinal tract, consequent on the ingestion of food contaminated with plague material in a semidried condition. A similar suggestion, Dr. Klein points out, has previously been put forward by Dr. Simpson with regard to the origin of the septicaemic form of plague in man. Another important practical point which Dr. Klein has investigated is the degree of resistance against desiccation which the plague organism exhibits when associated under diverse conditions with various materials, such as foodstuffs, earth, and sand. He has found that the vitality of *B. pestis* in earth and in sand to which the micro-organism had been added in the form of gelatine culture remained, during the autumn months, for a long period unimpaired. Living bacilli were found to persist in the earth even after seven and a half weeks, and in the sand for over six weeks. During the summer months the duration of vitality was not so long. These observations indicate the possibility that, under natural conditions during plague seasons, plague expectoration and intestinal mucus charged with masses of *B. pestis* cast upon the earth may retain their infective properties for a dangerously long period.

The Bacteriology of Water.

Dr. Houston continues his investigations which are intended to facilitate the interpretation of the bacteriological results obtained with samples of water submitted for analysis. One of the main objects of these inquiries is to determine whether water found to contain *B. coli*, and therefore presumably contaminated with excrement, owes its contamination to a human or to some other animal source. In the first place it is important to note that in deep well waters, such as those of Tunbridge Wells, the *Bacillus coli* and other organisms resembling this bacillus are so rare that they may be regarded as "practically absent." Also in surface waters, such as Loch Ericht, a Scotch loch which is cut off practically from all sources of possible human pollution, and can only be contaminated by the excreta of birds and of lower animals, these suspicious organisms are notably scanty. In 80 per cent. of the samples taken, each sample consisting of 100 c.cm., there was a complete absence both of the typical *B. coli* and also of other coli-like microbes. But with another lake, Loch Laggan, which is fed by streams liable to pollution from manured land, and by the excreta of man as well as of birds and the lower animals, the results were less satisfactory. With samples of the same amount as before (100 c.cm.), the streams feeding the lake gave positive results to the *B. coli* test in every case, and in water taken from the lake itself the percentage of negative results was only 16.4. On the question whether bacteria derived from man can be distinguished from those attributable to the excreta of other animals, Dr. Houston's bacteriological investigations of cowdung have an important bearing. He finds that the excrement of cows contains in like proportion with human excrement the micro-organisms which are commonly regarded as suspicious in water analysis—namely, coli-like microbes and *B. enteritidis sporogenes*, and he is unable to discriminate bacteriologically between the strains of these organisms which are of human and those which are of bovine origin. He finds, however, that many of the streptococci of cowdung differ in their biological attributes from the streptococci of human faeces. In considering the possibility of bacteria found in cow's milk being due to faecal contamination, he notes that fewer of the *B. coli* of cowdung ferment cane sugar than is the case in milk, and also that many of the streptococci of cowdung differ conspicuously from the streptococci of milk.

The Specificity of Agglutinins.

Dr. Sidney Martin, F.R.S., reports experiments undertaken with the object of determining whether the agglutinins formed in the rabbit by each of certain bacteria — namely, the *Bacillus coli communis*, the typhoid bacillus, the paratyphoid bacillus, and the *Proteus vulgaris* — had any effect on each of the other micro-organisms. He finds that the agglutinin of the *Proteus vulgaris*, although very active against this micro-organism itself, has no action whatever against the typhoid bacillus, the colon bacillus, or the paratyphoid bacillus. The first-mentioned micro-organism, therefore, is widely separated from the other three, not only by its cultural and chemical characteristics but also by the agglutinin it forms in the living body. The other three bacteria show some overlapping in their agglutinating reactions. Thus, the agglutinin of the typhoid bacillus, formed after prolonged treatment of the animal, reacts slightly with the colon bacillus and with the paratyphoid bacillus. In most cases, however, the reactions are incomplete. The agglutinin of the colon bacillus reacted very slightly with the typhoid bacillus and not at all with the paratyphoid bacillus. The agglutinin of the paratyphoid bacillus, on the other hand, reacted slightly with the typhoid bacillus, and perhaps more markedly, although somewhat irregularly, with the colon bacillus.

In higher dilutions this overlapping is not observed: in no case was there any overlapping in dilutions of 1 in 5,000, and very rarely in dilutions of 1 in 1,000. Taking complete reactions, a dilution of 1 in 100 was, as a rule, sufficient to distinguish between the agglutinins.

Identification of Skin Bacteria.

Dr. M. H. Gordon has endeavoured to establish a bacteriological test by means of which particles shed from the skin may be detected in air. This test is based on

the fact that although a variety of staphylococci occur on the skin there is one staphylococcus in particular which, on the application of differential physiological tests, exhibits uniform and definite characters, permitting of its ready distinction from other staphylococci. This organism occurs far more frequently than any other variety. It frequents the epidermis of the hand, cheek, scalp, and forearm "with such persistency that it may be considered characteristic thereof in much the same way that *B. coli* is characteristic of the large intestine and *Streptococcus brevis* of the mouth." Dr. Gordon believes the skin staphylococcus which he describes to be identical with the organism observed by Welch and named by him *Staphylococcus epidermidis albus*. Dr. Gordon also describes another staphylococcus which he finds particularly abundant on the skin of the scalp. The scurf staphylococcus in question possesses characters by which it can readily be differentiated from other staphylococci, and is regarded as particularly serviceable in detecting the presence of particles of scurf. Having established these facts, Dr. Gordon proceeded to examine outdoor air and indoor air with a view to determining whether his tests could be relied upon for detecting in air the presence of skin particles detached from the human body. As will be seen from the following examples, he obtained very encouraging results. On three occasions open air was examined for staphylococci characteristic of skin and of scurf. Although a total of seventeen different kinds of staphylococci were obtained, not one of them could be identified with *Staphylococcus epidermidis albus*, which is characteristic alike of skin and of scurf. On one occasion, when the air inside a barber's shop was examined during use, one of the staphylococci obtained was identified with *Staphylococcus epidermidis albus*. Again, on both of two occasions, when the air of an operating theatre was examined during use, a staphylococcus identical with *Staphylococcus epidermidis albus* was obtained therefrom; whereas control tests made on each of these occasions immediately before the theatre was used gave uniformly negative results regarding that micro-organism.

CHLOROFORMED VACCINE.

Dr. Alan Green, who discovered the chloroform process in the elimination of extraneous micro-organisms from calf vaccine, contributes some further observations on this method. In submitting lymph to the action of glycerine, as well as of chloroform, it is desirable to know at what stage in the process the glycerine can most advantageously be added. Dr. Green finds that it is best to defer the addition of glycerine to the vaccine emulsion until the work of the chloroform in removing extraneous organisms has been fully performed, and until the chloroform itself has been completely removed from the vaccine. The combined influence of chloroform and glycerine in solution in water appears to be prejudicial to the active principle of the vaccine. Dr. Green has also investigated the power of chloroform, when applied intermittently after the method of fractional sterilization, to eliminate spores from vaccine pulp to which a spore-bearing organism had been added for the purpose of the experiment. He has not been able to secure complete elimination of spores by the process in question, though their numbers have been very markedly reduced. It appears unlikely that complete elimination could be obtained in this way. A germination of spores to bacilli seems to take place after the application of chloroform; but during the continuance of its action some of these newly-born bacilli are apparently capable of developing spores, and thus the propagation of the organisms is continued, though generally in lessened numbers. These interesting scientific observations, it ought to be added, in no way affect the practical utility of the chloroform process. Were spores of a pathogenic micro-organism found in a batch of lymph, the lymph would be forthwith destroyed, irrespective of any possibility of the removal of the micro-organisms from the vaccine.

THE Mabel Webb Research Scholarship at the London School of Medicine for Women is to be awarded this month, and applications for it should reach the Secretary of the school not later than October 20th. It is for research in pathology, physiology, or chemistry, and those applying should indicate the work to which they propose to devote themselves. The scholarship may be held by an approved worker for three years, its annual value being £30.

LITERARY NOTES.

MANY of our readers will doubtless be interested to learn that Messrs. Blackwood are issuing a new edition of the works of George Eliot in ten volumes, each complete in itself. *Adam Bede* has just appeared, and a further volume will be published on the first of each successive month. An attractive feature of the edition will be the photogravure frontispieces for which Messrs. Blackwood have put under contribution some of our best known artists, such as Mr. Maurice Greiffenhagen and Mr. E. J. Sullivan.

The late Dr. J. E. Neild, of Melbourne, was for half a century a dramatic critic whose judgement was looked upon with particular respect in Australia. It is said that he "discovered" Madame Melba.

Messrs. W. Mate and Sons, of Bournemouth, will publish a work entitled *Welsh and Celtic Who's Who* at an early date. It is intended to include persons of Welsh and Celtic origin who have in any way distinguished themselves in art, science, literature, religion, business, or other sphere. In addition to brief biographies, there will be articles and other important information contributed by some of the highest authorities in the Celtic world.

The *Transactions* of the South German Laryngological Association which have lately been published under the editorship of the secretary, Dr. Felix Blumenfeld, of Wiesbaden, contain an account of the proceedings of that body during the year 1906. The scientific activity of the Association is shown by the variety of the subjects dealt with. The volume is published by A. Stuber, of Würzburg.

From the same publishing house has recently issued the second part of vol. vi of *Beiträge zur Klinik der Tuberkulose*. It contains reports by Aschoff and Benecke of experimental researches on soot inhalation in animals; a paper on tuberculin reaction and immunity; one by Roth-Schutz on the diagnostic value of Koch's original tuberculin; and one by Jessen on agglutination in pulmonary tuberculosis.

Golder's Hill, Hampstead, where the late Sir Spencer Wells spent his home life for many years, has an association with another member of the medical profession who won fame in a widely different sphere. The neighbourhood was celebrated by Mark Akenside, who established himself there, after "a fit of illness," in 1758, in the following lines:

> How gladly 'mid the dews of dawn
> My weary lungs thy healing gale—
> The balmy west or the fresh north—inhale.
> How gladly, while my musing footsteps rove
> Round the cool orchard or the sunny lawn,
> Awaked I stop, and look to find
> What shrub perfumed the pleasant wind,
> Or what wild songster charms the Dryads of the grove.

On the occasion of the Quatercentenary of the University of Aberdeen it may not be inappropriate to recall that not only was the Northern university founded on the model of that of Paris, but a Scottish College existed for centuries under the wing of the old Sorbonne. It was founded about 1320 by David, Bishop of Moray, who gave as bursaries the income derived from a farm at Grisy-Suimes in La Brie. The College was established in the Rue des Amandiers, now Rue Laplace, on the height of Sainte-Geneviève. In 1665 it was transferred to a new edifice built for it on the counterscarp of the ramparts of the town in the Rue des Fossés Saint-Victor, now Rue du Cardinal-Lemoine. There the College remained till the Revolution, when it was closed. Afterwards under the Consulate it was for a time joined to the Irish College. The house still stands, and bears but slight marks of decay's effacing fingers. It is now occupied by a boarding school. On one side which faces the Rue Clovis, the inscription "Collège des Ecossais" is still legible. The chapel, which is in good preservation, is full of tombs, a complete account of which may be found in Guilhermy's *Inscriptions de l'ancien diocèse de Paris*. Among the antiquarian treasures is an urn which is said once to have contained the brain of James II.

We learn from the Aberdeen papers that Dr. A Marshall Mackenzie, the architect of the new Marischal College, has published for presentation to his friends a collection of sonnets on the new buildings, written by his brother, Sheriff Mackenzie, Kilmarnock, after a recent visit to

Aberdeen. On the front cover is an admirable drawing of the Mitchell Tower, from the pencil of the architect, and facing each sonnet is a beautifully reproduced photographic view of the buildings. There are five sonnets in praise of Marischal College as a temple of learning and truth. The last of them runs as follows:

"White as the foam of northern seas, and strong
As nothern hearts are strong—On happy shrine
Of learning, and of Science, and of Song,
Reverence and Peace, and high Renown be thine.
Here raised to guard and crown a trust divine.
Not builded for the glory of a day.
Lo, through long years thy pinnacles shall shine
While sects and systems vanish—'Let them say'—
Lifted above the clamorous city street,
Up to the pure and sweet Auroral sky,
Like some great cliff about whose giant feet
The thundering surges leap, and roar, and die.
There, in mid-heaven, within thy silver spire,
The Muses with the Graces tend the sacred fire."

CORRESPONDENCE.

"THE BITTER CRY OF THE 'RUINED DOCTOR.'"

Sir,—This bitter cry is likely to continue to go up so long as the "ruined doctor" looks for the chief cause of his "ruin" in every direction but the right one. It is true that we are still paying for the war, just as it is true that our national methods of taxation take the wealth from the worker to give it to the waster. These things, of course, affect the doctor seriously, but they are not his chief source of trouble. "Hospital abuse" (much exaggerated) is not new. Unqualified prescribing probably vexed Hippocrates. We must look elsewhere for the cause of this increasing evil. It is this:

Whilst mortality and morbidity are continually decreasing, the overcrowding of the profession is continually increasing, because the requirements in general education (as compared with those of other callings) are continually being lowered, so as to keep up an excessive supply by cheapening production; moreover, from overcrowding has come underselling.

It may, indeed, be claimed that we may still regard our general education standard with pardonable pride, since we can boast an equality with the pharmaceutical chemist and the veterinary surgeon; and to the mind with democratic leanings the prospect of a future in which our culture will be that of the chimney sweep and the dustman may be positively alluring. But I would commend the facts just mentioned to the utterer of the "bitter cry." If he stops wailing in the market-place and gives his mind to the matter, much may be done; but, if not, he may rest assured that neither revival in trade nor recovery from the war will avert what he foresees. It is a question of arithmetic.—I am, etc.,

Exeter, Oct. 1st. W. Gordon.

"A SIDELIGHT ON MEDICAL EDUCATION."

Sir,—I beg to differ from the opinions of Dr. Foster expressed in the British Medical Journal of September 29th, in respect to the success of the London diplomates. Surely the opinions of Scottish examiners on medical matters do not differ materially from those of the eminent examiners appointed by Government to hold the competitive examinations for the public services. Probably the success of London graduates and Licentiates of Medicine of the Royal College of Physicians of London and Members of the Royal College of Surgeons of England in these examinations is due to the fact that they are accustomed to be examined for their diplomas and degrees by persons who are not their teachers, whereas the examinations for the Scottish medical degrees are conducted by persons who perform the double function of teachers and examiners.—I am, etc.,

Derby, Oct. 1st. F. W. Collingwood.

THE PRESENT POSITION OF PROSTATIC SURGERY.

Sir,—Absence on my holiday has prevented my noticing before now a paper published by Professor Nicoll of Glasgow in the British Medical Journal of August 11th, entitled The Present Position of Prostatic Surgery. That paper is mainly an amplified edition of two letters from his pen which appeared in the issues of the Journal of August 24th and September 14th, 1901, during the controversy that ensued on the publication of my first lecture on my operation of Total Extirpation of the Prostate for Radical Cure of Enlargement of that Organ, in the Journal of July 24th, 1901. Professor Nicoll now complains that I made no reply to those letters, nor to a private communication which he addressed to me. No such private communication was received by me, and the former were dealt with, along with others of a similar character, in my letters published at the time (vide British Medical Journal, August 3rd and 17th and September 7th, 1901). I do not consider that I am called on to notice individually communications which appear from time to time in the medical journals, reiterating statements that have already been dealt with by me. Professor Nicoll will find his claims and those of Robson, Fuller, Guiteras, and others fully dealt with in the new edition of my work on the prostate[1] just published.

My present object in writing is to call attention to the extraordinary production at this late date, in his recent paper, of illustrations of two prostates (Figs. 3 and 11), which have all the appearance of being enucleated entire, alleged to have been removed by him in the year 1900. I would ask the reader who is interested in this subject to refer back to Professor Nicoll's letters already referred to, published in 1901, which are accompanied by two illustrations of prostates removed by him, but which bear not the slightest resemblance to entire prostates. Indeed, one of them might be a photograph of chopped-up meat or cheese. The question I would ask is this: If the prostates which he now figures were then in his possession, how is it that he did not produce illustrations of them at the time? How is it that he passed them over in favour of the mangled pieces of tissue then depicted? The guests at the marriage of Cana of Galilee cannot have been more astonished at the reservation of the best wine till last than I imagine must be the reader at Professor Nicoll's reticence to produce these illustrations till a period of five years has elapsed since I published to the profession at large my method of enucleating the prostate entire in its capsule. The age of miracles has gone by: but possibly Professor Nicoll may ascertain that by some occult influence or error the jars of 1900 were replenished by specimens of a later date.—I am, etc.,

London, W., Sept. 24th. P. J. Freyer.

RELATIVITY IN INFECTIOUS DISEASES.

Sir,—I have to thank Dr. Campbell Stark for his letter of this week, for it gives me the opportunity of emphasizing the facts to which I previously called attention. Dr. Campbell Stark speaks of these facts being capable of a more probable explanation than "that of a theory of the metamorphosis of specific infections." But there was no question of theory. The metamorphosis actually took place. Scarlet-fever patients infected their friends with diphtheria, and diphtheria patients in their turn infected their friends with scarlet fever. And, again, Dr. Campbell Stark says that "the very obvious truism of the clinical picture *presented by any disease*" (the italics are mine) being the "resultant of the pathological and physiological factors at work is no argument in favour of the transformation of scarlatina into diphtheria or vice versa." That "very obvious truism," I agree, is no argument one way or another, because established facts do not require argument, and I started from the established fact that scarlatina in one patient had been transformed into diphtheria in another, and diphtheria in one patient into scarlatina in another. The very obvious truism that Nelson was a great naval hero is no argument for or against the fact that his column stands in Trafalgar Square, though his great military qualities may be called in to explain how that fact came about. The important statistics in the report on the frequency of the metamorphoses of these diseases seemed to me to lend striking emphasis to the neglect accorded to the very obvious truism that it is not diseases that present clinical pictures, but patients.—I am, etc.,

London, W.C., Sept. 29th. Hubert E. J. Biss.

[1] *Enlargement of the Prostate.* Third edition. Baillière, Tindall, and Cox.

THE VALUE OF CALCIUM IODIDE AND CALCIUM CHLORIDE IN THE TREATMENT OF ULCERS.

SIR,—*Re* the value of calcium iodide in the treatment of ulcers, will you kindly allow me to state for the benefit of your correspondent, Dr. Benjamin, and of others who have written me directly, that the general treatment I adopted was rest in bed, nourishing food (especially milk and eggs), and calcium iodide in doses of 2 to 3 gr. thrice daily?

The local treatment consisted simply of boracic ointment. It is very essential that the extra pure form of the drug be used. The less pure forms are coloured, and smell more or less strongly of iodine, which renders the drug unpleasant to take and irritable to the stomach.

It is advisable to give the drug in plenty of water, by which means headache and skin irritation are avoided. Too large a dose causes an oppressiveness over the chest. The calcium iodide can be used to advantage in every case where the potassium salt is used; one should remember, however, that it is incompatible with alkalies except liq. ammoniae. As a smaller dose is effectual the drug is cheaper than potassium iodide, a fact which is of consideration to those who dispense their own medicines.—I am, etc.,

G. ARBOUR STEPHENS, M.D.Lond.

Swansea, Sept. 30th.

OBITUARY.

WILLIAM SPENCER WATSON,

F.R.C.S.Eng., M.B.Lond.

MR. SPENCER WATSON, of Chepstow Place, W., who died on September 17th, at the age of 70, was the son of the late Dr. John Watson, who formerly practised for over fifty years in Bloomsbury.

His student career was passed at King's College, where he obtained the Warneford Entrance Scholarship, and later the Senior Warneford Scholarship in Medicine. He was elected an Associate of King's College in 1857, and admitted a Member of the Royal College of Surgeons in the same year. He took the M.B.Lond. (Honours) in 1860, and the F.R.C.S.Eng. in 1862.

Mr. Spencer Watson was for many years Surgeon to the Throat Department at the Great Northern Hospital, Surgeon to the Central London Ophthalmic Hospital and to the Royal Eye Hospital. He was the author of *Diseases of the Nose and its Accessory Cavities*, which passed through two editions, and was for many years a standard work; also of *Anatomy and Diseases of the Lachrymal Passsages*, *Abscess and Tumours of the Orbit*, *Keratitis*, and of numerous contributions to the journals and *Transactions* of the Societies.

He was a Fellow, and formerly on the Council, of the Royal Medical and Chirurgical, Medical and Ophthalmological Societies, and until a few years ago was in active consulting practice in Henrietta Street, retiring owing to failing health. An operation for cataract resulted in total blindness, and for the last few years he had almost been a complete invalid.

He was a member of the Court of the Sadlers' Company and a Past Worshipful Master, and until quite recently a regular attendant at the Court, where he delighted to meet his fellow-liverymen, despite his infirmity of sight.

HENRY TWEEDY, M.D.Glas., M.R.C.P.I.,

Dublin.

As already announced in the BRITISH MEDICAL JOURNAL, Dr. Henry Tweedy, the oldest practitioner in Ireland, recently died at his residence, Rutland Square, Dublin. He was born 96 years ago, and spent the greater part of his active professional life in the Irish metropolis. Seventy years since he became a member of the English College of Surgeons, two years later he obtained the M.D. of Glasgow and the Licence of the King and Queen's College of Physicians Ireland. He became medical attendant to the then Duke of Manchester, and continued in this position for some time. In Dublin he soon became known as a man of much activity in philanthropic and religious work, and during his long life he was always associated with every effort to improve the condition of the poor.

Dr. Tweedy did not hold any hospital appointment, but he had a very large practice, which he was able to conduct until comparatively lately, when increasing age made it necessary for him to retire from his laborious occupations. Although practically unknown by the younger members of the profession Dr. Tweedy was highly esteemed by his earlier contemporaries, who admired his most honourable character and his devotion not only to professional work but to those other admirable occupations in which he delighted. His death, which is much regretted by all who enjoyed his acquaintance, was brought about by a fall, which resulted in fracture of the neck of the femur.

Dr. Tweedy was father of Dr. H. Colpoys Tweedy, who some time ago resigned the office of Physician to Dr. Steevens's Hospital; uncle of Dr. Ernest Tweedy, the Master of the Rotunda Hospital; and father-in-law of Sir William Smyly.

THE death of Mr. THOMAS LUCAS of Cambridge occurred suddenly on September 21st, and was thus a shock to the community in the midst of which he had worked so long, as well as a source of deep regret to his many friends. It was known that recently he had not been feeling quite well, and hence had engaged assistance for his night work, but he continued to attend to day work himself and visited his patients as usual on the day preceding his death, which was the rapid result of an apoplectic seizure. Mr. Lucas had an inherited connexion with medicine and with Cambridgeshire, being the eldest son of a medical man very well known in his generation and resident in Burwell, where Thomas Lucas was born in the year 1840. His formal education in medicine he received at the Middlesex Hospital, and in 1863 he became M.R.C.S.Eng. and L.S.A. His permanent connexion with Cambridge itself began a few years later, when he purchased a practice in the town, which grew greatly in his hands, and brought him into contact with all classes of University society. An energetic and able man, he was justly reputed among his very numerous patients to combine long practical experience with full knowledge of modern scientific advances and a pleasant vein of true geniality of character. It was open to him to play a part in local public affairs, but outside professional matters his interests were of the outdoor type; well known with the hounds in his younger days, he later on had a good deal to do with University polo, and for a long time acted as judge at University steeplechase meetings. Of appointments he held but two, the Visitorship under the Lunacy Acts to Licensed Houses in the borough and the Surgeoncy to the Police. The latter he had held at the time of his death well over thirty years, taking great interest both in the men whom he trained in first aid duties and in the connected work. The latter took him often into the magisterial court, where the announcement of his death led to expressions of the great regret felt by the occupants of the Bench, both officially and privately. Mr. Lucas was married and is survived by his wife, and by three brothers, all of whom are medical men.

WE regret to have to record the death of Mr. RICHARD THOMASSON, M.R.C.S., L.S.A., of Hereford, on September 24th, at the age of 77. Mr. Thomasson was a native of Lancashire, and within a few months of becoming a Member of the Royal College of Surgeons, in 1854, he began to practise in Hereford. For thirty years he was one of the surgeons to the Hereford General Infirmary. He was also on the staff of the Hereford Dispensary, Surgeon to the Post Office, and one of the Poor-law medical officers to the Hereford Union. Outside his professional work his chief interest lay in military matters, and for upwards of forty years he was Surgeon to the Shropshire Light Infantry, holding rank as Lieutenant-Colonel at the time of his death. Of late years he attended very regularly to the duties of a county magistrate, but, except for this, took little part in public affairs, though he was always a generous supporter of public institutions in the county. He leaves a widow and four daughters, his only son having died nine years ago, a few years after obtaining a medical qualification.

CAPTAIN LEWIS PATRICK FARRELL, Indian Medical Service, died at Satara, India, on September 12th, at the age of 31. He joined the department as a Lieutenant, January 29th, 1902, and was made Captain, January 29th, 1905.

MEDICO-LEGAL AND MEDICO-ETHICAL.

ALLEGATIONS OF IMPROPER TREATMENT AT THE BOLTON INFIRMARY.

A case of alleged improper treatment has been investigated at Bolton, an unusual feature being that the accusations were made by a medical man against certain of the medical staff of the Bolton Infirmary. The following is a brief statement of the facts (condensed from a detailed report which appeared in the *Bolton Chronicle* on September 15th). Three patients who had been under treatment at the infirmary came under Dr. Lissaman's care after their discharge. In the first, a case of compound dislocation of the first interphalangeal joint of the middle finger, Dr. Lissaman alleged that insufficient attempts had been made to render the wound clean and that a fracture had been overlooked. The second case was an injury to the foot following a fall of 8 ft. or 9 ft. on to the heel; it was alleged that the foot had been insufficiently examined, that a rupture of the inferior tibio-fibular ligament had been overlooked, and that adhesions had formed which should have been prevented. In the third case the important injury was a compound comminuted fracture of the right tibia and fibula; while in hospital the man fell and fractured the same tibia higher up and also sprained the interphalangeal joint of the left great toe. Dr. Lissaman alleged that the treatment of the case had been generally mismanaged, in particular that septic infection of the compound fracture should have been prevented, and that a fracture of the phalanx of the toe had not been discovered. In May last Professor G. A. Wright of Manchester conducted an investigation into these charges at the request of the Bolton Infirmary Committee and Dr. Lissaman, and his report has recently been published. He found that in none of the three cases submitted to him was there justification for the serious charge brought by Dr. Lissaman against the staff of the Infirmary. With regard to the accusations of inaccurate diagnosis Professor Wright was unable to agree with Dr. Lissaman's opinion in any of the three cases. In the first case a radiogram showed that there had been no compound fracture of the finger; in the second he found no evidence of rupture of the inferior tibio-fibular ligament, and in the third there was no fracture of the terminal phalanx of the great toe. The investigation carried out by the arbitrator was of the most thorough description, and his report leaves no kind of doubt as to the unfounded character of the charges made. In all the cases the injuries were such as to keep the patients off work for a considerable time, and the arbitrator formed the opinion that Dr. Lissaman had been led to adopt a hypercritical attitude towards the treatment in the Infirmary owing to his position as surgeon to large employers of labour. It will be a matter of considerable satisfaction to the members of the staff of the Infirmary that the charges have been so thoroughly investigated and publicly refuted; they are also to be congratulated upon the plan they adopted of referring the matters in dispute to a distinguished member of their own profession.

A DENTIST AND A DEATH CERTIFICATE.

A recent issue of *The Sheffield Independent* contains an account of an inquest held by the Deputy Coroner, at which some rather remarkable statements were made. The inquiry was into the cause of death of a child aged eight months, and the evidence given was to the following effect. The child was ill for some three or more weeks suffering from diarrhoea, and latterly also from convulsions, from which it finally died. It was treated at intervals throughout by a "Dr." Alnwick, whom from what they had heard of him from neighbours the parents seem to have believed to be a qualified and able medical man. Besides supplying powders and other medicines he visited the child on several occasions, and advised that it should be fed on arrowroot, barley water, brandy, and port wine. When the child died, application was made to him by the father for a death certificate. This was filled up in the latter's presence by "Dr." Alnwick, but bore the signature Edmund MacDonald. It ascribed the death to bronchitis and diarrhoea, and stated: "I hereby certify that I attended Ellen Millward in her last illness, and last saw her alive on September 20th, and she died on September 21st." "Dr." Alnwick was called, and after being warned, elected to give evidence. He said his name was William Williams Alnwick, that he was not a qualified medical practitioner on the *Register*, but a dental surgeon; that he was living with Dr. MacDonald, who was ill, and that he was authorized by him to fill up the certificate. So far as the witness was aware, Dr. MacDonald had never seen the child. The jury returned a verdict of death from natural causes, being definitely directed to take this course by the deputy coroner. The latter commented strongly on the irregular nature of the certificate given, but limited the jury's attention to the actual cause of death; as to that, no blame was attachable to Mr. Alnwick, and there was no evidence that the child had not been properly treated. In view of the evidence as to the diet prescribed, this dictum of the coroner seems a little curious.

No one bearing the name Edmund MacDonald is to be found in the *Medical Register*. In the *Dental Register* appears that of William Williams Alnwick, inserted as having been in practice as a dentist before July 22nd, 1878.

MEDICAL MEN AND CORONERS.

At an inquest held in Lambeth on September 26th, Mr. Troutbeck found occasion to make some remarks on the present position of medical men in relation to coroners' inquiries. The case was one in which a cabman after a heavy drinking bout died, as was shown at an autopsy conducted by Dr. Freyberger, of double pneumonia and heart failure. He had been seen before his decease by a medical man, but the latter refused to give a certificate. In his summing up, Mr. Troutbeck said the case was obviously an absurd one in which to hold an inquest, and he had no doubt that he could have given an order for interment had he been furnished with a report by the medical man in attendance. At present, however, in making his preliminary investigation, a coroner had no power to compel a medical man to give him information or to pay him for it, nor was there any legal obligation on medical men to give it; and that they should not be forced to give skilled information without payment was a reasonable view to take. The existing machinery of coroners' inquest was quite unsuited to present-day medical knowledge and present-day civilization, and alteration in the law was urgently needed. What was wanted was that the coroner should have power to order a *post-mortem* examination without holding an inquest, and to call upon a medical man who had seen the case previously to supply a report, and to pay him a fee for it.

"STARTING IN PRACTICE."

From communications which we have received we gather that certain remarks published under this heading in our issue of September 22nd have given rise to misapprehension. It was far, indeed, from our intention to express approval of such fees as 4d. for a consultation and 7s. 6d. for a midwifery case. We simply pointed out that in point of fact such fees were not uncommon in the class of practice about which we understood our correspondent to be inquiring—that is to say, one of the cheap dispensary practices professedly run for the benefit of the working classes. That is the only class of practice that could be run successfully under the conditions indicated by our correspondent, and in our reply to him we thought it right to point out that any one embarking on such an enterprise was not likely to be well received by the practitioners of the neighbourhood.

AN ADVERTISEMENT.

A correspondent sends us the following advertisement: "A Specialist can be consulted on diseases and injuries of the Eye on Friday, August 17th, between the hours of 12.30 and 3 p.m., at the shop of Mr. Cluckie, chemist, George Street, Stranraer." He wishes to know whether this is strictly correct.

*** If it can be proved that this advertisement emanates from a registered member of the profession, the case might properly be brought to the notice of the General Medical Council.

ARRANGEMENT OF PARTNERSHIP.

A. and B. are two neighbouring practitioners, and are thinking of joining in partnership. A.'s average receipts are £1,060 and B.'s £848. A. keeps a dispenser, horse, and carriage; B. dispenses himself, and hires a horse and man, using his own carriage.

*** This is properly a matter to be arranged by mutual agreement. On strict business lines, according to the facts stated, B. would have to pay A. a premium in proportion to the difference between £1,060 and £848, and this notwithstanding the difference pointed out in the expenses of the two practices. If a partnership is entered into, then all the business expenses of either partner would be paid by the firm, which would include the salary for dispenser and a certain amount of the driving expenses.

A PROBLEM OF COMPENSATION.

A. is a workman in the employ of B. S. is a medical man also in the employ of B. A. meets with an accident, and is attended by S. A. then leaves the service of B., and claims compensation. B. now asks S. to give a report of A.'s injuries. (1) Can S. give this report without A.'s permission? (2) Can S. refuse to give any report? (3) If S. gives a report can he demand a reasonable fee?

*** (1) If S. attended A. as an independent practitioner he is debarred from making a report without A.'s permission. It might be otherwise if S. were the works doctor, paid by the proprietors, and generally understood by the men to attend on behalf of the former. (2) Certainly he can refuse unless subpœnaed to give evidence in a court of law, when a report might be obligatory. (3) If S. saw the case as an independent practitioner he is entitled to charge a reasonable fee for his report.

SCHOOL BOARD MEDICAL OFFICERS AND PRACTITIONERS.

CURIOSITY.—A. is attending a school teacher for injuries to her leg, which incapacitated her for work for about ten days. B., a School Board medical officer, telephoned to A.'s house that he is going to visit the patient in his official capacity. A., on his next visit, found that B. had called in his absence, unrolled some of the bandages, pulled and twisted the limb about, and then left the bandages partly adjusted, causing great discomfort to the patient. Was B. justified in so acting, or should he have asked A. to meet him?

*** B. was not justified in doing as he did. It was his duty to give the practitioner in charge of the case every opportunity of meeting him when he made his official visit. Only on A.'s refusal to meet him would he have been justified in taking the course he did.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF CAMBRIDGE.

F. A. POTTS, B.A., of Trinity Hall, has been appointed Assistant to the Superintendent of the Museum of Zoology.

The Frank Smart Studentship in Botany has been awarded to D. Thoday, B.A., Scholar of Trinity College.

The Professorship of Botany is vacant by the death of the late Professor Marshall Ward. The election will take place on November 3rd.

Notice is given of the Mark Quested Exhibition. It is tenable by a graduate of one of the Universities of Oxford or Cambridge deserving pecuniary assistance, and is of the yearly value of £60. Each exhibition shall be awarded for a period of three years and the first appointment shall be a graduate of the University of Cambridge.

Dr. Roderick of Emmanuel College has been reappointed Demonstrator of Surgery.

J. J. Lister, M.A., St. John's College, has been reappointed Demonstrator of Comparative Anatomy.

An amended list of the First M.B., Part II, Elementary Biology has been issued containing in addition the name of R. E. Barnsley of Trinity College.

Dr. Humphry has been appointed Assessor to the Regius Professor of Physic for the ensuing year.

UNIVERSITY OF LONDON.

Opening of the University Library.

THE University Library, in which is included the Goldsmiths' Company's library of economic literature, will be opened by the Chancellor of the University on Friday afternoon, October 26th.

Advanced Lectures in Botany.

A course of six lectures on the physiology of movement in plants will be given by Mr. Francis Darwin, M.A., M.B., F.R.S., at the Chelsea Physic Garden on Fridays at 4.30 p.m., commencing on October 19th. There is no fee for the lectures. Cards of admission may be obtained on application to the Academic Registrar.

Lectures in Advanced Physiology.

A course of eight lectures on the Physical Chemistry of Colloids, with Special Reference to Immunity, will be given by Dr. J. A. Craw, in the Physiological Laboratory of the University, on Tuesdays at 5 p.m., commencing on October 16th. Dr. W. M. Baylis, F.R.S., will give a course of eight lectures on Fundamental Phenomena common to Animals and Plants, at University College on Wednesdays at 5 p.m.

A course of four lectures on Some Points in Relation to the Physiology of Muscle (Skeletal and Cardiac) will be given by Dr. F. S. Locke and Mr. O. Rosenheim, Ph.D., at King's College on Mondays, at 4.30 p.m.

Dr. A. E. Boycott will give a course of eight lectures at Guy's Hospital on the Physiology of the Blood, on Thursdays, at 4 p.m.

Inaugural Lecture by the Professor of Protozoology.

Professor E. A. Minchin will deliver his inaugural address at the University, on the Scope and Problems of Protozoology, on November 15th, at 5 p.m.

CONVOCATION.

At the meeting of Convocation to be held on Tuesday next, the 9th instant, at 5.30 p.m., at the University, the Deputy Chairman is to be elected, and Mrs. Sophia Bryant, D.Sc., has been nominated.

Election to the Senate.

Two members of the Senate will be chosen, one by the graduates in Arts, and one by the graduates in Medicine and in Surgery; for the latter appointment E. Graham Little, M.D., and Frederick Taylor, M.D., have been nominated.

The University Union.

The report of the Special Committee on the University Union will be presented, and its reception moved. The scheme adopted follows closely the lines of the unions at Oxford and Cambridge, in that the Union is a debating Union, established mainly for the benefit of the undergraduates of the University and managed by themselves. The Society, having received adequate promises of support, was instituted last July—its constitution having been already approved by Convocation—and the following officers were appointed for the first term namely: President (the Vice-Chancellor, Sir E. H. Busk). Vice-President (Dr. Mears). Secretary (Mr. B. Whitehead). Senior Treasurer (Dr. Russell Wells), Junior Treasurer (Dr. Maxwell). The Chancellor (Lord Rosebery) was unable to accept the post of President of the Union, as "in his opinion it would not be in accordance with the precedent set by the older universities were he to accept the position." Under these circumstances Sir E. H. Busk kindly undertook to fill the office of first President. Two meetings have been fixed for Friday, November 16th, and Friday, December 14th, at 8.30 p.m., in the Jehanghir Hall of the University.

UNIVERSITY OF DURHAM.

THE following candidates have been approved at the examination indicated:

Third M.B.—Second Class Honours.—C. F. M. Saint,* Elizabeth Patteson,* D. Ranken.* K. B. Allan, H. R. Crisp, H. G. Davison, H. Ferens, C. W. Greene, I. Hodgkinson, F. W. Melvin, Charlotte Purnell, F. A. Robinson, E. D. Smith, B. Taylor, J. H. Tripe, L. L. Westrope, F. Whitby.

* Second Class Honours.

ROYAL UNIVERSITY OF IRELAND.

THE following candidates have been approved at the examinations indicated:

FIRST EXAMINATION.—*H. L. Barniville,* R. H. Barter, T. Bresnau, D. Calwell, *W. K. Calwell, P. J. Campbell, *G. Cooper, J. Crowley, L. Doyle, M. J. Hackett, *M. J. Horgan, B.A., *Jane Law, B. H. C. Lynch, P. McCartan, D. J. MacClancy, S. McComb, S. A. Messinger, F. Morison, D. V. Morris, Mary A. Murphy, W. O'Brien, F. Phelan, Annie M. Y. Picken, R. S. Ross, E. Walsh, P. W. White, *F. J. Wisely, *S. J. Yeates.

SECOND EXAMINATION (*Upper Pass*).—*A. V. Craig, *R. W. G. Hingston, *D. Horgan, J. C. Houston, *J. C. Johnson, E. G. Kennedy, *E. W. Kirwan, *P. J. Lydon, *J. M. M'Cloy, *P. J. Ryan, *W. W. D. Thomson, M. Twohig, *W. O. Wilson.

Pass.—J. Anderson, W. J. Ashby, W. Boyd, F. Bradley, P. J. Cullinane, M. G. Devine, W. Dickey, W. Doolin, W. P. Dunne, B.A., F. P. Ferran, B.A., W. A. Frost, J. J. Gilmore, W. E. Graham, W. Hamilton, J. A. Hanrahan, P. Hayes, J. F. Hill, S. P. Kerrigan, J. Keyns, B.A., B. C. Letts, D. Lynch, J. McCormick, S. K. McKee, W. Magner, T. P. Magnier, G. E. A. Mitchell, T. J. S. Moffett, D. F. Murnaghan, H. Newman, J. O Flynn, J. J. O'Kelly, B.A., J. M. O'Reilly, W. Paul, D. A. Rice, T. Scanlan, W. Speedy, A. M. Thomson, E. Thorpe, J. A. L. Wilson, R. Young.

* May present themselves for further examination in honours in one or all subjects.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

REWARDS FOR DISTINGUISHED SERVICE.

THE grant to medical officers of rewards for distinguished and meritorious service is now restricted to officers on the retired list.

In consequence of the recent increase of pay of captains of the Royal Army Medical Corps and Indian Medical Service, the Government of India has decided that these officers should no longer be treated exceptionally in respect of the maximum rent recoverable from them when in occupation of Government quarters, and that they should pay the assessed rent of the building, subject to the maximum laid down for a captain.

ARMY MEDICAL ARRANGEMENTS.

THE Commander-in-Chief in India directs that the following rules as regards medical service in the Aden Brigade and Burmah Division are to come into force on October 1st, 1906:

Aden Brigade.—The Royal Army Medical Corps establishment for Aden, including the outpost of Dhthala in the hinterland, will, until further notice, consist of six officers, namely, one Lieutenant-Colonel, one Major, and four Captains. Of the two field officers, one will invariably be present for duty. These officers are in future to be taken from the Northern and Western Commands in equal proportions, and will be detailed by name from this division. Service in Aden will ordinarily be for one year, and the Royal Army Medical Corps officers for that brigade will be selected from those about to enter on their fifth or last year of Indian service. Relief will as a rule be carried out twice during the trooping season, generally in November and March, according to transport movements.

Unattached officers of the Indian Medical Service, should there be any such, will be detailed from the Western Command and serve for one year.

Assistant surgeons and hospital assistants, not attached to regiments, will be drawn from the Northern and Western Commands, in equal proportions, and serve for two years.

Burmah Division.—The Royal Army Medical Corps establishment for Burmah will, until further notice, consist of eighteen executive officers—namely, two lieutenant-colonels, five majors, and eleven captains and lieutenants. These

officers are in future to be taken from the Eastern Command and the Ninth (Secunderabad) Division in the proportion of three-fifths from the former and two-fifths from the latter area.

The General Officer commanding the Burmah Division will notify direct the division, the number of Royal Army Medical Corps officers, by rank, required for the annual relief. This intimation should reach Simla not later than July 31st in each year. On receipt of the above the Principal Medical Officer, H.M. Forces in India, will detail the officers by name for service in Burmah.

Officers of the Royal Army Medical Corps who have completed two years' service in Burmah will be eligible for hill stations in their respective command or division on return thereto.

Nursing sisters of Queen Alexandra Medical Nursing Society for India will in future be drawn from the Eastern Command as well as the Secunderabad Division, and will be detailed by name from this division. The term of service in Burmah will be two years. The establishment will remain at four as at present, and these ladies will also be eligible for hill stations on return to India.

Unattached officers of the Indian Medical Service, should there be any such, will be detailed from the Eastern Command and Secunderabad Division, their term of service being for two years.

Assistant surgeons and hospital assistants not attached to regiments will be drawn from the Eastern Command and Secunderabad Division, their term of service being for three years. Extension for this class may be permitted, if recommended by the local authorities, for a period not exceeding two years

In consequence of the foregoing changes, the establishments of the personnel in the commands and independent divisions affected will be revised accordingly.

The London Medical Exhibition.—This exhibition, the second of the series, was held at the Royal Horticultural Hall, Westminster, from October 1st to 5th. It contained over 100 stands of exhibitors of surgical instruments and appliances, drugs, foods, wines and spirits, hospital furniture, etc. Only medical men and their friends were invited, and care was taken to exclude the general public. A room for the medical visitors was provided, where light refreshments were served, and orchestral bands discoursed sweet music throughout the day. Among the exhibits to which attention may specially be drawn were those of Messrs. Duncan, Flockhart, and Co., who, in addition to their well known preparations of chloroform and ethyl chloride, showed some flexible ophthalmic capsules, which seem likely to prove very useful in ophthalmic practice for applying ointments to the eyes. Messrs. Johnson and Johnson, whose adhesive plasters are well known to surgeons, showed some "Z.O." aseptic strips which are intended to serve for the closure of wounds without the use of skin sutures, also Lister's pocket sputum cups for consumptives, antiseptic synol soap for sterilization of hands and instruments, antiseptic dressings, lint, gauze, etc. Messrs. Fairchild Brothers, of pepsine fame, showed various peptogenic preparations, pepsine in scales and in powder, zymine, and peptonizing tubes. Messrs. Parke, Davis and Co., in addition to their biological products (adrenalin, antidiphtherial serum, etc.) showed their typhoid agglutometers for making the Widal test without a microscope, which consists of a permanent suspension of dead typhoid bacilli with apparatus for making the Widal test direct from the blood of a patient. Among their pharmaceutical products this firm showed their specialities in ergot. The test applied by them to all samples of ergot they use is feeding a cock on it: unless the cock's comb turns black the ergot is not considered active enough to be employed. Messrs. Armour and Co. showed various glandular extracts in powder and tablets, including bronchial, cardin, cerebrinin, mammary, myelin, orchitic, ovarian, parotid, pituitary body, and prostate substances, red bone marrow, spleen substance, suprarenal capsules, thymus, thyroid. Among the surgical instrument makers, Messrs. Allen and Hanburys showed an operating table in German silver, similar in make to the one in a more expensive metal, which was selected by Sir F. Treves to be used for his operation on H.M. the King. Mr. W. H. Beach of Bridgenorth, Salop, showed his patent thermocautery, which is claimed to be a great improvement on Paquelin's, and also his patent ophthalmic thermocautery, made at the suggestion of Mr. Sydney Stephenson. The Equipoise Company (Ashford, Kent) exhibited a couch similar to one supplied to Her Majesty the Queen, which can be adjusted to any position by merely lifting a catch. Messrs. Back and Co. showed their diabetes whisky, warranted free from sugar, and Messrs. Gautier Frères their twenty-year old brandy.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original Articles and Letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone, unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any Circumstances be Returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the Editor of the British Medical Journal is *Aitiology, London.* The telegraphic address of the Manager of the British Medical Journal is *Articulate, London.*

Telephone (National):—
EDITOR, 2631, Gerrard. GENERAL SECRETARY AND MANAGER, 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

D. M. writes: Can any member suggest efficient treatment for warts on the sole of the foot coming out in crops? Acids and caustics have been tried without effect; also lime water internally as recommended in the Journal some time ago.

A Fellow writes: As a married man, I wish to know if there is any hospital in England where the house-surgeon may reside outside. I have heard that there is such a hospital, but cannot remember the name.

Inquirer will feel obliged if any reader can give him the address of a reliable pension in Davos Platz (as cheap as possible) to suit a medical man, of very limited means, who is suffering from pulmonary tuberculosis.

W. J. C. asks for information as to cases of paralysis of the lower limbs occurring in drivers of motor buses or other users of motors. He has been told that such cases have been reported, and knows himself of a case which might be explained as due to such a cause.

The Handling of Silver Nitrate.

T. R. A. asks: Can you or any of your readers tell me whether a continual handling of nitrate of silver in bulk, weighing out the crystals, and so on, day after day, would have any injurious effect upon a man so employed? A patient, who is so employed, has consulted me several times lately, complaining of dry, irritable, scaly eruptions on the skin, abscesses around decayed teeth, abscesses in glands, tonsillitis, and so on. He seems a fairly healthy young man and comes of a healthy stock, so that I am at a loss to account for his troubles, unless they be caused by his daily work in a large photographic supply business (wholesale).

*** There is nothing to show that nitrate of silver is the cause of the symptoms detailed above. They are more likely to be the result of the operation of some of the other chemicals used in photography. Inquiry should be directed as to the manipulation of chrome compounds.

ANSWERS.

Euclid will find what he wants in the publications of the National Health Society, 53, Berners Street, London, W.

Vivisection.—Our correspondent will do well to consult *What we Owe to Experiments on Animals* and *The Case against Antivivisection*, both by Mr. Stephen Paget. They are published by the Scientific Press, 28 and 29, Southampton Street, Strand, London, W.C. A new and revised edition of a larger work, entitled *Experiments on Animals*, by the same author, is to be issued very shortly by Messrs. Nisbet and Co.

Antitobacco.—A summary of what is known as to the action of tobacco was given by Dr. J. E. Squire in the *Practitioner* for February, 1906, p. 150 et seq. In the British Medical Journal of August 26th, 1905, p. 457, may be found the results of an inquiry as to legislation against juvenile

smokers instituted by the Scottish Antitobacco Society. Dr. Macnamara introduced a Bill providing for the prevention of juvenile smoking into the House of Commons early in the present year. It was ordered by the House to be printed on March 7th, 1906.

THE OPSONIC INDEX.

SEVERAL correspondents ask for information on this subject. They will, we think, find what they require in a paper by Dr. George W. Ross, which appeared in the BRITISH MEDICAL JOURNAL of July 7th, 1906, p. 16.

NOTES, LETTERS, Etc.

DUTY.—Our correspondent is requested to send her name and address, so that her paper on the cause and prevention of cancer may be returned to her.

DR. W. H. AXFORD (Farncombe) writes: Will you allow me to call attention to an advertisement which appears in your columns respecting St. John's House of Rest for Gentlemen at Mentone? It was founded by the late Canon Sidebotham for the reception of gentlemen, either laymen or clerics, who from overwork, previous severe illness (not tuberculous), or any other cause, need rest and refreshment in a mild climate, and whose means are such as to preclude their meeting the usual cost of a visit to the Riviera. An erroneous idea seems to have hitherto prevailed that the house was intended for clergy only; this is not so, and, indeed, several medical men have been received. The terms of admission are so low that part of the expense of maintaining the institution has to be met by subscriptions and donations. As a regular resident in Mentone, I take very great interest in the House of Rest, and as a member of its Council I have every opportunity of becoming acquainted with its working: and I can truly say that its charming situation and the great advantages it offers render it a most desirable place of abode, and its low charges make it possible for many in reduced circumstances to avail themselves of it.

PRESERVATION OF SPHYGMOGRAPHIC TRACINGS.

WITH respect to the preserving of sphygmographic tracings, "Delta" wishes to thank the author of the varnish method, which is just what he wanted.

A WARNING TO MEDICAL PRACTITIONERS.

MR. R. KIRKPATRICK (Natural History Museum) writes: A gentleman practising in Maida Vale has just informed me that a man, who passed himself off as me, called on him and obtained a small sum of money. The police have been communicated with, but a timely warning published here may save annoyance.

THE PURCHASE OF A MOTOR CAR.

WE have received a letter from Dr. E. F. Syrett, of Nayland, near Colchester, who says that, without knowing anything of Dr. Robertson's car, he would point out that any new car ought, or would, go 1,000 miles without trouble. What is wanted is the experience of men whose cars have been on the road, say, for two years, and have covered from 12,000 to 15,000 miles. Medical men who can only put down £200 expect their cars to do this mileage at a very small cost for wear and tear.

ARTIFICIAL TEETH IN INDIA.

DR. M. J. LONGINOTTO (London, W.) writes: With reference to "A Famous Dentist in Ajmer," published in the BRITISH MEDICAL JOURNAL of September 29th, p. 816, will you allow one who has been much abroad to say a few words? The dentist advertised: "The teeth made by me can be safely used by every religion." From this you infer that the teeth are "warranted to masticate without prejudice any food, etc." Let me point out that the inference is wrong. According to the religion of the Prophet of Arabia (Mahomet) no true and faithful follower of his dare touch anything made of the bone, flesh, or fur of a pig, and that is why English-made toothbrushes, warranted "best bristles," find no market in Mohammedan countries. Now, when we know 60 millions represent the Mohammedan population of India, we can easily understand that the Indian dentist was a man of business when he wanted to make it clear that the teeth he had for sale were not made of pig's bones. The same thing applies to the followers of Brahma, chronologically the first prophet in the world, whose followers dare not touch bones, flesh, or fur of the cow, bullock, or heifer; therefore the dentist wanted to assure the 210 millions of Hindus in India that the teeth were not made of bone of kine. Of course, in the West we know teeth are made of porcelain, etc., but in the East ivory, metals, rhinoceros tusk, bone, etc., are used in making artificial teeth, and as some animals are held sacred and others unholy, the dentist was anxious to turn human prejudice to his advantage. Dentistry was known in India quite a thousand years before the Christian era; for instance, in 327 B.C. Alexander the Great recognized the dead body of his enemy, Maharaja Prithviraj, on the battlefield of Hastinapur by means of three false teeth made of solid gold. We know that the population of the British Empire is 400 millions, of which India alone represents 300 millions, and unless we understand the prejudices of the three-quarters of the British Empire, our trade is not likely to spread in the East. The Germans have a bureau to study this matter, and that is why their Eastern trade is going up by leaps and bounds. It was caste prejudices that caused the great Indian mutiny in 1857. The Bengal army, with magnificent traditions to its credit, suddenly on May 10th attacked and killed all white men at Meerut, because they thought that the cartridges which were supplied to them, and which they had to open by their teeth, were greased with pig's and cow's fat. This will emphasize the importance of paying attention to the prejudices of the Oriental.

NATIONAL RECREATION.

IN an address before a recent Church Congress in the North of England, Mrs. S. A. Barnett, of Toynbee Hall, laid down some interesting propositions on the subject of recreation. A people's play, she said, was a fair test of a people's character, and the forms of recreation which a nation adopted would settle its place in history more surely than either its business or its conquests. The reasons which led people to seek for recreation were, she thought, the excitement it offered, the interest it afforded, and the memories it provided. Since this was the case, the principles which an endeavour ought to be made to establish as a guide to its choice, were, that the pleasure afforded, while affording excitement, should not depend upon it, and that its foundation should not be greed or gain, or involve a fellow creature's loss or pain. Similarly pleasure should not only give but increase capacity for enjoyment. It should call forth effort and strengthen a man's whole being and enrich his memory. If gauged by their fulfilment of these principles, many forms of recreation which were at present popular must, she thought, be condemned.

RECORDS OF CHILDREN'S WEIGHT.

A CHART for recording the weight of an infant from birth to the completion of fifty-two weeks of life which has been sent to us seems a decidedly useful thing to place in the hands of a young mother. It is of simple construction, provides space for the record of dates, of changes of food, and other important points, and has already traced upon it in red ink the normal curve of increase. The latter is said to be based chiefly upon the average of 10,000 observations by Dr. Holt of New York, and begins at 7½ lb., drops to 7 lb. at the end of the first week, and then rises steadily to 21 lb. at the end of the fifty-second week. Copies may be obtained from the publishers Messrs. W. H. Bailey and Son, 38, Oxford Street, London, W.

NUTMEG POISONING.

JAMES HAMILTON, M.D., Q.U.I. (Chelsea), writes: I was much interested in Dr. Hamond's case of nutmeg poisoning reported in the BRITISH MEDICAL JOURNAL of September 29th, and am grateful to him for having recorded it, as I find from making inquiries that nutmeg is getting as popular here as an ecbolic as lead is in the manufacturing towns—the practice having been introduced by aliens. I published a case in the *Medical Press and Circular* of December 6th, 1905, and there seems to have been considerable variation in the signs and symptoms of Dr. Hamond's case and mine, although the dose was the same, namely one large nutmeg, and both cases differ very much from the textbook accounts of nutmeg poisoning. In neither was there narcosis. In mine there was cyanosis of lips and finger nails, with flushed face and choreic spasm of lower jaw, larynx, and heart, and no nausea or vomiting. In Dr. Hamond's case there were whiteness of face, pale mucous membranes, and vomiting. In both there were restlessness, coldness of extremities, collapse, and dread of death, with giddiness. Dr. Hamond does not say whether abortion followed. In my case abortion followed about a month afterwards, although in my report I stated that the desired effect was not produced. I hope others will publish any cases they meet with.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under	£0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication; and if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Poste Restante* addressed either in initials or numbers.

An Address

ON THE

STUDY OF TROPICAL DISEASES.

DELIVERED AT THE OPENING OF THE WINTER SESSION OF THE LONDON SCHOOL OF TROPICAL MEDICINE.

By Colonel KENNETH MACLEOD, I.M.S., M.D., LL.D.,

HONORARY PHYSICIAN TO H.M. THE KING.

Nearly three years ago, on December 7th, 1903, an address was delivered in this place by Sir Patrick Manson, whom I may without impropriety designate as the Brahma and Vishnu—the creator and sustainer—of the London School of Tropical Medicine. In that address Sir Patrick Manson described the origin, progress, and prospects of the institution, and indicated its objects, achievements, and requirements. The school, which was opened on October 3rd, 1899, had then completed the fourth year of its existence. An aggregate of 355 students had undergone instruction during thirteen sessions, and evidence was produced of good work accomplished in the hospital and school, and by many of its alumni who had utilized to advantage the lessons, theoretical and practical, which they had been taught.

During the three years which have elapsed since that address was delivered the school has continued to prosper. The aggregate of students who have attended during twenty-one sessions has increased to 617. Of this number 235 belonged to the Colonial Medical Service, for whose benefit and for the benefit of the colonies in which its members were destined to serve the school was originally designed and organized, under the administration and personal initiative of that great Colonial Minister, the Right Honourable Joseph Chamberlain; 18 medical men employed by the Foreign Office, 29 officers of the Indian Medical Service, 7 of the Royal Army Medical Corps, 4 of the Royal Navy Medical Service, 1 of the Indian Civil Veterinary Department, and 33 medical officers serving under other Governments have passed through the School, making a total of 327, or 53 per cent. of the whole; 71 medical missionaries and 219 private students, or 290 non-officials (47 per cent.), have availed themselves of the opportunities of studying tropical diseases afforded by the school. The large proportion of non-official students fully confirms the wisdom of the founders of the school in extending its benefits to all medical men, and I may add women (for the aggregate includes 40 ladies), interested in tropical diseases, and mostly intending to practise in the tropics.

The demand for admission into the school has been well maintained, and the entries for the present session have been, I learn, unprecedentedly large. A specially satisfactory feature in the statistics of attendance is that the number of students taking the full course of three months is on the increase. The status of the school has been strengthened by its affiliation with the University of London and the admission of tropical medicine as a sixth alternative subject for the M.D. of that University. The school course has also been recognized as entitling students to undergo examination for the Cambridge Diploma of Tropical Medicine and Hygiene. Thirty-two students of the school have succeeded in obtaining this diploma, and one student has gained the London M.D. taking tropical medicine as the optional subject. Special arrangements have been made for instruction with reference to the examination for the London degree and Cambridge diploma. The rich experience of tropical and other diseases available in the Dreadnought Hospital has been placed at the disposal of medical graduates by the establishment of the London School of Clinical Medicine, and the services of eminent physicians and surgeons have been secured for imparting instruction in that institution.

Of the transformation which has taken place of a branch hospital into a well-equipped medical school, I have had opportunities of personal knowledge. Some twelve years ago I paid several visits to the Royal Victoria and Albert Docks Branch of the Seamen's Hospital Society. About 20 patients were accommodated in the rooms of a small building. The patients whom I saw were seamen of many nationalities, who had been admitted from vessels trading with the tropics, and suffered from diseases contracted in warm climates. The arrangements for their comfort and cure were excellent. The place was occasionally visited by medical men interested in tropical pathology; but no means of systematic instruction existed. There was a small room in which microscopic and bacteriological observations were made and demonstrations given of malarial and other parasites; but the work was necessarily limited to the clinical needs of the hospital. Recently, under the guidance of Sir Patrick Manson, I visited this institution—hospital and school—as it now exists. The hospital has been enlarged and can accommodate 50 patients. The new wards are spacious, clean, and well ventilated, fitted with every appliance, and supplied with every requisite for the treatment of the sick. The school building adjoining the hospital, with its large and well-stocked laboratory, lecture room, museum, and library, is well adapted and provided for the instruction of 40 students; and, in addition to accommodation for the staff, provides quarters for 12 students, who are thus enabled to devote the whole of their time to their studies and practical work. The arrangements are well suited to their purpose, and reflect credit on all concerned; but they are by no means complete, and the school must be looked upon as in a state of adolescence and immaturity. Effort and money are still necessary to enable it to accomplish all the good which its promoters and well-wishers desire.

It is satisfactory to know that the expenses connected with construction and organization have, through the liberality of the Seamen's Hospital Society and the public, been fully defrayed. Conspicuous in the roll of benefactors is the name of the Honourable Bomanji Dinshaw Petit, of Bombay, who contributed 100,000 rupees to the school. Mr. Petit is evidently endowed with the liberal disposition of his family. His cousin, Sir Dinshaw Manakji Petit, Bart., among other benefactions, founded a veterinary hospital in Bombay, and contributed a large sum for a similar purpose when the Bengal Veterinary College, in whose creation I was deeply interested and concerned, was established in the year 1892. It is also gratifying to learn that the London School of Tropical Medicine is free of debt and able to pay its way; but in order thoroughly to fulfil its twofold object of education and research, the school needs further extension and development. The laboratory is not large enough for present requirements, and additions are necessary for special purposes. With the exception of the Craggs Scholarship, no provision has been made for promoting and supporting research where it can most profitably be carried out, namely, in the tropics. Adequate remuneration is not given to lecturers and instructors, and the fees payable by students are high, and capable of considerable reduction.

For these and other purposes more money is wanted. Sir Patrick Manson, in the address to which I have referred, estimated that £100,000 were required to place the school on a satisfactory and permanent basis. I understand that of this sum about £40,000 have been received. The remaining £60,000 would form an endowment which would expand the operations and enhance the usefulness of the School. Surely the wealthiest city and busiest port in the world may reasonably be expected, when the want is known, to contribute handsomely to the support of an institution whose work is designed to mitigate the loss of health and life, which interferes so greatly with the industry and commerce of our tropical colonies and dependencies, and causes such a waste of time, labour, and money. The wealth of London and of England is largely drawn from the colonies and from the carrying trade connected with them; and any agency or institution, which ministers to the promotion of health and prolongation of life, and thereby cheapens production, barter, and transport, is deserving of encouragement and support. So that motives of benevolence and self-interest combine to advocate the claims of the school to such liberal endowment as to make it worthy of the city and country, and thoroughly competent to carry out those objects and operations whose aim is to benefit humanity and promote civilization.

The necessity of special instruction in the diseases of

tropical countries does not require argument or proof. As these countries have their peculiar flora and fauna, of which no general teaching of botany and zoology or special study of the plants and animals of temperate regions can supply a knowledge, so there are in the tropics special manifestations and modifications of disease regarding which pathology and nosology, as taught in the medical schools of this country, afford very little information. The analogy is by no means a strained one, for the pathology of the present day is largely concerned with botany and zoology, and includes a study of vegetable and animal life. This fact has been wisely recognized in the scheme of instruction arranged in this school. Through the liberality of the colonies the subjects of protozoology and helminthology have been added to the curriculum of study—a novel and important departure which merits commendation and imitation. The study of vegetable microbes is included in that of the diseases with which they are associated; but to complete the teaching of parasitology there is one subject which ought to be sytematically developed, namely, pathological entomology. Insects, more especially blood-sucking insects, the mosquito and tsetse fly for example, have been found to fulfil an important function in the conveyance of infective disease, and the harbouring and transmission of disease germs, and knowledge on this subject imperatively claims to be imparted and extended. Recent observations indicate that leprosy is spread by insect agency, and cholera, enteric fever, and plague are very probably similarly transmitted; but on these and other cognate points additional light is required. I trust, therefore, that a pathological entomologist will in the early future be added to the staff of the school.

The trend of modern investigation and thought has forced into the forefront the fascinating subject of comparative pathology, which has followed naturally but somewhat tardily on comparative anatomy and physiology. The researches of recent years, conspicuously as regards tropical diseases, have revealed a community of suffering and a reciprocity of infection and protection between man and the lower animal creation which have invested medical science with fresh interest and endowed it with larger power. In this connexion it is pleasing to note that an agreement has been concluded between the London School of Tropical Medicine and the Royal Veterinary College, Camden Town, by which students of either institution may attend the other; and an interchange of demonstrations has been arranged. The inquiries and experiments which have made comparative pathology what it is have been beneficial to both man and beast, and are capable of becoming more so—a point which is strangely overlooked by those who from laudable but short-sighted motives decry some of the methods by which our knowledge of influences, disabling and destructive, affecting animal life is advanced. Physiologists and pathologists have been accused of callous selfishness and cruelty in subjecting the lower animals to experiment for the purpose of furthering medical science and improving medical art; but in investigating tropical diseases men have themselves in numerous instances incurred risks to health and life without hesitation. The true causation of yellow fever was discovered through the agency of volunteers who readily subjected themselves to dangerous hazards in disproving the old doctrine of infection by fomites and proving the fact of communication by mosquitos. In working out the problem of malaria human experiment has also been largely resorted to, as in the two crucial tests which were applied by members of this school. In 1900 Drs. Sambon and Low braved the perils of the Roman Campagna during the fever season, and by protecting themselves from mosquito bites escaped the maladies which prostrated the unprotected inhabitants of that malarious tract; and in the same year Patrick Thurburn Manson and George Warren contracted ague in London by allowing themselves to be bitten by mosquitos which had been fed in Rome on plasmodium infected blood. Similar risks, fatal in some instances, have been run in investigating Malta fever, cholera, and plague, and among recent medical martyrs the names of Lazear, Myers, Dutton, and Tulloch deserve special and regretful record. The study of comparative pathology is peculiarly needful in the tropics where, under a different environment, life, and conspicuously parasitic life, is more exuberant than in temperate regions, and the struggle between the higher and lower life, between the things and forces that make for development and construction and those that make for decadence and destruction, is more keen and stringent.

The facts and laws of comparative pathology lead up to the higher reaches of transcendental biology and furnish new illustrations of the law of survival of the fittest which the genius of Darwin formularized and his industry so amply exemplified and established. It is important to note, however, that in this struggle the issue depends on circumstances and conditions, and is fortunately subject to the dominance of mind. The survival is not necessarily of the higher organism. In a state of uncontrolled nature the parasite is apt to obtain the mastery, the lower life to flourish at the expense of the higher; and this is specially true of the tropics with their luxuriant vegetation and teeming animal life. There the lower life is rampant and the higher heavily handicapped in the contest. But when the earth is, according to the Divine command, subdued for the use of man, when the primaeval forest is cleared, the swamp drained, the desert irrigated, when crops serviceable to man are cultivated, and native races trained to agriculture and commerce, educated and civilized; when ignorance, poverty, and filth are diminished or abolished, the parasite is at a disadvantage, physique and health are improved, and life is prolonged.

The salutary effect of drainage, cultivation, and cleansing is well illustrated by the banishment of malarial disease from England. Epidemics of dysentery which used to rage from time to time are no longer heard of; typhus and relapsing fevers are seldom met with; plague and leprosy have receded eastward, and cholera has latterly been held at bay. In India there has also been a marked improvement in public health in consequence of undertakings such as railways, canals, waterworks, and drains, which were appreciatively referred to by the Right Honourable John Morley in his recent speech in the House of Commons. I could, did time permit, cite numerous instances of the abatement of the incidence and mortality of fevers and fluxes in Indian towns by means of sanitary reforms, particularly vaccination, the supply of pure water and improved drainage and conservancy. I see no reason why health should be worse and life shorter in tropical than in temperate latitudes, when the conditions which affect vitality and longevity are properly understood and made the subject of proper control. In a word, what is required in the tropics for healthy existence is reclamation, economic and sanitary, and these should go hand in hand. To this end the efforts of the whole community, not of medical men and sanitarians only, but of every member of the population, are required, and sanitary education should be made universal and compulsory. As a step in this direction, I am glad to learn that Sir Patrick Manson is preparing a catechism of tropical hygiene which he proposes to place in the hands of persons proceeding to the tropics, and make the subject of examination as a condition of service.

The marvellous progress which has taken place during the last quarter of a century in our knowledge of the nature and causation of disease, to which the study of tropical diseases has so materially contributed, has radically revolutionized our notions regarding pathological processes. We have been compelled to widen our view and to devote more attention to the environment. Important as is the study of the host and his environment, hardly less important is that of the parasite and its environment. It is essential now that the life-history of both should be worked out and the conditions affecting both beneficially or prejudicially. Disease is no longer looked upon as a malignant entity, but as a mode of salutary resistance to noxae; and such processes as fever and inflammation are found to be protective and curative in their purpose and effects rather than of themselves deleterious. This view proclaims the supreme importance of a study of the noxae, as well as of the disturbances of health and function to which they give rise. The matter assumes an intenser interest when we consider that there exist in the animal body materials whose office it is to destroy the noxae—to kill the microbe and antagonize the poison elaborated by it. The existence of these materials and of their power constitutes a startling instance of that adapted prevision commonly called design which pervades

nature, and whose most subtle and conspicuous manifestation is in the working of the human brain. To develop and strengthen these resistive and curative elements in the animal organization is one of the chief, if not the chief, object of medical science; and—greatest marvel of all—we are learning to use pathogenetic microorganisms for this purpose, just as in the septic tank system we are employing saprophytic microbes to hasten the return of matter which has ministered to organic life to inorganic forms, and thus to accelerate the process of decomposition, the intermediate products of which are so apt to be dangerous to health. The preparation of protective and curative vaccines and serums is engaging the attention of our most able and advanced pathologists. Even cancer, which seems to belong to the category of the infective granulomata, is being diligently experimented on from this point of view, with results which offer some promise of eventual success. The principle which underlies the great discovery of Jenner is, after the lapse of over a century, obtaining new and remarkable applications; the familiar formulae, *vis conservatrix naturae* and *vis medicatrix naturae* are undergoing incarnation, and the intuitions of our forefathers are being converted into material facts.

In offering these observations I have, I fear, been wandering among the hazy heights of generalities; but on an occasion such as the present it seems fitting to survey the field of work as a whole—its extent, condition, and capabilities—rather than examine minutely the tilth of some particular portion of it. Generalization is a delightful exercise, and speculation, or, as Tyndall phrased it, the scientific use of the imagination, is capable, when rightly and cautiously employed, of guiding and aiding inquiry. If we can find "tongues in trees, books in the running brooks, and sermons in stones," we may reasonably expect to discover philosophy in epiphytes, wisdom in worms, and, I may add, "good in everything." But the process of generalization is prone to become, when misused, both misleading and unproductive and is apt to be beguiling. It is so much easier to think out than to work out a problem. No better illustration of this has ever been furnished than in that land of ideals and shams, India. The genius of James Lumsdaine Bryden in the early sixties sought to extract pathology and etiology from arithmetical units and aggregates of units; and strange doctrines concerning pandemic waves, aërial conduction and convection and forces cosmic, telluric and climatic, became rampant. It is fair, however, to Bryden's memory to state that his chief achievement, the discovery of the great prevalence of enteric fever in the European army of India, was based on an intelligent study and interpretation of cases and *post-mortem* examinations recorded by medical officers. The *reductio ad absurdum* of Bryden's visionary views was accomplished by James MacNab Cunningham, who, with a logical Scotch mind, showed unwittingly how they led to scepticism and nihilism. But, ever since the arrival of the English in India, there have been men who investigated the diseases of the country by clinical methods. The names of Johnson, Twining, Annesley, Webb, Martin, Goodeve, Morehead, and Chevers, merit prominent remembrance in this regard. Their work possesses great value, but it was too exclusively devoted to the subject of disease, and the environment was neglected. A new era of systematic practical observation was opened by the deputation of Timothy Lewis and David Douglas Cunningham, in the year 1870, to investigate cholera by the methods which they had learned in the Army Medical School, Netley, which was an early pioneer in the special study of tropical diseases, and in which, from first to last, clinical and practical systems of study were followed. It is education of this sort that has fitted men like Bruce, Ronald Ross, Leslie, Roberts, Leishman, and Donovan, to accomplish work which has revolutionized tropical medicine, and, under the stimulating influence of Professor (now Sir) Almroth Wright's instruction, numerous observers, among whom I may specify the names of Lamb, Rogers, Liston, Douglas, Bannerman, Buchanan, Christophers, James, and Greig, are now engaged in fruitful researches in India. Lewis and Cunningham did excellent work in many directions; but the methods which have been instrumental in adding so materially to our knowledge, particularly staining, pure cultivation, and animal experimentation, did not come into full use in their time. The Government of India has now responded to the demands of modern medical science, and has resolved to establish laboratories for clinical aid and pathological research throughout India. Many of these are already in existence and active operation. The Pasteur Institute at Kasauli has been converted into a central research laboratory under the direction of Lieutenant-Colonel Semple, another disciple of Wright; the King Institute at Guindy, in Madras, under Lieutenant Christophers, is fully fitted for vaccine, bacteriological, and pathological investigations; the plague research laboratory in Bombay, organized by Haffkine, and Hankin's laboratory at Agra, are available for all kinds of inquiries, and Lingard's laboratory at Muktesar is devoted to similar studies in veterinary pathology. Other institutions of the same kind are being established, and in time every large hospital in India will no doubt have its laboratory. Laboratory work has, in short, become absolutely indispensable not only for researches but for routine hospital use. The day of vague epidemiological phantasies has departed, and in the dawn of the new day we descry the hopeful substitution of facts for formulae; and in place of the theoretical babblings of the past we may reasonably expect in the future demonstrations of things.

To those who are about to commence their studies in this school I offer hearty congratulations on the excellent opportunities they possess for fitting themselves for the responsible duties of their future career. My own experience enables me to bear thankful testimony to the priceless benefit which I derived during my twenty-six years' service in India, from the vivid pictures of tropical disease which Maclean presented to us at Netley, and the sound lessons conveyed to us in the lecture room, wards, and laboratory, regarding their prevention and treatment. Since the year 1865 our knowledge of tropical diseases and of the means by which they are most profitably investigated has undergone a startling advance. I realized this acutely, when, in 1897, I was appointed to occupy the chair of Military and Clinical Medicine, which Maclean had so ably filled; and so rapid did this advance continue to be that, during my eight years' tenure of that office, I found it necessary from term to term materially to alter my lectures—to modify, to cancel, and to add. You are fortunate in being inheritors of the great accession to our knowledge of tropical pathology and hygiene which recent years have brought. There is hardly a subject which has not undergone illumination. Malaria, cholera, plague, leprosy, yellow fever, Malta fever, filariasis, ankylostomiasis, trypanosomiasis, kala-azar—to catalogue some brilliant examples—have been investigated with diligence and success. Their special causes have been demonstrated, and important indications for their prevention and treatment supplied. But great as have been the triumphs, much work still remains to be done on these and other subjects. The more we know the more we want to know. As the circle of knowledge widens the horizon of ignorance also seems to extend. The etiology of dysentery is still very obscure, and the relation of its different forms to hepatic abscess; we are still in ignorance regarding the causation of beri-beri, sprue, dengue, epidemic dropsy, infantile biliary cirrhosis, and many of the infective granulomata; and the strange terms "ponos," "goundou," and "ainhum" require pathogenetic explanation. Why is the native of India relatively immune to the infection of enteric fever? Why do dysentery and beri-beri break out in the lunatic asylums of temperate regions while the general population remains exempt? What is the relation between hill diarrhoea and sprue, whose symptoms are almost identical; and between kala-azar and Delhi boil, which appear to be caused by the same microorganism? Why is the embryo of *Filaria nocturna* absent from the blood in elephantiasis, which appears in the great majority of cases to be caused by filarial infection? These are a few examples of problems which still await solution. This school has already sent forth many earnest and successful workers, among whom Low, Daniels, Castellani, Bentley, Wise, Balfour, and Philip Ross deserve special notice; and the inspiration and training which you will imbibe and undergo here will stimulate and qualify you to follow their footsteps. The assimilation of knowledge is very precious, but the acquisition of aptitude for increasing knowledge is much more so. But,

while discovery and invention are objects of high and laudable ambition, few are gifted with the power of productive original research, and it is very remarkable how meagre are the really permanent contributions to science of even the most gifted. Still it is open to every one to aid in some manner and measure, however humble, in the building of the temple of medicine. Permit me finally to remind you that the main purpose of your lives as practitioners of the art of medicine, as it is the prime motive and glory of your profession, is to promote the welfare of man—to prevent and cure disease, to relieve suffering and prolong life. In striving to accomplish these ends you will earn gratification and gratitude even if you fail to gain fame or fortune.

An Address
ON
UNIVERSITIES AND MEDICAL EDUCATION.

DELIVERED AT THE OPENING OF THE MEDICAL DEPARTMENT, UNIVERSITY OF LEEDS, OCTOBER 1ST, 1906.

BY

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LORD CHANCELLOR'S VISITOR IN LUNACY.

IT is exactly forty years since I was first brought into the world of the Leeds School of Medicine by your present Professor of Obstetrics, Mr. Charles Wright. It was, I well recollect, a bright October afternoon in 1866, when Mr. Wright, the son of my esteemed colleague on the staff of the West Riding Asylum, the late Dr. Wright of Wakefield, a fine specimen of a fine type—the old English physician—showed me with some pride over the then new and recently opened buildings in Park Street. Modest these buildings were, with a semi-ecclesiastical suggestiveness in their lancet windows; cramped and ridiculously inadequate they would now be considered, but they were a marked advance on the original schoolhouse in East Parade, and, taken in connexion with the new infirmary which was opened in the following year, placed the Leeds school, as regards class-room and hospital accommodation, in a position, I suppose, superior to that of any other provincial school of medicine in the kingdom at that date.

In these school buildings in Park Street in 1867 and in several subsequent years I was privileged—and you will pardon me if I am egotistic for a moment—I was privileged to deliver a course of lectures on mental diseases, as far as I know, the first course on that subject ever delivered in a provincial medical school in England, to groups of students whose intelligence, attention, and forbearance I gratefully recall. The course, in these days not obligatory, was always popular and exceedingly well attended, and that I am now inclined to attribute, not so much to my own eloquence or instructiveness, or to the intense interest felt in medical psychology, as to the fact that it was copiously illustrated by diagrams and tables—lantern slides were then unknown—prepared for me by a lunatic artist under my care who insisted on executing them in brilliant colours and in adding ornamental borders of an allegorical description. The success of the course was also perhaps in some measure due to the fact that it ended in a dance at the asylum in order to impress upon the medical mind the utility of terpsichorean exercises in the treatment of insanity.

Fifteen years after I had severed my professional connexion with the West Riding, which I did in 1876, I was invited by the teaching staff of this school to deliver an address at the opening of the session, and on October 1st, 1891, I came back here to find the school in honourable and prosperous partnership with the Yorkshire College of Science, and, as is the wont of prosperous people, removed to more commodious and better furnished quarters. Another fifteen years have sped their course, and I find myself here again, on the invitation of my medical brethren, to assist at the opening of the session of what is no longer a detached medical school or the department of a college, but a faculty of a university, which although hatched but yesterday is already fully fledged. I have been in touch, if I may so say, with the Leeds Medical School during the three great stages of its evolution: its boyhood, its adolescence, and its maturity, and as a disinterested—perhaps I should rather say as an interested—spectator I have recognized its fitness and efficiency in every stage, and congratulate it now on the ripe perfection to which it has attained. At every stage it has been a stronghold of medical and surgical science and practice, manned by men of masterly ability, whose doughty deeds stand conspicuous in the history of the healing art. To-day it commands advantages such as it never before possessed, but these, I think, consist, not so much in the superior calibre of its teaching staff (for strong and accomplished though your professoriate undoubtedly is, it would be difficult to beat the men of the past) as in its increased numbers, in the division of labour that has taken place, in the allocation of the more strictly scientific subjects to teachers exclusively engaged in them and free from the distraction of private practice, in the introduction of the tutorial system, in the creation of laboratories splendidly appointed, and in the cultural associations obtained by its incorporation in a university.

The oldest and best organized department of the new University, the Medical School, exhibits striking modern developments, but these sink into insignificance when the University of Leeds is regarded as a whole. Surveying its progress since 1874, when the first stone was laid in faith and hope, but without much cash in hand, and the Yorkshire College was started with three professors, up to its present magnitude with a Court, a Council, a Senate, four faculties, thirty-one professors, lecturers, demonstrators, and assistants *ad libitum*, and a revenue of £45,000 a year, it almost seems as if an Aladdin's lamp had been rubbed over this murky city, conjuring up a palace of learning in a night.

I have just come from the birthday celebrations of a great northern university, noble for its achievements, vigorous as ever, that has been growing for four hundred years, and to compare the University of Aberdeen with that of Leeds is to realize that the thoughts of men have been quickened as well as widened "with the process of the suns," and that we have exchanged the pack-horse and the pillion for the limited mail and the motor-car. And yet, perhaps, the contemplation of this magical creation at Leeds, and of recent expansions, too, at Aberdeen and other universities, is calculated to give us rather an exaggerated idea of our own munificence and to encourage unjustifiable self-complacency. Great liberality has been displayed, but I question whether, in proportion to our means, we have been more generous in our support of the higher education than were the benefactors of bygone days. I am not at all sure that this age of science with its colossal wealth has done more for the endowment of learning than did the ages of faith in their chill penury; indeed, I am inclined to think that we vaunt ourselves unduly both on our bountifulness and on our perspicacity in the application of the funds we subscribe—

> Not only we the latest seed of Time,
> New men, that in the flying of a wheel
> Cry down the past, not only we who prate
> Of rights and wrongs, have loved the people well.

Centuries ago gifts were given for the promotion of objects equivalent to those which modern universities hold in view, which, considering the pecuniary resources of those who gave them, should put our most open-handed modern millionaires to shame. As early as the beginning of the seventh century the Anglo-Saxon mind, as we learn from the speech which Bede has preserved for us in his account of the conversion of Edwin to Christianity, was consumed by an ardent desire to comprehend the phenomena of the universe, and ever since then it has from time to time, and under various conditions, subsidized the study both of natural science and theology. It is curious to note how what we regard as our new departures have been anticipated by our remote ancestors. Technical education would, I suppose, be reckoned essentially a nineteenth-century discovery, but I find in the delightful history of the Voyagers by Professor Raleigh of Oxford that Richard Hakluyt—Shakespeare's contemporary, to whom we owe much clear insight into the "spacious times of Great Elizabeth"—explicitly advocated it 300 years ago as the best means of maintaining and extending the trade of the country by enabling us to obtain

possession of America and to discover the North-West Passage. "For these purposes," he said, writing in 1582, "what is chiefly necessary is a good system of technical education in nautical affairs." His scheme was the establishment of a lectureship and school in London at or about Radcliffe, in some convenient place, and to that scheme Sir Francis Drake—a pioneer in sanitary reform, who anticipated the Loch Katrine and Thirlmere undertakings by bringing a supply of pure water into Plymouth, a distance of fifteen miles, at his own expense—offered to subscribe £20 per annum, no contemptible sum having regard to the value of money then. But £40 a year was needful to carry out the scheme, and, as other donors were not forthcoming, it fell through; but Hakluyt continued to urge its importance, and in doing so used just the arguments which we hear to-day advanced in support of technical education. When we are slack in that matter we are reminded of German competition and Charlottenburg, and when Hakluyt wanted to enlist support for his nautical college he reminded his countrymen that the Spaniards, their great rivals at sea, maintained at Seville a learned reader in the art of navigation, and entrusted the charge of a ship to the Indies to no one who had not attended the instruction of the reader and satisfied a board of examiners joined with him to test theoretical and practical knowledge. What he desired, in short, was a nautical university, where men might be trained and graduated in all the sciences and crafts that are necessary to furnish forth the complete navigator.

And not only was Hakluyt a pioneer in technical education, but he foreshadowed one of the most recent developments of medical education, the School of Tropical Medicine, in the establishment of one flourishing specimen of which at Liverpool, your Dean, Professor Grünbaum, has played so useful a part. Hakluyt had by him, he said, a treatise on the Curing of Hot Diseases Incident to Travellers in Long and Southern Voyages, and intended to include it in his book, but desisted because of a promise that the whole College of Physicians would confer and produce something authoritative on the diseases of hot and cold regions—a promise which the College of Physicians has been somewhat slow in fulfilling.

The remembrance of the zeal for learning of our ancestors, and of the generosity and sagacious foresight with which they fostered it, should rouse us to redoubled effort and incite us to take long views of the future. Much has been done, but much remains to do. No university can write the word "limited" after its name, least of all a university like that of Leeds, which is responsible for adapting its teaching and research in some measure to the ever-growing and changing needs of a great industrial community. All universities have had to enlarge their curriculum. No university can now stand aloof amongst dead languages or abstract speculations, or abstain from concerning itself intimately with the life around it. Man does not live by bread alone, but he cannot live without bread, and one of the most pressing questions of the hour is How are we to buy bread that our teeming millions may eat? Competition grows keener, new walls are being built up against us on every hand, and if we are to hold our own in the world we must perfect our skill in every department of production, be ready to take advantage of every new opening for our commerce that presents itself, and of every new method of utilizing energy and manipulating matter. Our success has been in the past, and must be in the future, largely due to exceptional men of originality and imaginative power—men like Newton, Dalton, Watt, Davy, Hargreaves, Arkwright, Cartwright, Young, Faraday, Stephenson, Darwin, who have forged ahead and supplied us with ideas of infinitely varied applicability. Such men cannot be made to order. They are the gift of Heaven, and no university, college, or other seminary can either make or mar them. In obscurity and under adverse circumstances, their force of intellect asserts itself, and we can only hope that the vital energy of our race is still equal to the supply of such men from time to time. But short of the exceptional men who come at incalculable intervals, there are always with us numbers of superior men, capable of becoming captains, if not generalissimos, in science and industry, whose gifts require to be evoked and trained, and will remain latent and useless if not cultivated at the proper time and with due skill; and it is to men of this class that universities and colleges give the necessary opportunities and brain mulching. No true Milton could ever have remained "mute and inglorious" at Stoke Poges or elsewhere. His afflatus would not have let him; but many a minor poet has gone silent to his grave because his lyre remained untuned. In the case of the minor poet that is, perhaps, no great matter, but in the case of a minor man of science such a sacrifice of potential energy is a calamity. We have quite recently, at the celebration of the fiftieth anniversary of the discovery of the first dye-stuff extracted from coal tar by Sir William Perkins, had our attention forcibly drawn to our loss of an industry that rightly belonged to us owing to our lack of technical knowledge and insight. The basic discoveries in connexion with coal tar industries, as Sir James Dewar has pointed out, were made in England; we had the raw material, we had the capital, we had the skilled labour, but we allowed the profitable trade in dyes, perfumes, and drugs, which is now said to be worth fifty millions per annum, to pass to Germany, simply because we had not at the time the educational machinery to carry out the experimental research necessary to enable us to take advantage of our own discoveries. We were short of investigators, of leaders, of captains of science and industry in those days, and of the true spirit of scientific enterprise, and we are still short of them; but we are awakening to a sense of our shortcomings, and universities like this of Leeds are doing a signal service in finding out and drilling and disciplining our captains of science and industry of the future. We have owed our industrial pre-eminence in the past partly to our geographical position and geological formation, to the circumambient sea, and the coal measures, but far more to the racial characteristics and superior vigour of our people, to their better feeding, better health, and practical temperament, which has enabled them to foresee difficulties, brush aside unessential details, and go straight to the point; but the conditions of the conflict have changed and are changing, and systematic and diffused science teaching bearing on the methods of manufacture is one of the measures necessary to our continued success. Science and manufacture must henceforth work together, if we are to keep abreast of our competitors, and science must be indoctrinated at an early age, for scientific habits of thought, at any rate, may be taught in our elementary schools. Then encouragement must be given to capable men to devote themselves to science as a life-work. Science and medicine open to all who adopt them as a calling an absolutely free and unimpeded career. Of course, all professions in this country theoretically do that, and we are proud of boasting that in each of them it is possible for the poorest to mount from the lowest to the highest rung of the ladder; but, as a matter of fact, in the army and navy, in the diplomatic and civil services, in the church, and at the bar, progress is still in some degree influenced by family connexion, wealth, political and party services, and it is in medicine and science alone that talent can assert itself without patronage, and without let or hindrance. But in these arenas, unfortunately, hitherto the rewards attainable by talent have not been of the highest order. A modest competency in medicine is almost the utmost that can be hoped for, while in pure science pinching or starvation has often been the rule. It is to be hoped that the awakening that is taking place as to the importance of science to continued national welfare will lead to the ampler public recognition of these professions, and to that endowment of research in our universities out of which our national industries and our national health will draw no small advantage.

Alive as I am to the urgent call for the endowment of research in our universities, and for extensive improvements in their machinery, and to the strides made by Germany in the application of science to industry, and grateful as I am to her for the splendid demonstration she has afforded of the efficiency of thorough vaccination, I do not share the wholesale admiration of everything educational in that country which one sometimes hears expressed, nor do I regard with timorous foreboding any friendly rivalry with her in which we may have to engage. I have faith in my country and my race, and believe with the Bastard in *King John* that:

> Naught shall make us rue
> If England to itself do rest but true.

But the difficulty is to persuade England in these days to be true to herself in the right sense, to perceive in what direction her true interests lie, and to employ in the promotion of these, in just apportionment, her enormous resources. England has been remiss of late in perceiving and promoting those interests that hinge on scientific and medical research. In this direction Germany has stolen a march upon us, for the various Governments in that empire have unstintedly provided their universities with fully-equipped research laboratories, organized and conducted by professorial directors. That is the secret of the recent rapid advances in Germany in medicine and technology. Initiating her students in their student days into the methods of research, and selecting her teachers, lecturers, and professors, not by competitive examinations but by proven aptitude for original work and for stimulating work in others, she has always at her command an ample supply of highly-trained men, full of scientific emulation, ready to carry on research in conjunction with teaching, and the teaching staff in all her universities is much larger in proportion to the number of students than with us. She seeks out creative power and, having found it, diligently fosters it, whereas we concentrate our efforts too much on discovering the capacity for cramming, and, having found it, for the most part leave it to look after itself.

The public neglect of medical education in this country or indifference towards it is really, when we come to think of it, astonishing. The public concernment in it is direct and immediate. Few men or women enter life or get through it or leave it without medical assistance. Huxley once asked a student at an examination, "What is the respiration and how is it brought about?" and the reply was, "The respiration is taking in air, and is brought about by doctors"—which showed a touching faith in the entire dependence of vital function on our profession. But however that may be, it is certain that many human functions in many human beings, if not originated by doctors, are kept going by them. Many lives are but a succession of ailments. At innumerable turning points in our intricate and devious journeys in these days, medical guidance is needed. In the administration of the law, medical evidence and service are daily required. Sound sanitary administration is impossible without medical co-operation. In the absence of medical aid, war would be ten times more terrible than it is. And yet little or no public interest has been shown in the means taken to provide that most important and, indeed, indispensable public asset—medical skill. The medical profession has until recently been left to educate itself with the aid given by the governors of our great hospitals, to which their medical staffs and schools have returned more than a *quid pro quo* in gratuitous services rendered. In no other of the great professions has less been done by the State or by private philanthropy to supplement the payments of those seeking to enter it. In connexion with the chief London hospitals and at Liverpool, Manchester, Birmingham, Sheffield, Newcastle, Bristol and Leeds, medical schools have been fashioned and supported mainly, in some instances exclusively, by medical men and medical students. In the old days when medical education consisted in "walking the hospital" it was comparatively simple and cheap. Now, when it covers at least five years, includes from fifteen to twenty subjects, and can only be adequately conducted in class rooms, theatres, libraries, museums, and laboratories of a costly description, it involves an expenditure which cannot be fully met by the fees which it is possible for those pursuing it to pay. If medical education in this country is to be kept at a level with that in Germany, if it is to supply the people with a body of thoroughly efficient medical practitioners, and is to lead to fruitful research and to improvement in the healing art, it must be assisted either from the State chest or by overflow from plethoric private coffers.

I have no accurate information as to the sums devoted specifically to medical education in universities in Germany, but crossing to Switzerland, a poorer country, I find that a few years ago, the University of Zurich, with 245 medical students, received an annual grant of £4 500, apart from fees, for the support of its medical department, and this was for current expenses, the building being provided and maintained by the Canton. It has been calculated that a London medical school of the best type for 500 students should have a block of buildings costing £100,000, and that the annual outlay for rents, rates, heating, lighting, instruments, apparatus, material, and for a complete staff of lecturers, demonstrators, and tutors, should come to £24,000 a year, of which £12,000 should be obtained from the students' fees and £12,000 from extraneous sources. I suppose you would be content in the meantime in Leeds if, with about 100 medical students, you could have £2,500 per annum guaranteed to your medical faculty either from the State or from endowments provided by kind and discerning friends. The interest shown of late years by Mr. Joseph Chamberlain and other men of light and leading in medical education as it affects our colonial empire, the representations of Lord Kitchener as to the by no means unavoidable ravages of plague, cholera, enteric fever, small-pox, and malaria in India, and the warnings of Mr. Brodrick as to the dangers of neglecting military sanitation, justify the hope that the Government will recognize its responsibility to see that we are well prepared by a liberal system of medical education to support this grievous part of the white man's burden.

It is in research work in medicine that Germany is pushing ahead and in which we must endeavour to overtake her; and that, if given the chance, we shall overtake her can scarcely be questioned, for with all the advantages she has enjoyed up till now, we have no cause to shrink from comparison with her in medical science. Great have been the contributions of Germany to medicine and surgery, but those of England have been greater still; and while at this moment the young medical men she is sending forth from her universities have perhaps theoretical attainments higher than those who leave our medical schools, they are not better practically prepared for their professional work. As a clinician, our young English practitioner is, I am inclined to think, quite equal to, if not superior to, any Continental compeer. To allege, as has been done, that confidence in English medicine is on the wane because there is an increased number of foreign medical men in our big cities, and because a number of sick or semi-sick English people rush abroad to consult some specialist whose name they cannot pronounce and with whom, owing to linguistic difficulties, their communications must often be far from explicit, is sheer nonsense and Little Englandism. We have in our midst physicians, surgeons and specialists of all sorts of unsurpassed ability and expertness, and if the University of Leeds and kindred institutions do their duty, the supply will not fall off. After all, it is the competent clinician that is the main thing. The researchers must always be comparatively few in number. We cannot all be Lawrans or Pasteurs or Kochs, but there is not one of you who may not, by profiting by the instructions here given, become the sure messenger of hope and healing in many a stricken home, and by your skill and science assuage the sufferings of your fellow-men.

But a university is something more than a medical school, a workshop of research, or a home of science. It must have loftier aims than material advancement or commercial prosperity. It cannot subsist on agriculture or content itself with instructing in the leather, tinctorial or textile industries, in civil, electrical or mining engineering, or even in these *plus* the sciences—physical, chemical, biological and medical. To be truly a university it must be universal, and include besides all these, the study of letters, history, art, law and philosophy. It must provide for culture in its widest sense, afford intellectual guidance, encourage individuality, take cognizance of the theoretical problems that arise in the progress of civilization, be a storehouse of knowledge and a gymnasium for the exercise of all the powers of the mind. And to be truly a university it must be an organism, and not a mere conglomeration of parts. It must be unified in its government, co-ordinated in its action, warmed throughout by the sanguine currents of good fellowship, and animated by an active interchange of influence between its constituent members.

Asked what Oxford could do for its students, Jowett is said to have replied, "Oxford can teach an English gentleman to be an English gentleman"; and that is just what every English university should do, for talent, learning, scientific attainments, technical skill, are never fully effective unless united with the breadth of view, sincerity, courtesy, character, behaviour, that go to make up that inimitable compound, an English gentleman. It is the

drawback to bodies of men and women, cut off geographically from free intercourse with the world, or insulated by their pursuits from general society, that they tend to become narrow in outlook and prejudiced in opinion, to develop angularities of manner and expression, and it is part of the mission of a university, by the attrition of different classes, to rub off these angularities, and by an uplifting of the intellect, to surmount obstructions and enlarge the horizon. The youth entering a university is translated from the home circle with its bent and the school with its bias into a broader sphere and has to accommodate himself to many bents and biases of which he had not before conceived, acquiring in the process independence of judgement, tolerance and flexibility of mind, and polish of manner. The one great objection to the multiplication of universities is that they might tend to become local seminaries, somewhat parochial in spirit, and fed exclusively from one district; for it would be a misfortune to a boy to pass from a secondary school to a university in the next street, where he would meet as his fellow-students only his old schoolfellows, and where, however amply fed with knowledge, he would still be surrounded by the same traditions and associations and shop amongst which he had been brought up. A provincial university is a contradiction in terms. What we want is a group of territorial universities, each with distinctive features of its own, specially adapting it to its environment, but all affording the most liberal instruction, the finest culture, the best intellectual discipline of the day, and collectively meeting the higher educational needs of the whole country. And it is a territorial university of the right kind that you have got in Leeds. It is free from any taint of provincialism, for it serves a district with a population as large as a small kingdom, and where active movement is going on in every department of human affairs; it draws its alumni from all quarters of the globe, even, I see, from China, Siam, and Madagascar, and has a teaching staff of men trained and tinctured in many different schools. It adapts itself to the industrial requirements of the community in the midst of which it has been reared, requirements so numerous and varied as to constitute in themselves a *studium generale*, explaining their methods, improving their processes and shedding on them the ever-brightening light of science. And at the same time it is following out the wise advice given by the Duke of Devonshire at the inauguration ceremony, and does not allow its training to become of too exclusively utilitarian a character, bearing in mind that men and women are best prepared even for industrial pursuits by a sound general education, and should not at too early a period specialize in any one direction.

The dominating idea in this University must be science and not compulsory Greek. It is science that is most closely related to its local aims and object, and it is science that will in these days in any university provide for the largest number the mental exercise at once most bracing and most capable of being turned to profitable account. But let there be no depreciation of the other subjects taught. The standards of the market place and counting house must never be allowed to derogate from the dignity of a liberal education. Incontestable and immense is the value of science teaching, but the advocacy of it may be carried a little too far. There are other kinds of culture besides the scientific, and it would be a sad day for this country, should such a day ever come, when literary and aesthetic culture are completely sacrificed or subordinated to science. Minds are very differently constituted, and some will find sustenance in languages and history that would starve on mathematics and physics. Unremunerative studies may finally bring the best rewards. Then such is the interpenetration of all branches of knowledge in these days, that it is impossible to attain proficiency in one without being in some degree leavened with all. David Hume said—and his words are specially noteworthy in Leeds—that a web of cloth cannot be woven to perfection in a country which is ignorant of astronomy or in which metaphysics are neglected, and following on his line of thought I would say that it is impossible for medical science and practice to attain their highest and best in a country where philosophy is ignored.

I count you medical students of Leeds fortunate in being members of a university in which you have to rub shoulders in your societies, in friendly intercourse, and in the art classes—which I hope an increased number of medical students will attend, as a preliminary to medical study—with men who are thinking in grooves different to yours, and who will keep alive your interests in subjects beyond the professional pale, and perhaps in some measure counteract the inevitably materialistic tendency of your own studies. For the tendency of medical study is now beyond that of other studies materialistic. The intense concentration of attention on somatic structure and on the minutiae of tissue changes is apt to make the student lose sight of the significance of the organism as a whole, and the teaching imparted in medical classes is sometimes frankly materialistic, indeed in some quarters the adoption of the materialistic standpoint has almost come to be regarded as a test of physiological competency. If the undevout astronomer is mad, the unmaterialistic physiologist is an idiot.

The aim of many modern physiologists is to bring their science into line with other natural sciences by showing that all physiological phenomena are but complex problems of a physical and chemical nature, but in order to do this they have to deprive their science of its distinctive character; for if physiology is the sum of scientific knowledge concerning living beings, it must cease to be physiology when it denies the existence of life and reduces what have hitherto been regarded as vital functions to phenomena of inorganic nature, determining their laws and measuring their constants solely by physical and chemical methods. Too much pains cannot be expended on acquiring an exact knowledge of the physical and chemical processes that underlie life, but these are but the foundations of physiology and have a superstructure that does not admit of physical and chemical explanation. It is admitted that there are many aspects of living things which in the present state of our knowledge defy exact expression in accordance with physical and chemical conceptions; nay, it is admitted that our present knowledge of living tissues, so complicated are they, is extremely limited, and yet every little advance in physiological knowledge is made a pretext for proclaiming the final dethronement of life and the absolute dominion of brute force over vast regions of which it is incapable of taking effective possession.

Any notion of vitalism, we are told, is obstructive of progress, and as for neo-vitalism it has thriven, we are assured, on man's personal vanity. His own material existence being for him the one momentous fact—so runs the argument—he has been loth to believe that any phenomena constituting a part of that material existence could be of a purely physico-chemical type, and has gratuitously assumed as the cause of these phenomena a force, or forces, distinct from those of a physical and chemical kind, and mysteriously deflecting and controlling them. But surely there is still plenty of room for man's self-conceit. Notwithstanding all the strenuous labours of physiologists in the investigation of physical and chemical processes, the veil of mystery has not been drawn aside. The discrepancies between living and non-living phenomena have not been explained away. I suppose the most enthusiastic physico-chemical physiologist must allow that there are certain phenomena which in the nature of things, and considering the poverty of the instruments (the five senses) by means of which it is possible for us to explore the physical universe, must for ever remain inexplicable. Why, are there not simple cell processes that are still inexplicable by any physical or chemical hypothesis? Is the absorption of the products of digestion explicable by osmosis or the exudation of lymph by diffusion pressure? Do physics and chemistry help us to comprehend the conversion of the molecules of inorganic matter into living biophors? And if in these cases physics and chemistry fail us, how far short must they be of enabling us to understand the directive functions of the higher nervous system! The allegation that neo-vitalism is the offspring of human vanity is open to the retort that neo-materialism is a manifestation of man's arrogant presumption and futile attempt to grasp things that are too high for him.

The neo-vitalists have never, as is affirmed, branded further research as hopeless or called pause. They have recognized the brilliant achievements of modern physiology in its advance on the physical and chemical plane, and it is impossible to extol too highly the ingenuity, patience, and precision that are displayed in the work of our physio-

logical laboratories to-day. The neo-vitalists perceive a wide field for future exploration stretching out before physiology with promise of rich returns, but they believe that a point will be reached, and has in some directions been reached already, where physical and chemical explanations are no longer available, where forces different from these are seen in operation, and where the utmost that can be done will be to trace out parallelism between physical and chemical, and what they choose to call vital and psychical phenomena. And surely it is allowable to call vital and psychical what physics and chemistry are confessedly unequal to account for? Recent physiology, despite all the claims advanced on its behalf, has made no real impression on the vital hypothesis. It has been a beating about the bush; the Rubicon has not been crossed. It is not, as in palaeontology in relation to evolution, a matter of filling up of gaps; it is a question of frontier, and the true frontier is still intact, although the eager pioneers sometimes fancy they have wiped it out.

The conception of living phenomena of the neo-materialist is confined to physical and chemical processes, with two further aspects of these, the automatic machinery for their co-ordination and the *raison d'être* of their occurrence, which is the welfare of the organism; and the definition of his purpose thus put by himself, is self-destructive, for if animal life be but a fortuitous assemblage of blending and contending physical and chemical forces it is impossible to suppose that these could ever by mutual consent evolve a regulator that is to adjust and control their relations, or concern themselves about the welfare of the organism as a whole. It is an abuse of language to describe as an organism what is a mere temporary assemblage of physical and chemical processes, and co-ordination necessarily implies a power higher than the processes co-ordinated. The higher animals, it is asserted, are composed of various parts, linked together by automatic physical mechanisms of great delicacy, which once developed were retained and perfected in proportion as they efficiently regulated the various bodily activities, and co-ordinated them for the welfare of the whole organism. But the obvious questions suggest themselves, How came these delicate automatic physical mechanisms to be developed, and by whom or what was the work of retention and perfection and the correlative work of rejection carried on? If these mechanisms are at the top of the tree, what dominates them? *Quis custodiet ipsos custodes?* What regulates the regulator? And what about the bodily activities that are not co-ordinated for the welfare of the organism, the formation of toxins for instance, the higher intellectual operations which have no relation to the welfare of the organism as a physico-chemical apparatus, and the moral sense which, as Huxley said, reverses the cosmic process, and often operates in a manner antagonistic to the welfare of the individual organism. An organism is only an organism because its mutually dependent parts partake of a common and inherited life, and co-ordination involves a disposing and arranging intelligence. Can we imagine the gastric juice interesting itself in the welfare of the organism in its peptic performance, or entering into an agreement with the pancreas as to the sequence of the respective secretory? Can we believe that any concourse of physical and chemical processes have ever by their interaction excogitated the human body? The architectural idea must precede the building, but the materials of which the body is built up are supposed to have somehow elected the regulating power—also by hypothesis, physical and chemical in nature—which determines the balance between them and so controls growth; that is to say, the bricks and the mortar have combined to create the architect, composed of bricks and mortar, who is to pile them up in coherence, in accordance with a definite plan. And not only so, but they have elected an architect capable of carrying out, not one plan, but an elaborate and metabolical design corresponding with the different stages of life of the organism; for if there be nothing in living things but physical and chemical processes, then these must be capable of carrying out the archetypal idea inherent in every living thing through all its different phases, of adhering strictly to that in each of the infinite variety of living things, and of remaining constant to entirely divergent archetypal ideas in one environment. In the simplest forms of life, the protozoa, we have—as, for instance, in the Foraminifera—minute specks of undifferentiated protoplasm in all respects identical as regards physical and chemical properties and processes, lying side by side in the same pool, displaying a high degree of sensibility, hunting their prey, distinguishing living from dead animalculae, seeking out mates for conjugation, and producing with unerring regularity shells of entirely different patterns, some plano-spiral and some helicoidal; and in the highest forms of life we have specks of undifferentiated protoplasm performing feats still more incompatible with any physical or chemical conceptions. The nucleus of the spermatoblast—a speck of protoplasm only microscopically visible—is charged with reminiscences of the whole history of the species, and with the promise and the potency of a man or woman, or at least half a man or woman, and therefore with influences that must stretch down and spread out through future generations. We know of nothing in a dynamo or a test tube comparable to this.

Then if, as is affirmed, physical and chemical processes have combined to form automatic mechanisms of a chemical type—plants and animals—why should they not go on doing so now? They exist, as they have always existed, under infinitely varied conditions; they have free play. Why should they not go on originating living creatures? But they never do anything of the kind. The President of the British Association said in his inaugural address at York the other day: "Our greater knowledge of minute forms of life and the conditions under which they can survive, as well as our improved microscopes and methods of experiment and observation, have made an end of the argument and supposed instances of abiogenesis." If, then, something more than physical and chemical processes were necessary to start life, is it not fair to infer that something more is also necessary to maintain it?

The apostles of the neo-materialism are confident in their creed, and would have us believe that they have at last scaled the citadel of Life, penetrated to the sanctuary and demonstrated that there is no Holy of Holies, but merely a redistribution of electrolytes—a purely physico-chemical process. That the brain is the theatre of physical and chemical processes corresponding with the sensorial and motor functions is no new fact, and that these are of an electrical type has long been thought probable, but the fresh departure is the denial of anything beyond these. We are to be reduced to neural process with no mental process over-arching it. We are to believe that all changes and discharges in the brain, including those called inhibitory and corresponding with volition or will, are produced solely by centripetal impulses derived from physical and chemical changes, occurring in the external world, within the body or in the blood. Nothing takes place in the brain beyond the propagation of changes that have been brought to it, and cerebral and therefore psychical energy consists only in the occurrence in a colloidal electrolytic structure of great chemical complexity of changes identical with those that occur in the non-living world. Man is therefore simply a reflex arc—a fortuitous bundle of sensation, or rather of impressions, for all meaning has been abstracted from sensation, and words are but sounds, visions patches of colour. The self or ego is an illusion. What we have been accustomed to call the soul, is only a succession of movements in a colloidal electrolyte structure.

This new physiological doctrine viewed on the philosophical side is really the final issue of the empiricism of Locke, and, pushed to its legitimate conclusion, undermines the foundations of all moral and religious life. It was no doubt an appreciation of its tendencies uncongenial to the English national character that imposed a check on empiricism in this country even when reinforced by the scepticism of Hume. Its full development took place in France, and it is in Condillac that we find the exposition of the neo-materialism of to-day. Locke held that all our knowledge springs from experience, but he assumed two sources of this empirical knowledge—sensation and reflection or external and internal sense—but Condillac contended for the reduction of the two to one. He abolished reflection and retained only sensation. What is called reflection is to him sensation and nothing more; all mental processes, even will and the association of ideas, are in his eyes only modified sensations. He had not heard of colloidal electrolytic structures, but like our twentieth century physiologist, he derived all human faculties and all human actions from external sense. It was all crude sense nutriment: he did not even allow of

internal digestion, and on his theory it is difficult to see how man differs from the lower animals, many of whom have senses quite as acute as he.

When told that all human functions and faculties are dependent on mechanism, that protoplasm from time to time took to feeling and thinking and articulating its thoughts and jotting them down in written characters, and that man is a mere automaton, a *poupée* moved by nerve strings, twitched by outside physical forces, we are inclined to fall back on the old Scottish philosophy of common sense, on the moral instincts and healthy human understanding. He who with sympathy and discernment, has looked upon a troup of children in a playfield in their infinitely-varied activities so full of spontaneity, who has felt in his own heart the thrills of love or the pangs of grief and remorse, or who has read *Hamlet*, will scarcely believe that all these are due to mere chemico-physical changes. He will say to the neo-materialist, "I am much interested in all you tell me about the propagation of impulses in a colloidal electrolytic structure, but 'a man's a man for a' that.' I may be, as you assure me, a pure-blooded automaton, but I know that I can light my pipe when I choose."

In the recent correspondence on radium we have been solemnly warned against trusting to authority, and no doubt authority has its dangers, but so has hasty speculation, and there are authorities so commanding that their judgement carries almost more weight than a mass of evidence that needs sifting. Such an authority is Lord Kelvin, the foremost living man of science, whose deep insight and unerring perspicacity have been proved in a hundred fields, and he has spoken out clearly on the knotty point I have been submitting to you. Addressing a body of medical students, he said, "Do not imagine that by any hocus-pocus of electricity and viscous fluids you can make a living cell. You must never think of the living men, women, and children, with whom you will have to deal in your daily work, as mere laboratory chemical specimens, but as human beings. Splendid work has been done in what is called organic chemistry, a great French chemist taking the lead. The materials belonging to the general class of foodstuffs, such as sugar, and what might also be called a foodstuff, alcohol, can be made out of the chemical elements. But be not dazzled by imagining that because Berthelot and others have thus made foodstuffs they can make living things, or that there is any prospect that a process will be found in the laboratory for making a living thing, whether the minutest germ of bacteriology or anything smaller or greater. There is an absolute distinction between crystals and cells. Anything that crystallizes can be made by the chemist. Nothing approaching to the cell of a living creature has ever yet been made."

These wise words of Lord Kelvin sharply define the impassable gulf between the organic and the inorganic world, and we might even go a little further than he and maintain that these synthetic compounds, by which it is affirmed the gulf is to be bridged, are really the offspring of pre-existing life; for behind the synthesis is the synthesizer, and it is the vital intelligence and creative free will of man that has brought the elements together in proper proportions and under suitable conditions. Behind every going concern and working mechanism, like a watch, there is life that has made and started it, and winds it up, and without which it would not exist or go, and yet we are asked to believe that the most intricate and marvellous of all mechanisms, the human body, has no life either in it or behind it. Progress has largely consisted in the gradual subjugation of matter and of physical and chemical forces, by vital energy working behind the mechanism or inherent in the organism.

The crystal is differentiated from the cell not only by the fact, insisted upon by Lord Kelvin, that it can be made by the chemist, which the cell cannot be, but by its formation, by molecular attraction, and not by repetition from any previously existing crystal, by its fixity of form enclosed by a number of plane surfaces arranged according to the laws of symmetry, as opposed to the incessantly varying size, shape, and substance of a bioplastic mass of protoplasm forming the cell; by its cleavage and behaviour under polarized light of which nothing analogous is seen in the cell, by its incapability of improving by practice, which the cell is always doing, by its lack of function, which is the *raison d'être* of the cell, and above all by its want of reproductive power and of individuality. A billion billion crystals of the same kind are identical; no two living beings were ever alike. And it is, I believe, individuality that administers the *coup de grâce* to neo-materialism. The individual is always something more than the sum total of all the physiological units of which the organism is made up. It means the unification of these and the direction of these for what the neo-materialists are obliged to admit as the ultimate aim of all the chemical and physical processes of animal life, the general good of the organism. There is no consensus amongst crystals; when all the physiological units are the same we have collectivism. Whenever they begin to differentiate, individualism emerges, and in that there is a steady and gradual ascent; from the first dawning sensation in the lower animals, stage by stage until we reach the human mind, and see its spiritual powers asserting their native sovereignty and making that very matter which has hitherto restrained them the obedient minister of their designs. An individual organism is not a community but something higher and stronger than the elements of which it is composed. Something has been added and that is individuality or identity. The chemical atom is at a discount. The human atom will, I believe, ever remain one indivisible, unchangeable and indestructible, the central core of being, the vital node. Every material atom of our frames is consumed within a few years, but that central atom of our being is permanent. It is the rallying point of all the physical and chemical processes in the organism; it gives solidarity to all its isolated parts, it remains the same through all the changing scenes of life, and maintains morphological continuity under incessant structural mutation. It sustains the fabric, and when it is withdrawn, the fabric tumbles to pieces. Strictly speaking, there is nothing but the individual; it is a mere hypothesis that after its extinction the universe will continue to exist, and even when weariest of it, it sometimes dawns upon a man that his own individuality, worthless though it may seem, is an inevitable and indispensable part of the order of things.

John Stuart Mill was distressed at one period of his life by the reflection that the time must come when all possible musical combinations of the five tones and two semitones of the octave will be exhausted and there will be no new music in the world. As there are at least one thousand six hundred million neurons in an average brain—a brain population exceeding the population of the globe—each with a tone of its own, there need be no apprehension that we shall ever run short of new tunes in mental music. The neurons which constitute a medium for the exhibition of the psychical powers differ from each other quantitatively and qualitatively, and are capable of an infinity of rearrangements, so individuality is safe and human nature will never be called upon to repeat itself. And individuality is not confined to the neurons: it spreads to the finger-tips. Dealing with finger prints, Dr. Garson says:

> I have never seen the impression of any finger of two persons alike in all respects; there are always some points of difference when details are examined; nor have I ever seen two fingers of one person exactly alike among the many thousands I have examined.

That the doctrinal teachings of the neo materialists, apart from their demonstrable facts, should be received with caution and circumspection becomes clear in the light of the extravagances they are betrayed into when they put on, as they often do, the robe of prophecy, "dip into the future" and picture for us "the wonders that shall be." In that rôle the poets are a poor second to them. Tennyson's "airy navies grappling in the central blue" are in these days of Maxim and Santos Dumont now feasible enough; but the predictions of the oracles of the laboratory suggest a topsyturvydom worthy of *Alice in Wonderland*. Metchnikoff, to whose brilliant research work we are so much indebted, convinced that the large intestine in man is not only useless but harmful, being a den of ill-disposed bacteria that multiply at the rate of 128,000,000,000,000 a day, gives reign to his impetuous Slav imagination, and foresees the time when the whole of it—caecum, appendix, colon, sigmoid flexure, and rectum—will, as a matter of routine, be removed by operative procedure from every infant, a bit of abdominal surgery not yet attempted even in Leeds,

where abdominal surgery has touched its apogee. Snyder, having satisfied himself that life is a series of fermentations, and founding his belief on Emmerling's discovery that one ferment will undo the work of another, looks forward to the time when the whole of the processes of life may be reversed, when the organized fabric it has reared may be taken down piece by piece, the separate parts being made to shrink, coalesce, decrease until nothing remains but a formless jelly-like stuff, and this reversibility of life, which may be carried to any stage in its development, involves the abolition of death and old age, the recovery of youth, when that is desired and supplies an affirmative answer to Nicodemus's question, "Can a man be born again when he is old, can he enter a second time into his mother's womb?" But even that will become unnecessary, for the synthetic chemistry which is, we are told by Berthelot himself, "more powerful, more varied, more ingenious than Nature herself," which by putting together the elements has given us benzine and sugar, and scores of anaesthetics and anodynes and other compounds, cannot be stayed on its conquering career, and the time will surely come when we shall have little Melchisedeks without father or mother manufactured in the laboratory from proteid derivatives and sent forth to order, free of course from hereditary taint, and with complete opsonic protection.

Let there be no mistake. The neo-materialists having dissipated the phantom of vitality leave us plants and animals, more or less complicated arrangements of proteid substances, responding in a very simple way to the ordinary physical forces that we see around us. They leave us the brain, a mass of glue-like substance, nine-tenths water with a little phosphorus thrown in, traversed by waves of physical forces and nothing more. They leave us man, a motor car, self-made and self-started, with no passengers and no chauffeur, moved by a series of explosions or redistributions of energy, and rushing on to inevitable destruction.

The wild speculations, for they must be called wild, of the neo-materialists—and many more such as I have adduced might be quoted—are not in accordance with the sobriety of medical philosophy as hitherto understood. True is it, it seems, that in our department "knowledge comes but wisdom lingers," but it is wisdom that is the best product of a university. Knowledge is its raw material, wisdom the finished article, and it is to be hoped that under the aegis of this University of Leeds which has sprung up in a singularly clear-headed, practical, and devout district of the country, you will acquire not only erudition, but discernment, discretion, prudence, and sagacity to protect you against the wiles of superstition on the one hand and scientific nihilism on the other. The pathway of science is littered with the remains of shattered theories. It is so easy and delectable to deduce a new scheme of the universe from a few equivocal laboratory experiments! and it is still more easy to construct a new theory of disease out of a few bacteriological observations which only an expert can check, and which admit of a dozen different interpretations. Do not, I would say, take too seriously every new serum that is announced in the newspapers, and do not believe all you hear about the phagocytes, marvellous although their ascertained performances are. Do not, above all, resign vitality to every aggressive physiologist who may demand it of you, and accept the gloomy creed that life is fermentation, and love, hope, and memory but phosphorescence on the surface of the brain.

But whatever theoretical tenets you may embrace, whatever philosophical system you may adopt, whatever doubts and difficulties may haunt you in the study, you will, when you find yourselves as medical practitioners at the bedside, become ardent vitalists. Your object and aim in your professional career will be to keep alight that mysterious spark that glows in your patient—an emanation, as it were, of that bio-activity that gives warmth and movement to the thin and fragile film of organic matter that is spread over the surface of the earth. Your object and aim will be to obviate the tendency to death, which means not a stoppage of physical and chemical processes—for these go on more briskly than ever in the cadaver—but the withdrawal of that something that held together and harmonized them and kept them in check. On the physico-chemical hypothesis death is no more than the snapping of a thread or the switching off of an electric lamp, but to you it will be a matter of supreme and poignant importance. You will carry on an incessant fight for life other than your own, and life in all its flame and flickerings will be sacred to you. You will turn with scorn from specious economic fallacies palliating a decline in the birth-rate and from plausible apologies for euthanasia. You will have none of such dangerous heresies, for your mission is to salve life, not to sink it.

And in the pursuit of that mission, in the saving of life and in obviating the tendency to death—and all diseases are included in that tendency—a vast field opens up before you. In 1904, the last year for which complete returns are available, there were 549,784 deaths in England and Wales, and of these a very considerable portion were what may be called surplus deaths or lives thrown away, deaths due to preventable causes, lives that would have been salved by a properly organized medical corps provided with suitable appliances. The death-rate was 16.2 per 1,000 living, but sanitarians have calculated that the unpreventable death-rate in this country should not exceed 10 per 1,000 living, and if that calculation be correct then the debt to nature was last year overpaid to the amount of 200,000 lives. We cannot all at once put a stop to this profuse expenditure, but we can practise progressive economy, and as the death-rate forty years ago was 23.4 there is good reason to hope that in another half-century, even if we do not quicken our pace but go on as we have been doing, we shall have reached a point at which it may be said that we are living within our means.

Unnecessary leakage is still going on in all directions. In a thoughtful leading article on some recent Reports of Medical Officers of the Local Government Board, the *Times* said just a month ago: "It would hardly be an exaggeration, judging from the experience of the past half-century in towns, to say that one-half of the mortality of rural England is preventable mortality, and that it is not prevented solely by reason of the ignorance and apathy of the members of the various authorities by whom local administration is controlled." And in towns the prodigal waste of life is still of course greater than in rural districts. With babies we are lavish. Of every 1,000 born 145 perish within the first year of life, but Dr. Hope of Liverpool has estimated that of every 1,000 born not more than 80 at the outside should succumb during the first twelve months to what might be regarded, in the most liberal sense, as unavoidable causes, so that we are gratuitously tossing into the graveyard upwards of 60,000 infants every year. Then the mothers as well as the infants are needlessly sacrificed. Upwards of 1,600 of them die every year after childbirth from puerperal septicaemia, an infective disease which would practically vanish from amongst us could untaught and dirty midwives and careless nurses be abolished, and could the observance of an antiseptic ritual, as strict as that of the hospital operating theatre, be enforced in the lying-in room. Tuberculosis, the chief cause of mortality in this country, still carries off 60,000 victims annually, but the mortality from it has fallen steadily during the last three-quarters of a century, and there are good grounds for hoping that, if the crusade now proclaimed against it be persevered in under medical direction, it will be stamped out in another forty or fifty years. One might run through the whole list of causes of death enumerated by the Registrar-General, and show that under every heading, except perhaps those of homicide and execution—and I am not sure that I should exempt even these—some reduction might be effected by timely medical precautions or by prompt and efficient medical treatment. And beyond our own shores, in all our great colonies and dependencies, vast multitudes of our fellow subjects are being cut down year by year by malaria, plague, cholera, enteric and yellow fever, a moiety of whom might be saved by medical intervention properly supported.

You have before you a wide field of operation, a campaign that will tax all your energies, and afford you unlimited opportunities of exercising your craft. You are the knights-errant of science, and go forth, not to exhibit your own prowess and generosity in spearing a dragon or rescuing a lovely woman in distress, but in obscurity and singleness of heart to engage in unremitting warfare with the cruel and implacable hosts of disease that are harrying the land, and filling it with suffering and lamentation. You go forth the missioners of hygiene, to dissipate ignorance and banish apathy, to carry on and perfect those great and pregnant measures of

preventive medicine and sanitary reform which your forerunners in your profession have originated and pushed forward with ill-requited labour. By so doing you will be curtailing your own sources of profit, for when there is less disease about there will be less demand for medical assistance, and the earnings of our profession are already scanty enough; but that thought will not take any power from your elbow. I have never seen a medical man flinch from danger, from pestilence or any other cause; and so deeply imbued are we with the passion to obviate the tendency to death, that I am sure we would all go cheerfully to the workhouse to-morrow if we could see preventable disease abolished. But, at the same time, it is desirable that the present congested state of the profession should be remedied, and that its social status should be maintained, and that will perhaps be best done by keeping out of it inefficient and undesirable persons. The portals of entrance have been narrowed and the standard of proficiency has been raised, and some of you with examinations looming ahead may think that the tests imposed are already too stringent; but you will change your minds soon after you have passed these tests, and we must look to our universities to maintain medical education at a high level and to make their degrees hall marks of genuine value. When Horace Greely, the noted American editor, advertised for an assistant, he added, "Horned cattle and university graduates need not apply," and we can understand that in the United States, where universities of various shades of excellence and of spuriousness abound, such a limitation might have significance, but with us universities are without exception held in high esteem, and more and more those of our people who are in need of medical assistance will apply for it to those who possess a university qualification.

You are entering upon your profession at a favourable and intensely interesting epoch. Never before has the progress of medical science been as rapid as in the last half century, and that further momentous discoveries are imminent the least utopian and most sober-minded of us must allow. Besides having the advantage of teaching of a vastly improved kind, you are exempt from many of the drawbacks and depressing conditions that accompanied medical study and practice in former days. The introduction to the old-fashioned dissecting room, dingy, grim, and with the charnel-house odour, was a trying ordeal to the sensitive youth, and caused some shuddering and ghastly dreams; but your modern schools of anatomy are bright and well-ventilated studios, scrupulously clean, free from nauseating odour, and decorated with sculpture showing figures in noble action, so that you may remember, while teasing out the dead and flaccid tissues, that Nature is beautiful and the human form divine. A recurring anguish in old days entered into the souls of those who witnessed surgical operations without anaesthetics, when, as Mr. Wheelhouse has told you, sights were seen in the old Leeds Infirmary which, thank Heaven! can never be seen there again. A sickening despair seized on those who, in the days before antiseptics, walked round the surgical wards and saw in bed after bed the saffron visage sodden with the deadly sweat of pyaemia. Such painful passages you are spared; and not only so, but, under the new order of things which anaesthetics and antiseptics have established, you will be able to undertake with impunity and safety operative procedures which your grandfathers would have regarded as the height of homicidal rashness. Mr. Mayo Robson, once a pupil of mine—I almost hoped he would have entered my department, but he found a better way—and Mr. Moynihan, who is still with you, have taught you that all the contents of the abdominal cavity are amenable to surgical manipulation and repair; and the remarkable address on the technique of operations on the central nervous system delivered at Toronto by Sir Victor Horsley two months ago shows that the brain is no longer, as it was at one time supposed to be, inviolate to surgical interference. It can, with due precautions, be exposed and handled without serious risk, and considerable portions of its substance may be scooped or sliced away with the cure of otherwise mortal disease. How strangely prophetic was Shakespeare when he said in *Macbeth*:

> The time has been,
> That, when the brains were out, the man would die,
> And there an end; but now, they rise again.

You will leave this university when your studies are closed with the skill and knowledge that are necessary to give you confidence in your work, and with the prestige that will help you to obtain it. And that you will all obtain work—well, all save those with a constitutional dislike to it—I do not doubt. If there are not many brilliant successes in our profession there are few bad failures, and I think I can foresee that however the death-rate may be diminished and mortal diseases circumscribed, medical guidance will be more sought for in the future than it has been in the past in many departments of the public service, and in human affairs generally. It is by no means certain that with the fall in the death-rate there has come a corresponding improvement in national health and vigour. On the contrary, we have evidence of widespread degeneration and debility, and if these are to be counteracted, medical aid must be invoked and medical advice generally and systematically applied. In one large town after another, special investigations have revealed a deplorable state of matters as regards the growth and health standard of children attending elementary schools, and as to the prevalence amongst them of defects of mind, sight, and hearing, and of various distempers, and if these evils are to be corrected and the next generation is to be given a fair start, we must not only have feeding, the beneficent effects of which have been demonstrated in this City by a philanthropic physician, Dr. William Hall, but regular medical supervision of schools and medical regulation alike of physical training and of the educational burdens imposed. More and more must medical men become family counsellors, and prescribe, not so much physic, as the course and conduct of life that will make physic unnecessary. More and more must they stand sentinels at the gateways and embrasures by which our bacterial foes make their stealthy inroads on the homes of the people. More and more must they participate in municipal, national, imperial government, and in legislation in both Houses, and help to the solution of many social problems such as those connected with crime, drunkenness, vice, and moral depravity, too long misunderstood in the absence of any recognition of the pathological element that often mingles with them.

I claim for our profession a great rôle in that future that I shall not see, but that is opening before you in the roseate hues of dawn, and I claim it, not in its own interests, but in the service of humanity that "groaneth and travaileth in pain until now." A livelihood we must have; sordid spirits set on money-grubbing there are no doubt amongst us, but for the bulk of our profession, I would say, that they perform their appointed task in no narrow or selfish spirit, and find their highest reward in obviating the tendency to death. I am content to accept the verdict of Robert Louis Stevenson, who throughout his shining but pain-shadowed life knew more of doctors than most men do, and he has said:

> "There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not infrequently: the lawyer rarely, rarelier still the clergyman, the physician almost as a rule. He is the flower (such as it is) of our civilization, and when that stage is done with and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has such as is possible to those who practise an art, never to those who drive a trade, discretion tested by a hundred secrets, tact tried in a thousand embarrassments, and, what are more important, Heraclean cheerfulness and courage. So it is that he brings air and cheer into the sick room, and often enough though not so often as he wishes, brings healing."

I cannot do better than leave you Leeds students with that noble ensample.

University of Vienna.—The prospectus for 1906-7 states that 407 courses of lectures and practical instruction will be given by thirty-three ordinary, fifty-five extraordinary professors, and 150 *Privat-docenten* and assistants. In the last semester the number of ordinary students was 1,009, of whom 37 were women, and 309 attending special courses, of whom 3 were women. The total number of students in the Faculty of Medicine was 1,319, as against 1,229 in the corresponding part of the previous year.

A sanitary institute has recently been founded in St. Petersburg for the scientific study of water supply, drainage, the hygiene of dwellings, and other questions connected with the public health.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF PAEDIATRICS.

G. A. SUTHERLAND, M.D., President.

A DISCUSSION ON PNEUMOCOCCAL INFECTION DURING EARLY LIFE.

OPENING PAPER.

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PNEUMOCOCCAL INFECTION DURING EARLY LIFE.

WHETHER the pneumococcus first crossed the Atlantic in the *Santa Maria* or in the *Mayflower* does not much concern us. Yet beyond doubt the little Gram-staining diplococcus has played its part in the New World's history. Bacilli have been world-wide empire builders. The white man's diseases have been more efficient than his rifle in making way for the white man's civilization.

I cannot attempt to sketch the history of the pneumococcus either in the past or in the present. I can only hope, in introducing this discussion, to touch on the prominent characters of the diplococcus and the lesions which it is apt to produce, leaving to others to fill in the many gaps.

The literature of pneumococcal infection has multiplied enormously of late. I have no hope of doing justice to the many writers on the subject and I own to a feeling of dismay in facing this literature with the idea of digesting and absorbing any considerable part of it.

It is certain that pneumonic infection plays a far wider rôle in the production of disease than we suspected even a decade ago, and we may safely say that the period of early life seems especially prone to its influences.

The discovery and study of the life-history of the pneumococcus suggested that the introduction of the organism in large numbers and of high potency into the alveoli of the lungs spelt pneumonia for the infected individual, that pneumonia was the result of an invasion by the diplococcus, and that the attack ran its course much after the fashion of other zymotic diseases.

Another stage was reached when it was realized that the diplococcus was frequently found in the saliva, naso-pharyngeal secretions, and upper air passages of healthy individuals, living a sort of vagabond life, in the company of tribes of wandering cocci, known and unknown, brewing no toxines, and being a negligible quantity as far as the host was concerned. It certainly is a striking fact that a coccus of such virulence as the pneumococcus often proves to be when infecting the lungs can live a non-pathogenic and innocent life as a parasite in healthy people.

With our knowledge to-day, we cannot but feel that many of our conceptions and much of our treatment of pneumonia in the past will have to go, but we must feel also there is yet much to learn regarding the diplococcus, its toxines, and the production of immunity, before the path in front of the physician is made straight.

It may, I think, be assumed that the pneumococcus of Fraenkel is the specific infection which, under suitable conditions of soil, is the inciter of a croupous or lobar pneumonia, and that, in association with other organisms, it plays the chief rôle in bronchopneumonia and in the pneumonias which occur as sequelae of the zymotic diseases. We may assume, too, that a pneumonic infection is not a local disease of the lungs, but the cocci enter the blood stream, multiply there, and are carried to distant organs. For a pneumonic infection to produce pathological consequences a sufficient number of organisms must infect; these must possess or quickly attain high potency, and finally there must be an enfeebled resistance of the body cells of the individual. In other words, we have both seed and soil to take into account.

Presumably the breeding-ground or habitat of the pneumococcus is the naso-pharynx and its vicinity in healthy people. Much evidence goes to show that the life of the diplococcus outside the body of animals is only maintained with a struggle. It may retain its vitality in dried sputa or nasal secretions for a while under favourable conditions, but it would appear that, exposed to fresh air and sunlight, it quickly dies. According to Wadsworth,[1] the inhabitants of the densely-crowded districts of New York yield a higher percentage of individuals who are carriers of the diplococcus than are found in the average population.

Cortauld,[2] examining the saliva taken from patients in the surgical wards of the Middlesex Hospital who had never had pneumonia, found the pneumococcus, or an organism closely resembling it, in 89 per cent. of the cases examined.

It is very certain that in a community living together as civilized man does, especially where numbers are crowded together, pneumococci must be as thick as snow-flakes in a snowstorm, and defy the wit of man to exterminate them. Granted that the coccus is present in the mouth and respiratory passages of a large part of mankind, and granted, too, that human beings will talk, sneeze, and cough to the end of time, it is clear that any one who has not a supply of his own can quickly be accommodated.

The question somewhat narrows itself to one of soil, or the capabilities of the resistance of the individual cells or serum, though no doubt the numbers of the invading host and also their virulence are important factors.

We may here note that while pneumococci are found in abundance in association with streptococci in the naso-pharynx of healthy people, they are not found in the blood stream except in pathological conditions. Doubtless the adenoid tissue plays an important part as a filter or stopper which keeps the whole of the naso-pharyngeal organisms in their right place, that is, outside the blood stream. At times, however, these organisms become pathogenic in their habitat, as some of the membranous and other inflammations of the conjunctiva or mouth are apparently due to pneumococci.

In spite of the wide distribution of the diplococcus, epidemics of pneumonia do not frequently occur; yet pneumonia is a common disease during infancy, as evidenced by the fact that over 10,000 infants die annually in England and Wales of pneumonia, and another 10,000 from bronchitis (G. Newman[3]).

It is common to find two, or even three, cases of pneumonia in children in one household, especially in the smaller class of house occupied by a large family. Where pneumonia does appear to spread is in ill-ventilated barracks, mines, and in the holds of small sailing ships, such as fishing craft, where fresh air is seldom admitted, especially in rough and cold weather. It is also apt to spread in measles and whooping cough wards.

With regard to the resistance offered by the individual to the pneumococcus, let me instance the case of infants suffering from atrophy or exhausted by an attack of epidemic diarrhœa. A hypostatic pneumonia brings about the end in a number of these cases, pneumococci being found in the lungs or bronchial secretion. A wasted infant is admitted to hospital; it may improve under treatment, or perhaps it is going downhill; then, instead of a temperature well below the normal line, an evening excursion takes place. It gets more pallid and feeble, and when the end comes a hypostatic pneumonia is found *post mortem*. A soil has been created by the sluggish circulation at the base of the lungs suitable for the cultivation of the pneumococcus, which may perhaps have found entrance during its stay in hospital.

Under one condition, at least, pneumonia spreads in a hospital ward, and that is when a number of cases of measles are crowded together. Measles-pneumonia under such circumstances is very fatal. This was the case in

[1] A. Wadsworth, The Practical Significance of our Knowledge of Bacteria in their Relation to Pneumonia, *Medical Record*, May 5th, 1905.

[2] L. Cortauld, A Note on the Distribution of *Diplococcus pneumoniae*, *Archives of the Middlesex Hospital*, 1905.

[3] G. Newman, *Infant Mortality*. Methuen and Co. 1906.

some of the Paris hospitals some years ago, as recorded by Comby,[4] where the mortality from year to year amounted to some 40 to 50 per cent. of the cases admitted, the high death-rate being due to bronchopneumonia. The mortality from measles in dispensary practice is under 10 per cent. No wonder that Comby lays great stress on the importance of not admitting uncomplicated cases of measles into the same ward with cases of measles-pneumonia. Apparently in these cases there are pneumococci of high potency, probably associated with streptococci and a soil of low resistance created by measles.

It is important to note, in considering these facts, the success attending the treatment of measles and whooping-cough pneumonia in open-air shelters, which has been carried out in some fever hospitals. The discovery of the pneumococcus, if it has not yet led to very practical results as regards serum treatment, has taught us the great danger of overcrowding hospitals and dwelling-houses, and the great value to the individual patient of fresh air. The public are long in learning the lesson of the open window in the treatment of pneumonia, and the poisoned atmosphere of an over-heated and stuffy room will for another generation at least claim its victims.

A lobar pneumonia of medium severity may be taken as a typical instance of pneumonic infection. I remember years ago being asked the question at an examination by the late Dr. Wilson Fox, Is croupous pneumonia a local or general disease? To-day no one would have any doubt as to the answer. Pneumonia is a part of a general infection of the system, diplococci and toxins enter the blood stream, and death is not threatened so much from the local lesion as by a general toxaemia and heart failure.

During the febrile stage of the attack there is a struggle between the infecting diplococci, which are multiplying in the exudation in the alveoli and in the blood, and the opposing leucocytes or body cells. There is increase in the number of leucocytes, perhaps to a 20,000 to 40,000 count (Heiman).[5] Fortunately the pneumococcus is not very tenacious of life, and sooner or later immunity is established, and the crisis comes. The crisis is accompanied by a fall in the leucocyte count. In the vast number of cases there is no further complication and no relapse, in spite of the fact that the diplococci have been distributed over the body by the blood stream.

On the other hand a bronchopneumonia occurring in infants or young children, especially when associated with rickets, terminates by lysis rather than crisis, is apt to be protracted in its course, and relapses are common. Most of us will have had experience of these cases going on week after week with an intermittent temperature, then perhaps reaching normal for a day or two, then a relapse which may go on for weeks. We begin to suspect a tuberculosis, or a localized empyema, or a subacute purulent pericarditis, but finally the attack comes to an end and the physical signs disappear. Or possibly death occurs from exhaustion, and nothing but a subacute bronchopneumonia is found. The attack, including relapses, may at times last six weeks or perhaps more. In these cases the individual's resistance is low and immunity comes with difficulty. The fates are all on the side of the pneumococcus. There is an enfeebled child, a want of rigidity of the chest walls, easily fatigued muscles and much bronchial secretion. The smaller bronchi became plugged, especially on the posterior and inferior aspect of the lungs, and lobular collapse takes place. The collapsed patches are the chosen ground of the pneumococcus, where a chronic or subacute inflammation flourishes. In some cases at least pleural adhesions make matters worse, and probably the effect of a mixed infection is to retard the establishment of immunity.

A pneumococcic infection involving the lungs in the first instance is much more apt to spread locally to parts in contact than to affect distant parts via the blood stream. Thus we very frequently have an associated pleurisy with a slight or free exudation of lymph, either dry from first to last, or there may be an effusion of serum or pus. There may be an associated pericarditis, simple or purulent. If there is a localized empyema between the lobes of one of the lungs an abscess may occur, or if the pus is tied down and confined between lung and diaphragm a subdiaphragmatic or hepatic abscess may form. At times, however, we have a general infection, especially where pus forms.

Thus Moutier[6] has recently recorded a case of right basic pneumonia, with subphrenic abscess, followed by liver abscess, endocarditis, and finally a cerebro-spinal meningitis, due to a general pneumococcic infection. Considering the constancy with which pneumococci are found in the blood in pneumonia, it is singular that such cases are not more common.

Associated infections of the lung and peritoneum are not uncommon, and Goodall has stated that he has seen such sent into a fever hospital with a diagnosis of enteric fever. I have several times seen in the same household a child with lobar pneumonia, and another in the next bed with pneumonia and acute peritonitis. Some years ago I saw a girl of 8 years with a lobar pneumonia on the right side, an empyema on the left, and the abdomen full of pus, which was trickling out at the umbilicus. She finally made a good recovery.

Acute pneumococcal peritonitis in infants under a year, proving quickly fatal, and without any associated pneumonia, is not uncommon. We know very little about the port of entry of the infection in these cases. The majority of instances of primary pneumococcal peritonitis recorded have been in girls; I know of no adequate cause for this.

How far gastro-enteritis is caused by the pneumococcus is uncertain. We know that in the early stages of some cases of lobar pneumonia, vomiting is a prominent symptom. We may call to mind also that jaundice is not uncommon in the lobar pneumonias of childhood. A sudden onset with high temperature, vomiting, and jaundice, even in the absence of physical signs, is very suggestive of a lobar pneumonia. Jaundice may occur both in fatal cases and in those which recover. The yellow tint may be deep and the urine highly coloured, and perhaps the stools paler than normal. How far the jaundice is due to a catarrh of the bile ducts is uncertain, but I am inclined to think that the jaundice of pneumonia is haematogenous.

A lobar pneumonia and acute nephritis in association is not a rare event, as G. Sutherland[7] has recently reminded us. The two lesions may begin pretty much together and run their course side by side. Or one may be in evidence before the other. In both organs the lesion is similar. There is an effusion of fibrinous exudation with red blood cells into the alveoli in one case and into the tubules in another. Both are due to the pneumococcus there can be little doubt. Presumably, though not certainly, the lungs are the point of entry and the blood stream the channel of communication.

I need not refer to the frequency of a double otitis complicating a pneumonic infection of the lungs. A much rarer complication or sequela is a pneumococcal post-pharyngeal abscess. This I have seen following the crisis and giving rise to post-crisial rise fever which at first gave rise to a difficulty in diagnosis.

It is generally admitted that after the tubercle bacillus and the diplococcus of Weichselbaum the pneumococcus is the commonest infection giving origin to a meningitis. This happens either in association with a pneumonia or independent of it. I need not say that when speaking of a meningitis a meningo-encephalitis is meant—that is, that while the naked-eye appearances suggest a lesion of the meninges only, a more complete investigation makes it clear that the grey matter beneath is certainly involved.

It is interesting to compare the symptoms presented by a so-called "cerebral pneumonia" and a pneumonia complicated with a meningitis. A child, say of 7 or 8 years of age, begins suddenly with convulsions, high fever, constant vomiting, drowsiness, and delirium. The physical signs of a pneumonia may be absent for a few days. The vomiting is incessant, perhaps there is a smell of acetone in the breath and a trace discoverable in the urine. The diagnosis in the meantime is held in suspense as between pneumonia, meningitis, and toxin poisoning. Presently unmistakable pneumonia is discovered at an apex and the cerebral symptoms subside.

[4] J. Comby, *Traité des Maladies de l'Enfance.* Deuxième édition, art. Rougeole. Vol. i.

[5] H. Heiman, A Study of Leucocyte Counts in Fifty Cases of Bronchopneumonia, Lobar Pneumonia, and Empyema in Children. *Archives of Pediatrics*, October, 1905.

[6] E. Moutier, Septico-pyemia à Pneumocoques, *Gazette des Hôpitaux*, No. 28, March 8th, 1906.

[7] G. A. Sutherland, Lobar Pneumonia in Childhood, *Clinical Journal*, October 25th, 1905.

Very much the same symptoms may at times be noted in younger children. I was once in doubt as to the diagnosis in a girl of 2 years of age with a double pneumonia, associated with coma and an erratic Cheyne-Stokes respiration, or rather the respiratory movements were in groups. The child completely recovered. Again, an attack of bronchopneumonia may be accompanied by marked retraction of the head, which passes off as time goes on. Then let me instance another type of case: A child has measles pneumonia accompanied by convulsions, coma, and high temperature; there is no paralysis; recovery takes place, except that the child is mentally abnormal, perhaps mischievous and unmanageable, and in some cases suffers from epilepsy. In others, as is well known, a hemiplegia results from a cerebral attack during the course of measles-pneumonia. In these cases I need not insist on the value of an examination of the cerebro spinal fluid obtained by lumbar puncture. Tooth[8] records a case which, as far as I know, is uncommon, "which was clinically acute lobar pneumonia, no suspicion of meningitis having existed during life, until it was found *post mortem*."

In contrast with these cases of pneumonia with cerebral symptoms ending in more or less complete recovery, we have a class of case in which there is a lobar pneumonia and an undoubted meningitis associated with it.

A boy of 19 months who had previously enjoyed good health, suffered from feverishness and cough for about a week; he was then seized with severe convulsions which lasted two hours, the tonic spasms being most marked on the right side. The convulsions were followed by coma; when seen by Dr. McIlraith[9] he noted that the right pupil was dilated, the right arm and leg appeared paralysed; the head was slightly retracted; there were signs of a lobar pneumonia at the base of the right lung. The child died next day. At the *post-mortem* examination a consolidation of the right lung was found, the brain showed an excess of fluid and an intense congestion with a fibrinous exudation over the convex surface of the brain, most marked on the left side and also covering the base. Pneumococci were found in the exudation.

Warrington[10] records a typical instance in a boy of 8 years who died after four days' acute illness marked by sudden onset of vomiting, fever, headache followed by coma. By means of lumbar puncture a turbid albuminous fluid was withdrawn containing a large number of cells of the multinuclear type and many pneumococci. At the *post-mortem* examination the pia was found intensely congested and patches of thick greenish pus were found on the cortex and base. A small part of the base of the right lung was airless, which on microscopical examination showed intense injection and haemorrhages, but no fibrinous exudation. The cavities of the ears, frontal and ethmoidal sinuses, were normal.

A pneumococcal meningitis may certainly affect the base of the brain as well as the convexity, and run a less fulminating course than the type just described. I certainly agree with Horder[11] when he says that it is not correct to ascribe particular situations of the meninges to a particular organism. A pneumococcal meningitis may be basic and spinal, and run a subacute or chronic course, more or less after the fashion of a bronchopneumonia.

The following case illustrates this:

Alice S., aged 2½ years, was admitted to the Children's Hospital, Manchester, May 24th, 1906, under the care of Dr. C. O. Hawood. She had suffered from pneumonia three weeks before admission, with retraction of the head, screaming attacks, and drowsiness for one week. After admission it was noted that she was drowsy, lying curled up in bed, with retraction of the head; Kernig's sign absent; flexor plantar response; no blindness; optic discs blurred. Later the arms and legs became extended and rigid, pupils dilated, and irregular plantar response. Lumbar puncture was performed, with the result that a clear fluid was obtained, which gave a negative result as far as cocci were concerned. The retraction of the head became more marked, so that the occiput came in contact with the spine. Before death convulsions and coma supervened. The temperature varied from 99.8° to 101.8° throughout the illness. At the *post-mortem* examination Dr. Mair found purulent bronchitis, bronchopneumonia of the left lower lobe, great excess of cerebro-spinal fluid, pia mater acutely congested; the pons and base of the cerebellum were covered with a tenacious yellow exudation which extended to the spinal membranes. Pneumococci were found in the bronchial secretion, lung, and cerebro-spinal exudation.

Tooth[12] quotes a case of recovery from pneumococcal meningitis reported by Achard and Crenet, in which lumbar puncture showed the presence of pneumococci: the temperature became normal on the nineteenth day. Concetti[13] reports two cases in infants, aged 20 months and 20 months, which terminated favourably, and in which the diagnosis was confirmed by lumbar puncture. The same author reports a case of cerebro-spinal meningitis supervening on pneumonia. Certainly more observations are wanted on the relations of Weichselbaum's diplococcus to pneumonia, and also to epidemics of influenza and the prevalence of anterior poliomyelitis.

I will not attempt to follow up the incidence of pneumococcal meningitis in all its varied forms, and must leave to others the consideration of arthritis, peritonitis, endocarditis, and general infection of the organs.

I may remark in conclusion that much more requires to be done before our knowledge of pneumonic infection is anything like complete. We know very little about mixed infections, the nature of the toxins formed and the question of immunity. We have not yet learned to produce by artificial means the crisis which comes sooner or later in a typical case of lobar pneumonia. An empyema may follow in spite of our best endeavours. We still cling to our drugs, antipyretics, the application of heat or cold, knowing full well that in them there is no salvation; they belong one and all to an ancient and outworn creed. We may at least diet our patient, yet even here we have a good deal to learn.

All this time will change. In the meantime we must not forget that if we cannot control the infection, it lies well within the range of human endeavour to control the soil in which it flourishes only too well. By far the greater amount of the mortality caused by bronchopneumonia is among weakly and rickety infants. It weeds out the unfit. A greater care of infant life, better nutrition, purer air, a levelling down of the slums, a levelling up of the slum mother, and a higher plane of civilization will do more than aught else to lower the mortality from pneumonic infection.

DISCUSSION.

DR. STUART MCDONALD (Edinburgh) spoke of the pathological aspect of pneumococcal infection. He pointed out that, next to the tubercle bacillus, the pneumococcus was the most potent disease-producing germ in children. Out of twenty-four children, aged from 4 to 10 years having no acute disease, whose sputum he had examined, he found 7 cases with pneumococci in the sputum. Inoculated rabbits in two cases died in twenty-four to thirty hours, and very virulent organisms were found. The pneumococcus might give rise to a marked local lesion—a septicaemia or a pyaemia. In the course of an acute pneumonia a blood invasion of pneumococci might take place from time to time. He considered that there was a greater tendency to general septicaemia from pneumococcal infection in children than was the case in adults; in which respect they behaved more like rabbits or mice. Any important advance in treatment was likely to be found in the production of a vaccine, and not of a curative serum.

DR. A. JACOBI (New York) said that the connexion of brain disease with pneumonia had long been known. The brain symptoms did not always mean inflammation, but often hyperaemia and a moderate amount of oedema. Frequently, perhaps mostly, the pneumonia thus complicated was found in the upper lobe or lobes. The cause of such brain symptoms was looked for in circulatory disturbances. At present we were more apt to charge microbes with the complicating disease of the brain. The prognosis was not always bad. He had seen cases exhibiting meningitic symptoms in which the diagnosis of genuine meningitis could be excluded on account of the symptoms connected with the pulse, respiration, etc.

[8] H. Tooth, Discussion on the Pathology and Diagnosis of Meningitis, BRITISH MEDICAL JOURNAL, October 21st, 1905.

[9] J. McIlraith, M.D. Thesis, Victoria University, 1906.

[10] W. B. Warrington, Case of Pneumococcus Meningitis and Some Records of the Value of the Cytological Examinations in Cases of Meningitis, *Review of Neurology and Psychiatry*, vol. ii, 1904.

[11] T. Horder, Discussion on the Pathology, Diagnosis and Treatment of Various Forms of Meningitis, BRITISH MEDICAL JOURNAL, October 21st, 1905.

[12] H. Tooth, *loc. cit.*

[13] L. Concetti, Rapport sur les Méningites Algues non Tuberculeuses chez les Enfant. Rapport présenté à la Section de Medecine Infantile du XIII Congrès International de Medecine dans la Séance du 7 Août, 1900.

There was a large number of pneumococci in the urine; their number would increase from day to day. Meanwhile the brain symptoms would decrease, while the pneumonia would take a fairly regular course. When the quantity of urine was normal, or could be kept copious, and the pneumococci were very numerous, the prognosis was not so bad.

Dr. HENRY T. MACHELL (Toronto) emphasized the importance of not attaching undue influence to the action of medicines in the treatment of pneumonia.

Dr. EDMUND CAUTLEY (London) criticized the inclusion by Dr. Ashby under the head of pneumonia of all the varieties, such as hypostatic pneumonia and bronchopneumonia. In both of these latter conditions it was possible that the pneumococcus was a secondary growth in previously-diseased tissues. The same comment applied to the so-called cases of primary meningitis and peritonitis. The differentiation of the varieties was essential in view of the prognosis; for, whereas the prognosis of secondary bronchopneumonia in infancy was very bad in hospital cases, in some croupous pneumonia the outlook was very good, even if there were cerebral symptoms present. In the matter of treatment the most important point was to avoid upsetting the alimentary tract.

The PRESIDENT agreed with Dr. Machell and Dr. Cautley that we did not possess any treatment for the disease itself, and that the aim at present should be to treat the patient according to the general principles of medicine.

REPLY.

In reply, Dr. ASHBY said that the pneumococcus was only the inciter and not the producer of the disease. The soil was of more importance than the seed. He emphasized the great importance to the physician of having a pathologist at his back. Whatever our views about therapeutics might be, we should abandon the use of poisonous drugs. He was certain he had seen harm done by digitalis.

OSTEOGENESIS IMPERFECTA.

WITH THE REPORT OF A CASE, WITH AUTOPSY AND HISTOLOGICAL EXAMINATION.

Clinical Report by R. W. LOVETT, M.D.,
Boston.
Pathological Report by E. H. NICHOLS, M.D.,
Boston.
(From the Laboratory of Surgical Pathology of the Harvard Medical School.)

THE name "osteogenesis imperfecta" has by modern usage come to be applied to those somewhat rare cases in which multiple fractures occur during intrauterine life or in infancy. The terminology of the affection has changed so much, and has been so confused that it requires a word of explanation. Originally such cases were generally classed under the name of "fetal rickets," and their pathological peculiarities were not recognized. The name "osteopsathyrosis" was given by Lobstein in 1833 to fragility of the bones in general, and in 1849 Vrolik separated from fetal rickets the condition under discussion, and gave to it the name "osteogenesis imperfecta." The terms "fetal rickets" and "infantile osteomalacia," once used in describing these cases, may now be considered obsolete in this connexion. One finds used, in addition to those names mentioned, "fragilitas ossium," "idiopathic osteopsathyrosis," and "brittle bones."

Modern usage sanctions the use of "osteogenesis imperfecta." The term "osteopsathyrosis" describes fragility due to any cause and occurring at any age, and is divided into two classes:

1. Symptomatic osteopsathyrosis, where fracture is due to
   - (*a*) Changes of osteomalacia.
   - (*b*) Changes of rickets.
   - (*c*) Senile osteoporosis.
   - (*d*) Inflammatory osteoporosis (osteomyelitis, tuberculosis, etc.).
   - (*e*) Neural arthropathy (tabes, syringomyelia, and paralysis).
   - (*f*) Malignant growths (carcinoma and sarcoma of bone).
   - (*g*) Cysts.
   - (*h*) Granulation tumours.

2. Idiopathic osteopsathyrosis, a congenital condition identical with osteogenesis imperfecta.

The term "fetal rickets," as used many years ago, has of late years been split up into four forms of bone disease occurring in newborn infants, which clears up the matter still further. These are (1) real rickets occurring in intrauterine life, about which there has been much discussion; and the question must be considered as still *sub judice*, with a preponderance of evidence against its occasional occurrence (Kassowitz, Winkler, Kehrer, Bornträger, Fischer).

Cases of multiple fractures occurring in intrauterine life or early infancy have been described for a great many years, and a considerable number of loosely-recorded cases are on record, many of them being so imperfectly described that it is not possible to identify them. Cases carefully studied in the light of modern pathology are, however, few in number, 14 carefully-studied cases, with accompanying pathological reports, being available — J. Schmidt (1859), Bidder (1866), Stilling (1889), Scholz (1892), S. Müller (1893), Buday (1895), v. Geldern-Egmond (1897), Hildebrand (1899), Scheile (1900), Harbitz (1901), Paltauf, 2 cases (1891), Looser, study of amputated leg (1905), Michel (1903). Anatomical studies of cases prior to 1850 are not counted in the above—such are the cases of Bordenave (1763), Hencket (1772), Sandifort (1793), Chaussier (1813), Meckel (1822), Sartorius (1826), Otto (1841), Schütze (1842), and Vrolik (1849). Other modern cases with anatomical studies, but which are not full enough to be of great value, have been recorded—Graefe Bury, Blau, Klebs, Railton, Klemm, and Margarucci.

To conclusions drawn from these is added in this paper the clinical and pathological report of a typical case under careful observation from five hours after birth until death ten months later; it offers the especial interest of having lived much longer than any case yet reported in which a modern pathological examination of the whole body has been made. The age of the other 14 cases was as follows: Newborn, 3; died shortly after birth, 5; 5 weeks old, 1; 6 weeks old, 3; 3 months old, 1. Looser's case was the study of an amputated leg in a case 17 years old.

As most of the literature on the subject has dealt with the pathological aspect of the question in the endeavour to identify the disease as an entity apart from rickets and chondrodystrophia fetalis, and as the entity of the disease may now be considered as established, an attempt will be made in the clinical part of this paper to lay more stress on the practical side of the question from a study of the reported cases as to etiology, occurrence, and prognosis.

It has been possible to find in literature allusions to or descriptions of some 123 cases in which more than two fractures occurred without adequate cause, either spontaneously, or from some trifling injury. In addition to these are some half dozen cases in recent literature which are not accessible. It seems, therefore, that about 130 cases of early multiple spontaneous fracture are on record, most of which would seem, from the account of them, to be due to osteogenesis imperfecta. Most of these are so imperfectly reported, that the tabulation of the whole number would be of no value. Griffith, in 1897, reported some 57 cases with all available detail, and concluded that most of these were due to osteogenesis imperfecta. It has seemed worth while to present certain practical conclusions from such of these 123 cases as are reported in sufficient detail.

Etiology.—Needless writing may be avoided by the statement that we know practically nothing of the etiology of the condition beyond the fact that there is a strong element of heredity involved. This is set by Griffith, after a careful study of the subject, at 15 per cent. of the cases. In some instances it involves an entire family, of which a typical instance of direct inheritance is described by Willard.

Father healthy (three fractures from adequate violence). Mother hysterical. Family history good. Seven daughters, six of whom had sustained from one to four fractures; three sons, all of whom had sustained from one to four fractures; one grandchild (female side), two fractures in four weeks.

Other cases showing direct inheritance have been reported (Greenish, Pauli, Elkmann, Goddard, Hamilton Graham, Cox, Hiester, Battles).

A tendency to family predisposition is also established, in which direct inheritance is wanting, but where two or more children of the same parents show a tendency to spontaneous fractures. In one case the affection of two cousins is reported (Jones, Pritchard, Axmann, Agnew, Arnott, Morran, Mebes).

Age.—A study of the age at which the first fracture occurred is most unsatisfactory, as it is mentioned in only a minority of cases. Intrauterine fractures are described in twenty-three cases, mostly in dead-born children, or children dying in the first week of life.

When it comes to reporting multiple spontaneous fractures in which the first fracture occurred in older children, one is inclined to question whether they may not have been due to osteomalacia or some other cause. In the absence of pathological evidence it is impossible to say how late a first fracture due to osteogenesis imperfecta may arise. But when a first fracture has occurred early the subsequent fractures may continue well into life. For example, a female child acquired the first fracture at 9 months, and at 17 years had experienced 30 fractures (Schültze). Another case with a first fracture at 2 months when 27 years old had experienced 106 fractures (Blanchard). In such cases it seems fair to attribute the late fractures to a continuance of the early condition. When, however, the first fracture appears after the age of 3 or 4 years, the total number of fractures experienced is generally smaller, and, as a rule, the later in life the fractures begin the fewer they are in number. A case is, however, reported where a boy had 22 fractures between 4 and 15 years (Doering), and another where the same number occurred between 10 and 20 years (Biggs). As a rule, however, in cases occurring after 4, from 3 to 12 fractures are the more usual number.

It may be repeated that there is, as yet, no definite evidence to show that a tendency to spontaneous fracture manifesting itself after infancy is identical with or caused by osteogenesis imperfecta.

Number of Fractures.—The number of fractures which may occur in one individual is surprising. Chaussier counted in a newborn child 113 fractures, and in many cases they are recorded simply as "multiple." Such cases were reported in former times, when criminals were broken on the wheel, as evidences of maternal impression, as the children were born with practically every bone broken. Intrauterine fractures due to this condition may, however, involve only two or three bones, and such cases are likely to live for a while at least, while the cases of multiple fractures are, as a rule, born dead.

The influence of age in determining the number of fractures has been alluded to. As instances of the number of fractures likely to be found the following consecutive cases from those more carefully recorded is representative :

Age.	Number of Fractures.	—
16 months	12	Nathan
3 weeks to 17 years	35	Nathan
18 months to 17 years	50	Looser
2 days to 2 years and 10 months ..	17	Griffith
6 days to 4 months	3	Hohlfeld
4 days to 3 years	7	Fowler
2 years to 28 years	8	Howell
9 months to 13 years	30	Schültze

Union and Course of Fractures.—The union of intrauterine fractures apparently is generally good in the older fractures, or there may be no union. When union occurs it is likely to result in deformity. In cases of osteogenesis imperfecta severe enough to result in intrauterine fractures the birth of the child is almost sure to result in fresh fractures, so that in newborn children with the disease there is generally a combination of old fractures, united and partly united, and of loose recent fractures. Where fractures occur after birth union is in most cases good and sometimes recorded as exceptionally quick. It some cases it is slow and in a few cases union has not occurred. The callus is generally small, crepitation is slight, and pain is generally small in amount.

Location of Fractures.—The long bones are the ones chiefly broken, and the thigh most often, followed by the leg and the upper extremity. The clavicles and the ribs are frequently broken, fracture of the lower jaw has been recorded, and fractures of the hand. The shoulder blades, skull, vertebral column and pelvis are apparently exempt.

Deformities.—Hydrocephalus, club-foot, and rachiocleisis are reported in rare cases as associated deformities. Deformities of the bones incident to the disease are common, and are of two kinds: (1) Deformities due to improperly-united fractures, which may reach a very high degree. (2) Curving and bending of the bones due to the disease itself, independent of the fractures. It was this deformity apparently which led to the confusion of the disease with rickets, osteomalacia, and chondrodystrophia fetalis. It has been reported in the majority of authentic cases, and follows in a general way the same lines as do the bone deformities of rickets. Particularly common is forward bending of the tibia. Forward and outward bending of the femur, bending of the upper extremities, and distortion of the pelvis, like that of osteomalacia, have been reported (Hecker, Stilling). Scoliosis is an occasional deformity, as in rickets (Buday). The deformities of the bones from these two causes reach such a high degree that in several adult cases reported the patients were unable to walk (Greenish, Jones, Blanchard, Fleming).

General Characteristics.—Such children are as a rule smaller than the average at birth, and the extremities are in most carefully recorded cases reported as being abnormally short in relation to the trunk. The children are generally plump, and the skin has been reported in some cases as thick and oedematous. A cretinoid type of face is frequently seen, but in the case reported here the child showed nothing abnormal beyond its short and curved extremities. The skull is frequently imperfectly ossified, and in some instances has been in parts a fluctuating bag of membrane.

X-ray Appearances of Bones.—The bones cast a feeble shadow, and appear thin and atrophic; the medullary cavity seems to be increased at the expense of the cortex. The epiphyseal lines are sharp, but perhaps less regularly so than normal; fractures and infractions are shown (Doering, Hildebrandt.)

Course of the Disease and Prognosis.—A study of the reported cases does not give a satisfactory answer to these questions. It is evident that very many children are born dead or die soon after birth; in other cases one observation only is reported; in other cases the date of the first fracture is not given. It has been possible to find the late history in eight cases of multiple fracture where the original fracture occurred before the age of 2. These are as follows :

Date of First Fracture.	Number of Fractures	Age at Time of Report.	Condition at Time of Report.	Author.
2 years ..	8	28	Well and at business	Howell
9 months ..	30	13	Crippled	Schültze
18 months ..	18	30	No break but one in last 15 years	Graham
Very young	7	18	1 ununited fracture. Dull. Pale	Greenish
2 months ..	106	27	Cannot walk	Blanchard
18 months ..	52	24	Crutches	Fleming
3 weeks ..	35	17	Health good	Nathan
18 months ..	50	17	Amputation of one leg for deformed cripple	Looser

So far as these figures go, it must be admitted that one finds but little encouragement for a favourable prognosis in multiple fractures occurring in young infants. It may be that the more careful study and record of subsequent cases may change the aspect in this regard.

Treatment.—No satisfactory treatment of the general condition has been formulated. The fractures are treated in the usual way.

May 20th, 1904. A case was seen in consultation with an

obstetrician and a specialist in children's diseases. The names of the gentlemen who were associated in the case are suppressed in order to prevent the identification of the patient; the writer is indebted to them for the use of their notes.

The patient was a male child, 5 hours old, weighing 3 lb., born by an easy labour of about nine hours in dura

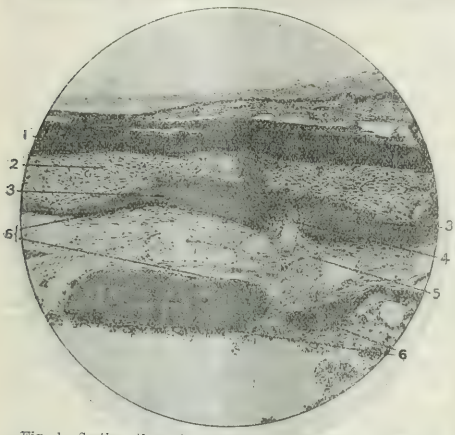


Fig. 1.—Section through periosteum and cortex of rib. 1. Thickened fibrous periosteum. 2. Thickened layer of periosteal osteoblasts largely spindle shaped. 3. Cortical bone plates of periosteal origin, forming cortex, not a continuous shell, but showing the perforations at 4. 5. Vascular, oedematous connective tissue in cortical marrow spaces. Trabeculae are beset with numerous osteoblasts 6.

tion. Presentation, foot and limb; ether and easy delivery. When the leg was pulled down a snap was felt. The child was somewhat cyanosed at birth and was held up by the legs to drain.

Family History.—The parents were both between 25 and 30, well and vigorous, and the family history was known



Fig. 2.—Section of spongy bone, middle of shaft of femur. 1. Bone trabeculae, showing imperfect lamination and imperfect bone corpuscles, without canaliculae and oval in shape, not stellate. 2. Osteoblasts on surface of trabeculae. 3. Layer of oedematous fibrous tissue surrounding trabeculae, course of fibres parallel to surface of trabeculae. 4. Cellular normal marrow in marrow spaces.

in full on both sides for three generations, and was exceptionally good and free from all history of tuberculosis, syphilis, and brittle bones. The pregnancy, which was the first, had been normal and free from disturbance of any kind; the child had been born at term.

Well-developed and nourished, colour good, cries strong, seems vigorous, shape of the head is normal, the bones of the skull are hard, and sutures no wider than usual. The face is normal, there is no depression of the bridge of the nose, the skin is clear and not thickened or swarthy. The features have no suggestion of cretinism, there is no cleft palate and no rosary, and the shape of the chest is normal. The heart, lungs, and liver are normal, and the spleen not felt. The abdomen is negative. The legs appear decidedly shortened in their relation to the



Fig. 3.—Epiphyseal line of femur. 1. Zone of proliferative cartilage. 2. Zone of hypertrophic cartilage, cells in columns, separated by strands of cartilaginous matrix. Line of provisional calcification not distinct. 3. Primary trabeculae, composed largely of persisting cartilage cells, and beset by very few osteoblasts, except at some distance from the cartilage zone. 4. Oedematous myxomatous marrow. 5. Trabeculae, with imperfect lamellae. 6. Osteoblasts.

trunk; but the arms are little, if any, shorter than normal. The arms are apparently not bowed; there is no enlargement of the epiphyses.

The points of interest in the case are in connexion with

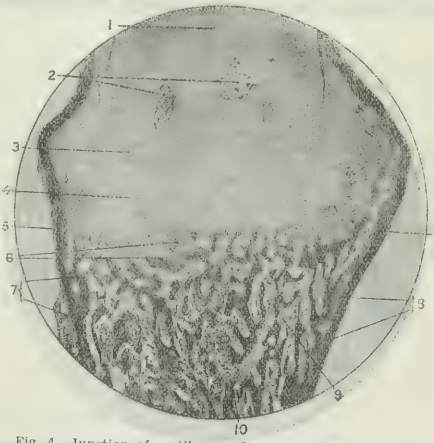


Fig. 4.—Junction of cartilage and rib. 1. Hyaline cartilage. 2. Vessels in hyaline cartilage. 3. Zone of proliferative cartilage cells. 4. Zone of hypertrophic cartilage cells, rather wider than normal. 5. Periosteum, fibrous layer thick. 6. Primary trabeculae, largely composed of persisting cartilage cells. 7. Imperfect endogenous trabeculae. 8. Imperfect cortical trabeculae arising from periosteum. 9. Myxomatous marrow. 10. Lymphoid marrow.

the legs. Both thighs and both legs are broken. The right femur shows evidence of a healed fracture at about its middle. This fracture is united with an angle outward and forward, and on the skin over the thigh on the anterior and outer part of the leg is a small dimple. Union is firm, there is but little callus, and the fracture must have occurred at least three or four weeks before birth. The left femur is broken at the middle, shows

slight crepitus, and is a loose fracture. Both tibias are broken at the junction of the lower and middle third of the leg, the fibulas apparently not being broken. Both tibias, in addition to being broken, are curved forward and slightly outward, and, as far as can be judged in the femur, there is a forward and outward bowing there. Making allowance for the shortening from fracture of the legs and

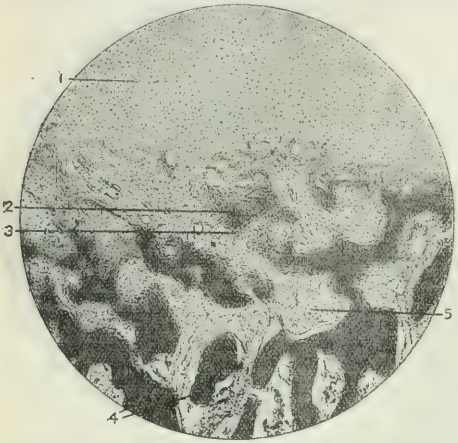


Fig. 5.—Junction of rib cartilage and rib. High power. 1. Zone of hypertrophic cartilage; the columnar arrangement is much less distinct than usual. 2. Primary trabecula, composed largely of persisting cartilage cells, with no osteoblasts. 3. Lower end of same trabecula, composed chiefly of metaplastic cartilage; on surface are many osteoblasts. 4. Older trabeculae, with imperfect lamination, very numerous imperfect bone corpuscles, and in places many osteoblasts. 5. Vascular myxomatous marrow.

thighs, it seems evident that the lower extremity is shorter than normal in relation to the trunk. The fractures are not particularly painful. Splints were applied, and the patient was put on breast milk.

On the third day after birth, May 23rd, 1904, the child



Fig. 6.—Shaft of femur at point of old fracture. 1. Periosteum. 2. Trabeculae of large internal callus, most marked on the concave side. 3. Trabeculae of internal callus, extending from cortex to cortex. 4. Lymphoid marrow. Note that there is no sign of an external callus.

had convulsions involving the mouth, face, and hands. They were judged to be due to indigestion, and were not considered as coming from any central lesion. It had been noticed prior to the convulsions that the head was held somewhat hyperextended a little to the right. The child continued to have convulsions during the night and vomited up a large curd, and on May 27th was put on two hour feedings of breast milk, which it apparently digested. On June 10th the splints were removed and the fractures were found to be united. The patient progressed well until July 7th, when it was seen on account of crying. There appeared at that time a fracture of the left clavicle and an old callus was found on the right humerus. This fracture of the humerus undoubtedly occurred after birth, as the bones were most carefully examined at that time, but there could not have been a loose fracture, as the child was under daily observation during the entire period.

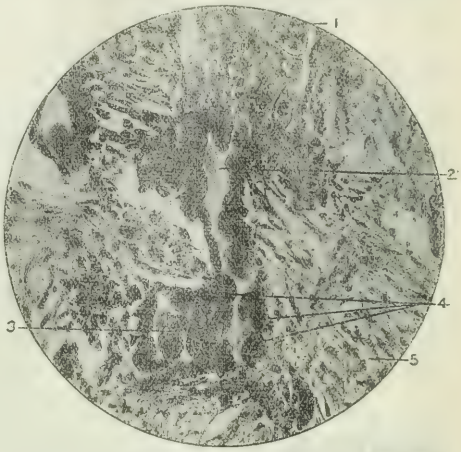


Fig. 7.—High power of primary trabecula at epiphyseal line of femur. 1. Cartilage cells at base of zone of hypertrophic cartilage. 2. Cartilage matrix, between columns of hypertrophic cartilage cells. 3. Persisting band of cartilage matrix (in normal bone this is the base upon which osteoblasts deposit bone). 4. Persisting cartilage cells in primary trabecula. Note that cells are polygonal or oval, and that about each cell is a dark circle (calcification of cartilaginous capsule). On this trabecula are very few osteoblasts. 5. Myxomatous marrow.

What was considered a fracture of the clavicle was probably a fracture of one of the upper ribs. The patient was at this time seen by another consultant, who advised the

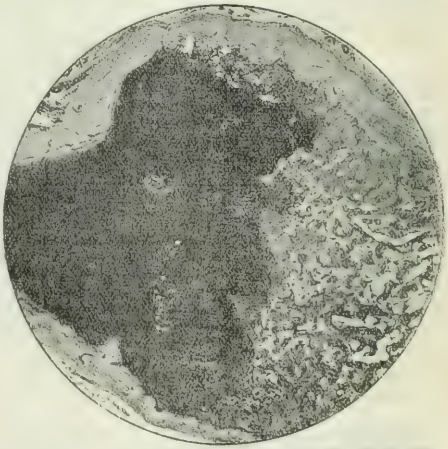


Fig. 8.—Epiphyseal line in rickets.

use of phosphorus. The child continued to gain in weight and did fairly well. There was some trouble with digestion. On July 13th the patient began to have more trouble with digestion, and there was reason to think that the mother's milk was not quite satisfactory. On July 19th small doses of phosphorus were begun, and on August 3rd what appeared to be a fracture of the right clavicle was found. On August 2nd the phosphorus was omitted, as it seemed to upset the digestion very seriously, and on August 3rd the breast milk was omitted and the child was put on an artificial mixture. For the rest of August and September the child continued to have much trouble

with the digestion and frequent undigested movements: one fracture of the right humerus was noticed in August.

The routine of the child was as follows: It was kept lying on a pillow and was never handled or allowed to sit up. The clothes were arranged in such a way that they could be put on without disturbing the arms, the sleeves going on separately. The child was not put into the tub, but was bathed with as little handling as possible. Both thighs were held in a position of flexion and could be brought entirely straight. The child appeared of normal intelligence at this time, but was not very vigorous, and had constant trouble with the digestion. The gain in weight was less than normal, and the child cried a great deal.

On October 26th, being then 5 months old, the baby weighed 10 lb. 13 oz. Digestion was still poor.

November 2nd. There appeared a swelling of the right humerus, which was tender, and probably an incomplete fracture.

November 7th. There was noticed a swelling, not painful, of the left forearm, but there was no crepitus and no loose fracture.

November 28th (6 months old). The baby weighed 14 lb. 1 oz., and was fairly well except for the digestion, which was always troublesome. The child was nervous, easily startled, and was upset by seeing many people, and did not sleep well.

January 20th, 1905 (8 months old). The child weighs 16 lb., is fairly well nourished, and colour is pretty good. There are no teeth as yet. The fontanelle is normal.

There have been no fractures since early November, and the child is now allowed to be carried in the arms. The back of the head is flattened by the prolonged recumbency. There is frequently an elevation of temperature, at night reaching generally about 100°.

March 9th. The temperature rose to 102°, and he had an attack of what appeared to be influenza. An aurist examined the ears, but found them normal.

In the next weeks the baby became worse, but examination of the heart, lungs, abdomen, and ears was negative.

On March 28th he refused food, and the temperature continued elevated.

On March 29th the temperature rose to 107°, the baby had a slight convulsion, and died.

There were in all ten partial or complete fractures, no one of them occurring after the age of 5 months. The baby lived to the age of 10 months, and died of some general affection not intimately associated with the fractures.

Pathological Result.—The internal organs showed nothing abnormal, except small adrenals. The bones were of normal size. The epiphyses were cartilaginous, and in the femurs contained centres of ossification. The epiphyseal line was in all cases curved, but clearly marked, and not toothed as in rickets. The cortex was of nearly normal thickness, except at points of fracture, where it was much thickened toward the marrow canal, and sent bony trabeculae across the marrow canal from cortex to cortex. The marrow was red, cellular, and vascular, contained relatively few trabeculae, and was very soft. The periosteum was not much thickened, even at points of fracture, nor was there any evidence of the formation of an external callus. The zone of ossifying and growing cartilage was distinct, but in some cases was thicker than normal.

Histology.—The internal organs showed nothing of consequence. To understand the histological changes in the bones, it is necessary to recall the process which takes place at the epiphyseal line and in the periosteum in normal bones.

Normal Ossification of the Long Bones.—The long bones are preformed in cartilage. The transformation of this cartilage into true bony trabeculae surrounding marrow spaces filled with cellular marrow begins at the middle of the cartilaginous shaft, and extends in either direction in the long axis of the bone. As a result, most of the long bones at birth consist of a bony shaft, or diaphysis, with extremities, or epiphyses, composed of hyaline cartilage, in which may exist one or more centres of ossification. Surrounding the bone is a bone-forming layer like the cambium of a tree—the periosteum. The cartilaginous cells of the epiphysis which lie next the diaphysis are constantly being converted into bone, while the epiphysis itself constantly grows by the formation of new cartilage cells. As a result the bone increases in length. The increase in thickness of growing bones depends upon the formation of a layer of new bone in the deeper layers of the periosteum.

The transformation of the hyaline cartilage of the epiphysis into the bony tissue of the diaphysis takes place at the epiphyseal line in a very precise and complicated manner as follows:—The hyaline cartilage of the normal epiphysis is composed chiefly of isolated cartilage cells which lie in a homogeneous matrix. In the vicinity of the epiphyseal line these cartilage cells enlarge, proliferate, and lie in groups, which are arranged in columns, extending in the direction of the long axis of the bone at a right angle to the epiphyseal line. This zone of cells is called the proliferating zone. The cartilage cells in actual contact with the marrow spaces of the diaphysis are still larger, and form the so-called hypertrophic zone. The matrix between these cells of the hypertrophic zone becomes fibrillated and finally calcified by the deposition of minute granules of lime, thus forming what is called the zone of provisional calcification. As the process continues, the marrow spaces of the diaphysis extend into the space between these provisionally-calcified cartilaginous masses. The capsules of the cartilage rupture, and the cartilage cells themselves disappear, while the matrix persists as the basis of new trabeculae in the diaphysis. About these trabeculae appear bone-forming cells (osteoblasts) which are derived chiefly from the endostium of the diaphysis. These osteoblasts deposit successive laminae of new bone about the remnants of the calcified matrix. Into the space between such trabeculae grow blood vessels and marrow cells derived from the marrow of the diaphysis. In this way the layers of the epiphysis which lie in proximity to the diaphysis are constantly converted into new bone, and the diaphysis increases in length. The gross appearance produced by these histological changes is characteristic and distinct. The hyaline cartilage is translucent. The layers of the proliferating zone appear somewhat bluer, and the hypertrophied zone makes a narrow, clear space, which extends in a straight line across the shaft of the bone, at a right angle to its long axis. Below the clear space of the hypertrophied zone comes a narrow white line (line of provisional calcification), which is parallel to the base of the epiphysis.

Surrounding the diaphysis and the epiphysis is a layer of dense fibrous tissue (periosteum or perichondrium). The deeper layers of the periosteum consist of polygonal cells, similar to the osteoblasts of the marrow, which have the power of forming bone. These periosteal osteoblasts deposit successive layers of dense bone on the outer surface of the cortex of the diaphysis, and thus increase the diameter of the bone. This process, if not modified, ultimately would lead to an excessive amount of cortical bone, and to prevent this there is a constant absorption of the inner layers of the cortical bone already formed. This absorption is affected by the giant cells (osteoblasts) of the marrow (lacunar absorption). Thus, by simultaneous deposit of periosteal bone and absorption of the inner layers of the cortical bone, the relative thickness of the cortex always remains relatively the same.

In this case the formation of bone, both at the epiphyseal line and beneath the periosteum, takes place in an abnormal way.

Epiphyseal Line.—The epiphysis consists of normal hyaline cartilage. Nearer the diaphysis the cartilage cells enlarge and are more in groups (proliferating zone). Still nearer, the cartilage cells are in columns of cells (hypertrophic zone), surrounded by a fibrous matrix. Directly in apposition with the diaphysis the first notable change is seen. The cartilage cells persist, and their capsules do not rupture. Masses of these cells with portions of the matrix extend into the diaphysis. These masses form the beginning of new trabeculae. (In normal bone calcified matrix only persists.) On these new trabeculae are few if any osteoblasts seen. The capsules of the persisting cartilage cells thicken, and lime is deposited in them. By coalescence of adjacent capsules a solid bony mass is formed—that is, a newly formed trabecula. The distinction is that in normal ossification the trabeculae are formed chiefly by apposition of bone by osteoblasts upon persisting cartilaginous matrix, while in this case new

trabeculae are formed by direct metaplasia of persisting cartilage cells into bone.

The further development of these metaplastic trabeculae is abnormal. In normal bone the trabeculae become laminated, and the bone cells become stellate, with canaliculae connecting adjoining cells. In this case the bone cells always remain large, oval, not stellate, show little or no tendency to form connecting canaliculae, and are much more numerous than normal. The trabeculae also show no or imperfect lamination.

The periosteum also does not form normal bone. The fibrous layer of the periosteum is thicker than usual. The deeper layer of bone-forming cells (periosteal osteoblasts) also frequently is thick, but the cells are more spindle-shaped than usual. New cortical bone is formed by these cells. Under normal conditions the cortex consists of a continuous layer of laminated dense bone, in which are stellate bone cells and Haversian canals. In this case, instead of a continuous layer of normal bone, the periosteum forms separate plates of non-laminated or imperfectly-laminated dense bone, in which are oval bone cells and no Haversian canals. Instead of Haversian canals are large marrow spaces.

The trabeculae in the marrow canal are much less numerous than is normal.

The marrow spaces of epiphyseal and of periosteal origin are filled with abnormal marrow. Near the epiphyseal line and in the cortical marrow spaces the marrow is almost entirely oedematous myxomatous connective tissue. Farther away from the epiphysis the centre of the marrow spaces is filled with normal marrow, surrounded and separated from the trabeculae by a zone of the just-mentioned connective tissue.

The trabeculae everywhere are studded with flattened osteoblasts, but there is no evidence of osteoid tissue.

Giant cell absorption in this case is not extreme.

The process of bone formation everywhere is checked and of an abnormal kind. Metaplasia of cartilage is much greater than normal, while apposition of bone is much less. Formation of periosteal bone is abnormal and incomplete.

The cause of this imperfect bone formation is unknown. It suggests a general disease the character of which is not clear. In such cases the placenta should be preserved for study. It is improbable that this process is identical with the process in acquired fragility of bone.

Dr. ASHBY quoted Dr. Ballantyne to the effect that no chapter on antenatal pathology was so unsatisfactory as the chapter relating to antenatal bone affections. He considered that the case observed clinically and *post mortem* by Dr. Lovett was a noteworthy contribution to the subject. He did not think that this class of cases was always fatal. There was a class of apparently healthy infants whose bones fractured with the very slightest violence, but the bones united readily, and finally complete recovery occurred.

THE ABDOMINAL ATONY OF RICKETS, ITS SIGNIFICANCE AND ITS TREATMENT:

WITH REMARKS ON THE THOROUGH TREATMENT OF RACHITIS.

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[ABSTRACT.]

THE more thorough and rapid treatment of rickets which this paper has in view implies some practical additions to the method now prevalent. The latter may be summed up as "absolute rest with suitable diet and medicine," and its results as a steady but slow improvement. It would be impossible to do justice fully to every therapeutic detail of the various stages of each individual variety of severity; in the following remarks average case and condition must be kept in mind. As the large numbers affected among the poor preclude their cure being completed in hospital, some effective method is to be desired adapted for a limited period of indoor hospital treatment, the patients making room for others when the mother has understood the further management of the chronic stage.

I.—THE SIGNIFICANCE OF ABDOMINAL ATONY.

The pathology of rachitis is still in evolution, but its broader lines will suffice for our practical purpose. The symptoms of the acute stage are unequivocal witnesses to the operation of some toxin, probably causative rather than secondary, the derivation of which is probably alimentary. Pathology, our guide in treatment, is unfolded to us in the clinical appearances of the patients, which tell of more or less functional disablement, digestive, respiratory, skeletal, and muscular. The tendency is to live through the morbid cycle, and to live down some of its results; and yet it leaves its mark *à fronte*, not always sparing the most subtle of our organs—the brain—whilst chiefly attacking more solid structures. But, whilst the lasting deformities are most conspicuous in the bones and in the brain, it has been alleged quite plausibly (Cromby and others) that not only some of the intrathoracic but also some of the intra-abdominal structural defects which are commonly observed in the adult may be in reality the legacy of this infantile disorder. At any rate, in spite of great individual variety in the local incidence of the skeletal changes during the attack, the permanently narrowed chest, and that more temporary enlargement of the abdomen which is our more immediate theme, are almost invariably reminders of the necessity for some more adequate treatment.

"Atony" is not used in its most strict, but rather in the everyday clinical sense in which it is commonly applied to so-called "abdominal plethora." The abdominal plethora of rickets is a "pseudo-plethora"—not a wealth of tissue and juices so much as an encumbrance from the unhealthy stagnation of gases and of fluids.

The influence of rachitis upon the muscular as well as upon the nervous system needs further study. Is it purely functional and simply denutritive, or else structurally destructive after the fashion of the influence displayed in bone? It is interesting that the latter inference has been regarded as possibly applicable to the nervous system. Dr. James Taylor,[1] in referring to the cartilaginous overgrowth and insufficient bony modification of it observed in rickets, says: "It is probable that a similar want of co-ordination exists between the development of the nervous tissue proper and the fibrous tissue, which acts as a scaffolding for it, in the cases of rickets in which convulsions come on, and this presumably leads to an instability of cells and a consequent tendency to discharge." Whilst this must still remain guesswork, nevertheless in estimating the factors of convulsion the abdominal conditions and their effects upon the circulation to which allusion is made in this paper, are probably worth bearing in mind.

Dr. Leonard G. Guthrie has recently described as "rachitis pseudoparalytica hypotonica muscularis"[2] an extreme degree of flaccidity sometimes observed, allowing joints to be bent back. It may be questioned whether a definite degree of atony of this kind is to be met with in ordinary cases. Asthenia from malnutrition certainly obtains, though some of the muscular disablement may be secondary to the softening of bone and to the loss of its fulcrum. The writer's opinion is that whereas the asthenia affecting the skeletal muscles leads to disuse of the muscles of the limbs and spine, and thus to protection from further strain, this saving clause does not apply to the chest muscles or to the abdominal muscles. The persistent abdominal distension from dyspepsia probably strains the muscles into a true atony with elongation of fibres and this secondary atony would greatly favour further passing distension. This view suggests that in any bad case the abdominal muscles themselves would be atonic as well as asthenic whatever might be the state of the muscles in general. The inactive and practically motionless attitude, the shapelessness, and the loss of the sculptural muscular outlines of the distended abdomen seem to point to that conclusion. But exactness of definition is not of immediate importance, as it does not affect the practical issue.

The effect of the atony may be assumed to closely resemble those well known in the adult. (*a*) They affect in the first place the gastro-intestinal motor functions both in the excretory and in the secretory department. Atony of the abdominal wall means gastro-intestinal torpor of peristalsis and of the glandular activities, and the original gastro intestinal disorder to which the rachitic developments are to be ascribed is thereby perpetuated.

(*b*) *Again, the effect upon the circulation* is part of the gastro-intestinal effect. The abdominal circulation both of blood and of lymph loses the assistance of healthy movement and pressure. The passive portal congestion in rachitic infants is analogous to that which obtains in the adult, but the horizontal posture assumed, owing to prostration, discourages any tendency to piles, and the overcharged right heart has not any added stress from muscular work. It is mainly in the capillary area that the results are enacted in the shape of capillary turgor and of its congestive stimulations to hyperplasia. The fibroid hyperplasia, however, is probably more specially due to the stimulus of lymphatic engorgement. The degree of the abdominal atony is a measure of the lymph stasis, which means overcharge and soakage of the tissues, with added bulk everywhere within the peritoneum, which means in addition also some irritative proliferation in the more sensitive areas, such as the liver and the spleen. As to the major degrees of hepatic and splenic enlargement often observed, these are not improbably due to congenital syphilis coinciding with rachitis. On the other hand, the slighter forms of interstitial proliferation may be attributed to congestions analogous to those leading to tissue increase and induration in valvular disease of the heart.

(*c*) *The effects upon the respiration* are hardly less immediate or less important. They belong to two orders: (1) functional alterations, (2) anatomical alterations. I have elsewhere likened the respiratory function of the infant to that of an expulsive machine. Abdominal atony, in abolishing active muscular expiration and leaving, only some of the passive forces of elastic recoil, reduces the working of the engine to a low pressure. Indeed, Wachsmuth is inclined to regard the lesions of rickets as due to a chronic intoxication by CO_2. This loss of abdominal power, together with the weakness of the dorsal muscles, contributes to the inability to preserve the erect posture; and at the same time it diminishes indirectly the force of elastic recoil, inasmuch as the diaphragm, not having a rigid fulcrum as in the abdominal atony of adults, where the base of the thorax is fairly firm, is unable to make much impression upon the dead weight of the abdominal mass, and the expiratory elastic recoil is diminished in an equivalent degree.

(*d*) *A study of the inspiratory events* in a well-marked case of rachitic abdominal atony (which is almost invariably also a case of narrowed chest) shows that the abdomen remains almost motionless and undergoes very little inspiratory protrusion; and yet, inasmuch as the upper part of the chest undergoes very little expansion, it is obvious that the chief work of respiration must somehow be conducted by the diaphragm. The mechanical effect of its contraction is in reality the reverse of the normal. In the typical cases in point the only region showing active respiratory movements is the inferior costal; but instead of any of the normal inspiratory expansion taking place, the effort of the diaphragm brings about a considerable recession which makes room for re-expansion during the next expiration. The familiar explanation of this phenomenon is doubtless correct—namely, that the lowered resistance of the ribs and cartilages is more readily overcome by atmospheric pressure than that of the imperfectly expanded lungs. The increase in volume which the base of the lungs would have undergone in a less yielding thorax in response to the diaphragmatic contraction is measured in defect by the inspiratory recession which takes place along Harrison's sulcus.

What is the share taken in the production of this inverted type by the atonic distension? It is chiefly a function of bulk and of passive resistance. There is a loss of proportion between the enlarged abdomen and the narrowed base of the chest, and the diaphragm has to work at a disadvantage. As the latter lacks power to project the abdomen in the normal way, the mechanical effect of the shortening of its fibres is a direct pull upon its attachments. This probably accounts for a fraction of the inspiratory recession in the lower costal region.

The eversion and lipping of the costal arch, a purely mechanical effect of the abdominal distension, leads to the dome-like shape imparted to the lower thoracic aperture. The lower costal arches are, as it were, moulded upon the convexity of the ventral mass the more closely in proportion to their rachitic softening; and evidence of this is perpetuated throughout life by the combination, with the eversion, of a thickening and of a lipping of the everted cartilages, which is not present when the eversion is the product of mere obesity occurring independently of rickets, and at a later age. This capping of the distended abdomen by the moulded base of the thorax constitutes a slight additional hindrance to the freedom of vertical movement of organs both within the thorax and within the abdomen.

If this sketch of the evil effects of abdominal atony and of its tendency to retard spontaneous recovery has not been overdrawn, no further argument is wanted to prove the importance of special attention to its treatment.

II.—The Thorough Treatment of Rachitis; the Special Treatment of Abdominal Atony.

As increased thoroughness in the treatment of rickets is the chief practical object aimed at in this paper, a brief reference to the writer's general management of the disease may serve as an introduction to the details of the abdominal treatment. The help of trained nurses is indispensable for the success of any thorough treatment, and in the case of the poor this involves at least a short stay in hospital. This should, therefore, be secured if possible.

In the matter of hygiene and of diet the lines usually recommended are those which should be followed. There is only little that need be added, but that little is not unimportant. Open-air treatment, or the nearest available approach to it, is a first essential in hygiene; and in dietetics the selection of foods should be suited to the individual requirements of the patient, though there is a still wider purpose to be kept in mind—that of fitting the patient for the foods by an efficient treatment of the digestion.

Medication.—The medicinal indications are contained in the clinical states which have already been described as states of depression of the various functions: (1) Of the gastro-intestinal; (2) of the nutritive or metabolic; (3) of the nervous; (4) of the muscular function and as being secondary and structural results of the functional disturbance.

The "gastro-intestinal" indication may vary, but it is always to the front, particularly in the acute stage of rickets. For rapid results the diet may have to be considerably simplified at first (even down to whey), with a view to its subsequent increase. A grey powder or a fractional dose of calomel to be taken at least once daily, preferably at night, is an almost invariable routine; lastly, castor oil to be administered every morning, even if the dose be only 30 or even only 20 drops, is invaluable unless contraindicated. On this plan the digestion may soon be restored, without further resort to stomachic medication. Yet we may so far conform to the theory of an acid dyscrasia as to administer with food 5 to 10 gr. of a remedy recently recommended by Paul Ferrier in phthisis,[3] namely, a mixture of equal parts of tricalcic phosphate, of chalk, and of common salt, which I find is well borne.

The "Nutritive" Indication.—According to approved ideas, fats are the chief want in rickets. This is a view rather difficult to justify by argument in the variety known as "fatty rickets." Nevertheless, the fact that cod-liver oil suits almost all cases may be interpreted as meaning that its genuine value is not so much that of food as of a lubricant, or of a vehicle for iodine and other principles which it may contain.

The other definite indications are those which belong to the general metabolism and in particular to that of bone, of nerve, and of muscle. Calcium, phosphorus, and the phosphates are all acknowledged requirements; but in connexion with the question of their efficacy it must be stated that, in the case of each of them, experimental evidence has been brought forward to prove that they are relatively ineffectual.[4] I have not myself been able to carry out any critical inquiry to test the clinical value of this indictment. But on the strength of a long familiarity with the excellent clinical results noted with some accuracy of observation, I still continue to administer all three remedies in conjunction. The formula is that of a compound syrup containing equal parts of the hypophosphites of calcium, of sodium, and of iron, together with the glycero-phosphates of the same bases. In the aggregate the dose of these ingredients amounts in all to from 6 to 18 gr. according to ages, and this dose is admini-

stered with meals thrice daily. Sanatogen is an excellent phosphated food for rickets, but it is not indispensable.

The "nervine and the muscular" indications may be taken together. Strychnine serves both; and I often include ½ to 1 minim of the liquor in the dose of the compound syrup. I have had excellent results from adrenalin solution (½ to 1 minim in a drachm of water) three or four times daily on an empty stomach, as a help against muscular asthenia. But its administration must not be continued for more than a few days, in view of our uncertainty as to any detrimental action from its continuance. This favourable experience agrees with that of W. Stoeltzner,* who studied the clinical effects of administering suprarenal substance. Sodium formate, coca wine, or coca leaves may also be tried for the same purpose. Electricity may also be serviceable. I have applied it in the shape of the sinusoidal current passed through the hands (or the feet) submerged in two terminal hand baths.

The treatment by calcium and by the phosphates is in line with the rational treatment of the specific lesions of bones. But as the latter, when once established, are slow to yield, the best policy is their prevention by getting the constitutional affection "under" by the quickest agencies of relief and at the earliest possible date. In this way we may not despair of being able to limit the extent of the skeletal changes.

The special treatment of the abdominal atony presents two sets of indications: (*a*) Remedial measures directly addressed to the debilitated muscles, and the first of them must consist in relieving the undue strain thrown upon the muscular fibre by the abdominal distension; and (*b*) measures for the correction of the results directly arising from the atony itself, such as the general stagnation of the visceral circulation, or of correlated results due to the original causes of the atony. Among the latter (Group *b*) we have to deal above all with the effects of the general loss of activity or immobilization which is peculiar to the disease itself, and which is further encouraged by its prevalent mode of treatment by rest.

The means to these ends are varied. They include medicinal agencies, to which a brief allusion has already been made. But there remains to be described the less widely known and perhaps partly novel methods of mechanical treatment, from which excellent results have been obtained in the cases in which I have employed them. Their range of usefulness lies chiefly in the direction of an improved circulation, and of an improved respiratory function.

1. *Massage*, where it can be used, is *par excellence* the remedy for impaired circulation. It must be borne in mind that the rickety are deprived of the circulatory advantages of muscular activity just at that period when muscular movement begins to be one of the conditions of growth. To meet this want resort would be had in most other affections to general massage of the trunk and limbs, but in rickets this is inadmissible, in view of the frailness of the bones. Forcible kneading of muscles (*pétrissage*) is not, however, the only available substitute for the help which a more active muscular system should afford to the peripheral circulation. Other remedies, such as friction, baths, and electricity, may be applied with perfect safety and without any suspicion of doing harm. Nevertheless, they demand very judicious handling. They all tend to promote vascular activity.

2. *Friction*, if called for, should be of the gentlest kind. Stimulating embrocations should be carefully selected for their mildness.

3. *The sand bath* and the *salt-water bath* have long been in use at seaside resorts, and the latter are also available inland. Their obvious merits require no comment.

4. *Electricity* can also be made available. The good effects which I have obtained in the general and in the cardio-abdominal atony of broken compensation from the use of the sinusoidal current has led me to its employment in rickets. Its application has the advantage of not involving any discomfort or alarm. It may be applied either in the usual way in a bath, or, with greater advantage, through the double hand-bath or foot-bath method recently introduced from Germany, in which immersion is limited either to the hands or to the feet in two separate hand-baths or foot-baths, each containing one of the electrodes. The entire current is thus made to pass through both limbs and through the trunk. An alternative for the foot-trough is a thoroughly wetted felt shoe (or its equivalent), with the electrode firmly applied to the sole, the limbs being then enclosed up to the knee in separate india-rubber bags, and slanted slightly downwards over a mackintosh sheet. As in cardiac cases, the effects sought and obtained are largely for the sake of the heart and of the abdominal viscera; when, therefore, in rickets we use the current for the improvement of the general circulation and of the muscular system, we are in reality doing much to fulfil the special abdominal indications to which I shall now refer.

The Direct Treatment of the Abdomen.—Massage of the abdomen is not open to the same objections as massage of the limbs, but nevertheless should only be entrusted to the skilful and light-handed. It is resorted to with great benefit for four definite objects: (1) To invigorate the muscular wall; (2) to reduce the distension of the stomach and colon, or any gastric dilatation; (3) to disperse visceral engorgements; (4) to increase respiratory efficiency. As the strength improves, dorsal massage in the prone horizontal position can be combined with great advantage with the benefits of abdominal massage.

The Elastic Abdominal Belt.—This is the last in the present list of remedies, but it will probably be found the most important in practice. Indeed, if none of the other helps were available, it might in course of time supply their place single-handed. Its co-operation in the thorough and rapid treatment which I have endeavoured to describe is of the first order. But perhaps its most important recommendation in a chronic affection most prevalent in the poorer classes where the patient can receive only slight personal attention, is that its action is both automatic and perpetual. Of course, the belt has to be looked after and kept in position, and its pressure properly regulated by an intelligent use of the buckles; but in the intervals, and during the long hours of sleep, it is doing its work without causing any trouble. During the patient's short stay in hospital the mother should be taught how to make the belt and how to use it. It consists of a broad band furnished with buckles at one end and slit at the other extremity into tailed ends to meet the buckles. The belt is to be worn over an under garment, with the row of buckles along the right or left flank, and the elastic portion over the front of the abdomen. It may need to be steadied by understraps passing outside the diaper. I have given up the woven material known as "elastic," and returned to the use of the elastic cord (about ¼ in. diameter), because the former cannot be washed and dried with ease. The main difficulty in this treatment is, of course, as to cleanliness. It is got over by using a material, such as oiled linen, or any indiarubber-coated stuff, which does not soak in moisture and can be quickly sponged and dried. The indiarubber cord is laced loosely down the entire front, through two vertical rows of holes. These holes can be furnished with metallic eyes by punching them through two narrow strips of light leather suitably sewn outside the waterproof material. The lowermost loops are to be kept shorter than the upper ones, as the latter should afford easier play. The fold in the band, which is produced by the pull of the elastic cord, may be kept on, as it takes off from the surface of the abdomen some of the direct pressure of the cord. Moreover, the loops of the cord must all be made to cross in front of the band by passing the cord in and out of two adjoining holes before crossing it to the other side. It may be gathered from this description that the elastic cord remains flaccid until it is stretched by buckling up the belt. It is, therefore, most important to teach the mother the management of the belt, and the regulation of its pressure by means of the buckles. The lowermost of the five buckles is always to be fastened first and made the most tight; the top strap, which corresponds to the level of the epigastrium and of the lower cartilages, should not be drawn too tightly. Lastly, any tendency to a riding-up of the belt would be obviated by the understraps.

The advantages of the belt are: (1) Its automatic action; (2) the lateral support which it affords to the weak abdominal parietes, and through them to every vessel in the splanchnic area; (3) the resulting improved distribu-

* *Jahrb. f. Kinderh.*, 1900, vol. i, p. 73, p. 199. Stoeltzner, in conjunction with B. Salge (*Beiträge zur Pathologie des Knochen Wachsthum*, Berlin, 1901) has more recently advanced the theory that rachitis may be of suprarenal origin.

tion of blood, with immediate correction of the apparent oligaemia which is one of the features of rickets; and, above all, (4) the more effective respiration, which quickly corrects the pallor. But the other major effect, in addition to support, is that which is afforded to muscular growth and stimulation. The elastic play of the belt acts the part of a perpetual massage.

In conclusion, it need only be added that these and other advantages of the elastic belt have already been dwelt upon by those who have utilized it in various affections, and in particular by Achilles Rose and by Rosewater. Kilmer had shown that it can be used with distinct benefit in whooping-cough. I am not sure that the belt has ever been proposed as an adjunct in the treatment of rickets. This paper is intended merely to call attention to its usefulness and its mode of employment in that affection. It is therefore at present unnecessary to enter into the clinical details of the cases in which I have used it as part of the systematic treatment which I have described. I may be allowed simply to state that my experience with the belt, though comparatively recent, has been most satisfactory. As regards the other lines of treatment which I have indicated, I do not doubt that others who may try them will find them equally useful.

References.

[1] *Paralysis and other Diseases of the Nervous System in Childhood and Early Life*, p. 295. London, 1905. [2] *Trans. Soc. for Study of Diseases in Children*, vol. iii, 1903. [3] *La Tribune Médicale*, May 22nd, 1906. [4] According to W. Stoeltzner and S. Mirva (*Jahrs. Kinderheilk.*, 1898, vol. xlvii, p. 153) phosphorus cannot, as held by Kassowitz (*Wien. med. Woch.*, 1901, Nos. 38 and 40), be regarded as a direct or specific remedy.

The President said that he did not agree with the plan of giving large doses of hypophosphites in rickets, but was in favour of dietetic treatment and of castor-oil in small doses. He considered that the abdominal atony was secondary to gastric dilatation. He had frequently employed the treatment by an abdominal belt, which he applied for an hour or so twice a day. It was valuable, in his opinion, as a respiratory stimulant.

Dr. Edmund Cautley (London) agreed with the President in deprecating undue reliance on drugs in the treatment of rickets, and thought that inorganic compounds of lime or phosphorus were of very little value. He regarded the atony of the abdominal muscles as secondary to the intestinal distension, and suggested that the use of an abdominal belt would further weaken the muscles by lessening their activity. A further objection which might be urged against the continuous application of such a belt was the risk of its inducing compression and imperfect expansion of the lower lobes of the lungs, with perhaps secondary oedema. Exercises were of considerable value in strengthening the abdominal muscles.

Dr. Kauffmann (Birmingham) inquired of Dr. Ewart whether he was accustomed to give urotropin as a corrective of the putrefactive intestinal processes which played so important a part in the production of rickets. He himself had repeated experience to show that under the influence of this drug the common indicanuria was diminished or removed, with simultaneous improvement of the patient's condition. As to Dr. Ewart's elastic belt, he thought that its usefulness would be great in cases of bronchitis combined with rickets, in which the act of expiration was aided by positive contraction of the flat muscles of the abdomen.

Reply.

In reply Dr. Ewart protested against condemning remedies *a priori*, without giving them a proper trial. He thought that the objections raised against the belt had no great substance, and he urged objectors to give the treatment a really good trial. The pressure used should be elastic and strong, and should be applied low down. He had not tried urotropin, because he considered that intestinal fermentation was one of the chief causes of rickets, and that the object should be to clean the inside of the gastro-intestinal tract. He had also used the belt in the treatment of bronchitis, with good results.

TREATMENT OF TUBERCULOUS ABSCESS.

By C. L. Starr, M.B.,

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Abscesses following tuberculous disease of bone, being a symptom or complication only of the disease, are not given serious consideration as to methods of treatment, or much thought of as to their true relation to the primary condition.

An abscess, so long as it remains quiescent as a closed sac and does not become infected, adds no danger element to the local or general condition. On the other hand, it may become the most troublesome and most fatal condition connected with the tuberculous affection of bones or joints.

After an abscess has formed, been drained, or opened spontaneously, become infected with mixed organisms, such as the staphylococci or streptococci, and patient's general condition has suffered, then the local bone disease is considered extensive or severe; whereas in reality the bone lesion may be to a great extent repaired, and the general debilitated and emaciated condition of the patient may be due to the infective agents which have invaded the soft tissues.

The abscess is formed by the tuberculous process in the bone or joint reaching its surface, and breaking through the periosteum or capsule of joint when periarticular structures are invaded, the tubercles coalesce and caseate, further soft structures are involved, muscle or connective tissue; these break down in like manner, and thus a large cavity may be formed, the abscess enlarging along the line of least resistance.

The contents are now known not to contain any pyogenic organisms except as they are secondarily introduced. They are composed of caseous material, with more or less débris of bone and connective tissue, some polymorphonuclear leucocytes, and a few tubercle bacilli, although frequently these cannot be demonstrated microscopically. The wall is made up of granulation tissue containing numerous tubercles, and the bacilli are here present. Outside of this is a simple inflammatory layer of lymphoid cells with numerous leucocytes. The granulation wall, formerly called "the pyogenic membrane," is the active part of the abscess, and it extends directly.

With a simple abscess of this sort the general condition of the patient does not suffer materially, and, as we pointed out, the abscess is a comparatively innocuous affair. We have all seen patients with a perfectly normal temperature and pulse, good appetite, excellent general condition, with no symptoms other than mechanical ones noticed.

If this abscess burst spontaneously, or is opened and drained and subsequently becomes infected, then follows a chain of symptoms with which we are also far too familiar, the temperature and pulse take on septic character, there is the hectic appearance, steady emaciation, amyloid changes of kidney and liver, gradual exhaustion, and death in many cases.

One might argue that an abscess drained need not necessarily become septic; but I have been unable to find records of any case which has been drained which did not become septic within a few weeks, and as these cavities drain for months and years we may assume that they all become septic.

The writer has also been unable to find any cases of amyloid changes of kidney or liver in any tuberculous disease of bone with or without abscesses unless there is also a mixed infection.

If these symptoms are not the result of extensively diseased bone conditions, but are the result of the suppurative processes subsequent to a mixed infection added to the tuberculous lesion, then any suggested treatment should carefully consider the possibility of preventing this mixed infection. It should also consider the possibility of getting rid of the active part of the abscess, that is, the wall, in order to prevent its spreading.

Taking up the recognized forms of treatment in the light of these facts we will speak first of the expectant treatment.

It is well known that a proportion of abscesses disappear in the patient suffering with bone lesion if properly treated. The fluid portion of the abscess is absorbed and the caseous matter left becomes encapsuled, and all evidence of abscess, except some fibrous thickening, disappears. This being the case, it certainly is the part of wisdom to watch all abscesses while at the same time the joint or bone lesion is adequately protected and the general condition of the patient built up by out-of-door life, abundant and nutritious diet, with general tonics of tissue-building type.

In this connexion the writer feels that all bone or joint lesions can be more efficiently treated in the recumbent position than by any ambulatory plan, and it has become the custom to put such patient on a frame in the recumbent position with absolute fixation in the hope that the abscess will absorb.

The question next arising is as to what symptoms will warrant one in giving up the expectant plan and resorting to more radical measures. The most significant symptom will be the steady increase in size of the abscess in spite of general and protective treatment. If the abscess does enlarge it does not necessarily mean that the bone lesion is getting more extensive and that the increased abscess content is due to bone débris. On the contrary, we know that the bone focus is often quiescent and the increased size of abscess is due to invasion by the tubercle of the soft tissues, the breaking down of which forms the bulk of the abscess contents. This invasion of soft tissue is often more difficult to get rid of than the original focus.

The line of least resistance is followed by the gradually increasing mass and eventually it will work to the surface. This is the crucial point in consideration of treatment of these abscesses. If the abscess be allowed to open spontaneously it will, of course, become infected very quickly with septic organisms, and we have the danger element we were anxious to avoid. On the other hand, if the abscess burrow too close to the skin one of two things may happen; the abscess may become infected with organisms from the hair follicles or sweat glands, or the skin itself may become invaded with the tuberculous disease.

The point especially to be emphasized is that interference surgically should take place before either possibility becomes a fact.

Second Aspiration.—There are a number of favourable features about this plan. It can be resorted to without anaesthetics and shock of an operation. It minimizes the possibility of mixed infection. It lessens tension in the sac, and thus reduces the tendency to extension of abscess.

There are, however, a number of disadvantages. It withdraws only the liquid portion of the contents, and the subsequent action of the bacilli or toxins causes a liquefaction of the caseous material, and the process must be repeated, sometimes on several occasions.

A second objection is that very frequently the needle plunges into caseous mass at once and becomes plugged, and the result is a "dry tap." It very rarely happens that any large quantity of the liquid contents is withdrawn before the needle does become plugged, and this second mechanical difficulty is a most annoying one. Again, on the withdrawal of the needle the abscess contents are apt to follow in its track, and you may get a tuberculous track which will ultimately break down and form a sinus; and, finally, it does not get rid of the active and extending tuberculous process in the wall.

Injection of germicidal agents, with or without the withdrawal of any of the abscess contents, does not seem reasonable, as any agents which may safely be injected into a closed sac without endangering life can scarcely be expected to have any beneficial effect. The plan has few advocates, and while it is not open to the objection of adding a mixed infection, it does not seem to offer any adequate hope of getting rid of the outer diseased wall.

Excision of the sac entire, and subsequent closure of wound, as advocated by Mr. Watson Cheyne, fulfils both requirements laid down in the earlier part of the paper, but it must necessarily have a limited application. It manifestly cannot be carried out in psoas abscesses, or, indeed, in any abscesses from spinal disease. It is, however, a perfect method of treatment for a very small number of abscesses that are free of the joints in accessible parts of the extremities.

Incision and Drainage.—This is the common method of treatment advocated by most textbooks, even the most recent works on orthopaedic surgery and diseases of bones and joints. It is the method commonly given by students when asked for treatment of tuberculous abscess. The abscess, or, more properly, tuberculous cyst, is treated exactly like any ordinary septic abscess: often without any aseptic precautions whatever. This always results in a long-continued discharging sinus, with frequent painful dressings, foul discharges, and a serious chain of symptoms previously outlined, often endangering the life of the patient, and always making his condition annoying. The single sinus often becomes closed up, only to find a new outlet elsewhere, until the seat of infection may become riddled with discharging sinuses. It is against this most common method of treatment that a hearty protest is entered.

Incision, Evacuation of Contents, Curetting of Wall and Closure of Wound.—At the American Orthopedic Association, in 1901, the writer presented a report of 25 cases treated by this method, and advocated the adoption of this aseptic method of treatment of abscesses, but it received a good deal of unfavourable criticism by a number of the members. With a wider experience the writer wishes again to bring the subject up for discussion, and to present a further report of 30 additional cases.

The technique of the former method was to have the region thoroughly prepared, as for any aseptic operation. The abscess was then freely incised, the contents thoroughly evacuated, the wall curetted with Barker's flushing spoon, where that was possible, and wiped out with iodoform gauze in other cases, and as much of the wall of the abscess scraped away as possible. The interior was then swabbed with pure carbolic acid, the edges of the incision thoroughly wiped free of any débris, and closed by deep sutures. In a number of the series the cavity was filled with iodoform emulsion, consisting of 10 per cent. iodoform in sterilized glycerine.

While in the writer's experience the swabbing with pure carbolic has never been followed by any bad results, yet this part of the treatment has been subjected to most criticism. In the last 30 cases the carbolic has been omitted, the plan being to freely incise the abscess, evacuate its contents, wipe off wall with 10 per cent. iodoform gauze aided by curette, clean the cavity as perfectly as possible, using gauze freely to wipe out all débris, and after thorough cleansing of edges of wound to see that no tuberculous material is left; the wound is closed with sutures placed as deeply as possible to approximate wide areas of tissue, pressure is kept up over the abscess to prevent filling with serum and firm antiseptic dressing applied.

The results have been most satisfactory, as the great bulk of these have healed by primary union and the cavity has not refilled. In some few the cavity did fill up again, requiring a subsequent similar operation, and in seven only has there been any breaking down of the wound and resulting sinus. Two or three of these are accounted for by the fact that the abscess had burrowed too close to the skin and the skin had become infected. This could be guarded against in future by excising the diseased skin. One or two resulted from opening the abscess through the thinned part, instead of making incision through deeper structures, so that a wider healthy surface could be co-apted in closing the wound. The greater the depth of healthy tissue one can keep between the abscess sac and the outside skin the more perfect will be the result. Even in these seven the result is no worse than it would have been had the wound been left open while the other forty-eight were spared the possibility of danger and the annoyance of frequent dressings.

The iodoform emulsion has been discontinued on account of the dehydrating action of the glycerine. It was found that the pouring in of serum into the cavity was so great as to distend the sac and in some cases to force itself out through the incision, thus overcoming the effort one makes to keep the edges of the wound deeply and closely approximated and the surfaces of the cavity in contact so that they may adhere and thus obliterate the cavity. It is contended by some that this action of glycerine is soon satisfied and that absorption rapidly takes place again, leaving a deposit of iodoform. The absorption in some cases at least, does not take place until damage is done and a leak established. If, as von Mikulicz claims, the iodoform has a specific effect on the tubercle bacilli, one gets it almost equally well by the iodoform that is rubbed into the wall from the iodoform gauze.

A summary of the 55 cases occurring in the Hospital for Sick Children and in the private practice of the writer shows that seven of the cases afterwards broke down, 48 so far as can be traced have remained perfectly closed and aseptic for periods varying from four months to six years. Only five of the series required a second evacuation of contents and one a third.

Of the series there are two which are of sufficient interest to justify a short clinical history being given.

K. C., male, aged 12, hip-joint disease, developed abscess in Scarpa's space. In spite of efficient treatment the abscess enlarged and it was finally operated on as described above. The wound healed by primary union, temperature remained normal and general condition good. After a few weeks the cavity showed signs of refilling, but very slowly, and as the patient wanted to take a month's trip out of the city permission was granted.

While away a local surgeon was consulted as to condition of hip and he advised opening the abscess. It was opened and a drain put in. The temperature was noted as normal up to a few days following operation, then the wound became septic and gradually got worse, when a second operation was done and head of bone removed to get better drainage, and drain passed through to gluteal region. Infection spread and the boy rapidly became exhausted and died a few weeks later.

L. W., female, aged 10, had Pott's disease of lower dorsal spine with double psoas abscess. Abscesses were quiescent under observation for two to three months, then speedily increased in size, but were still deep in iliac fossae when it was decided to evacuate them.

Incision was made parallel with Poupart's ligament, and slightly above it through skin and muscular wall down to peritoneum. This was stripped up from iliacus muscle until psoas sheath was reached, then this was punctured and abscess opened. About a pint of débris and broken-down tissue was evacuated, the cavity carefully and systematically wiped out with iodoform gauze, the edges of incision and structures down to opening in cavity thoroughly cleansed, and wound closed with deep sutures. This was repeated on opposite side. Both wounds healed in a week, perfectly, and now, eight months after operation, she has no sign of refilling of either sac, and she has two perfect scars similar to that produced after operation for inguinal hernia.

Dr. A. B. Riddell (Bayham, Ontario) asked whether Dr. Starr would advise the total extirpation of the tuberculous abscess, when permissible, in preference to incision and curettage.

Dr. Ralph Vincent congratulated Dr. Starr on his interesting paper and on the excellent results achieved. Dr. Vincent had seen a considerable number of cases treated by operation and drainage, and in many of these he had felt that the operation had distinctly done harm and gravely prejudiced the life of the patient. The absolute evacuation of the noxious products, thorough cleansing of the cavity, and immediate closure of the wound gave the patient an infinitely better chance in every way, and he hoped that the methods advocated by Dr. Starr would be widely followed.

RHEUMATISM IN CHILDREN.

By Alex. D. Blackader, M.D.,
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When I first received the invitation of the Committee to open a discussion at this meeting on rheumatism in children I was inclined to refuse, partly because I felt the subject might include more than I felt able to treat effectively in a brief paper, and partly because I felt I could add little of interest or importance to the classic papers of Barlow and Cheadle. On second thought, however, it seemed to me that the presentation of the subject from a somewhat local point of view at a meeting like this might not be without interest. Rheumatism in childhood, although a disease knowing no geographical bounds, presents itself under such varied manifestations, that a comparison of its characteristics as seen in this country with those met with in England and on the Continent might possibly elicit some facts of interest.

At the outset we will all probably agree to regard acute rheumatism as an infectious disease; and although it is still questioned whether the specific organism to which attention has been directed recently, the *Micrococcus rheumaticus*, is the true cause of the disease, it is generally recognized that rheumatism has many analogies to an infection by the pyogenic cocci. Arthritic pseudo-rheumatic symptoms are not infrequently met with in many systemic infections, notably in infection by the pneumococcus, the gonococcus, the streptococcus, and staphylococcus; and clinical appearances occasionally would indicate that there may be other organisms, as yet undistinguished, which have a similar specific action on synovial membranes.

Rheumatism has in all countries a special interest to physicians, not only on account of the fact that its manifestations in childhood are frequently insidious and apt to be overlooked, in strong contrast to its abrupt and attention-compelling onset in adult life, but also on account of the disastrous effects on the cardiac tissues which so frequently follow its invasion of the child's organism. It is generally conceded that the large majority of the cases of heart disease met with in childhood are the result of a rheumatic infection, an infection which, in a certain number of cases, is liable to be overlooked by parent or physician, owing to its ill-defined character. Such was the explanation given by Barlow twenty years ago for the numerous cases of non-congenital cardiac trouble he saw which gave no history of a definite rheumatic attack. The explanation appears still valid to-day.

It becomes a frequent duty, therefore, to emphasize the fact so clearly stated by both Barlow and Cheadle, that in childhood the purely arthritic manifestations of rheumatism may in numerous instances be wanting, and may be replaced by ailments which in the adult would be regarded not as manifestations, but as complications. In the child cases of tonsillitis, chorea, pleurisy, muscular pain, exudative erythema, and epistaxis should be regarded as having possibly a rheumatic origin.

In a recent paper before the New York Academy of Medicine,[1] Dr. R. H. McConnell, of the Vanderbilt Clinic in that city, stated that, of 500 cases of rheumatism in children in which the initial manifestations could be definitely ascertained, in 35 per cent. a tonsillitis was an important symptom for which the child was brought to the clinic, although in 11 per cent. of these cases other complications were present, the most common being an endocarditis. In 23 per cent. the complaint was of shortness of breath and pain in the thorax, arising from an endocarditis. Arthritic pain was the chief complaint in only 24 per cent.; chorea in 15.5 per cent. muscular pains, or growing pains, attracted attention in 2 per cent.; torticollis in 1 per cent. Subcutaneous nodules were observed only in three cases. The subsidiary place which arthritic pain takes in the rheumatism of childhood is well brought out by these figures, for although in all probability arthritis will occur in the history of every recurring infection, yet in the earlier manifestations it is not infrequently wanting. When present the articular inflammation is almost always of a subacute character, and shows but slight tendency to metastasis. In a few cases the reaction is noted not in the synovial sac, but chiefly in the periarticular tissues about the insertion of the ligaments and tendons.

Muscular pain and tenderness must also occasionally be regarded as a manifestation of rheumatic infection. Myalgia is a not infrequent symptom of many forms of toxaemia in childhood. In some cases this is due merely to overfatigue, and occasionally to definite trauma, unnoticed at the time or forgotten by the child, but in a variable percentage of cases the "growing pains" of childhood are truly rheumatic, and may be associated with a very definite endocarditis. The family physician is apt to hear more frequently of these pains than the hospital records would indicate. In twenty three cases met with in private practice, of which I have notes, five afterwards developed a tonsillitis which I regarded as rheumatic in character; one a chorea with endocarditis, and one an erythema nodosum. Three I associated with a disturbed condition of the digestive tract; seven I regarded as due to overfatigue of the muscles, and three on examination presented evidence of trauma.

Tonsillitis is a frequent manifestation of the rheumatic poison both in childhood and adolescence, sometimes preceding it, at other times ushering it in. In the statistics of the Investigating Committee of your Association tonsillitis was associated with rheumatism in about 25 per cent. of all cases without reference to age.[2] In the records of the Montreal hospitals tonsillitis was an early and prominent symptom in 13 per cent. In the Children's Hospital in this city it was noted only in 5 per cent., while in the records of the Vanderbilt Clinic in New York it is stated to be an important attention-compelling feature in 35 per cent. Speaking from my personal experience, I think the smaller percentages indicate defective inquiry.

As to the exact type of tonsillitis usually associated with the rheumatic infection, observers differ. Writers have generally described rheumatic tonsillitis as a diffuse

inflammation, extending to the pillars of the fauces, sometimes to the posterior wall of the pharynx, and associated with pain on deglutition. Holt[3] states that rheumatism may be associated with any form of tonsillitis, but in his experience quinsy has the closest association. Crandall writes me that in his experience the type of tonsillitis most commonly associated with rheumatism is characterized by a soft, almost purulent, exudate on boggy, greyish tonsils. He says that an acute tonsillitis marked by spots of discrete white exudation is less to be feared than one running a more subacute course with mucopurulent secretion or a soft irregular exudate. In several instances in his experience recently this form of tonsillitis has been the harbinger of a distinct rheumatic attack.

In some instances the type of tonsillitis associated with rheumatic infection is not acute but chronic. Gurich[4] reports 17 consecutive cases of rheumatic infection, with evidences of tonsillitis in 13. In most of his cases the tonsillitis was of the chronic form, manifested by hypertrophy and the formation of cheesy-looking plugs of unpleasant odour. Peritonsillar abscess occurred in 4 of his cases. In rheumatic infection, associated with chronic tonsillitis, he strongly urges radical treatment of the tonsillar condition, and states that in several of his cases the symptoms stopped abruptly on scarification or excision of the gland.

The question arises as to the part the tonsillitis plays in the general infection. Is the tonsil the portal of entry, and is the tonsillitis the result of the direct action of the rheumatic organism on the tonsillar tissue, or is the tonsillitis due to a secondary and associated organism; or does the inflammatory reaction arise in the course of the elimination of the rheumatic toxin?

That the tonsils under certain conditions afford a portal of entrance to some organisms which find their way into the oral cavity is generally admitted. All recognize it as the usual pathway for diphtheria and scarlet fever, and probably for pneumonia. The recent experimental work of Fritz Meyer[5] in Germany and of Frissell[6] in the Presbyterian Hospital of New York, in which organisms were isolated from cultures taken from the throats of patients suffering from acute rheumatism, which, in a series of inoculation experiments, always gave rise to an arthritis, points to the same pathway for the rheumatic infection.

In most children the tonsils are distinctly enlarged. Bosworth says that the conventional tonsil of anatomists is really a hypertrophied one and no more normal than an enlarged lymph node elsewhere. The epithelium covering the surface of such a gland is distinctly thickened, but at the bottom of the crypts it is very thin, and presents only a slight obstacle to the entrance of organisms from without. Goodall[7] found that grains of carmine introduced into these crypts were promptly absorbed into the interior of the gland; and although under normal circumstances any bacteria thus entering would probably at once encounter conditions which would terminate their existence, when inflammation exists or when the system is depressed by a chill or by a toxaemia, these barriers against infection may be greatly weakened. Careful attention to the condition of the tonsils is, therefore, especially demanded in all children with rheumatic tendency.

All our English and Continental authorities lay emphasis on the frequency and importance of the development of subcutaneous fibrous nodules in the course of a rheumatic infection. Still[8] states that in fifty consecutive cases of articular rheumatism admitted to the Hospital for Sick Children, nodules were present in twenty-three. With us in America these nodules are of very rare development. Since observing them at the Children's Hospital in London, I have carefully looked for them here, and during the past twelve years have only seen them in three instances, and one of these was a case of rheumatoid arthritis in a child of 7 years. Dr. Gordon Campbell, in charge of the Outdoor Department for Diseases of Children, and also associated with Dr. Shepherd in his Dermatological Clinic, says that he has only seen fibrous nodules three times in a ten years' service. From New York Dr. Crandall writes:

> I see very few fibrous nodules; they must certainly be much less common in New York than in England.

Dr. Crozer Griffith of the University of Pennsylvania, writes from Philadelphia as follows:

> My own experience has certainly been that subcutaneous connective tissue nodules are distinctly uncommon; much less common than in England. I can recall not more than two or possibly three well-marked cases in my whole experience, and I have looked for them carefully.

Dr. McCrae of Baltimore writes:

> Regarding subcutaneous fibroid nodules, all our instances, four in number, were in children. It may be of interest to state that in a series of 110 cases of arthritis deformans they were found in seven, all adults.

Among the numerous manifestations of rheumatism in children are generally classed the exudative erythemata. In a considerable number of cases this group of skin affections appears to have a septic or toxic origin, and although associated with pyrexia and occasionally articular pain, cannot be regarded as arising from a definite rheumatic infection. In other cases, however (the percentage varying with the special form), the history and course of the affection point strongly to a rheumatic origin. Erythema nodosum frequently precedes, follows, or accompanies a rheumatic attack, and although Barlow stated that he had never been able to assure himself of the production of an organic heart lesion in association with a simple attack, instances have recently been reported in which, during or directly following an attack of erythema nodosum, unquestionable symptoms of a true rheumatic infection have made their appearance. One such case was under my care this spring in the wards of the Montreal General Hospital. Erythema marginatum and erythema papulatum are, in our experience, less frequently than the nodosum, associated with rheumatic infection. Urticaria is generally regarded as due to a toxic, not a rheumatic, condition, although not infrequently it yields quickly to the salicylates, presumably acting as intestinal antiseptics.

For many years it was the rule in the Dermatological Department of the Montreal General Hospital to inquire into a possible history of rheumatism in all cases of psoriasis, and to examine the heart with a view of obtaining evidence of a rheumatic endocarditis. The result of this investigation was to satisfy Dr. Shepherd and Dr. Gordon Campbell that there was no relation between the two diseases.

Anaemia is a constant manifestation of the rheumatic infection. Fritz Meyer[5] asserts of the diplococcus isolated by him, which in appearance and relation does not differ from the organism isolated by Wassermann and Poynton and Paine, that one of the characteristics by which it may be distinguished from ordinary streptococci is its greater haemolytic action. Goodhart tells us that in the case of all children's anaemia, without obvious cause, he makes inquiry as to the possibility of a rheumatic history, and certainly it is a matter of everyday experience with us that a rheumatic infection rapidly reduces the amount of haemoglobin, and haematonics are early called for during convalescence.

Among other affections which may be regarded as occasionally a manifestation of a rheumatic infection may be mentioned: Pleurisy, epistaxis, severe and persistent headache, and enuresis.

Of all the manifestations of rheumatic infection, however, the most important at every period of life is the development of "carditis," and many writers have emphasized the fact that during childhood the cardiac tissues are particularly susceptible to the rheumatic poison. Statistics from English hospitals show that in about 80 per cent. of those attacked in the first decade, and 60 per cent. in the second decade of life, the heart is to a greater or less extent permanently crippled. In the hospitals on this continent the percentage is very similar, but the severe grade of carditis described by English writers, leading to rapid dilatation of the heart from the action of the toxin, is, in my experience, rarely seen.

On account of this liability any manifestations of a rheumatic infection demand rest for the child in bed, and frequent physical examination of the cardiac area. It is not to be forgotten that an endocarditis may develop with little alteration in pulse and temperature.

The endocarditis of childhood with care, however, presents a distinctly better prognosis than does a similar lesion in the adult, and not a few cases of soft systolic murmur, in which, so far as can be judged, dilatation and anaemia as causes have been excluded, will in children pass entirely away with time. On the other hand, we must

bear in mind that in a few cases, hearts which from the absence of, or on account of the disappearance of, physical signs, we think have escaped damage, may with lapse of years present undoubted signs of organic mischief.

There is, both among physicians and among the laity, a widely-entertained belief in the transmissibility by inheritance of a tendency to valvular heart affections. Certainly in the course of practice remarkable individual differences may be observed in the susceptibility to rheumatic carditis, a difference which it is difficult to explain except on the grounds of its being a developmental peculiarity traceable to families.

In this infection prophylaxis is all-important when possible. In families in which an apparent predisposition is evident anaemic tendencies must be corrected; the general health maintained at a maximum by a wholesome dietary arranged to suit the individual, and containing a judicious amount of nitrogenous food. The danger to rheumatic infection is not increased by a moderate amount of meat, but restriction in many instances should be placed on the amount of starch and sugar. Barlow has called attention to the danger of overfatigue in such children. A long day in the country, or a Sunday-school treat, quickly picks out, he says, the rheumatic children in the party, giving rise to swollen knees or ankles. I have on several occasions witnessed the truth of this statement.

Regarding the tonsils as the pathway of infection, all necessary treatment of them should be prompt and thorough; adenoids should be carefully removed. Should any manifestation of rheumatic infection arise the physician should not be content simply to treat it, but should endeavour to prevent further developments. No ailment should be neglected in a rheumatic child. In our prophylaxis, clothing, out-door exercise, and climate must be carefully considered.

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Dr. Thomas McCrae (Baltimore) said he should like to express his agreement with the points which Dr. Blackader had brought out in his paper. His experience in Baltimore agreed with those results, especially with regard to the relative infrequency of the subcutaneous fibrous nodules. The severe fulminating forms of cardiac infection seemed less common in America than in England, although the end results were in no way different. He thought that the experience of American physicians was not as favourable to the use of salicylates in rheumatism as it appeared to be in England.

Dr. E. T. Duke (Cumberland, Maryland) said that the association of tonsillar troubles, especially tonsillitis, with rheumatism was very frequent in Maryland in the mountainous section of the State. He agreed with the writer of the paper in emphasizing the importance of rest in the treatment of the disease.

Dr. Ashby asked Dr. Blackader if he had seen cases of chronic rheumatism in children as a sequela of subacute or acute rheumatism. Cases occurred in which a chronic deformity or a chronic effusion in the joints resulted from repeated slight rheumatic attacks. He also asked for Dr. Blackader's experience with regard to scarlatinal synovitis, which was apparently due to a different micro-organism from that of ordinary rheumatic cases. After hearing Dr. Blackader's paper he thought that all the manifestations of rheumatism were more severe in the Old Country than in the New.

Dr. Allen Baines (Toronto) emphasized the necessity of early administration of salicylates and caffeine in any case of rheumatism, thereby absolutely lessening the sequelae of carditis. His experience of such administration showed good results.

Dr. C. G. Kerley (New York) said that his observations agreed so well with Dr. Blackader's that he had no criticism to offer. He wished, however, to refer to a feature of the treatment which he considered most important. A child who had once suffered from rheumatism, with or without endocarditis, was very liable to a second attack. He had learned that in order to prevent further attacks in a child who had once had rheumatism it was necessary to give what is known as "interval treatment," namely, moderate doses of salicylates or aspirin, with bicarbonate of soda, for five or seven days out of a month. This, with proper precautions as to diet, clothing, and climatic changes, had in his opinion prevented recurrence in many instances.

Dr. Alfred Hand (Philadelphia) remarked that in connexion with Dr. Kerley's observations on the frequency of relapses when endocarditis had occurred, it seemed to him that a possible explanation for the tendency might be found in the anaemia on which Dr. Blackader so justly laid emphasis as a symptom of rheumatism. If the anaemia rapidly disappeared after the subsidence of the acute symptoms, these patients were not liable to return to hospital again; but if, with the development of organic murmurs, the anaemia was marked, such patients were very prone to repeated infections.

Dr. L. E. La Fétra (New York) said, as regarded the frequency of subcutaneous nodules, that he had seen but three such cases. He was much interested to learn that these nodules were not frequent in certain hospitals in London, and also that their prognosis was not so grave. In prognosis there was a much better outlook for children under the age of seven years than for those about the age of puberty. The interval treatment with salicylates combined with rhubarb and soda was effective in warding off recurrences. Removal of enlarged tonsils and adenoids was of great importance.

Dr. Cautley (London) expressed surprise that endocarditis and dilatation of the heart were so infrequent in America in comparison with Great Britain. Certainly, unless associated with endocarditis or pericarditis, a moderate degree of dilatation could easily be overlooked. The common occurrence of sore throats of all kinds in children had prevented the speaker from attaching undue importance to a history of sore throat as evidence of the rheumatic poison. The frequency of the association of common diseases with a specific history of rheumatism or hereditary syphilis had led to too many diseases being regarded as signs of the specific poison. Erythema nodosum was, in his opinion, quite infrequently of rheumatic origin, and was more closely associated with urticaria. Fibrous nodules he regarded as by no means common, and when present as of little importance in prognosis. He had seen cases of most numerous nodules without evidence of any heart mischief, and in one instance without any sign of rheumatism.

Dr. Kauffmann (Birmingham) laid stress upon the importance of constipation and the allied gastro-intestinal conditions as strong predisponents to rheumatic fever, both primary and recurrent; and thought that attention directed to the *primae viae*, combined with care of the general hygienic environment, would do much to prevent the disease, especially recurrences. He had been impressed with the association of psoriasis with acute rheumatism, and also drew attention to the occasional association of subacute or frequently recurring mild rheumatism with epilepsy in children.

A DISCUSSION ON ENTERO-COLITIS.

OPENING PAPERS.

I.—Charles Gilmour Kerley, M.D.,

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PREVENTION OF THE ACUTE INTESTINAL DISEASES OF SUMMER.

Preventive medicine, so-called, is at the present time engaging the attention of the best medical minds. The acute intestinal diseases of summer, with their large infant mortality, offer a better field for life-saving measures than any other department of paediatrics. Potent etiological factors are unfavourable climatic conditions and unfavourable environment. For the class which furnish the largest mortality climate cannot be changed for a sufficient number to exert any great influence on the mortality. The environment, through means of educa-

tion, may be improved upon, but cannot be radically changed.

The hot months come, and the tenement child must remain. Excursions and outings of different natures are valuable in a small way to comparatively few, as the child must return to the tenement home at night or after a few days' absence, so that in our consideration of this class of patients in large cities we must accept unfavourable environment and hot weather. In other words, we must treat these cases in their homes. Those more fortunately situated who can have the advantages of the country and intelligent care are proportionately less liable to diarrhoeal diseases. Other than climate and environment determining etiological factors are (and this is of general application among all classes), first, a disordered gastro-intestinal tract; second, infected food; third, faulty feeding methods; fourth, an absence of appreciation on the part of the parents and physicians that an attack of diarrhoea or vomiting, or even a green, undigested stool occurring in an infant under eighteen months of age during the hot summer is to be looked upon as a serious matter requiring prompt relief. Children as well as adults are frequently exposed to disease from different sources of which they never know because their resistance is sufficient to furnish protection. With milk, the most readily infected of all nutritional substances, as the chief article of diet, it may be safely assumed that few infants pass through the heated term without having been subjected repeatedly to infection and bacteria sufficient to produce grave illness. An infant's best safeguard against intestinal infection is a strongly resistant gut, and the best means of establishing this condition is through the absence of digestive disturbances at all seasons. The summer mortality from intestinal disease has thus a decided bearing upon the feeding and management generally throughout the year.

Eighteen years ago, at the commencement of my junior service on the house staff at the county branch of the New York Infant Asylum, I gained my first knowledge of so-called summer diarrhoea. While "making rounds" early one morning in June, the matter of the summer mortality among the infant population was being discussed with the resident physician, the late Dr. Clarence E. Kimball. I asked, I remember, why they had such a large summer mortality in an institution situated as it was at a considerable elevation in the open country, constructed on the cottage and dormitory plan, with the additional advantage of good milk, favourable environment, good nursing, and competent medical attendance. His reply was: "Take my pencil and write as we go through the wards the names of the children I indicate." I did so, and at the completion of the rounds, he directed that I should keep the list of thirty names, and remarked that these children would probably not survive the summer. Seeking an explanation, I remarked that these children were not delicate or athreptic. "Yes," he replied, "they look well, but they have foolish ignorant mothers and susceptible intestines. They have had frequent attacks of diarrhoea and indigestion during the winter and spring. The mother steals food from her own table and gives it to the children when the orderlies are out of the wards. These children have but little intestinal resistance and will give us our first fatal diarrhoea cases when the hot weather comes." I kept my list and found that the accuracy of his prediction was startling. But four of the children named survived the summer. Since that time I have had abundant opportunity to observe that the children who have had frequent attacks of intestinal indigestion during the colder months furnish our severe cases during the summer. A most important feature, then, in prophylaxis is to teach the mother how to feed, how to care for the child all the year round. They are taught how to keep the child well and thus maintain a high grade of intestinal resistance. The principal immediate etiological factor of the disease which we have under consideration is due to an infection of the gastro intestinal contents by bacteria, the infecting elements usually being taken in from without through the means of contaminated food and unclean feeding apparatus.

For the well-to-do we have high-priced dairies whose product sells from fifteen to eighteen cents a quart. For others we have milk known as certified milk produced under the supervision of a committee of medical men, which retails at twelve cents a quart. Obviously the majority of our infant population are not fed on these milks. The Strauss laboratories which supply safe sterilized milk are able to furnish milk to but a small proportion of the tenement population. The other milks, so-called market milks, supply the nutrition for an immense majority of the infants of the poorer classes. These milks in New York have been greatly improved of late, due to the efforts of the medical profession and the New York Health Department, but the matter of milk production and regulation of sale is a large one, and the powers of the authorities are limited. The majority of our infant population, then, are fed on milk which is not a safe food for the infant, and it is among these infants that the large death-rate occurs, and the mortality will continue in spite of seashore visits, daily excursions, and the efforts of the summer corps Health Department physicians. The mortality will continue until large municipalities, such as New York City, establish, at a financial loss, milk dépôts and ice stations where safe infant milk food, and ice to keep it safe, may be obtained at a nominal cost or fee, if it is demonstrated that the parents are not able to pay for it. A visiting physician is not absolutely necessary for these people, neither is a visiting trained nurse, both of which are expensive, but what is necessary is the appointment for a given district of women with just plain common sense to teach the uninformed mother the simple details of the infant's care and what to do when illness threatens,—details easily carried out when she knows how, but so rarely done because she does not know. At the out-patient department of the Babies' Hospital and the New York Polyclinic, I have had opportunity to come in close contact with a great many tenement mothers and tenement children. At these institutions we have a *clientèle* fairly regular in their attendance. Year after year, as one baby after another appears in the family, they are brought to us. At these dispensaries we have a surprisingly low summer diarrhoea mortality, because we teach the mothers, and teach them how to feed and how to care for their children all the year round. They are taught the value of fresh air, the use of boiled water as a drink, and the benefit of frequent spongings on hot days. Both private and dispensary mothers whose children are under my care are given pamphlets of instruction and oral teaching bearing on these points. They are instructed in the care of the bottle and the milk. In case special articles of diet are to be given, they are taught how to prepare them. Written directions are given covering the point; nothing is left to the memory. Each mother and nurse has it impressed upon her that she must wash her hands in soap and water before touching the baby's food or feeding apparatus for any purpose, and that there must be a covered vessel in which the soiled napkins are to be kept until washed. At the first sign of intestinal derangement, regardless of the season of the year, they are taught to stop milk at once, to give cereal water, such as barley or rice, and a dose of castor oil. It is impressed upon them that a green watery stool means that the baby is ill and needs treatment, regardless of the season of the year. When the mother learns the above lesson for December, January, and March, she will not forget it in July. Further, as a result of immediate correction of a mild digestive disorder during the cold months, we have a much less fertile field for pathogenic bacteria during the hot weather. Comparatively few cases of intestinal disease have pronounced toxic symptoms at the outset; probably it is about 10 per cent., if an accurate history is obtained. At first there are evidences of mild infection; there may be vomiting with several green watery stools, with a slight elevation of the temperature, or the symptoms may be milder still—one or two green defaecations. Prompt treatment at this time, even in a crowded tenement, usually means prompt recovery. When the treatment is delayed, when the administration of milk is continued, severe toxic manifestations and intestinal lesions are the result almost invariably.

An interesting demonstration of what may be accomplished by proper care was made under the direction of Dr. William H. Park of the New York Health Department during the summer of 1902. Fifty tenement children, ranging from 3 to 9 months of age, were selected for the experiment. These children were all fed on the Strauss milk. They were visited two or three times a week by a physician whose only duty was to look after them. The mothers were carefully instructed as to the care of

the milk, the feeding apparatus, and in other details. With the first sign of illness the milk was to be stopped. The physician was to be notified at once when suitable treatment was instituted. Among these fifty tenement children, all under 1 year of age, all bottle fed, selected at random, there was not one death during the summer, which valuable observation bears out our contention that the deaths from intestinal disease among tenement children may be greatly reduced by the use of good milk given under proper supervision, supplemented by prompt competent medical care upon the first sign of illness.

To those of my patients of the better class who go to the country, who have cows of their own or who may control their milk supply, I give the following directions: Before milking, the udder and belly of the cow are wiped with a damp cloth to remove clinging particles of dirt. It is in these droppings containing manure that the most dangerous forms of bacteria, the bacteria of decomposition, enter the milk.

The milker washes his hands before milking. The first few jets of milk, which are apt to contain bacteria such as the streptococci from the ducts near the opening, are thrown away. Immediately after the milking, the milk is strained through several thicknesses of sterilized cheese-cloth or through absorbent cotton into an ordinary quart milk bottle, which bottle is at once placed in a pail of cracked ice. A mother of one of my patients is using her silver champagne-cooler for this purpose. Such simple care as this, even on an ordinary farm, gives a very low bacteria count. As may be readily seen, it is carried on at very little expense and trouble. Different dairies throughout the country which are located near by patients for the summer follow out the above requirements, for which they receive an extra compensation of 5 or 6 cents more a quart for the milk.

It will be seen from the foregoing that the suggestions we have offered are all included under the one general heading of "education." The mother must be educated how to live, how to care for the baby, how to clothe him and bathe him during the summer. It must be impressed upon her that he needs all the fresh air available. She must be educated to the point of knowing what to do when the first sign of intestinal disease threatens. Municipalities must be educated to know their part as factors, negative or positive, in the summer mortality. The farmer must be educated as to how to produce safe milk, and the consumers must be educated to appreciate its value and pay for it. The physician must be educated so as to be able to teach the mother how to take suitable care of the child during the entire year.

II.—John Lovett Morse, A.M., M.D.,

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THE DIETETIC TREATMENT OF ENTERO-COLITIS.

The dietetic treatment of entero colitis has at present, unfortunately, very little relation to the pathology of the disease. While its relation to the etiology is closer, it is, nevertheless, founded largely on empiricism. In the dietetic treatment of entero-colitis we find ourselves between Scylla and Charybdis. On the one hand there is the necessity, not only of keeping the infant alive, but of maintaining, as far as possible, its nutrition, which of course calls for food. On the other hand is the fact that the causative bacteria grow and produce their toxic products in the intestinal contents, the symptoms of the disease being due to the action of these bacteria and their toxic products on the intestinal wall and their absorption into the circulation. The intestinal contents being composed largely of the food ingested, food is, therefore, contraindicated.

The object to be aimed at in the dietetic treatment of entero-colitis is, therefore, such an arrangement of the food as will starve the bacteria without starving the baby. While it is, of course, impossible to completely attain this object, it is, however, possible to approach it quite closely. The most effectual way to starve out the bacteria is by the complete withdrawal of all food. This also necessitates the starving of the baby, which, while practicable for a time, cannot, of course, be continued indefinitely. Sooner or later food must be given, not only for the sake of the baby's nutrition but also to preserve its life. This food must be of such a character, however, that while it provides a reasonable amount of nourishment for the baby it will nevertheless furnish a poor culture medium for the bacteria.

In beginning the treatment of these cases the food should always be stopped entirely for a longer or shorter time. The duration of the abstinence from food must vary in individual cases, according to the severity of the illness and the ability of the given infant to bear starvation. All babies stand starvation well for twenty-four hours, most of them for forty-eight or seventy-two hours, and some of them even longer, providing they are given a sufficient amount of water. They can bear the prolonged withdrawal of food, but they cannot bear the prolonged withdrawal of water. They must be given at least as much water in the twenty-four hours as they normally get in their food. It is not enough to direct that plenty of water be given; the amount of water to be given must be specified in the same way as are the doses of medicine. If the baby will not take it willingly by the mouth it must be given with a tube. If it is vomited it must be given by the intestine. If it is not retained by either the stomach or intestine it must be given subcutaneously in the form of physiological salt solution; 2 to 6 oz. may be given at a time according to the age and size of the infant. It is useless to repeat the injection before the preceding one has been absorbed. The water takes the place of the liquid normally ingested with the food, replaces that lost in the vomitus and dejections, aids the heart by keeping the amount of circulating fluid at the proper level, favours the elimination of toxic substances through the kidneys, and diminishes the irritant action of these substances on the kidneys.

While every one now believes in the necessity of an initial period of starvation and water diet in these cases, there is much difference of opinion as to whether milk in some form, or some substitute for milk, should be given when feeding is begun. Those who disbelieve in milk do so on the ground that the pathogenic micro-organisms are usually originally introduced in the milk, and would therefore be expected to thrive better in it than in any other medium. This argument hardly seems sound, however. The bacteria enter in the milk simply because milk is the baby's food, not because it is the best culture medium. No one thinks of choosing milk as the medium on which to grow these same organisms in the laboratory; they choose, rather, preparations of meat or carbohydrates, the very materials from which the usual substitutes for milk in these diseases are made. Clinically, nevertheless, these patients certainly do better when they are fed for a time on some substitute for milk. I feel, however, that the more favourable results obtained from these substitutes for milk are, to a certain extent, to be attributed to the weakness of the food, which in many cases amounts to little more than water. Few realize how little nutritive value these various substitutes for milk have. Barley water, as usually prepared, contains only about 0.05 per cent. of fat, 0.25 per cent. of proteid, and 1.50 per cent. of starch, thus containing only one-tenth as much nourishment as milk. The white of one egg is equal in nutritive value to only three-fifths of an ounce of milk. Beef juice contains 0.6 per cent. of fat and 2.9 per cent. of proteid, giving a nutritive value, bulk for bulk, only one-quarter as great as milk. Broths contain only about 1 per cent. of proteid, and hence have very little nutritive value. In many cases milk preparations in a similarly dilute form will yield essentially the same results as these substitutes. Personally, however, I almost invariably begin to feed these cases on some substitute for milk. There is another objection to milk foods to which these substitutes are not open, and that is the comparatively large residue from milk, which tends to keep up the intestinal irritation, especially if there are ulcerative lesions. This point must also be borne in mind when beginning to feed with milk.

In choosing the substitute for milk the attempt should be made to select, if possible, a food on which the bacteria which cause the disease grow with difficulty. That is, if the bacteria in question are those which thrive best on starches and sugars, the food should be largely proteid in character, while if the bacteria are those which thrive on proteids the food should be composed of starches or sugars.

While this is true theoretically, it is of comparatively little practical utility, because many bacteria thrive well on both sorts of culture media, and because the determination of the etiological bacteria is usually difficult and always requires considerable time. A clinical rule of some value is that sour stools mean bacteria which thrive on sugars and starches, and foul stools those which thrive on proteids. My own feeling is that in these conditions babies do better, as a rule, on starches and sugars than on proteid foods. Personally I use barley water and milk sugar in preference to other preparations of starch or other forms of sugar. In this connexion it must be remembered that the power of utilizing sugars may be much diminished in entero-colitis as the result of degenerative changes in the liver, and that an excess may easily be given. White of egg in the form of albumen water, beef juice, and broth may be used when proteids seem to be indicated. White of egg, however, is very likely to produce an angioneurotic oedema, while beef juice and broth not infrequently cause very foul, watery stools. The extractives which they contain are also liable to increase peristalsis and to irritate the kidneys. Whatever substitute for milk is used, the amount of liquid must be kept up to the required limit, just as in the starvation period.

The most difficult point to decide in the dietetic treatment of entero-colitis is when to resume milk feeding. The temperature, the condition of the nutrition, and the character of the movements are the best guides. It is seldom wise to give milk when the temperature is much above normal. Many authorities do not begin with milk foods until the movements have become normal in character. Unless this happens within a few days or a week, however, there is great danger of losing more in nutrition and strength on account of the weakness of the substitute food than is gained by the use of the theoretically less suitable culture medium, milk. If the temperature is not much above normal it is wiser on the whole, it seems to me, to resume milk feeding after not longer than a week, even if the character of the movements has not returned to normal.

When beginning to feed with milk it is often difficult to decide in what form to give it. In those cases in which the character and odour of the movements give fairly definite indications as to the use of carbo-hydrates and proteids in relation to the intestinal flora, as already referred to, these indications should be followed in regulating the percentages of sugar and proteids in the mixture. On general principles, however, a modified milk prepared from fresh milk, low in all its percentages, feebly alkaline and pasteurized, should be given. It is better to give small amounts frequently than large at long intervals. In general the percentage of sugar may be comparatively high, while that of the proteids must be comparatively low. The fundamental principle, however, is to give a dilute food. It is also of advantage in certain cases to use any or all of the methods of modifying milk which render the proteids easier of digestion and absorption. It is often better, therefore, to begin with whey mixtures, peptonized mixtures, or barley mixtures than with straight modifications. The mixtures must never be highly alkaline, as a high alkalinity tends to throw the work of digestion off of the stomach on to the intestine.

In beginning to feed with preparations of milk whey is often very useful. It may be made from whole milk or skim milk. In either case it contains about 1 per cent. of proteids and 5 per cent. of sugar. When made from skim milk it contains almost no fat, while when made from whole milk it contains about 1 per cent. of fat.

During the past two summers I have used pasteurized buttermilk as the initial milk food in many of these cases, and feel that I have obtained better results with it than with any other single form of milk. Buttermilk contains very little fat, a moderate amount of sugar, and a considerable amount of proteids, the proteids being finely divided and in the form of the lactate of casein. It has an acidity, due to lactic acid, of about 0·65 per cent., and is, of course, when raw, full of lactic acid bacteria. I have always used buttermilk after pasteurization, but in the light of my experience with unpasteurized milk mixtures acidified with cultures of lactic acid bacteria, and Tissier's results in the treatment of diarrhoea with pure cultures of the *Bacillus acidi paralactici*, it is doubtful if pasteurization is necessary, and possible that it may be disadvantageous. The favourable results obtained are, however, probably to be attributed to the low fat content, and the easily digestible form of the proteid, rather than to the acidity. It is necessary to beat the buttermilk vigorously with an egg-beater during pasteurization, in order to prevent the coagulation of the casein into a large hard mass.

The whey or buttermilk may be strengthened by the addition of cream as the patient improves, or, if it is on a modified milk, the percentages of the mixture may be increased together or singly, and the intervals of feeding lengthened until the strength and intervals suitable for a normal infant of the given age are reached.

Breast feeding should not be forgotten in these cases. After the initial periods of starvation and abstinence from milk it will sometimes result in cure in cases which otherwise seem hopeless. In very critical cases breast milk may be given diluted with water.

III.—L. E. LA FÉTRA, A.B., M.D.,

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THE MEDICINAL TREATMENT OF ENTERO-COLITIS.

FROM the arrangement of the programme I have assumed that your Committee, in asking me to speak upon the medicinal treatment of entero-colitis, intended me to include all measures except the dietetic management of the disease.

Entero-colitis is a broad term, and clinically it is difficult to separate cases of fermentative, infectious, and summer diarrhoea (which is frequently really heat prostration) from cases of entero-colitis with true lesions. Heat prostration diarrhoea, while merely a dyspepsia and toxaemia at the outset, often rapidly acquires a place in this category of true inflammation.

HYGIENIC MEASURES—AËROTHERAPY.

The little patient who is suffering from entero-colitis, whether acute or chronic, should have the advantage of the best hygienic surroundings. The clothing should be of light porous meshed material or light flannel, both to prevent overheating with the consequent danger of sudden chill, and to allow evaporation and radiation from the body surface. The stools and diapers should be scrupulously disinfected. The bed should have a mattress of hair or other cool material that permits ready ventilation and drying. The room should be light, cool and well situated as regards the prevailing winds, so as to have ample ventilation; when possible the air should be kept at a temperature of 65° to 68° F. Ideally the air should not be too warm and especially it should be dry. High humidity prevents evaporation and loss of heat by the skin; it is a source of great nervous depression, and frequently is the only discoverable cause, in our little hospital patients, of severe or even fatal relapses.

In summer, then, the patient should if possible be sent to the country and preferably to a place which is cool and where the air has a low humidity. If such change of dwelling is impossible much can be done by putting the child on the verandah or in a sheltered tent on the lawn; also by the use of electric fans to keep the air moving and to encourage evaporation on days of oppressive humidity. In one hospital the air is both dried and cooled in summer, a procedure which brings the invigorating properties of country and mountain air directly into the hospital wards. When the little patients can stand the moving, day trips upon the boat or to the waterside prove wonderfully beneficial, as shown by the results of the floating hospitals of New York and Boston.

MEDICAL TREATMENT.

For entero-colitis we have no specific or abortive drug. When the disease is established, rational treatment consists in preventing further irritation by improper food, in eliminating the noxious substances already taken in, and in assisting Nature to repair the damage done to the intestines and other organs. Careful study of untreated cases reveals Nature's way of combating the disease. Such study explains its symptoms, and points the way we must follow. But just as Nature

is a botchy surgeon so she is often a blundering physician, allowing processes good in moderation to go on to evil extremes. It is all right at the outset for vomiting to occur, for the appetite to be taken away, and for great thirst to take its place, inasmuch as food would cause either vomiting or further inflammation. The diarrhoeal movements are advantageous, as they rid the bowel and system of toxic substances. But these conservative processes may be carried too far; the peristalsis in stomach and bowels becomes excessive, sapping the strength of the patient by the constant effort, as well as preventing time for food absorption and for repair of the inflamed bowel.

The aim of the physician is to assist Nature in carrying out certain rational indications, chief among which are: (1) To keep up the nourishment of the system without adding to the intestinal irritation; this indication has already been presented by Dr. Morse. (2) The second great indication is elimination. (3) The third indication is to allay the inflammation. In addition to these three main indications are the problems connected with certain special symptoms.

ELIMINATION.

Drug Treatment.—In my experience the most valuable drugs we have to secure elimination are the alkaline cathartics, Glauber's salts, Epsom salts, and Rochelle salts. The sulphate of soda is preferable in younger patients, but should be used cautiously in infants under 9 months of age, and not used at all when the patient is depressed, with sunken fontanelle, low temperature, and evidences of great need of water. To such infants calomel and castor oil, together with colon irrigations and occasionally lavage of the stomach, should be given in preference. To fairly strong infants, and especially to those with high temperature, Glauber's salts can be given with assurance of most satisfactory results. The salts are given every half-hour, or every hour, for four or five doses; to an infant of 9 months the dose is 10 gr.; to a child of 2 years 20 gr. in a teaspoonful of water. It may be flavoured with syrup of ginger or spiced syrup of rhubarb. For older children Epsom salts are somewhat better, particularly when there are dysenteric stools with much blood.

Contrary to expectation, the sulphates are not apt to be vomited, and the bowels are cleared out more rapidly and more effectually than by calomel or castor-oil. Moreover, it is less often necessary to repeat the series of doses. In short, the sulphates do the work completely. The watery stools flush out the ileum and colon, siphon out the toxins, and reduce the temperature. Blood more rapidly disappears from the stools when this method is used *early* than by any other plan I know.

In cases where the vomiting is persistent and the salts cannot be kept down, calomel dry on the tongue in divided doses must be employed. Castor-oil finds its best use in the later stages of the disease given in small doses with bismuth.

Elimination through the skin is to be encouraged by bathing twice daily, the warm bath being preferred at first until the skin is acting freely, and then the cool tub or sponging with Cologne water or alcohol and water. Toxic cases should at first be bathed with soapy water, so as to clear the pores of sebum.

Weak tea, especially if given hot, also favours elimination both by the skin and kidneys; it fulfils two other indications, also, by being mildly stimulant and slightly astringent.

For aiding elimination by the bowels, by the kidneys, and by the skin, as well as for diluting the toxins in the blood, and so preventing degenerative changes in the kidneys, copious high-colon irrigations with alkaline saline solution are of great value. The saline is injected high up into the bowel with the object of having as much of it as possible absorbed; incidentally, the lower bowel is washed out mechanically. Two to four quarts of Hayem's solution or normal saline solution, made alkaline by the addition of an equal quantity of bicarbonate of soda, are allowed to flow from a fountain syringe very slowly through a catheter that has been passed up into the descending colon while the child is recumbent with the hips elevated. From one to two pints will distend the whole colon. If the bag is then lowered so that there is very little pressure there will be little stimulus to expel it, and the fluid will flow slowly in and out, allowing a certain amount to be absorbed during the process; when the bag is empty the rectal tube should be gently removed and the buttocks strapped or held together for half an hour, the hips being kept elevated. Enough saline is usually absorbed to cause an increased activity of the kidneys and skin within a couple of hours. For stimulation and to increase the action of the skin and kidneys whisky or some one of the alcoholic peptonoid preparations may be added. The solution may be used hot, tepid, or a few degrees cooler than the body, inversely according to the amount of fever.

Such irrigations for the purpose of increasing elimination may be given twice in twenty-four hours during the period of marked toxaemia, unless they weary the child. In the cases with great need of water to relieve the desiccation of the nervous system that results in restlessness and collapse these internal baths and drinks are of the greatest value.

Bowel irrigation for checking the diarrhoea has been greatly overdone, for when there are twelve to twenty-four large watery stools in twenty-four hours, there is sufficient clearing out of the intestinal contents. The sort of diarrhoea directly benefited by ordinary irrigations is that of small frequent stools containing mucus and accompanied by tenesmus. Even in this condition the irrigations should not be employed more than once a day, or every second day.

When the high injections that are to be absorbed do not effect their purpose, and also in cases of marked or sudden collapse, hypodermatoclysis must be resorted to, and at least 100 c.cm. injected to do any good. While this measure will at times bring about good reaction, shown by increased volume of the pulse, return of perspiration and increased secretion of urine, my results have, on the whole, been disappointing. Perhaps this is because of the difficulty of getting large amounts absorbed. I have never practised intravenous injection in these cases.

In very acute cases, notwithstanding all our efforts to promote elimination, sufficient toxins will have been absorbed to be a menace, ofttimes very grave. Have we an antidote or an antitoxin? I fear not. The serum treatment, from which we hoped so much during our work with the Shiga and allied dysenteries, has not as yet furnished a generally effective antitoxin. It is probable that a multivalent serum will be found eventually which will be of more general use and of greater efficiency.

Among drugs it has seemed to me that atropine comes the nearest to being the physiological antidote to the toxins in many instances; at any rate, it is a stimulant to the respiration and to the sympathetic nervous system, which are both often greatly depressed. The atropine should be given hypodermically, $\frac{1}{100}$ gr. every two hours, until the physiological flushing or dilatation of the pupil is obtained.

For supporting and stimulating the system in its struggle against the toxins and the inflammatory process, drugs are of value. The nutritional side of this support has already been presented. Hydrochloric acid added to the food or to the drinking water, as suggested by Jacobi, is often of help, since the gastric juice is deficient in hydrochloric acid in entero-colitis, and this addition not only aids gastric digestion, but stimulates the biliary and pancreatic secretions. Pancreatic extract is also of value, generally used with the food to peptonize it.

For stimulation, if the child is not vomiting, the tincture of nux vomica or tannate of quinine are good. Suprarenal extract has served me well several times; given in capsule or powder. If there is vomiting, hypodermic injections of strychnine ($\frac{1}{100}$ gr.), and of camphor oil every two or three hours have seemed best. I have never used nucleinic acid injections, nor any of the other substances that are supposed to increase polymorphonuclear leucocytosis.

To allay the inflammation is the third great indication in treatment.

As soon as the digestive tract has been thoroughly flushed out and the temperature has come definitely to a lower level, showing that the toxaemia is lessening, we should begin powdering the inflamed intestinal mucous membrane, using chalk, magnesia, zinc oxide, or some of the bismuth powders. The zinc and bismuth preparations have the advantage of being astringent, as well as soothing and healing. Their secondary effect is to put a brake

upon intestinal peristalsis; this gives a better chance for the surface to heal, and also for food to be absorbed. Moreover, they do not stop drainage from the bowel.

To be of any use these powders must be given in large quantity frequently repeated. Fifteen or twenty grains of bismuth subnitrate or subgallate combined with one-fourth that quantity of zinc oxide should be prescribed every two hours; the powder can be well given in chalk mixture or simply stirred up in water. Instead of using salicylate of bismuth for antiseptic effect I often add salicylate of soda or creosote to the peptonoids given as supplemental food. The newer metallic peroxides of magnesium and zinc promise much, but I have not used them. Various preparations of tannic acid have been suggested, but on the whole the bismuth subnitrate and subgallate are better.

When the temperature has reached nearly the normal range, if in spite of the powders the stools are too frequent, the bowels moving after every feeding or every drink of water, opium comes into use—it should not be used to check the stools when there is marked toxaemia, and it should be discontinued at once if its use is followed by a rise of temperature; for above all else, sufficient drainage from the intestines is required. Dover's powder ½ gr., or paregoric m v, should be given after each loose stool. The opium is well combined with large doses of bismuth and small doses of castor oil or grey powder; by this safety method of administration the dosage of the drug is limited to its need—that is, as the stools become less frequent less opium is administered. In vomiting cases, or those with much restlessness morphine $\frac{1}{100}$ gr. by hypodermic injection should be used.

The effects of opium are to quiet the motor and sensory systems, relieving pain and diminishing intestinal peristalsis; that is, it helps to splint the bowel and favours repair. The general effect of quieting the child prevents exhaustion and promotes refreshing sleep. When the stools are reduced to four or five a day the opium may be discontinued.

Formerly there was abuse of opium in entero colitis and diarrhoea; at present, because of the fear of locking up toxic materials, it is not used as frequently as it should be.

TREATMENT OF SPECIAL SYMPTOMS.

For the fever, hydrotherapy; if a fulminating case, or those occurring in humid weather, cold friction packs or evaporation packs with fanning should be applied every hour or two until the temperature comes down to 100° F. These cases behave much like heat-stroke. Lavage of the stomach and cool irrigations of the bowel, ice compresses to the head and heat to the extremities may be needed.

Pain and Tenderness along the Colon.—When there is general abdominal tenderness, the electric pad or a large mustard paste is helpful in infants; in older children an ice coil. For localized tenderness along the colon a horseshoe icebag should be applied. These counter-irritants diminish the excessive congestion and relieve pain. Heat is preferred in smaller children.

Persistent Mucous Stools.—For this symptom, which persists so long after the acute stage, general tonic treatment and the use of bismuth are indicated. Irrigations should be discontinued, as they merely irritate and prolong the symptom. When the solid food is increased the mucus will diminish; it may not disappear entirely for months.

Frequent Small Bloody Stools.—These come usually from the colon. High irrigations of gelatine solution, containing adrenalin or 10 per cent. solution of protargol, given once a day, often stop the blood after two or three treatments.

Distension of Abdomen.—Cases without diarrhoea: The distension seems to come from paresis of the intestines, and when it is present the toxaemia is apt to be intense. Irrigations containing turpentine, also stupes and mustard compresses, together with strychnine hypodermically, should be used. Once I saw a case in which, from the vomiting and other obstructive symptoms, there seemed to be a localized paralysis of the jejunum, probably the result of a local toxic neuritis.

Tenesmus.—This is best relieved by warm demulcent irrigations of starch paste (with or without opium), of oil, or of gelatine solution. Combined with this, the anus and prolapsed rectum should be anointed with 5 per cent. cocaine ointment. Suppositories are not apt to be retained.

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A STUDY OF THE ABSORPTION OF FATS IN INFANTS.

RECENTLY the fat content of the infant's food has been attracting more attention than heretofore, and some of the questions that have arisen are:

What is the normal proportion between the intake of fat and the fat appearing in the faeces?

Is the fat appearing in the faeces fat that has escaped digestion, or is it fat formed in the intestine as a result of metabolism?

In what form do the fatty compounds exist in the faeces?

With these questions before us we undertook a series of experiments, hoping, by observing closely the intake of fat and the output in the faeces of infants, to gain some knowledge that would help us in solving these problems. The investigations extended over a period of about one year, during which time we have conducted seven experiments on infants varying from 17 days to 108 days of age.

PHYSIOLOGY OF FAT DIGESTION.

Fat has an inhibitory action upon the stomach; it remains longer in the stomach than either the proteids or carbohydrates, and the amount of gastric juice secreted is weaker and less than with a proteid diet. The gastric juice possesses a certain degree of fat-splitting power, but how much is due to the enzyme lipase and how much due to bacterial action is a question that is still under investigation.

In the duodenum, through the action of lipase which is present in the pancreatic secretion, the fats are hydrolized with the formation of glycerine and the corresponding fatty acids. The oleic acid dissolves the solid fatty acids like palmitic and stearic and renders them soluble in bile. They are in part converted into soaps. The soaps and fatty acids are synthetized during the process of absorption by the epithelial cells of the intestinal wall. Fat is found principally in the adipose tissue and bone marrow, but every tissue of the body contains a certain amount. The fat in the different parts of the body is not of the same composition. Muscle fat is not the same as the fat of subcutaneous adipose tissue. The question suggests itself, Have the various tissues of the body the power of synthetizing glycerine and fatty acids into combinations suitable for their own metabolism?

When fat is transferred from one part of the body to another it is broken up into a soluble form and conveyed by the blood. In what form it really exists is a disputed point at present. Munk has shown that 0.15 gram of sodium oleate per kilo, or less of the palmitate or stearate, are fatal to rabbits. A. S. Loevenhart questions the existence of soaps in the blood, and thinks that Hoppe-Seyler's methods of extracting soaps from the blood are open to doubt. Hoppe-Seyler found from 0.05 to 0.1 per cent. of soap in the blood, and, more recently, Oskar Klotz has shown soap to exist in the tissues in calcareous degeneration.

The experiments of Rachford and Pflüger show that the fatty acids are very slowly acted upon by weak alkaline solutions at 37° C., and free fatty acid has been found in the blood by several observers.

It is quite probable that, besides the neutral fat existing in the white corpuscles, small quantities of soap and fatty acid may be found in the blood stream, and are thus carried from one part of the body to another.

CHEMISTRY OF FAT.

The fats found in the adipose tissue are combinations of glycerine with fatty acids. Fatty acids form a series of acids derived from the monatomic alcohols by oxidation. Thus, to take ordinary ethyl alcohol, C_2H_5-OH, the first stage in the oxidation is the removal of two atoms of hydrogen to form aldehyde, $CH_3C=O$; then on further oxidation these are replaced by one of oxygen to form acetic acid, CH_3COOH. A similar acid can be obtained from all the other alcohols.

Glycerine is a triatomic alcohol $C_3H_5\begin{cases}OH\\OH\\OH\end{cases}$ and we may

have one, two, or three hydroxyl groups replaced by an acid radical.

In the neutral fats we have all three replaced, so we speak of tristearin or tripalmitin, etc.

Olein is not a member of the fatty acid series proper, but belongs to a somewhat similar series of acids known as the acryllic series, of which the general formula is $C_nH_{2n-3}OOH$.

It is the eighteenth term of the series, and its formula is $C_{18}H_{33}OOH$.

Analytical results show that butter fat is essentially a mixture of various esters, those of butyric, palmitic, and oleic acids being the leading constituents.

Hehner and Mitchell obtained but very small proportions of stearic acid, and in some cases none. James Bell's experiments would indicate that several acid radicals were present in the same molecule—thus:

$$C_3H_5 \begin{cases} OC_4H_7O\text{—butyric.} \\ OC_{16}H_{31}O\text{—palmitic.} \\ OC_{18}H_{33}O\text{—oleic.} \end{cases}$$

Glycerine may be combined with acids in the laboratory by heating them together in a sealed tube to a temperature of 240° C. for twenty-four hours. The reverse process—hydrolization of the glycerides—can be brought about by the action of steam at 300° C.

In the body both the union and splitting up of the glycerides are affected by the agency of anezymes or enzymes, which are found widely distributed in the body.

In the normal process of things, fat undergoes complete oxidation with the formation of carbon dioxide and water. Besides this oxidation process, there is a process of elimination going on. Thus, we find fat and soap in the bile, and Cyril Corlette's experiments show that fatty acids and soaps are formed in isolated portions of the small intestine of dogs. After a meal of fatty acids, Otto Frank always found in the small intestine more neutral fat than during hunger. Hermann and Voit showed that this was excreted into the small intestine, not formed *in situ* from fatty acids.

Chart I.

Time of Feeding.	Amount Drawn.	Amount Fed.	Amount Sample.	Stool.	Regurgitated.	Temperature.	Weight.
	c.cm.	c.cm	c.cm.				
4.30 p.m.	31	27.9	3.1	—	—	—	—
6.30 ,,	40	36.0	4.0	—	—	—	—
8.30 ,,	35	31.5	3.5	—	—	98°	—
11.30 ,,	31	27.9	3.1	—	—	—	—
2.30 a.m.	32	28.8	3.2	—	—	—	—
5.30 ,,	43	38.7	4.3	—	—	—	—
8.30 ,,	46	41.4	4.6	—	—	98.2°	3,200
10.30 ,,	50	45.0	5.0	—	—	—	—
12.30 ,,	33	29.7	3.3	—	1 p.m.	—	—
2.30 ,,	32	28.8	3.2	—	—	—	—

Method of Investigation.

Our first object was to establish, if possible, the normal relation between the intake and output of fat—first in the healthy suckling and second in the artificially-fed infant.

Our first experiment was conducted on a male infant 17 days old in the Montreal Maternity Hospital. Two nurses were allotted the task of watching the child night and day during the time of the experiment. They were instructed not to use soap in the cleansing of the child's buttocks, nor to employ ointments nor administer drugs. The nourishment for the baby was drawn from the mother's breasts with a breast pump and placed in a graduated bottle (graduated in cubic centimetres). The nipple was fitted directly to the neck of the bottle and the infant fed with the desired quantity. The difference between the reading taken before and the reading taken after the feeding gave the exact amount of food taken by the infant. With a pipette the nurse removed a proportional amount from each feeding for analysis. The baby was fed every two hours in the daytime and every four hours at night.

All breast pumps, bottles, nipples, pipettes, and other utensils used in the collection of the milk were thoroughly washed in cold water, scrubbed with a brush, rinsed with warm water, and boiled. While not in use they were kept in a solution of boracic acid. Before being used the feeding bottle and breast pump were warmed by placing them in water at 40° C.

The faecal discharges were collected upon pieces of washed gauze (fat and soap free) about one yard square folded in the usual way. In the triangular piece, which comes up between the legs, a hole was cut to allow the penis to pass through. Over the gauze was placed a piece of gutta percha tissue, a little larger than the piece of gauze. In this also a hole was cut for the passage of the penis. Over all was pinned the diaper. In this way the faeces were obtained uncontaminated by urine. The gauze received the faeces, the diaper the urine, and the rubber tissue between the two kept them separated. The baby was weighed at the same hour each morning before feeding.

With the artificially-fed children the same rules were observed, except that the food was prepared each morning by the nurse in charge according to the formula prescribed. The quantity and number of feedings in twenty-four hours were regulated according to the age of the child.

A sample of the food prepared was sent to the laboratory each day for analysis. Male children were used, and the stools collected in the same manner as in the breast-fed infant.

Instead of using charcoal to colour the faeces at the beginning and end of each experiment, the fluid extract of haematoxylin was used, and found to give very satisfactory results. Five millimetres in a drachm of water were given to the babies, and usually appeared in the faeces within eight hours after administration.

Chemical Methods.

In the examination of the food the specific gravity, reaction, total solids, fat, proteids, and carbohydrates were determined.

The Westphal balance was used to determine the specific gravity. The degree of acidity was determined by titrating with decinormal KOH, using phenolphthalein as an indicator, each $\frac{1}{10}$ c.cm. of solution used counting as one degree of acidity. The total solids were found in making the weighings necessary for the determination of the fat. In the determination of the fat Soxhlet's method, as described by Allen in his work on commercial organic analysis, was used, petrolic ether being used as the solvent.

Determination of Proteids.—For the determination of total nitrogen in milk, 5 c.cm. were measured directly into a Kjeldahl digestion flask, and the regular Gunning method employed. The total nitrogen multiplied by 6.38 gave the total proteid.

Determination of Milk Sugar.—For the determination of lactose the gravimetric Fehling's process, as modified by O'Sullivan and Defren, was used. The weight of the cupric oxide was converted into lactose equivalent by using the Defren table.

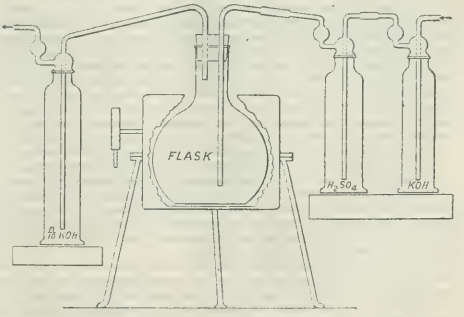


Fig. 1.

In the examination of the faeces the fats, fatty acids, and fatty acids present as soaps were determined. The reaction of the faeces and the amount of decinormal KOH neutralized by the volatile acids driven off in the process

of drying were noted. It was decided to make total quantity determinations rather than percentage determinations, as promising the most accurate results.

The gauze pads, containing the faecal discharges, were received in the laboratory by 12 o'clock each day. Each stool was folded in the gauze and covered with gutta-percha tissue. The gutta-percha tissue was removed and the gauze rolled so as to allow of its insertion into extraction thimbles made of fat-free paper. The thimbles containing the faeces for the twenty-four hours were then placed in the drying apparatus (Fig. 1) and dried for twenty-four hours or longer, if necessary, at a temperature of 95° C. The air was drawn through the flask by means of a suction pump. The air, before entering, was passed through a strong solution of potassium hydrate to remove carbon dioxide, and then through strong sulphuric acid to dry it. After leaving the flask it was made to bubble through a measured quantity of decinormal potassium solution, the amount of neutralization determined by titrating with decinormal hydrochloric acid, using phenolphthalein as an indicator.

After drying, the thimbles were placed in a Soxhlet apparatus and extracted with petrolic ether for two hours, the ether siphoning every ten minutes. The ether was removed by evaporation and the fatty acids converted into soaps by treating with strong potassium hydrate. The whole was washed into a separator funnel using water and about 200 c.cm. of ether. The funnel was well shaken, and after standing for twenty-four hours the bottom layer containing the fatty acids in the form of soap was run off. The ether was washed several times with water, placed in a flask, evaporated off, and the residue dried to constant weight and weighed. This weight, minus the weight of the flask, represents the free neutral fat plus cholesterin, lecithin, etc.

The amount of non-saponifiable material was determined and deducted.

The fatty acids were set free by treating with strong hydrochloric acid placed in a separator funnel and extracted with ether, the same as in the case of the fats.

The thimbles containing the faeces, with contents remaining after the ether extraction, were acidified with hydrochloric acid and extracted with alcohol. The extract was evaporated to dryness, dissolved in ether, and washed with water several times in a separator funnel. The ether extract containing the fatty acids present as soaps was evaporated to dryness and weighed.

In this way the fats were separated from the fatty acids, the non-saponifiable material, and the fatty acids present as soaps.

The iodine numbers were obtained by Huble's method as described by Allen.

Tests of the methods described were conducted, using known quantities of fat, fatty acids, and soap, and found accurate.

Blanks were conducted with all materials used, and the ether and alcohol were redistilled before using. Experiments were conducted in duplicate when possible.

Experiment No. 1.

Male infant, 17 days old. Weight at birth, 3,125 grams; weight at the beginning of the experiment, 3,170 grams; weight at the end of experiment, 3,230 grams. This infant was fed on human milk obtained as already described. The mother was a primipara, 26 years of age. She had been detained in the hospital to have a repair of the perineum performed, and was confined to bed during the time of the experiment. The results of the analyses of the milk are shown in Table I. Chart I is a copy of the nurse's report showing the amount of milk obtained in pumping the breasts, amount fed to the infant, amount saved for analysis, temperature and weight.

In seven days the baby received 2,261 grams of milk containing 72.7 grams of fat; 2.127 grams of fat were regurgitated, leaving 70.59 grams in the stomach to be digested. During this period the infant had ten stools, containing 0.748 gram of fat, 2.123 grams of fatty acid, and 0.630 gram of fatty acid present as soaps. Volatile fatty acids given off during the process of drying the faeces neutralized on a daily average 16.8 c.cm. decinormal KOH solution.

Leaving out of consideration for the present the volatile fatty acids, and calculating the other constituents as fat, we have a total of 3.501 grams, or 4.95 per cent. of the total intake.

In Table VIII we have tabulated the percentage relation to intake of the fats, fatty acids, and fatty acids present as soaps.

Experiment No. 2.

Male infant, 85 days old, who had come to the Foundling Hospital four days before the commencement of the experiment. He was well nourished and appeared healthy. The stools contained some casein curds and were slightly alkaline in reaction. During a period of two days we observed the intake and output of fat. The infant was on a modified whey mixture, giving an analysis as follows: Fat, 2.32 per cent.; proteid, 96 per cent., sugar, 5.25. The reaction slightly acid, although supposed to have 5 per cent. of alkalinity.

The total fat in the faeces, calculated the same as in the previous experiment, was 5.4 per cent. of the fat intake, the three constituents being absorbed in about the same proportion as in Experiment 1.

Experiment No. 3.

Infant 94 days old. The fat in the food was reduced to 0.178 per cent. (Table III), or from 11 grams to 1 gram in twenty-four hours. During the two days the child consumed 2.11 grams of fat, and the total fat appearing in the faeces amounted to 57.48 per cent. of intake. By referring to Table VIII we see that the fats contributed 13.41 per cent. of this amount, the fatty acids 1.56 per cent., and the fatty acids present as soaps 42.51 per cent.

Experiment No. 4.

Infant 107 days old. Was a test made during the resting period between Experiments 5 and 6. The fat in the food was reduced to the same amount as in the previous experiment. The proportion of fat appearing in the faeces was 5.32 per cent., fatty acids 0.43 per cent., fatty acids present as soaps 16.54 per cent., or a total fat loss, as compared with intake, of 22.3 per cent.

Experiment No. 5.

Infant 101 days old. Olive oil was added to the food in this experiment, and the total fat intake increased thereby to 7.25 grams in the two days of experiment. The relative proportion of the fat in the faeces increased to 5.25 per cent., the fatty acids to 6.82 per cent., and the fatty acids present as soaps were reduced from 42.5 per cent. to 3.65 per cent. (Tables IV and V). In two days the child gained 69 grams.

Experiment No. 6.

Infant 100 days old. Palmitin was added to the olive oil and the melting point raised to 35.5° C. The total quantity of fat taken was 11 grams. The total fat in the faeces amounted to 15.38 per cent. of the intake, slightly less than in the previous experiment.

Experiments 5 and 6 were not altogether satisfactory, on account of the difficulty of obtaining a perfect emulsion of the fats, with the result that the infant was placed at a disadvantage in digesting them.

Experiment No. 7.

This infant was 22 days old and weighed 3,189 grams at the beginning of the experiment. The child was fed on a whey mixture, a daily analysis of which is shown in Table VII. During the six days of the experiment the child was given 2,637 grams of milk, containing 63.1 grams of fat; he regurgitated 1.484 grams of fat, leaving a balance of 61.56 grams to be digested. In the six days the infant passed 21 greenish-yellow stools, the first 12 of which were alkaline in reaction, the remainder acid. The faeces contained 2.062 grams of fat, 14.496 grams of fatty acid, and 5.161 grams fatty acid present as soap (Table VII). The percentage relation to the intake of fat is shown in Table VIII. The infant gained 113 grams in the first five days of the experiment. One week after the conclusion of the experiment the child lost weight rapidly and died three weeks later.

Dr. McCrae's *post-mortem* report showed a haemorrhage into the right ventricle, probably there from birth; acute left purulent otitis media, and fatty infiltration of the liver.

The interesting points in this experiment are that most of the fat was split up and appeared in the faeces as fatty acids and soaps, and while other clinical signs were favourable, the analysis of the faeces showed that the infant was losing by the bowel about 35 per cent. of the fat intake.

SUMMARY.

The stools of a normal breast-fed infant are acid to litmus. This acidity is due principally to the presence of volatile fatty acids, of which lactic acid is present in the largest amount. In Experiments 1 and 7, when the stools were strongly acid, the buttocks did not become excoriated. During Experiments 3 and 4 the stools were alkaline to litmus, and this was accompanied by excoriation of the buttocks. That the volatile fatty acids in the faeces are not dependent upon any one constituent of the food is evidenced by the irregularity in the quantity found during the experiments.

In the normal infant the amount of neutral fat in the faeces is very small—0.107 gram a day in the breast-fed infant and 0.179 gram in the bottle-fed infant. Most of this is fat that has escaped the action of the fat-splitting enzymes by being entangled in proteid curds—so-called fat curds on analysis were found to contain only 20 per cent. of fat.

In Experiment No. 1 the iodine number for the fat in the faeces was 67, or slightly above the iodine number for

TABLE I.

Number.	Food.	Percentage of Sugar in Food.	Percentage of Proteid in Food.	Percentage of Fat in Food.	Fat in Food.	Fat in Regurgitated Matter.	Fat Retained by Stomach.	No. of Stools.	Decinormal KOH Neutral in Drying.	Total Fat in Faeces.	Total Fatty Acids in Faeces.	Fatty Acid as Soap.	Weight of Infant.	Gain or Loss.
									c.cm.					
1	338	6.72	—	3.112	10.53	0.330	10.20	1	—	0.106	0.095	0.025	3,170	—
2	279	7.00	—	2.765	7.71	0.120	7.59	1	—	0.124	0.103	0.186	3,190	20
3	290	6.89	—	3.475	10.07	0.948	9.13	2	15.5	0.103	0.389	0.133	3,185	− 5
4	304	6.92	—	3.324	9.99	—	9.99	0	—	—	—	—	3,170	−15
5	341	6.71	—	3.281	11.20	0.278	10.93	2	16.3	0.109	0.654	0.054	3,170	—
6	365	6.81	—	3.274	11.97	0.380	11.59	3	17.8	0.196	0.491	0.137	3,160	−10
7	344	6.50	—	3.282	11.23	0.071	11.16	1	17.7	0.110	0.391	0.095	3,230	70
	2,261	—	—	—	72.70	2.127	70.59	—	—	0.748	2.123	0.630	—	60

TABLE II.

Number.	Food.	Percentage of Sugar in Food.	Percentage of Proteid in Food.	Percentage of Fat in Food.	Fat in Food.	Fat in Regurgitated Matter.	Fat Retained by Stomach.	No. of Stools.	Decinormal KOH Neutral in Drying.	Total Fat in Faeces.	Total Fatty Acids in Faeces.	Fatty Acid as Soap.	Weight of Infant.	Gain or Loss.
									c.cm.					
1	556	—	—	—	12.89	0.0	12.89	2	7.5	0.230	0.228	—	—	—
2	476	5.25	0.967	2.32	11.04	0.0	11.04	4	6.9	0.129	0.383	3.23	5,414	−113
	1,032	—	—	—	23.93	—	23.93	—	—	0.359	0.611	3.23	—	—

TABLE III.

Number.	Food.	Percentage of Sugar in Food.	Percentage of Proteid in Food.	Percentage of Fat in Food.	Fat in Food.	Fat in Regurgitated Matter.	Fat Retained by Stomach.	No. of Stools.	Decinormal KOH Neutral in Drying.	Total Fat in Faeces.	Total Fatty Acids in Faeces.	Fatty Acid as Soap.	Weight of Infant.	Gain or Loss.
									c.cm.					
1	603	4.26	0.893	0.176	1.06	0.0	1.06	4	10.2	0.129	0.013	0.411	5,443	+29
2	599	4.49	0.911	0.176	1.05	0.0	1.05	6	15.1	0.154	0.020	0.486	5,216	−227
	1,202	—	—	—	2.11		2.11	10	—	0.283	0.033	0.897	—	−198

TABLE IV.

Number.	Food.	Percentage of Sugar in Food.	Percentage of Proteid in Food.	Percentage of Fat in Food.	Fat in Food.	Fat in Regurgitated Matter.	Fat Retained by Stomach.	No. of Stools.	Decinormal KOH Neutral in Drying.	Total Fat in Faeces.	Total Fatty Acids in Faeces.	Fatty Acid as Soap.	Weight of Infant.	Gain or Loss.
									c.cm.					
	721	7.33	0.928	0.193	1.39	0.0	1.39	5	10.7	0.074	0.006	0.230	5,128	—

TABLE V.

Number.	Food.	Percentage of Sugar in Food.	Percentage of Proteid in Food.	Percentage of Fat in Food.	Fat in Food.	Fat in Regurgitated Matter.	Fat Retained by Stomach.	No. of Stools.	Decinormal KOH Neutral in Drying.	Total Fat in Faeces.	Total Fatty Acids in Faeces.	Fatty Acid as Soap.	Weight of Infant.	Gain or Loss.
									c.cm.					
1	717	7.75	0.946	0.525	3.76	0.0	3.76	3	11.1	0.055	0.018	0.127	5,059	—
2	705	8.29	0.911	0.496	3.49	0.0	3.49	4	27.8	0.237	0.408	0.042	5.202	143
	—	—	—	—	—	—	—	3	—	0.079	0.069	0.096	5,128	−74
	1,422	—	—	—	7.25	—	7.25	10	—	0.381	0.495	0.265	—	—

TABLE VI.

Number.	Food.	Percentage of Sugar in Food.	Percentage of Proteid in Food.	Percentage of Fat in Food.	Fat in Food.	Fat in Regurgitated Matter.	Fat Retained by Stomach.	No. of Stools.	Decinormal KOH Neutral in Drying.	Total Fat in Faeces.	Total Fatty Acids in Faeces.	Fatty Acid as Soap.	Weight of Infant.	Gain or Loss.
									c.cm.					
10	716	6.74	0.839	0.516	3.70	—	3.70	5	13.3	0.100	0.334	0.251	5,100	−28
11	716	6.68	0.839	1.020	7.30	—	7.30	4	14.2	0.323	0.411	0.267	5,086	−14
—	1,432	—	—	—	11.00	—	11.00	—	27.5	0.429	0.745	0.518	—	−42

TABLE VII.

Number.	Food.	Percentage of Sugar in Food.	Percentage of Proteid in Food.	Percentage of Fat in Food.	Fat in Food.	Fat in Regurgitated Matter.	Fat Retained by Stomach.	No. of Stools.	Decinormal KOH Neutral in Drying.	Total Fat in Faeces.	Total Fatty Acids in Faeces.	Fatty Acid as Soap.	Weight of Infant.	Gain or Loss.
									c.cm.					
1	320	6.85	1.14	1.97	6.30	0.047	6.25	3	0.0	0.113	0.432	0.278	3,203	+14
2	502	6.25	—	2.36	11.84	0.195	11.64	2	2.5	0.015	0.057	0.228	3,231	+28
3	445	7.29	1.29	2.10	9.34	0.700	8.64	2	0.0	0.447	2.956	1.395	3,260	+29
4	463	5.37	—	2.09	9.67	0.172	9.50	2	9.7	0.165	0.315	0.789	3,288	+28
5	473	7.93	—	2.85	13.48	0.000	13.48	4	37.4	0.496	4.041	1.570	3,302	+14
6	444	5.99	1.21	2.81	12.47	0.410	12.06	5	35.9	0.577	4.739	0.867	3,302	—
—	—	—	—	—	—	—	—	3	20.4	0.249	1.906	0.034	—	—
—	2,637	—	—	—	63.10	1.524	61.57	21	—	2.052	14.498	5.161	—	113

TABLE VIII.—*Percentage Relation to Intake.*

Experiment.	I.	II.	III.	IV.	V.	VI.	VII.
Total intake of fat	70.59	23.93	2.11	1.39	7.25	11.00	61.57
Percentage of fat in faeces	1.06	1.50	13.41	5.32	5.25	3.90	3.34
Percentage of fatty acid in faeces	3.00	2.55	1.56	0.43	6.82	6.77	23.54
Percentage of fatty acid as soap in faeces	0.80	1.35	42.51	16.54	3.65	4.70	10.00
Total fats	4.95	5.43	57.48	22.30	15.73	15.38	36.88

the fat of human milk. In Experiment No. 7 the number was 41, about the average of butter fat. In Experiments 3 and 4 the number rose to 62, indicating a change in the character of the fat excreted when the infant was on a low fat diet. In Experiments 5 and 6 the iodine number was 75, which would be accounted for by the increase of olein in the food.

The free fatty acids exceeded the amount of fat found in the faeces in every experiment where the fat in the food was over 0.5 per cent. Free fatty acids were found in alkaline stools in Experiments 2, 3, 4, and 6, confirming Pflüger's experiments that free fatty acids combine very slowly at 37° C. with weak alkalies. The fatty acids present as soaps averaged 0.07 gram in the breast-fed infant and 0.161 gram in the normal infant on artificial food.

In Experiments 3 and 4, when the fat was reduced to 0.176 per cent., the soaps increased (for Experiment 3) to 0.448 gram, (for Experiment 4) to 0.230 gram. Halliburton, Gamgee, and others found the calcium and magnesium soaps in excess of the soluble soaps in the faeces; and Uffelman found more calcium in the faeces of artificially-fed infants and infants with diarrhoea than in healthy sucklings.

From our experiments we see that the soaps are increased in the faeces in artificially-fed infants, and in infants with a low percentage of fat in the food (Tables III and IV), and in infants with diarrhoea (Table VII).

Have we not grounds for believing, therefore, that the loss of calcium, in combination with the fatty acids as soaps, would be increased under these conditions?

Proprietary foods with very low fat percentages are acknowledged as one of the etiological factors in the production of rickets.

Pflüger found in his experiments on the solubility of fatty acids that the solid fatty acids, palmitic and stearic, were much more readily saponified if dissolved in oleic acid. And although these acids were saponified readily oleic was only acted upon to a very slight extent.

We determined the iodine numbers for the free fatty acids and for the fatty acids combined as soaps. The iodine number for the free fatty acids was 77 to 79, for fatty acids combined as soaps 51 to 62, showing that the fatty acids combined as soaps contained less oleic acid than the free fatty acids.

In Experiment 7, with pathological conditions present, the iodine number for the fatty acids combined as soaps was 84, the free fatty acids 37. Here the conditions were apparently reversed.

CONCLUSIONS.

About 4 per cent. in nurslings and 5 per cent. in bottle-fed infants of the fat ingested appears in the faeces.

The fat found in the faeces is, to a great extent, fat that has escaped digestion.

The fatty compounds in the faeces exist as neutral fat, fatty acids, and soaps. The fatty acids are usually in excess of the other two constituents.

The soaps are relatively increased in artificially-fed infants, in infants with a low percentage of fat in the food, and in infants with diarrhoea.

In conclusion we wish to thank Professor R. F. Ruttan for the use of his private laboratory, Dr. J. R. Roebuck for his kind assistance, and Drs. Blackader, J. C. Cameron, and Evans for the use of the material in the hospitals.

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THE MILK LABORATORY AND ITS RELATION TO MEDICINE.

[Abstract.]

In this paper I propose to give a brief account of my impressions arising from the systematic use of the milk laboratory in London, and of the conclusions derived from that experience. My experience of the laboratory began in 1901. It had first been established in London about 1897, but its meaning had been scarcely appreciated by the profession. Of the few who used it most seemed to think that some sort of proprietary food was offered by the laboratory, and they were sometimes indignant when the manager declined to carry out such vague instructions as were implied in the order to send "a good food for a three months old baby."

In 1902, after consultation with Dr. Thomas Morgan Rotch and Dr. Henry Ashby,* I proceeded to straighten out the milk laboratory, so that I might obtain for myself and every one who cared to use it an efficient instrument for the provision both of pure whole milk and modified milk. I began by condemning the farm then used by the laboratory as inadequate for its special purposes, and land situated at Sudbury (near Harrow, Middlesex), was finally adopted as the site of the new farm. Upon this was erected a model cow-shed, milk rooms, refrigerating machinery, and all the other buildings necessary. Early in 1903 the new farm, fully equipped, was in working order. Since then the buildings have been enlarged by the addition of a new cowshed, planned on the most modern lines, and more powerful refrigerating machinery, which was rendered necessary in consequence of increasing demands. Many minor improvements have been made from time to time, of which I may select for mention the automatic railway, by means of which the milk from each cow is reduced to 40° F. within, as a rule, about five minutes of her being milked.

Only those who are practically familiar with the details involved in milk production can at all realize the kind of work required to train milkers and all concerned in the methods of scientific milk control. The diet of the cows, for instance, is a subject of great importance. Not only have gross and improper foods to be excluded, but a balanced ration is needed if the cows are to produce milk of fine standard quality.

In 1903 the Infants' Hospital, London, was established. There are comparatively few infants' hospitals in the world, and this hospital is, I believe, unique in one respect, for it is entirely confined to infants suffering from disorders or diseases of nutrition.

We have at present twenty cots in use, and since the opening of the institution some 500 cases have been under treatment. Each infant is prescribed for individually: the exact amount of fat, lactose, whey-proteids, caseinogen, etc., as determined in the prescriptions, are set out on the diet chart for each case. Every day an ice-box containing the tubes of modified milk for each infant is delivered in the early morning. The infants are visited at least twice a week, and the diet is adjusted according to the indications.

Practically no drugs are used; such a drug as bismuth, for instance, is unknown in the hospital. Castor oil and calomel are used, but only as preliminary treatment, to effect the removal of noxious products from the intestine, so as to prevent these interfering with the diet ordered.

As my clinical researches progressed under the test conditions that can only be applied systematically and continuously in a hospital, I found myself astonished at the remarkable manner in which the babies reacted to minute dietetic adjustments. For I found that I was establishing clinically what Pawlow in the wonderful laboratory researches recorded in his *Work of the Digestive Glands* had demonstrated experimentally. One day a doctor, looking with some degree of amused astonishment at our diet charts, said to me, "Dr. Vincent, you seem to look upon a baby as a sort of fat-testing machine reacting to decimal points"; and he was a good deal more astonished when I replied, "That is precisely how I do look upon a baby."

As one instance of the value of studying infantile nutrition under test conditions I may briefly mention the cases of scorbutus occurring in twins 3 months old. This is, I believe, the earliest age at which scorbutus has been recorded, and the fact that it occurred in both infants at the same age was of especial interest. The infants on admission weighed 6 lb. 4 oz. and 5 lb. 3 oz. Both were cured.*

The hospital, indeed, is a museum of infantile malnutrition, the average weight of the infants that were cured being 50 per cent. below the normal weight for age on admission. Most of the deaths occurred in cases clearly belonging to the group "non-viable," a considerable proportion of the infants being below 4 lb. at 1 month of age, and some being below 3 lb. at this age. Yet the mortality-rate in the hospital has never been as high as the average mortality-rate among infants under 1 year of age in the large towns of the United Kingdom.

The work of the hospital was begun, and is still being carried on, in what is rather an adapted house than a hospital. But the work there has received a compliment which scientific men can most fully appreciate. For, with a generosity and a scientific enthusiasm that can only be described as characteristic of themselves, Dr. Ludwig Mond and Mr. Robert Mond have undertaken to provide a site in Westminster, near the Houses of Parliament, and to erect thereon a fully-equipped hospital, specially designed for the treatment and the study of infantile malnutrition. And I cite this splendid action as further evidence of the potent influence exerted by the milk laboratory in reference to the progress of scientific medicine.

My experience in private may be divided roughly into three classes: (1) Cases when the feeding of the infant has been under my supervision from birth; (2) infants brought to me because of difficulty in regard to feeding and consequent failure to thrive, most of these infants varying from 3 to 6 months of age; (3) cases where there has been the greatest difficulty in rearing the infant at all, and when practically every method of feeding has been adopted.

In all the cases where I have used laboratory feeding from birth onwards (excluding cases of definite maldevelopment or congenital disease) the development of the infant has been exceptionally fine, being comparable in every respect with the best type of breast-fed infant. Indeed, the development of these infants is much finer than can be obtained, practically, by breast feeding.

Practically, all these infants have teethed before seven months of age, and have walked by not later than 13 months. They have provided a good many neighbourhoods with their "model babies."

The second class of case exhibits great variety. Some of them have been entirely breast-fed. In them constipation is almost universally present, and the analysis of the mother's milk almost always shows a low percentage of fat, the amount seldom exceeding, and often being less than, 2.50 per cent. At six months of age these infants may only be able to digest 1.50 per cent. of fat, when substitute feeding begins. Gradually the substitute food is strengthened, and the infant finally does well, but it is very likely ten or twelve months of age before the eruption of the first tooth.

The infants not breast-fed come having been fed on every variety of "food." And what better evidence of the need of the milk laboratory could we want than these miserable failures?—miserable, because all these cases that I see in private are cases where there has been no lack of money and no unwillingness on the parents' part to spend it on their infant. And yet the infant has for months been deprived of real food. "Sterilized milk," "humanized milk," "barley water mixtures," "peptonized milk," "Allen and Hanbury's," "Mellin's," "malted milk"—but I refrain. I have sometimes thought of making a list of the things that have *not* been given to babies under nine months of age under medical advice—if only for the sake of brevity. Naturally many of these cases are seriously ill and in bad condition, which takes a long time to recover from, but the saving clause in most of them is that after a certain time the infant refuses to persist with such foods, and with a sense of the fitness of things remarkable at its early age, consistently vomits them. I look forward to the day when these miserable concoctions of sterilized milk, patent foods, and the like will be scouted by the medical profession in no uncertain manner.

*The cases are described in my *Nutrition of the Infant*. Second edition. Pages 276-277.

For as trusted advisers of the public we owe them a great duty, and the use or tolerance of patent foods for young infants by medical men is, in my opinion, most damaging to the reputation and scientific standing of our profession.

The third class consists of cases belonging, as a rule, to an entirely different category. They are cases where there is a real constitutional impairment or idiosyncrasy of the digestive functions. These cases are relatively few in number when compared with the numbers of healthy infants at birth. Considerable practical acquaintance with this class of case justifies me in saying that heredity plays an important part in their etiology. The most difficult cases occur, as a rule, in male infants, and there is often a family history of gout. I feel quite confident that some of these infants simply could not have lived but for the precise diagnosis and refined adjustments which were possible by the use of the milk laboratory. Especially would I lay stress on the great assistance in diagnosis which the milk laboratory affords in these cases.

The symptom complex of the "gouty" baby is extremely varied. The curious nervous crises, the fleeting intertrigo, the patch of eczema on the cheek, the scaly eruption on the head, the psoriasis-like patch on the elbow, leg, or abdomen, only fall into line when we understand that they are but the expression of the "diathesis." The liver and the pancreas will suddenly stop working, or, to use a manufacturing term, "go on half-make," and the food, whatever be its precise composition, then becomes an irritant till it is ejected. In these cases the liver and digestive glands seem to require periodic rests, and the most effectual method of combating this tendency of the gouty infant to "revert" is by interrupting the ordinary diet and giving occasionally mixtures extremely dilute in all their constituents. On the other hand, the physician in these cases must not rest content with merely dilute food; in the intervals he must gradually educate the digestive glands so that they come to be steady and powerful in the performance of their functions.

Besides these gouty babies there is an ill-defined group of infants whose feeding presents exceptional difficulty. Usually they are "nervous," and their functions tend to exhibit the instability characteristic of their nervous system. Great delicacy of the digestive organs in the earlier part of the first year of life is one of the cardinal signs. They tolerate caseinogen very badly, and dietetic errors produce serious disturbances, but most of the difficulty arises from their previous diet. If seen at birth, and fed from the laboratory throughout, their peculiarities can soon be dealt with, and when the food is adjusted to their requirements they thrive. But the majority are seen after having been treated by other methods, and when they have been fed on sterilized milk, peptonized milk, etc., the treatment is much more difficult. Nothing is more calculated to confirm the delicacy and encourage atrophy of the digestive organs than the administration of cooked or predigested food. The one thing needful from the first is the natural stimulus of natural food.

In this very condensed sketch of my experiences I have sought to give the impressions derived from actual constant work with the milk laboratory, and I have refrained from citing cases in any detail, for I think much more information is gained from the conclusions derived from practical experience rather than from an account of the laborious details which form their basis. In such details one is apt to miss the forest by reason of the trees.

I would summarize my conclusions as follows: In regard to substitute feeding, milk laboratory feeding is not merely the best method, it is the only satisfactory and scientific method, broadly considered. It is the practical expression of our belief that mother's milk is the natural food, for all the principles of the milk laboratory are based on the root-principle of providing a food for infants corresponding in all respects to the needs of the infant as illustrated in the composition and variations of human milk.

The provision of a substitute food should be controlled by the physician, and it should be prepared by trained persons in a suitably-equipped laboratory under aseptic precautions. Custom and tradition alone provide the argument for "home modification" by the mother or nurse. It is unnecessary to bother them with such details; it is unwise, because one cannot expect to obtain that degree of accuracy one can expect from laboratory assistants.

The educational influence of laboratory methods on mothers and nurses is very great. The care exercised by the laboratory, and the manner in which the tubes of modified milk are supplied impress them with the importance of the subject. The supplying of the milk mixtures already prepared and only needing to be warmed to be ready for use relieves the nurse of duties which do not properly belong to her, while encouraging her to pay every attention to the hygiene and healthy development of the infant. It is a fact not without its significance that the nurses accustomed to laboratory methods are much more systematic than others in regard to the weighing of the baby.

In every way laboratory feeding makes for good. It puts the physician in his right position, it encourages the mother and nurse to understand the real meaning of infantile nutrition, and it wages war against those paralysing traditions and superstitions in regard to the rearing of the infant which still exist in many nurseries.

But indeed the milk laboratory has a wider scope than infant feeding. Milk contains all the proximate principles necessary to nutrition, and I use the laboratory largely for children.

The use of cod-liver oil and malt extract I have entirely abandoned. The form of fat most suited to the human digestive organs and most nutritious is that found in milk, and "high-fat" modifieds are frequently ordered. Again, in the treatment of neurasthenia in women, the same considerations prevail. The proteid of milk is not a suitable form for adult digestion; the proteids as found in meat are much more suitable. Consequently for those cases popularly known as "rest cures," I use modified milks in which the fat and albuminoid contents are adjusted to the specific physiological requirements, with the result that the meteorism and abdominal distension commonly resulting from the ingestion of large quantities of milk practically never occur. And in many other ways too varied to discuss here I make use of the laboratory as the most exact means we have for dietetic adjustment to the precise needs of the individual patient. The meaning of human milk, the structure and development of the human infant, and Pawlow's *Work of the Digestive Glands* all find their most practical clinical expression in the scientific use of the milk laboratory.

DISCUSSION.

DR. ASHBY remarked that the establishment of the Walker-Gordon milk laboratories was almost entirely due to Dr. Vincent's enthusiasm.

DR. BLACKADER (Montreal) considered that the dread of giving opium in entero-colitis was carried too far. In his opinion it was often necessary to check peristalsis. Food should be given which could be absorbed from the upper portion of the digestive tract. He believed that the "day's outing" so often recommended was responsible for much summer diarrhœa. The infant's whole supply of food for the day had to be taken with it; this underwent fermentation, and diarrhœa resulted.

Dr. A. B. RIDDELL (Bayham, Ontario) said that the insanitary condition of the majority of cowyards should enlist the consideration of professional men. He earnestly appealed to city physicians not to send contagious cases and infectious diseases to unsuspecting country homes. The lives of children in the country were as dear to their parents as were the lives of city children. He thought it was right to advise the establishment of milk laboratories in the country, but considered that isolation hospitals should be established in connexion with these laboratories.

Dr. A. L. BENEDICT (Buffalo, Delegate from the American Medical Association) cited some personal experiences warranting scepticism regarding the quality of milk obtained from laboratories. With municipal or other governmental inspection, admonition, and punishment, a very good grade of milk could be delivered in cities, in sealed bottles, for 6 cents a quart, yielding to the farmer a better return than most methods of farming. The speaker believed in following the percentage method of feeding, and in his book on dietetics had reduced the matter to algebraic formulae, using milk, cream, powders of milk sugar, sodium chloride, or a solution in distilled

water of the various salts of blood. At the same time he considered the bacterial contents, biologic differences of coagulation, etc., as of greater importance than the percentage composition. A milking machine and the possibility of a dried milk were mentioned in connexion with the prevention of contamination. In conclusion, he emphasized the fact that in spite of all that could be said in favour of breast feeding, against cow's milk, and in favour of the milk of other animals or of various substitutes, the cow must remain, for as long a time as could be foreseen, a very practically important source of food.

Dr. J. H. Mason Knox (Baltimore) called attention to the relation of the dysentery bacillus to a considerable group of cases of summer diarrhœa. There were several well-known varieties, which often produced different degrees of illness. It had been found that the highest mortality existed with the so-called "Y" bacillus of His, or with infection with several varieties of dysentery bacilli together, or with dysentery bacilli and streptococci. The method of entrance of the bacilli into the intestinal tract was unknown, but it was not unlikely that the organisms might be waterborne; the biological character of the dysentery bacillus made this possible, and the nature of the onset of epidemics in widely scattered portions of our large cities suggested that the invaders were borne by a common carrier such as water. Skimmed milk often partially peptonized was the form of milk which could be most safely returned to after the period of starvation. The great importance of pasteurization of all milk given to the poor, who have not refrigeration at their homes, was emphasized.

Replies.

Dr. Morse, in reply, said that he did not much approve of milk laboratories. If he could get a pure, clean milk, which of course he acknowledged was a difficulty, he would as soon have it modified at home. He wished to emphasize as strongly as possible the great importance of feeding babies on breast milk whenever it was possible.

Dr. La Fétra said that he quite agreed with Dr. Morse's remarks about laboratory feeding.

A DISCUSSION ON CONGENITAL PYLORIC STENOSIS.

OPENING PAPERS.

I.—Edmund Cautley, M.D.,
Physician to the Belgrave Hospital for Children and the Metropolitan Hospital.

In opening this discussion I propose to omit the consideration of pyloric obstruction due to the external pressure of enlarged glands, dermoids, or new growths; kinking or constriction, the result of adhesive peritonitis; pathological curiosities, such as polypus of the mucous membrane; and the impaction of food or foreign bodies. I shall refer briefly to the occurrence of atresia and simple stenosis, and shall direct your attention mainly to two groups of cases—namely, functional pyloric spasm and congenital hypertrophic stenosis of the pylorus.

Atresia and Stenosis.

Atresia is almost unknown. It is a developmental error incompatible with life. Vomiting is the chief symptom, and appears as soon after birth as the child takes food. Unless operative treatment is adopted death quickly ensues from starvation.

Stenosis is more likely than atresia to be present as a congenital peculiarity. Gastric dilatation, dyspeptic symptoms, and vomiting have been reported as dating from infancy in children and adults in whom the pyloric canal has been found abnormally small. In early infancy accurate diagnosis is impossible. Even measurement of the pylorus after death affords evidence of little value, for the actual calibre of the pyloric canal depends on the degree of *post-mortem* contraction, and also varies in different infants. It is quite possible that an unduly small canal might become blocked by a plug of inspissated mucus, or by swollen mucous membrane, in gastric catarrh. Such a combination of factors would induce signs of pyloric obstruction, and yet be recovered from under simple treatment and lavage.

Functional Pyloric Spasm.

The name of pyloric spasm may be given to a group of cases in which certain symptoms, by no means uncommon in infancy, are present and are extremely liable to give rise to an erroneous diagnosis of congenital hypertrophic stenosis.

I admit that there is no absolute proof that spasm of the pylorus is present, but I can put forward no other plausible explanation. On the assumption that spasm is the etiological factor, I regard these cases as conclusive evidence of the view that spasm of the pylorus is not the cause of the marked hypertrophy of the pylorus seen in congenital hypertrophic stenosis. It is almost justifiable to go further, and maintain that spasm of the pylorus does not produce hypertrophy.

A few typical cases will best illustrate the characteristic features of this affection:

1. A girl, born at full time and weighing 7 lb. 5 oz., breast-fed, started vomiting three days after birth. In spite of treatment, vomiting had persisted, with constipation and wasting, until I saw her at the age of 11 weeks. She then weighed 6 lb. 1 oz., was anæmic, emaciated, and had aphthous stomatitis. No peristalsis, dilatation of the stomach, or palpable pylorus was found. A diagnosis of marasmus, due to pyloric spasm and erroneous feeding, was made. The child died next day, although she had retained 26 oz. of whey. The bowels had acted twice. On examination after death, the pylorus showed no trace of stenosis or hypertrophy (specimen shown), in spite of the history of prolonged vomiting.

2. A boy, aged 6 weeks, breast-fed for three weeks, and then on humanized milk, had started vomiting almost immediately after birth, and had continued in spite of treatment. The stools were said to be normal. Indefinite peristalsis was visible, but no dilatation of the stomach or palpable pylorus could be found. His weight was 5 oz. less than at birth. On a diet of whey and small doses of cocaine he soon recovered.

3. A breast-fed infant started severe vomiting in the fourth week of life. During the third week he had one bottle, and in the fourth week two bottle-feeds of diluted milk. The tongue was clean and the breath sweet. The child lost nearly 3 lb. in weight in a week, but recovered on cocaine and a diet of whey.

4. A breast-fed boy began vomiting in the seventh week, and continued until the breast-feeding was entirely omitted in the fifteenth week. In the seventh month the vomiting recurred, and became progressively worse, suggesting pyloric obstruction. After a severe illness and varied diet he eventually recovered. Cocaine and raw meat juice, 1 drachm every quarter of an hour for two days, originated the starting point in his improvement.

Thus, the main feature of this affection is severe and continued vomiting. Usually the food is brought up at once, but sometimes a considerable quantity is kept down and then violently ejected. Possibly pyloric spasm explains some cases of recurrent vomiting.

Congenital Hypertrophic Stenosis.

This affection has been described under the names of "congenital gastric spasm," "congenital pyloric spasm," and "infantile hypertrophy of the pylorus." I prefer the name of congenital hypertrophic stenosis, because hypertrophy (or hyperplasia) is its main feature, because it is probably of congenital origin, and because it leads to stenosis, and I hope to justify the name.

The first case in infancy was recorded in 1841 by Williamson. Osler has unearthed an earlier record of a case, reported by Hezekiah Beardsley, in a child who died in the fifth year of life with symptoms dating from infancy. In 1898 I could only collect records of 17 undoubted cases and published 2 of my own, and I described a specimen in the museum of St. Bartholomew's Hospital. In 1902, in a conjoint paper with Mr. Clinton T. Dent, we were able to collect over 50 cases, and now a search through the literature would yield somewhere between 100 and 150. It is obvious, therefore, that the affection is by no means uncommon, and that it must have been frequently overlooked. In accepting cases recorded as instances of this disease, considerable discretion must be used before including those which have not been verified at operation or *post mortem*.

I have had 16 cases under my own observation, and my conclusions are mainly based on the course and results in these infants.

General Description.—The family history is of little importance. The babies are normal children at birth; a few have been premature. Both sexes should be equally liable, and in a large number of cases there would be probably no undue preponderance of either. Of my own

cases only 5 out of the 16 were females. Almost all come under observation during the first three months of life, generally in the first month. This is an important fact. It indicates that the affection is one of very early life; that it does not develop after this age; that it is probably congenital in origin; and that it is rarely compatible with prolonged life. The symptoms may begin within a few hours or days of birth, or not appear until the third or fourth week. Occasionally they do not develop until some time in the second month, rarely or never at a later date. They develop just as readily in the breast-fed as in those partially breast-fed or brought up entirely on the bottle. It is not uncommon for a child to start life extremely well, as "a fine baby born," to gain weight rapidly for two or three weeks, and then to begin vomiting. If, as often happens, partial bottle-feeding has been begun in the fourth week or earlier, the vomiting is almost invariably ascribed to the diet.

Lack of appetite may be the first sign, but it is one which is often overlooked. The child does not take the breast readily or is very soon satisfied. Vomiting, being more noticeable, is the sign which commonly first attracts attention. It may be mistaken for simple regurgitation. Later on it becomes more characteristic. The act of vomiting is a forcible one, like that seen in older children. The contents of the stomach may be violently ejected to a distance of 3 ft. According to the diet and mode of treatment, it may occur only once a day or even less frequently. In typical cases two or more meals are kept down, and then the whole lot is brought up forcibly, gushing through nose and mouth, or shot out as from a pump. It causes some pain, but the babe is most comfortable with the stomach empty. There is no nausea and food can be taken almost immediately after.

If the stomach is washed out once a day, and a weak fluid diet is given in small frequent feeds, vomiting will not take place until a certain degree of distension has occurred. When washed out twice a day this degree of distension may never be reached if the stomach has already become chronically dilated. Hence the absence of vomiting in cases treated by lavage may be misleading. The degree and the acuteness of the stenosis also modify the vomiting. In some instances there is little obstruction and little vomiting if an appropriate diet is given. In acute obstruction the vomiting is as severe as in acute gastritis or intestinal obstruction. As a general principle, the more dilute the food and the less coagulable it is by gastric juice, the less marked is the vomiting, except in complete obstruction.

The vomited matter consists of food and is free from bile. It may contain lactic or hydrochloric acid, but the latter is not always present. It may contain mucus from secondary gastric catarrh. Sometimes it is like beef-tea or coffee-grounds, the result of haematemesis in late stages or in acute obstruction.

If the stomach is washed out and a test meal given, the whole may sometimes be recovered at the end of two hours, when it ought to have passed out of the stomach.

The tongue remains clean and the breath sweet, unless gastric catarrh is set up. The appetite is poor, unless the stomach is washed out or emptied by vomiting. Food is then usually well taken.

The state of the bowels is variable. By far the most common condition is persistent and increasing constipation. Sometimes the stools consist of a material resembling paint or meconium, brownish or dark green. Occasionally they are tarry. Such stools are composed of epithelial débris, intestinal secretions, altered bile and blood. In a few cases faecal matter may be invariably present, showing that the obstruction is not continuously complete. Not infrequently multiple watery stools are passed, the result of enteric catarrh set up by irritant stomach contents, which have passed through the pylorus.

The child wastes progressively, sometimes with extraordinary rapidity. The body surface is cold, the temperature subnormal, the pulse small, frequent, and weak, and the general appearance one of whining lethargy with half-open eyes.

The physical signs are visible peristalsis, dilatation of the stomach, and a tumour in the region of the pylorus. Great importance should be attached to definite visible peristalsis. It may only be visible after feeding and is best elicited by giving a fair-sized meal, by flicking the stomach wall with the finger, or by applying a cold object. In marked cases a prominent wave-like swelling passes from left to right, stopping momentarily at the pylorus and then passing down the duodenum. As a rule it stops short at the pylorus. It was noted by Sarvonat and Audry at 2 weeks of age. It is most marked in cases of long duration. If the stomach is much dilated and its walls weakened, the wave does not cause so marked a bulging of the abdominal wall. Peristalsis may be seen in other varieties of pyloric obstruction and in wasted infants with dilated stomachs, but in these it is much less characteristic.

Dilatation of the stomach depends on the duration and degree of obstruction. Consequently it is most evident in late stages. It is absent in early stages, for food is ejected as soon as the stomach is overdistended. Gradually the stomach dilates until it may hold as much as 14 oz. in the third month of life. Thus the absence of dilatation is not a contraindication in early cases at a time when operative treatment gives the best results. It must not be forgotten that dilatation is by no means uncommon in artificially-fed infants.

The pylorus is palpable as a hard lump, about the size and shape of a filbert, sometimes more rounded and feeling like a small marble. I have never been able to convince myself that it alters definitely in hardness during peristalsis of the stomach, though some writers have stated that this change can be felt, and have brought it forward as evidence of spasm. The tumour is situated about half an inch to the right of, and three-quarters of an inch above, the umbilicus, roughly midway between the umbilicus and the costal margin. Occasionally it is lower down, and may be mistaken for an enlarged gland. Sometimes it is difficult to reach, buried beneath a large liver, though even in these cases it may often be felt. It has been more or less palpable in ten out of the last eleven of my cases, but in some it was impossible to be absolutely positive, especially in well-nourished children. Provided that the pylorus is felt, the diagnosis is certain. Unfortunately it is greatly to the detriment of the child if the physician is going to wait until he can definitely feel the tumour before he ventures on making a diagnosis. The greater the wasting the more palpable is the pylorus, and the smaller is the chance of successful operative treatment. Put shortly, marasmus and dilatation are indications of prolonged duration, and that post-operative treatment will be difficult. In a child operated on at the age of three weeks the pylorus was found to be about three-quarters of an inch long, and the stomach capacity was about 4 oz. (Munro). Such are the common characteristics. Cases may, however, be divided into three classes:

1. *Typical Cases.*—Characteristic vomiting, constipation, wasting, visible peristalsis, dilatation of the stomach, and a tumour.

2. *Acute Obstruction.*—Of this the following is an instance:

A female infant, the fourth child, was born at full time and weighed 7 lb. 5 oz. She was breast-fed and gained 1½ lb. in three weeks. After that she was partially bottle-fed. In the fourth week she gained 4½ oz.; in the fifth she lost 2½ oz., and in the sixth a further 14 oz. Vomiting began in the third week. In the fifth it was temporarily acute, with haematemesis of coffee-ground material and melaena for twenty-four hours. The vomiting persisted and she had more haematemesis and melaena ten days later, the day before I saw her. On examination I found visible peristalsis, a hard pylorus, but no dilatation. Pyloroplasty was done next day and the mucous membrane was found intensely congested. The child had lost 17 oz. in the two days preceding operation. She made a rapid recovery and has had no further trouble.

The acuteness of the vomiting and the haematemesis suggested an acute gastritis, but the tongue was clean, the breath sweet, and there had been no improvement under careful dietetic and drug treatment.

3. *Mild Cases.*—In these there is less marked hypertrophy, and the muscle does not contract sufficiently to cause complete obstruction. The vomiting varies with the diet. If the stomach is washed out daily and a dilute food given, vomiting may be entirely absent for a week or more at a time, or may be limited to a little regurgitation, the result of wind. Apart from this, food may pass through the pylorus in sufficient quantity to maintain nutrition, in spite of occasional vomiting. In one such case the child gained 13 oz. in a fortnight as an out-patient, and

6 oz. in two days when in hospital. This babe exhibited moderate dilatation of the stomach, a palpable tumour and a little peristalsis. It remained stationary for a few days and then died from enteric catarrh and asthenia.

These are the cases which may get well without surgical aid. Some of them have reached the age of 4 (Beardsley), 5 (Sonnenberg), 11 years (Hansy), and possibly adult life. It is quite probable that the hypertrophic stenosis of adults is the result of a persistence of the infantile condition. Perhaps some get perfectly well. Others suffer from chronic gastric trouble. Most of them die from progressive wasting due to insufficient nutrition.

Morbid Anatomy.—The normal pylorus is a constriction, the thickness of an old-fashioned wedding-ring, formed by the circular muscular fibres. In hypertrophic stenosis the pylorus forms a hard, elongated, cylindrical tumour ¾ in. to 1 in. in length and about 1½ in. in circumference—a solid tumour about the size of the last joint of the female little finger. In advanced cases it is very hard, white and bloodless. On macroscopical examination externally its limits can be easily defined. It ends very abruptly at the duodenal end and has a distinct limit on the gastric side, not shading off gently into the wall of the stomach. It projects into the duodenum in much the same way as the os uteri projects into the vagina, and has a very similar aspect when looked at from the duodenal side. On the gastric side it is more funnel-shaped. Section shows that the enlargement is due to a great increase in the circular muscle fibres. All other changes are, in my opinion, secondary.

The mucous membrane is thrown into folds. In the fetal pylorus there are five such folds when the pylorus is contracted. In this affection there may be as many as four folds or only one, a long and ridge-like promontory, extending the whole length of the canal, and resembling the veru montanum in the prostatic urethra.

It is to the folds of mucous membrane that the obstruction is due, and the folds are produced by the gradual or spasmodic contraction of the hypertrophied muscle.

There is no evidence of inflammatory change. The mucosa and submucosa may seem thicker than normal from their compression in a contracted channel. The longitudinal muscle is not hypertrophied, though it may appear so if cut obliquely.

In every case under my notice this has been the anatomical condition, varying a little in extent, according to the age and weight of the child and the severity of the signs of obstruction. The mucous membrane may be much congested in acute cases.

Although the amount of muscle varies a little in the normal pylorus in different children, and in those who apparently suffer from spasm, it remains very small, and in section roughly triangular. No intermediate stages between the two conditions are found after death in the numerous infants who die from various diseases and are examined at our hospitals.

Pathology.—Personally, I still hold the view which I stated in 1898: "That Nature, in her extreme anxiety to provide an efficient pyloric sphincter, has over-exerted herself and produced too great a quantity of muscular tissue." In other words, there is a true hyperplasia, a simple redundancy of fetal growth. The first indication of a pylorus is found during the third month of fetal life. It is formed from the foregut, the muscular tissue being derived from the mesoblast. Thus, there is plenty of time for hyperplasia during fetal life. That hyperplasia does occur in fetal life is shown in a specimen from a seven-month fetus, of which a photograph has been kindly lent me by Mr. Dent. The appearance of the muscle under the microscope is like that seen after birth in these cases. It affords strong evidence of the congenital nature of this affection.

Possibly the condition represents an atavistic tendency, a reversion to an earlier type of pyloric development. The circular muscle is well marked in the pylorus of many mammalia. It has been suggested that the hypertrophied pylorus is analogous to the "gastric mill" of crustacea, the "gizzard" of birds, and the "gastric mill" of edentata, closely resembling that of the great ant-eater and some armadilloes.

The early appearance of symptoms and the degree of hypertrophy in cases dying within a few weeks of birth seem quite incompatible with post-natal development. I am quite convinced that the hypertrophy is present at birth and that the symptoms depend on the contraction of the pylorus after birth. As it contracts, the mucous membrane is thrown into folds which block the canal.

That hyperplasia (or hypertrophy) can occur independently of spasm or obstruction is suggested by the occurrence of hypertrophy of the bladder, in association with hydronephrosis and dilated ureters, and congenital hypertrophy of the colon.

Thomson holds that "the essential lesion is not a muscular but a nervous one; a functional disturbance of the stomach and pylorus leading to ill co-ordinated, and therefore antagonistic action of their muscular development." This may be spoken of as the "spasm" theory, and though I admit that spasm may exaggerate the obstruction I maintain that it is not the primary cause.

This theory *assumes* the occurrence of ill co-ordination; it *assumes* that antagonistic muscular action and hypertrophy are the result; and it *assumes* the occurrence of this nervous derangement in fetal life. Thomson suggests that the spasm is set up in fetal life by the liquor amnii, which may be swallowed. The theory does not supply any explanation of the fact that these cases are almost invariably seen in infants under 3 months of age. In older children there is usually a history of symptoms in earlier life. Why, then, it might be asked, is spasm likely to produce hypertrophy in these early months and not at a later date? There is no apparent reason why spasm may not occur at any age, and there is considerable evidence that it does so occur.

It is sometimes suggested that the spasm is due to erroneous feeding, especially artificial feeding, or to hyperacidity of the gastric juice. This is not borne out by the facts. Many of the infants have been carefully and judiciously breast-fed. In many there has been no evidence of hyperacidity.

In some instances there is very little evidence of spasmodic obstruction, for the vomiting is slight, there is little peristalsis, and food passes readily through the pylorus. Are we to assume that the fetal spasm has ceased and that these cases have reached the stage of convalescence, except for a certain degree of mechanical obstruction?

There is no reliable proof that spasm of the pylorus produces hypertrophy. In long-continued anal spasm no such hypertrophy occurs. Consider too the action of the pylorus. It is normally in a position of non-relaxation, or it closes as soon as the cardiac end of the stomach opens. It relaxes and dilates to permit the passage of the chyme. If the chyme is very acid the pylorus only relaxes sufficiently to permit a small quantity to pass into the duodenum. Not until the alkaline intestinal juice has neutralized the acid chyme does the pylorus relax to permit more to pass through. This is the duodenal reflex. Hence it appears that the normal state of the pylorus is one of non-relaxation, depending on the relative reactions of the gastric and duodenal contents. Very little extra exertion would be necessary to counteract the tendency to relaxation, or to maintain contraction; certainly not sufficient to account for the great hypertrophy. If spasm can produce hypertrophy, such hypertrophy must be of very common occurrence in babies, and we ought to find *post-mortem* evidence of all degrees of hypertrophy, up to the extreme instances in these peculiar cases. A further argument may be advanced against the spasm theory. These cases are not all amenable to medical treatment, even if they come under observation at the earliest stage.

Diagnosis.—Simple regurgitation, gastric catarrh, vomiting and constipation from unsuitable food, and habit vomiting must be excluded. A palpable tumour is almost absolute proof. In one instance an enlarged gland suggested a pyloric tumour; in another the enlarged pylorus was mistaken for a gland. Diagnosis rests on a careful study of the history, symptoms, and course of the disease. It is quite easy in many cases, and almost impossible to be certain in others. The diagnostic symptoms are, in order of importance, the character of the vomiting, the state of the bowels, clean tongue, sweet breath, peristalsis, a palpable pylorus, and a dilatation of the stomach. It is most important to distinguish pyloric spasm from hypertrophy. In the former the vomiting is different in character, peristalsis is slight or absent, the stomach is rarely dilated, pronounced constipation is unusual, and there may be diarrhoea, and there is no tumour. It is rare for two or more feeds to be retained

and then vomited. In case of doubt, the effects of medical treatment are of value. There is greater danger of pyloric spasm being diagnosed erroneously as pyloric hypertrophy than of the opposite mistake being made.

Prognosis.—A study of these 16 cases reveals valuable indications as regards prognosis and treatment.

Cases not Operated On.

1.—1897. A boy died at the age of 14 weeks, weighing 7 lb. 4 oz.

2.—1897. A boy died at the age of 7 weeks, three days after being first seen.

3.—1900. A girl died on the day after being first seen, aged 3 months; weight 6 lb. 3 oz.

4.—1901. A boy died at the age of 9 weeks, weighing 4 lb. 6 oz.

5.—1902. A boy died, very wasted, at the age of 2 months: a *post-mortem* case.

6.—1903. A boy died at the age of 14 weeks from enteritis: he weighed 6 lb. 4 oz. As an out-patient he had gained 15 oz. during one period of a fortnight: as an in-patient he gained 6 oz. in two days. A large, almost normal, stool was passed eight days before death, and normal faeces in considerable quantity were found in the small and large intestine after death. During the ten days he was in hospital peristalsis was only observed once, and there was no characteristic vomiting. The pylorus was palpable and dilatation slight. The appearance of the pylorus after death was quite typical.

7.—1905. A girl, one of twins, died at the age of 10 weeks, weighing 3 lb. 4 oz. four days previously. She was a breast-fed child, costive since birth. A tarry stool was passed nine days before death; a normal stool four days before; and there was faecal matter in the stools on the last day but one. Vomiting began at 3 weeks of age, and only ceased when the child was fed on small quantities of whey. Peristalsis was visible, and the stomach much dilated. The liver reached to the umbilicus, and the pylorus could not be felt. The temperature was persistently subnormal. After death the stomach was found equal in capacity to that of a child aged 5 months, and weighing 11 lb. (Specimens shown.)

These are the results in cases treated medically. All died within the usual time. Even the last two—mild cases in which food passed through the pylorus, and with comparatively little evidence of obstruction—died from marasmus consequent on the local condition.

Private Cases Operated On.

1.—1902. A boy, aged 6 weeks, weighing 9 lb.

2.—1903. A girl, aged 34 days, weighing 7 lb. 6 oz.

3.—1904. A girl, aged 28 days, weighing 7 lb. 6 oz.

4.—1906. A girl, aged 45 days, weighing 7 lb. More fully described above as an instance of an acute case.

These four children presented the typical appearances at the time of operation. They are healthy, well-nourished, and free from gastric troubles.

Hospital Cases Operated on.

1.—1902. A boy, aged 8 weeks, weighing 7 lb. 5 oz., though extremely wasted. He was discharged from hospital cured, but died three months later from summer diarrhoea. Examination after death showed a free passage through the pylorus.

2.—1903. A boy, aged 7 weeks, weighing 5 lb. 9 oz. Four months later, in spite of two attacks of very severe enteritis, he weighed 15 lbs. Later, he was reported strong and well.

3.—1904. A premature boy, aged 29 days, weighing 5 lb. 7 oz. He recovered from the operation, progressed favourably for a time, but succumbed to enteritis fifty-four days later.

4.—1905. A boy, aged 61 days, weighing 8 lb. He was remarkably lifeless, anaemic, and had been passing stools like black paint. He died from the effects of the anaesthetic and shock five hours later.

5.—1905. A boy, aged 53 days, weighing 6 lb. 3 oz. He seemed to be progressing remarkably well, much better than usual, but died suddenly from cardiac failure three days later. Digested food was found in the small and large intestine.

These hospital cases do not show nearly as good results as private ones, mainly because of the state of malnutrition previous to operation and the difficulty in providing proper care subsequently.

All the cases were operated on by Mr. Clinton T. Dent, by pyloroplasty.

The above results justify the following conclusions:

The outlook is extremely bad if treatment is purely medical, even when the obstruction is incomplete.

Operative treatment by pyloroplasty affords excellent results, if it is undertaken before the child has sunk into a state of marasmus, from which recovery would under any circumstances be doubtful.

The prognosis of the operation depends mainly on the state of the child. The greater the marasmus and dilatation of the stomach, the less is the chance of recovery. Operation should not be delayed.

Pyloroplasty is a reasonably easy operation, scientifically sound, as it restores the parts to a practically normal state without fear of recurrence. A good anaesthetist is essential. I am well aware that cases of recovery without operation have been recorded. Some of these were undoubtedly genuine cases. Batten's case, which died subsequently from another disease, and showed a mild hypertrophy, is, I believe, the only one verified. So far I have never seen a case, in which I was certain of the diagnosis, recover without operation. On the other hand, several suspected cases have got well, and in one of these, seen in consultation, another physician thought he felt the pylorus. I am quite certain that many of the recorded cures are instances of pyloric spasm. In those few instances of recovery in which the diagnosis seemed absolutely certain, the prolonged and dangerous illness, apart from almost certain failure, far outweighs in risk the dangers of operative treatment. As well might one wait for an intussusception to be cured by sloughing as postpone operation on a definite case because instances of recovery have been recorded. When one reads of cases cured by fractional doses of opium—one-eightieth of a minim of the tincture—one realizes the difficulty of diagnosis. I have found doses of half a minim quite inefficacious.

Treatment.—In a doubtful case put the child under careful observation, and on the simplest possible food. Regulate the breast-feeding if the child is being nursed; if artificially fed, try a wet nurse, peptonized milk, asses' milk, whey, and albumen water. The food should be non-irritant and given in small quantities at a time. In addition, give $\frac{1}{100}$ gr. of cocaine or a minute dose of opium, say ¼ minim of the tincture, every hour.

If there is no improvement in a few days, wash out the stomach daily with a weak alkaline solution. It must not be forgotten that lavage, twice daily, keeps the stomach empty, washes away mucus, reduces the irritability set up by decomposing and retained food, and may stop the vomiting. An optimistic view is liable to be taken of the case, but almost always there is no gain in weight, and usually the child gets progessively weaker and thinner, or, though remaining stationary in weight, develops tetany or convulsions. Seefish, in 1904, stated that in 3 cases which responded to treatment by alkalies and opium in infancy, operation became necessary before the age of 12 years.

Rectal feeding and saline injections may help to postpone operation. Nasal feeding is occasionally useful. But all these methods should be regarded as temporary expedients, suitable for the treatment of pyloric spasm and unlikely to prove efficacious if there is true hypertrophy.

The choice of operation lies between pyloroplasty, Loreta's stretching operation, and gastro-enterostomy.

I regard the stretching operation as unscientific and dangerous. It is analogous to forcible rupture of a urethral stricture. For complete success it is necessary to rupture some or all of the circular muscle fibres. If the pylorus is merely dilated, it soon recontracts, and death ensues from starvation, or a second operation is needed. Instances of both these results are on record. If the fibres are ruptured thoroughly, the peritoneal coat is almost certainly ruptured as well. Unless the rupture is recognized and sewn up, fatal peritonitis ensues. Of this there are cases on record.

Gastro-enterostomy is satisfactory as regards maintenance of nutrition, but we have no evidence of its ultimate effect on the state of the pylorus. It is favoured by most surgeons, because it is an easy operation, and because food will pass through into the intestines in a very short time after. The main objections to pyloroplasty are its difficulty and the fact that the symptoms persist, on account of the nature of the operation, for a few days after. The obstruction is not at once relieved. The difficulty is negligible. If the muscle is very thick and hard a portion on each side can be snipped out before suturing. After the operation the temperature rises a little, to 100° F. to 102° F., coming down to normal in two to five days. Vomiting persists for two to six days, and a few hours after the operation some blood may be brought up. Usually it subsides in a couple of days. Food passes through the pylorus in twenty-four to forty-eight hours and is generally found in the rectal wash on the third day.

Immediately after the operation a rectal feed should be

given consisting of 1 oz. each of peptonized milk and water, with 20 drops of brandy if needed. The rectal feeds should be given every four hours for two days, every six hours for two days, and twice a day for two days; after that they can be omitted.

A teaspoonful of hot water should be given by the mouth every quarter of an hour for six to twelve hours, and after that a similar quantity of whey. Subsequently the diet is slowly increased to two teaspoonfuls every quarter of an hour, a tablespoonful every half hour, 1 oz. every hour, and finally 2 oz. every two hours. After that it may be strengthened by the addition of cream, or gradually replaced by peptonized milk, and milk and water, until the child is on an ordinary diet. Great care must be taken not to overfeed these children in early stages of convalescence on account of the liability to enteritis, especially in the marasmic cases. Another complication due to overfeeding is oedema, seen only in marasmic cases. So far I have seen no trouble from the wound in the abdominal wall except delayed union on account of the malnutrition, and slight haemorrhage in one instance twelve hours after operation.

In conclusion, I wish to emphasize the fact that these cases are by no means rare; that they are almost always fatal unless treated by operation; that prolonged medical treatment causes serious loss of valuable time and increases the risk of operative measures; that operation reduces the risk of a fatal issue, and that the ultimate future of the child is more assured, and that pyloroplasty affords perfect results. I am so convinced of the advisability of operation and the dangers of reliance on purely medical treatment, that I think the aid of the surgeon should be invoked almost invariably.

II.—Harold J. Stiles, F.R.C.S.Edin.,
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PYLORIC STENOSIS IN INFANTS.

It is my good fortune to have as one of my medical colleagues at the Royal Edinburgh Hospital for Sick Children one of the pioneer observers and writers on this important affection. I need hardly say I refer to Dr. John Thomson. To him I am indebted for the relatively large experience I have had of the operative treatment of pyloric stenosis in infants.

Dr. Cautley has given such an admirable review of practically all that is known of the condition, and has placed so fully before you the various views which are held regarding the morbid anatomy and pathogenesis of the condition, that I shall deal only with those points which appear to me to merit discussion on account of the bearing they have on the surgical treatment.

Such widely different statements have been made as to the pathogenesis and nature of pyloric stenosis in infants that the discussion will, I think, be facilitated, and the conclusions therefrom rendered more valuable and reliable, if we start with a clear and accurate conception of the normal anatomy of the parts involved.

Normal Anatomy.

Professor Cunningham,[1] while working recently at the Stomach in Man and the Anthropoid Ape, was kind enough to include in his investigations the examination of the naked eye and microscopic specimens derived from the cases which have come under the care of Dr. Thomson and myself. He has also examined specimens obtained from children who had died from conditions other than gastric. His observations will be found recorded in an important and admirably illustrated monograph entitled, "The Varying Form of the Stomach in Man and the Anthropoid Ape." We cannot do better than base our description of the normal anatomy of the pyloric region on the observations of such a high authority as Professor Cunningham.

He points out that "although the pyloric canal is by no means constant in form, and undergoes striking changes in accordance with later physiological conditions of the stomach, there is no part of the stomach which is more definite and distinct." The pyloric canal usually presents itself as a cylinder about 1 in. in length. In the full-time fetus and child it is generally found to be contracted, and its lumen obliterated by closely packed longitudinal folds of mucous membrane. In the adult it is much more common to find the canal partly expanded, so that its demarcation from the pyloric vestibule is less marked. Professor Cunningham remarks:

> The problem as to what are the conditions which produce, on the one hand, a firm contracted cylindrical canal with an obliterated lumen, and, on the other hand, a partially relaxed or completely patent and capacious pyloric canal, is one of great difficulty.

He thinks, however, that the contracted canal is more frequently found associated with the full than with the empty stomach.

It was Professor Cunningham who pointed out many years ago that in the normal condition the extremity of the pyloric cylinder projects into the duodenum in the form of a smooth, rounded knob with the small pyloric opening in its centre, the appearance thus closely resembling a miniature portio vaginalis of the cervix uteri. It is interesting to note that this arrangement is more marked in the infant than in the adult, and it is necessary to mention this point because it is so constantly and so specially dwelt upon by the various writers on pyloric stenosis in infants that one is liable to come to the erroneous conclusion that it is peculiar to that condition. There can be no doubt that in cases of pyloric stenosis the appearance is rendered more marked by the hypertrophy, not only of the circular fibres of the pyloric sphincter, but, as we shall presently see, by the action also of the hypertrophied longitudinal fibres of the pylorus. During life the opening of the pyloric canal into the duodenum is rigidly closed except during digestion, when, as shown by Hirsch[2] and Cannon[3], it opens at irregular intervals to allow the contents of the stomach to pass into the duodenum.

Müller[1] points out that in the normal stomach the pyloric canal is characterized by great development of its longitudinal as well as of its circular fibres, the latter forming a thick sphincteric muscular cylinder surrounding the whole length of the canal. According to Cunningham, the description given by Luschka in 1863 of the longitudinal fibres of the stomach is correct. These fibres radiate from the œsophagus in all directions over the stomach; they end, however, before they reach the pyloric part of the organ. On the body of the stomach a new set of longitudinal fibres takes origin, and these become more numerous as they are continued over the pyloric antrum and pyloric canal, where they form a distinct longitudinal coat. The arrangement of these longitudinal fibres of the pylorus has been closely studied by Cunningham from my specimens. He finds that, while the more superficial of these fibres pass on to the duodenum for a short distance, the greater proportion of them turn in between the bundles of the sphincteric ring and then spread out in the form of divergent fasciculi, many of which reach the submucosa. It is obvious that by this arrangement the longitudinal fibres of the pylorus have an action antagonistic to the sphincteric ring, and that their function is to act as a dilator of the pyloric orifice when the nervous mechanism concerned in inhibition brings about a relaxation of the sphincter.

Specimens of the pyloric canal of the full-time fetus and of the child show very distinctly that there is no sudden or abrupt transition between the muscular substance of the sphincteric cylinder and that of the sphincteric ring, but that the fasciculi of the latter are quite cut off from the circular muscular coat of the duodenum by a distinct connective tissue septum. There is therefore no direct continuity between the circular muscular coat of the stomach and the corresponding coat of the duodenum.

In discussing the action of the musculature of the pyloric canal, Professor Cunningham writes as follows:

> Up to the present the physiologist has not recognized the pyloric canal as a special portion of the stomach, and we have therefore no information as to the part which it plays in the motor mechanism of the organ. That it has an important action cannot be doubted; its powerful musculature bespeaks the fact. The question which naturally suggests itself is whether the entire length of the sphincteric cylinder is to be reckoned with the expelling or with the retaining forces of the stomach, or whether it is to be regarded as acting in both ways and the sphincteric ring as being alone endowed with a continuous sphincteric function. Clinical evidence would seem to point to the entire muscular cylinder being under certain circumstances employed as a sphincter and thereby closing the whole length of the pyloric canal against the entrance of material from the stomach. In those cases of

pyloric stenosis in the infant which of late years have attracted so much attention it is not the sphincteric ring alone that is at fault and prevents the passage of the gastric contents into the duodenum. The circular musculature of the entire length of the pyloric canal, by its spasmodic contraction, leads to the closure of this section of the stomach.

The same authority inclines to the belief "that the sphincteric cylinder in its whole length exercises a double function, and acts both as a retaining and as an expelling agent." The physiological observations of Hirsch and Cannon lend confirmation to this view.

After this somewhat lengthy, though I think necessary, description of the normal anatomy of the pyloric canal, we are now in a better position to appreciate the nature and significance of the condition met with in the pyloric stenosis of infants.

MORBID ANATOMY.

The appearances presented by the pylorus in a well-marked case of hypertrophic stenosis are very characteristic and uniform. The descriptions given by the various authors who have reported cases are strikingly alike. The pyloric canal has the appearance and feel of a solid cylinder nearly an inch in length. It is rather paler in colour than the adjacent stomach and duodenum. Its consistency is firm almost to cartilaginous. In diameter it is about double the size of the normal pylorus. It is sharply marked off from the thin-walled duodenum, but not to the same extent from the pyloric vestibule. Not infrequently the diameter of the pyloric cylinder is greater at its centre than at its extremities, so that the mass is, strictly speaking, more fusiform and olive-shaped than strictly cylindrical. In the writer's experience, the greater the hypertrophy the more fusiform the "tumour."

While all who have examined microscopically the pyloric canal are agreed that the enlargement of the organ is due to excessive development of its musculature, opinions differ as to the relative extent to which each of the two muscular layers is involved in the hypertrophy. Finkelstein[5] is the only observer who reports a case in which the muscular hypertrophy was confined almost entirely to the longitudinal fibres. Personally, I am inclined to think that Finkelstein's statement must have been based on a misinterpretation of the histological appearances, and I find that in this view I am supported by Professor Cunningham, who, in a footnote to his monograph, remarks that "it may be as well to say that Finkelstein's statement on this matter and the diagnosis which he gives are not satisfactory, and raise doubts as to whether he has correctly differentiated between the two muscle layers in the wall of the pyloric canal." From a survey of the literature of the subject it would seem that the majority of observers incline to the opinion that, while the longitudinal fibres may be slightly hypertrophied, the excessive thickening of the wall of the canal is due mainly to the increase in the circular fibres. With regard to this point, Professor Cunningham writes as follows: "The specimens submitted to me by Mr. Stiles, as well as those prepared in the anatomical department, show a great thickening of both the muscular layers. I would not venture, however, to hazard a decided opinion as to whether they are both hypertrophied to relatively an equal extent, or whether, as most observers believe, the circular sphincteric cylinder has undergone the greater degree of thickening. Measurements do not give reliable information on this point, because a large amount of the thickening is due to contraction, and there is no means by which the degree of contraction in each layer can be estimated." We have already seen that the function of the longitudinal fibres is to dilate the pyloric orifice; it is only natural, therefore, that they should become hypertrophied as the result of the extra work thrown upon them in their effort to overcome the tonic contraction (spasm ?) of the hypertrophied circular fibres of the pyloric sphincter. The fusiform shape which the pyloric cylinder assumes in the more marked cases is no doubt due, as Professor Cunningham points out, to "the strong pull which these fibres exert on the duodenal extremity of the pyloric canal."

In describing the appearance of the pyloric canal itself in cases of pyloric stenosis, reference has repeatedly been made to the manner in which the mucous membrane is drawn into one or more prominent longitudinal folds, which more or less completely block the lumen. Cautley and Dent[6] in their first paper on the subject describe a single large fold which they compare to the verumontanum of the prostatic urethra. One of the writer's specimens also shows this condition very typically. In a case described by Arregger in a child of 4 years, the fold was so large as to lead this author into the error of describing it as a tumour. His paper is entitled, A Case of Pyloric Stenosis due to a Circumscribed Hypertrophy of the Mucous Membrane with Hypertrophy of the Pyloric Musculature and Secondary Dilatation of the Stomach. From Arregger's description it is evident he had to do with a typical case of hypertrophic stenosis, and it is interesting to note the age of the child—namely, 4 years. The wall of the pylorus was 5 mm. in thickness, and of this 4 mm. were made up of muscle. These folds of mucous membrane are of importance from the fact that they help to complete the stenosis not only in cases where there is hypertrophy but also in cases where the pylorus is normal and the stenosis due simply to spasm.

One or two authors have stated that, in addition to the muscular hypertrophy, there is also an overgrowth of the submucous tissue of the pyloric canal. In all probability, however, this occurs only to a very limited extent, if at all; at any rate, it does not constitute an important element in the condition. Any thickening of the submucous tissue is more apparent than real, and is to be accounted for almost entirely by the contracted condition of the lumen and the consequent folding of the mucous membrane, just as occurs in the urethra, œsophagus, etc.

It will be seen, therefore, that from the purely anatomical point of view, the only difference between the normal pylorus and the pylorus stenosed as met with in infants is that in the latter the muscular coat is greatly thickened.

PATHOGENESIS.

This brings us to the consideration of the pathogenesis of the condition. Here we find ourselves treading on contentious ground, but I am not without hope that an important outcome of this discussion will be to settle this question; and this is all the more to be desired because, as in most other morbid conditions, a correct knowledge of the manner in which it has come about is of great help in enabling us to decide as to the most rational and scientific treatment.

The most important point to settle, in the first place, is whether we have to do, as Pfaundler[7] maintains, merely with a functional disturbance of the nervous mechanism which presides over the movements of the stomach or with a true hypertrophy. Pfaundler would have us believe that the muscular coat of the pyloric wall is not hypertrophied, and that the appearances which seem to indicate this, as well as the symptoms which ensue, are due solely to a spasmodic contraction of the circular muscle fibres of this portion of the stomach, or, as he puts it, that we have to do simply with a normal pylorus in a state of systole.

The view that we have to do with a true hypertrophy of the musculature of the pyloric canal is that which is held by almost all writers on the subject.

Having operated on 22 cases of pyloric stenosis in infants, and having examined a dozen or more *post-mortem* specimens, I think I can claim to be very familiar with the anatomy of the condition. I have also taken the opportunity of examining the stomach *post mortem* of a large number of infants and young children who have died of conditions other than gastric. I can fully corroborate Professor Cunningham's statement that in *post-mortem* specimens the normal pyloric canal of the child is usually in the contracted or systolic condition described by Pfaundler, but I have no hesitation in stating that, without exception, all the cases of infantile pyloric stenosis I have operated on during life, or examined after death, have shown an amount of muscular thickening of the pyloric canal two or even three times greater than any normal systolic pylorus I have come across.

Quite recently, while operating for acute intussusception on an infant 12 weeks old, the writer had an excellent opportunity of examining the pyloric region of the normal stomach during life. The pyloric cylinder was certainly not more than half the diameter of that met with in the hypertrophic cases, and the characteristically hard and solid tumour-like feel of the latter condition was conspicuous by its absence. In the intussusception

case the only part of the pyloric cylinder which felt at all firm was a ring-like thickening at the pyloro-duodenal junction (sphincteric ring). No doubt we had here to do with a relaxed or, according to Pfaundler, a diastolic pylorus, and for this very reason its diameter should have been greater than what is found in infantile pyloric stenosis, assuming the stenosis to be, as Pfaundler maintains, the result simply of spasm. This observation serves to confirm my conviction that in all the cases of pyloric stenosis I have operated on we had to do with a distinct pathological entity in the shape of a real organic hypertrophy.

It must be admitted that both in the child and in the adult there is clinical evidence to support the view that cases of pure spasmodic stenosis of the pylorus do occur. The writer himself afforded at one time a typical example of this condition, and I think it not improbable that the majority of the cases of infantile pyloric stenosis that have recovered without operation belong to this category. If Pfaundler still maintains that to the same category belong also all the cases reported as hypertrophic stenosis, then I personally feel bound to come to the conclusion that Pfaundler up to the time he wrote his paper had never seen a real case of infantile hypertrophic stenosis.

Admitting, then, as I think we are compelled to do, the existence of a true organic hypertrophic form of infantile stenosis, we have still to consider its genesis. Here there is more legitimate ground for difference of opinion, and still more room for mere hypothesis.

According to Nicoll,[5] Cautley,[6] and Ibrahim,[9] we have to do with a primary congenital overgrowth, Nature in her anxiety to produce efficient sphincteric apparatus having overstepped the mark. She certainly seems to have done so in idiopathic distension and hypertrophy of the colon, and, if I mistake not, this very condition has been found to exist in at least one reported case of infantile pyloric stenosis.

In this connexion it is interesting to note that Ashby has reported a typical case of infantile pyloric stenosis in which there was a congenital malformation of another sphincteric region, namely, the anus, which presented a congenital atresia. I think, too, that there is clinical evidence to show that some forms of incontinence of urine in childhood are due to over-distension and weakness of the detrusor secondary to hypertrophy and excessive tonic contraction of the circular fibres at the neck of the bladder. If *post-mortem* material were available to enable us to investigate this subject more fully an important analogy would, I think, be found to exist between this condition and congenital pyloric stenosis. In the form of incontinence to which I refer the involuntary micturition consists of the overflow which occurs when the intravesical pressure reaches a point which enables it to force open the sphincter. In the case of the stomach the overflow escapes by the œsophagus.

Dr. John Thomson[10] regards the hypertrophy as the expression of an increased functional activity associated with an intrauterine defect in the nervous mechanism which co ordinates the sphincter and detrusor apparatus of the stomach. The hypertrophy of the musculature of the pyloric canal is, according to Thomson, secondary to spasm. From the practical point of view it would serve no useful purpose to discuss at length the various points for and against each hypothesis. The main fact which concerns the surgeon is that he has to do with an organic but purely muscular hypertrophy of the pyloric canal, associated with excessive tonic contraction, aggravated no doubt by more or less spasm, but whether the latter is cause or effect is difficult to say. The matter is well summed up by Scudder and Quinby[11] as follows:

> All agree that there is hypertrophy of the circular pyloric fibres. Why and when this hypertrophy occurred it is impossible to determine at present. The discussion is fascinating, but at present unprofitable. We may accept as true the evidence of existence at birth of hyperplasia of the pyloric sphincter We think also that from clinical evidence we may accept as true the fact that after birth there is often, if not always, a spasmodic contraction of this hypertrophied pylorus. More than this we cannot accept on the present evidence. We have avoided using the term "congenital hypertrophy," because it involves the etiologic factor. We think that the term "pyloric stenosis of infancy" implies nothing not yet proved; it seems, therefore, to be the better term.

Surgical Treatment.

On no account is an antiseptic (specially carbolic acid) poultice to be applied to the abdomen, even for an hour or two before the operation, because, as shown by Dr. Kruger, one of my old house-surgeons, a lethal dose of the drug may very easily be absorbed by the skin in that time, more especially in a child. The skin of an infant is so easily purified, that we may safely trust to doing it at the time of operation.

Shortly before the operation the stomach should of course be washed out, and an enema of an ounce of saline and ten to twenty minims of brandy should be administered. It is desirable also in many cases to introduce an ounce or two of a saline solution into the subcutaneous tissue on both sides of the chest.

The room in which the operation is performed should be heated to 70° Fahrenheit, and the limbs, as well as the upper and lower portions of the trunk, should be swathed in cotton-wool kept in position by a bandage.

The proper administration of the anaesthetic is a very important factor in the issue of the case, and for this reason it is desirable to have the assistance of a skilled anaesthetist, and, if possible, one who has had special experience in a children's hospital. With one exception, all my cases have been anaesthetized by Dr. McCallum (Anaesthetist to the Royal Edinburgh Hospital for Sick Children), to whom I am greatly indebted for the skilful manner in which he has tided the fragile patients over the operation. Unfortunately, in the only instance in which I had not the advantage of Dr. McCallum's services, the infant collapsed immediately after the operation without coming out of the anaesthesia. A mixture of chloroform and ether, followed by ether alone, is probably the best anaesthetic to use.

Before speaking of the individual operations which have been employed in dealing with this condition, there are one or two important points in the operative technique which are common to all.

1.—*The Incision.*

This should not be made any longer than is absolutely necessary, and for this reason it is advisable to place it in such a position as will give the best access to the pylorus. Personally, I prefer to make an incision, certainly not more than 2 in. in length, having its centre midway between the ensiform cartilage and the umbilicus. The upper half or so of the incision should expose the liver, the lower half the stomach. The pylorus will be found a little to the right of the middle line, generally completely overlapped by the liver. If the incision be made too large, or too low down, there is great risk of prolapse of the intestine, and this complication is of course all the more liable to happen seeing that it is desirable not to push the anaesthesia more than is absolutely necessary. More than one case has been reported in which prolapse of the intestine has been largely, if not entirely, responsible for the fatal issue. One is not surprised that this accident should occur when a 3 to 4 in. incision is used. If the stomach is, as it should be, empty at the time of operation, it can be pulled out through quite a small incision, and after the organ has been incised, and the air has escaped from it, this incision gives ample room for the further steps of whatever operation the surgeon desires to perform.

2.—*Closure of the Abdominal Wound.*

This is a point to be specially attended to in very young children, otherwise the wound may burst open before it has firmly healed, or a ventral hernia may occur subsequently. The abdominal wall in a very young and emaciated infant is so thin, that suturing in layers is generally out of the question; moreover, in this affection the inner edges of the recti are generally a considerable distance apart. We must rely, therefore, on through-and-through interrupted sutures, and these must be employed in such a way, and be of such a material, that they need not be removed for about a fortnight. Fishing gut has the advantage over silk of setting up less irritation, and it can therefore be kept in for a longer time without the risk of giving rise to stitch abscesses. But in using fishing gut, steps must be taken to prevent the sutures cutting through the delicate skin before the wound has firmly healed. This may be effectually done by passing the suture through the whole thickness of the abdominal wall in the usual way, and then threading one extremity with a piece of thin rubber tubing about ½ in. in length. The suture is then tied in such a way that the portion

of the loop which overlies the skin is surrounded by the tubing, which prevents the suture from cutting its way through the skin. If this point is not attended to the suture may have to be removed too soon, with the result that the wound may burst open and the intestine become prolapsed.

The other complication—namely, ventral hernia—is best prevented by attending to the points already mentioned, namely, by placing the incision as high up as possible, by keeping it as small as possible, and by using through-and-through sutures in such a way that they do not have to be removed too soon.

After-treatment.

However skilfully the operation itself may have been performed, the case is not likely to be brought to a successful issue unless the greatest care and watchfulness be exercised by all concerned in the after-treatment; indeed, it is not too much to say that the after-treatment is almost as important as the operation itself. In practically all the cases I have operated on I have had the good fortune to be associated with my colleague, Dr. John Thomson, who has kindly made himself responsible for everything connected with the after-treatment, except that which concerned the wound. Two good nurses are required, one at least of whom must be specially skilled in the feeding of infants. Dr. Thomson is rather fond of the combination of an experienced nurse from a children's hospital and a monthly nurse—that is, provided the latter is efficient and the two work amicably together. In middle-class patients the mother, if sensible as well as intelligent, may safely be entrusted to take the place of the monthly nurse. In hospital patients there is, of course, no difficulty, provided the Sister is able to devote almost the whole of her time to the case.

For the first twenty-four or forty-eight hours after the operation collapse will have to be combated by having resort to saline and brandy enemata, combined with saline infusions into the subcutaneous tissue. The thighs will be the first parts available, and subsequently the chest. As a rule, we may begin to give a teaspoonful of hot water and 5 minims of brandy by the mouth about twelve hours after the operation, and this quantity may be repeated about every two hours for the first twelve hours. During the following day the quantity of water may be doubled, and if all goes well a teaspoonful of peptogenic milk may be added in addition to the brandy. The quantity, both of the milk and of the water, may be cautiously increased until, by the end of the first week, the infant may be given about six teaspoonfuls of peptogenic milk and three of water every hour and a half, and 5 minims of brandy may be added as often as required. At the end of a fortnight the infant will probably be able to take about 10 drachms of peptogenic milk with the same frequency. Three weeks after the operation the quantity may be increased to about 2 oz., or rather more, every two hours. In a favourable case the rectal injections will probably not be necessary after the first forty-eight hours. A teaspoonful of beef juice may be given thrice daily after the first two or three days, and this may be kept up for two or three weeks. The above is an outline of the after-treatment employed in a case operated on by the writer in July; divulsion was the procedure adopted. The infant made an uninterrupted recovery.

Loreta's Operation.

Nicoll[12] of Glasgow, in July, 1899, was the first surgeon to perform Loreta's operation for infantile pyloric stenosis. The divulsion was effected by dressing forceps: the child is, I understand, now strong and well. The objections to dressing forceps are twofold: First, that it is difficult to estimate and graduate the amount of divulsion one is obtaining by the kind of manipulation necessary for opening the blades; and, secondly, that as the blades are opened their extremities diverge, with the result that one or other of them is liable to perforate the thin-walled duodenum. Unfortunately, this happened in my first divulsion case, performed in March, 1902, on a very emaciated infant, 25 days old. The child died forty-eight hours later, and at the *post-mortem* examination it was found that the posterior wall of the duodenum had been perforated immediately beyond the pylorus.

In the nine other divulsions I have performed, I have used a tracheal dilator. This instrument consists of three curved blades, which are so arranged that they open almost parallel by approximating (instead of separating) the handles. The blades are just the right length, and curved to pass comfortably through the pyloric canal, and, being slightly bulbous at their extremities, there is no risk of perforating the duodenum. The instrument acts on much the same principle as that of a glove stretcher, so that the amount of divulsion that is being produced can be accurately appreciated and graduated by the muscular sense, associated with the compression force necessary to approximate the handles. Mr. Burghard, whose results from divulsion have been exceedingly good, uses, I understand, an instrument in which the blades are separated by a screw action.

Whatever instrument be employed, the great point to keep in mind is that the divulsion has to be done gradually and at the same time thoroughly—gradually, to diminish the risk of rupturing, and thoroughly, to prevent recurrence of the symptoms. Personally, I prefer to spend at least five minutes on the actual divulsion, and while this is being done the first part of the duodenum is held and supported between the left forefinger and thumb so as to prevent its being perforated or unduly injured by the extremities of the blades of the dilator. It is advisable also to rotate the instrument from time to time, in order to distribute the stretching and pressure of the blades as equally as possible over the walls of the canal. The divulsion should be carried to a degree only just short of the bursting point. A slight tear of the serous coat of the anterior wall of the pylorus, although to be avoided if possible, is not a very serious matter. In one of my cases a rupture about ½ in. in length occurred on the anterior wall of the pylorus. It certainly extended down to and possibly through the mucous membrane. The opening was carefully sutured, and the child made a complete recovery and is now (four years later) strong and well.

The incision into the stomach through which the dilator is introduced need not be more than ½ in. to ¾ in. in length. It should be made parallel to, and midway between the greater and lesser curvature, and far enough removed from the pyloric canal to admit of the opening being closed by a through-and-through, and then by a Lembert suture, without fear of obstructing the entrance to the pylorus. The opening in the stomach is best made by transfixing the vertical fold of its wall with a tenotomy knife. The best results from divulsion have been obtained by Mr. Burghard, who has very kindly furnished me with a list of his cases up to date. He has had 10 cases with only two deaths—one from shock, the other from rupture of the first part of the duodenum. Out of the total 29 divulsions I have been able to collect there have been 15 recoveries, that is a little over 50 per cent.

Gastro-enterostomy.

The first operation undertaken for pyloric stenosis in the infant was a posterior gastro-enterostomy, performed with the aid of a Murphy button by W. Meyer[13] of New York in 1898. The child died from obstruction due to the button being too large. With the exception of Seefish's[14] case, this is the only one in which a button has been employed, and I think all who have had any experience of pyloric stenosis in the infant will agree that its use is quite contraindicated owing to the diminutive size of the intestine at this age.

Abel,[15] in 1898, claims to have had the first successful case of gastro-enterostomy, but unfortunately there is no available record of the case after the thirteenth day, when it was discharged from hospital. Löbker[16] gives a full report of a successful case of posterior gastro-enterostomy operated on by him in the same year. Two years afterwards the child was reported to be in good health. In all, I have been able to collect 37 gastro-enterostomies, with 16 recoveries (43.2 per cent.).

Some authors advise the anterior operation, on the grounds that it is simpler, more rapid, and attended with less shock; but, as many have pointed out, the anterior operation is frequently not feasible on account of the short mesentery of the infant, and of the dilated condition of the stomach. Personally, I have for these reasons always found it either necessary or desirable to do the posterior operation, and if we may draw a conclusion from experience gained in the adult, it would seem that the posterior

operation is that which is most likely to give the best functional results throughout the patient's future life, and to be attended with least risk of future complications. Up to the present I have done a short-looped iso-peristaltic operation, but in future I shall be prepared to perform the no-loop antiperistaltic method recently introduced by Mayo[17] in the adult. There is of course no room for clamps to be applied to the stomach, as is recommended in the adult. Personally, I do not think the experienced operator finds the posterior operation much more difficult than the anterior, nor do I think the shock is so much greater as to influence the prognosis to any appreciable extent. It is true, however, that the anterior operation has given a 70 per cent. recovery, as compared with a 38 per cent. in the posterior operation. But the cases are too few at present for statistics to be of much value in deciding this point.

It is hardly necessary to mention that gastro-enterostomy in the infant, although not such a difficult and dangerous operation as those who have not had occasion to perform it might suppose, is nevertheless a delicate one on account of the diminutive size of the patients. The anastomotic opening should be an inch in length, and, as it is very important to prevent the lumen of the small intestine being too much encroached upon, only the finest silk and needles should be employed, and a narrow elliptical area of mucous membrane of the stomach should be removed to prevent redundancy.

Before entering into the much-disputed question as to the best operative procedure to be recommended in infantile pyloric stenosis, I should like, if you will allow me, to deal in the first place with my own cases, as it is mainly on the experience derived from them that I have based the views I at present hold on the choice of operation.

My first case was a pylorectomy performed in March, 1900, on an infant of 3 weeks. Although I was familiar with Nicoll's successful case of divulsion, I was so struck with the great hardness and thickness of the pylorus that I did not think it possible divulsion would succeed. Influenced by Meltzer,[18] who, in a paper recording his case unsuccessfully operated on by Maier by gastro-enterostomy, stated that pylorectomy was the only rational operation, I therefore decided to try it. Although the operation was satisfactorily completed the child died of collapse eight hours afterwards. The excised pylorus was put at once into a saturated solution of perchloride of mercury, and you have already seen on the screen the microscopic preparations made from it. Needless to say, that as soon as I saw that the stenosis was purely muscular I was convinced that pylorectomy was an unnecessarily severe procedure, and that it would not likely be resorted to again.

Encouraged by the success of Löbker, in my second case, which occurred a week or two later, I performed gastro-enterostomy, believing that, on the whole, it was a more suitable procedure than divulsion. I had no fault to find with the operation, but unfortunately it was not successful; the child died eighteen hours later from haematemesis. This is, I believe, the only case recorded in which death has resulted from this complication.

After this misfortune I decided to follow Nicoll's example and try divulsion. This I did in the next 9 consecutive cases, and of these 5 died within, at any rate, a few days of the operation. The first (perforation of duodenum) I have already referred to in detail. The second began to vomit nineteen hours after the operation, and collapsed somewhat suddenly eight hours later. The third died on the fifth day from peritonitis starting in the neighbourhood of the wound in the stomach; there was no leakage or perforation. The fourth, a child almost moribund and with a temperature of 105°, collapsed a few hours after the operation. The fifth died on the third day without any obvious cause. Of the remaining 4 the first made an uninterrupted recovery, and is now (4½ years later) strong and well. The second died fifteen days after operation with recurrence of the symptoms. The third, a very exhausted and emaciated infant of 11 weeks, and weighing only 5½ lb., owed its life to the constant care and attention it received from Dr. John Thomson during the after-treatment; it is now (four years later) a strong healthy child. The fourth must be referred to a little more in detail. Vomiting began when the child was 7 weeks old. It was very feeble and emaciated when divulsion was performed at 10½ weeks. A fortnight after the operation the vomiting returned, persisted, and became forcible in character. The child was losing weight rapidly, and the condition became so alarming that the infant's life was despaired of. As a *dernier ressort* I persuaded the parents to allow me to do a gastro-enterostomy; this was done three weeks after the divulsion, the child being 13½ weeks old and weighing only 7½ lb. It made an uninterrupted recovery; there was no further vomiting nor was there any trouble with the feeding. A fortnight later it weighed 8½ lb. and seemed quite happy and contented; three months later it weighed 14 lb. 2 oz. Sad to relate it died about two years later from a septic throat after an operation by another surgeon for adenoids. The father had an acute tonsillitis at the time the child was operated on. Unfortunately no *post-mortem* examination could be obtained.

This remarkable case, along with the one referred to immediately before it, served to convince me that recurrence of the symptoms was liable to follow divulsion unless it was carried almost to the bursting point. The experience, however, gained from it helped to restore my confidence in gastro-enterostomy, while it showed also that the operation could be borne by an infant extremely emaciated and exhausted. Encouraged by this case I decided to give gastro-enterostomy a fair trial. The next three cases were successful. In the first recovery was rapid and uneventful; in the second it was slow and tedious for the first six weeks, but the child is now strong and well. The third child died of acute enteritis seven weeks after the operation.

After having had these 4 successful cases in succession I was fast coming to the conclusion that in gastro-enterostomy we had a safe and sound method of dealing with this affection surgically. Unfortunately the results in the remaining 5 gastro-enterostomies I have done have not been so satisfactory. The first died half an hour after the operation, the fatal result being largely if not entirely due to the anaesthetic. In the second, vomiting set in on the evening of the operation and persisted until death thirty-six hours later. At the *post-mortem* examination I was sorry to find that I had unwittingly twisted the anastomotic loop of jejunum so as to produce a complete volvulus. The third case made an excellent recovery from the operation, did well for a month, and then developed acute enteritis, which proved fatal a week later. In the fourth, diarrhoea set in the day after the operation, and continued until death five days later. The *post-mortem* examination revealed no peritonitis or other surgical complication. The fifth case died from collapse thirty-four hours after the operation. Hence it will be seen that, of my 10 gastro-enterostomies, 5 recovered well from the operation, but 2 of these died later from acute enteritis. Mr. Clinton Dent[19] reports a case in which the infant died from the same cause three months after the operation. While the operation can hardly be held responsible for these deaths, it is evident that this complication is to be kept in view, and that the greatest care and caution is to be exercised in the feeding of the infant, not only during, but also after, its recovery from the operation.

The next operative procedure to which I must refer is pyloroplasty. The only surgeon who has had much experience of this operation is Mr. Dent,[9] who, in an important paper (jointly with the previous speaker, Dr. Edmund Cautley), strongly advocated it as the result of his experience in his first two cases, both of which were successful. In a private communication Mr. Dent has very kindly sent me a complete list of his cases up to date. In all, amounting to 11, he performed pyloroplasty, from which it will be gathered he still considers it the best procedure. Personally, I have only performed the operation once. The vomiting persisted after the operation, and the child died seventeen hours later. At the *post mortem* it was found that the pyloric passage was blocked by the infolded edges of the wound. Mr. Campbell[20] and Mr. Rutherford Morison[21] each record a similar experience. Mr. Dent is not very definite on this point, but I think I am right in concluding, from the description of his operation, that he closes the wound in the pylorus with a single row of Halstead sutures. This may possibly explain how it is he is able to keep the lumen of the pylorus

patent. In my case I closed the opening in the usual way—namely, by a double row of sutures. In a well-marked case the wall of the pyloric canal is so thick that it is difficult to see how a double row of sutures can do otherwise than block the canal. Of the 11 cases operated on by Mr. Dent, 5 are alive and well, the first having been operated on in June, 1902. One died three months after operation from acute enteritis, one two months after from marasmus, and the remainder from a few hours to a few days after operation.

I have still to refer to two other operative procedures which have been employed for this condition by Mr. Nicoll,[22] who also found that relapses occasionally occurred after divulsion. In some of his subsequent cases he combined divulsion with gastro-enterostomy, a method which does not commend itself to the writer, and which he has apparently now abandoned. The other and latest procedure adopted by Mr. Nicoll is a modified form of pyloroplasty, the description of which I quote from his paper in the *Glasgow Medical Journal* for April, 1906. The operation "consists in an application of the well-known V-Y method, so widely useful in plastic surgery in general. The steps are clearly indicated in the three sketches appended, which have been kindly made by Dr. John Lindsay. The V incision in four of the cases penetrated the muscular coat only, and was closed (as a Y incision) by the single row of sutures shown. If this 'submucous' plastic operation be adopted it is necessary to combine with it divulsion, by means of a pair of forceps passed through the incision indicated in the gastric wall. In the two remaining cases the V incision was carried through into the lumen of the pyloric passage, and was closed (as a Y incision) by the customary two rows of the Czerny-Lembert suture. In a case so treated a divulsion may be effected by forceps traction, as indicated, the gastric incision being unnecessary. Clamps were used on stomach and duodenum in all six operations." Five out of the six cases recovered; the remaining one died of shock. The results, therefore, of this operation are very satisfactory.

I am afraid it is not possible, in the present state of our knowledge, to state definitely the part which surgery is to play in the treatment of infantile pyloric stenosis. A considerable number of cases presenting the symptoms of pyloric stenosis have recovered without the aid of surgical treatment. It rests with the physician to settle whether these recoveries are cases of spasm without hypertrophy or a combination of spasm and hypertrophy, the former, however, predominating. It would be a matter of supreme interest and importance to follow up the life-history of such infants as are supposed to have been cured of pyloric stenosis without operation. Will these patients again suffer from gastric symptoms pointing to pyloric stenosis? If so, then I venture to predict that surgical treatment will take the same place in pyloric stenosis of the infant that it has taken in pyloric stenosis in the adult. If we are to judge merely from our present statistics, we shall gain a very false impression of the benefit to be derived from surgical interference in the infant. From the records I have obtained of 84 operations only 39 (46.4 per cent.) have been successful. I wish distinctly to point out, however, that this high mortality is due not so much to the surgical treatment as to the delay in having recourse to it. When it is realized that practically all of the 39 cases which were successfully operated on would have died without operation a less pessimistic view will be taken of the surgical treatment. It must be distinctly understood, however, that if operation is to be undertaken it must be done early and not, as has so often happened in the past, merely as a last resort, and when the infant has reached an extreme degree of emaciation and exhaustion.

It seems to me that we must divide cases of pyloric stenosis of infants into two distinct groups, namely, the purely spasmodic without any hypertrophy, and the true congenital hypertrophic, in which a varying amount of spasm, or, as I prefer to call it, tonic contraction is superadded. The first group may be expected to get well under dietetic and medical treatment, while the latter group I believe must assuredly die unless surgical treatment be resorted to. I do not think it is a matter of much importance whether the surgical procedure be divulsion, pyloroplasty, or gastro-enterostomy. The important point is that the operation should be done early, and if this becomes the rule I venture to think that we shall soon have no reason to complain of the statistics. There are of course points in the technique of the operation, as it is performed on these diminutive subjects, which the surgeon can only acquire by experience.

While I have divided cases of pyloric stenosis in infants into the above two main groups, I believe there is an intermediate group in which the hypertrophy, although present, is less marked. It is these cases which have probably led to the confusion and difference of opinion which exists among physicians regarding the pathology and treatment of infantile pyloric stenosis. Speaking as a surgeon, I would advise a diagnostic incision in all cases in which the diagnosis is doubtful, and where at the same time medical treatment is not bringing about an improvement in the patient's condition. If, after opening the abdomen, the case turns out to be one of spasm without hypertrophy, the physician and surgeon between them must decide as to the advisability of proceeding to divulsion. If there appears to be distinct, though not marked, hypertrophy, and if at the same time the infant be very young and weakly, I would be contented with divulsion. In cases, however, in which there is marked hypertrophy, with the patient's general condition satisfactory, the choice lies between pyloroplasty and gastro-enterostomy. The surgeon will no doubt select which of these two procedures he has had most experience in. There is probably nothing to choose between them as far as results are concerned.

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III.—CHARLES P. PUTNAM, M.D.,

Boston, Mass.

REPORT OF A CASE OF PYLORIC HYPERTROPHY,

THIS case was seen in consultation with Drs. Mitchell and Walker, of Providence, and operated on by Dr. Keefe, also of Providence, and they kindly allow me to report it.

The patient was a male, 3 weeks and 1 day old. He had been nursed by the mother for two weeks, when he began to vomit, and from that time he had vomited after most of his meals, or when he did not vomit after one meal he generally brought up a larger quantity after the following meal. Up to the time of vomiting no change in the faeces had been noted, but after that time it was observed that the faeces were scanty and became more and more so. Various changes of food produced no change of condition.

When I saw him he was thin, and it was easy to feel that the stomach was large and hard, while the intestines were collapsed. The small intestinal dejection consisted mostly of mucus with bits of faeces.

Two days later an operation was performed. A small sound, said to be about a quarter of an inch in diameter, could be passed through the pylorus, the hardened mass round which measured 3 cm. in length by 1 cm. in diameter. A sound, No. 9 French, passed through the pyloric opening. The orifice was then dilated with a uterine dilator until it was large enough to admit freely a sound of size French 20. The point of the little finger could just be introduced into the hole, which was about 1 cm. wide. The tissues on the peritoneal side were ruptured longitudinally, though the mucous membrane remained complete. The rupture was closed by sewing together the tissues at the two ends of the rupture.

The reaction from the operation was but moderate. Nutritive enemata were used, and after a while food by the stomach. Vomiting was infrequent if it occurred at all, and in a week the child began to gain. At 13 months it weighed 26 lb.

The marked success in this case inclines me to the belief that forcible dilatation with breaking through of the tough tissues, especially if the resulting raw surfaces are covered in in the manner described, may be the best routine way of operation. The method is somewhat analogous to the forcible dilatation practised successfully on the anus in certain cases. Treated in this way it would seem hardly possible that the pylorus should contract again. Certainly in this case it did not.

DISCUSSION.

Dr. Robert Hutchison (London) said that with the views expressed by Dr. Cautley and Mr. Stiles he was in profound disagreement. He had seen in the last two years eight well-marked cases of congenital pyloric stenosis in which all the classical signs of the condition were present and all of which had recovered completely under medical treatment. So long as one could produce such a series of cases as this, operation could never be regarded as the best treatment in the early stage. If, on the other hand, one waited until medical treatment seemed likely to fail then the child's condition would almost certainly be so bad that the probability of recovery after operation would be very small. As regards the after-history of cases which recovered under medical treatment he could say that in the great majority no signs of the disease remained at all. In one of his cases, however, some dilatation of the stomach was left.

Dr. Ashby referred to two cases of pyloric stenosis in infants in which there had been a *post-mortem* examination, and showed a specimen. The first case was an infant 32 days old when admitted to hospital, and died when 35 days old. There was no vomiting for thirty-six hours before death, and no definite diagnosis was made on account of the rigidity of the abdominal walls. The infant died suddenly without apparent cause. There was a typical pyloric "tumour" at *post-mortem* examination, and food remains were present in the intestines. The second case, which died at 5 months of age, had vomited almost all its life, except during five or six weeks when it was being wet-nursed. The vomiting began again when it was given a milk mixture, and "coffee-ground" vomiting preceded death. There was a typical pyloric tumour, with a dilated stomach. The tumour was situated deeply behind the right lobe of the liver. He did not feel justified in urging operation in these cases, though he might suggest it.

Dr. Kerley (New York) said he was particularly interested in Dr. Hutchison's remarks. He had a case recently with all the classical signs of congenital hypertrophy of the pylorus, which entirely recovered with small quantities of breast milk and daily stomach washing. The child recovered slowly but completely, and he came to the conclusion that an error had been made in the diagnosis, and that there was merely a pyloric spasm. He thought that the progress of the case should be watched, and if the child did persistently badly in spite of medical treatment an exploratory procedure should be adopted before it was too late.

Dr. Primrose (Toronto) asked if it was not essential in these cases to determine what was the true etiological factor in their production. The great amount of hypertrophy of muscle fibre in the pyloric canal as described by Cunningham and Stiles would suggest the necessity of determining the cause of that increase of muscular fibre. Was it not possible that a dilated stomach was the primary factor and that the hypertrophy of the muscle was directly caused by the difficulties in overcoming the mechanical effects of dilatation at the pylorus? If this were so then possibly surgical procedure might be directed towards some simple surgical method so devised as to diminish the size of the dilated stomach, and thus avoid the serious operation of gastro-enterostomy and that of operating directly upon the pylorus.

Dr. Ralph Vincent said the symptoms of vomiting, dilatation of the stomach, etc., could not be accepted by themselves as sufficiently strong evidence of the condition. The cases which were cured by diet were not due to stenosis of marked character, and these were far more numerous. With Dr. Hutchison's views he did not agree, for he could not accept the diagnosis of stenosis in the cases he had mentioned. He had, indeed, offered no evidence that this diagnosis was likely or at all probable.

Dr. Machell (Toronto) remarked that from Dr. Cautley's clear-cut pen-pictures of these cases of pyloric stenosis they should not have great difficulty in recognizing them in the future. That they had not been very common in Toronto was evidenced by the fact that no case had been admitted as such into the Hospital for Sick Children, Toronto, up to the present. The same might be said of the Infants' Home, where many of the infants were nursed and looked after from birth up to 2 years of age. The anomalous part of the discussion was that they had Dr. Cautley, a physician, advising surgical operation in practically all the cases, and Dr. Hutchison, another physician, saying that operations were positively unnecessary. They had only to look at the several specimens on the table to see at a glance that medical treatment would be utterly inadequate in many cases. There must certainly be a happy medium in the treatment of these cases, as in the great majority of all diseases seen in everyday practice.

Replies.

Dr. Cautley, in reply, laid particular stress on diagnosis. He did not think the condition could be diagnosed without the presence of a tumour. He could not believe that Dr. Hutchison had as many as ten genuine cases in two years, owing to the comparative rarity of the disease. The bad results from treatment were either from insufficient medical treatment or from not calling in the services of a surgeon early enough. He claimed seven successful results out of nine cases, all cured by operation, which was in each case pyloroplasty. He objected to the stretching operation, and considered that the choice lay between pyloroplasty and gastro-enterostomy.

Mr. Stiles said he agreed with the position taken up by Dr. Cautley. He must leave the physicians to settle their differences between themselves. All he desired to do was once more to urge the importance of early operations.

(To be Continued.)

An Address

ON

THEN AND NOW IN SURGERY,

Being the Presidential Address at the Opening Meeting of the Medical Society of London, October 8th, 1906.

By CHARLES A. BALLANCE, M.V.O., M.S., F.R.C.S.,

Royal Prussian Crown Order; Surgeon to St. Thomas's Hospital and to the National Hospital for the Paralysed, Queen Square, etc.

This is the 134th session of the Medical Society of London. Almost all the more prominent members of the profession in London during this long series of years have belonged to our venerable society. I feel, therefore, that the great honour you have conferred upon me by electing me your president for the coming session entails no mean responsibility, but as I have the good fortune to be associated with experienced and enthusiastic colleagues, I trust that the session will be as useful and successful as any of its predecessors.

The aim of our Society is the promotion of every branch of medicine and surgery and the cultivation of friendly rivalry in this high cause.

Last October, my distinguished predecessor spoke of the great changes which had taken place within his own experience in the science and practice of medicine, and this naturally suggested to me that, by way of a corollary, I might offer a few remarks on the development of surgery before and within my own experience.

An interesting account of the adventures of a Greek surgeon in the fifth century before Christ, named Dêmokêdês, referred to by Grote, affords evidence of the intelligence and skill of the Greek surgeons. Darius, King of Persia, in leaping from his horse while following the chase, injured his foot. He was in violent pain for seven days and nights, which the Egyptian physicians who attended him failed to relieve. Dêmokêdês—at that time a prisoner and a slave—succeeded perfectly, though he appears to have required some persuasion to undertake the dangerous task of treating so formidable a patient. Being asked whether he understood surgery, he affected ignorance; but Darius, suspecting this to be a mere ruse, ordered out the scourge and the pricking instrument to overcome it. Dêmokêdês now saw that there was no resource, admitted that he had acquired some little skill, and was called upon to do his utmost in the case before him. He alleviated the pain, procured sleep for the exhausted patient, and ultimately restored the foot to a sound state. It would seem that he reduced a dislocation or put up a Pott's fracture in plaster of Paris, probably then called plaster of Athens. Dêmokêdês showed a consideration for his discomfited predecessors well worthy of

imitation in the present day, for he interceded for the Egyptian physicians, whom Darius proposed to crucify as a mark of his resentment. The history further relates the successful treatment by Dêmokêdês of Atossa, Queen of Persia, for tumour in the breast. The notes of this case have unfortunately been lost, and so we are deprived of the chance of tracing in the mind of Dêmokêdês a knowledge of the principles underlying the Halsted operation.

In the days of Hippocrates (B.C. 460) the distinction between medicine and surgery apparently did not exist. Celsus, writing fifty years before the Christian era, seems, in the following passage, to refer to surgery as a branch but recently separated from general medicine.

It may perhaps be asked what is the domain of this branch (that is, surgery) since surgeons claim for themselves the treatment of many wounds and ulcers of which I have elsewhere spoken. Personally, I believe that one man may well undertake the whole, but since there are divisions I commend him whose practice embraces the most. I have, however, abandoned to surgery, firstly, the cases where the practitioner himself makes the wound instead of finding it ready made; secondly, wounds and ulcers for which, I believe, much more may be done by the hand than by drugs; and lastly, all that concerns the bones.

For many centuries the sphere of surgery was not much enlarged, but *plus profici manu quam medicamento* is now true of a great and constantly increasing number of diseases.

In clinical observation Hippocrates was not inferior to the wisest practitioner of the nineteenth century. Sydenham (1650), one of the great founders of modern medicine, has often been called the English Hippocrates, and resembled his Greek prototype, who practised twenty-one centuries before him, in the high value he set on the study of the natural history of disease. Hippocrates' knowledge of anatomy, physiology, and pathology was necessarily defective. The superstitions entertained by the Greeks respecting the dead precluded him from practising human dissection; he had, however, worked at the skeleton of man, and dissected apes and quadrupeds. If the ancient Greeks when they reached the zenith of their culture had studied the anatomy of the human body in health and disease, their medical knowledge would have been but little inferior to that of the present day.

Human anatomy is the basis of surgical and medical knowledge. The science of surgery, therefore, dates from the foundation of the schools of Alexandria by Ptolemy Soter, King of Egypt (B.C. 285), for it was there that by Erasistratus and Herophilus human anatomy was first systematically studied and taught. All the knowledge thus garnered seems to have been lost in the burning of the Alexandrian libraries (640) and in the wars and tumults of the early centuries after Christ. Gibbon denies this. He says:

> Nor can it be fairly presumed that any important truth, any useful discovery in Art or Nature has been snatched away from the curiosity of modern ages.

His editor says that since the time of Gibbon several new authorities have been adduced in favour of the opposite view. He mentions, too, that a similar charge of wanton destruction was brought against the Crusaders. The library of Tripoli, containing three million volumes, was, on the capture of the city, ordered to be burnt by Count Bertram of St. Gilles because the first room which he entered contained nothing but the Koran. Who can tell what treasures of surgical knowledge were lost in the burning of that royal library, or in the doom of "Babylon the glory of the Kingdoms, the beauty of the Chaldees' excellency"?

At first sight it is indeed a matter of wonder that we know as much as we do of ancient times, for as Dean Milman remarks, "the whole state of the known world at that period seems to offer no more secure footing to an historical adventurer than the chaos of Milton; to be in a state of irreclaimable disorder, best described in the language of the poet:

> "A dark
> Illimitable ocean, without bound,
> Without dimension, where length, breadth, height,
> And time, and place are lost; where eldest Night
> And Chaos, ancestors of Nature, hold
> Eternal Anarchy, amidst the noise
> Of endless wars, and by confusion stand."

Certain it is that from the date when the learning of Alexandria was lost the spirit of man was content to occupy its earthly tabernacle for more than 1,000 years without anatomical and physiological inquiry, till, indeed, the rise of the famous sixteenth century school of anatomists.

In the very natal city of human anatomy it is but thirty-eight years since the death of Clot Bey, the first public lecturer on anatomy in Egypt for about 1,700 years. So strong are Mussulman prejudice and hatred, that a student rushed upon him and stabbed him with a poniard, when he first opened the thorax of a body, although he was under the protection of the Pasha Mehemet Ali. The blade slid over the ribs, and Clot Bey, perceiving that he was not seriously hurt, took a piece of plaster from his dressing case, and, applying it to the wound, coolly observed to the class: "We were speaking, gentlemen, of the disposition of the ribs and sternum, and I now have the opportunity of showing how a blow directed from above has so little chance of penetrating the thorax," and went calmly on with his lecture.

Among the names recorded on the walls of the Kasr-el-Ainy Hospital it is interesting to note that of an Arabian physician who wrote several books, one of which was entitled *On the Rarity of Good Doctors and the Abundance of Bad Ones.* In the early years of Clot Bey's work the wards of the Cairo hospital are described as small and badly ventilated, and were too near a large cemetery, where the dead were so carelessly buried that the stench was most terrible in the hospital, and the patients were kept awake at night by the hyenas fighting over the unearthed corpses.

One of Clot Bey's greatest services to Egypt was the introduction of vaccination. Every year before this was accomplished 60,000 children died annually of small-pox.

Not least among the benefits of English influence in Egypt is the now flourishing Egyptian School of Medicine at Cairo, in which several of my friends occupy prominent posts; most of us are acquainted with the excellent work begun over twenty years ago, of Sandwith and Milton at the Kasr-el-Ainy Hospital. Surrounded as we are in this city with every luxury of assistance, it is hardly possible for any one of us to appreciate the immense difficulties successfully overcome by Milton when he commenced work at Cairo. He undertook capital operations without assistants and without nurses. He would sit up all night with cases after serious operations, and Dr. Sandwith has told me that on one occasion at the close of an operation, the patient being *in extremis*, Milton opened a vein in his own arm and performed direct transfusion with his own blood. Thanks to the pioneer workers of the last century in the Egyptian wilderness the present school of medicine in that country is in a flourishing state, and not the least interesting fact I may record is that every Egyptian student on leaving the medical school is required to take an Arabic version of the Hippocratic oath.

OATH OF THE DOCTORS.

(From Dr. Sandwith's paper—The History of Kasr-el-Ainy.)

I swear, in the name of God the most High, and of His sublime prophet Muhammad, whose glory may God increase, to be faithful to the laws of honour, honesty, and benevolence in the practice of medicine. I will attend the poor gratuitously, and will never exact too high a fee for my work. Admitted into the privacy of a house, my eyes will not perceive what takes place; my tongue will guard the secrets confided to me. My art shall not serve to corrupt, nor to assist crime, and I will not yield, under any pretext or persuasion, to prescribing any poison to any one. I will neither give nor prescribe to any pregnant woman dangerous drugs, capable of provoking or producing an abortion. Ever respectful and grateful to my masters, I will hand on to their children the instruction which I have received from their fathers.

May I be respected by men if I remain faithful to my vow! If not, may I be covered with shame and be despised! God is witness to what I have said! The oath is finished.

It appears to me that the ancients knew more than we usually give them credit for. This is no new opinion, for Celsus said:

> Though we should not refuse to give modern authors due credit for their discoveries or happy imitations, it is none the less just to restore to the ancients what properly belongs to them.

The natural outcome of the Alexandrian studies was the ligature of arteries with silk or catgut for the arrest of haemorrhage and the cure of aneurysm; but it is not known by whom it was first practised, though Evelpistus is stated to have introduced it into Rome, and it is clearly described by Celsus and Galen. Is it conceivable that these great men were wholly ignorant of the physiology of the vascular system? Is it not more likely that, as

Ambroise Paré rediscovered in 1570 the use of the ligature "by special favour of the Sacred Deity," so Harvey in 1618 redemonstrated to the modern world what had been understood, though perhaps only dimly, by the Alexandrian school?

In the Louvre there is a Greek statue of a gladiator brought down by a small wound in the thigh. The marble so vividly recalls the flat sheet of blood which would issue from a transverse wound in the femoral artery as to suggest that some degree of anatomical and physiological knowledge must have guided the sculptor's hand.

Celsus refers to the ligature of vessels, not as a new discovery, but as a matter of current practice. The passage runs:

If the haemorrhage still persists, the vessels from which the blood flows must be seized in the wound, tied in two places, and divided between them, so that they may retract and at the same time have their orifices occluded. . . . Also when there is much haemorrhage from a place without important muscles and nerves, such as the forehead or the top of the head, the most handy thing to do is to apply a cupping glass in the vicinity in order to divert the course of the blood.

How could Celsus have written *Sanguinis cursus revocetur* without having had some idea of a blood current?

In another place Celsus advises tying vessels during an operation before dividing them.

Galen wrote:

But if, on laying bare the vessel, it should appear to you large and to pulsate strongly, it is safer for the operator to put a double loop round it and to divide between, and let these ligatures be of a material which will not readily decompose. Such a material in Rome can be got from the Gaictaus, who bring it from the country of the Kelts and sell it in the Via Sacra, which leads from the temple of Roma to the markets. This is the easiest thing to get in Rome, and it is sold very cheaply there; but if you are practising your art in another city, prepare for yourself some of the threads known as silk; rich women have these in many parts of the Roman Empire, and especially in large cities. If you cannot get this, choose the material least liable to decompose from among those that you can get where you are, such as fine catgut, for materials which easily decompose fall quickly out of the vessels; but we wish the knot only to fall out when the vessels have been well covered round with flesh, for the flesh which grows up in the parts of the vessels which have been cut off acts as a covering and stops their mouths, and when this has happened is the time for the ligatures to separate without danger.

And again:

If the artery be large, and if it be cicatrized beyond the aneurysm, the whole of it should be cut through, and oftentimes that very practice prevents the danger from haemorrhage, for it appears plainly that when a complete transverse division is made, both portions of the artery retract on either side, the one above the part, the other below.

It is related that the use of the ligature by Ambroise Paré encountered much opposition from certain of his rivals, who did not hesitate to revile both him and it in the coarsest language. To one of these a certain Dr. Gourmelin, attached to the Paris Faculty of Medicine, who had compared him to an executioner, the great surgeon replied:

"Come now, my good little fellow, try to understand the ancient authors a little better, and be more just to your contemporaries. You make a profession of learning, and do not know that ligature of vessels was a familiar practice with the ancients; you meddle with teaching, and do not know that almost in our own days in Germany and in Italy a return to this practice has been made. You write books, but they only serve to retard the progress of our art by keeping up the most dangerous errors and by reviling and discouraging those whose endeavours are directed to its advancement. Which of us two do you think most resembles that officer of justice to whom you have not been ashamed to compare me—you who can only talk of boiling oil and hot irons to arrest haemorrhage, or I, who arrest it by tying the vessels from which it comes?"

During the Middle Ages—indeed, until the time of Hunter—surgery showed no great advance over that of the time of Celsus. Even at a later epoch, current practice was in some respects by no means better than that advised by Celsus. I remember well enough a woman walking into the hospital when I was a dresser, with her intestines in her petticoats, a hernial scar having given way. The surgeon washed the intestines with milk and returned them into the abdomen. Celsus directs that intestines protruded through an abdominal wound should be washed with water mixed with a little oil and returned into the abdominal cavity. He gives explicit directions as to enlarging the wound, holding up the edges of the divided peritoneum, suturing a perforation of the intestine, cutting away gangrenous omentum and finally closing the wound in layers.

When I entered the profession, the obstacles to the study of human anatomy had been removed, and clinical observation combined with *post-mortem* study had greatly increased our knowledge of disease. The work of Lebert, Auvert, Cruveilhier, Bright, and Hooper, was being carried on by Bristowe, Cornil and Ranvier, Wilks, Fagge, and many others. Virchow's most influential writings were of recent date. The work of the experimental school of Pasteur and Lister had but commenced to influence the profession.

When I was a house-surgeon we used the steam spray and carbolic lotion, but the surgeons made a point of operating in old coats bespattered with the blood and pus from many a field day. Prolonged efforts were frequently made to reduce strangulated hernia before operating, the reduction of intussusception was attempted with the kitchen bellows; intestinal and gastro-intestinal anastomosis were unknown. No attempt was made to open brain abscess unless obviously beneath a fracture. Operation for brain tumour was unheard of. The mastoid operation was not performed in any London hospital. No operations were performed on the heart or spleen. Patients with renal and biliary calculi were left to their fate. Appendix operations were not done, though gangrenous appendicitis and its results had been already described and figured by Lebert. The risk of surgical operations was still so considerable that they were often delayed as long as possible.

The place that surgical intervention occupies in the treatment of disease is now quite different; so little is the risk and discomfort attending most operations that surgical intervention has now become the method of choice for those affections amenable thereto. The work of the last fifteen years is known to you all and I need not mention it.

The rise of modern surgery began with the discoveries of anaesthesia and antisepsis. Had it not been for the genius of Simpson, chloroform might still be unknown, and had not Pasteur's revelation of the world of microscopic organisms in their relation to the processes of fermentation and putrefaction led Lister to make the first and most important application of bacteriology to the prevention of disease, countless preventable deaths might still be occurring. Both of Pasteur and of Lister we delight to affirm as Macaulay did of a great statesman, "History will deliberately pronounce that among eminent men no one has left a more stainless and none a more splendid name."

No longer hampered by the necessity of sacrificing accuracy of detail to mere rapidity in operating, nor deterred by the risk of death from sepsis, surgeons were able to intervene where before they could only look on. The art of surgery rapidly advanced, our knowledge of disease was greatly increased, and diagnosis by being more often put to the proof was rendered much more accurate.

But this very advance, so far from justifying the Celsian dictum, *Quantum vero in vivis cognosci potest, ipsa curatio ostendat*, demanded, as a condition of further progress, knowledge that can only be acquired by deliberate experiment on the living animal.

At the present time the surgeon is often obliged to operate with scant assurance of complete success. "We must often undertake things when the probability of succeeding is against us, and if we can do nothing better, we must not on that account consider the undertaking impossible and unreasonable. Reasonable it will always be if we can do nothing better, and if we employ such sparse means as we may possess to the best advantage." So wrote a great military author. His words are equally applicable to the warfare against disease. It is not reasonable, however, and we are not employing the means at our disposal to the best advantage, if we deliberately try upon man new procedures without first ascertaining their effect by experiments on animals.

Celsus referred to human vivisection as if actually practised or at all events not prohibited by the Legislature, he however stigmatized it as not only cruel but unnecessary, as abundant opportunity was afforded for the study of living organs by observation of gladiators in the arena, soldiers wounded in battle, and travellers who had received the attentions of brigands in the neighbourhood of Rome; but though these special means of investigation

are not available for London workers, the consensus of medical and lay opinion, now not less than in the days of Celsus, is rightly against deliberate experiment on man for the acquisition of knowledge.

The study of the effects of disease as seen after death and in the course of surgical operations is a field already reaped and has come to form part of the curriculum of the student rather than the field of the investigator, though no one would say that important discoveries will not yet be made in this branch of inquiry.

Those who pursued the study of human anatomy even less than a century ago had to encounter physical danger as well as the prejudice and abuse which now falls to the share of those who seek to advance knowledge by experiments on living animals.

Among those who are against us in this matter are many who honestly differ from us and whose opinions and conduct are entitled to our respect and consideration; but there is a small class of persons who display a lamentable want of truth and justice and

> whose tongue
> Outvenoms all the worms of Nile.

Such may well be described in a phrase detached from a famous speech by Disraeli at the Guildhall as "gifted with an egotistical imagination that can at all times command an interminable and inconsistent series of arguments whereby to glorify themselves and to malign their opponents."

In all ages the search after truth, whether in science or theology, whether by translation of the Bible, by looking at the stars, by following the life-history of pathogenic bacteria in the living animal, or by making an antitoxic serum for the cure of disease, has met with irritated opposition and obstructive prejudice, and its supporters have not always escaped calumny. I need not recall to you the invectives that have been applied to some of those most highly esteemed by our profession and by the public. Were Simpson at the present day engaged in chloroforming rabbits, he would be subject to the criminal law of our country, and it is well known that Lister had to go to Toulouse to perform some important experiments, just as Galen had to send his students to Germany to dissect the bodies of enemies slain in battle because he was forbidden to obtain subjects in Rome.

Dr. Keen relates how "Sir Lauder Brunton began a series of experiments (on snake venom) in London, but was stopped by the antivivisection laws in force. But Drs. Weir Mitchell and Reichert in Philadelphia undertook experiments on cobra and rattlesnake venom, the cobra poison being furnished, be it observed, by the British Government, whose own laws have prevented investigation for the benefit of its own subjects."

Where would the surgery of the intestines and stomach be without the labours of experimenters? How could the surgery of the nervous system have advanced without the experiments of Ferrier, Schäfer, Beevor and Horsley, Sherrington, Aldren Turner, Risien Russell, and many others?

To experimental work on the living animal we are wholly or in great part indebted for what we already know about the pathology of bacterial infections, serum-therapy, protective vaccines, cerebral localization, the healing of wounds, the healing of nerves and the healing of arteries, the transplantation of nerves, the surgery of the nervous system and of the gastro-intestinal tract, the effects of removal of organs, organo-therapy, the action of many important drugs, and the means of detecting certain poisons which defy chemical analysis.

Fresh from a too brief visit to America, I am glad of the opportunity of describing some splendid work which is in progress there by our colleagues in that great country. You will remember that Sir Lauder Brunton suggested long ago that the surgeon might be able to overcome the effects of mitral stenosis. In one of the splendid laboratories of the Johns Hopkins Hospital at Baltimore I saw the results of some ingenious and successful experiments on mitral stenosis and insufficiency, and I do not doubt that in time these will be made useful for such diseases in man. Further, I saw a dog whose thoracic aorta had been successfully obstructed by Professor Halsted, which suggests the possibility of dealing successfully with thoracic aneurysm. Thoracic aneurysms have never been able to be cured like aneurysms of the limbs, since Scarpa's law still holds good that for cure the artery must be obstructed at the site of the aneurysm. In all the experiments at Baltimore exactly the same precautions and care are taken as in operations performed on man.

At Cleveland I saw a wonderful experiment. Dr. Crile performed in a most beautiful manner the modern operation of anastomosis of arteries, and by its means resuscitated a dog whose heart had ceased to beat for twenty-five minutes.

Two dogs were chloroformed, and one bled to death by opening the femoral artery. In both animals one common carotid artery was then exposed and divided, the distal end being ligatured and the proximal end clamped. An anastomosis between the proximal ends of the two vessels was now made. When the clamps were removed the blood flowed from the living dog towards the heart of the dead dog, which almost at once recommenced to beat. Dr. Crile stated that as soon as the pressure in the coronary arteries reaches from 20 mm. to 30 mm. of Hg the heart begins to beat again. No leakage whatever took place from the anastomosis. This experiment gives a clue to a method of resuscitation from death by haemorrhage in man. Dr. Crile also demonstrated an ingenious method of suture for gastro-intestinal anastomosis.

The recent work on the anastomosis of arteries and veins led up to the transplantation of entire organs by Dr. Carel, who successfully transplanted kidneys from one dog to another. How great are the possibilities opened up by these experimental demonstrations! May we not hope for the time when diseased organs will be got rid of and replaced by healthy ones?

If these results are attained it is to be hoped that the problem of breeding the anthropoid apes in captivity may be solved, or we may see in a future number of the *Times* the advertisement attributed by an American humorist to the man who had destroyed his conscience: "Medical colleges and hospitals desiring assorted tramps for scientific purposes, by the gross, cord measurement, or per ton, will do well to inspect the lot in my cellars before deciding elsewhere."

At Buffalo I spent a day in the Government Cancer Research Laboratory. Here carcinoma is being studied by experimentally communicating it to mice, and several thousand successful inoculations have been made. A proportion of the animals so infected recovered without treatment, demonstrating experimentally what has been inferred from clinical observation, that spontaneous recovery from this disease is possible, and that there are certain forces at work in the body antagonistic to the growth of cancer, and tending to produce immunity. This has already led to the employment with some success of a vaccine, and should serve as an incentive to research directed towards the preparation of a serum for the treatment of malignant disease. In my view it is futile to carry on experimental work on carcinoma unless the hypothesis that it is a microparasitic disease be accepted.

So far-reaching is the influence of experiment on the progress of treatment that no one of us can separate himself and say, "Physiological experiment has nothing to do with me." Till the functions of the living organs in health are clearly understood it is not possible for us to fully understand the changes that occur in the living organs in disease. The knowledge of living processes which is essential for the further progress of surgery and pathology can only be acquired by experiment on the living animal.

It seems to us odd that the Romans, who did not hesitate to sacrifice human life for their amusement, should refuse the bodies of the dead for anatomical study. To a future generation it will seem equally strange that a certain class of Englishmen of the present day, who do not hesitate to rear animals for the mere pleasure of the chase or the palate, should consider it criminal to sacrifice animal life for the acquisition of knowledge essential to the relief and cure of disease.

On this subject I cannot do better than quote the words used by J. F. D. Jones in his classical work on the Arteries, published one hundred years ago. He writes in his preface:

> The author has only a few more words to say addressed to men out of the pale of his profession into whose hands this little book may fall, whose opinions he esteems and whose sentiments he honours. He regrets the necessity of obtaining

even this important knowledge by the sacrifice of brutes. But when we remember the incessant scourge of war which has followed man through all the ages of his history, not to mention the consequences of accident and disease, it is not too much to assert that thousands might have been and may still be saved by a perfect knowledge of these subjects; which can only be directly obtained by experiments on brutes; indirectly, and very slowly, by observations on the injured arteries of man; and even these cannot be made until he has fallen a sacrifice to the want of assistance or to the imperfect knowledge of the surgeon.

Those who are engaged in the study of physiology, pathology, therapeutics and surgery on the living animal are, it is well for us to remember, following in the footsteps of Pasteur, of Lister, and of all those who have most contributed to the advance of medicine, and by whom "that ideal world wherein 'the whole body of surgeons' had been dimly struggling and inexpressibly languishing to work, became revealed and thrown open." The results of their labours are available for all. Every new fact is a gain, though its practical application may not be immediately apparent. The discovery of new knowledge is ever a laborious task, and those who seek this knowledge will always have the sympathy and support of our ancient Society.

It might be thought needless before this audience to refer to the necessity of experiments on the living animal, but as Richelieu said: "The public occasionally blames what is most useful and even essential to its welfare;" so in the circumstances of the present time and in my official position I have felt impelled to take the opportunity of saying frankly what I hold to be true on this subject. I conclude with a beautiful passage from Sir Thomas Browne:

> The wisdom of God receives small honour from those vulgar heads that rudely stare about, and with a gross rusticity admire His works. Those highly magnify Him, whose judicious inquiry into His acts, and deliberate research into His creatures, return the duty of a devout and learned admiration. Therefore,
>
> Search while thou wilt; and let thy reason go
> To ransom Truth, e'en to the abyss below;
> Rally the scattered causes; and that line
> Which Nature twists be able to untwine.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

MESENTERIC CYST CAUSING INTESTINAL OBSTRUCTION.

Unique cases are scarce. They are often the result of a defective memory. In the British Medical Journal for 1898 I recorded the case of a mesenteric cyst which caused acute intestinal obstruction. This cyst was in the pelvis, and at first I thought the case was one of intussusception.

On opening the abdomen a cyst (as large as an orange) was found. It was situated between the layers of the mesentery as they separate to enclose the bowel, and the bowel itself was compressed like a piece of ribbon over the circumference of the cyst wall. The cyst (which contained cholesterine, and was examined by Dr. F. W. Andrewes, the Pathologist of St. Bartholomew's Hospital) was shelled out, and the patient, a boy of about 12 years, made a perfect recovery.

Woking. Francis Colby, F.R.C.S.Eng.

BONE FORMATIONS IN THE HEART.

The following curious pathological condition found in a patient who died the other day in this asylum may prove sufficiently interesting to be recorded.

W. T. B., aged 71, had been a patient here for a little over two years suffering from melancholia. During the whole of this time he had been confined to bed on account of his having a dilated heart, the slightest exertion bringing on severe syncopal attacks. On three occasions his condition became critical but each time he rallied. At the beginning of this month, however, he became worse again, and died on September 18th.

I made a *post-mortem* examination on the following day, and found the heart to be large, flabby, and dilated, the muscle undergoing fatty degeneration. The organ weighed 18¾ oz. On handling it, I was surprised to feel some masses, hard and stony to the touch, lying transversely across the heart in the lines of the auriculo-ventricular grooves.

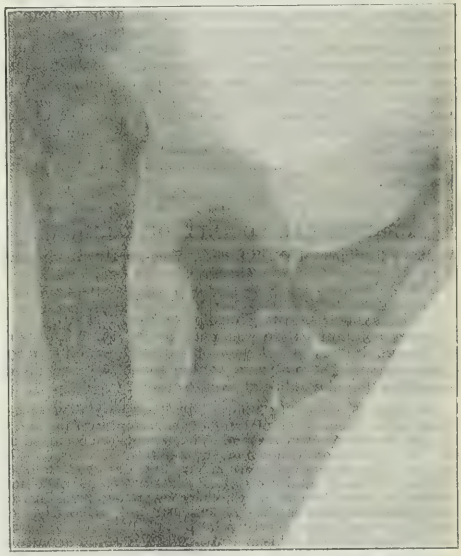
On cutting down to these they were found to be flattened plates of bone, embedded in the cardiac tissue, having a firm fibrous covering which proved very difficult to detach. One, the larger, 4 in. in length and 1 in. across throughout the greater part of its length, but widening to 2 in. at its right extremity, lay with its flat surface looking forwards, embedded in the wall of the heart, about half an inch from the surface, with its long axis parallel to the line of the right auriculo-ventricular groove.

In a similar position on the left side were two smaller fragments, flattened, but irregular in outline and each about 1 in. by 1½ in. at their greatest diameters. The aorta and orifices of the coronary arteries had a healthy appearance.

J. A. Topham, M.R.C.S., L.R.C.P.,
Assistant Medical Officer, Kent Lunatic Asylum, Chartham Down.

IRREDUCIBLE DISLOCATION OF THE THUMB.

The annexed skiagraph is taken from a case of irreducible dislocation of the thumb, a condition of which I have not previously seen in an *x*-ray picture. It is from the hand of a Russian soldier who, when aged 27 years of age, fell wounded from his horse at the siege of Plevna. He received prompt treatment but no efforts could reduce the dislocation, and the thumb now works in a very useful



false joint. The wedge of bone preventing reduction has been of much interest to those who have seen the picture, and its nature has been much discussed, the general opinion being that it consists of half the epiphysis, which had been separated from the shaft and itself fractured. I was only able to take the picture from one aspect. The white line is due to an injury to the negative, which cannot be replaced.

C. L. Handcock, M.B., Ch.M.,
Late of Goulburn, New South Wales.

Suicide in Germany.—According to *Die Umschau*, the average yearly increase in the number of suicides in Germany between 1881 and 1897 was 20 per cent. In Prussia alone, where the population increased in that period by 30 per cent., the number of suicides rose from 3,075 to 7,217. Between 1898 and 1900 it is estimated that there were in the whole of Germany 200 suicides per million of population. The corresponding rate was in Prussia 190, in Bavaria 180, in Saxony 300, and in the Duchy of Saxe Coburg-Gotha 420. It is added that suicide is three time more frequent in men than in women, and is most common between the ages of 20 and 25.

REPORTS OF SOCIETIES.

MEDICAL SOCIETY OF LONDON.

CHARLES A. BALLANCE, M.V.O., M.S., President, in the Chair.

Monday, October 8th, 1906.

PRESIDENTIAL ADDRESS.

MR. C. A. BALLANCE, the newly elected President, delivered a Presidential address on the development of surgery from the earliest times to the present day. It is published at p. 949.

A vote of thanks was proposed by Sir LAUDER BRUNTON and suitably acknowledged.

ACTINOMYCOSIS OF THE VERMIFORM APPENDIX.

Mr. T. H. KELLOCK read a paper on this subject, in which he pointed out that forms of streptothrix other than the ray fungus might be responsible for causing the disease, and suggested that streptothrichosis might be a more suitable descriptive term than actinomycosis. About 50 cases of the disease were on record. During the last three years at the Middlesex Hospital 7 cases of actinomycosis in or about the appendix had occurred and 4 of these were described in detail. The disease was of two types—the one in which there was simple streptothrix infection, and the other, a much more serious condition, in which there was conjoint infection with pyogenic organisms. The clinical features that might be of help in diagnosing the quiet cases were the long-continued pain, its slightness, and the indurated tissue, and in the suppurating cases early rigors and burrowing abscesses. The treatment of the condition was alluded to. The paper was discussed by the PRESIDENT, by Mr. WARING (who said it was difficult to exclude a caecal origin of these cases and considered that the combined method of operation and the administration of potassium iodide was necessary to effect a cure), by Mr. E. M. CORNER, and by Mr. CUTHBERT WALLACE.

OBSTETRICAL SOCIETY OF LONDON.

AMAND ROUTH, M.D., F.R.C.P., Vice-President, in the Chair.

Wednesday, October 3rd, 1906.

INTRALIGAMENTOUS TUMOUR OF THE UTERUS.

A short communication was read by Dr. EDEN and Mr. F. LIONEL PROVIS on a case of intraligamentous fibrocystic tumour of the uterus, weighing about 30 lb., removed by enucleation and subtotal hysterectomy.

J. S., aged 55, single, in January, 1905, attended the Chelsea Hospital for Women, complaining of abdominal swelling and a mucoid discharge from rectum. The menopause occurred at 48. For eleven months she had suffered from an ulcer on the left leg. The abdominal swelling was first observed in 1898, and had increased rapidly of late. Examination per abdomen revealed a large tumour of elastic consistency reaching up nearly to the xiphoid cartilage, surface smooth, with a distinct thrill. Per vaginam, cervix was found displaced upwards under the symphysis pubis, a firm swelling rounded in outline was felt in the left fornix and pouch of Douglas, apparently continuous with the abdominal tumour. The position of the uterus could not be made out. A diagnosis of multilocular ovarian cyst, with a semisolid portion in the pouch of Douglas, was made.

February 14th. Coeliotomy was performed, and the tumour found to be fibromyoma of the uterus spreading out into the left broad ligament and extensively raising the peritoneum from the left lateral pelvic wall and the abdominal parietes. The tumour was enucleated and the uterus removed by subtotal hysterectomy. Up to the ninth day the patient made excellent progress, when she complained of pain in the chest, her temperature rose to 100.4°, pulse to 116, respirations to 33. A pericardial friction rub was audible at the apex of the heart. In two days the rub had disappeared, and the patient continued to make most satisfactory progress. March 7th—twenty-sixth day after operation—patient went to convalescent home. The next day she became very ill with vomiting, and a temperature of 103°. In forty-eight hours the vomiting ceased, but she remained very weak, confined to bed with a morning temperature of 102°, which fell to nearly normal in the evenings. In this condition she remained for a week, when she had several shivering attacks, in one of which her temperature was 107°, a loud systolic murmur became audible at the apex; before this the heart sounds were clear. On March 19th she suddenly became unconscious and developed left hemiplegia. On the following day she died. No autopsy could be made.

The immediate cause of her death was apparently cerebral haemorrhage or embolism, but it is difficult to connect it with the operation. Possibly the ulcer on the left leg may have been the source of an ulcerative endocarditis with secondary cerebral embolism. The tumour weighed 30 lb., and is one of the largest on record of its kind. It was attached to the left lower lateral border of the uterus by a pedicle 1 in. thick. The uterus measured 2½ in. The cut surface of the tumour showed a large cystic and degenerating fibromyoma. Microscopical examination confirmed the naked-eye appearances. The extensive cystic degeneration probably accounted for the rapid increase in growth noticed by the patient shortly before operation. As the tumour was attached by a distinct pedicle to the uterus, it was regarded as uterine in origin, growing out in the left broad ligament.

PRIMARY TUBERCULOSIS OF THE CERVIX UTERI.

Mr. ERIC YOUNG read notes of a case of this disease.

History.—Married, aged 26; husband alive; and found on examination to be healthy; three pregnancies, all the three children healthy, the last born two and a half years ago. Always healthy. Catamenia regular up to six months ago, since then periods of longer duration. Five weeks thick yellow inoffensive discharge from vagina, and constant aching pain in lower abdomen and sacral region. Never any bleeding from the vagina. No family history of tuberculosis.

Condition on Admission.—Thin, nervous, and excitable. Lungs examined on several occasions, and invariably found normal. No tubercle bacilli demonstrated in sputum. Slight tenderness on deep palpation experienced in the hypogastric and left iliac regions. No enlargement of the inguinal lymphatic glands. The cervix indurated and greatly enlarged, its surface uneven and ulcerated in places, and in places nodular and papillary; not friable on examination. Uterus freely movable.

Treatment.—The suspicious nature of the disease suggested vaginal hysterectomy, which was performed.

Present Condition of the Patient.—Examined six months subsequent to the operation and found to be quite healthy. No recurrence of the disease had taken place.

Photographs were shown, and reports by the Clinical Research Association and Dr. Williamson read, the former stating that the lesion might be of tuberculous origin, and the latter expressing no hesitation in affirming the case to be one of tuberculosis of the cervix.

Dr. ROUTH congratulated the author on his paper, and considered that it would lead gynaecologists to modify their opinion as regards the relative frequency of primary tuberculosis of the Fallopian tube as compared with that disease primarily affecting the cervix uteri.

Dr. HEYWOOD SMITH suggested that the case might be one of areolar hyperplasia of the cervix.

Dr. LEWERS considered that the case recorded in some respects was similar to one he had himself communicated to the Society some years ago. It was the cases in which the disease was limited to the cervix without the occurrence of any tuberculous lesions in any other part of the body which were so extremely rare. Vaginal hysterectomy was, on the whole, the best treatment, and in his own case the patient had remained well for several years after that operation.

Dr. GALABIN said that his experience confirmed what had been said as to the difficulty of distinguishing in some cases between tubercle of the cervix and cancer, especially when tubercle was accompanied by a sanguineous discharge. He had had a case in point himself in which the body of the uterus was also involved so that hysterectomy was the only treatment likely to be of service.

Dr. RUSSELL ANDREWS described a case of ulcer of the cervix resembling in some respects either a tuberculous or a cancerous lesion which had subsequently proved to be syphilitic.

Dr. CHAMPNEYS said the Society was indebted to Mr. Young for the paper he had read, and moved that the specimen be referred to the Pathology Committee.

Mr. YOUNG replied.

SPECIMENS.

Dr. CULLINGWORTH exhibited a replica of the medal which had been presented to Professor S. Pozzi on the occasion of his having been President of the Seventeenth Surgical Congress held in Paris in 1904, and of his promotion to the grade of Commander of the Legion of Honour. The following speci-

mens were shown:—Dr. Eden: Tubal pregnancy, with extensive interstitial salpingitis.—Dr. R. D. Maxwell: Fetal volvulus of small intestine, leading to perforation of gut and abdominal distension, causing difficult labour.—Dr. H. Russell Andrews: (1) Endothelioma of the cervix; (2) complete prolapse of an inverted uterus.

REVIEWS.

EICHHORST'S MEDICINE.

We have already, in our issue of September 30th, 1905, reviewed the first volume of Dr. Eichhorst's handbook of medicine.[1] The general plan upon which the book was written appeared to us to be particularly good, and likely to make the book popular with early and advanced students alike; the beginner is saved the difficulty of gleaning the well-established facts of medicine from amongst a vast amount of work which, to say the least, represents rather the attempts to elucidate disease than solid acquisitions, by finding such facts methodically described, and printed in large type. In comparatively small compass, Professor Eichhorst has very cleverly managed, by means of small type, to supply the advanced student with descriptions of the more technical methods of investigation, and to give historical summaries of the theoretical considerations of the many problems with which medicine bristles. Professor Eichhorst errs in merely mentioning the names of the various investigators, which, by the way, are frequently misspelt. If he would supply a complete bibliography no harm would be done to this excellent work, and its value would be greatly enhanced, making it not merely a first-class textbook, but a very useful work of reference.

The second volume deals first with the diseases of the digestive organs, and ends with a satisfactory account of the disorders of the genito-urinary system, including in the latter a subject which, though far from inviting, is one of which most practitioners find themselves very ignorant—we refer to the subject of the various functional disorders connected with the generative organs.

Professor Eichhorst is enthusiastic about the necessity for a thorough chemical examination of the stomach contents as a means of diagnosis, and has spared no pains to give a useful and at the same time a critical account of the various methods of investigation upon which his wide experience has shown reliance may be placed. It is well known that the modern methods of chemical investigation have long shown themselves to be as little free from contradictions as many another older form of inquiry, but so useful are they in many cases that no modern physician would hesitate to make use of them in suitable cases. Professor Eichhorst shows what serious mistakes will follow too strong a faith in chemical investigations—for example, diminished motor power of the stomach is met with not only in carcinoma of the stomach but in pyloric obstruction, dilated stomach, gastric ulcer, and gastric catarrh; hyperchlorhydria is stated usually to be present in gastric ulcer, but Professor Eichhorst has shown that in a series of cases of gastric ulcer hydrochloric acid was excessive in only 5 per cent., in 36 per cent. of the cases it was present in normal amount, in 34 per cent. it was reduced, and in 23 per cent. it was absent. The prussian-blue test for the detection of blood in the vomit, etc., is, we believe, more reliable than the older methods advocated by the writer.

It is, however, a pleasant duty to point out that although so much attention is given to the more technical forms of investigation, Professor Eichhorst has steadily kept before himself the ideal of maintaining a high standard of clinical observation and inquiry. The clinician will appreciate the thoroughness of the writer's method and his broad experience in the perusal of the accounts of the various manifestations of uraemia, and in his reference to the curious maniacal delirium which is so often met with in cases of haematemesis dependent not upon the effects of alcohol or upon its withdrawal, but upon some toxic agent of the nature of which we are at present quite ignorant.

This brings us to the one defect which, we think, mars the work as a guide to an early student in medicine. Too frequently Professor Eichhorst refers this or that symptom to autointoxication. We do not remember in any work of medicine seeing such frequent reference to this "refuge of the destitute." Quite probably Professor Eichhorst is right in his surmises, but there is very little proof that gout, diabetes mellitus, cholaemia, etc., are due to the effects of autointoxication, however much convinced we may be in the absence of any knowledge to the contrary that such is the case. No doubt to older readers the reference of such curious conditions as the coma met with in advanced cancerous disease to autointoxication is suggestive, but it is "foam in the mouth" to the beginner.

Another belief to which Professor Eichhorst subscribes, as we think, too frequently, is that vicarious menstruation is responsible for haemorrhage and congestion of such remote organs as the stomach, liver, etc. Lagophthalmos, as understood in this country, means an eye kept well open, as, for example, in certain cases of meningitis, especially in children, but the author describes this condition as one in which the eyes are held half open. The old heresy of the urinous or ammoniacal breath of uraemic patients is repeated; no student of medicine could help but conclude that Professor Eichhorst considers that one or other of these agents is being excreted by the respiratory tract: such odorous breath is noted in other conditions and depends merely upon bacterial decomposition going on within the mouth.

Professor Eichhorst insists upon the view that contracted kidney is practically always dependent upon arterial disease, and that the interstitial fibrosis met with is secondary and not primary in origin. No doubt there are a few cases in which contracted kidney appears to be independent of any establishable arterial disease, but such exceptions are so rare that they may well be considered to prove the rule above enunciated. Nor does Professor Eichhorst hesitate to advance a new group of cases in which cirrhosis of the liver is considered by him to be due to arterial disease. To the student in medicine, even at an early stage of his career, such explanation is most obvious and yet it is extraordinary that so little investigation has been made with a view to establishing such a possibility. Reference must be made to the more practical value of the work. The reader, making allowance for the use of different pharmacopoeial preparations, will find that treatment receives due attention. Only occasionally does the writer transgress, so we think, the limits of common sense—for example, we have no sort of sympathy or approval for the advocacy of the rectal application of the faradic current in certain cases of intestinal catarrh; no student can understand such treatment, and no teacher can explain it, except on such grounds as "suggestion," etc.—a principle which is so apt to rob medicine of its claims to be considered a true science.

[1] *Handbuch der speziellen Pathologie und Therapie innere Krankheiten.* (Text-book of Medicine.) Von Dr. Hermann Eichhorst. Band ii. Sechste Auflage. Berlin und Vienna: Urban und Schwarzenberg. 1905. (Royal 8vo, pp. 975, 121 illustrations. M. 15.)

HAEMATOLOGY.

Dr. Pappenheim's atlas of human blood cells,[2] the first part of which has recently been issued, is not only of importance to the systematic pathologist but essential to the clinician. At the outset, we must say that the title is faulty, but as the reader will find more and not less than he expected the fault is on the right side. It is quite true that Dr. Pappenheim has supplied an atlas, but in addition the volume contains a survey not only of the various methods of fixing and staining blood films but also a summary of the views which as the result of his ten years' devotion to haematological studies he has been able to elaborate. Without entirely subverting the theories already advanced by Ehrlich and others as to the relationship of the various leucocytes to one another, Dr. Pappenheim has been able to make use of some of the older established generalizations, and adding his own, details in the full description given in the letterpress of his twelve plates, a complete description of what he considers to be the genesis of all leucocytes and even erythrocytes from one common parent cell—denominated the large lymphocyte. We commend to the reader's notice the diagram on page 17, for without it we fear that we should hardly have gathered from the description of the plates, full as they are, the true meaning of Dr. Pappenheim's views. The reasons for this difficulty

[2] *Atlas der menschlichen Blutzellen* (Atlas of Human Blood Cells). Von Dr. Arthur Pappenheim. Erste Lieferung. Tafel i.-xii. Jena: Gustav Fischer. 1905. (Demy 8vo, pp. 33: 12 coloured plates. M 16.)

are not far to seek. In the first place he has, with one exception, printed plates representing cells stained by one or other modification of the haematoxylin-eosin stain; the difficulty to be expected in differentiating the various forms of granules by this method will occur to the reader at once. In the second place the reader will soon lose himself in the terminology adopted by Dr. Pappenheim, though as we have said, reference to the explanatory diagram on page 17 will make the matter clear. It is, however, obvious that the atlas will be quite unintelligible to a reader acquainted only with the older nomenclature of the white cells of the blood. Ehrlich's original number of half a dozen varieties of leucocytes with two or three variants depending upon the size of certain granulations caused dismay enough to the student of blood diseases. But it must have been clear to any thoughtful student of the subject that until we knew as much about the remaining leucocytes and their susceptibility to certain recognizable toxins as we do of the relationship of the neutrophile polymorphonuclear cells to certain bacterial products, the advances in haematology must merely be along the line of pure anatomical differentiation of many more types of cells than were originally designated by Ehrlich. Dr. Pappenheim has realized this difficulty. He begins with a differentiation of all leucocytes into a large and a small variety, with another group of cells of intermediate size; variations in shape of nucleus and in size and tinctorial characteristics of granulation, and altered relative proportions between nucleus and protoplasm serve to produce some thirty-six varieties of leucocytes. When it is remembered, too, that Dr. Pappenheim also differentiates according to the tinctorial reaction of the hyaloplasm and spongioplasm to such stains as haematoxylin and eosin, the reader may well be discouraged from attempting to make use of this volume. Such a decision would be entirely opposed to the scientific spirit, and would probably be but temporary. A mere glance at the beautiful representations of various forms of cells set out in the twelve plates will show the reader at once that Dr. Pappenheim has done loyal service to the subject of haematology, for it will be found again and again that various forms of cells which, according to the older nomenclature were grouped together as (?) transitional cells, etc., will now fall into groups clearly defined by Dr. Pappenheim in this useful atlas. Of the arguments brought forward by Dr. Pappenheim in support of his view that all leucocytes and erythrocytes are derived from one common parent cell—the large lymphocyte—little may be said in criticism, beyond stating that the rather controversial attitude adopted by the writer, and his invectives against contrary views are somewhat out of place; moreover, until some method is devised by which the transition of one type of cell into another can be watched the indirect proofs (?) advanced by Dr. Pappenheim may be held to be, in some cases at least, strongly in favour of diametrically opposite views.

RADIOBES.

The greater part of Mr. J. Butler Burke's book on *The Origin of Life*,[3] which caused some stir in certain daily papers a few months ago, appears to be the outcome of certain experiments, on a biological basis, made with radium and bouillon. As the result of the action of the radium on the broth, certain microscopic bodies appeared, which the author states go through stages of progressive development, terminating in the formation of crystals. The nature of the crystals has not been ascertained. The author, who has called these bodies "radiobes," defines their nature as "neither crystalline nor colloid in disguise, though colloids, as aggregates, but something more; and crystals in their constituent parts." As may be gathered from this quotation, the speculations of which the work is composed are difficult to follow. The difficulty is increased by the use of well-known terms, such as 'biogenesis" (see p. 77) and "spontaneous generation" (p. 190), to express conceptions other than those for which these terms were originally adopted. The author regards life "as a property of matter as much as radio-activity or electricity, of which matter is ultimately composed." But he requires also for cell-production a nucleus which possesses the properties of an hypothetical substance, biocarbon (p. 168). The hypothetical potentialities of this substance may perhaps be gathered from certain remarks offered in explanation of "transmutation or heterogenesis." He suggests that:

> the nucleus of the natural cell is composed in its ultimate aspect of a substance which might be described as a bio-radio-carbon element, and that when such a cell is sterilized or destroyed by heat in a gelatinous culture medium, if this nucleus survives the heat, as in the case of radium, a new cell would be formed, which would differ largely from the original, and more appropriately admit of being styled an artificial cell; a revival, in fact, of the life which was destroyed, but only an artificial imitation, so to speak, and more like radiobes than natural life, with that impassable gulf which separates the natural from the artificial.

He formulates

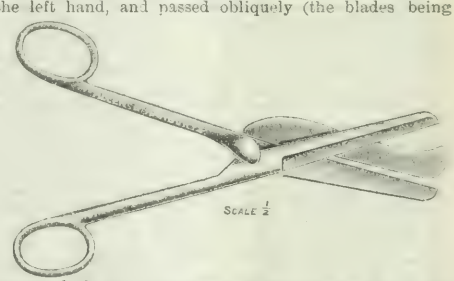
> . . . the ultimate vital substance which seems to play so mysterious a part in the phenomena of nature as corresponding to a state of matter which should be described as neither molecular nor atomic, but of matter in the process of being—a state of electronic aggregation from which matter in the course of time has been evolved, the hiatus, the borderland or critical state between disintegrated and integrated electricity.

All this does not seem to furnish any advance on the road to the conception of the starting point of life. "These natural flights of the speculative mind" (p. 306) are not easy to follow, lacking, as they do, substantiating evidence; but they bear witness to the "creative activity" of the mind of the author. All will, however, agree with him that "his results are as far from natural life as the artificial products of the laboratory can be"; and so long as the superficial reader does not bring away an impression, as some have, that the origin of life has been discovered, no harm will accrue from the mental exercise involved in reading the work.

[3] *The Origin of Life, its Physical Basis and Definition.* By John Butler Burke. London: Chapman and Hall. 1906. (Demy 8vo, pp. 351.)

MEDICAL AND SURGICAL APPLIANCES.

New Circumcision Scissors.—Dr. Henry Dutch (Berkeley Street, London, W.) writes: I venture to bring to the notice of the profession a little instrument for performing the operation of circumcision. As the woodcut shows, it is composed of half the ordinary shield so commonly used, the place of the remaining half being taken by the right blade of the scissors. The whole can be taken to pieces for the purpose of cleansing. By its use uniformity of results can be attained. A probe having been passed around the glans to separate any adhesions, the prepuce to the required length is seized by the thumb and forefinger of the left hand, and passed obliquely (the blades being

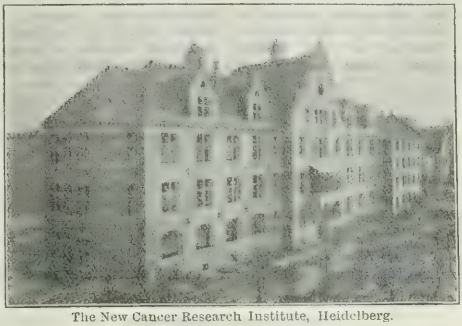


separated) through the groove in the scissors shield, the cutting blade being above. The prepuce is then cut off with one movement directed obliquely from below upwards to avoid the vessels of the fraenum. The exposed mucous lining is treated similarly. The latter is now further torn in the middle line by the fingers or cut with a scissors right down into the neck of the glans, this being the most important step of the operation. The remains of the mucous membrane are now reflected flatly and evenly downwards, and held in position by a narrow slip of lint and Heft band plaster. In very young children anaesthetics or ligatures are not required; of course this does not apply to older children and adults. The instrument can be obtained from Messrs. Allen and Hanburys, 48, Wigmore Street, W.

Destruction of the University of Groningen.—The building of the famous Dutch University of Groningen were recently completely destroyed by fire. A fine museum of natural history perished in the flames. The University was founded in 1614, but the buildings just destroyed were erected in 1850. Among them were an anatomy theatre and a number of laboratories.

THE INTERNATIONAL CANCER CONFERENCE.

Beneath the ruins of the ancient Heidelberger Schloss, and in the midst of many mediæval associations, there assembled on September 24th some four hundred men of science from all parts of the world to discuss a problem not yet stripped of all the mystery enshrouding it at the time when the foundations of the oldest tower of that ancient Schloss were laid. Those thus assembled had come out of no mere idle curiosity, but in response to specific invitations to be present on the occasion of the opening of the new Cancer Hospital, and of the new Cancer Research Institute affiliated with it, and subsequently to participate in the First International Conference on Cancer.



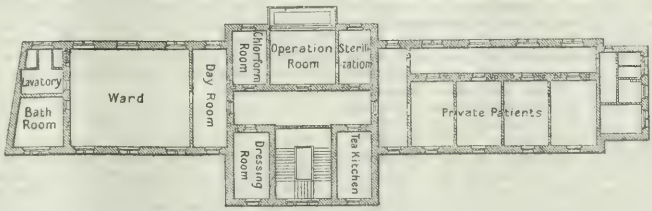
The New Cancer Research Institute, Heidelberg.

We can name only a few of those present—Professor von Leyden, Professor Kirchner, Professor Metchnikoff, Professor Borrel, Professor Ehrlich, Professor Tillmanns, Professor Uhlenhuth, Professor George Meyer, Professor C. O. Jensen and Dr. Scheele of Copenhagen, Professor Lubarsch, Professor Henke, Dr. W. S. Bainbridge of New York, Professor von Hansemann, Professor Waldeyer, Professor Ferdinand Blumenthal, Dr. Leonor Michaelis, Professor Schiff of Vienna, and of the English representatives, Dr. E. F. Bashford, Dr. Lazarus-Barlow, Dr. Payne, Mr. Bowreman Jessett, Mr. Plimmer, and Dr. Powell White. From the presence of these and many others it was evident that at last those interested in medicine in the widest sense of the term had found an aspect of the cancer problem on which they could agree to meet in mutual intercourse. The proceedings on the subsequent days showed that this aspect was the remarkable development of the experimental study of cancer in mice.



Samaritan House (Hospital). Ground floor.

At informal meetings on the Monday the delegates made acquaintance with each other. Although good fellowship prevailed, at the same time discordant notes were heard as to why certain people had not received invitations to attend, why Professor Jensen's work received such scant recognition in Germany, why well-known pathologists had refrained from attending, and why no discussion of the papers was to be permitted. It was obvious that the energetic General Secretary, Professor Meyer, had his work cut out if the Conference was to proceed peacefully. With tact these and other difficulties were smoothed over, and since the whole town was to be *en fête* on the next day, there was a hurry-scurry on the part of the English delegates to purchase white gloves and the other unexpected essentials to the full dress necessary to a midday function of official importance in Germany.

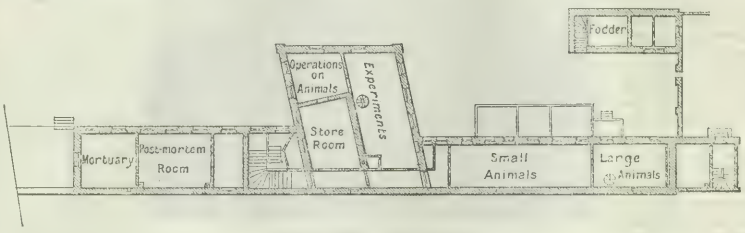


Samaritan House. First floor.

Opening Ceremony.

The opening ceremony proper was a ponderous and pompous affair, befitting to the presence of so many Royal and distinguished persons in the old town of Heidelberg. A pathetic interest was added to the event by the fact that Her Royal Highness the Grand Duchess of Baden is the only surviving child of the Emperor William I, whose family has been so cruelly stricken by cancer. The Presidents were Professors v. Leyden, Czerny, and Ehrlich, and the Honorary Presidents Dr. E. F. Bashford, Professor C. O. Jensen, Professor Metchnikoff, Professor Segond, and Professors Kirchner and Uhlenhuth. As President of the German Cancer Committee, Professor v. Leyden opened the proceedings by giving an historical sketch of the organized efforts to solve the cancer problem from the time of the foundation of the Middlesex Hospital Charity to the present day. His public declaration that both the Emperor and Empress Frederick died of cancer was somewhat startling to his audience, for in Germany this fact hitherto has been whispered about rather than openly stated. Professor Czerny followed with an account of the events leading up to the erection of the institute and a conveyance of thanks to the donors, who included Their Royal Highnesses the Grand Duke and Grand Duchess. After Professor Uhlenhuth had expressed the warm sentiments of the Reichskanzler and of the Reichsgesundheitsamt, Dr. Bashford conveyed the wish, on behalf of the Imperial Cancer Research Fund and of the Royal Colleges of Physicians and Surgeons responsible for the proper conduct of its investigations, that the work of the new institute might be crowned with success. He expressed the same wish on behalf of his colleagues Dr. Lazarus-Barlow of the Middlesex Hospital and of Mr. Jessett and others of the Cancer Hospital, and also of Dr. Bainbridge of the New York Cancer Hospital. Reminding his audience of the world-wide reputation of Professor v. Czerny, Dr. Bashford said it was not necessary for him to assure them that under Professor v. Czerny everything that could be done would be done to relieve those suffering from cancer. Dr. Bashford then drew attention to some outstanding points in the new institute. As one who had long advocated that progress could be expected only from experimental inquiry, he expressed his gratification at the ample provision made for such work under the able direction of Professors von Dungern and Wasielewski. It appeared to him to be of the greatest importance that collaboration with Professor Ehrlich's Institute in Frankfort was intended. Referring to the presence of so many distinguished representatives of cancer research in other countries, including those who had been pioneers in its later developments, Dr. Bashford said their presence there to-day was a further result of the work of the Committee for Cancer Research founded in Berlin in 1900 by Professor von Leyden, Professor

Kirchner, and Professor George Meyer. Mr. Balfour, when Prime Minister, had written to the Berlin Committee in November, 1903: "There is no subject which, from its importance to the cause of humanity, calls more loudly for international co-operation; and there is, perhaps, none in which co-operation is likely to be more useful." Dr. Bashford assured the audience that this opinion still obtained in England, and concluded by promising the support of the corporations he more particularly represented as well as the support of his colleagues, representing other institutions, to any effort that might be made to give more concrete expression to the necessity for international collaboration and intercourse. Professors Segond (Paris), Levschin (Moscow), and others followed. After the Grand Duke and Grand Duchess had received the delegates, the company separated to meet again at lunch as the guests of Professor Czerny.



Scientific section. Ground floor.

SCIENTIFIC PROCEEDINGS.

The scientific work of the Conference commenced in the afternoon, when papers were read by von Leyden, Czerny, Professor Goldman, Professor von Dungern, and others. Professors von Leyden and Czerny both preached from different standpoints the gospel that cancer was curable, but their utterances aroused little enthusiasm in an audience already fully informed in the clinical and pathological aspects of cancer in man, and the success of the opening meeting was an original and instructive communication by Professor Goldman of Freiburg on the Relations of Carcinoma to the Blood Vessels.

The scientific proceedings were resumed in Frankfort on Wednesday, under the Presidency of von Leyden, Professor Kirchner, and Dr. Bashford, when again the rivalry which had shown itself in Heidelberg led to Professor von Leyden calling on Professor Ehrlich for his paper, and Professor Ehrlich announcing that the Burgomaster of Frankfort wished to address the delegates. A similar incident happened again before Ehrlich gave a comprehensive and graphic account of the present position of the experimental study of cancer in mice. The paper was listened to attentively in a crowded meeting and was followed by a lantern demonstration by Ehrlich's collaborator, Dr. Apolant. As Ehrlich's work on mouse cancer was commented on in the BRITISH MEDICAL JOURNAL of September 29th, we need not discuss the paper in detail. There were other important papers on cancer in mice by Professor Spiess, Professor Henke and Dr. Haaland, and a valuable paper on the destructive growth and malignancy of tumours by Professor Lubarsch, whose appearance at the Conference was welcomed on all sides. The papers by Professors Henke and Lubarsch were the only communications made by pathologists in the stricter sense; the pathologists generally kept aloof from the meeting or came to go away when they found that discussion of papers was not allowed.

The attitude of the pathologists towards the Berlin Committee has in the past been rather that of captious critics. Whatever the shortcomings of the Berlin Committee may have been in its early days, it has stuck to the work it marked out for itself in the face of much opposition, and in the end it deserves no small share of the credit due to those who have dissipated the pessimism with which the investigation of cancer was regarded only a few years ago. The German pathologists, on the contrary, have indulged in destructive criticism without contributing anything of positive value to the new methods of cancer investigation.



Scientific section. First floor.

LUNCHEON.

Professor and Madame Ehrlich entertained a limited party to lunch on Wednesday afternoon, including Professors von Leyden, Czerny, Metchnikoff, Borrel, Jensen, Dr. E. F. Bashford, and Professor George Meyer and Graf von Hutton-Schapski. In the evening a successful banquet took place at which von Leyden, Czerny, Dr. Bashford, Professors Ehrlich, Kirchner, Schmidt, and others spoke.

FINAL SITTING.

At the final sitting on Thursday, an important chemical paper was read by Dr. Blumenthal, and Dr. Leonor Michaelis gave a lucid account of his experiments on immunity to cancer in mice as well as description of a transplantable carcinoma in the rat. Dr. Prinzing and Professor Doellinger contributed two valuable statistical papers.

Viewed as a whole, the congress was a great success. There was naturally some friction and some discontent, but Professor George Meyer is to be congratulated on the skill with which he carried through the business of the meetings. It was probably a wise step to refuse to permit discussion of the papers, considering their number and the shortness of the time available, and it was certainly wise to have limited the attendance to persons specially invited.

The success of the Conference as a scientific gathering was due to a large extent to the fact that social functions and excursions formed no part of the official programme, which was purely one of business.

On Wednesday afternoon the Conference adopted a resolution empowering a committee to take steps to give the Conference a permanent international character and to make arrangements for another meeting in two or three years' time. London was generally suggested as the next place of meeting, and if the experimental study of cancer advances as rapidly in the next three years as it has done in the past, and our experimental workers in England still remain in the forefront of progress, there seems no reason why an even more successful meeting should not then be held.

MEDICAL CO-OPERATION IN SPAIN.—A society has been formed in Madrid, under the title of *La Fraternidad Medica*, for the purchase and sale of medical and surgical appliances, dressings, disinfectants, books, etc., and for the promotion of institutions having a direct relation to hygiene, medicine, and surgery. The society may also aid in the development of co-operative societies which have as their sole object the promotion of the material interests of the medical profession. The capital of the society is 1,000,000 pesetas (£40,000), divided into shares of 25 pesetas (£1); only members of the medical profession can be shareholders. A part of the profits will be paid into the funds of the Madrid Colegio de Medicos, and another portion will be devoted to the establishment of a provident fund for the benefit of the medical practitioners who hold shares and their families.

LITERARY NOTES.

Messrs. Finch, Pooley and Co., Ltd., will shortly publish a work, entitled *Ulceration of the Cornea*, by Mr. Angus Macnab.

Marat was not, as Carlyle calls him, a "horse doctor," but had been received in a perfectly orthodox manner *in nostro docto corpore*. Several other members of the profession played more or less prominent parts in the Revolution. One of the strangest of these sinister figures was Belhomme, a physician who in 1787 established a private lunatic asylum among the vineyards on the slopes of Charonne. There he drove a thriving trade, having forty-six "paying guests" less than two years after his installation. Then came the Revolution, and with it came to Belhomme the happy thought of turning his establishment into a refuge for wealthy suspects under the disguise of a sanatorium. It is clear that he had a powerful backing among the men who then ruled France, for it was remarkable that while the agents of the public prosecutor every day found victims among the aristocrats imprisoned at Sainte Pélagie, the Madelonnettes, and the Abbaye, none of those who took shelter under the protecting wings of Belhomme was invited to appear before the dread tribunal. Moreover, he made such guests as could pay for the privilege of living under his roof very comfortable. It has been suggested that Belhomme owed his success in his curious business to connivance on the part of Fouquier-Tinville, who levied secret commissions on his receipts. The establishment was conducted on a strictly cash basis. Accounts had to be settled punctually every month in advance, and, if the money were not forthcoming, a new lodging was speedily found for the unfortunate "guest" in the Conciergerie or Sainte Pélagie. The Duchesse du Chatelet was treated in this summary fashion, and died on the scaffold a few days later. Belhomme's comment on the tragedy is reported to have been that it was the consequence of a shortsighted economy. Of Belhomme's charges a notion may be got from the following facts. The rent of a very small room was a thousand livres a month. One lady had to pay twice that sum in three weeks. Everything beyond the bare room was what lodging house keepers and schoolmasters call an extra, and Belhomme had numerous ingenious methods of extracting money from his victims in the shape of subscriptions for needy "citizens," etc. As he had two hundred "guests," his profits can easily be estimated. Notwithstanding his extortion, his house was always full, and he had in time to take another. They were not comfortable, for the accommodation was of the poorest, the food was bad, and the company was mixed, as the philanthropic proprietor retained some of his original patients, who mingled freely with the "guests." One fine day Belhomme had to bid a long farewell to all his greatness. His traffic was denounced, a visitation of his establishment was made, and he himself was arrested on a charge of *incivisme*. By a strange freak of fate he was placed under the care of a professional brother who kept a rival establishment, and whose charges were on the same scale as his own. Thence he was taken before the tribunal and condemned to be kept in irons for six years.

The war between the prescribers and the vendors of drugs was carried on with great vigour for centuries in this country, and, in addition to innumerable scurrilous pamphlets, gave rise to Garth's *Dispensary*. In France it was waged with still greater truculence, as may be seen in the letters of Gui Patin, who was a ruthless foe of the apothecary. Dr. Dorveaux, who belongs to medicine by his title, and to pharmacy by his official position, has lately unearthed some curious literature bearing on the quarrel between the *Facultas Saluberrima* and those whom it regarded as mere hewers of wood and carriers of water to the learned profession of physic. In 1901 he published a book entitled, *Déclaration des abuz et tromperies que font les apothicaires*, by Lisset Benancio (the pseudonym of Sébastien Colin), which first appeared at Tours in 1553. Quite recently he has issued a counterblast, entitled *Déclaration des abus et ignorances des Médecins*, by Pierre Braillier, which first saw the light at Lyons in 1558. This is written in such racy French that for a long time it was attributed to the celebrated potter, Bernard Palissy. This has, however, been proved to be an error. As a specimen of the reasoning of the champion of the apothecaries, the following passage may be given, with a warning to the reader that it would be unfair to judge of the style of the original by the baldness of the English version:

> I find a deep philosophy in the physicians of the present time who prescribe boiled water to their patients, saying that boiled water, by the ebullition of the fire, becomes more unctuous and loses its coldness and sparkle, which is false, unless it be drunk hot or tepid. It would thus lose its actual, but not its potential, sparkle, for when you have boiled it three days allow it to cool afterwards, and it will become once more as it was, and there will be no difference unless it be that it has gained some strange taste of smoke or some relish of the vessel in which it has been boiled.

To our dim vision the apothecary's argument does not, in the words of Mark Pattison, "defecate to a pure translucency." But it is satisfactory that in this instance, at least, time has vindicated the doctors.

To the *Bulletin of the Johns Hopkins Hospital* for September Dr. James J. Walsh, Professor of the History of Medicine and of Nervous Diseases in the Fordham University Medical School, New York, contributes a readable account of the Irish school of medicine. The beginning of our modern clinical medicine, he says, came when Morgagni at Bologna began to keep notes of his cases, and compared the clinical observations with the results of *post-mortem* examination. The next great step in advance was made by Auenbrugger in Vienna when he discovered the value of percussion. Not long afterwards came Laënnec and auscultation. But although he gave the profession his discovery so thoroughly worked out, as far as lung disease was concerned, that only a few additions have since been made to it, the secrets of the heart were, according to Dr. Walsh, left for the Irish school of medicine, represented by Graves, Stokes, and Corrigan. Robert Graves took the degree of Bachelor of Medicine at the University of Dublin in 1818. In the course of three or four *Wanderjahre* subsequently spent in London, Edinburgh, and on the Continent, he added largely to his knowledge. "Like practically all the great medical men," says Dr. Walsh, "who have proved to be original workers, Graves's interest was not confined alone to medicine. During his sojourn in Italy he became acquainted with Turner, the celebrated English landscape painter, and was his companion in many journeys." Graves himself, we are told, was possessed of no mean artistic powers. To his companionship with Turner, Graves doubtless owed a considerable part of his faculty of observation. He left his mark on many departments of medicine—fevers, diseases of the chest and intestine, and nervous disorders. Long before the day of the trained nurse he insisted on the all-importance of nursing in fevers; he forbade milk feeding in summer diarrhoea; he was a pioneer of the open-air treatment of tuberculosis; and, in his own words which form his epitaph, he "fed fevers." William Stokes introduced Laënnec's discovery to the medical profession of Great Britain, and powerfully urged that consumption was curable by plenteous feeding and long hours spent each day in the open air; and he was acknowledged as one of the foremost authorities on heart disease. Stokes wrote his book on the stethoscope when he was 21; Dominic Corrigan's famous paper on aortic heart disease was published when he was about 30. The most important lesson of the work of the Irish school of medicine is, says Dr. Walsh, that real advances in medical teaching and science are due much more to clinical observation, the actual careful study of patients, than to the application of theoretic supposed principles of science.

Messrs. Baillière, Tindall, and Cox have just published *Roentgen Rays in Medical Practice*, by Dr. Higham Cooper; *High-Frequency Currents*, by Dr. Evelyn Cook; *Enlargement of the Prostate*, by Mr. P. J. Freyer; *Syphilology and Venereal Disease*, by Dr. C. F. Marshall; *The Sigmoidascope*, by P. L. Mummery; *Enteric Fever*, by E. Roberts; *Minor Maladies*, by Dr. L. Williams; and *Handbook of the Hospital Corps of the United States Navy and Army*, by Dr. C. F. Mason. The same firm has issued new editions of Dr. A. B. Calder's *Questions and Answers on Midwifery for Midwives* (second); Dr. J. Lindsay's *Lectures on Diseases of the Lungs* (second); Mr. Moynihan's *Retroperitoneal Hernia* (second); Dr. Shaw Mackenzie's *Nature and Treatment of Cancer*; and Mr. W. Simon's *Manual of Chemistry* (eighth).

BRITISH MEDICAL BENEVOLENT FUND.

AT the September meeting of the Committee sixteen applications for help were considered, and sums amounting to £137 voted in relief. One case was passed over, and the following is an abstract of those which were assisted:

1. Widow, aged 58, of M.R.C.S.Irel., L.S.A.Dub., who practised in Staffordshire. Small capital available at husband's death has been spent on the education of children, who are at present barely self-supporting. Recommended by Dr. A. M. Edger, Honorary Local Secretary. Voted £10, in two instalments.

2. Daughter, aged 58, of late M.R.C.S., L.S.A., who practised in Derbyshire. Has been given a home in return for services by a relation recently deceased, but is now practically destitute. Health very feeble. Recommended by Mr. W. J. Cooper. Voted £12, in twelve instalments.

3. Daughter, aged 35, of late F.R.C.S.Eng., who practised in London. No income, and incapacitated by tuberculous disease of right shoulder joint. Relations only able to give very slight assistance. Recommended by Professor Howard Marsh, Vice-President. Voted £12, in two instalments.

4. Wife, aged 65, of M.D.Trin.Col.Dub., who had practised for twenty-five years in Ireland, but for the last seven years has been confined in an asylum. During this time applicant has earned her living as companion or housekeeper; at present receives a home in a boarding-house in exchange for services, but is obliged to leave on account of her age. No income. Recommended by Dr. H. Macnaughton-Jones. Voted £12, in twelve instalments.

5. Daughter, aged 60, of late M.R.C.S., L.S.A., who practised in Staffordshire. Maintained herself for twenty years by teaching, and was then a matron at an institution, but was obliged to give up the post on account of indifferent health. No income. Recommended by Miss Cumming. Voted £5 in one sum.

6. L.R.C.P., L.R.C.S.Edin., aged 49. Has practised in a small town in Scotland for fifteen years, but is now almost incapacitated by spastic paralysis. Relieved twice, £24. Recommended by Dr. G. S. Middleton. Voted £12, in twelve instalments.

7. Widow, aged 52, of M.R.C.S., L.S.A., who practised in a London suburb for thirty years, but whose means were exhausted by a long illness before death. No income; five children, two dependent, the others barely self-supporting. Applicant endeavours to maintain herself by taking boarders. Relieved twice, £20. Recommended by Sir Anderson Critchett, Vice-President. Voted £10, in ten instalments.

8. Daughter, aged 60, of late M.R.C.S., L.S.A., who practised for many years in Essex. Used to keep a school, but was obliged to give it up after the opening of a high school, and has since found great difficulty in supporting herself. No income; indifferent health. Relieved once, £10. Recommended by Dr. J. H. Galton. Voted £10, in ten instalments.

9. Widow, aged 31, of M.B., C.M.Glasg., who practised in County Durham. Two children, aged 10 and 9, both at institutions. Income less than £20 a year; health at present too delicate for regular work, and applicant is being temporarily housed by a relation. Relieved twice, £15. Recommended by Dr. J. Elliott. Voted £5.

10. L.R.C.P.Edin., M.R.C.S.Eng., aged 58. Practises in the south-west of London, but earnings are very small owing to competition and indifferent health following an attack of hemiplegia. Seven children, aged 20 to 3, of ly the eldest being self-supporting. Relieved three times, £22. Recommended by Mr. Hugh Ker. Voted £5.

11. Daughter, aged 59, of late M.R.C.S., L.S.A., who practised in London. No income; has maintained herself by nursing, but is now quite incapacitated after rheumatic fever and is dependent on a niece who keeps lodgings to support a phthisical brother. Relieved three times, £27. Recommended by Dr. R. J. Reid. Voted £10, in two instalments.

12. Daughter, aged 31, of late M.R.C.S., L.S.A., who practised in Yorkshire. Has done some nursing, but during the last two years has undergone three or four operations and at present is quite incapacitated from earning her own living. Slight help from the relations and the "Gentlefolks Aid Society." Relieved twice, £17. Recommended by Dr. Hyla Greves. Voted £12, in twelve instalments.

13. Widow, aged 52, of L.R.C.P., Ireland, M.R.C.S.Eng., who practised in Liverpool. No income; no children; endeavours to support herself by nursing, but earnings insufficient for maintenance. Relieved four times, £20. Recommended by Dr. J. Bligh. Voted £5.

14. Daughters, aged 42 and 34, of late L.S.A., who practised in Essex. Both incapable of earning a living on account of physical infirmities and dependent on a mother whose only income is a small pension. Relieved twice, £24. Recommended by Dr. R. T. Nicholls. Voted £12, in twelve instalments.

15. Widow, aged 65, of F.R.C.S.Eng. Supported herself for many years by keeping a small shop, but is now unable to work and is entirely dependent on an annuity from this fund. Voted £5 as a special grant on account of ill-health.

Nova et Vetera.

BARBOUR-SURGEONS OF SANDWICH.

WE have received the following communication from Dr. E. P. Dickin of Brightlingsea:

When recently examining the records of the Cinque Port of Sandwich my attention was drawn to an entry for 1482 in *The Old Black Book* relating to the incorporation of the barber surgeons and the wax-chandlers of Sandwich. The entry is in the old courthand containing many abbreviations, which I have extended in the transcription given below. A few words which are missing are added in square brackets; explanatory words are in ordinary brackets.

Memorandum quod die Jouis xx post ffestum Scanti Andreae Apostoli Anno supradicto (Thursday the twentieth of December A.D. 1482).

Also the same day It is graunted by the Maior Juratts and the Comons that the Barbours Surgeons and Waxchandelers which be or shalbe in the Town of Sandwich and ther Successours shalbe on body on Crafte on name And of on corporacion And that they to haue power yerly to chose them two wardeyns of the said Crafte And that the said Wardeyns haue ther perpetuell Succession and that they to be callid and namyd by the names of wardeyns of Barbours of Sandwich and by that name to implede and be impleded in any court for ther anser and matter And that the said wardeyns and their successours haue power to make ordeyn and stablisshe fro tyme to tyme for the goode rule and gouvernaunce of the said craft siche ordenaunce prouision and Statuts as to them for ther said crafte be necessary so they be not ayenst nor repugnaunt ayenst the the liberties ordenaunces and statuts of the said town of Sandwich And also that the said wardeynes haue power to serche and ouerse the waxchandelers in especiall thre tymes in the yere that is to sey ayenst the ffest of the purificacon of our [Virgin] ayenst the ffest of Esterne And ayenst the ffest of Seynt John Baptist that ther Wax and other Stuff be good as it aught to be and alleys to forfet suche wax & stuff and put them to fyne by the aduyse and oversight of the meir (mayor) the meite (moiety) of siche forfet and fyne to use of the towne and the other moete to the use of the craft And also that they have power to correct eny persone of the craft doyng or offendyng ayenst any of ther ordenaunces prouisions or statuts to be made & ordeyned And that the seid wardeyns and ther successours be persons abyll in the law to purchas louder tenements possessiones rents and seruice to value of v£ by yere for the relief and sustentacion of fibyll & poer men of the said craft And that none persone alien herafter occupy the said craft within the said town as a maister kepyng a shop by himself nor none alien shall be prentise within the said town to the same craft And that noman which is freinde of Sandwich shall shaue make wax use Surgery nor non other thyng do perteyning to the seid crafte within any mannys house resident in the same town nor no resident shall maynten any siche in his house but only for hym and his housbold in peyne of forfetour of iii^li^ iiii^li^ the on half to the crafte and the other half to the town And if any of the said craft herafter make defance ayenst any of the premisses or any other to be ordeyned by the said cr[aft] refuse to abide the correcion of their wardeyns that suche persone or persones for[fet] xl^li^ the on half to the town and the other half to the use and profite of the said crafte and also losyng his ffredom of the said Town prouydid allbey that if the wardens of the said crafte for the tyme beyng and their successours will put any persone of the said craft to any excesse fyne ponysshement or forfetour for any defance done or to be contrary ther ordenaunces then the seid wardeyns therunto be rulid by the meir and Juratts And that the wardeyns of the seid craft haue this graunte in writyng under our common sele sufficiently to be made to the entent of this oure graunte.

SCHOLARSHIP AWARDS AT THE MEDICAL SCHOOLS.

KING'S COLLEGE HOSPITAL.—The entrance scholarships in connexion with the medical school of this hospital have been awarded as follows: The *Sambrooke Scholarship in Science*, of the value of £100, to V. E. Argus; the *University Scholarship* of £50 to N. Prescott; and the *Warneford Scholarship in Arts* to C. H. Attenborough. The successful candidates at the end of the summer session were, for the *Rabbeth Scholarship* was S. Ritson; for the *Second Year Scholarship*, S. Hoyte; and for the *Third Year Scholarship*, B. Hughes.

UNIVERSITY COLLEGE HOSPITAL.—The following awards of entrance scholarships in connexion with the Faculty of Medicine at University College have been made: The *Bucknill Scholarship* (value 135 guineas) has been won

by W. C. Fowler of Dulwich School, and two exhibitions, each of the value of 55 guineas, by D. J. Jones of Charterhouse, and A. C. S. Courts of University College School respectively. Of the two *University Exhibitions* of 80 guineas each, one has been awarded to T. R. Elliott of Trinity College, Cambridge, and the other divided between E. K. Martin of University College, and H. C. R. Darling of Otago University, New Zealand. At the end of the summer session the two *Atkinson Morley Scholarships* were awarded to H. E. Dyson and O. May respectively, and the Filliter Exhibition divided between E. M. Cowell and T. S. Higgins.

LONDON SCHOOL OF TROPICAL MEDICINE.

On Monday, October 8th, the introductory address of the Winter Session of the London School of Tropical Medicine was delivered by Colonel Kenneth Macleod, I.M.S., Honorary Physician to the King. The chair was taken by Sir Francis Lovell, in the absence of the Duke of Marlborough, who was unavoidably prevented from presiding. Among those present were Sir Frederick Young, Sir Patrick Manson, Professor R. Blanchard of Paris, Professor Howard Marsh, Dr. Paul Joly of the French Ministry of Marine, and Professor Simpson. The address is published at p 901 of this week's issue. A vote of thanks to Colonel Macleod was moved by Mr. Edmund Owen, who complimented the School on its sound financial position as compared with other schools of medicine in London. The vote was seconded by Sir Frederick Young, a member of the Board. A vote of thanks to the Chairman, moved by Sir George Denton, and seconded by Fleet Surgeon Bassett Smith, concluded the proceedings.

The total number of students who have entered for the present session is forty. Of these eleven belong to the Colonial Service; three to the Indian Medical Service, and one to the United States Army. Six are missionaries, and nineteen are private students. There are four students from the United States; others are from Amsterdam, Athens, Havana, Rome, Sydney, Guatemala, and Helsingfors. Three of the students are women.

MEDICAL NEWS.

The annual dinner of the Association of Public Vaccinators in England and Wales will be held at the Hotel Cecil, London, on Friday, October 26th, at 6.30 p.m.

The opening address at the Royal Eye Hospital (Royal South London Ophthalmic Hospital), St. George's Circus, Southwark, where courses of instruction in ophthalmology are given, will be given by Professor McHardy on Monday, October 15th, at 8 p.m.

Dr. James Macpherson Lawrie, of Weymouth, has appointed Deputy-Lieutenant for the county of Dorsetshire. Dr. Lawrie is a magistrate for Dorset, chairman of the Weymouth County Bench, and a member of the Dorset County Council.

The Association of Women Pharmacists now has a membership of about 75, all fully-qualified chemists. Mdlle. Talon has just obtained the degree of Doctor of Pharmacy at Paris; she is the first lady who has achieved the distinction.

The authorities of the Victoria University, Manchester, have received a sum of £5,000 from the trustees appointed under the will of the late Miss Middleton, and have allocated this amount towards the endowment of the Chair of Anatomy.

Royal London Ophthalmic Hospital.—A special donation of £1,000 has been received by the Royal London Ophthalmic Hospital (Moorfields Eye Hospital) from Mr. Henry Veasey, F.R.C.S., for the perpetual endowment of a bed.

National Dental Hospital and College.—The annual dinner of the past and present students will be held at the Trocadero Restaurant, on Friday, November 23rd. The chair will be taken by Mr. Henry Morris, President of the Royal College of Surgeons of England.

Medico-Psychological Association.—The autumn meeting of the South-Eastern Division will be held at the Bethel Hospital, Norwich, on Wednesday, October 17th. The hospital and grounds will be open to inspection. Dr. Fielding will entertain the members at luncheon. Dr. James Fielding will read a paper entitled a Short History of the Bethel Hospital, and Dr. Samuel J. Barton will give an account of an epidemic of sore throat at the Bethel Hospital. The members will dine together, after the meeting, at the Royal Hotel, Norwich, at 6.30 p.m.

Spectacles for School Children.—We learn from the *Schoolmaster* that the Torquay education authority has decided, subject to the approval of the Board of Education and the Local Government Board, to employ a surgeon, at a cost of £60 per annum, to attend to the eyesight of children in attendance at the elementary schools of the town. Whatever spectacles are required for the children will be provided from a voluntary fund. It is stated by a member of the authority that of the 3,500 children who have been subjected to a casual examination no fewer than 690 are suffering more or less from defective eyesight.

Medical Sickness and Accident Society.—The usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on 28th ultimo. There were present: Dr. de Havilland Hall, in the chair; Dr. J. Pickett, Mr. William Thomas (Birmingham), Dr. St. Clair B. Shadwell, Dr. M. G. Biggs, Mr. H. P. Symonds (Oxford), Dr. F. S. Palmer, Dr. J. Brindley James, Dr. J. W. Hunt, Mr. Edward Bartlett, Dr. W. Knowsley Sibley, and Dr. J. B. Ball. The accounts presented showed that during the summer months the payments on account of sickness claims had been, as usual, well under the expectation, and had more than balanced the large disbursements caused by the heavy sickness experience of the early part of the year. The Committee examined the list of current sickness claims, and found it on the whole satisfactory. One or two additions have been made this year to the list of the permanently incapacitated, but for the most part the claims received have been of short duration. In too many instances the claim has been cut short by the death of the member, but the Society has now been in operation for nearly a quarter of a century, and many of those who joined it in the early years of its working have attained an age which makes a heavy mortality-rate certain. One member attained the age of 65 years while on the sickness list, and received the recently arranged bonus of forty guineas. The number of new members has been somewhat less than in last year, when the largest number on record entered the Society; but a gratifying feature of the new business is the increasing number of dental surgeons who are joining. The fact that all the benefits of the Society could be obtained by members of this branch of the profession seems to have been only partially known. Those dentists who have joined form a very satisfactory group, and it is hoped that their number will now rapidly grow. Prospectuses and all further particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

A New Liner for South American Service.—On October 6th, the Royal Mail Steam Packet Company took a large party of journalists and others for a short cruise down Southampton Water and off the Isle of Wight on the ss. *Acaraguaya*, the latest addition to their fleet and the largest vessel in the company's service. The *Acaraguaya* is a twin-screw steamer of 10,537 tons, and was built by Messrs. Workman, Clark and Co., Limited, of Belfast. The principal dimensions of the vessel are: length 535 ft., breadth 61 ft. 3 in., and depth 34 ft. The engines are of the quadruple expansion type, a noticeable feature of their running being the complete absence of vibration. She is destined for the South American Mail Service. Accommodation is provided for 300 first saloon and 100 second saloon passengers. Provision is also made for a large number of third-class passengers. The comfort of first and second saloon passengers is well provided for, while the *cabines de luxe* on the bridge deck are most luxuriantly fitted. The sanitary arrangements are excellent and numerous bathrooms are provided for both male and female passengers. The lighting is good, as is also the ventilation; the atmosphere is renewed by means of twenty-two large fans, the impure air being carried away by an exhaust. The hospital, which is situated on a deck by itself in the after-part of the ship, consists of about half-a-dozen cabins each containing four bunks. It is self-contained as regards bathroom and lavatory accommodation and thus can be completely isolated should any cases of an infectious nature require treatment on board. The saloons, smoking rooms, etc., are beautifully decorated and furnished, and all the fittings are equal, and in many respects superior, to those found in a first-class hotel on land. The *Acaraguaya* leaves Southampton on Friday, October 12th, on her maiden voyage to South America.

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SATURDAY, OCTOBER 13TH, 1906.

THE CANCER CONFERENCE.

It was a happy thought to make the opening of the New Cancer Institute at Heidelberg the occasion of calling in conference those who have taken an active part in the new crusade against cancer. The scheme owes its initiation and its successful accomplishment largely to the energy and enthusiasm of Professor von Czerny, who not only contributed generously himself but stimulated the liberality of others. The erection of the Institute is also the first outward and visible recognition of the fact that those who have been pioneers in developing the experimental and comparative study of cancer have not laboured in vain. The advances in our knowledge of cancer and in the method of investigation during the past few years have been such as to justify the aspirations and the hopefulness with which Professor von Czerny set about endowing and equipping the best cancer hospital and the finest cancer research laboratories in the world.

Two facts are frankly acknowledged in the arrangement of the buildings and in the scheme for their utilization. On the one hand, since the sole hope for the sufferer from cancer lies in early surgical operations, the hospital will receive only operable cases, and will not become an asylum for sufferers past all surgery. On the other hand, in the research work proper, it is fully recognized that the study of the disease in animals will occupy the first place. We cannot but admire the breadth of mind which permits the *post-mortem* examination of human and animal subjects in adjacent rooms, and the other arrangements which tend to harmonize the standpoints of the surgical and scientific staffs, and at the same time to diminish the risk of narrowness of interest in the conduct of the work, whether clinical or experimental.

At Heidelberg there was much common ground for a meeting between those familiar with cancer in its surgical, medical, pathological, and experimental aspects, and there were many good reasons for the representatives of different schools of inquiry recognizing how mutually dependent they were on one another, as Professor von Czerny conducted them through the buildings.

The Conference itself was a decided success, not because of any startling discovery, but rather because the time was ripe for close personal intercourse between those engaged in experimental research in different countries, and because care had been taken in issuing invitations.

The Conference has proved that the experimental study of the disease in animals is based on solid foundations. Cancer in mice is comparable with cancer in man. The lesions of cancer can be reproduced experimentally, and mice can be rendered insusceptible to inoculation. The preponderance of interesting papers of an experimental character, as distinct from others dealing solely with the pathological anatomy and the clinical aspects of cancer, was the chief feature of the meeting. Indeed, the small number of German pathologists who took part in the proceedings appeared inexplicable to those unaware of the scepticism with which the experimental study of cancer in animals has been regarded by human pathologists in Germany. By an attitude similar to that adopted towards the early discoveries of bacteriology—even towards the discovery of the diphtheria bacillus, the tubercle bacillus, and diphtheria antitoxin—and resulting in the separation of bacteriologists as such into a more or less independent body, they have helped to bring about a further separation of investigators who devote themselves wholly to cancer. General pathologists have now to acknowledge that they have been left behind in the race, and it is not altogether surprising, therefore, that they held aloof from the Conference.

All the more credit is due to those who have pushed forward along the new lines in the face of much opposition in Germany. To Professor von Leyden, Professor Kirchner, and Professor George Meyer belongs the credit of having formed, in 1900, the first Special Cancer Committee with an international basis. Out of this Committee has naturally developed the first International Cancer Conference. Even if the earlier work of the Committee was open to a good deal of adverse criticism, owing to its being directed too exclusively to securing proof of the direct conveyance of cancer from patient to patient by infection, to them remains the credit of initiating much useful work, and they have not fallen behind in encouraging experimental studies along more fruitful lines.

At Frankfort probably the last was heard of the discussion as to whether the inoculation of mice with cancer is comparable to infection, practical unanimity being reached in the conclusion that the process is in no sense comparable to infection. The papers covered the whole field of the experimental study of cancer in mice along lines with which the publications of the Cancer Research Fund have made the profession familiar. Neither Dr. Bashford nor Professor Jensen presented communications to the Congress. As Honorary Presidents they were content to note that all they had worked for was accepted by later workers, and, if somewhat tardily, Jensen has at last been universally acknowledged to be the father of the modern experimental study of cancer. We in this country have every reason to be proud of the important part the Cancer Research Fund has played in contributing to that development of the experimental study of cancer which has made the first International Cancer Conference a success. Steps have been taken to give the organization of the Conference a permanent character, and it has been suggested that another meeting should take place on the same lines in two or three years' time, London being suggested as the next place of meeting.

UNIVERSITIES AND MEDICAL EDUCATION.

In his able, scholarly and eloquent address at the opening of the Leeds Medical School, Sir James Crichton-Browne dwelt on some points of importance in words which deserve the widest hearing. Of two of these we would briefly make mention.

The first concerns the manifest failure of governing bodies and the public generally in our own country to appreciate the importance to the future welfare of any country of encouraging and endowing universities as centres of scientific research and technical education. The public mind, indeed, is only now awakening to the fact that to endow science is not to make a gift but an exceedingly lucrative investment, and that the

parsimony of the past has done much to impede England's commerce and impair her health. As an illustration of the first Sir James Crichton-Browne instanced the discovery of the first dye-stuff extracted from coal tar by an Englishman, Sir William Perkin, and the subsequent defection of the whole manufacture of the dyes, perfumes, and drugs to which the discovery led up, to Germany; and this notwithstanding our possession of the raw material, the labour, and the capital required. This loss of a trade, which is said to be worth some fifty millions a year to Germany, was attributed by the deliverer of the address, and doubtless rightly, to our lack of technical knowledge and insight.

It is difficult, indeed, to believe that there is any such marked intrinsic difference in the characters of the two peoples as to account for the undoubted difference in the attitudes of the two Governments to scientific endeavour. In the same way with regard to medicine, there has been in the past an almost total blindness to the public gain accruing from the liberal support of medical institutions, and we hope that the words of Sir James Crichton-Browne will be duly weighed in the proper quarters, when he said that "if medical education in this country is to be kept at a level with that in Germany, if it is to supply the people with a body of thoroughly efficient medical practitioners, and is to lead to fruitful research and to improvement in the healing art, it must be assisted either from the State chest or by overflow from plethoric private coffers."

A university, however, is not only a centre for the advancement and dissemination of learning; it is also, and perhaps first and foremost, a place for the training of character. And this leads us to the second point of the address to which we wish to allude. This formation of character, which Ruskin was never weary of proclaiming should be the true aim of education and the grave concern of the State, is, notwithstanding any arguments to the contrary, largely influenced by the environment of the student, and it is quite possible that the medical student in particular, immersed as he is in the study of man as a mechanism, may become almost unconsciously imbued with the views of materialistic philosophies. How far this actually occurs it is, of course, impossible to estimate; but probably most will agree with Sir James Crichton-Browne in thinking that the tendency of medical study is beyond all others materialistic. "The intense concentration of attention on somatic structure and on the minutiae of tissue changes" to which he refers is undoubtedly and of necessity apt for a time to divert interest from other and deeper issues. Notwithstanding this we cannot entirely endorse the statement that the unmaterialistic physiologist would be regarded from the point of view of physiological competency as an idiot.

The wave of materialism which swept over scientific schools in the latter half of last century seems to have spent itself, and certainly materialistic monism, as represented by Haeckel, has already passed amongst most thinking men into obsolescence. In his vehement defence of vitalism as opposed to the point of view from which man is regarded as a "motor car, self-made and self-started, with no passengers and no chauffeur, moved by a series of explosions or redistributions of energy, and rushing on to inevitable destruction," the speaker used the term "physiology" as including "the sum of scientific knowledge concerning living beings." This, however, is a considerably extended definition of the sphere of physiology, whose frontiers are much more closely delimited. Surely to-day it would be accepted, even by physiologists, that it is no part of science to push its assumptions beyond the point at which they are practically valid, and it would, we imagine, be generally conceded by scientific men that the hypotheses of physical science are not of absolute, but only of relative, worth. The atomic theory, for example, on which so many sciences have built enduring edifices, is admitted to be, when pushed from the realm of physics into that of metaphysics, self-contradictory. Similarly, as so ably shown by Sir James Crichton-Browne, any physiologist who should maintain that life was nothing but "a fortuitous assemblage of "blending and contending physical and chemical forces" would be exceeding the bounds of his inquiry, and in truth affords a manifestation of arrogant presumption.

As we have already said, we do not know how far physiologists as a body take up the dogmatic attitude assailed so warmly, and, if we may say so without offence, so justifiably, by the speaker; but speaking of science in general the whole trend of recent physical investigations appears to us to be away from rather than towards any such mechanistic view of life, matter itself having become etherealized out of existence altogether so far as its ultimate reality is concerned; becoming, in fact, a mere phenomenal appearance, a temporary manifestation of a great underlying non-material reality.

Turning from this to the question of the origin of organic nature, Sir James Crichton-Browne quoted Lord Kelvin's statement that "nothing approaching to the "cell of a living creature has ever yet been made" in support of his contention that an impassable gulf lies between the organic and the inorganic worlds. In fairness, however, it must be stated that the fact that it has never yet been satisfactorily demonstrated that living matter can be produced in the laboratory from inorganic elements constitutes no proof that in the past, under different conditions, the organic may not have been evolved from the inorganic, or that in the future what has so far been unsuccessfully essayed may not yet be accomplished.

It is indeed a little difficult to understand why the suggested possibility of such a mode of evolution should arouse so many dissentient voices, for even then, as Sir James Crichton-Browne points out, a directive force is still necessitated; "behind the synthesis is the synthesizer, and it is the "vital intelligence and creative free will of man that "has brought the elements together in proper proportions and under suitable conditions." It is, however, in individuality that he finds his last conclusive argument against materialism. "An individual organism is "not a community, but something higher and stronger "than the elements of which it is composed, something "has been added, and that is, individuality or identity." By individuality and identity he here means personality, a conscious and spiritual individuality, the ultimate end and aim of evolution, whose self-consciousness of individuality is inexplicable under any materialistic hypothesis.

The whole question is, of course, one susceptible of sustained argument on both sides, and it is doubtful whether any two men are in entire agreement over the whole field of this controversy, which necessarily involves the supremely important question of free will. We are, however, in entire sympathy with the distinguished reader of this memorable address in exhorting his hearers to cleave to a faith in a principle, call it what you will, immanent in all life, which transcends immeasurably the bundle of muscle and nerve we examine in the dissecting-room, and to avoid as the very spirit of evil a conception of life according to which "the "earth seems to me a sterile promontory; this most

"excellent canopy, the air, look you, this brave o'erhang-
"ing firmament, this majestical roof fretted with golden
"fire—why, it appears no other thing to me than a foul
"and pestilent congregation of vapours."

PATENT MEDICINES AND PROFESSIONAL INCOMES.

SOME observations relative to the drop in average professional incomes during the last few years, and to the effect of the subsidence of the influenza cycle, made recently in the JOURNAL, have attracted a certain amount of lay attention, and, being linked with some views expressed on a distantly-related topic in a contemporary, have led to a curious deliverance in a daily paper.

Its main point is the value of patent medicines, and though the beliefs expressed are neither held by authorities in general nor commonly advocated by the more serious portion of the daily press, they are sufficiently current to be worth at least passing consideration. In this instance they are hung on to what is really quite an attractive example of a fallacy in logic. The remarks in the journal referred to are represented as definite statements that trade has been too bad for people to spend their money on doctors, and that there has been less illness; and these are taken by the writer as good ground for a deduction that the less people consult doctors the better they are. It is a trifling matter, perhaps, but in point of fact no such statement as the former was ever made in these columns, and even if it had been, the spending of money on doctors is unfortunately not synonymous with consulting them. The real interest of the article, however, lies elsewhere.

Out of the result of his somewhat unhappy essay in logic the writer evolves both a further conundrum and an answer to the question why medical men find their incomes have dropped. During the last two financial years the public has spent two and three quarter million pounds sterling on patent medicines, and this at once explains to his mind both the drop in professional incomes and why people are none the worse for not consulting doctors. Instead of spending their money on doctors they pay it to patent medicine vendors, and this is quite unobjectionable, because the trade in patent medicines so far from deserving the term "nefarious," which appears to have been assigned to it by a contemporary, is really of great public utility. On the first question the mere *ipse dixit* of so confident a writer is doubtless quite sufficient for the "general reader." At any rate, no proof of the connexion between the increase in the amount spent on patent medicines and the drop in professional incomes is vouchsafed.

Plenty of reasons, however, are brought forward for regarding the increase in the consumption of patent medicines as desirable, and this is somewhat unfortunate, since they are of such a character as to cause some hesitation in accepting a conclusion which otherwise we might accept with becoming humility. People, for instance, who have any real acquaintance with medicine will find it difficult to accept the proposition that unless a doctor has known a patient's constitution from childhood all he can do is to make a mere guess at what is the matter with him; nor is the assertion that many zymotic diseases follow much the same course, barring complications, convincing proof of the readiness with which they may be efficiently treated. Moreover, the suggestion that going to a doctor and buying a bottle of patent medicine at the nearest store are much the same thing in the long run, because in either case the drugs eventually swallowed will in all probability be the same, rests on a false assumption.

The most dangerous doctrine, however, is one on the lines of the foolish old proverb to the effect that at the age of 40 there is no choice between being either a fool or a physician. The view urged is that all adults should be prepared to treat their own trifling ailments in the light of the instructions on any bottle of patent medicine which takes their fancy. It is certainly true that some amount of progress should have been made by every one of the age of 40 in the science of keeping well, but any further conclusion in this direction, such as that indicated, is vitiated by the fact that it is practically impossible for unskilled persons to be sure of the import of any symptom of departure from good health of which they may be conscious. In no connexion is the old proverb, "A stitch in time saves nine," more true than in relation to disease, and a vast number of persons suffering from what they regard as trifling ailments would, by taking skilled medical advice early if seldom, avoid having eventually to do so frequently and almost too late.

For the rest, there are patent medicines and patent medicines, and if the public in its endeavour to avoid constipation is pleased to buy its pills or other remedies in a box or bottle sealed with a Government stamp and at an enhanced price, rather than get a carefully-considered prescription made up by a chemist, no serious objection need be raised. It is far otherwise, however, with the vast majority of patent medicines, which are bought mainly on the strength of lying statements as to their virtues and applicability to almost every physical ill to which the flesh is heir. Several comparatively recent cases in the law courts show that these terms are in nowise too strong, and it has also been proved beyond doubt that large numbers of alleged cure alls are really compounded of practically valueless ingredients sold at prices which, compared with their cost, are extortionate in the extreme. To such trade it appears to us the term "nefarious" may quite well be applied, and it is regrettable that Government should lend it its countenance, and even promote the growth of the trade by causing patent medicines to have affixed a stamp which some persons regard as an official assurance of the virtues of what they buy.

In any case, it is satisfactory to know that a movement against quackery and the patent medicine trade is in progress, and a promising point about it is that it is being promoted, especially in America and on the Continent, by persons having no connexion whatever with the medical profession. The latter, in our opinion, so far as its own pocket is concerned, can, and does, regard the matter almost with indifference; for taking things all round the immense sum spent by the British public on the purchase of patent medicines, though it may do something to diminish the spending power of the people, can hardly be regarded as entitled to a place amongst the causes which at the present moment are tending to reduce the incomes of medical men. It may be conceded, however, that it does tend somewhat to diminish the attractions of the practice of medicine, since it brings so many of the patent medicine drinking public into the hands of the regular practitioner at a stage when their cases are less curable and, therefore, less satisfactory to deal with than they would have been had they come under skilled attention at an earlier period.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

Attention has already on several occasions been drawn in these pages to the application of the Metropolitan Hospital Sunday Fund for a Royal Charter, and some of the objections to granting such a charter to this body, which is one of three organizations of a similar character existing in the metropolis, have been set forth. We publish this week in the Supplement (page 211) a memorandum submitted on behalf of the Metropolitan Counties Branch of the British Medical Association to the Lord President of the Council. The memorandum, after showing that the Fund, owing to the large amount of the sum which it divides annually among them, exercises an important influence upon the administration of London hospitals, points out that the constitution of the Fund fails to provide for any adequate representation of medical practitioners on its council or Committee of Distribution, and then in eight highly condensed paragraphs summarises the abuses and defects in administration which diminished the usefulness of hospitals in London and at the same time unfairly handicap the general members of the profession practising in the metropolis. In the Supplement of August 11th, p. 156, was published a communication which the Chairman of Council of the Association had addressed to the Privy Council with regard to this matter. In that letter the Chairman of Council alluded to the reasons which precluded the Association as a body from making any duly authorized representations until the opportunity should have occurred of bringing the matter before the Central Council, and the subject, we understand, is now under consideration by the Hospitals Committee of the Association, which will report thereon to the Council in due course. Inasmuch, however, as the proposals of the Hospital Sunday Fund directly concern London only, it will be recognized that the Metropolitan Counties Branch has special claims to be heard separately in the matter; and we venture to hope that the valuable memorandum now presented will be most carefully and sympathetically considered by the Privy Council.

TROPICAL MEDICINE AND POST-GRADUATE STUDY.

The Winter Session at the London School of Tropical Medicine was formally inaugurated on Monday last, when the suggestive address on the study of tropical disease, printed in full at p. 901 of this issue, was delivered by Colonel Macleod, I.M.S. The same ceremony served likewise for what may be regarded as a daughter institution, the London School of Clinical Medicine, and in the evening the friends of the two schools, together with many persons distinguished in connexion with modern research and in other ways, dined together at the Hotel Cecil. The chair, in the unexpected absence of the Duke of Marlborough, a strong supporter of the older institution, was taken by Sir William Hood Treacher, whose interest in tropical disease is born of long residence in the East, and who from his official connexion with the Malay States was early able to afford the organized study of tropical diseases very material assistance. He had on his right the orator of the day, Colonel Macleod, and on his left Professor R. Blanchard of Paris. As chairman, Sir W. Treacher himself proposed the joint toast to the schools, and in his speech alluded briefly to the practical experience which had led him at once to recognize the great value of schools of tropical medicine might have for the Colonies and for the nation at large; he mentioned, too, that the London School had already equipped over six hundred medical men with the special knowledge required and did not forget to pay a due meed of praise to the Right Hon. Joseph Chamberlain, without whose influence the scheme for the foundation of a school might have been stillborn. He was answered by Sir Patrick Manson on behalf of the senior institution and by Sir Dyce Duckworth for the clinical school. The former noted with satisfaction the change which had taken place in professional opinion and the educational and practical value now attached to the study of tropical disorders, and the sympathy and assistance now freely extended to those engaged in it. He also discussed briefly the additions to existing knowledge made since last year by students of the school in connexion with guinea-worm disease, yaws, fevers in Ceylon, and general parasitology. Professor W. J. Simpson, in proposing a toast to the orator of the day made special allusion to the valuable part Colonel Macleod had played during his long editorship of the *Indian Medical Gazette*, finally beating down the misleading theory of windborne cholera, and succeeding in getting the modern conception of the etiology of the disease accepted in official and other Indian circles. The toast to the visitors was proposed by Sir William Bennett, and acknowledged by Inspector-General H. M. Ellis, Medical Director-General, R.N., and Surgeon-General A. M. Branfoot, President of the Medical Board of the India Office, both of whom spoke of the great importance to their respective services of progress in knowledge of tropical diseases, and bore strong testimony to the value of the work which the London school is performing. They were followed by Professor Blanchard, who, speaking in French, paid a very striking tribute to the school. Lectures on tropical diseases had, he said, always formed part of the curriculum in France laid down in the Government schools for naval and colonial medical officers, but it was to the example of the London School of Tropical Medicine that the foundation of the corresponding institution in France was due. In France, and abroad generally, the conspicuous feature of scientific medicine in England now was what had been done and was being done by Englishmen in connexion with tropical disease, and it was the School of Tropical Medicine which at present more than anything else tempted those abroad to cross the channel. In giving a short account of the Paris school which France owes greatly to the energy of Professor Blanchard himself, it was mentioned as a curious fact that of the hundred and one students who have so far received a special diploma almost exactly one-half were foreigners. The authorities of French colonies, Professor Blanchard added, were now recognizing what an advantage it was to have their medical officers specially trained in tropical medicine, and several Governors were taking steps to secure this result. Finally, he made an allusion to the London School of Clinical Medicine in terms which, accustomed as we are to regard Paris if not as a Mecca, at least as one of the most satisfactory places of resort for the post-graduate student, are decidedly gratifying. In Paris, he said, they had long been dissatisfied with the facilities at disposal for clinical teaching suitable to qualified men, and for the last two years at least had been definitely discussing what should be done but had taken no actual step. In the London School of Clinical Medicine, however, Paris might find a clue to the problem and for a second time something desirable to imitate.

THE POSTAL MEDICAL SERVICE.

The War Office has long enjoyed a reputation for having a soul decidedly not above buttons, and there are indications that the present Postmaster-General, Mr. Buxton, is a competitor for much the same sort of distinction for his office. It would appear that he has had under consideration the age of the medical officers who have care of the health of the employés of the post offices throughout the country, and is

disposed to direct that medical officers shall be treated in the same way as ordinary civil servants, and retired at the age of 60. To a certain class of mind, of course, nothing is so charming as dead uniformity, however advantageous the converse may be; while others tend to regard the mere fact that a thing is, as a good reason why it should not be, or are afflicted with a mania for aimless reform. Far be it from us to assert that this is the case with Mr. Buxton, but there will be some grounds for the charge if it really be true that he has decided not only to introduce into contracts with medical officers a clause obliging them to retire as soon as they reach the age of 60, but to impose the same action on medical officers who entered this department of the Government service long before Mr. Buxton held any office under Government at all, or even emerged conspicuously from the ruck of candidates for parliamentary honours. In the world of ordinary work a man may sometimes perhaps be "too old at 40," just as a Cabinet Minister may be too juvenile at 60, and in the clerical branches of the civil service it may very well be that a man who has passed some thirty-five or forty years of his existence in routine employment, loses the elasticity essential to good work, and tends to obstruct progress. No such considerations can, however, commonly apply to medical men. They begin their student days in their teens and usually end them only on their deathbed; they are constantly learning and, being engaged in the practice of a profession which is ever changing, are perpetually faced by the necessity of applying new knowledge to the needs of their daily work. There is little indeed in medicine which tends to crystallize either methods or brains, and a medical man at 60 is certainly likely to be as efficient an assistant to a layman in the care of his health as a younger colleague; while in an official position he must often, from his greater experience of official requirements, be a more capable and satisfactory adviser to those who are responsible for the work done by the men who come under his care. Provided, therefore, that a medical man is still physically active, in the sense that he suffers from no ailment which debars him from visiting his patients as often as they require his advice, we can see no sound reason for retiring a postal medical officer at the age of 60. Certainly if the Postmaster-General introduces such a condition into the contracts of medical men already in his employment it will be an act of gross injustice, while if he endeavours to impose its acceptance upon candidates for such appointments as may from time to time fall vacant a just outcry is likely to arise. The conditions of service under the Post Office are already sufficiently exacting in comparison with the amount of work demanded and the pay which is offered; and if any fresh drawback such as that indicated is introduced it appears highly probable that general antagonism on the part of the medical profession towards the department which Mr. Buxton at present governs will be awakened.

MEDICAL TERMS IN THE *NEW ENGLISH DICTIONARY*.[1]

The autumn quarterly part of the *New English Dictionary*, like almost every one of its predecessors, contains a large number of medical terms of considerable interest. Mr. Craigie is responsible for this section, which fully maintains the high standard already reached. Among the first words defined and illustrated in the portion of the *Dictionary* under examination is *naevus*, marked as a term not fully naturalized. The old word *naeve*, a spot or blemish, is now obsolete; in a quotation, dated 1697, its use in a non-medical sense is illustrated: "He was "a tall, handsome, and bold man; but his naeve was "that he was damnable proud." To *nag*, it is interesting to find, has, among other meanings, that of to ache persistently or to keep up a dull gnawing pain. An interesting quotation from Johnson's translation of *Paré's Works* explains a medical use of the word *nail*: "Some call it (a carbuncle) a nail, because it inferreth "like pain as a nail driven into the flesh." The *nail-wort* is the name given to *Draba verna* and *Saxifraga tridactylites* in reference to their supposed efficacy in affections of the finger-nails; it is also called whitlow grass, for the same reason. *Nanism*, or the condition of being dwarfed, is given as a fully naturalized term; *nanization* is defined as the process of artificially dwarfing plants or trees. *Naphtha* was the name given at first to an inflammable liquid issuing at certain places from the earth, and consisting of a constituent of asphalt and bitumen; but it is now used for various inflammable oils obtained from the dry distillation of such substances as coal, shale, and bitumen. In the *Dictionary*, *naphtha* is followed by a long series of derivatives, including *naphthalamine*, *naphthalene*, *naphthalidine*, *naphthaline*, *naphthalol*, *naphthene*, *naphthol*, *naphthyl*, etc. *Napier's bones* are not the honoured remains of the distinguished inventor of logarithms, but the narrow slips of bone or ivory with which he used to facilitate the operations of multiplication and division. Considerable space is given to the words beginning with *narco*, including *narcolepsy* ("a nervous disease characterized by short and frequently recurring attacks of "somnolence"), *narcomania* (Dr. Norman Kerr's name for an uncontrollable craving for narcotic drugs), *narcotic*, *narcosis*, *narcoticism*, *narcotism*, *narcotine*, *narcotize*, etc. All these words have their origin in the Greek νάρκη—numbness. Mr. Craigie retains *nare*, meaning a nostril, as a word not yet obsolete; but its use must be very restricted. About the obsolete character of *nascal*, a suppository or medicated pessary, there can, however, be little doubt. *Naso* enters into the composition of many medical terms, such as *naso-pharyngitis*, *naso labial*, etc. *Natality*, meaning the birth-rate, or ratio of births to the population, seems only to have been in use since 1888; probably the decline in the birth-rate has brought it into prominence. The words *natal*, *native*, and *natural* are all of considerable interest, and are fully illustrated by quotations; we observe, in passing, that "*native notes*," meaning birth-marks, was used by Sir Thomas Browne in 1658. The same author is quoted as speculating whether it could be made out that such who have easy *nativities* have commonly hard deaths. *Natural*, meaning a half-witted person, is illustrated by several quotations. *Nature*, it appears, once meant the vital or physical powers of man, and so, we may suppose, it came to mean also the semen and the menses. *Navel*, the umbilicus, is copiously illustrated in its various meanings; a quotation from a religious poem of the end of the sixteenth century (by J. Davies) supplies us with a piece of information regarding antenatal physiology: "Children, while within the Womb they live, Feed by the "Navil." *Navel-ill* is a disease, consisting in inflammation in the neighbourhood of the umbilicus, met with in newly-dropped lambs and young calves. *Navel-string* is, of course, the umbilical cord. Mr. Craigie is surely wrong in defining *navicular fossa* as the anterior portion of the urethra; it is usually understood to be the depression at the posterior part of the vulvar cleft, limited by the hymen and fourchette. *Necro*—derived from the Greek νεκρός, dead body—is found in a number of compound words used in medicine, such as *necrobiosis*, *necrophilism*, *necrophobia*, *necrotomy*, *necropsy*, *necroscopy*, and *necrosis*. *Nemato*—from the Greek νῆμα, a thread—enters into another series of terms, such as *nematoide*,

[1] *A New English Dictionary on Historical Principles*. Edited by Dr James A. H. Murray. N-Niche. By W. A. Craigie, M.A. Double Section. Price 5s. October, 1906. Oxford: At the Clarendon Press.

nemathelminth, and *nematocide*. The first illustrative quotation containing the word *neoplasm* is dated 1864. *Nepenthes* meant, at first, the drug of Egyptian origin mentioned in the *Odyssey* as capable of banishing grief or trouble from the mind; then it came to signify any drug having the same power; and now, in the form of *nepenthe*, it means a special kind of opiate. *Nephalism*—from the Greek *νηφάλιος*, sober—is a somewhat uncommonly employed term for total abstinence from intoxicating liquors. Another long list of words beginning in *nephra*, *nephri*, and *nephro* are derived from *νεφρός*, the kidney; amongst them are *nephralgia* (pain in the kidneys), *nephritis*, *nephrolithiasis*, *nephrotomy*, etc. Similarly *neur*—from *νευρον*, a nerve—supplies another series containing *neural*, *neuralgia*, *neurasthenia*, *neurectomy*, *neurenteric*, *neurine*, *neuritis*, *neuroglia*, *neurology*, *neuroma*, *neuron*, *neuropath*, and *neurosis*. The historical development of the present-day meaning of *nervous* from the old signification is very interestingly worked out in the *Dictionary* by means of the illustrative quotations. At first it meant sinewy, muscular, vigorous; then strong and forcible; then full of nerves; then affecting the nerves; and, finally, excitable, easily agitated, and timid.

SCHOOL HYGIENE.

A MEETING of the local committee organized in conjunction with other committees to make arrangements for the Second International Congress of School Hygiene, was held at Bradford on October 5th. Dr. J. H. Wylie, Divisional Inspector of Schools, was in the chair. Dr. James Kerr, Medical Officer (Education), London County Council, delivered an address on the Congress and its objects. About twenty years ago, he said, the subject of school hygiene was almost unknown in England. Something had been done in Norway and Sweden, and the subject had become an important one in Germany. There was in Germany a Society for the Care of Health in Schools, which decided to get the benefit of the work that was being done in other countries by starting an international conference. The first Congress, which was held at Nuremberg three years ago, at once gave school hygiene a recognized scientific position. In respect to general knowledge of the condition of our children we were certainly a very long way behind the Germans. Yet to any country the health of its children was a matter of first importance. On the soundness of their brains and bodies depended not only its future wealth but the efficiency of its defensive organizations. There was not a school building in this country that had been put up within the last half century which would not have to be "scrapped" within the next half-dozen years if things were to be done as they ought to be done. The condition of the non-provided schools throughout the country, with some exceptions, was horrible and deplorable, and not only the schools themselves, but the condition of the children in them. He did not blame the builders. The schools were the best that could be had under the circumstances, yet they were put up in contravention to the principles taught in Germany forty years ago. Dr. J. R. Kaye, Medical Officer to the West Riding Education Committee, speaking of hygienic work in the schools under the jurisdiction of the West Riding County Council, said that when the schools were taken over he immediately instituted a sanitary survey. As there were no fewer than 1,223 departments, the task was not a light one; but with the aid of a special staff the county architect was able to get through them all, and now the facts with regard to the survey were embodied in a report of something like 1,300 pages. On the medical side, he conceived the idea of looking after the children themselves; and in this connexion he would like to take just one word of exception to Dr. Kerr's statement with regard to the children in the non-provided schools. He could not see why such a big difference should be made between the children in the non-provided schools and in the provided schools. The difference was more in the buildings—in the children's environment. School environment had a great deal to do with the child's future, and if the child were to be morally and physically sound more attention must be paid to the example of the school itself. He had been disgusted to find teachers giving simple lessons in hygiene in surroundings that were something abominable. In West Riding schools they had already established sight tests. To have the tests made by professional men would cost something like £5 000 a year, and it would be preposterous for him to ask his committee for that sum. He found many teachers quite capable of making the simple tests required, and the worst cases were, of course, referred for medical examination. The West Riding County Council had also instituted the weekly notification of infectious diseases together with ringworm, ophthalmia, and some minor complaints.

MEDICAL BOOKS.

DR. NORMAN MOORE delivered an address on medical books before the Abernethian Society on October 5th at St. Bartholomew's Hospital. He said that there was a time when people thought that medicine could be learnt by reading books, and he had met with students who had an idea that at any rate the greater part of medicine could be acquired from books. That idea was prevalent in the Middle Ages, but though of course medicine could not be learnt in that way, nevertheless books were a most important aid in the study of medicine. It must not be expected that he would tell them where the great secret of finding medical facts in books was to be discovered. He was there to discourse to them on a few of his friends among the thousands of volumes to be found in medical libraries. The first author who wrote on medicine, or in connexion with it, in England was Quintus Cicero, who was upon the staff of Caesar when that general invaded Britain. Quintus Cicero, having heard of the death of Lucretius, wrote to Rome asking what had become of the remains of Lucretius and of his writings. In the works of Lucretius there occurred a famous passage describing a patient in an epileptic fit, how he fell to the ground absolutely unconscious, had tonic and clonic spasms, foamed at the mouth, and then gradually recovered. The Venerable Bede translated the treatise of Isidore, Bishop of Seville, on medicine. After describing how the Arabs conquered Spain the lecturer proceeded to explain the immense force in relation to the study of medicine wielded by the Arabs. That knowledge was acquired from the great Greek writers, and one of the Arab writers who had most influence was generally known as Rhazes. The first book on medicine which Dr. Norman Moore had ever read was called *The Flower of Medicine;* it contained the doctrines of the school of Salerno in Southern Italy, consisting of a series of Latin verses on the preservation of health, on diet, and on pharmacology. At the Renaissance men were introduced to all the greatest works of the human mind. Physicians of that time showed not only that Greek had been learnt, but that the lesson of the Greek writers had been taken to heart. In his opinion it was to those physicians that the true method of science was due. Bacon was known in the world of letters, and he had often been praised as if he were the first person to teach that the true method of science was to observe Nature and to draw conclusions from it; but that was not so. Commenting on the *History of Physick from the Time of Galen to the Sixteenth Century*, written by Dr. John Freind, Dr. Norman Moore

remarked that it was the only good history of physic in English. Freind was a great physician, and was sent to the Tower because it was supposed he was concerned in a plot to bring in the House of Stuart. The imprisonment gave him the leisure in which to write the book, and it was one of those books which the more it was read the more it satisfied the reader. Freind was so highly regarded by the College of Physicians that when he was released from the Tower he was presented by the physicians of the opposite political party with a cup containing 2,000 guineas, which they said represented the fees they had received from patients who would have gone to Freind had he not been shut up in the Tower.

MOTOR DANGERS.

WE are reluctant to add to the charges which have already been brought against motor vehicles and to introduce a fresh note into the chorus of abuse to which all connected with the motor interest are at present subjected, but there is one fresh point to which we should desire to see some attention paid. Of the disadvantages which accompany the introduction of motor-driven public vehicles into London and other great centres, some may not be removable at all and the majority can certainly not be abolished at a moment's notice, since they depend mainly on faulty construction. No such consideration, however, applies to evils arising from the conduct of those who drive automobiles. For the moment we are not concerned either with scorchers or with drivers who persist, whenever opportunity offers, of dashing out from the direct line of traffic and, to the great danger of foot passengers endeavouring to cross the streets, invading the area customarily reserved to vehicles travelling in the opposite direction. These are matters which can be left with more or less assurance to the attention of the police, but there are others in which the public must help itself. At present the average conductor is a person who in horsey circles would be described as "a bit above himself"; he appears to have an idea that the ordinary man in the street is so anxious to ride in a motor omnibus as to be quite willing to "sprint" after it and mount in the best way he can, and commonly necessitates his doing so. Similarly conductors are exceedingly unwilling to stop their vehicles to allow passengers to get down. Any ordinarily active person they expect to jump off when the omnibus is still moving almost at full speed, while in the case of women and children they make the merest apology for a stoppage, and even if the omnibus is actually arrested, or its speed materially diminished, it is started again instantly and before any but really active persons can get both feet clear of the step. In the course of the past few weeks a considerable number of accidents due to these causes have come to our notice. Strong active men have had shoulder muscles injured by, perforce, seizing rails and boarding motors when moving fast, and women and children have fallen to the ground because the omnibus, momentarily slowed down, has moved on before they were really steady on their feet. In the case of motor omnibuses there is not the slightest excuse for this sort of thing, and a very strong protest ought to be raised against a practice which is only in the least degree pardonable in the case of horse-drawn vehicles. Many humane persons of both sexes are unwilling to throw upon horses the strain brought about by a complete stoppage, and therefore do not object either to mounting or dismounting when the omnibus is not quite stationary, but no such consideration is due to the motor omnibus. These, if the statements made about them by their proprietors are at all true, can be stopped and started with the greatest ease. It is possible that the blame does not rest entirely on conductors and drivers, but on the companies themselves, who perhaps make the times for the completion of a journey too short, but in this case the grievance of the public is the greater and a remedy should be the more easily obtainable. Meantime let the strong help the weak by refusing to dismount from a motor omnibus unless it is really at a standstill.

RECREATION FOR CHILDREN.

THE important subject of providing recreation for children in public elementary schools attracted a large audience on October 5th to a meeting held in the Persian Hall at Mr. Bland-Sutton's house, 47, Brook Street. The object of the meeting was to consider the effect on the position of the Children's Happy Evenings Association of the Clause in the Education Bill giving powers to local educational authorities "to provide, for "children attending a public elementary school, vacation "schools, vacation classes, play centres, or means of "recreation during their holidays, or at such other times "as the local education authority may prescribe, so far "as the local education authority in the case of a school-"house or place not belonging to them can obtain for "the purpose." Lady Jersey, who presided, explained that the Children's Happy Evenings Association had been in existence for seventeen years, and it was estimated that the children were amused at a cost of less than 6d. a head per annum. The clause in the Education Bill meant that paid workers would be provided for teaching the children to play after school hours, with the result that the numerous voluntary workers who found pleasure in teaching the children to play would be crowded out by paid officials. The question was whether it was right or not to institute rate-paid work of this description under the circumstances. The clause in question had been rushed through too suddenly, and the matter had been much too summarily dealt with in the House of Commons. The opinion of the Association ought to have been placed before the Legislature, and they had met that afternoon to decide how that could most efficiently be secured. Lady Cadogan expressed the hope that the House of Lords would deal with the question. Mr. J. Kirk, of the Ragged School Union, protested against the local education authorities taking over the recreation and play-time of children, and declared that it was unjustifiable to overburden the already heavily rated people by this totally unnecessary expense. The Association had 135 branches in London and entertained 22,000 children, and there was moreover a large reserve force of kindliness among people who were able and willing to give efficient voluntary service, and that he considered ought to be utilized to the fullest extent. Sir E. Cornwall said there was good ground for the opposition of the Association, and pointed out that the cost of the proposed recreation had been estimated at £20,000 in London, but he put the figure at between £250,000 and £300,000 a year. The Bishop of Kensington expressed himself in sympathy with the main purpose of the meeting. Lord Jersey suggested it would be wise if some words could be introduced into the clause authorizing local authorities to give facilities to voluntary associations to provide recreation. After the subject had been thoroughly discussed, the following resolution was proposed by Sir E. Cornwall, seconded by Lord Sanderson, and carried unanimously: "That this meeting "considers that the amendment made to the Govern-"ment Clause in the Education Bill will not promote the "best interests of organized play and recreation for the "children in the elementary schools, and authorizes the "Executive Committee to take all possible steps to "approach the Minister for Education and the House of "Lords with a view to safeguarding the voluntary work "of the Children's Happy Evenings Association, and to "securing a full consideration of the whole question."

STREET ACCIDENTS.

Mr. Reginald Harrison and Dr. Arthur James, respectively President and Honorary Secretary of the Metropolitan Street Ambulance Association, have issued a statement relative to the present position of the ambulance question, which, without disclosing any new facts, will serve the useful purpose of keeping interest in the matter really alive. This is the more desirable because at present the whole question is hung up, and for some little time must necessarily so remain. There is now entire unanimity as to the needs of the situation, the only remaining difference of opinion being as to by what authority they should, and could best, be met, and as to whether automobile or horse-drawn ambulances are most to be desired. The latter is, for the moment at any rate, a minor issue, and its settlement can well be deferred until the main question of general administration has been determined. In this direction every step possible has now been taken alike by local authorities and voluntary associations and by the various private individuals, notably the signatories to the document under consideration and Dr. Henri Nachtel of Paris, Captain Nott-Bower, Sir William Collins, M.P., and others who have in one way or another helped to bring about the present strong feeling that the provision of a complete and efficient street ambulance service is not alone desirable but essential. The next move rests with the Home Secretary, who at the beginning of August, and in reference to the striking out of the ambulance clause from the General Powers Bill of the London County Council, expressed his intention of at once considering the whole question of the ambulance needs of London and of coming to a decision as to the course which should be adopted. Hence for the time being little can be done by others beyond waiting as patiently as may be and hoping that he will deal with the matter rapidly and that whatever course he may advise will be adopted without delay. The dangers of the streets are increasing daily, and hence the question of a proper ambulance service is more than ever one of personal interest to every individual who lives in London, works in London, or merely visits London occasionally. The result to an injured person of being transported to a hospital or to his home by extemporized means or by a properly arranged and rapidly moving ambulance may often spell just the difference between little suffering and excruciating agony, between a long illness and rapid recovery, and, not seldon, even between life and death.

MIDDLEMORE PRIZE.

We call the attention of our readers to the announcement as to the next awards of the Middlemore Prize, which appears this week in our advertisement columns. The prize, which was founded by the late Mr. Richard Middlemore, of Birmingham, consists of a cheque for £50 with an illuminated certificate, and is given for the best essay or work in any department of ophthalmic medicine or surgery which the Council of the British Medical Association may from time to time select. The subject chosen for 1907 is Ophthalmia Neonatorum with Special Reference to its Causation and Prevention. Essays should be in the hands of the General Secretary not later than April 30th, 1907. The prize will be presented at the next annual meeting of the Association.

INCOME TAX.

It will be within the knowledge of most of our readers that the income-tax payer is entitled to an allowance from the assessment made upon him of the amount paid in respect to premiums for life insurance. Until recently, however, the allowance has not extended to premiums paid to other than British life assurance companies. In 1905 premiums paid to Colonial companies were for the first time allowed to be deducted, and now, under Section 11 of the Revenue Act, 1906, which came into operation on October 1st, the allowance is made to apply to all assurance companies "lawfully carrying on business within Great Britain "or Ireland." Medical men whose lives are insured with American or other foreign companies will, therefore, be entitled to the allowance in future, and should take care to make the necessary claim when sending in their income-tax returns.

We regret to have to record the sudden death from apoplexy, on October 9th, of Dr. James Finlayson of Glasgow. He was physician and lecturer on Clinical Medicine at the Western Infirmary, and was well known as an authority on the diseases of childhood. He also showed much interest in historical subjects, especially those in any way connected with the Glasgow Medical School. We hope to publish an obituary notice in an early issue.

The University College Medical Society (London) will hold the first meeting of the current session in the Medical Library, University College, on Wednesday, October 17th, at 8.30 p.m., when a paper will be read by Sir William Gowers, F.R.S., entitled "Immateria Medica." Visitors are cordially invited.

The session of the Pathological Society of London will open on November 6th, when Section A (Pathological Anatomy and Histology) will meet at the rooms of the Royal Medical and Chirurgical Society. The first laboratory meeting will take place at St. Mary's Hospital Medical School on November 20th.

The inaugural meeting of the session of the Guy's Hospital Pupils' Physical Society will take place in the Physiological Theatre on Saturday, October 13th, when Professor Clifford Allbutt will deliver an address on "Words and Things." The chair will be taken at 8 p.m. by Sir Samuel Wilks, Bart., M.D., F.R.S.

The Bradshaw Lecture before the Royal College of Surgeons of England will be delivered by Mr. Edmund Owen, F.R.C.S., on Wednesday, December 12th, at 5 p.m. The subject selected is—Cancer: its Treatment by Modern Methods.

The National Health Society has arranged to hold a public meeting at University College, Gower Street, on Monday, October 29th, to discuss the subject of the purity of the meat and milk supply. The chair will be taken by Sir Frederick Treves at 8 p.m., and among the speakers announced are Sir William Broadbent and Sir James Crichton-Browne.

A provincial sessional meeting of the Royal Sanitary Institute will be held at the Royal Pavilion, Brighton, on Saturday, October 27th, when a discussion will take place on "Co-ordination of Measures against Tuberculosis." The discussion will be opened by Sir William H. Broadbent, to be followed by Dr. G. A. Heron, Dr. Louis C. Parkes, Dr. John Robertson, Dr. E. C. Seaton, Dr. F. R. Walters, and Dr. W. G. Willoughby. Dr. Newsholme will give a short account of local arrangements for the notification of phthisis, and the sanatorium training and treatment of patients. The chair will be taken at 11 a.m. by Colonel J. Lane Notter, M.A., M.D., R.A.M.C. (Chairman of Council of the Institute)

Canada.

ONTARIO MEDICAL COUNCIL.

CONSIDERABLE interest has been aroused by the case of a practitioner who was disciplined by the cancellation of his diploma at the last meeting of the Ontario Medical Council. The offence for which this was done was the advertisement and sale of a nostrum which the practitioner professed to have discovered, and which he claimed was a specific for the cure of *grippe*, and would cure or ameliorate typhoid, pneumonia, small-pox, etc. Several letters have appeared in the public press on the action of the Council, which is described as tyrannical and unjust, and the *Toronto Globe*, the leading Canadian daily, had an editorial on the subject in the issue of August 3rd.

The Ontario Medical Council of the College of Physicians and Surgeons of Ontario is a body constituted under the authority of the Medical Act of 1891, to whose care is entrusted the licensing of practitioners in the province, and the general oversight and discipline of those who subscribe to the declaration; members of this body are partly nominated by various educational bodies, partly elected at regular intervals by the members. The province is divided into electoral districts for this purpose; there is an annual fee of $2.

The actions of the practitioner have been described by the Council in their charge as "infamous and disgraceful." The analysis of the remedy showed it to consist of glycerine and a little hydriodic acid. The inventor and advertiser stated that he believed that the remedy did possess the remarkable powers which he had claimed for it, but the Council thought otherwise, and decided that there was evidence of fraud in the statements made in the circulars which had been distributed. Whether the practitioner were ignorant or fraudulent it would be hard to discover, but it would seem that the public welfare forbids such a course on the part of those to whom they have to entrust their health, and the newspaper statements that action was taken only for the protection of the medical profession do not seem to be justified.

CANADIAN MEDICAL PROTECTIVE ASSOCIATION.

The annual meeting of the Canadian Medical Protective Association was held in Toronto at the time of the meeting of the British Medical Association. The President's report was presented by Dr. R. W. Powell of Ottawa, and was eminently satisfactory; the increase of the fee to $3 a year had not decreased the membership, and had added $200 to the funds, while the membership showed an increase of 120 over that of last year. The legal and other expenses of the year have been light, as there have been few cases to defend, and no long trials, while the fact that two cases were withdrawn after the defence had been prepared shows the value of the Association as a deterrent to vexatious and frivolous litigation. The Secretary's report shows a membership of 471, and a balance in hand of $829.38.

VITAL STATISTICS.

The thirty-fifth annual report of the Provincial Secretary for Ontario shows the population to be 2,203,968. There have been registered 50,265 births, being at the rate of 22·8 per 1,000, an increase of 0.7 over the previous year.

MEDICAL EDUCATION OF WOMEN.

We have received from Dr. Elizabeth Smith Shortt, of Kingston, one of the first two women matriculated in Canada, and one of the first graduates, the following note relative to a paragraph which appeared in these columns in our issue of July 21st: At the medical matriculation examinations held in Toronto in April, 1879, two ladies' names appeared in the list of successful candidates. These were the first regularly matriculated medical women students in Canada. It was suggested to one of these by one of the examiners (Dr. Knight of Kingston) that instead of seeking an American Medical College for Women, she should apply to the Royal Medical College at Kingston for separate classes in medicine at that college. This was done with such success that these separate classes in medicine in Kingston were advertised in the Toronto papers in the summer of 1879. The first session began in April, 1880, with four ladies in attendance. This method of study continued until the beginning of the second year, and then it was thought advisable to adopt a plan, practised in later years by the Women's Medical College, Toronto—namely, to have some classes separate and others with the men students. After an unsatisfactory trial of this method, friends of separate education in medicine came forward with subscriptions to enable the women students to have all the medical classes in a separate building, and by a different lecturing staff. This change was brought about at the end of session 1882-3. In the following summer, Dr. Barret and others held a meeting in Toronto to consider the establishing of a Women's Medical College there. The *Toronto Globe*, in publishing an account of this meeting, quotes Mr. Trout (of the *Monetary Times*) as remonstrating at the apparent discourtesy of their starting a Women's Medical College so close on the heels of the one just started in Kingston. The movement, however, culminated in a Women's Medical College being established in Toronto. If Toronto had been the first to have a separate building and staff for women medical students the Kingston students would have been very glad to have been saved much effort and controversy at the time of establishing the one in Kingston. There were ten women students in the classes at Kingston when Toronto began her College of Medicine for Women, the first class of three graduating in 1884. As there was no need of two medical colleges for women in Canada, and as Toronto had much the larger constituency to draw from, the Kingston College was closed in 1893, and the remaining students went to Toronto.

Melbourne.

IMPROVEMENTS IN THE CONDITION OF ASYLUMS FOR THE INSANE.

THE new Inspector-General of Lunatic Asylums, Dr. W. E. Jones, has submitted to the Government of Victoria a very comprehensive scheme for modernizing the hospitals for the insane. To accomplish his reforms would require a sum of about £200,000. The Government is unable to at once comply with the proposed requirements, but proposes to apportion a sum each year out of the estimates for this purpose. The proposed expenditure on lunacy buildings, including new works, alterations, and improvements, will be about £80,000. The principal item is the establishment of an acute mental hospital near Melbourne, with the object of providing special opportunities of curative treatment in cases where the possibility of cure exists. Throughout the scheme every attempt will be made for the improvement and accommodation of the insane. Receiving wards are to be arranged for at all the country hospitals. The antiquated furniture of the hospital wards is to be replaced. A new reception house being built is to act as a sorting and distributing centre for the metropolitan district. The new mental hospital will have a full staff, and be fully equipped with all the most modern appliances for electrical treatment, for baths, for massage, as well as providing abundantly for the exercise of patients. Dr Jones believes in the appointment of a consulting staff as well, consisting of consulting specialists for special treatment of women and of the eye.

HEALTH OF MELBOURNE.

The Officer of Health for the City of Melbourne, Dr. Jamieson, reports that the mortality for the year 1905 was at the low rate of 12·5 per 1,000. The mortality from diphtheria has been very much reduced. This improvement is credited to the strict supervision exercised over cases, and the advantages of prompt isolation now provided by the Infectious Diseases Hospital. Death from tuberculosis is greater than all the epidemics taken together, but that is on the decline, due largely to improved sanitary measures and the general dissemination of information to the public, better ventilation, and the results of the legislation for the improvement of the condition of shops and factories, and in the inspection and condemnation of dwellings found to be unfit for occupation. In cases of death or removal prompt steps are taken for disinfection.

REPORT ON MINER'S PHTHISIS.

A very valuable report on the prevalence of miner's phthisis at Bendigo, has been compiled by Dr. Walter Summons. The preliminary report deals with the venti-

lation in mines. His principal recommendations are the rigid enforcements of the spray in rock drill work; the adoption of a standard of ventilation in mines so that the carbon dioxide in the air in working places or approaches shall not exceed 15 parts by volume in 10 000; the sinking of winzes simultaneously with shafts and the putting in of cross-cuts at every 100 ft. of vertical depth. Where bad ventilation exists, through lack of proper air courses, mechanical appliances should be installed until a connexion can be made with an adjoining mine or winzes sunk. He urges the appointment of a medical inspector of mines, and that no miner suffering from tuberculosis or other infectious disease shall be allowed to enter the underground workings. He further insists that effective sanitary arrangements underground should be installed at once.

Dr. Summons in his report states that it is not until the carbonic acid in the air breathed amounts to between 2 per cent. and 3 per cent. that there is any increase in the respiratory rate; the pulse rate invariably increases while under ground, the increase bearing a definite relationship to the rise in temperature and deficiencies in ventilation. Thus pulse rates of 120 while the men were resting were not uncommon. The skin is kept constantly moist owing to the fact that in stagnant saturated air perspiration is unable to evaporate. Many of the men suffer from exhaustion and discomfort. The publication of this report has stimulated public opinion to insist on serious measures being taken with a view of improving the present conditions. One of the measures to be presented to the State Parliament this session is a Bill to secure the better ventilation of mines. The conditions of many of our mining centres are bad, and many of the miners are cut off in their prime by phthisis. It is hoped that the intended legislation will be the means, as far as possible, of checking disease and loss of life, and that a thorough revision of the methods of deep mining will be made.

Amended Medical Bill.

The Medical Board of the State has drawn up a Bill to amend the Law relating to Medical Practitioners, for presentation to Parliament. The Bill is a very short one, but concise and drastic in its effects. It gives the Board power to remove from the *Register* any qualified medical practitioner who has been convicted of felony, either in His Majesty's dominions or elsewhere. It also declares that no person shall be entitled to registration unless his medical curriculum has extended for five years or more. Probably the most far-reaching effect which it purposes is that no school of medicine in any country other than the United Kingdom or a British possession shall be recognized, unless it appears to the Board that registered legally-qualified medical practitioners of Victoria are, by virtue of being so registered and without further examination, entitled to practise their profession in such country, either on registration or otherwise. No machinery has so far been created to give publicity to this reciprocity clause; its execution will necessarily entail some hardship on practitioners from foreign countries who may desire to practise. How far foreign countries are prepared to recognize the status of the Melbourne University remains to be seen.

Federal Quarantine.

It is the intention of the Federal Government to establish a federal system of quarantine. A chief medical officer is to be appointed at a salary of £1,500 per year, to administer the law, and he will have the assistance of a small staff. This new Federal Department is expected to work in unison with the Central Health Boards of the several States.

Compulsory Vaccination.

Ministers have also decided in favour of compulsory vaccination, stating that, if vaccination and revaccination were compulsory throughout the Commonwealth, quarantine as against small-pox would become unnecessary.

Sale of Patent Medicines.

The Federal Parliament has, furthermore, in its desire to protect the unthinking and gullible citizen, resolved to restrict the sale of patent medicines. It is decided that all patent or proprietary medicines, all infants' and artificial foods, shall be critically examined, to ascertain their contents and composition, and their value as food or remedial agents.

Rabbit Pest Treated by a Specific Virus.

What to do with the rabbit pest is still an unsolved problem. Where no check is placed upon their increase they flood the country and every blade of grass quickly disappears; they eat all the scrub and the bark off the trees as far up as they can reach, thus effectually ring-barking every shrub. Fencing by wire netting in a measure is frequently successful in keeping the rabbits off the sheep-runs. This system of protection requires constant supervision to be in any way efficacious. The importance to the country of dealing with the rabbit is better understood when we remember that immense tracts of pastoral country are rendered completely barren by the depredations of the rabbits; and, consequently, the sheep lose their pasturage, and succumb to drought. Attention having been drawn to the value of recent experiments in destroying animals by means of inoculating them with a specific virus, the sheep breeders of New South Wales resolved to invite Dr. Danysz, of the Pasteur Institute, to visit Australia with a view of dealing with the plague of rabbits. Dr. Danysz, who is now in Sydney, is conducting experiments with the object of testing the efficacy and safety of the bacillus which he proposes to introduce. The experiments, so far, have been carried out within the walls of the laboratory, in order that no wide scope should be given to the bacillus until its possible effects on other animals than rabbits have been determined. The experiments which Dr. Danysz is conducting consist in feeding and inoculating both rabbits and other animals on various culture solutions of the special bacillus. Definite results have been attained, although they have not been made public. Rabbits have died from the introduction of the bacilli through food, and others from contagion, but other animals have not been affected. Where, however, inoculation has been resorted to, it has proved fatal in some cases to birds as well as guinea-pigs.

Ireland.

The Trinity College Commission.

The Commission appointed to inquire into and report on the present state of Trinity College and the University of Dublin has just issued its first report. No public meeting has been held, but the Blue Book is made up of papers sent in by the various persons or educational bodies concerned in a solution of the problem of Irish university education.

As might be expected, the views are almost as various as are the authors, and it will take some time to weigh their value and importance. Thus, there is a statement from the Provost, six senior, and twelve junior Fellows, and twenty-nine professors. They are

> strongly opposed to the proposals which have been made to introduce into the University of Dublin a separate foundation intended for the special benefit of one religious denomination.
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> It would be inconsistent with the spirit and intention of the Tests Act to incorporate in the University a college created expressly to satisfy the requirements of a single religious denomination. In any such college access to the teaching staff and the governing body would depend, either in theory or in practice, not merely on literary and scientific attainments, but also on considerations of religion.
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> We protest against any such attempt to reconcile within the University two incompatible ideals. A college such as is proposed would, we believe, be subject to powerful ecclesiastical influences, internal and external, and, therefore, would not possess the same intellectual freedom, either in kind or in degree, as prevails in Trinity College.

They recall that in 1903 the Board of Trinity College

> protested against the incorporation in the University of Dublin of a Roman Catholic or other denominational college, in which access to the teaching staff and Governing Body would depend, either in theory or in practice, not merely on literary and scientific attainments, but also on religious denomination.

Next is the scheme of twelve junior Fellows and eight professors as to the widening of Trinity College, and the immediate reorganization of the Board. This has already been published. Clearly it has not the approval of the Provost and his following.

The Dean of St. Patrick's (Very Rev. J. A. Bernard, D.D.) objects to a second college in Trinity, under the control of the Roman Catholic bishops, and he protests

against any attempt to tamper with the free constitution of Trinity College by providing two or three seats on the Governing Boards for Catholics as such.

I am convinced [he says] that nothing can be done for Irish Catholics in the matter of university education which will satisfy their leaders short of a university practically under their own control. It would not be consistent for them to accept anything which did not give them all the safeguards they desire, and they cannot have such safeguards in a university which does not recognize the title of the ecclesiastical authority to interpose whenever it is deemed necessary. I hold that the wise and statesmanlike course is to accept this fact, and to give to our Roman Catholic countrymen that for which they have repeatedly asked, in the only way in which it can be given without injustice to the University of Dublin.

The General Synod protests against the total expulsion of theological studies. The Presbyterian Assembly, on the other hand, declares that the first thing to be done, with a view to the more general and impartial utilization of Trinity College, is to remove every vestige of ecclesiastical monopoly from within its walls. The Divinity school ought to be provided for elsewhere. There is no special virtue in theology taught within a university. The Assembly would be ready to give sympathetic consideration to a scheme of one university with colleges in different parts of the country, not necessarily of the same type, but all based on non-sectarian principles.

The Very Rev. W. Delany, S.J., D.D., President of the University Catholic College, deprecates any scheme which would establish Trinity College as the sole University of Ireland. The economic needs of the country require educational institutions of different types.

The popularity of the Royal University, despite its drawbacks, established that there was at once room and need in Ireland for a university of a different type from that of Dublin. Educational experience everywhere else had led to the multiplication of universities. Racial, religious, and political animosities would also stand in the way of the establishment of any one university scheme. For these and other reasons he is strongly in favour of separate universities, suited to the character, religious convictions, national sentiment, and social and economic conditions of the people amongst whom they were placed. He is convinced, from the record of the educational work done by University College under the greatest difficulties, that if a suitably equipped and endowed university were provided for Irish Catholics it would speedily take a high place on the list of universities. A healthy competition with another residential university would increase rather than injure the usefulness of Trinity College and the University of Dublin to the country, whilst the removal thereby of the great grievances at present associated with its name and history would, by the establishment of equality of conditions, do much to foster more friendly relations between the members of the different denominations.

Royal Academy of Medicine.

The twenty-fourth annual general meeting of the Royal Academy of Medicine in Ireland is announced to be held in the Royal College of Physicians, Dublin, on October 12th. The report states that there are 202 Fellows, 28 Members, and 2 Student Associates. Although there has been a decrease of numbers of those forming the Academy, the financial state is satisfactory, the credit balance in bank being £129 8s. 3d. after all expenses have been paid. The term of three years for which Sir Thornley Stoker was elected President has expired, and the only candidate as his successor is Dr. J. Magee Finny, King's Professor of Medicine in Trinity College Medical School.

The Medical Officership of Health, Belfast.

In answer to the advertisements that appeared in the local press, copies of which had been sent to about fifty medical officers of health throughout England and Scotland and to various medical schools, sixteen gentlemen sent in their testimonials and applications for the position of Superintendent Medical Officer of Health. At the monthly meeting of the City Corporation Dr. H. W. Bailie, L.R.C.P.and S.Edin., L.F.P.S.Glas., D.P.H. (R.C.P. and S.Irel.), was selected. He has been in practice in Belfast for fifteen years, and was a member of the Public Health Committee of the Corporation for some years. Before the election was finally confirmed a strong deputation waited on the Council, and urged the necessity of having a skilled specialist in public health appointed for the town of about 360,000 inhabitants, and admittedly face to face with so many serious health problems. The debate on the adoption of the minutes of the Council in Committee and of the Health Committee, which were finally carried by 32 to 18, showed that strong feeling had been excited; this has found expression in correspondence published in the press. A protest has been sent to the Local Government Board, and it is said that a strong effort is being made to get the Government to grant a Royal Commission to inquire into the whole question of the health of Belfast, jerry-building, unhealthy sites, the prevalence of typhoid fever—two epidemics of which have occurred in the last two or three years, both nearly certainly due to the milk; one well-known doctor had three sons one after the other stricken down, but all fortunately recovered—consumption, infant mortality, the general antique method of health administration, the Lough nuisance, and other points.

Antialcohol Placards.

Two important deputations waited on the Health Committee on October 4th to urge the adoption in Belfast of a system, put into practice by the governing bodies of a large number of cities and towns in England, of posting placards in public places warning the public against the abuse of alcohol. It was subsequently agreed by the Committee to press the matter again on the Council, which they had previously done unsuccessfully.

The Royal Sanitary Institute in Belfast.

At an evening meeting of the members of this Institute on October 5th, held in Belfast, an interesting paper was read by Councillor Williamson, M.D., on the sewage purification problem. The chair was taken by Professor A. Bostock Hill, M.D. Dr. Williamson gave in detail the history of the main drainage scheme of the city. He said that the River Lagan itself had been improved, but that dwellers along the sides of the Lough were unanimous in their complaints as to the smell which arose from the foreshore. The authorities were still experimenting with bacteria beds, but only about one-seventh of the total sewage of the city was thus dealt with. All the other inhabitants on the banks of the Lough should also be compelled to deal in some similar manner with their discharge. In the discussion which followed the opinion was generally expressed that the precipitation process was a failure, and that where the bacteria beds did not work it was due to faulty construction or faulty working. A cordial vote of thanks was moved to Dr. Williamson for his paper.

Scotland.

Greeting of the Royal College of Surgeons in Ireland to the University of Aberdeen.

The following is the text of an address presented by Mr. Henry R. Swanzy, President of the Royal College of Surgeons in Ireland, in the name of the College on the occasion of the recent quatercentenary celebrations of the University:

Praeclarae Universitati Aberdonensi.
Regium Collegium Chirurgorum apud Hibernos
S. P. D.

Vehementer vobis, viri illustres, gratulamur quod quattuor saeculis prospere decursis quintum iam auspiciis faustissimis incohatis.

Universitas Aberdonensis cum primum orta est anno post Christum natum MCCCCXCV in ipsis incunabulis Facultatem Medicinae longe in his finibus antiquissimam instituit-cuius rei gratia sit conditori vestro sagacissimo GUILELMO ELPHINSTONE.

Unde est orta in eo perstitit atque nunc perseverat. Per annos iam quadringentos haec regna, imperium Britannicum, cuncti denique homines Universitati vestrae Scientiam Disciplinamque Medicam auctas fotas ornatas gratis animis assignarunt et assignant.

Anatomiam Activam, quae dicitur—studium arti quam praecipue nos colimus coniunctissimum—usque ab anno MDCXXXII successu optimo exercuistis.

Iuvat referre nomina Professorum et Alumnorum Aberdonensium qui in summam claritudinem rei medicae et peritia et exercitatione pervenerunt. Ne taceamus ANDREAM MOIR, GUILELMUM PIRIE, MATTHAEUM DUNCAN, ANDREAM CLARK, quattuor denique GREGORIOS qui de Schola Medica intra muros Academicos condenda tam bene meriti sunt. Plures immo plurimos alios viros insignes memorare liberet,

sed finibus certis continemur ultra quos veremur ne iam iam egressi simus.

Restat ut Universitati Aberdonensi totis animis de hac tam felici occasione etiam atque etiam gratulemur et vota dignissima nuncupemus pro perpetua eius incolumitate faustoque novi saeculi initio.

Nomina Subnotabamus.

Henricus R. Swanzy, Praeses.
Johannes Lentaigne, Praesidis Vicarius.
Carolus Cameron, Secretarius.

Id. Sext., mcmvi.

Edinburgh Post-graduate Vacation Course.

The Edinburgh Post-graduate Vacation Course was concluded on Saturday, October 6th. It is generally admitted to have been an unqualified success, and, considering the short time available in which to make the necessary arrangements, to have surpassed the expectation even of those who were most optimistic. Seventy-two medical practitioners attended the course, and they were throughout most assiduous and enthusiastic. About a third of the seventy-two came from different parts of England, about a third from Scotland, and the remainder from Canada, Australia, India, the United States, China, South Africa, and Egypt. The hearty co-operation of the University and the Extra mural School has been a notable feature of the course. To Professor Cunningham, the Chairman of the Executive Committee, largely belongs the credit of bringing about this co-operation, the effect of which on the welfare of the school it is impossible to over-estimate. The success of the course is, perhaps, best shown by the great change of opinion which has taken place during the past few weeks with regard to post-graduate teaching in Edinburgh. Many of those who previously believed that in a great undergraduate centre such as Edinburgh successful post-graduate teaching on a large scale was impossible now realize that Edinburgh possesses all the requisites for a large post graduate school. At an early date it is proposed to issue a syllabus of post-graduate classes in progress in Edinburgh throughout the year, regarding the existence of which, even in Edinburgh itself, there would appear to be little knowledge.

Two interesting features of the course just completed remain to be noted. First, those in attendance appointed a Committee to consider and make suggestions with the object of rendering the next post-graduate course even more successful. Secondly, the practitioners attending the course presented the Honorary Secretary, Dr. Edwin Bramwell, who has been most unwearied in his labours for the success of the course, with a very handsome silver salver, bearing the inscription: "Presented to Dr. Edwin Bramwell, the Honorary Secretary, in recognition of his kindness and courtesy." They at the same time desired their high appreciation of the course to be conveyed to all the teachers who had taken part in it. The general feeling now is that the Executive will have to be prepared next year to deal with double the number attending this year.

Complimentary Dinner to Professor Nöel Paton.

It has been resolved to entertain Dr. Nöel Paton at a congratulatory dinner on the eve of his assuming the duties of Professor of Physiology in the University of Glasgow, in order to show the high appreciation in which his valuable services to the medical profession are held. The dinner will take place in the Royal College of Physicians, on Tuesday, October 16th, at 7.30 p.m.

Bangour Village Asylum.

On Wednesday, October 3rd, Lord Rosebery, as Lord-Lieutenant of West Lothian, formally opened the new Bangour Village Asylum for pauper lunatics built by the Edinburgh District Lunacy Board at a cost of £300,000. The buildings are not yet all ready for occupation, though work has been going on for eight years. The hospital for bedridden patients, for instance, is only in course of construction. In 1897 the City of Edinburgh was formed into a lunacy district, and at once found it had to face the provision of accommodation for about 1,000 lunatics. The General Board of Lunacy urged the adoption of the "village system," which had been strongly recommended by the late Sir John Sibbald, then Chief Commissioner of Lunacy. The estate of Bangour, extending to about 900 acres, was bought for £13,000, and out of thirty competitive plans submitted, and based generally on those of Alt and Scherbitz in Saxony, those of Mr. Hippolyte J. Blanc, R.S.A., were adopted. In addition to the purchase price above noted, the sum of £1,087 was expended in securing certain lands in connexion with the water supply, and £6,000 for the houses of the village of Dechmont, in order that the Board might have the control of the tenants. The total cost, therefore, works out at £23 per acre. The land for the fever hospital at Colinton Mains cost £143 per acre.

The village is self-contained. It has its own water supply, a complete system of drainage in duplicate with terminal septic tanks, an electric light installation, and telephone communication between the various buildings. There are five hydrants over the grounds, and each house has its own fire-extinguishing appliances. There are nearly four miles of roads in the village, and over 16 miles of water mains, drains, electric cables, telephone wires, etc. The village has a railway of its own, two and a half miles in length, for conveying food and coal. The medical superintendent is Dr. John Keay, and the matron Miss Davidson. It is claimed for the Bangour Village Asylum that it is the most perfect in its arrangement and equipment for the purposes to which it is to be put, and that the cost when complete will be considerably less for each bed than that of the institutions recently erected.

The main divisions of the village are the medical section at the east end of the estate, and the industrial section at the west. In the centre, near the foot of the slopes, are the kitchen, stores, bakery, cold storage for meat, washing-house, laundry, etc., while on the level near the station is a large group of buildings with stack which provide accommodation for boilers, coal, stores, engines, dynamos, accumulators, workshops, etc. The administrative block is on the eastern section of the estate, and connected therewith are admission wards for male and female patients. Around are buildings for acute cases, a hospital for the bedridden, a nurses' home for ninety nurses, with a dining hall, drawing room, etc.

The industrial homes are on the western section. The buildings now in use or in course of being finished will provide accommodation for 750 patients, but all the offices and administrative buildings are built to meet the needs of 1,000 patients. A staff of 200 will be needed. A recreation hall in the centre of the grounds has been planned, and will shortly be proceeded with. There are now 400 patients in the village. At the extreme west of the estate is the farm with a completely-equipped farmsteading, byres, piggeries, etc., modernized from existing buildings. The farm will be worked by some of the patients.

A company of over 200 invited guests was present at the opening. The architect handed a gold key to Lord Rosebery, who opened with it the main door of the administrative block, entered the building, and returned to the doorway and declared the asylum open. The key was then presented as a souvenir to Lord Rosebery by the architect. Bailie Clark, the Chairman of the District Lunacy Board, moved a vote of thanks to Lord Rosebery. Luncheon was served in the large store. Bailie Clark presided. After the health of "The King," Lord Rosebery gave the toast of "Bangour Village." In his speech he discussed various aspects of the lunacy problem—the increase of lunacy, the cost of asylums, a suggested remedy for lunacy, etc. The Chairman replied. Other toasts followed. Replying to the toast of his health, Lord Rosebery made a clever and amusing speech on Lord Lieutenants and Lord Provosts. A toast to the health of "The Chairman," the ceremony of photographing those present, and tea completed the function of the day.

The Veterinary College, Glasgow.

For some time administrative changes have been contemplated in connexion with the Glasgow Veterinary College. It is a private institution, founded in 1860 by Principal McColl. Two years later the institution was affiliated with the Royal College of Veterinary Surgeons. In view of the changes which have taken place in similar institutions in London, Dublin, and Edinburgh, it is suggested that the College should cease to exist as a private institution, and should place itself under a Board of governors. The advantages of so doing are considerable. So long as the institution remains in the hands of a private individual it is ineligible for grants of public money. The position of the Royal Dick Veterinary College, Edinburgh, is in this respect much more satis-

factory, as the University of Edinburgh has instituted a degree in veterinary science, and has agreed to recognize, *pro tanto* for graduation purposes, attendance at the Dick College. Those interested in the Glasgow Veterinary College are apparently anxious to obtain affiliation with the University and the institution of a similar degree in Glasgow. It is, however, very doubtful whether two State-supported veterinary colleges are required in Scotland, and it is not thought probable that the University will look favourably on the scheme of affiliation.

The late Mr. Hugh Brown of Glasgow.

By the death of Mr. Hugh Brown the Glasgow Royal Infirmary has lost one of its most influential Directors. He had served on the Board since 1872, with the exception of one year. For a number of years he was Chairman, but gave up that position some years ago. As a member of the Board he took a large part in the formation of the medical school, which was subsequently incorporated in St. Mungo's College. He maintained his interest in this institution to the end, and served for many years as President. He obtained several grants, and raised privately among his friends large sums of money to meet the deficiency in the income of the institution. He was a member of the Joint Committee of the Infirmary Directors and the Board of the College Directors, who are at present considering the affairs of the College. He was an advocate of the scheme that the College should be endowed and then affiliated to the University.

Motor Ambulance for Glasgow.

A motor ambulance has been presented to the St. Andrews Ambulance. It was constructed by the Argyll Motor Company, Alexandria, and is the joint gift of Mr. A. T. Reid and Mr. Nicol Paton Brown. The wagon has been thoroughly tested, and is likely to prove very useful as it runs very smoothly and is remarkably silent. The internal dimensions are—length, 8 ft.; breadth, 3 ft. 10 in.; height, 6 ft. The interior is fitted with electric lights, and there is a communicator by means of which instructions may be given from the inside and recorded on an indicator on the dash-board.

Leeds.

Opening of the Medical Session.

In the presence of a large and representative gathering of the medical and lay public of Leeds Sir James Crichton-Browne delivered the introductory address, which is published at p. 904. He was well supported by the teaching staff, most of whom were present, and there was a good attendance of students. Sir James is always sure of a cordial welcome in Leeds. His excellent work at the West Riding Asylum at Wakefield, his hospitality, and his loyalty to the profession during his tenure of office have not been forgotten. Fifteen years ago Sir James delivered the opening address under similar circumstances, and doubtless it was the recollection of his brilliance and eloquence, as well as his humour, that attracted the large attendance on this occasion. Nor was the audience in any way disappointed, for they were kept under the spell of the orator's eloquence during what is frequently the sleepy hour of an afternoon, and there was no mistaking the sincerity with which those present responded to the resolution moving a vote of thanks.

The annual dinner in connexion with the opening of the medical session was held this year at the Hotel Métropole. Sir James Crichton-Browne was the chief guest. The chair was appropriately occupied by Dr. Bevan Lewis, an old pupil of Sir James, and one who not only worked under him, but who now is, as Sir James was, the Medical Superintendent of the West Riding Asylum, and also the lecturer on mental diseases at the University. The dinner was attended by 117, and among the guests were the Lord Mayor of Leeds, the Vice-Chancellor, and the Vicar. The guest, in replying to the toast of his health, touched the feelings of his audience by his graceful references to the unavoidable gaps which time makes in all such gatherings, and the names of Chadwick, Heaton, Jessop, Atkinson, and of Arthur Fergusson McGill were received in a manner that showed how warmly their memory is cherished and respected. Sir James would not have been himself, however, if the predominant note of his speech had been one of sadness. On the contrary, he was full of the present and of the future, and his speech, full of humour and kindness, was all too short.

West Riding Medical Charitable Society.

Last year an account was given in this column of the development and work of this valuable charity. A continuance of the excellent work is evidenced by a perusal of the annual report which was adopted at the seventy-eighth meeting held at Barnsley under the presidency of Dr. J. Fletcher Horne. Grants to the amount of £1,540 were voted to upwards of forty applicants. The Treasurer, Mr. Wheelhouse, to whom the Society owes so much, was able to announce a legacy by the late Mr. W. H. Booth, of Sheffield, of £2,000, and this along with £1,000 has been added to the invested fund of the association. The amount laid by during the time of the Society's existence has reached the sum of £29,464, representing investments of a nominal value of £33,674, while the grants distributed since the beginning of the work of the institution amount to the handsome sum of £41,083. In referring to the losses which the Society has sustained through deaths during the past year, special notice was very properly taken in the report of the death of Dr. Smailes of Leeds and of Dr. Bell of Bradford. That of the former is referred to as a serious calamity, and the Society laments the loss in the prime of life of one than whom it had no more valued and heart-whole friend. Dr. Bell's connexion with the Society covered the long period of forty-seven years, and he acted as one of the stewards for no less than thirty-two years. With workers like these, of whom there are not few, and with an enthusiastic head like Mr. Wheelhouse, it is little wonder that the Society flourishes, but it is matter for surprise that the membership is not larger even than it is.

Manchester.

Additional Beds for Infirmary: Proportion of Beds to Population in City.

The Board of Governors of the Infirmary has adopted a recommendation of the Buildings Committee that a third story be added to the surgical and medical blocks of the new hospital buildings in Stanley Grove. The additions will provide 108 more beds at a cost of £200 a bed. The new infirmary will then provide 600 beds. The extension will cost about £22,000, exclusive of surveyor's and architect's commission and furnishing. The following interesting table shows the position of Manchester and other large hospitals under the scheme approved, and also what it would have been had the scheme been rejected:

	Population.	Beds in General Hospitals.	Population per Bed.
Leeds	429,000	456	984
Liverpool	702,000	841	834
Birmingham	522,000	478	1,092
Glasgow	572,000	1,218	469
Belfast	349,000	300	1,163
Manchester and Salford ..	764,000	*741	1,031
.. .	...	†841	908

* On the basis of 490 beds in the new infirmary.
† On the basis of 598 beds in the new infirmary.

If the additional 108 beds had not been provided, the proportion of beds in relation to population in Manchester would have been lower than at Leeds, Liverpool, Birmingham, and Glasgow, only Belfast making a smaller provision.

Defects in Dairies and Cowsheds Order.

A case which came before the Stipendiary Magistrate at the police-court on October 5th, brought into prominence a shortcoming in the Dairies and Cowsheds and Milkshops Order, made under the Contagious Diseases (Animals) Act, 1894. A representative of the sanitary

department of the Corporation stated that the defendant was registered in respect of premises in Vine Street, but carried on his occupation elsewhere. There was no allegation that there was anything amiss with the premises in respect of which the defendant was not registered. It appears that the sanitary authority has hitherto been under the impression that dairymen had to be registered in respect of each place they occupied and that each place must be entered on the register. The stipendiary held that under the order a man may carry on the business of a cowkeeper without registration at all, apart from this particular Order. The Order imposes certain restrictions. One is that he shall be registered; that is all. A man is only liable to be registered for the place—in this case Manchester—in which he is entitled to carry on business of cowkeeper. The summonses were dismissed.

Bristol.

University College, Bristol.

The annual distribution of prizes in the Faculty of Medicine was held on October 2nd, the Right Hon. Lewis Fry being in the chair. After the Dean of the Medical Faculty, Professor E. Fawcett, had read the report, Professor Macalister delivered the address to the students. He said he had no connexion with Bristol beyond the fact that he was born in Dublin, a city given by Henry II to Bristol. It was encouraging to hear that the movement towards the development of universities had reached the western city, and was likely to bear fruit. They had all the conditions that fitted a city to become a centre of university education—a large population to draw upon, commercial and manufacturing enterprise, and abundance of public spirit amongst the leading citizens. As long ago as 1820 Dr. Prichard had advocated a university, pointing out how much behindhand England was as compared with Scotland. The western counties of England could supply students from two and a half million persons, while the nine northern counties which provided Aberdeen with students had a population under a million. And yet Aberdeen had recently celebrated its four-hundredth birthday as a university. Founders of the present day had special advantages; no obsolete traditions to hamper organization, and no provisions protecting certain branches of learning at the expense of others. In this Bristol would be more favourably placed than Dublin, who had been for over 300 years harassed by race animosities, though this was to be remedied by that panacea for all troubles, a Royal Commission. In some quarters there was a spirit of cheap and purblind utilitarianism, making universities little more than technical schools, and turning out undergraduates fitted for industrial, commercial, and scientific life. A university should be more than a technical school, its training should be broader and of a different grade, teaching knowledge of the discovery of new matter. It was of enormous importance that provision should be made for scientific research, and the seeker for truth must not be trammelled in his search by utilitarian traditions, but be ready to follow the results of his experiments, wherever they might lead. In the promotion of research Great Britain lagged behind the German Empire, for in the latter the universities were sufficiently furnished. As centres of research our universities were wofully behind. In Germany the professors aided the students in their researches, the former suggesting the nature of the work to be undertaken. It was true that the ordinary man was left to pick up what he could, but the provision was sufficient if he desired to work. In this country only one journal was devoted to his special subject, anatomy. It was of limited size, and the deficit had often to be made up out of their own pockets. In fact, it was found that if an English worker wished to publish advantageously he had to do so in a German journal. In the same way students in England were hampered in the framing and making known of their work. The contributions made to anatomy from Bristol were fully up to the best work that had emanated from other universities under more favourable circumstances. The university that Bristol wished to found must be organized with a wide purview in provision for research, and a city which had a great name as the starting-point for explorers would, he hoped, sustain its ancient glory by discoveries in the realm of science. The annual dinner was held the same evening.

Newcastle-upon-Tyne.

College of Medicine: Opening of Heath Wing.

The opening of the Heath Wing of the University of Durham College of Medicine on October 4th, by the Duke of Northumberland, was most successful. After luncheon the professors and lecturers of the University of Durham and of the Armstrong and Medical Colleges, Newcastle, walked in procession from the main building preceded by the macebearer and led by the President of the College of Medicine and the Duke of Northumberland, to the doorway of the new wing, at the entrance to which the group was photographed. Here His Grace was presented with a gold key by Mr. W. Ellison Fenwicke, on behalf of the architects and the contractor. After inspecting the students' rooms on the ground floor, the laboratories of the physiological and bacteriological departments were visited, the Duke exhibiting a keen interest in the instruments and apparatus provided for practical work therein. On reaching the large examination hall, the members of the College of Medicine and several of the invited guests took their places on the platform, Sir George H. Philipson, as president of the College, occupying the chair. The students, who were assembled in considerable force, lent their usual merriment to the proceedings. In his prefatory remarks, the President paid a graceful and grateful tribute to the memory of the founder of the wing, the late Dr. George Yeoman Heath, who was one of the most distinguished surgeons in the North of England and for many years the Professor of Surgery in the College of Medicine. In the entrance hall there is a handsome brass tablet on which is engraved the name of the donor and are recorded the conditions of the gift. Before presenting the prizes to the successful students the Duke of Northumberland pronounced the Heath Wing open, and in doing so stated that the wing was the third of three great and important buildings opened in Newcastle this year—namely, the Royal Victoria Infirmary and the Armstrong College, opened by His Majesty the King, and the Heath Wing, opened by himself. In a speech marked by great earnestness and ability, indicating a comprehensive knowledge of the general facts of hygiene and preventive medicine, and listened to with close attention by the students, the Duke of Northumberland pleaded the cause of public health, and especially the establishment of a Chair of Tropical Medicine. The prevention and mitigation of those diseases which in our unhealthy colonies are a scourge alike to the British and native populations were objects deserving of the closest study and worthy of the highest efforts of attainment. Congratulating the students upon the rich opportunities afforded them by the Colleges of Medicine and Science and by the Infirmary, his Grace alluded to the specialization that is taking place in scientific inquiry, and to the impossibility of men knowing intimately more than one or two branches of human thought and activity. A vote of thanks proposed to the Duke of Northumberland by Professor Jevons of Durham University, and seconded by Dr. H. E. Armstrong, was suitably acknowledged by his Grace. To the President of the College of Medicine for his conduct in the chair an expression of thanks was suitably conveyed by the Lord Bishop of Newcastle and supported by Sir Walter Plummer.

There was a general feeling in the large audience assembled that this had been one of the most pleasant and successful openings of the College that had ever taken place.

Appointment of Honorary Surgeon to the Royal Victoria Infirmary.

At a meeting of the Election Committee of the Royal Victoria Infirmary on October 4th, Mr. John Victor Walton Rutherford, M.B., C.M.Edin., M.R.C.S.Eng., was elected an Honorary Surgeon to the Institution, vice George Walter Ridley, M.B., F.R.C.S., appointed Surgeon to the Throat and Ear Department and in charge of beds in the Infirmary. Mr. Rutherford has been Assistant-Surgeon to the Infirmary since 1897.

CLINICAL LECTURES.

At the New Infirmary the clinical work of the winter session has begun. To Professor Oliver belongs the distinction of having given the first lecture on clinical medicine in the Royal Victoria Infirmary, and to Mr. Albert M. Martin a similar honour as regards clinical surgery.

Sheffield.

PRESENTATION TO DR. CHARLES PORTER.

DR. CHARLES PORTER, who was recently Lecturer on Bacteriology at the University, and who resigned this post on his appointment as Assistant Medical Officer at Leeds, was presented with a testimonial at a supper on October 6th. Upwards of fifty attended. Mr. Simeon Snell presided. After the health of the guest had been proposed by Mr. Reckless, the Chairman presented the testimonial to Dr. Porter, which consisted of an illuminated address, together with a gold watch and chain. The address ran as follows:

"During your residence amongst us we have had ample opportunities of recognizing your marked ability, and you have endeared yourself to us by your many acts of courtesy and by your genial, straightforward conduct. We wish, therefore, to express to you our sincere regret at your departure from Sheffield. We feel, however, that you are as yet only at the opening of a career full of bright promise for the future, and we desire to convey to you our best wishes for your welfare and success in the life that lies before you.

We beg your acceptance of this testimonial and gold watch and chain as a small token of the high esteem in which you are held by us.

To it the names of the subscribers, 104 in number, were attached. The whole of the proceedings were most hearty, as Dr. Porter, during the short period of three and a-half years that he was resident in Sheffield, succeeded in a very unusual degree in making himself popular with his medical *confrères*, and his departure, so that he may resume public health work, has been a matter of the greatest regret.

DEATH OF THE SECRETARY OF THE ROYAL INFIRMARY.

The Royal Infirmary has lost a most valuable servant by the decease of Mr. G. H. Day, which occurred after a very brief illness on October 4th. Mr. Day was appointed Assistant Secretary to the Infirmary in 1874, becoming Secretary on the death of the late Mr. Kirk in 1882. He was a man who devoted his best energies to the interests of the institution, and perhaps no higher estimate can be formed than to say that for the long period he was connected with the institution he proved himself a faithful servant.

EXCESSIVE INFANT MORTALITY.

In the recent report of the medical officer of health (Dr. Scurfield), special attention is drawn to the excessive infantile mortality. Dr. Scurfield points out that of the twenty largest towns Sheffield's record was the worst—with the exception of Bolton—for 1905. At Bolton the rate for children under 1 year was 167 per 1,000, while at Sheffield it was 166. He further states that during the year 6,673 mothers were visited by women inspectors, and of these only 167 were engaged in any employment. There is, therefore, no excuse for the unenviable position Sheffield occupies as regards infantile mortality, nor is there reason to suppose that the milk supply is worse than in other large towns, and he therefore states that he is driven to the conclusion that there is in Sheffield an excessive amount of ignorance, carelessness, and wilful neglect on the part of the mothers. The opinion thus forcibly expressed by the medical officer of health is one that calls for inquiry, and there is every reason to think that the City Council will now consider what measures can be adopted to mitigate this grave evil.

MIDWIFE CHARGED WITH THE SALE OF DIACHYLON AS AN ABORTIFACIENT.

A prosecution took place on October 3rd of a woman charged with selling poisonous pills containg lead for unlawful purposes. The prosecution was undertaken with the object of endeavouring to check the further use of lead or diachylon. The defendant was a certified midwife. Evidence was given showing that she had sold pills to a woman informing her how and when she should take them. A solicitor from the town clerk's office, appearing for the Corporation, stated that the police had difficulty in dealing with these cases, as they had been unable to bring to light the sale of pills by people like the defendant. The prosecution did not disguise the fact that women were sent with the avowed intention of procuring pills from her. The pills were analysed by the city analyst, the average weight of those examined by him being 2.8 gr., and each pill contained 0.85 gr. of lead, expressed as metallic lead, in the form of emplastrum plumbi or diachylon. Medical evidence was given by Dr. Arthur Hall and Dr. Godfrey Carter, and the magistrates agreed that the case was one for a jury to decide, and the defendant was committed for trial at the quarter sessions. Cases in which two other women were involved were adjourned.

South Wales.

UNIVERSITY COLLEGE OF WALES, ABERYSTWITH.

THE inaugural address to the students of the University College of Wales, Aberystwith, was delivered on October 9th by Dr. Herford, Victoria University, Manchester. The lecturer dealt with literature and ethics, elaborately tracing the influence of ethics on literature. He brought home the conflict that exists in human life not only between good and evil, but in things that are themselves good. At the close a hearty vote of thanks was passed to Dr. Herford, on the motion of Professor Anwyl, seconded by Professor Aitkens, a former colleague of Dr. Herford at Manchester.

SCHOOL HYGIENE.

Alderman S. N. Jones presided at the Cardiff City Hall at a meeting, held on October 5th, of the General Committee for South Wales, which is making preparations for the International Congress on School Hygiene to be held in London during August, 1907. The Chairman said that at the last meeting they appointed not only a Working Committee, but also a Permanent Committee, whose function was to bring matters relating to school hygiene before local educational authorities when it appeared desirable. However, he considered that until the Congress was over they would have quite enough to do in getting their organization ready, and it was decided that for the present the Committee should confine itself to arrangements for the Congress. Dr. C. J. Thomas, one of the medical officers to the London School Board, who attended as a deputation from the Central Committee, pointed out that Organizing Committees had been appointed for all parts of the civilized world. At present there was a Committee in North Wales, and another in South Wales. He suggested that they should meet at Shrewsbury, and there elect joint officers. The Central Committee were anxious that every educational authority in Wales should send representatives to the Congress. The suggestions of Dr. Thomas were adopted. The Committee decided to request the Central Committee to supply it with circulars, which will be sent to all the educational authorities, and the Executive Committee is instructed to see that some one on each authority shall draw special attention to the circulars when received. Miss E. P. Hughes, M.A., Barry, urged the necessity of the adequate representation of teachers, and it was decided to suggest to the executive that they should approach all the associations of teachers in Wales. The suggestion of Dr. Lloyd Edwards that bodies which were in any way associated with educational work should be invited was adopted.

CARDIFF INFIRMARY.

The Cardiff Infirmary has just received most generous gifts at the hands of Mr. W. James Thomas, J.P., of Ynishir. In 1902 Mr. Thomas endowed a bed in the institution, in memory of his grandfather, by a donation of 1,000 guineas, but it was not until October 9th that he was able to visit the Infirmary which owed so much to his generosity. His visit on this occasion was principally with the object of furthering the fund for remodelling the out-patient department, towards which he then subscribed the handsome sum of £250, but he was so impressed by the good work which the hospital is doing that he decided in addition to endow another bed in memory of his father. From his generous hand the Cardiff Infirmary has therefore received within the last few

years no less a sum than £2,400—£50 of which was given to a special fund for equipping that most useful adjunct of the Infirmary, the electrical pavilion. This is not the only institution helped by Mr. Thomas, for quite recently he gave a sum of £250 towards the Porthcawl Rest, and his great interest and practical influence are always placed in the service of every movement promoted for the welfare of the people at his collieries. Mr. Thomas's gift of £250 gives a great impulse to the completion of the fund for remodelling the out-patient department, and this has been supplemented by the following gifts received since our last announcement, so that £5,841 16s. 5d. has now been subscribed: Messrs. Cory Brothers, £52 10s.; Powell Duffryn Steam Coal Company, £50; Abergorki Colliery Workmen, £48 4s. 9d.; Lord Wimborne, £25; Bwllfa Lodge of the South Wales Miners' Federation, £20; collected by Messrs. J. Granville and J. Hammond (including £2 12s. 6d. from the Llwynypia Drum and Fife Band), £10 16s. 6d.; Messrs. Star Patent Fuel Company, £10 10s.; Llwynypia Colliery workmen (additional, making the handsome total of £80 10s.), £5 10s.; United National Collieries, Limited, £5 5s.; C. H. Vivian and Co., £2 2s.; Abernant Colliery workmen (making a total of £3 1s.); T. V. R. (Treherbert district, per W. Cook), 13s. There is therefore only £1,158 3s. 7d. now required of the £7,000 necessary to take advantage of the challenge, and it is earnestly hoped that this amount will be made good at an early date.

SPECIAL CORRESPONDENCE.

PARIS.

Professor A. Fournier on Syphilis among Married Women.—French Surgical Congress.—Continental Anglo-American Medical Society.—Proposed Presentation to Dr. Alan Herbert.

The Académie de Médecine met again after the long vacation on October 2nd, and Professor A. Fournier made an interesting communication on the subject of syphilis among virtuous married women. From his own clinical experience he has found that for 100 cases of syphilis in the female sex, 20 occur among married women. From an examination of 312 such cases Professor Fournier finds that 218 were contaminated by a husband syphilitic *before* marriage, and in 94 cases contaminated by a husband becoming syphilitic *after* marriage. Thus, two-thirds of the cases are contaminated by the husband who was syphilitic at the the time of marriage. By inquiry into the date of contamination after marriage, he found that in 86 per cent. of the cases the wife was infected during the first twelve months, 117 cases during the first six months, 13 only during the second six months. Later cases of infection occurred up till the ninth year after marriage. On questioning 142 of the husbands, he found that 98 had had syphilis less than three years before marriage. From the prophylactic point of view, those figures show that syphilitic patients marry too soon—before they have the right, medically and honestly, to become husbands and fathers. Professor Fournier said that he formerly believed that three to four years was sufficient, but he finds empirically that four to five years would be a safer average period. A small part of the blame is due to the physician who allows too early marriage, but in the great majority of cases it is due to ignorance and heedlessness, and Professor Fournier insists on the necessity of a prophylaxis based on the diffusion of knowledge about syphilis such as is given in certain industrial, scientific, and military centres (Saint-Cyr, Ecole Polytechnique, Ecole Normale, Institut Agronomique, etc.), and has just been inaugurated in all the *mairies* of Paris.

The Nineteenth Annual Congress of the French Surgical Association opened on October 1st, under the chairmanship of Professor Monprofit of Angers, who in his inaugural address spoke of the reform of medical studies, and said that the accessory sciences should not be allowed to take up too much of the student's time, but should be brought nearer to clinical study, and not prevent students from receiving instruction at the bedside during their first year. From the moment that a student begins to study medicine he ought to pass as much as possible of his time in the hospital and in the dissecting-room. The first subject discussed by the Congress was the Surgery of the large Venous Trunks, the reporter being M. Lejars of Paris. The other principal subject was Ways and Means of Access to the Thorax from the Operative Point of View, introduced by M. Ch. Willems, of Gand, and Dr. Loison, Professeur-agrégé at the Val-de-Grâce Military Hospital.

The annual meeting of the Continental Anglo-American Medical Society will be held in Paris on Tuesday, October 30th, at 4.30 p.m. at the residence of the Honorary Secretary, Dr. Leonard Robinson, Rue d'Aguesseau. The annual dinner will be held the same evening at 7.30 p.m. at the Hôtel du Palais d'Orsay. It was intended to make the annual dinner of the Society an occasion on which to make a presentation to Dr. Alan Herbert to celebrate his promotion to the rank of Officier de la Légion d'Honneur, and as a slight return for the many services he has rendered not only to the Society but to the profession generally. Owing to a very recent family bereavement the presentation has been postponed. Subscriptions, however, may be addressed to Dr. Bull, 4, Rue de la Paix, Paris, who is acting as Treasurer for the Committee.

BERLIN.

Professor Waldeyer.—The Ambulance Service.—The late Fritz Schaudinn.

One of the most famous men of Berlin University, Professor Waldeyer, the anatomist and anthropologist, has lately completed his 70th year. There were none of the usual celebrations, banquets, and congratulatory addresses to chronicle, for Waldeyer spent the day in family retirement, away from Berlin; but it must not be thought that the occasion passed without notice. The medical journals, and even the leading dailies, have published special articles, all unanimous in their praise of Waldeyer, both as an inquirer and as a teacher, and in their admiration for his notable, and as yet quite undiminished, power of work and love of work. Waldeyer's best-known researches are, perhaps, those on cancer. They were published between 1868 and 1872, and their main conclusions remain undisputed at the present day. Since then he has published a large number of monographs on almost every organ of the body, which count among the classics of modern medical science. But it is as a teacher that Waldeyer stands pre-eminent. Himself deeply interested in every detail of his subject, extremely conscientious, full of life and brisk animation, he has the rare gift of riveting his hearers' attention. An excellent draughtsman, he often illustrates his lectures by diagrams drawn on the blackboard with coloured chalks. This, of course, does not exclude demonstrations on the cadaver which are given at the close of each lecture. Most attentively Waldeyer watches his students' anatomical work; during the winter term he spends several hours daily in superintending their dissections. In fact, teaching, spreading enlightenment, wherever he meets the desire for it, is Waldeyer's passion. When the popular university courses (*Volkshochschulkurse*) were founded, he was one of the first to enrol himself as a teacher; he lectures at a ladies' college (the Victoria Lyceum), and when societies such as the Society for Popular Hygiene, or even charitable institutions, apply to him to deliver an address, he invariably finds time even for this.

The Berlin Rettungsgesellschaft (rescue and ambulance society) has a central office or bureau, seventeen chief ambulance stations, and a large number of local stations dotted over the city. The published statistics show that during last year (1905) aid was given in 65,957 cases. The expenses amounted to 62,972 marks (£3,148 12s.), but the finances are in a most flourishing condition, the account showing a surplus of 2,210 marks (£110 10s.). The income of the society is made up of 30,000 marks (£1,500), contributed yearly by the municipality, of fees from those aided (amounting to £224 in 1905), and of subscriptions and other voluntary contributions.

The German Dermatological Society has decided to subscribe 5,000 marks (£250) to the Fritz Schaudinn Fund, and to give the first volume of the Society's publications the title *In Memoriam Fritz Schaudinn.*

CORRESPONDENCE.

THE MEDICAL COUNCIL AND ITS PRESIDENT'S ADDRESS.

SIR,—I have read with interest and instruction the able address you published in your last issue of the BRITISH MEDICAL JOURNAL, and I quite agree with you, sir, regarding its felicitous wording and thereby pleasant reading.

There is, however, one point which seems to require further elucidation. It apparently involves not only the election of representatives to the Medical Council, but also the election of representatives to any public position in this "free (and easy) country" whether they are builders to urban district councils or the younger sons of a noble family to the House of Commons. In truth, it seemingly strikes at the root of our representative institutions generally and at the newly constituted British Medical Association in particular.

Dr. MacAlister says that the object the Legislature had in view when nearly fifty years ago the Medical Council was created was not "to put down quackery or even advance medical science. The object in view was simply the interest of the public." He then quotes the preamble of the Act, which certainly seems to carry out this idea. If we are therefore to suppose that the creation of the Medical Council by a grandmotherly Legislature was to prevent the ignorant and foolish amongst us from mistaking a quack for a medical practitioner, it has signally failed in its object after forty-eight years of existence; and yet Dr. MacAlister states that we (the elective bodies) must not send delegates to the Council "burdened with a mandate or hampered with a pledge" to represent our view at that assembly. Nay, we must give them permission to do and act as as they—please!—I am, etc.,

Hove, October 6th. W. AINSLIE HOLLIS.

OVERCROWDING OF THE MEDICAL PROFESSION.

SIR,—Having regard to the statement in the BRITISH MEDICAL JOURNAL of October 6th—"that at the present moment the profession of medicine is overcrowded and is passing through an experience of vexatious and extraneous competition, etc."—is it not desirable that the British Medical Association should take some corporate action in the matter? I would suggest that the whole subject should without delay be referred to a representative Committee of the Association to consider the subject, and to recommend such steps to be taken as may seem desirable to prevent the evils complained of. I believe the Law Association has recently taken a somewhat similar course relative to the excessive number of solicitors.—I am, etc.,

London, W., Oct. 10th. REGINALD HARRISON.

ANTIVACCINIST TACTICS.

SIR,—Through the courtesy of W. J. Furnival, Esq., of Stone, Staffs, England, we have recently received two small brochures devoted to a review of the so-called medical literature adverse to vaccination.

The volume, entitled *Professional Opinion Adverse to Vaccination, American, Colonial, and Continental*, opens with an abstract of a paper by our health officer, Dr. Martin Friedrich, from the *Cleveland Medical Journal*, and a second abstract from a paper by the same author accredited to a monograph published by the Physical Culture Company, of Spotswood, New Jersey, although it originally appeared in the *Cleveland Medical Journal*. It seems to us wise, both on behalf of Dr. Friedrich and in the interest of the Cleveland profession, to make the true facts in the matter known through your JOURNAL.

The articles referred to in this brochure appeared in the *Cleveland Medical Journal* during the year 1902, the responsibility for their publication being assumed at that time by the then Editor-in-chief. In May of this year we received a request from W. J. Furnival, Esq., for permission to republish in pamphlet form one of these articles referred to above. In reply to this request we wrote under date of May 18th as follows:

Wm. J. Furnival, Esq.,
16, Granville Terrace,
Stone, Staff., England.

Dear Sir,—

With respect to your request to republish in pamphlet form an article which appeared in the *Cleveland Medical Journal* by Dr. Friedrich, we thought it best to ask the author whether he wished such republication. He said very positively that he did not.

In so far, however, as we are concerned, we are perfectly willing that you should reprint this article, provided only you publish in an equally conspicuous place, the following statement.

As shown by the records of the Health Office of Cleveland, Ohio, Dr. Martin Friedrich was appointed Health Officer during a waning epidemic of small-pox. He at once, and very properly, began to clean up the infected districts. The last cases soon disappeared, but previous to his campaign their numbers were becoming fewer and fewer.

In a very short time the disease was again introduced into Cleveland from without. In spite of the previous disinfections, and their vigorous continuance in the new epidemic, the number of cases increased month by month. At first, during the spring and summer with increasing numbers of cases, general vaccination was not introduced on account of Dr. Friedrich's unwillingness to use an unsatisfactory vaccine. Finally, however, a satisfactory virus was secured and general vaccination was begun. The workmen in numerous shops, children about to re-enter school for the fall term and all persons who came in contact with small-pox were vaccinated as rapidly as possible. Within two months after the beginning of general vaccination an epidemic which had promised by its constantly-increasing numbers of cases to be very serious indeed began to decline, and once on the decline dropped off with great rapidity.

You will please note that in the above statement there can be found scarcely a single statement of opinion—simply cold, hard facts. We presume that these facts are the reason why Dr. Friedrich declines to have his paper republished, though he does not say so.

We, therefore, can only grant permission for the republication of the article, if you agree also to publish the above statement, and thank you very much for not having published it without permission.

Sincerely yours,
(Signed) *The Cleveland Medical Journal.*

In this letter permission was given to make use of Dr. Friedrich's article provided only the statement contained in the last half of our letter be published in an equally conspicuous space. In the brochure before us, the first six and one-half pages have been abstracted from Dr. Friedrich's article and no allusion has been made in this place to our letter quoted above. Not until we reach page 175 of the brochure do we find our statement of the facts, and in this way the compiler has violated the conditions under which permission for republication was granted.

It is deeply to be regretted that the *Cleveland Medical Journal* should have been in the smallest degree available as a source of material for the propaganda of the anti-vaccinationists. We are delighted to be able to report that during the last four years, under the efficient management of Dr. Friedrich, our health officer, aided by a corps of district physicians, vaccination has been carried out in a most thorough manner with the happy result that Cleveland has been during this time practically free from small pox. At the present time it is the rule of our Health Office that no child shall be allowed to return to the public schools without having been first properly vaccinated.

Trusting that you will be able to give this communication the prominence which it seems to us to deserve, we remain,

Yours very truly,
EDWARD PERKINS CARTER,
Sept. 26th, 1906. Editor.
The *Cleveland Medical Journal* Company,
260, Euclid Avenue, Cleveland.

THE PRESENT POSITION OF PROSTATIC SURGERY.

SIR,—Once more Mr. Freyer evades the issues as raised by Robson, Fuller, Guiteras, myself, and others, and obscures the situation by raising side issues. In his letter of last week he states that my recent paper in the BRITISH MEDICAL JOURNAL of August 11th is mainly an amplified edition of two letters of mine which appeared in the JOURNAL in August and September, 1901. It is. In these letters I stated that Mr. Freyer had fallen into the error of publishing as his own, and as "new," two operations well known in surgery. These letters Mr. Freyer ignored. He now denies this, and states (vide his letter of the 6th inst.) that these letters of mine "were dealt with, along with others of a similar character, in my" (his) "letters published at the

time."[1] To characterize a statement as absolutely inaccurate is an ungracious task which happily I am saved; Mr. Freyer himself supplies his own refutation. His letters of August 3rd and 17th, 1901, in which he leads your readers to believe he replied to mine, appeared before my first letter was written (it appeared on August 24th, 1901). I repeat that Mr. Freyer ignored my letters, and that statement is borne out in Mr. Freyer's third letter (September 7th, 1901), in which he gives his reason for ignoring my first letter, as it dealt, so he alleged, with a *perineal* operation. My second letter remained absolutely unnoticed by him. The allegation on which he based his reason for ignoring my letter is, again, groundless, for both my letters dealt with "total extirpation of the prostate," and "vesical enucleation" as well as "perineal" enucleation. That by the way. The point is that Mr. Freyer did ignore my letters, and gave his reason for doing so. By doing so he avoided the necessity for dealing with the issues raised. These issues are again raised in my recent paper, and once again Mr. Freyer avoids them. The only relevant sentence in his letter, published in the JOURNAL of October 6th, is that "Professor Nicoll will find his claims, and those of Robson, Fuller, Guiteras, and others, fully dealt with in the new edition of my work on the prostate just published."

It seems rather a pity that Mr. Freyer should publish his reply to his critics in a special surgical monograph with a limited surgical circulation in place of in the JOURNAL, where his claims have been so freely controverted. However, to the work presently coming into our hands we must perforce look. The main object of my present letter is to restate the issues raised by Robson, Fuller, Guiteras, myself, and others. That is necessary owing to Mr. Freyer's repeated failure to note them. It is impossible here to do more than enumerate them. Detailed statements regarding them may be found in various directions, but the most accessible are probably the letters in the BRITISH MEDICAL JOURNAL in August, September, and October, 1901; Fuller's paper in the *Annals of Surgery*, April, 1905; and my paper in the JOURNAL, August 11th, 1906. They are as follows:

1. Mr. Freyer claims to have discovered that the prostate has a second capsule. Gray's *Anatomy*, to take a typical textbook of the schools, has in edition after edition for years back described this capsule.

2. Mr. Freyer (in 1900) claims to have discovered "a new method of performing *perineal* prostatectomy." The operation described by him had been in use in the hands of various operators for at least ten years previously.

3. Mr. Freyer (in 1901) claims to have discovered a "new" method of performing *vesical* prostatectomy. This is McGill's operation as perfected by Mayo Robson and Fuller.

4. Mr. Freyer claims (in 1901) to have removed the prostate "*as a whole*," operating by the *vesical* route, while leaving the "*urethra intact*." His critics believe this to be impossible, and Mr. Freyer to be in error in supposing he had done so.

5. Mr. Freyer claims (in 1901) that complete removal of the prostate is a "new" operation originating with him. Complete enucleation of the prostate had been previously repeatedly performed by different methods.

6. Mr. Freyer claims (in 1901) to have removed the prostate enclosed in its capsule for the first time. Prostates enclosed in the same fibrous investment which Mr. Freyer found on his specimens had frequently been previously removed.

These are Mr. Freyer's claims as set forth in his writings, and with each a statement of the position of his critics as taken up mainly in the papers quoted above. Mr. Freyer's new edition will be read with interest, and to the impartial opinion of the surgical side of the profession the decision must be left.

As to the side issues raised by Mr. Freyer in his letter of last week, the reason for the late appearance of my paper, of which he complains, is twofold. In the first place, his remarkable claims as to having removed the prostate in its capsule, and as to having removed the prostate as a whole by the vesical route without damaging the urethra, puzzled me as well as others, and time has been necessary to test them. In the second place, at the end of the correspondence in 1901, Mr. Freyer, in the face of the all-round refutation of his claims which was then offered him, finally[2] admitted that possibly he had not *said these things* first, but at least he had *said them loudest* (his quotation from Sydney Smith will be recollected). It has recently become apparent, however, that Mr. Freyer has forgotten the position he finally assumed, and is still claiming to have *said these things first*. Hence the reappearance of his critics at this late date.

Mr. Freyer also wants to know why I chose, in illustration of my letter of August 24th, 1901, the enucleated prostate there figured in place of those figured (3 and 11) in my recent paper. First, because (*pace* Mr. Freyer) it is a *very complete specimen of an entire prostate* enucleated from its capsule. The lateral lobes, body, and an unusually large and perfect middle lobe are all there, but are pinned out flat (the pins are shown) and not folded into position round a catheter as the parts have been in specimens 3 and 11 alluded to. Secondly, because I happened to have a really good block of a photograph of it to hand. Lastly, because, as stated in the letter in question, which Mr. Freyer ignored, *it shows very well* indeed the "*capsule*" which Mr. Freyer was at that time trying to persuade us he had first discovered as surrounding his specimens. I pointed out at the time that this capsule was well known; I selected this particular prostate to show it. Mr. Freyer found it convenient to avoid noticing it. I now leave the illustration to the judgement of those who care to refer to my letter of August 24th.

"Complete enucleation" of the prostate (a more clearly descriptive term than "total extirpation") is repeatedly referred to in my published papers, and is twice specifically described by me as far back as 1904,[3] and it was not new then. The illustration in my second letter is, as Mr. Freyer says, something like "chopped-up meat." The interesting point in Mr. Freyer's reference to it is that he omits to mention that in my letter it is specifically included, in a distinct paragraph, as a prostate removed piecemeal by *partial* enucleation, and, therefore, contrasting in that and other ways, with the complete prostate figured in the former letter. I did not even call it *a prostate*, but "1¾ oz. of prostate."

Regarding my illustrations, it is to be noted that they are all *photographs*. Had Mr. Freyer used photographs, the appearance of his illustrations would have been that of mine. His "wash drawing" pictures necessarily present a surface appearance such as no excised prostate ever possessed. Mine show the actual appearance, less pretty, but giving the facts, amongst which is the capsule shown in the prostate photographed in my letter of 1901. Mr. Freyer ignored the specimen then. He now admits its existence, but avoids reference to the "capsule" shown inclosing it. I leave it, and the whole of the questions raised, to the judgement of your readers after they have seen Mr. Freyer's coming new edition.—I am, etc.,

Glasgow, October 8th. JAS. H. NICOLL.

THE WRONG AND RIGHT USE OF MILK IN CERTAIN DISEASES OF THE SKIN.

SIR,—I am much interested in Dr. Duncan Bulkley's article in the BRITISH MEDICAL JOURNAL for October 6th, on the above subject. In it he asserts that the milk is taken up by the lacteals and discharged into the venous blood in the subclavian vein and vena cava, thence reaching the lungs without going through the process of coagulation, caseation, and subsequent gastro-intestinal digestion.

As all those interested in dietetics will agree, this would be a most valuable aid to feeding the badly nourished, and those suffering from various forms of dyspepsia, as well as in those cases of skin diseases suggested by Dr. Bulkley, but before being generally accepted, there are, I think, one or two points which require explanation:

1. Has Dr. Bulkley ever proved that the milk remains fluid after it has reached the stomach, so allowing of absorption by the lacteals, instead of being coagulated as one generally expects to find it? This could easily be done by passing a stomach-tube ten or fifteen minutes after half a pint of warm milk had been taken.

2. If it be so, that milk taken as suggested does not

[1] BRITISH MEDICAL JOURNAL, August 3rd and 17th, and September 7th, 1901.

[2] BRITISH MEDICAL JOURNAL, September 7th, 1901.

[3] *Lancet*, April, 1904.

coagulate, why does it do so in the stomach of an infant? A baby is given its milk on an empty stomach, but surely this always goes through the ordinary process of coagulation and gastro intestinal digestion, as is only too often evinced by the undigested curd appearing in the motions.

If milk possesses sufficient stimulus to start the secretion of gastric juice in the stomach of an infant, why should it not do so in the case of an older person? If it does not, at what age does this cease?

Then, again, how does milk behave in the case of adults entirely on a milk diet? In our cases of typhoid we are very anxious to see that there is not much undigested curd in the stools where the patient is being fed on milk; but, if Dr. Bulkley's surmise is correct, this milk, if given alone, as it frequently is, should never form a coagulum.

This I write in no carping spirit but as one who, being much interested in dietetics, wishes for further information.—I am, etc.,

London, W., Oct 9th. J. SADLER CURGENVEN.

THE DECLINE IN THE BIRTH-RATE.

SIR,—The relative infertility of the marriages of the well-to-do as one of the factors in our declining birth-rate very properly engages the attention of our graver publicists; for, if this continue, and certainly if it increase, it is argued cogently that the quality of the race will suffer.

Sir James Crichton-Browne periodically dejects us with gloomy orations, and Dr. Newsholme and other statisticians produce arrays of depressing figures, which they make the basis of disquieting vaticinations; we have nasty expedients to prevent conception more or less nebulously hinted at, "racial *felo-de-se*," etc., and have it roundly affirmed that these practices are largely on the increase. Doubtless they are very important factors in the decline in the birth rate, in some places possibly the most important, but as affecting more especially the relatively well-to-do of all classes, lands, and nationalities, none of these gentlemen, so far as I know, pays any attention to, or even notices an influence, common to them all, and in my judgement, of very real importance in lessening the fertility of the well-to-do—namely, hypernutrition, and by "hypernutrition" I mean nutrition carried persistently to physiological excess. An influence, too, which can be found to be as rampant in the households of highly-paid artisans as in the halls of the exalted—in short, among the relatively well-to-do of all classes. Of course, the age-periods at which marriage takes place in differing social strata have to be allowed for, as must also the fact that chronic hypernutrition tells with an intensity differing more or less directly with the age of the victim of it, the intensity rising usually proportionally with the years some differentiation having to be made for physical activity and the opposite.

I do not attach great importance to experiments on animals, when dealing with man, because in the latter we have the all important psychological factor; though doubtless many of your contributors will be familiar with the effects of chronic overfeeding upon the fertility of the former; but the proper study of mankind will, I doubt not, provide more than a sufficiency of material to the more observant and reflective of your readers. Any way, to get your readers to turn their attention to the influence of persistent hypernutrition upon human fertility is the primary purpose of this letter, my duties just now leaving me no time to do more than humbly to submit the subject to their unbiassed consideration.—I am, etc.,

Norwich, Oct. 3rd. H. C. PATTIN.

PRODROMAL SYPHILIDES.

SIR,—In his interesting paper which appeared in the BRITISH MEDICAL JOURNAL, October 6th, p. 844, Dr. R. W. Taylor, of New York, quotes from Bumstead and Taylor's work on venereal diseases (published in 1883) a paragraph written by himself concerning "prodromal" syphilides. Dr. Taylor also states that "Dr. H. G. Klotz hunted thoroughly through all medical literature and could not find any other information on this subject; hence he cited me as the pioneer." It may be worth while, therefore, to point out that the occasional occurrence of a papular eruption in the neighbourhood of a syphilitic primary sore, and before the period of general eruption, is mentioned in Hill and Cooper's *Syphilis and Local Contagious Disorders*, 2nd edition, 1881, p. 118. On the same page it is also mentioned that a similar kind of localized eruption had been described in connexion with some of the cases of experimental inoculation of syphilis in time gone by.—I am, etc.,

London, Oct. 9th. ARTHUR COOPER.

SPIRILLAR FEVER IN CHINA.

SIR,—The recent importance that has been attached to spirilla or spirochaetes as causative agents of disease, and the fact that relapsing fever has not apparently been met with before in Ningpo, China, prompt me to report the following case: A Chinese tailor, aged 27, was admitted to the wards of the C.M.S. Mission Hospital, Ningpo, China, on June 4th, 1906, suffering from headache and fever of two days' duration. The illness had commenced suddenly, without definite rigor, and his condition on admission was as follows: Temperature 100° F., increased respirations, injected conjunctivae, pulse varying between 100 and 130, spleen just palpable and very tender, liver three fingerbreadths below costal margin; tongue dry, brown, and furred. On the following day, the fifth day of the illness, the temperature was 104° F., and the blood when examined at midday showed a fair number of spirochaetes closely resembling in morphology the spirillum of Obermeier. Later in the day, 9 p.m., the organisms had entirely disappeared, and the crisis took place during the night, leaving the patient next day weak but comfortable; for the first time also a well-marked petechial rash now appeared, specially marked over the tibiae and forearms. Recovery was uneventful, and though carefully watched for seventeen days no relapse occurred. With regard to the occurrence of true relapsing fever in Ningpo, Dr. Grant, the port doctor, with eighteen years' experience, has not met it. The Medical Officer of Health for Singapore (Dr. Stanley) thinks it must be very rare, but fully confirms the presence of spirilla in the specimen sent to him. The case is interesting because of some of the anomalies it presented, especially the fact of there being no relapse, and no other cases being heard of even though in the somewhat crowded ward the conditions were certainly favourable.—I am, etc.,

ARTHUR F. COLE.

C.M.S. Mission Hospital, Ningpo, China, Aug. 1st, 1906.

ST. BARTHOLOMEW'S HOSPITAL DINNER.

SIR,—May I ask you to modify a sentence in the report of my speech at the old students' dinner, St. Bartholomew's Hospital? As regards the subject of concentration and giving up the teaching of the preliminary sciences, the opinion I expressed was that ours, being an old and large school, ought not to hurry in taking such an important step.—I am, etc.,

London, W., Oct. 9th. J. A. ORMEROD.

MEDICO-LEGAL AND MEDICO-ETHICAL.

LOCUM TENENS AND PRINCIPAL.

NOVICE writes that a practitioner placed his practice in charge of a *locum tenens*, avowedly going for a holiday; in reality with no intention of returning. At the end of the period for which the *locum tenens* was engaged the principal's lawyer came with full powers of attorney to settle up affairs. At his request the *locum tenens* agreed to continue carrying on the practice until affairs were settled. Is it in order for the attorney thus to conduct a practice, and does the *locum tenens* incur any risk in thus carrying on the practice?

*** There is nothing improper in this arrangement, and the *locum tenens* incurs no risk. The solicitor does but act as agent for the absent principal, and in no sense can be considered as carrying on a practice for himself.

A MIDWIFERY ENGAGEMENT.

A. R. writes that he was recently engaged to attend a lady in her confinement. He now finds she has been delivered, and another practitioner is attending her. The engagement was booked in the usual way. Is he entitled to his fee, and would he be likely to recover in the county court?

*** Assuming the facts to be as stated, there was a definite contract between our correspondent and his patient, that is if, in booking the case, a fee was agreed upon. If there was such a contract our correspondent is entitled to recover his fee in the usual way, but he must consider carefully whether it is wise to carry the matter into the county court.

The court is not always in sympathy with the doctor, and legal decisions on this subject are conflicting.

COMMERCIAL TRAVELLERS.

A CORRESPONDENT complains of commercial travellers calling on him too frequently. They send up their names as if they were patients. He would be glad to know of a polite method of not seeing them.

*** Our correspondent should give his servant instructions to ask the caller's business before admitting him.

FEE FOR SANITARY INSPECTION.

FEE writes that he was called in by the landlord to inspect a closet and drain on premises situated one mile from his house. He had to make two visits of inspection and then was required to give evidence in court. What fee should he charge?

*** We think five guineas would be a reasonable fee.

CALLING ON PREDECESSOR'S PATIENTS.

S. F. Y. having bought a practice in which no introduction was given, owing to the ill health of the vendor, wishes to know if there is any reason why he should not call personally upon those patients whose names appear on the ledger as having been attended every year since 1903.

*** There can be no harm in our correspondent calling on persons who were bona fide patients of his predecessor. The fact of their names being on the ledger as stated is fairly strong evidence.

A WORKING ARRANGEMENT.

A CORRESPONDENT writes that there are two villages in South Wales, X. and Y., three-quarters of a mile apart. Three doctors resident in X. have each a qualified assistant and a surgery in Y. Y. can properly support only one doctor. If the three doctors in X. agreed to put and support one doctor in Y., would that be workable, and could a legal bond be drawn up to bind the three and protect their respective interests?

*** The proposed arrangement seems to be workable, and any solicitor would draw up a bond of the nature indicated by our correspondent.

A CARELESS AUTHORITY.

A CORRESPONDENT writes that a short time ago he attended a child with scarlet fever, and fourteen days later the father called and questioned his diagnosis. Another medical practition was suggested, but the father called in no other doctor, and allows the child to run about the streets. The rural sanitary authority takes no action.

*** Our correspondent should bring the facts before the medical officer of health.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

TUBERCULOSIS IN CHICAGO SCHOOLS.

As a result of a conference between members of the Chicago Board of Education and a Committee of the Chicago Tuberculosis Institute, the following innovations are (says the *Medical Record*) likely to be introduced into the schools of the city: The establishment in every school building of a dispensary room for the examination of suspects and the treatment of cases; separation of the tuberculous pupils into two classes, contagious and non-contagious; the organization of a corps of visiting nurses to visit the homes of suspects, dress open wounds, and report conditions to the Board (it was pointed out that such a corps of nurses would render valuable service in reducing truancy by investigating all cases of illness and returning the sufferers from minor complaints to the school with all possible speed); regular inspection of all schools at stated periods by medical inspectors; establishment of surveillance for suspects and those suffering with the disease, with a view to excluding the victims the moment their presence in the class-room becomes a menace to the other children; the providing of special educational facilities for the victims of tuberculosis in its contagious forms; the segregation of all children suffering from tuberculosis of the bones.

PAYMENT FOR ATTENDANCE ON PATIENTS IN AN ISOLATION HOSPITAL.

W. B. C asks for information on this point. He does not state the size of the hospital in question, and even then it would be difficult to decide the appropriate salary unless one knew the local circumstances. Three arrangements are made: (1) A fee is paid for each visit; (2) a retaining salary is given and a fee for each visit; or (3) a fixed salary is given irrespective of the amount of work. As a rule, we think that the last arrangement works best. We would advise W. B. C. to send a letter of inquiry to the medical officers of five or six other hospitals of a size corresponding to the one in which he is interested. This would give him a much better idea of the salary that should be asked.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF LONDON.

Convocation.

A GENERAL meeting of Convocation was held at the University on October 9th. Sir E. H. Busk, Chairman, presided.

Deputy Chairman of Convocation.—Mrs. Sophia Bryant, D.Sc., was the only graduate nominated for the office of Deputy Chairman of Convocation, and was unanimously elected. Mrs. Bryant was heartily applauded upon assuming the post, and cordially thanked Convocation for the honour conferred upon her, this being the first occasion upon which a lady has filled this office.

The University Union.—Mr. B. Whitehead, M.A., Secretary to the Union, presented and moved the reception of the report of the Special Committee, of which an account was published in the BRITISH MEDICAL JOURNAL of October 6th, p. 898. Mr. Hurd, LL.B., seconded the proposition, which was unanimously agreed to.

Date of Meeting.—A resolution fixing May 7th, 1907, as the date of the meeting of Convocation instead of May 14th, 1907, was unanimously adopted.

University Colours.—Mr. B. Whitehead, B.A., moved:

That it be remitted to the Standing Committee to consider the question of "University colours."

He said that in most universities there were recognized colours which formed the badge in all athletic games. He believed that for some years the colours red, white, and blue had been sold as the University colours, but they had never had the sanction of the Senate or of Convocation. Such colours were usually taken from some dominant colour in the coat of arms of the individual or institution, and he himself was rather in favour of red as the colour for the University, since from time immemorial red had been the dominant colour on the shield of the City of London. He knew, however, that there were objections. The motion was seconded and unanimously adopted.

Readmission to Convocation.—Dr. A. P. Allan moved:

That it is desirable, in the event of any occasion arising on which the privileges of Convocation can be exercised, that graduates who have paid the fee for readmission to Convocation should be immediately readmitted by the Chairman of Convocation instead of having to wait for a meeting of the Senate, whereby the exercise of their privileges is lost for the time being.

Mr. W. Whitaker, B.A., F.R.S., seconded the motion, which was carried.

Reports of the Standing Committee.—The following proposal—

That Standing Order 4 of Convocation be amended by the addition of the following words:

> And that the statement include the full text of any communication which the Standing Committee desire to make to Convocation in respect to any business to be brought before such meeting or any amendments which the Standing Committee recommend in respect to the resolutions to be proposed at such meeting,

was moved by Mr. W. W. Seton, M.A., and the Rev. E. C. Hudson, B.A., but was negatived.

Election of Senators.—In the Faculty of Arts Mr. R. C. B. Kerin received 1,215 votes and Dr. G. Armitage-Smith 561 votes; in the Faculty of Medicine Dr. E. Graham Little received 444 votes and Dr. F. Taylor 431 votes. Mr. Kerin and Dr. Little were accordingly declared to have been elected.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

First M.B., Part I.—F. S. Charnock, V. S. Cox, G. T. Cregan, C. W. Fort, H. Harrison, J. Leach, W. H. Parkinson. *Part II.*—C. T. G. Bird, L. T. Challenor, H. Heathcote, H. C. Wright.

UNIVERSITY OF DURHAM.

THE following degrees were conferred at the Convocation on September 29th:

M.D.—L. A. Clutterbuck, Sophia B. Jackson, P. W. James, T. C. Rutherfoord, W. Simpson, J. A. Swindale.

M.D. (FOR PRACTITIONERS OF FIFTEEN YEARS' STANDING).—A. J. G. Barker, F. J. Brown, J. D. Cree, T. L. Crooke, E. J. Cross, M. Dobbs, H. J. Edwards, E. Ellis, J. W. Gill, F. M. Graham, C. R. M. Green, H. Joslen, A. B. Kingsford, R. E. Lauder, J. Menzies, C. J. Sharp, A. G. Southcombe, G. G. Stuart.

M.S.—T. Y. Simpson.

M.B., B.S.—V. E. Badcock, G. Denholm, R. J. Douglas, N. A. Eddlestone, Florence B. Lambert, A. C. H. McCullagh, E. Martin, Bertha M. Mules, Jessie I. M. Morton, S. Nix, F. C. Pybus, G. R. Philipson, D. M. Ross, T. L. Wormald.

B.Hy.—I. Thompson, M.B., Ch.B., New Zealand.

The Diploma in the same subject was received by I. Thompson and J. H. Tripe.

ROYAL UNIVERSITY OF IRELAND.

THE following candidates have been approved at the examinations indicated:

THIRD M.B. (*Upper Pass*).—*D. S. Clarke, B.A., *W. Faith, J. Ferguson, B.A., *M. F. Fitzgerald, W. P. MacArthur, J. J. McGrath, K. F. Mulligan, *J. A. Sinton, V. Wiley.

(*Pass*).—R. J. Clarke, A. W. Connolly, H. J. Grant, P. Keelan, P. J. Keogh, A. Kidd, J. C. Macaulay, S. W. McComb, W. C. McCullough, R. A. McLaverty, H. Mathewson, U. J. G. Mulligan, P. J. O'Brien, B.A., M. O'Connell, D. O'Sullivan, M. Shipsey, B. A. West, J. N. Williams.

* May present themselves for the further examination for Honours.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT the monthly business meeting of the College, held on Friday, October 5th, the President admitted to the Membership the following candidates who had been successful at the Stated Examination held on Wednesday and Thursday, October 3rd and 4th, 1906: Jane Elizabeth Waterston, L. and L.M., R.C.P.I., 1879, L.R.C.S.Edin., 1888; M. Cagney, M.B., B.A.O., R.U.I., 1903.

At the same meeting Dr. James MacMunn, of Crouch End, London, L. and L.M., R.C.P.I., 1876, was granted the Membership.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examinations indicated:

PRELIMINARY.—U. L. Bourke, J. J. B. Breakey, D. Burns, C. H. Christal, H. Cochrane (with honours), A. N. Cole, A. H. Croly, T. Dowzer (with honours), R. M. Erskine, F. C. Fisher, J. Fitzgerald, M. Golding, A. F. C. Hogg, C. W. Joynt, H. R. L'Estrange, F. J. Meenan, S. H. Moss, C. E. Murch, R. J. McArdle, P. H. McDonough, A. J. Neilan, J. L. Nunn, H. V. Odlum, L. O'Donovan, R. H. Orr, K. L. O'Sullivan, J. C. Sproule, V. J. White, and Walter Williams.

FIRST PROFESSIONAL.—H. E. Clarke, H. D. Gasteen, J. Gormley, J. J. Glynn, J. D. Hamilton, E. E. Holden, R. H. Hodges, W. Y. Johnston, A. P. Kennedy, A. M. A. Lanphier, L. A. Moran, W. H. Murray, H. McAdoo, J. McMullen, T. B. Newman, M. A. O'Callaghan, B. O'Donnell, J. H. O'Neill, J. Purcell, and A. Wiley.

SOCIETY OF APOTHECARIES OF LONDON.

AT a meeting of the Master, Wardens, and Court of Assistants of the Society held at their Hall on October 9th, the honorary freedom of the Society was conferred upon Mr. Alderman and Sheriff Crosby, who is a Licentiate of the Society. The Master, Mr. E. Parker Young, and Wardens subsequently entertained at dinner Dr. Crosby, the members of the Court of Examiners, the Deans and Wardens of the Metropolitan Schools of Medicine, and a large number of the Livery of the Society.

The following candidates have been approved in the subjects indicated:

SURGERY.—†H. A. Fenton, †*Q. S. Keat, †C. J. M. Lawrence.

MEDICINE.—†C. C. Morrell, *J. W. Peatt, †G. M. Seagrove.

FORENSIC MEDICINE.—A. E. Blythman, M. L. Ford, Q. S. Keat, C. C. Morrell.

MIDWIFERY.—Q. S. Keat, G. Rollason.

CHEMISTRY.—A. Jonathan.

MATERIA MEDICA AND PHARMACY.—A. Jonathan, H. S. Naylor, D. L. Schwabe, A. Singha.

ANATOMY.—E. W. Archer, G. K. Aubrey, A. Baxendale, J. Brearley, E. C. Brisco-Owen, F. C. Eberhardt, M. Remers.

PHYSIOLOGY.—G. K. Aubrey, E. C. Brisco-Owen, F. C. Eberhardt, G. S. Richardson.

† Section I. * Section II.

OBITUARY.

R. S. STEWART, M.D.,

Medical Superintendent, County Asylum, Bridgend.

DR. R. S. STEWART died on September 28th after a lingering illness. He came to the Glamorgan County Asylums twenty years ago as assistant to Dr. Pringle, then medical superintendent to the institution. On the resignation of Dr. Pringle in 1902, the Asylums Committee showed their high appreciation of the services of Dr. Stewart by appointing him to the vacancy without advertising the post. Dr. Stewart had a severe attack of pneumonia a few years ago. He recovered a little, but again lung trouble attacked him, and eventually heart weakness, which it is understood was the immediate cause of death. He was married only last summer. Mrs. Stewart is also a qualified medical practitioner.

Dr. Stewart was a man of very high qualifications as a specialist in mental diseases. He had a distinguished career as a medical student, qualifying M.D Glas. ("highly commended") and D.P.H.Camb. During the short time he was in charge of the County Asylums he fully maintained the high reputation for good management which the institution earned under Dr. Pringle. Among Dr. Stewart's contributions to medical literature may be mentioned the following: *Observations on the Spinal Cord in the Insane, Ataxo-Spasmodic Tabes (Ataxic Paraplegia) in Case of Primary Dementia, The Spastic and Tabetic Types of General Paralysis, The Relationship of Wages, Lunacy, and Crime in South Wales*, and a large number of others.

WE regret to announce the death of GEORGE COLE-BAKER, M.D., T.C.D., at Totton, Southampton, at the age of 46, of heart disease on September 19th. He had been there only four months, but during even that short period he had endeared himself to all with whom he came in contact, as was evidenced by the large numbers who followed him to his grave with every token of sorrow and regret. He was a distinguished graduate of Trinity College, Dublin, and at the Rotunda Hospital for Women he early showed a decided liking for midwifery and gynaecology. He became Assistant Master of the Coombe Lying-in Hospital and Examiner in Midwifery and Gynaecology for Trinity College. He practised in this special branch in Dublin till 1902, when, being in indifferent health, he went to Germany. Subsequently he came to England, and in search of a practice he came to Totton, where he was about to settle when he so suddenly passed away. Of great personal charm, and with thorough knowledge of his profession, he was in every way calculated to make a mark in his profession. He leaves behind him many friends who have nothing but pleasant memories of him, and nowhere more than in Dublin and his old University.

WE regret to have to record the death of Dr. TOM WALKER of Manchester. He began life as a pupil teacher at the Manchester Chester Street Board School. Having won a scholarship, he proceeded to St. John's Training College at Battersea, where after two years' residence he was awarded a certificate as a public elementary schoolmaster. On leaving the Training College he entered the service of the Manchester School Board as an assistant master. He remained as teacher for six years, latterly at the Ardwick Higher Grade School. At the age of 28, having in the meantime taken the degree of B.Sc. at the London University, he entered on the study of medicine. He entered the Medical School at Owens College, and during his early years as a student had a severe struggle. He was one of the most brilliant students of the Manchester School of Medicine, and was the first holder of the Professor Tom Jones Memorial Surgical Scholarship, of the value of £100. He became House-Surgeon at the Royal Infirmary, and was also for a time on the staff of the Workhouse Infirmary at Crumpsall and of the Southern Hospital. At the hospitals, at the Swinton Workhouse Schools, where he was Medical Officer at the time of his death, and in general practice he won the esteem and regard of all who knew him. His ambition was to become the medical officer of an education authority. With his practical knowledge of children and of schools gained during the time he was an elementary school teacher, coupled with his aptitude for dealing with all matters appertaining to school hygiene, his special knowledge of eyesight and hearing, and his great experience in children's diseases, few men were better fitted to win distinction in the field in which he aspired to serve. During the past summer he had rendered valuable assistance to Dr. A. Brown Ritchie, Medical Officer to the Manchester Education Committee, in the systematic testing of the eyesight of the children in the public elementary schools now carried on by the Manchester Education Committee. At the time of his death he had just passed his 37th year.

Dr. EDWARD LONG of Dublin, who died recently at the age of 83, obtained the licence of the Apothecaries' Hall, Ireland, in 1850, and was admitted a Member of the Royal College of Surgeons of England in the following year. For many years he occupied a prominent and useful position in Dublin. He paid special attention to the preparations of pepsin and ergot; of each of these substances he formulated liquors which have more than a local notoriety. He wrote papers concerning the properties and therapeutic uses of these drugs. Since 1880 Dr. Long had devoted his energies to farming, and lived a quiet life at Cloneygowan, in the King's County, where he was held in general and deserved esteem.

Surgeon-General William Williamson, late of the Indian Medical Service, died at Boscombe on September 17th, aged 86. He entered the department as Assistant-Surgeon, April 16th, 1844, and became Surgeon-General, August 5th, 1879, in which year he retired from the service.

Brigade-Surgeon-Lieutenant-Colonel Alexander Crombie, M.D., C.B., Indian Medical Service (retired), died at King Edward's Hospital on September 29th, in his 61st year. He entered the Bengal Medical Department as Assistant Surgeon, March 30th, 1872, and became Brigade-Surgeon-Lieutenant Colonel, August 11th, 1896, retiring from the service in 1899. He was employed for some years at the India Office, and represented it during the South African war on the Boards at the Medical Department. For these services he was made a C.B. in 1902.

Lieutenant-Colonel Frederick Alfred Harris, Royal Army Medical Corps (retired), died on September 27th, aged 50. He entered the Army Medical Service as Surgeon, February 5th, 1881; was made Surgeon-Major, February 5th, 1893; and Lieutenant-Colonel, February 5th, 1901, retiring October 24th, 1901. He served in the Egyptian war in 1882, receiving a medal and the Khedive's bronze star. He was also in the South African war in 1899-1900, including the advance on Kimberley, the actions at Belmont, Enslin, Modder River, and Magersfontein, and in operations in the Transvaal and Orange River Colony. He had received the Queen's medal with four clasps.

Captain Arthur Frederick Pilkington, Indian Medical Service, died on September 14th, in India, in the 30th year of his age. He was appointed Lieutenant, September 1st, 1902, and promoted to be Captain, September 1st, 1905.

HOSPITAL AND DISPENSARY MANAGEMENT.

JAMES MURRAY'S ROYAL ASYLUM, PERTH.

The annual report for the year ending March 31st, 1906, of Dr. Urquhart, the Physician Superintendent, and the statistical table for the year ending December 31st, 1905, of this important institution for the treatment of private patients shows that there were 135 patients in the asylum on January 1st, 1905, and that there remained 128 at the end of the year; the total cases under care during the year amounting to 170.

During the year 1905 there were 35 admissions, of whom 26 were first admissions. In 8 the attacks were first attacks within three, and in 4 more within twelve months of admission; 10 were the subjects of not first attacks within twelve months of admission, and in 13 the attacks were either of more than twelve months' duration on admission (11), or congenital cases. They were classified as to the forms of mental disorder into: Mania of all kinds, 14; melancholia, recent and recurrent, 10; dementia, 3; circular insanity, delusional insanity, and confusional insanity, 2 each, and congenital defect, 2. Two of the above, the form of psychosis not specified, are general paralytics. As to the probable cause of insanity in the admissions, alcoholism was assigned in 4, or 11.4 per cent.; syphilis in 2; mental strain or worry in 9; and, as predisposing causes, previous attacks in 15; a neurotic heredity in 5; an insane heredity in 18, and an alcoholic heredity in 5.

During the year 19 were discharged as recovered, giving a recovery rate on the admissions of 54.29 per cent., as compared with the 12.50 per cent. of the year previous, or the average for this asylum of 38.29 per cent. There were also 8 discharged as relieved, 8 as not improved, and there were 7 deaths. The deaths, giving a death-rate on the average numbers resident of 5.49 per cent., were due in 2 cases to Bright's disease, and in 1 case each to general paralysis, cerebral tumour, cerebral haemorrhage, burns, and bronchopneumonia and exophthalmic goître. Dr. Urquhart, in a general review of the year ending March 31st, 1906 remarks on the number of readmissions during this period (15), and the number of those suffering from a recurrence of mental disorder (22), and discusses these disproportionate numbers in relation to the practice of discharging as "recovered" one "in whom there is re-establishment of mental soundness permitting of the return of the patient to his place in the world without requiring the care and supervision of others." Doubts, he says, have been expressed regarding the propriety of liberty in many of the cases; but, though he concedes that this practice and that of discharge on improvement may entail occasional hardship, it is on the whole appropriate to existing conditions.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original Articles and Letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone, unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any circumstances be returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the EDITOR of the British Medical Journal is *Aitiology, London.* The telegraphic address of the MANAGER of the British Medical Journal is *Articulate, London.*

Telephone (National):—
EDITOR, 2631, Gerrard.
GENERAL SECRETARY AND MANAGER, 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

N. M. C. would be glad to receive suggestions for treatment in the case of a girl 12 years old who complains of constipation. The motions are hard and very black, and there is pain at the anus during defaecation. There is tenderness on palpation of the right hypochondrium, most marked over the gall bladder. Appetite good and general appearance healthy.

Red and White writes: I shall be glad to know through this column if any of your readers have met with a case of evanescent rash such as the following: X., married, of a neurotic type, admitted to hospital for dysenteric diarrhoea and haemorrhage after miscarriage (possibly purposely produced by drugs); when seen the morning after admission, as she was complaining of some pain in the abdomen and swelling, the nurse was asked to arrange the bedclothes and nightdress to expose the abdomen; this she did at once, and it was then noticed that there was a well-marked, profuse, purple-coloured, blotchy rash, chiefly on the abdomen, but extending over the chest to the neck, but not the face. The patient was astonished, as was the nurse, neither of them having seen it before; it was not raised and had a tendency to disappear on pressure. The abdomen was palpated, and feeling a swelling on the left side, I turned to my assistant to ask him to feel it, and on looking again at the patient, I saw the rash had entirely disappeared. The time from exposing the skin to disappearance of the rash could not have been three minutes. The patient stated she had not seen anything like it before. I conclude it was a vasomotor disturbance akin to a blush.

Ceylon asks for a list of books required for the study of tropical diseases, scientifically and bacteriologically, including textbooks on protozoology, helmintbology, etc.

*** For the complete study of the subject the list is a long one. The following will probably be sufficient: *Tropical Diseases*, Manson, 3rd edition (Cassells and Co.). *The Diseases of Warm Countries*, Scheube, 2nd edition, translated (Bale, Son and Danielsson). *The Medical Diseases of Egypt*, Sandwith, Part I. (H. Kimpton). *Malarial Fevers*, Thayer (Henry Kimpton). *Practical Study of Malaria*, Stephens and Christophers. *Laboratory Studies in Tropical Medicine*, Daniels (Bale, Son and Danielsson). *A Monograph of the Culicidae of the World*, Theobald, 3 volumes. *A Monograph on the Tsetse Fly*, Austen (Published by the British Museum—Nat. Hist.). Muir and Ritchie's *Bacteriology*, Hewlett's *Bacteriology* (Young J. Pentland, Edinburgh and London). *The Diseases of the Blood*, Coles (J. and A. Churchill). *The Animal Parasites of Man*, Braun, translated (Bale, Son and Danielsson). Minchin's and other treatises on the protozoa may also be referred to, and an abundant literature exists in various journals and reports published throughout the last two or three years.

FRUIT CULTURE OR GARDENING FOR DOCTORS.

L.R.C.S.E. (Wales) writes that he is very fond of outdoor life, especially gardening. Would some reader offer information as to where land could be best obtained for fruit-growing purposes?

ANSWERS.

EUCLID.—We know of no public asylum near Liverpool having a private department, but Cheadle Royal Asylum, Cheshire, not far distant, is a registered hospital for the insane, in which superior accommodation is provided for patients of the better social class. Application should be made to Dr. Seowcroft, Medical Superintendent, Royal Asylum, Cheadle, Manchester.

TOBACCO.

IN reply to "Anti-tobacco" given in the JOURNAL of October 6th, page 899, it was stated that "a summary of what is known as the action of tobacco was given by DR. J. E. Squire in *The Practitioner* for February, 1906." The date should be "1896."

BERTHOLLET VAPOUR BATHS.

W. J. S.—The Bertholiet vapour baths have long been in use at Aix-les-Bains, where, we believe, they first began their existence. Our correspondent should inquire of the Director of the Établissement des Bains at Aix, where they are made.

WARTS.

W. JOS. S. BOLTON (Nottingham) writes: In reply to "D. M." (BRITISH MEDICAL JOURNAL, October 6th, p. 899), I have found *x* rays effective in removing numerous warts from the hands. I have no doubt the same remedy would remove them from the feet.

DAVOS PLATZ.

DR. DAVID T. CADVAN JONES (Colwyn Bay) writes: In reply to "Inquirer" (BRITISH MEDICAL JOURNAL, October 6th, p. 899), I could thoroughly recommend two places one mile from Davos Platz which are as comfortable and cheap as any I know in the town. These places are about 200 ft. higher than Davos Platz: (1) Hotel Pension Belle-Vue, Clavadel, near Davos Platz (about 7 francs a day inclusive); (2) Curhaus Clavadel, near Davos Platz (not more than 9 francs at the outside—perhaps less—inclusive of pension and rooms).

FREE HOMES FOR INEBRIATES.

SP. VINI RECT.—There is, so far as we know, no free home for inebriates anywhere in the United Kingdom. It is believed there are homes in which poor men are taken at low fees: the Church of England Temperance Society might inform our correspondent on this point. It is possible that one of the certified reformatories might take him at the usual charges if he were to apply for admission. We presume he is willing to place himself under treatment. If no institution would take him he might possibly offer himself as an employé of some person who would undertake to try to safeguard him, or he might enlist, or go to sea, as the discipline in either case might do him good, but it is impossible to advise without knowing the circumstances.

TREATMENT OF NARCOMANIA.

TRYPHON.—Narcomania is quite as amenable to treatment as any other form of inebriety. Unless supervision of the highest skill can be made absolute, the only chance of recovery is removal to a retreat. Its symptoms, many of which are mental, disappear very slowly, and the patient must be educated in guarding against recurrent attacks whilst under proper control. A year's residence, at the very least, is necessary for this. Patients usually bear a long residence better than a short one, as they are not so restless and settle down sooner into good habits. Any inebriate who transgresses the law can be compulsorily sent to an inebriate home (see the Inebriates Acts). Or an inebriate can sign himself into a retreat voluntarily under the Acts, or can enter "privately." As a matter of fact, no patient ever does go to a retreat voluntarily, but only under some form of moral compulsion. If the friends are firm in their decision, and the plainest speaking employed, and perhaps a small family council convened, the matter is not usually difficult. If, however, the patient has private means compulsion is often impossible.

INCOME TAX.

DISGUSTED writes that he has sent in his income tax return as usual, but is now asked by the surveyor to produce accounts showing how the figures returned for assessment have been arrived at. He states that he has paid more tax than was legally due rather than appeal and expose his private affairs to the world at large.

*** Although the surveyor cannot insist on the production of the details asked for, the commissioners, by raising the assessment and so rendering an appeal necessary, can compel our correspondent to furnish them with accounts at a later stage. It is therefore advisable to comply with the surveyor's request, for, if the particulars are given, he will doubtless inform the commissioners that he has checked the return made, and advise them to accept it. By following the course suggested the trouble of an appeal will be obviated. It is well known that many taxpayers pay more than is due from them rather than appeal, but it is not so generally known that there is a right of appeal to the Special Commissioners of Income Tax, a tribunal having no connexion with local officers. If an appeal is made to the special commissioners the disclosure of the taxpayer's affairs to a body of commissioners of which his neighbours and business competitors may be members is avoided.

NOTES, LETTERS, Etc.

RECORDS OF CHILDREN'S WEIGHTS.

IT should have been stated that the chart for recording the weight and other important points in the early life-history of a child to which we drew attention last week (October 6th, page 900) was constructed by Captain R. J. Blackham, R.A.M.C. This officer is an army specialist in obstetrics and gynaecology, and in charge of the Military Families Hospital at Devonport.

"LAY CONUNDRUMS."

DR. W. HENRY LEWIS (Llansantffraid) writes: I am reminded by Dr. Dabbs's note on "Lay Conundrums" of a statement of a patient to the effect that men with big hernias live long. Leaving out of consideration the possibility of strangulation, the observation appears to be correct. Personally I have seen many cases which seem to confirm it: one of my oldest patients had an enormous hernia which contained a very considerable portion of his intestines, and in which peristaltic movements were easily discernible. Such a hernia in the male benefits him in the same way as the lax abdominal wall does the multipara, and offers the same promise of longevity. It gives relief to intra-abdominal pressure and tension, lessens resistance to cardiac action, and so diminishes strain upon the heart and consequently upon the vessels, for, quite obviously, moderate and steady cardiac action would least test and strain arterial accommodation and result in the least wear and tear. Senility is apparently normally the necessary sequence of a failing circulatory system: a big muscular development with the resistance to and strain upon the heart (and vessels) which it entails promotes a premature senility which often partakes of an abrupt and violent termination, as distinguished from the slow and gradual character of that of typical senility: the peaceful old age, for instance, amongst others, of the old grandmother who has done her duty in and by the world, and has been rewarded with a lax and accommodating abdominal wall, and of the old man who possesses what I may call a hernial safety-valve. May not senility in its very essence be the impairment of the elastic element in the arterial wall, etc.? an element once replaced by the fibrous, and "the rest" follows in easy sequence? And will not this impairment most readily and earliest occur when the strain and stress is greatest.

NUTMEG POISONING.

DR. JAMES JOHNSON (Blackpool) writes: Although it is now two months ago since I got a case of nutmeg poisoning, I had no intention of stating the facts through the BRITISH MEDICAL JOURNAL until I saw Dr. Hamilton's letter on the subject. The woman stated to me that she had grated one large nutmeg and had taken all of it, with the intention of bringing on a miscarriage. She was then nine weeks pregnant. When I first saw her (ten hours after taking the nutmeg) her face was red and swollen, and the eyelids were so much so that she could scarcely see between them. Her temperature was 103°. There was slight cyanosis of the lips and nails, but on no other part of the body. She had vomited several times. There was delirium and extreme restlessness and giddiness, and she had great fear of death. Her head felt three times its ordinary size. Abortion in this case did not follow, much to the disgust of the woman. The case was treated with quinine and aperients, and she was able to go about her work in five days.

"A TOUCH OF THE SUN."

LIEUTENANT-COLONEL B. L. MILLS, M.D., R.A.M.C., writes from Poona: My clerk went away from office early to a tennis party and next day was placed on the sick list for "taenia solium." On meeting the chief clerk the same evening he said to me, "I am sorry to see Sergeant B. has got 'a touch of the sun'"!

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An Address

ON

THE MANAGEMENT OF CASES OF ADVANCED HEART DISEASE.

Read before the Gloucestershire Branch of the British Medical Association on May 17th, 1906.

By ROBERT SAUNDBY, M.D., M.Sc., LL.D., F.R.C.P.,

professor of medicine in the university of birmingham, and physician to the general hospital.

Of all classes of chronic disease there is none which calls in a more urgent manner for the skilful aid of the medical practitioner than heart disease in its advanced stages, when compensation has broken down and the patient has begun to suffer from heart failure, indicated by such symptoms as dropsy, dyspnoea, dyspepsia, insomnia, and cardialgia, to name only the more common troubles. Few men in general practice can be without one or more such patients requiring pretty constant attention, who are grateful for any suggestions which may alleviate the burden of their many distresses. In hospital practice we get a considerable amount of experience in the treatment of these cases; and we have the satisfaction of patching them up over and over again before the ultimate and inevitable end, so that there may be less presumption in venturing to express personal opinions upon the value of methods of treatment in this than in many other diseases in which our opportunities for drawing therapeutic conclusions are too narrow to justify confident assertions of their value. I lament the tendency in modern times to disregard tradition in treatment, and I regret that men of ripe experience do not publish the therapeutic conclusions at which they have arrived, possibly from the fear of being thought old-fashioned if unable to testify to the value of all the new remedies with which the profession is inundated.

I have carried out as many clinical experiments in therapeutics as any one with similar opportunities, and I know the great difficulty of the task, even when limited to investigations into the value of remedies which are reputed to produce effects not to be got from other means. If I am satisfied that the remedies I possess do what I want, I do not waste my time in trying a novelty which would be at best only a duplicate and not a real addition to my stock. By adhering to this rule I have put aside many new drugs which, for aught I know, are as good as those with which I am familiar, and upon whose action I rely. But I hope I have kept an open mind without prejudice against novelties because they are new, and have been ready to give a full trial to any suggestion that promises a fair prospect of effecting ends that I cannot otherwise obtain.

Professor Clifford Allbutt has complained of the way in which students at the final examinations write prescriptions, and two years ago he sent a circular to the medical schools asking that increased attention should be given to instruction in this subject. In my university the matter was referred to a Subcommittee of which I accepted the chairmanship, as I believed there was ground for the complaint, and I was ready to support any reasonable proposals to remove a decided defect in the results of modern medical education. Many of you know that at the examination of the Conjoint Board each candidate at the end of the clinical part of his examination is asked to write a prescription as an exercise, in order to show how far he is able to put his views respecting treatment upon paper in an intelligible form. It is ten years since I ceased to be one of the examiners of the Board, so that things may have improved, but nothing could be worse than they were, and if I may judge by our Birmingham students they are little better now. Prescriptions written at examinations are usually clumsy, often absurd, and frequently full of verbal and grammatical mistakes; but what strikes me most is that the remedies are seldom combined as one would see them in any hospital pharmacopoeia; and if the candidates are asked where they obtained such a prescription, they generally admit that they have invented it for the occasion—that is to say, it is not the custom for students to learn a certain number of formulae by heart, which seems to me to be a great mistake. The result of our inquiry into the instruction in prescription writing was to show that it is full and complete, but that students do not take advantage of it in the way I suggest. I am in the habit of writing out prescriptions in full on the blackboard, and I ask my students to copy them, in the hope that they will learn them and use them until they can do better through their own experience, for nobody wishes that there should be finality in our methods of treatment, but only that the student at starting should use the knowledge and experience of his teachers and predecessors. If a young man goes into practice with no traditional knowledge of prescription writing, he is at the mercy of the druggists' circulars which pour in upon us with ready-made formulae with every morning's post: his treatment has no stable basis, and is inferior in form and in substance to that possessed by those men of a former generation whose principal professional instruction was received in a country surgery.

Dr. George W. Balfour of Edinburgh was one of the first physicians in this country to teach adequately the diagnosis and treatment of diseases of the heart. When I was his clinical clerk and resident physician he had his wards in the infirmary full of cases of heart disease, and there I laid the foundations of my knowledge of the subject-matter of this address. Unlike many of the eminent teachers of that day, he was no sceptic in regard to drugs, but erred rather on the side of faith. He had a remedy for each symptom, and, although subsequent experience has not enabled me to confirm all his conclusions, his practice had this good influence—that it gave me something to start with; and as I came to recognize the weak points in his treatment I endeavoured to fill the gaps by careful selection from the remedies which have been brought under my notice from time to time.

Exercise.

So long as a patient with heart disease is well enough to take exercise it is better that he should do so than be confined to bed. It may be important to arrange that he should live upon the ground floor of his house so as to have no stairs to climb, but he may still take a regular daily walk. He may walk up a gentle slope, but the incline must not be steep, and he must be warned under no circumstances to hurry.

The recuperative power possessed by a diseased heart varies within extremely wide limits, but depends chiefly upon the age of the patient and the general state of his health. All of us have seen remarkable recoveries from severe cardiac dropsy where the patient was neither old nor handicapped by diseases of other organs. The profession of the present day rightly appreciates the comparative unimportance of valvular defects, and recognizes that the efficiency of the heart depends upon the integrity or the recuperative power of its muscular substance; so long as this is vigorous or susceptible of healthy repair and growth, appropriate treatment may be followed by the happiest results, but when the healthy processes of normal nutrition are perverted or irreparable senile changes are present, the valvular defect exercises its mischievous action without any counterpoise, and great derangements of the circulation ensue unless we can diminish the work required from the weakened walls.

Schott Treatment.

I have seen the best results in the treatment of weakened myocardium from the systematic use of the baths and exercises devised by the Brothers Schott of Nauheim, and now carried out successfully in many places in this country. Cheltenham seems to me admirably adapted as a centre for this treatment, for you have in the Pittville Springs water which, heated to the proper temperature, fulfils all the requirements of the baths, while nurses can be easily trained to perform the passive exercises. During the last ten years I have sent many cases to Buxton, where they have received all the benefit I desired from suitable baths and exercises, although the water at Buxton is prepared artificially, and in many respects Cheltenham has superior natural advantages. I attach no importance to the presence of free carbonic acid gas in the water, for at Nauheim the water used for the heart baths is drawn from a tank in which it is stored for a time

to allow the gas to evaporate, and it is only in the later stages, and by no means in all cases, that the Strombad is used, many patients disliking and even dreading its fierce rush, but if it is in any case desirable the gas can be easily generated and added to your water. The chief point in the Nauheim bath is the temperature, which should never exceed 95°, and be lowered while the duration of immersion is increased as the course proceeds.

It is unfortunate that the Schott treatment has suffered from being in the hands of persons whose erroneous methods and unreasonable pretensions have cast an undeserved slur upon a really valuable means of treatment. Not the least important element in its success is the necessity imposed on the patient to leave his home, his work, and the cares of his daily life, and devote himself entirely under medical direction to the business of recovery. I took some trouble ten years ago to show that as good results could be obtained by artificial baths in the General Hospital at Birmingham as at Nauheim, but I have invariably sent private patients to some pleasant health resort where the treatment is carried out. I do not know whether anything of the kind has been attempted here, but, if it has not, I hope some one will give it a fair trial. A sufficiently full account of the method is to be found in a paper published by me in the BRITISH MEDICAL JOURNAL for November 2nd, 1895.

REST.

Heart disease should be treated by rest in a more or less recumbent position (1) when there is a certain amount of dropsy present; (2) if walking brings on severe dyspnoea or pain; (3) should the state of the circulation be so bad as to cause danger of syncope.

The bed of a heart patient should be flat, not sagging in the middle, as is sometimes the case with modern chain mattresses; the slope should be downwards from the head towards the foot, which may be effected by putting blocks under the castors at the head of the bed, but in many cases the patient requires the support of a bed rest. Orthopnoea indicates a serious lesion of the heart unless caused by some complication in the chest, such as pleural effusion. It may be impossible to make the patient comfortable in bed, and he must be allowed to sit in a chair with his legs extended and raised as much as is consistent with comfort. Heart-chairs, especially constructed to permit of being arranged at a comfortable angle for the body and lower extremities, can be purchased or hired, and add a good deal to the comfort of the last few months of what must often be at best a distressing struggle for life.

When dropsy is present and the patient is helpless he should be placed upon a water bed in order to relieve pressure and avoid bedsores. The legs should be covered with long woollen stockings, or, what is perhaps better and more easily adapted to their changing bulk, 4-in. flannel bandages should be rolled from the toes to above the knees. If before applying the bandage the limbs are elevated for a few minutes and rubbed towards the body, the oedema will diminish and the bandages will support the skin and keep the dropsy from returning. The bed-rest should be firm and flat not made of canvas or any stretching material, as it should give a firm support, and may be made sufficiently soft by pillows. A draw-sheet should be arranged in the bed and the parts of the body subjected to pressure rubbed with spirit lotion.

DIET.

Sufferers from advanced heart disease constantly complain of discomfort after taking food, which may be the result of several different conditions. In the first place, a badly acting heart may be embarrassed by the pressure of a stomach distended with food or gas or both, and to this cause are due the complaints of many patients. Secondly, heart disease is frequently associated with and probably causes chronic gastritis, to which pain, pyrosis, and other symptoms may be attributed. Lastly, and most serious of all, there is the cardiac oppression of toxi-alimentary origin which follows the ingestion of food.

It is therefore easy to understand why pure milk diet has attained such a high reputation in the treatment of serious cases of heart disease, for it fulfils all three indications; if given properly it avoids overloading the stomach, while it is a readily assimilable and unirritating nutriment which contains a minimum of alimentary poison. But even milk may cause gastric embarrassment if given undiluted or too freely. It matters little what diluent is used—whether barley water, soda water, or Vichy water—but not more than 4 oz. should be within reach of the patient at one time, nor should this quantity be repeated in less than an hour, but this is a maximum amount, and it is well to begin with 1 oz. every hour. The addition of a small quantity of sodium citrate (gr. j to each oz. of milk), as suggested by Sir Almroth E. Wright, to prevent coagulation of the milk, may be tried. But in spite of all care in dilution and amount milk does not suit every one, nor is it necessary to restrict all cases of advanced heart disease to this monotonous diet. So long as we follow the principles that the meals must be small in bulk, composed of non-irritating and easily digestible food, containing a small quantity of proteid a mixed diet is preferable. These indications are fulfilled by five small meals daily at intervals of about two and a half hours, avoiding the use of smoked and salted meats, cooked fats, fried and greasy dishes, uncooked fruits, raw vegetables, condiments and spices, and restricting the use of animal food to 4 oz. daily, which should be easily digestible, such as white fish, chicken, partridge, lamb, mutton, calves' head and feet, or sweetbreads. If the patient's teeth are defective, the meat must be minced or pounded, as there is no more frequent cause of indigestion than insufficient mastication.

Where there is dropsy it is claimed by some to indicate that the patient should be kept upon dry diet, or one in which the quantity of fluid is restricted to a minimum, but this is of doubtful advantage, and not always well borne; indeed, cases of cardiac dropsy may be treated quite successfully upon milk diet, and no theoretical considerations should be allowed to embarrass our decision as to the kind of food most suitable for our patients. Some do well with a good deal of milk, others not so well, just as we find this to be the case with patients who are suffering from gastritis without heart disease.

French physicians urge the absolute withdrawal of chloride of sodium from the diet in cases of dropsy. I have given this method a trial as it is easy to carry out and does no harm, the only difficulty being that as salt is contained in ordinary bread the baker must be asked to bake some for the patient without any, which I have always found him willing to do. I am not convinced of its importance, as there are so many other factors present in each case which may contribute to the result, but I intend to persevere with it.

Both tea and coffee, but especially tea, have a poisonous effect upon the heart in some persons, making its action intermittent and irregular, and even causing pain suggestive of angina; they must, therefore, be prescribed with caution in heart disease. As beverages we may give milk and water, or cocoa, or mineral table waters.

Alcohol should be used sparingly as an article of diet; it is unnecessary, and often does more harm than good. The popular notion that whisky aids digestion has little foundation in fact; where there is gastritis even diluted spirits do definite mischief, and, as alcohol in any shape is toxic, a small dose may cause dyspnoea or make the pulse irregular and weak for twenty-four hours afterwards. I have noticed this effect produced in cases of weak heart, slight exertion after taking alcohol being followed by dyspnoea with a fluttering irregular pulse.

The poisonous effect of tobacco is too well known for it to be necessary to insist upon the importance of forbidding its use. As a rule there is no difficulty, as the patients are too ill to care to smoke; but now and then we meet with an inveterate consumer of tobacco, either a smoker or snuff-taker, who objects to be deprived of it even on his deathbed. There should be no hesitation in pointing out that its use is injurious, as it not only weakens the muscular force of the heart but increases the arterial resistance, and is therefore doubly harmful.

HEART TONICS.

Among reputed heart tonics digitalis and its alkaloids hold the first place. In its various pharmaceutical forms it is a most trustworthy drug, and it is not quite obvious how it acquired the bad name that it seems to have borne in the first part of the last century. When I commenced practice it was common to meet men who considered it a dangerous cumulative poison, which in ordinary doses

was liable to cause unexpected and alarming symptoms. Dr. Balfour used to point out that when the infusion of the *Edinburgh Pharmacopoeia* was in use it was customary to give the equivalent of from 3 to 12 gr. of the leaves three times a day or more often. Dr. Blackall of Exeter, in his book on dropsies, published in the year 1813, wrote that the common people in his neighbourhood were in the habit of using very strong and copious infusions of digitalis made by throwing boiling water on the leaves, stem, and root, without any measure or weight; and it can be well understood that with such rude pharmacy accidents might happen. He recommends an infusion made with a drachm of the dried leaves to half a pint of boiling water, which is more than twice the strength of the present infusion, but the only inconvenience of which he complains is that it may "upset the stomach and cause so much disgust that there is difficulty in persuading patients to resume its use."

In the days preceding the publication of the *British Pharmacopoeia*, it is probable that a considerable source of inaccuracy in dosage arose from the unequal forms in which the medicine was dispensed and the extreme difficulty of calculating their relative strengths. All this has for us only a historical interest, as at the present time we are sure of getting accurately-made preparations, and we never have to complain, as Blackall did, of digitalis becoming inert from the "powder being kept in paper, or in a bottle which was often opened for use." The tincture is the preparation usually employed, the standard dose for an adult being 10 minims three times a day, in which amount it is perfectly safe and manageable, but if given more frequently its cumulative effect may be produced, the pulse dropping suddenly, so that this dose should not be exceeded unless the case is carefully watched. Nor do I think there is much reason to complain that these doses irritate the stomach unless marked gastritis is present, when it is better to choose some other method of administration, as in pills containing the powdered leaves; but the best form in these circumstances is Nativelle's granules of digitaline, which are free from any irritating action on the stomach, and are therapeutically most efficient.

The general indication for the use of digitalis is a weak, rapid, and irregular pulse, or the presence of oedema. The much debated question of its utility in aortic disease has not been settled by Foster's discovery that when it slows the heart the prolongation affects the diastolic period more than the rest of the cardiac cycle, as when the heart's action is slowed from any cause whatever the diastolic period is lengthened disproportionately. In all cases of aortic disease the pulse should beat more quickly than normal in order to keep up the circulation; but so long as digitalis does not reduce its rate below 80, the good effects are as apparent in aortic disease as in other conditions.

Strophanthus has the same action as digitalis, but is not more manageable or trustworthy. On its first introduction I used various preparations of it with unsatisfactory results. Professor Fraser kindly sent me a small quantity of a tincture prepared by himself which acted very well, but was not enough for extended operations. On his recommendation I procured Duncan and Flockhart's tincture, but this proved to be no better than the others. I then obtained a sample of strophanthus seed, and sent it to Professor Fraser, who pronounced it to be not *S rophanthus hispidus*, but some other species, yet I was assured that it was the only seed at that time in the English market, from which all the tinctures in use were prepared! This led me to give it up, but some years afterwards I had all the specimens in the market re-examined, and all were genuine and active. I use it occasionally when digitalis fails, but I know no indication for giving preference to it.

I have used the tincture of convallaria in advanced cases of aortic disease, giving it in 15-minim doses in combination with caffeine or theobromine in which form it has answered my purpose very well, but I cannot speak of its action by itself.

After digitalis the most useful cardiac tonics are caffeine and theobromine, whose chemical composition and therapeutic action are nearly identical. Caffeine citrate in 5-gr. doses may be kept in solution by adding a little citric acid, but theobromine in the proprietary form of diuretin—a double salicylate combined with sodium, of which the dose is 10 gr.—has the advantage of being soluble, while a similar double salt of caffeine prepared for me did not possess this useful property. Both are good stimulants to the heart and also true diuretics—that is to say, they act not merely by increasing the blood pressure in the kidney, but by stimulating its water-secreting apparatus. Of their value in combination with digitalis I have no doubt.

Nux vomica and its alkaloid strychnine are powerful heart tonics, especially in the form of strychnine injections, which should not be postponed until the patient is *in extremis*. These injections will relieve heart pain when other remedies have failed, and their use can be combined with that of other cardiac tonics given by the mouth. The usual dose is 5 minims, to be injected every four hours, but this quantity should be increased and the action pushed in desperate conditions, adding 1 minim at a time to the quantity and diminishing the interval to three or two hours.

Vasculo-Depressor Drugs.

Every one is well acquainted with the value of heart tonics, and employs them more or less extensively, but I am not so sure that a sufficient use is made of the vascular depressants, which are of great utility in the management of advanced cases where the heart seems no longer able to answer to the whip. They act by relaxing the peripheral arterioles, and by lowering the blood pressure they lighten the burden the heart has to bear. Among the best known of these drugs are amyl nitrite, ethyl nitrite, sodium nitrite, glyceryl trinitrate or nitro-glycerine, erythrol tetranitrate, mercury in various forms, and iodide of potassium. Ethyl nitrite has long been familiar, as it is contained in sweet spirits of nitre, but is unstable, and although the late Professor Leech of Manchester endeavoured to bring it into favour it has not proved satisfactory; amyl nitrite is useful, but has obvious disadvantages in certain cases; nitro-glycerine in 1 per cent. solution is active, safe, easy to administer, and can be dosed to the requirements of each patient; nitrite of sodium has not given me equally good results, but all three are very transient in their effects, hence they are more valuable for removing pain than for giving permanent relief to the heart. Nitro-glycerine has afforded me valuable assistance in the management of advanced cases of heart disease where there has been oppression or pain suggesting angina pectoris, my patients being instructed to carry a small bottle containing one or two mimims of the solution made up to a teaspoonful dose, which they take when the distress comes on. I prefer this solution to the chocolate tablets. Some years ago a patient was recommended by the late Sir Andrew Clark to use these tablets, but did not experience the desired relief, so one day I tested them on myself; one tablet produced no effect, so I followed it by a second and a third; in a short time all three took effect, but this is not what we want in order to help a patient taken suddenly with oppression or pain at the heart.

Erythrol tetranitrate is the drug on which I now rely to produce a permanent unloading of the weight on the heart. It was brought to notice by Professor Bradbury's Bradshaw Lecture delivered in 1895, in which he showed that the lowering of the pulse tension resulting from a single dose lasts fully four hours. Of the truth of this observation any one can convince himself if he will take the trouble to make a series of sphygmographic tracings before and after administering the drug. My house-physician in 1895, Dr. John Stead of Staunton-on-Wye, Herefordshire, took a number of tracings to illustrate this. Since then I have used it regularly in hospital and private practice, but it is in hospital that I have most opportunity for watching its effects, and I am convinced that it can afford relief to patients who derive no benefit from other cardiac remedies.

The usual dose of the tetranitrate is ½ gr. in a tablet of Burroughs and Wellcome's, which I prefer; it should be given every four hours while the patient is awake; but it may cause headache occasionally, very rarely so severe that the drug has to be stopped. I combine it sometimes with Nativelle's digitaline, giving the drugs alternately with four hours' interval between the doses of each.

The value of mercury as a vascular depressant is maintained by some authorities, but its action seems to be limited to its power of getting rid of those alimentary poisons which set up vasomotor spasm. Professor

Dieulafoy treats chronic disease of the heart and great vessels by hypodermic injections of a solution of biniodide of mercury. After hearing his clinical lecture (see British Medical Journal, 1905, vol. i, p. 1337) I gave his method a trial but saw no good results, while the injections gave rise to much local pain and frequently to suppuration, so that I soon abandoned its use. I suppose we all use Baillie's pill (the combination of digitalis, squill, and blue pill) in some forms of cardiac dropsy, for which it possesses an established and well-founded reputation, but I do not know that its effect is in any degree attributable to the action of the mercury it contains on the vascular system. Iodide of potassium is frequently used in combination with other cardiac remedies, less often by itself: its utility is certainly not limited to cases of supposed syphilitic aortitis, but depends on its action as a vascular depressant.

Belladonna is a drug in which I have no great confidence in the treatment of heart disease, but this may be because I have not learnt the proper indications for its use. Belladonna plasters apparently relieve some kinds of heart pain, but they are dirty, unpleasant things, which interfere with auscultation and are only fit for out-patients.

Bleeding and Leeching.

Bleeding from the arm and leeching the precordia are means adopted in cases were there is evidence of marked engorgement of the right side of the heart. Bleeding is the most speedy of all for relieving the heart, but is one which cannot be repeated except at comparatively long intervals; while its effects are prompt they do not last, and the danger is liable to recur. The results are striking, and death has often been postponed by timely blood-letting, but the conditions are generally unfavourable to complete recovery.

Tapping.

When the belly is full of fluid it is better to tap than to waste time with drugs, which do not act so long as the excessive pressure within the abdomen is maintained. Tap with a good-sized trocar in the middle linë midway between the umbilicus and the pubes, the patient being seated unless the condition is very bad, when I have a recumbent patient tapped in the flank, but the opposite side should be raised slightly by means of a pillow so as to cause the fluid to flow towards the opening. As the fluid is withdrawn a broad four-tailed flannel bandage should be drawn firmly round the abdomen so as to support its walls and after the operation the ends should be crossed and fastened securely with safety pins. Tapping the legs is seldom necessary or desirable, but occasionally Southey's tubes have proved useful. I do not like to make incisions and leave the legs to drain, as there is always danger of the wounds becoming infected.

Purgatives.

The judicious use of purgatives is of the greatest service in the treatment of cardiac dropsy, but their action needs watching. Of jalap, scammony, and elaterium, the last is the best; I give the eighth of a grain twice a day, with the best results. When I was house-physician at the Royal Hospital for Diseases of the Chest in the City Road, a patient was admitted with cardiac dropsy who had been discharged unrelieved from St. Bartholomew's Hospital, and whose case showed no signs of improvement under the usual treatment by diuretics. We gave him elaterium, carefully watching its effects, and had the satisfaction of seeing him leave the hospital quite cured of his dropsy. Since that time I have often repeated this experience and can recommend the remedy with confidence.

Inhalation of Oxygen.

The value of oxygen administered by inhalation in the treatment of heart disease may well be doubted, and in my experience it is small. It may be ordered for patients who are in a hopeless condition to satisfy the desire of the friends that something should be tried, but the difficulty being not to get air or oxygen into the lungs but to carry on the pulmonary circulation with greater rapidity, no advantage accrues to the patient from a higher proportion of oxygen in the air inhaled, as only a definite amount of oxygen can be taken up by the blood, and this is determined not by the quantity present but by the state of the circulation.

Hypnotics.

One of the least tractable symptoms of advanced heart disease is insomnia, with which are often associated nocturnal delirium and hallucinations of the special senses. The patient sits up in bed and asks repeatedly to be told where he is; he drops asleep for a few seconds, reopens his eyes wearily and wants to know who called him, or sees in the hospital ward the familiar objects and faces of his own home and takes the nurse to be a member of his family. These hallucinations are transitory, the patient recognizes his mistake and apologizes, but repeats it in the course of a few minutes. Such broken nights are distressing to watch, and must be infinitely wearisome to the patient, but the difficulty of procuring sleep is attested by the number of hypnotics which during the last thirty years have been introduced with the special recommendation that they are of value in the insomnia of heart disease.

It is undesirable to give chloral, which depresses the heart and has even caused death where there was no known heart disease; opium and its preparations, although of the greatest use where sleep is urgently needed, cannot be employed night after night without deranging digestion, diminishing appetite, and causing constipation, and may even cause grave danger where the disease is complicated by an affection of the kidneys. Nevertheless, this evil being avoided, the readiest and most effectual remedy is a hypodermic injection of morphine, but where some means have to be used night after night we must seek for a drug which has fewer disadvantages attending its persistent use. At the present time there is a great choice of hypnotics. Paraldehyde, chloralamide, urethane, sulphonal, trional, and veronal have been especially recommended for cardiac insomnia, and of these paraldehyde, chloralamide, trional, and veronal have proved the best. Veronal is the last comer, and therefore I hesitate to praise it as much as it seems to deserve from the experience I have had of it during the last two years, as new remedies, like new brooms, lose their efficiency as time goes on, yet so far veronal has served me well. Its dose is only 7 gr., so that it can be easily administered in a tablet, while if that quantity prove insufficient it may be repeated at the end of two hours. Its effects are more certain than those of either trional or sulphonal, while it is free from the disagreeable taste of paraldehyde, which is refused by many patients even when it makes them sleep. The objectionable taste of paraldehyde is not altogether got over by giving it in capsules, as it has the disagreeable property of giving rise to eructations charged with its nauseous flavour.

Chloralamide is not a drug of which I have had much experience in these cases, mainly because I could not divest myself of the fear that it is not quite safe.

If in most cases it is possible to procure bodily rest for our patients, it may be more difficult to secure them mental repose, which may depend upon temperament or circumstances beyond our control, but is not the less essential to success, for a restless, irritable patient robs himself of half his chances of life. If there be some such, there are, however, many who bear their troubles with heroic fortitude, and pass bravely out of this world into the next.

We do not dispute the truth of the adage, *Contra malum mortis non est medicamen in hortis*, but while we possess the means to prolong life, relieve suffering, and diminish distress, it is our duty to do all these three things to the best of our ability.

Dr. Ludwig Mond and his son, Mr. Robert Mond, have presented to the Infant's Hospital, established in Hampstead in 1903, a site in Vincent Square, Westminster, upon which a new hospital will be erected. It will provide cots for some fifty or more infants, together with accommodation for the nursing staff, pathological laboratories, lecture theatre, etc. The plans prepared by Messrs. Read and Macdonald include a roof garden, and special attention will be given to the admission of fresh air and sunlight to the wards. The generous donors have laid stress on the importance of using the hospital not only for the saving of infant life, but also for the scientific study of the problems connected therewith, and the prosecution of scientific research.

The late Mrs. Luch Amelia Hills, of Littledean, Great Berkhamsted, whose will has now been proved, bequeathed £3,000 to St. Bartholomew's Hospital in memory of her late father.

THE RUBBER TEAT AND DEFORMITIES OF THE JAWS.*

By TOM F. PEDLEY, M.D.,
RANGOON, BURMAH.

The subject to which I beg to invite your attention is the use of the rubber teat and "baby comforter," and their giving rise to certain deformities of the jaws, irregularities of the teeth, nasal obstruction, and other diseases in infancy and childhood.

The dieting and care in the rearing of European and other infants form an important part of the work of the general practitioner in Rangoon. The difficulties of hand-feeding are much greater in the tropics than in England. I believe, too, that with Europeans residing in these climates it is more frequent and more an absolute necessity to resort to the feeding bottle than at home; for here often European mothers, from compulsion rather than from choice, fail wholly or in part to suckle their offspring. In many, however anxious they may be to perform this all-important function, there is a failure of milk secretion after a few weeks or months, and artificial feeding, with all its dangers and difficulties, becomes compulsory. The importance of one factor in this process is the use of the ordinary indiarubber teat, and later, the introduction of what is regarded by so many people as the harmless dummy teat or "baby comforter." This last product of perverted ingenuity, and the effects of its use in the mouths of some of my little patients, has opened my eyes to serious evils which I now believe arise from the defective form, and the too prolonged use of the artificial substitute for the mother's breast. I have for years consistently protested against the careless and prolonged use of the feeding-bottle, and, in most cases, succeeded in curtailing its use, also in abolishing the "comforter" from the nurseries of my patients. But with some obstinate and indulgent parents all arguments have failed until the mischief which I wish to describe has been brought about.

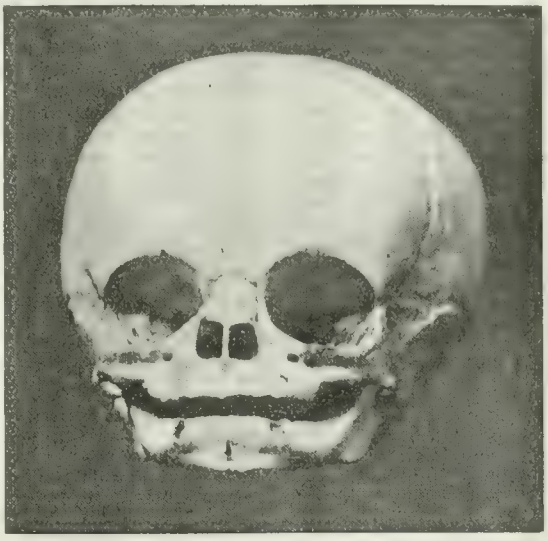


Fig. *a*.—Skull of infant. In the infant the palate is near to the floors of the orbits and the base of the skull.

On examining during sleep the mouths of some bottle-fed babies of say between the ages of 18 months and 2 or 3 years, one may see between the parted lips, that though the jaws are closed, there is a gap between the upper and lower incisor teeth which will sometimes admit the tip of one's little finger, also that the child is breathing through its mouth. These conditions will be found to be the more pronounced the longer the child has been fed with the bottle or used the "comforter." When both have been used, as they so often are, until after all the temporary teeth have been cut, the deformity is very severe.

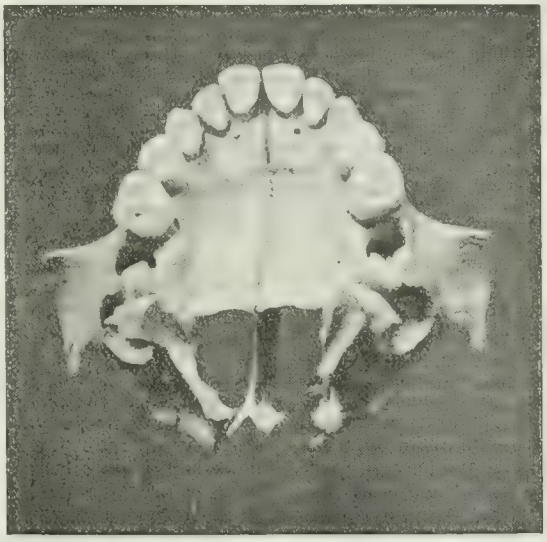


Fig. *b*.—Specimen in Guy's Hospital Museum, showing the unossified sutures of the premaxillae at the age of 5 years.

If we watch an infant in the act of taking its natural food we see that it opens its mouth to the fullest extent, and takes a mouthful of its mother's breast; not only the nipple, but a large part of the areola disappears. A mother will tell you that she feels that the nipple goes far to the back of her baby's mouth. At the same time the tongue is protruded over the whole of the lower gums and often over the lip, and its edge may be seen in the angles of the lips. Thus, an infant 3 months old takes into its mouth a soft tough mass which, when its jaws close upon it, measures from 1 in. to 1½ in. wide, ½ in. in thickness, and 1 in. to 1½ in. long—a flattened truncated cone which, when subjected to the pressure of the tongue and the jaws, comes into contact with the larger portion of the palate and the upper gums and the upper surface of the tongue. The nipple itself forms a small part of what an infant a month old takes into its mouth. The everted lips lie around the base of this soft cone, with slight, if any, contraction.

In the act of feeding at the breast the jaws hardly close. The lower jaw is raised to squeeze the pap against the uppers gums and the palate, a wave of contraction passes along the intervening tongue from its tip to its base, in the latter part of which movement there is some retraction of the body of the organ, which in this closed cavity makes for suction, then its approximation to the palate pushes the milk into the pharynx to be swallowed. The milk which is contained in the distended ampullae immediately above the nipple is squeezed out rather than drawn out by suction. The jaws then separate to admit more milk into the flaccid apex of the breast for the process to be repeated; the first part of this effort of expression is aided by the lower gums biting inside the upper. The cheeks are passive, the whole act is peristaltic, the alternating pressure and relaxation exerted by the jaws and tongue being analogous to that which the milker imparts with his fingers to the teat of the cow.

The muscular effort becomes stronger as the meal terminates and ducts empty of secretion. But in a healthy woman there is under normal conditions always more than enough for her child. Mothers have repeatedly told me that it is more a matter of the baby drinking than sucking, for the milk often flows from the other nipple at the beginning of the meal. From such breasts an infant will fill its stomach in from eight to fifteen minutes. I have often watched and timed the meal.

Compare this natural process with what one constantly sees when the ordinary feeding-bottle with the common rubber teat is used, and one is impressed with the extraordinary defectiveness of the substitute for the human breast. The common teat is usually 1 in. to 1½ in. long. That portion which lies between the lips is cylindrical and less than ½ in. in diameter. The lips have to be screwed up to grip it, while the tongue folds in its length round a narrow body lying upon its dorsum—an elastic and resisting material which, when pressed against the upper gums and the palate, can only touch a comparatively small and central portion of those surfaces. The bulkiest and broadest part comes into contact with that portion of

* Abstract of a paper read at a meeting of the Burmah Branch of the British Medical Association on December 4th, 1905.

the palate which in nature receives the apex of the cone. The flow of milk through its orifices, is usually far too slow; it must be drawn out by suction and cannot be increased much in volume by the recurring pressure of the jaws; at the same time air usually must be admitted through its orifices to the bottle to allow of milk being extracted. The cheeks, instead of remaining full and passive as in feeding from the breast, are visibly pushed in by atmospheric pressure. If you place your little finger in your mouth and suck it, you will feel the edges of your tongue fold round it and away from your teeth. Do the same with two fingers as a baby does at the breast, you will feel that your tongue is lying over the biting surfaces of your incisors and most of your lower teeth. Try to suck 2 oz. of water from an ordinary feeding-bottle; it will make your jaws ache for half an hour.

If we have in the past given this matter a thought, we have come to the conclusion that Nature has especially and mercifully endowed the infant with great powers of suction. This is an error, for the muscles concerned should not be called upon to do much more than those of a man drinking from the hollow of his hand.

The mechanical effects of the prolonged use of the common rubber teat for feeding are now often added to and exaggerated by the use of the dummy teat or "baby comforter." This thing is usually the same shape as the bottle teat; often it is smaller and more resistant. It is commonly placed in the baby's mouth immediately after it has been fed from either the breast or the bottle, and is sucked for hours, day or night, until a habit is contracted which is most difficult to break. On the slightest sign of restlessness, or without any reasonable pretext, the dummy is pushed into the infant's mouth; often it is picked up from the floor and given to the child, or hung round its neck so as to be handy. Sometimes it is dipped into sugar or smeared with jam to render it more acceptable. Apart from its mechanical effects upon the jaws and teeth, its use, to my mind, is obnoxious and uncleanly, for it introduces into the child's mouth dirt and micro-organisms, and causes an abnormal secretion of saliva detrimental to digestion.

The defective shape and resiliency of the artificial teat, the severe muscular efforts demanded of the tongue, and its altered shape in sucking it, the extra muscular pressure of the lips and cheeks, the enormously increased atmospheric pressure upon the cheeks and jaws, are all abnormal influences which must have injurious effects upon the delicate bony tissues of the infantile maxillae, and interfere with their proper growth and development. The ossifying junctions of the maxillae, the premaxillae, and the mandible are subjected to these unnatural influences during a long period when they are most liable to be injured. When these processes are prolonged, as they often are, until the temporary teeth have all been erupted, or even into the third or fourth year, it is not surprising that the alveolus containing the upper incisors, both temporary and permanent, should be pushed forward, for the bulk of the premaxillae is alveolus. At the same time the upper alveolar arch, instead of broadening, is compressed transversely by the atmospheric pressure upon the cheeks. This, with the pressure of the bulk of the teat against the palate, destroys the symmetry of its concavity by preventing the descent which accompanies natural development. The palatal arch may thus remain abnormally high in the centre, and sometimes becomes V-shaped.

This is the most important factor in the causes of those deformities of the tender bones above the palate which accompany abnormalities of the nasal cavities, and obstructions of those passages. With a narrowing of the transverse diameter of the nasal fossa, there is a buckling of the septum, approximation of the deflected vomer to the displaced turbinated bones on one side, or of any or all of these delicate bones to each other, with obstruction to, or abolition of, nasal respiration; there is abnormal height of the palate between the first permanent molars, and often it is ballooned instead of V-shaped. Mouth breathing is secured by the mouth being habitually kept open until the approximation of the molars prevents the front teeth from meeting. The upper incisors not having the guidance afforded by biting outside their lower antagonists, are subjected to the constant and unrestrained pressure of the elevated upper lip, which alone may have corrected early protrusion. They may even incline inwards, and the alveolar arch between the canines be flattened. However much a varying atmospheric pressure may aid in the production of this deformity, the primary cause is the pressure of the rubber teat upon the palate.

With many children who are breast-fed, and who have only used the "comforter" or the bottle for a short time, it is probable that the natural pressure of the lips and tongue may mitigate the deformity; but where both teat and "comforter" have been long used, the damage is, I believe, irreparable. With multitudes of young children in Europe, the size and shape of the palate varies with the extent to which such influences have been brought to bear upon the plastic and growing tissues. When the deformity becomes pronounced the lips cannot be closed except by effort, and the upper lip becomes habituated to its elevated position. When the lower lip once falls inside the upper temporary incisors, their malposition, and that of their successors, is confirmed and incurable. Where bottle-feeding has been carried on from birth, there is sometimes to be found narrowing of the arch of the lower jaw from contraction of the symphysis during the process of ankylosis and the first nine months of infantile life. Even where the normal ankylosis of the two halves of the lower jaw has not been interfered with, it is obvious from what is known of the plastic growth and development of the alveolar process that the external pressure of the teeth of a contracted upper jaw must influence the position of the lower teeth and the alveolus which supports them. So that while the basal portion of the lower jaw may be normal in its curvature, the alveolus which is built upon it may at its upper margin form a contracted arch in which the lower teeth slope inwards, while those of the upper jaw take an outward slant. Here there follows a narrowing of the space between the permanent canines and a huddling of the lower incisors, a common irregularity which cannot be ascribed to premature loss of the lower temporary incisors through caries, for they are the least liable to decay. The use of the bottle teat and dummy fortunately does not affect the development of the lower jaw and the position of its teeth, as it does that of the upper, because the tongue is

REFERENCES TO ILLUSTRATIONS.

The first three photographs are of models of jaws of little children who came into my surgery with dummy teats in their mouths.

Figs. 1 and 1A show the front and side views of the denture of a Chinese male child, aged 2½ years.

Figs. 2 and 2A of a Eurasian male child of 3½ years.

Figs. 3, 3A, and 3B, of a Eurasian female child aged 4½ years.

Fig. 3B looks down upon the biting surfaces of the teeth in this case, and shows what may be seen in the other two, that while the palate is narrowed the alveolar arch of the lower jaw is not much interfered with, the explanation being that they were breast-fed from birth till they were a year old. The comforters were used from the time the children were a month old until the models were taken. The parents of all three have good and regular teeth and wide well-arched palates.

Fig. 4 is the side view of a Jewish boy of 7 years. He was breast-fed for a year, had the bottle till he was 2, and used the comforter till he was nearly 5 years old. His parents have regular teeth; he was the only one in a family of four children who used the comforter, and the only one with this deformity.

Figs. 5 and 5A are from a boy of 10 years of age. Figs. 6 and 6A from his brother, aged 12. These are two English boys whom I have known from birth. They were bottle-fed after the first two or three months. The devoted parents, deaf to my entreaties and predictions, gave them the dummies at an early period, and their use was continued until after the temporary teeth had all been cut. So confirmed did the habit become, that there was no peace in the home if the children were deprived of their "pacifiers." They left my observation for a time, paying a visit to England; on their return to Rangoon, these models were taken, for I found that my predictions that the permanent teeth would follow the lines of their protruding predecessors had been fulfilled. The parents, an elder son, and a younger daughter are free from any such deformity. Neither of the latter used the dummy.

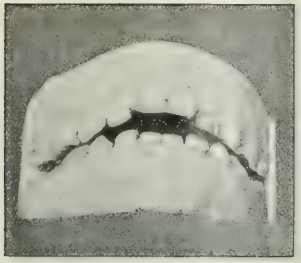


Fig. 1.

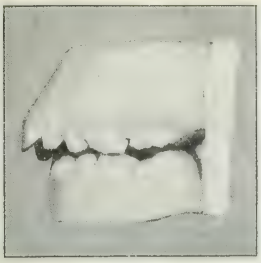


Fig. 1A.

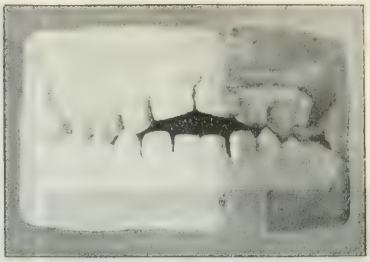


Fig. 3.

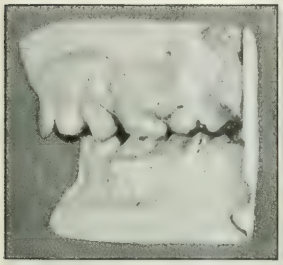


Fig. 2.

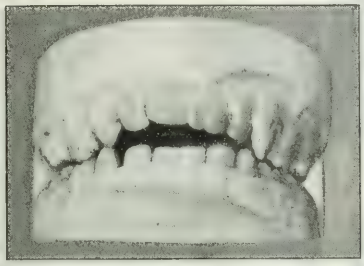


Fig. 2A.



Fig. 3A.

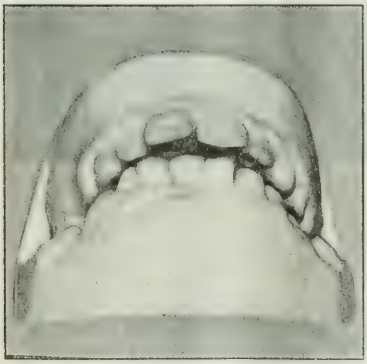


Fig. 5.

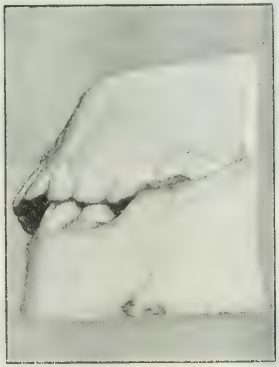


Fig. 5A.



Fig. 3B.



Fig. 4.

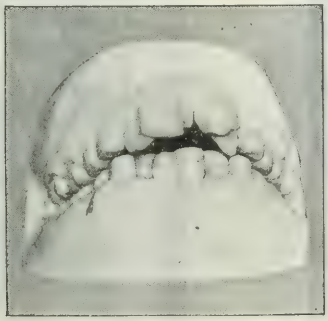


Fig. 6.



Fig. 6A

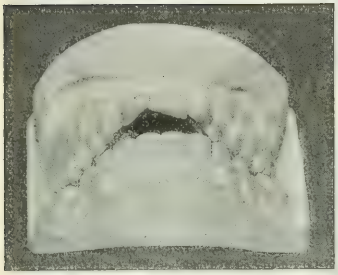


Fig. 7.

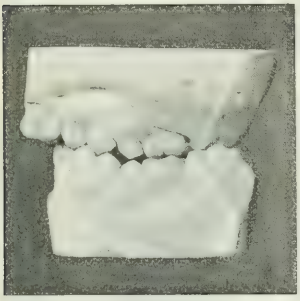


Fig. 7A.



Fig. 8.

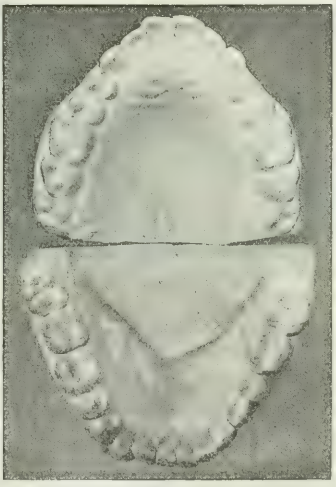


Fig. 8A.

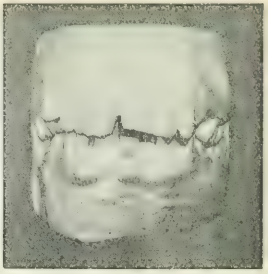


Fig. 9.



Fig. 9A.

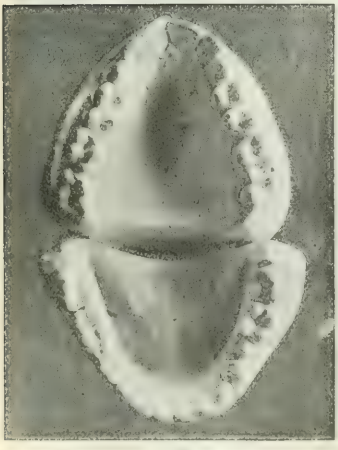


Fig. 7B.



Fig. 10

interposed between the object sucked and the alveolus, both before and after the eruption of the teeth.

Irregularities of the milk teeth are of little importance when an individual tooth or two is affected, having little to do with the position assumed by their successors; but where the whole alveolus containing the temporary teeth with the crypts of developing permanent teeth, is displaced, deformities and irregularities must follow. Undue prominence of the permanent upper incisors is often ascribed to heredity; I believe that this is, in the main, an error. The use of the rubber teat with the feeding bottle has become so much more prevalent during the last two generations in Europe that these troubles are induced in parents and children, being subject to the same artificial cause. For instance, we find that the teeth and jaws of Eurasians, whatever may have been the dental peculiarities of their European fathers, are wonderfully good, regular, and well-developed, as in the native races, the vast majority of them being breast-fed. Irregularities amongst these people are so rare, that they attract one's attention, and an artificial cause is usually to be ascertained. Feeding-bottles are sometimes used by the Burmese and other Easterns of our polyglot population. Where formerly a Burmese mother could not suckle her child, she got another woman to do so. Now the bottle is resorted to, especially amongst the poorer classes, for wet nurses are expensive. Most of such children in Rangoon die of intestinal troubles; the earlier the artificial feeding is begun, the sooner they die. A few are given the bottle after having had the breast for a few months, so that they have had a good start; but their troubles soon begin, for one often finds failure to properly cleanse the rubber teat and its appurtenances, pipes, washers, shields, etc.; not seldom are they foul or smelling putrid. I suppose that the poor and ignorant classes in England, amongst whom hand-feeding is far more common, are not more careful than mothers out here. Apart from all the difficulties of obtaining pure cow's milk and of adapting it to the digestive powers of the infant, the feeding-bottle, as commonly used by these people, introduces into the mouths and alimentary canals of these infants numerous micro-organisms, from which the breast-fed are free. Amongst those who are struggling bravely with the bottle for existence, and those who have come out of the fight more or less damaged, we have opportunities of watching the diseases of modern child life as seen in civilized countries of the West. Many troubles unknown to the breast-fed children of the poorest and most ignorant of the native races, catarrhal and parasitic stomatitis, and ulcerations about the gums and palate, are often met with, due to friction of the rubber teat, and micro-organisms introduced by its uncleanliness. Unfortunately the use of the feeding-bottle is with Europeans and others continued long after it might well be abandoned, even into the second and third year; then from dirty teats and stale milk one may find caries of the upper incisor teeth, and even of the first lower molars before the canines have been erupted. One may often see tonsillitis started at a very early age amongst these children, and careful examination of the mouth and back of the throat reveals a state of disease which easily accounts for any amount of subsequent trouble in the form of hypertrophy of the tonsils and of the pharyngeal mucous membrane. Several Eurasian boys and girls, upon whom during the last few years I have found it necessary to operate for hypertrophy of the tonsils and adenoids, were without exception bottle-fed.

In Dr. Goodhart's *Treatise on the Diseases of Children*, he draws a vivid picture of the sufferings arising from hypertrophy of the tonsils and adenoids. He says:

> First, it leads to snoring when the child sleeps—not in itself a matter of much concern; secondly, to deafness from the pressure upon the orifices of the Eustachian tubes and the associated hypertrophic or inflammatory changes which take place in the surrounding mucous membrane. This is of importance because such children often appear dull and stupid simply because they are deaf. It interferes, too, with free vocalisation and gives a nasal twang to the voice. It causes frequent cough. Lastly, by partial occlusion of the air passage, the lungs fill badly and the chest becomes distorted, and it is said that from the want of full use, the nostrils contract, the upper jaw fails to develop, and in consequence the arch of the palate remains high, and the teeth become cramped from want of room. The chest becomes pigeon-breasted—that is to say, the ribs are flattened in laterally—and the sternum and costal cartilages become prominent, sometimes quite pointed.

Across many such pages in our books of reference and many columns by writers upon this matter in our journals, one would be justified in writing the words "Caused by the rubber teat." Seeing and knowing what we do of the extreme rarity of these diseases amongst the many different races, nationalities, and types around us, one reads with wonder of 2,000 cases of operation for adenoids in a Liverpool hospital, or the patriotic appeal of a writer in the *Lancet* as to the national importance of subjecting tens of thousands of children in England to operations for this disease. It is most difficult to believe that if these troubles were in the past anything like as prevalent amongst our own people as we see them now to be, they could have so entirely escaped the notice of the masters of our art. It seems more reasonable to inquire as to the advent of some recent and widespread cause of what should be regarded as diseases of modern life. I believe that the cause lies here—artificial feeding—and that with defective appliances.

The conclusions which I have come to, and the suggestions which I wish to offer for the prevention of these evils are: When an infant is deprived of its mother's milk and has to be fed by hand, the substitute should be quite different in shape and consistency to the patterns now in vogue. It seems so difficult to make, even in india-rubber, a good imitation of Nature, that it would be much safer to be satisfied with providing a soft end to the spout of a vessel from which the infant is to be fed, and through which the milk can be gently and slowly poured into its mouth.

No harm can result from a baby drinking without sucking.

As a substitute for the common rubber teat, I recommend the use of a good-sized soft rubber finger-stall; a baby a week old can accommodate the end of one which will fit a man's thumb. Such a teat may be used on the spout of a vessel like a feeding cup, or an ordinary feeding

REFERENCES TO ILLUSTRATIONS.

Figs. 7 and 7A and 7B (reduced) are from the models of the mouth of a Eurasian girl, aged 14, who was bottle-fed, and who persistently sucked a forefinger until she was 6 years old. Her palate is too high and partly V-shaped, as shown in Fig 7B, both the palatal and alveolar arches being deformed. She suffered from adenoids, enlarged tonsils, and deflections of the septum, with anterior nasal obstruction and flattening of the nasal arch. She is one of five children, all bottle-fed from early infancy, and all similarly afflicted in various degrees.

Figs. 8 and 8A (reduced) are photographs of models from a Eurasian lad of 18 years, with whom I have been acquainted from early childhood. I know that neither of his parents had any irregularity of the teeth or palatal deformity. He was fed from birth for the first nine months from a feeding-bottle with a pipe, which he used to lie and suck. This was then changed for a boat-shaped bottle with nipple and shield. He continued to feed from the bottle till he was 3 years old: it was with great difficulty that he was broken of this habit and induced to take other food. His mother tells me that she noticed at a very early age, when he was between 2 and 3 years old, he snored, always seemed to have a cold in his head, and had to breathe through his mouth. As shown in Fig 8A, his palate is too high and ballooned, and in consequence he has deflection of the nasal septum and obstruction to nasal respiration, which the removal of adenoids and enlarged tonsils have not done much to relieve.

Figs. 9 and 9A (reduced) are from the mouth of a young woman, aged 23 years. She is one of two survivors of a family of fourteen, whose mother fed them from birth with feeding bottles. She tells me that they all died in infancy from convulsions, from which she also nearly died. Such a case as that, and such facts, call for many sad reflections.

I could get other models showing further varieties of these deformities in young children and in adults, but I think that these examples will serve our purpose. These deformities are hideous, and they are worse, for they all, in varying degrees, interfere with the efficiency of the masticatory apparatus, and in many cases involve nasal obstruction with all its dangers to the physical and mental development of the victims. In these cases the models show that the bite is always upset, and where the permanent teeth are erupted the outer cusps of the lower molars, instead of biting inside are outside those of their antagonists in the upper jaw.

Fig. 10 shows some rubber teats such as are in general use. They are reduced to two-thirds of the original size. A, the smallest, is one which I found in the mouth of a baby, 2 days old, as a "comforter"; B is a "comforter"; it is the same size and shape as most feeding-bottle teats; C is another teat in common use: I find it too small and too resilient; D is a pattern commonly used in Germany; it is too long and too narrow.

bottle. If this teat is properly adjusted, and the cup properly held so as to regulate the flow, there is no need for a shield, and the teat will not go down the baby's throat. Some of my little patients have taken quite readily to this method. Finger-stalls may be obtained in different sizes, are soft, flaccid, easily cleansed, and cost little more than the ordinary teats.

But a baby three months old can quite easily be taught to drink from a cup. At this age, then, I would recommend that all teats and bottles be thrown aside, and that we should revert to the old-fashioned metal pap-bowl with the long open lip. Our grandmothers for many generations back (before American ingenuity brought us the rubber teat) fed the children from such vessels in pewter. We can have handy-shaped, easily-cleansed, and unbreakable cups of this description in aluminium or silver. Of course, the baby "comforter" or "pacifier" must be abolished and forbidden; its use is injurious, and if after warning resorted to, should be deemed an indictable offence.

Lastly, every mother who can suckle her own child should do so. Much might be done by the State and philanthropy to encourage this ancient custom amongst the ignorant and illiterate of all classes of our population; for ignorance is accountable for much that is cruel. Many women might suckle their children, but will not; for any such the neglect of this duty should be deemed a crime. If those who in past ages gave the sacred laws which rule our lives had foreseen! If He, the Friend of the little children, had imagined that such glorious women as ours—English women—could withhold their breasts from their babies, what denunciations, what protests, would have been recorded against this unnatural and unwomanly sin!

One may envy Meyer of Copenhagen his reputation, and the benefits which his discovery and treatment of adenoids has brought to thousands of suffering children; but "higher merit," as our Burmese friends would say, awaits those who, in the names of humanity and patriotism, will persuade our women to remember and to fulfil the first duty of a mother.

Postscript. London, September, 1906.

Returning to England for a brief holiday after many years of residence in Burmah, I am intensely interested to find that the subject of this paper is intimately connected with questions which are now deeply engaging the attention of the profession and practical philanthropists. I feel that the publication of the facts which I have collected, and the views here imperfectly set forth, may do a little to assist in solving some of the problems of our cruel infantile mortality, and the prevention of a group of diseases which is maiming and disfiguring so many of our people.

To one accustomed for years to the beautiful feature of healthy and regular teeth of many Asiatic races, the unconcealed evidence of disease which disfigures the smiling faces of so many men, women, and children in this country, is a distressing and painful experience.

I find that the museums of the dental and other hospitals contain numerous models such as I have collected, and am assured by London dentists of the widest practice that these cases are as common as blackberries in England.

I have lately visited many different parts of the country. Wherever I go the extraordinary prevalence of the use of the dummy teat has astonished me. In the streets or travelling by rail, I meet this thing; the children playing on the sands have it in their mouths. In tens of thousands the mischief has been done, they are shamefully disfigured for life. It seems to me that the arrest of this evil is as deserving of the attention of our legislators as many of the subjects to which they devote so much time and energy.

What great responsibility rests upon us as a profession in regard to all these matters! but now is our opportunity; never before have our countrymen been so willing to listen to the advice of those to whom they must look for guidance in all that concerns their health and physical well-being. Let us endeavour to act up to our responsibilities, and with a united and decided voice denounce the many preventable causes of disease, which are doing so much to sap the vigour and to impoverish the blood of the splendid race so envied of all the world.

COMBINED ANTRUM PLUG AND ARTIFICIAL DENTURE.

By A. S. HAYMAN, L.R.C.P. and S.I., L.D.S., R.C.S.Eng.

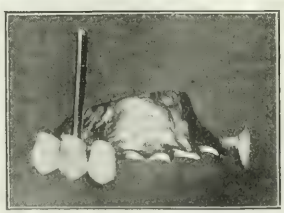
In the practice of a surgeon there may occasionally arise cases of antral empyema, which are for some reason unsuited to the radical treatment. In these cases all that can be done is to trephine, and when that has been done the surgeon is confronted with the question of permanent drainage and of how occlusion of the opening may be prevented. Many methods have been tried with varying success, namely:

1. Frequent syringing without the use of any plug. This invariably ends in occlusion before very long, and the trouble recommences, leaving both patient and surgeon dissatisfied.

2. The spiral wire tube, which soon becomes septic from particles of food, is also liable to rust, and so is easily destroyed.

3. The gold, or other metal, cannula, which is permanently inserted, and into which passes a split wire attached to the plate. This method, however, is of limited application, owing to variation in the bite, where appearance has to be considered in supplying missing teeth.





4. In cases where the bite is close, and the lower teeth almost touch the upper gum, I employ the method which I will now describe, and which has given the greatest measure of comfort and satisfaction to many patients.

I prepare a gold plate, fitting absolutely closely to the palate and alveolar ridge, taking special care that the plate is closely applied to the buccal surface of the alveolar ridge, thus preventing access of food to the plug and antral opening. On the upper surface of this closely-fitting gold plate (see cut) is soldered a solid gold pin, $\frac{1}{8}$ in. thick, of sufficient length to pass freely up into the antrum. On the lower surface of the antral bridge is fitted the necessary tooth to supply the place of the missing first or second molar, and such other teeth may be added to the plate as are required in the ordinary manner. The patient is instructed to syringe with the ordinary antiseptic lotions as may be prescribed by the surgeon, every time the plate is removed and replaced, at least three or four times a day.

Persons treated by me in this way report that the solid fixed gold pin is vastly superior in ease and comfort in wear, and the drainage opening is more easily found, than by any of the older methods described.

Under the will of the late Mr. William Henry Brown, of Alveston, Gloucester, the Royal Infirmary and the General Hospital, Bristol, each receive a sum of £200, and the United Hospital, Bath, the Mineral Water Hospital, Bath, and the Hospital for Women and Children at Bristol each a sum of £100.

NOTE ON A FILARIAL LARVA IN THE BLOOD OF A BLACKBIRD.

By WILLIAM ST. CLAIR SYMMERS, M.B.Aberd.,
MUSGRAVE PROFESSOR OF PATHOLOGY, QUEEN'S COLLEGE, BELFAST.

In the month of July of the present year a blackbird (*Turdus merula*) dropped dead from a tree in my garden in Belfast. I examined this bird, expecting to find trypanosomes in its blood, but instead there were very numerous tiny round "worms," which were evidently the larvae of some member of the Filaridae. Avian filariasis is, I believe, not uncommon in tropical and subtropical lands, but the occurrence of such a thing in the north of Ireland is worth mention, and may lead to further search for this condition among the birds of northern countries. I regret that I have no information as to the migratory habits of the blackbird.

As to the bird in question, the internal organs were normal to the naked eye, and the heart blood contained no bacteria that could grow on the usual media of the laboratory. A small quantity of blood was, in the first instance, withdrawn by a Pasteur pipette from the heart; a tiny droplet blown upon a glass slide, and without being covered by a cover-slip, was examined under a low power. It was at once seen that in two places in the field of vision the blood corpuscles were in active commotion, and it soon became evident that this was due to the wriggling of a worm-like parasite. This parasite was best seen after diluting the blood with normal salt solution, and by using higher powers of the microscope. The larvae were present in every small droplet of the heart blood, but none were found in the blood of the liver.

When examined in the fresh blood (diluted several times with salt solution) the animal moved rapidly, rolling itself into coiled spirals like a pile of rope, unrolling immediately, curving and twisting without ceasing, at times forming a perfect figure 8. There was practically no tendency towards progredient movement, so that the animal could be observed without much use of the movable stage of the microscope, although it occasionally rolled out of the field of vision. The movements at this stage were peculiarly smooth, continuously active, graceful, and quick. After a few hours (room temperature) the movements were slower, and gradually became more and more jerky, until after twenty-four hours the jerkiness was the chief characteristic of the motion, which then resembled the awkward action of a mechanical toy, the rope-coil position was no longer assumed, nor were figures of 8 formed. The sluggish, and doubtless dying, animal moved with jerks, as if with effort, bending stiffly; at times the anterior quarter of the body forming nearly a right angle with the posterior portions. At no stage of the movements was there any extension or contraction of the body. On several occasions an individual taken freshly from the heart blood protruded from its anterior extremity a tiny tent like pellicle or cupola, which was immediately withdrawn only to be shot out again after a few moments. This "prepuce" was more pointed at its summit than the similar arrangement seen in the larva of Bancroft's filaria, nor did it show any thread or cilium projecting from its top. But owing to the quick movements of the animal and the rapid withdrawal of this cupola (prepuce) my eye could not catch very well the anatomy of this part. The more sluggish animals did not show this phenomenon, the extremity being rounded off and having a tiny dimple indenting the (blunt) vertex. After forty-eight hours the animals (covered and vaseline-rimmed) were motionless, and lay extended in more or less straight lines—except where crowded by blood corpuscles.

The larvae were devoid of a sheath. They measured on the average 0·15 mm. in length and 0·0035 mm. in breadth, being a little thicker at the anterior than at the posterior end, but still of nearly equal thickness throughout, and the two extremities were bluntly rounded off. The cuticle was smooth. I did not notice an excretory pore. The dimple above mentioned as existing in the living animal could not be detected in the dead. When unstained, the animal was structureless internally, and was colourless and clear; when stained by Leishman's stain, numbers of small granules were seen packed together and occupying nearly the whole body; these granules stained deep blue, and lay in a homogeneous matrix which stained less deeply. At certain places the granules were absent, leaving a clear triangular space (V-spot). Such spots were not invariable as to position, but one of them was fairly constant, and lay at the junction of the anterior and middle third of the body. Moreover, there was a striking and constant appearance—namely, a clear, unstained oval area, lying about midway between the two extremities. This area occupied the whole calibre of the body, and measured 0·01 mm. in length. These details were best seen when the preparations, after staining in the usual way with Leishman's stain, were rapidly washed alternately in alcohol and in water, so as to remove some of the dye.

The adult filaria was not found.

The larva here in question is evidently much like the *Filaria perstans*, being without a sheath, and having both extremities blunt. In size it is smaller than *perstans*, but is apparently almost identical in this respect (size) with the larva described by Manson in natives of British Guiana, and held by this distinguished observer as closely resembling, if not identical with, *F. perstans*.

I hesitate in the identification of this blackbird filaria, and consequently refrain from giving it a name.

MEMORANDUM ON THE OBSERVATION OF SPIROCHAETES IN YAWS AND GRANULOMA PUDENDI.

By ALEX. MacLENNAN,
DISPENSARY SURGEON, WESTERN INFIRMARY, GLASGOW.

I have recently had the opportunity of examining some smear preparations from yaws sent to me by Dr. Branch of St. Vincent, B.W.I., to whom I am very much indebted. The smears were fixed in methyl alcohol by Dr. Branch and were stained by me in a number of ways. In one specimen taken from a papilloma in recurrent yaws numerous spirochaetes were observed. The method of staining was by Giemsa's solution and gentian violet, as described by me in a recent number of the British Medical Journal. These spirochaetes possessed similar characters to those of the *Spirochaeta pallida*, as already pointed out by Castellani, but the staining was fainter. Loops in the course of the filament were observed, as in the *pallida*.

In two smears from *Granuloma pudendi*, sent also by Dr. Branch, I have found a few spirochaetes—most probably the *refringens*—while in one stained first in fuchsin, then in acetone gentian violet, a number of very long highly-refractive spirochaetes were observed. These parasites were much longer than the *Spirochaeta pallida*, and the waving was finer and closer. In one forty waves were counted. Though the staining was very prolonged, these spirochaetes were very faintly stained. There were also a number of other structures present which were less definite.

Society for Relief of Widows and Orphans of Medical Men.—A quarterly court of the above Society was held on October 10th, Dr. Blandford, President, in the chair. Fourteen directors were present. Proposals for membership were read from two medical men, and they were duly elected. It was reported that since the last court two widows, annuitants of the charity, had died, and one had become ineligible owing to an increase of income. Of the two who had died one had received in grants £621 and the other £500, their husbands having paid in subscriptions £52 10s. and £15 15s. respectively. The one who was no longer eligible had received £900, her husband having paid a composition fee of £21 for life membership at the time of his election. It was proposed to distribute the sum of £556 among the annuitants of the charity as a Christmas present, each widow to receive £10, each orphan £3, and those on the Copeland Fund £5 each. Six letters asking for relief had been received during the past quarter, but the applicants were ineligible under the by-laws of the Society, relief being only granted to widows of deceased members and to orphans below the age of 16. Any registered medical practitioner resident within a radius of 20 miles from Charing Cross is eligible for membership. Further particulars may be obtained from the Secretary, 11, Chandos Street, Cavendish Square, W.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF MEDICINE.

Sir THOMAS BARLOW, Bart., K.C.V.O., M.D., LL.D., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE PRESIDENT of the Section, on taking the chair, welcomed the members and guests, and said that everything augured well for a most successful meeting of the Section. He said he would take his address for read, and so would not stand between the Section and the discussion on Blood Pressure in Relation to Disease, which he would call upon Dr. Dawson to open.

A DISCUSSION ON BLOOD PRESSURE IN RELATION TO DISEASE.

OPENING PAPERS.

I.—PERCY M. DAWSON, M.D.,

Associate Professor of Physiology in Johns Hopkins University, Baltimore.

THE SYSTOLIC OUTPUT AND WORK OF THE HEART AND THEIR RELATION TO THE "BLOOD PRESSURES" IN MAN.

I HAVE been asked, as a representative of the science lying midway between physics and medicine, to present a physiological introduction to the subject of this morning's discussion. The field is so extensive that to consider it in its entirety one must be either very lengthy or very superficial. I have, therefore, selected certain topics upon which I shall dwell to the entire exclusion of the rest. In so doing I shall have an opportunity of emphasizing certain points often overlooked, and also of presenting some matter which is new.

For a clear conception of the conditions under which the human circulation is being carried on at any given time a knowledge of the output of the heart, and of the work of the heart, is of primary importance. Such knowledge enables us to answer two questions: First, Is the body receiving a normal amount of blood? And, second, Is the heart being overtaxed in keeping up the supply?

The task which I have assigned myself is that of showing how this knowledge can be arrived at, at least approximately, by means of such comparatively simple procedures as the determination of the "blood pressures." But, before entering into this discussion, it seems expedient for the sake of clearness to present certain definitions.

In Fig. 1 let the ordinates represent pressure and the abscissae time. Also let the line AA represent zero pressure, AD minimum arterial pressure, that is the pressure obtaining at the end of diastole, AS, the maximum arterial pressure due to the contraction of the heart, DD′ the duration of a single cardiac cycle and Ma the middle point of DS. Suppose also for the sake of simplicity that the curve of arterial pressure has a simple triangular form such as DSD′. Finally, let M be the mean or average of all the ordinates which can be drawn from DD′ to the pressure curve DSD′. The definitions are:

AD = diastolic pressure.
AS = systolic pressure.
DS = AS minus AD = pulse pressure.
M = mean pressure or geometric mean—that is, the average pressure during the period DD′.
Ma = arithmetic mean of the systolic and diastolic pressures (a value which is usually of very little importance).

In a simple triangular curve such as that shown in Fig. 1 the lines M and Ma would be identical, but if the pressure curve were not triangular but had a katacrotic limb which took some such course as SxD′ or SyD′ in Fig. 2, then it is clear that M and Ma would no longer coincide. For when the dicrotic limb occupies the position *x*, M will lie above Ma; while, when it occupies the position *y*, it will lie below. It is evident that the geometric and arithmetic means may or may not be coincident according to the form of the pressure curve.

There is, perhaps, no one factor which has done more to throw into confusion the literature on the subject now before us than the use of the term blood pressure, without

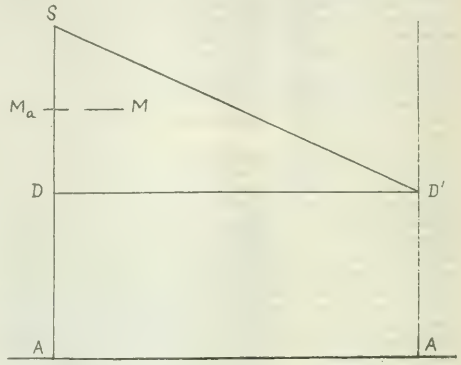


Fig. 1.

specification as to the sort of blood pressure under consideration. The necessity for accuracy of expression can be realized only when it is borne in mind that the systolic may exceed the diastolic pressure by as much as 100 per cent. of the latter, and that these two pressures may vary quite independently of each other. Consequently, I shall not employ this term without an appropriate qualifying adjective, such as "systolic" or the like, and I shall use the plural form "blood pressures" when speaking of these various sorts of pressure taken collectively.

DETERMINATION OF THE SYSTOLIC OUTPUT.

In the case of rubber tubes filled with liquids and acted

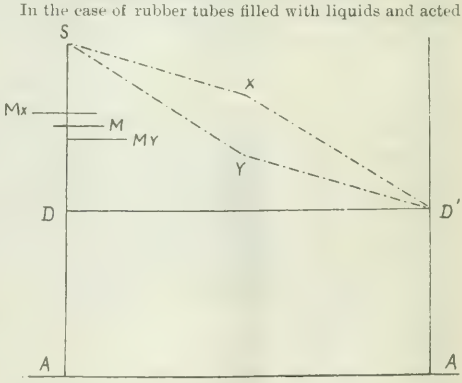


Fig. 2.

upon by an intermittent pressure it has been shown that under certain conditions

$$\Delta v = \frac{\Delta p}{\sigma \times a}.$$

Here Δv signifies the change of velocity between any two points on a velocity curve, Δp the corresponding change in pressure, while $\sigma \times a$ may be regarded for the present as a constant. Thus, if the curves P and V in Fig. 3 represent the changes in pressure and velocity respectively, and if p_1 and p_2 be the pressure values at any two points on the pressure curve, then the corresponding velocity values v_1 and v_2 must be such that

$$v_1 - v_2 = \frac{p_1 - p_2}{\sigma \times a}.$$

[1] J. von Kries, *Festschrift der 56 Versammlung deutscher Naturforscher u. Aerzte*, Freiburg i. B., 1883.

It necessarily follows that the mean change in pressure during a given time bears the same relation to the mean change in velocity for the same period. If, therefore, we can determine the mean change in pressure in the case of rubber tubes we shall have an index to the change in velocity which is proportional to the same.

If this equation were applied to the circulation, we would express the relation of the pressure in the aorta to the velocity in that artery by saying that the change in pressure which occurs during a cardiac cycle is proportional to the change in velocity which occurs in that same artery during the same cycle, and also that the mean change in pressure, that is, the geometric mean of the pressure triangle, is proportional to the mean change in velocity. Moreover, it is evident that the greater the cyclic change in velocity the greater must be the systolic output which has occasioned it, and since the mean change in the velocity is also proportional to the mean change in pressure, therefore the geometric mean of the pressure triangle is proportional to the systolic output.

But is this equation applicable to the circulation? Is it really true that the mean change in pressure is proportional to the mean change in velocity—that is, to the systolic output? It would not be strictly true unless the pressure and velocity always varied in the same direction, and this would not be the case unless the pressure curve represented only waves travelling from the heart to the periphery and were unmodified by reflected waves. A wave passing towards the periphery will of course cause

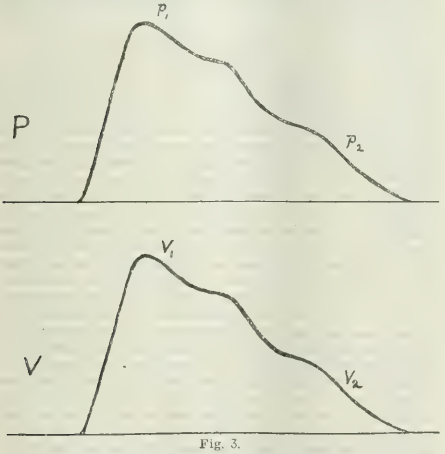


Fig. 3.

an increase in both velocity and pressure (Fig. 4, A and B), but a wave passing in the opposite direction, although it also causes a rise in pressure (Fig. 4, B), will on the other hand cause a fall in the velocity (Fig. 4, C) so that the velocity and the pressure will no longer vary together. Thus we see that Δv will not be proportional to Δp if returning or reflected waves can be shown to exist.

It is just here that the controversy regarding the origin of the dicrotic wave becomes of practical importance. If the dicrotic elevation be of central origin,[2] then the pulse curve is not essentially modified by reflected waves, but if on the other hand the dicrotic be of peripheral origin,[3] then the pressure curve must experience some modification as the result of this reflection, and may differ greatly from the corresponding velocity curve. Consequently, until the origin of the dicrotic elevation has been definitely settled, we cannot say that the equation in question is strictly speaking applicable to the circulation.

But while waiting for a consensus of opinion to be reached regarding the origin of the dicrotic elevation, can one find any indication that the change in pressure is at least approximately proportional to the systolic output? If it be premature to regard the equation which we have been considering as strictly applicable to the circulation, is there any evidence that it approximates the truth to a degree sufficient for clinical purposes? There is some evidence which points to this—evidence which I think is of not inconsiderable value.

In a series of carefully-conducted experiments upon a schematic circulation, it has been shown that, as a rule to which there are but few exceptions, the pulse pressure varies with the outflow.[4] Subsequent experiments on animals, although not yet completed, have been carried far enough to show that the same statement holds true in the case of the dog.[5] In this series of experiments, the pulse pressure as determined with the Hürthle manometer was compared with the systolic output as determined with the cardiac plethysmograph of Henderson,[6] and it was found that on stimulation of the peripheral end of the vagus in asphyxia, haemorrhage, infusion, and so forth, the pulse pressure and the systolic output vary together. Consequently we are justified in saying that as a rule the pulse pressure may be taken as an index of the systolic output, or expressed algebraically

$$S = \frac{p_1 - p_2}{\sigma \times a}$$

where S is the systolic output and p_1 and p_2 are the systolic and diastolic pressures respectively.

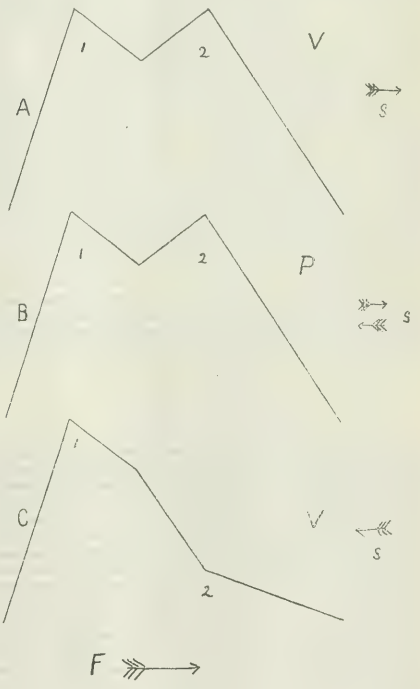


Fig. 4.

At this point it should be noted that since the change in velocity is entirely dependent upon the systolic output, it is evident that we may substitute $v_1 - v_2$ for S, so that, be the origin of the dicrotic what it may, the equation

$$v_1 - v_2 = \frac{p_1 - p_2}{\sigma \times a}$$

is not without value to the clinician and the physiologist.

The problem of determining the systolic output has now resolved itself into that of determining the pulse pressure in the aorta. That this artery is not available in the case of man is of little consequence, since it has been shown that the blood pressures determined in the brachial artery by means of sphygmomanometric methods are equal to the lateral blood pressures in the aorta.[7]

[2] J. L. Hoorweg, *Arch. f. d. gesam. Physiol.*, 1889, xlvi, 115.
[3] J. von Kries, loc. cit., also *Studien zur Pulslehre*, Freiburg i. B., 1892.
[4] J. Erlanger, unpublished investigations.
[5] Percy M. Dawson, unpublished investigations.
[6] Y. Henderson, *Amer. Jour. Physiol.*, 1906, xvi, 325.
[7] Percy M. Dawson, *Amer. Jour. Physiol.*, 1906-6, xv.

We may conclude, therefore, that the pulse pressure as determined in the brachial artery in man is a measure of the systolic output, and as a corollary that the pulse-rate multiplied by the pulse-pressure is a measure of the cardiac output per minute.

The shortness of the time at my disposal excludes a consideration of the expression $\sigma \times a$. I shall merely state in passing that a is the rate of transmission of the pulse wave, a phenomenon which has not been as carefully studied as it perhaps deserves.'

DETERMINATION OF THE WORK OF THE HEART.

There are several equations which may be employed in calculating the work of the heart. Of these, perhaps, the simplest is $W=mgh$, where W represents the work of the heart, m the systolic output, g the acceleration of gravity, and h the mean pressure in the aorta.

The method of determining the output, m, has already been discussed; the acceleration of gravity, g, is 981, while the mean pressure in the aorta can be determined approximately in the following way.

If the aortic pressure curve were a real triangle and not merely an irregular figure of somewhat triangular shape, then, as we have already seen, the geometric and arithmetic means would be identical. The aortic pressure curve is, however, under normal conditions only approximately triangular, and the geometric mean lies below the arithmetic mean.[9] Nevertheless, the relation of the geometric mean to the maximum and minimum pressures is under normal conditions very constant. It has been shown that if we divide the line representing the pulse pressure (DS in Fig. 1) into three equal parts, then the geometric mean, or average blood pressure, during a cardiac cycle lies at the first point of division above the diastolic line (DD'). We may conclude, therefore, that under normal conditions the mean pressure in the aorta is approximately equal to the diastolic pressure in the brachial artery *plus* one-third of the pulse pressure in that artery.

The product of m, g, and h gives us the work of the heart, but it is to be borne in mind that since m, the systolic output as determined by the method described in the preceding section, is a relative and not an absolute value, therefore the product in question, the work, is also a relative and not an absolute value.

DETERMINATION OF THE BLOOD PRESSURES IN THE BRACHIAL ARTERY.

We have seen that for the estimation of the systolic output and the work of the heart the only technical procedure was the determination of the blood pressures in the brachial artery. In the selection of an instrument for this purpose, as well as for the study of other phenomena of the circulation, there are certain essential requisites which guide the physiologist. The accuracy of the instrument should have been established by means of careful experiments: it should determine both the systolic and diastolic pressures, and should determine them objectively near the aorta, and, if possible, conveniently and quickly.[10]

Of these so-called requisites there is one which is very often overlooked, and which on that account deserves especial emphasis.[11] I refer to the desirability of determining both the systolic and the diastolic pressures. Observations of the systolic pressure only, or of the diastolic pressure only, can give us only certain empirical relations, which may be interesting and even valuable; but for a real knowledge of what is going on in the cardiovascular system, of the mechanical relations under which the circulation is being carried on, we need at the very least the data afforded by the determination of both of these pressures. If, for example, we open the abdomen of an anaesthetized animal, strew the viscera over the operating table, and expose them to cooling, drying, and rough handling, we may obtain only a slight fall in the systolic pressure, while the rise in the diastolic pressure may be extraordinary.[12] In this case the determination of either pressure to the exclusion of the other would result in that sort of knowledge which is too meagre to be anything but misleading. Again, in change of posture,[13] in orthostatic albuminuria,[13] in intravenous infusions,[14] and so forth, the essential pressure phenomenon is not the change in the systolic and diastolic pressures alone, but the change in their relations to one another—that is, in the pulse pressure.

In closing, I wish to express my appreciation of the privilege of presenting this communication.

[9] P. M. Chapman, BRITISH MEDICAL JOURNAL, 1894, i, 511.
[9a] P. M. Dawson, *Amer. Jour. Physiol.*, 1905-6, xv.
[10] J. Erlanger, *Johns Hopkins Hospital Reports*, 1904, xii, 59.
[11] In this connexion see J. Strassburger, *Zeitschr. f. klin. Med.*, 1904, liv, 372; and G. Arthaud, *Progrès Méd.*, Paris, 1905, 3 S., xxi, 17, 49.
[12] P. M. Dawson, unpublished investigations.

II.—G. A. GIBSON, M.D., D.Sc., LL.D.,
Physician, Royal Infirmary, Edinburgh.

CLINICAL METHODS IN BLOOD PRESSURE.

IN accordance with the request which has been addressed to me, the following remarks will be solely confined to aims, methods, and limitations in the clinical investigation of blood pressure. The results of the methods employed, the indications which they furnish, and the management of the conditions which they disclose will be fully dealt with by those who are to follow me in this discussion.

It may be taken for granted that our aims are now well understood and that they are also generally accepted. Putting them as shortly as possible, our objects are: (1) To ascertain the height of the blood pressure; (2) to analyse the factors concerned in its maintenance; and (3) to assess the relative importance of each of these agencies. It must be obvious that in any attempt to achieve those ends we must have a clear conception of the different influences which affect the pressure within the vessels. It will therefore be necessary to spend a few minutes in the consideration of the factors upon which the pressure depends.

The blood pressure is due primarily to the energy of the heart shown by amount of outflow and velocity of expulsion. All the cardiac functions, rhythmicity, excitability, contractility, conductivity, and tonicity must take part in this. Undoubtedly the intrinsic energy of the heart is subject to extrinsic conditions, such as the amount of blood which reaches it by way of the great veins, and the resistance which it has to overcome. Increased rate, with free access of blood, as a rule raises the pressure and vice versa, yet in such conditions as heart-block the pressure may be up to 250 mm. Hg. Any lessening of the afferent blood diminishes blood pressure; every increase in resistance raises it up to a certain level, but if the resistance is too high the outflow is reduced and the pressure falls. The cardiac energy may further be increased or diminished by the influence of the augmenting and inhibiting nerves. By means of the nervous mechanism, moreover, the heart is automatically relieved from the effects of overwork. As regards the action of the heart, then, we may conclude that any increase in the outflow from the ventricles raises the blood pressure when the other factors are constant, and, conversely, a diminution produces a fall. This may be due to increased velocity, caused by the action of the augmentor nerves without any acceleration of rate.

The peripheral resistance has great importance in maintaining the blood pressure, and this on analysis is found to depend on several different causes. The tone of the blood vessels, maintained by the influence of the vasomotor nerves upon the unstriped muscular tissue of the vascular walls, is the most powerful factor in this connexion. Undoubtedly the general tone is due to a balance between the influence of the vaso-constrictor and vaso-dilator nerves, but as the latter are not continuously in action they may be disregarded. Time forbids my entering upon the subject, but you will allow me simply to recall the well-known fact that if the tone of the blood vessels is seriously lowered, there is more or less complete venous stasis, and greater or less failure of the circulation from lack of blood reaching the heart. The tone of the blood vessels presents general and local variations. The general blood pressure responds to the general tone of the blood vessels throughout the entire circulation, but it must not be overlooked that the local pressure undergoes great vicissitudes in accordance with special requirements. The most remarkable facts bearing out this statement are derived from the abdominal vessels under the influence of the splanchnic nerves. Some new facts have recently been brought forward on this subject by Rudolf, and the matter will require further investiga-

[13] J. Erlanger, *Johns Hopkins Hospital Reports*, 1904, xii, 145.
[14] P. M. Dawson, *Jour. Exper. Med.*, 1906, vii, 1.

tion. An increase of function in any particular area produces an increased blood supply through the action of the vaso-dilator nerves, leading to dilatation of the smaller arteries. Conversely, cessation of function in any part is at once followed by the resumption of the normal tone exerted by the vaso-constrictor nerves. Further, it has been proved that the general as well as the local blood pressure is subject to reflex influences arising even in distant parts. With reference to this part of the subject, we may say that, other factors being constant, increased resistance is associated with higher, and lessened resistance with lower, pressure.

Vascular elasticity is of great importance. By its means the energy of the heart is, as it were, transferred to the vessel walls in the form of potential, continuously becoming kinetic, energy, and in this way the onward movement of the blood is subject to a much more continuous influence than would be possible were it solely dependent upon the intermittent energy of the heart. When the structure of the blood vessels is intact, they possess extremely wide limits of elasticity, meaning that their walls can return to normal after great distension. When this wide limit of elasticity is narrowed by morbid changes, there is an increased resistance to the blood flow, and at the same time a tendency to distension of the vessels from which recovery is no longer possible.

The amount of blood in circulation is certainly of some importance in regard to blood pressure, but it has less influence than the factors which have just been considered. The only available method of ascertaining the amount of blood in the vessels is the carbonic oxide process of Haldane, which many of us hesitate to use in our clinical investigations. The comparatively slight effect of changes in the contents of the vessels is obviously due to the fact that variations in the amount of blood speedily bring about compensatory alterations in the tone of the blood vessels, as well as the energy of the heart, so that they adapt themselves to the quantity they contain, and restore the pressure to the normal for the conditions which are present. Our knowledge of this subject is chiefly the result of experimental physiology, as regards additions to the amount of blood in circulation. Physiological researches on the effects of reduction of the amount are borne out by observations upon cases of severe haemorrhage in practice. The data obtained from both sources of information lead us to the conclusion that changes in the volume of the blood only produce transient effects on blood pressure.

The viscosity of the blood is another factor which undoubtedly has some importance; the amount of weight to be attached to this influence is at present largely a matter of speculation. As there is always a layer of blood, more or less stationary, in contact with the walls of the blood vessels, the viscosity is probably not very important. A simple and ingenious process for the estimation of the viscosity of the blood has recently been described by Denning and Watson.

We have now to approach the questions involved in the attempt to estimate blood pressure in clinical medicine. We sometimes, even in this new century, hear it said by distinguished teachers that the educated finger is the best means of judging the arterial pressure; to the initiated such a statement is grotesque in the extreme. Undoubtedly the sense of touch, aided by a long experience, is of considerable value, and it is the duty of each of us to train the fingers to the best of our ability; yet the man who will gravely say that he is able to gauge the blood pressure by means of his fingers is quite as foolish as another man would be who gravely stated that he was able to take accurate temperature readings by applying his hand to the surface of the patient. During the last thirty years my efforts in training myself to assess blood pressure by the sense of touch have taught how extremely fallacious such a method must always be. Its results only give at the best distant approximations to truth when compared with the readings of a reliable modern instrument. The finger never can and never will give us such a warning, for example, as the sphygmomanometer does in cases of pneumonia. As is known to all of us the normal course in this disease is to a continuous but gradual fall of pressure. Any sudden rise before the crisis means some complication, and acute delirium is often the immediate sequel to a sudden rise of pressure; while any sudden fall of pressure suggests complications of another kind, and warns us of the immediate risk of cardiac failure. Those teachers who still oppose the use of our modern instruments of research in the investigation of blood pressure are on the same level as those who contemn the employment of such instruments as the ophthalmoscope.

The instrumental estimation of blood pressure may be carried out by several methods; the oldest clinical procedure was that of Vierordt, who just over half a century ago made the earliest attempts to ascertain the blood pressure with his own sphygmograph, weighted so as to compress the artery. This was really the first attempt in the clinical estimation of arterial pressure. Undoubtedly the sphygmograph furnishes certain indications as regards blood pressure, but nothing more. As we shall see, sphygmomanometers locally applied to the radial artery are liable to fallacies, and this is even more true of the sphygmograph. It plays its part in revealing to us the rhythm of movements, it gives indistinct suggestions of high and low pressure; but it helps us scarcely at all in judging of the energy by which the arterial movements are produced, and it does not give more than a distant approximation to the results in the vessels.

This is even more true of the cardiograph, in which the sources of fallacy are even greater than in the sphygmograph. The relations of the heart to the lungs and to the chest walls, as well as the condition of the parietes, constitute such variable conditions as to render any attempts to estimate the energy of the circulation with the cardiograph absolutely nugatory.

Since the earliest serious efforts made by von Basch, a quarter of a century ago, many useful instruments have been devised for the estimation of blood pressure. In considering these different instruments we shall find that they fall into various groups. There are, for instance, the sphygmomanometers of von Basch, Potain, and Oliver, as well as the smaller instrument of Hill and Barnard, which estimate the blood pressure by application directly to the radial artery. There are others which aim at obtaining readings by the circular compression of the limb; to this series belong the larger instrument of Hill and Barnard, and the sphygmomanometers of Riva-Rocci, Martin, Cook, Stanton, Janeway, and Erlanger. There are further methods of estimating the blood pressure by apparatus embracing the extremities; to this category belong the apparatus of Marey, Hürthle, and Mosso. We have, further, instruments designed to estimate blood pressure by the tint of the skin. The tonometer of Gärtner is an example of the application of this principle. But when we more fully analyse these different instruments we find that there are many other points of view from which we may regard them, and therefore the analysis of the apparatus requires more careful consideration.

When these different instruments are analysed from the point of view of their principles we find them grouped in quite another fashion. The instruments which gauge the pressure by obliteration of pulsation may be grouped according to their mode of application. In this way we may say that the apparatus of von Basch and of Potain act by local obliteration of the arterial pulse, as judged by applying the finger or some recording apparatus immediately beyond the point of application of the instrument. Those of Riva-Rocci, Martin, Cook, Stanton, and Janeway obliterate the pulse in one of the larger arteries, and the effects are estimated by examination of an artery further from the centre. There is also the instrument of Gärtner, which obliterates the pulsation in one of the fingers, its effects being judged by the return of colour to the skin.

All these different methods give the systolic or end pressure, but the instruments are of very different value. The instruments of von Basch and Potain are not so defective in principle as in method, and their fallacies chiefly consist in faults of application. In view of the variabilities in the position of the radial artery, both as regards its relations to the underlying bone and the differences in the tissue by which the artery is surrounded, it must be obvious that the correct application of either instrument is far from easy, and the readings which have been obtained show how liable these methods are to error. The plan of circular compression and estimation of the blood pressure, judged by the return of pulsation beyond the point of compression on reduction of the compressing force, gives results which are extremely accurate, provided, as von Recklinghausen

showed, the armlet is sufficiently broad to bear a certain proportion to the size of the limb. From his observations it is clear that if a narrow band is employed, especially with high pressures, the readings are too high. It may possibly be urged that, as in these instruments the return of pulsation after complete cessation is judged by the application of the finger, the subjective element comes into observation. This subject has, however, been thoroughly investigated by the use of a delicate sphygmograph or another sphygmomanometer on the distal side of the compressing band, by which it has been proved that the return of pulsation can be gauged by the finger with extreme accuracy. One important point as regards all these instruments is that they not merely record the systolic, but, as will be mentioned afterwards, the diastolic pressure.

In the instrument of Gärtner, the same principle of circular compression is involved, but on the removal of the pressure the return of pulsation is judged by the return of colour to the skin. This instrument is faulty in respect of the difficulty of accurate application of the compressing ring, which involves considerable errors. Undoubtedly another defect comes with the mode of estimation, seeing that the return of the arterial tide is judged by the tint of the skin, in which there is a large possibility of error. We must allow that the sight is probably our most accurate sense; fully realizing this, nevertheless, in my own experience the skin varies so greatly in its texture as to render it uncertain when the first tide of returning blood takes place. In addition to this the flushing often occurs very gradually, so that it is difficult to determine exactly when it really shows itself. It must further be remarked that the greatest source of error is that very small arteries are taken for investigation —vessels which are extremely liable to variations of vasomotor activity. Gellinek's interesting researches have proved how unreliable the tonometer is from such causes.

The pulse pressure is gauged by the maximum excursions of the recording apparatus in the instruments of Marey, Hürthle, Mosso, Hill and Barnard, and Oliver. In these the theory is that when the pressure surrounding the vessel and that within the vessel are equal, the oscillations attain their maximum. In every one of these instruments the readings are those of diastolic pressure, and the mode of estimation consists in recording the lowest level of maximum pulsation.

The instruments of Marey, Hürthle, and Mosso are applied to the digits, that of Oliver to the radial artery, while one of Hill and Barnard's instruments is applied directly to the radial artery, and the other adopts the method of circular compression. The instruments of Marey, Hürthle, and Mosso can only be regarded as of use in the laboratory; that of Oliver possesses inherent defects of application which render it unreliable. Hill and Barnard's smaller sphygmometer cannot really be regarded seriously, and their larger instrument alone remains in this class worthy of consideration from the clinical point of view. It unfortunately only records the diastolic pressure, which in itself is of little value unless compared with systolic pressure. In some of the cases, also, in which readings are of the greatest utility (such as aortic incompetence), the lower limit of maximum oscillation is difficult to determine. Moreover, unless the narrow armlet, which is provided with the instrument, be replaced by a broad one, the readings are much too high.

It has already been mentioned that the instruments of Riva-Rocci, Martin, Cook, Stanton, and Janeway, afford an estimate of diastolic as well as systolic pressure. It has to be allowed that in these instruments it is only an approximation to a true estimate of the diastolic pressure which is yielded, but with a little practice the lowest point at which the maximum oscillation of the mercury occurs can be obtained without difficulty. The only instrument which measures both systolic and diastolic pressure accurately, and gives records by graphic methods, is the sphygmomanometer of Erlanger. It is based upon the same principles as those of Riva-Rocci, Stanton, and Janeway—that is, by circular compression of the limb the pulsation is obliterated beyond the band, and the point at which the return of pulsation occurs is noted on the column of mercury. In addition to this there is a most admirable arrangement for recording the oscillations of pressure, and by a most ingenious stopcock the pressure can be graduated to a nicety.

My own observations in blood pressure have been confined to work done with the instruments of Oliver, Hill and Barnard, Gärtner, Riva-Rocci, and Erlanger; but, during the two years which have just elapsed, the two last mentioned have alone been employed. It may be added, however, that the instrument of Janeway will be one of my clinical companions in the future, as, on account of its portability, it is most convenient to take about. There is every reason for complete satisfaction with the instruments of Riva-Rocci, Janeway, and Erlanger. They are easily applied, and, with a little practice, there are no difficulties in obtaining accurate readings.

Owing to an unfortunate misunderstanding,* the instrument of Erlanger only reached me a few weeks ago, and my opportunities of employing it have therefore been somewhat limited. It has, however, been sufficiently used in my own clinic to arouse the admiration of every one who has seen it.

The effects of posture will be considered immediately. All that need be said here is that the patient must be as nearly as possible horizontal, and in an easy position. He must rest upon some firm article of furniture in order to prevent any liability to movement, and the arm should be in such a position as to be absolutely at rest. It need hardly be added that any tendency to spasm or tremor will render readings inaccurate, while adiposity and oedema militate against the possibility of accurate observation.

It is necessary to have absolutely clear conceptions of the normal limits of blood pressure before attempting estimates in any individuals. From numerous observations with modern instruments by many reliable observers, it may be stated that in the young adult the normal systolic pressure does not exceed the limits of from 90 to 140, while the diastolic varies between 60 and 110. These limits are, however, frequently exceeded, especially in nervous individuals.

Until middle life there appears to be no very great departure from these limits, but after middle life there is a steady rise of pressure. To this subject Clifford Allbutt has given great attention, and we look forward to his remarks to-day with great interest. In persons at this time of life, however, it is extremely difficult to be certain whether we are dealing with healthy conditions—that is to say, with conditions normal to the age of the individual or with conditions which are abnormal.

There are undoubtedly variations in blood pressure which must be accounted normal, and in studying the blood pressure in any individual these have to be borne in mind. There are daily fluctuations, probably produced by the sum total of the different influences affecting blood pressure. As a general rule, the pressure reaches its highest level in the forenoon, but it usually shows an afternoon rise as well. The knowledge that such changes exist will necessarily lead us to take our readings at the same hour as far as possible.

The influence of food is somewhat variable; sometimes a rise of pressure is found after a meal, but almost as frequently there is a fall. The fall is easily accounted for by the diversion of blood into the abdominal region. This, however, is often compensated for by reflex stimulation of the vasomotor system, while the entrance of the food elements into the circulation undoubtedly has a tendency to raise blood pressure. All readings of the blood pressure must be taken with this consideration in view. William Russell has recently made some interesting observations on this subject.

The posture has considerable influence. There is not much difference between lying and sitting, but there is a considerable difference between sitting and standing. It is interesting to notice that on changing the position from lying to sitting, and again from sitting to standing, the diastolic pressure is that which is chiefly elevated, and therefore the pulse-pressure variation is lessened in the upright position.

Occupation has a most important influence upon pulse pressure, and it is therefore necessary to note what the individual has been about previous to taking pressure

* It is my duty to warn any intending purchasers of Erlanger's instrument to beware of the Southern Speciality Company of Baltimore, who used to be, but are no longer, the authorized makers. The present makers are Messrs. Schneider Brothers, Green Street, New York, who are to be implicitly trusted for excellence of workmanship.

readings. This is true both of physical and mental exertion, but probably a combination of the two will bring about the highest increase. My own blood pressure, which under ordinary circumstances is about 150 or 155, has frequently been measured immediately after the exertion of conducting a clinic in the Royal Infirmary, and it has sometimes reached the level of 185 or 190.

It is undoubtedly true that all persons who pass through lives of considerable exertion have a higher pressure than those whose expenditure of energy is on a lower level. The occupation of the individual has therefore to be taken into account in all blood-pressure readings.

We are still in want of careful estimations of the blood pressure in relation to the use of certain articles much employed amongst us, such as alcohol and tea. It is probable that the influence of alcohol beyond a slight initial rise due to acceleration of the heart, is to produce diminution of pressure. Tobacco behaves in a different fashion, and by its influence upon the vaso-constrictor apparatus it produces a very great increase of blood pressure. This accords with many of the French observations, in which hypertonus and arterial sclerosis have been found as the result of the excessive use of tobacco.

External temperature undoubtedly has some influence, but we lack sufficient observations upon the subject. The general result of such observations as those of Müller is to show that when the patient is subjected to any departure from the normal external temperature the pulse pressure is apt to rise. This is especially seen in the influence of baths. The possible effect of changes in the external temperature must always be borne in mind in taking any readings.

In every case under continuous observation blood pressure readings ought to be noted on a chart, as is urged by Janeway. Without such graphic means of recording the pressure, it is difficult to grasp the significance of the figures. Nothing could show this better than charts taken from a case of acute disease, such as pneumonia. The physician in charge will always feel anxious when he observes that the pulse curve has a higher range than the pressure curve. Some of the charts which are now submitted show this most markedly. The same may be said of the utility of charts in cases of grave disturbance of the circulation or of the kidneys. Any wide discrepancy between the action of the heart and the pressure of the pulse will give us anxiety.

It must be obvious that the limitations which surround our attempts to estimate the absolute value of blood pressure consist to a large extent in the difficulties which beset us in the analysing of the different factors maintaining blood pressure. The relative amounts of energy and of resistance are still a sealed book. An absolutely low general blood pressure may be one which is relatively too high for the energy of the heart; while, on the other hand, a pressure which appears to be abnormally high may be one which is quite low in relation to the energy of the heart. The fact that arterial spasm, general or local, has an important influence in modifying the blood pressure, has always to be borne in mind; as a disturbing factor it may produce rapid changes in its level.

It is my duty, in conclusion, to pay a warm tribute to the numerous observers in Canada and the United States whose important investigations and valuable results have laid us under a great debt of gratitude. In my hand there is a fairly exhaustive list of the really important works on blood pressure, and the American Continent may well be proud of the prominent place occupied by her investigators. It is only right to express, further, my deep sense of the generosity which has led Western observers, from whom we have learned so much, to invite such a large number of us from the Old Country to take part in this discussion.

III.—Sir William Broadbent, Bart., K.C.V.O.,
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CLINICAL SIGNIFICANCE AND THERAPEUTICAL INDICATIONS OF VARIATIONS IN THE BLOOD PRESSURE.

In order that the clinical significance of variations in the blood pressure may be appreciated, the physiology of blood pressure must be understood.

The entire purpose of the circulation is primarily the nutrition of the tissues and the provision of the various secretions, which are anabolic operations, together with the supply of material for the chemical katabolic processes by which heat and the muscular and nervous forms of energy are evolved. It is by the capillaries that the distribution of nutrient material takes place, and it is only when outside the capillaries that it becomes available for tissue nutrition. While gases and crystalloids can pass through the capillary walls by osmosis, the transudation of liquor sanguinis, as finally shown by the experimental investigation of Professor Starling, can only be effected by pressure. There must, therefore, be intracapillary pressure, and, in order to maintain the degree of pressure in the capillaries necessary for the transudation of colloids, there must be resistance to the flow of blood in the network itself or on its distal side. A part of such resistance will be the pressure required to maintain the current of blood in the veins towards the heart. This, however, cannot be the only or the most important source of backward pressure of blood in the capillaries. It can scarcely be present in the head and neck, where gravitation and the suction action of respiration make resistance in the venous circulation almost a minus quantity; and so important an operation as the due supply of nutrient fluid to the structures could not be allowed to depend on so variable a condition as backward pressure in the veins. It is in the capillaries themselves, therefore, that the resistance which determines the outflow of nutrient fluid to the tissues resides. This will be due in some measure to the increased size and tortuous course of the capillaries, which will make the rate of movement slower and increase the lateral pressure on their walls, but such obstruction is altogether insufficient. The viscosity of the blood is another explanation offered of the resistance and delay in the capillaries; but viscosity is a relative term, and the passage of a fluid through a capillary tube depends not merely on the cohesion between the molecules of the fluid itself, which constitutes viscosity, but on the cohesion between the fluid and the walls of the tube. Water rises in a capillary tube of glass, but refuses to rise if the tube is greasy. Mercury, again, only enters a glass tube under pressure. It stands at a lower level within the tube standing perpendicularly in a vessel containing mercury than outside, and is convex at the end instead of concave like water.

In this sense of cohesion between the blood and the capillary walls the viscosity of the blood is the main cause of the resistance which gives rise to the intracapillary pressure. More accurately, it is the relation between the blood and the capillaries as representing the tissues which determines the resistance, and conditions of the capillary wall as well as changes in the blood may increase or diminish it.

A factor which will have a considerable influence on the pressure required for the transudation of the liquor sanguinis is the permeability of the capillary walls. Transudation of liquor sanguinis for the nutrition of the tissues being necessary, the less permeable the capillaries the greater will be the pressure required. The permeability must vary greatly in different structures. In glands called upon to furnish an abundant secretion from time to time the capillary walls will be more pervious than in connective tissue; in the lower extremities, where the weight of the column of blood both in the arteries and veins must add to the fluid pressure in the capillaries, the walls must be less permeable than in the head and neck. It is probable that the capillary walls become less permeable in advanced life, and that capillary sclerosis may aggravate the effects of arterio-sclerosis in the production of high blood-pressure, and may indeed be the initial degenerative change. It is, again, extremely probable that differences in the permeability of the capillary wall may be the explanation of the congenital or infantile differences of arterial tension.

The intracapillary blood pressure required for the transudation of nutrient material being the primary object of the circulation, it determines the degree of blood pressure in the arterial system. The demands of the tissues, especially of the active structures, muscles, nerves, secretory organs, vary almost from one moment to another; there must therefore be a reserve of propulsive energy available in excess of what is required for the ordinary or average rate of flow, and there must be a

mechanism for regulating the amount of blood allowed to reach the capillaries. The pressure maintained in the aorta and large arteries by the heart is greatly in excess of what is necessary for the capillary circulation and constitutes the reserve, while the arterioles and vasomotor nervous system constitute the regulating mechanism cutting off or turning on the supply of blood: according as the arterioles are tightened up or relaxed the blood is excluded from the tissues so that the part is pale and cold, or admitted freely, so that the part is warm and flushed. The vessels, again, are under the control of the vasomotor nerves.

But it is not simply the supply of blood to individual parts which has to be controlled. The blood supply to different parts has to be co-ordinated and adjusted to varying conditions—to the local demand, say, for some active secretion serving the general purposes of the body, or to the increased volume and special modifications of the blood after food. This is the office of the vasomotor system of nerves, but the blood vessels and their nerves are the servants of the tissues, and the great variations in the supply of blood are in response to tissue demands.

The blood supply, then, being determined by the requirements of the tissues, the contraction or relaxation of the arterioles will be subsidiary to the resistance in the capillaries. If, for example, for any reason the capillaries refuse passage to the blood, the integrity of the delicate network demands that the blood should be shut off, and the arterioles contract, either directly in response to the increased resistance in front or through the intervention of the vasomotor mechanism. On the other hand, any increase in the demand for blood on the part of the tissues must be met by relaxation of the arterioles.

Variations in the resistance to the flow of blood through the capillaries are occasioned by variations of the relations between the blood and the tissues, and such variations may arise either on the side of the blood or on the side of the tissues. Perfusion experiments have shown that a great variety of substances influence the passage of blood through the capillaries of a given structure quite independently of the vasomotor system. A very slight chemical change in the blood is sufficient. It is an interesting fact, recently demonstrated by Professor Starling, that while the secretion of gastric juice is greatly affected by the psychical reflex of the sight or odour or taste of food, as shown by Pawlow, the pancreatic secretion is determined by a chemical reflex, the presence in the blood of a substance to which the name of secretin has been given; in other words, by a change in the relations between the blood and the structures. The internal secretion of the thyroid gland, again, relaxes the arterioles, but the myxœdema which follows the withdrawal of this secretion shows that the primary influence of the thyroid secretion must have been nutritional, a tissue reaction to which the relaxation of the arterioles was secondary.

The blood pressure has thus to be considered in two aspects, as it is present in the capillaries, where it determines the transudation of liquor sanguinis for the nutrition of the tissues, and as it exists in the arterial system behind the arterioles. This last has been studied and discussed as if it had an intrinsic and independent importance of its own, whereas it is subservient to the intracapillary pressure, and derives its importance from the fact that it ministers to the nutritional operations.

We have thus established a basis for the clinical significance of variations in the blood pressure. It is essentially the presence in the blood of some normal or abnormal constituent.

There may, of course, be increased arterial tension from external cold, lowered tension from external heat, and there are nervous variations of an extreme character, such as the temporary tightening up of the arterioles from excitement with acceleration of the action of the heart, or the persistent small pulse of hysteria or other neuroses; or, on the other hand, the cardio-vascular atony of neurasthenia and debility. These variations due to nervous causes we have not time to dwell upon and must set aside, not forgetting, however, that affections of the nervous system, such as melancholia, may have a toxic origin, a clue to which may be furnished by the pulse.

It is by the radial pulse that we estimate clinically the pressure in the arterial side of the circulation, and it affords to the educated finger information which intelligently interpreted goes farther and is more valuable than the instrumental registration of the blood pressure. One of the first questions to be determined is the criterion of normal blood pressure in the radial artery.

The character of the pulse indicative of normal blood pressure, or rather of a normal flow through the capillaries, can only be arrived at by observation.

As felt, the vessel, which is flattened under the fingers after the wave has passed, fills quickly, but evenly and gently, and assumes the cylindrical form, as the pressure within it is increased by the blood injected into the aorta; after a very brief period, during which the artery remains full and distended, the internal pressure gradually diminishes, and the vessel *pari passu* allows itself to be flattened, the fall of pressure being interrupted by a secondary wave started by the elastic rebound of the aorta, so slight that it can scarcely be felt. This is represented by the familiar sphygmographic tracing, a steep but not quite perpendicular upstroke, a rounded summit, a gentle descent broken about one-third of the way down by the dicrotic rebound and notch. The normal blood pressure is not represented by a given number of millimetres of mercury; so long as the beat of the pulse, as felt, and the sphygmographic tracing are of the character described they must be accounted normal. The artery may be small or large, and the beat may be weak or strong, according as the systole of the heart is vigorous or languid, but so long as the vessel allows itself to be easily emptied and flattened between the beats, there is no undue resistance to the flow of blood through the capillaries.

There are, of course, physiological variations on each side of the average pulse. In some types of constitution the arteries are small and the blood pressure low, so that the wave is easily arrested and the pulse extinguished, while the vessel cannot be felt between the beats. This pulse is common in fat people. In thin, wiry individuals the artery is usually large and the beat more forcible and distinct. Such differences are recognizable even in childhood, and may be very marked in adolescence. There would seem to be a congenital difference in the permeability of the capillary walls, so that greater pressure is required for the transudation of liquor sanguinis in some constitutions than in others.

In the clinical interpretation of the variations of blood pressure recognized in the pulse there are several questions to be determined.

One of the first is whether the rise or fall is to be attributed to the heart or to the arterioles and capillaries, to increased or diminished driving power from behind, or to increase or diminution of the resistance in front. Most commonly the central and peripheral influences are operating in the same direction, as in the familiar instance of resistance in the capillaries giving rise to contraction of the arterioles, the obstruction so induced being met by increased systolic vigour of the heart. In the debility following acute febrile affections, especially perhaps influenza, the exact contrary is seen, relaxed arterioles and capillaries with poor propulsive power on the part of the heart. Such accord, however, is not invariably present; there may be powerful action of the heart, making for increased vascular pressure, and at the same time great relaxation of the peripheral vessels, tending to counteract it, as in early stages of pyrexia, particularly perhaps in pneumonia.

There is no risk of the action of the heart being overlooked or misinterpreted when it is aggravating blood pressure, but when a reduction of the intravascular pressure takes place, care is not always taken to assign to the heart and vessels their respective share in the result. The significance of the lowered tension is totally different according as it is produced by diminished propulsive energy in the heart or diminished resistance in the periphery.

No inference from the pulse or from the pressure registered by the sphygmograph can be regarded as conclusive without an examination of the heart. The dimensions, the seat and character of the apex beat and right ventricle impulse, the character of the first sound, the relative intensity of the two second sounds, or, as it is usually expressed, the accentuation of the aortic or pulmonic second sound, respectively, the respective length of the intervals—all enter into the estimate to be formed of the efficiency of the left ventricle systole and of the volume of blood launched into the aorta, and a safe con-

clusion can usually be arrived at as to the way in which the heart is maintaining the blood pressure. Strange contradictions may, however, present themselves between the heart and the pulse. Overlapping lung in a deep-chested individual may disguise a powerful impulse and muffle loud sounds so that with a good pulse wave the heart may seem to be weak. On the other hand, the apex beat and impulse may be powerful and the first sound loud when the pulse is extremely weak, if from any cause the left ventricle receive an insufficient supply of blood. Leaving valvular disease and adherent pericardium out of the question, this may arise from effusion into the pleural cavity or pneumothorax; from obstruction in the pulmonary circulation by extensive pneumonic consolidation, or bronchitis, or asthma, or so-called congestion; or, again, by extensive structural disease, tuberculous or malignant.

A less frequent cause, and one which commonly escapes recognition, is pressure on the right ventricle by the diaphragm. This ventricle is thin-walled and rests on the sloping surface of the diaphragm; and when this muscle is carried forcibly upwards, as it may be by general distension of the abdomen or by dilatation of the stomach, the elastic recoil from systole is interfered with and the pressure in the great veins fails to fill the ventricle, so that a very inadequate charge of blood is carried into the pulmonary artery and consequently to the left auricle and ventricle. The action of the heart may be vehement and the impulse powerful and the first sound loud, but, if there is very little blood in the ventricle, the compression wave propagated along the arteries can only be feeble.

General distension of the gastro-intestinal canal so that the abdomen is prominent and tight and the diaphragm is carried upwards is not uncommon in acute febrile disease of various kinds and may sensibly aggravate the danger of the attack. Dilatation of the stomach is less conspicuous and gives rise to less urgent symptoms but the continuous embarrassment of the heart is a source of serious disturbance of the circulation, such as breathlessness and palpitation, and may provoke attacks closely resembling angina.

In tachycardia and palpitation the small, scarcely perceptible pulse sometimes found, and the sense of faintness, may be due not to weakness of the systole, but to the fact that the diastole is so short that the ventricles have not time to fill.

The actual degree of pressure in the circulation is of course ultimately dependent on the heart, but its maintenance depends on the obstruction offered to the blood in the arterioles and capillaries. If they are relaxed so that the blood shoots through them without resistance as through the open end of a pipe, the tension, however violent, is only momentary, and after the beat the artery allows itself to be at once flattened by the finger. If, on the other hand, the resistance in the periphery is considerable, the artery is full between the beats, and can be rolled under the finger however weak the compression wave transmitted from the heart.

This peripheral resistance, therefore, is a most important subject of clinical study, and its estimation and interpretation constitute the significance of the clinical variations of the blood pressure. The physiology of the blood pressure has already been discussed, and, while it is evident that the degree of tension in the arterial system is immediately determined by the resistance in the arterioles, this is subservient to and governed by the resistance in the capillaries. The arterioles relax or contract in obedience to the demands of the tissues. Ultimately, therefore, the significance of variations in the blood pressure is based on the relation between the blood and the tissues, and, while high arterial tension is studied with respect to its effects on the arteries and on the heart, it should be studied still more closely as throwing light on states of the blood and changes in the structures.

Disturbance of the relations between the blood and tissues originating in the tissues is exemplified by inflammation resulting from injury. Inflammation was formerly regarded as a vascular process, and as consisting in, first, contraction, then dilatation of the vessels with initial acceleration of the blood through the part, followed by stasis; but these circulatory phenomena are secondary to an antecedent change in the biochemistry of the damaged structures.

A change takes place in the capillary walls which leads to increased cohesion between them and the leucocytes, so that these cling to the capillary, and first move slowly, then come to a standstill, and finally penetrate the wall and accumulate outside. There is no rupture of the capillary, and no aperture is left. The leucocytes pass through the capillary wall as a soap bubble can be passed through a soap film without rupture of either, and for the same reason—namely, that the capillary wall has become assimilated to the corpuscles in consistence and constitution. There is no extravasation of the red corpuscles.

The most common and familiar cause of lowered vascular pressure from blood conditions is pyrexia. The heightened temperature contributes to the relaxation of the arterioles and capillaries, and the fall in pressure, but is not the determinating influence. In scarlet fever with a high temperature the radial pulse may be small and tense; in inflammation of serous membranes the arterioles are usually contracted. I have seen a small tense pulse in septic pneumonia with a temperature of 104° F., pneumonia being a disease usually attended with extreme relaxation of the arterioles and capillaries.

In pyrexia, at any rate in its early stages, the increased frequency and force of the heart's action would make for increase in the blood pressure, but this is neutralized by the diminished resistance in the periphery. Obviously the whole process is a response to some increased tissue demand, local or general—local when microbic invasion or inflammation of some organ or structure requires an abundant supply of leucocytes, general when the presence of septic micro-organisms in the blood calls for the production of antitoxins by reaction between the blood and tissues.

Other causes of lowered blood pressure, when this is not due to heart failure, are various forms of debility or toxaemia. There seems in some cases to be an entire absence of the resistance in the capillary network which is necessary for the transudation of nutrient material.

The clinical significance of high blood pressure is generally admitted to be the presence in the blood of some constituent—a glandular secretion, or product of metabolism, or mineral matter—which provokes resistance in the peripheral circulation. Such resistance is very commonly attributed solely to the contraction of the arterioles, but this would be meaningless without reference to the blood and tissue reactions which take place beyond the arterioles. It is in the capillaries that the resistance is initiated, and the arterioles, and in case of need the entire vasomotor apparatus, nervous and muscular, are called upon to co-operate.

The conditions giving rise to increase of the blood pressure—whether primary, attended with active contraction of the muscular walls of the minute arteries, or secondary, when the arterial walls have lost both contractile power and elasticity and are thickened, rigid, and degenerated, or, in exceptional cases, thin, with perhaps calcareous patches—have been so fully discussed that not even an enumeration of them is necessary, and we may go on to the consideration of the therapeutical indications.

These arise so directly out of the clinical significance of the variations of the blood pressure that very little will be required in the way of discussion. The therapeutics of blood pressure are simply an application of the principles propounded in the course of this communication.

Whether the deviation from the normal blood pressure be in a plus or minus direction the first consideration will be how far it is due to the heart. The pulse will usually afford very definite information on this point, but its indications must always be checked by a careful examination of the heart. Want of vigour and efficiency in the action of the heart, whether associated with diminished or increased peripheral resistance, will be met as far as possible by such tonics as are indicated by the condition of the heart itself or by the general constitutional state. When, however, there is resistance in the capillaries and arterioles, a weakened heart will profit more by the reduction of the work thereby imposed upon it than by attempts to improve its tone and strength.

It is rarely desirable to endeavour to reduce directly any apparent excess of cardiac action; such increase of

propulsive power as may be recognizable by a powerful impulse and accentuated sounds will have been evolved to meet obstruction in the peripheral circulation, and, while it may become a source of danger, it is essentially compensatory in character.

The blood pressure, however, is almost entirely conditioned by the resistance in the arterioles and capillaries, and this, again, by the relation between the blood and the tissues. It is, therefore, to the peripheral circulation that attention must be directed in dealing with unduly high arterial tension. It is not simply the pressure as such that we seek to reduce; our endeavour should be to remove the conditions which give rise to it.

When arteriole contraction is regarded as the primary cause of the obstruction to the outflow of the blood, it is natural to have recourse to the vascular relaxants, such as nitro-glycerine, erythrol tetranitrate, the nitrites; but while temporary relief of great value may be given, and attacks of angina may be warded off, the effect is only fugitive. The remedy has not gone to the root of the evil. Conditions of blood being recognized as underlying and determining the resistance in the capillaries and arterioles, it is to them that therapeutic measures will be addressed.

Some of the substances present in the blood which give rise to resistance in the capillaries, such as the secretions of the suprarenal bodies and of the kidney cortex and of other glands, are not under our control. On the other hand, we can easily withdraw calcium salts, sodium chloride, and other saline matters which directly or indirectly appear to have this effect, and can avoid giving certain vegetables. The principal problem which faces us is how we can influence the metabolism by which food, after absorption into the blood, and after forming part of the various structures in the course of the breaking down of the large molecules, and of the hydration and oxidation by means of which energy is evolved, may be brought into chemical combinations suitable for elimination.

Here, of course, diet comes in. If we give food which either from quantity or quality is incapable of easy and complete assimilation and oxidation, obstruction in the capillary network takes place. It is not necessary to repeat the admonitions to simplicity and moderation which one reads everywhere; the food must be adjusted to individual requirements. I would only say that I do not share the horror of purin-containing articles of diet which is now the fashion. Most of us digest and assimilate them without difficulty. An aid to elimination to which I attach great importance is the drinking of a tumbler of water not impregnated with lime salts night and morning.

Turkish baths, by inducing copious perspiration, are powerfully eliminant, and the massage and frictions which form part of the procedure aid in this. Warm baths and other baths are also useful. Exercise in the open air, carried to the point of free perspiration, not only brings about elimination, but has a still more important effect in promoting metabolism and oxidation.

With regard to medicinal therapeutics, again, little need be said. There is not time to enter into the question of uric acid solvents, such as piperazin, or of substances which are said to prevent its formation, such as solurol. The eliminant action of the numerous mineral water resorts to which lithaemic subjects are sent is well authenticated, and we take daily advantage of alkalies and of saline and other aperients. The primary effect of alkaline waters and of the alkalies and salts administered as medicines is mainly if not solely solvent and eliminant. Their influence on metabolism is secondary through the removal of waste products which interfere with it. If we take uric acid as representing the *materies morborum*, alkalies dissolve and copious water carries it off; they do not prevent its formation. In my judgement the various preparations of mercury go further than this and have an influence on metabolism. I can, at any rate, state from observation extending over forty years that mercurial aperients have a definite and constant effect on the blood pressure, not by reducing the driving power of the heart but by diminishing the resistance in the peripheral circulation, and the effect on the pulse is not at all in proportion to the aperient result, but may be manifest when the action of the bowels is lessened rather than increased.

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CLINICAL REMARKS ON ARTERIO-SCLEROSIS.

WE read of "arterio-sclerosis" as a disease, but we have to decide whether the name "arterio-sclerosis" is to be a name in pathology or in clinical medicine. In my opinion it is not clinical—not a name of one distemper manifested in a uniform, or approximately uniform, series of symptoms, but a name pertaining to morbid histology, and even in this probably not of a single kind. Clinically, at any rate, the name must be subordinate to the names of several morbid processes.

In my former writings on this subject, of which this address is but an abstract, I have made what I believe to be a fair working division of the kinds of disease associated with arterio-sclerosis as follows:

Class 1: The toxic class—the results of poisons for the most part of extrinsic origin, chiefly those of certain infections. In some of these diseases the blood pressures—as, for example, in syphilis—are ordinarily unaffected; in others, as in lead poisoning, they are raised.

Class 2: The class I have called hyperpietic, in which an arterio-sclerosis is the consequence of tensile stress, of excessive arterial blood pressures persisting for some years. A considerable example of this class is the arterio-sclerosis of granular kidney, but in many cases kidney disease is, clinically speaking, absent.*

Class 3: The involutionary class, in which the change depends upon a senile, or quasi-senile, degradation. This may be no more than wear and tear, a disposition of all or of certain tissues to premature failure—partly atrophic, partly mechanical—under ordinary stresses; or it also may be toxic, a slow poisoning by the "faltering rheums of age." In ordinary cases of this class the blood pressures, for the age of the patient, are not excessive.

Although these classes of diseases associated with arterio-sclerosis are commonly distinct, yet they may blend or overlap. For instance, in lead poisoning there may be element of direct injury to the walls of the vessels, by the mineral or by the products of its action, together with the tensile effects of high pressure. Again, in patients already suffering from involuntary arterio-sclerosis periods of hyperpiesis occasionally intervene; periods usually very tractable under proper management, but perilous while they last.

As regards the toxic causes of the first class, it would seem that almost any of the bacterial infections may injure the heart or vessels, or both; though the arterial result may not reveal itself for some interval after the primary disease. It seems certain, as Landouzy and Thayer demonstrated, that typhoid fever is no infrequent agent in engendering an arterio-sclerosis; influenza, diphtheria, and scarlet fever even without renal disease, may have a like effect; but in none of these is it so frequent and predominant as in syphilis. I include in this class the arterio-sclerosis of some autogenetic toxins, as in diabetes, which, however, so far as we know, is not an infection from without. Diabetic arterial disease, frequent and well marked, is not attended by rise of pressure beyond the standard of age, and it occurs in the young as well as in the elderly subjects of diabetes. There may be also a gouty arterio-sclerosis independent of hyperpiesis, but "gouty" is a vague word. That alcohol, not reinforced by other morbific influences, can set up arterio-sclerosis I am not convinced. Influenzal arterio-sclerosis may attack the arteries, but more signally the aorta. The infectious forms probably may be continued into the involutionary, or hasten its establishment; but I think, under favourable circumstances, they tend to disappear, unless as in syphilis the morbific agent survives. These toxically-altered arteries are, I believe, more frequent than we suppose; the wary observer will find them in unexpected cases, and not rarely in young persons. For instance, I saw an undergraduate the other day with Dr. Aldren Wright, in the first week of typhoid fever, and therefore probably in the

* There is a common confusion between the fibrotic and the granular kidney. The granular kidney is the result of a slow poison deteriorating the true secreting (tubular epithelial) structure of the organ; the fibrosis, according to a well-known pathological law, being secondary and substitutive. This process in an acute stage is well seen in the puerperal kidney, the epithelium of which is falling into necrosis. The fibrotic kidney of elderly men is but a part of a change which in nearly all of them is a general and relatively unimportant change, to be found in almost all parts of the body.

first attack of this infection, whose radials, especially the right, rolled too readily under the finger, and were tape-like or tendinous when emptied. The pulse-rate was 80 to 90, and the pressure seemed subnormal. There was no sign or previous history of syphilis; but he had been under Dr. Wright's occasional observation for some time, on account of a somewhat ambiguous systolic murmur, heard chiefly at the apex, up to the axillary line. This murmur, discovered by Dr. Wright on the patient presenting himself as a candidate for his college boat, was not accompanied by any symptoms of circulatory disorder. Many of my pupils and friends have brought such cases of precocious arterial change under my notice, and in many of them the cause could not be surmised.

Lead poisoning may be taken as a transition from the first to the second class, as, although the lead is from without and in part, perhaps, injures the vessels directly, yet no inconsiderable part of the damage is mechanical and due to excessive pressures. In the second or hyperpietic class the injury to the walls of the arteries is due, mainly at any rate, to persistently high arterial pressures, attributable to some perverseness of the chemistry of the body as yet ill understood, but by no means always associated with renal disease. The disorder cannot well be definitely gout, for in arthritic gout there is no rule of high blood pressures; yet it may be allied to gout. It seems to consist in or to be aggravated by an incapacity to deal with positive or relative over-feeding. One person eats enormously with impunity; another becomes arterially plethoric even on a meagre diet, especially if his output of muscular work be small. Now, there are only two ways in which these cruder metabolic products can raise blood pressure: Either by rendering the blood more viscous (cf. recent experiments by Russell, Opitz, and others in Professor Pflüger's laboratory, by Determann working under Bäumler and von Kries, and by Denning and Watson), or by generating some poison which, acting on the vasomotor centre, or directly on the finer vessels, arteriolar or capillary, sets up constriction over very large areas, and mainly in the splanchnic area, so that depressor readjustment is prevented. Many years ago (British Medical Journal, 1877) I pointed out that granular kidney may be a consequence of mental anxiety, and I note that the opinion is now widely accepted; I have had some reason to think that hyperpietic arterio-sclerosis may have a like origin.

For most of what we know of the clinical side of arterio-sclerosis—I had almost said for all we know of it—we are indebted to Traube, to von Basch, and to Potain. By von Basch, in 1881, we were taught how to make estimates of the arterial pressures of disease in terms of the mercurial unit. It was with the greatest difficulty then that, about five years later, I found myself separating from von Basch in this respect, in that for him the arterio-sclerosis was the cause and measure of the hyperpiesis. By watching certain cases year after year, I became convinced, on the contrary, there was no direct relation between arterio-sclerosis and arterial pressures; that while there was in some of them even an extreme arterio-sclerosis, the pressure did not rise, or, if in an elderly person, did not rise beyond the general and quasi-normal elevation of later life, yet in others, pressures had been steadily rising before the appearance of arterial deformation, often long before it. One of these patients, whose inveterate case I recorded to the Hunterian Society in 1894, I had watched continuously for eighteen years, from the initiation of hyperpiesis through the establishment of static change in the arteries to the final stage of cardiac defeat. In many other cases I watched this hyperpietic process, more or less continuously, for periods of ten and twelve years; and meanwhile was frequently detecting, alleviating, and, in its first stage, curing hyperpiesis, both initial attacks and relapses, and thus preventing arterial deformation. By these continuous observations I was led to make the clinical distinction, to which I still adhere, between arterio-scleroses without important rise of arterial pressure and a like, but histologically, I think, not identical, arterial change with this rise, and consequent upon it.* But comparative histology must be left for the pathological section of this meeting. I will only say that in early stages of hyperpietic arterio-sclerosis the arteries may sustain excessive pressures for a time with little or no permanent thickening, and that in later stages they seldom present the nodular deformation of the involutionary kind—in unmixed cases perhaps never. I have continuous notes, however, of a few cases of old persons in whom, after the persistence of hyperpiesis for many years, with consequent arterio-sclerosis—a hyperpiesis combated by medicines and regimen—well marked and extensive calcification ultimately set in, and rather rapidly.

In my opinion, then, arterio-sclerosis has little effect in raising arterial pressures; and in the toxic and the involutionary kinds of it although the decadent vessels yield under ordinary pressures, yet it stands in no direct or primary relation to the blood pressures. Especially has it been alleged that when arterio-sclerosis predominates in the splanchnic area it raises the general blood pressure; but the arterio-sclerosis of all three classes is manifested early and heavily in this area, which, in respect of liability to it, stands second only to the aortic and coronary areas. Since my 1894 paper was published, von Basch has urged that in cases where the accessible arteries appear not to be diseased the hyperpiesis is due nevertheless to arterio-sclerosis, but of inward vessels—"latent sclerosis," as he terms the state, which appears to me to be an evasive argument. The name "presclerosis" also has been invented, in much the same sense, to signify high pressure before perceptible arterio-sclerosis; but, like "pretuberculous" and "precancerous," the term is a vague or empty one, and is used vaguely. We must all of us, as life goes on, desire to be "presclerotic." Again, when I proposed the name "hyperpiesis" it was not to indicate any transient high pressure—as in muscular effort, for example—but for a certain disease, a definite series of morbid changes of which high blood pressure is an eminent character, an excess which leads to the arterio-sclerosis of my second class.

The next opinion to which I was led by clinical observation of individual cases for long periods was that before the arteries undergo a permanent thickening they present—in the hyperpietic cases—a thickening which, if its causes can be removed, proves transient. I first became aware of this in children and youths in whom hyperpiesis not rarely arises in the course of some temporary and obscure perversion of metabolic function. I inferred that, before arterio-sclerosis proper, the muscular coat may, and in the hyperpietic cases does, become simply hypertrophied, and—*causis sublatis*—subsides again. By these cases also I was learning that, even before the increase of the muscular coat, hyperpiesis is the first circulatory deviation from health, and that the increase of the muscular coat—a change well described in the arterioles by George Johnson, and again lately by Savill and others—is in the artery as in the heart, a readjustment to counteract dilatation and the consequent retardation of the blood current.* If this excessive dilating stress per unit of internal surface subsides, so the muscular increase wanes also; but if the pressure continue, molecular strain takes place, and first in the tissues lying between the reluctant muscular coat and the hydrostatic pressure; here (at a *locus min. res.*) the subintimal layer begins to tear or shear, with more or less endeavour of repair, and the vascular tree gets a permanently abnormal set. As Agamemnon says of the pine tree, such stresses

> Divert his grain
> Tortive and errant from his course of growth.

In this change one mode of arterio-sclerosis consists, and is the third stage of it, in which, however mitigable, it is essentially incurable. The second stage of hypermyotrophy and the first stage of hyperpiesis, or excessive arterial pressures, are both curable if taken in time. Clinically speaking, then, hyperpietic arterio-sclerosis is not a disease, but a mechanical result of disease; the term is one of morbid anatomy.

It is scarcely within the text allotted to me to enter into the causes or remedies of the preliminary rise of pressure; suffice it to say that it must consist in excess of friction, and, as the pressure gradient in the arterial tree does not fall notably till it approaches the arteriolar areas, where

* Groedel of Nauheim described, in a recent paper, the measurements of arterial pressure in 500 cases of well marked arterio-sclerosis; in 35 per cent. he found no increase, in 18 per cent. very slight increase. Dr. Dreschfeld, at the meeting of this Association in 1905, divided arterio-sclerosis into those with high and those with normal or low pressure.

* Dr. Herringham tells me that he is not convinced of this "hypermyotrophy." Clinically I was disposed to accept it, but must await the maturer judgement of pathology on the point.

resistance must be the more telling, it is presumably in these areas, or in the capillaries, or in both, that this excess of friction is to be looked for. But I may repeat that, even if osmosis be a condition, this plus friction must be a function of one or other of two factors, or of a blend of them: namely, the viscosity of the blood or the diameters of its channels. In so far as it may be a function of constriction we presume this must lie chiefly in the splanchnic and muscular areas, otherwise depressor readjustment would take place, the blood would flow away from constricted into open areas, and within a few minutes the pressure would be restored to the normal mean.

But, it may be urged, if coarctation of the narrowest channels of the blood comes about by the thickenings of arterio-sclerosis, would not this obliteration of areas effect a rise of pressure in the larger arteries? The problem is not so simple. It is not easy—it is not, indeed, possible—to calculate all the factors of the circulation; they are not all mechanical—some are chemical, some biological. In an inanimate scheme obliteration of areas, *caeteris paribus*, raises pressure elsewhere in the system; but, such are the normal fluctuations of blood supply from area to area, and such are the compensatory resources of the human body, that we find large obliterations consistent with moderate systemic pressures; partly, perhaps, because of dilatations in other parts of the vascular tubes, partly of lowering of the cardiac energy, partly of redistribution of blood volumes, and so on. In the arterio-sclerosis which I have named involutionary, an alteration which often reaches a degree of thickening and tortuosity rare in hyperpiesis, and deforms the walls of the minor vessels even to obliteration, blood pressures, so far as they rise, do so only to the level of the quasi-normal standard of elderly persons, unless—as occasionally happens to most persons, if not to every one—a period of morbid hyperpiesis supervenes. It is a remarkable experience that in cases of great involutionary deformity of the vessels, or, at any rate, of those which are palpable, intercurrent attacks of hyperpiesis may be detected, estimated, and dispelled with as much ease as in persons not so affected; indeed, perhaps more easily, as such persons were not originally much disposed to hyperpiesis. If, then, hyperpiesis consists in extensive vascular constriction, the arterioles in senile degeneration must still retain no inconsiderable capacity of active closure.

Once more, in established hyperpiesis we meet with the radial artery—the vessel we usually observe—in two different states; the one a comparatively straight vessel with a small diameter, the other a laxer vessel with more tortuosity—the state which I have called the "large leathery artery." These states are rarely interchangeable in the same patient; usually the one mode or the other predominates. If the hyperpiesis be due to constriction we may suppose this to be confined in some cases to arterial areas distal to the radial magnitudes: in other cases to extend to arteries of this magnitude at least. Sometimes, indeed, I have thought even the brachial artery to be less in diameter than one might have expected in the individual, but I need not say how difficult it is to refer these diameters to a standard.* I have just stated that in hyperpietic cases with contracted peripheral arteries of radial magnitudes these vessels are the less tortuous; the constriction seeming—as we might suppose—to protect the vessel from dilating stresses, so that it does not suffer distension, either longitudinally or laterally, much beyond its elastic limits, if at all. Now, as the finger estimates hydrostatic pressures, not by unit of surface but by the size of the tube, as total pressure, in the cases of arteries reduced in size by far-reaching constriction, hyperpiesis is often, and indeed generally, overlooked, although in these cases it is often still higher than in those of the bigger leathery artery. To take another instance, even physicians familiar with such problems find it difficult, on the judgement of the finger alone, to admit that the pressure per unit of surface is practically the same in the brachial artery as in the radial of the same person, because the finger mistakes total pressure, which is irrelevant, for unit pressure. Thus, in the cases where the radial artery is of small diameter, general hyperpiesis, even of very high figures, is continually overlooked—overlooked, perhaps, until the day when the patient clips his speech or is struck down with an apoplexy. This narrowness is often, though by no means always, the case in granular kidney. It is well, therefore, to lay the finger along the length of the vessel, and to note the maintenance of the pulse wave, for this may be a more perceptible feature than the height of its pressure. Indeed, as in such arteries, besides the constriction, the muscular coat by overwork is thickened, and the blood current so much the tinier, so at and beyond this point the pressure, *caeteris paribus*, is so much the lower than in more central tracts, although the figure at these higher points, as, for example, in the femoral, may be enormous—say, from 250 mm. Hg upwards.

As I have said on former occasions, the finger can judge of fever without a thermometer as well as it can of arterial pressure without a piesometer. My finger has been "educated" on these special lines for nearly forty years, and for twenty-five of them frequently checked by a manometer, yet it is still often and even grossly deceived.*

It is for this and kindred reasons that I avoid the use of the phrase "arterial tension." No doubt in an inanimate tube—in a tube of indiarubber, for instance—internal pressure may be expressed in terms of tension of its wall; but with a living tube this is not so; in it to the dilating stress is opposed not the elasticity of the wall alone, as is approximately the case in the aorta, in the coronaries, and in the cerebral and pulmonary arteries, but also the tone of the nervo-muscular tissue of it, a very variable and incalculable biological factor. In a living and active tube, then, we cannot note pressure in terms of tension without the risk of considerable and practically important error. In the large leathery artery the evidence of tension is obvious in its presence, and in its static results, as is best seen perhaps in chronic cases of aortic regurgitation; in the small tight artery tension is a subordinate, in some cases perhaps a vanishing, element. Yet my experience is that the cases of hyperpiesis in which the arteries by close constriction protect themselves from strain, are the most perilous; not only because the dilating stresses, actively resisted by the vasomotor arteries, are transferred to the passive vessels of the brain, but also because these "narrow radial" cases are, in my experience, by far the most difficult to influence for good, even in their inception, and when ample time is given to us. Paradoxically we may say of them that, in the areas of constriction, the less the tension, and the less the arterio-sclerosis, the worse the prognosis. I will repeat that although this state of the radial artery is common in granular kidney, yet it occurs quite as decisively in cases of hyperpiesis not Bright's disease, a kind of disease from which they may be divided by many and profound differences, as, chiefly, by the character and course of their clinical features.

Of involutionary arterio-sclerosis the earliest phases are, perhaps, not often noted, save by artery fanciers like myself, for in this period the change is not attended by symptoms—perhaps not even by any apparent loss of functional energy. I may say "apparent" because I believe that even thus early the patient may have to admit to himself that any considerable excess of the usual output of work entails a more and more inevitable period of exhaustion. Henceforth rests must be more discreetly distributed to fatigues. In this stage, especially if the wrist be a thin one, soft as the radial artery may seem to the touch and moderate as the pressure, yet it is tuby, rather too persistently cylindrical. When the blood is expressed from it and the vessel rolled under the finger, if it may not be called thick, yet it is already a little tapelike, and when pressed against the bone is still perceptible. Again, when the wrist is thin enough—these incipient changes are better seen in the wrist of men than of women—if the finger be stroked very lightly over the track of the artery, or the supine wrist held up to the light, even thus early the artery may be seen lifting itself a little out of its bed, that is to say, a slight tortuosity will be detected long before calcareous granules are perceptible. Assuming, as in these cases I find, that on the pressure gauge, or by the state of the heart, no rise of systolic pressures, or at any rate not over 150, is revealed, the prognosis, in respect to length of days, is good enough; whatever in the course of time may be that diminution of vivacity and adventure

* Dr. George Oliver has invented a gauge of arterial diameter: but by some unskilfulness I have never been able to use this gauge with any confidence.

* All the blood pressures on which I base my arguments have been taken on private patients in a sitting position with the arm on a level with the heart, between about 10 and 12.30 in the morning, and with every care to secure tranquillity of mind and body.

which we elderly men are pleased to interpret as mellow conservatism, and the tolerant sagacity of experience; fine qualities which may be coexistent with, I do not say dependent on, even still further increases of thickness, tortuosity, and calcification. In involutionary arterio-sclerosis, as times goes on, the vessels attain greater degrees of contortion than are usual in the hyperpietic class; and, grotesque as may be their deformity, result rather in the contraction of the spheres of mental and bodily activity than, as with hyperpiesis, in the imminence of the fell sergeant, death—death by apoplexy, by cardiac defeat, or by intercurrent acute pneumonia.

In conclusion, a few words on the heart itself. In hyperpiesis the left ventricle enlarges both in muscle and in chamber; but I have protested against the accusation of these striving hearts of complicity in the arterial disease. Ordinarily speaking, they are stout and faithful to the end, even in defeat. But if the hyperpietic patient escape the accidents of acute pneumonia or of apoplexy, one day on carrying a bag, or ascending a hill, he will be arrested by an oppression at the heart and dyspnoea. At last the long-overtaxed organ has yielded, and a mitral regurgitation may be audible, though even then it may be sustaining a pressure of 170 mm. or more. Thenceforth the patient, although his heart may be pulled together for a time, has entered upon the last stage of his malady.

Now with involutionary arterio-sclerosis this is not so. These patients—γῆρας ἀώνυμον ἔχοντες—often survive to extreme old age; if they die of cardiac failure it is suddenly by its intrinsic decay, but more commonly they die of a silting up of the cerebral arteries, in the motor area and elsewhere. After death the heart is usually found somewhat hypertrophied and fibrosed, but vigorous enough. If the arterio-sclerosis has come on slowly, the heart, in spite of a few fibroid patches, has often been good enough to keep up arterial pressure in the presence of considerable or even extreme aortic obstruction; and this, strange to say, although the openings of the coronary arteries may have long been obliterated.

In the toxic kinds of arterio-sclerosis, the state of the heart varies of course with the kind; in too many of them it undergoes concurrent deterioration.

V.—J. Mackenzie, M.D.,

Burnley.

THE NATURE OF SOME FORMS OF HEART FAILURE IN CONSEQUENCE OF LONG-CONTINUED HIGH ARTERIAL PRESSURE.

When patients succumb to failure of the heart in consequence of long-continued high arterial pressure, certain degenerative changes are usually found in the heart muscle and arterial walls. These changes are supposed to be enough to account for the heart failure. While in a certain sense this may be true, yet a careful analysis of the symptoms during life reveals a variety of conditions which can be referred to the peculiar manner in which the heart fails. Generally speaking, the giving way of the heart is described as a failure of compensation, but this term embraces a great variety of definite forms of heart failure the recognition of which leads to a more philosophical appreciation of the heart's condition, and helps materially in treatment and prognosis. The heart muscle, as is known, carries on its work in consequence of the possession of certain very definite functions, such as the power of contraction, the power of creating its own stimulus, the power of conveying the stimulus from fibre to fibre, and the functions of excitability and tonicity. All these functions are inherent in every muscle fibre, some having certain functions more developed than others. If, in the course of a lifetime, certain of these functions be exposed to a greater strain than others, one would reasonably expect that these functions which have been subjected to the greatest stress would show symptoms of exhaustion before others that had not been exposed to such stress. As a matter of fact this suggestion finds abundant support in the analysis of the various forms of heart failure. Thus we find that in a great many cases of heart failure, the heart dilates. So common is this condition that writers often speak as if it were an essential characteristic of heart failure. As a matter of fact, however, it is merely the evidence of the exhaustion of one function, namely, tonicity. Many cases of heart failure of extreme severity show no sign of dilatation. A careful study of the symptoms, both subjective and objective, enables one to differentiate a variety of forms of heart failure. Here I will only direct attention to the knowledge obtained from a study of a few pulse tracings.

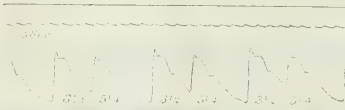


Fig. 2.—Irregular pulse caused by high arterial pressure. The irregularity is due to the premature appearance of the smaller beats (ventricular extra-systoles). Note that there is always a longer pause after the smaller beats—the numbers represent fifths of a second—in contrast with what happens in Fig. 6. The arterial pressure was 180 mm. Hg and when it fell to 170 mm. Hg the irregularity disappeared. (Female, aged 65.)

It must be a well-known fact to those who are accustomed to measure the arterial pressure by compressing the upper arm with an air-bag, that when the pressure almost obliterates the pulse, some beats come through more forcibly than others. If now the tracing of such a pulse be taken certain very definite forms of arrhythmia are seen. In Fig. 1 I show a tracing taken with the brachial artery compressed. When the air is allowed to escape from the bag the pressure fell, and it will be seen that at first the pulse is very slow but when the pressure fell to 170 mm. Hg the pulse increased to double the rate, and when the whole of the pressure was removed at the end of the tracing, there is seen to be a distinct variation in the size of every second beat. This variation was imperceptible to the finger.

In Fig. 2 there is a tracing of a form of arrhythmia due to the premature appearance of the smaller beats—ventricular extra-systoles—which is very common in cases of high blood pressure. Usually these occur at infrequent intervals, but sometimes every alternate beat varies as in this tracing. Here it will be noted that the pause between the beats varies in such a manner that the pause after the small beat is much longer than the pause preceding the small beat. It is now well known that this form of arrhythmia is due to the contraction of the heart producing the small beat not starting at the usual place, at the mouth of the great veins, but that instead the ventricle contracts before the auricle. This form of irregularity, where the ventricle contracts before the auricle, may occur at rare intervals, or frequently, as in Fig. 2, or the premature contraction of the ventricle may become so con-

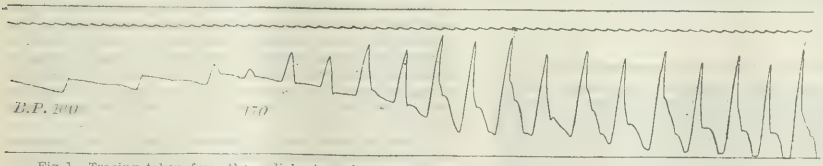


Fig. 1.—Tracing taken from the radial artery after the air-bag connected with the manometer had obliterated the pulse at a pressure of 190 mm. Hg. The air was allowed to escape gradually, and when the pressure fell to 180 mm. Hg. the sphygmograph received the stronger beats, and the smaller beats came through when the pressure fell to 170 mm. Hg. When the pressure in the air-bag was exhausted the pulse tracing showed rhythmical variation in the size of the waves—that is, the pulses alternans. (Figs. 4, 5, 6, 7, and 8 are from the same patient.)

stant that a series of contractions may follow one another where the ventricle precedes the auricle, as in Fig. 3. As a matter of fact, in consequence of long-continued high arterial pressure, the rhythm of the heart may be taken on permanently at other places than the mouths of the great veins. Such cases are characterized by a continuously irregular heart action. Occasionally with the reduction of blood pressure the normal rhythm may be restored as in the patient from whom Fig. 3 was taken. When his blood pressure fell from 160 mm. Hg to 130 mm. Hg the normal rhythm was restored. From recent observation it seems likely that the immediate causes of the irregular rhythm that has just been described will be found to be due to an abnormal stimulation of the muscular fibres joining auricle and ventricle.

The contraction of the heart and the expulsion of the blood into the arteries is due to the function of contractility. When the pressure in the arterial system is high, the force of contraction must be raised. When this high arterial pressure continues for long years, it can be readily surmised that when the failure of the heart sets in it is this function that should be the first to give way. This would be all the more likely to happen if degenerative changes had taken place in the heart muscle and coronary arteries. When one comes to examine very minutely the nature of the heart failure consequent on high arterial pressure, very conclusive evidence is often found. The most characteristic evidence of failure of contractility is the form of irregularity to which the term *pulsus alternans* should be limited. Wenckebach has drawn attention to the nature of this arrhythmia. The rate of the heart is usually perfectly regular, but a small beat regularly follows a large beat. The explanation for this is as follows: When contractility is depressed, if time be allowed for a full and strong contraction, the longer duration of contraction encroaches upon the period of rest, so that by the time the next stimulus arrives, the contractility has not sufficiently recovered, and a smaller and shorter contraction results. As this contraction is shorter in duration, the period of rest is thereby lengthened before the next stimulus arrives, so that the contraction will be longer and stronger; being longer, it will again encroach upon the period of rest, and so the process of alternation goes on. Good illustrations of this form of irregularity are to be found in the following tracings: In Fig. 6, for instance, there is a very good instance of the pulsus alternans, and I have given under each pulse beat the duration of the pulse period in tenths of seconds for comparison with the arrhythmia in Fig. 2. A comparison of these figures will at once show that these irregularities are totally different. Thus the pulse periods in Fig. 2 show the longer pause after the smaller beats (5/4) as compared with the duration of 3/4 of the larger pulse periods. In Fig. 6, on the other hand, the pulse period of the larger beat is slightly longer than the smaller beat. The patient from whom the tracings from Figs. 4 to 8 were taken suffered from typical signs of heart failure, with high blood pressure. When I was able to reduce his blood pressure, his condition improved in a remarkable manner, and his pulse became perfectly regular as in Fig. 7, but when the blood pressure rose the bad symptoms again returned, and the pulse became characteristically irregular, as in Figs. 4 and 6. After taking Fig. 4, the blood pressure being 190 mm. Hg, he had an attack of angina pectoris, for which I administered amyl nitrite. This gave him immediate relief, though the pulsus alternans persisted (as shown in Fig. 5) even when he was under the influence of the amyl nitrite. After resting fifteen minutes, and when all symptoms had disappeared, I found the pulsus alternans more marked (Fig. 6) than before the administration of the amyl nitrite. On taking the blood pressure I found that it had increased to 200 mm. Hg.

To show that exhaustion from other causes would produce the pulsus alternans, I would draw attention to the change in the tracings following bodily exertion. When the blood pressure was at 150, and he was at rest, the pulse was perfectly regular (Fig. 7) but after going up and down two flights of stairs he became very breathless, and the pulsus alternans returned as in Fig. 8.

In another case, that of a man with high blood pressure, the pulsus alternans was very well marked, being associated with other evidences of heart failure. When at rest the arrhythmia was scarcely perceptible, but on walking a distance the rhythm of the pulse was extremely irregular, as in Figs. 9 and 10. In Fig. 9 the contractility was at times so greatly exhausted that occasionally only a small wave (*x x*), which was imperceptible to the finger,

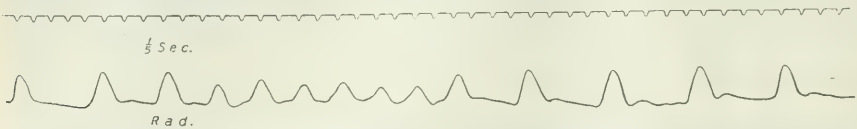


Fig. 3.—Irregular pulse due to a series of premature contractions of the ventricle. While the smaller beats disappeared when the pressure in the air-bag round the arm reached 150 mm. Hg, the larger beats did not disappear till the pressure reached 170 mm. Hg. When the arterial pressure fell to 130 mm. Hg the heart became quite regular. (Male, aged 64.)

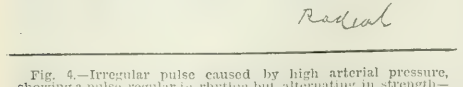


Fig. 4.—Irregular pulse caused by high arterial pressure, showing a pulse regular in rhythm but alternating in strength—the pulsus alternans. The arterial pressure of the larger beats was 190 mm. Hg and of the smaller 170 mm. Hg. An attack of angina pectoris came on immediately after this tracing was taken and amyl nitrite was inhaled. The result is seen in the next tracing. (This and the following four tracings were taken from a male, aged 58.)

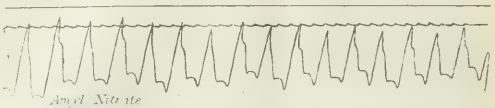


Fig. 5.—Pulsus alternans while under the influence of amyl nitrite.

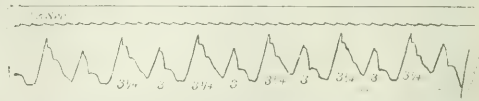


Fig. 6.—Fifteen minutes after the inhalation of amyl nitrite and after cessation of the anginal symptoms the alternating character of the pulse became more marked, and the blood pressure of the larger beats had risen to 200 mm. Hg. The numbers give the duration of each pulse period in nths of a second, and the irregularity is seen to be of a nature different from that in Fig. 2.

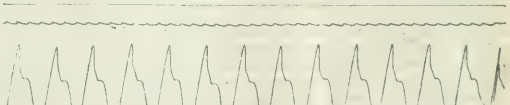


Fig. 7.—Under treatment the arterial pressure fell to 150 mm. Hg, the pulse became quite regular as in this tracing.

was apparent in the radial tracing. Sometimes, however, the beat failed even to be apparent in the radial tracing,

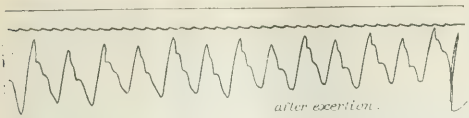


Fig. 8.—Immediately after Fig. 7 was taken the patient went up and down two flights of stairs, and the pulsus alternans was at once developed.

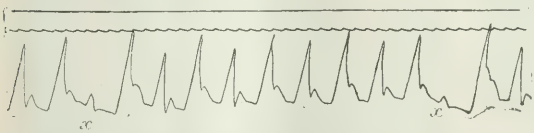


Fig. 9.—Tracing of a pulsus alternans of a man aged 73, suffering from great breathlessness on the slightest exertion. The arterial pressure for the large beats was 190 mm. Hg, and at *x*, *x* the contractility is so exhausted that only a small wave appears in the radial tracing.

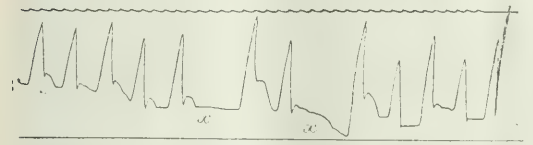


Fig. 10.—From the same patient as gave Fig 9, showing at *x* and *x* such great exhaustion of contractility that the ventricle failed to transmit a wave to the radial pulse. Under treatment the arterial pressure was reduced to 150 mm. Hg, and the pulse became quite regular, and the breathlessness on exertion was greatly abated.

as in Fig. 10, where the long pauses at *x x* can be safely inferred to be due to the dropping out of the pulse beat on account of the extreme exhaustion of the function of contractility.

VI.—John Lindsay Steven, M.D.,

Physician, Glasgow Royal Infirmary.

INCREASED BLOOD PRESSURE AND ARTERIAL DISEASE.

In the very few remarks which I propose to contribute to this interesting discussion I shall approach the subject from the point of view of the general physician—that is, from the clinico-pathological point of view. No doubt, the observations of the physiologist and of the pathologist are of the greatest interest from the purely scientific point of view, and the mechanical or physical phenomena concerned in the maintenance of the normal tension of the blood in the arteries are of the greatest significance in their bearings upon the phenomena of disease, but they do not cover the whole field; and too exclusive attention to them alone must inevitably lead to narrow conceptions in dealing with the phenomena of morbid action, which is controlled in its entirety neither by mechanics on the one hand nor by chemistry on the other. A too exclusive attention to either of these modes of viewing arterial tension will not lead to the highest development of our powers either in the diagnosis or treatment of the diseases of the arterial system and their results. The practice of medicine is still as much an art as a science, and, in the application of physical and chemical laws to the explanation of the phenomena of diseased conditions of the circulation, we must never forget that we are dealing with morbid processes not as yet entirely amenable to the natural laws already known to us. We must neither be iatro-mechanicians on the one hand, or iatro-chemists on the other; and yet we must, at the same time, not be entirely vitalist in our conceptions of the origin and nature of disease. We must utilize all that science can give, taking freely from all its branches, but we must also practise our art in the full knowledge that pure science will often fail us.

The physiological phenomena that have been presented to us by Dr. Percy M. Dawson are very important, as are also the clinical methods of investigation which have been so skilfully dealt with by Dr. G. A. Gibson; but for the practical physician, in the investigation of blood pressure, the trained finger must be the ultimate appeal, and it is, I hold, sufficient. It can give information of a kind and of a value in practice as a whole that no instrument, however ingenious, can supply. I make these remarks in no disparaging spirit, but in this discussion I am anxious that the well trained and the purely practical should take its equal place with the purely scientific.

I propose to deal only with the subject of increased blood pressure. Now, in general medical practice we readily recognize by the finger alone that the normal tension or pressure of the arterial pulse may be raised, and, according to my experience, there are chiefly two clinical varieties of high arterial tension: (1) there is the temporary and recurrent form; (2) the continuous form.

The general symptoms of temporary high arterial tension are a hard, incompressible pulse at the wrist, a feeling of fullness in the head, and of obstruction in the chest, and an audible throbbing of the cerebral vessels when the head is laid on the pillow at night. Such symptoms are likely to be brought on by repeated errors or excess of diet, by excess in wine, by constipation, or by nervous excitement, such as may be produced by public speaking or controversy. It is relieved by the removal of the cause, and by the judicious use of aperients and the nitrites.

The continuous or persistent form of high arterial tension is, in my experience, almost always associated with the presence of chronic renal disease. It has no special symptoms referable to the high tension *per se*, the suffering of the patient being due rather to the general effects of the renal disorder. Such continuous high tension may be present for long periods of time, although no doubt it is subject to temporary exacerbations, in which symptoms similar to those of the temporary form may show themselves. This form of high tension must generally be treated by attending to the renal disease to which it owes its origin. It is obvious that in both forms of high tension the exciting cause of the condition is the presence of toxic agents in the blood.

Now, it must be asked, What has the presence of high arterial tension, either temporary or persistent, to do with the causation of atheroma or arterio sclerosis, it being understood that these two terms do not connote the same thing? In atheroma we have a focal disease originating in the intima as a rule, and leading to the development of the patches of thickening with which we are so well acquainted.

Atheroma is most frequently met with in the aorta, and by the running together of isolated patches it may involve more or less extensive tracts of the arterial wall. Atheroma is also found in the arteries of the brain forming the circle of Willis, and in the arteries of the kidney, where it gives rise to endarteritis obliterans. Atheroma usually spares the medium-sized arteries; and, whatever effect it may have upon the blood pressure, I do not think that increase of blood pressure gives rise to it.

Arterio-sclerosis, on the other hand, is an affection of the medium and smaller arteries of the body, and is to be carefully distinguished from atheroma, the focal disease. I quite agree with Dr. William Russell of Edinburgh in thinking that the changes present in arterio-sclerosis are "(1) A hypertrophy of the middle or muscular coat, and (2) a fibrous hyperplasia of the internal coat." It is not a focal disease, and it is not, in my opinion, caused by increased pressure of the blood.

I have thus indicated that in my opinion high arterial tension *per se* has but little to do with the structural alterations in the arterial wall, either in atheroma or in

arterio-sclerosis. I regard the high tension not as the cause of structural arterial disease, but as the effect of continuous or frequently recurring irritation of the histological elements of the arterial wall by poisons circulating in the blood, which act either directly on the intima, or indirectly by means of the vasa vasorum, which actually carry the poisons into the substance of the arterial wall.

My friend and colleague, Dr. John M. Cowan, of the Glasgow Royal Infirmary, has done most valuable work in investigating the minute histological changes taking place in the walls of the arteries in disease of these structures. He has shown that specific poisons of various kinds play an important part in the production of these changes. He has, in fact, recalled and concentrated attention upon the influence of toxic agents in the production of structural change in the arterial wall. Now, in order to arrive at a true conception of the relation of arterial pressure to arterial disease, we must collate these results from the morbid histological laboratory with the results obtained in the workroom of the physiologist, which deal only with healthy structures. While acknowledging to the full the valuable information I have received from Dr. Cowan's investigation, I desire to state that the opinions I express are my own, the more so as I am by no means sure that Dr. Cowan would agree with them.

Now from a consideration of Dr. Cowan's results taken along with my own much less elaborate observations whilst for six years a general pathologist, I conclude that altered and specially increased blood pressure has little or nothing to do with those alterations in the arterial wall which we call atheroma and arterio-sclerosis. These structural changes are dependent on the action of poisons, and not on variations of blood pressure. Blood pressure varies in health from day to day and hour to hour, and may vary during a whole lifetime without ever causing disease of the arteries—the disease is caused by the action of the poisons. Focal disease, such as atheroma of aorta, may be caused without any alteration in blood pressure having occurred. Arterio-sclerosis may be caused by poisoned blood, but, as this poisoned blood irritates and thereby stimulates to contraction the muscular fibres of the smaller arteries, it often causes increased blood pressure, which is thus a result, not a cause, of the arterial disease. Whether, as Dr. Russell thinks, this disease of the medium arteries may lead to a more easily induced contraction I do not know, but I should think not. I should say the more diseased, the more rigid the arteries become, the less the blood pressure.

DISCUSSION.

Professor A. McPhedran (Toronto) found himself frequently in error in his estimate of the pulse, when brought to the test of the blood-pressure instrument. It was difficult to appreciate the degree of pressure when there was great arterial thickening. He therefore felt the necessity of the routine use of the blood-pressure instrument in all cases, irrespective of the character of the illness. Further, with the instrument an exact estimate could be made of the degree of the preservation of muscular tissue in the arterial wall by the effect of the nitrites on the blood pressure. In advanced cases of arterio-sclerosis but little reduction of blood pressure would be caused by them and their administration of the nitrites.

Professor G. W. McCaskey (Purdon University) said that peripheral resistance substantially controlled the height of arterial pressure in the majority of cases. A heart might become so weak that its propulsive power might be unequal to its task; the volume of blood might become so small that it would be incapable of filling the arterial system, but as a rule, especially in chronic cases, the pressure would rise and fall with expansion and contraction of the lumen of the peripheral vessels. The peripheral resistance might be due to spasm of the arterial coat or organic change, and a differential diagnosis between these conditions was of the greatest importance. He had satisfied himself by repeated clinical observations that the spasm resulting from toxins circulating in the blood might be constant over indefinite periods of time. Such cases could be completely relieved by the use of vaso-dilators, which should be pushed to their full physiological limit. This served the purpose of a diagnosis by therapeutic test, and its practical clinical value could scarcely be overestimated.

SOME CLINICAL MANIFESTATIONS, VISCERAL AND GENERAL, OF ARTERIO-SCLEROSIS.

By Alfred Stengel, M.D.,
Professor of Clinical Medicine, University of Pennsylvania, Philadelphia.

I. *Cases suggesting a Relation of Arterio-sclerosis to Continued Fever and to Repeated Chills.*

My attention was first directed to the possible relation of arterio-sclerosis to continued fever by my preceptor, Dr. William Pepper, late Professor of Medicine in the University of Pennsylvania. In a report of a case of continued fever lasting a number of weeks in an alcoholic patient aged 40 years,[1] he suggested that a possible, and perhaps probable, explanation of the fever was a developing arterio-sclerosis. I quote from his report: "We know how frequently arterial changes develop gradually in those subjected to such causes as this man has been, and we constantly recognize the lesions when they have advanced to a high degree, and when of course they are irremediable. But there is an incipient forming stage, when the vascular changes are neither extensive nor profound. They are not yet associated with those secondary degenerative changes of sclerotic type which we later recognize, not only in the vessels, but equally in the cardiac walls and in the kidneys. It is true that the diagnosis is based chiefly upon exclusion and upon presumptive evidence. When, however, there are such symptoms as were present in this case—slight continuous elevation of temperature, disproportionate excitement of the circulation, alteration in the vascular tension, fugitive and radiating pains, weakness, dyspnœa on exertion, occurring in a person of gouty diathesis or in one who has been much exposed or addicted to alcoholic excess; and when critical search fails to reveal any adequate local lesion, it is justifiable to suspect an early stage of diffuse endarteritis."

Since the publication of this case sixteen years ago I have had many occasions to recall the views of Dr. Pepper, particularly in the wards of the Philadelphia Hospital, where the abundance of suitable material at all times supplies every variety of arterio-sclerotic manifestations. Very frequently I have observed cases of presenile or senile arterio-sclerosis in which, from time to time, fever of some duration occurred, and in which no local lesion of any kind could be discovered. This occurrence is so common that it no longer causes surprise to find in the broken-down and sclerotic senile inmates moderate elevation of temperature of sometimes considerable duration. I am sensible of the fact that in such patients some local lesion—such as an old pyelitis, chronic cholecystitis, or cholangitis, prostatic lesions, or the like—may be readily overlooked, and that such might occasion the febrile reaction; but some that have come to autopsy failed to disclose any other conditions than arterio-sclerosis and the visceral lesions resulting from this. More certain evidence is obtainable in the study of cases in private practice, on account of the greater likelihood of discovering other possible causes of the fever.

One such case occurred in a man now 75 years old, with rather pronounced general arterio-sclerosis. He was in no sense broken down in health, but began about five years ago to exhibit evidences of more rapidly developing sclerosis than had previously been discoverable. About the same time a febrile attack, lasting nearly three months, occurred, and was at first regarded as a mild type of typhoid fever. There was no evidence of typhoid infection, nor was any other infective or local condition discovered. Gradually the fever, which at no time rose above 100° F., and which was quite irregular in its course, subsided, and the patient improved in other ways. Subsequently, the arterio-sclerosis was decidedly more marked, and has steadily advanced. It is possible, of course (and it seems probable that this is often the case), that some obscure infection accelerated an arterio-sclerosis already initiated; but so far as could be determined no local forms of infection existed, and there has not since then been any event to suggest the occurrence of a local lesion at that time. The patient has been under constant and critical medical observation during the intervening

years, and it is probable that some evidence of such local conditions as gall stones or cholecystitis, renal calculus, or pyelitis, or of other visceral disease would have become manifest. He has had severe attacks of renewed fever following slight rigors, for which no adequate explanation has been obtained. This case, doubtful as it must remain, illustrates the type of disease that I have had in mind. Its suggestion has possibly been heightened in my mind by the fact that I am impressed with the care that has been taken to determine some adequate explanation of the original and the subsequent febrile attacks.

Another case may be very briefly referred to. The patient, a woman of 60 years, with generalized arterio-sclerosis, became feverish and thought that she had malaria. Large doses of quinine and blood examinations negatived this supposition. The fever continued for above a month, varying from 99° F. to 101° F. in the evenings and from the normal to 99° F. in the mornings. Moderate symptoms of fever were present and there was a disproportionate excitement of the circulation; but no local or general cause for the fever could be discovered. Gradually the slight disorder of general health subsided though the temperature still ranged from the normal to 99½° F. The patient declined to have further record made of her temperature and was practically in her usual health when the observations were discontinued. For a year or more before this event and during the four years that have since elapsed, she has shown undoubted evidences of gradually increasing arterio-sclerosis.

I am, perhaps, the more inclined to believe that an advancing arterio-sclerosis may occasion such attacks as have been described, because it seems to me entirely possible that such a widespread process of degeneration of tissue could occasion fever. Whatever may hereafter be found to be the real pathological lesion that initiates the whole condition, there is little doubt of the existence of intimal degeneration in some part of the early stages. This may be occasioned directly by toxic agents or indirectly by constriction of the muscularis or the vasa vasorum, but that degenerative changes in the intima are somewhat early manifestations, and perhaps the causes of later reactive sclerotic changes, seems to me very certain. Our knowledge of ferment fever due to aseptic destruction of tissue would form a basis for assuming that such intimal changes could occasion moderate fever of no great seriousness.

In the nature of things it may always remain difficult to establish positively what I am contending for, but by exclusion, clinically and by careful *post-mortem* observation in such cases of obscure fever, it may be possible to determine the matter. For the present I cannot do more than express a belief in the probability.

Before leaving this part of my subject I wish to recall the series of cases of thoracic aneurysm attended with high fever reported some years past by Sir William Gairdner, and I must also allude to the well-known occurrence of fever in cases of acute aortitis. Possibly in such cases of aneurysm, and more certainly in the cases of aortitis, infection plays a part in the development of the fever, but the analogies are too remote to warrant considerations of these conditions in connexion with the cases I have referred to.

II. *Abdominal Types of Arterio-sclerosis.*

Much attention has recently been given to the importance of splanchnic arterio-sclerosis in the development of secondary cardiac changes and the general symptomatology. There are, however, local manifestations significant of involvement of the mesenteric vessels to which but little heed has been paid. Ortner[2] has reported one interesting case in which a male, 55 years old, suffered from repeated attacks of burning and pain in the abdomen, obstinate constipation, flatulence and belching, abdominal distension and dyspnoea. Finally an exploratory operation was made, peritonitis developed, and the patient died. At autopsy, marked sclerosis of the abdominal aorta, and of the superior and inferior mesenteric arteries down to their smallest branches, was discovered. The stomach, small intestines, and the colon down to the middle of the descending portion were greatly distended. Ortner compares the condition to intermittent claudication of the extremities. He refers to another case reported by Schnitzler in which comparable symptoms occurred, and in which autopsy disclosed thrombosis of the superior mesenteric artery. I recall a similar case in the wards of Dr. Osler at the Philadelphia Hospital in which repeated attacks occurred before the fatal one, when enormous abdominal distension terminated the patient's life. The autopsy showed thrombosis of the superior mesenteric artery and great dilatation of the intestines with extensive infarctions.

Recently in a general discussion of the clinical course of arterio-sclerosis,[3] I referred to a patient then living who had suffered repeated attacks of the same character and in whose case operation for supposed appendicitis was at one time seriously considered. In this case the attacks generally began with burning or a sense of pressure in the middle part of the abdomen, later the pain increased in severity and even became agonizing, then abdominal distension would develop. Finally and probably as a result of calomel or other purgatives free evacuations of the bowels terminated the acute attack and left the patient with a sense of soreness that gradually subsided. Some time after my last report of the patient he was suddenly seized with another attack and the attending physician again regarded it as beginning appendicitis. The attack was similar to the others, but was not relieved and the patient developed suppression of urine and uraemia from which he perished. An autopsy was obtained and discovered a high grade of arterio-sclerosis involving the mesenteric vessels extensively; a portion of the lower part of the ileum (about 15 to 20 in. in length) was very dark in colour and sharply delimited from the normal portions. There was no evidence of a recent or old inflammatory condition about the appendix. The kidneys were contracted and covered with dark cysts. There were also many small cysts beneath the capsule of the liver. The conditions under which the autopsy was performed prevented a more careful examination of the abdominal vessels and the exact conditions within their lumina.

During the past year Max Buch[4] has analysed 25 cases of arterio-sclerotic abdominal pain collated from the literature and his own experience. He distinguishes two groups: the first being cases of pure arterio-sclerotic abdominal cramp, the second cases in which the abdominal pain is a manifestation of angina pectoris. In the former the symptoms detailed by him corresponded closely with those I have mentioned, but he notes, what I have not observed, that the attacks are determined by exertion, emotional disturbances, and assuming the horizontal position.

What has been said will sufficiently describe a certain type of abdominal attacks of painful character due to arterio-sclerosis mainly affecting the mesenteric vessels. The attacks are evidently not of necessity associated with thrombosis, though after repeated seizures this condition may terminate the scene. The abdominal distension and obstinate constipation, together with the *post-mortem* findings, seem to show conclusively that there is temporarily, or for a longer period, intestinal paresis, and it is not unlikely that this results from ischaemia and reflex nervous impulses. The suggestive resemblance to claudication of the extremities cannot well escape attention.

Another type of abdominal pain in association with arterio-sclerosis presents itself in patients who have advanced disease of the abdominal aorta with more or less tortuosity. In such cases there is more of soreness and tenderness on pressure than of actual pain, but the condition is more lasting than that which has been described. The paroxysmal attacks may, however, associate themselves with the more chronic condition. I recall an instance which well illustrates one of the diagnostic difficulties: A man of 70, highly atheromatous and greatly emaciated, had for some time complained of great soreness in the upper part of the abdomen, and a deeply-situated mass had been found on palpation. Very naturally cancer was suspected. Careful examination, however, disposed of this suspicion, and the mass was recognized as the aorta. At the autopsy a cirsoid and highly atheromatous abdominal aorta was found, with a sharp forward convexity near the coeliac axis. It was this which had simulated a tumour. In this case, as is usual in such instances, the patient suffered with violent pain on over-exertion, but the soreness was continuous and independent of muscular effort.

Among the intestinal lesions consequent upon arterio-

sclerosis, I wish to refer very briefly to cases of chronic colitis. Such cases are very common among the aged infirm arterio-sclerotics of the Philadelphia Hospital. Obstinate diarrhoea of a watery character, general debilitation, and prostration are the symptoms attending such cases. I refer to them here mainly to emphasize the importance of directing treatment to the circulatory condition as well as to the local intestinal lesion.

Another intestinal lesion met with in arterio-sclerosis, and, as I believe, resulting from that condition, is ulceration. Some years since, Dickinson referred to the frequency of such ulcerations, mainly, as I remember, in the small intestines in cases of nephritis, particularly in chronic interstitial nephritis. My own observations incline me to believe that the associated arterial disease is more directly concerned in such ulcerations, for these ulcerations and erosions are met with mainly in cases in which extensive atrophy of the mucosa, or enteritis, and marked atheroma of the vessels have been present.

III. *Association of Albuminuria and Slight Renal Change with General Arterio-sclerosis.*

Very few cases of well-marked arterio-sclerosis occur in which there cannot be found occasional traces of albumen. Not rarely this discovery occasions unnecessary alarm, and a diagnosis of contracted kidney is too hastily accepted. Undoubtedly, microscopic examination of the kidney would reveal a moderate sclerosis in many or most of such cases, but one is forced to recognize a distinction between such histological chronic interstitial nephritis and the clinical disease. In the latter the renal disease and the consequent symptoms predominate over the arterial change and its indications. In a small number the renal disease clearly antedates the arterial disease: in a large proportion it is either difficult to establish which preceded, or the precedence of the arterio-sclerosis is apparent. Undoubtedly, chronic interstitial nephritis (taken in the anatomical sense) is much more common in the autopsy room than in the wards. Among 1,756 autopsies at the University Hospital there were recorded 131 (7.4 per cent.) cases of contracted kidneys, a number far in excess of that reported from the wards. Strictly speaking, all such cases should perhaps be classified as chronic interstitial nephritis, but from the clinician's standpoint it is certain that, for prognostic purposes, if for no other, comparatively little significance attaches to the occasional presence of slight traces of albumen in arterio-sclerotics when the other phenomena, especially polyuria, of contracted kidney are wanting.

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Dr. EWART (London) spoke on the relation of chronic disease of the arterial wall to the pathological and physiological factors of increased arterial tone, namely, to the intermittent factor of muscular work and of its fatigue toxins, and to the continuous factor of the toxins of disease or of disturbed metabolism. The arterial strain due to labour was relieved by sleep, and a sufficiency of sleep, especially at the growing age, was a first condition for longevity of the arterial system. The arterial spasm due to a permanent circulation of toxins was not relieved by rest or sleep. He also drew attention to the fact that the health of the arterial wall was dependent upon a free lymphatic and blood circulation within its substance, and, therefore, upon the alternate contraction and relaxation of its coats, and that the permanent contraction, induced by any constant poison, would interfere with the perfection of its nutrition, and predispose it to structural degeneration.

THE TREATMENT OF TYPHOID FEVER.

AN INQUIRY REGARDING THE EFFECT OF THE ADMINISTRATION OF PURGATIVES UPON THE INTESTINAL LESIONS OF TYPHOID.

By W. B. THISTLE, M.D., L.R.C.P.Lond.,

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ANY ONE who has studied the problem of the treatment of typhoid fever must at some time have had presented to his mind the inquiry with which in this paper I shall have chiefly to deal—namely, the possibility of limiting by some form of treatment the destruction of tissue in the intestinal wall. Until recent years no such possibility seems to have been entertained. Writers upon typhoid evidently regarded the occurrence of intestinal ulceration in much the same way as the appearance of the rose-spots—that, as nothing could be done to prevent the occurrence of the latter, so nothing could be hoped for from treatment in the former. Such a very widely-held opinion had a somewhat paralysing effect, and very little was attempted. The unfortunate effect of this belief in the inevitable nature of typhoid ulceration upon the entire question of the treatment of typhoid may be appreciated if the opposite view be entertained for the moment—that is, that the intestinal lesions are not to be regarded as inevitable, but that they may be controlled, and, it may be, largely prevented. Prevention of the intestinal ulceration means, of course, the absence of haemorrhage and perforation in proportion to the limitation of the destructive process. It means, moreover, removal of what is to many an effectual barrier to treatment which would tend to relieve the systemic intoxication by the elimination of toxic substances through the intestinal canal. Or, again, in order to appreciate the effect that control of the intestinal lesions would have upon the entire question of treatment of disease, conceive typhoid fever without intestinal ulcerations. Is it to be supposed that any one, in the treatment of what he clearly understands to be a condition of prolonged intoxication, fluctuating in degree and at any time liable to overwhelm the patient, would be content with careful nursing and the application of water to the surface of the body? Assuredly not. If he were convinced of the absence of the intestinal ulcer, the most enthusiastic advocate of the bath treatment would again in the disease as in the case of other intoxications, be able to appreciate the importance of the intestinal canal as a channel for the escape of toxic substances from the body and institute treatment with that in view. There can be no doubt concerning the fact that adherence to the doctrine of the inevitableness of the typhoid ulceration, and belief in the view that these lesions are beyond the reach of treatment, has constituted, and still constitutes, a great hindrance to the employment of treatment which would alter conditions with reference to the amount of intoxication and degree of infection. Owing to fear of the intestinal ulceration, both bacilli and toxins were considered beyond the reach of treatment. Until quite recent years this view met with universal acceptance. At the present time, although many subscribe to and practise the eliminative plan of treatment in typhoid, yet great numbers of the profession still confine their treatment simply to ministering to the patient's comfort and counteracting the effects of the poison as much as possible. With reference both to the extent of intestinal ulceration and to the degree of intoxication, the patient has to take his chance. The great dread of these practitioners is that the patient may die of perforation or haemorrhage, the more imminent risk of death from intoxication being lost sight of.

As a means of lessening the degree of infection of the body in the early period of the disease and of promoting elimination of toxins throughout the entire duration of the fever, nothing can have a surer foundation than the use of purgatives. The physiology which applies in the case of uraemic poisoning, for example, applies perfectly in the case of typhoid. The great poison-abstracting function of the liver is as active in the case of typhoid fever as in the case of uraemia or other intoxications, and the effect of purgatives would be to carry out of the body the bile, which must be toxic to a greater degree than in ordinary health. Increased elimination is thus secured by the frequent administration of purgative medicine.

That increased elimination of toxic materials must result from the use of purgatives scarcely admits of argument. If such is not the case, why administer purgatives in the case of uraemia, lead-poisoning, and the host of toxic states in the treatment of which purgatives are much esteemed? Those who object to the employment of purgatives in typhoid fever do so, I am convinced, not because they have any doubts as to the increased toxic elimination that must follow, but because they have erected the intestinal ulceration and the supposed effect of purgatives upon the ulcer as a barrier to treatment most logical and in accordance with our present knowledge of physiology bearing upon the

elimination of toxic substances. I say "supposed" effect of purgatives upon the intestinal ulcer.

This brings me to the inquiry with which in this paper I especially wish to deal. Is it possible by any manner of treatment to limit or lessen the destructive process in the intestinal wall, and is it true that the exhibition of purgative medicines in typhoid fever is a dangerous procedure because of the occurrence of perforation and haemorrhage? In answer to the first part of the inquiry I have put, I hope to show that the intestinal ulceration can be greatly influenced by treatment—that the glands of the intestinal wall are susceptible to treatment directed through their drainage area, in quite the same way as glands in any other regions of the body. I believe if two important facts are clearly borne in mind the truth of this statement will become apparent. The facts I refer to are, first, that infection of the glands can only come from the drainage area of those glands—that is, the area of intestinal mucosa adjacent to them; and, second, that the drainage to any tissue from bacterial action is in direct proportion to the number of bacilli in it. These two facts are, I believe, beyond question. If, then, one could find some plan of limiting the number of bacilli in the gland the problem would be answered. The time to cut off or attack the bacilli is, of course, before they are carried to the gland; while they are in the drainage area, which in the case of the intestinal glands is the intestinal mucosa and the intestinal contents. If purgatives are freely and frequently used, and are efficient in the early period of typhoid infection, it must be that many bacilli are removed from the drainage area that would otherwise go to increase the number already in the gland. If the purgative is repeated day after day and at the same time an antiseptic is given, the effect, in so far as the drainage area of these glands is concerned, is identical with the surgical procedure of bathing an infected surface with an antiseptic lotion. The good effect upon the glands is due in both cases to the removal of bacilli from the drainage area, and the consequent curtailment of bacterial infection in the glands. I purge my typhoid patients regularly in the early period of the disease, at the same time combining an antiseptic, with quite the same object in view as the surgeon applies his antiseptic lotion to the infected surface in the neighbourhood of the enlarged and tender gland. The earlier the drainage area is purified of course the better.

In this sweeping of the intestine there is, of course, the additional object of limiting the infection of the body as a whole to the bacilli already beyond the intestinal wall. So long as there are bacilli in the intestines, they will be conveyed like other parasites and pass into the body. I look upon this early purging as most important. It lessens the number of bacilli in the glands themselves, it lessens the amount of intoxication by clearing away bile and toxic contents in the intestines, and it prevents further increase of infection by bacilli carried from the intestine.

In my view the battle in typhoid fever is mostly won or lost in the first week of the disease. If nothing is done to limit infection, either of the glands or of the body, it is a matter of chance entirely.

It used to be said that the bacilli were not in the intestine until late in the disease. I do not think any one entertains this view at the present time. In the Goulstonian Lectures a few years ago Horton-Smith stated that they were found at all times before the middle of the third week of the disease, and later if relapse occurred.

Following the line of reasoning which I have set forth, I fail to see how one can arrive at a conclusion at variance from that which I have arrived at, namely, that it is possible by the use of purgatives greatly to limit the number of bacilli in the intestinal glands, thus limiting the destructive process in them.

Not having the parts in view it is impossible to speak positively, but it is possible to form some opinion from clinical experience. I have given purgatives in every typhoid case I have had under my care, both hospital and private, my own case included, since 1892, without encountering either a fatal haemorrhage or a perforation. My colleague on the staff of the Toronto General Hospital, Dr. W. P. Caven, and myself have a list of upwards of 100 consecutive cases treated by daily administration of purgatives from first to last, with like result and with a total mortality of two.

I have been advocating the eliminative plan of treatment since 1893 and have not changed the view I then expressed that in a condition of prolonged intoxication, which may at any time overwhelm the patient, constant endeavour should be made to promote elimination of poison from the body by every channel through which it is possible for poison to escape.

When a case of typhoid fever comes under my care I as quickly as possible sweep the intestines clear with purgatives—usually a few grains of calomel, followed by ½ oz. of magnesium sulphate or other saline—in order to purify the drainage area of the intestinal glands as much as possible, because I know that the greater the number of bacilli in the gland the greater will be the destructive process.

I am, of course, ignorant as to the amount of infection which has already taken place. It may be that the infection which has already occurred may not be sufficient to destroy the gland if reinforcement from the drainage area be cut off. I repeat this process day after day, the object at first being twofold—to prevent additional infection of the intestinal glands particularly, and to abstract toxins from the body by way of the bile stream and the intestinal secretions.

I am thus combating the two greatest dangers to which the typhoid patient is exposed—namely, that infection of the glands may become so great as to result in considerable destruction of tissue, and that the amount of poison in the body may accumulate to such an extent as to cause death from intoxication.

I do not say that I shall always be successful in either case, but I do believe that the theory is sound and that the attempt is well worth while. I look upon the early use of purgatives as the surest protection against perforation and haemorrhage and the continued use of them as the most efficient measure against dangerous intoxication.

Dr. William Calwell (Belfast) said that in Belfast they had unfortunately a large amount of typhoid. When Registrar of the Hospital he had analysed statistics of 150 cases of this fever; in those in which diarrhoea of any severity occurred the mortality was high, about 17 per cent.; in those in which constipation was present, necessitating the use of simple enemata every second day, the mortality was very low—about 4 per cent. He had scarcely ever seen any harm from constipation; he had frequently seen harm from diarrhoea, no matter how caused; it always weakened the patient. He did not quite follow the proof of the beneficial results put forward by Dr. Thistle; and such a theory required strong evidence for its support. His own practice was fresh milk, fresh meat juice, one to two fresh eggs, well beaten up, each day, and, with caution, some mild farinaceous food; constipation he always relieved with simple enemata every second day, sometimes using the glycerine enemata. He had been favourably impressed with the quieting and even soporific effect of the essential oil of cinnamon. For purgation he never went further than an occasional grain or so of calomel or a teaspoonful of castor oil.

Dr. Thomas McCrae (Johns Hopkins Hospital) expressed an opinion rather adverse to the use of purgatives.

Dr. W. H. Milson (Professor of Medicine, Milwaukee Medical College), said that a family of eight had been treated by elimination through bowel, attention to diet, hygiene, and intestinal antisepsis. One of the patients, a young girl, progressed beautifully until the fifteenth day; she had had no intoxication and no tympany, but then she had a profuse haemorrhage. This was controlled, and her bowels remained locked for eight days. Her diet was looked after carefully, and intestinal antiseptics continued. There were no untoward symptoms, and she made an uneventful recovery.

Professor A. McPhedran (Toronto) reported the experience in the Toronto General Hospital during the last year. In about 110 cases there were 10 cases of haemorrhage and 3 of perforation, in all of which purgatives had been used. The bowel was not the excretory organ of the body, therefore purgation was not rational. The use of antiseptics was very disappointing because it appeared quite impossible by their administration to render the contents of the bowel aseptic.

Dr. Hamilton (Erin, Ontario) said the treatment of

typhoid should be a combination of the purging and antiseptic methods, and not a dependence on one alone. Early purging with calomel stopped the fever in ten to fourteen days if the case were treated early; for antiseptic purposes the free use of carbolic acid internally answered well. He instanced the specific instance of a family of five being taken ill at one time: three were removed to hospital, where they were in bed long enough for the two treated at home by calomel and carbolic to get well and visit them: those in hospital were treated with sulphate of magnesia alone.

THE INFLUENCE OF EARLY FEEDING IN THE TREATMENT OF TYPHOID.

By F. J. SMITH, M.D., F.R.C.P.,
Physician, London Hospital.

IT is now some twelve or fourteen years since I began to feel my way to unorthodoxy in the then commonly accepted line of treatment of typhoid fever; my results left such a favourable opinion upon my mind that in 1901 I ventured publicly to proclaim my dissent from the accepted routine in a paper read before the Medical Society of London.[1] My views did not meet with much support in the meeting, but since then there have appeared from time to time in the *Lancet* and BRITISH MEDICAL JOURNAL letters on the subject showing that here and there sporadic attempts are being made to oppose what I then believed, and am now quite convinced, are erroneous ideas.

I may state in a short paragraph what my views are and wherein they differ from the ordinary accepted ones.

My views, then, are that in the treatment of a patient with typhoid fever we ought to allow him much greater latitude in the way of diet than is ordinarily laid down in textbooks, as the rules there preached have been formulated under the terrors of perforation and haemorrhage, as though these two events were mainly, if not entirely, under the control of the food put into the stomach.

That food may under certain circumstances produce evil effects I am prepared to admit is possible, but those circumstances are very definite and are two in number: one of them can be very easily and certainly avoided, and the other is fairly well under control.

By the first I mean hard, indigestible, and sharp edges of the seeds of some fruits—for example, nuts, grapes, oranges probably, and possibly too, strawberries, gooseberries, and figs, all of which I would absolutely banish from the hands of the patient, leaving the juice only to be given by a nurse after straining through muslin.

By the second I mean that whether the food be milk or as I advocate other things, such as meat, eggs, fish, etc., one may be in danger of giving it a little too freely or injudiciously, and thus with imperfect digestion it may develop gases and cause distension: and I know of no more distressing and fatal complication of typhoid than paralytic distension and tympanites. I say that this condition or circumstance is fairly well under control, and I speak advisedly: but by control I mean that we must not feed typhoid patients by routine at fixed and regular hours totally irrespective of their appetites and condition, but must take each case and study it on its merits; and the very last, smallest, and most insignificant of those merits is the temperature which has too long held its baneful sway over the minds of medical men and nurses, leading them to deny a hungry patient a bit of bread and butter or an egg because forsooth the wretched thermometer revealed the fact that his temperature was not normal.

I used the expression "a patient suffering from typhoid" and not "a case of typhoid" because it seems to me that with the advent of exact science and the passing away of clinical observation and insight there is just the very danger against which I am writing, namely, the efforts to treat the disease without any attention being paid to the patient in whom the disease has its temporary abode. The temperature, I may admit, indicates that the disease is possibly not yet at an end, but amongst all the facts we have learnt of microbic diseases there is not one that seems to me to suggest, even in the faintest degree, that depriving the patient of some much desired food is a proceeding calculated to end the trouble; one would have thought that Sir William Gull's action in allowing our beloved King, when apparently *in extremis* from typhoid, to have a glass of beer would have been of such a striking nature that it would have led to a revision of the ideas guiding our rule-bound action in dieting patients with typhoid; yet such is the strong hold that routine and historical authority have over us that except in a few lucky instances, or when necessity compels, as in our African campaign, the teaching is still milk, milk, milk, nothing but milk till the temperature is normal, because it was so laid down by our ancestors who saw the ulcers of typhoid and were frightened by them.

If I write strongly it is because I feel strongly on the point, my sympathies being entirely with the patient and against the canons of custom; but I fully recognize that to write as I do I ought to have some facts to lay before you which entitle me thus to write. And I think I have such facts in the following statistics collected for me and arranged by Dr. Theodore Thompson, Medical Registrar to the London Hospital, for which I cordially thank him. I must admit that the numbers of the cases are far too few from which to make cast-iron mathematical deductions, but such as they are they strongly support me.

The statistics are rather too long to read here, but I hope they will be published in full in the BRITISH MEDICAL JOURNAL at a later date, so that every one may have an opportunity of studying them and criticizing them, but I can offer a few remarks upon them.

First, on my deaths. The fact that I had a higher death-rate than my colleagues is a fact of which I make my opponents a graceful present, for I had 24 deaths in 113 cases, but of these 24 only 4 took place after solid food had been given, and I must in my defence say a word or two on these 4.

Case I died on the seventy-fourth day of the disease, when a large pelvic abscess was found to have burst into the bladder, and the patient died of this septic complication: I cannot believe that food had anything to do with this death.

Case II died on the thirty-eighth day of the disease, and he was given solid food on the thirty-fifth. As this case seems particularly to tell against my views I carefully read his notes again, and I found that he was admitted as late as the twenty-first day, and was then in a dreadfully exhausted and septic condition with tympanites already commencing. I put him at once on my water diet, and he improved a good deal, but was still so exhausted I felt obliged to relax the diet on the thirty-fifth day, but, unfortunately, he was not able to digest it, and died on the thirty-eighth day. No *post-mortem* examination was allowed: my only regret was that I had not sufficient pluck to keep to the plain-water diet a little longer, but I was afraid he would die of sheer starvation.

Case III died on the thirteenth day of the disease. I had fed him for a week previous to death, which took place from haemorrhage and perforation.

Case IV died on the ninth day from haemorrhage; he had had bread and butter for five days.

That these two can be justly ascribed to the food I personally cannot admit, but as I am anxious not to omit any facts I leave them to my critics.

To the remaining 20 fatal cases no "food" had been administered, and I need not comment on them.

Lastly, a few words on the complications. The statistics would seem to make out almost too good a case, and might be by some regarded with suspicion on that account, but I can assure such critics that I had no hand whatever in collecting them, and that, so far as I know or can ascertain, Dr. Thompson has set down without fear or favour every one of my cases, so that there is no room for cooking or not counting this, that, and the other case as being exceptions, a method of procedure which indeed had not occurred to my mind, for until Dr. Thompson gave me the figures, I had quite forgotten that typhoid was a disease which could have any complications other than the acute ones connected with the height and severity of the disease, and had regarded a simple recovery without further trouble as an assured fact when once the patient had begun to mend, a mental condition easily understood when it is remembered I have had only three exceptions in ten years. One of these was the above-mentioned case of pelvic abscess. Besides this, I had one case of thrombosis and one of periostitis, neither of them with any serious result. It may be argued that death is, after all, only one complication, and that if I ignore the one I ought not to boast about the other; but I cannot accept that view in its simplicity, for I think that it is in the absence of com-

plications resides the principle factor in the shortened duration of the disease as it appears in my cases, and to working men a distinct gain of a fortnight seems a very valuable result.

Statistics of the London Hospital Cases During the Ten Years 1895-1904 Inclusive.*

Method of Obtaining the Statistics.

"Feeding" is taken to mean the administration of solid food. Jellies, custards, etc., are considered as liquid food.

The average day of disease was noted on which:

(*a*) Bread and butter, or rusks,
(*b*) Fish,
(*c*) Meat,

were given.

The term "before food" is to be understood to mean before the administration of rusks or bread and butter.

The term "after food" is taken to mean that solid food of some sort had been given.

The whole of Dr. F. J. Smith's cases were estimated in this way:

In each year 25 cases (13 males and 12 females) were selected at random from among the cases of the other physicians and assistant physicians, and the average day of the disease was noted on which the above-mentioned three articles of diet were given.

The relation of feeding to the deaths, to the relapses, and to the complications was investigated.

The average duration of stay in hospital in days, and the average day of the disease on which the patient was discharged, were also obtained.

The Feeding in Dr. F. J. Smith's Cases.

The average day of the disease on which eggs and bread and butter were given was the 24th.

The average day of disease on which fish was given was the 32nd.

The average day on which meat was given was the 41st.

Feeding in the Cases of the Rest of the Staff.

Bread and butter was given on the 37th day.

Fish was given on the 44th day.

Meat was given on the 55th day.

It will thus be seen that Dr. F. J. Smith's cases were, on the average, fed about a fortnight earlier than the cases under the rest of the staff.

Administration of "Water" to Dr. F. J. Smith's Patients.

In 79 cases no mention is made that water was given.

In 36 "water" is definitely stated to have been ordered in addition to milk.

In 32 cases the "water" was ordered on admission, the day of disease varying from the 4th to the 30th.

In 4 cases "water" was ordered on the second or third day after admission.

The Duration in Hospital.

Dr. F. J. Smith's Cases.

The average duration in hospital of Dr. F. J. Smith's cases was 48 days.

The average day of the disease on which the patient went out was the 60th.

The Cases of the Rest of the Staff.

The average duration in hospital was 57 days.

The average day of the disease on which the patient went out was the 70th.

It will thus be seen that on the average Dr. F. J. Smith's cases remained in hospital about ten days less than did the cases under the remainder of the staff.

Mortality.

Dr. F. J. Smith's Cases.

During the years 1895-1904 inclusive 115 cases of typhoid fever were admitted under Dr. F. J. Smith. Of these, 24 died, making a mortality of 21 per cent.

In four cases "food" had been given before the patient died.

Case in 1899 died on the 74th day. A large pelvic abscess formed which burst into the bladder, and the patient died of exhaustion.

Case in 1900 died on the 38th day. He had been given "food" on the 35th day. The notes state that he vomited for two days before death: he had been 21 days ill on admission, when the abdomen was found already distended; a deep lesion was suggested; but that there were no definite signs of peritonitis. There was no *post-mortem* examination.

Case in 1902 died on the 13th day. Bread and butter and rusks had been given on the 7th day. *Post-mortem* examination: Haemorrhage, perforation-peritonitis.

Case in 1904 died on the 9th day. Bread and butter was given on the 4th day. *Post-mortem* examination: Haemorrhage—no perforation.

Of the other 20 cases no "food" had been given before death.

* These tables and statistics are entirely the work of Dr. Thompson.

14 died of toxaemia.
2 ,, perforation.
3 ,, pulmonary complications.
1 developed enteric fever in hospital, after having been through a severe attack of rheumatic endocarditis and pericarditis.

20

The Cases of "The Rest."

During the ten years, under the rest of the physicians and surgeons there were 1,429 cases, with 225 deaths, giving a mortality of 16 per cent.:

32, or 14 per cent., due to haemorrhage.
37, or 17 ,, ,, perforation.
33, or 14 ,, ,, pneumonia.
35, or 35 ,, ,, toxaemia.

Among them 12 had had "food" before death; 223 died before "food."

Of these 12 cases:

2 had perforation.
4 had merely ulceration.
1 had haemorrhage.
2 had no *post-mortem* examination.
3 had gangrene of lung, phthisis, large white kidneys.

The Relation of Feeding to Complications.

The three most common complications of typhoid—namely, thrombosis of veins, periostitis of bone, and abscess formation, are here considered. Among Dr. F. J. Smith's 115 cases, there were only three cases in which any of these complications occurred.

This makes just 2 per cent. of complications.

Of the 3 cases:

1 was a case of thrombosis of veins.
1 ,, ,, periostitis.
1 ,, ,, pelvic abscess.

Among the 1,429 cases of the rest of the staff there were 146 complicated cases, making more than 10 per cent. of complications.

Of these cases:

59 were thrombosis of veins.
62 were abscesses either cutaneous or deep.
25 were cases of periostitis of bones.

It will thus be seen that the early feeding seems to have had a very marked effect upon the incidence of complications.

The remarkable immunity from post-typhoidal abscesses and periostitis can only be explained by the better resisting power on the part of the patient. The less frequent occurrence of thrombosis may perhaps be accounted for by the fact that Dr. F. J. Smith's cases had a diet containing less calcium than the patients on the ordinary milk diet.

Dr. F. J. Smith.

Year.	Number of Cases.	Deaths.	Average Residence Duration in Days.	Average Day of Disease on which Patient went Out.	Relapses.	Complications.	Average Day of Disease on which were Given		
							Bread and Butter.	Fish.	Meat.
1904	17	2	46	59th	2	1	19	31	34
1903	19	2	42	58th	4	1	22	26	23
1902	22	3	46	58th	3	0	24	37	44
1901	10	5	58	71st	0	0	19	34	56
1900	9	2	50	63rd	2	0	27	32	39
1899	14	6	54	60th	2	1	25	33	43
1898	5	0	52	63rd	1	0	30	39	46
1897	6	1	55	63rd	0	0	33	35	44
1896	4	0	39	54th	2	0	26	35	—
1895	7	3	42	54th	0	0	29	34	49
The Rest of the Staff.									
1904	92	9	56	69th	13	12	34	42	48
1903	90	16	60	81st	11	8	37	44	54
1902	138	16	65	75th	21	10	40	44	58
1901	143	27	50	60th	12	13	30	37	50
1900	163	38	54	68th	21	24	36	45	53
1899	219	32	62	82nd	29	23	45	50	63
1898	130	20	60	75th	20	19	42	45	58
1897	124	24	64	71st	21	15	35	42	57
1896	179	25	50	61st	31	15	35	45	58
1895	151	28	49	60th	24	7	33	41	55

THE RELATION OF FEEDING TO RELAPSES.

Among Dr F. J. Smith's 115 cases there were 16 relapses. Of these 15 occurred after food had been given, and 1 before food had been given.

The percentage of relapses was 14 per cent.

Among the 1,429 cases of the rest of the staff there were 203 relapses.

Of these, 99 occurred before food was given, and 104 after food was given.

The percentage of relapses was 14 per cent.

It will thus be seen that the early feeding seems to have had very little effect upon the incidence of relapses.

Method of Obtaining Statistics for Dr. F. J. Smith's Cases.

Year.	Total Number of Days in Hospital.	Number of Patients.	Total Duration of Illness.
1895	171	4	213
1896	119	3	101
1897	278	5	317
1898	260	5	318
1899	430	8	487
1900	342	7	438
1901	291	5	359
1902	792	17	981
1903	711	17	995
1904	701	15	895
	4,095	86	5,171

Total number of cases 113, died 24, notes missing 3, remainder 86.

Average number of days in hospital = $\frac{4,095}{86} = 48$.

Average day of disease on discharge = $\frac{5,171}{86} = 60$th.

Year.	Total Number of Days on which Bread and Butter was Given.	Number of Patients in which this Date was Recorded.	Total Number of Days on which Fish was Given.	Number of Patients in which this Date was Recorded.	Total Number of Days on which Meat was Given.	Number of Patients in which this Date was Recorded.
1895	117	4	135	4	146	3
1898	23	1	105	3	—	—
1897	132	4	172	5	222	5
1898	122	4	193	5	231	5
1899	173	7	265	8	343	8
1900	193	7	225	7	276	7
1901	98	5	146	4	225	4
1902	418	17	528	14	578	13
1903	273	12	429	16	494	15
1904	254	13	341	11	515	15
	1,803	74	2,544	77	3,031	75

Average day on which bread and butter was given = $\frac{1,803}{74} = 24$.

Average day on which fish was given = $\frac{2,544}{77} = 32$.

Average day on which meat was given = $\frac{3,031}{75} = 41$.

Dr. HUGH A. MCCALLUM, M.D., M.R.C.P., Associate Professor of Medicine in London University, Ont., said it was hard to know what was a solid diet. A diet which was solid in the stomach might be wholly liquid in the intestinal canal. Hence meats would constitute the chief example of solid diet.

Dr. R. HUTCHISON (London) said that he had been much impressed by the results which Dr. F. J. Smith had got in the treatment of typhoid at the London Hospital. On theoretical grounds he thought there could be no objection to a more liberal diet in typhoid than was usually adopted. The fear of injuring ulcers mechanically was illusory, for any ordinary diet had been reduced to a fluid form before the caecum was reached. The advantages of milk were probably chemical rather than mechanical—it seemed to have to some extent an "antiseptic" action, probably owing to the production of small quantities of lactic acid. In Dr. Hutchison's opinion it was important to individualize in the matter, and to avoid any routine diet. If a patient strongly desired any food it was probable that he would be able to digest it. In conclusion the speaker asked Dr. F. J. Smith to state his opinion as to the use of purgatives in typhoid fever, a subject which had been discussed at a previous meeting of the Section.

Dr. NORMAN WALKER (Niagara Falls, Ont.) said he would like to ask Dr. Smith whether he restricted the diet during the first week. In the Niagara Peninsula they had abundance of grape juice, and he had had excellent results with a diet of fresh or sterilized grape juice. The use of milk he restricted to those patients who could ordinarily digest milk well, and he avoided milk with those patients who told him that they could not digest milk.

Dr. G. W. MCCASKEY (Purdon University) said he wished to endorse what the essayist had said in condemnation of a routine milk diet in typhoid fever. There was one fact which he thought had been well established, and which might go far to explain its idiosyncrasies shown by so large a proportion of persons. He referred to the very large amount of indigestible débris which casein left in the digestive canal. This was especially objectionable in a disease such as typhoid fever, in which a prolific growth of intestinal organisms was a conspicuous phenomenon. This débris served as a pabulum for the growth of micro-organisms, which by the production of gases and toxins might seriously complicate the case. The ideal food was one which would disappear the most rapidly by absorption, and he believed that meat, properly prepared, was an example of such a food more desirable in this respect than milk.

The PRESIDENT, in summing up, pointed out that the arguments in favour of Dr. Smith's administration of solid food in typhoid were especially based on the chance of obtaining rather earlier convalescence, and the diminished liability to thrombosis. Moreover, the occasional ravenousness of the typhoid patient seemed to indicate an instinctive need of more satisfying food. The President believed that much could be done in the way of thickening the milk with other material, and that fish and meat in the panada form might be given after the middle period in a tentative way on alternate days so as to test the effect. It was, however, to be borne in mind that although meat fibre was generally soft before it reached the region of Peyer's patches, yet there was always the risk of the patient bolting food, and unquestionable cases of haemorrhage and perforation had occurred after the premature taking of beefsteak, as well as after insoluble vegetable material, in such a way as to leave little doubt as to their share in causation. Moreover, the rise of temperature which sometimes occurred after the first administration of solid food was suggestive of irritant effects apart from actual haemorrhage. Per contra, it was pointed out that the tongue often cleaned after the chewing of a little solid food, and that sometimes benefit ensued and safety was ensured by letting the patient chew some solid food and spit out the residuum. It was also to be remembered that the use of large quantities of milk was sometimes followed by the formation of hard masses of casein, which occasionally, when attended with constipation, might actually cause haemorrhage by abrading swollen glands. On the whole, whilst accepting Dr. Smith's results, it appeared desirable to use solids in a pounded form and in a tentative way, keeping milk as the chief aliment and the most bland form of nourishment in the majority of cases.

Dr. F. J. SMITH, in reply, stated that his routine practice in regard to purgatives was to give 5j doses of sulphate of soda in hot water every three hours until the bowels acted, if they had not done so for twenty-four hours; he also gave gr.j of calomel every night, but not as a purgative. He doubted whether there was such a thing as "solid food" so far as the ileum was concerned, provided that the stomach was functionally active, but solid irritants, such as fruit skins, there might be. He thought

prevention was better than cure, and therefore never had a patient with a ravenous appetite, for he fed the patient according to his appetite. In the early days, with foul tongue and bad headache, he thought grape juice (strained through muslin) a very excellent food.

SYRINGOMYELIA,

EXTENDING FROM THE SACRAL REGION OF THE SPINAL CORD THROUGH THE MEDULLA OBLONGATA, RIGHT SIDE OF THE PONS AND RIGHT CEREBRAL PEDUNCLE TO THE UPPER PART OF THE RIGHT INTERNAL CAPSULE (SYRINGOBULBIA).

[From the Department of Neurology and the Laboratory of Neuropathology in the University of Pennsylvania.]

By WILLIAM G. SPILLER, M.D.,

Professor of Neuropathology, and Associate Professor of Neurology, in the University of Pennsylvania.

THE interesting features of this case are found in the pathological study. Clinically the case presented nothing unknown in syringomyelia. The implication of the nerves of sensation of the head, the paresis of the abducens, and the intense atrophy of the tongue, have been observed repeatedly in this disorder. The patient was in the Philadelphia General Hospital for many years; he was seen often by me and other members of the neurological staff, and was recognized and lectured upon frequently as a well-marked case of syringomyelia. The man died in the service of Dr. Dercum, and to him I am indebted for the pathological material and clinical notes. (A picture of the man appears in an article by Morton Prince, in *Nervous Diseases by American Authors*, edited by F. X. Dercum, p. 590.) The interest in the case lies in the syringobulbia, and the extent of the cavity from the sacral region through the medulla oblongata, right side of the pons, right cerebral peduncle, and right internal capsule, to a point two or three millimetres below the floor of the lateral ventricle in the head of the caudate nucleus. Such an extent of the cavity upward, I believe, has never previously been observed, and is even regarded by some as impossible, and was not suspected during the life of the patient. Interesting, also, is the situation of the cavity, so that most of the cranial nerves escaped. The case has seemed to me of sufficient importance to present before this Association, inasmuch as it shows that syringobulbia may extend above the lower part of the pons, and that the implication of the third, fourth, or motor portion of the fifth cranial nerve does not necessarily imply a complicating disorder. When invited to read a paper before the Section in Medicine of this Association I selected this subject, not because the case that I have to present is a rare one, but because it compels us to alter completely our views regarding the limitation of syringomyelia.

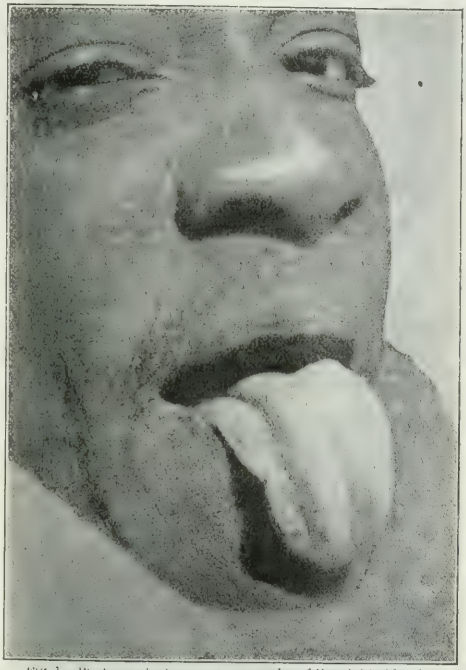


Fig. 1.—Photograph showing the atrophy of the right side of the tongue and the weakness of the right external rectus muscle. (From *The Nervous System and Its Diseases*, by Charles K. Mills M.D.)



Fig. 2.—Section from the mid-thoracic region of the cord

The history is as follows: The patient was admitted to the Philadelphia General Hospital on August 14th, 1894. The earliest notes preserved are dated May 8th, 1899, and are as follows:

He is a coloured man, 30 years of age, a waiter by occupation.

Family History.—Father died from an accident; mother is alive, 60 years of age; one brother and two sisters are dead.

Past History.—When 10 years old his right leg was broken by a wagon wheel passing over it; he was confined to his bed for five weeks as a result of this accident. Before becoming a cripple he had a number of falls, especially backward. History as to disease is completely negative. When 17 years old he began to limp on the left foot (as if he had a sore toe). The limp was due to weakness. The left arm began to be weak; shortly afterwards the whole left side, with the exception of the face, gradually grew weaker, and six years later he had lost completely the use of same. Until this time the right side had not shown any involvement. This side now gradually became perceptibly weaker, and four years later he was completely helpless. He says he has always been constipated, especially since the beginning of his paralysis. The bladder for a while was weak, but has now recovered its tone. He has never had any pains or any disturbance of speech or of deglutition. Three years before admission he was scratched on the left ankle by a cat, and had slight pain at the time but never afterwards, though the scratch developed into a large ulcer. Two years ago the back of the neck was burned by a cigar, but this caused no pain, and the burn was pointed out to him by a friend.

March 1st, 1900. He is a well-nourished, intelligent negro of about 30 years of age; the face is symmetrical, speech is distinct. He reads the paper daily, and enjoys good health, except an occasional ache in the right knee. On the right posterior part of the scalp is a mushroom-shaped fibrous mass, 3 in. in diameter (a keloid), the result of a painless burn by a steam pipe three years ago. The head is well shaped, and he wears a 7¼ hat.

Eyes.—No examination.

Tongue.—Is protruded straight, without tremor. Just within the right border is a longitudinal depression, running from the tip to the base. The motions of the tongue are made equally well in all directions, and the patient has no knowledge of any defect. Along this groove of the tongue he calls almost everything sweet, as quinine, sodium chloride, citric acid; on the left side the distinctions are better made, but are still imperfect. The lip detects quickly, especially bitter substances.

Extremities.—He can move the left upper limb a very little from the body, but cannot move the right upper limb, except possibly in very slight adduction. The shoulders are thrown forward, and there is moderate general atrophy of these parts. Each arm is wasted, especially the left: the right forearm is moderately wasted, but the left in a marked degree, the flexors being most affected. The shoulder-joints are rather rigid, especially the left. The right elbow is usually held

in extension, but flexion to a right angle is possible. The left elbow is much more rigidly extended, and flexion of only about 20 degrees is possible. The right wrist is held straight with the fingers flexed into the palm of the hand, and complete extension of the fingers is impossible. The thumb overlaps the index finger. Moderate flexion and extension are possible at the right wrist. The thenar and hypothenar eminences are much atrophied, the interossei muscles are less affected. The left wrist is held in almost full extension with only slight range of motion. The hand is oedematous and the fingers are flexed into the palm, though less rigidly so than are the right fingers. The wasting is similar, though less in degree than on the right side.

Lower limbs are round and well nourished, the left being the smaller throughout. The right knee can be flexed and extended voluntarily through almost complete range in bed, though slowly and with difficulty. Abduction and adduction are performed with difficulty. He cannot move the ankle, but can move the toes a very little. The motions of the right leg are much less in range and the joints are more rigid.

Sensation for touch is felt normally throughout the body: for pain and thermal sensations the disturbance is pronounced. The tests are somewhat indefinite; at times he makes answer correctly at one place and incorrectly at another, the areas changing, especially in the legs, but as a whole sensation is much diminished and in certain parts absent. The head, including the face, was affected.

Cremasteric reflex is almost *nil*. The patellar reflex is exaggerated on the right side and diminished on the left. Ankle clonus is present on the right side but not on the left. Babinski's reflex is present on the right side, uncertain on the left. He has no cerebral, rectal, or visceral trouble. He is confined to his bed.

August 25th, 1902. Callus has formed over the first phalangeal joint of the middle finger of the left hand; this finally developed into an abscess, which broke and nearly the whole dorsal aspect of the finger became ulcerated, and for a long time all attempts to heal the wound were unsuccessful.

January 24th, 1903. The patient was found this morning in a serious condition; he has a cough and both lungs are filled with gurgling rales. Small areas of dullness are detected over the right lung, with markedly increased fremitus over the entire left lung. The pulse is fairly regular but rapid. He has not had a distinct chill. For three days has had a small trophic ulcer on the left hand, which appeared in the form of a bleb containing pus; no injury was known as a cause. The limb is considerably swollen.

January 25th, 1903. He has bronchopneumonia. Lungs failed to clear up under treatment, and the patient died this morning at six o'clock. Respirations were increased late; no pain was complained of by the patient.

The necropsy was performed by Dr. Coplin.

Pathological Diagnosis: Syringomyelia. Adult coloured male; spine is curved slightly to the right. Both hands are of the claw type. There is an arthropathy of the left wrist. The right lower limb is 2 in. shorter than the left. He has marked thickening of the scalp over the occipital region. The spinal cord, on opening the canal, is flattened (ribbon-like) from the mid-thoracic region to the medulla oblongata. Calvarium is 1.2 c.cm. in thickness, apparently of compact tissue, no usual diploë. Neither cranial nor spinal meninges show anything abnormal.



Fig. 3.—Section from the upper thoracic region of the cord.



Fig. 4.—Section from the mid-cervical region of the cord.

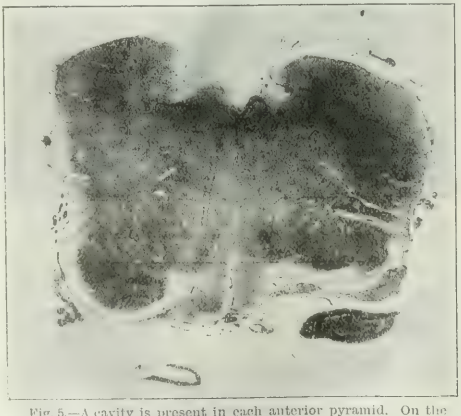


Fig. 5.—A cavity is present in each anterior pyramid. On the right side the cavity has destroyed the greater part of the pyramid, and extends far to the right side of the medulla oblongata. No fibres of the hypoglossus nerve are seen on the right side, but the nerve is present on the left side.

Microscopical Examination Made by Me.

The cavity begins in the lower sacral region as a narrow slit in the left posterior horn. In the upper sacral region, also, it is confined to this posterior horn, and passes as a narrow slit from the periphery of the cord through the posterior horn to near the central canal. In the lumbar region it is still confined to the posterior horn.

In the lower thoracic region it passes through each posterior horn, and the central grey matter as a narrow slit from one side of the cord to the other. The crossed pyramidal tracts are degenerated, as is also the left root entrance zone in the posterior columns; the latter is a result of degeneration of posterior root fibres by the cavity. The cord preserves its normal shape to near the mid-thoracic region; here the distortion is very pronounced, and it is difficult to make out the distinctions between the white and grey matter. The same is true of the upper thoracic and mid-cervical regions, only the distortion is more pronounced in these parts.

In the lower part of the medulla oblongata a cavity extends through the right gelatinous substance of Rolando and another through each anterior pyramid. A little higher in the medulla oblongata the cavity in the left anterior pyramid becomes small, and the left anterior pyramid is much degenerated. The cavity in the right anterior pyramid at this level is entirely distinct from that in the left anterior pyramid, and the right anterior pyramid is entirely destroyed by the cavity. The cavity passes through the lower olive to the lateral portion of the medulla oblongata, cutting the fibres of the right hypoglossus nerve. The fibres of this nerve have entirely disappeared, whereas those of the left hypoglossus are distinct. The nerve cells in the right hypoglossus nucleus have also entirely disappeared, whereas those in the left nucleus are in good condition. In the upper part of the medulla oblongata the cavity occupies the right anterior pyramid and the interior of the lower olive. The cavity in the left anterior pyramid has disappeared, but this pyramid is still much degenerated.

In the pons the cavity is in the pyramidal tract, and extends nearly to the raphe. The right abducens fibres are not numerous and are much degenerated; the fibres of the left abducens are distinct. The nerve cells in the nucleus of the right abducens nerve are not so numerous as those in the left nucleus. In the upper part of the pons the cavity extends as a narrow slit through the right pyramidal tract from the side of the pons to the raphe, whereas lower in the pons it is nearer to the raphe. It does not at any part invade the left side of the pons.

In the right cerebral peduncle the cavity is a narrow slit in the substantia nigra, and extends into the upper part of the crusta near the median side of the peduncle. The right crusta is much smaller than the left.

In the lower part of the right internal capsule the cavity becomes divided, one part remaining nearer to what will become the knee of the capsule; the other, very small, occupying the posterior part of the capsule. The latter cavity soon disappears. The former, at a higher level, occupies the inner segment of the globus pallidus and outer portion of the internal capsule near the knee. Still higher there is a cavity on each side of the knee of the internal capsule, one in the posterior part of the head of the caudate nucleus, and the other in the anterior part of the lenticular nucleus; these two cavities are connected by a narrow slit passing through the anterior part of the knee of the internal capsule. The cavity in the lenticular nucleus disappears first, but that in the head of the caudate nucleus extends to within 2 or 3 mm. of the lower surface of the lateral ventricle, and does not open into the ventricle.

In speaking of syringobulbia, Schlesinger, in his very complete monograph,[1] says the cavity usually does not extend

above the exit of the glosso-pharyngeus nerve, sometimes reaches the lower part of the nucleus of the facial nerve, but often does not extend as high as the level of the exit of the glosso-pharyngeus nerve. He has never been able to trace the cavity as high as the nucleus of the facial nerve, and yet when the second edition of his monograph on syringomyelia was published in 1902 he had examined 10 cases of syringobulbia. Müller and Meder, he says, traced the cavity as high as the exit of the facial nerve,

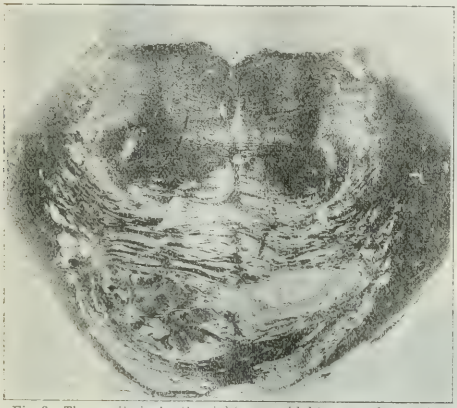


Fig. 6.—The cavity is in the right pyramidal tract, and near the raphe.

and Hoffmann traced a glia streak as high as the nucleus of the facial. So far as observations exist, says Schlesinger, the laterally situated cavity does not extend into the pons, except in the most caudal portion. The pons therefore forms the termination even to extensive syringobulbia. The assumption of Hoffmann that invasion of the pons is not more frequently seen because so many vital centres are implicated before the cavity extends to the pons, and thereby death is caused, is, according to Schlesinger, untenable. The signs of bulbar disease may persist many years, and yet the pons is never extensively involved. The laterally-situated cavity may involve all the cranial nerves from the sensory fifth to the twelfth inclusive, but involvement of the first four cranial nerves or of the portio minor of the fifth indicates that some other lesion than syringobulbia exists. In the majority of cases facial paresis, in syringobulbia, is a complication.

In another part of his work Schlesinger remarks that the cavity has never been observed above the upper end of the facial nucleus, so that only the fifth to the twelfth cranial nerves are ever implicated in syringobulbia, while the involvement of the other cranial nerves is caused by hydrocephalus, paretic dementia, tabes, or some complicating lesion. Cavities in the pyramids have been observed, and, according to Schlesinger, they usually extend from the nucleus of the hypoglossus along the course of the fibres of this nerve. Raymond and Philippe observed a cavity in the right pyramid extending toward the hypoglossus nucleus. Rosenblath found cavities in both pyramids in one case, and they were confined to the pyramidal tracts at the level of the lower part of the olivary bodies.

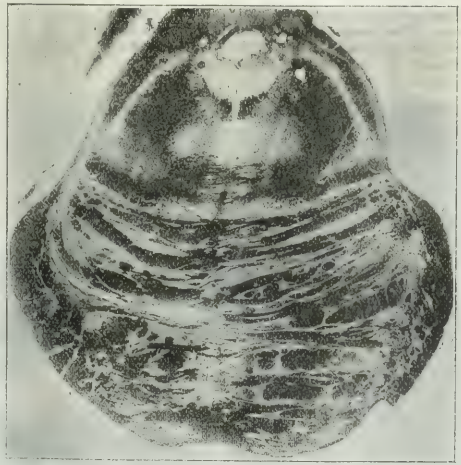


Fig. 7.—The cavity is in the right pyramidal tract, and extends far to the right side of the pons. The section is reversed in the photograph.

I shall not dwell upon the cavity formation in the anterior pyramids in the case I report, as it is well shown by the photographs.

Raymond considered the prognosis *quoad vitam* relatively grave when syringomyelia is complicated by bulbar symptoms. Possibly this grave prognosis is warranted when the bulbar symptoms are produced by some other lesion, as they undoubtedly often are; but when they are caused by a small, non-progressive cavity, as in the case I

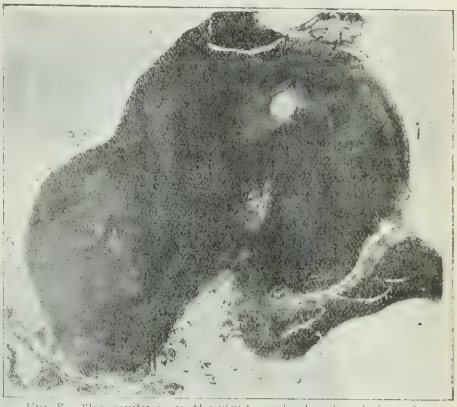


Fig. 8.—The cavity is in the right cerebral peduncle just above the crusta. The right peduncle is considerably smaller than the left.

have studied, the prognosis should be less grave. The man was 33 years old at death, and probably had the cavity in the brain a long time. The symptoms of syringomyelia had been present about sixteen years.

Schlesinger has found paralysis of the external ocular muscles mentioned in 31 cases—that is, in about 11 per cent. of the cases he examined in the literature. The abducens is most frequently implicated. The paralysis of this nerve he acknowledges may be caused directly by the syringobulbia, but paralysis of the oculomotor, or trochlear nerve, cannot be so caused, but is the result of some complication, he says, so far as our present experience permits us to judge.

Raymond[4] also spoke of implication of the extrinsic muscles of the eyes in syringomyelia, especially of the external rectus or levator palpebrae superioris. The paralysis, he said, is partial or total, usually unilateral, causing diplopia, ptosis, etc. The fact that this paralysis is usually unilateral would seem to me to indicate that it is more frequently caused by a cavity than has been supposed. Raymond also spoke of paralysis of the facial nerve distribution, which may be confined to the lower part of the nerve. This limitation we at first thought would seem improbable from a cavity in the pons, and yet we know that in bulbar palsy the upper facial distribution escapes, and the lesion in the latter condition surely implicates the facial nucleus. Unquestionably a person with syringomyelia may have a suddenly-developing cerebral lesion causing hemiplegia. I have recently had the opportunity to study the pathological material from such a case sent to me by Dr. Moleen, of Denver, Col., but we are discussing here chronic conditions.

Hoffmann's opinion that the upper part of the brain is not invaded in syringomyelia because vital centres would be involved and cause death before the process could become so extensive, is shown by the case I have examined to be untenable, as a cavity may extend a long

The intense atrophy of the right side of the tongue finds a ready explanation in the complete degeneration of the right hypoglossus nerve and its nucleus.

Weakness of the right abducens nerve is not described in the notes, and yet in the photograph



Fig. 9.—The cavity is in the right lenticular nucleus and a part of the posterior limb of the internal capsule.

distance in the medulla oblongata and pons without impairing many cranial nerves. The case shows also that the third, fourth, or motor portion of the fifth cranial nerve might be involved by the cavity, and that symptoms in the distribution of these nerves need

taken from Dr. Mills's book (*The Nervous System and Its Diseases*) the left iris is observed to be well in the inner canthus, while the right is some distance from the outer canthus, and this fact shows paresis of the right external rectus. The partial degeneration of the right abducens

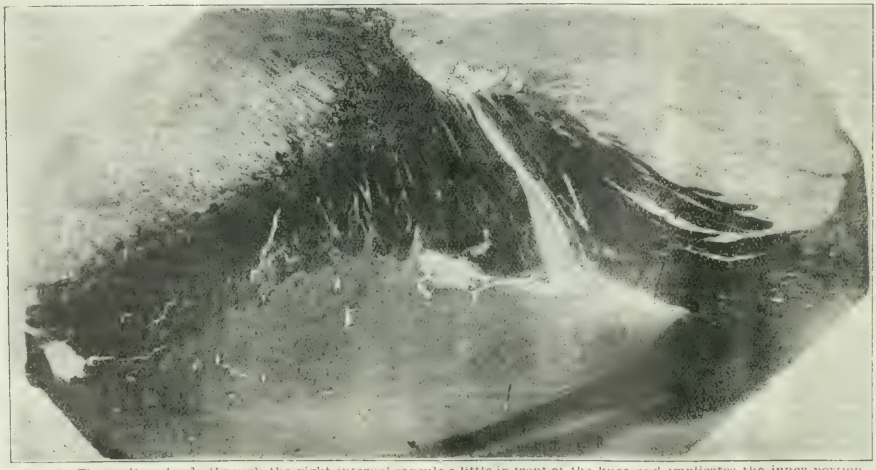


Fig. 10.—The cavity extends through the right internal capsule a little in front of the knee, and implicates the inner portion of the lenticular nucleus and the posterior part of the caudate nucleus.

not imply that the syringomyelia is complicated by some other lesion. In my case the third nerve barely escaped, and yet I believe with Schlesinger that in the majority of the cases symptoms in the supply of the upper cranial nerves point to a complicating lesion.

nerve from implication in the cavity fully explains this.

The loss of taste on the right side of the tongue possibly was caused by atrophy of the muscles of the tongue and interference with the perception of taste—at least, no other

cause can be determined. It is not possible to attribute it to disease of the glosso-pharyngeus nerve as a result of the syringobulbia. I had at first thought the case might demonstrate that the taste supply of the anterior two-thirds of the tongue may be through the glosso-pharyngeus, as the cavity extended through the right substantia gelatinosa of Rolando in the medulla oblongata, and came close to and possibly caught some of the intramedullary fibres of this nerve. The descending root of the right glosso-pharyngeus is well stained by the Weigert haematoxylin method, and if any involvement of this nerve occurred it was not intense; it may, however, have been sufficient to have caused a disturbance of function in the nerve.

References.

[1] *Die Syringomyelie*, Hermann Schlesinger, Franz Deuticke, Leipzig and Vienna, 1902, second edition. [2] *Leçons sur les Maladies du Système Nerveux*, 1896, première série, p. 327.

Dr. Campbell Meyers (Toronto) paid a glowing tribute to the pathological work of Dr. Spiller, and asked how he would explain the loss of disturbance of sensation in syringomyelia if, as had been recently stated by physiologists, the sensation of pain was conducted by the lateral columns.

Dr. Spiller, in reply, said he had come to the conclusion that the fibres of pain ascend in the tract of Gowers. In one case he had studied, in which the syringomyelic disturbance of sensation was present, a small tubercle was found on each side implicating the tract of Gowers; in another the cavity was confined to one posterior horn. The investigations of Karl Petren and others seemed to warrant the opinion expressed. As regards the results of experiments performed on lower animals, Dr. Spiller was guarded in expressing an opinion. As Dr. Mott had pointed out, there was great difficulty in determining the condition of sensation in animals and in excluding reflex action from the stimulation, and if the conclusion was correct it did not follow that what was true of an animal as regards sensation was true also of man. They knew positively as regards the motor tract that great differences might exist in man and some of the lower animals.

THE BEARING OF PHILOSOPHY ON PSYCHIATRY,

WITH SPECIAL REFERENCE TO THE TREATMENT OF PSYCHASTHENIA.*

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The problem of the treatment of psychopathic invalids is one of vast importance. Their number is large, their torments are serious, their capacity for improvement is great, and equally great is the need of accurate insight and skilful management on the part of their physicians.

Even those for whom the door to recovery of physical health seems closed often show such great courage and endurance, such power of achievement, in spite of their infirmities, as to well deserve the name heroes of invalidism. Not only do they often learn to rise superior to their weaknesses, but they occasionally make of them a positive means of entrance into a broader mental life. The French divine Pascal is said, for example, to have treated his lifelong and painful invalidism in this way, and we all have known patients who, under like circumstances, have taken similar positions.

Strictly speaking, this ought to be the usual attitude, and the physician should encourage it. In fact, however, in spite of all the literature upon mental therapeutics, this branch of medical treatment does not rest upon a broad and sound foundation. We know fairly well what can be done for the bodily welfare of our neuropathic patients—the value and place of rest, of exercise, of isolation, of occupation, the bearing of surgical operations, of general hygiene. Every one admits also that much can be accomplished by the personal influence of a strong will and by a clear, confident statement to the patient of his case as the physician sees it. The success of Dr. Dubois's recent book is a warrant for this statement, and its excellence for this purpose is unquestioned. The demonstration by Janet and by Freud and Brewer that it becomes easier to exert a favourable influence over our patients if their subconscious memories are probed for the sources of their illness, has also led to gains of solid value for the systematic therapeutics of the mind.

Again, doctors are usually Stoics, and can preach stoicism with good grace, and sometimes also, like our colleagues in Japan, they can use the powerful incentives toward loyalty that come with a religious faith. As a rule, however, this is not the case. Physicians are too apt to believe that all knowledge is to be expressed in terms of chemistry and physics, or not at all, and to feel that religion and natural science do not work well in double harness. They usually are too scientific to be truly religious, and yet as a body not scientific enough to realize that, through the strictly logical methods of philosophy and metaphysics, it is possible to acquire lofty conceptions of the significance of conscious effort, the value of human life, the meaning of loyalty and obligation such as form much of the basis of religious ethics, and in some respects transcend it.

I refrain from the attempt to state the form which these conceptions of philosophy have taken. It must be enough to say that through them each man is treated as a free, responsible creator of a better order in the world. This is one ground on which I wish to urge the more general and more thorough study of philosophy. We might not even then retain the allegiance of all the vast numbers of patients who now turn to non-medical sources for their mental therapeutics, but it would no longer be to our discredit that we lost their confidence.

There are also two other grounds on which the study of philosophy may be urged, as capable of leading psychiatrists to conclusions that through natural science alone they could not reach. The first of these grounds is that it helps to a better understanding of the origin of mental symptoms; the next that it helps to dispel the embarrassing mystery which shrouds the relationship between consciousness and the material world.

1. Out of loyalty to the principles of natural science, physicians and psychiatrists are apt to follow its methods too exclusively. Within the past year a monograph has been published by Dr. Paul Kronthal of Berlin,[1] in which opinions such as these, seeking to intensify the force of medical research by narrowing its scope, are presented with a clearness and a vehemence that make his essay a fit subject for discussion. Although his views are far more extreme than those are of many representative psychiatrists, yet he voices sentiments that are really shared by many writers who would cavil at the form he gives them.

Physicians, he maintains, as naturalists, have no right to dally with the conceptions or the terminology of philosophy or even of psychology. "Memory,"* "sensation," "apperception," "association" and the like, as applied to patients are purely metaphysical concepts, which the conscientious psychiatrist should shun as pregnant with temptations to confused and unscientific modes of thought. We know nothing of what passes in another's consciousness, and should attempt to judge whether his mental states are morbid or are healthy only by noting such of his outward reactions to known stimuli as we can see and study.

Whatever a man, a patient (thrilling with fears and hopes), may actually *be*, he is to be studied as a reflex automaton or not at all. Metaphysics is for philosophers, theologians, and jurists, if they like it, not for doctors of the modern school.

It is noteworthy that the writer, who is obviously a wide reader of philosophy, though he cannot see his way to utilize its doctrine, proclaims himself a Berkeleian, and admits that each man's "physical world" is only a succession of his mental states, "permanent possibilities of his experience," to use the current phrase. But, he says, though "natural science" stands in debt to philosophy for making it thus clear that the external world has not the real existence, independent of our thoughts and feelings, that we would fain assume for it, yet, as naturalists, we physicians and psychiatrists still should act as if this

* In place of more definite references I desire to express my deep sense of obligation, as a modest student of philosophy, to the teachings and the constant help of Professor William James and Professor Josiah Royce, of Harvard University.

* It might be asked by what right an observer can be allowed, on this principle, to rely even on his own memory, and how without memory (imperfect as it is) perception is possible, since perception is in large part memory. But my object is not to discuss the writer's view except from a certain standpoint.

assumption, admitted to be false, was really true, because through it alone can scientific gains be made.

Here lies the issue in a nutshell. Must the physician, just because he acknowledges the value of the methods and conceptions of the naturalist, discard the methods and conceptions of the philosopher, and have the latter no bearing on the interpretation and treatment of disease?

Certainly the psychiatrist cannot answer this question in the affirmative.

The great defect of the doctrine such as Kronthal advocates is, that, for the sake of better observation, each individual patient is too largely studied as if he stood alone. His reflexes, his bodily responses, the changes in his brain, important as they are, are called upon to give to the inquirer an amount and kind of information which they cannot furnish. Though it be true that, in a sense, all that concerns or ever has concerned a man, imprints itself on every movement of his muscles, of his brain, these imprints are not of such a sort that one can read in them, untangling their vast web of antecedent history, the events that gave them birth. This history, which is bound to take us deep into other lives, lies far outside the range of present observation.

On the other hand, both the aims and the methods of philosophy accentuate the fact that no man can be properly studied except in relation to the community and the world. As each one of his organs is dependent for its activity on all the rest, so is he dependent for the colour and movement of his thoughts on those around him.

The vast and complex system of credits in the business world faintly reflects the "credit system" of the social world. A man dresses for his neighbours in exactly such-and-such a fashion, or in defiance of fashion, which is another form of recognition of social force. The stiff garments instinctively chosen by the person conscious of his "social" dignity, the correct uniform of the army officer, all hint, like the bit in the mouth of the horse, even though just broken to the harness, at the existence of a great mass of social conventions, which, even if not mentioned, yet exert a powerful influence on each person's thoughts and acts, so that he cannot be considered, without mutilation and abstraction, as without them. An individual cannot be defined, even physically, as if bounded by his skin. His walking-stick, his rifle, his room, his house, his town are almost as much portions of himself as are the hair and nails which he trims off and throws away without sense of loss. The process, whatever it may be, that gives the hills and ocean to his consciousness utilizes for this service, equally and in a similar way, the intervening air and the intervening nerves of sense.[2]

Both air and optic nerves are at once parts of the physical and parts of the mental world. Where, then, does "he" begin or end. As it is with our sensations so it is with our motions, even our invisible reactions. No sooner does some object in the landscape attract our eyes and become an integral portion of our visual sense than we begin to calculate instinctively our relation to it, in various terms of motion, as of flight, attack, or sense of size or distance. Thus, our motor nerves and muscles deploy their forces[3] to make the bond of union more complete between the object and ourselves, and so on this side we at once create a new relation and recognize more formally that which already tacitly existed. Except, thus, as a portion of the world around us, except in relation to that particular outcome, we could not at that moment be defined; the tension of our nervous systems could not be described.*

Infinitely more complex and more shifting are, at each moment, the entanglements of a person's mental life, whether in health or in disease, with others' lives around him, and infinitely important are the hints that closer study of these relationships can furnish.

Insanity in most of its characteristics is a social concept. No behaviour of maniac or of dement could be so wild as not to find its counterpart in acts that have the right, in other social states, to be denominated health, and the decision rests on social arguments.

The general paralytic is usually detected as offending against the social traditions of himself, his family, his club, quite as early as he exhibits altered reactions of pupil or of knee-jerk, though it may be long before his trifling lapse from conventional correctness finds a true interpretation.

Cases now and then arise where, even with all the aid that knowledge of the social environment can render, it is hard to say whether an obstinate adherence to suspicions for which some trifling ground exists is too unreasonable to be denominated sane or not. Without this aid a judgement could not possibly be reached.

The "eccentricities," the "reactions," of a man of genius—an Ibsen or a Nietsche—taken by themselves have led to his being classed as a "degenerate" and nothing more. This was the weakness of the natural-science method of Lombroso. Useful as this is, it constitutes a trivial means of classifying geniuses, through whom such important aspects of a national, a racial, a social consciousness can often be revealed.

A planet could not properly be described without some reference to the immense forces that make and keep it what it is, nor can a man's "reflex" acts be properly described without a recognition of the environment, past, present, and future, which they mirror. The analytic biographies of such men as these, by Richter and by Moebius, are of far broader scope.

The numerous "diseases of self-consciousness," as Royce[4] has clearly shown, cannot be understood except with reference to their social origin. The person who feels humiliated, and who seems to shrink within himself, is really one who sees himself, in fancy, triumphed over by his colleagues, while the vain or haughty man really imagines himself as lording it over others.

Again, although in every human act there is, indeed, an element of freedom, each one expressing some unique, creative force, yet in every act there likewise is an element of imitation, again a social bond of infinite force, and a direct or indirect cause of complex mental troubles.

Many of these significant relationships were discovered without the leadership of philosophy, but without this leadership the real and ultimate bearing of these discoveries could not have been ascertained.

The study of special relationships such as these, and of the social origin of disease, is thus seen to be but one portion of the problem of the unity of Nature, and of the place of man within the universe. This unity does not imply the destruction of our individualities, but their free interplay. Studies such as Wundt's folk-psychology are important steps in that progress, but for the present we may be content to note the fullness which such work lends to our interpretation of our present pathological needs. Thus, Wundt's investigations into the origin of language has led him to criticize the attempts to explain aphasia by localized lesions in the cerebral cortex. He prefers to emphasize that element in the disorders of the language function that indicates reversal of the social process by which, first, speech was gained; and this is a species of alteration which it would be difficult to state in localizing terms. Here, again, is a dispute between two tendencies both of which are useful.

In one sense, every piece of human history, however complex, can be localized in the brain, in the sense that all thought must find some cerebral expression. But localization, with this meaning, might be quite useless for the purposes of pathology, and the term, in the same way, not "pragmatic."

Even though it could be said that some "brain change," some peculiarity of personal "reaction," reflects and registers, in some localizing sense, each one of these complex disturbances of social origin to which our patients fall a prey, the discovery of the change would be as nothing without the simultaneous discovery of the correlated relationship itself.

2. As it is imperative that we should gain clearer views about those relations of our consciousness that bind us to the conscious lives of other men, so, too, it is essential that we should better understand the nature of the tie between consciousness and the physical world, or brain. Here logical and philosophical inquiry has long since made conditions clear, to which physicians usually close their eyes. In every act of life, every time we eat,[5] "to fortify the *spirit*," as we say, we tacitly admit that consciousness and physical processes are in some sense

* This unity between each individual and his physical world, which formed such an important feature of the oriental "mystic" philosophy is, of course, susceptible of interpretation in far more rational terms than there employed, and in such a way that individuality is seen to be preserved through the union—not merged and lost.

identical. Yet as constantly we verbally decline to admit that this can be so. We say there is a chasm between the mental and physical which is constantly being crossed, but how, it is assumed, no one can say. It is the exclusive following of the naturalistic method of inquiry that is mainly responsible for this logical blind alley in which we thus are left. Some of the most progressive and most liberal representatives of natural science methods, when confronted by this puzzle, have vainly sought to harmonize the needs of physical science and of common sense. Thus the eminent chemist, Ostwald,[6] has suggested that by an elaborate process of refining it may be possible to frame a conception of "energies"* that should bring consciousness within the circle of the physical forces that we now recognize. In fact, however, the difficulty is only pushed back, not overcome. Similarly, when the physiologist, Loeb, undertakes, as he practically does, to explain consciousness and "tropism" alike by a reference of both to the action of chemical and physical laws, he commits, as I believe, the same error. The Russian neurologist Bechterew, of St. Petersburg, adopts a view essentially like that of Ostwald and open to the same objection. Both strive to bring consciousness within the scope of the laws of physics, whereas, in fact, it is in terms of consciousness that all our knowledge must eventually be expressed. Consciousness is our ultimate reality.

Every reflecting person acknowledges the force of Bishop Berkeley's reasoning, and should admit the logical justice of his primary conclusion. Our conscious states are the only reality that we can know, and the type of the only species of reality that we need assume. Because we think this consciousness is something that we cannot see, or hear, or touch, we would fain infer its non-reality. But, in fact, this is exactly what we actually do. We do define and describe the contacts between our consciousness and the other like realities around us in terms of sight and hearing, but in doing this we create the artificial, the logical chasm which it seems so hard to cross.

The "reality" of consciousness easily interlocks with all the realities of existence, and of this interplay the phenomena of the universe are made. But there is no union possible between consciousness and the descriptions which we give of it in visual terms, just as there is no union between the trees and birds of a landscape and their pictures upon canvas or the description of them in print.

It is, furthermore, a hypothesis which every form of reasoning justifies that the "reality" which we call our consciousness is not the only reality in the world. Equally real are, presumably, the conscious states of others, and, for purposes of convenience at least, we may assume some species of world-consciousness. Given, then, if only by hypothesis, these different "realities," which we can understand, if it is true, in fact, that they resemble, in their nature, our own consciousness, have we not the basis for a world whose phenomena are of one order, and do not, in their sequences, offend our reason by claiming to belong to two incompatible orders?

If this view can be accepted, it is not in the brain alone that we should seek the physical signs of activity of the human mind.

Two people talk together, and each seeks by every means to reach the conscious meaning of the other. How is this accomplished? First of all, through the medium of words—which the Greek poets justly designated as "winged," as if to recognize the fact that they seem to belong alike and equally to the realm of thought and to the physical world. Speech under these circumstances seems to be a part of the minds both of the speaker and the hearer, and in it these two minds seem directly to mingle; and yet this phenomenon of speech, in so far as it belongs to what we call the physical world, may be spoken of as shared also by the world-consciousness to which we have alluded.

Besides the information which we derive from speech concerning our neighbour's conscious thought, we can draw on the great treasury of his facial expressions and the movements of his limbs, and so on through various other of the phenomena which our consciousness shares with his. If we could conceive ourselves as looking at his brain, or at our own, while this interchange of thought was going on, with the power of seeing what was going on within it, we should get some additional definitions of his consciousness in terms of our own sight and touch. But this information, valuable as it would be for certain purposes, would really give us only a one-sided view by which to supplement the rest. In acquiring this information through the scrutiny of the brain in action we might fairly speak of the consciousness and the brain as identical, were it not that here also we ought to admit that our right to describe the brain in physical terms carries with it the obligation to assume that the brain, as a portion of the material world, belongs, in so far, to what I have called the world-consciousness.

Not only does it seem to me, for the reasons which I have thus briefly stated, that psychiatrists cannot properly comprehend or adequately help their patients without some adequate knowledge of the methods and the data of philosophy, but the time is a fitting one for such a step. The teachings of anatomy have been found the interpretation of an ever-widening study of physiology; many of the generalizations of Dr. Hughlings Jackson, even if requiring modification in detail, have more meaning at the present day than when they first were uttered; the old conceptions of chemistry and physics are giving place to new. It is a time when our very respect for the splendid achievements of the physical sciences should make us ready to admit that these sciences are human devices, and deal, after all, with abstractions, not with the realities of conscious life. This task is one for the philosopher, for the man of common sense, and for the psychiatrist.

References.

[1] *Die Metaphysik in die Psychiatrie*, 1905. [2] Cf. Bergson, *Matière et Mémoire* (Theory of Perception). [3] Cf. Bergson, loc. cit. [4] *Studies of Good and Evil.* [5] Cf. Nettleship, Letters and Essays, Eucharist. [6] *Die Philosophie der Natur.*

* In an earlier paper, on The Value of the Physiological Principle in the Study of Neurology, I expressed my adherence to this view, but I have since then recognized that it is untenable.

EXPERIMENTAL CEREBRO-SPINAL MENINGITIS AND ITS SERUM TREATMENT.

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[Abstract.]

The epidemic of cerebro-spinal meningitis which prevailed in Greater New York during the winter of 1904 and the spring of 1905, embraced about 4,000 cases, of which 3,429 died.* The mortality was, therefore, 73.5 per cent. As in most of the severe epidemics, young persons—children in particular—were the chief sufferers; and while a small number of persons among the well-to-do were attacked, the disease, with these few exceptions, existed among the crowded and relatively insanitary population occupying tenements in the congested districts of the city. The investigations, of which the following report is a brief account, were made by me while acting as a member of the Commission appointed by the Department of Health to co-operate with it in the study of the epidemic which was caused by *Diplococcus intracellularis* of Weichselbaum.

Diplococcus intracellularis possesses biological characters which permit of its identification with a high degree of certainty. The cultural appearances on the usual media, temperatures of development, action on sugars, and brief viability under ordinary conditions, all tend to distinguish the *intracellularis* among the wide group of non-Gram-staining diplococci. The brief vitality of many cultures of the diplococcus is a point of high differential value. Many strains do not survive beyond two or three days, unless transplanted. Indeed, these transplantations do not succeed, frequently, unless a considerable quantity of the growth is carried into the fresh tubes, an indication that only a fraction of the cocci have survived. Vigorous fresh cultures of sixteen to twenty-four hours' growth stain sharply and uniformly. On the second day the cocci show irregularities in staining and size unless they have been carefully preserved from evaporation and fluctuations of temperature. Cultures three days old show marked degenerations, and these increase rapidly in the next days. Even with very careful preservation, the great majority of the cocci do not survive beyond five or six days. A few cocci, in carefully-preserved cultures, may survive for many months. At the beginning of the degeneration, swollen, deeply-stained cocci occur among

* In 1904, 1,403 deaths from meningitis occurred; in 1905, 2,755 cases of meningitis were reported, of which 2,026 died. The percentage mortality is deduced from the figures for 1905.

the smaller but usual forms which take the stain less intensely than fresh cultures. As degeneration progresses, loss of nuclear staining and disintegration occur, until, finally, staining power is entirely lost, and a formless detritus remains.

If a vigorous culture of the diplococcus is suspended in 0.9 per cent. salt solution and the suspension is kept at 37° C., the cocci undergo the changes described slowly. If, however, to such a suspension a few drops of toluol be added and mixed with the fluid by agitation, the process of disintegration is greatly accelerated. Such a specimen, kept at 37° C., may be wholly disintegrated at the expiration of twenty-four hours. The conclusion which has been drawn from this observation is that *Diplococcus intracellularis* possesses a highly potent autolytic ferment, which tends, once the cocci are dead, quickly to cause disintegration of the micro-organisms. This autolytic ferment is destroyed by heating the cocci to 65° C. for thirty minutes.

The great susceptibility of *Diplococcus intracellularis* to changes in osmotic conditions, and possibly to variations of temperature and accumulations of products of growth, separates it from a large number of non Gram diplococci of various origins. I secured a considerable number of non-Gram diplococci from human beings and animals, with which I compared *Diplococcus intracellularis*. Some of the former came from the nasal cavity of persons—children chiefly—suffering from epidemic meningitis. Others came from healthy persons who had not been exposed to cases of meningitis. A few cultures of so-called *Micrococcus catarrhalis* were sent me by other bacteriologists. My assistant, Mr. Ward, secured from a number of domestic pets—cats and dogs—gathered from houses in which cases of meningitis had occurred non-Gram-staining diplococci. An autopsy on a child dead of meningitis in the sixth week of the disease yielded from the bronchial lymph glands, lungs, antrum, and medulla a coccus belonging to this group. Nearly all of these cultures differed from the examples of *Diplococcus intracellularis* in not tending to undergo the degeneration described for that organism. Associated with this difference were the further differences that they grew from the first upon media to which the blood serum in some form had not been added, and were viable over a long period of time—often for many weeks. They were, further, either devoid of power to ferment sugars or they possessed wider and more vigorous fermentative powers than the *intracellularis*.

A disintegrated suspension of the cocci, centrifugalized at high speed to remove solid particles, is toxic. The toxic constituents pass through unglazed porcelain. The toxic effects of this fluid can best be studied on young guinea-pigs which respond with death and characteristic lesions. The autolysate acts as does Bail's "aggressins" and Wassermann and Citron's bacterial extracts in promoting infection in mice and guinea-pigs with *Diplococcus intracellularis*.

As tested upon laboratory animals *Diplococcus intracellularis* is a micro-organism of low and variable pathogenic action. Small guinea-pigs, below 250 grams in weight, are most useful for studying the effects of the cultures.

Not all cultures of *Diplococcus intracellularis*, even in the first generations, are pathogenic for small guinea-pigs, unless, indeed, very large quantities be injected. Speaking generally, freshly isolated cultures are pathogenic, while cultures grown for a period on artificial media are not. Occasionally a strain of the coccus will retain its pathogenicity for many months, to lose it in the end. No increase in power was produced in an active culture by passing it through ten successive generations in a medium consisting of bouillon and serum of a goat immunized with the diplococcus.

The reaction to inoculation, in the guinea-pig, varies with the degree of pathogenicity of the coccus. The suspension for inoculation should be prepared from freshly-grown cultures (preferably under twenty-four hours old) and used soon after preparation. It is unsafe to carry suspensions over until the next day, unless a new determination of their strength be made. Partial deterioration quickly sets in.

Active cultures, injected into the peritoneal cavity, will often cause death in eight to ten hours. In the case of any large series of experiments irregularities occur. It has happened that a pig of a series died in four hours and another survived thirty-six hours. But these irregularities can be ruled out by making duplicate inoculations.

The most important lesions exist in the peritoneal cavity. Excluding the two extremes (death in four hours or after several days) the appearances are quite uniform. Where the coccus causes death in eight to fourteen hours the results are likely to be regular. Greater irregularities occur when death is delayed until twenty-four hours after inoculation. Fluid exudates, and more or less of fibrin and pus on the liver and omentum, are the rule. Haemorrhages tend to appear in the mesentery and diaphragm, the adrenals are red, and clear fluid is present in the pleural cavities. The gross distinctions in animals succumbing in twelve and twenty-four hours are not great, and yet the microscopical examination shows the differences to be considerable.

In cases of rapid death from virulent cocci the exudate shows many, often prodigious, numbers of cocci. The appearances are indicative not only of preservation of the injected cocci, but are suggestive of their multiplication. In the case of the less virulent cocci the exudate contains fewer cocci, and may be devoid of them. Even when death occurs in the short period mentioned the number of cocci is likely to be small. In other words, virulence and resistance to destruction go hand in hand. A relatively non-virulent strain of the coccus may still be toxic, but has little or no capacity to resist disintegration, and none for multiplication in the peritoneum. Hence two extreme appearances are met with between which transitions occur.

I have made some experiments on the dissolving power of the peritoneal exudate from guinea-pigs upon the diplococcus. The fluid exudate is removed and freed from cells by centrifugalization. It possesses high digestive powers for the cocci. Mixed with fresh cultures many of the cocci are killed and disintegrated, and the cocci, in a mixture which has been toluolized, undergoes dissolution much more rapidly. Enormous numbers of the cocci can be digested by the exudate, which is increased in toxicity thereby. The exudate heated to 58° C. for thirty minutes has the same digestive action as before on fresh cultures, and on cultures heated to 65° C.

A measure of the reaction of the guinea-pig is found in the emigration of leucocytes. In cases of rapid death with preservation of the cocci, the emigration is slight or absent, while in cases of slower death and disappearance of cocci, the emigration is considerable. Transitions between these extreme conditions exist. When emigration is at all marked phagocytosis has taken place. Phagocytosis is a function of emigration but is not a measure of it. The disappearance of cocci from the peritoneal cavity does not depend wholly upon phagocytosis. I believe that the cocci may be removed without the intervention of phagocytosis, probably through self-digestion and digestive action of the inflammatory exudate.

At the beginning of this investigation I had the plan of using monkeys to reproduce the lesions and symptoms of cerebro-spinal meningitis. Some of my earliest experiments were made with these animals. The cultures were introduced into the spinal canal by means of lumbar puncture. My first experiments were successful in producing acute lepto-meningitis from which the animal died. The symptoms were depression, coma, convulsions, nystagmus, opisthotonos, etc.

The variable virulence of the cocci affected, at the beginning, the successful experiments with monkeys as it did with guinea-pigs. By choosing suitable strains of the coccus I succeeded in inducing severe and fatal lepto-meningitis in a large number of monkeys. Through the use of lumbar puncture, in the course of the disease, I studied the manner of reaction of the animal and the fate of the micro-organisms. The lower monkeys could be infected without great difficulty with *Diplococcus intracellularis* and made to reproduce the pathological conditions present in man in epidemic meningitis. The experiments proved that the cocci when introduced into a low level of the spinal canal would distribute themselves in a few hours through the meninges and excite inflammation, the exudation of which accumulated chiefly in the spinal meninges and the meninges of the base of the brain. The

uniformity with which the chief exudate was found at the base of the brain and the rarity of its appearance in considerable amounts over the convexity led me to doubt the validity of the reasoning which ascribed this localization in man to the entrance into the meninges of the infective agent directly through the nasal mucous membrane. This tendency to localization at the base of the brain in monkeys is especially interesting in view of the fact that it is usually only a short time before death that they lie down on the side. Encephalitis is another pathological condition of common occurrence, and abscess formation in the nervous tissue has also been met with.

In contrast to the ease with which the acute inflammation can be excited, is the difficulty which attends the production in the monkey of a subacute form of meningitis. The intraspinal injections produce either an acutely fatal meningitis or an acute disease from which recovery takes place rapidly. The animals which survive the injections are usually well of the disease in three or four days. Monkeys which survive beyond the second day after inoculation tend rather to recover than to die. By following in the inoculated animals the changes in the spinal canal by means of lumbar puncture the progress of the infection can be traced and the final result often predicted. There is much similarity between the changes occurring in the spinal canal of monkeys and those in the peritoneum of guinea-pigs. The most striking difference is the greater degree of phagocytosis that takes place in the spinal canal, although the cocci are not all removed in this manner, and the same difference in the resistance to destruction, depending upon virulence, is found in both animals. Disappearance of the cocci early from the spinal canal is a good sign; early emigration of leucocytes is also a good sign; and early emigration, active phagocytosis, and dissolution of the cocci, both within and without leucocytes, are favourable signs. As in guinea-pigs death may take place in spite of the entire disappearance of cocci from the peritoneum, so the monkey may succumb although cocci cannot be found either in smears or obtained in cultures from the inflamed membranes.

By following in this way the results of inoculation I have been able to keep a small number of monkeys in a state of subinfection with the diplococcus for several weeks. The period of successive inoculation was determined by the puncture and the physical condition of the monkey. A state of resistance tended to develop, which necessitated the use of increasing doses of cultures to produce visible effects, and in the end the run-down animal succumbed—usually from an inoculation with an overdose of the cocci. In these animals the exudates were thicker and firmer and covered the base and convex surface of the brain. The ventricles were widely dilated and contained turbid exudate.

Although the pathological effects produced in these monkeys are comparable to those occurring in the natural disease in man, there is no real correspondence in the relative susceptibility of the two species to *Diplococcus intracellularis*. The quantity of active culture required to cause marked symptoms, or bring about death from meningitis in monkeys is, under the most favourable conditions, large, and I am disposed to believe that in many of the experiments no multiplication whatever took place. In the case of abscess formation there doubtless is multiplication of the cocci in these foci.

The inflammation of the meninges extends in monkeys into the membranes covering the olfactory lobes, and, as I have made out by means of smear preparations, into the ethmoid cells and probably into the nose. The nasal mucous membrane is found, in some instances, to be inflamed and beset with small haemorrhages. Smear preparations from the nose have shown me polymorphonuclear leucocytes carrying diplococci which presented the form, size, staining qualities and degenerations of the cocci occurring in the same cases in the cerebral and spinal meninges. Although I have thus far failed to isolate the cocci in cultures from the nose, I mean to repeat the attempt because of the bearing which the passage of the diplococci from the brain cavity to the nose would have upon the epidemiology of meningitis.

Notwithstanding theoretical discouragements, an investigation of the influence of antiserums upon the experimental infection with the diplococcus was undertaken. I assumed that the main pathological phenomena played themselves out in the localities in which the cocci were injected; and hence as the serums could be brought directly into relation with the foci of infection possibly a benign effect might be exerted. I was influenced, too, by the consideration that in man the chief organic lesions of epidemic meningitis are present in the meninges, and appear only later, possibly, in the brain and cord; and in many cases the bacterial development is not very great. The invasion of the blood and tissues with the diplococci in man and experimental animals is not a marked feature of the disease. There was another consideration to be taken into account, for if the experimental disease in the monkey could be arrested by the injection of antiserums into the spinal canal, and it proved that no ill effects followed the injections, the advisability of making similar injections might be thought of in human beings suffering from cerebro-spinal meningitis.

The experiments with antiserums were more satisfactory than I had expected they would be. The antiserums were prepared in rabbits, goats, and large monkeys. The rabbits were injected with single strains of the coccus, and with exudate from the guinea-pig; the goat was injected with many different strains of the coccus, and the monkeys were injected with the cocci and with exudates. The rabbits proved poor animals for the work, as they developed hypersensibility to the cocci, from which many died. The goat was more satisfactory and yielded, eventually, a serum of marked agglutinating power. The early experiments showed that rabbit serum was quite poisonous for small guinea-pigs when injected together with cocci into the peritoneum in quantities above 0.5 c.cm.: the serums from the immunized rabbits possessed, however, undoubted protective power.

The serums were injected in guinea-pigs (1) twenty-four hours before the cocci were injected; (2) simultaneously with the injection of cocci; and (3) some hours after the injection of the cocci. The pigs receiving the serums survived; the control pigs died. The injections of serum were made subcutaneously and intraperitoneally; the suspensions of cocci were always injected into the peritoneum. Hence by preceding the injection of cocci with a prophylactic dose of serum, or by injecting serum and cocci simultaneously the lives of the guinea-pigs can be saved. The regularly effective dose of the serum of the goat was 0.1 c.cm., and this dose given intraperitoneally two and four hours after injection was also effective in some instances as a therapeutic agent.

The use of goat serum upon the monkey by intraspinal injection failed in the one instance in which I used it to exert a beneficial effect, and the lesions found, at autopsy, in this monkey were very severe, and of a character which was taken to indicate that goat serum cannot be injected with impunity into the spinal canal of the monkey.

The antiserums made in large monkeys (*Macacu nemestrinus*) were used on a series of five smaller monkeys (*Macacus rhesus*), which had been injected with fatal quantities of the diplococcus. The control monkeys of this series all died within twenty-four hours. For the serum tests 1 c.cm. of the monkey serums were employed, except in one animal which was treated by a subcutaneous injection of 5 c.cm. of serum. The first monkey received the serum and suspension of cocci simultaneously into the spinal canal; it remained well. Lumbar punctures showed a moderate reaction and rapid disappearance of the cocci, partly by phagocytosis but chiefly, apparently, by lysis within the spinal canal. The second monkey was given the serum two hours after the injection of cocci; it became very sick, but recovered. The exudation was much more marked in this animal, and the cocci were only in part taken up by leucocytes. The third monkey was injected with serum five hours after the cocci were given. The disease, which had already manifested itself, was arrested. The next day the animal appeared well. Lumbar puncture gave a fluid showing many leucocytes with an occasional intracellular coccus, and many extracellular cocci. These three monkeys were treated successfully with the serum by intraspinal injection. The next monkey was treated successfully by a subcutaneous injection of 5 c.cm. of the serum. The injection of cocci was made at 8.45 a.m., and of serum at 11 a.m. The animal, which was already depressed before the injection of serum,

remained in about the same condition for a few hours and then gradually improved. The next day it appeared to be well.

This series of experiments was, up to this point, successful. But I must record a failure under conditions which, in view of the foregoing tests, was wholly unexpected. The monkey was injected with the serum intraspinally three hours after having received the emulsion of cocci. The already sick monkey grew progressively worse and died nineteen hours after infection. The autopsy showed an unusually heavy exudate in the membranes of the cord, and smear preparations showed the exudate to be purulent and the cocci all to be within leucocytes. The cocci were recovered in cultures.

The experiments described briefly in this report have, possibly, some value in aiding us to understand better the manner in which *Diplococcus intracellularis* brings about its peculiar effects in human beings. They would also seem to show that the diplococcus is a micro-organism possessing highly-interesting and quite peculiar biological properties. The special experiments dealing with the prophylactic and therapeutic properties of antiserums are sufficiently encouraging to be more widely and closely studied.

In how far the results obtained with guinea-pigs and monkeys can be applied to the prevention and treatment of cerebro-spinal meningitis in man it is not safe to predict. Should further experiments show that subcutaneous and intravenous injections of the antiserums can modify favourably the experimental disease in monkeys, the case would be not without hope. Even the injection of immune serums into the spinal canal in man might be thought of as an eventual mode of combating the disease, once the serum is proven to be really effective in monkeys and the injection of an alien serum to be without prejudicial effect. Experimental dealing with these important questions are in progress.

Dr. J. LINDSAY STEVEN (Glasgow) said that as a physician coming from Glasgow, where recently there had been an outbreak of epidemic cerebro-spinal meningitis, he had listened with peculiar pleasure to Dr. Flexner's excellent paper. He could not pretend to follow Dr. Flexner into his bacteriological observations, but he was interested specially in the promise which the paper gave of a successful method of treating this dreadful disease. Osler had spoken of epidemic cerebro-spinal disease as the "American disease," and so far as the British Isles were concerned, this designation might be accepted as accurate up till recently. So far as he (Dr. J. Lindsay Steven) knew there had been no epidemic meningitis since 1884, when Dr. Frew of Kilmarnock reported a slight outbreak in Galston, Scotland. In 1868, in an important Irish report on the disease, it was stated that so few cases had occurred that Great Britain might be left out of account in the statistics of the disease. It was no longer so. Since March last there had been an outbreak in Glasgow, which had led the municipality to place the disease upon the list of notifiable diseases. When Dr. J. Lindsay Steven left Glasgow at the beginning of August there had been in all between seventy and eighty cases with a high death-rate, and the discovery of Weichselbaum's diplococcus in many of them after lumbar puncture. He himself had seen several of the cases both in his wards at the Glasgow Royal Infirmary and in consultation in private. From his limited experience he now fully realized the terrible nature of the disease, and hoped that Dr. Flexner would soon be able to announce successful results in man.

Dr. MACFARLANE (Albany, N.Y.) had the advantage last summer of working with Professor Westenhöfer of Berlin, officially delegated to investigate all cases of cerebro-spinal meningitis by the German Government. He believed that the entrance of the diplococcus was through the pharynx. The upper portion of the spinal canal was so constricted that it was impossible to inject large quantities of fluid into the spinal canal which would gain entrance into the cerebral cavity. This might explain the experimental cases where the infection was limited to the spinal membranes, and the failures in cases affecting more especially the cerebral membranes. The best treatment apparently yet proposed was that of Lenhartz of Hamburg, who advocated daily spinal puncture with removal of fluid thus removing as quickly as possible the causes of toxicity.

PARACENTESIS OF THE PERICARDIUM.

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THE pericardium is comparatively rarely the seat of operative exploration and treatment. This fact contrasts strongly with the conditions in the neighbouring cavities of the pleurae and peritoneum, and seems strange in view of the difficult diagnosis and the fatal tendency in many cases of pericardial disease. The relative neglect depends chiefly upon three things: (1) The fact that pericarditis is often not suspected, and therefore is not searched for by measures that must include some operation. (2) A fear, not unfounded, of the danger of pericardial operations. (3) An incomplete knowledge of the value of a bolder course.

In view of these conditions it is worth while, from time to time, to get new bearings and to learn what the prospects are. I shall not speak in detail of the diagnosis of pericarditis. It is often easy, especially in "dry" cases, and in cases observed from the beginning in diseases prone to that complication.

There are many useful signs, but no infallible ones. Careful application of all will sometimes serve to make a diagnosis when less complete examination would utterly fail, but in some cases an exact diagnosis is impossible without direct exploration of the pericardial cavity.

Even if the general diagnosis of pericarditis be possible, the exact character of the process cannot be made out except by direct examination of the contents of the pericardial sac. Not alone the precise etiologic variety, but the distinction of serous, purulent, and haemorrhagic forms, is as impossible now by clinical signs as it was in the days of Laennec. There may be abundant pus, with virulent bacteria, without fever or other obvious symptom, as I have seen myself.

Since not only the requirements of exact diagnosis, but also those of treatment, demand that these peculiarities be taken into account, the need of pericardial exploration receives additional emphasis.

"Where there is pus, evacuate it," is an old and well-tried maxim; but in the pericardium even non-purulent exudates are recognized as serious sources of danger by setting up chronic irritation, adding to the denseness of adhesions, and, either from the latter or from indurative processes in the heart muscle, leading to heart failure.

On the other hand, operative removal of pericardial exudates is not always necessary. In many cases absorption occurs, either spontaneously or under treatment directed to that end. So we see it in rheumatic cases, treated with icebags over the heart, with or without salicylates. Still more vigorous measures to promote absorption have their advocates, though even the most popular of these—blisters—often fail. Disappointment in the use of such methods depends not less upon differences in mode of application than upon peculiarities of the disease, but time should not be lost in trials of blisters or other absorbents unless a distinct effect is quickly shown.

As indications for operative intervention on the pericardium, we have:—

1. The need of a definite general diagnosis.
2. Diagnosis of the character and, if possible, cause of the exudate.
3. Removal of the exudate.

It is hardly necessary to mention the vital indication for immediate operation, caused by very large exudates, such as marked cyanosis and dyspnoea, and a weak, frequent, and irregular pulse; nor the removal of non-inflammatory fluids.

These indications are generally admitted to be valid: the difficulties begin with the details of the selection of place and method of operation. The place to operate depends upon the position of the exudate and the heart with relation to neighbouring structures. The blood vessels in the chest wall—the internal mammary being the most important—the liver and diaphragm demand consideration in various manipulations, but do not require special discussion now. The position of the heart and the relation of the sac to the pleurae are more important.

It has long been supposed, following Skoda, that the heart sinks back in pericardial exudates, leaving the front and sides covered with liquid. We owe to Schaposchnikoff, confirmed by Rehn, A. Fraenkel, Brentano, Doebert, and several others, the knowledge that this is not always so,

But that the heart, even without adhesions and in large exudates—1½ litres in a case observed by Heiking—swims or floats on the liquid, close to the chest wall. This explains why the friction rub and the apex beat can be perceived after the exudate forms. This position is effected chiefly by the elasticity of the great vessels. Schaposchnikoff thought that inflammation of the walls of the vessels would permit the heart to sink, but this does not seem certain, since the straightening out of the vessels in systole would not be hindered by inflammatory softening. After death the conditions are different, and the heart may sink down, if there is room for it, but enlargement of the heart is certainly not essential to the anterior position in life. Adhesions can, of course, also fix the heart in contact with the chest wall. Another old view—that the heart occupies a position in the upper part of the pericardium, and turned towards the left—has been borne out by several recent observers.

The anterior position of the heart explains why puncture in the middle of the pericardium, the site often chosen because it is most certain to be uncovered by the pleura, has often been wholly negative, or has led to puncture of the heart itself. The latter accident has been rather frequently noted, and with very different results. Often there is no bad effect. In fact, in some cases the effect seems rather beneficial than otherwise, but although formal aspiration has been suggested as a remedy for dilatation of the right ventricle it has few advocates. In several reported cases accidental puncture of the heart has been fatal within a few minutes or longer—up to one or two hours. The difference in time doubtless depends upon the cause of death. In sudden cases nervous inhibition seems necessary to assume. In slower cases death is probably due to haemorrhage from a tear of the right auricle, with "tamponnade" of the heart. This is not likely to happen from injury to a ventricle.

The lateral parts of the pericardium are not always free from danger in operating. Usually, as most observers have remarked, the pericardium spreads out and becomes broader at the base than the heart. This not only promises safety in operating, but also forms the basis of two important diagnostic features—Rotch's sign, or the alteration of the cardio-hepatic angle (Ebstein) on the right side; and the extension of the sac, and with it the line of dullness, beyond the apex on the left. Unfortunately, both these areas are likely to be sources of diagnostic error and of operative difficulty, if not danger. The cardio-hepatic angle may resemble that described by Rotch, without exudate, in fat subjects, or in case of dilatation of the heart (Ewart). Or there may be exudate without alteration of the percussion lines at that point. On the left side adhesions may prevent the pericardium from extending beyond the apex beat, or the latter may be impossible to see or feel, or to locate by auscultation.

Another source of difficulty lies in the fact that the pleura on both sides may be adherent along the normal lines, in front of the distended pericardium. Empyema may follow accidental wounding of the pleura, an event that is less serious than might appear at first, because pleurisy and empyema so frequently follow pericarditis—in twenty-one out of twenty-eight cases observed by Still, according to Peters and Rudolf.

Roentgen-ray examinations, with the skiagraph or fluoroscope, often give important information in pericarditis with exudate, but owing to the limitations of the method they do not furnish infallible directions for operations.

In short, operations on the pericardium are never free from danger. They are justified by the possibility of more serious danger that exists in many cases.

The methods of operating, both diagnostic and therapeutic, vary considerably, partly on account of the exigencies of cases, partly on account of the judgement and experience of the operator. Since pericarditis may require an emergency operation, and because cases almost always come under the observation of the physician or general practitioner in the first place, it is desirable that the technical details be clearly understood. If physicians would look for pericarditis in acute diseases in which it is likely to occur as constantly as they now do for pleurisy, and if they acted upon the suspicion as is now being done for empyema, a small but important set of cases would make better recoveries than they now do, and some very difficult cases of heart disease would be prevented.

The simplest method of operating is puncture by an aspirator—the successor of the trocar recommended by Senac. Notwithstanding the imperfections and limitations of aspiration, it has been of undoubted value in pericarditis. It can often be used when a better operation would not be permitted. It suffices in many cases for diagnosis, and in some for treatment. If it were used more frequently, and its revelations made more familiar to physicians and patients, more thorough operations would be easier to secure, as has happened in regard to peritonitis and pleurisy.

Aspiration of the pericardium can be done with any suitable instrument. The hypodermic needle is often recommended, but it is usually too short and of too fine calibre to be useful. The needle should be not less than 1 millimetre in outside diameter and 5 centimetres long, and attached to an efficient syringe, such as the glass antitoxin syringe. The flat trocar and cannula of Curschmann is doubtless useful. The operation must be done with aseptic precautions. The needle should be introduced slowly, as in all exploratory aspirations, so as to enable the operator to feel the tissues. In that way the "uncomfortable" (Bäumler) feeling of the heart scratching against the needle can sometimes be recognized in time to prevent tearing the muscle or a coronary vein, or penetrating one of the cavities. The sites for aspiration must be selected with careful reference to the results of physical examination, assisted if possible by *x* rays. Blind puncture should never be practised about the pericardium. Many successful punctures have been made in the upper part of the area, in the third and fourth interspaces on either side. I do not like them on account of the inferior drainage, and on account of the greater risk, on the right side especially, of injuring the auricle. A lower point on the right, as the fifth interspace, in a case with Rotch's sign well marked, is safer. If the apex-beat can be distinguished inside the line of dullness and especially if dullness is increased below the apex, the fifth or sixth interspace on the left, inside the line of dullness, is to be recommended. As Romberg points out, the danger of infecting the pleura is not to be considered. In fact, the pleura can be aspirated on withdrawing the cannula from the pericardium.

But the best place for aspirating in cases of extensive exudates, and perhaps even in small ones, is the lower part of the pericardium, entered from the left costo-xiphoid space. This point is preferred by Shattuck, Fitz and Osler and it is becoming more and more favoured for radical operations, as I shall point out again.

If puncture is negative in the location first chosen it should be repeated with a change of position of the patient, and if still negative, in another place. In many cases puncture is negative in one place, positive in another; or negative with the patient recumbent, positive when sitting up or leaning forward.

When found the fluid should be removed as completely as possible. Sometimes removal of a small quantity for examination has seemed to stimulate absorption, as we see in pleurisy, but as there, too, complete or repeated aspiration is often necessary. A case of Doebert's is instructive in connexion with some of the statements just made. At intervals of four days he obtained 130, 1,050, and 200 c.cm. of fluid; still later, 500. In another case he withdrew 12 c.cm. on the right side; later, 400 c.cm. on the left side; none on the right while lying down, but 300 c.cm. on raising the patient.

The immediate effect of successful paracentesis of the pericardium is often very striking, especially in cases with marked pressure symptoms. The curative value is much less, as the fluid is likely to recur. The finding of considerable exudates soon after tapping has been explained by some as an agonal or *post-mortem* phenomenon, but this is not probable. On the contrary, there is a growing conviction of the imperfection of such operations. Partly from this, partly from the danger of working in the dark in so important a locality, more radical operations on the pericardium are being more frequently advocated. They are not, however, sufficiently common to be appreciated as they deserve.

The bistoury and lancet were sometimes used to puncture the pericardium, but the operation came in time to be an incision, and even this became modified.

Removal of part of the bony or cartilaginous thorax was proposed early, but until recently most operations were made through the interspaces. These had certain inconveniences, such as limited room; and certain dangers, such as injuries of vessels; and as these became more clearly understood, more formal operations—that is, resections of costal cartilages—were practised. The fifth interspace near the sternum was most frequently selected for incision; or, if resections were to be made, the fourth or fifth left costal cartilages, or both of these, were removed, or recommended for removal. Removal of part of the sternum as a preliminary to opening the pericardium is probably an old idea. It is said that Riolan the Younger suggested trepanning that bone, but there are some contradictions in the references, and I have not been able to see the original. It is possible Riolan suggested two routes—trepanning the sternum, and incision in the costo-xiphoid space. If so, he was just about in the position now occupied by many surgeons. Very recently J. H. Bacon has advised trephining the sternum opposite the fifth interspace as anatomically most correct and giving easy access to the pericardium with the best drainage.

This method, however, shares with many others the disadvantage of making the opening, at least in many cases, over the heart, and that organ is likely to prevent drainage by pushing up against the opening. A much more promising site is that proposed by Larrey, as the result of clinical observation in a case of stab wound of the epigastrium penetrating the pericardium. It was recommended by J. B. Roberts as long ago as 1880, but actual interest was first given to the matter by Ogle and Allingham twenty years later. Since then Allingham has reported additional operations, and has been followed by Pendlebury, Mintz, Jaboulay, Bérard, and Péhu. Roberts feared that the situation would not give sufficient room—an objection that has been made by more recent writers, but clearly shown to be erroneous by Allingham. If the costo-xiphoid space is narrow—as it often is in adults but rarely in children—it is easy to resect part of the seventh cartilage, as in Mintz's operation, or if desired the sixth. Porter objects to the epigastric operation on account of the risk of wounding the pleura or diaphragm. But none of the positions above the sixth rib are free from the danger of meeting the pleura, for it sometimes extends under the sternum. In any position care must be taken, and the operator must realize the anatomic and technical details.

The latter I shall not try to include, but I shall mention only some of the points that will occur to any one who finds it necessary to recommend or undertake the operation.

Any of the pericardial operations may be done under local anaesthesia, with the usual limitations of that method. I do not find any one who confirms a point mentioned by Dr. Percy Kidd—that the pericardium is very sensitive. It was not in a case I had opened in the fifth interspace, but, as there was great thickening, that may have altered the sensibility of the membrane, which could be anaesthetized if necessary.

The cavity should be cleared of all exudates by the finger, swab, or probe. Drainage tubes sometimes cause irritation and irregular action of the heart; but in many cases they have been kept in as long as needed, usually only a few days, without any inconvenience. The operations do not last long—fifteen or twenty minutes in many cases; the wounds heal quickly, and the late results are generally favourable in proportion to the timeliness of the intervention.

It is still almost as true as when Trousseau remarked to Dr. Clifford Allbutt that "operations on the pericardium have never had a fair chance," but with increasing care in diagnosis and greater confidence in results such operations should increase in number and importance.

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Dr. J. BRADFORD M'CONNELL (Montreal) said Dr. Dock had omitted to mention Ewart's sign as a means of diagnosis in pericardial effusions. In a case under his care he found Ewart's and Omach's symptoms present, and he was able by the phonendoscope to outline the heart from the surrounding fluid, vibration ceasing when the fluid was reached. In his case paracentesis was performed and 60 oz. of pus removed. The pus reaccumulated, and through an incision ten days after in the fifth space near the left side of the sternum 66 oz. was removed, the patient subsequently making a good recovery.

The PRESIDENT pointed out that the frequent tendency to the formation of lymph in the anterior part of the pericardial cavity, and of fluid in the posterior part, created a formidable difficulty in the successful employment of the aspirator for the relief of pericardial effusion. Experience had proved that, in the hands of a good surgeon, incision with removal of a costal cartilage and free drainage after careful exploration, was a safer and more satisfactory method than aspiration.

THE INFLUENCE OF BODILY POSTURE UPON THE POSITION OF THE HEART.

BY

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THE objects of this communication are, first, to emphasize the fact that the heart tends to alter its position in the chest under the influence of different postures of the body; secondly, to give the evidence in favour of this assertion; and, thirdly, to urge that, for the sake of accuracy, patients be more frequently examined in both the vertical and the recumbent postures, and in records of the conditions found it be stated in what posture the patient was when the examination was made.

The evidence of the fact that the heart tends to shift its position is obtained from clinical examination, examination of cadavera, and, finally, Roentgen-ray work.

Clinically the matter may be dealt with by taking up the ordinary routine of examination—that is, inspection, palpation, percussion, and auscultation. On examining an individual by inspection and palpation it is evident that the so-called apex beat is better marked when he is vertical or leaning forward than when he is recumbent. Again, if he lie on his left side, the apex beat will travel outwards, and may even reach the anterior axillary line. When he lies on the right side it will tend, though to a less degree, to move to the right. The apex not only becomes more evident in the vertical posture, but also tends to be lower. Zeehuisen,[1] in a careful review of this point, found that in young persons (18 to 26 years) the apex frequently descended a whole intercostal space in the standing posture. On percussion, evidence of the heart's mobility is at once forthcoming. The lateral movements of the organ were very thoroughly studied by Determann[2] a few years ago. He observed the alteration in the position of the apex beat and the boundaries of the relative dullness in the lateral postures. But the variations in the dullness in the vertical and back positions he scarcely touched upon, and when he did so says that, "In the standing position I did not examine many, as the changes in the heart dullness in the standing and lying positions are very slight." Yet P. M. Latham wrote early in last century that "it is well to be aware that the erect posture is more favourable than the recumbent for making the heart dullness more perceptible to the ear. . . . In the vertical posture the intervening loose cellular texture is not strong enough to keep the heart close to the sternum and ribs, and prevent its receding by the force of gravity."[10] Wm. Gordon[3] drew attention to the point last year. He described changes in the relative dullness, pointing out that this becomes lowered in the vertical posture, and also becomes wider. We have tried this very often, and thoroughly confirm what Dr. Gordon says, but think that the effect upon the absolute or superficial dullness is even more marked, and believe, in any case, that the absolute dullness is more to be relied upon than the relative. Vierordt taught this,[6] and it is interesting to note that de la Camp,[17] at the Leipzig Congress for Internal Medicine in 1904, states that "the most valuable, because the most exact, methods of determining

the size of the heart are the percussion of the absolute heart dullness and orthodiagraphy."

Figs. 1, 2, 3, and 4 show the variation in the size and shape of the absolute dullness in the different postures, the first two being from adults and the others from children.

Careful comparison shows that the dullness tends to



Fig. 1.
Absolute dullness { - - - - - - - while vertical. ——— while recumbent.

become lowered and widened out more in adults than in children, but even in adults of the same age great variation exists, and one can only say in a general way that the effect is as stated. Several writers, for example, Cherchewsky [4] and A. Hoffmann [5] have pointed out that in certain diseases, such as chlorosis, neurasthenia, and hypo

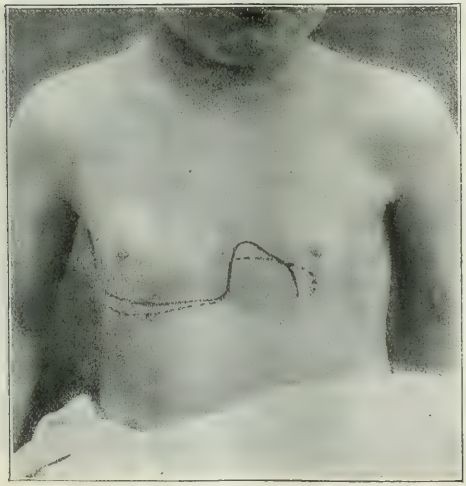


Fig. 2.
Absolute dullness { - - - - - - - while vertical. ——— while recumbent.

chondriasis, the mobility of the heart is increased. The effect of adiposity seems to be uncertain; Determann [2] found no difference in an individual before and after he had lost much weight, but Rumpf [16] found a great degree of mobility of the heart in four cases, three of whom had been subjected to a very active treatment for the reduction of adiposity, and one who had rapidly emaciated from some other cause. This reference I owe to Ch. Thorel, who in the last *Ergebnisse der allgemeinen Pathologie und pathologischen Anatomie des Menschen und der Tiere* [6] gives a very useful summary of the literature of the subject to date.

In several cases of adults with emphysematous chests



Fig. 3.
Absolute dullness { - - - - - - - while vertical. ——— while recumbent.

recently examined, the absolute dullness was quite absent in the recumbent posture, but present to the extent of a square inch or more in the vertical.

On auscultation, it is evident that the heart sounds are very often much better heard in the vertical posture than when the patient is recumbent. Yet opinions differ here,



Fig. 4.
Absolute dullness { - - - - - - - while vertical. ——— while recumbent.

and Luschka [2] stated that there was no decided difference in the condition of the sounds when the patient was examined in the lying or the sitting posture. On the other hand, Vierordt wrote [6] that "We often hear much plainer in the upright position, and hence in doubtful cases auscultation in this position is not to be neglected." And

recently J. A. Lindsay[11] says that "the normal sounds are louder and more distinct in the erect than in the recumbent posture."

In persons who already have loud heart sounds, as in children, the effect of posture is not marked if at all apparent, but in stout individuals, especially emphysematous ones, it may happen that the heart can only be heard when the patient is vertical and especially when leaning forward.

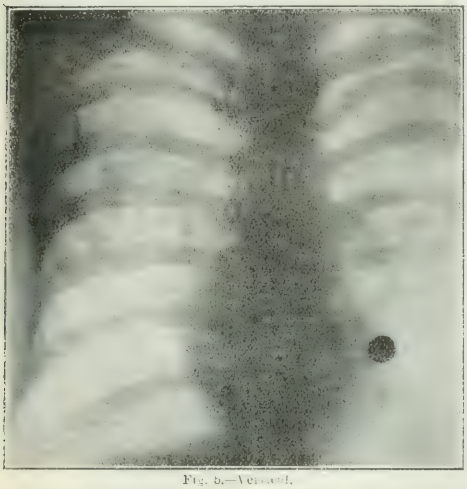


Fig. 6.—Vertical.

This happened in two cases recently examined. Both were old soldiers, and in the recumbent positions the heart sounds were quite inaudible, and yet when the patients sat up they could be easily heard, and in one case a mitral murmur became, for the first time, audible, which was of great value in clearing up the diagnosis of the cause of oedema present.

William Gordon pointed out that the character of the sounds altered in the different postures, in the upright



Fig. 8.—Lying on left side.

position the first one becoming sharper and shorter (lup instead of lubb), and the second duller, but he omitted to state what seems of even greater importance—that both sounds are louder and more easily heard in the upright position. Most writers also fail to note that point.

It should be made clear here that, in spite of the fact that the heart sounds are more audible in the erect than in the recumbent posture, still, for reasons that are entirely different, and which one of us discussed elsewhere,[7] murmurs of systolic time are usually more clearly heard and often only exist in the recumbent posture.

Thus, the clinical evidence, namely, that the apex beat is more apparent, that the cardiac dullness is wider and lower, and that the cardiac sounds are more audible when the patient is in the vertical posture, would suggest that in this position the heart is closer to the anterior chest wall than when the individual is recumbent.

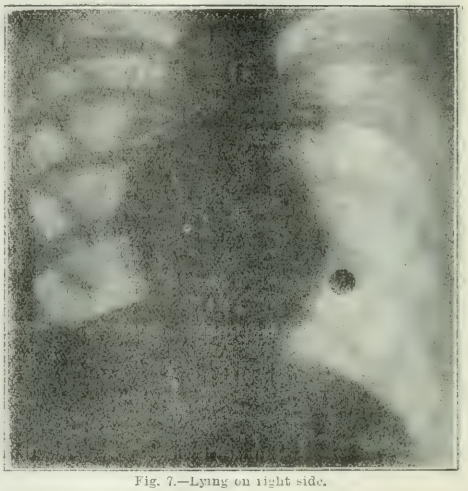


Fig. 7.—Lying on right side.

Anatomically, many workers have attempted to study the effect of the different postures upon the heart. Thus Arthur Keith[12] hardened human cadavera in different postures and then by frozen sections demonstrated how the heart had altered its position in the chest. J. B. Haycraft[13] did the same thing in animals. C. J. Bond over twenty years ago, taking advantage of the fact that the diaphragm in dogs is translucent, studied the mobility



Fig. 9.—Recumbent.

of the heart in different postures by watching through it. He also confirmed his results in an ingenious way by passing an air tampon down the œsophagus until it rested against the back of the heart. It was connected with a writing tambour. By tracings got in this way from animals and from himself, he showed that the heart tended to press backwards in the supine as compared to the vertical position.

But by far the most telling proof that the heart tends

to gravitate in different postures of the body is found in the results of Roentgen-ray work, and Dr. Cummings has produced some which are very convincing. They are here reproduced.

That the heart moved markedly to the right and the left in the lateral postures scarcely needed any further proof, but Figs. 5, 6, and 7 show the fact well, the first giving the position of the heart with the body vertical, the second with it on the left side, and the third with it on the right side. Figs. 8 and 9 show the effects of the vertical and recumbent postures of the body. They are, of course, lateral views, Fig. 8 being the body recumbent and Fig. 9 with it vertical. These last views are, in Dr. Cummings's opinion, unique, and certainly we have not come across any like them in literature. They were taken with every precaution to avoid technical errors. In the one taken in the supine position it will be seen that a line of light exists between the sternum and the heart, which is absent in the other two. On the other hand, the space between the heart and the spine is much wider in the vertical and prone examples than in the recumbent.

The views were all taken from the same individual, a healthy, rather thin young man.

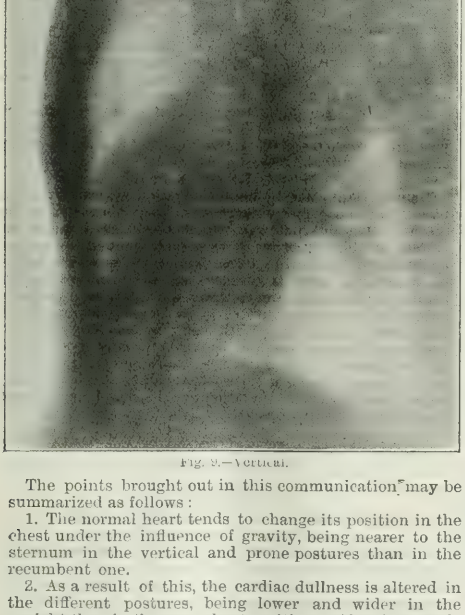


Fig. 9.—Vertical.

The points brought out in this communication may be summarized as follows:

1. The normal heart tends to change its position in the chest under the influence of gravity, being nearer to the sternum in the vertical and prone postures than in the recumbent one.

2. As a result of this, the cardiac dullness is altered in the different postures, being lower and wider in the upright than in the recumbent positions. Also the sounds of the heart tend to become louder in the vertical than in the recumbent position.

3. The degree of mobility of the heart is very different in different individuals, in some being scarcely apparent while in others it is marked. Adults show it more than children, and it is especially evident in certain diseases—for example, chlorosis, neurasthenia, and hypochondriasis.

4. In all cases where accuracy is necessary the heart should be examined both in the vertical and the recumbent postures.

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GASTRIC NEURASTHENIA.

By Hugh A. MacCallum, M.D., M.R.C.P.Lond.,

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An American physician whom I met in London some six years ago, in speaking of the English nation, said: "They have a better nervous system, better teeth, and better stomachs than our people. Some way or other these three things are decaying among us." The observation was of interest, inasmuch as Beard described early decay of teeth as a symptom of neurasthenia, also pointing out that their irregularity is a stigma of the disease.

What impressed me most on visiting British hospitals, general and special, was the infrequency of patients suffering from functional ailments when compared with those seen in Canadian hospitals. The comparative rarity of functional stomach cases is a striking feature.

Where neurosis is rare, functional stomach diseases are uncommon. The influence of the brain on digestion has not escaped the observation of physicians in any age. The effects of the emotions—such as love, anger, worry, and anxiety—on the appetite are found described in the literature of the ancients. The first work on domestic medicine written in the English tongue, which work is doubtless over 150 years old, has the following pertinent observation on flatulencies:

> All nervous patients without exception are afflicted with wind in the stomach and bowells which arises chiefly from the want of tone or vigor in these organs.

Coming down to the modern authorities, Weir Mitchell, over twenty-five years ago, pointed out the almost invariable disappearance of the dyspeptic symptoms following upon the rest treatment given to the neurotic. Abrams, in his work on *Neurasthenia* (p. 64, "The Blues"), says:

> The more I observe dyspeptics the more certain is my conviction that nervousness is responsible for the majority of cases. We are a nation of dyspeptics owing to our ceaseless and intense living habits.

The physiological observations of Pawlow have established the fact of the important influence of the brain on digestive functions. Those who do hard physical toil have both appetite and digestion—the arranged affair of the central nervous system to repair the wear and tear of the day. Examine the gastric nerve control from any and every pathological and physiological and clinical standpoint, and one is driven to the conviction that not even the cardio-vascular system is more under control of the central nervous system than the stomach.

When Beard introduced the term "neurasthenia," he did so to cover a whole family of functional nervous affections, because "they have a common pathology, a common prognosis, a common history, and a common treatment" (p. 3). He says in his preface that the nomenclature is the least important part of the subject, and the one that is least insisted upon. Nevertheless, nowadays, there are some neurologists who strenuously insist upon an abridgement of the meaning of the term. Beard himself recognized that every organ and every function in the body might be the object of assault in this disease. "It is not strange, therefore," he goes on to say, "that there should be a neurasthenic voice just as there is a neurasthenic eye and a neurasthenic stomach." One authority on gastric disorders had laid down this law, that "only those patients complaining of dyspepsia, whose motility and stomach contents are normal, should be classed as gastric neurasthenics." In later editions of his work he gave the term very much wider significance.

I hold that there is no known functional disease of the stomach that cannot have its cause and continuity in neurasthenia. It may show itself as "food stagnation"—hyperacidly, normal acidly, inacidly, deficient or voracious appetite. There is not only a neurasthenic stomach, but

a neurasthenic liver, neurasthenic kidneys, bowels, and doubtless a neurasthenic pancreas. Beard gives four indications for the recognition of the gastric form of this disease. The first indication includes those who feel worse when the stomach is empty and relieved by eating—namely, hyperacidly. The second indication was a "capricious" form, "coming and going without traceable cause." The third indication was when it was associated with an otherwise neurasthenic subject. The fourth form, those who were relieved by sedatives as bromides.

Neurasthenia may persist for years without any other evidence of the disease than dyspepsia. Indeed, upon the appearance of other symptoms the gastric ones may disappear. The evidence of general debility may be so slight as to escape observation, for all dyspeptics who tire easily should be suspected at once as neurasthenics. Mental irritability or insomnia associated with stomach trouble should excite suspicion. The whole body should be examined for evidences of malnutrition. Cutaneous flushing upon slight pressure is a fairly reliable stigma of the disease. Of the local signs of gastric neurasthenia, one cannot help think that visceroptosis is by far the most important. I look upon ptosis of any of the abdominal viscera as a stigma of neurasthenia, and quite as pathognomonic of it as a sharp haemoptysis is of pulmonary tuberculosis. The size and position is therefore of more importance in arriving at the diagnosis of this disease than a chemical examination of the stomach contents. Gastric neurasthenia is frequently associated with intestinal disturbance in the way of pain, constipation, diarrhoea, or flatulency. Gastric neurasthenia is mistaken for chronic gastric catarrh, ulcer, Bright's disease, cancer, and tuberculosis. There are cases that confound the keenest clinician. Here it has been my habit to rely on the results of treatment to clear up the diagnosis.

I shall not burden you with the details of the treatment, but I trust to be pardoned for emphasizing a few points. The first, that patients are managed with difficulty by their regular medical attendant. This is more particularly the case if there has been considerable time wasted before arriving at a diagnosis. Secondly, these patients should be told at the outset that eighteen months to two years are recognized for recovery from the neurasthenic state, and the dyspeptic symptoms may persist for part or all of that time. Thirdly, while rest, feeding, open air, massage, cold bathing, and exercise are required, the most essential element in the neurasthenic treatment is the training of the body and mind. The latter may be helped by the reading of certain books. It has become my practice to reach certain patients by way of the printed page after failing with oral instruction. Often a passage from the Bible is more impressive than volumes of secular literature. Lastly, in bodily training one should insist upon holding the thorax well up and out, and that the abdominal and spinal muscles should be invigorated. Doubtless the abdominal cavity and its contents are like a joint—namely, so long as the joint is healthy the muscles are normal in size and function which pass over it, and vice versa. When one sees the vast proportion of the human body made up of muscles, he can be excused for believing that muscles serve other important functions than motion and generation of heat. Lymph from muscular exercise is in some very important way used by the nervous system, and without this exercise there is no true nervous vigour.

Dr. J. J. PUTNAM expressed his general agreement with the reader's views, especially as to the importance of mental and bodily training, and spoke of his observations on the frequency of the cardio-respiratory murmur, particularly in men, as one of the marks of neurasthenia.

Professor MCPHEDRAN thought the author of the paper magnified the importance of visceroptosis. If the organ discharged its functions it did not matter much what position it occupied. The most important function of the stomach was that its motive power was sufficient to discharge the contents into the bowel within due time.

Dr. WALSH (New York City) suggested that the dyspeptic symptoms mentioned were not limited to the stomach, hence the word "gastric" should be enlarged. "Neurasthenia" was only a Greek translation of "nervous weakness." The long name gave patients the chance to hug the delusion that they had some special disease, while what they had was a general condition needing less strenuousness of life, more sleep, and less thought about symptoms, with outdoor life to ameliorate it.

Dr. WILLIAM CALWELL (Physician, Royal Victoria Hospital, Belfast) said he did not think visceroptosis could be so lightly dismissed; some years ago an examination was made of some females from, he thought, the Pacific South Sea Islands, with the result that, of those with the characteristic long, rather slight figure, many were found to have palpable right kidney; they were neither neurasthenic nor had they worn corsets. The factor of figure in visceroptosis was not to be neglected. As regards an etiological factor of neurasthenia, especially of gastric neurasthenia, the affection might be primary, or might be secondary to chronic or recurrent ulcer, adhesion, and recurrent catarrh. A young woman with chronic ulcer and adhesions was frequently troubled with recurrent catarrhal gastritis, and from the constant interference with the gratification of the natural appetite for food, from the dread of a return of pain, and from the inevitable consequent general asthenia, it was a matter of time till a large majority of these became neurasthenics, mostly of a gastric type. This, one might name, the "gastric triad," analogous to the "pulmonary triad" of bronchitis, asthma, and emphysema. In the chronic condition, pure examples of any one were rare; mixed forms were common. It was important to recognize this secondary gastric neurasthenia, as it raised the question of operation. If a case was of the primary type, such as described by Dr. MacCallum, with no lesion in the stomach, or but some slight gastroptosis and, perhaps, myasthenic dilatation, operation was probably worse than useless. He had had three cases in which a favourable result did not follow a gastro-jejunostomy. On the other hand, the neurasthenic condition was decidedly improved by operation, where it was due to organic gastric trouble. The solution of the problems presented by individual cases was at times exceedingly difficult.

REPLY.

Dr. MACCALLUM said he did not use the term "visceroptosis" in his paper except as a stigma or sign of the disease. He did not look upon ptosis as a cause, but result, of the disease. It was easy enough to protest against the Hellenized term, but as it covered a family of functional nervous diseases of unknown pathology, common prognosis and treatment, there was nothing gained by a change. But what had the critics to offer in its place? Nothing. With reference to operation on prolapsed organs, he did not think any good came of anatomical replacement. Indeed, he feared the operating table, like a railway accident or other trauma which could cause neurasthenia; he had seen several very clearly due to operation.

THE PRE-INSANE STAGE OF ACUTE MENTAL DISEASE.

By CAMPBELL MEYERS, M.D., M.R.C.S.Eng., L.R.C.P.Lond.,
Neurologist to the Toronto General Hospital.

THE study of organic nervous diseases in the past twenty-five years has been attended by such gratifying results that to-day these diseases can be diagnosed with perhaps greater exactitude than those of any other branch of internal medicine. Strangely enough, when compared with these, the study of functional nervous diseases has been attended with comparatively little progress, a fact which is the more remarkable when we consider the relative curability of these two forms of disease. To Charcôt and his school is probably due the greatest credit for the advances which have been made in this department. The whole of this master's latter years was devoted largely to the study of hysteria, and his teaching has gradually permeated and changed for the better the view of the entire profession, in regard not only to this disease but to all functional disorders of the nervous system.

It is to one of these latter that I would like to direct your attention to-day—namely, the pre-insane stage of acute mental disease.

Before proceeding further I would like to define clearly to what I refer, and I may first say that by the term "mental disease" I refer to such as a whole, not from the period at which insanity has developed, but from the

earliest manifestations of mental change to the termination of the disease either in recovery or death, an entirety of which insanity forms only the advanced stages. The study of the entire disease in this way (which, moreover, is the basis on which we study all other diseases) is, I am convinced, the only means of arriving at a proper comprehension of mental disorders. I have added the prefix "acute" in order to exclude those degenerative processes of the nervous system of which insanity might be described as the last stage.

The study of acute insanity clearly shows that it practically never develops in a day, but that, on the contrary, often weeks and months elapse between the time when any competent observer can notice the deviation from normal mental health and the time when the boundary line of insanity is reached in the onward progress of the disease. This is the stage of the disease to which I wish to refer. Why this usually long period should have been overlooked in the study of mental disease seems difficult to comprehend. It has, however, been due to the wide chasm which has developed between alienation and general medicine. The alienist, on whom our knowledge of mental diseases has rested, sees nothing of these cases, since they have not passed the boundary line and been placed under his care as insane. The general practitioner, on the other hand, from his lack of instruction in functional nervous diseases, has not recognized their serious nature, and has simply classified these cases as "nervous," and while deeply regretting the time when they had to be certified to as insane, has been obliged to content himself as best he might. The study of these cases in the past would be analogous to the study of pulmonary tuberculosis only after the stage of cavity formation was reached. Yet the study of the pre-insane stage of mental disease is of greater importance and of more far-reaching good to mankind even than that of tuberculosis, in that it leads to the prevention of a disease which robs man of all his highest and proudest attainments, and at the same time often leaves him to continue his existence for an indefinite number of years as a pure automaton. The development of a means for the prevention of insanity must therefore commend itself as an even greater boon to mankind than the prevention of tuberculosis.

The importance of this branch of medicine has been forced upon me by a practical experience during the past fifteen years. With a private hospital for the greater portion of this time, which was devoted exclusively to nervous diseases, I had every opportunity to study them. I was thus enabled to observe these cases carefully and to watch the progress of the disease from day to day, either to see in a certain proportion an intensification of symptoms develop, so that the patient became insane and was transferred to an asylum, or in a much larger proportion, I am pleased to say, to see an abatement of the symptoms and a return to health. Hence I was enabled to advocate the prevention of insanity in a paper read before the Canadian Medical Association in 1898, and the conviction that there was a practical means of attaining this end has been steadily strengthened by further experience.

Let us now turn for a moment to consider some of the symptoms of this stage of the disease. Chief among these we find a diminished power for sustained intellectual effort, and the difficulty of concentrating the attention may be so great as to lead to an habitual state of distraction. The patient's ideas do not present themselves as readily or in as rapid succession as in health. His will power and energy are markedly lessened, and he has lost confidence in himself. He is morbidly sensitive, and often feels intensely hurt by fancied neglect of friends. His emotional equilibrium is easily disturbed. The patient becomes introspective, and is constantly on the alert for suspicious symptoms, suffering from nosophobia. Mental depression is another marked symptom in most of these cases, the patient becoming gradually depressed from his inability either to continue his work or to obtain relief from his distress. A distinct loss of the sense of proprieties is often present, and these patients, from their introspection and morbid sensitiveness, will discuss their intimate ailments with non-medical persons in a manner that at times is distinctly repulsive. There is at times, also, a decided lessening of the affection for near relatives, and a patient will say, "I no longer care for my children as I should," etc. The patient often experiences an apparently senseless fear, which, however, combined as it is with weakness, is only natural. These attacks of fear may arise from supposed visceral disturbances, and the terror of approaching death from heart failure, etc., may be overwhelming; or fears may arise which are associated with certain definite ideas, such as the fear of open places, etc., due, probably, to the fact that the faculties are so weakened that ordinary surroundings give no sense of security. Another symptom which is most important, and often one of the earliest, is insomnia, which is frequently accompanied by the most distressing dreams. We find now and then peculiarities in the speech and the handwriting, both being slurred and slovenly, especially in writing letters to friends, when syllables or words may be omitted.

With this short enumeration of a few of the symptoms let us now suppose a gradual intensification of them, and as a result we rapidly reach the boundary line, and the diagnosis of insanity is made. In other words, the onward progress of this same disease has brought us to that stage of it which we term insanity. I well remember a consultation with a prominent alienist in regard to a patient in the pre-insane stage of mental trouble. After a careful examination of the patient, he expressed his diagnosis by saying she was not insane. I replied that I fully agreed with him, but that I was anxious, from a clinical point of view, to learn from what disease, if any, she was suffering. He said she was doubtless suffering from disease, but that she was not insane, and here the diagnosis remained. I mention this instance to show that we have been, I think, too satisfied to stop with the terms "sanity" or "insanity" without going further and considering the *clinical* side of the disease.

We have been too inclined in the past to consider that, having made such a diagnosis, we had done our duty, and all that remained for us to do was to hand the case over to an alienist for treatment in an asylum. We have been too inclined to consider only the apparent condition of the patient, without studying the features of the disease which produced it. Our energies have been largely devoted to the discussion as to sanity and insanity, which from a clinical point of view has submerged the actual disease in the discussion of its stages. In this way the terms "sanity" and "insanity" have led to much harm. I believe, as I have advocated in a previous paper, that clinically we should consider no boundary line, and that this term should be reserved solely for its medico-legal usefulness. We do not distinguish by a separate title, in the disease of any other organ, a later from an earlier stage; then why do so clinically in an affection of the brain? Had phthisis been studied only after the stage of cavity formation in the lungs, where would our knowledge of tuberculosis have been to-day? Why apply the term "insanity" to an advanced condition of disease only, and leave the earlier stages of this same disease without a name or with some designation entirely different? Rather, let us study the symptoms and treatment of acute mental disease from its earliest symptoms to its final termination as a single clinical entity, which has no dividing line. The disease does not begin when we apply the term "insanity" to it, on the contrary, it is often far advanced, and yet this advanced stage alone has been constantly studied as a clinical entity. When the period arises that a patient is described as insane, it simply means that his case has progressed beyond a certain point, and that the original disease has become intensified.

A proper designation for this clinical entity would be most useful, although very difficult to discover. The chaos which has reigned in the nosology of insanity is only equalled by that in the so-called functional nervous diseases. A term which has been proposed, and which evidently aims at embracing the entire question, is "psycho-encephalon asthenia." Another designation is "psychasthenia," but I am personally more inclined to favour a designation indicating at least the anatomical basis of the disease, such as "cerebrasthenia."

Having as the result of practical experience become convinced that insanity could be prevented in a large proportion of cases, when treatment was commenced sufficiently early, I laid this conclusion before the medical societies of Toronto and of this province, urging that wards for acute mental and nervous diseases be established in all general hospitals, primarily for the prevention of insanity among the poor. At the last meeting of

the Ontario Medical Association a committee was formed to lay the matter before the Government. This latter received the deputation most kindly, and promised the subject favourable consideration. I then approached Mr. Flavelle, the Chairman of the Hospital Board of Trustees, who was good enough to call at once a meeting of the Board to consider the proposition of establishing in the Toronto General Hospital some wards for this purpose. After considering the question, the Board at once offered the use of a building which had been used as the residence of the former Medical Superintendent, provided the Government would grant sufficient money to make the necessary alterations. To this the Hon. Mr. Hanna readily assented, and as a result the wards, the first in Canada, were formally opened on June 14th last, and a modest beginning was made. Owing to the construction of the building and the limited accommodation it was found impossible to treat insanity, and hence the work was limited to the treatment of acute functional nervous diseases and especially the pre-insane stage of acute mental disease, since it was to demonstrate the feasibility of the prevention of insanity in the poor that Government aid was granted. These wards contain twelve beds, six for male and six for female patients. These are so divided that there are two separate rooms for isolation, and one larger room containing four beds for each sex. While these wards have been in operation too short a time to offer a positive demonstration of their value from a clinical standpoint, the result so far obtained has, in view of the new nature of the work and the class of cases recommended for admission, been entirely satisfactory. Apart, however, altogether from the percentage of patients who may be cured in such wards, I am convinced that their formation is urgently demanded in every general hospital where teaching is done, in order to instruct the medical student, the future general practitioner, under whose care these cases must inevitably first come. I believe that clinical instruction is the crux of the whole question, and also that the prevention of insanity will proceed *pari passu* with the instruction in these diseases given to the medical student. Hence I have advocated the treatment of acute mental and nervous diseases through their entire course in general hospitals, where the student could see in the daily round of his work the various stages of the disease, and where he would learn to regard these diseases of the brain with the same, if not with greater interest than he now regards diseases of the lungs. That the treatment of the acute insanities in general hospitals is feasible is being daily demonstrated, hence any doubts on this score are rapidly being removed. Moreover, its treatment in general hospitals would gradually bridge the chasm which has unfortunately developed between alienation and general medicine. To the nursing staff such an addition would be most valuable, since at present no amount of training in a general hospital fits a nurse to take charge of these cases which are so frequent in private practice.

Finally I may add that, in assisting the prevention of insanity in the poor, neurology will contribute its quota towards the discharge of its duty to the State—a quota which, when fully developed, will be equalled by none among the many benefits mankind has received from medicine.

DR. J. J. PUTNAM expressed hearty sympathy with the reader's view, especially as to the treatment of such patients in general hospitals and the need of more hospital facilities. He thought the most general and least compromising name the best.

(To be continued.)

LYING-IN HOSPITALS IN TURKEY.—The Ottoman Government has decided to establish lying-in hospitals in all the most important provincial towns of the empire. Probably some of them will form special departments of existing general hospitals. The need for such institutions is very urgent, as at present the bulk of the female population of Turkey, especially those of the poorer classes, can look for help in their hour of travail for no more skilful ministrations than those of ignorant midwives. A previous edict of the Government forbidding the practice of midwifery by unqualified persons has proved a dead-letter, as Turkish women prefer to seek counsel and aid from persons of their own sex rather than from medical men. There would seem to be an opening for female doctors in Turkey.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF DERMATITIS DUE TO PRIMULA OBCONICA.

A LADY of 64 came under my care on June 13th complaining of a rash and severe itching on the dorsum of the left hand and of the fingers of both hands, and on the left side of the face. On June 10th she first noticed a little itching on the dorsum of the distal ends of the fingers of the left hand. Little notice was taken of it for a day or two, although the condition was spreading. Three days later, June 13th, a few spots appeared on the back of the left hand, and there was some redness and irritation on the chin and left side of the nose. A few spots appeared also on the dorsum of the fingers of the right hand. The rash was accompanied by severe itching, burning, and smarting.

The patient had been a subject of chronic articular rheumatism for years, but, apart from this, her general health was good, and during the present attack she had felt no constitutional disturbance.

On examination, the skin of the face presented a swollen and acutely-congested appearance; that of the skin was thickened, red, rough, and tender, giving the appearance of a diffuse erythematous blush. The side of the nose presented a raw surface, which discharged profusely a purulent exudate. The left cheek was congested, swollen, hard, and tender like the chin. The left ear was acutely inflamed, and on the dorsum of the pinna there was the same purulent exudate. The dorsum of the fingers of both hands presented a dry papular rash. The dorsum of the left hand showed a number of very tender, red, papular elevations. There was constipation: the tongue was slightly coated; there was no fever, and the pulse was not accelerated.

A diagnosis of acute eczema was made, though not without some doubt. The combined lesions of hands and face presented characters of acute dermatitis, acute eczema of three or four varieties, and of erythema multiforme. One could get no history of any probably direct cause of dermatitis.

A mask was ordered for the face, and zinc and boracic ointment applied. Strips of lint, smeared with the ointment, were wrapped around each of the fingers and over the dorsum of the hand. An alkaline mixture was prescribed, and daily morning doses of mist. alb. were ordered.

On the following day, June 14th, the whole condition was worse. The lesions had spread to the whole face, the eyelids being oedematous, and the subjective symptoms very distressing. The fingers now presented at their distal ends a number of extremely tender bullae containing a thin brownish exudate. The patient was extremely uncomfortable, complaining of burning and smarting in all the affected parts. The mask and ointment were discontinued immediately and lead lotion applied, which, in a few hours, led to a striking amelioration in all the symptoms excepting the papular condition of the fingers. The ointment was again applied to the latter, and in ten minutes there was a marked exacerbation. The lotion was again used continuously, and improvement followed rapidly up to a certain stage. The papules of the fingers were very resistant.

The patient was kept in bed on milk diet for five days, the lead lotion being continued, an alkaline mixture taken internally three times daily, together with morning doses of mist. alb.

By June 22nd—twelve days from the onset—the patient's face was practically well, and the fingers of the left hand only showed a few traces of the bullae that had existed at the tips. It seemed now that the condition would clear up perfectly.

Late in the afternoon of June 22nd she again began to complain of irritation of the left ear and dorsum of the left hand and fingers. She applied some cold cream to the parts that night. When seen the following morning she was found to be suffering from all the original symptoms at their worst. Again lead lotion was ordered, which now seemed to exaggerate the symptoms. She had eaten a fairly hearty dinner on the previous evening, and had indulged in some raw onions. The bowels had been

constipated for two days, so the relapse was ascribed to this indiscretion in diet, still maintaining one's original doubtful diagnosis.

On the evening of June 23rd the patient, who had been pondering deeply all day upon her misfortune, volunteered the information that she had trimmed a primrose plant in her dining-room window on the previous day a few hours before the onset of relapse. Further inquiry elicited the interesting fact that she had trimmed this plant once before—on June 8th—two days before she had noticed the first irritation beginning on her fingers. The plant had been in the house about a month previous to that, but she had not touched it until this date. The case was now clear. The condition was undoubtedly one of acute dermatitis caused by the contact of the primrose. The right hand was at no time as much involved as the left, for while the former held a long pair of scissors, the latter was deeply inserted among the leaves. The left side of the face, too, had been much more involved than the right, this no doubt being due to the patient's habit of sitting with the left cheek supported on the dorsum of the left hand.

In continuing treatment of the relapse a weak solution of soda bicarb. (gr. v to the oz.) to the affected parts was ordered, and the beneficial effect was almost instantaneous. The smarting and burning stopped, the weeping areas dried up, and the inflammation gradually subsided, although the congestion and thickening of the skin disappeared rather more slowly than after the first attack.

The case is a good example of one of the many pitfalls that abound in the field of the general practitioner who is called upon to treat skin diseases, and it demonstrates how extremely irritating some applications, otherwise soothing, may be to certain lesions. It is interesting to note the shorter period of onset that characterized the relapse. It is needless to say that the primrose is no longer a window flower in the patient's household.

Winnipeg, Canada. EGERTON L. POPE, M.D., M.R.C.S.

PULMONARY ABSCESS CAUSED BY A TOOTH.

THE case of Dr. Davies of Swansea in the BRITISH MEDICAL JOURNAL of September 22nd is of interest to me, inasmuch as I had a similar one about two years ago, although not attended with such serious consequences.

A domestic servant in the employ of a phthisical patient of mine had several teeth drawn under nitrous oxide at a dentist's. A few days after she complained of pain in the chest and had a constant dry irritating cough. I was sent for, but on examination could find no physical signs warranting the cough; indeed, the condition of the chest was quite normal. The cough continued for ten days longer, when she coughed up a molar stump, and the previous condition immediately ceased. This also, like Dr. Davies's case, was a very lucky chance.

Derby. JAMES W. KING, M.B., B.S.

FIBRINOUS BRONCHITIS.

THE patient, a medical man, aged 74, had a feverish attack on May 12th, with temperature 103° F. in the evening. Beyond a few vague pains there were no other symptoms, and the diagnosis arrived at was influenza. The temperature became normal on the 14th. On May 17th he awoke in the morning feeling very ill, and had a bout of coughing, the result of which was the expectoration of a complete fibrinous cast of several branching bronchi. The cast was quite 3 in. long and of the thickness of a lead pencil at the base, with a slit-like lumen. His temperature morning and evening was 100° F.

From this date until June 9th he expectorated great quantities of ribbon-like strips of fibrin, which gradually became less copious and ceased at the latter date, when the sputum became muco-purulent and loaded with *Diplococci pneumoniae*, while the temperature, which had fallen to normal, rose again to 101° F. Now, for the first time, positive signs were found in the chest in the shape of about 6 in. of dullness at the left base with deficient breath sounds and superficial crepitations.

However, redux crepitations soon appeared, and by June 16th the patient was practically well.

The patient gave a history of phthisis when a young man.

London, N. A. F. SHOYER.

REPORTS

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ROYAL INFIRMARY, NEWCASTLE-ON-TYNE.

A CASE OF PULSATING EMPYEMA.

(By COLIN MCDOWALL, M.B., B.S.)

THE patient was a labourer, aged 18, previously healthy, and with a good family history. He was admitted March 31st, 1906, in a very collapsed condition, into the Royal Infirmary, Newcastle-upon-Tyne, under Dr. Limont, to whom I am indebted for permission to record the case, suffering from pain in the chest and dyspnoea. The illness was of one week's duration, and had commenced with pain of a sharp piercing character in the left chest, aggravated on deep inspiration and on coughing.

He was much distressed on admission, and the pulse, which was scarcely perceptible, had risen to a rate of 128. Respirations 62, temperature 103° F. His body was emaciated, neglected, and he had scabies. There were marked signs of consolidation at the base of the left lung, together with a pleuritic rub, which was so loud as to be heard without the aid of any stethoscope, and the vibrations were readily evident on palpation. He progressed favourably, considering his very feeble state on admission, till the fourth day of treatment—that is the twelfth day of the disease—when he had a rigor and complained of great pain in his right side. His temperature, which had fallen to 100.4° F. that morning, was 103.2° F. at night; respirations, 46; pulse, 100. There were now signs of consolidation in the right lung extending from below upwards to the level of the seventh rib. Here again the pleuritic rub was very loud, and, though not audible without the stethoscope, it was very evident to the tactile sensation.

The temperature for the next two days fell to 100.2° F., and his respirations varied between 32 and 44. The pulse fluctuated between 92 and 118, but on the following day—that is, the fifteenth day of illness—his temperature ran up again to 102° F. It fell to normal the next morning, but was again elevated at night. He was sleeping badly, sweating freely, and looking unhealthy and exhausted. On careful examination there was seen to the right of the sternum an area with its centre midway between the nipple and the tip of the sternum, extending for about 2 in. outwards and shelving off upwards at the level of the fifth rib. It was elevated slightly from the surrounding tissues and pulsated synchronously with the heart beat. It was dull on percussion and the voice was not conducted through it.

At the same time behind, at the base of the left lung, signs of fluid were evident, extending to the level of the seventh rib. On exploring with a needle, pus was found on the left side, but a negative result followed the insertion of the needle in the right side behind and laterally. The pulsating area was not explored. Under eucaine the left side was opened, and some 4 oz. of pus let out. The pulsation on the right side, however, continuing, it was thought advisable to explore the pulsating area, which was done, with the result that pus was found, about half a pint of green purulent material being evacuated. Tubes were inserted at both sides. The following morning his temperature was normal. Respirations still rapid, 40; pulse 90.

A week after the operation, though he felt much better in himself, his temperature was still irregular and breathing rapid. Examination showed signs of fluid at the base of the right lung, limited above by the eighth rib. Under A.C.E. a rib was resected, and half a pint of pus evacuated.

Four days later pulsation returned on the right side, after which some ounces of pus were let out, following which the temperature fell to normal. His breathing was still rapid, as was his pulse. He appeared to be doing well, and, though rather weak, he was in excellent spirits. The temperature again became unsteady, ranging from subnormal to 99.4°, though it once reached 100.2° F., and he had another rigor (that is, three weeks after the operation). A rib at the right side was again resected, and

some ounces of pus were let out, after which he made a good recovery, and was discharged on June 15th.

REMARKS.—What, perhaps, strikes one on looking over the case is: First, regarding the respirations that, while the patient was ill of pneumonia, the morning respiration rate was always greater than the evening. Thus, if his respirations in the morning were 50, his evening respirations might be 40. The disparity was not always so marked, and on the average the difference was 4. When empyema complicated his case the ratio was reversed, so that the morning respirations would be 30 and the evening 36. The pulse-rate did not exhibit any significant difference. Secondly, regarding the pulsating empyema, it was uncommon in that it was right-sided. I am inclined also to think that each empyema was of itself circumscribed and separate, and each again formed at different periods, which suggestion is borne out by the fact of our failing to get a positive result in the exploration for pus on the right side behind at first. The temperature gave valuable information, as each turn in the events was foreshadowed by a rise in the temperature.

REPORTS OF SOCIETIES.

CLINICAL SOCIETY OF LONDON.

H. H. CLUTTON, M.A., M.C., F.R.C.S., President, in the Chair.

Friday, October 12th, 1906.

ADOLESCENT OR LATE RICKETS.

THE PRESIDENT, after a few words of welcome, delivered an address on the subject of adolescent or late rickets. His first case was that of a man aged 21 when he came under observation nearly three years ago. His history showed that at the age of 12 he had had to wear supports for genu valgum; that osteotomy was done for both knees at the age of 16, and that the present curvature of lower limbs began to appear at the age of 19. The most striking part of his deformity was a double curvature at the knees producing a general resemblance to genu recurvatum. The patient was shown. The skiagraphs, which were thrown upon the screen by the epidiascope, proved that the changes in the bones were of very long duration, and had apparently commenced at the epiphysial lines. In the shafts of the long bones adjoining the epiphyses there was much less cortex than normal, and a large and translucent medulla. It was at this part that the curvature, which was the cause of the deformity, had taken place. The diagnosis of rickets was established by the changes that were seen at the wrists. The lower epiphyses of the radius and ulna were shown by means of *x* rays to be in the active stage of rickets. Almost all the long bones showed changes at the ends of the diaphyses adjoining the epiphyses. Two other cases were shown and illustrated by means of skiagraphs. They were of the ages of 12 and 14. The disease had arisen quite recently, and was limited to the epiphyses. The contrast between the younger patients and the older one, whose disease had been in existence for many years, was the most interesting feature of the demonstration. Two *post-mortem* specimens were also shown, one from the Royal College of Surgeons, and one from the Hospital for Sick Children. A large number of excellent skiagraphs taken by Dr. Greg at St. Thomas's Hospital were also shown.

Drs. G. A. SUTHERLAND, J. A. COUTTS, and R. HUTCHISON also exhibited similar cases.

Mr. MUIRHEAD LITTLE described the specimen from the Museum of the Royal College of Surgeons. The patient was a girl, aged 17, who had marked rachitic changes in the femur and wrist; the bone had been quite soft when osteotomy was performed.

Mr. R. C. LUCAS, in moving a vote of thanks to the President for his excellent address, which was unanimously adopted, said that the President had revived a discussion which he (the speaker) had started in 1883 by a paper upon 5 cases in the *Lancet*, in which he had tried to establish a connexion between the rickets in adolescents and Moxon's intermittent albuminuria. He did not suggest that albuminuria was associated with all cases of late rickets; but he thought the albuminuria might favour the production of rickets and yet not be its sole cause. Possibly the emotional state of puberty favoured the occurrence both of albuminuria and rickets.

Mr. R. GODLEE asked the President if there was any recorded case of the rickets of adolescence occurring in a well-grown boy or girl. If not, this fact was suggestive of its being a continuance of a disease that had started in earlier life.

The PRESIDENT, in reply, said that he had no knowledge of any such case.

Dr. PARKES WEBER suggested that cases of late rickets should be investigated from the point of view of albuminuria. It was interesting, as Wright had shown, that calcium salts cured most cases of cyclic albuminuria, though they had little or no influence on rickets.

Mr. R. C. ELMSLIE, who showed two cases, said that, though the occurrence of rickets at any age from infancy to adolescence was fully proved, its origin after childhood was very doubtful. To prove that a child had never had rickets was extremely difficult. The history was quite untrustworthy. He had, with *x* rays, found rickets to be present in 50 per cent. of consecutive cases of children, whilst in only 1 per cent. of these cases was the existence of the condition known to the mother. Further, at the age of 8, rickets had nearly always disappeared, the only signs that remained were the peculiar shape of the skull (a singularly tall forehead) and the diminutive stature. One of the cases shown that evening was of very puny development. There were two maxima of growth in childhood, namely, from 8 to 11 years (for girls), and from 14 to 17: and these cases of late rickets might show themselves at the times of these maxima. At any rate, as the two features of early rickets (the diminutive stature and peculiarly-shaped forehead) were invariably present in cases of adolescent rickets, he suggested that the condition had started at an earlier period of life.

LIVERPOOL MEDICAL INSTITUTION.

FRANK T. PAUL, F.R.C.S., President, in the Chair.

Thursday, October 11th, 1906.

PRESIDENTIAL ADDRESS ON THE IMPORTANCE OF THE EARLIEST POSSIBLE RECOGNITION OF MALIGNANCY IN TUMOURS.

IN his address on this subject, Mr. PAUL drew special attention to the diagnostic value of the microscope, and said that in connexion with new growths two mistakes were frequently made, either of which was sufficient to bring about a failure in treatment. One was that of waiting in the early and doubtful stages until malignancy was declared; the other was throwing the responsibility of the diagnosis on a pathologist who had never seen the case and had only a shred of tissue on which to base his opinion. If it was intended to ask a pathologist to make the diagnosis, he should also be asked to see the patient. Histology alone was not sufficient in difficult cases; either the clinician should be better trained in histology, or the pathologist should become a clinical pathologist. Most medical men had seen cases of cancer become hopeless whilst waiting under drug treatment until a certain diagnosis could be arrived at and an operation recommended. It was a small matter to snip off a papule or sore from the tongue, or to excise a nodule from the breast, in order that the necessary information might be quickly obtained. In spite of all that had been done by the brilliant band of workers in cancer researches, up to the present early and complete removal had proved the only reliable cure. Recurrence meant incomplete removal, though it was true that in some people the tendency to cancer was so inveterate that the cure of one growth might be followed by the development of another of a different type. Discussing epithelioma of the tongue, the President said that he associated himself with Mr. Butlin in believing that it was curable under favourable conditions. The early diagnosis could only be made with the help of the microscope. The difficulty generally lay in the differential diagnosis of epithelioma, papilloma, simple and tuberculous ulcer. Epithelioma often began in syphilitic tongue, and it was to be feared that many lives were lost owing to the delay caused by the six weeks' specific treatment it was usually thought necessary to prescribe, while the microscope would often reveal in a specific or apparently simple ulcer a small centre of malignant disease. Butlin's radical operation was not too extensive for the smallest epithelioma of the tongue. Solitary tuberculous ulcers of the tongue or lips might occur in apparently healthy sub-

jects, and without microscopical examination be mistaken for epithelioma. Papillomata should be invariably removed, and if found to be undergoing malignant changes an extensive dissection should be performed, although the papillomatous form of cancer, because of its outward growth, was much less malignant than the ulcerous variety. Apparently innocent growths of the mouth were better snipped off and examined, if only to relieve the mind of the patient. Speaking of malignant disease of the maxillary antrum, the speaker said that a reference to his notebooks showed him that twenty or thirty years ago sarcoma was more common than carcinoma; he thought carcinoma was attacking younger people while sarcoma was diminishing in frequency. Microscopic examination of fluid drawn off by the exploring needle, although the fluid might appear to be nothing but blood, occasionally enabled the surgeon to make a diagnosis of malignant disease. The value of the microscope was further shown in the diagnosis of cancer of the caecum from appendicitis. Considerations then followed of the varieties of fibromata, malignant and benign, skin tumours, implantation cysts, and rodent ulcers. The latter disease was a true cancer of the sebaceous glands, was often multiple—two varieties of cancer never flourished at the same time in the same subject—and, contrary to the statement often made, it did infect the lymphatic glands. At its commencement rodent ulcer had to be differentiated from minute cysts and adenomata, from warts, moles, and epitheliomata. Complete removal, when possible, was more valuable than *x*-ray treatment. The speaker then related a case of extensive epithelioma of the perineum which he thought originated in an included remnant of epiblast in the mesial line. Carcinomata often began in imperfectly-removed sebaceous cysts. The old idea that parotid tumours were always innocent was not correct and growths which were at first innocent often became malignant. Salivary carcinoma was as malignant as breast cancer. Malignant diseases of the bladder and of the breast were then discussed, the author's well-known views on the pathology of the latter being restated and the importance of early microscopical examination in doubtful cases of disease of either organ insisted upon. The address was illustrated by 71 lantern slides taken from Mr. Paul's own photomicrographs. One hundred and fifty members and visitors were present and were afterwards entertained to supper by the President.

West London Medico-Chirurgical Society.—The inauguration of the twenty-fifth session of this Society took place on October 5th, when Dr. Leonard Mark, the President, gave a most interesting and absorbing address on Art and Medicine. A large number of members and friends were present, including the President of the Royal College of Surgeons. Dr. Leonard Mark, after thanking the Society for the honour which it had conferred upon him by electing him its President, said that medicine had found a place in art since the earliest dawn of civilization, and medical details required to be represented in painting and sculpture, just as much as details connected with other sciences, or with sport, navigation, and the art of war. He also pointed out that if the old masters were studied, one saw that in some of their work great care was taken to hide details of a morbid nature, or to touch them very lightly. In illustration of this he showed some examples of pictures from British galleries and art museums by lantern slides. One of the most important was Raphael's famous cartoon at the South Kensington Museum, representing St. Peter curing the lame man at the gate of the Temple. Here it was shown how the artist had grouped his subjects so that a shadow from a column was cast over the deformed legs of the cripple. Some facts concerning St. Roch and St. Sebastian in connexion with the plague in the middle ages, and their important place in art, were dwelt upon. Van Dyck's fine picture at Windsor Castle of St. Martin cutting off a portion of his cloak to give to a leper was described, with an account of the leper's appearance. The subject of history came in, and the morbid peculiarities of some of our sovereigns which have been recorded in art were dwelt upon. Edward the Confessor, who was an albino, Richard III the hunchback, Edward VI the boy king who died of consumption, and Mary I, whose appearance in some of her pictures is that occasionally seen in sufferers from ovarian disease. In the part dealing with sculpture and carving a curious ivory statuette of a dwarf with Pott's disease, to be seen at the British Museum, was mentioned. A photograph was shown on the screen of a doctor's signboard of the seventeenth century, now at the Royal College of Surgeons, with some quaint groups of carved figures representing the doctor at his daily work. The subject of death as represented in painting had an important place in the paper. Reference was also made to a few modern pictures, such as "The Death of Chatterton," by Henry Wallis, Millais's "Ophelia" floating in the water, and, last of all, Luke Fildes's "The Doctor"; in this picture morbid details, it was pointed out, are conspicuous by their absence, the whole interest of the picture being expressed in the distress in the face of the father and the mother's attitude of despair, and the look of the doctor, kindly and full of concern.

British Gynaecological Society.—At a meeting held on October 11th, Mr. F. B. Jessett, President, in the chair, Dr. Overy (for Dr. Macnaughton-Jones) exhibited a uterus with a fibroid undergoing *Necrobiosis*. The tumour was accidentally discovered by the patient herself, who only complained of distended abdomen and slight dysuria. The tumour reached the umbilicus and extended to the left side. On operation the portion on the left was found to contain fluid and disintegrated blood, while the wall was so thinned that rupture seemed imminent. The central portion was dense, but nearer the necrobiotic area became oedematous. The patient made a good recovery.—Another necrobiotic fibroid, removed from a single patient aged 40, was shown by Dr. Dauber. There had been acute pain at times for two years, and three weeks ago the patient had had such an attack while stooping over her housework. The temperature was 101°, with symptoms of subacute peritonitis, and a tumour was found extending several inches above the umbilicus. At operation this was found attached to the fundus of the uterus by a twisted pedicle. The uterus contained two or three fibroids, and was removed by supravaginal hysterectomy.—The President exhibited (1) a uterus with a submucous fibroid in the fundus removed by vaginal hysterectomy from a widow aged 49. She had seven children and enjoyed good health until a year ago, when she complained of weakness and debility. Her periods latterly had been irregular and profuse, lasting occasionally for one month. She had never previously had any serious illness. The uterus was explored under anaesthesia, but, owing to the great length of the cavity, digital examination was negative. (2) Specimen of multiple pedunculated fibroids undergoing *Calcareous degeneration* removed from a married woman aged 51, admitted to hospital complaining of pain in the left side radiating down the left leg, with a feeling of contraction in the leg when walking. This pain gradually increased, so that she could only walk by the aid of a stout stick. The climacteric occurred two years previously. Ten years ago the left breast was removed for scirrhus, which recurred three years after in the axilla. This was removed, but three years later again returned, when a third operation was performed. Since this she had remained free. On opening the abdomen four hard tumours of different sizes were enucleated from the uterus, causing but little haemorrhage, which was arrested by deep catgut sutures. The patient made an uninterrupted recovery. (3) Notes of a case of large *Abscess in the pouch of Douglas* simulating a suppurating ovarian cyst, and causing bowel obstruction. The patient, aged 46, with eight children, complained of frequent micturition for one month previously. About seven years ago, after a confinement, she had an attack of vomiting and abdominal pain, which lasted twenty-four hours, but was well in a day or so. Four months ago there was a similar attack of abdominal pain, which lasted only twenty-four hours, and she was able to get about again the following day. Her present illness began five weeks previously with abdominal pain and vomiting. There was pyrexia and constipation. The abdomen was distended below the umbilicus, and considerable rigidity was present. On bimanual examination the pouch of Douglas was found occupied by a tense non-fluctuating swelling without much pain. On opening the abdomen the intestines were matted together and extensive peritonitis was found. While separating

a coil of intestine over the brim of the pelvis some foul-smelling pus welled up. The patient was then put in the lithotomy position, the posterior fornix opened, and a gauze drain inserted. The patient made a slow recovery, and one month afterwards was free from any discharge.

SOUTH-WEST LONDON MEDICAL SOCIETY.—At the first monthly meeting of the winter session, held at the Bolingbroke Hospital on October 10th, Dr. M. MACKINTOSH (President) in the chair, an address was given by Dr. J. H. WELLS of the Pathological Laboratories, St. Mary's Hospital, on the treatment of bacterial diseases by the inoculation of the corresponding vaccines. After an introduction in which the distinction between serums and vaccines was explained and attention drawn to the various forms of antibacterial substances present in the blood, the lecturer described the mode of action of opsonins, and gave in detail the method of estimating the opsonic index. In discussing its clinical applications and diagnostic value, he pointed out the sources of error and the manner in which they could be avoided. Drawing his illustrations chiefly from tuberculosis, he presented charts showing that in localized lesions with a high opsonic index action or passive movement was followed by a fall in the opsonic index for the particular organism, while the index for control organisms remained unaltered. The methods of preparation and standardization were discussed, and the various clinical conditions in which the treatment was applicable were considered. The lecturer showed further charts to illustrate the positive and negative phases and the dangers attendant upon re-inoculation during the negative phase which invariably succeeded inoculation. Skiagrams were also shown of tuberculous affections of joints at various stages of treatment in which improvement was clearly manifested. A strong caution was given against large doses of vaccine in early stages of treatment, and the importance of rest during the treatment of phthisis or of severe cases was emphasized. The lecturer discussed the question of auto-inoculation, pointing out that a high opsonic index might be obtained in cases with severe lesions, and interpretated this as meaning that a strong effort was being made by the system to cope with the disease, noting also the fact that the occurrence of high and low indices and of positive or negative phases coincided with a personal sense of well-being or its opposite. Having pointed out that in the case of mixed infection it was possible to treat each of the component infections separately and successively, the lecturer concluded with a few remarks on the results to be obtained. In small single lesions and in some multiple ones, great improvement might be expected; in cases where necrosis or caseation had taken place, the treatment could not be expected to do more than place the parts in the best possible condition for surgical treatment. In more extensive lesions it was probable that the beneficial effect of the treatment might be limited to enveloping the damaged area in a fibrous cover. The lecturer subsequently demonstrated the methods of showing agglutination and the taking of the index, and showed microscopic specimens of phagocytic action or tubercle bacilli, streptococci, and other organisms. In the discussion which followed, a question was asked and answered to the effect that there was nothing in the treatment which could not be carried out by the general practitioner, and some severe comments were made on the action of a metropolitan hospital in opening a "pay" department for the opsonic treatment.

DERMATOLOGICAL SOCIETY OF LONDON.—At a meeting on October 10th, Dr. J. J. PRINGLE in the chair, the following cases were among those shown:—Dr. H. G. ADAMS: (1) A case of *Lichen spinulosus* in a young child, the eruption covering the arms, legs, and face. It had commenced with an erythema; the eruption, however, was not grouped after the ordinary fashion of lichen spinulosus, and the exhibitor thought it perhaps an instance of the disease named by H. G. Brooke keratosis follicularis contagiosa, although there was no history of contagion. (2) A case of an *Erythematous ringed eruption* on the thighs and arms of a boy aged about 10. The rings, which were about 2 in. in diameter, had persisted for several months, and no cause could be assigned for their appearance. The diagnosis was discussed by several members, but no general agreement was reached.—Dr. COLCOTT FOX: A case of a granulomatous-looking tumour on the back of the hand of a horse-keeper by occupation, which had lasted for three months. On examination, a very fine mycelium was found, but it had not the characteristic appearances of ringworm. In the pus exuding from the surface, some bodies with double contours and closely resembling the organisms found in blastomycosis had been demonstrated. The diagnosis was not quite established, and a portion of the tumour would now be excised and examined histologically, and the result communicated at a future meeting.—Dr. WILFRED FOX: Two cases of *Sclerodermia*, one an isolated patch on the breast of a woman, and the other an extensive implication of the legs and thighs in a man.—Dr. J. M. H. MACLEOD: A case of what was probably *Lupus erythematosus* of the face and neck of a woman with concurrent small nodules on the hands, and on the legs large and deep infiltrations which clinically resembled erythema induratum.—Dr. J. A. ORMEROD: A case for diagnosis, the patient being a girl of 12, in good health, but showing an eruption upon the back, the shoulders, and chest, and consisting of small follicular ulcers scabbed over and pitted scars. The lesions were grouped in a somewhat herpetiform manner, chiefly on the right side of the body. During her attendance she had had an intercurrent attack of genuine herpes on the left side of the chest. Many suggestions were made, including such diagnoses as morphoea, acne varioliformis, and Darier's disease, but it was agreed that no diagnosis could be positive without further investigation, especially as to the histological nature of the lesions.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—At a meeting on October 5th, Dr. J. LINDSAY STEVEN, President, in the chair, Dr. J. LINDSAY STEVEN and Dr. CHARLES WORKMAN showed specimens from a case of cancer of the oesophagus. Dysphagia began a year ago, became urgent three months ago, and absolute a week before admission. All fluid swallowed was returned after a pause of about thirty seconds. The passage of a bougie was obstructed 10 in. from the teeth and was followed by an ounce of caseous material suggestive of ulceration. The examination of the abdomen was negative. Consolidation of the base of the left lung developed. The temperature was subfebrile. Surgical interference was contraindicated by the onset of the pulmonary complication. Feeding was entirely per rectum. Pain was absent. On autopsy an insufflation pneumonia of the lower lobe of the left lung with a gangrenous abscess was found. In the oesophagus, opposite the bifurcation of the trachea, there was a large fungating ulcer with two perforations into the left bronchus. There were no secondary growths. Sections showed the ulcer to be an irregularly squamous-celled epithelioma.—Dr. G. T. BEATSON read a paper on *Chauffeur's fracture*, with lantern illustrations (two cases). The fracture was usually caused by a "back fire" when turning the handle at the front of the car on starting. The hand was forcibly bent backwards when it had a degree of ulnar deflection, and the radius was fractured. The line of fracture (illustrated by *x*-ray photographs) was transverse and fairly regular. It carried off the whole articular surface of the radius, or it might pass into the joint. In each case a triangular piece of bone was broken off and included the styloid process. The symptoms were pain, swelling and crepitus, but there might be no distinctive deformity. Both cases were treated with Carr's splints with early movement of the fingers. The splints were removed in three weeks and practically no stiffness resulted. The author thought that such cases might be classified as Colles's fracture without deformity and should make us more careful in excluding fracture on account of absence of deformity. The fracture might be prevented by grasping the handle with the knuckles downwards, as in that position the handles could be quickly released.—Dr. S. J. CAMERON gave a lantern demonstration of fibromyomatous tumours in the female with special reference to certain degenerative changes occurring in the tumours.

GLASGOW SOUTHERN MEDICAL SOCIETY.—At the first meeting of the session, held on October 4th, Dr. T. K. MONRO delivered the presidential address, choosing for his subject some family diseases. After remarking that

old age was in reality a rare form of death, he showed that in some individuals certain organs underwent decay long before the usual degenerative period of life was reached—in some cases before the body, as a whole, had reached maturity. Such conditions were apt to occur in several members of a family. Among such diseases were muscular dystrophy, spastic diplegia, amaurotic family idiocy, Friedrich's disease, retinitis pigmentosa, and xerodermia pigmentosa. Diabetes might be met with as a family disease, and reference was made to a family in which five of the members died of this disease in childhood. Gout, pentosuria, cystinuria, and alkaptonuria were also touched upon as frequently occurring in families. It was pointed out that some of the diseases described might be compared to the variations or sports met with among animals and plants. As to the origin of these variations practically nothing was known.

Glasgow Pathological and Clinical Society.—At the first ordinary meeting, held on October 8th, Dr. J. Lindsay Steven, President, in the chair. Dr. T. K. Monro and Dr. James A. Adams showed a patient suffering from *Spasm of the muscles of the lower part of the trunk* and thighs. The patient, a bank clerk, aged 46, began to feel nervous about three years ago, and to have pains in his back. Even earlier than this his back would get stiff on sitting much, but in other respects he was quite healthy. His symptoms progressed during the first few months, but since then seemed not to have advanced, though they had repeatedly relapsed after improving temporarily under treatment. He got relief for a time from one sedative after another, but each soon lost its effect. He could suggest no cause for his illness, and the family history threw no light upon it. He was on his feet for seven hours daily when at his work, but was not confined to one spot. Attempts to move and any kind of excitement brought on the spasm, and if he persisted in his attempts the condition of the muscles did not improve. There was complete relaxation during sleep. Knee-jerks were present and sensation was normal. The condition was obviously a neurosis. The slight aching pains in the back were apparently due to fatigue of the muscles involved. The author, who could find no account of any exactly similar case in literature, regarded the condition as an occupation neurosis analogous to writer's cramp.—Mr. Freeland Fergus and Dr. A. L. McMillan read a paper on the *Removal of the lachrymal sac* in cases of chronic suppuration. The history of the operation, the pathology of the lesion, and the advantages of excision over the older methods were discussed by Mr. Fergus, while Dr. McMillan described the steps of the operation as modified by him, and related the clinical histories of the 6 cases shown. The operation in their hands was attended with most satisfactory results.—Dr. Alex. Napier and Dr. J. Anderson related the history of a case of tumour involving the lung, pleura, and mediastinum, and microscopical preparations of same were shown. The patient, a young woman aged 24, was admitted eighteen months ago to the hospital as a case of chronic pleurisy. About six weeks before her admission she suffered from pain in the right side of the chest aggravated by lying on that side and by coughing, and had suffered from loss of flesh and strength and occasionally from night sweats. The family history indicated a tuberculous tendency. The signs of a right-sided pleurisy with effusion were made out, and a small quantity of fluid was removed by aspiration, which contained mononuclear lymphocytes, eosinophiles, and pleural endothelial cells, and a number of diplococci, but no tubercle bacilli. The patient was dismissed improved, but fifteen months later was readmitted on account of a short, dry cough, often paroxysmal in character, with progressive loss of strength and weight—symptoms which had troubled her during the greater part of the interval. Physical examination indicated a thickening of the pleura over the lower part of the right lung, and the case was regarded as tuberculous in nature, but tubercle bacilli were never obtained in the sputum, although frequently sought. A fortnight after admission she was seized with an acute pericarditis from which she recovered, but later developed marked dullness with loss of respiratory murmur, vocal fremitus and vocal resonance on the affected side; an exploring needle was inserted at several places, but no fluid was obtained. Cyanosis, breathlessness and venous distension in neck ensued, and these got gradually worse up to the time of her death. At the autopsy the conditions found were an adherent pericardium, heart displaced by the consolidated lung, and a tumour mass of the size of an orange in the anterior mediastinum; the glands in the posterior mediastinum and around the right bronchus showed malignant enlargement. The greater part of the right lung was replaced by tumour tissue, and this had penetrated the diaphragm and given rise to a large growth in the upper part of the right lobe of the liver; the pleura was much thickened. The microscopic appearances of the tumour showed a very dense growth composed of aggregations of spindle-shaped cells with alveolar disposition and large elongated nuclei resembling a spindle-celled sarcoma, but probably of the nature of a pleural endothelioma.

Association of Registered Medical Women.—At a meeting held on October 2nd, Miss Aldrich-Blake in the chair, Miss Leney read a paper on a possible lesion of *Deiter's nucleus*, occurring in a married lady, aged 33. The right pupil was found immobile and showed no reaction to light or accommodation; the reactions of the left pupil were sluggish. The acuteness of vision was remarkably good and equal, and there was no hypermetropia or optic neuritis. In order to read Jaeger 2 at 9 in. the patient had to use a + 4 glass in the right eye, whilst with the left she could read the same print without any glass at all. Accompanying this internal ophthalmoplegia there were giddiness and tinnitus, chiefly in the right ear. In discussing the diagnosis, Miss Leney dismissed any involvement of the ciliary ganglion, or the oculomotor nucleus *per se*, and whilst conceding that a lesion of the superior corpora quadrigemina was possible, she inclined to think that the lesion was in Deiter's nucleus. The connexion of this nucleus with the semicircular canals by means of the vestibular nerve might account for the tinnitus. The cerebellar connexion would influence equilibrium, and it was suggested that the fibres which run from the nucleus through the posterior longitudinal bundles to the oculomotor nucleus might possibly pass to the differentiated nuclei, controlling the pupil and accommodation. The lesion was probably syphilitic, as after two months' treatment with potassium iodide all the symptoms were abating.—Miss Chadburn read notes of a case of *Parturition in a septate uterus*. The patient, aged 27, was seen several times during her second pregnancy. There was no evidence of the malformation, but the presentation was transverse. At the commencement of labour the presentation was easily rectified by external version and the child was born by the vertex. The uterus was now noticed to be a curious shape, as if there were a large fibroid on the right side in the anterior wall. The placenta did not come away; sharp haemorrhage occurred, blanching the patient. On exploring to get away the placenta, it was found on the right side of the uterus, partially separated but adherent to the fundus, and to a septum which projected from the fundus. It was separated and all bleeding stopped. The septum, after contraction and some retraction of the uterus, reached down to the internal os, and divided the uterus into two halves; the left half was occupied by the placenta, the placental site being at the upper part, extending over two-thirds of its surface, including the septum; the right half was smooth, and had evidently contained the main part of the fetus. Recovery was uneventful. The first child was said to have been born breech and the afterbirth to have come away, but much haemorrhage occurred. The doctor explored, and was said to have found the remains of a miscarriage; it is possible that the septum, which when the uterus was large and lax only occupied the upper part, might thus have been misinterpreted.—Miss Hamilton read notes of a case of *Gall stones* occurring in an active athletic girl of 23. A tumour was present, which varied in size and was extremely movable, passing from below the right costal margin to the left side of the epigastrium, to the umbilicus, and to the right iliac region. The conjunctivae were

occasionally jaundiced, and there were several severe attacks of pain. Exploratory laparotomy revealed a much elongated gall bladder, somewhat resembling in shape an Italian oil-flask, and this contained five large stones.

REVIEWS.

PHARMACOLOGY AND THERAPEUTICS.

The fourth edition of Professor Cushny's *Textbook of Pharmacology and Therapeutics*[1] brings it into conformity with the recent revision of the *United States Pharmacopoeia*. In this respect and in some others the book has been carefully revised as regards many small details, but in essentials it remains much as before. It has been very favourably reviewed in these columns on former occasions, and we can only add that it still maintains the high position then assigned to it as an exposition and epitome of present-day pharmacological knowledge.

The twelfth edition of Wood's *Therapeutics*[2] has been brought into conformity with the new *United States Pharmacopoeia*, and in addition several important changes have been made in the text. The article on expectorants has been rearranged, and the whole subject considered in its clinical aspects chiefly, while a new classification of disinfectants has been introduced. The sections on local anaesthesia and spinal anaesthesia have been brought up to date, and more than seventy new drugs have been considered in more or less detail. Like most so-called "new drugs," the majority of these seem to be merely modifications of old remedies, and it is problematical if many of them will survive into the next edition. Different sizes of type have been freely used to denote the varying importance of different parts of the text. Taken as a whole, Dr. Wood's book well maintains in the present edition the high place it has held for so many years in professional estimation.

In the new and third impression of Dr. J. Mitchell Bruce's classical work on *The Principles of Treatment*[3] (a review of the first impression of which appeared in the British Medical Journal of January 6th, 1900) the opportunity has been taken, as the author tells us, to reconsider and modify certain opinions and expressions, to introduce some of the newer remedies to the attention of his readers, and to correct a few typographical errors. The book, therefore, remains substantially what it was. Its strength is in this—that it is a compendium of the philosophy of therapeutics. In this edition, as in its predecessors, there is no trace of allegiance to nostrums; even the open-air treatment of consumption, a subject about which the author is as much entitled to a dogmatic word as any one, is not discussed as a method *per se*. And although he has elected to include in this volume some of the newer remedies, yet, as far as we have been able to ascertain, far and away greater stress is laid on the old and well-known and well-tried remedies and methods. We do not consider, and we do not believe that it is claimed for it, that it would by itself alone suffice as a complete guide on therapeutics (indeed, a book like Sir William Whitla's *Dictionary of Treatment* might well be considered reasonably complementary to it), but it may be claimed for it that while it leaves niches in the system of knowledge to be filled up with vital facts, it will help to develop real therapeutic power in the earnest student, and on its own ground there could hardly be higher praise than this.

The first edition of Dr. Mitchell Bruce's *Materia Medica and Therapeutics*[4] appeared in 1884, and since then it has been reprinted, unchanged or revised, no fewer than twenty times. Essentially, however, the book remains to-day what it was twenty-two years ago. It has no doubt frequently been "brought up to date," in the sense that newly-introduced remedies have been mentioned and described, but the author's conception of his subject has not undergone much visible modification. The method of considering vegetable drugs under the botanical natural orders is still adhered to, while the amount of materia medica is greater than modern examination requirements demand from the student. A broader knowledge of pharmacology has gradually grown up, and the outlook of teachers of the subject has altered a good deal as regards the relative importance of different parts of the subject. It cannot be said that the volume under review reflects these changes in any adequate way, although it still retains its many good features.

In his *Textbook of Materia Medica*[5] Professor C. R. Marshall has proceeded on lines which are, to a certain extent, original, or, at least, different from those followed in other books on the subject. He has made a special point of the materia medica, which has been copiously illustrated; and not only is each preparation mentioned and described, but its particular properties and applications are also considered. In some instances this takes the place of a more systematic description of the pharmacology and therapeutics of the drug. It is a plan which may be specially commended for junior students, who have often no idea of the particular uses for which different preparations are devised and merely learn their names by rote for examination purposes. The botanical descriptions and the chemical formulae are given with great accuracy and completeness throughout. After an introductory portion dealing with pharmaceutical chemistry and pharmacy, the subject matter is divided into inorganic substances, synthetic organic substances, and animal and vegetable substances, and under these headings the items in the *British Pharmacopoeia* are considered in detail. The notes on pharmacology and therapeutics are short, practical, and to the point.

In noticing very briefly the fifth edition of Dr. v. Tappeiner's manual of therapeutics and prescribing,[6] we would draw attention to its essentially practical character. Beginning with a short but comprehensive general introduction, the remedies in the German *Pharmacopoeia* are considered in groups, arranged partly according to their therapeutical action and partly according to their chemical composition. Under each drug a short account is given of its characters, its chief uses, and, above all, the methods of administering it. The volume furnishes a good epitome of German prescribing of the present day.

DISEASES OF CHILDREN.

In the new edition of Ashby and Wright's *Diseases of Children*[7] each chapter has been revised and several rewritten. Of a work that has worthily attained the dignity of a fifth edition any lengthy notice is unnecessary. It will be readily understood that in a book of this size, dealing with both the medical and surgical diseases of children, there is little space left for padding, and this renders it somewhat close reading. In spite of its size, however, few, if any, points of importance would seem to have been missed. The work is mainly an exposition of the personal experience of the authors, and is the more valuable, in our opinion, on this account. There are, of course, limitations to the advantages of such a plan. Thus, in an analysis of cases of chorea seen at the Pendlebury Children's Hospital, it is stated that in 252 cases the youngest age at which the complaint occurred was 4 years, and no indication is afforded that it may occur at a much earlier age. Now chorea in children three years of age is not very un-

[1] *A Textbook of Pharmacology and Therapeutics.* By Arthur R. Cushny, M.A., M.D. Fourth Edition. London: Rebman, Limited. (Demy 8vo, pp. 752. 17s. 6d.)

[2] *Therapeutics: its Principles and Practice.* By Horatio C. Wood, M.D., LL.D., and Horatio C. Wood, Jun., M.D. Twelfth Edition. London: J. B. Lippincott Co. 1905. (Demy 8vo, pp. 925. 18s.)

[3] *The Principles of Treatment and Their Application in Practical Medicine.* By J. Mitchell Bruce, M.A., M.D., LL.D., F.R.C.P. Third edition. Edinburgh and London: Young J. Pentland. 1905. (Demy 8vo, pp. 614.)

[4] *Materia Medica and Therapeutics.* By J. Mitchell Bruce, M.A., M.D., LL.D. New Edition. London: Cassell and Co. 1905. (Cr. 8vo, pp. 632. 7s. 6d.)

[5] *A Textbook of Materia Medica for Students of Medicine.* By C. R. Marshall, M.D. London: J. and A. Churchill. 1905. (Demy 8vo, pp. 635. 10s. 6d.)

[6] *Lehrbuch der Arzneimittellehre und Arzneiverordnungslehre.* Von Dr. H. v. Tappeiner. Fünfte Auflage. Leipzig: F. C. Vogel. (Demy 8vo, pp. 347. M.7.)

[7] *The Diseases of Children, Medical and Surgical.* By Henry Ashby, M.D., F.R.C.P., Physician to the Manchester Children's Hospital, Lecturer and Examiner in Diseases of Children in the Victoria University; and G. A. Wright, B.A., M.B. Oxon., F.R.C.S., Surgeon to the Manchester Royal Infirmary, Consulting Surgeon to the Children's Hospital, Professor of Surgery in the Victoria University. Fifth edition. London: Longmans, Green, and Co. 1906. (Demy 8vo, pp. 920. 21s.)

common, and we have known more than one case, in the practices of competent observers, in infants under 2 years old. The incidence, too, of croupous pneumonia at various ages, given at page 389 from Pendlebury statistics, differs widely from that given by some other observers. Nevertheless, in spite of some slight drawbacks, we prefer the book in its present form, as in the main a record of the wide personal experience of the authors, and we can thoroughly commend their work.

In the third edition of Dr. Holt's well-known work, *Diseases of Infancy and Childhood*,[8] each chapter has been revised, and the matter brought up to date. Several new chapters, moreover, have been added on subjects not previously dealt with. In reviews of former editions we recorded our appreciation of the work, and expressed the opinion that it was one of the best extant on children's diseases. The work is now so firmly established as a standard textbook that lengthy criticism is uncalled for. We still think that in too many instances separate varieties of diseases have been unnecessarily made which would have been better dealt with as mere variations from the ordinary type. In the review of the last edition we took exception to the statement that "sucking" could lead to the habit of masturbation, deformity of the spine, and several other pernicious results. As the statement is repeated unaltered in the present edition we conclude that Dr. Holt does not agree with our criticism, and retains his belief in the serious evils arising from "sucking." Moreover, he is not without support in this particular, and we have seen similar statements about sucking in more than one other book on children's diseases. As there was no acknowledgement of indebtedness to Dr. Holt by the writers of these works, we concluded that the statements were founded on personal observation on their parts, and so confirmatory of Dr. Holt.

Dr. Kilmer's little book on *The Physical Examination of Infants and Young Children*[9] can be best described as an attempt to teach the physical examination of children by means of illustrations. The work is comprised in 84 small pages, containing no less than 59 illustrations, many of which occupy whole pages. In fact, the proportion of illustrations to letterpress might not inaptly be compared to the amounts of sack and bread in Falstaff's tavern bill. Some few of the illustrations might be useful to the tyro, but the reason for the insertion of most of them is not very apparent. The "ignorance of most physicians as to the methods of examination of babies" may be as "deplorable" as the author states in his preface, but we cannot see how it is to be bettered by pictures of the outside of a cabinet, a tape measure, an ordinary binaural stethoscope, and many of the usual impedimenta of the consulting room and the nursery. The author, however, gives valid reason for his picture of the stethoscope in that he "begs" his readers "to cultivate the art of auscultation." "There is but one way," he writes, "to correctly and successfully auscultate the chest of an infant or young child, and that is by the use of a stethoscope (a proper stethoscope)." Some adult ears, he further states, if directly applied to the chest, "would almost cover an entire lung of an infant." From this we can only conclude that the profession on the other side are exceptionally endowed with the organs of hearing, and have natural gifts for the rôle of Bottom without preparation. The reading matter is so extremely elementary that it is difficult to imagine it could have been intended for those possessing any satisfactory form of qualification. Its elementary character, however, and its limited extent have been natural safeguards against the inclusion of errors of any moment. As a specimen of the author's style we may cite: "The abdomen should be palpated to see if there be a tumour present, such as minute tubercular nodules scattered over the peritoneum, or to see if a large single tumour exists." A gift of palpation that can detect such "minute tubercular nodules" must at least compel our admiration.

In spite of the editor's approval of the novelty of an alphabetical order of arrangement in Dr. Frühwald's *Reference Handbook of the Diseases of Children*,[10] we cannot think such an arrangement either satisfactory or desirable. It has led in the present instance to long strings of names in large type, in some places occupying a whole page, for the mere purpose of referring the reader to some other heading. Thus there are headings in large type of Fever, Enteric; Fever, Typhoid; Enteric Fever; each simply followed by the same information, "See Typhoid Fever." As similar repetitions occur with many other complaints the waste of space may be readily imagined. Owing to it, and the numerous illustrations, there is but scanty room for adequate treatment of many complaints. This is the more to be regretted as there is evidence that Professor Frühwald is a competent authority on the subject of children's diseases. Important omissions are frequent, otherwise the descriptions given are generally accurate enough. The description, however, of acute articular rheumatism is that of rheumatic fever as it occurs in adults, and is in no way a true picture of the ordinary rheumatism of children. We can see no reason, moreover, for rheumatic nodules being treated as a separate disorder, under the name of "Rheumatismus nodosus." It must be added that the description of the nodules is faulty in the extreme, and we have never known "permanent contractions of the tendons" left on their disappearance. Professor Frühwald is apparently no believer in the elaborate methods of infant feeding which were more in favour a few years back than at the present day, and his directions are simple and intelligible. Dr. Westcott, however, takes exception to the advice to start artificial feeding with a dilution of cow's milk of 1 in 3, and advises a dilution of 1 in 6 as an initial formula. On this point we are in agreement with the author, rather than with his editor and critic. Under the heading of "Treatment" it has been, we are informed, the editor's aim "to present the author's practice substantially without change, so as to make the work a complete epitome of pediatric therapeutics as at present in vogue in Vienna. If the editor's pharmacopoeia is as "extensive and peculiar" as the author's, the reader may well feel grateful that the former has refrained from additions. This will be understood when in the treatment of whooping-cough, amongst many other drugs, the author advises the administration of euchinin, aristochin, citrophen, salipyrin, tussol, antispasmin, pertussin, coclussin, and Desaga's antispasmodic syrup, and recommends that the back be rubbed with antitussin. Notwithstanding many defects the work is not without merit, and the illustrations have been well selected.

This small work, by Dr. Burnet, on *The Nursing of Sick Children*,[11] is, we are informed, written "not for the matron, but for the probationer." The book is mainly occupied by sketchy descriptions of some of the commoner diseases of children, to which are added a few directions on nursing. These directions are such, however, that we fancy a probationer would have to be in a very early stage of her training to profit by them. The work is printed on inferior paper, and the modest sum charged for it, 1s., fully represents its value.

The list of over thirty "works" attributed to Dr. E. Monin on the fly-leaf of his latest contribution to the study of pediatrics[12] is not calculated to inspire confidence, ranging as they do from a treatise on "Epidemic Disease" to works on the "Hygiene of Beauty" and "How to Preserve Virility." The reader is warned in the preface against the "broken promises of the laboratory," and urged to return to the "yoke of therapeutics, the sole desideratum, the sole reason for the existence of medicine."

[8] *The Diseases of Infancy and Childhood.* For the Use of Students and Practitioners of Medicine. By Emmett Holt, M.D., Sc.D., LL.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Columbia University, New York; Attending Physician to the Babies' and Foundling Hospitals, New York, etc. Third Edition. London: Sidney Appleton. 1905. (Demy 8vo, pp. 1174; 241 illustrations.)

[9] *The Physical Examination of Infants and Young Children.* By Theron Wendell Kilmer, M.D., Adjunct Attending Pediatrist to the Sydenham Hospital; Instructor in Pediatrics in the New York Polyclinic Medical School and Hospital, New York. Philadelphia: F. A. Davis Company. 1906. (Crown 8vo, pp. 86; 59 half-tone engravings. 75 cents.)

[10] *Reference Handbook of Diseases of Children.* For Students and Physicians. By Professor Dr. Ferdinand Frühwald, Chief of Clinic in the Vienna Polyclinic. Edited, with additions, by Thompson S. Westcott, M.D., Associate in Diseases of Children in the University of Pennsylvania. London: W. B. Saunders and Co. 1906. (Demy 8vo, pp. 533; 176 illustrations. 18s.)

[11] *The Nursing of Sick Children.* By James Burnet, M.A., M.D., M.R.C.P.Edin. London: The Scientific Press. (Crown 8vo, pp. 66. 1s.)

[12] *Médecine de l'Enfance, jusqu'à l'adolescence.* Par Dr. E. Monin. Paris: A. Maloine. 1905. (Crown 8vo, pp. 422. Fr. 5.)

He is assured that the latter is not and never can be a science, but is an art "strictly dependent on the artist who practises it," and further that it is "a matter of the soul rather than of the intellect." The book itself is a mere compendium of the ordinary routine of the treatment of disease in children. Pathology and etiology are practically omitted, and "Diseases of the Heart" are dismissed in less than seven small pages of good-sized print. The author recommends, among other methods of treating incontinence of urine, "threatening the child with making him swallow a mouse every time he wets the bed," and it is no doubt his preference for the artistic to the scientific aspect of medicine which leads him to include erythema, intertrigo, prurigo, eczema, and boils, under the heading of "Herpetism." The book might be useful to unqualified practitioners, or, for purposes of quotation, to advertising druggists, but as addressed to the medical profession it is a mere impertinence.

Problems of Babyhood[13] is a little book of fads, mostly pleasant. In the first part, dealing with the building of a constitution, it is recommended that infants should sleep in boxes outside the house windows The authors believe in a quantity of very warm clothing for children, but it is doubtful whether the rubber stockinette diapers and leather coats ventilated from beneath would meet with any general approval. Much that is said in the second part on the formation of character is excellent, but the ideally-brought-up child must have ideal parents, and the book rather presupposes these. But few people will, we imagine, approve the amount of "punishment" or repeated "spankings" of tiny babies recommended. In this country we manage to bring up even puppies by other means. The book is fragmentary and tends to repeat itself; the illustrations intended to represent healthy, happy children are often downright ugly. To the irritable and fussy mother it is, perhaps, not without a message.

A SURGICAL ODYSSEUS.

OUR apologies are due to Sir FREDERICK TREVES for our delay in noticing his most interesting book, *The Other Side of the Lantern*.[14] The fact that it has been reprinted five times since January, 1905, and that a popular edition has just been issued, bears eloquent witness to the favour with which it has been received, and shows that the book has passed beyond the reach of criticism. The title is quaint, and at first sight somewhat cryptic; but a brief preface explains at once its meaning and the reason which prompted its adoption. The book is a record of a pleasure voyage undertaken by the famous surgeon to the Mediterranean, India, Burmah, Ceylon, China, and Japan, travelling via the Suez Canal on the outward journey, and homeward through America. To us the chief charm of the book lies in the fact that it is a faithful transcript of the author's impressions of the various places he visited, and, not like so many works of its kind, merely a series of extracts from guide books. Hackneyed descriptions of world-famous buildings and scenes are conspicuous by their absence; in fact, the bulk of the volume consists of pen pictures of little nooks and corners which escape the eye of the average globe trotter. When Sir Frederick Treves does describe places like the Taj Mahal, near Agra, he does not bewilder the reader with architectural details, but renders the effect that such a place produces on the imagination. Matters medical naturally attracted the attention of the distinguished traveller. Whilst in Ceylon he was treated to a performance of "devil dancing"—the native method of curing disease—which he describes as representing "in an allegorical form the bacterial basis of disease," each disease being supposed to be caused by some particular devil. During the course of this exhibition he was introduced to the demon of appendicitis, of whom he says: "I was glad and interested to meet him, although he was unreasonably noisy, and had the look of a child's jack-in-the-box." He makes a humorous comparison between the popularity of "devil dancing" with the Cingalese and that of physic drinking with some of the inhabitants of Europe. He concludes with the significant remark: "Physic drinking has this advantage over 'devil-dancing'—it is quicker." Another interesting chapter is devoted to the native medicine of the Chinese. He was apparently greatly struck with the medical arrangements of the Japanese during the late war, and entirely agrees with Major Seaman that "the Japanese are the first people to recognize the true value of the Army Medical Corps." The book is written throughout in a pleasant, racy style, with delightful touches of humour in the description of incidents of the voyage. The popular edition is excellently printed, and the illustrations—from photographs—are very well reproduced. We recommend those of our readers who have not yet read the book to do so as soon as possible.

OPERATIVE SURGERY.

IN his *Course of Instruction in Operative Surgery*[15] prepared exclusively for the use of surgical students Mr. THORBURN publishes the notes that are used and have done good service in the working of the operative surgery classes in the University of Manchester. These are intended to serve simply as guides to the student and cannot, the author points out, replace the careful study of the excellent textbooks now available. Used with this limitation the notes will be found useful and reliable by those going through junior and ordinary courses of practical surgery on the dead body. The author of this unpretentious but useful book gives in his introduction some really valuable hints in regard to the scope and proper methods of such instruction. Both the teacher and the student, he points out, are influenced in their actual work by anatomical considerations, and in the main object of such work by the requirements and traditional views as to *post-mortem* examinations. Those who have had much experience in the teaching of operations in the dissecting room or the mortuary will, we think, be disposed to agree with Mr. Thorburn, that in such teaching, which is undoubtedly of value in focussing attention on practical points of regional anatomy and in giving confidence and facility in the handling of surgical instruments, purely surgical considerations are regarded as of less importance. Indeed he goes so far as to assert that the methods described in this book are by no means in all cases such as he himself would advise in practice.

Another recent addition to manuals on this subject is Dr. WHEELER'S *Handbook of Operative Surgery*.[16] It is intended, the author informs us, principally for students and those who are practising operations on the dead subject. Much care has evidently been taken to describe the most modern and approved methods of operative procedure, and due regard has been paid to the element so essential in works of this kind—of clear and accurate illustration. With regard, however, to the information on operative methods, and also to the drawings, the author, as is acknowledged in the preface, is indebted to a considerable extent to the modern writers on this special subject. His handbook, like many others of its kind, has the fault of being too concise, and here and there somewhat obscure in its description of technical detail; but on the whole it may be commended as a useful and reliable guide for those engaged in the study of elementary operative surgery on the cadaver. The author though, as a rule, very careful and correct in his description of the different operations, is certainly misleading in the section on what is known as Kocher's method of excising the tongue, which, though now no longer practised by this surgeon, still remains a favourite exercise with teachers.

The German student will, we have no doubt, find in the last edition of Dr. ROTTER'S book[17] a very practical and useful guide to the study of operative surgery on the dead subject. This work, which has run through seven editions

[13] *Problems of Babyhood.* By Rachel Kent Fitz, A.M., and George Wells Fitz, M.D., sometime Assistant Professor of Physiology and Hygiene, and Medical Visitor, Harvard University. New York: Henry Holt and Co. 1905. (Crown 8vo, pp. 127.)

[14] *The Other Side of the Lantern.* By Sir Frederick Treves, G.C.V.O., LL.D., C.B. London: Cassell and Co. Popular Edition. Pp. 419.

[15] *Course of Instruction in Operative Surgery in the University of Manchester.* By W. Thorburn, B.S.Lond., F.R.C.S., Lecturer on Operative Surgery. Manchester: University Press. (Crown 8vo, pp. 75; 26 illustrations.)

[16] *Students' Handbook of Operative Surgery.* By William Ireland de C. Wheeler (Mod.), B.A., M.D. (Dub. Univ.), F.R.C.S., Surgeon to Mercer's Hospital. London: Baillière, Tindall, and Cox. 1906. (Crown 8vo, pp. 300; 134 illustrations. 5s.)

[17] *Die typischen Operationen und ihre Uebung an der Leiche.* (Typical Operations and their Performance on the Cadaver.) By Dr. Emil Rotter. Seventh edition. Munich: T. F. Lehmann. 1905. (Crown 8vo, pp. 456, 136 illustrations. M.8.)

in the course of the last eighteen years, maintains its value as a comprehensive manual both of operative technique and applied surgical anatomy. In its latest issue it has been enlarged by the addition of much new matter and further original illustrations. Amongst the most important of these additions is a chapter on the operative surgery of appendicitis.

NOTES ON BOOKS.

The primary difficulty confronting the compiler of a manual purporting to contain the requirements of the Royal Army Medical Corps for promotion[1] is the mutability of regulations. If such a work were guaranteed correct up to the date which should be borne on the title-page, or up to the date of the preface, the aspirant for promotion would know that by consulting army and other orders and circulars subsequently issued he would be in a position to supplement the knowledge conveyed. The *Guide to Promotion for Non-Coms. and Men of the R.A.M.C., etc.*, which Captain S. T. Beggs has written would have been more reliable had references been made to the particular portions of regulations from which the answers to the questions have been compiled. This would have been a useful check both to the author and the reader. The phraseology adopted is not always quite as correct as that used in the regulations; for example, "refrain from drinking as far as possible" (p. 81) reads better "refrain as long as possible from drinking" (Combined Training, S. 23, 5). The performance of his duty entails the acquaintance of the R.A.M.C. orderly with his manual, standing orders and regulations: still more so does it entail practical acquaintance with the subjects of which his duty consists. But promotion depends largely upon his ability to translate his knowledge into words. Hence the title of this book is rightly *Guide to Promotion*. It is not a guide to duty: and so long as the soldier realises that, he will, when the guarantee referred to above is forthcoming, do himself no harm by learning prompt answers to questions. A feature of the work is the copious illustration of surgical instruments and apparatus which will perhaps prove of some use to militia and volunteers. The Royal Army Medical Corps orderly who has been so far trained as to be fit for promotion will not fail to recognize the drawings of instruments to the handling of which he has been accustomed. Some of the illustrations of service equipment as well as the descriptions are not up to date—for example, on pages 153 and 155. Unfortunately, these are not the only instances of the failure of the author to keep pace with changes in regulations. There are not many misprints, a good point in a work intended for men among whom there may be some who are not completely familiar with the English language.

The jubilee meeting of the Incorporated Society of Medical Officers of Health was held on May 11th last, as duly noted in the British Medical Journal at the time. The proceedings at the meeting and at the subsequent banquet were fully reported in the Jubilee Number of *Public Health*, and that periodical has now reprinted this report in a pamphlet of some fifty pages.[2] The presidential address delivered by Sir Shirley Murphy, giving a sketch of the growth of the Society, possesses much permanent value, and many will be glad to have this reprint for preservation.

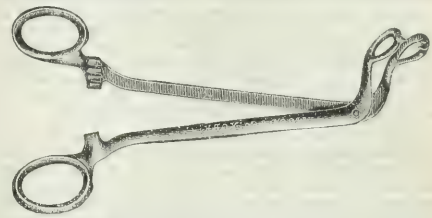
[1] *Guide to Promotion for Non-Coms. and Men of the Royal Army Medical Corps, etc.* By Captain S. T. Beggs, M.B., R.A.M.C.(M). London: Gale and Polden. (Crown 8vo, pp. 303. 3s. 6d.)

[2] Bristol: John Wright and Co. 1906.

The Condition of the Blind.—The fifth Italian Congress of "Typhlology"—which, it may not be superfluous to explain, does not concern itself with the caecum but with the condition of the blind (τυφλός)—will be held in Rome, in December, under the patronage of the King of Italy. The Minister of Public Instruction is president of the honorary committee. Among the questions to be discussed are the establishment of a school of "typhlopedagogics," suggested improvements in methods of writing for the blind, their compulsory education, the foundation of a central information bureau, the finding of work for the blind, provident institutions for them, the provision of libraries, clubs, etc., for them, the prevention of blindness, and the duty of the State in regard to this, the collection of statistics as to the number of blind persons, and the causes of the condition.

MEDICAL AND SURGICAL APPLIANCES.

Peritoneal Forceps.—Messrs. J. Wood and Co., of York, have made a peritoneal forceps for Mr. Littlewood of Leeds, which have several points in their favour. There is a large fenestrated end which takes a firm grip of the abdominal wall structures; the bend of the beak makes an



efficient retractor, and the instrument is strong enough to stand any necessary pull. The handles lie conveniently flush with the surface. Teeth at the point take up peritoneum and aponeurosis, and there is thus no risk of slipping. Two sizes have been made, the larger for use in kidney operations and where the abdominal wall is exceptionally thick.

Improved Vaccinator.—Dr. A. A. MacKeith (Southampton) writes: Messrs. Arnold and Sons, London, have made, at my suggestion, a vaccinator which, I think, embodies some slight improvements on those at present in use: (1) It combines in one instrument a lancet and a scarifier; (2) the ends are kept clean by screw-on covers of distinctive sizes, so the instrument can be easily carried in the pocket or vaccinating case; (3) the instrument is larger than the ones generally made, and is therefore, I think, more con-



venient, especially as the grip is fluted; (4) the body or centre is square, which prevents the instrument rolling about, and is of such a size that the ends are prevented from touching the surface on which it is placed; (5) the scarifier being bent at a considerable angle enables one to use the back of it to rub in the lymph; (6) there is a small hole in each blade, intended for use when breaking off the ends of the vaccine tube; (7) being forged from a single piece of metal it can easily be sterilized.

LITERARY NOTES.

Mr. H. K. Lewis has just issued a second edition of Professor Osler's *Æquanimitas*, which was reviewed in the British Medical Journal of June 24th, 1905. The new edition contains three additional addresses, all of the nature of farewell orations, delivered by the author before leaving America. One of these, entitled "The Fixed Period," which deals with the limit of age in the sphere of intellectual activity, gave rise to much discussion, of which echoes are still heard from time to time. That address, and the other two, entitled respectively "The Student Life" and "Unity, Peace, and Concord," were commented on by us at the time of their first publication. We reserve a fuller notice of the book for a subsequent issue of the Journal.

The *Transactions* of the International Cancer Research Conference recently held at Heidelberg and Frankfort-on-the-Main will shortly be published in the form of a special number of the *Zeitschrift für Krebsforschung*, which is edited by Professor von Hansemann and Professor George Meyer.

In a recent issue the *Wiener medizinische Wochenschrift* publishes a note from Dr. Emil Bock, physician to the hospital at Laibach, which is of interest in relation to the history of spectacles. Writing from Palermo on October 6th, 1906, he says he has seen in the museum of that city a photographic reproduction of a manuscript of the twelfth century in which there is a picture of a physician wearing spectacles.

The Berlin Academy of Sciences has undertaken the task of publishing the results of a critical examination and collation of all the manuscripts of ancient medical writers contained in the libraries. The first volume,

which is ready for the press, will be devoted to the works of Hippocrates and Galen. Not only have the Greek manuscripts been examined, but those of Latin and Oriental translations, which often preserve parts of the original that have been lost. Later volumes will deal with the works of Dioscorides, Paul of Ægina, and Aetius, and Byzantine authors such as Psellos and Actuarius. The editor is Dr. H. Diehls, with Professor G. Schoene as collaborator. The work is intended to form the basis of a new edition of the ancient medical writers, in the publication of which the Copenhagen Academy, represented by Professor Heiberg, has promised its active co-operation. The collection will include the fragments relating to medicine in Egyptian papyri.

A correspondent writes that "every one seems to have overlooked the fact that Tobias Smollett held the degree M.D. 'Aberdeen'." We may refer him to the BRITISH MEDICAL JOURNAL of March 10th, where under the heading "Literary Notes" (page 570) he will find the statement, given on the authority of Mr. W. Keith Leask, that Smollett got his degree at Aberdeen. Till 1820, it is added, no one seems to have known the fact, although the author of *Roderick Random* obtained the M.D. degree from Marischal College in 1750, and the diploma had been seen at Leghorn as late as 1816. The source of Smollett's degree had been the subject of much debate among the curious, and Sir Walter Scott finally settled the question by writing to all the British universities and getting the solution of the problem from Professor John Cruikshank, who "politely forwarded a certificate copy of the diploma." Smollett appears to have found comfort in the possession of his degree even on his deathbed. When he was dying at Leghorn in 1771, he had his diploma framed and hung over his bed, to let his friends and visitors see that he was a qualified physician.

The *Birmingham Medical Review* is publishing some instructive lectures on medical ethics delivered at the University of Birmingham during the summer session of the present year by Professor Saundby. In illustration of his teaching that the medical profession should not be above borrowing hints even from unorthodox quarters, he gives an interesting account of the manner in which a remedy which has been found of the greatest use in epilepsy was reclaimed from the quacks. The value of bromide of potassium was discovered by accident by Sir Charles Locock; it was a new drug and he tried it in many cases, amongst others in one of epilepsy for which at the time there was no satisfactory remedy. It was Niemeyer, says Professor Saundby, who taught us how to use it effectually and this lesson the great German clinician learnt from a quack. He tells the story himself as follows:

> My experience of the efficacy of bromide of potash in epilepsy has been greatly increased of late, and I can now speak much more decidedly upon the subject than two years ago, when preparing the seventh edition of this work. The following circumstance induced me to use the remedy in as many cases as possible, and to watch the results. I heard that two cases of inveterate epilepsy that I had for years treated without benefit had been completely cured by a so-called specialist, whose advertisements were to be found in the columns of almost every newspaper. I investigated the subject more closely, and found that in one patient, whose governess had for years kept an accurate journal, and whom I had not lost sight of, the attacks had been absent for several months, and that the general health, which had been much impaired, was decidedly better. This "specialist" refused the petitions of numerous patients of limited means to moderate the high price of his medicine, or to give a prescription for it, so I had a bottle of it analysed by my colleague, Hoppe-Seyler. The analysis showed that the blue mixture consisted of a solution of bromide of potash (1½ drachms to 6 oz.) coloured with indigo. Both patients had taken the remedy in considerable doses. At first only 2 tablespoonfuls were given daily, but after ten days 4, and after ten days more 6 spoonfuls; after that the dose was increased more slowly, being gradually raised to 10, 15, and 20 tablespoonfuls. So it appeared that in this case, as in most others where secret remedies prove useful, it was not the remedy, but the mode of using it, that was the secret; and I thought it probable that the contradictory assertions about the action of bromide of potash were greatly due to the fact that different observers had not given it with equal perseverance and in equal doses. I determined to imitate the treatment of the specialist where practicable, and induced other practitioners to do the same, and I became convinced that thus used, in large doses for a long time, although it will not cure all cases of epilepsy, it will in many cases relieve the attacks for a considerable period, and in some will even remove advanced impairment of the physical functions. Neither in my own practice nor in that of others have I of late seen a case where the intervals between the attacks did not grow longer. Even patients who had previously received no benefit from bromide of potash began to improve when the dose was raised to 8 or 10 tablespoonfuls of the above solution daily.

Rational medicine should act in the spirit of Molière, who made no scruple of taking what he considered good from other playwrights, saying, *Je prends mon bien où je le trouve.*

Dr. Stanley B. Atkinson writes:

I believe the lines (quoted in the BRITISH MEDICAL JOURNAL of September 29th, p. 790)—

> God and the doctor we alike adore,
> But only when in danger, not before;
> The danger o'er, both are alike requited,
> God is forgotten and the doctor slighted—

are a variation of:

> Three faces wears the doctor: when first sought
> An angel's, and a god's the cure half-wrought;
> But when, that cure complete, he seeks his fee,
> The Devil looks less terrible than he.

If so, the idea is first met in Euricius Cordus, a sixteenth century writer; it appears next in *A Treatise of One Hundred and thirteene diseases of the Eyes and Eye-Liddes*, by Richard Banister, Mr in Chirurgery, Oculist and Practitioner in Physicke. London, 1622. A similar quatrain exists concerning penitents and soldiers.

The original of Euricius Cordus's epigram is as follows:

> Tres medicus facies habet: unam, quando rogatur,
> Angelicam; mox est, cum juvat, ipse Deus.
> Post ubi curato poscit sua praemia morbo.
> Horridus apparet, terribilisque Sathan.

A story illustrating the epigram is told in William Wadd's *Nugae Chirurgicae*. Bouvart had attended a French marquis during a long and severe indisposition. As he entered the sick room on a certain occasion he was thus addressed by his patient: "Good day to you, M. Bouvart; I feel quite in spirits, and think my fever has left me." "I am sure of it," replied the doctor; "the very first expression you used convinces me of it." "Pray explain yourself." "Nothing more easy. In the first days of your illness, when your life was in danger, I was your *dearest friend;* as you began to get better I was your *good Bouvart;* and now I am M. Bouvart. Depend upon it, you are quite recovered."

In the late Sir Mountstuart Grant Duff's *Notes from a Diary* (1889-1891) he mentions that Lord Palmerston quoted the following verses during the last illness of the Prince Consort:

> A single doctor, like a sculler plies,
> The patient lingers, and then slowly dies;
> But two physicians, like a pair of oars,
> Shall waft him swiftly to the Stygian shores.

If we are not witty ourselves, we are often, like Falstaff, the cause that wit is in other men. It is true that the wit is frequently of very poor quality. Dr. Witkowski has collected all the ill-natured things said about doctors that he could find in literature and published them in a book entitled *Le Mal qu'on a dit des Médecins.* Why does not some one gather into a book all the good that has been said about us by many of the greatest writers? One objection, from the publisher's point of view, would be that it would make too big a book.

Among the books belonging to the Sutherland Library which is to be sold by Messrs. Sotheby—whose well-known name, by the way, appears in the *Journal des Débats* of October 15th, disguised as "Pothoby"—on November 19th, is a manuscript of fifty pages showing the state of "Medicine and Chirurgery" in 1550. It is the work of Walt Cromer, a member of the Barber-Surgeons' Company, who conceived that it might be of service to the boy King Edward VI, who was then suffering from the disease which slit the thin-spun thread of his life. The author's intention is shown by the following sentence, which occurs in the book: "Myne opinyon, according to lerned authoritie of Auncient Authores of Guaicum, that wolde to God my body could labour or my hart could thynke that thinge that myght do your moste excellent Majestie goode." The binding is decorated with fleurs-de-lys and the royal arms.

Reports
ON
PLAGUE INVESTIGATIONS IN INDIA.

As the outcome of proposals made by the Lister Institute to the Secretary of State for India in September, 1904, with regard to the desirability of the further investigation of some of the problems concerning plague, the Secretary of State in January, 1905, placed the direction of such an inquiry and the administration of an annual grant with an Advisory Committee appointed by the Secretary of State, the Royal Society and the Lister Institute acting in conjunction.

The work of the Commission is at present being carried on in Bombay City and in two isolated villages in the Punjab. Attention is for the most part directed to a study of the epizootic spread of plague among rats, the precise relationship of the epizootic to the epidemic, and the modes by which the disease may be communicated from rat to man. The publication of the final conclusions of the Commission on these subjects must be necessarily delayed, since observations are in some instances being carried on continuously throughout a complete period of twelve months; and even after this the analysis of the mass of epidemiological data obtained will occupy a considerable time. A number of contributory investigations, more or less complete in themselves, have, however, reached a stage when it has been considered advisable that they should be made public. The Advisory Committee has therefore published[1] an account of them as a series of independent researches in the form of a preliminary report, without waiting for the full discussion of the conclusions to which they seem to point. The reports appear as the joint work of the members of the Commission whose names appear below:

George Lamb, M.D., Major, I.M.S., Director of the Pasteur Institute of India, Kasauli.

William Glen Liston, M.D., Captain, I.M.S., member of the staff of the Plague Research Laboratory, Parel.

George Ford Petrie, M.D., assistant bacteriologist, Lister Institute.

Sydney Rowland, M.A., M.R.C.S., L.R.C.P., assistant bacteriologist, Lister Institute.

Thomas Henry Gloster, M.B., B.Ch., Captain, I.M.S., late port health officer, Rangoon.

M. Kasava Pai, M.B., C.M., assistant surgeon; lent by the Government of Madras.

V. L. Mauker, L.R.C.P., L.R.C.S., D.P.H.Camb.

P. S. Ramachandrier, first class hospital assistant, Mysore Government; lent by the Government of Mysore.

C. R. Avari, hospital assistant; lent by the Government of Bombay.

Similar reports will be published from time to time.

The Advisory Committee places on record their indebtedness to Lieut.-Colonel W. B. Bannerman, I.M.S., Director of the Plague Research Laboratory and to Dr. J. A. Turner, Medical Officer of Health of Bombay. The unstinting way in which the resources of the Parel Laboratory have been placed at the disposal of the Commission by Colonel Bannerman and the continual encouragement afforded to it by him have been of the greatest assistance. Dr. Turner has rendered invaluable help by placing the whole mechanism of the Health Department at the service of the Commission. Without this cordial co-operation the epidemiological inquiries in Bombay City would have been impossible.

The Committee also acknowledges valuable assistance from C. M. King, Esq., Deputy Commissioner of the Amritzar District, and Major Browning-Smith, I.M.S., Medical Officer in charge of plague operations in the Punjab, in connexion with the work of the Commission in the villages of Kasel and Dhand.

The Transmission of Plague by Fleas.

The most important of the results dealt with in this first report of the work of the Commission are concerned with experiments upon the transmission of plague by fleas.

The necessity for some intermediary between rat and man has been insisted upon on purely epidemiological grounds by Ogata, Simond, Hankin, and Ashburton Thompson, and all these observers have regarded some suctorial insect, probably the flea, as concerned in transmitting infection by the act of biting.

Nuttall, Ogata, Simond, the German Plague Commission, Tidswell, Zirolia, Liston, and Hankin have all found the *B. pestis* in the stomach of fleas which had fed upon plague infected animals, and Liston has brought evidence to show that in certain cases the bacillus multiplies in the stomach of the flea.

Many attempts have been made to ascertain experimentally whether fleas can convey the disease—by Simond, Nuttall, Tidswell, Liston, Gauthier and Raybaud, Kolle, Simpson, Kister and Schumacher, and, no doubt, many others; but, with the exception of the experiments of Simond, and Gauthier and Raybaud, the attempts to directly accomplish the transmission of plague by fleas have been unsuccessful.

The bacillus has also been frequently discovered in the faeces of fleas, and Simond and Zirolia have observed that these insects continuously discharge the contents of their intestine during the act of sucking blood, and the former has suggested that infected faeces discharged in the neighbourhood of the puncture and subsequently rubbed in by scratching, afford another possible means whereby the flea may be instrumental in conveying infection.

The direct evidence in favour of flea transmission at the time the Commission commenced to work was, however, extremely meagre, and the large number of negative results obtained prevented this interpretation of the epidemic spread of plague from being seriously entertained by more than a few epidemiologists.

Even supposing that fleas may be capable of transmitting the disease from rat to rat, the possibility of a similar transmission from rat to man has been vigorously combated by Galli-Valerio on more than one occasion. Galli-Valerio's criticism is based upon his observations that the fleas which he has found upon rats in Europe will not attack man. His criticism is, however, based upon a misunderstanding. The fleas observed by him upon rats in Europe were *Ceratophylus fasciatus* and *Ctenopsylla musculi*, which, indeed, rarely attack man, but the common rat flea of India, Australian ports, and Manila, as shown by Liston, Rothschild, and Tidswell, is neither of these species, but *Pulex cheopis* (Rothschild), which has been abundantly shown to readily attack man, especially when its natural hosts are not available.

The following account by Liston is worth quoting in this respect:

> About the 6th or 7th of April, rats began to die in large numbers in a chawl, or block of tenement houses. Suddenly the deaths among rats ceased, and on April 11th the people became troubled with fleas. The fleas became so numerous that they had to quit their rooms and sleep out in the verandah. While living on the verandah on April 17th one of the inhabitants of the particular room in which the fleas were taken became infected with plague. Another case occurred on the same day in a room adjoining. The people who inhabited the room where the above case occurred were induced by Mr. Lord to collect some of the fleas from their persons which they said troubled them, and he sent the collection to me on April 20th. An examination of this collection was most instructive. Now I must tell you that on previous occasions, of 246 fleas which were caught on man under normal conditions, I had only found one rat flea, *Pulex cheopis*. But of the collection of 30 fleas caught on man under the circumstances above recorded, no less than 14 of these were rat fleas.

Pulex cheopis has also been shown by Tiraboschi and Gauthier and Raybaud to infest the rats in the ports of Genoa and Marseilles to a considerable extent, but to gradually disappear from rats as they are captured from regions of the town more remote from the docks.

The experiments of the Commission upon this subject may be arranged under four heads.

A. *Transference from Rat to Rat by Proximity without Contact in the Presence of Fleas* (repetition of the experiments of Gauthier and Raybaud).—Two wire cages were placed in a glass box. The cages rise above the level of the top of the box, the intervening space being bridged over by a fine variety of muslin (tulle) which is impervious to fleas. Each cage stands in a tin tray which collects the urine. Both trays were filled with either dry earth or sand. This was found to be necessary in order to provide dryness and shelter for the fleas, which without some such cover rapidly died out. Each cage is provided with a lid through which the rats are introduced, and food and

[1] *Journal of Hygiene*, vol. vi, pp. 421-536, September, 1906.

water given to them. The lids when put on are also covered with fine muslin.

The rats cannot come into contact with the bodies, faeces, or urine of each other, but there is a free passage for fleas from one to the other.

Into one cage is placed a rat inoculated with plague, together with 10 to 20 fleas (*Pulex cheopis*) obtained from Bombay rats. More fleas were in some experiments added subsequently. As soon as the inoculated rat was found dead a healthy rat was placed in the other cage. The dead rat was left in the first cage till eight or twelve hours later, when it was removed and examined for septicaemia. If no plague bacilli were found in the blood microscopically the experiment was abandoned as excluding the possibility of any transmission by fleas or rendering this extremely improbable.

In 11 out of 16 experiments (69 per cent.) in which the receptive animal was a white rat imported from England the second rat contracted plague, and in 19 out of 50 experiments (38 per cent.) in which the second rat was a wild Bombay rat; 37 per cent. of the experiments with *Mus rattus* were successful, and 40 per cent. of those with *Mus decumanus*.

In many cases the fleas found in the cage at the end of the experiment showed numerous plague bacilli in the stomach.

B. *Transference of Plague from Rat to Rat by taking Fleas from an Infected Animal and placing them upon a Healthy One.*—Bombay rats were inoculated with a virulent culture of *B. pestis*, placed separately in flea-proof cages and supplied with rat fleas. In the event of any of these rats dying of plague, and if their blood contained any bacilli on microscopical examination, the fleas were caught and transferred to a fresh flea-proof cage in which was placed a healthy rat. The flea supply for each healthy rat was always obtained from two or more septicaemic rats. In 8 out of 13 experiments (61 per cent.) the second rat died of plague when white rats were used, and in 13 out of 25 experiments (52 per cent.) when the fleas were transferred to Bombay rats.

C. *Experimental Production of Epidemics among Guinea-pigs.*—The following experiments, which had as their object the determination of the relative importance of the Indian rat flea, *Pulex cheopis*, and of actual close contact in the absence of fleas, in the dissemination of plague from animal to animal, were carried out in a series of small "go-downs" or cabins, which were built especially for this purpose. These go-downs were designed by Lieutenant-Colonel Bannerman and Captain Liston, and built under their supervision.

Six huts were constructed of brick; in Nos. 1 to 4 the roof was so made that rats frequented them and fleas dropped from the rats into the huts; Nos. 5 and 6 were made impervious to rats. Experiments made in the manner of Liston, in which fleas were collected on guinea-pigs and then counted, showed that the rat-proof huts contained very few or no fleas, while in the others numerous fleas were caught. Experiments were made as follows: 10 guinea pigs inoculated with plague were placed in a hut, and either at the same time or later 50 healthy guinea-pigs were added to them. In huts 5 and 6 with no fleas, the latter animals remained healthy for weeks after the death of their companions, or at most only one or two caught plague, while in the other huts, which were freely supplied with fleas, an epidemic started among the uninoculated animals and killed all or most of them. It is also shown that an epidemic may be started among guinea-pigs living in a flealess hut by the introduction of fleas collected in a hut in which an epidemic has just occurred, and that the same fleas, isolated in test tubes, may convey plague to guinea-pigs on which they are allowed to feed. From a series of experiments in which altogether between 300 and 400 animals were used, and for the details of which the original must be consulted, the authors conclude:

1. Close contact of plague-infected animals with healthy animals, if fleas are excluded, does not give rise to an epizootic among the latter. As the go-downs were never cleaned out, close contact includes contact with faeces and urine of infected animals, and contact with, and eating of food contaminated with, faeces and urine of infected animals, as well as with pus from open plague ulcers.

2. Close contact of young, even when suckled by plague-infected mothers, did not give the disease to the former.

3. If fleas are present, then the epizootic, once started, spreads from animal to animal, the rate of progress being in direct proportion to the number of fleas present.

4. An epizootic of plague may start without direct contact of healthy animal and infected animal. Thus, in the case of one of the experiments the healthy guinea-pigs were not put in until the last inoculated guinea-pig had died and been removed.

5. Infection can take place without any contact with contaminated soil. Thus, several guinea-pigs and a monkey placed in wire cages 2 in. above the ground developed plague.

6. Aërial infection is excluded. Thus, guinea-pigs suspended in a cage 2 ft. above the ground, which distance is outside the jumping capability of a rat flea, did not contract the disease, while in the same go-down those animals allowed to run about and those placed 2 in. above the floor became infected.

7. Plague can be transmitted by the rat flea not only from guinea-pig to rat but from rat to guinea-pig. Further, it can also be transmitted from guinea-pig to monkey.

D. *Experiments in Plague Houses in Bombay.*—In choosing houses for the purpose of the experiments care was taken to ensure that they were really plague-infected. Thus, for the most part, only those houses were used in which two or more people were suffering from the disease, or in which rats infected with plague had been found, or in which there was a history of dead rats having been discovered.

In order to test whether the infection in these houses resided in the fleas infesting them, an epidemiological technique which had been devised by Captain Glen Liston was employed. The method was to allow guinea-pigs to run free during the night in plague-infected houses. The rat flea (*Pulex cheopis*) takes to these animals quite readily, and in some experiments as many as 263 fleas were captured upon a pair of guinea-pigs next morning.

The number of fleas which had taken up their quarters upon the guinea-pigs was determined as follows:

The animal was put in a glass jar, in which a small piece of cotton-wool soaked in chloroform had been placed. When it had become fully anaesthetized it was taken out, shaken, and combed with the fingers over a sheet of white paper. In this way a great number of the fleas, which were also under the influence of the chloroform, was dislodged. The hair was then thoroughly searched for any fleas which might remain. Fleas which had fallen off while the animal was in the jar were also recovered. Working in this way we made a careful count of the fleas in every observation. A glance at the table will show that in several instances a large number was obtained, the average number per house being 20. It is important to note that the great majority of the fleas caught in this way were rat fleas.

The second point to which we have to draw attention is that, out of forty-two experiments, twelve houses (29 per cent.) proved infective for one or more of the guinea-pigs which had been placed therein, the animals dying of plague within a few days after they had been removed from the house. Of the eighteen experiments in which more than 20 fleas were obtained, nine (50 per cent.) gave positive results.

A detailed reference to one or two of these observations will conduce to a better understanding of their general nature.

Nos. 9 and 10. 19, Dukerwadi. This house was one of three floors. On the ground floor there resided a family who sold milk, the cows, however, not being kept on the premises. The first floor was used as a club for Goanese servants who were out of employment. It consisted of a large room in front and two smaller rooms at the back, separated from one another by a narrow passage. All these rooms were fully occupied, the total inhabitants of the club averaging about thirty. The second floor was a loft underneath the tiles, which were of country make, and offered good shelter for rats. This loft was not occupied.

On February 3rd, 1906, it was brought to our notice that during the previous two days 5 cases of plague had occurred amongst the Goanese on the first floor. Three of these had already died, and the other two had been removed to hospital. The inhabitants, who were more or less panic-stricken, denied having found dead rats, but rats, which had been proved at the laboratory to be plague infected, had been found in the gully alongside the house.

On February 3rd, 1906, two guinea-pigs were allowed to run free in the large room in front, and on February 4th, 1906, two

others were put into the back rooms. Between February 4th, 1906, and February 6th, 1906, two more plague cases occurred, both of which died. The house was now completely evacuated. On February 5th, 1906, the first two guinea-pigs were examined and yielded 77 fleas, which fleas were transferred to two white rats in the laboratory. The guinea-pigs were removed and segregated. Both the guinea-pigs and one of the white rats died of plague. On February 6th, 1906, the other two animals were examined and removed to the laboratory. They yielded 7 fleas. These fleas were dissected and the stomach contents stained and examined. In two of them plague-like bacilli were abundantly present. The guinea-pigs both died of typical plague. All the fleas caught in this house were rat fleas.

No. 17. 554, Lady Jamsetjee Road. This tenement consists of two small rooms, one opening off the other, on the top floor of a two-storied chawl. It was occupied by one of the clerks of the laboratory and his family. On February 22nd, 1906, he brought with him to the laboratory a dead rat which he had found that morning in his house. This rat on examination was found to be plague infected. The occupants evacuated the house that day, and two guinea-pigs were put in and allowed to run free.

On the house being opened on February 24th, 1906, two more dead rats, which proved to be plague-infected, were found. The guinea-pigs were examined, removed to the laboratory, and segregated. They yielded 28 fleas, which were fed on a fresh guinea-pig in a flea-proof cage. This latter animal, as well as the other two guinea pigs, died of plague within a few days.

No. 29. 51, Umerkhadi Road. This tenement consists of a teashop with a small eating-room at the back. It is situated on the ground floor of a large building.

On March 10th, 1906, a dead rat was found in the back room. It was at once thrown out into the street. A few days afterwards an occupant of this room became infected with plague, and about the same time a second case, in which the infection could be traced to this place, also occurred.

On March 15th, 1906, two guinea-pigs were put into the room and allowed to run free. Next day they were examined for fleas, removed to the laboratory, and segregated. The fleas, 62 in number, were transferred to a fresh guinea-pig in a flea-proof cage. All these three animals had died of plague by March 20th, 1906.

A similar series of observations were made in the houses which had been disinfected with HgCl. (1 in 750), or fumigated with sulphur dioxide. The average number of fleas caught in 31 experiments was 40, and the largest number 263. In 9 instances (29 per cent.) the guinea-pigs died of plague.

The Commission also made 42 experiments in which two animals, one protected from fleas by means of a wire gauze curtain, the other not so protected, were placed side by side in a plague house. Both animals were protected both from soil infection and from infection by contact with animals outside, but were equally subject to aërial infection. While not one of the protected animals contracted plague, four of the unprotected ones died of this disease. The number of fleas caught on the unprotected animals was very many times less than the number taken on the guinea-pigs running free in the experiments of the first group. No fleas were caught on the protected animals.

In another series of experiments made in plague-houses the animals were placed in cages, one surrounded with "tangle-foot" (a sticky, resinous substance used for catching flies), the other not so protected. By this contrivance it was expected that fleas which were attempting to get at the animals, in the case of the tangle-foot cage, would be caught on this material, but that in the case of the sand cage with no such barrier to cross they would be able to get at the animal itself. At the same time both animals were protected from soil and contact infection, and were equally exposed to aërial infection.

For the purpose of these observations the following apparatus was devised. A central cage, made of wire netting with a mesh of ½ in., held the animal. This cage was fitted with a bottom of perforated tin to allow urine to drain out. It was prolonged upwards by means of a funnel made of tin, the upper opening of this funnel being furnished with a closely-fitting lid. This top opening gave access to the cage both for the purpose of placing the animal therein and for the purpose of feeding it. The cage stood in the centre of a square sheet of tin, which, in in order to receive it, was provided with a depression. The minimum measurement from the side of the cage to the margin of this tin sheet was 6 in. Lastly, in order to protect the animals from outside contact and in order to prevent the tangle-foot from being destroyed, there was provided an outer curtain of large mesh wire netting which was carried on a tin sheet of the same size as the bottom sheet. The funnel of the cage projected through an opening in the centre of the upper tin sheet, this joint being made flea-proof by means of solder.

The cages which were employed for monkeys were of exactly the same design, but were larger, and were made in teak wood instead of tinplate.

Into each room to be tested two animals were put side by side, one in a tangle-foot cage, the other in a sand cage. At the end of about forty-eight hours they were examined.

First, all the fleas which were stuck on the tangle-foot were removed and placed in alcohol. They were examined under the microscope and identified, a note being made as to whether they were human, cat, or rat fleas. They were then dissected, the stomach contents being removed, spread on a slide, stained and examined for the presence of plague-like bacilli.

Secondly, the animals themselves were chloroformed, and searched for fleas, which were removed. They were then placed in ordinary cages and segregated.

Out of 247 fleas found entangled upon the tangle-foot in these experiments, 147 were human, 84 rat, and 16 cat fleas.

In nine experiments the fleas caught on the tangle-foot contained in their stomachs bacilli microscopically identical with the plague bacillus. Out of 85 human fleas dissected only 1 was infected, while out of 77 rat fleas examined 23 contained plague-like bacilli. Only 4 cat fleas were dissected, and none of these was infected.

These experiments showed that animals protected from fleas by means of a sufficiently broad layer of tangle-foot and placed in plague-infected houses do not contract plague, but the control animals, not so protected, on several occasions (24 per cent.) developed the disease. Out of 247 fleas caught on the tangle-foot, 60 per cent. were human, 34 per cent. were rat, and 6 per cent. were cat fleas. Plague-like bacilli were demonstrated in the stomach contents of 1 out of 85 human fleas dissected, and of 23 out of 77 rat fleas.

Species of Fleas found upon Rats.

A note on the species of fleas found upon rats—*Mus rattus* and *Mus decumanus*—in different parts of the world, and on some variations in the proportion of each species in different localities is contributed by the Hon. N. Charles Rothschild.

Ceratophyllus fasciatus is the flea usually found on *Mus decumanus* in Great Britain; and this is also the case, apparently, throughout Northern and Central Europe. The common house mouse, *Mus musculus*, occasionally harbours this parasite also, though its usual flea is *Ctenopsylla musculi*.

In other parts of the world by far the commonest rat flea is *Pulex cheopis*, which is identical with the *P. murinus* of Tiraboschi, *P. pallidus* of Tidswell (but not of Taschenberg), and with the *P. philippinensis* of Herzog. It has been found in India, Egypt, Transvaal, Valparaiso, Marseilles (Docks), Philippine Islands, Italy, and once in England. In Europe it is more especially found on ship rats.

The Commission also publishes a description, with illustrations, of the physiological anatomy of the mouth parts and alimentary canal of the Indian rat flea, *Pulex cheopis* (Rothschild), and the mechanism of the pricking and sucking apparatus, which contains many new observations upon these subjects.

On the Effect upon Virulence of Passage of B. Pestis through Rats by Subcutaneous and Cutaneous Inoculation without Intermediate Culture.

The following experiments were undertaken with a view to testing the statement previously made by Hankin, Yersin, and Walton, that "passage" of the plague bacillus through a series of rats without intervening culture on artificial media is a matter of great difficulty. This result is of epidemiological importance, for it has been taken to indicate that *B. pestis* rapidly loses virulence in the bodies of rats, and that for the maintenance of the epizootic some intermediate medium or host is a necessity. Hankin has suggested that the bacillus may regain virulence by growth in the soil or the body of an insect.

The rats used were wild Bombay rats; the inoculations

were made from emulsions of spleen, several animals being used at each passage. In this way with subcutaneous inoculation the series was carried to the twenty-sixth passage in eighty-nine days. As far as could be ascertained the virulence for the rat remained unaltered.

By cutaneous inoculation a series of 26 passages without the intervention of any artificial culture and without any considerable alteration in virulence was attained. These experiments thus confirm the work of Otto.

The Immunity of Bombay Rats to the Inoculation of Plague Cultures.

The authors found that 59 per cent. of wild rats could withstand the rubbing on scarified surfaces of emulsions of the spleens of rats dead of acute plague. With subcutaneous inoculation the following results were obtained:

Inoculum.	Amount.	Per cent. Immune.
Broth cultures	0.2 to 1 c.cm.	7.2
Agar cultures	$\frac{1}{5}$ to $\frac{1}{10}$ tube	3.7
Agar cultures	$\frac{1}{20}$ to $\frac{1}{50}$ tube	4.4
Agar cultures	$\frac{1}{100}$ to $\frac{1}{200}$ tube	10.5

On the Infectivity of Floors Grossly Contaminated with Cultures of B. Pestis.

As a result of the evidence which was brought before it, the Indian Plague Commission (1901) concluded that the universal experience of plague in India proved that the principal source of infection is to be found in the houses into which the infection of plague has been introduced; that, in short, plague is essentially a disease of locality. They point out, therefore, that it would be important to obtain information as to the presence or absence of the bacillus in houses suspected of being infective, and as to whether it survives or multiplies as a saprophyte in these houses, special attention being paid to the floors.

Observations by Captain Mackie, I.M.S., and Dr. Winter in the Plague Research Laboratory, Bombay, showed that the plague bacillus in the cowdung floors of native houses does not multiply, but soon dies out altogether; that, in short, it is capable of leading a saprophytic existence in such a situation.

The present observations were confined to the question of how long floors of two different types retain their infectivity for animals, after being grossly contaminated with virulent cultures of *B. pestis*. The floors were those in common use in native houses in India, one being made of earth covered with cowdung, the other of a rough cement made of sand and lime "chunam."

In a small outhouse or go-down of the laboratory, similar to many a house occupied by the natives of Bombay, two floors of the above description were prepared alongside one another. This go-down is a room of about 14 ft. by 7 ft. with a roof of ordinary country tiles. It has only two openings in the walls; one, small and high up, is loosely closed in with a board; the other, larger and opening down to the plinth, is fitted with an ordinary wooden door. Light is practically excluded, and ventilation, as is usual in the poorer class of native house, is provided for only by the loosely-fitting door and window and the country tiles of the roof. With these two floors three series of experiments were made.

In Series 1 and 2 the floors were grossly contaminated with pure virulent broth cultures of *B. pestis*, but in the latter series the floors were kept continuously moist by sprinkling daily with water. They were allowed to dry for twenty-four hours. Then each day for a period of five or six days scrapings were taken, emulsified in sterile broth, and the emulsion rubbed into a shaved and lightly-scarified surface of the abdomen of a number of rats and guinea-pigs.

In Series 3 a somewhat different technique was employed, the object being to ascertain how long a floor grossly contaminated remained infective for animals allowed to run free and to come in contact with it only in a natural manner.

The floors were grossly contaminated with pure virulent cultures of *B. pestis*, a large amount, namely, between 350 c.cm. and 600 c.cm., being sprinkled over each area. The cultures were in all instances of full virulence, being only one remove from an animal which had died of acute plague.

The results of these experiments may be summarized as follows:

1. Floors of cowdung grossly contaminated with *B. pestis* remain infective for forty-eight hours, the infectivity being tested by rubbing scrapings into susceptible animals.

2. Floors of chunam grossly contaminated with *B. pestis* do not remain infective even for twenty-four hours, the infectivity being tested by rubbing scrapings into susceptible animals.

3. Floors of cowdung grossly contaminated with *B. pestis* remain infective for twelve hours but not for twenty-four hours to susceptible animals which were allowed to run about freely on them.

4. Floors of chunam grossly contaminated with *B. pestis* remain infective for six hours but not for twelve hours, the infectivity being tested by allowing susceptible animals to run about freely on them.

The Number of Plague Bacilli in the Blood, Urine, and Faeces Respectively of Rats which had Died of Plague.

The authors have approached this subject by, in the first place, making a quantitative estimation of the number of plague bacilli present in the blood and urine of rats either recently dead of plague or in a moribund condition from that disease, and, in the second place, by determining the percentage of Bombay rats which it was possible to infect by rubbing on the scarified skin the faeces of rats which had died of plague and in the blood of which the bacillus was present in enormous numbers.

From these experiments it was found that the blood of plague-infected rats may contain an enormous number of plague bacilli, even as many as 100,000,000 per c.cm. having been found before death. On the other hand, rats occasionally die from plague with little or no septicaemia. An insect sucking the blood of most rats shortly before death would therefore imbibe a considerable number of bacilli.

While the blood of a rat may have as many as 100,000,000 organisms in a cubic centimetre, the urine of the same animal may have none at all, or at least less than 10 per cubic centimetre. Plague bacilli were discovered in the urine in 29 per cent. of the cases. When the urine does contain plague bacilli they are always present in much fewer numbers than in the blood.

The faeces of rats dead of plague and the blood of which contained abundant bacteria are not highly infective and would appear to play little part in the spreading of the epizootic.

On the Quantitative Estimation of the Septicaemia in Human Plague.

The primary object in undertaking an investigation of this kind was to test, for purposes of comparison, the infectivity of the excreta of plague patients, especially of the urine and faeces in addition to the examination of the blood.

The blood was withdrawn from a suitable vein at the bend of the elbow by means of a sterilized syringe of 5 c.cm. capacity containing 2 c.cm. of sterile sodium citrate solution.

Twenty-eight patients were examined by 74 samples of blood; *B. pestis* was not found in the blood of the 5 who recovered, nor in 7 of the 23 fatal cases. In the 16 positive cases the number found varied from less than 1 to at least 1,000,000 per c.cm.; in half the examinations less than 1,000 were present. In 1 case at least 10,000 bacilli per c.cm. were found as long as 81 hours before death.

On the Existence of Chronic Plague in Rats in Localities where Plague is Endemic.

One of the most striking characteristics of plague, once it has become endemic in a locality, is its seasonal prevalence. At or about the same date it yearly reappears, rises, declines, and disappears. In populous centres a few cases may occur throughout the year, but in smaller centres the disease commonly disappears entirely for at least six months.

The form in which the infection remains latent has been much speculated upon by epidemiologists, and it has been suggested by Simond (1898) and others that it may continue to exist in a chronic form among the rats. Kolle

described chronic plague amongst rats in some of his laboratory experiments, but this form of plague among these animals had not been observed in natural conditions. Tidswell failed to observe it in Sydney amongst the large number of examinations made in that city by the Board of Health during the years 1900 to 1904.

In Bombay, where the Commission has been systematically examining both rats captured in traps and all dead rats discovered by the municipal "sweepers" throughout the year, and where large numbers—sometimes upwards of 5,000—have been examined weekly, chronic plague has not so far been discovered, although plague in rats has been found to exist to a small extent throughout the year.

The existence of chronic plague in rats during the season when neither plague cases nor any acute plague amongst rats occurs has been systematically searched for by the Commission in the case of two villages, Kasel and Dhand, in the Punjab, in which plague has recurred annually for three years without discoverable reinfection, and which are the object of epidemiological study at the present time. Observations upon these villages commenced in December, 1905, at a time of year when neither human plague nor rat plague, as far as could be discovered, existed. There was no special mortality amongst the rats, and dead rats were seldom found. An extensive rat-catching was undertaken with a view to finding out whether plague existed among these animals. During December 1,800 rats were caught alive and carefully examined.

Of this number none were found to be suffering from ordinary acute plague, but seven, which until examined *post mortem* evinced no signs of illness, were discovered to have chronic abscesses. From these abscesses organisms morphologically indistinguishable from *B. pestis* were obtained, and after careful cultural and inoculation experiments no doubt remained that these rats which were running about in apparent health were indeed suffering from chronic plague.

MEDICAL NEWS.

Mr. Roosevelt has reappointed Dr. Robert M. O'Reilly to serve a second term of four years as Surgeon-General of the United States Army.

Mr. Andrew Carnegie, Lord Rector of St. Andrews University, has given £10,000 to build a new university library; he has also given £12,500 to Dundee University College for a physical laboratory.

The annual dinner of the Brussels Medical Graduates' Association will take place at the New Gaiety Restaurant, Strand, W.C., on Tuesday, October 30th, at 7 p.m. An innovation is introduced this year inasmuch as all members are invited to bring ladies as guests.

The office-bearers of the Glasgow Southern Medical Society for 1906-7 are: *Honorary President*, Dr. Jas. Barras; *President*, Dr. T. K. Monro; *Vice-President*, Drs. T. Forrest and J. Grant Andrew; *Treasurer*, Dr. Jas. A. Aitken; *General Secretary*, Dr. J. P. Duncan; *Editorial Secretary*, Dr. R. N. Dunlop; *Seal Keeper*, Dr. R. W. Forrest.

The Central Committee for Scientific Research on the Brain appointed by the International Association of Academies, has recognized the Senckenberg Neurological Institute, Frankfort on the Main, as an international institute for the purpose. It is said to be the first of the kind in Germany.

The Odontological Society of Great Britain will hold the first meeting of its new session on Monday next at 20, Hanover Square. Mr. E. Lloyd-Williams, the President, will deliver his inaugural address; and a discussion on the relation of dental conditions to pulmonary tuberculosis will then be commenced.

At a meeting of the Council of the County Borough of Sunderland, held on October 10th, it was decided to have water, milk, and other foods examined bacteriologically, and an agreement has been made with the University of Durham College of Medicine for the execution of the work.

The Provisional Committee of the National Council of Nurses has arranged to hold a nursing conference at St. George's Hall, Hanover Square, on November 22nd, 23rd, and 24th. On the evening of November 23rd there will be a discussion on maternity nursing, and Dr. Champneys, President of the Midwives Board, will take the chair. On the evening of November 24th mental nursing will be discussed, and Dr. Jones, President of the Medico-Psychological Association, will be in the chair. On November 22nd there will be a discussion on tuberculosis. During the conference an exhibition illustrating the nursing of tuberculosis, maternity, and mental cases will be open.

The annual medical service organized by the Guild of St. Luke took place at St. Paul's Cathedral on October 17th. The officers of the Guild, Dr. S. Russell Wells, Mr. C. D. Marshall, Surgeon-Colonel Welch, and a large number of medical men in academic costume proceeded to seats reserved for them under the dome. The nave and transepts were well filled by the general congregation, of whom many were nurses in uniform. The choir was provided by the London Gregorian Choral Association, the organist of which (Dr. Warwick Jordan) presided at the organ. Minor Canon Besley intoned the service. The psalm was the 94th. The first lesson, Ecclesiasticus, chapter xxxviii, was read by Dr. H. A. Caley; the second, St. Luke's Gospel, chapter xiii, by Sir Dyce Duckworth. Canon Newbolt, Warden of the Guild of St. Luke, preached from the Third Epistle of St. John, 2nd verse: "Beloved, I wish above all things that thou mayest prosper and be in good health, even as thy soul prospereth." He spoke of the work done in the cause of health, bodily and spiritual, by doctors and clergy. That service helped to bring the two professions before the Throne as fellow-workers in the cause of health. Both recognized the inevitable bias towards deterioration in all living things. The clergy knew it as the mystery of sin stamped on the world, the physicians knew it as the susceptibility to pain and disease with which they were in daily combat. Referring to the diminishing birth rate, he asked his hearers to draw the line sharply and clearly at anything which was a profanation of holy marriage. Nothing should be bought, not even bodily health, at the price of dishonour. All should endeavour to stem that which was a national danger, and all should recognize the claim of the entire man to health. Christianity had no quarrel with the human body, only with the flesh: and medicine and religion should work together in various questions, such as that of the diminution of the birth rate. Finally, he appealed for help for the College of St. Luke, founded by the Guild, primarily as a residential college for students preparing at the various London hospitals for work as fully-qualified medical missionaries. Each student cost about £180 a year. The undertaking had started well, and applications for admission were numerous, but increased funds were much needed. A collection, mainly for the College funds, was made. The recessional hymns were "Now thank we all our God," and "Oh, what the joy and the glory must be."

Brussels School of Tropical Medicine.—The Brussels School of Tropical Medicine, founded by King Leopold, was formally opened on October 16th. Its principal object is the study of sleeping sickness. Dr. Van Campenhout, head of the Colonial sanatorium at Watermael, is to be the Director. It is intended that the school shall work in co-operation with the corresponding schools of London and Liverpool.

Guy's Hospital Pupils' Physical Society.—The annual opening meeting of the Society was held at Guy's Hospital on Saturday evening, October 13th. The meeting was preceded by a house dinner in the College, the Treasurer of the hospital, Mr. H. Cosmo O. Bonsor, presiding. There was a large number of new and old Guy's men present, including Sir Samuel Wilks, Dr. Pavy, Mr. Groves, Dr. Frederick Taylor, Mr. Clement Lucas, Dr. Hale White, and others. Professor Clifford Allbutt was the guest of the evening. There were no speeches, but in proposing the health of His Majesty the King, the patron of the hospital, the Treasurer congratulated both the school on the best entry of students that there had been for many years, and the newcomers on their choice of a hospital. At the close of the dinner an adjournment was made to the physiological theatre, where the meeting of the Physical Society took the form of an address by Professor Clifford Allbutt on "Words and Things." Sir Samuel Wilks, who was in the best of health, was in the chair, and proposed a vote of thanks to Professor Clifford Allbutt in one of his usual humorous and reminiscent speeches. The proceedings terminated with an exhibition of drugs, books, and instruments in the Gordon Museum.

Messrs. Allen and Hanburys ask us to state that the fire which occurred at their works on October 11th was confined to two buildings used respectively for the bottling of oils and the manufacture of hospital furniture. Their warehouses, laboratories, offices, and printing department were unaffected, and the general conduct of their business was not interfered with. Accommodation for the two crippled departments has been provided in other parts of their premises.

British Medical Journal.

SATURDAY, OCTOBER 20TH, 1906.

THE VIVISECTION COMMISSION.

On Wednesday, October 24th, the Royal Commission appointed "to inquire into and report upon the practice "of subjecting live animals to experiments, whether "by vivisection or otherwise; and also to inquire into "the law relating to that practice and its administra-"tion; and to report whether any, and if so what, "changes are desirable" will meet for the first time. The sittings, we understand, will be private, and indeed provision has thoughtfully been made to ensure the exclusion of the public by the assignment of a room in Chapel Place, Delahay Street, Westminster, which is not large enough to hold even a small audience. We are not inclined to find fault with this arrangement, as there are obvious objections to the publication of the evidence piecemeal, and possibly distorted, under sensational headlines and with misleading comments. How long the Commission will sit it is impossible at present to forecast. The last Commission on Vivisection began its sittings on July 5th, 1875, and ended them on December 20th of the same year; its report was issued on January 8th, 1876. It is to be feared that this businesslike rapidity will not be achieved by the present Commission, as its meetings are to be held at longer intervals. We are fain, however, to hope that its report will not undergo the protracted incubation of that of the Vaccination Committee, which sat seven years.

We welcome the inquiry because the result cannot fail to be the dissipation of a number of myths invented by prejudice and malice, and sedulously instilled into the minds of persons who have no means of knowing the facts. For years antivivisectionists have carried on a campaign of calumny against scientific men, and have used every effort and every artifice to stir up among the British people hatred of them and of the work they are doing. The Commission can scarcely be called a strong one, and it bears on its face the mark of that compromise so dear to the British soul. It has evidently been the object of the King's advisers to exclude men of extreme views on either side. The case for experimental medicine is represented by Sir William Church, Sir John MacFadyean, and Dr. W. H. Gaskell. Of the attitude of Sir William Collins, we are not in a position to say anything, but of Dr. George Wilson it is possible to speak more definitely. It may be remembered that he was President of the Section of State Medicine at the Annual Meeting of the British Medical Association held at Portsmouth in 1899. In the address[1] delivered by him in that capacity he took the opportunity of making a vehement attack on the work of Pasteur and the "newer methods of treatment" founded thereon. He declared that he was "prepared "to contend that the indiscriminate maiming and "slaughter of animal life with which these bacterio-"logical methods of research and experimentation have "been inseparably associated cannot be proved to have "saved one single human life or lessened in any appre-"ciable degree the load of human suffering." He added: "I have not allied myself to the antivivisectionists, "but I accuse my profession of misleading the public "as to the cruelties and horrors which are perpetrated "on animal life. When it is stated that the actual "pain involved in these experiments is commonly of "the most trifling description, there is a *suppressio veri* "of the most palpable kind, which could only be "accounted for at the time by ignorance of the actual "facts. I admit that in the mere operation of injecting "a virus, whether cultivated or not, there may be little "or no pain, but the cruelty does not lie in the opera-"tion itself, which is permitted to be performed without "anaesthetics, but in the after-effects. Whether so-called "toxins are injected under the skin, into the peritoneum, "into the cranium, under the dura mater, into the pleural "cavity, into the veins, eyes, or other organs—and all "these methods are ruthlessly practised—there is the "long-drawn-out agony. The animal so innocently "operated on may have to live days, weeks, or months, "with no anaesthetic to assuage its sufferings, and "nothing but death to relieve."

The Holy Office has no place in the realm of science, and Dr. Wilson was, and is, fully entitled to express his honest conviction. We do not know whether, in the seven years that have elapsed since he made the pronouncement we have quoted, his opinions have undergone any change; as far as we know he has made no public recantation. As a Royal Commission is nothing if it is not representative of different opinions, we think it well that a man of professional standing who has expressed such views has been appointed a member. The antivivisectionists have, indeed, no cause to complain that they are inadequately represented. Colonel Lockwood and Mr. Tomkinson are militant members of that body; the two sides are, therefore, pretty evenly balanced. Of the two remaining members of the Commission, Mr. Mackenzie D. Chalmers may be taken to represent the Home Office, which administers the existing Act, and Mr. Abel John Ram, K.C., who is Recorder of Wolverhampton, is, in the language of the racecourse, a "dark horse." Lord Selby, the chairman, proved himself as Speaker in the House of Commons at once strong and tactful. His legal training enables him to appreciate the value of evidence, while the fact that he is the son of a doctor affords some ground for the presumption that he will not allow himself to be swayed by antimedical bias. On the whole, we think the Commission will command the confidence of the profession as well as the public. The case is so clear when the issues are not obscured by morbid sentiment, prejudice, and ignorance, that a body of English gentlemen, comprising experts and men of varied learning and knowledge of affairs, may safely be trusted to form a correct judgement.

That the antivivisectionist fraternity—if such a term can be applied to a body rent by most unbrotherly hatreds—are doubtful of the result of the inquiry for which they have been clamouring, is shown by their confidences to sympathetic interviewers. To Mr. Stephen Coleridge it is professedly a matter of indifference how many scientific men say that certain things may be found out by certain experiments. He takes his stand "on the moral ground" and doubtless on the high ethical plane where, like St. Simeon Stylites,

A sign between the meadow and the cloud,

he lives and has his being, he is beyond the reach of evidence that might shake his fixed conviction of the wickedness of vivisectors. He has foreknowledge absolute that whatever law may be made these evil-minded persons will break it, for they "have no more respect for

[1] British Medical Journal, August 5th, 1899, p. 347 et seq.

"the law than have the motorists as regards the speed "limit." Mr. Coleridge has abundantly shown his contempt for the law which regulates the speed of motorists, but that fact, although it may show his disregard for the lives and limbs of his fellow-creatures, does not warrant him in affirming that vivisectors are as lawless in the pursuit of knowledge as he is in the pursuit of amusement.

To those who may—we hope without irreverence—be called "whole-hoggers," the Commission is unacceptable, ostensibly because it does not include a "scientific representative" of antivivisectionism. But where is such a representative to be found? Science speaks with one voice on the subject: the stray members of the medical profession who are claimed as supporters by antivivisectionists may be worthy practitioners of the art of healing, but are utterly unknown as scientific workers.

It is surely a striking proof of the weakness of their cause that the opponents of experimental research are preparing the minds of their sympathizers for defeat before the battle has begun. For ourselves, we await with equanimity the finding of the Commission, feeling assured of the righteousness of our cause, which is that of human progress, and confident in the fairness of the judges appointed to make the inquiry. *Magna est veritas et praevalebit.*

THE ENDOWMENT OF MOTHERHOOD.

In commenting rather more than two years ago on an address, "the diminishing death-rate and what is involved by it," delivered by Professor Taylor of Birmingham before the British Gynaecological Society, in which he stated as the result of large experience that the cause of sterile or relatively sterile marriages was "the deliberate pre-"vention of conception," we said that in the face of this knowledge and in the face of the fact that the "decline "has been greatest in the classes from whom the re-"plenishment of the population is most desirable, the "position is one which demands sound teaching not "only by the medical and clerical professions, but by all "who have the continued welfare of the community at "heart." We are, therefore, glad that Mr. Sidney Webb has had the courage to discuss the matter in two articles published recently in the *Times*.

He first brought forward statistical evidence of a kind with which our readers are familiar to prove that the decline in the birth-rate which is depriving England and Wales of at least one-fifth of every year's normal crop of babies is not accounted for by any alteration in the age, sex, or marital condition of the population, by any refusal or postponement of marriage, or by any of the effects of "urbanization" or physical deterioration of sections of the community. He then gave an analysis of the replies to an inquiry issued by the Fabian Society to 634 persons who were thought likely to be willing to answer a set of questions with regard to the limitation of their families. In social grade they included a varied selection of occupations extending from the skilled artisan to the professional man and the small property owner, omitting, on the one hand, the great army of labourers, and, on the other (with few exceptions), the fraction of the population who have incomes from investments exceeding £1,000 a year. There was otherwise so little selection that it turned out that of 634 forms of inquiry sent out 114 were sent to bachelors and 39 in duplicate (to husband and wife); 174 persons did not reply, and after making various necessary deductions Mr. Webb finally had 316 marriages concerning 618 parents to deal with. In 242 of these marriages, according to the confession of one of the parties, the number of the family had intentionally been limited. In order to gauge the real prevalence of voluntary limitation, however, Mr. Webb makes some further deductions. He excludes the marriages (6 limited and 17 unlimited) which took place prior to 1875 as the decline in the general birth-rate began after that date: since limitation is usually commenced only after the birth of the second child, he also excludes cases in which marriage took place in 1903, 1904, and 1905. He is then left with 212 limited and 41 unlimited marriages; but 13 of the 41 unlimited marriages were childless, so that the number of fertile and unlimited marriages is reduced to 28 out of 252. Taking the ten years 1890-99 alone he found that, out of 120 marriages, 107 were limited and 13 unlimited; but as 5 and possibly 6 of the latter were childless, it appeared that only 8 unlimited fertile marriages were reported out of a total of 120. Mr. Webb calculates that during this same decade the average number of children in limited marriages was 3 children to 2 marriages.

Some information was obtained also as to the causes assigned for limiting the number of children. In 73 out of 128 cases in which particulars were given under this head the poverty of the parents in relation to their standard of comfort was a factor; sexual ill-health—that is generally the disturbing effect of child-bearing—in 24; and other forms of ill-health of the parents in 38 cases; in 24 cases the disinclination of the wife was a factor, and the death of a parent had in 8 cases terminated the marriage.

It is difficult to know what is the absolute value to be attached to these statistics, but their general effect is to confirm conclusions drawn from wider data. His estimate that the total number of children born annually in Great Britain is less than four-fifths of what it would be if no interference took place, is, however, probably excessive, if the observation is intended to apply to the whole population. "In Great Britain," he says, "at "this moment, when half, or perhaps two-thirds, of all "the married people are regulating their families, "children are being freely born to the Irish Roman "Catholics, and the Polish, Russian, and German "Jews, on the one hand, and to the thriftless and "irresponsible—largely the casual labourers and the "other denizens of the one-roomed tenements of our "great cities—on the other. This particular 25 per "cent. of our population, as Professor Karl Pearson "keeps warning us, is producing 50 per cent. of our "children. This can hardly result in anything but "national deterioration; or, as an alternative, in this "country gradually falling to the Irish and the Jews. "Finally, there are signs that even these races are "becoming influenced. The ultimate future of these "islands may be to the Chinese."

There is probably some intentional exaggeration here, for, as Drs. Newsholme and Stevenson have recently pointed out, the contribution to the future population is not directly proportioned to the birth-rate, but is the balance of the birth-rate over the death. When correction is made for this fact, the supposed excessive replenishment of the population from the lower strata of society in a higher proportion than formerly is much reduced.

As to the lessons which Mr. Sidney Webb draws from the facts, one is the same as that drawn a good many years ago in France: that more care should be taken of those children who are born: another is that in order that a due number of children may be born, and born rather of the self-controlled and foreseeing members of each class of the community than of those who

are reckless or improvident, the balance of considerations must be altered in favour of the child-producing families. He asks the nation to face the problem of the systematic endowment of motherhood. He would make unlimited provision for medical attendance on the child-bearing mother and her children, he would cause the municipality to supply milk to all infants, and a free meal on demand to mothers actually nursing their babies, and he would provide free meals for school children; while in the case of the upper middle class he believes that there could be no greater encouragement to parentage in the best members of the middle and upper artisan classes than a great increase in the number of maintenance scholarships for secondary, technical, and university education, and the multiplication of tax-supported higher schools and colleges at nominal fees, or even free.

CONVALESCENT HOMES IN LONDON PARKS.

On October 12th, an influential deputation from the Convalescent Homes Association waited upon the Parks Committee of the London County Council with a view to urge upon that body the desirability of allowing those mansions in the Council's parks which are standing idle to be utilized as convalescent homes for London children needing pure air, and such simple treatment as these homes could afford.

Sir William Church, who acted as spokesman, was accompanied by Colonel Montefiore of the Charity Organization Society, Sir E. Hay Currie and Mr. Willett of the Hospital Saturday Fund, Mrs. Munro of the Children's Aid Society, Mr. Fitzgerald of the Metropolitan Convalescent Institution, Dr. Habershon, Honorary Secretary of the Convalescent Homes Association, and others. Our readers are aware that this question is not a new one, and that we have from time to time urged the advantages to the London poor that would accrue from so obviously desirable a use of derelict mansions standing in salubrious parks. Moreover, the Council's minutes show that since 1899 such a proposal has been favourably entertained. In that year by unanimous consent the house at Golder's Hill—formerly in the occupation of Sir Spencer Wells—was unanimously voted to the use of soldiers convalescent from injuries in the Boer war. In 1900 and 1901 the house was continuously devoted to this purpose with the best results. The Parks Committee, which took the initiative in this matter, specially informed the Council that there could be no legal objection to such course, "as the Act under which the property was "acquired expressly provides for the use of the house "for public purposes." So well satisfied with this experiment was the Parks Committee, that on April 7th, 1903, they appeared to be willing to extend the principle generally to all similar mansions in the Council's parks. They said: "We have arrived at the conclusion that "any houses and mansions in the Council's parks "which are suitable for the purpose should be allowed "to be used as convalescent homes, provided there is no "legal objection to such use."

The deputation might have thought that, having regard to the past history of the question, they would have been merely pushing at an open door, and would have found their wishes cordially entertained. The deputation specifically preferred a request for the use of the first and upper floors of Golder's Hill House, "which is, from its situation and surroundings, the "most suitable of all the mansions." To their intense surprise, the deputation were informed by Mr. Sankey, the Chairman of the Committee, that the rooms in question had been let, at a rental of £15 a year, to the refreshment contractor, who has the basement.

Now we venture to say with all respect that, having regard to previous discussions in the Council Chamber on the use to which the finest rooms in this mansion were to be put, and to the terms of the Act under which it was acquired, such a use for such a rental is little short of a public scandal. On at least three occasions, in 1904 and 1905, the Parks Committee was rebuked and defeated by the whole Council in attempts to alienate the use of this mansion from the public. Its report recommending the granting and fitting up of Golder's Hill House as a residence for the park constable was "postponed," "referred back," "withdrawn," and finally "lost" as the minutes faithfully record. The quartering of the constable in what was once Sir Spencer Wells's drawing room, as Sir William Collins pointed out at the time, could scarcely be regarded in accord with the Act that required that the house should be devoted to some purpose for the health, convenience, or recreation of the public!

We, remembering the animated discussions of two or three years ago, are amazed at the audacity of a committee which could regard as acceptable to the Council and public the letting of this fine suite of rooms to a contractor for £15 a year after having been defeated on the project of a château for the park-keeper. We have searched the Council's minutes for the authority for this brilliant alternative. We presume we have found it on page 281, July 17th, 1906. Buried among numerous recommendations we find as follows, under the disingenuous heading "Refreshment Licenses." "Mr. R. Hendrick, who pays "the Council £75 a year for the privilege of selling re-"freshments at Golder's Hill, desires to utilize the "rooms on the first floor of the mansion in addition to "those he now occupies on the ground floor, and has "offered to pay £15 a year in respect of the accommo-"dation. We think that the application should be "granted, and we recommend accordingly."

Now we should really like to know whether, after the long reports and keen debates that had agitated the Council on this question on previous occasions, and the emphatic opposition of the Council to dealing with the mansion in any hole and corner fashion, this could be regarded as a fair and adequate mode of reintroducing this contentious subject to the notice of the Council. We doubt whether Councillors were aware in passing this recommendation *sub silentio* that they were voting away this charming mansion at a paltry rental for a purpose which only by an abuse of language can be described as "public."

We believe the contractor's tenancy terminates early next year; we trust it will not be renewed, at any rate as regards the first and upper floors. We have no sympathy with those who seem willing to put this house to any conceivable purpose, if only it shall not be used to win back to health by Hampstead breezes the little denizens of the slums whose vitality London's mean streets have lowered and whose health London's parks should restore. The Convalescent Homes Association has now come forward and is ready and willing to act as a go-between, on the one hand being responsible to the Council for the proper conduct of the homes, and on the other securing the admission of the most eligible children from the London hospitals. If the Council were but to realize the incalculable good that might thus be effected to the most pitiable and necessitous of our younger citizens, not a day would be lost in putting to health-restoring and beneficent public use these park mansions which have too long remained as wasted opportunities for doing good.

THE ACLAND HOME AT OXFORD.

A new wing of the Acland Home, Oxford, containing operating, sterilizing and anaesthetic rooms, with lift and open-air balconies, was opened by Professor Osler on October 13th. The enlargement is due to the exertions of Miss Acland, who has collected a sum of over £750 for the purpose; a legacy, and certain conditional gifts raised the total to £1,250, leaving a corresponding sum to be collected. Professor Osler read a letter written by the direction of the Queen congratulating Miss Acland on the great success of an undertaking bearing the name of her great and good father, and expressing Her Majesty's good wishes for the welfare of both branches of the institution. Professor Osler said that public hospitals provided in a remarkable way for the welfare of the poor, but such an institution as the Acland Home was needed for those not eligible for admission to public hospitals. It had been established as a memorial of Mrs. Acland and Sir Henry Acland, for so many years the honoured Regius Professor of Medicine in the University of Oxford, and it had proved particularly useful for acute surgical cases, enteric fever and nervous diseases. In Oxford, where there were some 3,000 undergraduates, it was very important that there should be an institution in which they could be cared for in serious illness; thanks to kindly and generous help given to the building fund, it was hoped soon to claim Mr. Andrew Carnegie's and Mr. F. J. Mason's conditional promises of £250 and £50 towards the total amount required. The Home began taking in patients in 1882 and its success in the early days was due to Mrs. Liddell, to Mrs. Turner, and to Miss Denniston, the superintendent for twenty-two years, all of whom spared no pains nor stinted their labours to make the Home as it should be, an institution ever ready, if possible, to meet the requirements of the public. In 1895 the present site was taken, and in 1897 His Majesty the King, then Prince of Wales, formally opened it. Since then the Home had gone on increasing its sphere of usefulness, which culminated that day in the opening of the new wing. Great praise was due to Mr. Langton Cole, the architect, for the infinite pains he had taken in planning the building and carrying out the wishes of the medical members of the building subcommittee. Mr. Montague Wootten, Chairman of the Committee, announced that an anonymous friend had offered to defray the cost of a glass balcony and an outside spiral staircase. On the motion of Vice-Admiral Sir W. Acland, seconded by the Rector of Exeter College, and supported by Sir Henry Burdett, a hearty vote of thanks to Professor Osler for opening the new building was adopted.

THE "PATENT MEDICINE" FRAUD.

In a leading article last week, the purport of which was to show that the dislike of the medical profession for "patent medicines" so called was mainly altruistic, reasons were indicated for regarding the term "nefarious," which had been applied to the trade in them by a contemporary, as thoroughly deserved. It was also noted with satisfaction that recognition of its evils seemed to be growing among laymen. Ample support for both views has since been brought to our notice in the shape of an interesting article in the current number of *The World's Work and Play*. Its author is Mr. Burnard Grace, who deals with the subject mainly from the standpoint of a resident in the Australian Commonwealth. He has evidently studied the subject with care, and in support of his contention that the trade is detrimental to the public interest, and that so far from being protected by the Government as a source of public revenue, it should be curtailed by legislation, he supplies much curious information about the trade in general and shows in particular the valueless or dangerous character of many popular drugs and the falsity of the claims made in respect of them. These facts will doubtless be novel to many of his readers but reference to them has been made in our columns too often for them to be worth rehearsal. For ourselves, the main interest of the article lies in the circumstance that it is really an appeal to the Mother Country from one of the most important of its colonial offspring for assistance against an evil for the existence of which England, by maintaining the patent medicine duty and its misleading stamp, is partly responsible. The British Government, in short, makes itself a partner in a trade which, in the opinion of many thoughtful persons, ought to be suppressed, by pocketing 12½ per cent. of the ill-gotten proceeds. A further point of interest lies in a quotation from an issue of the *Times* dated seventy-six years ago. The Government of the time was reminded that it had given up its revenue from lotteries because the latter ruined the morals of the community, and was urged to extend the same protection to the public health by abolishing the patent medicine duty the evils of which were clearly foreshadowed in the article. Perhaps, however, the most vivid interest of Mr. Grace's paper attaches to the paragraphs in which he describes the attempts made by the Australian, New Zealand, and other Colonial Governments to grapple with the evil. They have all failed, owing to successful lobbying on the part of the powerful interests engaged in the trade. It is further shown that the local press in Australia and New Zealand, independent as it is in many ways, is in respect of the patent medicine trade at once a slave and a parasite. Whenever it seems disposed to lend its support to endeavours to let the people know the truth about "patent medicines" it is cowed by combinations of manufacturers. Unfortunately much the same might be said of a large proportion of the press in England.

SURGICAL CONVALESCENTS.

Some two years ago there was a good deal of talk about the need for hospital annexes or for places to which patients could be sent immediately after operation so as to make room for others still awaiting surgical procedures. After a few months, however, it subsided without any definite conclusion being reached, but not before a by-product in the shape of a scheme for the foundation of an institution with the attractive title of the "Home of Recovery" had come into existence. What has been the outcome of the latter we are not aware; it may be hoped, however, that it has died a natural death, since, as we pointed out at the time, it merely proposed to provide at a very heavy cost what, if desired, could be easily furnished by existing institutions. We learn from that very useful body, the Convalescent Homes Association, that there are now, in fact, quite a number of institutions ready to receive surgical cases in need of actual treatment and not merely convalescents who can look after themselves. Among these are Mrs. Gladstone's Home, which has nine beds ready for such cases in a specially fitted ward, the Jewish Convalescent Home, maintained by the Baroness de Hirsch, and Mrs. Spender's Home. Altogether, indeed, there are some forty beds available for London, but very few of them at present seem to have been occupied. It may be that the existence of such beds is not at present well known. As, however, they exist, they should be used, for undoubtedly among patients subjected to operation for tuberculous disease there must be very many who would benefit materially by early transfer to country surroundings. The fact that the Convalescent Homes Association has been able to call these beds into existence so soon after the desire for them was expressed, is ample proof of the value of the machinery it has established for the co-ordination of work of convalescent homes, and an

excellent performance for a body which dates its formal existence from little over a year. Undoubtedly there is a great future before it in the way of bringing the authorities of convalescent homes into touch with one another, supplying them with information as to what others are doing, as to the changing needs of the hospitals whose work they supplement and complete, and as to instances in which the resources of convalescent homes have been abused by individuals. To the public at large, too, the work of the Association is valuable, for at its information bureau, 32, Sackville Street, Piccadilly, those who wish to be admitted to homes can at once learn at what institutions beds are available and on what conditions admission can be obtained.

THE PREVENTION OF INDUSTRIAL DISEASES.

THE Prevention of Industrial Diseases is the subject of a short paper in the *Revue Scientifique*, September 29th, 1906, by M. Paul Razous, formerly a factory inspector under the French Government. A few of the well-known dangerous trades are described, and the means by which risks to health may be diminished are discussed. The industrial diseases alluded to are lead poisoning, mercury poisoning, copper, paraffin, and creosote "itch," and the lymphangitis of workers in sugar factories. Mention is also made of the inconveniences caused by sesquisulphide of phosphorus and of the irritation of the skin and other troubles caused by chromic and phosphoric acids and the electrolysis of sodium chloride. In France lead poisoning stands out prominently as an industrial disease; it is attributed to the inhalation of dust and fume, as, for example, in the use of solder. By alternating the employment of the men and getting them to wear respirators and special clothing, and by the frequent use of baths, it is sought to diminish the risks of plumbism. In factories where red lead is made, the conditions may be materially improved by replacing the earthen floor by a tile floor, which can be flushed with water, by putting a hood over the mouth of the furnace, and by having the red lead broken up in closed iron vessels. Stress is laid upon the prevention of smoking when at work, and the desirability of sending out white lead as paint, and not as a dry product. Neither in these recommendations nor in those made by M. Razous in regard to the other industries mentioned is there anything novel. In paraffin workers the dermatitis is limited to the part of the body most exposed to the vapours, especially the forearms. Sesquisulphide of phosphorus causes irritation of the mucous membrane of the eyes, it also induces eczema. Lucifer match makers ought, therefore, to wash their hands and face at the end of each shift in an alkaline solution of sodium bicarbonate. In the breaking-up of sodium chloride and potassium by electrolysis in the manufacture of calcium chloride the men suffer from an "acne" eruption on the skin. It is recommended that the electrolysis should be carried on in rooms where no other work is being done, and that the men should wear gloves and take baths frequently. It is desirable that medical men and engineers should co-operate in measures for the prevention of industrial diseases. The one can assist the other. What will do most to improve industrial hygiene in this country will be the scheduling of dangerous trades under the Workmen's Compensation Act.

LEPROSY IN THE REPUBLIC OF COLOMBIA.

IN a paragraph which appeared under this heading in the BRITISH MEDICAL JOURNAL of March 3rd, 1906, it was stated that "it is estimated that at the present day there are 30,000 lepers in a population of four million" in Colombia. Señor Calderon, the Consul-General of the Republic of Colombia in London, writes, under date October 15th, to point out on the authority of careful statistics made by his Government, that there are not 30,000, but 5,000 lepers, and that the population is not four but five millions. These figures show, he says, that there are not so many lepers in Colombia as in other tropical countries, or indeed as in certain lands far removed from the tropical zone. In corroboration of this statement Señor Calderon has sent a Colombian publication containing an article from the pen of no less a person than General Reyes, the President of the Republic, on the subject of leprosy and its cure. The article appeared in a periodical entitled *El Nuevo Tiempo*, of August 20th. The object of the exalted writer was to bring to the knowledge of the medical profession of Colombia a method of treatment of leprosy recommended by Unna. Incidentally the President complains that exaggeration, "which is one of the most "prominent features of the Latin imagination," had raised the number of lepers in Colombia to the alarming figure of 70,000. We have no wish to justify our own estimate, which was probably founded on a misprint, but we may be allowed to point out that it would appear to be not altogether an easy matter to obtain accurate statistics. President Reyes states that the lepers, who formerly were treated as outcasts and perished of hunger in the fields and in the streets, are now well looked after by the State. There are three leper colonies in Colombia—at Agua de Dios, Contratacion, which will soon be removed to Cepitá, and Caño del Loro. With the object of placing these colonies on a footing of thorough efficiency, the Colombian Government last year sent Dr. Julio Manrique to Europe and to India, with a commission to study systems of isolation, methods of treatment, and, in short, everything relative to leprosy. On the knowledge thus gathered the Government will take action, sparing neither expense nor trouble to relieve the condition of the lepers and to prevent the spread of infection.

BABY COMFORTERS.

IN these days, when science of a sort is common knowledge, and when it is fairly well recognized that the best time for a human being to commence to swallow his proverbial peck of dirt is not his early infancy, it might have been expected that the last word on the evils of the baby comforter had been said. Mothers and nurses, however, are conservative, especially, perhaps, mothers who, having brought into the world particularly large families, are regarded by their neighbours as authorities on the subject of child rearing—in spite of the fact that the majority of their offspring have left their side for the parish cemetery. Hence the manufacture of baby comforters goes on apace, and it needs but little observation to see that their use is as common, or almost as common, as ever. A new attack upon them is therefore in any case to be welcomed, and especially so when the matter is put in a totally fresh light, as in Dr. Pedley's interesting paper, found at page 989 of this issue. The mothers of England are all amateur doctors, and perhaps they consider they are quite as capable as the regular faculty of judging whether it is bad for their offspring to put into their mouths baby comforters which have just been picked up from the dirty floor. Nevertheless they are by nature beauty lovers, so possibly, though the chance of diarrhœa has no fears for them, they may be influenced by the new aspect of the question dealt with by Dr. Pedley. He shows very clearly that the sucking of india-rubber teats brings into abnormal action the muscles of a child's face, and, apart from setting up a practice of mouth breathing, resulting in adenoids, interferes with the natural and symmetrical development of the

face. His observations on this matter were made in Rangoon, where he has the opportunity of observing the growth alike of European and native children, and he proves his point by producing a large number of casts from the mouths of children. It is to be observed that Dr. Pedley's condemnation of teats extends equally to their use in connexion with feeding bottles, for he shows that when a child is taking its nourishment in the way that Nature intended, it really squeezes and does not suck the milk into its mouth. He recommends that if a child really cannot be nursed by its mother, it should be fed from an ordinary feeding cup with a finger-stall attached to the spout, the milk being allowed to drop into the child's mouth, and not sucked by the child. At three months old children can safely be allowed to drink from the cup itself. The way in which Dr. Pedley supports his case is of much interest, and the paper should be read, marked, and inwardly digested by the mothers of England.

THE ACTION ON BACTERIA OF ELECTRICAL DISCHARGES.

In a paper recently read before the Royal Society, Mr. A. G. R. Foulerton and Dr. A. M. Kellas record experiments which show that when bacteria suspended in water are exposed in an atmosphere of common air to the action of electrical discharges of high potential and rapid frequency, such as are used therapeutically in medicine, sufficient quantities of nitrous and nitric acid are taken up in solution within as short a period as fifteen minutes to sterilize the emulsion. The germicidal action of these compounds in their nascent state is favoured by the heating of the medium in which they are suspended by heat rays resulting from the discharge, and also by the concomitant formation of substances such as ozone and peroxide of hydrogen which readily yield up a portion of their oxygen, and so accelerate the interaction of nitrous and nitric acids. When the bacteria are exposed to the action of the discharge in an atmosphere of pure hydrogen, under similar conditions, there is a decomposition of the water vapour necessarily present in the atmosphere of the tube with the formation of hydrogen peroxide in quantities such as are sufficient after a time to exercise a distinct germicidal action in the case of some bacteria. Similar results were obtained when exposure to the discharge occurred in atmospheres of pure carbon dioxide or carbon monoxide. It was also found that when the discharge occurred in an atmosphere of pure nitrogen sterilization might be effected by the action of nitrous and nitric acids. In all the cases which the authors investigated the germicidal action was found to be due to the direct influence of chemical substances formed by the discharge, either from the surrounding atmosphere or from the water in which the bacteria were suspended, rather than from any direct action of the electrical current or its discharge. In cases of lupus and the various conditions of ulceration in which high-frequency discharges are used in medical practice, the authors feel justified in assuming, as the result of their experiments, that the electric current itself has no special or direct injurious influence upon the bacteria present. This treatment they regard merely as an efficient means for the intimate application of chemical germicides formed from the atmosphere in which the discharge takes place.

OSTEOPATHY IN ENGLAND.

This curious system of quackery, which has for some time striven unsuccessfully to obtain legal recognition in its birthplace, the United States, has now been imported into this country. A correspondent has sent us certain documents received by him through the post, apparently from the British Physio-Medical Association, which has its local habitation in Bentinck Street, Manchester Square. In one of the documents osteopathy is described as "a scientific system of natural therapeutics, simple and safe in practice, and approved as a profession by the highest medical and legal authorities abroad"—very much abroad, we should say. The system is said to be absolutely new in this country, though we believe it found a footing in Glasgow, and possibly elsewhere, several years ago. It is now introduced "under the auspices of the Physio-Medical Council of Great Britain and Ireland, by the 'School of Osteopathy,' where thorough tuition by a staff of eminent British teachers, also treatment, may be obtained." In another document the Council is described as "a private institution or society for the study and research of advanced medicine." The Chairman is Mark Lendon-Bennett, M.A., D.Sc., LL.D. (the source of these distinctions is not indicated); among the other officers are a legal adviser, an analytic chemist, two pharmacists, and a director of experimental electrotherapy and radiotherapy. It is interesting to note that among the officers of this society "for the study and research of advanced medicine," all of whom append more or less formidable series of letters to their names, there is none who lays claim to the possession of a medical title of any kind. A graceful concession is, however, made to the profession in the statement that "registered practitioners of medicine and others who have gained distinction in collateral sciences are eligible for honorary membership." The proceedings of the Physio-Medical Council will be published quarterly in the form of "a private journal for the use of members only." The osteopaths would seem to be a body as mystic and as secret as the priest-physicians of ancient Egypt. Nevertheless, our enterprising contemporary the *Daily Express* has been privileged to obtain some information about the system from Mr. Lendon-Bennett, who is, we suppose, the hierophant of the cult in this country. The pathology of the osteopath as expounded by that oracle is simplicity itself: "When the tissues weaken pressure is felt, and this pressure arrests the circulation of the blood and nerve force. The slight pressure may cause intense pain in nerve centres far distant from the seat of the trouble. "By manipulating the tissues, bones, and muscles the nerves are strengthened, and the pressure is removed before the cells become weakened and unable to combat their enemies, micro-organisms." As an example of the method of treatment, reference was made to the case of a young man suffering from indigestion. "He had," said Mr. Lendon-Bennett, "tried cure after cure without relief. I discovered by touching him that one rib was slightly out of place. A little manipulation, which must not be confused with massage, was prescribed, and in a few weeks A. was perfectly well." "One minute flaw," solemnly added the manipulator, "in a perfect mechanism will throw the machinery out of gear." This flaw, it is implied, it is the function of the osteopath to remove with a touch of his delicate, highly-sensitive finger-tip. Osteopathy is held out as a profession peculiarly suitable for women. The fees are high; in one case which has been brought to our knowledge a lady was told that the charge would be 100 guineas! This is scarcely to be wondered at, for in such a school the pupil will certainly learn experience if nothing else, and experience is proverbially costly.

MALARIA IN MADAGASCAR.

From a paper recently communicated by Dr. Blanchard to the Paris Académie de Médecine, it appears that malaria has of late greatly increased in Madagascar, especially at Antananarivo. At this place there were

only 48 deaths from this cause in 1900, increasing gradually to 77 in 1901, 104 in 1902, 137 in 1903, and 277 in 1904. Last year the mortality rose to 686, and for the first four months of this year the deaths reached the enormous total of 980. If these figures are correct, they are certainly alarming, for the population was recently given as 40,000. It may, however, have risen considerably since, for large public works, notably roads and railways, have been in course of construction, necessitating, no doubt, a great influx of imported labour. The Hovas, living for the most part in the more healthy districts, were in no way immune, and have been gradually decimated by malaria, the cases augmenting in number with the progress of the works. Two species of mosquito, till then scarcely recognized in Antananarivo, but afterwards becoming very numerous, were apparently responsible for the spread of the disease—*Pyretophorus costalis* and *Myzomya funesta*. Prophylaxis seems to have been neglected too long, but an energetic campaign is now being organized. In another of the French colonies—Senegal—most careful precautions were taken from the first against mosquito infection on the Dakar-St. Louis Railway, and the immunity shown by those living in the netting-protected houses was very striking.

PELVIC PAIN IN WOMEN.

An article by Dr. Ely Van de Warker, recently published in an American contemporary, deserves careful perusal.[1] He holds that gynaecologists have absolutely neglected the physiology of the organs that give them most concern, and remain in the position of thirty years ago. He denies that the left-sided pain so common in women is of ovarian origin. Its usual seat is about midway in the iliac fossa, a region in which the ovary is never palpated. Another painful region lies between the crest of the ilium and the lower costal border on the left side. It is peritoneal inflammation, a very common disease, not inflammation of the ovarian stroma, which, in Dr. Van de Warker's opinion, causes these pains. On the other hand, uncomplicated parenchymatous oöphoritis, relatively rare, is not a painful disease. It is comparable to orchitis and epididymitis when the testis is well supported and the patient kept in bed. Ovarian abscess is extremely rare. Van de Warker reasonably doubts that the ovary can be defined at all by palpation unless much enlarged and very tender. He asks why is appendicitis so frequently mistaken in young girls for inflammation of the ovary and tube if the ovary be so easily palpable? "The shame of ablating "an organ almost vital in its moral reactions for a disease "that a dose of castor-oil might cure is put upon us and it "must be borne." The nervous endowments of the ovary are not of a high order, its nerves belong more to the trophic centres than to the sensory sulcus of the cord. Tumours even when malignant may cause absolutely no pain, whilst during the periodical congestions to which the ovary is liable, there is pain but it is more often central, sacral, or cerebral than ovarian. The mysterious intermenstrual pain, or *Mittelschmerz*, about which so much has been written is rated by Rosner and Coe as a pelvic neuralgia, without demonstrable lesions, most common in arthritic subjects. On the strength of this reasonable theory, Van de Warker rejects any operation for that malady and supports Coe's condemnation of so-called "conservative" procedures, ignipuncture, resections, and so forth. As for displacements of the ovary, that organ is often found dragged high up above the pelvic brim or pressed down into the pelvic cavity, the patient remaining, nevertheless, free from pain. Ignorance of the truths which the author brings into so strong a light have led the 150,000 physicians of the United States to sterilize 150,000 women! "Some of this large number have "openly boasted, when the lunacy was at its height "that they have removed from 1,500 to 2,000 ovaries. Dr. Van de Warker has yet to see a woman made better in health by the removal of the ovaries. He has scrutinized his own cases most carefully, and the after-results gave rise to a growing suspicion that the ablation of the so-called diseased ovaries was the result of a blunder in physiological surgery. He notes that there are not five cases of appendicitis now operated upon where five years ago there were twenty. Appendectomy was ridiculed and laughed out of court; so will it be with indiscriminate ablation of ovaries. Such is the picture which a distinguished American authority shows us of gynaecological practice in the States at the present time. We trust that it is overdrawn. It is highly interesting to learn that operations for appendicitis are diminishing in frequency, but we were not aware that removal of the ovaries was still so largely practised across the Atlantic. In England the practice is out of favour as a means of inducing expected physiological changes, and is much less popular as a remedy for chronic inflammatory changes in the ovaries than it was ten years since. It is likely to undergo stricter limitations. Still those who favour operative measures may justly ask Dr. Van de Warker and others of the new conservative school to enlighten them more about the very root of the matter. What are the exact sources of these pelvic pains if they do not proceed from the ovary, and when they do proceed from that organ what treatment will set the patient free from them?

[1] The Fetish of the Ovary, *Amer. Journ. Obstet.*, September, 1906, p. 366.

INDIGESTION AND INTERNAL HAEMORRHAGE.

Self-doctoring and amateur diagnosis are perilous things. Indigestion is familiar to all guilty consciences possessing high diagnostic faculties; intraperitoneal haemorrhage is a condition requiring a medical education for its detection. Dr. G. E. Shoemaker of Philadelphia[1] reports a case where both indigestion and internal haemorrhage existed, the patient, ignorant of the second evil, saving herself by recognizing the first. She was a woman aged 31, who believed herself to be six weeks pregnant. She had already suffered at the end of the fourth week from a severe attack of abdominal cramp. Then she remained free from discomfort for a fortnight, until one day when she ate heartily of soup, pie, and peanut candy. To this indiscretion in diet she very naturally attributed the severe abdominal pains and violent vomiting which occurred within the next six hours. In the course of the following night the pains became worse, and the patient took eight tablets of chlorodyne, each containing one-eighth of a grain of morphine. Early in the morning she was seen by a physician, who was able to recognize extrauterine gestation, in spite of the complication of the diagnosis by acute indigestion, vomiting produced by improper food, and strong doses of anodynes. The pulse was small and very rapid, the senses blunted, and the skin very pale, although the patient's complexion was naturally ruddy. The physical symptoms were clear. Dr. Shoemaker operated, removing a ruptured tubal gestation sac 3 in. in long diameter. The patient recovered.

[1] Ruptured Extrauterine Pregnancy with Amniotic Sac Intact, *Amer. Journ. Obstet.*, August, 1906, p. 257.

DIETETICS IN HEALTH AND DISEASE.

It is a curious and unsatisfactory commentary on our present system of medical education that, while it concerns itself seriously with the tuition of students in the preliminary sciences, and demands from them a fair knowledge of medical and surgical diagnosis before admitting them members of the profession, yet in the two great subjects of applied therapeutics and dietetics,

it turns them loose on the world of disease without having taught them how to write a compatible and well-arranged prescription, or given them any definite information on food values and the dietetic modifications which should be adopted to meet the requirements of sick or ailing humanity. None the less, in the matter of treatment, which, from the patient's point of view, is the practical application of the doctor's knowledge, these are the very fundamentals upon which success in practice depends. To judge from the limited space devoted in most textbooks to treatment as a department of the healing art, it would almost seem as if the writers laid little store by its importance, and regarded as immaterial the adoption of such means as we possess for the relief of the symptoms they take such pains to describe, or the cure of the disease whose etiology and pathology they discuss in such detail. But, since the prosecution of medical study is to the large majority of those who engage in it an acquisition of brain capital on which they hope to earn an adequate return from subsequent practice, it is obviously a serious flaw in our plan that the subjects upon which, beyond all others, the financial rewards of the practitioner depend, should be so neglected that on no other which enters into his curriculum is the newly-fledged doctor so badly informed. We have frequently pleaded for reform, but, though in some schools a better system of instruction is now adopted, in most this all-important subject of drug and food administration to the sick is inadequately taught. This is especially true of dietetics, which is nowhere taught systematically and compulsorily. Therapeutics finds a place in every curriculum, but it is only the theory of drug administration that is studied; the art of prescribing is very generally neglected. Although the question is not dealt with in its relation to the sick, we recommend to the perusal of all medical men who have the interests of their work at heart a lecture entitled *On Foods and Feeding*, recently delivered by Dr. G. B. Ferguson to the Cheltenham Natural Science Society. Within its compass there will be found a concise and accurate epitome of the principles which underlie the scientific use of food and drink for the maintenance of the human body in health and vigour. Dr. Ferguson points out that "it is mainly a question of heat production"; and, after relating the proportions in which the elements of food are necessary in order to maintain a physical and mental equilibrium of health, he deals with various articles of ordinary diet in detail, and shows how their calorie value is the proper basis on which the amount taken ought to be estimated. This is common scientific knowledge, but it is set forth in Dr. Ferguson's lecture in such an effective and readable way that its interest cannot fail to appeal to a wide circle of readers. Most of all, it should prove of value and interest to the members of his own profession, because the application of the principles of food administration which he describes as necessary to supply the needs of the body and to keep it in health can be, once they are understood, easily adapted to meet the necessities of the organism when diseased, so as to compensate the inadequacies of disturbed metabolism. The rough-and-ready method in which food is administered both in private and in hospital practice deprives the patient in many instances of the help towards rapid recovery which his diet more skilfully administered would render. You may "dig your grave with your teeth" when in sickness as readily as when in health, and it is a reproach to our present system of practice that, though drugs are ordered with the most scrupulous care as to dosage and indication, food, which is more essential than medicine, is withheld or allowed according to orthodox tradition or personal conviction, but without a due regard to the idiosyncrasies of the patient or the scientific requirements of his tissues. A more accurate knowledge of the value of foods in heat units would lead to greater precision in the directions given for their administration, and to a more sound and reasonable system of dietetic management, whether in health or disease.

THE INTERNATIONAL CONGRESS ON THE CARE OF THE INSANE.

The International Congress on the Care of the Insane was held at Milan in the last week of September. Nearly all civilized States were represented by delegates. After the preliminary business had been disposed of, the proceedings began with the moving of a resolution by Dr. Frank, of Zürich, that it was desirable to establish an international institute for the purpose of initiating and directing combined efforts for the prevention of mental diseases. After some discussion the resolution was adopted, and an international committee is to be appointed to draw up a scheme for the foundation of an institute in which the etiology of insanity and degeneracy and the means of prophylaxis should be thoroughly studied. The Committee will be instructed to take steps to secure the co-operation of the various Governments. Professor Lombard offered the Castle of Trevano at Lugano as a meeting place for the Committee. Among other subjects discussed was the assistance of convalescents from insanity, dispensaries for sufferers from nervous disorders, and assistance for abnormal persons. In regard to this matter Professor de Sanctis insisted strongly on the necessity of instituting a system of careful prophylaxis, social as well as medical, against weak-mindedness. In a discussion on the protection of society against criminal lunatics, Professor Zuccarelli of Naples urged that measures should be adopted to prevent procreation by degenerates, and that in the case of tuberculous subjects taken charge of by the State, sterilization should be enforced as a preliminary to treatment. Professor Tamburini proposed resolutions that the medical officers of lunatic asylums should be State functionaries; that asylums for criminal lunatics should be established by the Government; and that a central board of inspection should be formed of specialists in mental diseases of acknowledged reputation. These proposals were approved of by the Congress.

PIROPLASMOSIS.

We have received the following telegram from Lieutenant Christophers, Madras, India: "Publish confirmed Koch's development piroplasma bovis in canis." A considerable amount of work has recently been carried out by Koch on the piroplasma diseases of animals in East Africa chiefly as regards Texas fever, a disease due to the *Piroplasma bigeminum*, and Rhodesian fever, a disease due to the *Piroplasma kochii*. Similar parasites are found in dogs, producing in those animals a disease called malignant jaundice, and it is with those parasites evidently that Christophers has been working, obtaining results similar to those of Koch in cattle. Ticks act as the spreading agents of those diseases, the parasites undergoing a development in the body of the insect and in some way or other infecting the eggs and so the new young host of ticks. The telegram does not make it quite clear if this is what is meant, but the paper that will follow in due course will no doubt explain matters more fully.

The seventh annual Huxley Memorial Lecture before the Anthropological Institute of Great Britain and Ireland will be delivered this year by Professor W. M. Flinders Petrie, D.C.L., F.R.S., who has selected for his subject Migrations. The lecture will be given in the theatre of the Civil Service Commission, Burlington Gardens, W., on Thursday, November st, at 8 30 p.m.

Manchester.

The Planning of Suburbs.

A Conference convened by the Lord Mayor of Manchester and attended by representatives of a large number of corporations and local authorities, including those of Leeds, Sheffield, Liverpool, and Birmingham, was held in the Town Hall, Manchester, on October 11th. The object of the Conference was to discuss the advisability of conferring on local authorities powers with reference to the planning of suburbs and the laying out of areas between towns. It is proposed to hold similar conferences in other towns with a view of educating and arousing public opinion on the subject. The following resolutions were carried:

That in the opinion of this Conference it is necessary, for the safeguarding of the health and welfare of the inhabitants of our towns, that parliamentary powers should be conferred on town councils and other local authorities to enable them to control, by means of town extension building plans, the laying out of all land within the boundaries of the towns, or which may hereafter be incorporated.

That in the opinion of this Conference it is desirable that some central authority should be empowered to confer with town councils and other local authorities in regard to the plans for contemplated building upon the areas between contiguous towns.

Royal Infirmary.

The Board of Management of the Royal Infirmary has appointed Mr. Walter G. Carnt superintendent and secretary of the Infirmary, in succession to the late Mr. Saunder, at a commencing salary of £600 per annum. Mr. Carnt is at present secretary and superintendent of the Derbyshire Royal Infirmary at Derby; secretary to the Infirmary Convalescent Home, Holbroke, near Derby; and secretary to the Infirmary Sunday Committee. These appointments Mr. Carnt has held since 1892. Before this Mr. Carnt was in the Civil Service, and was attached to H.M. Prison at Derby: whilst for eight years, by the appointment of the Home Secretary, he was clerk to the visiting justices of the prison. Mr. Carnt is in the prime of life, being 46 years of age. There was a very large number of applicants. The new superintendent comes to Manchester with the highest recommendations.

Vegetarian Conference.

The Vegetarian Society held its fifty-ninth annual meeting in Manchester on October 15th, when representative vegetarians from all parts of the kingdom assembled. The burden of the speeches was the description of personal experiences after giving up the use of flesh food. Professor Mayor of Cambridge, hale and hearty at 82, eulogized the economy and cheapness of a vegetable diet, not to speak of its "greater healthfulness." He likened modern public banquets to a visit to Noah's Ark, on account of the numberless kinds of fish, flesh, and fowl set before the diners. Fourpence a day would suffice for a vegetarian diet, the most humane, cheapest, and healthiest of all. One speaker asserted that it was not true that everybody ate too much, for there were 10,000,000 of the very poor who were underfed to the extent of 25 per cent. He claimed, however, that life could, if necessary, be sustained in the fullest vigour on less than 2d. a day. On the other hand, it was stated that the Salvation Army in its training home at Clapton allows 7½d. a head for a day's food. The Secretary described an experiment on the feeding of 112 boys from the Ardwick Boys' Home at the cost of 4½d. a head a day. Their meal was lentil soup, potato pie, and jam roll, and they not only enjoyed it, but had as much as they could eat. It was stated that the educational authorities in Glasgow, Paisley, and Bridge-of-Weir had appointed a teacher who would devote his whole time to instruction in vegetarian cookery. Dr. Howden, speaking at the public meeting, expressed himself as strongly in favour of establishing a Chair of Dietetics in every medical school in the country.

Edinburgh University Club Dinner.

The annual dinner of the Edinburgh University Club was held at the Queen's Hotel on October 11th. Dr. R. A. Murray of Stockport was in the chair, and a large number of former students of the university met to welcome the principal guest of the evening, Sir Alexander R. Simpson, Emeritus Professor of the University of Edinburgh. Sir Alexander was in anecdotal vein, and entertained his hearers with his remembrances of many men who had added to the fame of the university, more especially to that of its medical school.

Norwich.

Norfolk and Norwich Hospital.

At the quarterly meeting of the governors of this hospital on October 13th an illuminated testimonial was presented by the Board of Governors to Mr. Charles Williams, F.R.C.S., on the occasion of his resignation of the post of honorary surgeon, after holding that office for thirty-six years. Mr. Williams, who was at the same time elected Consulting Surgeon to the hospital, returned thanks for his election and for the testimonial.

Out-patient Letters.

At the same meeting Sir Charles Gilman moved, on behalf of the Board of Management, that out-patient letters should be abolished. The Board, he said, considered that the only real test should be whether or no a patient was a suitable case for hospital treatment. Mr. Rudling, in seconding the motion, said that, for reasons connected with the working of medical clubs and friendly societies, the abolition of outdoor letters was highly desirable: he had had to remonstrate with members of societies who had received money to provide themselves with treatment, but had yet gone to the hospital; that abuse should be prevented. If a member of a Friendly Society went to a hospital he should be seen by the staff, and referred back to his own medical man if not a fit case for hospital treatment. The Rev. W. H. Cooke, who opposed the motion, read a letter from the assistant secretary to the Hospitals Sunday and Saturday Fund opposing the abolition on the following grounds:

(*a*) That the clergy for their several parishes and the collectors for the workshops and factories will resent being deprived of the privilege of applying for recommendations, as formerly enjoyed. (*b*) That the hospital, by opening its doors, will create abuse, which this fund endeavours to prevent, and has prevented, as all recommendations are only obtained from the knowledge of the circumstances of the applicants, and, so far as the factories and workshops are concerned, no one is allowed to participate in the charities unless they are subscribers to the fund. (*c*) That by the abolition of recommendations the applicants received through the factories and workshops branch will greatly resent examination as to their circumstances by the hospital authorities, and therefore the interest which this fund has created amongst them will be greatly diminished if the hospital adopt this principle, and the evident consequence will be a decrease in the amount collected. The amount from this branch last year was £671 15s. 11d., of which amount the hospital received £456. (*d*) That it is my firm conviction that the amount yearly raised by this fund by its several branches will decrease, and that the amount given to the hospital alone by this fund last year, £1,234, will not be obtained in the future. The total amount given to the charities by this fund last year was £1,897 4s., and if a similar amount cannot be raised in consequence of the action of the hospital authorities in withdrawing the outdoor recommendations, the other charities for which this fund collects will suffer.

The Rev. Dr. Barrett, as one of the secretaries of the fund, took the opposite view, and said that it would have to be remembered that, as a matter of fact, 6,866 of the 9,300 out-patients seen in 1905 attended without any letter of recommendation. A large number of out-door patients who applied for relief were not suitable cases for hospital treatment, and this was an abuse. Mr. H. A. Day was in favour of abolishing all recommendations, which meant much trouble for the poor and patronage for the rich, two very bad things.

The proposal was eventually carried by thirty votes to eight, and the Board of Management was empowered to make the necessary alterations in the rules.

Birmingham.

The Children's Hospital has recently been opened for clinical instruction as one of the associated hospitals. Ward classes are held weekly by members of the medical

staff. Hitherto there has been no systematic teaching on children's diseases in Birmingham, and students have keenly felt the want of instruction in this important subject.

South Wales.

Welsh Water for Wales.

The medical officer of Pontypridd (Dr. Howard Davies) has further complaints to make of the quality of water supplied to the town. In his report to the Health Committee Dr. Davies says:

I regret to state that the water supply of your district has been very unsatisfactory during the past four weeks. The water has presented the usual characteristics associated with the want of filtration. . . . Samples of the water had been submitted for analysis at the Cardiff and County Public Health Laboratory. According to the report of the analyst sample No. 1 showed lead to be present to the extent of one-sixth of a grain per gallon, and the amount of lead in the second sample was 1.30 of a grain per gallon. As regards reaction, the water in both samples was stated to be neutral. The analyst, Mr. Sugden, states in his remarks anent the water that it is a very soft water, containing dissolved lead. The amount of organic matter and also the nature of suspended matter are less satisfactory than in previous samples. The analysis indicates that the sample is not of a high degree of organic purity.

Dr. Davies adds that the fact of the presence of lead in the water was pointed out by him in his annual report of 1905, when he stated that the water supplied by the Pontypridd Waterworks Company possessed strong plumbo-solvent properties, which acted upon the leaden service pipes, dissolving the lead, and having a prejudicial effect on the health of the persons drinking the water. Dr. Davies states that during the intervening fifteen months from the time lead was found in the water no steps whatever had been taken by the Water Company to remedy the condition or quality of the water that led to such deleterious results, and he adds:

Through all these months the company have treated the public with utter indifference, amounting almost to contempt, and have shown a lack of enterprise in remedial measures to rectify the existing state of the water supplied by them. . . . The heedlessness and apathy of the Pontypridd Waterworks Company is astounding.

A conference of the local authorities of the County of Glamorgan was held at Gwyn Hall, Neath, on October 8th for the purpose of discussing what steps should be taken to procure a proper water supply for the county. The County Medical Officer submitted a report brought up to date. There was a large and representative attendance, presided over by Mr. J. Blandy Jenkins, J.P., the Chairman of the County Council. The Chairman said that since the last conference was held an Act of Parliament had been obtained, empowering the county authorities to inquire into the existing sources of supply and make inquiries and surveys. During the past ten years the population of the county had increased by more than 133,000, and with the prospective establishment of new works, etc., there was every reason to believe that this rate of increase would go on for many years. Before setting to work to discover new sources of supply, the County Council had thought fit to summon this conference, and he was glad to say that all the district councils had accepted the invitation to send representatives, whilst the municipalities of Cardiff and Swansea had also sent representatives. Probably the best course to pursue would be to establish a combination of all districts, and to form a Water Board for the whole county, and in order to do that it would be necessary to obtain another Act of Parliament. It was also necessary that some outline of a measure should be made, and the conference had to decide whether it was expedient to form a Board, whether they wished the County Council to employ an expert for the establishment of such a Board, and whether it was expedient to ask other authorities to join. The County Council had done all they could in the matter by getting the Act of Parliament passed. A Maesteg representative asked if the expense was to be divided equally between those districts which had supplied themselves with water and those which had not. The Chairman said that was a matter which must be worked out by an expert. He understood that exclusive of the private companies in existence the local authorities had spent £1,100,000 upon their water supplies. Mr. W. P. Nicholas, Clerk to the Rhondda Urban District Council, suggested that the conference should first consider the question of an expert's report. It was evident that something should be done to secure an adequate supply of water for the county. He would be prepared to support a suggestion that a scheme be drawn up and submitted to each of the District Councils, but it would be rather too much to ask them there and then to support an abstract resolution which would mean the establishment of a county board without knowing the views of Cardiff and Swansea. The Rhondda was coping with the difficulty, and if a scheme could be devised which would be equitable to all parts of the county it would be worthy of consideration.

Mr. C. B. Jenkins, Clerk to the Pontardawe Rural District Council, suggested that an arrangement be made—say, with Merthyr and Neath Rural Districts—whereby an adequate supply for the whole county could be obtained for a long time to come from the Taff Fechan River and the Taff Fawr Valley on the one side and Ystradfellte on the other. Considerable discussion followed, after which Mr. W. P. Nicholas proposed that they should ask the Glamorgan County Council to engage an expert or experts to prepare a report as to the best method of dealing with the present and the future water supply of the administrative county, and that a further conference be called to consider the report. He believed that, properly husbanded, the supplies of Merthyr and Neath would meet a considerable amount of their difficulties, and he pointed out that the action of the County Council was many years behind the times. For instance, the Cardiff pipes, fully charged with water, passed through Pontypridd, whilst the Pontypridd people were suffering from water famine. If there had been one joint scheme Pontypridd could have had had the benefit of the Cardiff supply at a far cheaper rate than at present. The motion was carried unanimously. The Chairman said the Water Committee of the County Council would do their best to secure the best possible scheme, and he added that he thought the conference could not do better than leave the matter in their hands.

At a special meeting of the Brynmawr District Council held on October 8th the Medical Officer of Health (Dr. J. L. Thomas) referred to a disposition among some of the townspeople to blame the officials for the recent drought, diphtheria epidemic, and the smells from the drains, and said that he absolutely refused to be made a scapegoat. He had, in all his annual reports, pointed out that the storage capacity at the reservoir was insufficient, seeing that the water-carriage system prevailed, and had recommended the Council to make a bigger reservoir. A member remarked that Dr. Thomas should treat the assertions with the contempt they deserved. The Chairman also said that Dr. Thomas had carried out his duties very efficiently, and that neither he nor any one else had any power over the clouds. The incident then closed. As regards the water supply, a further meeting was held the same evening to consider a notice of motion by the Chairman to the effect that the storage capacity of the reservoir be increased so as to allow an ample and constant flow of water into the town, the Chairman stated that the Council would be sorry to have a recurrence of the water famine experienced during the past few weeks, and unless and until they had provided for increased storage, there would be a water famine every year. The question must be faced, and the Council would have to get as much storage capacity as they could, and as quickly as possible. They had some time back engaged experts to prepare a scheme, and whether the Council liked it or not they would have to accept that scheme or pay the engineers' commission. In reply to suggestions that the proposed increase of storage capacity would prove insufficient, the Chairman said that, allowing for a population of 7,000, the proposed enlargement of the reservoir would give 114 days' supply. The motion that the plans already prepared be considered was carried with two dissentients.

Open Air at the Cardiff Infirmary.

Some time ago Viscount Tredegar undertook to defray the cost of erecting verandahs to wards in the Cardiff Infirmary. These verandahs are 8 ft. wide and 50 ft. long, and face west; each of the wards (male and female, medical and surgical, as well as the eye and children's wards) open out on to the verandahs, and the patients are

easily moved on to the latter by a nurse without assistance, for the beds now in use are provided with 4-in. castors with india rubber tyres. The verandahs have now been in continuous use for two years, and at a meeting of the Board of Management on October 10th the following resolution, unanimously adopted by the Medical Board of October 2nd, was unanimously approved:

> The Medical Board desires to give expression to its high appreciation of the immense service rendered by the use of the verandahs in promoting and accelerating the recovery of many patients, medical and surgical, treated in the open air, besides conducing greatly to the comfort and general happiness of many others.
>
> The Medical Board begs to suggest that Viscount Tredegar should be informed of the great benefit his generous gift has conferred on the patients of the institution.

Scotland.

EDINBURGH UNIVERSITY UNION EXTENSION.

On October 19th the further instalment of the extension of the Edinburgh University Students' Union will be formally opened by the Lord Rector (Mr. Haldane) and the Chancellor (Mr. A. J. Balfour). This is the third and last part of the extensions decided on some three years ago, and will cost something like £26,000, while the cost of the original building and equipment was some £16,000 about a dozen years ago. The addition embraces accommodation on a sufficient scale for the literary, scientific, and athletic activities of the members. It includes a large new library, a large new reading-room—which will also be available as a small hall—writing room, committee rooms—two of which are meant to provide special accommodation for the various University Societies and their Committees and officials, and two fives-courts, as well as the enlargement of the entrance hall and a complete new service block. The library—49 ft. 6 in. by 25 ft. and 19 ft in height—is on the basement floor, has space for 8 000 volumes, and has eight bays formed by projecting bookcases, giving quiet and convenient places for study. The old library and committee room have been thrown into lobby space, giving a large square entrance hall. The luncheon room has been enlarged to give space for from 300 to 350 people. The entire scheme of additions and alterations should add largely to the efficiency of the Union and assist in the development of a phase of student life which is of vast importance, and has in the Scottish universities until recently been quite neglected. On the conclusion of the opening ceremony a reception will follow, and in the evening a number of guests will be entertained to a house dinner. There will also be a reception on Saturday, October 20th, and a ball on Monday, October 22nd. Sir Donald Currie and Mr. Andrew Carnegie have each given £6,000 towards the cost of the extensions.

UNIVERSITY OF EDINBURGH.

The buildings which have been reconstructed out of the old City Hospital in Infirmary Street to serve as the physical and engineering departments of the University, were opened on October 16th, by Andrew Carnegie. The Right Hon. A. J. Balfour, Chancellor of the University, presided, and at the beginning of the function, conferred the honorary degree of LL.D. on Mr. Carnegie and on the Earl of Elgin, chairman of the Carnegie Trust.

The new buildings were then declared open by Dr. Carnegie, after which he gave an address on the advent and progress of science and the applied sciences especially in the Scottish Universities. In concluding his address Dr. Carnegie said:

"Science has arisen and established her claim to equality. We have long had the Republic of Letters; we now hail the Republic of Knowledge. The ceremony of to-day bears testimony to the growing power of Edinburgh University; her prominence as a teacher of one of the noblest of all professions—perhaps the one in which those who practise it devote gratuitously a greater part of their time and attention than any other profession—is not likely to be lost. On the contrary, all evidence to-day leads to the opposite conclusion. She is to remain famous for her Medical School, and is now also destined to increase her reputation as a scientific instructor through the possession of the increased facilities now provided. The Physical Laboratory and Engineering School, which, with the cordial co-operation of the municipal authorities, have been so ably secured by the Principal and the University Court, are the necessary tools which will enable her to extend her work in these important branches of knowledge. They mark an epoch in her long career, and are to testify to future generations that the officials in charge of her work in the beginning of the twentieth century were alive to the duty of keeping her abreast of the new knowledge, of enlarging the field of her activities, and of welcoming the development of the scientific and so-called practical courses, thus keeping her true to her high position, in the front rank in all branches. I heartily congratulate the University of Edinburgh upon to-day's acquisition, from which I hope are to come worthy successors of Faraday, Lockyer, Becquerel, Curie, Rutherford, Rayleigh, Ramsay, Mandelieff, Kelvin, Tait, and others, to give her such fame in science as the names of Hume, Carlyle, Dugald Stewart, Hamilton, Chalmers, Simpson, and others have already conferred upon her in other fields of knowledge. I now declare these buildings open."

In moving a vote of thanks to those who had contributed towards the erection of the new buildings, the Chancellor made an interesting and amusing speech on what he called "the taint of metaphysics," which appeared to be inseparable from the Scottish character, and which even Dr. Carnegie, despite his devotion to practical science, could not altogether avoid.

Opening of the Winter Session.

The medical classes of the University and Extra-mural School were opened on Tuesday, October 16th, for the winter session.

Edinburgh Women Graduates and the Parliamentary Vote.

The women graduates have decided to appeal against the judgement of Lord Salvesen, who negatived their claim to vote at the election of a member of Parliament for the Universities of Edinburgh and St. Andrews. The case will accordingly come before the First Division of the Court of Session.

EDINBURGH ROYAL INFIRMARY.

At the weekly meeting of the managers on Monday, October 15th, the following appointments were made: Assistant Physician, Harry Rainy, M.A., M.D., F.R.C.P.E.; Assistant Physician to the Skin Department, R. Cranston Low, F.R.C.P.E.; Assistant Surgeon to the Ear and Throat Department, John S. Fraser, M.D., F.R.C.S.E. At the same time Gilbert Britto, M.B., Ch.B., was appointed Clinical Assistant to Dr. George Mackay for six months as from October 1st.

THE WESTERN INFIRMARY OF GLASGOW.

The managers of the Western Infirmary have issued an appeal for funds for a further extension of the infirmary in addition to the new wing which was opened this week, and which gives accommodation for 70 additional patients.

There was no formal opening, as the managers decided to make use of these beds at the earliest possible moment in order to admit some of the most urgent cases. There are still over 500 cases waiting for admission.

The new wing consists mainly of three large wards with their accompanying offices, side wards, residents' rooms, etc., and of the central or staircase block, with the lifts, which will eventually communicate with the whole extension contemplated. The ward unit, repeated on three floors, comprises a ward 81 ft. by 28 ft. by 14 ft. 8 in. The walls are hollow, and tiled to a height of 6 ft. 6 in. from the floor. The upper walls and the ceiling, which is concave, are of parian cement finished with enamel paint, the floors are fireproof and are finished with polished teak parquetry. The heating of the building is on the Reck system; there is a radiator under each window, with direct air inlet, and at the top of the building is a slow-moving fan, which can be used as required for the extraction of vitiated air. The bedsteads have been specially designed, and are known as the Glasgow Western Infirmary pattern. They are fitted with patent spring mattresses diagonally woven to prevent sagging, and the top and bottom rails are specially designed to suit either surgical or medical cases. A portable electric light is provided at each bed. All the furniture of the wards, couches tables, and cabinets, are

on rubber castors to avoid unnecessary noise in movement. Two towers at the north-east and north-west corners of the ward provide the sanitary annexes. These are connected to the ward by balconies, across which runs a low passage half the height of the ward, the sides formed by doors opening on to the balcony. The doors are fitted with hopper ventilators, and the whole forms a very efficient cut off from the ward. On the north-east side are the sanitary towers for patients. The north-west tower forms the sink-room, provided with all the most modern sanitary fittings, and in the window bossing is set a large cupboard for keeping utensils, with open shelves and sheet iron doors; it has ventilating gratings at the top and bottom. These rooms have terrazzo floors, and are tiled to the ceiling so that absolute cleanliness may be maintained. Opening off one of the balconies at the north end an ample fire-escape stair is provided, and fire hydrants are situated in the main corridor of each floor. Adjoining the ward at the south end are the ward kitchen and the patients' lavatory and bathroom. The kitchen is on the east side, and contains in the window-bossing a ventilated cupboard, with marble shelves and sheet-iron doors, for milk and butter. The ward lavatory opens from the corridor on the west side, and it contains, in addition to the patients' washhand basins, a rail for the drying of waterproof sheeting and accommodation for the portable bath. Opening off this, a small projection provides a nurses' lavatory, and another door gives access to the ward bathroom, which contains an iron porcelain-enamelled bath by Messrs. Doulton and Co., moving on a swivel at the trap, and with rubber-tired wheels and a brake, enabling the bath to be set in any position in the room. The water is supplied to the bath from a fitting attached to the wall which has a special mixer and is worked with a key. This bath has been specially designed for hospital work, and the Western Infirmary is the first institution in which it has been used. It has many advantages over the ordinary form of bath, the fact that it is movable permitting every part of the bathroom to be kept thoroughly clean and fresh; and it also allows a smaller bathroom to be used, as it can be set diagonally in the room when it is necessary to have access to both sides of the bath at once. Beyond these rooms are the sisters' and side rooms, a cleaner's closet, and the linen room. A large room separated from the corridor by a low screen forms a day room for the ward. Beyond this again and opposite the staircase is a suite of rooms for the resident, consisting of bed, bath, and sitting rooms, and adjoining this is the test room.

The ward on the first floor contains male medical patients under the charge of Professor Samson Gemmell. The two flats above are surgical wards under the charge of Sir Hector Cameron. A certain amount of rearrangement has been made in the allocation of wards in the old building, whereby Dr. Nicoll obtains two surgical wards and Professor Stockman an additional small female ward.

The New Professor of Physiology in the University of Glasgow.

Professor D. Noël Paton was, on October 16th, in the Hall of the Royal College of Physicians of Edinburgh, entertained at dinner by his friends in the medical profession of Edinburgh and elsewhere, previous to his departure to take up the duties of Professor of Physiology in the University of Glasgow. Sir John Batty Tuke, M.D., M.P., presided, and the croupiers were the President of the Royal College of Physicians (Dr. John Playfair) and the President of the Royal College of Surgeons (Mr. C. W. MacGillivray). The toast of "Our Guest" was given by Dr. George A. Gibson. Professor Noël Paton replied, and gave the toast of "The Edinburgh School," to which Professor Cunningham replied. "The Glasgow School" was given by Professor Schäfer, and Professor Stockman replied. He assured the medical profession in Edinburgh that their guest would receive a warm and hearty reception in Glasgow from Senatus and students alike.

Women Workers and Public Health.

The first conference of the Scottish District Unions of Women Workers (affiliated with the National Union of Women Workers of Great Britain and Ireland) was held at Aberdeen on October 6th, the Countess of Aberdeen, the President, being in the chair. Lady Aberdeen read a paper on what women in Scotland are doing for public health. They might or might not, she said, be successful in urging the appointment of sanitary inspectors and health visitors and women members of parish councils, School Boards, and hospital Boards, but they could, at all events, do their utmost to help in the establishment of district nurses in every parish in Scotland. The imperative need of fully-trained medical women sanitary inspectors, trained teachers, and trained nurses could not be too strongly emphasized, but at the same time these must be supported by the great body of public opinion, and this opinion could only be formed and matured by the mothers and wives and daughters of Scotland each in their own home, in their social circle, and in their philanthropic work, striving to spread right ideas and support these ideas by their personal example. Dr. Anne Mercer Watson (Aberdeen) called attention to the need of enforcing the existing regulations regarding the employment of married women and mothers, which were practically a dead-letter. After discussion the subject of the employment of married women was remitted to the districts, who in turn will communicate with the executive as to approaching the Local Government Board on the matter. On the motion of the President, seconded by Miss Mair (Edinburgh), the district unions were recommended to petition the local authorities in their own districts not already employing women sanitary inspectors and health visitors to consider the advisability of making these appointments.

The Children's Home Hospital at Aberfoyle.

The third annual report of the Children's Home Hospital at Aberfoyle shows continued progress. The main object of the Home Hospital is "to provide country treatment for children suffering from tuberculous diseases of the bones and joints, etc., for whom permanent cure is impossible under the confined conditions of a city life, but for whom there is a reasonable chance of recovery under the combined influence of time, good food, and fresh air."

During the year 49 children were treated, and 18 were still in the home on July 31st, 1906. The average stay has been about twenty weeks, but there is no fixed limit of stay. The medical report shows that most of the cases discharged were either healed or much improved, but in some cases the disease had gone too far before the patients were admitted for real cure to be possible.

The main features of the treatment are abundance of fresh air and nourishing food. The children's education is carried on by a certificated teacher, who gives them lessons twice a week, the lessons being prepared daily under the nurse's supervision. There are always more cases than can be received, and it is hoped that other small homes of a similar character may be opened in the country within reach of large towns for cases not suitable for ordinary convalescent homes.

New Dispensary in Anderston, Glasgow.

There seems every prospect that a new dispensary will be started in the Anderston district to serve the poorer portion of the city west of Jamaica Street. The preliminary steps have been taken, and a meeting has been convened by the Lord Provost to make the scheme known and to ascertain what measure of support it can hope to obtain. Old students of the university will no doubt remember that a number of years ago a small dispensary was conducted in the Anderston district by a late professor of materia medica, with the aid of senior medical students. The scheme was intended to benefit the students by giving them the opportunities of visiting the patients in their own homes under the supervision of some of the university teachers.

Dundee and Incipient Insanity.

At a meeting of the Directors of Dundee Royal Lunatic Asylum, held on Monday, October 15th, a Committee reported as to how the usefulness of the institution could be increased. Legal advice was to the effect that, strictly speaking, the powers given to the Directors by the charter were confined to maintaining insane persons in the asylum, and they were recommended to consider the advisability of getting authority to treat cases of mental disorder in the incipient stage without having the patient certified as insane. It was suggested that they should endeavour to get the Secretary for Scotland to

bring in a Bill to that end. Accordingly the Directors had sought a meeting with Mr. Sinclair to ascertain how he regarded the proposal to give them authority by legislation to treat incipient cases. The Secretary for Scotland was very sympathetic, and undertook to see his advisers in the matter. No further steps could meantime be taken. During further discussion it was said that the negotiations were still in the preliminary stage, and if the Secretary for Scotland put any obstacle in the way, it was open to them to go to the Privy Council, who granted the charter, and ask power to amend it for the purpose indicated.

The Prevention of Consumption.

At the meeting of the Renfrew County Council at Paisley, held on October 12th, Dr. Munro, Medical Officer of Health for the county, presented a report prepared in reply to the memorial issued by the National Association for the Prevention of Consumption. Putting notification aside in the meantime, Dr. Munro said that the immediate issue was the question of hospital treatment and isolation. He suggested that the spare hospital accommodation in the county should be utilized for the isolation and treatment of cases of consumption. The small-pox hospitals might primarily be devoted to sanatorium purposes—to the treatment of incipient and probable curable cases, who could be discharged at once, without detriment to the patients, on the occurrence of an outbreak of small pox, while the spare accommodation of the ordinary isolation hospitals could be assigned for the reception of more advanced cases. A beginning might be made by arranging only for the admission to the existing hospitals of cases in the incipient stages of the disease. Regarding the arranging of terms with the local authorities contributory to the joint hospitals, his view was that the simplest arrangement would be to take out each year or half year the mean cost per patient in hospital per week, and to charge for the phthisical patients at, say, 50 per cent. over this rate for the period of residence. With a view to encouraging action on the part of the district committees the county council might agree to give out of the equivalent grant a contribution of £5 for each patient sent into hospital for treatment. Dr. Munro also referred to the establishment of work colonies or homes, where the open-air treatment, under the most favourable conditions, could be combined with work, as a preparation for the return of the patients to their ordinary avocations. The Chairman suggested that the matter should be remitted to a special committee to consider and prepare a report on the subject for the next meeting. The Rev. Mr. Murray moved that they approve generally of the report and the recommendations contained therein, that they send copies to each of the district committees for their consideration, and that they should authorize their Finance Committee to consider the application from the district committees for aid in carrying out the recommendations of the report. Mr. Joseph Johnston seconded. He could speak from experience of the advantages of sanatorium treatment, as he had been in a private one for four months. Mr. Macdougall said that the burgh of Pollokshaws would be willing to join the district committees in grappling with the disease. After further discussion the Chairman withdrew his suggestion, and the Rev. Mr. Murray's motion became the finding of the meeting.

Ireland.

Trinity College.

The Royal Commission regarding Trinity College, which is sitting this week, will not be open to reporters. The evidence will be published in succeeding Blue Books, and is certain to attract great attention throughout the kingdom.

Proposed Sanatorium for County Louth.

At a conference of delegates appointed by the various district councils throughout County Louth held recently at Dundalk, Dr. Sellars of that town read a report from the medical officers of Louth, in which they stated that two aspects of the question required to be studied—(1) measures for cure; and (2) measures for the prevention of infection. As regards measures for prevention, by which they understood the isolation and segregation of infected persons, they recommended the erection of a suitable site till further experience had pointed out more certain and satisfactory methods for dealing with the disease. The deaths in 1903 were 118; in 1904, 128; and in 1905, 131; the number of consumptives in the county, approximately 80. These 80 cases were of pulmonary consumption. The figures did not apply to other forms of consumption, and did not include the cases in workhouses or hospitals. Dr. Clibborn, Local Government Board medical inspector, said it would be a great advantage to have a sanatorium. He did not think there would be any real good in Louth going on alone, and he suggested that another county should be asked to join in the establishment of a sanatorium. He believed that County Meath might enter into a combination with them. In reply to Mr. A. B. Hamill, J.P., he said the Local Government Board did not give grants towards sanatoriums. After further discussion it was resolved:

> That we suggest to the several public bodies in the county the desirability of adopting resolutions requesting the Government to make a grant in aid towards the erection, equipment, and maintenance of sanatoriums, which are, in our opinion, a vital necessity for protecting the health of the people; and, further, that our Parliamentary representatives be asked to press this matter.

Sanatorium for Limerick.

At a recent meeting of the Limerick Board of Guardians, Mr. J. Lynch said that Bishop O'Dwyer was disposed to give a sum of £2,500 towards the erection of a sanatorium for consumptives. The guardians would be asked to contribute towards the maintenance of a patient the amount that was now paid for each consumptive patient in the workhouse hospital. The promoters did not want any officials to control the proposed sanatorium, or authority as regarded the Local Government Board or Union. They wished to work the institution on economic lines. After some discussion the matter was adjourned for further consideration.

Transvaal.

Contract Practice.

A committee of the Transvaal Medical Society has had the subject of Contract Practice under consideration for some time past, and at its instance a meeting of the medical men of the Witwatersrand was, as we learn from the *Transvaal Medical Journal*, held at the Johannesburg Hospital on August 9th. The chair was taken by Dr. Napier, who expressed his pleasure at the size and representative character of the meeting. The Medical Society, he said, had arrived at the conclusion that Contract Practice was increasing and ought to be limited.

The report was then read, as follows:

Report of the Subcommittee of the Transvaal Medical Society Appointed to Inquire into the Question of Contract Medical Practice.

Gentlemen,—Your Subcommittee has, in accordance with your directions, made inquiries into the subject of Contract Medical Practice in this district, and herewith places before you the results of these investigations, together with some suggestions as to what in their opinion should be the line to be adopted by the Society in dealing with the matter.

Contract Practice exists to a large and undoubtedly increasing extent in Johannesburg, and unless in some way the medical profession or the Medical Society, as its representative, can make its voice heard and its influence felt, there seems no reason why medical benefit societies so-called should not go on increasing in size and number to the ultimate practical extinction of ordinary private practice.

The forms of Contract Practice existing here resolve themselves into three separate and distinct classes:

I. Whole-time appointments, in which the medical officer is paid a fixed salary to undertake certain duties and is debarred from private practice; for example, the lately-formed appointments in connexion with certain groups of mines.

II. Fixed-salary appointments, in which the medical officer undertakes for a certain annual salary the charge of all the employés of the society or other body which engages him, and in addition is allowed private practice; for example, the district railway appointments.

III. Capitation appointments, in which the medical officer is paid so much per head per annum for every member of the benefit society to which he is attached. In this class come most of the contracts entered into by medical men, and

it is in this class chiefly that abuses exist and are likely to increase.

1. With regard to the first of these classes there is little to be said so long as the salary paid is sufficient—that is, about equivalent to what would be earned by the average practitioner in a private practice without overwork. Two points, however, call for comment: (*a*) The omission from these contracts of any mention of a wage limit for beneficiary members of the company or society, and (*b*) the omission of any provision for the payment of consultation fees and fees for expert advice and operative work. A further point for notice is the fact that there is apparently no distance limit from the medical officer's residence to that of the member beyond which he can refuse to attend.

2. With regard to the second of these classes, that of fixed salary appointments, the above comments apply also. In addition, it should be arranged that the medical officer is supplied with a list—numerical if not personal—of the beneficiary members in his district.

3. The contracts that come under the third head—Capitation Contracts—vary very much in their terms and rates of payment. For the most part the benefit societies pay at the rate of 1s. 6d. to 2s. 6d. per month per male member, and the medical officer undertakes to attend dependents of members, that is, wives and children at half ordinary fees. In no case is there any wage limit to beneficiary members. The distance limit varies from two to four miles from the medical officer's residence.

Extras are a very variable item; in some cases no extras are provided for except anaesthetics, for which one half ordinary fees are paid; in other cases half fees are allowed for surgical operations on members as well as wives and children. Confinements are paid for at from £4 4s. to £5 5s. for ordinary cases with a maximum of £7 7s. for anaesthetic and instrumental cases. In one case that has come before your Committee special comment is necessary. In this benefit society married members are entitled to enrol their wives and children at the same rates as themselves, that is 1s. 8d. per month, instead of paying half fees for actual attendance on these, as seems to be the usual agreement. This particular society exists or is said to exist, purely to provide medical attendance and medicine to its members, that is, it has no fund for giving members sick pay during their disablement; during two years of its existence it is said to have accumulated nearly £600, money which was paid for medical attendance and medicines. The case is cited as showing how the services of medical men may be exploited by these societies for their own benefit.

Conclusions.—Your Committee is of opinion that the payment of benefit societies to their medical officers is in every case too low, and considers that £1 per cent. per annum of a man's income would be a fair insurance rate against the expenses of medical attendance during times of sickness or accident. They consider that wives and children of members should be elible to join at a similar rate, that is, £1 per head per cent. of the member's income, or they might be charged half fees for actual attendance. The minimum fee for confinement should be £5 5s., and cases of abortion and premature labour should be paid at the same rates. Consultations, surgical operations, anaesthetics, vaccinations, and anaesthetic and instrumental labours should be arranged for as extras, with a minimum of half fees.

They are further of opinion that the question of a wage limit should be made an essential in every contract undertaken by a medical man. The wage limit should be different in the case of a single and married man, say £300 per annum for the former and £600 for the latter.

They consider that in no case should the distance limit from the medical officer's residence exceed three miles, beyond which distance special arrangements should be made or ordinary mileage charged.

They consider that contract patients should be kept strictly to the medical officer's hours for consultations at his house, and that messages should always, except in cases of accident or emergency, be delivered before 10 a.m., failing which such consultations or visits should be paid for at ordinary rates.

Finally your Committee would urge on the society the importance of taking this matter of contract practice into its very serious consideration; it is a subject that concerns not only the society but the whole medical profession, and it seems desirable that the society, as the chief representative of the profession in the Transvaal, should take the lead in the matter. This it could do by calling a meeting of medical men in the town, not members of the medical society only, for discussion of the whole subject, when it might be possible for the profession to come to an agreement as to what steps should be taken to mitigate an evil which is no longer in its infancy, but which seriously threatens the independence and welfare of the profession as a whole

Dr. Davies said that it was impossible to do away with contract practice at the mines, but it should be under proper rules and regulations. He suggested the formation of a Medical Union to draw up rules for the control of medical contract practice. Dr. Abelheim observed that there were two kinds of medical practice on the mines; the Kaffirs were attended practically free, or at a fixed salary, while under the present contract system whites were treated at reduced fees; he did not see why that system should continue in the case of men drawing large salaries. If societies for the relief of the poor were necessary, as he believed they were, then medical men should either be paid full fees, or should treat paupers free, as at general hospitals. The societies made no discrimination in admitting members; men making £20 or £100 a month might join, and pay only half fees. Dr. Abelheim moved, and Dr. Kanin seconded, the following resolution:

> That, in the opinion of this meeting, contract practice, with the exception of whole-time appointments or attendance on paupers paid for by charitable societies, is not necessary.

Dr. Stanwell urged that the formation of a Union was advisable; and Dr. Duirs, while believing that contract practice was not necessary, considered that it was under the circumstances unavoidable. Dr. Kanin said that in Germany, under the system of insurance against disease, medical men had at first been appointed at fixed salaries, but through the efforts of the medical profession this system had now been abandoned; definite fees were agreed upon, and members of the insurance societies had the right of selecting their medical attendant from a list of medical men willing to accept practice on the terms arranged. After some further discussion Dr. Abelheim withdrew his resolution, and the following, moved by Dr. Davies and seconded by Dr. Duirs, was carried *nem. con.*:

> That those present at this meeting give in their names as the first members of a Medical Union, which shall deal amongst other things with the subject of contract medical practice.

A Committee was appointed to inquire further into the subject, and it was arranged that the subscription to the Union to meet working expenses should be 5s.

SPECIAL CORRESPONDENCE.

VIENNA.

An Epidemic of Typhoid Fever after the Recent Manœuvres.—Recognition of Italian Diplomas.—Lack of Hospital Accommodation.

As a sequel to the recent extensive army manœuvres in the eastern parts of the empire, a serious outbreak of typhoid fever occurred amongst regiments returning to their usual quarters in the capital. The danger of dissemination was imminent, because the men had obtained leave of absence, and had returned to their homes in the agricultural districts. Of those who remained in barracks, fifteen manifested typical typhoid symptoms, but as yet there has been no death. Stringent measures were at once adopted. All men on furlough were ordered to present themselves to the nearest practitioner for examination. The men in barracks are kept under close observation, the rooms have been disinfected, the straw on which the sick soldiers had slept was burned, the walls have been whitewashed, the floor and the furniture washed with a solution of perchloride of mercury, and the men engaged in this work were themselves thoroughly disinfected as far as possible. Such precautions are the outcome of several recent complaints made in Parliament about the military medical department. It may be added that there has been no epidemic of typhoid amongst the civil population of Vienna for over five years.

The Ministry of Education has just presented the leading ideas of a new agreement with Italy to the university governing bodies, in order to obtain their opinion as to recognizing medical and other diplomas granted by Italian universities as equivalent to those obtained from an Austrian university. The intermingling of students of both countries is natural if it is borne in mind that about 2,000,000 Austrian subjects belong to the Italian nationality, and there is no Italian-speaking university within the empire. On the other hand, numerous Italian-speaking youths prefer emigration to studying in German-speaking universities, thus causing heavy financial loss to the national exchequer. It is thought that this is the first step to recognize generally all foreign medical diplomas, if the curriculum is not shorter or less thorough than our own. It opens up a pleasant scope for the many

doctors who are now restrained from practising in our frontier spas by the necessity of passing an examination.

For many years past the inadequacy of hospital accommodation has been a source of annoyance, and complaints have been made against the Government, especially in Vienna, to which the bulk of sufferers flocks from the country. The new head of the Health Department, who has already done much to meet the legitimate wishes of the medical profession, called a meeting of all directors of State hospitals in order to ascertain what can be done. Among the data disclosed at that meeting are the following: The yearly increase of population in Vienna is 15,000 to 20,000 souls. Ten years ago there were thirty-four beds for every 10,000 inhabitants; now the figure has fallen to twenty-eight. There are only 5,300 beds in all Vienna State hospitals, and about the same number in the private institutions. The General Hospital has 2,000 beds, and last year had 30,000 in-patients; the Franz Josefsspital, 620 beds and 7,000 in-patients; the Wiedner Krankenhaus, 565 beds, and also 7,000 patients; the Elisabethspital, 530 beds and 6,000 patients; the Wilhelminenspital, 416 beds, 5,000 patients; the Sophienspital, 120 beds and 2,000 patients; the Rudolfspital, 860 beds and 11,000 patients; and two minor hospitals, having together 200 beds and 3,000 in-patients. These hospitals are intended in the first instance for adult patients suffering from internal, surgical, dermatological, gynaecological, or special diseases. Children are, as a rule, not admitted to these hospitals, and the cost to the patient is about 2s. a day, if he is not admitted by the Poor Law, when the expenses are paid by his community or municipality. As to the number of beds is inadequate to the demands made upon these institutions, especially during spring, winter, and autumn, the accommodation in each ward is usually supplemented by the adoption of a very old-fashioned method: mattresses are spread on the floor and any extra patients placed on them. A gain of 15 to 25 per cent. is thus effected, but such conditions cannot be maintained. There is another reason for the constant dearth of hospital beds. Tuberculosis, which is rife amongst the poor classes of the population, claims for itself fully one-third of all beds available, and such patients occupy the wards for weeks and months and cannot be refused admission. A movement is on foot to build tuberculosis homes, so as to set free the clinical and hospital beds for other diseases. The hospital directors adopted a resolution calling on the State to find the funds for an adequate increase of hospital beds; as a means of saving administrative and material expenses the erection of a large central building instead of small peripheral houses was recommended. The cost of each bed should not be more than about £100, and this sum would be sufficient to erect the institution according to the latest requirements of scientific medicine.

CORRESPONDENCE.

THE FUTURE OF THE MEDICAL PROFESSION.

Sir,—In an editorial in the Journal of October 6th you quote an opinion that "in twenty years' time the general practitioner will become extinct." In Elizabethan times it was possible for one head to assimilate all knowledge; but now the additions made day by day to medical science alone are so great that even a specialist can hardly keep pace with those that pertain to his own subject. How then can the general practitioner possibly combine a knowledge of all branches? The fact is we are overburdened with observations, and too little attention has been given to their co-ordination and generalization; but should a few men with master-minds of the Darwin type arise and bring these bewildering accumulations under natural laws, the general practitioner will be safe. Failing this the specialist will triumph, and whereas to-day he is found only in the great centres of population, he will in the future, aided by vastly increased facilities for travel, be found in every country town. This will be by no means to the advantage of medical science. More than ever will the specialist see naught but his own speciality. Moreover, specialities will be divided and subdivided until a wide knowledge of medicine will be almost unknown.

Then will arise a new and glorified general practitioner—a man of broad and cultured mind to whom will be submitted the reports of examining specialists, and with whom in complex cases the diagnosis will lie. He will be the man whom kings and societies will delight to honour, and only such minds as his will formulate new natural laws.—I am, etc.,

London, Oct. 8th. Ralph W. Leftwich, M.D.

Sir,—The interesting article in the British Medical Journal of October 6th on "The Future of Medicine" foreshadows a difficulty which is likely to become a very urgent one for the general practitioner. The difficulty I allude to will arise in the matter of vaccine and serum treatment. At present, the only disease generally treated by serum is diphtheria, and its diagnosis and treatment are comparatively easy and simple. The fact that life can be saved in diphtheria and the course of the disease shortened by the use of serum is so universally recognized that the majority of public bodies are willing to pay the expense of its diagnosis and treatment.

Other diseases, however, are being added to the number of those in which bacteriological diagnosis and serum or vaccine treatment is required, and in some of these the labour and difficulty of ascertaining the cause and preparing the remedy are likely to make heavy demands on the time of the practitioner and the purse of the patient; demands, in fact, so heavy that in the majority of cases they cannot be complied with.

For instance, in the case of tubercle where an early diagnosis has been made by microscopical examination of the sputum, the opsonic index has to be taken, and if low, a second determination made, for fear that it indicates a negative phase in which the injection of tuberculin would be dangerous. A minute dose of tuberculin may then be injected, and before increasing this on the next occasion a further determination of the opsonic index is necessary, and so on.

In the case of septic infections the labour is infinitely greater. The organisms must be identified, separately cultivated and a separate determination of the opsonic index made for each variety, which again as in the case of tubercle may possibly have to be repeated before an appropriate dose of the vaccine can be injected.

Except in the case of wealthy patients, such a treatment as this is out of the question in general practice. A solution of the difficulty will probably be reached in time by the multiplication of well equipped laboratories and skilled pathologists at the public expense, but in the meantime what is to be done? The future is, no doubt, to the pathologist, and if diagnosis, prognosis, and treatment of disease are to depend mainly upon blood examinations and bacteriology, the general practitioner may have to carry out these examinations himself or sink to the level of a mere collector and transmitter of blood and sputum, while the consulting pathologist pulls the strings of the treatment.

At present, however, there is still something for the humble clinician to do, and we may hope that he will not become altogether extinct in the future. Surely the observation of clinical signs and symptoms may afford as good an indication of the potential resistance to disease as the determination of the opsonic index, especially when we consider the many sources of error to which such a determination is liable; and though these may be reduced to a minimum after long and constant practice they must continue to a greater or less degree in every case.

Serum treatment, of course, involves less labour in blood examinations, but a special serum would take far longer to prepare than a vaccine, and would be even more expensive. It is possible, however, that knowledge of the periodical variations of the opsonic index in different infections, combined with clinical observation, may enable us to administer vaccines with safety, even in gradually-increasing doses, without repeated determinations of the opsonic index, and for the sake of the public well-being and the peace of mind of the conscientious doctor, that is a consummation devoutly to be wished.—I am, etc.,

Felixstowe, Oct. 9th. G. J. Conford, M.D.Oxon.

THE BITTER CRY OF THE "RUINED DOCTOR."

Sir,—I have read with interest your admirable articles on the above subject, and quite agree with you that the diminution in the amount of influenza and the bad times since the Boer war from which the country has far from recovered, are two very important causes of the diminished incomes of the profession generally.

Physicians, surgeons, and general practitioners are all more or less feeling the pinch. One's patients candidly say that they often think twice before sending owing to having made little, and in many cases no, profits in business for some years.

As a general practitioner (and one who now prescribes only) of a quarter of a century, I have watched with horror the enormous growth of what I may term proprietary articles. The enterprising firms of chemists have put before us drugs of every variety in tempting forms, and I regret to say that a large number of the profession are gradually giving up prescribing, as our seniors used to do, from the *British Pharmacopoeia*, and for simplicity's sake are advising the use of these new forms of drugs.

What is the result? I am sorry to say it is disaster far greater than the profession realize. Many chemists of good standing have told me that we are absolute fools to ourselves for prescribing in such a manner, because the public are gradually being educated to the names of these articles, and not only go to the chemist and ask for them, but advise their friends and relations to use them.

Nowadays you find on inquiry that many of your patients are taking cascara tabloids, Blaud's pills, or palatinoids, or aspirin cachets, or one of the thousand new forms.

If we had been wise and foreseen this and taken care not to prescribe so many of these modern forms the public would not have got hold of these names and been able to order them for themselves, then I feel sure we should not have had such an enormous decrease in the amount of work.

Take the word "aspirin": it is an attractive name and easily remembered, and to-day thousands are taking it without a doctor's prescription. If we had always prescribed it as "acidi salicylici acetici," very few would have remembered the name; the same applies to hundreds of others.

The fault lies with medical men themselves; they will not take the trouble to write a proper prescription, and I regret to say that many men of the present day, owing to inexperience in the art of mixing medicines, are not so capable of writing a decent prescription as they ought to be. I hold a man has no right to prescribe generally until he has had at least a year and a half to two years' experience in dispensing.—I am, etc.,

Edgbaston, Oct. 16th. G. H. Mounsey, M.B.Edin.

HOSPITALS AND GENERAL PRACTITIONERS.

Sir,—It is a very common practice for the managers of large firms to send their men, while still under treatment by their own medical attendant, to the hospital for "further advice," thus depriving the general practitioner of his patient and a consultant of his fee.

A few months ago a workman in a good position as such consulted me for dyspepsia. On examining the abdomen I detected a tumour connected with the omentum. I told him operation was the only correct treatment, and advised him to go to a hospital. As the man had a preference for St. George's Hospital he went there, taking with him a letter from me stating my diagnosis. He was successfully operated upon by Mr. English, and quite recovered his health.

A fortnight ago, having been poisoned by veal pie, he again came under my care. After a week's treatment, and though doing well, his employer advised him to go back to St. George's. The man went, not wishing—as he expressed it—to offend his master. At the hospital he saw Dr. ——, stated his case, including the fact (so he says) that he was under my treatment. Nevertheless, Dr. —— prescribed for him, and the man received medicine.

Is this fair to the general practitioner? It is one of many instances of hospital interference with my patients.—I am, etc.,

London, W., Oct. 9th. J. Batteson.

THE ORGANIZATION OF BRANCHES AND DIVISIONS.

Sir,—It is of course obvious that in no sense is this letter official, though it is owing to my official position as senior secretary of the largest Branch of the Association that I find myself able to write it.

That I may make my letter as short as possible, I will at once state briefly its object, leaving arguments to be developed if necessary; my proposition then, put briefly, is the transposition of the Division and Branch functions, as laid down by Sir Victor Horsley, and runs as follows:

That the Divisions do undertake the social and professional aspects of our Association's work, leaving to the Branches and the Central Council the business aspects of it.

I trust, Sir, you will allow me space to give some of my reasons for my proposal. During the week that the Representatives were in town for business, I came a good deal in contact with a large number of them, and had several conversations with some of the more prominent members of the Representative Meeting; I was also in the chair at the dinner and meeting of secretaries, and I found that there was a great body of opinion (not unanimous at all) in favour of my fundamental idea, which runs somewhat as follows—that as a rule when business *only* is to be discussed a Division meeting is apt to be poorly attended, and hence one man with a friend or two is able to exert more influence than (it may be) his proposition deserves, and especially so as each man in the meeting represents only himself and his own feelings, and hence has rather a natural tendency to feel that he is possibly a bit selfish in urging his own particular views against what seems to be a large majority expressing another view; he may too feel rather shy at leading an opposition. When, on the other hand, he represents his Division or some considerable section of it on a Branch Council, no such doubts and fears of a personal character assail him, and he will fearlessly tackle an opposing majority with a full sense of the responsibility he has taken on himself.

To this general view, "that in a Branch Council any subject has a better chance of being genuinely discussed from all sides rather than being accepted at once as the view of a (possibly spurious) majority," I found very little serious objection, but of course were the proposal carried into effect the Divisions must have an increased representation on the Branch Council, which would then become as a natural sequence a local Representative Meeting. The details of such representation, to make it fair, would be a matter of discussion were my fundamental idea carried out.

One strong argument in its favour seems to me that the business of the Association would be all of it semi-digested in the Branch Councils, and some of it absorbed (to continue the simile) as food for the body politic, thus leaving only an easily manageable agenda paper for the Representative Meeting of the Association in the place of what I think everyone must admit is at present a huge mass of crude material, which only chairmen like Sir Victor Horsley and Dr. Macdonald can deal with, and that only by very great exertion and trouble.

If my proposal were carried, it would naturally lead to a modification in two bodies, namely, the Representative Meeting and the Central Council, and the laws would require to be altered to meet the modification. The modifications amount to this: that the Representative Meeting should consist, not as at present, of a Representative from each Division, but a certain number of Representatives from each Branch Council, the number being proportioned as fairly as possible to the number of individuals in the Divisions of the Branch. The Council might then be elected by the Representative Meeting as to (say) one-half, and the other half be co-opted. The number of Representatives would be thus cut down by perhaps one-half without any Division feeling that it was not represented. The work being already better arranged, and only about half as many men to talk about it, the Representative Meeting might get through it in more reasonable time than at present.

I feel, Sir, that my letter has gone to an inordinate length, though I seem to have only touched the fringe of my arguments, but I hope it will lead to a discussion on the subject, and I shall be pleased to try to answer any criticisms of my suggested plan.—I am, etc.,

London, W., Sept. 28th. Fred. J. Smith.

RECENT SENATORIAL ELECTION, UNIVERSITY OF LONDON.

Sir,—As one of those who, although a London teacher, nominated Dr. E. G. G. Little, and took an active part in his return, I rejoice at the result. It should stay the iconoclastic tendencies of those in authority at the London University, for the changes initiated in the curricula for degrees in medicine and surgery have without

doubt been the outcome of panic induced by the falling off of students of medicine in the metropolis. Now all legislation consequent upon panic is dangerous, and the danger in this instance is intensified on reading the report of the Standing Committee of Convocation on these changes. Our University has won and kept its high position in the medical world by the general and scientific training of its graduates, as well as by their professional knowledge. Under the new régime, by the introduction of numerous by-paths to admission, the general education and scientific training are reduced to a valueless minimum, and even the medical examinations can be taken piecemeal—that is, subject by subject. By catering for quantity at the expense of quality, our University, I feel sure, will not attract, as some think, those students who now naturally gravitate to the provincial universities, but will lose its present popularity and undermine its very foundation. Decentralization in medical education, with the ever-increasing facilities for scientific and clinical training which the provincial schools afford, has come to stay. If the London University degree is to be esteemed in the future as it has been in the past, it can only be by maintaining unimpaired its high standard of general and scientific training and its high examinational tests.—I am, etc.,

London, W., Oct. 11th. ERNEST W. WHITE.

THE MEDICAL COUNCIL AND ITS PRESIDENT'S ADDRESS.

SIR,—In thirteen columns of the most graceful, rippling prose, of which he is a past master, the President of the General Medical Council has given Victoria University and your readers an account of the development and functions of that body.

Such a pronouncement is much to be welcomed, for the number of those who have hazy notions about the General Medical Council and its work is large.

I fancy, however, that, after its perusal, the conclusion to which most readers will come is that the General Medical Council is a very impotent body, and that there is no evidence to show that it has ever tried (by endeavouring to obtain increased powers) to be anything else.

The duties, it seems, are chiefly two—educational and registrative (the latter including judicial). With regard to the former, the Council is by no means autocratic, for the Privy Council can veto any of its recommendations, and the Corporations can openly defy it. With respect to the latter, it is absolutely despotic, for it can strike any one off the *Register* without appeal. But, even with this despotic power, the authority of the General Medical Council is more apparent than real, for it seems quite unable to enforce its own decrees.

At least one ingenious victim has quite outwitted the august body by inventing a non-registrable but very effective qualification of his own, with apparently gratifying results. This may be new to the Council. If so, it is as well that it should realize at once that its decisions are not as effective as it has imagined, and that the sequels strike outsiders as a most appropriate, but not surprising, Gilbertian result of a fifty-eight years' more or less somnolent and inefficient existence.

The fact is, the constitution of the General Medical Council is fundamentally vicious. Many of us hope that the time is coming when it will cease to be mostly composed of delegates from shortsighted and selfish Corporations, and will consist of members elected by the votes of all those on the *Medical Register*. Then, real progress will be possible, and the Unity of the Medical Profession nearer fulfilment.—I am, etc.,

London, W., Oct. 15th. HERBERT SIEVEKING.

THE DECLINE IN THE BIRTH-RATE.

SIR,—I think Dr. Pattin overestimates the effect of hypernutrition on the declining birth-rate. I deny that women are potentially less fertile than formerly. As a matter of fact, owing to her superior physique, the middle-class woman of the present day is as well or better fitted to bear children than her mother or grandmother were. But nowadays the modern middle-class woman looks on pregnancy as the greatest misfortune that can befall her. From my experience as a general practitioner I have no hesitation in saying that 90 per cent. of young married couples of the comfortably-off classes use preventives. This is quite enough to account for the declining birth-rate without looking round for other causes.—I am, etc.,

Boscombe, Oct. 14th. ARTHUR W. THOMAS, M.D.

LARVAE IN THE INTESTINE.

SIR,—In the BRITISH MEDICAL JOURNAL of July 14th I read with interest an article by Dr. Cattle with regard to a patient of his who complained of a "nest of insects" in his inside, and that he felt them crawling about. Some years ago I had two patients in one family suffering in a similar manner, mother and child. The mother brought me some strange-looking insects, with rounded, hard, hairy backs, dark brown in colour, with black eyes, extremely repulsive-looking, which ran about quickly. A very large number had been passed. I gave them santonin and purged them, and they were soon quite well.

Out here in New Zealand the botfly is extremely common, and I remember wondering at the time whether the botfly was the cause of them. I have never seen or heard of a similar case.

It is common enough in the stomach of the horse to find the mucous membrane so closely set with the larvae that no particle of mucous membrane is visible, and yet the animal may present no symptoms and be in perfect health till its death.

Were these armadillo-looking insects due to bots?—and what is their life-history?—I am, etc.,

Timaru, N.Z., August 26th. H. V. DREW, F.R.C.S.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

SIR,—The memorandum on this subject by the Metropolitan Counties Branch, published in the SUPPLEMENT of October 13th, is undoubtedly an able one, but I regret to see that it omits all mention of two of the points mentioned in your annotation of August 11th, which seem to me strong reasons why a Royal Charter should not be granted to the petitioners, the first being that to have three funds—one collecting on a Sunday, another on a Saturday, and the third throughout the year: the Hospital Sunday, Hospital Saturday, and the King Edward's Hospital Fund—for London is mere wastefulness; and the second being that of the three funds it is certainly not the best, but has the special defect of aiding and abetting the system of hospital subscribers' letters, one of the most fruitful sources of hospital abuse, from which the King Edward's Fund is entirely free. I trust that in any representations made to the Privy Council on behalf of our Association these two points will be prominently put forward.—I am, etc.,

London, N., Oct. 13th. H. NELSON HARDY.

ANTIVACCINISTS' TACTICS.

SIR,—In reply to the letter you publish from the editor of the *Cleveland Medical Journal*, may I be permitted to explain that the booklet of *Notable Debates, etc.*, for which he granted permission to reprint *in toto*, is not yet printed. When it is, Mr. Carter's conditions will certainly not be intentionally disregarded.

The rescripts of which he expresses disapproval are merely excerpts from other journals, such as the *Vaccination Inquirer*, and it was a hypersensitive desire to regard his wishes that finally induced me to attach the special appendix to the booklet of *Professional Opinions*.—I am, etc.,

Stone, Staffs., Oct. 16th. WILLIAM J. FURNIVAL.

WEST SOMERSET MEDICAL DINNER.—The seventh annual dinner for medical men residing in West Somerset, will be held at the London Hotel, Taunton, on Friday, October 26th, at 6.30 for 7.0 p.m., Dr. R. Liddon Meade-King in the chair.

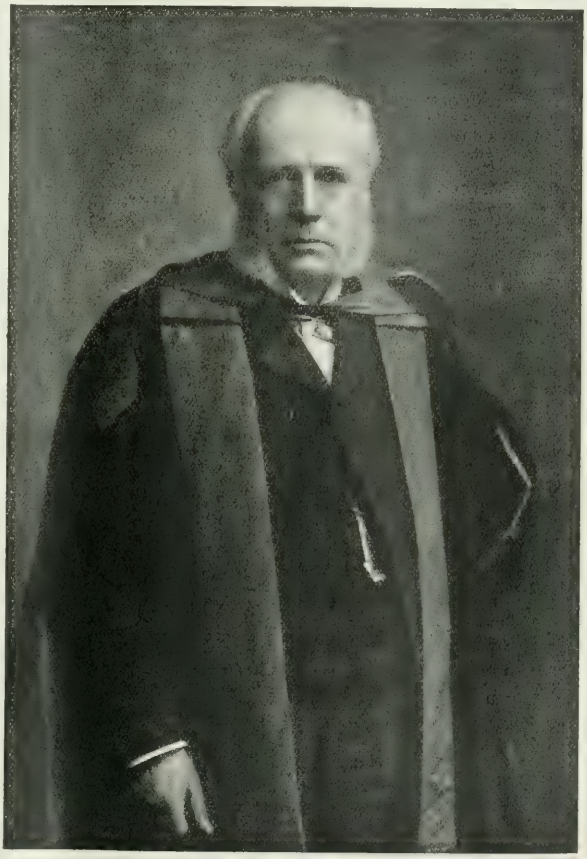
A PROVINCIAL sessional meeting of the Royal Sanitary Institute will be held at the Royal Pavilion, Brighton, on Saturday, October 27th, when a discussion on the co-ordination of measures against tuberculosis will be opened by Sir William H. Broadbent, Bart. The chair will be taken at 11 a.m. by Colonel J. Lane Notter, M.D., R.A.M.C., the Chairman of Council of the Institute. Dr. Newsholme, M.O.H. Brighton, will give a short account of local arrangements for the notification of phthisis and the sanatorium training and treatment of patients.

OBITUARY.

JAMES FINLAYSON, M.D., LL.D., F.F.P.S.Glas., L.R.C.S.Edin.,

Physician and Lecturer on Clinical Medicine, Western Infirmary; and Consulting Physician, Royal Hospital for Sick Children, Glasgow.

By the death of Dr. James Finlayson, the medical profession in the West of Scotland loses one of its most distinguished representatives. The end came with startling suddenness on October 16th, for on the previous day he had been engaged in his ordinary professional duties. For some time he had been aware that his health was failing; certain premonitory symptoms had pointed to the possibility of a cerebral seizure, and he had warned his immediate circle of relatives.



James Finlayson was born at Glasgow in 1840, and through his mother's family was connected with the medical profession, for her father had been a surgeon to the army in India. After receiving his early education in the High School, Glasgow, he entered the old college in the High Street as an arts student in 1856. Among his classfellows were several who afterwards distinguished themselves in various walks of life. Two of them at present are professors in Scottish universities.

For four years he was engaged in business, but his mind was always fixed on becoming a doctor, and he returned to college in 1863 and entered his name as a medical student. His undergraduate career was extremely brilliant, and he graduated in 1867 with the coveted distinction of honours. His thesis was entitled The Value of Quantitative Measures of Investigation in Medicine and Allied Sciences. Two years later he proceeded to the degree of M.D., and thirty years thereafter he received from the hands of his Alma Mater the honorary degree of Doctor of Laws. He became a Licentiate of the Royal College of Surgeons, Edinburgh, in 1867, and in 1871 was elected a Fellow of the Faculty of Physicians and Surgeons of Glasgow. In the work of the Faculty he took a great and lasting interest. After a few years he was appointed Honorary Librarian and served the Faculty in this position for over a quarter of a century. During that time he took a very active part in the management of the library, exercising more especially supervision over the purchase of foreign books, and it is in very large measure due to his enthusiasm and unremitting attention that the present satisfactory condition of the library is due. His earlier medical years were spent in Manchester as House-Surgeon to the Clinical Hospital and Dispensary for Children, but he soon returned to Glasgow, and from 1871-4 acted as Clinical Assistant to Professor Gairdner at the Royal Infirmary, Glasgow. On a vacancy occurring at the Western Infirmary he was appointed Physician in charge of wards, and maintained this position to the day of his death, at which time he was the second physician in order of seniority. On the opening of the Royal Hospital for Sick Children in 1883 he was elected physician to the institution, and held this post for a number of years, resigning it in 1898, when he was appointed Consulting Physician.

In the Faculty of Physicians and Surgeons his long and devoted service was crowned by his election to the post of President, which position he occupied with great distinction from 1900 to 1903. The photograph here reproduced was taken at the end of his term of office, and represents him in his presidential robes. An honour of which he was proud was his election as President of the Section for Diseases of Children at the meeting of the British Medical Association held at Carlisle in 1896.

Dr. Finlayson was a prolific contributor to medical literature, and his writings cover the whole range of medicine. He was one of the first physicians who interested themselves in clinical thermometry, and his early publications dealt with various points in the use of the clinical thermometer. His first published paper was entitled The Normal Temperature of Children, and pointed out the diagnostic value of an evening rise of temperature. Subsequently he published papers on the temperature of children suffering from phthisis and tuberculosis, and from pleurisy. A valuable contribution on the dangers of dentition came from his pen, and at a subsequent period he devoted his attention to urinary changes, and wrote a paper on the occurrence of casts in non-albuminous urines.

He was for many years medical adviser to the Scottish Amicable Life Insurance Company, and became interested in certain aspects of life assurance. Many of his papers appeared in the *Glasgow Medical Journal*, but he was a frequent contributor to the British Medical Journal, the *Archives of Pediatrics*, the *Lancet*, and many of the other leading medical journals. His chief work was his well-known *Clinical Manual for the Examination of Medical Cases*, which met with great success, and ran through three editions in this country and two in America. The chapter on the diagnosis of children's diseases in Keating's *Cyclopædia* was also written by him. Apart from these

purely medical subjects, he wrote largely on the history of medicine. From 1892-95 he gave a number of bibliographical demonstrations on Hippocrates, Galen, Celsius, Herophilus, and Erasistratus, and contributed articles on the same lines to *Janus*. Of most permanent value are his important *Account of the Life and Works of Maister Peter Lowe, the Founder of the Faculty of Physicians and Surgeons, Glasgow*, and *An Account of the Life and Works of Dr. R. Watt, Author of the Bibliotheca Britannica*.

During the greater part of his professional career Dr. Finlayson was engaged in clinical teaching, first as clinical assistant to Professor Gairdner, and later as Lecturer on Clinical Medicine at the Western Infirmary. It is as a clinical teacher that he was best known to his old students, for he was distinguished by his painstaking thoroughness, his accuracy and firm grip of principle, his gentleness of manner, his tactfulness, and his kindness to his patients. Despite the changes which took place in medical theory, Dr. Finlayson, by systematic reading, kept himself abreast of the times, and his knowledge of modern views was extremely accurate. As a man he was very lovable. Kind, considerate, and courteous, he was ever ready to assist younger men with his riper experience. Throughout a long life he was noted for the firm stand he made for what he considered to be right. Nothing could tempt him to associate himself with anything that he held to be in the least degree objectionable. An indication of the affectionate esteem in which he was held was shown by the number of mourners who came to pay their last respects. The remains were cremated at the Western Crematorium.

We have received the following appreciation from an old friend (T. B.): It may truly be said that Dr. James Finlayson was trusted, as few men have ever been trusted, by his professional brethren. The writer knows of no one whose advice was so constantly sought after, not merely in connexion with practice, but with other matters of a difficult or perplexing character. This was due to the faith in the perfect integrity of the man and the sanity of his judgement. A medical man in trouble was often advised to "consult Finlayson; see what he has got to say about it"; and those who did so were impressed with his wonderful sagacity and with the soundness of his judgement; not a few feel that to him they have been indebted for invaluable guidance. He was essentially a peacemaker, and the writer has known men going to him in a state of indignation at supposed injustice received, perhaps, at the hands of other members of the profession, return from an interview with Finlayson very much calmed down, and disposed to admit that they were not entirely in the right. He would not allow even friendship to bias his judgement.

In Finlayson there was an entire absence of what is usually termed "gush"; indeed, he had probably something of the Quaker in his nature. With remarkable strength of character he was always calm and deliberate. He never indulged in inflated or exaggerated language. Very moderate praise from Finlayson was regarded as a high compliment, and no one expected a strongly-worded flattering testimonial. His testimonials were therefore looked upon as really valuable because reliable, and based upon the personal knowledge of the writer. He would give no empty promises. A candidate for a post, after soliciting help from Finlayson, might come away with very moderate expectations, but he would probably discover afterwards that much more had been done in his favour than by others whose promises had raised the highest expectations.

Accuracy was with Finlayson a passion. When the writer had the privilege of rendering him some assistance, in the correction of the proofs of his *Clinical Manual*, it was an education to observe the painstaking efforts made to secure accuracy in the smallest detail. It was felt that there was no slipshod work in his life. When Finlayson made a statement, its accuracy could be implicitly relied upon. Dictionaries and concordances were always at hand and in constant requisition. He insisted on knowing and on his students knowing the origin and meanings of things. He was bound to get at the root of words and things. What a splendid example to the young man brought under such an influence! The same accuracy was observed in other departments of knowledge, for his interests were by no means confined to medical matters; even in Biblical lore he was no mean authority, and few were so familiar with Shakespeare. The writer has been present when a learned divine found himself to his chagrin corrected by Finlayson on a question of Biblical knowledge. Indeed, it was rumoured at one time (sarcastically, no doubt) that the Glasgow University was about to confer upon him the degree of D.D.!

The advice of Polonius, "To thine own self be true," might be termed one of Finlayson's mottoes in life. Insincerity was to him a deadly sin, or anything savouring of prevarication. A truth, however unwelcome, would not be withheld, and he was one of those who could say "no," and no fear of offending others would tempt him to take a devious course. He had the courage of his opinions,

and, like other strong men, he had confidence in their soundness, and was usually able to instil like confidence into others. His loyalty to friends or to those associated with him in his work was a most pleasing feature of Finlayson's character. He was most thoughtful and considerate of others. He never ceased to take a warm and active interest in any one who had been his house-physician, and his old house men adored him. He took a special, almost paternal, interest in students who were sons of old medical friends. He had a sceptical mind for ill reports, and it needed very conclusive evidence, indeed, before he believed a rumour unfavourable to any of his friends, and he rarely failed to put a favourable construction on the shortcomings of others.

In the earlier years of his practice Finlayson did not consider himself very robust, and as a young man he did not engage in the athletic exercises of which his brothers were fond. He thought that he would never be able to undertake an arduous practice, but, as the years went on, his friends were gratified to notice that his strength and capacity for work seemed greatly to increase and, probably for fifteen years he had one of the largest consulting medical practices in the West of Scotland, while the profession know the astonishing number and great value of his literary productions. Owing to his methodical habits he had the faculty of doing his work without ever seeming to be in a hurry. He was gifted with a remarkable memory, and the way he sometimes reminded one, perhaps in gentle reproof, of what had been said many years gone by, seemed to his friends at times almost "uncanny." There was a strong conservative element in Finlayson's nature. He clung to old friends, old servants, old nurses, old assistants, and seemed to shrink from changes in those around him. This conservatism, thoroughly sane in its character, probably also accounted for his somewhat sceptical attitude in regard to certain developments of modern surgery, and for his opinion that there is too much operative treatment in these days.

In the highest and best sense Finlayson was a truly religious man, putting little stress upon dogma or mere opinion, although greatly interested in such questions as those involved in "the higher criticism." If a man were sincere and lived the true and dutiful life that was enough for him. Nothing could exceed his gentle, encouraging, and sympathetic ways in presence of anxiety and sorrow, and how many members of the profession have experienced these! A lady said to the writer, "The way he took one's hand was a blessing; we feel a coldness without such a friend." His love of children was beautiful and mothers will not forget his tenderness when their little ones were under his care. Amongst his friends in his lighter moments, or when on holiday, he was a most genial companion, and rich in humorous anecdote. No doubt at times he indulged in a little good-natured satire. To hear his reminiscences and imitations of past medical worthies of Glasgow was a thing to be enjoyed, especially by those who knew the originals. Even shortly before his death, and with the knowledge of symptoms of grave significance occasionally experienced during the summer months, he was with his friends no less hearty and bright. It was characteristic and to be expected of the man, that the shadow which had fallen upon him did not interrupt his daily duty or disturb his wonted happy intercourse with his friends. Very few of Dr. Finlayson's friends knew of anything being amiss with his health, until the news of his sudden death startled and shocked them. On the day previous, he had gone through his usual work in the Western Infirmary and engaged in his ordinary consulting practice, although for some months he had symptoms which caused uneasiness in the family circle. On Monday evening he became sick and vomited, and his sister, rather anxious, visited his bedroom several times during the night, but found him apparently sleeping. At five o'clock in the morning his bell rang, and on hurrying to the bedroom Miss Finlayson found him seriously ill, being paralysed on the left side, although still able to speak, and say a few words of farewell. His friend, Dr. Love, was immediately sent for, and was followed later by his friend Dr. Middleton, but he rapidly became unconscious, continuing in a state of profound coma for eight hours, when he passed away. We cannot doubt that it was just such a death as he would have preferred. As the writer looked upon his familiar face, strong and kindly, now fixed in death, and thought of his noble life, his uprightness, his faithfulness, his gentleness, his great work, he could not doubt of the final pronouncement. "Well done, good and faithful servant." From far and near men came to pay their last respects, giving striking evidence of the affectionate esteem in which our friend was held. Rarely has the funeral of a member of our profession been attended by such a representation of all ranks of the profession. The remains were cremated in the crematorium at the Western Necropolis. The memory of Finlayson's life will ever dwell with those who knew him as something precious and inspiring.

W. G. D. writes: As a very early Resident Assistant to Dr. Finlayson in the Western Infirmary, and as representing a long line of successors, I venture in their name and my own to write a few lines in appreciation. It is said that no man is a hero to his valet, but those of us who served under him ever afterwards prized the period of our service and looked up to him as a master. From him we learned very thoroughly the lesson of patient, careful investigation of disease, taking nothing for granted from book or teacher, but seeing for ourselves the actual phenomena we studied. This was his method of teaching, and the many students who passed through his hands will always remember the practical and painstaking nature of his instruction. By the kindly and gentle manner in which he treated his poor patients in the hospital he unwittingly taught his students a lesson of the utmost value, and often I have witnessed signs of gratitude and affection on the part of hospital patients who had known him only for a very brief time. Up to the very last Dr. Finlayson was enthusiastic in his work, devoting himself with his old, unselfish energy to his duties. He took a keen interest in pathology, and it was inspiring to witness how, after all these years, he still continued to follow the minutest details, and how familiar he was with the recent methods and results of pathological science. Dr. Finlayson was of a modest, retiring disposition. He possessed above everything the genius of friendship, and in the name of those whom I have ventured to represent I offer this brief tribute to his memory.

ALEXANDER CROMBIE, M.D., C.B.,

BRIGADE-SURGEON-LIEUTENANT-COLONEL,

INDIAN MEDICAL SERVICE (RETIRED).

The death of this able and popular officer took place, as was announced in our last issue, in London on September 29th. Dr. Crombie was born at Crail—"the east neuk of Fife"—on December 2nd, 1845. He was educated at the St. Andrews Public School, and studied medicine in the University of Edinburgh, where he obtained the degree of M.B. with honours in 1867. He took the degree of M.D. in 1870. In March, 1871, he competed for the Army Medical Service, admission into the Indian Medical Service being temporarily closed, and obtained the first place. In February, 1872, the Indian Medical Service being reopened, he was allowed to resign and compete for it, and again took first place, obtaining a high aggregate of marks. He arrived in India in July, 1872, and after a short regimental service he was appointed in January, 1873, Resident Surgeon in the Calcutta Medical College Hospital. He officiated as Professor of Materia Medica, Calcutta Medical College, and Second Physician to the hospital during 1874 and 1875, and in the latter year was appointed Junior Civil Surgeon of Rangoon, and Health Officer of that port. While acting in the College he published an interesting series of lectures on vasculo-cardiac drugs in the *Indian Medical Gazette*. His work in the hospital was painstaking and thorough. In 1877 he obtained the important Civil Surgeoncy of Dacca, where, in addition to the ordinary duties of a civil station, he had charge of a lunatic asylum and vernacular medical school. During the years 1880 and 1881 he was Joint Civil Surgeon of Simla. He placed on record an elaborate report on a serious outbreak of hill diarrhoea which occurred in that sanatorium in June, 1880. He continued to take an interest in that subject, and contributed another interesting article upon it to the *Indian Medical Gazette* in 1892. He was recognized as the best authority on this form of diarrhoea alba. On completion of his tour of service at Simla he returned to Dacca, where he continued to work with great diligence and success

until he was appointed in June, 1889, Superintendent of the Presidency General Hospital, Calcutta. This is one of the prizes of the service, and gives access to extensive and lucrative private practice. He was well fitted for the post, and during his nine years' tenure of this office he held very deservedly a high place in the estimation of both the Government and public. His work was always most conscientiously performed. He was a highly-trusted officer, and a most excellent practitioner, being imbued with high sense of the dignity and responsibility of his profession and great devotion to the interests of his patients. He was appointed a Fellow of the Calcutta University, took a prominent part in the Medical Congress which assembled in Calcutta in the year 1894, and was an active member of a Committee on the disposal of lunatics and management of asylums. During these busy years he contributed largely to medical literature, writing on fevers, cholera, the treatment of wounds, antipyretics, and many other subjects. He was a useful member of the Calcutta Medical Society, of which he was elected President, and edited the *Indian Medical Gazette* for a short time. He retired in April, 1898. He was presented with an address on the occasion by the native medical practitioners of Calcutta in recognition of the efficient and sympathetic aid he had rendered them in consultation. In June, 1900, he was selected to be a member of the Medical Board at the India Office, which position he held till August, 1903. In this capacity he also served on the Medical Board at the War Office, where during the South African war the work was very onerous. He represented India at the International Medical Congress at Moscow, Paris, and Madrid, and at the Tuberculosis Congress in London in 1891 and in Berlin in 1902. He drew up valuable reports on the proceedings of these congresses—that on tuberculosis being especially able and containing important information regarding the prevalence of tuberculosis in India. He was President of the Tropical Section at the Oxford meeting of the British Medical Association in 1904 and made several interesting contributions to its proceedings. He was appointed Lecturer on Tropical Diseases at the Middlesex Hospital and the London School of Tropical Medicine. He was also on the staff of King's Edward's Hospital for Officers, of which he was Honorary Physician. In recognition of his services in that Institution and on the Medical Board he was appointed an Associate of the Order of St. John of Jerusalem and created a Companion of the Bath, civil division. During these years he engaged with increasing acceptance in consulting practice. About two years ago a disabling affection of the lumbar spine set in, which latterly presented a malignant character. This was the cause of his death after a lingering illness patiently borne.

This record of a very active and successful career entitles Crombie to rank high among the many distinguished men who have earned for the Indian Medical Service the honourable reputation which it possesses. He was endowed with a good physique, great intellectual power, and sound judgement. In all that he did he was accurate, observant, thoughtful, and thorough. He was a man of honour, sterling disposition, and kindly nature, a good friend, a skilful and attentive practitioner, and in every relation of life most estimable. He was cut off while to all appearance on the high road to further success in his profession, and his death has caused a deep feeling of regret among a large circle of acquaintances, patients, and friends.

FRANK LESLIE PHILLIPS, M.D.Brux., M.R.C.S. Eng., CONSULTING SURGEON, BIRMINGHAM HOSPITAL FOR SKIN AND URINARY DISEASES.

We regret to note the death of Dr. Frank Leslie Phillips, which occurred at Leamington on September 29th last at the early age of 49. Dr. Leslie Phillips received his medical education at Queen's College, Birmingham, and the London Hospital; he obtained the diploma of L.S.A. in 1881 and that of the M.R.C.S. in 1882; in the following year he took the degree of M.D.Brux. After holding the posts of House Physician at the Queen's Hospital, Birmingham, and Resident Clinical Assistant at the Ventnor Royal National Hospital for Consumption, he engaged for a few years in general practice, but subsequently devoted himself to dermatology, having consulting rooms in Birmingham and London. Five or six years ago he virtually retired from practice and settled in Leamington.

Dr. Leslie Phillips was, perhaps, best known to the medical profession by his work in connexion with the Medical Defence Union, of which he became the honorary secretary when it was reorganized by Mr. Lawson Tait some twenty years ago. He was for many years the life and soul of that organization and contributed enormously to establishing it in the confidence of the profession. He also devoted much time to the study of medical aid associations and their relations to the medical profession, and published numerous letters and a voluminous report upon this subject, in which he charged them with exploiting the medical profession to their pecuniary profit. He was the author of many papers on his own subject of dermatology, and in his earlier days he published a book on abortion. He died after a brief acute illness and was interred in Hatton churchyard. He will be remembered by many as an indefatigable worker for his profession, sparing neither time nor pains on any task he took in hand.

Surgeon-Major Walter Leach, Army Medical Service (retired), died at Martock on October 13th, aged 78. He joined the Army Medical Department as Assistant Surgeon, November 24th, 1854; became Surgeon, June 8th, 1867; and Surgeon-Major at a date not stated. He retired from the service, November 19th, 1875. He was in medical charge of the Left Wing of the 71st Highlanders during the Central India campaign, and was present at the battles of Beora, Mongroulie, and Sindwayu, and the affair of Karrai, receiving the medal.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are Dr. Josef Weinlechner, Emeritus Professor of Surgery in the University of Vienna, aged 77; Dr. Francesco Roncali, Professor of Mental Diseases in the University of Bologna and Director of the lunatic asylum of that city, aged 72; and Dr. William K. Otis of New York, a well-known specialist in genito urinary diseases, aged 46; Surgeon-General Professor Krocker, editor of the *Deutsche militaeraerztliche Zeitung*, aged 60: Dr. Friedrich Straschnow, the oldest of the Franzensbad physicians, aged 79; and Dr. Hermann Hertzka, a well-known Vienna specialist in children's diseases, aged 57.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

KING EDWARD VII's HOSPITAL FOR OFFICERS.

As some inquiries received make it evident that the objects of King Edward VII's Hospital for Officers are not well understood, the following particulars are given concerning them:

The institution grew out of a temporary hospital for officers invalided home during the South African war, which was opened and maintained by Miss Keyser and Miss Agnes Keyser (Sister Agnes) in their own house, 17, Grosvenor Crescent, and it is by Sister Agnes that the present hospital is kept up and managed at 9, Grosvenor Gardens, S.W. It was formally opened by King Edward in May, 1904. It has a very large honorary medical staff, the members of which were selected and appointed by the King, and its twelve beds are intended for the reception of officers, either of the navy or of the army, who are in need of surgical or medical treatment, and whose means are limited. The only essential proviso in respect of admission is that all patients must still be on the active list: no charge of any sort is made beyond one of half-a-crown a day.

Officers who are qualified as above, and who desire admission, should make application in person or by letter to Sister Agnes at the hospital; in either case, a letter from the applicant's commanding officer recommending the case as one suitable for admission should be furnished.

Officers belonging to the army may also make application through the Director-General of the Army Medical Department, 68, Victoria Street, and as the hospital is officially recognized, they are entitled to any travelling expenses incurred on admission and on discharge.

Naval officers who are on full pay should, before entering the hospital, obtain permission from the Admiralty through the usual channels.

Medical Magistrate.—Dr. W. T. Parker Douglas of Speen, Newbury, has been placed on the Commission of the Peace for the County of Berks.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

Degree Days.

Degree days for the ensuing term are announced as follows: Thursday, November 8th; Thursday, November 29th: Thursday, December 6th. On each occasion the ceremonies will commence at 10 a.m.

Natural Science Scholarships.

Scholarships in Natural Science are offered for competition as follows: December 4th—Balliol College, Christ Church, and Trinity College. December 11th—University, Lincoln, and Magdalen Colleges. January 15th, 1907—Jesus College.

UNIVERSITY OF CAMBRIDGE.

Dr. G. H. F. Nuttall, M.D., F.R.S., Fellow of Christ's College and Reader in Hygiene in the University, was on October 16th elected to the newly-created Quick Professorship in Biology. His duties are to devote himself to the study of the protozoa, especially such as cause disease, and generally to promote that branch of study. Dr. Nuttall, who was at one time Associate in Hygiene at Johns Hopkins University, Baltimore, is well known for his contributions on parasitic pathology, especially with regard to the protozoa and to the part which insects play in the dissemination of disease.

UNIVERSITY OF GLASGOW.

The following candidates have been approved at the examinations indicated:

First M.B., Ch.B.—D. R. Adams (P.), I. B. Alexander (B.), J. C. H. Allan (B., Z.), W. Anderson (P.), A. J. Archibald (C.), C. Auld (P.), R. B. Austin (B., Z., P., C.), A. Baird (P.), W. E. H. Beard (B., P.), J. E. Bird (B., Z., P., C.), A. M'C. Blackwood (P.), J. Bower (Z., P.), J. T. Brown (B., P.), R. A. Brown (Z.), S. Bryson (Z., P.), J. A. S. Burges (B., P.), J. Cameron (B., Z., P.), J. A. S. Campbell (P., C.), T. S. Campbell (B., C.), G. W. Clark (B., Z.), J. A. J. Conway (B., P.), I. H. Coulter (Z.), J. M. Dawson (Z.), R. H. Deans (B., P.), J. N. Dobbie (B.), P. Drummond (C.), R. Drummond (B., P.), A. M. Dunlop (C.), J. Dunlop, M.A. (B.), A. S. Findlay (B.), J. Findlay (Z.), R. Findlay (B., P.), H. Forrest (B., P.), T. L. Fraser (P., C.), D. T. C. Frew (Z., C.), A. Garvie (B., P.), N. Gebbie (B., P.), A. R. H. Gever (B., P.), P. Giuliani (Z., C.), J. Gray (P.), G. C. Griffiths (B., P.), A. C. Haddow (B., Z., P., C.), J. R. Haldane (B., Z., P.), J. Harper, M.A. (C.), J. Hendry, M.A. (B., P.), J. Henretty (P.), W. Howat, M.A. (C.), H. Howat (C.), J. Jack (B., P., C.), C. Johnston (C.), W. H. Kay (B.), C. J. Kirk (B.), A. Kirkhope (B., P.), J. M'C. Lang (B., P.), G. S. Livingston (B., P.), D. C. Macdonald (B., P.), I. Macdonald (Z.), D. M'Intyre (Z.), B. M'Kean (B., P.), T. J. Mackie (B., P.), J. D. Mackinnon (B., P.), M. Mackinnon (P.), A. B. MacLean (B., P.), A. M'Leod (Z., P.), W. A. Maclennan (P., C.), C. Macmillan (P.), W. M'Murray (B., P.), S. A. MacPhee (B., P.), J. P. M'Vey (B., P.), A. T. M'Whirter (B., Z.), M. Munsou (B., P.), F. W. Martin (C.), R. Millar (B.), A. Mitchell (B.), N. Morison (B.), A. R. Muir (B., P.), M. J. Murray (B., Z., P.), H. L. Neil (B., P.), J. Paterson (B., Z., P., C.), T. Paterson (B., Z., P., C.), J. Penman (B., Z., C.), A. Poole (Z., P.), A. S. Richmond (B., P.), D. W. Ritchie (B., P.), A. F. Ross C.), J. I. Russell (B., Z., P., C.), J. L. Scott (P.), J. D. S. Sinclair (P., C.), W. Sneddon (B., Z., P.), G. R. Spence (C.), J. Stewart (B., P.), J. A. Stewart (B.), T. L. G. Stewart (C.), G. T. Strachan (B., P., C.), J. N. Sutherland (Z.), W. Taylor (B., P.), S. V. Telfer (B., Z.), E. N. Thomson (Z., P.), J. D. Walker (B., P.), J. C. Walker (P.), A. G. S. Wallace (B., B.), T. Walmsley (B., P.), E. C. White (B., Z., P.), W. H. N. White (Z.), T. Whitelaw (B.), H. E. Whittingham (C.), H. M. Williamson (Z.), J. Williamson (Holytown) (B., Z.), A. S. Wilson (B., P.), D. Wilson (B., P.), G. J. Wilson (B., P.), H. G. Wilson (B., Z.), W. R. Wiseman, M.A., B.Sc. (B., Z.), J. C. Wood (B., Z.), H. Yellowlees (B., Z., P., C.), F. H. Young (B., P.). Women—Mary Alexander (B., Z.), Agnes B. Auchencloss (B., Z.), Isabel Inglis (B., Z.), Katherine S. Macphail (B., Z.), Jeanie D. M'Whirter (Z., C.), Barbara G. Rutherfurd (B., Z.), Florence E. Sextou (B., Z.), Isabel J. Stark (B., Z.), Mary B. Thomson (B.), Jemima Wallace (C.), Marion A. Wylie (Z., C.).

B, Botany; Z., Zoology; P., Physics; C., Chemistry.

Second M.B., Ch.B.—J. A. Aitken (P.), D. Anderson (M.), D. Arbuckle (P.), T. Archibald (M.), W. H. S. Armstrong (M.), J. C. Auchencloss (P., M.), A. Ballantyne, M.A. (P.), W. Barr (A.), C. Bennett (A., P., M.), J. Blakely (M.), J. L. Boyd (M.), C. Brash (P.), W. B. Brownlie (M.), D. Y. Buchanan (A., P., M.), H. M. Calder (M.), J. Cameron (M.), M. I. T. Cassidy (M.), D. J. Clark (A., M.), J. Cook (Coalburn) (A., P.), J. Cook (Partick) (M.), W. Dawson (A., M.), T. L. Fleming (M.), T. S. Forrest (A.), W. L. Forsyth (M.), J. Fotheringham, B.Sc. (M.), W. E. Gemmell (P.), A. T. A. Gourlay (A., M.), T. E. Gray (A., P., M.), J. S. Harbinson (M.), M. Harkin (A., P.), S. J. Henry (A., P., M.), H. Hislop (A., P., M.), W. A. Hislop (A., P., M.), B. Hutchison (M.), W. H. Kiep (M.), T. J. Kirk (P.), J. Lang (M.), D. C. M'Ardle (A.), A. Macaulay (P., M.), M. Macdonald (A., P.), W. M'Kendrick (A.), F. W. Mackichan (P., M.), W. C. Mackie (A.), A. M'Kinnon (P.), T. J. Mackintosh (A., P., M.), J. W. M'Leod (M.), J. MacMillan (M.), A. M'Pherson (P., M.), M. M'K. M'Rae (P., M.), A. Maguire (A., P., M.), A. L. Marriott (P., N. Marsh (A., P., M.), K. G. Middlemiss (M.), R. W. Mitchell (A., M.), J. Mowat (P.), J. Muir (A.), W. A. Muir (M.), C. S. M'K. Murison (M.), A. Naismith (M.), W. Noble (P., M.), D. Purdie (A.), E. Quigley (A., P., M.), R. Rae (M.), H. N. Rankin (P., M.), N. M'N. Rankin (M.), H. G. Robertson (A., M.), A. Semple (P., M.), J. B. Sim (M.), A. H. Sinclair (M.), J. J. Sinclair (P.), D. Stewart (A.), E. E. Stewart (P.), Taylor (M.), W. Telfer (P.), T. S. Thomson (A., M.), A. Turnbull, M.A. (A., P.), R. M. Walker (M.), D. M'G. Wilson (A.), J. A. Wilson (A.), W. M. T. Wilson (A., P., M.), J. Y. Wood (P., M.), H. Young (A., M.), J. Young (A., P.). Women—Margaret B. S. Darroch (M.), Euphemia A. Hay (P.), Jessie D. Rankin (A.), Olive Robertson (A., P.), Jessie C. Russell (M.), Jeanie H. Stewart (P.).

A., Anatomy; P., Physiology; M., Materia Medica and Therapeutics.

Third M.B., Ch.B.—M. Buchanan (P., M.), J. Cairncross (P.), J. C. Crawford (P.), N. Davie (M.), J. C. Dick (P.), J. Dunbar (P.), W. H. Duncan (P., M.), A. Dunsmuir (P.), A. W. Eadie (M.), W. M. Elliott (M.), J. Ferguson (M.), T. Forsyth (P.), G. M. Fraser, M.A. (P., M.), S. N. Galbraith (M.), D. Gibson (P., M.), J. V. Grant (P., M.), J. D. Gray (P., M.), D. Hamilton (P., M.), A. M. Kennedy (P., M.), C. L. Kerr (P., M.), J. T. Kirkland (M.), G. Ligertwood (M.), A. T. L. Macdonald (M.), J. M'Donald (P., M.), N. MacInnes, M.A. (P., M.), R. M'Inroy (M.), J. B. Mackay (P., M.), T. C. Mackenzie (P.), J. H. Martin (M.), W. S. Melville (M.), J. C. Middleton, M.A., B.Sc. (P., M.), A. F. Miller (M.), J. W. Miller (M.), T. Miller (M.), J. Oswald (P., M.), D. M'K. Reid (P., M.), T. D. C. Ross (P., M.), J. A. Steuhouse (M.), J. Stewart, M.A., B.Sc. (P., M.), J. M. Taylor (M.), D. A. Thomson, M.A. (P., M.), H. J. Thomson (M.), J. A. Thomson (P., M.), T. M. Watt (P.), J. Weir (P., M.), D. J. Williams (M.), G. Y. Yardumian (P.), M. Young (P., M.). Women: Margaret G. Forrest (P., M.), Ella S. Hill, M.A. (P., M.), Annie M'Crorie (M.), Janet A. Macvea (P., M.), Jane I. Robertson, M.A. (M.).

P., Pathology; M., Medical Jurisprudence and Public Health.

The following passed with distinction in one or more subjects:

1st M.B., Ch.B.—J. Hendry, M.A., T. J. Mackie, A. B. MacLean, D. T. C. Frew, J. Jack, J. T. Brown, S. Bryson, Jeanie D. M'Whirter, Barbara G. Rutherfurd, Florence E. Sexton, D. R. Adams, H. Forrest, A. Garvie, N. Gebbie, J. Gray, A. R. Muir, D. W. Ritchie, G. T. Strachan, J. D. Walker, A. S. Wilson, H. Yellowlees, P. Drummond, W. Howat, M.A., H. E. Whittingham.

2nd M.B., Ch.B.—A. Turnbull, M.A., J. Fotheringham, B.Sc., W. H. Kiep, R. M. Walker.

3rd M.B., Ch.B.—J. C. Middleton, M.A., B.Sc., M. Young, A. W. Eadie, H. J. Thomson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A Quarterly Council was held on October 11th, Mr. Henry Morris, President, in the Chair.

Recommendations of the Museum Committee.

Amongst certain other recommendations, the following were adopted by the Council: That an honorarium of £100 be presented to Mr. William Pearson, Prosector, in recognition of his valuable work, and of his having completed fifty years in the service of the College.

Annual Report of Council.

A draft copy of the Report to be presented to Fellows and Members at the annual meeting on Thursday, November 15th, at 3 o'clock, was adopted by the Council.

University of Aberdeen.

A letter was read from Mr Edmund Owen reporting that he had attended the Quatercentenary Celebration of the University of Aberdeen as the representative of the College and presented the Address of Congratulation from the College, and he had had the honour of receiving from the University the degree of LL.D.

CONJOINT BOARD IN IRELAND.

The following candidates have been approved at the examinations indicated:

First Professional—H. E. Clarke, J. Devine, H. D. Gasteen, J. Gormley, J. J. Glynn, J. D. Hamilton, E. E. Holden, R. H. Hodges, W. V. Johnston, A. P. Kennedy, A. M. A. Lanphier, L. A. Moran, W. H. Murray, H. McAdee, J. McMullen, T. B. Newman, M. A. O'Callaghan, B. O'Donnell, J. H. O'Neill, J. Purcell, A. Wiley.

Second Professional—W. S. Coffey, F. J. Colgan, J. Donoghue, D. J. Harty, J. Healy, J. T. Hefferman, L. C. Johnston, J. Marmion, J. J. O'Connell, M. C. O'Hara, W. Rahilly, L. C. Rorke, W. F. Russell, I. Scher, R. S. White.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

PRESERVATIVES IN MILK.

In his latest report to his authority, Dr. Collingridge, Medical Officer of Health for the City of London reviews at considerable length the legal aspects of the present position in respect to the addition of preservatives and colouring matters to milk and milk produce. Several years ago a Departmental Committee appointed by the Board of Agriculture to inquire into the use of colouring matter and preservatives in foods terminated its labours by drawing up a series of recommendations the nature of which is generally known. In milk it was suggested that no preservatives or colouring matter should be allowed at all; in cream, butter, and margarine the use of borax or boric acid was regarded as permissible provided the amount did not exceed 0.25 per cent. in milk or 0.5 per cent. in butter and margarine.

Sanitary authorities throughout the country have already made a good deal of use of these recommendations which have been quoted at times as standards in actions brought in the courts, and the Local Government Board this summer has issued a circular redirecting attention to the recommendations and urging their adoption by all sanitary authorities. Whether the circular really amounts to an instruction to sanitary authorities to prohibit within their areas the use of milk preservatives may, perhaps, be open to question, but it seems

clear that any such action on the part of the sanitary authorities is not at present feasible. The recommendations of the Departmental Committee as they stand are recommendations only, and of no legal value, and as things stand the only course which seems open to sanitary authorities in connexion with drug-preserved milk is to proceed under the old Food and Drugs Act of 1875.

Under this Act the use of preservatives only becomes an offence if they are present in such quantity as to render the article sold injurious to health, and on the latter points the courts are often difficult to convince. The Act of 1899, however, gives the Board of Agriculture and Fisheries full power to determine what substances shall, when added to milk, be presumed to render it injurious to health. It could therefore settle the whole question at once by adopting the recommedations of its own Departmental Committee as substantive regulations under Section 4 of the Act mentioned, and this course Dr. Collingridge is anxious it should be urged to take by the Local Government Board.

PUBLIC VACCINATORS AND OTHER PRACTITIONERS.

HAMPSHIRE is a public vaccinator. On calling to offer to vaccinate one of the children whose name was given him on Form H, the offer was accepted, the mother at the same time informing him that the child had been once unsuccessfully vaccinated three months previously by their family doctor. Was "Hampshire" right in vaccinating the child without first communicating with the family doctor?

*** Under these unusual circumstances it would have been better had "Hampshire" communicated with the family doctor, as invidious comparisons may be made by the family between the methods of vaccination. On the other hand, it must be recognized that it is impossible for public vaccinators to communicate with private practitioners in reference to all cases.

CIVIL ENGINEER wishes to know of a small manual on sewage treatment, not too technical, yet suited for one of his profession. It must contain details of the working of the bacteriological processes.

*** He might consult *Sewage and the Bacterial Purification of Sewage*. By S. Rideal, D.Sc. London: Robert Ingram. 1900. 14s.

MEDICO-LEGAL AND MEDICO-ETHICAL.

A TARIFF OF MEDICAL FEES.

WE have received from Dr. J. H. Taylor, Honorary Secretary of the Manchester Medical Guild, a copy of the *Tariff of Medical Fees*[1] issued by that association, The copy before us is endorsed "Fourth Edition" and is dated 1893, and we are informed that the scale has been used in Manchester for many years, and has been recognized as fair and reasonable in many courts of law.

The rental of the patient's residence is recommended as the basis of classification instead of the income.

Class	I. When the house rental is from	£10 to £25	per annum
Class	II. "	" £25 to £50	"
Class	III. "	" £50 to £100	"
Class	IV. "	" above £100	"

It is pointed out that exceptional cases will be met in which the practitioner must use his discretion; there are, for instance, notoriously wealthy men of penurious habits, and shopkeepers residing in premises where trade is carried on, and where a liberal deduction must be made from a rental not incurred solely for personal or family convenience. A similar observation applies to lodging-house keepers, but in the case of lodgers there is, again, room for the exercise of individual discretion. The following paragraphs from the introduction must be quoted in full:

This scale, it will be observed, commences with those inhabiting houses of £10 annual rent. Below this, however, there is a class of the community which is able to pay somewhat for medical advice, and whom it is desirable to preserve from the necessity of consulting druggists and other unqualified persons. Although it has been considered impossible to give a scale of fees suitable to the means of such of the poorer classes, the association would impress on its members and the profession generally the advisability of attending them, when their other engagements will permit, at a rate of charges reduced even somewhat below the lowest here given. This would not only be a boon to the poor themselves, but in the case of those practitioners inhabiting thickly-populated districts, would not be unremunerative. Such small charges should be made, for ready money, but when this is not possible, monthly accounts are recommended. In all other cases quarterly accounts are advised.

[1] Manchester: Messrs. Cornish. Price 6d.; post free 7d.

It will also be observed that no mention has been made of payment for medicines. This has been deliberately omitted, and will serve to mark the sense of the association that medical men should, in all cases, base their title to remuneration upon the value of their time and skill. The practice of supplying medicines at all has died out almost everywhere except in England, and the day will probably arrive when it will do so here. Balancing in every light the advantages to patient and practitioner of supplying medicines or prescribing, the association has concluded that this tariff is equally applicable to both cases, and recommends it whether medicines are supplied or not. Of course, no extra charge for them is understood, as their cost is amply made up by the greater hold the practitioner has on his patient and in various ways which need not be recapitulated.

Owing to the inherent difficulty of the subject, no fees have been fixed for surgical operations, setting of fractures, etc. The skill and time required for these vary so much in each case, and the charge has hitherto been regulated so much by the special qualifications of the surgeon, that they are left for the present to be separately decided in each individual case. The association would, however, remark that the fees in these cases allowed by the Poor-law Board would constitute a good minimum.

The tariff itself is as follows:

General Practitioners.

	Class I.	Class II.	Class III.	Class IV.
1. Ordinary visit	2/6 to 3/6	3/6 to 5/0	5/0 to 7/6	7/6 and upwards.
2. Special visit	A visit and a half.			
3. Night visit	Double an ordinary visit.			
4. Mileage beyond 1 mile from home	1/6	2/6	3/6	5/0
5. Detention per hour or part of an hour	3/6 to 5/0	5/0 to 7/6	7/6 to 10/6	10/6 and upwards.
6. Advice at practitioner's house	2/6 to 3/6	3/6 to 5/0	5/0 to 7/6	7/6 and upwards.
7. Letters of advice	2/6 to 3/6	3/6 to 5/0	5/0 to 7/6	7/6 and upwards.
8. Consultations	See explanatory notes.			
9. Attendance on domestic servants	2/6 to 5/0			
10. Two or more patients in one house	See explanatory notes.			
11. Midwifery	21/0	21/0 to 63/0	63/ to 105/0	105/0 and upwards.
12. Abortions	See explanatory notes.			
13. Vaccination	2/6 to 3/6	3/6 to 5/0	5/0 to 7/6	7/6 and upwards.
14. Surgical operations	See explanatory notes.			
15. Certificates	2/6 to 3/0	3/6 to 5/0	5/0 to 7/6	7/6 and upwards.

EXPLANATORY NOTES.

2. *Special Visit.*—This is a visit of which notification is not given before 10 a.m., when the practitioner has commenced his daily round; such visits almost always involve increased trouble or expense; also whenever immediate attendance is requested, or attendance at a fixed hour. These latter circumstances often embarrass the practitioner, and entitle him to an increased fee.

3. *Night Visit.*—One made between 10 p.m. and 8 a.m.

4. *Mileage.*—This commences at one mile from the place where the practitioner usually conducts his practice, and is added to the visit according to the class.

5. *Detention.*—When at the desire of the patient, or from the urgency of the case, the practitioner is detained more than half an hour, he is entitled to additional remuneration, as per scale. This does not apply to attendance in midwifery.

6. *Advice at Practitioner's House.*—The same charge as for an ordinary visit. The same addition is applicable for detention beyond half an hour.

8. *Consultations.*—When the ordinary attendant has to meet another medical man in consultation, he is fully entitled, from loss and disarrangement of time, to at least treble his ordinary fee. When a general practitioner is himself called in consultation, he is entitled to consultant's fees.

10. *Two or More Patients in One House.*—When these are paid for by one person, half a visit is chargeable for each patient beyond the first. When this is not the case, the full charge should be made for each.

11. *Midwifery.*—From use and want, the fee for Class I is generally understood to cover the after-visits, when these are few and all goes well. In the other classes, the after-visits are not included, unless previously so arranged. When operations, such as the use of forceps, turning, etc., are required, the practitioner is entitled to an extra charge of at least half his usual fee.

12. *Abortions.*—In ordinary premature labour, the charge is the same as in midwifery. In attendances on abortions, the visits required should be charged as such, plus an additional charge for detention according to No. 5.

13. *Vaccination.*—This is not included in the midwifery fee.

14. *Surgical Operations.*—As explained in the introduction to this tariff it has been found impossible to fix a scale of charges for surgical operations. The attempts hitherto made have been such as not to invite imitation. For the general practitioner, the Poor-law scale (appended) is suggested as a minimum.

15. *Certificates.*—Certificates of health, of illness, or the like are hereby intended.

Poor-law Scale of Surgical Fees.

	£	s.	d.
Compound fracture of thigh ... ...)			
,, of leg ... ...)			
Amputation of leg, arm, foot, or hand...)	5	0	0
Strangulated hernia... ... ...)			
Simple fracture of thigh or leg ... ...)			
Simple dislocation of ,, ...)	3	0	0
Amputation of finger or toe	2	0	0
Dislocation of arm ... ...)			
Fractures of arm ... ...)	1	0	0

"PROFESSOR RICHARD."

We learn from the *Midland Evening News* that there is being circulated in Wolverhampton a petition in favour of the man Richard, who, at Stafford Assizes last summer, was convicted on a number of charges of obtaining money under false pretences and was sentenced to twelve months' imprisonment. The document prays the Home Secretary to review the evidence and advise the exercise of the Royal clemency on the ground that some of the witnesses testified to having received benefit from the treatment or appliances obtained from the convict and that even medical men in innumerable cases make incorrect diagnoses of disease and treat their patients wrongly. Be this as it may, it is scarcely probable that the Home Secretary will interfere between the man and the completion of his punishment, for he was only sentenced after a most exhaustive trial, on the termination of which Mr. Justice Bigham expressed a hope that the exposure made of his methods would put an end to his career in this country. It was also shown before sentence was passed that the prisoner, originally a rag merchant, had a long and evil record against him. Amongst other things, he had been imprisoned for complicity in a robbery, and again for swindling, and had twice been expelled from Belgium. At a later date he became a bankrupt, as a glove seller, in the United States.

EXPLORATORY OPERATIONS.

A medical correspondent, referring to our annotation on this subject in the British Medical Journal of September 22nd, p. 724, writes to say that there are at least some hospitals where the rules which in our opinion should regulate such surgical procedures are not respected. He will pardon us for saying that the case he quotes scarcely bears out his contention, distressing as it may have been to him owing to his relationship to the patient. That exploratory incisions are sometimes made in advanced and really hopeless cases of malignant disease may be true, but we cannot believe they are made when the operator is satisfied that there is no room for doubt. The propriety of operating in each case must be a matter of opinion; to one man the diagnosis may seem so absolutely certain that to operate is to subject the patient and his friends to a wholly unnecessary trial, which deprives him of the short span of life he otherwise might have passed in the society of those dear to him. The justification for the operation depends upon the existence of legitimate grounds for doubt and upon the brilliant results occasionally achieved by modern surgery, which has snatched from the very jaws of death a few cases of apparently hopeless disease. The prevalence of these operations varies inversely with the diagnostic skill of the surgeon and directly with his disregard or ignorance of diagnostic methods. The "well-known Harley Street surgeon," who startled the readers of the *Evening News* a few weeks ago by stating that hundreds of unjustifiable operations are performed in London, makes a somewhat different charge. He apparently does not refer so much to exploratory incisions as to operations that may be considered not strictly necessary; but this is a charge so easy to make and so impossible to prove or to disprove without a careful examination of the circumstances of each one of the hundred cases alleged to be unnecessary that its general correctness or incorrectness must remain a matter of opinion. What we have most to deplore is the unedifying exhibition during the past few months of a willingness on the part of members of the profession, whether well-known residents in Harley Street or not, to give interviews to the representatives of the press for the purpose of expressing unfavourable opinions of the proceedings of their professional brethren.

THE TITLE OF DOCTOR.

Rusticus.—If the name of the person referred to is on the *Medical Register*, and if the licensing authorities whose diplomas he holds decline to interfere, we know of no means by which he can be prevented from styling himself "Dr."

VISITING CARDS.

Scotia.—There appears to be no absolute rule with regard to putting medical degrees upon a visiting card, but the better practice appears to be not to do so.

ADVERTISING FOR PATIENTS BY A FRIENDLY SOCIETY.

C. V. B.—If, as proposed, circulars are issued giving particulars of premiums and benefits not only to members of the orders but to "their friends"—which is an elastic term, and may be of indefinite extension—there is danger of coming within the terms of the resolution passed by the General Medical Council on June 6th, 1899, expressing disapproval of medical practitioners associating themselves with medical aid associations which canvass and advertise for the purpose of procuring patients. If the circular were issued only to present members, we do not think any objection could be made to the appearance of our correspondent's name upon it, but he had better not allow his name to be used on any circular which is issued to other than members of the order.

ADVERTISING AMBULANCE LECTURES.

M. H. writes to say that he agreed to give some ambulance lectures and to his disgust found that without asking his permission, handbills were being printed and distributed announcing the lectures. He asks whether he should have called them in as soon as he heard of them, or might he, as we understand, wash his hands of all responsibility on the ground that he was not previously consulted? He says he strongly objects to seeing his name in print and would have refused permission had he known.

*** Holding such views, M. H. would have been more consistent had he insisted upon the bills being withdrawn as soon as he heard of them. The advertising of ambulance lectures has given rise to a great many complaints but no common action has been taken by the profession to prevent the use of posters and bills.

PROPOSED CLUB.

M. D. Cantab. asks what would be a fair and usual contract fee for attending the employées (about thirty in number) at a large drapery establishment. The girls employed appear to be of good class, but at the same time he thinks it would be hardly fair to expect them to pay 3s. 6d. a visit, our correspondent's minimum fee. The contract fee would be paid through or by the manager.

*** It would not, we think, be judicious to form a club for so limited a number. Even if the annual payment were put at 7s. 6d., a sum which occurs to us as probably the maximum likely to be accepted, the club could hardly be remunerative to our correspondent; the best course would probably be to lower his minimum fees slightly in the case of these persons. It must be remembered that the Truck Act would prevent the manager from stopping money from the wages of the employés; all he could do would be to offer to receive any money the employés chose to pay towards the medical fund.

THE CLAIM TO FEES.

Fair Play.—In both Case I and Case II the right to retain the fees received for the consultation would depend upon whether the contract between the assistant and his principal expressed or implied that the former should give up the whole of his time to the latter. Unless it had been indubitably expressed the presumption is altogether in favour of the fee being retained by the man who earned it, considering that in both instances there are obvious points of difference from the ordinary case of principal and assistant where the assistant has of course no right to retain the fee.

DUTY OF CONSULTANTS.

A., a practitioner, has a patient in whose case a simple surgical operation is likely to become necessary, but he urges on the friends the desirability of a London specialist being summoned. The patient and her husband, however, wish for B., another practitioner, to be called in, and he meets A. in consultation and advises the operation. A. says he will do it. How should B. comport himself?

*** B., having been called in consultation and expressed his opinion, should leave the case in the hands of A.

AN ESCAPE FROM A NURSING HOME.

J. W. W.—The question is purely a legal one, and should be referred to the family solicitor. The terms of the contract between the nursing home and the patient's brother would require consideration, and further information as to the conduct of the nurses would be necessary. The disloyalty of their proceedings is, happily, unusual, and the matter should not be allowed to rest in the present unsatisfactory position. It is noted, however, that the patient was not certified as of unsound mind; and it might be asserted that she was and is quite competent to adopt her own course of action. She flatly refused to go into a home, and no steps were taken to supersede her determination. In such a case it does not appear justifiable to intercept a letter addressed to a brother.

WHAT CONSTITUTES BEING IN ATTENDANCE.

OLD SCHOOL writes that it may interest "P. J." (BRITISH MEDICAL JOURNAL, September 29th, 1906, p. 810), to know that many of his brother practitioners consider his conduct "wholly correct and highly to be commended." Yet he goes on to say "Mr. X. was evidently attended by the other practitioner" and that "Mr X. should have notified this practitioner that no further attendance would be required." The statements are so inconsistent that we cannot profess to reconcile them. Our correspondent is, however, entitled to his own opinion.

THE RIGHT TO A PATIENT.

ANXIOUS.—We believe that "Anxious" is quite entitled to attend Mrs. C as he has in no way attempted to take advantage of his position. Had he seen Mrs. C. as Dr R 's substitute his position would have been different, but he evidently knew her long before Dr. R. came into the district, and the fact that he had attended a lodger in the house as Dr. R 's substitute should not in our opinion act as a bar to his attending Mrs. C. as his own patient, if—as appears to be the case—Mrs. C. and her husband distinctly prefer him and have never been at any time under the care of Dr. R.

THE COURTESY CALL.

J. B. C.—While it is customary to call upon one's medical neighbours we know of no precedent for extending such visits to the medical residents in the district around.

DISPENSING IN IRELAND.

G. P.—There is no law peculiar to Ireland respecting the dispensing of medicines by a qualified medical practitioner. The Licentiates of the Royal College of Physicians were formerly prohibited from keeping an open shop for the sale of medicines, but some years ago this restriction was removed.

HOSPITAL AND DISPENSARY MANAGEMENT.

THE RETREAT, YORK.

THE 109th annual report of this historic institution shows that there were on the hospital registers 166 certified patients and 8 voluntary boarders on January 1st, 1905 At the end of the year there remained 167 certified patients and 5 voluntary boarders. During the year 43 certified cases and 17 voluntary boarders were admitted. Information as to the voluntary boarders is excluded from the statistical table, but of the 43 certified cases 41 were direct admissions, 2 being merely statutory readmissions. In 9 cases the attack was a first attack within three and in 6 more within twelve months of admission. In 16 the attack was a not first attack of twelve months, and the remainder were of more than twelve months' duration on admission. Of the 18 male patients admitted 7, and of the 23 female patients 17, were deemed curable The admissions were classified as to the form of mental disorder into: Mania 8, melancholia 19, dementia 7, stupor 1, delusional insanity 1, alternating insanity 1, and general paralysis of the insane 4. The table of etiological factors and associated conditions present in the admissions has been exceedingly carefully prepared, and distinguishes between first attack and not first attack cases. Regarding only the total incidence, a heredity of insanity was ascertained in 20, of epilepsy in 1, and of marked eccentricity and of alcoholism in 2 each. Toxic causes were assigned in only 4 (alcohol 2, tuberculosis 1, and syphilis 1). Critical periods are given as principal causes in 4, and as contributory causes in 3.

Diseases of the nervous system are mentioned in 4 cases, various other bodily diseases in 7, mental stress in 17; in 13 no principal factor could be assigned with certainty, only contributory factors being returned; and in 6, notwithstanding full history and observation, no cause could be assigned. During the year 13 were discharged as recovered, giving a recovery-rate on admissions of 31.70 per cent., 10 as relieved, 9 as not improved, and there were 10 deaths. The deaths, which give the low percentage death-rate on the average numbers resident of 5.92, were due in 3 cases to general paralysis, in 1 to cerebral haemorrhage and in 1 to exhaustion from melancholia. There were also single deaths from old age, from rupture of the bladder, and from pulmonary consumption. One patient was killed on the railway after having escaped through a fanlight 11 ft. from the ground and opening only 7½ in. There was also one death, not included in the above figures, amongst the voluntary boarders, the patient, a lady, having pricked her thumb with a pin, and in spite of every care the hand became gangrenous; she died of septic poisoning This case, with the patient killed on the railway and another who died from ruptured bladder, were the subjects of coroner's inquests, and verdicts returned exonerating all officials from blame. With regard to the case above mentioned, in which the escape of a patient had a fatal issue, Dr. Bedford Pierce, the medical superintendent, comments wisely on the undesirability of relying too much on structural contrivances to ensure the safety of patients, and dwells upon the importance of granting a large measure of freedom to the insane in all institutions. It is astonishing, he says, how rarely this freedom is abused. The general health throughout the most part of the year was good, but, unfortunately, in November, an outbreak of scarlet fever occurred, whose origin has never been discovered. On the same day a lady patient, a male attendant, and two members of Dr. Pierce's family were taken ill, and ten days later Dr. Pierce and a nurse were attacked. The cases were at once isolated, and the further spread of the disease checked. From the financial point of view, the year's work, Dr. Pierce says, promises less satisfactorily than the previous year. The increase of income which marked the past seven years has been for the present arrested, and the revenue shows a slight decline. The income cannot be expected to increase much further unless either the institution be enlarged or the assistance given to the poor be reduced. Either of these alternatives, Dr. Pierce says, is out of the question, the former meaning an alteration in the character of the Retreat, and the other defeating the purpose of its foundation. At present 53 per cent. of the patients pay less than their cost, whilst 21 per cent. are received at the lowest rate of 12s. per week. The institution and Throxenby Hall, its convalescent home near Scarborough, were visited by the Commissioners, who speak in highly favourable terms of their condition and management.

BOOTHAM PARK, YORK.

THIS admirable institution, founded in 1774 by general subscription for the reception and relief of the insane, became, under the Lunacy Act of 1845, one of the then newly-established registered hospitals. These institutions are, it will be remembered, neither rate-maintained asylums nor private licensed houses, but are entirely supported by subscriptions and donations. Unfortunately, however, they neither exist in sufficient numbers, nor do they receive that meed of whole-hearted support they deserve from the public whose needs they serve. The Commissioners in Lunacy, in their report for 1901, said: "The number of registered hospitals, which for many years has been fourteen, remains as at the date of our last report, and we have once more to express our regret that the urgent need which exists for the provision of additional accommodation suitable for educated persons of small means who become insane continues to be apparently unrecognized by that part of the public which is generally foremost in philanthropic work."

The number of these hospitals still remains the same, and we can only hope that the accumulating evidence of the beneficent work accomplished by these institutions will attract the sympathy and aid of those happily enough situated to be able to help. Until recently Bootham Park has accepted not only private patients at rates ranging from 2 to 6 guineas a week, but a limited number of private patients at a reduced charge from 1 to 2 guineas, and also a considerable number of pauper patients chargeable to the City of York, numbering 56 on the occasion of the Commissioners' visit in March, 1905. We are now informed by Dr. C. K. Hitchcock, the Medical Superintendent, that as a result of the opening of the new Borough Asylum for York City these pauper patients have been removed to the Borough Asylum, thus leaving the asylum open for the reception of much larger numbers of private patients at reduced rates than was formerly possible, and considerably enhancing the value of the institution.

On January 1st, 1905, there were 132 patients in the asylum, and at the end of the year there remained 127, the total number of cases under care during the year being 163.

During the year 31 cases were admitted, of whom 24 were first admissions. In 10 the attack was a first attack within three, and in 6 more within twelve, months of admission; in 6 the attack was a not-first attack within twelve months of admission, and the remaining 9 were of more than twelve months' duration. They were classified as to the forms of mental disorder into: Mania of all kinds, 9; melancholia of all kinds, 8; secondary dementia, 4; delusional insanity, 8; and general paralysis, 2 As to the probable cause of insanity amongst the admissions, alcoholic intemperance was assigned in 2, venereal disease in 1, previous attacks in 10, various bodily diseases in 5, and "moral" causes in 11. Hereditary influences were ascertained only in 1. During the year 17 cases were discharged as recovered, giving the very satisfactory recovery-rate on admissions (exclusive of transfers and re-certification) of 62.96 per cent.; 2 as relieved; 5 as not improved, and there were 12 deaths.

The deaths, which give a percentage death-rate on the average numbers daily resident of 7.3, were due in 6 cases to cerebro-spinal diseases, including 4 deaths from general paralysis; in 2 cases to chest diseases, and in 4 cases to general diseases. It is to be noted that there was no death from tuberculous disease. During the year no case of infectious disease occurred, there was no serious accident, and the general health was good. The asylum was twice visited by the Commissioners in Lunacy, whose favourable reports on the condition and management of the institution are included in its annual report.

THE Congo State Government has instituted courses of instruction for Colonial medical officers in Brussels. They comprise lectures and practical training in pathology, clinical medicine and surgery, hygiene and microscopic diagnosis.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original Articles and Letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any circumstances be returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the Editor of the British Medical Journal is *Aitiology, London*. The telegraphic address of the Manager of the British Medical Journal is *Articulate, London*.

Telephone (National):—
EDITOR, 2651, Gerrard. GENERAL SECRETARY AND MANAGER, 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

E. M. W. wishes to hear of a good microphotographer in or near Manchester.

S. asks for advice in the following case: A youth aged 18 years, who leads an active life, and whose heart sounds are normal (no disordered action, etc.) is much distressed about his hands, which in cold weather are always blue and cold, and appear enlarged. On pressure, the white mark remains for a long time. Tonics, life in the open air, and massage have been tried in vain.

Nil Desperandum writes: I have under my care a perfectly healthy and strong male child, aged 18 months, with slight enlargement of the tonsils, who during the autumn and winter months suffers from alarmingly severe attacks of simple "croup," duration a few hours to several days, and recurring with great frequency, for example, every ten days. Occasionally an attack is ushered in by a nasal catarrh. All the ordinary and extraordinary remedies have been tried with but little relief. This child is resident in the Thames Valley, and the recent onset of damp muggy weather is responsible for the first attack that has occurred since March. Is the last card for me to play that of change of residence?

Surgeon-General Evatt writes: Could I be told any reference to opinions of physiologists as to the effect of singing on breathing power of the lungs as a beneficial sequel to such practice? I am advocating singing in the army as a factor in the soldier's life, and any reference to such opinion would be very helpful.

*** The beneficial effects of singing, considered merely as a physical exercise, are so generally recognized that it is difficult to refer our correspondent to any precise statement on the subject. He might consult with benefit the following works: *Voice, Song, and Speech*, by the late Lennox Browne; *Respiration in Singing*, by Joal, translated into English by Dr. Wolfenden; *Voice Building and Tone Placing*, by H. Holbrook Curtis (New York: Appleton and Co.). Stuart's *Manual of Physiology* is one of the books which deals most practically with the physiology of respiration. A well-known laryngologist writes in reply to an inquiry: "I regret that I have been unable to ascertain the opinion of physiologists as to the effect of singing on the breathing power and on the healthy condition of the lungs generally. Personally, from my own practice amongst singers, I am inclined to the opinion that the effect is beneficial provided the lungs are naturally healthy; when the latter is not the case singing seems to find out any weak point. I am speaking more particularly with reference to early tuberculosis. I think that singing would be useful as an aid to physical development in the army, provided it is singing."

Flies on a Quarantine Island.

Colonial Surgeon wants to know how to exterminate flies on a quarantine island situate in the tropics. It is about three-quarters of a square mile in area, composed of low hills, and a swamp of about two acres in area, and is covered with coarse grass which grows with great luxuriance. The flies are in countless millions. Cases of cholera and their contacts are constantly being segregated on the island.

*** The extermination of flies or other insects is by no means easy. Before attempting any plan of campaign a careful study of the species present would have to be made, and special attention paid to their breeding sites and habits. Ordinary house flies for example breed in manure, horse flies (*Tabanidae*) on damp leaves or other vegetation, mosquitos in water, etc. The swamp spoken of might be filled up, manure if present might be carefully buried, and the grass if ever sufficiently dry for the purpose might be regularly burned. It is only by attacking the insects in their larval stages that any good can be hoped for.

ANSWERS.

Grewgious.—We know of no recent work specially devoted to the diseases of pregnancy. Dakin's *Handbook of Midwifery*, Eden's *Manual of Midwifery*, or Clifton Edgar's *Obstetrics*, will give the most recent information.

Arthritis.—We are not in a position to express an opinion on the relative merits of the two watering places. The baths at Harrogate are considered to be useful in certain types of gout and rheumatism.

Income Tax.

R. H.—Strictly speaking, the expenses of medical periodicals, books, etc., cannot be reckoned as an expense of a practice for the purposes of income-tax assessment. Such expenses are neither among the enumerated expenses admissible under the Income Tax Acts, nor are they necessarily incurred in earning the profits of any particular year. It is, however, recognized that such expenses are on the borderline between what is and what is not allowable, and some commissioners will permit the deduction of a portion of the annual cost of books as a reasonable way of meeting the requirements of the case.

Much Taxed.—If, as we assume, the "red lamp outside the house" is placed there solely for professional purposes, the rental of £3 per annum would form a legitimate deduction from the gross income. If the surveyor refuses to make the allowance, an appeal may be made to the commissioners in accordance with the directions given on the notice of assessment.

The M.D. Heidelberg.

Inquirer.—Every candidate (save when the degree is granted *honoris causâ*) must "demonstrate that he is capable of conducting scientific work personally" by presenting a written thesis, and must also pass an oral examination *(Examen Rigorosum)*. The thesis or dissertation is to be written in the German language, but "the employment of another language is admitted with the sanction of the faculty." At the end of the thesis the candidate must append an account of his life. The name of the scientific institute or hospital at which the candidate has worked at the subject of the thesis must be given, and he must state if he has received any "advice" from others in the work. It is required that the candidate "certifies on oath" that he has received no further assistance than that mentioned. With the sanction of the faculty, an already published paper may be substituted for the ordinary thesis. After the candidate has passed his viva-voce examination, he must have his thesis printed and deliver 200 copies to the Secretary of the University within one year. The following regulations apply to foreign candidates for the M.D.: When the candidate has not passed the German State Examination he must deliver with his thesis an account of his life; he must produce evidence that he has received a preliminary education in his own country which is required for the acquisition of the degree of Doctor, and that he has passed an examination qualifying him to practise. (If the conditions of the preliminary education are not definitely fixed in any country, he can produce evidence to show that he has been educated up to the standard of the German "Real Gymnasium.") He must further produce evidence of having passed through a scientific medical curriculum of the same length as that required by the German State or by a "well-conducted" foreign medical faculty. Of this curriculum the candidate must have spent at least one semester (term of half-year's duration) at the Heidelberg University, but if the candidate is well known the faculty may waive this point in his favour. After having satisfied the faculty in this respect, and after his thesis has been accepted as sufficient by a specially-appointed critic (referent), he is admitted to the *Rigorosum*. This examination is conducted in the German language by a president and seven other members of the faculty. The theoretical part includes: (1) Anatomy, (2) physiology, (3) pathological anatomy and general pathology, and (4) hygiene. Parts 1 and 2 must extend over at least one hour each, and Parts 3 and 4 over at least half an

hour each. The practical part of the examination is conducted at the bedside on medicine, surgery, gynaecology, and obstetrics. The candidate is required to make one or at times two diagnoses. The thesis will be judged as being "excellent," "very good," "good," or "pass." At least three-quarters of the best possible marks will be required for the *Rigorosum*. If the candidate fail, he cannot present himself again for this part within six months. The fee for the examination is 550 marks (£27 10s.), exclusive of the cost of the diploma and that of printing the thesis. Should the candidate fail to pass the *Rigorosum* he receives 100 marks back.

LETTERS, NOTES, Etc.

Overcrowding of the Profession.

Dr. F. W. Collingwood (London, W.) writes: Most writers seem to take for granted that the profession is overcrowded. I, for my part, think otherwise, for modern medicine and surgery require more thought and stricter investigation than in the past. The fault, in my opinion, is that so-called philanthropy has taught many persons to pay small respect to their medical adviser, for few men value that which they obtain for nothing, so that the public generally are beginning to think that any charge, however moderate, for medical advice is excessive. If medical pauperization were stopped and adequate remuneration was the reward of honest labour in the medical vineyard, the so-called overcrowding question would disappear. In my opinion, if persons on close investigation cannot pay a minimum fixed charge, they should be treated by medical officers appointed by Government, who should be adequately remunerated.

Goat's Milk for Infants.

Major W. D. Erskine, R.A.M.C. (Alexandria), writes: With reference to Dr. Stretton's letter in the British Medical Journal of June 23rd, p. 1504, and that of Dr. T. Dutton (London) in the issue of September 22nd just to hand, I should like to say that after reading the former I paid a casual visit to the crèche referred to where I was most kindly and courteously received by Madame Antony, Obstetrica, the matron. I fully corroborate all Dr. Stretton says about the condition of the babies—a score or more. Madame's ingenious, clever, and efficient technique for fixing the goat, cleaning the teats, and putting the baby to suckle, afforded me infinite amusement. The animals are fed for the most part on potatoes.

Coal-tar Dyes.

Dr. K. N. MacDonald (Edinburgh) writes: In Sir James Crichton-Browne's address on Universities and Medical Education, reported in your issue of October 13th, he laments the loss to British trade of Sir William Perkin's discovery of the first dye-stuff—mauve—extracted from coal tar, the progenitor of the aniline, alizarine, and synthetic indigotin dyes. He might have gone a step further and pointed out how these coal-tar dyes, especially the aniline blues, have almost completely ruined the indigo industry of Bengal, which has for more than a hundred years been carried on by British capital and British subjects. About five millions of that capital is now comparatively worthless, the owners having been nearly ruined by cheap aniline dyes, and hundreds of thousands of natives deprived of a sure source of income and employment, and native proprietors of a valuable asset in the shape of rents and advances on their villages, all to make room for the importation of foreign cheap and nasty dye-stuffs, which we used in dyeing carpets, curtains, and all manner of wearing apparel, to the intense disgust of every sensible housewife and wearer of blue garments in this country! For some years past synthetic indigotin produced from coal-tar derivatives has been the "bogey" to cover the importation of immense quantities of anilines, which are mixed up with logwood and otherwise doctored and passed off on an innocent and ignorant public as "indigo-dyed" goods. Those concerned in the business claim for this artificial indigotin that it is identical with indigo, and is the sole dyeing principle in natural indigo, and they get some chemists to back them up. Indigotin made from coal tar will dye like indigotin from natural indigo, but natural indigo contains besides indigotin, indirubin, indigo brown, indigluten, etc., so it is impossible they can be identical; and some of the best dyers say there is a vast difference in dyeing power between synthetic indigotin and natural indigo. I have made a special study of the analysis of indigo since 1889, and I find the tinctorial value of indigo far superior to that of coal tar indigotin; 40 gr. of natural indigo, properly dyed, equals at least 200 gr. of dried 20 per cent. synthetic paste, or in other words, 1 lb. of natural indigo is equal to 5 lb. of 20 per cent. dried synthetic paste, and this can be demonstrated in public, if scientific men and others would take the trouble to search the dyeing trade for a dyer who would do it. In the meantime the British indigo trade suffers from the use of these fugitive aniline dyes, to the detriment and loss of British subjects. Whining over lost dyes cannot bolster up dishonesty in passing these dyes off as indigo. The man who does so injures two classes of his own countrymen—the producers and the wearers of dyed garments. I have tested hundreds of samples, and have never found unadulterated indigo except once. It is time this were stopped. If the Board of Trade were to insist on having all blue-dyed goods stamped with what they contained, the public could get the real article when they asked for it. Natural indigo is best, the fastest, and most durable of all blue colours. Nothing to equal it has ever been discovered.

Salts of Food.

Dr. C. H. Foley (Ardrahan, co. Galway) writes: I should be pleased for answers to the following questions: (1) As potash exists in vegetables and plants combined with organic acids, whether if we take common salt (NaCl) with a vegetable dietary the reduction of the potassium carbonate or phosphate to potassium chloride does or does not take place in the stomach and not in the plasma? (2) Adopting Burge's theory as to action of sodium chloride of the plasma in the potash salts of vegetable food, would it not be more logical if vegetarians and others took their NaCl before taking food (or ingesting potash salts)? (3) Potassium chloride does not exist in that form in plants. When we see that natives of the Soudan do not use sodium chloride but manufacture potassium chloride from the ash of burnt vegetables, is it not natural to assume that amongst salt users the KCl is formed in the stomach? (4) From the presence of the potash chloride in excess over sodium chloride in the corpuscles (the nucleus is distinguished from the cytoplasm as regards its inorganic constituents by the absence of potassium), does it not seem that one of the main purposes of NaCl is to act as a continual chemical factor in producing the chloride of potash, and that the anaemia from want of use of NaCl may be due to the want of potash chloride by the corpuscles. (5) If the body undergoes dehydration in salt starvation, is this not protective when we see that serum globulin in solution (it is insoluble in water) is precipitated by 0.03 to 0.5 per cent. of NaCl, and that on the addition of more than 0.5 per cent. of the salt it goes again into solution? Now NaCl in the plasma exists in just more than 0.5 per cent. Thus when by salt starvation that percentage is reduced, if the body did not become dehydrated and the liquor sanguinis lose a certain balanced percentage of water, the serum globulin would be precipitated; and thus in conditions of anaemia, when the cause is not known, it is unsafe to instruct the patients to take large quantities of water if the body looks dehydrated, and such should be prescribed with the addition of NaCl. (6) Externally the solution of KCl causes the production of some degrees of cold in the surrounding medium. Thus may not KCl as chemically produced in the animal organism have something to do with the prevention of too large amounts of heat being elaborated in the ingestion of food?

The Decline in the Birth Rate.

Dr. Alexander Duke (London) writes: The suggestion put forward by Dr. H. C. Pattin in the British Medical Journal of October 13th, p. 980—that is, that of overnutrition being a contributory factor to the declining birth rate—has been recognized by stock breeders for years; and, if I remember right, an American professor of obstetrics told at a British Medical Association meeting how he had earned large fees by acting on the stock-keeper's rule to half starve his fat heifers who failed to conceive, and advising very scanty diet for ladies who were in the habit of overindulgence and wished for offspring.

Gem Pathology.

Gems have been credited with marvellous therapeutic properties, and some of them seem to be affected by the bodily condition of the wearers. Pearls, for instance, are said to lose their lustre when worn by a person out of health. Perhaps it was the knowledge of some obscure sympathy of this kind that led Lady ——, who had bought some emeralds at Castellani's, to say: "*Oh, je compte laisser mes hemerrhoids à Lady Westminster.*" The story is told by Lord Edmond Fitzmaurice in his *Life of Lord Granville*. The same lady is recorded to have said that "somebody was so anxious to see her that he came all the way to Rome *bas ventre*."

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THE GROWTH OF TRUTH:

AS ILLUSTRATED IN THE DISCOVERY OF THE CIRCULATION OF THE BLOOD.

BEING THE HARVEIAN ORATION DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS, LONDON, OCTOBER 18TH, 1906.

By WILLIAM OSLER, M.D., F.R.S.,

REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

I.

Only those of us, Mr. President and Fellows, who have had the good fortune to hold the distinguished position which by your kind grace, Sir, I hold to-day—only those of us who have delivered the Harveian Oration, can appreciate the extraordinary difficulties besetting a subject every aspect of which has been considered, very often, too, by men who have brought to the task a combination of learning and literary skill at once the envy and the despair of their successors. But I take it, Sir, that in this Ambarvalia or commemorative festival for blessing the fruits of our great men, ordained definitely as such by him whose memory is chiefly in our minds to-day, our presence here in due order and array confers distinction upon an occasion of which the oration is but an incident. But, honour worthy of such a theme should be associated with full knowledge of the conditions under which these great men lived and moved; and here comes in the real difficulty, because it is rarely possible to bring the fruits of independent critical investigation into their lives and works. Particularly hard is it for those of us who have had to live the life of the arena: our best efforts bear the stamp of the student, not of the scholar. In my own case, a deep reverence for the mighty minds of old, and a keen appreciation of the importance to our profession of a study of history, may be put in the scales against defects as to the appreciation of which I have still remaining sufficient self-detachment. The lesson of the day is the lesson of their lives. But because of the ever-increasing mental strain in this age of hurry, few of us have the leisure, fewer still, I fear, the inclination, to read it thoroughly. Only with a knowledge of the persistency with which they waged the battle for Truth, and the greatness of their victory, does the memory of the illustrious dead become duly precious to us.

History is simply the biography of the mind of man; and our interest in history, and its educational value to us, is directly proportionate to the completeness of our study of the individuals through whom this mind has been manifested. To understand clearly our position in any science to-day, we must go back to its beginnings, and trace its gradual development, following certain laws, difficult to interpret and often obscured in the brilliancy of achievements—laws which everywhere illustrate this biography, this human endeavour, working through the long ages; and particularly is this the case with that history of the organized experience of the race which we call science.

In the first place, like a living organism, Truth grows, and its gradual evolution may be traced from the tiny germ to the mature product. Never springing, Minerva-like, to full stature at once, Truth may suffer all the hazards incident to generation and gestation. Much of history is a record of the mishaps of truths which have struggled to the birth, only to die or else to wither in premature decay. Or the germ may be dormant for centuries, awaiting the fullness of time.

Secondly, all scientific truth is conditioned by the state of knowledge at the time of its announcement. Thus, at the beginning of the seventeenth century, the science of optics and mechanical appliances had not made possible (so far as the human mind was concerned) the existence of blood capillaries and blood corpuscles. Jenner could not have added to his inquiry a discourse on immunity; Sir William Perkin and the chemists made Koch possible; Pasteur gave the conditions that produced Lister; Davy and others furnished the preliminaries necessary for anaesthesia. Everywhere we find this invariable filiation, one event following the other in orderly sequence—"Mind begets mind," as Harvey says; "opinion is the source of opinion. Democritus with his atoms, and Eudoxus with his chief good, which he placed in pleasure, impregnated Epicurus; the four elements of Empedocles, Aristotle; the doctrine of the ancient Thebans, Pythagoras and Plato; geometry, Euclid" (*De Generatione*).

And, thirdly, to scientific truth alone may the *homo mensura* principle be applied, since of all mental treasures of the race it alone compels general acquiescence. That this general acquiescence, this aspect of certainty, is not reached *per saltum*, but is of slow, often of difficult, growth—marked by failures and frailties, but crowned at last with an acceptance accorded to no other product of mental activity—is illustrated by every important discovery from Copernicus to Darwin.

The growth of Truth corresponds to the states of knowledge described by Plato in the *Theaetetus*—acquisition, latent possession, conscious possession. Scarcely a discovery can be named which does not present these phases in its evolution. Take, for example, one of the most recent: Long years of labour gave us a full knowledge of syphilis; centuries of acquisition added one fact to another, until we had a body of clinical and pathological knowledge of remarkable fullness. For the last quarter of a century we have had latent possession of the cause of the disease, as no one could doubt the legitimate inference from discoveries in other acute infections. The conscious possession has just been given to us. After scores of investigators had struggled in vain with the problem, came Schaudinn with an instinct for truth, with a capacity to pass beyond the routine of his day, and with a vision for the whole where others had seen but in part. It is one of the tragedies of science that this brilliant investigator, with capabilities for work so phenomenal, should have been cut off at the very threshold of his career. The cancer problem, still in the stage of latent possession, awaits the advent of a man of the same type. In a hundred other less important problems, acquisition has by slow stages become latent possession; and there needs but the final touch—the crystal in the saturated solution—to give us conscious possession of the truth. But when these stages are ended, there remains the final struggle for general acceptance. Locke's remark that "Truth scarce ever yet carried it by vote anywhere at its first appearance" is borne out by the history of all discoveries of the first rank. The times, however, are changing; and it is interesting to compare the cordial welcome of the pallid spirochaete with the chilly reception of the tubercle bacillus. Villemin had done his great work, Cohnheim and Salmonson had finally solved the problem of infectivity, when Koch published his memorable studies. Others before him had seen the bacillus, but the conscious possession of the truth only came with his marvellous technique. Think of the struggle to secure acceptance! The seniors among us who lived through that instructive period remember well that only those who were awake when the dawn appeared assented at once to the brilliant demonstration. We are better prepared to-day; and a great discovery like that of Schaudinn is immediately put to the test by experts in many lands, and a verdict is given in a few months. We may have become more plastic and receptive, but I doubt it; even our generation—that great generation of the last quarter of the nineteenth century, had a practical demonstration of the slowness of the acceptation of an obvious truth in the long fight for the aseptic treatment of wounds. There may be present some who listened, as I did in October, 1875, to an introductory lecture at one of the largest of the metropolitan schools, the burden of which was the finality of surgery. The distinguished author and teacher, dwelling on the remarkable achievements of the past, concluded that the art had all but reached its limit, little recking that within a mile from where he spoke, the truth for which he and thousands had been striving—now a conscious possession in the hands of Joseph Lister—would revolutionize it. With scores of surgeons here and there throughout the world this truth had been a latent possession. Wounds had healed *per primam* since Machaon's day; and there were men before Joseph Lister who had striven for cleanliness in surgical technique; but not until he appeared could a great truth become so manifest that it everywhere compelled acquiescence. Yet not without a battle—a long and grievous battle, as many of us well knew who had to

contend in hospitals with the opposition of men who could not—not who would not—see the truth.

Sooner or later—insensibly, unconsciously—the iron yoke of conformity is upon our necks; and in our minds, as in our bodies, the force of habit becomes irresistible. From our teachers and associates, from our reading, from the social atmosphere about us, we catch the beliefs of the day, and they become ingrained—part of our nature. For most of us this happens in the haphazard process we call education, and it goes on just as long as we retain any mental receptivity. It was never better expressed than in the famous lines that occurred to Henry Sidgwick in his sleep:

We think so because all other people think so;
Or because—or because—after all, we do think so;
Or because we were told so, and think we must think so;
Or because we once thought so, and think we still think so;
Or because, having thought so, we think we will think so.

In departing from any settled opinion or belief, the variation, the change, the break with custom may come gradually; and the way is usually prepared; but the final break is made, as a rule, by some one individual, the masterless man of Kipling's splendid allegory, who sees with his own eyes, and with an instinct or genius for truth, escapes from the routine in which his fellows live. But he often pays dearly for his boldness. Walter Bagehot tells us that the pain of a new idea is one of the greatest pains to human nature. "It is, as people say, so upsetting; it makes you think that, after all, your favourite notions may be wrong, your firmest beliefs ill-founded; it is certain that till now there was no place allotted in your mind to the new and startling inhabitant; and now that it has conquered an entrance, you do not at once see which of your old ideas it will not turn out, with which of them it can be reconciled, and with which it is at essential enmity." It is on this account that the man who expresses a new idea is very apt to be abused and ill-treated. All this is common among common men, but there is something much worse which has been illustrated over and over again in history. How eminent so ever a man may become in science, he is very apt to carry with him errors which were in vogue when he was young—errors that darken his understanding, and make him incapable of accepting even the most obvious truths. It is a great consolation to know that even Harvey came within the range of this law—in the matter of the lymphatic system—it is the most human touch in his career.

By no single event in the history of science is the growth of truth, through the slow stages of acquisition, the briefer period of latent possession, and the for us glorious period of conscious possession, better shown than in the discovery of the circulation of the blood. You will all agree with me that a Fellow of this College must take his courage in both hands who would, in this place and before this audience, attempt to discuss any aspect of this problem. After nearly three centuries of orations the very pictures and books in this hall might be expected to cry out upon him. But I have so taken my courage, confident that in using it to illustrate certain aspects of the growth of truth I am but obeying the command of Plato, who insists that principles such as these cannot be too often or too strongly enforced. There is a younger generation, too, the members of which are never the worse for the repetition of a good story, stale though it may be in all its aspects to their elders; and then there is that larger audience to be considered to which the season is never inappropriate to speak a word.

II.

The sixteenth century, drawing to a close, had been a period of acquisition unequalled in history. Brooding over the face of the waters of mediaevalism, the spirit of the Renaissance brought forth a science of the world and of man which practically created a new heaven and a new earth, and the truths announced by Copernicus and Galileo far transcended

the searching schoolmen's view
And half had staggered that stout Stagyrite.

Among other things, it had given to medicine a new spirit, a new anatomy, and a new chemistry. In the latter part of the fifteenth century Hippocrates and Galen came to their own again. A wave of enthusiasm for the fathers in medicine swept over the profession; and for at least two generations the best energies of its best minds were devoted to the study of their writings. How numerous and important is that remarkable group of men, the medical humanists of the Renaissance, we may judge by a glance at Bayle's *Biographie Médicale*, in which the lives are arranged in chronological order. From Garbo of Bologna, surnamed the expositor, to Rabelais, more than 150 biographies and bibliographies are given, and at least one half of these men had either translated or edited works of the Greek physicians. Of our founder, one of the most distinguished of the group, and of his influence in reviving the study of Galen and so indirectly of his influence upon Harvey, Dr. Payne's story still lingers in our memories. Leonicenus, Linacre, Gonthier, Monti, Koch, Camerarius, Caius, Fuchs, Zerbi, Cornarus, and men of their stamp not only swept away Arabian impurities from the medicine of the day, but they revived Greek ideals and introduced scientific methods.

The great practical acquisition of the century was a new anatomy. Vesalius and his followers gave for the first time an accurate account of the structure of the human body, and while thus enlarging and correcting the work of Galen, contributed to weaken the almost divine authority with which he dominated the schools. Nearly another century passed before chemistry, in the hands of Boyle and others, reached its modern phase, but the work of Paracelsus, based on that of the "pious Spagyrist," Basil Valentine, by showing its possibilities, had directed men's minds strongly to the new science. Of the three, the new spirit alone was essential, since it established the intellectual and moral freedom by which the fetters of dogma, authority, and scholasticism were for ever loosened from the minds of men.

Into this world, we may say, stepped a young Folkestone lad, when, on the last day of May, 1593, he matriculated at Cambridge. Harvey's education may be traced without difficulty, because the influences which shaped his studies were those which had for a century prevailed in the profession of this country. We do not know the reason for selection of Caius College, which, so far as I can gather, had no special connexion with the Canterbury school. Perhaps it was chosen because of the advice of the family physician, or of a friend, or of his rector; or else his father may have known Caius; or the foundation may already have become famous as a resort for those about to "enter on the physic line." Or, quite as likely, as we so often find in our experience, some trivial incident may have turned his thoughts towards medicine. When he came up in 1593, there were those of middle age who could tell racy stories of Caius, the co-founder of the college, against whose iron rule they had rebelled. "Charged not only with a show of a perverse stomach to the professors of the Gospel, but with Atheism," the last days of Caius's noble life were embittered by strife and misunderstanding. Doubtless the generous souls among them had long since learned to realize the greatness of his character, and were content to leave "the heat of his faith to God's sole judgement, and the light of his good works to men's imitation," with which words, half a century later, the inimitable Fuller concludes a short sketch of his life. I like to think that, perhaps, one of these very rebels, noting the studious and inquisitive nature of Harvey, had put into the lad's hand the little tractate, *De libris propriis*, from which to glean a knowledge of the life and works of their great benefactor.

The contemplation of such a career as that of Caius could not but inspire with enthusiasm any young man. No one in the profession in England had before that time reached a position which I may describe as European. An enthusiastic student and the friend of all the great scholars of the day; a learned commentator on the works of the Fathers; the first English student in clinical medicine; a successful teacher and practitioner; a keen naturalist; a liberal patron of learning and letters; a tender and sympathetic friend—Johannes Caius is one of the great figures in our history. Nor need I dwell, before this audience, on his devotion to our interests, other than to say that the memory of no Fellow on our roll should be more precious to us. Four years hence, on October 6th, will occur the quatercentenary of his birth. As well in love as in gratitude, we could celebrate it in no more appropriate manner, and in none that would touch his spirit more closely, than by the issue of a fine edition of his principal works (including the MS.

annals of the College). For the preparation of this there are those among us well fitted, not less by veneration for his memory than by the possession of that critical scholarship which he valued so highly.

When Harvey set out on the grand tour, Italy was still the *mater gloriosa studiorum;* to which one hundred years earlier, so tradition says, Linacre on leaving had erected an altar. The glamour of the ideals of the Renaissance had faded somewhat since the days when John Free, an Oxford man, had made the ancient learning his own; and had so far bettered the instruction of his masters that he was welcomed as a teacher in Padua, Ferrara and Florence. In a measure, too, the national glory had departed, dimmed amid the strife and warfare which had cost the old republics their independence. Many years earlier Fracastorius, one of our medical poets, had sung of her decadence:

> To what estate, O wretched Italy,
> Has civil strife reduc'd and moulder'd Thee!
> Where now are all thy ancient glories hurl'd?
> Where is thy boasted Empire of the world?
> What nook in Thee from barbarous Rage is freed
> And has not seen thy captive children bleed?[1]

And matters had not improved but had grown worse. In the sixteenth century Italian influence had sunk deeply into the social, professional and commercial life of England, more deeply, indeed, than we appreciate;[2] and it was not for a generation or two later that the candlesticks were removed from the Cisalpine towns to Montpellier, Paris, and Leyden. In 1593 a well-to-do young Englishman who wished to study medicine thoroughly went to North Italy, and most naturally to Padua—"fair Padua, nursery of the arts"—whose close affiliations with us may be gathered from the fact that, of universities next to Oxford and Cambridge, she has given us more Presidents than any other. In the years that had passed since Vesalius had retired in disgust, the fame of its anatomical school had been well maintained by Fallopius, Columbus, and Fabricius, worthy successors of the great master. Of each may be said what Douglas says of the first named: "*In docendo maxime methodicus, in medendo felicissimus, in secando expertissimus.*" While the story of Harvey's student life can never be told as we could wish, we know enough to enable us to understand the influences which moulded his career. In Fabricius he found a man to make his life-model. To the enthusiastic teacher and investigator were added those other qualities so attractive to the youthful mind, generous sympathies and a keen sense of the wider responsibilities of his position, as shown in building, at his own expense, a new anatomical theatre for the University. Wide as was the range of his master's studies, embracing not alone anatomy but medicine and surgery, the contributions by which he is most distinguished are upon subjects in which Harvey himself subsequently made an undying reputation. The activity of his literary life did not begin until he had been teaching nearly forty years, and it is a fact of the highest significance that, corresponding to the very period of Harvey's stay in Padua, Fabricius must have been deep in the study of embryology and of the anatomy of the vascular system. His great work on generation was the model on which Harvey based his own, in some ways, more accurate studies—studies in which, as my colleague Professor Brooks of the Johns Hopkins University has pointed out, he has forestalled Wolf and von Baer.

The work of Fabricius which really concerns us here is the *De Venarum Ostiolis*. Others before him had seen and described the valves of the veins, Carolus one of the great Stephani, Sylvius and Paul Sarpi. But an abler hand in this work has dealt with the subject, and has left us a monograph which for completeness and for accuracy and beauty of illustration has scarcely its equal in anatomical literature. Compare Plate VII, for example, with the illustrations of the same structures in the Bidloo or the Cowper *Anatomy*, published nearly one hundred years later; and we can appreciate the advantages which Harvey must have enjoyed in working with such a master. Indeed, it is not too far-fetched to imagine him, scalpel in hand, making some of the very dissections from which these wonderful drawings were taken. But here comes in the mystery. How Fabricius, a man who did such work—how a teacher of such wide learning and such remarkable powers of observation, could have been so blinded as to overlook the truth which was tumbling out, so to speak, at his feet, is to us incomprehensible. But his eyes were sealed, and to him, as to his greater predecessors in the chair, clear vision was denied. The dead hand of the great Pergamite lay heavy on all thought, and Descartes had not yet changed the beginning of philosophy from wonder to doubt. Not without a feeling of pity do we read of the hopeless struggle of these great men to escape from slavish submission to authority. But it is not for us in these light days to gauge the depth of the sacred veneration with which they regarded the Fathers. Their mental attitude is expressed in a well-known poem of Browning's:

> those divine men of old time
> Have reached, thou sayest well, each at one point
> The outside verge that rounds our faculty,
> And where they reached who can do more than reach?

Willing to correct observations or to extend anatomy by careful dissection, it was too much to expect from them either a new interpretation of the old facts or a knowledge of the new method by which those facts could be correctly interpreted.

The ingenious explanation which Fabricius gave of the use of the valves of the veins—to serve as dams or checks to the flow of the blood, so that it would not irrigate too rapidly and overflow the peripheral vessels to the deprivation of the upper parts of the limbs—shows how the old physiology dominated the most distinguished teacher of the time in the most distinguished school of Europe. This may have been the very suggestion to his pupil of the more excellent way. Was it while listening to this ingenious explanation of his master that, in a moment of abstraction—dimly dreaming, perhaps, of an English home far away and long forsaken—there came to Harvey a heaven-sent moment, a sudden inspiration, a passing doubt nursed for long in silence, which ultimately grew into the great truth of 1616?

The works of Vesalius, of Fallopius, and of Fabricius effected a revolution in anatomy, but there was not at the close of the sixteenth century a new physiology. Though he had lost an anatomical throne, Galen ruled absolutely in all conceptions of the functions of the body, and in no department more serenely than in that relating to the heart, the blood and its movements. Upon his views I need not dwell further than to remind you that he regarded the liver as the source of the blood, of which there were two kinds, the one in the veins, the other in the arteries, both kinds in ceaseless ebb and flow, the only communication between these closed systems being through pores in the ventricular septum. He knew the lesser circulation, but thought it only for the nutrition of the lungs. The heart was a lamp which was furnished with oil by the blood and with air from the lungs. Practically until the middle of the seventeenth century Galen's physiology ruled the schools, and yet for years the profession had been in latent possession of a knowledge of the circulation. Indeed, a good case has been made out for Hippocrates, in whose works occur some remarkably suggestive sentences.[3] In the sixteenth century the lesser circulation was described with admirable fullness by Servetus and by Columbus, and both Sarpi and Caesalpinus had Hippocratic glimmerings of the greater circulation. These men, with others doubtless, were in latent possession of the truth. But every one of them saw darkly through Galenical glasses, and theirs was the hard but the common lot never to reach such conscious possession as everywhere to make men acquiesce. One must have the disinterestedness of the dead to deal with a problem about which controversy has raged, and in which national issues have been allowed to blur the brightness of an image which would be clear as day to those with eyes to see. Nor would I refer to a matter long since settled by those best competent to judge, had not the well known work of Luciani, the distinguished Professor of Physiology at Rome, appeared recently in German dress, edited by Professor Verworn, and spread broadcast views to which, with a chauvinism unworthy of their history, our Italian brethren still adhere. It has been well said "that he alone discovers who proves," and in the matter of the circulation of the blood, this was reserved for the pupil of Fabricius. Skipping many arduous years we next meet him as Lumleian Lecturer to the College.

III.

The really notable years in the annals of medicine are not very numerous. We have a calendar filled with glorious names, but among the saints of science, if we know an era it is as much as can be expected—perhaps because such men are less identified with achievements than representative of the times in which they lived. With many of our greatest names we cannot associate any fixed dates. The Grecians who made Hippocrates possible, live in memory with some theory, or a small point in anatomy, or in regard to the place of their birth; while the "floruit" cannot always be fixed with accuracy.

Hippocrates himself, Erasistratus, Galen, and Araetius have no days in our calendar. We keep no festival in their honour as the churches do those of St. Jerome and St. Chrysostom. It is not until after the Renaissance that certain years *(anni mirabiles)* stand out in bold relief as connected with memorable discoveries, or with the publication of revolutionary works. Nevertheless, only a few in each century; even the sixteenth, so rich in discoveries, has not more than five or six such years, and not one of them is connected with work done in this country. As to the seventeenth century, it is hard to name four made memorable by the announcement of great discoveries or the publication of famous works; in the eighteenth century not three, while in the century just completed, though it is replete with extraordinary discoveries, one is hard pressed to name half a dozen years which flash into memory as made ever memorable by great achievements. Of the three most important, anaesthesia, sanitation, and antiseptic surgery, only of the first can the date be fixed, 1846, and that for its practical application. For the other two discoveries, who will settle upon the year in which the greatest advance was made, or one which could be selected for an anniversary in our calendar?

There is one *dies mirabilis* in the history of the College—in the history, indeed, of the medical profession of this country, and the circumstances which made it memorable are well known to us. At ten o'clock on a bright spring morning, April 17th, 1616, an unusually large company was attracted to the New Anatomical Theatre of the Physicians' College, Amen Street. The second Lumleian Lecture of the annual course, given that year by a new man, had drawn a larger gathering than usual, due in part to the brilliancy of the demonstration on the previous day, but also it may be because rumours had spread abroad about strange views to be propounded by the lecturer. I do not know if at the College the same stringent rules as to compulsory attendance prevailed as at the Barber Surgeons' Hall. Doubtless not; but the President, and Censors, and Fellows would be there in due array; and with the help of the picture of "The Anatomy Lecture" by Bannister, which is in the Hunterian collection, Glasgow, and a photograph of which Dr. Payne has recently put in our library, we can bring to mind this memorable occasion. We see the "Anatomy," one of the six annually handed over to the College, on the table, the prosector standing by the skeleton near at hand, and very probably on the wall the very *Tabulae* of dissection of the arteries, veins, and nerves that hang above us to-day. But the centre of attention is the lecturer—a small dark man, wand in hand, with black piercing eyes, a quick vivacious manner, and with an ease and grace in demonstrating which bespeaks the mastery of a subject studied for twenty years with a devotion that we can describe as Hunterian. A Fellow of nine years' standing, there was still the salt of youth in William Harvey when, not as we may suppose, without some trepidation, he faced his auditors on this second day—a not uncritical audience, including many men well versed in the knowledge of the time and many who had heard all the best lecturers of Europe.

The President, Henry Atkins, after whose name in our Register stands the mysterious word "Corb," had already had his full share of official lectures, less burdensome three hundred years ago than now. Let us hope the lecture of the previous day had whetted his somewhat jaded appetite. The Censors of the year formed an interesting group: John Argent, a Cambridge man, a "great prop of the college," and often President, of whom but little seems known; Richard Palmer, also of Cambridge, and remembered now only for his connexion with Prince Henry's typhoid fever, as Dr. Norman Moore has told us; Mathew Gwinne of Oxford, first Professor of Physic at Gresham College and a playwright of some note in his day; and Theodore Goulston of Merton College, one of our great benefactors, and for 267 years past and gone purveyor-in-chief of reputation to the younger Fellows of the College. Mayerne would be there, not yet a Fellow, but happy in his escape from the Paris Faculty; still dusty with conflict, he would scent the battle afar in the revolutionary statements which he heard. Meverell, fresh from incorporation at Cambridge, also not yet a Fellow; Moundeford, often President, whose little book *Vir Bonus*, sets forth his life. Paddy, a noteworthy benefactor, a keen student, still gratefully remembered at Oxford, would have strolled in with his old friend Gwinne; Baldwin Hamey the elder, also a benefactor, would be there, and perhaps he had brought his more interesting son, then preparing to enter Leyden, whose memory should be ever green among us. Let us hope Thomas Winston, probably an old fellow-student at Padua, and later appointed Professor of Physic at Gresham College, was absent, as we can then be more charitable towards the sins of omission in his work on *Anatomy*, published after his death, which, so far as I can read, contrary to the statement of Munk (Roll of the College), contains no word of the new doctrine. As an old Paduan, and fresh from its anatomical school, the younger Craige would not be absent. Fludd, the Rosicrucian, of course, was present; attracted, perhaps, by rumours of anti-Galenical doctrines which had served to keep him out of the College; nor would he be likely to be absent at the festival of one whom he calls his "physicall and theosophicall patron." And certainly on such an occasion that able Aberdonian, Alexander Reid, would be there, whose Σωματογραφία had just appeared,[1] with an extraordinary full account of the vascular system. Reid was a good anatomist, one of our most distinguished Medico-Chirurgical Fellows, and a liberal benefactor. If, as has been stated, he was not a convert on account of his age, it was on account of his youth, for the Harveian doctrine, if in meagre form, is to be found in the later editions (5th) of his *Manual*. But we would miss Lodge, the poet, "cried up to the last for physic," as he had recently started for the Continent. And we may be sure that Harvey's old fellow-students at Padua—Fortescue, Fox, Willoughby, Mounsell, and Darcy—would honour their friend and colleague with their presence; and Edward Lister, also a fellow-Paduan, the first of his name in a family which has given three other members to our profession—two distinguished and one immortal. It was not a large gathering, as the Fellows, members, licentiates, and candidates numbered only about forty; but as the lecture was a great event in the community, there would be present many interested and intelligent laymen, of the type of Digby, and Ashmole, and Pepys—the "curious," as they were called, for whom throughout the seventeenth century the anatomy lecture equalled in attraction the play. Delivered in Latin, and interspersed here and there with English words and illustrations, there were probably more who saw than who comprehended, as Sir Thomas Browne indicated to his son Edward when he lectured at Chirurgeons' Hall.

It is a fortunate, and perhaps unique, circumstance in bibliography that the manuscript of this course of lectures should have been preserved, and that we should be able to follow step by step the demonstration—a long and formidable procedure, as the whole anatomy of the thoracic organs was discussed. I dare say there was a prolonged break between the morning and the afternoon lecture "for a fine dinner," as Pepys described, when, on February 27th, 1663, he went with Harvey's pupil, Scarborough, to Chirurgeons' Hall and was used with "extraordinary great respect." Towards the close, after discussing, in novel and modern terms, the structure and action of the heart, Harvey summed up in a few sentences the conclusion of the matter. They stand as follows in the *Prelectiones* (published by the College in 1886):

> W. H. constat per fabricam cordis sanguinem
> per pulmones in Aortam perpetuo
> transferri, as by two clacks of a
> water bellows to rayse water
> constat per ligaturam transitum sanguinis
> ab arteriis ad venas
> unde perpetuum sanguinis motum
> in circulo fieri pulsu cordis.

Probably few in the lecture hall appreciated the full meaning of these words, which to some must have seemed

a blot on the whole performance; while others, perhaps, all with the feelings of the fishes after St. Anthony's well-known sermon:

> Much delighted were they,
> But preferred the old way,

returned to their homes wondering what he would say on the morrow when the "divine banquet of the brain" was to be spread before them.

One thing was certain—the lecture gave evidence of a skilled anatomist of remarkably wide experience and well versed in literature from Aristotle to Fabricius. While Harvey could agree with John Hunter—who states in a MS. introductory lecture in the College library, "I deliver nothing I have not seen and observed myself,"—he could not add with him, "I am not a reader of books." Nearly one hundred references to some twenty authors occur in the manuscript of the thorax, or, as he calls it, the "parlour" lecture.

It is a great pity that we have no contemporary account of the impression on such men as Mayerne or Reid of the new doctrines, for which we have the author's statement that they were taught annually and elaborated. So far as I know there is no reference to show that the lectures had any immediate influence in the profession, or indeed that the subject matter ever got beyond the circle of the College. We are not without a first-hand account by the author of his reception: "These views as usual pleased some more, others less; some chid and calumniated me, and laid it to me as a crime that I had dared to depart from the precepts and opinions of all anatomists; others desired further explanation of the novelties."

It is difficult for us to realize the mental attitude of the men who listened year by year as the turn of the "Parlour Lecture" came. Their opinions, no less firmly held than is our positive knowledge, did not get much beyond: "The great dictator Hippocrates puts us in mind of it, Galen has a thousand times inculcated the same, the prince of the Arabian tribe, Avicen, has set his seal unto it." This expresses their mental state, and such a heresy as a general circulation could scarcely be appreciated; and in a man of such good parts as Harvey would in pity be condoned, just as we overlook the mild intellectual vagaries of our friends.

Bootless to ask, impossible to answer, is the question why Harvey delayed for twelve years the publication of his views. He seems to have belonged to that interesting type of man, not uncommon in every age, who knows too much to write. It is not a little remarkable that this reticence of learning has been a strong mental feature in some of the greatest of discoverers. Perhaps it was the motive of Copernicus, who so dreaded the prejudices of mankind that for thirty years he is said to have detained in his closet the *Treatise of Revolutions*. From what Harvey says, very much the same reasons restrained the publication of his work. To the lesser circulation, with the authority of Galen and Columbus to support it, men "will give their adhesion," but the general circulation "is of so novel and unheard-of character that I not only fear injury to myself from the envy of a few, but I tremble lest I have mankind at large for my enemies, so much doth wont and custom, that has become as another nature, and doctrine once sown and that hath struck deep root and rested from antiquity, influence all men." He felt, as he says to Riolan, that it was in some sort criminal to call in question doctrines that had descended through a long succession of ages and carry the authority of the ancients; but he appealed unto Nature that bowed to no antiquity and was of still higher authority than the ancients. Men have been for years in conscious possession of some of the greatest of truths before venturing to publish them. Napier spent twenty years developing the theory of Logarithms, and Bacon kept the *Novum Organum* by him for twelve years, and year by year touched it up—indeed, Rowley states that he saw twelve copies. Two other famous discoveries by Englishmen have the same curious history—the two which can alone be said to be greater than the demonstration of the circulation of the blood. Zachariah Wood speaks of Harvey as the surmiser of the little world, to distinguish him from another Englishman who first went about the greater world. But a greater than both—Isaac Newton—had grasped the secret of a cosmic circulation, and brooded in silence over the motion of the spheres for more than twenty years before publishing the *Principia*. Between the writing of the rough sketch in 1842 and the appearance of the *Origin of Species* seventeen years elapsed; and from the date of the journal notes, 1836, in which we have the first intimation of Darwin's theory, more than twenty years. In Harvey's case this intellectual reticence, this hesitation "to quit the peaceful haven," as he says, has cost us dear. Only a happy accident gave us the *De Generatione*, and the College can never be too grateful to Sir George Ent for that Christmas visit, 1650, so graphically described, and to which we owe one of the masterpieces of English medicine. How many seventeenth-century treatises we could have spared to have had the *Practice of Medicine conformable to his Thesis of the circulation of the blood!* How instructive his prospective *Medical Observations* would have been we can gather from the remarkable series of cases scattered through the manuscript notes and his published writings. His "treatise apart" on *Eventilation* or *Respiration*; the *Medical Anatomy*, or *Anatomy in its Application to Medicine*, as he says, "I also intend putting to press"; the work "from observations in my possession" on *Organs of Motion in Animals*—all of these, with the work on *Generation in Insects*, and others mentioned by Dr. Merrett,[5] the then library keeper, 1667, were probably dispersed when those sons of Belial ransacked his chambers at Whitehall.

"Still the die is cast, and my trust is in the love of truth and the candour that inheres in cultivated minds." With these words he consoles himself, knowing from experience that the publication of even a portion of the work, as in one place he calls the little book, would raise a tempest. Zachariah Wood in the preface to the English edition, 1673, expresses what many of his contemporaries must have felt, "Truly a bold man indeed, O disturber of the quiet of physicians! O seditious citizen of the Physical Commonwealth! who first of all durst oppose an opinion conformed for so many ages by the consent of all." De Bach of Amsterdam describes the dilemma in which teachers found themselves: "This new thing I did examine, which the first entrance did seem very easily to be refuted, but being weighed in a just balance, and having added to reason my own ey-sight it was found inexpugnable, nay (the very prick of truth enforcing) to be embraced with both arms. What should I doe? Must Hippocrates be left, Galen slighted? No, if we follow the truth senced with reason and our sense, we are still Hippocrates his, we are still Galens" (English edition, 1653).

The history of the next thirty years illustrates the truth of Locke's dictum in the struggle for acceptance. Not the least interesting part of the story it should be told at greater length and with more detail than it has yet received—more than I am able to give it. That the repeated demonstrations, aided by the strong personal influence of the man, brought the College, as a body, to the new views is witnessed rather by the esteem and affection the Fellows bore to him than by any direct evidence. The appearance of the book in 1628 made no great stir; it was not a literary sensation—a not uncommon fate of epoch-making works, the authors of which are too far ahead of their contemporaries to be appreciated. The same event happened to Newton's *Principia*; as Sir William Petty remarks, "I have not met with one man that put an extraordinary value on the book."

Among Englishmen, Primrose alone, brought up among the strictest sect of the Galenists, and at the time not a Fellow—wrote a criticism from the old standpoint (1632), and remained unconvinced twelve years later, as his controversy with Regius shows. And only one special treatise in favour of the circulation was written in England—that of Sir George Ent, a pupil and friend of Harvey, who wrote (1641) specially against Parisanus, a Venetian, a foeman quite unworthy of his quill. In the universities the new doctrine rapidly gained acceptance—in Cambridge through the influence of Glisson, while in part to Harvey's work and influence may be attributed that only too brief but golden renaissance of science at Oxford. A little incident mentioned in the autobiographical notes of the celebrated Wallis shows how the subject was taken up quite early in the universities: "And I took into it the speculative part of physick and anatomy as parts of natural philosophy, and, as Dr. Glisson has since told me, I was the first of his sons who

(in a public disputation) maintained the circulation of the blood, which was then a new doctrine, though I had no design of practising physick." This was in the early "thirties." But the older views were very hard to displace, and as late as 1651 we find such intelligent members of the "invisible college" as Boyle and Petty carrying out experiments together in Ireland to satisfy themselves as to the truth of the circulation of the blood.

It took much longer for the new views to reach the textbooks of the day. From no work of the period does one get a better idea of the current anatomical and physiological teaching in London than from Crooke's *Body of Man* (1615 and 1631). Collected out of Vesalius, Plantinus, Platerius, Laurentius, Valverdatus, Bauchinus, and others, it is an epitome of their opinions, with the comments of the professor who read the anatomy lecture to the Company of the Barber-Surgeons. In the preface to the first edition he speaks of the contentment and profit he had received from Dr. Davies's Lumleian Lectures at the College of Physicians. There is no indication in the second edition that he had benefited by the instruction of Dr. Davies's successor. Galen is followed implicitly, with here and there minor deviations. The views of Columbus on the lesser circulation are mentioned only to be dismissed as superfluous and erroneous. The Gresham Professor of the day, Dr. Winston, makes no mention of the new doctrine in his *Anatomy Lectures*, which were published after his death, 1651, and are of special interest as showing that at so late a date a work could be issued with the Galenical physiology unchanged. In Alexander Reid's *Manual*, the popular textbook of the day, the Harveian views are given in part in the fifth edition, in which, as he says in the preface, "the book of the breast" is altogether new—an item of no little interest, since he was a man advanced in years, and, as he says, "the hourglass hasteneth, and but a few sands remain unrun." Highmore, the distinguished Dorsetshire anatomist, and a pupil of Harvey, in his well-known *Anatomy* published in 1651, gives the ablest exposition of his master's views that had appeared in any systematic work of the period, and he urges his readers to study the *De Motu Cordis* as "fontem ipsum" from which to get clearer knowledge. He quotes an appropriate motto for the period—*laudamus veteres: sed nostris utimur annis*. But even so late as 1671 the old views were maintained in the English edition of Riolan. And yet the knowledge of Harvey's views must have spread broadcast, not only in the profession, but in that large outside circle of distinguished men who felt the new spirit of science working in their veins. From converse or from the Lumleian lectures, which no doubt he often attended, Kenelm Digby must have had the information about Harvey's views on generation, as at the date of the issue of his *Two Treatises*, 1644, they had not been published anywhere. While he knew well the motion of the blood as expounded by Harvey, and having, in making his great antidote, studied the action of the viper's heart, Digby, like Descartes, could not emancipate himself from the old views, as shown in the following passage: "But if you desire to follow the blood all along every steppe, in its progresse from the hart round about the body, till it returne back againe to its center, Doctor Harvey, who most acutely teacheth this doctrine, must be your guide. He will show you how it issueth from the hart by the arteries; from whence it goeth on warming the flesh, untill it arrive to some of the extremities of the body: and by then it is grown so coole (by long absence from the fountaine of its heate; and by evaporating its owne stocke of spirits, without any new supply) that it hath need of being warmed anew: it findeth itself returned backe againe to the hart, and is there heated againe, which returne is made by the veines, as its going forwardes is performed only by the arteries."

Sir William Temple well expresses the attitude of mind of the intellectual Philistine of the time, who looked for immediate results. Speaking of the work of Harvey and of Copernicus he says: "Whether either of these be modern discoveries or derived from old foundations is disputed: nay, it is so too, whether they are true or no; for though reason may seem to favour them more than the contrary opinions, yet sense can hardly allow them, and to satisfy mankind both these must concur. But if they are true, yet these two great discoveries have made no change in the conclusions of Astronomy nor in the practice of Physic, and so have been but little use to the world, though, perhaps, of much honour to the authors."[6] It is pleasant to notice that our old friend, Sir Thomas Browne, with his love of paradox, declared that he preferred the circulation of the blood to the discovery of America.

Of the reception of Harvey's views in Holland and Germany there is nothing to add to the admirable account given by Willis. The early and strenuous advocacy of Descartes must have influenced the Dutch physicians: but in this, as in so many other things, the infection of his early years proved too powerful, and he could not get rid of the "ancient spirits." Of the discovery of the circulation he says[7] it is "la plus belle et la plus utile que l'on pût faire en médecine." "Toute à fait contraire au sien touchant le mouvement du coeur," which he held to be due to an ebullition of the spirits—a sort of ferment (*espèce de levain*) existing in it. Much more actively discussed in Holland than elsewhere, the writings of Drake, Walaeus, Regius, Plempius, Sylvius, de Bach, Conringius, T. Bartholini (the Dane), and others threshed out the whole question very thoroughly, and their views, with those of Hoffman, Slegel, and others, are referred to by Willis and given in greater detail by Riolan.

In the oft-quoted statement that Harvey, "conquering envy, hath established a new doctrine in his lifetime," Hobbes was right so far as England and Holland are concerned. But it was far otherwise in France, where it met with a bitter and protracted hostility. The Medical School of the University of Paris, at the time one of the best-organized and most important in Europe, declined to accept the circulation of the blood during his lifetime and for some years after his death. The history of the period is pictured for us in vivid colours in that *journal intime* which Gui Patin kept up with his friends, Spohn and Falkconet of Lyons and the Belins (*père et fils*). With all his faults, particularly his scandalous lack of charity, one cannot but feel the keenest sympathy with this dear old man. Devoted to his saints, Hippocrates and Galen, Fernel and Duret, and to his teachers, Piêtre and Riolan, to him the circulation of the blood was never more than an ingenious paradox. To such a lover of books and of good literature everything can be forgiven, and in his letters we follow with deepest interest his vigorous campaign against his dear enemies, the *Cuisiniers Arabesques*, who had enslaved people and physicians alike, the haemophobies, the chemists, the astrologers and the *stibiate*, or as he calls it, the *Stygiate* group. To him the Koran was less dangerous than the works of Paracelsus, the appearance of the new Geneva edition of which he deeply deplores. Reverence for Galen and friendship with Riolan, rather than any deep interest in the question, inspired his opposition. To him the new doctrine was ridiculous, and it was he who called the partisans of it *circulateurs* in allusion to the Latin word, circulator, meaning charlatan. In 1652 he writes to Spohn that the question is still open whether the blood passes through the septum of the heart or through the lungs. In 1659 he promises to send him a work of Vinean against the circulation. More extraordinary still is the fact that as late as 1670, twelve years after Harvey's death, the thesis of one Cordelle, a bachelor of medicine, publicly discussed the circulation of the blood, and Gui Patin, who presided, decided in the negative. The fiction of an ingenious narrator, *le doux songe* of Harvey, are the terms in which he speaks of it. The whole passage is worth quoting as possibly the last public denouncement of what seemed a rank heresy to the old Galenists: "Supposer que le sang se meut toujours circulairement, que de la veine cava ascendante il tombe dans l'oreillette droit du coeur, que de là il aille traverser tout la substance du poumon pour retomber de là dans l'oreillette gauche en passant par la veine pulmonaire, et qu'enfin de là il soit projeté dans l'aorte et toutes les artères qui le feront passer dans les veines, et dans le coeur, lui faisant par ce moyen suivre un circuit, voilà le doux songe de Harvey, la fiction d'un narrateur ingénieux, mais nullement prouvée par l'évidence. La circulation du sang, son transport circulaire par les vaisseaux, c'est l'enfantement d'un esprit oisif, un vrai nuage qu'embrassent les Ixions pour procréer les Centaures et les monstres."[8]

As I said, we can forgive a great deal to the man who has left us such a picture of seventeenth-century life, drawn, all unconsciously, with a master hand; and

through the mists of prejudice and hate we can recognize the good sense which had the courage to protest against the *forfanterie Arabesque et bézoardesque* in much of the therapeutics of the day.

Though a professor in the Paris Faculty and a brilliant lecturer, Patin at that time did not occupy such a distinguished position, nor was his opposition of such importance as that of Riolan—"John Riolan, the Son, the most experienced Physician in the Universitie of Paris, the Prince of Dissection of Bodies, and the King's professor, and Dean of Anatomie and of the knowledge of simples, chief physician to the queen-mother of Louis XIII"—as he is quaintly, but very truly, described by Harvey.[9] Brought up by his father to regard Hippocrates and Galen as the sources of all wisdom, the intensity of his zeal increased with his years until at last "to see the physic of Galen kept in good repair" became the passion of his life. The deep pity of it all is that such mental blindness should have stricken a really great man, for he was a brilliant anatomist and teacher, the author of the best anatomical textbook of its day, a man of affairs, profoundly versed in literature, a successful practitioner, and for years the head of the profession in France.

The opposition of such a man was serious, and naturally had a profound influence. Not content with the comparatively brief statement in the *Encheiridion*, 1648, Riolan published in England the following year his *Opuscula Anatomica nova*, one very large section of which is taken up with the problem of circulation. It was this probably as much as a present of the *Encheiridion* that induced Harvey to break his long silence and to reply. After a report of a discussion upon a thesis in 1645 and a statement of objections, a most interesting discussion follows of the literature, in which the opinions of various writers are examined, particularly those of Cartesius, Conringius, Wallaeus, and Plempius.

It is quite possible that the second *Disquisition* of Harvey to Riolan, published with the first in duodecimo form at Cambridge in 1649, was brought out by Riolan's latter publication, though it is not directly referred to. Little did Harvey appreciate that his old friend was both blind and deaf—incapable of seeing obvious facts. It was not a question of being conversant with anatomy or of having had experience, on both of which points Harvey dwells at length. Riolan knew his anatomy as well as, or better than, any man of his generation. It was not that he would not—but that he could not—see the truth which was staring him in the face. As Raynaud[10] mentions, an occasional thesis (Fagon, 1663; Mattol, 1665) supporting the circulation did slip through the Faculty; but the official recognition in France did not come until 1673, when Louis XIV founded a special Chair of Anatomy at the Jardin des Plantes for the propagation of the new discoveries.

The satire of Molière and the *Arrêt Burlesque* of Boileau completed the discomfiture of the "anticirculateurs," but it had taken nearly half a century to overcome the opposition of those who saw in the new doctrines the complete destruction of the ancient system of medicine.

IV.

Even when full grown in the conscious stage Truth may remain sterile without influence or progress upon any aspects of human activity. One of the most remarkable of phenomena in mental biography is the failure of the Greeks to succeed after giving the world such a glorious start. They had every essential for permanent success: scientific imagination, keen powers of observation; and if in the days of Hippocrates the mathematical method of interrogating Nature prevailed rather than the experimental, Galen carried the latter to a degree of perfection never again reached until the time of Harvey. Only when placed in its true position in relation to Greek religion and philosophy, as has been done so skillfully by Gomperz,* do we realize the immensity of the debt we owe to those "our young light-hearted masters." And Gomperz makes clear the nature of the debt of Greek thought to the practical sense of the physicians. But alas! upon the fires they kindled were poured the dust and ashes of contending philosophies, and neither the men of the Alexandrian school nor the brilliant labours of the most encyclopaedic mind that has ever been given to medicine sufficed to replenish them. Fortunately, here and there amid the embers of the Middle Ages glowed the coals from which we have lighted the fires of modern progress. The special distinction which divides modern from ancient science is its fruitful application to human needs—not that this was unknown to the Greeks; but the practical recognition of the laws of life and matter has in the past century remade the world. In making knowledge effective we have succeeded where our masters failed. But this last and final stage, always of slow and painful consummation, is evolved directly from truths which cannot be translated into terms intelligible to ordinary minds. Newton's great work influenced neither the morals nor the manners of his age, nor was there any immediate tangible benefit that could be explained to the edification or appreciation of the "ordinary man" of his day; yet it set forward at a bound the human mind, as did such truths as were proclaimed by Copernicus, by Kepler, by Darwin, and others. In a less conspicuous manner Harvey's triumph was on the same high plane. There was nothing in it which could be converted immediately into practical benefit, nothing that even the Sydenhams of his day could take hold of and use. Not so much really in the demonstration of the fact of the circulation as in the demonstration of the method—the *inventum mirabile* sought for by Descartes, the *Novum Organum* of Bacon—lies the true merit of Harvey's work. While Bacon was thinking, Harvey was acting; and before Descartes had left his happy school at le Flèche Harvey was using *le nouvelle méthode*; and it is in this way that the *De Motu Cordis* marks the break of the modern spirit with the old traditions. No longer were men to rest content with careful observation and with accurate description; no longer were men to be content with finely-spun theories and dreams, which "serve as a common subterfuge of ignorance"; but here for the first time a great physiological problem was approached from the experimental side by a man with a modern scientific mind, who could weigh evidence and not go beyond it, and who had the sense to let the conclusions emerge naturally but firmly from the observations. To the age of the hearer, in which men had heard, and heard only, had succeeded the age of the eye, in which men had seen and had been content only to see. But at last came the age of the hand—the thinking, devising, planning hand; the hand as an instrument of the mind, now reintroduced into the world in a modest little monograph of seventy-two pages, from which we may date the beginning of experimental medicine.

No great discovery in science is ever without a corresponding influence on medical thought, not always evident at first, and apt to be characterized by the usual vagaries associated with human effort. Very marked in each generation has been the change wrought in the conceptions of disease and in its treatment by epoch-making discoveries as to the functions of the body. We ourselves are deeply involved to-day in toxins and antitoxins, in opsonins, tulases, and extracts as a direct result of the researches in bacteriology and in internal secretion. There were sanguine souls in Harvey's day, who lamented with Floyer that the discovery had not brought great and general innovations into the whole practice of physic. But had the old Lichfield physician lived he would have seen the rise of a school based directly upon the studies of Harvey and Sanctorius, the brilliant reasonings of Descartes and the works of Bellini and Borelli. The mechanical school rose in its pride on solid foundations which appealed to practical men with singular force. Very soon that "beatific epitome of creation," man, was "marked out like a spot of earth or a piece of timber with rules and compasses," and the medical terminology of the day became unintelligible to the older practitioners who could make nothing of the "wheels and pulley, wedges, levers, screws, cords, canals and cisterns, sieves and strainers," and they cracked their jokes on "angles, cylinders, celerity, percussion, resistance, and such-like terms which they said had no more to do with physic on the human body than a carpenter has in making Venice treacle or curing a fever." Once accepted, men had a feeling that so important a discovery must change all the usual conceptions of disease. As has been said before, Harvey tells that he had in preparation a *Practice*

* The three volumes of his *Greek Thinkers*, now in English dress, should be studied by every young man who wishes to get at the foundations of philosophy. The picturesque style of Professor Gomperz and his strong sympathy with science add greatly to the interest of the work.

of Medicine conformable to his Thesis of the Circulation of the Blood, and it soon became customary to put in the title pages of works some reference to the new doctrine. Even Riolan's *Opuscula Anatomica* makes an allusion to it. Walaeus, a keen defender of Harvey, published in 1660 a little compendium of practice *ad circulationem sanguinis adornata*, but there is nothing in it to suggest any radical change in treatment. Rolfinck's *Dissertationes Anatomicae*, 1650, embracing the older and more recent views in medicine are *ad circulationem accommodatae*, and even as late as 1690 the well-known anatomy of Dionis was *suivant la circulation*. With the loss of his work on the *Practice of Medicine* it is impossible to say whether Harvey's own practice was modified in any way. To part from the spirits and humours must have left his attitude of mind very sceptical, and that his "therapeutic way" was not admired (as Aubrey tells us) speaks for a change which may have set many against him. More important than any influence upon treatment was the irresistible change in the conceptions of disease caused by destruction of the doctrine of spirits and humours, which had prevailed from the days of Hippocrates. While Harvey, as he says, had in places to use the language of physiology, that is, the language of the day, he makes it very clear, particularly in the second letter to Riolan, that he will have none of the old doctrine to which the *De Motu Cordis* dealt the death blow.

But the moving hand reminds your orator, Mr. President, of a bounden duty laid upon him by our great Dictator to commemorate on this occasion by name all of our benefactors; to urge others to follow their example; to exhort the Fellows and Members to study out the secrets of Nature by way of experiment; and, lastly, for the honour of the profession, to continue in love and affection among ourselves. No greater tribute to Harvey exists than in these simple sentences in which he established this lectureship, breathing as they do the very spirit of the man, and revealing to us his heart of hearts. Doubtless, no one more than he rejoices that our benefactors have now become so numerous as to nullify the first injunction; and the best one can do is to give a general expression of our thanks, and to mention here and there, as I have done, the more notable among them. But this is not enough. While we are praising famous men, honoured in their day and still the glory of this College, the touching words of the son of Sirach remind us: "Some there be that have no memory, who are perished as though they had never been, and are become as though they had never been born." Such renown as they had, time has blotted out; and on them the iniquity of oblivion has blindly scattered her poppy. A few are embalmed in the biographical dictionaries; a few are dragged to light every year at Sotheby's, or the memory is stirred to reminiscence as one takes down an old volume from our shelves. But for the immense majority on the long roll of our Fellows—names! names! names!—nothing more; a catalogue as dry and meaningless as that of the ships, or as the genealogy of David in the Book of Chronicles. Even the dignity of the Presidential chair does not suffice to float a man down the few centuries that have passed since the foundation of the College. Who was Richard Forster? Who was Henry Atkins? Perhaps two or three among us could tell at once. And yet by these men the continuity and organic life of the College has been carried on, and in maintaining its honour, and furthering its welfare, each one in his day was a benefactor, whose memory it is our duty, as well as our pleasure, to recall. Much of the nobility of the profession depends upon this great cloud of witnesses, who pass into the silent land—pass, and leave no sign, becoming as though they had never been born. And it was the pathos of this fate, not less pathetic because common to all but a few, that wrung from the poet that sadly true comparison of the race of man to the race of leaves!

The story of Harvey's life, and a knowledge of the method of his work, should be the best stimulus to the Fellows and Members to carry out the second and third of his commands; and the final one, to continue in love and affection among ourselves, should not be difficult to realize. Sorely tried as he must have been, and naturally testy, only once in his writings, so far as I have read, does the old Adam break out. With his temperament, and with such provocation, this is an unexampled record, and one can appreciate how much was resisted in those days when tongue and pen were free. Over and over again he must have restrained himself as he did in the controversy with Riolan, of whom, for the sake of old friendship, he could not find it in his heart to say anything severe. To-day his commands are easier to follow, when the deepened courtesies of life have made us all more tolerant of those small weaknesses, inherent in our nature, which give diversity to character without necessarily marring it. To no man does the right spirit in these matters come by nature, and I would urge upon our younger Fellows and Members, weighing well these winged words, to emulate our great exemplar, whose work shed such lustre upon British Medicine, and whom we honour in this College not less for the scientific method which he inculcated than for the admirable virtues of his character.

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An Address

ON THE

HOSPITAL TREATMENT OF CURABLE CASES OF MENTAL DISORDER.

DELIVERED BEFORE THE SOUTH-WEST WALES DIVISION OF THE BRITISH MEDICAL ASSOCIATION.

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THE following remarks bear upon the question of the general treatment of the insane. Many of the general public conceive the medical superintendent of an asylum for the insane as a being of indefinite status, a kind of cross between a head gaoler and a workhouse master; a hawk-eyed person, withal, able to recognize a lunatic at a glance; to that extent to be respected, but beyond that to be suspected. To the medical profession at large he appears, I think, as a glorified custodian, with certain of the attributes and qualifications of farm bailiff, steward, and overseer; sadly in need, however, of post-graduate instruction. *Misce, fiat mistura.* The result is the asylum medical superintendent, or what the Lunacy Act gracefully describes as the "Manager of an Institution for Lunatics." There was a time, no doubt, when he, too, wrote prescriptions, even as many in their youth foolishly wrote poetry.

I am forced to admit that for this unhappy conception grounds undoubtedly exist in my opinion, but I shall here say no more on this topic, beyond remarking that, if in our British asylums the administrator takes precedence of the scientific physician, the cause is inherent, in my belief, in the national aptitude for administration, the national admiration for the "practical" man, and the national failure to appreciate the importance of scientific ideas, and indifference towards the trained scientific worker, unless and until he has produced something which is dividend-producing.

But whilst I hope to call your attention to a better way of dealing with curable cases of insanity than at present obtains in this country, I would fain have you admit that even under existing circumstances our work is remedial and not merely custodial. Thus, taking the average for the ten years ending 1904, the Blue Book shows that the proportions per cent. of recoveries to admissions was 37.27 for county and borough asylums, 47.60 for registered hospitals for the insane, and 34.72 and 38.58 respectively for metropolitan and provincial licensed houses (private asylums). When it is remembered that county and borough asylums have to receive all cases sent to them, curable or incurable, their results cannot be called unsatisfactory. To compare them with those of general hospitals would be unfair; the comparison should rather be with the registered hospitals, which are subject to no such compulsion, but deal mainly with cases favourable for treatment.

There is a widespread opinion that recoveries from asylums are scarcely worth recording, because insanity is a disease which inevitably relapses. I admit that cases belonging to the syndrome "mania-melancholia" have a strongly-marked tendency to relapse, without, however, exhibiting intellectual degradation in the intervals of health; further, that in those cases of precocious dementia in which recovery (which is usually of a partial kind) takes place relapse is to be feared. But, although it is probably generally believed, I am not aware that it has been shown that, with respect to mental disorders as a whole, there is a stronger tendency to relapse than there is in many bodily diseases, or that the records of durability of recovery are less satisfactory than those appertaining to such disorders.

Amongst the latter I would instance manifestations of rheumatism, gout, bronchitis, asthma, and certain skin diseases, such as psoriasis and eczema. I find that out of 355 cases discharged from Carmarthen Asylum during the ten years 1891-1900 inclusive, 116, or 32.7 per cent., relapsed and were readmitted up to and including 1905. Dr. Macphail, Medical Superintendent of the Derby Borough Asylum, in his last report gives the experience of that institution. In seventeen years 625 patients were discharged, of whom only 19 per cent. relapsed.

Recently I made inquiry into the history of the cases which have been received into Carmarthen Asylum during the past twelve years in consequence of relapse, with a view to ascertaining the length of time during which they had remained well. Of 121 which relapsed once, I found that 74 remained well for periods ranging up to three years, 18 had kept well for from three to six years, and 29 for from six to thirty-three years; of the latter, 22 remained well for from six to seventeen years. Statistics on a large scale on the point would be interesting; and if such inquiries could be conducted by the registered hospitals, such as Bethlem Royal Hospital, which get the best material for treatment, they would be particularly valuable. But these institutions are not in so favourable a position for dealing with this question as is an asylum serving a country district, because their cases of relapse would not be so likely to return to them as would similar cases to a county asylum in a country district. This is unfortunate, for one cannot help thinking that the results obtained in respect to permanence of recovery must be far better in the case of the registered hospitals, which deal with persons of the better-educated and more comfortable classes, who are far more likely and better able to exercise prudence in regard to health after an attack than are patients of the poorer classes from which county asylums draw.

Our public asylums can, therefore, claim to be remedial as well as mere custodial agencies. This is well, since, even if the (as many of us believe) better method of dealing with recent and curable cases of insanity were widely established, it could not cope with yearly-occurring insanity. But I am amongst those who hold that the system under which all curable cases of insanity of the pauper class are necessarily confined to county asylums is in need of revision. It appears from a scientific standpoint to be fundamentally wrong to exclude one kind of illness, to wit, mental disease, from participation in the benefits of the system which has been organized for the treatment of all other forms of illness, and under which cases of disease and injury which offer prospects of cure and alleviation are received into hospitals. This differentiation is surely a strange anomaly, which, I apprehend, has arisen from the wrong and harmful conception of insanity entertained by the legal profession, who were unfortunately permitted to draw a wholly artificial line of demarcation between the so-called alien or "lunatic" on the one hand, and the sick man on the other, without, I dare assert, any protest worthy the name on the part of the timorous and self-effacing profession to which we have the honour to belong, and which, unhappily, is still far from exercising its proper influence in the counsels of the nation. The lawyers made the law according to their lights, the public looked upon it and found it good, and so it came to pass that whereas the asthmatic and the rheumatic and the diabetic are sent to hospital, another kind of sick man, called by the law the "lunatic," is, whatever the stage of his malady, segregated as a pariah or leper, and spirited away to a retreat which doubtless is, as all good ratepayers think, a quite too charming sanatorium, but which, despite all, is officially known as the "asylum." There he is apt to be lost sight of in a whorl of legal formulae, destined for his protection and custody, but which are very liable to interfere with treatment, and through which the various "officers," medical and otherwise, are left to get at the patient as best they may.

Some sixteen years ago a proposal was considered for establishing a hospital for acute mental diseases in London, but nothing came of it. I am in hopes that Scotland, which, since the annexation of England—sometimes wrongly described as the Union—has conferred so many benefits upon the Southern Kingdom by precept and example, may ere long give a lead in this matter by establishing a psychiatrical ward for the treatment of mental disorders in connexion with the Edinburgh or Glasgow Infirmary, with an out-patient department in association therewith. At certain of the London hospitals early mental cases are seen as out-patients, and I understand that in many such cases the advice given has proved of distinct and gratifying prophylactic value. The advantage which would accrue to curable cases of mental disorder by the plan of receiving and treating them in a ward of a general hospital are so obvious to medical men that they need not be referred to in detail. In such conditions these cases would participate in the benefit enjoyed by the sick in general, the benefit of the highest available skill, and would share the advantages accruing from association of specialists in mental disease with workers in other departments of medicine, including those skilled in laboratory methods. Such specialists would have the assistance of enthusiastic clinical clerks with time and ability to work out their suggestions. The physician-in-charge would have the valuable incentive to self-education, by constant study, which is well known to be furnished by the presence of keen young men anxious to learn and ready to criticize. The assistant physicians would be picked men. And we should of course expect the nursing staff of such a department to be as numerically strong and as well trained as the average hospital nursing staff. Time will not allow me to institute a detailed comparison between the above conditions and those commonly met with in a public asylum. Only those medical men who work in the latter—especially in asylums placed in the country—can adequately realize how the advantages to patient and physician which accrue from co-operation of the kind described are missed. The asylum is an isolated community which moves and has its being in a limited area cramped and circumscribed by legal formularies. These conditions might be reasonable were asylums concerned merely with the custody of the chronic insane and with the care of those recovering from acute attacks of insanity, but they are not in my opinion adapted to the requirements of curable cases of disease. The erection of "acute blocks" at some asylums for the better treatment of these is an admission that the ordinary conditions are insufficient. The spirit which actuates such a departure is heartily to be applauded, but this plan, though it will, I believe, be largely extended, having regard to the great volume of "occurring insanity" with which we have to deal, is by no means the equivalent of that advocated. It is subject to the serious disadvantage of isolation, to which I have referred; it cannot compete with the other plan in attracting the best brains, nor can it adequately meet the requirements of students at our medical schools.

Since cases of mental disorder require to be detained against their will, one must admit the necessity for the imposition of legal safeguards in dealing with the insane in mental departments of hospitals. But I should certainly advocate as little law and as much medical work as possible.

At the date at which it was proposed to establish a mental hospital in London, one frequently heard the objection that a town was no place in which to treat insanity. The fetish of "fresh air" was invoked, the magical influence of "space." All this sounded absurd to those who remembered the recovery rates of Bethlem Royal Hospital, even before the days of rest-treatment and systematic hydrotherapy. Moreover, when I studied at Bethlem, and no doubt the same is done now, the very excellent plan was followed of sending convalescent cases to the country house belonging to the hospital. The same plan obtains at the hospital of St. Luke, London. And is not the air of the higher altitudes even now being utilized by jaded workers and idlers in London through

the medium of the balloon? In my day at Bethlem patients were taken out in brakes, and future students will no doubt see them depart in air-ships.

I would say, let as many recent and curable cases of insanity as possible be treated in mental wards attached to hospitals in our great cities; and since hospital authorities would relieve asylum authorities of part of their responsibilities, a mutually advantageous arrangement might be made whereby those usually delightful sanatoriums—the county asylums—might, in addition to their other functions, be usefully employed as convalescent homes for mental cases drafted from the hospitals.

The last Blue Book shows that the yearly average number of cases, exclusive of cases of congenital insanity, in which the attack was stated to be the first in persons admitted to county and borough asylums in England and Wales during the five years 1899–1903 was 12,495. Of this number, if the figures for 1904 be taken, some 3,360 were admitted to London County Asylums, leaving 9,135 cases of first attack to be dealt with in the provinces. Supposing as many as nine of the hospitals in London having medical schools attached should maintain each a ward for mental diseases, with associated out-patient department, of fifty beds. Each bed would on an average suffice for three patients in a year, so that 1,350 recent cases could be dealt with in London yearly. This would amount to between one-third and one-half of the occurring yearly insanity in London. As regards the provinces, if eight large towns having, or likely to have, medical schools attached to their infirmaries, could similarly provide fifty beds, 1,200 mental cases could be dealt with yearly. This is between one-eighth and one-seventh of the occurring yearly insanity in the provinces, and therefore, a very small proportion indeed. But even these proportions would, with our voluntary system of support of hospitals, be very difficult, more likely absolutely impossible, to provide for. I shall not allow myself to diverge into the question of the support of hospitals, but I will say that the voluntary hospital system, like the voluntary military systems, is inefficient; that I see no reason why the charitable principle of voluntary support should not co-exist with the principle of compulsory support.

My remarks have been confined to the question of the cure of insanity; that of prophylaxis, except in regard to the prevention of relapse, has not been referred to. In considering prophylaxis in its individual and racial aspects we are naturally brought face to face with the problems of heredity. It is true that in a very large proportion of asylum cases there is a history of insanity or allied neuroses in the ascendants, but the proper significance of this fact will not be brought out until we have statistics as to the proportion of persons who, with like inheritance, nevertheless do not need asylum treatment and care; nay, it may even be are not otherwise than sane in the ordinary acceptance of that term. Next would come the inquiry as to how, by virtue of what precautions or conditions, they remain sane. As regards racial prophylaxis, if one may first of all digress for a moment, we are told by our mentors, the newspapers and politicians, that public opinion in this country is not ripe for considering the question of compulsory military service. There is, I venture to think, a proposition for the consideration of which it is still less ripe—I mean that for the sterilization of the insane and defective classes. On such a subject he would be a bold man who should venture to hustle public opinion, or shock the consciences of His Majesty's good lieges. Far be it from me to assume such responsibilities.

But I have come to the conclusion that it is time an attempt were made to arouse public opinion to the importance of putting into force the less radical procedure of forbiddal, under severe penalties, of marriage to persons released from asylums; and of infliction of like penalties in all cases in which the responsibility for illegitimate procreation amongst such can be fixed. I observe that quite recently, at a meeting of public men in Lancashire, at which the growing burden of the support of the insane of that county, together with the evils attendant upon the discharge of patients recovered from asylums, was considered, it was resolved to request the Government to institute an inquiry into the whole question of the growth and prevention of insanity. What Lancashire thinks to-day England thinks to-morrow is the gist of an old saying, and I trust it may come true in the present instance.

SOME PRINCIPLES OF THE TREATMENT OF FRACTURES.*

BY J. EDWARD BOWSER, M.B., C.M.,
PRESIDENT OF THE BORDER COUNTIES BRANCH, PENRITH.

[AFTER some introductory remarks, Dr. Bowser proceeded:]

To the man who has the misfortune to break one of the chief bones of his body nothing can be more important than the successful cure of his injury. The fate of that man is in the hands of his surgeon. The reputation of the surgeon is almost as closely bound up with the issue of the case.

The man in the street may have considerable difficulty in forming an opinion of the work of the surgeon who practises his art in the innermost recesses of the body, but he has no hesitation in coming to a prompt conclusion when the unfortunate victim of a fall on the previous winter's ice is seen, in the clear light of the summer sun, painfully limping through the market place, with an ankle-joint stiffened by adhesions or with one leg some inches shorter than the other.

The surgeon who occupies himself with the treatment of fractures has in these days, however, to encounter still more searching criticism. For now the skiagraphist, armed with Crookes tube and fluoroscope, throws his penetrating ray upon the very seat of injury, and points out with relentless finger the smallest deviation from the ideal osseous form. Giving substance to the shadow, he prints a permanent record of the shortcomings of the surgeon's art.

The Border Counties Branch is essentially a general practitioners' Branch, and, in districts like ours, the majority of cases of fracture come under the care of men in general practice. Yet I believe the treatment of fractures has never, certainly not in recent years, been the subject of an address or discussion at any meeting of this Branch.

It is, perhaps, no wonder that there are rivals in the field. Irregular practitioners continue to flourish in the Branch area. The Cumberland bonesetter enjoys a local reputation which is by no means confined to the less instructed members of the community. I have even heard that a Scottish professor of the art has recently raided the border city itself in quest of bones to mend. The survival of this form of irregular practice in our midst is a reproach to modern surgery.

Furthermore, during recent years important modifications have been introduced into the treatment of fractures. These new developments have taken place along two distinct and divergent lines.

The first of these consists in the early employment of massage and movement, and in a less absolute adherence to the traditional methods of immobilization.

The second line of development consists in the application of operative measures to ordinary cases of simple fracture.

The general use of the *x* rays has also introduced new factors, which demand most careful study, into the consideration of these questions.

These, then, are the reasons that have led me to think that the treatment of fractures might usefully form the subject of our consideration to-day.

It is to the first of the lines of development to which I have just referred that I wish especially to direct your attention: the early use of massage and movement and the less exclusive reliance upon the traditional methods of immobilization by means of rigid apparatus.

These modifications of treatment are due to the teaching and practice of the distinguished French surgeon, M. Lucas-Championnière. It may be interesting to recall that M. Lucas-Championnière was one of Lister's early disciples at Glasgow in 1868, and subsequently became the pioneer of antiseptic surgery in France. He contributed an eloquent panegyric of the master to the Lister Jubilee Number of the JOURNAL in 1902. Those of you who were present at the fourth centenary celebrations of the Edinburgh College in July last year, will remember that M. Lucas-Championnière then received in person the Honorary Fellowship of the college, and in April of this year a

* Presidential address delivered at Carlisle before the Border Counties Branch of the British Medical Association, June 29th, 1906.

similar honour was conferred upon him by the College of Surgeons of England.

M. Lucas-Championnière was the first to introduce early massage into the treatment of fractures. It is to him that I owe anything of value in this address. For this reason and for his personal kindness to myself I desire to record my deep obligations to M. Lucas-Championnière.

Similar methods of treatment have been carried out in London with great success by Sir William Bennett, whose teaching has been mainly instrumental in bringing about the adoption of these methods in English practice. Mr. Wallace of Edinburgh demonstrated a number of successful cases treated in this way at the annual clinical meeting of the Edinburgh Branch in February last. These new methods, though largely adopted, are still treated by most English and American writers as accessory rather than fundamental. But it is clear that they involve a reconsideration of that fundamental principle of the treatment of fractures—the principle of immobilization—a principle which has been long accepted and taught in the schools, and has, indeed, been regarded as unassailable.

By immobilization we mean the uninterrupted retention, by means of rigid apparatus, of the broken fragments of the bone, and of the neighbouring joints, in a fixed and immovable position, until firm bony union has taken place. When immobilization is spoken of in this address let me ask you to bear in mind this extended definition of the term.

Erichsen, the author in vogue when I was a student, in the eighth edition of his work on *Surgery*, published in 1884, prefaces his remarks on the treatment of fractures as follows:

> The treatment of a simple fracture is a very simple business. All that the surgeon has to do is to place the fragments in proper position and in good apposition, *and to retain them there*. Nature does the rest. In no way can the surgeon accelerate the processes or improve upon them. By meddlesome treatment he may do much to retard and to disturb them.

This doctrine of *laissez-faire* very fairly represents the teaching of the majority of surgeons prior to 1895, and the influence of that teaching survives in some degree to the present day.

The conception of prolonged immobilization as the dominant principle in the treatment of fractures was probably arrived at by a too exclusive attention to the solution of continuity of the bone, and a neglect of the associated injuries of the soft parts—injuries due partly to the original traumatism, but also in large measure to the treatment employed.

This conception was impressed upon the student at an early period of his curriculum. In his course of systematic surgery he was introduced to the subject of fractures by means of a study of museum specimens and drawings of fractured bones. His attention was concentrated on the various bony displacements and deformities, the insufficiency or exuberance of callus, the success or failure of osseous repair. He saw nothing of the lesions of the soft parts, the persistent oedema, the atrophied and adherent muscles, the stiffened joints, the general insufficiency of the limb for its function of prehension or locomotion.

Even in the hospital the student saw little of the functional disabilities entailed by the old methods of treatment, for that treatment too frequently came to an end with the removal of the splints, and the patient was discharged, to recover, slowly and painfully, as he best could, the full use of his limb. The modern use of the *x* rays favours this one-sided view of the phenomena of fractures, for it demonstrates the condition of the bones, but can tell us nothing of that of the surrounding tissues. The public speak of a broken arm or leg, the surgeon of a fractured humerus or tibia. The surgeon's language is more exact, the popular term perhaps more truly comprehensive.

The mechanical ingenuity of generations of surgeons has been lavishly expended in devising splints and apparatus more or less complicated for the treatment of fractures—and the cry is still they come.

The special treatises on fractures which have appeared for the first time or in new editions during the last two years, such as those of Stimson and Scudder in America, and Hennequin and Loewy in France, abound in illustrations of such apparatus. In Hennequin's book there are no less than sixteen illustrations from photographic process blocks, showing in dramatic sequence the various stages of the application of the author's plaster splint for fractures of the humerus.

For every kind of fracture of every bone in the body there is a varied and extensive choice of apparatus of immobilization. This variety of method itself suggests some imperfection of principle.

Is, then, immobilization the one all-important and absolutely essential condition for the successful treatment of fractures? Is it necessary in every case alike, and must it be maintained without interruption until bony union is complete? Does it entail any hurtful consequences which might be avoided by some other method of treatment? Above all, does it afford the best condition for the full recovery of the function of the limb?

It may be said at once that absolute immobility is not essential to bony repair.

The extremities of a broken rib unite rapidly and perfectly in spite of the incessant respiratory movements. This takes place not only in simple fractures but also in resections where there is actual loss of substance, as in excision of a portion of the rib for empyema.

The same phenomena are observed in fractures of the clavicle, in which reduction is often incomplete and deformity frequent, and in which none of the numerous rival methods of treatment can claim to secure absolute immobility, and yet failure of bony union is exceedingly rare.

On the contrary, in fractures of the bones of the cranial vault, where the fragments are perfectly immovable, it has been pointed out by Sir William Bennett that specimens of non-union can be found in every museum.

In fractures of the long bones treated by simple extension, without splints, immobility of the fragments does not exist, and yet sound union occurs. In Hennequin's method of treatment of fracture of the femur by extension, the thigh alone is placed in a wire gutter with the knee flexed, and the patient is allowed to sit up in bed from the beginning of the treatment. There is perfect freedom of movement of the knee and hip-joints, and yet some of the leading surgeons of France consider that this method of treatment gives better results than any other.

The older authors themselves, while insisting on the necessity for immobilization, were accustomed in cases of non-union, to recommend that the broken extremities of the bone should be freely and forcibly rubbed against one another.

Many fractured bones have united in a satisfactory manner without any formal treatment at all, either because the fractures escaped recognition or because they occurred in localities where surgical aid was unobtainable. It has even been said in regard to Colles's fracture, which was formerly regarded as a sprain of the wrist, that it would have been much better for the patients had Colles never demonstrated that in these cases a fracture really existed, so unfavourable have been the results of immobilization.

These observations in man are confirmed by comparative pathology. M. Cany, a veterinary professor of Paris, has pointed out that certain fractures in the dog cannot be treated by apparatus, but unite perfectly well, without deformity, if the dog is kept shut up in a narrow space and thus prevented from running and jumping about.

My distinguished predecessor in the presidential chair, Sir James Crichton-Browne, contributed, in a letter to the *Spectator* of October 14th last, an observation which opportunely illustrates this point. The letter is as follows:

> *To the Editor of the "Spectator."*
>
> Sir,—When we were living at Whitehill, Colvend, in the autumn of 1881, a tortoise-shell kitten, from a neighbouring cottage, became a paying guest, spending most of its time with us, amply requiting by its pretty ways the tit-bits and petting bestowed on it. It was a good mouser and hunter, and in one of its expeditions after big game—rabbits—had the femur of its left hind leg fractured about the middle of the shaft, either by a stone thrown at it, or by a trap or tumble. It came home limping painfully, dragging the leg, and for a couple of days was restless, and evidently suffered much.
>
> At that time it discovered for itself that the easiest position was to lie on a soft-cushioned ottoman or window seat; with the injured leg hanging over the edge. This position it then adopted, and habitually maintained for three weeks. The

weight of the limb produced the necessary extension, and union took place in the most satisfactory way without shortening.

(Signed) James Crichton-Browne.

It is probable that Sir James was more interested in the psychological than in the surgical aspect of this case, but I am none the less fortunate in being able to adduce the evidence of an unimpeachable witness in support of my argument.

Immobilization in some form is necessary to secure union in cases of marked displacement of the fragments where the displacement tends to be reproduced after reduction. But if union does not take place in these cases without immobilization it is because the ends of the bone are removed from one another, not because a slight degree of movement takes place at the seat of fracture. It is the fact of displacement, not the fact of mobility, that interferes with union.

The fear of displacement has been, however, exaggerated. In many fractures, after accurate reduction, and with simple precautions, the tendency to displacement is not so great as has been supposed.

The fleshy bellies and the tendons of the muscles form a sleeve-like splint, which surrounds the bone and tends to keep it in position. The strong fascia and connective tissue of the limb plays a similar part. The insertions of the muscles, fascia, and ligaments into the bones assist in holding the fragments in place.

The periosteum is rarely completely ruptured all round the bone. In most cases, as was first pointed out by Ollier, its continuity is preserved on one side, forming the so-called periosteal bridge, which unites the two fragments, lessens the tendency to displacement, and takes an important part in the subsequent repair. Many *x*-ray photographs show a growth of bone taking place along this periosteal bridge.

In impacted fractures where it is undesirable for any reason to reduce the impaction there is, of course, no tendency to further displacement; and in some fractures where actual impaction has not taken place the dentated shape of the bone is an obstacle to further displacement.

In certain cases, as we have seen, immobilization is required in order to prevent displacement. Experience, however, has shown that, even in these cases, the length of time during which immobilization is necessary may with advantage be materially shortened. The tendency to displacement becomes less as the date of the traumatism becomes more remote, and for our purposes may be disregarded long before bony union is complete.

Does immobilization entail any hurtful consequences? A long list of pains and disabilities can readily be brought forward in answer to this question.

It would, perhaps, be unfair to adduce gangrene of the limb as one of the results of immobilization. Yet, no doubt, those surgeons who have had the misfortune to be responsible for such a dire catastrophe applied their splints and bandages with the best intentions, and the disaster that befell them was directly due to an excess of zeal for this doctrine of immobilization.

Though gangrene is happily rare, unfavourable consequences of a lesser degree are of common occurrence. Indeed, they are to be seen to some extent in every case of fracture which has been kept in splints in the old fashioned way for six or eight weeks.

Wasting of the muscles, stiffness of the joints, weakness of the limb, and pain on attempting movement, are the usual phenomena to be observed on the removal of the splints.

As Sir James Paget said, these are the cases that bonesetters cure. As a rule these conditions can be ultimately overcome by prolonged massage and movement, or by forcible manipulation under anaesthesia. But often the full use of the limb is never completely regained. Indeed, both surgeons and patients appear to be somewhat easily satisfied that a certain amount of permanent disability is the inevitable result of a fracture.

In reality, these disabilities are due not to the fracture, but to the treatment. Are they not the result of the obsession of the surgeon, who, beset by the idea of the exact restitution of morphological symmetry, is blind to the concurrent deterioration of the physiological value of the limb? To seek, at all costs, an exact restitution of form is often to strive for an unattainable and illusory ideal, while sacrificing the true object of treatment—the complete restoration of function.

In many fractures no apparatus, however rigid, can be applied firmly enough to maintain perfect position of the fragments. The mechanism of retention cannot act directly on the bone itself. It can only act through the medium of the soft parts, which by their nature are unfitted to sustain without injury the required amount of pressure. The results of immobilization in the restitution of form are consequently relative and not absolute. This may be seen in any series of radiographs of united fractures, as, for example, those published recently by the New Sydenham Society. To take one case out of many there given, Plate 5 in Fasciculus 19 is a radiograph of a case of Colles's fracture which received very careful and systematic treatment at one of the largest London hospitals. The fracture was twice carefully reduced—once under chloroform, and was immobilized first in a plaster-of-paris case, and subsequently in wooden splints. "At the end of thirteen weeks of well-skilled treatment," says the author of the accompanying description, "the usual deformity remained conspicuous, and in addition the wrist and fingers were much stiffened." The radiograph shows the deformity to be well marked.

The belief in the harmlessness, and, indeed, beneficence, of prolonged rest received a powerful impetus during the latter half of the nineteenth century from the teaching of Mr. Hilton. That surgeon, in his classical work on *Rest and Pain*, specially emphasized the value of rest in local injuries.

He makes, however, some important admissions. "It is possible," he says, "and may be probable, that a temporary alteration and a diminished elasticity of articular cartilage may occur"—as a result of prolonged rest—"that the ligaments may become feeble, and the synovial membrane unmindful of its duties," "that the bones may lose their firmness, and the muscles their strength from disuse"; "but such deteriorations," he concludes, "are only temporary."

The fear of irreparable injury to the structures of a joint by long-continued rest Hilton held to be essentially unfounded, and in support of his opinion he describes the celebrated case of the "Chinese lady's foot," in which the articular surfaces were perfectly entire and healthy, even to microscopical examination, in spite of lifelong immobilization. It may, perhaps, be asked, What was the physiological value of these microscopically-perfect joints? Were they not convincing illustrations of the inutility of mere morphological perfection?

For the rest, the swing of the pendulum is not a phenomenon confined to the political world. At the foot of the same page which contains Hilton's doctrine of the harmlessness of immobilization of joints, Mr. Jacobson, the editor of the eighth edition, quotes a number of observations by Sir James Paget, Mr. Butlin, and M. Teissier of Lyons, in which intra-articular adhesions, fibrous ankylosis, erosions of cartilage, and various other injuries to the joint structures had resulted from the long-continued immobilization of joints previously healthy.

In Germany the same phenomena have been observed experimentally in animals.

Sir William Bennett, however, believes that the pain and stiffness that so frequently result from prolonged immobilization are nearly always due to the matting and adhesion of the soft parts at the seat of fracture rather than to intra-articular alterations, or, as some have supposed, to bony deformities.

He dissected a leg in which a fracture of both bones 3 in. above the ankle had occurred two months previously. The fracture was firmly united in fairly good position. The ankle joint was fixed and immovable though itself healthy. The anterior tibial muscle was firmly adherent to the bone. The muscles and tendons at the posterior aspect of the fracture were also intimately adherent to the bone by a mass of cicatricial tissue in which the posterior tibial nerve was imbedded and could only be liberated by careful dissection. When the adhesions had been divided the ankle joint could be freely and easily bent.

Muscular wasting from disuse is a constant result of immobilization, and is a cause of weakness and functional impotence which may persist for a long time.

Associated with the atrophy of the muscles there is a

concurrent and consequent atrophy of the bones. We know from the study of development that in all animals the size, strength, and solidity of the bones are in direct proportion to the volume and power of the muscles attached to them. I have already quoted Hilton's admission that the bones may lose their firmness, as well as the muscles their strength, from disuse. The truth is that the bone, the muscle, the motor nerve, the nerve centre itself, are differentiated parts of one organ of motion. Lesions of one induce lesions of the other, and our therapeutical measures should take account of them all.

Mobility is the pre-eminent function of the limbs. How can conditions carefully planned for the purpose of rendering movement impossible be the best conditions for the restoration of that function? If such were the case it might well follow, as Mr. Wharton Hood pertinently says, that the discipline of an Indian fakir would form a suitable preparation for the calling of an acrobat. So long ago as the year 1841 Mathias Mayor, a celebrated surgeon of Lausanne, wrote:

> Is it not repugnant to good sense and enlightened reason to admit that it is necessary to give every possible care and attention to injuries of the soft parts when they exist alone, but that, on the contrary, the same lesions may with impunity be entirely ignored when complicated with injuries of the subjacent bones?

We have seen that many serious evils result from immobilization in fractures. The extent to which these evils exist is difficult to determine. Statistics show that the results of treatment leave much to be desired. Professor Helferich of Kiel gives the following statistics of the results of treatment of fractures of the thigh:

Out of 121 cases of fracture of the shaft of the femur 34 per cent. were completely cured in the sense that the patient was again able to work. The average duration of time before a cure was obtained was thirteen and a half months. Sixty-six per cent. remained permanently damaged. Out of 19 cases of fracture of the neck of the femur 12 per cent. died, 12 per cent. were cured, 76 per cent. sustained permanent damage.

"The causes of these unfavourable results are to be sought," says Helferich, "in the following:

> "Displacement of fragments,
> Stiffness of the neighbouring joints,
> Sometimes hypertrophy of callus,
> Delayed union,
> Pressure on nerves,
> Persistent pain,
> Oedema of the limb."

But he gives us no assistance in determining which of these causes are most frequently in operation.

"These facts," continues Helferich, "emphasize the teaching that the details of treatment are all-important in the ultimate result. The fate of the patient rests in the hands of the surgeon."

Early massage and movement enable us to avoid many of the unfavourable results of immobilization, and this method constitutes the best treatment for the repair of the fracture and for the restoration of the function of the limb.

It is not my purpose to describe the details of the application of these methods. Time would not permit it. They are fully described for each fracture by M Lucas-Championnière in his work, *Traitement des Fractures par le Massage et la Mobilisation*, published in 1895, and by his pupil and assistant, Dr. Dagron, in his treatise, *Massage des Membres*, published last year.

It is necessary, however, to say that the massage employed differs entirely from that of the professional masseurs. It consists in a soft, smooth, uniform, above all painless, mobile pressure in the direction of the venous current. At first little more than a caress, the degree of pressure is progressively increased so as to act gradually upon the deeper structures. Ordinarily, massage is practised from the very beginning of the treatment, and repeated daily in *séances* of half an hour's duration.

Massage prepares the way for movement. After massage, passive movements of the joints, which before had been impossible on account of the pain that they caused, become surprisingly easy. They are, therefore, always practised at the end of the *séance* of massage.

These movements, whether passive or active, are necessarily of slight extent, being limited by two imperative conditions—they must be painless, and they must not cause new displacements of the bony fragments.

Active and passive movements may be usefully combined, the voluntary movements of the patient being guided and controlled by the hand of the surgeon.

During all these manipulations, both of massage and movement, the limb, and especially the seat of fracture, is carefully supported upon a cushion, or by an assistant, or by the disengaged hand of the surgeon.

What are the results we seek to obtain by massage and movement in the treatment of fractures?

The first and most striking result of massage is the relief of pain. This is prompt and decided to a degree that is almost incredible until one has verified it for oneself. Sir William Bennett gives several examples, of which I quote one: He saw the patient at St. George's Hospital on the third day after a comminuted fracture of the femur at the middle of the shaft. The limb was tense, swollen and discoloured, the patient shrieking with pain. Sleep had been impossible for three days. Massage was applied by Bennett. The pain was at once alleviated and ceased altogether in fifteen minutes. While the massage was still going on the patient fell into a sound sleep. The explanation of this analgesic action is probably complex. The tension of the limb is diminished by the mechanical unloading of the tissues. The spasmodic contraction of the muscles is relaxed. There is probably also some reflex action on the nerves.

The influence of massage in relaxing muscular spasm is clearly shown by an observation of Dr. Dagron of Paris, who, at the Hôtel-Dieu, has several times seen dislocations of the shoulder become spontaneously reduced while the muscles of the region were being massaged. The action of massage in relieving pain is a sufficient justification in itself for the adoption of this method of treatment.

Massage not only removes pain, but also swelling. This is the mechanical action of massage.

The swelling at the site of a recent fracture is due to the extravasation of blood from the fractured extremities of the bone and from the lacerated vessels in the neighbourhood, the escape of lymph from the torn lymph vessels and spaces, the vascular engorgement, and the serous effusion.

This swelling rapidly disappears during massage. The volume of the limb is diminished, the tension relieved, absorption hastened, and the normal circulation restored. As the swelling diminishes the limb becomes supple, the joints lose their stiffness, and movement is facilitated. Secondary oedema is prevented.

Massage and movement prevent adhesions, and maintain the flexibility of the joints. Adhesions between adjacent structures, bone, muscles, tendons, and tendon sheaths do not form, because the so-called plastic lymph which gives rise to them is removed by massage, and the immobility that permits their formation is obviated by daily movement.

Muscular atrophy no longer occurs when massage and movement are employed. The intramuscular circulation is maintained, tissue metabolism is promoted, tonicity and contractility are preserved.

Though massage and passive movement favour these desirable results, it is probable that voluntary movement is still more useful in preventing muscular atrophy, inasmuch as it excites the natural functional activity of the different associated parts of the motor apparatus—the muscle, the nerve, the nerve centre. Even the higher volitional centres are thereby exercised, and this may be advantageous in the case of patients whose sensory functions are more highly developed than their will-power.

Voluntary contraction of the muscles, apart from designed movement, has been advocated as a means of physical culture. It is said that muscular development is thereby promoted to a greater degree than by ordinary gymnastic exercises.

This form of muscular exercise may be usefully employed in the treatment of fractures, movement of the broken extremities being prevented either by the simultaneous contraction of opposing muscular groups, or by the support of the surgeon's hand. It may be practised by the patient while the limb is in splints. Kocher of Berne recommends this form of exercise for certain fractures treated by extension, in his work on *Fractures of the Humerus and Femur*.

The intimate effect of massage upon contused muscles and nerves has been studied experimentally by M. Castex of Paris. He subjected dogs to double and symmetrical traumatisms of the limbs—fractures, sprains, and contusions. One side was massed by a specialist, the other left to spontaneous repair. After some months the dogs were killed, and the traumatized parts examined microscopically by independent histologists, thus eliminating the personal equation. The results were published in the *Archives Générales de Médecine* (1891). The drawings there reproduced show very clearly the following lesions in the muscles not massed:

1. Fibrillation of the muscular fibres.
2. Hyperplasia of the connective tissue, with an increase in the number of nuclei.
3. Interstitial haemorrhages.
4. Engorgement of the blood vessels, with thickening of the outer coat.

The microscopical appearances of the muscles that had been subjected to massage were normal in every respect. Similar phenomena were revealed by the examination of the nerves, but in addition the nerve fibres were compressed by the connective-tissue hyperplasia in the non-massaged limb.

M. Gourewitch of St. Petersburg has carried out a series of experiments on rabbits with analogous results. He produced symmetrical fractures of both fore-limbs, one of which was massaged, the other immobilized. In the massaged limb muscular atrophy was prevented, and bony union took place more firmly and more quickly than in the immobilized limb. These observations are reproduced by Dr. Guermonprez of Lille in his book, *Etudes sur le Traitement des Fractures des Membres*, published during the present year in Paris.

That massage and movement favour osseous repair is confirmed by clinical observation. It is to be accounted for by the removal of the haematoma from the seat of fracture, by the early restoration of the circulation, and by consequence of the nutrition of the limb, and by the stimulating effect upon the formation of callus of the slight movements at the seat of fracture.

Massage shortens the duration of treatment. This is a great practical advantage. Many of the factors we have already considered conduce to it. The chief factor, however, is the condition of the nerves, muscles, and joints of the limb at the moment when bony union is complete. Instead of being crippled by immobilization, they are fit and ready for immediate use. Bennett estimates that the time that requires to elapse before a patient is permitted to resume his ordinary occupation is diminished by at least one-third.

Massage and movement may be employed with advantage in the majority of the cases of fracture. Extreme mobility of the bony fragments or the existence of displacements capable of being reproduced are contra-indications to the employment of massage and movement, at least as immediate treatment. But the amount of consolidation necessary to ensure us against these secondary displacements is obtained more quickly than is generally admitted, and both movement and massage may be resumed at an early date with every prospect of success.

The treatment of fractures by the methods of M. Lucas-Championnière has been adopted by certain surgeons in almost every European country, and the published results are sufficiently numerous to place the value of the treatment beyond doubt.

The majority of modern writers admit its efficacy as an accessory method, though sometimes not without an *arrière-pensée* for the time-honoured doctrine of immobilization.

It has been my object in this address to contrast the two methods of treatment which we have been considering. It may be asked whether these two methods are really incompatible with one another—whether it is possible to secure the benefits and at the same time avoid the risks of both.

Uninterrupted immobilization, as defined at the outset of these remarks, is obviously impossible where massage and movement are employed.

But the use of simple means to avoid displacement may usefully be combined with massage and movement—the retentive apparatus being usually removed and replaced daily. Complicated apparatus should be avoided. Extension by weight and pulley and the placing of the limb in such a position that the muscles are relaxed and the long fragment brought into line with the short one are useful principles applicable to many fractures.

Whatever apparatus is employed should be discontinued at an earlier period than was formerly the practice. Mr. Watson Cheyne, in his *Manual of Surgical Treatment*, 1900, in the course of a judicious appreciation of these methods, writes that while not prepared entirely to discard splints, he is "inclined to think that massage and movement may be largely associated with their use, not only without any risk to the union, but actually with great advantage to the patient."

For ourselves, in our treatment of fractures, while giving due care and attention to the passive organs of motion—the bones—let us not forget the higher physiological value of the active organs—the muscles and nerves.

Let us bear in mind the aphorism inscribed by M. Lucas-Championnière on the title-page of his book, "Le mouvement c'est la vie," and his further comment, "Immobilization is the beginning of death."

NOTE CONCERNING THE BACTERIOSCOPIC ANALYSIS OF EXCREMENTAL POLLUTION.

By E. KLEIN, M.D., F.R.S.

In the bacterioscopic analysis of shellfish, water, and other materials polluted with excremental matters the MacConkey medium (sodium taurocholate, peptone, glucose, litmus, water) in Durham fermentation tubes is admittedly of advantage, since it allows the free development of *B. coli communis* and other coli-like microbes, whereas it exerts a certain restraining influence on some other microbes. It is now admitted, I think, what I have for many years (since 1895) insisted on—namely, that in judging of excremental pollution the *B. coli communis* or the typical *B. coli* is that species to which our attention should be particularly directed in the analysis, for while we know that this particular species is the typical microbe of sewage and excremental matters the distribution and derivation of other kinds of coli-like microbes is still more or less undetermined. Unfortunately the MacConkey medium makes no selection between typical and atypical *B. coli*, nor does it exclude a number of other microbes capable of producing acid and fermenting glucose, amongst these notably some liquefying microbes present in shellfish as also in other materials.

It is well known that one of the principal differential characters of *B. coli communis* is its power to ferment lactose, a character not possessed by many species of coli-like microbes, which are, nevertheless, possessed of the power of fermenting glucose. This character of lactose fermentation could, therefore, be used at once in the preliminary tests for *B. coli communis* if we substitute glucose for the lactose in the ordinary MacConkey medium: by this a distinct simplifying of the analysis could be achieved. I have put this proposition to the experimental test. Ordinary MacConkey medium (that is, containing glucose) and MacConkey fluid with lactose, instead of glucose, were inoculated in parallel series with high dilutions of sewage, of human faecal matter, with the fluid of shellfish (oysters, cockles, winkles) derived from polluted layings, as also of shellfish (oysters) from clean layings. The results were highly satisfactory, for whenever the lactose MacConkey tubes showed in 24 to 48 hours' incubation at 37° C. redness and gas, subsequent subcultures in the differential media proved the presence of the typical *B. coli communis*, whereas in a considerable number of instances after redness and gas in the glucose, that is, ordinary MacConkey tubes, subsequent subcultures failed to denote the typical *B. coli*—that is, the *B. coli* which changes neutral red broth from cherry colour into fluorescent green, which bubbles ordinary nutrient gelatine, which causes redness in and coagulation of litmus milk, which produces indol in ordinary broth, which on Drigalski-Conradi medium produces at 37° C. in 24 hours largish red colonies with red halo, and which at 37° C. in 24 to 48 hours produces acid and gas in litmus lactose peptone water. In those instances in which the lactose MacConkey tubes remain unchanged, or become bleached and without gas, it may be taken for certain that the *B. coli communis* is not present, although in the parallel ordinary MacConkey tubes redness and gas had been produced.

The second medium which is of great advantage in the analyses is broth with sodium taurocholate. The broth is ordinary nutrient beef broth, to which sodium taurocholate is added in the same proportion as phenol in Parietti broth, that is, 5 c.cm. of a 5 per cent. solution to 400 c.cm. of broth.

B. coli as also *B. typhosus* grow well in this taurocholate broth, making it uniformly turbid in twenty-four hours at 37° C.; but if *B. coli communis* be present, on slightly shaking the tube copious evolution of minute gas bubbles will be noticed on inspection with a hand lens. In a large number of tests made with this medium I have invariably found that if after twenty-four to forty-eight hours' incubation the tubes show marked turbidity, and on slight shaking show copious evolution of gas bubbles, one can be certain that *B. coli communis* is present. This taurocholate broth has one further advantage, it is this: while it allows the growth of faecal streptococci it inhibits some other streptococci. I have made experiments with streptococcus directly isolated from human faecal matter by Drigalski-Conradi plates, with streptococcus of saliva and with *Streptococcus pyogenes*, and I have found that while the streptococcus of human faeces grows well in the taurocholate broth—at 37° C. it produces in forty-eight hours copious growth in the form of granules and flocculi with slight general turbidity of the broth—the others (streptococcus of saliva, *Streptococcus pyogenes*) produce no growth, the broth remaining perfectly clear.

The *B. coli communis* forms indol in the taurocholate broth just as in ordinary broth.

NOTE ON THE ESTIMATION OF BLOOD PRESSURE.

By THOMAS LEWIS, D.Sc., M.B., B.S.,
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In estimating the systolic blood pressure by one of the modified methods of Riva-Rocci,[1] it is often difficult to state definitely by palpation the exact instant when the pulse returns at the wrist. Moreover, the blood forces its way through the block on the brachial artery at a pressure slightly below the pressure in the armlet, and in insufficient quantity to produce a definite pulsation in the radial vessel. Estimations are consequently, as a rule, slightly lower than they should be. The difficulty can be overcome by fixing a Dudgeon's sphygmograph upon the radial vessel. When the pressure in the armlet is above systolic pressure, no pulse beats are shown, and the writing point rides below the bottom of the pulse beats (Fig. 4). As the pressure falls in the armlet, the line described gradually rises (as shown in the three steps, *a*, *a*, *a*, of Fig. 4), but pulsation does not appear until a lower armlet pressure is reached. In the figure a control beat is shown, in a patient whose systolic blood pressure was 160 mm. Hg, with the armlet at 0 mm. Hg. The armlet was then raised to 200 mm. Hg, and the pressure allowed to gradually fall to 160 mm. Hg, when the point of the writing lever rose on the paper; this was allowed to proceed in 3 steps, *a*, *a*, *a*, and the pressure was then reduced to 0 mm. Hg, and further control beats were taken. The method is a very accurate one for estimating blood pressures in doubtful cases.

The combined use of the sphygmomanometer and sphygmograph is also of service in demonstrating temporary rises of blood pressure. Some examples of this are given. Fig. 1 shows the rise of pressure occurring at the height of three deep inspirations.[2] The beats force the block in the armlet at these three points only, the pressure in the armlet being a few millimetres of Hg higher than the original systolic blood pressure.

Fig. 2 shows the two rises of blood pressure in Valsalva's experiment, when a deep inspiration is followed by expiration with the glottis closed.[3]

Fig. 3 shows a rise of blood pressure consequent upon excitement.[4] This tracing was obtained accidentally during the course of certain observations upon Valsalva's experiment. The most convenient instrument for obtaining these records is C. J. Martin's modification of the Riva-Rocci instrument.[5]

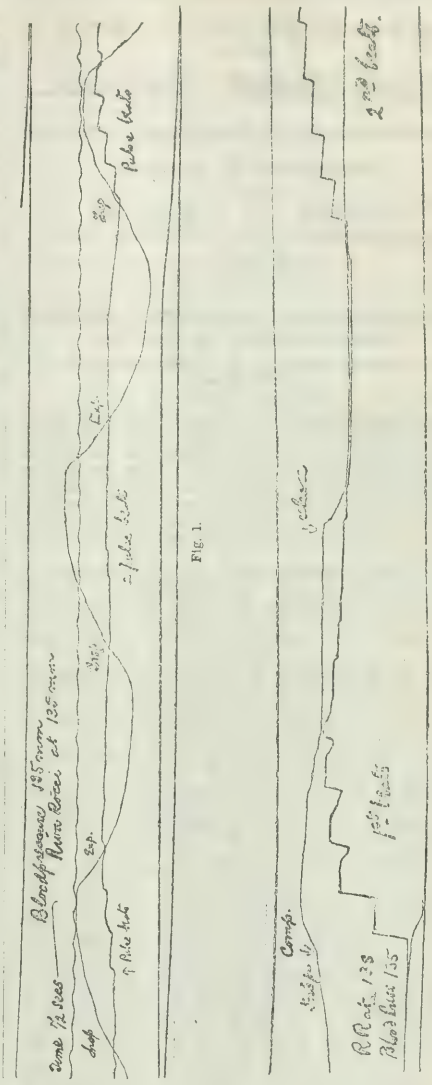


Fig. 1.

Fig. 2.

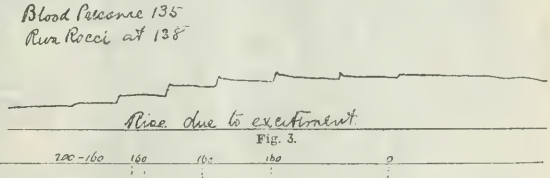


Fig. 3.

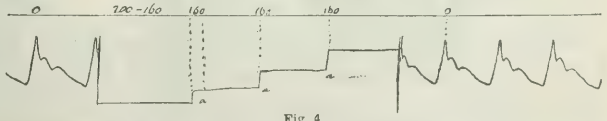


Fig. 4.

References.
[1] Riva-Rocci, *Gaz. Med. di Torino*, 1899. [2] Cf. Wertheimer et Meyer, *Archives de Physiol.*, Paris, 1889. [3] Cf. Lewis, *Journal of Physiol.*, 1906. [4] Cf. Janeway, New York and London, 1904, p. 119. [5] Supplied by Hawksley, London.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF MEDICINE.

Sir THOMAS BARLOW, Bart., K.C.V.O., M.D., LL.D., President.

(Continued from p. 1034.)

THE PRESENT STATUS OF MILITARY MEDICAL ARRANGEMENTS IN CANADA.

By Lieutenant-Colonel J. T. FOTHERINGHAM, M.D., A.M.D.Canada,

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IT may appear strange to you that the Section of Army, Navy and Ambulance is not arranged for at this meeting. My brief paper is an attempt to show that the subjects germane to the Section named are at least not entirely unthought of in this country, and the relative neglect of what is in all other civilized countries so important a special branch of medical science may appear more reasonable to you after hearing the figures which I briefly bring before you.

Canada has a population which, while martial enough in instincts, both in her French-speaking and in her English-speaking districts, is almost totally unmilitary. It has not been always so, as witness the struggles of the latter half of the eighteenth century, and the years 1812-15. But our population has been, and is still, so sparse, and so inadequate to the natural advantages and industrial possibilities of the country, that our time has been perforce taken up, to the practical exclusion of other topics, with the struggle with Nature, in the mines, the forests, the fisheries, and the fields, our four great primary sources of livelihood; and self-preservation, being the primordial instinct of nations as well as of individuals, has shown itself, paradoxical as it may seem, in attention to these primordial matters, to the neglect of those measures of self-protection which older civilizations are compelled to adopt. The main contributing cause has been the ever-present feeling that the Mother Country stands ready to protect us. The rapidly-rising tide of national self-consciousness and responsibility, to say nothing of considerations of self-respect, will in the near future change all this. The tone of the press is changing. The undertaking of the charge of the fortresses at Halifax and Esquimalt is a beginning in the right direction. And with a population of 6,000,000, and an annual income of about $30,000,000, an annual military expenditure of about $5,000,000 is not on the whole uncreditable to a community placed by Providence in a portion of the world so far removed from "war's alarums."

Nothing short of the compulsion of circumstances, such as a serious national and imperial crisis, is likely to divert the energies of the people of Canada from the industrial development of the country into military channels. The enforced adoption of separate national existence by the United States a century ago is largely responsible for the enormous development of all sides of a nation's life over there, and until we in Canada do the same thing—but not, *not* in Heaven's name, by the same methods or with the same result of separation from the mother—we shall not come to our own as a nation, nor play our part in the partnership of nations known as the British Empire. Pardon, if you please, this digression, and let me return to the beaten track, expressing the confidence that there is stirring in the cosmic consciousness of Canada the hope that as history undergoes her evolution it may be granted to us to hand on the torch, and to be the go-between for the Motherland and her once-estranged daughter to the south of us, to bring her back, if not into full family relationship, at least into full sympathy and alliance with the group of nations which within this century will be found full-grown, but still owing heartfelt and unreserved allegiance to a common head, the Sovereign of the Empire.

The military forces of Canada are militia forces only. The militia is divided into three classes: the permanent force, the active militia, and the reserve militia. The latter body is unorganized and untrained, and really means the able-bodied males of the country of military age, and subject to service only if a *levée en masse* were ordered in time of great danger. The permanent force is enlisted for three years' continuous service only within the confines of Canada, and so corresponds to the standing army of other countries. It embraces all arms of the service, with details of all the administrative and corps troops, and exists mainly for three purposes: (1) To act as instructional troops, (2) to aid the civil power in case of need, (3) to care for the fortifications and military stores of the country. This establishment numbers all told about 5,000 officers and men of all arms, but they are constantly much under strength, the industrial activities of civil life being so many and so tempting that recruiting is very difficult in times of peace.

The active militia, including the corps reserves, composed of those who have had three or more annual trainings, the organization of which has been attempted recently, is a force nominally of about 50,000 men; but only about 42,000 are on the establishment, and only about 40,000 have been trained this year. The higher commands, from the head quarters staff down through divisional and district commands to brigades and units, has come of late years to be pretty well organized, the main trouble hitherto having been that the Militia Act in force till 1905 was framed to meet the needs of the country while it was still occupied by the Imperial forces, from which staffs of all kinds were expected to be provided.

Under the present Act and the establishment of 1905-6 the following branches of the service exist in both permanent corps and active militia: Cavalry, Artillery, Engineers, Infantry, Army Service Corps, and Medical Corps. There are also the Ordnance Stores Corps, and the Pay Department in the permanent staff, and in the active militia the Corps of Guides (Intelligence Officers) and the Signalling Corps.

Coming now more particularly to the Army Medical Corps, the establishment is about 1,500 of all ranks, including both permanent detachments and the units of the active militia.

It will be a matter of interest to some of you at least to know that we retain as one of the two main branches of the service the good old regimental medical officer, wearing the uniform of his regiment, a member of his regiment and its Mess, with substantive rank, attained by length of service according to regulation, and not eligible for staff or other than regimental duty. The system is one which in a militia force, organized upon county lines, is far too useful to be given up. Each year's experience in annual training as Principal Medical Officer of this District confirms me more strongly in this view.

The other branch of the militia service is the Army Medical Corps, with an establishment, as already stated, of about 1,500 of all ranks; 18 field ambulances are authorized, and 16 have been organized in the leading centres from Halifax to Winnipeg. The commissioned establishment is:

Lieutenant-Colonels	12
Majors	25
Captains	25
Lieutenants	25

The Honorary Colonel of the Corps is the Honourable the Minister of Militia, Sir Frederick Borden, M.D.

As supernumeraries we have:

Dental Surgeons (Lieutenants) ...	18
Nursing Sisters	25

There is also to each unit one quartermaster, not a medical man, with honorary rank of captain.

The old distinction between bearer companies and field hospitals was done away with a year ago, and the unit of the Army Medical Corps is now the field ambulance, with total establishment for annual training of 90, eight of whom, including the quartermaster, are commissioned officers. This unit is organized in three sections: the bearer section (the old bearer company), the tent section (the old field hospital), and the transport section. Officers

of the Royal Army Medical Corps will be interested, if not envious as well, to learn that our transport is our own, and not, as is still the rule of the War Office, obtained from and maintained by the Army Service Corps.

Into the details of our equipment I shall not enter, as not being of any special interest to this Section. In general the technical equipment is identical with that of the Royal Army Medical Corps, and obtained from the same makers. Our tents are different. The bell tents are of khaki canvas, much darker and more comfortable in sunny weather, and better ventilated, and our ward tents are smaller and we think more convenient than the regulation marquée, besides being much better ventilated by wide-meshed netting in the inner roof along the ridge-pole. The low wire beds with ample bedding, tarpaulin flooring, and bright acetylene gas light from an excellent portable apparatus, combine to make the wards remarkably comfortable.

The service is a popular one; the rank and file usually easily recruited on account of the interest that the public in general take in all first-aid matters. The training of men in first aid to cases of fracture, haemorrhage, and conditions of suspended consciousness is very good so far as can be expected in the time at our disposal, twelve days in camp, though the zeal of all ranks induces at least as much extra training at head quarters every year as they get in camp.

The officers are, as a rule, well selected, the brightest and ablest of the younger practitioners being in all the centres very willing to accept commissions if they can afford it. It is not undue self praise, perhaps, to say that the Army Medical Corps on its organization in May, 1890, at once stepped into favour, and has maintained a grade of efficiency which, according to recent annual militia reports, is rivalled by only one other branch of the service in Canada, the Army Service Corps, and we are invariably treated by other arms of the service with consideration and goodwill. For the further credit of our profession, I may add that no other class contributes in proportion to its numbers in civil life so many enthusiastic and capable officers to other branches of the service. Artillery, Cavalry, and Infantry, all have combatant officers doing excellent work who, in civil life, are busy and public-spirited medical men.

The work of the corps, of course, has been so far confined to the care of the troops in camp for annual training. This is, of course, practically active service, but under specially easy and favourable conditions. The real problems of camp sanitation and control of infectious disease can scarcely be said to come before us at all in so short a time as a fortnight in a standing camp. Still there are invariably a few cases, such as measles, diphtheria, or small-pox, brought to camp in incubation; and it speaks well for the promptness and discipline of both the regimental and the corps medical officers that in the two years during which I have had the medical charge of the camp at Niagara, of five thousand men or more, not a case has arisen of any contagious disease contracted in camp. The sick parades of the units are held at 6 a.m. By 7 a.m. the field ambulance wagons have made their rounds, and by 8 a.m. at latest the day's sick are comfortably seen to in the tent divisions of the field ambulances; the camp sick reports for the day are dealt with, and orders for stamping out any reported contagion are issued from the Principal Medical Officer's office, and acted upon not later than 9 a.m. And the effectiveness of this supervision is shown in the fact above stated, that not a case has yet arisen in camp in two years from contagion contracted at camp. Each field ambulance is provided with a steam disinfecting tank, though we have found that the boiling of a few ounces of formalin in a tightly closed bell tent in which infected clothing, etc., have been hung up, is simpler, less troublesome, and quite effective.

As regards qualifications, the requirements for regimental medical officers are slightly less than for Army Medical Corps officers. After one year as lieutenant, the officer if qualified becomes a captain. Four years as a captain entitles him to a majority, on further examination, unless the full Army Medical Corps examination has been taken at the outset. Ten years as major secures the rank of lieutenant-colonel.

The initial qualifying examination for Regimental M.D. includes:

(*a*) Regimental duties and discipline as per Regulations and Orders, 1904, and King's Regulations.

(*b*) Infantry drill, Part I.

(*c*) Regulations for Army Medical Services, certain specified portions.

(*d*) Manual for Royal Army Medical Corps.

The Army Medical Corps officers may qualify by one of the two following methods:

(*a*) Those who have served with an army in the field as medical officers may be considered eligible.

(*b*) Those who hold certificates of proficiency from one of the following training schools:

1. Royal Army Medical Corps Dépôt, Aldershot, England.

2. Volunteer Ambulance School of Instruction, London, England.

3. Canadian Army Medical Corps courses.

Previous to obtaining such a certificate the candidate must qualify in infantry training, Parts (I) and (II), at one of the Schools of Infantry, and subsequently he must obtain a certificate of equitation at one of the Schools of Cavalry.

Candidates must be also qualified practitioners according to law, and may not be over 45 years of age.

Speaking for my own district (No. 2) I can say that out of more than thirty Army Medical Corps officers not more than three or four have still to qualify, and the same proportion obtains among the regimental medical officers. This is not the time nor the place for detailing the syllabus of training and instruction. Suffice it to say that it covers the essentials, and makes it possible for the young officer by subsequent experience and attention to duty to become thoroughly efficient.

In closing, I must not omit to direct attention to the great value of the services rendered by the dental surgeons, one of whom is attached to each field ambulance for the annual training, and who are daily called upon to treat the commoner dental affections elicited by sleeping on the ground, exposure, or change of food.

AMINO-ACIDS AND METABOLISM.

By Lewellys F. Barker, M.D.,
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If there be one current moving more swiftly than the others in the broad stream of investigation in inner medicine to-day, it is that which is carrying to us information regarding the problems of metabolism. For many years bacteriology and parasitology were the channels through which new discoveries of use to the physician came to hand; at the moment our interesting bills of lading read rather by way of the sciences of chemistry and physics. Indeed, the exploration and utilization of the newer route is proceeding so rapidly that we have come to hope that some of the treasures brought to us in locked boxes through bacteriology and morphology may ere long be opened up and made available for our use by the keys which will be sent to us through the more fundamental sciences. I need only refer to the fructifying influence of chemical conceptions already observable in their application to such obscure biological problems as those of immunity and specificity on the one hand (Ehrlich's *Seitenketten theorie*), and those of irritability, contractility, fertilization, ferment-activity, etc., on the other (ionic and osmotic theories of Loeb, Hardy, Panly, and Matthews; catalytic theories of Ostwald and Bredig).

The organic chemists, with Emil Fischer at their head, have done us physicians an inestimable service in clearing up for us the constitution and behaviour of the sugars and purins. They have supplied us with the methods for studying these substances, so important in relation to the human body both in health and in disease. How helpless we should feel in investigating carbohydrate metabolism, for instance, without the ideas concerning glucose, fructose, xylose, and arabinose, which we owe to the organic chemist! And, similarly, how we should be at sea in approaching the problems of the metabolism of the nucleins without the notions the chemists have developed regarding the purin nucleus, the pyrimidin ring, and imidazol!

Comparatively recently the interest of biologists and chemists has been centring in those chemical substances which represent the acme of complexity in the organic world, the bodies known as proteins. So obscure have

they been in structure, so difficult to examine on account of their highly inconvenient physical properties, so conspicuously labelled *Noli me tangere*, that physiologists and chemists alike have had the tendency to hold themselves aloof from them. Fortunately for both medicine and chemistry, the difficulties have not deterred all, and though the earlier assaults of Schützenberger, Kühne, and others could make only breaches in the fortress, these breaches made the walls less impregnable to the later attacks of Miescher, Kossel, Hofmeister, Chittenden, and Schmiedeberg; and now Emil Fischer, with a valiant body of young chemists supporting him, has fairly broken through, and he and his fellows may be said to be actively pillaging the interior. It has turned out that, despite the enormous complexity of the protein molecules, they are in one respect at least more simple than could have at first been guessed—they all consist of long chains of relatively simple molecules into which by hydrolysis they may easily be split, and these simple constituent molecules—the builder's stones of the protein edifice—are nearly all what are known as amino-acids. Just how many of these amino-acids play a part, we do not yet know, but that there are more than a dozon varieties of them in a substance like serum albumen or in casein we are sure, for they have already been isolated from them; and, indeed, the contact of these and other proteins in amino-acid constituents has already been quantitatively roughly determined. It appears that the whole series of proteins, including the albumins, globulins, albuminoids, albumoses, peptones, etc., consist essentially of these simple amino-acids, the chains being qualitatively and quantitatively variously formed.

A new view opens before us. Obviously these amino-acids must form the basis of the whole protein metabolism. At some of the medical problems to be, or to some extent even already, illuminated by the application of the chemistry of the amino-acids and the chains which they form it is the purpose of the present paper to hint.

I.—AMINO-ACIDS AND THE PROTEINS OF OUR FOODSTUFFS.

One of the interesting subjects on which the chemistry of the amino-acids has a bearing is that of the nature of the protein constituents of our foodsuffs. From protein food of both animal and vegetable origin various protein substances have been extracted and chemically examined.[1] Elementary analyses revealed their make-up of carbon, hydrogen, oxygen, nitrogen, and sulphur; physical studies demonstrated their colloidal nature, their tendency to undergo a peculiar coagulative change (denaturalization), their solubility relations, and their varying behaviour towards precipitating agents. By virtue of these physical properties, the physiological chemists have been able to separate more or less sharply several dozen different proteins, and to arrange them provisionally in groups. The most complex bodies, the proteids, consist of proteins proper combined with other substances—say nuclein, haematin, or glucosamin; the simpler proteins are in turn divisible into two groups, first that containing substances like the albumins, globulins, edestin, gliadin, myosin, casein, the histones and protamines; and, second, that containing the so-called albuminoids (collagen, keratin, elastin, reticulin, etc.). Some of these can be obtained in crystalline condition, though this is no guarantee of the unitary nature of a substance. We are more or less informed of the different biological functions of these proteins, and we know that under the influence of definite ferments all these bodies undergo profound and characteristic decomposition.

In spite of all this, the chemical nature of these protein constituents of our foods has until comparatively recently remained a *terra incognita*. The action of acids and alkalies upon them had, it is true, been studied and the products of their fermentation had been examined. It was known that on digestion they undergo a cleavage, with formation of ammonia, certain complex bodies called albumoses and peptones, and finally certain amino-acids. The chemical nature of ammonia was, of course, understood, and something was known of some of the amino-acids, especially of leucin and tyrosin, but concerning the other products we were in utter darkness. But since the new century opened six years ago the obscurities of protein chemistry have been flooded with new light—a light which has been generated mainly by the direction of chemical attention, fortunately of the highest order, toward the simplest of the products into which the proteins split—namely, the amino-acids. The study of the proteins, before confined almost entirely to physical differentiation and biological experiment, has, in part at least, been suddenly translated into the field of pure chemistry. New methods of separating the amino-acids have been devised, known members of the series are now much more easily recognizable than formerly, a number of amino-acids previously unknown have been discovered, their chemical relations have been carefully established and, most important of all, ways have been found of uniting them into shorter or longer chains—that is, of transforming the amino-acids into amide-like anhydrides with formation of the so-called "peptides" and "polypeptides." The longer of these synthetized chains represent substances which possess external properties—colour reactions and a behaviour toward acids, alkalies and ferments so similar to those presented by natural peptones that we have the right to regard them as their nearest relatives, and to look upon their manufacture as the beginning of the synthesis of the natural peptones and albumoses.[2]

The number of amino-acids thus far obtained from proteins by means of hydrolytic cleavage is by no means small.* Some twenty varieties have been isolated, including glycocoll, alanin, amino-valerianic acid, leucin, isoleucin, prolin, oxyprolin, serin, phenylalanin, glutaminic acid, aspartic acid, tyrosin, cystin, tryptophan, lysin, histidin, and arginin.† A part of these are monoamino-acids, part of them are diamino-acids; some of them belong to the aliphatic series, others are aromatic bodies, and still others are heterocyclic compounds. The formulae of the principal amino-acids are given in the accompanying table:

TABLE I.

I.—*Aliphatic Series.*

1. Monoamino-monocarboxylic acids:
   (*a*) Glycocoll (amino-acetic acid or glycin).
   $CH_2(NH_2).COOH.$
   (*b*) Alanin (α-amino-propionic acid).
   $CH_3.CH(NH_2).COOH.$
   (*c*) Amino-iso-valerianic acid.
   $\begin{matrix}CH_3\\CH_3\end{matrix}\!\!>\!CH.CH.(NH_2).COOH.$
   (*d*) Leucin (α-amino-isobutyl-acetic acid).
   $\begin{matrix}CH_3\\CH_3\end{matrix}\!\!>\!CH.CH_2.CH(NH_2).COOH.$
   (*e*) Isoleucin (α-amino-methyl-propionic acid).
   $\begin{matrix}CH_3\\C_2H_5\end{matrix}\!\!>\!CH.CH(NH_2).COOH.$
2. Monoamino-oxymono-carboxylic acids:
   (*a*) Serin (α-amino-β-oxypropionic acid).
   $CH_2(OH.CH(NH_2).COOH.$
3. Monoamino-dicarboxylic acids:
   (*a*) Aspartic acid (α-amino-succinic acid).
   $COOH.CH_2.CH(NH_2).COOH.$
   (*b*) Glutaminic acid (α-amino-γ-glutaric acid).
   $COOH.CH_2.CH_2.CH(NH_2).COOH.$
4. Diamino-monocarboxylic acids:
   (*a*) Lysin (α-, ε-diamino-capronic acid).
   $CH_2(NH_2).CH_2.CH_2.CH_2.CH(NH_2).COOH.$
   (*b*) Arginin (guanidin-α-, δ-diamino-valerianic acid).
   $NH.CH_2.CH_2.CH_2.CH(NH_2).COOH.$
   $HNC\begin{matrix}\diagup\\\diagdown\end{matrix}NH_2.$
5. Diamino-oxy-monocarboxylic acids:
   (*a*) Diamino-trioxydo-dekanic acid.
   $C_{12}H_{24}N_2O_5$
6. Sulphur-containing amino-acid:
   (*a*) Cystin (α-diamino-β-dithiodilaktylic acid).
   $COOH.CH(NH_2).CH_2S.S.CH_2.CH(NH_2).COOH.$
7. Histidin (probably α-amino-β-imidazol-propionic acid).
   $CH = C.CH_2.CH(NH_2).COOH.$
   $NH \quad N$
   $\diagdown \quad \diagup$
   $CH.$

* For an admirable presentation of the whole subject, with references pointing the way to the original sources, the reader should consult E. Abderhalden's *Lehrbuch der physiologischen Chemie in dreissig Vorlesungen*, Berlin u. Wien, 1906, 1—787. This volume contains the most inspiring account of metabolic problems, enlightened by the newer chemical researches, I know of.

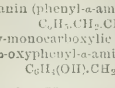
† Recently Skraup has isolated several additional complex amino-acids from casein, and Fischer and Abderhalden have found another which they call *Diaminotrioxydodekansäure*.

II.—*Aromatic Series.*

1. Monoamino-monocarboxylic acids:
   (*a*) Phenylalanin (phenyl-α-amino-propionic acid).
   $C_6H_5.CH_2.CH(NH_2).COOH.$
2. Monoamino-oxy-monocarboxylic acids:
   (*a*) Tyrosin (*p*-oxyphenyl-α-amino-propionic acid).
   $C_6H_4(OH).CH_2.CH(NH_2).COOH.$

III.—*Heterocyclic Compounds.*

1. Monoamino-monocarboxylic acids:
   (*a*) Prolin (α-pyrollidin-carbonic acid).



   (*b*) Tryptophan (skatol-amino-acetic acid).
   $C_{11}H_{12}N_2O_2$
2. Monoamino-oxy-monocarboxylic acids:
   (*a*) Oxy-prolin (Oxy-α-pyrollidin-carbonic acid).
   $C_5H_9NO_3$

Nearly all of these amino-acids have been made synthetically; in addition a large number of derivatives have been studied, including acyl-compounds, phenyl-isocyanate derivatives, esters and their salts, diketopiperazines, amides, and acid chlorides. Of the acyl-compounds the β-naphthalinsulfo-derivatives, owing to their insolubility, are very useful for isolating individual amino-acids from weak aqueous solutions, for example, urine. The esters are strong bases; it is upon formation of the esters and their subsequent separation by fractional distillations that Fischer's so-called "ester method" for isolating amino-acids from mixtures resulting from the hydrolysis of proteins depends.

All of the amino-acids from proteins except glycocoll contain one or more asymmetrical carbon atoms, and hence are optically active. The amino-acids synthetically produced are often racemic, but means have been devised of splitting them into their optically active components. The leucin of protein, for example, is *l*-leucin; the alanin of protein rotates the ray of polarized light to the right (*d*-alanin).

A large number of protein substances of food have been examined with the idea of ascertaining whether they all contain the same amino-acids or whether certain of them are characterized by their content in particular amino-acids. An attempt has also been made to determine the quantitative relations of the various amino-acids in the individual proteins. The qualitative methods are far more satisfactory than the quantitative, but, thanks to A. Kossel's procedure for estimating the diamino-acids, and E. Fischer's ester method for estimating the monamino-acids other than tyrosin quantitative results of value for the comparison of the different proteins have been obtained. Especially through the work of E. Abderhalden in Germany and T. W. Osborne in America, and those associated with him, we now have much information regarding the amino-acid content of egg-albumin, casein, gliadin, zein, legumin, histon, globin, elastin, gelatin and keratin—all proteins which occur in food of animal or of vegetable origin. It turns out that the same amino-acids are present in nearly all, though certain exceptions must be noted. Thus egg-albumin contains no glycocoll, gliadin (from wheat flour) contains no lysin, and gelatin is devoid of tyrosin and tryptophan. But while there is a general agreement as regards the variety of constituent molecules the quantitative content varies notably. The amount of glycocoll, for instance, in elastin is as much as 25 per cent. of the substance, in gliadin it is about 1 per cent., while it is entirely absent from egg-albumin and casein. Again, the amount of glutaminic acid in egg-albumin is only 8 per cent., while in the vegetable protein gliadin it makes up one-third of the total weight of the substance.

In the method devised by Hausmann, modified and improved by Osborne and Harris and by Gümbel, we are able roughly to determine the content of given proteins (or mixtures of proteins) in the different kinds of nitrogen bodies of which they are made up. The total nitrogen is determined and then the proportions of this referable to (1) amide-nitrogen, (2) melanoiden-nitrogen, (3) diamino-nitrogen, and (4) monamino-nitrogen respectively. Since it is a matter of common belief that different individuals are variably tolerant for different kinds of protein food, one "agreeing" and another "disagreeing," it seemed to me worth while to find out how the four forms of nitrogen above referred to behave quantitatively in articles of every-day protein diet. One of my assistants, Dr. B. A. Cohoe, became interested in the problem, and a series of foods were accordingly examined, including pork chops, veal cutlets, sirloin, tenderloin, and neck of beef, liver, heart, and thymus of calf, white meat of chicken, and fish. The materials were dehydrated, freed from fat, dried, and pulverized, and then analysed by the method stated. The results have been published in full elsewhere.[1] We were interested and surprised to find, leaving out the liver and thymus, how closely the figures for the different forms of nitrogen agree in the different foods. On eating fish, or white meat of chicken, we consume practically the same proportions of monamino- and diamino-nitrogen as when we eat beef or pork.

Table II.—*Distribution of Nitrogen Expressed in Percentages of the Total Nitrogen.*

	Amide-nitrogen.	Melanoidin-nitrogen.	Diamino-nitrogen.	Monamino-nitrogen.
Veal cutlets	7.10	1.71	25.53	65.65
Pork chops	6.43	1.76	30.01	61.78
Sirloin } Ox, same animal ..	6.76	2.40	28.08	62.72
Tenderloin } Ox, same animal ..	7.09	2.01	27.51	63.38
Neck } Ox, same animal ..	6.65	1.91	25.46	65.98
Heart (calf)	6.85	2.51	25.89	64.73
Liver (calf)	6.82	2.78	30.72	59.68
Thymus (calf)	7.54	2.28	40.31	49.87
Chicken	7.16	1.93	25.46	65.44
Fish	6.62	1.48	28.47	63.14

The total hydrolyses above mentioned, while they give us a fair idea of the ultimate constituents of the food-proteins and their quantitative relations, afford no clue whatever to what may be fully as important, namely, the exact way in which the ultimate constituent fragments are arranged in the molecular chains which the complex protein molecules represent. The albumoses and peptones certainly represent much higher units in the protein molecules than the amino-acids, but they are so "high" that they are as yet almost as obscure in constitution to us as the proteins themselves. Recently by cautious partial hydrolysis the attempt has been made to isolate units of a lower order, units intermediary between the peptones and the amino-acids; of these, the so-called "kyrines" of Siegfried and his pupils and the "polypeptide" of Fischer and Abderhalden will be recalled.

It is just here that the mind of the pure chemist has been applied to help us out. Emil Fischer has begun, so to speak, "at the other end." Starting with pure amino-acids, bodies which he has come thoroughly to know and understand, he has undertaken to chain together those ultimate fragments into which the proteins break up, assuming that by such syntheses chemical substances must be formed which will be related to the proteins. By studying their properties and derivatives, ways and means will, he believes, be discovered for isolating similar amino-acid chains from the proteins themselves. It is surprising and encouraging to find how far this great chemist and his associates, working in the splendidly equipped chemical institute at Berlin, have already gone.

Fischer has given the name "polypeptides" to the products which arise when amino-acids are united with one another to form amide-like chains. In the reaction between two amino-acid molecules the amino-group (NH_2) of one unites with the carboxyl-group (—COOH) of the other, an amide-like body being formed together with a molecule of water. The simplest member of this class of compounds is that which arises when two molecules of glycocoll are chained together, as shown in the following scheme:

$$\underbrace{NH_2.CH_2.COOH}_{\text{Glycocoll.}} + \underbrace{HNH.CH_2.COOH}_{\text{Glycocoll.}} - H_2O.$$

$$= \underbrace{NH_2.CO.NH.CH_2.COOH}_{\text{Glycyl-glycin.}}$$

It was called glycyl-glycin by Fischer and Fourneau.

who discovered it—the first and simplest free polypeptide—in 1901. Similarly alanyl-alanin, leucyl-leucin, lysyl-lysin, and phenylalanyl-phenylalanin are known. According to the number of amino acid molecules in the chain, Fischer distinguishes the substances as dipeptides, tripeptides, tetrapeptides, etc. Amino-acid molecules of different kinds may also be united in the same chain. A large number of peptides—some seventy—have now been synthesized, for example: *dipeptides*—alanyl-leucin, leucyl alanin, leucyl-glycin, glycyl-*l*-tyrosin, protyl-leucin: *tripeptides*—diglycyl-glycin, alanyl-leucyl-glycin; *tetrapeptides*—triglycyl-glycin, dileucyl-glycyl-glycin, dialanyl-cystin; *pentapeptides*—tetraglycyl glycin; *hexapeptides*—leucyl-tetraglycyl-glycin, etc. In a personal letter from Berlin I learn that a decapeptide has recently been synthesized, and there seems to be no reason why longer and longer chains should not be forged. A large number of these peptides yield the biuret reaction as characteristically as do the natural peptones.*

The variety of forms possible is seen to be almost infinite when one considers, in the first place, the wealth of combination possibilities which the diamino-acids, and especially the dicarboxylic acids afford; and, in the second place, the vast number of isomers which can exist owing to the presence of asymmetrical carbon atoms in the amino-acid molecules. Further, it must be remembered that, besides the amide-like chains, it is easily conceivable, as Fischer suggests, that other modes of union exist in the protein molecule (for example, piperazin rings on the one hand, or ester or ether groups resulting from the formation of intramolecular anhydrides dependent upon the presence of the numerous hydroxyls in the oxy amino-acids). "In the architecture of the proteins and their different complicated derivatives Nature has, as far as we know, attained to her highest chemical performance, and all experience in organic chemistry and biology would be contradicted had she limited herself here to only a few types." The carbohydrates and fats are far outstripped by the proteins in wealth of chemical forms; we begin to realize that chemically the proteins present characters entirely consonant with the manifold purposes for which they are used in Nature in connexion with the architecture and functions of the cells of living organisms.

* Of course, the reactions occurring in the formation of the chains are more complicated than the simple scheme presented would indicate. The molecules are united by the chemist by more or less indirect methods. The principal processes thus far devised are the following:—

1. Formation of dipeptides from 2.5 – diketopiperazines.

$$NH\begin{matrix}CH_2.CO\\CO.CH_2\end{matrix}NH + H_2O = NH_2CH_2CO.NH.CH_2.COOH.$$

Glycinanhydride (diketopiperazine). — Glycyl-glycin.

2. Synthesis of polypeptides by means of their esters.

$$2NH_2CH_2CO.NHCH_2CO.NHCH_2CO_2CH_3$$

Methyl ester of diglycyl-glycin

$$= CH_3O + NH_2CH_2CO.(NHCH_2CO)_4.NHCH_2CO_2CH_3$$

Methyl ester of the hexapeptide "pentaglycyl-glycin."

3. Synthesis of polypeptides by means of the halogenacyl-compounds:

(*a*) $Cl.CH_2.CO.Cl. + NH_2.CH.COOH$

Chloracetyl-chloride — Glycocoll

$$= Cl.CH_2.CO.NH.CH_2.COOH + HCl$$

Chloracetyl-glycin.

(*b*) $Cl.CH_2.CO.NHCH_2COOH + 2NH_3$

Chloracetyl-glycin

$$= NH_4Cl + NH_2CH_2CO.NHCH_2COOH$$

Glycyl-glycin.

I have had opportunity to prepare some leucyl-glycin by this method, with use of α-brom-isocaproxylchloride, following the method of Fischer, and can testify to the smoothness of the reactions and the beauty of the crystalline product.

4. Construction of polypeptides by lengthening the chain at the carboxyl end.

By means of pentachloride of phosphorus the –COOH group is converted into the –COCl group, and this acid chloride easily unites with the esters of amino-acids or polypeptides.

For particulars, see the articles by E. Fischer cited above.

II. AMINO-ACIDS IN DIGESTION AND ASSIMILATION.

The digestion of the proteins in the alimentary tract by means of the ferments pepsin and trypsin appears to represent a hydrolytic process comparable to the hydrolysis brought about by boiling acid, though much milder. Thanks to the methods introduced by Pawlow, it is now possible to study artificial digestion with pure gastric juice and with pure pancreatic juice. The hydrolysis by means of the digestive ferments proceeds by stages. Gastric juice swells proteid food, splits off glucose, nuclein, and haematin from the nucleo proteids, and attacks the proteins themselves, breaking the huge molecules up into relatively coarse fragments, the "albumoses" and "peptones." The cleavage goes even somewhat further as bodies arise in peptic digestion which do not yield the biuret reaction. The splitting appears to stop short, however, of the production of free amino-acids.

Pancreatic juice also splits proteins into albumoses and peptones, but under its influence the hydrolysis goes much further. Indeed, almost from the beginning free amino-acids begin to appear, some varieties, however, much earlier than others. Tyrosin is formed very early; indeed, almost the total tyrosin of the protein can be isolated as free tyrosin after forty-eight hours of artificial digestion. Tryptophan and cystin are also split off very early. Other amino-acids are formed more slowly, namely, alanin, leucin, espartic acid and glutaminic acid. The diamino-acids, arginin and lysin, are also demonstrable. Curiously enough prolin and phenylalanin do not appear in the artificial digestion mixtures even when the process is prolonged. (Levene and Wallace have recently found inactive prolin among the cleavage products of gelatin in tryptic digestion.) There appears, therefore, to be a complex group in the protein molecule, which resists the action of trypsin. A mixture of complex bodies can be precipitated from the digestive fluid by phosphotungstic acid; if hydrolyzed by acid, it is found to contain large quantities of prolin and phenylalanin and smaller quantities of other amino-acids. This abiuret substance, spoken of as "polypeptide," is probably a mixture of several complex peptide chains. The evidence is strongly in favour of the view that in tryptic digestion—casein, edestin, haemoglobulin, serumglobulin, egg albumin, and fibrin have thus far been studied—bodies are formed representing the whole scale of substances, from the proteins down through the albumoses, peptones, and complex polypeptides to the simpler peptides and free amino-acids. Ultimately the albumoses and peptones are all split, but tryptic digestion does not lead to complete resolution into amino acids; there remain unsplit certain abiuret products, lower than peptones, and yet complex products; some of them are rich in prolin and phenylalanin. The methods for isolating the dipeptides, tetrapeptides, and other polypeptides from mixtures are not yet worked out. A beginning is being made, however, and the successful isolation of glycyl-*d*-alanin by Fischer and Abderhalden from a mixture of dipeptides, higher peptides, and amino-acids gives us the hope that ere long we shall have the means for adequately analysing the complicated products of digestion.†

It is interesting that the peptides and polypeptides synthetically produced are not split into their component amino-acids by pepsin; trypsin splits some but leaves others unaffected. They are all split by boiling hydrochloric acid.

Fischer and Abderhalden's study of the action of pancreatic juice on some twenty-nine polypeptides has shown that the cleavage depends partly on the nature of the constituent amino-acids, partly on their arrangement in the chains; further, on the length of the chains; and finally, and very especially, on the configuration of the molecule. As a rule, only those combinations are split which are formed from the optically-active amino-acids which occur in Nature.

By means of pancreatic juice it is possible, therefore, to divide the polypeptides into biologically different classes‡; similarly, judging from their different behaviour

‡ The following polypeptides are split by pancreatic juice:—Alanyl-glycin, alanyl-alanin, alanyl-leucin A., leucyl-isoserin A., glycyl-*l*-tyrosin, leucyl-*l*-tyrosin, alanyl-glycyl-glycin, leucyl-glycyl-glycin, glycyl-leucyl-alanin, alanyl-leucyl-glycin, dialanyl-cystin, dileucyl-cystin, and tetraglycyl-glycin. The following are not split:—Glycyl-alanin, glycyl-glycin, alanyl-leucin B., leucyl-alanin, leucyl-glycin, leucyl-leucin, aminobutyri-glycin, aminoisovaleryl-glycin, glycyl-phenylalanin, leucyl-prolin, glycyl-glycin, triglycyl-glycin and dileucyl-glycyl-glycin.

towards pepsin and trypsin, the polypeptides form a new reagent for the differentiation of the various proteolytic ferments from one another.

What is the meaning of the far-reaching disintegration of the protein molecules of the foodstuffs which occurs during digestion? One might have thought that the protein molecules are absorbed as such, and utilized directly in cell-metabolism. We now know that this is not the case. Every animal species, certainly, and possibly every individual, has its own specific proteins. The protein of the serum of one animal injected into the circulation of another animal of different species leads to the formation of specific precipitines[5]; the caseins from different kinds of milk injected into the blood produce also specific precipitines, by means of which these caseins may be differentiated from one another. The serum-albumin and serum-globulin of each animal maintains an extreme constancy of composition, no matter what kind of protein is fed. It seems clear now that the process of digestion of the proteins—the so-called ferment-hydrolysis—occurs not alone to make the protein substances absorbable, but, above all, to break down the foreign proteins, brought to the organism as food, far enough so that from the fragments produced the body may synthesize its own specific proteins suited to the needs of its own peculiar organs and cells.[6]

Since the work of Kutscher and Seemann[7] and that of Cohnheim[8] we have known that the disintegration of the proteins in the intestine goes much farther than was formerly thought—far beyond the peptones of Kuhne. The newer studies indicate that the fermentative hydrolysis in the alimentary canal leads to products very similar to those above described in artificial digestion with pancreatic juice. Free amino-acids and polypeptides appear within the intestine. Just how far the hydrolysis goes, however, just what proportion of longer and shorter peptide chains persist, is as yet unknown. That the hydrolysis in normal digestion, though going far, is nevertheless partial, not complete, seems extremely probable from a consideration of later investigations.

Since the proteins in the make-up of each animal are specific, and since the food of higher animals varies enormously in the character of its contained proteins, obviously some means must be provided for making the animal organism independent of the kind of protein-food ingested. In the process of digestion these means are found; the protein molecules are broken down in order to permit the feeding organism to use the fragments for the construction of entirely new protein-complexes suitable to itself. If we consider, for example, the nutrition of infants, this fact becomes clear. Fed on milk alone the child's body has to utilize the milk-proteins (chiefly casein with small amounts of albumin and globulin) to build up the various proteins of the different parts of its body. Out of them must come the building materials for manufacturing not only the serum albumin, serum globulin, globin, and fibrin of the blood, but also those for the construction of the most various proteins of the tissues—the myosin of the muscles, the protein part of the nucleo-proteid molecules, the histone of the thymus, the collagen and elastin of the connective tissues, and the keratin of the hair and nails. From the following table (Table III) the transformations which must take place when all these various proteins are built from milk protein can be seen at a glance.

It would be interesting to know whether the amino-acids and polypeptides into which the proteins are split are absorbed as such, and carried by the blood to the various cells of the body, or whether in the wall of the intestine itself, or in the liver, the amino-acids and polypeptides are synthesized to proteins. This is a new problem which confronts us, but one already attacked; while still unsettled it seems very likely that normally the intestinal wall completes the synthesis, at least in large part, and chiefly proteins of high molecular complexity, not albumoses, peptones, polypeptides or amino-acids, are absorbed into the blood. For, thus far, it has not been possible to demonstrate beyond dispute the presence of albumoses or other disintegration-products of proteins in the blood, although that fluid contains a tolerably constant amount of protein (serum albumin and serum globulin), just as it contains a tolerably constant

Table III.

	Casein.	Serum-albumin.	Serum-globulin.	Globin from Haemoglobin.	Fibrin.	Histone.	Elastin.	Keratin.
Glycocoll ..	—	—	3.5	—	3.0	0.5	25.75	4.7
Alanin ..	0.9	2.7	2.2	4.2	3.6	3.5	6.6	1.5
Amino-valerianic acid	1.0	Present	—	Present	1.0	—	1.0	0.9
Leucin ..	10.5	20.0	18.7	29.0	15.0	11.8	21.4	7.1
Prolin ..	3.1	1.0	2.8	2.3	2.5	1.5	1.7	3.4
Phenylalanin	3.2	3.1	3.8	4.2	2.0	2.2	3.9	—
Glutaminic acid	11.0	7.7	8.5	1.7	8.0	0.5	0.8	3.7
Aspartic acid.	1.2	3.1	2.5	4.4	2.0	—	—	10.0
Cystin ..	0.035	2.3	0.7	0.3	—	—	—	0.6
Serin ..	0.23	0.6	—	0.6	Present	—	—	—
Tyrosin ..	4.5	2.1	2.5	1.5	3.5	5.2	0.34	3.2
Lysin ..	5.8	—	—	4.3	—	6.9	—	—
Arginin ..	4.8	—	—	5.4	—	15.5	0.3	—
Histidin ..	2.6	—	—	11.0	—	1.5	—	—

amount of glucose.* In the fasting state the serum albumin gradually diminishes, the serum globulin increases somewhat. Direct experiment, however, shows that the serum-proteins are in composition independent of the kind of protein food administered. A horse fed with gliadin, a vegetable protein almost five times richer in glutaminic acid than the serum proteins, maintains its serum-proteins with normal glutaminic-acid content, even when, owing to great loss of blood by venesection, it has been compelled to regenerate a considerable proportion of the serum-proteins. It looks as though the intestinal wall builds specific serum-proteins from the products of digestion of the most different varieties of proteins, and that these, absorbed into the blood, are carried to the various tissues where each cell captures serum protein for its own use. If this conception be a correct one, the individual tissue cells are rendered highly independent of the external world as regards their nutrition. It is the function of the intestine to provide them constantly and monotonously with the same specific proteins, thus guaranteeing a regular tissue metabolism despite variations, sometimes slight, sometimes extreme, in the character of the proteins of the food. The functions of the alimentary tract and the ferments it produces appear to us in the light of this conception more important than ever. Those of us who work in inner medicine, who know how markedly disease of the intestine and its accessory glands may disturb the welfare of the metabolism of the body as a whole, can only hope that more physiological work like that of Pawlow and that of Bayliss and Starling, and more chemical work like that of Atwater, Chittenden, and Osborne in America, and abroad that of Fischer and Abderhalden, Hofmeister, Hopkins and Cole, Sorensen, Neuberg, Straup, Curtius, Kossel and Kutscher, will speedily be done. Along these lines we shall some time get valuable clues for diagnosis; but, more important still, we may confidently expect, from progress in knowledge of pathogenesis here the discovery, on the one hand, of rules for prophylaxis, and, on the other, of therapeutic measures which will be rational.

III. Amino-Acids in Intermediary and Terminal Metabolism.

The foregoing considerations have been concerned chiefly with the chemical nature of the proteins, their partial disintegration during digestion, and the importance of the intestinal wall not only in absorption but also in assimilation. In them we have seen how recent research makes a resynthesis of the proteins probable in the intestinal wall itself. Selecting from among the frag-

*F. Kraus has recently found albumoses in small amounts as normal constituents of dog's blood: Cf. F. Kraus, Ueber das Vorkommen von Albumosen im normalen Hundeblut, *Zeitschr. f. Exper. Pathol. u. Therap.*, 1906, iii, 82-87.

ments of proteolysis within the lumen of the bowel those constituents necessary for the construction of the specific serum proteins, the intestinal cells combine them, and pass them on into the portal blood along, possibly, with some unused fragments (polypeptides and amino-acids), or, more probably, disintegration products of these superfluous fragments (ammonia arising from the splitting off of the amino-group by so-called "de-amidizing" ferments and non-nitrogenous carbon-chains of a nature as yet wholly unknown). The portal blood also carries certain products which result from the action of bacteria upon the free amino-acids in the intestine (for example, *p*-kresol and phenol from tyrosin; indol and skatol—oxidized to indoxyl and skatoxyl—from tryptophen; occasionally the diamines kadaverin and putrescin—the former from lysin, the latter from arginin or its contained ornithin); in the liver some of these substances of bacterial origin are deprived of their toxicity by union with other bodies (formation of the substances which later appear as ethereal sulphates in the urine—phenol, kresol, indoxyl, and skatoxyl-sulphuric acids; formation of glycuronates —phenol-, indoxyl-, and skatoxyl-glycuronates); in the liver, too, most of the urea—the principal nitrogenous end-product of amino-acid metabolism—is formed.

We may now pass on to the relation of the individual cells of the different tissues to the amino-acid chains presented to them in the form of serum proteins. Do these cells assimilate the serum proteins as such, or does each cell, by means of its proteolytic ferments, hydrolyze, wholly or in part, these long amino-acid chains? There is much evidence in favour of a local tissue-hydrolysis. The cells of the tissues have their work simplified for them in that they are presented always with the same kind of building material; they are not compelled, like the intestinal cells, to pull down the most variously-constructed protein edifices in order to build their own proteins. That they have tearing down to do, however, seems certain, for we are safe in assuming that the liver proteins, the kidney proteins, and the brain proteins differ materially from the proteins of the serum. Accordingly, the serum proteins must be sufficiently disintegrated to permit each cell using them to rebuild the fragments into its own peculiar amino-acid complexes. In this disintegration surplus material, unnecessary for the new synthesis, must be got rid of; amino-acids or polypeptides not needed for the proteins of the tissue cell concerned must be thrown back into the serum to be dealt with elsewhere, or locally utilized, perhaps by immediate de-amidization and speedy or slow combustion of the carbon chains set free. As to the exact mechanisms here concerned, we are as yet almost wholly in the dark, but the tasks which we must set ourselves are becoming more clearly defined and ingenious experimenters are beginning to find modes of approach. When we recall how much serum protein must be disintegrated, for instance, to supply glycocoll enough to build elastin, how much arginin is needed to build the histone of the thymus (cf. Table III), we begin to have an inkling of at least one reason why the body's daily need for protein transformation is as enormous as it is known to be. The tissue proteins are so variable in quantitative amino-acid content that where reconstruction is actively going on large amounts of serum protein are required to supply suitable links in sufficient numbers for the different chains. It may be—and, if so, the problem of supply would be simplified somewhat—that the body has the power of converting one kind of amino-acid into another; indeed, it seems increasingly more difficult to get along without this hypothesis, though it has as yet no experimental basis.

That the cell proteins are in constant flux there can be but little doubt. The evidence is certain of the tissues we have constantly before us, for example, in the growth of the hair and the nails, the constant desquamation and regeneration of the epithelium of the skin, the loss of intestinal epithelium in the faeces, the leucocytes thrown out from the tonsils, and the formation of sexual products, to say nothing of the proteins used up in the secretory activities of the glands. Each cell in the body not only has to repair the losses it sustains in its daily work; it must also stand ready to build new cells of its own kind when called upon to do so. One has only to think of the activity of the bone-marrow after a haemorrhage, or of the rapidity with which new polymorphonuclear leucocytes may be supplied in pyogenic infections. Now, while the body can store up fat in a host of places in the body to be called upon when needed, and to a less extent can store up carbohydrate as glycogen in the liver and the muscles, it has no way of storing up proteins.* And yet a certain amount of protein must be destroyed in the body each day. If enough for daily consumption is not derived from the food, the body begins to disintegrate the proteins of its own tissue cells. If more protein than is enough for the maintenance of equilibrium be taken in as food it is destroyed almost at once, its nitrogen content being quickly eliminated, and not only it alone, but extra fat and carbohydrate with it; the whole metabolism of the body is increased—a riddle which still perplexes the physiological chemist.

How many of the amino-acid molecules of the total number taken in with the food actually take part in the building up of cell proteins we do not know. It is scarcely conceivable that all of them so participate despite the manifold tissue need. On the contrary, it seems likely that many of them—there must be great numbers that do not fit into the cells—do not become organized into the more permanent cell-constituents at all, but are directly de-amidized and oxidized after their formation by hydrolysis to the amino groups, or —$CONH_2$ groups, appearing quickly in the urea of the urine, the non-nitrogenous carbon chains burning sooner or later (perhaps after playing a part in the synthesis of carbohydrates or fats!) to carbon dioxide and water.

It seems very certain that the serum-proteins and cell-proteins are disintegrated, in largest part at any rate, by the amino-acid route. The tissue cells are known to contain proteolytic ferments that bring about a hydrolytic cleavage not unlike the trypsin-hydrolysis in the gut; it is known, too, that certain of the cell ferments can cause cleavages of amino-acid chains inaccessible to pancreatic juice.†

In dead tissues, where the cell ferments are left unregulated, the proteolysis—so-called autolysis—which occurs gives rise to amino-acids in abundance. When the fibrin and dead leucocytes of pneumonic exudates disintegrate previous to absorption, the proteolysis leads to the formation of amino-acids. Free amino-acids do not appear, however, normally to exist as such for any length of time in the cells and in the blood. If not used for building up higher units, they are in turn disintegrated by other ferments, and gradually give rise to the end-products of protein metabolism. The nitrogen nearly all appears as urea. The de-amidizing ferments may split off the amino group with formation of ammonia, which, uniting with carbonic acid (Schmiedeberg) or with carbamic acid (Nencki, Schultze, Abel), is dehydrated to form urea, or, as Hofmeister thinks, by oxidative synthesis a —$CONH_2$ group is formed which at the moment of its origin meets with an amino residue resulting from the oxidation of ammonia, and gives rise to urea.‡

Normally amino-acids do not appear in the urine except perhaps in very small quantities. Minute amounts of cystin, and possibly of glycocoll, escape disintegration, and are excreted by the kidneys in health. In disease, however, amino-acids may appear in the urine in large amount. Tyrosin appears in the urine after long narcosis, and sometimes in diabetic coma. In acute yellow atrophy of the liver leucin and tyrosin replace a considerable part of the urea of the urine. In experimental phosphorus poisoning the same amino-acids, as well as glycocoll and probably phenylalanin, pass into the urine.§

In occasional families the power to destroy certain of the amino-acids arising in intermediary metabolism seems to be interfered with. Notable examples will be recalled

* The whole question of the possibility of storing up protein by overfeeding is just now under lively discussion. A very slight storing seems possible, but there is nothing comparable to fat storage. See the chapter, Fleischmast und Fettmast, in v. Noorden's *Handbuch*, Bd. i, 556, 1906.

† Thus glycyl-glycin, which is unaffected by trypsin, is split completely into its components by an extract of liver: cf. E. Abderhalden and J. Ternuchi, Das Verhalten einiger Peptide gegen Organ extrakte, *Zeitschr. f. physiol. Chem.*, 1906, xlvii.

‡ Siegfried's studies of the salts of glycocoll-carboxylic acid and alanin-carboxylic acid point to the possibility of even more direct routes from amino-acids to carbonic acid and urea (*Zeitschr. f. physiol. Chem.*, 1905, xliv, 85; xlvi, 401). The origin of urea from the guanidin portion of the arginin molecule through the action of the ferment arginase has been made clear by the work of Kossel and Dakin. The ornithin portion of the molecule is more slowly converted into urea, but in the dog 100 per cent. of the arginin nitrogen is recoverable as urea in the urine (W. H. Thompson, *Journ. Physiol.*, Camb., 1905).

in cystinuria and alkaptonuria. The cystinuric patient cannot disintegrate the cystin formed in the cells. Sometimes it accumulates in macroscopic masses in the organs. Whereas the normal individual gives off the sulphur of cystin chiefly in oxidized form as sulphuric acid in the urine, the cystinuric gives off the cystin itself into that fluid; occasionally urinary concretions of pure cystin are formed. It looks as though some ferment which breaks down cystin were absent or inhibited in such people. Possibly even more extensive ferment-defects exist, since in some cases of cystinuria other amino-acids (leucin and tyrosin) are present in the urine as well. It may well be that in this pathological condition there is a general disturbance of amino-acid de-amidization and combustion.

The alkaptonuric patient excretes two complex organic acids in his urine, uroleucinic acid and homogentisinic acid. The latter is a dioxyphenyl-acetic acid, the former a dioxyphenyl-lactic acid. It turns out that these acids are derived from transformations of the two amino-acids, tyrosin and phenylalanin. Here, again, amino-acids, after their appearance among the products of protein-hydrolysis in the cells, fail to be disposed of in the normal manner, though the tyrosin and phenylalanin lose their amino-groups. The residues resulting from de-amidization do not undergo complete oxidation. The benzol-ring still remains attached to an acid side-chain, and peculiar transformations occur in the ring. The hydroxyl group of tyrosin, for example, is split off (or changes its position), and two new hydroxyl-groups, in the para-position as regards one another, appear as homogentisinic acid is formed.



It may be that homogentisinic acid represents one of the stages of oxidation through which tyrosin normally passes as it is broken down in the tissues, the ferment necessary to complete the process being absent or inhibited in the alkaptonuric. Or, it is possible that tyrosin does not in its normal disintegration pass through a homogentisinic acid phase; if so, then alkaptonuria must be looked upon as the result of a perverted metabolism rather than simply of the inhibition of a metabolism of normal course.[10] As yet we cannot be sure which view is correct.

In harmony, too, with the idea that the proteins in intermediary metabolism descend by the amino-acid pathway is the fact that amino-acids are sometimes caught "on the way down" by other chemical substances, with which they unite, the compound formed escaping oxidation. Thus in normal metabolism a certain amount of glycocoll is continually being caught by benzoic acid, the two being synthesized in the kidneys to hippuric acid and excreted as such.

$$\underbrace{NH_2.CH_2.COOH}_{\text{Glycocoll.}} + \underbrace{C_6H_5COOH}_{\text{Benzoic acid.}} = \underbrace{C_6H_5.CO.NH.CH_2.COOH}_{\text{Hippuric acid.}} + H_2O.$$

Similarly, glycocoll is caught up by cholalic acid and excreted as glycocholic acid in the bile.

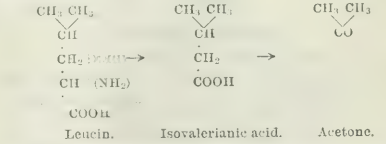
$$\underbrace{NH_2.CH_2.COOH}_{\text{Glycocoll.}} + \underbrace{C_{23}H_{39}O_5.COOH}_{\text{Cholalic acid.}} = \underbrace{C_{23}H_{39}O_5CO.NH.CH_2.COOH}_{\text{Glycocholic acid.}} + H_2O.$$

It is now well known that we can artificially "catch" glycocoll by introducing into the circulation substances which unite with it in this way. Thus, salicylic acid forms with it an oxyhippuric acid, and phenylacetic acid combines with glycocoll with formation of phenazeturic acid, substances which, like the hippuric acid, are afterwards to be found in the urine. Glycocoll, like glycuronic acid and sulphuric acid, must be regarded, therefore, as an amino-acid which, besides its other functions, is of great service in rendering poisons innocuous by uniting with them and giving rise to chemical substances which may be got rid of through the emunctories.

Other amino-acids may similarly be "caught" in intermediary metabolism and withdrawn from the disintegration of further katabolism which otherwise awaits them. Thus brom-benzol given to a dog unites with cystin and prevents its oxidation; and in birds even ornithin may be captured by benzoic acid, and converted into ornithuric acid, and so excreted in the urine.

From what has been said, it must be clear that the amino-acids occupy a central position in the whole problem of protein metabolism. Did time permit, it would be easy to point out also probable relations existing between amino-acids and the metabolism of the carbohydrates and fats. With Friedrich Müller's demonstration of the presence of large quantities of glucosamin in mucin, attention has been drawn to this substance as a body forming a connecting link between the sugars and the proteins. Its resemblance in constitution to glucose, on the one hand, and to the longer-chain amino-acids like lysin and leucin, on the other, may be no accident. It seems probable that in the settling of that much-mooted question, Is sugar formed from albumen? the amino-acids will come conspicuously to the fore. It has already been shown that the administration of alanin and glycocoll increases the sugar excretion in pancreatic diabetes.[11] Clinicians have been led long since to believe that protein food may give rise to sugar in the diabetic organism. The absolute proof that this is true has yet to be brought, but the view has much to support it. It would not be unreasonable to suppose that the long non-nitrogenous carbon chains set free by the de-amidizing process in amino-acid katabolism are utilized in sugar formation. The same chains might also easily give rise to glycerin and fatty acids, and directly contribute to the fat synthesis of the body. We must, with Abderhalden, who has discussed these possibilities in detail, recognize the interest of such considerations, and entertain the hope that experimental research will ere long furnish us solid facts in place of the mere scaffolding of hypothesis which at present keeps us discontented.

Such solid facts are beginning to come in. Among the most interesting of them is the bringing of the proof that the liver can split leucin with formation of acetone.[12] The explanation offered—de-amidization and splitting off of carboxyl from leucin, oxidation to isovalerianic acid, then cleavage of the molecule between the alpha-carbon atom and the beta-carbon atom, with formation of acetone—may or may not be correct.



But it is an important step forward to have demonstrated the formation of acetone through utilization of a non-nitrogenous carbon chain resulting from the de-amidization of an amino-acid which we know has had its origin in protein cleavage. A few more such facts and we shall gain an insight into a side of intermediary metabolism hitherto extremely puzzling.*

The time may not be so very far distant either when we shall begin to understand the creation of purins from proteins. That the nucleins are built up from protein substances in the milk-fed infant there can no longer be any doubt. If the alleged demonstration of an imidazol group in histidin prove to be correct, we may discover in this amino-acid a bridge from the proteins to the purins.[13]

As physicians interested in normal and pathological metabolism, we must hail these great advances from the side of physiology and physiological chemistry with enthusiasm. We cannot expect a solution of the problems of diseased metabolism before the physiological and physiological-chemical foundations have been well laid. As yet we see even the coarsest of metabolic anomalies, such as are presented in diabetes, gout, and obesity, only as through a glass darkly; that later on we shall witness gradually the illumination of these obscurities, and begin to detect more delicate deviations from the normal chemical course in our bodies—disturbances concerning which at present we can form but the dimmest sort of guess—modern progress in biological chemistry certainly permits us—indeed, gives the right—to hope.

* Probably very little acetone has its origin from leucin; most of it is formed, of course, from the katabolism of fats.

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A DISCUSSION ON OVER-NUTRITION AND UNDER-NUTRITION.

A Discussion by the Combined Sections of Medicine and Physiology.

OPENING PAPER.

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OVER-NUTRITION AND UNDER-NUTRITION, WITH SPECIAL REFERENCE TO PROTEID METABOLISM.

IN any attempt to discuss this subject intelligently we are confronted at once with the question, What are the normal requirements of the body for food? How much proteid, fat, and carbohydrate does the ordinary individual of average body weight need during the twenty-four hours to satisfy the normal nutritive requirements of the body? We may answer in a general way that he requires enough of these foodstuffs to establish physiological and nitrogen equilibrium sufficient to keep up that strength of body and mind that is essential to good health, to maintain the highest degree of physical and mental activity with the smallest amount of friction and the least expenditure of energy, and to preserve and heighten if possible the ordinary resistance of the body to disease germs. The smallest amount of food that will accomplish these ends is, I think, the ideal diet. There must be enough to supply the true needs of the body, but any great surplus over and above what is really called for may in the long run prove an undesirable addition. However this may be, it is certainly true that we must have definite and concise knowledge of the amount of proteid and the total calorific value needed by the body to maintain the latter in the highest state of efficiency before we can form any very exact estimate of what constitutes over-nutrition or under-nutrition. To be sure it may be comparatively easy to diagnose certain gross forms of over-nutrition, and equally easy to discern those conspicuous cases of under-nutrition that are occasionally seen; but in dealing with physiological questions it is desirable to be sure of our boundary lines, otherwise our prefixes "hyper" and "hypo" will cease to have proper significance.

Certain dietary standards have been generally accepted throughout the civilized world; they are quoted in all textbooks of physiology, referred to as authority by nearly all medical writers, and from time to time defended by chemists, primarily on the ground that man instinctively and independently selects a diet that is best adapted to his individual needs, and, consequently, that the dietary standards, based upon observations as to the food consumption of individuals and communities, must be accepted as representing true nutritive requirements. We all recognize that food requirements are necessarily modified by a variety of circumstances, such as age, sex, body weight, bodily activity, etc. It is obvious that the man of 60 kilos body weight needs less proteid than the man of 70 kilos, and that the man who performs a large amount of muscular work demands a larger calorific value in his daily diet—that is, more carbohydrate and fat—than the sedentary individual. The growing child, in proportion to his body weight, needs more proteid for the upbuilding of tissue, and there are many conditions of disease where special dietetic treatment is obviously called for.

Dietary studies made in Germany, England, France, and America—that is, studies of the actual food consumption by people of different classes and under different conditions of life where there is more or less freedom in the choice of food—tend to show that man doing light to moderate muscular work consumes daily 112 grams of proteid food, together with fat and carbohydrate, sufficient to yield 3,050 calories, or heat units. This is in harmony with the long-accepted Voit standard. With more active muscular work, proteid consumption rises to 175 grams per day, while the calorific value of the food is increased to 5,000 to 6,000 calories. That these figures actually represent average food consumption is indicated by the report[1] "On the Nutrition of Man in the United States," from the United States Department of Agriculture in 1904, in which it is stated that "the total number of persons—men, women, and children—included in all these studies is not far from 15,000." Indeed, my own observations on the consumption of proteid food indicate that the figures given above are frequently exceeded by vigorous men having free choice of food.

The important point for us to consider here, however, is that the generally accepted dietary standards of mankind are based primarily upon observations as to what people under different conditions of life are in the habit of doing. So firm has become the conviction that man's instinct and man's craving for food are a reliable index of his nutritive requirements, that writers on this subject have not hesitated to affirm that these data showing average food consumption constitute standards which represent "the actual food requirements of persons under different conditions of life and work." This line of reasoning does not commend itself to all thoughtful minds. The fact that people are in the habit of eating certain quantities of food in the twenty-four hours is interesting and instructive, as throwing light on dietetic customs, but why such data should be taken as establishing the average nutritive requirements of the human race is hard to explain. Custom, habit, the pleasures of eating, the so-called cravings of the stomach, the prevalent belief that by hearty eating lies the road to health and strength, all combine to lead people on to greater and greater freedom in the taking of food. Instinct is placed far above reason, scientific data count for little in matters of diet with the layman, and unfortunately also with many of our professional brethren. Thus, a prominent physician, writing for a large and popular audience, has recently said:

> Fortunately, when it comes to practice, philosophers, reformers, and doctors alike have about as much influence here as they have over conduct in other realms—and that is next to none at all. The man in the street follows his God-given instincts and plods peacefully along to his three square meals a day, consisting of anything he can find in the market and just as much of it as he can afford, with special preference for rich meats, fats, and sugars. Here, as everywhere, instinct is far superior to reason, and a breakfast diet of sausage and buckwheat cakes with maple syrup and strong coffee has carried the white man half round the world. All the basal problems of dietetics were, by the mercy of Heaven, settled long ago in the farmhouse kitchen, in the commissary department of the army in the field, in the cook's galley amidships, and in the laboratory.

[1] Investigations on the Nutrition of Man in the United States, United States Department of Agriculture, Office of Experiment Stations, Washington, 1904.

With such sentiments abroad, is it not time to consider carefully how far man's true nutritive requirements are met by custom and habit—how far our dietary standards based upon observation of average food consumption are in accord with the actual physiological needs of the body? It is a suggestive fact that at present writers upon the subject of nutrition are beginning to change the phraseology of their statements regarding food requirements and dietary standards. They are less inclined to speak of the data obtained by studies of food consumption as representing the true food requirements of the body, but are careful to present the data in question for what they really are—namely, as estimates or observations of the actual food consumption of people under different conditions of life. Evidently to the thoughtful mind there is reason to question the validity of the assumption that such data, interesting and instructive though they are, represent the true needs of the body for food.

That an excess of food over and above what is really needed to make good physiological waste is at least undesirable, is, I think, generally conceded. Professor Benedict, whose careful and fruitful work in the field of nutrition justly entitles him to speak with authority, but who plainly considers that any material reduction of proteid in the diet is undesirable, partly on the ground that "dietary studies all over the world show that in communities where productive power, enterprise, and civilization are at their highest, man has instinctively and independently selected liberal rather than small quantities of proteid,"[2] clearly agrees with the writer in the view that food consumption should be limited to an amount sufficient to meet the real needs of the body, and that anything beyond this amount must constitute an undesirable excess. Obviously, says Professor Benedict, "food should be ingested in just the proper amount to repair the waste of the body; to furnish it with the energy it needs for work and warmth; to maintain it in vigour; and, in the case of immature animals, to provide the proper excess for normal growth, in order to be of the most advantage to the body."[3] Plainly, it may be profitable to consider whether our ordinary dietary standards conform to this conception of the amount of food needed daily. Limiting our attention to the proteid or nitrogen requirement, we may take the Voit standard of 118 grams of proteid food as the daily amount called for by the adult man of 70 kilos body weight doing moderate muscular work. This means practically 105 grams of absorbable proteid or 16 grams of nitrogen, which is equivalent to 1.5 grams of proteid per kilo of body weight, or 0.23 gram of nitrogen per kilo of body weight.

Physiologists are prone to believe that so long as an organism is in a condition of nitrogenous equilibrium, or where the nitrogen output is no greater than the nitrogen intake, the body as a whole, and its individual organs as well, is being duly nourished as far as nitrogen is concerned. The maintenance of a nitrogen balance at a low level of nitrogen intake furnishes a clue to the quantity of proteid food actually required to make good the nitrogenous waste of the organism. The amount of proteid food necessary to accomplish this end presumably represents the minimal proteid requirement of the individual under the existing conditions. It is, of course, possible that some excess of proteid food over and above what is needed to establish nitrogen equilibrium is desirable, or even necessary, for the maintenance of good health, although there is no convincing evidence to this effect. Ignoring this possibility for the present, it is understood that no diet contains an adequate amount of proteid food that does not keep up a condition of nitrogenous equilibrium. If the nitrogen output persistently exceeds the nitrogen intake, it is obvious that the body is feeding on its own tissue, which means that the proteid of the food is insufficient in amount. On the other hand, a diet that suffices to maintain body weight, with establishment of nitrogen equilibrium, should, so far as our present knowledge goes, be quite adequate to meet all the wants of the body for proteid matter.

Many experimenters (Hirschfeld, Kumagawa, Breisacher, Siven, etc.) have studied for brief periods of time the effect of lowered proteid intake, and have found that it was quite possible to establish nitrogen equilibrium on amounts of proteid food equal to one half the Voit standard. In some cases this was accomplished by increasing largely the amount of non-nitrogenous food; in others, the nitrogen balance was obtained even with a diminished amount of fat and carbohydrate, as in Siven's experiments, where he was in nitrogen equilibrium on 6.26 grams of nitrogen and with the total fuel value of his daily food reduced to 2,444 calories. The legitimate objection to drawing broad conclusions from experiments of this character is that, as a rule, they extend over too short a period of time. They are all of value, however, as indicating that nitrogen equilibrium can be established and maintained, for a time at least, on quantities of proteid food far below the amount called for by the existing dietary standards.

In the experiments from my own laboratory[4] where stress was laid upon the element of time and also upon the number and variety of the subjects, even more convincing results were obtained. Thus, with a group of professional men—five in number—where daily examinations of urine, faeces, etc., were made for periods ranging from six to nine months under definite conditions of diet, it was found quite possible to maintain body weight, establish and keep up nitrogen equilibrium, pursue the ordinary vocations without loss of strength or vigour, and keep in a perpetual condition of good health for the entire period, with an average daily metabolism of 5.4 grams of nitrogen to 8.99 grams of nitrogen, that is, with a utilization of 34 grams to 56 grams of proteid matter per day. Expressed in terms of nitrogen metabolized per kilo of body weight three of the individuals of decidedly divergent body weight showed a close agreement in the amount of nitrogen required, that is, 0.1 gram, 0.093 gram, 0.102 gram per kilo of body weight respectively. The other two subjects consumed somewhat more, namely, 0.140 and 0.139 gram nitrogen per kilo of body weight. It should be added that in all of these 5 cases, where for this long period of time the amount of proteid food consumed, on the basis of body weight, was not more than one-half the Voit standard, nitrogen equilibrium, etc., was maintained without increasing the amount of non-nitrogenous food. Further, it should be stated, in view of the frequent and perhaps wise criticism that such data as these, even though the experiments have been relatively long, do not afford evidence that people could continue to thrive indefinitely on such a low proteid intake, that one of these subjects, metabolizing only 0.1 gram of nitrogen per kilo of body weight, has lived essentially at that level for four and a half years without visible detriment, and, as he believes, with great gain to the economy.

Similar results to the above were obtained in our laboratory with a group of eleven soldiers detailed from the hospital corps of the United States Army. These men lived for a period of five consecutive months with a proteid metabolism corresponding to 7 to 8 grams of nitrogen per day, with maintenance of body weight, nitrogen equilibrium, and without discomfort or loss of bodily vigour. A metabolism of less than 50 grams of proteid per day was quite sufficient for the apparent needs of the body, and this without increasing the calorific value of the daily food. Metabolized nitrogen per kilo of body weight varied from 0.106 gram to 0.150 gram, on an average, with these eleven individuals. Worthy of emphasis, also, is the fact that all of these men showed a very decided gain in muscular strength while living on this lowered proteid intake. Further, a systematic examination of the blood failed to show any deterioration in this direction.

With a third group of men, university athletes, eight in number, accustomed to a large consumption of proteid food, nitrogenous metabolism was reduced on an average to a level of 55 grams of proteid matter per day for a period of five months. Per kilo of body weight the metabolized nitrogen varied from 0.108 to 0.134 gram per day, figures quite analogous to those obtained with the preceding groups. Here, too, was observed great gain in bodily strength as measured by appropriate dynamometer tests, together with greater freedom from fatigue in the performance of muscular work.

I have ventured to mention these facts in some detail, though they may be well known to many of you, because

[2] Francis Gano Benedict, The Nutritive Requirements of the Body, *American Journal of Physiology*, vol. xvi, p. 430.
[3] Benedict, loc. cit., p. 414.

[4] Chittenden, *Physiological Economy in Nutrition*, 1904. Frederick A. Stokes Company, New York City.

I consider them fundamental in any discussion of the subject before us, and because facts of this kind are more convincing than general statements. Certainly, in view of these data we are justified in raising the question whether the normal requirements for proteid food of the average man are not considerably below the average consumption of proteid food. I believe that 0.1 gram of metabolizable nitrogen per kilo of body weight represents the minimal proteid requirement under ordinary conditions of life, yet, while man may thrive upon such an amount, it is, perhaps, questionable if it would be wise for him to attempt to live continuously at so low a level. It would probably be better to adopt a standard somewhat above this figure, that is, an amount equivalent to an intake of 50 to 60 grams of absorbable proteid for a man of 60 to 70 kilos body weight, a reduction of about 50 per cent.

The strongest physiological argument against a greatly lowered proteid intake is found in the independent observations of Munk, Rosenheim, and Jägerroos on dogs. Munk found that when dogs were fed on a diet containing 0.26 gram nitrogen and 96 calories per kilo of their body weight they died within a few weeks. Rosenheim reported that when fed on a diet containing 0.35 gram nitrogen and 113 calories per kilo of body weight, dogs went bad in four weeks. Jägerroos obtained similar results with a diet containing 0.22 gram nitrogen and 72 calories per kilo of body weight. Obviously, high proteid animals like dogs will require more proteid than omnivorous animals, but the marked deleterious action of the relatively low proteid diet reported by the above investigators has led to the argument that while man may thrive for a time on a low proteid diet, he will eventually show the disastrous effects which such a diet is sure to produce, sooner or later, on all types of animal life. But is it so certain that dogs cannot survive, and even thrive, on a relatively low proteid diet? During the past year, aided by a grant from the Carnegie Institution, I have been occupied with an experimental study of the effect of low proteid diets on high proteid animals. This is not the time to report the results of the investigation, but, as bearing upon the present discussion, I may say that we had one dog living for a year on 0.27 gram nitrogen and 63 calories per kilo of body weight, with a plus nitrogen balance, actually gaining in body weight, and apparently in the best of health up to the time when the animal was chloroformed to study possible structural changes in the tissues. Another dog lived for many months on 0.33 gram nitrogen, and 82 calories per kilo of body weight. These two illustrations will suffice to show that high-proteid animals can live and thrive on what is termed a low-proteid diet, and hence the suggested argument loses its force.

I am of the opinion that the physiological evidence so far accumulated by dietetic experiment on man, reinforced by the more or less reliable evidence of thousands of individuals living at a lower level of proteid metabolism, indicates that the normal requirements of the body for proteid food do not demand more than one-half the amount called for by existing standards. In my judgement the daily consumption of proteid food far beyond the amount required to maintain health, strength, mental and physical vigour, body weight, and nitrogen equilibrium, constitutes a form of over-nutrition as serious in its menace to the health and welfare of the human race as many other evils more striking in character. I believe there are more people suffering to-day from over-eating, over-nutrition, than from the effects of alcoholic drink. Surely if people, as in our experiments, can maintain nitrogen equilibrium and body weight, gain in strength, show greater freedom from muscular fatigue, lose their rheumatic and gouty symptoms, regain a smooth and soft skin, exhibit greater freedom from colds, retain the normal haemoglobin content of their blood, and in every recognizable way manifest a good condition of health on a low proteid diet, why should we hesitate to accept the teaching which the scientific data point to?

Further, while we trace uric acid to the purin derivatives of our food and to the decomposing nucleins of the tissue cells, we may argue, at least, possible gain to the body from the diminished amount of general nitrogenous waste products in blood, lymph, and tissue cells coincident with an intake of proteid commensurate with the body's needs. Quite possibly, the noticeable gain in muscular strength and the greater freedom from fatigue observed when the proteid food is reduced to a level with true physiological requirements are due to the smaller quantity of circulating katabolites.

Finally, we all recognize that objective data are more satisfactory than subjective feelings, and so I venture to close these remarks with a brief quotation from Dr. Reid Hunt, who has recently studied the resistance to acetonitrile of animals which had been kept upon a reduced diet. Dr. Hunt says:

> My experiments showed in all cases that the resistance was much *increased*. The animals which had received a diet comparable to one advocated by Chittenden, resisted two to three times the ordinary fatal dose of acetonitrile. Such animals also formed much less HSCN from acetonitrile. According to my interpretation this indicates that the oxidation processes were lowered and *that the organism was working more economically.*

DISCUSSION.

Professor Halliburton (London), while agreeing with many of the conclusions reached by Professor Chittenden as the result of his experiments, pointed out that it would be unwise to accept them to the full. The danger of living too near the minimum was illustrated by the condition of the poor who have *nolens volens* to live on a diet very like Chittenden's. The double part played by proteid in metabolism, namely, (1) as a repairer of tissue waste, and (2) a source of energy, must be remembered; in the latter case it was the non-nitrogenous residue that was necessary, the nitrogen being got rid of rapidly as urea. As a flesh-forming food, to use Liebig's old expression, it was possible, as Leathes had suggested, that certain members of the amino-acid group in the proteid molecule in the food might be specially necessary for proteid synthesis in the body; it was for these occurring in small amount that a larger proteid intake than the apparent minimum was required.

Dr. Otto Folin (Research Chemist, McLean Hospital, Waverley, Mass.), said the supposedly conclusive experimental evidence in favour of high protein consumption had been the nitrogen equilibrium experiments of Voit and his disciples. These experiments were supposed to prove that normal men lost muscle substance unless they consumed the prescribed amount of protein. Again and again it had been shown that this experimental evidence faded away into nothing whenever it was fairly and genuinely questioned. Yet it still constituted the guiding principle in matters of diet. The real reason for the widespread belief in the necessity of consuming 118 grams (±) of protein was the conviction that the more effective portions of mankind actually consumed some such amounts. Throughout the standard diet literature, the supreme importance ascribed to the universal usage argument for high-protein consumption was to be noted. Large numbers of statistical studies gathered from almost as many different sources, and naturally representing every possible shade of varying accuracy, were grouped together to show that the great majority, to which one would prefer to belong, ate according to Voit. Dr. Folin suspected that many of these statistical compilations stood in need of some rigorous sifting. They proved too much. Granting that the average protein consumption did not fall very much below the standard diet prescriptions, did this fact (in so far as it was a fact) warrant experimental physiologists and chemists in lending the support of their respective sciences to prescriptions based only on such evidence? Unbiassed, accurate statistical studies might show what they were doing in practice as the outcome of animal instincts, but to put the stamp of scientific approval and commendation on the result obtained from such studies was clearly a very different matter. It had been said that some sort of standard was clearly demanded and must be had. But he believed that nothing could be more conducive to the advancement of knowledge within this field than the frank acknowledgement of our present ignorance. He therefore returned to the statement that the only justification for the protein requirements of the so-called dietary standards was the belief that the customary or average protein consumption among the most successful nations represented the necessary or optimum protein consumption. But was it scientifically correct to assume that instinctively long ago, and without the aid of any physiology and physiological chemistry, man solved the problem as to what

constituted the necessary or optimum protein requirement? This belief was of course only a special application of the theory of the survival of the fittest. The fittest had survived, and among those who had survived, particularly among those who had plainly been abundantly able to survive, it was the common practice to eat liberally of meat; in the words of science, to consume 118 grams of protein. Hence it was the advice of this science that those who wished to remain among the most able survivors should consume 118 grams of protein. No one would think of applying the universal usage argument to the alcohol, tea, coffee, and tobacco habits. He felt, therefore, that the universal usage argument in favour of high protein consumption could not be good physiology. The most exact feeding experiments with low protein diets had clearly shown that the minimum amounts of protein necessary for the maintenance of nitrogen equilibrium represented but a small fraction of that prescribed by the old formula of Voit. It seemed to him highly probable that the optimum protein requirements lay somewhere between these two points, but they had not as yet the slightest scientific basis for advancing any dogmatic prescriptions, and it behoved them to recognize this fact.

Dr. Robert Hutchison (London) pointed out that it was the duty of physiologists to try experiments, but of physicians to do the best they could for patients. This difference in point of view must necessarily affect the whole discussion. To take the case of proteid metabolism first, the physiologist asked, What is the *minimum* of proteid on which life could be maintained? Whilst the question of the physician was, What is the proteid *optimum*, that is, the best amount for any given individual to consume? The speaker accepted entirely Professor Chittenden's results as regards the proteid minimum, but he thought there might be danger in their general application in medicine. He pointed out that it was the rule in the body to provide for emergencies. Thus we had two lungs and two kidneys, although as a matter of fact, life might be maintained with one specimen of each organ. In the same way it might be well to have an excess of proteid in the circulation. It was suggested that an excess might make for a higher power of resistance to disease. It would be the task of physicians to observe how individuals who lived upon a low proteid diet withstood attacks of acute disease. Another source of fallacy in the discussion of the subject lay in the possibility that it was not proteid as such that was harmful but the extractives and other bodies which were mixed up with proteid in animal foods. It was noteworthy that those who advocated a purin-free diet, professed to be able to cure by it the same disorders as were said to be abolished by a diet containing a minimum of proteid. Again, might it not be that it was the imperfect combustion of proteid which was harmful and not the actual quantity ingested? If this were true, it would not be difficult to understand how an excess of proteid-sparers (carbohydrates and fats) would be just as harmful as an excess of proteid as such. Passing to the question of general nutrition, Dr. Hutchison pointed out that the guide to the physician of a patient's general nutrition was the amount of fat in the body. The question at issue, therefore, was, What is the optimum of fatness? The uses of fat in the body were to serve as a reserve of nutriment and as a blanket; but both of these uses had been largely superseded by regularity of meals and by clothing. Still, every physician would admit that the possession of a moderate amount of fat was desirable, but the speaker contended that we had no means of knowing what this amount might be for any given individual. In this connexion reference was made to the difficulty experienced by the physician in lessening the amount of fat in some individuals and in increasing it in others. Assuming, as was probably true, that absorption was fairly equal in every one, might it not be the case that some persons were more economical machines than others? On this point the speaker pressed for a definite expression of opinion by physiologists. In conclusion, Dr. Hutchison pointed out that, from a physician's point of view, metabolism was not a hard-and-fast process, proceeding along rigid lines to a definite conclusion, but a process as varied as temperament, and marching in different individuals by different ways to diverse results. When we should be able to unravel the individual types of metabolism, then—and then only—should we be able to say of any given individual that he was over-nourished or under-nourished in respect either of proteid, carbohydrate, or fat.

Mr. C. B. Ramarao (Madras) said in India there were hundreds of thousands of people called Brahmins who were by custom and religious precepts prohibited from eating animal food. If vegetable food consisted chiefly of starch, the Indian Brahmins might be said to subsist on starch mostly. Yet Brahmins had for generations lived a life of intellectual and physical robustness on this food. It therefore became necessary for a medical man not to dogmatize that meat was necessary or that vegetables alone were insufficient. It was urged that vegetable proteids were not so easily digested as the animal proteids; but here again it could not be shown that indigestion was more common among Brahmins. It was the daily observation that the man who ate a number of dishes of fish, pork, meat, etc., was not necessarily stronger than the man who lived on simpler vegetable food. It was, therefore, necessary that more extended observation and research should be undertaken to arrive at data which were thoroughly reliable and from which a practical conclusion could be derived.

Sir James Grant (Ottawa) said the subject of food was one of great moment. Climate regulated such, and in Canada a moderate mixed diet was found to be necessary. The great problem was how from food blood was formed. The histogenetic action of the alimentary canal in importance could not be overestimated. How vegetable tissue was changed into blood was the so far unknown problem. The part played by the ganglionic nervous system was of great moment, giving more power and absorbing vigour for surrounding parts. Alcohol should not be used, either with or without food, being a direct poison, as ably defined by Sir Frederick Treves. The vital spark rested in the nervous system chiefly, and could be regulated so as to add power and strength to every tissue, and he looked forward to the time when science would clear up all doubtful points as to the obscure forces of the alimentary canal.

Reply.

Professor R. H. Chittenden summed up by saying that the main object of the discussion had been attained in attracting attention to the desirability of a thorough scientific study of the requirements of the body for food. There were hundreds of questions pertaining to nutrition that needed definite answers, but these could be obtained only by careful and thorough experimental work, and it was the duty of physiology to aid practical medicine in solving these questions so important to the welfare of the human race.

A DISCUSSION ON SOME ASPECTS OF HEART-BLOCK.

A Discussion by the Combined Sections of Medicine and Therapeutics.

OPENING PAPERS.

I.—Professor Aschoff,

University of Freiburg.

You have been so kind as to invite me to your meeting in order to give me an opportunity to bring before you a few of the facts ascertained during the last few years in an investigation by my pupil Dr. Tawara upon that remarkable intracardiac system of muscles which must be regarded, in the light of modern physiological experiment, as the exciting mechanism (*Reizleitungssystem*) or conducting system which conveys the contraction of the auricles to the ventricles.

Thanking you most kindly for your invitation, I shall speak upon the anatomical-pathological basis of irregularities and failure of heart muscle. For a great many years I have been trying to find an anatomical basis for the feebleness of the hypertrophied heart-muscle which is so frequently observed in patients suffering from heart disease, arterio-sclerosis, and nephritis. It is to the Leipzig school, especially to Krehl and Romberg, that the credit belongs of having drawn attention to the frequency with which alterations in the myocardium occur when there is hypertrophy, especially in cases of valvular disease, and also in acute infectious diseases such as typhoid fever and diphtheria. The statements of Krehl and Romberg on this head have been largely accepted,

but have also met with considerable opposition. It therefore seemed to me to be desirable to examine this question once more and on a broader basis. Dr. Tawara, who has unfortunately been unable to accompany me to this Congress, has carried out the research with the greatest care. He has examined no fewer than 112 hearts, systematically in all parts, in the same or approximately the same way as described by Krehl, so that no inflammatory alterations of any significance should escape observation. His investigations have led to the surprising result that it was only in a very small percentage of cases that any inflammatory change at all was to be found, and that, when present, it was seldom to such an extent as to account for the feebleness of the heart observed during life. The material for investigation included 24 cases of valvular disease, 23 of them probably to be referred to rheumatic affections; 16 cases of acute or chronic nephritis; 6 cases of arterio-sclerosis; 9 of pneumonia, bronchitis, or emphysema; 7 of typhoid fever; 5 of scarlet fever; 4 of diphtheria; 1 of measles; 11 of tuberculosis; 3 of syphilis; 8 of malignant tumour; 8 of septic diseases; 4 of death from wounds; 5 of chronic disturbances of nutrition (anaemia, purpura, paedatrophy, etc.), and so forth. Amongst these different groups of diseases it was only in the cases of diphtheria that at all regularly distributed parenchymatous modifications in the shape of waxy degeneration, etc., as well as reactive interstitial changes, as evidenced by infiltration of leucocytes and lymphocytes, were found. Next in order came the cases of valvular disease, in which also, although only in a small percentage of the cases, recently-acquired interstitial alterations were found. These, according to our investigations, are for the most part of quite specific nature in true rheumatic affections, in so far as peculiar submiliary nodules tend to develop both in the interstitial connective tissue, especially in that surrounding the arteries, and in the subendocardial connective tissue layers.

These nodules consist of peculiar large elements containing structures looking like giant nuclei. The cells are many of them arranged radially about a centre as in a tubercle, but the cells of this rheumatic nodule greatly exceed the epithelioid cells of tubercle in size. They recall to some extent those giant cells of similar shape which Dorothy Reid has described in Hodgkin's disease. Besides these large cells, there are also lymphatic and neutrophile leucocytes, as well as some containing eosinophile granules, concerned in the building up of the nodule. These infiltrations of small cells are continued as streaks into the surrounding tissues. So far we have only found these specific nodules in rheumatic myocarditis, never in any of the other groups of disease, and our observations have in the meantime received confirmation from Geipel of Dresden. But these rheumatic nodules, which are grouped especially round the vessels, are very small, and even in those cases in which they are present in fairly large numbers, the cardiac weakness, which is observed clinically, could hardly be referred to the injurious effect of these nodules on the muscle. In the great majority of all the cases of valvular disease, we found no fresh interstitial inflammation at all, but only more or less numerous very small perivascular fibrous nodules, which are in all probability to be regarded as the healed remnants of the rheumatic nodules just described. Even these small perivascular indurations, referable to inflammatory processes, intrude very little into the muscular substance proper, so that they afford no explanation as to how the presence of such small fibrous foci could be prejudicial to the function of the cardiac muscle.

Anaemic necroses, or the so-called infarct indurations arising from them, play a much larger part in the cases of valvular disease, in the first place because they attain a much larger size than the inflammatory indurations just described, and secondly, because they are usually present in much larger numbers. These anaemic infarcts and the indurations resulting therefrom are to be attributed in the first instance to recurring embolic obstructions of the branches of the coronary arteries which accompany every endocarditis, and then to the scar constrictions of the vessels caused by the rheumatic nodules lying round them. We are convinced that the great majority of all the indurations in cardiac muscle in cases of valvular disease are to be referred to anaemic infarction, and only a very small minority to inflammatory foci; for, although we will not deny that our cases might be regarded as exceptions, it is a fact that large diffuse interstitial inflammatory foci only very rarely occur in heart muscle, so far as our experience goes, in cases of rheumatic endocarditis. Although we must admit that infarct indurations are almost constantly to be found, even in such hearts as appear microscopically to have undergone no alteration, we cannot admit that the extent of these indurations is on the average large enough to explain the heart weakness. On the contrary, these indurations, the favourite locality of which is in the papillary muscles, in the posterior wall of the left ventricle and in the septum, are for the most part so small that no serious significance can be attached to them.

Our investigations into the remaining groups of diseases were even less fruitful in this direction. In our typhoid cases in particular, we practically failed to find any interstitial reaction contrary to the published statements with regard to the frequency with which myocarditic alterations occur in typhoid. Also in the cases of scarlet fever, measles, tuberculosis, etc., no alterations worth mentioning were found. Only in those of arterio-sclerosis combined with sclerosis of the coronary vessels did the indurations again appear at all markedly. But even here it was only in a few cases that they attained such proportions as to justify the assumption of some causal connexion between the weakening of the heart's action observed clinically and the formation of indurations. So far as the parenchymatous alterations, consisting in fatty degeneration and vacuolization of the sarcoplasm frequently observed in all the groups of diseases, is concerned, we must insist, again contrary to what has hitherto been generally accepted, on the fact that it is less a question of these alterations being the cause of the weakening of the heart and of the disturbances in circulation which arise, than of their being the effect thereof. The blocking of the veins in heart muscle, which occurs in consequence of the weakening of the heart's action, leads to the deposition of fat granules in the muscle fibres, giving them a spotted appearance, as Ribbert has already shown, and leads also to oedematous vacuolization of the substance of the fibres. We are, therefore, unable to give acceptance to the current doctrine which regards the influence of progressive myocarditic alterations on heart muscle as a pathological-anatomical explanation of the peculiar weakness of the hypertrophied muscle. The cause of this weakness must therefore be sought elsewhere. Two possibilities suggest themselves: Either the work which is given to the heart to do increases more and more, until finally even the hypertrophied muscle fails to meet the demands made on it (such an increase in the work would be brought about by progressive changes in the valves in consequence of the scars left after recovery from freshly acquired or recurring endocarditis, or by progressive sclerosis of the vascular system in patients suffering from arterio-sclerosis, or by the permanent increase of resistance in the vascular system in the case of chronic nephritis). Or there is, on the other hand, the possibility that, while the demands made on it are not increased, the heart still fails to meet them, because it is just those groups of cardiac muscle fibres which are of special significance for the action of the heart which are attacked by the inflammatory processes, or by the formation of indurations, however slight their extent. Into such a category would fall, above all, the fibres which serve to transmit impulses from the auricular to the ventricular muscle, and which ensure rhythmical sequence in the contractions of auricles and ventricles. As, therefore, our attempts to explain the enfeeblement of the heart by the demonstration of extensive myocarditic processes had failed, I asked Dr. Tawara to examine more particularly the connecting bundle described to some extent by Stanley Kent, and in greater detail by His, in hearts the subject of valvular disease. The results showed that the statements hitherto made with regard to the course of this bundle were not exhaustive. The recently-published work of Retzer and Braeunig gives us, it is true, an exact account of the course and the histological structure of this bundle. Its division into two branches entering into the summit of the septum especially is noted by them, but nothing was known before as to the further course of the bundle, the authors believing that its

fibres soon united with the muscle fibres of the ventricular septum. Also, the peculiar difference in histological appearance of the fibres as compared with other cardiac muscle fibres was attributed by them not so much to a difference in the minute structure of the fibres themselves, as to differences in the plane of section and in the amount of intervening connective tissue.

Tawara's investigations go further, and establish in the first place the fact that both in man and in all the animals examined—dog, cat, sheep, calf, rabbit, rat, guinea-pig, pigeon—this peculiar bundle begins in the neighbourhood of the anterior edge of the coronary vein, and then passes forwards on the right side of the auricular septum below the foramen ovale, lying close upon the auriculo-ventricular septum, which passes obliquely from the left above to the right below. Just above the place of insertion of the median flap of the tricuspid valve, and before it makes its way into the auriculo-ventricular connective tissue septum proper, this muscle bundle forms a special knotlike thickening produced by a confused mass of muscle fibres. From this knot a process arises which penetrates the fibrous septum, and runs along just below the pars membranacea septi and dorsal to the muscular ventricular septum, dividing then into two main branches, which pass obliquely downwards, one on either side of the ventricular septum under the endocardium.

We have never been able to find in our preparations any evidence of a fusion of the muscle fibres of the connecting bundle with those of the ventricular septum in its upper part. Rather, both the right and the left main branch of the connecting bundle, each enclosed in a connective tissue sheath of its own and completely isolated from all other muscles, pass a long way down the septum in order finally, and only in the lower third of the ventricular cavities within the so-called trabeculae, to enter the anterior and posterior papillary muscles. Until they get to the papillary muscles, the muscle fibres of the bundle of each main branch always lie under the endocardium; here, however, they divide into a large number of branches, some of which enter into the papillary muscles, while others pass on beyond them and follow the course of small trabeculae to the parietal wall of the ventricle, where they branch upwards and downwards under the endocardium lining the whole inner surface of the cavity of the ventricle, to fuse everywhere with ordinary cardiac muscle fibres.

In so doing the following peculiarity presents itself: while the right main branch is fairly narrow and remains so until it enters the papillary muscles, the left main branch spreads out very quickly in a fan-shaped manner and continually increases in width during its downwardly-directed course, and finally divides into two or more wide but extremely thin branches, of which the anterior one passes through trabeculae to the anterior papillary muscles, the posterior one through trabeculae to the posterior papillary muscles. While it is always difficult to see the right main branch in the human heart with the naked eye, there is often no difficulty at all about seeing the left. In elderly people especially, one very frequently sees below the pars membranacea on the smooth spot on the left hand side of the ventricular septum, below the root of the aorta, a white stripe about 1 cm. broad, running vertically downwards and soon spreading out and dividing into an anterior and posterior portion. The heart muscle of elderly people being of a brownish colour, this left main branch with its two secondary branches stands out very plainly from the rest of the ventricular septum on account of its rather greyish-white colour, such colour in the branches of the conducting system being due to the connective tissue sheaths in which the muscle fibres are embedded. Even in the hearts of younger individuals one can with practice recognize, and follow with the naked eye through the transparent endocardium, the course of the left, occasionally also that of the right main branch, by means of the fine white outlines to the bundles. Microscopic examination is, however, usually required to make certain of the position of the primary and of the smaller branches. Such examination is unfortunately no easy task in the human heart on account of the resemblance in histological structure between the muscle fibres of the connecting bundle and those of ordinary heart muscle. The following statements, however, may be made: The whole bundle, from its beginning at the mouth of the coronary vein to its ultimate terminations in the walls of the ventricles, is characterized by a smaller development of sarcoplasm as compared with ordinary cardiac muscle fibres. Herein they resemble more embryonic muscle fibres, but differ from them again in their peculiar arrangement. There is a tendency throughout the conducting system for the fibres to interlace and be more reticular; and, on the other hand, for them to fuse more with one another. The greater reticular formation is seen especially in the auricular portion which lies between the mouth of the coronary vein and the entrance of the bundle into the septum fibrosum. This more reticular arrangement contrasts with the elongated parallel arrangement of the rest of the cardiac muscle fibres, and distinguishes the auricular conducting bundle from other auricular muscle. It reaches its maximum in the "knot" in which the muscle fibres form a much confused loose plexus, the meshes of which are filled with connective and adipose tissue. The moment the bundle enters the septum fibrosum, the muscle fibres begin to take on a more parallel arrangement; at the same time they become richer in sarcoplasm, and the separate fibres get closer to one another and become surrounded by a common connective tissue sheath which separates them from the rest of the heart muscle. In consequence of containing fewer fibrils they stain less readily than the ordinary cardiac muscle fibres, and in all the branches, even in the ultimate terminations of the bundle, this pale colour is characteristic of the fibres of the conducting system in stained preparations, and no less so is the connective sheath which is present throughout, and only ceases when the fibres of the conducting system pass into the fibres of the cardiac muscle. The pale colour of the subendocardial branches of the conducting system has certainly been frequently referred to degenerative changes—for example, to fatty degeneration—but that is quite erroneous, for the fibres have a protoplasm which by nature does not stain deeply, being poor in fibrils and rich in a vacuolated sarcoplasm. These histological differences between ordinary cardiac muscle on the one hand and the auricular and ventricular portions of the conducting system on the other are not equally well-marked in all individuals, and are better seen in young than in old people.

We did not at first succeed ourselves in demonstrating the finer branchings of the conducting system in the human heart, not suspecting its peculiar and surprisingly wide distribution in the subendocardial layer of the ventricle, until we had had the true course indicated to us by the comparative study of the hearts of animals. The systematic examination of the hearts of ruminants, especially of those of the sheep and calf, showed in point of fact that the peculiar muscle fibres described in these animals so long ago as 1845 by Purkinje in the subendocardial layers of the ventricle, and the significance of which has so far been veiled in obscurity, are nothing less than the main branches of the ventricular part of the conducting system. These fibres of Purkinje are, indeed, only an especially well-marked variety of the conducting fibres which we are now also able to observe in the human heart. They are strikingly large, closely packed, much fused muscle fibres, very rich in sarcoplasm and with the cortical substance alone traversed by irregular strands of fibrils.

They can be sharply distinguished histologically from all the other muscle fibres of the ventricles, not only by their difference in size, but more especially by their pale colour in stained preparations in consequence of the reduced amount of fibrillary substance, and, last but not least, by their well-marked connective tissue sheath. It was, therefore, extremely easy to follow microscopically the complicated branchings of this system of muscle bundles in the heart of ruminants, and the transition from the ultimate terminations into the ordinary ventricular muscle fibres was to be observed with the utmost clearness. It is important to note, however, that this peculiar structure of the so-called fibres of Purkinje is only found in the ventricular part of the conducting system, and that where the ventricular part enters into the so-called "knot" a very sharp and sudden change occurs in the fibres of which it is composed.

In ruminants, as in man, this knot, composed of a confused plexus of muscle fibres, is well developed, lying in

the septum fibrosum just above the place of attachment of the median flap of the tricuspid valve. The great mass of fibres composing it are, in contrast to the fibres of Purkinje, strikingly thin—thinner even than the ordinary fibres of the auricle. The auricular bundle proper, which passes from the knot to the anterior edge of the mouth of the coronary vein, is also composed of these strikingly slender fibres.

In spite of their diameter being so small, the amount of fibrillar substance in these fibres is far behind that of the ordinary muscle fibre of the auricle, thus giving expression once more to the peculiar—one might almost say embryonic—character of the whole system. Where the fibres of Purkinje of the ventricular part pass into the narrow fibres of the auricular part inside the knot, the transition is very sudden, but the fibrils of the one kind of fibre pass continuously into those of the other kind, in the same way as the fibrils in the ultimate terminations of the fibres of Purkinje are continued into the fibrils of the ordinary muscle fibres of the ventricle. But it is not only microscopically, but also macroscopically, that the conducting system—at least its ventricular portion with the two principal and other branches—is particularly easy to trace, the bundles of Purkinje's fibres being peculiarly transparent, and the broadest of them, at any rate, outlined by fine white lines corresponding histologically to the adipose-tissue-containing connective tissue sheaths.

The whole endocardium of the ventricles in ruminants, especially in the sheep, is traversed in all directions by such a delicate network of grey, transparent, white-edged fibres connected with one another by their branches.

The conducting system in most animals exhibits in the structure of its ventricular portion one deviation from that of man in so far as the largest branches of the right and left primary ones, which pass in man in the form of strongly-marked trabeculae to the papillary muscles, have in animals the form of strands, circular in section, which go straight through the cavity of the ventricles from the septum to the papillary muscles. These muscle strands are sometimes of considerable thickness, as, for instance, in the right ventricle of the calf, where the ventricular septum is ordinarily connected with the anterior papillary muscle by a thick bridge of muscle.

In the left ventricle the strands are usually thinner, often filamentous, and run as a rule from about the middle of the septum directly to the anterior and the posterior papillary muscles.

In transverse sections of such strands and filaments it is seen that they consist wholly, or almost wholly, of Purkinje's fibres, with the one exception of the thick muscle strands between septum and papillary muscle in the right ventricle, which are composed mainly of ordinary cardiac muscle fibres, which surround the bundles of Purkinje's fibres like a grooved support.

This peculiar arrangement of the conducting system in animals, whereby the principal branches reach the papillary muscles in what one might call a more direct way than in man, is also occasionally observed in man, when it may perhaps be attributed to atavism. Here belong those cases of filamentous structures which have been described by earlier authors under the name of abnormal tendons, and the origin of which has been explained in very many different ways. Descriptions have, of course, only been published of those cases in which large "tendons" traverse the cavity of the ventricle. It is quite clear from all the descriptions and from the study of published figures that these false tendons, to which great significance has occasionally been attached clinically, as being concerned in the production of accidental murmurs, are nothing else than the branches of the "conducting" system which have taken an abnormal course.

In all cases the fact has been emphasized that the abnormal "tendons" arise on the ventricular septum and pass across to the external wall, and from the figures it is seen that the structures in question have for the most part exactly the same mode of branching as the conducting system observed by us in the dog or the calf. If one examines these structures a little more closely in the human heart, it may be seen that in a very large number of cases small false tendons occur in the apex portion of the ventricle, or even reach across further up, especially between the septum and the tip of the posterior papillary muscle. These smaller, very frequently occurring "tendons" are also not really tendinous structures but represent strands of muscle, containing fibres of the conducting system, and are nothing but part of this system in a situation which is abnormal for man but normal for many of the lower animals.

I have now given a brief account of the normal topography and histology of the conducting system with such congenital anomalies as are occasionally observed in it, and may return to my original question, whether, namely, weakness of the heart's action can be referred to disturbances in the larger or smaller branches of this conducting system. Hering and Erlanger have shown experimentally in animals after death that the rhythmic sequence of the heart beat in auricles and ventricles is disturbed by section or compression of the main trunk of the conducting system within the septum fibrosum, the ventricles beating independently of and often less frequently than the auricles after the section or compression. Disturbances similar to those which have been obtained experimentally in animals in consequence of section or compression of the conducting system, have been observed clinically in man, in those cases namely which show the symptoms of the Adams-Stokes symptom-complex. In such cases the presence of a histologically demonstrable alteration in the main trunk of the conducting system of course at once suggests itself. Hitherto I have only had two marked cases of this disease, which had been observed by Professor Hering, put at my disposal for microscopic examination. In the one I found a severe sclerosis of the small arteries which traverse the knot and the principal bundle of the conducting system; in the second a very marked development of adipose tissue in the same place, the whole heart being in a state of fatty infiltration. I could not establish the existence of actual destruction of the muscle within the main system of the conducting system.

The fact that some patients, exhibiting the Adams-Stokes phenomenon to a marked degree, do not very long survive this condition of dissociation between the activities of the auricles and the ventricles, and occasionally die a sudden death, suggests that the ventricular portion of the conducting system may indeed be in a position to initiate rhythmical movements of the ventricle independently of the knot and of the auricular part, but may stop finally, either gradually or suddenly, if it is no longer receiving stimuli from the auricular part. It is only by assuming some such relative dependence of the ventricular part of the conducting system that one can understand that a break in the continuity of the main trunk, whether by a tumour or by a gummatous or tuberculous process localized at the lower edge of the pars membranacea, may occasion the sudden death of the individual. Future investigations must determine how far in such cases the main trunk of the conducting system has really undergone a more or less complete break in continuity.

Although it is quite certain that by disturbances in the main trunk irregularities of the heart's action at least, if not a complete cessation of the activity of the ventricles, can be brought about, the question remains whether inflammatory changes in the separate, primary, or even smaller branches, might not likewise produce partial disturbances of the heart's action, or even by extensive destruction of numerous branches, actual heart failure. It is in itself important to emphasize the fact that the fibres of the conducting system are not hypertrophied like the other muscles of the heart in consequence of valvular disease. That peculiar system of muscle fibres, therefore, which is responsible for the rhythmical action of the heart might be too small in proportion to the large mass of other heart muscle. This might also serve to explain the gradual paralysis of the ventricle or, as the case may be, the relative weakness of the hypertrophied heart muscle. Now we do find not infrequently, especially in cases of rheumatic myocarditis, actual destruction of the smaller and larger branches of the conducting system, the already described specific rheumatic nodular structures having a special tendency to develop beneath the endocardium and occasionally right in the connective tissue sheaths of the system. Such inflammatory multiplications of cells finally destroy the muscle fibres of the conducting system. If this occurs in numerous places on the internal surface of the ventricle, as I have been able to observe it to do in one case, it may readily be conceived that not only an

irregularity, but eventually a complete stoppage of the ventricle must result from this destruction, even though the main stem of the conducting system exhibits no alterations in structure, being completely cut off, however, from its connexion with the ventricular muscle proper by the destruction of its terminal branches. It would be especially easy for the destruction of separate branches of the conducting system to take place in those cases in which these extend across the cavity of the ventricle in the form of "abnormal tendons," for the same endocarditic processes as in the real tendons of the valves might very easily take place in them, and in the recovery after inflammatory processes a complete fibrous atrophy of such branches of the conducting system may be brought about, as I have been able to demonstrate in one case. The fact that so often in rheumatic affections the inflammatory changes run their course less in the cardiac muscle as I used to imagine, than in the subendocardial layers, makes it, perhaps, comprehensible that, in spite of the lack of specific alterations of the true ventricular muscle, inflammatory destruction of the subendocardial conducting system over a large area may cause irregularities or even acute weakness of the heart.

I should like, however, to emphasize that the destruction of a few small branches would not be able, in my opinion, to exercise any influence on the power of the heart's action, for any one intact part of the ventricular portion of the conducting system could suffice to produce the rhythmical effects, the in itself unchanged ventricular muscle retaining full power of contraction. It is only when a wide area of the conducting system is destroyed, or when the ventricular portion is permanently separated from the auricular portion by destruction of the main trunk, that there is danger of sudden or gradual heart failure; but on this point further careful investigations are needed, which ought to be so much the more easy now that Tawara has traced out the distribution of the conducting system in such detail in the human heart. It remains for the future to decide to what extent irregularities in the heart's action and heart failure may be referred to changes which may be demonstrated automatically in the conducting system.

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DEFINITION OF THE TERM "HEART-BLOCK."

The term "heart-block" is applied to that condition where the stimulus for contraction passing from auricle to ventricle by the muscular fibres joining the auricle and ventricle, is stopped or "blocked" on account of some defect in those muscle fibres. The main function of the *a-v* fibres is to convey the stimulus for contraction from auricle to ventricle. This function may be depressed, so that a slight delay may take place in the conduction of the stimulus, resulting in a prolongation of the interval

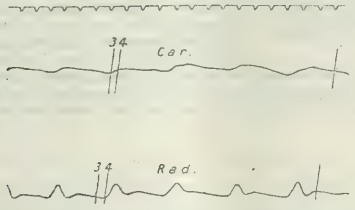


Fig. 1.—Simultaneous tracings of the carotid and radial pulses to show the duration of the interval (one-tenth of a second) between the carotid and radial pulses. (Figs. 1, 2 and 3 are from the same patient.) The time marked in all the tracings equals one-fifth of a second.

between the auricular and ventricular contractions. This depression may reach such a degree that the stimulus fails to reach the ventricle, and in consequence a ventricular systole drops out; the stimulus is then said to be blocked at the *a-v* fibres. Thus heart-block may be slight, producing only an occasional dropping out of the ventricular systole, or the ventricle may respond only to every second or third auricular beat, or even more infrequently, or the heart-block may be complete so that no stimulus reaches the ventricle, in which case the auricle pursues one rhythm, and the ventricle an independent and slower rate, rarely exceeding 32 beats per minute.

Methods of Recognizing Affections of the A-V Fibres.

In a great many affections of the heart, whether the heart is regular in its action or not, it is often necessary to obtain information in regard to the movement of the different chambers of the heart. This knowledge can only be obtained by taking graphic records of the movements of some portions of the circulation. Convenient instruments for this purpose have hitherto not been available. The sphygmograph is, indeed, an extremely useful instrument, but it has its limitations in that it only records what the left ventricle is doing for a very brief time in the cardiac revolution. Many years ago I

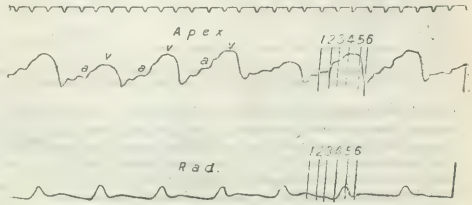


Fig. 2.—Simultaneous tracings of apex beat and radial pulse. The numbers indicate the commencement of certain events in the cardiac cycle, 1, the auricular systole; 2, ventricular systole; 3, carotid pulse; 4, radial pulse; and 5, the ventricular diastole. The spaces between 1 and 2 represent the *a—v* interval, between 2 and 3 the period between the beginning of ventricular systole and the opening of the semilunar valves (presphygmic interval).

attached a tambour to the sphygmograph, and was thus able to obtain at the same time as the radial tracing the record of some other movement connected with the circulation or respiration. Useful as this method has been, yet it left much to be desired, particularly as one could not get sufficiently long tracings, a defect applicable to most of the other methods. For the past couple of years I have been endeavouring to devise a method which would meet this requirement, and I have succeeded in producing an instrument which writes with ink upon paper which is being continuously unwound from a roll. I trust shortly to publish a detailed description of this instrument.

The essential requisite for the interpretation of tracings of any movements of the circulation is a standard by which one can recognize the different phases of a cardiac revolu-

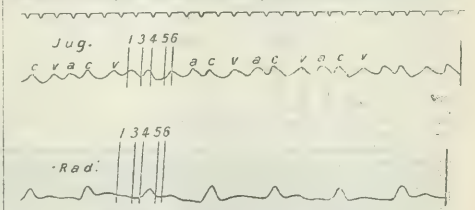


Fig. 3.—Simultaneous tracings of the movements in the neck and of the radial pulse to show that with the radial pulse as a standard the waves in the neck can be referred to the forces that produce them. The numbers have the same significance as in Fig. 2. The wave between 1 and 3 is due to the systole of the left auricle sending back a wave into the jugular vein; the wave between 3 and 4 is due to the carotid pulse; the space between 1 and 3 is the *a—c* interval and represents the time between the appearance of the auricular systole and the appearance of the carotid pulse, and includes, therefore, the time taken by the stimulus to pass to the ventricle and the presphygmic interval (space between 2 and 3 in Fig. 2). The *a—c* interval is the most useful guide to the condition of the functions of conductivity of the *a—v* fibres, for, as a rule, the presphygmic interval is fairly constant; any variation in the *a—c* interval can therefore be attributed to a variation in the function of conductivity of the *a—v* fibres. Here the *a—c* interval lasts one-fifth of a second, and when it does not exceed this time it may usually be considered normal.

tion. The standard I employ is the radial pulse; its cause, a ventricular systole, is known, and its position in the cardiac cycle absolutely fixed. Any movement occurring before, with, or after the radial pulse can then be referred to forces that have a definite period in the cardiac cycle. In Fig. 1 the relationship of a radial pulse to a carotid is seen when one takes these pulses at the same time. By making up strokes with the levers at the end of the tracing we get fixed points from which we can measure the relation of events in the two pulsations. The up-stroke marked 3 indicates the beginning of the carotid pulse, and coincides with the beginning of the wave in the carotid tracing. The up-stroke 4 indi-

cates the beginning of the radial pulse, and the distance between 3 and 4 indicates the time lost between the appearance of the carotid pulse and the appearance of the radial pulse. In this instance it is seen to occupy about one-tenth of a second. From this we reason that any event occurring in the neck one-tenth of a second before the radial pulse will be caused by systole of the ventricle. In Fig. 2 the relationship of the various events in the apex tracing is recorded. In Fig. 3 there is recorded a series of small waves that were appearing in the neck of the patient from whom Figs. 1 and 2 were taken. To the eye they seemed mere dancing vibrations, but when recorded each movement is seen to have a definite position in the cardiac cycle, and with the radial as a standard the force causing the movement can be recognized. The wave *c* is found to be occurring one-tenth of a second before the radial pulse and must, therefore, have been due to the ventricular systole; in other words, it is due to the carotid pulse. Immediately preceding the wave *c* is another wave *a*, which from the time of its appearance can only have been caused by the systole of the auricle. For the immediate purpose of this paper it is the period between *a* and *c* that concerns us. The jugular pulse is by far the most constant and reliable movement we have for determining the condition of the functions of the fibres connecting *a* and *v*. It is only rarely that we can get such good records of the apex beat as in Figs. 2 and 5. The *a-c* interval as shown in Fig. 3 (space 1-3) lasts for one-fifth of a second. If the same period between 1 and 3 be studied in the apex tracing of Fig. 2 it will be found to include not only the time of the auricular systole but also that short period between the commencement of the auricular systole and the opening of the aortic valves, that is the presphygmic interval, or *anspannungszeit*. As the latter is fairly constant any variation can be taken as a rule to be due to variations in the time which the stimulus takes to pass from *a* to *v*. In Fig. 4 the ordinary type of the venous pulse is given showing the normal duration of the *a-c* interval. Fig. 5 shows a distinct increase of the *a-c* interval in the jugular pulse (space A), being equal to three-tenths of a second. A similar increase from the beginning of *a* to the beginning of the wave *v* in the apex tracing is found when compared with the same interval in Fig. 2. Here there was undoubted delay in the passage of the stimulus from *a* to *v*.

When the conductivity of the *a-v* fibres is normal, practically no change takes place in the *a-c* interval with a little quickening or slowing of the heart rate; on the other hand, with depression of conductivity a very distinct change can be found in the *a-c* interval with slight variations in the heart's rate. Thus in Fig. 6 there was a slowing of the pulse with each inspiration, and at the same time a distinct shortening of the *a-c* interval. (Compare A_1 with A_2 in Fig. 6.) This variation in the length of the *a-c* interval is of very considerable importance in finding out the nature of many arrhythmias. In Fig. 7 there is a dropping out of the ventricular systole, and it will be noticed that when there is a long period between the radial pulse beats, the *a-c* interval is very small, whereas when there is a short interval between the radial beats the *a-c* interval is considerably lengthened. The same characteristic is to be seen in Fig. 8, where there is a more extreme form of heart-block, the ventricle responding sometimes to every third, and sometimes to every second, auricular systole.

When there is a complete dissociation of the auricular and ventricular rhythms, the auricular systoles are much more numerous than the ventricular; consequently the wave *a* of the jugular pulse will be found appearing at all stages of the ventricular movements, as in Fig. 9.

Another method of recognizing the auricular systoles is sometimes possible in tracings of the radial pulse, where, during a long ventricular pause, a series of notches can be seen occurring at regular intervals on the descending line of the radial tracing, as in Fig. 10. If a jugular tracing be taken at the same time there will be found to be auricular beats occurring exactly at the same time as these notches, as is shown in Figs. 5, 7, and 9. From this I suggest that those notches in Fig. 10 are due to the movement of the left auricle, the systole of the left auricle slightly increasing the intraventricular pressure, and this pressure against the aortic valves temporarily affecting the arterial column. The sudden cessation of this pressure causes a slight but abrupt fall in the aortic pressure, giving rise to the notches in the radial tracing.

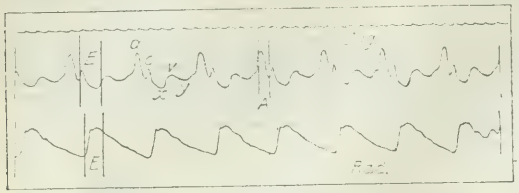


Fig. 4 shows a jugular pulse of the auricular type in which the *a—c* interval (space A) is of the normal duration.

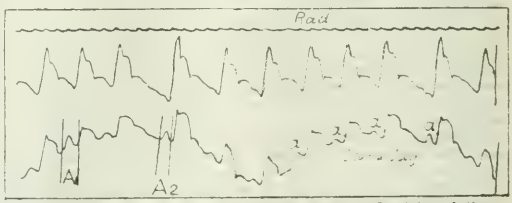


Fig. 6 shows the influence of rest when the conductivity of the *a—v* fibres is depressed. The radial pulse shows a respiratory irregularity (a slowing of the pulse at the end of inspiration). The carotid and jugular tracings show a shortening of the *a—c* interval (space A_2) after the long diastolic periods and a lengthening (space A) after the short diastolic period of the cardiac cycle.

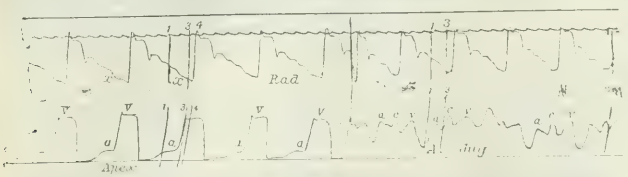


Fig. 5.—In the first part of this tracing the radial pulse and the apex beat were taken simultaneously, and in the latter part the radial and jugular pulses. The *a—c* interval (space A) is three-tenths of a second in duration, so that there is a distinct depression of the function of conductivity in 1898 the patient from whom this tracing was taken suffered temporarily from a mild degree of heart-block). Note the dip in the radial tracing at *x* synchronous with the auricular wave in the apex tracing. In this tracing there is a record of the movements of the four chambers of the heart, the tracing of the radial pulse and the large wave of the apex tracing being due to the left ventricle, the wave *a* in the apex tracing to the left auricle, the waves *a* and *v* in the jugular tracing being due respectively to the right auricle and right ventricle.

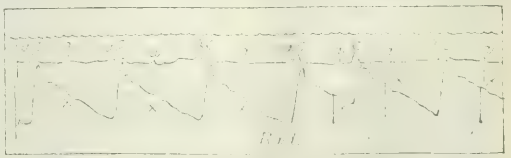


Fig. 7 shows a slow, irregular pulse after influenza, and the jugular tracing shows that the bradycardia is due to the ventricle failing to respond to the stimulus from the auricle. Note that after the short pulse period in the radial the *a—c* interval is much longer than the other periods. This is because the fibres have had a short rest, and the conductivity has in consequence not been completely restored. Note also at × a slight depression in the radial tracing due to the systole of the left auricle affecting the arterial column.

Illustrative Case showing a Slight Degree of Depression of the Conductivity of the a-v Fibres, with Slight Heart-Block Produced by the Administration of Digitalis and Reflex Stimulation of the Vagus.

There are numerous ways in which I could illustrate the advantages of this method of studying the affections of the heart, and of discovering changes in the heart's action which would otherwise be impossible to recognize. I will limit myself, however, to a reference to one case where one could demonstrate the affection of the *a-v* fibres, and where the recognition of this condition was proved by the action of digitalis purposely given to produce a mild form of heart-block, and where the heart-block could be likewise produced by reflex stimulation of the vagus caused by the act of swallowing.

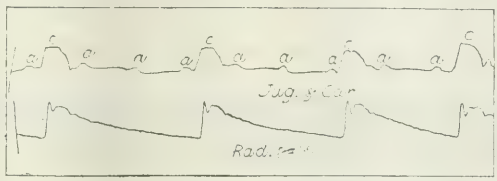


Fig. 8 shows an extreme form of bradycardia. Here the tracing from the neck shows sometimes three auricular waves (*a*) to the carotid wave (*c*). In the last period there are but two auricular waves, and the *a–c* interval is longer than in the periods when there are three auricular waves, because in the former case the conductivity has not had so long a time to be restored.

The man, aged 25, consulted me for a stiffness and swelling in sundry joints, wrists, ankle, and knee, on May 4th, 1906. The heart was rapid in its action, 130 per minute; there were slight enlargement of the heart, and systolic mitral and tricuspid murmurs. There was marked pulsation in the neck, of which Fig. 11 is a tracing. In the course of the next fortnight there gradually developed double aortic murmurs. By May 23rd, under treatment, he had gradually improved, the rate of the heart falling to 90 beats per minute (Fig. 12).

As the *a-c* interval, spaces A, in Figs. 11 and 12, showed a slight delay in the function of conductivity, I reasoned that the endocarditis had probably affected the *a-v* fibres, and had depressed the function of conductivity. From past experience from a number of similar cases, I knew that if this were so, digitalis would further depress this function, and that the depression would become so great that ventricular systoles would drop out, while the auricle would continue unaffected. To prove this I administered digitalin granules, one to be taken three times a day.

I kept him under observation, but could detect no change in the heart's action until May 30th, after he had taken 19 granules. On this date I found the pulse at times very irregular. Fig. 13 represents the tracing of the pulse, showing the nature of the irregularity. Between the jugular and radial pulses I have intercalated a diagram containing three spaces. The down strokes in the upper space represent the auricular systoles, as shown by the waves lettered *a* in the jugular tracing. The down strokes in the lower spaces represent the ventricular systoles as shown by the carotid waves lettered *c* in the jugular tracing, and by the pulse beats in the radial tracing. The slanting lines connecting these down strokes in the middle space represent the *a c* interval, and show the time that it takes between the appearance of the auricular wave in the jugular pulse and the carotid pulse. It will be noticed that before a ventricle beat drops out there is a gradual lengthening of the *a–c* interval, and that the dropping out of the ventricular systole is manifestly due to an increased depression of the conductivity of the fibres joining *a* and *c*—that is to say, the stimulus from the auricle is blocked before it reaches the ventricle. I stopped the digitalin, and a few days later all signs of irregularity had disappeared. The patient himself was conscious when his heart was irregular, and I remarked to him that the irregularity had gone; he replied, "I can bring it back." I asked him how he could do so, and he said, "By swallowing." I asked him to swallow, and he did so, and immediately I detected long pauses in his pulse, while, on auscultation of the heart, no sounds were heard during the pauses. I took a large number of tracings for an hour and a half, during which time he swallowed forty or fifty times, and the alteration in the pulse rate never failed to appear. The characteristic changes are seen in Figs. 14 and 15. After swallowing there are each time three regular beats, then the pulse slows in the manner shown in the tracings (Figs. 14 and 15). After two or three slow beats the rate of the heart increased for six or seven beats, then gradually slowed in the manner shown in Fig. 14A. Occasionally during the secondary slowing one ventricular systole would drop out, as is shown in Fig. 15A. In Figs. 15 and 15A I have intercalated a diagram which shows the nature of the arrhythmia, and it can there be seen that the long pauses in these tracings are preceded by an increase of the *a-c* interval, just as happened when the patient was under the influence of digitalis (Fig. 13), and that the dropping of the ventricular systole was due to a block of the stimulus from auricle to ventricle. The numbers given under the radial tracings and under the *a-c* intervals in Figs. 15 and 15A represent tenths of seconds, and from these numbers the manner in which the rate of the pulse and the *a-c* interval vary can better be realized.

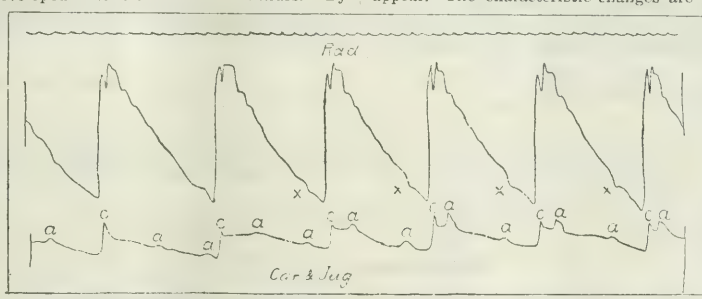


Fig. 9 shows complete heart-block, the auricle (waves *a*) pursuing one rhythm, and the ventricle (radial and carotid waves) another and slower rhythm. Note at × a slight depression in the radial tracing due to the systole of the left auricle affecting the arterial column.

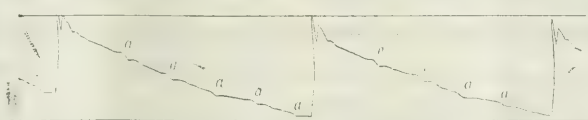


Fig. 10 is from Webster's case of heart-block, and shows in the falling line of the radial tracing a series of interruptions due to a short pause (*a*) in the falling line followed by a sudden dip. This is due to the systole of the left auricle temporarily increasing the pressure in the ventricle, causing a cessation of the fall of pressure in the arterial system for a minute period. The sudden cessation of the auricular systole causes a temporary acceleration in the fall of the arterial pressure, and hence the dip in the tracing. See similar depression at × in Figs. 5, 7, and 9, where the auricular waves in the apex and jugular tracings reveal the cause of this movement.

Certain very important deductions can be drawn from the study of this case. The condition of the function of conductivity of the *a-v* fibres offers an explanation why observers, experimental and clinical, have met with such curiously discordant results from digitalis, in that they have overlooked the fact that digitalis has a peculiar

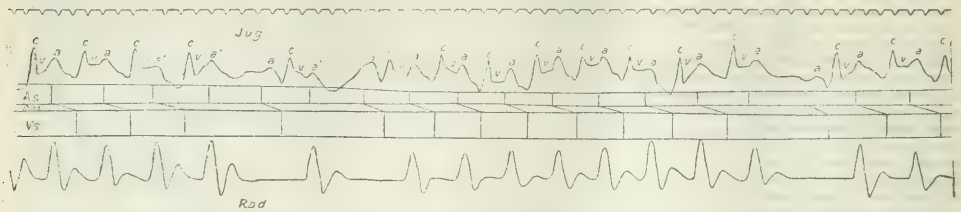


Fig. 13 shows a mild form of heart-block due to the occasional dropping out of ventricular systoles, the result of digitalis depressing the conductivity of the $a-v$ fibres. An explanatory diagram is interpolated between the jugular and radial pulse tracings. The down strokes in the *As* space represent the auricular systoles, as shown in the jugular tracing; the down strokes in the *Vs* space correspond with the carotid wave and have the same intervals as the radial pulse, and therefore represent the ventricular systoles, while the slanting lines connecting *As* with *Vs* represent the $a-c$ interval. It will be seen that the $a-c$ interval lengthens before and shortens after the dropping out of the *Vs*. (H. W., after taking 19 digitalin granules, May 30th, 1906.)

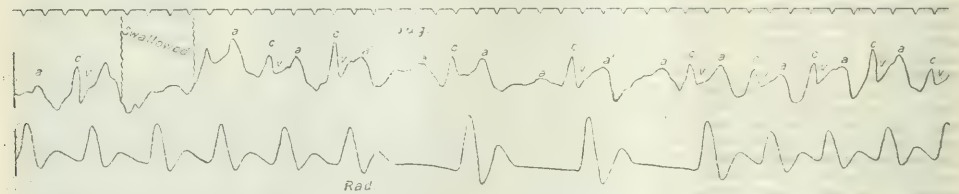


Fig. 14 shows the effect of vagus stimulation, produced reflexly by the act of swallowing. After the act of swallowing there occur three normal beats followed by three pauses. A study of the jugular tracing shows that the auricular beats (*a'*) are not followed by a carotid beat or a radial pulse, and that therefore these long pauses are due to the dropping out of ventricular systoles—that is to say, there is a block in the $a-v$ fibres. After the last long pause there is a quickening of the whole heart's action for six or seven beats, then a slowing (continued in Fig. 14A) which usually lasted for ten to twelve beats.

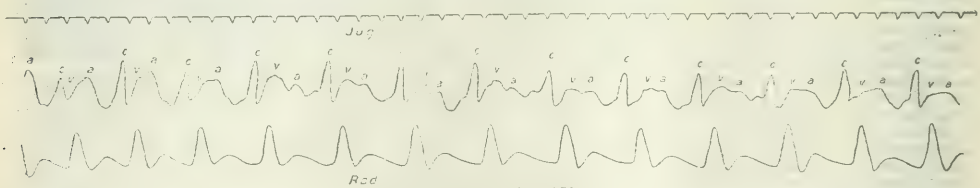


Fig. 14A is a continuation of Fig. 14.

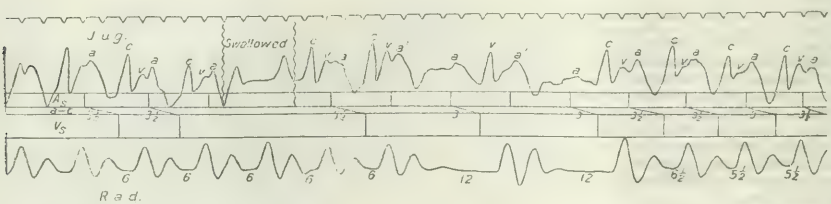


Fig. 15 shows the same result from swallowing as Fig. 14, except that there are only two pauses after swallowing.

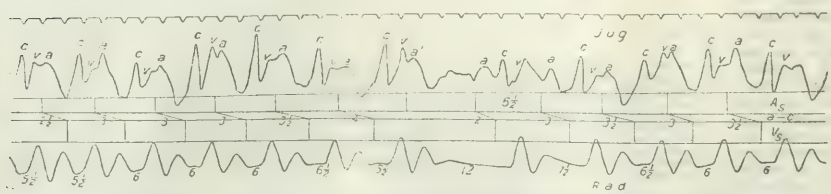


Fig. 15A is a continuation of Fig. 15, and shows a missed beat during that period of slowing which is one of the after-effects of the act of swallowing. The interpolated diagram shows a gradual lengthening of the $a-c$ interval till the interval $a-c$ lasts four-tenths of a second and finally leads to a dropping out of the ventricular systole. Here there was evidently an increasing exhaust on of the $a-v$ fibres till the stimulus failed to cross, and so the ventricle missed a beat. The $a-v$ fibres thus secured a long rest, and when the auricle next contracts the $a-c$ interval is shortened to two-tenths of a second.

The numbers under the radial tracing indicate in tenths of seconds the duration of each pulse period. After the long pause the next pulse period is seven and a half tenths, while the corresponding period between the auricular systoles is only six and a half tenths. The reason for this difference is to be found in the fact that the $a-c$ interval after the long pause is only two-tenths, while the following interval is three-tenths of a second.

tendency to affect primarily those functions of the heart muscle fibre that have been previously damaged. Here I recognized that conductivity of the *a-v* fibres was depressed, and I was able to demonstrate a further depression by the administration of digitalin. In like manner the views of physiologists in regard to the results of vagus stimulation are equally confusing. In all probability the same discordant results are due to the neglect of the nature of the changes that are previously existing in the heart, for the effects of swallowing in this case could only have arisen where there had been a previous depression of the function of conductivity.

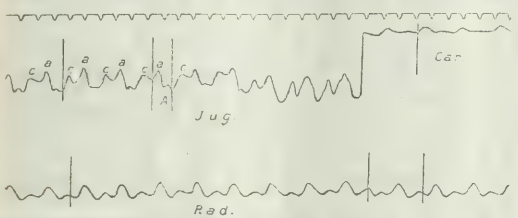


Fig. 11.—Simultaneous tracings of the pulsation in the neck (carotid and jugular) with the radial pulse and of the carotid and radial pulses. The wave *a* is the auricular wave in the jugular, and the wave *c* is caused by the carotid. The *a—c* interval is longer than normal, being nearly three-tenths of a second in duration.
H. W., male, aged 25, suffering from acute rheumatic endocarditis, May 4th, 1906. (Figs. 12, 13, 14, and 15 are from the same patient.)

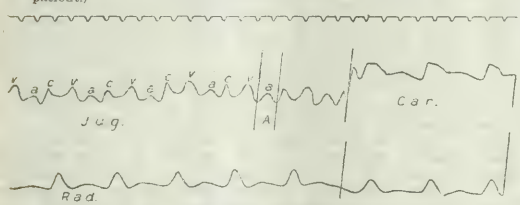


Fig. 12.—The rate of the pulse has fallen and the character of the jugular pulse is altered: *a* is the auricular wave, *c* is the carotid wave, and *v* a large wave sent back by the right ventricle. The *a—c* interval is one-fifth of a second (May 23rd, 1906, 1 granule digitalin, thrice daily).

In a case published by H. E. Hering and Rihl a transient heart-block was produced by pressure on the vagus in the neck. From an analysis of the tracings there was distinct evidence of depressed conductivity, as in the case recorded above. In my case I failed to get the heart-block by compressing the vagus.

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A REVIEW OF THE PHYSIOLOGY OF HEART-BLOCK IN MAMMALS.

As is well known, the contraction wave which normally originates in the venous end of the heart is transmitted rapidly through the bulged portions of the heart wall, but suffers an appreciable delay in crossing the auriculo-ventricular junction. This normal block to the excitation wave has in man a duration of about one-fifth of a second. By the term "heart-block," as applied to mammals, is understood a state in which the passage of this wave through the auriculo-ventricular junction is interfered with. The anatomy of the conducting tissue joining auricles to ventricles has been fully covered by Professor Aschoff.

The first experiments on heart-block in mammals were planned after the experiments of Stannius; the functional activity of the auriculo-ventricular junction was annulled, either by crushing all of the tissue in that region or by cutting through it with specially-devised instruments. In 1895, two years after His had described the auriculo-ventricular bundles, he made a preliminary report of some experiments on rabbits in which were studied the effects of cutting the auriculo-ventricular bundle. No final report of these experiments has ever appeared. It was almost ten years later before this experiment was repeated—this time by Humblet, who cut the auriculo-ventricular bundle in the artificially perfused heart of the dog. In the following year (1905) Humblet's experiment was repeated by Hering in a much more convincing way upon several species of mammals. My experiments on heart-block in the dog were performed and reported simultaneously with those of Hering. For these experiments a clamp was devised in which a small bit of tissue including the auriculo-ventricular bundle of the heart, preserving its normal relations to the organism, could be subjected to varying degrees of compression. With this instrument every stage of heart-block obtained by Gaskell in his epoch-making experiments on the heart beat in the tortoise have been obtained in the case of the warm-blooded heart. These stages may be briefly enumerated as follows:—

With very slight degrees of compression there may first be noted merely a lengthening of the normal pause intervening between an auricular and its dependent ventricular contraction, a lengthening, in other words, of the intersystolic period, or, as it is now customary to abbreviate it, of the As-Vs period. This delay may be due either to a slowing of the rate of transmission of the excitation wave through the compressed tissue, or to a diminution in the intensity of the excitation wave with consequent lengthening of the latent period of the ventricular muscle, or perhaps, in part, to both. At this stage, however, it is usual to find that the successive intrasystolic periods lengthen, until eventually the ventricles fail to respond to one of the excitation waves. In this cardiac cycle, therefore, the ventricles fail to contract. In the next cycle, following this ventricular silence, the intersystolic period, owing very probably to the increased excitability of the rested ventricular muscle, is unusually brief. However, in the succeeding cycles it again progressively lengthens, until the ventricles again fail to contract. Such ventricular silences have occasionally been observed to recur with great regularity with every tenth, ninth, eighth, etc., auricular beat, until the ventricles fail to contract with every other auricular beat. There then exists such a block to the passage of the excitation wave that only every other wave acts as an efficient stimulus to the ventricles. The block is partial; the rhythm 2 to 1.

Upon further tightening of the clamp, degrees of compression may be obtained, at which every third, or fourth, etc., auricular beat is followed by a ventricular contraction, the so-called 3 in 1, 4 in 1, etc., rhythms, further stages of partial block. These stages of partial block may be explained in the following way: After each contraction, as is well known, the irritability of heart muscle falls to zero. Soon, however, the irritability increases and continues to increase, until the muscle is again made to contract.

It may in addition be assumed that compression of the auriculo-ventricular bundle results in a reduction in the efficiency of the excitation wave passing through it. The efficiency of the excitation wave may be reduced just by enough to bring it below that required to stimulate the ventricles. An interval of two auricular beats would then elapse before another excitation wave reaches the ventricles. In the interval the irritability of the ventricular muscle will have increased to such a point that a wave of the same reduced strength acts as an efficient stimulus. Other rhythms may be satisfactorily explained in a similar manner.

We have thus far referred only to the various stages of partial block obtained by gradually applying pressure to the auriculo-ventricular bundle. Under ordinary circumstances complete dissociation of the beats of the auricles and ventricles—that is, complete heart-block—follows upon partial block of the 3 in 1 type, although it not infrequently follows upon 2 in 1 or 4 in 1 rhythms; very rarely upon higher rhythms. This is probably due to the fact that the mammalian ventricles possess the property of spontaneous rhythmicity. When the interval between efficient excitation waves becomes longer than the interval between the spontaneous beats of the ventricles the latter, so to speak, become more rhythmical than the efficient excitation waves, and consequently begin to beat inde-

pendently of the auricles. In such a case there results complete dissociation of auricular and ventricular beats, although the block to the passage of the excitation waves is not absolutely complete. In favourable experiments this can be proved by slowing in almost any way the rate of the auricles. It is possible to obtain in this way 3 in 1, 2 in 1, or even normal rhythms from complete dissociation of beats. Such changes from complete dissociation of beats to the regular rhythms are not apparent—that is, they are not brought about by so adjusting the ratio of the auricles to that of the ventricles that, for example, three of the former correspond to one of the latter. This is proved by the fact that the ventricular rate increases abruptly with each change of the rhythm toward the normal. It might here be added that conversely complete dissociation may be obtained from the various stages of partial block by increasing sufficiently the rate of the auricles. It is practically impossible to recognize when a degree of compression becomes such that an absolute block is interposed to the passage of the excitation wave. The fact is therefore evident that there are no hard-and-fast lines between the various stages of heart-block. It seems unnecessary to add that in those experiments in which the auriculo-ventricular bundle was cut, the investigators were dealing with the absolute form of complete heart-block only.

From the standpoint of the physiologist, the most significant contribution to our knowledge of this subject consists in the observation, with which all recent investigators are in accord, that destruction of the auriculo-ventricular bundle, and of that alone, will result in complete and permanent heart-block. Since the auriculo-ventricular bundle constitutes the only demonstrable muscular connexion between the auricles and the ventricles, this fact makes it more than probable that in mammals at least conduction through the heart is muscular. It does not, however, conclusively prove the myogenic theory of the heart-beat, since nerve fibres have been found ramifying through the auriculo-ventricular bundle.

It might in addition be objected that other physiological connexions between the auricles and ventricles do exist, that such connexions function only when a very special call upon them is made; for example, after prolonged functional insufficiency of the auriculo-ventricular bundle. With the object of testing this question, the author, in collaboration with C. K. Cullen, has begun a series of experiments upon dogs surviving an operation at which the auriculo-ventricular bundle had been severely crushed.

Although these experiments are still far from being complete, it might here be stated that in one instance a dog has survived the operation about one month. During this entire time, the heart-block remained complete. It is therefore fair to affirm that in the dog the excitation wave is transmitted through the auriculo-ventricular bundle only.

When it was found that it is possible to obtain complete independence of auricles and ventricles by destroying only that part of the auriculo-ventricular junction through which the auriculo-ventricular bundle passes, it was at once recognized by Hering and by myself, working independently of one another, that this method might be employed to determine the action of the extrinsic cardiac nerves, vagi, and accelerators upon auricles and ventricles.

Experiments have shown that the accelerators act directly upon both regions of the heart. Thus stimulation of the accelerator nerve results in independent and often marked acceleration of the rates of both chambers. Stimulation of the vagus of the dog produces the usual inhibition of the auricles; but it is questionable whether or not the vagi act upon the ventricles. Hering states, without modification, that they do. I have never, however, obtained more than the slightest slowing of the ventricles; often no effect upon the rate of the ventricles is observed. To my mind, it is not at all improbable that the slight slowing seen in these experiments is produced secondarily by the falling away of the filling effect of the auricles. That the action of the vagi upon the ventricles is slight is proved by the observation that strong stimulation of the accelerator nerve, while producing marked acceleration of the ventricles, sometimes probably through escape of stimulus, is associated with slowing of the auricles. In other words, simultaneous stimulation of inhibitory and accelerator fibres may result in slowing of the auricles and quickening of the ventricles in complete heart-block.

In this connexion it is interesting to note that similar changes in rates have been observed occurring spontaneously in the dog surviving the operation at which permanent and complete heart-block had been produced. During its last days this dog frequently had periodic respirations of the Cheyne-Stokes type. Tracings of the heart beat showed that at such times there occurred simultaneously with the quickening of the respiratory rate acceleration of the auricles and retardation, often very marked, of the ventricles. The exact course of these associated phenomena has not yet been determined, but it seems probable that they are all dependent upon rhythmic changes affecting the irritability of the medullary centres simultaneously and in the same direction. From what has just been stated it may be inferred that simultaneous stimulation of the vagus and accelerator centres in an animal with complete heart-block should result in the changes in rates mentioned.

We have already related the phenomena observable when heart-block is gradually produced by compression of the auriculo-ventricular bundle. At that time reference was purposely not made to the effect of sudden compression of the bundle of the normally-beating heart. When a complete block is thus suddenly made, it is the rule for the phenomenon, which has been termed stoppage of the ventricles, to occur. Typical stoppage of the ventricles may be described as follows: When the clamp is tightened the ventricles at once cease beating, the auricles continue to beat with undisturbed rate and rhythm. During this stoppage the ventricles are completely relaxed, and they are gradually distended by the rhythmic injection of blood into them by the contractions of the auricles.

After a pause, which has varied in duration from one barely perceptible to one lasting to eighty or more seconds, the ventricles contract and empty themselves. Their contractions then gradually increase in frequency until the comparatively slow rate of the ventricles in complete block obtains. It is the rule for the ventricles to recover from the stoppage spontaneously, before the animal exhibits any bad symptoms in consequence of it. In two experiments, however, the longest ventricular cycle of stoppage was so protracted that, fearing the death of the animal, the ventricles were made to contract by means of artificial stimulation until they began to beat spontaneously.

In one of these instances the ventricles failed to contract for so long a period of time that respiratory convulsions appeared and the auricles began to fail. At this time, fifty seconds after the onset of the stoppage, the ventricles were made to beat by tapping them occasionally with a flat instrument. This mode of stimulation was continued for seventy-five seconds, when the ventricles began to beat spontaneously.

As to the cause of stoppage of the ventricles, experimental evidence warrants the conclusion that it is due to the more or less sudden withholdment from the ventricles of the excitation waves which have been setting their pace. Under such circumstances there seems to occur a gradual development of the inherent but dormant rhythm of the ventricles, so that they soon begin to beat slowly at first, but with a rhythm which gradually increases to a constant but comparatively slow rate.

This is a convenient place to refer to other procedures by means of which it is possible to induce stoppage of the ventricles. It has been stated that it is possible to alter the degree of partial block by altering the rate of the auricles. Thus, by increasing the auricular rate, it may be recalled, higher stages of partial block may be obtained. An increase in the auricular rate, we believe, is associated with a diminution in the efficiency of the accompanying excitation wave. It is, therefore, not surprising to learn that it has been found possible to elicit the phenomenon of stoppage by abruptly increasing the rate of the auricles during partial block of a low degree. In this case it may be assumed that the excitation waves become subminimal stimuli for the ventricles even after they have been at rest for a long period of time.

Although stoppage of the heart through stimulation of the vagus nerve has no direct bearing upon the subject of

heart-block, it is here mentioned because through the aid of the methods which have been employed in the study of the subject of this paper it has been discovered that stoppage of the ventricles, which is associated with that of the whole heart, is not caused by the direct action of this nerve upon the ventricles. Rather the ventricles cease beating because the auricles having been stopped by the vagus, stimuli fail the former, and they may cease beating until their inherent dormant rhythmical power awakens.

The question as to the origin of stopping of the ventricles in complete heart-block through the action of medullary centres upon the heart is interesting mainly on account of the association of cerebral symptoms with stoppage of the ventricles in cases of Stokes-Adams disease. In this connexion we can but refer to what has been said of the dog surviving the operation at which heart-block had been produced. The association of periodic respirations with changes in heart rate points strongly to the medulla as the seat of the changes. We are not yet, however, in a position to state what centres are affected, nor how.

For the sake of convenience, no mention has yet been made of the phenomena of heart-block in man which parallel those that have been observed in animal experimentation. These may now be rapidly enumerated. In the first place, it may be stated that, so far as we know, heart-block in man is due to disease of the auricular bundle. In all cases of Stokes-Adams disease which have come to autopsy since the cause of heart-block in mammals has been determined, a lesion in the auriculo-ventricular bundle has been found. These cases include those of Stengel, Schmoll, Ophüls, and co-workers, and possibly that of Hay.

In addition, there are two cases described earlier in the history of this subject—that of Sindler and one quoted by Hering—in which lesions were found which in all probability involved the auriculo-ventricular bundle.

All grades of partial and of complete heart-block have been observed in man. These include occasional and regular-recurring ventricular silences, two to one, three to one, and four to one rhythms, and complete heart-block both relative and absolute. Among those who had observed part or all of these states may be mentioned Mackenzie, Wenckebach, Gibson, Rihl, myself, and many others. I was particularly fortunate in having had the opportunity, through the kindness of Dr. Osler, of making prolonged observations on a case of complete heart-block that recovered under treatment with potassium iodide. During the course of recovery, every stage and transition that have since been observed in animal experiments were seen and recorded.

At this place it becomes necessary to refer to the statement recently made by Hering, that his critical examination of all cases of Stokes-Adams disease has revealed only dissociation of auricles and ventricles. He does not consider it certainly proved, although he thinks it probable that ventricular silences likewise occur in that disease. In the same place he implies that in my case no transition from complete to partial heart-block was seen. I cannot understand his basis for this assertion, since the tracings which I have put on record are perfectly clear in regard to this point.

The remarkably constant pulse rate in cases of complete heart-block in man may be taken to indicate that vagus action upon the ventricles is slight. That the vagus action is slight is proved by the fact that the administration of atropine has no effect upon the ventricular rate, although the auricles are affected in the usual way by it.

In cases of Stokes-Adams disease ventricular stoppage also occurs. So far as I am aware, however, it has been observed only during complete heart-block. All tracings obtained during syncopal attacks show that such attacks are associated with marked slowing of the ventricles. Furthermore, there is no doubt but that the stoppage of the ventricles precedes the cerebral symptoms. For this reason there has been some discussion as to whether the syncopal attack is due to the action of the brain upon the heart or to anaemia of the brain following ventricular stoppage. I am inclined to believe that either the brain or the heart may be the primary cause of the syncopal attacks, and for the following reasons: In my case the stoppage of the ventricles was coincident with or preceded by an acceleration of the auricles. At times slight syncopal attacks of this character recurred more or less rhythmically. They then associated with typical Cheyne-Stokes respiration, and resembled in every respect the like phenomenon seen in the dog surviving destruction of the bundle of His. At the time this phenomenon was seen in man I was inclined to believe that the ventricular stoppage was the direct result of the increase in the auricular rate, and therefore primary in the heart. Animal experimentation has not, however, served to strengthen me in this belief, since I have never been successful in inducing ventricular stoppage by increasing the rate of the auricles during complete heart-block. Stoppage of the ventricles due to sudden acceleration of the auricles, with a low grade of partial block, has never, to my knowledge, been observed in man, although no doubt it may occur.

The question must now be considered, Are the forms of cardiac arrhythmia that have been mentioned in this paper caused only by depression of conductivity in the auriculo-ventricular bundle—that is, by heart-block, or may they be caused by the depression of other functions of heart muscle? We have seen that it is possible to bring on some of the stages of allorhythmia by increasing the auricular rate. It seems reasonable to assume that here the ventricles fail to respond to auricular stimuli, because these are reduced in strength by the artificial increase in rate.

Granting this, we are forced to conclude that allorhythmia may be caused by depression of the function of rhythmicity. In this connexion it is interesting to note that Rihl, working under Hering's directions, has observed auricular "tachysystole" in his cases of allorhythmia.

All forms of allorhythmia might likewise be caused by depression of the irritability of the ventricular muscle. Dr. Mackenzie has cited to me a case in point, and experiments upon cold-blooded animals reported by Hering and by Straub prove that the allorhythmia may occur through depression of the irritability of the ventricles by strychnine and by antiarin, a drug belonging to the digitalis group. This last point may be of interest in connexion with the observation made by Mackenzie that digitalis may in certain cases apparently depress the function of conductivity. The question as to whether or not allorhythmia due to the depression of the irritability or of rhythmicity should be included under the general term of heart-block is still an open one.

IV.—G. A. Gibson, M.D., Sc.D., LL.D.
Physician, Royal Infirmary, Edinburgh.

Since the appearance of my paper on bradycardia last year, a great amount of work has been done on the subject of heart-block, and it is a pleasure to discuss the matter to-day with some of the observers who have contributed largely to our knowledge of the affection. My remarks on this occasion will be as brief as possible, and will in the main be confined to my own observations. In these remarks it will be necessary to say a few words upon methods of examining cases of interference with the passage of impulses from the auricles to the ventricles in the first place, and these will be followed by the description of a most interesting case recently under my care, in which the pathological as well as the clinical phenomena were fully investigated.

Ever since the publication of the original paper, in which Stokes described a want of harmony in the rate of the jugular and cardiac pulsation, it has been recognized that there are influences affecting the veins, but producing no effects upon the arteries. Many observations have been made upon this subject, to most of which it is at present useless to refer, seeing that it is only quite recently that the facts have been understood. Full comparison of the movement of the veins and of the heart or arteries is only possible by means of the graphic method. This, during the last few years, as many of us have shown, proves that the veins may beat even six or seven times for each pulsation of the arteries; that this depends upon the failure on the part of the auricles to evoke a response in the ventricles is now absolutely proved. It appears, as a general rule, to be produced by a reduction of conductivity, that is, it is the result of negative dromotropic influences, in the phraseology of Engelmann. This we may hold as proved, when there is a lengthening of the

period elapsing between the auricular movement and the carotid impulse in a tracing of the cervical veins, as in some cycles seen in Fig. 1. It may also undoubtedly be produced by reduction in excitability of the heart, that is,

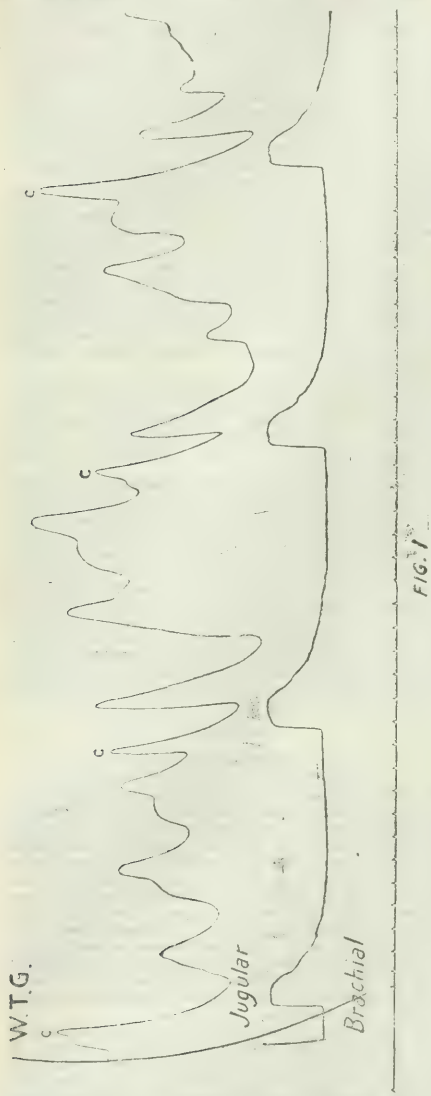


FIG. 1.

Fig. 1.—From a patient described in the *Edinburgh Medical Journal*, 1905 (Case 1). The tracing from the jugular vein shows three or four auricular beats for one ventricular contraction. There are indications that the sinus gives an independent pulsation before the contraction of the auricle. A distinct ventricular reflux follows the carotid pulsation. In some cardiac cycles there is depression of conductivity, in others depression of excitability, as shown by the variability of the *a-c* interval. The ventricular rate was 25, and the auricular 87. This and the following tracings were obtained with Hering's recording apparatus, and the chronograph indicates fifths of seconds. This tracing shows a condition of partial heart-block.

there may be negative bathmotropic influences, as they are termed by Engelmann; these are shown in some of the cycles of Fig. 1, and in Figs. 2 and 3. There is nothing inherently improbable in the conception that contractility may be so affected as to lead to the phenomena under discussion, although so far no evidence has been brought forward which could prove such a contention. In Wenckebach's most recent paper he has suggested that possibly there may be an arrest of impulse at the sinus as well as the auriculo-ventricular bridge, and it is difficult to explain some of the tracings which will be shown except upon this hypothesis.

As is well known, there may be partial or total failure to transmit the impulses from the auricles to the ventricles. In the former case, shown in Figs. 1, 2, and 3, the result is what is termed partial heart-block, in which some of the impulses pass from the auricular to the ventricular portion of the heart, while others do not. In such instances the auricles beat more than once for each ventricular beat, but certain auricular and ventricular pulsations preserve their proper ratio to each other. On the other hand, as in Figs. 4 and 5, there may be a total dissociation of auricular and ventricular action: we may well speak of a divorce of auricles and ventricles. It so happens that sometimes the auricles may beat so frequently that with no bradycardia heart-block may be present. This is an appearance very commonly met with in the final phases of cardiac failure. One of the most interesting points in connexion with the subject is that by paralysing the inhibitory influences by atropine, as has been shown by Dehio, Erlanger, and Ritchie, the auricular rate may be increased enormously without exerting the least influence over the ventricular. This is shown in Fig. 5, from a patient under my own care, whose case has been narrated by Ritchie; atropine gave rise to an auricular rate of 275 per minute, while the ventricular rate was only 36.

The auscultation of the heart in such cases is of extreme interest, and, as has been fully described by myself in former contributions, faint sounds can be heard in the intervals between the ventricular pulsations. There can be no doubt that these are the result of auricular pulsation. They have now been heard by me in several cases of heart-block, and they coincide perfectly with the movements on the venous tracings which are attributed to the contraction of the auricles.

The examination of the chest by means of the fluorescent screen absolutely proves this contention, because we can clearly see the pulsation of the auricles without any corresponding movement on the part of the ventricles. This, so far as is known to me, was first described by Ritchie, and his observations have been verified by Brouardel and Villaret, as well as by Magee Finny.

A matter of some importance is that this action of the auricles gives rise to distinct electromotive changes. In a recent contribution to this subject, the facts of a case lately under my observation were mentioned, and may now be shortly referred to. In this case the electric variations were studied by means of Lippmann's capillary electrometer. Leading off from the basal and apical portions of the praecordia to the electrometer, the usual diphasic movements of the mercurial column were seen clearly preceding the apex beat, and evidently resulting from ventricular systole. In the intervals between these movements other smaller waves were distinctly seen, which could only be attributed to the systole of the auricles. Observed by the direct method with the microscope, it was impossible to be certain of their exact character, but the movements appeared to be diphasic; when thrown upon the screen by means of the projection microscope, as was done recently in a demonstration at the Pathological Club of Edinburgh, they were quite clearly of diphasic character.

One interesting point in connexion with heart-block is that even when the heart is acting with a very low rate of pulsation the blood pressure is well maintained. In a case with the heart beating at the rate of 25 per minute, the maximum systolic pressure reached 270. In one of the interesting instances published by me last year, the blood pressure was then reported as being 210, by means of the Riva-Rocci sphygmomanometer; recently, with the assistance of my house-physician, Dr. Allan, it was again estimated by means of Erlanger's instrument, and it was found to give a systolic pressure of 230 and a diastolic pressure of 75. It appears to me a very interesting fact that in such a case as this there is such a wide divergence between the systolic and diastolic pressures; in this case the pulse pressure variation amounts to more than 200 per cent.

Since the publication of the paper on bradycardia last year, of which mention has been made, several instances of heart-block have been under my notice, but of these cases there is only one to which full reference will be made on this occasion, seeing that it has furnished an opportunity of complete pathological investigation as well as prolonged clinical observation.

G. D., aged 44, a dairyman, was admitted to my ward, October 19th, 1904, complaining of shortness of breath and swelling of the abdomen.



FIG. 2.

Fig. 2.—From the patient whose case is described in the present paper. There are three or four auricular pulsations for every ventricular contraction, and there are indications of contraction of the sinus previous to some of the auricular impulses. The *a-c* interval varies very little, showing slight, if any, disturbance of conductivity. There are some suggestions of auricular pulsation conducted to the brachial tracing. The rate of the ventricles was 42, and of the auricles 168. This tracing, as well as the next, shows a condition of partial heart-block.

The family history was perfectly satisfactory, both parents being alive and in good health, while three brothers and two sisters were also quite well. No member of the family had died, and there seemed to be no morbid antecedents of any kind. His social conditions had been likewise satisfactory in every respect, but until three years before admission he had been a very heavy drinker. As regards his previous health, he had suffered from scarlet fever at the age of 16, but, with this exception, up till 1902 his health had been good.

During the year 1902 the patient began to show breathlessness on exertion, accompanied by cough. These symptoms gradually increased until his admission to the Royal Infirmary, and after a short period of treatment they were relieved, and he was dismissed. For nearly two years he was able to do his work fairly well, but in November, 1904, he was again troubled with them. They increased steadily until he was placed under my care.

On admission the patient was distinctly jaundiced as well as cyanosed. There was considerable dyspnœa, and he was unable to lie down. His temperature was persistently sub-

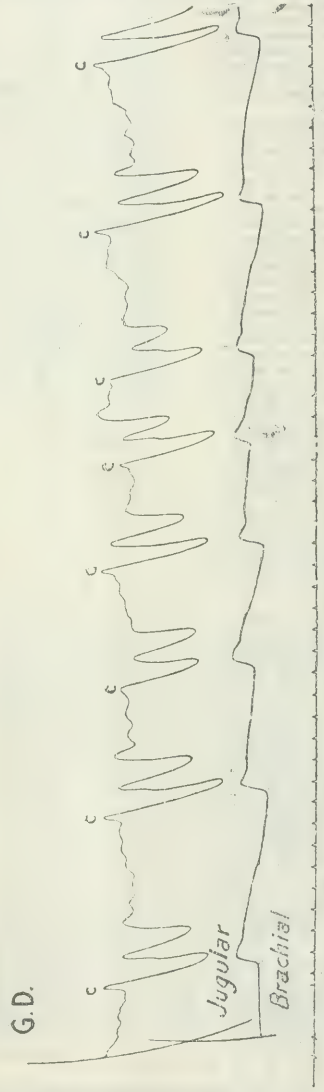


FIG. 3.

Fig. 3.—From the same case some days later, showing a great change in the form of the venous pulsation. After the ventricular rebus following the carotid pulsation the tracing shows a turgid condition of the veins with faint auricular pulsations undoubtedly reduced in amplitude by weakness. No suggestion of sinus pulsation can be seen, and there is no indication of any conduction of the auricular pulsation to the brachial vessel.

normal. His weight on admission was 10 st. 9 lb., and his height 5 ft. 9 in. The arteries were somewhat thickened, but not tortuous. The systolic blood pressure, as tested with the Riva-Rocci sphygmomanometer, was equal to 140 mm. Hg. and the diastolic was 90. There was some irregularity of the rhythm, and the rate was from 80 to 90. Inspection of the neck and chest showed no visible pulsation except a slight flickering of the cervical veins. The apex beat was only just palpable, and was slapping in character. The upper border of the heart on percussion reached the highest part of the third left costal cartilage. The right border was 2 in., and the left 4 in. from mid-sternum. The cardiac sounds were faint in every area except the pulmonary, where the second sound was considerably accentuated. The sounds were perfectly clear and well closed.

The respiratory system showed considerable implication. The rate of respiration was always high, being usually from 25 to 32 per minute. There was a constant cough, attended by copious frothy expectoration. The chest was somewhat barrel-shaped, with some widening of the angles of the ribs, but no bulging of the apices. The movements were diminished. Over the bases posteriorly the vocal fremitus was absent, and there was dullness on percussion, while over the rest of the chest the percussion sound was abnormally clear. The breath sounds were of a harsh vesicular type, with prolonged expiration over the chest, except at the bases posteriorly, where the breath sounds were very weak. A good many crepitations were present over the chest posteriorly. The vocal resonance was normal everywhere, except over the bases, where it was much diminished.

The liver in the mammary line extended from the upper border of the fifth rib to 1 in. below the costal region. There was no dilatation of the stomach or intestines.

Examination of the blood showed that the erythrocytes numbered 4,520,000. The leucocytes were 6,100 in number. The haemoglobin showed a percentage of 80, and stained blood films revealed no abnormality. There was no alteration in the lymphatic glands, and no enlargement of the spleen.

The renal secretion was perfectly normal in every respect, save that the specific gravity was rather high.

Under treatment with Guy's pill and iodide of potassium internally, along with strychnine hypodermically, the patient steadily improved, and was dismissed upon January 5th, 1905; but he came up regularly to my ward to report his progress.

Towards the end of 1905 his complaints of cough and breathlessness became worse, and after a few weeks he found it necessary to apply again for admission to my ward, which he entered on January 24th, 1906. There was a good deal of dyspnoea and a certain degree of cyanosis on admission, while well-marked jaundice was present. The patient presented a somewhat languid and apathetic appearance, and complained of some palpitation and pain over the praecordia. There was no oedema.

The blood vessels showed the same condition of arterial walls as during his previous residence in the ward; the pressure, however, was lower, the systolic being 95 and the diastolic 72. The rate of the pulse on admission varied between 70 and 80.

The apex beat was diffuse, occupying the fifth intercostal space about the mammary line. There was some pulsation in the epigastrium and also in the vessels of the neck. No thrills were palpable. The size of the heart was rather larger than when he was previously in the ward, the right and left borders being respectively 2½ and 4½ in. from mid-sternum. The heart sounds were faint with the exception of that in the pulmonary area, which was accentuated. Reduplication of the second sound was often present.

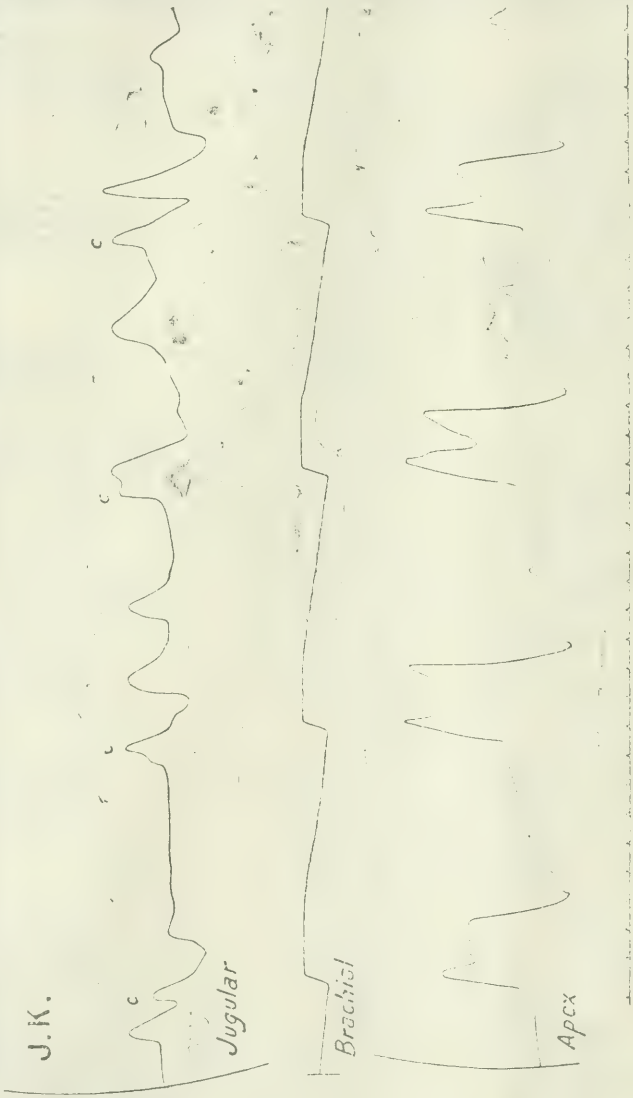


FIG. 4.—From a patient whose case was described in the *Edinburgh Medical Journal*, 1905 (Case iii). This tracing shows absolute dissociation of auricular and ventricular action. There are irregular interferences of the auricular with the ventricular pulsations, and the carotid and auricular impulses show a very variable relationship. Some of the auricular pulsations are transmitted to the tracing taken from the apex, but do not appear on the brachial curve. The rate of the ventricular pulsation was 36. The auricular was difficult to count, but was usually about 90. This tracing, as well as the following, shows complete heart-block.

There was constant dyspnoea and considerable cough, accompanied by a muco-purulent expectoration with the occasional presence of a little blood. Inspection showed no abnormality in the chest, and the vocal fremitus was well marked on both sides. There was no dullness on percussion. All over the chest the breath sounds were of the harsh vesicular variety, with prolonged expiration accompanied by sonorous and sibilant rhonchi. The vocal resonance was everywhere clear and distinct, but not exaggerated.

The erythrocytes numbered 3,900,000, the haemoglobin was 78 per cent., and the number of the leucocytes was 6,800. The film showed no abnormality. The spleen was somewhat enlarged, reaching the anterior axillary line. The renal secretion was perfectly healthy. Some ascites was present, and the liver reached 1 in. below the costal region. The abdominal viscera otherwise appeared to be perfectly healthy. As regards the nervous system, the patient was somnolent, spending most of his time lying on his back in a drowsy state. He rarely took notice of anything occurring around him, but if questioned he answered intelligently.

Such was the state of matters on the patient's readmission to the ward. For some days he steadily improved, but during the first week of February the pulse-rate fell considerably below the normal, and upon the 12th it dropped as low as 30 beats per minute. From this time onwards the rate of the pulse was always below the normal until the last week of life. With this diminution of the pulse-rate, the respiratory rate rose, and sometimes touched 40 per minute. The pulse was weak and irregular. The blood-pressure, however, at this period was 110 in systole and 85 in diastole. There was some dullness at the bases of the lungs with crepitations, and albuminuria made its appearance.

Day by day the patient presented practically the same conditions. A considerable amount of cyanosis was developed, and examination of the blood showed 4,980,000 erythrocytes, 88 per cent. of haemoglobin, and 8,600 leucocytes. The veins in the neck began to pulsate distinctly, and it was clear that there were often as many as five auricular impulses for every apex beat. A number of tracings were obtained with the assistance of Dr. W. T. Ritchie, my clinical tutor, and Dr. J. Cunningham, my house-physician; these will be considered in the sequel.

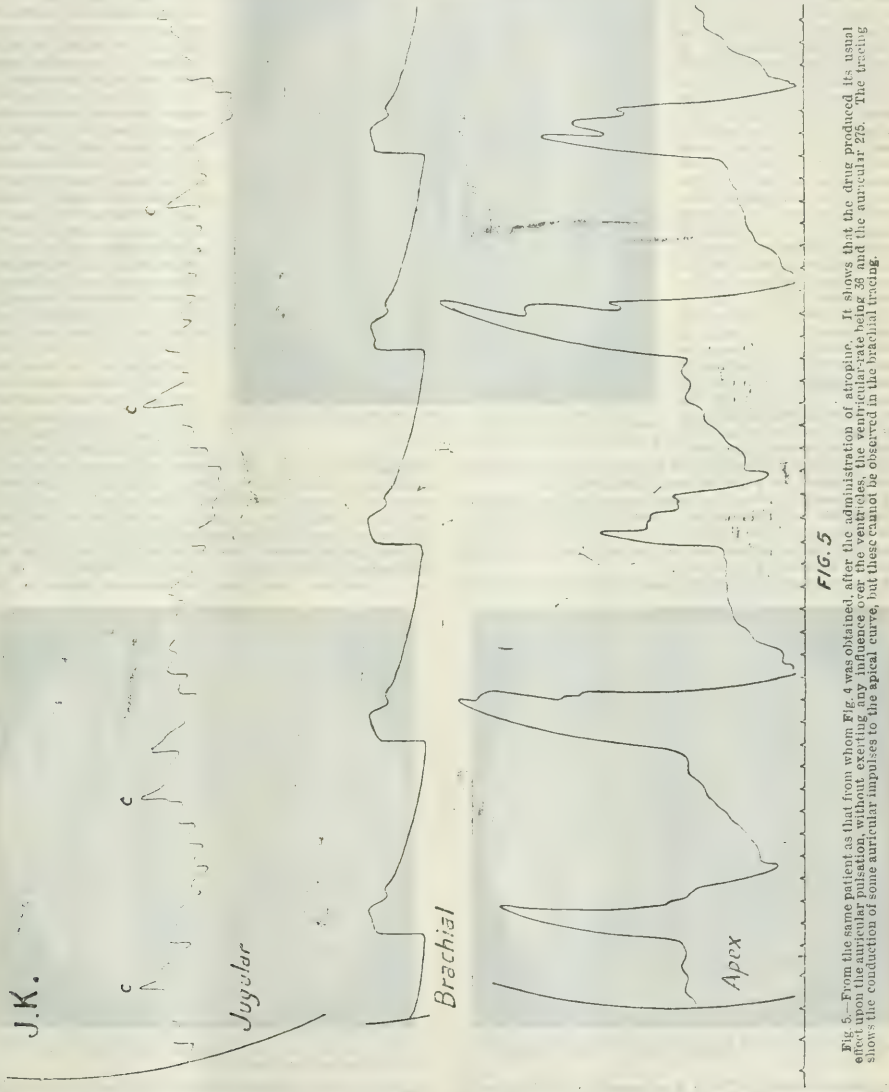


FIG. 5.

Fig. 5.—From the same patient as that from whom Fig. 4 was obtained, after the administration of atropine. It shows that the drug produced its usual effect upon the auricular pulsation, without exerting any influence over the ventricles, the ventricular-rate being 36 and the auricular 276. The tracing shows the conduction of some auricular impulses to the apical curve, but these cannot be observed in the brachial tracing.

It is of interest to note that, although the patient was carefully examined daily by the members of my clinical staff as well as by myself, no sounds could be heard between the pulsations at the apex.

During March and April the condition of the patient showed no improvement, but there were considerable variations in the pulse and respiration rate. Towards the end of March the patient became more breathless and cyanotic, although till nearly the end of the month he still had a systolic pressure of 110 and a diastolic pressure of 80. On April 1st he died some-

what suddenly, the pulse-rate during the last few days of life never being below 60, and rising even to 70; all the time, however, the auricles were beating much more frequently.

The long series of tracings taken from the veins and the arteries furnished us with ample opportunities of studying the movements of the heart. At first, as may be seen in Fig. 2, the venous curve showed a number of extremely distinct articular movements as well as the carotid impulse and the ventricular reflux. For some time a tracing of this character was characteristic of the curve. As time went on, however, the character of the tracing underwent alteration, and such a curve as is shown in Fig. 3 might be said to be specially characteristic of it. As will be seen in this tracing, after the filling of the auricles there is a series of slight movements sometimes constituting a kind of plateau culminating in the carotid impulse, followed at once by the auricular recession, which is succeeded at once by the ventricular reflux, and in turn gives way to the ventricular recession. In many of these tracings there are as many as five or six auricular waves preceding the carotid impulse. So far as can be seen from these tracings there has been no disturbance of conductivity, and the condition of heart-block which is present is apparently produced entirely by a disturbance of excitability.



Fig. 6.—Section from the immediate neighbourhood of the auriculo-ventricular band of the heart described. It shows perfect integrity of structure. (× 300.)

Unfortunately, after the development of the condition of heart-block in this patient, it was impossible to examine him by means of the fluorescent screen, inasmuch as his condition was so serious as to preclude even the possibility of his sitting up in bed.

A *post-mortem* examination was conducted the day after the patient's death. There was complete obliteration of both pleural sacs, and the serous membrane was greatly thickened. There was also complete obliteration of the pericardial sac, and the membrane was greatly thickened, especially over the ventricles. The adhesions covering the auricles were comparatively thin. The heart showed dilatation and hypertrophy without a vestige of a valvular lesion.

Both lungs were hyperaemic and oedematous at their bases. The liver showed considerable thickening of its capsule, and in one part there was a small hard nodule resembling a calcified gumma. Elsewhere there was very advanced chronic venous hyperaemia, with increase of fibrous tissue. The kidneys showed advanced chronic venous stasis, and some increase of fibrous tissue.

In the examination of the heart, which was carried out under the general superintendence of Professor Cunningham, two objects were kept in view: to ascertain in the first place the state of the cardiac muscle in general, and in the next place the condition of the auriculo-ventricular band. The central region was carefully dissected by Dr. E. B. Jamieson, and the auriculo-ventricular band was traced from its origin on the right side of the inter-auricular septum to its termination in the right side of the interventricular septum. On comparing the band in this specimen with one in a heart presumably healthy there was undoubtedly a paler aspect, well shown in the water-colour drawing by Mr. R. H. Campbell, now exhibited. Sections were made of both auricles, of both ventricles, of the junction of the auricles and ventricles on both sides, of the tissue close to the auriculo-ventricular band, and of the band itself. The vagus nerves were also carefully examined. The microscopic investigation of the heart was carried out by Dr. J. M. Beattie. The results were really very interesting. The walls of the auricles and of the ventricles in general, as well as of their junction, were perfectly healthy, save for a slight increase of fibrous tissue close to the epicardium, obviously produced by the pericarditis, which had led to obliteration of the sac. A section made from the muscular tissue in close contiguity to the auriculo-ventricular band was also absolutely healthy (Fig. 6); but careful investigation of the band itself showed a very considerable increase in fibrous tissue, with wide separation of the muscle fibres constituting it (Fig. 7). The vagus nerves were absolutely healthy in every respect. Throughout the entire heart there was not a trace of any lesion at all characteristic of specific infection. A section of a healthy band is shown in Fig. 8 for purposes of comparison.

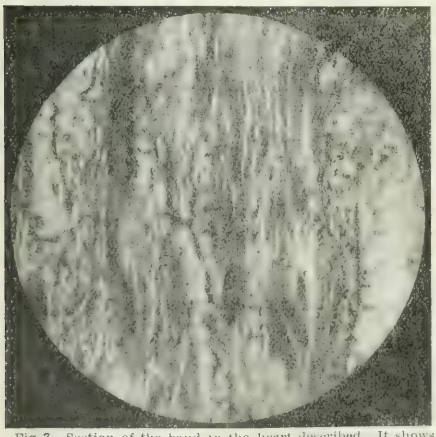


Fig. 7.—Section of the band in the heart described. It shows cellular infiltration, increase of fibrous tissue, and loss of striation. (× 300.)

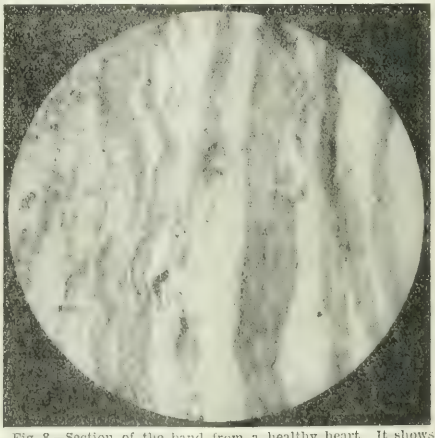


Fig. 8.—Section of the band from a healthy heart. It shows definite striation, but less interlacing than the muscular tissue of the heart elsewhere. (× 300.)

The case is an interesting addition to those recently described by Stengell, Schmoll, and others, in which lesions have been found in the auriculo-ventricular bundle. As to the causes of the changes in the bundle in this case we are entirely in the dark. It is probably too soon to attempt to be dogmatic upon the subject. Undoubtedly coronary changes may produce lesions in the auriculo-ventricular bundle, which lies in such close contiguity, but in the case which has just been described there were absolutely no alterations in the coronary vessels. The possibility must be admitted that long-continued over-strain of a part of the heart, which must be regarded as analogous to an important junction of a busy railway system, might lead to structural alterations. Yet it is difficult to believe that in a part of the heart so sheltered from external agencies, and so near the centre of vascular supply, such factors can be at all powerful; it may be that some toxic agency has a selective affinity for this region. but speculation upon this aspect of the subject is at present premature.

It is a pleasure to return my warm thanks to Dr. W. T. Ritchie, Dr. J. Cunningham, and Dr. J. C. D. Allan for their loyal co-operation in the clinical investigation of cases under my care: to Professor D. J. Cunningham, Dr. E. B. Jamieson, and Dr. J. M. Beattie for their kindness in undertaking the anatomical and pathological investigation of the case which has been described; and to Mr. R. H. Campbell and Mr. Richard Muir for the beautiful drawings and photographs of the anatomical and pathological appearances.

V.—William S. Morrow, M.D.,

Assistant Professor of Physiology, McGill University, Montreal.

I have no cases of heart-block to present to you to-day, but I wish to report two cases of arrhythmia which have some interest in this connexion, and there are certain points in the published work of others which I should like to discuss.

My first case is one which might easily be mistaken for one of heart-block, but on analysis it proves to be a failure of contractility induced by too frequent a rate of heart beat.

Case 1.

G. W., a man of 40, was admitted to Dr. Finley's ward in the Montreal General Hospital on April 10th, 1906, with acute pericarditis. He had been sick ten days. The physical signs were those of pericarditis with a moderate amount of effusion: increased cardiac dullness, friction rub at base, weak heart sounds. The rate at the heart was counted as 140 per minute, with irregular pauses every two to four beats. The radial pulse was irregular, small, and frequent. The rate was counted as 80 per minute. The temperature range of this man, during his first few days in hospital, was from 95° F. to 102½° F. He later developed signs of pulmonary tuberculosis and died.

On the day of admission the house-physician, Dr. Nelles, took the tracing shown in Fig. 1.

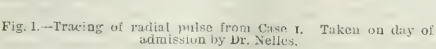


Fig. 1.—Tracing of radial pulse from Case 1. Taken on day of admission by Dr. Nelles.

It would be hard to say from this tracing whether we had to do with a case of heart-block, with a failure of contractility, or with extra systole. Two days after admission I was permitted by Dr. Finley to examine him. (The veins of the neck were not prominent, and the venous pulse was poorly marked, much more difficult to record than in an ordinary healthy man. Nevertheless, it may be used to advantage in analysing the type of arrhythmia.) On this occasion I took the tracings represented in Figs. 2 and 3.

In Fig. 2 the upper line is the right carotid and the lower the right internal jugular. In Fig. 3 the upper is the brachial artery and the lower the internal jugular vein. Time in $\frac{1}{5}$ sec. The jugular pulse is irregular in rhythm, but corresponds in some parts of Fig. 2 to a rate of 200 per minute. In some parts of this tracing we find one arterial pulse interval corresponding to one venous, but more frequently to two or three. In Fig. 3 the rate of the venous pulse is about 175 per minute, and the arterial pulse corresponds very closely. There is only one arterial pulse-beat missed in this tracing.

In these two figures we cannot mark out with certainty all the phases of the venous pulse. There is, no doubt, fusion of waves on account of the frequent rate. We may say, with reasonable certainty, however, that the two depressions correspond to the auricular and ventricular diastoles. The depression occurring first after the arterial pulse is the auricular collapse, and the second the ventricular collapse. Some doubt, perhaps, may be thrown on the identity of the former, but none on that of the latter, which may be shown to follow shortly after the dicrotic wave of the arterial pulse, cf. corresponding points of time D D in Fig. 2, and note ventricular collapse shortly after. The close similarity of the venous pulse in

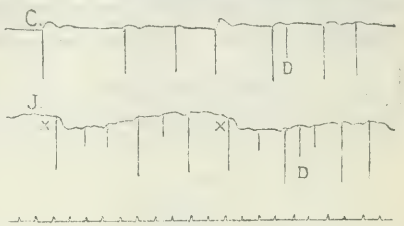


Fig. 2.—Tracing taken from Case 1 two days after admission. Carotid artery above, internal jugular vein below; time in $\frac{1}{5}$ sec. In one part of the tracing four consecutive venous pulse intervals represent a heart rate of 200 per min. The long vertical lines show the time relations of the venous pulse to the systolic wave in the artery. The medium vertical lines marked D show its time relations to the dicrotic wave. The short lines mark the venous pulse intervals for which there is no corresponding arterial pulse. The marks x, x show points at the beginning of inspiration where there is a slowing in the pulse rate and evidence of an auricular wave and auricular collapse.

cases where there is and where there is not an arterial pulse confirms the view that the ventricle is contracting and expanding once for each venous pulse. We therefore have not to do with a fault of conduction, and the intermissions in the arterial pulse are not due to a failure of the stimulus to reach the ventricle, but to a disturbance of contractility on account of which they are not always able to open the semilunar valves. This disturbance of contractility is the result of the too frequent heart action. Where the rate is a little less the intermissions in the arterial pulse disappear, as may be seen in Fig. 3, where the pulse rate is 175 instead of 200, and where the arterial pulse almost always corresponds to the venous.

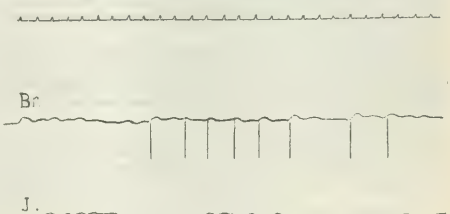


Fig. 3.—Tracing from brachial artery above and jugular vein below, taken from Case 1 the same day as Fig. 2. The pulse rate is a little slower, 175 per min., and the arterial pulse usually corresponds beat for beat with the venous. There is one beat absent from the arterial pulse. In this tracing the auricular collapse is often more pronounced than the ventricular collapse. At x there is a longer pulse interval, and, I think, a well-marked auricular wave and auricular collapse.

It is open to anyone to say that we have in this case the venous pulse of auricular paralysis, as the auricular wave and collapse are hard to find. I have several reasons for thinking that this is not the case. First, I have tracings where the auricles were certainly not paralysed, and yet the ventricular collapse was the most marked of the two (see Fig. 4). Secondly, the neck veins in this man were not distended as is the rule in auricular paralysis.

Thirdly, at the beginning of each inspiration we find a single longer pulse interval, and here the auricular wave and collapse seem to be clearly seen (see Fig. 2, x). I do not think the auricle would pass from activity to complete paralysis from beat to beat. In cases where there is a well-marked auricular collapse it bears its usual time relations to the arterial pulse. I therefore believe that the auricles and ventricles were acting in harmony in this case. I believe that the auricles were beating feebly, but were setting the pace for the ventricles.

Some may claim that this is a case of extra systoles, or, as Mackenzie calls them, "premature systoles." I fancy it is similar in nature to many cases which Mackenzie has described as successions of premature systoles; but there are two strong arguments against this explanation: first, that there are no definite compensatory pauses, and secondly, that the irregularity was in a patient with a severe febrile affection. In such a condition extra systoles usually disappear. In speaking thus I mean to

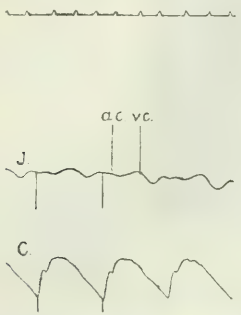


Fig. 4.—Tracing from dog, jugular above, carotid below. Time in $\frac{1}{5}$ sec. Time relations between venous and arterial pulses shown by corresponding vertical lines. A C, auricular collapse; V C, ventricular collapse. The ventricular is the more pronounced of the two.

exclude ventricular and auricular extra systoles. I know of no way in which extra systoles having their seat of origin at the root of the heart can be either diagnosed or excluded.

I believe, then, that this was a case where, from exalted excitability, the root of the heart was beating at an extremely frequent rate; the stimuli were carried down through the auricle to the ventricle; these chambers responded, but so feebly that the effect of the auricular action was sometimes inappreciable in the venous pulse, and the ventricular action was not always strong enough to open the semilunar valves.

On showing Fig. 2 to Dr. Finley he offered to put the man on digitalis to see if he could restore the regularity by slowing down the heart. He gave him 6 gr. a day for nine days. At the end of that time his pulse was as shown in

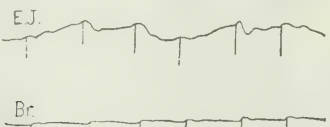


Fig. 5.—Taken from Case I ten days after Figs. 2 and 3. External jugular above, brachial below. The pulse-rate at the wrist was 60 when this was taken. There is still irregularity, but only of the diastolic type, and the arterial and venous pulses correspond. The auricular collapse is well marked.

Fig. 5, and the rate was 60. It was still irregular, but the arterial and venous pulses corresponded, and the arrhythmia was now of the type described by Mackenzie as the youthful or diastolic. This, he tells us, is most common in patients whose pulses have changed from a more to a less frequent rate as was the case here.

There is nothing about this case, perhaps, which is absolutely new. Engelmann has worked out experimentally the effect of frequency of beat in disturbing the contractility of the heart, and Wenckebach and other clinical workers have published more or less complete accounts of similar cases. A limited experience leads me to believe that they are comparatively common, but very difficult to get satisfactory tracings from.

From a study of this case we may conclude that there is a form of arrhythmia with the following characteristics: The arterial pulse shows a disturbance of contractility; that is to say, the size of the beat is not always proportional to the length of the preceding pause.

The venous pulse represents a heart rate considerably more frequent than that shown in the arterial pulse, and the individual waves are so small that it is hard to assign to them their proper causes and time relations.

The failure of contractility is dependent on a too frequent rate.

The treatment of the arrhythmia is that of the excessively frequent heart rate—rest, combined, if necessary, with digitalis.

The next case is one of auricular extra systoles which affords an opportunity for the study of the conductivity of the heart.

CASE II.

The patient was a boy of 13, who made no complaints of poor health. He was said to have had influenza and slow fever about two years previously; no illness since. He was small for his age and pigeon-breasted, having probably suffered from rickets in childhood. His apex beat was well marked in the normal position, and his heart dullness was normal. There were no adventitious sounds. The veins of his neck were moderately dilated. There was an intermission or weak pulse beat at the radial at irregular intervals, varying from a few seconds to about a minute. Figs. 6 and 7 represent tracings taken from his carotid artery and Figs. 8 and 9 represent tracings from his internal jugular vein.

Vertical lines are drawn though the beginning of the systolic wave of each pulse. The pulse intervals are written above in $\frac{1}{5}$ sec. The pulse was at the rate of about 70 per minute. We see in Fig. 6 a premature beat or extra systole occurring after an interval of only $\frac{2}{5}$ sec. This is followed by an incomplete compensatory pause, but it may be shown that after a few beats the time lost has been entirely made up. Estimating the time in $\frac{1}{5}$ sec. the two beats, 1 and 2, before the extra systole occupied together $8\frac{3}{5}$. The premature and the three following, 3, 4, 5, and 6, will be found to be $17\frac{1}{5}$, exactly double, which shows that compensation is ultimately complete. The fact of there being compensatory pauses shows that we have to do with extra systoles, either auricular or ventricular. The fact that it takes several pulse beats for compensation to be complete shows that we have not ventricular but auricular extra systoles to deal with. In taking the tracing represented in Fig. 7, I was fortunate enough to place my receiver over both the carotid artery and the internal jugular vein. The general form of the tracing is that of the arterial pulse, but we have a wave just preceding the systolic rise that can only be the auricular wave from the jugular. Here we find that the extra systole occurs earlier than in Fig. 6, after an interval of only $\frac{1}{5}$ sec., and we find on adding up the pulse intervals that the succeeding compensation is incomplete. The two intervals before the premature occupy $8\frac{1}{5}$ fifths, and the next four $16\frac{1}{5}$. This means that complete compensation fails by $\frac{1}{10}$ sec. This may be explained by supposing that the auricular extra systole originated a wave which travelled back to the venous ostia or root of the heart and brought about a slightly premature beat there which permanently displaced the rhythm of the heart. In Fig. 6 the premature auricular action occurred a little later, and by the time the backward wave reached the ostia the contraction there was already commencing.

I obtained tracings of 11 different extra systoles from this boy. In 2 or 3 of these compensation was ultimately complete, and in the others it was incomplete. In some of these tracings the auricular wave was so merged with the preceding one that it was difficult to note when it began. In Fig. 8 all the waves show, and this tracing may be used for some interesting calculations. In the premature contraction the systolic wave occurs $\frac{1}{10}$ sec. before it is due, and the auricular, if measured out, will be found to be $\frac{1}{5}$ sec. before its proper time. Compensation is ultimately nearly perfect in this case; it failed by about $\frac{1}{20}$ sec. The wave passing back from the auricle in this case reaches the venous ostia just before their proper contraction is due. This $\frac{1}{5}$ sec., then, about represents the

time taken by the contraction wave in passing up to the venous ostia and back. If it passes up and down at the same rate, it travels one way in $\frac{1}{5}$ sec. We may say, then, that the ρ-A interval equals $\frac{1}{5}$ sec. In different cases that I worked out my results vary between $\frac{1}{10}$ sec and $\frac{1}{5}$ sec.,

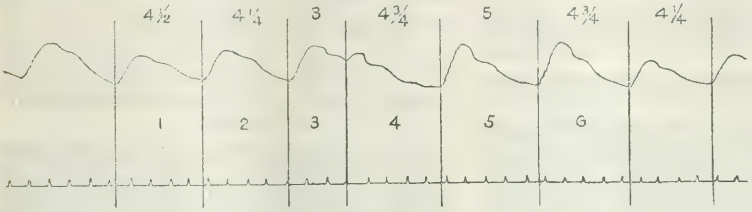


Fig. 6.—Cartoid pulse from Case II. showing an extra systole. Time in $\frac{1}{5}$ sec. The pulse intervals are marked above in $\frac{1}{5}$ secs.

so that we may, I think, say that the ρ-A interval is about equal to the A-V interval.

The reason usually given for the fact that the compensation after an auricular systole is distributed over several pulse beats is an alteration in conductivity (see Wenckenbach's book on arrhythmia). In Fig. 9 it is easy to see a variation in the A-V interval with the length of the proceeding pause. The A-V interval in the premature beat is the longest, $\frac{1}{5}$ sec., and the one after the long compensatory pause is the shortest, about $\frac{1}{10}$ sec., because the conductivity had improved during the long rest. In Fig. 7 the interval after the long pause can also be seen to be much diminished. The change in the A-V conductivity, however, does not, as a rule, entirely explain the long pulse interval 5 succeeding the first compensatory pause. We must, therefore, assume that the conductivity between the root of the heart and auricle, ρ-A interval, also undergoes modification.

The time at my disposal has only permitted me to

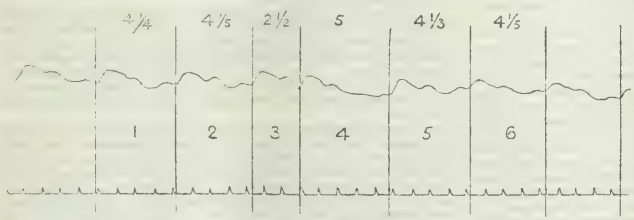


Fig. 7.—Case II. Receiver placed over carotid and internal jugular. Shows carotid pulse with auricular wave of jugular in addition.

indicate the direction in which the analysis of such a case may tend.

This boy did not receive any treatment, but three months later I failed to detect any irregularity in his heart rhythm, and have since then examined his pulse on several occasions without detecting any.

As to the cause of the arrhythmia I cannot assign any, unless it be connected with early rickets, acting so as to interfere with the circulation, produce distension of the veins, and raise the pressure in the auricles. The question of a lack of certain kations might also suggest itself. If the arrhythmia had not disappeared I should have tried the effect of calcium salts.

The important points clinically are that the arrhythmia occurred in a patient only thirteen years of age, that it had its origin in the auricles, and that it disappeared spontaneously.

In the few minutes still left to me I want to draw the attention of this meeting to the fact that certain publications on the venous pulse in relation to arrhythmia are marred by a faulty interpretation of the normal waves. Mackenzie gives the name "carotid wave" to one which has little or nothing to do with the carotid, as is shown by the fact that it is little affected by clamping this artery at its point of origin from the aorta. He gives the name "ventricular wave" to one that has absolutely nothing to do with the ventricle in normal cases, as is shown by the fact that it is quite as well seen when the ventricle is inhibited by vagus stimulation as when the ventricle is active.

These misconceptions have led some of his followers to gross errors in the interpretation of venous pulse tracings even in the pages of the British Medical Journal, Mackenzie himself has not been entirely free from wrong practical deductions. His conception of the systolic wave as due to the carotid has made him misjudge the

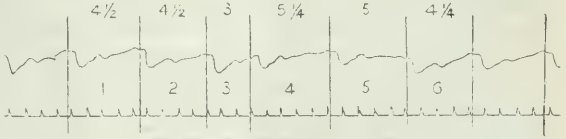


Fig. 8.—Case II. Internal jugular. Vertical lines drawn through beginning of systolic wave.

auriculo-ventricular interval in a case he reported in the British Medical Journal for March 5th, 1904, by assuming a presphygmic interval that does not exist in the venous pulse. His conception of the wave which he calls ventricular — but which should be called the onflow wave or some equivalent term, as it is caused by the onflow of blood from the periphery—has led him to misinterpret a beautiful series of tracings of heart-block in his book on the pulse (Figs. 320, 321, 322). It is perhaps not fair to dwell on this latter case, as he must long ago have discovered his slip. In fact, it was his own later teachings that enabled me to detect it.

I have not time here to make good these criticisms by formal proofs, but intend to discuss the causes of the normal waves in detail in a paper before the Physiological Section to-morrow. I mention the matter here in the hope that those interested will glance through the latter paper when published and judge between Dr. Mackenzie and me in accordance with the evidence.

In closing, I desire to express my indebtedness to the

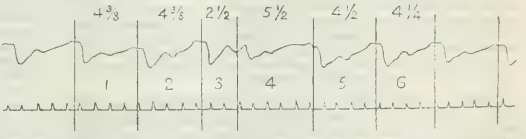


Fig. 9—Case II. Internal jugular. Vertical lines are drawn through beginning of systolic wave, and in several instances on the auricular wave as well.

attending physicians of the Montreal General Hospital for granting me the freedom of their wards for this work. I would especially mention Dr. Finley, who has shown a great interest in my tracings, and has discussed my more striking cases with me.

CASE OF STOKES-ADAMS DISEASE.

By Sir JAMES BARR, M.D., F.R.C.P., F.R.S.E.,
Physician, Royal Infirmary, Liverpool.

THE following are the notes of the case:

Rev. W. J. E., aged 64. Clerk in holy orders. Admitted to the Royal Infirmary, Liverpool, under my care, May 7th, 1906, complaining of nervous prostration from overwork. He is a short, thick-set, large-chested, fairly healthy-looking man.

Family History.—Father died at 70, was asthmatic; mother at 70 to 75. One sister suffers from asthma. He has two healthy children.

Personal History.—He has always been healthy, but not robust. When in Düsseldorf in February, 1905, he got out of bed one night to micturate and fell down in a semi-conscious state, but he was able to get back to bed. The same week, when hurrying to the station, he fell forwards on his face; nose bled. He was quite unconscious, but for how long he cannot tell; he was in bed for about a month subsequently. The second day he took to bed he had several attacks of unconsciousness. He vomited the following day, and had no further attack that month. He improved, and left on May 30th to take up a curacy in London, where he remained till April 7th, 1906. During the ten months he had repeated attacks, especially after overwork. On April 11th, 1906, he went to New Brighton with the intention of resting there for some months. He was then taken much worse, owing, he thinks, to the bitterly cold winds. For days he had repeated—almost incessant—attacks of unconsciousness, and his pulse was only 17 in the minute; but, under the influence of spiritus etheris sulph., prescribed by Dr. Riddell, it rose to 28. Dr. Riddell sent him to the Royal Infirmary under my care.

The following note was dictated by myself on June 2nd: This man lies placidly in bed; no one would suspect that there was much the matter with him, his breathing being quiet, and there being no anxiety or distress of any kind. There is, however, a history of frequent attacks of unconsciousness accompanied by an extremely slow pulse. Since admission he has had many of these attacks, during which he becomes pale, semiconscious, and has an extremely slow pulse. In a short time his face becomes flushed, and he returns to his previous condition. His pulse is constantly slow, never numbering more than 24 to the minute, and during the attacks of unconsciousness has fallen to 18, 15, or even to 12 per minute. The individual pulsations are large, full, and forcible, and between the beats the artery gradually empties. The arteries are somewhat thickened but not tortuous, and there is no beading of the walls. The rhythm of the pulse varies considerably; at times it is fairly regular, while at others the beats occur in pairs or are irregularly spaced. All the beats, however, are of good volume.

The cardiac area is large, extending 2½ in. to the right and 5 in to the left of the mesial line. Both ventricles seem involved, but the left perhaps most so, and the dimensions of the heart would point to a weight of at least 20 oz. Apex beat is situated in the fifth interspace in the nipple line, is strong and heaving. At present there is no pulsation in any other part of the precordium. At the apex the first sound is dull and long, and followed by a rough, blowing, systolic murmur; this is succeeded by a double second sound. When he takes a deep inspiration and holds the breath, there are heard two or three muffled beats between the ordinary systoles. These beats seem accompanied by slight impulses. At this time the pulse disappears at the wrist, or at least the frequency is diminished, while the number of heart-beats is increased. When now examining him, he had a distinct attack with loss of consciousness, ending with a few convulsive twitchings of the face and the right hand. At this time his chest was fully expanded; there were no pulsations at the wrist, but there were obscure, dull, and rather more frequent sounds over the right ventricle. Over the tricuspid area the first sound is short and dull, followed by a blowing systolic murmur and double second sound, the final element of which being the loudest.

At the pulmonic area the first sound is obscure and the second double, the final element being the loudest. At the aortic area the first sound is not appreciable; second sound is clear and somewhat accentuated. There is distinct pulsation in the veins of the neck. The hepatic dullness is large, reaching about 1½ in. below the costal margin, and measuring 5 in. in the nipple line. Lungs are normal, so also are the other organs. Urine normal but scanty.

When Dr. John Hay, and my house-physician, Dr. Jones, were taking cardiographic and sphygmographic tracings, I found that when the patient took a long, deep breath, and then held his chest expanded as long as possible, the following events occurred:

During the deep inspiration there were two beats of the heart and two pulses at the wrist; then the pulse disappeared in the carotid, brachial, radial, and femoral arteries, and remained absent for several beats. At the same time the impulse of the heart disappeared, and the clear, loud first sound and systolic murmur were replaced by a low, dull-toned, obscure sound, and the second sound was not audible. After four or five systoles, which I attributed to the right ventricle, the clear first sound and systolic murmur and the double second sound reappeared and were associated with a return of the pulse in all the arteries, while his chest was still expanded. Here undoubtedly the blood was stored up in the lung reservoir, and the proper systoles of the left ventricle and the pulse in the arteries did not appear until the reservoir overflowed. He had several epileptic seizures during the periods of suspended breathing with the chest expanded. These attacks always occurred after the pulse had ceased for about 20 seconds.

June 4th, 1906. This morning he had several attacks similar to those already described. As a rule he feels a kind of rushing of blood through the head, he becomes quite pallid, pulse disappears at the wrist for about 15 seconds; there are a few convulsive twitchings of the face and arms, followed by flushing of the face. Eyes are turned upwards towards the right, and sometimes to the left. During one of these attacks the pulse-rate numbered 11 per minute.

June 5th, 1906. Similar attacks occurred frequently this morning. Pulse at the wrist disappeared for 20 seconds during each of two attacks, for 25 seconds during one attack. The foot of the bed has been raised about 12 in., and he lies with his head on a low pillow. He has passed very little water these last few days, and there is a considerable amount of albumen present.

June 6th, 1906. (Sir J. Barr.) At the apex and also over the right ventricle there is a strong impulse which corresponds to the strong pulsation at the wrist. Succeeding this there are four, occasionally five, feeble impulses accompanied by a dull sound. These beats have got single sounds, but the strong impulses are followed by second sounds. He has occasionally short epileptic seizures, chiefly affecting the right side of the face and arm. The fits are generally preceded by two or three long-drawn inspirations, and then the chest remains fixed for a time and the pulse disappears, and this is followed by convulsive twitchings.

June 7th, 1906. (Sir J. Barr.) Has just had (3 p.m.) a severe epileptic seizure, during which the pulse entirely disappeared from the wrist, and the breathing was rapid and laboured. Afterwards the pulse returned and reached 108 to the minute—regular, large volume, and forcible. Then the heart's action stopped, and for 30 seconds there was no pulse; it then recurred about once every 5 seconds for the next half minute. Again it stopped, and there was no pulse for about 10 seconds; then the rhythm became very slow, about 18 in the minute, and a little later rose to 26.

June 7th, 1906, 4.15 p.m. Another severe attack, similar to the one described above (ward sister). 7.30 p.m., pulse at wrist 7 to the minute. 9.30 p.m., pulse 7 beats per minute. Fully conscious, but has no clear recollection of having seen Sir J. Barr at 3 p.m. Urine clear, 1010, faintly alkaline, albumen distinct cloud, slight deposit of mucus. Quantity passed the last few days has been very small. To-day he has perspired profusely

11.15 p.m. Another severe attack; face became quite livid, no change in size of pupils. Pulse disappeared for fully 60 seconds, and no sounds could be heard over the heart. During this period, and for a short time subsequently, the respiration became very rapid and laboured. During the next minute following the cessation of the pulse the beats numbered 8 per minute, the third minute they rose to 80 per minute. This rate was maintained for about two to three minutes, when the pulse at the wrist again stopped for 60 seconds. The next minute the beats numbered 8 per minute; during the third minute they rose to about 80 per minute. The beats then gradually diminished in frequency to 24, when he passed into a quiet sleep. For some time after the attack he was only semi-conscious.

June 8th, 1906, 12.45 a.m. Very severe epileptic attack. No pulsation at wrist or heart for 90 seconds, respiration also ceased for a short period; face became purplish; both arms quite rigid; head moved slowly to left, the eyes opened, no marked change in pupils; he was grinding the teeth for a few seconds; then a few gasping respirations, and the colour of the face once more returned. As before the pulse-rate was 8 during the succeeding minute, then rose to about 80, but gradually slackened to about 24. For several minutes after the attack he was perfectly unconscious, the arms dropped helplessly.

1 a.m. Was given hypodermic strychnine, gr. $\frac{1}{30}$; atropine, gr. $\frac{1}{150}$. Shortly after the pulse was again observed to stop for about 30 seconds, very slight attack succeeded with the same rhythm as before (8 . . . 80 . . . . . 24). He rallied, spoke quite distinctly and took a drink of water: then fell asleep. A little later he reached for the cup himself and drank a little water. 2.20 a.m., was sleeping naturally, respiration 20 per minute, quiet. He is said to have had another severe attack about 2.30 a.m. Slept from 3.15 to 4 a.m. Spoke to the nurse quite rationally, took a drink himself. He had another severe attack, made five or six gasping attempts at respiration, but remained livid and was dead before the arrival of house-physician at 4.15 a.m.

Numerous cardiographic sphygmographic tracings are

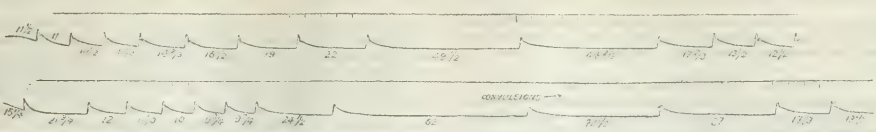


Fig. 1.—Tracings of radial pulse, showing variations in the frequency of ventricular systole. The time marks record one-fifth of a second; this applies to all the tracings. The numbers indicate the numbers of fifths of a second between one systole the next.

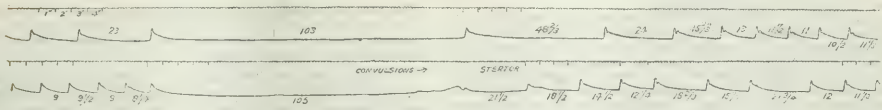


Fig. 2.—Similar tracings.

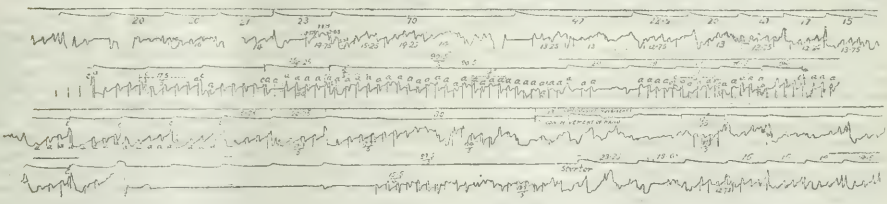


Fig. 3.

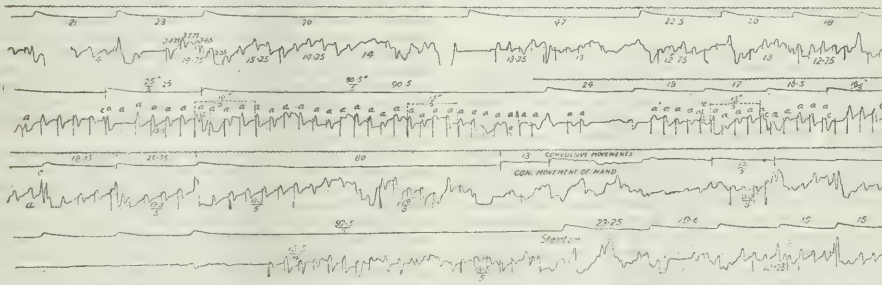


Fig. 4.

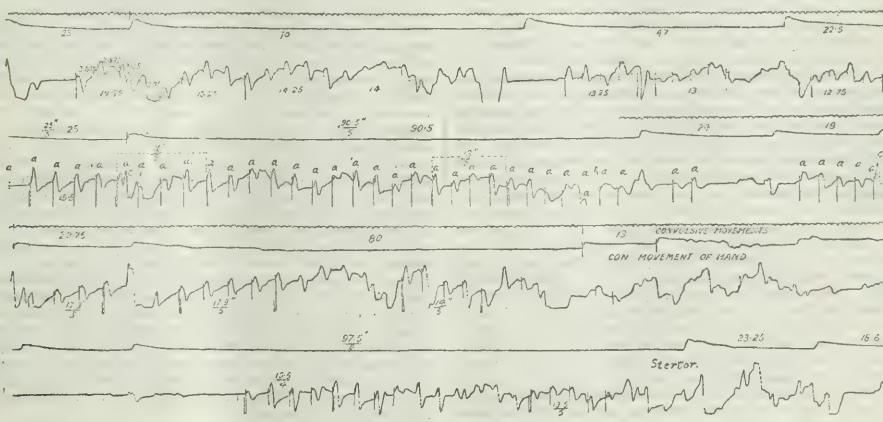


Fig. 5.

Figs. 3, 4, 5.—Simultaneous tracings of the jugular and radial pulses taken with Mackenzie's polygraph. In each tracing the upper record is from the radial artery, the lower from the right jugular vein. In one of the tracings the waves due to systoles of the auricle are labelled "a." c = the jolt to the lever caused by the carotid impact. Four attacks are shown, and the tracings so arranged that the attacks are placed over one another.

Fig. 5 demonstrates more particularly what occurred during the attack.

Figs. 3 and 4 show also the condition immediately before and after the attacks. In the lower tracing in Figs. 3, 4, 5 the tambour was not properly applied to the jugular vein at the beginning of the attack. Note that during an attack the auricular frequency tends to increase, and that stertorous breathing and convulsive movements occur towards the end of the attack.

exhibited. Blood was examined by Wright's method for lime salts, it was not coagulable in any of the six columns of ammonium oxalate solutions from a dilution of $\frac{1}{1000}$ to $\frac{2}{1000}$.

Autopsy Twelve Hours after Death.

Brain appears normal; pons and medulla retained for microscopic examination. The middle meningeal, the vertebral, and arteries at the base of the brain are thickened.

Lungs.—Slight oedema of the right lower lobe. Left upper lobe adherent to the chest wall, the adhesions being easily broken down, lobe normal; slight collapse of left lower lobe, no oedema; lungs otherwise normal.

Heart.—Weight of heart with the aortic arch 19½ oz.; thickened white patch over the apex of the left ventricle. Left auricle dilated and hypertrophied; left ventricle dilated and markedly hypertrophied. The aortic cusps and mitral valve show some thickening towards their base; the patchy fibrosis of the aortic cusps is most marked at the junction of the mitral and right septal cusps. Right auricle dilated and walls somewhat thickened; right ventricle dilated and hypertrophied. Tricuspid valve normal, orifice admits three fingers. Pulmonary valves slightly thicker than normal, a few yellow patches in the pulmonary artery. Heart sent to Professor Keith, whose report I append.

Liver, 40 oz.; nutmeg in appearance; a considerable amount of fatty degeneration.

Spleen weighs 3 oz.; slight reticular fibrosis. Kidneys, each weigh 5 oz.; capsules strip readily, structure normal.

Preliminary Report on Patient's Heart by Professor Keith

1. Although the main coronary arteries appeared but slightly thickened, yet the arteries near the bundle show under the microscope irregular patches of thickening.

2 The bundle at the point of perforation is (more than half of it) reduced to a fibrous condition. The subendocardial distribution also shows thickening of what I call myolemma.

3. The central fibrous body is atheromatous, stretched, and shows the insinking of the aorta into the heart (the contraction of high strain).

This is a very typical example of what is usually described in the present day as one of heart-block, concerning which we have had a great amount of valuable work to-day. Notwithstanding all the admirable work which has been done on this subject by Mackenzie, Engelmann, Wenckebach, Erlanger, Keith, Gibson, Osler, Stengel, Hay, Magee Finny, and others, I am not yet convinced that the usual explanation of some degenerative changes in the auriculo-ventricular bundle of His can satisfactorily account for the phenomena of this disease. In fact, I am very doubtful about any impulse being normally transmitted from the auricles to the ventricles through this bundle of His, which, from published descriptions, seems to be of a peculiar muscular constitution, consisting largely of sarcoplasm enclosed in a fibrous sheath and almost devoid of striation, and according to Retzer is 18 mm. long, 2.5 mm. wide, and 1.5 mm. thick. There is no evidence that the band contracts, and, apart from contraction, there is no evidence of any stimulus travelling along the muscular fibres of the heart. The so-called myogenic stimulus, or the production of a stimulus of contraction as a function of the cardiac muscle is, so far as I know, purely an inference, possibly a figment of the imagination which exists in the brain of certain writers rather than in the cardiac muscles. Of course there may be such a stimulus, but before believing in it I should like to know what it is. If it were a salt of potassium, or sodium, or calcium, or an alkaloid like strychnine, or some difference in electrical potential, we might form some conception of its nature and action. We have all had experience of the vagaries of an electric battery, but that is nothing compared with the peculiarities of this bundle, which within five minutes may regularly transmit every impulse, or may only transmit every second, third, fourth, or fifth impulse, or may not transmit any. Of course I may be told that the very careful and elaborate experiments of Erlanger have clearly demonstrated all these varieties of transmission in the dog's heart by varying degrees of compression of the auriculo-ventricular bundle. I think I have read all the previous writings of Professor Erlanger on this subject, and his experiments seem to me to show, not the transmission or the non-transmission of an impulse along the compressed bundle, but that the ventricular contractions were much fewer than the auricular, and did not follow in proper succession, and from this it was inferred that some supposed impulse did or did not travel from the auricles to the ventricles. There is no inquiry into any other possible explanation of these phenomena, nor any statement of the condition of the blood reservoirs which ordinarily supply the heart's cavities with their proper stimulus to contraction—namely, the blood. If under normal conditions a stimulus is produced at the great veins or in the muscular fibre of the right auricle, it should reach the ventricle through this bundle of His long before the auricle had ceased contracting, and thus we should have normally the ventricle opposing the action of the auricle. Leonard Hill says:

> The rate of propagation of the contraction wave in the heart is so fast, reaching 5 metres a second or more, that, for all practical purposes, we may say that the contraction of the whole ventricle is synchronous.

With this rate of propagation it does not do to attach too much importance to records of one-fifth of a second, and Professor Erlanger says in one of his papers, "No stress will be made on small differences in time, these errors will certainly be negligible."

In my patient we could bring on a "block" when we liked, and this was simply done by making the patient take a long, deep breath and then hold his chest fully expanded. The expansion of his large capacious chest aspirated the blood into the great veins and right auricle. The contractions of the right auricle increased in frequency and to a slight extent those of the right ventricle. I may be told that the feeble sounds which I heard over the right ventricle were auricular in origin; but, if so, there should have been three or four times more of them, as the right auricle was beating that much more frequently than the ventricles. The left ventricle had contracted twice, until it had disposed of its supply of blood, and then its systoles ceased, until the large lung reservoir overflowed and the diastolic pressure in the left ventricle was again sufficient to stimulate its rhythmic contractions. Some years ago I had another case of Stokes-Adams disease under my care, where the right ventricle and auricle contracted two and three times for each effective contraction of the left ventricle; the contractions of the right ventricle were accompanied by audible sounds and feeble impulses.

It is not sufficiently recognized that the heart is not a single organ but two organs—each of which has got its own definite work to perform—linked together for mutual assistance in cases of stress or difficulty. All parts of the heart can be excited to contraction by various stimuli except during the refractory period, but the right auricle is the most sensitive part of the heart, and responds to stimuli for some hours after the rest of the heart has become quiescent in death. The two auricles are intimately linked together by a community of muscular fibre, and although the wave of contraction may, and I presume usually does, commence in the right auricle, it is quickly propagated to the left, and consequently their contractions are simultaneous. When the auricles have driven a sufficient amount of blood into the ventricles to raise the diastolic pressure and stimulate contraction, the ventricular systole begins, and it is rapidly propagated over both ventricles. The right ventricle is usually more sensitive than the left, or is better supplied with blood, as when you get doubling of the first sound the first element is almost invariably associated with the right ventricle. Although the right ventricle usually initiates ventricular contraction it is often slower in completing its work than the more powerful left ventricle, because when you get doubling of the second sound the final element is frequently pulmonic. In Müller's experiment, and in cases of the pulsus paradoxus the systole of the left ventricle may be delayed or abolished for one or more beats owing to defect in the diastolic tension. All parts of the heart act rhythmically, but even in perfect health the rhythm is constantly liable to considerable variations which are readily detected if you will take the trouble to measure the various periods of activity and rest, not in fifths of a second, but in fiftieths or hundredths of a second.

I am still open to conviction regarding the function of this bundle of His, but at present I am rather pleased to think and hope that the activities of the ventricles do not hang by such a slender thread.

I have seen some of Sherrington's experiments on the isolated mammalian heart which he kept beating for hours under the influence of nutritive fluid supplied through the aorta and coronary arteries. The heart contracted quite

rhythmically, and after several systoles there regularly occurred an extra powerful systole of the right ventricle to dispose of the accumulated fluid which had been returned by the cardiac veins to the right auricle and thus raised the diastolic tension in the right ventricle.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

MISSED ABORTION.

The leaderette in the British Medical Journal of September 22nd, p. 724, on Missed Abortion reminds me of a case of this kind which I attended twenty-five years ago, and of which the following are the salient points:

The patient was aged 26, four years married, and had one child, at term, twenty months before coming under my care in September, 1861. Three months after the birth of her child menstruation returned, and continued regular up to six months before I saw her, when she considered herself pregnant again. The usual symptoms of pregnancy, including suppression of menstruation, were present. At the end of three months there was enlargement of the hypogastrium. Now she was severely shaken by a fall on her knees, and this was followed by a sanguineous vaginal discharge which lasted some hours, but nothing was expelled from the uterus; there were no uterine contractions. After this all symptoms of pregnancy disappeared, and the enlargement of the hypogastrium gradually diminished. She became quite pale, thin, and weak, and she felt very uneasy as well as puzzled about her condition. She complained of the left lower extremity "going to sleep" often, and of pain in the left groin, thigh, and leg.

Frequently during August, which is a very hot month in America, she felt so cold at night as to require heavy bed coverings to keep warm; she had chills frequently, and once had had a rigor. There was decided gastric disturbance, diarrhoea, sweats, a petechial rash on the skin of the hypogastrium, and pruritus.

Examination showed the uterus was considerably prolapsed, enlarged, heavy, and lying in the left side of the pelvis; the os tincae admitted my index finger.

I prescribed fluid extract of ergot and strychnine, the first dose of which was followed by uterine contractions, ending in the expulsion of an ovum which was abominably foul-smelling. The amniotic sac was entire, and contained 1 fluid ounce of thick, straw-coloured, very fetid fluid, and twins hardened and much reduced in size, and still attached by their cords to the placenta, from which the cotyledons had practically disappeared. Evidently this decomposed mass had had no vital connexion with the uterine wall for a long time, and absorption could only occur from contact, especially when the patient was lying down. Involution of the uterus was extremely slow.

Stillorgan, co. Dublin. P. O'Connell, M.D.

THE TREATMENT OF UNDESCENDED TESTICLE.

Judged by the after-history of cases, "radical cure" of undescended testicle, as usually performed, seems to be a very unsatisfactory operation. The method I am about to describe I have adopted in seven consecutive examples of the condition occurring in five patients. The first operation dates back five years, the last about three months, and in every case the testicle remains in the scrotum, and has given no further trouble.

The patient having been prepared, the usual hernia incision is made over the inguinal canal, the external oblique aponeurosis is divided, and the testicle and sac defined. Vas and veins are cautiously separated from the sac, which an assistant holds out of the way, and the cremaster is isolated and divided close above the testicle. The assistant now invaginates the scrotum until it is turned inside out, and an incision is made through the fascia lining it, which is dissected up from the scrotal skin. The testicle is put into the pouch thus produced, and a couple of catgut sutures bring the fascia together over it, so that it comes to lie between the skin and the fascia lining the scrotum. The peritoneal sac is ligatured high up, cut off, and the stump pushed within the internal ring. The aponeurosis is sutured, and a stitch is passed through the cremaster and the pillars of the external ring; the skin having been sutured, the operation is complete. In two of the cases, where the testicle was inclined to be drawn up against the external ring, a suture was passed through the scrotum and the testicle, and the latter was anchored to the thigh. Both did well, but I question the necessity of the proceeding, and have no intention of repeating it.

Lachlan Fraser, M.S., M.D.,
Surgeon to the Tynemouth Infirmary, North Shields.

INTUSSUSCEPTION AND INTESTINAL ULCERS.

The following case of intussusception seems worth reporting, because an apparent cause was found for the lesion, and because it shows the advantage of early laparotomy. The patient, a strong well-nourished child, 2 years of age, was taken ill during the night with pains in the abdomen, and spent a restless night with short intermittent snatches of slumber. At 5 a.m. it passed a loose natural motion, and at 8 a.m. some blood and mucus.

Clinical Data.—I saw the child at 10.30 in the morning. It was then lying face downwards on a sofa, knees drawn up over the abdomen, turning every now and then from one side to the other. The child was not crying, and though uncomfortable, did not seem in any very great distress, and allowed itself to be examined after a little persuasion. On inspection nothing was noticeable beyond contraction of the abdominal muscles. By careful palpation a slight swelling could be made out just above the level of the umbilicus on the right side of the abdomen. An intussusception seemed the most likely diagnosis, and I thought the abdomen should be opened as soon as possible. Local help being unavailable, I finally telegraphed to Dr. Arthur Ball, who drove down from Dublin and agreed to operate. At 3 o'clock, about twelve hours after the child became ill, the abdomen was opened by a 4 in. incision above and to the right of the umbilicus, and the intussusception at once becoming evident, extending from the caecum half way along the transverse colon. The intussuscepted part was carefully expressed by pressure made on the lower part of the tumour. Some difficulty was found in extricating the last portion at the ileo-caecal valve owing to a swelling in the wall of the ileum. When finally reduced, this was found to be a hard inflamed mass involving about one-third of the circumference of the bowel. The corresponding mesenteric glands were enlarged and we concluded it was probably a tuberculous ulcer. The ulcer had apparently started the invagination of the short piece of ileum through the ileo-caecal valve; the caecum next became invaginated upon itself after the mass had passed through the valve. Except for the parts near the tumour and the lower end of the caecum, which were of a dusky to bright red colour, the perineum was unimpaired. The peritoneum over the ulcer was then fixed to the parietal peritoneum by a couple of sutures. This prevented a recurrence of the invagination, and fixed the inflamed surface in a safe place should a perforation follow. The abdomen was then closed. The child stood the operation well, and after a restless twenty-four hours made an uninterrupted recovery, and was running about a fortnight after the operation, refusing to stay in bed any longer.

Remarks.—The case shows the advantage of laparotomy and of an early operation, as no amount of pressure by water or air in the rectum could possibly have forced the swollen mass of ulcer and small intestine back through the ileo-caecal valve, and to have tried these methods without success would have involved a serious loss of time, and might possibly have done further harm.

Malahide, co. Dublin. W. G. Joynt, M.D.

NITRITE OF AMYL IN THE TREATMENT OF POST-PARTUM HAEMORRHAGE.

On September 15th I was called to attend Mrs. W., who was in labour. She was a 4-para, aged 33, and had had a very bad previous confinement owing to severe *post-partum* haemorrhage. So severe, indeed, was it, that her medical attendant was unable to leave her till eight hours after delivery. During her last pregnancy she had been in a very poor state of health, which was partly due to the fact that she was unable to obtain a sufficient amount of nourishment, her husband being out of work. The labour was normal until the extraction of the placenta, when profuse flooding commenced. This was, however, almost immediately arrested by the inhalation of a capsule of nitrite of amyl. After a hot saline infusion of two pints per rectum the pulse, which had run up to 120, soon improved, and in less than an hour was 86. No further trouble followed.

Driffield, Yorks. J. R. Keith, M.D.Aberd.

CASE OF HAEMORRHAGIC TYPHOID WITH PERFORATION IN THE ASCENDING COLON.

The history of this case dates from August 20th, 1906. On that day the patient, Arthur H., an imbecile, was seen to vomit while watching a cricket match, and have a rigor. When seen late that night some cough was noticeable, his breathing was rapid, and on auscultation some crepitations were to be heard at his right base. His temperature registered 103.5°. The case was thought to be one of pneumonia. The patient complained of nothing, with the exception of the cough.

The next morning the cough remained about the same and any expectoration there may have been was swallowed. Respirations were 38, shallow, and abdominal in type. Crepitations were heard at both bases. There was also some slight dullness and increased vocal resonance at these areas. His tongue was heavily coated with thick yellow fur and very dry. His breath was offensive. The abdomen moved fairly well; it was only moderately distended. No rigidity was present on palpation except in the left hypochondrium, where there was some slight resistance on palpation. The spleen could not be felt. The liver dullness in front had almost completely disappeared, except for a small space near its upper border, and it was replaced by a highly resonant note. This note on auscultatory percussion seemed continuous with the resonance of the stomach. His pulse was 114, of extremely low tension, very small, and running in character. His temperature was 104°. No skin eruption except acne vulgaris. There had been a few very loose stools of the peasoup character one often sees in typhoid.

A diagnosis of perforation of some hollow viscus was made. Laparotomy was suggested, but leave was not granted. After this his temperature rose to 105° and remained above 104°. Dyspnœa became more marked and the patient was seen to wince when his left hypochondrium was palpated. This region at times was very resistant to palpation, but when it was more relaxed an enlarged spleen could be felt. The amount of rigidity varied much, however; sometimes the whole abdomen, especially the left half, would become quite hard. His pulse became progressively worse, about 150. Respirations, 48. Distension was latterly very marked and he died on the 26th. The temperature rose to 106° before death.

Autopsy.—The right lung weighed 13 oz.; the left 10½ oz. Bronchopneumonia was present at both bases. The peritoneum was rough and coated with lymph. There was a considerable amount of blood stained fluid in the flanks and pelvis, with a faecal odour. The stomach exhibited *post-mortem* digestion but was otherwise normal.

Intestines.—The Peyer's patches in the ileum were much swollen, especially those close to the caecum. Some showed sloughs. In other cases the sloughs had separated. In the ascending colon the solitary follicles were enlarged. A small round perforation was found in the ascending colon, close to the hepatic flexure. There were many haemorrhages into the walls of the small intestine. A large extraperitoneal haematoma was found under the upper part of the left rectus; there were some smaller haemorrhages into the right rectus.

The case is instructive in several respects. It illustrates the difficulty there may be in diagnosing peritonitis in the insane. Until the patient was within a few hours of death the abdomen moved fairly well and was hardly at all rigid. Moreover, the patient complained of no pain.

The feeling of resistance in the abdominal wall of the left hypochondrium at first marked the enlarged spleen. It was also due to a haematoma and not to what was thought to be possibly a contracted muscle over a ruptured gastric ulcer. It shows well that a patient may be walking about and taking moderate exercise with typhoid up to the moment of perforation.

Also it is an example of the haemorrhagic type of typhoid, moreover with the ascending colon as the site of perforation.

London Hospital, E. ECHLIN S. MOLYNEUX.

A Congress of Military Medicine.—A Congress of Military Medicine will shortly be held in Paris. The object is to bring into personal and scientific contact with each other the medical officers of the army and their 6,000 brethren of the reserve.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

NORWOOD COTTAGE HOSPITAL.

TWO CASES OF ACUTE OBSTRUCTION, INTESTINAL AND PYLORIC, IN THE SAME SUBJECT, CAUSED BY HAIR BALLS.

(Reported by A. Scott-Turner, M.R.C.S., L.R.C.P., Honorary Surgeon.)

A domestic servant, aged 29, was admitted under my care into this hospital with symptoms of acute intestinal obstruction. She was unable to throw any light on the cause, the history she gave being that for years she had suffered from repeated attacks of colic and indigestion, and that one attack, which had been just like this one, had been diagnosed at perityphlitis.

State on Examination.—Careful examination, however, both abdominal and per rectum, revealed no signs of trouble



Photograph reduced; the long thread round the larger ball is a silk ligature, 13 in. long, found embedded in it.

round the appendix, and we felt no definite tumour in the abdomen, which was distended and tender.

Operation.—With the assistance of my colleague, Dr. John Douglas, I performed laparotomy, and first examined the appendix, which we found perfectly healthy and showing no signs of previous inflammation. Further search revealed a hard lump, which, on being brought down into the incision, proved to be in the small intestine, and was obviously the cause of the obstruction, as we could not move it either backwards or forwards. We made an incision in the bowel in its long axis, and took out what proved to be a hair-ball, measuring 2¼ in. in length, 4½ in. in circumference, and 1⅜ in. in its longest diameter. The intestine was sewn up with Czerny-Lembert sutures, the peritoneum, etc., in the usual way.

Result.—There was no collapse after the operation, and the patient made an excellent recovery.

Second Attack.—Between three and four weeks after the operation, when we were only waiting for her abdominal belt to let her get up, vomiting set in again and she could retain nothing. When this had continued for two days the nurse noticed hairs in the vomit, and on examination one found a definite hard mass in the epigastric region, the symptoms

altogether pointing to pyloric obstruction due to another hair-ball. With the assistance of Drs. Gandy and Douglas I performed gastrotomy, and this proved to be the case. We removed a hair-ball weighing 5½ oz., and measuring 4½ in. in length, 7 in. in circumference, and 3 in. in its longest diameter. It was tightly gripped by the pylorus, and we had great difficulty in getting it back into the stomach, owing to the fact that it was trying to get through head first, its curious shape being well shown in the photograph.

Remarks. — The patient has again made a most excellent recovery, and is now, three weeks later, taking ordinary meals. She is a very intelligent woman and denies all knowledge of ever having swallowed hair. One other point of interest in her history is that besides the periodical attacks of indigestion and colic, she has had at times an irresistible craving for stimulants, and if she could not get brandy or whisky would drink eau de Cologne or even methylated spirit. I think it probable that as a small child, beyond her recollection, she was in the habit of gnawing and swallowing her hair, and that the ball thus formed has remained in her stomach for about twenty-five years. This would certainly account for her repeated attacks of indigestion, and quite possibly, I think, for her intense craving for alcohol. It seems probable that the smaller mass became detached from the larger and passing into the intestine blocked the ileum. Why the larger mass, after being in the stomach for so many years, should then cause pyloric obstruction is difficult to explain, as is also the reason why a gradual accumulation of swallowed hair should accumulate in any special place.

RADCLIFFE INFIRMARY, OXFORD.

EMBOLIC ANEURYSM OF THE POSTERIOR TIBIAL ARTERY.

(By H. C. Lecky, B.M.Oxon., late House-Physician.)

J. P., aged 35, was admitted to the Radcliffe Infirmary, Oxford, on January 23rd, 1906, under the care of Dr. Brooks. He was sent in for severe pain in the left leg, of eight days' duration. On examination a tender pulsating swelling was found immediately below the left popliteal space, directly in the course of the posterior tibial artery, with almost obliteration of both the anterior and posterior tibial pulses below.

The history is as follows: The patient was in the army from 1890 to 1902, and served both in India and South Africa. There is a history of some venereal disease in 1894. Never intemperate—about 2 pints of beer a day. Never had rheumatic fever or any joint trouble. He was first told his heart was weak in 1902, when he was being examined for some work he was going to begin after his discharge from the army. Dr. Mallam, who made the examination, found a well-marked diastolic thrill over the base of the heart, and at the same time a soft aortic systolic and a very loud aortic diastolic murmur. The latter was so intense that it could be well heard a foot or more away from the chest. He remained in good health up to January, 1906. During these four years he was working daily in some printing works; as a rule, looking after a printing machine, and not engaged at any time in hard manual labour. On the morning of January 15th, 1906, he went to his work as usual. About 10 a.m., while standing up and looking after his machine, he noticed a curious sensation in his left foot. It felt uncomfortable; so he took his boot off and found his foot rather white and cold. He rubbed it for a little and then resumed his work. There was no severe or sudden pain connected with the onset. He walked home to dinner, and it was not till then that he had any pain. He worked that afternoon and the whole of the following day (January 16th), walking to and from the works. The pain was, however, becoming severe, and in the evening of January 16th it was very bad. On January 17th he could not put his foot to the ground. The pain seemed at first to be mostly in the sole of the foot. During the next three days it got worse, and seemed to pass higher up the leg. On January 20th he had to go to bed, five days after the onset of the trouble. On the 22nd the pain had reached the middle of the left thigh. On the 23rd he was admitted to the infirmary. On admission the patient was obviously in great pain. His face was drawn, and his cheeks and eyes somewhat sunken. He was rather restless, constantly endeavouring to get relief in some new position of the leg. He now referred the pain mostly to the back of the left knee. The thrill and the systolic murmur, which had been constantly present while the case was under Dr. Mallam's observation, were now absent. There was well-marked aortic regurgitation with the throbbing pulse visible in nearly all the superficial arteries. On grasping the ankles the diagnosis was made. The anterior and posterior tibial arteries, which were very forcible and collapsing in the right leg, were felt only with great difficulty in the left. The legs, however, had the same tint of colour, and one could not, by the hand, detect any difference in temperature. There was no evidence of impaired circulation in the toes. The left leg was held slightly flexed. The patient could not straighten it. Any attempt to do so was attended with great increase of pain. The whole of the left leg looked a little bigger than the right, and the veins in the upper part were full and prominent. The upper part of the left calf was distinctly fuller than the right. On palpation in this region a well-marked pulsating swelling was felt. It was definitely expansile, and a loud systolic bruit was heard over it. It was extremely tender. It appeared to be about the size of a Tangerine orange. There was some slight alteration in sensation below the knee, but it was too indefinite to be accurately marked out, or for the patient to be able to describe the difference. The popliteal arteries were pulsating equally on the two sides. There were no signs of emboli in any other part of the body. The chief feature of the case for the next fourteen days was the extreme pain, which at times needed as much as ½ gr. of morphine, hypodermically, three times a day. In addition to this he often had 3 drachms of paraldehyde with 30 gr. of potassium bromide at night before any rest was obtained. On one occasion he had to be given chloroform late at night, as the safe limit of drugs seemed to have been reached. No local applications were of any avail at all.

The leg was kept elevated. The swelling gradually got smaller, and with the subsidence of the pain the tenderness also slowly disappeared. The patient refused any operative interference. When he was discharged the aneurysm was very easily felt. It was about the size of a small hen's egg. The upper limit reached to just below the level of the tuberosity of the tibia. As on admission, the pulsation of the tibial arteries at the ankle could only just be felt.

Remarks.—There can be no doubt from the history of the case that the aneurysm was the result of an embolus. It is also a legitimate inference that the aortic thrill and the systolic murmur which had been present, and which now were absent, were due to some tag or excrescence on one of the aortic valves; and that this tag became separated on January 15th, 1906, in the blood stream, and lodged in the left posterior tibial artery, a few inches below the bifurcation of the popliteal artery. The history shows that the aneurysm was moderately rapid in developing (eight days maximum). The anterior tibial artery must have been pressed upon later by the sac of the aneurysm. If it had been affected at the onset, there would probably have been more nutritional disturbance in the leg. The severe pain seems to be due to two causes: First, the local pain due to the stretching of the coats of the artery; and, secondly, the referred pain due to pressure on nerves, which appeared at various times both above and below the knee, and especially round the ankle. The marked prominence of the superficial veins in the upper part of the leg was due to pressure on the deep veins by the aneurysm.

In the Austrian Budget for 1907 provision is made for expenditure of £83,333 on measures for the prevention of tuberculosis.

The estate of the late Dr. John Cameron of Rodney Street, Liverpool, who died on August 19th, has been declared at the value of £54,406, and the will included a large number of bequests to charitable institutions. Among these the Royal Southern Hospital, Liverpool, receives £1,000; the Royal Medical Benevolent College, Epsom, the British Medical Benevolent Fund, the Liverpool Workshops for the Blind, each £100, and the Queen Victoria Nursing Association, £50. It is also directed that £100 shall be paid to the Liverpool Medical Institution, of which the deceased was an ex-president. Some account of his life was published in the British Medical Journal of September 8th, p. 601.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BIRMINGHAM BRANCH.

Birmingham, Thursday, October 18th, 1906.

O. F. Wyer, M.D., President, in the Chair.

Actinomycosis.—Mr. Arthur Lonton showed a case of actinomycosis of which the following is an abstract: The patient, a bricklayer, in the month of February last fell on his head on a curb stone and sustained a scalp wound over the left parietal bone. The wound did not heal. At the latter end of April he came under observation with an irregular ulcer of the scalp which was discharging thin pus. The tissues of the side of the head and neck were the seat of a hard, indefinite infiltration, which extended as far as the lower border of the ear, and there were one or two more localized swellings which had the appearance of suppurating glands. The condition was considered to be due to syphilis or tubercle. The usual doses of iodide of potassium and mercury were prescribed and the scalp dressed with antiseptics. As no improvement was to be observed the patient was taken into hospital, the involved area opened up and disinfected, and drainage provided for. As this did not improve matters the *x* rays were exhibited, but these did not appear to influence healing more than other measures which had been employed. A microscopic examination of the pus made at this time demonstrated the presence of the ray fungus. The patient was immediately placed upon large doses of iodide of potassium, of which he is now having 20 gr. three times a day, and the wound at once commenced to heal. To-day there is marked puckering of the tissues at the site of disease. This puckering appears to be a characteristic of the malady, and is due to the large amount of fibrous tissue which is formed in response to the persistent irritation of the fungus. The history of the case demonstrates the value of the microscope in the diagnosis of doubtful cases, and the value of large doses of iodide of potassium in the treatment of actinomycosis.

Sarcoma of Small Intestine.—Mr. Barling showed a specimen of sarcoma of the small intestine removed by operation.

Fibroma of Vulva.—Mr. Morrison showed a case of pedunculated fibroma of the vulva.

Administration of Oxygen and Chloroform.—Mr. W. J. McCardie exhibited an apparatus consisting of two parts, one for the administration of oxygen, the other for the joint administration of oxygen and chloroform, in each of which the quantities given could be accurately regulated.

Tracing of Abdominal Organs.—Dr. Kauffmann explained a method of obtaining by means of tracing paper an accurate record of the outlines of enlarged abdominal organs accessible to palpation.

Paper.—Dr. Foxwell read a paper on the importance of accurately localizing the position of the apex beat of the heart.

Metropolitan Counties Branch: Kensington Division.—At a meeting of the Division, held at the Paddington Green Children's Hospital on Thursday, October 18th, Dr. G. Crawford Thomson in the Chair, a large number of interesting cases were shown by members of the hospital staff. Subsequently the following cases were shown specially and discussed: Dr. L. Guthrie showed a boy, aged 4½ years, the subject of precocious obesity with hirsuties.—Dr. G. A. Sutherland showed a boy with rheumatic nodules.—Dr. Adamson described some cases of lupus vulgaris and of chronic dermatitis, often called chronic eczema.—Mr. J. K. Murphy showed a boy who had been operated on for a stone encysted in a congenital pouch in the bladder, and a case of Volkmann's paralysis.—Dr. d'Este Emery showed a woman (under the care of Mr. T. P. Legg) whom he had treated with vaccines prepared from Doyen's *Micrococcus neoformans*, administered on Wright's principle. There was great improvement, local and general.—Dr. Barker (for Dr. Alex. Morison) showed a patient who had suffered from meningitis with hydrocephalus, who recovered after two tappings of the left ventricle of the brain. The child had recovered from the blindness that was present during the attack. The Chairman proposed and Mr. G. Eastes seconded a hearty vote of thanks to the staff, which was carried by acclamation.

REPORTS OF SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

J. Warrington Haward, F.R.C.S., President, in the Chair.

Tuesday, October 23rd, 1906.

Dilatation of the Heart.

Dr. A. M. Gossage read a paper on this subject. Dilatation of the heart depended on loss of tone by its muscle fibres. The action of the heart was muscular in origin. The properties of cardiac muscle were the power of rhythmically building up a stimulus, excitability, conductivity, contractility, and tonicity, which might be increased or diminished by nervous or other influences, and might be affected separately. The contraction started from the great veins, as the stimulus was built up more rapidly there, but it was possible to transfer the inception of the rhythm to the ventricles by stimulating them artificially with sufficient rapidity. Dilatation of the heart was due to a diminution of tonicity, and was associated with an increased rate of production of the stimulus, an increase of excitability, and possibly an increase of contractility. Tone might be increased by certain drugs, such as digitalis, and this had been shown to be followed by a diminution of the rate of production of the stimulus, a decrease in excitability, and, under certain circumstances, by a diminution of both contractility and conductivity. The inception of the normal cardiac rhythm from the great veins had been explained by the excessive tonicity of the ventricles keeping the other properties there in subjection, and so causing the stimulus to be built up very slowly. With loss of tone the ventricles would become more excitable than the rest of the heart, leading to ventricular extra systoles, and with the excessive loss of tone the stimulus would be formed more rapidly in the ventricles, and the rhythm would start from there. The assumption that tonicity was especially great in the ventricles was in itself probable from the greater work they had to do, and was supported by the results of experiments with antiarin, which had been found to affect the ventricles in a higher degree than the rest of the heart, the action of antiarin being mainly to increase tonicity.

Dr. A. Morison agreed that dilatation was due to loss of tone of the cardiac muscle, but this was not a new theory. Its cause was still undetermined. In the production of organic action in any viscus more than one factor was at work. In loss of tone there was concerned alteration in blood supply and in innervation. The most constantly rhythmic organs were those most endowed with nerve elements. In the case of the heart he was not prepared to adopt the myogenic theory in its entirety.

Dr. E. I. Spriggs asked for the proof of the inception of the extra systoles occurring in the ventricle. It was not easy to ascertain what was going on in the auricle from a tracing of the jugular vein. He would have liked to have heard more of the mechanical factors in producing dilatation as a too great load on the ventricular muscle.

Dr. John Hay criticized the view that when tonicity was increased the other functions were diminished—the new point in the paper. Sodium hydrate transfused through the heart had been shown to increase not only the tonicity but also the frequency. Weak solutions of digitalis perfused gave first slowing then acceleration, and along with the latter an increase of tonicity. The slowing had been proved to be due to the action of the drug on the ends of the vagus in the heart. It was questionable whether tonicity was fundamentally of the same nature as contractility.

Professor Wenckebach confessed that he was devoted to the myogenic theory. What was the stimulus for the cardiac contraction? Was it given by the nerves, or was it from the heart muscle itself? The qualities of the heart muscle were facts; they might be altered independently. Proof was certainly wanted that tonicity and rate were interdependent. That the loss of tonicity was the end of all heart action was a view not to be maintained; it was not a well-defined quality, and what the relation of tonicity to contractility might be was also unknown. Physiological information was required on these points.

Dr. Gossage replied.

MEDICAL SOCIETY OF LONDON.

John Langton, F.R.C.S., Honorary Treasurer, in the Chair.

Monday, October 22nd, 1906.

Bacteriology of Aseptic Wounds.

Dr. Dudgeon and Mr. Percy Sargent contributed a paper, based on the results of the examination bacteriologically of 50 aseptic wounds mostly operative, in 45 no chemical antiseptic having been used. Of the latter in 26 only was the wound sterile. Of the remaining 19 the *Staphylococcus albus* was found in 15. In 6 alone of the 45 the skin was sterile. The sutures removed and the exudate were also examined bacteriologically, with corresponding results. In 1 only of the 50 cases suppuration occurred, and this was found to be due to *Staphylococcus aureus*. In all the cases there was a mild pyrexia after the operation, attributed by them to the feebly pathogenic *Staphylococcus albus*. In almost all the cases the polymorphonuclear leucocytes were as numerous as in suppurating cases. It was suggested that the *Staphylococcus albus* played a physiological part in wounds, assisting their healing.

Mr. C. Leedham-Green described his experiments on the bactericidal value of the pure metals as used in the form of sutures, screws for fractures, etc., copper being the most powerful of all, while iron and silver were relatively weak.

Mr. C. B. Lockwood said he would define any wound containing bacteria as a septic wound. In his own work he had not used any stronger antiseptic than 1 in 60 carbolic acid, and he believed that in London, at any rate, it was not possible to dispense with chemical antiseptics.

Mr. W. G. Spencer thought the proof was not forthcoming that there was any such sharp pathological distinction between the *Staphylococcus albus* and *aureus* as had been indicated in the paper.

Mr. J. D. Malcolm said the *Staphylococcus albus* could not, at any rate, be necessary for healing, as it was not always present in healing wounds. He argued in favour of the chemical origin of inflammation in some cases.

Mr. Sargent replied.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Priestley Smith, F.R.C.S., President, in the Chair.

Thursday, October 18th, 1906.

Posterior Scleritis.

Mr. George Coats read a paper on posterior scleritis and infarction of the posterior ciliary arteries, referring to the first description of this condition by Fuchs in 1902, and to cases probably similar reported by Knapp, Wagemann, and Salzer. Only two such cases had been submitted to pathological examination. In a case of his own the disease was not diagnosed during life, as the eye when first seen was already disorganized by irido-cyclitis.

On dividing the globe, a peculiar round area 10 mm. in diameter was found above the papilla, in the form of a brown island, surrounded by a broad yellow moat or gutter. Within this area, the inner third of the sclera and the whole thickness of the choroid and retina were completely necrotic. There was no inflammatory thickening of the necrotic patch, but a moderate round-cell infiltration of the living tissues. The other changes in the eye were due to irido-cyclitis and secondary glaucoma.

The amount of necrosis was out of all proportion to the inflammation, so that there must have been vascular obstruction. The necrosis was more extensive in the retina than in the choroid, and in the choroid than in the sclera, and this corresponded to the usual wedge shape of the infarction. The affected area would correspond to the distribution of one of the larger posterior ciliary vessels, and these vessels had but scanty anastomosis with each other. The changes in the retina were closely similar to those found in the rabbit after ligature of the ciliary arteries, and in man after optico-ciliary neurotomy. The surrounding chronic inflammation was similar to that found in non-infective infarctions elsewhere, and the chronic irido-cyclitis was probably of the same nature, due to the diffusion of toxins of low virulence into the vitreous. There was some evidence of vascular obstruction in two of the other reported cases.

Metastatic Infection in the Eye.

Mr. Holmes Spicer read a paper on metastatic inflammatory affections of the eye, narrating four cases:

(1) A young man had a sudden attack of pain in one eye, with obliteration of the central part of the field of vision. He was in good general health except for a large crop of boils on the buttocks from rowing at Cambridge. On examination of the eye three days after the attack of pain a brilliant green mass was seen springing from the centre of the disc; it was round, sharply defined, and had no appearance of structure, such as hooklets. Its appearance suggested a parasitic cyst. It continued to grow, and was making the patient very ill. It was lacerated with a needle under ophthalmoscopic guidance, but it only contained some cloudy opaque material like pus. The eye was enucleated.

The swelling was found to be an abscess in the substance of the retina, having in its centre a large mass of staphylococci. The patient made a rapid recovery in health.

(2) A young man who had had a large boil on the neck, and was suddenly seized with pain in one eye with loss of sight. He had well-marked phlebitis of the retinal arteries in one eye, and slightly in the other. After prolonged treatment one eye got well, and the other became quiet with loss of sight. Two years later it became acutely inflamed and was then enucleated. Although very seriously ill at the time, he recovered promptly after removal of the eye, showing it to be the only part affected.

The third case was also that of a young man who had retinal phlebitis, followed by local keratitis profunda, after a serious attack of diarrhoea and ptomaine poisoning.

(4) This was one of diffuse exudation on the surface of the choroid, invading slowly nearly the whole of it, and producing in places detachment of the retina. This also occurred in a young man suffering from a large crop of boils on the neck. Treatment by antistaphylococcal injections was commenced, but he refused to continue it.

Hue Perception.

Dr. Edridge-Green read a paper on hue perception based on observations made with an instrument whereby the exact size of a portion of the spectrum which appeared monochromatic was ascertained, and was then isolated from the adjacent portions. Hue perception was found to be most accurate in the blue and yellow regions, though in most it was more accurate in the yellow region. Then there was a gradual diminution towards the centre and ends of the spectrum. Green came next, then violet, and lastly red. These facts were in accordance with his theory of colour perception, and were predicted by it, namely, that the colour perception of different individuals varied with the development of a colour-perceiving centre in the brain, that those with a greater development of this centre could see more colours (points of difference) than those with a less development, and that colours appeared in a regular order at the successive points of difference in a straight series.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

The David Lewis Epileptic Colony.

The Northern and Midland Division of the Medico-Psychological Association of Great Britain and Ireland paid a visit on October 11th to the David Lewis Epileptic Colony at Sandle Bridge, in Cheshire, which consists of villa residences for men and women of all social classes, a boarding school licensed by the Board of Education being included. The morning was given up to a thorough examination of the village and its arrangements under the guidance of Dr. Alan McDougall, the medical director of the colony, and proved a time of special interest to the members, since this colony represents about the latest development of the modern treatment of epileptics. Luncheon followed at 1.30 p.m., the members of the association being the guests on this occasion of Mr. S. L. Helm, the chairman of the committee of the colony, and in the afternoon an ordinary meeting for the reading and discussion of papers was held, Dr. McDougall presiding.

Obsessions and Imperative Ideas.

The first paper was by Dr. E. S. Reynolds (Manchester),

who dealt with obsessions and imperative ideas, mentioning, as a simple everyday instance of these, the sudden fears sometimes experienced by normal people—such as that the gas tap had not been properly turned off, or some similarly small but important detail had been left without attention. Obsessions were common in the insane in the shape of fixed delusions compelling to some action, but they occurred also in patients who were merely neurotic. As a class they might be divided into: (*a*) Instances of over-caution, often combined with the insanity of doubt: (*b*) those occurring in hypochondriasis, as syphilophobia; (*c*) some of the fears of neurasthenia; (*d*) those impelling to homicide or suicide.

THE ETIOLOGY OF INSANITY.

Dr. ALAN MCDOUGALL then read a paper on the Etiology of the Epileptic. He considered that several of the unpleasant characteristics of the epileptic were the result of treatment and not symptoms of the disease. Treatment should not be directed solely, or even principally, against the fits, and the chief aim should be to keep the patient, in spite of his fits, as much like his neighbours as possible. Indeed, the benefit of colony treatment might, he thought, be ascribed to the fact that at a colony the epileptic could regard himself as a normal member of the community in which he lived.

THE ALLEGED INCREASE OF INSANITY.

A discussion on the alleged increase of insanity then followed, being opened by Dr. MILSON RHODES of Manchester. The increase in the number of certified patients reported by the Lunacy Commissioners had, he said, created considerable alarm, but this increase did not prove there was any real increase in insanity. This idea was fallacious, and to prove it he quoted returns from the fever hospitals. No one talked about the enormous increase of infectious disease because the admissions were ten times as great as they were twenty years ago. The increase represented not an increase in number of fever cases, but merely a rapid increase in the number sent to hospitals due to the greater confidence now felt in them, and precisely similar considerations affected the admissions into our public asylums. In the death-rate from nervous diseases there was an actual decline, and at the same time an increase in the number of persons certified as insane at an advanced age. Another cause of numerical increase in the asylum population was the enlarged area of the gathering ground; a large proportion of patients belonging to the middle classes were now sent to the public asylums. Finally, he mentioned as a further factor the change in the modern conception of what constitutes certifiable insanity. At one time, the question whether or no the patient was dangerous to himself or others decided the course taken, but nowadays, and much more commonly than formerly, the benefit of the patient was the primary consideration. In spite of all these natural causes of increase, the ratio of first admissions, the true test of the question, had fallen from 5.76 to 5.21 during the past four years, and he was satisfied that with improved sanitation and improved morals, not only physical but also mental improvement of the people might confidently be expected. The discussion which followed showed that the views thus expressed met with the approval of those present.

HARVEIAN SOCIETY.—At a meeting on October 11th, Dr. ALEXANDER MORISON read a paper on the cardiovascular state in *Asphyxia neonatorum* and its management. Adopting the usual classification of these cases into the cyanotic and pale varieties, he regarded the latter as a more advanced stage of the former. Prognosis depended on the condition of cardiac action, for the asphyxia in these cases represented the etymological origin of the term, namely, pulselessness. As regards remote consequences, he considered that many of the certified causes of death in early infancy—such as "haemorrhage," "atrophy," "convulsions," and "atelectasis"—bore a direct relation to asphyxia neonatorum. As for treatment, only in the cyanotic variety was it advisable to allow the funis to bleed for a short time. Prolonged effort to resuscitate the stillborn infant by artificial respiration was desirable, as pulsation of the auricles might continue after the heart had ceased to beat audibly, and ventricular contraction might be provoked even after general signs made the case appear hopeless.—Dr. LONGRIDGE stated that at Queen Charlotte's Hospital they considered that the "blue" baby and the "white" baby resulted from totally different conditions. The former was the result of asphyxia, and the proper treatment was to clear out the pharynx, and perform artificial respiration. The latter was due to shock, and pulsation in the cord was usually absent. The proper treatment was a hot bath, gentle stimulation, and massage of the heart. Artificial respiration was unsuitable.—Mr. T. HERBERT HERRING read a paper on easy methods of *sterilizing urethral instruments*, giving a practical demonstration of the methods. Cystitis was most commonly due to the employment of septic catheters or bougies. The use of a catheter was entrusted to any one, the instruments were often not efficiently sterilized, the lubricant more especially, as usually applied, was a frequent cause of sepsis, and efficient cleansing of the operator's hands was neglected. He had, therefore, devised a method of sterilization of catheters by which both the catheter and lubricant were sterilized, and little manipulation of the catheter by the operator was required. The catheter, or series of catheters, were suspended from hooks in a cylindrical metal vessel containing water and a small quantity of vaseline. The water was then brought to the boil by a spirit lamp underneath and the catheter sterilized, and when withdrawn it was coated with a thin layer of sterilized vaseline. If catheters were wanted some time after sterilization, they could be placed separately in glass tubes and sterilized in the same way, each glass tube being corked up with a sterilized rubber plug after withdrawal from the sterilizer.—Mr. RAYMOND JOHNSON had found the method of boiling water and oil in a test tube for sterilization and lubrication of a catheter efficient, but the boiling oil tended to roughen the catheter.—Mr. DANIEL had also used this method, but had much greater success with Mr. Herring's sterilizer, which he had used for some time. He had not had an instance of cystitis after this method of catheterization.

INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH.—At the annual meeting, held on October 12th, under the presidency of Dr. D. S. DAVIES, a paper upon the administrative control of food was read by Dr. GEORGE NEWMAN. The inspection of food was necessary to maintain a standard of food of the proper nature and quality, to protect the consumer from eating food which had in it the potentiality to produce disease, and because it was essential to a healthy physical life that the food consumed should be both nutritious and palatable. The qualifications of a meat inspector should include practical training as a butcher, a fair standard of general education, the sanitary inspector's certificate of the Sanitary Inspector's Board or of the Royal Sanitary Institute, and the meat certificate of the latter body. There should be uniformity in the administration of all districts. As soon after seizure by the inspector as practicable, diseased meat should be carefully examined by the medical officer of health, and full notes as to its pathological condition taken by him at the time of his examination. This examination should include the carcass, the organs if available, the mode of dressing, and external circumstances, such as price, exposure for sale, and whether home or foreign grown. After this it should always be made convenient for the vendor to see the meat or have an expert to see it on his behalf if he so desired, and this should be done before the meat was submitted to the magistrate for condemnation. To make thorough inspection practicable public slaughterhouses should be established and private slaughterhouses gradually extinguished. With regard to the milk supply, they were in practice attempting control at the wrong end. What was needed was a veterinary and medical service inspection of all cows yielding milk, thorough sanitation and cleanliness in cowsheds and dairies, and the annual licensing of milksellers. Dr. W. COLLINGRIDGE thought the difficulty of getting a sufficient number of trained inspectors was in some degree due to the inadequacy of the payment offered. Sir SHIRLEY MURPHY said that to ensure satisfactory inspection they must go to the place where the animal was killed and see if it was sound, and the meat must then be stamped so that the housekeeper when making her purchases might know what she was buying. Butchers were very

short-sighted in opposing public slaughterhouses and the stamping of meat, for home-grown cattle were preferred to those which were imported. Dr. Butler said that if zymotic enteritis was to be stopped it must be by properly controlling the milk supplies.

Chelsea Clinical Society.—At a meeting on October 16th, the President (Mr. J. D. E. Mortimer) delivered an introductory address, speaking of certain tendencies in practice which from the lessons of the past were now for the most part avoided. Such errors had usually been due to a conservative dogmatism and a slavish adhesion to traditional rules. Bleeding, for instance, up to the middle of last century, was looked upon as a panacea, both preventive and curative. People were bled periodically when in health, and, when out of health, the symptoms which could now be attributed to loss of blood were regarded as an indication for further bleeding. It was evident that many patients must have died from the bleeding rather than from the injury or disease for which they were being treated. Even during the last thirty years the ideas of "idiopathic" peritonitis and "laudable" pus, and the inevitable mortality of puerperal fever had been prevalent. Twenty years ago, when he himself had been medical officer to an asylum, he had opposed the then prevalent view that general paralysis was necessarily progressive and fatal. He held, on the contrary, that it was merely a group of symptoms which might be due to various causes hitherto undiscovered, and that the prognosis must therefore, of necessity, be uncertain. Other observers had since come to be of the same opinion, and recently an organism had been found associated with certain forms of the disease. If this were so, it seemed reasonable to suppose that general paralysis of the insane might be influenced not less than any other disease depending on a microbe, as regards its progress and termination. Both would be affected by the varying virulence of the micro-organism, the constitution of the patient, and the conditions under which he was placed. It was also true that general paralysis might be simulated clinically, and in the *post-mortem* room by other conditions in which this special organism was absent, but in which inflammation and degeneration of the involved tissues were otherwise induced.

North of England Obstetrical and Gynaecological Society.—At a meeting in Liverpool on October 19th, Mr. R. Favell (Sheffield), President, in the chair, Dr. A. W. Lea (Manchester) showed a specimen consisting of a portion of skin from just below the umbilicus, with a fistulous tract leading from it to the ovary. The whole was removed by abdominal section.—Dr. Lloyd Roberts (Manchester) showed an example of *Carcinoma of the clitoris*, being the third he had seen in the course of a few months.—Dr. Walter (Manchester) showed a uterus removed from a single woman, aged 27, on account of a *Myoma* rapidly increasing in size. The specimen weighed 5 lb., and consisted chiefly of a subperitoneal fibromyoma embedded in the left broad ligament. The uterus was pushed over to the right side, and contained in the fundus a small intramural myoma undergoing cystic change. The left broad ligament required special treatment. It was bunched up and sutured in several places to prevent the formation of a haematoma.—Dr. W. F. Shaw (Manchester) read a paper on the *Chorea of pregnancy*, illustrated by 11 cases which had occurred in the practice of St. Mary's Hospital, Manchester, during the last fifteen months. The first two cases were treated on traditional lines, nourishing diet, arsenic, salicylates, abortion being finally induced, with the very worst results; both mothers died and also both children. The succeeding 9 cases were treated on the supposition that their condition was due to a toxaemia; they were kept strictly in bed, their diet consisted solely of milk, and elimination was increased by acting on the bowels, skin, and kidneys with purgatives, diaphoretics, and diuretics. Thyroid extract was given to five patients without any definite result. Under the treatment every mother recovered, and all the children were born alive except one which could not be resuscitated, although the fetal heart was heard a little time before delivery. Only 4 patients gave a history of previous chorea or rheumatism; the remaining 7 had a history of shock or worry, though two of these were doubtful. Nine patients were primiparae, one had one previous pregnancy with chorea; the remaining patient had had two previous pregnancies without any chorea.

Northumberland and Durham Medical Society.—At a meeting on October 11th, Dr. J. G. Modlin in the chair, the following were among the exhibits:—Dr. David Drummond: (1) A large tumour on the right side of the abdomen resembling a renal growth, which proved to be *Angeioma of the liver;* (2) a patient, aged 18, the subject of rare *Congenital heart disease*—namely, pulmonary regurgitation, which had probably commenced as stenosis, with fusion of the valves and subsequent degenerative changes admitting of regurgitation; it was considered that there was probably also an opening in the interventricular septum.—Mr. Rutherford Morison: Two cases of *Joint disease* sent to him for amputation. (1) A case of old tuberculous disease of the ankle joint, where there was ankylosis of the bones but septic sinuses were present: the general condition being good he proposed doing astragalectomy and purifying the sinuses by the local application of pure carbolic acid, followed by methylated spirit, and then packing the wound with gauze; (2) a case of diseased knee joint with typical triple displacement: there was thickening of the lower end of the femur, with a septic sinus leading to a sequestrum in the bone; he proposed excising the knee and removing the sequestrum at the same time.—Mr. S. Whillis: Some cases of hare-lip and cleft palate before and after operation.—Mr. T. G. Ouston: Some cases of laryngeal disease, including one of *Laryngeal papilloma*, removed by laryngo-fissure four years previously. This patient sang a song to the meeting in a clear voice.—Dr. T. L. Bunting: Case of chronic blepharitis treated by *x* rays, with marked benefit.—Mr. H. B. Angus: Large renal calculus which he had removed from the left kidney of a man. The symptoms were classical, but the skiagraph had been disappointing, though a shadow was visible on close examination. The kidney was high up, and the stone lay in the lower pole, projecting very little into the pelvis. Haematuria was only noticed once, and the marked feature in the case was renal colic after lifting heavy weights or active exertion.—Mr. J. Clay: A case of persistent oedema of the right side of the face in a child aged 2 years, for which no cause could be found.—Dr. Ranken Lyle: A full-term fetus (dead) removed from between the layers of the broad ligament. On attempting to remove the placenta, severe bleeding ensued. The placenta subsequently separated.

REVIEWS.

ALIMENTARY CHEMISTRY.

In a short handbook of alimentary chemistry, Dr. P. H. Roeser[1] has discussed very brilliantly most of its modern problems of clinical interest, and has set them out in the light of the newest physiological and chemical researches. It is interesting to note that so long ago as 1809 Lamarck wrote the following words, which show how much he was in advance of his own time, and that in no slight degree he anticipated views which have only recently been accepted:

> I insist that living organisms form for themselves by the action of their organs the true substance of their bodies and the various materials which their organs secrete, that they nowhere find this substance or these materials preformed in nature, and that these are solely derived from the living organisms themselves.

Dr. Roeser holds that there is no radical distinction between the nutrition of animals and vegetables, and that the contrast so often made between vegetables as deriving their nutrition from the inorganic world and animals from the organic world is founded upon an incorrect appreciation of what takes place. In vegetables as well as in animals it is necessary that the material to be absorbed for the purposes of nutrition should undergo suitable preparation. Even white of egg has to be decomposed and built up again before it can serve for the renewal of the albuminous tissues of animals. This preparation of food, or digestion, is always extra-protoplasmic as is seen even in the digestion of amoeba where the ingested particle remains in a vacuole, and is surrounded by a layer of water. Such a vacuole is strictly

[1] *La Chimie Alimentaire.* Par le Dr. P. H. Roeser. Paris: A. Maloine. 1905. (Crown 8vo, pp. 362. Fr 14.)

analogous to a stomach; the fluid in it becomes acid, and the albuminoid matter ingested is liquefied under the influence of acid pepsine. The diverticula of the alimentary canals of invertebrate animals present close analogies in their digestive functions to the pancreas as they digest proteins in alkaline media. Man is omnivorous because he has learnt the art of cooking; without this he would be carnivorous or perhaps frugivorous where a sufficient quantity of ripe fruit could be obtained. If animals were as intelligent as man they would be as able as he is to extend the list of substances forming their food. An aliment is a foreign substance whose composition must be modified in order to render it fit to be absorbed; neither men nor animals possess in their instincts any sure guide to either the quality or quantity of their food; man poisons himself with alcohol and opium, and eats to excess of meat and other articles; he sees no danger, and needs all his intelligence to understand it when pointed out; civilization has placed easily at his disposal large quantities of food, while cooking prepares it so as to diminish to a considerable extent the duties hitherto devolving upon the digestive organs, hence Metchnikoff thinks that for the diet of civilized men the colon and the appendix are unnecessary survivals. Digestibility is the aptitude for solution, but this solution is accompanied by a change in the constitution of substances so as to fit them for absorption; it in no way implies that they possess nutritive properties or affords any measure of their alimentary value. The prevalence of, and the evil resulting from, excessive eating are largely due to the art of cooking, which, by increasing the pleasant taste of food, has stimulated appetite, until we have acquired a habit of eating far more than is necessary; our forefathers submitted to periodical bleedings, which had the effect of relieving them from the result of their super-alimentation, but we have rejected the remedy as barbarous, although we continue the practice for which it was to some extent a compensation. Theoretical diets are generally too low, and experience shows that we should use variety in food and not restrict ourselves to one particular class. Vegetarianism does not necessarily fall under this condemnation, as it admits of considerable variation, and is often useful in the treatment of certain diseases. Milk, owing to its fermentation, often causes indigestion when taken with a mixed meal. Habit in connexion with diet is important, and sudden changes are liable to disorder the digestive organs. The chapter concludes with a quotation from Fonssagrives on modern habits of feeding: "Each meal may be divided into three parts: the first for necessity, the second for gluttony, and the third for diseases to come." Bacteria play a real and effective part in digestion. Charrin showed that rabbits fed on completely sterilized food died from enteritis accompanied by albuminuria and inflammation of the bile ducts. Bacteria appear to supply ferments which aid in digestion and in part replace or supplement the glandular secretions so that the administration of antiseptics although generally inefficacious would, if it carried out the intention of the prescriber, do more harm than good by diminishing digestive activity. Kinases, secreted by certain microbes, aid duodenal digestion by supplying the necessary sensibilizing agent to the pancreatic juice. Digestion in the stomach should be considered as an incomplete process, the preliminary stage of an action which is fully accomplished in the intestine. The long duration of life attained by many nervous dyspeptics is affirmed and explained by the fact that they are forced to adopt a spare regimen and do not get their organs overloaded with fat while their intestinal digestion is well performed; the stomach discomfort from which they suffer is on the whole a salutary warning, and those whose stomachs tolerate anything in unlimited quantities are not wholly to be congratulated. A chapter is devoted to the dietetic use of alcohol, and the conclusion is against the need for its inclusion in any diet. We have read the book with interest and regret that the publisher has not seen fit to furnish it with an adequate index.

A TEXTBOOK OF PHYSIOLOGY.

Professor Howell, the distinguished Professor of Physiology in the Johns Hopkins University, has published a *Textbook of Physiology*[2] which we can heartily recommend to the new students of physiology. It is, in our opinion, one of the best written and most stimulating textbooks of physiology in the English language, and our only doubt in recommending its wide use by our students is the American spelling. The spelling of the medical student in examination papers is now often not altogether in the accepted form, but in the future if American textbooks come into much use over here the examiners will be continually confronted with such spelling as "flavors," "colors," "feces," "dioxid," "hemoglobin," etc. Every specialist is aware of the bewildering number of researches that have been and are being published in physiology and the closely-related sciences, and the difficulty of justly estimating the value of conflicting results. For the student the author must assume the responsibility of sifting evidence and emphasizing these conclusions that seem to be justified by experiment and observation, Professor Howell is convinced, and rightly, that the necessary reduction should be made by a process of elimination rather than by condensation. The latter method is suitable for the specialist with his background of knowledge and experience, but is entirely unfitted for the elementary student. Brief comprehensive statements for him are often misleading, or at any rate fail to make a clear impression. The whole success of Professor Howell's textbook lies in the wise selection of facts and principles which it is desirable the student should know, and in the admirable art of presentation which he possesses. He has not only given those conclusions that have crystallized out of the controversies of other times, but makes the student realize that physiology is a growing subject, continually widening its knowledge and readjusting its theories. The student who has once grasped this conception will be saved from disappointment and distrust in science by recognizing that many, if not all, of our conclusions are not the final truth, but provisional only, representing the best that can be done with the knowledge at our command.

To emphasize this fact, as well as to add to the interest, short historical summaries have been introduced, as, for example, the admirable and suggestive note on Spallanzani's famous digestive experiments on himself. Spallanzani, we may recall, swallowed foods of various kind sewed in linen bags or enclosed in perforated wooden tubes. The bags and tubes were subsequently passed in the stools and were examined as to the nature of the contents. In the section on the movements of the alimentary canal Professor Howell includes the interesting observations of Grützner and Cannon on the stomach. Grützner fed rats with food of different colours, and found that the successive portions were arranged in definite strata. The food first taken lay next to the walls, while the succeeding portions were arranged regularly in the interior in a concentric fashion. Much time may thus be given to salivary digestion. Cannon, mixing the food with subnitrate of bismuth, and observing by means of Roentgen rays, found that carbohydrate passes out of the stomach in half the time taken by proteid, while fats stay long, and delay the passage of other food through the pylorus. His results suggest that the sphincter is controlled by the chemical nature of the food. Food when chewed caused an active psychical secretion in the empty stomach. In dealing with psychic secretion the author cites the case of a boy with stricture of gullet and fistula in the stomach. Discussing the exudations of the foodstuffs, Professor Howell states the trend of modern opinion that they take place under the influence of the living matter, or by the aid of enzymes formed by the living matter, but the material actually burnt is not organized living substance. As the living yeast cells break down sugar in the liquid surrounding them, so the living cells metabolize and oxidize the dead food material contained in the lymph with which they are bathed. In the oxidation of sugar Staklasa holds that it is first split by enzymic action into lactic acid, and this into carbon dioxide and alcohol; the alcohol then, by the action of a series of oxidases, is oxidized to acetic acid, formic acid, carbon dioxide, and water.

Professor Howell cites the experimental results, which seem to prove that alcohol may take the place of fat or carbohydrate as a source of energy and as a protector of proteid metabolism, and thus act as a true foodstuff. This conclusion, he says, does not mean that alcohol can be regarded as a practical food. Its expense and its

[2] *Textbook of Physiology.* By W. H. Howell, Ph.D., M.D., LL.D. London: W. B. Saunders and Co. 1906. (Demy 8vo, pp. 905, 272 illustrations. 18s.)

danger in large dose prevent this. But its ready absorption and palatableness may render it a useful substitute for the solid non-nitrogeneous foods in sickness.

With regard to the recent views of Chittenden and others that a man may live in health on 20 to 40 grams of proteid a day, provided the non-proteid portion of the diet is increased, Professor Howell points out that mankind universally under the guidance of the self-regulating appetite has adopted a high level of proteid food, and that with our imperfect knowledge of all the conditions it is dangerous to assert that this outcome of the processes of natural selection is without important significance; that in the modern treatment of tuberculosis high feeding with proteids constitutes a factor to which much importance is attributed, as if this increased the power of resistance of the tissues toward invading micro-organisms; and that the successful experiments of Chittenden conducted on soldiers for six months to a year on a small proteid diet do not prove that a larger proteid diet is actually attended by evil consequences.

One of the most interesting sections of this book, which in truth holds the reader's attention from first to last page, is that on the physiology of reproduction, a subject which usually meets with scant attention in most text-books. Discussing the question of how the ova are caught by the Fallopian tube, the author cites experiments which seem to prove that the ovum is discharged into the pelvic cavity, and is directed to one or other tube by the current set up by the cilia upon the fimbriae of the tubes. It has been proved in animals that ova may be liberated from the ovary of one side and develop in the opposite horn of the uterus. This view explains the possible occurrence of true abdominal pregnancies, and suggests also the possibility that ova may at times fail to reach the uterus at all, and may undergo destruction and absorption in the abdominal cavity. The author cites the successful experiments which have been made on the grafting of ovaries, and the renewal of menstruation which had ceased upon their removal. In the human being an ovary or a piece of ovary transplanted into the uterus or broad ligament has caused a renewal of the menstrual periods which had ceased after surgical removal of these glands, or brought on free menstruation in conditions of amenorrhoea or dysmenorrhoea.

In dealing with the fertilization of the ovum, the author gives us the interesting view of Beveri that the spermatozoon brings into the egg a centrosome. The egg contains chromatin for a nucleus and a large cell body, cytoplasm, rich in nutritive material, but it lacks a centrosome. The spermatozoon has chromatin and centrosome, but lacks cytoplasm. Beveri shook eggs of sea-urchins into fragments, and found that if a spermatozoon entered a fragment of egg-cytoplasm, multiplication began and a larva resulted. In parthogenetic development the ova probably preserve their centrosomes. Loeb's famous experiment of making ova develop by physico-chemical means is of course cited. His latest method is to treat eggs of the sea-urchin for a minute or two with acetic acid to form a membrane round each, and then to place them in sea-water made hypertonic by the addition of common salt. The eggs are then removed to sea-water and develop into normal larvae.

Professor Howell also cites the experiments of Wilson, which show that in the fertilized ovum there exist preformed mechanisms or complexes of molecules which, while in no way resembling anatomically the subsequently developed part of the organism, nevertheless are the foundation stones upon which the character of the adult structure depends. By producing fragmentation of fertilized eggs of certain molluscs and watching the development of the parts, Wilson found that definite portions of the egg are responsible for the formation of particular organs in the adult. Equally interesting is Professor Howell's treatment of the determination of sex. But enough has been quoted to show what a stimulating book he has given us. We only hope it will not be spoiled in its freshness and unity of scope by enlargements and tinkering operations in subsequent editions. The book is excellently illustrated with figures and coloured plates.

THE ROENTGEN RAYS.

"Orthodiagraphy is the method by which we obtain a parallel projection by means of x rays, and thus get an exact reproduction of the size of the object in the image." This definition is that with which Dr. Paul C. Franze of Nauheim begins a handy little book on orthodiagraphy.[3] As far as we are aware, the method, which owes its origin to Professor Moritz, is not used in this country. So far its practical value has only been tried in delineating the size of the heart. It is based upon the following principles: A shadow of the same size as the object is only obtainable when the rays which project it are parallel, but such rays cannot be got from an x-ray tube. If, however, we select the small pencil of rays, which may be considered as perpendicular, or nearly so, to the surface of the screen, and exclude all others by a diaphragm; and if, still keeping the tube and screen in the same relative positions, we were to move them around the margin of the object to be delineated, and could mark on a suitable surface each successive shadow, we should get an effect which would be the same as if the whole object were exposed to a large number of parallel rays, striking all over its surface at once, as do the rays of the sun. It would be impossible without diagrams to explain the way or ways in which these principles have been applied in practice; but a reference to Dr. Franze's pamphlet or the works of Professor F. Moritz will make it clear. Dr. Franze gives figures of three forms of apparatus for the purpose, of more or less complexity, and he also gives in tabular form some interesting statistics of the size of the heart in various morbid states and in the horizontal and erect positions of the body, as well as reproductions of radiograms of two hearts, together with orthodiagrams of the same for purposes of comparison. This booklet should be of use to those who have much to do with cases of heart disease, and should prove an instructive introduction to an interesting subject.

Dr. Rosenthal's pamphlet on advances in the employment of Roentgen rays[4] is little more than the transcript of a popular lecture. After dealing briefly with apparatus for the production of x rays, the author describes the application of radiography to commercial purposes, such as the detection of imitation diamonds and pearls, and, again, to such a useful detail as the discovery, in vulcanite objects, of metal splinters which would impair their insulating properties and perhaps ruin costly instruments. Dr. Rosenthal then demonstrates the importance of the rays in medical diagnosis, and thus is led to the description of apparatus for accurate localization, such as the "peridiagraph," which permits a rapid examination of a limb in every diameter; and of reflecting mechanism adapted for surgical operations with continuous view of a foreign body to be removed. The preparation of "orthodiagrams," or standard radiograms of normal individuals at given ages and under given conditions, is a matter that appeals strongly to the scientific mind, and in time will doubtless be appreciated by physicians and surgeons who have needed such standards for years. Holzknecht and Rieder's method of investigation of the alimentary tract by means of bismuth coating is described and figured. The therapeutic uses of Roentgen rays are, however, only very briefly indicated. There are twenty-two useful illustrations.

NOTES ON BOOKS.

Anatomical Diagrams.

Inquiries received from time to time appear to show that it may be convenient for many members to know that Messrs. Allman and Son, 67, New Oxford Street, London, W.C., publish two sets of large anatomical diagrams for ambulance lecturers; they would seem to be equally well adapted for use in schools where elementary physiology is taught. One set measuring 62 in. by 23 in., which is mounted on linen and printed in colours, consists of four diagrams: (1) skeleton; (2) muscular system and viscera, with a mannikin of the trunk, showing the position and relative size of the various organs; (3) nervous system; (4) blood vessels, arteries, and veins; this set is sold at 30s. net. It appears to be distinctly superior to the other

[3] *Orthodiagraphische Praxis, Kurzer Leitfaden der Theorie, Technik u. Methodik der Orthodiagraphie.* Von Dr. Paul C. Franze, prakt. Arzt. in Bad Nauheim. Leipzig: Otto Nemnich. 1906. (Demy 8vo, pp. 38. M. 1.80.)

[4] *Fortschritte in der anwendung der Röntgenstrahlen.* Von Dr. Phil. Joseph Rosenthal. Munich: J. F. Lehmann. 1906. (Demy 8vo, pp. 31. M. 1.20.)

set of six roller diagrams by Fiedler and Hoelemann, with short explanatory notes by Mr. R. Hamilton Townend, M.R.C.S., L.R.C.P., at the price of 25s.; a reduced facsimile set of these latter diagrams, with letterpress descriptions for the use of individual pupils, is sold at the price of 1s. net. A better publication of the same kind, however, is a coloured mannikin about 17 in. high, conveniently contrived to illustrate the arrangement of the muscles and the principal organs of the body; the descriptive text is by Mr. Owen Lankester, and the price is 2s. net.

Introductory Addresses

AT THE

OPENING OF THE MEDICAL SCHOOLS.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.

By Sir LAMBERT H. ORMSBY, M.D.Dub., F.R.C.S.I.,

SENIOR SURGEON AND PAST-PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE PROSPECTS OF MEDICAL OFFICERS IN THE ARMY AND NAVY.

AFTER surveying the changes that had occurred in the study of medicine as a profession with its present and future prospects during the past forty years, and giving a brief sketch of the history of the Meath Hospital, and reference to the vast progress due to the antiseptic treatment of wounds, and to the improvement in nursing, Sir Lambert Ormsby proceeded to deal with the prospects of young men entering the profession. In regard to the Royal Army Medical Corps, he said: I wonder do the British public know that the present Director-General of the Army Medical Department is only a subordinate, and yet he is the responsible head of the health and well-being of every officer and soldier in the British Army! Could anything be more ridiculous and grotesque than that the so-called *head*, at present, of the sanitary and hygienic department of the army, is the Adjutant-General—an officer probably absolutely ignorant of medical science in every respect. This officer is again under the control of a Secretary of State for War, who may not only be ignorant of medical science, but who may be one of a large class common even among leading statesmen who think "doctors" should only be seen and not heard, and who scorn science in general, and distrust medical science in particular. This, however, does not apply to the present distinguished War Minister, Mr. Haldane, who, I am informed, is a most enlightened statesman, and one who is most anxious to improve every department of the army. For two years the Director-General had direct access to the Secretary of State, and was present at the Army Council, with great advantage to the army. The Esher Committee placed him again under the Adjutant-General, who happened to be his junior in rank. How can a man without special and technical knowledge properly represent a scientific department? If the cry for efficiency has any real meaning at all, the present Government of progress, assisted by Mr. Haldane, ought to speedily place the present Director-General, Sir Alfred Keogh, K.C.B., an Irishman of marked ability and prudence and a sanitarian of the first rank at the head of his department, and also give him a seat on the Army Council, and invest him with such authority and responsibility as shall anticipate any catastrophe in a future war, and in some way endeavour to do away with the defects of military organization which led to such appalling losses from preventable disease in the South African campaign, losses which, as Sir Frederick Treves suggests, should weigh heavily on the consciences of the British people. Such diseases as dysentery and enteric fever should have been to a large extent prevented if the advice of the army medical sanitary officer had been taken. There is another matter I wish to allude to, and which has led to much criticism and well-grounded discontent among the profession, which is—Why should the same civil members of the Medical Advisory Board be re-elected over and over again? Whey should they not serve for a specified term and then not be eligible for re-election? Surely there are many other leading physicians and surgeons in the three countries quite as competent to take a seat on this Board, and give the department the benefit of their varied experience and advice.

The status and position of the army surgeon is now so well defined, and it is a military service which any gentleman should be proud to serve in; I therefore have no hesitation in advising all those having a taste for military life to enter the R.A.M.C. It is at present undoubtedly a splendid service, and offers great advantages to the young doctor of culture and social position joining its ranks.

Passing to the Naval Medical Service, Sir Lambert Ormsby said: Only the other day one of my pupils, who is just qualified, met me in the hospital, and I asked him what he was going to do. He answered: "I intend, Sir, to have a try for the navy"; my answer to him was, "Don't enter the service at present."

Three years ago, in one of my presidential addresses at the Royal College of Surgeons, I drew attention very strongly to the grievances of the Naval Medical Service as they then existed. I deeply regret the grievances and defects I enumerated at that time have not, as I sincerely hoped, been remedied, and in justice to our medical brethren in that service I must return to the subject again. They, of course, are precluded by the King's Regulations to mention, or even hint, at their well-grounded grievances while in the service. I shall touch on the points I spoke of on a former occasion.

1. *Promotion.*—This question since I last addressed myself to the subject has been satisfactorily settled, though, as must be expected, rank for rank the executive is considerably younger than the medical officer.

2. *Foreign Service.*—There is room still for considerable reform in this respect. At present there is no roster nor any method in the manner in which appointments are made, certain favoured officers going from one shore appointment to another, or, what is equally bad, remaining indefinitely in shore appointments. Many of these appointments are made, as a rule, not for conspicuous ability but for conspicuous influence. Treatment of this sort disheartens those who have as a result of the system an undue proportion of service afloat. It does not tend to efficiency, as, instead of having, say, twelve men equally capable of doing certain work, at present only one has an opportunity afforded him of doing it. Too much service afloat to men who are keen on their work is most disheartening. The men who like the service afloat are generally those who take no great interest in their medical work. If it were known that service afloat and service ashore were fairly and equitably regulated there would be little or no discontent on this score. At present, if a naval medical officer gets through a commission afloat satisfactorily, he often finds that, instead of a hospital, he gets another ship, or else he is told he can go on half-pay.

3. *Compulsory half-pay* is to be regretted, but it is difficult to see how it can be avoided if there are more officers than appointments, unless it be by putting unemployed officers through hospital courses or study leave.

4. *Control of the Sick Berth Staff.*—This is a very important matter, and should be remedied without delay. The control of the sick berth staff on shore should be entirely in the hands of the P.M.O., who should have precisely the same power when serving in a Naval Medical Establishment on shore as is employed by his military *confrères* in the Royal Army Medical Corps.

The P.M. Officers of the Royal Naval Hospitals at present have no power to deal with breaches of discipline on the part of the sick berth staff that serve under them, whether ashore or afloat. An Inspector-General of Hospitals and Fleets ranking with a Rear-Admiral or Major-General in the army before he can get a man punished has to report him to the Executive Officer at the local dépôt, and much time is wasted in making out written reports in connexion with the case, and in sending the offender and witnesses for a distance, which in the case of Haslar is over a mile from the hospital.

The P.M.O. of a Naval Hospital should have power to award minor punishments in hospitals and sick quarters. It is ridiculous and humiliating to the profession that a

senior medical officer cannot legally stop leave, award extra duty, or stop pay for misconduct among the staff of a hospital or sick berth of which he is the head, more especially when we come to consider that the punishment has often to be awarded for misconduct and neglects which took place a considerable time previously, owing to delays, of which only a naval medical officer can appreciate the significance. It is no wonder, under existing circumstances, that so many irregularities occur in large naval hospitals. It is most humiliating that a naval medical officer of distinguished rank may at any moment have to buckle on his sword, leave his ward duties and go to the dépôt to give evidence against a careless, disobedient, or drunken sick berth attendant, the punishment of whom could easily have been awarded by the inspector-general if he had the legal power on the spot when the crime was committed. The Executive Branch of the Royal Navy is a closely-guarded "trades union," exceeding jealous of its privileges and prerogatives, both official and social. The Executive Board dreads the loss of these privileges and prerogatives, and is loth to sanction any power being given to any one outside it. However, public opinion must, and will sooner or later throw a little wholesome light into these matters.

5. *Medical Guard.*—It is the recognized custom in the present day when two or more ships are in harbour together for them to take in turn to keep "medical guard," and the ship keeping medical guard flies a special flag for the purpose. The medical guard has to remain on board, and is always available in case a doctor is required in any emergency in any ship of the fleet. This excellent system has not as yet been embodied in the King's Regulations, and the result is that some narrow-minded captains who cannot resist the temptation of showing their authority still insist on always having one of the two medical officers belonging to the ship on board, although there may be nothing going on in the ship that the medical officer of the guard (close alongside and capable of being on board within five minutes of the signal being made) could not attend to. The result of this is that the fleet surgeon or staff surgeon of a big battleship of this nature may find himself worse off than a junior surgeon on a gunboat. Another captain will insist on both the fleet surgeon and surgeon being on board when his ship is medical guard. In other words, the fleet surgeon ranking with a lieutenant-colonel in R.A.M.C. is made to do the work of a surgeon ranking as a captain in the army.

All this red tape is extremely galling to the medical branch of the navy, more especially as no means of redress can be obtained; for, if the fleet surgeon protests, he is referred by the captain to the Article in the King's Regulations saying that he must obey all orders he may receive from his commanding officer.

It should be clearly laid down in the King's Regulations that medical guard is to be recognized by the captains and commanders of all ships, thus putting it beyond the capricious exercise of executive authority.

6. *Medical Surveys.*—To be an inspector-general is the ambition of most naval doctors, and it is disheartening and humiliating in the extreme to see these officers, ranking as they do with major-generals, forced to sit at medical surveys which are held for purely medical purposes under the presidency of a captain or commander of the executive branch. This is not only an absurdity and an indignity to the whole medical profession, but it is a direct cause of inefficiency, for the executive officer can of his own mere motion overrule the decision of all his medical colleagues on matters as to which he is incompetent to form a judgement. Such a condition of mistrust is lamentable, and is injurious not only to the naval medical service but to the whole profession, for these executive officers on retirement as admirals, etc., carry with them into civil life the same wretched opinion of the status of the medical man as they have seen in the navy. The matter is becoming one of national importance, and calls urgently for reform, and we, civil practitioners and hospital teachers, with all the weight of our influence, are bound to speak, write, and agitate in a forcible way, by argument and common sense, to remove the grievances and hardships which our naval brethren suffer from. For as I have already said, by the King's Regulations the naval medical officer is precluded from publicly ever making known his troubles and injustices.

In the army the medical officers not only preside over their own medical boards, but sit as president, if senior, over all junior combatant officers, on all classes of boards.

7. *Courts Martial.*—When a medical officer is tried by court martial for any offence, professional or otherwise, his judges are entirely seamen. It is the general desire, and it is only right, that some of the members constituting the court on such occasions should be medical officers of high rank.

8. *Salutes.*—It is very painful to see the neglect shown to naval medical officers as to salutes. Junior officials constantly pass them by without saluting them. This breaks down self-respect and the respect of the men. A fleet surgeon is not entitled to "laying on oars" or to "letting fly sheet" as is the commander, who may be years his junior. In the army a medical officer of general's rank is entitled to the "turning out of the guard" like any other general, but an inspector-general of hospitals and fleets going on board a warship is not so saluted. Why? Because, as the executive officers say, "he is only a doctor."

9. *Boats.*—In the matter of boats in harbour a senior medical officer has much to put up with. The captain and commander each have their own six-oared boats, which are at their own disposal at any and all times, yet senior officers like engineer-commanders, fleet surgeons, fleet paymasters, or naval instructors of over fifteen years' seniority, all of whom rank with commanders, must put up with the same boats at the same times as the youngest midshipman or most junior warrant officer.

In some ships the practice has of late obtained of putting one boat at the disposal of all officers of commander's rank to take them ashore and bring them on board at such times as are mutually convenient. This practice should easily be carried out in all ships if it were generally recognized. At times it would be inconvenient; but the good sense and good taste possessed by the majority of senior medical officers would tell them when to waive their claims, thereby enhancing rather than lowering their dignity.

10. *Honours to Naval Medical Officers.*—The way in which naval medical officers have been persistently ignored in the "Honours List" is proverbial. Fancy the Director-General and head of a department of over five hundred naval medical officers, a man who is responsible for the organization of a body of surgeons for the whole British navy, to be still allowed to remain without any recognition whatever, civil or military. In fact there is not a single K.C.B. in the whole department on the active list, and only one C.B. and one M.V.O. I am aware on the retired list among the Honorary Physicians and Surgeons to the King there are a few titles given to these officers, but they are very few—few when compared with the officers of the R.A.M.C.

11. *Cabins.*—This matter, which affects the comfort of senior medical officers so much, has ostensibly been settled by the Admiralty; vide King's Regulations, 1906, Articles 836-837, pp. 298 and 299. In the former (paragraph 2) it says—"Special cabins are appropriated for the executive officer (this means the second in command), the navigating officer, the chaplain, the medical officer, the accountant officer, and the engineer officer, the particular duties of the officer guiding the selection, and in ships as flagships for the secretary and the flag lieutenant. A cabin will also be appropriated to the second engineer officer, the position being fixed as near the engine room as is convenient and practicable. The appropriation of these cabins is not to be altered without Admiralty sanction."

Paragraph 4, same article, states—"Officers will be allowed a cabin in the following order of priority:

(*a*) Watch-keeping lieutenants in the complement.
(*b*) Engineer lieutenants in the complement who keep watch at sea.
(*c*) Other wardroom officers not keeping watch in the order of their relative seniority.

"The subaltern of marines is always to have a cabin.

"Officers who have been allowed numbered cabins should be permitted to choose their particular cabins in the order of their relative seniority."

Now one would have supposed that the Article 837, Par. 2, would have settled the question in a satisfactory

manner. But hear what nearly always happens. When a ship is being prepared for commissioning she has a navigating officer, and one or more engineers appointed to her. These officers have an opportunity, therefore, of selecting their own cabins first, so that on commissioning it is found that "tallies" navigating officer, engineer-commanding, engineer-lieutenant, are over their respective doors, and these cabins are secured to them irrespective of the fact that the medical officer may be years senior to them, and these officers have to put up with whatever indifferent cabins it has pleased some minor dockyard official to place their "tallies" over.

In many instances the sewer pipe from the upper deck passes through the fleet surgeon's cabin, and in other instances coal shutes and other abominations pass through it. If corroboration of these facts be desired, an inspection of the nine ships of the *Majestic* class and the eight ships of the *Royal Sovereign* will prove their truth.

I have heard in a ship in one of the fleets fitted as a flagship, but not carrying an admiral (I believe there are several), the captain has ignored Article 837, par. 2, and insisted on the fleet surgeon occupying a cabin labelled "fleet surgeon," situated next the ward-room pantry, where he is not only annoyed by the constant chatter and noise made by the ward-room servants, but also, in warm weather, subjected to the annoyance of an invasion of cockroaches, which swarm wherever food is prepared.

Those captains who insist on their officers occupying these cabins appropriated for them invariably occupy those allotted to the admiral, and turn their own cabins over to the second in command. The majority of ships nowadays are fitted as flagships, so that, except when the flag of an admiral is actually flown in a ship, the question of selection of cabins invariably crops up, and unless the naval medical officer is a man with some force of character, grit, and determination, he is sure to go to the wall, as the executive would imply by their action—anything is good enough for the "doctor."

12. *Social and Professional Respect.*—The Editor of the BRITISH MEDICAL JOURNAL, in a leading article, has said, *inter alia:*

> The refusal by certain commanding officers of the social recognition which is due to men who are at once officers and members of a learned profession is a subtler but not less galling grievance. This is a thing that can scarcely be dealt with by an Order in Council or Admiralty instruction, for no authority can transform a naval officer who is a snob into a gentleman. Social recognition is largely a personal matter, and a naval medical officer who knows his work, and who in his behaviour shows a proper sense of the dignity of his profession, may, as a rule, hope to have little trouble on that score. The social difficulty, such as it is, would disappear of itself if medical officers were given the measure of authority in their own sphere which has been shown to be absolutely essential.

Lord Wolseley in his *Soldiers' Pocket Book* sarcastically remarks that "medical advice is very valuable when it is asked for." Had he served in the Royal Navy he would have added, "and when it agrees with the opinion you have yourself already formed." Quite recently, and this is not exceptional, a man was reported to the officer of the watch on board a certain ship as being drunk. The officer of the watch examined the man and pronounced him to be drunk. The man thereupon requested that he might be examined by the naval medical officer; the latter gave as his opinion that the man was sober and capable of performing his duty, yet this man was kept under arrest, and when brought up for trial the medical officer's opinion was set on one side and the evidence of a sergeant of marines taken as of more value. When the medical officer afterwards protested against this treatment, he was told that "we (executive officers) are the best judges of a man's fitness for duty. All we want to know is whether or not a man is ill." It would appear that a medical officer's opinion is only of value when it supports the opinion already formed by the prosecutor.

There are many other petty annoyances which irritate the naval medical officer, and to which time will not permit me to allude, but a little rearrangement could easily remedy these matters without any loss of discipline or efficiency.

The present Director-General (Inspector-General Ellis) has done much to improve the service, and I know he has the interests of the service at heart, and is only too anxious to see his branch brought into efficiency and popularity. But I have no doubt that when he suggests improvements he is stopped by the Treasury, which will not sanction any improvement that costs additional money. The Government yearly expends millions on the building of warships intended to inflict death and suffering on our fellow men if our interests should so demand. How much more, in the cause of humanity, should they be willing to spend a few thousands on a branch of the service whose mission it is to prevent or cure disease, and alleviate the suffering inflicted by shot and shell on our fighting men.

If the present Director-General fails to induce the Admiralty and the Treasury to amend these grievances by mild expostulation, these authorities will be forced in the long run to yield, because men will not go where discontent and limitation of status are maintained. In the end the Admiralty will have to follow the example of the Army and at once accede to the suggestions of an energetic and independent civilian Advisory Board, constituted on the same lines as the R.A.M.C., but called in the navy the Medical Consultative Board.

The R.A.M.C. now gets plenty of well-qualified candidates, but in the Naval Medical Service there is a deficiency of over fifty surgeons.

If many of these grievances are not removed shortly, the remedy is simple and in your own hands. Avoid the Naval Medical Service for the present, which will compel the authorities, in order to get good men, to rectify the glaring defects by placing the naval medical officer in his proper position, and giving him in all fairness equal advantages, socially and professionally, with his less scientifically-educated executive brother officer.

ST. VINCENT'S HOSPITAL, DUBLIN.

By J. S. M'ARDLE, L.R.C.P.I., F.R.C.S.I.,
SURGEON AND LECTURER ON SURGERY, ST. VINCENT'S HOSPITAL.

CONSUMPTION IN IRELAND.

THE medical session of St. Vincent's Hospital, Dublin, was opened on October 9th by an address from Mr. M'Ardle on tuberculosis. He said that no disease levied so heavy a toll on the people of Ireland. In proof he pointed to the Registrar-General's Report for the year 1905, which showed that in that year tuberculosis was accountable for far more of the mortality than any other form of disease, 16 per cent. of the total being attributed to this trouble. Cancer, fevers, and indeed all the dread disorders to which flesh was heir, paled before tubercle as a cause of Ireland's depopulation. While England and Scotland were making headway against the enemy, a total reversal had taken place in Ireland's position since 1864. Then Ireland's mortality was the lowest in the three kingdoms, now it stood highest. The victims were not the very young or the old, but the manhood and womanhood of the country. Death from tuberculosis was very rare in the peat districts, and this explained why there was still left any population in districts where poverty, unprotected, would long since have decimated the race. If emigration, which affected the same age section of the community—15 to 35—were allowed to continue and the spread of tuberculosis remained unchecked, there would be no Ireland, Irish or otherwise. Alluding to the duty of the medical profession in regard to tuberculosis, Mr. M'Ardle said that hitherto there had been a good deal of guesswork in regard to the early diagnosis of tuberculosis. Now, when assumptions could be made certainties by scientific tests, the responsibilities of the physician were increased immensely. He must now be a bacteriologist as well as a clinician, or call to his aid a skilled worker in this department. The immunizing of those in danger of acquiring tuberculosis, the vaccine treatment of those already suffering from this disorder, could not be carried out by any rough-and-ready method, and must be conducted only when the treatment was safeguarded by frequent and careful testing of the blood. If this modern treatment were to be placed at the disposal of the poor, provision must be made for the remuneration of those who undertook this highly scientific and trying work. He thought he was well within the mark in saying that 75 per cent. of joint disease in young subjects in Ireland was the result of tuberculous infection. It was the duty of the profession to detect these cases in the

very early stage. In the treatment of tuberculous deposits accessible to surgery it was not all sufficient that operations should be carried out for the removal of the local lesion, for recurrence was very frequent. In conjunction with Professor McWeeney he had had experience of many cases in which threatened recurrence was aborted by the treatment referred to. Mr. M'Ardle asked was it not time to devote some of the wealth which had been filched from Ireland in the past to the protection of the remnant of its once great population? Surely it was not beyond the resources of the predominant partner to provide properly for the care of a community too poor and too long kept in ignorance to be able to protect itself. The establishing of minor centres, such as had been suggested, would be a costly experiment, and could but retard the development of a State institute worthy of the name and worthy of the possibilities of this country. While waiting for such an institute, it was the duty of the Government to make some exceptional effort on behalf of Ireland, owing to the alarming condition of the people, as accentuated in the Registrar-General's Report. A suggestion had been made that a consumption dispensary should be started, say, in Dublin, having a medical director, and associated with him trained assistants, so that any medical man requiring help in dealing with the different stages of tuberculosis would, in the case of the poor, have assistance gratis. This dispensary would provide for the examination of specimens and the distribution of vaccine for suitable cases, and would give such instructions as would be required by general practitioners both in Dublin and in the provinces. Dealing next with the duty of the people, Mr. M'Ardle said that until the most illiterate of the people became aware of the dangers attendant on the harbouring of the germs of consumption no real progress would be made in its prevention. There was a force in Ireland which, once put in motion, would do more than all the powers together to stamp out the chief cause of Ireland's deterioration. This was the power of the ministers of religion, who had free access to the homes of lowly and exalted alike. Should it be necessary to apply for local help for the construction of health stations throughout the country, the law should be so arranged that the county councils would have the determining voice in the expenditure of such moneys as might be necessary in the carrying out of this work.

The Recorder, in moving a vote of thanks, said it was time the public conscience was roused on the subject, if the health and strength of the next generation were to be preserved.

Professor E. J. McWeeney, in seconding the vote, said there were three great causes for the depopulation of Ireland: One was emigration, which was due to economic reasons; another was insanity; the third was tuberculosis. All the deaths and all the sickness—for one must reckon 10 people sick for every 1 who died—owing to tuberculosis could be prevented were the germs killed off or their transference rendered impossible. This was a work in which all citizens, irrespective of creed, politics, or social distinction, ought to lend a willing hand. Had they but a consumption dispensary, with its accessory sanatorium and open-air school, many might be snatched from the very jaws of tuberculosis. Belgium, a country not much larger than Munster, had found so much benefit from such dispensaries that there were now no fewer than nineteen, and no centre of population of any importance was without one. He was glad to be able to congratulate the Corporation on having at last made a move towards establishing a sanatorium for working class consumptives. When would the National Education Board awake to a sense of its duty and make hygiene a compulsory subject? In conclusion he advocated the systematic medical inspection of primary schools and scholars, and the provision of open-air schools for sickly children.

ROYAL VICTORIA HOSPITAL, BELFAST.

By J. A. Craig, F.R.C.S.Eng.,
ASSISTANT OPHTHALMIC SURGEON TO THE HOSPITAL.

The opening address was delivered by Mr. Craig, F.R.C.S.Eng., on October 18th, in the Out-patient Department. Professor Lindsay occupied the chair in the absence of Dr. J. W. Browne, the chairman of the staff, and there were a large number of medical men and students present.

The lecturer first welcomed both old and new students on behalf of himself and the staff. He said he intended to occupy their attention for a few minutes with the ever-pressing subject of the training of the medical student. He congratulated those who had just returned from the university contests, and had upheld the traditions of the school; their successes showed that the efforts of their teachers were not in vain. To those who had failed, he said that the consistent worker who has lost his examination had, at any rate, lost nothing more. Mr. Craig then dealt with the various subjects of the earlier years, and insisted on the excellent training of the classics, and the necessity of a certain amount of culture; the influence of the profession would be in proportion to the amount it possessed. He pointed out that the homes of culture, the older Universities of Oxford and Cambridge, were now growing as large and important medical schools, and this fact was one proof of the value of a broad education and social fitness. In dealing with the effort to prune the elementary subjects, he said the value of biology, of chemistry, and of natural philosophy in their power of teaching the art of learning, of reasoning, of manipulation, of the clear expression of one's ideas, was indisputable and of great practical advantage. Mr. Craig then dealt with hospital life and hospital teaching, the necessity for hard work, for silence, for sympathy, and for numerous other qualities were all soon borne upon the student. In after-years the graduate was urged still to remain the student, and visit other schools, and keep in touch with advances in his subjects.

Dr. Calwell proposed a hearty vote of thanks to the lecturer, which was seconded by Professor Sinclair, and passed with acclamation.

"A SIDELIGHT ON MEDICAL EDUCATION."

By A. Francis Dixon, M.B., Sc.D.
PROFESSOR OF ANATOMY, TRINITY COLLEGE, DUBLIN.

In January, 1905, the British Medical Journal published, under the title "A Sidelight on Medical Education," a series of tables based upon an analysis of the returns submitted to the General Medical Council by the Admiralty, the War Office, and the India Office.

These tables were stated to represent an analysis of the returns sent in of all the examinations for the services since June, 1902. The analysis indicated that the Irish and Scottish candidates were not so successful in securing commissions, or in qualifying at the examinations, as the candidates from the English schools, and from this it was inferred that certain deductions were justified and a sidelight thrown upon the educational methods and curricula in force in the different parts of the United Kingdom.

The matter attracted a considerable amount of attention, but the judgement of the Examination Committee of the General Medical Council on the returns submitted to it was that "such changes have lately been made in the conduct of the service examinations that the Committee think no conclusion of practical utility can at present be drawn from the statistics."[1] In view of this pronouncement it is of interest to inquire if at the more recently held examinations the same relative amount of success has attended the various groups of candidates, or if a wider knowledge of the scope of the examinations and of the tests imposed has led to a more equal relative distribution of success.

On three occasions since the Journal has published tables similar to those issued in January, 1905—namely, in June, 1905, in June, 1906, and in September, 1906. Unfortunately the figures of January and June, 1905, and June, 1906, are not mutually exclusive; but by taking the figures published September 22nd, 1906, which are stated to represent an analysis of all the examinations for the services held since June, 1902, and subtracting from them the figures given in the table of January, 1905, we can, if we assume the figures correct, construct a series of tables which, by comparison with those of January, 1905, will answer our inquiry and show whether the same amount of relative success still attends the candidates of the various countries and various licensing bodies, or whether success and failure are

[1] Report dated May 25th, 1905.

TABLE I.

Showing the Extent of the Competition for Each Service.

	Number of Candidates.	Number of Vacancies.	Proportion of Candidates to Vacancies.
Royal Navy Medical Service...	23	9	5 to 1.9
Royal Army Medical Corps ..	165	120	5 to 3.6
Indian Medical Service ..	91	48	5 to 2.6
Total or average ...	279	177	5 to 3.1

TABLE II.

Showing whence the Candidates received their Qualifications.

Licensing Body.	Number of Candidates.	Proportion of Entire Number.
English Colleges and Universities ..	100	35.8 per cent.
Scottish	75	26.8 ..
Irish	100	35.8 ..
Colonial	1	0.3 ..
Mixed	3	1.0 ..
Total or Average...	279	—

TABLE III.

Showing the Proportion of Commissions gained by the Candidates of each Country.

Country.	Number of Commissions Won.	Proportion of all Commissions Offered.
England	74	41.8 per cent.
Scotland	46	25.9 ..
Ireland	56	31.6 ..
Colonies	1	0.5 ..
Mixed	0	0.0 ..
	177	—

TABLE IV.

Showing the Relative Success of the Candidates of Each Country in Proportion to the Respective Numbers.

Country.	Number of Candidates.	Number who Gained Commissions.	Proportion of Success to Candidates.
England	120	74	74.0 per cent.
Scotland ...	75	46	61.3 ..
Ireland	100	56	56.0 ..
Colonies	1	1	100.0 ..
Mixed	3	0	0.0 ..
Total or average...	279	177	63.4 ..

TABLE V.

Showing the Percentage of Candidates who Passed the Qualifying Standard, including those who Gained Commissions.

Country.	Number who Entered.	Number who Passed the Standard.	Proportion to the Total.
English candidates ..	100	95	95.0 per cent.
Scottish	75	58	77.3 ..
Irish	100	76 (? 78)*	76.0 (? 78) ..
Colonial	1	3 (? 1)†	100.0 ..
Mixed	3	2	66.6 ..
Total or average...	279	234	83.9 ..

* 76 is the number arrived at by subtracting Table V of January, 1905, from Table V of September, 1905. 78 is probably the correct number, as will be seen by comparing with Table VI here published.

† The number arrived at by subtracting the figures of January, 1905, from those of September, 1906, is 3; this is obviously incorrect.

TABLE VI.

Showing the Proportion of those who Failed Totally among the Candidates of Each Country.

Country	Number of Candidates.	Number Rejected.	Proportion of Total Failures.
English candidates ...	100	5	5.0 per cent.
Scottish	75	17	22.6 ..
Irish	100	22	22.0 ..
Colonial	1	0	0.0 ..
Mixed	3	1	33.3 ..
Total or average...	279	45	16.1 per cent.

TABLE VII.

Showing Details of the Performance of each Class of Candidate.

Qualifications.	Number of Candidates.	Commissions Gained.	Qualified but Unsuccessful.	Rejected.	Percentage of Success.
English Conjoint Board alone	69	55	13	1	79.7
,, ,, and Oxford degree	1	1	—	—	100.0
,, ,, and Cambridge ..	2	—	2	—	0.0
,, ,, and London ,,	7	5	1	1	71.4
,, ,, and Durham ,,	1	1	—	—	100.0
,, ,, and Manchester ,,	1	1	—	—	100.0
,, ,, and Edinburgh ,,	?	?	?	?	?
,, ,, and L.S.A. ,,	—	—	—	—	—
English Apothecaries' Society alone ...	4	3	—	1	75.0
,, ,, ,, and London degree ...	—	—	—	—	—
,, ,, ,, and Scottish diploma ..	?	?	?	?	?
London degree alone	3	2	1	0	66.6
,, and Manchester degree...	—	—	—	—	—
Cambridge degree alone	—	—	—	—	—
Durham ,, ...	7	4	1	2	57.3
Birmingham ,, ...	1	0	1	—	0.0
Manchester ,, ...	4	2	2	0	50.0
Scottish Conjoint Colleges alone ...	17	6(?5)	2	10	29.4
,, ,, and Edinburgh degree	1	1	—	—	100.0
Aberdeen degree alone... ...	7	7	—	—	100.0
Edinburgh ,, ...	40	25	9	6	62.5
Glasgow ,, ...	10	8	1	1	80.0
Irish Conjoint College alone	48	19	12	17	39.6
Dublin University alone	31	23	5	3	74.2
Royal University of Ireland	21	14	5	2	66.6
Colonial Universities	1	1	—	—	100.0
Mixed	(3?)	—	(2?)	(1?)	0.0
Total or average	279	177	57	45	63.4

TABLE VIII.

Percentage Comparison of the Work of Certain Classes of Candidates.

Qualifications	Number of Candidates.	Gained Commissions.	Qualified but Unsuccessful.	Total Qualified.	Number Rejected.	Percentage of Winners.	Percentage Qualified.	Percentage Rejected.	Order.
English Conjoint diploma alone	69	55	13	68	1	79.7	98.5	1.5	1
English Conjoint diploma and English degree	12	8	3	11	1	66.6	91.6	8.3	2
Irish degrees alone	82	37	10	47	5	71.1	90.3	9.6	3
Scottish degrees alone	57	40	10	50	7	70.2	87.7	12.2	4
English degrees alone	15	8	5	13	2	53.3	86.6	13.3	5
Other classes together	9	5	2	7	2	55.5	77.7	22.2	6
Irish Conjoint diploma alone	48	19	12	31	17	39.6	64.6	35.4	7
Scottish Conjoint diploma alone	17	5	2	7	10	29.4	41.2	58.8	8
Total or average	279	177	57	234	45	63.4	83.9	16.1	—

becoming more equally distributed as the nature of the examinations becomes better known. Only questions of this nature can be answered by a study of such tables; other inferences are hardly justifiable, as no indication is given to show whether the various schools have been represented by candidates above or below their average standard of proficiency; and, further, since the ages of the candidates are not given, we cannot infer whether or not much time has been spent in special preparation for the service examinations.

The accompanying tables have been made by subtracting the figures given by the British Medical Journal in January, 1905, from those published by the same Journal in September, 1906. Assuming the figures given in these returns to be correct, the tables should represent an analysis of the returns made to the General Medical Council of all examinations for the services since January, 1905—namely, two for the Indian Medical, one for the Royal Navy, and three for the Royal Army Medical Corps. For convenience of comparison, the tables have been drawn up in a precisely similar form to that adopted by the Journal.

A comparison of the tables here submitted with those published in January, 1905, shows that the average proportion of candidates to the total vacancies is much the same as in the earlier examinations. The most remarkable fact is the relatively large increase of the candidates from Ireland, the number of which is now equal to that from England. The English candidates have diminished in number from 47.3 to 35.8 per cent. of the total number. The Irish have increased from 25.4 to 35 8 per cent., and the Scottish have increased their relative numbers by about 1 per cent. to 26.3.

With regard to the commissions gained (Table III) we find that England has gained 17.3 per cent. less, Scotland 7 per cent. more, and Ireland 12.9 per cent. more of the total commissions offered.

In proportion to the number of candidates, England still leads in capturing most vacancies. The differences between the three countries are, however, by no means so marked as formerly, since England's proportion of success to candidates has diminished from 78.1 to 74, while Scotland's has increased from 48.1 to 61.3, and Ireland's from 45.7 to 56 per cent.

The positions of the three countries as judged by the proportion of their candidates who have passed the qualifying examination (see Table V) is not much changed; the numbers are—England 95, Scotland 77.3, and Ireland 76 (? 78), as against 93.3, 72.6, and 80 per cent. formerly. Ireland has lost 2, England has gained 2, and Scotland 4.5 per cent.

Table VI shows the proportion of candidates who have failed to qualify. Since January, 1905, England has improved its already high position in this respect by diminishing its total failures by 1.5 per cent.; Scotland has diminished its failures by 5 per cent., and Ireland remains practically where it was in January, 1905, and shows a percentage of failures just a fraction below that at present exhibited by Scotland.

Tables VII and VIII are those which have always attracted most interest. Here we have the performances of the candidates from the various licensing bodies exhibited and compared. Unfortunately, in many cases the number of candidates is small, but taking the various licensing bodies, which have sent up 15 or more candidates, we may arrange them according to their percentage of success as follows: English Conjoint Board alone 79.7 per cent., Dublin University 74.2 per cent., Royal University of Ireland 66 6 per cent., Edinburgh University 62.5 per cent., Irish Conjoint Colleges 39.6 per cent., and Scottish Conjoint Colleges 29.4 per cent.[1] Candidates from Aberdeen and Glasgow were very successful, securing 100 and 80 per cent. respectively, but their numbers were not large.

One has only to compare these results with those shown in the tables of January, 1905, to see that great changes have taken place. The success attending the candidates of Dublin University has increased 31, of the Royal University of Ireland 3.3, of Edinburgh University 12.5, of the Irish Conjoint Colleges 5.6 per cent., while that of the Scottish Conjoint Colleges has diminished by 9.5 per cent.[1]

[1] I have taken 5 as the number of successful candidates (see Table VII this note); there is undoubtedly an error in Table VII of January, 1905.

The tables certainly appear to indicate that as the requirements of the newer examinations are becoming better known, success is becoming more uniformly distributed. The high position of the English Conjoint Board candidates may well be due to the fact that the examinations are London examinations, and this conclusion agrees well with the fact that those Conjoint Board candidates who also hold University degrees are less successful than those who hold the diploma alone. (See Table VIII of September 22nd.) The former will in greater proportion have been educated outside London.

I have not copies of all the actual returns submitted to the General Medical Council, and have not had time to look them up: I have, however, assumed that the numbers given in the Journal are correct, yet before leaving the matter I desire to draw attention to some errors and misleading figures in the analyses of the returns as published in the Journal. For instance, in Table VII, published January, 1905, the numbers of commissions gained by the Scottish Conjoint Colleges should read 16 instead of 15, and the percentage of success should be 42 1 instead of 39. In Table VIII, published June 2nd, 1906, the total number of candidates is given as 178, but the column of figures added together gives 185. This appears to be due to the fact that "other classes together" are put down as 13, but a comparison with Table VII shows that the correct number is 6. In the analyses published on September 22nd, in Table VIII, 14 has been added to the number of candidates holding English diplomas *plus* English degree, and in the same table the L.S.A. candidates and some others are left out altogether. Further, a comparison of Table V, September, 1906, with the corresponding Table of January, 1905, reveals an error in the number of Colonial candidates who have passed the standard. This error will seriously affect the percentage which is given in the same table.

A close comparison of Tables V and VI also leads one to believe that there is an error of 2 in the number of Irish candidates who have passed the qualifying examination. This is brought out in Table V accompanying this note (compare with Table VI).

Some of the most remarkable figures are, however, to be found in the analyses of June 3rd, 1905. In Table IV the average proportion of success to candidates is given as 33.9; in Table VII the same proportion is given as 54, and in Table VIII as 47.8. As a matter of fact, the correct figure is approximately 50.3. Again, the percentage of candidates who have qualified is given in Table V as 64.8, in Table VIII as 77.4, while the actual number is 81 per cent. Finally, the proportion of total failures is variously given as 35.1 (see Table VI) and 22.6 (see Table VIII), while the correct number is 18.9 per cent.

If the analyses are to be published in future in similar form, it is to be hoped that care will be taken to give correct numbers and percentages.

* * Professor Dixon, it will be observed, takes some of the tables regarding service examinations which have appeared in the Journal, assumes that they are correct, utilizes them to build up a theory of his own, invites us to accept it, and then cuts off the branch on which he stands by suggesting that the tables are wrong.

It is not a method which commends itself, but fortunately the criticisms, formidable as their list appears, in nowise really affect the essential structure of the tables, so that the author's theory to that extent is safe. This being assured, his mathematical comments become mere *obiter dicta*. Conceivably they are well founded, conceivably they are otherwise; but in any case it is scarcely worth while to devote time and space to their consideration.

There have been seven, and not four, series of tables published in these columns, and possibly the author has misinterpreted some of those which he has seen; certainly this is the case in the instance which he regards as the most remarkable. It is worth noting, however, that the candidates who should really be regarded as entitled to the first place on the result of all the examinations held up to the present are not the holders of the English conjoint diploma alone, but the holders of this diploma plus an English degree, though their number is small and the margin narrow. To this extent, therefore, there really is

an error in the last series of tables, though the point affected is of no real importance.

Nothing, indeed, in the way of mathematical criticism to which the tables can be subjected can disturb their great outstanding feature, namely, the extreme and quite abnormal difference shown between certain large classes of candidates in the number of men who fail to reach the qualifying standard.

This is the point of real interest in the tables, for though, obviously, all candidates cannot win commissions, at any rate, all might pass the qualifying standard, and in the winning of commissions candidates from the three divisions of the country—England, Scotland, and Ireland—might be expected to show a proportionately equal degree of success. So far, however, from this being the case, there are material differences in the latter respect, while in the former the percentages of total failures or of men who fail to pass the qualifying standard range from about 3 to 43.

As an explanation of the very great difference in the degree of success obtained by different classes of candidates, Professor Dixon suggests that, in the earlier part of the period covered by the returns, the scope of the examinations was not equally widely known in all parts of the kingdom; if this were the case the differences would, of course, tend to disappear, and the author by certain calculations of his own endeavours to show that they are doing so, thus proving the truth of his explanation.

It is, doubtful, however, whether many persons will be convinced by his reasoning on this point, for, though it is true that in the last year or so the number of Irish candidates has augmented and that they have gained proportionately more commissions, Professor Dixon's own tables show that the limits of total failure have widened, not diminished. They stand for the later examinations at 1.5 per cent. only for English Conjoint diplomates at one end of the scale, while at the other end they are as high as 35.4 per cent., and 58.8 per cent. for Irish and Scotch diplomates respectively. Even amongst Irish degree holders the percentage of total failures stands at 9.6 per cent., which, in view of the circumstance that in connexion with Professor Dixon's own college there is a school specially devoted to the preparation of candidates for the services, is scarcely consistent with the supposition that the differences are due to lack of knowledge of the nature of the examinations; for in Dublin, if anywhere, the scope and character of the tests imposed must be exceedingly well known.

Nor does the suggestion seem quite satisfactory as regards the examinations at any date, since the general nature of the examinations must always have been at least as familiar in Ireland and Scotland as in England. This is especially probable, because until just before the commencement of the period which these returns cover, the services, the Army Medical Service in particular, were very far from popular among English students. There is a further hint in the paper which is of a kind similar to one made by a Scottish correspondent a few weeks ago, and is to the effect that the differences shown perhaps may be due to the examinations being held in London and by English examiners. This suggestion, unpleasant in itself, cannot be sustained; for at the competitions for admission to the Indian Medical Service and the Royal Army Medical Corps, at which alone it is common for candidates to be rejected solely on the ground of lack of professional knowledge, the examiners are selected from a very wide area. To make this point clear the names and addresses of the present examiners are here added. For the Indian Medical Service they are: Dr. Hale White (London), Mr. Ernest Lane (London), Professor J. Symington (Belfast), Professor Calder Leith (Birmingham), Dr. Haultain (Edinburgh), and Professor Cash (Aberdeen). Every year two of them retire in rotation and are replaced by others selected in corresponding fashion. For the Army Medical Corps the examiners, who are likewise changed from time to time are at present, Dr. F. Taylor (London), Professor Clifford Allbutt (Cambridge), Professor W. G. Smith (Dublin), Dr. Byrom Bramwell (Edinburgh), Professor T. Sinclair (Belfast), Professor T. Ogston (Aberdeen), Mr. A. J. Pepper (London), and Professor Rickman Godlee (London).

Medical Magistrate.—Dr. J. Kenrick-Jones, of Llanrhaiadr-yn-Mochnant, Oswestry, has been placed on the Commission of the Peace for the County of Denbigh.

WORDS AND THINGS.

At the opening meeting of the Students' Physical Society of Guy's Hospital, Professor Clifford Allbut delivered an address on "Words and Things." After some introductory remarks he said that by "things" he meant what we supposed to be an external world, after the manner of which we were or ought to be continually remodelling our ideas; by "words," on the other hand, he meant signs, arbitrary and very variable signs, by which we endeavoured to indicate these ideas and converse with them. Speaking of the literary man, whose profession was not with making things but with dressing them, he said it was no bitter cynic who said that "persons who cannot afford the time to experiment write books on the subject." This smart redressing of things in precious words to catch the attention of the readers of magazines, must do harm both to the public and to the journalist in divorcing manner from matter, in regarding "style" not as in the substance of the thing itself, but as an applied decoration; the thing itself being, in two of its aspects, the personal experience and this experience modified by the author's temperament. This last quality it was which was properly Style. When the style became but a frippery, clothing somebody else's stuff, affectations, insincerities, and false notions bred and abounded.

To dwell upon things rather than on words was the method of observation, which in its fullness contained the experimental method, and although it would not be fair to say that the Greeks never attained the use of this method, its practice by Aristotle, by his pupil Theophrastus the botanist, by Archimedes, or Hipparchus, never attained anything like the maturity to govern their conceptions.

Both before and after the Socratic period the pursuit of knowledge was mainly not by this method but by the method of public discussion. If we realized how a word might survive to oppress and mislead us, as other ghosts did when the underlying thing had dissolved, we should be more careful in setting up imposing names, as we physicians were very prone to do, until we were sure that the thing was there; and in no case should we let a name give an absolute value to temporary or developing notions.

Words were fraught for the mind with three qualities at least—with Sense, Meaning, and Significance. By Sense, we indicated the direct intention of the very words themselves, although the sense was often dependent more or less upon the context; moreover, we knew that many words had more than one direct sense. By Meaning, we indicated that which the author wished to convey; a burden unfortunately too very often different from the sense. Thirdly, by Significance, we meant something more diffused and impalpable than either sense or meaning. A great part of his significance the author might not have deliberately foreseen and intended: it was often something intuitive, springing from his sympathy and imagination as well as from his systematic purpose.

Before entering upon the use of words in natural science, Professor Allbutt referred to their use in logic. Locke said of logic that one could not apply the syllogism until the truth was ascertained, and that then one did not want it. The answer might be, nevertheless, that having apprehended a truth we applied the syllogism to discover and formulated the deftest, most economical, and most effectual mode of expressing it. The danger was lest we should not use logic thus clear-sightedly, but should be tempted to suppose its manipulation of words to be a manipulation of things, and lest the constructor of syllogisms should suppose himself a creator of truth.

Undoubtedly in the last hundred years we had been devoting ourselves, and with marvellous success, not of course to get rid of abstractions, but to divest them of substance, to appraise their value as devices of thought, and to determine their functions; we were, notwithstanding, still a prey to formulas and accepted words for things. And we erred in two curiously opposite directions: we attributed substance to names, and then, because by this factitious solidity they imposed upon us, we left them standing while we were no less busily, if unwittingly, engaged in pulling to pieces the concepts to which they were applied. Thus names became flimsier than ever: no longer corresponding even to concepts: they were but the rags of thought.

The name of a disease was not, as it was continually

regarded, a thing. There was no such *thing* as typhoid fever, as angina pectoris, as spleno-medullary leukaemia, and so forth; the things so called were Wilkinson, Johnson, and Thompson, who after their kinds were afflicted not alike, but within such limits of similarity as to lead us to class them together and to form a general conception of them. Yet still we overheard at learned societies physicians contending, even with heat, whether this name or that was a "morbid entity." If we were to speak of "entities" in disease, these must be not the names, nor even our concepts, but the things—the thing Thompson and the thing Wilkinson in certain phases of their being. The moment we departed from these objects we deserted the names of things for the names of abstractions in which no entity could lie, the name being but a label to denote a somewhat arbitrary and ideal group of characters never perhaps manifested in Nature as a whole, but to which certain patients were continually approximating.

In epilepsy, for instance, we observed a vast number of persons attacked in modes not identical but similar—modes, however, the features of which shaded off by insensible transitions into the features of other groups of symptoms. This we should remember when we used the name—as we remembered that when we called a certain group of stars Orion or Charles's Wain there was no rigid division between these star groups and those of the neighbouring constellations. Having accepted a name for a group, we ought to keep to it; and yet we found our friends daily calling widely different concepts by the same label of epilepsy—for instances, puerperal, uraemic and Jacksonian convulsions, certain insanities, and so on, events so very different both in nature and grouping that if we gave them also the same name of epilepsy we shifted our things without shifting our labels. Or, again, consider angina pectoris: if there were a uniformly recurrent group of clinical features it was that for which this name was invented; yet we shifted the label about, now to spasms of neurotic women, now to vague and casual cardiac pains or discomforts consistent with almost any kind of heart disease. Most grotesque, perhaps, were the "pseudo" compounds, such as "pseudo-angina," "pseudo-leukaemia," and the like; think for a moment of calling scarlet fever "pseudo-measles"! Yet it was not very long since these two maladies were distinguished. Diseases were not even species, such as cats and toads, but abnormal, though not altogether irregular behaviours of animals and plants. Not content with this ambiguity, we entertained the converse notion also that, give it a name big enough, we could make a disease of a symptom. For example, bradycardia and tachycardia, symptoms, in their degrees, of many a morbid process, imposed upon the unwary student as themselves "morbid entities," a notion twice removed from the truth.

Our debt to the morbid anatomist was so profound that in our gratitude we were forgetting that the pathologist was not a clinical physician. His laboratory was full of things, no doubt, and hitherto he had dwelt soundly in things; but chiefly in dead things, not in things at work; yet our only real things are processes. Now the pathologist had been largely concerned in undermining our clinical concepts. Without protest, we had allowed him to re-label some of our things with his labels—often to our advantage, but at least sometimes to our error. For instance, the pathologist had seduced us into allowing him to use the label of arterio-sclerosis as the name of a disease. Now, if for the physician a disease were a series of symptoms recurring with such uniformity that we found it convenient to distinguish it with a name, arterio-sclerosis was not such a series; it was a result, a statical result of foregone symptoms, probably of more than one series, and, if so, probably itself a compound name even in pathology. The physician who recognized the imperative duty of dwelling in things ought to guard himself from being supposed to mean only things that stand still; his sphere was, on the contrary, with things in motion; he was a master of dynamics.

Continuing, the speaker said: I must hasten on to another direction in which logic is apt to generate a reliance on words to the neglect or misinterpretation of things. In logic we are able to separate qualities of things and to place them in divers categories so distinct that we are seduced into regarding these factitious categories as things. We have hampered ourselves, for example, not only by considering structure and function severally, as a temporary device of thought, which is not illegitimate, but also by dwelling on the one to the exclusion or neglect of the other. Thus absorbed in the discoveries of morbid anatomy pathologists for many years forgot the genetic processes in which their specimens had their origin. Both in pathology and in clinical medicine, moreover, logical definitions were formulated which tied up living medicine in ligatures as stifling as those in which Andrea della Robbia swathed his babies on the Loggia of the Hospital of the Innocents. For in biology definitions can never be more than summary descriptions. In psychology analytical divisions are made between Intellect, Imagination, and Will, and these factitious divisions find their way into practical matters to the prejudice of the gravest interests of education, sound criticism, and the conduct of life. Even yet it is hard to convince people that these distinctions are purely logical, having no counterpart in function, and that every action consists in a fusion or rather in the integrity of all three qualities.

In forgetfulness of the imagination, with which he himself was so largely endowed, Francis Bacon forgot likewise the part of this great faculty in scientific discovery, falling into the narrow view of it as a mere intellectual stringing of fact to fact, as on a necklace; whereas imagination is the pioneer faculty, always beckoning intellect on; too often, if the sisters do not walk hand in hand, feverishly and fancifully. An apple falls from a tree, everybody's fact; it was Newton's large imagination that saw in it a symbol of universal gravitation. Much of the work which is done in our laboratories and dignified, not improperly perhaps, with the title of "research," much plotting of curves, much watching of levers and thermometers—nay, not a little morphological dissection and cabinet making, are really little more than clerk's work. To be no more than learned in facts and opinions, with whatsoever skill in methods, is not to make knowledge. Bundles and files of facts are not science until the man with the formative—let me say the creative—insight comes along, who, by the fusion of intellect and imagination, seizes upon the significant facts which give him the lines on which to build up these aggregates of materials into a conceptual edifice.

No less factitious and eviscerating, he added, was the verbal division between "pure" and "applied" science. Science was not creation but analysis of creation; and the strange adoption of the word "synthesis" to signify the uttermost epicycles of abstraction was an instance of the confusion wrought by misuse of words. Since Galileo we had been discovering that our abstractions must incessantly be tested, braced, and articulated with facts—that is to say, with systematized experience. Yet the dangers of abstraction had by no means vanished, even in the ranks of natural science. The soaring vanity of the human mind was seen still among the "pure scientists" as well as in the academic temper of humanistic students. The boast that a study was lofty in proportion to its uselessness was still heard, even in the laboratory.

Without periodical steeping in the world of practice theoretical researches tended to remoteness and vacuity. Professor Allbutt went on to deal with the perils of metaphor. Metaphor was the nature of analogy. Metaphor, however, was for illustration rather than for argument; and we should have a care how far it took us, especially in natural science where our very purpose was to dissolve superficial, allusive, or partial comparisons into the profounder comparisons of genesis. Less harm was done by metaphor, which could be appreciated as such, than by equivocal words. Of those and of the harm they do, there was no end.

Plato, in the *Phaedo*, said that false words were not only in themselves evil but infected the soul with evil. So in science they infected the understanding. Some words were by nature of elusive temper; thus the word "force" by its equivocations had caused infinite trouble to men of science; they had been hunting it down this hundred years, but it had not been quite cornered yet. "Law" had more mischief to account for, as by its double dealing it carried error in all directions. Day by day they saw well-meaning men confusing themselves and others by ignoring that in science law was not a rule imposed from without but an impression of an intrinsic process. Other words were question-begging; such was the word "mechanical" in its modern application to the cosmical order. Surely a machine was a system of tangible parts arranged

to compass certain effects when it is set agoing, directly or indirectly, by human agency; left to itself it is impotent.

"Utility," again, and its adjective, "utilitarian"—what wars had been waged over these words! some disputants using them, as in common parlance, in the sense of immediate profit; others in the sense of remote profit. Pilate was no "jester" when he asked, What is truth? for we had not yet agreed what the name was to mean. Was truth an absolute transcendental existence? Or was it natural, partial, and relative, and to be found in the gradual establishment of a harmony between man's normal desires and his satisfactions in experience? Or, again, did it lie simply in affirmative propositions? No doubt, a word might have two or more orderly senses, to be severally determined by the context; and truth might be used by metaphysicians in the first sense, by naturalists in the second, and by logicians in the third; but if so, the discrimination should be observed. On the other hand, the word was unduly neglected when truths were called "facts." Few abuses of language were so perverse as the misuse of the word "fact." He had grown accustomed to anticipate, on hearing it, a more than usually hazardous opinion and nearly always some general statement depending upon facts; rarely, indeed, the proper sense of the word, namely, something which had happened.

Theory, on the other hand—the highest range of scientific truth—was used almost as a term of contempt. The common use seemed to be "My opinion is a fact; your opinion is a theory." Thus dull Britons were encouraged to villipend the systematic results of investigation, and to content themselves with rule of thumb. It was by words that we thought—if we let thoughts and words drift away from things, the mind itself, our minds individual and collective, must be surely impoverished. If we gave no heed to our symbols—to our means of conceiving, recording, and formulating the conditions under which we had to design our lives and our faiths, we should be drawn almost as inevitably into error as if our observations were themselves erroneous. As our minds become not less and less but more and more sensitive to impressions, our words must be kept moving and continually tested for appositeness and values. Our most fundamental assumptions must be always under reconsideration, our rules of evidence made stricter and stricter, our appreciation of values more and more refined, and our principles of selection more and more severe.

And not our facts only, but also the *litera scripta*—documents, traditions, authorities—must lie always under question. Without the past the present cannot appear to us in its true perspective nor be fully interpreted. Without the history of medicine, and study of the words in which it was contained, modern medical ideas could not be fully understood, nor the place and genius of our profession rightly known.

The speaker concluded by saying that his discourse on Words and Things would have had little result unless he had led his hearers to see more clearly that the purposes of the Physical Society ought to be an unwearied contribution and verification of things; a vigilant criticism of insidious plausibilities, ambiguities, unveracities, and insincerities of language; and not only a care for the choice of words lucid and exact, but also a training in the use of them in a significant context.

LITERARY NOTES.

ACCORDING to the *Berliner Tageblatt* an "authentic exposition" by Professor von Behring of his recent researches on immunization against tuberculosis, under the title of "Diphtheria Serum, Tetanus Serum, Bovo-vaccine, Tulase," will appear in the November number of the *Deutsche Revue*.

In Mr. John Murray's list of forthcoming books are the following: *Tragedy and Comedy of War Hospitals*, described from personal experience during the South African war by Sister X.; the *Manufacture of Paupers: A Protest and a Policy*, with an introduction by Mr. J. St. Loe Strachey, Editor of the *Spectator*. The book deals with the feeding of school children, hospitals, and "ill-considered charities" generally; *Heredity*, by Professor J. Arthur Thomson, of Aberdeen; and *Recent Advances in the Study of Variation, Heredity and Evolution*, by Mr. Robert H. Lock.

The eighth volume of the *Archives of the Middlesex Hospital*, just issued by Messrs. Macmillan and Co., contains among other communications one by Dr. Kingston Fowler on the treatment of aneurysm by subcutaneous injection of gelatine; one by Dr. W. Essex Wynter and A. M. Kellas, B.Sc., Ph.D., on the detection and estimation of lead in urine as an aid to diagnosis and as a measure of the eliminative power of drugs; and one by Dr. Victor Bonney on the bearings of pathology on the symptoms of tubal gestation.

We have received the following letter from Dr. M. B. Ray of Harrogate: In a very interesting article under the heading Medical Terms in the *New English Dictionary*, which appeared in the BRITISH MEDICAL JOURNAL of October 13th, I notice the following passage: "Mr. Craigie is surely wrong in defining *navicular fossa* as the anterior portion of the urethra; it is usually understood to be the depression at the posterior part of the vulvar cleft, limited by the hymen and fourchette." On looking the point up in Gray's *Anatomy* and Cunningham's *Textbook of Anatomy*, I find they both describe the terminal dilated part of the male urethra as the "fossa navicularis." [Letters to the same effect have been received from several other correspondents.]

The *Quarterly Journal* issued by the Liverpool University Institute of Commercial Research in the Tropics presents a handsome appearance and is excellently illustrated. The contents serve to give an idea of the enlightened spirit in which commercial enterprise in tropical countries is pursued by the merchants of Liverpool. The September number contains a paper by Messrs. Eric Drabble and F. A. Upsher-Smith, on the Absorbent Value of Ramie fibre. The authors have made an experimental study of the subject, and compared the substance—which is extracted from the "bark" of an Asiatic plant belonging to the nettle family—with cotton-wool and other materials commonly used as surgical dressings. They do not think it advisable in a preliminary paper to draw general conclusions. For the present, they say, it is sufficient to state that in their opinion Ramie will repay further investigation; but even in its present condition it is stated to be "distinctly and greatly absorbent," and its absorbent power can be considerably augmented.

In the *Paris Medical Journal* the following story is related of Professor Dieulafoy. Mingling as a young student with the crowd who went round the wards of the Hôtel-Dieu with Trousseau, his modesty prevented his obtruding himself on the notice of the great man, although he had letters of introduction in his pocket. One day, during the visit to the women's ward, one of the patients simulated a hysterical attack. Trousseau made the incident the text of a discourse, in which he dwelt on the proneness of hysterical women to attract attention. He wished to illustrate his remarks by a quotation from Ovid's description of the rape of the Sabines, but his memory was at fault. Turning to the students, he asked, "Is there any one here who can quote the verse I want?" There was no response. Dieulafoy, who remembered the passage, was silent for a moment, then said:

Spectatum veniunt, veniunt spectentur ut ipsae.

This was the beginning of a friendship which had a powerful influence on the professional career of the younger man. The moral of the story is that a knowledge of Latin is not without value even from a strictly utilitarian point of view.

The *Red Cross and Ambulance News* is the title of the official organ of the St. Andrew's Association and Corps. It is published at Glasgow, and will appear monthly. It will contain reports and orders connected with the Association and Corps, will record the progress of the various sections, report the competitions, inspections, displays, etc., and deal with Red Cross and Ambulance matters generally, including the ambulance departments of volunteers, police, railways, tramways, public works, boys' brigades, etc. Special articles will be contributed on First Aid and kindred subjects, and the magazine will be illustrated as opportunity offers. To the first number, dated October 1st, Sir John Furley contributes a plea for Red Cross work; Colonel George T. Beatson, M.D., gives an account of Red Cross work in Scotland; Mr. Morrison, Secretary of the St. Andrew's Association, describes the work of the Ambulance Corps.

THE PLAGUE.

Prevalence of the Disease.

India.

During the weeks ended September 15th, 22nd, and 29th, the deaths from plague in India numbered 3,816, 4,945, and 5,625 respectively. The mortality was distributed as follows: Bombay Presidency, 2,257, 2,918, and 2,950; Bengal, 114, 69, and 71; United Provinces, 175, 148, and 204; Punjab, 81, 95, and 145; Kashmir, 6, 5, and 9; Central India, 465, 787, and 1,494; Central Provinces, 470, 657, and 544; Madras Presidency, 14, 20, and 19; Mysore, 143, 134, and 127; Burmah, 91, 99, and 62. In Poona plague is widespread; in forty-eight hours ended September 17th, no less than 255 deaths occurred from plague: again, during the forty-eight hours ended September 24th, in the city and cantonment of Poona, there were 292 deaths from plague. In the Punjab the campaign against rats is being carried out with great activity and thoroughness. Notices are being posted in Bombay that, as the plague shows signs of increase, free inoculations are being carried out at ten different stations throughout the city.

South Africa.

No cases of plague in human beings have been notified in any part of South Africa during the weeks ended September 15th and 22nd. No rats or mice were found infected by plague in any South African town or district during the weeks in question. At King Williamstown no plague-infected rats have been found since July 21st, nor in Port Elizabeth since July 28th.

Australia.

Cairns, Queensland.—During the weeks ended September 1st, 8th, and 15th the fresh cases of plague numbered 2, 2, and 2. Only one death reported. No case in Brisbane since June 20th. Only one plague-infected rat has been found at Cairns during the weeks in question. The last plague-infected rat at Brisbane was reported on August 20th.

Mauritius.

During the weeks ended October 4th, 11th, and 18th the fresh cases of plague numbered 22, 24, and 28; and the mortality from the disease amounted to 15, 19, and 21.

MEDICAL NEWS.

At the annual general meeting of the Northumberland and Durham Medical Society, held at the Royal Victoria Infirmary, Newcastle-on-Tyne on October 11th, Dr. T. Beattie was elected President for the year 1906-7.

The annual general meeting of the British Balneological and Climatological Society will be held on Wednesday next at 20, Hanover Square, at 5.30 p.m. The President, Dr. H. Shirley Jones, J.P., of Droitwich, will deliver an address on the Art of Medicine in Ancient Egypt. A dinner at Pagani's Restaurant, Great Portland Street, will follow.

The White Cross League is a Church of England society to promote purity among men, respect for womanhood, preservation of the young from contamination, rescue work, and a higher tone of public opinion. The Indian Army White Cross Association has similar objects, but is not exclusively a Church of England association. Lieutenant-Colonel C. A. Bourne, hitherto one of the co-secretaries of the English society, has become organizing secretary of the Indian society, and is about to leave for India. The Indian committee now appeals for subscriptions, which may be sent to the Secretaries of the White Cross League 7, Dean's Yard, Westminster, S.W. The committee includes the Metropolitan Bishop of Calcutta, the Indian bishops, the Military Member of the Council of India, and the P.M.O. for India, and its objects are cordially approved by the Archbishop of Canterbury and Earl Roberts.

M. Clemenceau, the new Prime Minister of France, has created a Ministry of Labour; this has involved the re-adjustment of certain public offices, for to the new Minister of Labour has been assigned not only labour and insurance and providence funds formerly under the control of the Minister of Commerce and Mines formerly belonging to the department of the Minister for Public Works, but also poor relief and public sanitation departments hitherto directed by the Minister of the Interior. M. Clemenceau has gained more fame as a politician and political writer than as a physician, but he was at one time in practice in Paris, so that he must be well acquainted with the needs of the public health service, and it is rather surprising to find him sanctioning an arrangement which assigns to a Minister of Labour, who will have so many other interests committed to his care, the incongruous duty of presiding over the public health administration.

In his report for the nine weeks ending September 15th the Medical Officer of Health for the City of London mentions that since the date of his last report seven cremations have taken place at the Ilford Crematorium. The average time required for complete incineration was sixty-nine minutes, the average weight of ashes remaining being 3.05 per cent. of the weight of the body.

The prize giving of the London School of Dental Surgery, on October 19th, took the form of a *conversazione* at the Royal Institute Galleries, Piccadilly, given in common with the parent institution, the Royal Dental Hospital. The proceedings, which began at about eight o'clock and did not terminate until long after eleven, included the distribution of prizes, instrumental and other music, some short entertainments and lectures and a number of demonstrations of a scientific character. Mr. Colyer, Dean of the school, said that the entries this year had more than doubled those of 1905, and that of seven students who had joined for a part course, five were sons of dental practitioners. Mr. C. S. Tomes, F.R.S., who presented the prizes, said it was rather the fashion to depreciate the significance of prizes won early in a young man's career and to say that the recipients were like forced plants; but he was inclined to attach very great importance to these early successes, and had rarely seen a man who took three or four prizes in the medical schools fail to maintain a leading position in his following career. Some twenty-five prizes and certificates were distributed in addition to the *Entrance Scholarship*, won by F. G. Armin, the *Saunders Scholarship*, divided by A. T. Pitts and A. E. Ironside, and the *Ash Prize* and *Storer Bennett Scholarship* which went respectively to A. T. Pitts and T. T. Barton.

Medical Magistrate.—Dr. T. J. Frost, of Llanhilleth, has, on the recommendation of the Lord Lieutenant, been appointed to the Commission of the Peace for the County of Monmouthshire.

Italian Medical Congress.—The Italian Congress of Internal Medicine is now (October 25th to 28th) holding its sixteenth annual meeting in Rome. The following are the questions for discussion: (1) Arterio-sclerosis; (2) typhoid affections and Malta fever; (3) arthritism.

Congress of Practical Hygiene.—A Congress of Practical Hygiene is to be held in Paris, March 26th to 31st, 1907, under the presidency of Professor R. Blanchard. The work of the Congress, which will deal with food, alcoholism, the rearing of children, the workshop, country life, and the colonies, will be distributed among eight sections. The General Secretary of the Congress is M. Schaer-Vézinet.

The late Mr. Samuel Lewis.—Some very important bequests to London and other charities made by the late Mr. Samuel Lewis, a well-known money lender, have now become operative owing to the death recently of his widow, Mrs. Lewis-Hill. The amount which Mr. Lewis directed should be devoted to various charitable purposes was considerably more than a million sterling, and among the objects mentioned those of a medical character figure in a very satisfactory way. The largest sum of all, £400,000, is designed for the erection of dwellings for the poor, but next to this comes a donation of £250,000 to King Edward's Hospital Fund for London. A gift, likewise of a striking character, is one of £100,000 to the Jewish Board of Guardians for a convalescent home or hospital at the seaside. It is to be hoped that it will be utilized for the establishment of a convalescent home on thoroughly modern lines, and capable of receiving cases still in need of more or less active treatment, for in this way it will meet a distinct want. Among the bequests to already existing institutions, the largest is one of £20,000 to the London Hospital for the establishment of an Ada Lewis ward, but a number of other London hospitals each receive £10,000; these are St. Bartholomew's, Charing Cross, St. George's, Guy's, the Metropolitan Hospital, St. Thomas's, University College Hospital, and the Hospital for Consumption. The Sussex County Hospital at Brighton, as well as the hospital at Maidenhead, also receive a like sum. Finally, the London Ophthalmic Hospital, the Evelina Hospital for Sick Children, and the Paddington Green Children's Hospital benefit to the extent of £5,000 each. It is to be noted, however, that some of the institutions mentioned may be losers as well as gainers, for the late Mrs. Lewis-Hill was herself a very generous supporter of charities, and amongst other things started the Ada Lewis Nursing Institute for supplying nursing assistance at a very low cost to the less well-to-do members of the middle classes. It was also her yearly custom to send a cheque for £10,000 to King Edward's Hospital Fund, whose annual receipt will be the smaller by this amount though its capital income will be very materially increased.

British Medical Journal.

SATURDAY, OCTOBER 27th, 1906.

THE GROWTH OF TRUTH.

The delivery of the annual panegyric on William Harvey has become so great a tax on human ingenuity that probably many men go to hear the oration at the College of Physicians much as people fond of sensation go to see a performance on the tight-rope. It must, indeed, be as difficult to say anything original in an Harveian Oration as in a Bampton Lecture. The orator must sometimes have to resist the temptation to say something new by reversing the present fashion of writing history and blackening the character of his hero instead of praising him. How this could be done without any flagrant outrage of public feeling there is the subtly insinuative *éloges* of French Academicians to show. Professor Osler has no need to stoop to such artifices, for, as poor Stella said of Swift, he could write beautifully on a broomstick. It is needless to say that he acquitted himself brilliantly of his difficult task, for the product of his invention is here for all men to read. If he has nothing particularly new to tell us of Harvey and his work, he gives a vivid portrayal of him in his intellectual environment, and brings home to us the spirit that animated him, and how it was bred and fostered in him.

The orator deals with his subject with the easy familiarity born of first-hand knowledge. There is no display of learning hastily borrowed—or "conveyed"—for the occasion; he speaks out of the abundance of a store garnered during long years, and constantly added to by loving search in fields which to most men yield nothing. He takes us back in spirit three centuries, and makes us assist at the ever-memorable Lumleian Lecture on April 17th, 1616. We are enabled to form a mental picture both of the lecturer and of the audience. Of the lecture itself the manuscript notes still exist, and the matter was published by the College of Physicians in 1886. There is nothing to show that this first announcement of a mighty and far-reaching new truth made any stir in the profession, or that its influence even extended beyond the walls of the College. Harvey himself says: "These views, "as usual, pleased some more, some less; some "chid and calumniated me, and laid it to me as a "crime that I had dared to depart from the precepts "and opinions of all anatomists: others desired further "explanation of the novelties." What many of his contemporaries must have felt may be gathered from what Zachariah Wood says in the preface to the English edition of the famous little work in which the discovery was conveyed: "Truly a bold man indeed, O disturber "of the quiet of physicians! O seditious citizen of the "Physical Commonwealth! who first of all durst "oppose an opinion conformed for so many ages by "the consent of all."

The main interest of the oration, however, lies in the striking exposition of the difficulties that hinder the growth of truth as illustrated by the story of the discovery of the circulation. No summary could do justice to Professor Osler's review of the state of knowledge and the mental attitude of men towards scientific truth at the time when Harvey broke the bonds that held the human mind captive to the authority of the great names of the past; we recommend our readers to study the oration for themselves. It is an expansion of the saying of Locke—who, be it remembered, was a physician as well as a philosopher—that "Truth scarce ever yet "carried it by vote anywhere at its first appearance." The way is usually made straight by the labour of previous generations for any departure from old belief or break with long custom. But the irrevocable step in the new path is taken by some man who having eyes can see, and who can make his fellow men see, the promised land by the light of the new star which he has found to guide him.

The history of science, and indeed of human thought, proves that men are not grateful to the discoverer. He is fortunate, indeed, if he escapes persecution, and he must be dowered with the hate of hate, the scorn of scorn, if he is not to sink under the abuse and obloquy which are the portion of the preacher of a new gospel. The instinctive tendency of mankind is to resent any disturbance of its placid hold of traditional beliefs, and to muzzle or suppress the disturber. Too often the discoverer himself has a weak point in his armour, for he is apt to be aggressive, and to take no trouble to make his doctrine palatable or even digestible; he may even find satisfaction in the thought that it is caviare to the general. It is one of life's bitterest ironies that the discoverer himself, when the hand of Time has chilled the intellectual ardour of his youth, often becomes a stubborn enemy of new truth. Harvey's own attitude in regard to the lymphatics shows that even he was no exception to this law of human nature.

Goethe says no man ever gets a new idea after forty. Harvey's discovery exemplifies the truth of this observation, for it is said that no physician who had passed that age accepted his teaching. Without touching on the question of the "fixed period," it is certain that, as a general rule, men's minds by the time they are forty have become fixed as in a mould; their opinions have become settled, and it is not easy to bring about any upheaval. Hence new truth has against it the whole force of the maturer contemporary minds. However revolutionary they may be at the outset, years inevitably bring, with an increasing store of convictions, an intellectual conservatism. The process is analogous to the change that so often comes over the youthful advocate of a socialistic ideal when fortune or industry has given him something to conserve.

Closely akin to the conservatism of maturity is the attitude of the type so happily designated by Disraeli as the "superior person." Fixed in academic traditions and swathed in formulas, the superior person looks upon any departure from conventional grooves with suspicion and dislike. He has a corresponding respect for established authority. When confronted with a new truth he asks first of all as to its source. If it comes before him without the trade-mark of an acknowledged reputation, he is apt to dismiss it with a scoffing, "Can any good thing come out of "Nazareth?" The pity of it is that the superior person largely dominates professional thought. He is always in the thick of the fray at the societies, and he sits in judgement on the work of men anxious to get their ideas before the world. Professor Osler well says that "Much of history is a record of the mis-"haps of truth which have struggled to the "birth only to die or else to wither in premature

"decay." For this the obstructiveness of the superior person is largely responsible. How many new truths may, owing to this, never have been born at all, and have died with the teeming brain in which they were conceived! The two greatest discoveries of the most fruithful century in the history of science are admitted to be anaesthesia, and what may conveniently be called the Listerian doctrine. Both these discoveries have been of incalculable benefit to mankind; yet both secured acceptance only after the fiercest opposition on the part of the medical profession. At the very beginning of the nineteenth century the anaesthetic properties of nitrous oxide were clearly indicated by Humphry Davy; but no one paid heed. The discoverer of ether was denounced as a quack, and the *Edinburgh Medical Journal* foretold that "before "twelve months are completed many shall have re- "covered from this etherizing reverie." Chloroform was rejected by surgeons who looked upon pain as a tonic. We need not dwell on the opposition to Lister, which is fresh in the memory of the profession.

But these things are only conspicuous illustrations of the working of the powers of darkness against the light: they are far from exhausting the list. It may indeed be said that every new discovery has had to overcome not only the *vis inertiae* that exists in every man of formed opinions, but hostility and active opposition. The introduction of cinchona bark into medical practice was resisted as if the substance were a deadly poison, and antimony was for a whole century the cause of bitter feud and mutual anathemas in the Paris Faculty of Medicine. The pioneer of the modern treatment of consumption was scoffed at for his "beef-steak-and-porter system"; while Henry MacCormac's advocacy of pure air was treated as an insult to the intelligence of the leading medical society of London. One of the pioneers of ovariotomy was threatened with the coroner by an enlightened colleague. The contagiousness of puerperal fever, when propounded by Oliver Wendell Holmes, was treated as foolishness by the men of light and leading in American midwifery: and Semmelweis's professional career was wrecked by the storm which followed his demonstration of the causes of that disease. The grave and reverend seniors of the profession denounced the laryngoscope as a toy. It would be easy to extend the catalogue. Enough has been said to illustrate the proposition that new truth, so far from being welcomed, is too often treated as an undesirable alien, or even as a criminal anarchist.

We have here purposely mentioned, not brilliant generalizations, but truths of direct practical importance, for the perception of which only eyes that could see were required. Of truths that have no immediate application to the needs of mankind, the adoption is naturally more difficult and more doubtful. Professor Osler thinks that we are better prepared to-day to accept discoveries. We venture to doubt this: but it is of course undeniable that owing to the immense development of the means of diffusing knowledge of what is happening throughout the world, truth has now a much better chance than before of escaping stillbirth or suffocation. There is, however, a danger at the present day which was unknown to previous generations, when there was no cheap press, and no temptation to premature publicity. Now when startling discoveries are offered red hot, as it were, from the kitchen of science, and when misbegotten fancies are constantly presented as facts, there is perhaps a risk that the profession may show itself too eager in the pursuit of novelty for its own sake. Truth does not grow to maturity in forcing houses, but in the free air of careful observation and unprejudiced thought. We must strive with impartial judgement to weigh all new things, and hold fast to that which is good. And let us be careful not to play the part of the thorns which choke the seed of truth.

THE NUTRITIVE REQUIREMENTS OF THE BODY.

The discussion in the combined Sections of Medicine and Physiology at Toronto on over-nutrition and under-nutrition, which was opened by Professor Chittenden, whose name has recently become so famous in connexion with this subject, hardly proved to be so interesting as might have been expected. In introducing the subject Professor Chittenden (as will be seen on p. 1100) contended that the smallest amount of food that will maintain the highest degree of physical and mental activity with the smallest amount of friction and the least expenditure of energy, and preserve, and if possible heighten, the resistance of the body to disease germs, is the ideal diet, and that this is probably much less than has been generally accepted as needed. He disputed the trustworthiness of man's instincts as an index of his nutritive requirements, and thinks that custom, habit, the pleasure of eating and the prevalent belief that through hearty eating lies the road to health and strength, have led most people on to undue freedom in the taking of food; instinct in this matter has been placed before reason, and even the medical profession has fallen into line with the lay public in preaching the doctrine that a rich and abundant diet, and just as much of it as he can afford, is every man's meed and due. But he recognized that of late there has been some change of opinion, and that it is beginning to be felt that food consumption should be limited to the quantity sufficient to meet the real needs of the body, while more than this constitutes an undesirable excess. After detailing his well-known experiments he expressed the opinion that 0.1 gram of metabolizable nitrogen per kilo of body weight represents the minimal proteid requirements under ordinary conditions of life, but that while man may thrive upon such a diet it is doubtful whether it be wise for him to attempt to live continuously upon so low a level. He would prefer a standard somewhat above this figure, allowing 50 to 60 grams of absorbable proteid for a man of from 60 to 70 kilos of body weight.

In answer to the experiments of Munk, Rosenheim and Jaegerroos, who found that dogs could only be kept alive by being given a more liberal allowance of protein, conclusions which have been quoted against him by Professor Benedict, he gave the results of his own observations. He admitted that dogs probably require more proteid than omnivorous animals, and yet in one case he kept a dog for a year on 0.27 gram nitrogen and 68 calories per kilo of body weight, this dog actually gaining weight and being apparently in the best of health up to the time when it was killed by chloroform. Another dog lived for many months on 0.33 gram nitrogen and 82 calories per kilo of body weight, and he thinks these two illustrations are sufficient to show that high-proteid animals can live and thrive on what is termed a low-proteid diet. In his opinion the daily consumption of proteid food in excess of the amount required to maintain health and strength, mental and physical vigour, body weight and nitrogen equilibrium, constitutes a

serious menace to the health and welfare of the human race, and he thinks there are more people suffering at present from over-eating than from the effects of alcohol. Finally, he quoted the results of Dr. Reid Hunt, who found that animals fed on a low proteid diet were capable of resisting two or three times the fatal dose of acetonitrile.

The discussion that followed this paper was of a somewhat tepid character. Professor Halliburton, while agreeing with many of the conclusions reached by Professor Chittenden, doubted whether it would be wise to accept them to the full; while Dr. Otto Folin supported Chittenden's general arguments by criticizing the absurdity of founding scientific conclusions on so variable a basis as universal usage. Dr. Robert Hutchison also doubted the wisdom of accepting all Professor Chittenden's conclusions, and expressed his conviction of the beauty and utility of a layer of adipose tissue. Mr. C. B. Ramarao of Madras appositely quoted the secular experience of the Indian Brahmins, who have for generations lived a life of intellectual and physical robustness on a diet composed mainly of starch, while Sir James Grant affirmed his conviction that alcohol, as a direct poison, should not be used with or without food.

It might have been hoped that such a subject so introduced would have been followed by more carefully-considered speeches, but perhaps it is too early to ask either physiologists or clinicians to commit themselves to more explicit expressions of opinion. Professor Chittenden's experiments have given a shock to the foundations of economical dietetics, and the whole edifice needs reconstruction.

ESPRIT DE CORPS.

On page 232 of the SUPPLEMENT to this issue of the BRITISH MEDICAL JOURNAL will be found a circular which demands the careful consideration of a far wider circle than that to whom it is addressed—the members of the South Wales and Monmouthshire Branch of the British Medical Association. Ebbw Vale, a place already very familiar by name to many of our readers, is the centre of a serious battle; one, indeed, of so important a character that it promises to figure largely in the history of the relations between the medical profession and the public. Whether it will be remembered as a Waterloo or a Majuba Hill depends very much upon the attention which medical men, members of the British Medical Association or otherwise, now give to the matter. The history of the question up to the present is fully set forth in the circular mentioned; in this place, therefore, only the net outcome so far need be indicated.

Five medical men have lost their previous means of livelihood, and as they have acted with the approval of the local branch of the British Medical Association and in the interests of the profession at large rather than their own, it is only right that the profession at large should see, at least for some time to come, that they do not suffer hardship.

This, however, is by no means all. If the financial prospects of these five gentlemen were alone in question, they might be safeguarded in other ways; but it is considered essential, in the interests of all medical men alike, that whatever aid is given them should be devoted to enabling them to remain where they now are, or, in other words, at the service, if needed, of the men who have hitherto relied upon them for assistance and advice. Should this plan be carried out, it is believed that the Men's Committee will eventually be forced to abandon the unreasonable attitude which it has taken up, for it has behind it by no means the unanimous support of those whom it purports to represent.

Many sections of these in different areas of the locality, one with a population of some twenty thousand souls, disapprove of the way in which the Committee has behaved throughout, desire to retain the services of their old medical men, and resent strongly the autocratic fashion in which they are themselves being treated by the Committee.

It is earnestly to be desired that the matter shall end in the fashion indicated, for it would be a mistake to look upon this matter as one of no more than local interest. The result of the local controversy cannot fail to affect medical men as a body throughout the length and breadth of these islands. Friendly societies, workmen's clubs, and other bodies employing medical men are already very numerous, but not half so numerous as they will be a few years hence. If the men in this particular locality are successful, efforts will everywhere be redoubled to buy the work of medical men at whatever price those requiring it choose to put upon it; and not those alone who carry on working-class practices will suffer.

There are many members of the profession who object strongly to anything in the nature of politics in connexion with medicine, and doubtless to a large extent they are quite right. Similarly there are many of us who are primarily indisposed to take any interest in the automobile industry; if, however, a motor car happens to knock one down, or motor traffic renders one's house uninhabitable, some interest in the possibilities of the trade is enforced.

Precisely the same considerations apply to any bodies, whether their origin be charitable, social, socio-political, or political purely, which employ medical men. If allowed to have their way in the beginning, irrespectively of the expressed wish of large sections of medical practitioners, they will eventually and assuredly put an end to medicine as an independent profession. There are a great many medical men in South Wales and elsewhere throughout the kingdom who will gladly subscribe to the fund which has been started, and of which Dr. E. J. MacLean, of Park Place, Cardiff, is Honorary Secretary and Treasurer, from a sense of *esprit de corps*, so soon as they hear of its existence. There are many others, too, who we hope will regard it as a duty to themselves to give the fund assistance in view of the considerations to which attention is here drawn.

EXTRAORDINARY GENERAL MEETING.

At the meeting of the Council of the British Medical Association on Wednesday, October 24th, the Chairman drew attention to the resolutions of the Representative Meeting instructing the Central Council, pending the application for and the obtaining of the proposed Royal Charter, to make the necessary arrangements to confirm and make effective the various alterations and additions to the Articles approved by the Representative Meeting at Leicester. The Council accordingly resolved to summon an extraordinary general meeting, for the consideration of the proposed alterations, in London on November 28th, and to summon the confirmatory general meeting in London on December 12th. The quorum at the general meetings is one hundred.

WORDS AND THINGS.

Professor Clifford Allbutt's address to the members of the Guy's Physical Society on Words and Things, an abstract of which will be found elsewhere, was not only as brilliant as the distinguished speaker has accustomed us to expect, but full of instruction much needed by medical students, and also by the whole profession. For it is not a little curious that we, who are concerned so directly with things, should be to a very large extent the slaves of words. Many of our controversies are about words, and even in the practice of our art we too often treat words rather than things. When the "practical man" asks for a "tip" for pneumonia or what not, he is seeking for a hint how to treat a name rather than a disease. It is well, therefore, that Professor Allbutt should insist that the name of a disease is not, as it is continually taken to be, a thing. There is no such thing, he points out, as typhoid fever or as angina pectoris; the things so called are the persons suffering from conditions which, though not alike, are so far similar that they can be grouped together in a general conception. Professor Allbutt cannot away with "morbid entities"; the only "entities" he recognizes in the matter of disease are the things, Thompson and Wilkinson, in certain phases of their being. But if we must, for the satisfaction of our thought, have "entities," at least let us not break the idols we have fashioned for ourselves. Having decided, for instance, to label a certain group of symptoms as epilepsy, we ought not to make the term include such disparate things as puerperal, uraemic, and Jacksonian convulsions; if we do this, as Professor Allbutt tersely puts it, we shift our things without shifting our labels. Not only are we apt to regard disease as a real something in itself, but we delude ourselves into the belief that by giving a big enough name to a symptom we can expand it into a disease. As instances Professor Allbutt cites the words "bradycardia" and "tachycardia," which, though denoting mere symptoms, impose themselves on the unwary as diseases. We hope Professor Allbutt will not think us flippant if we interpose a plea for such words in view of their convenience in medical diplomacy. It is recorded that a very eminent physician satisfied an anxious wife by telling her that her husband was suffering from "cachexia"; it is not difficult to imagine situations in which "bradycardia" might serve an equally useful purpose. Our knowledge of things is still so shadowy that were it not for the comfort of equivalents for the old woman's "Mesopotamia" we should hardly be able to discuss medical problems with each other or to conceal our ignorance from the public. We necessarily think in words, and we have no other means of expressing things. We must therefore be, to some extent, under the dominion of words; but we must always be on our guard not to take the symbol for the reality, of which it is but a partial and makeshift representation. Of this fallacy there could not be a better example than the reply of Molière's candidate to the question, Why opium causes sleep? The explanation *quia est in eo virtus dormitiva* shows that in his mind words usurped the place of things. Whately points out that English, being made up of two distinct languages, is especially suitable for the fallacy of *petitio principii*. Hence, he says, a sophist may bring forward a proposition expressed in words of Saxon origin, and gives us in proof thereof the very same proposition stated in words of Norman origin. He gives the following as an example: "To allow every man an "unbounded freedom of speech must always be, on the "whole, advantageous to the State; for it is highly con-"ducive to the interests of the community that each "individual should enjoy a liberty perfectly unlimited "for expressing his sentiments." This kind of reasoning is by no means uncommon in medical writings. Language is a good servant but a bad master, and we must distinguish as sharply between things and the words intended to denote them as Falstaff's doctor did between the water submitted to him and the "party that owed it." This, we take it, is the essential part of Professor Allbutt's teaching, and the profession owes him a debt of gratitude for the lucid and incisive manner in which he has shown the way to right thinking and accurate expression.

THE HARVEIAN FESTIVAL AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

The annual Harveian Oration before the Royal College of Physicians of London was delivered on October 18th by Dr. William Osler, Regius Professor of Medicine in the University of Oxford. The oration, which is published in full elsewhere in this issue, was listened to with rapt attention by a large audience which completely filled the fine library of the College. At the conclusion of the oration the President, Sir Richard Douglas Powell, presented the Moxon medal to Mr. Jonathan Hutchinson, F.R.S. This medal, founded as a memorial of the late Dr. Walter Moxon of Guy's Hospital, is awarded every third year to the person who shall be deemed by the Council of the College to have most distinguished himself by observations and research in clinical medicine. The previous recipients have been Sir Alfred Garrod, Sir William Jenner, Sir Samuel Wilks, Sir William Tennant Gairdner, and Dr. John Hughlings Jackson. In making the presentation to Mr. Hutchinson, the President said that it afforded him much pleasure to hand the medal to one who had in many ways contributed to and widened the scope of their common knowledge of clinical medicine. In conferring the medal, he added, upon so distinguished a member of the sister college, the Council of the Royal College of Physicians of London had recognized that affinity in science and that friendly fellowship which so happily existed between the two Royal Colleges of medicine and surgery. The annual Harveian dinner took place at the College in the evening, and among the guests were Lord Strathcona and Mount Royal, Chancellor of the Universities of Montreal and Aberdeen; Lord Cheylesmore, Mayor of Westminster, the Dean of Canterbury, Sir W. B. Richmond, K.C.B., R.A., and Mr. Henry Phipps, Founder of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis.

THE HENRY PHIPPS INSTITUTE.

The Henry Phipps Institute for the study, treatment, and prevention of tuberculosis has recently issued its second annual report,[1] dealing with the work done during the year, February, 1904, to February, 1905. During this period 1,561 patients received treatment. A careful record has been made of their clinical and physical condition, of their social status, and of the hygienic conditions of their environment. In reviewing this part of the work, the Medical Director, Dr. Lawrence F. Flick, lays special stress on the relation of poverty to tuberculosis. He shows that the earning capacity of a large proportion of the patients was not sufficient to enable even a healthy person to live in America, where food and housing are costly, in such a way as to preserve his health; and in tuberculosis, where these two conditions of life are of especial importance both in the prevention and the treatment of the disease, the poverty of the patients is one of the greatest obstacles to their recovery. Dr. D. J. McCarthy issues a report on the conditions of the nervous tissues obtained from autopsies, and Dr. Joseph Walsh contributes a lengthy piece of work on the gross pathological lesions and the microscopic characters of

[1] Published by the Henry Phipps Institute, 238, Pine Street, Philadelphia, 1906. (Royal 8vo, pp. 452.)

the kidneys in 59 cases of advanced tuberculosis of the lungs. The two most useful articles in the book are those by Dr. M. P. Ravenel and Dr. Leonard Pearson on immunization in tuberculosis. Dr. Ravenel was sent to Europe to investigate Professor Maragliano's serum work, and to study his methods; he also visited other laboratories in Europe with the purpose of acquiring knowledge of other work which is being done in serumtherapy as applied to tuberculosis. This article is a valuable historical and critical survey of all the important investigations which have been attempted in this direction. Dr. Pearson deals in a similar manner with recent investigations and observations upon the immunization of animals against tuberculosis. He discusses Professor von Behring's work very fully, and has some severe criticisms to offer upon it. At the Henry Phipps Institute serumtherapy has been taken up along the lines laid down by Professor Maragliano, but the work is not yet sufficiently advanced to justify any definite opinions as to its value.

PHYSICAL SCIENCE AND EDUCATION

THE National Temperance League has this week been celebrating its jubilee at Sion College, Victoria Embankment, and on Tuesday last met under the presidency of Sir W. H. White, K.C.B., F.R.S., to discuss science and education. Sir Victor Horsley, who delivered the principal address on this subject, said that it was the duty of all citizens, and not merely of temperance advocates, to press forward the movement for more scientific teaching in elementary and secondary schools. The work must begin in the universities, for until they recognized that physical science provided one of the best means of training the mind the movement would be hampered. There was, he believed, a distinct movement towards temperance in the universities, and scientific studies were finding more and more favour among teachers. The medical deputation which Mr. Birrell was to receive, at some date not yet fixed, would emphasize the necessity of further appreciation of the subject they desired to be taught; and no doubt they would receive the same welcome that was extended to the deputation on medical inspection in schools. That inspection itself would enormously help the temperance movement. As to the position of alcohol in disease, a good deal of attention had been paid to what he (Sir Victor Horsley) had said in Canada about the use of alcohol as a drug; since then he had received many communications on the subject, and all confirmed his statement. The opinion, in fact, was gaining ground every day that alcohol was not useful in pathology any more than in physiology. But political as well as medical education had to be carried on. In Canada, not only had the custom of using alcohol physiologically been got rid of, but principles were now ingrained in the political system which were in England supposed to be still in the realm of controversy. This league's work had been of the utmost value; and only that morning an American physician had told him that he observed a total change in our attitude towards alcohol since his last visit sixteen years ago.

MEDICAL SCIENCE AND ARMY EFFICIENCY.

LIEUTENANT-COLONEL FIRTH'S paper on this subject, published in last week's issue of *Nature*, has been written with a view to exciting a more general interest in army sanitation. The concluding portion of the article sketches its newest phase, which consists in instructing soldiers in elementary sanitation, and the placing of water sterilization in the hands of specially-trained men of the R.A.M.C. These steps indicate that the crying need for sanitary reform in our army is at length engaging attention in the proper quarters, and is being dealt with on lines long advocated in these columns. Colonel Firth warns us that it is early yet to say what will be the final result of this attempt. To our minds there can be no doubt as to what should be the final result, provided the matter be dealt with in a generous spirit by the authorities, and be not dropped on the score of expense while still in the experimental stage. The *United Service Gazette* of October 13th also contains an article on medical service in the field, which is welcome in so far as it presses the necessity for sanitation in the field upon the notice of a wider public than is reached by a medical journal. And this sums up the whole value of the article, which refers also to "the dental question" and "field hospital work" without giving the technical reader any information of importance on the numerous points dealt with. So far as our readers are concerned the article deals with ancient history.

THE DISINFECTION OF AN ARMY.

DR. J. J. MATIGNON, Member of the French Military Mission to the Japanese Armies of Manchuria, tells[1] how the Japanese, having carefully prepared arrangements for the wholesale disinfection of troops in anticipation of their return from the seat of the late war in the East, carried out their plan even though the troops at the front had not suffered from epidemic disease. Thus were effected, without a hitch, "hygienic manœuvres" resulting in the complete disinfection of 800,000 troops. A quarantine service was organized under the administration of a general assisted by a technical committee of engineers and medical officers. Working under this administration were establishments for disinfection and observation hospitals. Every transport arriving from the seat of war was boarded by a disinfecting staff, and every article not carried on the person was disinfected before landing. The debarkation was then effected, every man passing through the quarantine station. Here disinfection of the men were effected by hot sea baths (50°C.), while their clothing, equipment, and arms were subjected either to steam under pressure, formalin steam or formalin spray as each case demanded. The quarantine stations were at Aomori, Dairi, Ninoshima, and Wada. Dr. Matignon is to be congratulated on his graphic description of the procedure witnessed by him at Wada. His paper is illustrated by plans of two of the stations and by figures showing the various apparatus employed. The procedure adopted from start to finish appears to have been as nearly perfect as possible, every detail having been carefully planned out, even down to the cup of tea and cigarette supplied to each man on his exit from his bath of purification. Admiration for the forethought of the Japanese must be ungrudgingly bestowed. For though it may not have been essential that all the troops should have been disinfected, the execution of this gigantic precautionary scheme has demonstrated the practicability of wholesale disinfection. It is to be hoped that a spirit of emulation may be aroused in the West so that we may not again suffer from neglect of sanitary precautions. For after having afforded an object lesson to the Orient it would be more than deplorable should the Occident again neglect the teaching of the past.

[1] "Revue d'hygiène," August.

WASHING OF WHEAT IN FLOUR MILLS.

FLOUR milling, as it is carried on to-day, is an industry in which very successful attempts have been made to prevent contamination of the wheat in the different processes it undergoes. Before it passes through the series of fluted rollers the wheat is washed with water and is then carried automatically from one set of rollers to another without being touched by hand and without being exposed to the external air. The initial washing process is very necessary, and although that portion of

the grain which is actually in contact with the water is not ground up into flour, it is only proper that the water used should be free from all suspicion of pollution. It is disquieting to find from a report of a meeting of the Barry District Council that the water used in a large mill in that town is obtained direct from the docks. The Barry Docks, as is well known, are very extensive, and it is probable that over 1,000 sailors are constantly to be found there. The pollution of the dock water with excreta and in other ways is therefore inevitable. It appears that the attention of the owners of the mill has been drawn to the undesirability and potential danger of using this polluted water, but they contend that no danger can result because of the almost momentary contact of the water, and because, as already stated, the water only actually touches the outer covering of the wheat, which is cast off as bran. This may be so. It is, however, most necessary and desirable in the interests of all concerned that there should be no possibility, either through the carelessness of workmen or through the derangement of machinery, of such an important article of food as flour becoming contaminated with sewage water. The Barry District Council has always administered the Public Health Acts with discretion, and we are certain has no desire to harass any of the industries of the district. The water supply of the town is excellent and abundant, and being in the hands of the Council, one remedy for the conditions we have recorded would seem to be a supply of water to the flour mills by the Council upon nominal terms.

SICKNESS ASSURANCE IN HOLLAND.

The Dutch Government has submitted to the Second Chamber of the States-General a Bill providing for the assurance of workmen and their families against the expenses incident to illness. It applies to all workpeople over the age of 16 who are in permanent employment. Persons having an income of more than 1,200 florins, or who are civil servants, soldiers, or sailors, are excluded. The amount of the premium would be deducted from the wages, and the employer made responsible for the payment of the money thus deducted to the assurance fund. The compensation payable in case of sickness would cover the cost of medical treatment, medicines, and apparatus, besides sick pay if the illness lasted longer than two days. Sick pay might be drawn for a period not exceeding 180 days; the amount payable in case of partial disablement would be 35 per cent., and in case of total disablement 70 per cent., of the wages. Pregnant women would receive medical attendance during the twenty-eight days before and the twenty-eight days after delivery, with 35 per cent. or 70 per cent. of their usual earnings, as in the case of working men. The law would not apply to illness resulting from the commission of a misdemeanour or from the abuse of alcoholic liquors.

THE YORK MEDICAL SOCIETY.

The work of the York Medical Society for the session of 1906-7 was inaugurated on October 10th, in the Museum of the Yorkshire Philosophical Society, by a meeting which was largely attended alike by members and by representative layman, including many ladies. The orator of the day, Dr. William Allchin, consulting physician of the Westminster Hospital, was introduced by the President, Dr. Bedford Pierce, and gave an interesting address on the evolution of the science and art of therapeutics. Its general idea was to show laymen what they may and may not reasonably expect from their medical advisers, and in its course the history of therapeutics was traced in outline, step by step, from the days when the notion prevailed that all human diseases were due to evil spirits, up to the present time. The nature of empirical treatment and its limitations were described, and the theme pursued up to the development of the germ theory of disease, the new interpretation of the term *vis medicatrix Naturae* to which this theory has given rise being duly described. In the evening a banquet was held at which the Lord Mayor and Dean of York and many medical men were present, under the chairmanship of Dr. Bedford Pierce. The toast of "The Orator of the Day" was proposed by Dr. Ramsay, who reminded the Society that Dr. Allchin had been one of its honorary members since 1882, his connexion with it being brought about by his friendship with the late Mr. H. C. Gill of Bootham Asylum. In proposing a toast of the Society itself Dr. Trevelyan said that it had existed for at least three score years and ten, but still showed signs of vitality and youth. This toast was acknowledged by the President, Dr. Pierce, who said that the members did not meet in the interests of their own pockets, and that one of its rules was that none of them might keep secret for his own benefit any remedy for disease which he might possess. The Dean of York, who also spoke, dwelt at some length on Christian Science. He did not wish, he said, to cast a slur on faith in a Higher Power, but the whole thing seemed diametrically opposed to anything like a reasonable faith, and he could not understand how people could for a moment put aside the services of men of scientific attainments.

MEDICAL MEN AND LIFE ASSURANCE.

An interesting article in a recent issue of the *Saturday Review* is devoted to medical men and life assurance, the keynote being that the relations between them are not altogether what they should be. In one connexion life assurance is to medical men a frequently-successful snare, and in another a too often neglected safeguard. Medical men, it is asserted, frequently swallow a bait offered them by certain low types of insurance men. The trap set is one to which allusion has already been made sufficiently often in our columns, and, according to our contemporary, the same individuals are taken in again and again by slight variations of the same method. The general plan is for an agent to induce the medical man who is his prospective victim to believe that he will be made sole examiner for the district if he takes out a policy for a certain amount, or a medical adviser at the head office if he takes up a certain number of shares. No agent, however, ever has any voice in medical appointments in a good office, nor do companies whose shares are worth having need to get rid of them in the way indicated. The other point made in the article is that medical men are specially likely to fritter away money in foolish speculations, because any savings they may effect in a year are comparatively small sums not very easy to invest satisfactorily in ordinary ways. It is therefore advised that they should take much more advantage than they now do of the facilities offered nowadays by many insurance companies of the first rank. These, as is well known, have greatly increased of late years, and some of the results which it is now possible to achieve are decidedly striking. Thus it would appear that by certain combinations it is possible for a man to insure himself for a large sum payable at death and yet throughout his life draw an income on every premium which he has paid. For instance, a man who expects to be able to set aside £100 a year for ten years can insure himself for £1,000, paying £100 a year as premium. From each £100 that he pays however he draws from 3¼ to 3½ per cent. as income, while he is from the first fully insured for the whole £1,000, and when all the payments are complete he draws interest on the £1,000 for life at the rate of something over 3½ per cent. Another form of policy to which allusion is made is a convertible term policy. This seems

particularly suited to professional men, because it allows an insurance for a large sum at a low premium to be taken out an early period; while the insurer, if he finds his prospects improving, can increase his premiums and arrange for the sum insured to be paid not at his death but when he has reached 60 or some other age. The only drawback about modern life assurance is that to obtain the best which it has to offer more knowledge of the subject and more skill in figures are necessary than the ordinary man possesses. For modern insurance companies specialize largely, some offering very good terms to certain classes of persons or at certain ages, but indifferent terms to others; hence, the best results can commonly be obtained only by combinations of policies which secure for the insurer the best which two or more offices have to offer.

MEDICAL LEGISLATORS.

We have often pointed to France as a country specially blessed in the possession of a considerable number of representatives of the medical profession in the Chamber of Deputies. Apparently in their own country these legislators share the proverbial fate of the prophet. Not long ago the *Semaine Médicale* went so far as to state that experience had shown that, as far as the protection of the material interests of the profession is concerned, it does not matter whether there are few or many doctors in Parliament. We gather that their corporate influence is a negligible quantity. In Italy, where also the medical legislator flourishes, his services are held equally cheap by his brethren. Last year a medical group was formed of the doctors who had seats in the Italian Parliament. Much was expected of it, but it does not seem to have justified its existence. Quite recently a resolution was passed by the Council of the Federation of Medical Associations to the effect that, as the medical Parliamentary Group has up to the present time done nothing in fulfilment of the hopes to which its formation gave rise, the Federation has decided to separate itself completely from the Group and to exert independently whatever influence it can bring to bear on Parliament as a whole.

LOCAL INDEBTEDNESS.

The annual Local Taxation Returns for the financial year 1903-4, recently issued by the Local Government Board for England and Wales, contain some interesting particulars as to the indebtedness of boroughs, both county boroughs and non-county boroughs, but excluding London, and as to the purposes on which the loans raised have been expended. The total indebtedness of the sixty-nine county boroughs (excluding London) was in round numbers one hundred and eighty millions, and of the two hundred and fifty-four non-county boroughs thirty-nine millions and a half, making a grand total of nearly two hundred and twenty millions. Of this fifty-four millions and a half had been expended on waterworks, and eighteen millions and a quarter on sewerage and sewage disposal works. The amount expended on dépôts, wharves, yards, refuse destructors and works connected therewith amounted to over two millions and a half, and on hospitals nearly as much. Altogether these four classes of expenditure, more or less intimately concerned with public health, accounted for seventy-seven millions and three-quarters. Cemeteries and crematoria represented one million and a half, parks and open spaces nearly five millions, and the housing of the working classes four millions and a half. Including these three objects the total amount of debt incurred by boroughs for public health purposes and still outstanding was in 1904 eighty-eight millions and three-quarters or about 40 per cent. of the total indebtedness The total rateable value of the boroughs is put down at nearly sixty-seven millions. The statistics given of the loans raised by urban district councils, though the total is of course much smaller, are perhaps more surprising; there were on March 31st, 1904, in England and Wales 813 urban district councils, and their outstanding loans amounted to thirty-two millions and a half (nearly), and the total amount of the rates raised by them was equivalent to three shillings and elevenpence halfpenny on the total assessable value of their districts.

SURGICAL OPERATIONS AND PARENTAL RESPONSIBILITIES.

A question of much general interest has recently been raised both in France and in England—that of the duty of parents and medical men in respect of operations on patients of tender years. In the French instance an action was brought against a surgeon who had refused to perform an operation on a child under his care; it failed because the Court very naturally held that it was for the surgeon himself, not the parents, to determine whether an operation was desirable. In the English case, on the other hand, it was the duty of parents which was brought into question by the National Society for the Prevention of Cruelty to Children. The mother of a child which had already undergone several operations for necrosis of the femur refused to submit it to the further surgical procedures believed to be necessary to its well-being; and hence was deemed by the Society to be guilty of an offence under the neglect clause of the Children's Act of 1904. The charge was eventually investigated by a magistrate, but was not held to be sustained, mainly, it would appear, because the Society omitted to produce what the magistrate was prepared to regard as expert evidence that further operation was really necessary. The principle involved remains, therefore, unaffected by this failure, and the point may very likely again be raised in connexion with some other case of a corresponding nature.

LECTURES AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

The Bradshaw Lecture will be delivered by Dr. S. J. Sharkey on November 6th, the subject selected being rectal alimentation. Dr. Norman Moore will give the Fitz-Patrick Lectures, dealing with the history of the study of clinical medicine in the British islands, on November 8th and 13th. Dr. F. Andrewes has chosen the evolution of the streptococci as the subject of the Horace Dobell Lecture, to be delivered on November 15th. The lectures will be given at 5 o'clock.

The seventieth birthdays of Dr. Wilhelm Waldeyer, Professor of Anatomy, and Dr. Ernst von Bergmann, Professor of Surgery in the University of Berlin, will be celebrated on the evening of December 13th by a *Festkommers* in the Philharmonic, Berlin.

The Select Committee of the House of Commons on Income Tax will meet on Tuesday next, when it is understood that a report drafted by the chairman, Sir Charles Dilke, will be discussed. The Committee was appointed to consider the possibility of graduating the income tax, and differentiating between incomes derived from permanent investments and those obtained by the exertions of the individual. The hearing of evidence was concluded before the vacation. The draft report, it is stated, not only gives the general effect of the evidence, but also contains a survey of the practice in British colonies and in foreign countries.

Liverpool.

The Condition of the Slums.

History of the Question.

The report of Dr. Hope, the Medical Officer of Health, on the conditions of life in the slums of Liverpool, especially as regards the influence of intemperance on infant mortality, referred to in the British Medical Journal of September 22nd, has stirred public feeling to an unusual degree, and has given rise to a somewhat heated correspondence in the daily press. As to the existence of a deplorable amount of squalor, destitution, and intemperance, and a high rate of mortality in the slums, all who are acquainted with the subject are practically agreed; the only difference of opinion is as to whether the intemperance is the most potent and frequent cause of the destitution and squalor, or whether the craving for intoxicants is not rather to be regarded as the consequence of the conditions under which so many of the poor have to live. The truth appears to be that the causes which have led up to the present conditions in the slums—conditions no worse now than formerly, but more glaring by comparison with the improved circumstances enjoyed by the lower middle and the skilled artisan classes—are highly complex. The people affected are largely the descendants of the refugees from the Irish famine, who crowded into Liverpool in their tens of thousands in the Forties. The primitive ways of life and insanitary practices, which might be comparatively harmless in a cottage exposed to the gales from the Atlantic, could not fail to lower vitality and breed disease when introduced into a densely-crowded town. It is a mere commonplace to say that under such conditions the average man would be likely to resort to stimulants, and sixty years ago there were few, even among the enlightened classes, who saw anything wrong or injurious in such a practice. But the people who came to throng the slums of Liverpool were peculiarly prone to fall victims to the temptation to drink. Inured for generations to extreme penury, without education and without ambition, and receiving higher wages than they ever earned in their own country, no doubt the public-house seemed to them to offer everything that was desirable. To this extent, then, intemperance in the slums may be traced to the depressing influences of town life and the absence of higher aims and ambitions. It might have been supposed that the general progress which has taken place during the last sixty years in sobriety, decency and comfort, would have had a corresponding influence on the state of the slum dwellers, but there are obvious reasons why this has not been the case to any great degree. The slum dwellers have remained to a great extent a community apart. The influence of example and sympathy which prompt the rustic villager to improve his material surroundings and to cultivate decency and cleanliness are for the most part wanting. The well-to-do have moved out into the suburbs, or across the Mersey, and they are separated from the slum dwellers not only topographically, but also to a great extent by differences of politics and religion.

The depressing influence of crowded city life must be intensified by the insanitary state of the courts and houses, which were constructed at a time when builders might plant down houses how and where those chose, without fear of the Local Government Board. There is little to induce the dweller in an ill-ventilated room, with broken ceiling and damp floor, to spend his wages on furniture or house decoration. On the other hand, the unhappy individual who has learnt to find his pleasure in the bottle is little likely, even when he has the chance, to take pains to improve his surroundings. Further, the facilities for obtaining drink in Liverpool are out of all proportion to the reasonable requirements of a community of moderate drinkers, and the amount of money spent on alcohol (£3,000,000 per annum) must seriously diminish the spending power of the people in other directions.

Another cause which undoubtedly intensifies the destitution and demoralization of slum life in Liverpool is the irregularity of employment at the docks. A man who earns good wages on two or three days in the week, and is a loafer the rest of his time, is not likely to rise either socially or industrially.

The present conditions of slum life have, as already stated, a complex origin, and form a vicious circle, which can only be broken by some vigorous action. First we have a population undisciplined, imperfectly educated, inheriting unthrifty traditions, and with habits moulded by pernicious example. Next we have extraordinary facilities for obtaining intoxicating drinks, the people being urged to indulge in them not only by their desire for personal gratification, but also by their social instincts, which make it a point of honour with them to treat each other. Then we have their poor homes and surroundings, which are partly the cause and partly the consequence of their drinking habits. On the one hand, the noise, the discomfort, and the unwholesomeness of their dwellings make them feel the need of artificial stimulants; on the other, the drain on their purses to obtain the latter deprives them of the means of obtaining better accommodation.

It must not be supposed that the people of Liverpool or their representatives on the City Council have been indifferent to the condition of the slums, or that no efforts have been made to improve them. On the contrary, there is probably no city in Europe where more has been done in recent years to improve the condition of the poor population. It is due to the magnitude of the original evil that so much remains to be accomplished. Every year we find in the reports of the medical officer of health records of good sanitary work done. Whole blocks have been removed, courts have been ventilated, standpipes and latrines have been constructed. Model dwellings have been erected. The Housing of the Working Classes Act was put into force in Liverpool in 1901 on the initiative of Dr. Permewan, a medical member of the City Council. Further, the licensing justices are gradually extinguishing licences. Yet the fact remains that there are still in existence over 7,000 houses which have been declared unfit for human habitation.

Meeting of Citizens.

The public feeling in this matter has found vent in an influential meeting held in the small concert room in St. George's Hall on October 23rd, and was attended by citizens of all shades of politics and of various religions. The chair was taken by the Lord Bishop, who was supported, among others, by the Roman Catholic Bishop (Dr. Whiteside).

The Lord Bishop said that they were not there as partisans, but as citizens who were responsible for the deplorable state of things in parts of the city. There were three difficulties in the way—the rate difficulty, the drink difficulty, and the human difficulty. He was not there to ask whether the drink was the greatest curse or a very great curse.

Sir Edward Russell proposed: "That this meeting, whilst gratefully acknowledging what has already been accomplished by the Corporation, is profoundly impressed by the fact that there yet remain about 7,518 houses in congested areas occupied by the poor of Liverpool which are officially declared to be 'unfit for human habitation,' and urgently calls upon the City Council to remedy in a bold and drastic way this condition of things." He paid a high tribute to Dr. Hope.

Dr. William Carter, in supporting the resolution, said that to appreciate the magnificent sanitary work which had been accomplished by the Corporation of Liverpool it was necessary to go back a good many years. In 1843, Dr. Duncan, a medical practitioner of the town, startled those responsible for its health and good government by telling them in bold and fearless language that it was without exception the unhealthiest and worst-governed municipality in the kingdom. There was a striking analogy between what took place then and what was taking place now. A storm of indignation burst over Dr. Duncan's head, and he was accused of producing a foul and unmerciful libel. But when the not unnatural heat had dissipated, and men had time to consider the facts, Dr. Duncan was created medical officer of health. Thus Liverpool put itself in the van of sanitary progress—for Dr. Duncan was the first medical officer of health ever appointed in England. It would not have been surprising if, appalled by the magnitude of the evils to be attacked, the Corporation had abandoned its labours in despair. There were thousands of loathsome dwellings, thousands of emigrants crowding into them and into the filthy

courts; a very inefficient water supply; typhus fever, cholera, and other communicable diseases were always more or less present, and occasionally raged with epidemic violence. No British city of modern times had had such enormous hygienic difficulties to face as Liverpool had then, and in none had the triumph of sanitation been so conspicuous. But there was still great work to do, and happily another brave man had appeared. Dr. Hope had had the courage and honesty, in effect, to say that until the great curse of drunkenness was overcome sanitary effort would be largely paralysed. As was the case with Dr. Duncan, so with Dr. Hope. Some of those who ought to support him in his efforts at reform were scandalized, indignant, and sulky, because apparently they were desirous that undeniable evils should be glossed over. Could anybody deny that drunkenness was the greatest curse alike for the bodies and souls of men existing to-day? That the curse was growing was shown by the returns of the Registrar-General classifying deaths under general headings. While the other headings had declined or remained stationary, that comprising "alcoholism, delirium tremens, starvation, and scurvy" had increased in the last twenty years from 35.8 per million people living in the first quinquennium to 71.2 in the last. The wiseacres told them that they could not make men sober by Act of Parliament. Had they ever tried? The muzzling order had brought about the disappearance of hydrophobia? Would not good follow if the drink were muzzled? In the middle of last century, Wilson Patten's Sunday Beer Act had been attended with the most beneficial results. To show the relationship between drunkenness and insanitary conditions, Dr. Carter, in conclusion, quoted from the report of the Corporation Committee in 1865 on the causes of the excessive mortality in Liverpool:

> The result of the inquiry is the conviction, supported by a mass of evidence, that the proximate causes of the increased death-rate are intemperance, indigence, and overcrowding, these two latter being generally found in the train of intemperance, although the three act and react on each as cause and effect.

The resolution was carried, as were further resolutions relating to the prevention of personal uncleanliness and the suppression of excessive public houses.

Lancashire.

NEW UNIVERSITY UNION BUILDINGS IN MANCHESTER.

MR. BALFOUR said the other day that the academic life of a university was not complete without a union for the students. Manchester has long had one, but its habitation has up to now not been what is desirable in all respects. Hence the vigorous endeavour to secure a habitation worthy of the University, and adapted for the use both of men and women students. A mass meeting of students, presided over by the Vice-Chancellor, was held on October 17th, when it was resolved to proceed with the erection of new buildings near the University, to make adequate provision for a men's union, a women's union, and a refectory open to all members of the University. The cost of the buildings will be about £25,000. The Council of the University has undertaken to erect the refectory at an estimated expenditure of £8,000. The late Mrs. Worthington left £5,000 for the benefit of the women students, which is to be used for their union, and a further sum of £10,000 or £12,000 is estimated to be required for the men's union. Of this sum £6,313 has been already subscribed. It is hoped to finish the work by October, 1908.

VITAL STATISTICS OF LANCASHIRE.

In his review of 1905 Dr. Sergeant, the Medical Officer of Health for Lancashire, states that the population of the county is 1,774,467. The birth-rate was the lowest ever recorded, 25.06 per 1,000, and it was lowest not in the urban but in the rural districts, 23.9 against 25.22, a decrease in the former of 0.44 and in the latter of 0.91 as compared with 1904. The decrease was 2.3 on the average of the last ten years, and compared badly with the rate for England and Wales as a whole. The male births were 22,854 and the female 21,615. Dr. Sergeant states that:

> As the age of women at marriage is steadily rising in the country, and especially between 15 and 25 years of age—when the fecundity of the female attains its maximum—so there is, as might be expected, a declining birth-rate, which varies according to the locality and social status of the residents—the lower the stratum of society the higher is the birth-rate, and the higher also is the rate of infant mortality, and vice versa. Low birth-rates not infrequently mean better-developed and healthier children, with greater probability of being reared by good nursing and healthy home surroundings, a statement which can be abundantly borne out by statistics. The high birth-rate among the lower classes of society is largely due to the earlier age of marriage among women.

The death-rate is also the lowest recorded, 14.72 per 1,000 against 15.54 in 1904, and 16.76 for the period 1895-04. The deaths under 1 year were 132 per 1,000 births against a 159 average for the past ten years.

OVERLYING.

Coroner Butcher made some important remarks at an inquest at Little Hulton on October 19th, regarding a verdict of "Accidentally suffocated" returned in the case of a child found dead in bed with its parents. The mother had had another child who died in the same way in 1905. The coroner said that over 2,000 children were done to death by this silly practice each year. He spoke also of the foolish habit of letting children go to sleep with a teat in their mouths. The coroner said that, if the foreman would engage a hall, he would come to Little Hulton and discuss this subject with the mothers.

Northumberland.

THE BARRASFORD SANATORIUM.

THE claims of the Barrasford Sanatorium were brought before the members of the Newcastle, Gateshead, and District Friendly Societies' Council at the opening meeting of the session. Sir George Hare Philipson pointed out the proved value of sanatoriums. The Barrasford institution at present provided for fifty patients. The total cost had been £20,000, and about £3,500 was still required to furnish the buildings ready for opening. For an additional cost of £5 000 the accommodation could be extended to a hundred patients. Dr. H. E. Armstrong, Dr. J. W. Hembrough, and Dr. Watson Ogden also addressed the meeting. The members of the Council will lay the matter before their respective societies, who are asked to contribute to the support of the institution.

South Wales.

THE EDUCATION OF MIDWIVES.

A DEPUTATION from the Queen's Nursing Institute, Cardiff, consisting of Dr. E. J. Maclean, Mr. H. M. Thompson, Mrs. Batchelor, and Mrs. Grayson (Superintendent of the Institute), waited upon the Cardiff Workhouse Visiting Committee on October 16th, with the object of inducing the guardians to increase their donation to the Institute. The chief ground for asking for an increased donation was that a department had been opened at the Institute for the training of midwives. Although this had only been in existence for a short time, the poor had considerably benefited by the ministrations of the nurses. Dr. Maclean emphasized the fact that in South Wales the infant mortality-rate was exceptionally high. The cost of the training department was £200 per annum over and above the amount received in fees. The loss on the institute last year was £370. Mr. Thompson pointed out that the whole object of the Midwives Act was to improve the standard of nursing at childbirth. The object of the Institute was to turn out thoroughly practical midwives, so as to bring about what the Act aimed at. The theoretical part of the instruction was given at the University College, but the practical part was quite as important, if not more so. Untrained nurses had to attend twenty cases under Mrs. Grayson or a trained midwife on the staff before they were allowed to practise on their own account. This work, added Mr. Thompson, had made very rapid progress. Replying to questions, Mr. Thompson said the most satisfactory arrangement would be for the guardians to pay in proportion to the number of cases sent in by them. After the deputation had retired the Clerk to the Guardians produced statistics showing that the cases attended

numbered 168. The scale worked out at the value of £104 13s.—that was, reckoning that the cases were attended the same way as others, but they always found that their cases got more attention than others. If they took the number of visits, the value worked out at £169 8s. 7d. The present subscription of the Guardians was £110. It was decided to give the same subscription as formerly. The Committee then considered the general question of whether they should in future make an additional grant, in view of the establishment of a training department for midwives. The Rev. D. Davies suggested an additional subscription of £20, and this was agreed to.

The Society of Medical Officers of Health.

The annual meeting of the West of England and South Wales Branch of the Incorporated Society of Medical Officers was held at the City Hall, Cardiff, on October 18th. The retiring President, Dr. F. T. Bond, F.R.S.E., installed as President Dr. J. D. Jenkins, M.O.H., Rhondda District Council, who opened an interesting discussion upon elementary education from the point of view of the medical officer of health. The Honorary Secretary and Treasurer were re-elected.

Mortuary Attendants.

A short time ago there was something in the nature of a tornado in a teacup at Cardiff, but it has now happily ended without disastrous results. The centre of greatest disturbance was the Health Committee of the Corporation, the *causa causans* a somewhat unduly energetic mortuary attendant of comparatively recent appointment, and the *causa proxima* an excitable member of committee. According to him the practice at Cardiff in connexion with the mortuary was for the attendant to do everything needful in the way of preparation of the bodies on his own responsibility, and, having opened them, remove all organs and place them on a table; then the medical man in charge of the case put in an appearance and said "Put 'em back," whereon the attendant completed the necropsy in the normal fashion. Naturally these statements produced some sensation; finally, further consideration of the matter was adjourned pending a report from Dr. Walford, the medical officer of health. Meanwhile a number of medical men who had had cases at the mortuary, were interviewed by a newspaper reporter. So far as they were aware, there was no ground for the charge made either against the attendant or medical men; they began and completed the autopsies themselves. Dr. Walford's report was much to the same effect; but one medical man had informed him that on one occasion his assistant had complained that on his arrival at the mortuary he had found the body opened and the lungs removed. As the mortuary attendant had been already ordered by Dr. Walford to keep strictly to the regulations laid down for his guidance, the matter then ended.

Scotland.

General Medical Council Election.

Dr. Norman Walker will open his campaign next week with a meeting in Edinburgh, and will thereafter hold meetings in Dundee, Aberdeen, Glasgow and Dumfries.

Opening of the Winter Session at Edinburgh.

Students returning to the study of medicine in Edinburgh are finding not a few alterations in the teaching and in the *personnel* of the school. The old order changeth inevitably from year to year; each year the changes at first seem strange and marked, and each year not without regret some old-established custom, some cherished landmark, or some familiar figure vanishes from our midst, and ere we fully realize its loss is relegated to ancient history. The opening of the present session has been marked by events of considerable interest; events affecting the university life of the student in several diverse aspects and affecting no less the vitality of the University as a whole.

Founded on a site with historic medical traditions, there have risen spacious new buildings offering splendid opportunities for scientific teaching and research work. At the opening ceremony men high in the councils of the country took a chief part, and once again the merits and demerits of scientific as opposed to chemical education were discussed.

The Republic of Knowledge so eloquently hailed by Mr. Andrew Carnegie is the goal to which we strive in medicine; and science is the watchword of the day and of the future. But medicine can never be an exact science. Till that day comes when we have solved the mysteries of life itself, and discovered the key to the personal equation, physicians and surgeons must work enveloped in a mist. Through science, clinical no less than theoretical, we shall attain the highest perfection possible; and as Mr. Carnegie remarked of the new buildings in connexion with the University, "They mark an epoch in her long career, and are to testify to future generations that the officials in charge of her work in the beginning of the twentieth century were alive to the duty of keeping her abreast of the new knowledge, of enlarging the field of her activities and of welcoming the development of the scientific and so-called practical courses, thus keeping her true to her high mission, in the front rank of all branches."

The Council of the Royal College of Physicians, Edinburgh, has also at the present time the opportunity of affecting very intimately the scientific training of medical men in Edinburgh. Possessed of a first-class laboratory, splendidly fitted up, and offering great facilities for scientific research, its choice of a new superintendent is looked forward to with a great degree of interest.

In clinical medical work changes also have occurred. Old teachers have been succeeded by new ones and junior physicians have ripened into seniors. Students in theoretical medicine have for long had great choice of teachers, excellent teachers, but naturally teachers each more especially interested in some particular branch of medicine. For future students, however, more valuable opportunities of study are in store. For the study of theoretical medicine there is now open to students a course controlled by three eminent physicians, members of the staff of the Royal Infirmary, distinguished men in various branches of medicine, and men well skilled in the art of teaching. The conjunction is a matter of considerable moment to students and is, at the same time, a healthy sign of the condition of extramural medical teaching.

In another, less medical, though perhaps no less important, aspect of his university life the student finds changes of some importance. Great extensions have been made in connexion with the University Union, and the buildings as now constituted form practically a first-class club. At the opening ceremony on October 19th, conducted by the Lord Rector, the Right Hon. R. B. Haldane, M.P., the Chancellor, the Right Hon. A. J. Balfour, M.P., said: "Our contemporaries are our most instructive teachers, and a university life which consists only of the relation between the teachers and the taught, between professors and students, is but half a university life. The other half, which consists of the intercourse between the students themselves, the day-to-day interchange of ideas, of friendships, of commentary upon men and things, and of the great problems which the opening world naturally suggests to the young—the university which is deficient in that is, I say, half a university, and no mere scholastic equipment can satisfy the void which is thus left."

In scholastic equipment, no less than in the development of the corporate life of the University, the opening of the present session witnesses great changes in Edinburgh, changes not only of value in themselves, but changes of the utmost importance, as foreshadowing future developments in coming years.

Professor Paton's Introductory Address.

In the unavoidable absence of Principal Story, Professor Noel Paton was introduced to his students in Glasgow by Professor Stockman, Dean of the Medical Faculty. The physiology classroom was crowded, and among the audience were a number of medical men. The new Professor was very cordially received, and made an excellent impression with a well-balanced and thoughtful address. He pointed out that patient research was essential if they were to succeed in their efforts to combat disease. To enable such research work to be pursued, it was necessary that the public should give both financial and moral support to the movement. The public must establish well-equipped laboratories and subsidize research work, and must not trammel the investigators by insisting on each research having a definite utili-

tarian end. It was the part of the university to train investigators, who would be able to advance knowledge and to combat disease. The first quality required in the investigator was a spirit of scepticism which refused to subscribe to any theory unless the evidence on which it was founded was clear and irrefutable. It was essential to be able to weigh evidence, but in addition to this power of distinctive criticism the investigator required two further qualifications—the power to observe accurately and without bias, and the power of imagination which enabled him to utilize his observations. Further, the quality of perseverance was essential if good was to come of the work.

PATHOLOGICAL SPECIMENS BY POST.

Several months ago at a meeting of the Town Council it was stated that the Post-Office authorities intended to introduce more stringent regulations regarding the sending of pathological and bacteriological specimens by the post. In Glasgow the great majority of such specimens are sent to the Public Health authorities in special outfits provided by them. From a recent circular it appears that these outfits do not come up to the standard laid down by the Post-Office authorities. No immediate change will be required, as the postal authorities have agreed to accept the present equipment till it is exhausted. In the future, however, it will be necessary for the sender to write his name and address on the outside of the envelope, and to send the package by letter post. The present Glasgow equipment is enclosed in a stout cardboard box, but according to the new regulations this will have to be altered, as substances sent for medical examination must be sent in a hermetically sealed receptacle enclosed in a strong wooden, leather, or metal case packed in cotton-wool or sawdust.

CRIEFF COTTAGE HOSPITAL.

The project for a cottage hospital at Crieff, to which attention was directed in this column upwards of two years ago, has at length been successfully carried through, and this month has witnessed the formal opening of a building certain to prove of great value to the town and neighbourhood.

It is just four years now since a definite decision to establish a hospital was reached, but for long no progress was made owing to difficulties in connexion with a site. At one time, indeed, it seemed as if the utility of the future building would be hopelessly crippled from the beginning by the choice of a site on the very outskirts of the town, and much too far away for the purposes of a hospital staffed by busy medical men in general practice. Fortunately, however, the Medical Committee, greatly aided by Dr. J. Gairdner, a member of the General Committee, was able to get this decision reviewed, and in the event a thoroughly suitable site was agreed upon. It is some three-quarters of an acre in extent and in an open part of the town, but sufficiently near the centre to be readily reached from all parts. The building erected upon it has been carefully thought out and all its arrangements are thoroughly in accordance with modern ideas, while the total cost has been kept commendably low. The opening ceremony was performed by Mrs. Whitelaw in the presence of Lord Ancaster, who has shown great interest in the project from the beginning, and of a large gathering. Lord Ancaster, in his speech, mentioned that though all Crieff had played its part, the motive power had been largely supplied by certain ladies and by Messrs. Mungall and Colville; his own interest in the matter was due to the late Dr. Thom. The vote of thanks to Mrs. Whitelaw was moved by Dr. Burnet, who in the course of his remarks, mentioned the pleasant harmony which had prevailed amongst the medical men in the locality in their consideration of the scheme from first to last.

Ireland.

THE ROYAL ACADEMY OF MEDICINE.

At the annual general meeting of the Royal Academy of Medicine in Ireland on October 12th, Sir J. Magee Finny was elected President for three years in place of Sir Thornley Stoker. Sir J. W. Moore was elected Secretary for Foreign Correspondence, and Dr. James Craig General Secretary. As Presidents of the Sections into which the work of the Academy is divided were elected: Dr. R. A. Purefoy, Obstetrics; Dr. J. F. O'Carroll, Pathology; Professor A. F. Dixon, Anatomy and Physiology; Dr. F. Martley, State Medicine. The Sections of Medicine and Surgery will, as usual, have for Presidents the Presidents respectively of the Royal Colleges of Physicians and of Surgeons in Ireland.

A SANATORIUM FOR DUBLIN.

At a recent conference of representatives of the City and County of Dublin it was decided that a sanatorium for the treatment of consumption ought to be established by the combined authorities of the City and County of Dublin. It was stated that letters had been received from Kingstown Urban District Council, North and South Dublin Rural District Councils, Balrothery and Celbridge Rural District Councils, agreeing to the formation of a joint Board and the levying of a rate of one penny in the £ in their respective districts. The conference expressed the hope that the following authorities would join in the scheme: Urban District Councils of Pembroke, Rathmines and Blackrock, and the Rural District Councils of Dalkey, Killiney, and Rathdown.

MEDICAL OFFICER OF HEALTH, BELFAST.

Dr. H. W. Bailie's appointment to this post has been confirmed by the Local Government Board, and he has entered upon his duties.

THE HEALTH OF BELFAST.

Citizens' Deputation to the Chief Secretary.

A large and influential deputation waited on Mr. Bryce, the Chief Secretary for Ireland, in Dublin, on October 16th, with reference to the general health of Belfast. It was introduced by Sir Charles Brett; the medical aspect of the case was explained by Professor Byers and Dr. Calwell, who dealt with the prevailing high mortality, the heavy incidence of consumption, and of typhoid fever, the want of control of the milk supply, as evidenced by the two recent epidemics, infant mortality, and the wretched hygienic condition of the elementary schools, and the present incongruities of health administration. Sir Charles Brett and Mr. Wood drew attention to the failure of the Corporation to carry out their obligations under the Act of 1899 dealing with the sewerage question, and gave a description of the pollution of both sides of the Lough, and of the main channel. Mr. Godfrey Ferguson and Mr. Hayes referred to the growth of the city over insanitary areas, and to the evils caused by the erection of "jerry-built" houses during the past generation. The deputation said that the question was difficult and complex, and asked that a commission of skilled experts, such as had aided in solving these difficulties in other places, be appointed to examine into the condition in Belfast, and to aid the authorities in the solution of the numerous problems with which they were face to face. Professor Lindsay, M.D., was also present.

The Chief Secretary gave a most sympathetic reply, and said that much depended on the citizens themselves; he asked would a Local Government Board inquiry not meet the case? but the deputation seemed to think the question was too broad for a simple inquiry of that kind.

CASHEL GUARDIANS AND MEDICAL OFFICERS' SALARIES.

At a meeting of the Cashel Board of Guardians held on October 19th, Mr. Patrick Moclair in the chair, the following resolution was adopted, subject to the sanction of the Local Government Board:

> That £20 a year be added immediately to the existing salary of each medical officer, except in the case of the medical officer of the workhouse (to be increased by £10 a year), with a triennial increase, commencing three years from above date, of £10, until the salary of each will reach the sum of £200 a year as medical officer.

Dr. Laffan, on behalf of the medical officers, thanked the Board.

CHOLERA SCARE AT QUEENSTOWN.

The people of Queenstown were thrown into a state of uneasiness by the arrival of a steamer in the harbour having on board two men dead and four others seriously ill. The port medical officer, Dr. Hodges, made a *post-mortem* examination of the deceased members of the crew, and inclined to the belief that the men died from cholera, and ordered that the bodies should be buried at sea. Portions of the intestine were sent for examination to

Dublin, with the result that the illness was declared not to be cholera. It appears the steamer had come from Penarth bound for Boston, and that the crew, which was made up of all nationalities, had eaten mussels freely at Penarth before they left. The mussels were obtained from piles covered with copper that support a wooden pier there, and some time afterwards the crew became very ill, and two of the members—a German and a Russian—succumbed.

Cork District Lunatic Asylum.

At the monthly meeting of the Cork District Asylum, held on October 16th, a letter was read from Dublin Castle, stating that the election of Dr. Cushman to the position of Resident Medical Superintendent was invalid, owing to the illegality of the casting vote given by the chairman. The letter also stated that the Lord-Lieutenant did not consider the amount proposed by the Committee, £500 per annum, rising by annual increments of £25 to a maximum of £700, an adequate salary, having regard to the large size of the institution, and the multifarious duties and serious responsibility devolving on the resident medical superintendent. After some discussion the Rev. Dr. Browne handed in a notice that the salary of the resident medical officer begin with £600, rising by annual increments of £25 to a maximum of £800.

SPECIAL CORRESPONDENCE.

PARIS.

Thoracocentesis combined with Insufflation.—Professor Fournier on Syphilis among Married Women.—M. Legendre on the Influence of the Motor Car on Health.

At a recent meeting of the Société Médicale des Hopitaux Drs. Dufour and Foix showed a patient suffering from chronic pleurisy of the right side, which had existed for five or six months. On six separate occasions, with about ten days' interval between each, it had been necessary to practise thoracocentesis to relieve dyspnoea. At each puncture they had withdrawn 1¼ to 1½ litres of fluid, when the operation had to be stopped, owing to symptoms of intolerance caused by the inability of the lung, retracted by sclerosis or adhesions, to fill up the space produced by the fluid removed. After the seventh thoracocentesis, as soon as they had withdrawn 1½ litres of liquid, and as soon as any symptom of intolerance began, they began to inject air into the pleural cavity: the pump attached to the ordinary thermocautery was used by inserting alongside the evacuant trocar a needle connected with the thermocautery pump by a rubber tube in which a glass index filled with cotton wool to sterilize the air was fixed. By this means, and graduating the amount of air allowed to enter as the fluid was withdrawn, using as a guide the sensation of discomfort felt by the patient, they were able to withdraw at one operation and without any mishap, 3½ litres of fluid. Independently of the therapeutic value of the method, Drs. Dufour and Foix think that this insufflation of air would be the only efficient remedy against acute oedema of the lung, which occasionally follows a thoracocentesis. M. Achard said that in a case with M. Grenet, by injecting sterilized air 4 litres of fluid were withdrawn at one sitting.

At the meeting of the Académie de Médecine on October 9th, Professor Fournier continued his communication on syphilis among married women analysed in the British Medical Journal of October 13th. In 86 per cent. of the cases the wife was contaminated by the husband during the first year. Several cases occur in which husbands who were syphilitic before marriage contaminated their wives five, six, seven, eight, nine, and perhaps even more years after the marriage. It was, he said, quite common for secondary syphilis to be prolonged into the tertiary stage, when five to ten years or more after the chancre eruptions are observed of a simple erythematous type as roseola, and more frequently syphilids of the papulous or papulo-squamous type known as palmar or plantar psoriasis. Professor Fournier showed a specimen he had taken from one of his own patients whose syphilis was twenty-nine years old. In the full tertiary period mucous patches were sometimes observed, on the genitals or in the mouth, absolutely identical with those seen in the early stages. Their contagiousness was by no means dead or even attenuated. It was the duty of the physician to educate his patients as to the dangers of tardy syphilitic contagion. A second indication was that every syphilitic patient who proposed to marry was under the moral obligation, if he was a smoker—and especially a heavy smoker—to give up tobacco, for it was the chief provoker of lesions in the mouth, especially of secondary symptoms recurring long after the secondary period. Professor Fournier had looked through 19,000 cases, and found no less than 533 patients with secondary buccal symptoms during the tertiary stage, while in only 110 cases did secondary genital symptoms occur during the tertiary stage; they were thus five times more frequent in the mouth in advanced stages. Professor Fournier has personally seen about twenty cases in which the wife had been contaminated from the sixth to the tenth year, and later by buccal mucous symptoms. Professor Fournier has found that every wife contaminated by her husband was condemned, with rare exceptions, to be insufficiently treated, and therefore remained exposed to the usual dangers of badly-treated cases: ulceration of the face, perforation of the palate, necrosis of the bones of the nose, tabes, and cerebral syphilis.

At a recent meeting of the Société de Thérapeutique, M. Legendre read a paper on the influence of the motor car on health. The rapid displacement of air on the skin surface produced a sensation of freshness due to vaso-constriction, which was followed by vaso-dilatation when the car stopped. These effects on the circulation acted on certain skin affections, and M. Legendre had seen a case of pruritus which resisted all the classical methods of treatment cured by automobiling. The effect on pulmonary affections varied. As a rule, cases of emphysema did fairly well; certain nervous asthmas were greatly improved. In tuberculous cases with fever the motor should be forbidden, but it might be permitted to those who had small lesions without any congestive tendency. In chlorosis the effect was good if the journeys were short so as to avoid fatigue. In cardiac cases, with well-compensated lesions, the motor might be allowed, but it must be forbidden to those who had congestion of the lung or liver. Patients with varicose veins could not, without inconvenience, remain for long motionless in motor-cars. In affections of the alimentary system motoring improved anorexia, gastralgia, and chronic constipation, but it must be forbidden in gastric ulcer. In muco-membranous colitis the effect varied, some patients benefiting from the distraction and open-air life. Albuminurics and women with uterine affections might motor if the lesions had no congestive tendency. Patients with gout or diabetes were improved by the fresh air, but the fat lost the habit of walking and did not take enough exercise. In nervous depression the patients improved, but motoring aggravated the cases with nervous excitation, and when such patients drove they lost self-control and became dangerous. It was the same with epileptics and alcoholics.

CORRESPONDENCE.

THE HEALTH OFFICERSHIP OF CALCUTTA.

Sir,—In a recent issue you have not only condemned the treatment of their Health Officer by the Calcutta Corporation, but you have taken the extreme step of warning your numerous readers among the medical profession to avoid the employment of the Commissioners. The gist of your complaint is that the Commissioners have shown a lack of consideration in their treatment of Dr. Cook, but this charge is absolutely without foundation; indeed, if the Commissioners have been betrayed into conflicting resolutions in dealing with Dr. Cook's case, they have been occasioned solely by a scrupulous regard for Dr. Cook's personal convenience, and his friends should therefore be the last to complain of vacillating treatment.

The duties devolving upon the Health Officer of Calcutta are among the most onerous and responsible which can fall to the lot of any medical man. The city has nearly a million inhabitants, and is more populous therefore than any town, except London, in the United Kingdom; it has an exceptionally heavy mortality, and is the home of Asiatic cholera and a stronghold of plague. By means of its world-wide commerce, Calcutta is in close touch with the whole civilized world, which is thus vitally interested in the health conditions of the city. Unfortunately,

sanitary problems, always troublesome in an Oriental city, are exceptionally difficult of solution in Calcutta, owing not only to physical conditions, but also to the crass ignorance and the extraordinary timidity and obstinacy of the bulk of the population. Moreover, the Health Officer is not merely a sanitary adviser; he is the administrative head of the departments which control vaccination, the management of the markets and slaughterhouses, and the food supply, as well as the ordinary health arrangements of the city; he must therefore be an administrator as well as a sanitary expert.

Dr. Cook has held the appointment of Health Officer since 1898, and during these eight years not only have sanitary conditions been profoundly modified by the advent of plague, but health problems of every description have forced themselves to the front, and the Commissioners are becoming more and more alive to the gravity of the responsibility which devolves upon them for ameliorating the sanitation of the city. A considerable majority are of opinion that the time has come for effecting radical improvement in the methods of the health department. It is felt that the present dual system, under which a separate staff deals with plague prevention, is inefficient as well as extravagant; the Commissioners have resolved to amalgamate the plague with the health department under one head, while it is proposed to largely increase the pay of the health officer and to make the post pensionable, with a view to attract the best possible man to the appointment. Surely, the Corporation is not only within its rights in taking this action, but the Commissioners deserve commendation, and not censure, from a professional journal for their efforts to improve the health administration of the city.

As invariably happens when an attempt is made to improve *personnel*, difficulty has been experienced in dealing with the claims of the existing incumbent. Every one will agree that considerate treatment ought to be meted out in such cases, and the question is whether Dr. Cook received such treatment or not; to throw light upon this question it is necessary to consider the terms of his tenure of office. Dr. Cook was originally appointed health officer in January, 1898, for a term of five years, which was renewable at the option of the Corporation. In February, 1902, the Commissioners decided to re-engage him for a further period of three years, his employment to be terminable at any date subsequent to the expiry of the term of re-engagement, by a six months' notice on either side. The Commissioners were fully within their rights, therefore, when they decided in December, 1905, by a large majority to give Dr. Cook six months' notice.

But although the Commissioners were within their strict rights in thus terminating Dr. Cook's employment, it was felt by many of them that the method adopted was too summary a dismissal of an officer who had served the city to the best of his ability for a period of eight years, and this view was warmly taken up by the press, and by outside opinion generally. An attempt was accordingly made in Dr. Cook's interests in January, 1906, to induce the Commissioners to reconsider their decision, but a motion to this effect was rejected by one vote. A second attempt made on March 9th proved more successful, for the Commissioners agreed to withdraw the six months' notice, and to extend Dr. Cook's service until October, 1907.

It is difficult to understand how these facts can be made to support the charge levied against the Corporation of inconsiderate treatment of their health officer; on the contrary, they point in a diametrically opposite direction. There can be no doubt that a majority of the Commissioners are of opinion that the time has come to endeavour to obtain the services of a health officer superior in ability and capacity to Dr. Cook; and, holding these views, they were perfectly justified in giving him notice; while by extending the term of that notice from six to twenty-one months, they have acted towards Dr. Cook not only with due consideration, but with generosity.

It seems unnecessary to deal at length with the remaining portion of your article, and it will suffice to say that the Corporation was advised that the intimation to Dr. Cook of the six months' notice was a sufficient intimation, a view with which the Bengal Government concurred, and that the resentment felt at Dr. Cook's application for leave immediately after the extension of his service was by no means confined to the Indian Commissioners, but was warmly expressed by some of the Europeans who had been foremost in advocating the extension.

I must plead the importance of the subject as an apology for the length of this letter, for it would be disastrous if medical men were deterred from applying for the post of Health Officer of Calcutta, when it falls vacant, by the misconception to which you have—I feel sure inadvertently—given circulation. It is with the object of removing these misconceptions that I ask you to publish this letter.—I am, etc.,

Municipal Office, Calcutta. September 27th. C. G. H. ALLEN, Chairman, Calcutta Corporation.

*** The question whether the treatment which Dr. Cook has received from the Corporation of Calcutta was inconsiderate or not must be a matter of opinion about which we cannot argue with Mr. Allen; his letter, however, only tends to confirm the impression that the treatment was inconsiderate. The Chairman merely succeeds in showing that the action of the Corporation was not illegal—a point our article did not touch. He would have us believe that the one anxiety of the Corporation is to render the health department more efficient. The Corporation of Calcutta consists of some fifty members; about one-half are elected by the ratepayers, the remainder are representatives of the Chamber of Commerce, the Trades Association, the Calcutta Harbour Trust, or, like the Chairman, Government nominees. It is obvious, therefore, that the position of the health officer must be insecure unless he be an officer appointed by the Government serving under the Imperial Sanitary Commissioner but attached to the Corporation, or unless he has the thorough support of the Government of India. The Chairman does not dispute any of the facts stated in our article of July 7th, and the warning then given appears to be fully justified by the text of the advertisement drafted by the Health Special Committee of the Corporation on April 30th. After stating that a candidate must give his whole time, must be a registered medical practitioner, and must hold a diploma in public health, the advertisement continues as follows:

> He should have practical experience as Health Officer and he should be able to administer the various departments employed on the sanitary works of a large city. The appointment will be for a period of five years renewable from time to time for further five-yearly periods at the discretion of the Corporation. The Health Officer is liable to removal during his term of office for misconduct or neglect of or incapacity for his duties. The minimum monthly salary of the appointment is Rs. 1,500 which may be raised to a maximum of Rs 2,000 at the discretion of the Corporation, and a Health Officer who completes fifteen years' satisfactory service will be entitled to a pension of £300 a year.

A more curious provision than that contained in the last clause we have never read in the conditions of a public appointment. The officer is to enter into a contract to serve for five years, his appointment is only renewable at the discretion of the Corporation, but he can earn no pension unless he has completed fifteen years' service. Will Mr. Allen, as a civil servant himself, tell us that, knowing the treatment which Dr. Neild Cook has received, candidates of the calibre desired are likely to come forward?

THE ORGANIZATION OF BRANCHES AND DIVISIONS.

SIR,—Though by no means prepared to endorse in detail all the suggestions advanced in the letter of Dr. F. J. Smith dealing with the respective spheres of action of the Branches and Divisions of the Association, I am in cordial agreement with his desire to emphasize the influence of the Branches on what may be termed the local policy and business of the Association. It is to the interest of the Association, and indeed of the whole profession, that local professional movements shall not be suggested or directed by personal or sectarian influences, and to avoid the risk of this the controlling influence of an authority selected over a wide area is necessary. Such a statement in no sense involves a reflection upon the Divisions; it is merely a presentation of the familiar truth that no man is a suitable judge of a dispute in which his own interests are engaged. Under the existing arrangements the Branch can exercise at least some measure of control, and so far as Dr. Smith wishes to maintain, or even to increase this, I am in entire sympathy with him.

Perhaps in the discussion of this matter it will be wise to recollect that the Association has been lately passing

through a revolutionary experience and that for a time, at all events, constitution tinkering had better be avoided. For this, together with other reasons, I would suggest that it is not advisable at the present moment to seek to define a new arrangement of the respective functions of the Branches and Divisions. If, however, an attempt is to be made to do this to the prejudice of the Branches, it is satisfactory to find so stalwart a champion as Dr. Smith prepared to do battle on their behalf.—I am, etc.,

London, W., Oct 21st. C. O. Hawthorne.

THE TAXATION OF MOTOR CARS.

Sir,—Will you allow us, on behalf of the Committee of medical men who are users of motor cars, to call attention to a matter of importance. Under the existing Motor Car Act, which has been temporarily prolonged, the owners of motor cars are called upon to pay (1) for a licence to drive; (2) a registration fee; (3) a carriage tax of £2 2s. for cars under 1 ton weight, and of £4 4s. for cars over a ton weight.

Now there are good reasons for anticipating that in the Act which is being drafted the last of these three will be materially increased, and that cars will be taxed according to either their weight or horse-power. In either case, the new taxation will fall heavily upon medical men, who, owing to the exacting nature of their work, the requirements of reliability, the rough roads and steep hills they have to traverse, must use substantially-built cars with adequate horse power.

It is not right that motors used by medical men in their daily work should be taxed as though they were the pleasure vehicles of the rich. The medical man has neither time nor money to allow of such luxuries; his motor car has to be used strictly for professional purposes, and, in consideration of the enormous amount of gratuitous work that he does, ought to be exempt. Surely it is to the advantage of the public to encourage the use by medical men of a means of progression which enables them to render such speedy help in moments of emergency. It is, however, likely that heavy taxes will be thrown upon medical men unless they bestir themselves, and try to defend their own interests.

We would, therefore, suggest that each medical man should forthwith write to his own member of Parliament or to any others he may know, for protection and support. Those members of the public who are favourably disposed are asked to write to members of Parliament, and express their sympathy with this movement.—We are, etc.,

C. B. Lockwood,
Chairman of Committee of Medical Men who are Users of Motor Cars.
H. E Bruce-Porter,
Honorary Secretary,
6, Grosvenor Street, London, W., Oct. 19th.

THE RUBBER TEAT AND DEFORMITIES OF THE JAWS.

Sir,—The valuable paper by Dr. Pedley of Rangoon on the above in the British Medical Journal of October 20th, p. 989, also your leaderette, ought to be of special interest to medical men practising in the manufacturing towns of Lancashire. For some years I have been waging a crusade against these evils. In my annual report on the health of the borough of Bacup for 1905 the following paragraphs occur:—

The crusade against "bottle-fed" infants must be pushed forward. Mothers must be encouraged to perform their maternal duties. The "comforter" was a fraud on the unhappy child; it led to waste of its digestive secretions, and it picked up every kind of filth when it fell on the floor. In my opinion, the sucking of air through empty tubes and the use of the teat or comforter seriously interferes with the natural development of the mouth and nasal air passages, and is probably one of the chief factors in the production of adenoids, which are so common; thirty years ago it was rare. This abnormal growth in the nasal air passages seriously interferes with free respiration and speech.

—I am, etc.,

Bacup, Oct. 22nd. John Brown, M.D., D.P.H.

THE TEACHING OF PHYSIOLOGY.

Sir,—Under the heading, "The Teaching of Physiology," your issue of Oct. 6th contains some sentences which I consider are calculated to produce a false impression of the manner in which this subject is taught in England at the present time.

Speaking of Dr. Fuchs's *Manual of Practical Physiology*, your reviewer says:

"The writer asks, most pertinently as we think, why the use of the ophthalmoscope and the laryngoscope and the auscultation of the normal heart and breath sounds should not be taught until the student is commencing clinical work."

He further states:

"Each department of practical physiology should receive equal attention. This is by no means the case in English works on the subject, which devote an inordinate amount of space to the experiments on muscle and nerve, and in particular to electrical demonstrations, which usually fail—being of great technical difficulty—and are, medically speaking, quite purposeless."

That the subjects mentioned are ordinarily taught as a part of the course of physiology in important schools is a fact familiar to many, whilst the experience of any one who finds that electrical demonstrations—even when of great technical difficulty—"usually fail" may certainly be characterized as singularly unfortunate.—I am, etc.,

Bristol, Oct. 9th. A. F. Stanley Kent.

*** We have referred this letter to the reviewer, who writes: Your reviewer begs to call Mr. A. F. Stanley Kent's attention to the correct title of the work referred to, which is *Practical Physiology for Medical Students*. The statements made in the review are literally true as regards London; the defects of the present system are generally admitted.

THE GENERAL MEDICAL COUNCIL AND ITS PRESIDENT'S ADDRESS.

Sir,—The "graceful, rippling prose" of the President's address on the functions of the General Medical Council will have missed its mark if it induces many members of the profession to hope, like your correspondent, Dr. Herbert Sieveking, that it is possible to reform the Council into a body capable of promoting the unity of the medical profession and of securing the many advantages thereby connoted.

The Council needs reform without doubt, but it can never obtain from the State, whether in its reformed or unreformed condition, the necessary powers to secure the unity of the profession. Unity proceeds from within and cannot be forced upon us from without. When we wish for it we can have it. The reconstituted British Medical Association provides for us, if we would use it, ample means for uniting the profession; and with modifications which would meet with no parliamentary opposition it could, without doubt, make effective every reasonable wish of a united profession.

It is earnestly to be hoped that Dr. Donald MacAlister's instructive address will turn aside reformers from running their heads against the brick wall of a State institution for securing unity and will direct their attention to the adjustable mechanism ready to their hands.—I am, etc.,

October 23rd. Professional Union.

THE APPROACHING MUNICIPAL ELECTIONS.

Sir,—The triennial election of the Municipal Councils takes place about November 1st, 1906; it is highly important that members of the medical profession should have adequate representation on these public bodies, so intimately concerned with matters of sanitation, midwives, vaccination, and many other medical interests. I write in the hope that they will awake to their sense of duty to record their votes in favour of medical candidates, irrespective of their politics.—I am, etc.,

Henry Dutch, M.D.,
London, W., Oct. 21st. Councillor, City of Westminster.

An International Exhibition, which is expected to prove one of the largest and most successful ever held in a British Colony, will be opened at Christchurch, Canterbury, New Zealand, on November 1st, and will last six months. During this period special facilities, it is understood, will be offered for reaching New Zealand and exploring it thoroughly, so the occasion seems to offer a good opportunity to those who desire to spend some months in a genial climate. Applications for information will be answered by the High Commissioner for New Zealand, 13, Victoria Street, S.W.

OBITUARY.

JAMES STEWART, M.D.,

PROFESSOR OF MEDICINE, MCGILL COLLEGE, AND PHYSICIAN-IN-CHIEF, ROYAL VICTORIA HOSPITAL, MONTREAL.

THE profession in the Dominion of Canada has suffered a serious loss by the death of this well-known teacher and clinical worker. In many ways the career of Dr. Stewart is one of exceptional interest. He was born at Osgood, Ontario, in 1846, of Highland Scotch parents, and after the ordinary school education he entered McGill College, and graduated in medicine in 1869. For nearly ten years he practised in the little village of Brucefield, Ontario. By his studious disposition and skill in treatment of patients he quickly obtained a large practice. Having but one ambition—namely, to complete his education—he saved money, and every second or third year went abroad for study, at first to England and Scotland and then to Germany. Having habits of great industry, he very quickly became thoroughly trained in all modern methods of diagnosis, particularly in the use of apparatus and in the modern methods of the study of disease of the nervous system. As he became better known, he began to be recognized though still a young man, as one of the leading consultants in the western parts of the province. During some of his periods of study in Germany, he worked particularly at pharmacology, and among his earliest contributions were several on this department of knowledge. In 1883, on the retirement of Dr. William Wright, he was elected to the Chair of Materia Medica and Therapeutics at McGill University. His career as a teacher of this subject was unusually successful, as he introduced the study and demonstration of the physiological action of drugs, and paid less attention to the dry minutiae of materia medica. On the death of Dr. Howard, he succeeded to the Chair of Practice, and when the Royal Victoria Hospital was opened he became its first Physician-in-Chief. In connexion with this institution his best work was done. The medical clinic was organized very thoroughly, and with the aid of his assistants, Drs. Martin and Hamilton, the work of the clinic, both in teaching and in scientific research, has become of the first class.

While not a voluminous writer, Dr. Stewart's contributions were those of an accurate and careful worker. He was chiefly interested in nervous diseases, to which subject many of his most important papers belong.

Among his more important contributions may be mentioned the careful studies on tetany and myxoedema, on exophthalmic goitre, the symptomatology of tumours of the brain and various papers on locomotor ataxia and forms of sclerosis of the spinal cord. Among studies from his clinic may be mentioned those on arthritis deformans, on gonorrhoeal arthritis, on pneumonia and on typhoid fever.

For many years Dr. Stewart took a deep interest in the Canadian Medical Association, of which he was Secretary and afterwards President. He was an active member of the Association of American Physicians, of which in 1903 he became President. Few Canadians have been so faithful in attendance at the British Medical Association as Dr. Stewart, and at the Montreal meeting he was Chairman of the Medical Section.

In private life Dr. Stewart was greatly beloved. The students were devoted to him, and as a teacher they always knew their interests were safe in his hands. Few men had learned to weigh their words more carefully than he, and some were deceived into thinking he had the infirmity while in truth he had the gift of taciturnity. There was a solidity and robustness in his character which inspired the confidence both of his colleagues and of the public. Three years ago he had a very serious illness—renal and cardio-vascular disease—and he died of apoplexy on October 6th.

HENRY WALTER SYERS, M.A., M.D.CANTAB., M.R.C.P.,

PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL.

A TRIFLING scratch, too small to attract attention, yet large enough to give entrance to a deadly septic infection, has once more brought into prominence the ever-present danger of *post-mortem* wounds, and put an untimely end, within one short week, to a life overflowing with energy and enthusiasm for clinical and pathological study.

Henry Walter Syers was born at Kenilworth in 1852, and received his early education through private tuition and attendance at Leamington College, which had not at that time the popularity as a school afterwards acquired by it under the rule of the present Head Master of Harrow.

In 1872 he proceeded to Caius College, Cambridge, devoting himself mainly to science, and took his degree in due course in the Second Class of the Natural Science Tripos in 1875. Taking up medicine as a profession, he began work in the Birmingham School, and subsequently attached himself to Westminster Hospital. There he was later on appointed Medical Registrar and Tutor, a position in which he earned the goodwill of the students, who presented him on his retirement from office with an address and testimonial expressive of their appreciation. For a time he was Clinical Assistant at Bethlem Hospital. He was appointed on the staff of the Great Northern Central Hospital in 1888, shortly after the removal of that institution to its present site at Holloway. For seventeen years Dr. Syers worked untiringly in the large and ever-increasing out-patient department, and it was not till last year that a vacancy occurred on the senior staff, by which he succeeded to the charge of beds. His enthusiasm for clinical work, keen as it had always been, seemed to be redoubled, and he devoted himself heart and soul to the wards and to the pathological department.

The influence of early years passed in a somewhat narrow circle made it difficult for him at first to form new friendships easily or to be tolerant of adverse criticism, and he shrank from publicity of any kind. This feeling wore off as years went on, and he contributed a very large number of papers, abstracts, and translations to medical periodicals, and was latterly a constant attendant at the meetings of the North-London Medical and Chirurgical Society, of which he had recently been elected President for a second year. He published a work on *Medicine* in two volumes, and was the translator of two French works recently issued by Dr. Morat on the *Physiology of the Nervous System*, and by Dr. Aumonier on *New Methods of Treatment*. He was a man of many interests, fond of music, and an industrious student of languages. He was particularly attracted by Arabic and Coptic writings, but it is as a clinician and morbid anatomist that he will be best remembered by his friends and fellow workers. Always ready to step into the breach when difficulties arose, a loyal colleague and an honourable opponent in any controversy where his strongly-formed views were for the moment antagonistic to those of the majority, Dr. Syers will be greatly missed from the hospital to which he was so warmly attached.

FREDERICK HURST CRADDOCK, M.A.OXON., M.R.C.S.ENG., L.S.A.

MEDICAL SUPERINTENDENT OF THE GLOUCESTER COUNTY ASYLUMS.

THE announcement of the sudden death of Mr. Craddock at the comparatively early age of 55, was received throughout the County of Gloucestershire with very great and real regret. It was during the hot weather of the past summer that Mr. Craddock began to complain for the first time of heart trouble and it caused him no little anxiety. During his vacation in the middle of September he had an alarming cardiac attack whilst fishing in Monmouthshire. Acting on medical advice, he returned home as soon as he was fit to be moved, with the intention of taking a prolonged rest. A fortnight in bed seemed to work wonders; he began to get about a little in his house and garden and became much more cheerful and hopeful, being particularly bright the evening before his death.

When called on the morning of October 14th no answer was returned, and, on the door being opened, he was found lying dead on the floor, having evidently succumbed to an attack of syncope.

Mr. Craddock was educated at Lincoln College, Oxford, and St. Bartholomew's Hospital, and, after some few years spent as Clinical Assistant at St. Luke's and Assistant Medical Officer at Worcester Asylum, he was appointed Medical Superintendent of the Gloucester County Asylum in 1882. He filled that office with marked distinction for nearly a quarter of a century, and early gained not only the utmost confidence of the members of the Committee, but also their warm personal regard. He had an extensive knowledge of his special branch, was a hard worker, and a most able administrator, many and great improvements

both in the fabric and the management of the institution being carried out under his régime. He was most sympathetic and was popular with staff and patients, whilst his abounding good nature and bluff geniality endeared him to a large circle of friends.

Mr. Craddock was not a contributor to medical literature, but his annual reports usually contained useful comments on some current topics of interest to the asylum world, and were models of scholarly writing.

He was a keen and skilful fly fisher, and was an ardent lover and collector of books. An enthusiastic admirer of Dickens, few men knew his works more thoroughly, and few possessed a more complete collection of them.

A memorial service held in the asylum chapel was largely attended by members of the committee, by the staff, and patients. The respect in which Mr. Craddock was held by the medical men of Gloucester was shown by the large number who attended on the following day, when the body was borne to the station for removal to Nuneaton.

EDWARD DRUMMOND, M.D.Edin., M.R.C.S.Eng., D.P.H.Camb.

We regret to announce the death of Dr. Edward Drummond at his residence, St. Annes-on-Sea, Lancs., on October 20th. He was born at Blyth, Northumberland, in 1843, and was educated at the Gymnasium, Old Aberdeen. He commenced his medical studies as a private pupil of Professor Redfern, completing them at the University of Edinburgh before attaining the age of twenty. He was appointed House-Surgeon to the Chesterfield Hospital before actually obtaining his M.D. degree, which he took in 1864, immediately after attaining the legal age. He became M.R.C.S.Eng. in 1865.

After some years spent as House Surgeon to the York County Hospital, he commenced practice in Oldham, where he soon acquired one of the largest practices in the town, and held a number of public appointments. Owing to overwork, his health compelled him to dispose of his practice in 1876. He afterwards travelled extensively in France, Spain, Portugal, Italy, and other parts of Europe, and studied in the medical schools of Paris, Vienna, and Berlin, making a speciality of diseases of the throat, ear, and chest. He subsequently resided at Sidmouth, but in 1881 proceeded to Rome, where he practised for many years and was Physician to the British Embassy and the Scots College. He made many contributions to the study and investigation of malaria and the climatic conditions of the ancient city, and was selected by the New Sydenham Society of London to translate the memoirs on malaria of Professors Tommasi-Crudeli, Marchiafava, and Celli. He also made numerous contributions to the British and American Archaeological Society of Rome (which he was chiefly instrumental in reorganizing) on the conditions of health in ancient Rome and the Campagna and the causes of their deterioration in modern times. He also wrote a monograph on Fever at Rome for the *Practitioner*.

In 1883 he was offered the post of Consul-General in Italy for the kingdom of Siam, and the Siamese Order, but declined them.

Dr. Drummond remained in Italy during the cholera epidemic of 1884, and supplied reports to the medical and lay press in this country on the progress of the epidemic, volunteering, in the event of the city being invaded by the epidemic, to reside in the lazzaretto and assist the staff.

In 1888 he took the D.P.H. of Cambridge, and after his return to England was employed in literary work and bacteriology. In 1893 he was appointed by the Conjoint Board of the Universities of Cambridge, Oxford, and London University Extension Lecturer on Hygiene for the metropolitan area. He was a master of Greek, Latin, French, German, and Italian, and was one of those physicians who have regard to their profession on its scientific rather than its business side.

The death took place on October 12th of Lieutenant-Colonel Caleb Shera Wills, C.B., late A.M.S., for many years connected both officially and privately with Lancaster. Colonel Wills, who at the time of his death was in his 73rd year, was a son of the late Robert Wills of Carrick-on-Shannon, Leitrim, and was educated privately, later on becoming a medical student in Dublin. There, in 1857, he became L.M. and L.R.C.S.Irel., and in the same year joined the Army Medical Department. He at first served at home for some three years, and at the end of that time, during which he became L.R.C.P.Irel., he began a long period of foreign service. After serving in Canada he was appointed to the 83rd Regiment. Subsequently he was selected by Sir R. Rawson, then Governor of the Bahamas, as his Private Secretary and A.D.C., and following the fortunes of his chief on his appointment in a similar capacity to the Windward Islands remained with him until 1875. Four years later, having then risen to the rank of Surgeon-Major, he served in the Zulu war as Senior Medical Officer at the base and on the lines of communication between Durban and the Lower Tugela, and for these services received the Queen's Medal and the C.B. At a subsequent date he was promoted Brigade-Surgeon, and then, after a tour of Indian service, he was in 1892 appointed to the Dépôt at Lancaster; in 1899, having then completed a service of forty-two years, he retired on half pay. His connexion with Lancaster did not, however, end, for he spent the remainder of his days at Lunecliffe in the neighbouring village of Ashton-with-Stodday. Colonel Wills devoted much of his leisure to philanthropic effort and work in connexion with the Church of England. He was on the Committee of the British and Foreign Bible Society and at one time President of the Amicable Society, and in 1901 was elected a member of the York House of Laymen. So long as his health permitted he was a constant attendant at the assemblies in York and in London, and for a long time was a lay reader at Scotforth Church. During the Boer war he took an active part in the affairs of the Soldiers' and Sailors' Help Society, and served it as Honorary Secretary for North-West Lancashire. He was for many years a member of the British Medical Association. Colonel Wills's work in and for Lancaster had gained him many friends, and his funeral at Scotforth Cemetery was very largely attended by residents in and around Lancaster, and by past and present officers of the King's Own Regiment, of which he was for so long in medical charge. The coffin was borne to the grave by a party of non-commissioned officers from Bowerham Barracks, and the flag of Lancaster Infirmary, an institution in which he had always shown warm interest, remained half mast for three days. Colonel Wills was twice married, and is survived by his second wife, three sons, and a daughter.

MEDICO-LEGAL AND MEDICO-ETHICAL.

CHRISTIAN SCIENCE IN THE COURTS.

In his address to the grand jury at the opening of the October session at the Central Criminal Court on October 22nd, the Recorder mentioned the case of a Christian Scientist named Chisholm, who is charged with manslaughter for not having called in medical aid for his son. The child was ill with diphtheria, and eventually died from that disease. The jury found a true bill, but later in the day it was stated that the case would stand over until next session, as the police investigation is not yet completed.

An inquest was held in Hammersmith on October 22nd on the body of a woman who died suddenly on October 18th, while under Christian Science treatment. The deceased was a believer in Christian Science, and feeling unwell on the Saturday preceding her death, "Dr." Riley was summoned; his assistance was sought as a Christian Science healer; he made no examination, but prayed with the deceased, and was paid £1 1s a week for his attendance. Five days later the patient rose from her chair, fainted, and died. The medical evidence given by Dr. W. H. Wilcox of the Home Office, showed that death was due to syncope, the deceased having heart disease and a large abdominal tumour, which must have existed for several years. In such a case medical treatment was most important, but it was possible the result would have been the same. Dr. Shepheard, who was called in on the death of the deceased, said that the Christian Science healer told him that he had been treating the deceased for lumbago. The healer connected with this case, who gave an address in Hanover Square and Datchet, admitted that he placed on his card the letters M.D., C.S. He had, he said, been an M.D. of the University College of Missouri, but had been struck off the rolls in 1897, when he became a Christian Scientist. The jury returned a verdict of death from natural causes, and expressed the opinion that Mr. Riley was not justified in putting the letters M.D. on his card; such a proceeding on his part was misleading.

AN ACTION FOR FEES.

AT the Clerkenwell County Court on September 17th, Dr. D. C. Gardiner of Muswell Hill sued a shipowner of Gateshead-on-Tyne for £31 15s. 6d. in respect of medical attendance upon his son. The latter, while resident at Muswell Hill, developed abscess of the liver and the defendant on being notified of the necessity for an operation came to London and said to the plaintiff "if an operation is necessary to save his life proceed with it." Accordingly such an operation was performed by Mr. Cantlie, who was called in for the purpose, the patient continuing under the care of the plaintiff, and being daily attended by him from May 29th to August 8th. The patient after recovery went to his father's house in the north, and an account was subsequently sent to the defendant. In reply Dr. Gardiner received a letter thanking him for the services he had rendered, but referring for payment to the patient himself. The defence put in at the action was a denial of having authorized the operation or of having taken any responsibility for the charges, while the patient, for his part, alleged that he was unable to pay the account because it was not until recently that he had been able to return to business. In the event the jury returned a verdict against the father for the full sum claimed, with costs.

A PRIVATE CLINIC FOR SPECIALIST WORK.

A CORRESPONDENT writes that in conjunction with several friends he intends to open a private clinic in some leading London thoroughfare after the model of a German "Ambulatorium." They are all specialists, and intend to practise in "diseases of the eyes, nose, throat and ears, skin, gynaecology, mental and nervous diseases, and surgery." They propose to put up a plate with their names and hours of consultation, and also a plate "which will make it known to the passers-by that there is a private clinic." He adds that they will take lower fees "than the specialists in Marylebone," and "reserve one or two days for free cases." In his opinion this proposal is not open to objection from the point of view of etiquette or law, but as some of his colleagues have doubts he asks our opinion.

*** For a number of friends to share rooms in one building where each would practise his own speciality is not without precedent, but when they are grouped together as a "private clinic" and display a common plate to make known to passers-by that there is such an institution, it would seem that the spirit of the rule against advertising is somewhat infringed. Much may depend upon the manner in which the scheme is carried out, but the proposal to reserve certain days for free cases affords some ground for the fear that under the guise of charity something may be done to attract patients which will provoke criticism. German precedents are by no means safe here, as, for example, some sanatoriums are conducted in Germany in a way which would be strongly disapproved in this country. We cannot presume to say what view the authorities might take of the scheme when complete in all its details, but on the whole the experiment seems decidedly risky.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

Nomination of Vice-Chancellor.

IN a Convocation held on Tuesday, October 9th, the Senior Proctor communicated to the House a letter from the Right Honourable the Chancellor, Viscount Goschen, nominating Thomas Herbert Warren, M.A., President of Magdalen College, to be Vice-Chancellor for the ensuing year. The Vice-Chancellor having thereupon made the statutory declaration, was admitted to office.

The new Vice-Chancellor is well known as a strong supporter of the Natural Science School and the School of Medicine in the University.

Examinations for the Degrees of M.B., B.Ch.

The examinations for the degrees of M.B., B.Ch. will commence on Thursday, December 6th, 1906. Names must be sent in to the Secretary to the Boards of Faculties on the proper forms not later than 10.30 a.m. on Tuesday November 20th, accompanied in each case by the required certificates.

Examination in Preventive Medicine (D.P.H., Oxon.).

The examination in preventive medicine for 1906 will commence on Tuesday, November 10th. Names must be sent in not later than 10.30 a.m. on Tuesday, October 30th, to the Secretary to the Boards of Faculties, from whom all necessary information may be obtained.

The examination, which is not confined to members of the University, consists of two parts. In the first of these candidates are required to exhibit a knowledge of chemistry and physics in the relations of these sciences to public health. In the second part of the examination the candidate is examined in the subjects of general hygiene and of pathology in its bearings on public health. In all the subjects the examination is partly practical. The first part of the examination occupies one day, and the second part the three following days. Candidates may offer themselves for the two parts of the examination on the same occasion or on different occasions; but their admission to the second part is contingent on their having already satisfied the examiners in the first part. In the Examination Statutes and Regulations of the University, and in the Resolutions and Rules of the General Medical Council, full information will be found regarding the conditions which candidates must fulfil before admission to the examination. The Examination Statutes also contain schedules of the subjects of examination, and the current time-table.

UNIVERSITY OF CAMBRIDGE.

W. L. H. DUCKWORTH, M.D., Sc.D., Fellow of Jesus College, has been appointed Demonstrator of Anatomy.

J. J. Lister, M.A., St. John's College, has been appointed a member of the Board of Electors to the Professorship of Zoology and Comparative Anatomy.

Dr. W. E. Dixon, M.A., of Downing College, and Professor Stockman, of Glasgow University, have been appointed Examiners in Pharmacology for the Third M.B., Part I.

Mr. Strangeways, M.A., of St John's College, and Professor J. Ritchie, of Oxford University, have been appointed Examiners in General Pathology for the Third M.B., Part I.

The following degrees were conferred on October 11th:

M.D.—S. E. Dore, Joh.

M.B.—O. V. Payne, Joh.; R. S. Taylor, Down.

B.C.—R. S. Taylor, Down.

The following candidates have satisfied the Examiners in both parts of the Sanitary Science Examination:

A. Baker, R. P. Beatty, F. E. Cane, R. W. Clements, Eva McCall, H. A. Macewen, A. Martin, J. C. Mottram (St. John's), Flora Murray, N. R. J. Rainier, F. A. Smith, F. E. Taylor, A. G. Welsford (Gonv. and Cai.), F. A. Wille.

The Committee for the Study of Special Diseases announce that Mr. G. W. Nicholson, M.A., B.C., of Jesus College, Cambridge, and Guy's Hospital, London, has been appointed to the R. C. Brown Scholarship in Special Pathology.

The number of medical students who have entered at Cambridge this term is 122, as compared with 117 last year and 89 in 1904. The total number of freshmen in all faculties matriculated down to October 22nd was 1,021: this compares with 1,008 in 1905, 884 in 1904, 886 in 1903, 868 in 1902, and 859 in 1901.

UNIVERSITY OF EDINBURGH.

AUTUMN GRADUATION CEREMONIAL.

THE autumn graduation function took place in the M'Ewan Hall on Saturday, October 20th. The Vice-Chancellor and Principal (Sir William Turner) presided, and capped the graduands. The following degrees were conferred:

M.D.—E. G. Firench, Jamaica, M.B., Ch.B., 1898, for his thesis on the Treatment of Scoliosis.

M.B., Ch.B.—C. F. Bainbridge, England; E. H. Brook, Scotland; M. *absentio*; J. C. Boyd, Scotland; E. H. Brook, Scotland; M. Brown, Australia; J. M. Christie, Scotland; W. I. M. Clark, India; Davidina R. J. Davidson, Scotland; J. J. H. Ferguson, Scotland; F. H. S. Gardner, England; W. H. Gowans, Scotland; K. K. Grieve, Scotland; W. T. A. Jolly, Scotland (first-class honours); Mohamed Abdoos Samad Khan Faiz Jung, India; S. B. Legge, Scotland; W. L. Locke, Scotland; F. J. Luck, Scotland; R. D. M'Allister, Ireland; J. M'Cutcheon, Scotland; W. O. S. M'Gowan, Ireland; J. B. Mackenzie, Scotland; K. M'Murtrie, Scotland; R. E. Marwick, Scotland; R. P. Mathers, Scotland; A. S. Paterson, Scotland; Janet M. Murray, M.A., Scotland; G. Raffan, Scotland; A. Priestman, England; G. Raffan, Australia; G. Y. Richardson, Scotland; W. H. Riddell, Scotland (second-class honours); C. S. U. Rippon, England; H. G. Sutherland, Scotland; J. R. Tannahill, Scotland; A. S. Walker, England; A. P. Wall, Australia; Marion E. Wilson, Scotland.

On the same occasion certificates of proficiency in tropical medicine were awarded to:—

Elizabeth H. Brook, J. M. Christie, Davidina R. J. Davidson, J. J. H. Ferguson, E. R. Grieveson, F. J. Luck, J. B. Mackenzie, W. E. R. Williams.

The Principal said a few congratulatory and encouraging words at the close.

The following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—C. F. Bainbridge, E. H. Black, J. C. Boyd, Elizabeth H. Brook, Mary Brown, J. M. Christie, W. I. M. Clark, Davidina R. J. Davidson, F. H. S. Gardner, W. H. Gowans, K. K. Grieve, W. Tasker, A. Jolly, P. Jung, S. B. Legge, W. L. Locke, F. J. Luck, R. D. M'Allister, J. M'Cutcheon, W. O. S. M'Gowan, J. B. Mackenzie, K. M'Murtrie, R. E. Marwick, R. P. Mathers, Janet M. Murray, M.A., A. S. Paterson, A. Priestman, G. Raffan, G. Y. Richardson, W. H. Riddell, C. S. U. Rippon, H. G. Sutherland, J. R. Tannahill, A. S. Walker, A. P. Wall, Marian E. Wilson.

THE ROYAL UNIVERSITY OF IRELAND.

THE following candidates have been approved at the examinations indicated:

M.D.—M. Cagney, C. G. Lawry, Isabella G. A. Ovenden, F. W. Stewart, J. J. Wallace.

M.CH.—S. T. Irwin.

M.B., B.CH., B.A.O.—*(Upper Pass)*—*F. X. J. Callaghan, *J. L. Dunlop, B.A., J. R. Hackett, *R. F. Kennedy, *P. T. McArdle, *R. A. M. L. McCrea, *C. B. Pearson, P. B. Ridge, *Maria Rowan, T. Tobin, *J. Warnock, M.A. *(Pass.)*—C. D. Bell, S. Bradbury, H. L. Bristow, H. Carson, J. Dowling, J. Dunlop, P. J. Dwyer, E. Fitzgerald, J. J. A. Gannor, J. Gaston, Mary E. Jeremy, B.A.,

C. G. Knight, S. W. Kyle, M. Lane, S. McCormac, W. T. McCutcheon, D. McGrath, Jeannie R. Murray, J. A. O'Halloran, B.A., M. A. Power, W. B. Purdon, C. H. G. Ross, M. P. Scanlon, J. M. Warnock, E. F. Watson, T. West

DIPLOMA IN MENTAL DISEASES.—F. W. Stewart.

* May present themselves for honours in one or more subjects of the examination.

UNIVERSITY COLLEGE OF SOUTH WALES.

THE annual meeting of the Court of Governors of the University College of South Wales and Monmouthshire, held at Cardiff on October 18th under the presidency of the Earl of Plymouth, was remarkably well attended.

The Retiring President.

Viscount Tredegar, at the outset, proposed a cordial vote of thanks to Sir Alfred Thomas, the retiring President, for the great work he had accomplished during his term of office. He had every qualification for the post, for he was a typical Welshman, who spoke the Welsh language, and a member of Parliament representing a particular set of opinions which he fancied was that of the majority of the governing body of the University. For that reason the Court never made a better choice than when they elected Sir Alfred to the presidency. Dr. W. T. Edwards seconded, and referred to the faithful services rendered by Sir Alfred Thomas, which commended themselves to the esteem and gratitude of all friends of education. Principal E. H. Griffiths supported the motion, and speaking on behalf of the staff, he expressed their sense of indebtedness to Sir Alfred for the amount of time and energy he had devoted to the work of the College. There had been hardly an important meeting to which he had not been willing to come down from London to attend, even when he had to return to London the same evening. He had also played a great part in persuading the Chancellor of the Exchequer to help the colleges more liberally in the future, and it need hardly be said that Sir Alfred's interest in the College would not cease when he left the chair. The Lord Mayor of Cardiff also spoke in support of the vote, which was carried with acclamation. Sir Alfred Thomas, in responding, said it was gratifying to find that he had fulfilled the expectations of those who had elected him President of the College. He had hoped they would have done much more than they had accomplished, especially with the new college buildings. Yet he did not know how they could have advanced much more rapidly, for they were making provision for all time. Five years ago the College had no principal; their first, who was one of the most brilliant sons of Wales, had passed away. To have had the good fortune to appoint one worthy to succeed Viriamu Jones was a consummation that must be gratifying to all concerned. In Principal Griffiths they had a gentleman whose name was already bracketed with Lord Kelvin, Lord Lister, and other great scientists. And he was sanguine enough to believe that when the research laboratory was set up he would be able to supplement the great discovery of Humphry Davy and so diminish, if not altogether prevent, those terrible explosions which so often occurred in coal mines. Let them help to build up the great mining school which was now the object of his life. The band of men who had already rallied around him, including Viscount Tredegar and Mabon, would not rest until a mining school was created worthy of the South Wales coalfield. The work of the College was increasing year by year, and it was only a question of accommodation for the students to be doubled in number. Not only was the amount of work increasing, but the quality was of a higher standard. He was sanguine enough to believe that provision would be made in the next Budget to increase the grants to the constituent colleges. That would not only enable them to increase the stipends of the staff, but also to provide a pension fund.

The Representation of the Various Bodies on the Court.

The Registrar suggested that the consideration of this subject should be deferred for six months, for, if the present Education Bill became law it would greatly alter the scheme suggested by the Council. This was agreed to.

Mode of Election of Council.

Mr. Herbert M. Thompson, M.A., had also given notice to move a series of resolutions dealing with the procedure in the election of the Council; but, at the suggestion of Sir T. Marchant Williams, he agreed that the matter be referred to the Council for report at the February meeting.

The Welsh Language.

On the motion of Mr. Tom John, seconded by the Rev. Gomer Lewis, D.D., the following resolution was passed unanimously:

That this Court of Governors heartily approves the action taken by the Welsh Members of Parliament in approaching the Civil Service Commissioners requesting them to make a knowledge of the Welsh language an essential qualification in Wales (including Monmouthshire); that the Registrar be instructed to communicate with the Civil Service Commissioners stating that provision for the teaching of the Welsh language and literature has been made in the College since its foundation, and that the Court is of opinion that provision should be made whereby the Civil Service Commissioners should delegate their powers of examination and appointment to some educational authority in Wales.

The New President.

The Earl of Plymouth thanked the Governors for the honour they had done him by his election as President. He followed presidents who had done most admirable work for the College and he was fully aware of the difficulties which must be met whilst endeavouring to pilot the interest of the College successfully through the various storms and troubles it might encounter. He looked with confidence to the kindness and generosity of his colleagues with the full knowledge that they all had the interest of the College at heart, and that they would give him credit for having the same. He looked forward with confidence to the help he would always obtain from Sir Alfred Thomas.

Elections.

Viscount Tredegar was elected Vice-President of the College; Mr. H. M. Thompson was re-elected Treasurer; Dr. W. E. Thomas (Pentre), and Professor T. Lewis, M.A. (Brecon), were elected members of the Court in place of the late Judge Gwilym Williams and Mr. Carslake Thompson.

Finance.

Mr. H. M. Thompson, in moving the adoption of the report of the Council and the acceptance of the financial statement, said that the latter was now presented in a new form. The College was growing very rapidly, and the amount received in fees was £200 more than in previous years, an increase of 10 per cent.; there was also an increase of £275 in the fees received in the Normal Department. The salaries had also increased by £750, so that they had taken an instalment of a very long-delayed reform. This increase had been necessitated by the increase in the number of students, and of the staff in consequence. The deficit on the medical school was a good deal less than last year. The expenditure on buildings and equipments had been £12,527, made up practically of three sums—£11,000 on the new College buildings, £1,000 in improving the equipment of the present college, and about £500 in new buildings and lecture rooms for the present buildings. A sum of £58,647 had been collected toward the new college up to the end of June, but a considerable amount promised had not yet been received: another £30,000 would be available shortly, which would bring the total to about £99,500, but they would require for their first block of buildings £31,257 further, and he urged upon all the Governors to do all in their power to help to wipe off what would be a debt on their magnificent buildings unless they tackled the question seriously.

The Registrar stated that he had received £4,500 from the Drapers' Company in addition to the sums mentioned by Mr. Thompson.

Principal Griffiths pointed out that there was very real growth of activity in connexion with the College, greater even than would appear from the figures. The number attending full courses was increasing far more rapidly. Last year there was a record entry of 178 new students, but to-day that record had been beaten with 194 new students. He also drew attention to the growth of the engineering medical schools, and he doubted if the Court understood what a very important medical school theirs was becoming. The number of entries this year was 29. The report of the Council was adopted, and at the conclusion of the proceedings the members of the Court accompanied the President to view the new college buildings in Cathays Park.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ANNUAL REPORT OF THE COUNCIL, 1906.

THE annual report of the Council, which is to be laid before the annual meeting of Fellows and Members on November 15th, 1906, at 3 p.m., contains a record of the work of the College in its various departments during the period from August 1st, 1905, to August 1st, 1906.

The report gives an account of the annual meeting of Fellows and Members, held on November 15th, 1905, when there were present the President, Mr. John Tweedy, 22 Fellows and 34 Members.

The Length of the Medical Curriculum.

At a meeting of the Council in May, 1905, a proposal was brought forward (1) to treat chemistry, physics, and biology as subjects of preliminary education, and to require that an examination in them should be passed before the recognition of the commencement of medical studies; and (2) to adopt a five years' curriculum of professional study from the date of passing the preliminary science examination.

This proposal was referred to the Committee of Management of the two Colleges for consideration. The Committee, in January, 1906, reported that it was undesirable to treat chemistry, physics and biology as subjects of preliminary education, the Committee being of opinion that the separation of the early studies from the purely medical curriculum has been sufficiently promoted by the Royal Colleges, in their recognition of instruction in preliminary science in non-medical schools having competent teachers and adequate equipment. More time was required to see how the existing curriculum, with the modifications introduced in June, 1904, will work, and it was at present undesirable to require an examination in chemistry, physics, and biology to be passed before the recognition of the commencement of medical studies, it being important that the Royal Colleges should retain those subjects in their curriculum, as the Royal Colleges could estimate better than any non-professional

authority the amount of knowledge of such subjects which ought to be required from medical students. The report contains some interesting tables showing the average period of professional study now spent by students under regulations which nominally require a five years' curriculum only. These tables establish the fact that a very considerable proportion of the students fail in one or more of the examinations, and that the period of study laid down as a minimum is exceeded by average students, and very much exceeded by those who are below the average. When altering the regulations in the year 1904 the Royal Colleges endeavoured to obtain as much time as possible for the study of anatomy, physiology, medicine, surgery, and midwifery; and if the regulations then adopted had come into full operation, the students would be obliged to pass the First Examination before commencing anatomy and physiology, and would then have four years and a half for the rest of the curriculum, giving one year and a half for anatomy and physiology, and three for clinical work. The Committee, recognizing that the minimum period is taken advantage of only by a few of the best students, regarded the present curriculum as sufficiently long, and were of opinion that it is not desirable to alter the conditions of the curriculum as adopted in the Regulations dated June 1st, 1904. The position of the College as a qualifying body is well maintained. Although the gradual decrease in the number of students entering the profession of late years must necessarily cause a falling off in the number of candidates for examination, it was nevertheless found that, in spite of the numerous degrees and diplomas in the country, the Conjoint Examining Board in England continued to attract each year to the Final Examination much the same proportion of the students who commenced professional study five years previously.

Diplomas in Tropical Medicine.

In July, 1904, a meeting of delegates from the two Royal Colleges was held to consider a letter from the Colonial Secretary in reference to diplomas in tropical medicine. The delegates in their report dated July 18th, 1904, made the following recommendations:—(1) That, with the permission of the authorities of the School of Tropical Medicine, visitors be appointed by the Royal Colleges of Physicians and of Surgeons to attend the examinations of that school, and to report upon the scope of the course of study and of examination, and that a request be addressed to the naval, military, and colonial authorities to allow visitors appointed by the two Royal Colleges to attend their examinations in tropical medicine for a similar purpose; (2) that at the end of the year a report be addressed by these visitors to the Royal Colleges on the whole subject of tropical medicine.

The report of the visitors appointed by the two Colleges, which is given in full, was referred to a committee composed of delegates from the two Colleges, who, after considering the same, adopted the following resolution, namely:

> That the delegates of the Royal College of Physicians of London and of the Royal College of Surgeons of England, while desirous of encouraging the study of tropical medicine and of meeting the wishes of the Secretary of State for the Colonies, are nevertheless of opinion that it is not desirable to institute a special diploma. They recommend, however, that the Royal Colleges should express their willingness to appoint assessors to the examinations conducted by the London School of Tropical Medicine, of students who have followed, there or elsewhere, a course of instruction approved by the Royal Colleges; and to those candidates who hold the diplomas of the Royal Colleges and are approved by the examiners, certificates, endorsed by the aforesaid assessors, may be granted.

In pursuance of this resolution, the Committee of Management has been instructed to consult with the authorities of the London School of Tropical Medicine regarding the arrangements necessary for giving effect to the proposals of the two Colleges.

The report of the Visitors, signed by Dr. Frederick Taylor and Mr. R. J. Godlee, states that it must be admitted that the Schools of Tropical Medicine have opportunities of research in a certain number of diseases, which are much greater than those possessed by most general hospitals in the British Isles; and that a knowledge of these diseases is eminently desirable in the case of medical men practising in the tropics, but not by any means equally necessary for those practising at home. The most important reasons against the institution of a diploma in tropical medicine are that the subject is too small to merit such a distinction, and that if one department of medicine is thought worthy of a special diploma, there may be no end to the list of special departments for which a similar privilege may be claimed.

Elementary Education of Pupil Midwives.

Mr. J. Ward Cousins, who has been reappointed a member of the Central Midwives Board by the Council of the College under Section III of the Midwives Act, 1902, furnished a Report regarding the proceedings of the Board, in the course of which he stated that the Board was now considering the necessity of requiring evidence of elementary education from all pupil-midwives. By one of the existing regulations any candidate who during the examination shows a want of acquaintance with the ordinary subjects of education may be rejected on this ground alone: this rule has been found unsatisfactory in practice, unfair to the candidates, and embarrassing to the examiners. Proof of general knowledge ought to be required at the commencement of the training instead of at the time of examination; some of the women, who had endeavoured to prepare themselves by attending lectures and by diligent study, had at the last moment been found to possess too little elementary education to pass the oral and written examination of the Board.

Payment of Medical Men Summoned to Assist Midwives in Cases of Difficulty and Danger.

Mr. Cousins, in his report, expressed regret that Liverpool and Cardiff are the only centres where arrangements have been made for the payment of medical men summoned to assist midwives in cases of difficulty and danger. Though under the Act the profession is practically responsible for the safety of the poor parturient women of the country, it contains no provision to secure payment for professional services. In pursuance of the views expressed in this report, the Council passed the following resolution:

> That in the opinion of the Council of the Royal College of Surgeons of England it is essential for the efficient working of the Midwives Act that adequate provision be made to secure just remuneration for professional services rendered by medical men when called into attendance by midwives practising under the Act.

This resolution was communicated by the President to the Lord President of the Privy Council, from whom the following reply has been received:

> Privy Council Office,
> London, S.W.,
> July 23rd, 1906.
>
> Sir,—Referring to your letter of the 16th inst., embodying a Resolution adopted by the Council of the Royal College of Surgeons on the 12th inst. in regard to the question of remuneration for professional services rendered by medical men when called into attendance by midwives practising under the Midwives Act, 1902, I am directed by the Lord President of the Council to state that the subject will be carefully considered in connexion with any amendment of the Act which it may be possible to introduce, and his Lordship desires me to add that he would be happy to see you if and when such an amendment is under consideration.
>
> I am, Sir,
> Your obedient servant,
> A. W. Fitzroy.
>
> The President,
> Royal College of Surgeons of England,
> Lincoln's Inn Fields, W.C.

The Admission of Women as Fellows and Members.

In April last the following resolution, proposed by Professor Howard Marsh and seconded by Mr. Pearce Gould, was passed:

> That the time has come for reconsidering the question of the admission of women to the examinations of the Conjoint Board and that a Committee be appointed to consider and report to the Council thereon.

This Committee, whilst reminding the Council that in 1895 the Fellows and Members had voted against the admission of women, reported that the time has come for again affording the Fellows and Members an opportunity for expressing an opinion in the matter, and recommended:

> That the Fellows and Members be consulted as to the desirability of approaching the Royal College of Physicians in reference to the question.

This was considered by the Council in June and in July, and the question as to when and in what form the matter should be submitted to the Fellows and Members has been postponed.

The Poisons and Pharmacy Bill.

At the meeting of the Council in June a letter was read from the President of the Pharmaceutical Society, calling attention to the amendment, recently carried in the House of Lords, on the Poisons and Pharmacy Bill, to the effect that a company or body corporate composed of unqualified persons may use the title of "chemist," provided they have in their employ a person who is qualified under the Pharmacy Act: suggesting that this decision, if allowed to become law, might have far-reaching results not only to chemists but also to surgeons, dentists, and other individuals, who are required by law to possess a personal qualification: and expressing the hope that the Council of the College might see fit to exert its influence in protesting against the establishment of such a dangerous precedent, and take steps to impress upon the Government the danger to the public and the great injustice to qualified persons involved in such proposed legislation.

The points raised in this letter from the Pharmaceutical Society were considered by the Council, and the President wrote to the Lord President of the Privy Council stating the strong view of the Council of the College as to the inexpediency and injustice of allowing companies or corporate bodies to assume professional titles which, when used by individuals, imply training and examination. The Council regard the provision in the Poisons and Pharmacy Bill as likely to expose the public to considerable risk, and consider that, if the principle involved were to receive the approval of Parliament, a precedent would be set which might seriously affect the status of surgeons and others who, in the interests of the public, are required by law to possess a personal qualification.

The answer received from the Privy Council argued that the

mere confirmation of the right which companies have been declared by law to possess could not constitute a precedent applicable or likely to prove detrimental to the status of duly recognized professional bodies. The decision of the House of Lords was not in effect to permit companies to use a professional designation, but rather to affirm that "chemist" and "druggist" are properly trade descriptions, while "pharmaceutical chemist," "pharmacist," etc., maintain their quasi-professional character.

The Council of the College sent the answer from the Privy Council to the President of the Pharmaceutical Society, who replied pointing out that the main point was whether limited companies of unqualified persons should be allowed to use the designation of "chemist," which title was by Act of Parliament (Pharmacy Act, 1868) expressly reserved to the individual who passed the prescribed examination. The Pharmaceutical Society could not admit that the word "chemist" is a trade description to be used by any one, and the Act of Parliament expressly forbade its use by persons who did not possess the statutory qualification.

Varicocele.

The Council, having been consulted by the Director-General of the Army Medical Service as to whether, and, if so, to what extent, varicocele should be regarded as a disqualification for military service, replied as follows, namely:

"Our opinion is that, in cases where candidates are otherwise physically fit, varicocele, unless present in a severe degree, need not disqualify them from service in the army."

Removal of Licentiates in Dental Surgery from the List.

Three licentiates in dental surgery whose names had been erased from the *Dentists' Register* by order of the General Medical Council were removed from the list of licentiates in dental surgery of this College in pursuance of the following clause of Section 13 of the Dentists Act, 1878, namely:

"Any name erased from the register in pursuance of this section shall also be erased from the list of licentiates in dental surgery or dentistry of the medical authority of which such person is a licentiate."

This is the first time that this provision of the Act has been called into effect, as all previous cases which have come under the censure of the General Medical Council have concerned persons who held no diploma or licence, but were on the *Register* as having been in practice as dentists prior to July, 1878, or persons who had been previously deprived of their diplomas or licence by their college or medical authority.

Finance.

The gross income of the College for the past year amounted to £25,361, being £394 less than the gross income of the previous year. The expenditure of the College for the past year amounts to £23,031, a difference of only £6 from the amount expended in the previous year. The balance of income over expenditure amounts this year to £2,329.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

New Fellows.

The following gentlemen were admitted ordinary Fellows on October 17th: J. R. Askew, W. L. Bennett, B. M. Bone, D. Gwynne-Hughes, H. A. Knight, C. D. Lochrane, A. L. Lynch, G. B. McKean, M. MacKelvie, E. J. Morton, F. G. Twigg, J. H. Yearsley.

The Bathgate Medal.

The medal and set of books presented to the College by Colonel William Lorimer Bathgate, in memory of his late father, William McPhune Bathgate, F.R.C.S.E., Lecturer on Materia Medica in the Extra-Academical School, was awarded, after the usual competitive written examination in materia medica, etc., to John Joseph O'Sullivan, Edinburgh.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

The Royal College of Physicians of Ireland held its annual general meeting on October 18th, when the usual appointments of officers and examiners were made. Dr. J. M. Redmond being elected President and Dr. Conolly Norman Vice-President. During the proceedings the President admitted Dr. J. F. W. Tatham, M.A., M.D.Dub., F.R.C.P Loud., Superintendent of Statistics in the office of the Registrar-General for England and Wales, to the Honorary Fellowship of the College, and Dr. D. J. O'Connor was elected Fellow.

In the evening the annual dinner of the President and Fellows was held in the College Hall, the Chief Secretary for Ireland, Lord Justice Holmes, the Dean of St. Patrick's, and the Presidents of the College of Surgeons, the Academy of Medicine, the Irish Medical Association, the Royal Irish Academy, and the Incorporated Law Society being among the guests.

CONJOINT BOARD IN SCOTLAND.

The following candidates have been approved for the Diploma in Public Health: E McK. Nicholl, D. M. Mathieson, L. W. Pole, W. H. Hill, W. Darling, H. A. Stewart, M. Macdonald, Katherine J. S. Clark, E. F. Valenzia, H. M. Sauzier, T. Scoresby-Jackson, E. P. Calder, F. E. Larkins, and J. Dadabhai Munsiff.

The following have been approved at the First Examination for this Diploma: F. P. Lauder, F. H. Borthwick, Sohrab M. Hodiwalla, and T. R. Smith.

CONJOINT BOARD IN ENGLAND.

The following candidates have been approved in the subjects indicated:

Practical Pharmacy.—G. S. Ashby, F. Basford, T. M. Bellew, R. T. Brotchie, G. O. Chambers, A. F. Conyn, D. M. Cox, W. Deane, W. A. S. Duck, H. J. Duské, M. M. Earle, W. M. Evans, G. E. Green, D. H. Griffiths, S. H. Griffiths, A. E. W. Hird, G. Holman, J. B. H. Holroyd, A. S. Hoole, R. L. Jones, F. W. Lastic, D. McRae, R. T. Martin, M. W. B. Oliver, F. W. Quirk, G. F. Randall, E. R. Sircom, E. Smeed, A. H. L. Thomas, W. G. H. M. Verdon, S. S. M. Wood.

Anatomy and Physiology.—K. C. Anklesaria, F. R. L. Atkins, T. S. Bradburn, T. F. Brown, A. E. P. Cheesman, R. N. Coorlawala, C. J. Fernandes, C. J. Fox, A. L. George, F. M. Harvey, W. L. Hibbert, S. M. Khambata, C. E. W. McDonald, A. O. Mitchell, A. Morgan, R. H. Nolan, M. Nurick, P. D. Oakley, J. J. O'Mullane, J. R. Perdrau, J. J. Pierce, W. T. Quinlan, D. D. Rosewarne, S. Shepheard, A. R. Snowdon, R. L. Spittel, C. G. Sprague, L. H. Taylor, F. C. V. Thompson, S. S. Vazifdar, C. Witts.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

Surgery.—*L. C. W. Brigstocke, C. F. W. Dunn, *E. L. D. Gay, †R. Spears.

Medicine.—*C. C. Morrell, †*G. H. Rodolph, *G. M. Seagrove, †*F. A. K. Stuart, †A. R. Wade.

Forensic Medicine.—E. J. Crew, G. M. Seagrove.

Midwifery.—J. Jones, B. S. Matthews.

The diploma of the Society has been granted to the following gentlemen: C. F. W. Dunn, E. L. D. Gay, G. M. Seagrove.

† Section I. * Section II.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

EXAMINATION FOR ROYAL ARMY MEDICAL CORPS.

An examination of candidates for not fewer than thirty commissions in the Royal Army Medical Corps will be held on January 24th next and following days. Applications to compete should be made to the Secretary, War Office, not later than January 14th, on which date the list will be closed. Candidates who are over the regulated limit of age at the date of the examination will be permitted to deduct from their actual age any period of service in the field after October 1st, 1899, that they could reckon towards retired pay and gratuity, if such deduction will bring them within the age limit.

VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

The winter classes commenced on Wednesday evening at the Artists' R. V. head quarters.

Congratulations are due to Surgeon-Colonel P. S. Giles, Senior Medical Officer, on account of the excellent muster of all ranks present, especially when it is remembered that most metropolitan corps have considerably fallen off in numbers.

One class consists of non-commissioned officers and men who are being instructed in first aid; the other is an advanced class, and the subjects taught are hospital duties, ambulance drill, and the sanitation of camps. The work will conclude with the official inspection in December.

The officers selected to take part in the instruction are: Surgeon-Lieutenant-Colonels W. Culver James, R. R. Sleman, Surgeon-Majors E. M. Callender, C. S. de Segundo, Captain E. W. St. Vincent Ryan, Surgeon-Captains J. H. Dauber, A. Ducat, J. Masters, Surgeon-Lieutenants C. A. Lees and P. Bott.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

PRESERVATIVES IN FOOD.

It will be remembered that the learned stipendiary magistrate of Leeds some time ago declined to convict in a case of boric acid used for preserving shrimps, on the ground that shrimps were not mentioned by the Commission. The Bench at Bradford is fortunately not of the same opinion, and in a recent case Mr. Skidmore fined a dealer the very substantial penalty of £9 for shrimps of Dutch origin which contained 107½ gr. of boric acid to the lb. The solicitor for the defence did not attempt to defend such an amount, but expressed a strong opinion that some standard should be fixed by statute. In this expression we cordially concur, but we must point out that the amount suggested by him—35 gr. to the lb.—is much too high. It is, however, interesting to know that that is the standard fixed for themselves by the shrimp dealers of Southport. A maximum of 15 gr., or at the very outside 20 gr., would be a more satisfactory limit of wholesome allowance. Medical officers of health and inspectors of food and drugs will do well to take note of this case at Bradford, for although, of course, no magistrate is bound by the decision of his colleagues elsewhere, it may form a valuable precedent, and, while 35 gr. to the lb. may appear a reasonable amount to the trade at Southport, it is more than probable that in other parts of the country a more enlightened opinion will be found to prevail and better protection will be given to the public.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

W. B. would be glad to know the composition of Braggi's omnicura, an ointment said to be useful in the treatment of piles.

C. asks for information concerning the effects produced on the performer by the playing of reed instruments, which is stated to have some bad effect on the pulmonary apices. This effect is said not to be produced by flute playing.

LAMPS FOR MOTORS.

A. H. P. would be glad of the experience of medical motorists as to the most satisfactory headlight to use for short emergency journeys at night.

A NOMINAL PARTNERSHIP.

S. H. H.—Two medical men practising in a town where there are about twenty other medical men, wish to devise some plan which will yield many of the advantages of an ordinary partnership while avoiding some of its disadvantages. The objects particularly aimed at are: mutual assistance in their work, relief during illness, and increased holiday facilities. They contemplate a nominal partnership, each, as far as possible, keeping his own patients, and taking what he earns. To the public the partnership would seem an actual one. Would such a scheme work well in practice? Suggestions from practitioners who may have tried it, indicating the possible points of friction, would be very acceptable.

PRACTICAL PHARMACOGNOSY.

HYSTERIA asks for a list of books suitable for research study in practical pharmacognosy. Or preferably one good textbook on the subject written in English if possible.

*** The following works will probably answer our correspondent's inquiry: *An Introduction to the Study of Materia Medica*, by H. G. Greenish, F.I.C., F.L.S. London: J. and A. Churchill. 1899. 15s. *Pharmacographia, a History of the Principal Drugs of Vegetable Origin*, by Friedrich A. Flückiger and Daniel Hanbury, F.R.S. London: Macmillan and Co. 1879. *Pharmacopoeia, a Commentary on the British Pharmacopoeia 1898*, by E. White, B.Sc., F.I.C., and J. Humphrey. London: H. Kimpton. 1904. 10s. *Matière Médicale Zoologie Histoire des Drogues d'origine animale.* H. Beauregarde. Paris: C. Naud. 1901. £12. *Atlas der Pharmakognosie*, Tschirch and Oesterle. Leipzig: Ch. H. Tauchnitz. Paper cover 26s. 6d., half-calf 30s.

ANSWERS.

MATERIA MEDICA.—Candidates for the Apothecaries' Assistants' Examination must have had six months' training (not necessarily in classes) in pharmacy and dispensing. There is no other stipulation as to any course of instruction, but in most schools where such classes are held the course is usually three or six months, and the inclusive fees for all the subjects from 3 guineas upwards. The following books are suitable: Attfield's *Chemistry*, White and Humphrey's *Pharmacopoeia*, Ince's *Latin Grammar of Pharmacy*.

FORTY YEARS' SUBSCRIBER.—Heroine, or diacetyl-morphine, is obtained (*National Standard Dispensatory*) by heating pure morphine alkaloid with acetyl chloride, washing the product with water, then with dilute solution of sodium carbonate, and finally purifying by crystallization from hot alcohol. By dissolving the crystals in dilute hydrochloric acid, concentrating the solution, and setting aside to crystallize, heroine hydrochloride—the salt usually prescribed—is obtained. Its pharmacology was investigated by Stockman and Dott for the Scientific Grants Committee of the British Medical Association (BRITISH MEDICAL JOURNAL, July 20th, 1899, p. 191). It has been recommended as a substitute for morphine in the treatment of the morphine habit, but the craving following its use is stated to be more unmanageable than that of morphine itself. There is no remedy for the morphine habit except abstinence from the drug, and to achieve success it is generally necessary for the patient to place himself under strict medical supervision.

STERILIZATION OF CATHETERS.

MR. PETER DANIEL, F.R.C.S. (London), writes: In answer to "Member," who wrote in the BRITISH MEDICAL JOURNAL of September 22nd, p. 749, anent a means of sterilizing catheters and the best lubricant to use, he will find that *well-made* gum elastic catheters can be boiled with impunity, and further, that it is easily possible to boil and lubricate them *simultaneously*, the lubricant most suitable being paraffinum liquidum (*B. P.*), a very bland oil which does not deteriorate by boiling. Thoroughly reliable information on this subject is given in a small book, written by Mr. H. T. Herring, on *The Sterilization of Urethral Instruments*, and published by H. K. Lewis, Gower Street, price 3s. 6d.

MESSRS. S. MAW, SON AND SONS (Aldersgate Street, E.C.) also write to recommend the method of sterilization introduced by Mr. Herring, and offer to furnish "Member" with full details if he will communicate with them.

LETTERS, NOTES, Etc.

LIFE AND HEALTH ASSURANCE ASSOCIATION.

ON November 25th, 1905, a letter signed "N. E. Robins, Agency Manager," and dated from the London office, 38, Gresham Street, E.C., of the Life and Health Assurance Association (Limited), was printed in this JOURNAL. The letter was as follows:

> Dear Sir,—We wish to appoint a medical examiner in the district, to enable us to deal with the life, sickness, and sickness and accident proposals, and also for reports on claims made, workmen's compensation, employers' liability, third party, accidents, and sickness and accidents.
>
> Referring to the sickness and life examinations, the fees we pay are £1 1s. and 10s. 6d., and the fees on reports on claims made vary and depend on the details required.
>
> Your name having been given us, we are writing with a view to ascertaining whether you would be willing to undertake same: and as I am specially coming down to ..... shortly to arrange same, I shall be glad to hear from you at your earliest convenience.
>
> I enclose prospectus, and shall be glad to hear also whether you will take up a policy with us, and, if so, for which department—life, sickness, or accident? In order to avoid delay, please address all letters direct to me and oblige.

On January 20th, 1906, it was stated that a correspondent had sent us a letter from the manager of the association dated from the head office in Edinburgh, stating that he did not approve of the method pursued by Mr. Robins, and returning the premium which had been paid by our correspondent. From communications which reach us it appears that a letter practically identical with that quoted has recently been addressed to a number of medical men in the South of London. Our information is that those medical men who replied were called upon by a representative of the company, who, after he had made the appointment, suggested the advisability of the medical officer insuring in the company. In more than one case the agent appears to have conveyed to the medical man addressed the impression that he would be appointed the sole medical examiner for the whole of the south-eastern district of London.

CONVALESCENT HOMES IN LONDON PARKS.

DR. GRIFFITH C. WILKIN (Paignton) writes: I have read with interest, not unmixed with a feeling of sadness, your article on Convalescent Homes in London Parks. The desire of public bodies to make money at the public cost is one of the saddest signs of the times. But as regards the children of the poor of London, and, indeed, of other large centres, no convalescent home in the immediate vicinity of the centre itself can rightly be considered the best for the patients. When all has been said on the subject, it must be admitted that the question is one of the greatest national importance, and therefore, if money is to be spent on homes, their position and surroundings should be carefully considered. There can be no doubt that, to a child brought up in the slums of a large city, fresh country air and good plain food will work wonders; and there can also be little doubt that the further away from the slum the child is taken the better. Surely there are plenty of large houses in the country to-day in a state of decadence that could easily be secured and turned to the desired purpose; the money so spent would undoubtedly be of much greater value.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under	£0 4 0
Each additional line	0 0 6
A whole column	2 13 4
A page	8 0 0

An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication; and if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

Remarks

ON

THE INFLUENCE OF RAINY WINDS ON PHTHISIS IN TWENTY-THREE PARISHES OF NORTH DEVON

DURING THE 45 YEARS, 1860 TO 1904.

BY

W. GORDON, M.D., F.R.C.P., PHYSICIAN TO THE ROYAL DEVON AND EXETER HOSPITAL.

and J. R. HARPER, M.R.C.S., L.R.C.P., M.O.H. BARNSTAPLE BOROUGH AND RURAL DISTRICT, SURGEON TO THE NORTH DEVON INFIRMARY.

THE influence of rainy winds on phthisis has been investigated by one of us (W. G.) in several districts of Devon[1] and in Exeter[2] over periods of ten years, and over periods of various length in different parts of the world.[3] In each of these investigations the same result has been reached, namely, that populations exposed to strong prevalent rainy winds have a higher death-rate from phthisis than populations sheltered from them. The object of the present inquiry is to discover if the same relation of rainy winds to phthisis can be traced over a longer period in a considerable area, where reliable information can be obtained and where disturbing influences may be shown to be unimportant.

The Exmoor part of Barnstaple Rural District is known to both of us, and intimately known to one of us (J. R. H.). It presents exceptionally marked contrasts of shelter from, and exposure to, the prevalent strong rainy winds—SW., W., and NW.—its weather has been carefully observed, the characters of its soils can be satisfactorily stated, its inhabitants are of uniform race, the district is agricultural, and parish sanitation may be taken as uniform.

The parishes selected have been chosen because of the definiteness of their shelter and exposure. It is not pretended that either shelter or exposure is absolute in any of them, probably none are *absolutely* sheltered in all conditions of weather, but the contrasts between the "sheltered" parishes and the "exposed" is at least exceedingly marked, much more marked than can be found in most parts of England. Only female deaths over 5 years of age have been considered. Cases dying in hospitals or in the workhouse have, so far as possible, been referred to the parishes they came from; error from this source, if it exists, must be small.

As diagnosis may be reasonably expected to have been more accurate since Koch's discovery of the tubercle bacillus in 1881 simplified the conception of phthisis, the twenty years, 1885 (by which time knowledge of the fact must have been general) to 1904, have also been separately considered.

As the weather conditions during the ten years 1890 to 1899 were exceptional, the rainfall being small and the frequency of the north-west wind relatively much reduced, those years have also been considered by themselves.

It will be found that the results arrived at furnish striking confirmation of those previously obtained.

DESCRIPTION OF THE PARISHES.

The district under discussion forms roughly the western half of Exmoor, and is an irregular oblong, bounded on the north and west by the Bristol Channel, on the south by the estuary of the Taw as far as Barnstaple, and, east of Barnstaple, by an irregular line running eastwards over the foothills of the moor, to meet another, equally irregular, part of the eastern boundary of the county, which strikes northwards over the heights of Exmoor Forest to the coast. It is a country of steep hills and rapid streams, so that surface drainage is naturally good. The northern coast line is for the most part precipitous, broken here and there by deep and often wooded combes, but westward the hills fall gradually to a low sandy shore, as they also do southwards to the level banks of the Taw and the meadows round Barnstaple. East of Barnstaple the ground rises steeply, and becomes part of the convoluted tableland of the moor, which slopes gradually upward from west to east.* The position of the parishes is shown in the map subjoined (p. 1170).†

This district is composed of the following materials:

1. Igneous rock, in patches, impervious.
2. Argillaceous slates } impervious, apt to become clayey.
3. Morte slates }
4. Ilfracombe beds } less impervious than 2 and 3.
5. Lynton beds }
6. Pilton slates }
7. Hangman grits } all very pervious.
8. Baggy beds }
9. Foreland grits }
10. Pickwell Down sandstone }

The extent to which these enter into the structure of each parish will be presently considered.

The annual prevalence of the different winds at Barnstaple since 1870 is given in Table I, the annual rainfall at Barnstaple since 1860 in Table II, and the rainfall at

TABLE I.—*Direction of the Wind at Barnstaple at 9 a.m.*
(Kindly prepared for us by Mr. Wainwright.)

Year.	N.	NE.	E.	SE.	S.	SW.	W.	NW.
1870	17	48	41	49	31	74	54	51
1871	—	—	—	—	—	—	—	—
1872	14	22	6	50	67	104	62	41
1873	12	23	37	43	53	89	55	48
1874	24	20	26	37	53	81	66	53
1875	23	34	51	40	61	71	55	30
1876	19	36	30	60	52	72	59	38
1877	15	18	28	40	56	94	57	57
1878	32	23	28	45	38	90	55	54
1879	22	39	31	53	49	76	46	49
1880	23	51	39	49	52	69	60	23
1881	16	46	33	37	49	77	69	38
1882	19	27	21	44	57	86	56	55
1883	26	31	26	36	67	63	61	55
1884	17	24	34	45	57	68	70	51
1885	33	44	34	39	52	67	52	44
1886	13	50	34	34	56	56	65	57
1887	33	58	43	20	42	68	44	57
1888	15	34	57	47	35	69	73	35
1889	8	23	42	35	26	83	86	62
1890	12	37	75	92	30	42	50	27
1891	12	18	93	79	38	53	61	11
1892	18	30	84	60	40	60	43	26
1893	16	30	101	55	37	50	57	19
1894	13	36	51	83	31	51	57	33
1895	6	45	75	52	41	72	40	34
1896	16	71	74	29	48	72	30	26
1897	8	52	77	48	49	86	21	24
1898	7	72	70	49	67	63	17	20
1899	6	46	70	51	61	96	23	12
1900	9	23	35	76	38	62	62	55
1901	7	32	66	107	27	24	41	61
1902	14	19	46	93	25	32	87	49
1903	6	20	23	99	32	49	76	60
1904	7	9	41	121	25	37	77	49
Total..	538	1200	1625	1886	1562	2306	1892	1409

Total number of days 12,418

* A good idea of the district can be gained from Bartholomew's reduced ordnance survey coloured contour map of North Devon, scale two miles to an inch.

† West Down (included as "sheltered" from south-west and west in a former paper) has been omitted because its position seems doubtful. Pilton, exposed to south-west and west (included in a former paper), has been omitted because in the forty-five years its boundaries have considerably altered.

various points in or close to the district during 1901 to 1904 in Table III. The inclusion of a few outside stations helps to make clear the distribution of the fall.

TABLE II.—*Rainfall at Barnstaple.**

Year.	Inches.	Year.	Inches.	Year.	Inches.	Year.	Inches.	Year.	Inches.
1860	50.14	1870	28.79	1880	42.99	1890	29.67	1900	40.26
1861	37.15	1871	38.00	1881	38.09	1891	32.30	1901	33.40
1862	43.78	1872	57.96	1882	53.71	1892	25.99	1902	32.40
1863	40.17	1873	39.30	1883	44.24	1893	32.02	1903	45.76
1864	26.43	1874	41.96	1884	37.97	1894	36.26	1904	35.21
1865	39.36	1875	45.34	1885	37.71	1895	33.78		
1866	43.02	1876	39.95	1886	45.03	1896	32.01		
1867	39.34	1877	49.55	1887	29.43	1897	42.26		
1868	39.94	1878	44.03	1888	34.29	1898	31.62		
1869	39.72	1879	39.35	1889	30.86	1899	33.13		

* Kindly prepared for us by Mr. Wainwright.

TABLE III.—*Rainfall at Several Places in and near the District.*

Station.	Height in Feet.	Rainfall in Inches. 1901	1902	1903	1904
Lynmouth (Rock Ho.)	20	33.6	34.0	58.3	39.0
Barnstaple	25	33.4	32.4	45.7	35.2
Ilfracombe	35	36.1	33.3	53.2	37.0
Woolacombe	60	28.6	25.3	38.3	28.2
Pilton...	83	—	33.3	47.6	35.6
Lynmouth (Gwynallt)	300	38.0	35.9	61.9	41.4
Ilfracombe (Reservoir)	377	—	—	60.4	45.0
Marwood	400	—	—	59.7	—
East Down	399	—	44.3	—	—
Arlington	612	47.9	46.0	67.4	51.2
Stoke Rivers	767	—	—	—	50.4
Parracombe...	795	41.9	39.5	63.7	50.0
Martinhoe	808	38.5	36.2	61.4	44.5
Challacombe	925	52.3	55.5	73.7	64.5
Westward Ho	60	29.0	29.3	42.7	29.8
Northam	67	32.3	—	40.6	31.4
Instow	100	27.8	27.5	41.6	30.7
Simonsbath...	1,098	63.7	—	86.6	—

SOIL AND EXPOSURE OR SHELTER OF PARISHES.

In the following brief statement the parishes have been arranged (as they will be in the subsequent tables) approximately in order of shelter and exposure, beginning with the most sheltered and ending with the most exposed. In assessing shelters and exposures local knowledge has been laboriously supplemented by study of the ordnance survey maps, 1 and 6 in. to the mile.

Bittadon.—A very small parish, very well sheltered from SW., W., and NW. winds. Except for a small patch of igneous rock, its soil is composed of argillaceous slate.

Brendon.—A large parish, mostly moorland, with its dwellings very well sheltered from SW., W., and NW. winds. The village stands on Lynton beds; the parish generally is on Lynton grits and slates.

Highbray.—The whole parish may be regarded as well sheltered from SW., W., and NW. winds. The village is on Baggy beds, the extreme north of the parish on Morte slates, the central and greater part of it on Pickwell Down sandstone with bands of argillaceous slate, and the southern part on slates, passing into grits and sandstones.

Challacombe.—Excepting one farm exposed to the NW., this parish is sheltered from SW., W., and NW. The village is on the boundary between Ilfracombe beds and Morte slates. The north of the parish is on slate, with bands of limestone (Ilfracombe beds), and the southern part on argillaceous slate.

Trentishoe.—The houses are all sheltered from SW., W., and NW., but in some places a short walk from a house leads into a very exposed situation. The village is on Hangman grits, and these and Ilfracombe beds form the soil of the parish.

Berrynarbor.—A long, straggling village in a combe running up southwards from the Bristol Channel. It is well sheltered from SW. and W., and most of it from NW.; but some houses are exposed to NW. The parish is on Ilfracombe beds.

Arlington.—The village is well sheltered from SW. and W.; not quite so well from NW. The east of the parish is well sheltered from all three, but some houses in its western part are open to W. and NW. The village is on Morte slates, as is also the parish generally, except its southern part, which is partly composed of Pickwell Down sandstone.

East Down.—Except at its SW. corner, this whole parish is well sheltered from SW., W., and NW. winds. At this corner three farms are exposed to SW. The village is on Morte slates, which constitute most of the soil of the parish. There is a little sandstone.

Kentisbury is probably sheltered from SW. and W., but partly at least exposed to NW. It is on Ilfracombe beds.

Parracombe seems well sheltered from SW. and W., but is fully open to the NW. It is on Hangman grits and Ilfracombe beds—the village on the latter.

Martinhoe is sheltered from SW. and W., but open to NW.; the village high and exposed. The northern part, with the village, is on Hangman grits, the southern on Ilfracombe beds.

Combemartin.—A large village in a combe, running up from the Bristol Channel towards the south-east, and so well sheltered from SW. and W., but peculiarly open to the NW. The village is on Ilfracombe beds, the soil of the parish being partly Ilfracombe beds, partly Hangman grits.

Countisbury.—There is some difficulty in assessing the shelter and exposure of this parish. The village at least is exposed to SW., W., and NW. Foreland grits and sandstones form the soil.

Bratton Fleming.—The east of the parish is well sheltered from SW., W., and NW., but the village itself is well exposed to SW. and W. Some farms are exposed, some sheltered. The village stands on Pickwell Down sandstone, which forms the southern part of the parish, the northern being composed of Morte slates. Some igneous rock occurs in patches.

Georgeham.—The village and most of the houses lie low, exposed to W., partly to SW., but sheltered from NW. The parish is on Baggy beds, Pickwell Down sandstone, and Pilton beds, the village on Baggy beds.

Shirwell.—The village itself is sheltered from SW., W., and NW., but the parish is a large one, and, except the village, is generally exposed to SW. and W., especially Shirwell Cross, which is also exposed to NW. The village is on Baggy beds, the parish on these, Pilton beds, and Pickwell Down sandstone.

Morthoe.—Exposed to SW., W., and NW. The village is on Morte slates, the rest of the parish on Morte slates (the main part) and Pickwell Down sandstone.

Braunton.—A large village lying fairly low. Exposed to SW. and W., but sheltered from NW. The soil consists of Pilton Beds.

Heanton Punchardon.—Low lying, swept by SW. and W. Sheltered from NW. On Pilton slates.

Ashford.—Exposed to SW. and W. Sheltered from NW. Lies rather low. On Pilton slates.

Goodleigh.—Exposed SW. and W. On Pilton slates.

Stoke Rivers.—Exposed to SW., W., and NW. The village is on the boundary between Baggy beds and Pilton slates. The parish is on Baggy beds, Pickwell Down sandstone, and Pilton slates.

Loxhore.—The village lies very high and is very exposed to SW., W., and NW. Some other houses are very exposed, but some are sheltered. The village is on Pickwell Down sandstone. The north of the parish is on Morte slates, the south on the sandstone. A few patches of igneous rock exist.

Reviewing, as far as is possible with these data, the soil

TABLE IV.—*Female Deaths from Phthisis over 5 Years of Age in 23 Parishes of Barnstaple Rural District, Exmoor Portion, during the 45 years, 1860-1904, showing the Relation of Phthisis Mortality to Exposure to SW., W. and NW. Winds.*

Name of Parish.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	45 Year Totals.	Female Population. 1851.	1901.	Mean.	Death-rate per 1,000 per annum
I. Sheltered from SW., W., and NW.																																																	
Bittadon		1																																											1	39	30	30	
Brendon			1	1			1				1								1																										5	120	129	124	
Highbray			2	1	1	1														1																						1				7	151	99	125	
Challacombe								1				1	1							1	1				1																				6	146	105	125	
Trentishoe									1												1					2																				4	60	32	46	
Berrynarbor	2			1						1		1		1	1	1	1					1					1	1		1															13	436	316	376	
Arlington																				1	1	2																						1	1	6	99	109	104	
East Down			2						1										1				2		1																			1	8	219	164	186	
Yearly Totals ..	3	5	2	2	1	1	1	1	2		2	1	2	1		1	1		3	3	4	1	2	1	4	1		1															1		1	2	50			1,116	0.99
II. Exposed to NW. only:																																																	
Kentisbury								1	1		1				1				1	1		3	1																							11	211	161	186	
Parracombe		1			1		1		1	1									1						1			1													1				10	236	153	194	
Martinhoe				1																		1																							2	94	95	94	
Combe Martin	4	2	2	1	3	1	1	1	1	2	2	3	1	1	1	1	4	5	2	1	1	1	1	3		1	2	1				1					1				1		1		1	53	756	815	786	
Yearly totals	4	3	2	2	4	1	3	2	1	3	2	2	3	2	1	1	1	6	6	2	1	2	4	2	4		1	2	2			3	1				1				2			1	76			1,289	1 33
III. Exposed to W. and SW., some also to NW.:																																																	
Countisbury													1						1						1																1				4	88	155	121	
Bratton Fleming			1			1				1	1		1		1								2			1		1	1					1	2			1			1				16	361	263	312	
Georgeham	1	1		2	2	1	2	1			1	2	1		1	1		2	1											1			1				1			1	1			1	25	499	358	428	
Sherwell					3		1	1		2		1				1		1	1				1			1	2	1		1									1	1			1	20	363	165	264	
Morthoe						1		1			1	1	1												1											1				1		1	1		10	184	440	312	
Braunton	3	5		2	1	1	1	4		1	2	3			3	3	1	1	1	1	4	2	4	3		4	2	4	3	1	2	1	2	2	1		1	3	1	1	1		1	3	1	79	1,231	1,132	1,181	
Heanton Punchardon ..	1				1		2			1		2				1	1		1						1	1									1		1								16	238	235	246	
Ashford							1			1	1														1				1																5	89	88	88	
Goodleigh				1		1		1						1		1			1											1										1		1				11	144	129	136	
Stoke Rivers												1												1	1																					3	130	94	112	
Loxhore			1			1	1	1	1		2			2	1			2				1		1	1		1													1		1	1			19	161	110	135	
Yearly totals	5	7	1	5	8	7	7	9		3	9	9	5	5	5	8	2	5	5	6	2	5	4	6	9	3	9	4	3	5	2	3	2	4	2	4	3	3	5	3	5	2	2	4	3	208			3,335	1.38

of the parishes and taking into account their population, it may be fairly said that the villages classed in the accompanying tables as "II. Exposed to NW. only" are on the most generally impervious soil, whilst those classed as "III. Exposed to SW. and W., some also to NW." are on the most generally pervious soil.

Again, on examining the rainfall of the north of Devon, it is seen that on the whole the heaviest rainfall is on the parishes in Class I, that is, "Sheltered from SW., W., and NW.," these being mostly very high-lying parishes, and the lowest rainfall is on the parishes in Class III, which include many large low-lying villages near the western coast or the banks of the estuary. It therefore cannot be alleged that dampness of subsoil accounts for the figures in the following tables. The relation of high rainfall on relatively impervious soil may, however, account for the relatively great mortality in Class II, Table V, during the wetter years.

From a review of the occupations of those dying of phthisis during the 45 years, so far as these are stated, it cannot be said that specially-occupational phthisis has to be taken into account. Thus 177 were "married," 24 were domestic servants, 11 "of no occupation," 8 dressmakers, 5 farm servants, 2 draper's assistants, 2 carriers, 1 governess, 1 milliner, the rest being given as "single" or "widows."

Table IV shows that over a period of 45 years, in an average population of 5,710 females, with a total of 334 deaths from phthisis, the phthisis mortality in the exposed parishes was greater than that in the sheltered parishes;

TABLE V.—*Female Phthisis Death-rates from 1860 to 1904, as in Table IV, arranged in Quinquennial Periods.*

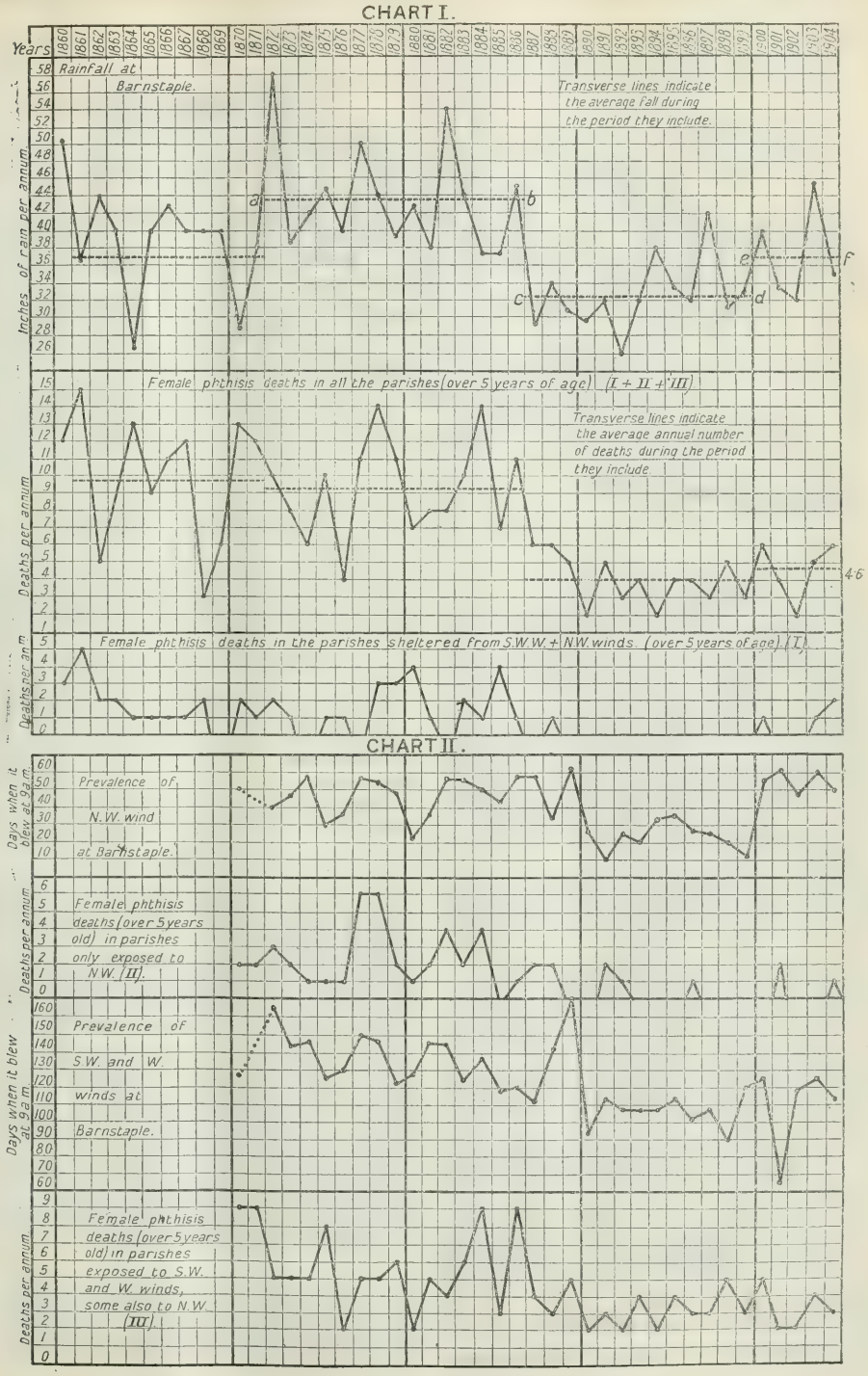
Period.	Barnstaple. Total Rainfall 5 Years.	I.—Sheltered from SW., W., and NW.	II.—Exposed only to NW.	III.—Exposed to SW. and W. Some to NW.	Population according to Census of—	Sheltered.	Exposed.
1860-1864	197.67	2.1	2.5	1.5	Mean of 1851 and 1871	1,194	3.333
1865-1869	201.38	0.8	1.6	1.7	1871	1,127	3,038
1870-1874	208.01	1.0	1.6	2.1	1871		
1875-1879	218.25	1.5	2.8	1.3	1881	1,039	2,833
1880-1884	217.00	1.5	2.2	1.3	1881		
1885-1889	177.32	1.1	0.8	1.6	1891	1,071	3,038
1890-1894	158.21	0.0	0.5	0.3	1891		
1895-1899	172.50	0.0	0.1	1.2	1901	974	3.139
1900-1904	187.03	0.7	0.4	1.0	1901		

TABLE VI.—*Female Deaths from Phthisis over 5 Years of Age in the Same Area during the Twenty Years 1885-1904.*

Name of Parish.	Total Deaths, Twenty Years, 1885-1904.	Female Population. 1891.	1901.	Mean.	Death-rate per 1,000 per Annum.
I. Sheltered from SW., W., and NW.:					
Bittadon	0	23	30	27	—
Brendon	0	139	129	134	—
Highbray	1	109	99	104	—
Challacombe	0	113	105	109	—
Trentishoe	2	45	32	38	—
Berrynarbor	3	340	316	328	—
Arlington	2	127	109	113	—
East Down	2	175	154	164	—
Totals	10	—	—	1,022	0.91
II. Exposed to NW. only:					
Kentisbury	1	195	161	178	—
Parracombe	3	151	153	152	—
Martinhoe	0	84	95	90	—
Combemartin	8	731	815	773	—
Totals	12	—	—	1,193	1.00
III. Exposed to W. and SW., some also to NW.:					
Countisbury	1	125	155	140	—
Bratton Fleming	11	247	263	255	—
Georgeham	6	390	358	374	—
Shirwell	8	179	165	172	—
Morthoe	4	346	440	393	—
Braunton	30	1,125	1,132	1,128	—
Heanton Punchardon ..	4	224	205	215	—
Ashford...	1	87	88	87	—
Goodleigh	5	119	129	124	—
Stoke Rivers	0	96	94	95	—
Loxhore	4	100	110	105	—
Totals	71	—	—	3,088	2.29

TABLE VII.—*Female Deaths from Phthisis over 5 Years of Age in the Same Area during the Ten Years, 1890-1899.*

Name of Parish.	Total Deaths, Ten Years, 1890-99.	Female Population. 1891.	1901.	Mean.	Death-rate per 1,000 per Annum.
I. Sheltered from SW., W., and NW.:					
Bittadon	0	23	30	27	—
Brendon	0	139	126	134	—
Highbray	0	109	99	104	—
Challacombe	0	113	105	109	—
Trentishoe	0	45	32	38	—
Berrynarbor	0	340	316	328	—
Arlington	0	127	109	118	—
East Down	0	175	154	164	—
Totals	0	—	—	1,022	0
II. Exposed to NW. only:					
Kentisbury	1	195	161	178	—
Parracombe	2	151	153	152	—
Martinhoe	0	84	95	90	—
Combemartin	2	731	815	773	—
Totals	4	—	—	1,193	0.33
III. Exposed to W. and SW., some also to NW.:					
Countisbury	1	125	155	140	—
Bratton Fleming	4	247	263	255	—
Georgeham	4	390	358	374	—
Shirwell	1	179	165	172	—
Morthoe	2	346	440	393	—
Braunton	13	1,125	1,132	1,128	—
Heanton Punchardon ..	3	224	205	215	—
Ashford	0	87	88	87	—
Goodleigh	2	119	129	124	—
Stoke Rivers	0	96	94	95	—
Loxhore	1	100	110	105	—
Totals	31	—	—	3,088	1.00


CHART I.
Years
1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904
Rainfall at Barnstaple.
Inches of rain per annum
Transverse lines indicate the average fall during the period they include.
a
b
c
d
e
f
Female phthisis deaths in all the parishes (over 5 years of age) (I + II + III)
Deaths per annum
Transverse lines indicate the average annual number of deaths during the period they include.
4·6
Female phthisis deaths in the parishes sheltered from S.W.W. + N.W. winds (over 5 years of age) (I).
Deaths per annum
CHART II.
Days when it blew at 9 a.m.
Prevalence of N.W. wind at Barnstaple.
Deaths per annum
Female phthisis deaths (over 5 years old) in parishes only exposed to N.W. (II).
Days when it blew at 9 a.m.
Prevalence of S.W. and W. winds at Barnstaple.
Deaths per annum
Female phthisis deaths (over 5 years old) in parishes exposed to S.W. and W. winds, some also to N.W. (III).



and Table V shows that this greater mortality can be traced in every quinquennial period of these 45 years except the first. This table also shows that in the wetter years the difference grew less, possibly because of the conflicting influence of soil. Soil influence, too, possibly caused the remarkable increase in death-rate in Class II during the wetter years.

Table VI shows that, in the twenty years during which diagnosis was probably more exact, the contrast between the mortalities of the exposed and sheltered populations became much more marked. This may possibly also be due in part to the removal of some disturbing influence, such as different conditions of sanitation in different parishes, since it is coincident with the general lowering of phthisis mortality, which is generally attributed in England partly to the introduction of better sanitary conditions.

Table VII shows that during the ten years in which the problem was simplified by the especially diminished frequency of the north-west wind, and by a lower rainfall not likely to produce a very damp soil, the contrast became exceedingly remarkable.

To further examine these relations of rain, wind, and phthisis, the accompanying charts have been prepared.

Chart 1 shows how remarkably the curves of rainfall (at Barnstaple) and phthisis mortality (all parishes included) resemble each other. The straight transverse lines indicate, in the rain chart, periods of greater or less fall, and the corresponding lines in the phthisis chart show the corresponding effects on mortality. The general trend of the phthisis mortality is downwards, but the very wet period (*a*, *b*) checked it, the very dry period (*c*, *d*) accelerated it, and the renewal of wet (*c*, *d*) slightly reversed it.

This chart also shows a correspondence between the curve of rainfall and the curve of mortality in the sheltered parishes, which is perhaps an indirect effect through soil.

Table VIII, however, indicates (what has been abundantly proved elsewhere) that rainfall does not *by itself* increase phthisis mortality, and, from what has already been said about soil, its influence on the whole distribution of phthisis mortality in these parishes cannot be explained as an indirect effect through soil. It can only be, we submit, from the evidence here given, at least in large part, the result of the combined effect of wind and rain.

In confirmation of this conclusion, Chart 2 indicates a rough resemblance between the sharply-interrupted curve of NW. wind frequency, and the also rather sharply-interrupted curve of mortality in the population exposed to NW., and between the relatively steady sweep of the curve of SW. and W. wind frequency and the similarly steady sweep of the mortality curve of the population exposed to these winds.

TABLE VIII.—*Rainfall and Phthisis.*

Name of Parish.	Female. Phthisis death-rate. 1883-1904.	Annual Rainfall (average 1901-4).
Mortlioe (Woolacombe) ..	0.5	29.6 in.
Arlington (Court)	0.8	53.1 in.
Parracombe...	0.9	50.0 in.
Martinhoe	0.0	45. in.
Challacombe	0.0	63.0 in.

Without insisting, however, on the points illustrated in Chart 2, we would submit that the figures now given bear out the experience of former investigations (already referred to) that *the death-rate from phthisis of populations exposed to strong prevalent rainy winds is greater than that of populations sheltered from them.*

Our best thanks are due to Mr. T. Wainwright of the North Devon Athenæum for the immense trouble he has taken in preparing figures for us, and for the invaluable information placed at our disposal: also to Mr. J. G. Hamling of The Close, Barnstaple, for his invaluable and laborious help as a geologist, specially acquainted with the district, in dealing with the question of soils.

We would also gratefully acknowledge the courtesy of the Registrar General in permitting us to obtain information as to deaths in the workhouse and in Ilfracombe Hospital, and of Dr. Morris at the North Devon Infirmary, who was so good as to look up for us the deaths which had occurred there.

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THE CAUSES, SEQUELAE, AND TREATMENT OF PERICOLIC INFLAMMATION.*

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PERICOLIC inflammation is not very unusual, as I have already had four cases under my care this year, but little attention has as yet been paid to it, and it is likely, therefore, to be mistaken for other conditions. Pericolitis comes under the notice of the physician, the surgeon, and the general practitioner, so that we ought all to know something about it.

Pericolitis is an inflammation of the connective tissue in immediate relation with the colon, either ascending, transverse, or descending, which does not arise in connexion with the vermiform appendix. Like other inflammations it ends in resolution—that is to say, it gets well spontaneously—it becomes chronic or it suppurates. I will first give you a series of cases and thus illustrate each variety, and to do this I have borrowed from the notes of Dr. Rolleston and Mr. Bland-Sutton, to make my story complete, because their cases illustrate phases which I have not yet seen.

CASE I.

Dr. Rolleston gives the following case of simple pericolitis ending in resolution.[1] A man, aged 23 years, was admitted into St. George's Hospital on August 18th, 1904, with acute rheumatism. It is noteworthy that he had been in hospital with a previous attack of rheumatism also complicated by abdominal manifestations, similar to those described below, in 1902. As a result of treatment the temperature rapidly fell, but after his bowels had been obstinately confined for four days he was seized with abdominal pains in the left iliac fossa, where there was much resistance and an oval patch of hyperaesthesia measuring 3 in. by 2 in. There was no tenderness or pain in the right iliac fossa. The abdomen moved badly and the patient lay with the legs drawn up. Next day the pain was worse and vomiting occurred twice; the pulse was 92 and the temperature was 101° F., but the latter was probably due to a relapse of the rheumatic pains and not to the abdominal condition. On the following day, after the bowels had been freely opened as the result of enemata, the abdominal pain diminished, and after this, the bowels being kept regularly open, the abdomen became natural.

This is as simple a case of pericolitis as could well occur. Mr. Bland-Sutton's case is an example of pericolitis having become chronic, and it is very interesting on account of its cause:

CASE II.

A man aged 40,[2] was seized with acute pain in the left iliac region with tenderness and fever. The signs were such, says Mr. Bland-Sutton, that if they had occurred in connexion with the right instead of the left iliac region a diagnosis of subacute appendicitis would have been irresistible. Indeed, the signs of an appendicitis were so characteristic that a careful examination was made to eliminate the possibility of the patient's viscera being transposed. A diagnosis of abscess of the descending colon, probably depending upon perforation, was made, and on opening the abdomen an ovoid body as large as a bantam's egg was discovered lying smooth and sessile on the descending colon. The tumour proved to be an inflamed epiploic appendix, and it contained a distinctly circumscribed cavity in its centre which communicated by a narrow channel with the lumen of the intestine. The cavity was filled with inspissated faecal material in which was embedded a sharp foreign body that appeared to have made its way out of the colon. Mr. Bland-Sutton explains the sequence of events to have been as follows: A foreign body was swallowed with the food; the foreign body perforated the colon in the neighbourhood of an epiploic appendage, and thus caused a slight leakage of the contents of the bowel. The extravasation of faecal contents into the epiploic appendage infected it and afterwards set up inflammatory changes, which increased the size of the fatty fringe leading to a chronic inflammation. The chronic inflammation of the epiploic appendage reacting on the colon might have caused the intestine to become so greatly thickened as to lead to an erroneous diagnosis of cancer, or it might have suppurated and led to the formation of an abscess.

Mr. Bland-Sutton's observation is curiously confirmed by a case recorded by Mr. Archibald Cuff,[3] in which the foreign body passing through the wall of the colon was found to be a piece of straw infected by actinomycosis. The infection thus communicated to the peritoneum had extended to the abdominal wall. The patient said that for eighteen months previous to the discovery of his abdominal condition he had had a very decayed molar tooth which he was accustomed to pick with a piece of straw. He was hardly ever without a piece of straw in his mouth when at work, but three months before he had noticed the lump in his stomach the tooth broke off and he did not put a piece of straw in his mouth again.

The following cases first drew my attention to the subject of pericolitis, and I am indebted for the notes to Dr. W. A. Rees, the Registrar of the Bolingbroke Hospital, and to Mr. W. G. Loughborough, one of my house-surgeons at St. Bartholomew's Hospital.

CASE III.

A married woman, aged 38, mother of seven children, of whom the youngest was 3 years old, came to the Bolingbroke Hospital complaining of pain and a lump in her stomach. She said that she had always been a healthy woman, and that her bowels were regularly open. She was employed in a laundry, and on several occasions she had been kicked in the abdomen, the last time two months ago. The injuries received in this way had never been severe enough to make her stop work.

She was admitted to the Bolingbroke Hospital under my care on January 22nd, 1906, saying that her present illness began on January 12th. On that day she had felt well when she got up, and she had gone to work and taken her meals as usual until, at half-past 4, she was suddenly seized with three paroxysms of severe pain, each lasting about five minutes, with short intervals during which she was easier. She felt the pain near her umbilicus, and described it as being so severe that it made her run up and down the laundry. She was taken home, put to bed, and was attended by a doctor for ten days. The pain lasted all this time, and towards the end she noticed that her stomach was swollen. She had one attack of vomiting during the evening of January 15th, and her bowels were open naturally or by means of enemata during the whole of her illness. She seemed to improve a little under local treatment until January 19th, when she suddenly became worse, her temperature began to rise, and she was brought to the hospital on January 22nd. She said that she had not been jaundiced, and that she had never noticed anything wrong with her water.

The note made on her admission states that she appeared to be in pain, that her pulse was 128 and her temperature 102° F. An examination of the abdomen showed that there was some limitation of respiratory movement, more especially on the left side and above the umbilicus, but no swelling was visible. The left side and upper part of the abdomen proved to be rigid and tender on palpation, and a tumour could be felt above and to the left of the umbilicus. This swelling was circumscribed and could be moved from side to side. It seemed to move with the abdominal wall during respiration, but it was clearly intraperitoneal. The abdomen was resonant over the swelling, but no fluctuation could be detected. The patient was kept under observation for a few days, and on January 27th a blood *count* showed her leucocytosis to be 18,500 per cubic millimetre.

I cut down upon the most prominent part of the swelling on January 28th. Pus escaped as soon as the peritoneum was divided, and a large abscess cavity was found to extend backwards to the posterior wall of the abdomen and downwards along the inner side of the descending colon. The cavity was drained and the patient made an uninterrupted good recovery. She was discharged from the hospital on February 18th with the wound soundly healed.

CASE IV.

The next case was as interesting as the last. It had a different but no less satisfactory ending. A scene-shifter, aged 55, presented himself at St. Bartholomew's Hospital in June, 1906, saying that he had been struck in the stomach whilst he was at work in February. The blow was followed by pain in the left side of the abdomen, and as he was often sick he attended the medical side of the hospital for some time, but without obtaining any relief. When I saw him in June there was tenderness and rigidity over the left rectus abdominis, where a deeply-seated and indefinite swelling could be felt. I advised him to come into the hospital, and he did so for a single night, discharging himself next day as soon as there was any mention of an operation. Ten days later he came back and said that whilst he was sitting quietly he felt as if something was suddenly squirted through his stomach, and shortly afterwards he passed about 2 pints of foul black stuff, some of which he also coughed up. Five days later he brought up a little blood in streaks. I have seen this patient on several occasions since this abscess cured itself by discharging into his bowel. At first he had some thickening and tenderness on the left side of the abdomen, but this gradually disappeared, and he has long since resumed his work as a scene-shifter.

CASE V.

My next case ended disastrously, but it is in many respects the most interesting, and though I take shame to myself for not having recognized it, I do not think that the patient could have been prevented from dying of pyaemia by any surgical interference. A man, aged 40, a watchmaker by trade, was admitted into St. Bartholomew's Hospital under the care of my colleague, Dr. Tooth, on June 28th, 1906, saying that a month ago he was suddenly seized with pain in his right

* Read at a meeting of the Leamington Medical Society, October 6th, 1906.

groin whilst he was eating. The pain was followed by a shivering fit, and from this time onwards his appetite left him, and he could not sleep on account of the pain in his right groin. He vomited after every meal, and since the onset of the attack he has taken very little more than milk and soda water. He has consequently lost flesh, but he has never had any haematemesis. He has been sweating profusely for a month, but in spite of his illness he only left off work ten days ago. On admission to the hospital the patient was found to be a sallow-looking man with a temperature of 104° F. and a pulse of 132. He had no pain so long as he lay quietly on his back, but on moving, and especially if he turned on to his right side, he complained of pain in his right groin. The abdomen moved well, but there was some increase of resistance on the right side, though no tumour could be felt in any part. The liver was somewhat enlarged, and its lower border could be felt an inch below the costal margin. A rectal examination showed marked tenderness in the right side of the pelvis, but there was no swelling to be detected. The leucocyte count was 40,000; no culture could be obtained from the blood. The patient continued to have rigors every evening between 5 and 7 o'clock, with a rise of temperature to 105° F., and an acceleration of pulse to 104-120. I saw the patient after he had been in the hospital for a few days, and thought that he was suffering from pylephlebitis, whilst my colleague, Dr. Tooth, was more inclined to a diagnosis of appendicitis. A few days after his admission to the hospital he passed through an atypical attack of pneumonia, which seemed to be secondary to some focus of septic inflammation. I was very unwilling to operate, as I saw no indication for exploring one part of the abdomen more than another; but as the patient got worse rather than better, as his liver increased in size, and he was becoming jaundiced, I opened his abdomen on July 9th by an incision carried from the ninth right costal cartilage for 4 in. vertically downwards through the rectus abdominis. I satisfied myself that the appendix was normal, and that the liver was enlarged and congested, but I was unable to discover any tumour or other evidence of disease in the abdominal cavity. The temperature rose to 102° after the operation, but the rigors ceased. The patient lingered on in much the same condition until the 15th, when he became much worse owing to an attack of peritonitis, which did not seem to be connected with my wound, which was healthy. He died on the evening of July 17th, the abdomen becoming distended, and with much oedema of the right iliac fossa. The *post-mortem* examination showed the presence of general peritonitis. A large faecal-smelling abscess was situated in the pelvis, and there was a smaller one higher up, near the hepatic flexure. On stripping up the ascending colon an abscess was discovered behind it in the region of the quadratus lumborum. The abscess had spread downwards in the sheath of the psoas as far as Poupart's ligament and upwards behind the right kidney as far as the diaphragm, which was intensely inflamed. The abscess contained a large quantity of extremely offensive pus of a light chocolate colour. There was no evidence of any disease of the spine, ribs or ilium. The nerves near the quadratus lumborum were laid bare. The right kidney lay in a bed of pus, as the abscess had tracked up behind it. There were two small abscesses in the cortex at the upper part, and there was a good deal of perinephric inflammation. Cultures taken from the pus in the peritoneal cavity showed an organism resembling the *Bacillus coli*. The intestines were normal, except for some congestion of the peritoneal surface, and the vermiform appendix was healthy. The mesenteric glands were enlarged. Both the pleural cavities contained a small amount of purulent fluid. The right lung was much congested, and contained an abscess of the size of a hazel nut near the anterior surface of its lowest lobe. This lobe also presented the appearances of a septic bronchopneumonia. The left lung was congested and oedematous, but contained no abscess.

Case VI.

Taking warning by the last case, we were on the alert when the next one presented itself, and we were able to conduct it to a successful issue, due in great measure to the indomitable pluck of the patient, who remained cheerful under the most adverse circumstances. He was an advertising manager, aged 22, who had been married for eighteen months. He was admitted to the hospital on July 24th, 1906, under the care of my colleague, Dr. Tooth, complaining of pain in the right side. He said that he had seemed quite well until the beginning of June, when he began to feel run down, and was sent to Margate to recruit. Whilst he was there he began to complain of pain in his right side. It came on gradually, and was localized to the region of the right kidney. The pain gradually got worse, and after staying a fortnight at Margate he came home and took to his bed. He was feverish, sweated profusely, but had no rigors. His evening temperature was usually 102° F.

On admission the patient was found to have some rigidity on the right side of the abdomen, but there was no tenderness, and no lump could be felt. The right kidney was easily felt, but it was not tender. The urine was 1030; it contained neither albumen nor sugar. The liver appeared to be healthy. The patient improved a little during his stay in the medical ward from July 24th until August 13th. A note made on the latter date states that the general condition remains the same. The abdominal movement is slightly impaired on the right side, and there is tenderness in the right hypochondrium inside the anterior superior spine and along the crest of the ilium. A smooth, oval, slightly tender lump can be felt in the right iliac fossa. It is circumscribed and its centre is on a level with the umbilicus. The temperature of the patient was 99.2° F., and his pulse, which had hitherto been from 80 to 96, increased to 104. At 8 p.m. the temperature began to rise until it reached 102° F., whilst the pulse was 150. The blood count, which was 9,000 on July 30th, now showed a leucocytosis of 40,000. The patient did not complain of pain, he was not restless, his abdominal walls moved well, and there was no increase in the rigidity of the abdominal walls. Nothing abnormal could be felt on rectal examination. Hot fomentations were applied and his pulse fell to 96, whilst the temperature was 98.4° F., the respirations being 24 on the following morning. In spite of this apparent improvement I had no hesitation in opening the abdomen on August 15th. The ascending colon appeared congested and thickened, but I could pass my fingers into the general peritoneal cavity quite freely, and I could feel that the appendix region was free from adhesions. I therefore tore through the mesocolon on the inner side of the ascending colon and opened up a very large abscess filled with dark-coloured and odourless pus, from which *Staphylococcus pyogenes aureus* was afterwards grown. The abscess tracked backwards beneath the peritoneum and upwards beneath the liver, but also subperitoneally. It contained many ounces of pus and was about 10 in. in depth. I drained it by passing a large drainage tube from the anterior incision through the flank by a hole made between the tenth and eleventh ribs and by a second tube passed upwards beneath the liver. The patient felt the operation so little that on the morning following the operation he was reading his newspaper. He made an uninterrupted recovery and was discharged from the hospital about the middle of September.

This was an extremely misleading case, because all the symptoms pointed to an affection of the right kidney, and even in the presence of a very large abscess his general condition gave very little warning of its existence.

Causes of Pericolitis.

Now these six cases present, I think, a very interesting series of one of the rarer forms of localized peritonitis—an inflammation of the peritoneum and subserous peritoneal tissues in the immediate neighbourhood of the colon. We are so accustomed to associate peritonitis with inflammation of the appendix that it is well to recognize other forms arising in immediate connexion with the large intestine which are not due to appendicitis.

It is obvious from the foregoing cases that the causes of pericolitis are various. Dr. Rolleston insists, very properly, on the importance of chronic constipation as a factor in the production of pericolitis in the neighbourhood of the sigmoid flexure, and instances the following case:

A man, aged 52, was admitted into St. George's Hospital moribund. From his condition and the history obtainable it was surmised that there was acute perforative peritonitis supervening upon chronic obstruction, probably due to carcinoma of the colon. At the necropsy there was general peritonitis due to the leakage of an abscess situated behind the junction of the sigmoid flexure and the descending colon. There were a number of stercoral ulcers in the sigmoid flexure, one of which led into the abscess cavity. There was no new growth in the abdomen, and the appendix was healthy.

The cases recorded by Mr. Bland-Sutton and Mr. Cuff show that the inflammation may be due to the passage of a foreign body from the colon into the tissues immediately surrounding the large intestine. In Case II pieces of straw were the offending substances, but Mr. Bland-Sutton very properly points out that "we are constantly ingesting a variety of foreign bodies with our food. The methods of grinding wheat furnish minute angular particles of millstone; small fragments and chips of straw are not uncommon in flour and in bread."

In two of my own cases injury appears to have been a predisposing cause of pericolitis. The woman was repeatedly kicked in the stomach. The man was injured in his work as a scene shifter; the woman as a laundress and the man as a scene-shifter were accustomed also to subject their abdominal muscles to prolonged strain. Neither of these patients was subject to habitual constipation, and it is interesting to notice that there was an interval of some weeks between the receipt of the injury and the appearance of symptoms sufficiently severe to make them apply for relief.

Chronic constipation leakage associated with typhoidal or other ulceration of the large intestine, the escape of foreign bodies from the colon, and injury do not exhaust

the causes of pericolitis, as is evident from the cases (Cases v and vi) under the care of Dr. Tooth and myself, in which the onset began with a rigor and ran a pyaemic course without any gross lesion being discovered after death. The pericolitis in these cases was limited to the right side, though the appendix in each instance was healthy, and the pus contained the *Bacillus coli* in one instance and *Staphylococcus aureus* in the other.

Symptoms.

The symptoms of pericolitis are not usually associated with those of inflammation of the colon. They are therefore often obscure, and as they are not very distressing they are in all probability overlooked in many cases, and remain untreated because the patient does not apply for relief, whilst in others he continues to go about his work until he is moribund. The onset of marked symptoms in every case appears to be sudden, and is characterized by acute pain with vomiting and loss of appetite. Examination of the abdomen in the earlier stages shows that the muscles are "on guard," that is to say, that they are ready to contract upon the smallest stimulation, though they take their normal share of movement during respiration. There is some hyperaesthesia of the skin, and the deep-seated tenderness is often very marked, and can be especially elicited by a rectal examination. Careful examination, though it may detect an area of thickening in the region of the colon, will fail to demonstrate any tumour or swelling in the earlier stages. The raised temperature and the quickened pulse show the inflammatory nature of the attack. The swelling is easily felt through the abdominal walls in the majority of cases when suppuration has taken place. The abscess may then be circumscribed, and, like many forms of tumour connected with the colon, it may be freely moveable within the peritoneal cavity. A large abscess, on the other hand, may be situated so deeply in the abdomen under cover of the colon as to make it difficult of recognition by physical examination and not easy to find by abdominal exploration during life. The abscess may be formed gradually with very slight signs, or, if it be acute, with rigors and other evidence of the absorption of septic products. In the two cases of chronic suppuration which I have quoted there was an interval of some weeks between the injury which was said to have caused the inflammation and the onset of the more serious symptoms.

Course.

The inflammation may subside with or without treatment in the simpler cases. It may become chronic, and if it does so it appears to have a curious habit of creeping along the intestine, thickening its coats and leading to an erroneous diagnosis of malignant disease. I made this mistake myself in the following case. A lady, aged 40, married, but without children, had a sharp attack of abdominal inflammation in April, 1903, which was diagnosed, and probably correctly, as perityphlitis. She improved under treatment, but does not seem to have recovered entirely, for in July and August she complained of pain in the region of her liver, which was relieved by the passage of a large quantity of urine. An examination of the abdomen was made, but no swelling or thickening could be discovered. I saw her for the first time in the autumn of 1904, when she came complaining of great loss of flesh, with pain down the right flank, and repeated attacks of vomiting. She was very sallow and depressed, but was not actually jaundiced. There was marked tenderness down the right side, and some thickening could be felt in the region of the right kidney. The region of the appendix seemed free. I thought that her symptoms were due to disease of the right kidney or of the ascending colon. I explored the kidney, therefore, through a lumbar incision, but finding it healthy I sewed up the incision and exposed the ascending colon through an abdominal wound. The colon proved to be greatly thickened in its ascending part, with nodules upon it surrounded by congested areas. It was adherent to the under surface of the liver by dense adhesions, and the liver itself appeared to be involved in the inflamed mass. I had no hesitation in saying that the patient was suffering from carcinoma of the large intestine, and that she had not long to live. My wounds healed by first intention, and the patient went home, where, contrary to my expectation, she improved instead of getting worse. She put on flesh again, and I hear now that she is restored to her original good health.

A similar thickening of the descending colon has been observed, and there is very little doubt that many cases of chronic non-suppurating pericolitis have been reported as instances of carcinoma cured by a nostrum or even by simple lapse of time. An attack of pericolitis may end in several ways when suppuration has occurred. The infecting organism may not be very virulent or the surrounding tissues may be so healthy as to be capable of limiting the inflammation. The abscess may then remain circumscribed, increasing slowly in size and getting very thick walls. The symptoms in such a case are not very well marked, because there is not much septic absorption and the abscess may only cause inconvenience by its size, or may even be overlooked entirely by unobservant persons. But a time comes, sooner or later, when the abscess wall thins at some point, the patient complains of pain, his temperature begins to rise, and his pulse quickens. If the abscess be not then opened it discharges itself, often, I believe, into the intestine, as otherwise more cases of pericolitis would have been recorded and the condition would be better known than it is; at other times the abscess opens into the general peritoneal cavity, leading to general suppurative peritonitis, which terminates either in death or recovery. It may burrow upwards, leading to inflammation of the diaphragm, to a subphrenic abscess, to an empyema, or to secondary pneumonia. Lastly, the abscess may be acute and septic from the beginning, either on account of the virulence of the infection or the general unhealthiness of the patient, as marked by the feeble resisting power of his tissues. In such cases death occurs speedily from pyaemia.

Treatment.

The treatment of cases of pericolitis resolves itself into the treatment of localized peritonitis, because, as I have already said, the condition is not associated with symptoms of inflammation of the mucous membrane of the colon. When the patient is seen in the early stages of the inflammation, every effort should be made to keep the colon at rest both from within and without. The patient should therefore be kept in bed, the large intestine should be emptied by enemata, and constipation should be prevented by the administration of laxatives. Attention should be devoted to the food, which should be of such a character as to leave as little residue as possible. Fish, eggs, and peptonized foods should form the staple.

When the inflammation has become chronic and it is tolerably certain that suppuration will not occur, massage of the abdomen gives excellent results. An exploratory incision is the only treatment for suppuration, and it should be adopted as soon as there is reasonable evidence of pus. An abscess once formed does not tend to cure itself except by pointing, and the chances of its opening into the general peritoneal cavity are too great to be permitted. An attempt to localize the abscess should be made in the more obscure cases by attending to the point of maximum tenderness and tension of the abdominal muscles. The incision should be planned to explore the ascending or descending colon, as the case may be, for the abscess is situated more often in connexion with these parts than with the transverse colon. The pus, when it is found, should be freely removed by flushing, after the edges of the wound have been packed with gauze to protect the general peritoneal cavity from infection. A large drainage tube should be inserted for forty-eight hours, and the abscess cavity should then be allowed to close, which it usually does in a short time.

Conclusions.

For the sake of focussing what I have said, and to render my remarks easier for discussion, I will sum them up in the following propositions:

1. Pericolitis is not very rare, although it is one of the less common forms of local peritonitis.

2. It occurs in connexion with the ascending as well as with the descending colon, but I have seen no case in which it arose in the neighbourhood of the transverse colon.

3. The cause of pericolitis may be found within the colon as a result of chronic constipation, in the walls of the colon from ulceration of the mucous membrane or

from the perforation of foreign bodies, outside the colon as a result of injury.

4. Pericolitis ends in resolution, in chronic inflammation, sometimes with extensive thickening of the colon, or in suppuration, which is usually retroperitoneal.

5. The treatment consists in an attempt to prevent the inflammation becoming chronic, and in the early opening of any abscess which may be formed.

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[1] *Med. Soc. Trans.*, vol. xxviii, 1905, p. 231. [2] *Lancet*, 1903, vol. ii, p. 1148. [3] BRITISH MEDICAL JOURNAL, 1906, vol. ii, p. 137.

A CASE OF APPENDICITIS:

REMOVAL OF A STERCOLITH: PASSAGE OF AN ASCARIS LUMBRICOIDES FOURTEEN DAYS LATER.

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(Forwarded by the Director-General of the Navy.)

IN view of the fact that recently several cases[1] of appendicitis have been reported in which the cause was attributed to ascarides, the following case is not without interest:

History.—W. T. M., gunner, Royal Marine Artillery, H.M.S. *Magnificent*, aged 22, was first seized with pain in the right inguinal region at 8 a.m. on May 23rd, 1906, and at the same time felt cold and shivered; at 10 p.m. he vomited some dark, watery fluid. The patient did not report himself sick until 7.45 a.m. next day; then he complained of pain in the right iliac region, going transversely across the abdomen. He had vomited several times during the night and early morning, and his tongue was slightly brown.

State on Examination.—There was found considerable tenderness over McBurney's spot, and some rigidity of the abdominal muscles. Temperature, normal; pulse, small and regular, 80. No ascertainable history of any similar previous attack. At 9.30 a.m. he vomited some watery mucus. He was put to bed and allowed no solids (diet consisting of Benger's food and milk and barley water in small quantities). That evening his temperature rose to 102°.

Progress.—On May 25th, the day after admission, fullness was observed in the right iliac fossa. Three days later he had retention of urine, relieved by catheterization; the urine was of specific gravity 1040 and rather high-coloured, but otherwise normal. As soon as the case was seen it was recognized as one of appendicitis and treated with enemata, small doses of calomel and opium, and intestinal antiseptics in the form of salol and guaiacol carbonate: locally glycerine and belladonna was applied in conjunction with poultices. On the evening of the 30th, seven days from the onset of the symptoms, the patient again complained of nausea, the fullness in the right iliac fossa was more pronounced, and tenderness present as before over the region of the appendix, and the temperature in the evening rose to 103°; pulse 94, soft and of fair size. It was decided to operate next morning.

Operation.—On May 31st an oblique incision 3 in. long was made, commencing 2 in. from the anterior superior spine downwards and inwards parallel to Poupart's ligament. The various muscles having been in turn divided, the peritoneum was reached and was opened on a director, when an immediate outpouring of a large quantity (more than 1 pint) of very fetid pus occurred. The pus had a distinctly faecal odour. Fleet-Surgeon Vidal G. Thorpe, of H.M.S. *Victorious*, who was assisting at the operation, very carefully inserted a finger into the abdominal cavity, taking care to avoid disturbing existing adhesions, and at once came upon a stercolith about ½ or 1 in. in length and ¼ or ⅜ in in diameter, which he removed. The parts were irrigated with sterilized normal saline solution at a temperature of 108° F., and after a gauze drain soaked in iodoform emulsion had been introduced the wound was partially closed, the muscles being sutured with catgut and the skin with silk sutures of the blanket-stitch type.

After-Progress.—That evening the temperature was 101.3° F., pulse 88. The dressing was changed and a dry gauze drain inserted. Prior to the operation the patient had passed several restless nights, and was therefore given at 11.30 p.m. a hypodermic injection of ½ gr. of morphine bimeconate, with the result that he was soon asleep and awoke next morning very much better. The pus escaped freely for several days, the temperature dropping to normal in the morning, and rising to 99.2° F. or 99.4° F. in the evening. The day after the operation the bowels acted spontaneously, and three small scybalous masses were passed. Boracic fomentations were applied over gauze night and morning. For the first twenty-four hours after the operation he was only given small quantities of barley water, then he was given half a teacupful of Benger's food twice a day, calvesfoot jelly and milk and barley water in small quantities between times. A morphine injection was again given on the night of June 2nd, and a morphine draught on the evening of the 3rd, after which he slept well without any hypnotic. Gradually the diet was increased, peptonized milk-food cocoa added first, then junket, omelet, etc. On June 4th the wound was irrigated for the first time with normal saline solution, and next day he received a dose of castor oil; after this had acted he was given more solid food, such as quenelles of fish, etc.

June 6th. Pus had by now entirely lost the faecal odour so noticeable at first and was rapidly diminishing in quantity. Being troubled with slight flatulence he was given 12 gr. of salol, and in the evening an enema of turpentine and castor-oil beaten up with yolk of egg in infusion of linseed, but this he was unable to retain.

On June 8th the patient commenced to show some signs of colitis, with frequent desire to stool, and the passing of slimy mucus, and the temperature rose in the evening to 101.4°. After a dose of castor oil, which was followed by free evacuation, the temperature dropped to 99 2°. For the next two days he suffered from a frequent desire to go to stool, and passed a considerable amount of slimy mucus per anum involuntarily, which necessitated the frequent changing of cotton-wool placed to receive it. At 12.45 p.m., on June 10th, he passed a large amount of greenish pus per rectum, and pus in small amounts was passed per anum next day, after which it entirely ceased.

Result.—On June 13th, fourteen days after the operation, he passed a large motion, containing a round worm about 9⅜ in. in length. On the 16th the drain, which had been gradually reduced in size, was left out, and from this time on the patient made an uninterrupted recovery. On July 11th the wound had entirely healed, and he was discharged to duty and proceeded on leave, being enjoined to wear a pad of lint and bandage over the scar.

On July 24th (three or four days after his return from leave) the scar broke down, and there was some superficial ulceration.

REMARKS.—The special points of interest in this case were the following: (*a*) Presence of stercolith; (*b*) colitis and discharge of pus and slimy mucus from rectum; (*c*) passage of a round worm fourteen days after the operation. My colleague, Surgeon F. Cock, R.N., has suggested that the stercolith may possibly have followed the dilatation of the orifice of the appendix by the round worm, which dilatation subsequently allowed the entrance and retention of faeces, which underwent calcification. The breaking down of the cicatrix two months after the operation was much to be regretted, and was probably due to the exceptional vigour of the patient, who from the time of commencing convalescence was always eager to do more than his condition justified, and always keenly resented being treated as an invalid and restricted as to walking, etc.

REFERENCE.

[1] Surgeon F. E. Anley, R.N., BRITISH MEDICAL JOURNAL, March 24th, 1906, p. 667; Captain H. L. Whale, R.M.S., ibid., May 12th, 1906, p. 1100.

YELLOW FEVER IN CUBA.—The sanitary and demographic report of the island of Cuba—a most elaborate and comprehensive monthly publication which we have previously had occasion to commend—has just reached us for the month of May last. It is of interest as recording a reappearance of yellow fever. The outbreak occurred in the Olano plantation in the Bolondron district, which adjoins Magdalena plantation where the last known case (which ended fatally) had occurred rather over three months before. Previous to this last outbreak of 1905 there had been three years (1902-4 inclusive) in which there had been no yellow fever in Cuba. The new case was diagnosed on May 17th, and died the same night, and a Commission at once took in hand the stamping out of the disease. A census was made of all the non-immunes within a circuit around the focus, mosquito-proof isolated buildings were prepared, the non-immunes were kept under surveillance, and all the dwellings within the circuit were fumigated for mosquitos. An ambulatory case was discovered the very first day and isolated, and in consequence of these precautions no further cases developed. Inquiry showed that a non-immune labourer was taken ill with "fever" on the Olano estate on March 24th; another on April 19th with fever and jaundice, and a third, who nursed him, was the fatal case of May 17th. Probably some infected *Stegomyia* was driven away from the Magdalena plantation after the death of the February case, and fed on immunes at Olano till it chanced to bite the non-immune who was attacked on March 24th, and fresh *Stegomyias* biting this case, created a new focus in the Olano plantation, which the energetic action of the sanitary authorities was fortunately sufficient to cope with.

THE will of the late Mrs. Helen McEwan, of Charles Street, Berkeley Square, directs that the residue of her estate, probably amounting to some £14,000, shall be equally divided between the Gordon Boys' Home and the Royal Hospital, Chelsea.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

A. H. Freeland Barbour, M.D.Edin., President.

CONCEALED ACCIDENTAL HAEMORRHAGE.

By Adam H. Wright, B.A., M.D., M.R.C.S.Eng.,
Professor of Obstetrics, University of Toronto.

Only a very limited portion of the large and complex subject of concealed accidental haemorrhage will be dealt with in this paper—that form which occurs in the latter part of pregnancy before effacement or dilatation of the cervix.

There is by no means a consensus of opinion as to the symptoms of this condition. When first described by Baudelocque in 1818, Mme. Boivin said that neither she nor Mme. La Chapelle had seen an instance in over 42,000 labours.

It is now generally conceded that many such cases are overlooked, and that the condition is more common than was formerly supposed. My own experience confirms this, and I believe that in the majority of cases it is not even suspected by the physician in charge. Although my field in obstetrics has been small compared with that of Mme. Boivin and others, yet 5 cases have come under my observation, and I am in accord with those who believe that a large proportion of the sudden deaths in pregnancy are due to this condition.

The following description from Storer gives us a striking picture of the condition of a patient suffering from such a traumatism:

> There is . . . a type of cases in which the mortality is . . . nearly 83 per cent. Of this the following would be a picture: A woman in the last months of pregnancy, very likely a few hours after a slight blow or some great emotion, is suddenly seized with sharp cutting pain in the upper uterine zone. After a short time this pain is replaced by a dull continuous ache. The attack is very much like an ordinary colic in many ways, and, in lack of anything like labour pains or external haemorrhage or anything else to call especial attention to the uterus, the woman is treated under that supposition. The faintness and clammy skin are looked on as the natural concomitants of nausea, and not till valuable hours have been wasted does the increasing prostration suggest to the attending doctor that he has to do with anything more serious than colic. Meanwhile the uterus has been slowly increasing in size, eventually paralysing by over-distension any tendency on its part to contract, while the cervix is hard as iron and totally undilated and unyielding, and the patient going to die unless the haemorrhage is stopped. Here the indication is plain enough, till the uterus is empty the patient's life is in extreme danger, but how to empty it is by no means an easy question. It is no trifling matter to dilate such a cervix not softened by the previous slow advent of labour. There are many cases on record where a couple of hours or so were spent in fruitless attempts at dilatation, and after all the woman died undelivered, so that if the dilatation could at last be accomplished the constant and long-continued haemorrhage had been too great for reaction to take place.

Shock.

I have not seen any such distension of the uterus, nor do I think death is generally due to the "long-continued haemorrhage," and my chief aim is to show that in a certain, and probably large, proportion of cases of concealed accidental haemorrhage the symptoms are due to shock only, and not at all to loss of blood. The consideration of certain features in connexion with two cases will be found interesting in this connexion.

Case A.

Patient, aged 35, 4-para. Labour pains commenced at midnight; very severe pain at 8 a.m. Seen by Dr. W. P. Caven at 9.30; condition very serious. Doctors McKenzie, Ross, and I were summoned; patient anaesthetized and delivered (*accouchement forcé*) at 11.30; death shortly after delivery. Dr McKenzie expressed his surprise at the serious result from the outpouring of so small a quantity of blood (apparently less than one quart).

In this case we thought the loss of blood was to some extent the cause of death, accepting as we did at that time the view of Goodell, Holmes, and others, that the "anaemia rendered the woman less able to withstand the shock incident to forcible dilatation" (Holmes).

The essential feature of shock is its sudden onset, while the main characteristic of collapse is extreme exhaustion, due in many cases to loss of blood. While our patient suffered from both shock and collapse, it is likely that the shock largely predominated. Further reference will be made to this case in speaking of treatment.

Case B.

Patient, 3-para, aged 34, when about seven months advanced in pregnancy was suddenly seized with severe abdominal pain while driving. The pain was produced by a jar caused by the carriage wheel passing over a stone. The patient went home (only a short distance) as soon as possible, and Dr. Wright saw her within a few minutes and found her cold, pale, weak, and suffering intensely from "tearing" pains over the abdomen.

Treatment.—Artificial heat applied to surface; two doses of nepenthe, followed by hypodermic of morphine, were given; pain much diminished in an hour and a half, after which she rallied with the aid of small doses of strychnine and stimulants, and was comparatively comfortable in three to four hours. Four days after the accident uneventful labour occurred, the placenta showed evidence of being nearly half detached, and a comparatively small clot of blood was found—less, I think, than would be produced from a pint of blood.

This case was very interesting and instructive. I was fortunately able to reach the patient soon after her accident, and remained with her some hours. The shock was so intense that at one time I thought she would die. Concealed haemorrhage was suspected, but no enlargement of the uterus could be detected.

In a very small proportion of cases the outpouring of blood causes the stretching of the uterine walls, the amount of blood thus lost becomes then an important feature and may cause dangerous collapse. Anything of the sort, however, I have never seen and the condition must be exceedingly rare.

I was amazed to find that such a small quantity of blood clot could have produced results so momentous, and yet this should not have caused much surprise when one considers the disastrous results produced by the injection of water between the membranes and the uterine walls for the purpose of inducing labour as practised fifty years ago. Simpson, in 1861, reported two cases in which such injections caused death. In both instances only a few ounces were injected. He also said that both cases occurred in the hands of most accomplished accoucheurs.

Treatment.

Although Goodell's paper on the subject was a masterpiece, it is by no means certain that it accomplished much good. It seemed to give a singular impetus to the operation of *accouchement forcé*, especially on this continent, and the general feeling manifested during the discussion of two years ago was that this is an exceedingly dangerous procedure.

Goodell described in a very graphic way the symptoms of the accompanying shock, but he did not properly differentiate between the shock and the exhaustion from loss of blood. He said the cardinal rule in accidental haemorrhage was to measure the loss of blood by the severity of the collapse. He told us as soon as an accurate diagnosis was made it was imperative to deliver the woman as soon as possible. He repeated this to some extent in his closing sentence which was as follows:—

> Whenever the symptoms are obscure and the diagnosis doubtful, act as though the case were one of concealed haemorrhage and follow the precept laid down by Theodore Mayerne for the management of floodings: "Praestantissimum remedium est foetus extractio."

Holmes, in his admirable paper on this subject, in quoting this sentence, says: "Apply this precept too early rather than too late."

In considering treatment it should be remembered that certain methods which are useful in some forms of

accidental haemorrhage are absolutely contraindicated in the concealed variety. In the cases which I have reported to-day there was a vast difference in the two conditions. In Case A the haemorrhage occurred during labour after effacement of the cervical canal and some dilatation of the os. Under such circumstances the modified *accouchement forcé* required little or no violence. In Case B the cervix was intact and the os "as hard as iron."

Accouchement forcé during shock with such symptoms as I have described almost invariably causes death, and the following should also be avoided: friction, electricity, nitroglycerine, amyl nitrite, ergot, quinine, rupture of membranes, steel dilators, various kinds of dilating bags, and the vaginal plug.

It is both interesting and profitable to read the histories of such cases in the days of Murphy, Ramsbotham, Oldham; important lessons may be learnt from them as to treatment. One method was what we may term the expectant plan—that is, to treat the various symptoms according to their urgency or severity. The administration of opium for pain and shock was quite common, although the doses were frequently too small. As for my treatment in Case A, after slight labour pains had continued for some hours, the uterus passed suddenly into a condition of spasmodic contractions with continuous pain, amounting to intolerable anguish, but accompanied by no expulsive efforts. Unfortunately the woman was not seen by a physician for about an hour and a half after the commencement of this storm; thus valuable time was lost, and the condition had become very serious. It seems possible, if not probable, that if suitable treatment had been instituted for shock when it was urgently needed, and before any attempt was made to empty the uterus, the result might have been different.

In Case B the patient received prompt treatment for shock, which it seems reasonable to suppose saved her life.

CONCLUSIONS.

I have not had enough experience to speak with authority, but venture to make certain recommendations as to treatment. What I have called shock is a serious condition, which, although produced more or less suddenly, is due to a traumatism to some extent continued and sometimes repeated, and it must be treated.

1. Give ½ grain of morphine by hypodermic injection: give a second dose of ¼ grain in half an hour or less if required; give a third dose of ¼ grain in another half-hour if required. This means 1 grain in one hour. It seems better to name definite doses, but of course this must be left to the judgement of the accoucheur. This recommendation is made notwithstanding the fact that some surgeons think that after shock is established morphine given alone may cause depression. The aim should be to administer morphine before profound shock is produced. However, pain is such an important element that the morphine is probably always indicated, but it may be safer to administer with the first dose $\frac{1}{120}$ grain of atropine.

2. Lower the patient's head and elevate the foot of the bed.

3. Keep up the body temperature by the external application of artificial heat.

4. Administer a high enema of salt solution. We are told by Crile and Malcolm that the veins will not absorb fluids during shock, and therefore any hurried attempt to inject the solution into the veins is not advisable, but during recovery from shock the veins absorb the fluids rapidly, even by the bowel. Subcutaneous or intravenous injections may be sometimes advisable.

5. Give small doses of strychnine (not more than two doses of $\frac{1}{30}$ grain each by hypodermic injection within one hour). Large doses of strychnine during shock are exceedingly dangerous.

If relief is afforded by these means no further active treatment may be required. If, however, it is impossible to relieve the symptoms, we may be placed in a better condition for operative procedures. I give no definite opinion as to when operation should be considered necessary, but think that in a certain proportion of cases it should be performed within a few hours. Most modern surgeons and obstetricians, both in the Old World and on this continent, agree that the operation of election under such circumstances should be either vaginal or abdominal Caesarean section.

DR. TEMPLE (Toronto) said that the treatment should depend entirely on the gravity of the symptoms. If the haemorrhage occurred at the time of delivery the uterus should be emptied as soon as was consistent with the patient's condition, either by version or some other method. If it occurred during gestation and the symptoms of shock were very severe, with the os hard and unyielding, the safest plan was to rupture the membranes, apply a firm pad and bandage over the uterus, give restoratives, and deliver the patient later on. He had never seen any case calling for such radical treatment as vaginal or abdominal Caesarean section.

DR. W. S. A. GRIFFITH (London, England) said that in his opinion the discussion of the treatment of accidental haemorrhage suffered from being considered apart from that of placenta praevia haemorrhage, the principles of which were almost the same. Cases might be divided into two groups: Those in which the haemorrhage was little and the danger little, and those in which it was great and the danger great. The first group was common, the second very rare; the treatment of the second group was that which raised the chief points for discussion, especially in those in which the cervix was tough and undilatable. In this condition section of the uterus, especially vaginal, was the best method when circumstances permitted it. In cases of multiparae with soft, dilatable cervix the treatment of Braxton Hicks—bipolar version with normal dilatation—was the safest method and the most easily performed by the general practitioner.

DR. MURDOCH CAMERON agreed with Dr. Griffith that if proper assistance was at hand no anxiety need be entertained about the termination of the case. His treatment was to apply a tight bandage, plug the vagina, give opium, and, after the patient had got over any symptoms of shock, to induce labour. He had never seen a death from accidental haemorrhage. On no condition, in dealing with the case, should Champetier de Ribes's bag be used, nor would the speaker entertain the proposal of Caesarean section.

CHRONIC METRITIS AND ARTERIO-SCLEROTIC UTERUS.

BY

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WE feel it our duty at the very outset to outline briefly the object of our paper and to define as clearly as possible the subject under discussion.

From 1860, when the first noteworthy paper appeared upon the subject of chronic metritis, down to the present day, we think we will not err by stating that no two writers are in accord upon most of the points involved, and for years the subject was completely neglected until again revived by the work of Reinicke in 1897. Since then several valuable papers have appeared, most of them holding different views as to the pathological findings and the interpretation of them.

DEFINITION AND LITERATURE.

We cannot give a more concise definition of chronic metritis, or fibrosis uteri, than that given by Bland-Sutton before the British Medical Association in 1904. He writes:

> Under the term I described . . . a peculiar affection of the uterus, of which the leading clinical feature is uncontrollable menorrhagia. The regular abundant loss of blood is not merely uncontrollable from the point of view of drugs and rest, but also is irresistible to curetting, and in some of the cases which have been under my care the uterus had been repeatedly curetted by competent men. The disease, which is chiefly met with in women between 35 and 45 years of age, is associated with striking structural changes in the uterus. The organ is larger than usual and its walls thick and tough. On microscopical examination, the muscle tissue of the uterus is seen to be replaced by an abnormal growth of fibrous tissue. The walls of the uterine arteries are thick and the lumina of the vessels narrowed and occasionally obliterated.

Such, then, are the leading clinical features and the chief microscopic changes of chronic metritis. Upon

these points, as outlined by Bland-Sutton, there exists the widest divergence of opinion, and it is with the hope of reconciling some of these views and of clearing the atmosphere of some of its mists that we have undertaken to review the literature, to report 9 cases, and to draw our conclusions from the clinical and pathological study of these cases and from other cases of allied conditions.

A short review of the literature will greatly facilitate the subsequent writing, and will lead one to grasp more readily the points upon which there is unanimity of opinion and those which still occupy debatable ground.

The first scientific article which appeared on the subject of chronic metritis was that of Scanzoni in 1860. In this exhaustive monograph Scanzoni, after defining the subject and outlining its chief clinical features, states that

> The pathological process readily divides itself into two totally different stages. In the first stage (that of infiltration) he says there are hyperaemia, oedema, and infiltration of the uterine structures, in consequence of which the organ is soft, boggy, enlarged, and the walls thickened. In the second stage (that of induration) the uterus is anaemic, dry, yellow, hard, and the arteries and veins are much reduced in calibre. He states further that any acute inflammatory condition may take on a chronic character and finally end in the stage of induration.

At this time endometritis and metritis were treated of under one heading, and chronic inflammatory trouble in the one could not but make itself felt in the other.

In 1867 Seifert, and later his pupil Süxinger, called the writings of Scanzoni into question, and they added much which only of late has been properly appreciated. They write that chronic metritis, or more properly "chronic infarct of the uterus," found its chief causative factor in a disturbance of the proper involution of the puerperal uterus. These latter papers provoked but little comment, and for twenty years the opinions expressed by Scanzoni were almost universally accepted.

Microscopical research now began to influence the views of those who wrote upon this difficult question, but owing to the low magnifying powers of the microscopes and the poor technique employed, the conclusions were very variable and not infrequently quite contradictory.

In 1868 Finn described the chief pathological changes as that of increase of the muscle fibres of the uterus. He writes:

> The increased volume of the uterus is due to hyperplasia of the muscle fibres and the increase in the fibrous tissue adds but little to the bulk and can bring but little influence to bear.

Birch-Hirschfeld found after careful research increase both of muscular and fibrous elements, and Klebs an increase only of the contractile structures of the uterine wall. Almost simultaneously v. Klob, Kiwisch and Virchow found that the enlargement and induration of the uterus were the direct result of hyperplasia of fibrous tissue cells.

But from this time on, that is, from 1870, the curette, advocated by Olshausen, came more and more into vogue, and now, owing to the remarkable results which attended most of the cases of curetting, the inevitable result was that all symptoms of menorrhagia and metrorrhagia were attributed to pathological changes in the endometrium, and later, when bacteriology occupied the attention of the scientific world, septic endometritis was the only cause to which chronic metritis could be attributed. As a direct consequence, investigation of changes in the myometrium and in the parametrium was for a time at a standstill, until in 1885 Fritsch again drew attention to the diffuse fibrosis of the walls, and attributed the menorrhagia to this pathological change, "which," he says, "is a direct result of prolonged inflammatory reaction."

In 1892 Pozzi, in his textbook of gynaecology, wrote:

> The parenchymatous lesions of chronic metritis are particularly characterized by a hypertrophy of the connective tissue causing a general enlargement of the organ . . . but authors do not agree as to the participation of the muscular tissue.

And further:

> When the uterine parenchyma has thus been the seat of prolonged and lasting inflammatory changes, it is unusual not to have with it evidences of perimetritis, such as adhesions and salpingitis, and the uterine mucosa is always involved to a greater or less extent.

Cornil, in 1888, drew special attention to the arterial changes. After referring to the general fibrosis, he says:

> To the naked eye the muscular tissue is of a pale red colour, presenting a series of opaque lines, which are thickened arterioles in a state of atheromatous degeneration.

And again:

> The connective tissue sclerosis corresponds to that of the arterial and venous coats, and is not so much a cicatricial contraction of connective tissue as a permanent augmentation of its volume.

In 1897, owing to the researches of Reinicke, a new impetus was given to the study of chronic metritis. From the careful study of four cases, he came to the following conclusion, that there is a primary chronic metritis without sign of inflammatory reaction either in the uterine wall or in the neighbourhood and with a perfectly healthy endometrium. He writes:

> One is then strongly tempted to attribute the menorrhagia to the changes in the parenchyma of the uterus, especially if the uterus is enlarged.

Again:

> As a consequence of a marked hyperplasia of the connective tissue, a certain rigidity of the tissues is present which more or less prevents contraction of the vessel walls. One series of my cases leaves no other explanation than this to be offered, and yet in another case in which the vessels themselves are alone involved and are the primary seat of the disease, the difficulty or even absolute impossibility of contraction seems the only possible cause of the menorrhagia.

In three of his four cases there was hyperplasia of fibrous tissue, especially about the vessels, with increase in thickness of the media.

Pichevin and Petit, two years previously, described a case of involvement of arteries without apparent change in the connective tissue and Pozzi added two cases with similar findings. In one of Reinicke's series, the arteries alone were involved, as was also the case in Barbour's report published last year.

In 1902, Theilhaber and Meier, in an exhaustive article, endeavoured to explain the haemorrhages, as did Reinicke, by the restraining influence of the connective tissue upon the muscles causing relative muscular insufficiency.

Palmer Findley, in 1905, heartily supports the two former authors in their theory of muscular insufficiency to explain the onset of the haemorrhages. When we come to the difficult question of etiology, we find that Bland-Sutton, in the British Medical Journal, 1904, after the abstract which he gave at the beginning of his paper, ends by expressing his belief that: "The change in the tissues of the uterus is a remote result of septic endometritis," and Pozzi concurs in this opinion; whereas Barbour inclined rather to believe that the condition may be one of true arterio-sclerotic origin, and Theilhaber goes still further and says that not only is there in many of these no inflammation of the mucosa as an antecedent, but rather, what seems at first sight a primary disease of the mucosa is in reality a disturbance secondary to destructive processes in the myometrium. So we find that the chief points at issue are whether the enlargement of the uterus is due to muscular hyperplasia only, or to connective tissue increase alone, or whether due to involvement of both of these tissues; whether all cases of chronic metritis are the remote results of infection, or whether infection plays no part; whether the endometrium is always involved, to which the chronic metritis is secondary, or whether the endometrial change is a result of the primary involvement of the myometrium; and lastly, whether the arterial changes are primary or secondary.

We will endeavour to establish the cause of the uncontrollable haemorrhages and adopt a simple clinical and pathological classification, which will cover most of the cases which have come either under our observation or within our knowledge.

By this short review of the views of most of the authors, one is able to grasp in very quick order the chaotic state of our knowledge of chronic metritis at the present day. Classifications, as elaborate as they are ingenious, have been compiled, only to add to the confusion, and we will spare our readers a review of these.

Clinical Appearances.

Clinically we recognize simple and complicated chronic metritis. With the former we shall concern ourselves

chiefly, and but refer to the latter to leave no room for ambiguity.

By simple metritis we mean a clinical entity in which the uterus is enlarged, hardened, symmetrical; where curetting has no appreciable effect, and where the uterine appendages are free from any organic disturbances to which the metritis might be secondary.

By complicated metritis we mean a disease characterized upon physical examination by the same signs as given for simple metritis, but associated with grave involvement of the appendages and other pelvic organs. In short, in simple metritis the uterus alone is found to have undergone changes recognizably clinically, whereas in complicated metritis the other genitalia are always involved.

Of the 9 cases which we are about to describe fully, 6 present none of the clinical features of arterio-sclerosis, whereas the other 3 show various stages of general arterial degeneration. We have endeavoured throughout to compare these two series. Case No. VII is inserted as a link, inasmuch as the patient presented general arterio-sclerosis, and the specimen shows changes due to two etiological factors, which give it characteristics of both series.

CASE I.

Mrs. R., aged 35, married eight years. Two full-term pregnancies, five and three years ago respectively. Puerperiums and labours normal. Menses began at 9 years of age, regular, duration four days; quantity normal until four years ago, when flow became more profuse and gradually increased in quantity. Later a shorter period intervened, especially during the last two years, when menses recurred every two weeks. She feels weak, but otherwise well. Systems other than genital are normal.

Physical Examination.—Vagina healthy, outlet parous; cervix bulky and cystic: os transverse and catarrhal; uterus enlarged and firm, retroverted and retroflexed, freely movable and but slightly prolapsed. Appendages prolapsed, but free from disease.

Clinical Diagnosis.—Fibrosis uteri with retrodisplacement.

Operation.—July 28th, 1905. Vaginal hysterectomy by Dr. Chipman. Convalescence uneventful.

Pathological Examination.—Specimen, that of a uterus removed *in toto*; measures 4½ in. by 3½ in. by 3 in.; firm, globular, of even consistence: peritoneal surface free from adhesions. Cut surface of broad ligament presents nothing noteworthy. On section walls are thickened and firmer than normal, and at the fundus the thickness is 1¼ in. The cut surface is fibroid, and is traversed by numerous interlacing meshes of fibrous tissue of variable size, with intervening musculature of a pale yellow. Vessels do not stand out much above general surface; mucosa presents nothing abnormal except slight haemorrhagic spots like petechiae. These are probably traumatic in origin.

Microscopical Examination.—Sections were hardened, some in 2 per cent. formalin solution, others in Zencker's solution; washed twenty-four hours in running water; dehydrated in methylated spirits and absolute alcohol, then chloroform, chloroform paraffin and imbedded in paraffin. Sections taken from mucosal to peritoneal surface. Stains: Haematoxylin and eosin, Mallory's connective tissue stain, Van Giessen's connective tissue stain.

Mucosa.—The interstitial cells of the mucosa are very rich in nuclear elements of an embryonic type with scanty cell protoplasm; especially does this apply to the deeper parts. The more superficial structures are more widely separated, having irregularly-shaped gaping intercellular spaces. In that part of the mucosa corresponding to the middle third there is a deposit between the cells, which stains a deep pink, and is quite structureless and homogeneous. The walls of the small arterioles show this same change with apparently slight narrowing of the lumina. The glands are tortuous, somewhat increased in number, and occasionally slightly dilated. They are lined by a single layer of cells, except when cut diagonally. The line of demarcation between mucosa and muscle is sharply drawn.

In the parenchyma of the uterus one finds that the musculature shows very little departure from the normal, especially does this apply to the layers immediately beneath the mucosa. Deeper, there is a gradual increase in amount of a peculiar granular deposit with swelling of the cell protoplasm and with wide separation of the nuclei. This becomes more and more marked until one reaches the peritoneal surface. The nuclei are vacuolated, but normal in staining properties.

Throughout the thickness of the specimen the ramifications of the fibrous tissue trabeculae are readily distinguished by the deeply-stained nuclei which present features in staining characters strongly suggestive of proliferating cells. In other parts the tissue seems more adult: cells are slightly fibrillated, swollen, nuclei widely separated and the protoplasm has that peculiar ground-glass appearance which we will describe later. These strands seem to start from the vessels from which they radiate. They are of various sizes and are continuous with the adventitia which alone is involved in the sclerosing process.

In the outer half of the parenchyma there are irregular islands of areolar tissue in which the nuclei are almost absent, and yet others, closely resembling the former, only of more recent formation, and suggesting interstitial haemorrhages. In the inner half of the specimen, along the trabeculae, are small areas of small round cells.

The deposit on the adventitia is merely a phase of the general swelling and quasi-hyaline degeneration, involving the whole fibro-muscular structure. At no spot can one find changes in the intima other than slight reactionary swelling. The media shows very little alteration, and there is no appreciable diminution in the size of the vessels.

CASE II.

Mrs. B., aged 43, married 22 years. One pregnancy at full term seventeen years ago; labour difficult and recovery slow. Menses began at 12 years; regular, duration five days. For the last four years changes have been becoming more frequent, and lasting ten to twelve days and very profuse. Fifteen months ago flow was almost constant. She was curetted and ventro-suspension was done for retroversion, without apparent amelioration of the haemorrhages except for one month.

Physical Examination.—Patient is a tall, thin woman, quite anaemic; abdomen relaxed and flabby. Mass palpable in hypogastrium. Vagina healthy, cervix bulky, everted and catarrhal; uterus large, firm, size of three months pregnancy, freely movable and symmetrical. Position normal; appendages free. Other systems negative.

Operation.—Vaginal hysterectomy by Dr. Chipman in April, 1905. Recovery uneventful.

Pathological Examination.—Specimen, that of a uterus, removed *in toto*: measures 4½ by 4 by 3½ in. It is firm, symmetrical, of uniform consistence, globular, and presents a flattened anterior and a bulging posterior wall. Peritoneum normal except at site of ventro-suspension. Site of severed broad ligaments presents tortuous, hardened vessels, which stand out prominently. Surfaces, cut before hardening, present prominent vessels about which the tissues have retracted. On section, walls are thickened, vessels somewhat gaping, and a marked fibrosis is visible as striae traversing the cut surface. At the thickest part the wall measures 1⅞ in. The mucosa is healthy.

Microscopical Examination.—Staining and hardening as in previous specimen. The mucosa presents no departures from the normal except that the fibro-musculature of the uterus invades the mucosa as strands of variable but of considerable length, and the mucosal structures are found as isolated small masses, at some distance below the general line of demarcation between mucosa and parenchyma. Glands are perfectly normal.

The muscle tissue presents the swollen, granular appearance described in the previous specimen. The interlacing fibrous bands are very much thickened, and present the same hyaline ground-glass appearance in which are few nuclei stained deeply. The lymph spaces are very widely dilated, and their endothelial lining swollen. About the lymph spaces the fibrous tissue is more embryonic, and the thickly-set nuclei stain very intensely with haematoxylin. (Fig. 1.)

The lymphatic dilatation is very pronounced in the sub-peritoneal third of the specimen. The vessel walls are not appreciably affected except the adventitia, which is thickened by adult fibrillated connective tissue poor in nuclei. The media is but slightly swollen, and the intima is found to be intact and normal.

The lumina and walls of the smaller vessels show no appreciable change from the normal, nor is there seen any marked tortuosity of the vessels such as will be described later.

CASE III.

Mrs. T., aged 37, married ten years. No full term pregnancies. Patient had several miscarriages, the first eight years ago at six weeks; the second seven years ago at three months, and the last six years ago at four and a half months. No symptoms of sepsis at any of these times. Menstruation began at 15 years, always regular and normal until after marriage. No dysmenorrhoea.

Physical Examinations.—Her complaints are menorrhagia, beginning with the first miscarriage, and of late metrorrhagia has been very troublesome and weakening. Upon examination the cervix was found to be bulky, lacerated and everted; the uterus enlarged, firm, freely movable, retroverted and retroflexed; appendages free.

Operation.—On March 10th, 1904, Dr. Gardner dilated the cervix; the cavity measured 3½ in. The result with the curette was very scanty. Emmet's repair of cervix and internal shortening of round ligaments were done. Recovery uninterrupted. The patient did well until August, 1904, though menstruation was prolonged and rather profuse, lasting

at times two weeks. In January, 1905, menses lasted five weeks, and from that time there was almost constant metrorrhagia.

In October another examination showed that the uterus had by its excessive weight fallen back into Douglas's pouch, and the haemorrhage was profuse, requiring packing on two occasions. In January, 1906, Dr. Gardner did a total hysterectomy with complete recovery of the patient.

Pathological Examination.—Uterus, removed completely, measures 4 by 3 by 2 in., firm and symmetrical, and the peritoneal surface is free from adhesions. Cut surfaces of broad ligaments present a slight thickening and marked tortuosity of uterine artery. On section wall at fundus measures ¾ in. in thickness and 1 in at side wall. It is fibrous, hard, and vessels are prominent. Mucosa normal.

Microscopical Examination.—Hardening and staining as in previous cases. Sections through the uterine wall at the fundus show a normal mucosa throughout, except that the interstitial tissue appears unusually rich in nuclear elements and that the middle coat of the small arterioles is somewhat thickened, due to a swelling of the muscle fibres by a hyaline deposit which stains homogeneously pink and separates the apparently normal nuclei somewhat widely. There is a large increase in the amount of fibrous tissue, which is chiefly of the alveolar type. The hyperplasia is most marked in the middle and outer third of the specimen. In parts nearer the mucosa the fibrous tissue is much swollen and granular and the nuclei widely separated. There are a few small areas of small round-celled infiltration, especially in the middle third of the specimen, and the staining properties of these suggest tissue undergoing proliferation. Throughout the specimen the muscle fibres appear swollen, hyaline and fragmented, and in parts where the connective

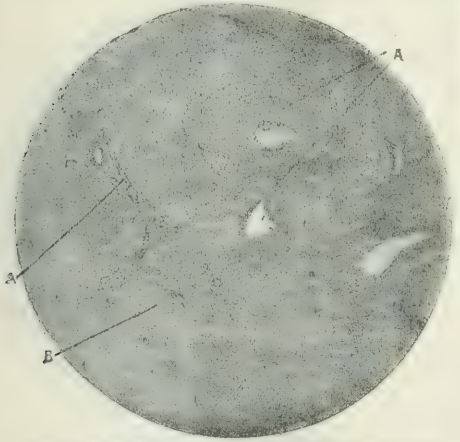


Fig. 1.—Inflammatory type: A, Hyaline degeneration of media: B, deposit between cells.

tissue is in large amount the muscle shows decided atrophy. The blood vessels are not much affected except in their outer coat, which is involved in much the same way as is the whole uterus, except that naturally the fibrosis is more marked about the vessels. At no spot are the media and intima much affected.

The most characteristic change in this specimen is the involvement of the veins in the fibrosis. Their walls have lost most of the muscle cells, and a marked replacement fibrosis results in narrowing and puckering of the lumina.

Case iv.

Mrs. T., aged 46, married 25 years. One full term pregnancy 23 years ago; labour normal at seven months. Menses began at 13 years; normal until July last. Since then it has grown more profuse, lasting twelve days, and of late has been recurring every three weeks, so that patient is free from haemorrhage only a few days each month. During this time there is a thin leucorrhoea, and any exertion brings on a show. She complains of menorrhagia, metrorrhagia, bearing down pain, frequency of micturition, and of late temporary loss of control of sphincter ani. Patient states that the trouble began with pain and bearing down after birth of her only child. She wore a pessary for a time, but it irritated her very much. Was curretted one year ago without improvement.

Physical Examination.—Cardiac irregularity and signs of myocarditis without loss of compensation; other systems normal. Vaginal outlet normal; cervix bulky, patulous, not torn; uterus retroverted, enlarged, firm and mobile; right ovary slightly enlarged.

Operation.—Hysterectomy by Dr. Gardner, March, 1906. A few adhesions about the right ovary, which was also removed. Convalescence uninterrupted.

Pathological Examination.—Uterus completely removed, with right ovary and tube attached. Uterus measures 4½ in. by 3½ in. by 2¾ in., depth 3⅜ in. It is firm, globular; peritoneal surface free from adhesions. Arteries stand out prominently on cut surface of broad ligaments. On section it is tough, fibrous, walls measure at thickest part 1½ in. Fibrous structure of wall readily seen when immersed in water. Arteries thickened. Mucosa slightly hypertrophic and haemorrhagic.

Microscopical Examination.—Hardened and stained in the usual way.

Mucosa.—Thicker than normal; the fibrous tissue is oedematous, and cells are widely separated by large and small lymph spaces, which are considerably dilated; surface epithelium is normal; the deeper structure is more cellular and more vascular; no interstitial haemorrhages are visible; muscular walls of small arterioles are thickened, and the nuclei are rather sparse; the intima is not affected.

In this specimen the muscle cells are greatly swollen, granular, fragmented, and the cell protoplasm stains homogeneously a deep pink with eosin. In parts the protoplasm remains, with here and there a deeply-staining nucleus on a ground-glass matrix. Owing to this swelling of the muscularis it seems unusually abundant; and not only is the muscle involved in this change, but the fibrillae of the connective tissue are similarly involved. Nearer the peritoneal surface the muscle is markedly degenerated, and here the fibrous tissue is vastly increased. There is marked fibrosis of the

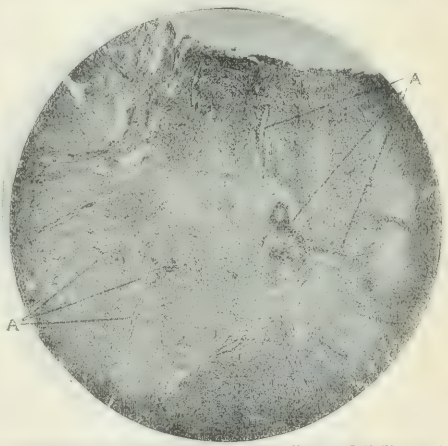


Fig. 2.—Inflammatory type: A, Swollen endothelium of lymphatics.

whole thickness of the uterine walls, and more especially is this the case the nearer one approaches the peritoneal surface. The fibres for the most part are swollen, stain homogeneously with eosin, and the nuclei are few and scattered. In marked contrast with this is the connective tissue in the immediate neighbourhood of the lymphatics. Here it is rich in nuclei, and the intima of the lymphatics is swollen and their nuclei stain deeply, a condition strongly suggestive of tissue growth and inflammatory reaction (Fig. 2). The adventitia of the vessels is markedly involved in the fibrotic change, but one cannot say that it is a true fibrosis. The protoplasm here again stains homogeneously with eosin, and it is fragmented, and strikes one as being more of the nature of a deposit from passive congestion than a true fibrosis, and this is borne out by the dilated condition of the lymphatics and the swelling of their lining mucosa, and by the hyperplasia of connective tissue going on about the lymph spaces. The media is but slightly involved in the same change, and the intima not at all.

Case v.

Mrs. C., aged 44, married 22 years; four full term children and two miscarriages. Her miscarriages are distributed among the four full term pregnancies. The last child was born three years ago. The labours were difficult, sometimes instrumental; puerperium normal. She complains of menorrhagia and metrorrhagia and states that for the last three years her menses have been growing more prolonged and profuse, and that during the last year the interval is growing gradually shorter.

Physical Examination.—This reveals nothing noteworthy, except a general enteroptosis. She is pale and thin. Vaginal orifice parous; no involvement of vulvo-vaginal glands. Cervix is deeply lacerated, especially on the left side, catarrhal and everted. The uterus is large, firm, of uneven consistence, and drawn to left, owing to extension of tear into the broad ligament. There is marked thickening of the left broad ligament; the uterus is anteverted and anteflexed. The appendages are small, with no appreciable deposit about them.

Operation.—Vaginal hysterectomy, March, 1906. Dr. Gardner experienced great difficulty with the left thickened broad ligament. Convalescence was interrupted slightly by thrombosis of the left femoral.

Pathological Examination.—Uterus complete, measures 4½ in. by 3½ in. by 2⅜ in., firm, globular, symmetrical. The peritoneum is normal, and the vessels of the broad ligament sclerotic and very tortuous. On section the uterine wall measures 1½ in. in thickness, fibroid, tough, and under water shows very clearly a complete meshwork of interlacing fibrous bands. Vessels are gaping and prominent on cut surface. Mucosa haemorrhagic and hypertrophic.

Microscopical Examination.—Hardened and stained in the usual way. The mucosa is thicker than normal; its vessels are numerous and are gathered in groups. The media of these is hypertrophied, and the tissue round about them is fibroid and shows a hyaline degeneration. The glands are rather more numerous than normal, and are tortuous and dilated, but for the most part lined by a single layer of columnar cells. Few retention cysts are found. The uterine parenchyma shows a widespread fibrosis, most marked in the middle and outer third of the uterine wall. The fibres show the same swelling and ground-glass appearance as previously described, especially where the vessels are most involved. There is considerable degeneration of the muscle in areas where the fibrosis is most pronounced. There are no areas of round celled infiltration, but what strikes one most in this specimen is the tremendous dilatation of the lymphatics in the outer third of the uterine wall. They are enormously distended and the lining seems markedly flattened owing to pressure.

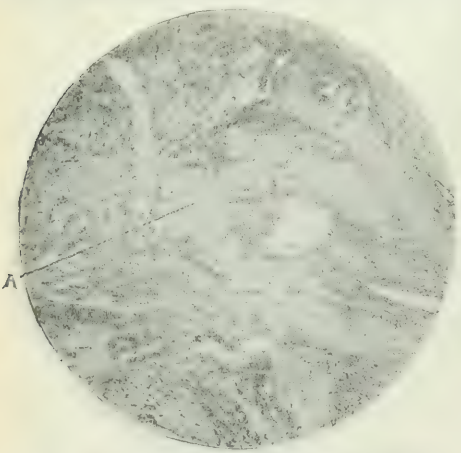


Fig. 3.—Inflammatory type: A, Hyaline deposit in media and adventitia.

The vessels are variously affected. In some sections they appear perfectly normal, except for thickening of the adventitia, and many do not show even this change. In other vessels of the same preparation, or of other preparations, there is a most marked involvement of adventitia and media (Fig. 3), and in still others all three coats are affected, but the intima is never markedly involved. Many show stellate and triangular lumina. The veins are markedly affected, with much apparent loss in size of calibre.

Case vi.

Mrs. B., aged 51, married thirty-one years; 5-para and no miscarriage. Last pregnancy occurred twenty-two years ago. Has been regular every twenty-eight days until six weeks ago, but menses have been growing gradually more profuse for some years. For the last six weeks there was constant uterine flow. Before the onset of this menorrhagia, she had an attack of "La Grippe," which weakened her considerably, after which metrorrhagia set in. She was treated for uterine complaint after birth of her first child.

Physical Examination.—Other systems than the genital reveal no noteworthy departure from the normal. The abdomen is much relaxed, but otherwise negative; the vaginal outlet relaxed with slight rectocele. Cervix is bulky but well preserved and blood is flowing freely. The uterus is enlarged, retroverted, firm, mobile, and the appendages are free.

Operation.—By Dr. Gardner, March, 1906. The cavity of uterus measure 3⅝ in. in depth. Curettage gave a moderate result, vaginal hysterectomy. Recovery complete.

Pathological Examination.—The uterus is enlarged, but its measurements cannot be obtained owing to partial morcellation. The walls are thick, indurated, and the cut vessels stand out very prominently. The curetted mucosa is haemorrhagic.

Microscopical Examination.—Hardening and staining in the usual way. The pieces of mucosa show no departure from the normal except large amounts of extravasated blood of traumatic origin and some hypertrophy and tortuosity of the glandular portions. Sections through the uterine wall at the fundus show a partially removed mucosa, the denuded surface is covered with recent blood clot and the remaining tissues of the uterine mucosa are somewhat altered by the douche of hot water given after curettage. But so far as can be judged, the remaining mucosa presents no structural change of any account other than traumatic.

The uterine parenchyma shows a widespread and pronounced increase in the fibrous tissue throughout the whole thickness of the specimen and the connective tissue is more adult and alveolar in parts, but almost everywhere the change is of that peculiar hyaline character which we look upon as not a true fibrosis but as a result of passive congestion. The fibrosis is most marked in the middle and outer third and at no spot is there any indication of round celled infiltration nor are the lymphatics so widely dilated.



Fig. 4 (Case vi).—A, Involvement of the media of a large vessel.

There is marked degeneration of the muscle fibres, especially in the subperitoneal region, and not in a few cases there is complete atrophy. The adventitia of the larger vessels is markedly increased, and large and small ramifications are seen to invade the interfascicular fibrous bands. The media also presents widespread sclerotic changes. The whole media, poor in nuclear elements, is of a ground-glass appearance and is occasionally fragmented. In some—we should say in most—of the vessels there is slight increase of the intima.

Case vii.

Mrs. A., aged 47; married twenty-six years. She had had five full-term children, the last six years ago. Labours were normal; she was badly lacerated with the last child. The menses began at 14; always regular until five years ago. Since then the flow has been growing more profuse and more prolonged; for the last three years it has been very irregular, coming on with the slightest exertion.

Physical examination reveals a large prominent abdomen, very much relaxed. The perineum is completely torn through. The vaginal walls are relaxed and the cervix large, firm, badly lacerated, and everted. Blood is pouring freely from the os. The uterus is large, symmetrical, firm, freely movable, prolapsed, and retroverted; appendages free.

Operation.—November, 1905, operation by Dr. Chipman; uterine cavity was explored; no signs of endometritis nor of polypus. Vaginal hysterectomy and repair of perineum followed. Recovery was slow but complete. In a footnote Dr. Chipman writes: "There is a well-marked degree of arteriosclerosis and an early interstitial nephritis."

Pathological Examination.—The uterus, removed *en bloc*, measures 4½ in. by 3¼ in. by 3 in., enlarged, firm, symmetrical. The uterine arteries sclerosed; peritoneum free from adhesions. On section the walls are thick, indurated, and the vessels are very prominent, gaping, and apparently thickened. Fresh specimens present a mottled yellow-and-white appearance, the former being muscle and the latter presumably being connective tissue strands. The wall at its thickest part measures 1⅝ in. The mucosa is healthy but haemorrhagic.

The mucosa presents the following characters: The connective tissue is very rich in nuclei, especially low down; the vessels are in groups, and each group is surrounded by a whorl of connective tissue and muscle poor in nuclei and the protoplasm stains homogeneously and deeply pink. These vessels also show tremendous thickening of the media of the same character as that in the surrounding tissue. The intima in parts is much thickened by a glairy substance containing few nuclei. The glands are normal except that occasionally they have more than one layer of epithelium.

The line of demarcation between mucosa and muscle is not clearly drawn, and islands of glands and connective tissue invade the muscularis for some distance. There is much swelling and fragmentation of the muscular fibres, and in parts where the fibrous tissue predominates there is advanced degeneration. Throughout the parenchyma there are large and small bands of connective tissue, compact, without fibrillation, and very poor in nuclei. This is most marked about the blood vessels; the adventitia surrounds the media as a thick, homogeneous mass stained deeply with eosin. As in the interfascicular tissue so here the nuclei are few.

The media is enormously thickened, all cell outline is lost and the nuclei scattered. The media is at times quite free,

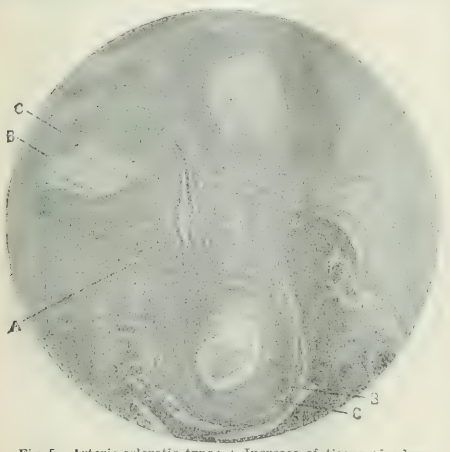


Fig. 5.—Arterio-sclerotic type: A, Increase of tissue of adventitia; B, intima; C, media.

or nearly so, in which case the fibrosis spends itself upon the intima. In the smaller arterioles the media and intima are usually profoundly affected. This degeneration of the intima in the case of many of the vessels has gone on at the expense of the media, and yet in others this does not seem to be the case, and there results much narrowing of the lumen. The veins also suffer, if not more at least equally with the arteries. About the lymph spaces the connective tissue is more cellular.

Case viii.

Mrs. T., aged 43 years, married 22 years, had five full term children. Labours were normal, but difficult; the last one occurred eight years ago. Menstruation began at 13 years; duration four to five days and quite regular. In 1900 Dr. Clarence Webster curetted, repaired the cervix, ventro-suspended the uterus, and did a nephrorrhaphy. She was well until two years later, when the flow became prolonged, lasting from ten to fourteen days. This continued for six months, and with returning strength the flow once again became less copious for a year. She again had an attack of "fever," after which menses became more profuse, and finally almost continuous flowing resulted. She was brought to the Royal Victoria Hospital in July, 1904. She was pale from loss of blood, and was kept in bed in an endeavour to increase her strength. During this month and a half the vagina had to be tamponaded at four different times to arrest haemorrhage.

Physical examination shows a tall, weak, anaemic woman; heart enlarged, but regular; advanced arterio-sclerosis of radials and other arteries; kidneys healthy, except for merest trace of albumen. Her other systems are healthy. She suffers from loss of memory, and is of very poor intellect. She underwent hard work as a girl. The vagina is very capacious, cervix bulky, os transverse; uterus enlarged, firm, mobile, fixed to anterior wall; appendages free.

Treatment.—For five weeks palliative treatment was carried out; vaginal tamponade, intrauterine injections of iodized phenol, and administration of ergot, viscum album, stypticin, etc., without any effect.

Operation.—In September, 1904, vaginal hysterectomy by Dr. Chipman. Recovery complete. A telephone message received to-day (July, 1906) stated that patient's health is better than it has been for ten years. In a footnote after his operation record Dr. Chipman wrote: "This is one of those cases of arterio-sclerosis affecting the vessels of the uterine walls."

Pathological Examination.—The uterus, completely removed, measures 4 in. by 3⅜ in. by 2⅜ in. It is firm, globular, and very anaemic. The peritoneal surface is free, except for suspension ligament; the uterine artery gapes, is indurated, tortuous, and prominent. On section the wall measures 1¼ in. in thickness, and is cut with difficulty, owing to the fibrosis. The section was made after hardening, and was cut right through the anterior and posterior walls from the fundus to the cervix. The cut surface shows that the fibrosis is most marked in the region of the larger vessels—namely, in the middle third and in the outer third of the uterine wall. The vessels stand out prominently, and the consistence of the specimen is quite different from that of those previously described. One is struck with its almost cartilaginous firmness.

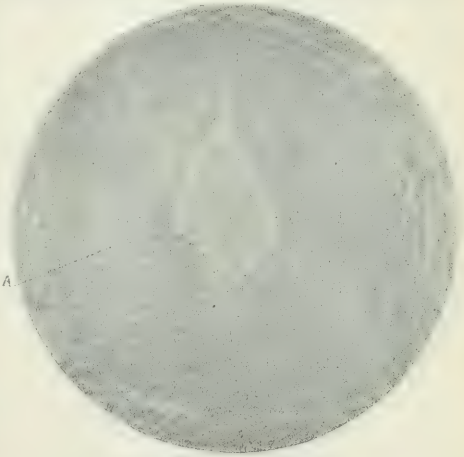


Fig. 6.—A, Involvement of intima in arterio-sclerosis.

The mucosa is but slightly hypertrophic. The cervix is cystic and enlarged.

Microscopical Examination.—Hardened and stained in the usual way. Sections of mucosa show this part to be thicker than normal, but the cells seem of normal size, and the intracellular substance not increased, except near its surface. It is more adult, and the lymphatics are dilated. The vessels present thickened hyaline media. The surface epithelium is generally one-layered, but the glands are tortuous, and many have two and three layers of cubical cells. Slight dilatation of acini. The parenchyma is by far the most fibrotic yet described, and the fibrosis is vastly different from that of the previous cases. Here the connective tissue is true fibrillated tissue, poor in nuclei, but everywhere alveolar in type (Fig. 8). The muscle strands are widely separated, and for large areas are completely absent. The fibrosis progressively increases as one approaches the peritoneal surface, where muscle in all stages of degeneration and atrophy can be found. The lymphatics present no change, and nowhere can round-celled infiltration be demonstrated.

The blood vessels are very profoundly affected. The adventitia in all the larger vessels is increased owing to the formation of the adult connective tissue similar to that found between the muscle fasciculi, into which it passes in large or small strands (Fig. 5). The media shows marked swelling and hyaline degeneration, especially in those vessels in which the intima is not affected. The intima in most of the vessels is very thick (Fig. 6 and Fig. 7), hyaline, at times regularly distributed about the whole lumen of the vessel, at other times affecting both sides causing them to bulge into the lumen, at others involving only one wall, giving rise to a crescentic opening. The increase in the intima is hyaline in character,

in which the nuclei are few, irregular, stain deeply with haematoxylin, and usually shrunken, leaving a vacuole between their periphery and the surrounding hyaline substance.

In many vessels there are stellate lumina, but in none can complete occlusion be demonstrated. In not a few large vessels the change, although involving the intima, is chiefly at the expense of the media, so that the lumen is quite circular and evidently not reduced. Moreover, there still remains a large percentage of the medium-sized vessels, where no change whatever is found except in the adventitia. The fibrosis seems to affect the veins very much.

Case ix.

Mrs. T., aged 58, married twenty-nine years; seven full term pregnancies, no miscarriages; labours difficult but normal. Menses began at 14 years, regular every twenty-eight days; duration four to five days, not excessive. She was regular until three years ago, when menstruation became gradually more profuse, and for the last six months she has had almost continuous flow. There has been no loss of weight; patient all her life has worked hard.

Physical Examination reveals cardiac hypertrophy with marked arterio-sclerosis. Uterus enlarged, slightly firm, symmetrical, freely movable. Appendages free.

Operation.—In July, 1904, Dr. Gardner did a vaginal hysterectomy, with complete recovery of the patient.

Pathological Examination.—Uterus is not as large as any



Fig. 7.—A, Thickened intima; B, thickened media.

previously described; it measures 3½ in. by 2½ in. by 2 in., roughly. It is firm and symmetrical, the cervix is large and cystic. The peritoneal surface is free from adhesions. The uterine artery as it enters the uterus is tortuous and much sclerosed. On section wall measures ¾ in. in thickness, is fibroid, tough, with vessels very prominent, and the interlacing connective tissue strands are very readily made out; the mucosa is slightly thickened.

Microscopical Examination.—Specimens hardened and stained as described above. The mucosa is somewhat thicker than normal; the connective tissue is adult in type, and in parts shows considerable hyaline degeneration. Nearer the surface the cells are shrunken, leaving wide interspaces. The surface epithelium is normal and the glands slightly hypertrophic, are tortuous and slightly dilated, but for the most part lined by a single layer. The small arterioles of the mucosa show sclerosis of their middle wall with whorls of fibrous tissue outside.

The parenchyma shows the most marked departure from the normal. Throughout the whole specimen the connective tissue is vastly in excess of the muscular and everywhere it is of the fibrillated type with few nuclei. The fibrosis grows increasingly as one approaches the peritoneum. At a short distance from the peritoneal surface, as well as in the middle zone, that is, the zone of larger vessels, strands of great width without a single muscle cell seem to hold full sway. The muscle cells are small and in all stages of atrophy, especially is this the case the farther one recedes from the mucosa, that is, where the fibrosis is most marked. No small-celled infiltration is to be found. The lymphatics are markedly dilated.

The blood vessels are very much changed. In all the vessels the adventitia is markedly affected by the same fibrotic change. The media everywhere presents that hyaline degeneration with swelling and sparsity of nuclei, but most noteworthy of all are the changes in the intima. The vessel lumina are reduced to all shapes and dimensions and not a few are seemingly occluded, but when examined in serial section one sees that much of this is due to the sections cutting vessels at all angles and missing the lumen altogether. The veins frequently have stellate openings and their walls are very much involved in the selerotic changes, which are present not only in the vessel wall but also to a very great extent in the connective tissue in the immediate neighbourhood. But singularly enough there are many and large vessels which still retain their normal form and structure and exhibit not the slightest departure from the normal, except fibrosis of the adventitia. These vessels are indeed quite numerous.

Deductions.

Such are the histories and the pathological findings of the 9 cases which we have desired to submit. So far we have had to record only what we have read and what we have seen. Now let us tabulate and draw our conclusions:

First of all it will be well to note that in approaching this question there are so many factors which enter to modify matters that to be dogmatic is to court trouble, and this in part explains why so many authors have found such variable pathology and have drawn such contradictory conclusions. We have to deal with an organ which grows slowly from infancy to puberty, an



Fig. 8.—Pale fibrous tissue between dark muscle bundles.

organ which in this slow developmental state is functionless. During all this time there is alteration in proportion of resilient and non-resilient tissues. Then the disturbing element of periodic menstrual congestion and depletion enters, together with the regular rhythmic contractions continued throughout sexual life, increased during menstruation and reaching their acme with labour.

Then, again, let us not overlook pregnancy and abortion, with their sequelae—traumatic, degenerative, and retrogressive. All of these are important functions and accidents which must enter into the consideration of this question of metrorrhagia. The changes of blood pressure, the concomitant degeneration of heart muscle with its baneful consequences, the high arterial tension of nephritis—all leave their impress upon this organ.

Moreover, after each pregnancy involution takes place—not only of the muscle fibres, but also, though to a much less extent, of the fibrous tissue. The direct consequence of this is that with each pregnancy there remains after complete involution relatively more of fibrous tissue and less of muscle, but absolutely more of both than before the pregnancy. As a consequence, the uterus is larger, weighs more, and finally ends in being considerably and permanently larger than during virginity. Upon this physiological involution, more at a later period. It suffices to say that there is probably no physiological process the balance of which is so readily disturbed, and the inevitable result is the transition to a pathological

condition. If involution be temporarily delayed, no harmful result may obtain, but if prolonged, structural changes must inevitably follow. Two more considerations must ever be weighed, and those are, the remote effects of displacement with or without infection, and the results of inflammatory mischief in the immediate neighbourhood of the uterus, or of prolonged inflammatory or wasting disease in other organs.

Weighing all these, removing all that might act as secondary causes, we will endeavour to reduce the pathology to the one prominent etiological factor.

Age.—The ages of the patients vary from 35 to 58 years. The average is 45 years. It is noteworthy that those cases where the intima was involved equally with the other coats were 50, 43, and 58 years respectively.

Position of the Uterus and Associated Lesions.—In Case I, there were retroversion, retroflexion with slight prolapse, the cervix catarrhal and everted. Other systems free.

In Case II the uterus was in normal position, the cervix everted and catarrhal. Other systems free. (Uterus suspended owing to retroflexion.)

Case III.—Uterus retroverted and retroflexed (suspended owing to retroflexion); cervix lacerated and everted. Operation for retroversion two years previously. Other systems normal.

Case IV.—Uterus retroverted, cervix patulous, not lacerated. Wore a pessary for many months, but owing to irritation had to remove same. Curetted one year ago. Slight myocarditis with arrhythmia.

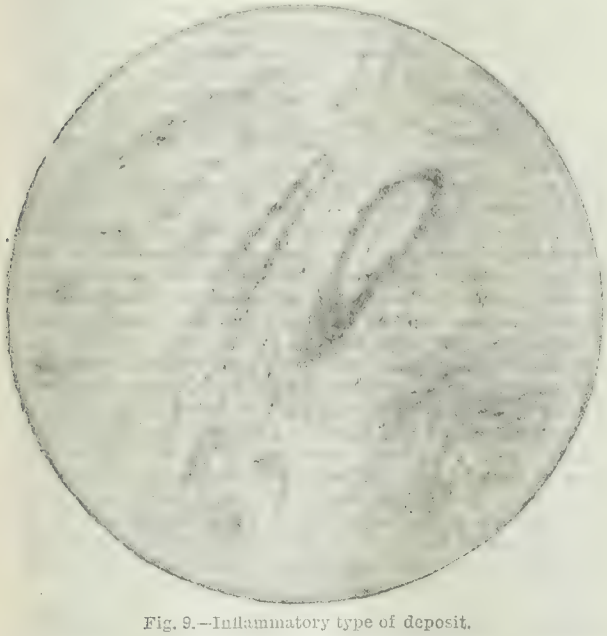


Fig. 9.—Inflammatory type of deposit.

Case V.—Uterus drawn to left. Thickening of left broad ligament owing to deep tear extending into vaginal vault. Cervix deeply lacerated and everted. Convalescence slow owing to thrombosis of left femoral vein.

Case VI.—Uterus retroverted; cervix well preserved but bulky; other systems normal.

Case VII.—Uterus retroverted and prolapsed; cervix deeply lacerated bilaterally. Perineum was completely torn and there was an early interstitial nephritis.

Case VIII.—Uterus normal position; cervix well preserved. Cardiac hypertrophy, arterio-sclerosis, slight albuminuria. Signs indicative of involvement of cerebral vessels (?). Uterus was retroverted, but was suspended by Dr. Webster.

Case IX.—Uterus in normal position. No account of condition of cervix. Cardiac hypertrophy and general arterio-sclerosis.

We find that in 7 of the 9 cases there was a retrodisplacement of the uterus, and in two of these there is mention of prolapse being associated with the retrodeviation.

Operations.—Of the 9 cases No. 5 was curetted and Emmet's repair of cervix and internal shortening were done one year before hysterectomy. These were done in the hope of arresting the haemorrhage. Case IV was curetted 1½ years before hysterectomy. Case VIII curetted, repair of cervix and ventrosuspension four years before hysterectomy. Case II curetted and uterus suspended fifteen months before hysterectomy.

In most of these cases but temporary relief followed the curettage, and in some the haemorrhage was increased by the operation.

Parity.—All of the patients were parous.

Case I.—Two full term, youngest 3 years, no miscarriages. Patient did not nurse her children.

Case II.—One full term, seventeen years before operation.

Case III.—No full term pregnancy; several miscarriages, the last six years ago.

Case IV.—One at seven months, twenty-three years ago.

Case V.—Four full term and two miscarriages. Youngest child and last pregnancy eight years ago.

Case VI.—Five-para, no miscarriages. Youngest 22 years of age.

Case VII.—Five-para, no miscarriages, youngest 3 years of age.

Case VIII.—Five-para, no miscarriages, youngest 3 years of age.

Case IX.—Seven-para, no miscarriages.

The shortest time between the last parturition and the operation is three years. The longest twenty-three years.

In Case I menses were regular until one year before birth of last child. The flow became more profuse, and after her last pregnancy the interval was shorter, and during the last year almost constant flow.

In Case II the onset of symptoms occurred thirteen years after last pregnancy.

In Case III patient dates her trouble from her first miscarriage, and the metrorrhagia from the last miscarriage.

In Case IV the symptoms began with pain and bearing down after birth of child twenty-three years ago. Menorrhagia began only one year ago. There were adhesions about right ovary.

In Case V patient dates onset of her illness from last labour,



Fig. 10.—Arterio-sclerotic type of fibrosis.

three years ago. In this case left broad ligament is cicatrized owing to a very deep tear.

In Case VI patient's symptoms date twenty-one years after last pregnancy, but onset is soon after an attack of "La Grippe."

Case VII dates onset of menorrhagia one year after her last accouchement.

In Case VIII flow began two years after labour; operation gave relief for two years. Attack of "fever" was occasion for onset of menorrhagia after the operation.

In Case IX time of last pregnancy not given.

Menses.—In all of the cases menstruation prior to the onset of the menorrhagia seemed quite normal.

Not one complained of dysmenorrhoea and leucorrhoea was present only in one case. One case began to menstruate at 9, and it is noteworthy that among these cases there is not one which gives the history of late onset of menstruation, irregular flow at first, with periods of amenorrhoea, and with complaints of uterine dysmenorrhoea, all symptoms of small, undeveloped uterus.

In none of the cases are there any symptoms pointing to infection during puerperium or abortion, except in Case VI, where symptoms and the adhesions suggest infection with her labour, and in Case VII, where the broad ligament showed signs of chronic infection.

Pathology.

Now let us refer briefly to the pathological findings and tabulate them.

The first point which we wish to emphasize is the striking structural differences which exist between the

first six cases and the last two. In the first six cases we emphasized the fact that in not one of these was the change a true fibrosis. It is of the nature of a deposit and a swelling of the fibres, involving not only the fibrous tissue but also the muscle, but the former to a much greater extent (Figs. 1 and 9). More especially is this the case about the blood vessels, which are simply embedded in a mass of this granular, sometimes hyaline, eosin-stained substance, which at once strikes one as being more of the nature of a deposit than a true fibrosis. In marked contrast with this are the findings in Cases VIII and IX. Here there is a true fibrosis of the whole organ. (Figs. 8 and 10). The fibrosis consists of finely-fibrillated adult connective tissue in the dense parts, and of loose alveolar tissue in the more open parts.

Further, in Cases I to VI there is gradually more involvement of the vessel walls as one ascends the scale. In all of them the adventitia and media are more or less involved, but it is quite rare to find any change whatsoever in the intima, and narrowing of the vessels (a difficult point to determine) can nowhere be convincingly determined. Moreover, the change in the adventitia is the same as that which affects the fibrous tissue throughout the uterine wall, whereas the change of the media seems more of the nature of a hyaline degeneration with fragmentation of the swollen cell.

When, on the other hand, we examine Cases VIII and IX, we find here adult fibrosis of the adventitia, hyaline change in the media and widespread involvement of the intima with seeming encroachment upon the calibre of the vessel. But this is not uniform: by that we mean that not all the vessels are so involved; some present changes only in the adventitia.

Now, it is interesting to find that these are the two cases in which arterio-sclerosis of the systemic circulation was easy to demonstrate. Moreover, one had a chronic interstitial nephritis and both showed cardiac hypertrophy, three signs indicative of senile change and usually classified under arterio-sclerosis.

After a careful examination of our specimens we are fully convinced that in the first 7 cases the enlargement of the uterus cannot be laid wholly to the increase in the amount of fibrous tissue. In most of these specimens the wall measures more than 1¼ in. in thickness at the fundus. In other words, there is muscular hypertrophy going on concomitantly with the hyperplasia of the fibrous tissue, and in the subperitoneal region and in the middle third of the uterine wall, where the connective tissue is in the ascendant; here it is that we always find muscle degeneration when this is present.

What we mean to emphasize is the fact that any prolonged congestion of chronic irritation (using this term in its broadest sense) of the uterus, such as pregnancy, ectopic gestation, adnexal disease, fibromyoma, chronic endometritis, and loss of compensation in the circulatory system, etc., will give rise to increase, either hypertrophy or hyperplasia, of the muscle as well as of the connective tissue. If this condition be sufficiently prolonged the connective tissue preponderates, and eventually ends by causing atrophy of the muscle fibres. And in this statement we do not depart from the laws which govern other organs under similar conditions. Moreover, there is no muscular organ in the body where the muscle fibres are subjected to such periodic development and degeneration, such as is incident to pregnancy. This condition stamps uterine muscle with properties of instability quite unique.

Who has not seen the enlarged uterus of ectopic gestation? Some will say it is congestion only, but when we consider its close similarity to true intrauterine pregnancy, might we not better argue that it is muscular, as in intrauterine gestation, and does it not undergo involution after removal of the gestation as in normal conditions? Again, need we refer to the increase in the uterus in fibromyomata of the uterine body? Who has not seen interstitial, submucous and subperitoneal fibroids complicating a uterus, increased to five or six times its normal size by both muscular and fibrous hyperplasia? But to this we will return at a more opportune moment. We need but mention the increase in the size of the uterus, with softening so familiar in chronic endometritis following labour. This increase is not congestive, but is, in our opinion, a true hyperplasia of muscle and fibrous tissue which, if prolonged sufficiently, will inevitably lead to a gradual upsetting of the balance of these two tissues. Eventually the increase of the less specialized tissue chokes out the more specialized.

A further point must not be overlooked—namely, that of subinvolution. This, in our opinion, is the most frequent cause of chronic metritis, and in our first seven cases subinvolution due to infection or retrodisplacement was, we believe, the primary cause of the metritis. Here the slow retrogressive changes after parturition are upset by some intercurrent condition, such as a low grade of infection, or a displacement. It is a common condition after labour to find the lochia persisting for a longer period than normal, and upon examination to find an incomplete removal of placenta, or a retrodisplacement, or some slight condition the removal of which causes involution to proceed normally, but which if allowed to remain must lead to grave structural change in the uterine parenchyma.

Our contentions, then, are that in the first 6 cases there is hyperplasia of both the muscular and fibrous tissues; that any irritation acting upon these tissues, causing congestion, will give rise to increase in both these in the first stage, and that if sufficiently prolonged will eventuate in a replacement fibrosis. Now, to further strengthen our arguments, let us state that in every case of uterine fibroid there is hyperplasia of these two uterine components, causing enlargement of the organ, and it was not until a large number of sections of myomatous and fibromatous uteri were examined carefully that the striking similarity between these and the first 6 cases of chronic metritis was borne in upon us. So similar are the sections from these two types of cases that we found it impossible to distinguish them. At the time we were teaching that the haemorrhage of fibroids of the uterus was due to the associated chronic endometritis, but we were forced to the conclusion that in these cases of chronic metritis, and in those of fibroids, the same causes operated in bringing on uterine haemorrhage. We came to this conclusion from an examination of our own specimens only, and we were much pleased to find later, when reading up the subject of chronic metritis, that Theilhaber had come to the very same conclusions, though he drew his arguments from clinical experience and we drew ours from a study of the pathology.

To further strengthen our position, let us state that we have examined the uterus in a number of cases of chronic disease of the uterine adnexa and in cases of prolapse of the uterus, and we find that the passive congestion of the organ leads to structural changes very closely resembling those of chronic metritis; but in the former the process is more rapid, and the resultant toxaemia leads to a more rapid fibrosis and less muscular hypertrophy, and as a consequence of the rapid formation of new tissues small-cell infiltration is not uncommonly found, and the uterus is seldom as large as in simple chronic metritis.

We have spoken more especially of the first 6 cases. Let us now turn our attention to Cases VII, VIII, and IX.

We have said that in Cases VIII and IX the fibrosis was a true connective tissue change, and that the arterial change involved all three coats of many of their larger vessels. We would add that the fibrosis is so very marked that we can say without hesitation that here at least the increase in the volume of the uterus can be readily laid to the amount of fibrous tissue that has been formed. Moreover, what strikes one in the examination of all the specimens of the cases so far reported in this paper is the marked difference in the involvement of vessels in the same uterus. Coursing side by side will be found vessels presenting a most advanced stage of arterial change and vessels with but very slight involvement of perhaps only the adventitia or only the media. This selective influence seems most marked in Cases VII, VIII, and IX. Singularly enough, these are the three cases which presented advanced or moderate arterio-sclerosis in other parts of the body. No. VII has this peculiarity that its fibrotic change partakes of the nature of a deposit, whereas its vessels resemble those of Cases VIII and IX in that the intima is also involved with the other coats. This uterus was also retroverted.

So our 9 cases divide themselves, according to their pathology, into two groups. In Group 1 there are 6 cases of marked fibrosis of the uterus with the vessels variously involved, but the intima practically never altered. The fibrotic change is of the nature of a deposit of foreign substance, poor in nuclei, with at times large areas without nuclei at all. The muscle is always increased.

In Group 2 we find 2 cases of marked fibrosis of an adult type, in which the vessels are involved in a true arterio-sclerosis.

There remains but 1 case—namely, No. VII—in which the

vessels are involved—that is, the intima; but the rest of the uterine wall takes on the character of the first group. There were here both retroversion and arterio-sclerosis.

Etiology.

The question of etiology is a difficult and complex one. So many factors may enter and play a part that in a given case it may prove very difficult and at times quite impossible to assign the proper cause. But we would divide the causes of simple metritis into four large classes:

1. Subinvolution.
2. Inflammatory and congestive.
3. New growths.
4. Arterio-sclerosis.

Under the first heading will be classed all of those cases in which the proper involution is arrested by any of the causes which so frequently operate in evoking this trouble. This may or may not result from infection. Into the second class will fall cases in which chronic inflammatory trouble in the endometrium and all diathetic causes which cause prolonged congestion, together with prolapse, retroversion, and displacement, are causative factors. The third group requires no further explanation. In the fourth group will fall those cases in which the uterine trouble is truly a result of general arterio-sclerosis, with or without one of the causes in Groups 1 or 2 associated.

We need hardly mention that one or more of these causes may operate at the same time. Moreover, let us emphasize at present the fact, which will be brought out later, that, omitting metritis caused by the congestion resulting from new growths, it is impossible clinically to distinguish between the various chronic metritides except in so far as the history may assist, and it is only by discovering the new growth that this type of metritis can be differentiated from the others. But we have demonstrated that distinct pathological differences exist between cases arising from arterio-sclerosis and those arising from any one of the other causes. When we review our cases in the light of what has gone before we find the following:

In 7 of our 9 cases there was retrodisplacement at the time of the hysterectomy. In 2 other cases ventrosuspension had been done for the correction of this condition. In 2 of these cases arterio-sclerosis was associated with the retroversion. In 1 case there had been infection at the last labour complicating the displacement. In another, infective cellulitis of the broad ligament resulting from a tear was a prominent sign.

Now, we contend that subinvolution was the chief factor in the production of these cases of chronic metritis. It is the experience of every gynaecologist and obstetrician to find the lochia persisting longer in cases of retrodisplacement—a condition which is but a sign of insufficient retraction and weak contraction of the uterus. If this persist, and is not corrected, then the structural changes which characterize chronic metritis must surely follow. In one case there was an old cellulitis of the broad ligament which would naturally arrest involution, and not unlikely involved the vessels of the broad ligament on that side, inasmuch as this patient was one of the few cases in which phlebitis followed the operation. The phlebitis was on the side in which the cellulitis had previously existed.

In one of the cases there were positive signs of infection, as evidenced by the adhesions about the ovary. And lastly, the ninth case reported offers only arterio-sclerosis as a causative factor in the production of this disease.

We may cite a case which is illustrative of another possible etiology, giving rise to passive congestion and subinvolution.

Mrs. C., aged 38, complains of metrorrhagia. She states that with the last labour, fifteen years ago, she developed double "milk leg." Upon examination, both legs are slightly oedematous, the right more than the left. The right superficial hypogastric vein courses up the abdomen to the umbilicus, and is as large as an adult male's little finger, a sign that the thrombosis had involved also the left common iliac. The uterus was in normal position, enlarged to twice the normal size, and hard; the cervix torn and indurated.

This we look upon as a case resulting from obstruction to the venous flow from the uterus, and much akin to this condition is that in which marked varicosities exist in the plexus of the broad ligaments.

The question as to whether chronic metritis is due to infection is one which deserves some attention. Bland-Sutton, in the British Medical Journal, 1904, stated his belief that "the change in the tissues of the uterus was a remote result of septic endometritis." Pozzi also writes:

It is unusual not to have with it (that is, chronic metritis) evidences of perimetritis, adhesions in Douglas's pouch, with displacement of the organ and traces of salpingitis and inflammation about the ovaries and tubes. The uterine mucosa is always involved to a greater or less extent.

Again, Bland-Sutton, in 1899, wrote after reviewing 3 cases:

Judging from the history of these cases, I take the view that these fibrotic changes are secondary to infective chronic metritis, and are analogous to that curious fibroid change (syphilitic) which occurs in the muscle tissues of the heart, and which entails consequences so serious as sudden death.

Müllerheim suggests a connexion between infective tuberculous peritonitis and chronic metritis; but, as Barbour justly remarks:

We would expect to find the association more frequently, and there would be no reason for it occurring in advanced life.

Reinicke, on the other hand, says:

The advanced changes in the vessel walls which were found in all my 4 cases suggest very strongly that this is the primary cause of the disease. The general fibrosis I look upon as secondary to the arterial change, and secondary also are the anomalies in the fine arrangement of the endometrium. To consider the intermuscular and perivascular fibrosis a remote result of early inflammation is borne out neither by the clinical picture nor by the microscopic findings.

Theilhaber, again, supports this view, and says that not only does he not consider the frequently-associated chronic endometritis as the cause of the changes in the parenchyma, but he holds that the chronic metritis is a clinical and pathological entity to which the endometrial changes are secondary.

It seems to us, after considering our cases carefully, that there is an element of truth in the conflicting views held by these authors. We believe that subinvolution is the most frequent cause of chronic metritis. That infection plays a part in every case of subinvolution we are not willing to admit, but that it does in a goodly number, in fact we may say in most cases, most authorities will, we think, agree.

That passive congestion of the parenchyma of the uterus, leading to fibrosis of the organ, where no infection has taken place, can produce changes in the endometrium, we hold as not only possible but probable.

That chronic metritis is often associated with and results from chronic infective endometritis and adnexal disease, we claim as indisputable. Our last case points fairly clearly to an etiology of arterial origin—a chronic metritis secondary to arterio-sclerosis. Moreover, we claim that the changes in the uterus in fibroid disease and in chronic metritis are identical, and but few will admit that infection plays a part in the development of fibroids.

So, to state that all cases of chronic metritis are the result of infective agencies is to make too broad a statement, and the opposite views are equally too sweeping.

As to the causes of the haemorrhages the opinions are equally divergent. The earlier writers attributed the menorrhagia and metrorrhagia to the associated chronic endometritis. Reinicke again was the first to advance the theory that, owing to the development of the large amount of fibrous tissue between the bundles of muscles, there is produced a rigidity of the tissues which results in incomplete contraction of the uterus and haemorrhage must follow. In one of his cases the rigidity of the vessel walls left no other explanation than that the haemorrhage was due to loss of vasomotor action.

Theilhaber and Meier further studied the question and came to almost the same conclusions, though expressed somewhat differently. These authors claim that the loss of blood is due to muscular insufficiency, a result of both senile change and of fibrosis, and Theilhaber was the first to claim that haemorrhages in fibromyoma of the uterus also resulted from poor contraction and retraction. They contend that the arterial changes are of no importance in the haemorrhage. Palmer Findley, in an interesting article, heartily supports Theilhaber's views. He writes:

I have come to agree with Theilhaber and Meier that the essential cause lies in the myometrium, that the sclerosed

blood vessels and remote embarrassments to the circulation exercise a secondary and minor influence.

After careful study we cannot but feel that Reinicke and Theilhaber have found only a partial solution of this problem. To attribute the haemorrhage to the rigidity of vessels alone, we claim, is an error, and that muscular insufficiency alone is quite inadequate as an explanation.

We have come to the conclusion that we can divide our cases into two classes, as we described above, namely, first, those cases in which the changes are clearly of the nature of a deposit, a result of active, and later of passive, congestion; and, secondly, those cases of true fibrosis of arterio-sclerotic origin.

Now, in the first class one would expect passive congestion with muscular insufficiency, because the muscle is hampered by deposit, as are also the vessels, and in no case would the vessel lumen be found reduced by changes in the intima; from which it follows that the blood supply to the uterus could not have been diminished. Moreover, two of our cases developed the metrorrhagia after a weakening illness, from which Theilhaber would argue that the musculature of the uterus was in consequence weakened, and further relaxation took place and further passive congestion, hence the metrorrhagia.

But how explain the menorrhagia and metrorrhagia in cases of chronic metritis resulting from true arterio-sclerosis? Here one finds the intima much thickened, and naturally one would expect the blood supply to the uterus to be diminished instead of increased. It is true that the muscle of the uteras is atrophic, but is not this also the case in true senile change without metrorrhagia? From analogous conditions in other situations one would certainly expect anaemia of the tissues and arrest of menstruation. How, then, approach this difficult question? Some authors state that in trying to find a solution the eye has been kept too steadfastly upon the uterus, to the complete neglect of the ovary, in which they place the primary cause. They gather strength from the fact that double oöphorectomy leads in a large percentage of cases to a permanent cure, and that in those cases where cure has not resulted the lack of success was due, they claim, to poor execution, in that all of the ovarian tissue was not removed.

Reinicke emphatically states that arterio-sclerosis alone, or fibrosis of the uterus alone, will not give rise to menorrhagia, that congestion must be added, and that the ovary, by initiating the increased pelvic congestion at menstruation, supplies the second essential. He further writes:

> The vessels of the uterus, with their hypertrophied and thickened walls, present a more or less rigid cylinder whose power to contract is lessened and whose tone has been completely lost. But by this thickening the lumen has not changed in its calibre in the way of a lessening, but, on the contrary, it seems somewhat increased. Now comes on the menstrual hyperaemia, the whole vascular system of the genitalia becomes engorged, and menstruation follows. At the time when menstruation should cease by the vasomotor influence upon the uterine arteries, the response is no longer given by the hardened vessels, whose contractility has been lost. The result is that the blood streams into a wide bed, and the engorgement continues unabated until pelvic congestion has come to an end. Menstruation continues until this takes place, and, if pelvic congestion be greater or prolonged, menorrhagia results.

Simmonds says:

> Where such degeneration of the vessels (hypertrophy and hyaline degeneration of the media, with or without any marked changes in the intima) occurs, I believe it is proper to bring these arterial changes and the menorrhagia together as cause and effect.

But these authors claim that the lumen has not suffered, and that the supply of blood to the uterus, instead of being reduced, has on the contrary been increased. If we consult the pathologists upon the uterine arterial changes, we find that Westphalen, supported by Thoma, claims that the uterine vessels show degenerative changes earlier than any other system of vessels in the body, and that this is due to the changes in blood pressure and to the periodic dilatation to which they are subjected during the congestion incident to menstruation and pregnancy, and to the increase in blood pressure caused by uterine contractions. To support their contentions they give three reasons: (1) The ovarian arteries show identical changes with the uterus in the same case. (2) That the plenic artery shows early degeneration owing to the changes in blood pressure caused by splenic contractions. (3) That intimal change and hypertrophy of the media are not found in young children, but that before menstruation sets in the periodic congestion of ovulation has already made itself felt, and both these changes occur; with the onset of menstruation the process is vastly increased, and the longer menstruation has been established the more pronounced are the changes in the media and intima. Now, with the marked congestion of pregnancy and with the change of blood supply and pressure following labour, the retrogressive changes become quite pronounced.

It follows that the arterial changes are compensatory, and that vessels which have unusually thick walls and thickened intima still retain a lumen as large as, if not larger than, originally, and that, if almost completely closed, compensatory collateral circulation is well established. If such be the case in normal parous uteri, how much more must the cause operate in chronic metritis! It would seem that the relatively overactive or normally active ovaries are bringing increased blood pressure to play upon a uterus that has undergone relatively early senile change. That this condition of compensation should find its maximum of intensity in persons affected with symptoms of general arterio-sclerosis seems to us only reasonable. In conditions of arterio-sclerosis of the general systemic circulation we must expect this degeneration to make itself felt in the already weakened uterine arteries, and the heightened blood pressure—the invariable companion of arterio-sclerosis—adds its quota. And, lastly, the uterine muscle, like the muscle of the heart (and one may push the analogy very far and not err), must show the baneful consequences. Fibrosis results, contractility grows less and less, and with the loss of contractility engorgement is the last and only condition necessary to evoking the chief symptom.

As one author so justly puts it:

> There is nothing that tends more to passive congestion than muscular inactivity. It is not the man who walks a great deal who suffers most from varicosities, but rather he whose muscles are inactive and do not assist in propelling the blood to the heart.

That events do not follow in consecutive order as we have described them need hardly be mentioned. They all act simultaneously, slowly, over a long period, and the trend of events is from bad to worse. What was to-day an effect becomes to-morrow a cause, and so the vicious circle goes on.

Reinicke, by giving undue importance to the vessel changes, has completely overlooked the myometrial involvement, and Theilhaber has equally neglected the vessel changes and has laid great stress upon the muscular insufficiency.

It seems to us an error to separate two sets of involuntary muscle, namely, the uterine muscle and the media of the uterine bloodvessels. In their physiology these two act together and the one seems to supplement the other. Any relaxation of the one must lead to a similar change in the other. Moreover, they both hypertrophy during pregnancy and both undergo involution after labour. They both contract and retract, and both thereby arrest haemorrhage after labour.

Now, in some cases of chronic metritis, such as those of our inflammatory group, the vessels as well as the uterine muscle must suffer, and they must be equally restrained by the fibrotic changes. So in cases of arterio-sclerosis the muscle must suffer, as does the heart when its vessels are the seat of degenerative changes.

So we contend that haemorrhage in chronic metritis is due not to vascular changes alone, nor to the fibrosis or relative muscular insufficiency alone, but to the two acting together. We do not claim that they play equal parts. One must be the chief cause, but the other always supplements.

We have only to add that many vessels in our specimens have shown completely occluded lumen, but nearly all of these have been proved to be quite patulous when examined in serial sections. The explanation lies in the fact that in arterio-sclerotic uteri the vessels are extremely tortuous, and practically in no one spot can one vessel be found alone; but they are found in groups of four, six, eight, or ten, or even more, being sections of the same vessel in its convolutions. Now, not infrequently sections of many of these are just through the bend of the

vessel, severing the two outer coats, but cutting into the thickened intima without opening into the lumen. Moreover, in Case VIII—arterio-sclerosis—the increase in the intima is almost entirely at the expense of the media. In one or two places the adventitia and intima come into contact.

To conclude this part, we beg to add that it is not unlikely that ovarian activity may play a very important, though minor, part in bringing about the menorrhagia. To this we will refer briefly in the discussion of spontaneous cure.

That spontaneous cure can take place in the worst of cases, and does occur in a large percentage of minor grades of chronic metritis, is a matter which does not invite discussion. But how Nature brings about a cure is a point more difficult to answer. The weight of opinion inclines to the theory of arrest of ovarian function, and in a certain percentage of cases this gives a very plausible answer, inasmuch as usually the ovarian function is suddenly arrested and the menorrhagia ceases equally rapidly. But in such a case as the following, which we have under our care, the explanation is not so easily found.

A woman, 42 years of age, had several full-term pregnancies, and the last two resulted in miscarriage. She was curetted by Dr. Chipman eighteen months ago for metrorrhagia. Subsequent to operation metrorrhagia continued unabated. The vagina had to be packed on several occasions. Dr. Goodall saw the patient on August 1st, after eight months of absence. She is perfectly well, menstruates regularly, and not over-abundantly. Her menstruation is gradually growing less, and the last flow was of three days' duration.

To cut matters short, the case was clinically a true case of chronic metritis with bulky lacerated cervix, and the curette gave out that rasping sound so characteristic of indurated uterus. Nothing was done for her except rest during menstruation. So far as Dr. Goodall could judge, the uterus seemed considerably smaller at the last examination. Evidently her ovarian function is not arrested, as menstruation still recurs regularly.

We have, then, a difficult question to solve. We realize that the ovary is the governing centre which, through nervous, secretory, or increased functional activity during ovulation, brings about pelvic congestion from which menstruation results. Now, we would expect that if, as Reinicke says, the pelvic congestion, acting upon the diseased uterus, is the cause of the menorrhagia, then, we repeat, we would expect the menorrhagia to persist until ovarian function ceased; but such is not the course of events in the case cited. We do not pretend that we can clear the point of obscurity upon such a limited experience; but if the uterine condition remains the same, then we must assume that the arrest is due to something extrinsic to the uterus; moreover, if the pelvic congestion is a direct result of ovulation, then should the menorrhagia persist until ovulation comes to an end. That such is frequently the case has been the experience of most gynaecologists; but, on the other hand, in those cases in which the menorrhagia gradually disappears and ovulation continues, then must we assume that nervous influences under the direct control of the ovary, or ovarian secretion, make themselves less felt as the patient approaches complete menopause.

The question finally reduces itself to a consideration of the causes of pelvic congestion at the time of menstruation. The probability is that it arises from a combination of causes—secretory, ovulatory, nervous and trophic. The complete cessation of any one may be sufficient to cause menstruation to cease. That menstruation can be arrested and ovulation persist is shown in those cases of pregnancy following menopause. So that nervous or secretory influences governed by and acting through the ovaries seem to offer the most satisfactory explanation for the slow arrest of the menorrhagia. It is not necessary to add that with the sudden arrest of ovulation the other two influences would suffer accordingly, and consequently this would explain the abrupt cessation which takes place in most cases.

Treatment.

Much already has been written upon the subject of treatment of uncontrollable haemorrhage at menopause and but very little can be added that is of interest. We strongly advocate hysterectomy by the route of election in each case, after a preliminary curettage when the diagnosis is not certain. The results from this line of treatment are excellent. Many consider the advocating of hysterectomy in all undoubted cases as too radical, and suggest that this line of treatment be adopted only as a *dernier ressort*, after having faithfully tried haemostatics, tamponade of vagina, rest, cauterization and curetting.

We consider that the treatment rests with the complete diagnosis. Certainly those cases occupying the last group, namely, those arising from arterio-sclerosis, are intractable to all forms of treatment. Barbour says after describing his case, "the only treatment is hysterectomy."

Conclusions.

We have come to the following conclusions after a careful and prolonged study of nine reported cases and of many that have not been reported, and from the close observation of various allied conditions:

1. That clinically we recognize simple and complicated metritis. By "simple" we mean a disease of the uterus without participation of the other pelvic organs in the disease process. By "complicated" we mean one of obviously inflammatory or congestive origin with participation of other parts in the pathological processes. The uterus here is simply involved in a change which affects the whole or most of the genital system.

2. That pathologically cases of simple metritis divide themselves into two distinct groups:

(*a*) Those which, arising from infection, subinvolution, or from one of many other causes, show a degeneration more of the nature of an inflammatory deposit, or a deposit of passive congestion, which deposit is characterized by being granular, or hyaline, frequently fragmented, poor in nuclei (Fig. 9), and affecting both muscle and fibrous tissue, but chiefly the latter. The deposit is most marked where the tissue is of loose texture. In these cases the adventitia is most affected, and the media moderately, but it is very seldom that changes are found in the intima.

(*b*) Those of true arterio-sclerotic origin, characterized by true fibrosis of the uterine wall (Fig. 10) and arterio-sclerotic changes in the vessels, all three coats of which are usually involved.

3. That cases of arterio-sclerotic origin are not due to infection, and that those of the other group may or may not be due to infection depending upon the cause.

4. That subinvolution, from whatever cause, is the most frequent source of chronic metritis.

5. That in all cases of chronic metritis not arising from arterio-sclerosis there is hypertrophy of the muscle, as well as of the non-contractile element, and that the muscle hypertrophy is either due to incomplete involution or it is a result of congestion.

6. That in cases of arterio-sclerotic origin there may or may not be muscular hypertrophy associated with the fibrosis. This will depend upon associated conditions.

7. That changes in the endometrium, in the nature of endometritis, will be found in cases of Group (*a*) if of septic origin, but that in Group (*b*) the cause is primarily arterial, and endometritis may be secondary, but cannot be primary, except by association of two diseases.

8. That the haemorrhages are not due to endometritic changes, but that endometrial involvement may accentuate the flow.

9. That the menorrhagia and metrorrhagia are due in Group (*a*) to muscular insufficiency, not only of the uterine muscle but of the muscle of the arteries also.

10. That the muscular insufficiency is due to the restraining influence of the increased non-contractile tissue.

11. That the haemorrhage in arterio-sclerotic uteri is due to pelvic congestion and high arterial tension, with lack of contractility of the vessels in response to vasomotor stimuli, combined with muscular atrophy of the uterine wall.

12. That the lumina of the vessels do not suffer to any great extent from the proliferation of the intima, and that the change is one of compensation.

13. That many vessels must be examined in serial section to properly appreciate how much they are involved.

14. That the general changes throughout the uterine wall in cases of fibroids or fibromyomata of the uterus, are similar to those in Group (*a*), and that the haemorrhages arise from the same cause as those cases which fall in Group (*a*).

Before closing we wish to express our sincerest thanks to our colleague, Dr. Chipman, for the large amount of material which he placed at our disposal.

To Dr. Klotz we also wish to convey our gratitude for his valuable assistance in the special pathology of the vascular system.

Note.—Since completing this paper upon chronic metritis, we have had the good fortune to have heard of, and later to have come into possession of, an article written by Richelot in 1900, and entitled "Congestion et Sclérose de l'Utérus," in which we learn that he has adopted somewhat the same classification into a primary,

diathetic, arthritic chronic metritis, and an inflammatory chronic metritis. In the former class infection plays no part, and the condition arises from constitutional causes. Just so with our classification of arterio-sclerotic uterus as primary, and the other class as probably of inflammatory origin in most cases, but at least always due to congestion. He argues that arthritic metritis is a misnomer, that there is no inflammation here. But Richelot has given too restricted a definition to the term "inflammation." One may as well point to myocarditis and all such chronic fibrotic changes as errors of nomenclature. It is also interesting to learn from this paper that Virchow some years ago, when describing tumours of the uterus, noted the close resemblance between the pathological changes in cases of chronic metritis proper and those which take place in the parenchyma of the uterus, when the latter is the seat of fibroma or myoma. So striking was the similarity, that he described both diseases under one heading.

We have but to add that it offers us great pleasure to learn that working independently we have come to almost similar results, a fact which, one must admit, adds considerable strength to the conclusions at which we have arrived.

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The PRESIDENT thanked Professor Gardner and Dr. Goodall for this important contribution to the pathology of chronic metritis. There was no subject in gynaecology on which so little was known as inflammation of the uterus, and it was only by the careful working up of material obtained by hysterectomy that progress could be made. The distinction of the two types was important, and the correlation of haemorrhage and arterio-sclerosis was so intimate that only hysterectomy was of any avail for this condition.

A STUDY OF 146 CONSECUTIVE CASES OF VENTRIFIXATION OF THE UTERUS.

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THE operation of ventrifixation is undertaken for the relief of two classes of cases—namely, backward displacements of the uterus and downward displacements. For the better study of these conditions I have further subdivided my cases into groups, as follows:

Group		Cases.
I.	Retroversion of the uterus	47
II.	Retroversion and fixation of the uterus ...	26
III.	Retroversion complicated by disease of the uterine appendages	21
IV.	Retroversion complicated by fibroids ...	13
V.	Prolapse	19
VI.	Total Procidentia	20
	Total	146

Group III does not include any cases in which both appendages were removed, whether for ovarian tumours or for inflammatory disease. In Group IV the fibroids were all such as could be dealt with by myomectomy, this part of the operation being merely incidental to the ventrifixation in most cases.

The points I wish to consider are: (1) Indications for the operation; (2) technique of the operation; (3) after-results of the operation, with special reference to (*a*) subsequent pregnancies, (*b*) position of the uterus, (*c*) the abdominal scar, (*d*) the patient's general condition.

INDICATIONS FOR THE OPERATION.

These can be conveniently dealt with in relation to each group of cases.

Group I. Cases of Chronic Retroversion, with a Mobile Uterus.—Opinions as to the desirability of operation are likely to be more divided in respect of this class than any other. It is therefore necessary that I should state very clearly my position. In the majority—even the great majority—of cases of mobile retroversion I do not consider an operation necessary. Retroversion is often a transient phase in the position of the uterus, especially when associated with subinvolution after labour and with chronic endometritis; and also in cases where the displacement follows a sudden strain. In such cases a carefully-fitted pessary will usually lead to a cure. By "cure" I mean that the uterus remains in normal position after removal of the pessary; when the uterus only keeps up as long as a pessary is worn, I do not consider the condition cured. Again, retroversion may be a complication of endometritis; and treatment of the latter condition, by curetting or otherwise, will often enable the uterus to remain in position. In another class of case the retroversion may be regarded as a developmental condition; for this the best cure is pregnancy.

In a small proportion of cases operation is necessary or desirable; it is difficult to express this proportion in figures, but I should put it down on a rough estimate as 5 per cent. What are the indications for operation in this 5 per cent. of cases? Principally the failure of pessaries to afford relief after a fair trial. About three-quarters of the patients in this group were operated upon for this reason: they had worn pessaries for periods varying from six months to seven years. The pessaries had been tried, sometimes by other medical men, sometimes by myself; in my own cases my notes repeatedly state: "Uterus fallen back in spite of pessary *in situ*;" and this after not one pessary, but several of different shapes and sizes had been tried.

Sometimes the pessary keeps up the uterus as long as it is worn, but on the removal of the pessary the uterus falls back and the symptoms return. In such cases the patient has to choose between a radical operation and an indefinitely long course of pessaries, and it is my practice to place the alternatives before her, and let her choose which she will adopt. I find that many patients prefer the radical operation: some have said that if they had known the possibility of doing without pessaries they would gladly have been operated upon years ago, if only to avoid the disagreeable necessity of periodic examinations. I think that a patient is perfectly justified in asking for operation, and the surgeon is justified in operating when the alternative is an indefinite prospect of pessaries and repeated examinations.

In other cases pessaries had not been tried; but the patients elected to have an operation rather than start with pessaries, on the ground that the symptoms had existed for several years, and they desired no more probationary treatment. One patient had come over from New Zealand to be put right, one from Jamaica, one from India, one from Ceylon, one from South Africa. In such cases I consider that it is right to operate without preliminary trial of pessaries.

In two cases the indication for operation was the failure of a previous operation. One was a case of my own, where I had done a ventrifixation four and a half months previously, and the stitches had cut out and the displacement returned with all the symptoms. This case is shown in Table I as No. 17 and No. 22; and the result of the second operation, as will be seen from the Table, was in every way satisfactory. The other case was No. 44 in Table I; an operation said to be shortening of the round ligaments was done two years previously by another surgeon. The scar was median, and it may have been an intraperitoneal

operation for shortening of the round ligaments; but I could not tell at the second operation what the procedure had been. All her symptoms had returned with the displacement. The second operation was too recent for me to be able to judge of its success.

It is well known that retroversion is unfavourable to conception, and if conception occurs at a period when the patient is not under observation, impaction of the gravid uterus is likely to occur at the third or fourth month. This accident is liable to be followed by abortion, even after the displacement has been corrected. With 3 cases in this group the occurrence of abortions was a factor in deciding on an operation. One of them (No. 5 in Table I) was suffering from retroversion of the gravid uterus when I first saw her; the uterus was replaced, but at the sixth month she miscarried of a fetus whose development had been arrested at three months. The displacement returned after the miscarriage and her medical attendant desired her to see me again as he thought an operation would be best for her. In this view I quite concurred. Her friends, however, wished her first to see an eminent specialist, whose dictum was that he "would not sanction the performance of such an operation on his own mother." The patient was not convinced by the cogency of the *argumentum ad matrem* and submitted to the operation. It will be seen from the date of the operation that I am describing what occurred, not fifty years ago, but five.

Another patient had had two miscarriages before the operation; neither she nor the preceding patient has been pregnant since. A third patient (No. 16), had had nine abortions; she had one pregnancy after the operation, but could not get out of her bad ways all at once, and she aborted again; however, she managed to attain the end of the fourth month, all her previous pregnancies having terminated at two or three months.

The symptoms for which patients in this group sought relief were various: principally backache, dragging and bearing-down pains and leucorrhoea; sometimes inability to walk or stand for any length of time; frequency of micturition in a number of cases; dyspareunia in a few.

Group II. Retroversion with Fixation of the Uterus.—At least 17 of the 26 cases in this group complained of pain, mostly in the lower abdomen, sometimes in the back, and the duration of symptoms before operation varied from a few months to several years. The pain was the principal indication for operation, and this is not surprising, inasmuch as fixation of the uterus is necessarily the result of pelvic inflammation, acute or chronic. I am inclined to think that in the majority of cases the starting-point of the trouble was an attack of gonorrhoeal salpingitis, not severe enough to lead to salpingitic closure of the ostium tubae with consequent pyosalpinx. One patient had had an operation for diseased appendages performed ten months previously, another had had a pelvic abscess opened and drained two months before, and one gave a history of "pelvic cellulitis" four months before operation.

In some cases of retroversion with fixation the adhesions are slight enough to allow of temporary reposition of the uterus, and one therefore begins to treat them with pessaries. The adhesions may not be suspected until the repeated and rapid falling back of the uterus arouses suspicion. Thus at least 8 cases in this group had had pessary treatment, mostly in my own clinic. I had treated them thus for periods ranging from one to four and a half years. In one case of three years and in one of four and a half years I had urged operation for some time before the patient consented. In other cases the fact of fixation was recognized at the first, and operation undertaken without wasting time on pessaries.

I have become convinced that nothing short of operation is of any avail for the freeing of adhesions. Treatment by douches, tampons and spas serves no useful purpose. I admit that I have never had the courage to attempt Schultz's plan of breaking down adhesions by forcible manipulation under an anaesthetic. Therefore I consider that there is no middle course between leaving the patient alone when the symptoms are slight and operating when they are severe.

I may observe in passing that we have three indications of the presence of adhesions; first, great pain produced by an attempt at reposition; secondly, the fact that when the uterus is lifted with the sound the pelvic floor as felt through the posterior fornix appears to be raised with it; thirdly, the immediate falling back of the uterus as soon as the sound is withdrawn.

The symptoms, other than constant pain, complained of by patients in this group were "falling of the womb," menorrhagia, leucorrhoea, frequent and painful micturition, dysmenorrhoea and dyspareunia. Two patients complained of bleeding from haemorrhoids.

Group III. Retroversion with Diseased Appendages.—The indications in this group were very similar to those in the previous one. More than half complained of more or less constant pain; four of them could not walk, or were nearly always confined to bed. In two of these (Nos. 10 and 14) the results were very satisfactory; the other two were too recent for one to judge of the results.

Patients in this group were not operated on because of the presence of ovarian cysts or diseased appendages. The operation was undertaken primarily because of the displacement, and it was found at the time of operation either that the ovaries were cystic or that the tubes were irreparably damaged. The uterus was mobile in 9 cases, and the removal of appendages was then mostly due to cystic ovaries; in 12 cases the uterus was fixed, and with these the tubes were frequently damaged. In some cases the fixation was an important factor in determining the operation. Two of the patients (Nos. 3 and 17) had previously been operated upon for diseased appendages of the right side.

With regard to other symptoms, bearing-down pain was a feature in 12 cases, and 6 of these had worn pessaries for varying times without any benefit; 2 patients had had several miscarriages, whilst dysmenorrhoea, dyspareunia, xanthorrhoea, menorrhagia, frequent micturition, and renal pain were also complained of.

Group IV. Retroversion with Fibroids.—These cases are placed in a separate group mainly because the operation included myomectomy as well as ventrifixation. I do not propose here to enter into a discussion about myomectomy *versus* hysterectomy. I will only say that in most cases the fibroid was small and solitary; in a few cases two or three fibroids were removed. In two cases (Nos. 5 and 8) the presence of the fibroid was the principal reason for operation, the uterus being also retroverted; in the others the myomectomy was incidental. It is not surprising, therefore, that in about half the cases the principal symptom was pain, or "bearing-down," or both; 5 of the patients had been treated with pessaries without relief. In 4 cases the retroversion was complicated by fixation.

Bladder disturbance was a more frequent symptom in this group than in any of the preceding ones. This is readily explained by the enlargement of the uterus produced by the fibroids. The other symptoms, such as menorrhagia, leucorrhoea, dyspareunia, were also met with. In the case of one patient (No. 10) the indication for operation was the failure of a previous ventrifixation (No. 17, Table II). This case is interesting, inasmuch as no trace of fibroids was evident at the first operation, and as less than six months elapsed between the two operations, the fibroid, which was situated in the anterior wall of the uterus, must have developed in that time. One patient had had a previous myomectomy performed, and she had suffered from displacement for twenty-seven years.

Group V. Prolapse.—In this group the indication was in every case "falling of the womb" with bearing-down pains, often of many years' duration, the shortest was a few months, the longest was seventeen years, and there were several who had been troubled for ten or twelve years. The prolapse was not infrequently associated with cystocele, rectocele, or both. Nearly all the patients had worn pessaries; others had tried pessaries, but without any success at all, because the perineum was so torn or deficient that nothing would stay in. One patient (No. 18) had found that nothing but a Zwaneke would stay in; and when I saw her with one of these *in situ* the vaginal vault was in a grievous state of grooving and ulceration. The first patient in this group had a large umbilical hernia, as well as prolapse. A long median incision allowed of the radical cure of the hernia at the same time as the ventrifixation.

Group VI. Total Procidentia.—The familiar type seen in this group is the patient who comes complaining of "falling of the womb" or "something coming down outside"; and, on examination, the vagina is found turned

TABLE I.—*Chronic Retroversion.*

No.	Name.	Age.	Sex.	Place.	Date.	Doctor.	Particulars of Operation.	After-History Notes.				
								Date.	Pregnancies after Operation.	Condition of Uterus.	Scar.	General Condition.
1	S. L.	39	M	P.	17 10 00	—	Ventrifixation, 2 sutures	8.4.06	—	?	?	"Perfectly well in every way since operation."
2	E. H.	41	M.	C.H.W.	16 11 01	Dr. Taylor	Ditto	—	—	—	—	—
3	S. F.	35	M.	T.H.	21 11 01	Dr. Dodwell	Ditto; cysts in ovary punctured	20.2.06	—	Well slung up in good position	Linear, firm	Fair; better than before operation.
4	E. P.	28	M.	C.H.W.	23 11 01	—	Ditto; cystic right ovary punctured	—	—	—	—	—
5	B.	29	M.	P.	20 11 01	Dr. Frazer	Ditto	30.4.03	—	Fundus well attached; cervix low	Linear, firm	Very good.
6	E. E.	35	M.	T.H.	13 2 02	Dr. Overend	Ditto	—	—	—	—	—
7	R. R.	28	M.	C.H.W.	22.9.02	—	Ditto; left appendages previously removed for tubal pregnancy	13.10.05	—	Well slung up in good position	Stitch sinuses; no hernia.	Poor; feels weak, but has less pain.
8	N. M.	39	W.	C.H.W.	15.12.02	—	Ditto	12.12.03	—	Well slung up in good position	Linear, firm	"A world better since operation."
9	C. H.	26	M.	T.H.	21 2 03	—	Ditto	—	—	—	—	—
10	J. C.	33	M.	P.	21.4.03	Dr. Wallace	Ditto; preceded by curetting	20.3.06	—	Well slung up in good position	Firm; skin a little stretched; had stitch abscesses	Only moderate; no better.
11	E. S.	28	M.	P.	30.4.03	Dr. Meachen	Ditto; preceded by curetting	—	Died of cholera in July, 1904	—	—	—
12	L. S.	28	M.	T.H.	7.5.03	—	Ditto	—	—	—	—	—
13	M. Y.	34	S.	T.H.	15.10.03	Dr. Homo	Ditto	—	Died of pneumonia 3 days after operation	—	—	—
14	C. B.	23	M	T.H.	12.11.03	Dr. Gordon	Ditto; followed by perineorrhaphy	25.11.04	One; full time; forceps	Well slung up in good position; laceration of cervix and perineum	Firm	Good.
15	D. A.	33	M	P.	25 1 04	Dr. Adcock	Ditto; 3 sutures	15.4.06	—	Well slung up in good position	Linear, firm	"Decidedly better in every way."
16	J. T.	28	M	T.H.	23.6.04	Dr. Menzies	Ditto	10.7.06	One; abortion at 4 months	Good position	Sound	"In excellent health."
17	E. W.	43	M.	P.	21.7.04	Dr. Hanks	Ditto	16.11.04	—	Uterus completely retroverted; sutures apparently torn out from the uterus	Linear, firm	Not good.
18	E. R.	24	M	T.H.	21.7.04	Dr. Smyth	Ditto	21.7.05	—	Well slung up in good position	Linear, firm	Good.
19	A. O.	35	M	C.H.W.	24.10.04	—	Ditto, 2 sutures	—	—	—	—	—
20	G. R.	52	M.	C.H.W.	31.10.04	Dr. Conacher	Ditto, 3 sutures	5.2.06	—	Well slung up in good position	Fine line, firm	Fair; better than before.
21	E. C.	32	M.	C.H.W.	31.10.04	—	Ditto, 2 sutures	7.2.06	—	Well slung up in good position	Linear, firm	"Splendid; never so well before."
22	E. W.	43	M.	C.H.W.	5.12.04	Dr. Hanks	Ditto, 3 sutures; followed by perineorrhaphy	15.1.05	—	Well slung up in good position	Linear, firm	"Ever so much better; quite a different woman."
23	A. J.	23	M	T.H.	16.2.05	—	Ditto, preceded by curetting	20.2.06	Two; (a) Abortion at 3 months; (b) normal confinement, living child at 8½ months	Uterus in good position; apparently attached by a band 1 in. long	Firm, sound, pigmented	"Feel better than I have done since I was married."
24	J. S.	25	M	T.H.	9.3.05	—	Ditto, 2 sutures	13.7.06	One; Confinement at term; forceps for occipito-posterior presentation	Well slung up in good position	Linear, firm	Very good; "as different from what I used to be as day and night."
25	K. S.	37	M	P.	13.5.05	Dr. Chalmers	Ditto, 3 sutures	19.9.05	—	Well slung up in good position	Linear, firm	Much better.
26	E. A.	29	M	T.H.	1.6.05	Dr. Morrow	Ditto, 2 sutures	14.7.06	—	Well slung up in good position	Fine line, firm	Weak from menorrhagia, otherwise better.
27	C. G.	28	M.	P.	14.6.05	Dr. Warrack	Ditto, 3 sutures; curetting; radical cure of inguinal hernia	6.7.06	—	Well slung up in good position	Invisible, firm	"Much better; I feel life is worth living now."
28	A. A.	28	M.	T.H.	6.7.05	Dr. Lawson Smith	Ditto; curetting	26.7.06	—	Well slung up in good position	Linear, firm	"Much better."
29	M. G.	32	M.	C.H.W.	11.9.05	Dr. Macnaughton	Ditto, 2 sutures; trachelorrhaphy	19.7.06	—	Well slung up in good position	Linear, firm	Very good.
30	E. M.	18	S.	T.H.	12.10.05	—	Ditto	—	—	—	—	—
31	E. M.	32	M.	C.H.W.	20.11.05	—	Ditto, 3 sutures	24.7.05	—	Well slung up in good position	Sound, firm	Very good.
32	F. K.	49	M.	T.H.	7.12.05	Dr. Muirhead	Ditto	2.8.06	—	Well slung up in good position	Sound, firm	Moderate, but better
33	A. H.	24	M	T.H.	14.12.05	Dr. Spears	Ditto; curetting	—	—	—	—	—
34	E. C.	50	M.	P.	26.1.05	Dr. Frazer	Ditto	27.7.06	—	Well slung up in good position	Sound, firm	Good. Operation was of chief benefit in curing incontinence and irritability of the bladder.

35	C. L.	43	M.	C.H.W.	29.1.06	—	Ditto, 2 sutures	—	—	—	—	—	—
36	E. D.	29	M.	T.H.	8.2.06	Dr. Fisher	Ditto, 3 sutures; curetting and perineorrhaphy	—	—	—	—	—	—
37	S. A.	38	M.	T.H.	22.2.06	—	Ditto; cysts punctured in left ovary	—	—	—	—	—	—
38	E. C.	25	M.	T.H.	8.3.06	—	Ditto.	—	—	—	—	—	—
39	J. V.	42	M.	C.H.W.	12.3.06	—	Ditto, 3 sutures	—	—	—	—	—	—
40	S. L.	27	M.	T.H.	5.4.06	—	Ditto, 2 sutures	—	—	—	—	—	—
41	E. C.	30	M.	C.H.W.	9.4.06	Dr. Wallace	Ditto, 3 sutures	—	—	—	—	—	—
42	E. S.	30	M	T.H.	26.4.06	—	Ditto, 2 sutures	—	—	—	—	—	—
43	A. L.	38	M.	T.H.	11.5.06	Dr. R. Murray Leslie	Ditto, 3 sutures	—	—	—	—	—	—
44	A. M.	35	M.	C.H.W.	21.5.06	Dr. Gardiner	Ditto	—	—	—	—	—	—
45	M. M.	32	M.	T.H.	7.6.06	Dr. Marshall	Ditto	—	—	—	—	—	—
46	A. W.	26	M.	C.H.W.	2.7.06	Dr. Orr	Ditto	—	—	—	—	—	—
47	L. L.	27	M	C.H.W.	2.7.06	—	Ditto	—	—	—	—	—	—

C.H.W. = Chelsea Hospital for Women. T.H. = Tottenham Hospital. P. = Private Cases.

TABLE II.—*Retroversion with Fixation.*

No.	Name.	Age.	C. S.	Place.	Date.	Doctor.	Particulars of Operation.	After-history Notes.				
								Date.	Pregnancies after Operation.	Condition of Uterus.	Scar.	General Condition.
1	E. F.	34	S.	C.H.W.	16.9.98	—	Separation of adhesions; ventrifixation, 2 sutures	6.11.01	—	Well slung up in good position	Linear, firm	Good.
2	E. G.	33	M.	C.H.W.	21.11.98	—	Ditto	5.2.06	—	Good position; ? apposition to abdominal wall or short band	Linear, firm	Good.
3	M. K.	33	M.	C.H.W.	26.6.99	—	Ditto	—	—	—	—	—
4	E. K.	22	M.	T.H.	20.9.01	Dr. J. G. Duncanson	Ditto, 3 sutures	4.1.05 26.7.06	Two	Abortion at 3-4 months Now 2 months pregnant	Partial retroversion after abortion; rather long band	Linear, firm	Fair; easily tired.
5	E. L.	29	S.	C.H.W.	9.12.01	—	Ditto, 2 sutures	14.2.06	—	—	Good position; ? short peritoneal band	Firm, skin stretched	Good.
6	E. D.	28	M.	P.	30.1.02	Dr. Bower	Ditto, 3 sutures	14.11.03	—	Well slung up in good position	Linear, firm	Good; "Much better than I was."
7	E. C.	43	M.	T.H.	13.3.02	—	Ditto, 2 sutures	—	—	—	—	—
8	E. B.	37	M.	T.H.	10.7.02	Dr. Marjoribanks	Ditto; cysts in ovary punctured	—	—	—	—	—
9	C. B.	23	M.	C.H.W.	15.9.02	—	Ditto, 2 sutures; conservative salpingostomy	—	—	—	—	—
10	M. F.	46	W.	C.H.W.	15.9.02	—	Ditto	—	—	—	—	—
11	E. C.	28	S.	T. H.	23.10.02	—	Ditto; cystic ovaries punctured	16.2.06	—	Well slung up in good position	Linear, firm	"I have been a new woman."
12	F. W.	40	M.	T.H.	6.2.03	—	Ditto	—	—	—	—	—
13	E. P.	32	M.	P.	12.6.03	Dr. Brunton	Ditto	28.3.06	—	Well slung up in good position	Linear, firm	Very good.
14	H. H.	35	M.	C.H.W.	7.9.03	—	Ditto	—	—	—	—	—
15	V. S.	27	M.	P.	21.10.03	—	Ditto	—	—	—	—	—
16	E. P.	29	M.	C.H.W.	14.12.03	—	Ditto	—	—	—	—	—
17	E. R.	42	M.	T.H.	15.9.04	Dr. Bowie	Ditto; curretting; colpoperineorrhaphy	15.6.06	Died of pneumonia 7 days after operation	Uterus completely retroverted	Linear, firm	Weakness.
18	C. L.	32	M.	C.H.W.	10.10.04	Mr. J. H. Evans	Ditto; right salpingostomy	—	—	—	—	—
19	A. H.	36	M.	C.H.W.	24.10.04	—	Ditto	—	—	—	—	—
20	M. T.	43	S	T.H.	13.4.05	—	Ditto, 3 sutures	1.7.06	—	In good position	Firm, linear	Weakness; has haemorrhage.
21	M. A.	43	M.	C.H.W.	1.5.05	—	Ditto	9.5.06	—	Well slung up in good position	Fine line, firm	Very good; "I do not feel like the same person."
22	K. P.	28	S.	T.H.	9.11.05	Dr. Alexander	Ditto	21.7.06	—	Well slung up in good position	Sound, firm	"Ever so much better."
23	P. D.	29	M.	C.H.W.	13.11.05	Dr. Dodwell	Ditto	—	—	—	—	—
24	E. H.	29	M.	T.H.	23.11.05	—	Ditto, 2 sutures	20.7.06	—	Well slung up in good position	Sound; skin a little stretched and pigmented	Good; "feeling much better."
25	E. K.	38	M.	C.H.W.	14.5.06	Dr. Hoffman	Ditto	—	—	—	—	—
26	F. H.	33	M.	P.	25.7.03	Dr. Williamson	Ditto, 3 sutures	—	—	—	—	—

TABLE III.—*Chronic Retroversion and Diseased Appendages.*

No.	Name.	Age.	C.S.	Place.	Date.	Doctor.	With or without Fixation of the Uterus.	Particulars of Operation.	After-history Notes.				
									Date.	Pregnancies after Operation.	Condition of Uterus.	Scar.	General Condition.
1	F. H.	30	M.	C.H.W.	19.9.98	—	Fixation	Ventrifixation, 2 sutures; removal right appendages	1.2.06	One: Normal confinement at term	Well slung up in good position	Linear, firm	Very good.
2	R. H.	36	M.	T.H.	10.8.00	—	Mobility	Ditto; removal left appendages; curetting	20.2.03	—	Well slung up in good position; has cystocele for which she wears a ring	Linear, firm	"On the whole better."
3	E. F.	48	M.	C.H.W.	30.12.01	—	Mobility	Ditto; left ovariotomy	—	—	—	—	—
4	L. W.	28	M.	T.H.	18.9.02	—	Fixation	Ditto; removal left appendages	21.2.06	One: Normal confinement at term	Well slung up in good position	Firm; skin stretched	Very good.
5	R. Q.	32	M.	T.H.	25.9.02	Dr. Marjoribanks	Fixation	Ditto. 3 sutures; left ovariotomy	—	—	—	—	—
6	M. G.	27	M.	T.H.	2.10.02	—	Fixation	Ditto, 2 sutures; removal right appendages	5.2.06	—	Well slung up in good position	Linear, firm	Fair; has had "fits."
7	A. P.	29	M.	T.H.	6.2.03	Dr. M'Askie	Fixation	Ditto, 2 sutures; removal left appendages	9.6.04	Two: (*a*) normal confinement; (*b*) now 6 months pregnant	Well slung up in good position	Firm; skin stretched	"I feel excellent to what I did before operation."
8	S. S.	42	M.	T.H.	30.4.03	—	Mobility	Ditto, 2 sutures; left ovariotomy; perineorrhaphy	20.7.06	—	Well slung up in good position	Linear, firm	Good.
9	E. C.	23	M.	C.H.W.	5.10.03	—	Fixation	Ditto, 2 sutures; right ovariotomy	30.9.04	—	Well slung up, a little to the right; left ovarian cyst	Firm; had stitch abscesses for 6 months	Good.
10	H. K.	44	W.	P.	29.1.04	Dr. Pearson	Mobility	Ditto, 2 sutures; right ovariotomy	10.7.06	—	Well slung up in good position	Had scar hernia; operation, herniotomy; present scar is weak	"Wonderfully well."
11	L. H.	26	S.	T.H.	18.2.04	Dr. Angell James	Mobility	Ditto, 2 sutures; right ovariotomy	—	—	—	—	—
12	J. B.	30	M.	P.	1.5.04	Dr. Patch	Fixation	Ditto, 2 sutures; right ovariotomy; curetting	24.11.05	—	Well slung up in good position	Linear, firm	Very good.
13	A. E.	41	M.	T.H.	13.4.05	—	Fixation	Ditto, 3 sutures; removal of left appendages	10.7.06	—	Well slung up in good position	Linear, firm	Very good.
14	C. S.	23	M.	T.H.	25.5.05	—	Mobility	Ditto, 2 sutures; right ovariotomy	26.4.06	—	Good position; ? short band	Linear, firm	Good.
15	E. M.	32	M.	T.H.	14.12.05	—	Mobility	Ditto, 2 sutures; left ovariotomy	26.7.06	—	Well slung up in good position	Linear, firm	Very good.
16	A. R.	27	M.	C.H.W.	8.1.06	—	Fixation	Ditto, 3 sutures; removal left appendages	—	—	—	—	—
17	E. W.	41	M.	C.H.W.	22.1.06	—	Mobility	Ditto, 3 sutures; removal left appendages	—	—	—	—	—
18	M. B.	36	M.	T.H.	22.1.06	Dr. Basil Price	Fixation	Ditto, 2 sutures; removal right appendages	—	—	—	—	—
19	M. B.	35	M.	C.H.W.	26.2.06	Dr. Frazer Dr. Ross	Fixation	Ditto, 2 sutures; removal left appendages and right Fallopian tube	—	—	—	—	—
20	R. H.	47	W.	C.H.W.	25.6.06	—	Fixation	Ditto, 3 sutures; removal left appendages, right Fallopian tube, and vermiform appendix		—	—	—	—
21	E. P.	36	M.	P.	26.6.06	Dr. Randall	Mobility	Ditto, 3 sutures; removal right appendages	—	—	—	—	—

inside out, the cervix forming the apex of a considerable swelling. Often the friction of the clothes has produced large raw ulcerated patches. There is generally some hyperplasia of the supravaginal portion of the cervix, the sound passing in for a distance varying from 4 to 7 or 8 in. The perineum has been torn, or the vaginal orifice has been stretched by the descending uterus, so that it will readily admit the whole hand. The patient often gives the history that all sorts of pessaries have been tried, but none will remain in for more than a few minutes, or at most a few hours. Patients appear to be rather more tolerant of a total procidentia than of a prolapse where the uterus remains within the vagina. Once the uterus is outside, the expulsive efforts and "bearing down pains" cease. Whatever the explanation, it is a fact that these women go about with the uterus outside the vagina for many years; in my cases the duration ranges from 1½ year to 4, 8, 12, 14, and even 20 years. Two cases, which have been included for convenience in this group (Nos. 19 and 20) were single women with hyperplasia of the vaginal portion of the cervix, which was as much as 3 or 4 in. in length.

TECHNIQUE OF THE OPERATION.

As my present object is to consider the operation of ventrifixation, it would be foreign to the purpose to discuss the relative values of this and other operations devised for the treatment of displacements, such as shortening of the round ligaments, vaginofixation, etc. An uncomplicated ventrifixation is an essentially simple procedure. The abdomen is opened in the middle line; the appendages are inspected; the sutures are introduced, first through the fascia, muscle and peritoneum of one

side, then through the anterior wall of the uterus; and, lastly, through the peritoneum, mucle and fascia of the other side; the sutures are tied, and the abdominal wall closed in three layers. In most of my earlier cases two sutures of silkworm gut were employed for the uterus; three sutures were occasionally used with a heavy or bulky uterus. In 2 cases—one in July, 1904 (No. 17, Table I), and one in September, 1904 (No. 17, Table II)—the sutures cut out through the uterine wall, and I had to repeat the operation; and since then three sutures have been used in the majority of cases. It is advisable that the sutures be passed low down on the anterior uterine wall in women of child-bearing age, so as to leave the fundus free to expand in case of subsequent pregnancy, and care must be taken that the sutures are not passed deep enough to pierce the uterine mucosa, or there will be risk of infection of the sutures and suppuration of the wound.

Retroversion and prolapse are so often complicated by other conditions, that it is frequently necessary to combine some other procedure with the ventrifixation. The following table shows the operations done at one sitting in my cases:

	With Movable Uterus.	With Separation of Adhesions.	Total.
Abdominal Operations.			
Ventrifixation only	48	21	66
Ventrifixation: Cysts in ovaries punctured	3	2	5
Ventrifixation: Conservative salpingostomy	—	2	2
Ventrifixation: Removal of appendages of one side	8	9	17
Ventrifixation: Removal of both tubes and one ovary	—	2	2
Ventrifixation: Myomectomy	9	3	12
Ventrifixation: Myomectomy: Removal of appendages of one side	—	1	1
Ventrifixation: Shortening of utero-sacral ligaments	1	—	1
Ventrifixation: Radical cure of umbilical hernia	2	—	2
Combined Abdominal and Vaginal Operations.			
Ventrifixation: Curetting	6	—	6
Ventrifixation: Trachelorrhaphy	1	—	1
Ventrifixation: Amputation of the cervix	2	—	2
Ventrifixation: Perineorrhaphy	13	—	18
Ventrifixation: Perineorrhaphy: Anterior colporrhaphy	4	—	4
Ventrifixation: Perineorrhaphy: Curetting	1	1	2
Ventrifixation: Perineorrhaphy: Removal of diseased appendages	1	—	1
Ventrifixation: Curetting: Removal of diseased appendages	1	1	2
Ventrifixation: Curetting: Radical cure of inguinal hernia	1	—	1
Ventrifixation: Perineorrhaphy: Anterior colporrhaphy; Removal of diseased appendages of one side	1	—	1
	104	42	146

When it is necessary to combine an abdominal and a vaginal procedure at one sitting it is theoretically preferable to begin with the abdominal part; but this is possible only when the vaginal operation is a perineorrhaphy. Curetting, trachelorrhaphy and amputation of the cervix cannot be carried out satisfactorily on a fixed-up uterus; and even anterior colporrhaphy is much more easily done with the uterus low and mobile.

The indications for the various abdominal procedures can be stated very simply: one must wait till the abdomen is opened before deciding on the scope of operation, and act according to the nature of the conditions found. But I wish to lay some stress on the indications for combined vaginal and abdominal procedures. In cases in which there is a history of menorrhagia or chronic leucorrhoea, it is wise to do a preliminary curetting; otherwise these symptoms will probably (though not necessarily) persist, and the patient will complain of feeling little, if at all, benefited by the operation. In cases of prolapse and procidentia it is often advisable to repair the perineum, because otherwise the patient is apt to continue to experience the feeling of bearing down. In my cases a perineorrhaphy was required in one case in every six. I have become convinced that, generally speaking, either ventrifixation alone or perineorrhaphy alone will fail to relieve symptoms in cases of prolapse; even when perineorrhaphy causes a temporary improvement, the pressure of the cervix will before long lead to stretching of the vaginal orifice, and the condition becomes anatomically as well as symptomatically as bad as ever.

When the cervix has undergone marked hyperplasia of its supravaginal portion, rest in bed for a week or two before operation will usually suffice to reduce it to normal dimensions. Several of my cases of procidentia were treated in this way. But if the vaginal portion of the cervix be the part affected, a portion of it should be amputated. In some cases of prolapse treated by ventrifixation and perineorrhaphy the fundus may remain well fixed up to the abdominal wall, and yet the cervix may lie so low in the vagina as to lead the patient to think that the operation is only a partial success. To obviate this risk I shortened the utero-sacral ligaments in a recent case so as to draw up the cervix. I believe that Mr. Bowreman Jessett was the first to suggest this plan several years ago.

After-results of Ventrifixation.

The immediate results of the operation should be uniformly recovery. I have to record, however, 1 death from sepsis (No. 7 in Table IV). This was a case in which a myomectomy was done at the same time, and I can only explain it on the supposition that the seat of the myoma, which was an interstitial one, became infected through the vaginal canal. By an unfortunate coincidence 3 other patients died of lung complications after operation; of these 2 succumbed to pneumonia (No. 13, Table I, and No. 16, Table II), and 1 to bronchitis and oedema of the lung (No. 6, Table IV). In each case the *post-mortem* examination showed that the wound was healthy and that there was no peritonitis. Two patients died later of independent affections—namely, cholera (No. 11, Table I) and carcinoma of the rectum (No. 5, Table V).

Of the remaining 140 cases, 23 were operated upon within the last six months, and were therefore too recent for the after-history to be of value; I have, however, notes of one of them (No. 19, Table III). This leaves 117 cases, of which 45 could not be traced owing to change of address, and the remaining 72 reported themselves. We have therefore, in all 73 cases whose after-histories I propose now to consider.

(*a*) *Pregnancies Subsequent to Operation.*—Of the 73 cases, 24 were 40 years of age or over; 49 ranged from 23 to 39, and might be considered as being well within the child-bearing age; but of these, 7 were single women or widows, 1 had both tubes removed, and 1 had an ovariotomy at the time of the ventrifixation and a second ovariotomy within twelve months, leaving 40 patients. Twelve of these became pregnant, with the following results: 3 miscarried at two and a half months, three months, and four months respectively; 2 miscarried at three to four months, became pregnant again, and had normal confinements at term; 7 went to full time, of whom 5 had normal confinements, and 2 were delivered with forceps. In 1 of these the presentation was unreduced occipito-posterior, but I do not know what was the indication for the forceps in the other case. One patient who had a normal confinement was six months pregnant again in June of this year. Thus, of 12 patients who became pregnant after the operation, 7 were able to carry the pregnancy to full time and had safe deliveries. In no case was there any tendency to *post-partum* haemorrhage. If it be permissible to generalize from such a small number of cases, we may say that ventrifixation slightly increases the risk of miscarriage, that in most cases it allows of a subsequent pregnancy going on to full time, and that it does not add to the risk of confinement.

(*b*) *The Position of the Uterus after Operation.*—Let us first take the cases where pregnancy occurred. We have

TABLE IV.—*Retroversion with Fibroids.*

No.	Name.	Age.	C. S.	Place.	Date.	Doctor.	With or without Fixation of the Uterus.	Particulars of Operation.	After-history Notes.				
									Date.	Pregnancies after Operation.	Condition of Uterus.	Scar.	General Condition.
1	N. S.	36	M.	T.H.	25.6.01	—	Fixation	Myomectomy: Ventrifixation, 2 sutures	—	—	—	—	—
2	A. H.	46	M.	T.H.	24.10.01	Dr. Hutt	Fixation	Ditto	10.3.06	—	Well slung up in good position	Linear, firm	Very good.
3	M. R.	30	M.	P.	12.10.02	Dr. Ramsden	Fixation	Ditto	15.9.04	—	Well slung up in good position	Fine line, firm	Very good.
4	C. B.	43	M.	C.H.W.	5.1.03	Dr. Tench	Mobility	Ditto	5.2.06	—	Well slung up in good position	Linear, firm	"Never very good."
5	M. L.	40	M.	P.	3.3.03	—	Mobility	Ditto	5.4.06	—	Well slung up in good position	Linear, firm	Good, except for indigestion: no pelvic symptoms
*6	A. C.	44	M.	T.H.	15.10.03	Dr. Brunton	Mobility	Ditto	—	—	—	—	—
7	S. S.	43	S.	P.	18.10.03	Dr. W. Murray Leslie	Mobility	Ditto	—	Died of sepsis on seventh day	—	—	—
8	F. S.	42	M.	T.H.	19.11.03	—	Mobility	Ditto	—	—	—	—	—
9	E. G.	52	M.	P.	31.1.04	Dr. Thornton	Mobility	Ditto	7.2.05	—	Well slung up in good position	Linear, firm	Fairly good.
10	E. R.	42	M.	T.H.	2.3.05	Dr. Bowie	Mobility	Ditto, 3 sutures	15.3.06	—	Well slung up in good position	Linear, firm	Feels weak.
11	A. H.	28	S.	T.H.	13.4.05	—	Mobility	Ditto	—	—	—	—	—
12	M. P.	43	M.	C.H.W.	3.5.05	Dr. Silver	Mobility	Ditto	19.7.06	—	Well slung up in good position	Linear, firm	"Better, no comparison."
17	R. D.	38	M.	T.H.	1.2.06	—	Fixation	Ditto; removal of left appendages	—	—	—	—	—

* Died on third day of bronchitis and œdema of the lungs. *Post mortem:* Wound healthy; no peritonitis.

TABLE V.—*Prolapse.*

No.	Name.	Age.	C. S.	Place.	Date.	Doctor.	Particulars of Operation.	After-history Notes.				
								Date.	Pregnancies after Operation.	Condition of Uterus.	Scar.	General Condition.
1	C. W.	50	M.	T.H.	25.3.01	—	Ventrifixation; radical cure, umbilical hernia	15.2.05	—	Well slung up in good position	Linear, firm	Good.
2	L. L.	41	M.	T.H.	17.7.02	—	Ditto, 2 sutures; perineorrhaphy	—	—	—	—	—
3	E. W.	23	M.	C.H.W.	15.12.02	—	Ditto	8.2.06	—	Well slung up in good position	Linear, firm	"Better than ever I have been."
4	L. C.	44	M.	T.H.	12.2.03	Dr. Majoribanks	Ditto	16.3.06	—	Well slung up in good position	Linear, firm	Very good.
5	E. H.	58	M.	T.H.	2.4.03	—	Ditto	—	Died later of carcinoma of the rectum	—	—	—
6	L. H.	42	M.	T.H.	30.4.03	—	Ditto, 2 sutures	—	—	—	—	—
7	A. S.	39	M.	T.H.	30.4.03	—	Ditto, 2 sutures	—	—	—	—	—
8	C. O.	37	M.	P.	31.5.04	Dr. Styan	Ditto, 2 sutures; curetting	26.7.06	One; natural confinement at 8½ months	Well slung up in good position	Firm, fine lines	Very good.
9	A. K.	38	M.	T.H.	18.8.04	Dr. Staunton	Ditto, 2 sutures	—	—	—	—	—
10	H. C.	35	M.	P.	14.9.04	Dr. Wallace	Ditto, 2 sutures; anterior colporrhaphy	14.9.05	—	Well slung up in good position	Linear, firm	Good.
11	E. H.	55	M.	T.H.	27.10.04	Dr. Atkinson	Ditto, 2 sutures; anterior colporrhaphy	—	—	—	—	—
12	M. M.	22	M.	T.H.	15.9.04	—	Ditto, 2 sutures; anterior colporrhaphy	—	—	—	—	—
13	A. T.	28	M.	T.H.	22.6.05	Dr. Majoribanks	Ditto, 3 sutures	11.7.06	—	Well slung up in good position	Linear, firm	"I feel better and stronger."
14	M. B.	49	M.	T.H.	17.8.05	Dr. Black	Ditto, 3 sutures; anterior colporrhaphy	—	—	—	—	—
15	M. W.	40	M.	P.	20.8.05	Dr. Frazer	Ditto, 3 sutures	25.7.06	—	Well slung up in good position	Linear, firm	"Much better."
16	A. L.	40	M.	T.H.	14.9.05	Dr. Crawford	Ditto, 3 sutures	24.7.06	—	Well slung up in good position	Linear, firm	Very good.
17	N. C.	35	M.	C.H.W.	29.1.06	Dr. Pritchard	Ditto, 3 sutures	26.7.06	—	Well slung up in good position	Linear, firm	"Much better."
18	E. E.	50	S.	P.	3.3.06	Dr. Daly	Ditto, 3 sutures	—	—	—	—	—
19	M. G.	33	M.	C.H.W.	18.6.06	Dr. Philip	Ditto, 3 sutures	—	—	—	—	—

TABLE VI.—*Total Procidentia.*

No.	Name.	Age.	C. S.	Place.	Date.	Doctor.	Particulars of Operation.	After-history Notes.				
								Date.	Pregnancies after Operation.	Condition of Uterus.	Scar.	General Condition.
1	C. C.	50	M.	T.H.	15.1.01	—	Ventrifixation; 2 sutures: perineorrhaphy	—	—	—	—	—
2	A. S.	38	M.	T.H.	28.11.01	—	Ditto, 3 sutures	—	—	—	—	—
3	E. H.	19	S.	T.H.	2.2.02	—	Ditto, 2 sutures	—	—	—	—	—
4	B. —	—	M.	P.	8.3.02	Dr. Bower	Ditto, 2 sutures; perineorrhaphy	—	—	—	—	—
5	M. S.	52	M.	T.H.	28.3.02	—	Ditto, 2 sutures; perineorrhaphy	—	—	—	—	—
6	A. K.	35	M.	T.H.	15.5.02	—	Ditto, 2 sutures; perineorrhaphy	15.2.06	One abortion at 2½ months, some month after operation	Well slung up in good position	Linear, firm	Very good, "better than for years."
7	C. N.	44	M.	T.H.	22.5.02	Dr. Bowie	Ditto, 2 sutures; perineorrhaphy	—	—	—	—	—
8	A. B.	35	M.	T.H.	2.10.02	—	Ditto, 2 sutures; perineorrhaphy	—	—	—	—	—
9	A. S.	42	M.	T.H.	12.2.03	Dr. Majoribanks	Ditto, 2 sutures; perineorrhaphy	28.3.06	One. Abortion at three months, in January, 1904	Well slung up in good position	Linear, firm	very good.
10	K. B.	52	W.	C.H.W.	3.4.03	Dr. Garman	Ditto, 2 sutures; perineorrhaphy	6.2.06	—	Well slung up; tendency to prolapse of vaginal walls	Firm	"Mrs. B. has greatly benefited by her operation." Note from Doctor.
11	F. M.	30	M.	T.H.	12.5.04	—	Ditto, 2 sutures; perineorrhaphy	12.7.06	—	Return of total procidentia	Linear, firm	Very good.
12	R. L.	23	M.	T.H.	7.7.04	—	Ditto, 2 sutures; perineorrhaphy	—	—	—	—	—
13	C. B.	26	M.	T.H.	26.10.05	Dr. Pearson	Ditto, 3 sutures; perineorrhaphy	26.7.06	—	Well slung up in good position	Linear, firm	"Much better."
14	J. S.	60	S.	C.H.W.	27.11.05	Dr. — —	Ditto, 3 sutures; radical cure of umbilical hernia	—	—	—	—	—
15	E. G.	47	M.	C.H.W.	11.12.05	—	Ditto, 3 sutures	—	—	—	—	—
16	F. G.	43	M.	C.H.W.	29.1.06	—	Ditto, 3 sutures; anterior colporrhaphy; right oophorectomy for hydrosalpinx	—	—	—	—	—
17	A. S.	42	M.	T.H.	12.7.05	Dr. Petty	Ditto, 3 sutures; shortening of utero-sacral ligaments	—	—	—	—	—
18	E. H.	60	M.	T.H.	26.7.05	—	Ditto; 3 sutures; ovariotomy, right	—	—	—	—	—
*19	A. H.	20	—	T.H.	20.4.00	—	Amputation of the cervix; ventrifixation; 2 sutures	14.5.03	One; normal confinement at term	Partly retroverted; fundus appears to be detached from abdominal wall	Linear, firm	Very good.
*20	E. H.	34	S.	P.	10.7.03	Dr. Bodwell	Ditto	28.7.06	—	Well slung up in good position; cervix looks well; no prolapse	White, firm	"Wonderfully well" till she began to suffer from gastric ulcer 1½ years after operation.

* Cases associated with hyperplasia of the vaginal portion of the cervix.

considered the influence of the operation on pregnancy, and can now review the influence of pregnancy on the results of the operation. I was able to examine all the 12 patients after pregnancy. In 10 of them the uterus had remained in good position, in most cases firmly attached to the abdominal wall, and in 1 case slung up, apparently by a short band, such as is known to form in certain cases. In 2 of the 12 cases the uterus was found in a condition of partial retroversion; in one of them the fundus appeared to be detached from the abdominal wall, and in the other I judged that there was a rather long band. The last case was examined after a miscarriage, and was one of those who afterwards had a full term pregnancy. We may, therefore, say that pregnancy has a slight tendency to disturb the position of the uterus after ventrifixation, but that in over 80 per cent. of cases the uterus retains its good position.

The results in cases where pregnancy did not follow the operation were as follows;

Uterus well slung up in good position	...	...	...	52
Uterus in good position, apparently with a band			...	4
Uterus presumably in good position (No. 1, Table I)			...	1
Fundus well attached; cervix remained hyperplasic			...	1
Total good results	...	...	...	58
Complete return of retroversion	...	...	...	2
Complete return of procidentia	...	...	...	1
Total failures	...	...	...	3

Thus the ventrifixation in cases not followed by pregnancy gave good results in 58 cases out of 61, or 95 per cent. In 3 cases in which I have stated that the ventrifixation gave good results there was still some "bearing down"; in one of these the cervix remained low (No. 5, Table I), and this was a case in which I think it would have been an advantage to shorten the utero-sacral ligaments. In another (No. 10, Table V) there was some tendency to prolapse of the vaginal walls; it would probably have been better if I had done an anterior colporrhaphy, as well as a perineorrhaphy. In the third case (No. 15, Table VI) the cervix protruded from the vagina, even though the fundus remained attached to the abdominal wall, and I had to amputate the cervix later on. Here I should, perhaps, have done better to amputate the cervix at the time, but the patient was a weakly creature, and the longer operation might not have been good for her. In so far as these 3 cases were not entirely satisfactory, the reason lay, not in the operation of ventrifixation, but in the fact that accessory procedures were not simultaneously carried out.

Of the three complete failures two have been referred to when speaking of the suture material; they were cases of retroversion, in which the displacement returned. I operated again on both of them, and found that the sutures had cut out of the uterus. The results of the second operation were in every way satisfactory. The third failure was a case of total procidentia (No. 11, Table VI); in this case also two sutures only were used to support the uterus; and I judge that the fundus has become detached. She is anxious to have the operation done over again, and I propose to do it in the autumn.

Counting all the 73 cases, whether followed by pregnancy or not, the ventrifixation was successful in 68, or 93 per cent.

(*c*) *The Abdominal Scar.*—There was one case of hernia after operation in my 73 cases. This was No. 10, Table III. I operated again later, and the present scar is rather weak, but there is no hernia. This case was one of 4 cases in which there was some suppuration in the wound from stitch infection, but it was the only one in which hernia resulted. In the other 3 cases the wound healed soundly after one or two sutures had been removed. In a few cases the skin of the wound was a little stretched, while the fascia layer remained quite sound. In most cases the wound remained linear.

I may observe with regard to stitch abscesses that the tendency thereto in all my abdominal work has been markedly diminished since I began to use gloves systematically two or three years ago.

(*d*) *The Patient's General Condition.*—The results as regards this point are difficult to express statistically, but there were only 6 out of the 73 cases where the patient did not express herself as better for the operation. One of these was kept weak from haemorrhage due to piles: another from menorrhagia, and in her case, as I said earlier, the result would probably have been better if a curetting had been done at the same time; a third patient was kept in bad health by "fits"; and three other patients remained weak. Still, we may say that over 90 per cent. of the patients received definite improvement symptomatically as well as anatomically, and this result may be regarded as satisfactory. A glance down the last column of the tables will show that in many cases the improvement in the patient's condition was striking; the patients themselves described their improvement in such terms as "perfectly well in every way since operation"; "a world better since operation"; "splendid, never so well before"; "ever so much better, quite a different woman"; "as different from what I used to be as day from night"; "much better, I feel life is worth living now"; "I have been a new woman"; "I do not feel like the same person"; "better than ever I have been," etc.

Conclusions.

I may sum up the observations contained in this paper as follows:

1. *Indications for Ventrifixation.*—The operation is of value:

(i) In cases of movable retroversion of the uterus when pessaries have been tried without success; when the uterus retains its position as long as pessaries are worn, but falls back as soon as they are removed; and in cases where the patient prefers a radical procedure to pessary treatment and the consequent repeated examinations.

(ii) In cases where the uterus is held down by adhesions in a position of retroversion.

(iii) In cases where a retroversion is complicated by disease of the appendages.

(iv) In cases of prolapse and of total procidentia.

2. *Operative Procedure.*—Coexistent abnormal conditions should be treated at the same time whenever possible. Thus, when there has been menorrhagia or endometritis the uterus should be curetted; a torn cervix should be repaired; a hyperplastic cervix should be amputated; small and solitary fibroids should be removed; prolapse of the vaginal walls should be treated by colporrhaphy or perineorrhaphy, or both; and diseased appendages should be treated by conservative procedures, or by removal, according to the nature of the case.

3. *Results of Ventrifixation.*—(*a*) In the event of pregnancy following operation there is a slightly increased risk of abortion, but about 80 per cent. of patients have an undisturbed pregnancy and a normal confinement, and the operation does not entail any added risk at the time of labour.

(*b*) Pregnancy has a slight disturbing influence on the position of the uterus, but in over 80 per cent. of cases the uterus maintains its position, in spite of pregnancy. In cases not followed by pregnancy the operation is permanently successful in 95 per cent.

(*c*) The abdominal scar gives trouble in only 2 or 3 per cent. of cases.

(*d*) The operation leads to marked improvement in the patient's general condition in about 90 per cent. of cases.

Dr. E. C. DUDLEY (Chicago), after an experience of several hundred cases of suspensio uteri—not fixation—in which the posterior wall of the corpus, at the point near the fundus was sutured with catgut to the anterior parietal peritoneum (near the bladder), was able to endorse this operation so far as the correction of the displacement and relief of symptoms were concerned. This operation, however, was not anatomical, while that of Gilliam was anatomical, and the latter was the one which the speaker now employed. He admitted that further observations were needed to confirm the claim of Gilliam. Most of the blame laid at the door of suspension properly belonged to fixation.

Dr. TODD GILLIAM said he shared the objections to ventrifixation stated by Dr. Dudley. As the pioneer of operations on the round ligament for ventrisuspension, he had watched the development of this operation with great interest, and from an analysis of many hundreds of cases thought a symptomatic cure was a nearly universal result. The success was due to the fact that the round ligaments developed *pari passu* with the development of the uterus in pregnancy. No unpleasant sequelae followed pregnancy or parturition. The uterus was not suspended, but anchored, and there was no danger of incarceration or strangulation of the bowel, as there was an opening of 7 in. to 9 in. in circumference through which the bowel might enter or leave at will. The operation was simple, efficient, and safe.

Dr. J. WESLEY BOVÉE (Washington) said ventrifixation and ventrisuspension substituted one anatomical deformity for another, and he had abandoned both operations five years ago. Uncomplicated retroversion gave no symptoms and needed no treatment. Complications were the indications for treatment. He preferred ligamentous operations to ventrifixation, and dealt with both the utero sacral and round ligament, and also the utero-vesical ligaments. In cases of procidentia after the menopause hysterectomy was preferable to ventrifixation.

Dr. S. N. HAY (Toronto) always curetted before performing ventrisuspension, and if the cervix was elongated it should be amputated, as being likely to worm its way into the axis of the vagina and cause displacement. He was surprised that Dr. Giles made no distinction between ventrisuspension and ventrifixation. In Canada the fixation operation was reserved for those cases which are beyond the risk of pregnancy. He had opened the abdominal cavity several times at a period of from two to two and a half years after operation, and always found the uterus in good position, with a central ligament about 2 in. long still on duty. In one of these cases the patient had gone through pregnancy and parturition in a perfectly normal manner, the uterus remaining afterwards in good condition.

Dr. TEMPLE (Toronto) believed that ventrisuspension was much to be preferred to ventrifixation, the latter being an obsolete operation, whilst suspension was an admirable operation, as it in no way destroyed the mobility of the uterus. Abortion rarely followed suspension, whilst it was common with fixation. Before any such operation was performed preliminary treatment, such as curetting or trachelorrhaphy, should in all cases be carried out.

Dr. W. GARDNER (Montreal) said the importance of treatment of retroversion could not be over-estimated. Pessary treatment often failed for various reasons, and by many patients was rejected, if a comparatively safe operation was offered as an alternative. He objected to ventrifixation in the sense of establishing a form of union of the fundus of the uterus with the abdominal wall, and aimed at creating a somewhat slender ligamentous attachment, which permitted of a degree of mobility of the uterus. As regards relief from pelvic pain, it was not to be expected that the

more permanent replacement of the uterus would in complicated cases relieve this symptom, which was often due to chronic metritis or to cystic or cirrhotic ovaries. The miscarriages which sometimes followed ventrisuspension were not the result of the operation, but were due to chronic metritis. He differed from Dr. Giles in the order of operative procedure. When a number of operations were necessary, it was best to curette and repair or amputate the cervix and then proceed to plastic work on the vagina and perineum, if indicated, concluding all by the abdominal operation. Of the various plastic operations on the vagina Le Fort's operation was a very valuable one in suitable cases, such as an extreme degree of relaxation of the vagina in a widow unlikely to marry, and past the child-bearing age. There were, however, cases on record of women conceiving and bearing children successfully after this operation.

CHANGES IN UTERINE FIBROIDS AFTER THE MENOPAUSE CONSIDERED WITH REFERENCE TO OPERATION.

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The expediency of operating for fibroids immediately preceding, during, or after the menopause must be settled in the light of all of the factors involved in the proposition. These factors are, clearly, the tumours themselves and their natural history; the menopause and its natural history; the influence of benign growths of the uterus upon the function of menstruation; the modifying influences of the physiological forces incident to the menopause upon such benign growths.

Their Evolution.

A proper conception of uterine fibroids must begin with a clear understanding of the fact that they have their origin in the muscularis of the organ, both corporeal and cervical. It is likewise to be borne in mind that these neoplasms consist of tissue elements similar to those that make up the muscularis of the uterus. But it is furthermore to be remembered that they represent these tissue elements, namely, involuntary smooth muscle fibres, and fibrous connective tissue, with some yellow elastic fibres, "mast cells" and "plasm mast cells," in proportions more variable than are found in the matrix from which they spring. It will be observed that I am restricting my discussion to the strictly myomatous or the fibromyomatous growths to the exclusion of adenomyomata, in which the tissue elements already described are interspersed with epithelial elements, probably embryonic inclusions, which in certain instances represent rudimentary glandular arrangements. I am excluding this class of growths, because, possessing distinctly heterologous elements, they are potentially malignant from the start, and are liable to become actively malignant; a fact which places them outside of the clinical problem under consideration. I am considering here simply the homologous, and, consequently, primarily benign growths, which, while they may be or in fact always do seriously disturb the morphology of the uterus, yet do not develop by the progressive invasion and actual metamorphosis of proximate structures. They do, however, produce certain structural changes, such for instance, as atrophy of certain bundles of fibre by pressure; the hypertrophy of certain other bundles in response to the impetus of growth inherent in the neoplasm itself; glandular and interstitial hypertrophy of the mucosa, due in large part, no doubt, to local increase of blood supply; oedematous infiltration of the mucosa, associated sometimes with small interstitial haemorrhage, due to interference by pressure with the efferent circulation. These changes, it should be remembered, are incidental to the evolution of the neoplasms under consideration, growths which, while sometimes very small, have been known to attain a weight of 140 lb.

Retrogressive Changes.

It is to be recalled, likewise, that fibroids are liable to retrogressive or degenerative as well as evolutional changes, and that among these changes are atrophy, calcareous and fatty degeneration, changes which within themselves are consistent with both the integrity and benignity of the growths. They may, however, become necrotic from pressure or they may be the seat of inflammation and suppuration, or in rarer instances they may undergo either myxomatous or amyloid degeneration, changes which, while destroying the integrity of the growths, do not change them from the benign to the malignant class. There are, however, certain degenerative processes that mark this transition. Too much stress cannot be laid upon the fact that fibromyoma, even of long standing, even after a period of several years of apparent stasis in development, may undergo sarcomatous degeneration. The statement sometimes made that these growths become the seat of carcinoma, although disputed by many, is, I believe, correct; for the very occurrence of this degenerative change in a growth itself supposedly fibromyomatous in character presupposes antecedent and concomitant conditions that harmonize with what seems to be the rapidly-evolving philosophy of cancer.

The Menopause, its Limitation and Significance.

With this cursory view of the evolution and involution of fibromyomata—the primary factors in the problem—it is important for us to glance at the second problem—namely, the menopause; and in this connexion it is probably sufficient to observe that when that period of life is reached in which menstruation ceases physiologically, the cessation of function is associated with various tissue changes in the genitalia. These are all essentially involutional in character. The nymphae shrink and fuse with the labia majora; the rugae of the vaginal mucosa disappear; the vaginal cone becomes reversed through the fusion of the fornices; the endometrium loses much of its epithelium; its mucous follicles atrophy; the muscularis of the uterus diminishes from a fifth to a third in volume and weight; the Fallopian tubes become thinner, narrower, and shorter; and the ovaries, with hardened tunics and shrivelled and hardened stroma, largely lose their follicular characteristics. These changes are in response to that fundamental biological law that defines and consequently limits the cycle of reproductive life and to that other law which prescribes the correlation between functional activity and structural development.

The Influence of Fibroids on the Menopause.

Then, starting with this fundamental fact of the relationship between structure and function, and recognizing the additional fact that in the majority of fibroid cases the neoplastic process is associated with true hyperplastic changes in both the muscularis and mucosa, we are prepared for the deduction that the menstrual function is liable to become not only exaggerated, but the duration of the function itself is liable to be prolonged beyond the usual period through the influence of fibroids of the uterus. Dan Milikin states specifically that "tumours which have a mural or submucous situation tend, in general, to maintain the menstruation to the age of 50 or beyond." I have a patient, whom I yet see occasionally, in whom there existed a rather diffuse fibroid of the uterus and in whom menstruation, otherwise normal, was prolonged to the age of 59.

Fibroids Excluded from Consideration.

But there are certain cases, in addition to those to which I have alluded, that are obviously excluded from doubt as to the expediency of operation irrespective of the menopause. Thus, I fancy, no one would hesitate to advise operation in the instance of a fibroid, large or small, soft or hard, that is occasioning severe and recurrent haemorrhage, or in a case of rapidly growing fibroid, or in the presence of suppuration, or of symptoms of pressure, particularly if such pressure were clearly increasing in severity and consequent danger. The question of operation for fibroids during active reproductive life is another problem that cannot be solved by set rules, much depending upon the position and character of the fibroid and the symptoms that it may be inducing at the time. The practitioner should, however, at all times be governed by the axiom that a fibroid, of whatever character, is potential only for mischief, and that, other things being equal, it is better out than in. And it is likewise important to remember that the menopause cannot be relied upon to take the place of the surgeon.

THE THEORY OF THE INNOCUOUSNESS OF FIBROIDS AFTER THE MENOPAUSE.

The facts to which I have referred, strictly elementary in character, are mentioned only because their consideration is necessary for a full statement of the relations of fibroids to the menopause and of the assumed practical significance of such relationship. Thus it is assumed that, as we have seen, fibroids spring from the uterine wall, upon which they depend for their nutrition—the involutional changes in the uterus and the general modification of nutrition incident to the menopause must naturally tend to establish similar involutional changes in the fibroids themselves, which will thereafter become innocuous. The first thing observed under these circumstances is an arrest of growth of the tumour, which is sometimes followed by atrophy and this, in turn, by induration. With these organic changes there occur corresponding modifications of symptomatology. The uterine flux diminishes, while pain and other symptoms of pressure lessen, if they do not entirely disappear. The course is fairly illustrated by two cases that I have in mind which, briefly stated, are as follows:

Observation I.—Mrs. P., now quite 65 years of age, was under the observation of my father, Dr. Stockton Reed, before I entered practice, and has been under my own observation at intervals for more than twenty-five years. When my father first saw her, now more than thirty years ago, he found a fibroid, the upper margin of which was near the umbilicus. Aside from a rather active menorrhagia, never alarming, and aside from an annoying deformity, it occasioned no active symptoms, and he accordingly gave her the advice then, fortunately, more in vogue than it is at present, namely: "Don't bother the tumour until the tumour bothers you." From that time to the present, however, aside from the inevitable inconvenience resulting from its presence, the tumour has not bothered the patient; indeed, during the quite ten years since the menopause it has been somewhat smaller and has consequently occasioned even less inconvenience than previous to that period.

Observation II.—Mrs. W., aged 62, came to me three years ago with no very distressing symptoms, but full of alarm because a surgeon, examining her for some vesical disturbance, had told her that she had a fibroid for which she needed immediate operation. I found a hard, even dense fibroid the size of my fist, and thoroughly movable. I explained to her as nearly as I could the law of probability as it applied to her case if left alone. She decided for several reasons, and on her own responsibility, to defer the operation until some danger signal should warn her to take the necessary step. She has since seen me at intervals of every two or three months to make sure of her condition, which has remained unchanged, with the exception that the tumour has grown gradually smaller, harder, and more mobile.

It is cases such as the preceding—and I could readily multiply the instances—that prompt many practitioners to act upon the theory that if fibroids can be carried along, even with some hazard to the menopause, the growths, in response to the involutional changes of that period, will become quiescent, probably atrophic, possibly calcareous, and, as they argue, consequently innocuous.

THE QUESTION OF THE "INNOCUOUSNESS" OF CALCAREOUS FIBROIDS.

The idea that a fibroid that has undergone calcareous degeneration has by that change become innocuous, and the hope that all fibroids that can be brought to the menopause will undergo that change, is, indeed, the foundation for the let-alone policy that is to-day all too indiscriminately prevalent with the profession. That it, indeed, has some show of reason is indicated not only by the elementary facts that I have recited, but by the cases that I have presented, and that are doubtless duplicated in the experience of many practitioners. But it is highly important that the other side of the proposition should be equally as well understood. That there is another side is shown by the following cases:

Observation III.—Mrs. T., aged 67, had carried a fibroid for nearly forty years, during nearly the last twenty-five of which the growth had remained stationary. Then after a quarter of a century of almost symptomless quietude the patient—without any apparent increase in the size of the tumour—suddenly began to develop serious pressure symptoms. The interference with the circulation of the lower extremities, the pain induced by pressure on the sacral plexus and in the kidney of the right side in consequence of pressure on the ureter, finally made an operation a welcome alternative. This was done in October, 1897, when it was revealed that the tumour, interstitial in location, had developed latterly into the broad ligament carrying the Fallopian tube and ovary of that side up to the level of the umbilicus, while, on opening the tumour, a calcareous shell completely encapsulating the growth and embracing several independent foci of calcareous degeneration, was found, drawings of which may be seen in my textbook of gynaecology.

Observations IV and V.—Two more recent cases, operated upon by me at the Good Samaritan Annex, Clifton, one in November, 1904, and the other in April, 1905, presented almost analogous histories.

These three cases are of themselves sufficient to show that calcareous fibroids cannot be relied upon to remain innocuous. The instances cited, however, are essentially similar in that they only point to a single set of complications. That there are other and more serious ones is shown by the masterly researches of Piquand.[1] Thus, Louis, Noble, and Heuning record cases of death from uraemia the result of pressure by a calcified fibroid upon the urinary passages; Guibe reports a fatality following obstruction of both the urethra and rectum from pressure similarly exerted; Demarquay recites the case of a vesico-uterine fistula the result of erosion by a calcified fibroid. Piquand records a death from general peritonitis induced by extravasation of urine through an opening that a hard fibroid had worn into the bladder.

Malgaigne and Lisfranc each report cases of the spontaneous enucleation of a calculus of fibroid origin and its escape into the bladder, where it was found just as we would find a calculus of vesicle origin. Mailla records an instance of rupture of the bladder from violence made effective by the presence of a calcareous fibroid. Bernard has reported a death from suppuration of one of these tumours. Duncan, Boussi and Lee have recorded cases of death due to such suppuration extending into the peritoneal cavity. MacClintock and Swiecicki report suppuration into the rectum and escape of calculus by that route. Duret and Lisfranc report suppurative communications with the vagina and the interminable discharge of calcareous fragments by that route, while the spontaneous expulsion per vaginam of whole calcified tumours followed by recovery have been reported from Hippocrates to Schenk, Lumpe and Pauchet. In addition to this category of complications it is to be remembered that Greco, Lomer, and Daniel have recorded cases of serious inflammation, sometimes involving the uterine adnexa, in which these hard tumours were causal factors.

The relative frequency with which different complications due to calcified fibroids occur is suggested by 81 cases, likewise collated by Piquand, in which there were 29 accidents due to compression of neighbouring organs; 15 instances of "abundant" metrorrhagia, and in 18 there were suppurations in the adjacent uterine tissues. An analysis of 26 reported deaths shows 5 from peritonitis, 3 from intestinal obstruction, 1 from retention of urine, 1 from ureteral compression and consequent uraemia, 1 from menorrhagia, 1 from sudden rupture of the bladder, 7 from cachexia the result of interminable suppuration, 1 from torsion of the uterus, and 6 in which death was preceded by cancer of the uterus appearing after calcification of fibromata.

THE RELATION OF FIBROIDS AND CANCER OF THE UTERUS TO EACH OTHER AND TO THE MENOPAUSE.

The last allusion carries us naturally to the question of the possibility of cancer occurring as the consequence of fibroids of the uterus and to the probable incidence of the complication. That the transition occurs would seem to be indicated by the following case:

Observation VI.—Mrs. J. (also beyond 60) had been carrying an indolent fibroid since long before the menopause, which occurred at 49. It was described to me by her attending physician, Dr. G. C. Skinner of Hamilton (O.), as having extended upward only to the level of the iliac crests until less than six months previously, when it suddenly began to grow. When I saw her for the first time it was nearly to the ensiform, and she was naturally the victim of pressure. The growth after removal was found to be highly oedematous, weighed 43lb., and on section proved to be a typical myosarcoma.

The occurrence of sarcomatous degeneration of fibroids has passed the controversial stage. The possibility of carcinomatous degeneration of these growths was, however, a bone of contention from Morgagni to Virchow, the latter of whom conceded the exceptional transformation of fibromyomatous into cancerous tissue—a pathological change the very possibility of which was stoutly denied by Cruveilhier. But since the days of Virchow reports have been published from not less than sixty distinguished

operators in Europe, to whom may be added Cullen and Noble of the United States, demonstrating beyond doubt the transformation of these benign into malignant growths.

The Pathology of Malignant Degeneration of Uterine Fibroids.

It is not necessary, in this connexion, to enter into a discussion of the pathological processes involved in this transformation. It is sufficient to say that the phenomena as observed show that cancer may develop in either (*a*) the interior of a fibroid, or (*b*) in the wall of a uterus that is likewise the seat of fibroids, or (*c*) that the two may occur coincidently in either the body or the neck of the uterus or both. Piquand[2] has collected a number of cases in which epitheliomatous development has taken place in the interior of pre-existing fibroids, although the researches of the same author indicate that the invasion of myomatous growths by epithelial elements originating in the mucosa is vastly more frequent. When epitheliomata develop primarily in the interior of previously benign growths, of which 24 examples are given, the circumstance is explained variously by various authors. Some of the older ones insist that there is a direct transformation of muscular and connective tissue fibres into epithelial elements; while adherents of the more modern school, following the teachings of Cohnheim, contend that this apparent transformation could only result from the proliferation of epithelial elements originally included in the fibromyomatous mass. In further elucidation of the latter postulate it is explained by Recklinghausen that these errant epithelial elements are derived from the embryonic débris of the Wolffian body and of the Müllerian ducts, a conclusion which seems to have been confirmed by other observers. The proliferation of epithelial cul-de-sac termini of mature follicles through the submucosa and their isolation through contractile action of underlying fibromyomatous striae is another explanation of the occurrence of independent foci for epithelial development in a fibromyomatous matrix. Just what explanation will be offered by the still newer school now in process of rapid evolution—a school which seems to be working from the starting point of observed concrete facts, and which seems to be moving in the direction of the parasitic origin of cancer—I say just what explanation this school will offer remains to be seen. But whatever may be the histogenesis of these various elements, the fact that these malignant degenerations do occur, and that they occur under circumstances which seem to indicate a causal relationship to the pre-existing fibroids, is sufficient for the practical surgeon.

Relation of the Menopause to Degenerations of Uterine Fibroids.

Of equal importance to the surgeon, or, more properly, to the medical adviser, is the obvious relationship between the menopause and the degenerative changes that have just been described. The modifications of structure theoretically predicated upon the involutional changes of the menopause and of the succeeding years are verified by actual observation. Thus, it is indeed exceptional to find calcification of a fibroid in a subject under 45, while its frequency increases relatively to advancing years. In respect of malignancy occurring in cases of latent fibroids of the uterus, it is significant that of 84 cases collated by Piquand[3] 57 had passed the menopause before the appearance of the first symptoms indicative of cancer. The condition was found to be very rare under 40, but 7 cases out of the 84 being accredited to that period of life. These figures, meagre enough, but which could doubtless be amplified by more extensive research, teach the lesson that is too often confused by the impressions of daily experience. A long-standing case of innocuous fibroid tends, naturally, to beguile us into the hope that other but active cases may, by awaiting the menopause, realize a similar quiescence. But, as we have seen, the hope may prove delusive, and we may be called upon, after all, to operate for the relief of our patient's martyrdom. It is important, therefore, that we shall be able, at the outset, as nearly as possible to explain to our patients their chances under, respectively, the let-alone policy and that of interference.

The Law of Probabilities as Applied to Fibroids of the Uterus after the Menopause.

It is unfortunate but true, however, that the law of probabilities as applied to these cases cannot be expressed with precision. In the first place, the incidence of fibroids at any age is not a matter of statistical record. The end-histories of such cases, whether operated upon or not, are likewise meagre. And it must be allowed that the records of hysterectomies and myomectomies in the hands of all operators are equally inaccessible. Without such data and more of the same sort we cannot speak, at least with the definiteness of an actuality. But there are some things that we do know relative to probabilities in these cases. Thus, in 81 cases of calcified fibroids by European and American operators, there were 20 deaths due to the direct influence of the growths and 6 deaths due to cancer that was apparently caused by the degenerated fibromata. Of 175 cases of calcified fibromata, 64 required surgical interference, some of them having been of very long standing. Of the remaining 111 cases, that is, those not operated upon, it is known that 19 died from causes directly imputable to the calcareous fibroids, the history being complete in only 38 cases. Fuller records would probably have shown a greater mortality.

If now we turn to cancer as a complication of uterine fibroids, we find that Piquand[4] has been able to reach certain important conclusions that bear directly upon the practical problem that we have under consideration. Thus (*a*) the coexistence of fibroids and cancer of the uterus is not rare, as he has been able to collect 360 cases; (*b*) the development of an epithelioma by invasion of a fibroid is rare, as he has been able to collect only 44 cases; (*c*) the development of a primary epithelioma within a fibroid yielded 24 cases; (*d*) the coexistence of a fibroid and a cancer of the body of the uterus occurred 179 times; (*e*) fibroid with cancer of the neck of the uterus was found 136 times. Something like 80 per cent. of all of these cases developed malignancy after the menopause.

These figures are suggestive of the patient's chances with fibroids of the uterus if left to the influence of the menopause. What are the probabilities on the side of the operator? In the first place, we are justified in saying to our patients that operations for fibroids, when strictly elective, in uncomplicated cases and in the hands of experienced and skilled operators, yield a mortality of 5 per cent. or less; that operations made necessary by complications consecutive to calcification of fibroids yields a mortality in excess of 17 per cent.; that operations for fibroids that have become the seat of cancer or that have become complicated with cancer developing primarily in the uterine tissues, is followed by a primary mortality of nearly 20 per cent.; and, finally, that there are no statistics of the ultimate results in these fibro-cancerous cases, but that they probably show a mortality of nearly 100 per cent.

Conclusions.

In view of the natural history of fibroids of the uterus; in view of the natural history of the menopause; in view of the degenerative changes and consequent complications to which such growths are liable, particularly following the menopause: in view of the clinical facts and statistical records that I have presented, I respectfully submit:

1. The only safe place for a fibroid of the uterus, however small or large, however soft or hard, however recent or old, is outside of the patient's body.

2. The menopause is a poor surgeon.

3. There are certain fibroids of the uterus that ought to be relegated to operation without reference to either the nearness or the remoteness of the menopause. Thus, tumours that cause recurrent haemorrhages of increasing severity that not only debilitate but threaten practically to exsanguinate the patient; tumours of progressive and rapid growth, whether they induce haemorrhage or pressure or not; tumours whether large or small, active or indolent, so situated that they by pressure interfere seriously with either the circulation of the blood, the excretion of the urine, the activity of the bowels, or the functional integrity of the nervous system; tumours that become the seat of either suppuration or malignant degeneration.

4. It follows, therefore, that the only cases concerning which any question as to the expediency of operation may arise are those in which the tumour does not cause haemorrhage or exert pressure or present evidences of

either infection or malignancy, or that has ceased to grow and in which some condition, not connected with the tumour itself, makes operative interference the more dangerous policy.

5. Patients who choose to adopt a waiting policy should be apprised of all the danger incident to such a course and should be admonished to place themselves under professional observations at frequent intervals.

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[1] La Calcification des Fibro-myomes de l'Utérus, par G. Piquand. *Annales de Gynécologie et d'Obstétrique*, Paris, 1905. [2] *Annales de Gynécologie et d'Obstétrique*, 1905, p. 326. [3] Ibid. [4] Ibid.

Dr. J. F. W. Ross (Toronto) said: Having listened carefully to Dr. Reed's excellent exposition of this subject, I rise to enter a protest to his conclusions. It is important that the younger men of the profession should be properly guided, and anything that Dr. Reed writes is read with interest and looked upon as the dictum of an authority, the word of an author who has written an excellent work on gynaecology. I fail to follow his reasoning when he tells us that the safest place for a fibroid is out of the woman, unless he goes further and says that a degenerating uterus at the menopause is safer out of the patient's body. A fibroid is only an outgrowth of the muscular tissue of the uterus, and not a malignant growth, and very seldom, if ever, does it undergo cancerous change. Cancer often accompanies myomatous tumours, but it very frequently occurs in the uterus at or after the menopause when no fibroid tumour is present. I have never satisfied myself that fibroid tumours produce such irritation as leads up to cancerous development. Sarcomatous degeneration of fibroids does occur, but not frequently. The removal of a small fibroid from a young married woman is a serious operation. An enucleation is not so unfortunate under such circumstances as total removal of the uterus. Total removal prevents a possibility of motherhood; if after this time the same objection does not obtain, and if then malignant disease develops it is possible and right to remove the organ. When tumours are growing in spite of the menopause, they should be removed. I agree with the essayist in much that he says, and compliment him on his excellent exposition of the subject.

Dr. Byford (Chicago) called attention to the small number of recorded deaths due to the changes mentioned by the essayist in comparison to the large number of tumours that occur. Hyperaemia about the tumour and the mucosa predisposed somewhat to malignant changes, but they did not remove a uterus on account of congestion. Many died without these tumours having been suspected. They knew that the single tumours usually grew fat and underwent myxomatous and cystic degeneration, but that the multiple growths were apt to interfere with their own nourishment, and did not always grow large, and, if still quite small, might be watched. Thence at the menopause, if the tumours were small, they might not grow much, and it then would not matter if they underwent calcareous degeneration; that would be Nature's cure.

Dr. William L. Reid (Glasgow) said: We are restricted in this discussion to treatment of fibroids after the menopause. In certain cases fibroids which have been known to exist before the menopause shrink slowly and practically disappear after it. In other cases they slowly or rapidly enlarge, due either to degeneration of a cystic sort, or to general growth of tissue. In the former case they should be left alone but watched at intervals. In the latter they should be removed, as being almost certain to give rise to serious symptoms. The former are hard white fibroids, as a rule, with a well-marked capsule of connective tissue. The latter are soft, very vascular, and usually have no marked line between the tumour and the muscular tissue of the uterus.

Dr. D. W. Gardner (Montreal) did not believe that Dr. Reed was so radical in his advocacy of the almost universal removal of fibroid tumours, as to include a case such as the following, which he had had the opportunity of watching with the patient's ordinary medical attendant. This was a woman, who became pregnant soon after marriage, and, as the uterus grew, a cluster of subperitoneal fibroids appeared on the body of the uterus. This woman had been safely delivered three times, the pregnancy, labour, and puerperium being normal in each case.

Dr. Henry O'Marcy (Boston) said each patient was an individual factor. In a general way he approved the conclusions of Dr. Reed. A uterine myoma, as a rule, should be removed. If there was a mortality of over 4 per cent. a fault in technique should be suspected.

Dr. J. Evans (Montreal) favoured a conservative attitude, and mentioned a case in which a tumour complicated pregnancy at the third month, causing excessive enlargement of the uterus. The tumour was as large as two fists, and was situated on the anterior uterine wall. It remained palpable for about two years, but it disappeared within six months, the patient having been delivered at term. He mentioned three other cases with tumours which he had delivered at term without difficulty, and the tumours had since given no trouble.

Dr. W. S. A. Griffith (of London, England) referred to two cases of calcified fibroids in old women requiring removal, recorded by him recently in the *Transactions* of the Obstetrical Society of London.

Professor Murdoch Cameron (Glasgow) said he was quite assured, in spite of repeated assertions, that true fibroids did not disappear and early operation, should be advised. The local treatment of all fibroids should be the same as for the appendix, and when thus performed, the mortality should be almost nil.

Dr. Joseph Price (Philadelphia), in reply to Dr. Murdoch Cameron, fully agreed with him as to the treatment of fibroids. He spoke of Dr. Cameron's water-coloured picture, and wondered if he made the diagnosis before operation. He was of the opinion that all fibroid patients were not right mentally, to say nothing of the cardiac and other conditions. He criticised Dr. Reed for carrying along a fibroid case through generations, and spoke of using all hospitals for teaching young men before they undertook to do operations. He referred to the easy removal of single or multiple fibroids by the vaginal route.

INDICATIONS FOR CAESAREAN SECTION OTHER THAN PELVIC DEFORMITIES OR TUMOURS.

By H. L. Reddy, M.D., L.R.C.P.Lond.,

Physician-Accoucheur, Women's Hospital, Montreal.

I venture to bring the subject of abdominal Caesarean section as an operation of election in certain conditions such as eclampsia, placenta praevia, etc., hoping that the resulting discussion may make up for the brevity of the paper and prove helpful in opening up a wider range of usefulness for the operation.

I feel very strongly that section has far too long been looked at by the average physician almost in the light of a forlorn hope, instead of being a comparatively easy operation capable of being performed almost anywhere successfully by any one following aseptic rules. I have known it to be done in a small backwoods village by a country doctor successfully twice on the same subject with only a *confrère* to give the anaesthetic. It has been done in log huts with but little light and none of the surroundings which in the older countries are considered *sine qua non*. My own experience of it has not been very extensive, as I have only operated fourteen times, but was successful in thirteen of the cases. The fatal one was a patient with a deformed pelvis and already in a desperate condition. We gave both mother and child the only chance possible, but we could only save the child.

My experience of section has given me sufficient confidence both to do it and to advocate it in certain classes of cases much more frequently than it is done at present. It is much more easy to perform than many a case of appendectomy or even *accouchement forcé*. If we look at the results of the operation in the past when 50 per cent. died, and in the present when it is considered almost as safe as an ordinary confinement, what valid reason can be advanced against operating when the interest of the mother, and particularly that of the child, calls for it?

As an operation of election in certain cases of eclampsia, probably in the past there is no condition which was subject to a greater diversity of opinion as to its treatment, but I think to-day that the consensus of opinion is slowly but surely becoming more and more strong in favour of rapid delivery by those having the largest experience (no

matter when the attacks occur), in the interests of the mother and child when viable. Such is certainly my experience in the cases I have had to deal with both in my hospital service and in private practice.

The question naturally arises, How should we deliver the child? In the greater proportion of cases at term there is usually little difficulty—at most a little extra dilatation, and perhaps forceps or turning. But let us take a not uncommon case, where convulsions have set in early or at full term and the cervix is not taken up and the os not dilated and the woman should be immediately delivered, what is best to be done? This month I have assisted a *confrère* with section in an eclamptic of the seventh month just under such conditions. The patient's condition was very bad, rapid delivery was required, section was performed, the patient survived only two days, but the child was saved and is doing well. I cannot do better than quote Sir Halliday Croom's very able paper in which he discusses the four methods of rapid delivery: Dührssen's cervical incisions, dilatation by mechanical dilators as the Bossi dilator, vaginal Caesarean, Caesarean section proper. He points out the danger of the first method from infection and haemorrhage, and also that it must be performed by a practised accoucheur; it requires more assistance than section, and, as a general rule, a great deal of repair.

Mechanical dilatation, although very much in favour with some at present, does not mean a rapid delivery, and only too often, no matter how carefully it may be performed, a careful examination will show lacerations. Vaginal Caesarean has all the objections urged against Dührssen's, and is a still more difficult operation.

On the other hand, abdominal section is simple and easy and practically free from danger. One reason, perhaps, why the average physician is slow to perform it is because it is more or less of a spectacular operation, making it appear seemingly more difficult than it is.

Is section justifiable as an operation of election in placenta praevia? This has been a very debated question since its introduction by Lawson Tait in 1899. To-day I think the opinion of many of the ablest obstetricians, at least on this side of the Atlantic, are favourable to it under certain conditions. Dr. Zinke in 1901 wrote a very strong paper supporting this view, and in 1905 Dr. Douglas of Tennessee also wrote supporting it, and I think these papers if read will help to convince those opposed to it. That the treatment of every case depends on the conditions present, and that no treatment can be given applicable to all cases is without dispute. The modern aseptic treatment of placenta praevia, which only considers the mother, is as a rule entirely opposed to the interests of the child, and more especially is this true of placenta praevia centralis. Probably no change in the treatment of lateral or partial placenta praevia is demanded, as both mother and child will generally be saved. It is stated that 80 per cent. of the children are viable when the haemorrhage occurs, and 75 per cent. are near full term. Therefore in suitable cases the tampon or hydrostatic dilator with bipolar version, rupture of membrane, or even forcible dilatation of the os and the cervix, may generally induce a safe delivery of mother and child. We find, however, in placenta praevia centralis a very different condition to deal with, and as progressive medical men we must not allow ourselves to be tied down by what was considered classical treatment in the past, and so prevent further advances.

As far as statistics go—and they are apt to mislead—as the cases of placenta praevia centralis have not been separated from the other varieties, we find in such hospitals as the Sloan in New York 12 per cent.; the Boston Lying-in Hospital 10 per cent.; Schauta 18 per cent.; and Dorland over 22 per cent. mortality. In the Women's Hospital in the last five years it has been 16.6 per cent. (the fatal cases being ambulance cases and in a desperate condition when admitted). According to many obstetricians, placenta praevia centralis has from three to eight times a more serious prognosis than the other varieties, or a mortality of from 9 to 30 per cent., the latter being probably nearer correct. The statistics as regards the child we find have changed but little, as the modern aseptic methods as applied to the mother may save her, but have little or no beneficial effect upon the child.

Taking all the varieties of placenta praevia together, the infantile mortality is from 45 to 70 per cent.; in placenta praevia centralis it is 85 per cent. Take a case of placenta praevia centralis before the woman is exsanguinated and the child lost at or over seven months, and I believe no other treatment would stand beside Caesarean section for an instant. To-day section has rarely over 3 to 5 per cent. death-rate. There is no reason why it should be more here, and we would save nearly all the children. The insertion of the placenta is a matter of no importance, and its removal is as easy at the os as at the fundus, but what a difference to the mother and child! There is no place where tearing the cervix is so dangerous for mother and child, and none where the tissues tear more easily. If you follow the patient beyond the puerperium, you will find over 50 per cent. suffering, as Erich Radtke has found, from pathological conditions due to injuries received during the confinement when suffering from placenta praevia. In this case, truly, it is fortunate—I might almost say providential—for the profession that the parts are deeply seated, so that the graveyard of the woman's health and often happiness may be kept concealed. Should these things be so? Dr. Douglas sent the following telegram to fourteen leading physicians in the United States:

> In plac. prae. cent.: Para. 1. Child viable: compact woman: rigid cervix: free haemorrhage: surroundings favourable: Would you endorse Caesarean section?

Out of the fourteen, eleven practically answered in the affirmative. Since then cases appear every now and then in the journals, and, should an opportunity occur to me, I certainly shall not hesitate to take it.

Is Caesarean section preferable to some of the modern operations on the os and cervix in cases where for any reason the os and cervix are not dilated and some operation for the immediate delivery of the child is called for? Leaving out of consideration those cases which can be dilated by hydrostatic dilators, or by the hands, there is a class of cases which cannot be so dilated, and here there are three chief methods: First, a Bossi dilator or other mechanical dilator, secondly, Dührssen's incisions, and vaginal Caesarean section. Dührssen, after an exhaustive study of the Bossi dilator, concludes "that it is a dangerous, inefficient, and useless instrument." I know that such is not the feeling in many centres, and while personally I am not prepared to go quite so far, my experiences with it have not made me at all enthusiastic about it. Dr. Holmes, of Chicago, concludes about Dührssen's incisions as follows:

> It should be considered as a major obstetric operation, and should only be performed when recourse to other procedures is ruled out. It should not be done by one who is not skilled in obstetric manipulation, nor by any one who has not the armamentarium ready at hand to meet the complications which may arise from the use of the incisions. Aside from the anaesthetist, there should be two assistants to aid in the *post-partum* repair which may be indicated. Without them the technique will be faulty.

As to vaginal Caesarean section, what Dr. Holmes says about Dührssen's operation may still more strongly be applied to it. Why should any man advise the most difficult operation when the simpler more than satisfies every demand? In large city hospitals it may and will be done. Perhaps the kudos may have something to say to it, but does sound judgement advise it? Certainly not for the average man who can easily perform section. As to the objection of opening the peritoneal cavity, it does not exist under proper asepsis. As to haemorrhage, it is not as great as in ordinary confinements.

Caesarean section is, I believe, to be considered, as Dr. Williams says, when the os is dilated for one hour and the head does not engage at the brim. Within a month I have had a case referred to me in which the patient, a large woman with a roomy pelvis, had been in labour four days; os dilated but not quite fully; forceps had been tried by two physicians; child living; section was performed and the child born alive although it did not survive. The mother made an uninterrupted recovery. I cannot see, in this class of cases, what else can be done. Version is nearly as fatal as craniotomy, and as to symphysiotomy one only mentions it nowadays to condemn it. It is a difficult major operation, requiring more skilled assistance than any other obstetric operation, and the after-nursing is most difficult; if even an aseptic surface for operation is found it is difficult to keep it so.

After the separation of the pelvic bones, which is an uncertain quantity, the head may not pass, and I believe no man should interfere with the integrity of the pelvis, as no one can be certain of the results.

In cases of hypertrophic elongation of the cervix, or with a hard and undilated and undilatable os due to cicatricial tissue, a narrow vagina, and varices about the vulva and in the vagina—and labour present—I believe no other operation will give such good results as section. I have operated on one case of each kind with the happiest results.

Cases of valvular lesion of the heart, failing compensation with congestion of the base of the lungs, can, I believe, be best treated by section. I have operated on one such patient. She was unable to lie down and the heart was failing rapidly. As soon as the uterus was emptied, which was in less than five minutes after the operation was begun, improvement was noticed and continued until recovery was complete. I believe no other operation could be as rapidly performed, and certainly none could have left the patient in a better condition than she is to-day. It also allowed her to be sterilized to prevent future danger from the same cause.

Dr. A. McDermid (Chicago) stated that he had twice performed Caesarean section for pelvic deformity with results favourable to mother and child. He had advocated Caesarean section for placenta praevia, being led to do so by a recent experience in which he almost lost a case of placenta praevia from haemorrhage, the child dying. Such a case as this might have been saved by the abdominal operation. He thought Caesarean section was the best treatment in cases of eclampsia, and agreed with Dr. Reddy in denouncing symphysiotomy.

Professor Murdoch Cameron (Glasgow) stated that Caesarean section was quite uncalled for in placenta praevia, but was indicated in affections of the cervix or in fibroids, but even here possibly hysterectomy would be better. Caesarean section might be required in cases of tumours of the soft parts blocking the pelvic cavity. In many cases of eclampsia this operation would possibly save many lives where the os uteri remained undilated.

Dr. W. S. A. Griffith (London) agreed with Dr. Reddy in his opinion as to particular cases of placenta praevia requiring Caesarean section. He was very doubtful as to the advisability of performing Caesarean section in cases of eclampsia, except possibly in the interests of the child, and he was still more doubtful as to its employment in cases of heart failure.

Dr. William Gardner (Montreal) believed that in the list of indications for vaginal Caesarean section might well be included selected cases of hyperemesis gravidarum in which the symptoms were very urgent, indicating speedy emptying of the uterus. Rapid dilatation was very apt to tear the cervix at the internal os, if not at the external os. The clean incision of vaginal Caesarean section could be carefully adapted and sutured to secure union without cicatricial tissue.

UTERINE ABSCESS: METRITIS DESICCANS.

By Jas. W. Wallace, M.D., C.M.,

Glasgow.

Owing to the meagre amount of literature extant on the subject of uterine abscess and metritis desiccans, it was with a considerable amount of diffidence that I resolved to submit for your consideration the following facts which came under my observation for the first time in 1903.

Except for the writings of the Dutch Augustijn, and the description by Syromjiitnikoff of Moscow, in 1881, later still the scientific dissertation of Otto von Franqué of Wurzburg, and the splendid summary by Beckmann on metritis desiccans, little is to be found on the subject. (Some of the cases recorded by Beckmann in his summary are not real cases of uterine abscess and metritis desiccans.) Consequently I thought that the history of an inflammation of the uterus followed by a large uterine abscess, later by the expulsion of a portion of the uterine wall, still later by a pyosalpinx and hydrosalpinx and finally pregnancy, might safely be looked upon as such rare affections happening in one subject, as to make them worthy of your attention and consideration.

Case.

History.—The patient, age 25, had been married six years. She was of a healthy family, and previous to marriage had been in good health. One year after marriage the patient began to complain of pain, commencing two weeks before the period. It gradually decreased, and by the end of the flow, which ceased on the fourth day, the pain had disappeared. This condition lasted for one year. She was operated on in February of 1902 (presumably curetting), recovered quite, and in August of the same year became pregnant. Pregnancy went on satisfactorily until November, when she miscarried, and from that date she became worse. In her own words, and this is the all-important point, "never well after the abortion." The old pain returned, gradually becoming worse and constant. It was specially severe in the small of the back, and spread into the groins, although it never went any further down. After the mishap she never had a proper monthly flow; it came at irregular intervals, only lasted one day, the quantity being small, until it ceased altogether for three months. There had been leucorrhoea for several years, with very severe headache for the past few months, and violent attacks of sickness and vomiting. The bladder was very irritable: there was constant desire to pass water. There was great thirst, but no feverishness, although at times she felt cold and chilly. The tongue was coated with yellow fur: the eyes yellow. There was no albumen nor sugar. Lastly, and most important, was the increasing size of the abdomen, which was her primary reason for consulting me.

State on Examination.—On examining the abdomen it looked as if it were about the size of a six-months pregnancy, but unfortunately it was not measured. It was soft and doughy to the touch, and the patient experienced slight pain when pressure was made around the umbilicus; flanks resonant. A subinvoluted uterus was thought of, and on examining per vaginam the forefinger impinged on what was supposed to be a patent os. As nothing could be made out except that the uterus was large and filled the pelvis, the sound was tried, but it would not penetrate the uterus; even when the uterus was held with the volsella its progress was barred. Nothing more was done, but the patient was advised to go into a nursing home, which she did.

Operation.—She was put under chloroform, permission having been given to do whatever I considered best. After the vagina had been well washed out, I determined to explore the uterine cavity, and this I ultimately did. Before getting into the cavity, I noticed, when examining by the speculum, that the anterior lip of the os looked prominent and bulged; it was soft and fluctuant to the feel, and, when I caught it with the volsella, matter immediately trickled out. I therefore concluded that I had to deal with a large uterine abscess on the point of rupture, in addition to an inflammatory closure of the cervical canal. I at once plunged the sound right into the closed cervix, and after some difficulty entered the uterine cavity, when dirty, foul-smelling matter gradually came away. I then carefully dilated the uterus to the extent of admitting the forefinger. Before it was possible to get a basin adjusted, the pus had gushed out to such an extent that the operation table was covered. The matter was allowed to drain away while pressure was gently but firmly applied to the uterus through the abdomen.

The vagina was carefully sponged out and very slightly plugged with cyanide of mercury gauze. The patient was put back to bed, having stood the operation well.

Progress.—For seven days the patient did well, fluid gradually coming away and fresh dressings being applied round the vagina several times a day. On the early morning of the eighth day I was hurriedly telephoned for, and on arriving was told by the nurse that the patient had had a bad night since 10.30, the temperature, which was not usually above 99.4° F., having suddenly risen to 105° F. About 3 a.m. the patient suddenly exclaimed "Oh, nurse! what a pain! Can't you do something to relieve me?" Almost simultaneously a tremendous discharge of foul-smelling matter took place which saturated dressings and bed clothes—so much so, that the bed linen had to be changed at once, and the windows all opened. The stench was so bad that it still lingered when I arrived some hours afterwards: in fact, the nurse said she felt quite sick while cleaning up. Fortunately the nurse managed to collect some of the fluid, and also what she called "a piece of something." This "something" interested me very much, and it was at once handed on to a pathologist, who suggested uterine tissue, which, under microscopic examination, it proved to be.

Result.—From this date the patient rapidly improved, and at the end of six weeks was able to sit up for a short time. The swelling went down, the abdomen became quite soft, and the discharge ceased completely. Once more the uterus was examined, when it was found almost normal in size. I heard no more of the patient, and concluded that she was well again. At the end of three months I was asked to see her on account of pain in the right side. After vaginal examination I diagnosed pyosalpinx and advocated removal, to which she demurred. Her objection was based on the fact that she said she supposed she could never become pregnant if that operation were carried out. She finished her remarks by saying, "I think you might give me some interest for all I have already suffered." After due consideration of her case, I agreed to tentative measures. I opened the abdomen, aspirated about two drachms of pus from one tube and yellowish fluid from the other, which on

examination was found to contain streptococci. The abdomen was closed in the ordinary way, after careful attention to the toilet of the peritoneum. In due course she recovered, and went to the seaside for a prolonged holiday. I heard no more of her until she was about to be confined, which she duly was in the spring of last year. The child was a fine, healthy male, and the patient has remained well ever since.

Remarks.

The all-important question for us is, How did the abscess form? Whence the infection? Was it the result of imperfect recovery after the mishap, with, perhaps, retention of part of the after-birth? or was it due to previous tubal infection? By that I mean to say, Did she, previous to becoming pregnant, suffer from a tubal disease which ultimately affected the uterus, it being at the time under par owing to the abortion? For my own part, I have no hesitation in saying that the whole mischief arose from the tubes. The late Lawson Tait said that if he were a woman and condemned to suffer from either gonorrhoea or syphilis, he would prefer the latter. Being imbued with this idea myself, I cordially agree with his statement, and I think the case under consideration bears out this suggestion. Several years before I knew this patient I had treated her husband for gonorrhoea: he was very ill—in fact, he had to lie up for a period. I think it is now an established axiom that a man who has suffered from gonorrhoea and been apparently cured is still capable, under certain conditions, of communicating it to his wife even after years have elapsed.

Some of the best authors on this subject say that gonorrhoea is a disease which is never really cured; it only lies dormant. How the poison acts it is diffieult to tell exactly. Lawson Tait (vol. i, p. 401) says:

> In some of these cases of gonorrhoeal infection of the tubes the action of the poison seems so violent that it enters the uterus, destroys the ovum, causes peritonitis, and kills the patient. In others it stops short in killing the fetus and sterilizing the mother, rendering her a lifelong invalid—unless relieved by surgical operation. In other cases the infection seems to be quiet until labour is over, then the disease extends through the uterus to the Fallopian tubes and subsequently kills the mother.

Of examples of the first order, Noeggerath gives an admirable illustration (pp. 401, 402).

Of the influence of gonorrhoea in inflicting fatal or irreparable mischief immediately on the parturient woman we have ample evidence. As long ago as 1873 Dr. Angus M'Donald put the possibility of it beyond dispute, and he may justly be regarded as the author of this important discovery, even though he got the suggestion of it from Noeggerath.[1] The whole story is to me very suggestive, and a more careful research into these cases will show that a very heavy proportion indeed of women are the victims of their husband's early indiscretions. Dr. M'Donald further adds:

> We ought, therefore, I think, to be a very great deal more guarded in giving our permission of marriage to young men who have within a short period contracted a gonorrhoea, or who suffer from a gleety discharge.

With this Noeggerath and Lawson Tait concur, and the latter adds:

> I think very great carelessness seems to have been exercised on the part of those who have charge of cases of young men suffering from gonorrhoea. From the enormous number of cases of damaged uterine appendages which come under my care in young married women who have remained sterile after having been a few months married, I am almost disposed to believe that it is unjustifiable for a man who has ever suffered from a gonorrhoea to enter the marriage state at all.

This may seem to some too strong a statement but from what I have seen during the last ten years I am inclined to agree with it. Here I should like to state that Dr. Granville Bantock does not hold such strong views on this subject as the authors quoted above. This is shown in his pamphlet entitled *On the Importance of Gonorrhoea as a Cause of Inflammation of the Pelvic Organs*, read at the meeting of the British Medical Association in Birmingham, 1890.

Reference.

1 *Edinburgh Medical Journal*, 1873, p. 1030.

THE TREATMENT OF ECLAMPSIA.

By David James Evans, M.D.,
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It is doubtful if there is to-day any condition known to medicine in which there is greater diversity of opinion in regard to the therapeutic measures applied to it, or one on which more thought and effort has been expended with as little result, as in the condition which we designate "eclampsia"; nor can it be otherwise when so little is known of its etiological factors. On the average, the mortality, in spite of any method of treatment, is practically about the same, somewhere about 25 per cent. of all cases. Enthusiastic followers of some pet theory, either of etiology or of treatment, quote statistics which are apparently convincing, but the same method of treatment in other hands proves far from satisfactory in reducing the mortality, and it is impossible that it should be otherwise, for the virulence of these cases varies to such a degree that it is difficult to formulate conclusions from a small series that have any practical value.

Until we have learnt to distinguish various forms of eclampsia and are able to classify them more or less accurately according to a generally accepted standard, there can be but little value in the comparative study of mortality statistics. That there is a distinct difference in eclamptic cases in their clinical symptomatology, any one who has treated any considerable number cannot fail to recognize.

There is a general tendency to regard the number of fits as indicative of the severity of the attack, but no greater mistake can be made, for the susceptibility of the individual to toxic irritation varies to such an extent that a classification on this basis can have but little value.

Without considering the various theories of etiology it may be stated as being generally accepted that eclampsia is due to a form of toxaemia, and that the toxic material, whether derived from the fetus, or placenta, or originating in the woman herself, exerts its deleterious action upon the liver, kidneys, and the general nervous system. It is also pretty generally accepted that the liver plays a very important rôle in the development of the condition, that the kidneys are but secondarily affected, and that there may exist a considerable degree of toxaemia before the kidney function is impaired. The varying resistance of these organs to the toxic substances, as well as the general resistance of the maternal organism, must cause considerable variation in the clinical expression of the eclamptic condition. Granting that a toxaemia is the first cause of the condition, may it not find its clinical expression according as its energy finds outlet in the nervous system, the liver, or the kidneys?

Classification.

As far as I am aware but few authorities have attempted any classification of eclampsia. Dührssen divides eclampsia into two forms—eclampsia reflectorica and eclampsia toxica. In the former the nervous system plays the important rôle, and in its most acute variety there may be little, if any, evidence of the condition in the kidneys or the liver. This reflex form is to be met with most frequently in very young or old primiparae. Cases in which one or two convulsions occur during the dilatation of the os or at the moment of delivery may belong to this class. The increased nervous tension of pregnancy probably due to some degree of toxaemia predisposes to the explosion, which is analogous to the condition present in eclampsia infantum.

The individual disposition to nervous explosion must in the presence of toxic substances, as in eclampsia, play an important rôle. This form of eclampsia occurs in a proportion of about 5 per cent. of all cases of the condition, the toxic form occurring most frequently.

Edgar recognizes at least two varieties of eclampsia clinically: first, an eclampsia of nephritic origin, or of renal insufficiency; and, secondly, an eclampsia which is the natural consequence of the neglected toxaemia of the kind peculiar to pregnancy, which for the want of a better term he designates hepatic. He believes that these two types may be clearly differentiated.

The hepatic eclamptic shows symptoms of nausea, vomiting, and jaundice, but oedema is not marked. While albumen may be present in the urine it is not in as

large a quantity as in the nephritic form, nor are casts present.

The nephritic eclamptic has as prominent symptoms severe headache, disturbance of vision, puffiness of the face, and oedema of the extremities, together with marked albuminuria and the presence of casts.

Newall has also distinguished between the hepatic and renal form of eclampsia according as to whether the liver or the kidneys are most prominently affected. He thinks that the most severe cases are undoubtedly of the hepatic type, and that the less severe cases belong to the renal type, which are seldom fatal if properly treated, and are characterized by a group of symptoms closely analogous to those of renal insufficiency. He inclines to think that the hepatic variety results from an overwhelming dose of toxin, or from a toxaemia the earlier stages of which have been neglected.

Liepmann, to whose important work reference will be made later on, classifies his eclampsia cases according to the effect of the toxin on the kidneys, brain, or liver, and directs the treatment accordingly.

In the pre-eclamptic stage may it not be possible to recognize that, while eclampsia is threatened, the form it may take will depend upon the function of certain organs being properly maintained, and that the symptom complex may enable us to distinguish one class of case from another, and so to direct our treatment more intelligently?

The most valuable work upon this line has been accomplished by Edgar, who in his report gives a record of seven pre-eclamptic cases, three of which he considered belonged to the hepatic and the balance to the nephritic type. In the hepatic type there was but a trace of albumen to be found at any time in the urine. Vomiting, headache, and mental lassitude were prominent symptoms. Slight jaundice was present in two cases. In the cases of the nephritic type the symptoms were usually those of oedema—scanty urine and marked albuminuria. Dyspnoea was sometimes present. In these latter cases Edgar thinks any treatment is usually successful that is directed towards overcoming the renal insufficiency. In all of the cases there was a marked increase of the arterial tension noted, and the urine showed a high undetermined nitrogen proportion of the total nitrogen content.

Prophylaxis.

The importance of the arterial tension from the prophylactic standpoint has hitherto not received sufficient attention, though Edgar seems to rely considerably upon it, judging from the report of his cases. Kronig, Dührssen, Zangemeister, and others have made reference to the rôle of arterial tension in the eclamptic condition, they being inclined, on the whole, to consider that the spasm is a strong etiological factor in the production of the symptomatology.

Recently the work of Cooke and Briggs has established the fact that there is a definite increase of the arterial tension associated with the onset of the uterine contractions; that this tension is present throughout the whole of pregnancy, and is synchronous with the uterine contractions throughout.

The onset of labour is accompanied by increase of the systolic blood pressure due to the marked hypertension attending the forcible uterine contractions. Each labour pain is accompanied by a rise in blood pressure, continuing throughout its course, and exactly parallel with the state of the uterine wall. In the interval between the pains the blood pressure, while reduced, is still above its previous level. Then following delivery the blood pressure falls to the normal, and remains there unless there is some pathological condition present. They note that during eclampsia this hypertension is present, and that it differs in no way in its effects on the pulse from the ordinary uraemia of nephritis, and suggest the importance of this symptom as indicating the onset of eclamptic features. In any case, according to these authors the onset of hypertension of the pulse at any time throughout pregnancy should lead to apprehension of eclampsia in the absence of other well-recognized causes of abnormally high blood pressure. They consider that the persistence and increase of this pathological state of pulse tension is more directly indicative of approaching eclampsia, and of the actual existence of a minor degree of intoxication than is any change in the urine. They also consider that if the physiological fall to normal is absent convulsions should be apprehended. Vaquez also dwells on the prophylactic value of a study of the blood tension throughout pregnancy, and in eclampsia he considers that the patient should not be considered out of danger until the arterial blood pressure has returned to normal.

While there is no doubt that the kidneys play an important rôle in the elimination of the products of metabolism, particularly during pregnancy—and until recently eclampsia was considered as being wholly due to failure of the renal function—nevertheless considerable evidence of renal insufficiency may exist in pregnancy without serious results to mother or child. A certain degree of albuminuria may exist for weeks during the latter period of pregnancy without any clinical evidence of toxaemia.

Noble has collected no less than 10 cases where normal pregnancy and labour has followed the removal of one kidney. In one of these throughout the pregnancy there was evidence of pus and blood in the urine, and the patient died twenty-one months after delivery from tuberculosis of her remaining kidney.

The examination of the urine for urea and albumen as generally conducted has but little value from the standpoint of diagnosis or prognosis. As yet there has not been sufficient work done upon the urine of normal pregnant women to establish our knowledge on a sound physiological basis.

It is fairly certain that throughout pregnancy there is a diminished excretion of urea, a fact which is forgotten by many who place reliance on the quantity of this substance in the urine as an indication of the condition of the nitrogenous metabolism. Mathews has shown that the specific gravity of the urine of pregnant women is lower than that of the non-pregnant, and that the nitrogen elimination is diminished, 300 gr. per diem being the daily average toward the end of pregnancy, and it may fall as low as 200 gr. without any evidence of renal insufficiency when the patient is placed on a restricted diet.

Zangemeister considers that a diminution in the quantity of the urine secreted and in the proportion of chlorides are the most significant urinary changes in threatened eclampsia.

Zweifel dwells upon the marked diminution of the amount of urea as compared with the total nitrogenous secretion, and the definite increase in the ammonia compounds. Lactic acid he found present in the urine of 18 consecutive cases of eclampsia, he considering it of etiological significance. Wolf, who with Ewing has done most of the urinalysis for Edgar's cases, considers that Zweifel's conclusions cannot be supported. They, with Stone, who first in 1904 applied this method of urinalysis to the study of the urine of cases of the toxaemias of pregnancy, consider that a condition of the blood due to faulty metabolism, possibly arising from hepatic insufficiency, is the cause of eclampsia, and that there exists an autointoxication peculiar to pregnancy which may find its expression in the earlier months in pernicious vomiting, and in the later months in eclampsia. This autotoxic state results in changes in the metabolism, which exhibit themselves in characteristic urine conditions before lesions of the kidneys manifest themselves. The changes are in the nitrogen partition of the total nitrogen content of the urine. They consider that abnormal metabolism is indicated by a urine in which the various percentages of the total nitrogen excreted as urea nitrogen, ammonia nitrogen, and undetermined nitrogen, depart from the generally accepted normal standard (Folin's Table) for the given quantity of the total nitrogen excreted in twenty-four hours. A careful examination of the urine on these lines is of great diagnostic and prognostic value.

In pre-eclamptic toxaemia in the present state of our knowledge the general symptom complex, the careful analysis of the urine (from twenty-four hour specimens), and a systematic observation of the pulse tension, should enable us to judge with some fair degree of certainty as to what course of action should be adopted in the best interests of the mother and of the child, according to the period of pregnancy, type of case, and severity of the symptoms.

Treatment.

In the graver hepatic form, if the symptoms come on fairly early in the pregnancy and do not yield to treatment, prompt termination of gestation is indicated.

The treatment should consist of rest in bed, calomel followed by saline purges, and a diet of skim milk, koumyss, etc., the free use of alkaline mineral waters, and occasional hot packs to stimulate the action of the skin.

In the nephritic form the employment of hydragogue cathartics, colon irrigation, hot packs, and milk diet, more frequently results in subsidence of the graver symptoms.

In all cases the employment of nerve sedatives, of chloral hydrate, and the bromides, is indicated to control restlessness and prevent nervous irritation.

Of the value of thyroid extract in eclampsia, as suggested by Nicholson, there is much diversity of opinion. Lobenstine concludes that the extract lowers pulse tension, and favours diaphoresis and diuresis. It also undoubtedly favours proteid metabolism. For these reasons it should be of special value to the pre-eclamptic stage.

The pregnancy should be terminated in all cases where the symptoms persist in spite of treatment, or where the urine gives evidence of increasing renal insufficiency. In the nephritic form the occurrence of retinitis should be regarded of grave significance, and call for immediate termination of pregnancy in the interests of the mother. Generally speaking, the prolongation of pregnancy in the interests of the child is attended with less danger to both mother and child in the nephritic form than in the so-called hepatic variety.

In several cases of this nephritic type such a course of treatment has in the writer's experience resulted in delivery at term, though in one case the child perished early in the eighth month. In another, in which a severe eclamptic attack terminated the first pregnancy, the patient was delivered of a living child in a shade under twelve months later.

In from 65 to 75 per cent. of all cases of eclampsia the condition occurs as a complication of labour. Whether the increased nervous irritation of the forcible uterine contractions precipitates the convulsions or whether the labour is a result of Nature's efforts to relieve the patient of the source of the toxic material, is impossible to decide. The fact that in a large proportion of cases the emptying of the uterus is attended by a cessation of the convulsions, or at least by a decrease in their severity, and by a subsidence of the general symptoms, has resulted in the advocacy of this measure as a valuable means of treatment.

Opinion is at present divided on the point of immediately emptying the uterus on the occurrence of the first convulsion—by surgical means, if necessary—the active treatment, and the postponement of delivery till general treatment has been attempted and dilatation of the os and cervix has occurred.

Those in favour of the prompt delivery of the patient on the occurrence of the first convulsions, are in the majority and have been most active in gathering statistics, which are apparently convincing, in support of their contention. As a result of these the tendency is at present to immediately empty the uterus on the outbreak of the actual convulsions, the method of operating depending on the personal inclination, skill, or training of the physician in charge of the case.

Zweifel claims that in 66 per cent. and Dührssen in 93 per. cent. of cases the convulsions cease with the delivery of the child.

The most remarkable of recently reported results are those obtained by Bumm and recorded by Liepmann. The expectant treatment up to 1900 resulted in a mortality of 30 per cent. in his clinic at Halle. Since 1901, he has delivered after the first convulsion and has treated 104 cases with a mortality of 2.8 per cent. Since moving to Berlin he has treated 79 cases with one death, a mortality of 1.8 per cent. The fetal mortality is not mentioned.

Esch, after comparing the statistics from 97 cases treated in the University of Berlin by early operative delivery, with 97 other cases treated on the expectant plan, states that the mortality differs very slightly, and that in the latter it was but 7.70 per cent., which is certainly a remarkable record.

Pfannenstiel has reported a consecutive series of 35 cases treated on the expectant plan without a death, and Ahlfeld a series of 32 cases with a mortality of 6.25 per cent.

A study of the mortality statistics of the two methods is not a satisfactory way of reaching a conclusion as to the best means to adopt in treatment. The factors entering into their construction are so numerous and of such uncertain value that as statistics they cannot be relied upon.

I am in favour of the more conservative method of dealing with eclampsia, considering mutilating operations for effecting delivery should be reserved for the more serious cases where, in spite of treatment, the danger to mother or child is unaffected.

In the severe hepatic form, with profound coma, small high tension pulse and scanty blood-stained urine, delivery should be accomplished as soon as possible, if necessary by surgical means, under deep anaesthesia.

In the nephritic form general treatment may be relied upon in the interests of the child up to the thirty-sixth week, the mortality of eclamptic children being very high. In cases occurring after the thirty-sixth week the condition of the child should indicate the method of delivery to be adopted, except in those cases where the mother's condition rapidly grows worse, as indicated by coma and the condition of the pulse tension.

Immediate operative treatment is indicated in the fulminant cases after the thirty-sixth week in the interests of the child, and in such cases occurring at an earlier period of pregnancy, in the interests of the mother.

One important point in the early treatment of the eclamptic condition is that absolute quiet of the patient must be secured. All manipulation of the patient for any purpose by the physician or nurse should be reduced to the minimum. Deep anaesthesia should be secured before any obstetric examination, or to permit the administration of enemas, the passage of the stomach pump, etc.

In the large proportion of cases delivery can be effected by manual dilatation and the early application of forceps, or by version. In cases where the cervix is long and the internal os not taken up, incision of the cervix is the most satisfactory method of effecting an entrance into the uterus. This can be accomplished, according to the method of Bumm, by stripping up the bladder and cutting the cervix in the median line, or by Dührssen's method of cutting both the anterior and posterior lips of the cervix after pushing up the bladder and peritoneum. Statistics of both methods show but little higher mortality than the spontaneous delivery.

The use of the Bossi metallic dilator, though much has been claimed for it, is not to be recommended unless the cervix is at least fairly well taken up.

Hydrostatic dilators play no rôle in the treatment of eclampsia in my opinion, as no artificial dilating force should be employed upon the os or cervix, except under the deepest anaesthesia, which should not be prolonged.

Caesarean section by the abdominal route is but rarely indicated in eclampsia, and then only to save the child when the mother's condition is hopeless; the mortality of the operation in eclampsia, according to the statistics of Pollock and Boldt, being well over 50 per cent.

Drugs.

In the general treatment of eclampsia there is not a drug used nor a procedure employed on theoretical grounds, or as a result of experience, that has not as many enemies as friends.

Chloral and chloroform seem to me to be sheet anchors in the treatment of eclampsia. The former should be used early and in large doses at intervals of four hours. Chloroform should be employed during all manipulations of the patient but not during the convulsions, as it is only then productive of harm, oxygen inhalations being preferable.

Opium and morphine have been used considerably since revived by Veit; but while they act favourably upon the nervous system and reduce the arterial tension, they certainly tend to interfere with the process of elimination, prolong the coma, and act unfavourably upon the child when employed for any length of time.

Veratrum viride is employed as a specific by many, believing that it promotes elimination by reducing the arterial tension. It certainly reduces the tension but at too great a cost, as it has been blamed for many cases of heart failure where it has been employed. It must be carefully used in conjunction with camphor or caffeine to get the best results.

Bleeding is advocated by many as relieving the heart and reducing the toxins. Venesection is of value in plethoric cases, but should not be employed in asthenic cases.

Subcutaneous and intravenous salines are supposed to act favourably by diluting the toxins and favouring elimination.

Mace and Pierra have demonstrated that injections of normal saline solution result in the volume of urine passed being diminished and becoming more concentrated, resulting in a lower freezing point from the greater molecular concentration. They demonstrate that in eclampsia there is a notable pathological increase in the quantity of sodium chloride in the blood. For these reasons they conclude that salines should not be employed, and have recommended pure-water injections and a water diet during the first twenty-four hours.

Subcutaneous and intravenous salines are, according to many authors, contraindicated when the arterial tension is high, the oedema marked, and the kidney function much impaired.

Liepmann claims to have demonstrated that the toxin of eclampsia is of an albuminous nature, and that it arises in the placenta, passes over into the maternal organism, and is there fixed, chiefly by the cells of the liver and of the brain. The organs chiefly affected by the toxin are the brain, liver, and kidneys.

On these grounds he makes a strong argument for immediate delivery after the first convulsion, preferring manual dilatation and the use of the forceps if possible, and the employment of the Bossi dilator or anterior hysterotomy if the cervix is not taken up. The subsidiary treatment, as he terms it, of eclampsia is directed according to which organ shows the greatest damage—the kidneys, the heart, or the brain.

When the urine is loaded with albumen, casts, and blood he employs saline transfusion, venesection, and administration of diuretin, digitalis, and camphor in the form of a powder three times daily. When the heart is weak and the pulse is small and irregular he employs caffeine and camphor subcutaneously in large doses. When the brain bears the brunt of the attack, as is manifested by coma, superficial breathing (due to paralysis of the respiratory centres), lung oedema, and severe convulsions, he employs artificial respiration almost continuously with intervals of half an hour, in which he recommends stimulation by means of slapping the patient with towels dipped in cold water. The convulsions he treats with large doses of chloral given by the rectum. Morphine he only uses in the latter stages as the patient is recovering, to control the restlessness. He considers artificial respiration is important to overcome the paralysis of the respiratory centres, and that the cold-water applications, acting reflexly through the vasomotor system on the oedema of the lungs, is extremely valuable. He condemns warm packs, as their action tends to concentrate the toxin. In this he is supported by Bumm and others. He expresses the hope that a specific in the form of a serum may yet be forthcoming.

Other Methods.

When the condition of anuria is present, and persists to a marked degree in spite of ordinary treatment, the operation of renal decapsulation should be considered. Edebohls, the pioneer of this operation, has recorded three cases. In the first case the operation of decapsulation was performed seventy-two hours after delivery. Recovery was complete. In the second case, in the last month of her pregnancy, after an anuria lasting twenty-four hours, both kidneys were decapsulated, the symptoms permanently subsiding. Labour set in three days later with the delivery of twins. Recovery was normal; urine was permanent. In his third case the anuria followed delivery, the patient had eight convulsions before the operation of decapsulation, and recovery was permanent. No other treatment of any kind was employed in this particular case, and at the last report the patient was eight months pregnant for the second time with a normal urine.

Pinard, in reporting a successful case operated upon by Chambrelant and Poussen, states that he would unhesitatingly employ the operation in conditions of complete anuria.

Hartmann has recently reported a case in which the operation was performed with fatal results, but judging from the report, the condition was due to mercury poisoning in consequence of over-treatment by intrauterine injections for the condition, septic infection following delivery.

Jardine reports a case in which the operation was done five and a half days after the commencement of the suppression of the urine, with fatal results.

This is the total record of these operations the writer has been able to obtain, and on the whole the indications are that the operation may be employed with success in the condition of anuria, but it should not be delayed.

Lumbar puncture was suggested by Helme some years ago as a means of reducing intracranial pressure in the eclampsia and so reducing the frequency of the convulsions. Thies, in a recent review of the reported cases, states that in but a few was any practical result obtained. Possibly the period of coma was curtailed, but there was no evidence that it had any effect in reducing the number of convulsions.

Pollak has just published a report of the study of the changes found in the brain and cord of 10 fatal cases. He agrees with the conclusions of Thies as to the doubtful value of lumbar puncture, as he found well-marked changes in the central ganglia and dendrites. The cell substance was greatly reduced, and there was considerable vacuolation present, quite analogous to the changes found in the central nerve cells in tetanus. Whether these changes were the result of the deleterious effect of the toxins of eclampsia, as suggested by Liepmann, or were the consequence of a greatly increased intracranial pressure, he was unable to decide.

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Dr. J. A. Temple (Toronto) strongly favoured bloodletting. He used morphine but objected to chloral. If the cervix could easily be dilated he proceeded to delivery, but if the os was rigid and not favourable to dilatation he left it alone.

Dr. H. L. Reddy found that 80 per cent. of hospital cases had more or less toxaemia without albumen, and there were 9 per cent. in which albumen was present. If convulsions occurred, he blamed the staff for neglect of their duties, as convulsions were absolutely preventable as a general rule. In cases coming to a hospital in convulsions the best treatment was immediate delivery. Thyroid extract was of little or no value. In cases of undilated os, with long cervix, Caesarean section was the best treatment.

Dr. Kennedy McIlwraith (Toronto) laid stress on the importance of the tension of the pulse. The tension rose just before a convulsion and fell after it, rising again when another convulsion was imminent. A woman in the pre-eclamptic stage, or one who had had one or more convulsions, was never out of danger of recurrence as long as the pulse tension remained high. Where the pulse was rapid and of low tension from the commencement, the prognosis was very bad indeed. He had used thyroid extract in the pre-eclamptic stage, and with the incidence

of convulsions it had lowered the pulse tension and increased the flow of urine. In two or three of these cases severe haemorrhage had followed delivery. *Post-partum* haemorrhage was an almost unknown accident under ordinary circumstances. Haemorrhage was often difficult to induce in eclamptic patients, therefore thyroid extract predisposed to *post-partum* haemorrhage. Patients in whom the delivery was hastened in any way had apparently been more subject to the incidence of mania in the puerperium. As this treatment had been resorted to in the worst cases only, it was difficult to say which had been the factor in its production. Caesarean section was a procedure which he had never resorted to except *post mortem*. In the one case in which this was done the child was saved. These observations were based on a series of 40 cases.

THE SURGICAL AND SERUM TREATMENT OF PUERPERAL SEPSIS.

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In 1880 Pasteur, assisted by Doleris, demonstrated by cultures from cases of puerperal sepsis that streptococci were the usual infectious agents in this disease, and, by further researches, that staphylococci, and, in some cases, certain bacilli were also agents of infection. The discoveries of Lister and the development of bacteriology soon confirmed beyond question Pasteur's researches, clarified the misty atmosphere of theory and hypothesis which had so long enveloped the pathology of "puerperal fever," and established the fact, announced in 1861 by Semmelweis, that puerperal infection is identical with other wound infection. The practical results which followed the application of the Listerian surgical technique in obstetrical practice, especially in lying-in hospitals (hitherto the hotbeds of puerperal infection), were so positive and convincing that the most sceptical were persuaded, and these marvellous discoveries received acceptance generally. Every student of this subject is familiar with the names of Bumm, Winckel, Recklinghausen, Bar, Waldeyer, Kroenig, Doederlein, and others who have laboured so faithfully and effectively in establishing upon a scientific basis the modern system of obstetric practice.

Pathology.

Puerperal infection and wound infection generally are identical in origin and character, the former modified only by the anatomical relations of the wounded area, the parturient tract. Puerperal infection is contact-infection, the germs, with rare exceptions, being brought to the wounded area from without.

The organisms most commonly concerned in puerperal infection are the pyogenic bacteria so familiar in wound infection in other parts of the organism—the streptococcus and the staphylococcus. While the *Bacillus coli communis*, the gonococcus, and the diphtheria bacillus are sometimes agents of infection, the familiar pyogenic organisms mentioned are the active infecting agents in the great majority of cases. The streptococcus is the cause of the severe and rapidly-fatal form of puerperal infection. Mixed infection, where two or three distinct organisms are found, is not a rare condition.

In puerperal infection the organisms invade the tissues and are diffused by means of the lymphatics and blood vessels. The extent of this invasion may be circumscribed, so that the involved area may be quite limited and the process become localized. This is more common when the infecting organism is the staphylococcus. The diffusion may be accomplished very rapidly and the entire system overwhelmed by the rapidly-multiplying organisms and associated toxins without any limitation or localization. This severe form of infection is usually caused by the streptococcus.

The invasion of the wounded generative tract by putrefactive organisms, which do not enter the blood current but poison the system with toxins evolved, is a special form of puerperal infection known as "sapraemia." The character of this infection is so distinct, both as to the organisms engaged and the toxaemia produced, that it should not be confounded in this consideration with the other forms of puerperal infection.

While a wound of any portion of the generative tract may afford a port of entry for infective germs, the usual site of invasion is the lining membrane of the uterus. The endometrium immediately after labour presents torn and bleeding surfaces, gaping placental sinuses newly thrombosed, and extensive vascular areas for absorption. Indeed, Nature offers here an ideal culture-bed for the propagation of germ life.

In this form of endometritis the area of infection may be limited, or it may involve the entire mucous surface of the uterus. When the infection is caused by putrefactive germs, the endometrium is covered with necrotic material from which comes a foul and offensive discharge, often containing gas. An extensive invasion of the endometrium by pyogenic organisms often begets necrosis by the very intensity of infection, producing a sloughing and offensive discharge. In the cases of severe infection by the streptococcus, also by the staphylococcus, there is usually no offensive odour, and the surface of the endometrium may be quite smooth, with no extensive lesions of entry. Indeed, the invasion of the endometrium by the most intense organisms, producing the most severe type of systemic infection, begets local lesions that are slight, while the lesions accompanying the ingress of putrefactive organisms and pus-organisms of diminished virulence are more extensive, and thereby attest the localization of germ activity. The lymphatics so liberally distributed throughout the uterus afford the avenues of rapid extension from the endometrium. It is most pertinent in this connexion to review the clinical and pathological studies of Bumm and Doederlein, showing the histological variation between cases of ordinary septic infection and cases of virulent infection. In cases wherein the pyogenic organisms are of minor degree of virulence the uterine mucosa is covered with necrotic material and large numbers of micro-organisms are embedded deeply in the membrane. Beneath this is found a dense layer of cell infiltration, forming a barrier which excludes the septic organisms from further invasion. The importance of preserving this wall of defence will be referred to later in connexion with certain methods of surgical treatment.

The researches of Bumm also demonstrated that in cases of septic infection wherein the micro-organisms are most virulent, the wall of cell infiltration just described is altogether absent or very imperfectly developed. In such cases the evidences of endometritis and metritis will be slight, the uterine mucosa will be found smooth and clean, and the process of invasion is so easy and rapid that tissue resistance, either in the mucosa or beneath it, has not had time for development.

As already stated, the extension of infection from the endometrium is through the lymphatics, though the veins are also routes of invasion. Pyaemia usually begins with infection of thrombi at the placental site, followed by inflammatory changes in the uterine and pelvic veins. The infecting organisms rapidly make their way from the uterine mucosa to the serous surface of the uterus, giving rise to peritonitis. The route is by means of the vessels, especially the lymphatics, and seldom by continuity of surface through the Fallopian tubes. Having reached the peritoneum the diffusion along lymph channels is boundless. The blood becomes poisoned and the entire system may be overwhelmed.

Surgical Treatment.

With this outline of the pathological process underlying puerperal sepsis before us we can now intelligently consider the surgical treatment of this disease. From what has preceded, it is apparent that such treatment to be effective must be applied while the infection is limited to the uterus, and, for safe procedure, to the uterine mucosa (endometritis). Hence the question of accurate diagnosis becomes a question of most vital and essential importance.

Just as soon as possible after the initial chill and rising temperature the uterus should be carefully explored, observing all necessary antiseptic precautions. Whitridge Williams recommends that sufficient of the lochia be removed for bacteriological examination, a suggestion which will prove valuable when it is practicable to do so. With the index finger the uterus should be carefully explored, and a bimanual examination will determine the mobility of the uterus and the condition

of the appendages. If the examining finger discloses a smooth endometrium, free from disintegrated tissue, it will be appropriate to give an intrauterine douche of warm boiled water or sterilized salt solution. This douche should be administered by the surgeon, and with careful observance of the aseptic surgical technique. If the cavity of the uterus be filled with débris, already detected by the examining finger, an effort should be made to loosen and remove the same with the finger, afterwards applying the intrauterine douche of warm saline solution. If this procedure does not suffice to clear away the débris from the infected endometrium, we must consider a resort to the curette.

The routine use of the curette in puerperal sepsis, which is advocated by many surgeons, is both irrational and harmful. The pathological condition shows that in the most virulent type of puerperal infection the endometrium presents nothing to be removed by the curette, while its application will, by breaking through the limiting wall of leucocytes, and diffusing infective germs throughout the invaded tissues, prove most disastrous. The curette should be employed only in those cases where débris is found in the uterus, which cannot be satisfactorily removed by the finger and saline douche. Its application should be followed by an intrauterine douche of warm saline solution. The inefficiency of the bichloride of mercury and carbolic acid solutions has been so amply demonstrated clinically, to say nothing of their well known toxic effects, that they should be discarded entirely from intrauterine treatment. The experiments of Bumm have shown that the infecting organisms penetrate the tissues with great rapidity, and in the most virulent type of puerperal infection they have entered the uterine structures beyond the reach of bichloride injections or the curette when the initial chill marks the advancing infection.

I can recall numerous cases I have seen both in hospital and private practice in which the infection advanced with increased intensity immediately after the use of the curette; whereas the curative results of curettage and douching in cases of sapraemia and localized infection are most prompt and gratifying.

The operative treatment of puerperal sepsis has assumed a conspicuous place in obstetrical and gynaecological literature of recent years. The existence of infected Fallopian tubes, as a complication of labour or as a sequel of puerperal infection, and their treatment by radical surgical intervention, have long been recognized by gynaecologists and need not detain us at this time. The surgical treatment of parametric abscesses and inflammatory exudate, which occur usually late in the puerperium, is likewise established upon a practical basis generally known and accepted. But it is quite different as to the question of hysterectomy as a curative procedure in the early stage of infection. This subject affords a field for active discussion and much diversity of opinion. It would appear most rational that in cases of virulent infection, especially by the streptococcus, marked as it is by severe mortality, the infected uterus be removed while the infection is limited to that organ.

That hysterectomy has a place in the treatment of puerperal infection is attested by numerous authentic cases. It is the special aim of this paper to show that the scope of this operation is restricted, and to point out the limitations which necessarily prevent its wide application. Some twelve years ago I reported a case of putrid endometritis (puerperal) in which the disease involved the deep structures of the uterus despite the treatment observed, in which I resorted to hysterectomy with prompt cure of the patient. Since that time I have seen two cases of puerperal infection in which the patients were very ill, and the process was limited to the uterus. In both cases hysterectomy was done and followed by recovery. In both cases the uterine wall was the site of multiple abscesses. During this period I have seen many cases, but the three mentioned are the only cases in which I have felt justified in resorting to hysterectomy. I think my experience may be taken as that of the average surgeon engaged in special work, and may be regarded a fair index of the restricted field for hysterectomy in the treatment of puerperal sepsis. It will be noted that in these cases operation was not undertaken in the initial stage of the disease to prevent extension of infection, but at a later stage and on account of structural changes in the uterus.

As already stated, in the virulent type of this disease, when the initial chill and rise of temperature occur, the infection has usually extended beyond the uterus. Our means of diagnosis are not so perfected that it is possible to determine the character and intensity of the infection sufficiently early to decide the important question of hysterectomy. In a word, if we resort to hysterectomy sufficiently early to arrest the disease, we subject many patients unnecessarily to a major operation; and if we defer operative intervention until the virulence of the disease is manifest, the operation will avail nothing. It is this inability to determine in the very inception of the disease (at which time alone hysterectomy will prevent extension) the character of the infection and the resistance of the invaded tissues which prevents resort to this operation. From a careful study of this subject it is apparent that, with our present means of diagnosis and prognosis, hysterectomy has no place in the initial stage of puerperal infection with a view to removing the focus of infection; and that its only proper scope is in the later stages, when the uterus has undergone pathological changes in consequence of being the storm centre, as it were, of the infecting process.

Another operative procedure which has been recommended and practised in cases of severe puerperal sepsis consists of vaginal incision and the application of antiseptic agents, preferably iodoform, to the peritoneal surfaces adjacent to the uterus. From our knowledge as to the rapid extension of the infecting process, and the superficial effect and toxic properties of the antiseptic agents used, this treatment does not appeal to favourable consideration. Its practical application has not won for it a place in the treatment of this disease.

In 1895 Marmorek introduced into the treatment of puerperal sepsis his antistreptococcic serum. By growing streptococci in human blood serum and agar, and increasing its virulence by repeated inoculation in animals, he obtained a culture of great virulence, which, by injecting into immune animals, enabled him to produce a serum claimed to be both preventive and curative. Since that time antistreptococcic serum has been applied to the treatment of puerperal sepsis very generally throughout the world. In 1899 a committee of the American Gynaecological Society made an exhaustive study of the subject, including all the cases reported up to that time. This committee made an elaborate report, with the conclusion that, while the antistreptococcic serum was practically harmless, there was no evidence that it exerted a curative effect upon puerperal infection. While I have not used the serum in the treatment of this disease, I have seen it applied in numerous cases by my colleagues, and in every instance without perceptible benefit.

In order that I might present a fair estimate of the way in which this method of treatment is regarded at this time, I have requested a statement from three representative gynaecologists whose clinical studies especially fit them for such consideration.

Dr. J. Whitridge Williams of Baltimore, who was Chairman of the American Gynaecological Society's Committee for the investigation of this subject, in a personal communication under date of July 20th, 1906, writes:

> In the last few years renewed attention has been directed to the subject, and a number of articles has appeared from Aronsohn, Tavel, Menser and others, which apparently show that the serum may be of value prophylactically, or in the early stages of infection, but that it is practically useless when the process has become well established. Moreover, it does not act as an antitoxin like the antidiphtheritic serum, but exerts its effect merely by stimulating the leucocytes to take up bacteria, thus increasing the opsonic power of the blood. For this reason it does not seem to me that it possesses any practical value, especially when applied after the infection has become well developed.

Dr. J. Clarence Webster of Chicago, under date of July 21st, 1906, says:

> Accurate studies of many cases by skilled observers make it evident that no better results have attended the use of the serum than have followed other methods of treatment. I have entirely abandoned its use.

Dr. Barton C. Hirst, of Philadelphia, writing on July 25th, 1906, says:

> During the past year I have employed the serum in the treatment of 14 cases of severe streptococcic infection demonstrated by blood cultures. In 3 cases the success was satisfactory, but in the remainder of the series the result was uncertain or entirely unsuccessful.

Conclusions.

From a careful study of the subject under consideration, it is apparent that the best results follow the simplest treatment, avoiding radical surgical intervention and facilitating drainage and elimination.

That cleansing the uterine cavity by irrigation should be given preference over curettage whenever practicable.

That on account of our inability to accurately measure the character of infection and the extent of tissue invasion in the early stage of puerperal sepsis, hysterectomy as an abortive measure of treatment is impracticable.

That antistreptococcic serum is without value in the treatment of this disease.

That puerperal infection being identical with ordinary wound infection should be considered from the standpoint of prophylaxis, and as sepsis has been eliminated from modern operative surgery, so should puerperal sepsis be reduced to the accident standard by the application of refined surgical technique.

Dr. Arnold Lea thought that curettage, although a serious procedure, should not be condemned. In French maternity hospitals it was carried out freely and thoroughly with success in skilled hands. Débris should be completely removed by thorough swabbing of the uterine cavity, and the use of the *écouvillon* or uterine brush, followed by packing well with gauze soaked with alcohol, and repeated if necessary. Vaginal hysterectomy was only of value in cases in which a definite local lesion was present in the uterus, such as multiple pus foci or an infected myoma. The results of serum treatment were disappointing, because many varieties of streptococci existed, and a serum antitoxin for one variety was useless in others. A special serum should be prepared for each case if this were practicable. The special benefit obtained in some instances was encouraging, and further researches were urgently required.

Dr. P. E. Truesdale (Massachusetts) said that antistreptococcus serum had been tried on a series of cases at the Boston City Hospital without any positive result. Doederlein's method of examination of the uterine contents was employed. When the resulting growth was saprophytic the curette and douche were used. There was no improvement in the mortality statistics after the use of the serum, and this was very probably due to the fact that there are varieties of streptococci, and no one serum will answer in all cases.

Dr. Frederick Fenton (Toronto) said a distinction should be made between those cases in which there was an infection of the uterine cavity and those in which such was not the case. Infection of the endometrium led to interference with involution, the fundus either ceasing to fall, or rising to a higher level above the symphysis. Where involution was proceeding satisfactorily the uterus should be left alone. It should not be explored, but infection should be sought for elsewhere. The curette had no place in the routine treatment of these cases.

Dr. Charles A. L. Reed referred to 3 cases published by Dr. Cartilige in which multiple abscesses were found in the parenchyma of the uterus. They were all cases of pure streptococcus infection, and hysterectomy was followed by recovery. In these cases the use of the curette could not have removed the foci of infection without removing the entire muscularis, and opening up a wider field for fresh infection. The fact that most cases were mixed infections, and the further fact that it was extremely difficult to distinguish exact conditions or exact infections, made it difficult to determine the exact course that ought to be followed. So far, the results of serum treatment failed to make it a reliable resource in practice.

Dr. Francis H. Stuart (Brooklyn, New York) regarded the cavity of the parturient uterus as an open wound. It was impossible for even the most skilful obstetrician to thoroughly curette the surface of this wound. The curette was a dangerous instrument, especially in the hands of any but the most experienced. The treatment advocated by Dr. McMurtry was simple and safe, and could be used by the general practitioner, in whose hands nowadays would occur most cases of puerperal sepsis.

Dr. David J. Evans (Montreal) was of opinion that until means of bacteriological diagnosis, as applied to this class of cases, had improved, so that one could be certain of the character of the infection, the serum treatment must prove uncertain. He strongly objected to the employment of the curette in *post-partum* intrauterine infection, it being only productive of harm. Nature's first line of defence became broken down, and the infection was increased.

Dr. J. F. W. Ross (Toronto) endorsed Dr. McMurtry's view as to the failure of antistreptococcus serum in the treatment of purperal sepsis. He had entirely abandoned this method of treatment.

A STUDY OF SEVENTY CASES OF ECTOPIC GESTATION.

By J. F. W. Ross,

Professor of Gynaecology, University of Toronto.

Among a series of 1,500 cases for the relief of which I have opened the abdomen 70 were operated upon for ectopic gestation. A review of these is now given, but only the last 25 cases have been tabulated, as a similar arrangement of the first 45 was published in the *American Journal of Obstetrics*, vol. xlvi, 1902. As a consequence, a considerable proportion of this paper is presented in tabular form especially intended for publication, and it is my intention to give you only the analysis of the 70 cases, and make such comments as may seem to arise from a careful study of these completed histories.

The total number of operations, as already stated, was 70; the mortality 8, or 11.4 per cent.; no deaths have occurred the last 36 cases. In 5 cases operation was done twice for the relief of this condition, the intervals between the initial operation and the recurrence being four, two, three and a half, four, and three years respectively. In one case there was coincident uterine and extrauterine pregnancy; in one double extrauterine pregnancy; in one an overlooked tubal abortion, followed by a lithopedion removed three and a half years after the beginning of the gestation. One case was operated on after full time after rupture of the sac and death of the fetus. The average age was 32.

In 44, or over 75 per cent., of the cases amenorrhoea was recorded; in 10 menstruation was regular and uninterrupted; in the remaining 16 no history of menstruation was recorded. Amenorrhoea was followed by more or less irregular haemorrhages; out of 50 records, only 8 showed no irregular flowing; in 5 only was the discharge of decidual membrane noted. There was no instance of severe uterine haemorrhage, and it ought to be noted that this condition points rather to uterine pregnancy and threatened abortion than to extrauterine pregnancy. A similar discharge of blood from the uterus was found to be produced by cystic distension of ovary or tube, and several cases diagnosed as unruptured ectopic gestation proved at the time of operation to be instances of either of the two above-mentioned conditions, but requiring active surgical interference.

Some cases presented no special features, even no signs of pregnancy, until alarming symptoms of rupture appeared. In the majority, however, while the health remained fair or good, there was a history of one or two missed periods, colicky, persistent, and unnatural pain in the region of the tube, slight mammary symptoms, some bowel or bladder irritation, some show of blood from the vagina, and slight enlargement of the uterus. On a careful examination, sometimes with the assistance of an anaesthetic and per rectum, a more or less slight bulging or enlargement of one tube could be made out.

Later, with rupture of the gestation sac, tubal drip or tubal abortion, there was in 90 per cent. of the cases a sudden onset of pain, sharp, severe, cramp-like in character; in some instances accompanied by the expulsion of decidua or by a dark-coloured bloody vaginal discharge, nausea or vomiting, faintness, pallor, cold perspiration, precordial uneasiness, and, later, tenderness and some distension of the abdomen without rigidity, slight elevation of temperature, rapid, feeble pulse, or a rapidly rising, rapidly falling pulse, great weakness and semi-complete or complete collapse. As the external bleeding from the uterus was not sufficient to account for the prostration, a turning down of the lower eyelid gave the key to the situation by demonstrating the profound anaemia even when this was not shown by the lips. The conjunctivae were found exsanguinated and blanched. Later, irritability of the intestine was noted, giving rise to increased

Table showing the last 25 Cases of a Series of 70 operated upon for Ectopic Gestation.

No.	—	Age	Labours. No.	Menses. Last.	Missed.	Irregular Haemorrhage.	Other Symptoms.	Pain.	Physical Examination.	Operation.	Result.	Remarks.
46	Dr. Greenaway..	—	—	—	—	Ye-	3 weeks	Precordial distress; cold hands and feet; prostration, none of pregnancy	In good health, and seized with severe pain in abdomen and fainted	Movable dullness over abdomen	Abdomen full of blood; ectopic gestation left side; left tube and ovary removed; abdomen washed out; arms and legs bandaged; rectal saline given	Recovered	
47	Dr. A. D. Watson	30	—	—	2 weeks over	—	—	Had morning vomiting, and felt satisfied she was pregnant	Had pain in lower abdomen as four years ago in extrauterine pregnancy	Uterus normal size; right ovary felt, also club-shaped end of tube	Right ovary healthy; tube adherent; fimbriated end contained small gestation sac of about 5 weeks; tubal drop; no rupture; tube removed; ovary left *in situ*; left side of uterus fixed by adhesions from previous operation for ectopic gestation. No washing out; no drainage	Recovered	
[illegible]	Dr. MacMurchy	27			—	-	—	Of extrauterine pregnancy	—	—	Median opening. Removed ectopic gestation from left side, also ovarian cyst	Recovered	
[illegible]	Dr. Rowan ...	29	—	—	2 weeks over	—	None	Felt weak and miserable; at first pale, later dark	Sudden in lower right side; was about 8 weeks in bed; pain grew worse, and felt something give way	—	Abdomen full of blood; ruptured right tubal pregnancy; right tube and ovary removed. Abdomen washed out and dried	Recovered	Ruptured while in rocking-chair and doctor visiting her.
[illegible]	Dr. Hicks ...	-	--	-	1 month-	—	Considerable	Urine very scanty at times; collapse	Pain and tenderness in abdomen; 2 weeks in bed; up; pain again, and collapse; in bed 1 month	Decided fullness in vagina and in pelvis behind uterus	Opened tube; found mass like extrauterine pregnancy. Closed abdomen and opened vagina; cavity full of suppurating blood; washed out and inserted double drainage tube	Recovered	Diagnosis between ovarian abscess and suppurating extrauterine pregnancy.
51	Dr. Lynd ..		1	8 years ago	1 week over	—	None	She thought she was pregnant	Sudden paroxysmal pain	Dullness in flanks; mass size of walnut on left side of uterus; patient very pale	Abdomen full of blood; removed ruptured left tube containing ectopic gestation. Some adhesions of right tube to rectum. Abdomen washed out	Recovered	
52	Dr. Eadie ..	-	—	-	1 month over	—	3 weeks	Fainted 2 or 3 times; pulse 120, soft and small; temperature 102°	Three attacks of severe pain	Mass on side of uterus	Some blood in abdomen. No rupture; leaking from fimbriated end; tube and ovary removed. Other tube filled with blood, and was removed - ovary left *in situ*. Abdomen washed out and closed	Recovered	
53	,,	29	7	4 years 4 months ago			None	Breasts little enlarged; thought to be 4½ months pregnant with ovarian cyst or fibroid	—	One mass in front left side, another somewhat larger behind and to the right	Found pregnant uterus on left side; another mass on the right and behind; tumour ruptured on pressure and liquor amnii escaped, and fetus of about 4½ months felt. Case of extrauterine and intrauterine pregnancy; haemorrhage very acute. Clamps put on right broad ligament, also sac. Broad ligament transfixed. Drainage	Recovered	
54	Dr. Cleland.....	—	-	-	2 months	—	Some and decidua	—	Severe when decidua discharged	Mass left side of uterus	Abdomen full of blood; large mass of old blood clot behind uterus cleaned out. Removed left tube with ectopic gestation; ovary left; right ovary much inflamed, but not removed. Washed out; drainage Patient nearly died on the table	Recovered	
55	Dr. McKeough	30	N	-	7 weeks ago few days over period	—	7 weeks	Fainted while telephoning	—	—	Abdomen full of blood. Found ectopic gestation of about 12 weeks in left tube; tube ruptured; removed it and washed out abdomen	Recovered	Had severe phlebitis.
56	,,	33	3	2½ years ago	3 or 4 days	—	Less, and next month flow lasted 3 or 4 weeks	None of pregnancy. Weak from pain, some vomiting and constipation	Sudden in lower abdomen, of short duration, leaving abdomen sore	Abdomen swollen, mass left side not connected with uterus	Removed from left side ruptured ectopic gestation and clot. Would have recovered without operation	Recovered	
57	Dr. McCall	28	N	—	2 months	—	5 or 6 weeks	Breasts enlarged, some morning nausea, and knew she was pregnant. Frequent urination	Sudden in night; fainted next day	Mass in left side of pelvis	Omentum adherent in front. Separated this; ruptured ectopic gestation, found mass of organized blood clot. Peeled this out with great care; ovary not removed. Right ovary and tube not touched. Opening then made through vagina, and cul-de-sac of Douglas packed with gauze	Recovered	Had inflammation of right ovary soon after marriage

58	Dr. Greenaway.	—	—	—	Extra-uterine pregnancy 3½ years ago; 6 months pregnant	—	—	Fetus in abdominal cavity 3½ years	—	—	About 6 months fetus in abdomen; some adhesions of the omentum tied off; operation very simple	Recovered	
59	,,	30	—	—	—	—	Irregular for some time	Mass developed in lower abdomen	Indefinite pains	Mass felt in pelvis	Large mass found in pelvis, which proved to be old blood clot from a ruptured extra-uterine pregnancy. Blood clot removed with as much of the sac as possible. Bleeding severe; left tube tied off; neither ovary removed. Some adhesions of the right tube loosened. Abdomen washed out and packed with iodoform gauze to control bleeding. Drainage tube inserted	Recovered	Diagnosis: either ovarian tumour or extra-uterine pregnancy.
60	Dr. Alexander..	38	7	—	3 weeks over	—	None	—	Sudden severe pain; collapsed while visiting a neighbour	Abdomen very painful; flanks dull; conjunctiva and lower limbs bloodless. Hurried to hospital. Pulseless on operating table	Abdomen full of blood; washed out; all clots removed. Ruptured ectopic gestation of about 3 or 4 weeks' duration of the right tube found. Tube removed; ovary not removed. Left tube and ovary healthy	Recovered	Interstitial saline given and limbs bandaged.
61	Dr. Chambers..	25	N	—	3 weeks over	—	Severe, miscarriage supposed and curetted	—	Severe; worse after curettement	Pulse 128; conjunctiva and lips blanched; dullness in flanks; tympanitic note in front	Abdomen full of blood—enormous blood clots; washed out. Ruptured ectopic gestation of right tube found; rupture was a large one. Placenta extruded into the abdominal cavity; pregnancy about 6 or 8 weeks' duration; right tube tied off; right ovary and left tube and ovary left *in situ*	Recovered	
62	Dr. Hart ...	—	—	—	—	—	Physician supposed miscarriage. I was about to operate for renal tumour	—	—	Renal tumour in left loin; also mass in pelvis	Found abdominal blood vessels enlarged; considerable amount of dark blood in the pelvis. Mass found beside the uterus, which proved to be a ruptured extra-uterine pregnancy. Washed out the blood	Recovered	Renal tumour not interfered with. Fortunately diagnosed extrauterine gestation before making loin incision.
63	Dr. Wood ...	30	—	—	1 month	—	Considerable and decidua (so she said) after pain started	Temperature 99°; some colostrum; doctor suspected pus tube	3 or 4 attacks; no faintness	Large, freely movable, doughy mass in front of uterus—not elongated like enlarged tube	Mass found in the pelvis which proved to be an unruptured extrauterine pregnancy; must have been of about the 14th week (the largest I have ever seen). Ovary on that side degenerated. Removed ovary with the pregnant tube; gestation was on the right side	Recovered	Three months afterwards the uterus was found small, some adhesions around it; left ovary enlarged.
64	Dr. Wood ...	42	3	2 years ago	1 month	—	None	None of pregnancy. Uterus a little down	First in back about 3 or 4 weeks before; then lower left side of pelvis	Uterus enlarged, and firm mass behind it	Abdomen full of blood; found a fibroid tumour behind the uterus, also ruptured pregnancy of the left tube of about 7 weeks' gestation. Left tube and ovary removed, then the myoma, also the right tube and ovary to prevent the further growth of the fibroid in the uterus. Abdomen washed out	Recovered	Diagnosis had been fibroid tumour.
65	Dr. Rowan ...	32	—	—	2 weeks over	—	Yes	—	Sudden sharp pain in lower left abdomen; not so severe as in attack 3 years ago	—	Many adhesions found where right tube and ovary had been removed for ectopic gestation 3 years ago. Small amount of dark blood in the pelvis; left tube size of a hen's egg—found to be ectopic gestation. Left tube removed, ovary left *in situ*	Recovered	Second operation for ectopic gestation.
66	Dr. Chambers...	N	2	6 years ago	2 periods	—	Slight	—	Like labour, only starting in left shoulder and pit of the stomach	Mass to right of the uterus	Found extrauterine pregnancy in the left tube, almost interstitial; had been a slight haemorrhage. Tube removed; ovary left in place. Other ovary and tube healthy	Recovered	
67	Dr. Rose ...	29	2	3 years ago	1 week over	—	Slight haemorrhage	In 3 days got up feeling weak and cold; was unable to walk; some nausea and vomiting; left hospital and came back in 10 days after weak spell	Some severe in pelvis; at first bearing down	Mass in left side of uterus; uterus pushed to the right	Abdomen full of blood. Firm adhesions round the site of old operation (right tube and ovary had been removed 3 years ago); adhesions broken down; pregnancy in the left tube; ovary somewhat disorganized; colloid cyst of the ovary enucleated; ovary stitched together with catgut to stop haemorrhage. Left tube removed by chain silk suture. Abdomen washed out	Recovered	Operated on previously for ovarian cyst.

Table of Cases (continued).

No.	—	Age	Labours. No	Labours. Last.	Menses. Missed	Menses. Irregular Haemorrhages.	Other Symptoms.	Pain.	Physical Examination.	Operation.	Result.	Remarks.
63	Dr. Rees	24	1	1½ years ago	—	More or less every 3 weeks since birth of child. Last flooding	Some vomiting	Heavy bearing down for 18 hours. Child born dead. Last 7 weeks ago and very severe	Cystic mass felt to the right of the uterus	Old ruptured ectopic gestation found in right tube absorbed. Cyst of right ovary; tube and ovary removed. Left tube found to be closed at fimbriated end: opened this	Recovered	
64	(Hospital)	30	3	3½ years ago	None	Flooded 1 month with decidua. Had one miscarriage	Temperature 101	Sharp in lower left side of pelvis several attacks Slowly moving dull pain felt in front of uterus	Independent mass felt of uterus, clot breaking down and passing away. Tender and painful on examination pelvis had another attack pain: pulse 143	Median line: abdomen full of blood—continuous quantity: largest clot in front Gestation sac found on the left side of the fundus: this ruptured: clot turned out: tube and ovary left: right ovary adherent by old adhesions but not touched. Washed out: operation closed: no drainage: through and through sutures	Recovered	On examination before operation movable clot could be made out as the patient was lying on her right side: when she turned on her back this moved slowly to the opposite side. She had right tube removed for disease. Inflammation arose from miscarriage Diagnosis made in my office. Sent at once to the hospital, and the operation took place within two hours of the visiting hour of the hospital.
65	Dr. Rees	34	—	—	Missed May 6th, with 6 weeks	Flooding since June 1st	No faintness	June 1st, over left ovary and across middle	—	Median opening. Abdomen full of blood. Gestation had evidently been forced out of tube at the fimbriated end: tube and ovary removed—ovary a mere shell Washed out clots through and through drainage Sutures through and through Glass saline and pedal saline Patient almost pulseless when she left the table	Recovered	

vermicular action that could be seen, due no doubt to the presence of free blood in the abdominal cavity. Another remarkable feature was the slowly shifting dullness demonstrated by percussion on change of position of the patient. Dullness in the flanks on slight percussion could be made out in many cases. A still later change noted was the tingeing of the skin produced by the absorption of the haemoglobin from the intraperitoneal blood. In some the symptoms subsided and recurred at varying intervals.

In 80 per cent. of the cases examination discovered an irregular mass on one side and behind the uterus, forcing the cervix upwards and forwards against the pubes, a displacement very strongly diagnostic. In many the pelvic mass could be felt to break down like blood clots under the examining finger.

In the operations the abdominal route was followed in all cases, the vagina being opened in two instances as well. In all but 8 tubal abortion, tubal drip, or tubal rupture had occurred in the first to the third month of gestation; in 3 at later periods; and 5 were operated upon before any of these had occurred, and hence before any blood had been poured out into the abdominal cavity. In 32 cases the gestation was found originating in the left tube; in 21 in the right tube; in 1 in both tubes; and in 1 it was interstitial on the right side, and in the remaining 15 its site was not recorded.

Many of those operated upon had subsequent normal pregnancies: of the 5 operated upon twice 4 were not otherwise pregnant, and the history of the fifth could not be obtained.

Causative Factors.—Tubal pregnancy implies pre-existing disease of the tube. Antecedent inflammatory processes, obstruction by pressure from small tumours, some anomaly of the tube, are factors in its causation. A certain period of sterility usually precedes the development, but instead of the sterility being in any way responsible for the abnormal pregnancy, I am inclined to ascribe both to the same pathological condition.

Position of Pregnancy.—If the gestation sac is in the narrow isthmus of the tube, near the uterus, rupture occurs early; if, in the middle, it takes place some weeks later; and, if at the outer end, tubal drip or abortion is likely to ensue. In my experience the so-called intraligamentous rupture is seldom met with. I am convinced that it is an extremely rare occurrence, and that the haemorrhage is very frequently subligamentous.

Early Diagnosis.—Physicians should always be suspicious of the existence of extrauterine pregnancy in any sudden onset of pelvic trouble, any irregularity of menstruation or any inflammatory or septic condition following a supposed miscarriage.

Dangers of Curettage.—Curettage had been done in several of these cases. The idea prevailed that an abortion had occurred and that a portion of retained placenta was the cause of the haemorrhage. Curettement was followed in two or three instances by very severe intra-abdominal haemorrhage due to the disturbance of the parts, and one patient lost her life as a direct consequence of the sepsis set up by the use of the curette.

Treatment.—Treatment by operation is undoubtedly the safest. It should be carried out in all cases in which diagnosis is made. I have on two or three occasions waited hoping that no further intra-abdominal haemorrhage would occur, and have been forced to operate later when the conditions were not so favourable. Even after the fetus is dead and the clot absorbing, the woman is still in danger with this mass in her pelvis. If operation is carried out with proper aseptic precautions, at the earliest date, by a skilful surgeon, a very low rate of mortality will obtain.

Technique.—Question has been raised by some authorities as to the advisability of removing the blood clots from the peritoneal cavity. I have made it a rule to remove them with the greatest thoroughness and have been perfectly satisfied with the results. In my opinion it does not increase the shock. Patients who were pulseless on the operating table have been washed out as carefully as those who were not so collapsed, and my results of 36 cases without a death and the easy convalescence following the operations point to the wisdom of this procedure. Unless a better argument is advanced by the opposite side I intend to continue the same technique.

The ovary should not be removed with the affected tube

if it is in a healthy condition, I know of one case in which this was done, and after it was removed the second ovary was found so degenerated that it was useless, and, as a consequence, the woman was unnecessarily unsexed. Nor should the other tube be removed to prevent a second ectopic gestation. If it is adherent or diseased its removal may be advisable. The opinion is well supported that when pregnancy occurs after the removal of an ectopic gestation it is, as a rule, normal.

Drainage should be avoided whenever possible, and if the washing out with saline solution has been thoroughly done it should not be necessary. I endeavour to perform a complete toilet of the peritoneum and draw out all excess of fluid before closing. No débris should be left behind if it is possible to remove it. If this is important in an ordinary miscarriage where the small uterine cavity is the seat occupied by placenta, surely it is of much greater importance that such remains should be removed from an enormous lymphatic sac, such as is the abdominal cavity.

In the later months it is dangerous to attempt to remove the gestation sac, and we must be satisfied then with a long convalescence accompanied by a septic condition. Operations in the fourth, fifth, and sixth months, before the fetus is viable, should not be undertaken. These are amongst the most desperate surgical procedures. I find they seldom occur now, as diagnosis is made much earlier. I do not agree with those who would operate on haematoceles by vaginal section, but prefer the abdominal route in every case where operation is indicated.

In connexion with this disease, I have for years been telling my classes that every practising physician should have the following printed in red letters and hung in his study:

Symptoms of Ectopic Gestation.

Before Rupture.—(1) Missed monthly period; (2) irregular haemorrhages; (3) colicky, unnatural and persistent pain; (4) slight enlargement of the tube.

After Rupture (added to the foregoing).—(5) The classical symptoms of faintness, collapse and precordial uneasiness; (6) mass in the pelvis causing displacement of the uterus; (7) pallid conjunctivae; (8) dullness in the flank on light percussion.

ECTOPIC PREGNANCY.

By Murdoch Cameron, M.D.,

Regius Professor of Midwifery and Diseases of Women, University of Glasgow.

At the present time much attention is being given to the study of ectopic pregnancy, and especially to its pathological conditions. Here I will deal with it more from a practical point of view.

When I was a student an operation for such a condition was dreaded. In fact the teaching then was that so far as the early weeks of pregnancy were concerned, accurate diagnosis was looked upon as impossible, and therefore palliative treatment only was relied upon.

Certain signs of pregnancy were waited for to clear up the nature of the swelling. These having been recognized, delay till the child was viable was advised, and then came a further delay till full term.

It was reasoned that at this period it would be much safer for the mother to wait the death of the fetus with the resulting atrophy of the placental circulation. In fact, cases could be pointed out that had been under observation for years.

At the present date I would dread the result to a student who, in his final examination, should state that the diagnosis of such cases was impossible during the early months. It is quite true that in many cases the symptoms are indefinite, yet the accuracy in diagnosis in experienced hands is such that operation whenever the condition is recognized is advised, and delay even for a few days in many cases is looked upon as dangerous. In many cases the woman has enjoyed perfect health, disturbed only, it may be, by some of the usual sympathetic digestive disorders. In others no reliance could be placed on the cessation of the menses. In fact, in one case upon which I recently operated the mother was suckling a child. In other cases there was a history of metrorrhagia.

Generally, from an early period, pressure symptoms with abdominal pain is complained of. The pain in some cases is intermittent in character, but as a rule it is constant, and confined to a limited area. Two days before leaving home for Toronto I operated upon a young woman, the mother of four children, the youngest being 16 months. After weaning this child she menstruated every month, but during the last two periods suffered from slight metrorrhagia.

She had not the slightest suspicion that she was pregnant, and said that whilst going about her duties she was suddenly seized with a pain in the left iliac region, and that she fell upon her knees in a swoon. As she described it, "I thought my last day had come." I saw her about ten hours afterwards, when the pulse was 140 and feeble. On operation the left tube was found ruptured and the abdominal cavity full of blood. The pregnancy would be about the seventh or eighth week.

In most cases, however, the early signs of pregnancy are usually present, and a distinct swelling can with care be made out on one or other side of the uterus. In many cases the rupture of the tube is the first indication, as in the cases just cited. This is at times preceded by severe pain, which may last several hours. The pain is generally followed by collapse, with all the symptoms of more or less profuse internal haemorrhage.

In a few cases the tubal pregnancy may be interrupted, and may become converted into a fleshy mole, just as in a normal pregnancy. If there be rupture either of the tube or of the sac without complete separation of the ovum, repeated haemorrhages may occur just as in abortion.

Rupture may be accelerated by any shock, or by vomiting, straining, or even sexual congress. When the development is in the middle portion of the tube rupture is more likely to take place into the layers of the broad ligament, and here the bleeding is frequently arrested by pressure, and the case becomes a mesometric gestation.

The ultimate result of the rupture will, of course, depend upon the amount of bleeding, and the relative position of the embryo and placenta to each other. It is more favourable when the fetus is above the placenta, as in this position it is less affected by the increasing size of the fetus. The bleeding is much more alarming when the detachment of the placenta is on the upper surface of the sac.

As regards cases at full term, I observed one of abdominal pregnancy where spurious labour occurred, the liquor amnii became absorbed, and the patient suffered from retention of urine, with at intervals a sensation of gas being expelled from the vagina.

There was a membranous discharge, with slight bleeding during the eighth and ninth months, but nothing earlier. When examined the patient was found to have a tumour that extended above the umbilicus, and which was higher on the left than on the right side. It was found to be firm and hard, and free from fluctuation. On vaginal examination the cervix was found displaced to the right side, whilst upon the left side of the uterus and in front was found a tumour continuous with that felt in the abdomen. The pregnancy had lasted fourteen months. By operation a full-term child was removed. This patient subsequently became pregnant, and had a normal labour.

Now in such a complication as ectopic pregnancy it is of the first importance that the condition should, if possible, be recognized early, so as to save the patient by operation from the peril of rupture of the tube.

Where there is a definite history of amenorrhoea with other early signs of pregnancy, associated with pain and a distended tube, and this in the absence of any history of tubal disease, septic endometritis, or gonorrhoea, ectopic pregnancy may be suspected. When rupture has occurred the symptoms are sufficiently alarming.

In one case in Paris poisoning was suspected, but examination revealed a burst tubal pregnancy. In other cases death has resulted in a few hours where the pregnancies were only in the second month. I have also known a case where a surgeon mistook the conditions for a perforating ulcer, but happily an operation saved her life.

Another condition that might cause error is where you have twisting of the pedicle in a small cystic ovary.

Where rupture takes place, and the case ends in the formation of a haematocele, the history of collapse with evidence of internal haemorrhage and the character of the retrouterine swelling will indicate its character.

In several instances I have been asked to see cases where tubal pregnancy was strongly suspected, but where the condition was due to a rare form of relaxed uterine

walls allowing the fundus of the pregnant uterus to bend over to either side or even backwards. Here the diagnosis was difficult, the condition in some of the cases being made out by the feeling of contractions in the wall of the swelling under repeated stimulation by the fingers. Again, fetation in a rudimentary horn of a bicornuate uterus may be met with. The following case is a good example:

Mrs. B., aged 24, stated that in 1898 she was married, and had an abortion six weeks afterwards. In 1899 she had a miscarriage in the fifth month. She ceased to menstruate in October, 1900, and believed herself pregnant. She states that she had uterine pains in April, and that a large mass about the size of her hand was expelled from the vagina. In July, when she expected her confinement, she had slight labour pains, but they passed away, and since then the swelling in her abdomen had gradually diminished to its present size. She has had no menstrual discharge for twelve months, and there is milk in the breasts. On inspection, a large tumour was seen occupying the right side of the abdomen, and it had quite the appearance of a seven months' pregnancy only that it was not in the median line. Palpation revealed a somewhat firm tumour, with more resistance at the upper part, and giving to the hand the feeling that that part corresponded to a fetal head. Upon vaginal examination, the cervix and uterus were found displaced backwards and to the left side by a swelling that occupied the right broad ligament. The case was diagnosed as one of ectopic pregnancy. On October 22nd, upon operation, the right Fallopian tube presented, but was found quite normal. Further exploration revealed the fact that the case was one of pregnancy in a double uterus. The anterior wall was incised, and a well matured, but macerated fetus was removed with its placenta. The funis was found adherent to the inner surface of the organ. My assistant inserted his fingers into the vagina, and pressed upwards between the two halves of the uterus, whilst I pressed my fingers downwards from above. We then distinctly made out that the right half had no apparent connexion with the left, and also on inspection found that each half had a single Fallopian tube and ovary. The cavity was partly closed and partly packed with gauze, which was removed after three days. To prevent any accumulation of secretion the vagina also was packed with gauze, which was frequently changed. No vaginal discharge was observed at any time, but the uterine cavity continued to discharge by the aperture at the lower margin of the abdominal wound: no odour was at any time detected. The Fallopian tube was ligated at two points, and divided at the time of the operation. The patient made a good recovery. She subsequently became pregnant in the left horn, and had a natural delivery.

The good results following early operation justifies abdominal operation for the removal of the entire sac. Of course, difficulties will increase with the age of pregnancy. My experience comprises a very large number of cases, treated before the onset or shortly after the manifestation of serious symptoms, and two cases at full term. The majority of cases call for interference between the fourth and twelfth week. Upon rupture immediate operation is necessary, unless it is positively extraperitoneal.

After clearing out the blood clot and having removed the ovary and tube of the affected side, it may be necessary to drain, especially where the clot has been encapsuled and the adhesions have been troublesome. In such cases I find that packing the vagina with gauze prevents any accumulation of effused blood. For drainage I prefer a glass tube, which can be removed in thirty-six or forty-eight hours. Any effusion collects in the tube, and can be easily drawn off by means of a small syringe and india-rubber tube. In some cases, only observed after adhesions have encapsuled the blood in Douglas's pouch, it is perhaps safer to allow the patient to recover from the shock, and later resort to operation if thought advisable. If left alone, marked absorption is found after a few months. When it has escaped into the broad ligament, operative interference is not so urgent, but it may be demanded on account of secondary rupture.

After the fourth month the removal of the placenta where the fetus is alive is a serious risk. The operation may be either per vaginam or by abdominal section. It is considered a safer procedure to incise the tumour after abdominal section, to remove the fetus, and then stitch the edge of the sac to the abdominal wound. The trouble is in dealing with the placenta, which is discharged piecemeal. When the fetus has been dead for some time, the danger is lessened, as the placental circulation is not active. The parts require to be kept sweet with frequent changes of antiseptic gauze. Now and again in advanced cases, irrigation of the sac might be required. In conclusion allow me to show you a very interesting photograph of a twin tubal pregnancy and also of decidual cells found in the opposite tube in the same case.

Dr. WALTER B. DORSETT (St. Louis, Mo.) had operated on 54 cases of extrauterine pregnancy. He deprecated colpotomy in the treatment of these cases, having twice employed the vaginal route with the result of having to do abdominal section to prevent death from haemorrhage. Extrauterine pregnancy, in the speaker's opinion, was always preceded by some type of salpingitis, or else by a congenital diverticulum.

Dr. LOUIS MCMURTRY (Louisville, Kentucky) contrasted the unanimity of views expressed by the authors of the papers and those discussing the same with the heated disagreements formerly found in the discussions on this subject. In the papers there was an agreement on all essential points of pathology, diagnosis, and treatment.

Dr. A. E. GILES referred to the question of diagnosis, and said that he agreed with Dr. Ross that in most cases diagnosis was not a difficult matter, especially if the practitioner were on the look-out for the condition. But sometimes symptoms were absent, and in other cases side-issues came in to throw one off the track. The speaker had recently seen a patient, who came for consultation merely to know if there was any reason why she should not become pregnant. On examination a swelling was felt in the pelvis, and this, coupled with a history of irregular menstruation, led to a diagnosis of extrauterine pregnancy, which proved correct. In another case a patient presented herself in the out-patient department, looking exceedingly ill. She stated that she had been under treatment for gastric ulcer; but a history of a missed period led to a vaginal examination, when rupture of a tubal pregnancy was diagnosed, operation was undertaken at once, and within thirty-five minutes of being first seen the patient had a forceps on her ovarian artery. She had several pints of free blood in her abdominal cavity. A diagnostic point in the case of pregnancy at full time had come under his notice in one instance, namely, resonance extending over the front of the abdomen right down to the pubes. In a case of intrauterine pregnancy there would always be dullness over the front of the abdomen. He was pleased to hear Dr. Ross advocate operation as a routine practice in cases of extrauterine pregnancy. His own view was that a gravid tube was to be regarded as a malignant tumour and removed at sight. He would freely admit that this practice might involve a few cases being operated upon unnecessarily; but on the other hand it would certainly lead to the saving of a number of patients from grave risk and from death. He heartily endorsed the recommendation that the non-gravid tube should be left alone: the risk of a subsequent pregnancy occurring in the other tube was not great enough to warrant its removal in every case. It was a safe general rule to remove only diseased structures.

Dr. JOHN EDGAR (Glasgow) agreed with Dr. Giles that the other tube and ovary should not be removed. Repeated tubal pregnancy was rare, and subsequent uterine pregnancy frequent. Operation was necessary in nearly every case, and the abdominal route was the best to follow. Bulging haematocele might be opened through the pouch of Douglas. In a few cases where the tubal rupture or abortion had occurred some time previously, and there were no urgent symptoms, the case might be watched for a few days, but if absorption did not take place operation should be performed.

Dr. F. A. LOCKHART (Montreal) dwelt on the question of diagnosis. Amenorrhoea was by no means a constant symptom. The speaker had seen a number of cases where there was uterine haemorrhage, starting a week to ten days after the previous regular period. He preferred the abdominal route in operating, and would not interfere with the opposite tube if healthy.

Dr. SHAW WEBSTER (Toronto) advocated the vaginal route for the removal of ectopic gestation, and repudiated the statement that removal of the parts concerned was unsatisfactory by this method.

Dr. J. F. W. ROSS, in reply, summed up the treatment as follows: (1) Do not drain when débris can be removed; (2) do not remove or interfere with healthy organs; (3) operate even if the patient is apparently pulseless at the wrist—each case has a chance; (4) apply your ligatures very carefully to prevent post-operative tearing of the soft and friable structures due to the pregnant condition;

(5) only operate through the anterior abdominal opening; (6) use repeated submammary salines and limb bandaging: and concluded: "Note the case recorded in which I was about to remove a cystic kidney, when fortunately a supposed miscarriage was made out to be an ectopic gestation before going on with nephrectomy. Intra-uterine and extrauterine pregnancy is very difficult to diagnose. Double ectopic gestation was only diagnosed at the time of operation; therefore always examine the other side. Early interstitial ectopic is difficult to diagnose; probably this is impossible."

(To be continued.)

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL.

PNEUMOCOCCIC PERITONITIS.

L. G., a healthy girl aged 6, was on May 7th, 1906, suddenly attacked by diarrhoea and vomiting, with acute abdominal pain. The motions were dark and offensive and very frequent; intestinal disinfectants were administered, and on May 9th constipation set in, and was only relieved by rectal injections. On May 12th purging with pain again occurred; pain was also observed on passing water. On May 15th tenesmus existed, but no motions were passed, and constipation, relieved by thin gruel enemata, continued till May 18th, when a third attack of diarrhoea occurred; it was treated by a bismuth and salol mixture, to which chlorodyne was added on May 20th: pulv. ipecac. co. was given occasionally, and somewhat relieved the acute abdominal pain. The purging finally ceased on May 21st. From the beginning of the illness signs suggestive of peritonitis gradually increased; the abdomen became tumid and tympanitic over the most prominent part and in the right flank, but dull in the lower part and in the left flank; it also moved badly upon respiration. Pain was general, but worse on the left side. The temperature during the whole time fluctuated between 99° and 101.5°, while on May 19th and 23rd it rose in the evening to 102°, between these dates varying from 99° to 101°. On May 16th (ninth day of her illness) an area of consolidated lung was detected at the inferior angle of the left scapula, accompanied by typical pain and physical signs of pneumonia, and a short cough, but though the patient now experienced pain in the left chest, yet the old abdominal pain was still the chief feature. The pulse was persistently rapid, about 128, and the respirations 40 to 44 per minute. On May 23rd I asked Mr. C. J. Bond to meet me in consultation, and we agreed that the patient should be removed to the infirmary.

Operation.—On May 25th Mr. Bond performed a median laparotomy. Upon opening the peritoneal cavity about a pint of thick greenish-yellow, non-offensive pus, containing a quantity of flaky fibrin, was evacuated. It was distributed fairly generally over the lower part of the abdomen, but more especially in the pelvis and on the left side. This area was freely irrigated and packed with gauze, as a considerable amount of haemorrhage occurred low down in the pelvis; the child was too ill to allow of searching for the bleeding point, and the gauze packing successfully arrested the haemorrhage. A large drainage tube was inserted and passed through a counter opening in the left flank. A bacteriological examination of the pus made at the time showed that it was pneumococcal.

After-History.—The child's condition was now grave owing to the severity of her illness, the shock of the operation, and the large quantity of blood that she had lost. Saline rectal injections were given every three hours, and brandy and subcutaneous injections of strychnine every four hours, and the patient rallied, and on the 26th calomel (gr.ij) was given, and an action of the bowels obtained. Progress was now uneventful, though rather slow. The temperature fluctuated considerably after the operation. The discharge gradually decreased, and the wound in the loin healed. A small sinus persisted in the abdominal wound for a short time, but has now healed.

Dr. Annand and Mr. Bowen (*Lancet*, June 9th, 1906) quote statistics proving that of 45 cases of *local* pneumococcic peritonitis 37 recovered (86 per cent.), but that out of 46 cases of the *diffuse* form of the disease only 6 recovered (14 per cent.). This case, therefore, being of the latter variety, may be regarded as having done remarkably well, for the child's condition was very critical after the operation, and the prognosis at that time was decidedly grave.

In conclusion, I should like to thank the house-surgeon of the Leicester Infirmary for kindly furnishing me with the notes of the case while it was in the institution.

Leicester. L. Erasmus Ellis, M.D.

HUNTINGTON'S CHOREA AND HEREDITY.

As Huntington's chorea is by no means a common disease in this country, I think the following extraordinary family history, with a few notes of the symptoms common to the members, will be of interest. This history demonstrates in a very convincing way the hereditary nature of the complaint.

Robert O., the father, was a perfectly healthy man, but the mother began to develop symptoms of the disease at the age of 30, and died at 44 in great misery. As she died many years ago, I was unfortunately unable to trace the history further back, but she had a brother who suffered from the disease. She had seven children, and of these six were affected, and as it is interesting to note the age when they began I will give each case in detail.

Robert, now aged 63. He is perfectly well and free from the disease, as also are his children and grandchildren.

William, began at 40, and died at 50.

Anna, began at 29, and died at 40. She had a son, now 30 years of age, and he suffers from the condition.

Eliza, began at 30, and is now 42.

George, began at 29, and is now 49.

Charles, began at 32, and died at 44.

Fred, began at 30, and is now 45.

It will be seen that the average age when the disease manifested itself in the mother, six children, and one grandchild is 31, the earliest age being 29. The symptoms in all the cases are practically identical. They commence with a loss of control over the hands. The head is drawn down, and it is with an effort that it is raised, and it wags from side to side. There are slow contractions of the muscles of expression, and the hands and fingers are constantly moving. The gait is very peculiar, being irregular and spasmodic. The reflexes are much exaggerated. The speech is slow and hesitating. The mind until nearly the end is wonderfully clear, and there is great sleeplessness.

Ossett. G. Symers Mill, M.D.

TREATMENT OF X-RAY DERMATITIS.

Last year the right hand of a patient I have known for years as a worker in *x* rays became so severely attacked that the middle finger with the metacarpal bone had to be amputated, as every treatment failed to cure it. He came to me on September 24th with two warty growths on the same hand, one on the back and another in the first metacarpo-phalangeal joint. I dressed it with powdered iodolum on dry boric lint daily, and now they are healing, and he is quite free from pain. It is at his request I publish these brief notes, and he is also willing to show the results to any medical men or society interested in it.

Iodol is the latest of the iodoform substitutes introduced by Ciamician and Silba of Bologna in 1885; it is official in the United States *Pharmacopoeia*. It is a pale yellow more or less crystalline powder, and if pure is free from odour or taste; it is very insoluble in water, but is soluble in fixed oils, and is now often dispensed with the addition of 1 per cent. of menthol. The preparation I used in this case is the iodolum precipatatum manufactured by Kalle and Co., Biebrich, whose agents in this country are Messrs. A. M. Zimmermann, 3, Lloyd's Avenue, London, E.C.

Victoria Park, N.E. H. Gilbert Nicholson, M.R.C.S.

TRIPLE INFECTION OF BLACKBIRD WITH FILARIAE, TRYPANOSOME, AND HALTERIDIA.

Dr. St. Clair Symmers, in the British Medical Journal of October 20th, 1906, p. 995, has written a Note on a Filarial Larva in the Blood of a Blackbird, and seems to conclude that this is a rare event in the British Isles.

I have frequently found filariae in the blood of the blackbird and thrush at any and all times of the year. I should expect to find these embryos in the blood of one out of every third or fourth blackbird or thrush which I examined. As far as my experience goes they are more commonly

found in the blackbird, thrush, and starling than in many other birds, and are not infrequently associated with the presence of one of the Haemosporidia, especially the halteridium.

On one occasion, in the blood of an apparently healthy blackbird shot on June 19th, 1904, I found filariae, halteridia, and a trypanosome in the same film of blood. In the third edition of my book on *The Blood* I have given the following short account of this triple infection:

In the blood of a blackbird killed in this neighbourhood, I found numerous filariae, about 148μ long, halteridia and one trypanosome. Although I carefully searched eight perfectly stained films from the same bird I only met with this one specimen of trypanosome, which had the following characters: The body is somewhat granular and has a fusiform shape. Both ends are sharp and pointed. The nucleus situated somewhat nearer the anterior than posterior end, consists of a densely-stained circular part, surrounded by a paler red area. The free part of the flagellum is short, and the attached portion is very thin but can be distinctly traced up to the centrosome, which is about 3μ from the end. The following are the measurements of this trypanosome:

Total length=27μ; length of body=23μ; length of flagellum =4μ; posterior end to centrosome=3μ; posterior end to the nucleus=13½μ; width of the body=5μ; length of nucleus=3μ; width of nucleus=4μ.

This parasite corresponds to some extent to the *Trypanosoma fusiforme avium minus* described by Danilewsky. This, he states, measures 18 to 22μ in length, without the flagellum, and has a nucleus which is placed in the middle, or slightly towards the anterior end of the body. The nucleus, he says, is surrounded by a clear halo.

Alfred C. Coles, M.D., D.Sc., F.R.S.Edin.
Bournemouth.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ST. GEORGE'S INFIRMARY, FULHAM ROAD, S.W.

LATE EFFECTS OF A HEAD INJURY.

(By Gilbert Rogers, M.B., B.S., late Assistant Medical Officer.)

S. T., aged 50, a carman, was admitted into the Infirmary on January 18th, 1906. He complained simply of giddiness and occasional headache.

History of Illness.—The shaft of a cart had fallen on his head on September 8th, 1905. He was stunned for a few minutes. A small scalp wound was made, and this was dressed at a hospital, which he attended for a week as an out-patient. From this time he went about his work as carman till Christmas, suffering with occasional headache and giddiness, and now and again a momentary motor aphasia. These symptoms then became accentuated, and decidedly worse, the week before admission. Since Christmas the momentary attacks of motor aphasia had come on as often as two or three times a day some days; and headache was constant and the giddiness worse. There was no history of any other symptoms; the patient had been a healthy, steady man all his life.

Condition on Admission.—He appeared dazed and confused in manner, answered questions only after an interval, and with evident difficulty of concentration. Temperature and pulse normal. There was a small scar just to the right of the middle line of scalp, and about 1½ in. behind coronal suture. The left pupil slightly larger than right, and both reacted normally. Tendon reflexes were somewhat dulled. He had definite arterio-sclerosis; otherwise nothing abnormal was detected.

Progress.—The same night the patient had the delusion that "electrical works were under his bed." His state remained much the same—dull, apathetic, and indifferent to his surroundings—till the morning of January 20th, when in trying to get out of bed he suddenly became unconscious, and remained so for five minutes without showing any convulsions or making any noise; his pupils were very small at the time. He was semi-conscious from this time till late that night (fourteen hours later), when he became completely unconscious again. At this time his legs, especially the right, were rigid; occasionally he slightly moved his arms. Tendon reflexes were very active, as shown by the knee-jerk, and there was right-sided ankle clonus. The right pupil was widely dilated, and both pupils were inactive to light, and there was some right-sided ptosis. A corneal reflex was obtained. The following day his breathing was almost stertorous, both pupils dilated but the right more so, and corneal reflex present. The limbs were flaccid, knee jerks very slight, and no ankle clonus. There was no albumen in the urine. He died the same day at 7.30 p.m., without any further change occurring.

Necropsy.—The lungs were congested somewhat, as was to be expected. An examination of the brain revealed thickening of the meninges over the commencement of the right Sylvian fissure and right temporo-sphenoidal lobe. Cutting into this lobe a space was found about 1½ in. in length and width and ¾ in. in depth. This contained brownish-yellow pultaceous material, and was enclosed by firm fibrous walls, having a ragged yellowish-stained lining. Outside these walls the brain tissue was oedematous for a short distance. There was no evidence of any fracture of the skull.

Remarks.—I imagine this was a case of old central laceration from *contrecoup*, with breaking down of brain tissue and subsequent fibrosis around. This had proved to be a source of irritation, setting up a surrounding oedema of the brain, which had caused death.

[These notes are sent with the permission of the Medical Superintendent.]

REPORTS OF SOCIETIES.

CLINICAL SOCIETY OF LONDON.

Clinical Evening.

H. H. Clutton, M.A., M.C., F.R.C.S., President, in the Chair.

Friday, October 26th, 1906.

Traumatic Cephalhydrocele in a Baby Treated by Operation.

Mr. Douglas Drew showed the infant, a female, admitted when 6 weeks old, a few hours after a fall, with a large swelling upon the right side of the head, in which impulse was felt when the child cried, and with twitching of the left arm and leg. The tumour increased and the gap in the bone beneath it widened. On the sixteenth day operation was performed to close the rent in the dura and draw the bones together. The sac containing cerebro-spinal fluid was formed of the separated periosteum. On allowing the fluid to escape profound shock ensued. Through the fracture (1½ in. long and ½ in. across) situated in the parietal bone a hernia cerebri protruded. Owing to the collapse no attempt was made to suture the dura; the bones were forcibly drawn together with silver wire, and the hernia cerebri cut off, the periosteum replaced, and the scalp wound sutured. Slight rigidity in the left arm, nystagmus, and deviation of eyes to the right which lasted four days, followed the operation, and the baby recovered.

Mr. Godlee commented on the rarity of success after such operations, and congratulated Mr. Drew.

Malunited Fracture of Tibia and Fibula near Ankle.

Mr. Watson Cheyne showed the patient, a man, who had fallen in July, 1903, and was treated in an infirmary. In January, 1904, when admitted to hospital, he had marked regular deformity, so that he walked on the outer border of the foot. Mr. Cheyne stripped the muscles and periosteum from the bones, divided the bones at the site of fracture, fixed together the fragments of the tibia by an aluminium plate and tacks, and impacted the sharp end of the upper fragment of the fibula in the medullary cavity of the lower fragment. The wound healed well, and the malposition was rectified.

Deformity of Long Bones.

Mr. T. H. Kellock exhibited a girl, aged 8, an only child, in whom the legs had gradually become deformed, and now showed marked genu valgum, and inversion of feet due to curvature outwards at the lower ends of the tibiae and fibulae; the femora, radius, and ulna of each arm, and upper ends of the humeri were also curved. Skiagrams showed that the deformities were chiefly due to fractures and irregular ossification occurring at short distances from the epiphysial lines. The disease was slightly progressive.

Dr. Garrod discussed the significance of the transverse lines seen in the diaphyses near the epiphyses in the skiagram.

The President thought the case was one of rickets, and that many cases of fragilitas ossium were due to late rickets.

Symmetrical Affection of Hip-joints.

Mr. Kellock showed also this case, a boy, aged 8, said to have had dysentery when 8 weeks old, followed by swelling of the right knee which lasted two months. A year ago his gait became peculiar, resembling that in congenital dislocations, the trochanters being raised. The movements of the joints were free, without pain or tenderness.

Mr. Warren Low thought the case might be a form of septic arthritis following the dysentery, rare in one so young, but common in adults who had had tropical dysentery.

Partial Heart-Block.

Drs. Percy Northcote and A. M. Gossage showed a man, aged 51, a clerk, who had had syphilis at the age of 21, but had afterwards been healthy until four years ago, when he had a sudden attack of unconsciousness. Since then such attacks had become frequent, being of momentary duration or lasting for several seconds. The arteries were thickened, and the tension increased. The pulse sometimes suddenly dropped to about half its former rate of beats—for example, from 68 to 32; and the change was always accompanied by giddiness. Usually the pulse rate was between 26 and 36, occasionally rising to over 60. The patient was always benefited by rest in bed. Observations under *x* rays showed that the auricles were beating at double the rate of the ventricles, and that bradycardia was probably due to depression of conductivity in the bundle of His between the auricles and ventricles, so that in severe attacks no sound was heard over the heart for five seconds.

Dr. A. Morison discussed the sphygmogram of the case. Dr. Gossage replied.

Patent Ductus Arteriosus.

Dr. G. H. Turney exhibited three patients—females—aged 20, 29, and 31 respectively, in all of whom a loud arterio-venous murmur was audible on auscultation.

Dr. C. R. Box ascribed the systolic part of the murmur to ventricular contraction, and the diastolic to arterial.

Dr. W. Ewart thought two of the cases were possibly due to pulmonary stenosis, and the diastolic part of the continuous murmur to aortic regurgitation.

Dr. Frederick Taylor agreed with Dr. Ewart. Even with a patent ductus arteriosus there was not in every case a continuous murmur.

Dr. Turney, in reply, said that a continuous murmur occurred, apart from a patent ductus arteriosus, only with an aneurysm or an infective arteritis communicating with a large vein; and both these conditions could be here excluded.

Double Coxa Vara.

Mr. Godlee showed a boy, aged 16, who, until August, 1905, could play games such as football; he then fractured his right thigh, in which shortening to the extent of an inch occurred. During the last three months his left hip-joint had become painful. Both limbs were rotated outwards, and the gait was that of coxa vara. Mr. Godlee discussed the operative treatment that might be adopted.

The President suggested a prolonged sojourn in the country, and an extended use of crutches.

Other Exhibits.

By Mr. Charters J. Symonds: Epiphysitis of head of femur.—Mr. Edred M. Corner: Syphilis (?) in the bones of one limb in a girl aged 7.—Sir Hugh Beevor: Large abdominal tumour in a boy aged 16.—Mr. H. C. Semon: Xanthoma, with enlargement of liver; and a case of acromegaly.—Mr. D. C. L. Fitzwilliams (for Mr. C. A. Ballance): A child from whom a large cerebellar tumour had been removed; the child had made a good recovery.—Dr. A. E. Garrod: A new case of alkaptonuria.

Dermatological Society of Great Britain and Ireland.—At a meeting on October 24th, Dr. Leslie Roberts (President), in the chair, Dr. E. Stainer showed a case of *Xerodermia pigmentosa* in a boy, aged 9. The condition had started with pigmentation when he was 3 years old and now the face was covered with numerous freckles and warty growths which proved to be of a malignant character.—Mr. Spencer Hurlbutt: (1) A case of *Eczema seborrhoeicum areatum* upon the legs of a man, aged 47; (2) a case of syphilis in which the primary lesion upon the little finger followed upon the scratch of a kitten.—Dr. Norman Meachen: (1) A girl, aged 14, with *Multiple scars* over the whole body following a relapsing eruption presenting all the clinical features of impetigo. The scars were most numerous upon the abdomen and scalp and were sharply defined, depressed, and were mainly oval in outline; (2) a case of *Peculiar Mottling of the Skin* associated with congenital heart disease (pulmonary stenosis) in a boy, aged 6.—Dr. T. D. Savill: A case of *Peculiar urticarial eruption* in a young woman associated with other interesting clinical phenomena. The diagnosis of urticaria fibrosa or U. perstans tuberosa had been suggested.—Mr. T. J. P. Hartigan: Drawings and microscopical preparations of a case of *Blastomycosis* in a girl, aged 11, the first case, he believed, to be reported in this country. The lesions occurred upon the side of the nose and cheek and presented some of the appearances of lupus.—Mr. G. W. Dawson: A florist, aged 34, with severe *Dermatitis* resulting from the handling of chrysanthemums.—Dr. Graham Little: A young man with small areas of *Tinea circinata* over the front of the chest.

Hunterian Society.—At a clinical meeting at the Metropolitan Hospital on October 24th, the President, Mr. John Poland, in the chair, the following were among the exhibits:—Mr. W. G. C. Ashdowne: (1) Two sisters, aged 2 and 3½ years respectively, with congenital dislocation of the hip. The dislocation was on the right side in the younger child and on the left in the elder. The condition was being treated by manipulation. (2) A child, 1 year and 8 months old, from whom a meningomyelocele in the lumbar region had been removed eight days after birth. (3) Two gall stones from the cystic duct, the first removed from a dissecting room subject, the second obtained by operation. In neither case was there any distension of the gall bladder.—Dr. Edmund Cautley: (1) A man with an aneurysm involving almost the whole of the arch of the aorta, which led to a discussion on the value of Tufnell's treatment. (2) A small boy who had suffered from encephalitis inferior, involving the nuclei of the right sixth and left seventh nerves. (3) A man with polycythaemia.—Mr. C. G. Watson: (1) A boy, aged 13, on whom he had performed excision of the knee for tuberculous disease 3½ years before. There was no flexion, and the femur and tibia had grown *pari passu* with the bones of the sound leg. (2) A woman of 61, who had developed streptococcic peritonitis twenty-four hours after an operation for perforated gastric ulcer. Polyvalent antistreptococcic serum had been injected four times with excellent result; a gastric fistula which had formed was healing spontaneously. The meeting terminated with a vote of thanks to the hospital authorities and staff.

The Society for the Study of Disease in Children.—At a meeting on October 19th, Mr. W. Milner Burgess in the chair, the following were among the exhibits:—Dr. T. R. Whipham: (1) A case of *Osteo-arthritis* in a girl aged 13, affecting the wrists, hands, knees, and ankles. There was no enlargement of the spleen or lymphatic glands. Skiagraphs showed the bones and cartilages to be normal in the affected joints, and the enlargement appeared to be due to thickening of the synovial membranes and surrounding tissues. (2) A girl, aged 15, the subject of numerous deformities. The bones of the left side of the face were ill-developed and the left pinna misshapen. The left arm was shorter and less muscular than the other, the shoulder was elevated, and the scapula deformed and rotated inwards. The muscles of the shoulder girdle were shortened, producing torticollis, and there were gaps in the second and fourth ribs. (3) A baby, aged 10 months, with *Congenital heart disease*. There was cyanosis and clubbed extremities. The right side of the heart was enlarged, but no murmur was present. Erythrocytes numbered 12,900,000 per c.mm., and haemoglobin 50 per cent. above normal.—Mr. Milner Burgess: Two brothers with *Hypospadias*. In one there were two openings in the penile urethra, as well as one at the meatus.—Mr. Lockhart Mummery: Child, aged 7, who had always been unable to supinate the forearms. The hands were strongly pronated, with very little rotatory wrist movement. It appeared to be due to weakening of the supinators and spasm of their opponents, and it was doubtful if the radius were fully developed.—Mr. H. S. Clogg: A child who had *Bilateral congenital* sinuses in the lower lip, bilateral complete harelip and cleft palate.

The sinuses were on the upper margin of the lower lip, ½ in. deep, extending nearly to the mucous membrane.—Dr. ALEXANDER MORISON: A boy aged 8, with persistent *Arrhythmia of the heart*, characterized by the occurrence at intervals of an extra systole and a long pause, coinciding with a pulsation in the right internal jugular vein. The child suffered no inconvenience. There was a history of a severe attack of measles.—Dr. J. PORTER PARKINSON: Two cases of *Pseudo-leukaemia infantum*, one of which had been treated for five months by the *x* rays with marked improvement in the general condition, the anaemia and the blood count. The spleen was reduced to a quarter of its original bulk. The second case was treated without the *x* rays, and showed no improvement.—Mr. SYDNEY STEPHENSON: Boy aged 6, with a curious deformity of the eyelids. The palpebral fissures were prolonged downwards and outwards, exposing the eyeballs unduly. The lower puncta lachrymalia were absent, and there was a deficiency of the lower bony margin of the orbits.—Dr. C. O. HAWTHORNE: (1) Case of *Cerebral diplegia* in a boy aged 5, chiefly marked in the right leg, but reflexes were increased on both sides. The right arm showed clumsiness of movement rather than spasticity. The boy could not talk, but understood all that was said to him. There had been no fits. (2) A child with coloboma of the iris, choroid, and optic disc, and an infant with extreme depression of the left half of the frontal bone.

HARVEIAN SOCIETY.—At a clinical meeting on October 25th, at St. Mary's Hospital, the President, Dr. F. W. COCK, in the chair, the following were among the cases shown:—Dr. SIDNEY PHILLIPS: A girl, aged 18, with *Congenital heart disease*. There was deep cyanosis present since birth, with marked clubbing of the fingers. No cardiac murmurs were present. The lesion was considered to be absence of the interventricular septum.—Mr. JACKSON CLARKE showed 3 cases of *Congenital hip disease* in children aged 3, 3, 3½ respectively, completely cured by operative treatment and exercises, and a fourth case in which the dislocation had been cured by operation; all that was now required was treatment by suitable exercises to relieve the abduction resulting from fixation in the abducted position.—Dr. SCANES SPICER: a case of inoperable *Cancer of the throat* which had greatly benefited from injections of a vaccine of *Micrococcus neoformans*.—Mr. PARRY MORGAN (for Dr. Luff): a case of a large round tumour in the epigastric region of 3 months' duration in a man aged 54 which appeared to be a *Carcinoma of the stomach*. There had been sickness and pain, but now he was able to take food without discomfort. Dr. WILLCOX stated that examination of the stomach contents showed the absence of free hydrochloric acid and the presence of a quantity of mucus, and considered that it was mainly the muscular coat of the stomach which was affected. Dr. JOHN BROADBENT thought that the growth might possibly be a sarcoma.—Dr. WILLCOX (for Dr. Luff): a case of *Copper poisoning* in a man. The patient had had vomiting and abdominal pain, and when admitted there was a well marked deep blue line on the gums and slight tremor of the hands. He had found copper and zinc in the urine and faeces. The patient had recently been doing much brass polishing, and apparently had been careless about cleaning his hands, and been poisoned by the alloy of copper and zinc of which brass consists.—Dr. LANGMEAD (for Dr. Harris): (1) A case of *Pseudo-bulbar palsy* in a man aged 34. He suddenly lost his voice eight weeks ago, and had some weakness of the right side and a coarse tremor of the right arm when excited. There was no obvious wasting of the tongue or paralysis of the soft palate, and he could swallow well. He could at times speak several words of intelligent speech in a whisper. Dr. JOHN BROADBENT considered that the case might be functional; the loss of voice was aphonia rather than aphasia, and came on suddenly; the tremor only appeared when the man was excited, and from the character of the symptoms it was difficult to trace them to any definite organic lesion. (2) A case of tumour of the *Right optic thalamus* in a man aged 24. There was loss of power in the left arm and leg of five weeks' duration, and blindness of the left lower quadrant, with headache and vomiting and optic neuritis.—Dr. JOHN BROADBENT: A specimen of *Aneurysm of the aorta* which compressed the superior vena cava, and had caused paralysis of the left vocal cord. The patient, a man aged 49, who was to have been shown, had died suddenly five days before from rupture of the aneurysm.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—At a meeting on October 19th, Dr. J. LINDSAY STEVEN, President, in the chair, the following were among the exhibits:—Dr. J. GALBRAITH CONNAL: (1) A case of *Sphenoidal sinusitis* in a man, aged 36 years. The symptoms were nasal obstruction and discharge from the right nostril of long duration. Headache was referred to the ear, the neck, and at other times the forehead. It became specially severe on the cessation of the discharge. Dimness of vision was sometimes present. The middle turbinal was hypertrophied and covered with a large crust. It was removed, and the anterior wall of the sphenoidal sinus broken down by Hajek's hooks. The pus was evacuated and an area of necrosed bone curetted. It was found difficult to keep the opening into the sinus patent. (2) A man of 67 years operated on for combined *Empyemata of the maxillary antrum*—the frontal and the ethmoidal and sphenoidal sinuses. The maxillary antrum was opened from the canine fossa with a counter-opening into the nose. The frontal sinus was opened from the outside. Dr. Connal thought that with a nasal infection more than one cavity was generally involved. (3) A case in which a large sarcoma had been removed from the left nostril three years ago, with no recurrence. It appeared to originate at the posterior extremity of the turbinal and spread forwards, becoming attached to the septum and floor. (4) A boy of 12 who had had a primary diphtheria of the external auditory canal. A perforation of the left tympanic membrane and a chronic purulent discharge were present. For weeks after the diphtheria was cured his temperature remained subfebrile, and the radical mastoid operation was performed. The temperature returned to normal. Dr. Connal also related the history of a case of *Purulent otitis media*, chronic on the right side and acute on the left, with severe pain, sickness and vomiting, and rigor, and an early papillitis of the optic discs. The radical mastoid operation was performed on the left side, and foul pus was evacuated between the tegmen and the dura and along the lateral sinus. The sinus was exposed, but appeared healthy. Rigors and high oscillations of temperature developed two days after, and the internal jugular was ligatured. The sigmoid sinus was further exposed, and a firm grey clot cleared out till free bleeding started. The sinus was then packed. The patient died from septic pleuro-pneumonia. *Post-mortem* examination revealed effusion into the pleural cavities and multiple abscesses in the lungs. Purulent clot was found in the left lateral sinus.—Dr. ALEXANDER MCLELLAN showed spirochaetes from syphilis, yaws, and granuloma pudendi. The probability of the *Spirochaeta pallida* being the cause of syphilis has been advanced by recent research. The serum from an eight-months syphilitic has been found to possess at least a feeble agglutinating power over the *Spirochaeta pallida*, and also to still the movements of the living organism. Healthy serum did not do this. The organism has been found in congenital syphilis in numbers usually corresponding to the severity of the lesions. The further discovery of spirochaetes on the skin of congenital syphilitics, apart from any local lesion, was important. Histologically the *Spirochaeta pallida* was found to inhabit the deeper structures rather than the immediate surface. It had also been demonstrated in countless numbers in sections of the congenital manifestations. These facts, while apparently supporting the view that the *pallida* was the cause of the disease, required sifting. If this was so, then the view that the congenital type was only feebly contagious was unwarranted. Syphilis for its spread did not depend upon the congenital but upon the surface discharges from the acquired lesions. In those the *pallida* was more evident in the deeper parts, and was admittedly scanty in the surface discharge. In the discharges from the primary and secondaries of the acquired numerous small protoplasmic bodies were found. In some instances they had flagella. In a recent article in the BRITISH MEDICAL JOURNAL he showed the relationship between these and the *Spirochaeta pallida*, which, while not the cause of the contagion, might have something to do with its lesions, and was, indeed, part of the life-cycle of the infecting organism. It was necessary to differentiate these organisms from artefacts, deposits of stain, and from

protoplasmic buds from the tissue cells, or from nuclear débris. Such buds were found present in all smears from lymphatic glands enlarged from whatever cause. When, however, hordes of feebly-staining bodies varying in size and shape were present in the surface discharge, the probability of their being protozoal became stronger. The spirochaetes found in yaws were, as already pointed out by Castellani, almost identical with the *pallida*, while those found in granuloma pudendi were more delicate, more closely waved, and very much longer and more difficult to stain.

Leeds and West Riding Medico-Chirurgical Society.—At the opening meeting on October 19th, the President (Dr. Bampton) read an address entitled "Olla Podrida, with Comments on some Recent Advances in Medicine."—Mr. H. Littlewood read a paper on "Two Cases of Removal of the Spleen for Traumatism," the patients and specimens being shown:

Case I.—James L., aged 11 years, was operated on on March 6th, 1905, about forty-eight hours after the onset of the symptoms. He was playing on a trapeze and two or three hours afterwards intense abdominal pain commenced and continued until the time of the operation. He was suffering from peritonitis and a large mass was felt in the left of the abdomen; this was diagnosed as a displaced spleen. On opening the abdomen the mass was found to be a displaced spleen, completely twisted on the gastrosplenic ligament one and a half times; the splenic vessels were thrombosed and the surrounding intestines were distended and inflamed. The pedicle was clamped, divided, and ligatured and the spleen removed. It weighed 2 lbs. The splenocolic ligament was very slender and had ruptured. He made a good recovery and is now apparently quite well.

Case II.—Harry N., aged 33, operated on five hours after the accident for ruptured spleen, on August 20th, 1906. There were two lacerations, one a very large one, and a good deal of blood in the peritoneal cavity. The spleen was removed. The patient made a good recovery.

The following cases and specimens were also shown:—Dr. A. G. Barrs: The lungs from a case of general sarcomatosis in which the deposit was limited to and universally involved the pleura.—Mr. M. A. Teale: A persistent hyaloid canal with opaque retinal nerve fibres.—Dr. P. S. Bird: A case of fracture of the lower jaw across the neck of both condyles.—Dr. Maxwell Telling: A case of secondary syphilis framboesioides.—Mr. J. F. Dobson: A child with multiple adenomata of the rectum, and one of colotomy for imperforate rectum.—Dr. E. F. Trevelyan: A case of choreiform movements of the leg in a patient aged 60.

REVIEWS.

THOUGHT AND THINGS.

For those who are not familiar with Professor Baldwin's previous publications on psychology and mental evolution it may be useful to give some preliminary explanation of the subject which the author of *Thought and Things*[1] terms "genetic logic." It is to be distinguished, in the first place, from two other kinds of logic—"formal" logic and "metaphysical" logic. The problem of formal logic is to state the rules which govern valid reasoning, together with the classification of the errors or fallacies which are committed when any argumentation violates these rules. These rules take for granted certain psychological assumptions and certain "laws of thought," but no attempt is made either to justify the psychological basis on which they rest or to consider any sphere of psychological experience in which these rules are not operative. Metaphysical logic, on the other hand, attempts, from the consideration of the cognitive faculty, to develop a theory as to the nature of the principles of thought and the nature of the realities which form the subject matter of thought; it is based on the assumption that reality is of as "logical" a character as "thought." But "genetic" logic refuses to accept the presuppositions either of the formal logician or of the metaphysician; it is built up by the same methods of observation and hypothesis as those observed in the empirical sciences generally, and especially in the correlated branches of psychology. It is based on a scientific study of the psychology of the logical operations, and, on this ground, terms itself, perhaps rather ambitiously, the "knower's logic," in distinction from the logic of the mere "logician" or the mere "metaphysician." In plain English, Professor Baldwin is a psychologist who has written much on mental development and evolution, and his "logic" is a sort of applied psychology.

The feature which distinguishes Professor Baldwin's book from most logical treatises written from the psychologist's standpoint is that it specially emphasizes the importance of treating thought, not merely as a series of results, but as a process. It follows what is termed the "longitudinal" method of treatment. This not particularly lucid phrase may be explained as follows: Mental development passes through a series of phases, commencing with the simplest and proceeding to the more complex. If we take these phases in order and study the characteristics of each, we are investigating our subject by the method of serial sections, the sections being taken transversely to the direction of progression; but in order to understand how these phases are actually evolved, we must also make longitudinal sections, showing the continuity of those various strands of thought which determine the sequence and characters of each particular level of mental development as it appears in transverse section. In order to grasp this "longitudinal" aspect of the problem, we must learn to think in "genetic" terms, and the essential requirement for the exercise of this kind of thinking is that we should free ourselves from the ordinary mechanical conception of causation.

We have all been hypnotized by the thought of cause of the type of impact, transfer of energy fixed in quantity, with a formulation of effect in terms of an equation with composition of forces issuing in a resultant—as in the "parallelogram of forces." We are told that nothing can be in the effect that is not already in the cause. All this is a partial and forced interpretation of nature. . . . The Adaptations, Growths, Novelties, in nature are as much in evidence to the scientific observer as are the Identities, Conservations, and Effects. Why may not the subsequent term of a sequence have something in it not already present in the antecedent term? It usually does.

To the ordinary student of science, this mode of thinking will appear novel and dangerously heterodox. But Professor Baldwin is thoroughly master of his subject, and writes with great ability; the point of view which he develops is not really paradoxical; it is based on principles of sound philosophy, and scientists might profitably widen their horizon by carefully studying his work. They would find it a closely reasoned piece of thinking, whether they agreed with the main results or not. It ought, perhaps, to be made clear that Professor Baldwin's book is distinctly not light reading. It is written in the highly technical phraseology which is current in modern philosophy, and its vocabulary must be patiently learnt before it can be understood.

The work will be completed in three volumes. Volume i contains the author's exposition of the Genetic Theory of Knowledge. Volumes ii and iii, which are in preparation, will deal respectively with Experimental Logic and Real Logic.

[1] *Thought and Things: a Study of the Development and Meaning of Thought, or Genetic Logic.* By James Mark Baldwin, Ph.D., etc., Professor in the Johns Hopkins University. Vol. i. London: Swan Sonnenschein and Co. 1906. (Demy 8vo, pp. 273. 10s. 6d.)

RHINOLOGY.

Dr. Lambert Lack's *Diseases of the Nose*[2] is in every respect a satisfactory book, the work of a practical surgeon who writes from personal experience. The style is clear and concise, and the tone moderate and judicial; the book represents fairly and adequately the present position of British nasal surgery. The get-up is excellent; printing, binding, and illustrations are all good. The opening section deals with the surgical anatomy and physiology of the nose, and the author emphasizes the importance of the protective functions of the ciliated epithelium and the cavernous tissue. In describing methods of examination, we are glad to see that Dr. Lack advocates the routine use of a weak solution of cocaine and adrenalin, applied after a preliminary inspection of the parts. Many mistakes would be avoided if this were always done. Median rhinoscopy is described as a useful method with a limited application, chiefly in cases of posterior sinus suppuration; and the palate hook is briefly dismissed as a clumsy

[2] *The Diseases of the Nose and its Accessory Sinuses.* By H. Lambert Lack, M.D., F.R.C.S. London: Longmans, Green, and Co. 1906. (Pp. 414, 124 illustrations. 28s.)

instrument, rarely necessary, and mainly useful when operating in the naso-pharynx under guidance of the mirror. With both of these criticisms we agree. In discussing the arrest of nasal haemorrhage hydrogen peroxide is not mentioned, although it is one of the very few styptics which the nose will tolerate. Bellocq's sound is spoken of as "happily obsolete"—a very sanguine view. Nasal obstruction, its symptoms and effects, is the subject of an exceedingly good chapter, freely illustrated by drawings and diagrams showing the deformities of the jaws, teeth, and chest. It is no exaggeration to say that much suffering and many cases of incurable deformity would be avoided if the information here given were mastered by every practitioner of medicine. Other matters of daily interest to every doctor are nasal headaches and the secondary infections of the larynx, bronchi, and lungs resulting from nasal suppurations. Regarding septal operations, the author's general attitude is decidedly conservative, and he does scant justice to the operation of submucous resection. It is no doubt often difficult and tedious, but there is usually no difficulty in obtaining a practically bloodless and quite insensitive field of operation, and the "endless sponging" of which Dr. Lack speaks is not easy to understand. We can hardly imagine it being performed under general anaesthesia such as Dr. Lack speaks of: the patient's co-operation is so essential. Ozaena the author regards as the final result of a purulent rhinitis commencing early in life, or of active destruction occurring later. Of this theory it may at least be said that it explains more cases than any other. Dr. Lack's work on the subject of nasal polypi is well known, and his views are here clearly set forth. Justice is also done to the early work of Woakes, which the younger generation of rhinologists is in some danger of forgetting. Curetting the ethmoid for the radical cure of polypi is now a well-established procedure, which, in skilled hands, is practically free from danger. In discussing nasal neuroses, the risk of drawing hasty conclusions is emphasized: "Many 'brilliant results' are nothing more than too early publications." In certain of the worst cases of hay fever, when the cautery has failed, Dr. Lack has obtained a cure by removing the turbinates—both lower and middle in some cases—and he has never seen dryness of the mucous membrane follow this extreme measure, as it inevitably would under other circumstances. The important subject of sinus suppuration is treated fully. The necessity of repeated examination is insisted upon, and the diagnosis is discussed very clearly in a way that cannot fail to be most helpful to any one who is familiar with rhinoscopic appearances. With regard to treatment, it is noticeable that the antrum is now drained preferably into the inferior meatus (except in dental cases), and that the canine fossa operation is falling into disuse. For severe ethmoidal suppuration the author's operation at present holds the field. Frontal sinus operations are still various, but Killian's method, though difficult and tedious, promises the best results with least disfigurement. Dr. Lack's outline of this operation is too brief to act as a guide. A section on mucocele and an account of adenoid growths conclude this admirable manual.

The delay in the appearance of the concluding portion of the second edition of ZARNIKO's work on the diseases of the nose and naso-pharynx[3] may have led some to forget it: but the majority of the readers of the first part will by this time have had their appetites sharpened all the more. They will not be disappointed in the result, as the part possesses the qualities to which we drew attention in the former review (BRITISH MEDICAL JOURNAL, January 16th, 1904, p. 138). Exhaustiveness, lucidity, and readableness are as characteristic of this part as of the former. Among the subjects which appear to have been particularly elaborated we may note the operation of submucous resection of the septum, which the author considers every rhinologist *must* master. The various questions relating to ozaena are fully discussed, but with the admission that it remains for the future to show which of all the theories is or are correct. The great practical advances of the present are clearly detailed. We may mention further the studies of cysts of the alae; fibromata; their effect in expanding the skeleton of the face; their removal by means of the choanal hook: the rare occurrence of leukaemic growths in the naso-pharynx so as to simulate adenoids with fatal result; and the neuroses of the olfactory apparatus. The last of these is invested with remarkable interest. A favourite subject of the author's is obviously the pathology and treatment of the inflammatory affections of the accessory sinuses. In this edition the methods of treatment of the acute and chronic forms respectively are fully and separately discussed, and much clarification of ideas is thereby effected. The late Professor Oertel stated once that whatever Zarniko wrote he would willingly subscribe to. The work before us would have confirmed him in his judgement. We recommend it most strongly to all students of rhinology.

[3] *Die Krankheiten der Nase und des Nasenrachens*, mit besonderer Berücksichtigung der rhinologischen Propädeutik. [The Diseases of the Nose and Naso-pharynx, with special attention to the General Principles of Rhinology.] Von Dr Carl Zarniko in Hamburg. Zweite Auflage. Zweite Hälfte. Berlin: S. Karger. 1905. (Demy 8vo, pp. 490. 11s. 6d.)

OPEN-AIR TREATMENT OF CONSUMPTION.

THE title of Dr. BARDSWELL'S book,[4] *The Consumptive Working Man: What can Sanatoria do for Him?* is attractive and promises much, but the author has not attempted to cover all the ground that might legitimately be included. He has, instead, recorded what sanatorium treatment has been able to do for twenty-five working men under his observation at the Sheffield Royal Infirmary and at the Mundesley Cottage Sanatorium. As he himself expresses it in his preface: "In this volume the writer has set out with bare simplicity a faithful history of the work of several years." Such records have a distinct value, and the cases are very fully and carefully recorded, but they are too few to allow general deductions as to what sanatoriums can accomplish to be drawn from them alone; they may be taken as illustrating what is the common experience of all who have any connexion with the consumptive working man. We may, perhaps, conclude that these 25 cases have been selected with the object of exemplifying certain types, for Dr. Bardswell tells us that they are drawn from an experience of six years, and in that time he must have had a much larger number under his care. However this may be, Dr. Bardswell's cases well illustrate certain important points. He divides them into two groups, the first consisting of 10 patients concerning whom he has obtained information on every point that he desired, and the second group of 15 patients of whom the records are less complete. The first group consists of 8 patients in whom the disease had existed for six months or less, and 2 cases of longer duration (one and two years respectively) in which the disease was already partially arrested. Six of these 10 cases left the sanatorium with the disease completely arrested, and the remaining 4, with incomplete arrest, were all fit for light work. It is to be regretted that the physical signs in the lungs of the patients on admission are not given, for, in the absence of symptoms of illness—fever, cough, wasting, etc.—it would be interesting to know what manifestations of tuberculosis were present in each case. In the second group of cases, 10 out of the 15 "have relapsed and lost all hope of regaining any degree of working capacity"; in fact, all the 10 have since died. The prognosis, in any case, depends chiefly upon two factors—the clinical condition of the patient when he comes under treatment, and the social conditions to which he must return when discharged from the sanatorium—a very important factor, opening a wide field for consideration in all schemes for the treatment of the consumptive poor. It is on this point that Dr. Bardswell's book will be found most valuable, for he has obtained minute information upon the social and economic conditions of his patients, including the wages earned, the dietary, and the cost of living, and has been able to show how great an influence on the after-history of his patients these conditions exert. Many will agree with Dr. Bardswell's deduction: "Personally, rather than send a man back to such conditions of work as will give him an inadequate income, I would advise him to return to indoor, or possibly even an unhealthy, occupation at which he can with certainty earn a living wage."

[4] *The Consumptive Working Man: What can Sanatoria do for Him?* By N. D. Bardswell, M.D., M.R.C.P., F.R.S.Edin. London: Scientific Press. 1906 (Demy 8vo, pp. 202. 10s. 6d.)

For those consumptives who are unable to enter a sanatorium and learn by experience under supervision the mode of life which will give them the best chance of recovery, Dr. Warren Crowe's small book,[5] *Consumption: Treatment at Home, and Rules for Living*, should prove of great assistance. The importance of fresh air, sufficient food, rest, and exercise are explained in simple language. The value of the temperature record as an indication of the amount of exercise which may safely be taken is insisted upon, and the patient is advised to test each step in advance by the thermometer. Another rule is, "When in doubt, rest." As it is impossible to lay down rules which will be suitable to every case, Dr. Crowe wisely advises all consumptives to bear in mind that the continuous supervision of a doctor is essential. Under such supervision these rules will be of great assistance to the patient in regulating his life. One rule says, "If the D temperature (that is, the temperature taken ten minutes after getting into bed at night) is over 98.4° F., rest all the next day." If this rule is implicitly followed it is to be feared that few patients would ever get any exercise. Dr. Crowe would do well to read again Dr. Pembrey's Remarks upon Temperature, published in the British Medical Journal of February 27th, 1904, p. 475.

NOTES ON BOOKS.

The publishers have issued a popular edition of the English translation of the life of Pasteur, by René Vallery-Radot;[6] the book is too well known to call for review, it will suffice to say that it gives a fascinating account of the life of the great investigator. The translation by Mrs. R. L. Devonshire, is clear, but might be very much improved by careful revision in a future edition. The volume is well printed, and is provided with an excellent index.

Dr. Brickner and Dr. Moschcowitz have collected into a small volume[7] the "Surgical Suggestions" which they contributed to the *American Journal of Surgery* during 1905. The "suggestions" include many useful hints in diagnosis and treatment, and a spare five minutes now and then might be profitably employed in committing them to memory.

The fourth edition of Warwick and Tunstall's excellent advanced ambulance handbook, *First Aid to the Injured and Sick*,[8] has been published at the reduced price of one shilling, thus bringing it within the reach of all students of first aid. The text has been revised, and a few additional illustrations have been added. The cover has been made more striking, if less attractive, by a picture representing an accident, which we do not think adds to the appearance of the book. We have already (British Medical Journal, May 30th, 1903, page 1262) expressed the opinion that Warwick and Tunstall's book ranks amongst the best of the handbooks on first aid.

Materia Medica.

Books on materia medica adapted for use in foreign countries are not of very much value, as a rule, to British practitioners. Dr. Otto Dornblüth's *Die Arzneimittel der heutigen Medizin*[9] is compiled on the same lines as Martindale's *Extra Pharmacopoeia* and Squire's *Pocket Companion*. Pharmacological notes are not inserted; but, on the other hand, formulae are given which may be found useful.

The small volume entitled *Praescriptiones: Rezept-Taschenbuch*, by Dr. Emil Kantorowicz of Berlin,[10] consists entirely of formulae arranged under the head of various diseases. Professor Senator in a short preface expresses the opinion that the volume will be useful to young practitioners.

[5] *Consumption: Treatment at Home, and Rules for Living.* By H. Warren Crowe, M.D. Bristol: John Wright and Co. 1906. (Fcap. 8vo, pp. 30. 1s.)

[6] *The Life of Pasteur.* By René Vallery-Radot. Translated from the French by Mrs. R. L. Devonshire. London: A. Constable and Co., Limited, 1906. (Demy 8vo, p. 464. 7s. 6d.)

[7] *Surgical Suggestions. Practical Brevities in Diagnosis and Treatment.* By Walter M. Brickner, M.D., and Eli Moschcowitz, M.D. New York: Surgery Publishing Co. 1906. (Fcap. 8vo, pp. 60. $0.50.)

[8] *First Aid to the Injured and Sick.* By F. J. Warwick, B.A., M.B., and A. P. Tunstall, M.D., F.R.C.S.Edin. Fourth edition. Bristol: John Wright and Co. 1906. (Fcap. pp. 242. 1s.)

[9] *Die Arzneimittel der heutigen Medizin.* Von Dr. Otto Dornblüth. Zehnte Auflage. Würzburg: A. Stuber. 1906. M. 7.60.

[10] *Praescriptiones. Rezept-Taschenbuch.* Von Dr. Emil Kantorowicz. Berlin: A. Hirsch'wald. 1906. (Cr. 8vo, pp. 199. M. 2.)

The seventh edition of *Kimpton's Pocket Medical Formulary*,[11] by Dr. E. Quin Thornton, Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia, has been revised to conform to the new edition of the *United States Pharmacopoeia*. It contains a large number of formulae arranged under the head of the disorders in which they are believed to be useful. It may occasionally supply a useful hint, but the price strikes us as very high.

Toxicology.

The subject of medical jurisprudence appears to possess a strong fascination for officers of the Indian Medical Service. The latest contribution to forensic medicine is the treatise on *Indian Toxicology*,[12] published by Captain F. N. Windsor, M.B., Chemical Analyst and Bacteriologist to the Government of Burmah. It is an elementary book, but carefully written, well arranged, and quite sound. There are four chapters on the scope of the subject, the symptoms, detection, and treatment of poisoning; and two chapters are devoted to a methodical description of the more common Indian poisons, mineral and vegetable, animal poisons being represented by ptomaine and snake venom. These descriptions are terse and clear. The work might be translated for the purpose of use as a textbook in Indian vernacular medical schools, and would also be found useful for reference in practice in India.

Neurology.

The ninth annual volume of the invaluable *Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Neurologie und Psychiatrie*,[13] compiled by Dr. Flatau of Warsaw and Dr. Bendix of Berlin, with the assistance of many contributors, and edited by Professor Mendel and Dr. Jacobsohn, was published last month. It deals with the year 1905, and forms a volume of nearly thirteen hundred pages, of which over nine hundred are allotted to neurology. The references and abstracts are classified under various headings, but there are two complete indices, one of subjects and the other of names.

[11] *Kimpton's Pocket Medical Formulary.* By Dr. E. Quin Thornton. Seventh edition. London: H. Kimpton. (Fcap. 8vo, pp. 287. 7s. 6d.)

[12] *Indian Toxicology.* By F. N. Windsor, Captain, Indian Medical Service, M.B., M.R.C.S., B.A., B.Sc. 1906. Calcutta: Thacker, Spink, and Co.; and London: W. Thacker and Co. 1906. (Crown 8vo, pp. 100. Rs.3.)

[13] *Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Neurologie und Psychiatrie.* Herausgegeben von Dr. Ed. Flatau und Dr. S. Bendix. Redigiert von Professor Dr. E. Mendel und Privatdozent Dr. L. Jacobsohn. IX Jahrgang. Bericht über das Jahr 1905. Berlin: S. Karger; and London: Williams and Norgate. 1906. (Demy 8vo, pp. 1,291. M.35.)

CONTRACT MEDICAL PRACTICE.

We learn from the October number of the *Midland Medical Journal* that at the annual meeting of the Birmingham and District General Medical Practitioners' Union, Dr. Milligan, the Chairman, proposed on behalf of the Council the following resolution:

> That it is desirable in the interests of the profession that immediate steps should be taken for the formation of a public medical service on the following lines:
>
> 1. To provide medical attendance for those members of the community who are not in a position to pay ordinary medical fees;
>
> 2. The service to be under the entire control of the medical profession in the district.
>
> 3. The service to be open to every medical practitioner in the district who so desires, provided he holds no "private medical club."

This motion, after considerable discussion, was carried by fourteen votes to seven. The following rider to the resolution was then carried unanimously:

> That a Committee be appointed to determine the conditions under which contract work may be accepted by public medical services, and shall report to the Council, which shall arrange to have the conditions considered by the members of each ward.

The plan in view, it will be noted, is on all fours with that recommended in the report on Contract Practice issued by the British Medical Association.

The late Mr. Alfred James Woodhouse, a dental surgeon, at one time President of the Odontological Society, and for many years in practice in Hanover Square, left £1,000 to the Benevolent Fund of the British Dental Association; £1,000 to the Dental Hospital, Leicester Square, and a further equal sum to the same institution for the foundation of a scholarship to bear his name; and £200 to the Homœopathic Hospital, Great Ormond Street, together with a like sum for research in cancer.

LITERARY NOTES.

IT is stated that the widow of the famous gynaecologist, Professor Adolf Gusserow, of Berlin, wishes to sell his library as a whole. It contains many complete sets of *Archives* and *Transactions* of Societies, some four thousand reprinted papers, and a large number of textbooks and monographs. A catalogue of the collection has been prepared. The value of the library is estimated at 14,000 marks (about £700). Further information may be obtained on application to Professor Waldeyer, 35, Lutherstrasse, Berlin.

So many members of the medical profession nowadays are interested in old books that a reference to the publication of a facsimile of the *Commemoratio Lamentacionis siue Compassionis Beate Marie*, which at first sight seems far as the poles asunder from medicine, may not be out of place in this column. The *Commemoratio Lamentacionis* is one of a small group of liturgical books known as *Nova Festa*, which were intended as supplements to the Breviary and Missal, and which were printed towards the end of the fifteenth century. The facsimile is the first of a series of reproductions of unique early English books, "especially such as are of literary importance and difficult of access," which the Bibliographical Society of Lancashire proposes to issue. Mr. E. Gordon Duff, who contributes an introduction, says the *Commemoratio* is a late production of William Caxton, issued about the year 1490. The original is in the Library of the University of Ghent. Among those whom the editor thanks for valuable liturgical information is Dr. J. Wickham Legg. Among the members of the Committee of the Biographical Society of Lancashire we note the names of Dr. D. Lloyd Roberts and Dr. H. Watson.

The smoke of the Battle of the Books has almost hidden the less exciting affair of spelling reform from the public view. We confess the question is not one that interests us very keenly; there is so much to be done in this workaday world that it seems a waste of time to worry about the "nice derangement" of letters in a word. We are pleased to find ourselves in regard to this matter in agreement with so eminent an authority as Emile Littré. Writing in the *Times* of October 16th, M. Nollée de Noduwez quotes the reply of the author of the great *Dictionnaire de la Langue Française* to those who spoke of him of spelling reform:

Quand une langue est arrêtée, et acceptée comme telle par la Mère Patrie et les Colonies et l'Etranger, il ne faut plus y toucher. On tomberait dans l'erreur de la Tour de Babel. Les gens finiraient par ne plus se comprendre. Il faudrait fondre continuellement de nouveaux dictionnaires. Et puis, ratifierait-t-on à distance les décisions capricieuses parfois du pouvoir central? On finirait par créer deux, trois, plusieurs Français: celui de France, du Canada, etc. Laissons donc là la question technique de l'orthographe, et demeurons dans les données généralement acceptées. Se faire comprendre et être compris passe avant tout.

M. Nollée de Noduwez goes on to tell a story of Alexandre Dumas the younger, which seems to us to carry a useful moral. In a note of twelve lines, the author of *La Dame aux Camélias* misspelt a dozen words. On being taxed with his disregard for orthography—which is held in almost superstitious reverence by the average Frenchman—he laughed and said "L'orthographe, cher ami, cela ne regarde pus les écrivains. C'est le métier des protes." It may not be superfluous to explain that "prote" is a printer's "reader." To these useful servitors of literature, wise men leave not only their spelling but their punctuation.

In the October number of the *Windsor Magazine* many of the *Vanity Fair* cartoons of men eminent in science and medicine are reproduced, in much smaller size than the originals but with very little loss of artistic effect. In addition to Darwin, Tyndall, Huxley, Pasteur, Herbert Spencer and Lord Kelvin, there are Burdon-Sanderson Virchow, William Jenner, William Gull, Richard Quain, with Sir William Broadbent, Mr. Jonathan Hutchinson, and other medical men of light and leading still living—all shown, more or less, in their habit as they lived. Messrs. B. Fletcher Robinson and Charles R. Hewett are the literary showmen of this interesting portrait gallery, and of them it must be said that if they have not always adorned what they touch, at least, unlike most journalists who meddle with matters and persons medical, they have not disfigured them. Their information is in the main accurate, and the article will on that account be found specially interesting by lovers of professional gossip. There are, as was to be expected, a few slips. None of these, however, is of any importance except the confusion between two illustrious namesakes shown in the silly epigram, borrowed from the biographer in *Vanity Fair*, that William Jenner "became famous by curing men of one disease by giving them another." Many people are probably under the impression that William and Edward Jenner, if not the same person, are related to each other. The assumed relationship was in fact one of the minor troubles of Sir William Jenner's life. The following story used to be told by the elder Dr. Seaton, whose name is so intimately associated with our vaccination laws. When, thanks to his researches on typhoid fever, William Jenner was beginning to emerge into reputation, Seaton, to whom he was a recent acquaintance, found himself seated opposite the young physician in an omnibus. In a moment of quiet, a not unnatural curiosity made him lean over and begin to ask, "Are you ——?" But before he could complete the inevitable question, Jenner burst out, "No, not the least!" We may perhaps be allowed to relate another story which may help to chasten the ambition of medical aspirants to fame. A clergyman having been introduced to one of Sir William Jenner's sons at Oxford, asked if he was a connexion of the "great Jenner." To the inquiry which Jenner he meant, came the reply, "Why, the Bishop, of course!"

In the October number of *Progress* Mrs. Bardswell discusses the question, "Is the Sanatorium Treatment of the Working Classes worth While?" The answer is that "in England, so long as she remains true to herself and her traditions, there will ever be amongst us the abiding angel of compassion." Of this minister of grace we are told that "never will she allow that such a question is even arguable." Nevertheless, her interpreter does argue it at some length, and the conclusion arrived at is expressed in the following passage:

The percentage of complete and permanent recoveries after sanatorium treatment depends greatly on the proportion of the patients treated who were early cases, and these we know are chary of coming in. Statistics of sanatorium work will never look very encouraging until the proportion of earlier admissions is increased. At some hospitals and sanatoria it has been suggested that it would be prudent to exclude the worst cases on the ground that they make statistics come out badly, and these are liable to mislead the public, who have no means of discriminating whether the cases treated have been early or advanced. But truth may be trusted to prevail. Careful comparison of results of treatment drawn up by several different sanatorium authorities evinces striking similarity, a fact that adds greatly to the weight of evidence. Briefly, out of every 100 consumptive working men treated in sanatoria, some 40 are permanently restored to health and full capacity for work.

"Permanently restored to health and full capacity for work" is a strong expression, all the more as it must necessarily be taken as a prophecy. We earnestly hope it may be fulfilled, but although the virtue that belongs to new things has not yet gone out of the treatment, there is evidence which suggests that, in not a few cases, the permanency of its effects is as the eternity of lovers' vows.

The name of Dr. Edwin M. Sauter of St. Louis must be added to the list of medical playwrights. He is the author of a poetic drama entitled *The Faithless Favourite*, which is said to be written in the Elizabethan style of verse and to show something of the spirit of that inspired age. Encouraged by the reception of this first work, Dr. Sauter has, we learn from the *St. Louis Medical Review*, produced another drama with the stimulating title *The Poisoners*. It is said to smack of Boiardo, Boccaccio, Bandello, "even a little of the contemptible Aretino and old Poggio"; if it smacks of all these we may infer that like Launcelot Gobbo's father, it has a kind of taste. We are not surprised, therefore, to learn that "'tis a tale of lust and blood."

Die Stimme (The Voice) is the title of a new "Centralblatt" which will concern itself with the physiology and pathology of the voice. The first number contains original contributions by Gutzmann, Berg, Roeder, and Gusinde, besides the usual summaries and reviews. The new periodical is edited by Dr. Flatau and Messrs. Gast and Gusinde, and published by Trowitzsch und Sohn, Berlin.

BRITISH MEDICAL BENEVOLENT FUND.

At the recent meeting of the Committee fourteen applications were considered, and sums amounting to £139 voted in relief. The deaths of two annuitants were reported, and the vacancies so created filled by the appointment of two of the selected candidates. Appended is a short abstract of the cases to which grants were made:

1. Widow, aged 43, of M.B., C.M Aberd., who practised in Worcestershire and abroad. Small means left at husband's death have been exhausted in educating the children, who are still barely self-supporting. Applicant endeavours to maintain herself by nursing, but finds great difficulty in obtaining work just at present. Recommended by Dr. A. H. Vassie. Voted £5 in one sum.

2. Daughter, aged 70, of late L.S.A., who practised in a London suburb for many years. Unprovided for at father's death twenty years ago, and has maintained herself until the present time by taking boarders. Recommended by Dr. George Eastes. Voted £12 in twelve instalments.

3. Widow, aged 63, of M.R.C.S., L.S.A., who practised for forty-four years in Oxfordshire. Applicant nursed husband through a long illness, which ended in death two years ago, and the proceeds of an insurance policy were swallowed up by debts. No income; no children; is endeavouring to obtain a post as housekeeper or companion. Recommended by Dr. J. F. Goodhart, Vice-President. Voted £12 in twelve instalments.

4. M.D.Edin., aged 69, who practised in Lancashire, but for the last few years has been very infirm, and is now dependent on the kindness of neighbours. Recommended by Sir Patrick Heron Watson. Voted £12 in twelve instalments.

5. Daughter, aged 62, of late L.S.A., who practised in a London suburb for forty years. Applicant and a sister have supported themselves since father's death, fifteen years ago, by taking boarders, but have recently done very badly, and are unavoidably in arrears with the rent. Recommended by Dr. E. Baxter Forman. Voted £12 in twelve instalments.

6. L.R.C.P., L.R.C.S.Edin., aged 70. Qualified late in life, but never had any means to practise on his own account, and has been obliged to devote his savings as assistant to his mother and sisters. Unable to obtain work on account of his age. Recommended by Dr. G. Halley, Honorary Local Secretary. Voted £12 in twelve instalments.

7. M.R.C.S., L.R.C.P., aged 57, who practised in Essex and Hampshire. Was incapacitated by a serious accident more than two years ago, and has exhausted all his means. Three children, one dependent, the others unable to help. Recommended by Dr. F. T. Roberts, Vice-President. Voted £10 in two instalments.

8. Daughter, aged 57, of late M.D Lond., who practised in Harley Street. No income; endeavours to support herself by knitting, but is frequently incapacitated by ill-health. Relieved twice, £24. Recommended by Mr. A. Pearce Gould, Vice-President. Voted £12 in twelve instalments.

9. Widow, aged 46, of late L.R.C.P.Edin., who practised in Japan. No income; children only able to give very slight assistance; endeavours to maintain herself by nursing, but for the last eighteen months has been incapacitated by a serious illness. Relieved twelve times, £120. Recommended by Dr. C. Muirhead. Voted £12 in twelve instalments.

10. Daughter, aged 56, of late M.D.Lond., who practised in Sussex. No income; lets lodgings, but does not earn sufficient for maintenance; sight failing. Relieved twenty-three times, £178. Recommended by Dr. W. Rosser, Honorary Local Secretary. Voted £6 in six instalments.

11. Daughter, aged 64, of late M.R.C.S., who practised in Hampshire. For many years has acted as companion to mental cases, but is now unable to obtain such a post; hopes shortly to be elected to a pension from a benevolent society. Relieved twice, £15. Recommended by Mr. E. East. Voted £5 in one sum.

12. Widow, aged 67, of M.R.C.S., L.R.C.P., who practised in Herts. Unprovided for at husband's death; children only able to give slight help; indifferent health for last three years. Relieved fourteen times, £144. Recommended by Mr. J. Roche Lynch. Voted £12 in twelve instalments.

13. Widow, aged 49, of L.R.C.P., L.R.C.S.Edin., who practised in London. Quite unprovided for at husband's death two years ago and unable to obtain employment on account of bad health. Relieved twice, £17. Recommended by Dr. J. Mitchell Bruce, Vice President. Voted £5 in one sum.

14. Daughter, aged 59, of late M.R.C.S., L.S.A., who practised in Sussex. Receives a pension from the Kent Medical Benevolent Society, but income is insufficient for maintenance on account of slight mental deficiency, which necessitates applicant being placed in rooms where she can be looked after. Relieved ten times, £96. Recommended by Mr. A. S. Bostock. Voted £12 in twelve instalments.

The late Miss Catherine Kidston, of Helensburgh, who died on August 24th, bequeathed £1,000 each to the Glasgow Western Infirmary, the Glasgow Victoria Infirmary, and the Helensburgh Infirmary for Non-infectious Diseases. A sum of £300 was also left to the Glasgow Medical Mission.

NEW DRUGS AND SECRET REMEDIES.

Dr. F. Zernik, assistant in the Pharmaceutical Institute of the University of Berlin, has, at the invitation of the Editor of the *Deut. med. Wochenschrift*, undertaken to report on some of the new drugs and secret remedies which are thrown on the market, in order that the busy practitioner may glean something of their therapeutic value. The first instalment, published in the issues of September 6th and October 25th, 1906, deals with the following:

Berendorf's Powder for Epilepsy.—Each package contains on an average 2.75 grams of powder consisting of 53.3 per cent. of potassium bromide, 40.3 per cent. of octahedral borax, 4 per cent. of zinc oxide, and 2.5 per cent. water. Dr. Zernik suggests that the borax has probably been added in consequence of a note published in the *Berl. klin. Wochenschrift* in 1904, in which it was stated that borax could be recommended in cases where bromides could not be tolerated, and especially where hyperacidity was present. It may be added that borax was at one time extensively used in France, and to a less extent in Great Britain, as a remedy for epilepsy; Dr. Zernik adds that zinc oxide is recognized as a nerve sedative.

The gall stone remedy of Dr. Med. Franke, of Offenbach, is put up in four bottles. The first contains a small quantity of a highly diluted fluid, probably a vegetable tincture, though its actual nature could not be determined; it is directed that this shall be taken in drops for a few days before the remedy proper is started. The second bottle, to be taken in the evening, contains 150 c.cm. of a watery solution of a drug containing emodin (either frangula or senna or both). The contents of the third bottle, to be taken next morning, are identical with those of the second; the fourth bottle contains 150 c.cm. of an oil, probably olive oil, faintly coloured red.

Lithosan, formerly called cholosan, made at a chemical works in Berlin, probably contains rhubarb tincture, peppermint water, and watery extract of chelidonium and valerian. In spite of the assertions of the manufacturers it was not found to contain lithium. Dr. Zernik suggests that the active principle in this preparation is chelidonium, a remedy formerly employed in the treatment of catarrhal jaundice.

Pearson's 6 per cent. Iodvasogen.—The iodine in this preparation is not free, but is present as ammonium iodide; the brown colour is artificially produced, and is not due to free iodine. The absence of free iodine accounts for the fact that the preparation does not produce irritation.

Iodvasolimente is an alternative preparation, sold in shops; the iodine is partly combined with oleic acid or with ammonia, and is partly free; its brown colour is due to the free iodine.

Melioform, made by a firm in Berlin, and recommended as a disinfectant, consists of formaldehyde, aluminium acetate, borax, and glycerine, coloured red and perfumed with bergamot oil. The proportions were: Formaldehyde solution 25, liq. alumin. acet. 15, borax 2.5, glycerine 30, water to 100.

New Sidonal, made by a firm at Charlottenburg, was found to contain about 75 per cent. of anhydrous quinic acid, and 25 per cent. of free quinic acid. It is therefore surprising that the manufacturers advise subcutaneous and rectal administration of the preparation as well as application by the mouth. Quinic acid, it may be added, is found in cinchona barks and in many other plants; in the preparation of quinine it is left in the filtrate from the precipitated alkaloids.

Noordyl drops is a preparation identical with Noowtry's diphtheria remedy; it consists chiefly of an alcoholic solution of oil of ruscus and pix fagi. Ruscus aculeatus is, according to the *National Standard Dispensatory*, the ditch grass, sea grass, or tassel grass, or tassel pondweed, related to asparagus, and used as a diuretic and diaphoretic. Pix fagi is beechwood tar.

Felke's Plant Tonic was found to be a 15 per cent. aqueous solution of saccharated oxide of iron, to which some 10 per cent. of alcohol and an extract of a purgative drug had been added.

Plantal, which, according to the prospectus of its maker (Dr. W. Brackebusch of Berlin), cures all sorts of ailments, renders the blood alkaline, prevents stroke and removes superfluous fat, was found to contain sodium bicarbonate 43.55 per cent., sodium sulphate 15.53 per cent., sodium chloride 0.48 per cent., tartrate 23 per cent., tartaric acid

and citric acid 14.01 per cent., iron oxide and magnesia 0.13 per cent., water 3.3 per cent.

Antipositin, advertised by the firm of Dr. med. Wagner and Marlier of Berlin, as an obesity cure, and

Slankal made by F. J. Wallbrecht and Co. of Berlin have a similar composition. The sanitary authority of Karlsruhe has issued warnings against their use.

Smith's Gloria Tonic. described as a dear remedy for gout and rheumatism exported from England to Germany, was found to consist chiefly of guaiacum resin, with a small quantity of potassium iodide.

Dr. Med. Hartmann's nerve food *Antineurasthin* is manufactured in Berlin, and a pamphlet is published by his firm at M. 1.25 (about 1s. 3d.), which states that it is a tonic for the nervous system in general and a preventive for all nervous weaknesses; while it does not interfere with other forms of treatment. it is itself unaffected by these. It costs 3s. per box of 24 pastilles, which were found to consist of dry yolk of egg, milk sugar, a small quantity of starch, dextrin, and an aromatic substance.

Brandol is introduced by a Dortmund firm for the treatment of burns, and was found to contain picric acid, 1 per cent. of which is dissolved in tap water, about 0.4 per cent. being undissolved. Weak solutions of picric acid are recognized in the treatment of burns.

Bour's *Capsula duplex stomachica* is put up by a Trier firm in boxes containing 20 gelatine capsules and sold at 2s. 6d. per box. Dr. Bour believed that by enclosing silver nitrate in small black gelatine capsules and enclosing these in larger capsules containing other medicaments, the silver salt would not undergo any decomposition. The substances in the outer capsule are bismuth subnitrate 0.25 gram, sodium phosphate and sodium carbonate each 0.1 gram. Zernik found, however, that the silver nitrate was more or less decomposed, and further that, although it was stated that each capsule contained 0.01 gram, only about half of this quantity was actually present in the samples examined by him.

Fromosasprudel is, according to the manufacturers, a nerve remedy indicated in sore throat, cold in the nose, rheumatism, nervousness, fainting, vomiting, sweating of feet, chilblains, etc. It costs 3d., 6d., or 1s., and consists of 22 per cent. alcohol, and 0.8 per cent. of sodium bicarbonate, together with a trace of menthol and a resinous substance.

Kaiser Borax and *Kaiser Soda*, in spite of the fine name, do not differ from borax and sodium bicarbonate respectively.

Mueglitzol, a preparation of formaldehyde, has been placed on the market by a chemical works in Dresden, and with each bottle a pamphlet by Dr. Clug is enclosed. In the latter it is stated that the preparation is a chemical combination of formaldehyde with a substance gained from bituminous slate, from which the formaldehyde gas is liberated slowly. It is recommended for sweating feet. On analysis, however, it was found that it contained free formaldehyde in a 6 per cent. solution, and a small amount of an ichthyol-like substance, while the fluid is perfumed with an aetherial oil.

The *Antigout Powder* of the Madri Benedittine of Pistoia should be taken for a whole year to cure gout. The cost for the year's supply is 50 francs. Each powder contained 2½ grams of colombo root and of patschuli leaves, both of which substances are inert as far as gout is concerned.

Stege's Herbal Wine is said to regulate the digestive organs. It was found to consist of an infusion of certain roots, such as calmus, ginger, curcuma, angelica, valerian, and aloes in a white wine.

Sulphopyrin, manufactured by Ebert and Meincke of Bremen, is supposed to be a substitute for migraenine. It is stated that it is a sulphanilate of antipyrin, but is really a mixture of 86.5 per cent. antipyrin and 13.5 per cent. of sulphanilic acid. The latter drug has been recommended for some time past for catarrhs, but has not been used hitherto for headache. It is therefore probable that the action of sulphopyrine depends on its antipyrin contents.

Uricedin is a Berlin product, manufactured by Stroschein. It has been vaunted as a remedy for the gouty diathesis for some thirteen years, but its composition is very simple; 2½ per cent. consists of sodium chlorate, and 66.5 per cent. of dry sodium sulphate, while the remainder is composed of sodium citrate and sodium tartrate.

Winter's Nature Health Restorer is a Washington preparation. Each carton contains 200 chocolate tablets, and costs 4s. 2½d. It consists chiefly of aloes. A warning against its use has been issued in Carlsruhe and elsewhere.

POOR-LAW REFORM IN IRELAND.

I.

THE report of the Viceregal Commission on Poor-law Reform in Ireland was issued on October 31st. The Commission was appointed on May 12th, 1903, and the Commissioners were Mr. W. Lawson Micks, one of the Commissioners on the Local Government Board for Ireland, Chairman; Mr. G. Murnaghan, M.P., and Mr. E. C. Bigger, Medical Inspector of the Local Government Board for Ireland; the Secretary was Mr. G. A. Mahon. The terms of the reference were:

I.—Whether any Poor Law Unions could be dissolved with advantage to the ratepayers, and without hardship to the sick and destitute poor; and if any such dissolution be deemed desirable, what arrangements by amalgamation of Unions or otherwise should be substituted therefor.

II.—Whether, in the event of any Unions being amalgamated and the Workhouses thereof being no longer required for Poor-law purposes, such Workhouses could with advantage be taken over by County Councils for auxiliary lunatic asylums under Section 76 of the Local Government (Ireland) Act, 1898, or could be otherwise utilized for any public purpose.

III.—Whether it would be possible, either by an arrangement for the maintenance or paupers in adjoining workhouses, or by combining a number of Unions for the purposes of in-door relief, to make better provision for the classification and treatment of the inmates, specially the aged and infirm, sick, lunatics, and children chargeable to the said Unions, and whether any changes in the law and procedure as to the administration and chargeability of relief would be desirable in the event of such combination of Unions being carried out.

IV.—Whether having regard to the number and capacity of Workhouses, Hospitals, and Infirmaries existing in any County, Union, District, or locality, and to the other provisions for the relief of the sick poor, any additional accommodation is now required for the proper treatment of the sick poor, and, if additional accommodation is necessary, how it might best be provided.

V.—Generally to inquire and report whether any, and what, administrative and financial changes are desirable in order to secure a more economical system for the relief of the sick, the insane, and all classes of destitute poor in Ireland, without impairing efficiency of administration.

The Commissioners began their sittings in Dublin on June 25th, 1903, and concluded them at Mallow on September 29th, 1905, fifty-nine days being occupied in public sittings for receiving evidence. The Commissioners also inspected all workhouses, county infirmaries, fever hospitals, and other hospitals in Ireland, maintained wholly or in part out of local rates; they also inquired into the circumstances of the localities, including many islands remote from any hospital, with the object of reporting where further hospital accommodation for the sick poor is desirable. The number of witnesses examined was 743. The Commissioners state that they considered it to be their duty to ascertain how, if at all, a reduction could, without impairing efficiency, be made in the expenditure for the relief of the poor, and at the same time to see, if possible, how an improvement in the method or system of affording relief might be effected.

Various questions of detail therefore arose, chiefly as to the dissolution and amalgamation of Poor Law Unions, alterations in the boundaries of various areas, the provision of auxiliary lunatic asylums, the better classification of the destitute infirm and sick, the boarding-out of children, methods for dealing with casuals and vagrants, the erection of additional hospitals in some localities, the best method of obtaining payment or contributions from such patients or their relatives as may be considered able to defray the cost of maintenance either wholly or in part, the area of charge for the cost of relief given, and the distribution of Parliamentary grants in aid of local rates.

The report then describes the condition of Ireland seventy years ago, and discusses the report of the Royal Commission of 1833 6, pointing out that nearly all the recommendations of that Commission, then set aside by the Government, have since been carried out.

Existing Arrangements for Indoor Relief.

From 1838 to 1851, 163 Poor Law Unions were formed, between 1884 and 1890 four unions were dissolved, the districts being amalgamated with other unions, so that at the present time the number of unions is 159. On Saturday, March 11th, 1905, the day on which the largest number of inmates were in workhouses during that year, the total number was found to be 45,195; out of this total nearly one-third (14,491) were sick. Nearly one-third more (14,380) were aged and infirm. About one-twelfth were insane and epileptic. About one-seventh were children. The mothers of illegitimate children numbered about one-twentieth of the whole. But the "able-bodied" pauper inmates (casuals, vagrants, and all other "able-bodied" in the workhouses), omitting unmarried mothers, amounted to only 4,667, or between one-ninth and one-tenth of the 45,195; looking through the description in the enumeration of the other classes of inmates there are, the Commissioners state, no others whose admission as a class was due prima facie to destitution or to such idleness or laziness as leads to destitution.

Amalgamation of Unions.

The Commissioners report that the saving to the rates by dissolving one union here and there and closing the workhouse would not be great, while inconvenience to the sick would result owing to their being obliged to travel long distances for hospital treatment. On this head, however, the Commissioners state that they are unable to make suggestions in detail with reference to particular institutions or special areas until the Government and the Legislature have laid down the lines upon which reforms should be carried out. While they do not believe that much good could be expected from amalgamation of unions, they consider that, by the segregation of workhouse inmates according to their condition, great economy and much greater efficiency in administration may be hoped for. The main classes in workhouses at present are:

1. Sick;
2. Aged and Infirm;
3. Lunatics and all kinds of insane cases;
4. Sane Epileptics;
5. Unmarried Mothers;
6. Infants;
7. Children between infancy and 15 years of age;
8. Casuals or Ins-and-outs;
9. Vagrants or Tramps;
10. Able-bodied, other than those in classes 3 to 9 inclusive above.

The report then deals with each class *seriatim*.

The Sick: Hospitals and Infirmaries.

The report states that, apart from general hospitals in cities and a few cottage hospitals supported by private grants and subscriptions, there are two systems of public hospitals for the poor, the county and the union. Under the county system there are 34 county infirmaries and 14 fever or infectious hospitals. The county hospitals are maintained partly by grants from the County Councils, partly by voluntary subscriptions, partly by the proceeds of property held by the governors, and partly by payments from patients. The city hospitals in Dublin receiving public grants were not considered to come within the scope of the inquiry.

In some cases the situation of the county infirmary was found to be inconvenient, having regard to the area of the county, and the Commissioners recommend that the Local Government Board should have the power after a public inquiry to close and sell a county infirmary, and to open a county hospital at a more convenient place. The county hospital at Omagh, co. Tyrone, is the only completely new building, and it is referred to as an institution in most effective working order, and an example of what a county hospital ought, on the whole, to be as regards structure, equipment, fittings, and nursing. The Commissioners also express their admiration of the very great improvements recently effected in a large number of the infirmaries, including those of the counties of Derry, Tyrone, Fermanagh, Armagh, Antrim, Monaghan, Down, Clare, Limerick, and Cork, and to a less degree in some other county infirmaries. But, the Commissioners add,

> We think that a defect at Omagh and all similar hospitals is the absence of a house-surgeon; and we recommend that some newly-qualified surgeons or physicians, according to the wants of the hospital, should be appointed for one year to act as house-surgeons in the public hospitals of Ireland, in accordance with a scheme to be subsequently framed.

The Commissioners then proceed to recommend a system of county hospitals with district hospitals replacing the workhouse infirmaries as follows:

"With improved or improving hospitals, such as Omagh as centres in a system of county hospitals, we would look forward to changes for the better, and, taking the county, or, perhaps, in some cases, a group of counties, as the area for calculation, we should also expect economies in administration, with more favourable results. Assuming that, as a general rule, there would be a hospital wherever there now is a workhouse, we should like to see all such hospitals cut off completely from any connexion or association with any Poor-law institution, as many witnesses recommended, and brought into a county hospital system, with the county infirmary as the central institution. It is contemplated that nurses should be trained there for the county district hospitals (now workhouse infirmaries), and that sufficient nurses should be trained and kept there to supply exceptional requirements, so as to make it unnecessary for district hospitals to procure temporary nurses at considerable expense from a distance. It also seems probable that the power to send patients to extern general hospitals would be little used; and, assuming a complete county scheme to be adopted, a surgeon or physician of the county infirmary would, on the fixing of an inclusive salary, proceed when required to a district hospital, or vice versa, a district medical officer would similarly attend, when required, for consultation or assistance, without extra fee.

"But such a scheme involves as a necessary condition that the medical practitioner appointed to the charge of an infirmary or hospital should be thoroughly qualified by hospital experience and practice to act efficiently as the medical officer of the institution, whether it be the county infirmary or a district hospital. The medical profession will recognize that the mere possession of a diploma or degree is not a sufficient qualification for a man to be the physician in charge of a public hospital or to act as an operating surgeon. Before he could be appointed to be County Surgeon he should be able to prove that he has had sufficient experience in surgery, and that he possesses a capacity for operating. As regards the choice of fit men for such posts, we will recur to the matter later on.

"As was just now mentioned, a county hospital system like that we suggest for consideration ought to enable most counties to adopt such a scheme for the training of nurses, partly in the infirmary and partly in the district hospitals and fever hospitals, as would ensure a sufficient supply of efficient nurses throughout the county. Nurses would not be attached to any particular institution, but would be liable to be sent for service to any hospital in the county, and reciprocity as to training facilities might possibly exist between counties, especially in the case of counties of small size or with inconvenient roads of access to the principal hospital of the county. We would suggest that the district hospital authorities, instead of appointing nurses, should nominate probationers. A probationer, on passing for her certificate, would be appointed a county nurse, but possibly with a prior agreement that she should remain in the service of the county for a stated time as nurse.

"With such a system we would also expect a great improvement in county hospitals generally—a levelling up to a high standard. At present it must be admitted that some of the county and union hospitals are very good, some passably good, some middling, some bad, and some very bad. A minimum standard ought to exist, and if a hospital were to fall below it in any respect, there ought, we think, to be power to transfer the responsible officer, if he were at fault, to a less desirable and less important position.

"An obvious sequence of the complete separation of the Poor-law hospitals from the workhouse is that pauper nursing would completely disappear, and that even the discharge of menial duties by workhouse inmates would no longer be possible. There would not be any able-bodied ward in connexion with the hospitals, and therefore the sources of supply of inmate assistants would be cut off. Those who are familiar with pauper nursing and pauper attendance will understand the benefits that would be gained by this change.

"Another benefit that would follow from the establishment of district hospitals is the impossibility of persons drifting from the sick wards of a workhouse into the healthy wards, and remaining there as ordinary workhouse inmates. When under the existing system a sick person becomes convalescent, and when, as often happens,

the sick wards are overcrowded by the sick and the feeble bedridden, convalescent patients are sometimes sent from the sick wards to the aged and infirm wards in the workhouse itself until they are fit to be discharged. Such an occasion is sometimes the first introduction to the workhouse wards of a hitherto independent person. If district hospitals were established the sick would remain in its wards, as in the case of an ordinary general hospital, until they are fit to be sent home, or to a convalescent institution if such were established.

"The complete separation of the district hospital from the workhouse would, we believe, lead to further great saving in expenditure. Under the present system people who are not suitable inmates for hospital wards do undoubtedly find their way there in very large numbers, and their maintenance as hospital patients costs much more than if they were inmates of the aged and infirm wards in the healthy portion of the workhouse. . . . What may look like laxity in admitting many cases to hospital that do not require either medical attention or skilled nursing must, however, be largely attributed to a very natural, proper, and humane feeling that, if the aged and infirm people, who are perhaps bedridden or very feeble, were relegated to the healthy infirm wards in many workhouses, they would not receive such attention as would enable them to spend the end of their lives in reasonable comfort. In very few workhouses could the feeble or bedridden aged and infirm receive the domestic care that is needful, unless there were a duplication of the nursing or attending staff; and this we think is often the reason why the feeble who are not sick are in some workhouses given a refuge in the sick wards. We estimate from inquiries made by us that out of the total number (13,750) of 'sick' in workhouse infirmaries on March 11th, 1905, not more than 6,708 were proper cases for sick wards."

Consumption.

In this connexion the Commissioners deal at length with the increase of consumption in Ireland, and recommend the establishment of a sufficient number of consumptive sanatoriums, suggesting that some of the disused workhouses might be used for this purpose. We shall hope to return to this part of the report on a future occasion.

Cottage Hospitals.

In remote districts in the North-West, West and South-West of Ireland the Commissioners recommend the establishment of small cottage hospitals of the simplest and least expensive kind, to be attended by the dispensary doctor with a trained nurse of the Jubilee class in charge. In this connexion the Commissioners refer to the remarkable and unquestionable success of the Countess of Dudley's nursing system in the western parts of Ireland, which they attribute very largely to her wisdom in selecting highly qualified nurses of experience and aptitude, with character and resource that enable them to discharge their lonely and laborious duty efficiently and with general satisfaction. The Commissioners hope that eventually the poor in every district throughout Ireland may possess the aid of a district nurse who would also be a trained midwife.

State Medical Service.

Recurring to their opinion that the medical practitioners to be placed in charge of hospitals should be possessed of such professional knowledge and experience that, at their appointment or selection, they would be fit to manage a general hospital, or to act as an operating surgeon, according as the circumstances of the particular institution might require, they also state that as a rule a local candidate all the world over gets a preference from a local body, and express the opinion that the discretion of an unfettered central body would not be satisfactory; they express the opinion that it is a vitally important matter that the best and most suitable man should be selected by an absolutely impartial test in order that only experienced physicians and skilful surgeons should be appointed respectively to the hospitals where their services would be required.

The report then contains the following recommendations with regard to a State medical service:

"If the Infirmary and Hospital Medical Service in Ireland were being organized anew, and indeed even as circumstances are at present, it seems that the best and most impartial test would be one that should provide for entrance into the service by competitive examination, open to students educated in Ireland, with a representative medical council, to assign the successful candidates to suitable places, and to deal with all important questions of promotion, removal, censure, or dismissal, and of remuneration and superannuation, subject to Treasury approval of scales of payment. Such a system, it would appear, involves the payment by the State of the whole, instead of half, of the salaries of medical officers, as at present—or, in other words, that there should be a State Medical Service, with local bodies to assist in the administration of relief to the sick. We would not suggest this most important change unless the Government were willing to defray the whole cost of the service in lieu of their contribution of half the cost, as at present. If a State Service of the kind were established, the Government could (subject to rights and customs affecting existing medical officers) require the medical staff, as part of their ordinary duty, to attend constabulary, coastguards, soldiers, post-office officials, and such other persons in the prison or other public service, as now receive medical attendance at the public expense. Doctors in the State service would, of course, also act as medical officers of health. It is, we may state, contemplated that the present privileges as to private practice should continue. In some populous districts, however, we think it would be desirable that on the occurrence of vacancies the State medical officers should be required to devote their whole time to their public duties.

"We consider it proper and equitable that the proposed Irish Medical State Service should, at all events for the present, be restricted to candidates educated in Ireland. Practically all existing Irish Poor-law medical officers are Irishmen: and, having regard to the very few modes of earning a livelihood in Ireland otherwise than by agriculture, we think it would be unjust to take away these appointments from Irishmen and confer a benefit upon other countries which possess superior educational facilities. Further, it is an undoubted advantage that physicians in any country should know intimately the customs, habits, modes of expression, and general conditions of the inhabitants, especially in the case of Ireland, where the mode of life and the standard of living differ so much from those in Great Britain.

"The competitive examination for entrance into the Poor-law Hospital Service should, we think, be conducted upon similar lines to those for the Army, Navy, or Indian Medical Service. It would seem wise in our opinion that, in the circumstances of the country, the Service should in all important matters be controlled by a council, mainly, if not altogether, composed of representative Irish surgeons and physicians. The composition of such a council, if the idea were regarded as practicable, would be a matter for careful consideration, and it is not unlikely that the addition of one or two laymen to the Council might be considered desirable. We suggest a Council composed of five members—the Medical Commissioner of the Local Government Board; a representative of the Royal College of Surgeons and of the Royal College of Physicians in Ireland conjointly; a representative of the Irish Branch of the General Council of Medical Education and Registration of the United Kingdom; a medical representative from the University of Dublin; and a medical representative from the Royal University of Ireland. It is anticipated that the official and ordinary routine business would be discharged in the Medical Charities Branch of the Local Government Board; and that important, or unprecedented, questions should be dealt with at a weekly meeting of the Council. Having regard to the value of the time of the four representative medical members of the Council it would seem right that a suitable fee should be paid to each such member for every weekly attendance: and beyond such fees there would not be any other expense connected with the Council. The inspecting and clerical staff of the Medical Charities Branch of the Local Government Board would, however, require to be reinforced; and we think that the office of Medical Commissioner of the Local Government Board should always be filled by the appointment of a medical inspector, or of a medical man who had served for some years in the Irish State Medical Service. Similarly we suggest that only members of the State Medical Service should be eligible for appointment as medical inspectors.

"This system would give local medical men of ordinary ability a reasonable hope for promotion in their professional career. Every doctor would also have a motive for doing his best to improve his own knowledge and for acquiring and preserving a good reputation, if prospects of promotion were to depend upon the absence of unfavourable records of importance as well as upon his professional capacity. It is difficult to see how pensions on the Civil Service scale could be withheld from the members of such a reorganized

medical service. One must acknowledge that at present there is not any motive except the very highest to encourage a medical officer in remote districts of the country to discharge his duties zealously and conscientiously, and in a manner worthy of the traditions, character, and obligations of the profession of medicine. There are, unfortunately, in rural districts too many instances in which the need of a lower motive, accompanied by effective control, is only too notorious.

"We believe that the system now suggested would ensure the supply of good men to all the rate supported or rate-aided hospitals in Ireland. Any change in the Dispensary Medical and Public Health Service is outside the scope of this inquiry, except in so far as dispensary medical officers would *ex officio* have charge of district hospitals; but the foregoing suggestions as regards hospitals could more easily be worked into some general scheme for the entire Irish County and Union Medical Service. The establishment of a State Medical Service in Ireland would mean a very small increase in the Parliamentary Grant in comparison with the benefits involved. The present grant for half the salaries of all workhouse and dispensary medical officers is £63,613 per annum; and if the whole of the salaries of the surgeons of county infirmaries were included, an annual grant of, say, £130,726, that is to say, an additional grant of £67,113, over and above the annual amount for pensions, and for salaries and pensions for medical officers of health, would be necessary at the present rate of expenditure in order to establish a State-supported medical service both for county and district hospitals, and for dispensaries also. Of course, provisional arrangements would have to be made for the transitory period between the old and the new systems, if action were taken upon the foregoing recommendations, and also upon some other suggestions made later on. We do not go into details with reference to dispensary and public health medical expenditure, as these matters are not within our reference, though they are, we consider, sufficiently intermingled with the hospital medical service to justify the observations we now make."

Infirm and Aged.

The Commissioners recommend that the infirm or aged inmates of all the workhouses in one or more counties should be removed to one central building, which might be a disused workhouse, to be known in future as the county or district almshouse. At present the infirm or aged are distributed in 159 workhouses. The Commissioners recommend that there should be in future about 32 almshouses.

Lunatics and Idiots.

The Commissioners state that they find a universal opinion that the condition of lunatics in practically every workhouse is unsatisfactory. They are confined generally throughout the day in a small, bare, comfortless ward, with an adjoining walled-in yard for exercise; and the attendants in charge are, as rule, without any experience or training to make them suitable for taking charge of lunatics. It is not possible to provide in workhouses, as they are, adequate or satisfactory accommodation for lunatics, because all the wards, yards, and grounds are already appropriated for the various classes of inmates—the lunatics having their share (such as it is) in accordance with the original plan of the building. Improvements have been made in some of the larger workhouses, but not to an extent sufficient to justify the Commissioners in modifying the general opinion as to the unsatisfactory condition of the insane in workhouses.

The Commissioners express the opinion that auxiliary asylums such as that at Youghal would be infinitely preferable to workhouses for the accommodation of chronic harmless lunatics.

Sane Epileptics.

There were 463 sane epileptics in workhouses on March 11th, 1905; of this number 131 were in lunatic wards. The Commissioners recommend that sane epileptics should be kept by themselves in separate institutions and advise that two disused workhouses should be reserved for this purpose.

Other sections of the report deal with mothers of illegitimate children, infants, children, casuals and vagrants, other able-bodied inmates, outdoor relief, the chargeability of outdoor and indoor relief expenditure, Parliamentary grants in aid of local expenditure, and the mode of dealing with Poor-law and other local officers.

The report[1] concludes with a summary of the recommendations of the Commission under forty-three heads.

A memorandum is appended by Mr. G. Murnaghan, M.P., dissenting from a recommendation of his colleagues as to the desirability of the adoption of a county rate for the maintenance of union hospitals and support of institutional poor.

[1] London: Wyman and Co.; Dublin: Alexander Thom and Co. Price 9d.

MEDICAL NEWS.

At a meeting of the Royal Commission on the Poor Laws and the Relief of Distress, on October 29th, evidence was given by Sir William Chance, Mr. J. Bonar, LL.D., and Mr. Thomas Mackay.

At a meeting at the Cannon Street Hotel, London, under the chairmanship of Earl Fortescue, an association was formed to promote the enforcement of the provisions of the Prevention of Corruption Act, which comes into force on January 1st, 1907.

We are informed by the Honorary Secretary, Dr. Arthur James, 69, Connaught Terrace, Hyde Park, London, W., that the Presidents of the Royal Colleges of Physicians and Surgeons have joined the Council of the Metropolitan Street Ambulance Association.

Numerous cases of enteritis, lasting six to ten days, after eating Dutch oysters, are reported from Brussels, Ghent, The Hague, and other towns in Holland. The Dutch Government has issued a warning against the consumption of oysters without a certificate of origin.

At a special meeting of the Aberdeen Parish Council held on October 23rd, Dr. Lisette A. M. Wilson was appointed Resident Medical Officer to the Oldmill Poorhouse. Miss Wilson graduated as M.B., Ch.B. in the University of Aberdeen in 1905.

Her Royal Highness the Princess Louise, Duchess of Argyll, has consented to open the new wing of the Central London Throat and Ear Hospital, Gray's Inn Road, on Monday afternoon, November 19th, when purses will be presented to Her Royal Highness in aid of the building fund, of which £6,000 has been received towards the £15,000 required.

It is announced that, in order to meet the widespread demand for more exact knowledge on the scientific and other aspects of the temperance question, the Department of Scientific Instruction and Information in connexion with the United Kingdom Band of Hope Union will hold a summer school at Lucerne in June next, at which it is expected that a large number of the leaders of the movement will be present.

The Board of Agriculture has issued a circular letter to local authorities in Great Britain calling attention to Section 2 of the Dogs Act, 1906, which will come into operation on January 1st, 1907. Acting under powers conferred by the Section, the Board has made an Order authorizing a local authority to make regulations for prescribing and regulating the wearing by dogs, while in a highway or place of public resort, of a collar with the name and address of the owner. The order will not apply to a pack of hounds, to a dog being used for sporting purposes, or for the capture and destruction of vermin, or the driving or tending of cattle or sheep.

The sixth annual meeting of the Peckham Nursing Association, 91, Peckham Rye, S.E., was held last week at the residence of the President, Mr. C. Goddard Clark, M.P. There was a large attendance. The report, which was read and adopted, showed that 14,386 visits had been paid to 803 patients since the Association was inaugurated. Mrs. Charles Ward, the foundress, explained that the Association's nurses render aid to the afflicted poor in their own homes, and attend cases of sickness and operations among the middle classes for a moderate fee.

At the meeting of the Royal Medical and Chirurgical Society on November 13th there will be a special discussion on the operative treatment of non-malignant ulcer of the stomach and its chief complications: with indications, limitations, and ultimate results. The debate will be opened by Dr. Hale White and Mr. Mayo Robson. A list of speakers is being prepared, and it is probable that the debate will be adjourned. Several gentlemen have kindly undertaken to provide tables of hospital statistics, as on the occasion of the Society's debate on appendicitis, and these tables will be printed for the use of Fellows and visitors. The Honorary Secretaries will be glad to receive as soon as possible the names of those who wish to take part in the debate.

MEDICAL MAGISTRATES.—Dr. W. Clark Noble (Kendal), Dr. W. Baron Cockill (Kendal), and Dr. Benjamin Walker (Kirkby Stephen) have been added to the Commission of Peace for the County of Westmorland.

AMERICAN HOSPITAL IN CONSTANTINOPLE.—We regret to learn that the American Hospital and Training School for Nurses established in Constantinople not long ago by Dr. Thomas S. Carrington of New York was burned to the ground on the eve of its formal opening. The loss is estimated at $10,000, which is only partly covered by insurance. The Board of Directors proposes to rebuild at once, and steps have been taken to raise the necessary funds.

PRESENTATION.—Dr. T. C. Hughes, who for about fifteen years was an Assistant Medical Officer at the North-Western Hospital, and lately transferred as the Senior Assistant Medical Officer to the Park Hospital, Hither Green, has been presented by the nurses and domestic staff of the former institution with a liqueur and smoking cabinet, as a mark of their esteem, good wishes, and regret at his removal.

ROYAL DENTAL HOSPITAL OF LONDON.—The annual dinner of the staff and past and present students will be held on Saturday, November 24th, at the Hotel Metropole (Whitehall Rooms) under the presidency of Mr. William Hern. Gentlemen either now or formerly connected with the hospital or medical schools who may through inadvertence not have received special notice, and who desire to be present, are requested to communicate with the Dean of the Royal Dental Hospital, 32, Leicester Square, London.

FRENCH SCIENTIFIC EXPEDITION TO THE CONGO.—On October 25th, a scientific mission, equipped by the French Geographical Society, started from Bordeaux for Brazzaville, in the Congo. The object of the expedition is to study sleeping sickness on lines laid down by MM. Bouvier, Giard and Laveran, of the Académie des Sciences. At the head of the expedition is Dr. Martin, of the French Colonial Service; its members are medical men, civil and military, and naturalists.

ELEMENTARY SCHOOLS.—The Board of Education has issued a memorandum as to plans for the erection, enlargement, or improvement of elementary schools. It directs that newly-erected buildings, unless for good reason, must be planned in accordance with the principles set out in the several sections of Part I of the Building Regulations, and the Board may refuse to recognize a school if in their opinion these principles have been unnecessarily departed from. Before recognizing enlargements or alterations, other than minor alterations, of premises already recognized, the Board must be satisfied, by the submission of proper plans, that the proposals are satisfactory. Minor alterations may be approved by the inspector after a special visit.

THE LONDON TEMPERANCE HOSPITAL.—The foundation stone of a new out-patient department for the London Temperance Hospital, Hampstead Road, was laid on October 25th, in the presence of a large gathering which included a number of representative advocates of temperance from different parts of the country. The addition will provide a waiting hall for 200 patients, various consulting and examination rooms, and dispensary and store room, and a small theatre for minor operations. It is, however, only part of a larger scheme, which, when completed, will furnish isolation accommodation, observation wards, a clinical laboratory, a museum, and a lecture room for nurses. To carry out the entire plan some £25,000 will eventually be required, but only about £11,000 is needed for the first portion with which alone for the present it is proposed to deal. Of this amount, King Edward's Hospital Fund for London, on whose recommendation the new accommodation is being provided, has contributed £3,440, £2,089 have come from various sources, and £1,063 were laid on the foundation stone by those present at the ceremony, leaving only about £4,500 still to be collected.

UNIVERSITY OF LONDON.

OPENING OF THE LIBRARY.

A LARGE company assembled in the Jehanghir Hall of the University on October 26th, at the opening of the Library by Lord Rosebery, the Chancellor of the University. The Chancellor, accompanied by the members of the Senate and other officials passed in procession to the dais. Mr. Matthey, the Senior Warden of the Goldsmiths' Company, detailed the circumstances of the purchase by that Company of the economic library of Professor Foxwell of Cambridge, for £10,000, and its presentation to the University. The Company had also purchased other valuable books on Professor Foxwell's advice and the additional cost of appliances and binding had raised the total amount expended by the Company on the library to a little over £15,000. Professor Foxwell had supplied, too, an admirable catalogue with the library. In conclusion, Mr. Matthey offered the library to the University, and expressed his delight at having been instrumental in carrying out the scheme.

Lord Rosebery, who was received with cheers, thankfully accepted the gift on behalf of the University. He described the process by which the library of the University had grown from its nucleus, which was the classical collection of Mr. George Grote, the historian, a former Vice-Chancellor, who bequeathed it to the University. To this was added, by the munificence of Lord Overstone, the collection of mathematical books of the late Professor de Morgan. Sir Julian Goldsmid had also contributed £1,000 to swell the classical collection of Mr. Grote. The Foxwell collection now added to the library was the most complete of its kind in the world, with possibly one exception in America. Professor Foxwell had aimed at making it a collection representative of the history of (1) economic thought, (2) socialism and labour movements, (3) money and banking, and (4) trade, colonies, and the various mercantile and trading companies. The Goldsmiths' Company had prevented this valuable library from passing to America. The Company had enriched and honoured the University of London in other ways, and its various benefactions reached a total of not less than £150,000. He next spoke of the functions of a library, which he described as an adjunct to a university, but not the staff on which the university leans. He controverted Mr. Carlyle's saying that the true university of our days is a collection of books. No doubt a student must be fed by books, but the mere habit of reading, and often of reading copiously, without any exercise or output for knowledge was injurious rather than beneficial to the mind. It was apt to produce a condition of mental debility, if not of mental paralysis. There was probably no question of economics so difficult to adjust as the question between mental imports and mental exports; if the mind was in the condition of receiving nothing but imports and not able to produce any exports, it was in a condition fatal to intellectual progress. Further, a guide was absolutely necessary, otherwise the student might devour a volume before he learnt from some experienced person that the book was quite obsolete, and had been superseded by better ones on the same subject. A student, on entering a library, must have an object, and must have guidance. One of the Royal Commissions most required for intellectual pursuits was one of experts in the various departments of knowledge, which would indicate the books that were obsolete, books that had been superseded, and might be said to have no further existence. Probably there was no student who had not found that deficiency a very great one in his own line of study. He trusted other corporations might be tempted to imitate the beneficent example of the Goldsmiths' Company.

The Vice-Chancellor (Sir E. Busk) said that the library would be opened every day in the week, and on Tuesday and Thursday evenings, except during vacations, and the regulations would permit most of the books to be borrowed for home study.

The Chancellor now proceeded to the library and formally opened it, and it was subsequently inspected by the guests. It contains about 60,000 volumes, and at present occupies five rooms, of various sizes, on the ground floor. On tables in these rooms were displayed some of the rarer treasures of the library, including the first four editions of Euclid, the first having been printed at Venice in 1482.

The regulations for the use of the library show that all Senators of the University, all graduates, and undergraduates who have passed the examination in any Faculty next following the matriculation examination, all examiners and officials of the University, and all students recommended in writing by any teacher of the University shall be entitled to use the library; every member of the Senate can introduce strangers for three months at a time by written order. Further, members of the Senate, members of Convocation, and examiners can borrow as many as six volumes at a time; this rule does not apply to books of reference and certain rare and valuable books. Books which cannot be borrowed are marked accordingly in the catalogue of the library. No book can be borrowed for more than three months at a time, but the librarian can enter the book that is on loan for a further period of three months. The borrower is responsible in the event of loss or injury to a book, and shall pay compensation for such injury or loss. Every book sent through the post must be registered. Graduates who are not members of Convocation, and undergraduates and other persons desirous of using the library for literary research, may be recommended for the privilege of borrowing books by a member of the Senate or by two members of Convocation or teachers of the University. All borrowed books must be returned before December 31st. No book of the Goldsmiths' Economic Library can be removed from the room in which it is housed. Any person can be recommended for admission to this section of the library by any householder of recognized position. The librarian is Mr. Lawrence W. Haward, from whom copies of the regulations for the use of the library may be obtained.

British Medical Journal.

SATURDAY, NOVEMBER 3rd, 1906.

THE LUNACY COMMISSION.

The scope of the inquiry now being carried out by the Royal Commission on the Care and Control of the Feeble-minded has been very much enlarged by an extension of their terms of reference instructing them to inquire into the constitution, jurisdiction, and working of the Commission in Lunacy and of other lunacy authorities in England and Wales, and into the expediency of amending the same or adopting some other system of supervising the care of lunatics and mental defectives, and of reporting as to any amendments in the law which should, in their opinion, be adopted.

This large extension of the scheme of inquiry brings us directly face to face with the consideration of the remedies for a state of things which has for some time exercised the minds of those who know the conditions under which the supervision of persons of unsound mind is carried on in the private and public institutions of England and Wales. The scope of the new instruction is not confined to the supervision of those under care, but is extended so as to cover the adoption of amendments in the law under which these persons are confined or otherwise affected. The scope of the inquiry thus becomes very extensive, and it may end in a recast of existing regulations.

The Lunacy Commission, which was established more than fifty years ago, still remains as originally constituted, whilst the work which it has to do has grown to such colossal proportions as to make it physically impossible for the present Commissioners, however active they may be, to compass all the requirements of the Acts, except in a somewhat perfunctory manner. The Commissioners themselves will be the first to hail a new system of complete and satisfactory inspection, for they have long been aware that they are overweighted. Judging from the amplitude of the new instruction, embracing as it does most of the technicalities which are considered to be especially debatable, we are inclined to think that the suggestion for the extension of the inquiry and the terms of the reference may have come from the Commissioners themselves. If this be so, it is greatly to their credit.

When it is remembered that the six English Commissioners have to visit and report upon more than 250 institutions, public and private, in the course of a year, and that many of these have to be reported upon after personal inspection several times during the year, it is evident that when we speak of "perfunctory" examination we are well within the mark. That the existing Commissioners are able to do the work in the manner in which even now it is done speaks volumes for their indefatigable industry and solicitude; and if in the way in which the insane are nowadays protected we note that there are processes which still require the light of investigation and supervision, we recognize that the defect is mainly due to two things—the inadequacy of the Commission in point of numbers and composition and the limited extent of its authority. In February last a Committee of the British Medical Association, after conference with a committee of the Medico-Psychological Association, recommended certain amendments of the Lunacy Laws, and among these was one dealing specifically with the constitution of the Commission and the necessity for its enlargement. It is satisfactory to notice that the recommendations on this point, as also some other amendments proposed, are well within the scope of the extended reference to the Royal Commission.

Another question which will doubtless come up for investigation is whether the time has now come for consolidating under one management the various kinds of institutions for the insane and for the degenerate which are at present under different authorities. Why, for instance, should such asylums as those of Leavesden, Caterham, and Darenth be under the control of the Metropolitan Asylums Board, whilst the County Asylums, which in many particulars resemble the "Metropolitan Asylums," are under the jurisdiction of the London County Council? This and other questions of a cognate character will have to be considered by the profession, but the most pressing matter is the constitution of the body which supervises the care of lunatics and mental defectives. We understand that in place of an addition to the numbers of the Lunacy Commissioners, some authorities would prefer to see a Lunacy Board, formed somewhat after the plan of the Local Government Board in Scotland, with, in place of the present legal and medical Commissioners, inspectors sufficiently numerous and endowed with sufficient authority to deal adequately with the work. It would, it is argued, be easier to give the new Board powers considerably greater than those at present possessed by the Commissioners. These powers are limited in many respects, and much valuable knowledge which the Commissioners must possess cannot be placed at the disposal of the community.

To take an instance. When it is considered necessary to deal with a reported increase of insane persons in a county, the choice of the time for taking action, of the class of building required, of the extent and nature of the accommodation, and other important and vital questions are in the main dealt with by the local authority, practically at its convenience and in a way which it may choose to determine. Ought not the central authority to have power to enforce, and not merely to recommend? Ought it not to be empowered to initiate, not merely to criticise, to have the right of saying what form the new accommodation shall take and the conditions under which it shall be established? There are many things now done, or left undone, in public asylums which are the cause of evils to which the Commissioners call attention year after year. They are not remedied, and there appears to be no power to enforce a remedy. Again, in the matter of regulations and of the distribution of duties, the Commissioners are known to have definite views founded upon practical experience, but their recommendations may be put aside by a Committee of Visitors, and a condition of things allowed to exist under the very nose of the Commissioners which interferes with the economical, harmonious, and safe working of an institution.

In the matter of inspection itself, many changes are desirable. Some asylums are visited too often, and at intervals which are too regular; others—and those which in many instances require the most attention—not often enough. There is too much "regulation"; not enough is left to individual initiative. The legal element is too strongly represented on the Commission, and the medical side is inadequate in balance. Many

other instances of the defects of the present system might be given, but those mentioned are perhaps sufficient to show that the time is ripe for inquiry. Things have improved since the Commission was established, but it would be absurd to hold that they are even now as they ought to be. Not only those whose work brings them constantly into contact with asylum administration, but the general public also is not satisfied that the best and most efficient return is being got from the large sums of money expended on asylums, neither are they satisfied that the legal conditions of certification and restraint are as just and perfect as they ought to be.

There is another Board the constitution and functions of which may well come under notice, and which the proposed inquiry is probably meant to embrace. We allude to that division which has charge of the property of insane persons under restraint. The work done in this department is not of the same onerous character as is that of the Lunacy Commissioners, and in some respects the medical functions of these two bodies overlap. Here, again, there is an opportunity for consolidation and for equitable retrenchment which will probably not be neglected.

ARMY HYGIENE.

THE health of the soldier not long ago exercised the pen of a writer in the *Morning Post*, who signs himself "Ex-Non-Com." The article is of interest, as it may be taken as a reflex of the views, in some part, of the rank and file of the army. He attributes the greater liability to disease of soldiers as compared with civilians to "two most obvious" causes: (1) The large proportion of immature lads; (2) tropical service. "The remaining and most important causes may be summed up in "the word 'environment.'" In his opinion the civilian takes greater care of himself than the soldier; "the "recruit's sensitiveness to health matters is deadened "by the harshness of his training," and he objects to some of the duties the soldier has to perform. He cites H.R.H. the Duke of Connaught and Sir Frederick Treves in support of the need for reform of the system of physical training.

He further urges reform of barrack life, mentioning certain points, such as "indiscriminate scrubbing of "barrack-room floors in wet weather" (this, by the way, is forbidden by regulations); "the compression of ill-"fitting equipment." "the inadequacy in number and "equipments of baths," "herding in detention rooms" ("Ex-Non-Com." still calls them "prisoners' rooms"), "juxtaposition of food and household cleansing "materials in the sleeping room," and the "unpleasing "and unappetising service of food."

He next inveighs against the formalities attending "going sick," complains of cross-questioning by the doctor, and the disregard of the doctor by the combatant authorities. The value of the "working" medical staff—the orderly—is also questioned.

After careful analysis of the series of complaints put forward by an "Ex-Non-Com." it is possible to eliminate some which seem to be the outcome of an excessive fastidiousness, which is seldom found in young men of classes higher in the social scale than that from which our soldiers are mainly drawn. We may also eliminate those points which are due to breaches of regulations such as "Ex-Non-Com." should not have permitted when he was in authority.

There are points, however, which require to be approached in a serious mood, dealing as they do with matters long recognized as being unsatisfactory. Foremost among these points is the question as to how the medical profession may assist in making the army more of a home for the young lad. The young lad must be accepted, for so long as the nation relies upon voluntary enlistment, so long it must accept recruits of a more youthful age than is customary among Continental armies. Having to deal with immature lads, the policy should be to mature them by carefully-graduated exercises adapted to the purposes of a fighting man, passing those whose stamina is improved into the more-advanced physical training required of the perfect soldier. Manliness as evinced by a stout heart, good muscle, long wind, and staying power, is the aim and object of training; by eliminating the unmanly the nation gets rid of bad bargains.

But in order to test the effects of training on each individual the medical officer is essential. And this brings us to other matters in which he is essential, matters connected with the daily life and hygiene of the soldier. All the training in the world will be of no value if the soldier's life and surroundings are not hygienic. We have consistently advocated the importance of hygiene and sanitation in the army being in the hands of medical officers. Such matters require experts for their due execution. The importance of this must be learnt by the rank and file, but the teaching and execution of sanitary measures must be entrusted to experts. It is not reasonable to expect combatant officers to know the detailed why and wherefore of outbreaks of disease, and the measures necessary for their prevention. For this purpose every unit should possess the services of an expert in sanitation with power to act. This expert should give periodical lectures on hygiene to the officers and men. He should be in personal contact with every individual, and by his knowledge of the whole be in a position to remove those who are a danger to themselves and their surroundings. There can be no doubt that by entrusting the sanitary arrangements of a unit to the sanitary officer the State would be a gainer in the reduction of the sick rate: the unit would be a gainer by the careful supervision by an expert of its physical training, of its food, and all sanitary details, and also by the constant presence of a medical man who would be in touch with the weakly and sick. The commanding officer would be the gainer in possessing an officer upon whom he could rely to maintain his battalion in good physical condition for fighting purposes. Such a duty should be regarded by the trained army medical officer as affording scope for work such as is certain to result in remarkable value to the State. Under these circumstances, it is earnestly desirable that the question of prevention of disease in the army should be placed on a sound basis by the inculcation of hygienic principles in all ranks, and by making medical officers of the army executive sanitary officers.

IRISH POOR-LAW REFORM.

WE publish elsewhere a first article dealing with the report of the Viceregal Commission on the Irish Poor Law which was issued on October 31st. The Commission has spent three years in collecting evidence and drafting its report, but when it is seen that its suggestions amount practically to a new Poor-law scheme, it will not be thought that the time spent was too long. Wellnigh all the changes proposed by the British Medical Association are to be found among the recommendations of the Commissioners. They recommend that workhouses

should be abolished, only one being retained in each county for the aged and infirm, to be called an almshouse; that existing local hospitals should be retained and supported by a county rate, and that a State medical service should be established, the cost being defrayed out of money voted by Parliament, all existing officers being compensated for loss of office and being entitled to pension. As to outdoor relief the Commissioners recommend that it should be a charge on electoral divisions, as before the Act of 1898, and that labour colonies should be established for the compulsory detention of vagrants and able-bodied paupers. They recommend also the establishment of auxiliary asylums for the insane and of consumptive sanatoriums in some of the disused workhouses. These are the principal recommendations, and we propose to give further particulars of the report in an early issue; but the full effect of the recommendations cannot be completely estimated until a volume containing a statistical appendix and a third volume of, we believe, over a thousand pages containing the evidence have been published and carefully digested.

HOW IT STRIKES A CONTEMPORARY.

In an address delivered before the Royal Medical Society of Edinburgh on October 26th, Sir Dyce Duckworth took a somewhat gloomy view of the present state of things in the commonwealth of medicine. He said its dignity seemed to have declined in recent years. This he attributed partly to the fact that the average modern physician was not, as formerly, a man of general scholarship and wide learning; partly to the inflated pretensions of some members of the profession, and to the inherent inaptitude of not a few of them to adapt themselves to their varied social environment. While we admit that the profession is yet far from being what it should be in an ideal state of society, we venture to think that Sir Dyce Duckworth has drawn too sombre a picture. We would therefore ask our readers to compare it with another drawn by an artist who will not be suspected of a wish to flatter us. In his recently-published *Social Silhouettes*, that keen critic of contemporary life, Mr. G. W. E. Russell, gives a place in his portrait gallery to "the doctor." It is always interesting, and sometimes instructive, to see ourselves as others see us, especially when the eyes that look upon us are those of an intelligent observer. Mr. Russell knows English Society, with and without the capital "S," of the present day as few men have the opportunity of learning its various aspects, and, in the words of Hamlet, he shows the age and body of the time its form and pressure. He is equally in his element in portraying the public schoolboy, the schoolmaster, the don, the clergyman of every grade from curate to bishop, the politician, the squire, the soldier, the city man, the professional philanthropist, and the clubman. For some reason he fights shy of lawyers. The doctor he handles with unexpected tenderness; this may, however, be in the spirit of Izaak Walton's advice to the angler, that he should deal with the worm gently as though he loved him. He points out the vast difference between the doctor who takes our temperature to-day and the doctor whom Dickens drew. The change, he says, is not so noticeable on the higher rungs of the professional ladder. "In Harley Street and Grosvenor Street, "and Brook Street, where dwell the medical baronet and "the F.R.S., solemn plausibility still holds its own." The oracle of Cavendish Square, having to wean a dyspeptic patient from a breakfast of curried lobster, said in an aphorism "of almost Pauline dignity," "I seek to "impose a yoke upon you that you may be truly free." Still, we are told, the great men of the profession maintain the grand manner and impressive devices of the past. Still they recommend a diet at once light and nutritious: still they prescribe change of air, gentle exercise, a complete freedom from anxiety, and a winter in the South of France. Still they assure us that there is no appearance of danger, and when the patient dies, murmur with the most magnificent gravity, "Of "course, after what I said at my last visit, this "catastrophe has not taken you by surprise." All this, says Mr. Russell, goes on every day as it has gone on from immemorial time, and will go on as long as human nature is subject to illness and amenable to humbug. We hasten to explain that the word "humbug" used in connexion with consultants is not ours, but Mr. Russell's. It may be pleaded in excuse for him that *rien n'est sacré pour un sapeur*. Sir William Broadbent once said, in a magazine article, that a touch of charlatanism goes far to constitute the fashionable family doctor. If the family doctor cared to retaliate, he might quote Mr. Russell, but the controversy would scarcely be edifying. It is in the lower orders of the professional hierarchy that, according to the author, the greatest changes are seen. Bob Sawyer and Ben Allen and their kind have disappeared. "The young medico of "the present day is a pleasant youth of gentlemanlike "manners, with a moustache, frock coat, and patent "leather boots; or, when he is off duty, a pink shirt, a parti-"coloured suit, and tan shoes." As likely as not, he is a graduate of Oxford or Cambridge, and collects prints or china, paints in water colours or sings in a choir, and takes his blameless recreation at golf or lawn tennis. Often he is a vigorous athlete: not seldom he is a sportsman. "Not for our budding doctors are the joys of beer and "All-Fours which delighted Dr. Haggage [of *Little "Dorrit*], the pork chops and brandy on which Bob "Sawyer feasted, or the 'stunning gin-punch' which "Sam Huxter proffered to Arthur Pendennis." They are smart, well-mannered, and well-educated young men who know a good glass of champagne—even, we may add, though they may believe its therapeutic virtue to be *nil*. "They frequent the opera and criticize Mr. "G. B. Shaw's plays, and they learn before they are "thirty to practise that dignified self-restraint and that "mysterious air of knowing a great deal more than they "choose to say, which form so important a part of "their professional equipment." With these advantages the young doctor can scarcely fail to get on. "His "appearance, his voice, his social stamp, his liberal "education, all stand him in good stead." In due time he makes his mark. He becomes the friend and adviser of one family after another, and puts the crown on his rising fortunes by marrying the only daughter of Sir Grosvenor Le Draughte, who brings him £30,000 and the reversion of the paternal practice. We welcome this testimony of a writer who can scarcely be regarded as biassed in favour of the medical profession, to the immense improvement which has been brought about, mainly by the larger education and better technical training of modern doctors, but partly, too, by the increasing enlightenment of the public mind, which enables it more and more to understand the aims of scientific medicine and to appreciate the work of those who are striving to enlarge the scope of its usefulness. Mr. Russell has painted only the outside of the modern doctor, but considering the coarse caricatures which are still too common, it is something to be thankful for that he has produced a picture which, on the whole, is pleasing and attractive.

NATURAL HISTORY AND MEDICINE.

In opening the class of systematic zoology in the University of Aberdeen, Professor J. Arthur Thomson took for the subject of his introductory lecture, Some Links between Natural History and Medicine. He referred to the many examples in the old books of prescriptions in which there were numerous animal recipes, based on

the supposed efficacy of certain animals, or parts of animals. While many of those recipes caused one to be amazed at the credulity of people, there were others which had obtained wonderful justification from modern science. Those old recipes might be divided into three classes. Seventy-five per cent. of them were entirely superstitious, 20 per cent. had obvious justification, and 5 per cent. were just coming to have unexpected justification through modern scientific progress. Interesting examples of each class were given. For instance, a rheumatic patient was recommended to take a black cat to bed with him, because it was said to be rich in curative electricity. As late as 1888 the dust of a dried magpie was used in Germany for the cure of epilepsy. The lizard and the toad were also frequently used, and it was even recommended for certain troubles to lay a pickled herring at the feet before the patient went to bed. To the shrewd Scottish mind this might seem sheer wastefulness, and doubtless internal application would be preferred. Of the 20 per cent. of recipes which had obvious justification, there was the use of certain beetles for producing blisters on the skin, those providing a very effective blistering agent. It was known that ants were rich in formic acid, and some of epicurean inclination might desire pearls as they contained lime. The snail, too, was useful in certain cases, and had it not been called the poor man's oyster? But most interesting were the old prescriptions which were coming, within the last few years, to have unexpected justification. In olden times, for example, certain preparations of the toad were prescribed for such maladies as dropsy. It was now known that in the toad's skin there was a substance, phrynin, which, when injected into the body, had a remarkable action on the heart and tissues. In connexion with snake bites there were many and varied alleged cures. In several countries the natives had been in the habit of drinking diluted snake poison to render themselves immune. They had been known to do that for centuries. That was exactly the line of modern medicine in the use of antitoxins. It was now the justified method of dealing with snake bites to inject a diluted mixture of that snake's poison. It was somewhat the same idea which, in olden times, made the cure for cowardice the eating the heart of a lion; the cure for a weakling, dining frequently on the heart of an ox; the lethargic were advised to dine on ram's brains, and those having jaundice were told to try eating the liver of a fox. These recipes were as old as the hills, but until recently they were smiled at, but Professor Thomson said that it was now found that there was a certain element of truth in many of them. Another of the links that bound zoology and medicine together was the study of parasites. In dealing with parasitic diseases, the two had joined hands with the greatest success over and over again.

ETHER DAY.

On October 16th, 1846, the first operation under ether was performed in the Massachusetts General Hospital, Boston, by Dr. John Collins Warren, then senior surgeon to that institution. The ether was administered by William G. T. Morton, to whom the world owes the priceless boon of anaesthesia. A congenital vascular tumour was removed from the neck of a young man who showed no sign of consciousness during the operation. So complete was the success of the experiment that Dr. Warren, who was at first inclined to be sceptical, said to the bystanders when all was over: "Gentlemen, this is "no humbug!" On October 16th of the present year the sixtieth anniversary of this memorable event was celebrated in the hospital which witnessed the birth of surgical anaesthesia. Dr. John Collins Warren, grandson of the operator, presided at the ceremony. After some introductory remarks, he introduced Dr. Albert N. Blodgett of Boston, who showed some interesting photographs, taken by Mr. Hawes, of early operations under ether. At the time of the first operation, says the *Boston Medical and Surgical Journal*, Mr. Hawes was invited to be present for the purpose of photographing the scene of the operation. He was, however, unfortunately not accustomed to the sight of blood, became nauseated, and was obliged to leave the amphitheatre with the picture still untaken. At the conclusion of the operation, Dr. Warren sought out Mr. Hawes and presented him with the scalpel and probe used at the operation, together with his card. These mementoes were carefully preserved by Mr. Hawes, and since his death have passed into other hands. Dr. Blodgett was able to secure them for this occasion, and showed for the first time to a general audience the original instruments used. It is suggested that October 16th should be observed as one of the great festivals of Medicine.

THE KHARTOUM LABORATORIES.

Dr. Balfour, the Director of the Wellcome Research Laboratories[1] at the Gordon Memorial College, Khartoum, has just brought out his second report of the work accomplished at that institution during the last year. The growth of this research laboratory has really been phenomenal. Starting in 1903, its first report, which appeared in the autumn of 1904, included an account of the work performed during the first year of the institution's existence, that is to say, down to the end of January, 1904. Since that date quite a large staff has been got together; in addition to the Director, the Laboratory can now boast of a chemist, a travelling pathologist and naturalist, an economic entomologist, two assistants, and a clerk; while Mr. F. V. Theobald, the author of the well-known book on mosquitos, has kindly acted as Consulting Entomologist; and Mr. Austen, of the British Museum, always ready to help in subjects dealing with the identification and classification of *Diptera*, has rendered valuable assistance. Such a permanent staff of course means the expenditure of a good deal of money, and to Mr. Wellcome belongs the credit of having supplied this very necessary article. In the state of scientific research in England at the present day, it is extremely gratifying to find a wealthy Englishman expending some of his money on an object such as this, for it is by such institutions for scientific work and observations as this that humanity will benefit in the near future. The report, looked at as a whole, shows throughout its pages the same munificence as has been expended on the founding of the laboratories; no expense has been spared in its production, the best artists have been enlisted to colour its pages, the paper on which it has been printed is of the best, the photographs so abundantly interspersed throughout it are excellently reproduced and the binding and general arrangement could not be improved upon. In addition to all this, however, the scientific work and general observations contained in it are good, and this, after all, is the most important factor, that on which the thing judged must stand or fall. Mr. Wellcome has certainly been fortunate in getting the services of Mr. Terzi to delineate the various flies. His work is deservedly becoming well known, owing to his beautiful drawings of the tsetse and other flies for the British Museum, and for Mr. Austen's various monographs on those subjects, and it is not too much to say that they will remain as

[1] Second report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. Andrew Balfour, M.D., B.Sc., F.R.C.P.Edin., D.P.H.Camb., Director, Fellow of the Royal Institute of Public Health, Member of the Epidemiological Society, the Incorporated Society of Medical Officers of Health, etc. Khartoum: Department of Education, 1906. (Demy 4to, pp. 255.)

standards of excellence for many years to come. Such work, we are aware, is often too poorly remunerated, but we are sure that a man of Mr. Wellcome's generosity will have seen to this, and rightly so, as the drawings greatly enhance the value of the report. Mr. Richard Muir of Edinburgh has also been fortunately chosen as the artist for the coloured representations of the various blood parasites which illustrate some of the different articles; his plates are beautifully drawn, and have been excellently reproduced. In addition to these works of art many photographs of natives, insects, country scenes, etc., give character to the report, which consists of an introduction, fourteen different papers on mosquitos, flies, blood parasites (haemogregarines, leucocytozoa, trypanosomes), routine work, miscellaneous notes, a report by the travelling pathologist, and a report of the chemical laboratory. A list of illustrations and an index are provided. Dr. Balfour contributes the first paper, dealing with mosquito work in Khartoum and the Anglo-Egyptian Sudan generally. It contains nothing new, but is interesting nevertheless, especially as it backs up Professor Ross in his contention as to the value of mosquito destruction. Dr. Balfour writes: "For something con-"siderably under £100 per annum, Khartoum is kept "practically free from malaria, and the inhabitants are "secured, to a very great extent, from the persistent and "annoying attentions of these winged pests, which, as a "rule, add so much discomfort to life in the tropics. I "do not think the above is a large sum to pay for such "immunity." Such a statement speaks for itself and shows what can be done. Mr. Austen classifies a number of blood-sucking flies and other diptera in his usual careful manner, amongst these being two new species and one subspecies of Tabanidae; he rightly calls attention to the fact that it is important that material for identification should be sent home in proper condition. Mr. Theobald writes some interesting descriptions of mosquitos and other insects. A paucity of material is evident in some of these—for example, the new species, *Culex rubinotus*, is described from two females alone, no males, larvae, or pupae having been forwarded, but on the whole perhaps it is better to note their occurrence now and wait for those omissions to be supplemented later. The most important paper in the report from the purely scientific standpoint is that by Dr. Balfour on A Haemogregarine of Mammals. This may lead to far-reaching results, because before this discovery parasites of this nature were only supposed to exist in cold-blooded vertebrates. The life-history of the parasite in the jerboa, the animal in which it was found, is carefully worked out, and attempts have been made to finds its extra corporeal phases in fleas and mites. The experiments, however, are not exhaustive enough, and will have to be worked out in greater detail. The finding of parasites (*Crithidia*) of the flea itself is of great value in supporting Ross in his view that Schaudinn's work on the development of *halteridium* in mosquitos requires revision, and the author might well follow this point up. The chapter on trypanosomiasis in the Anglo-Egyptian Sudan consists largely of a long series of animal experiments which do not afford very interesting reading and might have been abridged considerably, especially so as the conclusions are not very far-reaching, the most important being the discovery of what Laveran believes to be a new trypanosome in cattle to which he has given the name *T. nanum*. The travelling pathologist's report contains some useful information on trypanosomes and embryo filariae; but his time seems to have been rather injudiciously snapped out, 40 days out of 127 for actual scientific work being very small, and a freer hand should have been given him in his work. A memoir by Dr. Beam, the chemist, on the chemical laboratory brings this very interesting report to a conclusion; in it some very useful economical information is given, and all that remains is to congratulate Dr. Balfour and his collaborators on the success of their work.

OPSONINS AND THE TREATMENT OF DISEASE.

In *Science Progress* for October, 1906, Dr. A. C. Inman contributes an article on the recent advances in the treatment of disease which have followed on the discovery of opsonins. In order to secure success in the treatment of a disease by means of a bacterial vaccine, it is necessary to follow closely the effects of the substance administered. If this precaution is neglected, and if inoculation is resorted to in a haphazard way, disastrous results may ensue, owing to the risk that the substance may be administered during the "negative phase." The explanation of this difficulty is simple. When a bacterial vaccine is introduced into an animal, the immediate effect on the blood is a lowering of its resisting power to the micro-organism in question. This phase is followed by one during which protective substances are elaborated in response to the infection, and the resisting power of the blood rises above the normal. After this rise a gradual return to the normal occurs. If subsequent injections are made during the first or "negative" phase, a cumulative action in the direction of the negative phase will be produced—that is to say, resistance will be steadily diminished instead of increased. It is therefore of obvious importance to avoid injecting a patient when his blood is in this negative phase. The requisite information concerning the condition of the patient's blood is obtained by determining the opsonic index. In considering the class of cases in which therapeutic inoculation is applicable, Dr. Inman follows Wright's classification. (1) Localized bacterial infections. In these cases auto-inoculation is hardly taking place at all, and generally there is nothing to prevent the elaboration of enough protective substances, in response to vaccination, to cure the disease. This treatment, therefore, offers the best chance of success. It causes the rapid disappearance of carbuncles, boils, and other local infections; and Dr. Inman thinks it very likely that treatment of early pulmonary tuberculosis with a tubercle vaccine would be rewarded with great success. (2) Localized infections associated with constitutional disturbance. Constitutional disturbance accompanying a localized bacterial infection may be taken as evidence of autoinoculation from the site of infection. Under these circumstances examinations of the opsonic index show that the patient is living "in a succession of negative and "positive phases"—that is, the resistance of the blood is lowered as an immediate result of the infection; but an increase in protective substances to a point above the normal takes place in response to the infection. The more advanced cases of pulmonary tuberculosis are essentially of this type. In dealing with these cases two courses may be followed: "(*a*) The patient may be put under the con-"dition least suitable for autoinoculation, that is, at "rest, and not until autoinoculation has been put a stop "to as far as possible are inoculations employed. (*b*) A "daily examination of the blood may be instituted, and "only very small doses of vaccine injected at oppor-"tune moments, according as that examination shows "evidence of recent autoinoculation or no." But in dealing with these cases Dr. Inman insists on the necessity for extreme caution and points out that the bacteriology of acute pulmonary tuberculosis, associated as it very often is with other bacterial infections, still requires much investigation. (3) Septicaemias. The acute bacterial infections, such as septicaemia and ulcerative endocarditis, seems to offer few possibilities for vaccine

therapeutics. But even for this type of infection investigators have not yet abandoned the hope that they will eventually discover a useful vaccine treatment, and Dr. Inman considers that there are scientific reasons which make the prospect not altogether discouraging.

NETLEY.

The Royal Victoria Hospital, Netley, was built as a consequence of the wish of Her Majesty Queen Victoria "that a commonly comfortable barrack for "Our convalescent soldiers" should be provided. It was opened for the reception of invalids from foreign stations in 1863. While the building was in progress a Royal Commission was, as the result of the Crimean war, inquiring into the sanitary condition of the army, the organization of military hospitals, and the treatment of the sick and wounded. That Commission recommended the formation of an Army Medical School, "for "which purpose the necessary professional Chairs, in "lieu of the two now existing in Edinburgh and Dublin, "should be instituted at the principal general hospital "in England." This was carried into effect in 1860 at Fort Pitt, Chatham; but on the completion of the Royal Victoria Hospital, the Army Medical School was in 1863 transferred to Netley, where in order to arrange for the reception of the school "a large ward was converted "into a lecture room, another into an operating "theatre"; and other hospital accommodation was appropriated for use in connexion with the medical staff and the young officers. These things are set forth by Colonel Kenneth Macleod in a pamphlet entitled *Netley*, a reprint from the *Caledonian Medical Journal* for October, 1906. The school was the first in the country wherein hygiene was systematically taught, the teacher being Dr. E. A. Parkes. Tropical medicine, and surgery in relation to war, military organization and training were also taught. Short biographies of the earliest professors, of Surgeon-Generals Sir Thomas Longmore and W. C. Maclean, of Sir William Aitken, and also of Parkes are given, as well as a record of the names of the distinguished later professors, some of whom belong as much to the new order of things as to the old. Before Netley was adopted it had been proposed to locate the Army Medical School in London. Other counsels, however, prevailed, and it required another war and another Royal Commission to bring the Army Medical Service into immediate contact with the metropolis. The transfer was effected in 1902, the Royal Army Medical College in London being opened on September 1st of that year, in temporary quarters. Until the end of May, 1903, however, the lieutenants of the Indian Medical Service continued to attend for two months at the Royal Victoria Hospital for instruction in military medicine and some other subjects. Netley was then finally closed as a school. In this modest pamphlet of fourteen pages Colonel Kenneth Macleod sings the requiem of the school through which passed 3,218 medical officers of the navy, army, and Indian services. It is possible to sympathize with Colonel Macleod's Horatian phrase, that "the amenities of the Netley life "can hardly be equalled elsewhere." The advantage of possessing an Army Medical School in London appeals without advocacy, and a lingering regard for a vanished friend justifies a tribute to a place where individual effort has effected much good work in the past.

LEPROSY IN THE REPUBLIC OF COLOMBIA.

In a paragraph under this heading which appeared in the British Medical Journal of October 20th (p. 1054) it was stated that last year the Colombian Government, with the object of placing its leper colonies on a footing of efficiency, sent Dr. Julio Manrique, Chief Medical Officer of the National Lazarettos of Colombia, to Europe and India, with a commission to study the methods of dealing with leprosy there adopted. Señor Calderon, Consul-General of Colombia in London, has sent us a copy of the report presented by Dr. Manrique on his return from his mission. It states that the number of lepers in Colombia had never exceeded 4,000. This estimate, by the way, confirms our remark as to the difficulty of getting exact statistics on the subject, for it is less by 1,000 than the corrected figures given by the President of the Republic, General Reyes, and kindly supplied to us by Señor Calderon. We must leave these rival authorities to settle the question among themselves. Dr. Manrique goes on to say that the greater number of the sufferers have now been isolated in the three leper asylums in Colombia which have been "reorganized in conformity with the "scientific principles generally accepted in the scientific "world." In Colombia, as elsewhere, leprosy attacks by preference the poor, and is rare among the rich. It is not true, says Dr. Manrique, that there are cases of leprosy in the families of all the Ministers of State. The misconception as to the large proportion of leprosy in the Colombian population had, it is stated, its origin in the extreme fear caused by the disease, and in the indiscriminate manner in which the term "leper" has been applied to persons suffering from any of the numerous diseases which more or less closely resemble leprosy. Some years ago, Dr. Manrique proceeds, the Government of the Department of Cauca, one of the Departments which was credited with containing the most lepers, obtained from France the services of the noted leprologist, Dr. Dom Sauton, author of a treatise on leprosy in which he had stated that Colombia is the country in the world in which there is the greatest number of lepers, "citing data as exaggerated as inaccurate." Dr. Sauton, however, found that less than one-quarter of the sick persons whom he examined as reputed lepers were actually suffering from that disease, and he promptly made a statement to that effect in a report which he presented to the Governor of the Department of Cauca. All the sick persons who are now sent to the Colombian leper asylums are, we are assured by Dr. Manrique, first examined by competent doctors, whose diagnosis is in most cases confirmed by bacteriological examination.

THE MEDICAL PROFESSION IN SAN FRANCISCO.

We are glad to learn from the *Pacific Medical Journal* that slowly but surely the medical profession in San Francisco is rehabilitating itself. Already the College of Physicians and Surgeons of San Francisco has erected a portion of its college building on the old site. The college has opened with a full staff of professors and a large attendance of students. Of a thousand medical practitioners who were at work in San Francisco before the catastrophe, only thirty or so are still absent. Temporary quarters have been secured and most, if not all, of the doctors are making a fresh start. Many of those who had gained a competency after long years of work, are beginning professional life anew with the vigour that characterizes the American people. The help sent to the members of the profession in San Francisco has been carefully and judiciously distributed to those in need. The publishing houses of America have been extremely generous, and instrument makers and surgical supply manufacturers have also done much to relieve the immediate distress of the medical men who lost their all in the great fire. It may be added that the city itself has quickly risen from its ashes. Thousands of temporary and permanent houses and residences are already completed. This rehabilitation has progressed with marvellous rapidity, although labour unions increased their wages almost to prohibitive

prices, and the price of building materials of all kinds has advanced beyond all reasonable figures, while strikes have prevented and retarded many contemplated improvements. Many of the insurance companies have done their utmost to deprive the citizens of their just dues, and unscrupulous persons have endeavoured to create panics by causing a run on one of the old-established banks. Notwithstanding all these conditions, says our contemporary, "from "devouring flames to industrial strikes, political "manipulators of labour, and 'welching' insurance "companies, San Francisco has made more rapid "progress in rehabilitation after one of the greatest "conflagrations the world has ever known than has "any other city in the world, not excepting the great "fires of Sodom and Gomorrah, Rome at the time of "Nero, London, Baltimore, or Chicago."

ANTITOXIN TREATMENT OF DIPHTHERIA.

The Commissioner of Health of the city of Chicago gives in the Department's Bulletin for October 13th some statistics with regard to the mortality from diphtheria before and after the introduction of the antitoxin treatment. The first case was treated with antitoxin on October 5th, 1895, and statistics are given for the ten years 1886 to 1895 and 1896 to 1905. In the first period 10,019 deaths were reported from diphtheria, an average rate of 9.87 per 10,000 of population. During the second period there were 6,446 deaths reported from diphtheria, an average rate of 3.94 per 10,000 of population. Had the previous average death-rate from diphtheria obtained during the second period of ten years there would have been 9,701 more deaths from diphtheria in the city of Chicago than actually occurred. The Commissioner points out that this is really an understatement of the case. Prior to 1895 more than 90 (92.4) per cent. of the deaths attributed to croup were, in fact, caused by diphtheria, as is shown by the figures of the last ten years, during which the difference between croup and diphtheria has been bacteriologically demonstrated. During the last ten years of more accurate diagnosis the death-rate from croup has been 0.30 per 10,000. During the preceding ten years, when diphtheria was so frequently called "croup," the croup rate was 4.12, or 13.7 times greater. The point is that, notwithstanding 92.4 per cent. of the deaths formerly attributed to "croup" have been properly charged to diphtheria during the last ten years, the diphtheria death-rate has been decreased by 60 per cent., and the rate from both diphtheria and croup combined has decreased 70.2 per cent.

NURSES FOR THE POOR OF THE MIDDLE CLASSES.

An excellent scheme started a year ago in West London by the late Mrs. Lewis-Hill for providing daily visiting trained nurses for the less well-to-do members of the middle classes is, in consequence of the death of the foundress, in imminent danger of being closed. The Ada Lewis Nurses' Institute was opened at Oxford Terrace, Hyde Park, under regulations which apparently ensured its success; the nurses were to make daily visits as required, or attend operations, on payment of fees ranging from 5s. to 10s. a week, according to the means of the patient, as regulated by the medical man attending each individual case; they were forbidden to take meals in the patients' houses or to receive gratuities. Their province was quite distinct on the one hand from that of the district nurses, whose services, being gratuitous, are intended only for the sick who can afford no payment, and, on the other hand, from that of the nurses engaged for cases of illness among the wealthier classes. They nursed, in fact, that large wage-earning class with no resources for a rainy day for whom it is often difficult to procure adequate nursing. They worked only under the direction of the medical attendants, and ceased work on any case when the doctor's services were no longer required. It was to be expected that with such a programme the Institute would soon prove highly successful. But, since the death of Mrs. Lewis-Hill, the reverse is announced to be the case. The *Nursing Times* states that between October 21st, 1905, and October 23rd, 1906, 113 cases were treated, notified by 74 doctors. Both doctors and patients who have employed the Ada Lewis nurses expressed themselves as highly pleased with the nurses and their attendance; nevertheless, in the year only 74 medical men sought their services. Why it seems difficult to state. Possibly the scheme has not been sufficiently brought to the notice of medical men, or perhaps a lessened incidence of illness during a great part of the year may have reduced the number of cases requiring the nurses' assistance, or possibly the position chosen for the Institute in Oxford Terrace may not have been the most suitable, since South Paddington is largely covered by the houses of wealthy residents, for whom the services of the Ada Lewis nurses are not in requisition. At any rate, whatever the cause of the infrequent employment of the nurses may have been, the practical result is that the existence of the Institute is now threatened. Mrs. Lewis-Hill, it appears, had in her will, as originally drawn, bequeathed £35,000 for the endowment of the scheme, and had intended to start similar nursing centres in other parts of London, if the first one proved successful. It was considered that £300 a year for each home, over and above the nurses' fees, would be sufficient for its maintenance. This amount Mrs. Lewis-Hill was willing to supply. But, at the last, her will contained no provision for the maintenance of the present Institute, so that, unless an adequate sum be otherwise provided, it must almost immediately be closed and the staff of nurses be dispersed at the end of the month's notice already given. Can nothing, in these circumstances, be done to avert this impending calamity? For such it would be, in the opinion of doctors and patients alike who have experienced the benefits of the nurses' services. It is to be hoped that means may at this eleventh hour be found to keep the Institute going for another year or two, until, in fact, it shall have become better known and perchance prove that it can be run almost, if not entirely, on the moderate fees paid for the services of the nurses.

EXPERT ANTIVIVISECTIONISTS.

Mr. Arnold Lupton is so embarrassing an ally that we are pleased to see him come forward as an opponent of experimental medicine. The antivaccinists, whom like Johnson's patron he has "encumbered with help," will doubtless welcome this diversion into a less inconvenient channel of the controversial energy which they have found damaging to their cause. There used to be a Member of Parliament who everywhere saw "Jesuits in disguise" and thus brought so much ridicule on the cause he championed that it was unkindly suggested that he was himself a Jesuit. We think it not altogether improbable that a like fate may befall Mr. Lupton. Already he has succeeded in doing what might well have been believed to be impossible, for he has added a finishing touch of absurdity to the "guy" by the exhibition of which antivivisectionists seek to extract coppers from the public. The other day Mr. Lupton complained that there was "no expert antivivisectionist at all" on the Royal Commission. The Home Secretary, in reply, asked what an "expert antivisectionist" was, but no explanation seems to have been vouchsafed. We venture to take it upon ourselves to enlighten the mind of Mr. Gladstone on the point. An "expert antivivi-

sectionist" is one who has been carefully trained in the antivivisectionist methods of controversy. He has been carefully crammed with "platform facts" (the phrase, we may remind the reader, is that of an "expert "antivivisectionist"); he has been taught all the dainty devices of sophistry, from evasion through *suppressio veri* and *suggestio falsi* to downright lying. In lying there are more degrees than Touchstone's simple lie circumstantial and lie direct, and your "expert anti-"vivisectionist" is master of them all. But it is not enough that the "expert" should be a master of the whole art of lying. He must learn to substitute for the charity that thinketh no evil the malevolence that refuses to see any good in the thing he professes to dislike. He must deliberately close his eyes to anything that might tend to shake his conviction, and he must ever be ready to use any poisoned controversial weapon against men whom all mankind hold in deserved veneration. Mr. Gladstone stated that four of the ten Commissioners were suggested to him by antivivisectionist bodies. There appears to be some mystery about the particular bodies referred to. Mr. Stephen Coleridge disowns the soft impeachment as far as the Antivivisection Society is concerned; on the other hand, Miss B. E. Kidd, the secretary of a rival body, the British Union for Abolition of Vivisection, while complaining that the Commission has been accepted by "some other "societies with an easy-going contentment which it is "hard to explain," asks why the recommendation of the British Union, which put forward the name of Dr. Hadwen as its chosen champion, was ignored. Why, indeed? We should have been glad if both he and Mr. Coleridge had been invited to serve; the evidence would probably not have convinced them, but they would no longer have had the excuse of invincible ignorance. The Commissioners will doubtless learn with dismay that they are not to have the assistance of Mr. Coleridge or his Society in their inquiry. At a meeting held on October 29th the Council of that body "directed "the Society to refuse to participate in the proceedings "of the Royal Commission unless the press are ad-"mitted and counsel permitted to appear on its behalf." In other words, Mr. Coleridge, like a wilful boy, will not play unless he can have things all his own way.

METROPOLITAN AMBULANCES.

Last July when the House of Lords confirmed the decision of its Committee to reject certain clauses in the Bill prepared by the London County Council empowering it to establish and maintain an ambulance service for dealing with cases of accident and illness in the streets of the metropolis, Earl Beauchamp stated that it was not unlikely that a Committee would be appointed to formulate a scheme. He indicated that the Committee would consist of representatives of the London County Council, the Metropolitan Police and the Home Office. We hope that something more may shortly be heard of this Committee, and that when it is eventually appointed it may contain a representative of the Metropolitan Street Ambulance Association, which has done a great deal to bring the matter before the public, and whose President, Mr. Reginald Harrison, has a large experience of the working of ambulance systems both in other towns in this country and abroad.

THE NATIONAL LEAGUE FOR PHYSICAL EDUCATION.

On October 25th, a well-attended drawing-room meeting in support of the National League for Physical Education and Improvement, was held at 23, Cadogan Gardens, S.W., by permission of Mrs. Allhusen. The Bishop of Ripon, who was in the chair, in the course of a brief address, insisted that the facts with regard to infant mortality and the physical unfitness of a large proportion of those who survived raised questions of national importance. He referred to the efforts made in London, Liverpool, Manchester, and other large towns to ameliorate existing conditions, and said that the object of the League was to disseminate information, to co-ordinate the work done in different centres, and to arouse public interest in districts where as yet nothing was being done. Dr. Fremantle (M.O.H. Hertfordshire) pointed out that while the improved sanitation of the last thirty or forty years had brought about a remarkable decline in the general death-rate, there had been no corresponding fall in infantile mortality. He gave an account of the administrative work done by medical officers of health and laid stress on the duties of county councils under the Midwives Act, quoting instances of the ignorance and obstinacy of women who had to be placed on the roll under the temporary provisions of the Act.

REORGANIZATION OF THE VOLUNTEER MEDICAL SERVICE.

The report on the reorganization of the Volunteer Medical Service drawn up by the Volunteer Medical Service Committee of the British Medical Association,[1] and approved by the Council of the Association, has been forwarded to the Secretary of State for War, who has replied promising to give the report careful consideration; it is probable that Mr. Haldane will consent to receive a deputation on the subject later on.

PROPOSED CANCER RESEARCH INSTITUTE IN PARIS.

On October 30th Professor Poirier read a paper before the Academy of Medicine in Paris on the treatment of cancer, insisting on the importance of operation at the earliest moment, and pointing out that much more research would be necessary before it could be expected that any specific treatment would be discovered. Incidentally he referred to the anticancer league founded by Verneuil in 1892, mentioning that it ceased to exist owing to lack of public support. Dr. Henri de Rothschild, an old pupil of Professor Poirier, and well known as the founder of a children's hospital and an organization for supplying sound milk to children in Paris, sent Professor Poirier a cheque for 100,000 francs (£4,000) to serve as the nucleus of a fund to establish a cancer research institute in Paris.

Medical Notes in Parliament.

[From Our Lobby Correspondents.]

Parliament reassembled on Tuesday and the House of Commons devoted the greater part of that day to the consideration of the Merchant Shipping Acts Amendment (No. 2) Bill. Considerable discussion took place with regard to the clause dealing with the statutory scale of provisions, and on the motion of the President of the Board of Trade a subclause was added imposing a penalty not exceeding £100 on the master of a ship who through neglect or default failed to furnish provisions in accordance with the scale. An amendment to make the inspection of provisions and water intended for the crew of any British ship compulsory instead of permissive was withdrawn on the ground that the inspection already carried out by the Board of Trade was sufficient.

Royal Commission on Vivisection.—Mr. O'Grady asked the Secretary of State for the Home Department whether the Royal Commission on Vivisection was to be enlarged by the addition of one or more medical men who were known antivivisectionists; whether he had been approached by representatives of the antivivisection movement with a view to so enlarging the Commission; and

[1] Supplement to the British Medical Journal, July 14th, 1906, p. 34.

whether it was the intention that the proceedings of the Commission shall be open to the public and the press. Mr. Gladstone said that he had received and considered a number of representations, but he did not propose to enlarge the Commission, which was, in his opinion, fairly constituted as regards all parties interested. It was for the Commission to decide whether their proceedings should be public, and they had informed the press that they had decided to sit in private, but to supply copies of the evidence from time to time to certain representative bodies interested in the inquiry. Mr. O'Grady asked whether it was not the fact that the majority of the Commissioners believed in vivisection. Mr. Gladstone replied that out of ten Commissioners four, including two distinguished medical men, were suggested to him by the Antivivisection Society. Mr. Lupton asked whether it was not the case that there were three vivisectionists on the Commission and no expert antivivisectionist at all. Mr. Gladstone replied that he did not know what his hon. friend meant by "expert antivivisectionist," but in the constitution of the Commission great care was taken to secure that all sides should be represented. On Wednesday Mr. Ridsdale asked the Secretary of State for the Home Department if he was aware that it had been decided to hold the sittings of the Royal Commission on Vivisection in private; and would he say if there had been any recent precedent for such a course. Mr. Gladstone said he was aware of the decision of the Commission, but as he had already said, the question whether any one should be admitted during the taking of evidence was a matter within the discretion of the Commissioners. In several recent cases evidence had been taken in private; he might instance the Motor Car Commission, the War Commission of 1902, and the Royal Commission on Food Supply in Time of War.

University Representation.—On Wednesday, during discussion in Committee on Clause I of the Plural Voting Bill, an amendment was moved by Mr. Cave to limit the operation of the clause to electors in constituencies other than a university constituency. He contended that the effect of the Bill as it stood would be practically to destroy the university vote, and this view was supported by the representatives of the Universities of Cambridge, Edinburgh and St. Andrews, London and Oxford. The amendment was, however, rejected by 347 votes to 92.

Medical Inspection of School Children.—The House of Lords still appears to be a long way off Section 24 of the Education (England and Wales) Bill, which contains the subsection with reference to medical inspection, but it may be convenient to print the subsection as it stood when introduced into the House of Commons, and as it now stands modified in accordance with the promise given by Mr. Birrell when the clause was under discussion in the House of Commons:

As Introduced in the House of Commons, April 9th, 1906	*As Modified.*
35 (*b*) Power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools.	24 (*b*) The duty to provide for the medical inspection of children before or at the time of their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools.

Infants' Schools.—On Monday Mr. Harold Cox (Preston) asked the President of the Board of Education whether there was any foreign country or British colony in which compulsory education began at so early an age as 5. Mr. Birrell said he was unable to answer for the school laws of all foreign countries in the world, but so far as he could learn from information easily available compulsory attendance, where there was any, began at a later age than 5. Mr. Harold Cox also asked the President of the Board of Education whether his attention had been called to the recommendation of the Inter-Departmental Committee on Physical Deterioration that school attendance in rural districts should not be compulsory till the age of 6, or possibly 7, and should be discouraged, if not absolutely prohibited, under 5; and whether he proposed to take any steps to give effect to this recommendation. Mr. Birrell, in reply, said that as at present advised the Government had no intention of prohibiting the attendance of children under 5 years of age in rural districts. The question of requiring the attendance of such children or not rested with the option of the local education authorities. Mr. Harold Cox further asked whether the right hon. gentleman would discourage local authorities from permitting children under 5 to attend school. Mr. Birrell said he was rather shy of any interference with local authorities.

Royal Commission on Bovine Tuberculosis.—Mr. Field asked the President of the Local Government Board whether he could state when the report of the Royal Commission on Bovine Tuberculosis would be issued; and whether he could state the total amount of expenditure upon Tuberculosis Commissions to date. Mr. Burns, in reply, said that he understood that certain experiments were being made, which would not be completed until November 10th, and that it was intended that the report and appendix should be issued as soon after that as possible. The total amount of expenditure upon Tuberculosis Commissions up to September 30th last amounted to about £52,200.

Vaccination Prosecutions.—Mr. A. H. Scott asked the President of the Local Government Board if he would instruct vaccination officers to stay further proceedings being taken by them against parents for non-vaccination, pending the legislation promised for next year. Mr. John Burns said that, looking to the statutory duties which devolved on the vaccination officers in this matter, it did not appear to him that he was empowered to give them any such instructions as those suggested.

Medical Inspectors in Scotland.—Mr. Weir asked the Secretary for Scotland whether he was aware that while in Scotland there were five inspectors under the Public Health Act, only one of whom was a medical officer, there were in Ireland seven medical inspectors, and seeing that it was impossible for one medical inspector to overtake the whole of the work for Scotland, would he consider the advisability of arranging in next year's estimates for additional medical inspectors for Scotland. The Secretary for Scotland, in reply, said he could not provide additional medical inspection in Scotland.

Quarantine and Mohammedan Pilgrims at Bombay.—Mr. Rees asked the Secretary of State for India whether the Turkish Government had agreed to the removal by the Government of India of the quarantine restrictions imposed at Bombay upon Mohammedan pilgrims to Mecca. Mr. Secretary Morley, in reply, said that the quarantine regulations in question were imposed, and had been removed, by the Government of India on their own initiative and without previous reference to the Turkish Government. They had been discontinued, as they were found to be superfluous for the detection of plague, while injurious to the comfort and health of the pilgrims. The Turkish Government had been fully informed of these considerations and of the precautionary measures which had been substituted for quarantine at Bombay.

Sleeping Sickness.—Mr. Rees asked the Under-Secretary of State for the Colonies whether any report had been received from Dr. Koch upon the sleeping sickness; and what steps were being taken to preserve the British Central Africa Protectorate from this disease. Mr. Churchill said no report had, as far as was known, been received from Dr. Koch, whose commission was appointed by the Imperial German Government. It was proposed as soon as the rains were over that two special medical officers selected by the Liverpool School of Tropical Medicine, who had generously offered to pay the salaries of both officers, should proceed to the British Central Africa Protectorate, study the local conditions, and suggest precautionary measures. It was presumed that these officers would arrive in the Protectorate in January next.

Birmingham.

PATHOLOGY AT THE GENERAL HOSPITAL.

THERE has been a considerable increase in the staff of the pathological department of the General Hospital; this change took place at the beginning of October. Formerly there was one resident pathologist, who used to perform, with the help of clerks, all the *post-mortem* examinations, and all the bacteriological work and the examination of tumours, etc. The pathological work has now been divided into two departments. In the first only the *post-mortem* work is performed, and to this the old pathological building is entirely confined. There is still a resident pathologist, who is a more junior man than the old resident pathologist used to be; and in addition there is a visiting pathologist, who has entire control of the *post-mortem* department. Dr. James Miller, Assistant Lecturer in Pathology and Bacteriology at the University, has been appointed to this latter post. The other pathological and bacteriological work of the hospital is divided into medical and surgical, and a visiting clinical pathologist has been appointed to each section, and a room for each of them has been fitted up in the main building of the hospital. The new visiting clinical pathologists are Dr. Wynn and Mr. Frank Barnes. They will perform all the pathological and bacteriological work, except that which arises in the *post-mortem* room, and that which every house physician and surgeon ought to be able to perform, and they will be responsible for all the clinical research work. One of their duties will be to direct the house physicians and surgeons in such examination of material from their cases as does not require special knowledge and skill. The pathological staff of the hospital has therefore been greatly increased, for, instead of the one resident pathologist, there are now one visiting pathologist, two visiting clinical pathologists, and a resident pathologist. This increase was found necessary, as there were nearly 400 *post-mortem* examinations performed every year, and between 600 and 700 specimens sent down for examination to the old department.

ORTHOPAEDIC HOSPITAL.

The new out-patient department of the Orthopaedic Hospital in Birmingham was declared open by the Marquis of Hereford on October 10th. The foundation-stone of the new building was only laid by the Lord Mayor in April of this year. The new out-patient department has been erected in Great Charles Street, behind the hospital, and between the two buildings there is a garden. The building is in the Elizabethan style, and is faced with slightly glazed red bricks and terra-cotta. On the ground floor there are the waiting hall and a dispensary, while above there are two isolation wards, nurses' rooms, two exercising rooms, and two massage rooms. In the basement there are a large room for perambulators, a patients' room, a bathroom, store rooms, and heating apparatus.

The eighty-ninth annual meeting of the subscribers of the hospital was held immediately after the opening of the new building. The annual report showed that the number of attendances at the hospital during the year has been 8,243, as compared with 8,103 in 1905. The in-patients were 315, and the number of operations performed 584. There were 657 country patients treated during the year. The work of the hospital has been steadily increasing, and with it the expenditure, so that during last year the expenditure exceeded the income by £443. The donations have also fallen off to the extent of £195. The Hospital Saturday Fund contributed £300 and the Hospital Sunday Fund £99 13s. to the institution. A legacy of £250 was received from the late Sir Henry Wiggin. The cost of the new out-patient department is estimated at about £4,000, and towards this amount only £1,161 have been received in donations. It is also intended to rebuild the old in-patient department at an early date.

Manchester.

REJECTION OF RECRUITS.

THIS year's return of recruiting in Manchester gives some very striking facts. Of 5,033 men recruited at the Manchester Dépôt in 1904, only 1,738 were finally approved; of the remainder, 1,962 were rejected by recruiters, and 1,522 were found physically unfit by the medical officer. Thus 69 per cent. were rejected as unfit. The militia returns for 1904, though recruits have to satisfy a less severe test, show 5,150 offers and only 1,600 acceptances. In 1904-5, the number of applicants for the army was 4,554, and only 732 were finally approved; whilst for the militia, 3,813 presented themselves and only 599 were finally approved. Taking the two years together, 18,555 men offered themselves for the army in Manchester, and 14,000, from one cause or another, were rejected as unfit to pass even the moderate test of physical fitness adopted. During the present year entering on September 30th, the number of applicants was about the same as last year, but only 534 recruits were passed into the army and 521 into the militia.

ANALYSIS OF CANNED AND PRESERVED MEATS.

The Markets Committee of the City Council having directed that an examination of preserved imported foods should be made, samples of the following foods were sent to Professor Delépine for analysis and report: Compressed cooked corned beef from two firms, a keg of cooked tripe in preservative fluid, a pint of preservative fluid from a large cask of uncooked tripe, a piece of the tripe after being cooked, and a box of frozen minced veal. The report shows that the twelve tins of American canned meat were sterile, and contained no preservatives except a little common salt, and were practically free from dirt. The minced frozen veal did not contain any preservatives, though the cloth in which it was wrapped contained some borax. Numerous organisms—none of them dangerous—could be cultivated from the hard frozen veal. The tripe itself was found to be in good condition. From the brine many micro-organisms—none of a dangerous kind—were isolated. The tripe brine itself, however, contained boric acid in the proportion of nearly 3 per cent.

POLICE AND FIRST AID.

On October 25th striking testimony was given at the Town Hall to the efficiency of the city police in ambulance work. Seventy-one members of the police received medallions of the St. John Ambulance Association for proficiency in the knowledge of first aid; 60 received second-class certificates, and 106 third-class certificates. At the present time over one thousand members of the police force hold the certificate of the Association. During the past year nearly 3,000 persons sustained accidents, or were attacked by sudden illness in the streets of the city.

HOSPITAL SUNDAY AND SATURDAY SCHEME.

The annual meeting of the Manchester Hospital Sunday and Saturday Fund was held in the Town Hall on October 30th. The total amount of the Sunday Fund in 1906 was £3,663 (in 1905 £3,539), of the Saturday Fund £4,606 (in 1905 £4,528), showing a total increase of £372. A new scheme has been devised and adopted whereby for the purposes of distribution the two funds will be combined as at present, but in other respects will work independently. It appears that the sum collected is far less than in Birmingham and Leeds, and, according to the Chairman's view, far below what ought to be raised in a city like Manchester. A further proviso in the new scheme is that the amount collected by the Saturday Fund shall first provide for the management and maintenance of the convalescent homes, and that the balance shall be handed over to the Sunday Fund. Some time ago a sum of £10,000 was raised by means of a bazaar for the convalescent homes scheme.

Sheffield.

DR. JAMES H. KEELING.

THE retirement of Dr. James H. Keeling from the Jessop Hospital is announced. For long he had been the Senior Medical Officer, and was appointed to the staff at the foundation of the hospital in 1864. During this time he has been a devoted and generous friend of the institution, and has been unstinted in the giving of his time to the hospital and his money to its funds. The Board of the hospital, in a resolution accepting his resignation, expressed their appreciation of his long and valuable services in an appropriate manner. The vacancy in the

medical staff caused by Dr. Keeling's retirement is to be arranged by reverting to the original plan under which the medical staff consisted of three full members. It is proposed to appoint an assistant surgeon also.

National League for Physical Education.

Sir Lauder Brunton visited the city in company with Mr. Compton Rickett, M.P., on October 22nd, and addressed a meeting with the object of founding in Sheffield a branch of the National League for Physical Education and Improvement. The Lord Mayor presided, and the audience was most representative. Amongst the speakers were the Chairman of the Health Committee and the Chairman of the Education Committee.

Midwives and Infant Mortality.

A novel method of fighting excessive infantile mortality has been adopted by the Lord Mayor. On October 29th he gave an entertainment in the Town Hall to the midwives of the city. During tea a selection of music was provided, and afterwards there was a pleasant programme of vocal music. The real object of the meeting, however, was the address which the Lord Mayor gave. He pointed out that the heavy death-rate among children was a black spot in Sheffield. It must be removed, and the remedy rested very largely with the midwives, who after all were able to offer the first word and give instructions as to how children should be managed in their earliest days. In his opinion the excessive death-rate was due to two causes: the first was the ignorance of the mothers, and the second was dirt, which was at the bottom of nearly every disease from which human beings suffered. He went on to develop these ideas, and was followed by Dr. H. Scurfield, Medical Officer of Health, who announced that the Corporation was starting a series of lectures for midwives.

The Lord Mayoralty of Mr. Herbert Hughes is drawing to a conclusion, and it may be said that it has been distinguished by many proofs that he grasps public questions in a common-sense manner; conspicuous among these will be the incident we have just mentioned.

Newcastle-upon-Tyne.

General Medical Council Election.

At a recent meeting of the North of England Branch of the British Medical Association, it was decided to hold a meeting at the College of Medicine, Newcastle-upon-Tyne, at which the various candidates for election as direct representatives on the General Medical Council could express their views before the medical men of the North of England. Dr. Henry Smurthwaite, of St. Mary's Place, Newcastle-upon-Tyne, Honorary Secretary of the Branch, informs us that he has addressed a letter to this effect to all the candidates known to him, but will be glad to hear from any candidate whose name may have been accidentally omitted. The meeting will be held either on Wednesday, November 14th or Thursday, November 15th, at 3 p.m.; the date will be fixed to suit the convenience of the majority of the candidates as indicated in their replies to Dr. Smurthwaite.

South Wales.

The Housing Question.

At Ystalyfera, on October 25th, as the result of an application by the Pontardawe Rural District Council for a certificate from the County Council for the adoption of Part III of the Housing of the Working Classes Act throughout the Pontardawe Rural District, a local inquiry was held at the Public Hall by Sir J. T. D. Llewelyn (who presided), Dr. T. H. Morris (Tylorstown), and Dr. D. J. Thomas (Nantymoel). Dr. W. Williams, the County Medical Officer, and Mr. T. Mansel Franklen, Clerk to the Glamorgan County Council, were also present. Mr. C. B. Jenkins, Clerk to the Pontardawe Rural District Council, stated that the resolution was carried by 11 to 8, 2 members not voting; and put in a number of reports presented by the officers of the Council.

Dr. Thomas, Medical Officer of Health of the Eastern Division, in a report dealing almost exclusively with Ystalyfera, said the old iron company had built houses many of which after the closing of the works became neglected, some becoming a danger to health. People had been attracted to such houses by low rents. Most of the people in the place were employed locally. There were twenty or more houses now being built at Abercrave, and there was not at present any actual great demand for houses, but there might be a few cases of overcrowding. During the last five years 250 new houses had been built in the neighbourhood, some of a superior class, ranging in cost from £250 to £700, and making provision altogether for about one thousand people. There were twenty houses a little outside the boundary, rented at about 5s. 6d. a week. If this class of house were built he did not know whether the tenants at Ystalyfera could pay the rent. The necessary accommodation was being provided without the exercise of the Act. Councillor J. Griffiths, as the mover of the resolution at the District Council, was invited to make a statement. He said that houses of the value of £250 or £700 were no good to working men. How, he asked, could men earning 18s. per week pay for them? The houses in which they could live were rack-rented. Houses that formerly were rented at 7s. a month were now 14s. and 16s. a month, owners taking advantage of the scarcity of accommodation to raise the rents. He desired houses of two or three rooms, built with proper sanitary conditions, and let at no more than 20s. a month. It was useless to wait for private enterprise. They had waited in vain for over ten years. Questioned as to drainage, Councillor Griffith contended that house accommodation was of greater importance to the workmen than a drainage scheme. Councillor J. James, as the seconder of the resolution, said the want of house accommodation made it impossible for the Council to give effect to the recommendations of their own officers in the interest of health and sanitation. Mr. Edmunds, sanitary inspector, said there was overcrowding in several parts of the district. Replying to Dr. Morris, he said there were 28 families overcrowded in a population of 4,488. By Councillor Griffiths: A family comprising parents, a boy of 16, a girl of 14, a boy of 7, and a boy of 4 had been reported by him as sleeping in the same bedroom. It was also a fact that there was a family living in what had been a stable. Mr. T. W. Davies stated that there were many men in his employ who built their own houses, and he admired their thrift. Mr. Percy Player pointed out that about three years ago he had opposed the adoption of Part III of the Act favouring the adoption of the Small Holdings Acquisition Act. After three years' experience Ystalyfera had not benefited, and the demand for accommodation had not been met. The insanitary dwellings were there still, and that was the whole problem. He asked if it was not possible for the Council to put up one or two dozen houses for the sake of the poor people. He had that week been in many of the houses complained of, and he would say that he should not like to stay in them for half an hour. Asked whether he would make the scheme chargeable on the whole area, Councillor Player replied that the preliminary expenses should be paid proportionately by the whole district, and the expenses afterwards by a special rate in the area where the houses were erected. The inquiry then closed. At the Pontardawe District Council on October 25th a resolution was carried by 10 to 9 votes that the Commissioners be asked to apportion the preliminary expenses of the housing scheme over the whole district.

Scotland.

General Medical Council Election.

The first meeting addressed by Dr. Norman Walker as a candidate for election as Direct Representative of the Medical Practitioners in Scotland on the General Medical Council took place in Edinburgh on Thursday afternoon, under the chairmanship of Dr. G. A. Gibson, too late for us to publish a report of the proceedings this week. Dr. Norman Walker will address a meeting at the Palace Hotel, Aberdeen, on Thursday, November 8th, at 5.30 p.m., when the chair will be taken by Professor Stephenson. He will also address a meeting in the Lesser Gilfillan Hall, Dundee, on Friday, November 9th, when Dr. R. Sinclair

will take the chair at 5 p.m. Dr. Walker, it will be remembered, was a candidate in 1901, when he polled 854 votes against 975 cast for Dr. Bruce; on that occasion more than one-third of the constituents did not vote.

Royal Medical Society, Edinburgh.

The 170th session of the Edinburgh Royal Medical Society was inaugurated on the evening of October 26th by an address by Sir Dyce Duckworth, M.D., LL.D.[1] Dr. J. M. Graham, Senior President, occupied the chair, and there was a large audience, including the Principal of the University (Sir William Turner), the President of the Royal College of Physicians (Dr. John Playfair), Professors Sir Thomas R. Fraser and John Chiene, C.B.

The Chairman welcomed Sir Dyce Duckworth as a former President of the Society and as a member of it still.

Sir Dyce Duckworth recalled his connexion with, and indebtedness to, the Royal Medical Society, and gave an interesting account of the distinguished professors of his day and the methods of teaching then in vogue in Edinburgh. In the opinion of some modern educationists a curriculum in the Faculty of Medicine alone would constitute a liberal education. He differed, since he regarded the preliminary studies of the humanities as most important for all who aspired to take a high place in the profession of medicine. A large experience of medical students had long convinced him of the general superiority of those who had enjoyed a good literary and classical education before entering on the physic line. He did not believe that any variety of scientific study by itself could take the place of the humanities, or equally well train the mind. The special topic on which he wished to address the Society was the dignity of medicine. He would not treat of the dignity of the individual member, but of the dignity of medicine as evidenced by its beneficent work as a great social power in any community, and as spreading everywhere a wholesome influence. This was the particular dignity which appeared to him to have declined in recent years. It rested with them to recover and reconstitute that dignity. The value and far-reaching benefits of modern medicine were not recognized as they deserved to be by successive British Governments or by the majority of municipal authorities. The proofs of that were unfortunately not far to seek. The timorous, stingy, and inadequate provisions made for measures of public health, for the care of the insane, for the prosecution of research, and for the sanitary services generally, all bore witness to a mistrust of the high aims of medicine and an indifference to the unselfish and ill-rewarded labours of the profession. How little the public, or any British Government representing it, recognized its duty towards medical education was shown by the fact that it contributed nothing directly, and very little indirectly, towards the maintenance and costly equipment of any medical school in Great Britain, and was content to leave these bodies to support themselves, while their teachers forego all or most of the emoluments to keep them in efficiency. In every other country in Europe their claim was fully recognized and met by grants of public money in acknowledgement of the debt which was due to the beneficence of medicine and those who taught it. Again, they might trace the disregard of their municipal authorities for the progress of medicine or the advantage of the suffering poor, in the cruel extortion of rates from their hospitals, which could so ill afford to pay them. It might have been expected that with the progress of education there would be a corresponding interest in and a growing appreciation of the value of medical science in all communities. The discussions of medical subjects in the public press, so far from enlisting intelligent sympathy with the efforts of their original thinkers and workers, rather tended to place their suffering brethren and patients in a wrong attitude towards their medical advisers, and to induce a captious mood, which sometimes seriously hampered successful treatment. The relations between physicians and intelligent patients were hardly as satisfactory now as they were wont to be, and there was apt to be less confidence, if not at times an actual mistrust on the part of patients, which assuredly did not work out to their benefit. This diminished confidence could not invariably be set down to pretentiousness or undue assumption on the part of the medical adviser. It appeared, indeed, to be a manifestation of the spirit of the age. Even modern medicine, with all its advantages, improvements, and enlarged resources, stood before the public shorn, apparently, of much of the dignity and appreciation it formerly enjoyed. If his contention were admitted, how were they to account for it? First, with respect to themselves, the average modern physician was not, as he formerly was, a man of general scholarship and wide learning. Happily he could point even now to some brilliant exceptions who would have shed lustre on any previous period. The reasons for the decline of the particular learning he referred to were fairly obvious. Medicine, ever a jealous mistress, had now such heavy claims on the attention and devotion of her followers that few men could find the time, means, or energy requisite to pursue abstract studies or indulge in refined scholarship. The progress of the sciences on which their work was based was now so rapid and constant that it had induced or compelled many modern physicians to pursue merely special departments of practice. They recognized the importance of experts in some of these parts of the great whole, but he was disposed to believe that they witnessed now an undue amount of differentiation and an erection of specialities to a degree which was of doubtful advantage to the welfare either of medicine or the public. Again, it might be said that some members failed to commend their profession or its dignity by their inflated pretensions or manner of life, or perhaps in not a few instances by an inherent inaptitude to adapt themselves to their varied social environments. Again, anything approaching extortion or greed must seriously impair the regard which was due to their body; and they might damage their position and usefulness by embroiling themselves as extreme partisans in political or ecclesiastical matters, forgetting that as physicians they lived in a higher ether, above the dust of such strife, and in a spirit of comprehensive catholicity and charity. As regards the aspect of the public towards medicine, he thought the prevalence of the idea that their profession was largely available for gratuitous services by no means added to the respect in which it was held by the public, though as an abstract proposition this might well appear to be the case. The premature announcement of alleged discoveries and cures, or of new methods of treatment and diet, emanating often from men quite void of all clinical experience, was certainly mischievous. These abortive results, hurried out of German laboratories for the most part, after occupying attention for a few weeks naturally came to nothing, yet they were reckoned as failures in the field of legitimate medicine. They must all try and meet the pressing claims of modern medicine as fully as they could, and yet strive to study in some other fields of mental culture. So only should they grow robust in mind, be level-headed, and better fitted to hold their place amongst members of the other great professions.

On the motion of the Chairman, seconded by Sir Thomas R. Fraser, the thanks of the Society were given to Sir Dyce Duckworth for his address.

Veterinary Science and Public Health.

At the opening of the Glasgow Veterinary College on October 17th, Dr. R. M. Buchanan, Bacteriologist to the City, delivered an address on veterinary science and public health. He discussed the various public health aspects of the veterinary surgeon's work as they now existed and as they promised to develop in the future, making particular reference to the question of a pure and abundant milk supply for cities. The insanitary conditions under which milk was often produced and distributed explained the frequency with which it acted as a vehicle of infection in scarlet fever, diphtheria, typhoid fever and diarrhœa, and in view of these facts there could be no doubt that the adoption of systematic inspections of dairy cattle and their surroundings by a competent veterinarian was of urgent importance in the interests of public health, and would ultimately be a source of profit to the producers and vendors of milk. The limited scope of the present regulations and the need for their improvement were matters that very intimately concerned the veterinary surgeon, and pointed to important work in preventive medicine which he would

[1] The address has been printed under the title *The Dignity of Medicine*, and is published by John Bale, Sons, and Danielsson, 83, Great Titchfield Street, London.

be called upon sooner or later to undertake. As to the future of veterinary science, and, by implication, the future of its relation to public health, the country demanded more men equipped for the practice of veterinary surgery. The country was also demanding men for the higher branches of veterinary work, and undoubtedly a university degree would be an excellent means of conferring a hall-mark on such men.

COMPULSORY NOTIFICATION OF PHTHISIS IN GLASGOW.

The Corporation of Glasgow has adopted the minute of the Health Committee which recommended that the compulsory notification of phthisis should be put into force for a period of three years. In moving the adoption of the minute, the convener pointed out that the first essential required in fighting the disease was accurate information. It was estimated that the death-rate in Glasgow from phthisis is 1,200, and that 6,000 persons were suffering from the disease. It was hoped that early notification would enable the sufferers to grapple with the disease more successfully. It was not intended to interfere with the medical practitioner, but the attempt would be made to provide suitable environment. This might in the meantime be done by utilizing the reception houses, which are at present empty. The treatment the patients received then would teach them how to fight the disease. A member expressed the opinion that harm might result from the compulsory notification, as employers would not care to retain a man in their service who was known to suffer from consumption, and therefore the question of treating and supporting the man would have to be met. One of the medical members stated that from an inquiry instituted by the medical officer of health, it was ascertained that 53 per cent. of known phthisical patients did not take suitable precautions with regard to the disposal of their sputum. To ensure that this was done properly, an increase in the number of the sanitary staff would be required. It was definitely stated that there was no intention of building and equipping enormous hospitals or sanatoriums, but simply to utilize existing hospitals and reception houses. On this understanding those opposed to the proposal withdrew their opposition, and the principle of compulsory notification was adopted.

PRESENTATION TO DR. THOMAS REID.

A pleasant little ceremony took place last week in the Windsor Hotel, when a few of his old residents in the Glasgow Eye Infirmary entertained Dr. Thomas Reid, M.D., LL.D., to dinner and presented him with an address congratulating him on reaching his jubilee as a physician, and testifying to the high regard in which he is held by his colleagues in the profession. Dr. Reid was also given a silver bowl and Mrs. Reid a silver salver. The chair was taken by Dr. George Hunter, and Dr. Maitland Ramsey acted as croupier.

SCOTTISH ASSOCIATION OF MEDICAL WOMEN.

The second annual meeting of the Scottish Association of Medical Women was held in the Faculty Hall, Glasgow, on October 27th, when papers were read on the Present Position of Registered Medical Women and on other subjects. The object of the Association is to form a bond of union between the registered medical women in Scotland and to keep them in touch with one another, and further to provide an organization which can deal with questions of interest and importance to medical women.

PROPOSED NEW DISPENSARY IN ANDERSTON, GLASGOW.

In the BRITISH MEDICAL JOURNAL of October 20th reference was made to the proposal to establish a new dispensary in Anderston, Glasgow. We are informed that the following memorial against the proposal has been signed by the medical practitioners in the district:

Proposed Dispensary in the District West of Jamaica Street, including Anderston.

We the medical practitioners in the above district, where we have learned from the newspapers of October 10th and 11th it has been proposed to establish a dispensary, beg respectfully to submit the following information to all who may be interested.

Most of us have been in practice in the district for many years, and know intimately the social circumstances and medical necessities of the people. They are not so poor as has been represented, and although some are improvident, they are mostly in regular employment. The district is in close proximity to the great modern dispensary of the Western Infirmary, which is completely equipped for dealing with all forms of disease.

For the poorest section of the population, which is comparatively small, the dispensary of the Parish Council in St. Vincent Street, near North Street, is open at suitable hours, and the parochial medical officers of the district also visit patients at their homes, and provide medicines and nourishment as required.

We, in the course of our practice in the district, have always considered it our duty to advise patients to obtain special treatment, when necessary, at the dispensary of the Western Infirmary or other medical institutions, and have willingly obtained lines for the admission of serious cases to the wards. In regard to infantile mortality and consumption, we have endeavoured heartily to co-operate with the public health authority.

With the exception of the report in the newspapers, we have heard no expression in the district of any need for a dispensary there, and regret that the promoters of the scheme have not considered the advisability of conferring with us regarding the proposal.

As the new dispensary of the Western Infirmary and the recent extension of the infirmary itself have involved the expenditure of large sums of money, we beg to suggest to the benevolent public that they should direct their subscriptions to that or similar institutions. At the present time, the Royal Infirmary and the other medical institutions in the city stand sorely in need of funds to carry on their beneficent work, and we think it would be a great pity to expend the money of philanthropic people on any new dispensary in this district where it is not required.

Ireland.

ROYAL UNIVERSITY.

THE Senate of the Royal University is to be congratulated upon its effective precautions to prevent a repetition of the disturbances which created so much public excitement in 1905. Then, it will be remembered, there was a riot on the occasion of the conferring of degrees because some persons refused to allow "God Save the King" to be played. The Senate had then no power to punish its undergraduates. It has now ample power to penalize members of the University for misconduct such as that referred to. On the occasion of degree day last week the Senate introduced a large number of "plain-clothes" constables, and the number of tickets issued was limited. There were many policemen outside, and they effectually prevented attempts to storm the University building. Those who were so excluded were very indignant. They endeavoured to hold a meeting on the steps of the Catholic University College, but were prevented by the Rev. Dr. Delany. Then they went to the Medical School, where Dr. Delany was denounced as "an old Whig," and a resolution was passed to this effect:

> That we censure the conduct of the President of the University College in allying himself with the Ascendancy Party, and calling in the police for the purpose of preventing the free expression of our Nationalist views.

Inside the building the proceedings were of the ordinary character on such occasions, but there was no need of interference on the part of those in authority.

UNIVERSITY EDUCATION.

The Senate of the Royal University has passed the following resolution:

> That in the judgement of the Senate of the Royal University, it would be disastrous to the interests of education in Ireland, and gravely injurious to the welfare of the country, to concentrate the control of higher education in one University.

Of course this is intended as a preliminary protest against any proposal by the Commission at present sitting that Dublin University should be the National University. It adds to the difficulty of the solution of the problem.

SIR CHRISTOPHER NIXON, BART.

At the meeting of the Senate of the Royal University on Thursday, October 25th, Sir Christopher Nixon, M.D., Bart., was chosen unanimously as Vice-Chancellor, in succession to the late Very Rev. Monsignor Molloy, D.D. Sir Christopher has received his promotion with the entire approval of his colleagues on the Senate, for he has always taken the deepest interest in the successful working of the University.

A DISPENSARY DOCTOR'S QUALIFICATION.

At the last meeting of the Limerick Board of Guardians a letter was read from the Local Government Board stating, with reference to the recent election of Dr. J. Corboy as medical officer of the Cahircoulish Dispensary District, that Dr. Corboy did not possess the prescribed qualification in vaccination, and was not eligible on the date of the election for the appointment; the election was therefore null and void, and the guardians should take the necessary steps for a new election. One of the guardians present said the qualification in vaccination could be obtained in ten or twelve days, and he proposed that they ask the Local Government Board to allow Dr. Corboy to take out this additional qualification, the doctor paying his substitute in the meantime. The resolution was, after some discussion, adopted by 18 votes to 9.

QUEEN'S COLLEGE, CORK.

At the autumn examination in medicine held by the Royal University of Ireland, the list of exhibitions for distinguished answering at the various primary medical examinations have been distributed as follows: One first-class exhibition to University College, Dublin; one first-class exhibition to Queen's College, Belfast; one first-class exhibition and two second-class exhibitions to Queen's College, Cork; while one second-class exhibition has been gained by a student who studied at both Belfast and Cork. This is exceedingly creditable to the Munster School of Medicine, which, despite its many disadvantages from want of monetary support, makes a good stand when in competition with the various medical schools in Ireland.

DR. LEONARD KIDD.

It is reported that Dr. Leonard Kidd of Enniskillen, has resigned his membership of the Irish Medical Association, of which he was formerly President.

Australia.

PROPRIETARY MEDICINES.

IN view of the recent revelations as to the composition of many "patent" medicines which are being manufactured and imported into Australia, the Federal Minister for Customs has, says the *Australasian Medical Gazette*, exercised the power conferred upon him by the Customs Act, and has drawn up the following regulations in connexion with the Commerce Act:

(*a*) In the case of medicines prepared ready for use, and containing 10 per cent. or more of ethyl alcohol, if the average dose recommended exceeds one teaspoonful (60 minims), the trade description shall set out the proportion or quantity of alcohol in the medicine.

(*b*) In the case of medicines prepared ready for use, and containing any of the following drugs (or the salts or derivatives thereof), viz: Opium, morphine, cocaine, heroin, stramonium, nux vomica, cannabis indica, bromides, sulphonal, trional, veronal, paraldehyde, or any synthetic hypnotic substance, phenazonum, phenacetinum, or acetanilidum, or any allied synthetic substance, chloral hydrate, belladonna, cotton root, ergot, or any abortifacient, the trade description shall set out the names of all such drugs so contained.¶

These regulations will come into force on January 1st, 1907. On the recommendation of the Foods Standards Committee, the Victorian Health Department will enforce similar regulations from the same date, so that the law may be uniformly applied to "remedies" that are manufactured in the State or imported prior to the new provision coming into operation.

India.

THE TREATMENT OF PLAGUE WITH YERSIN-ROUX SERUM.

DR. CHOKSY, special assistant health officer in charge of Arthur Road and Maratha Plague Hospitals, Bombay, has issued a report on the treatment of plague with Yersin-Roux serum at the Maratha Hospital during 1905.

Similar work on this serum was done in India in 1897. Out of 275 patients treated with it 144 died and 129 recovered, giving a mortality-rate of 52.7 per cent., and it was also then found that this latter figure could be lowered further if the patients were treated on the first day of the illness. Dr. Choksy's results are of a similar nature, his conclusions being that it (the Yersin-Roux serum) is the only treatment capable of saving a greater proportion of lives in a certain class of patient, that it cannot favourably influence all types of plague or even the malignant forms of bubonic plague, that in hospital practice where half the number of admissions are advanced too far for any beneficial influence it is of limited value, but that ten to twenty more lives out of every 100 are saved by its use, and that there is a great disparity between the results of treatment on the first as compared with those of the second day. The importance of the early recognition of the disease is therefore evident, as the serum, if good results are to be looked for, should be given at once. A reduction of 10 or 20 per cent. in the death-rate is distinctly good, but it is to be hoped that some new and more efficacious serum may be discovered in the near future.

CORRESPONDENCE.

THE TREATMENT OF FRACTURES.

SIR,—The address delivered by Dr. Bowser at Carlisle, and published in your issue of October 27th, induces me to do what I have long intended and write a note on the treatment of fractures and allied conditions by the method of massage and movement with which the name of Lucas-Championnière is so justly associated. I have had the privilege of hearing M. Lucas-Championnière and of seeing some of his results, and it is in no spirit of disrespectful criticism that I write, for no one could see and hear him without at once acquiring for him a sense of personal respect and regard. My object in writing is to emphasize the principle that I have taught for years, that I have learnt from experience in the treatment of injuries to others and from experience of injury to myself—the principle that passive movement is wrong and active movement is right and essential to a speedy complete recovery.

Dr. Bowser and others who have written on this subject refer with more or less definition to the value of both sorts of movement, but they hardly, as I think sufficiently discriminate in their writings between the effects of the two totally different proceedings.

Let us take a recent fracture, or dislocation, or sprain, or any such injury, and for comparison picture to ourselves a similar injury as an open wound, so that we can see the effect of passive as contrasted with active movement.

Here I must digress for a moment to protest against any suggestion that the fundamental principle of rest, of which John Hilton was the great modern apostle, is otherwise than true. The principle is true, the error is in the misapplication.

No better illustration of the truth of *Rest and Pain*, the most valuable perhaps of all books on the principles of surgery, could, I think, be found than the difference between active and passive movement.

In an injury of the kind under discussion we have young tissue of repair in some stage according to the date of the lesion. Now the ultimate perfection of restoration depends largely upon a minimum of cicatricial tissue as a bond of union. I mean that, given sufficient uniting material to give solid repair, the less there is in the nature of "provisional" or "ensheathing" substance around the breach the better. Any excess beyond that actually required for a junction impedes muscular movement and interferes with vascular and nervous supply.

The next point is that every disturbance or injury of the young cicatricial tissue increases the amount of scar because it is to all intents an additional or fresh wound. Hence each such disturbance, with its resulting crushing of granulation tissue and extravasation of blood, means ultimately a denser and more extensive cicatrix.

Now, what are the means by which we may take advantage of the plasticity of young material to give full range of mobility and at the same time avoid the risk of increasing cicatricial tissue which will ultimately bind down structures that ought to be mobile, and thus cause rigidity? The answer is, I think, obvious: "*active* movement within the limits of pain" gives the natural means with the minimum of scar, because pain is the indication of injury, and therefore movement short of pain implies absence of injury to the tissue of repair. Dr. Bowser notes as "imperative" that the *passive* movement must be painless, but I doubt whether this is attainable in

practice. Passive movement by the surgeon or masseur or nurse always in practice goes just beyond, or far beyond in some cases, the borderland of pain, and hence injury is inflicted on the young tissue, and the scar material is increased.

It is practically impossible, no matter how much caution may be enjoined, to stop short of the pain boundary in passive movement, and pain is the proof that rest is disturbed, and repair delayed and made imperfect.

If the patient does all the movement himself, he will instinctively stop when pain begins, and he should be told that this is the true guide; there will then be no tissue injury, no increase in scar material, no matting down, and no long-lasting or permanent stiffness beyond that which is a necessary result of the individual injury.

Of the value of massage from the first, used with Lucas-Championnière's rules, I have no doubt. Of the value of early *active* movement I have no doubt; of the danger and harm resulting and likely to result from *passive* movement as it is employed I am sure.

I will only add that the surgeon who proposed to adopt M. Lucas-Championnière's principles should observe his selection of suitable cases, for by no means all cases are suitable for this treatment. Early massage and early active movement are quite compatible with the great principle of rest as an essential for perfect repair, and of the value of pain as an index of something wrong.

I should therefore like to make the rule of treatment of these injuries early massage and early *active* movement, while passive movement and prolonged fixation are reserved for special cases in which previous mismanagement or other condition has led to stiffness or to liability to malposition.

The importance of the subject and the failure of many writers to sufficiently emphasize the distinction between *active* and *passive* must be my apology for this somewhat rudimentary communication which is meant to italicize rather than to traverse parts of Dr. Bowser's address.—I am, etc.,

Victoria University, Manchester, Oct. 29th. G. A. WRIGHT.

THE INFLUENCE OF FEEDING IN THE TREATMENT OF TYPHOID FEVER.

SIR,—May I point out that Dr. F. J. Smith, in his paper dealing with the question of better food in typhoid fever, which appears in the JOURNAL of October 20th, p. 1014, has post-dated his first published contribution to the question by some four years? In the JOURNAL for 1897, vol. i, p. 302, there is a letter from Dr. Smith in which he is so kind as to say:

> May I congratulate Dr. Barrs on his excellent article on the dieting of typhoid patients? The practice which he so soundly and sensibly advocates in its entirety is one that I have for some years followed in a hesitating and tentative manner in the wards of the London Hospital. . . . May I be allowed to express my absolute agreement with every detail of his arguments? In meaning they are identical with those I have used at the bedside.

It is extremely gratifying to me to know that after the lapse of nearly ten years Dr. Smith finds himself able to rely upon the same arguments and the same practice as those set out by me in the JOURNAL in 1897, vol. i, p. 260. Like Dr. Smith, I have seen no reason whatever to change either the argument or the practice of nearly ten years ago.—I am, etc.,

Leeds, Oct. 23rd. ALFRED G. BARRS.

SIR,—The paper by Dr. F. J. Smith read at Toronto, and published in the BRITISH MEDICAL JOURNAL of October 20th, on the subject of typhoid fever makes one wish for a Solomon to decide where doctors disagree. One cannot but feel a shock on reading it.

We have the calm assertion that out of 113 cases 24 died; one case in every five died. Case II died on the thirty-eighth day of the disease. He had had solid food given on the thirty-fifth day. Case III died on the thirteenth day of the disease after being fed for a week on solid food. Case IV died on the ninth day from haemorrhage, and had had bread and butter for five days. To the remaining 20 cases no "food" had been given, and consequently they required no comment. What had they been fed on? Presumably they had been fed on milk, though, to quote from Dr. Smith's paper, "the teaching is still milk, milk, milk."

I must beg to differ from that statement, for the teaching in London medical schools in the past few years has been much more in favour of whey and meat juices than milk. Dr. Gee, at St. Bartholomew's Hospital from 1901 till his appointment as Consulting Physician, taught whey feeding.

Dr. Ewart, in his admirable lecture at St. George's Hospital, published in the BRITISH MEDICAL JOURNAL, December 9th, 1905, said he had entirely substituted whey for milk for some years. I can appreciate Dr. Smith's "sympathies being entirely with the patient," for I know no harder thing in treatment than to resist the appeal of a hungry person for food. But does one yield to the appeal of a person in pain and present him with a razor to end it; or does one yield to the craving of a diabetic for bread?

In the *Lancet* of November 2nd, 1901, I gave a full record of 73 cases of typhoid fed on whey with a death-rate of 2.7 per cent. Since then I have had about 65 cases, mostly at Beacon Hill Hospital, with four deaths, two of which occurred within forty-eight hours of admission from perforation. Three of these deaths occurred during my absence from home, so can scarcely be recorded as my own cases. When one has thus seen the good effects of whey feeding, and the general comfort to the patient thus obtained, it is terrible to think that a medical man can advocate feeding which produces a death-rate even higher than that of the London Fever Hospital fifty-five years ago.—I am, etc.,

PRIDEAUX SELBY, M.R.C.S., L.R.C.P.Lond.

Teynham, Oct. 26th.

INFANTILE HYPERTROPHIC STENOSIS OF THE PYLORUS.

SIR,—Dr. Harold J. Stiles, in his very interesting paper on this subject published in the BRITISH MEDICAL JOURNAL of October 13th, states (p. 946) that Abel claims to have had the first successful case of gastro-jejunostomy for this condition. This claim does not appear to be a valid one. Abel's patient was operated on by Kehr on October 28th, 1899. Previous to that date two successful gastro-jejunostomies had been performed on infants, one by Löbker in July, 1898, and one by Fritzsche in January, 1899. It appears, therefore, that to Löbker must be given the credit for the first successful gastro-jejunostomy for infantile hypertrophic stenosis.

Dr. Stiles remarks that there is, unfortunately, no record of Abel's case after the thirteenth day. In my small work on *Gastric Surgery*, published this year, I give the after-history of these three cases as kindly given to me by Dr. Abel and Professor Kehr. In December, 1905, these children were in the enjoyment of perfect health, and had developed normally in every respect. It is, I think, of great importance to have this evidence that gastro-jejunostomy does not interfere with development, and that the relief afforded is so permanent.—I am, etc.,

London, W., Oct. 27th. HERBERT J. PATERSON.

OSTEOGENESIS IMPERFECTA.

SIR,—I read with interest the paper on the above subject communicated by Drs. Lovett and Nicholls to the Section of Paediatrics at the annual meeting, and published in the BRITISH MEDICAL JOURNAL of October 13th. May I offer a few comments on their interesting communication?

The essential features of the condition to which the term "osteogenesis imperfecta" is applied are summed up by the authors as follows: "The process of bone formation everywhere is checked and of an abnormal kind. Metaplasia of cartilage is much greater than normal; while apposition of bone is much less. Formation of periosteal bone is abnormal and incomplete. Deformities of the bones incidental to the disease are common and are of two kinds. (*a*) deformities due to imperfectly-united fractures, and (*b*) curving and bending of the bones due to the disease itself, a condition which led to the confusion of the disease with rickets." With regard to the etiology of the disease, the authors point out that nothing is known beyond the fact that there is a strong element of heredity. The study of the literature and of their own admirably recorded case has led the authors to conclude that the imperfect bone formation is the result of a general disease

of unknown character, and has led them to suggest that in such cases the placenta should be preserved for examination.

It is, I think, advisable to consider the possibility that this imperfect bone formation, which is in a sense inherited, is a result of a faulty dietary in the parents. In a series of researches recently carried out in the physiological laboratory of Edinburgh University we have found that the excessive use of a meat diet in the parents induces in the offspring a condition of the bony system to which the term osteogenesis imperfecta may fittingly be applied. The changes are of a rachitic-like character, and were demonstrated by Dr. Dingwall Fordyce at a recent meeting of the Physiological Society. The anatomical changes are similar to those seen in advanced cases of rickets in the human subject; microscopically, the histological appearances are not those of rachitis, the epiphysial lines not presenting the toothed appearance characteristic of that disease. This condition of the osseous system in animals is associated with marked changes in other organs, for example, thyroid gland, and a consideration of the appearances present in this and other glands is in all probability essential for the correct interpretation of the skeletal changes. It is possible that changes of a similar character would be found, if looked for, in the tissues of children affected with this disease. That this is probable is, indeed, suggested by two statements in the authors' paper, namely (1) a cretinoid type of face is frequently seen in this condition, and (2) the internal organs of the case reported on by the authors showed nothing abnormal *except small adrenals*. None of the *post-mortem* records of this disease in the human subject are sufficiently complete to allow of a definite opinion being expressed as to the similarity of this disease to that which may be experimentally induced in animals by an unphysiological dietary. Further evidence may establish this identity and prove that the disease is essentially a result of a faulty diet. To this end it would appear advisable that in future records of the disease particular attention should be directed to the minute structure of such organs as the thyroid, adrenal, and other glands, due regard being also paid to the weight of these organs in relation to the total body weight.—I am, etc.,

Edinburgh, Oct. 19th. CHALMERS WATSON.

THE ORGANIZATION OF BRANCHES AND DIVISIONS.

SIR,—The proposals for alteration in the future working of our Association contained in Dr. Frederick Smith's letter are very important, and seem to me to require the support of those arguments in their favour which Dr. Smith has apparently reserved until some opposition to them appears.

In favour of the Divisions having turned over to them the social and professional aspects of our Association work, it might perhaps be expected that it would be shown that they had well done the portion of work assigned to them since the reconstitution of the Association—the business part; but this is just what it appears from Dr. Smith's letter they have not done, the result of their labours being, according to him, a huge mass of crude material sent up to the Representative Meeting which only chairmen like Sir Victor Horsley or Dr. Macdonald can deal with. Dr. Smith's comparison between the digestive powers of a Divisional meeting and a Branch Council meeting seems hardly fair; it should be either between a meeting of Branch members and a Division, or between the Representative Meeting and the Branch Council. (Or are we to understand that meetings of Branch members are to be done away with, except the annual one for the election of the Branch Council?)

I see it was stated at the Representative Meeting that not 10 per cent. of members of the Association turned up at meetings of Divisions, and it was also stated that the present system of Divisions was practically killing all interest in the British Medical Association so far as Lancashire was concerned. These are not encouragements to place new duties on the Divisions.

Then with regard to the Branches having the business part assigned to them, I have always understood that the very *raison d'être* of the Divisions was that the Branches did not do the business part of Association work satisfactorily. Has the experience of the last three years shown that this is a mistake, and that the Branches are after all, better fitted to do the work than the Divisions?

During the Representative Meeting in London I heard it suggested that the experiment we have been trying in dual government was a mistake, and a very expensive one, and some had even the boldness to suggest that the game was hardly worth the candle.

Shall I be deemed very presumptuous if I suggest to the Senior Secretary of the Metropolitan Counties Branch that the subject is one worthy of discussion at a meeting of members of his Branch (not a Council meeting) where both Sir Victor Horsley and himself would have an opportunity of fully explaining their views on this novel proposal?—I am, etc.,

London, N., Oct. 27th. H. NELSON HARDY.

SIR,—With all deference I would point out some confusion of thought in Dr. F. J. Smith's timely letter. He says one man at a meeting of a Division may hesitate to express his views and so a vote is carried which does not express the opinion of the majority, etc. But when a man represents his Division on a Branch Council he will fearlessly tackle an opposing majority.

The fallacy lies in supposing the man in the two cases to be the same. Whereas the former is one of twenty or thirty who come to obtain information about, and to discuss the bearings of any proposition, the latter is one who has looked into the subject. He has heard the discussion and has made up his own mind, and he knows the feeling of the Division, even of those who seldom attend meetings. The two are by no means identical.

How, let me ask, can any man represent his Division if these business matters are not discussed in the Division? The management of the Association rests ultimately upon the member. It is a pure democracy.

Far from removing matters of business from the Divisional meetings, every subject of importance should come there for discussion. It may, however, be admitted that there are certain kinds of business which need not be referred to Divisions, but, when those referred have been decided on, the decision should be accepted.

As to the "huge mass of crude material" brought up at the Representative Meeting, any who will go through the report of July, and refer to the by-laws at the same time, will see that it was mismanaged. After the balance sheet for 1905 had been discussed and approved of by the Annual Meeting, time was wasted in going all over it again at the Representative Meeting. Then the estimate for the present year was discussed uselessly, for it could not then be modified. The alterations of by-laws were discussed at length, although, if the theory of the constitution had been strictly carried out, the Representatives had only to record their votes.

Finance is certainly not one of the subjects to be referred to the Divisions, nor, consequently, to the Representative Meeting, which is (supposed to) represent the Divisions. What we seem to want is a clear division of labour among the various Committees and Councils. This will not, however, be attained by any violent upheaval or transformation, but by thoughtful adaptation of existing rules, and, above all, by a careful adherence to the by-laws and articles regulating procedure.—I am, etc.,

London, W., Oct. 27th. GEORGE CRICHTON.

THE GENERAL MEDICAL COUNCIL AND THE PRESIDENT'S ADDRESS.

SIR,—In reply to the letter of "Professional Union" in the BRITISH MEDICAL JOURNAL of October 27th, censuring mine in that of October 20th, I desire to say most certainly "it is possible to reform the General Medical Council into a body capable of promoting the unity of the medical profession." By that I mean in its own special line, which is that of education.

But any really useful work by the General Medical Council can only occur when its constitution is radically altered, when each member is an independent representative, and not as in so many cases at present, a delegate sent to guard the interests of his own special Corporation, not even elected by the whole of the members of that particular Corporation, but the nominee of a small clique.

Such an arrangement surely tends to nothing but disunion. A son trying his own father. What an

injudicial position! Has "Professional Union" never heard of the one-portal system of examination, which was encouraged some twenty-two years ago by an enormous majority of those on the *Register* and by the British Medical Journal? A scheme which was within a hair's breadth of accomplishment, but, unfortunately, at the last moment Lord Carlingford's Bill was crowded out owing to the extraordinary pressure of Government business. Would not the one-portal system be a most distinct and important advance in the direction of professional unity? Not unity in every direction, but in the particular line which comes immediately under the supervision of the General Medical Council. Instead of, as now, twenty very varying standards of examination, there would be only one. The Council, if reorganized, could carry through such a matter if it chose to exert itself and obtain increased powers to carry out its decisions.

On one point, "Professional Union" (who seems a much greater admirer of the existing constitution of the Council than his name would warrant) and I agree entirely, and that is in admiration of the splendid work for the good of the whole calling accomplished by the British Medical Association. That it has no legal status at present is a weak point. It is my most earnest hope that this may soon be remedied, and a Charter granted.

The British Medical Association will be the first body in the twentieth century of truly imperial influence, stretching to every corner of the empire, supporting its units, supported by them, a great power for attack, defence, and advancing professional and public good. In fact, it will be the body trying to achieve the unity of the medical profession in every direction, and being founded on healthy lines will probably succeed.—I am, etc.,

London, W., Oct. 23th. HERBERT SIEVEKING.

AN IRISH DISPENSARY DOCTOR ADMITTED TO THE WORKHOUSE AS A PAUPER.

SIR,—I daresay many of my professional brethren will be as much shocked as I was this morning on entering the Cootehill Union Workhouse, of which I am the medical officer, when the master informed me that Dr. Carr, late medical officer of the dispensary district in which I reside, had been admitted the previous evening on a ticket from the returning officer.

The history of the case may be told in a few words. Dr. Carr is an old man, probably over 70 years of age. His salary as dispensary doctor was £100 a year. He was also registrar of births, deaths, and marriages, but being unable, owing to failing sight, to discharge the duties of the latter office he was deprived of it by the Registrar-General a year ago. The same cause had sufficed to deprive him of any small private practice he may have had.

During the winter of 1905-6 he was off duty for five or six months owing to dilated heart, and when he resumed an inspector of the Local Government Board was quickly on the scene, and he was compelled to resign or be dismissed. He chose the latter course, and on Friday, October 26th, made a pathetic appeal to the Board of Guardians for superannuation. This was refused, and his small means being exhausted, he had to enter the workhouse.

Needless to say I shall not allow him to remain there as a pauper, but the fact of his being there speaks volumes for the treatment of the Irish Poor-law medical service by their new masters.—I am, etc.,

T. H. MOORHEAD, M.D.,
Cootehill, Oct. 27th. President Irish Poor-Law Association.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

SIR,—I beg to thank you for your courteous reference to two points mentioned by me in a paper on the medical inspection of children attending elementary schools. These are the only schools attended by many of the children of the empire, and it seems as if school were the only place to teach many of these citizens of to-morrow certain facts. How many young mothers know that the chances of life are 15 to 1 in favour of the baby nursed by its mother, as compared with the baby not nursed by its mother? How many people have a saving sense of the fact that a baby's chance of life depends directly on warmth, cleanliness, and good air to breathe? How many people really know when it is safe to give a baby solid food, or fruit? These things should be part of "the foundation of education," and a girl of 12 years old had far better learn these things, and have the beginnings of a health conscience, than be taught certain geographical and mathematical facts.

Last year, travelling from Kingston to Toronto, I had as fellow passengers a mother and her little daughter, 7 years old. The little girl had a doll, and the doll was provided with a glass feeding-bottle, with rubber mouthpiece and all, quite complete! I think the manufacturer of doll's feeding-bottles is "an enemy to the republic." That was a bad object-lesson for the little girl, and it would have been well to have it corrected when she went to school.

In regard to the second point, "the man in the street" has not time to learn bacteriology; but he has time to learn that when a man gets typhoid fever the cause was in the water or in the milk or other food that he put into his own mouth himself a short time before he was taken ill. When he once has mastered this fact he will probably be as careful as are the Japanese soldiers, or he will insist on having his supplies of these necessaries of life above suspicion. He should know that there is such a cause for every case of typhoid, and it does not need a Sherlock Holmes to find it out.

Not long ago I sat at dinner beside an eminent Canadian lawyer. He turned the conversation on typhoid fever. "The real cause is bad drains, isn't it?" he said vaguely. I thought it was my duty to tell him that typhoid was caused by a certain germ, and unless that germ was in his water or in his food or on his fingers he would not likely get typhoid from drains.—I am, etc.,

Toronto, Oct. 15th. HELEN MACMURCHY.

THE RUBBER TEAT AND DEFORMITIES OF THE JAWS.

SIR,—Nowhere, at the least not anywhere where babies are fed otherwise than in Nature's own way, can Dr. Pedley's paper in the British Medical Journal be without interest and grave significance. It would seem that he has proved his thesis to demonstration. All of us must remain indebted deeply to him for his showing us how some prevalent deformities, and the physiological disabilities and pathological possibilities which result from them, may be prevented, to the decrease of disease and to the increase of happiness. No medical man would encourage any feeding of babies but from the breast. But such feeding in particular cases is not always possible. May we not hope that improved rubber "teats" may soon be procurable, made as Dr. Pedley would have them made, that is, so constructed as to obviate so far as may be in their use the dangers which he had so clearly pointed out?—I am, etc.,

Birmingham, Oct. 28th. JAMES SAWYER, M.D., F.R.C.P.

OBITUARY.

THOMAS KIRSOPP, M.B.Lond., M.R.C.S., L.S.A.,

CHAIRMAN OF THE DARLINGTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION.

WE regret to announce the sudden death of Dr. Thomas Kirsopp, at his residence in Darlington on October 23rd. He was actively engaged in his practice until a few hours before his death.

He was born at Hexham, Northumberland, in 1857, was educated at Durham Grammar School, and received his medical education at St. Bartholomew's Hospital, London. He became M.R.C.S.Eng. and L.S.A. in 1879, graduated M.B.Lond. in 1882, and was Lawrence Gold Medallist. Before starting in practice in Darlington nine years ago he was Assistant House-Surgeon at the Sheffield General Infirmary, Resident Medical Officer at the York Dispensary, and for a time in practice at Horsham. He took a keen interest in the Darlington Medical Society, for which he was an active secretary, and when this society was incorporated with the Darlington Division of the British Medical Association at the commencement of the present winter session he was elected Chairman.

His particularly genial, kind manner won for him a large circle of friends in Darlington, and his relations with his medical brethren were marked with a strict sense of uprightness which made him a universal favourite. Amongst his patients he will be very much

missed, his bright, cheery, and sympathetic manner being extended to one and all, and the poorer he quietly assisted by many kind acts beyond his professional services. He had a cultivated mind, and in addition to a thorough knowledge of his profession possessed a wide acquaintance with the classics and literature in general which rendered him a charming companion.

WILLIAM SEDGWICK, M.R.C.S.Eng., L.S.A.Lond.

A CAREER of hard work and success was closed on October 21st by the death of Mr. Sedgwick at Acton, Middlesex, at the age of 85. He was the son of Mr. T. Sedgwick, a West India merchant, and was born at Highbury Place in 1821. He was educated privately, and was apprenticed to Dr. J. Challice, of Bruton Street, Berkeley Square, whose partner was Dr. R. Druitt, the well-known author of the *Surgeon's Vade Mecum*, of which Mr. Sedgwick corrected the proof-sheets. He studied at University College Hospital, and "dressed" for Mr. Liston, and thus had charge of the first patient upon whom, in London, an operation under an anaesthetic was performed. He became M.R.C.S. in 1845 and L.S.A. in 1848; and from 1846 to 1851 made several voyages in medical charge of troops to and from India and Hong Kong via the Cape. He also spent one winter session at the Paris medical schools. He eventually settled in general practice in Marylebone. He devoted much attention to the study of hereditary disease, and between 1861 and 1867 published articles on the subject in the *British and Foreign Medico-Chirurgical Review*. These papers Darwin described as most valuable and interesting.

After the great cholera epidemic of 1854 in London, Mr. Sedgwick studied the chemical questions associated with that disease, and published a book on *The Nature of Cholera as a Guide to Treatment*, 1856, which was reissued ten years later. He also contributed an article on Some Physiological Errors Connected with Cholera to the *Lancet*, 1871, and three papers to the *Royal Medical and Chirurgical Society's Transactions*; 1868, 1871, and 1886, dealing with the suppression of urine in cholera, the temporary glycosuria following cholera, and the chemical pathology of respiration in cholera. In this last paper he showed that the proportion of oxygen absorbed in cholera is greatly increased. This paper appears to have induced the late Sir G. Johnson to modify considerably his theory respecting defective oxygenation of the blood in cholera. Mr. Sedgwick noticed other aspects of the same wide subject, Cholera and Chemistry, in his Presidential Address to the Harveian Society in 1889. He was a Fellow of the Royal Medical and Chirurgical Society for over forty years and had served on its Council.

For thirteen years he was Surgeon to the St. Marylebone Provident Dispensary and to St. Saviour's Hospital for Women and Children, Upper Holloway, and for twenty years was Honorary Medical Officer to an orphan girls' home in Marylebone. He was a strong Churchman, and trustee to the church of St. Cyprian, Park Place. He retired from practice a few years ago, and had since resided at Acton. Mr. Sedgwick married in 1869 Norah, daughter of Dr. Challice, who survives him. He leaves also two sons and a daughter.

GEORGE THOMSON, M.D.Aberd., J.P.,

CORONER FOR OLDHAM.

WE regret to announce the death of Dr. George Thomson, of Oldham. Dr. Thomson suffered from a cardiac affection for some months. Some time ago he went to Germany for the benefit of his health, and died there on October 18th.

Dr. Thomson studied at Aberdeen University, where he took the degree of M.B. with honours in 1870, and that of M.D. in 1872. He settled in Oldham about thirty-four years ago, and became partner with the late Dr. Alexander Thorn Thomson. A few years afterwards the latter retired, and Dr. George Thomson carried on the practice by himself. In 1877 a charter was granted to Oldham to hold a separate Court of Quarter Sessions for the municipal borough, and Dr. Thomson was appointed Coroner. Besides carrying on a large practice, Dr. Thomson was Honorary Consulting Surgeon to Oldham Infirmary and Public Vaccinator, and was a Justice of the Peace. He contributed papers on medical subjects to *Brain*, *Lancet*, *Medical Chronicle*, and other journals. He was Chief Surgeon of the St. John Ambulance Brigade, and an Honorary Associate and Knight of Grace of St. John of Jerusalem, and during the African war he took an active part in getting together a body of men who did excellent service during the war.

THE death took place on October 13th of Dr. RICHARD ORFORD LAMPREY, a medical man at one time very well known in South-West London. Dr. Lamprey, who became L.R.C.P. and L.R.C.S.Edin. in 1873, was a member of an old Devonshire family settled in Ireland. His father was the Rev. George Lamprey, of Ballintemple, co. Wicklow, and his grandfather an alderman of the city of Dublin and for many years its coroner. He had suffered for some years from an internal complaint which practically compelled him to give up work, but up to the time that he ceased to be able to get about freely he played a considerable part in the public affairs of Wandsworth, where he was much respected. He also carried on a large practice, taking special interest in gynaecology. He was buried at Corsham, Wiltshire, on October 16th.

THE death is announced of Dr. WHITLEY BLAND STOKES, who had practised in South Kensington for some dozen years past. He was a student of Trinity College, Dublin, and obtained the diploma of L.R.C.S.I. in 1883. Two years later, having graduated as M.B. of Dublin University, he joined the Army Medical Service. In India he contracted dysentery and suffered also from typhoid fever, and being invalided home, he eventually retired with the rank of Surgeon-Captain, but with his health so broken that for a long time he was quite unfit for any work. As soon as he was well enough Dr. Stokes resumed his medical studies at St. George's Hospital, and in 1895 became M.A., M.D. of Trinity College, and M.R.C.P.Lond. Four years later, when he had already settled down to practice, he took the Fellowship of the Royal College of Surgeons of England. He served St. George's Hospital as Medical Registrar, and later on he accepted the posts of Anaesthetist to the Throat Hospitals in Golden Square and Great Portland Street, and of Consulting Medical Officer to the Brompton Provident Dispensary. At one time also he was Assistant Master of the Coombe Lying-in Hospital, and Assistant Physician to the Hospital for Diseases of the Heart and Chest. As a medical man Dr. Stokes was not less popular and esteemed amongst his colleagues in South Kensington than amongst those who relied on his professional services for his standard of professional rectitude was high and he was incapable of doing anything in the least dishonourable. In addition he was one of the pleasantest of companions, being in every way an excellent specimen of the Irish race and fond of sport of all kinds, especially of yachting, fishing, and golf.

We regret to announce the death of Dr. JAMES ROBERT HILL, of Fenstanton, Streatham, at the age of 62. His student career was passed at St. Mary's Hospital, where he was House-Physician and House-Surgeon in 1867. He obtained the diploma of M.R.C.S.Eng. in 1866 and that of L.R.C.P.Lond. in 1868. He was the son of Dr. R. Gardiner Hill, whose name is well known in connexion with the history of the reform in the treatment of the insane and the initiation of the non-restraint system at Lincoln in 1835. Dr. R. Gardiner Hill was proprietor and medical superintendent of a private asylum at Earls Court, and at his death James Robert Hill undertook its management. He was then engaged in private practice and was holding the appointment of Medical Superintendent at the City of London Union, Holloway. The asylum was afterwards removed to Peterborough House, and subsequently to Fenstanton, Streatham. His loss as its Medical Superintendent will be felt by all connected with it, as neither patients nor members of the staff could fail to appreciate his uniform kindness and sympathy. He also took the keenest interest in, and devoted much time and labour to, the work connected with the Metropolitan Asylums Board, of which he had been a member for fourteen years. He acted at different times as Chairman of the Asylums and Hospitals Committees and of the Committee of the Board. By his colleagues on the Board, his opinion, which once formed was ably defended, was always valued, and his

relations with the officers and staff of the different asylums and hospitals was always marked by courteous consideration. He could appreciate their merits, and was not afraid to censure for faults, if deserved. To all he was a friend if help or counsel was needed. He died from cancer of the bowel after a short but painful illness, which he bore with great fortitude.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

Romanes Lecture, 1906.

The Romanes Lecture will be delivered by William Paton Ker, M.A., Fellow of All Souls College, Professor of English Literature, University College, London, in the Sheldonian Theatre on Saturday, November 24th, at 4 p.m. Subject: Sturla, the Historian. Mr. Ker has been appinted in the place of the Right Hon. Lord Curzon of Kedleston, M.A., Hon. D.C.L., who felt himself reluctantly compelled to resign the appointment.

Degrees Conferred.

In a Congregation held on Saturday, October 20th, the following medical and scientific degrees were conferred:

D.M.—W. L. M. Day, Exeter College.
B.M., B.Ch.—H. S. Souttar, Queen's College.
D.Sc.—J. A. Brown, New College.

D.P.H. Examination.

The date of this examination, which was wrongly given last week as November 10th, is Tuesday, November 20th.

CAMBRIDGE UNIVERSITY.

The Examination for the First and Second M.B. and for the Third M.B., Part I., begins on December 10th. The Third M.B., Part II. begins on December 11th. The names of candidates for those Examinations must be sent to the Registrary on or before Saturday, November 24th.

The following degrees were conferred on October 25th: M.D.: R. E. Sedgwick, Gonv. and Cai. Inceptor in Surgery, A. G. Wilson, Gonv. and Cai.

UNIVERSITY OF EDINBURGH.

UNIVERSITY COURT.

Degree in Pharmacy.—The University Court met on October 22nd, when a draft ordinance (regulations for the degree of Bachelor of Pharmacy) was submitted. The draft was directed to be transmitted to the Senatus and the General Council for consideration.

Psychology.—On the recommendation of the Senatus, the Court approved of courses to be delivered during the current academical year by the Combe Lecturer on Psychology (General and Experimental), Dr. W. G. Smith.

Laryngology.—It was agreed to appoint Dr. Logan Turner, surgeon in charge of the Ear and Throat Department, Royal Infirmary, to be University Lecturer on Diseases of the Larynx, etc., in room of Dr. R. McKenzie Johnston, resigned.

Degrees.—In the notice of the Graduation Ceremony at Edinburgh on October 20th (British Medical Journal, October 27th, page 1160) it should have been stated that Hugh Jamieson, M.D. Edin., M.R.C.P.E., was capped B.Sc. in Public Health.

THE UNIVERSITY OF SYDNEY.

Diploma in Public Health.

The Senate of the University of Sydney has decided to grant a special diploma in public health. The by-laws dealing with this matter have been presented to the State Parliament in accordance with law. These state that the diploma should testify to the candidate's proficiency in all the branches of study, scientific and practical, which are necessary for the proper performance of the duties of a medical officer of health. The examination is to be in two parts, one relating to the general principles of sanitary science; the other relating to State medicine and to the appliances of pathology and sanitary science to public health.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An ordinary quarterly Comitia was held at the College on Thursday, October 25th, the President, Sir R. Douglas Powell, in the chair.

Jenks Scholarship.

The President announced that the Jenks Scholarship had been awarded to Godfrey Alan Walker, of the London Hospital.

Membership.

The following gentlemen were admitted Members of the College: Charles Henry Benham, M.D. Lond.; William Haig Brodie, M.D. Edin., F.R.C.S. Eng.; Peter Kevin Byrne, M.D. Lond., L.R.C.P.; Ernest Nicholson Cunliffe, M.D. Vict.; Henry Devine, M.B. Lond., L.R.C.P.; John McCrae, B.A., M.B. Toronto, L.R.C.P.; Carlton Oldfield, M.D. Lond., L.R.C.P.; Alexander Corsar Sturrock, M.A., M.D. Edin.

Licences.

In conjunction with the Royal College of Surgeons, licences to practise were granted to 122 gentlemen.

Communications.

The following communications were received:

1. From the trustee of the will of the late Sir George T. Michael O'Brien, K.C.M.G., informing the College of a bequest by the testator of the reversion of £1,000 to a hospital for the treatment of the blind, and of a like bequest to a hospital for the treatment of cancer; the hospitals to be selected by the President of the College. The bequests were accepted, although the trust moneys are not likely to be available for a lengthy period of time.

2. From the Clerk of the Privy Council, August 20th, announcing the further postponement for a year of the International Congress on Gynaecology at St. Petersburg, which was fixed for September, 1906.

3. From the Secretary of the College of Surgeons, reporting certain proceedings of their Council on July 26th last and on October 11th.

4. From Jonathan Hutchinson, Esq., F.R.S., thanking the College for the honour which they conferred on him by awarding him the Moxon Medal.

5. From Thomas Hodgkin, Esq., D.C.L., of Barmoor Castle, offering for the acceptance of the College a photo-engraving of his uncle, the late Thomas Hodgkin, M.D., of Guy's Hospital, a Licentiate of the College of 1825. The gift was accepted and a vote of thanks passed to the donor.

Reports.

The Quarterly Report of the Finance Committee, and the Quarterly Report of the Examiners for the Licence on the results of the July examinations, were received.

Committee of Management.

Dr. Norman Moore, who retired by rotation, was re-elected a member of the Committee of Management.

Library.

Books and other publications presented to the Library during the past quarter were received and thanks returned to the donors.

CONJOINT BOARD IN ENGLAND.

The following candidates have been approved for the membership of the Royal College of Surgeons and the licence of the Royal College of Physicians:

E. H. Adams, E. Alban, E. Balthasar, A. L. Daly, G. B. Bartlett, H. St. Bennett, A. W. Berry, M. Birks, P. Black, G. O. Blandford, L. M. Bowkett, J. E. M. Boyd, G. G. Butler, W. E. Carswell, C. Cassidy, J. B. Close, A. G. Cole, H. G. Cole, I. R. Cook, J. Couper, S. B. Couper, P. P. Daser, H. R. Davies, G. H. Dive, F. C. Doble, L. Doudney, S. F. Dudley, A. G. Dunn, L. Edwards, R. R. Elworthy, D. Embleton, C. H. J. Fagan, *J. S. Farmcild, C. H. Fernie, P. Fiaschi, R. D. Forbes, G. Ford, *W. Gebe, R. P. Gerrard, S. W. Gittens, G. E. Gordon, S. W. Grimwade, *J. R. Gunne, E. H. R. Harries, T. S. Harrison, T. S. Hele, D. W. Hume, R. W. Ironside, T. J. Jenkins, *D. M. Keith, T. L. Kenion, W. R. Kilgour, W. H. King, Camille Lebon, W. H. Lee, R. B. Low, J. A. McCollum, O. R. McEwen, W. E. McLellan, P. D. F. Magowan, E. S. Marshall, J. D. Marshall, D. M. Masina, F. W. Matthews, H. B. Maxwell, C. A. L. Mayer, F. E. W. Mendows, O. Le F. Milburn, S. W. Milnor, H. V. Mitchell, W. S. Mitchell, E. Morgan, R. J. Mould, L. D. Neare, F. M. Neild, R. B. Nicholson, H. J. Nightingale, T. Norman, H. W. Ogle-Skau, M. W. B. Oliver, G. G. Packe, G. S. Parkinson, E. H. A. Pask, G. D. Perry, G. R. Phillips, A. J. S. Pinchin, A. M. Pollard, E. S. Prior, *A. E. Pryse, R. M. Rendall, A. T. Rivers, P. M. Roberts, R. C. Roberts, I. J. Roche, T. R. St. Johnston, C. N. Slaney, R. A. Smith, F. M. W. South, H. Mac. Staley, P. M. Steele, A. C. H. Subir, A. W. Tacey, D. C. Taylor, O. Teichman, H. E. H. Tracy, F. C. Trapnell, W. H. Trethowan, C. Tylor, I. Valerio, J. P. Walker, S. L. Walker, C. G. Welch, C. E. Whitehead, *R. H. Williams, W. S. Williamson, H. D. H. Willis-Baud, J. G. Willmore, J. L. Wood, E. M. Woodman, H. N. Wright, A. B. Zorab, C. E. Zundel.

*Under Regulations dated October 1st, 1884.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

At the opening of the winter session in the schools of the Royal College of Surgeons in Ireland on October 15th, the prizes won at the end of the previous session were distributed by the President, Mr. H. R. Swanzy. The Barker Anatomical Prize of thirty guineas went to P. G. Elvery, and the Carmichael Prize of £15 to C. Green; the gold and silver medals in operative surgery to D. Adams and R. M. Bronte respectively, and the Stoney Memorial Gold Medal in Anatomy to G. S. Levis. Some fifteen class medals as well as a large number of prizes and certificates were also distributed for proficiency in various subjects of the curriculum.

TRINITY COLLEGE, DUBLIN.

The following candidates have been approved at the examinations indicated:

Intermediate Examination (*Part I.*).—R. T. Brooks, J. P. S. Dunn, G. E. Craig, R. D. FitzGerald, W. H. Hart, J. E. M'Causland, W. R. Allen, J. Alston.

Preliminary Scientific—*Physics and Chemistry*: Dorothea M. Franks, F. J. A. Keane, S. R. Richardson, C. D. Hayan, M. S. Moore, T. G. Hardman, P. F. Nunan, J. W. Flood, V. W. T. M'Gusty, J. G. Dods, H. Fleming, C. J. Penthand, F. Crosbie, E. F. Lawson (Scho.), E. Garland. *Botany and Zoology*: Mary G. Caskey, M. S. Moore, T. G. Hardman, W. O. Halpin, J. B. Burgess, F. R. Dougan, R. G. M'Entire, L. F. Macan, H. E. Williams, F. Casement, H. L. Blackler, G. F. C. Reily, H. G. Holdbrook, T. F. Breen, S. A. Lane, S. A. Dudley, R. T. Vaughan.

MEDICO-LEGAL AND MEDICO-ETHICAL.

OPTICIANS AS OCULISTS.

A CORRESPONDENT sends us a letter received by his brother, a medical practitioner, from an optician named John Jacobs who has a shop in Liverpool Street, London. Jacobs begins by thanking the practitioner for sending the patient, although the latter had not done this, and indeed had never heard of the man before; he goes on to describe the result of the examination of the eyes, and mentions the lenses which he had prescribed, but adds "The sticking of lids in early morning is due to strain from not having the proper correction. I told her you would give her a lotion for this. A weak solution of boracic, say 20 gr. to ℥j to be used with equal parts of hot water, would put this right."

This letter illustrates the pretensions of a certain class of opticians to pose as oculists and to treat eye affections; it disposes altogether of the contention that they only desire to act as estimaters of refractive errors. This man styles himself "Ophthalmic Optician, F.I.O., F.S.M.C., Holder of the Highest Diplomas in Sight Testing. Fellow of the Institute of Ophthalmic Opticians. Fellow of the Worshipful Guild of Spectacle Makers, London (by Exam.)." We commend the case to the notice of the authorities of the Spectacle Makers' Company.

THE DIGNITY OF THE COURT.

IN a judgement summons case before the County Court at Denbigh at the beginning of October, the defendant, a woman, was severely reprimanded by the judge for having failed to appear at a previous hearing although under subpoena. On behalf of this person a medical man then gave evidence that she was very feeble and frail, and that on the morning of the day that she should have appeared in court she had a fainting fit. On this the judge said: "A person who is feeble and frail must obey the subpoena of a court of justice. An imaginary fit will not answer." To which the medical man replied that "it was not an imaginary fit, and she could not possibly attend." As the defendant had taken care to have medical evidence at hand to explain her failure to appear at the first hearing of her case, it is obvious that she cannot have been blind to the propriety of obedience to a properly-served summons; moreover, though it is, of course, right that the dignity of the courts should be upheld, that result is not likely to be furthered by a judge indulging in remarks about imaginary fits just after a qualified observer has testified that the person in question fainted.

A DISPENSARY PARTNERSHIP.

BEFORE Sir William Selfe, at the Marylebone County Court on October 25th, Dr. Herbert Lumley Snow, late Senior Surgeon at the Brompton Cancer Hospital, and at one time member of the Council of the British Gynaecological Society, sought to obtain from Dr. Samuel Wesley Wilson, formerly Registrar of the Irish Medical Council, of Cavendish Road, Brondesbury, a sum of £24 odd in respect of an alleged breach of a partnership agreement, etc.

Mr. Kyffin was counsel for the plaintiff, and Mr. G. Kingsbury (instructed by Mr. J. Hill) for the defendant.

Plaintiff said that in September of last year he took certain premises at 279A, High Road, Kilburn, which he opened as the Specialist Dispensary for Women. In January of the following year he advertised and got into communication with the defendant, who paid the £22 odd asked for a half share in the fixtures and drugs, and signed an agreement to share the expenses of the undertaking. The dispensary by that time had been turned into one of general purposes. In July Dr. Wilson met plaintiff at the surgery and told him that unless he could show that he had paid the last quarter's rent of the premises he should break the connexion. Dr. Snow informed him that the account for the rent had not been presented, but in spite of this defendant failed to perform his duties that day, and some time later when plaintiff went to the dispensary he found the place stripped. Defendant had carried off bottles, instruments, and drugs, so that it was impossible to attend to any patients had they applied for treatment.

Under examination, Dr. Snow admitted that the following advertisement was inserted in one of the medical papers by him:

"Dispensary, just established in main thoroughfare in busy London suburb, for sale at cost of fixtures owing to sudden illness of vendor. In excellent situation; no competition. Fine chance for energetic man."

The clause with regard to sudden illness was not meant to deceive, because although he was able to attend to his duties when the advertisement was inserted, he had had three attacks of influenza that year. He was not aware that there were fifty doctors within half a mile radius.

Mr. Kingsbury: Were you not distributing advertising matter in connexion with this dispensary from door to door shortly before you entered into negotiations with defendant?—Yes.

Don't you know that the General Medical Council have struck doctors off the *Register* for advertising?—I do not.

In January the Medical Defence Union wrote to you complaining of what the General Medical Council refer to as "infamous conduct in a professional respect." The Secretary writes:

"A complaint has been made here that certain cards advertising 'Specialist Dispensary, 279A, High Road, Kilburn,' have been distributed in the letter boxes of various residents in the district. I am informed that your name and address is upon the door of the dispensary, and it is therefore concluded that you are responsible for the issue. Such a conclusion is hardly credible, however, and I am directed to call your attention to what would appear to be some misuse of your name by some person impersonating you. I need hardly remind you that such advertisements are opposed to the lately-issued regulations of the General Medical Council, and that the person or persons responsible for the distribution will have to be reported to the General Medical Council, and steps taken to institute an inquiry. I therefore hasten to inform you as to what is being done in your name in order that you may at once repudiate and put a stop to it."

You replied to the letter as follows:

"I much regret that some ill-advised person should apparently have distributed objectionable circulars in connexion with the Specialist Dispensary. I trust that my name has not been used. I can only say that I will at once inquire into the matter, and will take steps for a discontinuance of the practice."—Yes, that is my letter.

Did you consider that an honourable letter?—I considered the letter from the Medical Defence Union offensive, and perhaps I was not candid.

You were going to inquire into a distribution of circulars which you were paying the Church Army to distribute, and you told Dr. Bateman that somebody was impersonating you with the object of deceiving him?

Judge Selfe: Is this case ever going to be finished?

I should like to ask plaintiff if he told his partner of this advertising, your Honour?—No; because it was stopped before he started with me.

Did you ask him to be your guarantee for a loan and tell him you were so bothered that you contemplated suicide?—I did ask him to be my guarantor, and I may have said that some people would have been driven to suicide by my troubles.

For the defence it was submitted that Dr. Snow had confessed to using the money which defendant paid him for rent for household purposes and that Dr. Wilson was so alarmed by his partner's evident embarrassment that he considered himself justified in breaking the agreement.

Dr. Wilson said that he wrote to his college about the advertising and received a reply warning him against the danger he ran in the matter.

His Honour said he considered there was ample reason for the defendant's claim for a dissolution of partnership, although he did not consider the advertising should be considered, because defendant took no steps in the matter until after he severed his connexion with plaintiff. It was not necessary to go into the question of medical advertising; plaintiff had admitted that it was improper. His reply to the letter from the Medical Defence Union was disingenuous in the highest degree and was obviously meant to deceive the Medical Defence Union: such deceit was worthy of very severe censure. Of the two accounts of the final meeting between the partners the defendant's was most worthy of credence. Plaintiff would be indemnified for half of the rent of the premises if he had to pay any and after he had proved that he had paid it, but there would be no order for costs.

DEATH UNDER CHLOROFORM.

AN inquest was held at Grantham on October 17th, on the death of a woman, aged 31, who died during anaesthetization in preparation for a dental operation. Evidence as to the cause of death was given by Dr. W. H. Paterson, who said that on *post-mortem* examination he found all the organs healthy except the heart, which weighed 12½ oz. instead of 9 or 10 oz.; such a heart was likely to give way if any stress were laid upon it; but if the deceased had been a patient of his own and he had examined her he would have given her an anaesthetic. The medical man who administered the anaesthetic said he had been asked by the deceased, a patient of his, to administer an anaesthetic when she had some teeth extracted; after examining her and finding no evidence of organic disease of the heart, he agreed to do so. He met her at the dentist's and again listened to her heart, and having discovered no reason why an anaesthetic should not be administered, began to give her chloroform sprinkled on a mask. She appeared to take it very well, but just as she was going under its influence the heart suddenly stopped beating and respiration ceased. She was at once laid on the floor and artificial respiration commenced; other medical assistance was also summoned but was of no avail.

The jury returned a verdict that death was due to misadventure, and that no blame was attachable to the anaesthetist.

QUALIFICATIONS FOR MEMBERSHIP OF AN ETHICAL COMMITTEE.

Z. Y. X.—We presume the members of the Branch who elect the members of the Branch Ethical Committee are the best judges of their fitness.

CORONER AND MEDICAL WITNESS.

G. E. B.—A coroner is not bound to summon the medical man who is first called in after death, and it appears that in the second case related the coroner directed another medical man to make the autopsy and give evidence at the inquest. This question was thoroughly threshed out by the British Medical Association at the recent Local Government Board inquiry relative to certain analogous cases arising in the South-Western Coroner's district of London. (See British Medical Journal, Supplement, December 2nd, 1905, p. 312.) In the first case our correspondent was scarcely justified in giving a medical certificate of the cause of death as from "natural causes" if he believed the death arose from poisoning by sweets; and it would have been better to have communicated at once with the coroner and awaited his instructions, when probably our correspondent would have been summoned to give evidence in the case. In all cases of doubt as to the cause of death it is advisable for the medical man to consult the coroner before issuing a certificate; if the coroner declines to hold an inquest, the responsibility resting on the medical man terminates. There can be no objection to a discussion on the matter before the Division.

DOCTORS AND NEWSPAPERS.

The Decatur (Illinois) Medical Society decided at a recent meeting that the names of members should not be mentioned in connexion with medical matters in the daily press, and that, if such notice should appear, the practitioner in question would be requested to furnish an explanation at the next meeting of the Society.

LIABILITY FOR FEES.

Trevor writes: A. was called to a man who had cut his throat; attended to the wound and saw to his removal to the infirmary. He was occupied nearly two hours, but has received no fee whatever. He was called in by a private person. He wishes to know if the latter is liable to pay him?

*** If our correspondent at the time when he was sent for had intimated that he should hold this person responsible for his fee, and the other had acquiesced, no doubt he would be liable. If nothing was said at the time, it is to be feared that the private person will escape liability by pleading that he only called him in on behalf of the patient.

THE COURTESY CALL.

O. K. writes that he has just been taken as a partner into a practice, and he wishes to know whether he is supposed to call upon the other medical men in the neighbourhood.

*** Yes; it is a good custom.

MIDWIFERY ENGAGEMENTS.

R. A. writes that he was engaged to attend a patient in her confinement. On a certain day he was sent for, but found that labour had not begun, and that everything was normal. He left on the understanding that he would be sent for later when the pains came on. The following day he received a letter from the husband dismissing him from the case. He wishes to know if he can claim his fee.

*** There should be no difficulty in recovering the fee, in the county court if necessary.

A TARIFF OF MEDICAL FEES.

Excelsior writes: I should like to point out that the *Tariff of Medical Fees* quoted by you *in extenso* in your issue of October 20th, p. 1072, is on a considerably lower scale than those specified in the *Medico-Chirurgical Tariffs*, published by H. K. Lewis, and edited by the late Dr. Styrap. I venture to consider that the latter code, which by the way is quoted in an abbreviated form in *Whitaker's Almanack*, represents a very much fairer, and at the same time reasonable, remuneration than that issued by the Manchester Medical Guild, and is more suited for present-day practice. Dr. Styrap's code is also much more complete, as it gives a tariff of surgical fees which is of great use to a medical man who may be at a loss what to charge for treating the more ordinary surgical emergencies. This code has been of great service to me, and I can commend it to other members. Its cost is two shillings.

Dr. James Taylor, Honorary Secretary of the Manchester Medical Guild, writes that the *Tariff of Medical Fees* quoted in the Journal of October 20th was compiled by the Manchester Medico-Ethical Association; it has, however, been endorsed and adopted by the Medical Guild.

MEDICAL MEN AND FRIENDLY SOCIETIES.

Dunnowhat says that the Hearts of Oak have recently started a club in his neighbourhood to which he has been elected medical officer; since then the members of this Society have been canvassed to bring the existence of the new medical club in the locality to their notice. He wishes to know if this is to be considered canvassing, and if so what he should do.

*** If the notices have only been sent to the members of the Society we are of opinion that it does not constitute canvassing of the kind to which objection has been made.

MEDICAL MEN AND NURSING HOMES.

Commutator writes: I should be glad to know whether there is any reason why a medical man should not join a nurse, or for that matter any layman, in partnership in establishing a nursing home. In the event of the answer being in the negative, can a medical man have a nursing home?

*** A medical man is bound by the ethics of his profession, and does not lose this obligation by being in partnership with a lay person; he must therefore be circumspect in the way in which the business is carried on, particularly as to advertising. The matter has been discussed at length in connexion with hydropathic establishments.

Atony.—It cannot be laid down as a general proposition that other practitioners are not entitled to apply for appointments rendered vacant by resignation or death. A contract to purchase a practice should be so framed that the payment of the sum representing the value of appointments is contingent on the appointments being obtained by the purchaser.

Edina.—Dr. Ch. Vibert, an expert of the Tribunal de la Seine, in his work on *Les Accidents du Travail*, reviewed in the British Medical Journal of March 3rd, 1906, p. 507, gives a table of the degree of inability resulting from various lesions with an estimate of the compensation founded upon decisions of the tribunal during the years 1902 and 1903. It seems to have been generally held that the total loss of the vision of one eye diminished the working capacity by 33.3 per cent.; with regard to partial loss of sight of one eye, the decisions appear to have been conflicting. The loss of nine-tenths of the vision of one eye has been held to reduce the capacity by 28.5 per cent.; the compensation awarded in this case was at the rate of 300 francs a year.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

ROYAL COMMISSION ON THE FEEBLE-MINDED AND LUNATICS.

The Royal Commission on the Care and Control of the Feeble-minded has been entrusted, by an extension of its term of reference, with the additional duty of inquiring into the constitution, jurisdiction, and working of the Commission in Lunacy, and of other lunacy authorities in England and Wales, and into the expediency of amending the same, or adopting some other system of supervising the care of lunatics and mental defectives, and of reporting as to any amendments in the law which should, in its opinion, be adopted.

In view of this great extension of the work of the Commission, it will be useful to print the names of the Commissioners:

The Earl of Radnor (Chairman).	Mr. C. S. Loch.
Mrs. Pinsent.	Dr. H. B. Donkin.
Dr. Needham.	Mr. H. D. Greene, K.C., M.P.
The Rev. H. N. Burden.	Mr. C. E. H. Chadwyck-Healey, K.C.
Dr. J. Crauford Dunlop.	Mr. Hartley B. N. Mothersole (Secretary).
Mr. W. H. Dickinson, M.P.	
Mr. C. E. H. Hobhouse, M.P.	
Mr. W. P. Byrne, C.B.	Mr. E. A. Hastings Jay (Assistant Secretary).

PUBLIC VACCINATORS' FEES.

The Association of Public Vaccinators of England and Wales held its annual dinner on October 26th, at the Hotel Cecil, Strand.

The chair was taken by the President, Mr. E. C. Greenwood, Public Vaccinator of Marylebone, who, in proposing the toast of prosperity to the Association, observed that one object they all had in view—fixity of tenure—had not yet been secured. The influence of the Association, however, was felt and its position recognized, not only by the medical world, but also by the Local Government Board. The Association was given to understand that it was contemplated to reduce the fees of public vaccinators to below the present minimum. If the Local Government Board did that it would be a national calamity. The present rate of fees was fixed after most careful consideration of the nature of the work. He would not dwell upon the injustice to the public vaccinators of such reduction of fees, who in conscientiously carrying out their duties had sacrificed their general practice, and who would be virtually ruined by the proposed economy; he wished to draw the attention of the President of the Local Government Board to the effect it would have upon the

efficiency of public vaccination. Never since Jenner introduced vaccination had it been so popular amongst the masses as at the present time; never had such a large proportion been vaccinated, never had there been less honest objection to the operation, and never had there been less ill-effects from vaccination than now. The reason was that the public vaccinators were able to carry out their duties conscientiously at the present rate of fees, and recognized that the State had first call upon their services, and that all other work must take second place. If under the cloak of economy the fees were reduced, then efficient vaccination would cease, the population would not be efficiently protected and the country would have to endure small-pox epidemics, the expense of which would far exceed the petty sums saved by underpaying the public vaccinators. Further, it would be impossible to secure the services of the same class of practitioner at any lower fee than was now paid. The reduction of the cost of vaccination was a clever move on the part of the antivaccinators, and if the Local Government Board fell into the trap, then the sooner the Vaccination Acts were abolished the better, for unless the operation was done skilfully and well vaccination would become a public danger rather than a benefit.

Dr. A. E. Cope, in responding to the toast, spoke of the defence work carried on by the Association.

The toast of "The Visitors" was submitted by Dr. A. Maude, and acknowledged by Surgeon-General Evatt and Mr. H. List.

Dr. A. Drury proposed "The Officers of the Association," which was acknowledged by Mr. C. Greenwood and Dr. V. A. Jaynes.

THE MEDICAL SUPERVISION OF SCHOOL CHILDREN.

At the second meeting of the Childhood Society and the British Child-Study Association held at the Parkes Museum on October 23rd the subject discussed was the medical supervision of school children. Dr. Macnamara, M.P., who presided, said he considered the necessity of bringing the trained nurse and the doctor into direct touch with the child in the slum school of inconceivably greater importance than any problem of religious formulas. Directly the doctor went into the slum school exposures would follow respecting the condition of the children which would fill the nation with shame and humiliation. Clause 24 of the Education Bill made a great step forward by providing for the compulsory medical inspection of children on their admission to a public elementary school; whatever else the Lords might do, he devoutly prayed that they would leave that clause untouched. In London the movement had been started, but it was practically confined to compelling the parents to cleanse their children's heads. That was not enough. The country might well take an example from what was being done in Liverpool. There three of the Queen Victoria Jubilee nurses went periodically into 23 of Liverpool's 152 schools. With the teachers they picked out the children needing attention—about 10 per cent. of the children in each of the poorer schools. At once, without red tape and officialism, they applied ointment, lint, bandages, and so on, and dealt on the spot with the children's needs. Professor H. R. Kenwood, who followed, said that the teachers recognized the value of medical inspection; it was the central authority which was to blame if the intellectual was always considered before the physical side. The present Education Bill was epoch-making in that for the first time it was recognized that it was the duty of the State to look after the health of those compelled to go to school. It was particularly in connexion with sight and hearing that inspection was necessary. Those faculties were often defective, and yet they were the two means by which instruction was received. Mrs. Scharlieb, M.D., declared that the important thing in the inspection was to arouse the attention of the parents. Too many parents looked on the inspection as *infra dig.*, and considered that the finding of a blemish in the child was a slur on it, when too often it was their own fault. She would like the mother, if possible, always to be present at the inspection of her child.

PURITY OF MEAT AND MILK SUPPLY.

Sir Frederick Treves presided over a public meeting, convened by the National Health Society, at University College, London, on October 29th, to discuss the subject of the purity of the meat and milk supply. In his opening remarks he declared that there was no concealing the fact that the absolutely reckless disregard of the purity of the food supply was little short of a national disgrace. The diminishing birth-rate of the country was an important matter, and the heavy rate of infant mortality was also a serious danger to the community. The fact must be admitted that the large infant mortality was to a great extent due to unwholesome and improper food, and was therefore to a large extent preventable, because it could be reduced to a minimum if infants could be supplied with pure milk. He urged that inspection should be thorough and efficient. He read extracts from the last report of the Medical Officer of Health for Stepney, Dr. Thomas, and warned his audience that help must be looked for by rousing public opinion.

Sir James Crichton-Browne then moved:

That the existing powers and machinery for protecting the public from the dangers of unsound and infected food are inadequate, and further measures are demanded more particularly with regard to meat, milk, preserved foods, and shellfish.

This was adopted by the meeting after it had been seconded by Mr. Spender, and supported by Mrs. Burgwin, Dr. Newman, and Professor Kenwood.

The speech of Sir J. Crichton-Browne in moving the resolution was received with enthusiasm, and his chief points were eagerly cheered. He observed that the Chicago packing-house scandals had brought them to that meeting, and he contended that all canned meats imported should carry a certificate of public warranty from the country of their origin. Canned foods were not as nutritious or desirable as fresh meat, for in some cases the very processes used to preserve them from decay also served to protect them from digestion. Sir James also advocated the gradual abolition of private slaughter-houses, and showed that the laws in regard to adulteration were so inadequate, that it was quite impossible for the consumer to protect himself; this point he emphasized by describing the difficulties attending the analysis of blended butters.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

THE VOLUNTEER MEDICAL ASSOCIATION.

At the Mansion House on Saturday last the Lord Mayor, after receiving the Elcho Shield, formally presented the Challenge Shield annually competed for under the auspices of the Volunteer Medical Association to the 1st Cadet Battalion of the King's Royal Rifles, the winners this year. In making the presentation reference was made to the fact that the shield was won for the first time by a cadet battalion that had shown exceptional merit in ambulance work. After the presentation the Lord Mayor entertained a large company at dinner, including the trustees of the shield, the officials of the Association, and the winning team.

CHANGES AT HOME STATIONS AND DISTRIBUTION OF OFFICERS.

Utique writes: From the monthly list published in the British Medical Journal on "Changes of Station," it appears that many of these changes are unnecessary. Thus frequently we see—A. from, say, "Leverton" to "Mineton," whilst B. is sent from "Mineton to Leverton," or else a triangular move will take place. Instance—A., on return from foreign service, will go to "Westcliffe," and B. from "Westcliffe to Eastcliffe." If A. on joining had gone to the latter station direct, it would have saved B. a move. Irrespective of the moves you publish many more take place in a district, moves of a temporary nature; in fact, whilst on home service, officers are frequently on the move; one never knows from day to day where one will be. A little administrative forethought could do much to avoid this. In my own case—and I am no exception—I have at various times served a total of five and a half years at home, and have been in nineteen different stations, my children can never remain at the same school for more than a term or two; I can never take a furnished house, but have to live in expensive lodgings costing £5 5s. a week. During my last home tour I had so many moves that I exchanged to go abroad, and after my return I had just got settled, and with my children at school, etc., when away I go to a new station. There was no earthly reason why my successor could not have been sent direct to the station I went to, and so leave me. A Principal Medical Officer once told me he would never leave a man in a station for more than three or four months. Poor man, he must have found some pleasure in hunting his officers about! Officers of other corps can always reckon at being left in a station for a certain time, and can live cheaper by taking hired houses. Perhaps some member of the Advisory Board might inquire into this matter, as it does not lead to efficiency or zeal, and it absolutely interrupts all attempts at reading. Our patients dislike the constant changes, especially the women. I can instance an officer seriously ill, who had seven different medical officers in attendance in a fortnight. I was one. I am confident that these moves could be reduced by 50 per cent. To do this there would have to be a more equal distribution of the officers in the various commands. At present, in and around London and Aldershot there are too many medical officers. I know for a fact that many have only half an hour's work a day and orderly duty once in eight days; it is said that in some places the orderly duty is confined to lieutenants. In other commands—as the Northern, Wales, and Southern, etc.—the strength remains the same as established thirty years ago. In these commands many Artillery and Militia camps are formed, each requiring medical officers. I could name hospitals deprived of half their staff for weeks; this should not occur at a time that officers are searching for work in other places.

So first redistribute the officers and then organize the duties. There should be a number of fixed billets—for example, all staff of hospitals, medical officers in charge of troops and women and children (this in addition to the specialists). Then, as a general rule officers on return from abroad should for the first half of home service be liable for moves to fill casualties; they then in last half of home service would fall into billets of those going abroad, and thus get settled for part of their home service at least.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

M. asks for information with regard to the suitability and reliability of the Abingdon King Dick motor tricyle for medical practice, also probable running expenses.

India asks for advice in the treatment of non-gonorrhoeal warts on the unbroken skin at the root of the penis. They are not piliform like gonorrhoeal ones, and there seems no reason to think that they are of this nature. They have only been noticed for a week or two; they seem to be increasing in size.

Y. R. writes: Can any member suggest treatment for oedema of the tissues around the lower eyelids in a young unmarried woman? There are no signs of heart trouble, and the urine on repeated trials gives negative results. The very slightest form of Raynaud's disease is the only other symptom present.

R. C. L. asks for a suitable book on nursing for a lady of intelligence who has much nursing in her own household.

*** The following books would probably answer our correspondent's requirements: *Our Sick*, by Miss Florence Stackpool. (London: The National Health Society. 1s.) *Nursing at Home*, by J. D. E. Mortimer, M.B.Lond., F.R.C.S., and R. J. Collie, M.D.Aberd. (London: George Gill and Sons. 1906. 8d.)

Carbolic Acid Injection for Sciatica.

F. C. writes: A patient of mine, just returned from the Continent, has had injections of carbolic acid for persistent sciatica. It is now seven weeks since he was treated. The acute sciatic pain went almost at once, but a burning pain at the site of infection remains, and a mixed condition of anaesthesia and hyperaesthesia over the dorsum of foot has come on which quite counterbalances the loss of pain at the hip. I have had no experience of this treatment. Can any of your readers tell me if such a condition is usual, and, if not, what prognosis am I to give, and what treatment? Is there any likelihood of degeneration setting in as in other nerve traumatic lesions?

Chlorine Fumes in Operating Room.

Dr. Arthur Thomson (Medical Officer of Health, Stratford-on-Avon) writes: We have considerable difficulty in keeping the air of an operation room at the local hospital free from chlorine fumes when operating by gaslight and I would be glad to learn if this difficulty has been found elsewhere, and what means have proved effectual in coping with it. The chlorine fumes only arise, of course, when chloroform is being used as an anaesthetic. It has been suggested to simply rely on the insertion of a Boyle's ventilator in the roof, and Tobin tubes as air inlets; but there may be some more effectual means by utilizing the up-current caused by the heat of the gas-lighting. The address of some hospital within easy access of Birmingham, where such apparatus could be seen, would be of much use.

ANSWERS.

Scotus.—Elementary textbooks are published by the St. John Ambulance Association, St. John's Gate, Clerkenwell (1s. 6d.), and by the National Health Society, 53, Berners Street, London, W. (4d.); the latter society also publishes some small pamphlets on sick-room cookery. *Nursing at Home*, by J. D. E. Mortimer, M.B.Lond., F.R.C.S., and R. J. Collie, M.D.Aberd. (London: George Gill and Sons, 1906, 8d.), would also be found useful.

J. J. F.—Earlswood Asylum receives the imbecile children of the poor from all parts of the country either without payment or at such small payment as the friends voluntarily contribute; but these cases have to be elected by the subscribers, at half-yearly elections. Full particulars can be obtained from the Secretary, Mr. Howard, 36, King William Street, London Bridge, E.C. There is a separate ward for idiot boys attached to the Hants County Asylum at Fareham available for pauper patients.

Croup and Drains.

Experientia writes to suggest to "Nil Desperandum" (British Medical Journal, October 20th) that it would be wise to have the drains thoroughly tested by an expert.

The Open-air Treatment in the North of Scotland.

R.—The question of the suitability of the North of Scotland for cases of phthisis during the winter months is answered in principle in Dr. R. W. Philip's paper on the universal applicability of the open-air treatment of pulmonary tuberculosis published in the British Medical Journal for July 23rd, 1898, p. 217. A good deal, of course, depends on the character of the case. Each case requires to be judged for itself. If open-air treatment be suitable and there be no contraindication in the special case, it is probable that as good results will be obtained in the North of Scotland as elsewhere. There is, of course, considerable variety in the type of climate, from the sea border (such districts as Forres, Nairn, etc.) to the inland parts, such as Kingussie, where, indeed, there is a sanatorium, at which very good results have been obtained.

The Period of Quarantine after Scarlet Fever.

C. G.—Authorities are now almost unanimous in stating that the late peeling of scarlet fever is not infectious. It is fairly certain that "return cases" are not due to late peeling. Patients are frequently discharged from fever hospitals whilst still peeling, provided they have been in hospital for at least four weeks, that no complication is present (especially rhinorrhoea), and that the throat is normal. In hospital practice patients are disinfected, as far as is practicable, by bathing on the day of or before discharge. It would not be safe in private practice for a patient to go about the house, making that room his headquarters which he had been occupying during his illness, as our correspondent appears to suggest. The patients should be bathed on leaving the sick room, and should not return to it till it has been disinfected.

LETTERS, NOTES, Etc.

Morocco.

We are informed that a medical man is needed to take charge of the Medical Mission work in Morocco city. A hospital is to be built shortly, and there is every prospect of a large development of the work, as it will draw upon a wide area. The work is under the Southern Morocco Mission. Further particulars may be obtained from Mr. Geddes, 64, Bothwell Street, Glasgow.

A Warning.

Dr. J. Bain (South Shields) writes: I write to warn the profession in the North of England against a well-dressed young man who visited this town a month ago, and pretended to be the representative of the Belfast Linen Company of Liverpool. He called on a number of medical men, several of whom paid him cash for their order. The goods, however, have never arrived, and letters of inquiry have elicited no reply.

Convalescent Homes in London Parks.

Dr. S. H. Habershon (Honorary Secretary, Convalescent Homes Association, London) writes: I venture to think that your correspondent, Dr. Griffith C. Wilkin, is not alone in his misapprehension of the scheme proposed by the Convalescent Homes Association for the relief of our poor London children convalescent from operation or medical and surgical ailments. I can find some excuse for him, as he lives in the country and probably has no personal acquaintance with the empty mansions in question, and the beautiful and spacious parks by which they are surrounded. The Golder's Hill mansion, which seemed to the Convalescent Homes Association eminently suitable for the purpose required, and for the use of which they appealed to the Parks Committee of the London County Council, is situated in a fine park adjoining Hampstead Heath. It has the advantage of being in a most healthy neighbourhood on a gravel soil, and within easy reach of the London hospitals. The upper part of this house was and is empty, though, as the Chairman of the Parks Committee informed us, it is at present let, the refreshment contractor in the basement having obtained the use of the rest of the house for storage purposes for the rental of £15 a year. You, Sir, in your article two weeks ago, have verified this statement, in spite of the Chairman's astounding denial of the fact. In his remarks to a correspondent of the *Morning Post* the Chairman of the Parks Committee talks vaguely about the raising of a new principle of "State aid" and "rate aid." Apparently he is also not aware that the principle of the use of these empty mansions as convalescent homes has long since been decided by the London County Council, as recorded in their minutes. The Convalescent Homes Association would not have raised the question had they not been aware that the London County Council had already admitted the principle, and sanctioned the use of these homes for the purposes suggested. The Metropolitan Public Gardens Association—in the person of their secretary, Mr. Basil Holmes—joined in the counter deputation of the Hampstead Council to protest against this use of empty mansions on the ground that the proposal was an encroachment upon public rights. How the utilization of a number of empty rooms in these mansions by their occupation by a number of little bedridden crippled children can interfere with the rights or the enjoyment of the public I have yet to learn. It has been explicitly stated that no land or enclosed space would be required. As soon as the children can walk and get about they would be discharged to other homes which could then receive them. The myth of new buildings and laundries and outhouses to be erected exists only in the imagination of the opponents of the

scheme. Any new enterprise is certain to arouse opposition, and I warmly sympathize with your correspondent who admits a feeling of sadness at reading the pitiful arguments brought forward against this benevolent attempt to benefit a class of little convalescents at present unprovided for and for whom all friends of little children are clamouring for relief. The Convalescent Homes Association is a new and active body and likely to act in future as a central authority in convalescent matters, and the matter will not be allowed to rest as it is.

The Motor Car, Past, Present, and Future.

The *Motor Car Journal*, in an anniversary number published on October 27th, gives a comparison of the most successful and popular cars of ten years ago, with those which have replaced them in the present day. The points in which advance is most manifest are, it says, first and foremost, of course, the enormous increase of power in relation to weight, due in the first place to improved design, as far as the elimination of unnecessary metal is concerned, next to higher compressions and piston speeds, with the more liberal valve proportions necessary therefor, and finally to improvements in materials, in the adoption of which more than in anything else the way was shown by Continental constructors. The net result of these various factors has been the reduction of weight from about 50 kilos per h.p. to a figure approaching five in the case of the larger car engines, and even less in the case of certain special designs. More important even has been the increase of reliability, and this is due rather to the attention paid to numerous minor details than to any notable innovations. Broken and stuck valves, leaky water joints in cylinder, overheating and pump troubles, burner defects, and weaknesses in the electrical ignition system, these were the cause of 90 per cent. of the early troubles, and they have been largely banished by care in constructional detail—alterations in proportion rather than in radical design. Future advances, it is thought, are likely to be the more general use of live axles, improvement in transmission efficiency, and a further diminution in the amount of superfluous metal.

The Purchase of a Motor Car.

Dr. W. Robertson (Leith) writes: I have been amazed at the interest my letter (British Medical Journal, September 22nd, 1906, p. 738) has aroused. It has at least proved that many medical men are, literally speaking, thirsting after information regarding a moderately priced car. I do not attempt to reckon up the number of letters I have answered. It is to you that any thanks are due, in that you gave up so much space to my letter. About a fortnight ago Dr. Syrett wrote to you to the effect that the crux of reliability of a car ought to be the experience of, say, 10,000 miles running. I agree with him that a long test is the best test, other things being equal. But what is the standard to be? Is there any car made that does not at one time or another reveal a flaw or defect? One car of a particular and reputable make may run for some years with few required tinkerings, another of the same make may never be out of the "hospital." Everything depends upon the care in the upkeep and management of the car. I am not going to mention the names of any cars. That would be impolitic. But if we do not eliminate the element of careless usage and handling, with perhaps bad luck, we can arrive at no criterion. One should not be unduly influenced by isolated unfortunate experiences about which one reads or hears. There are still those who are sceptics regarding the reliability of motor cars. There may be room for modifications and simplifications, but it is questionable whether the pressed steel framework of a car can be made any better. The internal combustion engine at present in vogue may be supplanted, but that will not be for some time. Tyre fabrics leave room for improvement in the direction of durability, but in other respects the working parts can scarcely be made more secure and durable. When I wrote to you regarding my selection, I did so not in order to prove that it alone was the car to be chosen. My object was rather to throw some light upon a question which was not apparently much understood. That my surmise was correct was amply proved by the secretarial work which subsequently devolved upon me. When a man has not too much money to spend upon a motor car, he is careful to walk warily, and to adopt the *festina lente* motto I think I acted cautiously; I made a very exhaustive and extended practical and theoretical study of the whole subject; I aimed at simplicity, good value, and good construction. With the passing of the months I still can see no reason to regret my ultimate choice. Again I thank you for permitting, at such length, the ventilation of an interesting theme.

Cinnamon Oil in the Treatment of Influenza.

Dr Joseph Carne Ross (Withington, Manchester), in the course of a communication on this subject, writes: For nearly sixteen years I have employed cinnamon, in various forms, in treating this disease—influenza—but for many years now I have always used the oil of Ceylon cinnamon bark. There is another oil of cinnamon on the market, extracted, I believe, from the leaves of this plant, which, though rather cheaper, should be avoided. My patients have generally been perfectly fit to return to their avocations, whatever they may have been, within three or four days, and in no single case has a patient suffering from influenza been on my hands for more than the inside of a week.

The treatment, for which I suggest a fair trial, is as follows: Let the influenza patient take twelve drops of cinnamon oil every hour for two hours. At the end of these two hours let the patient take ten drops of the oil, and let him go on taking ten drops every two hours till the temperature falls to normal. And after the temperature has fallen to normal, or possibly a little under normal, let the patient take ten drops of the oil three times a day for a day or two.

In every disease, probably, the sooner a patient is placed under treatment the better is the result, and this is eminently the case in influenza. If a patient suffering from this disease is systematically treated with cinnamon oil in the manner above suggested within three or four hours from the onset of the disease, I think it will probably be found that the temperature will have returned to normal within twelve hours; but, if the patient is not put under treatment for a couple of days, it will probably be at least twenty-four, or perhaps thirty, hours before the temperature becomes normal. After the temperature has fallen to normal, the patient should remain in his own room for at least twenty-four hours, and, if possible, should remain indoors for a further period of two or three days. But many cases that had been submitted early to treatment, cases of robust persons under 40 years of age, and whose engagements were pressing, I have permitted to return to their occupations after only twenty-four hours' rest, and, so far, without any untoward result. But I always advise that patients should remain indoors for two or three days if they possibly can. Especially should they be urged to do so in those cases where the disease has been allowed to run for a day or more before being submitted to treatment. Each dose of cinnamon oil should be taken in half a wineglass, or a wineglass of water to lessen its pungent taste. Ceylon cinnamon bark oil can be easily obtained from any respectable druggist in any town.

Gowns and Hoods.

M.R.C.S. writes to suggest that the Royal College of Surgeons of England should authorize its Fellows and Members to wear distinctive hoods, and says that all the theological colleges, King's College, London, the Colleges of Music, the College of Preceptors, and the College of Organists confer not only gowns but hoods on their diplomates.

A Blessing very much in Disguise.

We are indebted to the *Journal of Tropical Medicine* for the following interesting extract from a recent circular: "Church Missionary Society, Medical Mission, Yezd, Persia.— . . . . The hospitals are now, thanks to God's blessing on our work, so crowded as to be very insanitary, and the Women's Hospital is totally unsuitable for its purpose."

Faith Healing.

A popular minister—need we say both he and the flock he shepherded were American?—had a defective eye. Two members of his flock—a man and his wife—had it borne in upon them that their pastor's appearance would be greatly improved if both his eyes could be made to speak with equal eloquence. They went to see him about it, and said they had been praying that he might have two perfect eyes, and had now come to pray with him. "Will you not," they pleaded, "ask the Lord right here and now to give you a new eye?" The minister replied with a counter question. "What kind of teeth have you?" he suddenly asked the "brother." "Why—why, that's a strange question," he stammered; "but I don't mind telling you that my teeth are mostly false." Then, turning to the wife, he asked, "What kind of teeth do you use, sister?" "Same kind," was the frank reply. "Well, good friends," rejoined the minister, "you go and ask God to grow some new teeth in your mouths. According to your theory, He will do it without delay. When you get your teeth, come around and we will see what can be done about that new eye."

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Presidential Address

CONCERNING

THE INSANITY OF CHILDBIRTH.

DELIVERED BEFORE
THE SHROPSHIRE AND MID-WALES BRANCH OF THE
BRITISH MEDICAL ASSOCIATION.

BY ALAN RIGDEN, M.D., M.R.C.S., L.R.C.P.,

SENIOR ASSISTANT MEDICAL OFFICER, SALOP AND MONTGOMERY COUNTIES ASYLUM; PRESIDENT OF THE SHROPSHIRE AND MID-WALES BRANCH.

AFTER some introductory remarks, Dr. Rigden proceeded:—

In selecting a subject I wondered what there might be that I could say that would not be better said by most of my audience. My practice has been almost entirely confined to the treatment of lunatics; and although these human wrecks suffer from all manner of diseases, the signs and symptoms which they present are generally very anomalous; in the end I decided that I could not do better than give you my experiences of puerperal insanity.

The following remarks are based on the records of the 73 cases of insanity occurring within a month of the puerperium which were treated at Bicton Asylum between the years 1889 and 1905 inclusive, forming 4.5 per cent. of the total female admissions during that period, and which were throughout their course under my observation.

On referring to Table I it will be seen that the vast majority of the patients—no less than 92 per cent.—showed symptoms of insanity within the first fortnight; in 6 only was the onset of the disease delayed beyond fourteen days. More than 34 per cent. became insane during the first half of the first week, and 31.5 per cent. in addition before its termination. None of the 6 cases which developed after the lapse of a fortnight were typical, and I incline to the view that in these the antecedent childbirth was an accidental complication, and would suggest that the term puerperal insanity might with advantage be restricted to those cases in which mental symptoms are observed within fourteen days of the birth of the child.

In addition to the fact of childbirth there was further exciting cause in 20 of the cases; 3 had had a severe fright, 3 appear to have been exposed to some special anxiety or domestic trouble, in 2 there had been attacks of eclampsia, while 7 were suffering from septicaemia when admitted to the asylum, and presented the clinical picture of acute delirious mania.

Direct hereditary influence was ascertained in 13, and in 11 more there was insanity in the collateral branches of the family; adding these together, we arrive at a percentage of 32.87, and this is practically the same as obtains in all female admissions between the ages 15 to 45—the latter working out at 31.5 per cent.

It is very generally believed by obstetricians that septic poisoning is present in most, if not all, cases: I have not found it as a rule, but I do not generally see the case for a week, and symptoms may possibly have been present at the commencement of the illness; the excitement of the patient precludes a close examination, in some cases even causing it to be impossible to take the temperature. This is a question on which I should very much like to hear the opinion of the meeting.

Of the 73 women, only 8 had previously suffered from insanity other than puerperal; 4, however, had been maniacal after former labours.

As might be anticipated, when one considers the extra stress to which single women are subjected, there is an excess of insanity after illegitimate births; 16.5 per cent. of my cases occurred in unmarried women, this proportion being more than double that which would be anticipated in this district. More than half the cases occurred in primiparae; in 16.5 per cent. the women had had one previous confinement, the remainder was fairly distributed between women who had given birth to children up to the number of eight.

If the cases be divided according to age in quinquennial periods, the quinquennium 25 to 29 shows the highest incidence, 31.5 per cent.; I imagine, however, that most first confinements occur between these ages. I had 7 cases under 20, and 6 over 40.

The seasonal distribution is interesting. Table II shows a steady decline from a maximum of 30.13 per cent. between December and February, to a minimum of 17.8 per cent. in the autumn, September to November. Attacks of insanity in general are more frequent during the summer months. It was rare for me to obtain a history of difficult labour; in all but a small minority the labour was reported to have been easy and natural, and to have caused no anxiety to the doctor attending.

The prevailing form of the disorder is acute mania; 47, or 64.4 per cent. of my cases were of this type. There were 19, or 26 per cent., melancholic throughout the illness, and 7 (9.6 per cent.) were classed as acute delirious mania.

The onset in the maniacal and in the delirious cases was sudden, while in that of the melancholics it was usually gradual.

The course of a typical case of puerperal mania is as follows: During the first two days everything appears to be progressing favourably, but on the third day, or the fourth, the patient is noticed to be rather quiet and self-absorbed; she will very likely fail to recognize the people around her, or perhaps will mistake them for others; she will also, very likely, manifest a distinct aversion to her husband or nurse; she will cease to take interest in her baby, and probably will show a positive dislike to it; while in this state she may injure the child, or may make an attempt on her life. The predominant note is that of depression: this stage, however, does not last long—within a few hours the whole mental tone changes, the patient becomes restless, her face flushes, her eyes brighten, she will talk rapidly to herself, and there will be visual and aural illusions. The disorder rapidly becomes much aggravated, and the patient will shout and sing, throw her clothes about, refuse to stay in bed, and may attempt to rush out of the house, struggling violently with any one who opposes her.

I find that 30 of the cases showed suicidal tendency at some period of the illness, generally the beginning, and this possibility should never be overlooked; the danger of precipitation (that is, jumping from a height) should be particularly guarded against, but I have known several cases of attempted cut-throat and strangulation. By the end of the week the case is fully developed.

There is no condition known to alienists that shows more violent manifestations; the whole mental life of the woman is reduced to a state of turmoil; ideas and images present themselves to consciousness with such bewildering rapidity that nothing is fully cognized; before an idea can be more than partially conceived another arises, displacing the first.

The motor system participates in the chaos; each transient thought tends to realize itself in action, but the movement is inhibited and changed to another as soon as it is begun, and there results a picture of incessant motion, objectless and incoherent.

The vocal organs are involved in equal measure, and scraps of sentences are uttered from which no meaning can be gathered; casual similarity produces immediate association, so that the words become a rhyming jingle, the only link apparent being that of sound.

Half-formed illusions of sight and hearing are constant, but these are not the definite and fixed hallucinations that occur in delusional insanity and chronic mania; sights and sounds but partially observed through lack of attention are interpreted falsely; it is probable also that the senses are hyperaesthetic, and that slight sensations, not normally perceived, help to make the confusion greater.

At the same time the woman experiences sensations of buoyancy, a marked expansion of her personality; she seems to herself to be capable of anything; limitations of any nature are unthinkable to her; she will throw her clothes away and remain naked and unashamed, chafing at whatever tends to impede her freedom of action. Somewhat later there may be an attempt to find a reason for this sense of power and vigour, and false ideas of identity may arise; the patient may assert that she is the mother of God, queen, empress, or, as occurred in one of my patients, a female Jesus Christ, or she may in the same breath say that she is all these together, being unable to find language to express her sensations with adequacy.

All sense of modesty and conventionality is lost. The irritation about the vulva, which is present for some time after the passage of the head, leads to onanism, and accounts for the obscene utterances so common in these patients. Faeces and urine are passed regardless of decency, food is not taken in sufficient quantity, the patient will throw it about and rub it over her body, chattering the while, or perhaps may eat so ravenously that there is danger of choking.

This extreme acuteness does not, as a rule, last longer than a month or six weeks. About this time a change occurs. Some appreciation that the facts of life are hostile is manifest, the facial expression will be puzzled, and the patient, for several minutes at the time, will remain quiet, apparently trying to think. Impulsive actions will still occur, but the woman will endeavour to explain her reasons.

A patient of mine recently put her hand through a window, cutting her wrist rather badly. She said afterwards that she had done so because there were "so many lies about." She was beginning to feel antagonism between herself and her environment.

There is sometimes a distinct period of depression, but more usually the condition glides into one of anergic stupor, which, after lasting a variable time, passes slowly away. This stupor is the expression of neuronic fatigue.

It must not be forgotten that the physical condition is asthenic throughout; the appearance of strength is false, due to the absence of sensations of fatigue, and to the complete indifference to consequences that these patients show.

The above description may be considered to represent a typical case.

I will now, with your permission, read short notes of three cases showing the less usual forms.

A woman (M. J. M.), 31 years of age, who had six children was admitted to the asylum in May, 1896. She had never been previously insane, and as far as could be ascertained her family history was free from neurotic taint.

She appears to have become despondent shortly after the birth of her sixth child, but the symptoms were not very acute, and she was treated at her home for four months and was then sent to a cottage hospital, and thence, five months after the confinement, to Bicton.

The medical certificate on which she was received stated that she had lost all affection for her husband and family and that she had fear of impending death; that she was afraid to go to sleep on that account, and that she had ceased to take interest in her environment. It was also stated that she had tried to throw herself out of an upper-story window.

One week after her admission I reported her as thin, pale, and haggard, with a constant dread that she would be punished for some sin she thought she had committed. Six months later she had shown no improvement, but had been persistently attempting to tear her clothes off, and had resisted any attempt at control; she constantly endeavoured to get on to the fire, saying that she must be burnt or be chopped up.

Shortly after she took every opportunity of knocking her head against walls.

In May, 1898, she succeeded in driving a needle into her neck; the needle was completely buried in the tissues, and was with difficulty removed. She still butted her head against walls whenever she was left alone.

No change in the mental state occurred until June, 1901, and throughout the whole period she continually made attempts at strangulation and burning. She was unable to settle to any employment and required to be fed and attended to in all ways.

She then rather suddenly altered, her expression changed, and she began to employ herself and she told me that suicidal impulses had entirely left her.

She was discharged, recovered, in August of the same year, having been acutely insane for more than five years.

This is an example of a severe case of melancholia and demonstrates that recovery may occur after several years.

The second case that I propose to cite, is one complicated with septic poisoning.

S. G., admitted in May, 1901, was 24 years of age, a primipara, with a history that an uncle had been insane; she was also said to have been frightened by some gipsies a week before she was confined. She was sent to the asylum a fortnight after the birth, the labour had been easy and the child was healthy.

Mental symptoms appeared on the second day. The medical certificate stated that she was violent and had delusions that people were coming in and out through the window taking away her things, that she refused food and would not stop in bed.

I found her with a raised temperature and a rapid pulse and a dirty brown tongue. She refused food, instinctively resisted whatever was done for her, and was lost to all sense of cleanliness and decency; she was very busy in an aimless fashion, crawling about her room, muttering incoherent nonsense.

Ten days later she developed phlegmasia dolens on the right side; this improved under treatment, but immediately afterwards the left leg became affected and pneumonia supervened. The temperature which had varied between 99° and 100° suddenly rose to 104°, sordes appeared on the lips, the tongue became dry and cracked, and she died on May 19th, one month after her confinement.

I have one case more that I think worthy of mention:

M. E. M., admitted in February, 1904. There had been one previous confinement. The family history was clear, but there was reason to believe that she had suffered from privation. The labour was reported to have been tedious, but otherwise uneventful.

The medical certificate stated that the patient was apprehensive that she had done wrong, and that people were laughing at her. It further stated that she thought she was going to be burnt.

These symptoms appear to have developed gradually, and she was sent to Bicton three weeks after the labour. I found her in a state of profound anergic stupor. The following is a copy of the first note taken: "She is nearly motionless, with her mouth half open, her lower lip hanging and swollen, saliva dribbling, muscles flaccid, skin cold, clammy and inelastic; she appears to observe what goes on to some extent, but shows no facial movement whatever; she will sometimes, but rarely, answer a simple question, showing she can understand, but has lost her volition. Food and drink put into her mouth simply fall out; she will make no attempt at swallowing, but shows no active resistance."

She remained in this state absolutely unchanged for six months, and then made a good recovery. This is very unusual. I have not seen another case of simple anergic stupor following childbirth, though I have seen a few following fright.

In dealing with the prognosis of any form of insanity two factors have to be considered: first, the danger of life; and, secondarily, that the insanity may become permanent.

In puerperal cases the danger to life scarcely exists unless there be some complication. Five deaths occurred in my series, making a percentage of 6.8. Of these, 3 were suffering from severe septicaemia, and would probably have died, even if there had been no mania; the two remaining were in a state of advanced pulmonary tuberculosis when received, and died of that disease while the mental symptoms were still acute.

There were 12, making 16.4 per cent., who failed to recover their reason. It is interesting to note that all but two of these had been treated in their homes for a considerable period, the shortest longer than a month; the two who were certified early belonged to the delirious type, and their physical condition was very bad; both of these died of phthisis in a little over a year.

Three of the remaining ten presented symptoms which suggested the insanity of adolescence; of the rest, two were suffering from melancholia, and the disease had developed in a very insidious manner.

One had previously been under my care, suffering from mania which was not puerperal; her husband had removed her from the asylum before she had recovered, and when he brought her back, after the birth of a child, he admitted that she had never been quite herself since her discharge.

One more had had two previous maniacal outbreaks; she belonged to the tramp class, and was congenitally weak-minded.

Of the remaining three, one was septic, another subsequently died of phthisis, and the third had shown no sign of insanity until after the lapse of one month from the confinement, and her symptoms more nearly represent what is known as maniacal depressive insanity.

Taking the cases in the gross, I find a recovery-rate of 76.7 per cent., but if I deduct the 7 cases of well-marked puerperal fever and the 2 who were admitted in an advanced stage of phthisis, the percentage of recoveries rises to 87.5, and the death-rate vanishes.

The following points are those which should make one careful in giving a favourable prognosis: First, the presence of puerperal fever; secondly, the existence of previous attacks of insanity, especially if these had not had a puerperal origin; thirdly, any symptoms that pointed to adolescent insanity. I admit that these latter would hardly be distinguished in the first few days, but

the adolescent cases show less complete abandonment; they are almost always pert and affected; they have not lost their power of attention so completely.

Lastly, with the exception of the two who had puerperal fever, all my chronics had been treated in their homes for more than a month before certification. I cannot avoid the conclusion that an early removal to an asylum, where the routine treatment is of necessity more thoroughly carried out, enhances the chance of recovery.

There is one other point of great importance, and that is that after recovery has taken place there is much less danger of the patients having further attacks than in any similar form of mental alienation.

With regard to the duration of the illness, 35 out of the 56 recoveries (62.5 per cent.) were well within six months, and all except 6 within the year.

There is but little difference in the results between manias and melancholias, but the prognosis in acute delirious mania is very bad indeed. Of my 7 cases, 3 died, 2 became chronic, and only 2 recovered.

Now I come to the all-important question of treatment. What can we do for these poor people? Should such a case occur in any of your practices you will very shortly have to decide whether, in the interests of the patient, you will cause her to be certified and sent to an asylum, or whether you will undertake the management yourselves. The answer to this question must depend on several factors. First, can the patient or her friends afford the expense? At the lowest estimate two skilled nurses will be required, and by skilled nurses I mean nurses skilled in the management of the insane persons; hospital training by itself does not fit nurses for this work. All over the country asylums are now training nurses on lines similar to those of the best hospitals; courses of lectures are delivered, clinical instruction in the wards is given, and, lastly, before the nurses receive their certificates, they are required to pass an examination, both written and oral, conducted by examiners who are independent of the asylum staff; the minimum period of training is three years.

The environment must be satisfactory; it is impossible to adequately treat such a case in a house in a town. The woman is frequently very noisy; an ample supply of fresh air is most important; she should be in the garden as much as possible, not being walked round and round until she is dead tired, but the more elbow room the better, and a pure atmosphere improves the appetite and encourages sleep in this condition as in all others. Another necessity is that the doctor should be prepared to see the patient twice daily while the symptoms are acute, one of the visits being in the evening.

Assuming that two capable nurses can be procured, and that the environment is suitable, and that the doctor is able to give the case a great deal of personal attention, there is no reason why the patient should not recover as soon and as perfectly at home as in an asylum, and the woman will have been saved from the stigma of certification.

Should you decide to treat the patient at home, some alteration will be necessary in the arrangements of the house. The apartments set aside for the patient's use should be on the ground floor; quite a number of these women jump out of the windows and injure themselves more or less severely, not necessarily with suicidal intent, but more usually because they act on sudden impulses, and do not wait to consider the necessary consequences of their acts. Fire-irons and other articles which lend themselves to offence should be removed—again not because these patients are usually vicious or homicidal (though they sometimes are) but because in mania cases the act follows thought with extreme rapidity, and the idea sometimes arises that it would be funny to tap the nurse on the head. I recollect a woman who had made a rather serious assault on a nurse, telling me after recovery that she had no feeling of malice, but thought at the time that the affair was a capital joke. The fireplace should be guarded, otherwise there is a considerable risk of the patient burning herself and the house. Closets and other rooms should have the bolts taken off and the keys removed, for it is apparent how inconvenient it would be should the patient succeed in locking herself up in one of these rooms.

Should there be much restlessness it is advisable to remove all the furniture from the sleeping apartment, and to make up the bed on the floor. If a bedstead be left the patient will very likely persistently drag it about the room, or put it up on end and block the entrance.

With regard to the treatment of the patient, I may say at once that there is no drug which favourably influences the course of the disease; it is, however, very important that the bowels should be kept clear, and I believe castor-oil to be the best purgative for the purpose in the absence of any special indication.

As much nourishment should be given as the patient can digest. I consider milk, milk puddings, bread and milk, with a daily allowance of two or three eggs, to be the best form of dietary during the early stages of the disease, the food to be given at frequent intervals throughout the twenty-four hours. Later, when the excitement has in some measure subsided, ordinary mixed diet, such as is taken in health, is on the whole the most suitable.

I do not consider that alcohol in any form is needed, though during convalescence there is no objection to stimulants in moderation if the patient had been previously accustomed to them; while there is much excitement I have no doubt that stimulants are better avoided altogether.

A word must be said on the subject of feeding. Few of these cases will take enough food if left to themselves; their minds are too active, they have so many things to do and so many things to say, that they are not able to fix their attention on food; in most cases spoon feeding will be necessary. Great patience is required, and probably a second person will be needed to control the hands of the patient during the process; even with the greatest patience and skill it is sometimes impossible to get enough food taken, and then one of the methods of forcible feeding must be employed. There are three: (1) The nose tube and funnel; (2) the soft oesophageal tube and funnel; and (3) the ordinary stomach pump.

I myself generally use the soft oesophageal tube and funnel.

There is much less danger of injuring the throat, and one less assistant is required than is the case with the stomach pump. It has the disadvantage of being more difficult to pass and of requiring management to prevent the patient regurgitating the liquid through the tube. This is not only very unpleasant for the doctor and the assistants, but there is also considerable danger that some of the food may pass into the trachea and set up gangrene of the lungs.

The nose tube is useful for medicine or stimulants; the bore of the tube being small, it is inconvenient should one desire to give any considerable quantity.

The state of the breasts must not be overlooked, or the case will soon be complicated by the presence of a mammary abscess.

The patient should be put on the stool at regular intervals, preferably after each meal; if this matter be attended to most of the cases can be kept clean and dry, though a certain number will defy every precaution. It is necessary twice a day to comb and brush the hair, which should be plaited, rolled into a knot, and fixed with a needle and thread; unless this is done it will shortly become hopelessly matted and entangled.

Prolonged hot bathing is much used in Germany, and has been tried in this country; it is said to be useful in allaying excitement. It acts by raising the blood pressure.

I prefer to keep the patients in bed for the few days if it can be managed, and in subacute cases a tactful nurse will succeed in doing so, but it is frequently not possible, any attempt resulting in constant struggles between the nurse and the patient.

My practice in the matter of sedatives is to give as little as possible. Most of the patients are in a state of extreme excitement and restlessness when I receive them, and most have been given narcotics rather freely. I generally let them alone for twenty-four hours, and very often they will then go to sleep naturally.

While the excitement and wakefulness are marked, I find that no draught that I think safe is of use. I am accustomed to wait for the first signs of sleepiness and then to assist Nature. I consider three or four hours' good sleep a night during the first few days as much as can be expected.

A fair proportion of my cases go through the whole

illness without sedative medicine at all, but in most cases I find it advisable to give a sleeping draught now and again.

Thirty grains each of chloral hydrate and potassium bromide are generally successful. I also frequently use trional in doses of from 20 gr. to 25 gr. I wish to make it clear that I only give a sedative when it seems to me to be distinctly indicated. I never issue a bottle with instructions for a dose to be given every four hours. I think it decidedly harmful to keep these patients persistently under the influence of narcotics.

Every endeavour should be made to reinstate the patient's power of attention and also the instinct of tidiness, both of which are absolutely lost for a time. I do not know any means except the constant companionship of a tactful and sympathetic person.

The first thing that a nurse will attempt will be to encourage the patient to help her in small ways. She will ask her to carry some little thing for her, such as a coal-scuttle; later she may be trusted to help lay the cloth for meals. I have seen patients occupied in such ways chattering incoherently and gesticulating all the time with their unoccupied hand. Somewhat later the patient will do a little scrubbing or will polish the floor. She will require to be more advanced before it is possible for her to use a needle efficiently, but an endeavour should be made to get her to repair the damage to her clothes that she herself has caused.

The organized amusements that are the routine in an asylum are adapted in a great measure to this end, but as curative agents amusements are far inferior to work.

The rehabilitation of the sense of neatness is fostered by the nurse from the beginning doing all in her power to correct slovenliness. Should the patient tear her dress, the nurse should immediately either give her another, or have the rent repaired. The patient must be kept clean and the nails should be attended to daily; should these matters be neglected, the patient will rapidly become worse and worse, and recovery will be retarded. When some progress has been made, one should endeavour to interest the woman in her personal appearance; she might be given a hat and told to trim it in a simple way. After the extreme motor restlessness has subsided, even though incoherence in some degree may be present, and the mind be very dull, it is the custom of asylums to put the patient among a number of others in the sewing department, where systematic and useful work is done at regular hours.

I realize, of course, that the kind of employment recommended must vary according to the social status of the woman.

On no account should a patient who has passed the acute stage and is in a state of sluggishness and apathy be allowed to spend her time sitting in a chair doing nothing; if it is found impossible to prevail on her to usefully employ herself, she should be taken out and kept on the move both morning and afternoon.

In making the above remarks I have had in my mind the usual type. A small proportion of my cases showed obvious septicity—raised temperature, rapid and feeble pulse, dry tongue, and mania of the delirious type. Such cases require medication suited for their physical condition, and quinine, calomel, and opium—the last in small and frequent doses—may do good.

In such cases I think most practitioners would give a little brandy.

To conclude, puerperal insanity is typically an acute mania, any one of the so-called causes of insanity, for example, fright, shock, undue worry, or a neurotic inheritance will render the patient liable to an attack. I do not think the thesis that sepsis is invariably present can be sustained, though a considerable proportion are undoubtedly septic. The prognosis is favourable, and with a good family history, and in the absence of septic poisoning, recovery may be anticipated within six months, and subsequent attacks are not greatly to be feared.

Special symptoms must be dealt with as they arise, but the essence of treatment consists in an abundance of bland and nutritious food and competent nursing.

It remains for me to express my thanks to Dr. Rambaut for allowing me to use the asylum records for the purpose of this paper, and to you, gentlemen, for the courteous attention which you have accorded me.

TABLE I.—*Onset of Symptoms in Relation to the Date of the Labour.*

		Per Cent.
One to three days	25	34.24
Four to seven days	23	31.50
Eight to fourteen days	19	26.15
Fifteen to twenty-one days	1	1.37
Twenty-two to twenty-eight days ...	5	6.84
	73	100

TABLE II.—*Showing Seasons in which the Labour Occurred.*

		Per Cent.
Winter	22	30.13
Spring	21	28.76
Summer	17	23.28
Autumn	13	17.80
	73	100

TABLE III.—*Showing whether or not First Attack of Insanity.*

		Per Cent.
First attack	61	83.57
Not first attack	12	16.43
	73	100

TABLE IV.—*Showing the Condition as to Marriage.*

		Per Cent.
Married	61	83.56
Single	12	16.43
	73	100

TABLE V.—*Showing the Proportion in which Hereditary Influence was Ascertained.*

Direct.	Collateral.	Total.	Percentage.
13	11	24	32.87

TABLE VI.—*Showing the Results of the 73 Cases.*

		Per Cent.
Recovered	56	76.7
Died	5	6.8
Became chronically insane	12	16.4

TABLE VII.—*Prevailing Type of Mental Disorder.*

		Per Cent.
Mania	47	64.4
Melancholia	19	26.0
Acute delirious mania	7	9.6

TABLE VIII.—*Duration of the Illness in those that Recovered.*

Under 3 months	8
From 3 to 6 months	27
From 6 to 9 months	11
From 9 to 12 months	4
From 1 to 2 years	3
From 2 to 3 years	—
From 3 to 5 years	3

30 showed some suicidal tendency.
11 had some cause other than the puerperium.

TABLE IX.—*Results of the Cases of Mania (47) excluding Acute Delirious Mania.*

		Per Cent.
Recovered	38	80.85
Under 3 months	4	—
From 3 to 6 months	21	—
,, 6 ,, 9 ,, ...	7	—
,, 9 ,, 12 ,, ...	2	—
,, 1 ,, 2 years	3	—
,, 2 ,, 3 ,, ...	—	—
,, 3 ,, 5 ,, ...	1	—
Remaining chronically insane ...	7	15.0
Died	2	—

TABLE X.—*Results of the Cases of Melancholia (19).*

		Per Cent.
Recovered	16	84.2
Under 3 months	3	—
From 3 to 6 months	6	—
,, 6 ,, 9 ,, ...	3	—
,, 9 ,, 12 ,, ...	2	—
,, 1 ,, 2 years	—	—
,, 2 ,, 3 ,, ...	—	—
,, 3 ,, 5 ,, ...	2	—
Remaining chronically insane	3	16.8
Died	0	—

TABLE XI.—*Results of the Cases of Acute Delirious Mania (7).*

Recovered (1 in 3 months, 1 in 6½ months)	2
Remained chronic	2
Died (2 in 3 weeks, 1 in 1 month)	3

TABLE XII.

Ages of all the Cases.

		Per Cent.
15 to 19 years	7	9.59
20 to 24 ,,	16	21.91
25 to 29 ,,	23	31.5
30 to 34 ,,	12	16.43
35 to 39 ,,	9	12.33
40 ,,	6	8.22
	73	100

TABLE XIII.—*Showing the Number of Labours in 73 Cases.*

		Per Cent.
1	37	50.68
2	12	16.43
3	6	8.22
4	6	8.22
5	4	5.47
6	2	2.74
7	4	5.47
8	2	2.74
	73	100

TABLE XIV.

Types of Disorder in Relation to Ages.	15 to 24	25 to 34.	35.	Total.
Mania	18	20	9	47
Melancholia	3	10	6	19
Acute delirious mania	2	4	1	7

TABLE XV.—*Results in Relation to the Duration of the Disease on Admission to the Asylum.*

	Recovered.		Died.		Became Chronic.	
	Mania.	Melancholia.	Mania.	Melancholia.	Mania.	Melancholia.
Within a week	15	—	1	—	2	—
Between one and two weeks ...	16	—	3	—	—	—
Between two and three weeks ...	2	2	1	—	—	—
Between three and four weeks...	1	2	—	—	2	—
Over a month...	7	11	—	—	4	4

MEDICAL SOCIALISTS.—We learn from the New York *Medical Record* that a number of East Side practitioners holding Socialistic opinions are forming a league having for its object the nomination of Socialistic candidates for public offices.

ETHYL CHLORIDE AS A GENERAL ANAESTHETIC IN CONJUNCTION WITH ETHER.

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HAVING followed the correspondence of some time back in relation to ethyl chloride, it is interesting to note the growing feeling that the administration of the drug is by no means so easy, neither is it so free from risks, as at one time some were inclined to think.

Although admitting that a certain proportion of fatalities were due to unsuitable cases, others, perhaps, to want of experience on the part of the administrator, yet there are doubtless some which will not admit of this explanation. I have given the drug about two thousand times, and have had one case that for a moment gave me a little anxiety.

The patient was a male, aged about 20, apparently healthy. The anaesthetic was given for the extraction of about five teeth. Time, 10.30 a.m. He had been told by his dentist to take no breakfast. The amount of ethyl chloride inhaled was 3 c.cm., given by my apparatus and method as described in the BRITISH MEDICAL JOURNAL, April 23rd, 1904.

When almost under and I should have removed the face-piece in another two or three inspirations, he quite suddenly became very pallid, the eyelids lost their tone, and the pulse and respirations became feeble. The mask was immediately withdrawn, and he rapidly regained colour, the pulse and respiration improving together.

By way partly of treatment and partly to enable the dental surgeon to complete his work, the bag was emptied of the vapour, the ether inhaler applied, and he rapidly became anaesthetized. This was done without any trouble, as he had not yet recovered from the previous administration. All went well. On recovery he vomited to the extent of demonstrating that he had partaken of a hearty breakfast; but I am sure that his symptoms were largely cardiac and not due to incipient vomiting, as at the time he was too deeply under for that to occur, although doubtless his loaded stomach contributed to a condition in which, had he not been closely watched, there is little doubt that rather an alarming state of affairs might have rapidly followed.

Such a case as this would emphasize that which I wrote in the BRITISH MEDICAL JOURNAL over three years ago, namely:

As with the administration of other anaesthetics, so with ethyl chloride, caution and experience are required to satisfactory anaesthesia, a minimum of after-effects, with safety to the patient. I would strongly recommend intending administrators to see it given by an experienced anaesthetist and to administer it under his guidance several times and to several types of patients before attempting to give it to his own patients.

To most of those who have been interested in this drug the similarity of the anaesthesia to that of deep chloroform must have occurred, and with that in view it has been my practice for some time past to combine the vapour of ethyl chloride with that of ether in varying proportions. As far as I am aware there has been no fatality in the ethyl chloride-ether sequence or mixture.

In giving this sequence and mixture extensively from 1902 it has been my habit to get in ether as soon as the patient can bear it, and I would submit that if ether were more generally used in conjunction with ethyl chloride—and especially by those of only moderate experience—there would have been fewer fatalities to deplore.

For short surgical operations requiring one inhalation I use one of two methods and apparatus, as will now be described.

Method I.

A wide-bore ether inhaler of the Clover pattern, devised by Dr. Hewitt and modified by myself,[1] I introduce a measured quantity of ethyl chloride, which is given slowly; the ether chamber is charged with about half an ounce of ether. When signs of unconsciousness begin to show themselves I administer as much of the ether as is possible.

The inhaler described is particularly adaptable for this procedure, having a wide bore, and a large evaporating surface in the ether chamber—which is not entirely enclosed with a water jacket—so that we are enabled to present to the patient a strong vapour.

As with the ether in the C.E. or A.C.E. mixture, so in this instance the object is to produce its stimulating effect, although I think that in some cases the anaesthesia is prolonged thereby. My usual dose of ethyl chloride is 2½ c.cm., but I now find that in certain cases in which a long anaesthesia is required I can give more than this, and I think, using this method, there need be no fear of anaesthetizing in the erect position. The advantages in dental and certain surgical work of this position are so great that it will be a pity if all ethyl chloride cases must be conducted in the recumbent position.

Method II.

When in Capetown it was reported to me by the makers of my inhaler that some practitioners complained that in using it the glass tube was occasionally blown from the tap. This has never occurred in my experience; I cannot say if it is due to faulty construction of the apparatus or to want of familiarity in its working; but I did find that in working in a temperature of say, 90° F., there was some loss by evaporation in filling the tube. It therefore occurred to me to introduce into the tube a few drops of ether, the object being to cool the tube before introducing the ethyl chloride, and also by mixture to prevent loss. This was done by way of filling a used 60 c.cm. "ethyl anaesthetic" (Duncan) bottle with ether. With the warmth of the hand and a little shaking a good flow from the bottle is readily produced. I then put in my 2½ c.cm. as before, and the anaesthesia was the same as if no ether had been present. This led to several experiments, and eventually I found myself giving 2½ c.cm. of ether and the same quantity of ethyl chloride.

It will be at once said that the evaporation is unequal, that is, the ethyl chloride comes off first and the ether at the end. This is only partly correct. It is surprising how quickly the ether evaporates. Let this mixture be made (the tube should of course be shaken), and let the tube be emptied into a one-gallon bag, and in a room of the temperature of, say, 65° F., it will be observed that the evaporation of both is complete in a few seconds.

But by passing the mixture through the metal tube and tap gradually, a larger percentage of chloride of ethyl will be presented to the patient on account of the metal surface it has to flow over. The inhaler used is well suited for this purpose.[2] It is claimed that this unequal evaporation is the condition desired, seeing that we first give a vapour largely composed of ethyl chloride, and later, when the depressing effects of ethyl chloride may show itself, the stimulating qualities of the ether will be manifest. At this later stage the ether will be more freely inhaled on account of the quicker and deeper respirations.

A breath of air may be given with advantage, and with less risk of lightening the anaesthesia.

I have hardly given a sufficient number of cases to give statistical results, but my object in writing is to direct the attention of anaesthetists to the latter method, as perhaps some might like to go into the matter with special reference to the proportion of the two drugs in order to secure the best results and their relative evaporation.

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[1] BRITISH MEDICAL JOURNAL, October 10th, 1903. [2] Ibid., April 23rd, 1904.

NOTES ON A CASE OF QUININE HAEMOGLOBINURIA OR BLACKWATER FEVER.

BY ARTHUR D. KETCHEN, M.B.LOND., L.R.C.P.LOND.,

HONORARY VISITING PHYSICIAN TO THE NEW SOMERSET HOSPITAL, CAPETOWN.

S. H., aged 28, an Austrian, was admitted to New Somerset Hospital, Capetown, on April 17th, 1906. The previous history of his illness is so interestingly described in his own words that I have thought it best to include it in this report as it was written down by himself, and it is as follows:

"History of My Present Disease.

"The first attack of malaria fever occurred in March, 1903, when I was crossing the Nasai-Steppe (open flat country inhabited by a nomadic tribe of natives, the Nasai) on my way to Victoria Nyanza, German East Africa. Soon after I had sunstroke, with which I laid more or less senseless for about twenty days at a friendly native village without any attendance, the result of which was that when I have been found by another European traveller, my back has been in pitiable state. This European has seen to my safe conduct to the nearest military station, where I stayed for six months before my wounds have been completely healed. In the meantime I started to rid myself of the malaria parasites by following the treatment advised by Professor Koch of Berlin (every ninth and tenth day 1 gram of quinine first thing in the morning) for two months, after which time the malaria symptoms completely disappeared.

"At the end of August, 1903, being restored to health, I left this place and travelled among the different tribes for about three months, during which time I was enjoying perfect health without taking quinine or any other medicines. In November, while travelling among the warlike tribe 'Wanyaturus,' my caravan has been attacked in a forest by about 600 natives, some carriers of mine have been killed outright and the rest run away with the exception of one boy, with whom I reached the nearest military station after travelling day and night through forest for four days, and living on wild fruit all this time. At the station I arrived in exhausted condition, and the military doctor has found me in high feverish state in which I remained for about five days.

"When my temperature has settled to normal I commenced taking quinine as above stated, until one morning, disregarding the fact that my temperature has been on the rise, I took quinine, with the result that half an hour later I passed urine of very dark colour. The doctor upon arrival advised me to drink as much of mineral water, weak tea, etc., as possible, which advice I followed, and the urine got within twenty hours completely clear. The doctor had on this occasion told me not to take any quinine if my blood is in normal state, therefore I waited until my temperature was normal for two to three days in succession and took quinine again, half an hour later I had blackwater fever again. The treatment has been similar to the one above stated.

"After this I have not taken any more quinine, although I have suffered from malaria attacks, which have been of short duration without any after-effects, very often until I had a very heavy attack of seven days' duration. I could not retain any food in my stomach; in the morning the temperature has been lower, towards evening it gradually increased, accompanied by continuous vomiting and rigorous shivers, until about 10 p.m. it has reached its highest point, never less than 41.5° C. After I've got better the doctor has advised me to try quinine again, beginning with a very small quantity, and gradually to increase the same, as that was in his opinion the only way to reduce the enlargement of the liver and spleen, and to rid me at the same time of the malaria parasites. I expressed my doubts of being able to take any quinine without getting blackwater fever, upon which the doctor pronounced his willingness to administer the quantity of quinine personally; to this I consented. He gave me about one-tenth (1-10th) of a tabloid containing 0.5 gram first thing in the morning, half an hour after I had taken it I had blackwater fever again; all this time the doctor has not moved from my bedside. On this occasion my body has taken on a yellow colour which did not happen on the previous occasion.

"After this I gave up the treatment altogether. I continued to suffer from malaria attacks, but never longer than a couple of hours' duration. On my wanderings about the country I came to a station where the doctor has been greatly surprised at my anaemic appearance, and asked me the reason. I explained to him, but he only laughed at my explanation, and said if I were to put myself under his treatment he guarantees to put me right, referring at the same time to some people who have been treated by him under similar circumstances. I have, needless to say, thankfully accepted his offer. He gave me one-fortieth part of a tabloid (0.5 gram) quinine first thing in the morning. Result: Half an hour later I had blackwater fever; treatment same as before. This attack has been followed by dysentery, from which I suffered for about five weeks, having had three relapses. Soon after I left German East Africa, and travelled extensively in North-Western Rhodesia, British Central Africa, and Portuguese territory, until at last I came back to Salisbury. Ever since the attack of dysentery I had no more fever attacks, and have enjoyed perfect health for about fourteen months. After my arrival in Salisbury I began to be troubled with after-effects of dysentery, and came in search of medical assistance to Somerset Strand, Cape Colony, at which place I consulted Dr. Waldron, who has advised me to go to New Somerset Hospital, Capetown, which advice I followed."

Condition on Admission.

The patient is a somewhat spare man, markedly anaemic, and showing signs of chronic malarial poisoning. The spleen was enlarged and tender, and extended about 4 in. below the costal margin in the nipple line. There was slight dilatation of the heart, and the first sound terminated in a soft systolic murmur, heard best at apex. There was also slight enlargement of liver. He had suffered from dysentery prior to admission, and when in hospital there was some mucus in the motions, which were three or four in number in the twenty-four hours. There was also a certain amount of tenesmus. The urine was quite clear, acid reaction, specific gravity 1024, and contained neither albumen nor blood. The temperature was normal night and morning. The patient was

treated with arsenic and iron medicinally, kept in bed, and dieted for his colitis. On April 20th a blood film showed one or two parasites of the aestivo-autumnal type. On April 23rd, at 8 a.m., he received by accident a dose of medicine which was intended for the patient in the adjoining bed; it contained 10 gr. of ferri et quin. cit. (*B.P.*), or, in all, 1¼ gr. of quinine. He did not know that the medicine contained quinine, but on passing water at 10 a.m. he noticed that his urine was black, and immediately came to the conclusion that he had had some quinine. At 6 p.m. his temperature had risen to 102°, and this was reported to the house-physician, Dr. Pope, who, ignorant of the fact that the patient had already had a dose of quinine by mistake, ordered 10 gr. of quinine to be given. By 10 p.m. on the same day the temperature had fallen to 99.4°, and the urine was again clear. At 11 p.m. the 10 gr. dose of quinine ordered by the house-physician was administered, and at 2 a.m. on April 24th the patient's temperature had risen to 104.2°. He had had a severe rigor lasting twenty-five minutes, and he also vomited. When seen next morning the skin was of a yellow saffron and the colour of the conjunctivae was yellow. He had been sweating profusely. The urine was black, specific gravity 1022, and a large amount of albumen was present. There was a considerable deposit which contained some débris and casts. The quinine was at once stopped. The temperature rapidly fell during April 24th, and on April 25th the yellow colour had almost entirely disappeared, the temperature was normal, and the urine was quite clear but contained a faint trace of albumen. On April 26th another single dose of quinine (6 gr.) was given at 6 p.m., and at 10 p.m. the same night the temperature had risen to 102°, and he was again passing black water, the symptoms being the same as in the previous attack. The symptoms again rapidly subsided after ceasing the administration of the quinine, but there was a slight rise of temperature for one or two subsequent evenings. Again the urine rapidly assumed its normal character, being free from albumen on April 28th. The patient's condition now rapidly improved on liberal diet and on the administration of ferri ammon. cit. with liquor arsenicalis.

As some doubt had been expressed that the small dose of the quinine in the 10 gr. of ferri et quin. cit. could excite an attack, it was determined to repeat the dose of the medicine which had been given originally by mistake. On May 8th, therefore, at 8 a.m. in the morning, 10 gr. of ferri et quin. cit., containing approximately 1½ gr. of quinine, were given him. The blood on the previous day showed no parasites. At 10 a.m., two hours after taking this dose, the patient was again passing red water, and his temperature was rising; it reached 104.2° at 6 p.m. He again vomited, but on this occasion had no rigor. Films of blood taken during the paroxysm, and kindly examined by Dr. G. Robertson of the Government Health Laboratories, showed no parasites. This attack passed quickly off, and on May 14th the patient left the hospital, his general condition having considerably improved since his last attack, but the spleen showed practically no diminution in size. The systolic murmur heard over the precordial area had, however, disappeared.

The great interest of the case was the invariable sequence of an attack of blackwater fever after the administration of quinine, often in very small doses, to a patient suffering from chronic malarial poisoning, but who had been free from any attack of blackwater fever or malaria for fourteen months. The question as to whether "blackwater fever" could be induced by the administration of quinine has been for a considerable time much debated. Koch held the opinion that blackwater fever was a condition caused by quinine poisoning without malarial poisoning being a factor in the case, and Baccelli attributed malarial haemoglobinuria to the same cause in Italy.

That the administration of quinine in malarial infection has been followed by haemoglobinuric fever has been testified to by many observers. "Of 43 cases of blackwater fever which came under F. Plehn's observation in Cameroon 24 positively broke out a few hours after the administration of quinine, and of 55 cases treated by A. Plehn in the same place 48 of the attacks were directly caused by quinine. Most of the attacks set in two to four hours after the administration of quinine" (Scheube). The fact, then, seems to be undoubtedly established that administration of quinine in malarial subjects may cause haemoglobinuria. Cantlie, whilst recognizing this fact, however, states that though "the quinine in large doses seems to cause a recurrence of haemoglobinuria in those who have become the subject of the disease, this may be a clinical phenomenon, but it is hardly worthy of being accepted as a pathological axiom." Against this theory of the causation of the disease he adduces the fact that though malaria is prevalent in so many countries and quinine the universal remedy for the disease, yet blackwater fever is confined to a few restricted geographical areas. "That quinine may do harm during a paroxysm or may induce a relapse is beside the question of the 'etiology' of the disease" (Cantlie in Allchin's *System of Medicine*).

Another theory accounting for the disease is that it is caused by a parasite analogous to that causing haemoglobinuric fever in cattle. This opinion is held by Dr. Sambon.

Another question of interest is, Can the malarial parasite alone or quinine in a non-malarial subject cause haemoglobinuria? As regards the first question opinions are still divided. Scheube says, "It (blackwater fever) is occasionally observed in patients who have not taken quinine immediately or for some time previously." As regards the second question, only three cases have been known to Scheube where the administration of quinine was followed by haemoglobinuria in a non-malarial patient, these cases being two of typhoid fever and one a leukaemic patient.

Another point of interest is the dose of quinine which is necessary to provoke an attack. In the case here reported 1½ grains caused symptoms of haemoglobinuria to appear within two hours. The idea that the dose of quinine must necessarily be large is therefore quite erroneous. The most modern views of this interesting condition are ably summed up by J. W. W. Stephens and Christophers in their book on the study of practical malaria, and are as follows:

> Between this phenomenon (quinine haemoglobinuria) and blackwater fever there is, in our opinion, practically no difference. It (blackwater fever) occurs only in those who have previously suffered from malaria, and, in fact, there is considerable evidence to show that it occurs frequently in direct association with a malarial infection. The haemoglobinuria follows the administration of quinine after a certain variable interval, two to three, frequently five to six, or possibly twenty-four hours. The amount of quinine does not determine whether the haemoglobinuria is slight or severe. After haemoglobinuria has been produced by quinine a second administration does not necessarily produce a second attack.

The indications for treatment of the case reported in this note were perfectly clear, and simply consisted in stopping the administration of the quinine, which was so evidently the exciting cause of each attack, and if, as the evidence of such authorities as Stephens goes to show, the quinine is the exciting cause in all cases, the continued administration of this drug seems quite irrational and productive of nothing but harm. In this case, within twenty-four hours of the commencement of the attack, the urine had again become its natural colour, the jaundice had almost disappeared, and the temperature was only slightly above normal. If repeated doses of quinine had been given the patient's symptoms would have been intensified instead of disappearing, and from the gravity of the condition after single doses it would have been easy to foresee a fatal termination had the original cause of the attack been frequently repeated over a short period of time. Manson and others, among whom is Hare, advocate that if parasites are found in the blood during an attack of blackwater fever the quinine should be still given; but this seems to me to be wrong, inasmuch as the consequent enormous destruction of red blood corpuscles is probably much more detrimental to the patient's condition and chance of recovery than the presence of the malarial parasite, for the destruction of which the quinine is originally given.

It is interesting to note that the patient states that his earlier attacks of malaria were treated successfully with quinine. The view, therefore, that he showed a special idiosyncrasy to the drug, and that to him even in small doses it acted as a powerful poison, may be dismissed. It was only after he became the subject of chronic malarial poisoning that the taking of the drug was followed by such serious symptoms of blackwater fever.

A Uniform Catheter Scale.—The American Surgical Trade Association has (we learn from the *Medical Record*) announced that at a meeting held in Philadelphia in June it was resolved that in order to secure uniformity the trade should, after January 1st, 1907, adopt the French scale for all catheters, bougies, and sounds.

The late Colonel Arthur Drummond Currie of Martley, Worcestershire, bequeathed sums of £200 each to the London Hospital; the Middlesex Hospital; the Midland Hospital for Incurables, Leamington; the Worcester General Infirmary; and the Asylum for Idiots at Knowle.

TETANUS IN TWO BROTHERS: SUBDURAL AND SUBCUTANEOUS INJECTONS OF SERUM: RECOVERY.

By JAMES ADAM, M.D.,
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As the value of the serum treatment of tetanus seems demonstrated by one, if not by both, of these cases, they may be worth publishing; that others may judge I give the notes in some detail.

In narrating the cases the days are numbered from the date of injury and unless otherwise stated the injections were made into the abdominal wall.

Case I (X.).

Summary: Numerous dirty wounds; first symptoms of tetanus on tenth day. First injection of serum on eleventh, last on twenty-second; two subdural; total, 157 c.cm.

History.—The patient was a vanman, aged 29, whose horse ran away on June 14th; he held on to its head, was dragged many yards along the road, and received eight very dirty wounds on the head, hands, and lower limbs. The two worst were a large gash above the front of each knee, penetrating deeply into the muscles, and large enough to admit a fist. The left knee-joint just escaped.

Treatment.—As I was out of town he was attended by my assistant, who asked me to see him three days later. The wounds in the thighs were much inflamed, stinking and suppurating badly. Under chloroform they were cleaned out, several free counter-openings made at the back of each thigh, the wounds sluiced with hydrogen peroxide solution, followed by carbolic lotion and drains inserted. No pyrexia. From this time the wounds began to do well.

Progress.—Eleventh day (June 24th). The patient complained he could not open his mouth properly, and said he had noticed this and stiffness about back the previous day. Failing to get into the spinal theca with my longest antitoxin needle, I injected 10 c.cm. antitetanus serum into abdominal wall.

Twelfth day (Sunday). Having with difficulty procured a fine trocar and cannula, I managed to enter the spinal sheath, but only 2 c.cm. cerebro-spinal fluid could be got to flow, and it was thought best to inject only that amount of serum within the dura, and 15 c.cm. were injected into abdominal wall. Trismus, risus sardonicus; spasm of trunk muscles well marked.

Thirteenth day. A proper needle having been made, 10 c.cm. of serum injected intraspinally under chloroform and 10 c.cm. subcutaneously.

Fourteenth day. Can move jaw with great exertion $\frac{1}{8}$ in.; cannot pass water; catheter; 20 c.cm. injected subcutaneously.

Fifteenth day. Pulse has fallen from 98 yesterday to 80 to-day; respirations from 28 to 20; sweating, which was profuse, has stopped. Patient feels better, takes food well. Catheter sets up spasm, opisthotonos, clonus of left leg. Jaw perhaps slightly freer; 20 c.cm. Patient's brother came to-day from Bathgate with well-marked trismus.

Sixteenth day. Slept well; can open jaw $\frac{1}{4}$ in.

Seventeenth day. Being better the patient got no serum; to-day he looks and is decidedly worse, feels exhausted. When turned, moves in one piece like a board, muscles much more rigid; pulse has risen from 70 yesterday to 85. I tried to give an intraspinal injection, but although it was evident from the "feel" and the position of the needle that it was in the canal, no fluid came. As the needle was found blocked with a peculiar soft slightly blood-stained clot, the puncture being at the site of the previous ones, I judged it safer to inject subcutaneously 20 c.cm. serum.

Nineteenth day. 20 c.cm. yesterday, 10 to-day. Pulse has fallen again from 86 to 68, and patient feels much better. Jaw is as rigid as ever, moves perhaps $\frac{1}{16}$ in.; but catheter does not set up clonus to nearly the same degree.

Twentieth day. 10 c.cm. Erythema all over abdomen. Nurse says patient is much more easily turned in bed, though the muscles of neck, trunk, and legs are still rigid.

Twenty-second day. No serum yesterday; teeth can be parted $\frac{1}{4}$ in. The gaps in the thighs have now granulated level with the skin; left knee-joint still swollen. 10 c.cm., the last injection.

Twenty-third day. Trunk muscles still very rigid; abdomen has been like a board throughout; lower limb muscles relaxed.

Twenty-fifth day. Passed urine without catheter; parts jaws $\frac{1}{2}$ in.; can turn himself in bed, but trunk muscles still rigid.

Twenty-ninth day. Opens mouth an inch; can chew a little.

Result.—Thirty-eighth day (July 21st). The patient feels very well, but there is still stiffness of jaw and trunk muscles, and when he tried to get out of bed—for the first time—he could not do so owing to stiffness of back and pronounced clonus of left leg. The wounds at this time were becoming covered with epidermis.

Remarks.—In addition to the injections, syr. chloral in drachm doses was given every four hours for the first three days of the tetanus, but, as there was no obvious gain from it, it was stopped, except for an occasional dose at bedtime. Large quantities of fluid food were poured into the patient through interstices between the teeth, and he swallowed them well. Papain was given to aid digestion, helmitol as a prophylactic during catheterism. The wounds were washed daily with H_2O_2 lotion followed by carbolic solution.

Case II (Y.).

Summary: Slight bruise of great toe: first symptom of tetanus by third day; muscles of jaw and spine chiefly involved. First injection of serum on seventh day (subdural), the last on the 14th—100 c.cm. Wound swabbed out with pure carbolic acid on seventh; required no more dressing.

This patient was a brother of the preceding, a farrier, aged 31. He was a powerfully-built man, who came from Bathgate on June 28th; he walked from the station to my house with great difficulty, and was much exhausted in consequence.

State on Examination.—He complained of pain and stiffness in jaws, shoulders, loins. Trismus was distinct, and he bit tongue when asked to show it. Seven days before, when he was shoeing a fresh colt, it stamped on his foot, sending its hoof through his boot, and slightly bruising his right great toe. He took little notice of the injury, and did not think the skin was broken. Two days later he felt his jaw stiff; on the fourth day he could not eat, and felt pain and stiffness in his back. He saw a doctor on this and following days. On seventh day, when he came to Hamilton, he could just cross his legs with great difficulty; knee-jerks very exaggerated.

Treatment.—Chloroform was given; 10 c.cm. cerebro-spinal fluid withdrawn by lumbar puncture; 10 c.cm. serum injected into the canal. On dorsum of great toe was a small, slightly-discoloured spot the size of a split pea, with unbroken cuticle. This was scraped off and found to cover a flat, punched-out, clean-looking sore, not more than $\frac{1}{8}$ in. deep. This was scraped and swabbed out with pure carbolic acid.

Eighth day. The patient feels pretty well; stiffness much the same. To-night I tried to inject more serum by lumbar puncture, but could not hit the cavity, perhaps because the patient refused chloroform. He bore the procedure badly, and had two violent spasms; 30 c.cm. into abdominal wall.

Ninth day. Pulse has fallen from 84 yesterday morning to 60, respiration from 24 to 20, temperature from 100° on 7th to 97.5°. Was sleeping with mouth open. The moment he woke his jaws snapped together and severely bit tongue. He can part teeth; 10 c.cm. serum.

Twelfth day. 10 c.cm. to-day, 10 yesterday, 20 the day previous. Patient says he was getting worse every day till he came under treatment; has been feeling better every day since. Wants to get up, but is still afraid to show his tongue.

Fourteenth day. Can open his mouth a little wider. Had no injection yesterday; demands one to-day. Had 10 c.cm.

Result.—Twenty-second day. Able to open mouth an inch for last four days, and to chew. Gait still spastic, jaws still stiff. Patient allowed home to Bathgate to-day, and warned to rest a fortnight. Two weeks later he reported himself well.

Remarks.

These two cases present a curious contrast. The first, the younger brother, of slighter build, had a number of severe and dirty wounds, presented no tetantic symptoms till the tenth day, and had a severe attack. The second had a trivial injury, yet although he developed tetanic symptoms within seventy, if not sixty, hours, he had a much less severe illness than his brother—that is, the severity of the illness was related to the severity of the injury, and therefore probably rather to the quantity of the poison than to its virulence. According to accepted notions, the earlier development indicates the more virulent poison. As to the value of serum treatment, the improvement which Y. ascribed to the serum may have been due to rest, good feeding, to the opening of the closed wound and the consequent weakening of the bacillus by its exposure to oxygen, as well as by the pure carbolic acid. But that this is not all is proved by X. This was the more inveterate case, yet the improvement in pulse, respiration, and aspect while the injections were given; the reversal of this and the horrible dying aspect the day after the injec-

tions were missed; the renewed improvement with their resumption, left the same kind of impression on one's mind as is left by the improvement of the throat after diphtheria antitoxin. The evidence is clinical; it seems in accord with the accumulating statistical evidence. Of course it is unsafe to draw conclusions—one can only have "impressions"—from two cases. They are the only cases I have had. Neither of them had convulsions. The occurrence of tetanus in the two brothers was probably merely a coincidence from both happening to have accidents in connexion with horses. Possibly the long dry weather of June may have favoured the inoculation and virulence of the tetanus bacillus. At any rate I considered it wise to give a prophylactic injection of antitetanic serum to a third patient, another vanman, who fell from his van on July 1st and received a compound comminuted fracture of left clavicle, and dirty wound of ear and scalp. The wounds were dressed, the scalp wound being swabbed with pure carbolic acid. The patient recovered, but on the nineteenth day he had a febrile attack, with temperature of 102°, pains in muscles and joints. These were probably rheumatic, and lasted two days. They yielded to 60-gr. doses of sodium salicylate together with 120 gr. of sodium bicarbonate night and morning.

As the tetanus bacillus is an anaërobe, H_2O_2 seems an ideal solution to use for such wounds as occurred in these cases. The inoculations kindly made by my friend, Dr. R. M. Buchanan, Bacteriologist to the City of Glasgow, from pus taken about the fourteenth day were negative. Obviously in tetanus lumbar puncture should be done under chloroform.

IMPROVED METHODS FOR RECOGNITION OF BLOOD AND SEMINAL STAINS,

ESPECIALLY IN TROPICAL CLIMATES.

By E. H. HANKIN, M.A., Sc.D.,

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[From the Agra Government Laboratory.]

The high temperature of tropical climates has a twofold action on blood and seminal stains. If the stains are kept damp they are liable to putrefy rapidly. If they are kept dry they become so insoluble as to be acted on with difficulty by the ordinary reagents. Either of these changes may render recognition of the stains difficult or impossible.

If a blood stain is so altered in this way that it refuses to respond to the ordinary tests, I have found that it may give the absorption bands of haemochromogen, even although the blood-colouring matter is in an apparently undissolved and insoluble condition. The method of carrying out the test based on this fact is as follows:

If on clothing, etc., the suspected stain is cut out and plunged into boiling water for a few moments. It is then placed on a glass slide and wetted with ammonium sulphide. It is examined under the microscope, and the specimen is moved until the whole field of view is occupied by a portion of the coloured material. If this cannot be achieved with a low power, the use of an oil immersion may be necessary. The eyepiece is then taken out and replaced by a microspectroscope. If the stain is of blood the two absorption bands of haemochromogen will be seen. Should the bands not be visible—as may occur apparently owing to the effects of commencing putrefaction—a drop of a 10 per cent. solution of potassium cyanide should be allowed to fall on the stain. Two bands will at once develop resembling those of haemochromogen, but situated a little nearer to the red end of the spectrum.

The object of boiling the blood-stained cloth is to prevent the colouring matter from going into solution. If this was to occur, as might happen with a fresh stain, the colour might be so diluted that the absorption bands could not be observed. If the stain is on a weapon or a piece of jewellery, it should first be wetted with ammonium sulphide. A small portion may then be scraped off with a knife and treated as above.

Extended experience during the last four years has given me confidence in the value of this method. It has also been employed with success by Captain Windsor, I.M.S., Chemical Examiner to the Government of Burmah.

In dealing with difficultly soluble seminal stains, I attempted to take advantage of the known solvent action of potassium cyanide on proteid matter. I found that spermatozoa were rapidly disintegrated under the action of this reagent, unless they were first hardened by immersion in boiling water. The suspected seminal stain is first placed for a minute in boiling water. It is allowed to cool. It is then placed for two minutes in a 2 per cent. solution of potassium cyanide. It is then rapidly washed in distilled water, placed on a glass slide, teased up and scraped, and larger pieces of the cloth are removed. The film on the slide is dried at air temperature; it is then fixed by heating, stained with gentian violet, and examined. This treatment gave distinctly better results than methods previously at my disposal, but was not quite satisfactory in that the tails of the spermatozoa were not always adequately stained. Better results may be obtained as follows:

1. The suspected stain is boiled for two minutes in a watery solution containing tannin ½ per cent., and sulphuric acid 1 per 1,000.

2. The stain is washed for two minutes in a solution made by adding one part of saturated ammonia solution to 400 of water.

3. It is then transferred for two minutes to a 2 per cent. solution of potassium cyanide.

4. It is then rapidly washed in distilled water, scraped, and teased up on a glass slide, dried, fixed by heat, and stained.

It is stated in textbooks that seminal stains must be gently treated, and not roughly teased up, to avoid breaking off the flagella from the heads of the spermatozoa. My experience indicates that breaking off of the tails is mostly due to treatment with inappropriate solvents, but partly to changes that may occur spontaneously, especially in a thick layer of the stain.

By the above method I have been able to detect spermatozoa in a stain in which they were covered with masses of bacteria, and were only visible with the help of an oil immersion lens; in another stain which had been covered with a mixture of red ink and starch paste, and also in a stain that I had heated to 140° C. in a hot air sterilizer.

Italian Tuberculosis Congress.—The Italian Congress on Tuberculosis was held at Milan in the last week of September. In the opening address Dr. F. Gatti, President of the Organizing Committee, contrasted the vigorous action taken for the abatement of the tuberculosis scourge in Great Britain and in Germany with the little that was being done in Italy. Resolutions were passed urging the organization of an efficient public service of disinfection, the sanitary control of the milk supply and the provision of hospital accommodation for the subjects of tuberculosis. In regard to the latter question the feeling of the meeting was that such persons should be treated in separate hospitals with distinct departments for curable and incurable cases respectively. Professor Di Vestea dwelt on the importance of the teaching of the principles of hygiene, with special application to tuberculosis, in all schools. Professor Foà advocated the establishment of prophylactic dispensaries; curative dispensaries, he thought, did more harm than good, as it was impossible to treat the tuberculous successfully as out-patients. He proposed that the prophylactic dispensaries should be under the direction of the municipal authorities, and a resolution in that sense was adopted by the Congress. A committee, consisting of Professors Gatti, Bordoni-Uffreduzi and Zenoni, was appointed to submit the resolutions to the Mayor of Milan and to urge upon him the expediency of establishing a prophylactic dispensary in that city without delay.

New German Medical Societies.—As an outcome of the recent meeting of the German Association of Scientists and Medical Practitioners, it has been decided by the Section of Neurology that a German Society of Specialists in Nervous Diseases should be formed. A provisional committee, under the presidency of Professor Oppenheim of Berlin, has been appointed to draw up a scheme of organization. A German Society of Urology has been formed with Professor Oberlander as its president. Congresses are to be held every two years in Berlin and Vienna alternately.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF SURGERY.

Sir Hector Clare Cameron, M.D., President.

DISCUSSION ON ENLARGEMENT OF THE PROSTATE AND ITS TREATMENT.

OPENING PAPERS.

I.—Geo. A. Bingham, M.B.,

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ASSISTED BY

C. B. Shuttleworth, F.R.C.S Eng.,

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I have taken the liberty of altering slightly the title of the paper which your Committee did me the honour of asking me to prepare, and shall briefly introduce for discussion the subject of enlargement of the prostate and its treatment.

Anatomy.

It will be necessary to refer briefly to some of the essential points in the anatomy of the normal prostate which have a direct bearing on certain pathological changes which may take place in it.

In many of the vertebrata the prostate consists of two bodies, one on each side, which remain distinct throughout life. Much the same condition exists in the human embryo at an early period. The gland is developed from outgrowths from the epithelium lining the urogenital sinus. This development takes place from the floor of the prostatic sinus on each side of the veru montanum, where the ducts of the prostate are later found. In the subsequent development of the gland fusion of the two lobes takes place behind the urethra up to the level of the common ejaculatory ducts. Growth also extends laterally and forwards round the sides of the urethra, to meet in some cases in the middle line in front, thus forming the single median structure of human anatomy.

Sir Everard Home, in 1806, announced to the Royal Society the existence of a third or median lobe, occupying the upper posterior part of the gland, above the level of the common ejaculatory ducts. In the Jacksonian Prize Essay, 1859, Sir Henry Thompson disputed the existence of "Home's lobe," and considered it a pathological formation. The careful investigations of Griffiths,[1] however, seem to show that in many instances this median lobe exists at the time of puberty and during adult life, as a well-defined portion of the gland, having ducts of its own, opening into the posterior wall of the urethra between the veru montanum and the vesical orifice. This is corroborated by Moullin, who states also that other ducts may occasionally be seen on the anterior wall as well.[2]

The stroma of the prostate, secondary in importance to the glandular elements, consists of muscular-fibre cells, arranged concentrically around the alveoli, and of muscular and fibrous tissue forming a framework, all of which are developed from the thickened mass of tissue around the genital cord and not from the urethral wall, which proves the gland to be sexual in origin and function. This stroma, together with the glandular elements of the prostate, wastes after castration.

The three layers of unstriped muscle which are found in the vesical wall pass from the neck of the bladder to the prostate, and become structurally a part of this body from a surgical standpoint. The outer longitudinal layer, both in front and behind, is partly inserted into the prostate. The middle circular and the inner longitudinal fibres can be traced along the urethra as far as its bulbous portion. In the prostatic part these two latter muscular tunics become thin, and are pierced by the ducts of the gland, but morphologically they are not the source of the muscular tissue of the gland.

Ever since the time of Galen a thickening of the circular unstriped muscle at the neck of the bladder has been described as the sphincter vesicae, or as the sphincter urethrae internus.[3] This is well expressed by Vicary, one of our earliest anatomists,[4] "whose (bladder) neck is carnous, and hath muscles to hold and let go." It is stated that tumours of the prostate pass upwards towards the cavity of the bladder through this ring.[5] Griffiths denies the existence of this so-called sphincter, and maintains that there is no special thickening of the circular fibres in this situation.[6]

A transverse section of a normal prostate gland through its centre shows no indication of a division into lobes, the glandular tissue being radially arranged in a fibro-muscular stroma. There is no true capsule, in the sense of a separable membrane, such as invests the kidney, nor can the prostate be shelled out of its surroundings like a lymphatic gland or the thyroid body. At the periphery of the organ and forming a sort of cortex, there is a fibro-muscular layer, arranged in a concentric manner, devoid of glandular elements, and developed in common with the stroma.[7] External to this layer and blending in part with it, is an investment, which is derived from the recto-vesical layer of the pelvic fascia, loose in structure, and containing much unstriped muscle. Between these two coverings, and also in the substance of the pelvic fascia, anteriorly and laterally, is found the prostatico-vesical plexus of veins, into which empties the dorsal vein of the penis.

The fibro-muscular stroma converges from the inner aspect of the unstriped muscular envelope to a central nucleus situated behind the veru montanum, which is here pierced by the common ejaculatory ducts and the utriculus masculinus.

Hypertrophy.

Enlargement of the prostate may involve any part or all of the gland. The pathological condition may be one of pure hypertrophy, or the new growth may be confined to one or other of the histological elements, thus producing myomata, fibromata, adenomata, or lastly, the enlargement may be of a malignant character.

A careful microscopic examination of a large number of abnormal prostates removed at operation or after death shows the vast majority of them to be of an adenomatous nature, and to arise from the glandular tissue.[8]

The continuous growth of these masses displaces the normal, or the less affected parts, towards the periphery, until finally the new growth becomes covered by a shell composed of the thinned and stretched fibro-muscular sheath of the normal gland, within which is a laminated layer formed by the remains of the unstriped muscular and fibrous stroma, containing flattened glandular alveoli. Mr. Cuthbert Wallace[9] contends that the so-called total prostatectomy is performed by finding a plane of cleavage between the strata of this layer. He states that there is always left behind a definite laminated envelope derived from the outer expanded portion of the organ and that the amount of this tissue removed with the tumour depends on the depth at which the enucleating finger cleaves the envelope. And, further, that although it is possible to remove an adenomatous mass from the lateral part of the prostate without extensively injuring the urethra, yet this canal is removed *in toto* when the adenomatous growths are extirpated in their envelope and the lateral walls come away adhering to the adenomata when these are of considerable size.

These views seem rational and are supported by a microscopical examination of the external parts of specimens removed[10] and of the capsule left behind in certain cases where death has taken place subsequent to operation.[11]

A great deal of controversy has taken place as to whether the modern operation introduced by Freyer,[12] is a partial or a complete prostatectomy. The views of Wallace, referred to above, would indicate that the operation, as now performed, is only a partial removal of the prostate, and but a more thorough removal of the diseased tissues than was advocated by McGill, of Leeds.

From an anatomical standpoint, it is difficult to understand how the whole prostate gland could be removed from the space in which it is enclosed by the pelvic fascia without great trauma and the risk of serious haemorrhage from the prostatic plexus, which would inevitably be torn. The bleeding is usually very slight, and not more than would be expected from the rupture of the vessels which belong properly to the gland itself.

The surgical middle lobe, which may cause well-marked symptoms, arises either from an extension backwards of a tumour of either lateral lobe, or it may have its origin in the stroma or from the glands which are present in the anatomical third lobe.

The symptoms and diagnosis of enlargement of the prostate as well as the technique in the more radical operations have been so clearly outlined by recent and very competent writers on both sides of the water that it would be a waste of time to recapitulate them here.

The question of the proper mode of treatment to be applied in any given case is to my mind the all-important one. I think we may profitably classify our cases as follows:

Class I.—Those cases seen early, where the only symptom is obstruction to the urinary outflow due to an enlarged prostate. The patient is otherwise healthy, and merely demands to be relieved of an inconvenience. His arteries are good, nor has he pyelitis or cystitis.

In this class the risks accompanying a carefully performed radical operation are not great, and if we believe the pathological change is a progressive one as to the prostate and the upper urinary passages, we certainly should advise radical interference. It is true that an intelligent and careful old gentleman may be scientifically introduced to catheter life, and may go on enjoying life comfortably and without curtailment. So that it is only fair to this intelligent old gentleman that the two alternatives should be placed before him. In a paper read two years ago I advocated catheter life in just such cases, but my more recent experience leads me now to advise a radical operation in all cases belonging to this earlier class. But often a short course of catheter life may well be allowed to precede the operation. Then, as the gland increases in size and becomes quite definitely outlined, it should be removed before pathological changes have taken place in the bladder walls or the pelvis of the kidney.

Class II.—On the other hand, in an advanced case you may be called upon to examine a physical wreck, with little or no ability to void his urine, perhaps suffering from overflow, and showing evidence of cystitis and possibly pyelitis. The sclerosed vessels of this patient and his general condition entirely forbid a radical operation, and yet something must be done for his relief. It is in such a case as this, I am now convinced, that the Bottini instrument may be used with great benefit. Under local anaesthesia right and left oblique incisions are carried through the base of the middle lobe, and in this way the bladder outlet is depressed to the level of the retro-prostatic pouch.

Of course, the Bottini instrument is a dangerous one in the hands of the unskilled, but when properly used it will save many a patient not in a condition to undergo the more radical operation of prostatectomy. A very distinct advantage of the Bottini method pointed out by Young[13] is that the patient is out of bed in a few days, thus lessening the likelihood of pneumonia to which this class of cases is peculiarly susceptible.

Until recently, in dealing with Class II, I had resorted to simple drainage, perineal or suprapubic, and the wearing of a urinal by the patient. This, at least, will relieve his agony, and will permit of the bladder walls being treated by direct applications, but in results to the patient it in no way approaches in usefulness the Bottini method.

There is a subsection of Class II to which I must refer, namely, patients in the wretched general condition described, in whose bladder, or perhaps imbedded in whose prostate, we find a calculus. In these cases the best plan is to do a suprapubic cystotomy, remove the calculus, and then use the Bottini instrument, aided by the guidance of the fingers in the bladder, all, of course, under local anaesthesia. Indeed, in very many cases belonging to Class II, whether stone is present or not, I believe it is better to do a suprapubic cystotomy as a preliminary to using the Bottini instrument. It increases the precision of the operator, as the blade of the instrument may be very accurately placed in proper relation to the obstructing mass.

Class III.—Between the extremes of Class I and Class II there are a certain number of cases which I believe should be given the benefit of the radical operation. In these cases the general condition of the patient is good. The kidneys are not yet involved, but the patient is suffering from cystitis, or a calculus has been found to complicate the case; or haemorrhoids, or prolapsus ani, and perhaps incontinence of faeces, combine to make life a burden, or perhaps the capacity of the bladder has been so reduced as to make it necessary for him to rise hourly or oftener during the night; or perhaps he has had one or more attacks of retention which could not be relieved by catheter, necessitating suprapubic puncture. In all of these cases catheter life has been tried, and for one cause or another has at last failed to give relief.

Clearly such a case with any one of these complications demands surgical relief, and enucleation of the gland is indicated.

Which route shall we take, the perineal or the suprapubic? In any case where examination shows that the middle lobe is alone or chiefly the offender, the suprapubic should be the method adopted. On the other hand, where the mass encroaches but little upon the vesical cavity, but bulges downwards and backwards toward the perineum and rectum, the perineal route is indicated. Statistics as to results must also be considered in our selection of a method for enucleation in a doubtful case.

But however we decide to attack the gland, the ante-operative and post-operative treatment of the patient is of great importance. The septic condition of the bladder must be improved before operation, and certainly no septic bladder should be opened suprapubically for the purpose of enucleation unless at the same time free perineal drainage is established. Again, before operating, the emunctories must be seen to be doing their duties.

After the operation continuous irrigation should be kept up for from two to seven days by means of a long inlet tube and a short ½ in. calibre outlet tube. For this purpose I use normal salt solution for the first twenty-four hours, and afterwards a weak solution of boracic acid.

Uraemia and shock, the most common causes of death in my experience, I now anticipate by intestinal saline injections after completing the operation. This is repeated as indicated. (In one very bad case of shock I saw a patient who was almost *in articulo mortis* saved by an intravenous injection suggested and carried out by an intelligent and persistent house-surgeon.) In addition to this, uraemia is combated, or rather anticipated, by attention to skin, kidneys, and bowels.

Statistics.

These, as so far published, certainly favour the perineal route. Dr. Watson's table[14] shows a mortality of 6.2 per cent. for the perineal route and 11.3 per cent. for the suprapubic method. More recently Tenney and Chase[15] have made a very careful compilation of more than 1,000 cases with a similar result.

In the annual report for 1905 of St. Mary's Hospital, Rochester, Minn., we find that Dr. Mayo, who uses the perineal route, operated on 63 cases, with 7 deaths. The details of these cases are interesting:

	Cases.	Cured.	Died.
Prostatectomy, carcinoma	13	13	—
,, hypertrophy	44	39	5
,, hypertrophy and calculus ...	4	3	1
,, tuberculosis	2	1	1

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[1] Griffiths, *Jour. Anat. and Phys.*, vol. xxiii. [2] Moullin, *Jour. Anat. and Phys.*, vol. xxix. [3] Testut, *Traité d'Anatomie Humaine*, 1901. [4] Vicary, *Anatomie of the Bodie of Man* (Early Eng. Text Soc.). [5] Cheyne and Burghard, *Manual of Surgical Treatment*. [6] Griffiths, *Jour. Anat. and Phys.*, vol. xxix. [7, 8, 9, 10] Wallace, British Medical Journal, January 30th, 1904. [11] Barling, British Medical Journal, January 30th, 1904. [12] Freyer, British Medical Journal, July 20th, 1901. [13] Young, *Jour. Am. Med. Assoc.*, October 24th, 1903. [14] Watson, *Annals of Surg.*, June, 1904. [15] Tenney and Chase, *Jour. Am. Med. Assoc.*, May 12th, 1906.

II.—J. Lynn Thomas, C.B., F.R.C.S.,
Surgeon, Cardiff Infirmary.

ENUCLEATION OF THE PROSTATE.

During the last five or six years the revival of the operation of prostatectomy has been established as one of the remarkable successes in the progress of treatment of enlargement of the prostate in the aged, and on account of the fact that there are two routes by which direct surgical treatment can be successfully accomplished, it is of practical interest to inquire into the relative merits of the respective methods, and to formulate some rules or data for our guidance in the selection of a particular route when attacking the variable pathological conditions of enlarged prostates.

For practical purposes there are only two means of examination by which one can form beforehand an opinion as to the character of an enlarged prostate; they are (1) elongation of the urethra, (2) palpation per rectum. In cases of prostatism without elongation of the urethra the cystoscope is useful in diagnosis, but in the ordinary cases it has not been of much use in my hands.

Prostatism due to either of the following conditions should not be treated by enucleation of the prostate: (1) Contracture of the vesical orifice of the urethra; and (2) hard fibroid prostates.

In one case of prostatism due to a papilloma growing backwards into the bladder from the prostatic urethra I had to excise a portion of the prostatic urethra through the perineum after failing to cure the patient by the suprapubic route.

Middle Lobes of the Prostate.—The latest textbook on anatomy in Great Britain (Cunningham's, 1905, second edition) recognizes the existence of "a middle lobe," and in the Heath Scholarship Prize Essay (1904) it is stated that "there is no escape from reference to it both in anatomy and pathology," and also that "it is more commonly the seat of pathological change than the rest of the prostate" (W. G. Richardson).

Capsule and Sheath of the Prostate.—The same authority, Mr. W. G. Richardson, summarizes his investigations as follows: The *capsule* is a firm envelope, which is everywhere intimately connected to the stroma of the organ on its inner surface, and it is also connected, though not so intimately, on its outer surface with the fascial *sheath* of the prostate.

Under what Circumstances should the Prostate be Enucleated?—As soon as the necessity for the use of a catheter becomes established, many patients at the present time are prepared to run the risk of an immediate operation rather than face the gloomy prospects of catheter life. I have removed the prostate the day after a catheter was passed for the first time, and I do not hesitate to advise operation as being safer than risking the dangers attendant upon the use of a catheter. Mansell Moullin has described with great care the details which should be observed in the surgical toilet of catheter life; but still I think that the great majority of patients who use a catheter two or three times a day sooner or later become the victims of septic infection.

I have enucleated the prostate on four occasions when a catheter had only been used on two or three occasions in the course of so many years, for the patients became alarmed on account of the complication of spontaneous haematuria. In all the four cases the prostatic trouble was due to multiple adenomata, which were easily removed through the attenuated or ulcerated vesical mucous membrane. When acute or subacute cystitis with painful catheterization are complications of enlarged prostate, it is advisable to perform prostatectomy in two stages.

On the Choice of Route, Suprapubic or Perineal Enucleation of the Prostate.—My personal experience is limited to 31 cases, 29 suprapubic and 2 perineal, and in order to eliminate any bias in the compilation of statistics of the results of operations by the two routes, I obtained through, and am indebted to, Mr. A. Clarke for his care in collecting for me the following statistics from English, American, and European records of cases. I have only included the cases in which the final results of the operation are recorded.

The death-rate due *directly* to the operation in 583 suprapubic cases is 7.7 per cent., whilst in 677 perineal cases it is 6.8 per cent.—that is, an advantage of 0.9 per cent. in favour of the perineal route, and by an extraordinary coincidence the death-rate due to *remote* causes in both cases is 3.4 per cent.

Table I.

	Perineal.	Suprapubic.
Grand total	677	583
Percentage of recoveries from operation	89.6	88.9
Percentage of deaths from operation:		
Direct	6.8	7.7
Remote	3.4	3.4
Of recoveries from operation:		
Percentage of complete cures ...	81.4	95.6
Percentage of partial cures ...	18.6	4.4

On the other hand, in analysing Table II, we find that of those who survive the operation, the suprapubic route gives a better prospect of *complete* cures by 14 per cent.

Grand Total Table Analysis.

	Number.	Deaths.		Recoveries.	
		Direct.	Remote.	Partial.	Complete.
Suprapubic ...	583	45	20	23	495
Perineal	677	46	23	113	495
Combined	29	7	—	9	13

The number of cases by the combined routes is too small for any deductions.

The factors which constitute the *immediate* risk to life in both the suprapubic and the perineal routes may be classified as follows:

1. Anaesthetic
2. Length of time of operation } Shock.
3. Sepsis.
4. Reflex interference with renal functions.

If the above are the whole factors in causing the *direct* death-rate of the operation, it follows that there must exist some other factor in determining the resulting advantage of 0.9 per cent. in favour of the perineal route. I think that this probably exists in the nature of the cases operated upon and not upon any claim of superiority of one route over the other.

The risks which are more specially connected with the suprapubic route are:—

1. Injury to the peritoneum;
2. Cellulitis supervening in front of the bladder;

and those of the perineal route are:—

1. Injury to rectum;
2. Perineal fistulae.

The perineal route is undoubtedly more favourable to drainage of the bed or cavity from which the prostate has been removed, and while the suprapubic route is quite efficient for drainage of the bladder *per se*, it would seem that when enucleation of the prostate is performed through a septic bladder that it is essential to drain the bed of the prostate through an additional perineal incision, as practised by Dr. Eugene Fuller.

But in septic cases it would be more in accordance with the principles of surgery to perform prostatectomy in two stages than to complete the operation at once. It is a violation of a surgical canon to perform operations of expediency through inflamed tissues. The preliminary or first stage of enucleation of the prostate in purulent cystitis should be limited to a suprapubic cystotomy, and the second stage, of removal of the prostate, should be done as soon as the parts are restored to their normal condition. Free drainage by cystotomy is preferable to irrigation and medication of the bladder through a catheter per urethram. By performing suprapubic prostatectomy in two stages, in three of my cases the patients recovered, although their condition was extremely grave when cystotomy was done.

Technique of Operation.—A transverse incision through skin and subcutaneous tissue, with longitudinal division of the sheath of the recti and blunt separation of the muscles, gives a valvular opening, which closes satisfactorily. A silver prostatic catheter is passed and kept

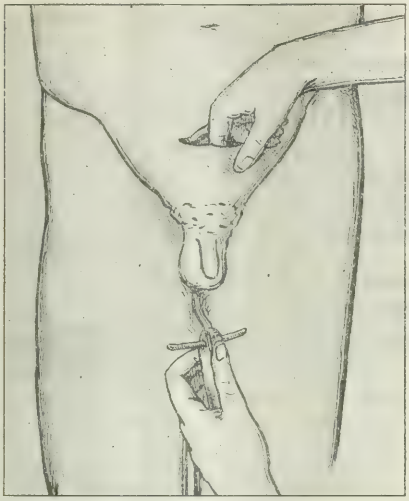


Fig. 1.—Semi-diagrammatic sketch showing "spoon-elevator" of pelvic floor in position during enucleation of prostate.

in the bladder until the prostate is freed from its bed: it serves the purposes of emptying the bladder of urine, and of distending it with air, and of pushing upwards the bladder wall into the wound, and acts as a guide for the fingers during enucleation. As soon as the bladder is

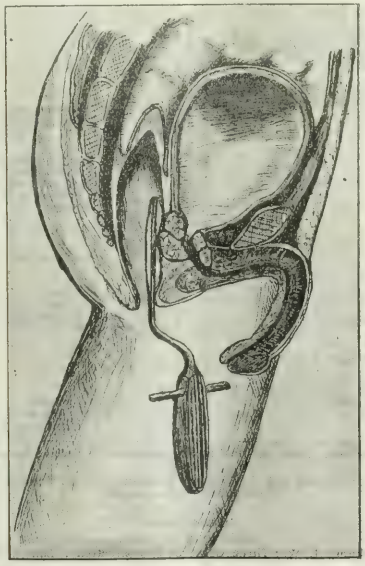


Fig. 2.—"Spoon-elevator" of pelvic floor for raising and steadying the prostate during its enucleation by the suprapubic route.

opened, I pass the spoon-shaped part of an instrument I devised for the purpose (described in the British Medical Journal, July 15th, 1905) into the rectum. The operator can use it as "mechanical finger," and it replaces an assistant's or his own finger in the rectum. The handle is always clean, and it can be used with either hand. The diagrams (Figs. 1 and 2) show the manner in which it acts, and I have used it successfully in 11 consecutive cases.

After the prostate is removed the muscular wall of the bladder is sewn to the sheath of the rectus all round at a distance of about a quarter of an inch from the incision in the mucous membrane; this manœuvre protects the raw surfaces of the separated muscles from contact with urine, and safeguards against any accidental haemorrhage from the prevesical space and walls of the bladder, and of overlooking an accidental injury to the peritoneal cavity.

A 1 in. drain is left in the bladder until haemorrhage completely stops, and a Pezzer catheter is then put in its place in order to keep the patient dry until the wound nearly closes. This catheter is simple and easier for use than any other siphonage apparatus that I have tried.

Conclusions.

1. I submit, that in enucleation of the prostate there is no choice between the suprapubic and the perineal routes as far as the incidence of mortality is concerned.

2. That the suprapubic and the perineal routes are sometimes followed by disappointing results, such as stricture of the urethra, fistulae (urinary or recto-perineal), interference with the sexual functions, and that the prospects of complete recoveries are about 14 per cent. in favour of the suprapubic route.

3. That enucleation of the prostate in bad septic cases should be done in two stages.

4. That the suprapubic route is more suitable for tumours of the middle lobe, for removal of calculi, and the control of haemorrhage when they co-exist.

5. That the suprapubic route is unsuitable for surgeons with short fingers or with flexible thin nails.

6. That there is no justification from *post-mortem* evidence of cases in which the prostate had been removed that *the whole* prostate has ever been removed.

7. That, anatomically, it is not possible to remove the prostate in one mass without also removing with it the prostatic urethra.

Summary.

English and American Surgeons.	No. of Cases.	Perineal.	Suprapubic.	Combined.	Recovery. Partial.	Recovery. Complete.	Recovery. Direct.	Death.	Complications or Sequelae.
Allingham ..	3		3			2		1	Acute bronchitis a month later.
Anderson ..	1		1			1			
Atkinson ..	2		2			2			
Banks	1		1				1		Exhaustion 36 hours later.
Barker... ...	30	30				29	1		
Barling ...	10		10			7	2	1	5 weeks later
Barnard ...	1		1			1			
Bickersteth ...	2		2			2			
Clute	1		1				1		
Bruce Clarke..	14		6*		1	3		2	Pyonephrosis.
				7		7			
Collins... ...	1		1			1			
Cooke	1		1			1			
Deanesly ...	1	1				1			
Deaver... ...	5	5			2	1	2		(1) 54 hours later. (2) 24 hours' suppression of urine.
	9		9		2	5	1	1	A fortnight later.
Douglas Crawford	1		1			1			
Edwards ...	1		1			1			
	1		1		1				
Elliott	1	1			1				
Elsworth ...	1		1			1			
Erdmann ...	8		8		1	5	1	1	Operation under moribund conditions.
Ferguson ...	7	6				5		1	Angina pectoris 6 weeks later.
			1			1			
Frank ...	1	1				1			
Freyer ..	205		205			189	8	8	
Gibson... ...	2	2			1	1			
Goodfellow ...	75	75				73	2		
Greene... ...	1	1			1				
Harrington ...	1	1			1				
Harrison ...	10	2			1	1			
			8		3	5			
			1			1			
Heaton... ...	1								
Horwitz ...	49	33			16	16	6		(1) Uraemia. (2) Sepsis. (3) Secondary shock.
				11	6	3	2		(1) Suppression of urine. (2) Uraemia.

SUMMARY.—*Continued.*

English and American Surgeons.	No. of Cases.	Perineal.	Suprapubic.	Combined.	Recovery. Partial.	Recovery. Complete.	Deaths. Direct.	Deaths. Complications or Sequelae.
Jacobson, N....	1		1				1	Persistent haemorrhage into bladder
Johnson ...	4	4				4		
Laurie	1			1		1		
Lilienthal ...	31		31		2	29		
Lund	1	1				1		
McGowan ...	55	28				24	3	(1) Secondary haemorrhage. (2) Non-septic pneumonia.
			27			21	6	(1) Uraemia (3 days). (2) Wound became fly-blown. (3) Embolism on 7th day. (4) Haemorrhage on 6th day.
Mackinnon ...	5		5			4	1	(1) Exhaustion 21 days later.
Maynard ...	1		1			1		
Morton ...	9			2	1		1	Nephritis and septic infection 6 days later.
		7			4	2	1	Suppression of urine 3 days later.
Movnihan ...	12		12			11	1	
Murphy ...	49	49			18	26	3	4 (3) Cerebral embolism 10th day. (4) Cerebral embolism and endocarditis 1 week later. (5) Intercurrent disease later. (6) Nephritis 12 days later.
Newbolt ...	2		2			1	1	
	3		2			2		
Nicoll	1		1			1		
O'Hara	32		32		4	26	1	1 Renal disease 3 months later
Pardoe ...	7		7			5	2	(1) 16 days later. (2) Total suppression a fortnight later.
Parker, R. ...	8	8				7	1	
Parry	1		1			1		
Paul, F.... ...	1		1			1		
Pilcher ...	23	23				21	2	
Purvis	1		1			1		
Robson ...	5		5		1	4		
Smythe ...	1		1			1		
Southern ...	1		1			1		
Squier... ...	23		7			4	3	
		21				19	2	
Stoker	2		2			2		
Stretton ...	1		1			1		
Sheldon ...	17	11				11		
			4			1	3	
				2		1	1	
Tenney	2		2			2		
Lynn Thomas.	13		13			11	1	1
Thomson ...	5		5			4	1	Bronchitis 5 days later.
	1		1			1		
Thorndike ...	9		9		2	6	1	Diffuse cystitis 6 weeks later.
Tinker	1	1				1		
Tobin	1		1			1		
Wainwright ...	1	1				1		
Wallace ...	2			2		1		Pyaemic nephritis.
Watkins ...	1		1		1			
Wiener ...	11		11			11		
Young	75	75			5	66	2	2 A fortnight to 5 weeks later.

* 1 case lost sight of.
† Result not stated in 3 cases.
‡ One case not included (electric cautery incision, 51 cases recorded).

Foreign Surgeons.	No. of Cases.	Perineal.	Suprapubic.	Combined.	Recovery. Partial.	Recovery. Complete.	Death. Direct.	Death. Complications or Sequelae.
Albarran ...	14	14			6	8		
	59	55				55	2	
André	3	3				3		
	1	1			1			
Audry	2	2			1	1		
Bazy	6		6			5	1	
	1	1				1		
	1	1			1			
Cathelin ...	4	4			2	2		
	3		3			1	1	1
	2	2					2	
	3						1	

SUMMARY.—*Continued.*

Foreign Surgeons.	No. of Cases.	Perineal.	Suprapubic.	Combined.	Recovery. Partial.	Recovery. Complete.	Death. Direct.	Death. Complications or Sequelae.
Cautermann ...	1		1			1		
	3	3				3		
Czerny	19	19			7	10	1	1
Delagenière ...	1		1			1		
	16	16			3	8	5	
Delbet	1	1				1		
Dorst	5	5					5	
	2	2				2		
	6	6			5	1		
Eremia and Andreesen	9		9			9		
Gayet	1	1				1		
Guinard ...	1	1				1		
Haffter ...	1		1			1		
Hartmann ...	18		2			2		
		16			4	10		1 Heart disease 6 weeks later.
							1	
Hildebrand ...	1		1			1		
	7		7			7		
Jaboulay ...	1	1				1		
	2	2			2			
	8	8			3	3	2	Infection.
Kümmell ...	13	10				6	4	(1) Purulent bronchitis 3 months later. (2) Pulmonary embolism with myocarditis. (3) Metastatic malignant disease 1 year later. (4) 7 months later muscular degeneration of heart, carcinoma with metastases.
			7			5	1	1 (2) Heart weakness and bronchitis 3 days later.
				1			1	1
Le Fur	2	2				1	1	Uraemia 8 days later.
Legueu ...	9	9				8	1	Pleuropneumonia 30 days later.
	3		3			3		
Lichtenstern	1	1				1		
Loumeau ...	2		2		1		1	Heart failure 3 days later.
Macios, Gonzalez et Defis	7	7				7		
v. Mikulicz ...	11	11			4	7		
Munnich ...	8	8			3	5		
Niccolich ...	1	1				1		
Pagès	1	1				1		
Ravasini ...	12		12			8	1	
Rebentisch ...	4		4			4	1	
Rivière... ...	21	21			7	9	4	1 (1) Fortnight later. (2) Bronchopneumonia 3 months later. (3) Dyspnoea a fortnight later. (4) Progressive cachexia 15 days later.
Rochet	3	3				2	1	
	14	14			7	7		
Roux	16		16		2	13	1	
Rovsing ...	51		51			49	2	Pneumonia.
Ruggi	3	3				3		
Tedenat ...	9	9				7	2	
Tuffier	1	1					1	Cachexia 4 months later.
Verhoogen ...	7	7				6	1	9 months later.
	45*					45*		
Vignard and Barlatier	1	1			1			
Villard	1		1			1		
Violet	1	1			1			
Vocicker ...	9†	9			7	2		
Zuckerkandl...	4	3	1			3	1	Urosepsis.
Zum Busch ...	4		4			2	1	1 (2) Uraemia 3 months later.

* Unclassified. Both perineal and suprapubic respective figures not stated.
† 11 cases recorded, but No. 9 cannot be included as only wedges from lateral lobe were excised.

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DISCUSSION.

DR. R. F. WEIR (New York) said: Prostatectomy has been practised with perhaps undue enthusiasm by the younger surgeons in the United States, to the too great exclusion of the use of the catheter treatment. This should be fairly exhausted in its effects prior to the resort to surgical means. Prostatectomy has won its proper recognition in surgery, but it is not yet clear which is the best procedure to resort to—whether by the perineal or the suprapubic route. Each gives about the same mortality, which is yet heavy; but the perineal method is more under view, and more easily managed. As to when a prostatic patient should submit to the operation—while theoretically this period should be an early one, yet I would reiterate that it should be only after a thorough trial of the evacuation and irrigation treatment of the bladder.

Dr. ARTHUR T. CABOT (Boston) said: My present position towards the operative treatment of prostatic hypertrophy is to regard the perineal operation as the one of choice to be employed in every case unless the patient has some complicating condition requiring some other incision for its proper treatment, or unless the patient cannot bear general anaesthesia. In cases of this last character a Bottini's operation under local anaesthesia will sometimes be sufficient to afford relief. I wish to emphasize the importance of a proper preparation in cases where the urinary organs are seriously affected, and the patient is suffering from uraemia, as evidenced by dry tongue, lack of appetite, nausea, and other indications of diminished elimination. Such cases, if treated for a time by drainage through an in-lying catheter, can be restored to a condition of health, with sufficient activity of the kidneys to safely undergo an operation, which if done at once in the uraemic state, would pretty certainly prove fatal. In my experience the perineal operation has been more sure to give a good functional result, and has had a lower mortality.

Dr. LUKE TESKEY (Toronto) said: Having gone through the various phases of the surgical treatment of enlarged prostate, my final conclusion is that the safest, the most rapid, and most satisfactory operation of every kind is removal by the perineal route, after having restored the vitality of the patient to its maximum condition by continuous urethral drainage.

The PRESIDENT said: If I intervene in the discussion it is not because I feel that I have any important experience to communicate. My experience, indeed, in this matter has been very slight. However, I operated on one patient as long ago as October 29th, 1890, and it is interesting to know that he still remains well. The case was that of a man only 46 years of age, who was suffering most severely from an enormously distended bladder—distended, as events proved, with urine, blood clot, stones, and the gases of decomposition. On opening the bladder, the gas escaped audibly in large quantity, while masses of stinking clot and no less than thirteen calculi (five of them of large size) were removed. It was then seen that on each side of the urethra there existed a large tumour. Nothing further was, however, done at that time than to introduce a large drainage tube, after washing out the bladder. Six weeks afterwards, when the urine was clear and odourless, and the patient greatly improved in condition, the bladder was reopened. The two tumours were found to be much smaller, and, instead of looking red and velvety, they were almost white and glistening. They were easily enucleated. The patient, who made a rapid recovery, continues well, and has been able to remain in charge of his business during the sixteen years which have elapsed since I operated on him.

Dr. EDMUND E. KING (Toronto) said: I believe too frequent irrigation retards healing and delays recovery. I use two drain tubes, each of large size—about that of the thumb—and irrigate for the first twenty-four hours at six-hour intervals. At the end of thirty-six hours I remove one of the tubes and irrigate three times in twenty-four hours. At the end of seventy-two hours I remove the outer tube. I now wash out the bladder twice daily. I believe that we have not yet sufficient statistics to decide which is the better operation, the suprapubic or perineal. In ten years' time, after statistics have been properly tabulated, the matter may be settled, and I firmly believe that the suprapubic will be the one of choice. I quite agree with the speakers who advise previous preparation of the patient, particularly by draining the bladder through a soft catheter.

Sir WILLIAM HINGSTON (Montreal) said: There is something to be said in favour of each operation, and something against both. At a former meeting I expressed myself in favour of the perineal route, which was then the only one with which I was familiar. Since then I have come to espouse the suprapubic operation. But there is a preliminary question: the urgency—the necessity of the operation by any method. I am disposed to think that not a few cases might be better treated by catheterism and other measures.

Dr. T. J. SHEPHERD (Montreal) said: I first performed the suprapubic operation in 1892, on a man aged 50 years. The patient is still alive and well, and has had no bladder symptoms since leaving hospital. I have done the suprapubic operation only, and am well satisfied with it. The last case I operated on was an old man, aged 84, and although the prostate was of great size and the bladder excessively small, the patient recovered rapidly, and is now going about in comfort, while before he was confined to bed and led a life of misery.

Dr. W. ALEXANDER (Liverpool) said: I have 200 old men under my care daily, and amongst these I have looked out keenly for suitable cases for operation. It very rarely happens, however, that I have to operate. Generally with catheterism and washing out the bladder the old people recover completely. The operation is therefore probably performed too frequently. I have operated usually by the suprapubic method, and have had very successful results. In a malignant case the benefit from the operation has been very marked, but how long it will continue it is difficult to say.

Mr. D. J. WILLIAMS (Llanelly) said: The treatment of enlarged prostate by operation has been of incalculable benefit to many sufferers, and in suitable cases cannot be too strongly recommended. I wish to thank the readers of the papers for the admirable way in which they have presented their views, with which I entirely agree.

Dr. W. J. MAYO (Rochester, Minnesota) said: We take a rather more radical position on prostatectomy, and operate as soon as recurring retention or beginning infection shows that the period of toleration is past, and do not wait for those threatening symptoms which add so greatly to the mortality. It has been our custom to do the perineal operation if there are no contraindications. While the mortality is about the same, the period of convalescence after the suprapubic operation has averaged ten to fourteen days greater. We have the bladder cystoscoped, and if the prostatic enlargement lies high, presenting as a distinct bladder tumour, and especially if there be stones, we choose the suprapubic route; but in four cases out of five the prostatic hypertrophy takes the usual downward direction, indicating the perineal operation. One feature of this subject is becoming more prominent, and that is the frequency of malignant change in the body of the tumour, amounting, in our experience, to 10 to 15 per

cent. of the operated cases, and, if operated early, some cures are to be expected. The late operations are not worth the patient's while. Many old men have few symptoms until malignancy develops, or die from infections of the kidney without macroscopic *post-mortem* evidence of the cancer. Every removed prostate should be examined microscopically.

Dr. A. J. Ochsner (Chicago) said: I have performed perineal prostatectomy much more frequently than the suprapubic operation, and, as a rule, I have found it to be more satisfactory. After exposing the gland it should be drawn downwards with sharp cats'-paws retractors before cutting into it. It is not necessary to remove the entire prostate to produce satisfactory results. Where dense adhesions render enucleation impossible the gland can be removed piecemeal by Fergusson's gnawing forceps.

REMARKS ON POSTURE AS AN AID IN SURGERY.

By Murray MacLaren, M.D., M.R.C.S.,
St. John, New Brunswick.

Posture may be employed in surgery as an aid in many conditions and for many purposes. While always well worthy of consideration, the value of posture varies greatly in importance. It may be a matter of giving ease and comfort to a patient or of vital necessity in exposing some deeply situated organ or some bleeding vessel difficult of access.

The objects attained by the employment of position are very variable and the desired results are obtained in many ways through different channels.

One may desire to improve drainage from a wound, to relax a muscle or relieve pain, and so it is necessary for the successful use of posture to have regard to mechanical as well as anatomical and physiological factors.

Among many points gained by posture may be mentioned a natural and restful position of the patient, an avoidance of undue pressure upon prominent areas of the body, relief of syncope and shock, relief of pain, relief of vomiting, relief of dyspnœa, improved drainage, lessened haemorrhage, a view of hollow viscera and deeply situated parts, the prevention of the entrance of fluids into the air passages and the avoidance of pulmonary complications.

Posture is of service in all stages of surgical procedure, in the diagnostic examination during operation and in post-operative treatment.

Posture in Examination.

The differential diagnosis of the source of purulent discharge from the nares may be aided by posture; thus by bending forwards and downwards and inverting the head, pus from the frontal sinuses, if present, will not flow on account of gravity. Then should the pus have its origin in the maxillary antrum, placing the head on the opposite side will allow it to escape. In making a digital examination of the rectum, the erect posture with the legs separated will allow a considerably higher part of the rectum to be brought within the reach of the finger than can otherwise be obtained.

The familiar Sims position exposes the cervix uteri and the vaginal walls. The knee-chest or genu-pectoral posture exposes these organs still more thoroughly. By passing a speculum into the rectum with the patient in this position, the rectum becomes distended with air, and a good view of the rectal walls is obtained; similarly with a speculum passed into the female bladder an admirable view is given of the interior.

In Pryor's position the female bladder is examined by placing the patient in the dorsal position, the head is depressed and the hips are elevated, while the thighs are flexed on the abdomen, and upon the passage of a speculum the bladder becomes distended with air.

These positions, the Sims, genu-pectoral, Pryor's, as well as those of Trendelenburg and Elliot, are largely similar in their nature, and are dependent upon the same mechanism.

In all, the body is placed in a more or less inclined plane, the force of gravity tends to draw downwards the various internal organs which have been elevated, and if access is given, air passes in at the top and distends the upper area, while the movable organs pass downwards.

And so this procedure has been adopted for exposing the female bladder, the vagina, and rectum, and when the abdomen has been opened, the subhepatic area and the pelvis.

It is hardly necessary to say that these postures are of the greatest value and importance, and are large factors in the surgery of to-day.

Posture in Operation.

In the administration of a general anaesthetic posture is of much service. Syncope, which is dependent on cerebral anaemia, can be prevented or relieved by placing the patient on an incline with the head more dependent than the trunk and legs—that is, the Trendelenburg position. It is the promptest and surest means of dealing with syncope arising in anaesthesia.

As the upper end of the trachea lies at a lower level than the lower end, this position acts also as a preventive against the inspiration of saliva and mucus, and in cases where, during and after operation, blood and other fluids are liable to be carried into the respiratory passages with the danger of producing aspiration pneumonia.

Kocher strongly advises the position for these reasons in all operations in the region of the head and the upper digestive and respiratory tracts, such as operations for hare-lip, on the tongue, and on the larynx and pharynx.

He states that since he has carried out this procedure as a principle in all operations in connexion with the mouth, nose, larynx, pharynx, and trachea, he has been able to dispense with all other precautions, and has had such great success with it that he cannot too strongly recommend the general adoption of this simple precaution.

In after-treatment he advises the inclined position for eight to fourteen days or longer for those who have lost the reflex excitability of the larynx, while it should be adopted for many cases less involved during the night, and the sitting posture to be assumed during the day.

For repair of cleft palate and for removal of post-nasal adenoids, the Rose position is used. This is the dependent head position. The patient's head is placed at the edge of the table, a cushion is arranged beneath the neck so as to elevate the chin and depress the occiput, and the head hangs over the edge of the cushion and table. The larynx is above the level of the cavities of the mouth and nose, and therefore blood flows away through them, and does not pass into the larynx and air passages.

This position increases very considerably the engorgement of the veins about the head, and encourages haemorrhage, and so some operators prefer the Trendelenburg posture, as here the engorgement is less marked.

Placing the patient on an incline with the head upwards—the reversed Trendelenburg posture—diminishes the amount of blood in the head materially, and may be made of use in brain surgery and operations about the head to lessen haemorrhage. This position, or a sitting posture when held in the arms, is useful for children in the removal of tonsils and post-nasal adenoids.

In operations on the thorax, to avoid the further embarrassment of respiration, the reversed Trendelenburg or the semi-sitting position may be successfully resorted to.

It is in abdominal surgery, however, that posture has taken a pre-eminently conspicuous and important place in facilitating operative procedure.

Trendelenburg published an article in 1884 describing the posture called by him *Beckenhochlagerung*, and he is generally regarded as having been the first to introduce it, although Bardenheuer of Cologne has been credited with bringing it into use in 1881.

It may be considered as the most frequently used and the most valuable posture in surgery. It has brought the pelvis and lower abdomen within ready sight and touch, and so has proved an enormous and, indeed, indispensable aid in abdominal operations. It is also used, as already referred to, for other portions of the body.

The patient is placed on his back on an inclined plane, with the pelvis raised more or less above the level of the chest. The whole body may be inclined, or all of it except the head and shoulders, which lie horizontally.

The amount of elevation required varies from 45° to lesser angles, 20° to 30° being generally sufficient. It is best to begin with a high elevation; when the intestines have moved well towards the diaphragm and away from the pelvis, a lower elevation will suffice.

In 1895, Wheelock Elliott, of Boston, drew attention to a position for operation upon the cystic and common bile ducts. The patient is placed on his back on an inclined

plane, the feet being lowered about 6 in. A sandbag is placed under the back at the level of the liver, and in this way the body is bent forwards. The intestines gravitate towards the lower abdomen, the liver presents at the opening made in the abdomen, and, in holding up the liver, the air rushes in between it and the intestines much as it enters the pelvis in the Trendelenburg position. The bile ducts are brought near the surface and made easy of access by the posture.

Posture in Post-operative Treatment.

As Mummery well states in his *After-treatment of Operations*, referring to the position of a patient following operation: "The position of greatest comfort is also that of greatest rest, and therefore the best." This is an excellent general statement of an important truth. It is generally applicable, and it certainly applies in many cases where it is not made use of.

The lateral position is the natural position of rest for most people. The patient lies on his side, the under leg well flexed, while the upper leg and the trunk are slightly flexed. It is generally desirable to allow the patient to take up this position whenever possible, especially should it prove to be the most comfortable one.

The dorsal recumbent posture is generally regarded as the correct one to give a patient after operation. Unless there are special reasons for its adoption it should not be selected, because most people rest and sleep better on the side. It is generally irksome and uncomfortable, urination is difficult, and the skin of the back over the sacrum, vertebrae, and angles of the scapulae is not well adapted for bearing pressure.

The prone position is occasionally of use, as in draining wounds open anteriorly, such as psoas abscess and appendix abscess, or to avoid bedsores; or, if these be already present on the dorsum, to allow of healing. Here the patient lies on his front, with a pillow under the chest and another for the side of the head. Allingham is quoted in reference to the value of this position after injuries to the femoral vessels. He resected a portion of both femoral artery and vein in removing a tumour of the femur. The patient was placed in the prone position to avoid pressure interfering with the establishment of the collateral circulation in the gluteal region and back of the thigh. The case resulted in recovery of the limb.

The semi-recumbent posture is suitable for elderly people to avoid pulmonary complications, and in those cases where operation may have interfered with free thoracic and diaphragmatic movements, such as breast and stomach operations. Here the patient is supported by a bed-rest in a half-sitting position, with a pillow under the thighs to prevent slipping down, and to assist in relieving undue pressure on the sacrum by thus allowing a portion of it to be taken on the under surface of the thighs.

Placing the patient on an incline, with the head upwards, gives improved drainage in operations on the pleurae such as empyema, and in drainage of the vagina following hysterectomy and other pelvic operations.

Inclining the patient with the legs elevated is favourable for the treatment of various conditions of the lower extremities such as varicose veins, venous thrombosis, and ulcers.

It will be found that inclining the patient with the hips raised and the thighs flexed over a pillow proves a comfortable and suitable position following operations for inguinal and femoral herniae and operations on the scrotum and its contents. Pressure is removed from the area of operation and the tendency to oozing is diminished.

For vomiting after anaesthesia, turning the patient on the right side will facilitate the passage of the stomach contents onwards to the duodenum; if the vomiting is intractable, propping up the patient may suffice to arrest it.

For shock following operation, the best position is that of inclining the patient with the head lowered and the legs and abdomen elevated. In this way the blood in the veins of the lower limbs and abdomen is aided in its passage to the heart.

For intestinal obstruction due to adhesions following laparotomy, Watson Cheyne recommends placing the patient on an incline with the view of putting a strain on the adhesions for the purpose of stretching them. The direction of the incline should vary according to the seat of obstruction; hence, in a pelvic case the Trendelenburg position would be used.

After laparotomy, in many cases, the dorsal position is not required; the semi-lateral position, by simply rolling the patient partly to one side and supporting the back by a pillow is frequently the most comfortable, is much appreciated by the patient, and is free from objections. In other cases the lateral posture may be assumed.

Fowler's position is the placing of a patient in the semi-erect posture at an angle of 45° or less, and maintaining him there by means of supports and pillows. By this means, in septic abdominal cases, the septic fluids from the absorbent and dangerous area of the diaphragm and upper abdomen are drained to the less absorbent and safer area of the pelvis and allowed to escape by a large suprapubic drain which passes to the bottom of the pelvis. The employment of this position constitutes an important advance in the treatment of septic peritonitis.

The postures which have been mentioned do not constitute by any means a complete list. It is difficult to lay down a basis of selection, and it hardly seemed of service to refer specially to certain familiar examples, such as the lithotomy posture.

Positions in fractures for the purpose of relaxing muscles which by their action prevent the fragments being maintained in easy and correct relationship are so numerous that the general principle only can be mentioned, which is, that the position assumed should be such as to relax the muscles causing the displacements, and which, of course, depends on the anatomy of the part.

It has been my endeavour to consider posture as applied to the body as a whole rather than in part. Most of these postures are familiar and well known to all. They have been classified roughly according to the particular rôle which they usually play in surgery, whether in diagnosis, operation, or after-treatment.

An interesting grouping could also be arranged from a mechanical, anatomical, or physiological standpoint, according to the outstanding principle existing in each case.

Drainage, influenced as it is by gravity, to be perfectly free should be from a dependent point; this would include numerous instances of posture, among them that of Fowler.

Under this mechanical group would be placed also the Trendelenburg position and others of like nature.

The anatomical group would embrace postures which produce relaxation of certain muscles and also those adopted to give access to special organs.

While under the physiological class could be placed those positions which are conducive to rest and comfort and freedom from pain, and those which have the effect of increasing or diminishing the flow of blood to a special part.

In Bier's method of treatment local congestion is produced by a constricting band; one of my colleagues has suggested to me the possible advantage over this method of taking a suitable dependent position and thus producing a more continuous congestion.

In this group would also be included the positions having to do with the respiratory organs, such as those which assist in preventing the inspiration of fluids with the accompanying dangers or giving ease to embarrassed respiration.

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FRACTURE DISLOCATION OF THE SPINE.

By A. BEVERLEY WELFORD, M.B.,
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[ABSTRACT.]

DR. WELFORD described two cases he had operated on. One was that of a locomotive engineer, aged 38 years, who sustained a fracture dislocation at the junction of the tenth and eleventh dorsal vertebrae, for which he received postural treatment in a hospital. Two years later he came under Dr. Welford's care. There was motor and sensory paralysis of both legs, priapism, incontinence of urine and faeces, and cystitis. The

only reflex present was the left cremasteric. He had excruciating pain around the body at the level of the umbilicus, with a burning sensation. The lower extremities were much attenuated. Dr. Welford was persuaded to operate on him in the hope of relieving his pain.

A laminectomy was done. Numerous old adhesions were found between the laminae and membranes, and a prominent piece of bone projected backwards into the canal from the body of the tenth dorsal vertebra. This was snipped off piecemeal, after which the dura was opened. The cord presented a normal appearance, and a probe which was passed up and down beneath the dura for 2 in. met with no obstruction. The opening in the dura was closed with catgut and the wound drained for forty-eight hours. A plaster jacket was put on. He had immediate and permanent relief from all pain and the burning sensation, and could locate the finger touch within 1 in. or so as far down as the pubes and inner surface of both thighs. Sixteen days after operation he could move the great toe of his left foot, and under massage and electricity he eventually was able to use crutches and throw the left leg far enough ahead to take a step. There was no appreciable improvement in the right leg, and he died five years later.

The second case was that of a man, aged 60 years, who received an injury which resulted in fracture dislocation of the fourth cervical vertebra forward upon the fifth. He had complete motor and sensory paralysis of the upper and lower extremities. The pupils were contracted, and the face, neck, and chest were of a purple colour and bathed in perspiration. Respiration was very shallow, and entirely diaphragmatic. In an effort to speak his lips would move, but no voice came. The temperature was 104° F.

Laminectomy was done forty-eight hours after the injury. There was complete bilateral dislocation forward of the fourth cervical vertebra, and a fragment of detached bone ½ in. long lay across the cord. Reduction was easily effected by hooking an aneurysm needle up under the posterior arch of the fourth vertebra and making gentle traction, but as it would not remain in the reduced position the transverse processes of the fourth and fifth vertebrae were wired together on both sides. Chloroform was not given. He regained the use of both arms and legs immediately, and talked incessantly, complaining of the pain he had experienced in his neck during the operation.

He died at the end of fifty-two hours, having shown meningeal and pneumonic symptoms, with a temperature of 108° F. The operation was done under unfavourable conditions as to aseptic details. The reader of the paper expressed the opinion that in fracture dislocation of the spine accompanied by symptoms of pressure on the cord operative interference should be resorted to much oftener and much earlier than had been the practice hitherto.

OPERATIVE TREATMENT OF IRREDUCIBLE LUXATION OF THE SEMILUNAR CARTILAGES OF THE KNEE-JOINT.

By James Bell, M.D.,

Surgeon to the Royal Victoria Hospital and Professor of Clinical Surgery in the McGill University, Montreal.

It is my intention, in this communication, to refer only to those cases of luxation of the semilunar cartilages in which reduction is impossible and the patient is left with a slight flexion of the leg and suffers from weakness and more or less pain on attempting to fully extend the limb. It is, of course, quite true that in most cases of luxation of the semilunar cartilages reduction can be accomplished, and if, in such cases, the displacement has not already occurred too often, a long period of fixation of the limb will effect a permanent cure. I have had the satisfaction of obtaining this result in a considerable number of cases. I do not intend to refer further to this class of cases nor to those in which frequently recurring luxations seriously handicap the patient and call for treatment. Neither do I intend to discuss the many interesting problems concerning the cause of this accident and the success or failure of its treatment by orthopaedic measures. This accident, occurring as it does mainly in young men at an active period of life, produces such serious disability, when reduction cannot be accomplished, that operative treatment is always called for, although Dr. Schaffer in a recent article (*Annals of Surgery*, 1898), speaks of "coaxing" the cartilage back into position by orthopaedic treatment (an extension splint). It will be generally admitted, I believe, that recovery and complete restoration of function cannot be expected, in the more serious cases at least, from this method of treatment. In the more severe cases, when the joint is opened the cartilage, in addition to being displaced, is generally found torn and crumpled in such a way that even direct manipulation cannot restore it to its normal position with any hope of keeping it there and securing a good functional result. It is generally found to be both torn and displaced, the displacement being into the intercondyloid notch, where it acts like an obstruction placed in the hinge of a gate or door, as described by Mr. Hey more than a century ago. Under such circumstances, complete removal of the cartilage is the only remedy, and, fortunately, it has been abundantly demonstrated that the semilunar cartilages may be removed without materially disabling the joint. Their buffer-like function in the normal joint is easily understood, but in none of the cases reported does the patient seem to have suffered from its loss. The operation has generally been performed through a small incision in the line of the joint either transverse (generally spoken of as "Barker's incision") or vertical, as recommended by the late Sir William MacCormac and others, or some modification of their incisions. In fact, a moderately thorough search of the surgical literature published in the English language does not show that any other incisions have been employed. Personally, I have found these incisions unsatisfactory. I have found it difficult or impossible to remove the whole cartilage (or even the whole of the torn portion), to prevent the final deposition of some blood-clot within the joint, and I have found much manipulation necessary, all of which increased the risk of infecting the joint. I have had a disastrous result from joint infection after this operation. The patient recovered after many weeks with a stiff knee. I may, however, plead as extenuating circumstances in this case that the patient was operated upon in 1886 or 1887 and that there was the remains of a pustular skin eruption in the field of operation, the result of some local irritant which had been applied. I foolishly yielded to the patient's importunities and did not wait until the skin was in a proper condition for operation.

Between July 4th, 1904, and February 3rd, 1906 (eighteen months), I operated upon four patients with irreducible luxation of the semilunar cartilage through a free anterior opening of the joint, by transpatellar incision, and this is the procedure which I propose to discuss in this paper, and to recommend. The joint was laid freely open, just as for suture of a freshly-fractured patella.

It is obvious that operation on the joint in this way gives free access to and full view of all its component parts, and enables the operator to remove the torn and displaced cartilage with ease and precision, and what I consider very important—with a minimum of manipulation—to stop all bleeding and remove all blood clot and to drain most effectually, if drainage is considered necessary.

The following is a brief report of these four cases:

Case I.—S. E. H., a healthy farmer, aged 33, was admitted to the Royal Victoria Hospital on June 25th, 1904. The external semilunar cartilage of the right knee had become displaced on April 28th, two months previously, by a sudden twist of the knee. It had been displaced three times before but had been reduced on each occasion in a short time by his own manipulations. On the last occasion he could not reduce it, and several attempts had been made under chloroform by his medical advisers without success. The knee was slightly flexed. There was no swelling and no pain, except on attempting to extend the limb to a straight position. There was a little tenderness over the line of the joint on the outer side. The joint was opened by a transverse incision through the lower half of the patella. The anterior fold of synovial membrane was thickened, but there was no serous effusion into the joint. The external semilunar cartilage was found torn, curled up, and firmly adherent in the intercondyloid notch. It was completely removed, the patella sutured, and the joint drained by a small rubber tube in the external angle of the wound. The patient made an uneventful recovery, and was discharged on July 31st with a starch bandage on the knee.

He soon returned to his work and has had no trouble since. The following letter from Dr. H. C. Church of Ottawa, in response to a letter of inquiry from me, describes his present condition: "The knee can be flexed to let the leg form nearly a right angle with the thigh. As nearly as I could compute, the angle was about 15° greater than a right angle. Through that arc the movements of the joint were perfectly free, and, of course, extension was perfect. He finds no inconvenience in walking, and can run quite briskly, and he says there is no work on the farm that he cannot do as well as ever. I myself saw him building a load of loose hay through which he tramped with perfect ease. Only once since leaving the hospital has he suffered any pain in the knee, and that was one night after a hard day's tramp through heavy clay while following a plough, but he was all right next day. From an observer's point of view his walking is as good as ever. I did not notice any limp or halt whatever."

CASE II.—E. F., electrical engineer, aged 28, was admitted to the Royal Victoria Hospital on October 13th, 1905. He had twisted his left knee two years previously while playing football, and it had been "somewhat weak" since (apparently a sprain). On October 12th, the day before admission, he struck his toe quite forcibly against a loose plank in the boardwalk, and stumbled. On regaining his equilibrium he was unable to straighten the limb. He went to a doctor, who diagnosed dislocation of a semilunar cartilage, and attempted to replace it under an anaesthetic, but unsuccessfully. When he came to the hospital next day the knee was slightly swollen, and there was slight tenderness over the head of the tibia just internal to the ligamentum patellae. I made a couple of ineffectual attempts at reduction under ether, and finally, on October 30th, I operated as in the previous case. The internal semilunar cartilage was found torn and curled up in the intercondyloid notch. It was entirely removed, the patella sutured, and the wound drained. The patient made an uneventful recovery, and was discharged on December 15th, with a plaster splint on the limb. Some months later Dr. James A. Dixon, in response to an inquiry from me, wrote me that his limb was satisfactory in every way, and that he could flex the leg well beyond a right angle.

CASE III.—G. D., aged 19, groom, was admitted to the Royal Victoria Hospital on December 26th, 1905. On December 20th, six days previously, in straining sideways to close a sliding door, his foot slipped, and he felt something "give way" in the inner side of his right knee, and he could not straighten the limb. It was not painful, and in about half an hour he felt something slip in the knee again, and it became all right. About three hours later his limb became fixed again in a slightly flexed position. This locking and unlocking continued to occur whenever he walked about, and when he came to the hospital the limb was not flexed, but there was some effusion into the joint. He was kept in bed for some days, but as soon as he was allowed to get up the displacement occurred again, and it became evident that he could not walk or get about until something was done to remedy the condition within the joint. On January 22nd the joint was opened and the cartilage removed as in the previous cases. The cartilage was found far back in the intercondyloid notch, rolled up like a scroll. The displacement had apparently never been corrected, and the ability to fully straighten the limb at times was due to the cartilage slipping back, so that it was not caught between the bone ends. The joint was drained for a few days, and the patient made an uneventful recovery. He was discharged on March 2nd with his limb in a plaster splint. On April 2nd last he was reported from the out-patient department, and I have not heard from him since. He was then said to be "walking well, without pain or trouble, and with the knee practically normal." Dr. McKenty, who examined this patient somewhat later, tells me that he could flex the leg well beyond the right angle—almost to the normal extent.

CASE IV.—W. G. K., aged 28, drover, came under observation February 3rd, 1906. This patient had first had trouble with his right knee-joint on July 1st, 1905. On that occasion, after playing lacrosse, his knee became very painful and somewhat swollen. This was recovered from in about a week, and gave him no more trouble until September, 1905, when, while playing lacrosse, he gave his knee a twist, and had a sudden, sharp pain, which soon subsided. About the middle of December, 1905, while dancing, his knee suddenly became locked in a slightly flexed position. A physician who was present manipulated the limb, and it became straightened with a "click," which was both heard and felt by the patient. On January 2nd, 1906, the same thing occurred again while he was throwing a heavy stick of wood. Later in the day it occurred again while throwing a curling stone, and in the evening while skating it became locked again and could not be straightened out. Physicians attempted to correct the deformity under an anaesthetic, but failed. He was then brought to the hospital, where I made several (three) attempts, at intervals of several days, at reduction under ether, but without success. On January 28th I opened the joint, as in the cases already mentioned, and found the cartilage torn and crumpled, and lying at the inner and posterior part of the articular facet of the tibia. It was removed, and the patella sutured and the wound closed with drainage. The patient made an excellent recovery, and was discharged with his limb in plaster on February 10th. A letter from this patient's brother, who is a physician, dated August 6th, 1906, says that "he can flex the leg nearly to a right angle, is not lame, and has a very useful joint."

It will be noted that in each of these four cases there was a condition of cartilage which necessitated its removal, that the operation was simple and precise, that recovery was uneventful and not unduly prolonged, and that the final functional result was entirely satisfactory. One can hardly describe the result as perfect, as the flexion of the leg in each case at last reports was described as "nearly to a right angle" in two and "a little more than a right angle" in two others. There is little or no evidence available as to the degree of flexion regained after the other operative methods. The cases are reported as "cured," "good," "perfect," etc., without specific information on this important point.

The results of immediate suture of fractured patella show in most cases the restoration of flexion to 100° or 120° or more, and there is no reason why an equally good result should not be obtained in this operation, and I have no doubt but that the patients whose reports I have given here have improved since last heard from and will still improve in this respect. Another very important advantage of this operation over those in which the joint is opened through the ligamentous tissues along the line between the articular extremities of the bones is that it does not weaken the joint, as bony union of the patella is secured and it becomes as strong as ever.

An experience of two or three cases in which free cartilages had been removed from the knee-joint several times through small incisions, and in which I finally opened the joint freely to remove those still retained within the joint, has confirmed me in these opinions.

The question therefore resolves itself into a consideration of the relative advantages and disadvantages of a small incision through the ligamentous structure, on the one hand, and a large and free incision into the joint through the patella, on the other. The extent of the incision is the only objection which can be made against the latter method, but we know well that the gravity of an operation is not to be measured by the extent of the incision—very often, indeed, the reverse is the case.

In conclusion, I may recapitulate the advantages which I claim for this procedure. They are: Greater ease and accuracy in the removal of the torn and displaced cartilages; less manipulation and therefore less injury to the joint structures; less risk of infection; a better functional result; and, in general, a better control of all stages of the treatment, with a convalescence only slightly prolonged on account of the necessity for obtaining bony union of the patella.

Dr. LISTON HORNER MONTGOMERY (Chicago) asked at what period after luxation had occurred should the displacement be considered irreducible. He related particulars of a case in which replacement by manipulation was successful after a prolonged interval.

Dr. FREDERICK WILLIAM MARLOW (Toronto) questioned Dr. Bell as to the after-treatment of his cases. He (Dr. Marlow) had experienced difficulty in obtaining satisfactory results in two instances, in one case owing to great thickening of the synovial membrane and in another by reason of a very marked rheumatic tendency.

Dr. BELL, in reply to Dr. Montgomery, said that reduction may be effected—even spontaneously—after many days and that he had recourse to operation only after repeated attempts at reduction failed.

A CASE OF EXTENSIVE TUBERCULOUS ULCERATION OF THE SMALL INTESTINES

WHICH NECESSITATED THE REMOVAL OF FIVE FEET OF ILEUM.

By FRANCIS J. SHEPHERD, M.D., C.M., LL.D. Edin., F.R.C.S.E.,
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J. K., aged 34, was sent into the Montreal General Hospital on the evening of March 13th, 1906, said to be suffering from acute appendicitis. The patient, who had for years been a hard drinker, had no history of any abdominal symptoms until three years ago, when he began to have attacks every two or three months of so-called "appendicitis," which usually followed a drinking bout.

These attacks were marked by severe pain in the right iliac fossa, with vomiting, and usually passed off within

twenty-four hours. He had occasional attacks of diarrhoea, and sometimes the stools were bloody. The history of the attack for which he was admitted to the hospital was as follows:

He had been drinking hard for two months, and, after sobering up, he suffered from gastritis and severe nervous prostration. For ten days before admission he had abstained from all alcohol. About twenty-four hours before being seen he had suddenly been seized with severe pain in the right iliac fossa, which radiated to the testicles and perineum, and for which his physician gave him an opiate. Vomiting then set in, and was continuous until his admission about 5 p.m. on March 13th.

On admission he was suffering intense pain, which was referred to the median line below the umbilicus. He had also great pain on micturition, and his bowels had not been opened for two days. He had some abdominal distension and great tenderness over the whole lower zone of the abdomen, but no mass could be made out. Continuous vomiting, with a temperature of 103° F., and a pulse of 128. As there was evidently peritonitis, and as the history pointed to appendicitis, operation was immediately undertaken.

On opening the abdomen to the right of the median line a large amount of stinking sero-pus escaped. The appendix was examined and found normal, but there was a good deal of thickening and deep reddening about the junction of the ileum with the caecum. On further examination higher up in the ileum other spots of inflammatory thickened areas, presumably due to ulceration, were found, and a large coil of very much thickened and distended intestine was discovered hanging over the brim of the pelvis. On pulling this coil out a large perforation was found on the free border of the most distended portion, discharging liquid faeces. The intestines were taken out of the abdomen and it was seen that there was an almost continuous series of ulcers extending for a distance of several feet. Before a part of the bowel could be found sufficiently healthy for section one had to go upward towards the duodenum, a distance of over 5 ft. The coils of intestines were adherent by fresh lymph and many pockets of pus found, some of which communicated with the gut by an opening of considerable size. Nearly the whole of the small intestine was studded with dark red areas indicating ulceration.

The condition of the patient becoming alarming, the bowel was divided at points where there was the least disease and the cut ends brought together with a Murphy's button, after excising a V-shaped portion of the mesentery. This latter was much thickened and filled with enlarged glands. The bowel was returned into the abdomen after carefully swabbing out the pelvis; the wound was closed rapidly and a rubber drain inserted into the pelvis.

To my surprise the patient next day was much better and continued to improve the following days; pulse and temperature were more favourable. A week later, a faecal fistula developed which closed spontaneously in a few days. The man's condition rapidly improved, appetite was good, abdomen soft, and bowels moved regularly. At the end of the second week he developed a high temperature and an abscess appeared at the site of the wound. On opening this some faeces escaped, which were semi-solid and of a marked faecal odour. The fistula discharged during the next week very freely and at times almost solid faeces passed. An exploratory incision was made and a large hole, sufficient to admit three fingers, was found at the ileo-caecal junction; evidently the large ulcer which had been seen at the first operation had perforated. The patient's condition was such that no more extensive operations could be undertaken, in fact, he himself strongly objected, and as the ulcers were most extensive and distributed all through the small intestines I did not hold out any very great hopes of permanent relief.

He left the hospital for his home in the city two months after admission, having a large faecal fistula in the right loin. I may say also that the Murphy button never passed, probably being prevented by the many constricted areas due to ulceration in the gut below.

I visited the patient from time to time and saw that he was gradually failing, and he finally died of exhaustion during my absence from town on July 17th, four months after the excision of the intestines. A *post-mortem* examination was not obtained, I am sorry to say, though had I been in the city I could have managed it. An *x*-ray photograph was taken whilst in the hospital and the button was seen to be in one of the coils of the intestines in the pelvis.

This case is a good example of the manner in which patients suffering from abdominal tuberculosis stand severe operations on the intestines. Had the second perforation not occurred, there might have been some chance of the other ulcers healing, but no doubt an operation would have been necessary to remove the Murphy button. It is not my custom in excision of the intestines to use the button, but the condition of the patient appeared so hopeless and the necessity for rapidly completing the operation so urgent that I was induced on this occasion to make use of it.

Dr. A. J. Ochsner said: It is of the greatest importance to remove a sufficient amount of the diseased intestine to make the union between the ends in perfectly healthy tissue as regards all of the layers of the intestinal wall. In these serious cases one naturally feels inclined to remove as small an amount of intestine as possible in order to reduce the shock, often to the detriment of the patient.

Dr. W. J. Mayo said: The emergency operation which Dr. Shepherd was forced to take as a life-saving measure shows the desperate condition developed in the later stages of intestinal tuberculosis. These cases can be divided into two groups: The common variety, secondary to pulmonary tuberculosis, due to swallowed sputum and hopeless of cure; and secondly, primary intestinal tuberculosis, supposed to be rare, because, unless the patient dies from obstruction of the bowels, general tuberculous changes in the susceptible lung tissue overshadows the primary lesion at the *post-mortem* examination, and it is overlooked. These cases are by no means rare. We have (*a*) the solitary tuberculous ulcer, or at most several such ulcers not far apart, and frequently causing stricture in the healing process—careful examination of the excised part may be necessary to detect the nature of the primary infection; (*b*) conglomerate tuberculosis, usually of the caecum, giving rise to tumour and signs of cancer. Many of these cases are removed under this supposition, and for want of a careful microscopical examination their true nature is never discovered. In this latter group the entire ileo-caecal coil should be removed, with the ascending colon, and both ends closed, and the canal re-established by a lateral anastomosis. After resection for any form of intestinal tuberculosis. drainage should be avoided if possible, on account of the danger of intestinal fistula.

SPLENECTOMY AND BANTI'S DISEASE.

By G. E. Armstrong, M.D.,
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Under the title of "Banti's disease," I refer to the complex syndrome described by the Florentine pathologist in 1882. The spleen enlarges without known cause, it becomes harder than normal, while preserving its normal contour. Later on there is developed a fairly well-defined type of progressive anaemia, with, however, not infrequent periods of remission. There is generally pigmentation of the skin, and an icteroid hue of the conjunctivae. This, the first stage, may last three, five, ten, or more years, and is succeeded by the second stage, in which the urine becomes scanty, high coloured, loaded with urates, and contains urobilin. The second stage is shorter, its duration being measured by months, and is followed by the third or ascitic stage, with well-marked Laënnec's cirrhosis. The changes in the spleen are fairly uniform, and consist of great enlargement, sclerosis of the capsule and the reticulum, sclerosis and atrophy of the Malpighian corpuscles, and atrophy of the pulp. In other cases the normal texture is largely replaced by fibrous tissue and large endothelial cells, with clear protoplasm, containing two or more nuclei. The splenic veins are markedly sclerosed. There is a tendency to haemorrhage, particularly from the stomach. The blood changes in the reported cases present a considerable degree of uniformity, a moderate oligocythaemia, leucopenia, or at least an absence of leucocytosis and diminished haemoglobin. If untreated, the condition would seem to be always fatal. The literature of the subject is now considerable, and I would like to add the following to the list of reported cases:

Male, aged 26, the eldest in a family of seven, healthy as a child, suffered from occasional attacks of gastric catarrh. At 18, and again at 20 years of age, he had a slight attack of catarrhal jaundice. In 1900, when 21 years of age, he met with an accident when tobogganing, and received a severe blow in the left hypochondrium from the shoulder of a companion. Afterwards he vomited twice, bringing up a dark material. On the following day, he was seen by Dr. Blackader, who found tenderness, with some muscular rigidity in this region, quickened pulse and slight pyrexia. He remained in bed for ten days. About the sixth day, the spleen was felt to be enlarged and firm. This enlargement persisted, and by the end of the fifth week was three fingerbreadths below the costal margin, and extended to within an inch of the median line. The notch could be distinctly felt and the edge of the spleen was firm and rounded. Dr. Martin, who saw him at this time with Dr. Blackader, thought the liver dullness was slightly diminished. Dr. Osler saw him in May, 1902, and found the left lobe of the liver enlarged, firmer than normal, and regarded the condition as one of Banti's disease. In April, 1902, a blood examination gave the folowing results: Red cells 4,700,000, white cells, 5,000, haemoglobin 90 per cent.; no poikilocytosis; corpuscles regular in shape and size; polymorphous 80 per cent., large and small mononuclear 15 per cent., eosinophiles 2 per cent., transitional 3 per cent., no nucleated red cells. September, 1902: Red cells 5,000,000, white cells 5,000, haemoglobin 85 per cent.; blood coagulated slowly. The needle punctures bled for some time, and the haemorrhage was unusually profuse. Stained specimen shows nothing abnormal. March 22nd, 1905: It was noted on this date that he was somewhat pale, had been working very hard of late. Splenic measurement: The spleen extended from the liver border from the sixth rib in the mammary line to the level of the crest of the ileum—8 in. It extended to the right, 2 in. beyond the median line; surface is smooth, scarcely tender; liver dullness anteriorly distinctly diminished; severe varicocele is present on the left side. The veins of the left leg are much dilated. The blood count on this date is: Red 5,400,000, white 5,000, haemoglobin 90 to 95 per cent. November 7th, 1905: He complains now that any chilling of the surface brings on a diarrhoea; has been slightly jaundiced for some months past. The eyes are now yellow and the skin icteroid. His appetite is fairly good, but anything like a good meal produces uncomfortable sensations, followed by movement of the bowels, and a feeling of tightness. His strength remains fairly good, but he gets very tired towards evening. The splenic dullness is about the same. Liver dullness absent anteriorly.

On November 18th, 1905, he was examined by Dr. Stengel of Philadelphia, who said: "There is little doubt in my mind that the splenic enlargement is one of that type that tends toward the final development of Banti's syndrome. I cannot find any evidence of decrease in the size of the liver; the enlargement of the spleen has caused an elevation of the left lobe of the liver, and a consequent upward displacement of the gastric and intestinal tympany, but there is no decrease in the breadth of the liver dullness. The slight jaundice present is probably the result of pressure or kinking, as you suggest. The history of icterus before the accident might lead one to suppose the pre-existence of a cholangitis, and the more recent development of splenic enlargement as in some measure a consequence of this; thus making up a picture somewhat resembling that of Hanot's disease. I believe the splenic enlargement in this case was brought about by the accident that stirred up processes that were always present, but dormant before." Dr. Stengel strongly urged that splenectomy be performed at as early a date as possible. He regarded the disease as well established; that its course would inevitably be one of progression, with subsequent involvement of the liver and other untoward results. The following is Dr. Stengel's report on the blood examination. Red corpuscles 4,820,000, white corpuscles 2,960, polymorphonuclears 79 per cent., mononuclears 3 per cent., transitional 3 per cent., lymphocyte 11.5 per cent., eosinophiles 2.5 per cent., basophiles 1 per cent. December, 1905:—Urine: Colour, dark amber; flocculent mucous sediment; acid reaction; specific gravity 1027; albumen absent; a trace of phosphates; sugar absent. The urine gave a slight colour reaction, but not distinctly indicative of bile. Microscopically, is found calcium oxalates, a few uric acid crystals, and a few large epithelial cells, probably from the bladder.

I removed the spleen on January 2nd, 1906, under ether anaethesia. I first made an incision along the left border of the rectus, extending from the margin of the ribs to the level of the umbilicus. I immediately found it necessary to get more room, and carried from the middle of the longitudinal a transverse incision extending to the left for 4 in. The bleeding from the tissues of the abdominal wall was unusually free, requiring many ligatures. On opening the abdomen, the spleen was seen to be covered with omentum, which was easily pushed to one side, and not adherent to any one point. Passing my hand around, I found there was no adhesion between the spleen and the anterior abdominal wall, nor between the spleen, stomach, liver or diaphragm. On exposing the lower end of the spleen, enormous veins, as large as the forefinger, extended from an adhesion about two inches square on the outer surface of the lower end of the spleen, along the border and under surface up to the hilum, so that one had to deal with a pedicle extending from the outer surface and lower border of the spleen up to the uppermost of the vasa brevia. The adhesions to the lower end could not be peeled off without tearing the spleen. Numerous large, short veins connected the lower inner surface of the spleen to the upper layer of the transverse mesocolon. These were first carefully caught and divided. When this separation had extended up to the pedicle proper, and there was no longer danger of injury to the vessels of the mesocolon, the lower border of the spleen was found to be free. The spleen was then turned out of the abdomen. The vessels of the pedicle, though greatly dilated, were unusually short. The adhesions between the spleen and mesocolon had apparently been sufficiently strong to direct the spleen upward and transversely, a peculiarity of position which had been frequently noticed during the examination made before operation. This high position of the spleen accounted for the shortness of the vessels of the pedicle. Had the spleen, instead of growing transversely, extended more downward into the iliac fossa, the vessels of the pedicle would have been stretched out. As it was, there was not sufficient space between the spleen and the pancreas, the great vessels, and the greater curvature of the stomach, to apply either two ligatures or two clamps and cut between. I therefore placed strong clamps across the pedicle, close to the spleen, and divided between the spleen and the clamp, allowing the blood from the spleen to escape over the wound protected by towels. I had no other resource. Previous to clamping the pedicle, the lieno-renal and lieno-phrenic ligaments were divided between two clamps; these structures gave no further trouble. The vessels of the pedicle were so short that they could not be tied individually. Three strong linen-thread ligatures were passed through the pedicle at intervals with Macewen's needle and tied. The only difficulty experienced was with a few branches of the vasa brevia, at the uppermost angle of the wound. When everything was dry the wound was closed without drainage. It was apparent at the operating table that the high and transverse position of the spleen was due to the adhesion of the lower pole holding it up. This might readily be attributed to the traumatism received in 1900, which was followed by localized pain, tenderness, and rigidity. The stomach presented no unusual appearance, the liver was possibly a trifle smaller than normal, the surface smooth, with a suspicion, both on inspection and palpation, of more than normal firmness; no irregularity of the capsule.

I cannot accept Dr. Stengel's view that the blow received was an etiological factor in the development of the disease. To my mind, it seems more probable that the spleen was enlarged at the time, and therefore received the blow, the result being a traumatic local perisplenitis at the site of the dense adhesions on its outer surface.

He came out of the ether quietly and vomited very little. About twelve hours later a most unusual condition of tetany developed. The patient rested very quietly during the first part of the night, but became restless about midnight, and at 1.30 a.m. had a severe spasm of pain, causing him to become quite rigid, his eyes fixed and staring, arms rigid, the limbs extended, and the back slightly arched. The pulse became very

rapid, impossible to count at times; respiration rapid and laboured, with sometimes an expiratory grunt. These spasms lasted from half a minute to three minutes, recurred every ten minutes, and continued from 1.30 to 4 a.m. Between the spasms the patient rested fairly comfortably. After 4 a.m. the spasms did not recur quite so frequently and lasted a shorter time, and the patient slept a little. He became restless again at 6.30, and complained a good deal of pain in the wound. He was given a hypodermic of ¼ gr. of morphine, without effect; repeated at 11.15, after which he rested quietly for some time. The spasms still continued at intervals, particularly if the patient was disturbed in any way; talking, moving, or any noise produced an exacerbation. During the following night (January 3rd) he had two severe spasms, one at 9.40 p.m. He was given ¼ gr. of morphine at 10.10 p.m. This had a quieting effect for a time, though slight spasms still continued, and he had another severe spasm at 1 a.m. He was given a hypodermic of ¼ gr. of morphine. He rested very comfortably for several hours after this. Slight spasms began again about 5 a.m., and continued until noon of the 4th, when they ceased altogether.

The following is Dr. Gillies's pathological report: "The spleen, although much enlarged, preserves its normal shape. It weighs 1,000 grams and measures 22 by 13 by 3 cm. The capsule is smooth and thickened. There are, however, evidences of a few adhesions, more especially on the inner surface. The notches of the organ are very much exaggerated. Its consistency is firmer than normal. On section the cut surface bleeds freely, and is of a dark red colour. The Malpighian bodies are not visible. The reticulum shows a marked hyperplasia, and the organ has a spongy appearance. Much of the pulp comes away on scraping. The parts taken for microscopical examination were hardened in Müller, formol and alcohol, and embedded in paraffin. The sections were stained in haemotoxylin and eosin, and haematoxylin and van Giesen.

"The capsule is considerably thickened. The trabeculae are coarser than normal. The connective tissue stroma is everywhere increased. The blood sinuses are greatly dilated and filled with phagocytic endothelial cells for blood pigment. A few lymphoid and plasma cells are also present. In many parts the sections present almost no resemblance to splenic tissue, the lymphatic cells being so few in number. Their place is taken by the hyperplastic connective tissue trabeculae and dilated sinuses.

"The absence of the lymphoid tissue is everywhere a striking feature of the sections, and even where this is least evident, a hyaline degenerative process may be seen. The Malpighian bodies are few in number and of small size. Small distinct hyaline masses are seen in the centre of the Malpighian bodies, where the lymph cells are most closely arranged. There are no special forms of cells evident; no eosinophiles. The walls of the blood vessels of the Malpighian bodies show a decided variation from the normal, presenting a diffuse sclerotic process."

On January 27th there were: Red cells, 3,830,000; white cells, 13,000; haemoglobin, 75 per cent.; lymphocytes, 4 per cent.; large mononuclears and transitional cells, 21 per cent.; polynuclear neutrophiles, 73 per cent.; eosinophiles, 3 per cent. Not much poikilocytosis; red cells of good colour. He presented himself for examination on July 16th, 1906, apparently in perfect health and strength. The enlarged veins in the left leg have quite disappeared, together with all sense of local discomfort. On August 18th, 1906, his blood count showed the following: Red, 5,200,000; white, 14,600; haemoglobin, 95 per cent. I had operated on him four days previously for a large varicocele.

I have collected from literature and from personal communications reports of 32 cases, including my own, with 23 recoveries and 9 deaths, giving a mortality of 28 per cent. Of these there were none in the first decade, 5 in the second, 8 in the third, 7 in the fourth, 4 in the fifth, 1 in the sixth.

The disease would seem to be most common from 10 to 40 years of age. The sex was stated in 28 cases, of which there were 16 females and 12 males. The weight of spleen was given in 15 cases, and averaged 1,883 grams (4 lb. 2 oz.), the smallest weighing 790 grams, and the largest 5,670 grams.

Almost without exception, where any mention has been made of the results in the recovered cases, the patients are reported as being practically restored to health. The oligocythaemia and leucocytosis generally observed during the first few days after operation have quickly disappeared, and the blood gradually returned to a normal condition. The pigmentation has also gradually disappeared. In König's case the jaundice had nearly disappeared in twelve days, and the liver, which was much enlarged, had returned to its normal relation to the border of the ribs in three weeks. The disappearance of the pigmentation and the improvement of the blood is sometimes retarded, however, as in Laspeyer's case; they were still present five months after the splenectomy.

In many cases the liver is reported to have returned to its normal size, and there is good reason to believe that one may legitimately expect further cirrhotic changes to cease after the spleen has been removed. Another immense gain would seem to be a complete relief from the recurring and sometimes alarmingly severe haemorrhages, which so frequently occur in these patients. It would seem, also, that the improvement after the operation was of a permanent character. One case was reported well 1 month after operation, 1 after 8 months, 1 after 9 months, 1 after 20 months, 1 after 21 months, 1 after 33 months, 1 after 2 years and 6 months, 1 after 6½ years, 1 after 7 years, 1 after 8 years.

This last patient had suffered from recurring attacks of haematemesis for ten years, but there has been no recurrence during the eight years that have elapsed since the spleen was removed.

These results are a clinical demonstration that the spleen is not passive in this disease, but that in it is produced some poison which acts injuriously, which causes the anaemia, and which later on produces the change in the liver. Otherwise, how can one account for the disappearance of the anaemia and the arrest of the changes in the liver after the spleen has been removed? It may not be the same poison that causes both the liver and blood changes. As to the nature of this poison, one cannot speak definitely. It may be an enzyme, produced by the endothelial cells, as suggested by Harris and Herzog, or some other ferments. In cases where the liver changes are in active progress, large numbers of endothelial cells are reported to have been found in the portal circulation.

Ante-mortem observations at the operating table, and the experience of operating surgeons have emphasized the autopsy findings in regard to the extreme dilatation of the splenic veins and their contributory branches. These veins are enormously dilated. Their walls are much altered and thickened, and in several instances have contained large calcareous plaques. In Nancrede's case, in addition to these changes, the lumen of the portal vein, just above the union of the superior mesenteric and splenic, was narrowed and partly bridged off by a valve-like constriction, barely admitting the tip of a lead pencil or large probe. Dock and Wharton found a similar condition in the autopsy room in an unoperated case. In a large proportion of cases, haematemesis has been a frequent and troublesome symptom, sometimes associated with melaena. It occurred in eight of Osler's cases.

The sequence of events would seem to be, first, an enlargement of the spleen. This precedes—sometimes by years—any definite recognizable alteration in the blood. In my own case, two years after the spleen was found to be enlarged, an examination of the blood gave 4,710,000 red cells, 5,000 white, and haemoglobin 90 per cent., polymorphonuclear 80 per cent., large and small mononuclear 15 per cent., eosinophiles 2 per cent., transitional 3 per cent.; and five years later Dr. Stengel's examination showed that there were then present 4,820,000 red cells, 2,960 white cells, polymorphonuclear 79 per cent., mononuclear 3 per cent., transitional 3 per cent., lymphocytes 11.5 per cent., eosinophiles 2.50 per cent., basophiles 1 per cent., and the haemoglobin was never found below 85 per cent.

In the history of many cases a similar condition is found, namely, comparatively little alteration in the blood, in the presence of a splenic tumour of considerable size and a duration of years. There would seem, therefore, to be no evidence that the anaemia precedes and causes the splenomegaly. One must attribute, then, the enlarged and hardened spleen to other causes than blood changes. The haematemesis may be due either to alterations in the blood or to changes in the walls of its containing vessels. It occurs here in the presence of a

condition of blood approaching the normal. A secondary anaemia, similar to that found in chronic splenic anaemia, is observed under other circumstances in a much more exaggerated form, and without haematemesis as an accompaniment. The dilated condition of the vasa brevia, so constantly observed in Banti's disease, and sometimes associated with oesophageal varix, points to an obstruction to the passage of the blood through these vessels. In other words, the haematemesis would seem to be due to obstruction to the flow of blood through the vasa brevia. As 40 per cent. of the blood from the stomach passes by the vasa brevia to the splenic vein (Mall and Krausse), one can readily understand that an obstruction to the flow through these efferent vessels would lead to back pressure and dilatation.

One of Cushing's cases, which died on the tenth day after operation (death being due to haemorrhage from a rupture of an oesophageal varix), is confirmatory evidence of this view. It is quite obvious that the spleen, from its position, cannot mechanically obstruct the outflow of blood through the vasa brevia. One must look for this obstruction to the splenic vein in some part of its course into which these vessels empty. It is equally obvious that the spleen cannot obstruct the flow of blood through the portal system, but the presence of a large number of endothelial cells in the blood of the portal vein in cases of active cirrhosis supports the view that the cirrhosis is splenogenous.

It would seem, then, that, given a persistent congestion and enlargement of the spleen, with its congested and sluggish circulation, certain alterations take place with atrophy of the pulp and the Malpighian bodies, resulting in some ferment, capable of causing changes in the blood and, when carried to the liver, of inducing cirrhosis. The fundamental question of the cause of the splenic enlargement remains to be answered, and, so far, no satisfactory solution of the question seems to have been given. Sir James Barr has suggested that it is due

Splenectomy for Banti's Disease (List up to date).

No.	Operator.	Date.	Sex.	Age.	Weight or Size.	Result.	Remarks.
1	Colzi	—	F.	—	—	Death	Died several days after operation from septic puerperal complications.
2	Colzi	—	M.	—	—	Recovery	In best of health thirty-three months after operation.
3	Colzi	—	F.	—	—	Recovery	In best of health twenty-one months after operation; no anaemia.
4	Power	1899	F.	43	2½ lb.	Recovery	
5	Cushing	1898	M.	35	—	Recovery	July, 1906. Still living and well, having had no return of his haemorrhage since that time.
6	Bovaird	May, 1899	F.	13	2½ lb.	Death	Died three hours after operation.
7	Picou	—	F	32	2,800 grams	Recovery	
8	Spencer Wells	1885	F.	34	2,672 grams	Death	
9	Péan	1876	F.	24	1,125 grams	Recovery	Recovered perfectly in one month; subsequently died of toxic enteritis.
10	Czerny	1878	F.	30	23×12×8 cm.	Recovery	Complete cure.
11	Franzolini	1881	F.	22	1,526 grams	Recovery	Complete cure.
12	Frascani	—	F.	15	1,310 grams	Death	Died in four hours from haemorrhage.
13	Caci	1893	F.	13	1,310 grams	Recovery	
14	Lindfors	1902	F.	20	25×15×7 cm.	Recovery	
15	Tschernia-chowski	1893	F.	25	—	Recovery	
16	Cushing	1900	M.	38	—	Death	Died from rupture of the oesophageal varix.
17	W. S. Halsted	1901	M.	30	—	Death	Died on the table from haemorrhage.
18	J. Collins Warren	Oct. 1899	M	26	1,155 grams	Recovery	July 9th. The patient is now (six and a half years) perfectly well, and attending to business. (Personal communication.)
19	Bevan	—	—	—	—	Death	Enormous calcareous plaques and adhesions round the spleen, between it and the diaphragm specially. Patient died from haemorrhage and shock within a few hours.
20	Clarke	Jan., 1904	F., black	21	1,230 grams	Recovery	July, 1906. Patient is quite well: she is practically normal. (Personal communication from Dr. A. Stengel, July, 1906.)
21	Mayo	—	—	—	—	Recovery	Died one year later; cause of death not stated. (Personal communication.)
22	Mayo	—	—	—	—	Recovery	Patient is alive nine months after operation.
23	König	Feb., 1904	M.	15	1,300 grams	Recovery	Jaundice present; nearly disappeared in twelve days. Liver much enlarged; in three weeks it had returned to normal relation to border of ribs.
24	Nancrede	Nov., 1899	M.	41	1,536 grams	Death	Lumen of portal vein just above union of superior mesenteric and splenic is irregularly narrowed and partly bridged off by fibrous valve-like constriction which contains calcareous plates. The lumen barely admits tip of lead pencil or large probe. Splenic and mesenteric veins enormously distended; their walls are greatly thickened, and present scattered patches of hyaline. Dock and Warthin report another unoperated case in which the portal vein is thickened and contains calcareous plates, the lumen barely admitting tip of lead pencil. All radicles of portal are enlarged and show thickened walls, the splenic in particular.
25	Hart	Oct., 1904	M.	14	730 grams	Recovery	June, 1906. He was perfectly well; colour and general appearance particularly good; never felt better in his life; able to run an automobile, swim, and row.
26	Harris	May, 1899	F.	22	—	Recovery	In good health, July, 1905, seven years after the operation. Suspension of menstruation after operation till present date.
27	Harris	April 1906	M.	60	—	Death	Enormous veins from spleen; died a few hours after the operation.
28	Harris	Sept., 1900	M.	47	—	Recovery	Left the hospital in good condition, and has since been heard of as doing well and attending to business.
29	Jaffé	"	—	—	—	Recovery	A case in the last stage, with enormous ascites. A wonderful improvement followed splenectomy, notwithstanding the fact that the liver was seen at the time of the operation to be markedly cirrhosed. Jaffé suggests that in these cases, with the atrophic cirrhosis of the liver, Talma's operation be done in concurrence with the splenectomy.
30	Lesieures	May, 1904	F.	52	—	Recovery	Five months after splenectomy the cachexia and anaemia were still present.
31	Armstrong	Jan., 1905	M.	26	1,000 grams	Recovery	At present time apparently in perfect health, with a normal blood count and no appreciable alteration in the size of the liver.
32	Gordon	June 27, 1902	M.	45	3,635 grams	Recovery	January 10th, 1905, seven months afterwards, he was in perfect health: his weight had increased 2 st.; he had 4,400,000 red cells, 6,600 white, and 85 per cent haemoglobin. Microscopically, the general appearances suggested lymphadenoma, rather than any other cause of splenic enlargement.

* *Zentralblatt für Chirurgie*, No. 28, p. 113, 1906.

to vasomotor paresis of the splanchnic area, which arises from a disease of the visceral sympathetic ganglia. Its bacterial origin has never been established.

It is possible that the primary lesion is in the veins, that the splenic enlargement is secondary to a long-continued passive hyperaemia, and that the poison or poisons causing the subsequent alteration in the blood and changes in the liver are the result of the altered circulation in the spleen. It would be extremely interesting, were it possible, to re-establish a free flow through the efferent vessels of the spleen. The one case where anything like this has possibly been accomplished was related to me in a personal communication by Dr. Mayo. That accomplished surgeon diagnosed a case as one of Banti's disease, and opened the abdomen with the object of removing the spleen. Finding, however, gall stones in the common duct, with enlarged glands and adhesions, the stones were removed and the idea of splenectomy abandoned. The patient is now practically well, and the spleen reduced to one-third its former size.

The ascites appearing in the third and last stage of the disease may be due to the obstruction to the returning blood stream in the superior and inferior mesenteric veins at their junction with the splenic, quite as much as from the obstruction to the portal in the cirrhotic liver. As to the chronic endophlebitis, we are as much in the dark as when trying to account for a similar condition in other veins, within as well as without the abdomen. The exciting cause may arise in the spleen, but it is quite thinkable that it might come from the gastric mucosa. A history of gastric disturbance is not uncommon in these cases.

As the result of a somewhat careful study of the literature of this disease, I must place myself among those who consider that a definite clinical group must be regarded as fully established.

Treatment.

In approaching the subject of treatment of the so-called Banti's disease, three points, I think, we may consider to be fairly established. First, that the disease is essentially and without exception progressive, and tends ultimately to destroy life. Secondly, that no treatment other than removal of the spleen is permanently effective in removing the anaemia and the inevitable tendency to Laënnec's cirrhosis; and thirdly, that splenectomy is followed by an immediate improvement, even in advanced cases, and that we have reason to believe that this improvement has a considerable degree of permanency.

It naturally follows that when the diagnosis is thoroughly established, the sooner the operation is undertaken the less will be the immediate danger and the greater the prospect of a satisfactory and permanent recovery. Most of the deaths, so far, have undoubtedly been from haemorrhage. The operative technique, therefore, among other essentials, should afford perfect access for its control. There is no greater mistake in a case of this kind than trying to work through a small opening. A vertical incision along the outer border of the left rectus, extending from the costal border downward as far as may be required, and joined by one at right angles to the first, and extending well toward the left loin, enables one to deal safely with any adhesions on the outer surface of the spleen, and between it and the diaphragm, as well as with the vessels of the pedicle. Special care should be taken to arrest all haemorrhage from the vasa brevia, and from the vessels contained in the lienophrenic ligament. Even with the greatest care, it may be necessary to pack with gauze. The convalescence is smoother and safer if all the bleeding points can be thoroughly secured, and the abdomen closed without drainage.

Jaffé (*Zentralblatt für Chirurgie*, No. 28, 1906) suggests that in the presence of well-marked atrophic cirrhosis of the liver, the splenectomy be followed by Talma's operation.

Of the influence of the Roentgen rays in Banti's disease I shall not speak, as I have no experience of this agent.

Dr. A. B. Atherton (Surgeon, Victoria Hospital, Fredricton, New Brunswick) said: Undoubtedly the removal of the enlarged spleen in cases of splenic anaemia or of myelogenous leukaemia is perfectly justifiable when the general condition of the patient is fairly good. There are two sources of difficulty and danger in splenectomy to which I would call attention. These are the friability of the organ and the consequent liability to tear when separating it from neighbouring parts to which it may be adherent, and the tendency of the vessels of a short and thick pedicle to retract from the grasp of the ligatures when these include the peritoneal covering. During the present year I had charge of a case which presented many of the symptoms of Banti's disease. The patient, a male, aged 18 years, had multiple bone disease at the age of 11 years, probably tuberculous in character. In the spring of 1905 he began to suffer from attacks of abdominal pain accompanied by vomiting. These recurred at intervals of a few weeks during the summer and autumn. The abdomen began to enlarge in December, and continued to do so up till the end of April, when I first saw him. The spleen filled the whole left side of the abdomen, and extended to a point 3 in. to the right of the median line. It was quite hard and somewhat tender, especially near the navel where a friction rub could be felt during inspiration. A distinct notch was found at its inner border near the umbilicus, and a second below the level of the crest of the ilium. The liver was not enlarged, and the urine was normal. He had lost much flesh and strength, but was not markedly anaemic. He was treated with liq. arsenicalis, which was badly borne, and *x* rays applied to the tumour twice a week. His condition rapidly improved in every way, and in a few months the spleen was reduced to one-fourth its former size. Owing to the fact that the patient's blood was not examined until some time after the commencement of the treatment it is not possible to say for certain that the case was one of Banti's disease, but the rapid and marked improvement in all his symptoms, including the great diminution in the size of the spleen, warrants one in trying the *x* rays in any similar instance before splenectomy is undertaken.

SURGICAL TREATMENT OF CHRONIC COLITIS.

By Ingersoll Olmsted, M.B.,
Surgeon to the City Hospital, Hamilton, Ontario.

Obstinate cases of colitis, mucous and ulcerative, which have failed to respond to internal medication have usually, during the last few years, been referred to the surgeon for relief. The great wasting, marked anaemia, frequent stools in which blood, mucus, pus, and shreds of necrotic mucous membrane are found, endanger the patient's life, and call for surgical aid.

The causes of colitis are still imperfectly understood. Mathieu[1] states that in muco-membranous colitis, constipation, either primary or secondary, is constantly present, and contributes very greatly in perpetuating the syndrome. Chronic inflammation of the appendix, as proved by Deaver,[2] Shoemacher,[3] and others, plays an important rôle in many cases. Angulation of the colon, from displaced kidney or gastroptosis, producing the neuropathic type of the disease, must always be remembered. Cases coming from the tropics are usually due to infection with the colon amoeba, and many others are due probably to Shiga's bacillus. Other causes are tuberculosis, actinomycosis, lues, polypi, aneurysm, multiple adenomata, etc.

The continuous absorption of large quantities of mercury may produce ulceration of the colon and the formation of polypoid growths [Robertson].[4] Cancer may also produce symptoms of colitis; Mummery[5] cites two cases which he was able to differentiate by means of the sigmoidoscope.

In every case one should endeavour to determine the cause of the trouble. The blood and stools should be carefully examined. In the stools tubercle bacilli, amoeba, shreds of tissue, etc., should be searched for.

By palpation the condition of the appendix, gall bladder, kidney, and colon are frequently determined.

Distension of the colon by air or weak saline solution will help in determining its position and condition. An electric sigmoidoscope with insufflation attachment is very valuable in many cases. If, however, the rectum is ulcerated and infiltrated with inflammatory products, one frequently cannot use it. In my first two cases this instrument was useless and only a small proctoscope could be inserted on account of a fissure of the anus and markedly contracted sigmoid.

The condition being thus usually a local one, local treatment is indicated. The intestine recovers in most cases when relieved of the contact of irritating materials.

The history of the operative treatment is extremely interesting.

The first colotomy reported for ulceration of the lower bowel, in which there was no obstruction, was performed by Hahn[6] in Germany in 1880. His case was a *puella publica*, aged 25, with ulcerative recto-colitis. No stricture or obstruction was present. No other evidence of lues could be found, and the condition did not respond to mercury and iodide of potash or local treatment. She had lost 68 lb. in weight. He performed an inguinal colotomy, and the patient recovered perfectly, but with an artificial anus. Two years later he attempted, at her request, to close the opening, but death resulted from pyaemia.

Bartini[7] made an artificial anus in the descending colon for colitis in 1882, with recovery.

In 1885 Folet[8] of Lille performed the first caecostomy for dysentery (probably amoebic in origin), but the patient, being *in extremis*, died five days later.

Novaro,[9] in Italy, had the first successful result in colitis from a caecostomy. This was done in 1887, and Durante,[10] in the same year, emphasized the importance of an artificial anus in the treatment of this condition. It was impossible, he said, to cure chronic ulcerative recto-colitis by reason of the septic condition of the secretions and faecal masses.

Mayo Robson[11] made a left inguinal colostomy in a colitis case in 1891; the result was good though tedious.

Robinson[12] reported a similar operation; the patient died on the fourth day.

Keith[13] operated on a patient of Simpson's in 1894, doing a double oöphorectomy and right colostomy; the patient recovered.

Golding-Bird[14] operated for Hale White in 1895 on a case of membranous colitis. The patient recovered, but died of acute peritonitis a few months later; no autopsy. These gentlemen deserve great credit for popularizing the operation. White,[15] when giving the history of patients some years later, advised the surgeon to keep the fistula patent for a year in severe cases, as a recurrence was possible.

Other surgeons who operated for this condition were Stephan and Schilfegaarde, Lindner, Orsini, Quénu, etc.

Murray,[16] in 1898, was the first in America to do a right colostomy. The result, while not a cure, was satisfactory. Barbat[17] operated for Sullivan in 1900, doing a right colostomy; the appendix, which was swollen but not inflamed, was removed. Gibson[18] of New York, in 1900, suggested applying the principle of Kader's gastrostomy to the caecum. In this operation a small valvular opening is made in the bowel through a short intermuscular abdominal incision. Two tiers of sutures are used in the bowel, the second tier attaching it to the parietal peritoneum, thus absolutely guaranteeing against leakage. Bolton,[19] Weir, Markoe, and Meyer used this procedure. Weir,[20] in his second case in 1902, brought the appendix through the abdominal wound, cut off the tip, and by passing a soft catheter through the lumen of the appendix irrigated the bowel. It was a fortunate thought, and its simplicity has appealed to many surgeons. It was quickly adopted by many of the New York surgeons, especially Meyer, Tuttle, Lilienthal, Dawbarn, and others. Its utility is beyond question.

Keetley[21] has recently used the appendix after dilatation as a means of relieving obstruction, and Bennett suggests its usefulness in a variety of affections.

It is thus seen from the literature that cases of obstinate colitis may be benefited by any form of operation which permits either rest to, or better cleansing of, the large bowel.

Good results have followed colostomies of either right or left side. An efficient artificial anus on the right side without irrigation was successful in Elder's case. Left-sided colostomy with irrigation of the bowel has been almost invariably effectual (Robson, Czerny, Godlee, Durante and others). Right-sided caecostomy by the Kader-Gibson method with irrigation of colon (Bolton, Weir, Markoe, Gibson, Meyer, Summer, and others), likewise gives good results. And last, but not least, appendicostomy with its host of supporters (Weir, Meyer, Tuttle, Dawbarn, Bennett, Hutchinson, and others).

One would scarcely be justified in making an artificial anus now in a case before trying the simpler operation.

CASE I.

R. P., aged 31, a farmer, referred to me by Dr. J. T. Manes, of Sheffield, entered the hospital January 31st, 1905. He complained of frequent painful bloody stools, with loss of health and strength.

History.—His family and previous history is good. In 1903 he was treated for haemorrhoids. In May, 1904, he had an attack of "bowel trouble" which confined him to his bed for three weeks. He had frequent stools in which blood was mixed. During the next few months he was never quite well, but his appetite remained good. In the latter part of 1904 he lost weight and strength, stools became more frequent and were accompanied by tenesmus and pains across the lower left part of the abdomen. During the past month he has been confined to his bed.

Examination.—Patient is a strongly-built man, very thin, and with a pale sallow skin. Abdomen is contracted. Liver and spleen normal; right kidney palpable; heart in normal position. No tenderness over gall bladder or appendix. In the left inguinal region an elongated mass can be felt, which is firm and tender on pressure. There are several internal and external piles and a small fissure. The proctoscope shows small superficial ulcerations in the bowel. The faeces show pus, blood, and undigested food. The blood shows 3,650,000 red, 6,000 white cells, and 69 per cent. of haemoglobin.

Operation.—February 4th. A short intermuscular opening was made in the left inguinal region over the lump for the purpose of exploration. The sigmoid and descending colon were found to be thickened, intensely red in colour, and contracted. It was stitched to the parietal peritoneum, leaving an oval area ¾ in. long and ½ in. wide. Two long guide sutures of black silk were passed, one through either end of this oval area of bowel, and the wound left open. The haemorrhoids were then excised and the fissure incised. Two days later a small opening was made into the bowel and irrigations of saline and weak boracic were begun. Improvement began almost at once, and he left the hospital on April 15th with the wound closed. I had a report of him this month from his physician, who states the patient to be perfectly well.

CASE II.

G. J. L., aged 26, was referred to me by Dr. Boyes, of Glanford. He entered St. Joseph's Hospital on May 22nd, 1905.

History.—The family history is excellent. He has never been a robust fellow. During the past fourteen years he has had occasional attacks of dyspepsia with flatulence. His bowels were seldom constipated. In April, 1904, he had an attack of indigestion with diarrhoea. The following month he contracted pleuropneumonia, and was ill for three weeks. During this time his bowels, which had been constipated for three days, became very loose, and remained so till the following August, when he began to pass blood and mucus. Since August his stools, averaging four to six daily, have been seldom free from blood and mucus. He lost 18 lb. in weight. Treatment was without effect.

Operation.—A left inguinal colostomy was made and the bowel irrigated with various solutions. He improved slowly, but the mucus never entirely disappeared from the stools. He left the hospital on July 7th improved. The last report of his condition was favourable.

CASE III.

This case was referred to me by Dr. A. E. Gaviller of Hamilton. He was a young man, aged 23. Duration of disease, three years.

Symptoms.—Obstinate constipation, followed by dysentery; stools contained blood, pus, shreds of necrotic tissue, and numbered from ten to twenty daily. Patient became emaciated.

Operation.—May 29th, 1905. Left inguinal colostomy. Small valvular opening through short intermuscular incision. Irrigated bowel with saline solution, weak boracic, and nitrate of silver. Blood disappeared in two weeks, motions became formed, and in four and a half months he was perfectly well, with the exception of mucus, which would come two or three times a day. On March 30th, 1906, I opened the right side, found the appendix inflamed, and, believing it to be the cause of the mucus, removed it. The mucus in the stools disappeared almost immediately. He is now perfectly well. It would have been better, I think, had an appendicostomy been done in this case at first.

CASE IV.

H. G. S., aged 6 years, was seen with Dr. J. S. Morris of Grimsby, who kindly supplied me with the notes.

Family History.—One maternal aunt died of phthisis. Both paternal grandparents died of cancer.

Previous History.—Suffered frequently from indigestion. Present illness began on February 27th, 1906, with indigestion. During the night she had a chill, fever, tenderness over the caecal region, nausea, and vomiting. Dr. Morris saw her in the morning. Her temperature was 102° F., and pulse 120. There was some distension of the abdomen, but no tenderness on palpation or deep pressure over the caecal region; no abdominal rigidity. A purgative, to be followed by an enema,

was given. The afternoon temperature was 103°, and pulse 136. The following day the abdomen was still distended. Hard faecal matter and mucus came away with the enema. The diet was carefully regulated, and the bowel irrigated. The stools always contained a large quantity of mucus. The fever soon subsided, but for nearly four months she remained in a very weak state. Her bowels moved only when an enema was given, and the stools always contained a great deal of mucus. If solids were given they were not digested, and the mucus increased: all forms of irrigation were ineffectual, and the patient became emaciated.

Operation.—June 20th. I opened the right iliac region, found the appendix free from adhesions, but congested. The caecum and colon were congested and full of gas. The small bowel was contracted, but no enlarged lymphatic glands could be found. Thinking the appendix might have been the cause of the irritation, I removed it, with the intention of doing a caecostomy later if no benefit followed. Seven days later, as she seemed better, the diet was increased—poached eggs, etc. The mucus decreased and the patient improved rapidly. In three weeks the mucus had almost disappeared, she gained 5½ lb. a week, and at the present time she is almost perfectly well.

In future cases I shall go for the appendix first and be guided by the conditions present as to the mode of procedure.

The first case I feared might be malignant, and thus decided to open the left side. As this case did so well I decided to do the same operation on the next two cases, but I think it would have been wiser to have operated differently.

References:

[1] Mathieu, *Rev. de Thérapeutique méd.*, Ch. I nears 1905. [2] Deaver, *Treatment of Appendicitis*. 1896. [3] Shoemacher, *Ann. of Surg.*, 1898. [4] Robertson, *Proceedings Path. Soc. Phil.*, 1901, vol. iv. [5] Mummery, *The Practitioner*, August, 1906. [6] Hahn, *Arch. f. klin. Chir.*, 1885, xxxiv, 3, 595. [7] Bartlin, quoted from Labey, Paris *Thèse*, 1902. [8] Fuleh, *Congrès Français de Chirurg.*, 1895. [9] Novaro, quoted from Labey, Paris *Thèses*, 1902. [10] Durante, quoted from Labey, Paris *Thèse*, 1902. [11] Mayo Robson, *Lancet*, 1893. [12] Robinson, *Trans. Obst. Soc.*, London, 1893. [13] Keith, *Lancet*, 1896. [14] Golding-Bird and Hale White, *Trans. Obst. Soc.*, London, 1895. [15] White, *The Med. Press and Circ.*, May, 1902. [16] Murray, *Ann. Surg.*, 1901, p. 579. [17] Barbat and Sullivan, *Journ. Am. Med. Assoc.*, 1900. [18] Gibson, *Bost. Med. and Surg. Journ.*, 1902. [19] Bolton, *Med. Record*, March 16th, 1901. [20] Weir, *Med. Record*, 1902. [21] Keetley, *Lancet*, 1906.

Dr. D. H. Arnott (London, Ontario) said: There is just one point in the paper to which I would like to call attention. I have twice had cases of mucous colitis operated on by the method of removal of the appendix. As a result one was quickly and permanently improved. In the other the appendix was removed, and all the symptoms were relieved for over a month. After going back to work, however, the symptoms returned. I hope to have Dr. Olmsted to perform the operation of appendicostomy, and no doubt he will be able to report the result on some future occasion.

ONE HUNDRED CONSECUTIVE CASES OF APPENDIX OPERATION.

By H. W. Carson, F.R.C.S.,

Honorary Surgeon, Tottenham Hospital.

I HAVE collected the records of 100 consecutive cases upon whom I have operated for appendicitis. This series comprises my last 100 cases up to July of this year, and I have chosen this period, first, because the cases are fresh in my mind; and, secondly, because of the difficulty of getting after-histories of cases operated upon long ago. The objection to such a recent series is that the after-histories must necessarily be incomplete; but I am led to believe that disabilities such as ventral hernia, abdominal pain, etc., are generally apparent at a comparatively early period after convalescence is established. In every case but one the appendix has been removed, and in all, the incision has been planned to open the sheath of the rectus at its outer edge, the abdomen being entered through its posterior sheath after displacing the muscle inwards. I have divided the cases into four clinical groups, namely:

1. Quiescent relapsing cases.
2. Acute catarrh.
3. Localized abscess.
4. Cases with general peritonitis present at the time of operation.

1. With regard to the quiescent relapsing cases, their number, 30 per cent., is rather below the average, and, with two exceptions, their convalescence was uninterrupted, and their after-histories very satisfactory, especially as regards the strength of the scar. Of the two exceptions, one was a strong young man of 20, whose appendix, as the result of two attacks, presented some difficulty in removal owing to adhesions. Some shock followed the operation, but he rallied, and was apparently doing well, when, twenty-four hours after operation, he became suddenly collapsed and died. Nothing was found *post mortem* to account for death, the area of operation was free from any sign of sepsis, and I am unable to explain this the only quiescent relapsing case I have ever lost.

The other patient, a weakly young man of 21, had had eight or nine attacks of appendicitis. The appendix had to be shelled out of the mesentery of the lower end of the ileum, and the resulting raw surface, as it healed, contracted, kinked the intestine, and caused intestinal obstruction. The condition was easily remedied and the patient did well. In this group are 2 cases resulting from threadworms; they gave rise to unusual symptoms during the attack and the convalescence.

2. The second group I have called "acute catarrh," for want of a better name. It includes cases of severe appendicitis which would in all probability have gone on to abscess formation had I not been able to cut short the attack by an early operation. I wish to draw particular attention to these cases, as the propriety of early operation in severe cases has been much discussed, and the fact that I was able to operate on only 8 out of 70 severe cases before abscess formation is eloquent proof that the value of the early operation is not as yet sufficiently realized. I have little doubt, however, that delay is due to two main causes—(1) the reluctance on the part of the patient to agree to operation, and (2) the difficulty of deciding at an early stage whether the attack is a severe one in which abscess formation is inevitable. I shall return to this point later on. The condition found at operation in these cases was as follows: In 2 cases the appendix was free from adhesions, distended with pus but without ulceration. In 2 cases there was ulceration of the wall of the appendix from within, perforation being prevented only by the serous coat. In 1 case perforation had actually occurred, but the spread of infection had been prevented by adhesion of the appendix to the caecum at the point of perforation. In 1 case gangrene of a localized patch of the appendix opposite a concretion had occurred, the peritoneum being as yet unaffected. The other 2 cases showed an erect appendix with acute inflammation of the mucous membrane in the distal portion. It is possible, though improbable, that these last 2 cases might have resolved without abscess formation. The operation in all these cases was quite easy, owing to the fact that adhesions, if present, were easily broken down. In all cases the abdomen was closed in three layers without drainage. The average stay in hospital was 23.5 days, as compared with 49 days in abscess cases; and the after-history shows that the scar was strong in all the patients who replied to my letter of inquiry.

I have divided the abscess cases into two groups: First, cases with a localized abscess circumscribed by adhesions (these include cases with pelvic abscess); and, secondly, cases where general peritonitis was present at the time of operation.

In all these cases except one—a girl who had had a localized abscess for a fortnight, and in whom the appendix formed part of the dense abscess wall—I removed the appendix; and this I maintain does not add to the risk of the operation, and in addition prevents the formation of a sinus, which so frequently follows the mere evacuation of the abscess without removing the appendix. As an instance of this, the case in which I left the appendix had a sinus for three months, which has, however, closed without the necessity for a further operation. The point to which I would direct your attention is that complications during convalescence, such as faecal fistula and intestinal obstruction, are practically confined to abscess cases; the subsequent history of these cases shows a high percentage of weak scars, and most important of all, the mortality is almost entirely dependent on abscess formation. We have, then, sufficient reason to look upon abscess formation as a disaster, and it is our duty to prevent it by all the means at our disposal.

In analysing these cases, two points are clearly demonstrated: First, the influence of the incidence of attack

on the severity and mortality; and secondly, the effect of age upon the clinical variety of the disease. Putting aside the quiescent relapsing cases, we find that, of the 8 "acute catarrh" cases, 4 were in their first attack, 3 in their second, and only 1 in a subsequent attack. Of the 40 abscess cases, 33 were in their first attack, 6 in their second, and only 1 in a subsequent attack. Of the 22 general peritonitis cases, 18 were in their first attack, 3 in their second attack, and only 1 in a subsequent attack. Thus we see that of the 70 acute cases, 55, or 78.5 per cent., were first attacks; 12, or 17 per cent., were second attacks; and 3, or 4.5 per cent., occurred in patients who had had more than two attacks. With regard to mortality, of the 65 first attack cases 13 died, a percentage of 20; of the 18 second attack cases 2 died, or 11 per cent.; and of the 17 cases with more than 2 attacks, 2 died, or 11.75 per cent. These figures prove definitely that the first attack is the most severe and the most fatal, and that the virulence of the attacks decreases with repetition.

The influence of age on severity is perhaps still more striking. In the table I present, I have divided the cases into periods of years—4-10, 10-15, 15-20, and so on. We find that, of the 38 cases occurring before the age of 15, 35, or 92.2 per cent., were acute cases, while of the 62 cases occurring after the age of 15, 35, or 56.4 per cent., were acute cases. Thus we see that abscess and general peritonitis are particularly liable to complicate appendicitis in children. And this raises the question whether we should place appendicitis in children upon a different plane as compared with appendicitis in adults. I think you will agree with me in these conclusions:

1. In children the onset may be insidious. By this I mean that many of the attacks are not ushered in by the definite onset so often seen in adults. The child is seen to be ill, perhaps is sick and feverish, but nothing happens to draw attention particularly to the abdomen.

2. Children cannot as a rule give any account of their symptoms.

3. Children resist examination, so that it is often impossible to discover a swelling in the appendix region owing to rigidity of the abdominal muscles. It is here that rectal examination is of such great value, and, as in children it is possible to reach much higher in the pelvis than is possible comparatively in adults, much may be learned by this method of examination, and it should never be neglected.

4. Owing to the thin submucous coat abscesses form much more rapidly in children than in adults.

5. General peritonitis is much more common in children than in adults. My statistics are somewhat misleading on this point, as I chanced to meet with 3 cases of the so-called 3 o'clock appendix—that is, an appendix pointing transversely inwards—in adults, a position which is comparatively rare and is associated with general peritonitis in a large majority of cases.

I would then strongly urge that *the treatment of appendicitis in children should be to remove the appendix as soon as a diagnosis has been made.* But in making our diagnosis we must be careful to exclude certain diseases which in children may give rise to analogous symptoms. The most important of these are pneumonia, worms, colic, and peritonitis due to tubercle or salpingitis. Of these the most important is pneumonia, which may be differentiated by the following points:

1. An acute onset with high temperature (105°) from the first with rapid respiration out of proportion to the pulse rate suggests pneumonia without other sign.

2. In pneumonia dilatation of the alae nasi with inspiration is often present.

3. In pneumonia the abdominal muscles may be rigid but relax between the respirations.

4. Right-sided pneumonia may give rise to acute hyperaesthesia over the appendix region which disappears on firm pressure with the flat hand.

5. Doubtful abdominal symptoms occurring in association with unmistakable thoracic symptoms are probably reflex.

In considering the indications for operation in adults we must recognize that in a definite number of cases the attack is a mild one from the first. There is generally some *malaise* for a few days, with constipation, and then definite pain is felt in the abdomen or in the appendix region. The temperature rarely rises above 101° and the pulse rate varies between 80 and 100. At the end of the first day the symptoms are beginning to abate, and at the end of the second day the signs, such as unilateral muscular rigidity or swelling, if that has occurred, are definitely diminishing. These cases do well with expectant treatment. But in many cases the attack is severe from the first, and will go on to gangrene or abscess formation in spite of treatment. In fact, there is no treatment short of operation which will abort these cases. It is in these severe cases that I wish to urge the necessity for early operation. In other surgical diseases we are not content with merely saving the patient's life; our aim is to restore the patient to a normal state of health. The series of cases which I present to you shows that the danger to life and the chance of later complications depends upon the occurrence of suppuration. If suppuration occurs, the patient is exposed to many dangers, both immediate and remote. Of the *immediate* dangers I may mention general peritonitis, pylephlebitis, empyema, pleurisy, pneumonia, subphrenic abscess and faecal fistula among the comparatively common incidents. Of the *remote* dangers the commonest are ventral hernia, intestinal obstruction and constant pain or discomfort resulting from the dragging of adhesions. Over all abscess cases lies the shadow of a death-rate of some 25 per cent. (as compared with the 1 per cent. or 2 per cent. when abscess does not form), and, in the event of recovery, a long convalescence, represented in my own cases as a stay of forty-nine days in hospital, as compared with 23.5 days in acute cases, in which suppuration has not been allowed to occur. What are the risks run in this early operation? First, as regards the patient's life. My own 8 cases without a death are too few to warrant the drawing of deductions, but there are many encouraging records published. For instance, Waterhouse, at the meeting of the Royal Medical and Chirurgical Society, March 7th, 1905, reported 19 cases of operation within twenty-four hours of the onset without a death. Dr. Ochsner, of the Augustana Hospital, Chicago, reports 55 cases of perforation, or gangrene without abscess formation, without a death, so that it is evident that the percentage of recoveries is high. The other risk is that a certain number of cases are subjected to operation who would have recovered without. Is this, however, a matter of serious moment? If you agree with me that the appendix should be removed in any case after one severe attack, you will see that early operation is merely antedating by a few weeks an operation that must be done sooner or later, and that by operating early you will be able to prevent with absolute certainty the occurrence of suppuration with all its possible and probable complications. For the early operation one may claim, on the other hand, the following advantages:

1. The operation is easy, owing to the absence of adhesions; much easier than many quiescent relapsing cases, and therefore it can be completed rapidly and with little shock.

2. The convalescence is materially shortened.

3. The deliberate closure of the abdomen without drainage makes ventral hernia practically impossible. Compare this with the probability of a weak scar after drainage. In my own series a critical examination showed weakness of the scar in 18 out of 32 abscess cases of which I obtained histories, while all my "early operation" cases and all my quiescent relapsing cases in whom I closed the abdomen without drainage have good scars.

4. All chance of subsequent disability as a result of adhesions is prevented.

Let me, in conclusion, sum up shortly the clinical aspect of a case which is severe from the first and in which operation is indicated, first of all making the reservation that in some cases of acute gangrene all local signs may be absent, the perforation at the gangrenous spot giving rise, as the first sign, to symptoms of acute peritonitis.

1. If the *onset* is severe, the attack will be severe.

2. The *facial expression* typical of a severe abdominal seizure may be present, but will not occur as often in adults as in children, in whom the dull heavy look in the sunken eyes, the drawn features, and cyanotic lips is so characteristic.

3. The *tongue* will be furred but rarely dry unless peritonitis is present.

4. The *temperature* will rarely exceed 102° F. If, after an initial rise, it falls and then rises again an abscess is

forming. A falling temperature with increasing pulse-rate is a grave sign, and is an imperative indication for immediate operation; indeed, it is an indication that operation has been delayed overlong. Severe gangrene may be associated with a subnormal temperature.

5. A rapid *pulse* from the start is evidence of a severe attack. If steadily increasing in rapidity it suggests peritonitis.

6. If *diarrhoea* occurs the attack is probably severe.

7. *Vomiting* at the start is common. If it cease and recommence, suspect peritonitis.

8. If *pain* disappears and then recurs an abscess is forming. If pain suddenly ceases while other signs become more severe, gangrene is present.

9. If acute localized *tenderness* persists, or returns after a temporary cessation, an abscess is forming. If there is extreme cutaneous hyperaesthesia, suspect chest trouble, especially in children. If there is general tenderness persisting, suspect general peritonitis.

10. *Rigidity* of the abdominal walls, if persisting after twenty-four hours, is evidence of a severe attack.

11. If *tumour* persists or increases after forty-eight hours an abscess is forming.

12. *Abdominal distension*, if occurring early and not yielding to enemata, is an indication of gangrenous appendicitis with peritonitis, and is an urgent indication for operation.

13. A high *leucocytosis* from the first is evidence of a severe attack.

Analysis of the Series of Cases.

Number of Cases.

Males	62
Females	38
	100

Clinical Varieties.

	Males.	Females.	Total.
Quiescent relapsing	17	13	30
Acute catarrh (operation before abscess formation)	6	2	8
Abscess	23	17	40
Abscess with general peritonitis ...	16	6	22
	62	38	100

The Age Factor.

Age.	Quiescent Relapsing.	Acute Catarrh.	Abscess.	General Peritonitis.
4—10	2	0	7	6
10—15	1	1	16	5
15—20	6	1	6	2
20—30	11	3	6	4
Over 30	10	3	5	5
	30	8	40	22

Between the age of 4 and 15 there are 38 cases, of which 35 were acute cases = 92.2 per cent.

Above the age of 15 there are 62 cases, of which 35 were acute cases = 56.4 per cent.

Question of Recurrence.

Variety.	First Attack.	Second Attack.	Over 2 Attacks.
Quiescent relapsing	10	6	14
Acute catarrh	4	3	1
Abscess	33	6	1
General peritonitis	18	3	1

It will be seen that of the 70 cases operated upon during the attack, 55 (78.5 per cent.) were in their first attack, 12 (17 per cent.) were in their second, and 3 (4.5 per cent.) had had more than two attacks.

Mortality.

Quiescent relapsing ...	1 death in	30 cases	=	3.3 per cent.
Acute catarrh	0 ,,	8 ,,	=	—
Abscess	2 deaths in	40 ,,	=	5.0 per cent.
General peritonitis ...	14 ,,	22 ,,	=	63.6 per cent.

Mortality considered in Reference to the Incidence of Attack.

First attack	13 deaths in	65 cases	=	20.00 per cent.
Second attack	2 ,,	18 ,,	=	11.00 per cent.
Over two attacks ...	2 ,,	17 ,,	=	11.75 per cent.

Deaths from General Peritonitis.

Age.		
4—10	4 deaths in	6 cases.
10—15	3 ,,	5 cases.
15—20	2 ,,	2 cases.
20—30	3 ,,	4 cases.
Over 30	2 ,,	5 cases.

Complications.

Quiescent relapsing cases ...	Intestinal obstruction	... 1
Acute catarrh...	*Nil.*	
Abscess (including cases of general peritonitis)	Faecal fistula ...	... 6
	Intestinal obstruction	... 4
	Pneumonia ...	... 4
	Pleurisy	... 1
	Empyema	... 1
	Phlebitis	... 1
	Parotitis	... 1
	Delirium tremens ...	... 1
	Subdiaphragmatic abscess	... 3

After-histories.

	Quiescent Relapsing.	Acute Catarrh.	Abscess.
Scar strong	24	5	14
Scar slightly weak	0	0	11
Ventral hernia	0	0	7
Constipation	1	1	0
Dyspepsia	3	1	2
Local pain	2	0	2
Pain when diarrhoea	0	0	1
No reply	5	3	14

THE TREATMENT OF CONGENITAL CLUBFOOT.

By B. E. McKenzie, M.D.,
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The only variety of clubfoot here referred to is that ordinary, congenital form—talipes equino-varus. This paper is based upon the observations and experience gained in the treatment of about 500 cases, varying in age from infancy to 46 years, and describes and advocates only such treatment as the writer considers calculated to produce the best results.

Active surgical work should not be done till about the end of the first year of life. By active surgical work is meant such as implies the use of bandages, braces, or the knife. In these cases the nurse or the mother should be so instructed that she may intelligently manipulate the foot in giving massage to the foot and leg. She may so deal with the foot as to greatly increase the mobility at both the ankle and mid-tarsal joints. Her efforts should be directed chiefly to carrying the anterior part of the foot outward. This treatment has marked advantages when compared with the restrictive methods referred to above. Not only does it tend to correct the deformity, but it also aids in the growth and development of the parts, which otherwise fall behind in these regards.

Restrictive methods employed in the first year have the great disadvantage that they must be continued until the child learns to walk. However complete the rectification of the deformity made at an earlier date, the foot will not remain in the corrected position without the aid of Nature's own method of retaining the correction—namely, weight-bearing in standing and walking.

Active surgical intervention should follow at such a time that when the child walks he shall walk on feet that are fully corrected. The first step should be to complete the work assigned at an earlier time to the mother or nurse—namely, to fully correct or over-correct the deformity (varus), which manifests itself chiefly at the mid-tarsal joint. This may sometimes be done without anaesthesia, sometimes without the use of the knife, but it is better in most cases to anaesthetize the child. If any structures need incision, they are, first, the plantar fascia and plantar ligaments; secondly, the calcaneo scaphoid and the astragalo-scaphoid ligaments, in the order here given. Occasionally, but very seldom, is it necessary to cut the tibialis anticus and posticus tendons. These may be thoroughly incised without causing much haemorrhage. In cutting the former the plantar arteries may be avoided by entering the tenotome at the inner border of the plantar fascia, just in front of its attachment to the tubercle of the os calcis. By carrying the knife at once down to the bone and following across and forward, keeping close to the bone, the plantar ligaments as well as the plantar fascia may be cut. If the tibialis posticus tendon is to be cut, it should be done in front of and below the internal malleolus. The cutting of the tendons, fascia, etc., should be done subcutaneously.

Either with or without such fasciotomy and syndesmotomy as referred to, the surgeon's hand should be employed in turning the anterior part of the foot outward, laying most stress upon the amount of bending effected at the mediotarsal joint. It is most important that the tendo Achillis be not cut until the foot *per se* be fully corrected.

Attention must be paid to two points: (1) The foot is wrong in its relation to the leg; (2) the foot is itself deformed. So long as the relationship between the foot and the leg be not disturbed, splendid mechanical conditions are retained for effecting the needful bending at the mid-tarsal joint. If, however, the tendo Achillis be cut and the heel brought down, these conditions are detrimentally affected.

Seeing that the complete correction of the deformity of the foot *per se* is the more difficult part of the operation, the surgeon should direct his attention to that problem, and see that the work is fully completed before there is any attempt to deal with the second element by bringing the heel down and the foot into normal relations to the leg.

In a few cases only is it wise to attempt to make right the relationship of the foot to the leg without first cutting the tendo Achillis. After section of this tendon there need not be any hesitation in bringing the foot fully into the desired position. One need not fear that the parts of the severed tendon will be drawn too far apart. I have never known union fail between its severed ends.

Plaster-of-paris, carefully applied, is the ideal dressing for securing retention of the foot in any desired position. When applied the foot should be allowed to remain undisturbed for a period of two or three weeks. Then the dressing should be removed, and further correction made as before. According to the degree of resistance offered by the foot, from two to six dressings may be required. The average time for such active treatment as here referred to is about three months. At the end of this period the patient should be encouraged to use the feet in normal locomotion.

The after-treatment may have to be continued for months or even years, and is of the utmost importance. It consists of: (1) Manipulation, (2) education in marching, gymnasium work, etc., (3) the wearing of properly-constructed boots, and (4) the employment of a night-brace to be used only in bed.

A properly-constructed boot to be worn for months, or possibly for years, until the foot has come to "feel at home" in its new position, is of the utmost importance. It should be made upon a last whose long axis is convex to the inner border, whereas the last upon which an ordinary boot should be built should be slightly concave towards the inner border. The sole and heel should be wider and thicker toward the outer border, and a tee counter should be inserted at the inner border so that the head of the first metatarsal shall rest against it. It is not necessary to attach any brace or straps to such a boot. It can be made fully effective for retaining in normal position a foot whose rectification has been made complete. For use while in bed a simple night-brace should be employed. The foot-piece should be placed at an angle of seventy-five degrees with the leg bars, and by the aid of straps and pads the varus and equinus may both be avoided. Otherwise the weight of the bed clothing and the absence of body-weight do much to bring about relapse.

The employment of club-foot braces, either without or attached to the outside of the boots when walking, is objectionable, unsatisfactory, and unnecessary.

Conclusions.

1. The prognosis in ordinary, non-paralytic club-foot is good.

2. The ideal time for active treatment of the surgeon is early in the second year.

3. The deformity of the foot *per se* should be fully corrected; afterward the relation of the foot to the leg.

4. Cutting, other than a subcutaneous section of the tendons, ligaments and fascia is seldom or never required. Manipulative replacement and retention by fixed dressings is sufficient.

5. After treatment, a retentive high brace and a properly constructed leather day-boot.

6. The open incision and removal of bone are unnecessary and harmful.

7. The radical operations interfere materially with the natural growth and development of the foot.

8. Restrictive methods, either by dressings or apparatus, should be as little employed as possible.

9. Persistent manipulation improves function and development.

10. Operative treatment must be thorough. No part of the correction of the deformity should be left in the hope that mechanical means will complete the work.

11. In persons under 15 years of age congenital club-foot may be so perfectly cured as to give practically perfection of form and function.

12. In adults perfection of form may be secured. Function is sometimes impaired owing to the fixity of habits hitherto acquired.

13. The time required for active surgical treatment need not be more than three months.

14. Age is no bar to successful treatment. Eminently satisfactory results may be obtained in adult life. Even in the case of adults the more heroic methods of operation in many cases are not called for.

THE SURGICAL RELATIONS OF THE PARATHYROID GLANDS.

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The significance of the parathyroid glands in their connexion with several diseases has in recent years been recognized by medical men, and particularly in such conditions as tetany of digestive origin and in other auto-intoxications is this relation fairly well established. To the surgeon, however, it is a point of practical interest that in the many operations involving extirpation of part of the thyroid there is danger of removing with the thyroid the parathyroid glands, which can ill be spared by the patient. Ordinarily, in an otherwise normal individual, the loss of one or even two of these glands is followed by no serious results, but the greater the injury done to the glands the more nearly does the patient approach that condition of parathyroid insufficiency which is likely to lead to disturbing symptoms. In the minds of many surgeons with whom I have talked there seems to be some uncertainty as to the precise situation of these glands and the character of their blood supply, and with this in view I venture to present the following notes, which are intended to afford some information on these points which may aid in the preservation of the parathyroids at operation.

It is well known that in the early days of operative thyroid extirpation it was the experience of surgeons, on removing the whole thyroid, to observe in many cases violent symptoms, chiefly of the nature of convulsive twitchings, which followed quickly upon the operation, and which often resulted in death. This was the so-called tetania thyreopriva which was long looked upon as the formidable early result of the extirpation of the thyroid. If this did not appear, a quite different condition arose much later which was called cachexia thyreopriva or myxoedema thyreopriva, and which was regarded as the late effect of the thyroid extirpation. Either of these results was sufficient to warn the surgeon against any further operations of such a radical character, and the partial extirpation of the thyroid, which could be performed with safety, was alone carried out.

As the result of the work of Sandström, Gley, Kohn, Vassale, and others, it was then proved that the symptoms of tetany were due not to the extirpation of the thyroid, but to the coincident destruction of hitherto unknown glands of small size lying near the thyroid—the parathyroid—and that the effect of the thyroid extirpation itself was the myxoedema.

Much dispute has arisen over this conclusion, and many experiments have been performed to disprove it, their contradictory results being due, however, as it seems, rather to an inadequate knowledge of the whereabouts of the parathyroid glands, and the consequent incompleteness of their extirpation, than to any real irregularity in the result of their total destruction.

It is unnecessary to enter in detail here into the results of such an extirpation of the parathyroid glands in animals; much has been written upon the subject, and my own experiments were described in papers which appeared in the *Medical News*.[1]

It will suffice to recall to your memory the fact that in dogs, cats, rabbits, monkeys, and many other animals, complete parathyroidectomy is followed within a few days by the condition commonly described as tetany, in which convulsive spasm and rigidity of the muscles of all parts of the body render the animal almost helpless. Respiration becomes exceedingly rapid and laboured, profuse salivation occurs, and death supervenes in the attack, although occasionally the violent symptoms gradually give place to a stuporous condition which may last several days, terminating also in death. The tem-

perature shows no special elevation, and the heart beat is not markedly accelerated. This state may be looked upon as a form of intoxication which is ordinarily warded off by the parathyroid glands, whose function seems to consist largely in the neutralization of poisons produced within the body or absorbed from without. This conception is supported by the fact that bleeding and the replacement of the blood by salt solution will almost immediately cause the disappearance of all the symptoms for a time—sometimes for one or two days, or until there again accumulates enough of the poison to produce the tetanic phenomena. Even the dilution of the poison by the simple infusion of salt solution will temporarily stop the tetany. If, however, we attempt to produce tetany in another dog by transfusing into its veins the blood of a dog in violent tetany, the result is usually very disappointing, so that evidently there is either a very minute quantity of circulating poison, or else the tetany in the parathyroidectomized dog is due to a poison which rapidly combines itself with certain cells of the body, and is no longer free in the blood.

Several Italian writers state that they have produced tetany secondarily in this way, but all of our experiments on this point have given practically negative results.

When we inquire as to the origin and nature of this toxic substance more minutely only very indefinite information seems to be at our command. There are many cases in which the stagnation of materials in the stomach is the cause of violent tetany, and in one at least of these we have shown that the parathyroids, in the effort to neutralize the poison, were undergoing active hypertrophy and had become greatly enlarged. In other cases the whole intestinal tract appears to be the source from which the poison is absorbed. That the nature of this process is not entirely clear is suggested, however, by the fact that in a starving animal whose stomach and intestines have been emptied by appropriate drugs, parathyroidectomy still results in the development, within the usual time, of the most violent tetany.

Whatever the nature and source of the poison, however, it can be shown that it affects not the muscles primarily but the central nervous system. Muscles cut off from their connexion with the brain and cord remain perfectly quiet and flaccid in the midst of other muscles which are exhibiting the most violent spasmodic contractions.

It seems probable therefore, that this poison is in a certain sense analogous to the tetanus toxin, inasmuch as it affects the central nervous system, producing tetanic convulsions, and is so rapidly combined with the nerve cells as to be practically undemonstrable in the circulating blood.

The mode of action of the parathyroid in neutralizing this poison is interesting, inasmuch as it can be shown that, as in the case of the thyroid, it is not necessary that the living gland should be present *in situ*, since the injection of an extract of the gland will prevent for a time or actually cure the symptoms of tetany.

Many experiments have been made to determine the value of such a parathyroid extract in experimental tetany following parathyroidectomy, and it may be of interest to quote the description of a case from one of our previous papers, together with the ideas as to the feasibility of parathyroid medication which were expressed at that time.

We[2] have made several attempts to control the course of the tetany following parathyroidectomy by injection of parathyroid material. In the literature this has been attempted with varying results. Edmunds[3] gave a large quantity of parathyroid material to an animal in tetany without result. Vassale[4] obtained good results from the emulsion of thyroids in which the parathyroids were included, and Gley[5] confirmed these.

Lusena[6] describes several cases in which he prolonged life by transplanting parathyroids or by injecting parathyroid material subcutaneously. His results are astonishingly good as compared with ours, for by the subcutaneous injection of parathyroid emulsion for eight days and then the subcutaneous transplantation of one parathyroid every fifteen days the dog was kept alive for more than four months. Others were kept alive for over two months by the implantation of parathyroids. Lusena says nothing of the anatomical condition of these implanted parathyroids after the death of the animal, but on account of their usual rapid degeneration it seems remarkable that they should have been so effective in preventing tetany.

Of these dogs the last two were most interesting, and the clinical history of one at least may be given in greater detail.

Dog 170.—November 5th. Parathyroidectomy attempted; only two of the parathyroids found; dog showed no symptoms after this. November 25th, wound quite healed; again operated upon, and both thyroid lobes removed. On November 28th dog was found in violent tetany, with the usual respiratory disturbances, etc. The right jugular vein was opened and an emulsion of parathyroid of dogs (parathyroids from twenty dogs ground up in 2½ c.cm. of sterile bouillon and strained through gauze) injected into the vein at 11 a.m. At 5 p.m. respiration was quiet, and there were only slight twitchings observed. He walks stiffly, however, lifting his hind feet far too high in entering the cage. November 28th, 8 a.m., no tetany, runs about well, slightly apathetic and stupid. At 1.45 p.m. tetany has begun again; 5.45 p.m., dog in violent dyspnœa, very rigid, tetany very marked. Emulsion of parathyroid from thirty-seven dogs injected into jugular vein (the parathyroid material was obtained from the slaughter-house, where stray dogs are killed in great numbers); 7.30 p.m., dog still having severe dyspnœa of Cheyne-Stokes character, lies on floor; tetany is fairly violent. November 30th, 8 a.m., dog seems greatly improved and is able to walk about; no twitching; respiration quiet; runs about and eats. December 1st, condition still good. December 2nd and 3rd, slight twitching about temple. December 3rd, emulsion of parathyroid from twenty-two dogs injected into peritoneum. December 4th, 5th, and 6th, dog well enough. December 7th, slight twitching about head; 11 a.m., parathyroids of eighteen dogs emulsified and injected into peritoneum: 3 p.m., dyspnœa and general tetany, respiration very stridulent. December 8th, 8 to 10 a.m., dog in violent tetany, lying on floor rigid; inspiration difficult and squeaky; vomiting. Emulsion of parathyroid of cow in sterile water injected into inferior hypogastric vein; it is difficult to estimate the amount (8 c.cm. of cloudy emulsion made from about 0·25 gram of dried parathyroid, probably fifteen dried parathyroids of cow). December 9th, remarkable improvement; runs about and is playful. December 10th, twitchings in muscles of neck; given emulsion of fresh dog's parathyroids (about fifteen dogs) intravenously. December 11th, dog seems well; no tetany. December 12th, dog seems quite well; occasional slight twitching about temples. December 13th, 8.30 a.m., well-marked tetany and dyspnœa, not, however, of maximum violence; no parathyroid material was obtainable, and the dog died at 3 p.m. Autopsy revealed no infection of wounds; organs in general normal. Several accessory thyroids of small size in tracheal region and aortic arch.

Evidently after complete parathyroidectomy the life of the animal can be maintained only with the greatest difficulty by the injection intravenously of relatively large quantities of parathyroid material. Even this, as shown in the case just related, was insufficient to prevent the repeated appearance of the tetany, so that it seems probable that the cases in which the symptoms are relieved for a long time by insignificant doses given subcutaneously are instances in which the extirpation of the parathyroids was incomplete. From this it follows that the treatment of the tetany which has been seen to follow extirpation of the thyroid (with the parathyroids) in human beings, by the use of parathyroid extracts, would probably be almost impracticable, although the use of such material might perhaps be beneficial in those cases in which symptoms are due to a less intense parathyroid insufficiency. The condition is different from that found after extirpation of the thyroid alone, in that the symptoms appear so rapidly, and are so quickly fatal that there is no time to apply the usual methods of administration of the organ extracts, which are so effective in the case of myxœdema, and in which possibly a cumulative or continuous action is produced. The emulsion or extract of parathyroid, to produce its maximum effect, must be introduced into the veins in considerable quantity. The results of this procedure may, however, be astonishing. It still seems doubtful whether it would be possible to control the fulminant symptoms which would result in a human being from the complete extirpation of the parathyroids. Probably the history of the case would read somewhat like that of the dog just mentioned, but fortunately the cases which are likely to occur now are not those due to complete extirpation of the parathyroids, but to their partial destruction, that is, a parathyroid insufficiency.

This condition may be produced in animals, and has been studied especially by Vassale, who had a case in which after operation no symptoms appeared, except upon two occasions when prolonged lactation apparently

produced such a change in the metabolism of the animal that tetany appeared; interruption of the lactation by removal of the puppies cured tetany at once. Various conditions of analogous character may serve to bring to light the insufficiency of these remnants of the glands which are ordinarily sufficient to carry on the function of the whole, but with no reserve force. An example from among our experiments may be quoted, although the exciting cause of the transitory attacks of tetany could not be definitely ascertained.

Dog 145.—Two parathyroids removed from right side, thyroids with parathyroids from left, January 14th. (From the further history it seems that some parathyroid tissue must have remained.) Dog was well next day and remained well until March 10th, when, almost two months after the first operation, he had an attack of tetany with respiratory distress, which, however, soon passed off. Dog was then well until March 26th, when he was found in another attack of tetany with violent respiratory distress, rigidity of the legs, etc. Two days later (March 28th) dog seemed quite well.

Dr. Halsted has recently reported a case in a human being which illustrates this condition of parathyroid insufficiency, together with the effect of parathyroid therapy. Several years ago he had extirpated one lobe of the thyroid which was greatly enlarged and compressed the trachea. No note of the parathyroids was made at that time. Recently, however, the remaining lobe became greatly enlarged, and in its turn impeded respiration by compressing the trachea from the other side. In the removal of a portion of this lobe great care was taken to leave the parathyroids *in situ*, but the operation proved to be a very difficult one, and in spite of the precautions a parathyroid gland was removed, and was found upon the portion extirpated.

Fresh ox parathyroids were prepared and kept in readiness against the development of symptoms of tetany, and, indeed, after a few days there did appear symptoms which consisted rather in an indefinable sense of distress than in actual muscular twitchings. The patient was an exceptionally intelligent woman, not at all neurotic in character, and the symptoms which Dr. Halsted describes in detail were obviously real. It was therefore with great interest that we saw them completely disappear on the administration of parathyroid material, only to reappear when for some reason there were none of the glands available for a day or two. Since then the patient has been dependent upon the supply of fresh parathyroid material which is sent to her from one of the city slaughterhouses.*

Prevention of these deplorable results is, however, even more important than their cure, and the thing which I wish especially to bring before you is a statement as to the topographical relations of the glands and the possibility of leaving them intact in operations upon the thyroid. Rogers and Beebe have written recently upon this subject and have left the impression that the number of the glands is generally less than four and that the search for them is fraught with such difficulties that their preservation is largely a question of the intervention of Providence.

In order to record and compare the data which I have to offer, and which are derived from dissections made at autopsy, charts were printed in red representing the thyroid and adjacent organs as seen from behind. The principal vessels of the thyroid are also shown in their most usual position, but owing to the great irregularity in the direction of their approach and in their mode of branching and distribution it might have been better to have drawn them in each case. A dissection begun from the posterior aspect of the œsophagus will usually reveal the parathyroid glands lying in the loose areolar fat-holding tissue along the posterior edge of the lobes of the thyroid. Sometimes they are very conspicuous from their size and peculiar colour, so that they are found at once, but only the most careful dissection can be relied upon to find them in all cases. Dr. Rogers complains that it is difficult to find them, and indeed it is, so that in many of our charts only one or two are recorded, but the number found is in our experience directly proportional to the patience and persistence with which they are searched for. It is particularly difficult to come upon them in very obese persons, and difficult to recognize them in those individuals in whom some wasting disease has caused the fat to atrophy into brownish isolated masses which may be easily confused with the gland.

There is, however, usually no great difficulty in recognizing them when they are seen, nor in distinguishing them from other bodies of the same size which may lie near, such as accessory thyroid lobules, bits of thymus tissue, lymph glands, or haemolymph glands. Some are as large as 1 cm. in length by 4 mm. or 5 mm. in width, but many are very much smaller, and the average glands are perhaps 6 mm. to 8 mm. in length by 3 mm. in width, and 1 mm. or 2 mm. in thickness. They are flattened and usually elliptical or tongue-shaped, and quite soft. This soft, inelastic, flabby consistency aids greatly in distinguishing them from bits of thyroid tissue, which are much more firm and elastic, or from lymph glands, which are also much firmer. Their surface is always quite smooth and glistening, and, except for the red lines of minute vessels, it is homogeneous in appearance, differing in that respect from the greyish-pink or red lymph glands in the surface

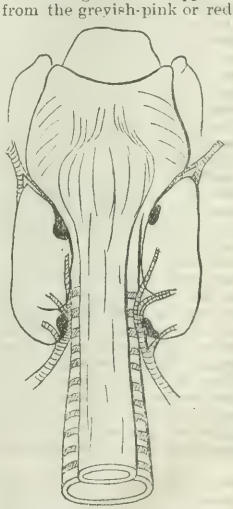


Fig. 1.—Organs of neck from behind. Four parathyroids in their most usual position.

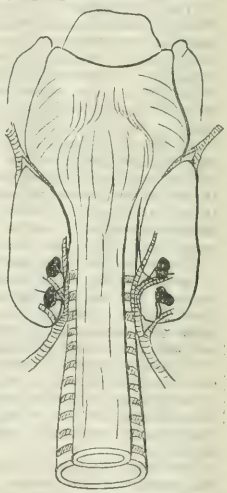


Fig. 2. The two upper parathyroid glands lie close to the lower pair, which are in their usual position.

of which the opaque lymph cords can generally be made out as whitish-grey dots. In colour they are of a clear light brown, which may be rendered pale by anaemia and the accumulation of fat, or converted into a brownish-red by congestion. It is particularly this bright-brown colour, together with their flabby softness, which makes them easily recognizable.

Four may probably be regarded as the usual number, two occurring in apposition with each lobe of the thyroid; but our charts show many cases, as in Dr. Rogers's series, in which only three, two, or even one gland could be found. Doubtless there occur anomalous cases in which only two or three glands exist; but in many of these instances, if not in all, the remaining glands have increased correspondingly in bulk, and it seems probable that in most of the instances in which four glands cannot be found this result is due not to a real deficiency in the amount of parathyroid tissue, but to lack of energy and patience in the search for the rest of the glands.

Of 64 cases charted so far 4 definite glands were found in 36, 3 in 10, 2 in 15, and 1 in 3 cases. A number of these dissections were made by Dr. Whipple, but most of them by myself, this attention to the parathyroids forming now a part of our routine autopsy technique. In practically all the cases the results of dissection were controlled by microscopical examination of the gland, although with some familiarity with the gross appearance this becomes entirely unnecessary.

* It may be of interest to state that the parathyroid glands of the ox which Dr. Halsted has used are dense, hard bodies, of a chestnut-brown colour, which lie embedded in the apex of the thymus in the position shown in the diagram. They are quite easily found in the structures which are left attached to the ox tongue as it is found in the slaughterhouse before it is trimmed by the butcher, and we have trained several butchers' assistants to remove them in numbers from the tongues, and to supply us regularly with the fresh glands.

The greatest diversity exists in different cases with regard to the position of these glands. So inconstant are they in their relation to any particular part of the thyroid or adjacent structures, that any statement as to their usual position could not be anything less than actually misleading unless couched in the most general terms. For example, we may say in general that the glands lie two on each side of the posterior or dorsal aspect of the thyroid gland, although, as has just been stated, it is often difficult or impossible to find both of them on each side, and, on the other hand, one or more of them may not lie in this posterior region at all, but rather on the lateral aspect of the thyroid or even upon the front of the trachea below the thyroid. The recurrent laryngeal nerves which have been suggested by certain surgeons as a guide to their position do run in a general way in the region where they are most commonly situated, but the glands bear no definite relation to them, and frequently lie far away from the line of their course.

In most instances the lower of the two glands, which is usually the larger, lies near the posterior edge of the thyroid gland in the loose tissue which fills the notch in that organ just above the rounded lower lobule and among the branches of the inferior thyroid artery which enter

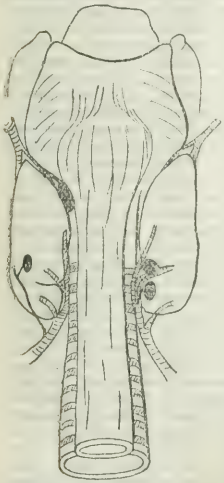


Fig. 3.—The left upper and right lower glands are in their most typical position. The right upper gland lies in the region of the inferior thyroid artery, the left lower gland, supplied by a long arterial branch, is embedded in the posterior surface of the thyroid near its outer margin.

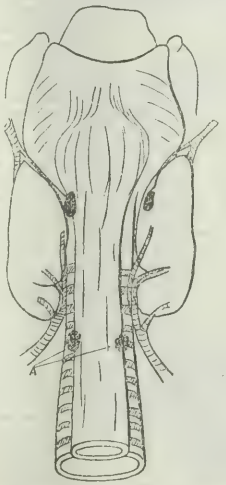


Fig. 4.—The two upper parathyroids are in the common position. The two lower glands lie on the anterior surface of the trachea.

the thyroid at that point. In most instances, too, the upper* gland is found at the posterior edge of the thyroid, where it lies against the œsophagus at the point where the superior thyroid artery fades away along the posterior edge of the thyroid. Usually, but not always, they are symmetrically placed on the two sides.

This may perhaps be regarded as the typical arrangement, of which others are variations, and in reviewing our charts it is seen that in 19 or 20 cases this is almost precisely their position. It is very common, however, to find the lower glands lying quite below the lower pole of the thyroid in the loose tissue, or upon the postero-lateral surface of the trachea. Again, it is not uncommon to find the upper glands displaced from their position near the upper pole of the thyroid, and lying lower down among the branches of the inferior thyroid quite near the lower glands. Various irregular combinations of these relations occur, and sometimes one or other of the glands is found quite widely separated from the thyroid. On the other hand, it is rare to find them very intimately connected with the thyroid, and I have not seen any embedded in its substance, although that is a common enough condition in the dog.

The thyroid, as is well known, is closely enveloped in a dense but rather easily torn capsule, from which trabeculæ run into its substance. Outside this, there is a quantity of very loose areolar connective tissue which often contains much fat, and it is in this tissue that the parathyroid glands usually lie. It is nearly always possible to lift them up from the thyroid, and to see that they are quite separate from its proper capsule, and in so doing there is brought to view the stalk of minute blood vessels which spring, in the case of the upper gland (unless it is greatly displaced), from the superior thyroid, while those supplying the lower gland arise from a branch of the inferior thyroid artery.

From this it is seen that, provided the position of the parathyroids can be ascertained, it should be possible to remove the thyroid lobe without simultaneously removing them or even cutting off their blood supply. It is obvious, however, that in order to do this one must avoid the ligature of the arteries at a distance from the thyroid, and indeed, it is safer, if possible, to leave the posterior part of the thyroid with its intact blood supply.

At best, this preservation of the parathyroids offers difficulties, and in conditions in which the thyroid is greatly enlarged and surrounded by adhesions the difficulties may be very great; but the end is much to be desired.

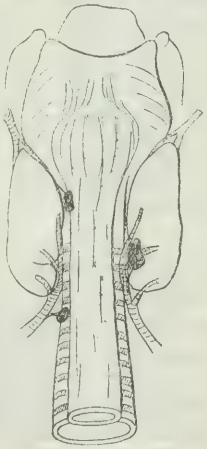


Fig. 5.—Two parathyroids exist on the left side. On the right only one large gland is to be found.

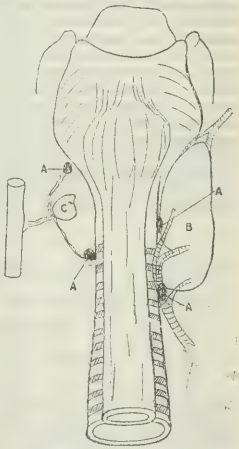


Fig. 6.—On the right side the condition is practically normal: on the left the thyroid lobe is almost completely atrophied, but the parathyroids are found in about the usual situation.

With regard to another point in the surgical relations of the parathyroid glands I wish to make some remarks here, since I have apparently been somewhat misunderstood in England in what I have already written. I refer to the relation of the parathyroid glands to exophthalmic goitre.

The possibility that this condition might depend upon an insufficiency of these glands was first suggested by Gley and acted upon by Moussu, who administered parathyroids to a patient suffering with the disease.

I discussed the subject in a paper in 1903, without being able, from the material then at my command, to decide definitely for or against the idea. Two or three parathyroid glands removed with the thyroid and rather badly treated before being examined microscopically appeared to be atrophic, while others seemed normal in structure if rather small in size. Benjamins had found normal glands in his cases. Since that time nine cases have been examined, and the parathyroids found practically normal in all. They show in some instances a moderate atrophy of the cells and increase in the interstitial connective tissue, but the alterations do not seem to be constant nor sufficiently extensive to support the idea that the

* For the human being I can find no applicability for the terms inner and outer parathyroid glands. Their positions seem to be more clearly expressed by the terms upper and lower.

parathyroids have anything to do with the development of the disease. The infiltration with fat, which has recently been described by certain English writers, is a well-known normal condition in these glands.

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Sir VICTOR HORSLEY (London) thought that such a valuable communication to the literature of the thyroid gland deserved the fullest appreciation by the meeting. The anatomical determination of the parathyroid gland, even in the normal subject, was a research requiring the utmost diligence and care. Perhaps the first practical point as the outcome of Professor MacCallum's paper was the essential proof that the parathyroid glands were not responsible for the condition known as exophthalmic goitre, and therefore the surgical treatment of it was in nowise to be directed against disorder of the parathyroids, but, on the contrary, against the perverted physiological condition of the thyroid gland itself. The second point he desired to draw attention to was that of neoplasms in the thyroid gland which on microscopical examination were found to closely resemble parathyroidal tissues. Tumours of this kind had been noted by many observers, and, he considered, were to be found in the original descriptions in Wölfler's great monograph. At the time of that paper being published, Sandström's discovery had been overlooked, and hence the analogy probably not noticed. He (Sir Victor Horsley) was in the habit of looking for these growths in the neighbourhood of the hilus of the thyroid gland, and now, with the guidance of Professor MacCallum's work, he believed that in future these growths would be differentiated from the ordinary adenomata of the thyroid gland.

INTESTINAL OBSTRUCTION WITH OR FOLLOWING DISEASE OF THE VERMIFORM APPENDIX.

By Dr. N. A. POWELL,
Toronto.

OBSTRUCTION with or following appendix disease must be a condition of comparative rarity. The known frequency of inflammatory conditions in this organ and the enormous number of operations now being done for their relief would supply more frequent examples if such were not the case. The longest series of cases of which I have knowledge is that of McWilliams, in which 31 cases are tabulated occurring during attacks and 86 following operations.

My personal experience supplies but two cases out of over 350 submitted to operation. The first of these can be dismissed with only a few words, since similar ones have doubtless been seen by most of those present. Under the legal rule that no man is bound to incriminate himself I might decline to supply details regarding it, but with the lodge closely tyled as this is I may say it was that of a young man with an acute attack, his operation being done at night and in a badly lighted room. The peritoneal edges in one part of the wound not having been accurately sutured, adhesion of the bowel took place with subsequent strangulation and obstruction. Prompt reopening of the wound led to its relief, the restablishment of faecal circulation and free movement of the bowels an hour later. Delay under such conditions leads to disaster, but the methods for giving relief are obvious and the results contenting.

Resection of 5½ in. of Gangrenous Intestine in the Treatment [illegible] of Post-operative Ileus: Recovery.

R. Z., aged 17, student, consulted me on January 29th, 1906, eight hours after the onset of his third attack of appendicitis. His first experience of the trouble occurred in September, 1905; it was accompanied by pain and vomiting, but under morphine and poultices is said to have passed off in twenty-four hours. The second attack came on two weeks later, was accompanied by vomiting and by pain, which on the second day was localized in the right iliac region. He was ill ten days and recovered gradually, but was much troubled with constipation thereafter, had poor digestion, with loss of weight and sallow skin. In his third attack he had high temperature and pulse, pain, vomiting, and muscular rigidity when first seen, and was very ill.

He was at once sent to the hospital and operation done twenty-six hours after his initial symptoms. The appendix was infiltrated and dusky, in one place being distended and thin almost to the point of rupture. After removal it did rupture while being examined by a colleague, and a greenish offensive pus was discharged. The progress of the patient for four days was all that we could desire; but on the fifth pain set in—at first spasmodic and general, but soon continuous—located to the left of the umbilicus, and accompanied by rigidity of the left rectus. Distension of the upper half of the abdomen followed, and vomiting was frequent. High enemata failing to afford relief and the condition becoming hour by hour more grave, I sealed the original operation wound with collodion, and at 9 p.m. made a median section. A greatly distended coil of small intestine protruded. It was almost black, had lost its lustre, and the serous coat had given way in long lines. Withdrawing this coil, a rapid examination of the caecum showed the appendix area in perfect condition and the last 2 ft. of ileum empty and collapsed. On the left side an old dense adhesion bound the gut down, forming an annular band. All the ileum above this for many feet was distended and its vitality clearly compromised beyond repair. Shading upwards from this distended portion the bowel was oedematous and so friable as to tear with a touch. The patient's pulse at this time was 140 and bad in character, and his respirations were jerky. Grave fears regarding his death upon the table were entertained by all present. Testing the circulation in the bowel by hot gauze, I reached a point where the colour changed, and where pulsation, in spite of his weak condition, could be made out in the underlying mesenteric vessels. I then determined to first empty the bowel, then to resect the damaged portion, and to end the operation by an anastomosis or by enterostomy, as the general condition might make possible. Using the tube and the technique of Moynihan, both of which seem to me about perfect, I withdrew three parts of a basinful of putrid material from the bowel, the tube being fixed in place by a purse-string suture and the bowel brought well over the side, so that there was no soiling.

It then became possible to double-clamp and anastomose the bowel, to resect its intervening portion, tying its mesentery off in small sections near the bowel. The redundant portion of mesentery was then folded, stitched together, and attached under the junction which had been made by a Murphy button. The abdomen was then filled with normal saline and the wound closed, and the patient kept in the Fowler position. Counting from the commencement of the anaesthesia, the operation occupied fifty minutes. The rally from shock was gradual, but the patient passed the button in seven days, recovered completely, and has had no digestive disturbance since.

In this operation I had the great advantage of perfect assistance from my friend Mr. E. E. King, from the anaesthetist, and from the staff, and in no surgical procedure is such aid of more importance.

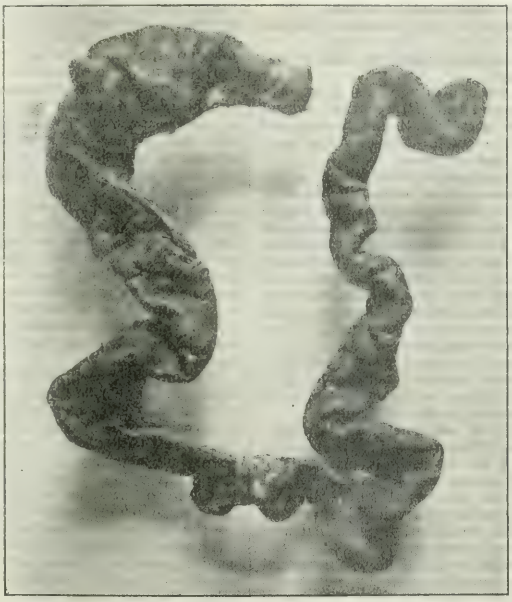
May I be permitted to use this case as the text for a few comments on the technique of operation for the relief of intestinal obstruction from whatever cause arising? I have had to deal with a fairly long series of these due to practically all the ordinary causes, excepting embolism of the mesenteric vessels, and have met with the varying degrees of success with which most surgeons are familiar. As a result of this experience and of the clinical impressions it has left, I have reached the conclusion that in acute intestinal obstruction the ordinary mortality of 50 per cent. may, by operation within a thirty-six-hour limit, be cut down to 5 or 10 per cent.

I feel equally sure that ileus, unrelieved till after the third day, will have a mortality mounting by leaps and bounds to 75 or 90 per cent.

Preparation for Operation.

This should include a critical review by the surgeon himself of every detail of the equipment sterilized for use. Sending to the instrument room for what should have been got ready, using makeshift substitutes for the devices which facilitate rapid and accurate work, this we still see and this we should not have to see at all. Who has not watched an operator trying to suture the thin wall of an intestine with a curved needle the eye of which is thicker than the part it penetrates; or who has escaped the sad sight of an assistant wasting the patient's chances of recovery by time-consuming efforts to arm fine needles with wet silk, heedless of the fact that a spirit lamp to char the suture ends would have enabled him to rapidly prepare what all good assistants get ready before any incision is made?

The incision as a rule should be median and ample, and if the cause of obstruction is not at once apparent evisceration upon towels wrung out of hot saline solution should follow. This admits of systematic examination, and will tend to eliminate those regrettable cases where the surgeon after finding and relieving one cause of obstruction learns later at the autopsy that a similar condition had existed elsewhere and had been undiscovered. True, evisceration is not without risk, the weight of a distended bowel will, if it be allowed to pull upon the mesentery, notably increase shock, which in acute obstruction is always great and nearly always badly resisted. The remedy is to support the bowel and to empty it promptly and properly. It is humiliating to think how slowly we have come to recognize that the relief of obstruction to faecal outflow is but a small part of a surgeon's duty. The putrid pools of poison above the obstruction must be, and fortunately can be, rapidly drained without increasing the risk of infection. Believing that the use and value of Moynihan's tube, by which this can best be effected, is not as fully known as it will be later, I submit samples of it and of the Paul or Mixter tubes, which should always be at hand when an operation is undertaken for the relief of ileus.



Resection of 4 ft. 6 in. of gangrenous bowel.

From the moment of opening the abdomen till it is closed again I like to have a stream of warm normal saline solution flowing over all exposed bowel surfaces. By this, chilling and drying are prevented and tissue vitality conserved.

Where an anastomosis is to be made, that method with which the surgeon is most familiar is the one of choice. My personal preference is for the Connell suture, slightly modified in application, all knots being tied within the bowel. I reinforce this with a Cushing's right-angled sero-serous suture, which takes but a few moments to apply, by one who has learned that a fine straight needle is one-third faster than any other and can be used with far less risk of subsequent leakage.

In the cases where moments count for much I still use, as in one of the cases just cited, the Murphy button, and shall never lose my gratitude to the inventor of it, still, thank God! here with us and adding daily to the debt humanity owes to his genius and industry.

Shall enterectomy or enterostomy be resorted to, of shall these procedures be, in any sequence, associated? The general condition of the patient more than the local damage must, I take it, determine these points. An artificial anus leading into the small intestine is to be made only when surgery more nearly ideal is out of the question.

The higher in the bowel the opening is made the more irritating will be the discharges and the greater the probabilities of malnutrition. While the general trend is in favour of complete operation rather than of enterostomy this latter procedure has a field of usefulness, but the field, let it be emphasized, is not a prairie.

Where primary excision is done, a good margin of safety must be left on the proximal side. In each of 17 cases collected by Roswell Park, over 200 cm. of bowel was removed, and there were 14 recoveries. *Per contra* in a large series of less extensive resections the mortality was over 30 per cent. We can go to great lengths in the removal of bowel not too near the jejunum, but one suture taken through sodden and poisoned tissue may give way and bring disaster. The appearance of the serous covering is at times misleading. We may rest assured if it is bad the muscular coat beneath it will be worse, and the mucous surface still more compromised. Better the sacrifice of a few inches of bowel in which repair might have taken place than the giving way of a line of anastomosis with the disaster sure to follow.

With one other point I conclude. The surgeon who knows it all and who has no need to practise intestinal operations upon the inferior animals is the last man to whom cases of obstruction of the bowel should be referred. No one has any moral right to learn intestinal surgery upon those whose lives depend on how rapidly, how gently, and how accurately the abdomen can be opened, treated, and then closed again.

DISCUSSION ON THE SURGICAL TREATMENT OF ASCITES SECONDARY TO VASCULAR CIRRHOSIS OF THE LIVER.

OPENING PAPERS.

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Definition.—For the purposes of this paper the term "cirrhosis of the liver" is restricted to the pathological changes usually described under the heading of "vascular cirrhosis." Its most obvious symptoms are haemorrhage from the alimentary track and ascites. Biliary cirrhosis, whether due to infection of the bile passages or to other causes, is excluded.

Historical.

Drummond of Newcastle-on-Tyne, and Talma of Utrecht, share the distinction of having, independently of each

other, suggested surgical intervention for the relief of ascites in cirrhosis of the liver. Measured by the date of publication Drummond, with Rutherford Morison as a co-worker, was first in the field. Their joint paper, with an account of two cases operated on, appeared in the BRITISH MEDICAL JOURNAL, September 19th, 1896. Talma's first published contribution to the subject is to be found in the *Berl. klin. Woch.*, September 19th, 1898, but the operation had been performed at his suggestion as early as 1889, and was described by Lens in 1892.

The operation is based on well-established anatomical and pathological data. Normally there is a more or less free intercommunication between the systemic and portal venous systems.

The veins forming the anastomoses may be conveniently arranged in four sets:

1. Veins running in the suspensory and round ligaments of the liver. These comprise the accessory portal system of Sappey, and unite the portal with epigastric, the internal mammary, and the diaphragmatic veins.

2. The anastomoses between the gastric and oesophageal veins.

3. Between the inferior mesenteric and the middle and inferior haemorrhoidal veins.

4. An extensive network of connecting veins situated in the retroperitoneal tissue, and especially marked behind the pancreas, the transverse portion of the duodenum, and the vertical portions of the colon. These veins were described by Retzius, and bear his name.

The enlargement of the anastomotic veins which occurs with great constancy in cases of liver cirrhosis has long been known to pathologists. The distension of the superficial abdominal veins is very obvious, and occasionally we meet with a bunch of varices around the umbilicus, constituting the so-called "caput Medusae." The vessels connecting the gastric with the oesophageal veins are always well developed, and frequently become varicose. Lying just beneath the mucous membrane they are apt to rupture, and are a common cause of haematemesis. They are sometimes alluded to as "oesophageal piles."

The anastomoses between the superior haemorrhoidal and the middle and inferior haemorrhoidal veins is of variable extent, but is hardly ever sufficiently great to be of much importance in relieving portal distension.

In number, and possibly in efficiency, the retroperitoneal veins take first place. They unite the portal system with the internal mammary, the lower intercostal, and the lumbar veins. They also form channels of communication between the mesenteric and the renal and spermatic vessels. They are most abundantly developed where the viscera come in contact with the posterior abdominal wall and are devoid of a peritoneal covering.

In certain cases of cirrhosis of the liver the normal anastomotic channels are supplemented by new veins which originate in adhesions formed between the viscera drained by the portal vein and the abdominal walls. The importance of these new veins in relieving portal obstruction and warding off ascites was pointed out by Rindfleisch, Frerichs, and others many years ago.

Drummond and Talma emphasized the fact that in cases where the collateral circulation is abundantly developed, cirrhosis of the liver may run its course to a fatal issue without the supervention of ascites.

Impressed by the part played by the newly-formed veins in relieving portal obstruction, it occurred to them that what was occasionally effected by the unaided efforts of Nature might in most cases be achieved by operative measures directed to the establishment of adhesions between the viscera and the abdominal walls.

Of these the omentum, both by reason of its vascularity and flexibility, as well as by Nature's example, appeared to be specially adapted for the purpose, and operative procedures for the relief of cirrhotic ascites, however they may differ in detail, always include fixation of the omentum to the abdominal wall. For this reason the Drummond-Talma operation is known as "epiplopexy."

Talma's early cases were dogged by ill fortune. The first one, operated on by Van der Meulen in 1889, died of shock. The second, operated on by Schelkly in 1891, died of delirium tremens on the fifteenth day after the operation. A third patient, operated on by Lens in 1891, survived for a period of five and a half months, during which time it was necessary to have recourse to tapping on four occasions.

The first really successful case belongs to Rutherford Morison, and was operated on by him in 1895. This patient was not only relieved of ascites, but enjoyed good health for the succeeding two years; and then a trivial operation for a ventral hernia was followed by coma and death two days later. The *post-mortem* examination showed numerous band-like adhesions, containing veins some of which were as large as the radial artery between the liver, spleen, and intestines and the abdominal parietes. Morison's success had the effect of bringing the operation into prominence, and during the last ten years it has attracted world-wide attention.

PATHOLOGY.

The time at my disposal does not admit of more than a brief reference to this highly interesting and all important aspect of our subject.

The chronic inflammatory changes induced by the poison, whether it be alcohol or some other agent, lead to degeneration of the hepatic cells and proliferation, with subsequent contraction of the connective-tissue framework of the liver. The latter in turn interferes with the circulation of the blood through the hepatic terminals of the portal vein. Side by side with these pathological changes in the liver there may be developed a more or less extensive chronic peritonitis, and when the incidence of the poison is specially marked on the peritoneal covering of the liver we get perihepatitis. So far there is general agreement among pathologists, but as to the immediate cause of ascites in cirrhosis of the liver two widely-divergent opinions prevail.

The commonly accepted view is that it is largely a passive effusion of blood serum; that it appears in cirrhotic cases when the enlargement of the collateral circulation fails to keep pace with the ever increasing portal constriction; that while contraction of Glisson's capsule is the principal cause of obstruction, it may be supplemented by partial or complete thrombosis of the portal vein; that systemic circulatory defects, such as valvular lesions of the heart, may aid the local causes of blood stasis.

On the other hand, Hale White, Rolleston, and others reject the doctrine of passive effusion, giving as their most important reason for so doing the negative results obtained in experimental ligation of the portal vein in animals. They substitute for it a theory which, however ingenious it may be, is purely hypothetical. They allege that the peritoneal dropsy of uncomplicated cirrhosis of the liver is due to the presence of toxic substances in the blood; that these bodies possess lymphagogue properties, and are the outcome of defective metabolism on the part of the liver, whose damaged cells are no longer able to arrest and render harmless poisons absorbed from the alimentary canal, or possibly produced elsewhere. They further allege that ascites appears only in the terminal stage of the disease, and that its advent should be regarded as a harbinger of death which no treatment, operative or otherwise, can avert.

They insist that operative cures in ascites occur only in cases where the peritoneal effusion is the result of chronic peritonitis and perihepatitis, and that if cirrhosis coexists it is as yet in an early stage and has not seriously injured the hepatic functions.

The only point advanced by the toxaemic school calling for special comment is that referring to experiments on animals. In dogs who survive the ordeal of ligation of the portal vein ascites does not appear, and this observation is held to be evidence against the theory of passive effusion, on the ground that if complete obstruction of the portal vein is incapable of producing ascites partial obstruction is not likely to do so. A moment's consideration will, however, show the fallacy of this reasoning. The experiment merely demonstrates that the anastomosis between the two venous systems in dogs is sufficiently elastic to take the whole of the portal blood, and, far from being opposed to, is quite in harmony with, the Drummond-Talma teaching that where there is an abundant collateral circulation ascites does not develop.

Looking at our subject from a practical standpoint, theoretical considerations must give place to ascertained facts, and it is impossible to ignore the testimony of numerous competent and trustworthy observers who by sight and by touch have verified the existence of well-marked cirrhosis of the liver in cases that have, after

operation, not only been cured of the ascitic condition, but have for years enjoyed a fair measure of health.

Moreover, numerous instances have occurred where a subsequent laparotomy for some other condition has enabled the operator to examine the remote effects of epiplopexy on the collateral circulation, and to testify to the remarkable increase of the anastomotic vessels which it produces. The evidence thus afforded, conjoined with *post-mortem* observations on cases that have run their course without the appearance of ascites, leaves no doubt that stasis of blood in the portal system is the most important factor in the production of cirrhotic ascites. Such a conclusion does not preclude the existence of other causes, and it is exceedingly probable that in advanced cases of the disease toxaemia is one of these. The part played by peritonitis and perihepatitis must also receive recognition.

Effusion of serum is a constant accompaniment of chronic inflammation in other closed cavities, and in the peritoneum we observe it regularly in tuberculous and malignant infections. Having regard to these facts, we may safely assume that where chronic peritonitis is associated with cirrhosis of the liver, it contributes its quota to the peritoneal dropsy.

The Rationale of Epiplopexy.

Drummond and Talma merely claimed for the operation that it would, in suitable cases, arrest the ascitic condition by providing supplemental channels of anastomosis. There are reasons, however, for believing that its good effects do not end here, and that by increasing the blood supply to the surface of the liver it can benefit the nutrition of this viscus whose cells are known to possess very considerable regenerative power. Furthermore, the relief of vicious pressure cannot fail to have a good effect on the liver functions.

The Value of Drainage as an Adjunct to Epiplopexy.

The good effects of drainage after the operation have been strangely overlooked, and the expediency of employing it questioned, but, as I hope to show, it is capable of playing an important part in the arrest of ascites. Apart from its usefulness in keeping the upper abdomen dry and thereby favouring union between the viscera and the abdominal walls, its beneficent influence is similar to that exerted by the pumps of a water-logged ship. In progressive cirrhosis there is an ever increasing condition of unstable equilibrium between peritoneal effusion and peritoneal absorption, and a little thing suffices to destroy the balance. So soon as this occurs and the ascitic fluid begins to accumulate, the movements of the diaphragm are impeded, and one of the most important mechanisms concerned in peritoneal absorption becomes seriously handicapped. For this reason, although the exciting cause of ascites may be some temporary disturbance, such as a chill or over-indulgence at table, the mischief, once it has started, tends to perpetuate itself. By draining the peritoneum we remove the handicap and, if the damage is only of a temporary character, afford the organism an opportunity of righting itself; or, in cases where this is not immediately possible, we keep the ship afloat until relief arrives in the form of augmented anastomotic veins. Numerous cases of recovery from cirrhotic ascites after one or more tappings have been recorded, and, although the usual explanation of this happy result is that it is due to the establishment of anastomotic vessels in the omental adhesions formed at the punctured spots, it is, I think, quite likely that removal of the ascitic fluid may, in the way I have indicated, be an additional explanation of the relief afforded.

Among my own cases, A and C are remarkable examples of the value of drainage pure and simple. Each, after a cure of ascites had been established by epiplopexy, in one case for more than two years, and in the other for about fifteen months, recommenced to drink heavily. A few months of debauch brought about a return of the ascites, together with all the other associated symptoms which had been present during the previous attack. In both cases continuous drainage of the peritoneum for about ten days arrested the ascitic condition completely.

Cases Suitable for Epiplopexy.

In considering the special reasons that should weigh for or against the operation in individual cases we must not lose sight of the fact that ascites is, after all, only a prominent symptom in a group of degenerations of which the liver changes are but a part, although no doubt an important part, and that while we may relieve by operation the ascitic condition, and even bring about a limited amount of regeneration of the damaged liver cells, the associated pathological changes induced by the alcoholic or other poison on the nervous and general vascular systems remain, and may be of so pronounced a character as to be incompatible with the prolonged continuation of life. Again, it must be clearly recognized that sooner or later a period is reached when the hepatic tissue is so hopelessly damaged that, apart from the associated evils in other organs, and apart, too, from ascites, it can no longer perform its essentially vital functions. The importance of the latter consideration is obvious when we reflect that quite 50 per cent. of cases of cirrhosis of the liver die of the condition without developing ascites.

The operation involves more or less traumatism to the liver, omentum, and peritoneum, and, however carefully done, causes some degree of shock. It should therefore, apart from special objections, not be performed on old or on very feeble patients; 55, or at most 60 years, should be the age limit. It is contraindicated in Bright's disease and in diabetes, but the temporary presence of a small amount of albumen or sugar in the urine may be ignored. A scanty excretion of urine is nearly always associated with ascites and need not weigh against operation, but if the total amount of urea is very greatly reduced it would, according to some writers, militate against operation on the ground that the liver being the chief centre of the manufacture of urea a very much reduced output indicates advanced hepatic disease. Persistent jaundice, even if slightly marked, and mental hebetude are two most ominous symptoms, and the presence of one or both should preclude surgical interference. The same observation applies to serious organic disease of the heart and lungs. Cirrhotic patients are unduly prone to tuberculous disease, and special care should be exercised to exclude phthisical cases. Acholia and urobilinuria, if pronounced, are included by Talma in his list of objections to operation. He also looks on well-marked xanthoma as an unfavourable sign. The ascites of atrophic cirrhosis is said to be less hopeful than that associated with the hypertrophic type, but an analysis of the cases I have tabulated fails to show this.

In all cases tapping should be resorted to once or oftener before proceeding to operation. In a small minority of cases this alone will effect a permanent cure of the ascitic condition, and in all it will help the operator to gauge the personal equation of his patient, besides enabling him to make a more exact examination of the abdominal viscera. A patient who will not bear repeated tapping would almost certainly succumb to epiplopexy.

The character of the fluid may throw light on its origin. When it is due chiefly or solely to chronic inflammation of the peritoneum it will be found to contain from 4 to 6 per cent. of albumen, whereas the ascites of passive effusion contains from 0.5 to 3 per cent. of albumen.

It is desirable to keep the patient under observation for a week or more before proceeding to operate. Vicious habits, particularly in respect to alcohol, can in this way be arrested, and the general well-being improved by appropriate diet and tonic medicines.

Operative Details.

These vary in the extent of the operative procedures resorted to, the method of fixing the omentum, and the use or otherwise of drainage.

Omental fixation enters into every recognized method, and is universally conceded to be the most important step in the operation. Additional procedures consist in rawing the peritoneal surfaces of the liver and spleen together with the opposed peritoneum lining the under surface of the diaphragm and anterior abdominal wall, with or without anchoring sutures. A variation of the process in respect of the spleen is to create a rent in the parietal peritoneum and effect a subperitoneal displacement of this viscus. The formation of extensive adhesions between the intestines and the abdominal walls has been suggested and actually attempted. Such a procedure creates excellent

anastomotic vessels, but, apart from the increased traumatism and shock attending its performance, it is objectionable on the ground that it makes for intestinal obstruction. The extent to which these supplemental processes should be practised must be decided by the condition of the patient and the experience of the operator, who should keep in mind that he is dealing with a class of cases ill fitted to endure a prolonged abdominal operation. Hepatopexy can be easily and rapidly performed through the incision required for fixing the omentum, but the spleen is less accessible through this opening, and the steps necessary for dealing with it involve so much disturbance that I, personally, do not think its inclusion in the operative programme is desirable. If for any special reason splenopexy should be deemed necessary, it would, I think, be better to perform it through an independent opening, and, by preference, on a subsequent occasion.

Of the methods of treating the great omentum two in particular have received special recognition. One, the method described by Morison, is to fix its anterior surface by numerous point sutures to the opposed parietal peritoneum previously freshened by vigorous gauze rubbing. The other, devised by Schiassi, of Bologna, aims at placing the omentum between the parietal peritoneum behind and the posterior surface of the abdominal muscles in front. The idea of implanting the omentum between the layers of the abdominal wall and thereby gaining vascular connexions on each of its surfaces is an ingenious one, and has gained the approbation of numerous writers, but its performance involves a somewhat extensive dissection, and it is, I think, open to doubt whether the result obtained is appreciably better than what is secured by the simpler method of Morison.

Fixation of the omentum between the edges of the abdominal wound has been resorted to with success, but it involves a weak scar liable to end in a ventral hernia without any countervailing advantage. It is interesting to recall that the first case of ascites known to have been cured by omental fixation was effected in this way.

Kümmel of Hamburg, in 1887, explored the abdomen of a patient, aged 35 years, suspected of having a hydatid cyst. The case turned out to be one of hypertrophic cirrhosis of the liver with ascites, and the operation ended with the exploratory incision. In closing the wound a portion of the omentum was unintentionally included in the sutures. Three months later the ascites had disappeared and the liver was smaller. Around the abdominal scar were to be seen greatly dilated veins. It was only after the publication of Talma's paper that Kümmel realized how relief was brought about by his accidental epiplopexy.

Another plan is to displace the omentum upwards and to fix it between the liver and diaphragm. This method is, however, not a good one, as nothing is gained from adhesions between the omentum and liver.

My own practice is to detach the peritoneum together with the underlying layer of the recti sheaths with which it is intimately blended, above, below, and to the left of the abdominal wound, and to turn it outwards, stitching it by a few sutures in its reflected position. In this way I obtain an extensive rawed surface to which the omentum is secured by numerous point sutures.

The details of the method I have adopted in each of my cases are as follows. The abdomen is opened by a vertical median incision, 6 in. long, extending between the xiphoid and the umbilicus, and the fluid siphoned out. The peritoneum should be divided slightly to the left of the middle line so as to avoid injury to the falciform ligament of the liver which contains important anastomotic veins. A 1-in. median suprapubic opening is next made. This is for the reception of a glass drain tube which should fit the opening quite tightly. The tube extends to the floor of the pelvis, and should have very minute lateral openings.

The under surface of the diaphragm and the upper surface of the liver are vigorously rubbed with dry sterilized gauze until the peritoneal surfaces show everywhere slight oozing of blood. The anterior border of the liver is stitched to the diaphragm by three fine silk sutures, one of which engages the peritoneal reflexion for the gall bladder.

The peritoneum is prepared and the omentum stitched to it in the manner already described. The rawed peritoneal surface to which the omentum is fixed has an area of from 40 to 60 sq. in. The omentum, which is usually found to be rolled up, is carefully spread out, and in fixing it the needle must not puncture its vessels. Bleeding, which is rarely troublesome, is arrested by hot sponge pressure. The abdominal wound is closed and sealed with collodion.

A large square of thin rubber with a minute opening in its centre is forced over the projecting flange of the glass tube and folded over a gauze pad, which absorbs any fluid that may rise in the tube.

The abdomen is firmly bandaged and the patient placed in a bed the head of which is raised by blocks 12 in. high. Until the amount of fluid aspirated through the tube amounts to less than 3 oz. per day, the pelvis is pumped dry every six hours. This is effected by means of an ordinary 4-oz. glass syringe to the nozzle of which is attached a piece of rubber tubing. The usual period during which aspiration is necessary is eight days, but in one case it amounted to three weeks. The glass tube should be rotated daily to free it from the appendices epiploicae which are apt to be drawn into the lateral openings. Rigid asepsis is observed not only during the operation, but so long as aspiration is required.

Apart from the general well-being of the patient the most satisfactory evidence of improvement after the operation is a steady increase in the amount of urine excreted, and it is a noteworthy fact that there is a constant inverse ratio between the quantity of urine voided and the amount of fluid recovered from the abdominal tube. In all my cases that have run a favourable course this has been observed, while in the single case that ended fatally there was almost complete anuria from the sixth day onwards.

Although the new anastomotic vessels develop with great rapidity, a short interval must necessarily elapse after the operation before its full effects on the portal circulation are manifested. In cases where drainage is not employed the fluid may reaccumulate during this time and require removal by tapping.

Direct Anastomosis between the Portal Vein and the Inferior Vena Cava.

Physiologists are familiar with the experiment known as Eck's fistula, which consists in implanting the portal vein into the vena cava. It is followed in dogs by more or less marked symptoms of uraemia, which are intensified by a meat diet. The application of this procedure to human beings suffering from cirrhotic ascites has been suggested by Tansini, and was actually carried out in 1903 by Vidal on a patient on whom epiplopexy could not be performed. The patient survived the operation for more than three months, and then died twenty-four hours after the onset of alarming symptoms, which included rigors, delirium, and coma. The ascites recurred.

Vidal's heroic procedure may under certain conditions be justifiable, but the circumstances calling for its adoption should be very exceptional. If feasible, a side-to-side anastomosis of the two veins would be an improvement on the method adopted by Vidal, as, in addition to providing an abundant anastomosis between the two venous systems, it would permit of portal blood going to the liver.

Results of Epiplopexy.

It is at the present time difficult to arrive at a definite conclusion respecting the mortality-rate of the operation, and its precise value in relieving the symptoms associated with portal obstruction. Although a large number of cases have been reported from many different centres, it is almost certain that here, more so perhaps than in other fields of operative surgery, the proportion of successful cases published is much greater than that of the unsuccessful. Again, in not a few of the advanced cases of ascitic cirrhosis that died two or three weeks after the operation the fatal termination was hardly, if at all, accelerated by the surgical procedure, and yet it is customary to include such cases in estimating the mortality-rate of the operation. Another but less serious difficulty arises from the comparatively recent origin of the operation, which prevents a full after-history being recorded in more than a minority of the cases published as successful.

Professor Monprofit, in an exhaustive paper presented to the French Surgical Congress in 1904, tabulates 224 cases of the operation collected from various sources. Of these 84 died within one month of the operation, equalling a mortality rate of nearly 38 per cent.

Table of Cases of Operation for Ascites secondary to Vascular Cirrhosis of the Liver (227).

No.	Surgeon.*	Sex and Age.	Condition for which the Operation was Performed.	Result.†	Remarks.
1	Van der Meulen (Leus, 1892)	—	Cirrhosis. Operation proposed by Talma	D.	Death from shock a few hours later. Operation too late.
2	Schelkly (Lens, 1892)	M.	Alcoholic cirrhosis	D.	Death in 15 days. Delirium, peritonitis. Operation too late.
3	Lens (Lens, 1892)	M., 61	Cirrhosis; ascites	I.	Died 5½ months after operation, but there was appreciable benefit.
4	Morison: Case 1	F., 42	Hypertrophic cirrhosis. Paracentesis 43 times	I.	Died 19 months afterwards from ulcer of stomach. Improvement of general condition. Paracentesis still necessary.
5	Case 2	F., 39	Atrophic cirrhosis. Alcoholism	C.	Lasted for two years. Death after operation for ventral hernia.
6	v. Eiselberg: Case 1 (Talma, 1898)	M., 9	Non-alcoholic atrophic cirrhosis. Heart lesion. Albuminuria. Hypertrophy of spleen	C.	Later on splenopexy was performed by Narath. Relief for 2 years.
7	Morison: Case 3 (1899)	M., 42	Alcoholic atrophic cirrhosis	C.	Ten months later, general condition good; no ascites.
8	Case 4	F., 54	Hypertrophic cirrhosis. Ovarian cyst	D.	Death on eleventh day, with vomiting and diarrhœa (? uræmia). Renal disease also.
9	Narath: Case 1 (Talma, 1900)	M., 59	Cirrhosis, paracentesis twice	C.	"No recurrence." (Reported 2 years after operation.)
10	Neumann	F., 45	Alcoholic atrophic cirrhosis, albuminuria, ascites	C.	No ascites; general condition good 6 months later.
11	Weir	M., 39	Cirrhosis with hypertrophy, ascites	D.	Died on fifth day from peritonitis.
12	Vidal: Case 1	M., 43	Atrophic cirrhosis, ascites, attacks of hæmatemesis	I.	Paracentesis still necessary. Died 6 months later from pneumonia.
13	Case 2	M., 48	Atrophic cirrhosis, enormous ascites	D.	Died within 1 month from cachexia.
14	Mumford (Greenhough, 1902)	—	Atrophic cirrhosis, ascites	F.	Death from primary disease within 3 months.
15	Schiassi	M., 23	Atrophic cirrhosis, ascites	C.	Seen two years later.
16	Narath. Case 2. (Talma, 1900)	F., 67	Atrophic cirrhosis	F.	Recurrence as bad as ever. *Post mortem:* Chronic peritonitis and cirrhosis.
17	Folmer (Talma, 1900)	M.	Hypertrophic cirrhosis	F.	No improvement. Death in 6 months. No autopsy.
18	Brewer: Case 1	F., 43	Atrophic alcoholic cirrhosis, with ascites	D.	Death on second day from uræmia.
19	Case 2	F., 48	Alcoholic atrophic cirrhosis. Albuminuria and casts.	D.	Shock in a few hours. Too late operation.
20	Case 3	M., 40	Alcoholic atrophic cirrhosis	D.	Death on fifth day from peritonitis.
21	Case 4	M., 30	Atrophic cirrhosis with ascites. Spleen much enlarged	D.	At end of first week from peritonitis.
22	Case 5	M., 40	Cirrhosis with ascites. Phthisis	C.	Duration of period of observation not stated.
23	Monprofit: Case 1	M., 42	Alcoholic cirrhosis	D.	Died on seventh day from cachexia. Operation too late.
24	Case 2	F., 48	Atrophic cirrhosis	D.	Died three days later.
25	Morison: 1903	M., 52	Atrophic cirrhosis, ascites	C.	Observed for nearly 4 years. General condition excellent.
26	Raffa (Pozzan, 1901)	M., 20	Atrophic cirrhosis, ascites	I.	Died 11 months afterwards.
27	Comandini	—	Cirrhosis with great ascites	D.	Death on fifteenth day from peritonitis.
28	Grisson	F., 47	Atrophic cirrhosis or portal thrombosis	C.	Recovered from operation. Died 2 years later.
29	Titow: Case 1	—	Cirrhosis	D.	Death from peritonitis of operative origin.
30	Case 2	—	Cirrhosis	F.	Died 3 months later, during which he was tapped 11 times.
31	Brown	M., 41	Atrophic alcoholic cirrhosis. Paracentesis nine times. Albuminuria and casts.	C.	Followed for 2 years.
32	Kümmel: Case 1	M., 42	Very advanced cirrhosis with hypertrophy. Ascites. Oedema of legs	D.	Died 4 days after operation from "acute ileus."
33	Case 2	F., 36	Advanced cirrhosis. Spleen enlarged. Mitral stenosis	D.	Died on next day (heart?).
34	Case 3	M., 54	Hypertrophic liver cirrhosis. Jaundice. Ascites	C.	Three months afterwards the patient was at work again.
35	Case 4	F., 35	Cirrhosis with hypertrophy. Alcoholism. Hypertrophy of heart	C.	Subsequent reduction in size of liver was noticed.
36	Hildebrandt	F., 28	Hepatic cirrhosis	C.	Followed 2½ years.
37	Parona: Case 1	M., 47	Atrophic cirrhosis, ascites	C.	Followed 2 years.
38	Case 2	M., 60	Atrophic cirrhosis, ascites	F.	Died 2 months later from toxæmia.
39	Case 3	M., 43	Cirrhosis with ascites	C.	Followed 3 months.
40	Colson (Glaudot, 1902)	M., 19	Hypertrophic cirrhosis	I.	Paracentesis still necessary. Followed 5 months.
41	Craig	F., 61	Cirrhosis	C.	Followed 1½ years.
42	Potieyenko	F., 68	Hypertrophic cirrhosis, ascites	C.	Operation under local anæsthesia. Paracentesis necessary 7 times in 5 months after operation and not again. Death at end of 2 years.
43	Witherspoon: Case 1	40	Atrophic cirrhosis	D.	
44	Case 2	38	Atrophic cirrhosis	C.	
45	Harris: Case 1	M., 56	Atrophic cirrhosis, ascites	D.	Death in third week from cerebral hæmorrhage.
46	Case 2	M., 56	Atrophic cirrhosis, oedema, arterio-sclerosis	F.	Died in 2 months.
47	Case 3	M., 40	Cirrhosis, ascites	D.	Death in 27 days from collapse.
48	Case 4	M., 43	Cirrhosis	F.	Recurrence.
49	Case 5	M., 43	Cirrhosis, ascites	D.	Died on sixth day.
50	Frazier	M., 45	Alcoholic hypertrophic cirrhosis, ascites	C.	Three months. Puncture necessary once after operation.
51	Villar: Case 1	F., 50	Atrophic cirrhosis	C.	Observed for 4 years.
52	Case 2	M., 48	Cirrhosis with ascites	—	Recovered from operation.
53	Case 3	F., 44	Atrophic cirrhosis, terminal cachexia	D.	Died 3 weeks later from uræmia. Operation too late.
54	Case 4	—	Cirrhosis	F.	Recurrence.
55	Mauclaire. Case 1 (Leport, 1902)	50	Alcoholic atrophic cirrhosis	D.	Death in 24 hours from shock. Operation too late.
56	Baldwin: Case 1	M., 46	Atrophic cirrhosis, ascites	C.	Observed two years.
57	Case 2	F., 59	Atrophic cirrhosis	F.	Died 3 months later from cachexia.
58	Case 3	M., 33	Atrophic cirrhosis	D.	In 27 days from cachexia.
59	Abrajanof	48	Atrophic cirrhosis, ascites	C.	
60	Pascale: Case 1	M., 60	Atrophic cirrhosis, ascites, anæmia	D.	Died on 22nd day from marasmus. Operation too late.
61	Case 2	M., 35	Atrophic cirrhosis, ascites	I.	Cured for one year, then recurrence. General condition improved.
62	Case 3	M., 40	Alcoholic, atrophic cirrhosis	D.	Died on thirteenth day. At autopsy adhesions to liver.
63	Case 4	M., 32	Atrophic cirrhosis	D.	At end of one month. Coma. Chronic peritonitis.
64	Case 5	F., 36	Atrophic cirrhosis	C.	Sugar in urine.
65	Case 6	F., 36	Atrophic cirrhosis	C.	—
66	Case 7	M., 48	Alcoholic atrophic cirrhosis	C.	Slight recurrence. Local anæsthesia.
67	Case 8	M., 57	Cirrhosis	F.	Recurrence.

* Where the operator did not publish his case, or when only references have been obtainable by Monprofit or Bunge, the name of the author referring to the case is given below in brackets.

† D = death. C = symptomatic cure. I = improved. F = failure.

No.	Surgeon.*	Sex and Age.	Condition for which the Operation was Performed.	Result †	Remarks.
65	Leconte (Packard and L., 1901)	M., 63	Atrophic cirrhosis. Paracentesis 4 times. Heart lesion	F.	Died on sixty-first day: no recurrence of ascites. Operation too late.
69	Inoko (Ito and Omi, 1902)	M., 13	Hypertrophic cirrhosis, ascites	C.	Observed for 1 year.
70	Inoko (Ito and Omi)	M., 53	Alcoholic, atrophic cirrhosis, ascites	D.	Died on fifth day from collapse.
71	Roberts : Case 1	M., 54	Alcoholic cirrhosis, ascites	D.	Died from uraemia next day. Local anaesthesia. Operation too late.
72	Case 2	M., 49	Alcoholic cirrhosis, ascites	F.	Died in 6 weeks, but was slightly improved by operation
73	Jelks	M., 59	Cirrhosis, ascites	—	Recovered from operation. Not followed.
74	Mansell Moullin : Case 1	—	Cirrhosis	D.	On thirtieth day from pleural effusion. Operation too late
75	Case 2	—	Cirrhosis	D.	On eighth day from exhaustion. Operation too late.
76	Case 3	—	Cirrhosis	I.	Marked improvement, but patient disappeared from observation.
77	Case 4	—	Cirrhosis	C.	Followed for 2 years.
78	Case 5	—	Cirrhosis	C.	Followed for 2 years.
79	Benissowitch : Case 1	M., 22	Cirrhosis with hypertrophy, alcoholism	C.	Puncture necessary 6 months after.
80	Case 2	M., 56	Cirrhosis, ascites, paracentesis	D.	Died on fourteenth day from heart failure.
81	Roe and Spencer	—	Atrophic cirrhosis	—	Lived 9 months, but details not obtainable.
82	Ballin		Cirrhosis, ascites, oedema	C.	Followed 5 months
83	Wyman : Case 1	—	Cirrhosis, ascites, oedema	I.	Ultimately died from gastritis.
84	Case 2	—	Hypertrophic cirrhosis, ascites	F.	Died 3 months later from toxaemia.
85	Case 3	—	Cirrhosis, ascites	I.	——
86	Greenough	—	Atrophic cirrhosis, ascites	D.	Died in 3 weeks.
87	Elliot (Greenough)	—	Hypertrophic cirrhosis, ascites, oedema	I.	Paracentesis necessary.
88	Porter and Jolin (Greenough)	—	Cirrhosis, ascites	F.	Recurrence. Died 7 weeks later.
89	Bernays (Thompson, 1901)	—	Cirrhosis, alcoholism, ascites	F.	Died 8 months later.
90	Case 2 (Thompson, 1901)	—	Cirrhosis with ascites	I.	——
91	Lanphear (Thompson, 1901)	—	Alcoholic cirrhosis, ascites	I.	——
92	Bradford (Brewer, 1902)	2½	Paracentesis eight times for cirrhosis, albuminuria	F.	Died 2 months later. Recurrence.
93	Burrell (Brewer, 1902)	M., 40	Cirrhosis, albuminuria, paracentesis 9 times	D.	Recurrence and death in one month.
94	Tilton (Brewer, 1902)	42	Atrophic, alcoholic cirrhosis, hernia	D.	Death from shock.
95	Clementi : Case 2	F., 23	Cirrhosis (non-alcoholic), ascites	F.	Recurred on tenth day : not followed.
96	Case 3	F., 43	Hypertrophic cirrhosis	F.	Recurrence.
97	Zalogue : Case 1	—	Cirrhosis, ascites, arterio-sclerosis	D.	On tenth day haematemesis : death from heart failure.
98	Case 2	—	Cirrhosis, ascites	F.	Recurrence.
99	Keen	M., 32	Cirrhosis, ascites	C.	Followed for 2 years.
100	Kiriac	—	Atrophic cirrhosis, ascites	D.	Death 18 days later from cachexia. Operation too late.
101	Dubourg (Mongour, 1901)	F., 55	Atrophic cirrhosis	F.	Recurrence. Died 6 months later.
102	,, ,,	F., 32	Atrophic cirrhosis, cachexia	D.	Died in three days from exhaustion (shock ?).
103	Kantzel : Case 1	M., 30	Cirrhosis ascites	C.	Two months.
104	Case 2	M., 28	Cirrhosis	D.	Died from meningitis on thirteenth day (P. M.)
105	Muscroft and Ingals	M., 45	Atrophic cirrhosis, with jaundice, ascites, and oedema	D.	Died on thirtieth day (exhaustion ?).
106	Neilson	M. 51	Ascites, cirrhosis	C.	Followed for 22 months.
107	Torrance	M., 45	Atrophic cirrhosis, ascites	D.	Uraemia on fourth day.
108	Roger	F., 20	Hypertrophic cirrhosis	C.	Observed for 6 months.
109	Lloyd (Brewer, 1902	F., 54	Atrophic cirrhosis, ascites	C.	Followed for 2 years.
110	Gerster (Brewer, 1902)	M., 35	Alcoholic cirrhosis, albuminuria, casts, paracentesis, haemorrhages	D.	Died in a few days.
111	Meyer : Case 1 (Brewer, 1902)	—	Cirrhosis	F.	Died in 4 months.
112	Case 2	—	Cirrhosis	D.	Died in second week.
113	Fisk (Brewer, 1902)	F., 16	Alcoholic cirrhosis, ascites for 10 months	D.	——
114	Curtis : Case 1 (Brewer, 1902)	—	Cirrhosis	F.	——
115	Case 2	—	Cirrhosis	C.	——
116	Syms : Case 1 (Brewer, 1902)	40	Alcoholic cirrhosis	C.	——
117	Rolls (Brewer, 1902)	40	Alcoholic cirrhosis	D.	Died from uraemia.
118	Syms : Case 2 (Brewer, 1902)	41	Hypertrophic cirrhosis, ascites	D.	Died on seventh day from renal disease.
119	Le Boutillier (Brewer, 1902)	33	Alcoholic cirrhosis, ascites for 7 weeks	D.	Death from haemorrhage.
120	Kelly (Brewer, 1902)	F., 35	Alcoholic cirrhosis, ascites for 2 years, heart disease, albuminuria and casts	C.	——
121	Annovazzi	—	Atrophic cirrhosis, ascites	C.	Seen 6 months after.
122	Borsowski (Kümmel, 1902)	Child, 9	Cirrhosis	C.	——
123	Peck (Brewer, 1902)	M., 47	Atrophic cirrhosis, moderate alcoholism	C.	——
124	v. Eysselsteijn : Case 1 (Bunge, 1905)	M., 38	Atrophic cirrhosis. Paracentesis 6 times. Emaciated	C.	Seven and a half months later slight ascites recurred, but spontaneously disappeared.
125	Case 2	M., 18	Atrophic cirrhosis. Chronic nephritis. Hydrothorax	C.	Possibly a malarial case. Had attack of ague after operation.
126	Case 3	M., 46	Atrophic cirrhosis with ascites	C.	——
127	Case 4	M., 41	Atrophic cirrhosis. Ascites. Oedema of legs. Paracentesis 8 times	D.	Died in eighteen days after recurrence.
128	Case 5	F., 21	Cirrhosis. Ascites. Emaciation	C.	——
129	Case 6	M., 65	Atrophic cirrhosis, ascites, emaciation	I.	Ascites recurred : general condition improved a great deal.
130	Case 7	M., 34	Atrophic cirrhosis, miliary tuberculosis of peritoneum, ascites	C.	——
131	Case 8	M., 42	Atrophic cirrhosis, ascites	C.	——
132	Case 9	M., 44	Atrophic cirrhosis, ascites, slight perihepatitis	C.	Ascites recurred, then spontaneously disappeared.
133	Markoe (Brewer, 1902)	F., 51	Alcoholic atrophic cirrhosis, spleen enlarged	C.	Some paracentesis necessary afterwards.
134	Case 2	M., 40	Atrophic alcoholic cirrhosis	C.	Some paracentesis necessary afterwards.
135	Case 3 (Bunge, 1905)	F., 24	Atrophic cirrhosis	I.	——
136	Case 4 (Bunge, 1905)	M., 24	Atrophic cirrhosis, enlarged spleen	C.	——
137	Case 5 (Bunge, 1905)	M., ?	Atrophic cirrhosis, ascites, enlarged spleen	F.	Died after 5 months.
138	Peck (Brewer, 1902)	M., 47	Atrophic cirrhosis moderate alcoholism	C.	Puncture necessary afterwards.
139	Casati (, 1901)	—	Cirrhosis of old standing, ascites	F.	Recurrence.
140	Harrington Vickery (Greenough, 1902)	—	Hypertrophic cirrhosis, ascites, oedema	C.	No ascites 9 months later.
141	Lee (Greenough, 1902)	—	Cirrhosis, ascites	F.	Died 10 weeks later.

No.	Surgeon.*	Sex and Age.	Condition for which the Operation was Performed.	Result †	Remarks.
142	Bunge: Case 1	M., 17	Atrophic cirrhosis	C.	Lived 4 years. Splenopexy performed 2 months after epiplorrhaphy.
143	Case 2	M., 33	Atrophic cirrosis, ascites, haemorrhages	C.	Died 2½ years later.
144	Case 3	M., 37	Alcoholic atrophic cirrhosis, oedema glycosuria	C.	Died 3 years later.
145	Case 4	M., 53	Alcoholic cirrhosis	C.	—
146	Case 5	F., 55	Cirrhosis, albuminuria, oedema	I.	Paracentesis still necessary.
147	Case 6	M., 24	Cirrhosis with haematemesis, chronic peritonitis	C.	Died 3 years later from haematemesis.
148	Case 7	F., 38	Cirrhosis, vomiting, diarrhoea	D.	Died from peritonitis due to colpotomy performed for recurrence of ascites.
149	Case 8	M., 50	Cirrhosis, ascites, oedema	D.	Peritonitis.
150	Case 9	M., 34	Cirrhosis, jaundice, ascites	D.	Died in 4 weeks. Too late.
151	Case 10	F., 41	Cirrhosis, perihepatitis, albuminuria	F.	Died in 2 months. Patient became insane.
152	Case 11	M., 52	Cirrhosis, melaena, ascites	F.	Died in 2 months.
153	Case 12	M., 48	Non-alcoholic cirrhosis	D.	Died 15 days later from haemorrhage.
154	Woolsey: Case 1 (Zesas, 1903)	M.	Cirrhosis, ascites, paracentesis 7 times	D.	Peritonitis.
155	Case 2	M.	Alcoholic cirrhosis, ascites, paracentesis several times	D.	Shock.
156	Case 3	M.	Alcoholic cirrhosis, ascites. Paracentesis several times	D.	Shock.
157	Case 4	M. ? age	—	D.	—
158	Case 5	F.	Cirrhosis. Paracentesis twice	I.	Paracentesis necessary after operation.
159	Case 6	M.	Alcoholic atrophic cirrhosis of liver	C.	[illegible]
160	Bidwell: Case 1	—	Cirrhosis, ascites, oedema, renal disease	I.	"Cured" after 7 months. Monprofit classifies this as an "amelioration."
161	Case 2	—	Cirrhosis, ascites, oedema, heart disease	D.	Syncope.
162	Case 4	—	Cirrhosis, ascites, oedema	D.	Rapid death from infection.
163	Case 5	—	Cirrhosis, ascites, umbilical hernia	D.	Died on sixth day from bronchopneumonia. Operation for hernia as well as epiplorrhaphy.
164	Ssokolow	M., 37	Atrophic cirrhosis, ascites for 3 years	C.	Observed for 4 months.
165	Faurett	—	Cirrhosis, ascites	D.	Died on fifth day.
166	Pozzi (Tieschi, 1901)	—	Atrophic cirrhosis, ascites, oedema	D.	Died on fifth day from haematemesis.
167	Karl (Alexandre, 1903)	F., 37	Atrophic cirrhosis	I.	Paracentesis necessary after operation.
168	Franke: Case 1 (Bunge)	M., 53	Alcoholic cirrhosis, great ascites	D.	Cured of ascites, but died from intestinal obstruction due to kinking of colon.
169	Case 2 (Franke, 1902)	F., 14	Cirrhosis, ascites	C.	No more ascites 3 months later.
170	Franke (Pal, 1902)	—	Cirrhosis	C.	—
171	Franke (Pal, 1902)	—	Cirrhosis	C.	—
172	Lanz	F., 54	Atrophic cirrhosis	C.	Observed 2 months. Oöriotomy.
173	Lanz: Case 2	M., 35	Hypertrophic cirrhosis	—	Cured 14 days after, and then lost sight of.
174	Lejars	M., 37	Advanced hypertrophic cirrhosis	I.	Died soon after discharge from "cardio-pulmonary accidents." Operation too late.
175	Lejars	M.	Very advanced case of atrophic cirrhosis	D.	Died 8 days later (cachexia). Operation too late.
176	Mori	M., 47	Atrophic cirrhosis	F.	Died 46 days later.
177	Terrier (Alexandre, 1903)	F., 39	Hypertrophic cirrhosis	C.	Followed for one year.
178	Glaudot	M., 45	Alcoholic cirrhosis	I.	Slight return. "Very satisfactory result."
179	Alexandre and Gosset	F., 38	Hypertrophic cirrhosis, ascites	D.	Death 9 days after operation, from cardio-pulmonary lesions.
180	Terrier: Case 2	F., 43	Hypertrophic cirrhosis, ascites	I.	No return of ascites, but not followed.
181	S. White: Case 1	F., 34	Cirrhosis, ascites	C.	Ascites recurred after 2 years, owing to alcoholic relapse; arrested by simple peritoneal drainage for 10 days.
182	Case 2	F., 38	Cirrhosis, ascites	C.	Quite healthy and free from ascites 4 years later.
183	Case 3	F., 41	Alcoholic cirrhosis, with ascites	C.	Ascites recurred after 15 months, owing to alcoholic relapse; arrested by simple peritoneal drainage.
184	Case 4	M., 50	Alcoholic cirrhosis with ascites	C.	Free from ascites 6 months later.
185	Case 5	F., 54	Alcoholic cirrhosis with ascites	D.	Died on twelfth day from uraemia.
186	Barker	F., 39	Cirrhosis, ascites	C.	—
187	Pearson	M., 50	Cirrhosis, ascites	D.	At end of second day. Classified as death from "shock."
188	Cohn	—	Cirrhosis, ascites	C.	—
189	Herczel	—	Cirrhosis	C.	—
190	Doglioni	—	Atrophic cirrhosis, ascites, oedema, vesical affection	D.	Died on 10th day from toxaemia.
191	Lastaria	—	Cirrhosis, ascites	F.	Recurrence.
192	Kehr (Welp, 1902)	—	Cirrhosis	I.	—
193	Koslowski: Case 1	—	Alcoholic atrophic cirrhosis	C.	Watched 14 months.
194	Case 2	—	Hypertrophic cirrhosis	I.	Watched 7 months.
195	Case 3	—	Atrophic cirrhosis	F.	Recurrence.
196	Zérénine (Alexandre, 1903)	F.,	Cirrhosis, cachexia	I.	—
197	Lenzmann	M., 54	Cirrhosis	C.	—
198	Soubotine (Alexandre, 1903)	—	Cirrhosis	I.	—
199	Berezkine (Alexandre, 1903)	—	Alcoholic cirrhosis	F.	Recurrence.
200	Berezkine: Case 2	—	Alcoholic cirrhosis	D.	Peritonitis.
201	Zesas	M., 44	Cirrhosis	—	Lost sight of.
202	Sheen	M., 53	Cirrhosis	C.	Four months.
203	Mouchet	F.	Alcoholic cirrhosis, ascites	F.	Died 3 months later.
204	Kokkoris	—	Alcoholic cirrhosis, with tuberculous disease of peritoneum	F.	Recurrence. Died 3 months later.
205	Willems	—	Cirrhosis. Spleen and mesenteric glands enlarged	I.	General condition improved.
206	Muller (Bunge, 1905)	—	Cirrhosis	F.	Recurrence.
207	Case 2	—	Cirrhosis	I.	Recurred slowly.
208	Sudeck	F., 53	Cirrhosis, jaundice	D.	Peritonitis.
209	Pye-Smith	F., 18	Cirrhosis	C.	Seen 7 years later. No recurrence.
210	Pye-Smith	M., 31	Cirrhosis	C.	Two months.
211	Stern: Case 1	—	Cirrhosis, with ascites	C.	Followed for 4½ months.
212	Case 2	—	Moribund case of cirrhosis with ascites	D.	Operation too late.
213	Turner (Rolleston and Turner, 1899)	M., 52	Typical cirrhosis	C.	Followed 4 months.
214	Helferich (Bunge, 1905)	F., 48	Hypertrophic cirrhosis	D.	From nephritis and heart disease.
215	Anderson	F.	Advanced case of cirrhosis	D.	Uraemia.
216	Athelstan Shaw	F., 53	Cirrhosis with ascites	C.	—
217	Tornavee	F.	Cirrhosis with ascites	D.	Peritonitis.
218	Jounesco	F., 53	Atrophic cirrhosis	I.	Recurred.
219	Gardini	F., 60	Atrophic cirrhosis	D.	Died on 29th day. Recurrence of ascites.
220	Bucco	M., 30	Alcoholic cirrhosis	D.	Died in 4 weeks.
221	Starck	M., 45	Atrophic cirrhosis	C.	—
222	Aulhorn	—	Atrophic cirrhosis	D.	Following a second operation. Splenopexy, peritonitis.
223	Hinterstoisser: Case 1	—	Cirrhosis with ascites	I.	—
224	Case 2	—	Cirrhosis with ascites	F.	—
225	Cignozzi	—	Atrophic cirrhosis	C.	—
226	Bindi	—	?	C.	—
227	Milchner	8	Alcoholic cirrhosis	D.	Recurrence and death in 14 days.

He divides the deaths into those occurring during the first fifteen days and those occurring between the fifteenth and the thirtieth day. The former he designates "operation deaths." They comprise 42 cases, of which 9 were due to shock, 7 to infection of the peritoneum, and 26 to affections of the heart, lungs and kidneys. The deaths occurring between fifteen and thirty days after operation are tabulated as "post-operative deaths," and also number 42. Thirty of these were due to the pathological condition for which the operation was undertaken, and might be properly classed as "too late cases"; 8 were caused by affections of the stomach, heart and lungs, and 4 by renal disease.

In 11 of the 140 cases that survived the operation for periods greater than one month there is no subsequent history, and in 8 it is too imperfect to be of any value. Eliminating these there remain 121 cases which Monprofit classifies as follows:

A. Not improved, 25 cases.
B. Improved, but where subsequent tapping had to be resorted to at longer intervals, or if operated on for haemorrhage the bleeding became much less, 26 cases.
C. Therapeutic cures. That is to say, the ascites was cured or the haemorrhage completely arrested, 70 cases. In some of these one or more post-operative tappings had to be performed before the collateral circulation was developed.

Bunge's statistics are to be found in his monograph on the subject published last year.

They follow generally the lines adopted by Monprofit, and, although somewhat more recent, are hardly so complete in detail.

Eliminating from his table a small number of cases in which the pathological conditions for which the operation was performed were not vascular cirrhosis of the liver, we obtain 273 cases. Of these 57 died within one month, equalling a mortality-rate of 20.8 per cent. Among the causes of death mentioned peritonitis and shock take the first and second places.

90, or 32.9 per cent., were not improved.
35, or 12.4 per cent., were improved.
91, or 33.3 per cent., were cured of the ascitic complication.

As in the case of Monprofit's table, the after-histories of most of the successful cases is far from complete.

My personal experience of epiplopexy comprises five cases, full particulars of which are appended. Four of them were engaged in the spirit trade, and there was a definite history of alcoholism extending over a period of many years in each. In the fifth, the evidence of alcoholism was less obvious, but the liver showed typical hobnail changes. This patient died on the twelfth day after operation, and a review of her case leaves no doubt that the pathological changes induced by the poison were too advanced to permit of recovery. The remaining four cases recovered from the operation and were cured of the ascitic condition.

The statistical value of Monprofit's and Bunge's tables is reduced by the inclusion of patients suffering from diseases other than vascular cirrhosis, and by the very imperfect after-history recorded of many of the cases. In order to eliminate as far as possible these defects, I have, with the kind help of my friend and colleague Dr. A. E. Barnes, house-physician to the Sheffield Royal Infirmary, gone through their reports, excluding cases that are valueless by reason of the absence of essential details, and others, such as examples of Banti's disease, and malarial, syphilitic, and biliary affections of the liver, which have little in common with vascular cirrhosis. From the cases left after these deductions, together with others not included in their reports, I have compiled the accompanying table, which deals with 227 cases of epiplopexy. For those desirous of studying more fully the cases recorded, a bibliographic appendix has been added.

SUMMARY OF THE CASES INCLUDED IN THE TABLE.

A. Deaths	75; equalling a rate of	33	per cent.	
B. Failures	34	,,	,,	15 ,,
C. Improved	29	,,	,,	13 ,,
D. Cured	84	,,	,,	37.3 ,,

In five of the cases recorded as recovering from the operation the after-history is not given. These are included in estimating the mortality rate, but excluded from the other headings.

The causes of death are given in all but 15 cases. Peritonitis heads the list with 14 deaths, uraemia is responsible for 12, shock and cachexia from the original disease 10 each, heart failure 5, haematemesis 3, and intestinal obstruction 2. Pleurisy, meningitis, apoplexy, and bronchopneumonia account for 1 death each.

The frequency with which fatal peritonitis is recorded—18.7 per cent. of all the deaths, or a little over 6 per cent. of the total cases—is somewhat startling, and gives support to the suggestion that the ascitic condition lowers the resistance of the peritoneum against bacterial infection. It may however, I think, be confidently anticipated that recent advances in the technique of aseptic surgery, more especially the general use of rubber gloves by the operator, will show a gratifying improvement as regards peritonitis in the future.

In 106 cases the character of the cirrhotic changes is given. In 24 it was of the hypertrophic type, and of these 10 were cured, 6 improved, 3 not improved, and 5 died. In 82 there was atrophic cirrhosis; of these 38 were cured, 7 improved, 10 not improved, and 27 died.

Among the failures were several cases in which there was associated with the ascites other visceral disease; very few patients included in this class were suitable subjects for the operation. In a lesser degree the same remark holds good as regards the improved cases.

In the cured class very frequently a marked improvement in health and vigour followed the disappearance of the ascites, and there is no doubt that a prolonged period of ordinary health is compatible with a moderate degree of cirrhosis of a non-progressive character. The duration of the cure at the date of publication of the cases in the table was as follows: Between 6 months and 1 year, 7 cases; between 1 and 2 years, 7 cases; between 2 and 3 years, 17 cases; over 3 years, 5 cases. In the remaining cases the duration is not mentioned, or when noted was less than 6 months.

It is hardly necessary to say that by "cure" is meant a symptomatic cure. Although a certain amount of regeneration of the hepatic cells is possible, the degenerative changes in cirrhosis of the liver are irremovable.

COMPLICATIONS OF EPIPLOPEXY.

Epiplopexy may be followed by untoward sequelae, some of which demand a brief notice.

Of these, ventral hernia is by far the commonest. Its most important causes are suppuration of the abdominal wound and imperfect suturing. The remedies for these defects are obvious.

Inflammatory affections of the pleurae and lungs have been frequently noted. They are often merely an acute exacerbation of a chronic pre-existing condition, brought about by the anaesthetic and the exposure of the lower thorax incidental to the operation. In patients liable to these affections ether anaesthesia should give place to chloroform, or, better still, local anaesthesia by eucaine and adrenalin may be resorted to.

Intestinal obstruction, acute or chronic, may supervene in consequence of a loop of intestine intruding itself between unattached portions of the omentum and the abdominal wall, or from kinking secondary to casual adhesion of a loop of bowel to the neighbouring parts. Among the fatalities enumerated in the table two such cases are recorded. The best way to avoid these complications is to secure uniform apposition of the omentum to the abdominal wall by numerous sutures.

INJURIOUS EFFECTS OF SHORT-CIRCUITING THE PORTAL BLOOD STREAM.

Much has been written respecting the evils of permitting portal blood to pass into the systemic veins without being subjected to the purifying and elaborating influence of the liver. As a physiological problem the subject has aroused much interest, and if Vidal's operation were likely to become a common one it would be the duty of the surgeon to critically examine the evidence bearing on the point, but so far as it concerns epiplopexy it may be dismissed in a few words. Morison in one of his cases observed nervous phenomena in the form of undue excitement and depression after the operation, and it has been suggested that these symptoms were due to the increased collateral circulation produced by the operation. Similar phenomena are, however, not unusual after other surgical procedures in patients with diseased viscera, and in Morison's patient they appeared too early and were of too transient a character to be explained in the way suggested.

The poisonous effects seen after the establishment of Eck's fistula are due to the withdrawal of the hepatic action on the portal blood, but epiplopexy, by reducing towards normal the blood pressure in the portal vein, can have only a good effect on the functions on the diseased liver, and, far from increasing the toxicity of the blood, should have exactly the opposite effect. That the blending of the two blood streams to a limited extent cannot be harmful is shown by the numerous normal anastomotic vessels uniting the two systems.

It is almost unnecessary to say that the agency at work in producing cirrhosis must be withdrawn if permanent benefit is to result. A relapse to intemperate habits is always probable, and very special care is required to guard the patient against this ever-present pitfall.

Histories of Five Cases of Ascites Secondary to Alcoholic Hepatitis Treated by Operation.

[Cases A and B were reported at the British Medical Association meeting of 1905. Their subsequent history is now added.]

Case A.

A female, the wife of a publican, aged 43 years, seen in consultation with Mr. Alfred Reckless, of Sheffield, in July, 1902. Was practically a teetotaler, and quite healthy until four years previously, when she gave way to drinking habits. Since then she has been a confirmed alcoholic, drinking large quantities of brandy or whisky daily. Morning sickness and anorexia have been pronounced for upwards of two years. In March, 1902, her feet and legs began to swell; and a few weeks later ascites supervened. By June 1st the abdomen was so much distended that paracentesis was deemed necessary, and 16 pints of straw-coloured fluid were removed. The fluid steadily reaccumulated, and she was again tapped at the end of June.

When I saw her (July 23rd) she was greatly distended, had orthopnoea, and complained of pain over the region of the liver. The urine was scanty and high-coloured, but otherwise normal. The tongue was fairly clean, and the bowels acted naturally. The pulse-rate was 98 per minute and regular. There had been neither jaundice nor haematemesis, nor could a history of syphilis be elicited. She was operated on on July 29th, 1902.

The liver was hard and nodular, and its surface marked with numerous interlacing bands of white fibrous tissue. The great omentum was puckered up into an irregular mass. The spleen was adherent to the parietal peritoneum but was of normal size and consistence. All the other abdominal viscera appeared to be healthy. The operative procedures already detailed were carried out.

The post-operative history is as follows: The pulse-rate steadily improved until it became normal on the fourteenth day. The temperature after the first day was normal. The glass tube was removed on the sixth day. The wound healed aseptically. The amount of urine excreted during the first twenty-four hours after operation was 4 oz.; during the second, 9½ oz.; during the third, 26 oz.; and thereafter from 30 to 40 oz. daily. For a few weeks after the operation a small amount of fluid could be detected in the abdomen, but at the end of six weeks it had entirely disappeared. The patient steadily gathered flesh and strength, and was able to resume her household work three months after operation. At the end of a year she was in robust health and weighed 11 st., whereas just before being operated on she weighed only 7 st. Her condition remained eminently satisfactory until the beginning of 1905, when she unfortunately began to drink heavily once more. In May, 1905, ascites again appeared, and by the end of July she was in a deplorable condition, having complete anorexia and constant vomiting, with mental aberration. I saw her with Mr. Reckless on August 18th. The abdomen was distended with fluid and her limbs greatly wasted. The pulse was 130 per minute and of poor quality. Very little urine was being excreted. Her tongue was ulcerated along the edges and covered with a thick brown fur. She was moved to a surgical home in a healthy suburb. Under careful nursing she improved somewhat, and at the end of a fortnight, at her earnest request that something more should be done for her, I opened her abdomen below the umbilicus. A brief search showed extensive adhesions between the anterior abdominal wall and the omentum. The liver could not be seen. A glass tube was placed in Douglas's pouch and the wound closed. The procedure occupied only a few minutes and caused no appreciable shock. The pelvis was pumped dry every four hours for twelve days, when the tube was removed. By this time the amount of fluid had decreased to less than 2 oz. in twenty-four hours. There was the same gratifying improvement in her health and steady increase in the amount of urine excreted that had been observed after her first operation. She left the surgical home at the end of five weeks wonderfully improved in every way, and with absolutely no evidence of fluid in her abdomen. A prolonged visit to the country completed her convalescence, and she was in excellent health until a few months ago, when she once more resumed her alcoholic habit.

Case B.

A female, aged 37 years, unmarried, the daughter of an innkeeper, seen in consultation with Dr. Duncan Gray Newton, of Sheffield, in June, 1902. There was a history of excessive alcoholism for several years, with gradual loss of flesh and strength. Morning sickness and want of appetite had been pronounced for upwards of one year. Ascites with oedema of the legs and feet had developed four months previously, and she had been tapped three times in six weeks. The abdomen was greatly distended, and she could not sleep except when in the sitting posture. She complained of pain and tenderness in the liver region. She was markedly anaemic. The limbs were much wasted and the skin wrinkled and inelastic. There had been no jaundice nor haematemesis, and syphilis could be excluded. The urine was scanty and somewhat irritating, but contained neither albumen nor sugar. The heart's action was feeble and irregular, the pulse-rate varying from 100 to 120 per minute. The temperature ranged between 98° and 100° F. She was operated on on July 7th. The liver was slightly enlarged, hard, and streaked with bands and patches of white fibrous tissue. The omentum was irregularly thickened and its veins enlarged and distended. The other abdominal viscera did not show any gross changes. The operative procedures already detailed were carried out, but the drain tube was kept in for four weeks, the amount of fluid removed through it daily varying from 4 to 8 oz. A week after the tube had been taken out there was evidence of fluid reaccumulating in the lower part of the abdomen, and on reopening the drain track about a quart of thin inodorous pus escaped. A rubber drain tube was inserted and retained for three weeks. During this time she was in a critical state, having evening pyrexia, and mild night delirium. At the end of two months from the date of her operation, she began to improve in her general condition, and later was able to go into the country, where she steadily gained flesh and strength. Ascitic fluid, confined to the lower left portion of the abdomen, could be detected for several months after the operation, but eventually this disappeared.

A year after operation I reported on her condition as follows: "It would be difficult to recognize in her the prematurely aged, emaciated, and waterlogged patient of a year ago. She has grown quite plump, has regained her natural colour and her good looks, and is stronger than she has been for many years."

In July of the present year Dr. Newton reported that she was in excellent health, and that there had been no return of the ascites.

Case C.

A female, aged 41 years, the wife of a tavern-keeper, seen with Dr. Broadley of Sheffield in October, 1904. She had been a heavy spirit drinker for many years, but had had no serious illness until two years previously, when she began to have morning sickness and distaste for her breakfast. Ascites followed in a few months, and for this she was twice tapped. Six months previously she began to experience difficulty in getting her bowels to act, and this difficulty had become more pronounced of late. She had lost much flesh, and was becoming rapidly weaker. She looked very pale and ill, and had a feeble rapid pulse. The abdomen was moderately distended, and there was oedema of the legs. To the right of the umbilicus an indistinct lump could be felt at times, and the application of the cold hand to the patient's abdomen excited strong peristalsis, with visible coils of distended intestine. The heart and lungs were free from obvious disease, and the urine, although scanty and high-coloured, contained neither albumen nor sugar. There was a negative history as to jaundice, haematemesis, and syphilis. The diagnosis was alcoholic cirrhosis of the liver, with chronic intestinal obstruction.

She was operated on on November 2nd, 1904. The liver was contracted to about one-half of its normal size, and its sharp anterior edge had disappeared. It was covered with a dense white membrane which could not be detached, and which was everywhere quite smooth. The peritoneum was unduly thick and of an opaque white colour. The thickening was especially marked over the caecum, where a hard mass could be felt in the bowel wall. The lower end of the ileum was twice its normal diameter, and its muscular coats were markedly hypertrophied. The omentum was irregularly thickened and free from adventitious adhesions. As the patient's condition was too serious to permit of excision of the caecum, and as besides it was hoped that the obstructing growth was non-malignant, short-circuiting was performed, the thickened ileum being grafted on to the ascending colon by lateral anastomosis. The usual procedure was carried out on the omentum and liver. With the aid of strychnine she bore the operation much better than was expected. Her subsequent progress was highly satisfactory. There was no further trouble with her bowels, and she rapidly gained flesh and strength. She remained in good health and free from ascites for fifteen months, and then gave way once more to drinking habits. Ascites reappeared in March, 1906, and her health rapidly deteriorated.

Recollecting the satisfactory results obtained in Case A from simple drainage I reopened her abdomen, and after a brief examination inserted a glass drain tube which was retained for ten days. The omentum showed numerous vascular adhesions to the anterior abdominal wall. There were also two adhesions between the small intestine near its mesenteric

border and the anterior parietes, each of which contained a very conspicuous leash of blood vessels. The caecal growth had increased in size, and the adjacent mesenteric glands were enlarged.

She made an uninterrupted convalescence, and there has been no recurrence of the ascites up till the present (July), but as there can be hardly any doubt that the growth is a malignant one, her respite will probably be of short duration.

CASE D.

A male, aged 50 years, who had been a publican for more than thirty years, was admitted into the Sheffield Royal Infirmary under my medical colleague, Dr. Dyson, on June 2nd, 1905. He gave a history of chronic alcoholism for many years. One year and nine months previously he began to feel out of sorts and had morning sickness and anorexia. Four months before admission his abdomen commenced to enlarge, and soon afterwards his legs became puffy. Paracentesis was resorted to on June 4th, and 30 pints of ascitic fluid were removed. The fluid rapidly reaccumulated, and he was tapped again on June 13th and 17th.

He was transferred to me on June 27th for operation. Apart from abdominal distension and oedema of the legs, he was in a fairly satisfactory condition. There had been no haematemesis nor jaundice, but his urine contained a little albumen. His facial appearance was that of a cirrhotic case. His abdomen was opened on June 29th. The liver was slightly enlarged, hard, and hobnailed. The spleen was also enlarged and hard, the omentum was thickened and rolled up into an irregular mass, which lay entirely above the transverse colon. There were no adhesions between it and the abdominal wall.

For the week following the operation a very large amount of fluid escaped through the tube; thereafter it rapidly diminished, and by the tenth day it had practically ceased. Simultaneously with the diminution of the ascitic fluid there was a notable increase in the amount of urine excreted. The wound healed asceptically, and the patient improved rapidly in strength. A noteworthy feature of his convalescence was the healthy appetite he developed. He was sent into the country, where he continued to improve. He was quite free from ascites, but not sufficiently strong to resume his work six months after operation. He then left Sheffield, and I have not been able to secure a trustworthy account of his present condition.

CASE E.

A female, aged 54 years. Seen in consultation with Dr. H. L. Hudson of Sheffield, and taken into the Sheffield Royal Infirmary on January 8th, 1903.

There was a history of morning sickness and flatulent dyspepsia for upwards of two years. She had had many attacks of epistaxis, and nine months previously suffered from severe haematemesis. Her abdomen began to enlarge eight months previously, and the legs and feet became oedematous soon afterwards. She had been losing flesh and strength for more than a year. There was a history of gin drinking for several years, but the amount taken daily had been comparatively small. The skin was pale and unhealthy-looking, and the conjunctivae were slightly icteric in hue. The abdominal girth at the level of the umbilicus was 45 in., and the superficial abdominal veins were much in evidence. The urine was scanty, of low specific gravity, and contained a trace of albumen, but no sugar.

The heart was enlarged and slightly irregular in its action. She was tapped on January 16th. The abdomen rapidly refilled, and epiplopexy was performed on January 30th. The liver was contracted, hard, and nodular. There were no intraperitoneal adhesions.

The patient progressed favourably for six days, then became drowsy and apethetic, and died on the twelfth day after operation. There was no evidence of post-operative peritonitis. The kidneys acted well until the sixth day; thereafter very little urine was excreted. There can be no doubt that in her case the pathological changes were too advanced to permit of recovery.

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THE CURE OF ASCITES BY OPERATION.

In this discussion I feel that my part can only be that of an emissary from Mr. Rutherford Morison, who shares with Dr. David Drummond the credit of first bringing the operative treatment of ascites before English-speaking surgeons. No one regrets his inability to be present to-day more than I do.

As a contribution to the subject, I would like to bring briefly before your notice all the cases that have been operated upon in Newcastle-upon-Tyne since September, 1894, when the first case was treated by the operation now generally known as "omentopexy." The small number of cases I have been able to collect shows that we in Newcastle do not see many that we consider suitable for operation.

Including those that have already been published there have only been sixteen operations, and out of this number five died within a few days—three from pneumonia, one from uraemia, and one from cholaemia: in no case was there any septic complication. None of these fatal cases were properly selected. One was complicated by nephritis, one was a case of syphilitic cirrhosis, and in three the fixation was merely carried out as the last stage of an exploratory operation, that is, without any preliminary tapping.

Of the eleven that survived the operation five have subsequently died.

1. Mrs. S., aged 42. Died nineteen months after operation from haematemesis (no necropsy). The fluid reaccumulated, and patient was tapped sixty-nine times after operation.[1]

2. Woman, aged 39. (Previously reported.)[2] Died two years after the operation for ascites from cholaemia following the radical cure of a ventral hernia.

3. Man, 42. (Previously reported.)[3] Died six years and three months after operation from recurring ascites and uraemia. The after-history of this case has never been reported, and to make the record complete it is appended. The patient kept in very good health until the spring of 1902 (the operation was performed in January, 1897), when he had an attack of pneumonia, after which he began to suffer from

albuminuria, with attacks of diarrhoea, followed by oedema of the legs and shortness of breath. These symptoms increased, and in February, 1903, the ascites began to recur, necessitating several tappings before he died in April of that year in a uraemic attack. At the necropsy the omentum was found very firmly adherent to the anterior abdominal wall for an inch on either side of the scar. The spleen extended below the umbilicus. The liver was small, and showed a moderate degree of multilobular cirrhosis. Both kidneys showed signs of advanced interstitial nephritis.

4. J. H., 34. Died four months after operation from cholaemia, into which he gradually lapsed, never having been well after the operation. *Post mortem* the cirrhosis was found to be syphilitic.

5. E. K., 52. Died four months after operation, apparently from cardiac failure. She was tapped five times, and the partial necropsy which was allowed showed deposits of new growth in the omentum.

There are thus 6 patients left to be accounted for: 1 cannot be found, but the after-history of the remaining 5 is known.

6. T. P., 52. Is alive and well seven years and five months after operation.[1]

7. C. P., 26. Alive, but with return of symptoms three and a half years after operation. In this case the illness started when patient was about 14 years of age; there was no history of alcohol, and the cause of the ascites was not determined. She is now ill and emaciated, the legs are oedematous, and the abdomen is full of fluid, but she has never been tapped since the operation.

8. T. W., 23. Alive and perfectly well two years and seven months after operation. Cause of ascites never certainly determined.

9. M. J., 60. Alive and well twelve months after operation.

10. W. G., 49. Alive and well seven months after operation.

Sixteen cases, with only 5 patients alive twelve years from the date of the first operation, does not appear to be a very good record; but if we remember that this operation was originally introduced for the cure of ascites due to alcoholic cirrhosis of the liver, and look into the record with this in mind, it at once becomes very instructive.

Of the 16 patients, only 6 fulfilled the conditions insisted on by Drummond and Morison—namely, that cases selected for this method of treatment should not be complicated by cardiac, pulmonary, or renal disease, and should have survived one or two tappings. Among these 6 properly selected cases (Nos. 2, 3, 6, 9, and 10, and one that cannot be traced), 3 patients are alive and well, seven years and five months, twelve months, and seven months after operation, and 2 lived in good health for five years (No. 3) and two years (No. 2) respectively, in both cases death being due to accident or intercurrent affection. The best results, therefore, both immediate and remote, have been obtained in the properly selected cases. This is an important point, for among many physicians the operation is supposed to have a very high mortality, and at the best to give only transient relief. Rolleston,[2] in his recent book, says: "Statistics show that no good at all is done in more than half the cases, and that cure occurs only in a small minority;" and in support of this statement he quotes Greenhough's figures,[3] who reports 122 cases in which the operation was performed; 17 of these were not cirrhosis, and of the remainder 31 died within thirty days—a mortality of just about 1 in 3. On analysis we find that 9 of the fatal cases were complicated by renal disease or grave jaundice or toxaemia, and so were really not suitable for the operation and ought to be rejected, thus bringing the mortality down to 1 in 4; several of the remaining deaths were due to septic peritonitis or erysipelas, complications which, I think, may fairly be set down to faulty methods, and further, many of the deaths followed the intramural operation, a procedure more severe than the operation as originally devised.

The whole question of the immediate and remote results turns on the careful selection of cases. At present and until the operation has attained its proper place in surgery, for the purpose of statistical investigation the cases ought to be divided into two groups: first, alcoholic cases that fulfil the indications laid down by the introducers of the operation: second, the cases in which the ascites is due to other causes.

The indications in Group I are first, that the ascites be due to portal obstruction and not to the toxaemic state that is so often present, for in this condition the prognosis after operation is well-nigh hopeless. Rapid wasting, slight jaundice, and early oedema of the legs are all bad signs. Secondly, that the patient has survived several tappings; this in itself may cure the condition, and it may help to develop adhesions. It may also give an indication whether or no the patient will tolerate an operation, for some patients are made very ill and some die after this simple expedient. Thirdly, there ought to be no pulmonary, cardiac, or renal complication. With regard to the stage at which operation ought to be performed, the Newcastle school have limited the indications to cases with ascites on the ground that the operation, though it might cure the ascites, had no influence on the cirrhosis itself. Until it is proved that the formation of extra blood channels has a favourable influence on the diseased liver, causing the fibrous tissue to be removed and the liver cells to assume a healthy state, operation in the pre-ascitic state seems to be condemned, for there is no means of knowing which patients will develop ascites, and the direct passage of portal blood into the general circulation without the intervention of the liver is attended with disadvantages and dangers.

After operation, it is essential that the patient should give up alcoholic habits, a point which does not seem to be insisted upon by some who practise the operation. Among the non-alcoholic cases, those due to syphilis have done badly so far as my experience goes. Any case suspected to be of this nature should be thoroughly treated before operation is contemplated by mercury and potassium iodide.

Among other cases of ascites there are some remarkable examples of cure, especially a class of case occurring among young subjects, but until their pathology is better understood it will be difficult to formulate rules for their treatment. The technique of the operation should be as originally suggested. Mr. Morison lays stress on continuous drainage by means of a Keith's tube combined with the firm strapping of the abdomen, with the object of keeping the parietes in contact with the viscera until adhesions have formed. A reliable nurse, thoroughly trained in antiseptic methods, is especially told off to look after the tube, and in Newcastle we have had no case of septic complication. Fluid usually continues to be drawn in diminishing quantities for ten days, when the tube is removed. The glass drain may be replaced by a rubber tube during the last few days. In cases where the services of a strict antiseptician cannot be obtained to look after the tube it may have to be dispensed with, a practice followed by many operators.

Some attempt to make firm adhesions by curetting the liver surface or implanting the omentum between the layers of the abdominal wall. In these operations there is grave danger of haemorrhage and of shock, and the mortality has been higher than in the cases where the simpler methods have been employed. They appear to be unnecessary and possibly harmful. The best results are obtained when there is a call for an additional collateral circulation as shown by recurring ascites, and when such an addition is made by the formation of vascular adhesions capable of enlargement, and dealing with an increased quantity of blood as Nature may demand. That their full development is not attained at once is shown by the frequent recurrence of the ascites just after the operation, nearly all the patients requiring one or two tappings in the two or three months immediately following the operation. The disturbances of metabolism following the diverting of the portal blood have been very obvious in nearly all the cases, an indication that the least possible disturbance that will suffice is the best.

I would submit that the most useful questions for discussion are:

1. The mortality and remote results to be expected in cases fulfilling the indications set out by Drummond and Morison.

2. The same particulars for the cases not included in the above group.

3. The influence of the operation on the cirrhosis itself.

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SURGICAL TREATMENT OF CIRRHOTIC ASCITES.

[ABSTRACT.]

THE exact pathology of the obstruction in the portal circulation is not yet quite clear. Thrombosis may play a part. Here we should expect a more favourable prognosis. It is possible that in some cases of spontaneous cure thrombosis may have been the principal factor in the obstruction. Pathologists are not agreed as to the exact cause or causes of the hyperplasia with subsequent contraction of the fibrous tissue of the liver known as cirrhosis, and which constricts the branches of the portal vein. Obstruction in the delta of the portal circulation causes a rise of pressure in its tributaries, a pressure so great as to lead to definite lesions of the finer vessels, the results of which are seen on the mucous surfaces in haematemesis and melaena, and on the peritoneal surface in the exudation of fluid. This is partly a passive process, and hydraemia due to malnutrition may aid the process; but there is also an active process on the part of the cells of the peritoneum—in other words, a protective inflammation, aseptic and plastic, and in this plastic material and inflammatory process we have the material and the mechanism for adhesions and a collateral circulation. It would thus appear that removal of the ascitic fluid by drainage, allowing inflamed surfaces to come together, is the chief factor in the surgical cure of ascites due to cirrhosis.

DISCUSSION.

DR. W. J. MAYO (Rochester, Minnesota) said: This paper of Mr. White requires careful study. I would agree most heartily with his view as to the necessity for the careful selection of patients for operation. The results are most favourable in those not too old, who are otherwise in good health and free from vascular changes, from complicating arterio-sclerosis, endocarditis, or nephritis. There is an obscure group of cases occurring in young people, especially women, without alcoholic history, which has been greatly benefited by operation. It appears to me that we have gone about as far as we can with this subject from a clinical standpoint. We must know more of the function of the liver before we can solve the problem. Adami shows that one of the functions of the liver is to strain out and destroy or eliminate with the bile bacteria picked up in the portal circulation. What relation has this to hepatitis? Why is it that the spleen is so often enlarged in cirrhosis of the liver, and that primary splenic hypertrophy later involves the liver, as in Banti's disease. We must appeal to the experimental physiologist to secure for us information as to the function of the liver and spleen. They must develop for us pathological conditions of a similar nature, and enable us to clear up this dark territory of borderline surgery.

Dr. A. J. OCHSNER (Chicago) said: Apparently there exists in these cases a disturbance of a physiological balance which can be re-established by the operation which has been described. To the present time the established data seem insufficient to serve as a basis for the classification of these cases into those that may and those that may not be expected to have this balance restored. It will require a large amount of clinical and physiological observation to determine these data. This excellent paper, and the discussion by Dr. Stewart, Mr. Turner, and Dr. Mayo, will have great value in this direction.

Mr. C. J. BOND (Leicester) said: The technical difficulty of accurate and efficient application of the liver to the abdominal wall can be overcome in some cases by laying in a flap of abdominal muscle and peritoneum on the convex surface of the liver, and the suture of this on its muscular surface to the liver substance.

Mr. H. W. CARSON (London) said: I have operated on 2 cases of ascites where an alcoholic history was absent. There is need for research work as to the causation of ascites, and at present it is difficult to say what cases are suitable for operation.

Sir WILLIAM HINGSTON (Montreal) said: Judging from the remarks of two or three speakers, I think too much attention has been directed to the accidental presence of ascitic fluid in the peritoneal cavity, and not enough to the cirrhotic or other underlying condition of the liver. Does the operation or does it not induce those changes in the condition of the liver which have led, among other results, to discontinuance of the fluid? is a question yet *sub judice*, and until it is settled I prefer to remain silent as to the efficiency of the proposed operation.

Mr. J. LYNN THOMAS (Cardiff) said: I desire to record a case of ascites where, after tapping had been resorted to for several years, omentopexy with drainage was performed. The ascites reaccumulated, and the abdomen was again opened and the liver stitched to the parietes, but without benefit. Later, the liver was once more exposed and freshened in several places by the thermo-cautery. It was then stitched to the abdominal wall and the wound drained. The patient recovered, and a year later was free from ascites.

Dr. F. J. SHEPHERD (Montreal) said: The source of the alcoholic poison in some cases of ascites is obscure. Is recall the case of a lady operated on for ascites, who was president of a temperance society, and of course a teetotaler. Inquiry showed that she had been in the habit of taking regularly large quantities of a patent medicine as a pick-me-up. This no doubt contained a large amount of alcohol, and was the cause of her cirrhosis.

The PRESIDENT said: I wish to refer to the excellent results which may sometimes be obtained by continuous drainage, as distinguished from repeated tapping in cases of ascites due to alcoholic cirrhosis of the liver. Many years ago I tapped such a case with a large cannula and trocar. The puncture made did not heal, so that for several weeks fluid continued to drain away in spite of all efforts to obtain closure. The patient was kept in bed, and his bedclothes were constantly saturated, and had frequently to be changed. After closure of the puncture, the ascites did not re-collect; he remained quite well for more than two years, when he died suddenly one day when at work as a result of cardiac failure from some unascertained cause. He abstained entirely from alcohol after the tapping referred to. In March, 1899, I was called upon to treat a very similar case in which ascites had been present for about a year, during which the man had been tapped twelve times. A rubber tube, which had been kept immersed for some time in phenol solution, was now introduced into the peritoneal cavity through a large cannula, and the cannula slipped off over it. Antiseptic cleansing of the abdominal wall had been previously practised, and antiseptic dressings were applied. Drainage was continued for six weeks, at first intermittingly by the occasional removal of a clip placed on the tube. Ultimately, when the abdomen had returned to its normal size, the fluid was allowed to flow constantly into the antiseptic dressings. At the end of six weeks the tube was removed and the puncture closed. The patient made a good recovery, and shortly returned to business. I had a letter lately from his doctor, who reports: "He died on October 21st, 1901, more than two and a half years after you operated on him. There was no return of the ascites. Had he abstained from alcohol in all probability he would have lived longer, but he would indulge, and did so to the end. He died, I think, from cirrhosis of the kidneys. The urine was loaded with albumen, and occasionally it contained blood; there was also some oedema of the ankles. He was comatose for about three days before death (I think probably this condition was due to uraemia), but there was never any trace of returning ascites." These results have encouraged me to believe that in suitable cases continued draining may prove as beneficial as even the more extensive operations which have been described.

Dr. JOHN B. ROBERTS (Philadelphia) said: The operative risk from shock and the disadvantage of hernia mentioned by Mr. White can be averted, when necessary, by local anaesthesia and a 2-in. incision through the belly of the rectus muscle, with submural suture of the omentum to the belly wall by means of a curved needle and catgut introduced from the skin surface. It is only necessary to rub the peritoneal wall with the finger covered with gauze, roll up the omentum into a parallel series of cords, and avoid blood vessels in it. The end of the omentum should be caught in the wound between the fibres of the rectus.

Dr. GARROW (Montreal) said: Several speakers have referred to obscure cases of ascites, especially in young women. I wish to refer to such a case, a pathological report on which has been published by Dr. Adami of Montreal. This patient, a young girl, developed a rapidly-increasing ascites of doubtful origin. An exploratory

laparotomy revealed apparently normal abdominal viscera to overcome the ascites, omentopexy was performed, and the patient recovered from the operation, but required frequent tappings until her death eight or ten weeks later. It was only after careful examination that the cause of the ascites was found to be due to an almost complete obliteration of the hepatic veins.

A DISCUSSION ON THE SURGICAL TREATMENT OF DUODENAL ULCER.

OPENING PAPERS.

I.—William J. Mayo, A.M., M.D., F.R.C.S.Edin.,
Surgeon to St. Mary's Hospital, Rochester, Minnesota, U.S.A.

ULCER OF THE DUODENUM FROM A SURGICAL STANDPOINT.

Modern medicine owes much to the scientific study of the human dead, but terminal infections and secondary conditions make the application of this knowledge to the living most difficult and fraught with unsuspected sources of error. The immediate cause of death too often obscures the initial departure from the normal and leaves the disease during its curable period a problem in which the few facts are lost in a maze of theories. Ulcer of the duodenum is a good illustration of that "living pathology" which surgery is bringing to the front, replacing speculation with actual observations, just as has happened in disease of the appendix, gall bladder, pancreas, and stomach. Duodenal ulcer has been masquerading under the title of gastric ulcer, especially in its chronic forms, or has been undiagnosed, although sudden death from perforation and haemorrhage may have given first-hand information of some phases of the disease. We are well within the bounds of truth in saying that at least 40 per cent. of all gastric and duodenal ulcers are situated primarily in the duodenum, and that 90 per cent. of such ulcers are called gastric. For instance, Andral says that the proportion of duodenal to gastric ulcer is as 1 to 40: Trier, as 1 to 9. Yet our operative experience shows that 2 out of 5 are so situated.

In a paper read before the American Surgical Association in June, 1904, and published in the *Annals of Surgery*, December, 1904, 58 operations for duodenal ulcer were reviewed, amounting to 27 per cent. of the total number of gastric and duodenal ulcers operated upon at that time. Up to 1902 the proportion was only 11 to the 100 cases. The explanation of this gradual increasing frequency lies in better observation and more careful surgical examination. In the earlier time we were burdened with the prevailing view as to its infrequency, and classified all the ulcers about the pylorus as pyloric, and therefore gastric, or missed the location of the ulceration completely. As 95 per cent. of all duodenal ulcers extended up to the pylorus or within ½ in. of it, and adhesions more or less obscured the field, the facts were but slowly brought forward.

The statistics of Dr. Charles H. Mayo and myself now comprise 635 operated cases of ulcer of the stomach and duodenum, of which 188 were described as duodenal. Analysing the last 200, we find 86 were duodenal; of these, 27 involved the pyloric ring and 9 had a separate and independent ulcer of each viscus. The duodenum is but seldom involved in a primary pyloric ulcer—11 times in the 200 cases just referred to.

An incision through the right rectus muscle ½ in. from the median line (Moynihan) gives ready access to the working field, whether duodenal or gastric, and enables any necessary operative procedure to be carried out. In searching for the pylorus in the adherent cases the arrangement of the blood vessels is the best guide. Close to the gastric side of the pyloric ring will be found a vein extending from the inferior surface upwards anteriorly fully half-way across the pyloric end of the stomach; from the superior border another vein, less prominent but regularly placed, extends downward in the same line. While they do not usually meet, the appearance is sufficiently striking to define the parts.

In all but 4 cases the ulcer in the duodenum was single, and in only 2 was it confined to the second portion.

Ulcer limited to the pyloric region is rather infrequent, as the terminal ½ in. of the pyloric end of the stomach does not take an active part in the grinding process, being rather a portion of the outlet. The very large majority of gastric ulcers are prepyloric, the induration involving the lesser curvature of the pyloric antrum and extending flap-like down upon the anterior and posterior surfaces (saddle ulcer), although the actual ulceration is more common on the posterior wall.

In our 188 cases, 73 per cent. were males and 27 per cent. females; while in gastric ulcer the percentage of males and females was nearly the same, males being slightly in excess. There may be some significance in the fact that gall-stone disease is three times as common in women as in men—just the opposite of duodenal ulcer.

The causes of duodenal ulcer are the same as gastric and due in some way to the changed secretions of the stomach, especially the excessive acidity which under certain unknown conditions erodes the mucous membrane. This is shown by their practical limitation to the duodenum above the common duct with its alkaline fluids and by the occasional development of a typical peptic ulcer in the jejunum close to a gastro-jejunostomy made for the relief of a duodenal or gastric ulcer. In normal conditions self digestion is prevented by antiferments developed in the tissues (Block) and by the mucus secreted by the superficial epithelium (Matthes). That mechanical injury plays some part would seem probable from the frequency of ulcer in the grinding antrum and in the upper duodenum which receives the food impact after passing the pylorus. Anaemia also appears to be one of the primary factors. The vascular hypothesis of Virchow (embolus and thrombosis) has not proved tenable, nor has the nerve theory proved a more acceptable one, and at the present time the fundamental cause of ulcer is an unsolved problem. In this connexion it is interesting to note that Turck has induced typical duodenal and gastric ulcers by feeding animals on cultures of colon bacilli, and that the ulcerations when so produced do not contain bacteria. The effect is evidently brought about through some constitutional change.

The pre-operative diagnosis of duodenal ulcer can usually be made.

In only 7 cases did we fail to find, on operation, all the intestinal coats involved (indurated), two of these were bleeding mucous ulcers. Involvement of the peritoneum means localization of pain and muscular rigidity to the epigastrium and slightly to the right. In the majority of cases there was an extensive induration and many adhesions to the surrounding viscera, indicating a past chronic perforation. This latter condition is frequent, the peritonitis remaining local. The contents of the duodenum are relatively sterile and in the upper duodenum, the usual ulcer site, and not large in amount, all circumstances favouring localization. These recurring attacks of regional peritonitis much resemble prolonged gall-stone colics. On the other hand, a stone impacted in the cystic duct with a contracted gall bladder will closely simulate chronic duodenal ulcer. If the calculus be the cause of the gastric symptoms the vomited matter will usually contain bile in large amount. The differentiation between duodenal and gastric ulcer can usually be made, but may in some cases be impossible, especially in the group in which the stomach is involved by a separate ulcer or by an extension of duodenal disease. The location of pain and rigidity in gastric ulcer to left of the middle line corresponding to the usual prepyloric situation is the rule.

In both duodenal and gastric ulcer blood is a common symptom, either vomited or in the stool, obvious (Overmeyer, Fenwick, Perry, and Shaw) or occult (Hewes and Billings). In a general way a little rather constant bleeding is more liable to obtain in cancer from the papillomatous masses, just as occurs in malignant disease of the uterus and rectum. The base of the ulcer, on the contrary, is usually clean (nearly free of granulation tissue) and filled with cicatricial tissue, so that vessel bleeding rather than capillary haemorrhage is most often found in the latter disease. Too much reliance should not be placed on the tests for blood.

Temporary food ease in both the duodenal and gastric varieties is quite common in the hyperacid stage before obstruction develops. Whether cause or effect, hyperchlorhydria is a frequent manifestation, and this with the evidence of blood form the only laboratory tests of accepted value.

Disturbances of motility, especially stagnation or retention from obstruction, are of positive diagnostic importance.

In a general perspective of the patient's history one finds a peculiar periodicity. Beginning in early adult life the subject, usually a male, has a marked spell of "stomach trouble" lasting a few days or weeks, followed by an "almost well" period of weeks or months. Irregular recurrence of the marked symptoms occur, the length of which increase while there is a corresponding decrease of the health intervals. The patient finds most relief in the later stages from a reduced diet, and the condition lasts from a single attack to sixty or more years. No doubt many patients get well, but the condition is essentially chronic and "almost well" periods give rise to erroneous belief as to cure.

Complicating haemorrhages are easily diagnosed, and the location of the bleeding point in the duodenum or stomach may be suspected from the clinical history. Acute perforation into the free peritoneal cavity gives the sudden striking symptom of perforation, whether it be of the stomach, gall bladder, pancreas (fat necrosis and acute pancreatitis), or appendix. The fluid often gravitates to the appendical region, so that at the end of a few hours the possibility of appendicitis may not be eliminated until the outrush of gas and thin fluid on opening the abdomen tell the story. Of seventeen cases of acute gastric and duodenal perforation in our experience, ten were duodenal.

Obstruction resulting in gastric stagnation and retention of food is easy of demonstration. Dilatation without obstruction is usually atonic and part of a general neurasthenia. A stomach splashy on external palpation, but with soft abdominal walls, plainly felt beating of the abdominal aorta, and without evidences of food delay, is usually not surgical.

From embryology and experimental physiology we gain much information. The duodenum so studied is not a part of the small intestine. The foregut forms the tongue, back wall of the pharynx, the oesophagus, stomach and duodenum to the third portion, the liver and pancreas being offshoots of the upper duodenum. All of this part of the gastro-intestinal canal has to do with the preparation of the food for absorption. The horse-shoe shape of the duodenum, with its large calibre and its outlet nearly as high as the pyloric inlet, causes mechanical retention of the food products until they are thoroughly mixed with the biliary and pancreatic secretions. The chemical condition of the contents of the duodenum largely control the pyloric sphincter, although the pylorus has some selective action as to the length of time certain varieties of ingested material remain in the stomach.

Little or no absorption, even of fluids, takes place in the intestinal tract above the transverse portion of the duodenum. The modern preparation and cooking of foodstuffs allow of prompt absorption with comparatively little aid from the stomach and duodenum, although the lack of normal grinding may be one cause of early decay of the teeth. These elementary facts explain why gastro-jejunostomy is so certain an agent for relief. The second portion of the primitive intestinal tract (midgut) has to do with absorption; the jejunum, ileum, caecum, and probably the ascending colon to the hepatic flexure have this origin; the solids are largely absorbed in the small intestine, while the fluids pass into the caecum and are there taken up (Cannon, Blake, Murphy). In other words, man eats with the small intestine and drinks with the caecum.

This makes plain why cholecystenterostomy into the hepatic flexure of the colon has given unexpectedly good results as compared with the thirst from fluid loss occasioned by an external bile fistula when inoperable obstruction of the common bile duct could not be relieved by a cholecystduodenostomy.

It is for this reason also that fluids introduced slowly into the rectum and passed upward by antiperistalsis into the caecum will supply needed liquids rapidly without transfusion or hyperdermoclysis, a potent method of temporarily relieving the concentration of the blood in some cases of pyloric obstruction, which Kussmaul, in 1869, pointed out as one of the factors in gastric tetany. In this connexion Cremer calls attention to the fact that when the twenty-four hours' urinary output drops below 500 c.cm. the condition of the patient is immediately threatening.

The large bowel beyond the caecum is from the hind-gut and acts as a faecal reservoir.

The chief indications for surgical treatment lie in the pain, chronic underfeeding, and disability produced by the passage of the gastric contents over the ulcer base, or to interference with gastric drainage due to complicating obstructions. To prevent this two courses are open: excision of the lesion or diversion of the irritating material—the latter having by far the largest range of usefulness. In the beginning many operations will be exploratory. The stomach must be examined carefully, as 1 case in 6 or 7 will have coincident lesions. The gall bladder, bile tract, and pancreas must also be inspected. Gall stones, if found, should be removed, and if the ulcer is not clearly demonstrated the possibility of calculi being the cause of the symptoms must be considered.

Duodenal and gastric ulcers are so closely identified that it is practically impossible to speak of them separately. There are two classes of ulcers—first, the indurated, in which the thick, scar-like patch with its milky colour, adhesions and peritoneal exudate can be seen and felt; second, the non-indurated mucous ulcer, which cannot always be found, especially in the stomach, even if the interior be opened for inspection. On account of its thin walls, the location of the lesion is usually manifest in the duodenum.

In our series, in 7 cases only the ulcer could not be demonstrated without opening the intestinal cavity, although in the thick-walled stomach 13 in the 100 could not be shown from the exterior of the gastric wall.

The difficulty lies in the differentiation between mucous ulcer without palpable lesion and pyloric spasm not confined to the pyloric muscle but involving the whole antrum of the stomach. Doyan, von Eiselberg and others believe some form of ulcer to be the cause. We have frequently found it as a reflex phenomenon apparently initiated by disease of the appendix or intestinal wall, probably through the sympathetic nervous system. The condition is most common in the neurasthenic state, and is often accompanied by atonic gastric dilatation and gastroptosis or general enteroptosis.

The rudimentary nervous system is probably the sympathetic, which may be of mesoblastic origin, and over which the cerebro-spinal control is very incomplete. The whole question of splanchnoptosis seems to be bound up with some functional disorder of this primitive and little understood series of ganglia which have to do with the body maintenance. Pyloric spasm, atonic dilatation and gastroptosis are closely allied, and, generally speaking, not of themselves surgical. Is it possible that the sympathetic system is undergoing evolutionary changes, and therefore, like other remnants, such as the appendix and gall bladder, is more liable to diseased states of the neurasthenic type?

The importance of this phase of the situation cannot be overestimated, as failure to carefully eliminate the neurotic group leads to unnecessary and harmful operations.

Gastro-jejunostomy is the operation of choice for chronic duodenal ulcer; it diverts the irritating material, and permits of permanent healing.

In performing gastro-jejunostomy we practise, whenever possible, the posterior "no loop" method, after the plan popularized by Robson, Moynihan, and Littlewood of England, and Ochsner, Murphy, and Munro of the United States. We attach the upper jejunum in the line in which it normally lies, the distal end passing to the left.[1] This particular method we have found safe, 1 death in 167 cases for all causes.

In a few cases we have directly excised duodenal ulcers with plastic closure or end-to-end union.

In an experience of 1,112 duodenal and gastric operations, only twice have we seen primary cancer of the duodenum, once developing on an ulcer base. Such rare instances have also been reported by Letulle, Eichhorn, and Ewald. Three times we have found cancer developing on the gastric side of a duodenal ulcer which had reached up to the gastric mucus at the pyloric ring. Direct excision, therefore, is not so urgently indicated as in pre-pyloric ulcer, a condition which we found to be present as

[1] *Annals of Surgery*, April, 1906.

the probable primary condition in slightly over 50 per cent. of 100 gastric resections for cancer.[1]

For recurring acute haemorrhages we have twice excised ulcers and once opened the duodenum and sutured the bleeding point in the mucosa. Gastro-jejunostomy is more efficacious in bleeding duodenal ulcers than in similar conditions of the stomach. In the latter we have found it unreliable, and now practise excision or internal suture protected externally.

For acute duodenal perforation we suture transversely and institute pelvic drainage, the patient being maintained in a nearly sitting posture for several days. In 3 out of 10 cases of acute perforation we made a gastro-jejunostomy at the same time. Generally speaking, it is safer to do this at a second operation if necessary.

The post-operative treatment of the patient is of the greatest importance. The individual should be raised to the "nearly sitting" posture. The unshed blood in the vessels has little bactericidal power. When, in the after-care of abdominal patients, we practised the Clark method of raising the foot of the bed, so that all drainage would pass at once to the diaphragmatic region to aid rapid absorption, we had several instances of embolic pneumonia. We now throw this material by gravity to the pelvis, where absorption is slow.

The pelvis through frequent infections (hereditary) has become used to sterilizing septic products, encapsulation enabling phagocytosis (Metchnikoff) and the development of opsonins (Wright). From this situation the greater part of the material when absorbed passes into the lymphatics or through the liver by way of the portal radicals before entering the general circulation. One of the main functions of the liver is to strain out bacteria, and either destroy or eliminate them with the bile (Adami). Since putting these patients in the "nearly sitting" posture we have had almost no complications. In our earlier experience we often placed a glass tube in the pelvis through a stab wound above the pubes, but in a large majority of the cases no drainage followed. We now drain only in cases in which sepsis is already present.

Of the total of 188 duodenal cases, 175 were operated upon for chronic ulcer, with 2 deaths; 10 for acute perforation, with 4 deaths; and 3 for repeated acute haemorrhages, with 1 death. Between January 9th, 1904, and June 5th, 1906, 134 cases were operated upon. Of these 103 were traced as to their present condition; 93 were cured, or so greatly improved as to consider themselves practically well; 8 were unimproved, some improved but had relapsed, and only 2 were reported worse.

In conclusion, I wish to acknowledge my indebtedness to the writers of the literature on this subject. Kauss collected the reported cases up to 1865; Chvostek brought this up to 1869; Perry and Shaw in 1893 made an exhaustive analysis of the reported cases. In 1900 the Fenwicks added a most notable contribution to our knowledge of the subject. Since that time the interest has been surgical rather than medical. Weir in 1900, Robson in 1901, Murphy in 1903, Moynihan in 1905, and Haggard in 1906, have each made brilliant additions to our store of facts.

II.—G. C. Franklin, F.R.C.S.,
Consulting Surgeon, Leicester Infirmary; Ex-President British Medical Association.

The first and most important point in regard to duodenal ulcer is diagnosis, and it may at once be said that its differential diagnosis from gastric ulcer is frequently difficult, and at times impossible. This arises from the close proximity of nearly all duodenal ulcers to the pylorus, and to the fact that the principal source of pain in both is hyperacidity of the stomach contents. Speaking generally, duodenal ulcers are found most often in males, and at a later age than gastric ulcers. The distress, although it is often severe, is not so pronounced as in gastric ulcer, and vomiting is less in evidence. The duodenal ulcer runs a more chronic course, and is less prone to perforate than gastric ulcer. The pain in duodenal ulcer comes on several hours after meals, and, what is very significant, may be temporarily arrested by taking food. The meaning of this "hunger pain" is that it is caused by the discharge of the acid stomach contents through the pylorus at the end of gastric digestion, and that the swallowing of fresh food induces contraction of the pyloric sphincter, and for a time stops the passage of the irritating chyme over the ulcer. The pain is referred to the right side of the epigastrium, and may be associated with a small area of cutaneous hyperaesthesia. Melaena unassociated with haematemesis would strengthen a doubtful diagnosis. Pain and liability to perforate are not the only evils incidental to the lesion. Its prolonged continuance leads to marked wasting of the body and profound anaemia, and leaves the unfortunate sufferer an easy prey to concurrent maladies. Inflammatory thickening may produce a tumour-like mass difficult to differentiate from malignant disease. This similitude is heightened by the concomitant pain, wasting, and anaemia. Cicatrization may lead to stenosis, and produce all the symptoms of pyloric obstruction. Perforation causes sudden agonizing pain, muscular rigidity, and the other well-known symptoms common to all of the upper abdominal catastrophes. Inquiry may elicit an antecedent history of duodenal ulcer, but the patient is usually too much overwhelmed to supply this, nor does its absence count for much, seeing that whatever the diagnosis may be the patient's only hope is an early laparotomy. The treatment of duodenal ulcers must be considered separately for those that have not and those that have perforated. For the former there is only one efficient remedy, and that is gastro-jejunostomy. Once the duodenum is excluded from the alimentary circuit and the irritation of the acid stomach contents withdrawn the ulcer rapidly heals. Where perforation has taken place immediate operative interference must follow. As in the case of perforated gastric ulcer, the sooner the patient is operated on the better his prospect of recovery. When possible the rent in the duodenum should be closed securely, and local drainage must be employed. The patient's condition will rarely permit of gastro-jejunostomy being done at the time, but this procedure should be resorted to on a subsequent occasion.

DISCUSSION.

Professor J. Rose Bradford (London) said: I wish to express my thanks to Dr. Mayo for his valuable paper and to the President of the Surgical Section for inviting me to take part in the discussion. I look on rigidity of the muscles of the right side of the abdomen and melaena apart from haematemesis as valuable signs of duodenal ulcers. The pallor in haemorrhagic cases may be so pronounced as to simulate pernicious anaemia. I should be pleased to have an expression of opinion as to when surgical interference should take place in cases of severe haemorrhage.

Dr. J. B. Murphy (Chicago) said: I desire to compliment Dr. Mayo upon his able representation of this subject of duodenal ulcer. The public owes a considerable debt of gratitude to Dr. Mayo. To him is due the fact that the medical profession has been led to recognize the frequency of the lesion. In an article published in September, 1902, I expressed the opinion that this disease was of such extreme rarity that every case recorded was of importance. Now, not four years later, I can say that its extreme frequency compels the attention of the medical and surgical world. My former opinion, with its doubt of the frequency of this condition, was justified by *post-mortem* reports. Thus, in 12,806 necropsies, Van Wyl found only three duodenal ulcers. In the large surgical clinics of Western America it is now not uncommon to see the same number in a single day, and certainly uncommon to see less in the course of every week. In 1902 I estimated the relative frequency of duodenal to gastric ulcer as one to twelve. My more recent experience, however, gives a relative frequency of one to three. Perforation of the duodenum in consequence of ulceration is the phase of this question which I would like most to consider. The able articles of Robert F. Weir and Collins have drawn particular attention to the peritonitis following perforation. It is difficult to say what is the percentage of duodenal ulcers which perforate; the percentage is, however, certainly less than that of perforating gastric ulcers. Of the 500 cases of gastric ulcer collected by Dr. Bulstrode 10 per cent. terminated fatally from peritonitis following perforation. Fatal haemorrhages accounted for another 2½ per cent. of the cases, and 5½ per cent. died from other causes. Fatal duodenal haemorrhage, except after extensive burns, is of comparatively rare occurrence, and the

[1] *Journal of American Medical Association*, April 7th, 1906.

total mortality of duodenal ulcer is, as *post-mortem* reports show, less than the mortality of gastric ulcer. It is practically impossible to make a differential diagnosis between peritonitis due to perforation from a gastric and from a duodenal ulcer respectively, except in so far as it can be made from the clinical history preceding the perforation. In the chronic condition the sign of greatest differential significance is the following: With gastric ulcer there is usually some distress experienced immediately after, or shortly after, the ingestion of food, the period of time increasing with the distance of the ulcer from the cardiac orifice. Ulcers in the pylorus and in the duodenum give rise to pain at a later period, from one and a half to four hours after the ingestion of food; that is to say, at the time when food commences to reach the duodenum from the stomach. Another differential sign of importance is the fact that the pain of duodenal ulcer is relieved by the fresh administration of food. This is probably due to a cessation in the escape of material through the pylorus. Discomfort or pain due to a duodenal ulcer is often most marked when the patient is in the recumbent position, continuing until from 12 to 2 o'clock in the morning and then gradually subsiding. The reflex manifestations of pain and their localization are similar in gastric ulcer occurring within the pyloric zone and in the duodenal ulcer. Both conditions give rise to sensitiveness in the epigastric region, as well as to subscapular and dorsal pain reflected from the pneumogastric through the third and fourth cervical nerves. As etiological factors Dr. Mayo has insisted upon the importance of hyperchloridia, giving the second place to local infection, and the third to embolism or thrombosis. In my opinion the latter is the most common cause of duodenal ulcer, and is the only means by which chronic gastric ulcer can be experimentally produced. In 149 cases collected by Perry Shaw the first portion of the duodenum was involved 123 times, the second portion 16 times, the third portion once, and the fourth portion once. The symptoms of duodenal perforation are those of perforative peritonitis. Primarily, however, the localized sensitiveness is confined in distribution to the right half of the abdomen. There is an increased leucocytosis, an increasing zone of pain, and an increasing piano percussion, some flatness in the right hypochondrium, and in the right iliac zone. Collapse is never present as an early manifestation of peritoneal perforation. Collapse is a manifestation of the absorption of the products of infection from the peritoneal surface. Rapid absorption of infective material does not take place until the endothelial cells of the peritoneum have been destroyed by the infective material. So long as the surface cells have not been removed by abrasion, the stomata of the endothelial surface act like the skin surface in selecting and permitting the absorption only of material acceptable to them. The results obtained by the early and late operative treatment of peritonitis due to perforation, particularly in perforations of the duodenum, show that this modification of the absorbent surface requires a considerable time. In Dr. Wier's collection of 13 cases operated upon after a lapse of thirty hours after the perforation, all 13 died. In 12 cases where the operation was performed within thirty hours, 8 recovered. These figures emphasize more than words can do the great importance of early surgical intervention in duodenal perforation. The same may be said of all forms of gastro-intestinal perforation. In the technique of the operation it is well to draw attention to the importance of immediate closure of the leaking point. Simple drainage is worse than useless. Zaspeyres collected 18 cases in which simple drainage was performed. Seventeen of these cases died immediately, and 1 a month later. Of 18 cases of perforation, which I reported on a previous occasion, 8 were drained, and of these 7 died; 6 had suture in addition to drainage, and of these 4 recovered. The operative treatment, therefore, consists in immediate suture with drainage, and in favourable cases a posterior gastro-enterostomy with short loop. It is worthy of note that an important point has been generally omitted from the anatomical description of the first part of the jejunum. In the process of development of the intestinal tract, it often happens that a loop of the jejunum is left behind the peritoneum. This extends as low as the brim of the pelvis, and then passing backwards and upwards enters the peritoneal cavity through its posterior wall just below the level at which the duodenum passes across the aorta. To this piece of the jejunum the ligament of Treitze is attached, deflecting the jejunum towards the right. In my recent cases this has been present in one case in every three. In one of these cases a perforating ulcer of the jejunum had opened into the colon through the anterior wall of this retro-peritoneal portion. I am afraid that this sigmoid curve of the jejunum may have as baneful an influence in posterior gastro-enterostomy as the long surgical loop which was formerly made use of.

Dr. A. J. Ochsner (Chicago) said: Dr. Mayo's observations are borne out fully by my own clinical experience in the treatment of ulcers of the stomach and duodenum. The beautiful experiments of Canon and Blake show that mixing of the food with the bile and pancreatic juice goes on in the duodenum, the food being forced backwards and forwards in this space. In operating for gall stones or ulcer we frequently found the upper part of the duodenum dilated, while the lower part was contracted. A considerable number of dissections have shown a marked increase in the circular muscular fibres below the entrance of the common bile duct into the duodenum. These constitute a sphincter situated usually at a point from 2 cm. to 10 cm. below the opening. It has seemed to me that this fact must have a definite bearing upon the development of ulcer of the duodenum, because it adds a distinct mechanical element.

A DISCUSSION ON ACUTE SEPTIC PERITONITIS.

Mr. C. J. Bond (Leicester) introduced a discussion on this subject in a paper which will be published in a later issue.

II.—H. Howitt, M.D.,

Guelph, Ontario.

We are all indebted to Mr. Bond for the lucid way in which he has described and expounded the latest discoveries relating to the physiology and the pathology of the peritoneum, and to those regarding the bacteriology of peritonitis, and for his practical advice as to the application of the knowledge in our work.

The subject of our discussion has of late years occupied a very prominent place in surgical literature and in the debates of Surgical Associations in Europe and America; and although during the last decade great advances have been made in treatment, there still remain abstruse questions to be settled. In order to master some of these knotty problems, we must in the method of our attack be more specific, and restrict the subject of our debate to certain forms of the disease. In acute septic peritonitis the site of origin, the nature of the infection, the age and normal resistance of the patient, the stage of the disease, and other factors govern the treatment more or less, and make the ground to be covered too extensive to be dealt with in a debate of ordinary duration.

The essayist has called our attention to the deleterious effects of morphine, and it is my desire to emphasize this important point. In the early stage opiates have undoubtedly done more than anything else to hinder successful treatment. In my opinion we should condemn in no uncertain manner the administration of an opiate in every case in which there is reason to suspect peritonitis until a diagnosis has been made and the method of treatment determined on, because opium masks the symptoms and leads to false security till the opportune time for successful surgical treatment has passed. In my vicinity a short time ago, a robust and apparently healthy young woman, a few hours after taking a hearty meal, was suddenly seized with intense pain in the epigastric region. Several hours later her medical attendant was called in, and at once grasped the nature and the requirements of the case, and advised her removal to hospital. The distance to that institution was considerable, so in order to mitigate her intense agony he gave her a hypodermic of morphine. When I saw her at the hospital there was not a single symptom by which any departure from the normal condition could be detected, except slight tenderness on firm pressure over the appendix. She protested that she was quite well, and laughed and otherwise ridiculed the very idea of there being any necessity for an

operation. On opening her abdomen we found a large irregular perforation of the stomach, and pieces of pickled cucumber and other kinds of food in the abdominal cavity. I have never known any but ill effects follow the use of opiates in the post-operative treatment. When the cause has been removed, and peristalsis not too early excited by food by mouth, an anodyne is seldom indicated on account of pain.

The practice of prescribing purgatives by the mouth cannot in my opinion be condemned too severely. It is a golden rule in peritonitis not to allow the stomach to have anything until the primary cause has been removed by the surgeon, or till the disease has been overcome by the mother of us all—Nature. When vomiting is troublesome assist Nature's efforts with a stomach tube.

Surgical Treatment.

In the absence of pronounced bowel distension, and the escape of visceral contents, the important points in the surgical treatment of septic peritonitis are early diagnosis, early operation, gentleness and rapidity in operating; complete removal or adjustment of the cause; sponging, or irrigation when not contraindicated, with provision for free escape of the fluid; judicious drainage and posture; avoidance for a time of food by mouth; and nutritive and purgative enemata.

Hypodermics of strychnine, and normal salt solution by the rectum or subcutaneously, play an important rôle in some instances. Lavage of the stomach before and immediately after operating is an extremely important procedure at times.

But how are we to manage the later cases, which too often result from the early signals of distress having been masked by morphine? In these it is common to have a ballooned abdomen and arrest of peristalsis from over-distension of the muscular coat of the bowels, while owing to the tension of the parts the heart sounds are transmitted so as to be distinctly audible in the hypogastric region. When we have added escape of visceral contents and their wide distribution, we have a desperate condition with which to deal. When such unfortunate conditions exist in a case of perforation of the posterior wall of the stomach, it is utterly impossible to deal with or even reach the perforated part by means of an ordinary incision. Our only hope depends on heroic measures—namely, a large abdominal incision, rapid evisceration, and collapse of the distended bowels by means of one or more temporary enterotomies. Then after closing the perforation we require a special irrigating apparatus capable of discharging several gallons a minute without undue force; with it the abdomen can be thoroughly cleaned of all palpable foreign material quickly. The eviscerated bowels should be protected with moist sterile gauze, which should not be removed during the operation, but which should be kept moist and at the proper temperature by irrigation or by hot towels. The collapsed bowels are easily replaced and there is no tension when the abdominal wound is closed. But all has not been said yet in favour of this method. The relief of the tension of the distended intestinal wall restores the circulation in it, gives the muscular coat an opportunity to regain its tone, and prevents further migration of pathological germs from the intestinal canal to the inflamed peritoneal coat.

By the method to which reference has just been made, we can deal with many of the *desperate cases*, especially in the upper zone of the abdomen, more quickly and with less injury to the delicate structures than by any other known way. More certainly is this true when, as is not uncommon, the situation of the primary cause is in doubt.

The marvellous results which Dr. J. B. Murphy, of Chicago, has had in diffuse peritonitis, have astonished the surgical world, and demand attention. The points in his method of treatment are: small incision, removal of primary cause, simple pelvic drainage through a puncture in lower abdominal wall, Fowler's posture, slow rectal injections of large quantities of salt solution, and anti-streptococcic serum when indicated. It is maintained that by the absorption of large quantities of the salt solution, the current in the intestinal lymphatics is reversed, so that it flows into the peritoneal cavity instead of out of it, thus preventing further systemic infection, and that the free flow of lymph into the peritoneal cavity, aided by posture and pelvic drainage, helps to carry away the pathological products. Time and further experience will define the usefulness and the limitations of this simple method.

A word about drainage. I prefer the posterior method, and always use a perforated, smooth flexible rubber tube. In female patients in whom the vaginal outlet is large, the drain is introduced through the vaginal vault, and this, with Fowler's posture, is generally all that is necessary. In all others the tube is passed through a stab in one or both lumbar regions to the outer side of the colon. As a general rule only the right lumbar tube is required, and this, when the pelvic basin requires attention, is extended to the bottom of the pelvis, and necessarily passes close to the end of the caecum. Posterior drainage takes the way of least resistance, and is enhanced by gravitation and siphonage. Here Fowler's posture is never adopted after operating, the ordinary yielding spring bed bows the body and thereby protects the region of the diaphragm and favours the drainage of the pelvis.

In every case Fowler's posture should be adopted before the time of operation.

I do not like the way in which the terms "paresis" and "paralysis" are frequently used in the literature of abdominal surgery, for intestinal paralysis, correctly speaking, is extremely rare, but arrest of the function of the muscular coat by stretching is common. Gentlemen, we simply doom our patient to certain death if we close the abdomen in this disease when over-distension is a factor.

By adopting these measures I have been enabled to save all the patients on whom I have operated for acute perforated gastric ulcer with general infection of the peritoneal cavity—four cases.[1]

An article by Mr. C. B. Lockwood of London on the Treatment of Diffuse Peritonitis, which appeared in the British Medical Journal, October, 1894, first called attention to the value of these procedures.

I believe, when we have patches of the peritoneum abraded, dusting with aristol retards absorption by the exposed vessels, and also guards against the formation of troublesome adhesions later.

At the Guelph Hospital since the beginning of May, 1902, till the end of July last, I have operated on thirty-four cases of diffuse peritonitis. The list includes jejunal, gastric, and appendical perforations; rupture of the uterus, the bladder, and an ovarian abscess, and gangrene of appendices and pelvic cysts. In the perforated and ruptured cases, the visceral contents had escaped into the unguarded peritoneal cavity. Many of them were late cases with distension and arrest of peristalsis.

Five of my patients died. Two of these had had chronic gastric ulceration, and in one the trouble had existed for more than forty years. In both, the stomach had been glued to the under surface of the liver, and the ulceration had eaten a cavity in that organ, and had caused the formation of multiple abscesses. Before the time of operation, in each the adhesions had given way, and milk and other contents had escaped into the peritoneal cavity. The perforations were very large and irregular; in one the long diameter measured more than 2 in. Two others of the fatal list were late cases arising from gangrene of the appendix. In these the prominent symptoms were rapid thready pulse, subnormal temperature, cold extremities, leaky skin, and septic intoxication. In the remaining one, a married woman, the uterus had been ruptured during delivery, and the rent extended from the fundus down the left side through the cervix and along the vaginal wall almost to the vulva. The left uterine artery and the ureter were torn.

DISCUSSION.

Dr. W. J. Mayo (Rochester, Minnesota) said: Of the many great papers presented at this meeting, two have had special interest to us of the States, and are models of their kind—those of Sir Victor Horsley and Mr. Bond. They are the product of surgical philosophers, and show the necessity for a combination of anatomy, physiology, and pathology to a proper understanding of a surgical subject. I wish to speak on only one phase of the subject brought out by Mr. Bond, merely to emphasize the great importance of recognizing the danger of infection in the upper abdomen. Here Nature absorbs so rapidly as to give little opportunity for properly sterilizing septic material, and the entrance of such substances into the

[1] *Trans. American Assoc. Obst. and Gyn.* 1903.

circulation and to the lungs may set up a possibly fatal embolic pneumonia. The unshed blood in the vessels has little bactericidal powers. Here lies the explanation of lung complications after stomach operations, and which have nearly disappeared since raising the patient after such operations to the semi-sitting posture, throwing the septic material into the pelvis, where absorption is slow and where Nature, during ages of past infections due to the Fallopian tube and appendix, has become used to taking care of septic processes, sterilizing the products, and developing bodily immunity.

Dr. J. B. MURPHY (Chicago) said: The magnificent presentation of the subject of acute septic peritonitis and its treatment by Mr. Charles John Bond challenges the admiration of every one who has been within the reach of his voice. The thoroughly scientific manner of treating the subject, from the physiology of the peritoneum through the various pathological changes produced by bacteriological, chemical, and traumatic influences, is most instructive, and I will not attempt to analyse their various influences on the clinical results. That there may be no misunderstanding concerning my position I wish to state what I include under the heading of "general suppurative perforative peritonitis." It is a general peritonitis due to direct perforation of the stomach, duodenum, intestine, or appendix into the free peritoneal cavity. I do not include under the heading of "general suppurative peritonitis" that form of pus accumulation, large or small, in the peritoneal cavity associated with circumscribed abscess. All cases of circumscribed abscess within the peritoneum, regardless of the quality of pus or seropurulent material in the peritoneal cavity, are excluded from consideration and from my statistics. It is, therefore, only the cases of peritonitis due to and existing with a direct communication into the gastric intestinal tract that I consider here. Included are all the cases of general septic peritonitis perforative that have come under my observation since February, 1903, making about three years and six months. The list includes gastric ulcer perforations, duodenal ulcer perforations, typhoid perforations, and appendical perforations. Thirty-six cases in all. The bacteriology of these cases in the order of frequency was as follows: Colon bacillus, staphylococcus, gonococcus, pneumococcus, streptococcus, and pyocyaneus, or combinations of these. Some five years ago I was decidedly of the opinion that the ultimate results of general suppurative peritonitis treated by operative interference was practically entirely dependent on the virulence of the infection and the resistance of the individual—relatively the same opinion as held by Drs. Dudgeon and Sargent. I am now positively convinced that the virulence of the infection in general suppurative peritonitis has practically little or nothing to do with the result in operative treatment, as in this series of cases all of the varieties of infection have responded equally well to the treatment; indeed, one case, a pure streptococcus infection, general in its character and with an 80,000 leucocytosis, responded as quickly to the treatment as did those of the colon bacillus. That leads us to the question, What are the causes of the fatal outcome in general suppurative peritonitis? In 1901, at a meeting of the American Association of Obstetricians and Gynecologists, I stated that the cases of general suppurative peritonitis would, in their enormous percentage, always continue to be fatal, for which statement, gentlemen of the British Medical Association, I wish to humbly apologize. Why have these cases in the past terminated fatally? (1) Because too long a period of time elapsed between the time of perforation and the time of surgical intervention. (2) Surgical intervention was either excessive or deficient. In the first instance the intestines were handled, manipulated, sponged, rubbed, retracted and washed, with the result that fresh abrasions were produced, and the absorption greatly increased, overpowering the patient, who was already sufficiently burdened with the septic absorption. Secondly, the operation was deficient when simple drainage was instituted without closing the source of septic supply, and the cases terminated fatally. Thus of 18 cases of perforative peritonitis from duodenal ulcer that were treated by simple drainage, all died. (3) Secondary circumscribed accumulations of pus were not drained by early secondary operation. (4) The post-operative ileus was not timely operated on. Considering the limited time for the discussion, let me make a few statements which I believe will be generally accepted. (1) Up to three and a half years ago 80 per cent. of the operated-on cases of general suppurative peritonitis died (Dudgeon and Sargent), and a larger percentage than that of mine terminated fatally. (2) It will be conceded that the peritoneum in the last five years has suffered from practically the same types of bacterial infection that it suffered from in the preceding five years, therefore, all other things being equal, the patient was hazarded to the same degree. In the last three and a half years the mortality in my hands has been altered from upwards of 80 per cent. to less than 3 per cent., as out of the 36 cases treated on the plan now followed by me only 1 case has been lost, and that case—one of general suppurative peritonitis of appendical origin—died six days after the operation from a double pneumonia; the peritonitis had entirely subsided, the abdomen had become flat, the bowels were moving regularly, and *as a peritonitis* it was cured, but I still charge it as a death. There were four reoperations for circumscribed accumulations of pus in other portions of the abdomen. There were three operations for ileus, one some four weeks after the operation for the peritonitis. The operation for ileus was late, it being an out-of-town case, and the patient died as a result of his ileus. This I have not charged as a death to general suppurative peritonitis. To what can we attribute this great change in the result? Certainly not to a change in the bacteriology; certainly not to a change in the time of operation, as in this series the time varied from a few to forty-four hours after the perforation before the operation was performed. It was certainly not due to an increase in my aseptic or antiseptic precautions. I believe it was due to the application to the peritoneum of surgical principles that have long been understood and practised in treating infections in other places; namely: (1) Relief of pressure at the place of pus infection. (2) Providing for continual drainage. (3) Avoiding manipulation, sponging, and washing of the peritoneum, refraining from separating adhesions, and quick operating. (4) Aiding the elimination of the ptomaines and toxins already in the blood, by the administration of large quantities of fluid through the rectum. (5) Assisting, with gravity, the flow of pus to the least absorbent zone of the peritoneum, the pelvis, through the Fowler position. (6) By the administration of large doses of streptolytic serum. If I were asked what was the most significant or important part of this treatment, I would say: (1) Rapidly closing the intestinal opening without manipulation or traumatism to the peritoneum. (2) Relieving the pus pressure by drainage. (3) The giving of large quantities of fluid per rectum. The fluid is best given through an ordinary vaginal nozzle supplied with several openings. A rubber tube connects the nozzle with a vessel containing warm saline solution. The pressure of the column of water should be very slight—from 4 to 6 in. The nozzle should extend just beyond the internal sphincter, and it can be secured to the thigh by strapping. In justice to my patients, however, I do not omit a single detail of the simplicity of the proceeding in every individual case. I sincerely hope that we may find an explanation for the favourable outcome in these 36 cases, but, regardless of explanation, the results are all that could be desired. I disclaim any contention for priority or any personal superior skill, and believe the results are due to the appreciation of a simple principle announced by Callender long before the true nature of sepsis was understood, namely, "Never milk or manipulate an abscess or infected area." This is most forcefully applicable to the peritoneum. Gentlemen, I thank you for your attention.

Dr. A. J. OCHSNER (Chicago) said: One must be impressed, in studying this paper, that its author is not only an experienced clinician and an accomplished scientific observer, but that he is in addition a great philosopher. He furnishes the principles upon which to build an important structure, and he discusses these principles in a philosophical way. His reasoning is logical, and must surely result in great good. We should bear in mind that the same principles apply to infection of the peritoneum that we recognize as regards infection in any other tissue in the human body. So long as the infection is confined to the peritoneum and the patient's system has not been overcome by general sepsis, the surgeon may be hopeful, just as he would be were the infection in any other portion of the body; but if there is a general

sepsis, then one must look upon the case as one looks upon a case of general pyaemia. In septic infections in any part of the body, one must attempt to accomplish three conditions: (1) To remove the pus if this can be done without spreading the infection. (2) To direct the lymph stream away from the body, so that the infectious material will be carried out of instead of into the circulation. (3) Prevent the distribution of the infectious material by establishing a condition of rest. This can be accomplished best by making gastric lavage and giving neither food nor cathartics by mouth, and by supplying an abundance of fluid by means of the method so perfectly described by Dr. Murphy. It is important to follow his directions precisely. One must make a very definite distinction between rest of the intestines and paresis. A condition of rest is the most favourable condition possible, while a condition of paresis is the most unfavourable. The former condition prevents distribution of infection; the latter condition permits the infectious material to pass through the walls of the intestines into the general peritoneal cavity.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

FRACTURE OF LOWER JAW ACROSS THE NECK OF BOTH CONDYLES.

Mrs. K., aged 29, was looking down the shaft of a hand-power lift. The lift on being lowered, caught her on the back of the head, and drove the point of the chin forcibly against the rail guard, causing a deep incised wound through the skin and the soft parts along the lower border of the mandible, and fracturing the mandible across both condyles. The upper fragments being drawn inwards and forwards by the action of the external pterygoid muscles, the lower jaw was driven upwards and backwards, and the upper and lower wisdom teeth interlocking, prevented the mouth from being closed. The patient was found with the mouth partly open, the upper and lower last molars being opposed. The upper and lower incisors could not be brought into closer apposition than three-fourths of an inch. The mouth could, however, be opened wider, crepitation being elicited about the region of the temporo-maxillary articulation, and slight lateral movement of the jaw could also be felt. The wound was stitched up and an ordinary four-tailed bandage applied, and the patient sent to bed, as she was suffering from a good deal of shock.

The following day I asked Mr. Ridett, Assistant Dental Surgeon to the Dental Department, Leeds Dispensary, to see the case with me, and take a cast of the mouth. He did so, and made a vulcanite Gunning splint. This consists of two vulcanite plates, one fitting over the upper, and the other over the lower teeth, joined together by pillars of vulcanite, allowing an opening in front for feeding purposes, and two openings at the sides for the escape of saliva, etc., so that the jaws, when forced into these plates, would be in their normal relative position, the mouth being partly open. The splint was inserted three days after the accident, the lower jaw being forcibly pulled into its place. A leather head band, with web understraps was made so as to keep the lower jaw firmly applied to the splint, and this the patient wore for four weeks, being fed by liquids through a tube passed into the mouth, through the opening left in the front of the splint for that purpose. At the end of four weeks the splint was removed, and now (at the end of eight weeks) the result is good. There is a slight swelling at each condyle from the callus thrown out. The molars and premolars come into their normal bite, and the patient can eat well-cooked solid food comfortably. The upper incisors overhang the lower by about one-eighth of an inch, and the mouth cannot be opened to quite the same extent as was the case before the accident.

Leeds. P. S. Bird, M.D.

Under the will of the late Mr. Arthur Briscoe, of Wightwick, Staffordshire, the following bequests become payable: £2,500 to the Cancer Hospital, Fulham Road; £2,000 each to the Wolverhampton Eye Hospital, the Wolverhampton and Staffordshire General Hospital, and the Wolverhampton and District Hospital for Women; and £1,500 to the Midland Counties Home for Incurables.

British Medical Association.
CLINICAL AND SCIENTIFIC PROCEEDINGS.

BIRMINGHAM BRANCH.

Pathological and Clinical Section.

Birmingham, Friday, October 26th, 1906.

Thomas Nelson, M.D., in the Chair.

Transplantation of Ureters.—Mr. Barling showed a boy in whom he had transplanted the ureters.

Pulsating Exophthalmos.—Mr. Jameson Evans showed a girl, aged 6, who had received a punctured wound of the lower lid and orbit from the rib of an umbrella six months previously. Immediately after the injury there had been free haemorrhage from the small wound; there was some blood-stained discharge from the left nostril; the child was "dazed" for a day or two, and she vomited frequently for about a week. A month after the injury the eye became proptosed, and pulsated synchronously with the heart; the veins of the lids and conjunctiva were distended and tortuous; the veins of the iris were also overfilled and produced a contraction of the pupil, which reacted to light, but did not dilate much when atropine was instilled. The retinal veins were very full and tortuous, and the optic disc presented an appearance of optic neuritis. Vision was markedly reduced. On auscultation of the skull a pulsating bruit was easily audible, and the noise gave the patient considerable discomfort, especially when she was in noisy places. A little later she developed paresis of the left external rectus. The symptoms still persist, but are much less marked. Vision is practically normal, but there is slight convergent strabismus. The patient is still distressed by the noise in the head. Treatment consisted of rest, potassium iodide, and calcium chloride.

Achondroplasia.—Dr. Emanuel showed a case of achondroplasia. The subject was a boy, aged 8 years, who exhibited in a typical manner the following characteristics:[1] (1) Congenital origin; (2) normal mental condition; (3) abnormally large vault to the cranium (circumference of head 23 in.); (4) depression of the root of the nose; (5) prognathus; (6) arrested development of arms and legs, with normal development of trunk; (7) characteristic appearance of the hands described by Marie as the *main-en-trident*; (8) protuberant abdomen; (9) lordosis; (10) smooth skin and abundant hair; (11) exaggeration of the normal curves of the long bones, with thickening of their shafts and enlargement of their epiphysial ends; (12) decentralization of the mid-point of the body (1½ in. above the umbilicus).

Endothelioma of the Groin.—Mr. Lucas showed a patient after excision of a tumour of the groin, which was an endothelioma.

Biliary Colic Fistula.—Dr. Short showed the gall bladder and portions of the liver and transverse colon of an old man, aged 80, exhibiting a fistulous opening between the gall bladder and the transverse colon. The fistula appeared to be an old one, unconnected with the real cause of death, a recent adenoma involving the bile duct and gall bladder. With the exception of a slight attack of jaundice occurring six years before, and accompanied by very moderate pain, there had been no suggestion of previous hepatic disorder. Although there was no history of gall-stone colic, Dr. Short thought that the fistulous opening had most probably occurred from the ulcerating passage of a gall stone from the gall bladder into the colon, since a similar case had occurred in his practice in which the stone had been passed and very little pain had been present. Sections of the growth prepared by Dr. E. R. Thompson were also shown.

Abdominal Tumour.—Dr. Miller showed a large abdominal tumour from a male aged 38. The following are notes of the case: Admitted, under Mr. Heaton, to the General Hospital, April 25th, 1904, complaining of lump in scrotum; pain in left testicle twelve months previously after exertion; another attack one month before admission; left testicle always noticed to be larger than right, but during twelve months it has been getting larger; operated on April 29th, when left testicle was removed; patient discharged June 15th; readmitted, under Dr. Short, March 21st, 1906, complaining of pain in

[1] Rankin and Mackay, Achondroplasia, British Medical Journal, June 30th, 1906.

abdomen and in right thigh, duration six weeks; on examination, lump felt in epigastrium a little to left of middle line, size larger than fist, pulsating, painless, surface irregular; this lump did not seem to increase much until shortly before death, when another lump appeared in left iliac fossa; patient became emaciated, suffered greatly from flatulence, and later on from cystitis and incontinence; the urine showed pus with a cloud of albumen and a large deposit of phosphates; about three weeks before death patient developed acute attacks of pain in the loins and had morphine injections; some time after admission patient developed paraplegia and loss of sensation up to 3 in. below umbilicus; oedema of lower limbs was marked on admission; this improved for a time, but got worse: on admission marked dilatation of veins of abdominal wall with flow from below upwards; this gradually diminished on the right side. The patient died on October 2nd, 1906. An autopsy was made on October 3rd. Body much emaciated, tumour palpable in abdomen. Nothing special to be noted in heart or lungs. Intestines atrophied and pushed forward along with pancreas. Liver enlarged, but otherwise normal. Kidneys both enlarged, cortex swollen and pale, with irregular abscesses in substance. Pelvis filled with greenish pus. Ureters thickened and inflamed. Bladder inflamed and ulcerated. No trace of left testicle, right testicle normal. Brain shows some increase of subarachnoid fluid and some opacity of pia. The tumour lies upon the bodies of the lumbar vertebrae, to which it is slightly adherent. It is invading the spinal canal by the intervertebral foramina, and pressing upon the nerves of the cauda equina. There are no obvious areas of degeneration in the cord. The tumour is of very soft consistence and of a pale pink colour. On microscopical examination it is found to be a typical round-cell sarcoma. The aorta passes through the substance of the tumour and is patent throughout its course. The vena cava is blocked by an organized and pigmented thrombus. This thrombus is, however, tunnelled by numerous blood passages. The tumour of the testicle removed two and a half years before was found to be a round-cell sarcoma exhibiting somewhat similar microscopic characteristics.

SOUTH MIDLAND BRANCH.—At a meeting held on October 25th, Mr. H. CROPLEY in the chair, Dr. HICHENS read a paper on haemoptysis, its diagnosis and treatment, especially in relation to phthisis. After detailing the varieties of spurious and true haemoptysis, he condemned the treatment by astringents—for example, gallic acid, adrenalin, digitalis, ergot, etc.—as not only useless but harmful. There were three indications for treatment: (1) Rest in bed; (2) keep the blood pressure low, by posture, low diet, derivative medicines—for example, a mild saline purge, vaso-dilators, such as trinitrin in small doses, repeated frequently; (3) aim at increasing the coagulability of the blood by the administration of calcium chloride.—Mr. GIFFORD NASH read notes on the after-history of some cases of enterectomy previously reported. Excellent results were obtained in the case of tuberculous growths, but in the malignant cases were not so good, though one case had lived three years after operation. He also showed three prostates removed by the suprapubic method: two of the cases had been cured, and one had died of suppression of urine.—Mr. NASH read a general dissertation on the diagnosis and treatment of acute abdominal affections, laying especial stress on acute pancreatitis and appendicitis, and advocating in most cases early operation.—Mr. HARRIES JONES showed a specimen of glioma of the retina removed from a child aged 2.

SOUTH-EASTERN BRANCH: BRIGHTON DIVISION.—At a meeting held on October 24th, Dr. R. SANDERSON in the Chair, Dr. R. MARSH showed a fibro-myomatous uterus which he had removed from a patient, aged 60, on account of symptoms of urinary and intestinal obstruction complicated by ascites. The difficulty of the operation was increased by the close attachment of the tumour to the rectum.—Mr. ARTHUR J. HUTCHISON showed microscopic sections of tissue removed from the upper jaw of a girl, aged 15. The patient, who had lived four years in South Africa, but was now at school in England, had several teeth stopped, etc., during May and June of this year. While still under the care of the dentist an acute red swelling appeared on the gum above the right central incisor and soon spread over the right lateral incisor. At first this appeared to be an acute alveolar abscess, but treatment had no effect; both teeth became quite loose and were picked out with finger and thumb. The swelling and redness persisted. In the beginning of July the condition was as follows: "On turning up the upper lip a red boggy swelling was seen extending from above the sockets of the right upper incisors to the labio-gingival fold, more or less pear-shaped (narrow end downwards) and sharply demarcated from the surrounding gum. Nothing abnormal was seen on the palate. The whole swelling was soft and boggy to touch, the alveolar bone having apparently been absorbed. A probe passed up the socket of either tooth entered a cavity about an inch deep. The anterior wall of the cavity was cut away, the canine tooth being extracted at the same time, and the remaining walls thoroughly scraped with a sharp spoon. Some of the tissue removed was sent to Dr. Bushnell for microscopic examination. He first reported that the "fragments consist of a squamous epithelial mucous membrane, which in places show an epitheliomatous character and some cell nests. . . . It is almost certainly malignant." On further examination with special staining, Dr. Bushnell found giant cells and tubercle bacillus, but even then considered the microscopic appearances of the sections most suggestive of malignancy. Mr. Hutchison stated that since the operation there had been no recurrence or spreading of the disease, and that the patient had gone on perfectly satisfactorily.—Dr. BUSHNELL showed part of a solid and cystic growth of the left broad ligament. The growth, together with a fibroid uterus, had been removed by Mr. Ionides. The following are notes of the case: Solid and cystic growth of left broad ligament. The origin is uncertain, (?) ovarian. It is 14 cm. long, with a maximum girth of 31.5 cm. It is in part apparently almost solid, with a few small cysts. Microscopically this is found to be an adeno-fibroma. In part it consists of a congeries of cysts, with smooth yellow walls, of varying size, containing glairy fluid. The uterus contains numerous fibroids, one of which is necrotic, soft granular, white and red, size of apple, with calcification, and haemorrhagic.

SOUTHERN BRANCH: WINCHESTER DIVISION.—The autumn meeting of this Division was held at "Eastlands," Basingstoke, by kind invitation of Dr. G. R. Ord, on Thursday, November 1st, at 3.30 p.m., Dr. JOLLYE (Alresford) in the chair. Dr. BEVAN (Alton) read notes of a case of multiple sarcoma of the spine and other bones. The following members took part in the discussion: Drs. BRISCOE, GIBSON, JOLLYE, RHOYDS. Dr. BEVAN replied.—Dr. AHRENS (Basingstoke) showed a case of primary tuberculous disease of the left clavicle in a girl, aged 14, with recovery after operation. Dr. AHRENS also read notes and showed a case of double ossiculectomy in a boy. The following members took part in the discussion: Drs. BEVAN, BRISCOE, SANDILANDS, JOLLYE, GODWIN. Dr. AHRENS replied.—Dr. HARMAN (Winchester) read notes on a case of enteric fever with unusual symptoms. The following members took part in the discussion: Drs. ROYDS, ENGLAND, SANDILANDS, GIBSON, STOKES, ANDREWS, HAYES, CHILD, GODWIN. Dr. HARMAN replied.—Mr. GODWIN (Winchester) read notes of a case of Vincent's disease, and showed microscopical specimen of the bacilli. The following members took part in the discussion: Drs. JOLLYE, AHRENS, SANDILANDS, BROWNE, ENGLAND.—The CHAIRMAN (Dr. Jollye) proposed a hearty vote of thanks to Dr. G. R. Ord for so kindly inviting the members to meet at his house. This was seconded by Dr. HARMAN and carried unanimously. Dr. G. R. ORD responded.

BATH AND BRISTOL BRANCH.—The first meeting of the session was held at Bristol on October 31st, Dr. D. S. DAVIES, President, in the chair. Dr. J. MICHELL CLARKE and Dr. J. WALKER HALL showed microscopical slides of halteridia (pigeon's blood), *Spirochaeta pallida*, Leishman-Donovan bodies (kala-azar), spirillum of relapsing fever (man and monkey), and trypanosomes (surra), from specimens kindly sent by Mr. F. P. Mackie.—Dr. J. MICHELL CLARKE also read a paper on a case of kala-azar, which was discussed by Drs. CROUCH and MARKHAM SKERRITT.—Mr. C. A. MORTON read a paper on the treatment of cases

after abdominal operations, and Mr. Swain and Dr. Lansdown discussed it.—Mr. Carwardine gave a lantern demonstration illustrating recent observations bearing on the position of the motor area in man, and their confirmation by a clinical case. Remarks were made by Drs. Michell Clarke and Markham Skerritt.—Dr. Watson Williams described the operative treatment of deflection of the nasal septum, with special reference to submucous resection.

REPORTS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF LONDON.

Tuesday, November 6th, 1906.

Dr. P. H. Pye-Smith, M.D., F.R.S., President, in the Chair.

The Poison of the Weever Fish.

Dr. H. Muir Evans read a communication on this subject, which will be published in a subsequent issue.

Jensen's Mouse Tumour.

Mr. Roger Williams read a paper criticizing the commonly accepted view that the growth in question is a carcinoma, or, indeed, a malignant tumour at all, in the usual sense of the term. It was Morau, in 1891, who first discovered this so-called cancer and subjected the malady to experimental tests. Jensen did no more than repeat, extend, and popularize Morau's discoveries, which had been forgotten in the intervening decennium; and subsequent authors only said ditto to Jensen. What is the real nature of this so-called cancer? The great mistake of those who had so prematurely identified "Jensen's tumour" with cancer was that in making their diagnosis they had relied far too exclusively on histological appearances—which had so often proved fallacious in similar cases—and far too little on the *ensemble* of the indications available for diagnostic purposes. Reference was made to previous fallacies of this kind, especially to the contagious venereal tumours of dogs, coccidial disease of the rabbit's liver, etc. Specimens of the former malady had actually been exhibited at that Society as cancer only a few years ago, being generally accepted as such. Now that this fallacy had been so recently exploded it was disappointing to find the experimentalists again lapsing into the same kind of error. A typical epithelial ingrowth and other quasi-malignant appearances were of common occurrence in many non-cancerous morbid conditions—for example, erosions of os uteri, blastomycetic dermatitis, etc. In this category "Jensen's tumour" would eventually find its acknowledged resting place. "Jensen's tumour" differed *in toto* from cancer, in that it was highly contagious and prone to originate epidemics; was readily inoculable to other mice, and in that it often underwent spontaneous cure. In the course of artificial transmission it often changed its type, both anatomically and physiologically, losing its contagious properties. The tumour was circumscribed and enucleable, did not impart cancerous properties to the tissues of the host, and caused no cachexia. In all of these vitally important respects, which were crucial for diagnostic purposes, "Jensen's tumour" was totally unlike any form of human cancer; but in these and in other respects it closely resembled the contagious venereal tumours of dogs, which had so often been mistaken for cancer. Regarded as cancer "Jensen's tumour" was a mere myth—one of a long series of such—indicative of nothing but the prepossession of the moment. Recent experimental cancer research was a medley of "chaos, clouds, and tongues," in which there was neither light nor leading. Therefore, in dealing with this material, it was necessary never to forget Cousin's luminous dictum, "La critique est la vie de la science."

Dr. Lazarus-Barlow was in accord with Mr. Roger Williams concerning the nature of Jensen's tumour; he did not regard it as a true carcinoma. The mutation of the carcinoma to sarcoma under transplantation, as carried out by Ehrlich, was sufficient to show this. He found that it was not easy to infect mice with the growth, however, and in this his results did not agree with the contention of the last speaker.

Fetal Bone Disease.

Dr. F. S. Dawe showed certain of the bones of a fetus which exhibited beading of ribs and the histological marks of rickets.

A paper by Mr. E. M. Corner on the pathology of the sphincters in cerebral and spinal injuries was taken as read.

LIVERPOOL MEDICAL INSTITUTION.

Frank T. Paul, F.R.C.S., President, in the Chair.

Thursday, October 25th, 1906.

Extroversion of Intestinal Mucous Membrane.

Mr. G. P. Newbolt showed a patient in whom faecal fistulae complicating an attack of tuberculous peritonitis had been cured by intestinal anastomosis. Extensive prolapse and extroversion of the mucous membrane of the small intestine, with profuse discharge of mucus, now existed at the site of the old fistulae.

Mr. R. W. Murray mentioned a similar case which had been under his care in which he had successfully performed intestinal anastomosis, but the patient died twelve months later owing to an accumulation of intestinal secretion in a portion of the gut which had been completely occluded.

Caesarean Section.

Dr. Arthur Wallace read a note on Caesarean section based on an experience of 16 cases, in 13 of which operation was indicated for pelvic deformity and in 3 for obstruction by tumours. The former included four instances of the repeated operation. The maternal mortality was 6.25 per cent., the only death occurring in the case of a patient who was probably infected before admission to the hospital. The performance of every Caesarean section in such a way as to permit of future pregnancy was advocated.

Dr. H. Briggs alluded to the tedious management after Porro's operation in his earlier experience, and to the almost invariably easy recovery of the patient after Caesarean section in his recent practice. In one patient, whose pelvis was contracted after tuberculous sacro-iliac disease, there was only an enfeebled constitution to account for the fatal shock nine hours after a smooth and uncomplicated operation in a well-equipped public hospital. In private practice he had successfully operated in three cases, and he thought it was well to appreciate beforehand the inconvenience and dangers: unexpected labour, a midnight operation, distance of locality, and lack of equipment. He preferred a clear, healthy peritoneum to utero-parietal adhesions, which were apt to be imperfectly maintained, and, if complete enough for a future Caesarean operation, they would rarely be an unmixed advantage.

Charcot's Joint Disease.

Dr. T. R. Bradshaw showed a man, aged 37, with Charcot's disease of the ankle. The joint was disorganized, the astragalus being dislocated forwards, and the malleoli much enlarged. The condition had existed over three years, but the patient was still able to use the limb. The patient had tabes dorsalis in the pre ataxic stage, evidenced by lightning pains, myosis, Argyll-Robertson pupils, absence of knee-jerk, and a rapid pulse. There was good reason to suspect antecedent syphilis.

Gastric Ulcer and Dyspepsia.

Dr. J. Hill Abram read a paper on gastric ulcer and dyspepsia. The first section of the paper dealt with the difficulties of diagnosis of ulcer, stress being laid upon failing nutrition, localized pain and tenderness, especially the *douleur en broche*. Haematemesis could not be regarded as a decisive symptom, and cases were quoted in support of this statement in which the stomach had been examined directly. A diagnosis of ulcer was perhaps made too readily by physicians, and the strong surgical statements of recent years were possibly due to this fact. In support of this position he quoted several sets of figures, and showed from the Liverpool Royal Infirmary reports (1896-1905) that in the medical wards out of 293 cases only 14 were males, whilst in the surgical wards out of 134 cases 43 were males; further, that the mortality rate in the medical wards was 4.8 per cent., whilst in the surgical wards it was 26 per cent. He then discussed the question

of haematemesis, and stated that he had not seen a fatal case of haematemesis in simple chronic stomach patients, and also his belief that medical treatment was sufficient. In four years 127 cases of chronic stomach trouble—cancer, congestion, and the dyspepsia of tuberculosis being excluded—had passed through his wards at the Royal Infirmary. In 35 only could he admit that the symptoms, or the course of the disease and the results of treatment, justified a diagnosis of ulcer or its results; 13 of these had to be transferred to his surgical colleagues. In true cases of gastric ulcer the modern surgical position was probably sound. The common causes of chronic dyspepsia were, in his opinion, first and foremost constipation; and, second, neurasthenia, the action of constipation being reflex and not auto-intoxicative. There was marked risk in classing cases of neurasthenia as examples of dilated stomach, and in such cases operation would do but little credit to surgery.

Dr. T. R. BRADSHAW said that arbitrary rules founded on the situation and character of the pain could not be implicitly relied on. In practice one treated this class of case by rest and dieting, when they almost always recovered for a time. If, as often happened, successive relapses occurred on returning to ordinary diet and mode of life, one felt bound to offer the chance of benefit from surgical interference. In a certain proportion of cases thus dealt with no benefit would result, but it was not always possible to tell before operation which were the cases not amenable to it. Experience was in this, as in other matters, the guide of life, and as Sir W. Gowers had said in another connexion, in order that we should be right in nineteen cases we must be content to be wrong in the twentieth. For his own part he had always seen great benefit from operation in gastric ulcer, and where there was no benefit he could not remember any case where the operation had made the patient worse than before.

Dr. C. J. MACALISTER thought that there should be joint action between the physician and surgeon in cases of doubt, but did not consider that haematemesis warranted the case being turned over to the surgeon, because the symptom did not always indicate ulceration. In a case with a history of haematemesis, and in which the patient had been suddenly seized with violent pain in the stomach region, giving rise to a suspicion of perforation, on opening the abdomen tuberculous peritonitis and not gastric ulcer was found. He also related a case showing that appendicitis and gastric ulcer might occur together in the same patient without any interdependence. Constipation was not always a cause of dyspepsia; he had had many cases of severe constipation under his care in which there were no symptoms of dyspepsia. Constipation was in all probability in many cases of chronic dyspepsia an effect and not a cause. A healthy stomach meant healthy action of the intestinal glands.

THERAPEUTICAL SOCIETY.—At a meeting on October 30th, Dr. T. E. BURTON BROWN, C.I.E., President, in the chair, Mr. H. WHIPPELL GADD, F.I.C., read a paper on Some Further Researches into the Active Principles of *Viola odorata* carried out in an endeavour to demonstrate the presence in violet leaves of the glucoside *viola-quercitrin* described by Professor Mandelin. He had found varying quantities of glucose in different samples, but could not confirm the presence of *viola-quercitrin* nor discover any alkaloid.—Dr. W. A. POTTS showed tracings of *The effects of violet preparations* upon the pulse, blood pressure, and frog's heart. He found very definite but transient depressor effects upon all parts of the circulation. After administration of violet preparations by the mouth, the subsequent urine resisted decomposition for many days, even in hot weather. The antiseptic action on the secretions thus indicated perhaps accounted for the undoubted mitigation of the foulness of discharges from cancers after the use of the drug. He had also found great relief to pain by local application of violet-leaf fomentations when other means failed.—Dr. PARKER DOUGLAS agreed that violet-leaf preparations were of use in cases of inoperable cancer, as they mitigated pain and foulness of discharge.—Sir LAUDER BRUNTON related experiences to the same effect. The experimental results recorded by Dr. Potts were similar to those obtained with various saponins, and described by Liebrecht as "anaestheticae dolorosae," in that they produced transient irritation of the skin, followed by anaesthesia; this suggested that violet preparations might be of great use in the treatment of some affections of the eye. He hoped that Mr. Gadd would carry out more researches with a view of testing for saponins in violet leaves.—In reply, Dr. POTTS said that violet preparations were being used in one ophthalmic hospital already, but with what results he was not yet able to say.

REVIEWS

SIR WILLIAM FLOWER.

SIR WILLIAM FLOWER began his career as an army surgeon, and faced the terrible risks and privations of the Crimean war. Afterwards he held the appointment of assistant surgeon to a London hospital, and it was not until he had nearly completed his 30th year that he really began life, *his* life, that is to say, as we understand it. Mr. LYDEKKER relates that life, and his *Sir William Flower*[1] is a good biography of his hero as a man of science. A life of Flower, dealing with him socially and personally, was written by Mr. C. J. Cornish; but the work before us is an eloquent summary of his labour, most creditable to the author, one of the numerous men of science who had the honour of working with him, being, indeed, co-author of a standard work, *An Introduction to the Study of Mammals, Living and Extinct*.

Sickly as a boy, and with health impaired by frostbite and the other hardships of the landing at Eupatoria and the battles Alma, Inkerman, and Balaclava, and the siege of Sebastopol, Flower went through life seldom far from invalidism and often invalided. Yet the sum of his existence expresses itself as a life devoted to science in which the zoologist and naturalist were blended harmoniously, so that he was specially fitted for the office of conservator, which meant in Flower's case the management, not the mismanagement, of museums. He was endowed with social qualities unusual in a man devoted to biological study.

Before his actual career began in 1861 he had shown, from childhood in fact, a zeal for collecting and arranging things and a thirst for zoology. He likewise, before his appointment at the Royal College of Surgeons, had published monographs on the Quadrumana.

Let us here observe that no student need be misled by an idea that the young doctor who writes a scientific paper thereby ruins his prospects for practice. As was pointed out by the President of the Obstetrical Society in the annual address for 1901, Sir William Priestley very early in life contributed to a scientific magazine a learned communication on the specific distinction of sedges. Yet his later history showed that he no more damaged his chances of earning wealth by his talents than Flower blunted his keenness for purely scientific research when he prepared an excellent article on Injuries to the Upper Extremities for Holmes's *System of Surgery* before he had abandoned the practice of surgery.

Mr. Lydekker dwells on Flower's labours at length, yet without becoming tedious. The full titles of Flower's writings are added in a series of appendices; amongst the "obituary notices" we do not find any mention of that which appeared in the BRITISH MEDICAL JOURNAL (July 8th, 1899, p. 123), prepared by one of his former collaborators, wherein he was styled "the King of Conservators," a term of which Mr. Lydekker would, we feel sure, approve.

The best chapter in this biography, in our opinion, is that on Flower's General Zoological Work. He greatly advanced our knowledge of the anatomy of the Mammalia. His work on their osteology is of the highest value to the student; its third and current edition was edited by Dr. Garson. His monographs on Orders, Genera, and Species were of yet greater worth. Of seals and whales, living and extinct, he knew much, as Mr. Lydekker explains; the biographer also dwells on Flower's monograph on the Value of the Characters of the Base of the Cranium in the Classification

[1] *Sir William Flower*. By R. Lydekker. [English Men of Science: edited by J. Reynolds Green, Sc.D.] London: J. M. Dent and Co.; New York: E. P. Dutton and Co. 1906. (Crown 8vo, pp. 191, with portrait. 2s. 6d.)

of the Carnivora. Mr. Lydekker adds some instructive observations on recent discoveries, subsequent to the publication of that paper in the *Proceedings of the Zoological Society*. Opinion is changing about cats, dogs and bears, the latter being now suspected to be an artificial group and recently discovered fossils tend to indicate that the Viverridae are as much dogs as cats. Flower's anthropological labours also receive full notice. The relation of his tenure of office at the Royal College of Surgeons and the Natural History Museum and of his literary and social labours given in this very readable biography are equally interesting to the medical man and to the man of science. For Flower was an honour to both.

DISEASES OF THE CHEST.

The clinical treatise on diseases of the chest[2] by Dr. Alfred v. Sokolowski of Warsaw, originally published in Polish, has now been translated into German and thus brought within the reach of a much wider circle of readers. The rapid increase of knowledge in the science of medicine, though the art of healing does not always advance in proportion, tends to shorten the life of a medical work, so that the recognized authority of to-day may be out of date ten or fifteen years hence. This applies less to the text-book in which the whole range of disease must be sketched than to the work which deals more fully with some special department of medicine and in which the lines of thought opened out by recent research must be discussed. It is perhaps the feeling that their work may be like writings on the sand, which will be washed out by the advancing tide of knowledge, that deters some men from undertaking the laborious task of writing what may be termed advanced textbooks on special subjects. Such books, however, when written with the knowledge which comes of large experience of the subject, guided by wide acquaintance with the writings and researches of other workers, are not only of value to the student of the present, but have permanent interest in marking the state of medical knowledge at the period when they were written. Such a book is the *Treatise on Diseases of the Lungs*, by the late Dr. Wilson Fox, published fifteen years ago; and the two volumes under consideration are of a similar nature, and will serve as another landmark of the progress in the subject. Experience of chest diseases in their various forms gives life to every chapter, whilst the work and views of other observers have been thoroughly studied and digested. We have, in the result, a work which may be taken to represent the actual state of our knowledge of chest diseases at the present time. The physician of to-day may bring his information up to date, and the student of the future will use Dr. v. Sokolowski's work as a valuable book of reference, though much that is now uncertain may have become clear, and the borings of present research may have led to the discovery of rich treasure. The title of the book, *Klinik der Brustkrankheiten*, is modest, but the work is very complete. The first volume comprises two parts—diseases of the trachea and bronchi, and diseases of the lungs. The second volume is also divided into two parts, the first dealing with diseases of the pleura and mediastinum, the second devoted to consumption. The arrangement of the matter is methodical and convenient, and each disease is very fully discussed. Dr. v. Sokolowski, as might be expected from one who has been associated with Brehmer at Görbersdorf, has a full appreciation of the value of fresh air and general hygienic management in the treatment of lung diseases. For example, free ventilation of the sick room by open windows at night as well as during the day is insisted upon as of primary importance in the treatment of acute pneumonia. Nor does he underrate the importance of the open window in preventing diseases of the respiratory organs. Most persons agree that fresh air and hygienic surroundings are important factors in the prevention as in the treatment of consumption, but it would be well if it were more generally recognized that liability to other chest diseases may be diminished by greater attention to these requirements. Speaking of bronchial catarrh, Dr. v. Sokolowski expresses his personal conviction that life in the fresh air and attention to hygiene in the home provide the best means of protection against catarrh of the air passages. When discussing the treatment of pneumonia and bronchopneumonia, he again refers to such means as tending to minimize the tendency to these diseases, especially in children. A work of this size cannot be adequately dealt with in a short review, but we have said enough to indicate that this is a notable addition to the standard works on diseases of the chest.

[2] *Klinik der Brustkrankheiten.* Von Dr. Med. Alfred v. Sokolowski. Bands i and ii. Berlin: August Hirschwald. 1906. (Demy 8vo, pp. 1327. M.32.)

The second edition of Professor J. A. Lindsay's *Clinical Lectures on Diseases of the Lungs*[3] is so altered in form from the first as to be in effect a different book. Many of the lectures which appeared in the original collection are here reproduced, but all those on heart disease are omitted—we may hope to reappear in another volume—and are replaced by further lectures on diseases of the respiratory organs. In its new form this book almost covers the field of pulmonary diseases from the clinical point of view. The feature of these lectures is that they express the results of the personal experience of a skilled observer, who has in addition a wide knowledge of the literature of his subject. The writings of others are considered and criticized, and the reader is brought into touch with the most recent researches and opinions of the best-known authorities on pulmonary diseases. As a sign of the times we note that quite one-half of the volume is concerned with a consideration of the various clinical problems connected with pulmonary tuberculosis. The new lectures are equal to those which appeared in the first edition, and the favourable opinion expressed (British Medical Journal, June 4th, 1904, p. 1319) when that appeared some two years ago is confirmed on perusing this second edition.

THE PHYSIOLOGY OF TASTE.

Dr. Wilhelm Sternberg, in his monograph on taste,[4] shows that he has devoted much study to the work of his predecessors, and has summarized the literature in a manner which will aid subsequent workers. The book is not, however, well arranged, and there is a good deal of repetition. Thus, after concluding—justly, as we think—that electrical stimulation is not a satisfactory method in the study of taste sensations (p. 87), the author returns to the subject more than once without any sufficient reason. In a branch of physiology needing above all succinct and logical treatment this defect is serious, and we doubt whether the book under review will be as useful as Vaschide's exhaustive article (in Richet's *Dictionnaire*) now in course of publication. The author's gustometer, in which volatile substances are employed as stimuli—chloroform as a sweet and ether as a bitter stimulus—may be of service in practice, perhaps affording a better localization of the area under examination than has been possible up to the present. Its value in exact investigations can only be decided by experience. A reader who opens Sternberg's book under the impression that our knowledge of the physiology of taste is in a state of chaos will find little in the book calculated to destroy the belief.

[3] *Clinical Lectures on Diseases of the Lungs.* By James Alexander Lindsay, M.D., F.R.C.P., M.A. Second edition. London: Bailliere, Tindall, and Cox. 1906. (Demy 8vo, pp. 509. 10s. 6d.)

[4] *Geschmack und Geruch-Physiologische Untersuchungen über den Geschmackssinn.* Von Dr. Wilhelm Sternberg. Berlin: J. Springer. 1903. (Demy 8vo, pp. 150. M.4.)

Association of Military Surgeons of the United States.—The Association of Military Surgeons of the United States held its fifteenth meeting at Buffalo from September 11th to 14th. The award of the Enno Sander prize was made to Major Pilcher for an essay on "the training of the medical officer of the State forces to best qualify him for local service and for mobilization with national troops." A number of valuable papers were read, one, which excited much interest, being on tendon tissue *versus* catgut, by Dr. Nicholas Senn of Chicago. Another communication, which gave rise to a lively debate, was on the ration of the soldier, by Major L. L. Seaman. The meeting is said by the *Buffalo Medical Journal* to have been "one of the most successful in the history of the association."

The late Miss Isabella Anne Hayley, of Higher Broughton, Manchester, who died on August 12th, bequeathed £1,000 to the Northern Counties' Hospital for Incurables.

LITERARY NOTES.

IT is announced that the inmates of a large lunatic asylum in Austria have started a newspaper. The first number contains an editorial announcement that it is written "by the mad for the mad," which recalls Captain Shandon's famous assurance as to his projected *Pall Mall Gazette*, that it would be written by gentlemen for gentlemen. We have not seen the "psychological" publication, but it is said to be very like the ordinary newspaper.

Mr. E. H. Blakeney, writing from the King's School, Ely, to the *Spectator*, says that as he was leaving the cathedral of that city on St. Luke's Day the following verses were handed to him:

> Pandit evangelii et medicinae munera Lucas:
> Artibus hinc, illinc religione potens.
> Utilis ille labor per quem vixere tot aegri,
> Utilior per quem tot didicere mori.

He asks if anyone can indicate the source of the lines. Can any member of the St. Luke's Guild or any one among the readers of the BRITISH MEDICAL JOURNAL supply the information required?

The current issue of *Nature Notes* announces that during the absence of Professor Boulger in South America the magazine will be edited by the Honorary Secretary, Mr. Wilfred Mark Webb. All editorial communications should therefore be sent to his private address, Odstock, Hanwell, W. In the same number a prize is offered for the best collection of autumn fruits, accompanied by descriptions showing what the specimens illustrate.

The *History of Nursing in the British Empire*, by Mrs. Sarah A. Tooley, author of *The Life of Florence Nightingale*, will be published very shortly by Messrs. Bousfield and Co., London. This country is admittedly the birthplace of trained nursing in the modern sense. It is well, therefore, that the history of the movement should have been written while many of the pioneers could still be appealed to as living witnesses of the revolution which has taken place since the limner of Sairey Gamp and Betsy Prig aroused the early Victorian public to an uneasy sense that such ministering angels did not possess all the qualities desirable for the nursing of the sick.

Professor Renaut of Lyons is, like Oliver Wendell Holmes, at once an anatomist and a poet. He writes, or rather sings, under the pseudonym of "Sylvain de Saulnay." He has recently published a volume entitled *Ombres Colorées*, in which it is said that true poetic feeling finds expression in verse of the deftest artistic workmanship. An estimate of him is given in the following quatrain which the *Lyon Médical* professes to have found in its letter box:

> Grandiloquent plus que champêtre,
> Et du Saulnay plus que Sylvain,
> L'auteur est un noble écrivain,
> En art comme en science, un maître.

The first two lines seem to hint at some want of simplicity in the anatomist-poet's style. But simplicity is surely the last thing one looks for in the modern maker of verses, whose art largely consists in decking the most homely thoughts in Persian attire.

The objects of *Women and Progress* (late the *Women's Tribune*), as set forth by Lady Frances Balfour and the editor, Miss Nora Vynne, are "to deal with economic and political topics as affecting women, to afford a medium for the expression of women's views, and to show by publication of these views, and by recording women's work in this and other countries, that women are fitted for the responsibilities which they claim." The *menu* of reform which they offer their readers includes, as the *pièce de résistance*, female suffrage; among the *hors d'oeuvres* and side dishes are reforms in housing, public health, education, temperance, sanitation, labour, prison life. But is the advent of such reforms likely to be hastened by scratching policemen's faces and shrieking in the House of Commons? In our new—or, rather, revived—contemporary we find a lady, signing herself "Dr. Alice Drysdale Vickery," complaining that women are never tried by their "peers." A reform in this particular direction would doubtless be welcomed by many men, but how would female malefactors like to be tried by juries of their own sex? We gladly turn from the combative part of *Women and Progress* to a short story by Flora Annie Steel, and to a sensible article on medical women.

To the October number of the *Journal of Mental Science* a very interesting article on the Psychology of the Crusades is contributed by Dr. W. W. Ireland. Those expeditions, he says, were at once religious pilgrimages, military adventures with promises of renown and a share of the rich spoils of the East and means of escape from a dreary life. Both the Christian and the Mussulman held that salvation was the reward of steadfastness in an enjoined belief, rather than of good life; hence they naturally hated each other with what seemed to them a righteous hatred. The Christians were told by the priests that Mohammed, lying insensible in an epileptic attack, was devoured by hogs, nothing being left but his feet. We can understand why this should make his followers dislike pork, but had this fate befallen the Prophet it would clearly have been his misfortune rather than his fault. We can only suppose that it was regarded as a proof of the wrath of the Almighty. Dr. Ireland regards the impulse which led the faithful who answered Pope Urban's call at Clermont in 1095 to take up the cause of Christ with the cry *Dieu le volt!* as an example of *folie communiquée*, "the impact of a dominant idea upon an impressionable nervous system, passing from mind to mind." The excitement spread like fire, and the movement with increasing momentum drove an ever-growing multitude towards the Holy Places "in the expectation that the God who had fed the children of Israel with manna in the wilderness and caused water to flow out of the rock, would help them over the perils and toils of the way." The hope of a heavenly reward in the future and of miraculous aid which buoyed up these poor people, affords the explanation of their mad rush to Jerusalem.

Professor Blanchard presented to the Académie de Médecine, at its meeting on October 16th, a work by Dr. L. Héchemann of Mézières, entitled, *Un Médecin Ardennais, Corvisart, 1755-1821*. In it the scientific work of Corvisart is reviewed in detail. The history of percussion is fully told, beginning with Hippocrates. Corvisart is said to have been the founder of clinical medicine in France: he was the first to call attention to the significance of dyspnoea as an indication of heart disease; and although he did not invent the method of percussion, he made it more precise, and greatly enlarged the scope of Auenbrugger's discovery. Dr. Héchemann gives a list of portraits of Corvisart—engravings as well as paintings, and he mentions a bust by F. Hainglaise which is now in the hall of the Faculty of Medicine. Professor Blanchard has in his possession a small plaster bust dated 1851. It is by Chardigny, who made a number of busts of similar size of other physicians.

The *L.G.O.*, with which is now incorporated the *Public Health Engineer*, is the official organ of the National Association of Local Government Officers. It is a periodical which cannot fail to be at once interesting and useful to all Local Government officials. "Not only," says the Editor, "have we been in a position to chronicle the events, happenings, and progress of [these officials], but owing to circumstances which need not be stated here we have been able to follow the official's life from 'behind the scenes.' With this intimate and personal knowledge of the situation we have been in a position to give public support to officials where they have had difficulties to face either in connexion with their salaries, or with their relationship to the local authority, their employers." As the official organ of Local Government Officers, our contemporary claims that it possesses immeasurably increased opportunities of helping the profession to obtain much needed and long advocated reforms. We wish the *L.G.O.* the success which it deserves.

The object of the *Prescriber*, a new monthly publication issued by Mr. Thomas Stephenson, pharmacist, of Edinburgh, is stated to be "to render to medical men that assistance which properly comes within the sphere of the pharmacist, by presenting a series of short articles dealing with the pharmacy of the newer remedies, giving concise and authoritative notes as to their properties and doses, with lists of suitable preparations to assist the prescriber in their administration." The editor further says that the periodical "will not partake of the nature of a price list or advertisement in any way." The first number, which is before us, shows that the *Prescriber* is in too embryonic a stage for it to be possible to form a judgement as to its probable usefulness to medical practitioners.

LUNACY IN LONDON.

The Seventeenth Annual Report of the Asylums Committee of the London County Asylums for the year ending March 31st, 1906, shows that on January 1st, 1905, the total number of London pauper lunatics in asylums and licensed houses, in workhouses, in the Metropolitan Asylums Board's imbecile asylums, and with relatives and friends was 24,652 and that on January 1st, 1906, this number had increased to 24,957, giving a net increase of 305 as compared with the increase of 704 for the year previous, or with the 996 for 1903. This diminishing rate of increase is not confined to London, but as shown by the last report of the Lunacy Commissioners is general throughout the whole country. The London County Asylums Committee speak in guarded terms of this encouraging sign, and remark that experience has shown the unwisdom of coming to any conclusion upon the figures of only one or two years and that they therefore await next year's statistics with interest. The 24,957 London pauper lunatics were distributed as follows: In asylums and licensed houses, 18,130; in Metropolitan Asylums Board's imbecile asylums, 6,411; in workhouses, 264; and with relatives and friends, 152. These figures show an increase of 360 in the London County Asylums, a decrease of 39 in the Metropolitan Asylums Board's imbecile asylums, a decrease of 16 in workhouses, and no change in the number with relatives or friends.

Accommodation.

The total accommodation afforded by the London County Asylums on January 1st, 1906, was for 17,078 patients, giving a deficiency of 1,462 beds, a deficit greater by 354 than on January 1st, 1905. The Asylums Committee again this year comment adversely on the provision made by the two great bodies for the maintenance of London's pauper lunatics—the Metropolitan Asylums Board and the London County Asylums. They show by two interesting diagrams that, whereas on January 1st, 1890, the County Council provided accommodation for 7,270 and the Metropolitan Asylums Board for 5,660, on January 1st, 1906, the County Council provided accommodation for 17,073 and the Metropolitan Asylums Board for only 6,863, giving increases of 9,803 and 1,203 respectively, although there has been no marked change in the character of the patients admitted such as would have justified the difference in the accommodation provided by the two bodies. As regards the various unions or parishes to which the cases are chargeable, we see that, as last year, St. Pancras heads the list, furnishing 1,802 patients. The Strand patients, though only 240, give the highest ratio per 1,000 of population, being 13.5, and Hampstead the lowest, with 2.3 per 1,000 of population. To provide for London's increase of insane the Long Grove Asylum at Epsom and the additional hospital villa at Bexley are being pushed forward, additions at Colney Hatch and Manor Asylums are planned, and preparations for an eleventh asylum made, the additional accommodation to be thus provided amounting to 4,617 beds. The total number under care in the London County Asylums during the year was 20,731.

Cost.

The average weekly cost per head per patient maintained in the asylums during the year ended March 31st, 1906, was 11s. 0.78d., as compared with 11s. 3.58d. of the year previous.

Admissions and Readmissions.

During the year ending December 31st, 1905, there were in all 3,744 admissions, of whom 1,787 were males and 1,957 females. This gives a decrease of 69 on the total admissions of 1904, which again gave a decrease of 689 on those of 1903. Of the total number of admissions 3,299 were first and 445 not-first admissions. The returns of readmission for the five oldest asylums, whose records extend over eleven consecutive years, show that of the number of cases discharged as recovered the number afterwards readmitted varies from 27.42 to 29.18 per cent., while the number of readmissions within twelve months of discharge ranges from 11.74 to 13.47 per cent. That is, 28.44 per cent. of the whole number of those discharged as recovered from these five asylums were readmitted within eleven years and 12.73 per cent. within twelve months of their discharge. In commenting on these figures, the Asylum Committee say:

> These percentages may be taken to represent fairly accurately the proportion of readmissions at the London County Asylums generally. It is regrettable that the proportion should be so high, but in this connexion it must always be remembered that the Lunacy Acts make no provision for the detention of patients who are no longer of unsound mind, however great may be the probability of their mental breakdown on their return to the ordinary conditions of life.

In 1,627 of the total admissions the attacks were first attacks within three and in 431 more within twelve months of admission; in 716 the attacks were not-first attacks within twelve months of admission; of 610 of more than twelve months' duration on admission the defect was of congenital origin in 144; in 214 the duration of the attack could not be ascertained, and 2 were not insane on admission.

The mean age of all admissions was 42.44 years as compared with the 42.25 of the previous year. The Committee again advert to the large number of persons suffering from senile decay who are certified for detention in an asylum. During the eighteen months ending September 30th, 1905, no less than 462 aged patients (that is, over 65 years of age) were admitted to the London County Asylums, not including the Epileptic Colony, forming 9 per cent. of the total admissions. The Committee state their conviction that the certification of old people is a very important factor in the recorded increase of lunacy, and they point out that these patients are more costly to maintain than others, that many require to be accommodated in infirmary wards and to have careful nursing and special diet, and that in many cases it is their physical rather than their mental condition which calls for attention. This circumstance, they say, may explain why Boards of Guardians are so ready to send old persons, who become troublesome in their infirmaries, to asylums. We have ourselves on more than one occasion stated that the asylum is not the most suitable place for these cases, and we join with the Asylums Committee in hoping that the Lunacy Commissioners will be able to suggest some remedy.

Medical Statistics.

Last year in our abstract of this annual report we had occasion to allude to the regrettable lack of uniformity in some of the tables furnished by the medical superintendents of the several asylums, and for the same reason again this year we are unable to summarise the various returns.

The Asylums Committee refer to the matter and say that the tables in question are under consideration by the Pathologist Subcommittee. They point out, however, that whatever form the statistical tables may take, the value of the statistics "must depend upon intelligent inquiry by the medical staff, and upon the care with which the medical officers collect data for the tables," that is, upon the personal equation of the investigator. We fear that this must ever afford an unavoidable difficulty, and we can only hope that any tendency to shape facts to fit with theories in one direction may be so compensated by similar efforts in other directions that the average may approximate to truth.

Etiology.

Owing to the different methods of classification of the forms of mental disorder adopted by the various medical superintendents it is not possible to summarise the returns made under this heading with any approach to accuracy, and we shall, therefore, not attempt the task. Turning, however, to the tables under which the probable etiological factors amongst the admissions are set forth, and taking only one or two of the most usually mentioned causal factors (excluding the statistics of the Ewell Epileptic Colony), we find that of the 3,674 admissions to the London County Asylums, alcoholic intemperance was assigned as either exciting or predisposing cause in 726, or 19.2 per cent., as compared with the 16.3 per cent. of the pauper patients for the whole of England and Wales for the quinquennium 1900-4; venereal disease in 294, or 8 per cent., as compared with 2.6 of the pauper patients for the whole of England and Wales, and moral causes in 966, or 26 per cent. Hereditary influences were ascertained in 804, or 21.8 per cent., and congenital defect existed in 226, or 6 per cent. of the admissions.

Granting that these statistics reflect the same average "personal equation" and "intelligent inquiry and care"

as do those of provincial asylums, these figures would seem to show what might have been expected *a priori*—that is to say, a larger proportion of cases which may fairly be attributed to alcoholic intemperance and syphilitic infection than in country districts.

Owing to inherent difficulties the proportion given above of cases in which hereditary influences were ascertainable certainly falls far short of the reality; and we notice that Dr. T. E. K. Stansfield, the Medical Superintendent of Bexley Asylum, who again contributes an exceedingly interesting report, and who was able to obtain complete personal and family histories of 302 out of 494 patients admitted, found an insane heredity in 137 and a neurotic heredity in 35 instances, giving a combined percentage of 56.9 per cent. He adds:

I am satisfied that this falls far short of the true proportion. There is a floating mass of degeneracy in the population which is constantly augmented by the victims of social vice and its satellites, syphilis and drink, and from this mass we derive the bulk of our asylum population, fill our prisons, and supply our "unemployable," and that this is increasing at a faster rate than the normal population is, I think, indicated by the statistics of the Lunacy Commissioners as to the relationship of certified insane to the total population, which show that the increase of population in the nine years ended January 1st, 1905, was 10·8 per cent., whilst that of the number of certified insane has been 24·2 per cent. in the same period.

The only satisfactory methods of dealing with the increasing load of insanity are, he considers, by education and legislation, and, in his opinion, the question of the sterilization of the insane becomes more and more pressing. Dr. Stansfield again appends tables showing the relationship between general paralysis and syphilitic infection amongst his admissions, showing that 87.5 per cent. of his male and 75.0 per cent. of his female general paralytics had been previously infected.

Discharges.

During the year 1,286 patients were discharged as recovered, giving recovery-rates on the admissions of 34.34 per cent., and on the admissions, excluding transfers from other asylums, and not including the epileptic colony's figures, of 38.93 per cent. The recovery-rate on the admissions is thus higher than it has been since 1900, when it was 36.28 per cent. The recovery-rates of the several asylums, excluding transfers, were: Hanwell, 38.73 per cent.; Colney Hatch, 40.24 per cent.; Banstead, 41.86 per cent.; Cane Hill, 32.77 per cent.; Claybury, 42.53 per cent.; Bexley, 32.52 per cent.; Manor, 52.22 per cent.; and Horton, 30.61 per cent. During the year there were also discharged as relieved 759, and as not improved 265.

Deaths.

There were 1,481 deaths during the year, giving a death-rate on the average numbers resident of 8.70 per cent., as compared with the 8·23 of the year previous, or of the 10.08 per cent. of the county and borough asylums of England and Wales. Excluding the epileptic colony, Banstead had the highest death-rate with 11.64 per cent., and Manor the lowest with 4.63 per cent.

As to the causes of death, the Asylums Committee express their inability to compile a summary, owing to the separate tables not being uniform, but on going through the tables we find that, with the exception of the epileptic colony, 322 deaths were due to general paralysis, or 21.9 per cent. of the total deaths, which is a slight increase on the proportion of last year; 166 were due to pulmonary or other forms of tuberculosis, or 11.2 per cent. of the total deaths, which is almost the same proportion as that given last year (11·4 per cent.); 58 deaths were due to dysentery, 24 of these occurring at Claybury, and 17 at Bexley; 113 to senile decay, and only 4 to accident or suicide.

General Health.

The general health appears to have been on the whole good throughout the asylums. Beyond dysentery, erysipelas, a few cases of scarlet fever, and 2 cases of typhoid fever, there were no cases of zymotic diseases. Fourteen inquests were held during the year, the asylum officials being in every case exonerated from blame. One case was of a very unusual nature, a suicidal patient being murdered by her husband on the occasion of his visiting her, the unfortunate patient being evidently a consenting party. Both at the police court and at the trial a number of letters from the patient to her husband were produced which were much animadverted upon, the jury adding to their verdict upon the husband of "guilty but insane" a recommendation that "such letters as those written by the woman should not be allowed to go out of the asylum." The Medical Superintendent, Dr. Ireland Donaldson, of the Horton Asylum, at which the fatality occurred, records his opinion that there would be no justification for suppressing the letters of a wife to her husband, who should have this opportunity of knowing the state of his wife's mind. "In any case," as Dr. Donaldson says, "only those connected with asylum management can form a correct judgement in the matter." From five asylums 51 serious but non-fatal casualties in all were reported, the medical superintendents of the remaining three asylums returning no information under this head.

(To be continued.)

ASSOCIATION OF CERTIFYING FACTORY SURGEONS.

Annual Meeting.

The annual meeting of the Association of Certifying Factory Surgeons was held at the Grosvenor Hotel, Manchester, on November 2nd, and was exceedingly well attended. Dr. R. C. Brown of Preston, the retiring President, occupied the chair.

The Honorary Treasurer's report showed the Association to be in a sound financial position in spite of the smallness of the annual subscription and the considerable expenditure entailed in parliamentary work. The Honorary Secretary's annual report dealt with a number of important matters. The net increase in membership during the year was stated to be 24, bringing the total up to 365, which is regarded as a satisfactory figure. A series of tables, compiled from abstracts of members' annual reports, were presented. These showed that 272 members of the Association made 204,495 examinations for the certificate of fitness, with a total rejection list of 2,925 (1.4 per cent.). Of this number 1,861, or 9 per cent. of the examinations, were refused by reason of physical incapacity. The amount of actual work in the country performed by members of the Association was shown by a comparison with a similar set of figures published by the Home Office. The whole of the certifying surgeons throughout the country, numbering 1,933, made 361,578 examinations, with 5,012 (1.38 per cent.) rejections, 2,996 (0·82 per cent.) being for physical incapacity. It was stated that the questions sent out by the Association to parliamentary candidates at the time of the general election had met with distinct success, and that 150 members of the present Parliament had expressed themselves as in accord with the points raised therein. The Association was congratulated on the fact that a "Notice of Accidents" Bill had been passed which met the wishes both of themselves and of the British Medical Association. Attention was particularly directed to the Secretary of State's Order, which comes into operation on January 1st next, and extends the provisions respecting the certificate of fitness to practically 80 per cent. of the present existing workshops. Although this would mean an increase of work for certifying surgeons it was to be feared that this would lie mainly in the direction of the objectionable sixpenny examinations. Reference was made to the provision in the Workmen's Compensation Bill for examination and granting of certificates by certifying surgeons in alleged cases of industrial disease, and to a statement placed before Mr. Birrell pointing out the advantages to be gained by arranging for the conducting of examinations of school children by the certifying surgeon. A spirited discussion took place on the "sixpenny" fee, a special line of objection being taken to the manner in which very large firms, employing little juvenile labour, took advantage of this concession. A strong opinion was expressed in favour of a special effort being made to obtain some alteration of this provision before the extension of the certificate of fitness regulations to workshops comes into force.

Dr. J. Brassey Brierley (Manchester) was unanimously elected President for the coming year. Dr. T. Watts was elected Honorary Treasurer, and Dr. W. F. Dearden Honorary Secretary. The Honorary Corresponding Secretaries elected were Dr. H. C. Manley (Belfast) for

Ireland, Dr. Alex. Scott (Glasgow) for Scotland, and Dr. W. H. F. Oxley (London) for the metropolitan districts.

There was a large gathering at the annual dinner which followed. There was an excellent musical programme, and some interesting after-dinner oratory was provided by Sir William Bailey, the Rev. Dr. Hertzberg, Dr. R. C. Brown, Dr. Alexander Scott, and H.M. Inspectors of Factories.

POOR-LAW REFORM IN IRELAND.

II.

Consumption.

The report of the Viceregal Commission on Poor-Law Reform in Ireland contains a series of paragraphs on the measures which should be taken to diminish the great prevalence of pulmonary tuberculosis in Ireland. It is stated that whereas during the past thirty-five years the death-rate from tuberculosis in England has been reduced by exactly one-half, and in Scotland almost to the same extent, in Ireland the statistics of the Registrar-General show that the death-rate from tuberculosis is increasing. The number of deaths from tuberculosis in Ireland in the year 1904 was 12,694, and the average for the past ten years was 12 556. Could the death-rate in Ireland undergo a similar reduction to that which has been effected in England and Scotland, the Commissioners estimate that about 6,000 lives a year would be saved. They point out that as the age period during which most deaths occur from tuberculosis is from 25 to 35 years, it affects mostly the population in the prime of life. During 1905, 8,204 patients suffering from tuberculosis were treated in the union hospitals and county infirmaries.

As to the causes of the increase of tuberculosis, the principal, in the opinion of the Commissioners, is that so little is done to prevent the disease from being communicated, and they believe that the disease might be reduced to very small proportions, if not stamped out, were proper precautionary methods taken. They refer especially to improved dwellings for the poor, more attention to general sanitary conditions in and around buildings, the removal of patients suffering from consumption, more particularly in the advanced stages of the disease, from crowded homes where proper precautions cannot be carried out to a sanatorium or hospital, and the destruction of the infection in the homes of the sick.

Although there are more deaths in Ireland from consumption than from all the other infectious diseases put together, yet while ample provision is made for the isolation and treatment of other diseases, there is, the Commissioners state, practically no proper provision throughout the greater part of Ireland for the treatment of cases of consumption. The only institutions open to them are the union infirmaries, and owing to workhouse associations and the want of suitable arrangements, consumptives in the early stages of the disease do not care to enter these institutions. Yet the principal objects to aim at in dealing with the disease are to cure those cases that are curable, and to prevent the infection spreading from those affected. In attempting the one means can be taken to lessen or prevent the other.

The Commissioners state that though in the majority of union infirmaries there are separate wards, these are with very few exceptions only partially isolated, the patients using the same passages, staircases, and exercise yards, while in some infirmaries even this partial isolation has not yet been provided. The Commissioners observe that partial isolation is suggested as a temporary measure only. No one could consider the arrangement sufficient, as all consumptive cases are a source of great danger to the other patients in the infirmaries, for it is admitted that all diseases, and especially all chronic ailments, tend to weaken resistance to the invasion of consumption. It is thus seen to what an extent danger exists from the imperfect isolation of consumptive patients in the union infirmaries. Such a condition of things demands an immediate remedy.

The Commissioners admit that the best method of treatment would be to have fully equipped sanatoriums for patients in the early stage of the disease, and hospitals for the more advanced cases. But they point out that in Ireland there are two public sanatoriums, and both have been doing good work for several years, the National Sanatorium at Newcastle, County Wicklow, and the Foster Green Sanatorium at Newtownbreda, near Belfast. Two more have been arranged for, one in Belfast and another in County Cork; there are also several private sanatoriums in different parts of the country.

The Commissioners acknowledge valuable evidence from a large number of medical men. They say:

Dr. P. J. Cremen, of Cork, gave us detailed statistics as to the prevalence of consumption in Cork. Dr. J. C. Smyth, of Altadore, County Wicklow, made suggestions as to the erection of cheap temporary structures for the treatment of cases of consumption. Dr. Colahan, of Galway, stated that consumption was increasing in and around Galway to an appalling extent, and that a number of consumptives returned from America to die. They came home in an advanced state of the disease, and after remaining two or three months at home, where they spread the disease, they usually went into hospital, where they had to lie in the general wards with other patients. Dr. Moorhead, of Cootehill, described what he had effected at Cootehill Workhouse, by setting apart some wards of an isolated hospital for the treatment of consumptives on the open air system, and in connexion with which he erected wooden shelters on pivots (at a cost of about £13 per shelter holding three couches), where the patients spent the greater part of the day. The results were most encouraging, and much credit is due to Dr Moorhead and those who assisted him locally in the erection of the shelters. Dr. Moorhead was also of opinion that it was not necessary to erect costly sanatoriums, because the disease could, in his judgement, be stamped out in a short time if energetic measures were universally adopted.

The Commissioners suggest that some of the disused workhouses might with a reasonable outlay be converted into efficient sanatoriums, one for each large county, and one for two or three smaller counties. Partly on the ground of expense, they recommend that each institution should receive cases of consumption in all the different stages, but in this connexion they observe—

There are, however, other benefits to be derived from combining the curative and apparently hopeless cases together in one institution, such as avoiding the difficulty of determining whether a patient is curable or incurable, there being no hard and fast line of demarcation; and obviating the necessity of transferring patients from such an institution when they pass from what is called the curative condition. Moreover, consumptives would more willingly enter an institution where they knew patients had recovered.

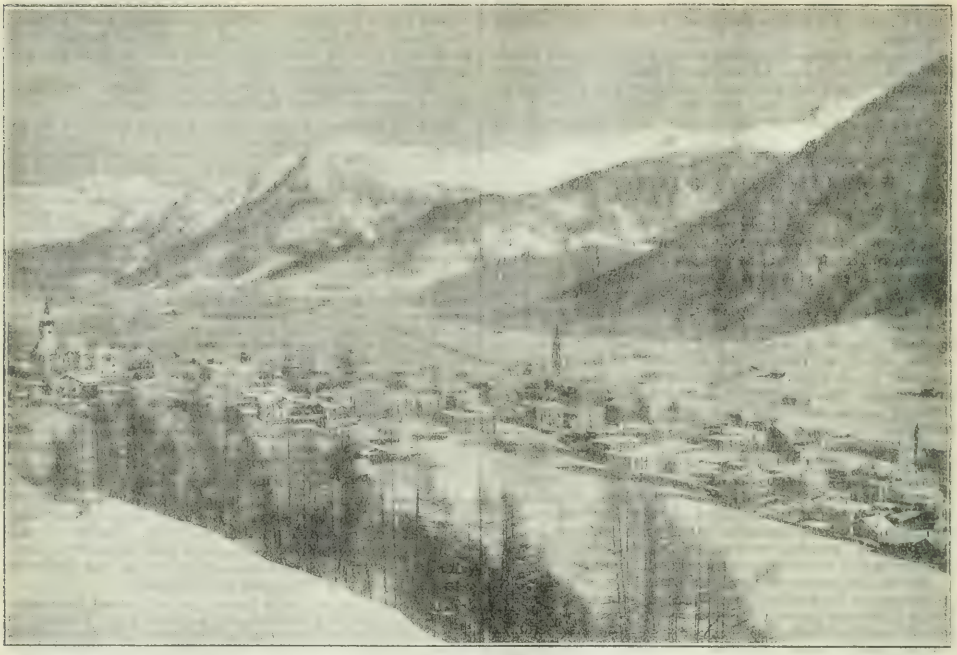
They express the opinion that—

The portion to be set apart for early cases could be adapted as far as possible on the lines of a sanatorium, with large windows, which should be made to open freely, and with open air shelters and other requisites. The other portion would not require extensive alterations, and at a small cost could be made to afford suitable accommodation for the more advanced cases.

With regard to the financial and economic aspects of the matter the Commissioners observe:

The cost of maintaining the sanatoriums should, as is explained elsewhere in this report, be a charge on the county funds, in the same way as for the other hospitals of a county. The managing body, when it is the institution for a single county, should be the hospital committee, and, when for more than one county, a committee composed of representatives from the hospital committees of the counties concerned. If by a short course of treatment in a sanatorium a patient can be restored to working efficiency, the ratepayers would be relieved from the burden of supporting the patient and frequently dependents also. On this ground, apart from the duty of preventing the spread of infection, we think the County Councils would be more than justified in providing sanatoriums. We do not, however, desire to convey an impression that we consider it unnecessary that sanatoriums constructed and maintained on the most approved modern lines should be established. Where the resources of the ratepayers and other considerations permit we should like to see such sanatoriums provided, and disused workhouses used as supplemental to them in such a manner as might be found expedient in each locality.

Congress of French Scientific Societies.—The next Congress of French Scientific Societies will be held at Montpellier, April 15th to 21st, 1907. The following are the medical questions proposed for discussion: Tuberculosis and the means of diminishing contagion: high altitude and marine sanatoriums; the etiology of general paralysis and tabes; the methods of disinfection against contagious disorders; the water supply of towns; plague and the possibility of its spread in France; leprosy and pellagra in France; the part played by insects, especially the common fly, in the dissemination of contagious diseases; the hygiene of the school child.



Davos in Winter.

DAVOS PLATZ.

I.

Davos Platz can be reached in twenty-four hours from London, via Folkestone, Boulogne, Laon, Zurich, and Landquart. It lies in a valley with a level bottom a mile and a quarter broad; the mountains which form this valley are 9,000 ft. high, and Davos is 5,200 ft. above the level of the sea.

About the middle of the last century Dr. Alexander Spengler became medical officer of the district. He soon noticed that the inhabitants rarely suffered from tuberculosis, and that the natives who contracted it in other countries rapidly improved in health when they returned home. In 1862 Dr. Spengler began to recommend consumptive patients to go to Davos, and for some years it became a summer resort; no one dreamt of braving the winter. Then one or two patients stayed, and it was discovered that not only were the winter months safe, but actually of greater benefit in the cure of consumption than the summer; Davos then became almost entirely a winter resort. Before the year 1867 there existed merely a small hamlet, with no proper accommodation for visitors. The history of the growth of this hamlet into a large and prosperous town is interesting. Dr. Spengler and a Dutchman named Holsboer put their heads together, and through their energy and enterprise enormous difficulties were overcome, and in 1905 over 20,042 visitors were accommodated in private houses, sanatoriums, and hotels of the most modern type.

The Climate.

It is often asked what particular virtue there is in Davos to cause phthisical patients to be sent there in such numbers. The general features of the mountain climate are not peculiar to Davos, but in order that invalids may live there special conditions are necessary, the chief being sun and shelter. At such an elevation the mountains are generally steep and the valleys merely deep, narrow, wind-swept gorges, plunged in shade, and with no room for a town.

The valley of Davos is so broad that the mountains do not shut out the sun. Contrary to general rule the valley wind here is from the north-east during the day time, so that invalids can lie on their balconies facing south and be sheltered from the wind. Owing to the enormous quantities of snow the wind is much less severe in winter than in summer, and from December to March there is generally complete calm, whereas in summer the wind has a cooling effect. The föhn wind blows sometimes, but is generally so modified that none but the most sensitive patients are inconvenienced by it.

The atmosphere is extraordinarily clear and there is a large amount of sunshine. When the sun rises over the mountains it is already high, its rays strike the earth at a fairly acute angle and are immediately more warming than they are in the plains, where in the early morning they fall very obliquely.

Great importance is attached to solar radiation in considering an Alpine climate for invalids. In winter the solar radiation at Davos is remarkably powerful; added to this the absence of wind together with the refraction of the rays by the snow makes it possible to sit or walk in the open air without extra wraps. It is only the sun which makes it possible to enjoy being out of doors during the winter, for the temperature of the air through which the sun shines and the temperature in the shade are nearly the same.

The heat of the sun is generally greatest in February and March, and for this reason patients conclude that the heat of summer must be unbearable. In reality, during the summer months the soil absorbs much of the warmth of the sun, there is no snow to produce refracted heat, and there is generally a cool breeze.

No definite conclusions have yet been arrived at with regard to the intensity of light, the bactericidal properties of which are being more and more recognized; so much is known, that the Alpine light is richer than that of the plains in ultra-violet chemically active rays, and that these are absorbed into the lowest strata of the atmosphere.

With regard to the effect the radio-activity of the air has upon the human system no definite conclusions have been reached, beyond the fact that it is greater in the mountains than in the plains.

For more than half the year the ground at Davos is covered with snow, and consequently the air is free from dust. The snow, which is dry and crumbly, is pressed down by means of snow rollers, so that the roads are hard

and not at all slippery. The air is very dry, and there is a remarkable absence of fog and cloud, especially in winter. It is in great measure this dryness which makes the intense cold of the mountains easier to endure than the lesser degree of damp cold in the lowlands.

Indications and Contraindications.

To the question often asked, What is the best time of year to arrive at Davos? all authorities agree in answering that patients suffering from pulmonary tuberculosis should not lose a day in commencing the cure, although it would be better, if possible, that they should not arrive during the snow-melting period, which generally commences towards the end of March and continues until the end of April. At the time the snows are melting, walking is disagreeable, and the frequent changes in the weather may be trying to sensitive patients. The summer is pleasant enough, and the autumn perfect. It is better that patients intending to winter at Davos should arrive in September or October, so as to get acclimatized before the great cold sets in. The period of acclimatization varies according to the subject, several weeks being necessary in the case of sensitive or neurasthenic persons. In general the frequency of the pulse increases, and the acceleration may last for months, or even during the whole stay, in persons of sensitive temperament.



Davos in Summer.

After excitement or exertion the temperature rises higher in proportion than in the lowlands. The circulation is stimulated by the mountain climate owing to the fact that more work is given to the muscles of respiration: walking is accompanied by greater frequency of respiration, and the volume of air breathed per minute also increases although the respirations are not deep at first. Later they may become deeper than in the lowlands, being equivalent to breathing exercises, and having a marked effect upon the general and pulmonary circulation and the nutrition of the lungs. The healthy heart is stimulated and the cardiac muscle exercised, producing, it is said, a lasting tonic effect. Palpitation and shortness of breath may occur, but rest will soon cause them to disappear. It has been established that the inhabitants of mountain regions have a very expanded thorax, due probably to the fact that in high places during exercise more oxygen is inspired and more carbonic acid expired. The number of red corpuscles and the amount of haemoglobin are increased at high altitudes.

The improvement in the general health greatly assists the patient to throw off tuberculosis, and in this lies the chief benefit of the mountain climate. The appetite is stimulated, and weight put on without any special treatment. Those who are febrile take their food with less distaste than in the lowlands, and at a high altitude the sweats of phthisis are less severe. Broadly speaking, in cases of predisposition to tuberculosis, hereditary taint, debility after an illness, or undeveloped thorax, great benefit may be derived. Declared pulmonary tuberculosis in all stages will probably also benefit, provided that there be no fever, that the pulse during repose is not higher than 100, and that it is of satisfactory quality. Good heart action is of the first importance for phthisical patients, but the existence of complications must, of course, be taken into consideration. In cases in which it seems doubtful whether a mountain climate will do good or harm, the type of fever and the height which the temperature attains must be carefully investigated. Broadly speaking, the contraindications are severe pulmonary tuberculosis in which the pulse is 120 or more when the patient is at rest, the severe forms of the third stage with high fever, severe ulcerative laryngeal tuberculosis, laryngeal tuberculosis with bad cough, and severe intestinal tuberculosis.

The length of time for which the mountain cure should be continued must, of course, depend upon the progress each patient makes, but it is undesirable to interrupt an ordinary cure. Relapses are frequent in patients doing well at Davos who, in order to avoid the melting of the snows in the spring, leave before they have improved as much as they might were they to stay on for a longer time. In reality the damp of a mountain spring is not so great as that of early spring in the lowlands, and the interruption in the cure is infinitely more harmful to a patient who is making good progress than any consequence of a short break in the weather.

THE NEW SYDENHAM SOCIETY.

The forty-seventh annual meeting of the New Sydenham Society was held at 15, Cavendish Square, on October 1st. The President (Professor William Osler) took the chair.

The report and balance sheet for 1905 were presented. The subjects illustrated in the *Atlas of Clinical Medicine and Surgery* for 1905 had included fractures and dislocations, chiefly by radiographs, elephantiasis in English practice, etc. For the current year members had already received a double fasciculus of the *Atlas*, illustrating the subject of variola in twenty plates, and a printed volume containing selected monographs on the parasites of syphilis and small-pox. The year's issue would be concluded by a second double fasciculus, giving additional illustrations of variola and varicella.

It was pointed out by Mr. Jonathan Hutchinson that as the six-year period for which the Society had guaranteed a specified number of plates per annum expired this year, the Society would not in the future bind itself to issue any specified number of plates, but would issue either fasciculi of the *Atlas* or printed volumes as seemed desirable. In order to increase the sphere of the Society's usefulness, an accession of new members was earnestly to be desired.

The report and balance sheet were then adopted.

On the motion of the President, it was unanimously decided to present a set of the Society's past volumes and atlas fasciculi, so far as they are in print, to the Medical Library at San Francisco, which had been destroyed in the recent earthquake and fire.

Mr. Watson Cheyne was elected President for the coming year, and the meeting terminated with votes of thanks to the retiring President, Vice-Presidents, and members of Council.

The Acting Secretary of the Society is Dr. A. E. Russell, 9, Wimpole Street, W.

THE HOUSING QUESTION.

A deputation from the National Housing Reform Council, at an interview with Sir Henry Campbell-Bannerman and Mr. John Burns, submitted proposals for reform in the existing legislation and administration dealing with the housing of the working classes and asked the Government to introduce next session a bill relating to both urban and rural housing.

The points to which the deputation directed attention were grouped as follows in a memorandum: (1) Local authorities should be stimuluted to carry out their duties under the Health and Housing Acts; (2) there should be certain amendments of the Public Health Acts; (3) the closing and demolition of unhealthy dwellings; (4) the clearance of slum areas; (5) the creation of model suburbs; (6) the acquisition of land by agreement; (7) compulsory purchase of land; (8) town and village development commission; (9) rural housing, small holdings, and other village developments; (10) town extension planning; (11) cheaper money; and (12) the revision of by-laws.

The President of the Local Government Board, after thanking the practical reformers who constituted the deputation for coming forward to give their views on the housing problem, expressed the opinion that the outlook of some of them tended to be too pessimistic; things were now infinitely better than even five or ten years ago; the new tramways had been an important auxiliary to the solution of the housing problem, and to the planning of estates, giving more suitable accommodation to the poor and to the working classes by both private individuals and municipal bodies. Sympathy with housing reform had grown in the House of Commons, among Ministers, and in Government departments. He advised reformers to get local authorities to use their powers under the Public Health Acts. The efforts of Continental countries had been contrasted favourably with those of this country, but though Continental cities were often in appearance tidier, they were not cleaner than cities in this country, for on the Continent, where centralized government existed, there was a disposition to put in the back streets many evidences of poverty and untidiness, which, he was glad to say, were still allowed to obtrude themselves in this country. To the request that the Local Government Board should apply more driving power, he would reply that the Board was at the present time conducting over a hundred inquiries with reference to the public health and housing activities of local authorities. With regard to house to house inspection for the detection of nuisances he considered that that was a matter for the local authority; to place such power in the hands of the centralized state would be to sterilize initiative in the local authority, and ultimately to make the Local Government Board the authority for doing that which could be better done by stimulating local authorities, who were or should be more conversant with local details. The demand which the deputation had made for power of entry was a very serious matter: it was asked that there should be some standard of continuous inspection and right of entry to private houses similar to that possessed in the case of lodging-houses, factories, and workshops; but the House of Commons was jealous, he thought rightly, of a universal right of entry even in the interests of public health. As to the closing and demolition of unhealthy dwellings, local authorities at present had very strong powers; it was true that they were often unwilling to exercise them, but he invited the deputation to stimulate local authorities in this direction. The Government was ready to do what it could to make the acquisition of land by local authorities easier and cheaper. He was not in favour of a new Commission to deal with town extension, planning and town development. There were already 26,000 local government authorities in the country, each properly jealous of its powers, privileges, rights, and duties. In his judgement it would be in the interest of public health if these authorities were considerably diminished in number. The subject of cheap money was now before Sir John Dickson-Poynder's Committee on Mr. Mackarness's Bill; but as to cheaper buildings, he observed that if more stringent sanitary conditions were to be imposed by by-law, houses would not be cheaper, but considerably dearer. He was inclined to think that the time had come when every county council ought to be a greater and more effective sanitary and housing authority, and should be entrusted with the powers of intervening should the parish, the rural, or the urban district council not do its work.

The Prime Minister, who also replied, said that the Government was fully aware of the importance of the subject, and though he was not at the moment in a position to make a definite promise, he said that the Government had the earnest determination to do something to mitigate the great evils to which the deputation had called attention, in the interests not only of public health, but of the moral and spiritual welfare of the people. The question raised no question of politics, though one side might have a prejudice in one direction and another in some other direction, with regard to details and methods. He thought that the matter might safely be left to the House of Commons and to the Government, which entirely agreed with the general views expressed by the deputation.

THE PLAGUE.

Prevalence of the Disease.

India.

During the weeks ended October 6th and 13th the plague seizures numbered 7,301 and 6,278, and the deaths from the disease amounted to 5,832 and 4,760 respectively. The chief centres of plague mortality were: Bombay Presidency, 3,112 and 3,267; Bengal, 43 and 34; United Provinces, 505 and 280; Punjab, 282 and 298; Central India, 1,438 and 1,280; Central Provinces, 505 and 597; Madras, 12 and 10; Mysore, 137 and 208; Burma, 60 and 56. Poona is still the most severely stricken city in India. On October 20th, 22nd, 23rd, and 25th the deaths from plague in the city and cantonment of Poona numbered respectively 109, 174, 94, and 77. Several Europeans have been attacked; the European houses in the cantonment are infested with plague-stricken rats; many of the Europeans are therefore quitting their houses and living under canvas. The British regiments are moving from their barracks under canvas on the parade ground.

South Africa.

No cases of plague in human beings during the weeks ended September 29th, October 6th and 13th respectively. No mice and rats were found plague-infected.

Australia.

Brisbane.—During the week ended September 22nd no cases of plague in human beings, nor were any plague-infected rats found. Clean bills of health are now being issued at the port at Brisbane.

Cairns.—Two cases of illness reported as "suspicious" during the week ended September 15th proved on examination to be bubonic plague. No fresh cases developed during the week ended September 22nd. In Cairns 7 cases of plague have occurred to date. No deaths from the disease have been reported.

Mauritius.

During the weeks ended October 25th and November 1st the fresh cases of plague in Mauritius numbered 25 and 25, and the deaths from the disease 20 and 19 respectively.

The tsetse fly (*Glossina palpalis*) is viviparous, and when kept in captivity produces a full grown larva, one at a time. The larva is of a light yellowish tint, and after wriggling about actively for an hour or so, turns in a short time into a dark brown pupa, about the size of a grain of wheat. Members of of the Sleeping Sickness Commission, while in Entebbe, spent much time in searching for the pupa in various situations, and also offered rewards, but without success. Mr. Minchin records, in a recent issue of *Nature*, that Dr. A. G. Bagshawe, already well known for the botanical collections he has sent home, has recently been successful in discovering the pupa in its natural habitat. It was found in a belt of bananas stretching along the shore of the Albert Edward Lake. It occurred in the loose crumbling soil around the roots of the bananas, and was not found in the undergrowth further inland. Mr. Minchin points out that since bananas are the staple food of the natives, it would be impossible to destroy the plantations without creating a famine. He adds, however, that the fly was found swarming on the deserted island of Kimmi, on the Victoria Nyanza, where there were no plantations, so that the banana cannot be its only breeding place. Dr. Bagshawe has been able to prove that the range of the individual tsetse fly may be at least a mile, a fact which he thinks may be the reason why its breeding places so long eluded discovery.

MEDICAL NEWS.

Surgeon-General Evatt, C.B., will open a discussion on a war reserve of pharmaceutical officers, at a meeting of the Pharmaceutical Society of Great Britain, at 17, Bloomsbury Square, W.C., on Friday, November 16th, at 8 p.m.

Dr. J. Foreman Berry has been the recipient of a carriage clock bearing the following inscription: "To Dr. J. F. Berry, as a mark of esteem from the Nursing Staff of the Rawcliffe Hospital, Chorley, 1906," on his leaving Chorley to commence private practice.

The next quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland will be held at 11, Chandos Street, Cavendish Square, W., on Thursday next, at 3 p.m. In the evening at 7 o'clock the members will dine together at the Café Monico.

An exhibition of leadless glazed china and earthenware organized by the Research Committee of the Christian Social Union (London Branch) will be opened at Church House, Westminster, on November 20th, and will remain open for the two following days.

The forty-sixth half-yearly dinner of the Aberdeen University Club, London, will be held at the Trocadero Restaurant, London, W., on Wednesday, November 21st, at 7 p.m. Sir Henry Craik, K.C.B., M.A., LL.D., Member of Parliament for the Universities of Aberdeen and Glasgow, will be in the chair. Members desiring to be present should communicate with the Honorary Secretary, Dr. R. J. Collie, 25, Porchester Terrace, W., not later than November 17th.

The Society of Women Journalists held its annual meeting at the offices, 1, Clifford's Inn, on November 5th. Officers were elected. Mrs. Burnett Smith (Annie S. Swan) succeeding Mrs. T. P. O'Connor as President. After the meeting the members held an "at home" at Essex Hall, which was well attended, and an excellent programme of music provided. The Society has grown rapidly in numbers and influence during the term of office of its able Honorary Secretary, Mrs. Bulstrode. It is interesting to us to note that the President and Honorary Secretary are the wives of members of the medical profession.

The President and Council of the Royal Society have awarded the Copley medal to Professor Elias Metchnikoff in recognition of the importance of his work in zoology and in pathology. The Darwin medal has been awarded to Professor Hugh de Vries, on the ground of the significance and extent of his experimental investigations in heredity and variations. These medals, together with the Rumford medal, awarded to Professor H. L. Callendar for his experimental work on heat, the Royal medals awarded to Professor A. G. Greenhill for his contributions to mathematics, and to Dr. D. H. Scott for his investigations in fossil plants, the Davy medal awarded to Professor Rudolf Fittig for his investigations in chemistry and especially for his work in lactones and acids, and the Hughes medal awarded to Mrs. W. E. Ayrton for her investigations on the electric arc and on sand ripples, will be presented at the anniversary meeting on St. Andrew's Day, November 30th, 1906. Among the Fellows nominated to serve on the council are Professor David Ferrier, Professor Starling, Dr. A. D. Waller, Professor Ray Lankester, Professor Wyndham Dunstan, and Mr. A. Seward, Professor of Botany in the University of Cambridge. Viscount Iveagh and the Right Honourable R. B. Haldane, M.P., Secretary of State for War, have been elected Fellows under a statute which permits of the election once in every two years of not more than two persons considered to have rendered conspicuous service to the cause of science. Lord Iveagh's munificent endowment of the Lister Institute of Preventive Medicine will not have been forgotten.

University College Hospital.—The Duke of Connaught, on November 6th, formally opened the new building of University College Hospital recently erected through the generosity of the late Sir J. B. Maple. His Royal Highness was received at the entrance by the Duke of Bedford (President of the Hospital), Lord Reay (President of University College, London), Mr. H. Lucas (Chairman of the Hospital Committee), Sir Thomas Barlow, Sir J. Reid, Dr. Sidney Martin, Dr. H. Batty Shaw, and Mr. A. E. Barker. The Duke of Bedford opened the proceedings in the large general out-patient waiting hall by reading an address from the hospital committee and medical staff in which reference was made to the special features of the wards which were constructed according to the ideas of the late Dr. G. V. Poore. Lord Reay then delivered an address on behalf of the Council of University College in which he described the history of the medical school of University College Hospital. The Duke of Connaught, in replying, said that the hospital owed a deep debt of gratitude to the late Sir Blundell Maple for his gift of £200,000; the public generously recognized the skill, devotion, and sympathy shown by medical men; he concluded by saying: "I am certain that the rising members of the medical profession will ever do all they can to keep up the noble attributes of the English doctor in devoting themselves to the grand profession of medicine, the science of which is increasing in importance and in interest every year." After the Bishop of London had offered a prayer, the Duke of Connaught declared the hospital open, and then accepted a golden key from the architect, Mr. P. Waterhouse, who presented it on behalf of the governor of the hospital. Before leaving, the Duke of Connaught unveiled a bust of the late Sir J. B. Maple and named Ward I the "Duke of Connaught Ward" as a memorial of the official opening.

Medical Sickness and Accident Society.—The monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on October 26th, Dr. de Havilland Hall in the chair. The sickness experience of the Society during the summer months has been very satisfactory and has caused an appreciable addition to the reserve funds, while the number of new entrants, although not so great in 1905, has been well above the average. When the Society started operations in 1884 a large proportion of those who then joined it had reached middle age. Of these, a considerable number have reached, or are about to reach, the limiting age of 65 years, when all contribution ceases and no more sick pay can be claimed. The percentage of deaths is also growing, and must grow for some years to come, so that, in addition to the moderate number who lapse their benefits—mostly through ceasing to reside in the United Kingdom—many members fall out every year. So far their places have been more than filled by new members, and the membership roll of the Society has grown year by year until it now reaches over 2,500; but as the number of members who of necessity fall out each year continues to grow, and as the Society still maintains the economical plan of working, without agents or expensive advertisements to obtain new business, the Committee feel justified in pressing upon the notice of the members the fact that by making known to their medical friends the advantages offered by the Society to those who join it they can greatly extend the sphere of its useful activity. Prospectuses and all other particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, W.C.

An International Association of Medical Museums.—Under the auspices of the United States Army Medical Museum at Washington, through its curator, First Lieutenant James Carroll, Assistant Surgeon United States Army, steps are (we learn from the *Medical Record*) being taken for the formation of an international association of medical museums. At a preliminary meeting held in Washington at the time of the session of the Association of American Physicians a committee on organization was appointed, consisting of Dr. Carroll as Chairman, Dr. W. G. McCallum of the Johns Hopkins Medical School, and Dr. Maud E. Abbott of McGill University, Montreal. At the session of the Section of Pathology and Bacteriology of the British Medical Association in Toronto on August 24th, Dr. Carroll made an official announcement of the aims and objects of the proposed association. At that meeting it was proposed that there should be two grades of membership in order to include museum workers as well as those who represented institutions. It is intended that the association should be essentially one of institutions rather than of individuals, each institution being entitled to a single vote through its representative. The museum representatives will be the active members. The auxiliary membership is to comprise persons who are actively engaged in museum work, but these will have no vote. It is also proposed that honorary membership should be conferred upon members of the profession eminent in the field of pathology but not engaged in museum work. For the present it is designed that meetings shall be held triennially in Washington, at the time of the meeting of the Congress of American Physicians. The meetings are to be devoted to addresses and discussions of matters of general interest; the publication of an *Index pathologicus* is also projected, to facilitate the interchange of specimens.

British Medical Journal.

SATURDAY, NOVEMBER 10TH, 1906.

THE IRISH POOR-LAW REPORT.

THE report of the Viceregal Commissioners upon the Irish Poor Law analysed in the last issue of the BRITISH MEDICAL JOURNAL may well be called revolutionary for the text upon which it is based is—

We are convinced that we are not going outside our proper function in pointing out that "*in our opinion the low level of subsistence and comfort throughout nearly all Ireland, with the poverty and destitution resulting therefrom, cannot be effectively relieved by any Poor Relief Law such as that of 1838*;" and we therefore feel that it is our duty to submit these observations to Your Excellency.

The report proceeds to give a brief but intensely interesting history of the circumstances under which the English Poor-law system was extended to Ireland contrary to the wishes of all classes of the Irish people. It narrates how a Royal Commission of eminent Irishmen was appointed in the year 1833 to report upon the chronic poverty and distress prevailing in Ireland, and how that Commission, after sitting three years, reported against the extension of the English Poor-law system to Ireland. First, because while there was abundance of remunerative employment in England so that there was no harshness in compelling the idle to work, in Ireland the poor could not obtain employment even at wages so low as twopence or threepence a day: and, secondly, because, in their opinion, the only remedy for Irish poverty was the improvement of the land by arterial drainage, etc., and the development of its resources so that the people, who were willing enough to work, might obtain employment.

The seventy years since elapsed have proved conclusively the correctness of their views, but the Government would have none of them. The report was too revolutionary, they said; and Mr. (afterwards Sir George) Nicholl, an English Poor-law official, was sent over to Ireland on a six weeks' tour, and having with that experience recommended the extension of the English system to Ireland, the Act putting it in force was passed in 1838, in spite of all the opposition Irish members could offer.

We have narrated the miserable story of the Irish workhouse system so often in these columns that there is no need to repeat the facts now. Was it not the report of our Commissioner in 1895 that first drew public attention to the horrors of the system, and compelled the amelioration of the sufferings of the unfortunate inmates of these institutions? We only refer to it now because this second Commission of Irishmen, appointed just seventy years later, after again giving three years' consideration to the question of chronic Irish poverty, has produced another revolutionary report. We trust that its recommendations will have a more sympathetic reception from Sir Henry Campbell-Bannerman than the report of 1836 received from Lord John Russell.

While the present report is admirable in the main, there are some points connected with the medical branch of the service on which it is open to criticism.

* The italics are in the report.

It is to be feared that the proposal to set up a State Medical Service paid entirely out of Imperial funds for the local hospitals is, in the present state of Irish political parties, hardly within the range of possibility. Had the Commissioners proposed that these officers should devote their whole time to the service we would have entirely approved, but to permit such officers, labelled as a superior class, to enter into professional competition with the dispensary doctors and others, would, it is to be expected, create such intolerable jealousy and friction that few would be willing to accept the position.

After dealing with the hospital service, the Commissioners go on to say that the dispensary service is outside the scope of their terms of reference. In this we are unable to agree with them, for Clause V of the terms of reference was: "Generally to inquire and "report whether any and what administrative and "financial changes are desirable in order to secure a "more economical system for the relief of the sick, the "insane, and all classes of destitute poor in Ireland "without impairing efficiency of administration." Now we know that the present system of dispensary medical relief in Ireland is most uneconomical and demoralizing. The Irish Poor-law Medical Service is, and has been for years, seething with discontent, owing to the wholesale indiscriminate abuse of Poor-law medical relief by those classes of the Irish community who in England would neither ask nor receive it. This abuse has deprived the dispensary doctor of legitimate professional emoluments in comparison with which he formerly regarded his official salary as a mere retaining fee. We would ask why this pauperizing of the people, this crying injustice to the medical officers, was deemed to be outside the scope of the inquiry? Will it be cheaper for the whole body of the ratepayers to double or treble the salaries of the dispensary doctors, as they will certainly be compelled to do if the present system continues, or to let those who can and should pay them for their services do so? Why should a dispensary doctor be compelled to attend gratuitously persons whom the guardians require to pay for their support if admitted to a workhouse hospital?

The Commissioners have done an act of justice, long delayed but none the less welcome, when they state that "in no public department can abler and more "zealous men be found than among the Poor-law "officials of Ireland, and it is the lot of many such men "to have ably discharged intricate and responsible "duties in various unions for long terms of years at "small salaries and without any certainty of a super-"annuation allowance when their strength fails from "ill-health or long service." It is the first time we can recollect having seen one word of praise given to those who have reduced the ravages of zymotic disease almost to vanishing point in Ireland and those other officials who alone have made local government possible.

With the exception of the points indicated we have nothing but praise for the ability and courage with which the Commissioners have dealt with a very difficult problem. One of them disagrees with the majority in regard to the proposal to make the relief afforded in county hospitals and almshouses a county instead of a union charge. But he suggests no alternative scheme, and we fail to see what other arrangement would be possible if there is to be only one almshouse and one county hospital for all the unions in a county, and sanatoriums and auxiliary asylums for groups of counties, a portion of the scheme of which he approves.

We are glad the Commissioners have advocated a revolutionary scheme, for the original Poor Law of 1838

has been so patched and tied up with red tape to keep it from falling to pieces that its authors would not recognize it. What is wanted in Ireland is a new coat, made to fit the wearer, and not another "ready-made."

The question that troubles us is whether any party in the State will have sufficient interest in the poor to force reforms to the front, for, so far as we can judge, the report fails to gratify the ambitions of any class of politicians. But even if it is doomed, like its predecessor, to the obscurity of an official pigeon hole, it will have put on record the conclusion of three honest Irish gentlemen that the English Poor Law never was and never will be suitable to the idiosyncrasies of the Irish people.

REMORSE IN MELANCHOLIA.

Remorse—that most poignant emotion—has often been depicted for us with a wealth of imagery in words which raise it at once to the chief place in human suffering. It has been described as the biting of teeth which, once fleshed in sin, now tear the heart of the evil-doer, of whom it has been written that "terror "takes hold on him as waters and a tempest stealeth "him away in the night"; as the torment of a galled conscience; as "a still baking oven, another hell"; and as the overwhelming revulsion of feeling loosed by

> The print and perfume of old passion,
> The wild-beast mark of panther's fangs.

But, wherever described by writers unversed in modern psychology, it will be found that this exquisite moral pain is attributed solely to a realization of the shortcoming of some actual conduct, as compared with ideal standards of behaviour, founded on logical concepts of good and evil—that is, to an intellectual judgement. This conception, implicit in most religions, is still held by the commonalty of people, and is, further, firmly maintained by some important intellectualistic schools of philosophy, for whom such terms as "conscience," "morality," and "moral sentiment" connote simply and entirely rational processes or states. Opposed to this Kantian conception of morality are the views of those who maintain that moral reactions are determined, not only by the voice of reason, but by the effective or emotional character; that conscience is not an omnipresent, infallible guide to conduct, identical in all men, but that it varies in different people, and even fluctuates in the individual himself, according to the state of his mental and emotional poise, or what Janet has called the *niveau mental*.

By implication, the pain which accompanies a retrospective view of immoral acts should vary according to effective and physiological conditions. Now it is evident that in introducing here the word "physiological" one assumes a causal nexus between physiological conditions, such as, for example, intravascular tension, heart beat, excretory elimination and neurotrophic functions on the one hand, and the effective elements which contribute to the production of such moral feelings and sentiments as joy, anger, fear, sympathy and hate on the other—an assumption which the intellectualists, who regard the somatic phenomena as consecutive and reflex, would say simply begs the whole question. Notwithstanding, however, the inherent difficulty of analysing the emotions, it may be fairly stated, we think, that probably most psychologists, and certainly the majority of alienists to-day, are supporters of the James-Lange theory, according to which, to quote the words of the former, "the bodily changes follow directly the per- "ception of the exciting fact, and that our feeling of the "same changes as they occur is the emotion."

Without entering into this controversy, it is obvious that if by altering experimentally—say, by means of drugs—the somatic conditions it be found that the emotional reactions, moral pain, and so on, undergo corresponding variations, a very valuable piece of evidence in support of the somatic theory would be furnished. This task has been essayed by Dr. G. Dumas, who gives in the *Revue Philosophique* for October, 1906, an exceedingly interesting and suggestive account of his observations. These observations and experiments were made upon six patients, five of whom were melancholiacs and the other a psychasthenic, and all enduring the pangs of remorse for the sins, some venial and others grave, of their past.

Dr. Dumas shows most instructively the analogous origin of remorse in the sane and in the insane. In the sane, desire, overpowering all moral restraint, is followed by the satisfaction of possession, which is succeeded in turn by lassitude and attenuation, if not extinction, of the instincts of desire, thus making place for the triumphant return of the moral ideas. In the insane the process is the same, with this difference, that the instincts have become obliterated not by satisfaction but by disease. "That which causes "us in general to be indulgent to our past faults," he says, "is the persistence of those instincts which made us "commit them, and that which makes us severe is the "enfeeblement of these same instincts"; or if we may quote Chrysostom, "who ever saw a covetous man "troubled in mind when telling of his money, an adul- "terer mourn with his mistress in his arms? we are "then drunk with pleasure and perceive nothing." But a judgement, however severe, is not remorse, which is the physical and moral remorse accompanying the judgement, and this, according to Dr. Dumas is rooted in the body, not the mind.

To take one of the examples cited by the author. Marie, a passive melancholiac, suffering, though not acutely, from remorse for repeated acts of infidelity to her husband, exhibited the following bodily signs of her disorder: A slow pulse, low arterial tension, infrequent respiration, flaccid muscles, and a diminished output of urea; mentally, a marked retardation of thought, and emotionally, a melancholic brooding over her past misdeeds. But after subcutaneous injection of caffeine the depression gave place to excitement, the pulse-rate rose from 54 to 90, the radial arterial tension from 8 cm. to 19 cm., the respirations from 10 to 18; the muscles regained their tone, the skin its warmth, and the elimination of urea was augmented. Equally marked, however, was her changed attitude towards her *fantaisies extra-conjugales*. Formerly exhortation excited a veritable *crise de remords*: now, after injection, her judgement was devoid of severity, and it became impossible to elicit any expression of regret. In all the other cases, by similar measures, Dr. Dumas was able to relieve the mental pain and to rob remorse of its sting. Formerly, in less sophisticated times, the conscience-driven often sought to drown their sorrows in the bowl: nowadays, in this more scientific age, one has recourse to a *piqure* of caffeine! Further, Dr. Dumas was able to establish in his cases that for many years no self-accusation had afflicted them and that a period of tranquil depression had preceded the appearance of the physical enfeeblement which brought in its train the mental pain and remorse. Thus in many of these cases—Dr. Dumas does not say in all—it is not the judgement which evokes the remorse, but it is the physical and moral pain, depending upon an effective and functional depression, which tortures the subject, who, driven to

seek its *raison d'être*, fastens upon some act in his past, often absurdly inadequate, as the cause of his distress. Putting aside entirely the bearing of these observations on the origin of moral sentiment, we would merely direct attention to one side issue. To "moral" causes of one sort or another are attributed the mental disorders in about one-fourth of the yearly admissions to asylums in this country, and, viewed in the light of Dr. Dumas's theory, it may well be asked whether mental and moral stress is justly entitled to so important a place in the etiology of insanity.

THE SURGICAL TREATMENT OF ASCITES IN VASCULAR CIRRHOSIS OF THE LIVER.

THE medical profession owes much to Mr. Sinclair White for the full, careful, and candid report on the surgical treatment of ascites in cirrhosis of the liver with which he introduced the discussion in the Surgical Section at Toronto. Supplemented as it is by Mr. Grey Turner's paper giving the subsequent history of the cases treated by Mr. Rutherford Morison, and illustrated by the remarks of the speakers who took part in the discussion, it forms a most valuable part in the work of the Section. The whole of the question is now placed before the profession more fully than ever before, and the operation, its merits and demerits, and the conditions under which it should be performed can be easily deduced from the documents furnished with so much industry and ability.

It is unnecessary to recite the history of the operation beyond saying that, although originally suggested by Talma of Utrecht in 1889 and performed at his suggestion, though unsuccessfully, by Van der Meulen in 1892, it was independently proposed by Drummond of Newcastle-upon-Tyne and carried out with success by Mr. Rutherford Morison in 1895.

The principle of the operation is based upon the clinical facts that certain cases of cirrhosis of the liver, even of the most extreme atrophic type, may run their whole course without ascites, and that others have been cured of this symptom by simple paracentesis; the accepted explanation is that the dropsy of the peritoneum depending on obstruction to the return of blood through the portal system, will not occur or will not recur when the collateral venous circulation has developed sufficiently to supply new channels by which the blood can reach the right side of the heart. It is, moreover, noteworthy that these cases, when free from ascites, present no symptoms and appear to enjoy perfect health in spite of the persistence of the cirrhotic condition of the liver.

The object of the Talma-Morison operation is to aid these natural processes, and the method adopted is to vivify the surfaces of certain abdominal viscera, especially the omentum, and to stitch them to the abdominal wall so as to permit of fresh vascular connexions being established. In addition to this proceeding, Mr. Morison drains the abdomen for such time as the fluid continues to accumulate, but some operators, like Professor Terrier, close the wound. Mr. Sinclair White approves of drainage, and gives the average time necessary as eight days, although in one case it had to be continued for three weeks. It should, however, be remembered that Mr. Rutherford Morison has found it necessary to drain for many weeks, and even after the wound has healed further paracentesis may be required.

During the last ten years the operation has been performed so often that Mr. Sinclair White has been able, even after rejecting certain instances in which it was done for other conditions than portal cirrhosis, to tabulate 227 cases. Of these 75 died (33 per cent.); 34 failed (15 per cent.); 29 improved (13 per cent.); and 84 were cured (37·3 per cent.).

As Mr. Sinclair White says, "the proportion of "successful cases published is greater than that of the "unsuccessful," therefore this comparatively small measure of success represents something more than has been actually achieved; if we further consider that at least half the cases claimed as cured were not followed up sufficiently long to make it sure that recurrence did not take place, as simple paracentesis is not stated to have been tried in all of them before the operation was undertaken, and, finally, as the condition tends by lapse of time to undergo spontaneous cure by the dilatation of normal channels, these favourable results, such as they are, cannot be wholly credited to the operation. It has been proved beyond question that epiplopexy adds to the channels by which the blood can return to the right ventricle, but it is doubtful whether the total vascular area thus provided amounts to more than a fraction of that normally existing; moreover new vessels are formed slowly, and cannot reach any considerable size before many months have elapsed, so that the rapidly successful results attributed to the operation may have been due to the effect of continuous drainage, the value of which was illustrated by the cases quoted by the President. Alongside these successful results, real or apparent, must be placed 50 per cent. of failures, including 33 per cent. of deaths, which it is feared does not include the whole tale of mortality. Some of the fatal cases were doubtless due to the injudicious selection, as we read of the presence of complications by "renal disease, severe jaundice and toxaemia," while defective surgical technique may account for deaths from "septic peritonitis" and "erysipelas," but the number of these is few. Several fatal results are sought to be explained on the ground that the operation was "too late," and it is obvious that when the patient is falling into a state of cachexia the operator is unfairly handicapped.

While it is unreasonable to postpone the operation until the patient's general condition must make any surgical interference extremely hazardous, it is clear that it should not be undertaken until repeated tapping has been proved to be ineffectual. This probation of at most a few months, when the patient is kept under medical supervision involving abstinence from alcohol, cannot prejudice the result of the graver operation. It would also seem in most cases preferable to try the effect of continuous drainage before performing epiplopexy. Complete abstinence from alcohol is essential to success, and the proneness of these patients to resume their former habits must always constitute a serious hindrance to the success of any method of treatment. Nor should we forget that the venous dilatation which cures the ascites is attended by its own peculiar dangers, as those patients who do not develop ascites generally die from haemorrhage from a varicose oesophageal vein.

BEDRIDDEN SOLDIERS.

THE series of questions addressed to the Secretary of State for War in the Commons on Monday, relating to the retention for treatment at Netley of bedridden invalid soldiers, arouses emotions varying according as the reader is dominated by a sentiment of charity or by a desire for what is called economy. It is not pleasant to think that the policy of the War Office may have been perforce guided by the latter through want of a

decision that it is justified in being charitable. But as will be shown, a matter of principle is at stake. With regard to the invalids, Mr. Haldane remarked that they were not able to work, and that if Parliament chose to say they were to be provided with medical treatment, then he would do what Parliament desired. He pointed out that some of these men had been ten years under treatment, and there appears to be a regulation permitting the continued retention of soldiers in hospitals when their disability is of such a nature as to prevent their immediate removal. It is permissible, therefore, to infer that monetary provision exists for their treatment. At the same time, it is not just to burden the Army Estimates with the charge for the support of invalids who are fit to travel; it is not just for the reason that the policy of this country necessitates the discharge from the army of soldiers under certain conditions. They then become civilians and chargeable, when paupers, upon the rates. Whether bedridden invalid soldiers should be kept at the national charge appears to be a question on which Mr. Haldane wants a ruling from Parliament, there certainly appears to be a case for decision by the final authority. So long as the State relies upon soldiers for its defence it must take steps to provide that those bedridden by reason of disease contracted in the service shall be preserved by the nation from want. If such provision can be made by the expenditure of £3,000 a year, it seems false economy to object to the Army Estimates bearing the charge, and Mr. Haldane appears to require nothing more than authority to continue what has clearly been hitherto a charitable custom. But if, as is not unlikely, should the above principle be accepted, the expenditure assume large proportions, it will be necessary to consider whether it should be a military charge, or should be met by the national revenue under some other head. After all, the money would come from the national pocket, whether the right or the left seems immaterial, and there is a larger question behind all this. Why should the soldier invalid become chargeable at any time upon local rates? The soldier is a national institution, whether the military system involve voluntary or compulsory service. In no case should a man suffering as the result of disease due to war or foreign environment be relegated to his parish. He belongs to the nation and the nation should provide for him. When that is done a long step will have been taken to popularize the army. At present the nation asks men to risk their lives for a certain period and then gets rid of them. Too many of them become foci of discontent, subject to derision as having been fools for their pains, and used as a warning to youths who would otherwise flock to the colours. The system at present is a blot upon administration which should be far-seeing. Make the soldier a truly national institution and there will be no dearth of recruits.

THE ROYAL COMMISSION ON VIVISECTION.

We announced last week that the National Antivivisection Society had refused to participate in the proceedings of the Royal Commission on Vivisection unless the press were admitted and counsel permitted to appear on its behalf. Now, as we gather from a question addressed the other night to the Home Secretary, the British Union for the Abolition of Vivisection has decided to adopt a like course unless a direct medical representative of the antivivisectionists is appointed. Undismayed by this threat, Mr. Gladstone pointed out that the antivivisection societies had in fact suggested the names of two medical men of distinction who are members of the Commission. But this does not satisfy the British Union. It is recorded that a famous artist in masculine raiment, meeting a well-known politician at a German *Bad*, deplored to him the mixed character of the society there. Whereunto the politician replied: "You would not have them all tailors, would you?" The British Union appears to have an equal dislike to mixed elements in the composition of a Royal Commission. We think the Union is making a mistake in holding aloof from the inquiry, which it has done all it could to bring about. Instead of helping what it holds to be the good cause, it prefers to follow Mr. Coleridge in his undignified movement to the rear. In both cases the motive of action is plain enough. Antivivisectionists, like political agitators, have to justify their existence and give their patrons something for their money by performances in the King Cambyses vein. A Royal Commission sitting in public would have been a fine stage for such displays, which would have lost nothing in the reports supplied to sensation-mongering newspapers. Those members of the Commission who have taken an active part in advocating restrictions on vivisection may be trusted to see that the case is adequately presented. That case, so far from being damaged by the standing aside of champions whose style of fighting offends the British sense of fair play, can only be benefited thereby. In regard to the holding of public sittings with counsel to cross-examine witnesses, we understand that such an arrangement is customary only when a Commission is conducting an inquiry in which public or private property, as in questions of water supply, is involved, or in which national interests are concerned, as was the case, for instance, after the South African war. Public proceedings in the case of an inquiry on such a matter as vivisection would, we believe, be contrary to precedent. That the grievance is purely artificial is sufficiently shown by the fact, recorded by the *Tribune*, whose sympathies are strongly with the antivisectionists, that little or no opposition was made by any of the Commissioners to the proposal that the sittings should be private, and that it was adopted without dissent.

LEIGH INFIRMARY.

On October 27th the new Leigh Infirmary was formally opened by the Mayor of the borough, Alderman W. J. Smith. The event was one of more than local interest to the profession, since, as our readers will remember, this institution was the occasion of a prolonged dispute between the lay Committee of Management and the local medical men, who had refused to provide an honorary staff if the Committee persisted in establishing an out-patient department. However, as already reported in our columns,[1] an agreement, after several conferences, entirely satisfactory to the medical profession was reached. The medical men agreed to the formation of a casualty department for the treatment of urgent cases and cases requiring a second opinion only, provided that no ordinary medical attendance or medicine were given in such department. As a result of this agreement the Infirmary Committee and the medical men have ever since worked hand in hand. With a view to assisting the Committee the medical men have undertaken to carry on the medical and surgical work of the institution at first without a resident medical or surgical officer. Eight members of the Division have accordingly been appointed honorary surgeons to the infirmary, with a consulting staff of six. The building, of which Mr. J. C. Prestwich of Leigh is the architect, has been admirably planned and executed. It is well placed at the edge of the town on a site presented by Lord Lilford, which allows ample room for extension in future. The administrative block, a handsome three-storied building, has been designed with a view to the future, and is

[1] British Medical Journal, July 28th, 1906.

sufficient for a hospital of 120 beds. At present only two wards have been built, each capable of accommodating fifteen patients, and communicating by corridors with each other, with the administrative block, the operating block, and laundry and mortuary block. The two ward blocks are identical in arrangement, and have been planned and furnished in accordance with the best and most modern ideas of hospital requirements. There is in each a general ward for twelve beds, with accommodation for two beds in a separate ward and one in an isolation ward, a nurses' kitchen provided with range, gas-cooker, sinks, etc., and a specially-ventilated milk safe. The walls and ceilings of the wards are plastered in adamant, all corners being rounded. The floors are finished in wood blocks laid on concrete and cement, marble mosaic being used for corridors, ward kitchens, etc. All the windows in the wards are fitted with hopper ventilators, and further ventilation is secured by means of inlet warm-air radiators, and Boyle's extractors in the ceilings. The operating block contains an anæsthetic room, operating theatre, and sterilizing room, the walls and ceilings are finished with Keen's cement, a material which takes a high polish, and the floor is of marble mosaic. Ventilation is provided by an electric fan, by means of which hot or cold air can be drawn in as required. The equipment of the operating theatre is not yet complete, but among the donations announced at the opening ceremony was one of £200 especially for this purpose given by Mr. G. Shaw, and this sum will enable the medical staff to bring the theatre up to the standard required by modern surgery. The mortuary and *post-mortem* room, with viewing lobby, form part of the laundry block, but are well separated from the latter, and have a separate yard and entrance. The boiler and stoke-hole are placed under the laundry. The boiler supplies all the hot water for domestic purposes and heating. The circulation is maintained by pumps on a new principle which permits the return of all condensed steam to the boiler. Altogether, the new infirmary will compare favourably with any institution of its size in the country. The management of the institution will be vested in a board of governors and a managing committee on which the medical staff will be represented. At present the debt on the building is not quite cleared off, and there is only the merest nucleus of an endowment fund, but the committee is confident of receiving sufficient support from the public to enable it to maintain the institution in a thoroughly efficient way. There is unfortunately still some grumbling among a section of the working class at the absence of a dispensary where they could obtain "free physic" for every ache and pain, real or imaginary. But it is hoped that in time all but the most degenerate will become educated up to appreciating the true functions of an infirmary and that Leigh may have the distinction of possessing a hospital economically managed, enthusiastically supported, and adequately fulfilling the beneficent purposes for which it was erected, unhandicapped by the hitherto inevitable element of abuse.

MASSAGE BY THE BLIND.

THE great success which has attended the endeavours of those who have devoted their energies to the instruction and education of the blind has earned recognition in all parts of the civilized world. But in spite of all that has been done, there is no doubt that the lot of a sightless man is a hard one, and in his struggle for existence he has to face very heavy odds. Those who deal with blind persons soon realize that the intellectual faculties are often as highly developed as they are in persons endowed with sight, and in some cases one of the senses—namely, that of touch—is even more acute. A highly interesting experiment has recently been carried out by Eggebrecht at Leipzig.[1] Having been requested to attempt to teach massage to blind pupils, he set to work with great expectations, for he realized that this field was open to the blind. It was soon found that not every blind person is capable of becoming skilled in massage: but this is true of ordinary pupils. Eggebrecht taught his pupils about the human body, and especially of its anatomy, not from books, but by palpation, and in this way many of them got a considerable grasp of the subject. Organs were felt through the skin, and their limits exactly mapped out. As soon as the anatomy had been learned, he proceeded to teach massage proper. Some of his pupils have gained a great deal of skill, and are reliable in almost any case. He states that a well-trained, intelligent, blind masseur can recognize from the voice and movements of the patient if he hurts him, or if the patient becomes collapsed or too much exhausted, just as well as a masseur who sees. This is borne out by the statement of one of the masseurs, who said that a patient always made a quick movement of the head toward the side hurt, and that an involuntary contraction of the muscles could be felt. The training only costs about 300 marks (about £15), and, once trained, a capable man or woman can earn nearly enough to keep himself or herself comfortably. It has been argued that one difficulty would be found in the incapability of a blind person finding his way about to his patients alone, but in actual practice in Leipzig at all events, the blind masseurs have proved themselves able to arrive safely at the patients' houses without any guide. Each year, Eggebrecht's blind masseurs and masseuses carry out some 30,000 single massages. In Japan, only the blind used to carry out massage, and since almost every one indulged in massage for relieving fatigue, this was a very fruitful source of income. The masseur would walk down the street, carrying a long stick, whistling; the inhabitants of the houses would call him in, and he would perform his massage for a very small sum. Even the working man would employ him after his day's toil, and rich and poor alike were all served by the blind. But within recent years this monopoly has been taken away from the blind, and he has now to share his profession with those who see.

THE ANTIPODES AND PATENT MEDICINES.

AMONG the signs of the times—far afield if not at home—may, perhaps, be considered the discovery in a leading periodical of the Southern Hemisphere, the *New Zealand Times*, of a full-page account of a public lecture by Dr. J. M. Mason, Chief Health Officer for New Zealand, on the subject of quackery. It is true that it is excellent reading, but it may be doubted whether a few years back it would have been considered prudent to give such prominence to so scathing a denunciation of the trade. Dr. Mason took for his text the horror which some good people in New Zealand apparently express at the persistence of the Maoris in a belief in incantations and spells, and showed that the public in New Zealand is just as credulous as the Maoris and acts as if it were equally ignorant. Just as on this side of the globe, it believes anything it is told by the quack, and is quite ready to prove its faith by paying anything demanded by those who undertake to make the fat thin, the lean plump, the blushing brazen-faced, cripples sound, and the short tall; or alternatively to make consumptives strong and healthy, drunkards sober, endow the bald with hyacinthine locks, and soothe the cries of wailing infants, not, unfortunately, by appropriate food, but by narcotics in the guise of soothing syrups. The account he gave of all

[1] *Medic. Reform. Social-medic. Woch.*, 1905. Proceedings of the Fifth Session of the Society of Social Medicine.

these matters, was at once racy and detailed, and the conclusion he reached much the same as those recently expressed in these columns; that it is not the medical profession but the public which suffers from the enormous prevalence of quackery, and that the patent medicine duty, with its misleading Government stamp, is a discreditable means of raising public funds, and should be abandoned. In the course of his account he told some excellent stories about quackery, one of which illustrates so accurately the typical attitude of the public as to be worth repeating. A man advertised that on a certain day he would stand at the end of a bridge and give away a sovereign to each and every person who asked for one, but no one took advantage of his offer. A week later he advertised that on a certain day an 18 st. man would get inside an ordinary quart bottle, and hundreds came to see the feat performed. No one believed that the advertiser would be such a fool as to give away sovereigns, but they were quite fools enough themselves to believe there might be something in the other undertaking. The fact is that the old sayings, *omne ignotum pro mirabili* and *populus vult decipi*, are as true as ever, and the medical profession loses a good deal both in influence and hard cash by its disinterested efforts to teach the people truth about disease, and by its abandonment of miscellaneous drugging for the common-sense application of simple scientific knowledge. Before leaving the subject, attention may be directed to the discussion on the surgery of ascites in this issue. An account was given of a case which is an apt illustration of the dangers of patent medicines, and all the more striking because the facts were not recorded in that connexion. A lady operated on for ascites was President of a temperance society, and the cause of her disease was somewhat mysterious until it was discovered that she had long been in the habit of drugging herself with a certain patent medicine. She had taken it so long as to bring about alcoholic cirrhosis of the liver, while believing herself all the time to be a strict teetotaler.

THE INTESTINAL ORIGIN OF TUBERCULOSIS.

Dr. A. Calmette, Director of the Pasteur Institute at Lille, in collaboration with M. C. Guérin, has carried out a series of observations relating to the precise part played by intestinal absorption in the production of lesions of the mesenteric glands in kids and goats. The young were suckled by goats whose udders had been inoculated with tuberculous virus, human, bovine, or avian; in the older animals the infective material was introduced into the stomach through an œsophageal tube to obviate any infection through the upper air-passages. The results of these experiments showed that these animals are very sensitive to tuberculous infection, especially to that of bovine origin, and that they readily contract tuberculosis through the digestive tract. In the young animals virulent bacilli absorbed in small quantity were retained for varying periods in the mesenteric glands, and might later infect the lungs; on the other hand, similar bacilli absorbed by adults produced almost immediately tuberculosis of the lungs. Similar results were obtained in bovine animals and in rodents. It seems logical to infer that similar results may obtain in man and that von Behring is justified when he states that pulmonary tuberculosis in the adult results from the tardy evolution of an intestinal infection contracted in early life. We may also affirm that pulmonary tuberculosis at any age may have a recent intestinal origin. It is generally held that the peribronchial nodules frequently observed represent the initial lesion in pulmonary tuberculosis, and that these result from the direct introduction of germs carried in the air. On the other hand, evidence is not wanting that the penetration of airborne bacilli into the lungs is difficult, if not impossible. Calmette has been able to confirm the observation of Vansteenberghe and Grysez that anthracosis of the lungs is not produced in animals by making them breathe an atmosphere saturated with soot so long as they are prevented from swallowing the accumulations in the nose and pharynx. The same applies to attempts to infect the lungs with tubercle bacilli by respiration. Ingested bacilli pass through the intestinal epithelium without producing any lesion; absorbed into the chyliferous vessels they become the prey of polynuclear leucocytes. These leucocytes may succumb to the bacilli, quickly losing their mobility. Having passed into the venous circulation, these leucocytes, in consequence of their loss of amœboid movement, have a tendency to become arrested in the capillaries (of the lung primarily), which they block as a toxic foreign body. If such infective leucocytes pass through the pulmonary circulation they may be arrested in the capillaries of the cerebral meninges, of the joints, the kidneys, or of other parts. Further experiments demonstrated that animals which had recovered from the effects of tuberculous infection were rendered partially immune against tuberculosis; the possibility of successful antituberculous vaccination is thus foreshadowed.

THE BOARDING-OUT OF THE INSANE IN SCOTLAND.

In the annual report for 1905-6 of the Glasgow District Asylum, Dr. W. A. Parker, the Medical Superintendent, calls attention to the manifest advantages of this system, but he also says that, as applied in Scotland, it has certain disadvantages; one is that the withdrawal from the asylums of the quiet and well-behaved patients, such, in fact, as are only suitable for family care under the Scottish system, necessarily leaves a more turbulent collection of patients in the asylum. "With no "boarding-out, irritable and easily-excited people would "have been distributed over a larger number of wards, "with a larger number of quiet, apathetic, and demented "folk around them as padding, and consequently with "fewer quarrels and less noise and excitement alto-"gether. If boarding-out is to be resorted to in such a "way as to be satisfactory, it should be carried further. "To take away from asylums only the quiet, harmless "useful folk is bad. Were boarding-out arranged in "village groups, with an experienced inspector and "medical officer as supervisors, then noisy and trouble-"some cases could with success and advantage be "boarded-out. Many a patient who is very troublesome "among a number could be managed much more easily "and successfully if alone with his guardians. I think "a scheme of this sort is well worthy of a trial, and it "would equally, with the present Scottish system, keep "down the need for expense in building." Dr. Parker here indicates a real defect of the Scottish system, which is due to the entire separation of the boarded-out insane from those in the asylums, the two sections having their only meeting point in the General Board of Lunacy. This was alluded to in the series of reports on the "Care of the Insane Poor," which appeared in the British Medical Journal in the first quarter of 1905, by our Special Commissioner, who recommended particularly the system in vogue in Saxony. By this system the asylums become in reality hospitals for the study and care of insanity and not mere "model lodging-houses for the insane," hospitals in which individual attention to the acute and curable is possible, furthered and facilitated by the most modern appliances in expert hands. By this system the chronic and incurable cases, whether quiet and well-behaved or not, may be drafted to the colonial asylums. These simpler and less expensive buildings become the medical and administrative centres of the spheres of operation of the boarding-out system. Careful, and at first

tentative, experiment has conclusively shown that great numbers of patients who, under the Scottish system, would necessarily be considered unsuitable for family care, may be safely entrusted to outside guardians, to the benefit of all concerned. The Scottish system is of immense benefit to that country, and is a step, but it is to be remembered only one step, in the right direction.

SIR VICTOR HORSLEY.

THE Council of University College announce that Professor Sir Victor Horsley, who has been connected with University College as a student and as a teacher for thirty years, has resigned his Professorship of Clinical Surgery and his position as Surgeon to the hospital on account of increasing public and private professional duties. The Council, in accepting his resignation, adopted unanimously the following resolution: "That the Council, having received with great regret "Sir Victor Horsley's resignation of his Professorship "of Clinical Surgery and his position of Surgeon to "University College Hospital, whereby his official con- "nexion with the College is severed, desire to put on "record their recognition of his long service to the "College and the distinction he has conferred upon "it by his eminence as a scientific investigator." Sir Victor Horsley has completely recovered from the illness which laid him up for part of last summer, and we shall only be giving expression to the universal feeling in the profession when we wish him long life to continue his successful efforts for the advancement of science, of the art of surgery, and of the political interests of medicine in the United Kingdom.

WEEK END DRAINAGE.

WHEREVER residential districts have grown out of villages, and modern houses have been erected side by side with old-time cottages, if indeed they have not replaced them, difficulties are sure to arise sooner or later as regards drainage. At isolated cottages with a sufficiency of garden, the waste water and sewage ought to be readily dealt with within the curtilage of the dwellings. But when not only the intervening land but the gardens themselves become built upon, there is on the one hand a great increase of material to be dealt with, and on the other hand a great decrease in the amount of land upon which it can be placed, so that a drainage scheme becomes an absolute necessity. We have been led to make these remarks by a report upon the Windsor rural district which has been recently issued by the Local Government Board. Dr. E. P. Manby, the writer of the report, gives an account of the conditions which he found in the parish of Sunninghill, in a portion of which Ascot is situated. There are nearly 1,000 houses in this parish, and there is a rateable value of about £40,000. As long ago as 1878 the sanitary authority was advised to carry out a general drainage scheme, but beyond obtaining the advice of different engineers, no practical advance has been made in the matter. The larger houses still drain into cesspits, while pail closets and privies are connected with the cottages. Dr. Manby strongly urges the district council to establish an efficient system of drainage so planned as to be capable of future extension. If the council is well advised, it will not ignore this representation. The estimated cost, it is true, appears large, and would be equal to a rate of about 1s. 6d. in the pound. Upon a house rated at £20 a year this would mean 30s. a year. It must be remembered, however, that the cost of emptying cesspits is considerable, often amounting to several pounds annually. Moreover, as the number of houses, and therefore the rateable value increases, the cost per house of a drainage scheme will be proportionately diminished. A serious responsibility will fall upon the members of the rural district council if they any longer defer carrying out one or other of the schemes which they have been long considering, and which will make their district as a place of residence quite above suspicion from a sanitary point of view.

THE LATE MR. GEORGE HERRING.

THE death, last week, of Mr. George Herring is a great loss to hospitals in London, as well as to philanthropic endeavour in various other directions. How many directions probably no one can at present say; for in connexion with all charitable work he kept very much in the background, being one of those rare personages of whom it can truly be said that they do not let their left hand know what their right hand does. It is, indeed, only of quite recent years that his name has become public property, and this chiefly in connexion with the Metropolitan Hospital Sunday Fund. That he gave it altogether £100,000 is itself a sufficiently notable fact, but his assistance was worth to the fund very much more than that sum. After making two or three large contributions to it on ordinary lines, his knowledge of human nature suggested to him the idea of offering to add 5s. to every pound which the public might subscribe, only limiting himself to an annual total of £25,000. It was a sporting suggestion which hit the popular fancy, and undoubtedly brought into the fund many pounds which otherwise it would never have received. At the North-West London Hospital he was a treasurer whom it will be difficult to replace satisfactorily; while other enterprises which he is known to have started and endowed, or greatly assisted, are the Twentieth Century Club, at Notting Hill, for working ladies; a Haven of Rest, for gentlefolk reduced to poverty, at Maidenhead; and the Salvation Army "Back to the Land" scheme. His advance to the latter of £100,000 is one by which London hospitals will eventually benefit; for he arranged that if the scheme is successful this sum should in course of time be repaid by the Salvation Army to the Hospital Sunday Fund at the rate of £4,000 a year. Moreover, by his will, he ordered that if after the expenditure of £40,000 the scheme seems unlikely to be successful, the balance of £60,000 is to be returned to the residue of his estate. The latter is left to the Hospital Sunday Fund, which is thus likely to receive not less than half a million pounds. The King's Hospital Fund is also a beneficiary under the will, for it is to receive Mr. Herring's town house, and the greater portion of its valuable contents. The North-West London Hospital receives a sum of £5,000, and the Cottage Hospital at Maidenhead £500. A further point of medical interest in connexion with Mr. Herring is, that he is credited with having played an important part in bringing Palmer, the famous poisoner, to justice. When a member of the Victoria Club, he saw reason to believe that there might be foul play behind the death of certain of its members, and eventually communicated to the police his belief that Palmer might be connected with them. Mr. Herring, who at the time of his death was in his seventy-fourth year, was at one time a turf commission agent, but later engaged in financial business in the City, being chairman of several important companies. Throughout the various epochs of his career he seems always to have enjoyed a repute for straightforwardness, for businesslike habits, and readiness to afford a helping hand. Personally, he was a man of abstemious habits, who, in spite of his wealth and hospitable turn of mind, led a very simple existence. If, as Talleyrand said of an English diplomatist, it was in his day a distinction to be undecorated, it is decidedly at the present time a glory for a man to have gone through life helping his fellows and to die as a recognized philanthropist, but as neither a knight nor baronet, peer nor privy councillor.

A "BLOODLESS SURGEON" ON THE WARPATH.

Mr. H. A. Barker, bonesetter, professor of "manipulative surgery," and "osteopath," as he now calls himself, is not one of those who do good by stealth and blush to find it fame. He thinks it right that his good deeds should shine in a naughty world, and for that purpose he takes care that the rays of the little candles of the minor Press are flashed from time to time upon his work. This doubtless is a proof of the philanthropic zeal with which he is eaten up. It may possibly be the same motive that has recently impelled him to enlighten the darkness of the medical profession. He delivers his message in the form of an open letter addressed to the President of the Royal College of Surgeons. In reality it is a proclamation *urbi et orbi* of the true faith in regard to bonesetting, and of Mr. Barker's skill in the practice of that occult art. The tone of the document reminds us of the famous oration in which Elijah Pogram, according to his admiring countrymen, "defied the world in general to com-pete with "our country upon any hook." Mr. Barker defies the medical world to compete with him in the manipulation of patients. The public, he assures us, is learning that "in the treatment of displaced "bone, muscle, and cartilage, the qualified surgeon "is a man to fly from, and that the methods of "the bonesetter are, beyond comparison, swifter, "safer, and less painful." Mr. Barker further informs us that since he took up the work of his life he has had over 20,000 cases through his hands. His operating rooms are thronged; his casebook is full. As M. Clemenceau said of M. Jaurès in a recent debate, *It a le chiffre généreux*. He claims that "where in many cases "the methods of the hospitals result in rank failure, "after months and even years of application, the "methods of manipulative surgery succeed, and often "in a few days or a few weeks." He most emphatically repudiates the assertion that these methods are dangerous, or that they *ever* (the italics are his own) result in damage to the patient. Like Ancient Pistol, Mr. Barker utters "prave 'ords"; and, we doubt not, he feels himself safe in uttering them. Instead of making empty challenges to the doctors for whose opinion he professes contempt, why does he not "confound their politics" once for all by making known his manner of procedure and reporting his cases in such a way as will enable surgeons to judge of his methods? The medical profession cannot, as he suggests, "handicap the publication of a 'truth'"—or even of a falsehood; the restrictions imposed on its members need not fetter Mr. Barker. There are plenty of ways open to him in which he can justify his boasts in the most convincing manner. The "Medical Council," to which he appeals, cannot help him; but on the other hand neither it nor the "Medical Association" whose aid he also invokes can hinder him. He says the profession fights in its own defence rather than in the interests of suffering humanity. But surely it is its most obvious interest to do all it can to relieve suffering humanity, and deliberate refusal to accept any treatment proved to be of real value, from whatever source it may come, would be, in the words of Talleyrand, worse than a crime; it would be a blunder. Mr. Barker modestly cites Harvey and Simpson as, like himself, victims of "fanatical and abusive opposition" on the part of the profession. If he will extend his study of medical history he will find that the methods adopted by these great men of making public their discoveries were different from his. By pursuing his researches he would find that the "Elliot" whose "employment of "the stethoscope laid him open to the mockery and "disdain of the medical men in his time" is a creature of his own fancy. If the profession has so far turned a deaf ear to the charmings of Mr. Barker, it is, to put it plainly, because his modes of putting forward his claims do not inspire them with confidence that he is animated by the love of truth for its own sake, or by the desire to benefit mankind. He is aware of this, for he says we are prepared to describe him as a self-advertising quack. He is apparently happy in that belief, and we are quite content to leave him in it.

THE LONDON SCHOOL OF CLINICAL MEDICINE.

Although the London School of Clinical Medicine has been only six months in existence, it has fully justified the action of its promoters, and there appears to be every reason to anticipate that it will fulfil the wishes of its many friends. Opened in May last, already there are sixty names on the register of the school; of these nineteen are those of students who have entered for the current term. Classes are being held at the Royal Waterloo Hospital for Children and Women, as well as at the Dreadnought. The work in the pathological department is growing steadily, and many specimens are being received from practitioners for examination. An important new departure has lately been taken which will throw the large field of clinical work offered by the hospital open to medical practitioners in the neighbourhood. At a recent meeting the School Committee decided to offer doctors practising within a radius of three miles from the hospital the opportunity of becoming Associates of the School on payment of a small fee. This will give them the right to attend any or all of the clinics. The arrangement seems to us an excellent one in every way; it will be a boon to local doctors, who have thus the means of keeping themselves in close touch with the progress of medical science brought to their door, and it will be not less advantageous to the hospital by keeping the teachers and the administrative staff on their mettle. We are pleased to be able to congratulate the school on the good start it has made. It serves a most useful purpose, and we are sure it only needs to be more widely known to achieve the fullest measure of success. The next session begins on January 15th, 1907. It may be mentioned that temporary quarters can easily be got in proximity to the hospital; those who prefer to live nearer the great heart of the metropolis may be interested to know that Greenwich can be reached by train from Charing Cross in less than twenty minutes.

THE INCOME TAX COMMITTEE.

The draft report of the Income Tax Committee prepared by the Chairman (Sir Charles Dilke) was considered at a meeting held on October 30th. Considerable diversity of opinion is stated to have manifested itself as to the recommendations to be made on the subject of graduation, some of the members not being satisfied with the moderate proposals of their Chairman. The Committee eventually decided to adjourn until November 15th, by which time it is hoped that a compromise may be arranged. It is worthy of notice that nothing is said as to any differences of opinion in the matter of differentiation between earned and unearned incomes. As some members are known strongly to favour such a differentiation, the inference that the recommendations of the Committee will trend in the same direction appears to be justified.

WARNING NOTICES.

The warning notices published in the advertisement columns this week contain a new entry with regard to an appointment in connexion with the National Deposit Friendly Society at Barrow-in-Furness. Members of the profession who may be approached with regard to the matter, are advised to communicate with the Honorary Secretary of the Furness Division, Dr. F. E. Daniel, 141, Abbey Road, Barrow in-Furness.

The Nobel Prize in Medicine for 1906 has been, it is announced, divided equally between Professor Camillo Golgi (Pavia) and Professor Ramon y Cajal (Madrid).

The President of the Board of Education has arranged to receive a deputation on Monday next at 12.30 p.m., representing the Medical Committee on Hygiene and Temperance Teaching in Schools; the Secretary of the Committee is Dr. E. Claude Taylor, Eland House, Rosslyn Hill, Hampstead, N.W.

Medical Notes in Parliament.

[From Our Lobby Correspondents.]

Discharge of Incurables from Netley Hospital.—Lord Robert Cecil asked the Secretary of State for War whether several patients had recently been discharged from Netley who had been there, in some cases, for many years. Whether, seeing that the only legal refuge for a patient so discharged was the workhouse of the place where he was born, he would say what was the final notice given to the patients of their impending discharge, and what steps, if any, the Government intended to take to alleviate the hardship of these men. Mr. Haldane said that it was brought to the notice of the War Office last year that there were several cases of men being retained in military hospitals after their discharge from the army. Such retention not only caused a charge on army votes (of about £3,000 a year) in respect of men no longer in the army, but also absorbed hospital accommodation required for other soldiers. After full consideration of the matter, it was decided that such cases could not be retained indefinitely or from any charitable reason, but that they should be discharged from hospital so soon as they were fit to travel. These men, if they had no homes to go to, were sent to the guardians of their place of settlement. As regards notice to the patients, discretion as to length of notice was left to the principal medical officer of the hospital in question. How long notice had been given in recent cases he could not say, but if the noble lord desired he would inquire. He was doing all in his power to find homes for these men. Lord Robert Cecil asked whether the soldiers were described as pensioners not in fact suffering from disease, and was not it a part of the terms under which recruits were engaged that free medical treatment should be given? Mr. Haldane replied that free medical treatment was given. One man had been ten years an invalid; he had received medical treatment, and he would not have been kept in ordinary civil employment under those conditions. Mr. Crooks said that as the right hon. gentleman expected to save £3,000 on the arrangement, would he consider the advisability of sharing the money for the benefit of those men until they could find a permanent home. Mr. Haldane replied that it was going beyond the power of the medical organization of the Army to keep the sick until they found a home. He would consider the question of putting money on the estimates, but he could not give any assurance. Lord Robert Cecil asked if the right hon. gentleman was aware that the soldiers were still in a condition of grave sickness, and that they had been sent out of hospital to enter the workhouse. Mr. Haldane said that they were not in a condition of grave sickness, they were only bedridden. Mr. Delany asked if the workhouses were not already full of soldiers chargeable on the rates, to which Mr. Haldane answered that that might be so, but he could not say. Mr. T. L. Corbett inquired whether the invalids were not suffering from very grave sickness and quite unable to work. Mr. Haldane replied that they were not able to work, and if Parliament chose to say that the army medical organization was to provide medical treatment then it would do what Parliament desired. But he might point out that some of these men had been ten years under hospital treatment.

Postal Medical Officers.—Mr. Austen Chamberlain asked the Postmaster-General whether he had decided to apply an age limit of 60 to the tenure of Post Office medical appointments, and, if so, whether he had considered the hardship involved in enforcing the new rule at short notice on existing holders of these appointments who had hitherto had reason to suppose that their appointment would continue as long as they were able to discharge their duties efficiently. He also asked why the medical officer of the Redditch Post Office had been called upon to retire; whether any complaint had been received from the staff under his care as to his discharge of his duties; and if not whether, having regard to the hardship involved in applying a new age rule suddenly to existing holders of appointments supposed to be for life or during good behaviour, he would reconsider his decision in the case of that officer. Mr. Sydney Buxton said it seemed expedient to review annually the efficiency of medical officers over 60 years of age, retaining those only who were found to be thoroughly efficient, and retaining none in any circumstances over 70 years of age. Of those over 60, fourteen had been found to be inefficient, and to those notice had been given; and he was sure that the right honourable gentleman would not advise their retention in so important a post. The medical officer to the post-office at Redditch was over 60 years of age. He regretted to say that, after full consideration of all the circumstances affecting him, he had felt bound to decide against retaining his services.

Royal Commission on the Feeble-minded.—Mr. Pickersgill asked the Prime Minister whether a new reference had been committed to the Royal Commission on the Care and Control of the Feeble-minded; and whether, having regard to the fact that the Commission had now been sitting for two years, and to the necessity for action, he would represent to the Commission the desirability of reporting forthwith on the matters originally referred to them. Sir Henry Campbell-Bannerman said that the original reference of the Royal Commission on the Care and Control of the Feeble-minded had been extended. The procedure of a Royal Commission was a matter to be determined only by itself, but he had no reason to believe that the extended reference would cause any delay in the issue of the report of the Commission.

Royal Commission on Vivisection.—Mr. Lupton asked the Secretary of State for the Home Department whether he was aware that the British Union for the Abolition of Vivisection, which consisted of numerous affiliated societies throughout the United Kingdom, had refused to take part in the proceedings of the Royal Commission unless the constitution of that body was remedied, and a direct medical representative of the antivivisectionists was appointed, and what course he proposed to take. Mr. Gladstone, in reply, said he was aware of the decision of the British Union, which he regretted. He hoped it would be reconsidered; but he had nothing to add to his previous answers on the subject, except to say that the Commission contained two medical men of distinction whose names were suggested by the antivivisection societies.

Diachylon as a Poison.—Mr. Samuel Roberts asked the Secretary of State for the Home Department on October 30th whether his attention had been called to the cases of two women, Sarah Elizabeth Carford and Polly West, tried and found guilty of supplying dangerous pills containing diachylon at the Sheffield quarter sessions on October 24th, and sentenced to twelve and six months' imprisonment with hard labour; and whether, considering the increasing use of diachylon by women for certain purposes, he could see his way to have this drug and its preparations scheduled as a poison. Mr. Herbert Gladstone said he had seen a report of the case referred to. He was informed that the Lord President of the Council had advised that to schedule diachylon as a poison would entail great inconvenience without attaining the object desired. It was hoped that the conviction at Sheffield would serve as a deterrent. Mr. Roberts asked if the increase in the use of the drug had been taken into consideration. Mr. Gladstone replied in the affirmative, adding that it was a very difficult question.

The Health of the Lewis.—Mr. Weir asked the Secretary of State for Scotland whether he would lay upon the Table of the House the memorandum by Dr. Dittmar, the Local Government Board's Medical Inspector, entitled, Statistical Data Presented by the Lewis for Ten Years to 1904, especially having regard to its importance in connexion with the Report on Physical Deterioration and the Increase of Phthisis in the Island of Lewis. Mr. Weir asked several supplementary questions. Mr. Sinclair replied that the report was a most valuable official document, and would receive the attention it deserved.

Scotland.

General Medical Council Election.

At a meeting to hear an address by Dr. Norman Walker, held in Edinburgh on November 1st, Dr. George A. Gibson, who took the chair, said: In thanking you for the honour of presiding over this meeting, I desire to express the pleasure which I feel in welcoming such a representative gathering favourable to our cause. You will allow me to recall to your recollection that five years ago we felt some dissatisfaction with the attitude of our representative on the General Medical Council as regards one or two important questions, and we also had the conviction that he was not in warm sympathy with the desire for reform which animates the minds of many of us. Our action at that time was in no sense to be construed as one of personal hostility to our representative; it was purely a matter of public policy. At our request Dr. Norman Walker placed his services at our disposal, and as the result of the election he was defeated by Dr. Bruce with the small majority of 121 votes. To-day we have met to inaugurate formally the campaign of our candidate, for I am glad to be able to announce that Dr. Norman Walker has again allowed us to nominate him for the coming election. Once more I am anxious to disclaim any personal grounds for our opposition to our present representative, and to state that the public medical weal is the sole object we have in view. Many of us, I may say, were under the impression that Dr. Bruce intended to decline nomination at this time; such was my own belief, and it was only recently that he informed me to the contrary. In our correspondence, I am happy to state, our public differences have made no alteration in our private friendship, and it is matter for congratulation that in this country we can differ on public questions without any diminution of personal esteem. Now, gentlemen, we have to state to the world our reasons for desiring a change in the direct representation of the profession on the General Council. We are anxious for a little more active exertion on behalf of certain members of our profession. Some of us have with tongue, with pen, with purse, espoused the cause of the parochial medical man, and of the practitioner who holds club appointments. We feel very warmly that a little more energy on the part of the General Council would speedily end the unfortunate disabilities under which both these classes of our fellow practitioners labour, and we are of opinion that the direct representative of our profession in Scotland is the proper man to advocate their cause. Again, we cannot avoid the conviction that our present representative holds views and occupies positions which are not in harmony with the present state of opinion as regards sanitary administration. We believe that no practitioner should act as medical officer of health for a large area, and are convinced that members of the General Council should set an example in this matter. Further, we should like a more progressive attitude towards medical education. The statistics of the recent successes and failures of our graduates and licentiates show us that there is ample room for the most searching inquiry, and lead us to desire the active exertions of a man who is conversant with present requirements and possibilities. In looking about for such a man our choice has unhesitatingly fallen upon Dr. Norman Walker, who, in view of his thorough training in medical science, his wide experience in general and in special practice, his deep knowledge of public business, his wide acquaintance with medical administration, and his sympathetic interest in all that pertains to the welfare of our profession, has shown himself to be worthy of our support. It gives me much pleasure to ask him to place his views before you.

Address by Dr. Norman Walker.

Gentlemen, in the excellent address recently delivered by the President of the General Medical Council, the objects, aims, and limitations of the General Medical Council were admirably laid down. I think, perhaps, the President dwelt rather unduly on the limitations. But at all events one cannot anywhere get in so concise a form an account of what the General Medical Council can and cannot do. Primarily, its duties are with education, and it is on the educational ground that I mainly appeal to you. It is easy to sketch an ideal scheme of medical education—easy to say that an arts degree should be a necessary precursor to the medical studies, which might be extended for another year. But we must distinguish between the ideal and the practical. If I were asked what was my ideal of medical education, my answer would be something on these lines:—I would demand a much fuller and wider preliminary education than is at present required. I would allow a certain elasticity in that preliminary education which might lead in the direction of a degree, either in arts or science. The last two years would be devoted to these subjects in a university, and I would then follow up with a five years' course in medicine. We would then only be requiring of our Scottish doctors the same length of training which we have long required of our Scottish ministers. I would have a one-portal system, through which all who wished to practise medicine must pass. I would limit the practice of medicine to those who had passed this portal, and this, of course, would involve the penalization of unqualified practice, either in its more glaring forms, or in its less obvious one of chemists prescribing. These, I say, would be my ideals; others may well have others. Practically, however, we have to deal with a five years' curriculum, and all practical teachers are quite convinced of this—that four of these must be devoted to medicine, and that the student should be required to have passed his First Professional before attending any of the classes in the medical curriculum proper. I am interested to see that this proposal has been in the meantime rejected by the College of Surgeons of England on the familiar ground that more time was required for consideration. I think if the subjects of anatomy and physiology have the whole time of the student, a winter and two summers ought to suffice for them, so that a minimum of three winters and two summers would remain for the study of the other subjects. I am of course aware that the majority of students now take over six years to their curriculum, and I believe that this is to some extent due to the fact that they are allowed to overlap their classes. I think the present Preliminary might very well be increased in severity, and that the standard should, in some subjects at least, be that of the Higher Grade Leaving Certificate of the Scottish Education Board. But while I think there is room for improvement, I wish to take this public opportunity of dissenting from the accusation of the decadence of the profession put forward by Sir Dyce Duckworth to the members of the Royal Medical Society last week. His experience may be different from ours, but I do not think it is either fair or correct to say that the general level of education has deteriorated. I had the curiosity, in this connexion, to look up back numbers of the *Calendar*, and I found that in 1863, the year in which Sir Dyce Duckworth graduated, 3 of the 82 graduates had degrees in arts; in 1883, 17 out 182 had degrees either in arts or science; while in 1905, out of 153 graduates, 15 had degrees either in arts or science, and some in both.

With reference to the one-portal system, it is true that five years ago I refused to commit myself to this. Since then I have been converted. If I believed that the adoption of this system would harm the Scottish Universities, I would not be a candidate for your votes. But I am convinced that nothing but good to them would result from it. They would have a freedom to devote themselves to teaching in the way they thought best, a way which no one can doubt would be well over the average which the State would be entitled to require of its candidates. I think that a good many men regard the one-portal system as part of the programme of the extremists, but I would remind you that such experienced medical politicians as Sir John Batty Tuke and Professor Clifford Allbutt have both pronounced themselves in favour of it. I should make clear that I would only favour the one-portal system as far as concerns the final subjects.

Dr. MacAlister suggested that the Council had really very little control over education, and it is true that the Council has only powers of recommendation; but these recommendations, backed as they are by the possibility that the Council may report the examinations of those bodies which refuse to accept them as insufficient, are rather more than mere recommendations. One has only to have noted during the last few weeks the interest taken by our various licensing authorities in the recommendations of the Committee of Council with reference to the

teaching of midwifery. Like most, I regard these recommendations, as I have little doubt their authors do, as Utopian, and it seems to me they have gone on the familiar principle of asking for very much more than they hope to get, so as to be able to make graceful concessions. But that there is much room for improvement in the teaching of that subject no one will, I think, deny, and in our Scottish schools there has been already a movement in the direction suggested by the recommendations.

The Council has power to inspect the examinations, and very formidable and imposing these inspections are. I cannot see why they should not be made like the visits of His Majesty's Commissioners in Lunacy, without any notice. I am quite sure the adoption of this plan would raise the level of the examination. In addition to its educational duties, the Council deals with the unpleasant one of removing from its roll the names of those judged guilty of infamous conduct in a professional respect. I understand that there are legal difficulties in the way of the Council delegating these judicial functions to a selected committee of its own, but it does seem an unnecessary extravagance to bring all cases before a jury so large as thirty-four. When the next Medical Act is introduced it seems to me it would be well to make provision for a judicial Board, say, of twelve members sitting with the President.

Of late years the Council has developed another system of discipline, less severe than that of striking off the *Register*—the only one which it is legally entitled to impose. It is, indeed, rather interesting to note how the General Medical Council, I will not say gets round the law, but extends its application. The power I refer to is that of intimating to the accused that he has been found guilty, but that the Council will not in the meantime remove his name. I believe that this very severe warning is not infrequently efficacious. Further than this, the Council has adopted a plan of issuing General Warning Notices, an action which would have horrified the earlier members of the body, who held that each case had to be tried separately, individually, and on its own merits.

And it is in this connexion that the General Medical Council comes into relation with those subjects which come home to the thinking general practitioner. The General Medical Council has no powers of legislation; it cannot decree that this or that must or must not be done. It cannot go in advance of public opinion, and its severest critic has never suggested that it has done so.

But in virtue of its power of removing names from the *Register*, it fills the position in some measure of a *court of honour* for the profession, and it is for the profession itself to so raise its standard that the scope of action of the General Medical Council is widened. Things that were at one time little regarded, became less reputable, then disreputable, and finally infamous professionally. Now this can only be done by ourselves, and again we find in education the solution. Although there are many things which have recently emanated from the British Medical Association of which I do not approve, I recognize in that body the only available means of organizing the profession as a whole, and, as a whole, successfully influencing the State.

Every politician I have spoken to has said the same thing. "Let the medical profession come to us with its mind clearly made up on these subjects, and we will give its proposals our most sympathetic consideration."

Let me deal now with the questions bearing on these matters. The position of the Poor-law medical officers in Scotland is not what it ought to be. I am perfectly aware that there are difficulties in connexion with medical practice in the Highlands and Islands, which it is by no means easy to deal with. The population is scattered, is poor, and the means of communication are bad. The hardships of medical men in these regions are great, and I have never met with any medical man who did not agree that they ought to have the same security of tenure as medical officers in England have. There is, I think, good reason to hope for improvement in this matter in the not very distant future.

Club Practice.—I have been a club doctor, and I flatter myself that I know the various aspects of this question. I know that there are some who hold that club practice is altogether iniquitous, and that the profession should set its face altogether against it. I cannot agree with that view. Combination to secure the services of a medical man is quite common. University professors are engaged at contract rates, and insurance companies appoint their principal medical officers in the same way. But the rate of remuneration must be such as to enable the doctor to devote as much time and care to his contract as to his private patients. And the pittances which some clubs—too many clubs—offer do not fairly permit of this. It is, of course, impossible to legislate for the whole country in this connexion, but if the profession were combined it would soon become a question of really practical politics, whether contract rates below what the profession in a district recognize as fair salaries would not approach to disreputable conduct.

Patent Medicines.—This is a measure of which I see a great deal of the evils, and a full share of these is borne by the patients who come under my notice. But I think it is perfectly infamous that the State should derive a considerable revenue and, the newspapers an almost fabulous amount from what both know is largely a system of procuring money under false pretences. This is a matter not for the General Medical Council but for the Legislature. We will never prevent free-born Britons from dosing themselves with medicine, but the composition of each one should be given on the label, and I think we are entitled to expect that the State will wash its hands of this iniquitous traffic.

Another matter for legislation is the alteration of the law which permits limited liability companies to do what individuals cannot. This is a matter where it seems to me we can do a great deal towards educating our statesmen. Every member of Parliament to whom I have spoken has admitted the incongruity, and I believe if the profession would use their individual influence with those members whom they know, that the practice might be stopped; it is absolutely at variance with the spirit of the law.

As to the constitution of the Council, I am quite frank in my opinion that it should be recognized that education is the primary duty of the Council, as it is, I believe, the solution of all political difficulties, medical and other; and it is of the first importance that members of the General Medical Council should have a thorough knowledge of the present needs of education, and the directions in which it should be developed. But I hold more strongly than I did five years ago that the representatives of the various bodies should be elected by wider constituencies. Dr. MacAlister mentioned that he held his seat by favour of the Senate of the University of Cambridge, a body consisting of 7,000 graduates. If the representatives of our universities were elected by their General Council, we would have a better opportunity—or, rather, I should say we would have *an* opportunity—of learning what were their views upon subjects of practical interest to the profession. I think the Council is sufficiently large, and, in connexion with the frequent creation of new universities in England, it seems to me that it might quite well be arranged that they should be represented, as the universities of Scotland are in the Carnegie Trust, alternately.

Under Dr. MacAlister's presidency the finances of the Council have reached a more satisfactory basis, and the income now exceeds the expenditure. Should this position be again reversed, it seems to me that before adding to the student's burden, some economy might be effected in the diminution of the fees paid to members. I may note that when this was formerly proposed its only supporters were Scottish members. I still hold that the Crown, and not the funds of the Council, should be liable for the remuneration of the Crown members.

These, gentlemen, are my views upon the questions which, it seems to me, bear upon this election, and I ask you to elect me as your representative to the Council, not for any other reason than that I represent the views which I believe to be those of the vast majority of the medical profession in Scotland, as to what its duties, its responsibilities, and its privileges should be.

Resolution of Confidence.

A number of questions were then put to Dr. Walker, chiefly dealing with the finances of the Council. Dr. JAMES RITCHIE then moved:

That this meeting of medical practitioners in Edinburgh, having heard Dr. Norman Walker's address, expresses its approval of his candidature, and cordially commends it to the profession in Scotland.

He said that in view of the address which they had listened to it was unnecessary that he should say much in support of the motion. Although the Direct Representative for Scotland had many interests to protect, the general practitioners considered him to be their special representative. The qualifications desired are, a practical knowledge of the interests and difficulties of the members of an arduous and responsible profession, and not only that knowledge, but sympathy. Dr. Norman Walker was for some years in general practice, and, although he has for a long period devoted himself to a special branch of medicine, he has continued to show his interest in and sympathy with those in general practice, and he is in constant association with them. When he was in general practice he took an active part in the work of his Branch of the British Medical Association, and he has continued his interest in the affairs of the Association. He has been for many years a member of its Council, and his appearances there and his relations with the other members of Council afford proof that he is well qualified to represent the profession at the General Medical Council. Dr. Walker's views on ethical questions are liberal, and under his guidance the honour of the profession is safe. The next qualification which our representative ought to possess is that practical knowledge of medical education which will enable him wisely to guide legislation for the education of future generations of medical men. Dr. Walker has a wide acquaintance with educational questions; he is and has for a long period been a teacher and an examiner, and his College, in recognition of his knowledge of educational matters, elected him to represent it on the Conjoint Committee of Management of the Triple Qualification. Another necessary qualification which is most desirable in any representative on the General Medical Council is business capacity. Those who know Dr. Norman Walker's work in connexion with the Edinburgh Branch of the British Medical Association, realize that he possesses business and organizing capacity in an eminent degree. It is the general tendency in our profession for a man to develop either its scientific or its practical side. Dr. Norman Walker may be said to have made his mark in both. I have much pleasue in proposing the motion.

The motion was seconded by Dr. J. F. Sutherland, and supported by Dr. McKenzie Johnston, who said: Mr. Chairman and fellow practitioners, I should like to raise my voice in support of Dr. Walker's candidature. In the present state of my larynx I cannot, as you see, raise my voice, but with your forbearance I can at least try to say a few words that you may hear. I am not one of those who think that increased direct representation will necessarily improve the *personnel* of, or bring about the millennium in, the Medical Council, but we practitioners of Scotland have the right to send a representative, and we have, therefore, a duty to perform. I hold that the practitioner who neglects to record his vote exhibits a want of loyalty to his profession. I would strongly impress two points upon each of you. First, that it is your duty to record your vote, and secondly, that you should recognize the responsibility of selecting a good representative. I do not speak as a personal friend of Dr. Walker, but I support the resolution because I believe he is without doubt the best candidate you could bring forward. I have been associated with him in so many matters of medical business that I can speak with knowledge as to his qualifications. As a colleague of his on the Triple Qualification Board of Management, I know how thoroughly versed he is in matters of medical education. As a colleague of his on the Central Council of the British Medical Association I know that he from the first made his influence felt there, and that he is recognized as one of its most useful members. He has had a large experience of Committee work, which will stand him in good stead when he comes to the business work of the General Medical Council. In very many other medical matters I have worked with him, and I have learned to appreciate his business capacity, his sound judgement, and the courage with which he speaks out when occasion requires it. Dr. Walker has ungrudgingly given his time and his experience to his professional brethren on numerous occasions, and I know of no one to whom general practitioners owe more than they do to him. Gentlemen, I intend to record my vote for Dr. Walker, and I hope you will all do likewise.

The Chairman then put the motion, which was unanimously carried. Dr. Norman Walker briefly expressed his thanks, and the meeting closed with a vote of thanks to the Chairman.

Dr. Norman Walker will address a meeting of the profession in Glasgow next week. Particulars as to time and place will be announced in the Glasgow papers.

The Prevention of Consumption.

On October 26th there was delivered at Selkirk, by Dr. Byrom Bramwell, a lecture on this subject at a meeting held under the auspices of the County and Burgh Health Committees. In the course of his lecture Dr. Bramwell alluded to the immense importance of the prevention of expectoration in public places, and stated that he considered that such expectoration should be made a penal offence. He proceeded to explain the absolute necessity of the compulsory notification of phthisis and of the instruction of people as regards the proper means of preventing the spread of infection. At the close of the address a motion was carried to the effect that, in view of the fact that consumption is a preventable disease, the local authorities of the town and county be requested to deal with the subject, and that a representative committee be formed to collect money to hand over for that purpose, to be used by them as they may resolve.

On the evening of October 30th a public meeting was held in the Town Hall, Galashiels, to consider what means should be adopted to prevent the spread of consumption in Galashiels. An interesting and instructive lecture, illustrated by limelight views, was given by Dr. Philip, Edinburgh, his subject being Our Responsibilities in Relation to Consumption.

Edinburgh Royal Infirmary.

At the weekly meeting of the managers on Monday, November 5th, Dr. J. Malcolm Farquharson was promoted from the post of Assistant Surgeon to that of Junior full Surgeon to the Ear and Throat Department, with a share of the beds for in-patients and one waiting day a week. The following gentlemen were appointed Clinical tutors for the current winter and the ensuing summer sessions, namely: Dr. Alexander Goodall, F.R.C.P.E., to Dr. Alexander James; Mr. W. G. Porter, M.B., B.Sc., F.R.C.S.E., to Dr. Logan Turner; Mr. W. Torrance Smith, M.B., Ch.B., was appointed Clinical Assistant to Mr. N. T. Brewis till March 31st, 1907; Mr. J. W. L. Spence, L.R.C.P. and S.E., was reappointed Clinical Assistant to Dr. Dawson Turner in the Electrical Department for one year, November 6th.

Recognition was taken of the retirement of Dr. W. Allan Jamieson from the post of Physician to the Skin Department of the Infirmary in the following terms:

The managers recognize that they are losing a highly-valued member of the staff. At the time of its inception the managers committed the charge of this department to Dr. Jamieson, and to him is owing in large measure its development into the important position it now occupies as one of the beneficent agencies of the Royal Infirmary. By the earnestness and skill he has displayed in the work of his department he has year by year brought healing and relief to large numbers of sufferers; while at the same time, by his teaching and his writings, he has done much to advance scientific knowledge respecting the important class of diseases which fell under his special care. The managers desire to express to Dr. Jamieson their grateful thanks, and in token of their esteem, and in acknowledgement of his services, they appoint him Consulting Physician to the Skin Department of the Royal Infirmary.

Ireland.

Public Health Problems.

Professor Byers has lately reprinted some of the papers and speeches on Public Health matters which he has published from time to time. They form a pamphlet of 113 pages. The most important sections are those on "Consumption," "Infant Mortality," "Pure Milk," and "Medical Women and Public Health Questions." There are also several valuable appendices, and the whole forms not only most instructive but also most interesting reading. The results of the latest researches are embodied, and the pamphlet cannot fail to have an important educational effect on public opinion.

ULSTER MEDICAL SOCIETY.

The opening meeting of this Society was held in the Medical Institute, Belfast, on November 1st. Dr. Calwell, the retiring President, took the chair, and, after the minutes had been read and confirmed, thanked the Fellows and members for their kindness to him during the two years of his office. He then inducted Dr. D. P. Gaussen (Dunmurry) to the chair as President. A vote of thanks to Dr. Calwell for his conduct in the chair was then proposed by Mr. Robert Campbell, F.R.C.S., seconded by Dr. O Malley, and passed, and Dr. Calwell replied.

The President then delivered his inaugural address. He referred to the Better Equipment Fund of the Queen's College; to the portrait of Jenner, generously given to the Society by Sir Otto Jaffé; to the honour bestowed on Sir A. E. Wright, an old Belfast man, for his scientific researches; to the Darnell case; and to the lamented death of Dr. Lynass, a Fellow of the Society. Dr. Gaussen then took up as his theme the recent advances of scientific medicine. There was, he said, a need for the more systematic study of the influence of mind over matter as a therapeutic measure, and of the benefit of experiment in such a direction. Medical psychology was a subject for instruction, and should be put on a scientific base. There was a necessity also for more scientific knowledge of the action of drugs—some knowledge by which the general practitioner could be guided, so that he should not have to depend on the statements of those financially interested. After briefly recalling the advance of preventive medicine—as illustrated by the names of Jenner, Lister, Pasteur, and Behring—he referred to the great advance made by Wright in his discovery of the means of ascertaining the powers of resistance of any individual to microbic disease, and hoped that the time was not utterly remote when State officers would be provided to carry out this work. Much depended on the education of the public, whose present apathy and misguided actions depended more on defective education than on prejudice. He rather deplored the extreme reticence of the profession in teaching the public, and commended the system of popular lectures. The benefit to be derived from the methods of treatment which at one time was in the hands of quacks was not to be forgotten, and they should always be on the look-out for any form of treatment, no matter whence it came, provided it proved beneficial. Finally, he urged that the highest development of treatment was to be derived from the study of Nature in all her aspects.

TYPHOID FEVER AT BELFAST.

At the monthly meeting of the City Council on November 1st, the chairman of the Public Health Committee, in moving the adoption of the minutes of his committee, said that there had been much misrepresentation which he would not notice. He asked the attention of the Corporation, however, to a chronological statement of the acts of the Health Committee in the matter of the typhoid epidemic. The first case was notified on August 4th, suspicion from the very first fell on a special dairy; but the Committee had certificates that the milk was sound; cases, however, were coming in day by day, week after week, with the same story and the same milk; on September 23rd, one of their best sanitary officers was told off to the district of the dairy to watch the epidemic; it was then ascertained that there were 6 cases of typhoid in this district, which is outside the Belfast area, all taking milk from the same dairy; the chairman (Dr. Robb) and the executive sanitary officer (Mr. Conway Scot) then visited the place, and found ample evidence of contamination of water; the water was sent to Professor Symmers, who pronounced it contaminated with the *Bacillus coli*, and further said that the blood of a milker showed Widal's reaction. It appeared that the milk could not be stopped from entering the city, owing to the Superintendent Medical Officer of Health not being yet appointed! Finally, somewhere about the beginning of the second week in October, more than two months from the date when cases of typhoid arising in houses getting milk from a suspected dairy had been notified, the milk was stopped from being brought into the city. Subsequently in the debate, Councillor McCaughey said that he wished to state his indebtedness to the Health Committee for the *prompt* steps taken to trace the outbreak of typhoid fever to its source, and the efficient way in which it had been stamped out! The statement made by the Chairman lends support to the opinion that the administration of the Health Department in the past has been characterized by a want of proper control. It is strengthened by the remembrance that in the same locality and by the same means—milk from a contaminated dairy—an epidemic of typhoid fever occurred two years ago; so that it is not from want of experience or want of warning that the present failure has taken place. It is the earnest hope of every citizen that under the régime of the new medical officer of health (Dr. Bailey) the defects in the health administration will soon be brought to an end.

THE PROPOSED SANATORIUM FOR CORK.

At the monthly meeting of the Cork Joint Hospital Board, held on November 5th, the report as to the suitability of the Myshall property for the erection of a sanatorium for consumption was presented. It may be remembered that Dr. C. Theodore Williams, of London, was asked to inspect the site and give his expert opinion. He visited the place on October 28th, and the letter laid before the meeting was the result of that inspection. Dr. Williams, after describing the property and its approach, directs attention to the disadvantages of three of the sites marked out for the proposed sanatorium itself, and considers the site marked No. 4 on the ordnance map the best, assuming the sanatorium to contain 60 beds, and to consist of a patients' block of more or less crescentic form, facing south, and of a dining room, a kitchen, and offices behind, the frontage of the building extending about 300 ft., and the ground being either level or gently sloping to the south. He pointed out that the site selected should be protected from cold winds, well exposed to the sun's rays, and in the neighbourhood of woods to afford some shaded walks. Dr. Williams also recommended the total removal of Myshall House and its outbuildings, which are in a state of insanitary ruin, and could not be safely utilized in any design for the sanatorium. The members present expressed great satisfaction at the report, and passed a resolution thanking Dr. Williams for the valuable advice he had given and was willing to give should they need further help. It is a great satisfaction to see that the project to erect this sanatorium is at last making headway, and that the vexed question of a site is beginning to settle itself. It is hoped that now decisive steps will be taken to complete all preliminaries, and bring the project to an issue.

Mr. R. F. Tobin, F.R.C.S., Surgeon to St. Vincent's Hospital, has been appointed by the Lord-Lieutenant to be Secretary to the Board of Superintendence of Dublin Hospitals.

South Wales.

MONMOUTHSHIRE WATER.

A CONFERENCE of representatives of Monmouthshire County Council and other governing bodies was held at Newport, October 29th, to consider a scheme for supplying the county with water submitted by Mr. Baldwin Latham. It is proposed to impound the waters of the Grwyne Fawr, a stream which joins the Usk at Llangrwyne, by making three dams, which, upon completion, would provide a storage capacity of about 800 million gallons, while there would be a daily supply of water available, after providing compensation water, of four million gallons. The total cost would be £730,000, but the scheme might be carried out in three sections. The Chairman said that some critics seemed to suppose that the scheme would have been an admirable one if it had been brought up twenty years ago. He would remind them that the County Council had no power to promote a Bill of that kind in Parliament until three years ago. With regard to another contention, that they could earmark certain areas, he pointed out that Mr. Balfour Browne had assured them that Parliament would not give them power to earmark any particular district. They would be bound to outline some definite scheme such as this. The scheme outlined by Mr. Baldwin Latham was an admirable one, and provided not only for immediate needs, but for succeeding generations. The Chairman denied that the scheme would mean a twopenny rate on the county. Arrangements would be made whereby repayments would not be

made until five years after the commencement of the construction of the works—until the scheme became remunerative. In 1908, when the first section of the scheme would be taken in hand, a halfpenny rate would suffice, in the next year a penny rate, and afterwards the rate would be increased to a maximum of 1½d. In 1911 they would be in a position to supply water, and the average cost for the whole of the first six years would represent only a halfpenny rate. After that period they would have a surplus and the scheme would be self-supporting. The Chairman, in conclusion, urged upon the meeting the importance of conserving the present water area for the county. In reply to Colonel Curre (Chepstow), the Chairman said that if the whole county were not rated the scheme ceased to be a county scheme. Certain districts might combine to form a Water Board, but the weakness of such a step would be that only those not in possession of a water supply would join. Colonel Curre said his council was of opinion that the rural districts should not be brought in. Councillor Price (Tredegar) believed in the principle of the scheme, but he pointed out that it would be a great hardship in districts like Tredegar and Ebbw Vale, which had expended a large sum of money on a water supply, to be again asked to contribute towards another scheme. The rates at Tredegar were 8s. in the £, and there was a fear of an increase if they joined the Western Valleys Sewerage Board. Mr. Morgan (Ebbw Vale) concurred. Mr. Onions supported the scheme, and contended that it would in a short time be self-supporting; it was necessary to look ahead and provide for the needs of the rapidly-increasing population. Alderman Harris contended that the scheme was weak, in so far as it saddled those already overburdened, and did not tax the people who would chiefly benefit. The scheme needed amendment. Councillor A. Jones (Ebbw Vale) said the financial aspect had been too favourably represented, but Sir Henry Jackson supported the scheme, and pointed out that the water, even in those districts which had their supplies, was not unlimited. After further discussion it was decided to adjourn the conference for three weeks.

Lancashire.

Manchester Port Sanitary Authority.

The Medical Officer of the Manchester Port Sanitary Authority has reported that during the month ended October 25th, 246 vessels were found to be infected; 92 were insanitary, but most of the insanitary conditions were of a trifling nature. It was resolved to prosecute in the case of a ship which reached Salford on September 28th; the captain on arriving in the Mersey had stated in reply to the usual questions that all on board were well, and that there had been no sickness or death during the voyage. It was ascertained at Salford that the vessel had left Colon on July 20th, and that two deaths had occurred before arrival at New Orleans on August 1st. At New Orleans the second mate and eleven of the crew were removed to hospital, and the vessel fumigated. The second mate died on August 4th, the cause of death as certified being "chagres fever," a malignant variety of malaria prevalent in Central America. No other case occurred during the forty-two days of the voyage to the Mersey.

Milk and Tuberculosis.

A farmer at Alderley Edge was charged before the justices in Manchester on November 2nd with having neglected to notify that a cow in her possession showed signs of, or was suspected of, being affected by tuberculosis. The defendant was in the habit of sending milk to a local dealer for sale. Samples are taken promiscuously from the cans of milk arriving daily at the railway stations. Should evidence of tuberculosis be found in any sample, the farm from which it has come is visited, and an investigation is made on the spot. In this case an inspector visited the farm and found a cow with a tuberculous udder. It was the defendant's duty to have informed the medical authority of the condition of the cow. She pleaded ignorance, but it was stated that the condition of the animal was such as might have been ascertained by any local veterinary surgeon if the proper steps had been taken. The defendant was fined, with costs, 5 guineas.

Coroner's New Court.

At last the Manchester City Coroner is to have a new court in the new Fire Brigade premises which have just been erected by the Corporation. The new court is about six times the size of the old dingy court in Minshall Street. Fifteen or twenty cases a week may have to be dealt with by the Coroner. About 900 inquests are held per annum, and the number of cases notified to the Coroner is about 1,200 in all.

Birmingham.

Hospital Saturday and Hospital Sunday.

The result of the Hospital Saturday collection has recently been announced. The sum collected in the manufactories of the city reached the large amount of £19,200 12s. 2d., which is £535 13s. 5d. more than last year, and there are still a few contributions to be received. With the interest up to date the total is £19,280 14s. 5d. This is the largest sum ever yet collected, and the Committee consider that the steady increase in the collections every year is due to the extension of the weekly system, and to the greater appreciation of the work done at the convalescent homes. The sum of £10,000 is to be distributed to the various institutions as follows: General Hospital, £3,150; Queen's Hospital, £2,100; General Dispensary, £1,040; Children's Hospital, £800; Eye Hospital, £400; Birmingham and Midland Counties Sanatorium, £100; Homœopathic Hospital, £200; Women's Hospital, £475; Lying-in Charity, £180; Orthopædic Hospital, £300; Ear and Throat Hospital, £100; Dental Hospital, £50; Skin and Urinary Hospital, £200; District Nursing Society, £150; Jaffray Suburban Branch Hospital, £400; Moseley Hall Convalescent Home for Children, £200; and six other institutions sums varying from £75 to £10. October 27th was Hospital Sunday, and although the sum collected was not quite as large this year as last, nevertheless it amounted to about £4,300.

North Staffordshire.

Lead Poisoning and Smoking.

Three potters were summoned at Longton on October 31st for smoking their pipes while engaged in certain processes of china manufacture, in contravention of the special rules made under the Factory Act. The defence offered by one, a worker in lead glaze, was that he had not been warned not to smoke at work. The stipendiary magistrate, in imposing fines, remarked that the men were very silly not to take notice of rules passed for their own health, and that though the employer in this case had continually reminded them about the rules, this was not to be expected in all cases.

Leek Sewage Works.

Lord Harrowby and the County Medical Officer of Health on October 30th inspected the additions to the Leek Sewage Works on behalf of the Staffordshire County Council, many members of which were present. The sum of £10,000 had previously been spent on the 26 acres of land in use. The effluent being unsatisfactory, £5,000 has been spent on installing bacterial treatment.

Portugal and Compulsory Vaccination.—The Portuguese Conselho Superior de Hygiene has under consideration the details of a scheme of compulsory vaccination, and it is said by the political press that the measure, which was passed by the Legislative Chambers in 1897, will shortly become law. The medical press, with the experience of the numerous impediments which stand in the way of sanitary legislation in Portugal, is by no means optimistic. *A Medicina Contemporanea* anticipates that this measure, like its predecessors, will come to nothing, that small-pox will continue to prevail in Lisbon and throughout the country, that the dead will be buried without any certificate as to the cause, that patients will be treated by barbers, and that the laws of hygiene will be defied by the very officials appointed to secure their observance.

SPECIAL CORRESPONDENCE.

PARIS.

Treatment of Cerebro-spinal Meningitis by Intraspinal Injection of Collargol.—The Continental Anglo-American Medical Society.

AT a recent meeting of the Société Médicale des Hôpitaux Drs. F. Widal and Louis Ramond gave an interesting history of a case of cerebro-spinal meningitis due to meningococci treated by intraspinal injection of collargol.

The patient, a dressmaker, aged 31, was in good health till August 15th, 1905, when she had a miscarriage at the third month. After a week in bed she was up again, but as she was losing blood constantly during the next two months, she went into the Broca Hospital on October 24th. The following day she began to have severe headache, and the temperature, which had been about 38° C., rose to 39.4° C. She became constipated; had trismus and could scarcely speak; the back of the neck became stiff, and the slightest movement was painful; she also had Kernig's sign. On November 2nd backache was present, as well as headache, and the muscles of the dorso-lumbar region were the seat of acute spontaneous pain. On November 8th there was a rigor, the temperature rose to 39.8° C., and vomiting set in. On November 14th a lumbar puncture showed it was a case of meningitis, and the patient was sent to the Cochin Hospital. On November 18th, towards 5 p.m., she became delirious. On November 19th the agitation increased; with difficulty she replied in whispers to questions. The knee-jerks continued exaggerated; for the first time there was incontinence of urine. On November 21st the condition seemed very grave; she was unconscious; pulse, 144. At 5 p.m. lumbar puncture was performed, giving issue to a liquid which was scarcely clouded; 5 c.cm. of a 1 per 100 solution of collargol in water was injected into the subarachnoid space. A few hours later the condition seemed to improve and she understood questions when spoken to; the weight was good and she took 1 litre of milk. On November 22nd the temperature had fallen to 38.2° C. and the pulse to 112. She was able to answer questions. On November 23rd she had a violent rigor with pain on the left side of thorax, and crepitations and tubular breathing at the angle of the scapula were observed. On November 24th her condition was again grave; delirium, violent headache, and incontinence of faeces. Lumbar puncture was again resorted to. On November 27th the temperature had fallen to below 38° C., the pulse was excellent, mind still wandering. Lumbar puncture was again performed on November 28th. Incontinence of faeces stopped, but there was still retention of urine. On November 29th the temperature fell to normal, and intelligence returned. On December 10th the mental trouble disappeared; Kernig's sign persisted, but there was no longer any stiffness of the back of the neck. On December 11th the patient got up for the first time, and on December 24th she left hospital completely cured. Kernig's sign was no longer present. There remained only exaggeration of knee reflexes, especially on the right side, and epileptiform trepidation. The temperature chart showed three distinct periods: (1) for nineteen days the temperature was irregular, with occasional rigors; (2) for ten days a high, even temperature, varying between 39° and 40° C.; (3) for seven days after the injection of collargol the temperature fell progressively to normal. For twenty-three days the meningitis, with Kernig's sign, stiffness of the nape of the neck, unequal pupils, herpes labialis was mild, the headache being the only persistent cerebral symptom; there was no paralysis, no contraction, no delirium, and the patient clearly answered any questions. From the twenty-third to twenty-eighth day very grave symptoms supervened, with progressive delirium, absolute prostration and incontinence of urine. On the twenty-ninth day, when collargol was injected, the temperature fell immediately, the delirium was less violent and the general condition seemed better; but on the following day there was a rigor and a pneumonic patch appeared at base of left lung. Twenty-four hours later the patient also had incontinence of faeces and a bedsore began over the sacrum. Nevertheless the temperature continued to fall, and eight days later, on the thirty-sixth day of the disease, the temperature was normal. It continued normal and the intellectual disturbances quickly disappeared.

The striking point in this case is the recovery after the intraspinal injection of collargol. A comparison of the cerebro-spinal fluid taken before and after the injection showed the modification due to the collargol. Three days after the injection the meningococci were still in great numbers and full of vitality, and the cerebro-spinal fluid did not become sterile till it had been for six days in contact with the silver solution; the dead microbes had not then been all absorbed by the white cells. The bactericidal action showed itself slowly, although a relatively large dose of collargol (5 cg.) had been introduced into a relatively small quantity of cerebro-spinal fluid (70 c.cm.). Before the injection of collargol, in spite of the persistence of numbers of meningococci in the cerebro-spinal fluid, the leucocytes were diminishing progressively as the patient's condition became more grave, as if by habit they had lost their aptitude to be attracted by the microbes, developing a kind of antichemiotaxis. A temporary and enormous increase of the polynuclear cells followed the intraspinal injection. This enormous exodus of leucocytes was provoked by the introduction of the foreign body in non-isotonic solution, and served more especially, as the preparations showed, to absorb the colloidal silver. This artificial polynuclear formation took several days to free the subarachnoid sac of the microbes already dead, and diminished progressively with the disappearance of the collargol. The meningococcus disappeared in a few days after the injection of collargol, and immediately after its introduction the patient began to get well. M. Charles Dopter, from the Val de Grâce Military Hospital, communicated an analogous case occurring in a young soldier, aged 22, who had high fever and typical symptoms for over twenty days; after a subarachnoid injection of 5 cg. of collargol the symptoms and fever began to improve.

The annual meeting of the Continental Anglo-American Medical Society was held in Paris on October 30th at the residence of the honorary secretary, Dr. Leonard Robinson, the chair being taken by Dr. Alan Herbert. Dr. Stanley Rendall and Dr. Samways (of Mentone) and Dr. Coldstream (of Florence) were elected members of the Executive Committee. Dr. Hugh Treves-Barber (of Geneva) and Dr. A. W. W. Dowding (of Algeciras) were elected members of the Society. In the evening the Annual Dinner of the Society was held at the Hôtel du Palais d'Orsay, the chair being taken by Dr. J. Lucas-Championnière, Professor of Clinical Surgery at the Hôtel-Dieu. The following members were present: Dr. Manlock, Dr. Hogg, Dr. Bull, Dr. Jarvis, Dr. Gros, Dr. Koenig, Dr. Warden, Dr. Suzor, Dr. Robinson (Paris), Dr. Danvers (formerly of Bordighera), and Dr. Sillerg Vale (Arcachon). The guests included Dr. O'Brennan (Kansas City), Dr. Albert Abrams (San Francisco), Dr. Drew, Dr. Chapman (Hertford British Hospital), Dr. Triboulet, Dr. Proust, Dr. Lutaud and Dr. Lutaud fils, Dr. Bottentuit, and Dr. Kraus. The Chairman, after proposing the usual loyal toasts of "His Majesty the King," "the President of the United States," and "the President of the French Republic," proposed "Success to the Society," and said that, in spite of coming without the permission of his medical adviser, it gave him great pleasure to find himself again among English-speaking doctors, as he had always felt at home among them ever since the days long ago when he had worked in Glasgow with Lister. Dr. Danvers replied for the Society. Dr. Bull proposed the toast of "Our Guests." Dr. O'Brennan replied for the American guests, and, with the spirit of prophecy, foretold that a great future awaited medicine and surgery, and that more especially from the United States would light come. Dr. Triboulet replied for the French guests, saying that he was perhaps called on to speak as he had the advantage of having visited both Great Britain and America. Dr. Warden proposed the health of the Chairman, who, he said, had ever been a fighter, first as a pioneer, when, after working in Glasgow with Lister, he was the first to introduce antiseptics into France; and now, after many years, was carrying on a rearguard action in favour of antiseptics against the younger school of surgeons who were all for aseptic surgery, as undoubtedly there was still a place for antiseptic surgery. A brief reply from Dr. Lucas-Championnière brought the evening to a close.

VIENNA.

Plumbism Due to Handling Dyed Silk.—Professor von Noorden's Opening Lecture.—Professional Accident Insurance.—Registrar-General's Report.

SINCE special stress was laid on the prevention of occupation diseases and colour poisoning in the last Ordinance issued by the Ministry of the Interior, numerous cases have been published. At the recent meeting of the Vienna Society of Practitioners, Dr. Teleky showed two cases in which the disease had been acquired by unlawfully dyeing

silk. The patients were women, aged respectively 24 and 27, who had helped their mothers, when 7 years old, in weaving and later in tying the fringes of silk kerchiefs. As the favourite colour for this article is black, they get usually only this colour to work up, and only the black silk is impregnated with lead salts. The object of the impregnation is to make the goods look brighter and increase their weight; they are sold by the pound. The silk absorbs about 100 per cent. lead or more of its own weight, and when it is dried it must be well shaken out to be cleared of its superfluous lead. The work is done mostly in the homes of the workers, who are generally girls and women. Children are often employed to assist in this work, and inspection is hardly ever satisfactory, on account of the irregular employment. Thus chronic lead poisoning is easily produced. All patients show typical symptoms of accumulation of the metal in the organism. The two patients looked much older than their actual age. Both had had miscarriages, and had suffered severely from colic. Anaemia was very marked. It may be added that during handling and manipulating of the impregnated silk about 4 or 5 per cent. of the lead is again liberated and charges the air of the workroom in the form of dust. In this atmosphere the workers have to be for eight or ten hours, and the pay is so low that it is wonderful how people can be found to endanger their lives for a mere trifle.

Professor von Noorden, who was called from Frankfort to take the chair of Clinical Medicine in succession to the late Professor Nothnagel, delivered an opening address a short time ago. He laid special stress on the necessity of accurate and diligent examination; the old methods, percussion and auscultation, were still the most reliable of all, and he would instruct his assistants to hold special classes for the students and imbue them with the principles and essentials of the aid of diagnosis. Of course, all other modern methods of exact clinical diagnosis, bacteriology, microscopy, haematology—would also be employed under his personal supervision. To enable the students to come into close personal contact with different types of disease, he would submit each patient to the care of a student, who would have to work out a report on the case and keep him under his observation. Professor v. Noorden vehemently denounced early specialization in medical practice. The human body, he said, is an entity, nearly all diseases are connected with each other, and it is seldom that only a single organ, *per se*, is diseased. Therefore, the physician must be an all-round specialist.

A movement has been started by the Vienna Aerzte-Kammer to obtain more and better consideration from the insurance companies in cases of professional infection. The action has been taken in consequence of two disputes which arose recently between insurance companies and medical men, in which the companies alleged that the doctor ought to take adequate precautions against infection, otherwise he was neglecting his health, and thus would not come within the scope of the insurance. Now the Aerzte-Kammer has sent to all Vienna doctors an intimation to stop for the moment any negotiations regarding accident insurance, and to furnish to the Kammer all data referring to any insurances, claims paid or unpaid by the companies, accidents, infections, and the like. It is intended to draw up a form for all doctors, which shall contain information for all such insurances, and to negotiate with certain companies for the concession of lower rates than hitherto, at the same time including all risks from professional infection. In a number of cases infection with syphilis and diphtheria were specially mentioned as not being amongst the risks covered by the premium; lately the doctors have made a good stand to have all professional risks included.

The health report for the last few weeks published by the Registrar-General shows a marked increase of diphtheria and whooping-cough, whilst all other infectious diseases have diminished in number and severity. The mortality has fallen to 14.7 per mille, the lowest figure for the last eight years. Seventy-four fresh cases of cancer have been detected amongst women under treatment for other diseases. The last-mentioned fact is directly due to the leaflet on cancer published some time ago by the Union of Medical Practitioners, following the example set by the German Cancer Committee.

CORRESPONDENCE.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

Sir,—One point in Sir W. H. Broadbent's letter in the British Medical Journal of July 21st, p. 169, strikes me as being most important. There can be no gainsaying the truth of his statement—that if the best results are to be obtained from the examination of the children, the examiner must be in close touch with the medical officer of health. One inclines to view with considerable regard any statement which accords with what he himself has suggested, but there are other reasons than this which prompt me to draw attention to this remark. It may not be possible in a country with the population of England or Scotland that the inspector should be a member of the health board, but in a colony such as New Zealand I do think that such a course is feasible. In the scheme which I have suggested for the consideration of the Minister of Public Health I have recommended that the salaries of the inspectors shall be paid half by the education boards and half by the health department. That they should be under the direction of the chief health officer and that they should report to him. A uniform standard could in this way be obtained for the whole colony, and in consequence the data would be of much greater value. Because of the dispersion of our population, and therefore the greater cost of inspection, I suggested that the teacher should help.

A series of lectures are to be given by the district health officers to the teachers. The object of these lectures is to indicate to the teachers in the State schools what signs they ought to look for in the elimination of the less fit children. Judging from the results obtained in Belgium and Germany, I concluded that this would be about 13 per cent. Now, if the labours of the examiner could be confined to this number of children, it would mean that, instead of having to look after, say, 127,000 children, the examiners would have only some 165 to examine. To examine the whole would be an impossible task in such a country as this, but to look after the lesser amount would be feasible. I am glad to say that the teachers generally have received the suggestions in the very best spirit, and that there seems no possible objection to the scheme likely to come from them.

The open mouth, the strained expression, the cough, etc., can all be understood by the teacher just as well as by the medical man. It is proposed that each teacher should keep a list of all the children about whose health he has doubt; these will be examined by the doctor at his regular visit. He will be required to notify the parents or guardians of the condition of the child. The parent can then take the child to the usual medical attendant for treatment. In the case of poor people the hospital attendant will have to be consulted. By requiring the whole time of the inspector all friction between the ordinary medical attendant and the examiner will be avoided.—I am, etc.,

J. M. Mason,
Chief Health Officer for New Zealand.

Wellington, New Zealand, Sept. 9th.

THE MEDICAL SCHOOL OF THE UNIVERSITY OF TORONTO.

Sir,—In the number of the British Medical Journal of August 11th a statement is made on p. 324 regarding the number of undergraduates in Medicine in the University of Toronto. The statement is entirely misleading, and I cannot understand from what source such erroneous figures could be obtained. The writer of the paragraph in question would suggest that the number of students in Medicine in Canada has fallen off materially. I may say, in direct contradiction to that statement, that there are to-day in the First-year Class in Medicine in the University of Toronto 185 registered students. This is the largest class yet enrolled in the First Year in the history of this institution. Further, I may state that last spring there graduated from the University of Toronto in Medicine 107 students.

It is not at all a question of whether or not the remarkable increase in the number of students attending the University of Toronto in Medicine is to be looked upon as desirable or the reverse; my object in communicating with you at present is simply to call attention to the erroneous

statement made in your JOURNAL on the date indicated and to give you some correct figures indicating the actual condition of affairs.

The total number of students registered in Medicine in the University of Toronto for the current session is 639.—I am, etc.,

A. PRIMROSE,
Secretary, University of Toronto Faculty of Medicine.

Toronto, Oct. 19th.

YELLOW FEVER IN BELIZE.

SIR,—In your issue of September 8th you say of this report that "the first chapter dealing with the individual epidemic in Belize contains probably the most interesting and important facts of the whole report." Certainly this ought to have been so, but it is not. The bare facts are:

1. The first case was reported on May 22nd, the last on June 28th, there being eight deaths.
2. On former occasions, the disease ran through the European community, sparing but few; but on the present occasion only a minority suffered.
3. Our epidemic ceased in *midsummer* week, but in other places visited last year the disease continued into autumn and even into winter.

This remarkable result of arresting an epidemic of yellow fever in midsummer week in spite of the actual presence of a large body of non-immunes was achieved, not by attempting to exterminate mosquitos as a whole within a few days or weeks, but by adopting and carrying out a far less ambitious procedure. Each case as it occurred was isolated from mosquitos by the use of nets, and as an additional precaution the mosquitos in the immediate environment were destroyed lest any of them might have become infected. The teaching of the incident is obvious. It shows that with an *epidemic in progress* a local authority may confidently expect to stamp it out provided it attends intelligently and persistently to the central fact, namely, that *it is only the infected mosquito which is capable of disseminating yellow fever.*

Professor Boyce, however, espouses the theory that nothing can be done unless and until the whole race of *Stegomyia* is exterminated. Thus he found *Stegomyia* present in Belize in September, *ergo* he concludes our anti-mosquito measures were ineffective, and had nothing to do with the termination of the epidemic in June (p. 12). The facts of our epidemic do not support this extremist and discouraging doctrine. To get over the difficulty Professor Boyce puts forward a fantastic theory in the following words (the italics are mine):

> During the period 1886 to 1891, there can be little doubt that yellow fever had gained a strong hold upon Belize, and had become endemic. *It would also have resulted in the creation of a very large immune population, and to the presence of a very considerable number of immunes in Belize at the present time must be attributed in a large measure the comparative smallness of the number of cases in Belize* (p. 3).

He relies, then, on the hypothetical creation of an immune population in 1891 to account for the fewness of cases in 1905. Superficially this is ingenious, but it is logically absurd. As the fallacy of this reasoning can be exposed by an appeal to simple arithmetic, I shall enter upon it.

First.—The population at the census of 1891 was 6,972. *I shall grant to Professor Boyce that all of these persons were rendered immune.* Under the operation of a death-rate of 20 per 1,000 which is much below the actual rate, these 6,972 persons would be reduced to 5,257 at midsummer of 1905.

Second.—At midsummer of 1905 the estimated population was 10,212. Excluding Professor Boyce's hypothetical immunes, we are left with 5,000 non-immunes.

Third.—Distributing the 8 deaths among the non-immunes only, we get a rate of 1.6 per 1,000.

Fourth.—On former occasions the deaths distributed among the total population yielded rates of 3 per 1,000.

Now, even after excluding Professor Boyce's immunes, the cardinal fact, *the comparative fewness of cases in 1905*, remains. Hence it is clear that the presence of these immunes did not have the determining influence he pretends it had,[1] and his attempt to dispose of the facts by this theory ends in failure. The incident is significant as showing that if facts exist which run counter to Professor Boyce's theories, it is so much the worse for the facts.

His theory is so manifestly weak that on p. 12 it is supplemented thus: "After June the disease dies down from the absence of arrival of fresh susceptible non-immunes." But what of the resident non-immunes? After granting the extremest limit of Professor Boyce's hypothesis, I have shown there were at least 5,000 present. In spite of their presence the disease terminated in midsummer. No other interpretation can be put on the facts than that the inexpensive and simple measures adopted locally proved effectual, and that *there were no infected mosquitos about after June.*

In New Orleans Professor Boyce saw the authorities carrying out the two problems side by side. Such a thing is possible only in a wealthy community. For ourselves, the limited means at our disposal restricted us, but nevertheless did not hinder our success. At its best, mosquito extermination is an expensive undertaking. Hence small undeveloped colonies with limited finances can barely be expected to undertake pioneer and experimental work in a field where so much has been done with uncertain results.—I am, etc.,

C. H. EYLES,
Colonial Surgeon (ret.).

Belize, Sept. 25th.

[1] "Whatever circumstance can be excluded without prejudice to the phenomenon is not connected with it in the way of causation." Mill, *System of Logic*, III, viii, 1.

THE TAXATION OF MOTOR CARS.

SIR,—In reference to the letter of Messrs. Lockwood and Bruce-Porter in the BRITISH MEDICAL JOURNAL of October 27th on the taxation of motor cars, in which they suggest that medical men should forthwith write to their own member of Parliament, or any others they may know, for protection and support, I venture to suggest that a more effective method of bringing before the individual members of Parliament the fact that the present taxation of motor cars presses hardly and unfairly on medical men, and of requesting their help in mitigating or removing this grievance in the forthcoming Act, would be to draft a petition stating briefly our grievances, have a copy of the petition sent to a medical man known to be interested in the matter in every constituency requesting him to obtain the signatures of all motoring medical men in his constituency. Where the constituency is large, it might be necessary to divide it into districts for the purpose of obtaining signatures. When all signatures had been obtained, the petition should be sent to the member of Parliament who represents the medical men who have signed.

In this way every member of Parliament would be acquainted with our side of the question. The cost of working would be very small—a subscription of a shilling from each signatory would easily cover the expenses—and I do not think there would be much difficulty in finding a medical man in each constituency who would give his services in obtaining signatures.—I am, etc.,

H. CECIL BARLOW.

Somersham, Hunts, Nov. 4th.

THE REPORT OF THE COMMISSION ON POOR-LAW REFORM (IRELAND).

SIR,—The report of the Viceregal Commission on Poor-law Reform should receive the very careful consideration of every member of the British Medical Association. I am quite aware that Paragraph III of the terms of reference raises the question as to how far better provisions for the classification and treatment of the inmates, especially the aged and infirm, sick lunatics, and children chargeable to the unions, and evidently looks to combination as one of the principal remedies for the evils at present complained of. But I am very doubtful whether it is possible, even if expedient, to adopt some of the recommendations: for example, that the aged and infirm should be distributed in thirty-two so-called "almshouses," instead of 159 "workhouses" as at present. As to the names I care very little. The United States "poors house," the "Institution Aumonière" of France, or the "Armenhausen" of Germany may have a different sound, but they all convey the same meaning. What I am more concerned about is the question—is the scheme practicable? A simple sum in long division shows that the average area from which the infirm and aged are to be drawn will be not far off 1,000 square miles; a very considerable distance will have to be traversed and a considerable sum expended by those desiring to visit their friends.

With the Commissioners' report on lunatics and epileptics

I am in thorough accord, but certainly not the recommendations as to a State Medical Service. The Commissioners evidently labour under the idea "that the best and most impartial test would be one that should provide for entrance into the service by competitive examination." In my opinion, "Better bear the ills you have than fly to others that you know not of." Have the Commissioners never met gentlemen capable of passing a first-class examination, and yet utterly incapable as administrators? Take the case of the English asylums, do they think that by any State examination they would procure a more competent body of superintendents than they have now? Are the French alienists better than ours? I do not think so. That county councils and boards of guardians make mistakes in their appointments I acknowledge, but so does every legislative and administrative body.

The proposition "that there should be a State Medical Service, with local bodies to assist in the administration of relief to the sick" hardly requires much discussion; that the guardians or county councils would entertain the idea for a moment I do not believe. We want gentlemen on the Boards who can take broad-minded views, but such men go where their mental powers are of more use, not where they will be mere hewers of wood and drawers of water for a central bureau. I see that the medical staff are "to attend constabulary, coastguards, soldiers, post office officials, and such other persons in the prison *or other public services* [the italics are mine] as now receive medical attendance at the public expense." I think as the general medical practitioner reads these lines he will ask himself, where do I come in? The oyster is for the State official, the shells for the general practitioner. I think there has never been put before the country a more preposterous piece of protection than the proposal that Irish Medical State Service should, at all events for the present, be restricted to candidates educated in Ireland. Why should Irishmen and Scotchmen be allowed to flood England and we are not even to have reciprocity? Suppose such a proposition was made by the English Commissioners, what an outcry we should have about another injustice to Ireland!

The colleges and the universities will probably have something to say about this scheme. The old doctrine used to be that the condition of the pauper should not be better than that of the poorest labourer, but under this scheme the Irish authorities are told that their examinations are no proof that a man is competent to treat paupers; he may be competent to treat the Lord-Lieutenant or all the peers, but not the policeman, the prisoner, or the pauper.

As for the statement that the "system would give local medical men of ordinary ability a reasonable hope for promotion in their profession," I entirely differ from it; certainly, the promotion of certain gentlemen in other Poor-law positions does not give any support to the theory that they are all promotions by merit.

In my opinion, the scheme is little short of an insult to the General Medical Council. Have the Council become so incompetent that they have been unable to devise a code of regulations adequate to prove the competency of candidates for Poor-law positions? The Commissioners recommend that control should be handed over to five medical commissioners, and, to quote the report *verbatim*: "it is not unlikely that the addition *of one or two laymen to the Council* might be considered desirable." If this is the style of reform proposed, the less we have of it the better. —I am, etc.,

Jno. Milson Rhodes, M.D., J.P.

Didsbury, Manchester, Nov. 5th.

A SIDELIGHT ON MEDICAL EDUCATION.

Sir,—In the Supplement to the British Medical Journal for September 22nd, 1906, there are published certain tables of statistics concerning the entrance examinations for the three services, and you draw attention to the fact that these tables show that of the candidates holding the English Conjoint diplomas only a higher percentage "qualify" than of those holding English degrees either alone or in conjunction with other diplomas. I would submit that the fact that your tables lump together the three examinations, instead of taking them separately, renders the resulting percentage highly fallacious, as you neglect the varying proportion of what I may call the "degree" and the "conjoint" men entering for the different examinations. Thus it is beyond dispute that the proportion of "degree" men to "conjoint" men is much smaller for the R.A.M.C. than for the I.M.S. examination, while the total number of candidates per annum is about three times larger for the former than for the latter. These two factors have not been taken into consideration in your tables, though they may make a considerable difference in the final percentage. The following *imaginary* tables show this:

A.

If for the Indian Medical Service the candidates were made up thus:

30 "degree" men, of whom 20 qualified, giving a percentage of 66.6
50 "conjoint" " " 30 " " " 60.0

B.

If for the Royal Army Medical Corps the figures were:

25 "degree" men, of whom 20 qualified, giving a percentage of 80.0
250 "conjoint" " " 190 " " " 76.0

In both these tables the "degree" men have done better than the "conjoint" men. If a table showing the results for both examinations be required, this should be obtained by taking the mean percentages thus:

C (1).

For both examinations there would be:

Percentage of "degree" men qualifying $\frac{66+80}{2} = 73.3$

" "conjoint" " $\frac{60+76}{2} = 68.0$

By your method an entirely different result would be obtained thus:

C (2).

55 "degree" men, of whom 40 qualified, giving a percentage of 72.7
300 "conjoint" " " 220 " " " 73.3

from which it would appear that the "conjoint" men had done better than the "degree" men, which Tables A. and B. show to be erroneous.

I submit that the method I have exemplified above is more correct than that adopted in your tables.—I am, etc.,

October 11th. I. M. S.

*** The examinations, of course, differ materially, but in none of them is the standard so high that all candidates alike cannot be expected to gain at least half marks and thus escape total rejection, and from this point of view the "lumping" method is quite satisfactory. The way of working out the results is a different matter. Mathematically our correspondent's method is unsound because when the mean of the percentages of a number of factors is taken, the margin of possible error is greater than when one percentage is calculated on the aggregate of all the factors. Practically, too, the method would not habitually meet our correspondent's objection and work out in favour of the men who enter chiefly for the more difficult examination. It happens to do so in the example given, but in the following the reverse is the case:

University X.

R.A.M.C. ... 1 candidate, 1 rejection, or 100.0 per cent.
I.M.S. ...15 candidates, 2 rejections, or 13.3 "

Conjoint Men.

R.A.M.C. ...20 candidates, 1 rejection, or 5.0 per cent.
I.M.S. ...15 " 10 rejections, or 66.6 "

Result by our correspondent's method:

University X ... $\frac{100+13.3}{2} = 56.6$ per cent.

Conjoint ... ... $\frac{5+66.6}{2} = 35.8$ per cent.

Result by our method:

University X...16 candidates, 3 rejections, or 18.7 per cent.
Conjoint ...35 " 11 " or 31.4 "

This result is, of course, both mathematically and practically the more correct. When, however, the returns relating to the latest examinations have been published by the General Medical Council, it is intended to issue a new series of tables dealing with each of the services separately. Any deductive error arising from the fact that the amount of knowledge required to win commissions in the different services is not identical will thus be met, and precise comparisons between candidates from different parts of the kingdom be made more possible.

Sir,—In the unsigned note, presumably editorial, which you have published at the end of my statement regarding the results of recent medical service examinations in the British Medical Journal, you state that I have assumed some tables of analyses formerly published by you to be correct, built a theory upon them and then suggested that

the tables are wrong. If you will read my letter carefully you will see that what I assumed to be correct were the numbers (that is, the numbers copied by the JOURNAL from the return to the General Medical Council). It would be difficult to see how mistakes could occur in these except through great carelessness. The "serious errors and misleading figures" of which I complained occur in the analyses of the returns, for which the JOURNAL alone is responsible.

You state that I have possibly misinterpreted the tables which I have seen, but as in each case I have pointed out the individual errors, it would have been simple to show where I was mistaken. I am glad to notice that after I had drawn your attention to the fact that there was an error of 14 (the difference between 45 and 31) in the number of candidates holding English diplomas and English degree in Table VIII of September 22nd, 1906, it has been admitted by you that there is an error in the last series of tables. You state that I certainly misinterpreted the tables, which I say contain some of the most remarkable mistakes. This should be easily proved, and I now ask you to withdraw your statement, or justify it by republishing the tables in question, together with my remarks upon them, so that your readers can judge whether or not it is I who have been guilty of misrepresentation. The figures are contained in the analyses published on June 3rd, 1905. I used the word "remarkable" to describe some of the percentages and proportions given in this series of tables, because they are not only incorrect but obviously contradictory.—I am, etc.,

Dublin, Oct. 29th. A. FRANCIS DIXON.

*** We are sorry to have annoyed Professor Dixon who, indeed, has our entire sympathy, for it is always annoying to be misunderstood, and we are suffering in the same way. Thus, having examined his numerous criticisms of the table published in June last year, we find that they are all based on the assumption that the figures in question are percentages. As such they would be inaccurate, but as they are averages they are correct. This is the misinterpretation to which we referred. This one example must suffice, and for the sake of our space and for his satisfaction we will gracefully allow him to assume that the rest of his strictures and observations are justified. Anyone sufficiently interested can extract the original figures from the Minutes of the General Medical Council, and calculate the percentages and averages for himself.

PLURAL VOTING.

SIR,—The Plural Voting Bill, if it became an Act, would deprive, *inter alia*, graduates of the Universities of their votes as such, lessening their representation in Parliament or for their home districts, and would disenfranchise altogether those who may overlook the sending of notices in which constituency they would wish to vote. This would be a cruel injustice to the trained intellects of our University system. A somewhat similar attempt at spoliation was defeated when Mr. W. E. Gladstone proposed to disenfranchise our Universities.

The Bill should therefore be strenuously resisted by all graduates, who have only to exercise their rights to make themselves attended to, even by the present House of Commons; for this we should all see or write to our members.

Under the proposed Act I, as a graduate, would have to choose whether my vote should be given for my university or county division. If both my representatives in Parliament seek re-election in the event of vacancies one of them would lose my vote, very much against my wish, because both are valuable and prominent Conservatives. Thinking my university or more importance than my division, I should vote for the former (a disagreeable alternative), although I am an official in the local Conservative Association.—I am, etc.

November 6th. S. H.

DR. MERLOU, Deputy for the Yonne, who was Minister of Finance in the Cabinet of M. Rouvier, has been appointed Minister of France at Lima.

THE late Mr. Thomas Thompson, of Winlaton, Durham, who died on August 14th, bequeathed £100 each to the Gateshead Infirmary, the Institution for the Deaf and Dumb, and the Victoria School for the Blind.

MEDICO-LEGAL AND MEDICO-ETHICAL.

THE ASSUMPTION OF TITLES BY REGISTERED PRACTITIONERS.

SEVERAL communications have been received recently raising the question whether a registered medical practitioner has the right to call himself "Physician," "Surgeon," or "Dr." irrespectively of his possessing any particular diploma or degree; the opinion that he may do so is sometimes acted upon and more often entertained. It seems desirable, therefore, to state that on several occasions the Court of Appeal has decided against this contention.

After the passage of the Medical Act of 1858 the first case tried was that of Ellis *v.* Kelly. Kelly was registered M.R.C.S. and L.S.A., and in addition possessed the diploma of Doctor of Medicine of the University of Erlangen. He had been in practice before 1858, and had been accustomed to style himself "Dr." on his doorplate. In 1869 a summons was taken out against him for wilfully and wrongfully styling himself "Dr. Kelly," but the justices refused to convict him on the ground that there was no evidence of *wilful and wrongful* assumption of titles within the meaning of the Act. On appeal by the complainant the case went to the Court of Exchequer, and was heard before Chief Baron Pollock and Barons Bramwell and Wylde. The question for the Court to determine was whether the Medical Registration Act, 21 and 22 Victoria, c. 90, prohibits the taking and using of the title of "Doctor of Medicine" by any medical man in England unless the said title be duly registered according to the provision of the Act; and secondly whether, if the Court should be of opinion that the Act does prohibit the assuming of such titles, the defendant under the circumstances could be held to have done so wilfully and falsely within the meaning of the 40th Section of that Act. The Court was unanimous in dismissing the appeal on the ground that there was no evidence of wilful and false assumption of title within the meaning of the Act, but in giving this judgement Baron Bramwell said: "It appears to me that on the true construction of that Section (Section 40), if any person wilfully and falsely calls himself a doctor of medicine he would be liable to a penalty, although he was in reality a member of the College of Surgeons or a licentiate of the Apothecaries Company, and was so registered" (Law Journal Reports, 1861, vol. 30, N.S., Common Law, p. 35).

The second case was that of a practitioner named Smith, who was registered as L.S.A. but had signed various certificates as M.D., or physician, adding the words "duly registered" or "registered under the Act." He was convicted by the magistrates, but appealed on the ground that they had no jurisdiction, he being duly registered. His counsel (Harris, Q.C.) said that the object of the Act was to secure that persons practising should be duly qualified and registered, and that if a person is registered as an apothecary he may pretend to be a physician or surgeon; in fact, that a man may call himself what he pleases so long as he is registered. The Chief Justice (Lord Coleridge) dissented strongly from this view, and, in giving judgement, quoted the words of Baron Bramwell, and, in supporting the conviction, said that both in principle and authority the rule must be discharged. In this case the defendant also claimed to possess a foreign non-registrable degree of doctor of medicine—that of the Beach Institute of Indiana (Law Times Reports, vol. 8, 1891-2, p. 123).

In the third case, known as Hunter *v.* Clare, Hunter, a general practitioner, was prosecuted by the General Medical Council on April 6th, 1898, for describing himself as "M.D. and Physician and Surgeon," whereas his only British qualification was L.S.A.; he claimed to possess a diploma of Doctor of Medicine of the University of Philadelphia—a notorious institution which existed simply by the sale of its diplomas or degrees to any one who would pay for them, and has since been suppressed by the State of Pennsylvania. It was urged, in defence, that when told he could not use his American degree he ceased to do so, but applied to the Society of Apothecaries to know whether their diploma entitled him to describe himself as "Physician and Surgeon," and received the following reply:—

"Society of Apothecaries, London,
"Blackfriars, London, E.C.

"The L.S.A. (1886) can call himself by any title or titles which he prefers to adopt denoting his right to practise medicine, surgery, or midwifery, provided that he does not directly or indirectly assume a title conferred by another licensing body or university."

The Bench decided to convict on the information for styling himself "Physician," and imposed a fine of £5 and costs. An appeal was lodged and was heard in the Queen's Bench Division on January 24th, 1899, before Mr. Justice Lawrance and Mr. Justice Channell. Hunter having died, the real parties to the appeal were the Society of Apothecaries on the one hand, and the General Medical Council on the other. Mr. Justice Lawrance said that the Court was asked to decide whether a person having the certificates of the Society of Apothecaries was entitled to describe himself as a physician. In his lordship's judgement such a person was not entitled to describe himself as a physician, and if he did so falsely and wilfully the conviction was justifiable. His lordship came to the conclu-

sion, however, that, although there had been misdescription, it was not wilfully false, and that the conviction must therefore be quashed, but without costs, as the respondent had succeeded upon the main points. Mr. Justice Channell said that upon the whole he was of the same opinion; he thought, but was not without doubt, that the appellant had falsely described himself as a physician. The question was whether it was a true description for a Licentiate of the Society of Apothecaries to describe himself as a physician. That depended upon the sense in which the word "physician" was used in Section 40 of the Medical Act, 1858. If in that section the word meant merely a person qualified to practise in physic, then the appellant was a physican, because, though it was not so at one time, a licentiate of the Society of Apothecaries had now become entitled to practise medicine and surgery. But before the Act of 1858 "physician" was commonly used as applying to persons in the highest grade of medical practitioners, and his lordship thought it was so used in the Act. There was confirmation of the interpretation in several places in the Act. In that sense a Licentiate of the Society of Apothecaries was not, in his opinion, a physician. His lordship then expressed his concurrence with Mr. Justice Lawrance in holding that the appellant had not wilfully misdescribed his qualification, and that the conviction must therefore be quashed, though, under the circumstances, without costs. (Law Reports, Queen's Bench Division, I, 1899, p. 635.)

It will thus be seen, although in two out of three of the cases no penalty was imposed, in every instance the judges upheld the view that registration under the Act does not give a registered practitioner a legal right to call himself by any title he may choose to adopt.

THE SALE OF DIACHYLON.

On October 24th Mr. John Scott-Fox, K.C., Recorder of Sheffield, sitting at the Quarter Sessions for the city, heard the case of *R. v.* Carford, in which the prisoner, a certified midwife, was indicted for supplying noxious pills containing lead.

Mr. Ellison and Mr. Fleming appeared to prosecute. Mr. Waddy was for the defendant.

Counsel explained that the proceedings were instituted with the object of checking the supply of drugs of this kind, which was too prevalent in Sheffield. Some difficulty had been experienced in procuring the necessary evidence, and in the end the City Medical Officer of Health secured the services of two women, Mrs. Davies and Mrs. Bagshaw, to go round and ascertain by asking various people for the pills for themselves, how far, and by whom they were being supplied.

Witnesses deposed that they had purchased the pills from the accused. She told one witness to "keep it quiet."

Dr. Scurfield (M.O. for Sheffield) gave formal evidence.

Mr. G. E Scott Smith (City Analyst) said that the first lot of pills submitted to him contained lead in the proportion of 0.82 gr. per pill of metallic lead, expressed in the form of emplastrum plumbi, or diachylon. In another case the proportion was 0.85 gr.

Dr. Godfrey Carter described the effect of these pills on a woman in certain circumstances if taken in the quantities advised by the accused. He said that diachylon was never in any case used for internal purposes.

The accused, in giving evidence on her own behalf, denied that she had supplied the pills to Mrs. Davies, who had tried to get her to sell pills no fewer than ten times.

The Recorder: Has any one else ever been to you for these pills except the persons mentioned in the case?—No, sir.

Did it shock you?—I thought she was trying to some end.

In the event the jury found the prisoner guilty.

The Recorder, in addressing the prisoner, dwelt upon the gravity of the offence she had committed. He sentenced her to twelve months' imprisonment with hard labour.

In another case, which was tried on the following day, another woman was sentenced to six months' imprisonment for a similar offence.

DEATHS UNDER ANAESTHETICS.

At an inquest in Nottingham on November 2nd, as to the death of a man, aged 20, who died at the General Hospital, it was testified that chloroform was administered for the removal of a small growth from the nose. The operation lasted thirteen minutes, and it was not until it had been completed, and chloroform had ceased to be given for two minutes, that the patient's heart suddenly failed. A careful physical examination of the heart had been made before the operation commenced. The jury returned a verdict of death from misadventure, stating that the anaesthetic had been properly administered.

An inquiry was held in Liverpool on November 2nd into the circumstances attending the death at the Royal Infirmary of a female patient aged 59. An abdominal operation had been performed, ether being the anaesthetic administered. After the completion of the operation, and when the anaesthetic was no longer being administered, the patient had an attack of violent vomiting, and shortly afterwards died. The jury returned a verdict of accidental death, adding an opinion that the operation was necessary and that administration of the anaesthetic had been skilfully carried out.

A FORGED DEATH CERTIFICATE.

An inquest at Sheffield, of which an account was given in this column some weeks ago (British Medical Journal, October 6th, p. 897) has had a curious sequence, the "Dr." Alnwick mentioned in the case having been charged at the Sheffield Police Court on October 30th with having forged the death certificate, and having escaped with a fine of £5, inclusive of costs. His own account of matters at the trial was, according to *The Sheffield Independent*, as follows: He had carried on business as a dentist for thirty years. He had had a great experience under fully qualified doctors in different parts of the country. For instance, he had attended over 2,500 cases of midwifery. He had done a great deal of philanthropic work among the poor, and people would come forward and say so if necessary. He attended Mrs. Millward's child for three weeks, the parents having come to him because he had such a good name in the neighbourhood. He asked Dr. McDonnell to go and look at the child, for he knew it would die. When the father came to the house for the certificate he took the book into the room for Dr. McDonnell to sign, but the doctor was too ill to sign it. At the doctor's request he signed the certificate.

The child's father said Dr. McDonnell had never seen the child, and that the whole of the death certificate had been filled up by the defendant in his presence.

After Dr. McDonnell had given evidence, Mr. Neal, the prosecuting counsel, remarked that there seemed to be no real defence. The Court imposed a fine of £5, inclusive of costs. The medical man's name is given differently in this account, but we are still unable to identify it with that of any one stated in the *Medical Directory* to be resident at Sheffield.

CHOICE OF MEDICAL ATTENDANT.

A. Rose.—A. B. and C. are practitioners in the same town. D., who has been a patient of C. for six years, met with a street accident, and requiring medical help was driven to C.'s surgery, messengers being sent in advance to warn him. As he was out D. was taken to A.'s surgery. He was also out, but at the moment B. was in A.'s house, and attended to the injuries with the help of A., who returned before the dressing was completed. Six years ago D. was a patient of A., and her husband is a member of a sick club of which A. is the surgeon, but he has been attended from time to time by C. Which of the practitioners should continue in attendance on D.?

*** The choice should rest with the patient. Otherwise B. has the least claim, for his position was simply that of a substitute for A., in whose house he was at the time. A. might regard his position as only that of a substitute for C., but this would depend upon whether A. and C. were in the habit of doing each other's work during their respective absences. If there was no such understanding C. cannot claim that A.'s relation to the case was other than a perfectly independent one. If the patient, as is very probable, desires to be attended by her ordinary medical adviser C., both A. and B. should give way, and regard this as a natural wish.

A DISPENSARY PARTNERSHIP.

Drs. Smallwood Savage and Harry Overy, Honorary Secretaries of the British Gynaecological Society, write: With reference to the paragraph headed "A Dispensary Practice," on your Medico-Legal page in the issue of the Journal of November 3rd, p. 1248, we have to inform you that Dr. Herbert Lumley Snow is not now a Fellow of the British Gynaecological Society, he having resigned several years ago.

ALLEGED ADVERTISING.

Dodo.—In both instances we would advise that the matter should be brought before the Committee of the Division in which the practitioners reside, or before the Council of the Branch, or its Ethical Committee. If the body selected does not find itself in a position to deal with the matter, it should be referred to the Central Ethical Committee.

A PARTNERSHIP PROBLEM.

If the facts have been accurately stated to us, B. was bound under the deed to buy the practice on the conditions there laid down. If an offer to compromise the debts for a charge on the practice was not accepted by B., no valid agreement was entered into, and the offer can be withdrawn. With regard to liabilities at A.'s death, they were debts due from the firm, and ought to have been paid out of receipts, before estimating the profit balance.

We understand that the health of the Shah of Persia is very precarious; he has suffered for some considerable time from chronic Bright's disease, and about a year ago experienced an attack of hemiplegia, from which, however, he almost completely recovered. About fifteen years ago he had stone in the kidney, and this may account for the fact that Professor Damsch of Goettingen, who has been summoned in consultation, is accompanied by Professor Rosenbach.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF CAMBRIDGE.

Chair of Botany.

Mr. A. C. Seward, Senior Fellow and Tutor of Emmanuel College, has been elected to the Professorship of Botany, rendered vacant by the death of Professor Marshall Ward. Mr. Seward has been Lecturer in Botany since 1890. He was placed in the first class in Part II of the Natural Science Tripos in 1886, when he took geology as his subject.

Examiners.

The following have been appointed Examiners for Medical Degrees:—

In Elementary Physics.—P. V. Bevan, M.A., Trinity; T. G. Bedford, M.A., Sidney Sussex; C. T. R. Wilson, M.A., Sidney Sussex; J. A. McClelland, M.A.Camb.

In Elementary Chemistry.—Dr. Sell and J. E. Purvis, M.A., St. John's; Dr. Fenton and H. B. Baker, M.A.Oxford.

In Elementary Biology.—A. E. Shipley, M.A., Christ's; A. W. Hill, M.A., King's.

Anatomy.—Dr. A. Macalister, Dr. S. E. Denyer, Queens'; T. Manners Smith, M.A., Downing; A. Robinson, M.D.Vict.

Physiology.—J. Barcroft, M.A., King's; M. S. Pembrey, M.D., Oxford; F. G. Hopkins, M.A., Emmanuel; T. G. Brodie, M.D.Lond.

Dr. D. MacAlister has been appointed an Examiner in Medicine for the current term, in place of Dr. Osler, M.D., Oxford, who is unable to examine.

CONJOINT BOARD IN SCOTLAND.

The following candidates have been approved at the examinations indicated:

First Examination (*Five Years' Course*).—B. D. Khote, R. E. N. M. Clark, A. D. Turnbull, W. J. Moore, A. R. Taylor, J. Adami, W. J. Hogg, H. R. Macnab.

Second Examination (*Four Years' Course*).—G. V. Edwardes.

Second Examination (*Five Years' Course*).—G. F. Hegarty, C. O'Herlihy, J. T. G. Jones, Z. D. Lotter-Luther, C. W. Gee, S. G. Tibbles, R. A. Bosegood, G. Fitz-W. Forde, F. A. Klein, D. M. O'Sullivan, W. C. L. Malone, K. P. P. R. Gover, G. N. Braham.

Third Examination (*Five Years' Course*).—E. P. Meherjee, Maria S. Allen, A. J. Kelsey, Z. D. Lotter-Luther, A. McMurray, H. C. de Souza, W. Henderson, J. L. Pinto, F. H. Kiddle, A. D. Macfie, E. Lewis, F. W. Milne.

Final Examination.—W. B. Kendall, N. McLeod, C. E. Preston, L. L. Westrope, J. H. R. Jones, H. J. Gorrie, M. D. Printer, Zilla E. Da Costa, H. F. Gordon, D. M. Cama, H. L. Hunt, H. F. Shepherd, H. R. Morchead, J. Clarke, S. C. Pal, Emma Irwin, T. M. R. Waddell, W. H. Pearless, T. M. Row, Lizzie L. de la Harpe, P. Bateman, K. T. A. Patchett, E. P. Meherjie, D. G. Barkley, C. C. Dyer, R. B. Davidson, M. B. Irani, J. A. Robertson, A. D. Roberts, J. H. P. Wijesinghe.

CONJOINT BOARD IN IRELAND.

The following candidates have been approved at the examinations indicated:

Third Professional.—J. J. Barry, W. R. Burton, G. Collins, J. J. Corr, J. Cuskelly, E. Evans, R. R. Faussett, T. Fehilly, S. A. Furlong, T. A. Holden, H. Kay, J. B. MacClancy, T. J. McDonnell, D. O'Dwyer, G. Patten, W. A. Ryan, W. G. Ridgway, B. Wallace, J. P. Zeederberg.

Final. M. Antony, W. H. Bournes, T. A. Fisher, T. J. Golding, M. J. Kelly, P. F. Leyland, G. M. Loughnan, C. F. Murphy, S. McCausland, M. O'Connor, *H. J. Perry, J. Prendiville, W. M. Woods.

* With honours.

TRINITY COLLEGE, DUBLIN.

Intermediate (*Part II*).—*D. G. Madill, W. A. R. Spong, J. P. S. Dunn, R. D. FitzGerald, H. S. Millar, J. E. N. Ryan, J. E. M'Causland.

Final (*Part I*).—J. B. Jones, J. G. M. Moloney, T. Ryan, J. R. Yourell, F. Seymour, H. P. Hart, E. Jameson, T. P. S. Eves, J. D. K. Roche, W. Knapp, J. P. R. Poch, T. P. Dowley, G. A. Jackson, B. A. H. Solomons.

* High marks.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

HYGIENE IN THE FIELD.

The first of a series of winter lectures was commenced at Devonport War Course College on October 29th, when Colonel R. Caldwell, R.A.M.C., spoke on "The Hygiene of Active Service." He dealt with the subject under the headings: (1) Water, (2) food, (3) clothing, (4) refuse disposal, and (5) separation of sick from healthy. With regard to the first, he said the use of pure water was the principal measure for warding off disease. It was safest to regard all water supplies, with a few exceptions, as dangerous. The chief dangers to guard against were germs, worms, and matter in solution. Alcohol had a certain amount of nutritive value, but they must regard it as a drug, which might be extremely useful or extremely harmful, according to the manner in which it was used. A cup of cocoa was most useful in giving heat to the body. As to clothing, the best substance was wool. Khaki drill was cotton—and the wearing of drill without drawers was a fertile cause of dysentery and other diseases. Dealing with "refuse disposal," he spoke of the value of the shallow trench compared with the deep trench; and, in urging the importance of separating the sick from the healthy, mentioned that one great difficulty lay in the fact that men would not "go sick." By daily medical inspection an enormous number of enteric fever cases would be detected at an earlier stage. General Sir John Leach said that a few years ago regimental officers and most of them in the army had a sort of idea that hygiene and sanitation had nothing to do with them, and were merely within the province of the medical officer. Anyone who had read of, or was present in, such campaigns as that in South Africa, or who had read of the Russo-Japanese war, must acknowledge that it was most important that every officer should have some knowledge of field service sanitation. Any officer might find himself in command of a detached post without a medical officer, and upon his knowledge might depend many valuable lives. What was the use of officers, from the general officer commanding, taking all the trouble and doing their very best to train men for war, if, after four or five weeks' campaigning and fighting, an efficient force was decimated by sickness or disease through ignorance or neglect of sanitary precautions? It was the business of regimental and other officers to study these matters.

THE HEALTH OF THE SPANISH ARMY.

At a recent meeting of the Real Academia de Medicina at Madrid, Dr. Larra read a communication on the sanitary condition of the Spanish army in the year 1904. The investigation was made in accordance with an international agreement. The statistics showed that the mortality had been steadily diminishing since 1900, when it was over 6 per mille, to the year under consideration, when it was slightly over 4 per mille. This compares well with the United States army, which was 6.75 per mille. The only exception to this fall in the mortality, which has been almost universal in all the districts, was in Melilla, where the figure rose to 10 per mille in consequence of the prevalence of malarial fever. The month of least mortality was November, that of the greatest, April, which is when the recruits are incorporated and the regiments change their stations.

The diseases which contributed most to the filling of the hospitals were bronchitis, various diseases of the skin, soft chancre, syphilis, and tuberculosis, and the most fatal maladies were typhoid and tuberculosis. Of these the former has for some years caused less mortality than in the armies of Italy or France, but it has been found exceedingly difficult to reduce the number of cases in the Spanish army owing to the fact that the soldier in most instances gets infected by something he eats or drinks outside barracks, and his sickness or health is thus dependent on the sanitary condition of the civilian population and the towns. Typhus is still a scourge in some parts of Spain, but only two soldiers died of it, and only one of small-pox. Not a single case of trachoma appeared, and there were no deaths from diphtheria. Compared with the German army there were exactly one-third of the number of suicides per mille (0.14 instead of 0.42). Dr. Larra concluded that the figures given showed that, so far as regarded mortality, the Spanish army held the first place.

ARMY MEDICAL RESERVE OF OFFICERS.

A Royal Warrant included in this month's Army Orders amends the constitution of the Army Medical Reserve of Officers, and substitutes new provisions for the pay, appointment, and promotion of officers.

Under these, commissions as lieutenants in the Army Medical Reserve may be given to persons, not over 30 years of age, who may be duly qualified under regulations approved by the Army Council. The ranks of officers of the Army Medical Reserve shall be those of captain and lieutenant, and the total period of service in the Reserve shall be limited to seven years. On the completion of three and a half years' service a lieutenant shall be eligible for promotion to the rank of captain, if recommended for that rank.

Appointments to commissions will be made on probation, and persons so appointed will undergo an initial training of two months, on the expiration of which, should their work and conduct be considered satisfactory, their commissions will be confirmed.

When called to army service, or while undergoing training, officers of the reserve shall receive the pay and allowances of officers of similar rank in the Royal Army Medical Corps. After the first year's service an officer shall, in addition to any such pay and allowances for days of actual service, receive pay at the rate of £20 a year. This rate shall be increased to £25 a year if the officer is promoted to the rank of captain.

Officers of the Army Medical Reserve constituted by this warrant shall be liable to be called to army service at home or abroad at a time of emergency, and shall also be subject to the general regulations applicable to Army Reserve officers. The sum of £5 will be allowed towards the provision of uniform.

NATIVE MILITARY HOSPITALS IN INDIA.

A Regimental Medical Officer writes: I do not think "Fed Up's" letter in your issue of August 25th ought to go

unchallenged, not from the point of view of his condemnation of the new order with which most medical officers agree, as being, if not unworkable, at any rate not economical, but his advocacy of the station hospital system as an alternative is not warranted. The station hospitals for British troops in this country are no more efficiently equipped for their purpose than are native regimental hospitals; they are only supplied with extra articles incident to the difference in mode of living of the British and native soldier, and the only extra drug supplied is pepsin. As a matter of fact, the the present system in native hospitals, whereby the medical officer can purchase locally any drugs required up to an ample margin is quite satisfactory.

Secondly, as regards economy in general. In this station the number of British and native troops is about equal, but four British officers, four assistant surgeons, and a writer form the establishment of the station hospital, while two British officers and four hospital assistants are allowed for the native troops, and the latter would not be found sufficient for a station hospital, although ample with the regimental system.

Lastly, the popularity of the station hospital. The question has frequently been raised and officer commanders of regiments from the point of view of the native soldier have condemned it in no unmeasured terms and with singular unanimity, and this cannot be lightly ignored.

From the point of view of the Indian Medical Service officer, it would render military service most unpopular, as the vast majority in permanent military employ are quite content with the present system, otherwise what is the advantage of the military Indian Medical Service over the Royal Army Medical Corps of which there is convincing proof under existing conditions, for it is next to impossible for a Royal Army Medical Corps man to exchange to the Indian Medical Service nowadays. The majority of Indian Medical Service men who advocate the change are either men going to civil employ and who are therefore not really concerned, and a certain number of senior men who object to serve under a commanding officer who may be their junior. I maintain that this is not a legitimate complaint, as the same thing constantly happens in other branches of the services—for instance, commanding officers of regiments under brigadiers years junior to them in service. Moreover, the officer commanding of a regiment, whatever rank he may have, represents a lieutenant-colonel and the supreme authority of the unit, and apart from the officer commanding it will be found in most native regiments that the medical officer's rank is always strictly observed.

The fact is that, with the increase of medical knowledge and requirements, efficiency can only be maintained by corresponding increase of expenditure, as is found in other scientific branches of the service, and the necessary economy required to meet that expenditure will not be produced through bringing in the station hospital system; rather let Government grant for more modern equipment a tenth of the sum required to build station hospitals, and the military Indian Medical Service will be the most efficient medical service in the world.

PUBLIC HEALTH
AND
POOR-LAW MEDICAL SERVICES.

THE CAMPAIGN AGAINST TUBERCULOSIS.

Voluntary Notification of Phthisis.

A PROVINCIAL sessional meeting of the Royal Sanitary Institute was held at Brighton on October 27th, for the purpose of discussing the co-ordination of measures against tuberculosis. Colonel J. Lane Notter, R.A.M.C., was in the chair.

In the absence of Sir William Broadbent the debate was opened by Dr. Newsholme, who said voluntary notification of phthisis was begun in Brighton in January, 1899, and facilities were also given for the examination of sputum. The examination was regarded as strictly confidential unless the doctor sending the specimen subsequently notified the case, which did not always happen. The routine examination of all expectorations for bacilli would go far towards securing early diagnosis and treatment of phthisis. The chief reason why in Brighton voluntary notification had been as successful as compulsory notification in other towns was because provision had been made for the sanatorium treatment of notified cases. At first the patients were admitted only for a month, the principle adopted being that of training the patients in personal hygiene and in the general management of their illness rather than of attempt of cure. The wisdom of this plan had been fully justified by experience. The majority of patients when admitted to the sanatorium had been found to have extensive lung disease, often with cavitation. Such patients commonly had several years of life before them, but the experience of other sanatoriums showed that prolonged treatment of many months, or even for more than a year, was necessary to ensure anything approaching to a cure, even in the earlier stages of the disease. It was much more to the public interest to pass a large number of patients through the sanatorium and thoroughly train them in the hygienic requirements of their disease than to treat a smaller number for a more protracted period. It was also much more convenient for the patients, who often found it difficult or impossible to leave their families and work longer than a month.

The experience was that advice given at home as to the deposit and disposal of sputum was commonly neglected, but that it was very rarely neglected by patients who had been in the sanatorium. Readmission to the sanatorium of patients whose health was again flagging was welcomed. By this and other means, such as the provision of Japanese handerchiefs, pocket spit-bottles, etc., and by quarterly visits at the home of the patient, they kept in sympathetic relationship with the patients and ensured the maintenance of precautionary measures against infection. A card of instructions was given to every patient on leaving the sanatorium. Under the Hedgcock bequest to the Town Council the interest of £20,000 had been allotted for ten years to the maintenance of Brighton consumptives in the sanatorium. The Council was thus enabled to devote 25 beds to that purpose. Of these 10 were directly municipal patients. The Corporation provide the entire accommodation for these patients in their isolation hospital. There were at present 667 notified cases of phthisis in Brighton, and the annual deaths from the disease numbered about 170. As it was quite possible with a voluntary system of notification to obtain as good or even better results than with compulsory notification, the wisdom of the cry for compulsory notification of phthisis when a local authority had no means of giving all possible help to the notified patients, and was unprepared to expend the necessary amount of time and money on the work, was open to doubt.

Dr. E. C. Seaton (M.O., Surrey) said he had become more than ever an advocate of the voluntary system of notification after seeing what had been accomplished in Brighton. The system operated like a machine, and did its work effectively, at a moderate cost to the ratepayers—a consideration of the utmost importance.

Dr. Willoughby, Medical Officer of Health for Eastbourne, suggested that if Brighton had had compulsory notification instead of voluntary the results would probably have been better.

Dr. F. R. Walkers said work should always be suited to the patient's strength and capability, and favoured the idea of the skilled worker resuming his own industry after illness instead of accepting less skilled and badly-paid work. It was most important to prevent a relapse through poor living. He considered a labour bureau an essential part of any scheme for fighting the disease.

Mr. J. F. Blacker advocated the medical examination of all children in all the schools. If this had been done from the beginning the authorities would have possessed a complete register of the personal and family history of every child, and would have been in a position to stamp out consumption.

Dr. G. A. Heron, Dr. H. Meredith Richards (Medical Officer of Health for Croydon), Dr. Stott (Medical Officer of Health for East Sussex), and Dr. Nield Cook (Calcutta) also took part in the debate.

In reply, Dr. Newsholme mentioned that the total cost to the rates of the Health Department was only 1.02d. in the £; the total cost of the hospitals was 2¼d. in the £; and the clearance areas involved a debt of 1.10d. in the £ for the next twenty years. Education cost 15.7d. in the £ in Brighton, and the police cost 5.7d. in the £. Therefore, he thought that the sanitary and hospital administration was not being carried out on extravagant lines. Moreover, their twenty-five beds for consumptives were worked at a cost of £1 a bed per week, and a large proportion of the annual expenditure came from the Hedgcock bequest.

THE MIDWIVES ACT.

AT a meeting of the Strood Rural District Council held on October 18th, the Midwives Committee, which had reconsidered their report as to the supervision of midwives practising in the district, again reported that it was strongly of opinion that it was desirable that the quarterly inspections, undertaken last year by the nursing staff in connexion with the Queen Victoria Jubilee Nursing Institution, should be continued, and that the Committee should be empowered to contribute a sum not exceeding £5. Mrs. Packman urged the desirability of a lady making the inspection. Dr. Flood, Medical Officer for the Northfleet District, contended that the inspectress, however good a nurse she might be, was an unnecessary expense, and that the matter could be more efficiently dealt with by the medical officer for the district. The Chairman seconded the adoption of the report. He thought these inspections could do no harm, and might do great good. Mr. Champion moved an amendment that an inspectress should not be appointed, and that the Committee cease to contribute to the Jubilee institution for this purpose. He regarded it as wholly unnecessary, and a matter which might be a source of friction. The amendment was carried.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

DR. HEMAN SPALDING, Chief Medical Inspector, Chicago, has reported to the Health Department of that city that the

mingling of school children is responsible for the steady increase in diphtheria and scarlet fever. "The mild case unattended by a physician," he continues, "is frequently permitted to return to school reeking with infection. Until we have medical school inspection, this condition will continue, and will be responsible for the multiplication of these diseases and of avoidable deaths from the same cause. We are constantly receiving letters from principals of schools, asking us to assign a physician to the school to protect the children, by examining pupils who return to school after a short illness. One writes to-day, October 19th: 'Many children have been out of school because of sickness, and they claim that they have only had colds. As scarlet fever assumes a light form in many cases, I fear it is more general than we have realized, and, as it is being treated in many homes without a physician, we are perfectly helpless to control it.' This states the condition exactly. The proper way to meet it is to have medical inspectors visit the schools regularly, and examine all pupils returning after a few days' absence. This is the practice in other large cities, and Chicago must have this service."

HYGIENE IN ARCHITECTURE

M. GASTON TRELAT has published recently[1] an interesting account of the work done in the special school of architecture in Paris in regard to hygiene. The school has now been in existence forty years, and for the past sixteen special attention has been devoted to the application of sanitary rules to the construction of public and private buildings. Each year at the annual meeting a subject is proposed and special notice is taken of the extent to which the principles of modern science are applied in the plans for its erection. Thus theatres, barracks, abbattoirs, and other edifices are all submitted in turn. It is an encouraging fact that such teaching should be given, and it is to be regretted that with few exceptions in England insufficient attention is paid to such details, except perhaps in the case of hospitals. An instructive paper was read at Toronto on this subject by Dr. Cassidy, of the State Board of Health of Ontario, and those who are interested in the progress of architecture will find much food for reflection in the remarks of M. Gaston Trelat.

THE ANTHRAX INVESTIGATION BOARD.

THE Anthrax Investigation Board, which holds its sittings in Bradford, has just issued its annual report. In embodying many of the results of Dr. Eurich's experiments and investigations to kill anthrax spores, they must be exposed for three hours to a temperature of 300° F. (dry heat), a temperature which would injure the fibre very considerably. None of the disinfectants tested thus far can, the Board report, be regarded as satisfactory under all conditions. The report states that in some commission combing works many more cases of anthrax have occurred than in others, and it is suggested that careful inquiry ought to be made as to various methods employed in handling and dealing with the materials before washing. The Board are inclined to think that a list should be made of the special classes of scheduled materials most open to suspicion, and only to allow those sorts to be combed under special permission from the Home Office, under the special supervision of His Majesty's inspectors, and at the special recommendation of the Board. In this way it might be possible to insure the observation of precautions not necessary in the case of other materials. It was difficult to account for the comparatively large increase in the number of cases of anthrax during 1905; it might have been due to the prevalence of anthrax amongst animals in the districts from whence the infected material came: on the other hand it might be due to the large amount of false packing recently observed in imported material. Further representations would be made to the countries concerned, to the effect that, unless more care was taken in classing and packing, very stringent regulations, which would increase the cost of working, would have to be applied to the whole of the wool and hair imported from such countries.

RESTRAINT IN USE OF HOUSE AS SANATORIUM.

INQUIRER.—We regret to be unable to give a reference to the case concerning a house at Bexhill which the tenant desired to convert into a sanatorium. A report was, we believe, published in the *Times*, but does not appear to have found its way into the Law Reports. The following cases may, however, be of service: In Watson *v.* Leamington College (*Times*, November 8th, 1880) the lease of a dwelling house contained a covenant that the lessee should not do anything which should be a "nuisance or annoyance" to the neighbourhood. The lessee proposed to convert the dwelling house into a sanatorium. It was held that to use the house as a sanatorium would be to make it, if not a nuisance, an annoyance. Again, in Bramwell *v.* Lacy (March 24th, 1879), Law Reports, 10 Ch., D. 691, 43 Justice of the Peace, 446, a lease which prohibited the carrying on of any trade or business was assigned to the defendants, the Committee of Management of a hospital for diseases of the throat and chest; patients made small payments according to their means. The consent of the plaintiffs, who owned the reversion of the house and also the adjoining houses, not having been obtained, an action was brought. It was held that the covenant not to carry on any trade, business, or dealing whatsoever, or anything in the nature thereof had been broken by the use of the house as a hospital. See also *Infectious Diseases and Hospitals*, 1899, by H. Copnall (London: Hadden, Best and Co.). All the above authorities could be seen in a law library.

REMOVAL OF INFECTIOUS PATIENTS.

J. G. MCL.—The custom regarding the removal of patients to an isolation hospital differs in various localities. In some they are removed as a matter of routine, without any reference to the medical attendant, whilst in others the medical attendant is consulted before removal. In the instance given by our correspondent the medical officer of health probably decided to remove the patient to the hospital because her sisters were engaged in business and school duties. They might perhaps nominally stay in another house, but everyone knows how difficult it is to keep the relatives of sick people from the bedside. It would have been better had our correspondent been consulted again, but it must be remembered that the medical officer of health is sometimes placed in a very difficult position; he is the official responsible to the sanitary authority, and must take the blame if isolation prove ineffective.

RURAL WATER SUPPLIES.

T. B. G.—(1) The book our correspondent is thinking of is probably *A Healthy Home*, by Francis Vacher (London: Sanitary Publishing Co.) 2nd Edition. 1901. 2s. 6d. (2) The well is probably being contaminated by the contents of the drain, which is within 4 ft. The medical officer of health for the district should be consulted. Unless there is any agreement to the contrary it is the duty of the landlord to provide an efficient supply of water.

[1] *Revue d'Hygiène*, t. xxviii, No. 8.

OBITUARY.

DR. JOHN ARCHIBALD CAMPBELL died on Thursday, October 25th, at his residence, St. Heliers, Jersey, where he had been living in retirement for some years. The deceased was a native of Argyllshire and was educated at Glasgow University, where he took his degree in medicine with special commendation in 1865. Devoting himself to the study of insanity, he was soon afterwards appointed Assistant in the Durham County Asylum, and in 1867 became Assistant Medical Superintendent of the Cumberland and Westmorland Asylum under Dr. Clouston. In 1873, when Dr. Clouston became Superintendent of the Royal Edinburgh Asylum, the Committee of Visitors was so satisfied with the way in which Dr. Campbell had discharged his duties as Assistant that without advertising the appointment it promoted him to be Dr. Clouston's successor. This position he held for twenty-five years. His strong point as a Superintendent was the intense personal interest he took in his work. Every detail of asylum management received attention, and consequently the maintenance rate in his asylum was low. He took an active interest in the Border Counties Branch, was elected President in 1880, and when the Association met in Carlisle in 1896 he filled the office of President of the Section of Psychology. He was also the author of many contributions to this and other journals. He was elected a Fellow of the Royal Society of Edinburgh in 1878, and was for many years a prominent member of the Medico-Psychological Association.

PROFESSOR ANDREAS HÜGYES, of the University of Buda-Pesth, whose death has already been announced in the BRITISH MEDICAL JOURNAL, was born at Hadju-Szoboszló in 1847. He studied medicine at the University of Buda-Pesth, where he took his doctor's degree in 1870. Soon afterwards he was appointed Assistant in the Rochusspital of Buda-Pesth, and in 1873 he became a University Lecturer on Experimental Pathology. In 1875 he accepted an invitation to the Chair of General Pathology and Therapeutics in the University of Kolozsvar. That position he held for eight years, serving the offices of Dean twice and Vice-Dean three times. In 1883 he was called to the corresponding Chair in the University of Buda-Pesth, which he continued to hold till he was laid aside by the illness which, after long suffering, cut short his useful life. At Buda-Pesth he was Chairman of the Board of Examiners, and held the office of Dean of the Medical Faculty. He was a member of the Sanitary Council, and was entrusted by the Hungarian Government with many scientific missions;

he also served as a delegate to many congresses. In 1887 he represented his country on the committee which investigated Pasteur's antirabic treatment: the result was the foundation of an institute for carrying out the treatment in Hungary. To Högyes it is due that the mortality from hydrophobia in Hungary was reduced from 14 to 0.28 per cent. Such was the enthusiasm which he brought to this work that between April, 1890, and September 1906, no fewer than 30,865 persons underwent the inoculation treatment. For his writings on the treatment of rabies the Hungarian Academy of Sciences awarded him the great Marczibanyi Prize. Of his other investigations perhaps the best known are those on the physiology and pathology of the kidney, and his researches on the ear passages and the associated movements of the eye. The death of Professor Högyes is mourned by his colleagues and by his countrymen as an irreparable loss.

We regret to announce the death of Spencer Thomas Smyth, M.D., at his residence, 3, Grosvenor Gardens, Tunbridge Wells, at the age of 86. He began his career as an articled pupil in June, 1837, and in October, 1840, entered as a student at the Middlesex Hospital; in 1841, whilst a student there, he was awarded the prize for materia medica and honorary certificate for surgery and chemistry; in 1842 he took the surgical anatomy prize and another honorary certificate in surgery; he was also author of a prize essay upon puerperal insanity. In 1842 he was admitted M.R.C.S. of England; in 1843, L.S.A.Lond.; in 1849, M.D.Aberd.; in 1860, F.R.C.S.Eng.; and in 1876, L.R.C.P.Lond. He practised in Great Yarmouth for 30 years, and was Senior Surgeon of the hospital there for eighteen years; in 1849 he was one of the medical officers of the Cholera Hospital; he was also Surgeon of the borough gaol and police force for ten years, and Second Surgeon of the East Norfolk Militia. Upon retiring from Great Yarmouth he took up residence at Forest Hill, S.E., and was appointed Honorary Surgeon to the Children's Infirmary and Dispensary for Women and Children at Lower Sydenham. Upon vacating that post he was elected one of the Consulting Surgeons. Eleven years ago he retired from active practice, and had since resided in Tunbridge Wells.

Dr. Duncan Robertson of Callander, a comparatively young man, died quite unexpectedly on October 30th. On the day of his decease he returned home somewhat tired after a round of visits, and went to lie down for a rest. Not long afterwards an urgent summons arrived, and when sought in his room it was found that he had had a sudden attack of heart failure from which he never recovered. Dr. Robertson, a native of Lochearnhead, in Perthshire, received his medical education at Edinburgh, where in 1887 he graduated M.B., C.M. He made two voyages to India and two to America as a ship surgeon, and afterwards acquired a wide experience of general practice as an assistant in the North of England. Finally, some twelve years ago, he settled down in Callander, where before long he built up a large practice. At the time of his death he was medical referee to the Caledonian and other assurance companies; a lecturer to the St. Andrew's Ambulance Association, and enjoyed a wide reputation as an excellent general practitioner. A keen sportsman, he was, like many such, a great lover of Nature in all its phases. His interest in children was keen, and he had the capacity of gaining their confidence, and was popular with all of them. He had a very high sense of professional honour, and throughout the district was equally esteemed by his colleagues and by the inhabitants generally. Hence great regret was felt at his untimely decease, and the funeral afforded him was of a semi-public nature, all places of business being closed and blinds drawn, when the largely-attended *cortège* passed through the town on its way to Callander Cemetery. He was a member of the British Medical Association, belonging to the Sterling Branch.

Professor Josef Weinlechner of Vienna, whose death was announced in a recent issue of the British Medical Journal, was born at Altheim in Upper Austria in 1829. He was of peasant stock and studied medicine in the University of Vienna, where his career was a long struggle against poverty. In 1854 he took his degree and at once became assistant for operative surgery in Schuh's clinic. He qualified as a *Privat-docent* in the same year. In 1866 and 1867 he did the work of the Second Chair of Surgery till Billroth was appointed professor. In 1868 Weinlechner was appointed to the staff of the Rudolfspital and later to that of the Vienna General Hospital. In 1871 he became extraordinary and in due course ordinary professor. In 1900 he retired. Weinlechner was a surgeon of the old school. He was a skilful operator, and a man of ripe judgement. He wrote on foreign bodies in the urethra and bladder (1878); stricture of the oesophagus (1882); surgical diseases of the skin (in Gerhardt's *Handbook of Children's Diseases*, 1882); tumours of the chest wall (1882); the sequels of subcutaneous fractures of the skull (1885), and many other subjects. Even after his retirement he was a regular attendant at scientific meetings, frequently taking part in debate.

Inspector-General Evelyn Richard Hugh Pollard, R.N., died on October 9th at the Royal Naval Hospital, Chatham, aged 51. He entered the Royal Navy as Surgeon, March 30th, 1878, was made Staff Surgeon November 18th, 1882, Fleet Surgeon April 11th, 1891, Deputy Inspector-General August 23rd, 1899, and Inspector-General March 7th, 1904. As Surgeon of the *Boadicea* he landed with the Naval Brigade during the Zulu War in 1879, receiving a medal with clasp. He served with a battalion of the Royal Marines in the war in Egypt in 1882, and was present at the battle of Tel-el-Kebir. He was promoted for his services and granted a medal with clasp and the Khedive's bronze star.

Lieutenant-Colonel Abraham William Bate, M.D., late Army Medical Service, died at Bromley, Kent, on October 22nd, aged 64 years. He joined the department as an Assistant Surgeon, March 31st, 1865; was made Surgeon, March 1st, 1873; Surgeon-Major, March 31st, 1877; and Honorary Brigade Surgeon on his retirement from the service, December 16th, 1885. He served at Suakim during the Soudan campaign in 1885, and had received a medal with clasp and the Khedive's bronze star.

Deputy Surgeon-General Daniel Macqueen, M.D., of the Army Medical Department (retired), died at Edinburgh, on October 21st. He was the last surviving son of the late Colonel A. L. Macqueen, H.E.I.C.S., and entered the Army Medical Service as Assistant Surgeon, November 15th, 1850; became Surgeon, January 26th, 1858; and Surgeon-Major, November 5th, 1870; retiring with the honorary rank of Deputy Surgeon-General, July 2nd, 1877.

Surgeon-Lieutenant-Colonel Robert Collins, M.B., late Army Medical Staff, died at Southsea on October 31st, aged 69 years. He entered the Army Medical Service as Assistant Surgeon, March 31st, 1865; was made Surgeon, March 1st, 1873; Surgeon-Major, March 31st, 1877; granted the rank of Lieutenant-Colonel, March 31st, 1885; and appointed Brigade-Surgeon-Lieutenant-Colonel, November 13th, 1890. He retired from the service, February 14th, 1892.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are: Surgeon-Admiral (*Admiral-sarzt*) Karl Fleischmann, of the Austrian navy; Dr. P. Merklen, Physician to the Hôpital Laënnec, Paris, author of numerous contributions to medical literature on albuminuria, polyuria, and affections of the heart, in which he was especially interested; Dr. Floquet, Physician to the Palais de Justice, Paris, and author of several publications dealing with the relations of medicine to the law and sanitary administration, aged 54; Dr. A. P. Fokker, Professor of Hygiene and Bacteriology in the University of Groningen, aged 66; Dr. von Holst, Emeritus Professor of Obstetrics and Gynaecology in the University of Dorpat, aged 84; Dr. Alvarez, Emeritus Professor of Surgery in the Medical Faculty of San Salvador; Dr. Tenchini, Professor of Human Anatomy in the University of Parma; Dr. N. Bystrow, sometime Professor of Paediatrics in the Army Medical Academy, St. Petersburg; Dr. C. Adamiuk, formerly Professor of Ophthalmology in the Medical Faculty of Kasan; Dr. M. Blancas, Professor of Children's Diseases in the Medical Faculty

of Buenos Aires; Dr. August Rothmund, Professor of Ophthalmology in the University of Munich, aged 76; Dr. Wolfgang Erhardt, Physician to the German Hospital, Rome, where he practised for sixty years, aged 88; Dr. G. Pugliatti, sometime Professor of Experimental Physiology in the University of Messina; and Dr. R. Galvao, Professor of Bacteriology in the Medical Faculty of Rio de Janiero.

HOSPITAL AND DISPENSARY MANAGEMENT.

GLASGOW DISTRICT ASYLUM, GARTLOCH.

FROM the annual report for the year ending May 15th, 1905, of Dr. W. A. Parker, Medical Superintendent of this asylum, we see that there were 683 patients on the asylum register on May 15th, 1905, and that on May 15th, 1906, there were 684. The total number of cases under care during the year was 971, and the average number resident 702.1. During the year 288 cases were admitted as compared with 297 for the previous twelve months. The majority of these were unfavourable cases, because now all the cases likely to recover speedily, transient alcoholic and *delirium tremens* cases, are treated at the mental block of the Duke Street Hospital. Of the total admissions 95 were the subjects of first attacks within three and 24 more within twelve months of admission, in 57 the attacks were not first attacks within twelve months of admission, in 87 the attacks were of more than twelve months' duration on admission, and 25 cases were of congenital origin. Thus 169, or 58.3 per cent., had either been ill over a year on admission, were congenital imbeciles, or had suffered previous attacks, and even of the remaining 41 per cent., Dr. Parker says many were hopelessly senile cases, or general paralytics, or otherwise incurable. They were classified as to the forms of mental disorder into: Mania 49; melancholia 55; confusional, delusional, or adolescent insanity 78; dementia 36; general paralysis 26; epileptic insanity 16; congenital defect 25; and syphilitic and moral insanity each 1.

As to the probable causes of the insanities among the admissions, alcoholic intemperance was assigned as primary cause in 48 cases and in combination with other causes in 17, or 65 in all, that is in 24.7 per cent. of the total admissions, general physical diseases in 27, syphilis in 12, adolescence, the climacteric, and old age in 49, cerebral softening or haemorrhage in 20, epilepsy in 17, and in 25 no cause could be assigned. Hereditary influences were ascertained in 25, and in 25 also congenital deficiency existed.

During the year 114 were discharged as recovered, giving a recovery-rate on the admissions of 39.5 per cent., and 88 as relieved. Of these latter 15 were transferred to other asylums, 3 to England and Ireland, 17 to the care of friends, and 50 were boarded out in country districts. During the year 85 died, giving a percentage death-rate on the average numbers resident of 12.1, the highest death-rate yet recorded at this institution. The deaths were due in 52 cases to cerebro-spinal diseases, including 21 deaths from general paralysis; in 20 cases to chest diseases, with only 8 deaths from pulmonary consumption; in 3 cases to abdominal diseases, and in 6 cases to general diseases. In 32 cases the persons were over the age of 60. The comparatively small proportion of death from tuberculous disease is the only notable feature of the death list, the decline in the numbers dying from tuberculosis being attributed by Dr. Parker to the segregation of these cases since the opening of the sanatorium. The general health was good throughout the year, and the asylum was visited by Commissioner MacPherson, who left a favourable report.

ROYAL EDINBURGH ASYLUM, MORNINGSIDE.

THE annual report for 1905 of Dr. Clouston, Physician-Superintendent to this well-known institution, shows that on the first day of 1905 there were 829 on the register, and on the last day of the year 884. Altogether the total number of patients under treatment during the year was 1,257. During the year 428 cases were admitted, being 14 less than the average of the preceding five years. Of the total, 312 were rate-paid cases, being 51 less than the average of the previous five years, and the private patients, 116 in number, were more by 37 than the said quinquennial average, these relative changes being due to the fact that the directors have now freely opened the institution to patients paying the lower rates of board. Also, in future, the opening of the District Asylum at Bangour will relieve the asylum at Morningside of many rate-paid cases, and thus render available increased accommodation for private patients.

Of the total admissions, 335 of whom were first admissions, 130 were the subjects of first attacks within three, and 49 more within twelve, months of admission; in 102 the attacks were not-first attacks within twelve months of admission, and the remainder were either of more than twelve months' duration (131) or congenital cases (16) on admission. Only 39 were considered in average health and condition on admission, 338 were in indifferent health and reduced condition, and 51 in bad health and very exhausted condition, 20 of the rate-paid cases dying within a month of admission. The admissions were classified according to the forms of mental disorder into: Mania of all kinds, 134; melancholia of all kinds, 191; dementia of all kinds, 16; general paralysis, 64; acquired epilepsy, 7; and cases of congenital or infantile defect, 16. The large number of general paralytics admitted is very naturally commented upon by Dr. Clouston, and also the fact that so many belong to the female pauper patients. In the early Sixties, he says, a female general paralytic was so rarely admitted that the whole medical staff would go to see such a case. In 1874 there were only 3 cases, but in 1905, out of the 64 cases, 38 were women, and all but one were of the rate-paid class. "For the first time in our history," he says, "the number of admissions of female general paralytics exceeded that of the men. As I have before said, this is a bad sign of the moral status and mode of life of the class from which those patients come. It is a sidelight of a very depressing character on our social life. To show the enormous difference in the local distribution of this disease, I find that in Ireland, with a population of four millions and a half, only 52 cases of this disease were last year sent to all the Irish asylums. Great cities, vice, dissipation, and undue excitement are its chief breeders."

Dr. Clouston's remarks as to the low moral state indicated by such numbers of general paralytics might seem to imply an acceptance of the syphilitic or parasyphilitic theory of the origin of general paralysis, but he immediately proceeds to affirm his belief in the microbic theory of Ford Robertson, according to which general paralysis is the result of a bacterial toxaemia of gastro-intestinal origin.

Passing to the causation of the insanities amongst the admissions, we note that alcoholic intemperance was assigned in no fewer than 110 cases, or 25.7 per cent.—that is, in 30 per cent. of the men and 22 per cent. of the women, as compared with 22.5 per cent. of the male and 9.2 per cent. of the female admissions—that is, 15.85 per cent. of the total admissions for 1905 in England and Wales. Syphilis was assigned as cause in 26, puberty and adolescence in 57, the menopause in 27, and old age in 22, previous attacks in 117, mental and moral causes in 15, and in 172 no cause could be assigned. Hereditary influences, direct or collateral, were ascertained in 128, or nearly 30 per cent., and congenital defect existed in 13.

During the year 137 were discharged as recovered, giving the low recovery-rate on admissions of 32 per cent., 106 as relieved, 14 as not improved, and there were 116 deaths. The deaths, which gave the high percentage death-rate on the average numbers resident of 13.3, were due in 55 cases to cerebro-spinal diseases, including 37 deaths from general paralysis; in 65 cases to chest diseases, including 18 deaths from pulmonary consumption, and the remainder, including 1 case of general tuberculosis, were due to abdominal and general diseases. There were thus 13 deaths from tuberculous disease, or 16.5 per cent. of the total deaths, which is an improvement on the figures of this institution of late years, and is the same proportion of tuberculous to total deaths as existed in the county and borough asylums of England and Wales during 1905.

Craig House, reserved for the use of private patients, still preserves unbroken its record, reaching now over eleven years, of no consumption, evidencing at once favourable sanitary conditions and a careful exclusion of phthisical patients. No death from accident was recorded, and, with the exception of a mild epidemic of asylum dysentery in the West House, affecting 29 patients, there does not appear to have been any outbreak of zymotic disease.

EARLSWOOD ASYLUM.

THE annual report of this useful charity, presented at the Annual Court held April 26th, 1906, has recently been issued. The Board report that over £25,000 is still required for the complete restoration of the building, which has had practically to be reconstructed, owing to the failure of its faulty foundations and other structural defects. This work has been in progress during the last two or three years, with some 450 patients constantly resident, and the Lunacy Commissioners justly remark that, "having regard to this fact, it is highly creditable to Dr. Caldecott and his staff that the work of the institution is carried out as effectively as it is." The Medical Superintendent reports that during 1905 43 cases were admitted (one being a readmission), the same number were discharged (all but one being "relieved"), and that 17 deaths had occurred. The average number resident during the year had been 451 (309 males and 142 females), and the percentage death-rate had been 3.72, a very small mortality considering the feeble physique of many of the inmates and the proportion of life cases, 46 of the patients having been in residence over 40 years, whilst 5 have been on the books between 50 and 60 years. Phthisis, or tuberculosis in some form, was responsible for 10 deaths (60 per cent. of the whole number), and epilepsy for 2 (12 per cent.). This large proportion of tuberculous deaths suggests the desirability of some separate accommodation for such cases, as far as practicable on open-air principles; and the experience of other institutions for imbeciles accords with that of Earlswood as to the extensive prevalence of tubercle amongst the mentally defective class, especially amongst the so-called "Mongolian" type, which is represented by 4 cases (nearly 10 per cent.) of the admissions to Earlswood in 1905. As regards etiology, Dr. Caldecott reports only 4 cases amongst the 43 admissions, in which "heredity" (we presume nervous) has

been ascertained, whilst "tuberculosis" figured in as many as 8. "Consanguinity" is set down as a probable or assigned cause in 4 cases. In 19 no cause had been ascertained. After all, the statements of parents as to the causes of mental defect in their offspring require to be carefully winnowed out, and subsequent experience often tends to modify early impressions when the family history is better known, so that the true etiological factors, in many cases concurrent, are not always ascertainable in the first instance. But, considering that 3,560 patients in all have been admitted to Earlswood and its precursory establishments since 1847, it would seem that a valuable mine of information on this and other points of scientific interest awaits exploration.

From the table of ages of those resident in the institution at the end of 1905, we find that only 172 of the 451 patients were under 20 years of age, about 38 per cent. of the whole number, so that Earlswood is more of a home, and less of a mere training-school for young imbeciles, than are most of the other voluntary institutions. As many as 105 of the inmates range from 45 years of age upwards, one being over 75, and thus to a limited extent Earlswood fulfils the rôle of an industrial colony for the permanent care of the feeble-minded, of the desirability of which we have heard so much of late. One hundred and sixty-two males and 28 females are recorded to have been usefully employed, the latter figures appearing to be a somewhat small proportion of the 142 female patients in the institution. We notice that only 2 are noted as working in the wardrobe, 2 in the workroom, 2 in the laundry, and 2 in the linen-room; and although no doubt many younger girls are taught needlework in school, it is surprising that this feminine art is not more extensively utilized in the practical work of the establishment. No less than 15 of the male patients work as tailors, 14 as shoemakers, 11 as carpenters, and 23 in the garden and on the farm, while 8 are employed in the printing office, of which the work is valued at £237 1s. 5d.

The Seaside Home at Walton-on-the-Naze has proved a success both financially and otherwise, being used as a health resort by payment cases in summer and by working patients during the winter months.

Dr. Caldecott has written a very complete description of the arrangements made in recent years for the improved heating, lighting, and ventilation of the asylum, arrangements which no doubt have conduced to the excellent sanitary record which he is able to present for the year 1905.

NOTTINGHAM CITY ASYLUM, MAPPERLY HILL.

On January 1st, 1905, there were in this asylum 770 patients, and on December 31st, 1905, there were 790, an increase during the year of 20, which is practically the average annual increase for the past decade. As to accommodation, the Medical Superintendent, Dr. Evan Powell, says that there was considerable overcrowding on the female side, a fact also commented upon by the Commissioners, but that some relief will be afforded by the opening of a new dormitory. During the year 163 were admitted, of whom 134 were first admissions. In 84 the attacks were first attacks within three months, and in 10 more within twelve months of admission; in 43 the attacks were "not first" attacks within twelve months of admission; in 17 the attacks were of more than twelve months' duration, and the remaining 9 were congenital cases. The admissions were classified as to the forms of mental disorder into: Mania of all kinds, 46; melancholia of all kinds, 46; dementia of all kinds, 27; general paralysis, 12; acquired epilepsy, 8; and cases of congenital defect, 9. As to the probable causes of the insanities in the admissions, alcoholic intemperance was assigned in 22, or 13.5 per cent.; venereal disease in 4; puberty, the menopause, and old age in 18; previous attacks in 36; privation in 7; various bodily diseases in 30; and "moral" causes in 35. Hereditary influences were ascertained in 23, or just over 14 per cent. During the year 66 were discharged as recovered, giving a recovery-rate on admissions of 42 per cent., being 2 per cent. above the average for this institution and 4.21 per cent. above the average for all asylums in England and Wales for 1905. There were also 7 discharged as relieved, 4 as not improved and there were 66 deaths. These last give a percentage death-rate on the average numbers resident of 8.42. The deaths were due in 36 cases to cerebro-spinal diseases, including 21 cases of general paralysis; 22 from chest diseases, including 11 cases of phthisis; 3 from abdominal diseases and the remainder from local or general diseases, including 2 from old age. The deaths due to tuberculous diseases were 12 in number, or just over 18 per cent. of the total deaths, as contrasted with the 16.3 per cent. of all county and borough asylums in 1905. No suicide or fatal accident occurred during the year, and therefore no inquest was held. Also there was an entire freedom from any infectious disease during the year and no serious casualty occurred.

A legacy of £5,000, bequeathed by the will of the late John Nield of Apsley House, Ashton-under-Lyne, is to be paid to the Ashton District Infirmary. Mr. T. S. Nield has bequeathed £1,000 to the infirmary. Mrs. Kinsey recently gave £1,500 to the infirmary.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Cost of Meat Inspection.

R. P. C. writes: In a recent issue of the *Frankfurter Zeitung* it is stated that "on 100 kilos of pork [imported into Germany], the value of which on an average is 65m., an import duty of 27m. has to be paid, and, in addition, an inspection fee of 26m." Can you tell me where I can (1) verify these figures, (2) find details of the examination which requires so heavy a fee, (3) find similar statistics for France and this country?

*** The Board of Trade Fiscal Blue Book (Cd. 1761), 1903, gives the duty on pork imported into the German Empire as 17m. per 100 kilo. For pork into France the charges are given as (fresh) 25f. and (salted) 30f. per 100 kilos. We have been unable to refer to later figures. Possibly these might be supplied by the Commercial Intelligence Branch of the Board of Trade. The statement quoted as to inspection charges is surprising, and we should hesitate to accept it without confirmation. In the case of home slaughterhouses in Germany we believe that the charge for the official inspection service in the case of the pig is usually about 1m. per carcass. In the United Kingdom there is no systematic inspection of imported meat, and no charge is made for any inspection which is practised.

ANSWERS.

In reply to a correspondent who inquires as to influence apparatus for *x*-ray work, we may say that a Wimshurst machine must be a large one if good work is to be obtained; the price quoted seems very low. It would be advisable to examine the outfit before purchase. The disadvantages of influence machines are that they are not readily portable, and are very liable not to work in a damp atmosphere.

A Bacteriological Microscope.

A. T. F., who asks us to recommend him "a good, moderate-priced microscope for bacteriological work, with spectroscope attached," might write to C. Baker, 244, High Holborn, W.C., for a catalogue. He must remember that for bacteriological work it is essential to have a thoroughly reliable ⅛ in. oil-immersion lens; to buy a relatively poor oil-immersion lens because it is cheap is false economy. In other details, the more expensive equipment is less essential for ordinary work. Abbé's spectroscopic eye-piece, which is inserted in the tube in place of the ordinary eye-piece, costs £10, but our correspondent will probably be able to find a much cheaper instrument which will meet his requirements.

Lamps for Motors.

Dr. B. R. Craig Christie (Comrie, Perthshire) writes: In reply to "A. H. P.," I have found the Lucas "King of the Road" acetylene head-light lamp to be most satisfactory; it affords a very brilliant light, and may be fastened on the front of the motor by any local blacksmith. When the generator is fully charged with carbide it will burn for hours, but a proportionately smaller charge is suitable for short periods.

Motor Cars.

J. D. H.—We cannot undertake the responsibility of advising the purchase of any particular make of car. We may say, however, that we have received communications from four correspondents owning 6-h.p. Wolseley cars, and all speak favourably of them. Two give their annual mileage as from 6,000 to 7,000; the other two are town or suburban practitioners. The expenses given are from £80 to £130, but cost will vary according to the extent to which the owner understands and drives his own car. Three of our correspondents state that there is little, if any, economy as compared with horses, except in time, but that they hope never to go back to horses again. We do not advise the purchase of a second-hand 1904 car; it may have been excessively or roughly used, and may require many renewals. Bargains may often be picked up in second-hand cars, but the novice, unless aided by a thorough expert examination, had better leave them alone, as worn-out cars are often faked up so as to go well for a little time. The 1907 Wolseley car, we believe, will be considerably altered in design; if this is so, a new 1906 car might perhaps be purchased at a considerable reduction after the show in November.

Chlorine Fumes in Operating Rooms.

Dr. John T. Boucher-Hayes (Rathkeale, co. Limerick) writes, in reply to Dr. Arthur Thomson's inquiry as to means for doing away with chlorine fumes in an operating room when

chloroform is used in the presence of gaslight, to point out that Dawbarn, in the *Journal of the American Medical Association*, recommends hanging up near the lights handkerchiefs moistened with ammonia; that ammonium chloride is formed at once, and the room freed from irritant gas. (See *Practitioner*, page 694, No. 461, vol. lxxvii, No. 5, "Anaesthesiana.")

DR. CHARLES G. LEE (Liverpool) writes: This is a subject in which I was much interested some years ago, as the theatre of the Liverpool Eye and Ear Infirmary was then lit by gas, and we were much incommoded by the irritating atmosphere. The gas has been replaced by electric light, and, of course, the troubles ceased. I should like to refer Dr. Thomson to a short paper on the Subject of Chloroform Administration in the Presence of Coal Gas, written by myself, and contained in the *Liverpool Medical Journal* for 1895. In this it is shown that when these two agents meet, as in a close room, a decomposition takes place, and carbon, oxychloride, or phosgene is evolved, not chlorine, although the irritating effects on the mucous membranes are closely similar.

LETTERS, NOTES, Etc.

THE PURCHASE OF A MOTOR CAR.

DR. P. W. MOORE (Melbourne, Derbyshire) writes: Dr. Robertson writes with much pardonable complacency as to the merits of his 8-h.p. Grégoire car, but I think many will agree that, in disposing of the case for the single-cylinder car in such a summary fashion, he has been rather hasty. The uninitiated, hovering on the brink of automobilism, will do well to remember, before taking the final plunge, that in doubling his cylinders he doubles his potential sources of trouble. Plugs in duplicate, two tremblers, four valves to keep ground in, piston rings, and gudgeon pins, all mean extra expense and trouble. Likewise, the time taken up in keeping two or more cylinders tuned up to exactly the same pitch of efficiency which is so necessary for sweet running, is more than many busy men can spare. I have a small single-cylinder car which, as regards the distance covered, will show at least as satisfactory a record as Dr. Robertson's two-cylinder. It is a 6-h.p. Rover, costing £125, and I have had it two months, during which time it has been at work every day and has covered just over 1,000 miles. With the exception of being stuck up once for an hour with a choked oil-feed pipe, I have not had the slightest trouble with it. It has run like clockwork, and the engine has never once missed fire. On a fairly long journey on ordinary roads in daylight I can do 50 miles to the gallon of petrol. On my rounds I can easily do 40. As regards noise, I have never yet met a two-cylinder car that made less. The weight is only 7 cwt., which makes a great difference to tyre upkeep. The tyres have to show for the mileage only two small superficial cuts on one of the front ones. There have been no punctures. It will climb any hill, and if necessary do 25 miles per hour on the level. Whether the little Rover will survive hard continuous winter work on rough roads remains to be seen, but I think it will stand an equal chance with the Grégoire. The record of a car's first 1,000 miles of course does not go for much, but my object in writing is to advise the prospective purchaser not to be too hasty in dismissing with scorn the claims of the humble single-cylinder. As regards some other points mentioned by Dr. Robertson: The water circulation on the Rover is maintained by a pump, gear driven and of most simple description. It has never given me a moment's trouble, and a friend who has driven a similar car over 4,000 miles, tells me he has never had the slightest bother with his. Overheating is unknown; after the stiffest climb or the hardest run I can always bear my hand comfortably on any part of the radiator or the cylinder jacket. The ignition is by accumulators, and if anything goes wrong it can be put right by myself. A Magneto is expensive, and if it breaks down must be sent to the makers for repair. The 1,000 miles was run on one 20 ampère-hour accumulator with two chargings. As I do this myself with a primary battery, the expense of running the ignition department has been about 1s. The total running expenses, inclusive of depreciation, have been a little over £2.

ALVARENGA PRIZE.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to about $180 (£36), will be made on July 14th, 1907, provided that an essay deemed worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but must not have been published. They must be type-written, and must be received by the Secretary of the College, Dr. Thomas R. Neilson, on or before May 1st, 1907. Each essay must be sent without signature, but must be plainly marked with a motto, and be accompanied by a sealed envelope having on its outside the motto of the paper, and within the name and address of the author. The successful essay, or a copy of it, must remain in the possession of the College. Other essays will be returned upon application within three months of the award.

LIFE AND HEALTH ASSURANCE ASSOCIATION.

WE are informed that Mr. N. E. Robins, the London agent for the Life and Health Assurance Association, Edinburgh, has recently turned his attention to medical practitioners in the North of London. We would recommend readers to consult the note published in the BRITISH MEDICAL JOURNAL of October 27th, 1906, p. 1164, before insuring in this company.

PROPOSED SERVICE LODGE.

M.D. LATE I.M.S. (London, W.) writes: I think it will be a good thing to found a Masonic Lodge in London composed of officers, past and present, of the two military medical services—the R.A.M.C. (including the former A.M.S.) and the I.M.S. There are many retired members of these services living in and near London who have no bond of union. I am aware dinners are held annually, but these are somewhat official in character. What is wanted is a Lodge. As a Freemason, I shall be glad to assist in developing the scheme if others will also interest themselves in it.

WARNINGS.

A CORRESPONDENT desires to warn practitioners to be careful in their dealings with a Mr. F. B. Collins, who has sparking plugs to sell to motorists and describes himself as "sole concessionaire," of Messrs. G. D'Orleans et Cie, Levallois (Seine), Paris.

Another correspondent desires to put medical men on their guard against a person calling himself Dr. Colgrove; he is described as between 50 and 60 years of age, well dressed, and of very dark complexion. He borrowed money from our correspondent.

With regard to the warning published last week, Messrs. J. and S. Samuels, shirt makers, of London Road, Liverpool, request us to state that they have never had any connexion with any firm called the Belfast Linen Company, Limited; they desire to make this statement, as they have had representatives who during the last twelve years have called upon medical men in many parts of the country.

Dr. J. BAIN (South Shields) writes, under date of November 7th, to say that the goods he had ordered and paid for from the Belfast Linen Company have now been received; and in a communication he has received from the firm they state that the other medical men in the town have also their goods, and that the long delay arose from circumstances over which they had no control.

MEDICAL BENEVOLENCE OR ASSURANCE.

VALIDUS writes: When one reads of cases such as those of the Irish dispensary doctor, and of Nos. 4 and 6 in the British Medical Benevolent Fund list published in the BRITISH MEDICAL JOURNAL for November 3rd, one marvels that nothing has been done long ago by the Association in the shape of old age pensions and sick pay for members of the British Medical Association. Could not a scheme in connexion with the Association be submitted to the Branches and Divisions for their approval, whereby medical men who are specially needing it could receive sufficient to support them in comfort during periods of illness, and a substantial pension if permanently disabled by old age, sickness, or accident—only if, on investigation, their circumstances were such as to make it necessary for them to accept charity? I think a fund might be started, either by increasing the price of the BRITISH MEDICAL JOURNAL or, if this were not acceptable, by fixed yearly subscriptions from members of the British Medical Association. Such a scheme might have the effect of inducing more men to join the Association. It would not injure any one to pay £2 or £3 yearly to such a fund, and this would yield a handsome sum, and would do away with the necessity for medical men to have to accept cold charity, and with the reproach which such cases as those alluded to are likely to bring upon the medical profession in the eyes of the public. I see that even the lay press has taken notice of the Irish case.

PHILANTHROPY OR PSYCHOPATHIA?

THE publication of a letter from a young woman sheltering in the Stoke Union Workhouse, having been betrayed and deserted, written in the hope of finding a husband to save her and her family from disgrace, has had a remarkable sequel. Within a few days over 100 offers of marriage had been received by post, and within a week the number of letters from all parts of the kingdom numbered close on 450.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

Remarks

ON

THE OPERATIVE TREATMENT OF ULCER OF THE STOMACH AND ITS CHIEF COMPLICATIONS,

With Indications, Limitations, and Ultimate Results.*

By A. W. MAYO ROBSON, D.Sc., F.R.C.S.

An experience of nearly 600 operations on the stomach for various diseases, together with observations on a large number of cases in which no operation was performed, has naturally given me much material for study, on which I have, rightly or wrongly, based certain definite opinions, and the only difficulty I now find is how to condense into a short paper the points most appropriate for a useful discussion: for it is manifestly impossible in one, or even in two or three meetings to fully consider and discuss the indications, limitations, and ultimate results of operations for all the non malignant diseases that may call for surgical treatment, as this would involve a consideration of acute and chronic ulcers, with their complications—perforation, haemorrhage, hour-glass contraction, cicatricial stenosis, and dilatation of the stomach, perigastritis with adhesions, perigastric abscess, inflammatory tumours, fistula, etc.—as well as the subjects of gastroptosis, acute and atonic dilatation, gastric tetany, pyloric and cardiac spasm, congenital hypertrophic stenosis, and other important diseases.

I propose, therefore, to limit my remarks to the question of the indications, limitations, and ultimate results of operation in ulcer of the stomach, and two or three of its chief complications.

I feel sure that gastric ulcer is a much more serious disease than it is ordinarily thought to be, and that the profession has generally considered it more amenable to medical treatment than the facts really warrant.

The accuracy of the observations of Leube, who states that one-half or three-fourths of all cases of ulcer will be cured by four or five weeks of treatment, but if not cured in that time they will not be cured by medical treatment alone, has been more than borne out by the careful investigations undertaken by Dr. Bulstrode, at the instigation of Mr. Mansell Moullin, in 500 cases of ulcer occurring in the London Hospital from 1897 to 1902. He showed that 18 per cent. died while under medical treatment, and these cases did not include any of those patients admitted suffering from the serious complications of ulcer, such as pyloric stenosis, hour-glass contraction, gastric dilatation, etc.

Of the 82 per cent. discharged as cured, Dr. Bulstrode calculated that in at least two-fifths relapse would occur, for out of the 500 cases no less than 211 had suffered and been under treatment for ulcer from one to four or more times previously.

The more recent observations made by Mr. Paterson and Dr. Rhodes at the London Temperance Hospital on 158 consecutive cases under the care of Dr. Soltau Fenwick and Dr. Parkinson, are still more striking, showing that the proportion of real cures in cases of gastric ulcer, even after prolonged treatment by diet and rest in hospital, is under 25 per cent.

Private patients, amid more favourable surroundings, who can rest longer and are more willing to bear restrictions of diet over a lengthened period, suffer less from relapses, though probably not less from the dangers of the serious complications, haemorrhage and perforation, occurring in acute ulcer.

We may thus on ample evidence accept the fact that at least one-third of all cases of ulcer of the stomach treated medically ultimately succumb to the disease or to one of its many complications, and that one-half or two-thirds of the cases that recover relapse.

How does surgical treatment compare with this? As surgeons we only see the worst cases that have failed to yield to medical treatment, or cases suffering from relapsing or chronic ulcer, or from one or other of the serious complications; yet, arguing from my own experience alone in over 400 operations of various kinds, such as pylorectomy, excision of the ulcerated area, gastro-enterostomy, ligature of bleeding gastric vessels, pyloroplasty, gastrolysis, etc., undertaken for ulcer or its complications (excluding perforative peritonitis), usually in patients at the time very seriously ill, the total mortality has been only a little over 3 per cent.; but, as I shall show later, the actual risk of posterior gastro-enterostomy in my private practice, the most frequent operation in this class of cases, has only been 1.7 per cent., and the patients completely relieved have been over 90 per cent.

Classification.

From the point of view of treatment, ulcers may be conveniently divided into two classes, acute and chronic.

In *acute ulcer* the treatment should at first be medical, and, above all things, it should be thorough; but, if after a month or six weeks in bed on milk diet, followed by a further similar period of from two to three months, in which only soft food, chiefly milk, is taken, the patient is not free from digestive troubles, or if after a period of freedom from symptoms relapse occurs, the question of surgical treatment should be seriously considered.

In *chronic* or relapsing ulcer, if medical treatment has not had a fair trial, a rigid course of diet and rest, as in acute ulcer, should be tried; but in case of non-relief or of relapse after temporary freedom from symptoms, surgical treatment ought to be urged.

Surgical Treatment.

Limitations.

Before surgical treatment is recommended, it must be ascertained as far as possible that the symptoms clearly and definitely point to ulcer, and to this end a chemical as well as a clinical investigation should be made, since operation is, as a rule, contraindicated in purely functional cases, and when carried out, not only gives no satisfaction but tends to bring discredit on operative treatment.

Surgical treatment may be direct or indirect. By direct treatment, excision of the ulcer or of the ulcer-bearing area is referred to. By indirect treatment is meant gastro-enterostomy, or one or other of the modifications of pyloroplasty—operations the aim of which is to relieve obstruction and to secure physiological rest to the stomach.

Direct Operation.

The *direct* operation has been practised since 1881, when Rydigier excised a large ulcer from the posterior wall of the stomach, but his results and the experience of other surgeons appear to show that the direct operation is more dangerous than gastro-enterostomy. Moreover, gastric ulcers are frequently multiple, and the excision of one ulcer will not cure the remaining ones; hence, as might be expected in practice, excision of ulcer has been frequently followed by relapse. My own experience has extended to 9 of these direct operations, and the fact that all the patients recovered shows that the dangers with modern technique need not deter us from excision if it be the better operation: but of the 9 cases, while 6 are well from three to eight years later, 2 have relapsed, and 1 cannot be traced. Other surgeons, including Mr. Mansell Moullin, Mr. Keetley, and Mr. Sinclair White, have also recorded cases that have relapsed and ultimately proved unsatisfactory.

In future, should I deem it wise to excise the ulcer or ulcer-bearing area in any exceptional case—as, for instance, in an indurated, bleeding, or a distinctly circumscribed ulcer—I should also, as I did in my last cases, perform at the same time a posterior gastro-enterostomy, in order to secure physiological rest for the cure of any other ulcers that might be present.

The operation of excising the ulcer-bearing area with the performance of an independent gastro enterostomy will probably in the future be more frequently performed, for, as I tried to show in my Bradshaw Lecture at the Royal College of Surgeons, no less than 59 3 per cent. of cases of cancer of the stomach on which I had operated gave a history of chronic ulcer.

Dr. Graham states that a pre-cancerous history of ulcer was obtained in 36 per cent. of cases of cancer operated on in the Rochester clinic, and a clear evidence of cancer development on ulcer in 30 per cent. of the last 40 partial gastrectomies. This affords the most potent argument for the radical operation.

[2394]

* Paper opening discussion at the Royal Medical and Chirurgical Society, November 13th, 1906.

Indirect Operations: Pyloroplasty and Gastro-jejunostomy.

Pyloroplasty, invented by Heinecke in 1886, and improved by Mikulicz in 1887, although excellent in principle and safe and simple in practice, has been followed in a large proportion of cases by relapse. Although the symptoms may be relieved for months, or possibly years, the tying up of the pylorus by adhesions or the subsequent contraction of the cicatrix, ultimately, in about a quarter of all the cases in which operation has been done, has led to relapse and the necessity of a further operation. I have personally performed 28 pyloroplasties, with immediate success in all except one, that died a fortnight later from perforation, but of the 27 that recovered and remained well for various periods, in only 16 have the results been perfect, the patients being well from four to eleven years later; 8 have required a subsequent operation; 1 was quite well for nine months, relapsed, and died of acute tetany some time later; and 2 are said to have developed cancer after six years and eighteen months respectively of good health.

Dr. W. J. Mayo, out of 21 cases, had 7 that required a secondary operation, and Mr. Rutherford Morison had 4 relapses out of 28 cases.

The modification of pyloroplasty invented by Dr. Finney, and improved by Dr. Gould of Boston, which gives a very wide opening from the stomach into the duodenum, is still on its trial; it is a severe operation when the pylorus and duodenum have to be extensively freed from adhesions. Out of 58 cases operated on by Drs. W. J. and C. Mayo, the mortality was 7 per cent., and of 112 cases collected by Dr. Finney it was 9 per cent.

I have no personal experience of Finney's operation, as I prefer to perform gastro-enterostomy, but Dr. Munro of Boston says that the operation has not given him good results, and he has abandoned it; and Dr. W. J. Mayo thinks it only available in certain selected cases.

Gastro-enterostomy, first performed by Wolfler at the suggestion of Nicoladini in 1881, in a case of obstruction of the pylorus due to cancer, was first employed for the treatment of ulcer by Doyen in 1893, and in the same year by Talma, who independently came to the conclusion that spasmodic stenosis of the pylorus was the chief factor in maintaining the hyperacidity and unrest which prevent the healing of gastric ulcers. It acts by affording a free outlet from the stomach, thus overcoming stasis, relieving hyperchlorhydria, securing rest, and preventing the tension induced by spasm of the pylorus.

The after-results of the operation in ulcer of the stomach and duodenum are usually really remarkable. The pain vanishes, food can be readily taken and retained, vomiting ceases, in a little time the anaemia improves, and, as a rule, the patient rapidly puts on weight.

The ill-effects said to follow the operation can probably all be avoided by correct technique. I well remember in the early cases of gastro-enterostomy the fear that was entertained of regurgitant vomiting—the so-called vicious circle—a complication that I have not experienced in my work since adopting the posterior operation without a loop; neither have I seen a case of closure of the anastomotic opening, nor any of the forms of internal hernia, either through a loop or through a slit in the meso-colon, after any of my operations.

Death from asthenia, which at one time was to be feared after stomach operations, when starvation for some days was adopted in already enfeebled patients, is no longer a danger, as feeding can be begun immediately after operation.

The danger of primary haemorrhage is entirely avoided by continuous sutures embracing the margins of the opening between the two viscera, though it is not always possible to avoid the dangers of secondary haemorrhage from pre-existing ulcers.

The only complication that perhaps is unavoidable is extremely rare, peptic ulcer of the jejunum, which apparently arises from an excessively acid gastric juice passing directly into the jejunum, just as not infrequently occurs in the duodenum, leading to duodenal ulcer. The fact that I have not had a case of peptic jejunal ulcer in over 200 posterior gastro-enterostomies shows that this danger is a very remote one.

I have operated on three cases of jejunal ulcer, although in only one of the three did it occur after I had myself operated, and in that case the original operation, performed three years and four months previously, had been an anterior gastro-enterostomy with a long jejunal loop; of the other two cases, in which the original operation was performed by friends or colleagues, one was after an anterior and one after a posterior operation.

I think the condition will in the future be avoided by making the opening sufficiently large, so that there can be no possibility of stasis, and by taking pains to carefully diet and treat the patient medically for some time after gastro-enterostomy, so as to thoroughly cure the hyperchlorhydria.

It has been clearly proved that this complication occurs more frequently after the anterior operation, where there has been a long jejunal loop, but whether occurring after the anterior or posterior operation it is very serious, as perforation is very liable to occur.

There is not time to enter into minute details of the technique of gastro-jejunostomy, but I cannot help giving expression to my feeling that many details described as essential by various operators are by no means necessary to success. For instance, the oblique incision of the stomach wall is quite unnecessary, and I have never adopted it, the only essential, so far as the incision is concerned, being that it should be sufficiently large, not less than 2 in., and that it should be close to the lower border of the stomach. Nor is excision of the mucous membrane necessary, or to my mind desirable, as all that is essential is that the mucous membranes of the jejunum and stomach should be brought into contact by the marginal continuous suture, which must for haemostatic purposes take up all the coats. The use of the clamps, though not essential, has, I believe, contributed largely to the diminished mortality of the modern operation.

Though I personally prefer the posterior operation with the so-called no loop, which has given such satisfactory results, yet, as proved by the permanent success of many of the earlier cases, the anterior operation is quite capable also of yielding good results, but I think at a greater risk of complications from the necessarily long jejunal loop. Roux's operation and short-circuiting of the loop are, in my opinion, unnecessary procedures, except occasionally when the anterior operation is alone feasible.

Statistics.

The statistics of gastro-enterostomy for ulcer cannot be accurately estimated by merely collecting a large series of cases from the records of all the general hospitals, in which perhaps only a few operations are performed by each member of the staff, and with very varying results: but a true estimate may be obtained by a consideration of the results of individual operators who have accurately recorded and followed up the after-progress of their cases.

Nor do I think it desirable, in estimating the mortality of gastro-enterostomy in simple ulcer, to put the cases of ulcer complicated by haemorrhage or hour-glass contraction into separate lists, as it may open the way to misconception of the actual results if the simple uncomplicated cases are placed in a separate category.

The following statistics include the results of gastro-enterostomy for ulcer and its complications, haemorrhage, and hour-glass contraction (excluding perforative peritonitis), following the plan employed in the Report of St. Mary's Hospital, Rochester, Minnesota.

Dr. W. J. Mayo* reported having performed 307 gastro-jejunostomies for *non-malignant* disease, with a mortality of 6 per cent., but in the last 81 operations of the series there had been only one death; and in the report for 1905 of St. Mary's Hospital, Rochester, I notice that out of 100 gastro-jejunostomies for ulcer, or the results of ulcer of the stomach and duodenum, only one patient died.

At the British Medical Association meeting at Leicester, July, 1905, Mr. Moynihan gave the result of his experience up to date. The cases included 171 gastro-jejunostomies for chronic ulcer, with 2 deaths; 27 cases in which haemorrhage was a prominent symptom, with 4 deaths; and 8 cases of hour-glass stomach in which gastro-jejunostomy had been performed, with 3 deaths, thus making 206 cases of ulcer with its complications of haemorrhage and hour-glass contraction in which gastro-jejunostomy had been performed with 9 deaths, giving a

* *Annals of Surgery*, November, 1905. In a supplement to this paper published in the *Annals of Surgery*, April, 1906, Dr. W. J. Mayo stated that he had performed 136 gastro-jejunostomies in sixteen months with but one death.

mortality of 4.3 per cent.† The after-results of operations for chronic ulcer uncomplicated by acute perforation or severe haemorrhage yielded 82 per cent. cured and 14 per cent. relieved.

Hartmann reports his death-rate as 6 per cent. and his final results as 90 per cent. of cures. Von Eiselberg gives his final results as 90 per cent. well two years after operation. Rotgans of Amsterdam gives his immediate risk as 5 per cent. and a permanent cure in 80 per cent. of cases.

The following is my own personal experience. It includes every instance, whether simple or malignant, in which I have performed the operation of posterior gastro-enterostomy, either in hospital or in private practice. There have been 210 cases, of which 202 recovered from operation, thus giving a mortality of 3.8 per cent.

As the after-histories are almost impossible to obtain with any degree of accuracy from the class of patients seen in hospital, I have based my observations on my private cases, in which the after-histories have been kindly furnished by the medical colleagues with whom I was associated.

Of the 112 posterior gastro-enterostomies that I have performed in my private practice for ulcer or its complications, including haemorrhage and hour-glass contraction, 110 have recovered, thus giving an operative mortality of 1.7 per cent. Out of the 110 recoveries :

96 are in good health now, at periods varying from within a year up to five years after operation.

2 were alive and well three years subsequent to operation, but no reply has been received as to their present condition.

2 were alive and well some time after operation, but no word has been received of them later.

1 lived in good health for two and a half years, and when travelling in Italy died of acute pneumonia.

1 remained in perfect health for three years, but has lately had some vomiting.

1 lived in good health for three and a half years after operation, and then developed cancer in the abdomen.

1 lived two and a quarter years and died of cancer of the stomach.

1 had perfect health for a year, when a tumour at the pylorus developed, but no further operation was permitted, and she died two months later.

1 had improved health for two and a half years, when she had haematemesis, and died shortly after an attack.

1 was well for two years, when she had recurrence of vomiting ; a further operation was performed, but the old gastro-enterostomy opening was found to be perfectly patent, and though the patient is living her condition is not satisfactory.

1 has never been well since operation two years ago, and now has developed a tumour in the colon.

1 has since died of pernicious anaemia.

1 has been relieved, but still suffers at times from pain and flatulence after food.

Thus it will be seen that 101 out of 110 posterior gastro-enterostomies for ulcer or its complications performed in private practice apparently resulted in cure.

Excellent results have also been obtained by Ochsner, Murphy, Deaver, Kocher, Munro, Brewer, Littlewood, Monprofit, and others.

The only complications of ulcer of which I propose to discuss the operative treatment are perforation, haemorrhage, hour-glass contraction, dilatation due to pyloric stenosis, tetany, and perigastritis.

Perforation.

This complication, which is estimated by various authors to occur in from 12 to 28 per cent. of all cases of gastric ulcer, is fatal unless surgically treated in 95 per cent.; there can therefore be no room for any difference of opinion as to the wisdom of operation in this serious accident. As shown by the statistics drawn from a very large series of cases, every hour's delay adds to the danger, hence it is of the utmost importance that an early diagnosis and immediate operation should be insisted on.

In cases operated on within twelve hours of rupture the mortality has been 25 to 28 per cent., in from twelve to twenty-four hours 63 per cent., in from twenty-four to thirty-six hours 86 per cent., and after thirty-six hours the mortality has been so great—95 to 100 per cent.—that purely medical treatment would seem to give an equal chance of recovery.

The results of operation in late cases will probably always be unsatisfactory, but I believe that the cases seen within twelve hours of rupture should give much better results than those yet attained; my feeling is that the mortality should be brought down to from 5 to 10 per cent. ; in fact, in a continuous series of 11 cases operated on within a few hours of rupture, and reported last year by Dr. T. Sinclair-Kirk, there was no mortality, showing that such a forecast is possible.

My experience is that excision of the ulcer is not necessary to success, and that a folding-in of the edges of the rupture, with the careful application of a continuous serous suture, and, if possible, an omental graft laid over it, gives the best results. I prefer to wash out the abdomen with a hot normal saline solution and to drain above the pubes, with the patient well propped up in bed; but, as shown by a series of cases operated on by Mr. Littlewood, in which lavage was not adopted, washing out is not always necessary to success. My rule is, that where the effusion is general, lavage should be adopted, but where it is local a mere wiping out of the soiled area is only necessary.

The important point is the actual damage to the peritoneum, for if it has not lost its polish it is capable of absorbing any amount of effusion, but if the peritoneum has lost its polish it must be assisted by artificial drainage.

Seeing that in one-third of all the fatal cases other ulcers have been found, that in 20 per cent. of cases of ruptured ulcer the perforations are multiple (Finney), and that in a large proportion of cases recovering from operation the patients have subsequently had other gastric symptoms, or even a second perforation, the question of the desirability of gastro-enterostomy at the time of operating for the perforation is well worthy of consideration. Of 15 cases traced by Mr. Crisp English, 4 suffered subsequently from gastric trouble, and of 35 traced by Mr. Paterson 1 died from perforation within two years, 2 required subsequent gastro-enterostomy, 9 had definite symptoms of gastric ulcer, and 5 had gastric symptoms. In Mr. Moynihan's cases 7 out of 24 required an immediate or subsequent gastro-enterostomy.

The cases submitted at the same time to gastro-enterostomy are too few to argue from, but of those that recovered cure has been complete and permanent in all up to the present.

The chief argument against gastro-enterostomy is, of course, the prolongation of the time of operation in cases already very seriously ill from the perforation, but in cases not too ill to bear it the following arguments are decidedly in its favour :

1. Other ulcers present at the time of perforation will probably be cured by the operation.

2. If a second ulcer is on the point of perforation such perforation will probably be prevented, as tension and pressure on the stomach walls will be avoided.

3. After gastro-enterostomy more secure healing of the sutured ulcer is likely to occur, and there will be less likelihood of the stitches giving way.

4. It diminishes the risk of haematemesis occurring after operation.

5. It enables saline aperients to be given shortly after operation, and so secures more efficient drainage of the peritoneal cavity.

6. It permits earlier feeding than would otherwise be the case had no gastro-enterostomy been done.

On all these accounts, therefore, it is important that, where the patient's condition will permit of it, the question of the performance of a gastro-enterostomy should be seriously considered at the same time that the perforating gastric ulcer is closed.

Haemorrhage.

The complication of haemorrhage occurs in a greater or less degree in from 50 to 80 per cent. of all cases of gastric ulcer, and according to various authors is fatal in from 3 to 11 per cent.

From the point of view of treatment it seems convenient to classify the cases under two divisions :

1. The acute, always alarming, and sometimes, though rarely, fatal attacks, that occur without any warning and without any premonitory symptoms pointing to ulcer ; attacks that when occurring in young anaemic women

† In a further paper communicated to the Royal Medical and Chirurgical Society and read May 22nd, 1906, Mr. Moynihan reported an additional number of cases of ulcer treated by gastro-jejunostomy, which, with the cases previously reported, brought the total number up to 251 (these included haemorrhagic and hour-glass contraction cases) with 9 deaths—equal to 3.5 per cent.

usually cease spontaneously or under treatment, and that do not tend to recur.

2. The attacks associated with or preceded by definite symptoms of ulcer, which may be: (*a*) Acute, ending rapidly in death; (*b*) acute, temporarily subsiding and recurring in a few hours or a few days, or after longer periods; and (*c*) the chronic haemorrhages, often slight in amount, but frequently recurring and leading to anaemia.

Treatment.

From the fact that medical and general treatment is successful in arresting acute haematemesis in from 93 to 97 per cent. of all cases, and that it is difficult in the present state of our knowledge to say at first that the bleeding is not occurring from capillaries or small arterioles, it necessarily follows that medical treatment should always have a fair trial in every case of acute haematemesis. The very fact of medical treatment being so often successful in cases of apparently alarming haematemesis, goes to show that capillary oozing or bleeding from arterioles, as in the first division, accounts for many cases of gastric haemorrhage. But while thoroughly believing this, we must also not close our eyes to the experience we have in general surgery of bleeding from medium-sized arteries, such as the radial or ulnar, which we know would rapidly bleed a patient to death, if only perforated on one side and surrounded by warm compresses, a condition that practically applies in all cases of haematemesis where the larger vessels are eroded. If, therefore, medical treatment and rest properly carried are not successful in arresting the bleeding, or if after being arrested it recurs, we should be suspicious that a large vessel is perforated, and if a surgeon has not been previously asked to see the case, I would say emphatically that a surgical consultation ought to be held with a view to considering the question of operation and arrest of bleeding by direct treatment if the patient is in a fit condition to bear it.

Where there have been distinct signs of gastric ulcer preceding the haemorrhage, and where a sudden haematemesis has occurred with great loss of blood accompanied by an attack of syncope, a large vessel will usually be found to be the source of the bleeding. In such haemorrhages not speedily yielding to medical and general means, or recurring, surgical treatment will probably be advisable, though there can be no absolute rule formulated that will apply to every case, and each must be considered on its merits. The present condition of the patient, the previous history, the surroundings, the possibility of skilled surgery and of good nursing, and other circumstances, will all help in the decision. Although both surgical and medical treatment in cases of fulminating haemorrhage have, so far, yielded disappointing results, in the acute cases not immediately fatal, where repeated bleedings occur, and the interval between the first seizure and death varies from a few days to two or three weeks, medical treatment will have been fully tried and failed, and there can be no question as to the advisability of surgical procedures being adopted.

At present, with the exception of Dieulafoy, who advocates operation during the first bleeding if as much as half a litre of blood is lost, all other surgeons who have written on the subject agree that general means ought to be relied on during and after a first attack, as in from 93 to 97 per cent. of cases such treatment succeeds, and until our means of diagnosis as to the size of vessel injured is rendered more reliable we must advise assent to this rule; but after a second bleeding I have no hesitation in advising surgical treatment as soon as the condition of the patient will permit operation to be done, for experience tells us that further haemorrhages are almost certain to occur unless preventive measures be adopted.

The surgical treatment of haematemesis may be direct or indirect.

By the *direct* method is meant: (*a*) Excision of the ulcer or of the ulcer-bearing area; (*b*) arrest of haemorrhage by ligature of the bleeding vessels, by cauterization of the ulcer, or by ligature of the mucous membrane *en masse*.

By the *indirect* method gastro-enterostomy is meant.

Any operation for haematemesis must, as a rule, be at first exploratory, and when the condition of the stomach is made out the question of direct or indirect treatment can be decided on.

In all the early cases of operation for haemorrhage from the stomach the direct method was adopted, as it had not then been realized that by securing physiological and physical rest to the stomach by a well-executed gastro-enterostomy, not only could bleeding, as a rule, be arrested, but the condition of ulceration giving rise to it could be cured.

Mr. Mansell Moullin still advocates the direct method by ligature *en masse* of the bleeding area or by excision of the ulcer, and he urges in support of his view the fact that there have been cases recorded in which haemorrhage has persisted or recurred after gastro-enterostomy; but we must not lose sight of the fact that several cases have been recorded in which haematemesis has also occurred after local treatment of the bleeding ulcer.

My only experience of recurrence of haemorrhage after short-circuiting has been in two cases of tumour of the pylorus, probably malignant, supervening on ulcer. In one a fatal haematemesis occurred one month after what appeared to be a very successful operation, when the patient was apparently well. The other occurred in a man, aged 75, operated on for pyloric stenosis with persistent vomiting. He had had profuse haematemesis two weeks previously; after the operation the bleeding recurred in forty-eight hours, and proved fatal. In neither of these cases could excision of the ulcerated area have been performed with a probability of success, as extensive adhesions with enlarged glands prevented the pyloric tumour being brought forward even for inspection. Had it been practicable I should have performed wide excision of the tumour in both of these cases.

An extensive personal experience and the consideration of a large number of cases operated on by others, whose work I have had the opportunity of seeing or studying, has convinced me that the operation of gastro-enterostomy is usually an efficient means of treating haemorrhage from the stomach; and it is only under exceptional circumstances that I should now think it worth while to open the stomach and treat the ulcer directly; but even should I deem direct treatment of the bleeding point necessary, I should also think it equally desirable to perform a gastro-jejunostomy in order to secure rest to the stomach and to the ulcer, so as at the same time to stop the bleeding and cure the condition giving rise to it.

Gastro-jejunostomy possesses the advantage that it is applicable to both acute and chronic haemorrhage, that it avoids the necessity of a prolonged search through a gastrotomy opening, that it is quickly performed, and, not least, that it involves little shock, and has a very small mortality.

A collection of a large number of cases of the direct treatment of the bleeding point not only shows a very heavy mortality, but also want of relief to the condition giving rise to the bleeding in a large proportion of cases, unless at the same time gastro-enterostomy has been performed.

Statistics of Operations for Haematemesis from Ulcer.

I have operated in 4 cases of acute haematemesis during the continuance of the bleeding. All the patients recovered and remain well. In 2 of these cases numerous bleeding points were ligatured *en masse* and gastro-enterostomy was done: in 2 gastro-enterostomy was alone performed.

I have also operated between the attacks on 22 patients suffering from haematemesis due to ulcer; in all a gastro-enterostomy was performed, with recovery from operation in 21. In 1 case death occurred at the end of a week from exhaustion.

To put the matter succinctly I would say:

1. In a case of acute haematemesis from ulcer or erosion when the onset of bleeding is sudden and the previous history of ulcer is absent, medical and general means should be very thoroughly tried, and if the bleeding ceases as the result of rest and general treatment there will be no cause to interfere surgically, though treatment should be carried out thoroughly and persistently until the ulcer has healed.

2. In case of recurrence of bleeding, or if the bleeding persists despite treatment, surgical measures are called for.

3. In case of bleeding from a chronic ulcer, whether the bleeding be slight or severe, surgical treatment is demanded, not only for the arrest of haemorrhage, but also for the curative treatment of the ulcer itself.

4. As the risk of operation during the quiescent interval is less than if undertaken while the bleeding is continuing, it is desirable if possible to secure arrest of the haemorrhage, even in chronic ulcer, before undertaking operation; but if the haemorrhage is persisting the surgeon is not justified in waiting until the patient is reduced to such a condition that it is too late to operate.

Pyloric Stenosis and Obstructive Dilatation.

The very process of cure in pyloric ulcer can only result in stenosis, which if moderate in extent is overcome by hypertrophy of the gastric muscle. While this compensation is maintained symptoms may be slight or even absent, but sooner or later compensation fails and dilatation occurs, leading to stagnation of the stomach contents, with fermentation and the generation of acrid acids and offensive gases, giving rise to gastritis. Relief is obtained for a time by vomiting, but as the stenosis increases, less and less food passes into the intestine, and death from starvation is the inevitable result should not tetany or perforation hasten the end.

In perhaps no other variety of so-called chronic indigestion are the patients so miserable, and as the disease may drag on for months, or even years, the sum total of suffering probably exceeds that from almost any other form of disease.

Treatment.

In the early stages of obstructive dilatation, when the symptoms are slight, relief will doubtless have been given by semi-liquid diet and lavage of the stomach, but as soon as the symptoms are pronounced it is a mere waste of time to persevere with the use of drugs, massage, electricity, or even lavage, except in those rare cases where the stenosis is due either to syphilitic ulcer or gumma, which should speedily respond to specific treatment.

Surgical treatment is alone of avail in order to remove the cause of the stenosis, or to create a new channel by which the stomach contents may pass onwards into the intestines.

It may sometimes be possible to remove the cause of the stenosis by division of peritoneal bands or adhesions, or the removal of a tumour obstructing the pylorus, but in the majority of cases it will be necessary either to enlarge the contracted pyloric orifice or to perform a gastro-enterostomy.

The operations available are: (1) Pylorodiosis or forcible dilatation of the pylorus, (2) pyloroplasty, (3) Finney's operation, (4) Kocher's gastro-duodenostomy, (5) pylorectomy, (6) gastrolysis, (7) gastro-jejunostomy.

It is not necessary to describe or dilate on the various operations that may be performed in case of dilatation of the stomach due to simple pyloric stenosis, as the greater number of experienced surgeons are agreed that gastro-jejunostomy is the procedure that should be followed in such cases, not only because it can be done with very little risk, but also because the after-results of the operation in these cases are extremely satisfactory. The risk, as I have shown, is under 3 per cent., and the cases permanently relieved or cured are 90 per cent.

Although pylorectomy or partial gastrectomy is a much more severe operation than gastro-enterostomy, yet there is a certain class of cases of pyloric stenosis associated with tumour in which it is difficult to say whether the tumour of the pylorus is simple or malignant.

If the obstruction of the pylorus is associated with a tumour due to inflammatory disease, in all probability it will be so adherent to the under-surface of the liver or to the pancreas, that pylorectomy will be extremely difficult and hazardous. In such cases it will probably be deemed necessary to rest content with gastro-enterostomy, in the hope that the rest induced by the operation will cause a subsidence of the tumour. I have found this to apply in many such cases, in which at the time there was a question of malignant disease, but in which after gastro-enterostomy complete and permanent recovery followed. If, however, under these circumstances the pylorus should be free and the disease limited, it may be quite justifiable to perform pylorectomy in case of doubt.

As pylorectomy, even in cancer, can be performed with a mortality of 15 per cent. or less, the risk of operation, should the disease prove to be simple, should not exceed half that amount.

My views on pyloroplasty and its modifications I have already given.

The operation of pylorodiosis, though recommended and performed by Loreta in some cases of cicatricial contraction of the pylorus, is not a procedure to be recommended, as, though it has given good results in some cases of obstruction due to simple spasm of the pylorus, the procedure is attended with much more risk than either gastro-enterostomy or pyloroplasty, and the only form of obstruction in which I should consider Loreta's operation at all justifiable is in congenital hypertrophic stenosis where spasm is taking a share in the obstruction.

Gastric Tetany.

To make a distinction between the severe and fatal form of gastric tetany and the tetanoid spasms associated with gastric dilatation is purely arbitrary, and it seems more rational to include all cases of tetany and tetanoid spasms dependent on stomach diseases under the term "gastric tetany."

Moreover, to conclude that gastric tetany is almost necessarily fatal, as is insisted on in certain medical works, is to my mind a great mistake, as an extensive experience of the disease, both of the mild and severe varieties, has convinced me that under efficient surgical treatment hardly any case is hopeless.

The treatment of gastric tetany is essentially surgical, as I had the privilege of first pointing out in a paper in the *Lancet*, November 26th, 1898, when several cases were given as examples of successful surgical treatment. Since that time my experience has increased, and out of a large number of cases in which I have operated I can state definitely that in no single case has drainage of the stomach by gastro-enterostomy failed to give relief. Moreover, at the same time that relief to the tetany is secured, a cure of the disease producing it is accomplished, as in almost all cases there is a grave mechanical obstacle to the onward passage of the food. It is this obstacle which causes dilatation and hypertrophy, to be later followed by stasis and fermentation of the contents of the stomach. To relieve this obstruction, and to do away with the stagnation of the stomach contents, surgical measures are necessary. In simple cases pyloroplasty or gastro-enterostomy will be the methods of choice; in malignant cases a partial gastrectomy or gastro-enterostomy, as circumstances dictate. In hour-glass stomach, gastro-gastrostomy, combined with gastro-enterostomy performed in the distal pouch, will, as a rule, be the suitable operation.

Hour-glass Stomach.

Hour-glass stomach owes its origin to definite organic disease—chronic gastric ulcer, cancer, or perigastritis—but the greater number of cases are caused by the cicatricial contraction due to ulcer. Doubtless, very rarely the condition may be congenital, just as congenital narrowing may be found at the pylorus, in the intestine, or in the rectum. As yet, however, in an experience of considerably over 1,000 operations on the upper abdomen, in which the stomach could be seen and examined, I have not met with a single instance in which I could say that the case was one of congenital hour-glass contraction.

For chronic gastric ulcer to be allowed to pursue its course until this extreme deformity, hour-glass stomach, occurs, can only be described as a disgrace to modern medicine, for the disease giving rise to the condition has definite signs and symptoms, and is one attended by considerable suffering. In nearly all my cases the patients had been ill for years, some of them for 10, 12, or 16 years, whereas by a timely operation they might have been cured before the development of the deformity.

Surgical treatment is alone of service in this disease, and the conditions to be aimed at are to overcome the obstruction, and to secure physiological rest for the healing of the ulcer, which is by far the most frequent cause of this deformity. Out of 26 cases operated on by myself and 22 reported by my friend Mr. Moynihan, 41 were the result of ulcer.

The operations available are: (1) Gastroplasty, (2) gastro-enterostomy, (3) gastrolysis, (4) gastro-gastrostomy, (5) excision of the ulcerated area or partial gastrectomy, (6) divulsion of the stricture, and (7) jejunostomy.

It would occupy too much time to consider the indications for the different operations mentioned, but seeing that the disease is usually associated with active ulceration in the centre of the stomach, no operation will be

likely to be permanently effective that does not provide for efficient drainage of both pouches, in order to secure healing of the ulcers; hence a double operation is often necessary, and a gastro-enterostomy into one or both pouches is generally advisable.

Of 7 cases in which I performed posterior gastro-enterostomy for hour glass contraction all recovered, and 5 are well at the present time (three to six years later), 1 died of cancer of the sigmoid flexure of the colon four years, and one of cancer of the stomach a year after operation.

Of 10 cases in which I performed simple gastroplasty all the patients recovered, and 6 are known to be in good health at the present time, from three to six years later; 1 was well a year after, but cannot be traced; 1 required gastro-enterostomy two years later for ulcer of the pylorus; 1 was well for four years, had recurrence of ulceration, and died of haematemesis; and one writes to say that after five years she has had some gastric pain, but has not needed medical attendance.

Conclusions.

Since gastroplasty has been followed by 25 per cent. and gastro-gastrostomy by 30 per cent. of relapses, while gastro-enterostomy alone has given much better results, and the combination of the two former operations along with gastro-enterostomy has been uniformly successful, it seems quite clear that whatever procedure is adopted for making a communication between the two stomach cavities, a gastro-enterostomy ought to form part of the operation in order that the ulceration giving rise to the disease may be cured.

Perigastritis.

Perigastritis leading to disabling adhesions is so commonly associated with ulcer that I must mention it among the principal complications.

When the adhesions tie up the pylorus so as to produce a kink, the normal peristalsis of the stomach may be interfered with, leading to dilatation and stasis so extreme that stenosis of the pylorus may be suspected. If slight, the adhesions may be separated, and the right free border of the omentum may be interposed between the pylorus and its abnormal attachments, so as to prevent close adhesions re-forming, but if the adhesions are extensive a gastro-enterostomy will be found to be the more satisfactory operation, and to give excellent results. If adhesions form on the anterior wall of the stomach, fixing it to the abdominal parietes, normal peristalsis will be interfered with, and the patient's sufferings after meals or on exertion may be considerable; the condition may give rise to irregular dilatation or to hour-glass deformity and to stasis of the stomach contents.

The adhesions must be detached, but are apt to re-form if at all extensive unless the raw surfaces can be covered by sliding the omentum or grafting peritoneum over them.

Simple gastrolysis or detaching adhesions is practically unattended by risk, and in many cases I have seen excellent results by this simple operation; but in several cases relief has been followed by relapse, necessitating a short-circuiting operation. Posterior gastro-enterostomy should under such circumstances be performed where feasible, but in case of adhesions being very extensive, and involving the posterior wall, an anterior Roux's operation will probably be found to be the best procedure to adopt.

In conclusion, I should like it to be understood that I do not advise operation in ordinary acute gastric ulcer, the medical treatment of which should, I think, be much more careful and more prolonged than was formerly considered necessary.

Nor do I advise operation in chronic ulcer before medical treatment has had a fair trial; but I think it is unfair to our patients to advise a continuance of general treatment for chronic or relapsing ulcer until serious complications supervene, when by timely surgical treatment many of them can be prevented.

In perforating ulcer, in chronic or relapsing haemorrhages, in pyloric obstruction or other mechanical causes leading to dilatation, medical treatment is as inadequate and useless as is operative treatment in gastric neuroses and other functional diseases, and to continue it beyond the period in which it can benefit, is as unscientific and unwise as it is to operate and expect good results in improper cases.

OPERATIONS UPON THE LOWER PART OF THE COMMON BILE DUCT.*

By B. G. A. MOYNIHAN, M.S., F.R.C.S.,
LEEDS.

When a stone enters the common bile duct from the gall bladder, it does not, as a rule, travel far before it is arrested. The common duct, as is well-known, is funnel-shaped, narrowing gradually as it descends towards the duodenum. A stone entering it and fitting quite loosely in the upper part, may be soon checked in its downward passage owing to the lessening calibre of the duct in which it lies. An important factor in the retardation of the stone is doubtless a spasm of the muscular fibres existing in the duct wall. Before long the stone begins to increase in size and may be joined by others entering from the cystic duct. The larger a stone becomes the less likely is it to pass onwards into the duodenum. The increase in size of a stone lying stationary within the duct is probably rapid. In not a few operations I have found a stone which, to judge by the clinical history, has lain in the common duct not more than two or three months, to be of the size of a nutmeg or an olive, when other stones in the gall bladder (the cystic duct being patent) are only one-quarter or one-sixth of that size. The calculus on its escape from the gall bladder may have been larger than its fellows, but the added deposit upon it has been sufficient to remove all traces of facets.

Calculi are therefore found during operation more frequently at the upper than at the lower part of the duct. The removal of a stone from the first part of the duct is now a comparatively common operation. There are, however, a certain small number of cases in which the stone is arrested and fixed in the second and third portions of the duct or in the ampulla of Vater and must be directly removed therefrom. Such operations are still so uncommon as to be worthy of individual record.

Operations upon the Second and Third Parts of the Common Duct.

The second part of the common duct—the retro-duodenal or pancreatic portion—is 1 to 1½ in. in length (see Fig. 1): it lies behind the duodenum and in contact with the pancreas, either in a groove or in a canal in the head of the gland. The third portion of the duct—the transduodenal or pancreatic portion—lies in the inner and posterior wall of the duodenum, and terminates at the diverticulum of Vater; it is about ½ to ¾ in. in length. These parts of the duct may be approached in one of two ways: (*a*) from behind by retroduodenal choledochotomy, (*b*) from the front through the duodenum by duodeno-choledochotomy.

(*a*) *Retroduodenal Choledochotomy.*

This operation was first described by Haasler in a paper read before the German Surgical Congress in 1898. Similar procedures have been carried out by Oscar Bloch and Berg. The principle of the operation consists in the making free of the duodenum by stripping up the peritoneum on its outer side, so that when the duodenum and the pancreas are turned over to the left the stone can be seen and felt projecting posteriorly, and be removed by incision of the sclerosed pancreas which covers it. After removal of the stone the duct is explored for other calculi and is then closed by suture; drainage is always necessary, for the duct, being here devoid of a peritoneal covering, does not heal rapidly or securely. I have never performed this operation, and I will not therefore describe it in detail.

(*b*) *Duodeno-choledochotomy.*

Of this operation there are two varieties, according as to whether the common duct is opened in its second or its third portions or whether the ampulla of Vater is opened. If the duct itself is incised, the operation is known as transduodenal choledochostomy, or Kocher's operation (Figs. 2 and 3); if the ampulla is opened, the operation is known as duodeno-choledochotomy, or McBurney's operation (Fig. 4). The former will be described first:

* A paper read before the Yorkshire Branch of the British Medical Association.

Transduodenal Choledochostomy, or Kocher's Operation.

In order to get at a stone impacted in the second part of the duct from the front it is necessary to divide both the anterior and posterior walls of the second part of the duodenum and then to incise the pancreas which lies around the duct. This operation was first performed on June 4th, 1894, by Kocher, and was described by him as "internal choledochoduodenostomy."

When the calculus has been impacted in the duct at this part for any length of time, the pancreas which lies between the duct and the inner and posterior part of the duodenum has probably become somewhat atrophied by pressure and sclerosed as a result of chronic inflammation. In my own cases it has been so altered as to be barely recognizable as pancreatic tissue, though it was evident that the gland had been divided, because after incision of the posterior wall of the duodenum a very dense and thick fibrous layer was encountered before the duct was opened. The incision in the gland causes no ill effects.

The preliminary steps of the operation are those necessary in all common duct cases. A sandbag—or better, an inflated rubber cushion—is placed under the back behind the lower dorsal vertebrae, Mayo Robson's incision is made, the rectus divided, and the liver elevated. In making the separation of the fibres of the rectus muscle the following method is desirable:

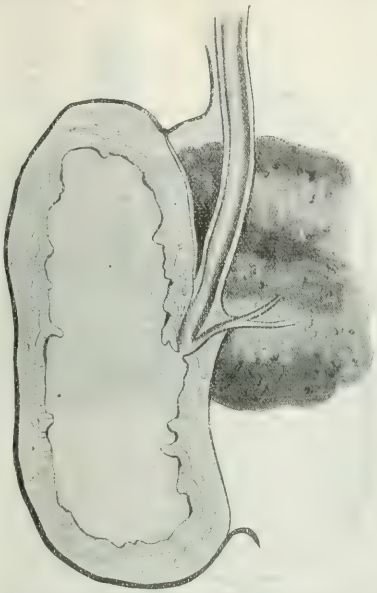


Fig. 1.—Section of the duodenum and the head of the pancreas, to show the second and third portions of the common bile duct and the ampulla of Vater.

As soon as the anterior sheath of the rectus is divided a gentle separation of the fibres of the muscle at one of the tendinous intersections is effected by scratching gently through with the finger covered with gauze. As soon as a little space is cleared the finger is then used softly to wipe or push aside the fibres, when it will be found that the nerves, as they lie on the front of the posterior sheath, are left intact. There are generally three nerves, one above, one below, and one in the middle of the wound (tenth, eleventh, twelfth dorsal). In the gap between these nerves all the necessary manipulations can generally be accomplished. The importance of the nerves which supply the inner separated portions of the rectus muscle cannot be exaggerated. Assmy, working under Czerny's direction, has shown that atrophy of the inner part of the rectus, and consequent hernial protrusion, follow the sacrifice of the nerves.

As soon as the abdomen is opened a general examination of the parts is made and the procedure determined. Cholecystotomy or cholecystectomy may be necessary in addition to the removal of the stone by the method now to be described. If the patient is thin, and if the liver lies low, the lifting and rotation of the liver will generally leave a clear way to the duodenum, but in stout patients, with many adhesions, it may be a matter of no little difficulty to reach the bowel. The duodenum must then be rendered mobile by the procedure described by Kocher. A vertical incision is made about 1½ in. to the outer side of the duodenum, and the peritoneum stripped inwards to the duodenum from this point. When the intestine is reached the stripping is continued, the duodenum and the head of the pancreas being raised up towards the middle line. In this way it can be secured that with a couple of fingers behind the duodenum, or in the foramen of Winslow the bowel can be raised up to the abdominal wound. The fingers which so support the bowel must remain steady throughout the duodenal manipulations, and must be protected from soiling by being covered with a flat gauze swab. When the duodenum is held secure, and the stone is localized, the anterior wall of the duodenum is incised, and a small volsellum placed on each edge of the wound. The fluids escaping from the duodenum are mopped up and the posterior and inner wall of the bowel examined. The bulging over the stone will then be readily discernible, and at a little distance below it the ampulla is seen. If the stone can be pushed downwards and extracted through the ampulla this should be done, but if not (and I have never been able so to do) then the duodenum is incised directly over the stone. The incision is carried at once down to the stone over a part of its projecting surface. Then a stitch is taken on each side through all the tissues between the stone and the duodenal wall. These sutures are of catgut, and they are useful to steady the walls of the duct in the subsequent explorations. As soon as the sutures are tied (the ends are left long—Fig. 5), the incision over the stone is lengthened to a degree sufficient to allow of the easy removal of the calculus. When the stone is taken away a third stitch is taken at the extreme upper end of the incision; this also embraces the duct, the pancreas, and the duodenal wall. As soon as the stone is removed bile begins to flow into the intestine, but other stones may nevertheless be present in the ducts above. A scoop is therefore passed upwards as far as it will go, generally about 4 in., and the duct emptied. When it is certain that no other stones remain, the sutures (which have been useful as retractors) are cut short. It is not necessary always to introduce any other stitches, though Kocher advises that this should be done. If the second portion of the duct has been opened leakage of bile through the

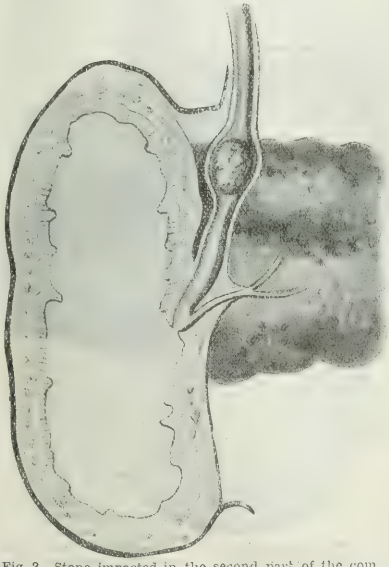


Fig. 2.—Stone impacted in the second part of the common bile duct. Such a stone could be removed by retroduodenal choledochotomy or by Kocher's operation.

wound is possible, though it is not likely on account of the fact that, owing to the large size of the stone, the duct has probably been brought into close contact with the wall of the intestine. If the opening is well above the papilla, sutures should therefore be introduced; if the opening implicates only the interstitial (third) portion of the duct, they are not needed. If they are considered necessary, they should be of catgut and "through-and-through" sutures.

At this point there remains only the anterior incision in the duodenum to be closed. This is done in the usual manner, by two layers of stitches, the inner embracing all the coats of the gut, the outer only the serous and muscular coats. An omental flap may well be sutured over the duodenal incision also.

The fingers are now removed from behind the duodenum, and the bowel allowed to fall back into its natural position. If neither cholecystotomy nor cholecystectomy have to be performed, the abdomen may be closed without drainage. The advice is, I find, constantly given that a drainage tube should be passed down to the duodenum, but I have not found this necessary. The wound in the gut involves a surface clad with peritoneum, and healing therefore occurs quite securely.

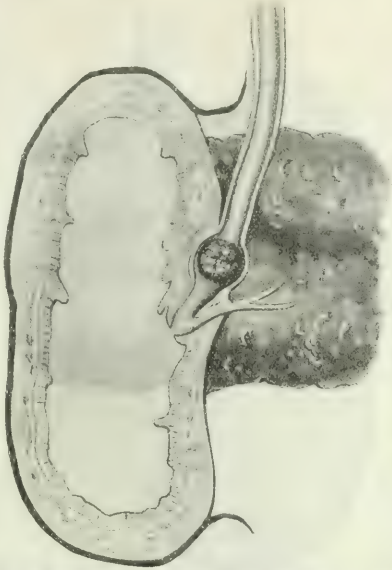


Fig. 3.—Stone impacted in the third portion of the duct. Such a stone would be removed by Kocher's operation.

If the third portion of the duct is involved the duodenum is of course not divided completely through on its inner and posterior part. This portion of the duct lies actually in the duodenal wall, and therefore in order to open the lumen of the duct the duodenum is cut into, but not through.

I have performed this operation in 3 cases, all successful. The following are the notes:

Mr. N., aged 56, sent by Dr. Bastow Cooper, Lincoln. The patient had had occasional attacks of severe pain in the right hypochondrium for four years; the attacks were accompanied by sickness. In February, 1905, a similar attack followed by jaundice, which, set first very deep, gradually lessened until another attack of pain in April, 1905, after which it became very much deeper. Between April and September attacks of pain followed by deepening jaundice occurred about once a fortnight. In between these attacks the jaundice never lessened and no bile ever passed into the intestine. He was more deeply jaundiced than any patient I have ever seen. In the attacks he had shivering and nausea; each attack lasted from half an hour to two days. A diagnosis of stone in the common duct was made and operation was performed on September 28th, 1905. The abdomen was opened through Mayo Robson's incision. The gall bladder was found shrunken and empty and adherent to the duodenum. A stone was felt in the second portion of the common duct just below the upper margin of the duodenum. A prolonged attempt to push the stone upwards into the supraduodenal portion of the duct was unsuccessful. The duodenum was therefore held secure in the fingers of the left hand, and its anterior wall opened by a longitudinal incision. The duodenal edges were seized in small vulsella, and an inspection of the duodenum made from within. A bulging of the inner and posterior wall of the gut was seen, and behind this lay the stone, fully 1½ in. above the ampulla of Vater. An incision was made over the stone. The stone even when well exposed was extracted with some difficulty; it seemed to have grown into the wall of the duct, and its outer surface was rough and "spiky." After the stone was removed the duct was explored with the finger and with a scoop, but no other calculi were felt. No stitches were introduced into the posterior duodenal wound. The anterior wound was sutured and the abdomen closed. The patient recovered rapidly. By January, 1906, he had gained 1½ st. in weight, and was perfectly well.

Mr. J. V., aged 52, sent by Dr. Lambert, Barsley. The patient had noticed a dull aching pain in the gall-bladder region five months ago; this lasted ten days, and was followed by jaundice, which has never cleared off since. He has had attacks of pain, shivering, nausea, followed by deepening jaundice ever since. The jaundice almost disappears between the attacks. A stone in the common duct was diagnosed, and operation performed on November 3rd, 1905. The abdomen was opened through Mayo Robson's incision. The gall bladder was shrivelled and buried in a mass of dense fibrous tissue. A stone was felt in the retroduodenal part of the duct; it was fixed. The duodenum was therefore opened, and about 1 in. above the papilla the bulging of the stone on the posterior and inner wall was seen. An incision was made down to the stone, which was readily extracted. No sutures were introduced in this incision. The duodenum was closed, and as there had been some soiling of the parts a drainage tube with a gauze wick was left in for five days. The wound was slow to heal, but in five weeks was perfectly sound. The patient was seen on February 28th, 1906. He had gained 2 st. 2 lb., and reported himself as "quite right."

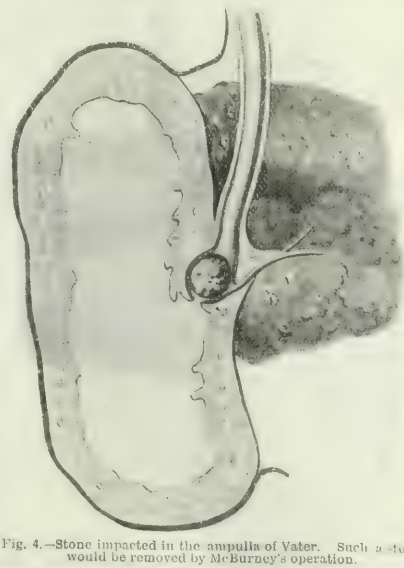


Fig. 4.—Stone impacted in the ampulla of Vater. Such a stone would be removed by McBurney's operation.

Mrs. B., aged 56, sent by Dr. Hutton. The patient has suffered for many years from indigestion, "spasms," flatulent distension of stomach, but has never jaundiced. The present illness dates back three months, when she was taken ill with shivering, vomiting, and dull abdominal pain, followed by jaundice. Since then similar attacks have occurred at intervals of about a fortnight; the jaundice becomes slightly less in the intervals, but by no means disappears. The pain, which is not severe, is felt down the right side of the abdomen and up to the scapula. The stools are light coloured. On examination, February 24th, 1905, a stout woman with marked jaundice. Liver edge felt in the gall-bladder region, which is tender. Operation, February 25th, under ether and $CHCl_3$. Mayo Robson's incision. Duodenum firmly adherent to gall bladder, which was almost hidden among dense adhesions; by invaginating the duodenum with the finger the crateriform hollow of a deep ulcer could be felt where the gut was welded to the gall bladder. A calculus was felt in the hepatic duct and pushed down into the common duct. A stone was also felt impacted and immovable in the common duct, just above the ampulla. The duodenum was opened and its posterior wall incised over the stone, which was extracted. Three more stones were then taken from the common duct, and finally a probe passed up for 5 in. into the hepatic duct. The anterior wall of the duodenum was closed with a continuous suture in two layers;

a covering of omentum was fixed over the suture line by two interrupted sutures. Abdomen closed without drainage.

Duodeno-choledochotomy: McBurney's Operation (Ampullary Choledochotomy).

In cases where this operation is performed the stone is arrested in the diverticulum of Vater, having passed down the whole length of the common duct. The stone is usually small, about the size of a split pea. The operation in all its details is similar to that which has just been described, except that the incision in the anterior wall of the duodenum is made a little lower down. As soon as the duodenum is opened the stone may be seen protruding through the ampulla, and a little frothy bile-stained fluid may escape past it. In McBurney's first case an attempt was made to extract the stone by dilating the orifice of the ampulla, but this was not successful. The edges of the opening were therefore incised, and the stone extracted.

As soon as the stone has been removed, small vulsella should be placed on the lateral edges of the opening, and a gall-stone scoop passed upwards into the common duct. The duct is always dilated, and some fine stones or sand may be removed. In some cases an opening may have already been made in the supraduodenal part of the duct for the purpose of extracting a stone impacted there, the later opening of the duodenum being necessary because of the impossibility of displacing the ampullary stone upwards. If this has been the case, it is well to pass in through the supraduodenal opening a wick of gauze, which is brought out at the ampulla. On pulling a long strand of this through the duct, some fine sand or grit or small stones may be removed.

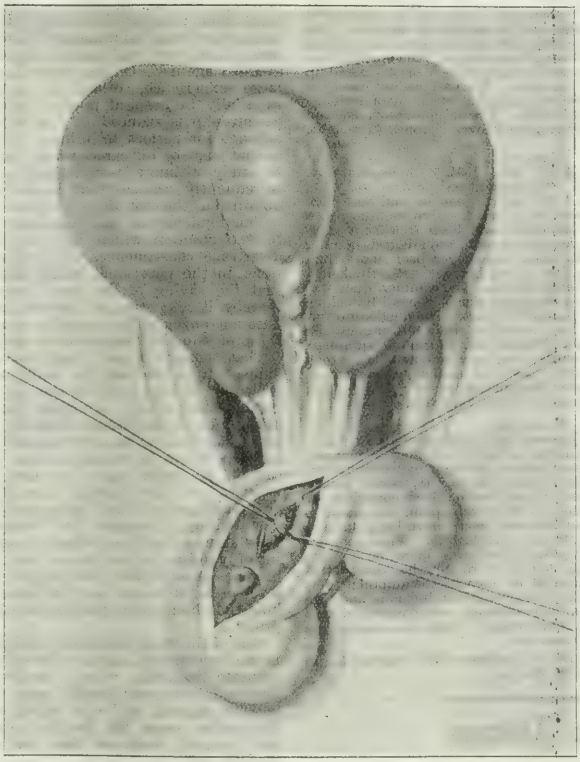


Fig. 5.—Kocher's operation. The duodenum opened; its posterior wall incised to show the stone.

In both this operation and in Kocher's operation a longitudinal incision is made into the duodenum through the serous-covered anterior surface. Such a wound, when carefully sutured, heals well. Several operators record cases of duodenal fistulae following these operations, and I think it not improbable that this has been due to drainage of the wound. The drainage material has adhered to the suture line, and has, when removed, torn open the wound. I have never drained down to the duodenum in any of my cases, but have always sutured carefully, and have made assurance doubly sure by laying over the line of stitches a flap of omentum.

The following is a list of my cases, seven in number. The first case was fatal, the last six have been successful:

Case I.

Mrs. T. B., aged 39, seen with Dr. Sproulle, Mirfield. Three years ago she had an attack of epigastric pain and vomiting, followed by slight jaundice—a typical attack of biliary colic. Since then she has had nine similar but progressively more severe attacks. Nine weeks ago an extremely severe attack. Pain has continued all the time, and jaundice, though varying slightly, has always been pronounced. The motions during this period have been light coloured, the urine thick and scanty. Pain is constant, but at times an acute paroxysm occurs. Has lost flesh rapidly during the last two months, and has been eating little, owing to pain and heaviness after even light diet and vomiting.

Operation.—December 7th, 1900. Eighty-seven gall stones were removed, mostly from the hepatic and common ducts. A few lay in the gall bladder, but both hepatic ducts and the whole length of the common duct were filled with tightly-packed stones. These were removed through an incision in the common duct, which was afterwards sewn up. A stone was found tightly impacted in the ampulla of Vater, and the duodenum had to been opened in order to remove it. The patient had severe haematemesis after the operation, and died on the third day.

Case II.

Mrs. M. A. R., aged 41. Calculus in the ampulla of Vater; chronic pancreatitis; duodeno-choledochotomy. The patient was admitted on March 23rd, 1901. The history was that attacks of pain in the right hypochondriac region had been intermittently present for eight or nine years. Sixteen months before admission jaundice was noticed for the first time. Similar attacks of pain followed by jaundice had been noticed several times since that date. On admission she was jaundiced, and the colour had been present, though varying in tinge, for four months. A stone in the common duct was diagnosed. The abdomen was opened, and a stone was found impacted in the ampulla of Vater. The head of the pancreas was densely hard—as hard as stone. I remarked at the time that the gland felt more like a plaster cast of a large pancreas than like a normal organ. The duodenum was incised and the stone was removed. The gall bladder was drained for eleven days. The patient made a good recovery, and is now quite well. (March, 1906.)

Case III.

Mr. J. A. E., September 24th, 1902. For the last four and a half years has suffered from acute pains in the right hypochondrium. After an attack of the normal kind he became jaundiced nine weeks ago, and since then has remained jaundiced more or less. For the first month the jaundice steadily deepened; then a rigor occurred, and the jaundice became still more intense, but quickly got less. Now jaundice is not more than sallowness. Has had three rigors recently, with slight increase in jaundice after each attack. At the operation a small stone in the ampulla of Vater, and a few gritty particles in the gall bladder. The duodenum was opened, and the stone removed from the gall bladder. Cholecystotomy was performed. The patient recovered. In March, 1906, reported as having been quite well since the operation.

Case IV.

Mrs. A. D., aged 39, sent by Dr. Handcock, Scarborough, July 11th, 1903. Seven months ago patient began to suffer from pain in the right hypochondrium, collapse, faintness and vomiting. The first attack was followed at once by jaundice. Between this and five weeks ago had at least six attacks. Five weeks ago after a similar attack a stone was passed and was recovered from the faeces, but since then jaundice has been continuously present, though variable in

depth of tinge. Every few days lately has had attacks of shivering and slight pain. Operation was performed after a diagnosis of stone in the common duct had been made. A stone the size of a split pea was removed from the ampulla through the duodenum. The gall bladder contained stones (forty-eight were subsequently counted); it was therefore aspirated, and clear mucous fluid removed. A few small stones were immovably fixed in the cystic duct. The gall bladder was therefore removed and a drainage tube introduced into the junction of the hepatic and common ducts. Recovery was uneventful. In March, 1906, reported to be quite well.

CASE V.

Mr. G. K., aged 53, sent by Dr. La Touche, Ossett, July 25th, 1905. Cholecystectomy; duodeno-choledochotomy. The patient had suffered for a "great many" years from pain after food, nausea, belching, distension of stomach. Four months ago, after a severe attack of pain became jaundiced, and has remained so since then. There have been many attacks of pain, nausea, shivering followed by deepening jaundice. There has been a loss of over 2 stones in weight. Stone in the common duct was diagnosed. At the operation a hard, shrivelled gall bladder with a few stones in its contracted cavity was felt, and a single pea-like stone in the ampulla. The duodenum was opened, the ampulla exposed, and a small stone seen to be projecting through its orifice. The opening was enlarged slightly and the stone removed. A scoop passed up the duct discovered no other stone. The gall bladder was then removed, as the cystic duct was found blocked, and a drainage tube passed into the hepatic duct. The patient recovered, and remains well to-day, having gained over 2 stones in weight. (March, 1906.)

CASE VI.

Mr. T. H., aged 42, April 25th, 1904. Cholecystotomy, duodeno-choledochotomy. The patient has suffered for years from "chronic dyspepsia." Three years ago he had an attack of very severe pain followed by jaundice. Five months ago a similar attack, and since then has never been free from jaundice. Has had attacks of very slight pain, and slight deepening of the jaundice; but his colour has never been more than "sallow." At the operation a gall bladder with thickened walls was found to be full of stones. The common duct was very much dilated, and a stone the size of a small Barcelona nut was felt in the lower part of the duct. The duodenum was opened to remove this, and the stone was seen through the orifice of the duct (I doubt if the ordinary form of "ampulla" was present). The opening was enlarged and the stone removed. The gall bladder was then opened, many stones removed, and a drainage tube placed in it. The patient recovered, and reports himself well in February, 1906.

CASE VII.

Mrs. M. N., aged 36, January 26th, 1906, sent by Dr. Cass, Ravenglass. For two years the patient had suffered from gall stones; there were attacks of pain in the right hypochondrium, followed by jaundice. In August last a very severe attack with a rigor and jaundice. Since then has been continuously jaundiced, though at times, if free from pain, the jaundice has almost gone, and the urine and faeces have been normal. Her last attack was on December 26th, 1905. When seen on January 26th, 1906, was very slightly sallow. Operation January 31st. The abdomen was opened through the right linea semilunaris. A stone was felt at once in the ampulla. The duodenum was opened by a longitudinal incision and the calculus extracted. The gall bladder was contracted and thickened; it contained four stones. Cholecystectomy was performed. Uneventful recovery.

For the drawings which illustrate this paper I am indebted to Miss Ethel M. Wright.

An Address

ON

SELF-RESTRAINT IN SURGERY.

DELIVERED AT THE OPENING MEETING OF THE BRADFORD DIVISION OF THE BRITISH MEDICAL ASSOCIATION, OCTOBER 9TH, 1906.

BY BASIL HALL, M.C.CANTAB.,

HONORARY SURGEON, BRADFORD ROYAL INFIRMARY.

WHEN your secretary asked me to give you a short introductory address to-night, my first impulse was to refuse, but on second thoughts, I fell in with the proposal because I felt that by so doing I should be establishing a precedent which may be followed by others who are more capable than myself. If, therefore, what I have to say is commonplace, I hope it will at least have the merit of being the forerunner of future addresses well worthy of a hearing. Nevertheless, I think that the subject I have chosen is one which we may all ponder over for a few minutes with advantage.

Surgery to-day is rapidly approaching the position of an exact science. The art of surgery has reached a degree of excellence that our forefathers never dreamt of, and in our enthusiasm we are apt to forget the old surgical axiom, "*Primum non nocere*" ("Above all do no harm.") That must be the motto ever present in the surgeon's mind, and one which should be writ large in every operating theatre.

Are we not nowadays rather in danger of underestimating the evil consequences of being too ready to resort to surgical interference? I am afraid that we must admit that there is a decided tendency in that direction. Hasty operation is the outcome of two widely different impulses. On the one hand, the timid surgeon is driven to premature and perhaps unnecessary interference by his fears of the possibilities present or to come. He argues with much plausibility that it is "better to be on the safe side," and that the consequences of unnecessary operation are as nothing when compared with the possible dangers of delay. "When in doubt, operate," is the modern surgical axiom; and, while we must all agree that it is sound as a general rule, its influence insidiously extends beyond reasonable limits, and cannot, therefore, be too carefully guarded against. On the other hand, to the surgeon of large experience, resort to operation comes easily, especially in hospital practice, where the possibility of catastrophe is reduced to a minimum by the facilities afforded for perfect technique. Probably he has arrived at that stage of his career when he has little opportunity to study ultimate results, and consequently he only infrequently realizes that immediate success has been obtained at the cost of more or less permanent disability.

This tendency to hasty operation is without doubt due to the reaction which has set in as a result of the disastrous consequences of the many "too late" operations in the past; and, whilst there can be no question that the saving of life has been enormously increased thereby, it behoves us all to take care that the pendulum does not swing to the opposite extreme, and so discredit the profession in the eyes of the public.

That there is a real danger of such an occurrence is evident from the fact that a distrust of the surgeon has grown up of late years in the lay mind. It must be a common experience amongst you all to find patients asking for a preliminary opinion from what they are pleased to term a "non-combatant." They argue that the surgeon is sure to recommend an operation, and that he cannot be relied upon to give disinterested advice. Practitioners have brought this to my notice again and again, and patients not infrequently come and ask to be operated upon because Dr. "So-and-So" has advised it. They assume that the surgeon is only too ready, and that his only object is to obtain a fee. If this attitude once becomes an established one, surgery will be reduced to the level of a trade, and we shall cease, once and for all, to hold that honourable position of which we are so justly proud.

One of the worst effects of this hasty resort to operation is the tendency to neglect clinical observation and shirk accurate diagnosis. "God intended you to use your eyes first and then your hands" was the dictum of a still famous surgeon, and one which he was never tired of impressing upon his hospital class. Now it is in our hospital residents that we most clearly see the modern attitude reflected through the medium of their teachers, and no one who is attached to a hospital can fail to recognize the change which has taken place in the house-surgeon of recent years. His interest is centred almost entirely upon major operative surgery. He can safely be entrusted with the after-care of an abdominal operation. His aseptic technique may be beyond reproach, but give him a non-operative case where careful observation and close attention is required, and he not uncommonly proves a failure. The case bores him, and he frequently hints that it ought to be transferred to the physicians. Aseptic fanaticism has been so impressed upon him, that he leaves suppurating wounds to the care of a nurse. He scorns the idea of employing drainage in wounds, considering it a confession of weakness. He frequently fails in minor surgery because his interest in it has never been stimulated and because he honestly regards it as too trivial to be worth his attention. He considers that crushed fingers are better "lopped off" to use his own phrase. He has forgotten the old axiom that "amputation is the reproach of surgery." His powers of

observation have been neglected, and he is not infrequently little better than an automaton for applying and removing dressings on aseptic wounds. It is a striking fact that although we can obtain young men from first-class London schools who are able assistants in major surgery, it is the exception to find one who can be relied upon to do the ordinary surgical work of hospital practice carefully and efficiently.

I put these criticisms before you in no carping spirit, but because they illustrate the unsatisfactory results produced by the tendency to neglect clinical study and to reduce surgery to a mere mechanical art.

Another influence at work, and a most potent one, which leads to indiscriminate resort to operation, is that of fashion in operations. As an example, I cannot do better than mention the furore for gastro-enterostomy which we have recently witnessed. A physician said the other day that patients could now be divided into two classes, those who would allow you to do gastro-enterostomy upon them, and those who would not. No dyspeptic has been safe, and had Carlyle lived in the twentieth century it is probable that much of his best work would never have been written. No one can help being filled with admiration for modern surgery when he sees the results of this operation in a case of pyloric obstruction or inveterate gastric ulcer. There are few operations which have given greater relief to suffering, but we can add with all truthfulness that there are few which have been more grossly abused. A fierce contest has raged amongst surgeons, and for what? In order to be first in the race for successful statistics. Not successful in the sense that the operation was necessary and relief was given by its performance, but in the sense that the surgeon has done more cases with fewer deaths than any one else in a given time. Consider the published statistics of the past four years. Is it reasonable to suppose that all those operations were really necessary? It must occur at once to you that the extremely low mortality suggests that they were not; for it must be remembered that excellent though the operation be, it is one which is only justified when the indications for it are urgent and unmistakable. The ultimate results are not always what was expected, and behind all the brilliant successes which have been published is a small pathetic army of failures which have not, failures which in many instances might have been avoided by a little self-restraint on the part of the surgeon. Let me give you an example of the evil done by what I have called "the race for statistics," which usually occurs when an operation becomes fashionable. Four cases of gastro-enterostomy come to my mind; one was a case of phthisis with troublesome vomiting, one a case of uraemic vomiting, a third a case of carcinoma of the colon, and a fourth a case of tabes with gastric crises. Can any one doubt that such catastrophes as these are the result of hasty and indiscriminate resort to operation, occurring as they did in the practice of able and experienced surgeons?

Closely associated with this tendency to hasty resort to operation is that of doing too much. Here again, I think, we have need to remember that there are limitations other than what I may call the vital capacity of the patient. He is a bad surgeon who is content so long as his patient survives an operation. Something more than that must be aimed at. It is not sufficient even to show that the patient has been cured of his complaint. Cure must have been effected without undue risk or sacrifice.

I should define good surgery as the maximum of success with a minimum of mutilation and suffering, and no one can acquire it if he allows himself to fall into the habit of doing more than is necessary. Nevertheless, with our eagerness for thoroughness at the present day and our confidence in asepsis, I note with regret a tendency to extravagant incisions, a want of gentleness in manipulation, and a disrespect for various organs and tissues which, although it may not appreciably affect the mortality rate, is frequently followed by more or less permanent discomfort and disability. I am afraid you will think I am carrying my case to a *reductio ad absurdum* when I tell you that even the division of a few cutaneous nerves is not without its drawbacks, but I know from personal experience that the after-effects are productive of no inconsiderable discomfort, and the extensive scar upon which the surgeon so fondly gazes is not a pleasant lifelong companion.

We are all inclined to minimize the objections to an operation, to think that if recovery follows, the patient is as well as he was before his tissues were divided. He passes from observation, and we do not see the overgrown or widened scar, we do not appreciate the weakness of the divided muscles or the stiffness of the opened joint. Think of the numbers of those whose comfort, whose earning capacity has been seriously diminished by the resultant weakness of the abdominal wall or by internal adhesions. Of course in the vast majority, these are only the necessary price paid for relief from suffering or for the saving of life; but the possibility of such results should never be lost sight of when it is a question of an operation that is not distinctly necessary.

Other examples of excessive and injudicious zeal are to be found in the tendency to meddlesome treatment of joint injuries and fractures. Ankylophobia is the disease of the modern surgeon, and his patient often suffers severely from its ill effects. I do not for a moment wish to disparage the valuable results to be obtained from massage and passive movement, used judiciously and at the right time, but I deprecate the wholesale and injudicious way in which it is often applied. A well-known American authority, referring to the abuse of passive motion, writes as follows: "The common cause of early limitation of movement in joint injuries is the inflammatory exudate in the periarticular tissues, and the ultimate functional result will depend upon the degree of restoration of those tissues to their normal condition. The more severe the injury, the more violent the reaction, and the greater will be the production of cicatricial tissue. The degree of reaction is the only one of these factors which our treatment can affect, and it can best affect it by those means habitually employed in other allied conditions, namely, rest, position, pressure, and the avoidance of all measures which would increase it. Early passive motion, especially if pushed to the point of pain, violates that principle. If pushed to the point of rupturing new-formed cicatrices, it simply inflicts another traumatism, which in its turn requires rest for its relief. The reaction, instead of being diminished, is increased and added to, and the patient has then to recover, not only from his original trauma, but also from the second one which we have inflicted upon him."

In conclusion, I would refer to the obstetric art, a branch of medicine of which my experience is scarcely more than that of a looker-on. I notice from time to time that letters appear in the journals from gentlemen who urge that natural parturition is at best a tedious and unsatisfactory affair, and that every one should be unceremoniously dragged into this world "by force of arms." Yet every hospital surgeon can testify to the fact that instrumental delivery accounts for four-fifths of the cases of gynaecological surgery, and I would urge upon these gentlemen that there is still much truth in the old saying, "Meddlesome midwifery is bad." Let us therefore make no mistake. Promptness is everything, but haste is not promptitude, and recklessness is not thoroughness. "Although the warning comes from an older surgery whose pains, mutilations, and disasters have been greatly reduced by its successor, yet it finds a new appropriateness in the very defects of the qualities of that successor, in the vast expansion of its operative interference, in the ease and general safety with which that interference can be carried through, and the consequent ready resort to the knife, and even in the necessary and valuable differentiation of practice into specialities, which so often narrow the field of that vision which they at the same time render so acute. We are carried along towards horizons of great promise and brilliancy, upon a current of great intellectual activity, and there is danger that some of our therapeutic barks may be carried far beyond the quiet harbours where they might well find the end of their journey and a station for beneficent employment. The forces which induce dissatisfaction with current methods of treatment and turn us towards earlier, more frequent, and more radical operations are numerous. One of them—and perhaps the most important—is the general ease and security with which surgical operations are now carrid out and recovered from. In the days—not so long past—when almost every wound suppurated, and when the rate of mortality after operation was high, the knife was often more, or more immediately, dangerous than the malady against which it might be directed. But now it has become so efficient and so safe a remedy that the temptation is strong to resort to it, to the neglect of other means which are slower, even if equally efficient,

and even to facilitate diagnosis. To very much of this no sound objection can be made. The objection is in the careless, the hasty, the inconsiderate, or the self-interested application." Let us beware, therefore, lest our judgement is warped by our enthusiasm. We hold in our hands an enormous potentiality for good or for evil; let us take care that we use it aright and strive to earn the epitaph of Guy de Chaulliac:

> Bold when sure,
> Cautious in danger,
> Kind to the sick,
> Friendly with fellow-workers,
> Not greedy of gain.

A CASE OF SUPRAPUBIC LITHOTOMY WITH ENUCLEATION OF THE PROSTATE IN AN AGED PATIENT: RECOVERY.

By H. LITTLEWOOD, F.R.C.S.Eng.,

SURGEON TO THE LEEDS INFIRMARY; PROFESSOR OF SURGERY IN THE UNIVERSITY OF LEEDS, AND CONSULTING SURGEON TO THE VICTORIA HOSPITAL, KEIGHLEY.

On May 26th, 1904, I was asked to see a patient in his 90th year, suffering from stone in the bladder with an enlarged prostate. He was a well-preserved man, who had led a very regular and careful life and had been getting about until a week previously.

At times he suffered from a good deal of pain in the bladder and penis, sometimes passing a little blood in the



urine. The urine contained pus, was alkaline and very foul. He had had three or four rigors during the few days previous. On examining with the hand above the pubis, a large stone could easily be felt, and rectal examination revealed an enlarged prostate filling up the greater part of a rather small true pelvis.

After talking the case over with his medical man, we told him he could not go on much longer, and that at his advanced age an operation would be a very serious matter; he might possibly have a 5 per cent. chance. After hearing our decision, he said at his age he could hardly expect to have his life much prolonged and thought he would not have an operation. I had to wait some time to catch my train, and just before starting he asked to see me again; he then said, "I have been thinking the matter over and have decided, if you will do the operation, to have the 5 per cent. chance."

I went over the next day and performed the operation. Chloroform was administered. I opened the bladder, without injecting anything to distend it. After securing the cut edges of the bladder to the abdominal wall by means of two catgut sutures, I removed the stone and got the bladder quite dry by gauze packing. I then enucleated the prostate in one mass, and with it a portion of the urethra. The cavity from which the prostate was removed and the bladder were packed with long strips of gauze; by this means all bleeding was easily arrested, and the urine drained readily through the gauze without any collecting in the bladder. The whole operation was performed in less than thirty minutes, and the patient stood it well.

The calculus weighed 2½ oz., and was composed almost entirely of uric acid. The prostate weighed 3 oz. 1½ dr.

The packing was removed on May 30th and a large drainage tube inserted; this was removed at the end of a week. All stitches were removed on June 10th.

A catheter was passed on July 1st. After this some urine passed the natural way. The catheter was again passed on July 17th and July 21st, and on the latter two occasions there was afterwards some rise of temperature with slight rigors; otherwise the temperature throughout was subnormal. The patient got up at the end of a fortnight, and went away to the seaside on August 27th.

The suprapubic wound was very slow in healing, and was firmly united on October 29th. After that date all the urine passed the natural way, and he had a very comfortable life, getting out every day, and walking sometimes as far as two or three miles. He took a keen interest in everything. His chief amusement was translating some of the classics—Italian, Greek, and Latin. Twelve months after the operation he had translated into verse the *Inferno* of Dante, Cantos 1 to 9; this was printed for private circulation. He died on June 4th, 1906, of uraemic coma. I received the following letter from his son on June 8th, 1906:



Until three or four weeks ago my father was in his usual health, walking and sitting out of doors daily, and following his favourite occupation of translating from the classics. About that time he became unwell, and there was, we think, some sense of failing powers. He said very little about it, but was much depressed. He lived, however, much his usual life, and they carried out their plan of going down to Saltburn, thinking the sea air would do him good. On Sunday night, June 3rd, he had a shivering fit, became comatose, and died twenty-four hours later.

The great age of the patient who successfully recovered from such a severe operation has determined me to place on record the notes of his case. The great majority of surgeons attached to large hospitals must have had successful operations of this kind in very old men, but, as far as I have been able to find out, no case of a similar operation at such an advanced age has been recorded. To me it is an extraordinary fact that these patients make such wonderful recoveries.

The frequent association of stone in these cases is noteworthy. About the same time this patient was operated on I operated on three others—ages 77, 79, and 80 years—removing calculi and enucleating the prostates. All made good recoveries, and are now practically free from any urinary trouble. One patient, aged 77 years, a clergyman, had, prior to the operation, used a catheter regularly for seventeen years.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF LARYNGOLOGY AND OTOLOGY.

J. Dundas Grant, M.D.Edin., F.R.C.S.Eng., President.

A DISCUSSION ON THE TREATMENT OF DEVIATIONS OF THE NASAL SEPTUM.

OPENING PAPERS.

I.—StClair Thomson, M.D., F.R.C.P.Lond., F.R.C.S.Eng.,

Physician for Diseases of the Throat in King's College Hospital; Surgeon for Diseases of the Throat, Nose, and Ear in the Seamen's Hospital, Greenwich.

Let me first express the pleasure I feel in being honoured by a request to open the subject of our discussion to-day. I feel it the more, as this Section promises to be not simply a meeting of British laryngologists, but a congress of English-speaking specialists.

I take it that the efforts of the opener should be directed to limiting the subject we are called on to debate, while bringing out the points which promise to be most fruitful in discussion. If I omit a good deal of what one would find in a formal treatise or essay on the subject, it is because I realize that I am speaking in a gathering of experts where much of an academical nature may be taken for granted. We are here to confer on matters which are still in course of evolution, to clarify points which are still hazy, to exchange views on dangers or difficulties, to render more certain and simple methods which at present are uncertain or complicated, and to get rid of outgrown conceptions and proceedings.

The field of discussion is cleared for us by the title of debate. We are not asked to consider the pathology or indications for treatment in septal deformities, but to debate the methods of cure. In opening this discussion I will also endeavour to abide by the request of our President—that is, that our remarks should, as much as possible, be based on personal experience. In this way each of us may hope to add something of value to the subject, and no one need aspire to embrace it all.

That the subject is well chosen will be evident to any one who cares to peruse a debate at the Laryngological Society of London held three years ago,[1] devoted to the After-treatment of Intranasal Operations. Although this debate included operations on the turbinals, much of it was concerned with what we are called on to discuss this morning, and the remarks of Mr. H. T. Butlin paint a vivid picture of the troubles which, until quite recently, we all met with only too frequently. He said:

> While I have had no difficulty at all in many cases, there have been other cases in which no kind of after-treatment has seemed to be attended with success. The more one does for some patients, the worse they seem to be. The difficulty of preventing adhesions, of maintaining the large passage one has made at the time of the operation, of raising the valleys and keeping them up, of lowering the hills and keeping them down, etc., is enough to choke off the youngest and most stout-hearted of nasal surgeons. There have been patients with nasal troubles on whom I have operated, whom I have afterwards heartily wished I had never seen. Of course, I hear of nasal surgeons who never meet with such cases as these. I can only congratulate them. But I can truthfully say that I have been consulted by patients of many of the best nasal surgeons in this town on account of the failure, or very partial success, of operations which they have undergone; and I have no doubt, on the other hand, that some of my failures have in like manner consulted some of my colleagues among the members of the Laryngological Society. Each of these patients always seems to think that, had the operation been performed by some other surgeon than the man who did operate, he would have been a sound and happy man.

In opening the above debate Sir Felix Semon deplored that the after-treatment should occupy a period of many weeks. He described an imaginary typical case of nasal stenosis, and after detailing the formerly usual treatment, he laments that only too often the net result is that when the healing of the wound has been completed, the permanent enlargement of the passages is much less considerable than it was at the moment of the completion of the operation.

Many other members of the Laryngological Society were equally candid, and expressed a want of satisfaction with septal operations. Our debate to-day will, I have no doubt, demonstrate how recent progress has altered this.

Deviations of the septum include obstructions caused by deformities in the quadrilateral cartilage, the ethmoid, vomer, or maxillary nasal spine. Any attempts to classify these deviations are unsatisfactory. Even the division into two groups of cartilaginous and bony deviations fails to embrace the majority of conditions met with. When, occasionally, the deviation is limited to the cartilaginous septum, the operation of Asch will restore the patency of one obstructed nostril. I have not performed it more than half a dozen times; they were carefully selected cases, and the results were satisfactory. Moure's operation I have never tried, but I have seen the results, and think they can be improved upon. I have no experience of the Gleason or Hajek operation, and it has always seemed to me that it would only partially correct the deviation in one nostril, while tending to obstruct the opposite one. A bony deviation, springing from a more or less vertical septum, has generally some cartilage in part of its length. It can be removed with a saw. I have no experience of electric drills or trephines, nor of electrolysis.

But the majority of septal deviations are compounded of deflections and outgrowths of both cartilage and bone. In many cases both nostrils are more or less obstructed. Until recently I knew of no method which could deal with such cases satisfactorily. To produce a large perforation in the septum always appeared to me inartistic, unsurgical, and in many cases ineffectual, for the obstruction not infrequently ran so far back as to be beyond it. Our President has expressed the opinion that it is most undesirable to produce a perforation. It substitutes one deformity for another; and, as Mouret and Toubert observe, it is not a treatment, but a *confession d'impuissance*.[2] To shave off the crest of these deviations seldom leaves any tangible patency, while those rhinologists who talk of "simply pushing the weakened septum into the median line" can only be admired for their faith in the malleability of the septum, while we congratulate them on the tolerance of their patients, who will bear the necessary renewal of packings or splints for three weeks afterwards. The rough, unsurgical, and ineffectual use of Adam's forceps and such like barbarous contrivances already belongs to the past history of rhinology.

For my own part, the deviations most requiring treatment were formerly just those in regard to which I felt most powerless. In some cases I avoided operation on the septum by removing part of the turbinals, but in many I felt compelled to advise the patient to tolerate his nasal stenosis, as I knew of no satisfactory method of correcting it. A few years ago I would only operate on half a dozen septa in a session, but now I feel justified in operating on forty or fifty. This confidence is begotten of the adoption of the method of excising septal obstructions by the submucous method, and I take it that our debate will be largely concerned in discussing the methods, difficulties, advantages, and disadvantages of this operation, while considering simpler measures which may sometimes be used instead of it. My own technique need only be briefly outlined, as I have recently described it in detail.[3]

If I give a short sketch of it, my purpose is chiefly to

[1] Vide Proceedings, November 6th, 1903, vol. xi, p. 1, reported in the *Journal of Laryngology*, January, 1904, vol. xix, p. 22, and *The Laryngoscope*, January, 1904, vol. xiv, p. 48.

[2] *Société Française d'Otologie*, etc., May, 1906.

[3] *Transactions of the Royal Medical and Chirurgical Society*, June, 1906; and *Lancet*, June 30th, 1906.



Fig. 1.—The incision is made, on the convex side, through muco-perichondrium and cartilage, from *A* to *B*. If the free end of the quadrilateral cartilage is displaced from behind the septum cutaneum, and presents in one nostril, then the incision is made from *a* to *b*.



Fig. 2.—The muco-perichondrium has been raised from the convex side of the septum, and the cartilage has been cut through (from *A* to *B* in Fig. 1). The dull-edged detacher is shown separating the mucous membrane from the concavity of the deflection.



Fig. 3.—The arrows indicate the points where the chisel may be applied when exostosis of the nasal maxillary spine requires removal.

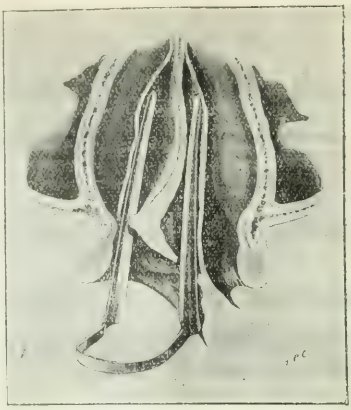


Fig. 4.—Semidiagrammatic drawing of a transverse section of the nose, viewed from above. The deviated septum has been divided in front, and its muco-perichondrium has been stripped up on each side. The nasal speculum is introduced through the convex nostril, and a blade is inserted on each side of the septum, between it and its mucous covering.



Fig. 5.—The shaded area indicates the extent of bony and cartilaginous septum usually requiring removal.

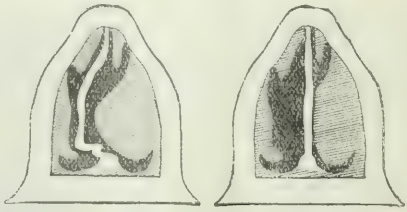


Fig. 6.—Diagrammatic transverse section of the nose. Shows the compensatory hypertrophy of the inferior turbinal in the unobstructed nostril. Part of this frequently requires removal after the septum has been straightened.

refer to points which call for discussion. Anaesthesia and ischaemia are produced by the surface applications of cocaine and adrenalin, employed twenty to thirty minutes before starting the operation. With the patient on an operating table, in a sitting posture, an incision is made on the convex side ½ cm. behind and parallel to the junction of skin and mucous membrane (Fig. 1, *a* to *b*). The incision, with practice, can be carried through the mucosa and cartilage at one stroke, without puncturing the opposite side. The mucosa and muco-perichondrium are stripped up off the convexity. Through the incision in the cartilage the membrane of the concavity is similarly separated (Fig. 2). The main part of the denuded cartilage is then excised with Ballenger's swivel septum knife. Remaining portions of cartilage, and the ethmoid and vomer if deviated, are removed with Hartmann's forceps. The nasal maxillary spine, or the anterior extremity of the vomer, is next laid bare and attacked with chisel and hammer (Fig. 3). By prising this up we can expose the vomer with any spur or crest, and separate its muco-perichondrium on each side down to the floor of the nose (Fig. 4). The vomer is then followed backwards as far as necessary, sometimes even close to the neighbourhood of the choanae, until we find that the fleshy septum hangs perfectly plumb in the middle line (Fig. 5). All this can be done through the one incison described. If the free end of the quadrilateral cartilage projects into one nostril, the incision is made over it (Fig. 1, *a* to *b*). The incision is closed with one or two sutures, and the nostrils are lightly packed for forty-eight hours with sterilized cotton-wool, well smeared with plain vaseline. Afterwards no treatment is required beyond the occasional use of a cleansing alkaline lotion or some oily application. Removal of portions of hypertrophied turbinals may subsequently be required, especially in the formerly unobstructed nostril (Fig. 6).

The first case of this operation, shown at the Laryngological Society of London, was presented by me on May 6th, 1904. At the debate in November, 1903—already referred to—I expressed the opinion that this was the most promising of septal operations, and further experience has strongly confirmed me in this view.

The objections which may be raised will call for our discussion to-day. The chief ones are: (1) The difficulties of the technique; (2) the anaesthesia; (3) haemorrhage; (4) stitches; (5) possibility of collapse of the bridge of the nose; (6) danger from subsequent blows on the nose; (7) unsuitability for children.

The technical difficulties disappear with practice and patience. Haemorrhage has never given me trouble, and I am surprised to read of surgeons who refer to it and the frequent mopping required during the operation. The method of anaesthesia described renders the operation painless until we come to the removal of bone, which is disagreeable. I have tried, and have abandoned, the submucous injection of cocaine and adrenalin. My first cases were done under chloroform, and I have recently reverted to it for nervous patients requiring an extensive operation. The stitches expedite healing. No collapse has occurred in any of my patients, and Freer's experience shows that there is no added risk from subsequent blows on the nose. Under 16 to 18 years of age there is increased difficulty in operating in narrow noses, and at an earlier age there is the possibility that it might hinder complete development, and the risk of the deviation re-forming if not very completely removed. But other surgeons will doubtless give us their experience on these points.

The more actual objections which occur to me are the following: (1) Incompleteness of operation; (2) flapping septum; (3) previous operations.

Some surgeons—not infrequently those who are late in adopting the method or whose experience is limited—have recently attempted to disparage the difficulties of the operation. Such an attitude can only be based on incomplete removal of deviations, often induced by anxiety to perform it quickly. Other operators even say that this completeness is uncalled for, as it is sufficient to free the obstructed nostril to secure "reasonable patency." But if we are able, by an operation so rapid in its results and so free from disagreeable after-treatment, to secure a complete and permanent bilateral air-way, surely it is only right that we should do this for our patients. It is incomplete operation which causes the flapping condition in which, during quick inspiration, the fleshy septum is sucked against the outer wall of the narrower side, thus leaving the patient with only one free nostril. If the operation is carried out perfectly, both sides are equally free, and the septum, though flaccid, will remain vertical. The careful preservation of the perichondrium secures greater firmness of the fleshy septum. Previous treatment renders the operation more difficult; the mucosa may be changed into scar tissue adhering closely to the septum, or the two mucous membranes may be united together, and the task of separating them becomes most difficult. This last difficulty is a strong argument for operating completely at the first intervention.

The advantages of this operation may be summarised as follows:

1. No general anaesthetic required.
2. No haemorrhage.
3. Absence of pain and shock.
4. No reaction. The post-operative temperature seldom rises above 99° F.
5. Absence of sepsis, with its possible extension to ear, sinuses, or cranial cavity.
6. No splints required and no plugs after forty-eight hours.
7. Rapid healing, without crust formation.
8. No risk of troublesome adhesions.
9. Short after-treatment.
10. Speedy establishment of nasal respiration.
11. Suitability for all deformities of cartilage or bone in the septum requiring treatment.
12. The space gained is not only that resulting from a vertical septum, but the extra room secured by removal of the cartilage, which is sometimes ⅛ in. in thickness.
13. No ciliated epithelium is sacrificed.
14. Accuracy of result can be depended on, and the prognosis is, therefore, the more definite.
15. Improved appearance of the nose externally.

I do not wish to magnify our office, but it is wrong both to our patients and ourselves to minimize, by adopting a half-measure, an operation which, with skill and patience, can result in so much permanent benefit to those requiring it.

Nasal treatment is too often labelled as consisting in "trifling operations." So long as the beneficial results were insignificant, this may have been justifiable, but as we advance to more certain and perfect measures, surgery should claim as assured a position when directed to the nose, as it does in regard to other organs or cavities of the body.

At the same time we must not allow ourselves to be carried away in regard to the submucous operation. While it is applicable to all deviations, even the worst, it must only be employed when we are convinced that it is called for, and that no simpler measure can take its place. And when we talk of a simpler measure, we should mean one which is not only of easier performance, but which in its execution and after-treatment will be as effective in curing the patient *tuto, cito, et jucunde*.

II.—John O. Roe, M.D.,
Rochester, N.Y.

The title of this discussion brings us at once to the well-recognized fact that there is more than one method employed for the correction of deviations of the septum, although the author of each method may regard his operation as the *sine qua non* for all forms and conditions of deviations of the septum that we may encounter.

It would be interesting, did time permit, to note the evolution and also the desuetude of the different methods that have been brought forward for the purpose of straightening deformed septa, or for the removal of the obstructing portion, from the Blandin punch down to the last method of resecting the cartilaginous and bony framework. With the exception of the punch—which removes rather than corrects the deformity, and leaves that which is most undesirable, a perforation of the septum—every method has some desirable feature which makes it better adapted for certain cases and conditions than any other method.

It often happens, however, that some operators who attempt an approved method do not grasp its principles fully or have not acquired or do not possess the necessary skill, or who employ the operation in cases where it is not adapted, and, failing to get the good results reported by the author, abandon and condemn the operation.

In many cases the deviation of the septum may be so complicated as to require for its correction the combination of two or more methods in one operation. For instance, in the deviation of the cartilaginous portion without marked thickening, the Watson, the Gleason, the Asch, or the Roberts and the pin method of holding the septum in place may be especially advisable; while, if complicated with deviation of the osseous or osseo-cartilaginous portion, the method of fracturing it by means of comminuting forceps, the writer's method, is believed to be the best and easiest. Therefore, when different conditions are combined in the deformity, different operations should be combined for its correction.

The operations required for the correction of the nasal septum may be divided into those required for the preliminary work of putting the nasal passages in proper condition, and those for the straightening of the septum itself. The preliminary work of removing the associated abnormalities of the nasal passage before the main operation is, judging from the lack of reference to it by the writers on the subject of deviations of the septum, commonly overlooked, although highly important.

In determining such associated abnormal conditions, it is important to ascertain so far as possible the etiology of the deflection, whether resulting from an extrinsic cause or from an intrinsic condition, for the etiology of the deflection often has an important bearing upon its treatment. If a diathesis, as strumous, tuberculous, rachitic, or a syphilitic disease, has been the predisposing cause, the general condition of the system should first receive particular attention.

If due to defective development, or to unequal development of the nasal chambers, to disease or disorders of the septum or other portions of the nose, no preliminary constitutional attention may be required; but it is still important that all such conditions should be taken into consideration in the correction of the deviated septum, in order properly to provide nasal passages of equal capacity for respiration.

Having determined these conditions, it is also necessary before correcting the deviation of the septum to remove such conditions as have contributed directly to the cause of the deviation, or are active in maintaining it. If, in the case of a child, the deviation be due to a contracted superior maxilla and a high arched palate, the result of obstructed nasal respiration from adenoids and enlarged tonsils, these latter conditions should first receive attention; the tonsils and the adenoids should be removed, and the jaw expanded by the orthodontist to its normal proportion, when, in many instances, the septum and palate will resume their normal position.

If the septum has been crowded over by an enlarged or expanded middle turbinal cell, or deformed turbinated bones, these should be removed, for it would be impracticable to restore the septum to its normal position with these obstructions standing in the way.

It is also highly important to remove such conditions as would cause either nasal passage to be obstructed when the septum is placed in the median line. It is quite common to find nasal passages on the concave side of the septum more or less obstructed by hypertrophy of the turbinals, enlarged ethmo-turbinal cells, polypoid or other growths. While not impinging upon the septum in its deflected condition these obstructions would, in most cases, close the passage completely, if the septum were put in the median line.

It is likewise necessary to remove minor irregularities of the septum, except when the operation of submucous resection is to be performed. In many instances enchondromata and exostoses and local hypertrophies of the soft tissues are found upon one side of the septum, giving it the appearance of being deflected when viewed from that side only.

Frequently we find a pad of tissue located opposite a vascular turbinate, produced by frequent attrition of the erected turbinate against the septum, causing what I have somewhat figuratively termed "septal corns." These conditions should, as a rule, be removed beforehand, so that the septum is reduced to a uniform thickness throughout, permitting the parts to become healed before the operation for the correction of the deviation of the septum is undertaken.

On undertaking the main operation it is especially important to carefully select the operation best suited to the form and conditions of the deflection, and the associated conditions of the nasal passages.

If there is a marked thickening of the septum, the submucous resection is especially called for. In other cases, if the set or lower attachment of the septum is at one side of the median line, and otherwise generally straight, the Watson or Gleason operation is especially adapted. If the deflection is confined to the cartilaginous portion, the Asch might in some cases be of special service; whereas, if the osseous or the osseo-cartilaginous portion is deviated, the Roe operation by the use of fenestrated comminuting forceps is the one to be selected.

As I have already stated, no one operation is adequate to all conditions in all cases, but each is adapted to a certain variety; and, therefore, one operation is often a supplement to others. The one operation which I have mentioned, which will be found more often to meet the requirements of different cases, or to supplement other operations, is the Roe method of fracturing the septum by comminuting forceps.

Deviations of the septum, as first and best classified by Jarvis, may be divided into osseous, osseo-cartilaginous, and cartilaginous.

The most frequent form is the osseo-cartilaginous, occurring in about 60 per cent., while deviations of the cartilaginous portion alone do not exceed 30 per cent. Therefore, other things being equal, the form of operation best adapted for the correction of deviations of the osseo-cartilaginous portion should be twice as often called for as those adapted for the correction of the cartilaginous portion alone. In nearly all instances the bend in the septum found in the osseo-cartilaginous cases takes place at or just behind the osseo-cartilaginous junction or articulation: consequently, in order to overcome all resistance, it is necessary to fracture this portion of the septum so as to change the direction of that portion of the septum below this point, much in the same manner that the direction of the hang of a door is changed at its hinges.

This operation, therefore, is of special service in correcting deflections of the osseo-cartilaginous portion, and in those cases in which the general direction of the septum at this point requires changing, and is, therefore, a valuable supplement to other operations. It also becomes a valuable adjunct to the submucous resection operation, where there is no marked thickening of this portion of the septum, rendering it unnecessary to resect the osseous portion when it can be so easily and quickly fractured and placed in the median line.

In these cases of moderate deflection, the long deviation, this operation will be found of special service, for it is with the greatest ease that the septum can be placed in the median line.

For overcoming the cartilaginous resistance supplementary incisions at the salient points nearly through the cartilage from one side to overcome the resistance may be required.

In dealing with those cases of marked local thickening of the septum, a favourite method of mine is the submucous removal of sufficient amount of this thickened portion to reduce the septum to its normal thinness. This I do by raising the perichondrium or periosteum from the convex side throughout this thickened and deflected portion. This is carefully cut away with a cartilage knife or saw, as the case may require, and the elevated perichondrium replaced and held there by gentle packing of the nostril. In this way the removal of the entire cartilaginous or lower portion is avoided with a better result and comparatively no liability of perforations. Spurs, ridges, and excrescences of the septum I also remove in this same subperiosteal manner.

The comparatively new operation of submucous resection has recently become so popular that every bent septum, regardless of conditions, is at once elected for this operation, which in many cases is much better corrected by other operations, with very much less liability to large perforations resulting therefrom.

This is particularly the case in thin septa, in which the tearing of the perichondrium or periosteum is quite apt to take place, and which I have found difficult to avoid, or the vitality of the membrane is so seriously impaired thereby that perforations result.

It is important to refrain from the performance of sub-

mucous resection in these cases where the lower portion of the nose is undeveloped and inclined to flatten already, and when any further weakening of the support would lead to depression of the anterior portion of the nose. This liability should be taken into special consideration in the case of children, where the development of the nose is not completed.

The enthusiasm for the operation of submucous resection is very likely to cause the operator to overlook this danger of so weakening the septum as to cause flattening of the anterior portion of the nose. While this liability is disclaimed by many operators, it is nevertheless true, the writer has observed, in cases that have been operated on by some of his *confrères*, that this result is liable to take place; and in children, in whom the development of the nose is incomplete, these developmental centres should not be removed.

III.—George R. McDonagh, M.B., L.R.C.P.,

Toronto.

In undertaking to discuss the subject of operations for the correction of deviations of the nasal septum, I cannot help a feeling of embarrassment in attempting to do so before such a distinguished audience, all of whom are so intimately acquainted with every feature of it. I fear that I am unable to add much that is new to the discussion or to bring forward any new operation, but having had a fair experience in dealing with these cases for many years, I shall merely restrict myself to expressing any opinions I may have formed based on the results of my own work.

I think that it will be generally admitted that the operation which has been most lately introduced, namely, the submucous resection operation, deserves the foremost and fullest consideration. In suitably selected cases no other operation which has been proposed has ever, at least in my hands, produced nearly such good results, and I think great credit is due to those men who have introduced it, and have done so much to devise the instruments and elaborate the delicate technique required for its success. Before speaking of this or other operations for the correction of nasal deviations, I wish to allude first to the prime necessity for the operation—that is to say, the obtaining of sufficient space in the nasal passages for free breathing. Other ill effects are, of course, often produced by septal deviations, such as various neuralgic pains, headache, sneezing, and perhaps asthma and hay fever; but the obstruction to free breathing through the nose is the most important consideration, and it is from this point of view chiefly that I wish to discuss the operations for the correction of them. In many cases, even when there is some deviation of the septum, obstruction to free breathing is kept up more by enlarged, or hypertrophied, or intumescent turbinals, than by the deviation itself, and in many cases these enlarged turbinals may have tended to produce, and still tend to increase, the septal deformity. Therefore I would urge, first, the importance of giving such attention as may be required to these other causes of obstruction before undertaking what may be considered a rather serious operation on the septum. I do not think that a perfectly symmetrical septum is by any means a matter of special importance, or that slight deviations, small spurs or ridges—if they chance to exist—must necessarily be removed, unless, indeed, such unsymmetrical septum or spurs interfere with normal nasal breathing, or cause other symptoms of importance. With this view in mind, therefore, and before discussing the complete resection operation, I wish to refer to a large number of cases which are difficult to classify, but in which much simpler operations will suffice to attain the desired result—that is, free breathing space—without resorting to the rather radical and difficult operation of submucous resection. Such cases are those in which there is marked thickening of the bone or cartilage, spurs, ridges, and such like outgrowths on one or perhaps both sides of the septum, without much or any corresponding concavity on the other side. In such cases I do not think it necessary (or at least in very few of them) to do the complete excision operation. I think other and simpler methods will suffice. I have been in the habit of doing what I might describe as a modified submucous operation, by raising the mucous membrane off the spur or ridge, as is done in the ordinary resection operation, and then with a knife or Bosworth saw removing the cartilage or bone as nearly to a plane as possible, and finally replacing the mucous membrane over the cut surface. This is the same operation in principle as that proposed by Bosworth long ago, but it has the great advantage of requiring only a brief time for healing, and so avoids the long process of granulation required and the accompanying discomfort to the patient, which exists when the mucous membrane is removed with the bone, as in the Bosworth operation. I have done this simple operation quite frequently and have been almost always satisfied with the result. It certainly will not produce a straight septum in all instances, but in such cases as I have referred to, namely, when the obstruction is due to outgrowth or thickening, a satisfactory breathing space can be obtained. A simple type of deviation, and frequently met with, is a slight vertical ridge just behind the columella. Ordinarily this does not obstruct breathing materially, but when the person is lying on the opposite side the ala on the deviated side falls in against the ridge and acts like a valve in preventing inspiration. In such cases, if the mucous membrane is elevated and a strip of cartilage cut off with the knife, it is astonishing how much relief is obtained, not so much from the amount of tissue excised, but that it has been sufficient to prevent the valve-like action with the ala. In many cases also I have had excellent results from what is known as the Gleason operation, in which a U-shaped or horseshoe-shaped flap is made, including the deflected portion, which is then pushed through into the opposite fossa. A better result is usually obtained in this operation when some thickening of the septum exists, or when, as in vertical S-shaped deviations, there is some projection or shoulder on the concave side on which the flap will catch, and which will hold it in position without artificial supports. With the Asch operation I regret to say I have not had good success. Probably the fault lay more with the operator than with the operation. But in all operations of this character, where incisions are made through the septum and the fragment placed in the new or straight position and held there by artificial means, such as pins, plugs, or tubes, and even when these are worn for many weeks, there always exists the tendency, owing to the natural resiliency of the cartilage, for the parts to eventually resume their former positions.

Although I have mentioned these older plans of operation first, I do not wish it to be understood that I think they at all compare in usefulness or in perfection of result to the complete resection operation, or that they can do more than take its place in certain cases, but rather to suggest that if a simpler and safer plan will suffice in any instance to attain the desired result that plan should be resorted to. Of the submucous resection operation I cannot speak in too high praise, and in suitable cases no other operation can take its place.

The special class of cases to which it seems to be particularly adapted are those in which there is deflection without much or any thickening of the cartilage—as, for instance, dislocation of the columnar cartilage, obstructing one nostril, and also deflection of the cartilage more posteriorly or of the perpendicular plate, but without thickening. In such cases no other operation ever gave me satisfactory results, and I think I have tried most of them. I have tried parallel incisions, stellate incisions, and other varieties, and have endeavoured to so weaken the cartilage as to overcome its resiliency completely, and I have had my patients wear the Asch tube or some modification of it for many weeks, with at the time apparently good results; but in three or six months later more or less return to the old deviated position had taken place.

For such cases I think a solution of the difficulty is to be found in the resection operation. In all these cases of simple bending of the septum to one side, which used to be the most difficult for me to manage, I can now assure my patient with reasonable confidence of a good result. As far as I can judge from numerous articles written about the resection operation, the writers are of the same opinion that in all cases every fragment of bone and cartilage down to the maxillary crest should be removed. I cannot, however, bring myself to believe that such very complete excisions as removal of the whole of the vomer, cartilage, and perpendicular plate

can often be necessary, and it may be that the enthusiasm for thorough operations on the septum, and perhaps the degree of expertness arrived at by the operator, has caused the pendulum to swing beyond a judicious limit. If by any chance this should be so, a happy medium will be reached in due time, and when the operation is restricted to suitable cases only, and to the removal of such portions of the septum only as interfere with nasal breathing, it will be one of the most valuable in surgery.

It is unnecessary for me to refer to the technique of this operation. This has been most thoroughly elaborated by writers on the subject, and the essential principles of the technique are now fairly familiar to all. Different writers differ more in detail than in principle, and each operator will adopt such modifications as may seem to him most convenient in carrying out his ideas. Of the objections to the operation which I have noted, I may say first that the difficulty of performance should not be held of great consideration, because with practice that can be overcome, and ought not to be argued against the principle of the plan. Secondly, there is the danger of the falling in of the bridge. Ordinarily this does not seem to take place, certainly not in recently operated cases; but in the event of blows or falls on the nose subsequently, I imagine that serious deformity might result, and this is an argument against a too radical operation, if it can be avoided. Also the eventual results of the operation on young people before the nasal framework has arrived at full development are uncertain. Thirdly, the danger of perforation of the septum is not great, certainly not of large ones, and small perforations do no more than sentimental harm. Besides, as we become more expert in operating, we may fairly expect perforations to be of rarer occurrence. Fourthly, the introduction of horsehair sutures are, I think, a decided advantage, particularly, of course, when a perforation has been inadvertently made, but in other cases as well the sutures tend to hold the mucous membrane in place when it might be dislodged accidentally by the packing. As to the dressing, I have found that a strip of thin rubber sheeting or oiled silk placed over the septal mucous membrane before the gauze packing is introduced greatly facilitates its removal when that is necessary, as it avoids any adhesion of the gauze to the mucous membrane, and therefore lessens the danger of disturbing its position. As to the anaesthesia, I find cocaine gives practically complete anaesthesia, and, except in very nervous patients, allows of satisfactory manipulation, but I have observed considerable depression following during that night and next day. Whether this is due to the cocaine I am unable to speak with certainty, but I think it is. As to the position of the patient, I have found the sitting position tend so much to syncope, that I have adopted by preference the horizontal position with the head fairly high. The inconvenience to the operator is only slightly increased.

Finally, as to the operation in children, I believe that, unless very necessary, it would be well to postpone it until more nearly full development of the nasal framework had taken place. Evidence of Eustachian or middle-ear catarrh, for instance, or other symptoms of gravity, would, I fancy, justify the operation in children, but in such cases surely no more of the cartilage or bone should be removed than absolutely required.

In conclusion, I wish to state that, other things being equal, I think a patient is better to be in possession of the natural supports of his septum—that is, the cartilage and bone; if any plan can be devised short of removing these supports, and if any simpler or less radical operation will suffice, that should be performed. Also, I do not think it judicious to advocate the complete resection operation for septal deviations, or to recommend that more of the cartilage or bone should be removed than is absolutely necessary to attain the object for which the operation is undertaken.

IV.—OTTO T. FREER, M.D.,
Chicago.

THE PROBLEM OF THE CORRECTION OF DEFLECTIONS OF THE NASAL SEPTUM SOLVED BY THE SUBMUCOUS RESECTION.

THE enthusiasm with which the modern submucous resection was received a few years ago indicated the dissatisfaction of rhinologists with the older methods for the correction of deviations, which depended on forcing the septum into a vertical plane after various incisions through it, or which, not even attempting this, were satisfied with the sawing off of the apex of deflections under the name of spurs, crests or ledges. The reason for the easy victory of the submucous resection over the procedures mentioned was, that whatever its method of performance, its principle, that of sacrificing as superfluous the deflected cartilage and bone, seemed reasonable and was in accordance with the anatomical conditions as opposed to the less rational attempt of the older fracturing methods, which tried to force the elastic, resilient structure of the septum into a vertically and horizontally straight line, a proceeding to which the faults of uncertainty of result and violence of performance necessarily belonged. The submucous resection not only owed its immediate popularity to its correct principle but its continuance in favour is also due to it, its followers realizing that failure to obtain perfect results is due to faults in their own technique and not in the logic of the method. Although the submucous method, therefore, seems to be in no danger of in turn being displaced by another way of operating and is constantly gaining adherents, it still has able opponents, while many are as yet but half convinced of its merits, fear its results, or, despairing of being able to execute it, adhere to the older procedures. For these reasons, to hasten its universal acceptance it still needs defence and advocacy and assurance on the part of the experienced that it is within the range of ordinary skill. The chief cause why the submucous resection has not, however, even in its short existence, displaced all other procedures is the fact that so far it does not represent a uniform standard operation but is a conglomeration of more or less suitable methods, differing widely in their idea of the proper mode of performance, none of which has universal vogue, and which have not much in common beside their recognition of the correctness of the principle of exsecting the deflected cartilage and bone. The different views of so many advisers are bewildering to any one who wishes to take up the submucous resection and obviously inspire distrust of its merits, especially as a view of the execution of some of the procedures advocated does not create confidence in it. If the first window resection observed by a student had been one I saw performed by an exponent of a certain method a short time ago, he would have been convinced that the operation was barbarous, painful, exhausting to both patient and surgeon, and imperfect in its results. While the older advocates of the submucous resection differ as to essentials the confusion is increased by a number of new authors who, possessing but moderate or little experience, straining to be original and giving little heed to what has gone before, are continually trying to create the whole procedure anew. They commonly include in their methods errors discarded by their more experienced predecessors, devise a new instrumentarium possessing no especial originality or fitness for its purpose, and always commend its simplicity as its chief advantage. Not understanding the completeness of result obtainable with more elaborate means they are satisfied with the partial one they attain with their crude ones. Such writers retard instead of advancing the cause of the submucous resection, for their followers are apt to be far from convinced that it is the only way. Nevertheless, I so regard it, for my experience with 178 operations has shown me that, if rightly performed, it may be relied upon with absolute certainty to remove any deflection, no matter how extreme, hard to get at or extensively bony, with less injury, suffering and after-treatment than when any other method is used. It is this perfect assurance of success that is one of the best features of the submucous resection, and the recent statement by a writer on the subject that it is fitted for but 90 per cent. of the deviations encountered, and the remark of another that it is only suited to curved scoliosis and not to extreme angular deviations of the septum, show that these authors do not understand the possibilities of the method they attempt to practise. I say, as formerly, that the submucous resection is the best means for the correction of all deflections without exception, and that it is especially suited to extreme and difficult ones. In time, what is of value in the many articles on the subject will be assembled into a uniform and standard manner of per-

formance, but this desirable result can be much hastened if the newer writers cease to try to invent the operation and instruments all over again and choose the best from what already exists in such profusion, for the time has come for an impartial and thorough study of the subject by observers who, unbiassed by methods of their own, will give what seems reasonable in the various modes a trial and weld what proves feasible into a classical submucous resection. At this time, however, no one should speak until a large material and a study of the subject from the bottom entitles him to do so. At present the authors of longer experience can relieve the submucous resection of much that impedes it by showing what their work has taught them to regard as wrong tendencies of the method, and I shall, therefore, speak of a few of what I deem its mistaken directions and misconceptions as to its nature and execution.

I first wish to call attention to the often-made assertion that the operation is easy. Those who select only simple cases or are satisfied to leave a large part of the deflection untouched, thinking that enough has been done when a piece of cartilage, and possibly a fragment or two of bone, have been removed, can do what they regard as the operation quickly and easily. The thorough submucous resection, including frequently the ablation of the deflected submaxillary crest and vomer, demanded by most cases if the nostril is to be perfectly freed, is another task—and a hard one for a novice, for whom, if conscientious, and until he has learned by experience, his first operations may prove long and exhausting, and largely because he is not used to recognizing the changed appearance of the parts after the resection is under way. To such beginners I have often had to point out the location of the crista and other parts.

In certain methods much is made of the speed with which the operation is accomplished, as if it were necessary to complete it in haste. The spirit of the method is that of patient, painstaking deftness, not of hurry. As the patient does not suffer, there is no reason why the surgeon should stint his time. As elsewhere, here also hasty work means rough and incomplete work and increased trauma.

Critics of the method often refer to it as painful. I think that much depends on the method of local anaesthesia whether the patient suffer or not, and I still employ pure cocaine for the purpose, rubbing it in the form of flake crystals into the mucosa with a little moist swab, always preceding it with 1 to 1,000 adrenalin. The amount of cocaine absorbed is no more or even less than where solutions are used, and the concentration of the drug produces a local insensibility so great that even children of 7 and 9 years have submitted to the operation, including the resection of the bone, without complaint. The loss of feeling is also rapid, being complete in five minutes.

Of late purely theoretical objections have been raised against operating upon children before the fifteenth year, the reason given being that the septum takes an important part in the development of the adult nose, one author—seemingly having in mind the removal of the entire septum as the essence of the submucous resection—saying that "the septum should not be removed during the years of active growth." Properly done, the submucous resection never removes more than the deflected portion of the septum, and only in extreme cases does this equal one-third of the area of the entire septum. The important upper anterior part of the cartilage under the triangular cartilages of the external nose is always spared, and there is therefore always a large enough frame left about the window made to maintain the form of the septum in its growth. During five years in which I have resected the deflections of 32 children between the ages of 7 and 15, and of 12 between the ages of 7 and 11, I have seen no damage to the development of the children's noses. The parents would not have been slow to tell of any, and such of the children as I have seen long after the operation have shown, instead of nasal deformity, an improved physiognomy and appearance of health due to the free nasal breathing established. An undesirable effect of growth noticed in some younger children was a tendency to a partial reproduction of the deflection, but never to any sinking of the nasal bridge. I have also found, although it has lately been asserted that the cartilage is not reproduced, that the septa of such children as I examined in this respect grew firm over the site of the window in the cartilage in a few weeks, and I attributed this to the great regenerative power of childhood, and to the careful saving of the perichondrium possible with my method of operating, which permits free and minute inspection of the entire operative field. The perichondrium is easily left upon and removed with the cartilage if not looked for.[1] Nearly all my deviations in children were extreme, wholly blocked one nostril, and, if sigmoid, both, and injured the patients' health enough to absolutely demand resection. Children should, therefore, not be deprived of the benefits of the operation because of theoretical objections inspired by a timid imagination.

I have not changed my reversed L and long vertical initial mucous membrane incisions, which give widest access to the difficult deeper parts of the deflection and are described in my later writings on the subject in which my method of operating is given in detail.[2] I repeat that the anterior buttonhole cut of the Killian type made in front of the deviation is inadequate for deflections which are largely bony, which have strong angles, or where the denudation is difficult. To overcome the disadvantages of the buttonhole cut the long speculum is used to hold away the mucosa on either side of the cartilage and bone resected between its blades. However plausible on paper, in practice this speculum is much in the way of instruments and is not needed, for it is not necessary to hold aside the mucosa of the concave side, because, when separated, it hangs away out of the reach of forceps of its own accord, and all that is required is a flat retractor to hold the mucosa of the convexity out of the way in some cases. For this purpose I now use a retractor like those of my set for holding the nose open, but with a blade 1½ in. instead of ⅞ in. long. A great advantage of my reversed L mucous membrane incision is the fact that the anterior flap so formed, when reflected, uncovers a large area of cartilage. This much facilitates the making of the first incision through the latter, as the cut is made through the denuded cartilage in plain sight and not, as is the case where the mucous membrane incision and cartilaginous incision coincide, through cartilage hidden underneath mucous membrane, in the latter case the severing of the cartilage being done in the dark. This forms an objection which has made this portion of the resection difficult for many, and has led to crude methods of scratching and scraping a small hole through the cartilage with curettes and other half-sharp implements instead of making a well-directed ample cut with a keen knife blade, outlining a large cartilaginous flap, as is my practice.

The need of a thin-bladed sharp elevator and of other round-edged knife blades for dissection still does not seem to be appreciated by many. In those regions where the mucosa-perichondrium and periosteum are grown on to the underlying cartilage or bone the keen blade dissects up the septal covering with ease, while a chisel-edged or blunt elevator would require forcible work in such places, leading to the possible plunging through of the instrument into the opposite nostril and to subsequent inflammation of the bruised and stretched mucous membrane. To make a complete operation I nearly always find it necessary to use the sharp blade to uplift the covering from the septum at some part; indeed, I often literally dissect the bony base of the septum out of its envelope of mucosa-periosteum, and I find that too much preference given to dull elevators does injury and makes the operation tedious, while the judicious use of the keen edge advances it rapidly and safely.

I still cut out the denuded cartilage with my three little cartilage knives and have never felt the need of the swivel knife. The large perforations reported as due to its use are an evidence of its uncontrollability and could not have occurred had my knives been used. Their fixed blades can be more accurately guided than a swinging swivel one and cut in plain sight (Fig. 1). After removing the main piece of cartilage the angular knives pare off remains of the cartilaginous deviation, if there be any, in the manner of a carver's tool. If desired, they readily exsect the deviated cartilage in one piece; but this, the main purpose of the swivel knife, is not an important one—in fact, to insist on denuding all of the cartilaginous deviation before removing it often retards the operation, the bared portion being in the way of sight, and, especially where the

[1] *Annals of Otology*, pp. 218-219, 1905.

[2] *Annals of Otology, Rhinology, and Laryngology*, June, 1905; *Journal of the American Medical Association*, September 30th, 1905; *Fränkel's Archiv für Laryngologie*, 1906, p. 1.

covering is adherent, making the denudation difficult and favouring perforations, while a piecemeal removal of the cartilage gives better and better access to the deeper parts with each fragment that is taken away.

There is much difference of opinion as to the best manner of removing the superior maxillary crest (crista

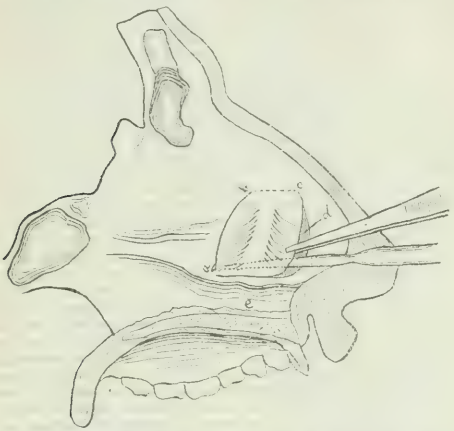


Fig. 1.—Lateral view of the septum. For purposes of demonstration the mucosa of the convex side (side towards the observer) is imagined removed over the cartilaginous deflection, which has been severed in front and below, and is being cut through behind along the line *a*.....*b*, with one of the two angular cartilage knives, the blade of the knife having descended from "*b*" and its point being visible at "*a*." The other knife is to complete the freeing of the cartilage to be removed by cutting forward along the line *b*.....*c*; *d*, mucosa of concavity; *e*, superior maxillary crest.

incisiva) when it impedes respiration. It should always be taken away when it is at all in the way, for after the resection of the cartilage it supports nothing, and what seems a moderate obstruction becomes a formidable one when the shrinkage of the soft parts due to adrenalin has passed off. The chisel still has most followers in spite of its rather uncertain performances. To show how

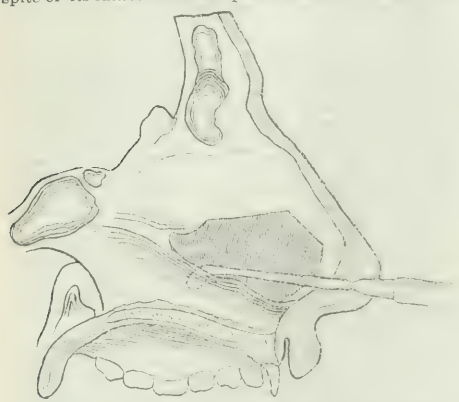


Fig. 2.—Lateral view of the septum. The cartilaginous deflection has been removed. For purposes of demonstration the mucosa of the convexity is imagined absent over the site of the window in the cartilage, showing the inner surface of the mucosa of the concave side. The blade of the knife is seen dipping down between the superior maxillary crest (crista incisiva, crista nasalis inferior) and its covering on the other (concave) side in order to elevate the latter from the bone.

much difficulty the resection of the septal ridge has caused some surgeons, I refer here to a recent writer, who, evidently at his wits' end, has even suggested the fracturing of the incisor crest and vomer from the floor of the nose with crushing forceps applied outside of their mucous coverings, claiming that the act denudes the bone and removes it at the same time! The poverty of resources of a method that includes such acts of violence is evident. As I have never had any difficulty in cleanly and painlessly cutting away the crista with my forceps, I allow myself here to briefly describe my present method for resecting the septal ridge.

After the cartilaginous deflection and the frequently-present long strip of cartilage grown on to the side of the crista and vomer described by Killian are removed, the operation may seem done, as the crista, commonly hidden in its own envelope of periosteum, may escape observation. The narrowness of the inferior meatus on the convex side and the persistence of the horizontal angle of the concavity on the other, suggest, however, the presence of a bent-over superior maxillary crest, and its existence is assured by the resistance of the hidden bone felt with a probe below the bagging mucosa of the concavity. With a round-edged knife a cut is then made down to the bone along the upper edge of the crest thus disclosed to the touch. The periosteum is scraped aside and the blade of a knife of my set called "A," bent at an angle on its edge, is pushed down the side of the crest that looks towards the concavity (Fig. 2) to the floor of the nose, the flat of the blade hugging the bone and severing the mucosa-periosteum from it. The knife is then drawn backwards and forwards close to the side of the crista and until on the concave side it is denuded to the nasal floor of its covering and the latter falls away from it. A perforation, so easily made in this region, is thus avoided. The convex side of the ridge is next bared and the crista is then seen to stand up naked and ready to be cut away with the forceps, the blades of the latter being crowded over the bone from above down to the floor of the nose and cutting it away piece by piece.

In many cases, especially after the resection of extensive osseo-cartilaginous deviations, there is obstruction for a period after the operation of the naris which was roomiest before it, the naris of the concavity. The obstacle to breathing is due partly to temporary sympathetic intumescence of the turbinals, but also to the swelling of the redundant mucous membrane which formed the covering of the resected deflection. This temporarily broadens the septum, sometimes very much, and the loose mucosa usually bags into the naris of the former concavity. The patient is apt to fear that the previously roomy nostril will remain permanently blocked, but he may receive positive assurance that in a few weeks both nares will be ideally clear, for the septum in time invariably becomes thin and lies in the median line.

In conclusion, I wish to call attention to a species of superficial inflammation with epithelial desquamation and consequent prolonged scabbing occasionally seen in the naris of the former convexity, and especially apt to occur in adult patients who have been subjected to previous sawing or fracturing operations, the post-operative cicatrices making it difficult to preserve the mucosa of the convexity so that its vitality becomes injured. In these cases I have the patient keep the operated side closed with a cotton pledget for some weeks, to prevent scabbing, and have him cleanse his nose with a mild alkaline spray. When he begins to use his nostril for breathing he is directed to anoint its interior with lanolin, with 2 per cent. salicylic acid, to prevent the clinging of crusts. In some weeks these patients recover, and all scabbing ceases.

DISCUSSION.

DR. WILLIAM L. BALLENGER (Chicago) said the objects of the submucous resection were to re-establish normal respiration, and to allow of aëration and drainage of all the nasal meatus and accessory cavities. In about 90 per cent. of the cases of deflected septum this method best overcame the obstruction and with least shock and waste of time. He had adopted the general features of the Killian or Continental procedure. The chief modification introduced by him was the swivel knife for the removal of the cartilaginous portion of the deviation. In selected cases he had fractured the ridge or crest of the vomer by means of Adam's forceps. Dr. Freer was wrong in stating that the swivel knife was often the cause of large perforations. The instrument had been largely adopted in Germany, England, and the United States, and seemed to meet a universal need.

Dr. HERBERT TILLEY (London) said that from an experience of over eighty cases of submucous resection

he had become convinced that the thorough removal of the incisor crest was a most important part of the operation. As a matter of routine, he removed the anterior half of the inferior turbinate on the side opposite to the deviation. This body was nearly always enlarged, and if not removed it formed an obstruction when the septum was placed in the middle line. He preferred Ballenger's swivel knife to any other instrument for the removal of the denuded cartilage. In children, if the symptoms of obstruction were not urgent, he delayed operation until about puberty. It was advisable to use one long sterilized strip for packing instead of several smaller pieces. With practice the operation could be carried out in the most difficult cases in from fifteen to twenty minutes. He had used local anaesthesia by the submucous injection of eucaine and adrenalin chloride in a few cases, and in others by the superficial application of equal parts of adrenalin chloride and cocaine solution (10 per cent.), but in the majority of cases he preferred a general anaesthetic.

Dr. Chevalier Jackson (Pittsburg, Pa.), thought that submucous resection was so satisfactory that one was tempted to do it when an operation other than septal was required. Patients did not come for the correction of deformity (except, perhaps, external deformity, which in his experience was not got rid of by this operation), but usually for the relief of symptoms due directly or indirectly to stenosis. He had been pleased at the attention given that day to the turbinals. Some ten years ago he had called attention to the turbinals as a factor in the failure of operation for the correction of septal deviations, and in the causation not only of the stenosis but of the deformity itself. He thought that the day of pottering at a nose in an office was past, and that intranasal surgery should be carried out in an operating room.

Dr. Henry Smurthwaite (Newcastle-on-Tyne), stated that he had employed local anaesthesia from the first and that this could be absolute. He applied cocaine 10 per cent. and adrenalin to the nose for half an hour followed by the injection of beta-eucaine 2 per cent. The patient was seated upright in a chair and could immediately be lowered into the horizontal position on showing signs of faintness. In all his cases he had made the horizontal and vertical incisions, reflected the muco-perichondrium and held it back with a pad of wool so that one could clearly see the obstruction to be removed. He always used stitches.

Dr. J. Price-Brown (Toronto) believed it would be unfortunate if Dr. Freer's sweeping statement that submucous resection was the best method of treatment for all cases of septal deviation received unqualified endorsement. This operation was undoubtedly the best when there was much thickening as well as deformity, but it seemed to him that simpler methods would suffice when there was merely curvature of the cartilaginous septum. He recommended two parallel incisions to be made from before backwards over the convex side about half an inch apart, with a cross-cut connecting. All the incisions should penetrate both mucous membranes and be made obliquely. The parts could then be pressed into the median position, the cut edges gliding on one another, and retained in position by means of a rubber splint until healing had taken place.

Dr. M. C. Smith (Lynn, Mass.) spoke from the dentist's standpoint. He thought that if the dentist fulfilled his duty to young patients there would be little need of surgical operation on the septum in later life. In children under 15 years of age with a deviated septum and enlarged inferior turbinates a deformity of the mouth was nearly always found. The arch was narrow and V-shaped, the vault high, and the first molars were not more than an inch apart, and might come entirely within the arch of the lower jaw. Such patients should be sent to the dentist and the arch of the upper jaw widened, not by simply tilting the teeth outwards, but by a plate made of vulcanized rubber that would come down over the outer edges of the teeth so as to hold them in their upright position. Pressure should then be applied over the mucous membrane as high as possible above the gingival margin, and the alveolar process forced out bodily so that most widening took place in the median line. Now, if the jaw were widened half an inch, it would be reasonable to suppose that the anterior part of each nasal cavity would be a quarter of an inch wider, and if the inferior turbinals were drawn an eighth of an inch away from the septum space enough for breathing would be obtained unless a grave condition existed. By means of work done in the mouth it was easy to separate the inferior turbinates an eighth of an inch from the septum and to draw down the septum materially.

Dr. J. A. Stucky (Lexington, Ky.) feared that the enthusiasm for this operation was carrying them away. Sufficient time had not elapsed to prove the safety of removing so much of the septum. In the majority of cases of deviation of the septum the middle turbinate interfered with the ventilation of the upper part of the nose and drainage of the sinuses, and the removal of its anterior third gave relief. The use of crystals of cocaine and of the 20 per cent. solution would be dangerous in the South. For three years he had obtained the best effects as regards anaesthesia and haemostasis with the following combination: ℞ Sodium chloride, 5 gr.; cocaine hydrochloride, 20 gr.; antipyrin, 20 gr.; solution of adrenalin (1 in 1.000), 2 drachms; water, to 6 oz.; M.

Dr. H. P. Mosher (Boston) found that the operation took so long that it could not be used as a routine method in a large hospital clinic. In private practice it was applicable in 90 per cent. of the cases, and was the method of choice. For rapid and hospital work he expected to still use the older Gleason operation carried out by means of a horizontal and a posterior vertical incision, the fracturing of the tip of the vomer, and the buttoning over of the flap. It was important to be ready to make a flap and to abandon the button-hole incision at any moment. Cargill membrane was even better than rubber tissue for preventing adhesions, and had the advantage of helping the regeneration of the epithelium.

Dr. Wendell C. Phillips (New York) had for some years examined the septum in elderly people, especially those having no history of nasal catarrh, sinus disease, or ear affection, and had been surprised to find how often a marked deflection or spur was present. He therefore maintained that their guide in deciding as to operation should be symptoms, and that an operation should never be performed unless these demanded it. The shock, depression, and suffering after the operation called for careful surgical measures in a hospital where the patient should remain for at least twenty-four hours. Two other operations were quite feasible, and were to be preferred in hospital cases when time was a consideration. He regarded Roe's forceps as a most useful instrument. He believed the submucous operation to be the most applicable in the average case. The incisions should vary according to the requirements. The cartilage should be removed with Ballenger's knife.

Dr. C. G. Coakley (New York) had seen in children with high and narrow palatal arches and septal deformities very beneficial results follow the use of dental splints which effected a widening of the arch. There was undoubtedly a straightening of the deflected septum and an increased patency of the nasal respiratory passages. Sufficient had not been said that day as to packing the nose in such a way as to keep the septum in the median line. Too much packing on one side resulted in a continued deviation, while too little was likely to be followed by the development of a haematoma between the layers posteriorly, and when this had been organized a marked bulging was found.

Dr. W. E. Casselberry (Chicago) assigned all credit to his townsman, Dr. Freer, as the originator in America of submucous resection of the nasal septum, because he had worked independently, and his publication antedated any description of the operation by their distinguished colleague in Freiburg. The speaker had operated in the past with permanently good results by the methods of Asch, Watson-Gleason, and Roe, and felt that the brusque terms of condemnation applied to them were undeserved. Still, in recent years he had substituted the Freer and Ballenger procedures with even greater satisfaction in most, but not in all, cases. Dr. Freer idealized his operation in alleging its universal applicability, and the speaker could cite offhand at least two conditions in which it was obviously not to be preferred: First, in septal deflection with external lateral deformity, the fracturing operations could be so made on the septum alone that in straightening it the external deformity was acceptably diminished; secondly, in young children the Watson-Gleason method was quite adequate, could be made in a few

minutes under general anaesthesia, and left intact the framework of a developing feature. To avoid the intolerable delay of the fragmental dissection of bone from far back he adopted the following expedient in suitable cases: Having made the conventional submucous resection of the cartilage, maxillary crest, and vomer anteriorly, and having raised the muco-perichondrium of the bony concavity backward quite to its rear limit, he sawed off the projecting bony convexity. No perforation resulted, the muco-perichondrium of the concavity having been preserved, while the sacrifice of the fragment of mucosa so far back on the convex side was harmless.

Dr. PATRICK WATSON WILLIAMS (Bristol) thought there was too great a tendency to resort to so enticing and excellent an operation as that developed by Killian and Freer. The guide as to the necessity for interference should be the presence not of septal and other deformities, but of symptoms demanding relief. Not very rarely there might be fairly free passages for air in the lower part of the nose, and yet owing to obstruction in the upper or physiological respiratory tract the subjective sense of nasal obstruction was marked, and attended by a certain degree of nervous or mental depression. The best method of removing the obstruction had also to be determined. Formerly the turbinals were treated rather than that resort should be had to the severe methods that preceded the introduction of submucous resection. This was the procedure to be almost invariably adopted in operating on the septum, yet there were cases that could be rectified by partial removal of the inferior or middle turbinal, or by the limited submucous sawing of a ridge. To avoid perforation while cutting through the cartilage he had found it advantageous to make a small primary puncture on the concave side well forward which would allow the passage of a long narrow muco-periosteal elevator. By means of this instrument the cartilage was bared where later it would be incised from the convex side. The swivel knife was of great service in shortening the operation, but there was danger of its breaking if the bony septum were attacked. He was nervous about doing septal resections in very young children, but in a limited experience of such cases he had only had good results after three or four years' subsequent observation.

The PRESIDENT considered the outcome of the discussion to be to the effect that there was room for judicious eclecticism in the choice of operation. The technique described by Dr. StClair Thomson was that published in detail by Killian, and was the form of submucous resection practised by himself and his colleagues. He (the President) departed from it in cases of deflection with a sharp vertical ridge, when he preferred Dr. Freer's reversed L incision as permitting of the detachment of the muco-perichondrium behind the ridge with less risk of perforation. He then referred to a few special difficulties which he had encountered. Adhesions from previous operations were difficult but not impossible to overcome. This was an argument in favour of making a complete resection at the first. Extreme horizontal position of the upper portion of the deflected septum had given him trouble. He showed how the upper part tended to spring upwards and outwards out of sight when the middle part was divided. When this occurred he had usually to employ a small knife on a stem, as Dr. Ballenger's admirable swivel knife, which he used habitually for the removal of the bulk of the cartilage, was apt to miss it. In such cases it was necessary to exercise great discretion so as to avoid removing too little and thereby keeping the soft septum so far to the convex side as to renew the obstruction; and, on the other hand, removing too much so as to take away the support of the anterior part of the nose. He made it a rule to operate on the convex side, but when there was a dislocation of the triangular cartilage into one nostril he operated on this side, making the incision along the prominent edge of the cartilage. Also, when there was a very extreme enlargement of the maxillary crest he sometimes selected this side, and extended his incision across the floor of the nose so as to detach the muco-periosteum from below upwards instead of from above downwards.

REPLIES.

Dr. STCLAIR THOMSON, in reply, congratulated himself on having been allowed to inaugurate such a highly interesting discussion. If he expressed any self-satisfaction with his own contribution, it was because the points he had purposely omitted were just those which had been so well filled up during the debate. He had intentionally said nothing as to the indications for treatment, but fully agreed with what had been stated chiefly by Drs. Wendell Phillips and Watson Williams. It was remarkable how one happened across patients with marked deviation, and yet no important symptoms could be attributed to the condition. As to shock, it was always well to keep the patient in bed, and in England one never operated on private patients in the office. As to technique, he preferred his long Thudichum to a Killian, and used two thin bladed elevators and a Killian chisel and hammer. The necessity of removing the maxillary crest had been well emphasized by Freer. For anaesthesia cocaine was enough, but chloroform was quite satisfactory. Perforations were, of course, unknown as practice became perfect. The history of the operation had been touched upon. As Dr. Dundas Grant mentioned, the first case of submucous resection shown in London was his (Dr. StClair Thomson's). Dr. Tilley was in error in attributing this to Mr. Hunter Tod, who showed a Krieg-Boenninghaus case, a very different method, which removed entirely all the mucosa on one side and left a scabby and slowly healing area. In Europe they were chiefly indebted to Killian for perfecting the operation. The British rhinologists were very grateful to their American *confrères* for perfecting and popularizing the method. His own outfit had been reduced to six or eight tools, but these always included Freer's elevators and Ballenger's swivel knife.

Dr. OTTO T. FREER in reply, said that reference had been made to Killian as the originator of the submucous resection. Although Killian began operating before the speaker, the first detailed description by Killian that led others to follow him appeared in *Frankel's Archiv* after the publication of his (Dr. Freer's) two first articles on the submucous resection. These had been printed in March, 1902 and 1903, in the *Journal of the American Medical Association*, and had induced a number of American rhinologists to follow his plan of operation. The credit of having first announced the essential principle of the method—the resection of the deflected cartilage and bone—belonged to Krieg, of Stuttgart. A number of cases in which large perforations followed the use of the swivel knife had come to his knowledge. The hinged blade of the instrument could not be as surely guided as a fixed one, and was more apt to take its own way, so that the few minutes saved by its use were won at the expense of accuracy. The number of instruments in his set had often been criticized. Of all those displayed, not more than eight or ten were used in the average operation. The rest were reserved to meet the difficulties of unusual deflections, and without their aid he would have made perforations and incomplete operations in a number of cases. The cutting away of the superior maxillary crest with his forceps he did not find difficult. The patient sat before him while he stood and crowded the blades of the forceps downwards, straddling the ridge while they cut through it. He had never seen shock after his submucous resections. He repeated that he found the operation well suited to children, and with his instruments and method it was nearly as easy to operate upon them as upon adults. The minuteness of the operative field made very near vision imperative, and he advised presbyopic operators to use strong glasses. The lateral twist to the nose observed in many deflections he had often seen partly or wholly corrected by the submucous resection. Dr. Ballenger, he was sure, would have but few followers to his advice to break off the superior maxillary crest with forceps. Neither did he think that many would be induced to conduct the resection from the side of the concavity, as most operators who undertook this found that it added greatly to the difficulties of the operation. He regarded the Ballenger-Foster forceps shown by him as too large for use in most nostrils. In reply to the objection to the use of keen-edged elevators, he repeated that far from creating perforations, they lessened their frequency and diminished the traumatism of the operation. The criticism of the fitness of his instruments was best refuted by their large and increasing sale, not only in America but in Europe, a proof that they were satisfactory to many operators. In respect to the adherence in places of the periosteum and perichondrium, he looked up the records of 36 consecutive cases in his total of 178, and

found that in 33 of these he needed sharp dissection to complete the denudation. It was impossible to cut any but the thinnest bone in the septum with a knife. He had never seen sinking of the nasal bridge following upon any of his operations. He had had great difficulty in having things which experience had taught him to be true generally accepted, notably the fitness of his mucous membrane incisions, which were only now beginning to be more widely employed. He felt sure that other recommendations which usage had led him to advocate as proper would in time win their way as operators experienced their value. He waited with confidence for time to declare what should be standard, knowing that it would discard what was popular for the moment, and establish what had merit but did not at first win favour.

DEMONSTRATION OF AN EXOSTOSIS OF THE FRONTAL SINUS, AND A SKIAGRAPH OF THE SAME.

BY

HUGH E. JONES, M.R.C.S., L.R.C.P.,
Honorary Surgeon, Liverpool Eye and Ear Infirmary, etc.

and

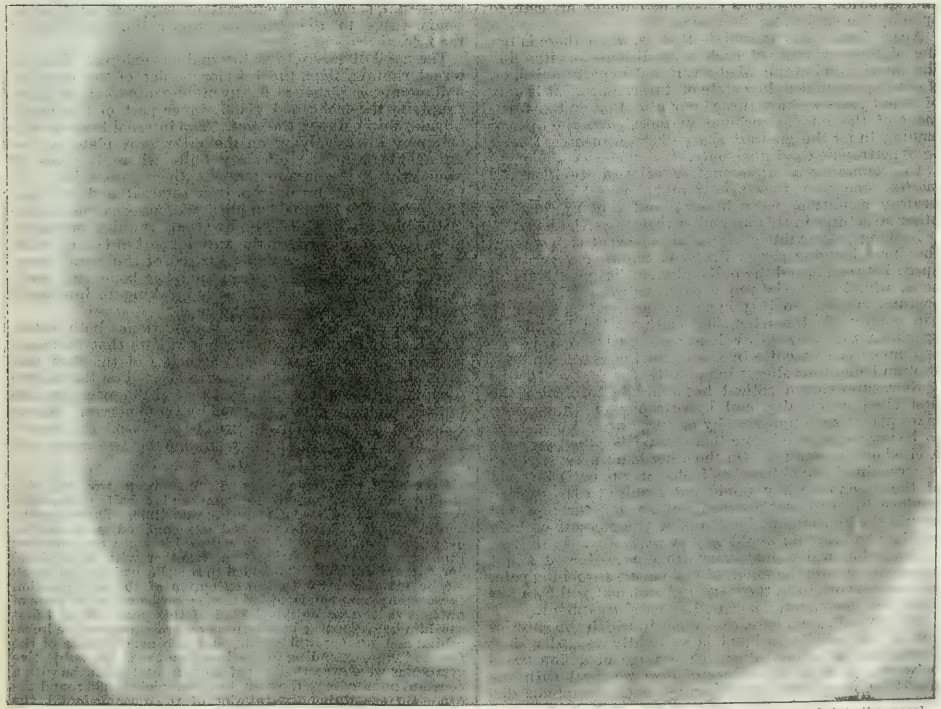
THURSTAN HOLLAND, M.R.C.S., L.R.C.P.,
Radiographer, Liverpool Royal Infirmary.

THE patient, a married woman, aged 35 years, had been operated on by Dr. Richard Williams fifteen years previously. The principal orbital projection was then removed, with marked relief to the orbital symptoms. The patient consulted Mr. Hugh E. Jones because of severe pain, obstruction of the right nostril, and gradual protrusion of the right eyeball. The radiograph gave most valuable information as to the position and extent of the exostosis.

A curved incision was made from the middle of the right eyebrow to the right ala nasi. The expanded and thinned covering of bone was clipped off, and, the pedicle of the growth attached to the postero-superior wall of the frontal sinus having been divided, the whole growth was removed with comparative ease by means of a strong pair of forceps. The growth measured 2½ in. in length and 1¼ in. in breadth. The wound healed by first intention.

Dr. Holland remarked that the radiograph was taken with the woman lying face downwards on a table with the plate beneath the face, and a compressor tube was used chiefly for the purpose of steadying the head.

A plate taken after the operation still showed a bony shadow in the region of the frontal sinus, but the orbital and nasal regions were exactly alike on the two sides.



The exostosis is shown as a darker, pear-shaped shadow to the left of the middle line, and is seen to project downwards into the nasal cavity, pushing outwards the outer wall of infundibulum and inner wall of the antrum.

DEMONSTRATIONS.

By HARRIS P. MOSHER, M.D.,
Boston.

DR. HARRIS P. MOSHER demonstrated: (1) A series of sphenoidal sinuses showing a partial partition on the outer wall. A series of preparations showing the presence of all varieties of this spur in the sinus was exhibited. The spur might interfere with drainage, and would thus become of clinical importance.

2. Exhibition of *x*-ray plate.

Dr. Mosher said: It is well established that the *x* ray will give certain fundamental information about the accessory sinuses which is essential before beginning operative procedures. For instance, we now rely upon it to tell us the position and size of the frontal sinus—that is, whether the sinus remains as an ethmoidal cell in the orbit or has extended into the forehead. Experience has shown that in a majority of cases the *x*-ray plate will indicate whether or not there is pus or fluid in the frontal sinus or antrum. The plate is therefore a very great aid. Of late we have gained further knowledge as to the possibilities of the *x* ray. We know, for example, that in cases of acute affections of the frontal sinus the involved sinus will give a shadow on the plate. The investigations instituted by Dr. Coakley show that not only will fluid in the

sinus give a shadow, but also its inflamed oedematous lining membrane. We have long known this about the antrum. One should be cautious in resorting to an external operation upon the plate finding alone, owing to the fact that the plate may show a shadow in acute cases. The plate in such cases can be used to follow the progress of the case, and may soon be one of the means of informing us when resolution in the sinus is complete.

In order to convince the doubting, if any such be present, I shall exhibit one of my most satisfactory plates. It was a case of left-sided empyema of the frontal, ethmoidal, and sphenoidal sinuses. In addition, there was acute mastoiditis. I operated on the first three sinuses by Killian's method, and at the same time did the usual operation for acute mastoiditis.

HEADACHE: PATHOLOGICAL CONDITIONS OF THE MIDDLE TURBINAL A CAUSAL FACTOR.

By HENRY SMURTHWAITE, M.D.,
Newcastle-on-Tyne.

ALTHOUGH one of the minor troubles we are all prone to at some period or other, headache may be at times so severe, or so constantly recur as to mar one's pleasure in existence.

In all probability the greatest percentage of cases have their origin in stomachic and intestinal troubles, while dental caries is also a fruitful source. Apart from these causes and the rarer forms due to kidney and cerebral or cerebellar disease, there are a number of cases of genuine nasal origin.

It is not my intention in this short paper to enter into the various forms of nasal disease producing headache, such as affections of the sinuses, etc., but merely to draw attention to one definite locality in the nasal chambers, and, by citing a few cases I have had under my care, to open up the subject for discussion.

Apart from sinus mischief—that is, when there is not the slightest evidence of such a condition—we often find the anterior end of the middle turbinal hypertrophied, or, if not hypertrophied, in a state of turgescence. It is only of recent years we have turned our attention to the treatment of the middle turbinal, in most cases the inferior coming in for the greatest share—here, of course, I refer to hypertrophic conditions only.

In examining a large number of nasal cavities *post mortem* one sees that the turbinal bones, even in a healthy condition, vary in size and contour, just as other structures in this and other regions of the body.

Looking at the middle turbinal in one specimen we find the bone hanging perpendicularly, allowing very little space between it and the bulla ethmoidalis and ethmoidal cells, whilst there is ample room between it and the septum, so much so that in a spacious nasal chamber we can readily see the sphenoidal ostium. Yet in another specimen the bone either hangs obliquely towards the septum or is crescentic in shape, its inner wall and the septum being thus almost in apposition.

Now, supposing a patient has a middle turbinal of the first cited conformity, and hypertrophy or turgescence takes place; such hypertrophy or turgescence would have to be very excessive before there would be much pressure excited on the septum. On the other hand, a hypertrophy supervening in an obliquely situated or crescentic turbinal of the second variety would not require to be great to produce direct contact between septum and turbinal, and should the hypertrophy be excessive the pressure on both turbinal and septum would be very real.

Headache, which may vary from a feeling of slight oppression across the forehead to an acute throbbing pain, can have its origin in the nose, and can, as I will by a few examples demonstrate, be cured by nasal treatment.

We have all, I am sure, seen cases in which the anterior end of the middle turbinal is so tightly wedged against the septum as not to allow the passage of a fine probe between. It is in this class of case we meet with the headache symptoms, and in which such symptoms disappear after removing the cause, that is the anterior end of the middle turbinal, so relieving the pressure.

In referring to my casebook and gleaning therefrom the symptoms described by patients coming under this class, I find the following are complained of:

A tightness across the bridge of the nose as though the nose were being compressed in this position; a feeling of pressure above the eyes in the region of the frontal sinus; pain radiating from the inner canthus and side of the nose down the side of the face to the infraorbital canal, or upwards and outwards to the supraorbital canal; in a circle round the eyes with lachrymation; finally pain starting from the root of the nose and inner angle of the orbit, and passing up over the forehead and scalp to the occiput.

Now we can look upon these foregoing symptoms as being directly due to pressure on the nerves supplying the mucous membrane in the region of the middle turbinal and septum, and by a study of the fifth nerve we shall readily explain most of them.

Let us take first the superior maxillary, or second division of the fifth nerve. Springing from the Gasserian ganglion it leaves the cranium and lies at the upper part of the pterygoid fossa, and passing on terminates on the face as the infraorbital, just below the orbital cavity. In its course it gives off two or more small branches to Meckel's ganglion which lies in the pterygoid fossa some few millimetres below it. Other branches are an orbital which anastomoses with the lachrymal from the ophthalmic or first division of the fifth, a dental, and its terminal which leaves the infraorbital canal as the nerve of that name, supplying the skin of the lower lid and side of the face in the region of the nose.

It is from Meckel's ganglion we get the nerve supply of the middle turbinal through the spheno-palatine, which, breaking up into internal and external branches, supplies by its external the septal or outer surface, whilst the inner surface as well as the ethmoid and sphenoid, derive their supply from the internal.

The first division of the fifth gives off three branches, nasal, frontal, and lachrymal.

The lachrymal supplies the gland of that name, while the frontal, through its external or supraorbital branch, sends twigs to the forehead, upper lid, and side of the face.

The nasal divides into an internal and external. The external, running along the inferior border of the superior oblique muscle of the eye, finally divides into small branches supplying the lachrymal gland, inner part of the upper lid, and skin between the eyes. The internal branch runs obliquely inwards, lying on the cribriform plate or the ethmoid beneath the olfactory bulb, where it gives off some twigs to the dura mater. It then passes into the nasal fossa and breaks up into internal and external branches. The internal supplies the mucous membrane of the inner wall, whilst the external, running outwards, gives some small twigs to the anterior part of the external wall, and supplying the under surface of the nasal bone, leaves the nasal cavity between the latter bone and cartilage, which it also supplies, finally breaking up into small ramifications in the skin on the nose.

Considering these anatomical conditions, both osteological and nervous, in the nose, it follows that by transference of pain along the many branches of the first two divisions of the fifth nerve, pressure exerted on the middle turbinal or septum would, by this transference, give rise to pain in other regions supplied by these nerves. This is exactly what we find clinically to be the case. In illustration of this fact the history of one or two cases will suffice:

CASE I.—A. G., male, aged 34, has been troubled with stuffiness in right nostril for one and a half years, with periodic attacks of headache during this time. Three months ago he contracted influenza, and was confined to his bed for over a week with same. At this time his right eye troubled him with constant lachrymation, together with infraorbital and supraorbital pain, and added to this he had loss of smell on the same side. With the exception of the lachrymation these symptoms persisted for three months up to the time of his first visit to me on April 22nd of this year. When I first saw him he had marked tenderness on pressure over the infraorbital and supraorbital canals, and also over the side of the face and nose, extending to the inner canthus. His subjective symptoms were exacerbations of acute frontal headache with a constant numbness in the skin in a complete circle round the eye. On examining the interior of the nose I found the inferior turbinal somewhat turgescent, but a solution of a 5 per cent. cocaine caused contraction allowing a good view of

the middle turbinal region. Here the turbinal was very much enlarged, granular, acutely inflamed, secreting a glairy mucus, and was wedged tightly up against the septum. Under cocaine and adrenalin I removed the anterior end of the turbinal with curved scissors and snare. Two days later he returned to have the gauze plug removed which had been inserted after the operation. He expressed himself as having entirely lost the pain, though there was still some feeling of numbness in the infra-orbital and supraorbital regions. This latter soon disappeared, and now, three weeks later, with the exception of the loss of smell, which has been almost completely regained, his head symptoms have disappeared. At no time was there evidence of sinus mischief.

Case II.—F. H., male, aged 53, complained of tightness over bridge of nose, numbness on face below both eyes, pain starting at the root of the nose and running up over the forehead and scalp to the occiput. This latter at times was very acute; duration two years. Nasal examination showed polypi springing from middle turbinal region in the right nostril; a hypertrophied middle turbinal in contact with the septum in the left. The polypi were removed with a portion of the middle turbinal from the right nostril, and the anterior end of the middle turbinal from the left, with the result that the headache and numbness entirely disappeared.

Case III.—H. T., female, aged 24, inability to breathe through left nostril, frontal and infraorbital pain (left), at times excessive lachrymation in the left eye; duration four years. Had tried various remedies for headache without avail. Had influenza four years previously; trouble dating from this time. Again in this case the middle turbinal was much hypertrophied, cocaine making no reduction in its size, and tightly pressing on the septum, so that a fine probe could not be passed between without force. The anterior end of the turbinal was removed in the same manner as in the other cases and with a like result—disappearance of symptoms.

These three cases are quite sufficient to show that direct pressure on branches of the fifth nerve can, and does, take place in the nasal chambers, with symptoms of referred pain to more remote regions supplied by other branches of the trigeminal nerve.

While we are thus able, by our knowledge of the distribution of the fifth nerve, to trace the reflex symptoms of infraorbital and supraorbital pain and numbness, as well as lachrymation, and this latter quite apart from epiphora, I myself cannot explain the connexion between the nose and occipital pain mentioned in Case II. That there is a connexion I have in two or three cases been able to verify in treatment of the middle turbinal. One case especially I recall of frontal sinus disease. In removing polypi and breaking down the ethmoidal cells with Grünwald's forceps, the patient has complained of a sudden acute pain slightly to the outer side of the occiput, on the same side as the operated nostril.

The President supported Dr. Smurthwaite's views, but advised caution in prognosis. There were often other causes of headache as well as the enlarged turbinal. This need not prevent the removal of the enlarged portion, which often effected a permanent cure, but the result could not always be guaranteed.

SOME UNUSUAL CASES OF FRONTAL SINUS SUPPURATION.

By Perry G. Goldsmith, M.D.,
Belleville, Ontario.

The object of the paper is to produce a discussion on the management of frontal sinus cases in which some unusual feature presents itself. A series of cases are detailed which show some of the difficulties and complications which one may meet, and the means which may be employed to secure fairly good results.

Frontal sinus suppuration is not infrequently seen by the general practitioner and overlooked, since the patient may complain simply of an inflamed eye, a nasal discharge, or what is at first thought to be supraorbital neuralgia. Severe head colds lasting longer than usual and associated with severe frontal headache and constitutional disturbance should excite suspicion of ethmoidal or frontal sinus empyema. Morphine seems to have little power in these cases. Measures directed to ensure free drainage in the middle meatal region alone give prompt relief.

Frontal sinus disease is generally accompanied by antral suppuration. The antrum in many cases acts as a reservoir for the secretion from above. In cases in which the antral suppuration is due to the sinus above, lavage through the inferior meatus of the nose, performed only a few times, may be all that is necessary to cure the suppuration here; of course, the frontal or ethmoidal disease must also be attended to.

Post-nasal discharge—a symptom very commonly complained of in this country—may be due entirely to purulent secretion flowing from the frontal sinus. The ill-health which in not a few cases is so marked as to make one think of tuberculosis wonderfully improves by measures directed to check the autointoxication.

Some case notes will, I hope, be of interest to you and may bring to your minds cases of your own in which there was some unusual or important feature that will teach us something regarding the mangement of these cases. It is the unusual case or the complications associated with this disease that give us the greatest difficulty; and if we write or speak of our difficulties and failures it will not only make us better for having done so, but will make every operator more at ease when similar cases come his way.

Case I.

A lady, aged 21, consulted me regarding a post-nasal discharge, or, using her own expression, "a dropping in the back of the throat." I cite this case because the symptoms are those which a large proportion of my patients complain of. The condition was of some years' duration and had not been influenced by anterior and posterior nasal sprays. Every winter for the last few years whenever she caught cold it seemed to settle in and about the eye. When accompanied by a head cold very marked frontal pain ensued. Anteriorly could be seen a very marked enlargement of the anterior end of the middle turbinated body and a few small polypi bathed in thick creamy pus in the middle meatus. Posteriorly a large quantity of creamy pus flowed over the extremities of the turbinates. The anterior end of the middle turbinal was removed as a preliminary. On seeing the patient after a few days she informed me that her complaint had been entirely cured, but there was now a very disgusting discharge from the nostril, something she had never had before I operated. It was only after a good deal of talking that I was able to convince her that it was the same discharge flowing in a different direction. The antrum was washed through an opening made beneath the inferior turbinal and a large amount of very offensive pus was found. The frontal cavity was irrigated intranasally for several weeks, when the discharge stopped. No further irrigation or treatment was used for the antrum, which evidently had been filled from the sinus above.

Case II.

Lady, aged 33. This patient had been a sufferer from what appeared to be supraorbital neuralgia and nasal discharge. For many months at 11 o'clock each morning, with very marked regularity, she had a severe attack of pain in the forehead. The pain would nearly drive her wild, necessitating her going to bed for several hours. Morphine in large doses gave almost no relief. Both frontal and maxillary sinuses were quite dark on transillumination. The floor of the left sinus was exceedingly tender, but not bulging. A polypoid condition existed in both meatal regions. The unusual feature about this case was in the progress of healing after an external operation on the frontal sinus. The left frontal and left antrum were operated upon at one time. The temperature at the time of operation was 103°. Pus under pressure was found in the frontal sinus. This cavity was very large, extending quite to the outer end of the orbital ridge.

The patient was much better for the next two days, the temperature ranging from 99° to 100°. On the third day she developed a temperature of 103° and at night 104°, accompanied by marked distress in the head. The packing was removed from the wound, permitting a free flow of pus and giving immediate ease. It was now quite plain that I had missed some offshoot from the sinus, though I felt quite safe after the first operation. On mopping the cavity dry I noticed pus coming from above through a very small opening into which a fine probe passed a considerable way towards the junction of the front part of the forehead and the scalp. A general anaesthetic having again been administered I laid open this cavity. It was quite large, and made with the sinus proper an L-shaped figure. Everything now progressed quite nicely, and when the granulations had almost closed the external wound a reinfection of the cavity took place. At first I suspected that the dressings might be at fault, so I asked the patient to again come to me. The source of infection was then found to be an acute exacerbation of the disease in the other sinus, there being a small perforation in the septum between the two cavities. The other sinus was then operated upon, and without any unusual features both healed promptly. In the first sinus at the junction of the two lines forming the L there was a very marked disfigurement. I was unable to make any improvement by using a paraffin syringe, as the skin constantly gave way. I therefore adopted Paget's method of dissecting up a large flap consisting of the entire scar and tissues over the bone, and then plastering the depression with solid paraffin and suturing the flap in place. The cosmetic effect was excellent.

CASE III.

A case of pan-sinusitis in a woman 64 years of age, all the sinuses undergoing radical operation, and complicated with a severe attack of facial erysipelas which infected the antrum, pharynx and larynx, but not the unpacked frontal sinus.

This heading contains practically all I have to say regarding this case. The cellulitis began twelve hours following the external operation on the frontal sinus. The attack was exceedingly severe, and the constitutional disturbance was very marked. Antistreptococcic serum was freely used, but did not appear to have any beneficial effect. The temperature was invariably higher for a few hours after the injection. The sinus packing was kept wet with a 25 per cent. solution of argyrol, and was not removed for two weeks, as I feared to expose the venous channels in the temporal bone to such virulent infection. Ultimately the case did fairly well, though the infected antrum never became perfectly clean, and some ethmoidal disease was not eradicated. The sphenoidal sinuses were not very thoroughly cleaned out, as the age and constitutional condition of my patient seemed to me to call for milder measures.

Permit me here to remark that I have very great difficulty in curing the ethmoiditis in all these cases. Killian's operation on the frontal sinus makes exposure of the ethmoid more perfect, still I feel I do not have that degree of success with suppuration in these cells that my reading makes me think others have.

CASE IV.

A case of frontal sinusitis, orbital phlegmon, and displacement of the eyeball downward and outwards, due to a primary sarcoma in the right nasal fossa. (Reported at Canadian Medical Association in Ottawa.)

In this case the only complaint my patient made was diplopia and a swelling of the eyelid, as if stung by some insect. The pus was evacuated in the orbit, and after clearing out the nose of a large mass of sarcomatous material, free vent was given to the pus in the frontal sinus. The patient was made quite comfortable for some months, but within a year died of secondary involvement in the liver.

There is also a class of cases which cause me a great deal of worry as to the ultimate outcome and in which a deflected septum appears to be the cause. The after-treatment is here made easier by the use of Killian's specula, but even then I experience great difficulty in reaching all the diseased tissues. I feel sure one is not justified in correcting any septal deviation in the presence of suppurative accessory sinus disease.

CASE V.

A case showing the intimate relationship existing between the eye and frontal sinus. A man, aged 41, complained of having caught a very severe head cold which caused him very great distress in his eye. Apparently he was suffering from a severe attack of conjunctivitis with iritis. The eyeball was tender, tension quite full but not +1, conjunctiva intensely injected and iris somewhat muddy and reacting feebly. There was but very slight tenderness in the floor of the frontal sinus. Intranasally was seen a deflected septum which, when straightened by Killian's long speculum, showed an enlarged middle turbinal pressed well against the bony septum. I was fortunately able to probe the fronto-nasal duct quite easily, and while doing so was surprised to notice a little stream of mucopus running along the probe. The patient was immediately much more comfortable, and by using menthol inhalations was rapidly well. The ocular condition rapidly subsided without treatment.

I wish here to mention a device which has served me well in clearing a sinus of its diseased membrane with the least injury to any healthy tissue. I refer to the use of felt or cloth burrs. Mayer and Meltzer have made for me felt burrs of various sizes, which, when attached to a dental engine, will facilitate very greatly the cleaning of the cavity, as well as assist very materially in checking the haemorrhage. Stout linen wound around a large dental burr does very well indeed, and I have found it of very great service in cleaning the walls of the maxillary sinus and checking what is sometimes a very troublesome oozing.

In conclusion, I feel like apologizing to you for taking up your time in presenting these few notes on cases which to me seem difficult and unusual, still to many or most of you may seem simple and commonplace. I cannot help thinking, however, that the status of the surgery of the accessory sinuses of the nose would be on a surer and more rational foundation if each of us would write rather of his failures and difficulties than of his success.

SOME CONSIDERATIONS UPON CERTAIN FACTORS IN THE DIAGNOSIS AND TREATMENT OF SUPPURATIVE LESIONS IN THE NASAL ACCESSORY SINUSES.

By HERBERT TILLEY, B.S.Lond., F.R.C.S.Eng.,

Surgeon, Department for Diseases of the Ear, Nose, and Throat, University College Hospital, London.

IN any meeting of experts it may be assumed that their views upon the broad aspect of any subject to which they have devoted attention will in the main be one of agreement and will differ only upon points of detail. There are many such differences of opinion and practice in connexion with the subject of my paper, and some of these would quickly disappear if at such meetings as this we discussed the details of our experiences, and more especially those which include our failures and disappointments.

Assuming, then, that we are all conversant with the main facts regarding the etiology, symptoms, diagnosis, and treatment of suppurative lesions of the nasal accessory cavities, I would like to present a few of my own experiences, and only ask you for yours in return. Obviously my communication must be a "thing of shreds and patches," but my object will be attained if I can in any way promote a discussion which will tend to clear up debateable issues and render the practice of our art more certain and successful.

MAXILLARY ANTRUM.

We are all aware that suppuration in this sinus may be caused by intranasal or dental infection, but opinions are greatly divided as to which is the more frequent etiological factor. If there be nothing in the history of the case to guide us, it will be difficult to be certain as to the cause of infection, because we are often consulted by the patient when the suppuration has become chronic, and he has forgotten the details of initial symptoms. Furthermore, advanced dental caries and socket inflammation may be present, even though the infection be of intranasal origin.

It may be asked, "What difference from the point of view of prognosis and treatment will it make, whether the infection be dental or intranasal?" From those who have much experience in the matter the reply will be immediately forthcoming that the prognosis and treatment are more satisfactory in cases of dental origin. Many of us must have frequently cured chronic antral suppuration of dental origin by simple alveolar drainage, and as often failed to relieve those of nasal origin by the same means.

From the point of view of diagnosis clinical experience in this matter would suggest that in an empyema of dental origin there is far less likelihood of finding swelling and hypertrophy of the uncinate process, or polypi in the middle meatus, than when the sinus is infected by the intranasal route. Again, when a diseased tooth is the cause of trouble, an injection of a warm weak antiseptic lotion into the antrum will often produce aching of the offending tooth. This tooth, however, may not be obviously diseased—for example, the "crown" may appear to be perfectly healthy, but a septic periostitis may affect one of the roots (specimen shown).

Diagnosis.

Intranasal puncture of the antrum is the easiest and only absolutely reliable test of antral suppuration. It can almost always be applied, but on three occasions I have been unable to obtain any return of the injected fluid; this was found to be due to intra-antral polypi, which, by a valve-like action, blocked the natural ostium.

Pus in the middle meatus is a well-known sign of antral suppuration, and generally it is seen in the lower and hinder region of the meatus, but occasionally it is observed high up and anteriorly, and then suggests the presence of frontal sinus suppuration.

In one of my cases, where the antrum was alone infected, the position of the discharge in the anterior and higher regions of the meatus was due to a deviation of the septum, which forced the posterior half of the middle turbinal against the outer wall of the nose, and thus

turned the discharge forwards. A large polypus in the posterior part of the meatus will produce the same result.

To diagnose the source of the discharge in such a case, the antrum, nasal cavity, and especially the middle meatus should be cleansed from all traces of pus. If the secretion be coming from the frontal sinus it would quickly reappear in the meatus, but many hours would have to elapse before it could overflow from the antrum if its origin were in this cavity.

Transillumination is of great aid in diagnosis, but its evidence is only of presumptive value. An antrum which transilluminates well is not in a state of chronic inflammation, but it may contain a cyst or a polypus. If it is opaque it may contain pus, but this can only be rendered certain by exploration. On the strength of opacity patients have been subjected to operative procedures which would have been unnecessary had a "denture" on the suspected side been removed before the lamp was placed within the mouth.

Treatment.

Alveolar drainage will be more likely to prove effectual as a mode of treatment in cases of dental origin if the disease has been present for a period of months rather than years.

I use a narrow, solid vulcanite plug, the milled surface of which prevents the plug from falling into the mouth.

Some form of radical operation will probably be required for the majority of chronic cases, whether of intranasal or dental origin, because of the degenerative changes which have taken place in the lining mucosa of the sinus.

When the uncinate process is much hypertrophied or polypi are present in the middle meatus a radical operation is practically always called for; and since such changes are more frequently present in cases of intranasal origin, our dictum is tantamount to saying that the radical procedure is generally required to cure chronic cases where the source of infection has been by way of the nose.

When radical measures are called for I am accustomed to practise the Caldwell-Luc operation, with the following modifications:

1. The whole inner antral wall is removed, especially the upper membranous portion. The lower limit of the opening should be level with the floor of the nose, so that free drainage may take place. The lower anterior ethmoidal cells should be curetted at the same time, because they are frequently infected, and if not dealt with an imperfect result will be attained.

2. *Only such of the mucous membrane as is diseased should be removed.* If healthy mucous membrane be scraped away healing is much longer delayed, and considerable purulent discharge from granulation tissue will result.

3. The bucco-antral wound must be sutured at the close of the operation. Omitting to do this in one case led to a bucco-antral fistula, which for months was an annoyance to the patient and a weariness to myself. Such fistulae are often very difficult to cure unless the wound be opened up and the track "freshened."

4. No packing is introduced into the antrum. It is quite unnecessary, for it serves no useful purpose, and its removal is very painful to the patient. I have never seen oedema of the cheek since I ceased packing the sinus cavity.

5. The after-treatment consists of syringing the nasal cavities with warm antiseptic alkaline lotions for a period of three to five weeks following the operations.

In some six patients I have opened the maxillary sinus by way of the nasal cavity—that is, by removing the anterior half of the inferior turbinal and then making a large opening into the sinus. The method did not give me entire satisfaction, and seems contrary to general surgical principles, for I take it that when we are dealing with a chronic suppurating cavity it is the best practice to open it, examine the extent and situation of the disease, and then to deal thoroughly with it, taking care to provide, above all things, for free drainage.

Ethmoidal Cells.

In my experience these small cavities are rarely the seat of suppurative inflammation, except in association with a similar condition in the neighbouring sinuses. When they are alone affected the disease is usually limited to the cells contained in the middle turbinal or to the ethmoidal bulla.

Frontal Sinus Suppuration.

In difficult cases of pan-sinusitis the presence or absence of pus in the frontal sinus can generally be determined by exclusion—that is, by washing the antrum, middle meatus, and nasal cavities free from all pus, and then carefully examining the lower opening of the fronto-nasal canal.

In acute suppuration of the frontal sinus frequent irrigation of the cavity with warm mild antiseptics is an excellent method of local treatment, and may be expected to hasten resolution and cure, but I have only known it cure one case in which the disease was of long standing. This failure on my part has not been due to want of patience or experience in the matter.

If the contour of the sinus be fairly regular, and the opening into the nose unobstructed, it is quite easy to understand that irrigation may be successful even in chronic cases, but almost invariably the sinus extends into narrow bony recesses, that only a free opening of the cavity and thorough obliteration of these sinuous tracts can effect a cure.

The location of pain over the situation of the sinus is no proof that disease is located there. The best results which in my hands have followed the opening of the sinus have been secured by a simplification of Killian's operation. The details are the same as his, with this important exception—namely, I do not remove the floor of the sinus. The diseased ethmoidal cells are thoroughly curetted through the opening below the "bridge" of bone, and the whole external wound sutured at the close of operation.

Only those who have much experience of the old "packing" operation, and the weariness of the long weeks of after-treatment can have any idea of the relief it is to both patient and surgeon to be able to do without bandages at the end of a week, and to let the patient out of hospital. The after-treatment consists of daily irrigation of the sinus through the nose by way of the large communication made at the time of operation, and the maintenance of this passage by the frequent application of strong solutions of nitrate of silver (50 to 100 gr. ad ℥j) to the granulations which grow up around it. Complete healing is eventually secured by obliteration of the sinus by granulation tissue.

I have been told that the method courts disaster, and that fatal osteomyelitis of the frontal bone—that grim spectre of radical frontal sinus operations—will soon find me out.

With regard to this point, I would like to say that this complication in my own two cases (under the old method), and I suspect in those fatalities which have occurred in the practice of other surgeons, have been due to the fact that, while the frontal sinus has been efficiently dealt with, yet the fronto-ethmoidal and ethmoidal cells have not been removed at the time of operation, and have re-infected the higher sinus, and pus thus retained under tension has invaded the diploë of the frontal bone.

Since I have given special care to removing the ethmoidal cells I have had no cause to fear osteomyelitis, and I would strongly recommend the simplified Killian operation to your notice.

In other words, osteomyelitis of the frontal bone, following radical operations on the frontal sinus, is due to ethmoidal infection. Remove the diseased ethmoid cells at the time of operation and the complication referred to need not cause anxiety.

Sphenoidal Sinus.

In three cases deep-seated pain in an ear, otherwise normal, was a very definite symptom. Irrigation of the sinus with a warm lotion, or instillation of a few drops of peroxide of hydrogen solution, will sometimes induce the same symptom.

If the anterior sinus wall be exposed by means of Killian's long-bladed speculum, the pulsation of pus in the neighbourhood of the ostium is pathognomonic of sphenoidal sinus suppuration, and does not mean that the wall of the cavernous sinus is exposed within the sinus. A similar pulsation is often seen in the perforated drum of a patient suffering from chronic otorrhoea.

In operating upon the sinus it is a good maxim always to remove more of the anterior wall than seems necessary

at the time of operation, because of the great tendency of the opening to contract.

Free drainage should be our desideratum; curetting the interior of the sinus is not necessary, and it may be very dangerous.

DISCUSSION.

DR. GOLDSMITH'S and Dr. Tilley's papers were discussed together.

Dr. OTTO TIGER FREER (Chicago) wished to speak in defence of the intranasal operation of removal of a large portion of the nasal wall of the antrum of Highmore for the relief of its chronic suppuration. He had had 6 consecutive cases of chronic empyema of the maxillary antrum with complete recovery in from three to four weeks simply as a result of free drainage and ventilation of the cavity obtained in this manner, no curetting whatever having been done. The removal of the anterior two-thirds of the inferior turbinated body, and the cutting away with the trephine and burr of the nasal wall to the nasal floor below into the middle meatus above, and back to near the posterior limits of the cavity, made a large window that permitted some palpation with the little finger, and some inspection of the interior of the maxillary antrum. The intranasal operation was one that might be done under cocaine anaesthesia, was not painful, and was not nearly as severe a procedure as the Caldwell-Luc operation, which made a wound in the mouth, broke down the massive facial or buccal wall, and required general narcosis. As stated by Claoué and Rethi, and by himself in previous writings, the radical or Caldwell-Luc operation was always possible if the intranasal operation failed; the latter really formed its last step placed in advance.

Dr. C. G. COAKLEY (New York) said pain in the teeth was almost always complained of while irrigating an acutely-inflamed antrum, although the teeth might be unaffected. He urged the intranasal operation for chronic suppuration in the antrum before doing any radical operation, and only resorted to the latter in the event of failure of the intranasal drainage. Irrigation of the frontal sinuses ought not to be necessary if proper drainage were afforded either before or after a radical operation. He had not removed the floor of the frontal sinus for six months, and found a considerable saving in the time of operation, and, so far, no interference or delay in healing. Pain referred to the ear had been quite common in his cases of acute sphenoiditis.

Dr. HUNTER (Toronto) asked Dr. Goldsmith what he would do in a case of sphenoidal sinus disease when the septum prevented drainage. Would he remove the turbinals or resect the septum?

Dr. E. FLETCHER INGALS (Chicago) said the cases referred to by Dr. Goldsmith illustrated a class some of which would not be relieved by intranasal drainage alone. The last remark of Dr. Tilley, that, "after all, drainage is what we attempt to secure," suggested the value of efficient intranasal drainage. From Dr. Coakley's statement and his own experience he thought that in 90 per cent. of all cases the frontal sinuses could be explored by the probe. In all cases in which this could be done he thought a free drainage canal could be safely established by the pilot burr that he had recommended. He believed that this operation was as safe as any other on the frontal sinus, and that in 90 per cent. of the cases in which it was done it would prove efficient. In the other 10 per cent. the radical operation spoken of by Dr. Tilley, or some similar procedure, would be needed.

Dr. HARRIS P. MOSHER (Boston) pointed out that the two questions they were trying to settle in regard to disease of the frontal sinus were, Which operation would cure? and Which would leave the least deformity? In his hands the Killian operation had given the more satisfactory results. From the anatomical standpoint it was best fitted to do so. It was capable of dealing with any problem of sinus disease, excluding, of course, the antrum. The chief objection to it was the possible deformity. That the operation was extensive and thorough were points to its credit. When he began to use this operation he expected marked deformity. He soon found, however, that in a sinus of moderate size it left no deformity, and he had been continually surprised to see how large a sinus could be operated upon after this method with no deformity resulting. In the last year he had operated on ten cases by this procedure. The three last were bilateral. He would pass round casts of five of these cases, and a cast of a case done by the granulating method. One of the five cases he treated first by the granulating method. It showed very plainly one thing not to do. The superciliary ridge in the first operation was practically cut through at the root of the nasal bone. One should leave as broad a strip of bone above the rim of the orbit as possible, and the long axis of the opening which is made in the anterior wall of the sinus should be horizontal and parallel with the rim of the orbit, not vertical or obliquely vertical. So far, the only case of his done originally by the Killian method which presented deformity was one in which the long axis of the bony opening was obliquely vertical.

Dr. P. WATSON WILLIAMS (Bristol) spoke in reference to sphenoidal sinus disease. He emphasized the desirability of avoiding the removal of normal structures for diagnostic purposes as was often recommended. If the sphenoidal ostium could not be inspected, he punctured the anterior wall of the sinus in its lower portion with his sphenoidal sinus cutting forceps. The procedure was free from risk, unless unjustifiable force was used. The point of the instrument was blunt, so that injury to the small branch of the spheno-palatine artery was hardly possible, which was the only danger of entering the lower third of the sinus. A great advantage of this method was that the forceps were so devised as to avoid the necessity of removing any intranasal structures. In antral suppuration the diseased area was nearly always limited to the inner wall, so that removal of the portion in and around the uncinate process and the lower ethmoidal cells was often sufficient for cure. If it failed, it was then easy to open through the canine fossa, inspect and remove the diseased areas that were discovered. He added that one should avoid removing more of the anterior wall than was necessary for inspection and the use of instruments.

Dr. STCLAIR THOMSON (London) congratulated Dr. Goldsmith on having placed his finger on two vital points—one, the value of publishing their failures, and the other the difficulty and dissatisfaction they had in complete eradication of ethmoidal suppuration. He was interested in hearing that Drs. Freer and Claoué did fewer radical Caldwell-Luc operations than they did a few years ago. Last year in Paris he (Dr. Thomson) found that this operation was also in many cases giving place to puncture and repeated irrigation. He had no hesitation in doing a submucous resection of the septum if required, even in the presence of acute or chronic sinusitis. In reference to earache, Dr. Thomson would shortly publish a paper showing how misleading this symptom was in sphenoidal disease.

Dr. LOGAN TURNER (Edinburgh) wished to endorse Dr. Tilley's view that when performing a radical operation upon the maxillary sinus the surgeon should open the cavity through the canine fossa. As thorough a visual exploration of the sinus should be made as possible, and Dr. Turner was of the opinion that that could only be obtained by making a large opening through the anterior wall of the sinus. He did not consider that the necessary inspection could be made by any intranasal opening.

Dr. GEO. L. RICHARDS (Fall River, Massachusetts) wanted to record his agreement with the position, taken by Dr. Freer and Dr. Coakley, namely, that the large majority of cases of antral suppuration could be treated by puncture through the naso-antral wall. If the opening were made large enough the drainage would be good and many patients could be taught to wash out the sinus through a curved cannula or large Eustachian catheter. He found himself doing the radical operation for maxillary sinus disease less often. The question of cure by the intranasal route depended not so much on how long the purulent process had lasted as upon the character of the lining mucosa. If degenerated and filled with polypi intranasal treatment would probably fail. In otherwise uncomplicated primary purulent inflammation of the antrum of nasal origin, nasal treatment, provided the opening through the naso-antral wall were large enough, should be successful.

The PRESIDENT considered that the debate showed that the true attitude was one of eclecticism in the selection of pure rhinological or external methods. He was himself in favour of the treatment of rhinological conditions by

rhinological methods, but this principle should not be pushed too far. He thought the difficulty expressed by Dr. Logan Turner was met by explaining to the patient that the less radical operation might require to be followed by the more radical one. He (the President) had more than once had occasion to wish he had operated more radically, but he was sure he had in many instances been able by intranasal methods to obviate the necessity for external operation. He saw signs of a growing tendency towards the rhinological methods. He reminded the Section of the certain damage to the teeth in children in opening the antrum freely by the canine fossa. He exhibited some curved bougies for the dilatation of the infundibulum which, combined with the use of Sondermann's suction apparatus (also exhibited) he had found of value in the treatment of frontal sinusitis.

Reply.

Dr. Perry Goldsmith, in reply, said that the method of exclusion referred to by Dr. Tilley might fail in those cases in which the frontal sinus had emptied itself shortly before examination. He thought they should be sure that sinus mischief did not demand immediate attention before they did any major operation on the septum.

A STUDY OF THE ANATOMY OF THE ACCESSORY SINUSES OF THE NOSE,

BASED UPON RECONSTRUCTIONS OF TWO HEADS.

By Hanau W. Loeb, M.D.,
St. Louis.

[*Abstract.*]

Reference is made to the method of reconstruction as outlined in the writer's paper read before the American Laryngological, Rhinological, and Otological Society at its meeting in June, 1906, by means of which it is possible to reproduce the sinuses in their proper relations, giving an anterior, lateral and superior view. This makes it possible to compare the various sinuses with each other and with those of other heads.

The two heads studied were those of two men, one white and the other black, of about the same height, age, and weight. The very great differences which exist between the sinuses themselves and the corresponding ones of the two heads are clearly shown in the reconstructions. In this way only can exact measurements of the individual sinuses be ascertained.

While no definite conclusion can be drawn from a study of only two heads, it is clear that the method furnishes the means of more closely studying the sinuses and suggests the likelihood of greater understanding of the varieties, relations, and functions of the sinuses and the causes which lead to their irregular distribution.

Serial sections of each head are exhibited, with drawings from the sections and reconstructions in various planes, showing relations and comparisons of the sinuses.

SKIAGRAPHY AS AN AID IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE ACCESSORY SINUSES OF THE NOSE,

WITH EXHIBITION OF PLATES.

By C. G. Coakley, M.D.,
New York.

In the fall of 1904, my friend Dr. F. C. Ard brought from Freiburg, Germany, two negatives showing projections of the frontal sinuses and ethmoidal cells from exposure to the *x* rays. Professor Killian had been employing this method for about a year previously. I showed these plates to Dr. E. W. Caldwell, in charge of the Gibbs *x* ray laboratory at the University and Bellevue Hospital Medical College. He immediately set about skiagraphing some of our dispensary patients suffering from sinus disease. The first plates made were only moderately successful. In some cases the outlines of the sinuses could be but faintly discerned, and many failures owing to improper tubes and exposures were recorded. Since that time Dr. Caldwell has skiagraphed for me about 200 patients, some of them dispensary patients, others private ones. I have operated upon the frontal sinuses of 46 of these 200 cases, thereby enabling me to compare the size and shape of the sinuses as found on operation with the same as they were shown in the skiagraphs. The conclusions which I have embodied here are the results of my work for the past two years in this line. All of the technique of skiagraphy has been developed by Dr. Caldwell, who is to present at the annual meeting of the American Roentgen Ray Society, at Niagara Falls on August 28th, the latest technique by which he is now enabled to secure in almost every instance a satisfactory negative.

My rôle in the work has been that of furnishing patients for Dr. Caldwell and interpreting the plates. From lack of experience on my part, and from the poorer quality of the earlier plates, it was not possible to get as much aid at first as we can now from the better plates and greater experience in reading them. It is not very difficult to obtain a plate which will show the presence or absence of the frontal sinuses, their size (that is, height, breadth, and depth), and one that will show some, perhaps all, of the subsidiary septa that may be present. Such plates may suffice to determine beforehand the type of operation that is best suited for the patient, but the plate may be of no value for determining the presence or absence of disease in the sinuses.

I have become thoroughly convinced that an excellent skiagraph can be depended upon to demonstrate not only the size of the sinuses but the presence or absence of disease as well. This I believe to be one of the greatest aids in the diagnosis of sinus disease which we have yet employed.

I now classify the results of my observations in reference to the various accessory sinuses.

1. The Frontal Sinus.

(a) Certainty of Demonstrating the Presence or Absence of Sinus before Operation.

A good negative will show the presence or absence of a frontal sinus. I have one plate in which the frontal sinuses did not project above the orbital arches; in the case of children the small size of the sinuses can be shown, and the exact height and width of the sinuses are easily demonstrated. The frontal sinuses are mainly shown budding out from the upper region of the ethmoidal area as they are known to develop embryologically. I have a plate which shows a good-sized, well developed frontal sinus on one side, and absence of the sinus on the other.

(b) Accurate Determination of Size of the Sinus.

We have found that the frontal sinuses have not in any of our operative cases appreciably varied from the height and width as measured in the skiagraph. It would be comparatively easy to get distortion were it not for the fact that the plate rests directly on the forehead of the patient; a possible element of error will arise if two pictures are taken with the rays passing through the head at different angles to the forehead. In other words, if the ray is made to enter above the occiput, and another picture taken with the ray below the occiput, the height of the sinuses will be different in the two skiagraphs owing to the difference in the projection of the sinus above and below the level of the occiput. This portion of Dr. Caldwell's apparatus has been very conveniently arranged so as to have a constant angle of projection for the sinuses.

(c) Situation of Septum between two Sinuses.

The septum between the two sinuses can usually be easily determined. It is seldom situated absolutely in the median line, but often bent to one or the other side, as we know from experience on the cadaver. One is very apt to mistake the projection forward of the spine of the ethmoid and the line of junction of the interfrontal suture for a median septum unless the plate is carefully studied.

(d) Location of Partial Septa.

Partial septa in the frontal sinuses are very plainly shown in a good plate; always more plainly seen in a healthy sinus than in a diseased one.

(e) Probable Presence of an Orbital Recess.

Whenever in a good skiagraph a dark, slightly curved horizontal area, almost parallel with the upper border of the orbital arch is seen, we have found such patients have had a recess extending backwards over the roof of the orbit to a greater or less extent. This finding has been so

constant that I feel quite sure that such an area can be relied upon as indicating a backward, orbital projection of the frontal sinus.

(f) Disease Determined by an Excellent Negative.

In our earlier plates, as the negatives obtained became more clear and distinct, I noticed that there was invariably a cloudiness over the area occupied by a diseased frontal sinus, and an indistinctness of the outlines of that sinus as compared with those of the healthy sinus. This, of course, could be more easily observed where one sinus alone was involved than where bilateral frontal sinusitis existed. This occurrence was so constant that over a year ago I made the statement that I believed in some cases we could use skiagraphy for diagnosing the pathological conditions as well as the form of the sinus.

Last fall I asked my friend and associate, Dr. Chisholm, to undertake a series of experiments to determine, if possible, the cause of the cloudiness in a diseased frontal sinus. These experiments upon the cadaver showed that any fluid injected into a frontal sinus caused a shadow, and that membrane containing moisture caused a marked shadow as compared with the same membrane when dry. As a result of his experiments there can be no doubt that the shadow in the skiagraphs is the combined result of the thickened mucous membrane, and any fluid which may be present in the cavity at the time the exposure is made. Of course one must be careful to exclude any possibility of fogging a plate, for the appearance of an affected frontal sinus is not unlike that of fogging.

On two occasions when it was impossible to be positive as to the extent of frontal sinusitis from any examination which I could make, the cloudiness over the affected frontal sinus induced me to make a diagnosis of frontal sinusitis. The cases were operated upon: in one, the cavity, only moderately large, was filled with thick mucopus without any increase whatever in the thickness of the mucosa. In the other just the opposite condition was found—namely, marked oedematous infiltration of the mucosa, with only a few drops of secretion in an enormously large frontal sinus.

(g) From Information Obtained from the above, Determining in Advance the Best Method of Operating.

Feeling as I do that no one method of operation will eventually be found to be most serviceable in the treatment of all sizes of frontal sinuses, we have in the *x* ray a very great aid in determining in advance the type of operation which is best suited to the individual case.

2. ETHMOIDAL CELLS.

The width of the ethmoidal cell area—that is, the space between the nose and the orbit—is easily demonstrated. This is of very great help, especially when one operates upon these ethmoidal cells intranasally. I have been very much interested in noticing how narrow the ethmoidal area is in some patients and how very wide it is in others. The height of the ethmoidal cell area is also well shown, and the relations of some of the ethmoidal cells to the frontal sinus easily demonstrated. It is not uncommon to find some cells in the ethmoidal region cloudy and others clear, showing absence of disease. Some of my plates also have shown a line of cloudiness extending from the frontal through some or all of the ethmoidal cells and continuous with the cloudiness involving the antrum. In two such cases intranasal operations on the antrum failed to relieve the suppuration until the frontal sinus and ethmoidal cells were opened externally, after which the antrum ceased discharging.

3. MAXILLARY SINUS.

A diseased maxillary sinus will in a good negative have the same cloudy appearance as do the frontal and ethmoidal sinuses. I do not believe that one would ever employ skiagraphy for a maxillary sinus alone, unless it were to determine the presence of a foreign body or a partially-extracted root of a tooth as the existing cause of the continued suppuration in an antrum. Such a foreign body can easily be located by a skiagraph.

4. SPHENOIDAL SINUS.

A side view of a sphenoidal sinus often enables us to determine whether a large or small sinus is present. I have been unable to obtain any greater information than this as to the sphenoidal sinus. The central situation of this sinus and the varying superimposed bony structures through which the rays have to pass make me sceptical as to whether a diseased condition of this sinus can be determined in this way. Certainly a study of my plates does not warrant me in venturing an opinion on the pathological condition of the sphenoidal sinus.

DEMONSTRATIONS.

NASAL SARCOMA.

DR. J. PRICE-BROWN (Toronto) showed a case of nasal sarcoma, with pathological specimens removed three years ago. He said: The patient is a man, aged 25 years, whose history has already been reported in the journals. He has been quite well for a long time, and although there was a slight recurrence for a while in one spot—at the junction of the left posterior naris with the post-pharynx—successive electro-cautery burnings of the little affected area had finally removed the disease. It is several months now since the last cauterization, and there is no appearance of the return of the disease. For the last two years the patient has followed uninterruptedly his regular occupation of electrician.

CIRCULATION IN THE LABYRINTH OF THE EAR.

DR. GEORGE E. SHAMBAUGH (Chicago) exhibited preparations showing the circulation in the labyrinth of the ear. These preparations were celloidin casts that had been made of the cavities of the labyrinth from material in which the blood vessels had been previously injected. The casts had been cleaned in creosote, and then mounted in Canada balsam in glass cells. The specimens exhibited were complete casts of the whole labyrinth, and all of the vessels could be readily traced from the point where the labyrinthine artery entered the labyrinth until the veins united and left the labyrinth along the canaliculus cochleae.

TWO CASES OF ABDUCTOR PARALYSIS.

By GEORGE L. RICHARDS, M.D.,
Fall River, Massachusetts.

CASES of abductor paralysis are of sufficient rarity to warrant the reporting of each one, so that whatever light the individual case may possibly throw on the general subject may be at the command of laryngologists in general. Like very much of the material reported in medical literature, my cases are more or less incomplete so far as their etiology is concerned, nor can I give their accurate pathology. One of them, at least, is somewhat unusual as regards the age of the patient. I have made no systematic search of the literature, but in a paper by Wilson, published in the *Laryngoscope* of September, 1900, he refers to some 88 cases which he has found in literature, and some 30 which had been reported to him by letter, making a total of 118 up to that time. The history of these cases shows that the mortality is very great and that measures for relief, other than tracheotomy, appear to have been futile, although cases are reported in which the electrical treatment has seemed to have done a certain amount of good.

The recurrent nerve is peculiar in that it contains both abductor and adductor fibres. The abductor fibres seem to be fewer in number, and relatively weaker than the adductor: and in the presence of trouble with the abductors, the adductor fibres seem, if anything, to get more strength.

1. My first case was an unmarried woman, 40 years old, a cotton-mill operative, who consulted me on January 24th, 1903, with a history of a cough since the preceding May. The cough was a peculiar, sharp, barking one, coming almost paroxysmally, and accompanied by but little secretion. On examining the larynx the cords were found to be in active motion, and during the latter part of each inspiration came together until they almost met in the centre line. The respiration was stridulous in character, and the case seemed to be one of partial abductor paralysis. Electricity was used, and remedies for the cough, with apparently a little improvement, and on February 3rd examination seemed to show that the degree of abduction was hardly sufficient for true abductor paralysis. Ten days later, the paresis became more evident and at that time seemed to admit of no doubt whatever as to its being a case of double abductor paralysis. During expiration the glottis widely opened, but before the inspiration was half through the cords came together so as to almost entirely close up the chink. Five days later the dyspnœa had increased to such an extent and the breathing was so laboured that there was imminent danger of suffocation. The cords at this time were found to come so absolutely together toward the

end of inspiration that only the narrowest chink was left. Tracheotomy was performed, with relief of the difficulty in breathing, but the bronchitis, which had been coexistent, seemed to increase in severity, and five or six days after the tracheotomy was performed, purulent bronchopneumonia supervened, with resulting death.

No autopsy was permitted, so that it is impossible to say what the true lesion was and whether it was central in character or not. It has always seemed to me that it was probably central in character.

2. My second case is the more unusual, because it occurred in a child—a little girl, 2½ years of age, who had never had any sickness excepting measles. On April 19th of this year, while playing, a large rooster knocked her down and pecked her on the mouth. She was frightened and ran home crying. That evening while eating fish she started to cry and then lost her voice for the moment and could not speak. After that she talked hoarsely. The same night breathing became difficult. She was at times a little better, but never complained of any pain; deglutition was normal, and the voice almost so. Six days later I made an examination with the finger, but found nothing suggestive of a foreign body. The child seemed suffering from inspiratory dyspnoea. Some three weeks later the child was brought to my office with the history that she had kept on playing, for the most part talking rather low and with the lips, but loudly whenever frightened or when she saw anything strange. She had been taken out of doors one windy day about two weeks previous, and ever since had breathed harder and harder. She had eaten very little for the last two weeks. Although previously a healthy child, she was now very much emaciated and every inspiration was dyspnoeic in character. Attempts to get a good view of the cords failing, she was given chloroform to complete anaesthesia. Inspiration then showed both cords to come sharply together at the beginning of inspiration and to remain in this position, there being nothing but the very narrowest chink just in front of the arytenoid cartilages. As the child was somewhat cyanosed and the dyspnoea very urgent, she was taken at once to the Union Hospital and tracheotomy performed on June 1st. Since then she has grown fat. She has breathed continually through the tracheotomy tube, and whenever it is removed the attacks of dyspnoea seem just as before. The cry is harsh with the tube removed, but the child cannot be induced to attempt to talk except in a whisper.

On August 17th she was examined at the throat department of the Massachusetts General Hospital in Boston by Dr. D. Crosby Greene, jun., who confirmed the diagnosis of double abductor paralysis. The sudden onset of the attack, the freedom of respiration since, the absence of marked hoarseness, to our mind absolutely rules papilloma out of question.

As to treatment, it seems to me that strychnine, arsenic, electricity, etc., may be used, but it is a question whether they will do much if any good. I have tried faradism and strychnine, but as yet they are of no avail. I shall try other remedies, but it is probable that the condition will last for a varying length of time. I have hopes that eventually, with the growth and development of the child, the conditions demanding tracheotomy will entirely disappear and recovery take place.

The etiology here is somewhat curious. A succession of frights seems to be the real cause, as I do not think that at any time there was anything suggestive of a foreign body, although the coughing following the eating of fish is always suggestive of a fish bone. What the pathology here is I am unable to state. It would seem to me to be central in nature rather than peripheral, and to be one of those inexplainable conditions in which, through the influence of the central nervous system, distinct interference in function of parts supplied by peripheral nerves takes place.

Dr. Chevalier Jackson (Pittsburg, Pennsylvania) said that he had two cases still under observation, both men in middle life, who were tracheotomized two and six years ago respectively. Both had been gone over by internists and neurologists, but absolutely no lesion could be located. He further referred to some blood pressure work done on his cases by Dr. John W. Boyce, which demonstrated that manipulation of the upper end of the oesophagus, as in bronchoscopy, was associated with profound shock. This should be forestalled. Further, he had found that general anaesthesia in abductor paralysis usually ended in a stabbing tracheotomy. In his opinion it was better to do a preliminary tracheotomy under local anaesthesia.

[October 31st. Supplementary report on case:

On September 1st the experiment was made of taking the tube out of the child's throat for an hour each day, and compelling laryngeal respiration. There was considerable struggle and quite a degree of dyspnoea at first, but this was gradually overcome until after a few days the period was lengthened, and by the middle of September the tube could be left out the entire day. It was put in every night. The voice began to improve, the child cried naturally, the dyspnoea disappeared, and early in October the tube was left out altogether and the tracheotomy wound sewed up. She was retained in the hospital a week afterwards, but there being no apparent trouble, the child was discharged on October 15th, having worn a tracheotomy tube continuously nearly four months. The child has been under observation since, but there has been no further trouble.

It is probable that this case was one of purely nervous origin, due to the two frights, and recovery is presumptively permanent.]

A DISCUSSION ON THE INDICATIONS FOR THE LIGATION OF THE INTERNAL JUGULAR VEIN IN OTITIC PYAEMIA.

OPENING PAPERS.

I.—Hugh E. Jones, M.R.C.S., L.R.C.P.,

Honorary Surgeon Liverpool Eye and Ear Infirmary, Ophthalmic and Aural Surgeon to the Royal Albert Edward Infirmary, Wigan, and to the St. Helen's Hospital.

When our President asked me to open this discussion, I accepted the invitation with very mixed feelings. While deeply grateful to you, Sir, for the honour you conferred upon me, I was conscious of the difficulty of the task which that honour carried with it. When I thought of all the papers that had been written on the subject and the many great names associated with it, I found it difficult to imagine that my small experience could add to the general knowledge anything worthy of the occasion. The fact that you, Sir, had recently read a most thoughtful and critical paper before the Otological Society of the United Kingdom—a paper in which you stated lucidly and temperately the case against ligation of the internal jugular vein—in one way added to my difficulties, but in another way had been a great help to me. To a certain extent and in one sense I have taken that paper as my text, or—shall I say?—as the lesson for the day. It has been the habit of many writers almost to ignore the arguments advanced by Macewen, Brieger, and others against wholesale ligation, of the vein, but, however strongly one may adhere to the principles laid down by Zaufal, Horsley, and Ballance, the facts as marshalled in your paper compel our attention and your conclusions call for our careful consideration.

Scope of the Discussion.

In the great majority of cases otitic pyaemia (and I take the expression to include septic intoxication and septicaemia of otitic origin) is caused by the infection of one or other of the sinuses grooving the temporal bone or of the bulb of the jugular vein, with or without preliminary occlusion by a thrombus; but a few cases of septicaemia and even pyaemia arise without evident involvement of the sinuses, or, as in a case I shall relate, without any indication of bone disease.

While, therefore, it is mainly with septic infection of the sinuses and internal jugular vein that this discussion is concerned, I trust that the exceptional cases referred to will also receive a share of attention. The title of the discussion leaves the exact meaning of "ligation" open. I doubt if any one would think nowadays of tying the vein without at the same time dealing effectively with the disease in the temporal bone and lateral sinus, but there may be great difference of opinion as to the extent of the interference required and the order in which the various stages of the operation are to be taken. I think these questions may be said to come within the scope of the discussion.

The one thing certain which cannot be disputed is that the first essential in the treatment of otitic pyaemia is the rapid and complete eradication, so far as that is possible, of the primary focus in the temporal bone and of the secondary focus (if there is one) in the sinuses or vein, without at the same time accidentally causing a spread of the infection.

Even the surgeons who most object to wholesale "ligation" admit that cases do occur in which the secondary disease in the sinus and vein cannot be removed or its dissemination prevented without making ligation a part of the operation.

The questions we are asking ourselves to day may be formulated as follows:

1. Is ligation of the internal jugular vein in itself or in its consequences a dangerous operation, and if so, do its dangers ever outweigh those of leaving the vein untied?

2. Under what circumstances and local conditions is it possible or impossible to determine whether the whole of the primary and secondary local foci can be removed and the further dissemination of the disease prevented without ligation of the vein?

3. What method of procedure best overcomes the risks of the operation itself and of the disease?

4. Under what conditions (if any) is it necessary or advisable to tie the vein before operating on the temporal bone and lateral sinus?

Before trying to answer these questions, let us consider for a moment the comparative value of the evidence at our disposal.

(*a*) Anatomical and physiological facts are obviously of first-class importance. The whole plan of treatment is suggested as well as made necessary by the anatomical facts. Moreover, within the natural limits of variation the facts are constant and to be depended upon.

(*b*) Clinical evidence is not so satisfactory; it is not always easy to say at what precise moment or spot particular pathological changes occur; similar changes in widely-separated parts may produce similar general symptoms and give little or no local signs, for example, clotting in the various sinuses or veins, disintegration of the clot at various points, or mural extensions of the disease in different directions.

(*c*) This difficulty is overcome by operation in proportion to the completeness of the operation performed. Intervention limited to the lateral sinus leaves much room for speculation; the complete operation clears up many doubts.

(*d*) *Post-mortem* evidence is to some extent vitiated by changes which have occurred before operation, but will generally show whether the fatal extension took place backwards along the lateral sinus, downwards along the jugular vein, or along the collateral veins, or whether death was due to some coincident intracranial suppuration.

(*e*) Mere comparative statistics based on the results of operations with and without ligation are of little value, because the cases which are admitted by all to require ligation are those in which the disease was either of a much severer type or had been longer in existence before operation.

Reverting to my first question—1. Is ligation in itself or in its consequences a dangerous operation, etc.?—the objections which have been urged against the operation are:

(i) That ligation of the vein is positively dangerous on account of its interference with the collateral circulation, that is, with the escape of intracranial blood by the posterior condylar vein, the inferior petrosal sinus, and the facial anastomosis. It is undoubtedly the fact that one sinus is generally larger than the other, and it may be conceded that if the vein be tied low down on that side, when the opposite sinus is extremely small there is a danger of cerebral oedema. But how often does this extreme variation happen? Does it constitute a greater risk than, let us say, the possibility of a dangerous variation in the course of the carotid in relation to the tonsil? Excision of the tonsil is rarely an urgent life-saving operation, but the possible risk mentioned is never allowed to interfere with that operation even when it is a matter of mere expediency.

(ii) That when the clot is limited to the lateral sinus, the posterior condylar vein and the inferior petrosal being supposed patent, ligation of the inferior jugular vein causes a flow of blood from the inferior petrosal sinus to the condylar vein, carrying with it septic material into the vertebral vein; furthermore, that under the above conditions aspiration of the bulb may take place through the agency of the vertebral vein.

It may be well at this point to consider, and if necessary to revise, our ideas of the anatomy of the lower end of the lateral sinus, the bulb, etc. The posterior condylar vein leaves the sinus at right angles, where the latter forms a semicircular recess before it becomes constricted and turns down through the jugular foramen. At the foramen the great vessel is compressed to its smallest dimensions. The opening into the bulb is almost valvular, and a slight downward pressure on the dura above or behind it is enough to close it. At this point, too, I have found two or three fine septa stretched across the opening like a grating (Fig. 1)

It is probable, therefore, that clotting, whether it begins in the bulb or in the sinus, is stayed at this point for an appreciable time, and in many cases permanently arrested. Before clotting extends into the bulb the condylar vein will be occluded, and this probably occurs comparatively early in most cases of sinus thrombosis without the help of pathological or artificial occlusion of the internal jugular vein.

There is in some sinuses a constriction external to the jugular foramen. Exceptionally, the clotting may be stayed at this first constriction, in which case the posterior condylar would remain free a little longer (Fig. 1).

These constrictions form a natural division of cases according to the place of primary infection. The barrier forms the lower limit for a time of the clotting arising from infection of the superior petrosal sinus, the saccus endolymphaticus, the petrosquamosal vein, and the common form of infection of the sigmoid, and the upper limit of the clot in primary infection of the "bulb."

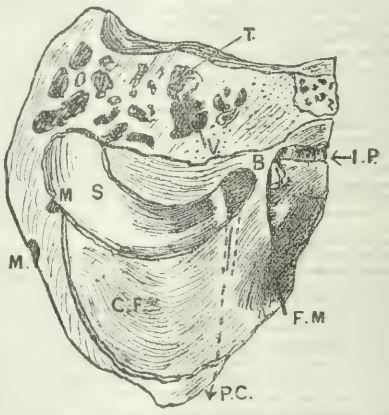


Fig. 1.—Wet preparation of part of temporal and occipital bones (left), with horizontal section through petromastoid (viewed from above). S, Sigmoid sinus (laid open), showing a marked horizontal ridge dividing main sinus from recess from which P.C., the posterior condylar vein, opens. B, Jugular bulb, with low vault. I.P., The inferior petrosal sinus (intracranial portion). T., Tympanum. V., Vestibule. M., Mastoid vein. F.M., Foramen magnum. C.F., Cerebellar fossa.

The inferior petrosal sinus does not open directly into the upper part of the bulb, as might be supposed from schematic drawings, but passes down obliquely through the anterior section of the jugular foramen, separated from the greater vessel by the nerves (9, 10, 11), and joins the internal jugular vein at the lower margin of the bulb, or slightly lower by a slit-like and possibly valvular opening (Fig. 2).

Assuming that the blood in the lower sinus is still fluid, or that the septic clot has become disintegrated, and that the upper sinus has been plugged, then ligation of the vein without resection or opening of its upper division would certainly cause stasis (of clotting) in the bulb, petrosal sinus, and in the condylar vein, but I cannot believe that a reverse current would be set up either in the vertebral vein, or towards the cavernous sinus. Pulmonary aspiration of the sinus by the vertebral vein must be a difficult matter to demonstrate, and I confess to being sceptical on this point. That extension of the septic processes into the posterior condylar and the inferior petrosal often occurs has been proved by many *post-mortem* examinations in cases where no operation has been performed on the vein; so that there is no need to invoke reversal of the current or aspiration in explanation of the fact.

(iii) That the danger from wound infection is serious. I have never seen serious infection from outside, but in a young child under my care suppuration took place

in the track of the great vessels, apparently owing to infection from the divided end of the vein, which ultimately led to perforation of the trachea and septic pneumonia. An occurrence of that kind, however, only shows the extreme virulence of the poison which the operation was an attempt to combat.

These are the principal objections against tying the vein. Against them may be set the following considerations, in addition to those already advanced:

(*a*) If the lateral sinus is firmly closed down by a clot, the clotting in all probability extends to the posterior condylar vein; ligation then closes the larger avenue of two remaining ones and permits removing of the whole clot without serious risk of its dissemination.

(*b*) If there is a permeable infected lateral sinus or bulb, the extent of the mural infection is not ascertainable by operation on the sinus alone, and it is absolutely imperative that the clotting should be encouraged in the whole area in order that the disease may be dealt with radically.

(iv) The last objection—namely, that in many cases the operation is unnecessary, together with the second part of this question, "Do the dangers of tying the vein ever outweigh those of leaving it untied?"—may be left for consideration in the reply to the next question, namely:

2. Question: Under what circumstances and local conditions is it possible or impossible to determine whether the whole of the primary and secondary local foci (when the

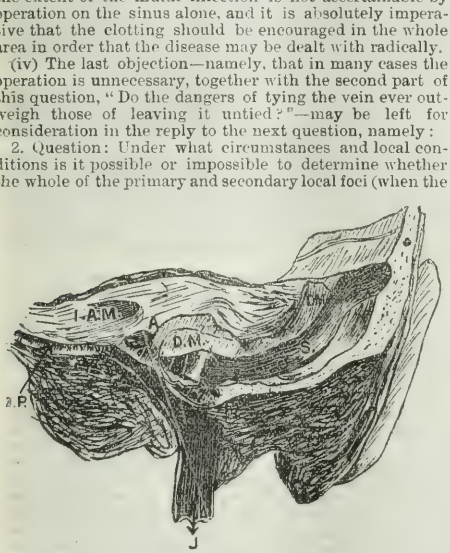


Fig. 2.—Wet preparation of (right) temporal bone (posterior aspect). D.M. On inner surface of reflected wall of sinus. Below D.M. junction of sinus with bulb, showing septa. To right of bulb prominent vertical ridge narrowing sinus to a slit. J. Internal jugular vein: at its upper part semivalvular opening of inferior petrosal sinus, L.P., with thin wall separating the sinus from the bulb shown in section. A. Anterior division of jugular foramen. I.A.M., Internal auditory meatus. The posterior condylar vein is not shown. The inferior petrosal sinus is larger than usual.

matter exist) can be removed and the further dissemination of the disease prevented without ligation of the vein?

The best way of answering this question I think is to relate briefly some illustrative cases.

1. The first is one of pyaemia without implication of the sinuses or veins. One of my own colleagues, Mr. E. M. S., was the patient. The attack began with a sore throat, the soft palate being more particularly affected. The same night acute pain was felt in the right ear, and next morning a discharge of serum from that ear afforded some relief. The same evening, the pain having increased again, I was asked to puncture the membrana tympani. This I did without a general anaesthetic, the incision in consequence being a small one. For the next six days I was away from home. During that time the temperature varied from 99° to 101° F. On the fifth day of the illness three slight attacks of shivering (lasting three minutes each) occurred. On returning home I found my friend feverish, with dry tongue, severe earache, tympanic deafness and pain over the right shoulder. Dr. Hill Abram saw him with me, and thought the shoulder pain was probably due to neuritis. On the twelfth day of the illness, the shoulder pain having grown worse, Mr. Thelwall Thomas examined the shoulder and decided to explore the right subdeltoid bursa: this was done, and about ʒj of pus evacuated. This pus and the pus from the ear both yielded pure cultures of streptococcus. After this a rapid recovery followed. As the right ear continued to discharge a good deal of pus through a small opening and the hearing showed no signs of recovering, I made, under chloroform, a very free incision along the posterior border of the membrana tympani. The discharge quickly ceased and the ear recovered its normal hearing.

This, then, was apparently a case in which the primary focus was superficial—that is, without bone disease—and in which no secondary local focus formed in the sinuses or vein. The systemic absorption appears to have been limited to a single dose, which quickly became fixed in one spot and was there destroyed without further dissemination. There was no evidence of mastoid disease or of sinus thrombosis. Events proved that so far as this case was concerned we were right in limiting the operations to the tympanic membrane and the opening of the single metastatic abscess.

2. The following case belongs to another class: Girl, 8 years of age. Scarlet fever, acute suppurative otitis, apparent recovery. Two days after discharge from fever hospital swelling behind the ear, rigor: temperature, 104° F. Immediate operation revealed perisinusal abscess. General symptoms were entirely arrested by drainage of the abscess. This was not, strictly speaking, a case of otitic pyaemia, but in all probability a few days' delay in operating would have caused acute septicaemia.

Take a third case:

3. An attack of influenza with acute suppurative otitis in a girl of 15 years was followed by mastoid empyema. On admission, large suboccipital, deep cervical abscess. High temperature, and one or two rigors were known to have occurred. The subcortical mastoid abscess extended to the sigmoid groove. The anterior walls of the sinus at the knee were necrotic and the clot within was beginning to break down. Free opening of the sinus with wide removal of the infected portion of the clot led to a complete recovery.

I am aware that it has been stated that there is no portion of such a clot which is not infected. If that is true, then blood clot must have a high power of dealing with invading organisms. I have heard of one case such as this recovering without any operation, probably because the rapid destruction of tissue opened up a free communication between the interior of the sinus and the antrum.

A fourth case was not the result of an acute otitis, but, as it began, under my own observation, as the result of a radical mastoid operation, may be regarded, for the moment, as an acute case:

4. This was the case of a young man of 21 years with caries of the floor of the tympanum. The radical mastoid operation was followed by primary infection of the bulb of the internal jugular. Exposure and incision of the sinus revealed no clot. The vein was then tied, and some time later a suppurating clot was washed out through its upper section.

Though this patient made a good recovery, I was guilty of a fault of technique in delaying the opening of the vein. What I want to emphasize now is the urgent necessity for immediate ligation of the jugular in bulbar cases, whether primary or secondary. No such limitation of the infection as could be reasonably supposed to exist in the first three cases could be depended upon in the last one. Once the barrier at the end of the lateral sinus is passed, or if the infection takes place below that barrier, immediate ligation of the vein is called for. These are instances where information was obtainable, at an early stage, of the probable channel of infection and the probable extent of the secondary focus and the chances of its dissemination.

In the first three cases the risks of ligation exceeded those of non-interference with the vein. When we come to cases in which pyaemic symptoms have existed for four or five or more days, it is much more difficult to obtain the necessary information. Here time has been allowed for the extension along the wall of the sinus itself independently of the clot: the whole clot may have become infected, detached particles of septic clot may have reattached themselves and established fresh foci in the veins beyond the limit of the original clot.

The photograph and specimen which I hand round will illustrate my meaning. In both these cases the extension was in the direction of and across the torcular, that is, against the stream. How much more likely is it for similar extensions to take place in the downward direction! and yet, as I remarked earlier in my paper, we have no certain guide to show us whether the extension is upward or downward. In the last case, in which I tied and excised the vein, there was no cord in the neck, no tenderness along the sterno-mastoid, but very definite clinical signs of sinus pyaemia and a clot in the sinus were present. The vein, found with great difficulty, was tied and divided at the level of the lower border of the omo-hyoid.

Though reduced to a mere string, its lumen contained a juicy fluid. It might be argued that this was a case in which the vein being obliterated its excision was superfluous. I do not think so. At any rate, before the vein was exposed we were in ignorance of its condition, and the symptoms all pointed to continued systemic infection. The patient made a rapid recovery.

My position is, therefore, briefly this, that owing to the comparative failure of the evidence obtained from clinical symptoms, local signs, and partial operations, in cases which have given evidence of pyaemia for one week, nothing short of the complete operation gives us the information we require or certain means of arresting the progress of the disease.

It must be admitted, however, that when the infection takes place high up in the sinus it may be possible to ascertain by operation on the sinus that a firm organizing clot exists in its lower part, limited by the anatomical features described above, and if after removal of the disintegrating portion the drainage upwards along the lower part of the sinus appears to be quite satisfactory (I may remark, however, that drainage of the sigmoid is not easy, because the dura, pressed forward and downward by the cerebellum and brain, to a large extent closes the lumen of the sinus), and the systemic symptoms are arrested during the next forty-eight hours, we may assume that the whole of the secondary focus has been eradicated. If, however, there is progressive disintegration of the clot and faulty drainage of the lower part of the sigmoid, it becomes necessary, even without waiting for renewed symptoms, to excise the vein and establish through drainage.

The great value of tying and draining the jugular vein and bulb, from the point of view of giving us definite information and so simplifying a case, is shown in cases where recurrent suppuration takes place in the torcular end of the sinus. In a successful case of my own, suppuration occurred in the torcular end of the clot three weeks after the first operation on the vein and sinus, and a fortnight after the evacuation of a temporo-sphenoidal abscess. The fact that the vein and lower end of the sinus had already been efficiently treated was of great assistance in determining on the final operation.

3. What method of procedure best overcomes the risk of the operation itself and of the disease? With certain exceptions the following is, in my opinion, the best method of procedure:

(*a*) Perform the complete post-aural operation.

(*b*) Expose the sinus until a healthy margin of at least half an inch is seen. Introduce a gauze plug between the sinus and bone at this point. Slit up the whole length of the exposed sinus and carefully inspect the clot. In a quite early case, with a probability of an uninfected thrombus in the lower part of the sinus, remove the disintegrating portion or the whole of the clot. If the sinus is found pervious, or the clot is probably breaking down throughout, expose the internal jugular vein, inspect it, tie in two places, below the apparently diseased portion, which may be considerably below the limit of the clot; dissect up the peripheral end, tying off the tributary veins and bring the end out of the wound. Slit up the vein half an inch or an inch above the ligature. Unless the walls of the vein are diseased, or there is suppuration along its course, the upper section of the vein need not be excised. Opening up the vein is imperative. I have once delayed this with the result described by Mr. Ballance of converting the vein into a bag of pus. No harm was done fortunately, but the delay might have been fatal.

(*c*) Clear out the clot from the sinus and wash through the sinus, bulb, and vein from above downwards. The whole operation should be done, if possible, at one sitting. Washing through has been objected to on the score of risk of driving pus or infected clot into the inferior petrosal sinus. With an open vein this is practically impossible, as the anatomical arrangement of the sinus shows; and if it is not done, extension by continuity into the condylar vein and petrosal sinus is more likely to occur.

(*d*) I have not ventured to speak of the operation of exposure of the bulb, for the simple reason that I have no practical experience of it. I have not been able to persuade myself that it was required.

4. Under what condition, if any, is it necessary or advisable to tie the vein before operating on the temporal bone and lateral sinus?

(*a*) Whenever it can be demonstrated, or it is even suspected that there is or has been a clot in the internal jugular vein or its bulb.

(*b*) When there is extensive disease of the temporal bone in the immediate vicinity of the bulb, and a radical operation has been decided on.

In these cases, in my opinion, the ligation of the vein should precede any further operation, but should be immediately followed by the obliteration of the sinus.

II.—JAMES F. MCKERNON, M.D.,
New York.

A CLOSER study of the symptomatology of the various sequelae of otitic disease, both acute and chronic, during the past five years has enabled us to more quickly and accurately diagnosticate sinus, bulb, and jugular involvement than formerly, hence our method of procedure in dealing with one or more of these complications differs materially from the treatment formerly in vogue.

In speaking of the indications for the ligation of the internal jugular vein, I shall confine myself briefly to that of my own personal experience when called upon to treat the sequela of otitic disease.

At the beginning let me say that there are but a small number of cases which, when first seen, present a set of symptoms sufficient in themselves to admit of a prompt diagnosis of vein involvement, and then only in cases of long standing, when a sufficient time has elapsed for an extension of the process from the sinus and bulb to the vein below.

The large majority of sinus cases are not present, or if so, are not recognized at the time the primary mastoid or radical operation is done. The classical symptoms which enable us to recognize and properly care for these cases develop from a few hours to several days later, so that the majority of sinus and vein operations that are done are subsequent to a primary operation.

The rule which I have followed in this work has been, that when we open the sinus for exploratory purposes, and find either pus or a disintegrated clot, or both, present, to stop further manipulation above so as not to disseminate any more poison from the local focus into the general system, and immediately expose, ligate, and resect the internal jugular vein from its exit at the skull to a point just above the clavicle, at the same time removing all infected glands encountered during the course of the dissection. When this has been done, the sinus and bulb are then evacuated of their contents, and I have but seldom found it necessary to remove the lateral wall of the foramen. If, when the sinus is first opened, a firm parietal clot is exposed and removed, and a free haemorrhage takes place from both distal and proximal ends, I have not considered it necessary to molest the vein, although in a few cases I have subsequently been obliged to remove the vein owing to a continuance of the symptoms for which the sinus operation was done; so that each year, as our knowledge of this disease becomes more positive, I am more and more convinced of the necessity of primary jugular ligation when cases present themselves with definite sinus symptoms,* even though evidence of vein involvement be negative. I know that exception to this will be taken by many, but the statement is made only after a faithful trial of both methods, which has left me, for the sake of the future of my patients, unqualifiedly in favour of a primary ligation of the jugular vein.

A point referred to by many observers in treating thrombus of the sinus is that when a free return flow of blood takes place from the bulbous portion of the sinus, it is a positive indication that there is no obstruction below. With such a statement I must take issue, for in eight cases where I did a primary ligation of the internal jugular vein as a first step in the treatment of sigmoid sinus thrombosis, and immediately afterward exposed and evacuated a disintegrated clot from both sinus and bulb, such evacuation was at once followed by a free and, if allowed, prolonged haemorrhage in each case, showing distinctly that such return flow does not come to any extent from the vein below, but has its source in the inferior petrosal sinus. So I believe it is extremely unwise to

* By definite symptoms I refer to a chill, and the wide excursions of temperature which are usually present in typical cases. A hect-

depend upon such a return flow from the bulb as an indication that the vein below is carrying on its usual function. Even though it were carrying on its function, if the case be a very septic one, and the vein be removed and its walls examined, septic micro-organisms will be found embedded throughout, and it is from just such a condition as this that I believe many subsequent infections develop, even after all the septic materials have been removed above.

In a number of cases of thrombosis in young children, when the site of the obstruction was at the bulb, I have not ligated the vein, for the reason that they were seen and operated upon early, and also because young children, in my experience, do not bear prolonged operations well. In some of these cases I have had to do a subsequent ligation, but did it at a time when the temperature was on a decline, believing that these patients react better when operated upon with a low temperature than when it is high, as it puts less strain upon an already weakened system, and there is less depression following.

In closing, just a word about the neck wound after ligation and excision of the vein. I have usually closed it by suturing except for a small space at the upper angle, but before closing I insert a large cigarette drain the entire length of the wound. The parts are dressed with gauze soaked in a hot saline solution, and this dressing is changed every twenty-four hours, and each time it is dressed about an inch of drain is removed, so that at the end of five or six days the neck wound is completely healed and the drain removed.

DISCUSSION.

Dr. MacCuen Smith strongly commended early operation.

Dr. George A. Leland (Boston) said the opening papers by Mr. Jones and Dr. McKernon had been so exhaustive that he hesitated to add anything. He fully agreed that ligation and resection of the internal jugular was necessary in a large number of cases when it was perfectly evident that the pyaemia present—whether of shorter or longer duration—was of otitic origin, and when, after ablation of the carious mastoid process, extensive involvement of the sinus was found. This held good especially when the infection was rapid and virulent, as sometimes observed in cases of the exanthemata, or in extensive pneumococcal or influenzal infections in which they could not operate too quickly. There was, however, another large class of cases in which the process was milder, and in which they could have more time. In these, after removal of all the diseased tissue in sight, including the whole mastoid process and the outer wall and contents of the sinus even down into the bulb, they could by modern methods tell exactly what was going on. For, by determining the degree of leucocytosis, and especially the relative proportion of the polynuclears, they would know if pus absorption were still proceeding, and could act accordingly. Thus, it had been his good fortune during the past few years to see the ante-operative pyaemia disappear, sometimes rapidly, sometimes gradually, after removal of all accessible diseased tissue, showing that the bactericidal power of the blood was worthy of being trusted. Or it might be a case of osteophlebitis, and the pyaemic symptoms might be caused by absorption of toxins. In this event it was satisfactory not to be obliged to subject the patient to the operation in question, and so to make possible the circulatory disturbances which certainly had in some instances followed the obliteration of this large venous channel.

Dr. W. Sohier Bryant said that ligation of the vein should precede section or incision of the sinus. The indications could be divided into: (1) General: a febrile temperature with wide fluctuations or metastatic foci of infection. (2) Local: (*a*) necrosis of the wall of the sinus or bulb; (*b*) suppuration of the wall of the sinus or bulb without active growth of granulations. He did not consider the presence of a thrombus an indication for the ligation of the vein in the absence of all the other conditions mentioned.

Dr. J. A. Stucky (Lexington, Kentucky) mentioned one point of sufficient importance, he thought, to be emphasized, especially in the after-treatment of the case—namely, the daily blood count. Not only the number of leucocytes, but the percentage of polynuclear cells should be taken into account. These indicated the condition of body resistance, and afforded evidence of septic absorption.

The President was greatly impressed by Dr. McKernon's arguments in favour of frequent ligation. In the presence of certain evidence of thrombosis of the bulb he had no hesitation in ligaturing at once, as in a case of bulbar pyaemia and cerebellar abscess which he published lately in the *Lancet*. Further, if a clot were felt in the jugular vein, and especially if softening, there was no room for doubt. He was convinced, however, that there were many cases of thrombus of the sigmoid sinus with breaking down in the middle in which it was sufficient (after removing the original focus in the petrous bone) to clear out the broken-down part, leaving a plug of healthy clot on the proximal side. He drew attention to Macewen's remarkable series of recoveries without ligature, but ventured to think that such a continuance of good results was not likely to be maintained with recourse to this proceeding. He was still in doubt as to the indications for ligation in the cases subsequent to acute suppurative otitis, especially in view of such histories as those narrated by Mr. Hugh Jones. The repeated examination of the blood and observations of the course of the symptoms were important helps. He felt that the last word had not yet been said on the subject.

Reply.

Dr. McKernon, in closing the discussion, said that to the question, Was ligation of the vein dangerous? he would answer, No, provided the patient's strength be good. The danger of ligation did not outweigh the advantage of its being left alone, for infection might take place. The nature of the infection had no bearing upon whether they should or should not operate. The reason cases recovered without ligation was not because the entire focus had been removed, but because the resistance of the system was sufficient to eliminate the poison. If clot were removed and the vein left untouched, how were they to know that infection was not going to continue? They did not know, but had to wait, and this waiting might be too long for their patient's safety. He believed it was wiser to ligate at once than to wait several days and then ligate, when it was too late to save their patient. Rapidity had much to do with the success of their operations. He thought, as Dr. Leland had said, that the differential blood count was very valuable, both before operation, as an aid in diagnosis, and later as an indication as to whether the poison had been eliminated or was increasing. He used the count in all cases. In reply to Dr. Stucky, he might state that the cigarette drain was simply a piece of plain sterilized gauze rolled firmly, as long as the little finger, covered with perforated rubber tissue, and placed the entire length of the wound, the ends protruding from the angles of the wound. Dr. Dundas Grant's method of clearing out a disintegrated clot, with or without pus in the sinus, he believed to be unwise, for the coats of the sinus were impregnated with the micro-organisms, and subsequently a further infection would occur if the operation were stopped at that point. Dr. Jones had made the duration of the disease an indication for ligation; he thought that its virulence should also be considered.

THE PATHOGENIC INFLUENCE OF AURAL LESIONS IN SYSTEMIC DISEASE.

By S. MacCuen Smith, M.D.,
Philadelphia.

Since the advent of bacteriology our views regarding the etiology of disease have materially changed. The study of micro-organisms and their products of metabolism, often toxic, has revealed to us an entirely new process for the propagation of disease. These studies have taught us that an insignificant focus in a distant organ or tissue may abruptly or insidiously produce a systemic affection. This is true not only of pyogenic organisms, but of many other bacteria which are not strictly regarded as capable of generating septic processes. The medical literature of the last few years contains many reports of bacterial foci causing systemic disease after a long period of latency. As an illustration of this we may mention empyemata and arthritic suppurations occurring years after an attack of

enteric fever. Often the original focus may be detected, and under suitable curative measures the resulting systemic affection is sometimes relieved. But there are many instances in which the underlying cause cannot be recognized. Since the manifestations are partly septic and partly pyaemic, Leube[1] in 1878 proposed for these the term cryptogenic septicopyaemia. In the majority of the cases there are no indications of trauma.

It has long been known that the mouth and aural passages are frequently the ports of entrance for bacteria, particularly for pathogenic micro-organisms. In these areas the soil is especially adapted to the cultivation and propagation of low forms of life: this explains the relation between tonsillitis and acute articular rheumatism, which was noted by the celebrated clinician, Bouillaud.[2] The condition here produced was not supposed to be reflex, but due to direct propagation.

The middle ear is often the seat of infection. In performing 100 autopsies on infants, Ponfick found only 9 presenting no disease of the ear; in 13 it was unilateral, and in 78 bilateral. It is interesting to note that among 81.648 patients with disease of the ear, Hessler[3] found 116 cases in which death was due to intracranial disease; in 40, that is, 34.5 per cent., to meningitis; in 28, that is, 24.1 per cent., to brain abscess; and in 48, or 41.4 per cent., to sinus phlebitis and pyaemia. In children with bronchopneumonic foci, 99 per cent. showed otitis media. The micro-organisms most often detected in acute otitis media are Fraenkel's diplococcus of pneumonia, the *Streptococcus pyogenes*, the *Staphylococcus pyogenes albus* and *aureus*, and Friedlaender's pneumo-bacillus.

In the purulent as well as sero-purulent and mucous exudate of 43 infants whose cases he investigated bacteriologically, Rosch found Fraenkel's diplococcus 33 times, and once Weichselbaum's diplococcus. In 4 cases in which perforation of the tympanic membrane had occurred no pneumococci were found, but in 1 case staphylococci, and in 2 cases tubercle bacilli.[4] Gonococci have been demonstrated by Finch and Haug in pus within the ear of the newborn. It is well known that otitis media (and even mastoid disease) is common in many of the acute infectious diseases; for instance, in influenza, enteric fever, measles, and scarlatina. It is also a frequent sequel of pneumonia, but is quite rare in typhus fever, relapsing fever, variola and varicella. In acute rheumatic fever otitis is occasionally an early symptom of the localization of the disease, but epidemic parotitis is rarely followed by disease of the middle ear. Erysipelas is sometimes accompanied by severe purulent otitis which is prone to implicate adjoining structures.

Some of the chronic infections—such as tuberculosis and syphilis—as well as diabetes and Bright's disease, play a part in the etiology of disease of the middle ear. The affection has been observed in puerperal fever and in endocarditis (Trautmann); in both of these, probably by means of an embolus. Körner[5] reports that among 115 cases in which death resulted from an aural lesion and in which autopsies were held, in 31 simple meningitis was revealed, in 41 sinus phlebitis and pyaemia, and in 43 abscess of the brain. These figures clearly show the prevalence of sepsis in aural diseases.

Without doubt the overwhelming majority of cases of otogenous sepsis which run their course with metastases originate from a septic phlebitis, and usually implicate the transverse sinus or the petrosal sinus, but not infrequently even the highest point of the bulb of the jugular vein (Lenhartz).[6]

Pathologic Anatomy.

The pathology of otogenous septicopyaemia includes changes in the primary focus in the ear and secondary changes in the various organs and tissues from septicopyaemic metastases. In another series of cases the primary disease is propagated from the ear to the neighbouring sinus in the brain and to the jugular vein; therefore meningitis and brain abscess are ordinary complications of septic disease which originates within the ear.

The general lesions do not differ from those common to septic processes. There may be inflammation of any tissue or organ in the body, varying in degree from simple congestion to suppuration; no region is entirely exempt. It is extremely difficult to say why, in the individual case, a primary purulent focus runs its course without reaction, or why, on the contrary, it generates metastases or septicaemia. It is probable that other factors, such as exhaustion, starvation, alcoholism, anaemia, or preceding affections (especially the chronic ones, tuberculosis, syphilis), or metallic poisoning (lead and arsenic), may here play a rôle.

Symptoms.

Septicopyaemia is the principal systemic condition to which disease of the ear gives rise. The symptomatology is so manifold and protean that a comprehensive description of the various signs and manifestations is almost impossible. This has led to a division into groups, in which one or more symptoms are apt to stand out prominently, characterizing the type. Thus Jürgensen, in his article upon sepsis,[7] proposes five groups, as follows:

1. Group in which the general phenomena are most prominent. Rapid decay and death, as in any other severe infection.

2. Group in which the cardiac implication is most prominent. Rarely is the inflammation limited to the myocardium, endocardium, or pericardium; it is best to speak of pancarditis, and in the individual case an attempt should be made to recognize the most markedly implicated part.

3. Group of predominant implication of the bones and joints. In this category belong the severe forms which have been known for a long time: bone or joint typhus as they were called by Chassaignac, now usually designated, according to Lücke, as primary, infectious, osseous, and periosteal inflammations. The metastatic arthritic inflammation in the old clinical picture of pyaemia belongs to this group. In the milder forms we must differentiate between the "rheumatic" affections, and, above all, from acute articular rheumatism.

4. Group in which inflammations of the skin and the subcutaneous connective tissue and in the muscles is predominant, thence affecting the mucous membranes and the serous membranes. The severe forms—acute septic phlegmon is the name of a pyogenic cocci infection which has been recognized for some time—gradually change into the milder variety. Any one wishing to do so may make subordinate divisions, but I myself believe that the general division is sufficient.

5. Group in which inflammation of the internal organs is predominant—brain, lung, kidney, spleen, liver, stomach, and intestines. Here the disturbance in the activity of the affected organ is most marked in the morbid picture, often to the extent that it completely dominates the situation.

A further grouping is hardly necessary, although the temperature is of special importance. The temperature is so irregular as to justify the statement that "any type of temperature curve may be observed." The absolute variations are between 109.5° and 93.5° F.; therefore, febrile and afebrile temperatures are met with. A main condition referable to the fever is its tendency to very abrupt change in connexion with a variable intercurrence of chills. The pulse is disproportionately accelerated, from 120 to 150, soft, dicrotic, and often irregular.

A few symptoms must be described more in detail. These refer to inflammations of the joints and bones, cutaneous eruptions, some few nervous symptoms, and the ophthalmoscopic findings.

Of the greatest diagnostic importance, perhaps only second to the occurrence of endocarditis, is inflammation of the joints, of which one or more may be affected. At the same time the inflammatory condition disappears and recurs much as in acute rheumatic fever. But a septic joint inflammation is of a much more persistent nature. The entire process frequently is concentrated to one joint and does not show the tendency to symmetry which is so common in acute rheumatic fever. Another point of importance in regard to septic joint inflammation is the implication of the bone itself as well as the joint; thus tenderness upon pressure over the bone is a common manifestation. Implication of the muscles is less frequent.

Another point, important in differential diagnosis, is the frequency of the disease of the small joints, such as those of the phalanges, in contrast to the condition in acute rheumatic fever.

The most varied skin eruptions occur in sepsis, from a simple erythema to different types of petechia. In fact, it may be stated that there is hardly a cutaneous manifestation which may not appear in the course of septicopyaemia. In three-fourths of all cases eruptions are present.

Nervous symptoms are exceedingly common: headache, vertigo, insomnia, various psychical conditions, convulsions and paralyses affecting single nerves or even nerve groups. Meningitis, especially purulent meningitis, is very liable to be a resultant condition and the starting-point of sepsis in aural lesions.

Litten was the first to study retinal changes, especially

haemorrhages, in sepsis, and while such retinal haemorrhages are not strictly pathognomonic they nevertheless form an important link in the diagnosis.

Diagnosis.

The diagnosis may be exceedingly difficult, particularly if the focus within the ear, from which the sepsis spreads, is overlooked. The differentiation from malaria offers least difficulty, for upon examination of the blood the plasmodium will be found in the greatest majority of cases. Besides the chill, fever and sweating by no means show the regularity in sepsis which is so characteristic of a malarial attack.

The kidneys are invariably affected. Albumen may be excreted in large amounts, and all forms of inflammation of the organ have been observed. Uraemic phenomena are common. Acute nephritis and even contracted kidney may be the result of sepsis.

When blood counts were first made to determine the presence or absence of severe infection, leucocytosis was the all-governing factor, but after more careful study, with numerous observations, the consensus of opinion is that a differential count must be made, and that leucocytosis is more of an index to body resistance in an infection than to its severity. For example, a person with good resistance may have a marked leucocytosis as the result of a slight infection, and, on the other hand, a person with impaired resistance may have little or no increase in the number of white cells with a very severe infection. The relative number of polynuclear leucocytes is of the greatest significance in the determination of the presence of a purulent or gangrenous process. The normal percentage of these cells varies between 59 per cent. and 68 per cent., with an average of about 62 per cent. If there is a relative count of less than 70 per cent. no pus need be suspected. Pus is not common with less than 80 per cent., except in children, where it has been found with a count as low as 73 per cent. Above 93 per cent. indicates a very severe process, and when it reaches 95 per cent. it may be considered almost fatal. Fowler[8] cites two very interesting cases:

1. A young woman with serous otitis media had pain, rapid pulse, temperature, etc., indicative of acute mastoid disease, but as the polynuclear cells reached only 59.7 per cent., operative procedure was deferred, and the patient recovered without operation.

2. A young man, recovering from mastoid involvement as a result of acute purulent otitis media, and for which he had been operated upon, began to show evidence of meningeal irritation with only slight inflammation, except that the polynuclear cells were up to 82.3 per cent. Operation disclosed a large abscess, and the patient subsequently died from meningitis. In both of these cases the percentage of polynuclear cells was accepted as an index for or against surgical interference.

From these observations we reach the following conclusions: (1) A marked leucocytosis, with a relative percentage of polynuclear cells below 70, shows slight infection with good resistance. (2) A marked leucocytosis, with relative percentage of polynuclear cells above 80, shows severe infection with good body resistance. (3) Slight or absent leucocytosis, with relative percentage of polynuclear cells above 80, shows severe infection with impaired resistance.

In the differential diagnosis acute articular rheumatism, malaria, acute miliary tuberculosis, enteric fever, and uraemia must be considered.

To differentiate from acute rheumatic fever is often difficult. Inflammation of the joint, eruptions, implication of the endocardium and pericardium, and sweating, are common to both conditions, but in acute rheumatic fever the large joints are much more liable to be involved. There is a symmetry in the joint implication, as well as a more fleeting character of the arthritic inflammation; while in sepsis but a single joint may be affected, the inflammation showing no tendency to involve other joints. Besides, a therapeutic diagnosis may aid us. Thus, large doses of the salicylates rapidly improve a rheumatic joint affection, while they have but little or no influence upon the septic joint.

The differentiation from miliary tuberculosis is much more difficult. Common to both diseases is the acute flooding of the body with pathogenic organisms, the severe clinical picture, the enlargement of the spleen, the rapid pulse, the involvement of the pleura, pericardium, and peritoneum, meninges, and other serous structures; but in acute miliary tuberculosis, cyanosis, dyspnoea and apical disease are much more liable to be present. Tubercle bacilli, if present in the sputum, urine, blood, or faeces, naturally are important in the diagnosis, but unfortunately this sign is often absent in acute miliary tuberculosis. The diagnosis can often be made only from the course of the disease.

Enteric fever is not so difficult to differentiate from sepsis. The characteristic eruption, the Widal reaction, the course of the temperature, favour enteric fever, while retinal haemorrhages, inflammation of the joints, endocarditis, and leucocytosis favour sepsis.

Uraemia often cannot be differentiated from sepsis, for uraemic manifestations, as previously stated, are by no means uncommon in the course of septic infection. The entire clinical picture must be considered before we can reach a definite decision.

Frequently we are greatly in doubt as to the exact nature of the complication arising from an aural lesion, especially when the focal disease is not in itself sufficiently severe to account for the alarming constitutional disturbance. This is well illustrated in the case reported by S. E. Allen:[9]

G. H., aged 24 years, presented himself on March 9th, 1898, suffering from acute middle-ear disease. He was seen daily until March 25th, when he had a severe chill, with a temperature of 103°F., and was apparently seriously ill; his expression was anxious and the pain in the ear was intolerable. All the symptoms of a beginning purulent meningitis seemed to be present. He was admitted to the hospital, and the mastoid process opened up into the antrum; no pus, necrotic or carious bone nor granulations were found. The bone toward the lateral sinus was in a normal condition, and the sinus was not laid bare. The posterior wall of the meatus was then severed, and the healthy ossicles with the remnants of the drum membrane removed, thus giving access to the tympanic cavity. The cavity was thoroughly explored with a fine probe and no break discovered. The floor of the tympanic cavity was covered with slight granulations, and these were removed with a sharp spoon. The temperature at the time of the operation was 104° F. The patient rallied from the operation nicely, and the pain in the head and ear, which had been unbearable, left him, and was never afterwards complained of. The temperature, however, continued high, ranging from 101° F. to 103.5° F. A few days after the operation the patient complained of pain in the right foot, and its upper surface became reddened and slightly swollen. Then the right shoulder and upper arm became swollen and extremely painful. One week from the date of the operation, the patient was given an anaesthetic and a free incision made into the inner surface of the arm and some pus evacuated. There was no regular abscess cavity; the pus seemed to be diffused throughout the tissues. The right shoulder was also scarified. The temperature continued as before, the left wrist and elbow became swollen and painful, but no suppuration occurred. The patient's condition continued precarious till about the middle of April, when convalescence gradually set in, and he was discharged from the hospital on May 15th.

In 1904, the writer[10] reported three cases of metastatic abscess of the liver in which it was shown that the hepatic infection had its origin in the organ of hearing. A brief history of one of those cases will serve as an illustration.

J. W. D., male, aged 42 years, had had a suppurative otitis media extending over a period of twenty-seven years, the original infection complicating an attack of pneumonia. For about twenty years following the spontaneous rupture of the right membrana tympani, the patient suffered no inconvenience except a continued slight discharge from the ear. Then the disease became quiescent and the patient felt that he had been cured, the ultimate outcome of his former condition never having given him any concern except from a cosmetic standpoint. But this immunity was enjoyed for about two years only, when he suffered a relapse, which was characterized by severe pain for two or three days, followed by an offensive reddish-yellow discharge. There was marked improvement, however, within a few weeks in regard to both the quantity and quality of the discharge, though at the end of about one year he again suffered from an acute exacerbation, which recurred at frequent intervals during the following three years.

It was while suffering from one of these acute exacerbations, and about three weeks before the patient's death, that the writer saw the case with the attending physician. Briefly, the clinical picture was as follows: After a severe chill the patient's temperature suddenly registered 105.2° F., which was followed by a profuse sweat. The only pain complained of was located in the right shoulder and neck, and was intensified when the patient moved or rested on his left side. A moderate muddy yellowness of the skin was noticeable on close inspection, the conjunctivae, however, being normal. The aural examination revealed a chronic suppurative otitis media, with

entire destruction of the membrana tympani, malleus, and incus; there was no acute inflammatory condition involving the tympanic cavity or canal, nor did the superior and posterior wall show any evidence of undue redness or drooping. The middle ear was entirely free from any granulation tissue or other pathologic process. Pus was, of course, present, but was small in quantity and quite offensive. On microscopic examination it showed the presence of the *Streptococcus pyogenes*, *Staphylococcus pyogenes albus* and *aureus*, and the pneumococcus. The patient complained of no discomfort whatever about the head, and the mastoid and adjacent parts showed no evidence of involvement. The irregular fever, with chills and sweats, together with an ever-increasing pain in the right shoulder and neck, continued until within one week of his death, when for the first time he also complained of some pain in the right hypochondrium. On examination the attending physician observed distinct enlargement of the liver, with tenderness on pressure, and at the same time a marked increase of the icterus was noted.

The temperature was pyaemic throughout this latter attack, varying from almost normal to 106.6° F. The chills during the last week of his illness were not severe, but his sweats were most profuse, at times saturating the bed-clothing. After the true nature of his illness became manifest, the patient received the most energetic treatment and intelligent care at the hands of his attending physician. Aspiration or other operative interference was not resorted to, the wisdom of which course was afterwards sustained by the *post-mortem* examination. Immediately preceding the patient's death the temperature registered 106° and a fraction, death occurring while in a state of violent convulsions.

It is well to state that, in connexion with various methods of treatment, antistreptococcic serum was used in full doses with only passing benefit.

The results of the *post-mortem* examination were interesting from the fact that every viscus except the liver was found to be normal, the liver being a mass of miliary abscesses. An especially interesting part of the patient's history was the incessant, and at times very severe, pain, involving the right shoulder and neck. On two separate occasions the writer felt he was not only justified, but that it was his duty, to make an exploratory incision to determine the possibility of a thrombosed jugular, notwithstanding all symptoms of such a condition, minus pain and suggestive temperature, were absent. The results of the autopsy demonstrated that the better judgement prevailed. It was also interesting to note the normal condition of the mastoid and interior of the skull generally.

A case of unusual interest, in which the patient died from an unrecognized and unsuspected ear lesion, is also reported by George Carpenter.[1]

D. R., aged 14 months, was brought to the hospital with the history of having received a blow on the back of the head, and also an injury over the left ear. The accident was not sufficient to render the child unconscious. When first seen, four days after the accident, the patient was in a comatose state. The face was pale; the extremities cold; the pupils were equal and reacted to light; the pulse was quick but not irregular; the respirations were shallow and irregular; the head was retracted, and the temperature 102° F. The left ear was red, and blistered in the upper half. There were convulsive movements, and slight rigidity on both sides of the body, but more marked on the left. The muscles responded to stimulation; the knee-jerk was very slight on the left while quite brisk on the right. Protruding movements of the tongue were noted, and occasionally the eyes became fixed towards the left. There was doubtful ptosis of the left eye, but otherwise it was normal. Examination with the otoscope failed to detect any abnormality. A diagnosis of meningitis was made and medical treatment instituted. The temperature continued to increase, reaching 107.6° F. on the third day, and the child died the following morning.

Post-mortem examination revealed a localized collection of pus in the middle ear. The tympanic membrane appeared healthy and there was no evidence of rupture. Patches of collapse were present in both lungs; the stomach showed dark brown patches of blood; all the other organs were free from disease and no tubercles were found.

Carpenter states that "this case teaches a lesson which should ever be before the mind when called to diagnose a case showing head symptoms—namely, to examine the ears as a matter of routine. A habit thus induced will presently become automatic, and sooner or later the doctor practising this routine will be rewarded by saving a life unnecessarily doomed to destruction, and the patient will greatly benefit by his declining to accept as meningitis without a protest everything that stalks about in the garb of that disorder. I have, I believe, saved more than one case by a timely myringotomy and evacuation of the pus. Unfortunately, in my experience, pus, as in this case, cannot always be recognized through the tympanic membrane, and the appearance of the drum may not be sufficiently removed from the normal to warrant the suspicion of an acute inflammatory process 'well alight' behind it. That such may occasionally prove to be the case must in no wise prove an excuse for the relaxation of vigilance, and in a doubtful case no single examination can be considered to have absolved the doctor from all responsibility on the score of ear mischief."

We are greatly indebted to Carpenter for placing on record this very interesting case, but regret our inability to concur in his opinion that the presence of a purulent exudate within the tympanic cavity may not be diagnosed by the experienced aurist: even in cases of hydrops *ex vacuo*, where there may be absolutely no inflammatory changes in the membrana tympani, the presence of fluid is readily recognized. It is, therefore, quite inconceivable that inflammatory débris can accumulate within the middle ear cavity without producing pathologic changes easily recognizable.

The point of chief interest in Carpenter's case is the forceful manner in which he demands the routine examination (I may add by an expert) of the ear. This is especially important, as the writer has frequently pointed out, in all cases of illness in which the diagnosis is doubtful. To further illustrate this important point, the writer will briefly state one case, in which the ear, although not suspected, was subsequently shown to be the site of the primary lesion—in fact, the only organ in which disease could be detected.

C. K., male, aged 20 years, of good personal and family history. Had measles and mumps during childhood, otherwise enjoyed exceptionally good health until July, 1905, when he contracted a severe attack of diphtheria, convalescence occupying more than three months, most of which time he suffered from painful deglutition, but at no time did he show any evidence of ear complication.

On December 26th, 1905, he was compelled to go to bed, after feeling more or less ill for several days, where he remained for two weeks. At the end of another week he returned to work, but was able to continue only a few days, on account of an ever-increasing "fullness" in the right side of the head. His condition grew worse from day to day, the prominent symptoms being headache, some temperature, chills followed by profuse sweating, mostly at night, pain in the back, chest, and abdominal region: to these was added considerable cough, with profuse dark-greenish expectoration. The pain in the head grew progressively worse, but not especially marked in any locality. His case was now pronounced typhoid fever. For some days the above symptoms continued in an aggravated form, when suddenly he complained of some pain in the right ear, which was followed almost immediately by a discharge of foul-smelling pus. The escape of the discharge from the ear, however, did not relieve his symptoms, which, on the contrary, grew progressively worse. He was now sent to the hospital, little or no thought having been directed to his ear. On admission his temperature was 102.2° F., pulse 101, respirations 30. While he was dull and listless, yet in some ways he manifestly exhibited signs of marked excitability, plainly showing his apprehension of impending danger. The writer was asked to examine the ear, and found unmistakable evidence of extensive tympanic and mastoid involvement. The cortex was normal in appearance, but painful on deep pressure a foul-smelling brownish-yellow discharge filled the canal, which, when removed, revealed a large carious opening through the bony canal leading into the mastoid, and filled with granulation tissue. The membrana tympani was mostly destroyed, which plainly showed the tympanic cavity filled with granulation tissue and other inflammatory débris.

An immediate radical operation was performed. A carious opening through the attic roof and exposed dura provided drainage for considerable pus which escaped from the interior of the skull, evidently from the temporo-sphenoidal lobe. The sinus was also exposed by the necrotic process, but not otherwise involved. In brief, the mastoid was exceptionally large, the entire process having undergone extensive necrotic changes, making, when the operation was completed, the largest opening in the skull that the writer has ever seen. From the date of the operation the patient began to improve, all of the obscure symptoms promptly disappeared, and the patient made an uninterrupted recovery.

The above case demonstrates clearly the value of routine aural examination in all cases of doubtful diagnosis, as this patient was treated in turn for tuberculosis, rheumatism, and typhoid fever. From the fact that the patient did not complain of aural distress, together with an entire absence of the clinical symptoms of mastoid disease, the ear lesion, the sole cause of his illness, suffered absolute neglect, notwithstanding a foul-smelling discharge was escaping from the external canal. This case, furthermore, serves to illustrate the curious—I may venture to say unpardonable—apathy of the profession toward an aural discharge and its far-reaching consequences. It would be both startling and humiliating

to the medical world if they could even approximately compute the number of children borne to their graves under the professional caption of meningitis while the primary cause of their illness, the organ of hearing, was not even suspected. This applies equally to cases without visible suppuration, as well as those presenting a discharging ear. Indeed the writer's experience impels the belief that idiopathic infantile meningitis is decidedly uncommon, and that a great majority of such cases are aural in origin; notwithstanding, the ear as a causative factor is overlooked.

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Dr. Murray Macfarlane said that Dr. MacCuen Smith's paper indicated the advisability of examination of the ear in cases of general disease. Recently he had been called in consultation in a case of apparently acute articular rheumatism following a typical pharyngitis. The knees and elbows were the joints affected. The patient had suffered similarly before under the care of the same physician. Three days later he saw the case owing to "earache." He found the membrana tympani bulged, and made a free incision, thus liberating a serous fluid, which gave relief to the pain. A chill had been complained of a few hours before, with a sudden rise of temperature. There was no mastoid pain. Being suspicious, he suggested the possibility of the joint affection being purulent, and next day aspiration revealed the presence of pus in large quantities. The mastoid having become tender was opened, and thrombosis of the lateral sinus was found. The usual removal of infective material was carried out. The question was whether there really ever existed an acute rheumatism. Was it pyaemia from the first due to infection of the middle ear, with pus formation, or were the ear symptoms a part of the general systemic involvement, or were the joints, already the seat of rheumatic disease, invaded by streptococci of problematical origin? The patient died about a week later.

The President considered the recommendation as to the blood count most valuable.

TO WHAT EXTENT IS IT ADVISABLE TO ADOPT CONSERVATIVE METHODS IN THE TREATMENT OF AURAL DISEASES?

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The most difficult problem which the aural surgeon is called upon to consider at the present time is the question of when to operate, especially as so many important operations are being performed in otology, and so many diverse opinions are held by operators as to whether conservative or radical methods of treatment should be adopted. We all remember how the medical press only a few years ago was filled with the report of successful attempts to improve the hearing of cases of chronic catarrhal deafness by the excision of one or more ossicles. At the present time this operation is generally condemned except in cases of caries or necrosis of the ossicles. The hearing of many of these unfortunate patients was in many instances made very much worse by this operative interference. At the present time the attention of otologists is more especially directed to the Schwartze-Stacke operation for the cure of chronic otorrhoea, the mastoid operation and operations for intracranial complications, more particularly sinus thrombosis.

It seems to me to be the duty of those of us who are engaged in teaching medical students, to impress upon them at all times the value of conservative methods in many cases, for I feel that at the present moment there is too great an inclination on the part of many to operate "too early," and that we should do well constantly to bear in mind what Oliver Wendell Holmes once said, "that Nature is kinder than the doctors think."

The majority of aural surgeons are agreed that an early incision of the drumhead is imperative, if we wish to ward off mastoiditis, particularly if the membrane is bulging, and the patient has fever and pain. In many cases of streptococcus or pneumococcus infection, it is wise to incise the drumhead if the patient has pain and fever, even if there is no bulging. Of late some opposition has been raised against this operation in cases of acute suppurative otitis media, but I cannot understand why one should wait for a possible mastoiditis to develop, when by an early incision we frequently prevent just such a complication. According to my experience, when the drumhead is incised early, the course of the disease is less prolonged, and the patient has better hearing than when the case is left to Nature. As to the time to operate in mastoiditis, there is not by any means the same unanimity of opinion. A writer recently has said that "in all cases of middle-ear inflammation in childhood, where free myringotomy does not relieve pain and temperature at the end of a few days, the mastoid should be opened and the typical mastoid operation done, even upon no other indications than pain and temperature, and in young children considerable temperature alone is a sufficient indication." We all know how easily a child will develop a temperature, and if we rely upon this symptom alone we shall easily fall into a serious error, and run the risk of opening a healthy mastoid. Only recently I had two infants under my care. They were teething, and each suffered from an acute suppurative otitis media on both sides. They were seen early, before rupture of the drumhead had occurred, and an otitis media was suspected by the general practitioner owing to the high temperature. Under chloroform a free incision was made in each drumhead. In each instance the temperature fell at once, but the children had more or less fever for from three to four weeks, and the discharge did not cease until the children were sent into the country, when it almost immediately stopped. At no time was there any apparent symptom of mastoiditis. The blood was examined constantly for an increase of the leucocytes and the polymorphonuclear elements, and several incisions were made in the drumhead in each case at different times. I attach much more importance to the child's general appearance and condition than to a rise in temperature.

A child that is teething is likely to be irritable, to have more or less fever, and frequently a suppurative otitis media. The temperature will often continue until the tooth appears. When the latter occurs the discharge from the ear generally becomes less and ceases very soon. We are likely to fall into a serious error if we attach too much importance to fever alone in children. A short time ago I was asked to see an infant under 1 year of age, who seemed perfectly well during the morning, but in the afternoon, when a high temperature developed, the child was more or less inclined to sleep and be restless. Six physicians had already seen the child, but could not find any cause for the fever. I was asked to examine the ears; they were perfectly normal. The child recovered, but the nature of the ailment could never be explained.

Another child, a boy of 16 months, I saw in consultation on February 10th, 1906. The family physician said that on January 27th he was taken ill with high temperature and stomach trouble, and he had severe grippe symptoms. On February 1st the left drumhead seemed to bulge, and the doctor incised it, and since then there has been a discharge of bloody serum. The temperature remained a little lower for about twenty-four hours. The right drumhead was bulging on February 5th. It was incised, and but little discharge came from it. The temperature had been lower in the morning, but in the afternoon had risen to 103° to 104° F. When seen in consultation the temperature was 101° F., and he seemed better than he had been for some time. The glands in the neck were much enlarged. As there was a small opening in each drumhead I made a free incision in each membrana. The baby made a good recovery.

We must not overlook the fact that, in some cases of acute otitis media due to the grippe, especially in children, the high temperature may be due to a latent pneumonia, the physical signs of which cannot often be made out for several days. I must confess to having operated on a young girl when the temperature was 106.2° F., with marked tenderness over the mastoid. A

free incision had previously been made. The case was one of severe grippe infection, and the chest had been carefully examined but no evidences of pneumonia could be discovered. Twenty-four hours after the mastoid operation evidences of consolidation were detected. The patient recovered. The temperature in this case was due to the pneumonia, and the patient would probably have recovered without operation as the cells were only softened, and did not contain pus. We should be careful in administering ether or chloroform in all cases of grippe infection for fear of setting up a pneumonia.

To show what can be accomplished by conservative methods I would refer to a paper published in the *Archives of Otology* in 1901, in which I reported forty cases of "acute purulent otitis media, complicated by acute inflammation of the mastoid cell," occurring in private practice. In ten cases it was necessary to perform the mastoid operation, while in thirty recovery followed without operation. The latter were treated by means of the artificial leech, the Leiter coil, free incision of the drumhead, and general treatment, rest in bed, etc.

Not long ago I was called in consultation to see a child that had had an acute otitis media for several days. Two incisions had been made in the drumhead, and all preparations were made for an operation that same day, but the temperature declining suddenly, it was deemed best to wait twenty-four hours longer, and on the next day the child was so much improved that she escaped a mastoid operation. The child felt perfectly well, was happy, and slept during each night, and the only symptoms were temperature and slight tenderness on pressure over the mastoid.

It seems to the writer that it is impossible to lay down any hard and fast rules as to when the mastoid cells should be opened. Before deciding such a question we must secure all possible information bearing on the case. If the streptococcus or pneumococcus is present and the patient is suffering from a marked toxaemia, we should not wait if the patient has well-marked symptoms of mastoid inflammation, and an attempt has already been made to drain the middle ear by a free incision in the drumhead.

In a child affected with a virulent streptococcus infection, I opened the mastoid cells on the fourth day after the middle-ear infection, and found the sinus exposed and a Bezold perforation, showing clearly how rapid the destruction of bone may be in some cases. I have also opened a mastoid process in a man where there was no pain on pressure and only a slight degree of fever, but where the patient had a profuse discharge which did not yield to treatment, and he had a septic appearance. The cells were broken down and filled with pus.

On the other hand, a child may be bright and happy, and appear in good condition except for the fact that an acute otitis media with mastoid symptoms causes a temperature. In these cases not only one incision should be made, but in many instances it may be repeated several times, when all symptoms of mastoiditis will frequently disappear, and the child will recover. In adults, also, we should be guided largely by the nature of the infection and the general appearance of the patient, as well as by the blood count. Daily examinations of the blood should be made in order to determine whether the leucocytosis is increasing or decreasing, and what relative changes are taking place in the cell percentage. For example, if the leucocytosis is falling, and the polynuclear percentage is above normal and rising, the prognosis is not so good as when both are falling, or when the leucocytosis is increasing and the polynuclear percentage is falling. According to Sondern, "The increase in the relative number of polynuclear cells is a direct indication of the severity of the toxic infection, and the degree of leucocytosis an absolute indication of the body resistance towards the infection." No definite rule can be laid down at present to aid the aural surgeon. We ought to have a knowledge of the normal average leucocytosis and cell percentage in each individual in order to have a rational basis from which to draw conclusions, but with other clinical symptoms a blood count will assist us in deciding when to operate.

In a study of 89 cases of acute and chronic purulent otitis media with and without complications, made by Dixon at the New York Eye and Ear Infirmary, it was found that the leucocytosis in those cases with mastoiditis as a complication ranged from 5,000 to 17,800, and the average polynuclear percentage was within normal limits. It was not until the more serious complications occurred, such as epidural abscess, sinus thrombosis, and intracranial invasion, that the blood count began to have any very marked significance. The leucocytosis occurring in the course of intracranial complications does not appear to be so high as in pneumonia. As exceptions occur, we must not rely too positively upon the blood count alone.

We can afford to wait longer in children than in adults before opening the mastoid cells, because in the former the suppurative process is more likely to extend outward through the thin, soft cortex, while in the latter the inflammation is more likely to involve the cranial cavity. Of 281 cases collected by Hill Hastings[1] in which the mastoid operation was performed, perisinus abscesses were found in 46 cases, epidural abscesses in 21 cases. Hastings says: "It is noteworthy that only 16 of the 67 cases were children (under 10 years of age), while of the 72 cases of subperiosteal abscesses 46 were children."

The value of trying conservative treatment in chronic otorrhoea rather than the performance of the Schwartze-Stacke operation is clearly shown in the report of the following case:

A coachman, 25 years of age, had been a sufferer from chronic otorrhoea for many years, but had had but little treatment for it. His case was called to my attention in February, 1906, owing to the fact that he had been told by a specialist in New York that he must have a radical operation performed at once. He told me that two days before he had had a chill while driving and had been obliged to give up work and had gone to a hospital for advice. He was told that a Schwartze-Stacke operation should be performed immediately. On examination I found that he had a large fibrous polypus protruding from the right ear and that the discharge was prevented from escaping owing to the occlusion of the canal. There was slight tenderness over the mastoid process. I advised against an immediate radical operation, although I told him that later this might be necessary. I then removed with Blake's snare and with other instruments the polypus, thereby establishing good drainage. In about ten days time the man was able to resume his work and all the disagreeable symptoms disappeared.

It would have been a great hardship for this man to have submitted to an operation at that time, as he had a family dependent upon him.

I have always found great difficulty in persuading physicians who have consulted me on account of chronic otorrhoea to have any operative work performed on them. Knowing well the complications that may arise, they seem to prefer taking chances in many instances. The following case will illustrate this point:

A physician, 35 years of age, consulted me two years ago on account of a very foul-smelling otorrhoea of long standing. The drumhead was almost entirely destroyed, and there was no obstruction to the escape of pus from the attic. There was roughened bone in the attic, but there were no evidences of cholesteatoma. I immediately washed out the attic with bichloride solution, and afterwards injected into the cavity some alcohol containing boric acid. I did not give him much encouragement as to any permanent cure from this line of treatment, but as it has invariably been my custom to commence the treatment of such cases by the use of the middle-ear syringe whenever practicable, I decided to try what I could do for him on these lines as he was strongly opposed to an operation. Much to my surprise, in a very short time there was a decided improvement. The discharge became less, and the odour much less offensive. The attic was washed out with bichloride solution, and afterwards injections were made into the attic of alcohol and boric acid and other solutions. Powders were also insufflated. The improvement continued steadily, and in four months' time cicatricial tissue had formed, and the cavity was healed. I saw the patient a short time ago, and he has had no return of the discharge for two years.

I have reported numerous cases similar to this one which recovered under like treatment.

The following case is one in which the radical operation was clearly indicated:

Joseph F., 35 years of age, was sent to me December 29th, 1905, on account of chronic otorrhoea of the right side, which he had had since he was 4 or 5 years of age. He had a constant discharge, with odour, and was troubled with an annoying tinnitus. General health fairly good. Some tenderness was present over the mastoid process at times. About one-third of the drumhead on the right side was destroyed posteriorly, and on the left side the drumhead was very much retracted, and atrophic changes had made it quite thin. Hearing for the watch = R. ear 1 in.; L. ear 1 to 2 in. Bone conduction increased for both ears. Slightly raised

voice heard a distance of 12 ft. with each ear. For the past three months he had had pain in the mastoid three or four times, and during the past six months he had been troubled with headache. He was seldom free from it now. Was very dizzy for one night about three weeks ago. On January 23rd a radical Schwartze-Stacke operation was performed. The usual incision behind the ear was made and the remains of the drumhead and ossicles were excised. Cholesteatomatous material was removed from the attic and antrum and the roughened bone of these cavities was carefully scraped. The mastoid wound was entirely closed by sutures, and after making an incision through the length of the cartilaginous canal, the walls of the latter were pushed against the inner wall of the bony cavity by means of narrow strips of iodoform gauze inserted in the external meatus. In a week's time the mastoid wound was entirely closed, and two weeks after the operation the patient returned to his home in New London, where the treatment was continued under my supervision. On February 18th, epidermatization had almost completely covered the cavity, and there was but slight discharge; and on March 18th, when he came to see me in New York, the hearing for the watch was seven inches on each side, while the voice was heard the same as before the operation.

In considering the advisability of an operation in a patient suffering from a chronic otorrhoea, we should determine whether the perforation is sufficiently free for good drainage. If the opening is large, and we can readily pass a probe into the attic, and find but little carious bone, and further if the patient does not complain of pain, headache, or dizziness, I feel that it is our duty first of all to try to cure the disease by means of injections through a middle-ear syringe. Exuberant granulations should be removed, and everything done to establish good drainage. If, on the other hand, a patient comes to us complaining of frequent attacks of earache, headache, nausea, vomiting, or vertigo, and on examination we find that good drainage is impossible, owing to a small perforation (generally in Shrapnell's membrane), and that the ossicles are carious, that the discharge is fetid and contains cholesteatomatous masses; and moreover, if we detect a carious condition of the attic, we should advise immediate operation—either excision of the drumhead and ossicles, or a Schwartze-Stacke operation. In such cases, the patient is also apt to have occasional attacks of mastoid pain, another indication for an early operation.

Haug of Munich[2] claims to have cured sixty-four out of ninety-eight cases of suppuration in the attic. He first enlarges the site of the perforation, if necessary, so that a tympanic cannula of a large calibre can be introduced. The irrigations are made with a solution of permanganate of potash or boric acid. The cavity is then dried, and a solution of perhydrol, ten parts, in water and glycerine, ten parts each, is slowly injected into the attic. The solution is retained for a quarter of an hour, with the head turned to one side. The canal is dried, and a small pledget of cotton, soaked in a strong solution of iodopotassium iodide glycerine introduced. The canal is then packed with gauze. The procedure is sometimes very painful. If necessary it is repeated in ten days. Haug has never repeated this procedure more than three times, because it is without avail if the case has not healed up in that time.

In introducing a probe into the attic we often find roughened bone. This fact alone should not have especial significance unless associated with more serious symptoms. At the annual meeting of the American Otological Society, held May 9th, 1905, in a discussion on chronic purulent otitis media, Gruening said:

> The diagnosis of the presence of carious bone is often made by the introduction of a probe. When the probe strikes something rough it is assumed that the bone is carious. The conclusion is not correct. There is often roughness without caries. In former times, when we did not resort to the radical operation, we dealt with polypi, and we cured our cases, and what happened then can also happen now. Many cases of middle-ear disease are certainly amenable to treatment by the removal of granulations and polypi.

Other writers of late years are inclined to advocate conservative measures in individual cases, and do not try to alarm all patients afflicted with chronic otorrhoea by telling them, as some have done, that they are living over a volcano, and that they must have an immediate operation.

In a practice extending over twenty-five years my observation is that the danger of an intracranial complication following chronic otorrhoea is very slight among private patients. During this time I have seen many cases of purulent otitis media, and I can only recall one case that developed an intracranial complication—namely, a brain abscess. The patient had neglected all treatment for years, and when I saw him he had an abscess in the temporo-sphenoidal lobe. He was operated upon at once and recovered. It is among the hospital patients that we find the serious complications, especially as the poor are not apt to apply for treatment until compelled to by such symptoms as pain, headache, dizziness, tinnitus, etc., and from hospital patients most of the statistics are compiled.

If the discharge cannot be cured by the use of the middle-ear syringe, the radical operation should be performed, for after the discharge has been arrested the patient's general health is apt to be greatly improved, and the danger of an intracranial complication is practically impossible.

The question whether or not to ligate the internal jugular vein or to excise it in all cases of sigmoid sinus thrombosis is still under discussion by aural surgeons. For a number of years I have been in the habit of not ligating or excising the vein in cases of thrombosis of the sinus, provided the clot was not broken down, and there were no evidences of thrombosis of the internal jugular vein. In such cases I have made it a rule to wait for twenty-four hours before tying the vein, with the result that, during this period, I have not been obliged to excise the vein.

On the other hand, if a thrombus has already formed in the internal jugular vein, or the sigmoid sinus contains pus, and especially if the patient shows symptoms of general infection, the internal jugular vein should be tied at once. In a paper read before the Society of Alumni of Bellevue Hospital, April 5th, 1899, on the Importance of an Operation in the First Stage of Thrombosis of the Sigmoid Sinus, I reported three cases occurring in children under 10 years of age, in which the internal jugular vein was not ligated, and said that, "unless we are quite confident that the thrombus has already extended to the internal jugular vein, it seems to me more prudent to give the patient the benefit of the doubt, for ligation of the internal jugular vein adds very much to the gravity of the operation."

McKernon, at the meeting of the American Otological Society in 1905, read a paper on Primary Jugular Bulb Thromboses in Children as a Complication of Acute Purulent Otitis Media, in which he reported six cases operated upon, four of which were successful. One case died of encephalitis of the cerebellum, and the other one, a baby six months old, never regained consciousness after the operation. The streptococcus was the characteristic infection and the polynuclear count high. McKernon did not ligate and resect the internal jugular vein in any of these cases. He says:

> Had I not been able to restore the circulation here (at the bulb) I would have done so in four of the cases, but in two of them such a procedure would have been exceedingly unwise owing to the extremely weakened condition of the patient, and would have resulted in their deaths on the operating table. I believe that in the average case of sinus or bulb involvement it is wiser to ligate and resect the vein if the patient's condition will admit of it. While four of the cases reported recovered without ligation being resorted to, it was largely due, I believe, to the fact that an early operation was done rather than that all the infective material had been removed. In young children the time element is one that enters largely into a favourable prognosis, for the shorter the time that we keep our patients on the operating table the quicker will be their convalescence.

McKernon further said that "In a large proportion of children that have come under my observation the percentage of cures is far greater without ligation of the vein, because of the added risk on account of the time consumed in ligation and removal."

Some writers seem to think that it is a matter of small importance whether the sigmoid sinus is accidentally opened during the mastoid operation. This view seems to me to be a dangerous one, and I have reported, in the *New York Medical Journal* and *Philadelphia Medical Times*, October 1st, 1904, a case of thrombosis of the sigmoid sinus which was probably due to accidental incising of a normal sinus. Fortunately the patient recovered.

In a paper entitled, Notes on Three Recent Cases of Sinus Thrombosis; Two fatal; One recovered; Remarks; H. Knapp says:

> Wounding of the sinus has so often proved to be without consequences that its occurrence during mastoid operations is commonly considered harmless. I do not share this opinion.

In the first of the cases detailed above the sinus was slightly injured. Whether this contributed in any degree to the fatal termination of the disease I am not prepared to say. I carefully avoid wounding the sinus, and always follow conscientiously the rule that the working at the sinus should be the last step of any mastoid operation.

As to ligation of the internal jugular vein, Knapp says that:

It saves many a life, and should be done when, after a thorough mastoid and sinus operation, the pyaemic symptoms persist longer than a few days. In the severe cases, if not in all, the facial and external jugular veins should also be tied.

In an article by Hill Hastings[3] entitled, A Report of 231 Mastoid Operations, with Subsequent Results, being a compilation of cases treated at the New York Eye and Ear Infirmary, he says:

The sinus was accidentally opened in 9 cases. In 8 no harm resulted; in 1 case sinus thrombosis followed. On the eleventh day after the operation the patient had a chill, followed by a temperature of 105° F. Although the clot was removed three days later, and the internal jugular vein ligated and excised, septic pneumonia developed and the patient died.

Pooley reports a case of mastoiditis, followed by sinus thrombosis and pyaemia, in which he says:

The sinus was infected at the time of the first operation. For the first three days thereafter improvement took place; then the sinus clot formed, with the subsequent appearance of the symptoms so characteristic of sinus thrombosis.

Conclusions.

1. In all cases of acute otitis media, attended with pain and temperature and bulging of the membrane and particularly if the patient is suffering from a marked toxaemia and mastoid tenderness, an early and free incision should be made in the drumhead. It is only in the very mild cases that it is ever wise to defer opening of the drum membrane.

2. We can often ward off a mastoid operation, if the case is seen in the hyperaemic stage, by the application of the artificial leech, and the Leiter coil and by making a free incision in the drumhead. In the case of young children we can afford to wait longer than in adults, and it is often advisable in infants and young children to make several incisions in the membrane rather than to perform an immediate mastoid operation, especially if the principal symptom is elevation of the temperature alone. The nature of the infection should be determined by an examination of the pus from the middle ear. If the streptococcus or pneumococcus is present in large numbers, and particularly if the patient has marked toxaemia with mastoid symptoms, an immediate operation in such cases is generally called for if the acute symptoms have not yielded to a free opening in the drumhead. A blood count should be made daily in order to determine whether the leucocytosis is increasing or decreasing, and what relative changes are taking place in the cell percentage. In other words, we should obtain all the evidence possible about the case before deciding to operate rather than rely on fever and pain alone.

3. In cases of chronic suppurative otitis media we should distinguish between those that require an early operation and those that can frequently be cured by conservative methods. In the former, the drainage is apt to be poor, owing to a small perforation and to the opening becoming clogged with cholesteatomatous material, the ossicles are carious, and there is caries and necrosis of the attic. The patient in such cases complains of severe headache and pain in the ear, and if good drainage is not established he is likely to have nausea, vomiting, dizziness and a possible intracranial complication. In the latter class of cases, if the drainage is good and the patient does not complain of any particular symptoms referable to the ear, the discharge can often be cured by the systematic use of the middle-ear syringe and the insufflation of powders.

4. In all operations on the mastoid we should be most careful not to expose the dura or the sinus, unless occasion requires it, for such practice has in some instances led to meningitis, and when the sinus has been accidentally opened septic thrombosis has followed.

5. In operations for sigmoid sinus thrombosis it is often unnecessary and dangerous to excise the internal jugular vein at the same time, especially in the case of children, for the longer the time the little patient is under the anaesthetic the more grave becomes the prognosis. If the operation is performed early and the clot has not begun to disintegrate, it is generally unnecessary to ligate and excise the internal jugular vein even if we do not secure a flow of blood from the bulbar end. In such cases it is wiser to postpone further operative interference for at least twenty-four hours.

References.
[1] *American Journal of the Medical Sciences*, January, 1905. [2] German Medical Society. *Archives of Otology*, No. 6, 1905. [3] *American Journal of the Medical Sciences*, January, 1905.

Dr. George L. Richards (Leicester, Mass.) was in hearty accord with Dr. Bacon, especially as regards the frequent possibility of avoiding a mastoid operation in young children. In this connexion he wanted to mention the use of $\frac{1}{10}$-gr. granules of calcium sulphide, given hourly, until there was some odour of the sulphur in the breath or sweat, then less often. He had found this remedy to apparently help in the process of recovery, a previous free incision of the drum membrane having been made.

Dr. W. Payre Porcher (Charleston, South Carolina) pointed out the great advantage of conservatism and the advisability of investigating the etiology of ear disease more carefully. Many cases were due to and dependent upon nasal obstruction.

Dr. J. A. Stucky (Lexington, Kentucky) said that the extreme temperature referred to was not due entirely to the inflammatory condition of the ear, but often to intestinal toxaemia, caused primarily by the locking up of the secretory and excretory functions as a result of the violent pain in the ear. Free purgation and flushing of the colon, in addition to free myringotomy, often acted as if by magic. The artificial leech and Leiter's coil were to be used with extreme caution, especially the latter. He might also mention the danger in using the syringe of lowering the vitality of the parts, and of conveying new infectious material into the delicate and susceptible-middle ear; in this way the simple trouble might be converted into a serious, mixed infection. This danger should be impressed upon the general practitioner, who usually first saw these cases and exhausted the so-called conservative treatment before he brought the case to the otologist. It should be made clear that the most conservative treatment was often early surgical interference.

Dr. S. MacCuen Smith (Philadelphia) thought that those of them charged with the teaching of students should be moderate in advising radical measures, at least, not until simpler ones had failed. Early free incision of the membrana tympani was most important in all acute cases complicating the infectious diseases. Simple puncture of the membrane should never be attempted, as it could not provide ample drainage.

Dr. Jas. F. McKernon (New York) said that the extract from his former paper quoted by Dr. Bacon might make it appear that his method of treatment had changed since the writing of that paper; but, if it were read fully, he thought that it quite coincided with his present attitude. In the bulb cases referred to, 34 had been reported to him since the reading of the paper.

Dr. Edward J. Bernstein (Kalamazoo, Michigan) asked what effect the use of chloroform and hot-water irrigation, according to the views of Sir Victor Horsley, would have upon the radical mastoid operation, more especially when one felt it would be necessary to ligate the jugular.

Dr. Henry Smurthwaite (Newcastle-on-Tyne) said that the greatest percentage of cases that came under their notice was of the chronic class, and that it would never have reached such proportions had early systematic and thorough treatment been adopted at the inception. If statistics were taken of deaths directly attributable to untreated and unrecognized (by the patient) middle-ear disease, the number would be considerable. He himself knew of 3 cases of death that occurred in one week due to cerebral and cerebellar abscess, in which the parents had no idea that an ear discharge had been present. It was among the poor that most of the fatal cases occurred, for the simple reason that running ears were looked upon as of little danger, and were not attended to unless pain were present. If the poor were instructed to have their children's ears attended to on the first appearance of a discharge, the death roll would be reduced. In the acute cases it was far better to make a big incision in the drum

and let out pus early than to allow it to burst through. Incision favoured early healing and lessened the risk of destruction, permanent thickening of the lining membrane, and consequent impairment of hearing.

Mr. Hugh E. Jones (Liverpool) said that it was much better to open the mastoid cells, or even the antrum, in acute suppurative otitis too soon and too often, than too late. The immediate cessation of discharge through the tympanum and rapid resolution gave better results as to hearing. A fallacious resolution of the mastoid sometimes occurred, leaving foci of infection in deep cells which broke out again, possibly into the groove of the sinus, six or twelve months later. In chronic cases one often found that the removal of a well-formed polypus led to a rapid cicatrization of the tympanum. The question of latent abscess having been raised, the speaker remarked that he had for years insisted upon the fact that many cases of latent brain abscess were walking about, and he had sought himself and had asked others in vain for a crucial clinical test for this condition. He thought the danger of opening the actual sigmoid sinus accidentally during mastoid operation had been exaggerated. In an experience of about 500 mastoid operations he had often opened the bony groove accidentally, but never the sinus itself.

Dr. Herbert Tilley (London) wished to refer to two cases recently under his care which showed how impossible it was to lay down any general rule for the treatment of the graver complications of suppurative otorrhoea.

Case I was that of a female, aged 21, who for five weeks had suffered from right suppurative otorrhoea following influenza. It was stated that she had had three shivering fits before admission to the hospital, and constant attacks of severe headache. Upon admission she was anaemic, and looked very ill. Mentally she was in a drowsy condition. Pulse 72; respirations 13 per minute; temperature, 102°. Well-marked optic neuritis in right eye, the pupil of which was dilated and did not react to accommodation. No other paralysis noticed. There was slight pain on pressure on the right mastoid, but no signs of acute inflammation in this region, nor in the region of neck corresponding to situation of jugular vein. The mastoid antrum and cells were exposed, and also the lateral sinus: only healthy blood escaped from the latter. There was a small quantity of pus in the antrum, but the roof of the tympanum and antrum seemed quite healthy. The temporo-sphenoidal lobe was exposed and bulged very much through the large opening (2 in. by 1 in.) made in the bone above the bony meatus. Pus was sought for in five directions, but without success, and the wounds were stitched up with the exception of the post-aural mastoid incision, into which a large drainage tube was fixed. The patient rapidly recovered, and without a bad symptom. The rapid disappearance of the optic neuritis was especially noticeable.

In such a case it was difficult to say what was the cause of the patient's symptoms, but it would seem probable that the temporo-sphenoidal lobe had been infected by way of the lymphatics from the middle ear, and that the operation at least relieved tension, and possibly was the means of affording an outlet for septic micro-organisms. It was indeed a rare type of case, but a similar one had been described before the Neurological Society of London.

Case II.—The patient was a schoolboy, aged 17. Six weeks after the onset of influenza he was seen by the speaker on account of a temperature which rose every evening to 101° or 102°, and there was a purulent otorrhoea of three weeks' duration accompanied by slight earache. When examined, the patient seemed in good spirits, and there were no signs of any mastoid involvement. The drum membrane was congested, perforated in the lower posterior quadrant, and the deep posterior meatal wall was not swollen. It was decided to keep the patient in bed and administer aperients—salicylates, etc. After an interval of forty-eight hours a rigor occurred (temperature 105°), and the speaker opened the mastoid antrum, the mastoid cells, and exposed the groove of the lateral sinus. There were about 2 minims of pus in the antrum, and the neighbouring cells were inflamed, but the rest of the bone was hard, pale, and healthy. Five hours after the operation a second rigor occurred, and an examination by Dr. Colbeck and Mr. Ballance failed to ascertain the cause of rigor. An interval of two days followed, when a third and fourth rigor occurred. During this time the mastoid wound appeared healthy, there was nothing to indicate involvement of the lateral sinus, and the patient's general condition was excellent. After the second rigor frequent injections of antistreptococcic serum were made, and after the fourth rigor the patient rapidly improved and made a speedy convalescence.

Such cases as these taught them the uselessness of trying to lay down hard-and-fast rules as to when a mastoid antrum should be opened, or an internal jugular ligated, or when this or that treatment was indicated. General principles there must always be, but that surgeon would be most successful who was untrammelled by rules and was guided only by his experience and the demands made by the symptoms of the individual case which was before him.

Dr. Clarence J. Blake (Boston) was in accord with Dr. Bacon, and with the emphasis laid by the last speaker upon the importance of dealing with each case on the basis of its individuality. Accidental wounding of the lateral sinus might be met by rapid enlargement of the opening in the inner mastoid wall. The lateral brain pressure crowded the vein into the enlarged opening, stopped haemorrhage by pressure, and safeguarded the vessel.

The President expressed his sympathy with the conservative ideal. It was said of one great surgeon that he never wasted a word, a drop of ink, or a drop of blood. One operation in aural surgery which could hardly be done too early, and which was often postponed too long, was the opening of the mastoid cells in acute suppurative otitis. It was essentially conservative, and had saved many tympanic apparatuses which would otherwise have remained crippled for hearing purposes and a source of the dangerous sequelae incident to chronic suppuration of the middle ear.

Reply.

Dr. Gorham Bacon, in reply, said he was glad to find there was not much opposition to the statements contained in his paper. He felt that Dr. McKernon and he were quite in accord in regard to excision of the internal jugular vein. He went farther than Dr. McKernon in waiting twenty-four hours after removing the clot (one that had not begun to disintegrate) before ligating or excising the vein, to see if the patient had any further symptoms of sepsis. Dr. McKernon said that in weak children he waited before ligating the vein. In a certain number of cases where the typical operation was performed early, and the internal jugular vein was excised, the patient died. The cause of death was not given, but he believed it was the shock of the operation, and for that reason he thought that they should not resort to ligation and excision of the vein unless absolutely necessary; he had therefore been advocating conservative methods for some years. Dr. Richards had referred to sulphide of calcium in suppurative cases. The late Dr. Sexton advocated its use, and the speaker had given it for a time, but did not feel that its administration was followed by any especial benefit, particularly after the grippe made its appearance. As to the remarks made by one of the speakers about the number of chronic cases seen in hospital practice, he was compelled, owing to the time limit, to omit what he had written on some statistics. In private practice he had only seen one intracranial complication following chronic otorrhoea during a period of twenty-five years. So that among private patients he felt that such a danger was a slight one. Most statistics were compiled from hospital cases, and among them they got their intracranial complications. He had seen a case similar to that reported by Dr. Tilley. The patient had had grippe and a mastoid operation had been performed, but he seemed to become very stupid, had a temperature, and respiration was as low as 8. The speaker opened the cranial cavity, explored the temporo-sphenoidal lobe, the cerebellum and sigmoid sinus, and found nothing. In a few hours the patient began to improve and recovered. He thought that the local depletion very likely relieved the congestion in a commencing meningitis. He wished to thank the President and the members of the Section for the privilege of having been allowed to read his paper.

THE VALUE OF THE BLOOD CLOT AS A PRIMARY DRESSING IN MASTOID OPERATIONS.

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To pursue a certain line of investigation, to regard its failures and disappointments as opportunities for the acquisition of further information, and finally to present the results attained, and the conclusions arrived at, to the criticism and judgement of one's colleagues is one of the gratifying labours which make for advance; for, prove

or disproved, upon the basis of its primal proposition, the result, in the record of acquired facts, is an addition to knowledge.

The observations here recorded, extending over a period of nearly twenty years, and now first presented in their entirety—previous communications upon this subject having been mainly the reports of cases—though limited to a circumscribed surgical field, have value as a contribution to the general study of the obliteration of surgical dead spaces, and are presented in reference to their significance in this respect as well as for their special purpose.

The earlier operations for the evacuation of the septic contents of the mastoid process of the temporal bone, consisting mainly in a simple perforation of the outer mastoid cortex, with provision for drainage, and a slow elimination of necrotic trabeculae and cortical bone by a granulomatous process, naturally suggested the possibility of more rapid evacuation by a mechanical procedure. To effect this purpose more complete access to the mastoid interior than that afforded by a simple perforation of the cortex was necessary, and aural surgeons came progressively to make the outer cortical opening larger, and to remove the mastoid contents by means of chisels and curettes, until the present mastoid operation, as it has since been generally practised, was established. The after-treatment of the more complete mastoid operation consisted, usually, not in simple drainage, but in flushing with antiseptic solutions and in the packing of the resultant cavity, more or less firmly, with aseptic or antiseptic gauze, the usual result being a slow process of healing, attended by more or less painful manipulation, extending over a period of weeks or even months. It was while following this, the accepted line of after-treatment at the time, distinctly unsurgical in the light of more recent knowledge, that certain observations suggested the possibility of obliteration of the cavity in the mastoid along more natural lines. Both the antiseptic irrigation, especially with corrosive sublimate solutions, and the tight packing, were found to interfere with the process of repair, and the substitution of light gauze packing, without the preliminary irrigation, was found to leave blood clots in the more dependent and more remote portions of the mastoid cavity. These clots sometimes contributed, by the formation of firm fibrous bands, to a lessening of the space and sometimes broke down and came away, the apparent cause of the liquefaction of the clot being a small portion of septic material; when the clot remained for a period of forty-eight hours or more, and then broke down, the subjacent bone was found to be covered by healthy granulomata.

Evidently, then, the blood clot in the exenterated mastoid cavity might be expected to act in one of two ways—it might bring about the formation of firm fibrous bands, the framework for a possible extension of the later osseous trabeculae, or it might, after a temporary persistence, break down, leaving behind it an osteoblastic formation and healthy granulomata as the basis of a slower process of repair. If the blood clot broke down under the incentive of a septic remnant, it was evident that the hope for its utilization as repair material in anything more than a very limited area must have its reason in so complete an evacuation of the mastoid contents as to afford a surgically aseptic cavity. The already-established mastoid operation of Schwartze, with its inclusive outer cortical opening and extensive evacuation, presented the operative measure, and the investigations of Schede upon the blood clot filling, in operations upon the long bones, encouraged the prosecution of tests as to its applicability as a repair process in the mastoid, a bone cavity apparently offering greater promise of success than that afforded by the long bones, because of its distinctly delimited cortex and the ready accessibility of its interior.

To attain the desired ends, both as to investigative and reparative results the operation naturally formulated itself upon the following lines. The cut through the soft tissues, sometimes straight, sometimes curvilinear, directly to the bone was made and retracted with as little mutilation of the cut edges as possible; bleeding was controlled by means of the usual haemostats, sponging with hot water, and the pressure of broad-bladed retractors, until a dry field, exposing the whole, or greater part, of the mastoid exterior, was obtained. The opening in the outer mastoid cortex was made so large as to include all areas of defective bone and to afford, in addition, ample access to all parts of the mastoid interior, the whole of the outer cortex, if necessary, being taken away. The contents of the mastoid cavity were then removed by means of chisels and sharp, long-tipped, unfenestrated spoons, down to the inner cortical walls, especial care being taken to remove the bases of the trabeculous projections with their interlamellar diploë and to search out adventitious cortical cells, and, by curetting, make them a part of the general cavity, which was then packed firmly with small dry involuted gauze sponges. These sponges were allowed to remain for a minute or more, and, on their removal, the interior of the mastoid was subjected to careful visual and tactile examination, with the result, usually, of the detection of some small area of cortical vascularity contrasting with the surrounding clear surface of the cortical bone; these vascular, or possibly necrotic, areas were carefully curetted, to the extent of entire removal of portions of the cortical wall, down to the underlying muscle or dura, as the case might be, and the procedure of packing and curetting was repeated until, as far as could be determined, the cavity was surgically clean. The cavity was then again packed with small dry gauze sponges and attention directed to the soft tissues; necrotic or suspicious areas were excised or curetted, all shreds and remnants removed and the cut edges trimmed for apposition; the sponges were then removed and the cavity in the mastoid allowed to fill with blood from the cut surfaces of the soft tissues, which, so soon as clotting was evidenced, were brought into apposition and so retained either by gut sutures or by pressure pads, the lower portion of the incision being left free for seepage of serum from the clot.

As a preliminary to the mastoid operation the drum-head, even if perforated, was incised by a crescentic cut following the posterior superior periphery, this cut being sometimes supplemented by the passage of a curved spatula-shaped knife upward and backward toward the antrum, for the division of the horizontal mucous folds present in this locality in a considerable percentage of normal middle ears, and which, in suppurative disease involving the epitympanum, present an obstruction, by their engorgement and swelling, to effective drainage. The canal and middle ear were carefully cleansed and stopped with a gauze wick, which was removed after the operation, and the canal and middle ear again cleansed and plugged.

Even after so thorough and painstaking an operation it was not, at this period of the investigations, deemed wise to leave the mastoid wound undisturbed; on the first or second day the dressings were removed, and, even if there was no evidence of reaction in the wound, a sterile probe was passed through the clot from below upward superficially, or even into the antrum, with the result, not infrequently, of persistence of the clot and the establishment of a sinus through it, which subsequently closed; in some cases the tip of the probe was passed into the antrum and the outer end of the probe raised and lowered until the adhering edges of the outer wound had been completely separated and the clot fairly divided into halves, the result being a serous seepage throughout the centre, the lateral portions of the clot remaining firm. As might have been expected, clots which might have held broke down completely under this invasion of their reparative process, supplemented occasionally by flushing with a corrosive or permanganate solution. In these latter instances the wounds healed subsequently by granulomata, but it was noticeable that the disrupted clot left behind it areas of firm, healthy granulomatous lining of the mastoid cavity, affording the foundation for subsequent repair. In some cases, as an experimental procedure, granulomata thus formed were curetted, to free bleeding, with the formation of a secondary blood clot and apparent hastening of the filling-in of the cavity.

By this time, in 1891, the investigations having been about three years in progress—the material employed being mainly the mastoid cases in a three-months' service in each year in the aural department of the Massachusetts Charitable Eye and Ear Infirmary—it had become plain that the use of the blood clot as a primary dressing not only favoured more speedy elimination of the surgical dead space, but considerably decreased the discomfort of after-treatment.

The blood-clot dressing was inapplicable, apparently, in

cases in which it was necessary to maintain access to deeper-seated diseased parts, as in implication of the sinus, and with the presence of extradural abscesses, though, since that time, access has been maintained to the septic parts by gauze drains, allowing the remainder of the mastoid cavity to fill in with blood, with good and speedy results. In cases of extradural abscess, so called, the result of a spontaneous perforation of the inner cortical wall, with extrusion of the septic contents upon the dura, it has been possible, by enlarging the opening in the inner cortical wall to the limit of the dural adhesion and subjecting the parts to light curetting and dry scrubbing, to permit the extradural abscess cavity to participate, with the mastoid cavity, in the blood-clot dressing. That it was inapplicable under unfavourable systemic conditions in the luetic, the diabetic, and the phthisical, was presumed and supported by the number of such cases in which the blood clot broke down speedily with subsequently slower filling of the mastoid cavity by granulomata and the necessity for frequent stimulation of the repair process, but in others occurred some of the best results.

The more favourable cases were those in which the mastoid disease was an acute supplement of the middle-ear affection, or those in which the suppurative middle ear had been most thoroughly evacuated and drained.

With these differentiations there appeared to be a sufficient percentage of gain, in the shortening and amelioration of the after-treatment, to warrant a continuance in the investigations; but it was not until 1891, and then by a purely accidental occurrence, that the extent of the protective and reparative capacity of the blood clot within the mastoid was fully demonstrated. The patient, not a hospital case, was a man 30 years of age, a musician, in good health, and living under favourable conditions. As the result of an acute infection of the right middle ear he developed a mastoiditis which came to operation, after failure of the usual abortive treatment, rest in bed, light diet, laxatives, and the post-aural application of the cold coil. The operation included the crescentic peripheral incision of the drumhead, thus leaving the membrana vibrans intact, with exception of a small perforation below, already established, the division of the tympanic mucous folds, and the mastoid operation as above described, the edges of the wound being closed by apposition. Light probing through the clot into the antrum was practised until the third day, when it was suspended in deference to the accident above mentioned, namely, the appearance of an erysipelatous blush, about 1 cm. in diameter, at the vertex, accompanied by chill and rise of temperature. Under these conditions the mastoid wound was left untouched, being kept covered merely by a light corrosive dressing.

In this case, as well as in many of the hospital cases, during the more conclusive period of these investigations, it was my good fortune to have the collaboration of Dr. Henry Lee Morse, who has since carried on similar investigations independently. We were mutually agreed both as to the propriety, in this instance, of leaving the mastoid wound untouched, and as to the importance of the conclusions to be drawn from the occurrence.

At the end of twenty-four hours the erysipelatous inflammation had invaded the temporal region and face. The edges of the mastoid wound were completely coapted, and so remained. At the end of ten days the active symptoms of the erysipelas had ceased, the mastoid wound was firmly healed, there was no drainage from the middle ear, the hearing was improving, and subsequently became nearly normal. The mastoid wound had been virtually closed and firm since the fourth day after operation, the mastoid presented a normal contour, and the incision was represented only by a slight linear scar.

With so clear an indication of the availability of the blood clot, not merely for purposes of partial, but to the end of complete, repair, when applied to a surgically asepticized bone cavity, the further investigations centred upon the study of the after-treatment of the mastoid wound, with reference to the possibility of primary healing; a parallel study of the extent of the protective capacity of the blood clot being made by applying it as a primary dressing in a series of unselected cases.

In these cases the importance of surgical cleansing of the middle ear, either by a preliminary operation or by the tympano-mastoid exenteration, was sufficiently demonstrated and the protective capacity of the blood clot determined on an average of about forty-eight hours.

The percentage of primary healings of the mastoid wound, that is to say of cessation of serous seepage from the lower portion of the wound, absence of granulomata, and healing within from seven to ten days after operation, varied, in the different series of grouped cases, from 12 to 50 per cent., the latter being selected cases, though I have the pleasure of knowing that others who have followed these observations have since attained even more than the latter percentage of success.

The conclusions arrived at in regard to the value of the blood clot as a primary dressing, and as repair material for healing by first intention in mastoid operations, is drawn from less than 250 cases—a small proportion of the cases operated upon at the hospital mentioned, and even a smaller proportion of the cases coming under my personal care than would be the case but for the view that one of the important functions of such an institution is teaching, and the consequent custom of placing as large a proportion as possible of the operative cases in my terms of service in the hands of the junior surgeons under my supervision; these cases would not, of course, be includable as investigatory material.

The objections thus far presented to the use of the blood clot in the mastoid as facilitating or effecting repair have come from various sources, on the part of both general and aural surgeons—doubt as to the results obtained, but doubt is a broad pathway to belief; question as to the real shortening of the after-treatment, a question to be fundamentally answered only by practical experience and comparative observation; and, finally, the least tenable of all, the expression of fear of the possible consequences of closing the mastoid wound.

When this closure is effected by the simple coaptation of the surfaces of the cut in the soft tissues, under lateral pressure from gauze rolls, by the interrupted suture, which can at any time be divided, or by the subcutaneous, continued suture, which can be immediately withdrawn, and while the superficial appearance of the operated region and the systemic symptoms are facile indicators of the condition within, this objection would seem to fail of effect. Whatever the manner of the closure of the mastoid wound may be, the lower portion should be left free for serous outflow, and this outflow should be assured at subsequent dressings.

Several years ago, at a meeting of this Association in Leeds, Sir William Macewen made the statement that the American aural surgeons were afraid of the lateral sinus. Thanks to his brilliant and incisive teaching, that fear has long since passed away, as the records of sinus operations in aural hospital reports and in the *Transactions* of the American Otological Society abundantly testify; it required practical acquaintance with the subject to banish fear. To-day there would seem to be reason to repeat the statement, in an altered form, and to say that some of the American aural surgeons seem to be afraid of the blood clot; it is only by practical personal experience that they can determine its value as a part of a repair process.

Were the percentage of healing by first intention in acute cases alone less than it has been proven to be by those who have fairly tried it, the result, in the mitigation of pain and discomfort, and in shortening the duration of after-treatment, would be well worth striving for, especially as success presupposes an advance in the surgical thoroughness of the operation itself and the application of a judicious consideration of conditions, which is as much a part of the real domain of surgery as is the application of structural knowledge or of manipulative skill.

The history of the mastoid operation from the time when a simple Wilde's incision was the limit of surgical interference, shows a progressive development in the extent to which the mastoid cavity is laid bare and the completeness with which its contents are evacuated; but the history of the reparative process will not be complete without careful estimate and due consideration of the subject of this paper.

The modern mastoid operation is the outcome of a speedy mechanical substitute for the slower evacuation of the morbific mastoid contents by a natural process of

elimination; this more modern after-treatment is the attempt at employment of a natural process by the utilization of the most effective primary repair material which Nature affords.

The success thus far attained adequately justifies still further investigation, both as to the class of cases in which it is most applicable and the proper systemic preparation of the patient, while its entire safety and increased advantage when understandingly used, with the proper surgical preliminaries, has been sufficiently demonstrated to warrant its taking its place as a rational surgical procedure.

CONCLUSIONS.

From the observations thus far made and still in progress, it would seem that the following conclusions may be justifiably drawn.

1. Of the larger bone cavities, susceptible to pyogenic invasion, both through the medium of the circulation and aërially, the mastoid cavity is the most readily accessible to surgical interference for the removal of its diseased contents.

2. That the thorough removal of diseased tissue, to the inclusion of inflamed or necrosed portions of the inner mastoid cortex itself, down to surrounding healthy soft tissue, supplemented by personal care in the after-dressings, is requisite to the best results obtainable in the reparative process, of which the surgical interference is the inceptor.

3. That the mastoid cavity thus thoroughly cleansed, and safeguarded from without, is subject to reinfection mainly through one channel, that leading from the middle ear, which cavity should itself be thoroughly cleaned and independently drained through the external auditory canal.

4. That the blood clot is not an inert filling material merely, but has, in its serum, a protective defence, viable for at least forty-eight hours after the formation of the clot, and in its clot a repair material capable of producing dense fibrous bands traversing the unified mastoid space.

5. That the use of the blood clot, completely filling a carefully exenterated mastoid cavity, results, when it persists in healing by first intention, in a varying percentage of cases.

6. That the persistence of the blood clot during the period of its protective viability only, even though it then breaks down and comes away entirely, results in the formation of foundation granulomata, which are a basis for subsequent repair, with speedier and more satisfactory results in healing than are obtainable when the wound is dry packed from the beginning.

7. That the safety of this procedure is assured by the limitation of the protective viability of the clot itself, that it breaks down under a volume of pyogenic material which it is in itself insufficient to conquer, and provides exit along the line of least resistance through the surgically-created channel.

8. That the only cases to which the blood-clot dressing is inapplicable are those in which, on account of pyogenic invasion of surrounding structures, it is desirable to keep the mastoid cavity open as a path of access, and those in which the systemic condition of the patient, or the extent of the local infection, do not warrant the expectation of speedy repair.

And, finally, it may be said that the betterment in the repair of the mastoid wound here cited is not the result of any special skill or new discovery, but is the outcome of the careful consideration and application of already-accepted general surgical rules.

REFERENCE.

1 M. Schede, Ueber die Heilung von Wunden unter den feuchten Blutschorf. *Verhandlungen der deutsche Gesellschaft für Chirurgie*, 1885.

Dr. GEORGE A. LELAND (Boston, Massachusetts) said he well remembered the first case he tried after this blood-clot dressing had been suggested to him by the reader of the paper. The clot broke down in a few days and it took many days to remove its decomposing and very odorous remains from the wound by peroxide of hydrogen and corrosive sublimate irrigation. After this very unsatisfactory experience he discarded the method for several years, but hearing more about it, and thinking that perhaps success was, as suggested by Dr. Blake, the criterion of a clean surgeon, it was again taken up four or five years ago, and had been used in selected cases more or less since. Some of the cases had broken down, and indeed infection would always be possible through the Eustachian tube and middle ear until some method was learned by which the tympanic attic could be shut off from the excavated mastoid. His cases had all been acute ones, or chronic ones in which it had been possible to leave only a very clean bony shell even if a clean dura were occasionally exposed. He had been able to find clear notes of only 18 cases, of which 8 were successful, all healing within five to seven days by first intention, and leaving almost no scar or depression, the middle ear having dried up, and the tympanic membrane being intact and the hearing nearly or quite normal. Of those which broke down, several did so within three to six days—one in a case of measles—the centre of the clot dissolving away, but leaving much of the mass in contact with the bone, which undoubtedly hastened healing by providing nourishment for the new granulations. One produced severe local cellulitis with marked febrile disturbance, which, however, rapidly subsided after partial reopening of the wound and hot corrosive irrigations. Another broke down after thirty days, but healed rapidly under the care of another surgeon. These cases had been alluded to elsewhere. Doubtless this was a good procedure in selected cases, but in his opinion it should not be used in the infectious exanthemata, in cases of cholesteatoma, and when the patient was too ill to have good resistance or reparative power. He had not dared to try it in cases of tympano-mastoid exenteration, preferring to carefully graft, so as to have a better chance of preserving the hearing as much as possible.

Dr. W. SOHIER BRYANT had used Dr. Blake's physiological method of wound repair in all his operations on the mastoid, with two exceptions, during the past three years. These were cases in which it was not advisable to remove all the necrotic tissue. The results in the whole series of cases had been more than gratifying, both as to the rapidity of convalescence and the large amount of residual hearing.

The PRESIDENT congratulated the Section on the valuable paper given by Dr. Clarence Blake, whom he welcomed as their doyen. He asked Dr. Blake whether he applied the blood-clot method to the radical operation, and, if so, whether it prevented stenoses.

THE USE OF THE COLD WIRE SNARE IN THE REMOVAL OF HYPERTROPHIED TONSILS.

By ALICE G. BRYANT, A.B., M.D.,
Boston, Mass.,
Otologist and Laryngologist, New England Hospital for Women and Children; Otologist and Laryngologist, Pope Dispensary.

ONE would suppose that the final word had been written upon this subject if one takes note of the numerous articles that have appeared from time to time upon the technique and armamentaria employed in the removal of hypertrophied tonsils. That serious difficulties have appeared is beyond question; and the inadequacy of many of the older and present-day methods of operating only emphasizes the point that there is abundant scope for further advance along these lines. We shall presently consider a course of operative procedure most generally satisfactory to the writer. As regards the preparation of the patient prior to operation, where personal control of the patient is had, a careful preliminary examination should be made. If necessary the patient is put under tonic treatment for some weeks before an operation is performed. An acute or subacute inflammatory condition of the ear, nose, throat and chest should be allowed to subside before any operative measures are undertaken. The teeth should be inspected by the dentist, all offending cavities attended to, and the teeth cleaned. An appropriate nose, throat, and mouth wash is ordered to be used ten days to two weeks before the appointed date. A cathartic is prescribed not later than two days before the day of operation. No food is given for many hours before the anaesthetic is administered. Ether is used as the anaesthetic, and it is given while the patient is lying down. It is administered until the manipulation in the throat ceases approximately to bring into action the faucial muscles, thus avoiding pain, retching, and loss of time. The writer has resorted to various measures in the past

for the removal of the tonsils, but they may be passed by for the present without comment. The method to be referred to in using the cold wire snare for the complete extirpation of hypertrophied tonsils has proved most satisfactory in the writer's hands. The instruments used for this purpose are as follows:

1. The central mouth gag of Jansen.
2. A Bryant tongue depressor.
3. A Bryant tonsil tenaculum.
4. A Farlow tonsil snare, with Bryant's modified cannula for carrying the wire.
5. Oxidized steel piano wire No. 12 or 13.
6. A wire cutter.
7. Sponge holder.
8. Aseptic gauze sponges.

Let us refer to the Farlow tonsil snare. As regards the cannula for carrying the wire one of special size and form has been made for the writer. The socket for carrying the circular cannula has been reamed so as to hold a tube of a larger diameter than the one ordinarily used. For instance, the cannula will easily carry a double threaded No. 12 or 13 oxidized steel piano wire. These numbers have proved most useful in my hands, combining strength with resistance. By allowing the wire to become oxidized a more adherent and steadier hold is had upon the tissues, and we shall soon see that it takes the place of the knife or bistoury in severing adhesions round about the tonsils. Further, the distal end of the cannula has been reinforced so as to withstand the wear and tear of the heavy and coarse wire. Moreover, the exit at this point broadens out into a flattened, truncated, triangular-shaped tip. By this arrangement the wire is drawn more easily through the tube, and it is further favoured by the distal end of the cannula being curved in the quadrant of a circle. The cannula is now threaded with the wire, that is, drawn into an oval-shaped loop, and, by close inspection, it is made to carefully conform to the size of the hypertrophied tonsil. We must remember that a heavy wire is being used, and too slack a loop would not closely embrace the tonsil. As a result it might necessitate an awkward and unnecessary rewinding of the wire. The loop of wire continues the quadrant of the circle made by the curved end of the cannula.

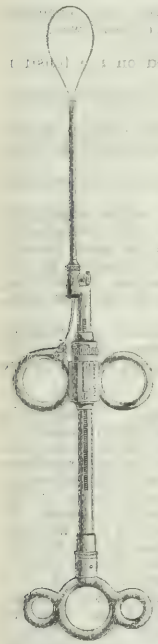


Fig. 1.—The Farlow Snare.

To facilitate winding the wire over the crossbars of the snare the free ends of the wire are held between the jaws of the wire cutter, and they are twisted firmly and quickly. The wire glides easily through the cannula, and only a moderate traction is exerted upon the wire.

One can readily see that the loop of wire at no moment is bent over the end of the tube, nor has a marked kink



Fig. 2.—The Bryant Cannula.

been given to it, for the purpose of guiding and moulding the wire, as so often happens when a smaller sized and more elastic and flexible wire is passed through a straight tube. By this latter method the wire is pulled in on the oblique, and may break. It pulls in with some difficulty, and harmful forced traction might be used on the tonsil. Because the wire lacks strength and resistance and is flexible, the loop will not always hold when thus placed, and it can be of little use in severing adhesions round about the tonsil.

Starting with the Jansen central mouth gag in place, the tongue is drawn forward and depressed with the tongue depressor in the operator's left hand.

The advantages of this special tongue depressor have been set forth by the writer in a paper published in the *Laryngoscope* for February, 1905.

The tonsil tenaculum is now passed through the wire loop of the tonsil snare, and both instruments are held in the operator's right hand. This tenaculum was fully described by the writer in the December, 1905, issue of the *Laryngoscope*.

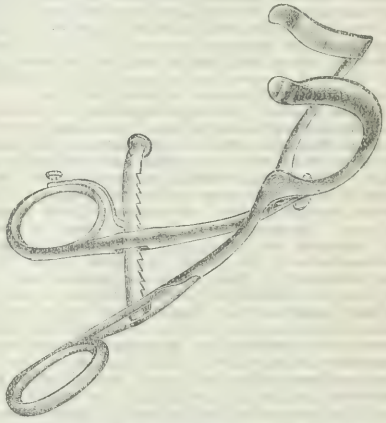


Fig. 3.—Jansen Central Mouth Gag.

It may be well to quote freely from that article, as the tonsil tenaculum was designed to be used in conjunction with the Farlow tonsil snare. We shall see that the loop rides the tenaculum, which from the special shape of its diverging handles cannot slip away from the operator; nor can the loop of wire or cannula slip in between the hinge or the widely-separated shorter arms at an inopportune moment; no more can the uvula be squeezed between these arms or caught in the hinge that is placed beyond its range. The tonsil is held by three prongs, two



Fig. 4.—Bryant's Tongue Depressor.

of which seize it at the base, and the third comes in between the two at the apex, giving a secure hold especially helpful in friable tonsils. The tenaculum is worked by a strong wheel-bearing spring. The horizontal convex curve of the shorter arms and the shape and size of handles leave the line of vision and field of operation unobstructed—desirable in those operations requiring the use of the snare. The upper handle is shorter than the lower straight handle, and terminates in an open curved



Fig. 5.—Bryant's Tonsil Tenaculum.

projection upon which the thumb rests, assisting in guiding the instrument. The slightest pressure upon the handles adjusts or releases the tenaculum. In this instrument it is to be noted that the lock and thumb and finger rings are dispensed with, thus economizing time.

To continue our description of operative procedure: An assistant presses in with moderate force on the tonsil at the external angle of the jaw, while the operator seizes the tonsil by the widely-separated prongs of the tenaculum. This description will apply equally well

to the right or left tonsil. As we change the tonsil tenaculum from the right to the left side of the patient or vice versa, either one or two prongs will be uppermost, as the case may be.

Care must be taken that the upper prong is hooked into the tonsil at its supratonsillar region and downward traction is made, while the lower prongs gather up within the grasp of the tenaculum as much tonsillar tissue as possible. By this means the tonsil is compressed from above downwards—or, in other words, its superior inferior diameter is lessened. Thus a secure hold is had upon the tonsil, and we shall see later that the wire loop of the snare is made to surround the whole tonsil. As we shorten its superior inferior diameter a smaller loop of wire can be used in the tonsil snare, and the field of operation is more open to inspection, thus facilitating all steps in adjusting the wire.

At this juncture the tongue depressor is removed, and the left hand now holds the tonsil tenaculum by its long arm and draws the tonsil strongly inwards and forwards out of its socket, while the right hand holds the tonsil snare. The strong, resistant, concavely-curved loop of oxidized steel piano-wire of the tonsil snare is firmly pushed between the tonsil and posterior pillar almost to its base. The next step is where the tonsil tenaculum, still grasping the tonsil, pulls it forcibly inwards and backwards out of its recess. The distal end of the wire loop is thus held in place, while the proximal end of the loop and its cannula are pressed firmly in between the anterior pillar and the tonsil. This step is the most difficult of all, for a large portion of the tonsil is concealed beneath the anterior pillar. Meanwhile, a careful traction is made on the wire loop to hold it in place. Great care must be observed that the loop of wire rides free of the tenaculum, or that it is well to its outer side, or there would be danger that the prongs of the tenaculum might be grasped in the loop. Having observed these precautions, the operator, with a firm but steady hand on the snare, draws the loop quickly home and tightens it around the base of the tonsil. No marked traction should be made on the tonsil; the loop of the snare should at all times bring very nearly an even pressure on the tonsil. At this point the assistant releases the pressure at the angle of the jaw. The snare is then locked, and, for final adjustment, the screw at the proximal end is slowly turned, and thus the tonsil is severed by a process of dissection and cutting, and still held within the grasp of the tenaculum.

The patient heretofore has been maintained in a sitting position from the time anaesthesia was complete; but, when this last step is taken, the nurse quickly but gently bends the patient forwards, with the trunk lightly flexed on the thighs and the chin lightly flexed on the chest. By this manœuvre the pharynx is placed on a lower plane than the larynx. Any haemorrhage that might occur, or any tonsillar exudate, is thus prevented from finding its way to the larynx.

As to the post-operative treatment, the patient is fed on semi-solid food and kept in bed for two days, until the general and local condition warrants a return to the ordinary vocations of life. No throat or nose sprays are prescribed.

In every case all adhesions that have existed between the tonsil and pillar have never failed to have been broken up simply and speedily by this method, without aid of the knife.

The oxidized wire severs the tonsil easily from its pillars and base. The tonsil, including the supratonsillar tissue, is removed entire. It is covered by its capsule, except at its base, where it was closely adherent to the underlying tissue. In the majority of cases there is only slight haemorrhage, pain, or retching. If the operation has been thoroughly done, the inflammatory reaction will be slight, as compared with the reaction following the use of the knife or the punch or guillotine or cautery.

To facilitate operating, it would be well to have in one's possession two Farlow tonsil snares with wire adjusted; or, if expense were a question in point, a second cannula could be at hand, threaded with wire to replace the one already used.

The time consumed during this process of tonsillectomy varies according to the adhesions and configuration of the tonsil met with in each individual case. Where the adhesions are many and firm, the milled wheel of the snare should be slowly turned. For instance, a pedunculated hypertrophied tonsil, or a "small but diseased tonsil" has been severed in two minutes; whereas, with a sessile hypertrophied tonsil, or "a submerged tonsil," or a tonsil bound down by adhesion, the process may be prolonged to six or eight minutes.

In children with marked hypertrophied tonsils the tenaculum may be dispensed with and the tonsil expressed by the wire loop of the snare, the tonsil readily passing through the loop, as a button slips through a button-hole.

The advantages of this mode of procedure may be summarized as follows:

1. The time required for operating is at a minimum.
2. The operating is done effectively with the least possible injury to patient.
3. There is in the majority of cases slight amount of haemorrhage, pain, and retching.
4. Asepsis is carefully observed.
5. The growth is firmly grasped by the tonsil tenaculum and is in no danger of being aspirated or swallowed.
6. The wire loop is never broken.
7. Only moderate traction is used on the tonsil in closing in on the wire.
8. Neither knife nor scissors nor cautery is required for separating pillars from tonsil.
9. The procedure is attended by slight reaction, as compared with the reaction following the use of the knife, punch, guillotine, or cautery.
10. The tonsil is completely removed and recurrence of tonsillar tissue is thereby prevented.

I realize that the personal factor enters largely into every operative procedure. However, I am a warm advocate of this method of using the snare, for many years of operating, both in private and hospital practice, by this described procedure has convinced me that tonsillectomy is less difficult than it once seemed to be, and that surgically it is the ideal method.

These instruments are made by Codman and Shurtleff of Boston, to whom we desire to express our thanks for their assistance in preparing the author's special instruments.

Dr. CHEVALIER JACKSON (Pittsburg, Pennsylvania) wished to support the advocacy of the cold wire snare. It had the advantage of enucleating the tonsil, as the wire, if started properly, would find the point of least resistance between the tonsil and its bed. It was often necessary, however, to supplement the snare with punch forceps. His personal preference was for Peter's tonsil snare, the fenestrum of which allowed the use of a fine wire and was as rapid as the guillotine. Six times he had tied the external carotid artery for post-operative tonsillar haemorrhage (not all after his own operations), but only in one of these cases had the snare been used, and that in a haemophilic; in another, malignant disease of the tonsil had been present. He did not think ligation was necessary in all these cases, but it was easier for the patient than the use of the tonsillar compressing haemostat of Stoerk, or to wait until the patient had become exsanguinated. He considered Dr. Bryant's forceps exceedingly ingenious.

Dr. W. E. CASSELBERRY (Chicago) said the methods of tonsillectomy should be considered in regard to adults, and in regard to children with and without general anaesthesia. Owing to the pain caused, he had used the snare method in children only under general anaesthesia, and that mostly some years ago. He had now returned to his simplified tonsillotome, which he used not too sharp and assisted by grasping forceps. He aimed at enucleating the tonsils as with a snare. The snare had so often to be supplemented by cutting instruments in cases of adherent flat tonsils that it was more convenient in children to use cutting instruments for the whole operation. Adults were much more liable to bleed dangerously, and in a person of average fortitude the cold snare could be well and more safely used if the cocaine anaesthesia were as complete as possible. It was usually necessary to prepare a groove for the wire above and below the tonsil by preliminary incisions. He used a much thinner wire (No. 6 to No. 8) than had been recommended, as a thick one would be very painful.

Dr. GEORGE A. LELAND (Boston) said that as time was an important item, it having been his custom to remove the tonsils and adenoids together under primary ether

anaesthesia, he had long ago given up the snare, and used the guillotine after having freed with right-angled probe-pointed knives the pillars from the tonsil when adhesions were present. In a fairly large number of operations during the last twenty years, he had had but one case of alarming haemorrhage. It was that of a boy aged about 20 years, large, well-fed, a mouth breather, and with tonsils and adenoids of enormous size. With the head over the table, both tonsils were quickly snipped off with the guillotine. The flow of blood afterwards was very profuse. As it was known that bleeding did not occur from a rough surface, whereas the knife had left a smooth one, by means of his finger nail, previously bevelled on the inside and carefully sterilized, he scratched both cut surfaces very vigorously and the bleeding instantly ceased. Four days later the adenoids were removed without more than ordinary bleeding. Since the Gottstein curette had come into use, it had been his invariable custom to thus rough up the cut surfaces, and the procedure had contributed vastly to his equanimity and comfort after operations on doubtful cases.

Dr. Watson Williams (Bristol) remarked that the occasional but grave occurrence of severe and dangerous haemorrhage following operation for a relatively simple condition brought home the importance of employing such means as had been referred to for the removal of the chronic enlarged tonsils of adults which had undergone fibroid degeneration. In such cases when operative interference was called for the snare was preferable to a guillotine, but as in tonsils of that kind the infective processes were largely in abeyance, it would suffice, and be safer to make a less complete extirpation than in younger patients.

Dr. John Hunter (Toronto) raised a question as to the possibility of severe haemorrhage after tonsillotomy when both tonsils required removal. Should there be an interval between the two operations? He thought the preference in Toronto was rather to wait some time before removing the second tonsil.

Dr. C. Trow (Toronto) controverted Dr. Hunter's statement that it was the custom there to take out one tonsil and wait some days before removing the other. He (Dr. Trow) had never seen a dangerous haemorrhage from tonsillotomy, either in his own practice or during a long term of service at Golden Square Hospital, London.

Dr. Herbert Tilley (London) had had experience of three cases of severe tonsillar haemorrhage during twelve years of practice. The first case was in an anaemic female, aged 33, whose left tonsil was removed for constantly-recurring attacks of tonsillitis. She bled until she fainted, in spite of all efforts to check the bleeding. The third case was in a lad upon whom enucleation of the right tonsil was being practised. The speaker always removed both tonsils at the same sitting, and since the cases of haemorrhage nearly always occurred in adults, he was accustomed to have ready a sponge soaked in a saturated solution of a mixture of tannic and gallic acids. If haemorrhage persisted the sponge should be held against the bleeding surface, and would rarely prove ineffective. He thought that the use of the snare tended to produce severe pain in the throat, owing to the crushing of the tissues.

Dr. St.Clair Thomson (London) referred to the general use of the guillotine in England, the employment of chloroform instead of ether, and to the much greater infrequency of serious haemorrhage than appeared to be the case in America. Possibly another reason was that in London there was much less operative work done in the office. He had never met a case requiring ligation of the external carotid, and in thirteen years had only had two cases in private practice that caused any anxiety.

Dr. Henry Smurthwaite (Newcastle-on-Tyne) desired to draw attention to three points, namely, the condition and idiosyncrasy of the patient, the operation, and the anaesthesia. Was it not a fact that haemophilia or leukaemia accounted for a large number of the severe and fatal cases of haemorrhage following tonsillotomy? He always made a point of proving or disproving a tendency to be a "bleeder" in his patient before operating, and had refused to remove the tonsils in a young man who gave a history of severe bleeding following tooth extraction, and also epistaxis for several days after a blow. Profuse haemorrhage might be due to severing the anterior pillar, and so cutting the more or less large vessel running in it. As to the anaesthetic, he had found there was always more bleeding with the use of ether, and personally, when he did use general anaesthesia, he preferred ethyl chloride or chloroform.

Dr. John A. Donovan referred to the case of an adult whose tonsils, after the breaking down of adhesions, were removed with the snare. Very severe haemorrhage supervened, and was checked after four hours by the constant application of suprarenalin solution. He always introduced a probe into the crypts of removed tonsils. If it passed through the tonsils some tonsillar tissue remained in the throat, but if it did not go through the patient could be positively assured of no more tonsil trouble.

The President avoided the guillotine in adults, and employed the strong wire snare, or more frequently the morcelleur devised by Ruault.

Reply.

Dr. Alice G. Bryant, in reply, said that the twisting of the wire as it entered the cannula, referred to by one speaker, might be obviated by using heavy wire. She had tried finer wire, No. 5 or 7, but had gradually come to adopt No. 12 or 13. The oxidation of the wire favoured its closer adherence to the tissues.

(To be continued.)

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

TSETSE FLY IN ARABIA.

On October 30th, 1903, whilst crossing the Dakkham country one found on the Haushabi bank of the Tiban River a blood-sucking fly, presenting tsetse characteristics, but smaller and differing from any species then described by Austen in his monograph on tsetse flies. On submitting a specimen of this fly on October 30th, 1906, to Mr. Newstead of the Tropical School of Medicine, Liverpool, he very kindly identified it for me as *Glossina tachinoides* (Westwood), which he informs me is specifically identical with specimens of *G. tachinoides* from the Benue River in Northern Nigeria.

This species of tsetse fly is thus the first recorded from beyond the African Continent. In S. Arabia the fly was first found at the foot of Jabal Hashar in Haushabi on the bank of the Tiban River. Here several belts of tamarisk occur, and within half a mile a large marsh in the Dakkhan country exists. A second specimen was caught near Addar Rega, at the junction of Wadi Rafad and Wadi Addar Rega, also in Haushabi. Five specimens were also caught near the volcanic hot springs of Hawemi, adjoining the Wadi Natid. The fly occurred here in cactus belts, being very locally distributed—in fact, none were seen at Am Hathewa hot springs about 1¼ miles away. It occurred freely at Kurrash, on the right bank of the Wadi Natid, a halting place on the great caravan track to Mavia and Tais, 1½ miles below Hawemi. Here are found volcanic springs of cold water arising from tumuli of red and grey mica-laden clay. Flies were not seen near the water's edge, but in the adjoining thick belts of euphorbia, babal, and tamarisk.

In Subaihi three specimens were caught during the demolition of the forts by the escort to the Commission in the Al Hay Gorge; they were also several times seen along the banks of the Ghail Akashi and Ghail Maula. Tsetse flies are sparsely seen between Nakil Madraga and Sanawi in North Subaihi. Here the flies occurred in belts of tamarisk and babal thorn, never in the date groves or along patches of cultivation. These flies, occurring as they did scantily amongst myriads of other flies, were very difficult to catch, whilst the hostility of the Arabs in Subaihi precluded any attempts to pass beyond the visual limits of our camping positions.

The Arabian *Glossina tachinoides* does not depend for its existence on big game, for, excepting gazelle, nothing else frequents the belts of bush which it haunts. Only once was the fly recognized by Arabs, and then by a band of wild Bedouins from North-Western Subaihi, who sought medical advice at Camp Wadi Kaluli. They stated this fly used to be more frequent in Subaihi, that it bit goats, donkeys, horses, dogs, and men, but did not attack camels or sheep. They further stated that it sucked blood only after the spring rains, that some years it disappeared from

a district entirely, that rarely it became abundant, and then they moved their settlement and cattle by night marches to a fly-free district. They further had noted a marked diminution in the game in Subaihi, but were uncertain whether it was not due to the introduction of Winchester rifles from Jibutil rather than to cattle murrain.[1]

In conclusion, I wish to express my great indebtedness to Mr. Newstead of the University, Liverpool, for having kindly identified the species of fly above discussed.

It is worthy of note that horse sickness has again appeared at Kataba in the Amiri country, a Turkish town situated in the Dthalla Valley, 1½ miles from Jabal Hashar where the fly was first found.

Liverpool. R. MARKHAM CARTER, Capt. I.M.S.

ABORTION FOLLOWING THE USE OF DIACHYLON.

MRS. R., in January of this year, believing herself pregnant, was advised to take some pills by a neighbour who made them up for her. The instructions she received were that she was to take two night and morning for three days, with a three-days' interval. She took the pills for about a fortnight, but on a few occasions increased the dose, taking three pills night and morning. When she began to take the pills she had amenorrhoea, but after a fortnight had a miscarriage. This cleared up in a few days, and she remained regular up to July 23rd, when she had a second miscarriage, the fetus in this instance being about two months old. I first saw her on October 12th, when I found her suffering from pelvic peritonitis. She told me that though she took diachylon pills in January, she had not taken any since; in fact, on account of having seen her periods regularly, she was not aware that she was pregnant in July. The typical blue line on the gums was still quite distinctly visible. The interest of the case is that the patient, after having taken diachylon for a fortnight, aborted twice, the second abortion occurring five months after having taken the pills.

Southampton. F. W. HOPE ROBSON.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BIRMINGHAM BRANCH.

Birmingham, Thursday, November 8th, 1906.

O. F. WYER, M.D., President, in the Chair.

Inhalation Mask.—Mr. L. KIRBY THOMAS showed a modified inhalation mask arranged for the administration of ethyl chloride.

Excision of Lachrymal Sac.—Mr. JAMESON EVANS showed a girl, aged 15, in whom the lachrymal sac had been excised. She had previously been treated by means of probing and antiseptic and astringent injections for over two years, without any material improvement. In a few weeks after removal of the sac all signs of epiphora had disappeared. The wound had healed by first intention, and the resulting scar was inappreciable.

Triplets.—Dr. PURSLOW showed the placentae and membranes from a case of triplets. The patient from whom they were taken had been confined in the Queen's Hospital Maternity; she was 19 years old, and this was the first pregnancy. The first two children presented by the vertex and the third was a breech presentation. All three were born alive. Two of the placentae were fused at their edge and the other was separate.

Carcinomatous Larynges Successfully Extirpated.—Professor JORDAN LLOYD showed two larynges recently removed successfully for carcinoma by a new method and without preliminary tracheotomy. The operation was divided into two parts, in the first of which the patients lay flat on the back with the head raised and the chin drawn upwards; a long median incision was made down to the hyoid, larynx, and trachea, and all the extralaryngeal structures were completely divided on both sides of the larynx, all bleeding vessels being caught and securely tied with silk. The head was then lowered over the end of the table, and the trachea cut completely across immediately below the cricoid, the cut end of the trachea being held up with a sharp hook passed through its anterior part. All blood ran downwards away from the open trachea towards the pendent head. The larynx was removed from below upwards, care being taken of the anterior pharyngeal wall, and was finally separated from the hyoid bone by dividing the thyro-hyoid membrane. Vessels might be tied, and the opening into the pharynx closed with sutures. Operating by this method made the procedure easy, deliberate, and free from embarrassment, and it was practically impossible for blood to enter the air passages. A tube might be introduced into the cut end of the trachea, tightly filling it, before the larynx was freed from its posterior attachments, and this tube might be left *in situ* after the trachea had been secured to the skin edges at the lower end of the wound with two or three silver or silk sutures. The patients from whom the specimens were removed were a woman aged 65, and a man aged 62.

Caesarean Section.—Dr. PURSLOW read a paper on Caesarean section, with notes of 4 cases. All the mothers made good recoveries. (1) Contracted pelvis; Caesarean section, before onset of labour; child did well. (2) Contracted pelvis; in labour several hours and repeated attempts at delivery made before admission; no signs of life in child, but uterus threatening rupture. (3) Dermoid cyst obstructing pelvis; child born alive but feeble, and died later. (4) Contracted pelvis; child did well. Modifications of technique and of the question of sterilization of the woman were considered.

The Lachrymal Sac in Visual Economics.—Mr. J. JAMESON EVANS read a paper on this subject. An outline of the anatomy and physiology of the lachrymal apparatus was given. The lachrymal sac was considered as a source of microbic infection of corneal abrasions and wounds. Serpiginous ulceration of the cornea was said to be the most common cause of loss of vision in adult working men. The bacteriology of lachrymal discharges and serpiginous ulcers was dealt with. Conservative treatment of dacryocystitis was declared to be unsatisfactory, prolonged, and expensive. The author proceeded to consider the indication for excision of the lachrymal sac; its economic advantages to the working man were pointed out.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH.

Kendal, Wednesday, October 31st, 1906.

Dr. HALL, President, in the Chair.

Peritonitis.—Mr. C. H. HOUGH (Ambleside) read a paper entitled, Some Points in the Etiology, Symptoms, and Treatment of Peritonitis. Before introducing the real subject of his paper the author briefly discussed the generally-accepted opinions regarding the peculiarities and morbid anatomy of the peritoneum: (1) Its great extent of surface; (2) its remarkable powers of absorption; (3) the resistance to septic organisms and their products; (4) that it does not show the same degree of vulnerability in all its parts; (5) the nerve supply to the peritoneum; the relationship existing between the great sympathetic plexuses within the abdomen and some branches of spinal nerves, and its important bearing upon the symptoms of peritonitis, together with the treatment adopted in some cases for the relief of pain. The late John Hilton, in his classic work, *Rest and Pain*, draws particular attention to this. "The same nerves that supply the muscular apparatus should supply also the serous membrane which these muscles move." It will be seen that the lower seven dorsal nerves coming down from the spine to the abdominal muscles supply also the peritoneum of the abdominal parietes, and some of these same nerves supply also the skin of the exterior of the abdomen. The same spinal nerves send filaments to the visceral peritoneum covering the intestines. Further, some of these filaments of spinal nerves go through the sympathetic ganglia, and thus associated with the sympathetic, travel upon the artery and become ultimately distributed to the walls of the small and large intestines. "The muscular apparatus of the abdomen, its serous membrane, the peritoneum, the skin over the muscles, and the intestines themselves are thus brought into harmonious association. Etiology: Sir Frederick Treves's classification—(1) Peritonitis

[1] *Journal of the Royal Army Medical Corps*, vol. vii, No. 5, November, 1906, p. 530.

due to infection from the intestines; (2) peritonitis due to infection from without; (3) peritonitis due to the pneumococcus; (4) tuberculous peritonitis; (5) peritonitis of a doubtful nature. These various causes of peritonitis were fully discussed, and the fact was emphasized that micro-organisms are the only factors in the production of this disease, and that, with reference to those forms of peritonitis supposed to occur secondary to rheumatism, gonorrhœa, Bright's disease, alcoholism, or syphilis, no satisfactory evidence exists to prove that peritonitis has a specific etiological existence. Symptoms: The general symptoms of peritonitis were described under the following headings: (1) Pain and tenderness, (2) rigidity of the abdomen, (3) fever, (4) vomiting, (5) constipation, (6) meteorism, (7) constitutional disturbance, including nervous phenomena and circulatory changes. In discussing symptoms under these various heads it was pointed out that no one prevailing attribute could be described as a definite symptom of peritonitis. A remark of the late Mr. Lawson Tait was quoted, taken from a paper he read before the Harveian Society of London in 1892: "The symptoms of peritonitis are very numerous, very various, and very severe, but there is none—no, not one—nor any group of them, upon which absolute reliance can be placed." Treatment: The treatment of peritonitis resolves itself into medicinal or palliative treatment and treatment by operation. Rest, posture, and the use of warm medicated fomentations for the relief of pain were each in turn discussed. The treatment of peritonitis by the continued use of opium was considered, and this point raised an interesting discussion afterwards. Mr. Hough maintained that he never gave opium in a case of peritonitis without a feeling akin to despair, citing the opinion of the late Mr. Greig Smith in support of his view. He was well aware that cases occurred—say after gastric or intestinal perforation—where a patient's life might be saved, time gained, and a crisis tided over by the judicious administration of a subcutaneous injection of morphine, but he did not call this the treatment of peritonitis by opium. By the continued administration of opium in cases of peritonitis intestinal paresis was brought about—the one symptom most to be feared, and against the occurrence of which all our energies should be directed. In addition to favouring intestinal paresis, opium masked the real condition of the patient. The use of aperients and enemata was insisted upon and discussed in detail. The all-important question of feeding was discussed, and it was stated that the administration of fluid nourishment per rectum or by infusion was now universally followed. The surgical treatment by operation was carefully considered, but Mr. Hough remarked that he had no new theory to advance. The conclusions generally arrived at were: (1) Time is the all-important factor. (2) Rapidity of operation, together with as little interference with important structures as is consistent with affording relief to the symptoms. When a localized abscess is met with, slushing, mopping, and scraping is condemned. (3) Irrigation with normal saline solution in general peritonitis. (4) Drainage. (5) Enterostomy in cases of marked distension.—Many members afterwards spoke, including the President, Drs. Cockill, Sturridge, Leeming, and Oldham.

Radical Cure of Hernia.—Dr. Leeming then described a method employed by himself for the radical cure of hernia, and showed two patients.

Specimens.—The following specimens were on the table: Dr. R. W. Leeming: Very large nasal polypi removed by operation.—Mr. A. S. Barling: (1) Endocyst from hydatid of liver; (2) two renal calculi removed by nephrolithotomy.

ULSTER BRANCH.

Ballymena, Saturday, November 3rd, 1906.

Professor Symington, President, in the Chair.

Specimens.—The President exhibited a series of specimens illustrating the applied anatomy of the ear and nose. Two heads had been frozen and cut in a series of sections to illustrate specially the position of the accessory sinuses of the nose and their relation to the brain and optic nerve and the position of the middle ear and its relation to the brain and lateral sinus. Each section was accompanied by a diagram explanatory of the details shown in it, and the whole formed a most instructive series.

Cases.—Dr. Armstrong (Ballymena) showed (*a*) a case of adult spastic paralysis, and (*b*) a case of infantile spastic paralysis.

Treatment of Bright's Disease.—Professor Lindsay read a short paper on some recent views regarding the treatment of Bright's disease. He referred in particular to the views of von Noorden, Fleischer, and others. These authorities deprecated the exclusively milk diet recommended in nephritis by the French school of clinicians, and often adopted in this country. Milk contained a large proportion of proteid material, and the use of three or four pints daily threw a large amount of work upon the kidneys. The use of whey, with the addition of a little cream, would be found advantageous in acute nephritis, and a moderate amount of farinaceous food might be allowed after the first week. Milk contained a considerable proportion of phosphoric acid, to neutralize which some carbonate of calcium might be added. The practice of giving large quantities of fluid in cases of acute nephritis, attended by scanty urination, was contrary to sound theory. In this condition the kidneys showed a marked inability to cope with the ordinary fluids of the body, their capacity of excreting water being much diminished. The idea that giving large quantities of fluid would stimulate them to resume their function was probably not well founded. Free diaphoresis was commonly practised in these cases, and was to be commended if there was general oedema, and the object was to get rid of the fluid in the tissues. But there was no experimental proof that the products of nitrogenous waste could be eliminated through the skin, as was generally believed. If diuresis was fairly efficient, there was probably no advantage in pushing diaphoretic measures. The use of diuretic drugs in acute nephritis should be very restricted. There was a danger of doing harm by stimulating the inflamed kidneys. Rest to the affected organs, so far as this was practicable, was the first desideratum. In the treatment of cirrhotic or granular kidney it was important to remember that the condition was a very chronic one and compatible with fair health and considerable activity for many years. Hence, in the absence of uraemia or other active symptoms, the diet should not be too restricted, and should be as generous as experience would show that the individual case could tolerate. The attempt to keep patients who were actively at work upon a diet mainly composed of milk and other fluids led to dilatation of the heart and "asthmatic" attacks. The distinction so often drawn between "red" and "white" meats in the dietetics of renal cases did not rest upon any secure foundation, and a too long persistence in a diet of chicken and fish brought about failure of appetite, and was otherwise injurious. Alcohol should be rigorously forbidden in cases of granular kidney. By a certain limitation in the amount of fluids allowed in these cases the heart was to some extent relieved. It should be a cardinal rule in the treatment of granular kidney to keep the state of the heart and the circulation constantly in mind, and to avoid measures, such as too free diaphoresis or too frequent purgation, which tended to diminish circulatory efficiency. The prospects of a patient suffering from granular kidney turned largely upon the state of the heart and the blood vessels. The above rules were of general application, and would require modification or suspension in the presence of acute symptoms of renal inadequacy.

Laparotomy for Ruptured Gall Bladder.—Mr. A. Fullerton, F.R.C.S., read notes of: (*a*) A case of anastomosis between the common bile duct and the duodenum for obstructive jaundice: (*b*) a case of rupture of the gall bladder and liver successfully treated by laparotomy. A male, aged 20 years, previously healthy, was struck in the epigastrium by the shaft of a cart on the morning of August 30th, 1906. He was immediately brought to hospital suffering severely from shock. On admission his pulse was 128, his temperature 96°, and his respirations 36. He complained of severe pain all over the abdomen, but could not accurately localize it. I saw him shortly after, and found his face pale bluish, his pulse 60. He complained of a good deal of pain in the epigastric region. There was no sign of contusion or abrasion on the wall of his abdomen. His abdominal muscles were rigid. There was dullness in the flanks. Liver dullness was present.

Operation: A small incision was made in the middle line above the umbilicus. Bile, mixed with blood, flowed from the wound when the abdominal cavity was reached. A small transverse incision was made at right angles to the original one to obtain free access to the gall bladder. A tongue-shaped process was found torn out of the under surface of the gall bladder, laying the cavity open. This process was free at its anterior extremity, and fixed posteriorly where the two limbs of the horseshoe-shaped rent terminated. It was about the size of the last joint of the thumb. To the left of the gall bladder a small finger-shaped portion was found torn out of the under surface of the liver, and fairly free haemorrhage took place from this spot. The wound to the gall bladder was sutured with fine silk in two layers (catgut would have been preferable, but I had not a piece small enough for the fine needles). The lacerated portion of the liver was stitched into position, using a round needle and silk. Haemorrhage ceased on tying the suture up. The great omentum showed a patch of contusion the size of a shilling, but no thrombosis. The abdomen was irrigated with saline as there was considerable extravasation, and the wound closed by through and through sutures of silkworm gut without drainage. The patient left hospital quite well in sixteen days.

Ulcers of the Cornea.—Mr. H. H. B. CUNNINGHAM read a short paper on common ulcers of the cornea and their treatment. After defining "ulceration," the writer mentioned the different varieties, and then said that he would only deal with phlyctenular and suppurative keratitis in detail. He briefly mentioned the anatomy of the cornea, and described how a loss of substance was replaced in the epithelium by epithelium, in the substantia propria by scar tissue, and that this scar tissue formed the nebulae which subsequently interfered with vision. The usual symptoms, namely, pain, photophobia, lachrymation, and injection of the conjunctiva, were mentioned. Then phlyctenular keratitis was described as resulting from a ruptured phlyctenula situated deep to the corneal epithelium, occurring in strumous children. For treatment, plenty of exercise in the open air, good food, and tonics were prescribed, and locally boracic lotion, atropine, and a pad and bandage. Suppurative keratitis was described as an infection of a ruptured vesicle or abrasion of the cornea by various micro-organisms, and by the pneumococcus in particular in cases of ulcus serpus, while in debilitated adult subjects the liability to perforation and resulting panophthalmitis was mentioned. For treatment, after examination of the lachrymal sac, bathing the eye with a weak antiseptic lotion, atropine, hot fomentations, and leeching *inter alia*, were advocated, and if the ulcer and hypopyon still increased, cauterization and paracentesis were advised. One or two cases were described in illustration of different forms of keratitis and their treatment. Finally, enucleation was mentioned as the last resource when panophthalmitis had set in.

Complications of Prostatectomy.—Professor SINCLAIR read notes on some complications of prostatectomy, and showed specimens. Before operation, he said, the condition of the heart often gave rise to anxiety, being intermittent. In such cases he advocated the use of strophanthus with bromides for a few days to steady the heart before the operation was undertaken. After operation the chief danger arose from shock. Many old men stood the operation well, but occasionally a patient died suddenly, perhaps on the afternoon of the operation. Strychnine was useful to tide over the anxious period of the first six hours. Haemorrhage seldom gave any trouble when chloroform was used, but occasionally after ether it was troublesome. Delay in healing caused by phosphaturia might give great trouble, the wound being coated every morning with phosphates in such quantity that the salt might almost be removed in spoonfuls. To combat this condition the best thing was the physiological corrective, the acid phosphate of sodium, which was given in half-drachm doses four times daily. Only once had he seen secondary haemorrhage, but sometimes there was quite copious venous haemorrhage when a piece of tissue sloughed. Difficulty from cicatricial contraction seldom arose.

Death from Aneurysm.—Dr. CALWELL showed the lungs, heart, and aorta of a patient who had died from aneurysm the evening before. The case presented some unusual features.

METROPOLITAN COUNTIES BRANCH: HAMPSTEAD DIVISION.

AT a meeting of this Division on Friday, November 9th, Dr. MACEVOY in the chair, Mr. CHEATLE gave an address on "Cancer of the Tongue and Lip." He pointed out that the size of an epitheliomatous ulcer was chiefly due to the upgrowth of the subepithelial tissue. The limitation by the middle line was very characteristic, and corresponded with the similar limitation of the nerve supply. It was most important to remember that some of the muscle fibres of the tongue went right up to the epithelium, and were inserted into it. Hence, directly epithelium became carcinomatous, the muscle was involved. The first muscle involved was the hyoglossus, and when the cancer got deep, the genio-hyoglossus. In operating he therefore removed the whole of these two muscles by cutting them away from the hyoid bone. However small cancer might be, an extensive excision was necessary. He was in the habit of dividing up the tongue into longitudinal areas from the outer border to the middle line, and he removed half or the whole of the tongue according to the extent of involvement of these areas by the growth. He considered the old Whitehead operation a futile proceeding. He always did an extensive operation, and guarded the patients against sepsis by injections of calculated doses of dead organism (streptococci and pneumococci) by Professor Wright's method.—Dr. GLOVER said he supposed that it was too early as yet to gauge the results of these extensive operations. How long was life prolonged by them? He asked if Mr. Cheatle removed the glands in every case.—Dr. ANDERSON asked if by injection of serum a patient could be rendered immune from sepsis in inoperable cases.—Dr. GASTER thought it was not possible to employ the method of vaccination against sepsis continuously enough.—Mr. ARMIT thought Mr. Cheatle was rather too optimistic about the injection of dead bacteria. Immunity produced thereby was passive and partial. He asked if the mortality was small.—Dr. WARE agreed with Mr. Cheatle that the Whitehead operation was out of date. It was essential to diagnose cases early. He had observed a patient who had an operation of great extent performed. This man, though he had no tongue, could talk several languages, even lingual languages. He could swallow, but at first there was a tendency for the food to go down into the larynx. This patient found that there was still difficulty in getting rid of the saliva.—Mr. CHEATLE, in reply, said that he took away the glands and muscles in every case. Immunity by vaccination with dead organisms lasted long enough for operation purposes. His cases got no rise of temperature, and had done well. He used chloroform as the anaesthetic. He thought operation unjustifiable if it were not possible to remove all the diseased parts, and in such cases he would not operate. The proceedings closed with a hearty vote of thanks to the lecturer.

REPORTS OF SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

J. WARRINGTON HAWARD, F.R.C.S., President, in the Chair.

Tuesday, November 13th, 1906.

DISCUSSION ON THE OPERATIVE TREATMENT OF GASTRIC ULCER.

DR. W. HALE WHITE, in opening this discussion, said that when perforation of a gastric ulcer occurred, it was of great importance to operate without delay. In nearly all the conditions which might be confused with perforation operation was also necessary, the exceptions being acute haemorrhagic pancreatitis and hysteria; and, therefore, even if the diagnosis were wrong, operation was often needed. It was held that operation should not be undertaken during an attack of severe gastric haemorrhage, even if the blood undoubtedly came from an ulcer. In a furious gastric haemorrhage that came from a general oozing and not from an ulcer the bleeding almost always stopped after medical treatment. In several instances death had followed operation, and even when it did not the bleeding had often continued. Adhesions resulting from a gastric ulcer, and attaching the stomach to surrounding organs, were a common cause of abdominal

pain, which might frequently be relieved by operation. Probably those adhesions which connected the stomach with bowel caused most pain, and it was then often paroxysmal. The cases in which repeated attacks of haemorrhage with or without pain and dyspepsia so undermined the general health that the patient was unable to enjoy life should be short-circuited if medical treatment had been tried and had failed. Sometimes rectal feeding was unduly prolonged in these cases; it was always a starvation diet. Subcutaneous feeding as an aid to rectal feeding was not employed often enough. Extreme dilatation of the stomach, if not due to malignant disease, was nearly always due to an ulcer near the pylorus. Medical treatment then usually failed, and gastro-jejunostomy gave great relief. Lesser degrees, which were often not due to ulceration, often yielded to medical treatment. With regard to operations generally, no operation was quite free from risk. Sometimes no relief was obtained by operation, and occasionally regurgitant vomiting followed gastro-jejunostomy. Operation was particularly indicated when the patient was a man and over 30, and when there was definite evidence of ulcer; operation on the stomach for gastric symptoms not due to ulcer or growth did no good, and even made the patient worse.

Mr. Mayo Robson opened the discussion from the surgical side. His contribution is published in full at p. 1345.

Sir Dyce Duckworth said that with respect to gastric haemorrhage in young women he agreed as to the undesirability of any operative interference in the majority of cases. It was as rare for such haemorrhage to prove fatal as it was for ordinary haemoptysis. Under ordinary treatment such bleeding ceased. The source of it was more commonly an erosion with many oozing points or fissures in the gastric mucosa. He was aware that successful operations had been conducted for this condition, and Mr. Butlin effected it in one case for him. In another case one of his colleagues entirely failed to find the oozing point, although the stomach was everted and carefully studied. Death followed, and the bleeding surface was found near the cardiac end, quite beyond any reach during life. There could be no doubt that gastro-enterostomy had proved a great boon in many rebellious gastric ailments, including chronic ulcer, dilatation, and adhesion to various adjacent structures, and no less for obstinate forms of dyspepsia which yielded to no form of medication or diet. He took some exception to the view that rectal feeding was "always a starvation diet." It was desirable to carry on the recognized treatment of gastric ulcer for a much longer period than was commonly practised. Absolute rest in bed and appropriate feeding—truly nutritious—for many weeks should be the rule, and these weeks might safely sometimes run into months.

Mr. Moynihan submitted an analysis and commentary upon all the operations for non-malignant ulcer of the stomach that he had performed up to September, 1906. There were 334 operations in all. There were 27 cases of perforating ulcer; in the first 13 cases there were 7 deaths, in the last 14 cases 2 deaths. Emphasis was laid on the fact that when perforation occurred, though the pain was excessive, there was no collapse, the pulse-rate was not raised, or only slightly raised, and abdominal rigidity was absent. These symptoms were developed only after two hours or longer. A diagnosis could be made from the history of the ulcer, which, in his experience, was never lacking: the sudden onset and the continuance of intolerable pain, the restriction of abdominal breathing, surface tenderness, and resistance to deep palpation. In the majority of cases the position of the perforation could be accurately localized, and the incision for the exposure of the ulcer was made to left or right accordingly. Gastro-enterostomy in addition to closure of the ulcer was necessary always in duodenal perforation, and in cases where the closure of the ulcer caused narrowing of the stomach, not otherwise. In his series gastro-enterostomy was performed at once in 6 cases, 5 recovering. Haemorrhage was the cause of immediate operation only when it was recurring in increasing quantities at decreasing intervals. Gastro-enterostomy had been sufficient in many cases to cause cessation of the haemorrhage; but excision of the ulcer, or preferably its infolding, as if it had perforated, should be adopted in all cases where feasible. In this series were 33 operations with 6 deaths. In the treatment of chronic ulcer of the stomach, gastro-enterostomy had been the operation usually practised by him. The posterior no-loop operation was the best of all methods. Whenever the ulcer was seated at or near the pylorus and was causing obstruction, gastro-enterostomy gave excellent results. All ulcers in the duodenum, and all near the pylorus on the stomach side should be infolded. Ulcers of the lesser curvature should be infolded or excised. Gastrolysis was unreliable; if adhesions were interfering with the proper action of the stomach, other operations were preferable; if there was no impairment of action the operation was unnecessary. Pyloroplasty was never practised by him now. In this series were 248 operations, with 2 deaths—equivalent to 0.8 per cent. In the last 151 operations there had been no mortality. Secondary operations were performed on eight patients. The after-results had been carefully ascertained in the 248 cases: Four patients were no better; in 10 cases the results were indifferent; in the remainder the results were good. The diagnosis of gastric ulcer, at one time a matter of some difficulty, was becoming progressively easier, owing to the study of the pathology of the living that the surgeon was enabled to make. Duodenal ulcer was almost always diagnosed with ease and certainty from the anamnesis alone. Hour-glass stomach was operated upon twenty-six times; it was therefore a more common condition than had been supposed, but it was one that should not be allowed to occur.

The discussion was adjourned.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

J. O. Affleck, M.D., President, in the Chair.

Wednesday, November 7th, 1906.

The Intermedio-Lateral Tract of the Spinal Cord. In a paper on this subject, Drs. Alexander Bruce and J. H. Harvie Pirie sketched the most salient features in the development of existing knowledge of this cell column since its first description by Clarke in 1851, and showed that this tract was now proved to extend from the middle of the eighth cervical segment above to the lower part of the second lumbar, or perhaps the upper part, of the third lumbar segment below. The intermedio-lateral tract was not continuous, but was divided into a number of groups of cells, the form and size of which appeared to be more or less characteristic of each spinal segment. The total number of cells was much greater than had been supposed, numbering about 100,000 on each side of the cord. They detailed the steps which went to prove that this cell column was the spinal centre for the efferent medullated nerves of the sympathetic system, and showed that where the outflow of these was greatest the number of the cells also reached a maximum. The functions of the various roots of the sympathetic system, and presumably, therefore, of the intermedio-lateral cell column in the cord, were then detailed. In two cases they had looked for lesions of the intermedio-lateral column, and found them as anticipated.

The first case was one of an acute atrophic paralysis in an adult, associated with temporary anaesthesia below the level of the sixth rib, together with a permanent loss of sweating in the lower limbs and in the trunk below a line drawn about 2 in. above Poupart's ligament. On *post-mortem* examination, marked degeneration of the motor cells throughout the whole of the lumbar enlargement was found, as also in the lower dorsal segments, together with congestion of the blood vessels and several haemorrhages. Similar changes were noted in the cells of the intermedio-lateral tract of the lower dorsal segments and first and second lumbar. These probably represented the spinal sweating centres for the lower limbs. In a second case, one of exophthalmic goitre, which had died after symptoms of hyperthyroidism, a lesion was found in the intermedio-lateral tract, extending from the second dorsal segment well down into the fourth segment, the lesion being represented by marked degeneration of the cells of the column, hyaline degeneration of the walls of the arterioles, and several minute haemorrhages.

If there was a spinal lesion in connexion with exophthalmic goitre, it should be sought for in the intermedio-lateral tract in its upper part, and not in the cervical enlargement or elsewhere. It was important that the tract should be studied in other diseases of the sympathetic system.

Exhibition of Patients.

Dr. Allan Jamieson: Case of Darier's disease. The condition was improving under the use of *x* rays.—Dr. T. W. Dewar: Case of lupus vulgaris of thirteen years' duration. Various

methods of treatment had been employed without producing much benefit. Intravenous injections of ethereal solutions of iodoform, together with the local applications of peroxide of hydrogen, were then tried, and cure followed in forty days.—Dr. Byrom Bramwell: A case of disseminated sclerosis resembling tabes.—Dr. George Mackay: Two cases of hereditary optic atrophy occurring in brothers. Dr. Mackay pointed out that this condition was transmitted by females to their male offspring. Both eyes were usually affected, and the disease was one of early adult life.—Dr. Edwin Bramwell: Case of juvenile general paralysis. The disease appeared when the patient was 14½ years of age. There was no history or signs of congenital syphilis. At present the condition is very typical.—Mr. Stiles: (1) Case of multiple neuro-fibromata. A rare circumstance was the occurrence of a tumour on the ball of one thumb. (2) Case after enterectomy for perforated typhoid ulcer and diffuse peritonitis. The exhibitor had resected about 6 in. of intestine, and drained each end through Paul's tubes. Subsequently he had united the ends of the bowel.

CLINICAL SOCIETY OF LONDON.

H. H. Clutton, M.A., M.C., F.R.C.S., President, in the Chair.

Friday, November 9th, 1906.

The Treatment of Fractures.

Dr. E. Diver (Portsmouth) read a paper in which he suggested that where good apposition was not attainable in fractures, especially of the femur, effort should be directed to gaining *contact* merely of some portion of the broken ends of the bone, regardless of the contour of the limb, until callus was beginning to fix the fracture, and then to seek restoration of the normal outline whilst the callus was still soft and yielding, by movements alternating with periods of rest, much as in a case of tenotomy for the treatment of clubfoot.

Multiple Stricture of Small Intestine.

Mr. Charters Symonds gave details of this case, which he thought was probably of tuberculous origin. The patient, aged 43, was admitted into Guy's Hospital in September, 1899. Since a boy he had been subject to abdominal pain. Married at 20, he had one or two attacks of pain a year. They occurred at night, and disappeared by the next day. The attacks had been more frequent the last three years, with almost constant pain for the last three months. The abdomen was big, coils of small gut could be seen, there was loud gurgling, and a marked sound as of fluid passing a narrow orifice. He was very thin, but no signs of tuberculosis were ever found. On September 5th, 1899, the abdomen was opened, and resection with end-to-end anastomosis carried out. The portion removed was 15 in. long, thickened and dilated, with a stricture at either end. The dilated portion was the size and shape of a small stomach, about 12 in. long. The strictures were 1½ in. long. The man had had no return of symptoms, and was now in perfect health. Reference was also made to another case in a child.

Mr. F. J. Steward narrated a similar case in a man, aged 37, admitted into Guy's Hospital, with symptoms as of duodenal ulcer, including bad pain behind the upper part of the right rectus. At the operation two strictures were found about 6 ft. beyond the pylorus and 6 in. apart. The intestine was dilated above the stricture. Excision of the strictured portion with end to side anastomosis by means of a Murphy button was performed. The patient recovered. No evidence of tuberculosis or other cause of the stricture was found.

Dr. W. H. B. Brook (Lincoln) asked if there were any other signs of tubercle in the patient.

Mr. A. E. J. Barker suggested typhoid as a possible cause of the stricture. Similar strictures had occurred in the gut involved in strangulated hernia, and thereby ulcerated. He advocated resection of larger lengths of bowel, so as to deal with tissues that were undoubtedly healthy. He had not found that shock was thereby increased. Ulcers, too, were often found 2 or 3 ft. above the constriction, especially in chronic cases; also the lumen of the bowel well above the stricture approximated to that of the empty bowel below, with which it had to be joined, and thus a "tuck" was avoided. He explained minutely his method of suturing the two ends of bowel.

Mr. Symonds, in reply, approved of Mr. Barker's method for acute cases: for chronic cases he thought the method adopted by Mr. Steward was still better. Where one intestine was much smaller than the other it might be divided diagonally, and its lumen thus increased.

Rotatory Subluxation of Atlas.

Mr. Edred M. Corner drew attention to cases in which, as the result of violence, such as a sudden twist, the head became fixed in a rotated position. This he concluded was the result of the locking together of the forwardly displaced side of the atlas on the axis by muscular action. The position and fixation of the atlas could be demonstrated by the position of its transverse processes and by the movements which the head could perform. The latter were somewhat difficult to understand, and were demonstrated by means of diagrams. In a case of rotatory subluxation the patient, by means of movements at the occipito-atlantal joints, attempted to recompense himself for the loss of movement at the atlanto-axial joints. Cases were quoted. A skiagraph was mainly of use to demonstrate the absence of complicating injuries, such as fracture of the odontoid process or anterior arch of the atlas. If such additional fractures were excluded, an anaesthetic should be slowly administered. When muscular relaxation was induced, the head would probably roll back into its proper position, so that when the patient "came round" full movements of the head were restored. These accidents had usually been attributed to displacement of part of the splenius muscle, or to slipping of one of the deep tendons over the transverse process of a vertebra.

Mr. F. J. Steward inquired if subluxation might occur without rupture of the capsular ligaments.

Mr. Corner replied that the occurrence was possible, because the ligaments were very lax. Skiagrams did not show the subluxation distinctly.

Congenital Deformity of the Spine.

Mr. Jackson Clarke related this case. The patient, a boy, aged 4, had the head fixed from birth so that the chin was close to the sternum, and there was no movement in the cervical spine, either of flexion and extension or rotation. The general appearance recalled cases of anencephaly. The boy's mind appeared to be normal. Operative treatment, followed by massage, gave the boy a short neck with all the natural movements. Skiagraphs showed extensive abnormalities in the form of the bones in the upper dorsal and cervical regions, and a cervical rib was present on each side.

The President agreed with Mr. Clarke that the origin of the deformity might have been an anterior spina bifida in the cervical region.

ASSOCIATION OF PUBLIC VACCINATORS OF ENGLAND AND WALES.

Dr. E. C. Greenwood, President, in the Chair.

Friday, October 26th, 1906.

Discussion on the Suggested Postponement of the Obligatory Age for Vaccination.

This discussion was opened on the invitation of the Council by Dr. F. T. Bond, whose paper was read by the Secretary. It was contended that it was a great mistake on the part of those who were responsible for the exemption clause of the Bill of 1898 to have conceded permanent exemption from the requirements of the vaccination law; to meet an opposition which Dr. Bond asserted was very largely one to the vaccination of infants only, the concession was not only illogical but unnecessary. It had been recognized by the Royal Commission that unsatisfactory results did occasionally, though very rarely, follow on vaccination in infancy, and this would be effectually abolished by the adoption of the school age as the period when vaccination should be required. At the school age the child would have passed the time when the troubles of dentition, bad feeding, or hereditary taint might complicate vaccination. The child, and to a certain extent its parents also, would come under the wholesome influence of the educational atmosphere of the school and of its teachers, the great majority of whom were firmly impressed with the efficacy of vaccination as a protection against small-pox; also, the parents might see reason in the interval to modify their objections and desist from active opposition. The suggestion by letter writers of the Anti-vaccination League that the proposal to post-

pone the requirement of vaccination to the school age was a virtual abandonment of the position that vaccination is in any degree a protection against small-pox was mere bluff. On the question under discussion there was room for a difference of opinion upon grounds which were on both sides largely hypothetical in their nature. It was, however, most desirable that all should unite in an effort to induce the President of the Local Government Board not to initiate any new legislation on the subject of vaccination without a previous careful inquiry into any defects of its administration. It was in such defects that the opposition to vaccination found its chief justification. It was not desirable that a legislative measure which affected so seriously the public health as did vaccination should be exposed to frequent legislative tinkering, and it was, therefore, to be hoped that any legislation for the amendment of its practice would be sufficiently comprehensive to satisfy all reasonable criticism for another half-century at least.

Dr. Drury (Halifax), who had made an analysis and summary of a return on this subject which had been obtained by the Association of Public Vaccinators, explained that a circular had been sent out to the corresponding secretaries in the various areas of England and Wales into which the Association is subdivided for purposes of ready communication and collection of the opinions and views of its members. The replies to the questions sent out were therefore thoroughly representative of the views of the great body of public vaccinators. 208 replies had been received; 206 replied with pronounced emphasis against the proposed change; the two other replies were of a very qualified character, and those who made them would probably object, if present, to being regarded as in reality in the minority. Among many expressions of opinion the following were of frequent occurrence: "The change would be disastrous"; "number of escapes, already high, would be increased"; "the opposition at the later obligatory age would not be diminished"; "results more satisfactory in infancy"; "the conditions, surroundings, and habits of the 5-year-old child less favourable to normal uncomplicated vaccination." Public vaccinators had many opportunities of ascertaining the opinion of parents. Without exception, the statements which had been made by parents showed that their views would not support the proposed change. The replies elicited the important fact that many parents were only just beginning to understand the provisions of the present Act, but that those provisions were now becoming more generally known and appreciated by the public. It was clear from the return that if the parents wished any change it was for earlier vaccination rather than later. Practically all the replies noted that the number of "requests" for vaccination before the present obligatory age was everywhere on the increase. In some cases these requests formed 75 per cent. to 85 per cent. of the total vaccinations. The return also clearly demonstrated the increased and increasing popularity of vaccination under the new Act throughout the country. Among the reasons stated for this were: "Freedom from bad arms"; "popularity of domiciliary visits"; "no taking of lymph from the arm on the eighth day"; "prejudices dissipated owing to increased knowledge of vaccination"; "former objectors now sending requests." In some cases where sent for to vaccinate exemptions had been previously obtained. "Resistance now by no means the same as formerly"; "majority of parents content"; "parents who formerly resented now welcome the public vaccinator's visit." The general conclusions arrived at were as follows:

1. The present Act is working satisfactorily; under its provisions opposition is diminished and continues to diminish.
2. The suggested change would endanger the public safety.
3. It would not increase the popularity of vaccination.

Dr. Drury added that he had the highest appreciation of, and felt a personal inspiration from Dr. Bond in his gigantic fight with antivaccinators at a time when practically no one else was fighting with him, and every one must admit his absolute sincerity and disinterestedness; therefore what he said was worthy of very careful consideration, and all public vaccinators were extremely indebted to Dr. Bond. He hoped, however, that Dr. Bond would reconsider his position on the question of the obligatory age, and withdraw the dangerous suggestion. The Royal Commission had been referred to by Dr. Bond; was it not, however, on the finding of this Commission that the child population of this country up to 5 years of age was protected from small-pox by vaccination that the legislation was continued? Dr. Bond stated that the complaints of ill-effects would diminish. He (Dr. Drury) thought that such complaints had already greatly diminished. The suggestion that a second exemption should be required at the school age might well be put before Dr. Bond as being the whole crux of his case. The present obligatory age should not be deferred, but a second exemption should be insisted upon. Under the present tendency of legislation in connexion with education there seemed to be a possibility of extensive medical examination of children at the school age, so that the inspection for vaccination would be only part of the routine. Many public vaccinators and others had objected very much to the conscientious clause at first. It was, however, a surprising fact that only a comparatively small number had applied under this provision. The official figures for 1904 showed that of the total number of births in that year only 3.1 per cent. of certificates of exemption had been taken out. These figures, he thought, showed that the conscientious objection clause was not such an objectionable feature as many of them expected it would be.

The President pointed out that the opposition to vaccination was not so extensive in large centres as in smaller districts because it was in the larger centres that the individual intelligence of the people acting upon their own responsibility was obtained, whereas in small centres the people were influenced by any fanatic who might be there. That had been proved over and over again in epidemics of small-pox, where in small country places people had taken out conscientious objections under the direction of one individual objector, but when the epidemic occurred they immediately went and had all their children vaccinated. Dr. Bond had mentioned that trouble had arisen because of the cases of ill-effects referred to by the Royal Commission; he (the President) thought that this part of the Report of the Commissioners was of no value to-day because the whole process of vaccination as a surgical operation was altered. He also thought that the remarks about the benefits which would accrue through children being vaccinated at school age rather than in infancy constituted an absolute fallacy. There was not the slightest doubt that small-pox attacked children far more than adults, therefore the mortality from small-pox would be immense if the whole of the population of children under 5 were left unprotected.

Dr. Core thought the best system of vaccination required a closer association with registration work, whereas the proposal under consideration shifted the whole machinery of vaccination from association with registration. From an administrative point of view very serious difficulties would follow any such change. He urged that children, on entering school, should be inspected and the state in regard to vaccination entered, with details, in a register.

Dr. T. Elliott (Tunbridge Wells) asserted that there was no desire on the part of the parents for the postponement of vaccination.

Dr. Ferguson (Burnley) referred to the greater amount of constitutional disturbance in older children. Nine-tenths of the opposition to vaccination was simply through ignorance.

Drs. Costin, Bloomer, Palmer, Sargent, and Kingsford took part in the discussion.

The following resolution was carried unanimously:

> We, the Public Vaccinators of England and Wales, in annual meeting assembled, desire to express our satisfaction with the results of the operation of the Vaccination Act and Order of 1898, as reported in the Local Government Returns from year to year. We would also express our opinion, founded upon our experience of the working of the Act, that the full results have not yet been achieved and that any disturbance of the existing machinery would be undesirable in the public interests; that the universal experiences of public vaccinators is that vaccination in infancy is accompanied by far less constitutional disturbance than at a later age, and that this experience is confirmed by the fact that parents desire their children to be vaccinated early in life in increasing numbers; consequently we feel strongly that any postponement of the official obligatory age of vaccination would not be in the public interest nor would it be acceptable to the mass of the people.

On the proposal of the PRESIDENT, a vote of thanks to Dr. Bond for his paper, which had provoked such a very interesting discussion, was carried unanimously.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—At a meeting of the Section of Pathology, Dr. ARTHUR H. BENSON in the chair, Dr. EARL exhibited a pancreas, omentum, and portion of mesentery from a case of pancreatitis. The two latter showed well-marked and extensive fat necrosis.—Dr. W. G. HARVEY exhibited specimens, and stated that in his case the patient, aged about 60, and a fairly stout man, had been complaining of vague pains in the abdomen for four or five days before coming into hospital. He had been drinking heavily, and one morning on going into a public-house fell unconscious, and was brought to the Adelaide Hospital. On admission he was quite unconscious and breathing heavily. He died in a few minutes. Necropsy showed: (1) Fat necrosis over the abdominal and mesenteric fat; (2) pancreas enlarged, swollen, dark, friable, and on section showed several large haemorrhages; (3) gall bladder somewhat distended, but no gall stones. Microscopically the pancreas showed necrotic and haemorrhagic areas.—Dr. MCWEENEY said it would have been interesting to learn exactly how it was that, in the specimens showed by Dr. Earl, such a relatively small amount of pancreatic destruction could have resulted in such very extensive fat necrosis; why the fat-splitting ferment exercised its effects upon certain small and isolated areas somewhat removed from the pancreas, while it appeared to spare areas in immediate contact with the pancreas. In regard to Dr. Harvey's specimen, he (Dr. McWeeney) was under the impression that the haemorrhagic pancreatitis was a microbic affection.—Dr. PARSONS would have liked to know when the cases had been first recognized as pancreatitis, and whether any sugar or Cammidge's crystals were found in the urine.—Dr. EARL, in reply, said he had not had an opportunity of examining the patient's urine, as he was operated upon immediately he was admitted to hospital. The ducts were not affected in any way, and there were no gall stones.—Dr. HARVEY, in reply, regretted that, owing to a hurried *post-mortem* examination for the coroner, he had not been able to make a complete bacteriological examination. He had stained a section by Gram's method, but found no organisms.—Mr. L. G. GUNN read a short note on cryoscopic work done during the past two years, showing that the information obtained from this method was similar to that obtained by a quantitative analysis of the urine or the blood, or the accurate reading of the specific gravity, provided the fluid had been deprived of proteids. He believed that slight alterations in the freezing point of the blood were of far greater importance than considerable alterations in the molecular concentration of the urine. In no case in which normal urine readings were obtained did the kidneys show any functional deficiency after the removal of the other kidney. On the other hand, in two or three cases, patients with only one kidney remained healthy, although the urine showed a molecular concentration considerably below normal.

MEDICAL SOCIETY OF LONDON. At a clinical meeting on November 12th, Mr. C. A. BALLANCE, President, in the chair, Dr. GRAHAM LITTLE showed a series of 4 cases of *Urticaria pigmentosa* which is characterized by pigmented macules and papules with glandular enlargement, an excess of mast cells in the skin, and an increased salt-content in the blood; Mr. GORDON WATSON, a patient in whom ileo-sigmoidostomy had been performed after excision of a carcinoma of the sigmoid, and in whom there was no evidence of secondary growth some seventeen months later, but the colotomy wound still remained open; Mr. E. M. CORNER, a case of multiple enchondromata, really an irregular ossification in the bones of the right lower limb; Mr. PERCY SARGENT, one of symmetrical myeloid tumour of the mandible, a sister developing similar tumours; Dr. PARKES WEBER, a case of myelopathic or splenomegalic polycythaemia and one of multiple fibrous nodules in the arm and legs with a rheumatic condition of one foot: Dr. F. J. POYNTON, one of enlargement of the left lower limb, possibly a trophoedema or due to lymphatic obstruction; Dr. JOHN BROADBENT, one of early paralysis agitans without tremor; Dr. R. A. YOUNG, a case of multiple neuritis following acute enteritis in a boy, aged 2 years and 9 months; and Mr. A. E. BARKER, one of elephantiasis lymphangiectodes of the left thigh in a man, aged 22, in whom at certain periods of the day, after food, the contents of the lymphatic naevus were chylous, suggesting a communication with the lacteals.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—At a meeting on November 2nd, Dr. J. LINDSAY STEVEN, President, in the chair, Dr. W. K. HUNTER showed: (1) A man with complete *Ankylosis of the vertebral column*. The only movement possible was slight rotation of the upper part of the column. Skiagrams showed lines of bone in the position of the intervertebral discs. There was no stiffness at other points. The case was considered to be one of rheumatoid arthritis. (2) A girl of 8 with *Infantile hemiplegia and athetosis*. Convulsions, starting in her second year and followed by a left-sided hemiplegia, had recurred at intervals. She recovered the use of the arm and leg eighteen months after, and learned to walk (though with a dragging of the left foot). Athetotic movements of the left hand started soon after the paralysis. Loss of power was now slight. During emotional movements there was a little facial paralysis. There was some rigidity of the muscles of the left leg. Babinski's sign was obtained. The condition was probably an encephalitis. Massage and passive movements were considered valuable means of educating the affected muscles. Treatment in such cases was too frequently neglected.—Dr. A. G. FAULDS showed a number of bodies removed from the female bladder. The prominent symptom was cystitis of very varying intensity. In a case where a threepenny piece and in another where a pea had been introduced, intense cystitis was set up within twenty-four hours. A third case, a girl, aged 13, had suffered from vaginitis and intractable cystitis for years, and tuberculosis of the bladder had been diagnosed; but on cystoscopic examination a body was observed which, on extraction, proved to be a slate pencil, partially encrusted with salts. The symptoms disappeared. In two cases calculi removed were found on section to have a nucleus of a gold wedding ring, and of a bell from a rattle respectively. These bodies must have been retained for a long time. A very extraordinary case was that of a very hysterical girl, from whose knees over thirteen needles were removed. On one occasion, after micturition, 1½ in. of the sharp end of a hatpin was found in the slipper-pan. In another case, a piece of copper wire was removed from the bladder of a young girl, who had occasionally passed blue urine.—Dr. W. W. CHRISTIE read notes of, and showed a patient who had suffered from, a *Suppurating periodontal cyst*, and Dr. WALKER DOWNIE described the operation which he had performed. The cyst had occupied the greater part of the maxillary antrum, and in front had been in communication with the socket of the central incisor.—Dr. J. G. TOMKINSON read a paper on the *Treatment of ringworm*, and showed illustrative cultures. The fragility of the hairs and the fact that no antiseptic penetrated more than 1 mm. into the hair follicle, which was situated 4 mm. deep, rendered treatment by antiseptics unsatisfactory. By *x* rays the hairs could be removed from the affected area, and by the use of Sabouraud's pastilles a safe and efficient exposure could be made. The scalp was then dressed daily with 10 per cent. iodine in 80 per cent. alcohol. The hairs began to fall out after fourteen days, and on the eighteenth day the scalp was washed daily. The hair began to reappear after two months.

BRITISH GYNAECOLOGICAL SOCIETY.—At a meeting on November 8th, Mr. F. B. JESSETT, the President, in the chair, the following were among the exhibits: Dr. J. HUTCHINSON SWANTON showed a specimen of ovarian cystoma in which thyroid tissue occurred. It had been removed from a patient aged 42, who stated that three weeks previously she had had a sudden attack of abdominal pain when in bed; menstruation appeared ten days afterwards, and lasted seven days. The left kidney was movable, and she wore a belt. On examination an abdominal tumour was found wedged in the left side of the pelvis closely related to the uterus, which was displaced to the right. Ovariotomy was performed and the tumour

removed entire. It was formed of several cysts, with a solid central mass of tissue presenting a thyroid structure. —Mr. Charles Ryall showed a specimen of *Hypertrophied clitoris and labia* removed from a syphilitic patient aged 55, and showed photographs of the growth in natural position. Her family were all healthy. The labia on one side were much enlarged and the clitoris hypertrophied, pendulous and club shaped. The perineum was indurated and contained numerous sinuses. There was a stricture of the rectum. The patient noticed this growth eleven years previously, but lately it had increased in size and owing to friction became irritable and sensitive. The growth was removed and on examination proved to be a granuloma of syphilitic origin.—Dr. S. Jervois Aarons read a paper on *Medical treatment of uterine haemorrhage*, not advocating it to the exclusion of operative measures, but regarding it as useful by way of preparation for these. There were also numerous conditions which would yield readily to medical treatment, and patients were often advised to undergo operative treatment for them too hastily. The treatment must be based upon pathological and clinical research in every case. A list of 93 cases treated medically was presented. Three of these cases were successfully treated by rectal injections of gelatine after all other treatment failed. One case of haemophilia responded to calcium after ergot, hydrastin and adrenalin had been tried. Another drug which proved satisfactory was the neutral cotarnine phthalate, which, after an extensive use, failed in only two cases. The drugs used were ergot, either as liquid extract or ergotine, hypodermically, in order to obtain uterine contraction; hydrastin compound, composed of hydrastin, ergotin, cannabin tannate, and cotarnine hydrochloride was used with good result in the same class of cases. Calcium was found to be most satisfactory, and used either as lactate or chloride in doses of 30 gr. three times daily taken during the menstrual period. Neutral cotarnine phthalate, which was believed to act through the vasomotor centres, was especially useful in haemorrhage at the climacteric as well as in that occurring during pregnancy. Gelatine was employed after the beneficial results observed in the treatment of aneurysm. About 9 oz. of sterilized liquefied gelatine were slowly injected through an ordinary irrigator into the rectum three times a day. Two days of this treatment were found to be sufficient.

Society of Anaesthetists.—At a meeting on November 2nd Dr. F. W. Silk opened a discussion on anaesthesia in abnormal and constrained positions. He subdivided his remarks into comments on (1) the supine, (2) the lateral, (3) the prone, and (4) the sitting positions, and alluded to Sir Victor Horsley's recent description of the best position of the patient in operations upon the cranial cavity. He laid much stress upon the occurrence of pressure paralysis after anaesthesia, upon the different positions in which the operation for adenoids was performed, and on the Trendelenburg position.—The President (Dr. R. J. Probyn-Williams) discussed particularly the position in renal cases, and warmly recommended the use of Carter-Braine's arm-rest.—Mr. H. S. Barwell spoke of the necessity of avoiding entry of blood into the glottis in operations upon the nose and throat; he adopted the side position for this purpose. The operation of removal of the ossicles of the ear was one which must be performed in the sitting position.—Mr. Arthur Edmunds thought that the danger of blood entering the air passage was largely a bogey. In tongue cases he thought position was less important than splitting the cheek for free view of and access to the field of operation. He instanced three cases of pressure paralysis, and regarded this as the most important sequela to anaesthesia.—Mr. Russell Howard described similar cases, while Mr. Percy Noble did not think the anaesthetist was in any way responsible for pressure paralysis.—Dr. H. Powell thought that in cases such as those of laminectomy a bridge position would be of great advantage, in which the patient's face should not be buried in the table and the anaesthetist should occupy a position corresponding to that of a chauffeur correcting a fault in his car.—Dr. Vivian Orr and Mr. W. Kirkby Thomas alluded to the moving of patients when anaesthetized and to the question of paralysis from the "turned up" position.

Nottingham Medico-Chirurgical Society.—At a meeting on November 7th, Dr. E. Powell, the President, gave an address on *The Prevention of Insanity*. After contrasting the crusade against cancer and tuberculosis with the apathy regarding mental disease, he pointed out that the alleged increase was quite as much apparent as real. The most important preventable cause was hereditary predisposition, which could be clearly traced in at least 22 per cent. of the cases admitted. Some authorities thought that if the true history were always obtainable the real proportion would come out as high as 50 per cent. or even 90 per cent. It was a grave mistake to encourage marriage indiscriminately amongst the more neurotic females, as it very much increased the probability of a nervous breakdown. With regard to epileptics, the public appeared to have no conception of the risks for which the way was opened by the unfettered liberty they enjoyed at the present day. There was no evidence to connect the marriage of cousins with the production of idiocy provided there was no actual neurotic taint on either side. The second most important cause was the abuse of alcohol, and while statistics tended to under-estimate the direct influence of this factor as regards the individual, its indirect effect, which touched other generations, must be very much larger still. Amongst women the amount of insanity due to drink was steadily increasing, and in towns like Nottingham, where female labour was largely employed, the percentage was higher than elsewhere. Stimulants must be prescribed to neurotic subjects only with the greatest caution. The third most important preventable cause was syphilis, which played such a leading part in the production of general paralysis. The theory that this latter disease must be identified with the *Bacillus paralyticans* described by Forbes Robertson, of Edinburgh, was not at the present time held to be fully proved. As compared with thirty years ago, the cases admitted to asylums to-day numbered fewer acute maniacs, but a larger proportion of melancholic and senile cases. Adolescent insanity was increasing in connexion with overstrain. It was, therefore, to be regretted that the usual educational curriculum was so little elastic with respect to the special needs of any children who were slightly defective, especially when so much compulsion was applied to education. Such children did much better when sorted out into special classes, where they could receive far more individual attention and did not act as a retarding influence on their more intelligent schoolmates. In the insanity of middle-aged men, business worries bore an important part, and premonitory symptoms, such as loss of sleep and appetite, general irritability, and a tendency to worry over trifles, should never be neglected.

British Balneological and Climatological Society.—At a meeting on October 31st, Dr. Hamilton Cumming (Torquay), President, in the chair, the President-elect, Mr. H. Seirley Jones (Droitwich) delivered an address on the Art of Medicine in Ancient Egypt. The earliest work on medicine in existence was probably that known as the Ebers Papyrus, which dated back to the sixteenth century B.C. Some earlier works were known to have existed, for instance, one on anatomy by Athothis, the second King of Egypt, 4,700 B.C., while a reference to surgery as a distinct art was made in a code of laws issued by Hammurabi, King of Babylon in 2,300 B.C., but of these there was now no trace. The Ebers Papyrus consisted of short descriptions of diseases referring to the abdomen, and its compilation suggested that it referred to those diseases described by Herodotus as "secret and internal maladies." Herodotus related the Egyptian physicians were not allowed to practise any but their own peculiar branch. Some were oculists, some dentists, others devoted their attention to diseases of the head, others to secret and internal maladies, and so forth. Magic played a constant but somewhat secondary part in all treatment of disease. It differed from that of other nations in this respect—that whilst other nations regarded the use of herbs as useless unless rendered effective by the power of magic, the Egyptians considered the use of herbs as an essential adjunct to their magic. A curious feature of their magic lay in the fact that the magicians identified themselves with the gods, and as companions and equals claimed their assistance. The seven diseases mentioned relate to indigestion; worms; heart and stomach troubles; constipation; swellings (glandular and others);

suppurating wounds, loss of strength and loss of consciousness, and also probably loss of blood. This was followed by numerous prescriptions for their relief, for the most part composed of herbs, but also in several instances inorganic compounds were mentioned. At the end of the papyrus was a long description of the anatomy of the heart and its action.—Dr. SANDWITH, in seconding a vote of thanks for the address, said that in the Anatomical Museum of the Cairo Medical School could now be seen some evidences of prehistoric surgery, and in the Museum of Antiquities there stood the stela of the tomb of the earliest of known physicians. Many of the habits of the ancient Egyptians described were still to be met with among the modern inhabitants.

REVIEWS.

CARL WEIGERT.

By the death of Carl Weigert in 1904 medical science lost one of its ablest investigators, and it is only fitting that his work should be commemorated by a historical sketch of the influence which it has exercised upon the development of modern pathology. This task has been undertaken by Professor ROBERT RIEDER,[1] who was closely associated with Weigert for fifteen years, and is therefore intimately acquainted both with his scientific researches and his personal character. Perhaps Professor Rieder carries his enthusiastic admiration for his subject a little too far. Weigert's work is so good and so important that the mere record of it is sufficient, and added praise seems superfluous; the reader would prefer to be allowed to form his own judgement, and would rather not see so many sentences punctuated with applause.

Weigert's first work of importance was his microscopic study of the lesions in small-pox, published in 1871. This investigation was a new departure in histological research, and its value was not generally appreciated at the time; but Cohnheim recognized its merits, and in consequence appointed Weigert as his assistant. Weigert's output of work was steadily maintained from 1871 to 1904, and amounted at the time of his death to ninety-six contributions to various scientific journals. It is impossible to do more than mention a few of these. His articles on croup and diphtheria, published in *Virchow's Archiv* in 1877 and 1878, established on a firm basis our knowledge of the diphtheral nature of membranous croup; and his numerous studies of coagulation-necrosis, caseation fibrin-formation, and the processes of inflammation and repair of tissue, have become landmarks in almost every branch of morbid histology. His work on the central nervous system was exceptionally important; by his method of demonstrating the medullated sheath of nerve fibres, and by his discovery of a specially selective stain for neuroglia, he created a new epoch in the anatomical study of lesions in the brain and spinal cord.

Weigert's wonderful genius for discovering differential staining methods has proved no less serviceable to bacteriologists than to histologists. As early as 1871 he showed that bacteria take up nuclear stains, and he was the first to demonstrate (in 1875) the special value of the basic aniline dyes as bacterial stains. He was also the first to introduce the method of double staining for the demonstration of bacteria in histological specimens. This discovery, announced in 1881, was based on the observation that gentian violet has a greater affinity than carmine for bacteria, whilst carmine has the property of removing the violet colour from cell nuclei; it is thus possible, by a successful application of these two dyes, to provide a sharp contrast between the red staining nuclei of the tissue cells and the violet coloured bacteria. These are only a few instances of Weigert's brilliant insight into pathological problems: so many of Weigert's observations and opinions are now accepted as a matter of course that, were it not for Professor Rieder's valuable tribute to his memory, the debt which pathology owes to him might not be appreciated as it should be.

[1] *Carl Weigert und seine Bedeutung für die medizinische Wissenschaft unserer Zeit.* Von Dr. Robert Rieder. Berlin: Julius Springer. 1906. (Royal 8vo, pp. 141. M.3.)

THE CAUSE AND CURE OF VAGRANCY.

THE vagrant has been always with us, but the consequences of his irregular migrations have again become matters of serious moment to the community at large. A vagrancy crisis arose in the spacious times of Elizabeth, brought about apparently by the abolition of the monasteries, which had afforded food, and usually also shelter at night to the tramping population. The changes in industrial conditions during the last fifty or sixty years caused by the growth of great manufacturing towns and the decline of agriculture, have produced another crisis, and a Royal Commission has sat and reported, though its recommendations are not likely to be carried into effect until the Royal Commission on the Poor Laws has also reported. For the truth is that the two matters are at present inextricably mixed up, although the vagrant is not always a proper object of poor relief. He may be a workman on the road in search of work, thrown out of work by some temporary or permanent change in the conditions of industry in the district in which he has previously lived, or perhaps only in the particular industry in which he has been engaged. It is this aspect of the question to which Mrs. HIGGS more especially calls attention in the book to which she has given the not unapt title *Glimpses Into the Abyss*.[2] For her contention is that before the honest working man, and still more before his wife or daughter, who has to tramp in search of work, there opens an abyss which it will need some strength of character and some address to avoid. The book consists of the Essay on Vagrancy for which the authoress was awarded the Gamble Prize at Girton College, and of a series of chapters describing her experience as an amateur tramp in casual wards, shelters, and common lodging-houses. Shortly stated, her contention is that a clean person—clean physically and morally—must quickly become contaminated in the casual ward or common lodging-house, and that a young woman who by accident finds herself reduced to the latter refuge is under strong temptation to take the easy path to prostitution, into which all the surrounding circumstances tend to force her. Our present system of closing our eyes to facts, and trying to check vagrancy by what amounts practically to short terms of imprisonment with hard labour on a scanty diet, makes tramps of the men and prostitutes of the young women. The Belgian system of labour colonies is designed to arrest the descent of the workman or workwoman, not to punish them after they have reached the bottom of the ladder. The so-called Gloucestershire system appears to work well; it applies to that county and to Wiltshire; a wayfarer entering their bounds is provided with a ticket showing his final destination, and given an evening and morning meal and a night shelter in return for a certain amount of work: when he leaves his ticket is marked with the name of the next union in his direct route, and the name of a place where he will be supplied with a midday meal: this plan suits the real migrant, but is distasteful to the true tramp. It resembles the system in force in Germany, where, however, the police have much greater powers: there by a process of sifting the incorrigible loafer is picked out, while the man willing to work is helped to find employment. In Switzerland the regulations are still more considerate to the work seeker, and still sterner to the workshy moucher; and these more efficient systems cost far less than our meddlesome, muddlesome attempt to repress while making no effort to prevent. Of the personal experiences of the authoress we can give no account, for their effect depends on the details, often revolting, which she relates with a sobriety which carries conviction: but, if it be true that the majority of common lodging-houses are as filthy and verminous as those she describes, then the provision of municipal shelters and lodging-houses for vagrants and migrants would be a real economy—an undertaking sanitary both for the moral and physical being.

[2] *Glimpses Into the Abyss.* By Mary Higgs. London: P. S. King and Son. 1906. (Crown 8vo, pp. 316. 3s. 6d.)

DISEASES OF THE RECTUM.

MR. F. VICTOR MILWARD, in a small volume on *Diseases of the Rectum*,[3] gives a short account of some of the diseases affecting the ano-rectal region. The affections considered are those which most commonly occur in this region, and all the rarer lesions are undiscussed. The first chapter gives elementary instruction in the methods

[3] *Diseases of the Rectum.* By F. Victor Milward, M.B., B.C., F.R.C.S. Birmingham: Cornish Brothers. 1906. (Crown 8vo, pp. 195, 27 illustrations. 5s.)

of rectal examination and in the use of rectal specula, and is followed by others in which constipation, rectal parasites, and the regulation of diet and exercise receive consideration. The best chapters in the book are those on haemorrhoids, and the subject is discussed with the detail one expects in a monograph; the operation of excision is, however, imperfectly described, and its performance in the manner which the author sketches is not to be recommended. An unfavourable opinion is expressed on Whitehead's operation on account of the subsequent tendency to stricture; the author would add to the value of his criticism by adducing evidence of this from clinical experience. The chapters on periproctitis and its sequela, fistula *in ano*, are good, and a clear description is given of the different varieties of perirectal abscess and their appropriate treatment. The final chapters are devoted to rectal cancer. The pathological anatomy of the disease is too briefly considered to afford the student a satisfactory conception; the discussion of the treatment of the disease is, on the other hand, carefully arranged and sufficiently detailed to be really instructive. The author hints in his preface at further publications on the subject of rectal diseases; he would be well advised to treat his subject in a fuller and more ample manner than in the present volume. In special monographs the reader expects to find a comprehensive study, the outcome of special experience or special research.

Dr. J. Boas, in a monograph on cancer of the rectum,[4] gives an admirable clinical description of the disease, and addresses himself in particular to the subject of early diagnosis. His paper is based on an analysis of eighty-three cases. Of antecedent conditions he found haemorrhoids and habitual constipation by far the most frequent, and points out how a long history of occasional rectal haemorrhage may mislead the practitioner and induce him to exclude malignant disease on insufficient grounds. The classical symptoms of cancer of the rectum are tenesmus, constipation, or alternating constipation and diarrhoea, and the passage of blood and mucus. In some cases pain of a colicky character constitutes the first symptom, and it is not only in cases presenting rectal symptoms that an examination of the rectum should be carefully made, but in all patients who present signs of intestinal disturbance wherever the seat of the disturbance appears to be. The three classical symptoms are by no means always associated; tenesmus, for example, is frequently late in appearing. The disease presents all degrees of malignancy, and therefore runs no regular course; some cases are inoperable at the time the first symptoms declare themselves, others are of very slow development. Patients often put up with the earlier symptoms of rectal cancer for a long time before seeking advice, and on the other hand, practitioners fail to make an examination in cases of irregular action of the bowels and of haemorrhage in the stools as often as they should; these are two important causes of late diagnosis. The disease should be suspected in all cases of diarrhoea which do not yield to treatment. Operation, to be successful, has to be performed in quite the earliest stages of the disease, and the author asks whether some kind of declaration should not be made to the public regarding the early symptoms, and the necessity for avoiding delay in seeking advice, as has been done in the case of cancer of the uterus in Germany. At present about 80 per cent. of the cases which present themselves to the physician are hopeless from the point of view of operation, and can only be treated by palliative methods. The physician should be able to form an opinion on the operability of any given case, and before the question is decided he should always confer with a surgical colleague. The duration of symptoms is no guide in the matter; some types of growth are much more hopeless than others, and fixation and metastasis are matters which must be thoroughly investigated.

[4] *Beiträge zur Kenntniss der Rectumkarzinome.* [On the Recognition of Cancer of the Rectum.] Von Dr. J. Boas. Berlin: S. Karger. 1906. London: Williams and Norgate. (Demy 8vo, pp. 32; 1s. net.)

Medical Mayors.—Among the list of mayors who took office on November 9th we notice the following members of the medical profession: Dr. Robert Gourlay (Oldham), Dr. W. C. Hamilton (Lancaster), Dr. F. Montague Miller (Hackney); Dr. R. A. Prichard (Conway) re-elected. Dr. G. Somerville (Macclesfield), and Dr. B. H. Tripp (Southwold).

NOTES ON BOOKS.

The volume *General Biology*[1] of the fourth annual issue of the International Catalogue of Scientific Literature has been published. It deals with material received between November, 1904, and October, 1905, and contains schedules and indexes in four languages (English, French, German, and Italian), a catalogue of authors' names, a subject catalogue, and a list of journals.

Dr. Julius Stumpf has written a treatise, published by A. Stuber of Würzburg, on a positive cure for Asiatic cholera and severe infective diarrhoea accompanied by vomiting. The "cure" consists in the administration of finely-powdered clay. The author writes with great enthusiasm, but it can hardly be said that his theories carry conviction.

The Edinburgh Obstetrical Society is prompt in publishing its *Transactions*, and the thirty-first volume, containing an account of its proceedings up to the end of last session, has already appeared. In addition to a list of past and present officers and of Fellows, it contains about a dozen papers on obstetrical subjects, six or seven on gynaecology, and about an equal number of a miscellaneous character. One of the latter is a detailed and extremely interesting account by Dr. J. W. Ballantyne of the famous old book on midwifery, *The Byrth of Mankynd*. A number of the more curious plates by which the various editions from A.D. 1540 onwards were adorned are reproduced.

Dr. Simon's *Manual of Chemistry*[2] possesses the advantage of giving to students a very readable and intelligible outline of the main operations of chemistry with which they are expected to be familiar. Those facts of physical chemistry which are essential to an intelligible treatment of the subject are competently dealt with and there is a brief description of the chief properties of the organic and inorganic substances which are of professional interest. The book ends with a short account of physiological chemistry. In so far as the author has aimed at a simple treatment of a very difficult and intricate subject we are in full sympathy with him, but can only regret that his efforts in this direction have occasionally led him into error. It may be venial to assert that the metre is one ten-millionth of the earth's quadrant and not the quite appreciably different length defined by Borda at the request of the French Government, but we cannot pardon Dr. Simon for saying, in a book intended for students, as he does on p. 74 in connexion with radium, that the transmutation of elements is now an accomplished fact. While scientists of the standing of Lord Kelvin refuse to acknowledge the matter as proven, no responsible writer is justified in inserting a remark of the sort in a textbook. Occasionally there is a tiresome misprint, as in the formulae for cymene (p. 459) and cresol (p. 466), but on the whole the book has been well and carefully printed, the plates which deal with colour reactions being, perhaps, of rather more than average merit.

[1] London: Harrison and Sons. 1906. 10s. 6d.

[2] *Manual of Chemistry.* A Textbook specially adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph.D., M.D. Eighth edition. London: Baillière, Tindall and Cox. 1906. (Roy. 8vo, pp. 657; 66 illustrations and 8 coloured plates. 15s.)

MEDICAL AND SURGICAL APPLIANCES.

A Cheap Oil-immersion Lens.—We have received from Mr. Henry Gowlland, optician, Selsey, Sussex, a $\frac{1}{12}$ in. oil-immersion lens, which he sells at the unusually low price of 55s. Mr. Gowlland claims that it is capable of doing the most critical work, and is equal in quality to lenses which are sold for £5. We have examined the sample he has sent us, and find that it gives good definition, and is certainly useful for ordinary work. We do not consider it as good as Zeiss's $\frac{1}{12}$ in. lens, which costs £8; but obviously the test of comparison with a lens which is so much more expensive is exceptionally severe. We cannot make any general statement as to whether Mr. Gowlland's lenses are as good as lenses usually sold at £5, because lenses produced by different makers, or even by the same maker, are not always identical in quality. We note that Mr. Gowlland offers to send his lens for comparison with any other make; that is a very fair offer, of which many persons will probably avail themselves before making their final selection.

THE FITZPATRICK LECTURES
ON
THE HISTORY OF THE STUDY OF CLINICAL MEDICINE IN THE BRITISH ISLANDS.[1]

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[ABSTRACT.]

LECTURE I.

To us who have spent the greater part of our lives in the observation of patients and in teaching in the wards of hospitals the study of medicine appears to be essentially clinical. We know that reading, meditation, laboratory work, even investigations in the *post-mortem* room, are insufficient to make a physician without prolonged observation of patients in every condition of disease. Sydenham's firm conviction of the importance of spending as much time as possible in observation at the bedside and in meditation makes him, in his writings, appear negligent of the opinions of the men who before his day had given their lives to the study of medicine. He mentions Hippocrates about a dozen times and Galen once, Diemerbrock and Botallus and twelve other writers on the plague, and hardly any other authors except some of those whose living conversation he had enjoyed.

Among the mental associates of Sydenham must also be mentioned Locke, whose relations with him are well known, though none of the writers on the subject have, I think, compared their mutual esteem with that of Harvey and Hobbes. The mental relation was the closer in each case because both Hobbes and Locke felt the charm of natural science, and admired the weighing and measuring and other considerations of the observations of the senses which was the habitual frame of mind of Harvey and of Sydenham.

When Paracelsus began his lectures at Basle by flinging into a burning brazier the works of previous famous teachers of medicine, he must be considered as desiring to exalt his own teaching at the expense of theirs, but this was not the feeling which prevented Sydenham from mentioning other opinions than his own. He did not undervalue his predecessors. His care for some of those who had thought much on his subject in his own time shows the contrary, but he was impressed with the shortness of life, as every man must be who has tried to become deep in any subject.

In his omission of any discussion of the opinions of others Sydenham makes one exception, "the divine old man," Hippocrates, whom he never mentions without respect. He recognized that in the Hippocratic writings medicine rested upon observations of patients and that thence must be drawn all those conclusions as to the preservation of health and the prevention or the treatment of disease which are the ultimate objects of our study and practice. "Hippocrates," says Sydenham, "better understood and more accurately described the History of Diseases than any one that came after him."[2] Yet the true spirit of observation is obvious in Galen and was not extinguished in the Middle Ages. We cannot read Avicenna or Rhazes without feeling that however different the hypotheses on which they worked from those of to-day they were nevertheless men who wished to find out the origins of diseases and who were fitted by their habits of thought to add to knowledge.

While the great physicians of those ages differed less in their mode of thought from modern men of science than is supposed by those who have not read their works, this was not the frame of mind of all who practised the medical art, or even of most of those who wrote on medicine. For all but a few medical study was to read the works of authority and to fit cases under the headings given in such treatises, while medical writing consisted in producing fresh books by extract and abstract from previous books. Quotation marks were not in use and no one who has not perused many of the writers on medicine of the Middle Ages can know how difficult it is to isolate any original remarks of the actual writer. The immediate effect of the revival of learning was to introduce the age to the great teachers of the past, and men had to go to school to them for some time before they were by them brought back to Nature.

Caius was the first to write an original description of disease as observed in his own time, yet his *Liber de Ephemera Britannica* contains no series of clinical observations, and he is content to give a general account of the epidemic, of its prognosis, and of the treatment adopted.

The description of the symptoms of the sweating sickness is not connected with any particular cases, and is mixed up with pathological hypotheses concerning them, yet it was the first description of a disease from Nature which had been written in England. The preface is dated at London, January 12th, 1555; and, as Caius was then living in St. Bartholomew's Hospital, the book was probably written within its walls. Caius was satisfied that no account of the disease was to be found in Hippocrates or Galen, and he made his description from what he had seen.

The defects of Caius's book are the absence of a discussion of the morbid anatomy in explanation of the phenomena, and the comparatively small space given to the description of the symptoms in proportion to the many pages of hypotheses on the relation of the disease to the general scheme of fevers and on its origins. Yet it was the first step in clinical medicine in England.

Gilbert was aware of the importance of applying in medicine precise scientific methods of observation such as led to his great discovery in physics, but while it is certain that his acute and observing mind must have had but one method in all its proceedings, he has left us no records of observations in clinical medicine.

Harvey has made some notes of patients, as is shown in the manuscript of his lectures on the circulation. There were probably many clinical notes among those papers of his the loss of which has so often been deplored, for almost every man who has devoted himself to morbid anatomy has also made observations in clinical medicine. Is not this plain in the writings of Morgagni, of Matthew Baillie, of Louis, of William Jenner, and of Wilks?

Besides the traces of clinical observation in Caius and in Harvey other fragmentary proofs of its use may be collected. The works, for example, of William Clowes, Surgeon to St. Bartholomew's Hospital in the reign of Elizabeth, contain many passages which show how carefully he observed his patients, though he evidently writes down the general result in his memory rather than anything noted day by day. He was good at telling a story rather than at recording an observation.

The first physician in England whose writings show him to have devoted himself to minute clinical observation is Sir Theodore Turquet de Mayerne, who was elected a Fellow of this College on June 25th, 1616. This great man was born at Mayerne, near Geneva, on September 28th, 1573, of a learned family. After his school education he studied at the University of Heidelberg for four years and then at Montpellier, where he graduated M.B. in 1596 and M.D. in 1597. He settled in Paris, and early in his career had some medical controversies with the physicians there, out of which he emerged with credit to himself. He had been attacked for using chemical remedies to which the Galenists of the time objected, and in a well-expressed reply he showed that his prescriptions were both useful and in accordance with the principles and practice of Hippocrates and Galen. Mayerne went on with his work in spite of much opposition from his seniors. Before he left Paris opposition seems to have ceased, and he had become Physician-in-Ordinary to the King of France. In 1606 he was taken to England by a patient whom he had cured, and received the degree of M.D. at Oxford. He did not, however, settle in London till 1611, when he was desired to come by letters patent under the Great Seal, and was appointed First Physician to James I. His profound knowledge of his profession and great ability and general learning at once secured for him the friendship of this College. The first case after he came to England of which he has preserved a note is that of Sir Robert Cecil, the Earl of Salisbury, who, like his descendant in our time, was First Minister of the Crown. Mayerne saw Cecil at Salisbury on August 1st, 1611, and evidently thought ill of his case. He describes a large hard abdominal tumour occupying nearly the whole hypogastrium on the right side and associated with prolonged diarrhoea—probably a new growth of the caecum. The symptoms

[1] Delivered before the Royal College of Physicians of London on November 8th and 13th, 1905.
[2] Of the Irregular Small-pox, p. 172.

and their meaning are discussed in six folio pages of print of two columns each and the treatment in twelve and a half columns, and it is evident that while Mayerne expresses the wish that careful management may do something for the patient, he was not hopeful of recovery. The earl died on May 24th, 1612.

Mayerne was consulted during the fatal illness of Henry Prince of Wales in 1612, and drew up an excellent account of the symptoms, treatment, and *post-mortem* appearances, from which, as I have elsewhere shown, it is easy to establish that the Prince died from enteric fever, of which there was an epidemic in London at the time of year at which at the present day enteric fever is almost invariably present in this city. So excellent are the notes of Mayerne that it is fair to say that nothing but the pathology of his time prevented him from being the first recognizer of enteric fever. Many, he says, had a similar fever in the summer of 1612. It usually began like a tertian but soon became a continued fever. In those who recovered it lasted a long time. Delirium, stupor, and convulsions often occurred. Haemorrhage sometimes ended the case. There were spots like flea bites in many cases. The disease was not contagious, nor did one infect another, but sometimes many were sick at the same time in one house. The memoir which he drew up in December, 1623, on the health of James I is a good example of Mayerne's method. It exists in his own characteristic handwriting in the British Museum,[3] and is in Latin.

This excellent account shows how Mayerne behaved as a clinical observer—noting everything; considering no point of the patient's history unworthy consideration; weighing the whole in relation to treatment and to prognosis. It was his invariable method. He began by a minute series of observations of the symptoms; then mentioned in succession the remedies which had been tried; then discussed and determined the diagnosis and the several parts of the prognosis; and concluded by an elaborate statement of the treatment to be adopted. That he felt the spleen is shown in his notes on Lord Salisbury, and that he examined by palpation the liver is shown by the case of M. la Natier Greffier, in which he says,[4] "Hepatis qualitas non potuit explorari ob musculorum et cutis diductionem."

Mayerne's notes on Queen Henrietta Maria contained in the same manuscript book show equal care. They were written out in July, 1641, when the Queen was about to cross the sea, "to cure her mind no less than her body," says the note.

> Some swelling of liver and spleen, frequent swelling of the gums and painful teeth, several renal calculi, frequent cough, sleepless nights only soothed by syrup of poppy (never by laudanum), herpes of the upper lip, occasional inflammation of the right eye, and of the eyelids, recurring headaches, curvature of the spine (scoliosis), the arm and hand of the right side thinner than those of the left, extreme general wasting and as regards affections of the mind (animi pathemata) anger violent but brief, long sadness, frequent tears.

The details are carefully recorded, and besides showing the excellence of Mayerne's clinical observation present to us a picture of the Queen of Charles I which, placed beside the lady so thin and pale with some grace but no cheerfulness in the canvases of Vandyke, enables us to understand how her troubles in the world must have affected her, and leads us to judge leniently any defects of manner or disposition in her and to attribute them not to a fiendish nature, as did her political opponents, but in great part at least to a physical condition which must have greatly detracted from her enjoyment of life.

Many other of Mayerne's clinical descriptions of patients are as good as those of these royal persons.

Mayerne left his library to this College, but it was not till 1700 that a volume in folio of his notes was printed by Dr. Joseph Browne. His book contained full notes of more than 40 cases observed by Mayerne, the report and papers about the case of Henry, Prince of Wales, a letter to the King's physicians about the health of James I and Charles I, then Prince of Wales, the letter to Harvey at Newmarket on the health of the Elector Palatine, and a long series of notes on the illness of Isaac Casaubon, in which are incorporated the notes of Raphael Thorius, the author of the poem on tobacco, who attended him. Notes on pharmacology and a long series of prescriptions for King James, King Charles, and Queen Henrietta Maria are also printed, and some notes on her health.

A great part of Mayerne's papers became the property of Sir Hans Sloane and are now in the Sloane Collection in the British Museum. They show not only Mayerne's industry as a clinical observer, but his extensive learning and constantly studious mind. Twenty-three volumes of his notes of varied kinds have been preserved, and these, together with those printed by Dr. Joseph Browne, are the material for our estimate of him as an observer. His general plan was to divide the note into two parts; the first, called "Theoria," gives an account of the history and symptoms and the conclusions drawn from them; the second, headed "Curatio," deals with the treatment in great detail, and to increase the clearness of this he sometimes adds a *recapitulatio ordinis agendorum*.

Sir T. Mayerne's portrait hangs on our staircase.[5] In the dining-room is that of Francis Glisson, President in 1667. He is the first English writer of a complete account—that is, an account, both anatomical and clinical—of a particular disease. His *Tractatus de Rachitide* appeared in 1650. It deserves high praise as an example of clinical observation as well as of pathological anatomy. Glisson's method consisted in placing side by side all the facts relating to the disease he was studying. He does not allude by name or number to particular patients, yet shows by the precision of his statements that each rests upon many carefully-noted observations. He collects the symptoms of rickets under three heads: *diagnostica*, which demonstrate its presence; *diacritica*, which distinguish the varieties; and *prognostica*, which presage the issue of the disease. The thorough discussions of terms and the minute and precise arrangement which he follows give a scholastic appearance to his pages which is apt to make any one who merely glances at his book think that Glisson is less an observer of Nature than he really is. When he discusses the diagnostic signs he does so under five heads: (1) Symptoms which have to do with the animal functions; (2) those which have to do with irregular nutrition; (3) those which have to do with respiration; (4) those which belong to the vital influx, as we should say to the circulation; and (5) certain definite symptoms not belonging to the above classes. Under the first head he places flabbiness of the muscles, weakness, and sluggishness, and describes each with admirable clearness and entirely from clinical notes. "If," he says in the section on debility, "children are affected within the first year or thereabouts they stand on their feet later than usual owing to that disability and often speak before they can walk, which is generally thought by the English to be of evil omen. If children are attacked by this disease after they have learned to walk, they stand on their feet more feebly by degrees and when walking often hesitate, stagger from a slight cause, or even fall, nor are they able to stand long without sitting down, or to quicken their movements. At last, as the disease increases, they are deprived of the use of their feet; indeed, they can scarcely sit upright, and the weak neck sustains the weight of the head imperfectly or not at all." Under the heading of symptoms due to malnutrition he describes—the large head, the feeble muscles, the enlarged wrist, the bent bones, the retarded dentition, and the pigeon breast. Professor Virchow, in his Croonian lecture of 1893 praised Glisson as the discoverer of muscular irritability. He is perpetually commemorated as an anatomist. Whoever studies his *Tractatus de Rachitide* will be convinced that he also deserves recollection as one of the first followers of thorough clinical study in England, and Sir Michael Foster in his interesting lectures on the History of Physiology has shown that in his *De Ventriculo* Glisson "was the first to give the exact proof that when a muscle contracts it does not increase in bulk."

The method of Christopher Benet in his *Tabidorum Theatrum sive Phthisios Atrophiae et Hecticae Xenodochium*, published in 1656, is similar to that of Glisson, and he seems to have lost his life by infection during his experiments in relation to the sputum of phthisis, which he carefully collected and observed.

As Mayerne may be said to have first definitely estab-

[3] Sloane. 1679. [4] *Opera*, p. 216.

[5] In the British Museum there is a magnificent drawing of him by Rubens, probably done between 1630 and 1640. The head is in oils and finished with extraordinary vigour and perfection. The rest of the portrait is in crayon.

lished in England the clinical study of medicine and the method of recording observations, and Glisson to have set the example of the study together of the symptoms and the anatomical appearances of disease, so Sydenham may be regarded as the first who attempted to arrive at general laws about the prevalence and the course and the treatment of disease from clinical observation.

How admirable is Sydenham's account of measles, and, when it is compared with the books of his time and before, how original, how clearly he describes the onset and the method of appearance of the rash, and how well contrasts the circumstances which attend it with those of small-pox! "The symptoms of the measles do not abate by the eruption as in the small-pox, yet I never observed the vomiting afterwards, but the cough and fever increase with the difficulty of breathing, weakness of the eyes and the defluxion on them, with continual drowsiness and want of appetite as before." His obvious originality is one reason for the great repute of his writings, and this originality is due not merely to his having thought differently but also to his having seen more than his predecessors. Though Sydenham's is a general account, it is as distinctly based upon many clinical observations as if the notes of the cases he had seen were appended.[6] Of the score of cases which he particularizes, most are mentioned in illustration of points of treatment; but those of Thomas Chute, nephew of Lady Dacres, a young man with small pox, and of Malthus[7] the apothecary, who had a chronic arthritis, are excellent illustrations of his daily observations.

A great mind constantly occupied in arguing within itself on observations must sometimes furnish incomplete conclusions and imperfect hypotheses; and though Sydenham says, when discussing the possible relation between certain visceral symptoms and the size of the pustules in small pox, "I do not determine, for I only write a history and do not pretend to solve problems," he elsewhere tries to argue out a general pathology of fevers.[8] "A fever," he believes, "is Nature's instrument to perform the separation of some matter from the blood." This is the process "also in the plague."

His description of the severe neuralgia which sometimes is the last symptom of a malarial fever, and his determination of the fact that it really belongs to the disease and must be treated in the same way, is a remarkable example of his close observation:[9]

> But here it is to be noted that I have observed a certain symptom, sometimes like a nephritic pain, as to the intolerable pain of the loins, which being wont to follow ague, arises from a translation of the febrile matter upon the muscular parts of the body, but this symptom requires no other method of cure than the ague whereon it depends, for it is heightened by frequent bleeding, or any other evacuation, and the patient's life is endangered thereby. I thought good to mention this much of this symptom, that it might not impose on anyone.

The neuralgia is sometimes so severe and so different from what has gone before, and so remote from the beginning of the disease, that it seems more like a separate morbid condition; but Sydenham perceived its actual relation to the disease. His description of gout and of hysterical diseases and of chorea are further examples, too well known for me to quote, of the minuteness and precision of Sydenham's clinical observations. He scarcely considers morbid anatomy, but endeavours to determine the species and ascertain the course and the treatment of diseases by clinical observation only.

This is the general method of the Hippocratic writings, and thus, while Sydenham is often regarded as the originator of modern medicine, his works might also be considered the culmination of the effects of the Renaissance.

The writings of Thomas Willis contain many cases, but it is clear that he only took a general view and did not make frequent precise observations. After a short account he generally proceeds to discuss the pathology, and this is so even in his accounts of saccharine diabetes, of which he is generally regarded as the first describer. Willis, like Glisson, discusses the morbid anatomy of his cases. He often uses them to illustrate pathological doctrines rather than as studies in the natural history of disease. His interesting descriptions of the illness successively of five children in a family—cases, I think, of scarlet fever with subsequent uraemia—are perhaps the best clinical reports to be found in his writings. His account of the case of Lord Shaftesbury, who had a hydatid cyst of the liver, which was opened, when compared with the precise description of the same case by Locke, shows that Willis often wrote from memory and not from notes made day by day. His works contain more hypotheses than minute observations.

A clinical observer whose works show the practice of generalization from clinical observation as well as the careful records of the events of disease as observed at the bedside is Richard Morton, who became a Fellow of this college in 1678 and died in 1698. His *Phthisiologia*, a treatise on wasting diseases, contains numerous cases showing careful clinical notetaking and judicious deduction from his observations, and so does his *Pyretologia*, a general treatise on febrile diseases. He belongs to the school of Sydenham, but he makes a more general use of morbid anatomy and describes more cases.

The physicians whom I have mentioned, Caius and Harvey, Mayerne and Glisson, Sydenham and Willis and Morton, were of course not the only clinical observers of their times. We may be certain, for example, that Lower, who so acutely reasoned on the causes of dropsy, followed the same method. Mayerne, Glisson, and Sydenham are the three clinical observers of the seventeenth century whose work deserves the first place, Mayerne and Sydenham gave themselves up almost entirely to bedside observation. Glisson, while equally assiduous at the bedside, was also a morbid anatomist. Glisson's mind most naturally turned towards the discovery of pathological laws and to questions of etiology. Mayerne and Sydenham were most occupied with the solution of problems of treatment and of prognosis. All three were close observers of Nature. Glisson was a discoverer in anatomy, for he described the capsule of the liver; in physiology he first perceived the irritability of tissues; in clinical medicine he first described completely a disease not known in the world of science before him. Sydenham had on the whole the greatest influence on times after him. Mayerne was a less man than Glisson and Sydenham in times to come, but in his own day was a great and noble figure of vast attainments, of lifelong mental activity, and in his own time an influence to make all men bedside observers. All three observed carefully the general aspect of the patient and all the external features of his body. The breathing, the character of the pulse, the state of the tongue, the locality of pain, the indications of fever, the excreta, and the appearances of extracted blood were considered. Tumours were felt and the degree of dropsy estimated. Any impairment of the senses or of muscular power was noted. The liver and the spleen were examined by palpation. The history was carefully considered and facts bearing on heredity were recorded.

This was the extent to which observation at the bedside was practised by these physicians. Mayerne seems most in personal relation to the patient, thoroughly investigating his mind and body; Glisson is most considerate of the interpretation of well-observed symptoms given by the morbid anatomy. Sydenham had always before him the endeavour to establish general laws in relation to disease and hoped to do so by a precision of description such as that of the botanists in the description of plants. It is to Mayerne, Glisson, and Sydenham that the establishment of the study of clinical medicine in England is due.

[6] Of the Epidemic Diseases from the Year 1675 to the Year 1680.
[7] I suppose this Malthus was the ancestor of the political economist, since Sydenham was used as a Christian name in more than one generation of his family.
[8] Of the Continual Fevers in the Years 1667, etc.
[9] Of the Epidemic Diseases from the Year 1675 to the Year 1680.

Dame Marian Saunders of Wimbledon Common, widow of the late Sir Edwin Saunders, for many years Surgeon Dentist to Queen Victoria who died on August 9th, gave by her will £1,000 to St Thomas's Hospital, for the endowment of a bed in a male ward in memory of her husband, and £100 each to the following institutions: The Westminster Training School and Home for Nurses; the Chelsea Hospital for Women; the Royal Medical Benevolent College, Epsom; the Earlswood Asylum for Idiots; and the National Blind Relief Society.

Under the will of the late Mr. Daniel Stock of Streatham, the Essex Hall Asylum for Idiots, the Colchester and Essex Hospital, and the Royal Hospital for Incurables, Putney, each receive a sum of £25.

DAVOS PLATZ.

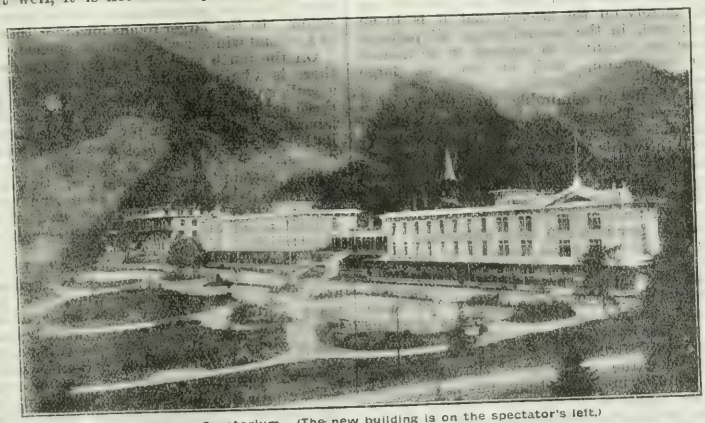
II.

Sanatoriums and Hotels.

There is always a tendency in invalids when they first arrive in high altitudes to suffer discomfort until they have become acclimatized, as already said. The climate stimulates the various systems of the body; there is an acceleration of the pulse, and respiration is more rapid. The unusual activity of the various systems causes such temporary discomforts as sleeplessness or disturbed sleep, palpitation, or slight attacks of faintness. It is desirable, therefore, that patients should break the journey at some intermediate station. In the case of Davos it would be well if they stayed first at some place on the Lakes of Geneva or Lucerne, or at Ragaz (521 metres) or Seewis in the Prättigau (910 metres). It is considered by many authorities that patients over 60 years of age should not be sent to the mountains, but others have seen good results in many cases.

The next question that arises is, Where are patients to be sent—to a sanatorium, to a hotel, or to a private house?

All these exist in numbers in Davos, and as they have been built expressly to take in patients the aspect as a rule is carefully chosen, and every room has a balcony. So that for serious patients, who go there meaning to do their best to get well, it is not necessary to go to a sanatorium. By far the larger element, unfortunately, are young people who, on account of their youth, are inclined to be careless, and to do too much. For such cases the sanatorium routine is important, because a doctor is always present to exercise a wholesome discipline.



The German Sanatorium. (The new building is on the spectator's left.)

There are numbers of hotels; one or two profess to refuse admission to consumptives, but the others take them in, and the only condition made is that they pay for the disinfection of their room when they leave. The system of indiscriminately herding together the sick and the tourist cannot be too strongly condemned in the interests of both. The mere traveller arrives, and, quite unconscious that he is entering a sort of hospital, wonders, as he is shown room after room, why they smell so oddly. He hesitates to choose a room, but it is perhaps late and he does not know Davos, and so he takes one, and presently is made aware, by fits of coughing, more or less severe and incessant in the next rooms, that his neighbours are very ill; then he begins to realize that the queer smell of his room is that of some disinfectant, probably formalin. He tries to persuade himself that the cough is merely bronchial, but he is not reassured when, as happened to the writer of this article, he sees carelessly thrown in the lavatory a quantity of sputum, the thrower not having had the common decency to wash it out of sight. This would not be tolerated in a sanatorium purely given up to consumptives, and is doubly to be condemned where healthy people are concerned. When in a first-class hotel there is no room and no appliances for disinfecting sputum, it can readily be imagined that the same carelessness reigns in other departments. From the sick person's point of view, the conditions are unfavourable also. Phthisical patients seldom realize how serious their condition is, and it is a great temptation to them to do too much when they are mixing with healthy people able to amuse themselves: climbing, skating, ski-ing, dancing, and doing numbers of things unsuitable to invalids.

We next come to sanatoriums. There are eleven private sanatoriums in Davos and three public—the German, the Basle, and the Dutch. There is an English Home and funds have been collected for an English sanatorium; the Committee has acquired a site, but is not yet in a position to build. In the best private sanatoriums, the average charge per day for room, pension, light, heating, baths, and medical treatment is from 10.50 fr. to 20 fr., and often more. The English home and the German, Basle, and Dutch sanatoriums are for middle-class and indigent patients of the nationalities in question.

The charge per diem in the large hotels and boarding-houses for room, pension, heating, and light is from 9 fr. to 18 fr. The smaller hotels are cheaper, and small boarding and lodging-houses exist where the charge is only from 4 fr. to 7.50 fr. Villas and furnished flats are hard to get, as they are generally let a long time ahead.

Patients should be advised to take a south room with a balcony in order to do the cure with as little fuss and fatigue as possible. Good air in the open is one of the greatest essentials in the treatment of pulmonary tuberculosis. It is claimed that strict sanatorium treatment is also a necessity, and if the two can be combined so much the better. The life will be monotonous, but the patient will be under constant supervision and will be prevented from spoiling his chances of recovery by doing foolish things. This, of course, is true only if the sanatorium is conducted on ideal principles. Unfortunately, in the private sanatoriums, as they are at present conducted, the windows of the patient are left to his own discretion. There is still a strong prejudice against night air, and it may be taken that as a rule bedroom windows are closed at night. The rooms, which are warmed by means of stoves and pipes, often become greatly overheated, and without proper fresh air this must produce an extremely debilitating and unhealthy effect.

The open air cure consists of a judicious combination of rest and exercise out of doors. Patients must be gradually accustomed to be in the open air all day long. As a rule they easily get used to it, especially where not suffering from fever. The chief object of the open-air life is to increase the resisting powers of the individual. Moderate exercise followed by complete rest in the open air are essential factors. The appetite is usually stimulated in the mountains and metabolism becomes more active, causing better nutrition, so that it is possible to feed up patients, milk being considered particularly useful.

The ordinary routine in a sanatorium is six meals a day, and about ten hours in the open air—three and a half walking, five and a half lying down, and one sitting. The routine varies according to the condition of the patient and the views held by different practitioners. Hydrotherapeutic treatment also is generally provided, including dry, wet, and alcoholic friction and the douche, all intended to harden. Respiration through the nose is strongly advised.

The treatment generally recommended for tuberculous patients with fever is rest in bed until the fever has completely disappeared. The room and balcony should be so planned that the bed of the patient can be moved into the balcony, protected from excessive sun and wind by awnings. Statistics prove that fever usually abates more

rapidly in high altitudes than in low, but sometimes the assistance of drugs is necessary; with this exception, they are used as little as possible. Alcohol is regarded as dangerous, although brandy may be prescribed for patients suffering from fever or pneumonic processes.

Haemorrhage is treated by rest in bed and narcotics. Subcutaneous injections of adrenalin recently recommended by Voigt have been found to have an excellent effect. The injection consists of from ½ to 1 c.cm. of a 1 in 1.000 solution of adrenalin. The patient at first experiences palpitation and a feeling of discomfort, but in a favourable case within an hour or so the bleeding is arrested, and the sputum from red becomes brownish.

Of late years the specific treatment by injection of Koch's tuberculin has been essayed here and there, and it would seem that the prejudice against it is disappearing. The results gained in the German sanatorium, where the treatment by tuberculin is scientifically carried out, are of peculiar interest.

The German Sanatorium.

Of the many sanatoriums at Davos, by far the most interesting from the medical and pathological points of view is the Deutsche Heilstätte für minderbemittelte Lungenkranke (German sanatorium for middle-class patients). Its interest lies partly in the design and construction of the building itself, but mainly in certain special features of administration and treatment.

In the first place, while early cases are received, no case is refused merely on the ground that it is in an advanced stage; and, in the second place, all patients before admission are required to consent to be treated specifically by tuberculin, and, in fact, the large majority are so treated.

The buildings occupy an admirable site a little to the north-east of Davos. There are no houses in the immediate neighbourhood. The ground has a gentle slope to the south, and all the wards and bedrooms have a southern aspect. It originally provided for 85 patients, but a new wing opened at the end of 1905 increased the accommodation to 120; and there are also two small guest houses into which 10 more patients can be admitted, so that the institution provides 130 beds altogether. The applications for admission, however, are still in excess of accommodation, for on December 31st, 1905, the number of applicants awaiting their turn for admission was 148. Of the 187 admitted during 1905 the majority, 100, came from Prussia and the remainder from various German States, only 1 person from a foreign country (Russia) having been received.

The construction of the older part of the sanatorium presents many points worthy of study, but as the new wing embodies the results of the experience gained by the medical staff and architects from several years' work, and from inspection of other similar institutions, we propose to confine our description to this new wing, which has been named the Kaiser Wilhelm II Haus, in recognition of the interest which the Emperor has shown in the institution and his generous contributions to the building fund.

The Haus is a detached and almost independent structure about fifty yards west of the main building, with which it is connected only by a gallery on the ground floor. It is reserved for the severest cases, who are thus not only isolated from other patients in a less-advanced stage or convalescent—an advantage from the point of view of the possibility of infection—but are also themselves quieter, being a little removed from the bustle which necessarily attends an institution containing 85 patients or more, many of whom are preparing to return to active life. It may be described as the hospital of the sanatorium, where the patients requiring absolute rest and quiet, constant medical supervision, and most careful nursing are treated.

It is a building of four stories: two main floors, a basement, and a second floor occupying only the centre of the frontage, which measures about 153 ft. The total depth is about 41 ft., and the general plan shows a long corridor running east and west, with the bedrooms to the south and the administrative rooms to the north. On the ground floor are three single bedrooms, two rooms with two beds, and a large day-room for patients able to leave their beds; on the first floor are nine single rooms, two rooms with two beds, and one with four beds; on the fourth floor one single room and one room with four beds. The dimensions of a single-bedded room are 9 ft. 6 in. by 14 ft. 9 in. by 10 ft. 10 in., giving a cubic space of a little over 1,500 cubic feet. The rooms with two beds have a cubic space of about 1,440 cubic feet for each patient, those with four beds of from 1,190 to 1,310 cubic feet for each patient. In addition to the day-room on the south side there is on the ground floor on the north side a large dining-room for the use of patients able to get up.

At the front of the house on each floor is a long roofed gallery or verandah; the bedrooms open directly on to it, and the patients can therefore reach their reclining chairs with no more exertion than is involved in walking the length of their bedroom, while in the case of those not allowed to get up the bed can in a few moments be rolled on to the verandah. It is 7 ft. 4 in. wide, and is divided up into compartments by glass partitions as may be necessary. The bedsteads are of iron lacquered white, and the furniture, which is of simple design, is painted white.

The house is built of stone, but the party walls, floors, doorways, and window sills are of cement or concrete. The walls are covered with a material called "salubra," easily cleaned, and having a white ground and coloured pattern, giving a bright, cheerful appearance to all the rooms and corridors. Each bedroom, as has been said, opens on to the open-air gallery or verandah by a large glass door wide enough to allow the bedstead to pass, but there is also a double ventilating louvre window above the door, the outer pane swinging from above, the inner from below. In the larger rooms for more than one bed there is a second window which can be opened.

On the north side of the main corridor on each floor there is a bathroom, lavatory, pantry with cooking range, a scullery, and other service rooms. On the ground floor there is an examination room, and in the basement a laboratory and a room for the disinfection of sputum. Bathrooms are provided also for the medical staff and nurses.

The second story, containing two single rooms—one room with four beds, a sister's room, bathroom, pantry, scullery, and lavatory—can, if necessary, be worked as an independent unit and used as an isolation department.

The Medical Director, Dr. Brecke, in his description of the house, condemns staircases for sanatoriums. They are, in the first place, even when new, dust-traps with many corners, and very soon get cracked and out of repair, affording fresh places for the lodgement of dust. In the second place, the exertion of going upstairs may be very injurious to phthisical patients, making an undue demand on the heart, which is so often weakened by the disease. In this new building, then, a staircase has been replaced by an inclined plane or ramp, with a gradient of 1 in 10, winding round a large oblong hall, which is a striking feature of the house. It ends at a door opening into the grounds, and close by this door is a large room for outdoor clothes.

The majority of the 187 patients discharged during 1905 belonged to what would be called the lower middle class—shopkeepers, clerks, post and railway employés, and public-school teachers. There were also some students in various faculties and a few professional men. Of the 187 patients, 115 were males and 72 women; 137 were between the ages of 16 and 30, 3 were under 16 years, and 31 between 30 and 40 years of age.

With regard to the condition of the patients on admission, 27, or 14.4 per cent., are stated to have been in the first stage; 91, or 48.7 per cent., in the second; and 69, or 36.9 per cent., in the third stage.

The period for which patients remained in the sanatorium varied from one or two months to two years, the duration being determined solely by medical considerations, the pernicious system of subscribers' letters being unknown. The majority stayed from three to twelve months; 81 patients when they left were fit to return to work, and of these 75 had been inmates for a year or less (51 for seven months or less). The general results are thus stated: Of the 187 patients discharged during 1905, the number improved was 155 (82.9 per cent.), unimproved or worse, 31 (16.6 per cent.), died, 1. With regard to the physical signs, in 56, or 30 per cent., only very slight evidence of disease persisted at the time of discharge; in 95, or 50.8 per cent., there was improvement in the local signs; and in 4, or 2.1 per cent., no improve-

ment. With regard to fitness for work, 81, or 43.3 per cent., were returned as fit for work; 60, or 32.1 per cent., as partially fit for work; and 14, or 7.5 per cent., as not fit for work.

Table Showing Condition on Admission.

	Tubercle bacilli in sputum.	Tuberculin reaction.	Fever.	Haemorrhage. Before admission.	Haemorrhage. Early.	Pulse quickened.	Tubercle of— Larynx.	Tubercle of— Glands.	Tubercle of— Intestine.	Albuminuria.
Number...	99	167	79	85	39	95	27	42	15	29
Per cent...	52.9	89.3	42.3	45.5	20.9	50.8	14.4	22.5	8.0	15.5

The diet given to a patient at the sanatorium is as liberal as his condition will permit; there are four classes of diet in use—ordinary, intermediate, light, and milk. The ordinary diet and life of a patient doing well is: First breakfast when called at 7.30 a.m.; second breakfast at 10 a.m.: milk porridge, bread and butter; dinner at 1 p.m.: soup, meat, salad, pudding, *compôte*, etc.; at 4 p.m. *café au lait*; supper at 7 p.m.: soup, meat, salad, vegetables; at 9 p.m. milk; at 9.30 bed.

The sanatorium has its own dairy farm, all the cows are tested with tuberculin, and the dairy is under skilled supervision to ensure cleanliness and freedom from every source of infection.

Over and above any beneficial effect which may be attributed to the special influence of the high altitude of the sanatorium (about 5,200 ft. above the sea), the results obtained there as compared with those of other sanatoriums where the patients are treated by open-air methods combined with a liberal diet, must be set down to the systematic use of the specific treatment by old or new tuberculin. This has been resorted to with increasing frequency; in 1902 the number of cases thus treated was 54, in 1903 it was 115, in 1904 it was 128, and in 1905 it was 153.

During 1904 and 1905 every patient whose condition did not distinctly contraindicate its use was submitted to diagnostic injection with tuberculin immediately after admission. The amount of the first injection of old tuberculin was 0.1 mg., and gradually-increasing doses were given on alternate days—0.4 mg., 1 mg., 4 mg., 10 mg.—until a definite reaction occurred. Used in this way no unfavourable results were observed, and the certainty of diagnosis which the method affords is considered to be valuable not only from the scientific, but also from the practical, point of view. In slight cases, in which the symptoms and physical signs are not well marked, a reaction to tuberculin clinches the diagnosis, and convinces the patient and his friends that prolonged treatment is really necessary. Again, the amount of the dose required to produce reaction, and the nature of the reaction, which varies very much in different patients, are often of the greatest value in determining diagnosis, prognosis, and treatment; a local reaction in glands, kidney, intestine, or in the other lung, or the effect of the injection on the heart may give important information. Finally, the early diagnostic injections provide data for an opinion later on as to the reality of apparent recovery, for it is the practice of the medical staff to follow up their patients after they have left the sanatorium, and to arrange that they shall be tested again with tuberculin after a period of three months has elapsed.

In using tuberculin therapeutically, either the old or the new (bacillus emulsion) is used according to circumstances. If the patient has not suffered from fever, the new tuberculin is preferred: in patients who have ceased to have fever the old tuberculin is used from the first, as it has been found that the bacilli disappear more quickly from the sputum than with new tuberculin. The initial dose of new tuberculin is 0.001 mg., and the amount is gradually raised to 5 mg., or even in a few cases 10 mg. With old tuberculin the first dose is 0.1 mg., and the effect on the temperature, pulse, weight, and general and local condition is the guide to the repetition of the dose, or its gradual increase; as large an injection as 1,000 mg. is often given, and even this is sometimes exceeded. The patient must of course be kept constantly under observation, and evidence of extension of the lung disease, or of new tuberculous complications, quickening of the pulse-rate, or a protracted reaction, all call for the greatest care, especially when new tuberculin is being used; on the other hand, a well-marked reaction, with a rise of temperature to 38.5° C. (101.3 F.°), is to be desired.

Haemoptysis calls for watchfulness, but not as a rule for suspension of the treatment. If the repetition of the same dose causes as marked or a more severe reaction, or loss of appetite or weight, or severe nervous symptoms, then the next dose must be smaller. The following table, founded on a table in Dr. Brecke's report for 1905, shows the results of treatment with and without tuberculin, but it must be remembered that in the cases in which it was not applied there was some very distinct contraindication.

Table Showing Results of Treatment With and Without Tuberculin.

No. of Cases.	Stage.	Improved. Fit for Work.	Improved. Partially Fit.	Improved. Unfit.	Improved. Total.	Unimproved or Worse.	Died.
		With Tuberculin.					
26	I	25	1	—	26	—	—
78	II	43	27	5	75	3	—
49	III	10	29	5	44	4	1
153	I-III	78	57	10	145	7	1
Per cent.... ...		51	37.3	6.5	94.8	4.6	0.6
		Without Tuberculin.					
1	I	—	—	—	—	1	—
13	II	3	—	3	6	7	—
20	III	—	3	1	4	16	—
34	I-III	3	3	4	10	24	—
Per cent.... ...		8.8	8.8	11.8	29.4	70.6	—

In 14 cases tuberculin injections were given for diagnostic purposes only; in 153 tuberculin was used as a therapeutic agent; injections were therefore given in 167 cases, and in every one there was a reaction evidenced by a rise in temperature. In 10 of these cases a test injection, given three months after the last therapeutic injection, in most instances after the patients had left the institution, was not followed by any reaction. The staff of the sanatorium do not employ the word "cure," but it may be permitted to others to hope that it is applicable at least to these 10 cases. Considering that this method of treatment is still comparatively new and that the cases are not selected, this is a result not altogether to be despised. It is possible that were the treatment controlled by systematic estimations of the opsonic index of the blood it might be applied with more certainty and confidence, with a corresponding improvement in the results.

With regard to the 69 severe cases in the third stage treated during the year the following particulars are given: 4 at the time of their discharge were so much improved that only very slight physical signs could be observed; in 42 there was considerable improvement in the physical signs, 10 were fit for work and 32 partially fit for work. In 60 of the 69 bacilli were present in the sputum on admission, and in 16 (26.6 per cent.) they could not be found at the time of discharge from the sanatorium.

The sanatorium, as has been said, stands at some distance from the town of Davos, and is surrounded by its own grounds. In suitable cases the patients are allowed to do light gardening, but they are not as a rule encouraged to indulge in outdoor amusements or to take much exercise. There is a miniature rifle range and a croquet ground, and there are some easy footpaths, but in this institution

the business of getting well is held before the patient as his first duty, and to this every other consideration is subordinated.

The cost of the buildings has been defrayed by public subscription, but the institution is now self-supporting. The payments made by or for patients are as follows: In a single room 5 marks, in a room with two beds 4.50 marks, in a room with four beds 5.50 marks a day.

TUBERCULOSIS AMONG SCHOOL CHILDREN IN PARIS.

[From our Paris Correspondent.]

At the last meeting of the Académie de Médecine Professor Grancher made an important communication on the results of an inquiry he has been conducting with a band of collaborators on the frequency of glandular and pulmonary tubercle among the children attending the primary schools in Paris. The examinations of the children began on November 23rd, 1903, and were continued until the end of June, 1906, in all 4,226 children (2,318 boys, 1,908 girls) were examined.

Method of Examination.

The method employed to discover tubercle in these children was purely medical—that is, inspection, palpation, auscultation, and percussion. The physical signs appear always in the same order, and Professor Grancher and his pupils have found that, on examining with care, it is possible to recognize before the first period of Laënnec and the classical authors three stages in which the pulmonary lesions, easily recognizable, allow a certain diagnosis to be made.

The first sign, which precedes all others and which is sufficient to characterize the first stage, is an alteration in inspiration, localized at one apex. When it is fixed and permanent it is a sure sign of a lesion. The child's general health, also, is affected; he is generally paler than his fellows, thin, coughs, and gets easily out of breath. Enlarged glands are nearly always found in the neck, axillae, and groins. If the anomaly—usually feeble inspiration—is found over a whole lung, back and front, it is considered to be a sign of enlargement of the intra-pulmonary glands. The compression of blood vessels, nerves, and bronchi seems to produce general perturbation of the function of one lung.

The second stage has two physical signs—the same altered inspiration and slight bronchophony.

The third stage has three physical signs—abnormal inspiration, bronchophony, and slight alteration in percussion note.

When prolonged expiration, and especially crepitations, appear, all the signs of the first stage of Laënnec are present; but it is already very late to treat pulmonary tubercle, for the elimination of bacilli, the evidence of lung necrosis, is almost contemporaneous with this so-called first stage.

Morbidity.

Children recognized as healthy, that is, 84 to 85 per 100, were only examined once. Suspicious cases were examined three times (November, 1903, March and June, 1904), and only if the physical signs were persistent after these three examinations was the child classified as affected. In June, 1906, a special examination was held of the 103 children who during two and a half years had been treated with cod-liver oil and powdered meat given at school.

The two extremes of morbidity were found among the boys at the rue Blomet School, with 11.167 per cent. affected, and the boys of the rue Championnet School, with 19.55 per cent. of tuberculous cases. The average is, therefore, about 15 per cent. The largest number were in the first stage, with feeble inspiration, more especially at the right apex. Among the 4,226 children examined, only three had bacilli in the sputum; they were sent to hospital, but the others being non-contagious remained at school.

Treatment.

The treatment attempted for the affected children was to give them an extra meal at school of one or two spoonfuls of cod-liver oil and one or two tablespoonfuls of powdered meat: 103 children were thus treated during more than two years with the following results:

Stationary	Girls...	34	47.
	Boys...	13	
Improved	Girls...	22	36.
	Boys...	14	
Worse	Girls...	3	20.
	Boys...	17	

These results showed that the treatment was insufficient, the number of children improved being insignificant. The children, however, whose lesions remained stationary increased in weight and height in the correct physiological proportion, but Professor Grancher considers that the majority of these cases of tubercle will not recover without any treatment.

Conclusions.

Professor Grancher believes that tubercle of the glands and lungs in children is curable. To cure it he advises:

1. Its recognition at its very start by systematic examination, which allows the three stages which precede the classical first stage of Laënnec to be recognized. It is in this early period that tubercle is most easily curable.

2. Treatment by a supplementary meal at school is not to be counted on; it scarcely improves the condition of a few children, leaves the majority stationary, and does not prevent the rest from becoming more seriously affected.

3. To fight tubercle at its origin in children it is necessary that the treatment should be more serious and more prolonged. The parents with their slender means are alone unable to do what is necessary, but the Municipal Council of Paris can.

Two methods Professor Grancher said were open to it:

(*a*) By placing the children with slight tuberculosis without expectoration in families in the country, paying a sufficient sum to give them proper hygiene, continued fresh air, and over-feeding. The child would attend the communal school, and be watched by the local doctor. The great objection to this plan was the possibility of the tubercle becoming open and the child infecting the family with which it lodged.

(*b*) For this reason and to secure better treatment, Professor Grancher advised that for a few years an experiment should be made by placing the children recognized as affected in a sanatorium school, where they would continue their studies under the supervision of a doctor who would regulate not only the air cure and the necessary dietary, but also the hours of work, gymnasium exercise, recreation, etc. Two of these schools in the suburbs, one for girls and one for boys, would be sufficient, and in two or three years it would be possible to judge of their value from the results obtained.

RESEARCH SCHOLARSHIP.

One of the scholars having resigned the scholarship awarded him in June last, the Council of the British Medical Association is prepared to receive applications to fill the vacancy thus created.

The scholarship is of the annual value of £150, and is subject to renewal by the Council provided that the whole term of office has not exceeded three years.

The scholarships exist for the encouragement of research in anatomy, physiology, pathology, bacteriology, State medicine, clinical medicine, and clinical surgery.

The scholars' work shall be subject to inspection.

Applications for scholarships must be made on forms to be had of the General Secretary, and returned on or before December 31st, 1906.

N.B.—Applications for scholarships and grants should, as a rule, be accompanied by a recommendation from the head of the laboratory in which the applicant proposes to work, setting out the fitness of the candidate to conduct such work, and the probable value of the work to be undertaken. This is not intended, however, to prevent applications for grants in aid of work which need not be performed in a recognized laboratory.

Guy Elliston,
429, Strand, W.C., November 10th, 1906. General Secretary.

By the will of the late Mr. William Thomas Symonds, of Croydon, sums of £200 each are directed to be paid to the Croydon General Hospital and the Royal Hospital for Incurables at Putney.

LITERARY NOTES.

Messrs. Methuen and Co. have recently published a book entitled, *The Coming of the Saints: Imaginations and Studies in Early Church History and Tradition*, by Mr. John W. Taylor, which has been favourably noticed by the *Athenaeum* and other journals. The author is the well-known Professor of Gynaecology in the University of Birmingham, and Senior Surgeon to the Birmingham and Midland Counties Hospital for Women. He says the traditional mission of St. Mary Magdalene, St. Mary Cleophas, St. Lazarus, St. Zaccheus, St. Restitutus, and St. Joseph of Arimathaea to Gaul is supported by the uniformity of the tradition in various places, and by such fragments of history as have come down to us. He points out that the traditional route taken by the Saints follows that of the Phoenician tin trade with Britain. Following that route, St. Joseph of Arimathaea ultimately reached Cornwall, thence making his way to Glastonbury, where he died. The book is charmingly written, and, like the children with their fairy tales, one would like to believe the story true.

Ignorance and superstition have always barked, like ill-conditioned curs, at the heels of advancing science, and they always will, "for 'tis their nature to." In the Dark Ages the scientific experimenter was looked upon as seeking knowledge from the powers of evil, and was lucky if he escaped being burnt. In modern days chloroform was denounced from the pulpit as "a decoy of Satan" which would "rob God of the deep earnest cries which arise in time of trouble for help." The abuse showered on Pasteur is believed to have helped to produce the disease of which he died. It might have been thought that so obviously beneficent an invention as spectacles would have escaped the anathemas of folly, yet these aids to vision were denounced as though they were inventions of the Devil. The story is told in Professor Gotch's contributions to the *Lectures on the Method of Science* recently issued from the Clarendon Press, and is so interesting in itself, and so illustrative of the nonsense which a man of education can utter under the inspiration of an antiscientific bias, that we make no excuse for quoting it:

Tracts were written fulminating against the Royal Society (formed in 1661), which was rightly regarded as the head quarters of the New Philosophy; attacks and rejoinders were as thick as leaves in June. Sprat found it desirable to write a history of the foundation and work of the Society in order to demonstrate that it did not exist for the purpose of upsetting Church and State, but that when fully understood the New Philosophy will be found to be a bulwark of Christianity, not its destroyer. In an article upon the Royal Society, included in the *Quarrels of Authors*, the elder Disraeli gives an interesting account of this literary controversy. From this it appears that the zeal of the opponents often outran their discretion; for not only the aims, but many of the obvious practical results of scientific inquiry, were inveighed against. Crosse, the Vicar of Chew Magna in Somersetshire, anathematized the Royal Society as a Jesuitical conspiracy against both society and religion; he regarded the use of the newly-invented optick glasses as immoral, since they perverted the natural sight and made all things appear in an unnatural, and therefore false, light. It was easy, he said, to prove the deceitful and pernicious character of spectacles; for take two different pairs of spectacle glasses and use them both at the same time, you will not see so well as with one singly; therefore your microscopes and telescopes, which have more than one glass, are imposters. Hostility went further than this; it was declared to be sinful to assist the eyes, which were adapted to the capacity of the individual, whether good, bad, or indifferent. It was argued that society at large would become demoralized by the use of spectacles; they would give one man an unfair advantage over his fellow, and every man an unfair advantage over every woman, who could not be expected, on aesthetic and intellectual grounds, to adopt the practice.

Referring to Izaak Walton's famous advice about bait (in the British Medical Journal of November 3rd, p. 1231) we represented the author of the *Compleat Angler* as telling the neophyte he should use the *worm* gently as if he loved him. It was a lapse of memory to which we have to thank a very distinguished professor of physiology for calling our attention. This he does with a gentleness quite in the spirit of Piscator. "It is," he writes, "your extreme accuracy that induces one to mention this slip. Ordinary writers make so many mistakes that it isn't worth while to point them out." By way of making our offence gracious, we venture to quote Izaak Walton's words, which may not be familiar to some of our readers. In Chapter VIII Piscator says:

"Now of these water-frogs, if you intend to fish with a frog for a Pike, you are to choose the yellowest that you can get, for that the Pike ever likes best. And thus use your frog, that he may continue long alive:

"Put your hook into his mouth, which you may easily do from the middle of April till August; and then the frog's mouth grows up, and he continues so for at least six months without eating, but is sustained, none but He whose name is Wonderful knows how. I say, put your hook, I mean the arming-wire, through his mouth, and out at his gills; and then with a fine needle and silk sew the upper part of his leg, with only one stitch, to the arming-wire of your hook, or tie the frog's leg, above the upper joint, to the armed-wire; and in so doing, *use him as though you loved him*, that is, harm him as little as you may possibly, that he may live the longer."

The *Compleat Angler* contains abundant evidence of its author's piety, but his love of the Creator does not seem to have bred within him any pity for God's creatures—at least for such of them as he needed for his sport. Just before giving the advice we have quoted, he tells his pupil that

You may fish for a Pike, either with a ledger or a walking-bait; and you are to note, that I call that a Ledger-bait, which is fixed or made to rest in one certain place when you shall be absent from it; and I call that a Walking-bait, which you take with you and have ever in motion. Concerning which two I shall give you this direction: that your ledger-bait is best to be a living bait (though a dead one *may* catch), whether it be a fish or a frog; and that you may make them live the longer you may, or indeed you must, take this course.

First, for your Live-bait. Of fish, a roach or dace is, I think, best and most tempting; and a perch is the longest lived on a hook, and having cut off his fin on his back, which may be done without hurting him, you must take your knife, which cannot be too sharp, and, betwixt the head and the fin on the back, cut or make an incision, or such a scar, as you may put the arming-wire of your hook into it, and with as little bruising or hurting the fish as art and diligence will enable you to do; and so carrying your arming-wire along his back, unto or near the tail of your fish, betwixt the skin and the body of it, draw out that wire or arming of your hook at another scar near to his tail; then tie him about it with thread, but no harder than of necessity, to prevent hurting the fish; and the better to avoid hurting the fish, some have a kind of probe to open the way for the more easy entrance and passage of your wire or arming: but as for these, time and a little experience will teach you better than I can by words.

Byron says of Walton:

> The quaint old cruel coxcomb in his gullet
> Should have a hook and a small fish to pull it.

Had he lived in our day the author of the *Compleat Angler* would doubtless have been a shining light of the Anti-vivisection Society by the side of those tender-hearted sportsmen, Lord Llangattock and Admiral Sir William Kennedy.

According to the *Medical Record*, the first magazine for the blind to be published in the United States, and the second of its kind in the world, will probably soon be issued. The funds for the purpose are being supplied by Mrs. William Ziegler, and it is intended to supply the periodical free of charge to all blind persons. Owing to the high cost of books printed for the blind, very many of those who have learned to read in institutions are unable to put this knowledge to use after returning to their homes. The new magazine will contain stories of the news of the day, fiction, special articles designed to interest blind people particularly, an industrial department wherein blind people may find information as to the lines of work in which they are engaged, and a correspondence department. Both the Braille and the New York point systems will be used, so that those who have learned either one will be able to read the magazine.

Women in German Universities.—The total number of matriculated female students in the seven German Universities which admit them in the summer semester of this year was 211, against 140 last winter and 137 in the summer of 1905. The women were distributed among the several Universities as follows: Freiburg in Baden 58, Heidelberg 57, Munich 55, Würzburg 8, Tübingen 5, Erlangen 1, and Leipzig, which now appears in the list for the first time, 27. Of the whole number 103 are students of medicine, while 66 devote themselves to philosophy, languages and history; 22 to mathematics and natural science, 10 to political economy, 4 to law, and 1 to dentistry. In addition to the matriculated students there are 1,268 who follow special courses.

THE TEACHING OF HYGIENE AND TEMPERANCE IN ELEMENTARY SCHOOLS.

DEPUTATION TO THE PRESIDENT OF THE BOARD OF EDUCATION.

In response to a request from the Committee of the medical profession (formed in 1903) for the furtherance of the teaching of hygiene and temperance, the President of the Board of Education, who was accompanied by Mr. Morant, C.B., Permanent Secretary of the Board, received on November 12th a deputation representing the Committee, the British Medical Association, and the Advisory Board for the teaching of hygiene and temperance.

The deputation comprised among others the following: Sir Thomas Barlow, Sir Victor Horsley and Dr. E. Claude Taylor representing the Medical Committee; Dr. J. A. Macdonald (Chairman of the Representative Meetings), and Dr. Langley Browne (Chairman of the Council), representing the British Medical Association: Mr. Pearce Gould, representing the Advisory Board on the Teaching of Hygiene and Temperance; Professor Clifford Allbutt and Dr. Heron, representing the International Association for the Prevention of Tuberculosis; Mr. T. C. Horsfall, representing the Manchester and Salford Sanitary Association: Dr. F. W. Mott, F.R.S., Sir Lauder Brunton (National League of Physical Education and Improvement), Dr. John Robertson (M.O.H. Birmingham), Dr. James Niven (M.O.H. Manchester), Dr. Killick Millard (M.O.H. Leicester), Dr. George Newman (M.O.H. Finsbury), Mr. Andrew Clark, Dr. William Carter (Manchester), Dr. James Ridge, Dr. Kelynack, Dr. T. B. Hyslop (Bethlem Hospital), Dr. Henry Rayner, Dr. Rushbrooke, Dr. May Dickinson Berry, Dr. Mary Murdoch (Hull), Dr. Dawson Williams, Dr. J. Smith Whitaker, and Mr. McAdam Eccles, Mr. J. Furneaux Jordan (Birmingham), and Dr. Mary Sturge, members of a Subcommittee who had drawn up the following Memorandum:

TO THE RIGHT HON. AUGUSTINE BIRRELL, M.P., K.C.,
President of the Board of Education.

SIR,

It is now fully recognized that Teaching in Hygiene and Temperance in Public Elementary Schools is essential for the development of the well-being and happiness of the Nation at large.

(See Petition to the Board of Education, presented July, 1904, by nearly fifteen thousand Medical Practitioners, the Report of the Committee on Physical Deterioration, 1904, and Appendices I and II.)

We desire to thank the Board of Education for having drawn the attention of Teachers in these Schools to the importance of such instruction. (Cd. 2638.)

We now venture to urge:

(1) *That instruction in Hygiene and Temperance be specifically introduced into the curriculum of the Code.*

This might be accomplished by reorganising and adapting the Observation Lessons and Nature Study, already provided for, so as both to render the Scientific Teaching more comprehensive and to include the Elements of Hygiene and Temperance. This course would involve but a slight disturbance of the present curriculum.

In Appendix IV we offer, in accordance with the invitation of the Prefatory Memorandum, p. 5, Cd. 2638, of the Board of Education, suggestions whereby this might, we believe, be easily effected.

We offer such alternative suggestions since we feel that objection may justly be taken on scientific and moral grounds to much in the scheme set forth in the current official Volume.

(2) *That facilities for Special Training in these Subjects be afforded to Teachers.*

It is evident that such teaching should be given by Teachers specially qualified and trained.

As facilities for such instruction barely exist, not being regularly included in the curricula of Training Colleges, we venture to beg that Local Educational authorities may be entitled to pay without surcharge for Students sent to take the requisite course of study at certain approved centres.

Such courses have been in existence for several years in connexion with the Science School at Bradford, and at Wakefield: and another, extending over six months, is now being arranged at the London School of Economics (University of London) and the Birkbeck College.

Pending the establishment of systematic training of student teachers we offer in Appendix III a provisional syllabus for instruction in Hygiene and Temperance of Teachers already trained in other subjects.

(3) *That these Subjects be reported upon by H.M. Inspectors.*

Inasmuch as inspection is the method by which the State secures efficient teaching in any subject, we venture to hope that the Board of Education may see fit to direct that the subjects of Hygiene and Temperance shall be included among those on which His Majesty's Inspectors report.

We believe that whilst the above are the immediate requirements for the Elementary Schools, the Board of Education will also recognize the pressing need of the introduction of these subjects into the curricula of all Secondary Schools and Training Colleges.

In urging the necessity for immediate action, we venture to call attention to the prominence given in our Colonies and in Foreign Countries to the National Teaching of Hygiene and Temperance, and of the Results of Alcoholism.

We beg to submit the following Appendices:

I. Statement of the Teaching as given in Army Schools, the Colonies, and Foreign Countries.

II. List of Local Educational Authorities who have, amongst others, expressed their concurrence in the desirability of Teaching in Hygiene and Temperance in the Schools under their control.

III. Syllabus for the instruction of Teachers who are already trained in other subjects.

IV. A draft Chapter and Appendix, analogous to but in substitution for Chapter VI, p. 46, and Appendix VIII, of Suggestions for the Consideration of Teachers and others concerned in the work of Public Elementary Schools. (Cd. 2638.)

This consists of two parts:—

A Chapter which is a general statement putting forward the argument for commencing Nature Study at an early age, and outlining the manner in which instruction in Hygiene and Temperance might and should be incorporated with Observation lessons.

An Appendix which is a more detailed scheme of the lines on which this instruction should proceed, and which is free from those features in the current Appendix VIII to which exception is taken.

We have the honour to be, Sir,
Your Obedient Servants,

(Signed on behalf of the Committee of the Medical Profession formed (1903) for the furtherance of the teaching of Hygiene and Temperance in Elementary Schools.)

W. H. BROADBENT, *Chairman.*
JOHN TWEEDY.
A. PEARCE GOULD.
LAUDER BRUNTON.
SIMS WOODHEAD.
THOMAS BARLOW.
W. MCADAM ECCLES.
VICTOR HORSLEY.

Sir THOMAS BARLOW, in introducing the deputation, said that three chief points were submitted to Mr. Birrell in the Memorandum which had been sent to him concerning the teaching of hygiene and temperance in elementary schools, namely: (1) The recasting of the general science teaching, so that the principles of hygiene and temperance can be embodied in the curriculum without constituting a new subject; (2) the teaching of hygiene and temperance in all training colleges and to all student teachers; (3) the inclusion of hygiene and temperance among the subjects concerning which the inspectors must report. The point of most fundamental importance was the imperative necessity of recognizing that the teachers themselves must be taught. There was no desire to make the subject a sentimental one, and it was hoped that it would be carried out with sound sense and in a businesslike way. In order to teach science the teachers themselves must have a thorough grounding, not only in the principles of physiology, but also in the methods of placing their instruction before children.

Sir VICTOR HORSLEY, speaking for the Committee of the medical profession, said that the general science teaching under the Board of Education should be recast. Referring to the document issued by the Board of Education, called "Suggestions for the Consideration of Teachers," he pointed out that the scientific part consisted of three divisions, and that these three divisions were disconnected, and did not follow one another so as to form a continuous whole. Criticizing the last of the three divisions, he said that the scheme of hygiene and temperance, although excellent in many parts, was not scientifically accurate in other parts. He declared that all the physical, biological, and scientific teaching ought to be recast and formed on a continuous scheme from the earliest age to the time when the child left school. It was found, in intercourse with teachers, that they dwelt in dread of the inspector because the inspector as a rule had not had a thorough training in science, and consequently could not be expected to have that sympathy for science to the

degree that he (Sir Victor) and those with him felt. They asked Mr. Birrell in his instructions to the inspectors to insist that any teacher teaching on the broad lines indicated should receive as much credit as any other teacher who might have coached his pupils in every detail in grammar. In conclusion Sir Victor Horsley declared that they approached Mr. Birrell in no spirit of destructive criticism, but simply wished to put before him the scheme that they believed was for the better teaching of hygiene and temperance in elementary schools.

Dr. James Macdonald, the Chairman of the Representative body of the British Medical Association, explained that the representative body on whose behalf he spoke consisted of about one hundred and fifty medical men elected from the different Divisions of the British Medical Association throughout the British Empire. That body represented some twenty thousand medical practitioners. That representative body at a meeting held in Caxton Hall last July passed the following resolution:

> That this Representative Meeting of the British Medical Association expresses its sense of the great benefits that will accrue to England and Wales by the adoption by Mr. Birrell, in the Education Bill at present before Parliament, of the compulsory medical inspection of school children and the establishment in the Education Department of a medical bureau.

If the measures recommended in the Memorandum submitted to Mr. Birrell were adopted, a great advance would ensue in the future stamina of the race.

Dr. Langley Browne, Chairman of the Council of the British Medical Association, said there was no difference of opinion among doctors in regard to the advisability and advantage of including the systematic teaching in the schools of the subjects by the teachers themselves and not by occasional lecturers. Every teacher should have to take the subjects up, and should not be advanced beyond the stage of pupil teachers without mastering hygiene and temperance. It was stated that the curriculum was already full, but he believed that those two subjects were of the greatest importance, and it would not matter much if a child grew up without being able to spell otherwise than phonetically and without knowing all the details concerning weights and measures, provided he was well instructed in hygiene and temperance.

Mr. A. Pearce Gould, representing the Advisory Board for the teaching of hygiene and temperance, said that all realized the importance of the education of the teachers in the training colleges. They could not expect teachers to undertake that work without special training. The Board which he represented had been for some time past engaged in promoting that object. It had drawn up a scheme of instruction for teachers which it had put into practical effect by giving a practical course of instruction to twelve gentlemen and ladies in the Birkbeck laboratory. They hoped some of them would go to the various training colleges and be able there to teach the pupils. Others, it was hoped, would be engaged in giving systematic and practical instruction to those already occupied in teaching in the primary schools. Mr. Gould said his duty was to ask Mr. Birrell to recognize in an official manner the couse of instruction being carried out at the Birkbeck laboratories, and he asked him to do his utmost to encourage the education authorities throughout the country to secure the services of the experts that were being trained there. He hoped that Mr. Birrell would encourage the work, and see his way to make suitable educational grants, so that the teaching might be advanced, and thus secure the required assistance to the educational authorities.

Professor Clifford Allbutt, a representative of the International Association for the Prevention of Tuberculosis, drew attention to the awful waste of child life in this country. For every dead child they might reckon at least one more who survived with stunted body or perverted constitution. On the whole, children, even those of unfortunate parents, came into the world with an original capacity for health and vigour. They dwelt with too much unction on heredity to the disregard of individual will, of social education, and healthy conditions of life, physical and vital. He appealed to Mr. Birrell to contrive some method of instruction in hygiene whereby individual will would be fortified for self-government and self-determination on the lines of healthy growth, and for the control of external conditions so far as those might lie within the personal opportunities of those concerned, and for the intelligent co-operation in the collective amendment of those external conditions. The provision of the external means of healthy life was continually thwarted by the lack of personal co-operation and intelligent use of public improvements. The individual will must therefore be built up in accordance with the laws, conditions, and materials of health. The principles of bodily health must be made an integral part of the education of the child, and for that end they did not desire a more or less shallow catechetical instruction in physiology. Boys and girls should be formed rather by direction and discipline than by academic formulae. A child was taught to be clean without the terms of chemistry and bacteriology, and so other healthy habits could be built up by precepts and observation without the catechism, which with children soon falls into mere patter. To establish that discipline and to impart those precepts a teacher must learn more than a catechism; he must understand the principles, at any rate, of hygiene—not as an exacting and academic study, but by carrying them, as it were, in solution into a larger and more scientific kind of common sense.

Dr. G. A. Heron, who also represented the International Association for the Prevention of Tuberculosis, said that in England and Wales there died in one year of tuberculosis more than 50,000 people. Recognizing that tuberculosis was preventable, he urged that education in elementary hygiene well taught in all the training colleges would materially help to make known the knowledge of how to prevent disease. By the phrase "education in elementary hygiene," he meant hygiene shown to the people in its simplest aspects. It would be best done by those whose work had given them special knowledge of how to prevent disease. Therefore special instruction in the training colleges should be given at the outset of this new departure in education by specially qualified medical practitioners. He thought that a course of ten or twelve lessons of one hour each in all the training colleges of the country ought to convey to pupils of ordinary intelligence a sufficient amount of knowledge to enable them in their turn to become teachers fit to impart to scholars, both by example and by precept, how much can be done to preserve health, and how much can be done to prevent the onset of infectious disease.

Sir Lauder Brunton said that for twenty-five years he had seen out-patients at St. Bartholomew's Hospital and he calculated that he had seen 100,000 separate cases. Amongst those were a great number of infants brought by their mothers, some of them were like living skeletons, and that in a great measure was due to the mothers using dirty feeding-bottles, being ignorant of the fact that they were thereby poisoning their children. Too often the principle acted upon by these ignorant women was "mother a bit and a sup and baby a bit and a sup," in spite of the fact that the "bit" often consisted of a red herring and the "sup" of gin and water. The consequence was that babies were dying by multitudes, and that would continue until the mothers were taught how to rear them. That teaching ought to be begun at school, because the mind was most receptive in childhood. Further, babies were very often left to be tended by quite small children. He urged Mr. Birrell to do what he could to remove this blot from the civilization of the country.

Mr. T. C. Horsfall said that the results of examinations made by school doctors proved that the great majority of teachers and school managers had co operated with ignorant parents to prevent children from gaining as good physical, mental, and moral health as they were born capable of gaining. All the members of the school community require to be influenced, because inspectors, managers, teachers, and parents were ignorant of the value of fresh air, cleanliness, and wholesome food. He described a recent investigation which showed that during three weeks spent in a country holiday children increased in weight and height as much as it took them the whole year to attain under the normal conditions of school life.

Dr. John Robertson said he had had experience in several large Midland towns, and was struck with the amount of ignorance as to the common laws of healthy living betrayed by a large proportion of the masses of the people. He considered that some teaching on the

lines indicated in the Memorandum was absolutely necessary in order to render Public Health administration effective.

Miss HOSKYNS-ABRAHALL urged that the education of children should proceed from the known and the familiar to the less known and less familiar. Further, that knowledge should be gained by means of the children's own activities; they ought to learn by doing. Science teaching, including hygiene and temperance, should be the foundation of the scheme.

Miss ALICE RAVENHILL contended that when the whole subject of hygiene was presented to the teachers its enormous scope and its educational value burst upon them and opened out new opportunities. She advocated that teachers should be trained in hygiene, and that its educational value should be explained. The difficulty that had existed hitherto was the absence of teachers fitted to give the necessary teaching in the training colleges.

Mr. BIRRELL, in reply, said that all were agreed that if the elementary education system—which was, of course, originally intended merely to teach a little reading, writing, and arithmetic—could be utilized for the purpose of implanting the principles of temperance and health in the hearts and minds of parents, incalculable good would be accomplished, and it would be impossible to exaggerate the benefits that would result. Hygiene and temperance, however, were subjects which everyone thought they knew something about. It was not like Greek verse or the higher mathematics, which no one knew till they were taught. There was hardly a child or a parent who did not think he knew as much about health and sanitation as most doctors. It could not be said that the medical profession was agreed on all the subjects either of general health or temperance. Total abstinence from intoxicating liquors was a subject which could hardly be introduced into elementary education without exciting a great deal of commotion when the children went home and told their parents what they had been taught. They could not, therefore, deal with hygiene and temperance in the same authoritative and academic manner as subjects of ordinary learning. He entirely agreed with all that had been said about the importance of teaching the teachers, and he was glad that that view was now generally accepted. They could not expect to make much impression on children who were not anxious to learn and who were in the schools only because they were obliged to be there. They must be approached through their teachers, who must be well instructed not only in their subjects but must be also well taught in the art of teaching, so that they could reach the minds of the children. The teacher himself had a curriculum already very full, and its character could really only be affected by getting the relative importance of the different subjects generally acknowledged. Very many of the best teachers were anxious to get university degrees, and the consequence was that they read what would pay them best for the securing of those degrees, thus neglecting what might be most important or what they were best fitted for. Therefore unless the universities were induced to take up these subjects brought forward by the deputation it would be always difficult to make them compulsory in the training schools. The Board of Education had a scheme of its own, outlined under the direction of Sir Michael Foster, for the teaching of hygiene and temperance in elementary schools, and in the training colleges the students might take it up as an optional subject. [Mr. Birrell at this point conferred with Mr. Morant.] Continuing, he said that he was informed that it was compulsory on students at training colleges to give some time to the study of hygiene. He was glad to hear from Dr. Heron that ten or twelve lessons of an hour each given in the training colleges would implant in the pupils sufficient knowledge of the subject. He thought that was a hopeful view. He favoured the introduction in training colleges of instruction by competent persons of the principles of hygiene. If the Education Bill became law medical inspection would be provided for and consequently there would be a greater number of visits of doctors to public elementary schools. It was important for those doctors to find teachers competent to listen to what they said, and to learn how to utilize the information given at those visits. After all, that was only saying that what was required were intelligent and well-instructed teachers, and happily they hoped that they would continue to get them in even greater numbers than at the present time. It did not do, however, to be too sanguine about mastering hygiene and temperance, because they never would be mastered till the end of the world. They must influence the whole community, and must make the parents interested in open windows, in cleanliness, and in good food. They must make the children learn the importance of those principles and they must secure teachers for the schools anxious and eager to teach and impress on the scholars the principles of health and temperance. How far that could be done by schemes and plans of examinations and how far by the general elevation of study it was not perhaps for him to say. With regard to the first of the three chief points in the Memorandum, namely, the recasting of the general science teaching so that the principles of hygiene and temperance could be embodied in the curriculum without constituting a new subject, he was entirely in agreement with the desire to avoid a new subject in science teaching. The new code had attempted to begin that by inserting health and temperance as subjects, and any assistance from doctors to enable the Board of Education to accomplish that aim would be gladly received. The great point was to avoid the jargon of physiology and to make the children see that health and temperance could be taught in simple language without repulsively long words. Sir Victor Horsley and he might agree—he did not, however, say that they did—on the effects of alcohol in any shape and form, but they must wait a little while before it was possible to enforce doctrines in any extreme form. Concerning the second point, that hygiene and temperance should be taught in all training colleges and to all student teachers, he understood that the subjects were taught, at least the principles were, in the training colleges. He agreed that these colleges should be visited by competent and skilled lecturers, who would be able in the manner suggested by Dr. Heron to instruct the teachers. In regard to the last point, that hygiene and temperance should be included among the subjects concerning which the inspectors must report, he agreed that inspectors should be capable of inspecting. All subjects taught in the schools might be, and at the present moment were, reported on by the inspectors. The inspectors investigated the work of a school as a whole, and they reported on it to the Board. It might be said that the inspector was a classical or literary man who was not competent to report on hygiene and temperance because in his education little attention had been directed to those subjects. Mr. Birrell, however, did not believe that that was true, because the inspectors, like everybody else, were anxious to see that the children lived healthy lives, that their schools were well aired, and that they carried away the knowledge of the principles of hygiene and temperance. Mr. Birrell concluded by saying that the Board must look to the medical profession for assistance, and he asked them to make it as practical as possible, and not to aim too high nor be carried away by too much enthusiasm. Would it not be possible gradually, year by year, code after code, to reorganize the system of teaching and place it on a humane and general foundation, so that the principles of hygiene and temperance should be enforced in all the schools? His advice was to be as practical as possible in a world like this.

Sir THOMAS BARLOW thanked Mr. Birrell for the courteous and sympathetic manner with which he had received them, and the deputation then withdrew.

LUNACY IN LONDON.

(Continued from p. 1311.)

THE PATHOLOGIST'S REPORT.

DR. MOTT, the Director of the Pathological Laboratory, in the remarks which precede his special reports on Tuberculosis and Dysentery and Diarrhœa, shows that a good deal of research work has been carried on by Dr. Waldemar Koch, Dr. Eisuth, Dr. Barham, Miss Woodcock, M.D., Dr. G. A. Watson, and others, which will be published in the forthcoming volume of the *Archives*. Dr. Mott also refers to the paper he read as reporter of the Psychiatrical and Neurological Section of the International Medical Congress at Lisbon on Changes in the Cerebral Cortex in Toxic Psychoses, already pub-

lished in the *Comptes Rendus*, and gives the main features of an investigation he has made into the relation of alcohol and insanity. The most striking feature, he says, exposed by these inquiries has been

the fact that a relatively small quantity of alcohol to the feeble-minded, epileptic, and potentially insane, whether the result of inherent or acquired brain defect, acts as a poison and renders him antisocial.

This fact of alcoholic intolerance among the epileptic and feeble-minded, affirmed for many years by Aschaffenburg and others, receives support from Dr. Mott's *post-mortem* observations, which showed that out of 1,282 autopsies, very few evidenced changes in the liver and other organs indicative of inebriety. He says:

The evidence obtained from this source leads one to infer that the majority of people admitted to asylums are hereditarily predisposed to insanity or are of a neurotic temperament, so that a quantity of alcohol which might be consumed daily by a man of stable mental organization without producing mental symptoms is sufficient to cause insanity in such predisposed persons.

Tuberculosis.

Out of a total number of 17,088 patients resident in the asylums on March 31st, 1906, 335, or 1.96 per cent., were reported (Dr. Mott says) to be suffering from pulmonary tuberculosis. Of the total number of *post-mortem* examinations made during the year in the London County Asylums active pulmonary tuberculous lesions were found in 11.61 per cent. A reference to the Claybury *post-mortem* statistics shows, he says, that a large proportion (47 per cent.) of the cases examined had signs of obsolescent or active tuberculosis, and that in very few cases could it be inferred that the disease had been acquired during residence in the asylum. Nevertheless, the tables which he includes in his report show that of the 335 cases reported as present on March 31st, 1906, 101 were diagnosed on admission as tuberculous, 53 within one year of admission, and no less than 181 after one year of residence—supporting the contention that the majority would fall within the category to which he alluded last year in his report of those in whom the disease was lit up in the asylum.

Dysentery and Diarrhœa.

The total number of cases of dysentery reported during the year ending February 28th, 1906, shows an increase on the numbers of the two preceding years—the actual figures being, for the years 1903-4, 232 cases; for 1904-5, 231 cases; and for 1905-6, 274 cases. This increase was due to a recrudescence of the disease at Bexley, the returns for that asylum being unusually high, the Bexley cases (63) and those of Hanwell (23) contributing 75 per cent. of the total number reported.

THE EPILEPTIC COLONY.

The Asylums Committee's Report contains the third annual report of Dr. C. Hubert Bond, the Medical Superintendent of the Colony. The medical statistics refer to the year 1905. There were in the colony on January 1st, 1905, 322 patients. During the year 70 were admitted, 30 being transfers from asylums and 40 direct admissions. One patient was found not insane and had to be discharged, thus not appearing in the statistics. In 18 of the total admissions the patients suffered from congenital mental disease, in 44 the attack was a first and in 7 a not-first attack. A comparison of these figures with those of previous years shows a fairly uniform proportion of about 27 per cent. of congenital or juvenile mental defect. In addition to these, however, in 19 others a mild degree of congenital defect was recognizable. To this latter class Dr. Bond attributes considerable importance, as these cases would be recognizable by a trained observer during school years, and should be "ear-marked" for future observation and guidance or segregated in special institutions.

In over 40 per cent. the epilepsy was of over twenty years' standing on admission, and in no case had it existed for less than two years. With regard to the various etiological factors in the 69 admissions, an insane heredity, direct or collateral, was ascertained in 15; an epileptic heredity in 16, a neurotic heredity in 16, an alcoholic heredity in 7, and tuberculous heredity in 13. Congenital defect was established in 18 and congenital syphilis in 3. Of various other causes, acquired syphilis was assigned in 5, alcoholism in 15, or 21.7 per cent., and fevers in 3. Cardio-vascular degeneration was present in 20, valvular heart disease in 2, and in 5 signs of former rickets.

During the year 4 cases were discharged as recovered, 2 as relieved, and 1 as not insane on admission. Also 47 were transferred from the colony as relieved or not improved, and there were 11 deaths. These deaths, giving a percentage death-rate on the average numbers resident of 3.39, were due in 4 cases to epilepsy, in 5 to diseases of the heart and blood vessels, in 1 case to ulcerative stomatitis, and in 1 to cancer.

From the point of view of occupation of the patients, the colony appears to be carried on successfully, the value of the vegetable produce being double that of the preceding year; the average weekly expenditure per patient for the financial year ending March 31st, 1906, was 14s. 8d., or approximately 1s. 6d. less than that of the year previous.

MEDICAL NEWS.

SIR T. HALLIDAY CROOM, M.D., will preside at the next annual dinner of the Edinburgh University Club of London, which takes place on Friday, November 23rd, at the Criterion Restaurant, Piccadilly Circus, at 7.30 o'clock.

A SPECIAL meeting of the Medical Society of London will be held on Monday, December 3rd, at 9.15 p.m., when Dr. Henri Hartmann, Professor in the Medical Faculty of the University of Paris, will deliver an address entitled the Surgical Forms of Ileo-cæcal Tuberculosis.

THE eighth annual dinner of the London Medical Graduates' College and Polyclinic will be held at the Trocadero Restaurant, Piccadilly, on Wednesday, December 12th, at 7.15 for 7.30 p.m. Dinner tickets, exclusive of wine, 7s. 6d., may be obtained from the Medical Superintendent, 22, Chenies Street, Gower Street, W.C.

THE annual meeting of the Glasgow University Club for Manchester and District will be held at the Mosley Hotel, Manchester, on November 27th, at 5.30 p.m., after which the members will dine together at the same place, at 6.15 p.m. Further particulars can be obtained from the Secretary, Dr. D. Richmond, 176, Drake Street, Rochdale.

THE autumn dinner of the Irish Medical Schools' and Graduates' Association will take place at the Hotel Great Central, Marylebone Road, London, on Wednesday, November 28th, at 7.30 p.m. The guest of the Association will be Admiral of the Fleet, Sir Edward Seymour, G.C.B., O.M. Tickets can be obtained by members of the Association from Mr. Canny Ryall, 85, Harley Street, W.

ON the occasion of his resignation of the post of Senior Surgeon to the Hospital at Stroud, in Gloucestershire, Dr. A. S. Cooke was recently the recipient of a gratifying testimonial from the members of the Board and others interested in the institution. Dr. Cooke first threw in his lot with the fortunes of the Stroud Hospital some forty-two years ago, long before the present building was erected. The hospital at that time consisted of three rooms, holding four beds each, in a separate house, with no regular staff, and Dr. Cooke became its first house-surgeon, and subsequently the first member of its permanent staff. The presentation, made by Sir John Dorrington in the name of the subscribers, took the form of a suitably-engraved silver salver and a cheque for 120 guineas. In acknowledging it, Dr. Cooke mentioned that of his original colleagues all had passed away, and that some of the members of the present Committee were the grandsons of those under whom he had first served.

THE medical arrangements for that part of the route from Paddington Station to the Guildhall lying between Tottenham Court Road and the Guildhall, on the occasion of the visit of the King and Queen of Norway to the City on November 14th, were in the hands of the (London District) Royal Army Medical Corps Volunteer London Companies, under the command of Lieutenant-Colonel Valentine Matthews. Three ambulance stations, for the reception of possible casualties were formed, one at Tottenham Court Road, one at Holborn Circus, and one at the Guildhall, and nine stretcher parties were interposed between these at intervals of about 300 yards. We are informed, however, that no casualties occurred on this part of the route. The following officers were doing duty at the several ambulance stations: Captain and Adjutant Langford Lloyd, Captain Miles, Captain Salisbury Sharpe, Captain E. A. Snape, Lieutenant H. C. Phillips, and Lieutenant and Quartermaster H. E. L. Purcell.

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MR. BIRRELL ON HYGIENE.

MR. BIRRELL on Monday received a deputation with regard to the teaching of hygiene and temperance in elementary schools, and made a sympathetic reply. The Italian language possesses a large number of adjectives which may properly be applied to a lady with any pretensions to good looks; when none of them are felt to be appropriate the epithet, *simpatica*, is used; probably it gives as little satisfaction to the lady as to the deputation.

The deputation represented the British Medical Association, the Committee of the medical profession formed in 1903 to promote the teaching of hygiene and temperance, the Board of hygiene and temperance established to provide for the education of teachers in these subjects, and the International Association for the Prevention of Tuberculosis, and comprised a number of experts in public health and educational matters. The deputation presented a memorandum, which is printed as part of our report of the proceedings at page 1412, and the speeches, which were commendably short and pithy—twelve speeches in about thirty-five minutes must be a record—were directed mainly to supporting the three chief points in this memorandum. These are: First, that the general science teaching recognized by the Board of Education[1] under the head of "observation lessons, nature study, and the rudiments of elementary science" should be recast so that the principles of hygiene and temperance could be embodied in the curriculum laid down in the code without constituting a new subject; secondly, that these subjects should be included among those upon which H.M. inspectors of schools are required to report; and thirdly, that hygiene and temperance should have a definite place among the subjects taught in all training colleges to all teachers.

Considering the unfortunate position of the Education Bill at the present moment, it was perhaps not surprising that Mr. Birrell should be in a somewhat pessimistic mood, but it may be doubted whether, even from the purely party point of view, the attitude of an interested but detached spectator was the wisest which he could have assumed. He told the deputation, as last July he told the deputation which urged him to make medical inspection a part of the scheme of the Bill, that no department of the Government was so much exposed to deputations as his own, and that he was greatly struck by the disinterested enthusiasm displayed by the members of the succeeding deputations. We have no doubt that Mr. Birrell is thoroughly disinterested; in fact, as we have already hinted, his disinterestedness is perhaps carried to an extreme, but as to enthusiasm, it would seem that he is not himself afflicted with this inconvenient quality. He would not promise to recast the general science teaching, although he seemed to think that some movement in this direction might take place in the next fifty years or so; he appeared to be satisfied with the small modicum of instruction in hygiene which, as he learnt during his speech from the Permanent Secretary of the department, is now compulsory in training colleges; and while admitting that the inspectors of the Board, being, as a rule, men of classical or literary training, were not competent to report on hygiene, he appeared to be satisfied that they should continue to do so, holding the enthusiasm for the subject with which he believed them to be endued to be sufficient to compensate for their lack of knowledge.

This brings up a matter, lightly touched upon by Mr. Birrell, who used it as an argument against making hygiene a compulsory part of the teachers' curriculum. Most of the best elementary school teachers, he said, cherished an ambition to obtain a university degree, and would therefore give their energies only to subjects, or even to parts of subjects, which "paid" at the examinations for these degrees. Everybody must sympathize with this ambition, and there is something, therefore, from this point of view, in Mr. Birrell's contention that until the universities display a more lively interest in scientific studies, their scheme of education constitutes a real obstacle to the progress of hygiene. So long as the main road to university distinction is by way of philology and mathematical conundrums, there must also be a risk that the majority of His Majesty's inspectors, usually selected on account of some moderate academic distinction, may continue to inspect with a disastrous ignorance of the physical needs of the millions of future citizens whose early education they are deputed by the State to supervise.

[1] In the *Suggestions for the Consideration of Teachers*, 1905. (Cd. 2638.) Price 3d.

THE PROGRESS OF LARYNGOLOGY AND OTOLOGY.

THE work of the Section of Laryngology and Otology at the recent Annual Meeting, the greater part of which is published in this week's issue, was, as even a hasty glance will show, of the best scientific quality, and covered so wide an area as to make it of general interest to all practitioners of the art of healing. Many of the leading laryngologists and otologists of the United Kingdom and the United States took part in the proceedings, and so attractive were the meetings that on more than one occasion scarcely standing room was to be found. In Dr. Dundas Grant the Section had an ideal President, who not only occupied the chair with dignity but directed the debates with firmness tempered by genial tact.

In the evolution of medical science there are few things more striking than the vast expansion that has taken place in our knowledge of diseases of the throat, ear, and nose, and in the therapeutic resources available for their treatment. The laryngoscope is little more than half a century old, and in its early years it had to encounter far more than its fair share of the dangers and difficulties that usually beset the infancy of a useful invention. But in spite of all the forces of prejudice, fossilism, and stupidity—that worst obstacle against which, according to the poet, even the gods fight in vain—the value of the little instrument came by slow degrees to be recognized, and the laryngoscopic lamp now burns with a steady and ever-brightening flame before a special altar in the great Temple of Medicine. It has illuminated a region which before was dark, and opened up to surgical enterprise more than one field previously inaccessible.

In the development of the branch of medicine over which the laryngoscope throws its rays, several factors

have played a part. First of all there is the instrument, which, born in France, nursed, so to speak, in Austria-Hungary, and reared to manhood in England, is now a citizen of the medical world. The discovery of cocaine brought a powerful ally to its aid. Its sphere of influence was immensely enlarged by the application of the principle of antisepsis to the surgery of the upper air passages and the ear. More recently adrenalin has removed one of the most serious difficulties which the operator in those regions has to encounter.

The latest results of the revolution which the laryngoscope has been the means of bringing about are conspicuously displayed in the work of the Section at Toronto. Of that work it is impossible to give even the briefest summary within the limits of an article. We can only call attention to one or two directions in which the progress made in recent years is most plainly visible. Of these perhaps the most striking is intranasal surgery. Nasal treatment used to be described by general surgeons as consisting in trifling operations. The discussions make it clear that, whatever may have been the case in the past, there is no longer any truth in the jibe. The work of modern specialists has shown that the cardinal principles of scientific surgery are as applicable to the interior of the nose as to other parts. Dr. Chevalier Jackson, of Pittsburg, declared that the day of pottering at a nose in a consulting room is past, and contended that intranasal surgery should be carried out in an operating room. The report of the Section fully justifies both his statement and his contention.

One of the most generally interesting of the discussions was that on the treatment of deviations of the nasal septum. It was introduced by Dr. StClair Thomson, who said that till recently the deviations most needing treatment were just those in regard to which he felt most powerless; in many cases he felt bound to advise patients to put up with their nasal stenosis as best they could, as he knew of no satisfactory method of dealing with the condition. A few years ago he operated only on half a dozen septa in a session; now he feels justified in operating on forty or fifty. This confidence has arisen from his adoption of the submucous method of excising septal obstructions. Equally emphatic testimony to the value of the procedure was borne by Dr. Otto T. Freer of Chicago, and several other members spoke in the same sense.

The papers of Dr. Perry G. Goldsmith and Dr. Herbert Tilley on the treatment of suppuration in the accessory sinuses of the nose, and that of Dr. C. G. Coakley on the value of skiagraphy as an aid in the diagnosis and treatment of diseases of those cavities, indicate another direction in which progress has lately been made. The frequency with which septic infections of the brain arise from pyogenic processes in the middle ear or mastoid antrum is generally recognized. This makes it all the more remarkable that pathologists have hitherto bestowed so little attention on the possibilities of intracranial complications resulting from the presence of pus in the frontal, ethmoidal, and sphenoidal sinuses. Not long ago[1] we referred to an important contribution to the very scanty literature of this subject made by Dr. StClair Thomson, and it may now be hoped that surgeons will in future not pass over the nose in searching for the possible source of intracranial suppuration.

We can only mention one or two of the many other interesting and valuable communications presented to the Section. Mr. Hugh E. Jones's opening paper in the discussion on the indications for the ligation of the internal jugular vein in otitic pyaemia, should be read by all surgeons; it will be noted that the procedure requires the performance of the complete post-aural operation as a preliminary. Dr. MacCuen Smith's suggestive paper on the pathogenic influence of aural lesions in systemic disease will, we are sure, be appreciated by all thoughtful practitioners. It points a moral, which, though familiar enough, is not yet, we fear, sufficiently applied in daily practice. It is to be hoped that it may help to awaken practitioners to what Dr. MacCuen Smith justly calls "the unpardonable "apathy of the profession towards an aural discharge "and its far-reaching consequences." On the other hand, Dr. Gorham Bacon, with wise conservatism, deprecates immediate resort to the mastoid operation in every patient who is afflicted with chronic otorrhoea.

It will be observed how largely the Section of Laryngology and Otology, which reflects the progress made in those special departments, is concerned with surgery. The modern treatment of diseases of the throat, nose, and ear is, of course, mainly surgical; it is natural, therefore, that progress should be made mainly in that direction. M. Georges Laurens has recently issued a volume of nearly one thousand pages wholly devoted to oto-rhino-laryngological surgery. One cause of this progress which lies on the surface is the enthusiasm which those who choose the upper air passages and the ear for their province of work bring to the furtherance of knowledge and the development of methods of treatment. While some other societies find the problem of living increasingly difficult, the Laryngological Society flourishes. The room in which it meets is, we understand, like that of the Section at Toronto, always crowded; the average attendance during last session was thirty-two. The earnestness of purpose thus shown has had its reward. The fullness of recognition to which the specialists have attained is proved by the fact that most of the great London hospitals have now established departments for diseases of the throat and ear under the charge of specialists, who also teach their subjects in the medical schools.

[1] British Medical Journal, September 29th, p. 792.

HOSPITAL ABUSE AND MEDICAL DISCONTENT.

Under the above heading the *Hospital* of November 10th has an article which deserves some attention. It is somewhat discursive and its particular application not very easy to discover. Its main contentions appear to be (1) that general practitioners are discontented with their position generally; (2) that they ascribe its unsatisfactoriness in part to the unjust competition to which they are exposed by hospitals, and particularly by out-patient departments; (3) that the evils of hospitals consist in (*a*) excessive free medical relief; (*b*) the inaction of visiting medical staffs which prevents the cutting down of the number of free patients; (*c*) the consequent (*sic*) and increasing feeling on the part of the public that everybody when sick is entitled to hospital relief.

Statistics are quoted showing that hospital attendances have increased in a greater ratio than population, at all events in the area of Greater London. It is stated as a fact that in practice the admission or rejection of patients at the voluntary hospitals has passed into the hands of the visiting medical staff, and that it is a common practice for cases sent from the country by general practitioners to be held to have a paramount claim, and, in fact, often to

obtain admission as in-patients to the exclusion of local out-patients who may have been recognized to be eligible for admission. It is also stated that "committees, "though very willing to make the voluntary hospitals "efficient" as matters stand at present, are largely in the hands of the visiting medical staff. The article goes on to point out that, owing to the improvement of general medical education, the position of consultants is probably weaker than ever before, and urges general practitioners to bring pressure on members of visiting medical staffs, who alone are in a position to remedy the above abuses.

We are far from objecting to any pronouncement which will drag into the light of day the evils which indiscriminate medical charity is undoubtedly inflicting, not only on the medical profession but also on the public. We believe that the statements as to the existence of abuse in hospitals, especially out-patient departments, are not inaccurate. We are also willing to admit that members of visiting staffs are in many cases not as careful to prevent the admission of unsuitable patients as they might be. We observe, however, that the *Hospital* states that general practitioners contribute by sending unsuitable cases, and probably some small part of the abuse which exists arises in this way, as a general practitioner who sends a patient to a hospital might feel some resentment were the patient sent back untreated. We doubt very much whether hospital committees are as much in the hands of visiting medical staffs as the *Hospital* thinks, and should like to hear the views of any chairman of a Board of a large hospital on the subject.

Though the article deals in the main with metropolitan hospitals it does not exclude others, and no mention is made of the effect which the existence of large subscriptions from the working classes, with the consequent representation of those classes on the Boards of hospitals, has on any attempt to curtail the relief. We are not greatly concerned with saddling the responsibility for the existing state of things on any one of the three or four above-mentioned classes—the committees, visiting staffs, general practitioners, or subscribers, whether working people or not—but the British Medical Association is greatly concerned with the means of removing or remedying the abuses which exist. The Association comprises a union of practitioners ready to deal with the question, and it has already been called upon to take action in this matter. Circulars have been sent to hospital committees, to members of visiting medical staffs, and to Secretaries of Divisions of the Association. In many cases representatives of the general practitioners of the district have already held conferences with the Boards and visiting staffs of their respective hospitals, with, we are glad to say, in most instances very encouraging results.

The Joint Hospitals Committee appointed by the Conference held in London on March 2nd, 1905, at the instance of the Hospitals Committee of the British Medical Association, will shortly summon another conference, at which it is expected that representatives of a very large number of hospitals will be present, and it is hoped that a general and concerted method of action to prevent abuse may gradually be evolved. With the dictum that no class can do more than general practitioners to forward these reforms we cordially agree, but would add that they are never likely to find an instrument more ready to their hand than the present organization of the British Medical Association with its Divisions in every part of the United Kingdom.

"MANMASTERSHIP."

THE *Cavalry Journal* for October last contains an article by General Baden-Powell entitled "Manmastership." This term connotes all that pertains to the care of men, in the same way that horsemastership comprises everything relating to the welfare of the horse. General Baden-Powell writes with practical experience of the value of paying attention to all matters which (1) strengthen the body, and (2) prevent disease. He is to be congratulated upon the philosophic manner in which, without any attempt to dogmatize, he has sketched, sufficiently to emphasize their importance, the steps necessary to secure these ends, while, "as a layman," wisely refraining from detail. The *Cavalry Journal* is a new publication for the arm of the service which bears its name. By thus taking up the subject of hygiene and sanitation in this, its fourth number, it exhibits to the world that as the eyes and ears of the army the cavalry is in advance of the main body in a matter which affects the bodily well-being, and consequently the efficiency, of the soldier. It is to be hoped that every officer of every arm will read this article on manmastership, which should be the beginning of a real reform in the conception of the officer's duty towards his men and of the men's duties towards themselves.

A new spirit of earnest endeavour to make themselves fit in every respect for their high calling is discernible among soldiers, and is now voiced in no uncertain tones as regards health preservation by General Baden-Powell. It comes at an opportune moment, when the nation is beginning to perceive that it has duties towards the soldier which should be met in a more gracious spirit than has hitherto prevailed. The coincidence of the two sentiments is of the happiest augury.

This is national work. As General Baden-Powell truly says: "We really want sanitation to go into the "domain of the soldier. . . . It is the duty of officers "and men themselves to be preventers of disease." And in this last matter some criticism is called for from the expert. Sir Alfred Keogh, the Director-General, in some remarks appended to the paper, observes "that no "scheme of disease prevention in war is in the least "likely to succeed which is not assisted and developed "by the regimental officer." About that there can be no question; neither can it be doubted that one non-commissioned officer and eight men per infantry battalion would afford the commanding officer of an infantry battalion a sufficient *personnel* for guarding the avenues through which danger advances.

But more than that is required. The *personnel* mentioned is sufficient for the purposes named by the Director-General—the disposal of excreta and the protection of food and water—and if this *personnel* be approved for the army, a great step forward will have been taken. Further, the training of the men in simple rules of cleanliness will bear wholesome fruit.

Before proceeding to indicate wherein the incompleteness of the proposed measures consists, it may be pointed out that a lay contemporary takes exception to Sir Alfred Keogh's statement that "enteric and "dysentery are easily preventable." In this matter Sir Alfred is leading the hunt. Our contemporary does not recognize that the latest triumphs of science render it certain that these diseases should and will be easily preventable.

Similar want of acquaintance with the latest advances will prevent manmastership, so far as it has been presented to us in this article, being a complete success, for technical expert knowledge within the regiment is not

provided. Are combatant officers to acquire this knowledge? Is it anticipated that such officers can reach an expert standard in sanitary science at the same time that they are learning and practising their own profession? Is a combatant officer in each unit to obtain a certificate in public health in order that he may be rendered fit to supervise the hygiene and sanitation of the men of his corps? Such a thing is unlikely; it may be said with certainty that it will never take place. Combatant officers may learn enough to become alive to the importance of the subject, and to become active helpers in promoting sanitation; but unless (1) the strengthening of the body and (2) the prevention of disease be guided by an expert, the advance in efficiency contemplated by General Baden-Powell will not fully be realized. The perfection of his ideas can be attained only by attaching a medical officer to each unit and making him immediately responsible to the commanding officer for the sanitation and hygiene of his corps.

It has long been clear that the medical officer has been divorced from the service to which the nature of his duties proclaims he should be wedded. A more intimate association of the army doctor with the combatant ranks would produce all the results desired by the General, if to this association were added executive authority in relation to hygiene and sanitation. The medical officer has too long been an "adviser" only; the fruits of the "adviser" policy were ripened in the South African war. That the abolition of the old regimental system was a necessary step and one that has resulted in largely increased efficiency in the medical service is universally admitted. But it is impossible to deny that the removal of the medical officer from the regiment has been in some ways a loss to the army and a disadvantage to himself. The principal function of the medical officer is the prevention of disease; and there can be no question that as far as regiments are concerned, this function will be more efficiently discharged by an officer who has an intimate personal knowledge of the men whose health is in his keeping, and who on their part know and trust their doctor.

On the other hand, the medical officer, detached as he is from the daily life of the soldier, has lost an invaluable aid in the maintenance of hygiene. The difficulty might, we think, be met by attaching to each unit a medical officer with carefully-adjusted executive authority for a limited period. He should be responsible to the commanding officer for the sanitation of the unit as well as for the health of each individual in it. The commanding officer would not lose any of his powers of command, but his command would be influenced by knowledge of the physical condition of his men and of the sanitary requirements of time and place, climate and surroundings. Combatant officers are not in a position to know these things; by providing them with expert aid they would be in possession of a means of gauging and consequently of making the best use of the physical capacities of their men, who would be trained and preserved amidst sanitary surroundings.

The commanding officer already possesses specialists under his command; he has a signalling officer, a transport officer, a quartermaster, and an adjutant. Sanitation is a more difficult subject than signalling, transport, or clothing and equipment. He has no specialist to guide him in the matter of sanitation, the details of which require intricate technical knowledge. When he is training for war he has no one upon whose knowledge of hygiene he can rely. It is not till war breaks out that he is granted a medical officer, who has to acquire in a hurry a knowledge of the men, and to inculcate in haste sanitary principles which demand from each individual knowledge and habit for their due execution. Without complete knowledge, habit in these matters cannot be imparted by combatant officers, who at the best can never be more than partially trained.

Surely the time has come to deal with this defect in a practical spirit, and to appoint to each unit a medical officer thoroughly trained in sanitation and hygiene.

But the surgeon must not spend the whole of his services in a unit. He must not go to the unit until, after a probationary period, he has proved himself fitted for such a responsible post. He must not remain in the battalion so long as to become fossilized into routine. Rather should his service bear some relation to that of staff officers who, after a period of regimental duty, pass to the administrative duties of the army. The changes involved in the Royal Army Medical Corps by some such scheme would not be radical; they could be adopted without dislocation of the medical service as at present constituted. The army surgeon would thus become more intimately associated with the army, and by such association be placed in a position to supplement the deficiency of hygienic knowledge in commanding officers, to inculcate personal hygiene, to supervise the sanitation of the unit, and to treat the sick as a known and trusted friend. The medical profession particularly, and the nation generally, will then feel that at last the hygiene and sanitation of the soldier have been placed in expert hands, and General Baden-Powell will have the satisfaction of knowing that his written words will remain as evidence that he stood in the forefront of those who recognize that sanitation must be dealt with scientifically in the army.

EXTRAORDINARY GENERAL MEETING OF THE ASSOCIATION.

The Supplement for this week contains formal notice that an extraordinary general meeting of the British Medical Association will be held at the Examination Hall, Savoy Place, Victoria Embankment, London, W.C., on Wednesday, November 28th, at 3 p.m., when certain resolutions for the alteration of articles of association will be submitted. Resolutions at this meeting must, in accordance with the Companies Act, be passed by a majority of not less than three-fourths of those present and voting. Notice is also given that any resolution or resolutions duly passed at the meeting on November 28th will be submitted for confirmation to another extraordinary general meeting of the Association which will be subsequently convened; at this later meeting a simple majority only is requisite.

THE BIRTHDAY HONOURS.

The list of those upon whom the King has been pleased to confer honours in celebration of his birthday contains the names of eight medical men. Dr. John W. Byers, who receives the honour of knighthood, is professor of midwifery and diseases of children in Queen's College, Belfast; he was President of the North of Ireland Branch of the British Medical Association in 1900-1, he is now one of the representatives of the Ulster Branch on the Central Council, and when the Irish Committee was appointed last year he was unanimously elected its chairman. The satisfaction with which the announcement has been received in the North of Ireland, expressed elsewhere in this issue by our correspondent, will be shared by the members of the Association in

Great Britain. The like honour conferred upon Mr. Tweedy, President of the Royal College of Surgeons from 1903 to 1905, is a recognition of a long career passed in the service of the special branch of surgery to which he has devoted himself, and of the best interests of the profession in which he has won a commanding position. Dr. Charles F. Hutchinson, who also becomes a Knight, represented the Rye Division in the House of Commons for some years, and while an M.P. did much useful work for the public health and for the profession to which he has belonged since 1872. Among the names of those connected with the colonies upon whom the King confers the honour of Knight Bachelor is Dr. Rubert W. Boyce, Holt Professor of Pathology in the University of Liverpool, and Dean of the Liverpool School of Tropical Medicine, and it is doubtless in recognition of his services in that capacity that the honour is granted. Dr. S. W. Thompstone, who is nominated C.M.G., after holding the appointments of medical officer in charge of the public health laboratory, Old Calabar, and Deputy P.M.O. Southern Nigeria, was advanced to the position of P.M.O. Northern Nigeria, an office which he still holds. The same honour is conferred on Dr. W. T. Grenfell, Superintendent of the Royal National Mission to Deep Sea Fishermen. In the Royal Victorian Order, Sir Alfred Fripp, M.S.Lond., Surgeon in Ordinary to the King, and Surgeon to Guy's Hospital, is promoted to the rank of Knight Commander; and Mr. W. M. Abbot Anderson, M.B., Surgeon to the Princess Royal, is nominated a Member of the Order. We have also pleasure in congratulating Mr. P. J. Michelli, Secretary of the Seamen's Hospital Society, on his nomination to be C.M.G. in recognition of his services in connexion with the London School of Tropical Medicine.

THE VIVISECTION COMMISSION.

WE have received a letter from Mr. Arnold Lupton, M.P., in which he attempts to define the expression "expert antivivisector" with which he recently perplexed the Home Secretary. "My meaning," says Mr. Lupton, "was 'an expert who is also an anti-"vivisector,' and what I mean by 'an expert' in the "matter of antivivisection is a fully-qualified "surgeon who has had experience in surgery "and has made a special study of surgery with re-"ference to the question of vivisection." Such a man he finds in Dr. Hadwen; if that gentleman had been on the Commission "we should have known," says Mr. Lupton, "that there was one man, a fully-qualified "practitioner of great experience and high reputation, "who had given great study to the question, who was "capable of seeing that the antivivisectionist view was "fairly considered by the Commission." We are quite willing to take it on Mr. Lupton's authority that Dr. Hadwen has a "high reputation" as a stump orator or as an author of fiction; but that eminent legislator must pardon us if we do not accept his estimate of Dr. Hadwen's special fitness for a place on the Commission. He must procure us better assurance than his own opinion; like Falstaff's tailor, we like not the security. Dr. Hadwen himself, in a letter with which he has favoured us, echoes Mr. Lupton's complaint. He writes: "So far as we know, the "scientific men who have been appointed all drift "in one direction. We have made no protest as to their "presence. But what we do protest against is that, "whilst direct scientific representatives of the vivisec-"tors have been appointed—men who by word and deed "are pledged up to the hilt to the practice, not one "single scientific representative of the antivivisec-"tionists has been accorded a place." But where, we ask once more, is a "scientific representative" of the cause to be found? We know of none. If, peradventure, one were discovered, it is certain that he would not satisfy the antivivisectionists. Would the National Antivivisection Society, for instance, accept Dr. Hadwen? Mr. Coleridge would prefer Dr. Charles Reinhardt, "a man of level head, who has for some years "helped me to keep our pamphlets free of exaggeration "and inaccuracies." We hope Dr. Reinhardt is pleased with this characteristically Coleridgian testimonial, which shifts the responsibility for the inaccuracies and exaggerations of the publications on to his shoulders. Dr. Hadwen denies that the British Union for the Abolition of Vivisection has had anything to do with the appointment of the Royal Commission. "So far," he somewhat mysteriously adds, "from "that being the case, its managers have warned "their friends and supporters from the first moment "of its suggestion." What they warned them of is not quite clear; but probably the warning was intended to discount the results of the inquiry. The decision of the Commissioners to sit in private is treated as a matter of secondary importance by Dr. Hadwen; "in fact, the British Union, having no "original mistake to cover by a late agitation "raised ostensibly on the ground of press exclusion, "would be content with the recent resolution of the "Royal Commission concerning monthly reports were "its demand as to representation satisfied." This amiable allusion to an original mistake on the part of some one will, we doubt not, be borne by Mr. Coleridge with his customary resignation. Antivivisectionist literature is full of such amenities; it often puts us in mind of the family party at Mr. Pecksniff's house, where an angry lady expressed a doubt whether certain noses were redder than other noses, or, indeed, half as red as some!

A FALSE REPORT AND AN APOLOGY.

WE have already said that we are not inclined to find fault with the decision of the Royal Commission on Vivisection to hold its sittings in private, "as there are "obvious objections to the publication of the evidence "piecemeal, and possibly distorted, under sensational "headlines and with misleading comments." An illustration of the kind of thing we mean has obligingly been furnished by the *Tribune*, which in the matter of vivisection aims apparently at out-Heroding the Herod of the *Daily News*. In its issue of November 8th, after stating that on the previous day Professor Thane had given evidence, it went on to say: "Mr. Thane was questioned "about the cat operated upon by Mr. Starling. The "scalp was skinned off this cat's head, the skull itself "was sawn through, and the bone removed, leaving a "part of the brain exposed. Electrical needles were "driven into the brain and fixed there by modelling wax. "Mr. Starling then thrust a hollow needle through the "side of the eyeball into the interior of the eye, and fixed "it. The ganglion was then 'excited' by means of the "electrical needles which had already been fixed into it, "and the effect produced on the eye observed and "noticed. The cat was, according to Mr. Starling's "statement, anaesthetized for the operation; but "Mr. Thane admitted that it jumped down off "the table. Mr. Thane was also asked about "Professor Schäfer's experiments in drowning and "resuscitating dogs, and he replied that in Edinburgh "the stray dogs are destroyed by drowning, "and that, therefore, this was quite permissible." This dainty morsel was made more appetizing to the popular taste by the headline, "Inspector's Admissions at the "Commission." On the following day, however, it was the turn of our luckless contemporary to make "admissions." Standing before its readers in a white sheet, with the candle of penitence in its hand, it had to admit that the report which it had published was untrue; no such evidence having been given before

the Commission. In fact, the *Tribune* dolefully adds, "we had been victimized." Accordingly, it apologizes "very frankly" to Professor Thane and Professor Starling. It pleads that the report reached it from a source which it believed to be thoroughly authentic. In dealing with vivisection, we should advise our contemporary to beware of such "authentic" sources. By the time the *Tribune* has emerged from journalistic infancy we have little doubt that it will have learnt that the beginning of wisdom in this matter is to regard with peculiar distrust the statements of persons of the most respectable character who are under the obsession of a fixed idea.

BABY CULTURE.

THROUGH the efforts of Alderman Benjamin Broadbent, who was elected Mayor of Huddersfield in 1904, a very interesting experiment was tried in one of the districts of that town. The municipality offered to pay 1s. to the first person who should notify the birth of a baby to the Medical Officer of Health within forty-eight hours of the event, and the Mayor promised to make every child which survived the perils of the first year of life, a birthday present of one sovereign. Alderman Broadbent, in resigning the chair last week, gave an account of the results of his experiment. The first baby in reference to whom he promised the birthday gift was born on November 10th, 1904, the day after he assumed office as Mayor, and the last was born on November 8th, 1905, and received its birthday present the day before the termination of the Mayor's second year of office. The infantile mortality per 1,000 births in Huddersfield had averaged 139 for ten years. The experiment was made in the district of Longwood, in which the average for ten years was 122. The idea underlying the experiment was to ascertain whether by constant watchfulness and helpfulness on the part of a small band of lady workers, always ready to help the mother, any reduction could be made in the infantile mortality-rate of Longwood. The conditions during the two years were by no means favourable, for in the early months whooping-cough was very prevalent, and in the later months there was a violent and prolonged outbreak of measles; the summer of 1905 was one of the most favourable, but the summer of 1906 was one of the most deadly on record. The number of babies who received a card promising the birthday gift of £1 was 112, and of these 107 actually received the gift on or soon after they reached the goal of their first birthday. Four infants died, and one had been removed from the district and could not be traced, but as the gift had not been claimed it is to be feared that it is dead. Mr. Broadbent calculated that if only the four known deaths were reckoned, the infantile mortality-rate was 35, but if the missing baby was counted as dead it was 44. Taking into account certain conditions due to the overlapping of the periods, and to the fact that certain deaths of infants born before the commencement of the experiment occurred during the period, and placing the least favourable construction on the figures, the addition of one death might be made, raising the rate to 53 per 1,000 born, which compared with the average of 122 in Longwood, and 139 in the whole of Huddersfield. Thus the death-rate among the infants included in the experiment was reduced to substantially less than half the average rate, so that the reduction was not only appreciable, but was striking, and, to use Mr. Broadbent's phrase, which seems fully justified, "even astounding." There was no selection of babies; they were all born in the one district, and included every class in an industrial community, the well-to-do, the respectable and highly-paid artisan, and the labourer; they lived in all sorts of dwellings and under the most varied conditions. The scheme had been carried out for more than half the period entirely by voluntary workers, but later the valuable help of the municipal health visitors had been available and had been of the greatest service. A Huddersfield and District Public Health Union has been organized to carry out the same system in other parts of Huddersfield by lady helpers, working under lady superintendents. The work of the municipal health visitors and the Public Health Union would, Mr. Broadbent said, be greatly facilitated by new regulations which had come into force only on November 1st, providing for the early notification of births. This power had been obtained from a reluctant House of Lords through the unwearied efforts first of the medical officer, Dr. Moore, and then of himself as Mayor, and finally of the Town Clerk, the Parliamentary Agent, and the Council itself. The experience gained in Huddersfield during the last two years shows that this new power is absolutely necessary for effective work in the prevention of infantile mortality.

WHAT IS JENSEN'S TUMOUR

AT the meeting of the Pathological Society of London, reported in last week's issue, the correctness of the view that Jensen's tumour is a carcinoma was called in question, and the experimental and pathological work performed on malignant growths in mice spoken of as futile. It may therefore be well to recall briefly how the matter stands. Extensive studies of tumours in mice have been made by Bashford, Murray and Cramer, Borrel, Ehrlich and Apolant, Haaland, Henke, Michaelis, Pick, and others, since Jensen's classical paper appeared in 1903, and all these investigators agree that Jensen's tumour is a malignant new growth and a true carcinoma of the mamma. The alternative suggested by von Hansemann—that it might be an endothelioma—has been refuted by Haaland, Bashford and Murray, Ehrlich and Apolant, and Michaelis. We have come to a parting of the ways in the study of cancer. On the one hand, the student may follow the older method of clinical study combined with pathological and anatomical studies in the *post-mortem* room. For such studies ample provision has long existed in London and in the provinces. The opportunities have been used to good purpose in the past; but of recent years, while they have permitted of improvements in surgical treatment, they have resulted in no further alteration in our point of view—in what the Germans call *die Fragestellung*—nor have they raised new and hopeful lines of attack on the problems of the nature and origin of malignant disease. On the other hand, the student may choose the newer method of studying the disease experimentally without neglecting the results of clinical and pathological study in the human subject. He will then have to do his work unconnected with any hospital, because the experimental study of cancer can only be pursued on animals. He will find few facilities for such work in Great Britain, and to acquire the needful preliminary knowledge will probably go abroad: he will subject himself to the adverse criticism of all who adhere to the older method and also of those who deny that Jensen's tumour is a malignant new growth in the mouse; in other words, his work will be scouted by those who do not admit that all the vertebrate animals suffer from malignant new growths essentially similar to those of man if allowance be made for the differences in the anatomical structure and in the absolute duration of life in different animals. The evidence for the wide zoological distribution, amounting almost to universality, of malignant new growths is no longer meagre. We need only refer to the investigations of Bashford and Murray, Borrel, Ehrlich and Apolant, Gilruth, Jensen, Koch, McFadyean, Michaelis, Plehn, Pettit, Pick, Scott, Smallwood, Sticker, Welsh, and many others. These have establish the occurrence in all vertebrates,

with the exception of the reptiles, of tissue proliferations with characters sufficiently proving their fundamental identity with the malignant new growths of man, and the biological importance of this wide distribution, as first pointed out in our pages by Dr. Bashford in July, 1903, has received general recognition. In the JOURNAL for May 26th, 1906, we published some illustrations of experimental cancer, showing the reproduction of infiltrative growth, metastasis formation, and cachexia by Jensen's tumour. Observations on mice differ from those in the human subject in that they can always be controlled by a *post-mortem* examination. The differences between malignant new growths of the mamma in man and in the mouse are no greater than those distinguishing rodent ulcer and epithelioma of the skin or epithelioma of the tongue and larynx in the human subject, although all are regarded as undoubted malignant new growths.

ECONOMIC PROBLEMS IN THE PRACTICE OF MEDICINE.

A SPECIAL meeting of the Marylebone Division will be held at the rooms of the Medical Society of London, Chandos Street, W., on Friday, November 30th, at 8.30 p.m., when the first of a series of discussions on economic problems in the practice of medicine will take place. The following resolution will be submitted:

> That it is desirable that concerted action should be taken to lessen the large amount of gratuitous medical attendance granted to many sections of the community, inasmuch as it tends to diminish the thrift and self-respect of the public, lessens the esteem in which medical science is held, and has a detrimental effect upon the position of many members of the profession.

The debate will be opened by Sir Richard Douglas Powell, Sir John Tweedy, and Dr. Kingston Fowler. Any member of the profession will be admitted on presentation of his card. The Honorary Secretary, Dr. Comyns Berkeley, will be glad to receive as soon as possible the names of any gentlemen who may be willing to take part in the debate.

THE SOCIETY OF APOTHECARIES.

THE Society of Apothecaries held its Lord Mayor's Day dinner on Tuesday last, the Master for the year, Dr. E. Parker Young, member of the Central Midwives Board, presiding. Mr. Henry Morris, in replying to the toast to the two Royal Colleges, gave an interesting history of the part played by the Apothecaries' Society in medicine. He carried it back far beyond the date at which the Society became a separate entity. In other speeches, notably those of the Master and of Mr. Upton, who responded for the Society to the toast proposed by Professor Clifford Allbutt, there were references to the present title borne by Licentiates of the Society. In illustration of its inconveniences, the Master called upon Dr. Champneys, President of the Central Midwives Board, who was present, to confirm him when he stated that at that Board there were frequently puzzling references to the L.S.A., the term having no other meaning for some of its members than Local Sanitary Authority. Other speakers were the Senior and Junior Wardens, Dr. George Wilks and Dr. F. Gordon Brown, respectively, Deputy-Surgeon-General Jeffcoats, a Past-Master of the Society, and Dr. Crossby, Senior Sheriff of the City of London, who responded to the toast to the Lord Mayor and the Corporation. From what was said in the course of the evening it was gathered that the private Bill which the Society is promoting, to obtain power to alter the title of its licentiates into something more significant of the fact that they are fully qualified both in medicine and surgery as well as midwifery, is likely to be submitted to the House of Commons early in the new year. It was also said that there are at present no indications of any medical opposition to its passage.

PRESENTATION TO DR. FARQUHARSON.

ON November 10th the Right Hon. Robert Farquharson, M.D., of Finzean, was presented with a testimonial subscribed for by friends in the city and county of Aberdeen, as a mark of affection and esteem, on the occasion of his retirement after twenty-five years' service as representative in Parliament for West Aberdeenshire. The proposal originated with Sir John Clark, Bart., of Tillypronie, Chairman of the West Aberdeenshire Liberal Association—who, it may be recalled, is the son of Sir James Clark, Queen Victoria's trusted physician—and as the result of a meeting some time ago members of all shades of political opinion combined to make the gift a representative one. The testimonial took the form of an elegant silver service, comprising an elaborate antique silver centre-piece, two handsome Armada claret bowls, and six solid silver candlesticks. The centre-piece, which is a fruit standard, is handsomely chased, and weighs 236 oz. It is inscribed as follows: "Presented to "the Right Hon. Robert Farquharson, M.D., of Finzean, "by his friends in the County and City of Aberdeen, as "a mark of their warm affection and esteem, on the "occasion of his retirement after twenty-five years' "service as Member of Parliament for West Aberdeen-"shire from 1880 to 1906. November 10th, 1906." The presentation took place at Finzean, where a deputation of the subscribers, headed by Sir John Clark, assembled. Sir John Clark, in making the presentation, said Dr. Farquharson's qualities had made him the best beloved man, not only in West Aberdeenshire, but throughout the length and breadth of the whole county. He expressed the earnest hope that for many a year to come he would be spared to live in that beautiful valley of his and in that picturesque old house under the shadow of his "own mountain." Dr. Farquharson said the pleasure of receiving the testimonial was very much greater because it came from those who were not of his way of thinking politically, and it was a great consolation to him to think that, if he said some sharp things at the time of the political contest, no sting had been left behind. He was proud and pleased to be the recipient of such a magnificent testimonial, which would eventually become an heirloom in his family and be retained by it as a testimony of the esteem and regard of the donors.

BILE BEANS AND BARNARDO'S HOMES.

THE present administrators of Dr. Barnardo's Homes for Children have lately, it is stated, been the recipients of a bequest which, prima facie, constitutes quite a fortune for the institution. They are scarcely, however, to be congratulated, since, if the bequest is really of the nature stated, it is one which brings them face to face with about as thorny an ethical problem as ever puzzled a conference of casuists. It appears that a gentleman who owned a very large number of shares in two American patent medicine companies—Bile Beans and Pink Pills—has recently died, leaving them to Dr. Barnardo's Home. Certain conditions are stated to be attached to the bequest, the principal being that the shares shall not be sold but made the foundation of a new English limited liability company devoted to the sale of these goods. Even without these conditions the position would be sufficiently puzzling, for the business of the Bile Beans Company, to take that alone, has been described by a judge in one of His Majesty's courts as one built up and conducted by fraud, impudence, and advertisement. On the other hand, the institution known as Dr. Barnardo's Home has hitherto led a perfectly blameless existence under the aegis both of medicine and religion. How, then, could it fly in the face of both, either by selling or keeping the shares of such a company, and thus participating in its misdeeds? The position is reminiscent of another

instance of *damnosa haereditas*, one in which a death-bed humorist left a valuable cellar of wines and spirits to a physician who had attained fame by his eloquent denunciation of the trade in alcohol in any form. In the Barnardo case the conditions attached to the bequest to some extent simplify the problem, but leave the administrators of the Home in the painful position of having to decide whether to refuse the bequest or to launch out themselves as quack medicine vendors. In the alcoholic case the legatee escaped from his dilemma it is said, by in his turn making the cellar a bequest to his eventual heir. For the administrators of Dr. Barnardo's Home there is no such loophole: they must take the bequest with all its moral drawbacks or refuse it and thus deprive the charity of much needed assistance. Nor, unfortunately, does there seem any precedent to guide them. At first sight it seems as if the well-known case of the lady and the tiger might be of assistance, but the decision reached by her lover is merely a matter of irritating surmise to this day. Fortunately, however, for future casuists and legatees a precedent is now bound to be placed at their disposition; for whatever solution of this old-new problem is reached by the administrators of Dr. Barnado's Home must become known before many months are over.

MALARIA IN GREECE.

Professor Ronald Ross, who carried out investigations into the prevalence of malaria in Greece last May, gave an address last week on the subject before the Oxford Medical Society. From his observations it is clear that the disease is exceedingly prevalent in many parts of that country, Dr. Kardamatis, General Secretary of the Antimalarial League, estimating that 960,048 cases occur yearly out of a population of 2,433,806 with 5,916 deaths. Those figures are indeed formidable, and, as Professor Ross puts it, "it is difficult to see how a "vigorous country life can exist under such conditions." Blackwater fever is also apparently met with in some of the rural districts, and is an added terror to the unfortunate inhabitants. Such a condition of affairs puts Greece very much on a par with the malarial parts of Italy and Sicily, where similar agricultural poverty and malarial cachexias of the worst types are very common, so much so that they rival some of the worst areas in the tropical zones. An Antimalarial League of Greece, of which His Majesty the King of Greece is patron, has commenced operations on practical and scientific lines, but unfortunately money, which after all is the essential factor in such operations, is not so abundant as it might be, and Professor Ross appeals to lovers of Greece in this country to help the League with funds and sympathy. In furtherance of this scheme, the Liverpool School of Tropical Medicine has published a circular dealing with the proposals for fighting malaria in Greece, to which is appended a preliminary list of supporters of the Fund. Subscriptions may be sent to the Secretary of the Liverpool School of Medicine, and it is to be earnestly hoped that the necessary money will be forthcoming for such a laudable venture.

PROFESSOR RAMON Y CAJAL.

The medical students of Spain have decided to raise a fund to be applied in doing honour to Professor Ramon y Cajal, who, as already stated, divides the Nobel Prize in Medicine with Professor Golgi. The programme is extensive, comprising, in addition to the presentation of an album containing the signatures of the contributors, the placing of a bust of the distinguished histologist in the amphitheatre of the Madrid School of Medicine; the institution of a prize to be known by his name, and to be awarded each year for work in normal or pathological histology; the establishment of a clinic of nervous diseases; the publication of the Professor's inaugural discourse before the Academy of Sciences; and the substitution of Cajal for the name of the street in Madrid now called Atocha.

THE WARNING NOTICE.

The warning notice with reference to certain vacant appointments published at page 61 of the advertisements is augmented this week by the addition of Halifax and Young (Burrangong) and Marengo, New South Wales. It now contains twenty-eight entries, and we would recommend medical practitioners who may be approached with reference to appointments in any of the places enumerated to communicate in the first place with the Secretary of the Division, whose name and address is given in each instance; from him they will learn particulars of the disputes.

Mr. Ransom Pickard, M.S., Surgeon to the Exeter Dispensary and the West of England Eye Infirmary, has been elected Sheriff of Exeter. The last member of the medical profession to hold this office was Dr. Davy, the President-elect of the British Medical Association, and it is understood that one of the reasons which led to Mr. Pickard being invited to fill the office was the general desire in Exeter that a medical practitioner should be associated with the Mayor of the City in receiving the members of the British Medical Association at the annual meeting next year.

Medical Notes in Parliament.

The Poor-Law Commission (Ireland) Report.—Mr. Hugh Barrie asked the Chief Secretary to the Lord Lieutenant of Ireland when he would be prepared to make a statement to the House regarding the Government's intended action on the Poor-Law Commission (Ireland) Report. Mr. Bryce replied that he did not anticipate that he would be in a position to make a statement upon this subject for some time to come. The report would require very full consideration, and the appendix and minutes of evidence had not yet been submitted by the Commissioners.

The Discharge of Incurables from Netley Hospital has been the subject of many questions, and on Thursday last week led to a motion for the adjournment of the House. At question time Mr. Haldane had been pressed to delay the discharge of invalids unfit to work, and although he gave way as regards those who had contracted illness while on foreign service, the concession was not regarded as satisfactory, and Mr. T. Corbett obtained leave to move the adjournment. He did this at a quarter past eight, according to the rule, and Lord R. Cecil seconded the motion in a speech which went carefully over the grounds of complaint. He showed that there had grown up a habit of keeping incurable cases at Netley, and that some had been there seven, eight, or even ten years. They and their friends believed they were there permanently. Some had been discharged in November, 1905, and this year the new Government had decided to discharge the rest. These men, unable to work, had not served long enough for a pension, were not eligible for Chelsea Hospital, and the only refuge for most of them was the workhouse. Some had to go into Irish workhouses. The hospital had plenty of beds, but the cost of keeping these men was £3,000 a year, and to save this the discharge was to take place. He contended that the discharge of these men was ungenerous and unwise, and likely to act prejudicially on recruiting. Mr. Haldane, in reply, said that he was only carrying out a line of policy, which was carefully sifted by a Committee appointed by his predecessor in office, adopted by him, and acted on by him He was prepared to defend it. When he came into office he found that a batch of men had been discharged from Netley because medical skill could do no more for them. Two men were left. He kept them in, in the hope of finding a benevolent home for them. They knew they were to be discharged, and similar cases when incurable were discharged from ordinary hospitals as in this case, to make room for others who could be cured. It was true there were only between 300 and 400 patients at Netley, and that there were 900 beds

but the point was that there was no establishment in time of peace to look after the sick to the number of more than 300 to 400 patients. He could not make provision for the soldier who was poor and incurable, because it was not done for the sailor or the civilian. Last year 3,687 men were discharged, of whom 700 were suffering from heart disease and tuberculosis. If 700 men were retained and kept every year, giving them an average duration of life of ten years, it would ultimately mean £324,000 a year for two diseases alone, and if others were included it would be not less than half-a-million a year. Major Seely said he knew the two men referred to. One had not gone to Fermoy workhouse as stated, but had been got into a nursing home at Southampton by friends. He argued that it was wrong to keep a man in for ten years and then discharge him. Sir S. Scott, Mr. Burdett-Coutts, and Mr. Delany spoke on the same side, and then Mr. Maddison supported Mr. Haldane's argument and protested against the distinction drawn between civic and military duty. He said as a workman it would be a wrong to the community for the Government to assume a wide and indiscriminate obligation of this kind. Mr. Wyndham pleaded for more consideration for soldiers who contracted incurable disease while in the service. Mr. Claude Hay and Mr. Forster took the same view, and finally the motion for the adjournment was negatived by 259 to 61.

The Army Nursing Service.—Mr. Rendall asked the Secretary of State for War whether ladies of the nursing service were promoted by seniority coupled with selection; whether he was aware that, as their names were placed on the *Army List* alphabetically, contrary to the custom in other departments, and not according to seniority, they had no means of knowing how they stood for promotion and foreign service; and whether he would look into the matter with a view to inaugurating a fairer and more businesslike system. Mr. Secretary Haldane replied by saying that the arrangement of the names of the members of the Queen Alexandra's Imperial Military Nursing Service in the *Army List* in alphabetical order was made at the request of the Nursing Board (in December, 1902). It was decided at that time that promotion in this service should be by selection and not by seniority. The reason for this was that promotion was made by selection and not by seniority, and the Nursing Board therefore preferred an alphabetical list. Regarding foreign service, the regulations laid down that those who had been longest at home would, as a general rule, be the first to proceed abroad. Arrangements of names could not, therefore, affect this matter in any way. It was a fact that the nursing service was the only department in which names were shown alphabetically in the *Army List*, with the exception of the acting chaplains.

Vivisection.—Sir George Kekewich asked the Secretary of State for the Home Department why the annual report of the Inspector under the Cruelty to Animals Act was issued each year at so late a date that prosecutions for illegal experiments described in his report were rendered impossible by the operation of Section 1 of The Public Authorities Protection Act, 1893; and whether he would, during the continuance of the existing law, direct that the reports should be issued quarterly and promptly instead of, as at present, once a year, and long after the experiments had taken place. Mr. Secretary Gladstone said that there had been no avoidable delay in issuing the report. An immense mass of documents had to be recorded and examined before the report could be prepared, and to issue it quarterly would very greatly increase the labour involved with little or no advantage. Contraventions of the Act were reported to the Secretary of State as soon as they were discovered, so that the institution of proceedings for the performance of illegal experiments was not dependent on the date of the report.

Vaccination was the subject of several questions on Monday last. First, Mr. Hart Davies asked about a case in which a certificate of exemption had been refused to a man after he had obtained certificates from another magistrate on similar grounds for two other children, and inquired whether such cases would be taken into consideration in any future legislation. The Home Secretary said he had not heard of the case before, but that legislation on the subject was in the hands of the President of the Local Government Board, from whom such cases would receive careful consideration. Mr Pickersgill asked the President of the Local Government Board whether, considering that the cost of vaccination had gone up since 1899 from £72,000 to £240,000, he could now state what steps would be taken to reduce this expenditure. Mr. Burns replied that he had given consideration to the subject, and that he expected to be able shortly to take action with regard to it. Sir William Collins also asked what steps were to be taken to improve the administration of the Vaccination Acts, and Mr. Burns said that the subject was receiving his attention, but that he was not in a position to make a statement with regard to it.

Welsh Water Supplies.—On November 7th Mr. D. Maclean asked the President of the Local Government Board whether he was in a position to institute an inquiry, either by Royal Commission or Parliament, to investigate (amongst other things) the need for the protection and development of gathering grounds and other sources of water supply; the allocation of such gathering grounds and other sources on a comprehensive and equitable basis, and the general control and supervision of this subject of national importance by some central and properly qualified body; and if so, whether, in the reference to the body holding such inquiry, he would include the subject of afforestation. Mr. John Burns, in replying in the negative, said he did not think he could at present add anything to the reply which he gave to a previous question on the subject. Mr. Maclean further pressed the right hon. gentleman on the question as to whether there was any hope of the inquiry being instituted soon; and Mr. Burns replied that he was giving the matter his close personal attention, and it was probable that the matter would be dealt with at no distant date.

Aliens and Trachoma.—Sir Williams Evans-Gordon asked the Secretary of State for the Home Department, whether he was aware that trachoma, from which certain immigrants rejected by the United States and brought back to this country were suffering, was a dangerous and highly infectious disease of the eye, and the third cause of total blindness; whether any steps were taken to segregate such cases and prevent the infection being conveyed to others; and whether he could state by whom the cost of treating diseased emigrants rejected in the United States was borne. Mr. Gladstone replied that he was well aware of the serious character of the disease called trachoma. He had already given particulars of the conditions laid down in the single instance in which he had permitted an alien transmigrant reported by a medical inspector under the Aliens Act to be suffering from trachoma to remain in the United Kingdom. The cost of the woman's treatment would be borne, he presumed, by those who were interested in obtaining permission for her to remain in this country. Sir William Evans-Gordon further asked whether any assurances as to segregation of such cases could be given, to which Mr. Gladstone was understood to reply that he would obtain a report.

The Training of Midwives.—Mr. Bateman Hope asked the President of the Local Government Board if he was aware that, owing to the provisions of the Midwives Act, 1902, urgent necessity existed in many counties for training properly-qualified midwives; and whether the Government would introduce a Bill to enable the County Councils to contribute to such training, either out of the general county fund, or out of funds set apart for purposes of higher education. Mr. John Burns said that he had received representations on this subject, but he was not in a position to promise legislation with regard to it at the present time.

Infant Insurance. Mr. Leif Jones asked the Secretary of State for the Home Department whether his attention had been given to the number of cases in which parents drew considerable sums from insurance companies on the death of their infant children through neglect and ill-usage; and whether he would take steps, by legislation or otherwise, to put an end to the practice of infant insurance. Mr. Gladstone said, in reply, that the matter was being considered, and it was hoped, if opportunity offered, to introduce legislation to deal with the matter.

Scotland.

General Medical Council Election.

The Candidature of Dr. Bruce.

A meeting in support of the candidature of Dr. Bruce for re-election as Direct Representative of the Medical Practitioners in Scotland on the General Medical Council was held at the Religious Institution Rooms on November 8th.

Sir T. McCall Anderson, who presided, said that Glasgow with a population of 750,000 had three representatives on the Council, while Edinburgh with about a third of that population had a similar number of members. If Dr. Bruce was not returned, then Edinburgh would have four representatives, and the whole of the rest of Scotland, with the exception of Glasgow, would have only one.

Dr. Bruce said that he appeared before them for the fifth time as candidate for election. Several questions in which he took much interest still remained to be settled, especially the attempt to obtain a larger measure of representation for the profession on the General Medical Council, and the improvement in methods of education and training; a third matter was the advancement of public health and the improvement of the status of the medical officers of health in England. In a previous address to a meeting of medical men in Glasgow he pointed out that the Council had been of great service to the profession in raising the standard of medical education and purging the ranks of the profession of many of those who in various ways were lowering its dignity. The Council had a difficult part to play in attempting, mainly by case law, to define the meaning of "infamous conduct in a professional respect." So far, in no single instance had its judgement been upset on appeal to the civil courts. He held that the present regulations of the Council with regard to medical education were framed on wrong lines, postponing till too late the study of clinical surgery and medicine. The student should begin his education in the out-patient room; at present too much time and interest were taken up in the purely scientific aspects of medical learning and too little attention bestowed on practical matters. The efforts to pass examinations absorbed all the student's thoughts. Reform in some shape was absolutely necessary. He then referred to the proposal for giving security of tenure to the hard-working Scottish Poor-law medical officers. It was, he said, foolish to hope for such a thing. The big Boards who were steadily loyal to their medical officers, and did not change them without due cause, were utterly against the proposal, and would continue to oppose it successfully. The real way to meet the case was to raise the salaries and see that proper manses were provided for the valiant men struggling alone in the wilds of the highlands and islands. In this way a body of contented, well-equipped practitioners would be secured, and in popularly-elected parish councils little would be heard of arbitrary dismissals. In conclusion, he asked those present to vote for him and to influence their neighbours to record their votes, for the great blot on the present system of direct representation was the fact that such a large proportion of the profession was so apathetic as to neglect to send their voting papers to the proper quarter.

On the motion of Dr. Yellowlees, seconded by Professor Glaister, votes of thanks to Dr. Bruce and to the Chairman were heartily passed.

Dr. W. L. Muir, honorary secretary of the Scottish Poor-law Medical Officers' Association, writes: Might I call the attention of the Scottish Poor-law Medical Officers to Dr. Bruce's remarks in his address on November 8th in Glasgow? Speaking about our claim for a more secure "tenure of office,' he said it was foolish to hope for such a thing. Is Dr. Bruce aware that the Local Government (Scotland) Board have recommended that this "foolish" claim ought to be granted—and further have advised legislation in order to carry it into effect? Dr. Bruce appears to have shifted his position on this subject. In the past he has been greatly indebted to the Poor-law medical officers for his election to the General Medical Council, but I do not see how he can expect their support in the present contest.

Dr. John R. Hamilton (Hawick) writes: In the report in the *Glasgow Herald* of the meeting of medical practitioners held in Glasgow on the 8th instant, in support of the candidature of Dr. Bruce for the General Medical Council, it appears that the Chairman, Sir Thomas McCall Anderson, has been unacquainted with Dr. Bruce's position in the North of Scotland, and at the same time forgetful of the actual number of representatives for Scotland. First, he asserted that "Dr. Bruce was a general practitioner." Surely he must know that Dr. Bruce is Medical Officer of Health for Ross-shire, and as such cannot act as a general practitioner. It was certainly understood when he accepted the appointment that his practice was disposed of to someone else, and it must be a surprise to many to hear now, from Sir Thomas McCall Anderson, that Dr. Bruce is still acting as a general practitioner. Secondly, he stated that "in the event of Dr. Bruce being defeated, outside of Edinburgh and Glasgow there would only be one representative." It is quite evident that in making this assertion the existence of Aberdeen and St. Andrews had entirely escaped his memory. Lastly, how did Sir Thomas forget the Crown Representative, Dr. McVail?—essentially a Glasgow representative. If this is the style chairmen propose to advocate the claims of candidates for the General Medical Council, then the less we hear of it the better.

Dr. Norman Walker's Candidature.

Dr. Norman Walker addressed a meeting of medical men at the Palace Hotel, Aberdeen, on November 8th.

Professor Stephenson, who was in the chair, in introducing Dr. Walker, referred to the duties of the General Medical Council with regard to medical education and the maintenance of the purity of the *Register*. He regretted that there seemed to be a good deal of indifference with regard to the election, and believed that this indifference was generally shown by men who were the biggest grumblers in regard to what the Council was doing, or at all events its greatest critics. The problems with which the Council would have to deal in the near future were different from those of the past. Owing to the advances in the scientific subjects and to the great extension in the practical subjects, the curriculum of medical study was overburdened, the whole system and methods of teaching needed readjustment. The Council had added a fifth year to the medical curriculum, but that did not help much, as it had likewise increased the burden on the shoulders of the students. This problem of the future was already under the consideration of the Universities of Scotland, for it was recognized that it was necessary to adjust the various interests and to regulate to a certain extent the amount of study laid upon students, in fact, a new ordinance for Edinburgh would shortly be issued. At present there were two candidates before the profession, Dr. Bruce and Dr. Norman Walker. Dr. Bruce had served the profession in Scotland for the long period of twenty years as a member of the Council. In that capacity he had been most regular, and sat also at committee meetings. Dr. Bruce came in very fortunately at the time when the principal problem was that of public health, and he did good service with regard to laying down regulations with regard to it. In view of his past services, did it not seem a little ungracious to pass him by on the present occasion? It might seem so, but it was certainly nothing of the kind. The honour of election to the Council was a great one but the appointment was not a lifelong one. It was a limited honour, and it was laid down in the regulations that the appointment was for five years. So well, however, had Dr. Bruce gained the confidence and respect of the profession that he had received that honour four times over. Was that not enough to content any man for a lifetime? When Dr. Bruce was re-elected five years ago it was the general impression—he did not say there was a distinct understanding—that it was a nice thing to reappoint Dr. Bruce and allow him to complete his twenty years as a recognition of his previous services. It was, therefore, a surprise when they found Dr. Bruce was extremely eager to go back again. That, however, was for them to decide, and not for Dr. Bruce; and there were certain reasons which, although he (Professor Stephenson) supported him on the last occasion, had prevented him doing so on the present; the first was because the situation had altered so greatly. The situation on the former occasion was not so acute, but now it was quite different, and what they wanted was a somewhat different man. Fresh blood was a common expression, and, although

not quite accurate coming from a medical man, what they wanted was a man whose views were slightly different from the General Medical Council in the past, whose opinions varied to a certain extent, who was in touch with the important subject of medical education, and understood all the intricacies of the subject in a way that a man whose ideas were moulded over fifty years ago, under very different conditions, could not be expected to do. In fact, if they looked at the Council they would see that the great weakness there had been that their mental vision, speaking of them collectively, had suffered from myopia; what was required was a younger man who had more recently passed through the curriculum and who had a thorough knowledge with regard to those extensions he had referred to. It was not from any personal feelings that they wished to put in another man, but from the large public interest that was at stake. The other candidate who had come forward was a man who had been a general practitioner, and that was a great matter, for he should know the difficulties of the general practitioner. He was a leading dermatologist in Edinburgh. He was a member of the medical staff and was engaged in teaching. He was a very active member of the British Medical Association. He was Chairman of the Science Committee, among whose duties was the very important one of the distribution of grants for scientific purposes. Through him Scotland had for the first time been honoured by his selection of a co-opted member of the Council of the British Medical Association. He had been a very successful organizer and a very successful editor of the best Scotch medical journal.

Dr. Norman Walker then delivered an address in which he restated the attitude he defined in the address delivered before the meeting in Edinburgh, reported in our columns last week. His principal reason for standing as a candidate at the present time was, he said, the strong desire of the younger men to see improvements in medical education. Medicine, he thought was probably better taught in Scotland than in any part of the world, and their surgeons were equal to any, but the system of teaching wanted reorganization.

Dr. Rose, in proposing a vote of thanks to Dr. Walker for his address, said that their attitude towards the old representation had changed. Times had changed, and there was a limit. Though they recognized that the old representation had served them well, new conditions had arisen, and these required new men to handle them. With the new regulations in education they required one not only in touch with the medical practitioner but also with the student. Such a man they had in Dr. Walker.

Dr. Gray, in seconding, said they respected Dr. Walker and his views, and felt they could have every confidence in returning him to such an important position as their representative on the General Medical Council. Dr. Stephenson had referred to the fact that the Council of the British Medical Association had appreciated Dr. Walker's capabilities when they co-opted him, and for the first time took any one from Scotland. That was a thing Dr. Walker had reason to be proud of. He agreed very heartily with Dr. Walker in the greater part of what he had said, and one felt that they had every confidence in returning him to the General Medical Council.

The vote of thanks was carried with acclamation.

Dundee.

On November 9th, Dr. Norman Walker addressed a meeting of medical practitioners in Dundee, over which Dr. Robert Sinclair presided. A vote of confidence in Dr. Walker was unanimously passed on the motion of Dr. Duncan, seconded by Dr. McGillivray.

The Union for Women Students, Glasgow.

A bazaar was held last week in Glasgow to provide funds to build and endow a union for the women students attending classes at Gilmorehill, Queen Margaret College. The sum aimed at was £10,000, and £9,000 was obtained. From this sum the expenses must be deducted, but it is expected that at least £7,000 will be available. It is not intended to erect a residential building. A plain, commodious house, with one large hall for meetings, a lunch and tea room, and rooms for the college societies and for a club for graduates and old students is what is aimed at. In order to permit of the annual subscription not exceeding 5s., an endowment is required, and the main object of the bazaar was to provide this.

Mixed Classes at Glasgow University.

An important decision has recently been made by the Senate whereby women students of physiology have been permitted to attend the ordinary course of systematic lectures on physiology for medical students in the University. It is understood that when certain portions of the subject are to be taught, the class is to be divided. In recent years the provision of separate teaching for women students has added enormously to the work of the staff. As the matter stands now it seems that any professor can make application to the Senate to be allowed to admit the women students to his Gilmorehill classes. It appears, therefore, extremely probable that in the course of a few years no provision for teaching medical subjects will be required at Queen Margaret College, as the lady students will all be absorbed into the ordinary classes at Gilmorehill.

Western Infirmary, Glasgow.

Dr. J. Lindsay Steven, Physician to the Royal Infirmary, Glasgow, has been appointed to succeed the late Dr Finlayson as Physician to the Western Infirmary, Glasgow

Ireland.

The Irish University Question.

The Committee of Irish Roman Catholic laymen, who represents a large body deeply interested in the settlement of the University question, has sent a further statement to the Royal Commission. It maintains that a solution of the question by means of a college under the Royal University, or by a separate university for Catholics, is not the best, and it contends that Catholics are entitled to claim the best. There is neither need nor material for two residential teaching universities in Dublin, nor do the circumstances of Ireland or her population justify the unusual plan of the duplication of teaching universities in one city. Without proved necessity, multiplication of universities is wasteful and uneconomical, and may be educationally injurious by lowering the standard of examination and of teaching owing to competition. It is certain that a separate university for Catholics would not give Catholics that equality which they claim, and that the value of those degrees would not compare (especially out of Ireland) with those of a reformed University of Dublin strengthened by a large accession of students. The Committee also points out the advantages which accrue from the association of Protestant and Catholic students in the same college.

With regard to the proposal to have a new college in the Royal University the opinions of Archbishop Walsh and Bishop O'Dwyer of Limerick are quoted, the former of whom described it as a makeshift scheme, and the latter as one which did not give equality. The Committee declared that the Royal University, however modified, could never appeal to Irish sentiment and tradition. It was in favour of a second college in the University of Dublin—for Catholics, as proposed by Lord Dunraven—but it thought that all the advantages to be derived by Catholics from the solution based upon a two-college scheme within the University could equally well be secured by a solution based upon Trinity College being the sole college of Dublin University, but under conditions which are set out at length.

Generous Action of a Medical Man.

An interesting ceremony took place at Islandmagee, co. Down, on November 2nd. Dr. Charles Dundee, J.P., Redhall, Ballycarry, has been connected with the district and acted as its medical officer for twenty-five years, and a number of his patients and many friends joined together to give some public expression of their genuine esteem for him and of his universal popularity. They had intended at first to present Dr. Dundee with a piece of silver plate, but when he was approached on the subject he at once asked them to make him a life governor of the Royal Victoria Hospital, Belfast, instead, in order that, by the powers of recommendations for admission of patients he would thus obtain, the neighbourhood might participate in the benefits accruing from the honour they were doing him. Very many complimentary remarks were made at the presentation regarding the doctor, and, in response, Dr. Dundee referred to the pressing wants of the country in

sanitary matters, and urged the necessity of a more open air life and of a well-trained nurse for each country district.

At the meeting of the Board of Management of the Royal Victoria Hospital, great satisfaction was expressed at the generosity of Dr. Dundee in remembering his old hospital, and at the kindness of his friends who allowed him to make a choice.

Knighthood for Professor J. W. Byers, M.D.

It was with much pleasure that the profession and the public in the North of Ireland received the announcement of the honour conferred on Dr. J. W. Byers. Sir John Byers, as he now is, has been connected with Ulster all his life, both by family ties and by his professional work, and numerous and hearty congratulations will be sent to him not only from his numerous patients and private friends, but also from all classes and individuals. It is most satisfactory that an active life of such public and private utility, both as a citizen and as a medical man and teacher, has received this hall-mark of public recognition. Another matter of congratulation, not only to Sir John and his friends, but also to the public, is that the honour is not what a medical man may term a terminal symptom; the recipient is in the prime of life and has many years of useful work before him. The profession in Ulster join in wishing him many long years to enjoy his honour.

Queen's College, Belfast.

During his visit to the College in July, Sir Donald Currie offered to give one-fourth of the money necessary to purchase an athletic field for the College, provided the students undertook to obtain the rest of the money. The offer was accepted, and a very largely attended meeting of students was held in the McMordie Hall on the evening of November 7th to discuss how best to succeed in the task they had undertaken. Numerous measures were decided on, and the greatest enthusiasm prevailed. A public concert is to be given on November 12th, and other forms of entertainment throughout the winter, and arrangements are already advanced for holding a grand bazaar in May, 1907. There is little doubt that the students will ultimately succeed in what appeared at first a nearly impossible task, considering the heavy calls lately made on the purses of the friends of the College.

St. John Ambulance Association: Belfast Centre.

The annual meeting of this centre was held in Belfast on November 7th. The report showed a large number of classes throughout Ulster, and expressed to the medical men who lectured a deep debt of gratitude for their services. The Belfast Fire Brigade, who form the Belfast Corps of the St. John Ambulance, reported that their services were called upon 2,634 times during the year, and the distance traversed by the ambulance wagons was over 8,801 miles.

A Question of Vaccination Certificate.

At a recent meeting of the Limerick Board of Guardians a letter was read from the Local Government Board adhering to its decision not to sanction the appointment of Dr. Corboy to the Cahirconlish Dispensary District, owing to his not having a certificate in vaccination. It was proposed to ask the Local Government Board to reconsider its decision, as Dr. Corboy was at present attending a course of lectures on the subject of vaccination in Dublin, and hoped to obtain the necessary certificate in a few weeks: arrangements have been made for the due performance of the duties of medical officer in the district while Dr. Corboy is away.

Cork District Hospital.

The Local Government Board Inspector has again drawn attention to the high death-rate amongst the children in the nursery and nursery hospital of Cork Union. The daily average number of children in the department is eighty-seven, and during the past year the number of deaths was 44. The nursery staff consists of a trained nurse for night duty, and a ward mistress for day duty. The Inspector urges that an additional trained nurse should be appointed, and the Local Government Board entirely concurs with this, and suggests that one who has had experience in the management of children should be chosen. The Cork Board is slow to take action.

Lincolnshire.

Water Supplies.

History does not record the circumstances which first caused the adage, "When the devil was sick the devil a saint would be; but when the devil was well the devil a saint was he," to be written; but it certainly might well be applied to those who are responsible for the water supply of Lincoln. They already seem to have forgotten the enormous losses inflicted on the city by the grave epidemic of typhoid fever which broke out in the town a year or two ago, and to be taking only half-hearted measures to ensure that nothing similar shall occur again.

At the end of last month the members of the Lincoln Medical Society were officially invited to visit the waterworks and examine the alterations effected. On that occasion they were assured that the filter beds had been so reconstructed as efficiently to deal with the whole water supply of the City. Only three days later, however, they learned that these filter beds had been found to be inadequate to the task put upon them, and that simultaneously it had been decided by the Corporation to cease to provide any longer a special supply of water for drinking purposes. On this the Society held a meeting, which resulted in a formal statement being addressed to the inhabitants of Lincoln and its Corporation through the medium of the local press. In this the public was advised not to drink water from house taps without previously boiling it, and the Corporation was warned that in resuming for drinking purposes the use of Witham water, however treated, it was running a grave risk. The hope was also expressed that the Corporation would again provide a supply of special drinking water, either from Willoughby or from Newark, or from any source approved by the medical officer of health.

At the same time, an apt quotation was made from a report of the medical officer of health, dated nineteen years ago. The opinion expressed in this report, it was stated, still held good, and its quotation is the more notable, because it brings into relief the fact that the Corporation had been warned of what it might expect long before the epidemic broke out. On that occasion it proved deaf to the advice given it; but it is impossible to believe that it will now behave in the same way in the face of the fact that the counsel in the present instance has been given publicly and by the medical profession of Lincoln as a whole.

In other parts of Lincolnshire questions of water supply are also attracting attention, but not being dealt with in a manner which can be considered at all satisfactory. Thus at a recent meeting of the Gainsborough Rural Council the question of a proper water supply for the inhabitants of a number of Trentside villages was brought up at the instance of the Local Government Board. It was shown that in the parishes in question there were some 150 wells in use, and a subcommittee which had already considered the subject recommended that before any other steps were taken the medical officer should be asked to make an analysis of the water of all of them, and that he should be paid for this work a sum of £50. The recommendation was adopted, but it seems exceedingly doubtful whether a satisfactory examination of the water can possibly be made for anything like the sum mentioned. The examination of the water of 150 wells for a sum of £50 works out at less than 7s. a sample, a fee which under ordinary circumstances would do little more than pay for their collection over a scattered area and under due precautions as to their identity and freedom from extraneous contamination, with a sufficiency of indispensable information as to the surroundings of each well.

Australia.

Vaccination in South Australia.

We learn from the *Australasian Medical Gazette* that there is a Bill now before the State Parliament of South Australia providing that the Vaccination Act of 1901 shall be made permanent. The effect of this will be to render vaccination non-compulsory, and in view of this serious

retrograde step, the South Australian Branch of the British Medical Association has taken steps to bring to the knowledge of the Government the opinion of the profession on the importance of compulsory vaccination. In a letter addressed to the Premier, Dr. E. W. Morris, the President of the Branch, points out that the proportion of vaccinations to births since the Act of 1882 was first interfered with has fallen from 72.47 per 100 in 1895 to 16.22 in 1904, and it is stated that when the returns for 1905 are completed they will show a still increased reduction. At a meeting of the Branch held in August the following resolutions were passed: (1) Inasmuch as vaccination constitutes the first line of defence against small-pox, and as no practical alternative exists which can be relied upon to accomplish the same result, this Branch of the British Medical Association deprecates the introduction of any legislation which would abolish compulsory vaccination of infants. (2) This Branch is strongly of opinion that the Vaccination Act should not be interfered with at the present time, because (*a*) quarantine (which is intimately associated with the question under discussion) will shortly become a federal matter, and then it will be necessary for all the colonies to fall into line as regards vaccination; (*b*) an amended Act has been passed in England, to remain in force for five years, and it will be wise to wait the result of this action, which is admittedly an experiment. (3) This Branch is of opinion that, in the event of an amending Bill being introduced here, provision for the universal use of guaranteed glycerinated calf lymph will meet all valid objections to vaccination.

CORRESPONDENCE.

THE REPORT OF THE COMMISSION ON POOR-LAW REFORM (IRELAND).

SIR,—I am not sure whether Dr. Rhodes has studied the Blue Book containing the full report of the Viceregal Commissioners, or whether he has only read the *précis* published in the BRITISH MEDICAL JOURNAL. Had he read the history of the workhouse system in Ireland as given in the full report, I can hardly think he would have found fault with the Commissioners for their desire to abolish even the name of that institution. No one who has not seen these institutions as they were prior to 1895 is capable of understanding the disgust the very name of workhouse conveys to all classes of Irishmen.

Dr. Rhodes considers the proposal of the Commissioners to have only one almshouse for a county objectionable, because of the distance people would have to travel to visit their aged relatives. Dr. Rhodes is obviously thinking of the conditions prevailing in English workhouses, with which I also am practically acquainted; but in Ireland the poor only enter the workhouse when they have not a friend left in the world, and it matters little to them where they end their days so long as they feel sure of being buried among those who have gone before them. The Irish poor often pinch and starve to save the pound that will ensure their being buried in the churchyard where their friends lie.

Furthermore, the Commissioners contemplated that only those whom senile decay, with lack of friends to look after them, would render ineligible for out-door relief should be transferred to the central almshouse. The other proposals of the Commissioners for the disposal of unmarried women and their children, persons of weak intellect and tramps meet, I think, with the approval of all those persons in this country who have studied the problem of Irish Poor-law reform.

With Dr. Rhodes's observations *re* a State medical service I am in agreement, for it appears to me in the form proposed to be quite impracticable. Not that I am opposed to a State service—quite the contrary—had it been proposed to make all the Poor-law medical officers civil servants, and pay them as such. It may not be generally known that at present the Treasury pays three-fourths of their miserable salaries, so that the extra expense of converting them into civil servants would be comparatively small, but the difficulty is that the Treasury could not then shift upon the shoulders of the Boards of Guardians the responsibility for sweating their employés, as is now the case.

As an Irishman I regard as most unfortunate the suggestion that these hospital appointments should be reserved for Irish graduates, not alone for the reasons Dr. Rhodes has assigned but also because it implies we are not capable of holding our own in open competition. No passage in the report has aroused more dissatisfaction in the ranks of the Irish profession than this, for we are proud, even if poor. However, I feel sure that this view did not occur to the Commissioners, else they would never have proposed it.

As to insulting the General Medical Council and the licensing bodies it represents, it is so well used to having its shortcomings exposed, *pace* the deprecatory explanation of its limitations by its chairman, that one insult more or less will not turn a hair upon it.

We owe a debt of gratitude to the Commissioners for stretching their terms of reference to the utmost. Like Dr. Rhodes, I am Poor-law reformer of a good many years' standing, and I am bound to say I am entirely satisfied with almost every recommendation they have made, and I feel confident their proposals, if carried out, would be of immense service to the poor, the ratepayers, and the Poor-law officials.—I am, etc.,

Errigle, Coatehill. Nov. 13th. T. H. MOORHEAD, M.D., J.P.

SURGICAL TREATMENT OF CHRONIC COLITIS.

SIR,—Mr. Olmsted in his interesting paper upon this subject in the BRITISH MEDICAL JOURNAL of November 10th, p. 1277, makes a statement which, I think, calls for criticism. In discussing the diagnosis he says:

> An electric sigmoidoscope is very valuable in many cases. If, however, the rectum is ulcerated and infiltrated with inflammatory products, one frequently cannot use it.

I do not agree that there is any such limitation to the use of the electric sigmoidoscope; on the contrary, these are just the cases in which it is of most value. Ulceration and inflammation of the rectum and sigmoid renders examination with the instrument more difficult, chiefly because of the difficulty experienced in properly emptying the bowel. In such cases, also, the examination may be painful, though under ordinary circumstances it is not; but there is no difficulty or objection to making the examination under local or general anaesthesia. I have examined a great many cases of colitis with the sigmoidoscope, and have never found any serious difficulty or failed to make a satisfactory examination. It is most important that a proper instrumental examination of the rectum and sigmoid should always be made in cases of colitis, as the causes for the condition are very varied, and it is becoming more and more evident that in many cases the lesion is confined to about the last 12 inches of the bowel. A colostomy is under any circumstances unpleasant to the patient and to those who have to attend upon him. I feel certain that often a careful examination with the sigmoidoscope will reveal a local cause for the colitis and enable it to be successfully treated without the necessity for performing any kind of colostomy. Those cases of colitis which are benefited by a left inguinal colostomy can be as well or more effectually treated by local applications applied through the sigmoidoscope, and the patient thus saved the necessity for an operation and (what is more important) the discomforts of an artificial anus. The great value of sigmoidoscopy in cases of colitis is that it often enables us to make an exact diagnosis in place of one which is only founded upon symptoms.—I am, etc.,

London, W., Nov. 11th. P. LOCKHART MUMMERY, F.R.C.S.

THE EVAPORATION OF CHLOROFORM DURING INHALATION.

SIR,—My attention has just been directed to Dr. Barton's letter in the BRITISH MEDICAL JOURNAL of September 8th, page 598, in which he adversely criticizes a statement of mine in the JOURNAL of August 4th to the effect that the same quantity of chloroform may be made to subserve anaesthetic purposes in both hot and cold weather. The statement is certainly subject to some qualification, but I think it is evident from my paper that it is intended to apply to chloroform which is properly submitted to inhalation. When the whole of the chloroform is evaporated through the agency of the respiratory air currents only, then my statement holds good, and my practical experience is strictly in accordance with it. If,

however, a method is employed by which only a part of the chloroform is submitted to the patient's respirations, being also in part distributed "to those who do not want it," then no doubt a somewhat increased waste of vapour occurs in hot weather. At the same time the case, as presented by Dr. Barton, is, I think, overstated. As regards the effect upon the olfactory senses of the by-standers, this is surely in relation to the concentration of the vapour (higher in hot weather), and not necessarily to the total quantity wasted.

With Dr. Barton's concluding remarks I am quite unable to agree; a rapid stream of drops of chloroform may, after a little practice, be counted out with the minimum exercise of mental effort. It is, however, necessary to emphasize the importance of using an efficient drop bottle, and the simple form manufactured by Lempricht Freres for chemical reagents is the most suitable which I have discovered for this purpose.—I am, etc.,

Nelson, British Columbia. A. G. Lévy.

THE CONTAGION OF CANCER.

Sir,—I shall be much indebted to any member of the Association or to any member of the profession who will be kind enough to furnish me with information regarding any case of reputed contagion of cancer, either in adjacent parts of the same individual or from one individual to another. I should prefer cases which are actually now in progress; but I shall be glad to have notes of cases which have been observed.—I am, etc.,

82, Harley Street, W., Nov. 10th. Henry T. Butlin.

ANTIVACCINIST TACTICS.

Sir,—May we acknowledge and thank you for your courtesy in publishing our letter upon antivaccination tactics in the British Medical Journal, October 13th, 1906, p. 978? In this letter, through a typographical error, we have unwittingly conveyed the impression that the abstracts in the brochure referred to were from two separate articles when, as a matter of fact, there was but one article published in the *Cleveland Medical Journal*. This fact in no way mitigates the violation of the conditions under which permission for publication of these abstracts was granted. In the interest of truth the following statistics may be given, as they serve to undo the fallacy of the claim as to the potency of formaldehyde disinfection, also the mischief done by Dr. Friedrich's paper, and established beyond dispute the efficacy of vaccination in the prevention of small-pox.

Small-pox in Cleveland, Ohio, from 1898 to 1906.

Year.	Number of Cases.	Deaths.
1898	48	—
1899	475	3
1900	993	16
1901	1,230	20
1902	1,238	224*
1903	106	22
1904	42	—
1905	—	—

* General vaccination instituted in September.

The epidemic of 1901 was "a mild, slightly contagious disease, which left no marks, and seldom proved fatal" (Dr. Friedrich). The health officer took charge at the fag end of this epidemic and complacently published the proclamation, "The death-blow to this epidemic was dealt by formaldehyde"! (Dr. Friedrich).

Following this supposed new discovery came the virulent epidemic of 1902, with its appalling fatality. Through "the prompt and vigorous initiative of the physicians and the intelligent energy of their lay coadjutors" (Dr. Henderson's Report) 195,000 individuals were vaccinated. The epidemic outbreaks of small-pox, which had been recurring since 1898, and which, despite the campaign of disinfection in 1901, had reached a climax in 1902, were brought to a halt so suddenly after the wholesale vaccination that for the past two years the city has been absolutely free from this disease.—I am, etc.,

Edward Perkins Carter,
Editor and Manager, the *Cleveland Medical Journal*.
The Cleveland Medical Journal Company, 260, Euclid Avenue, Cleveland, Oct. 27th.

THE ANTIPODES AND PATENT MEDICINES.

Sir,—In a letter you did me the honour to publish nearly a year ago, I dwelt upon the fact, which you state in your issue of the 10th inst., in a paragraph under the above heading, namely, "that it is not the medical profession but the public which suffers from the enormous prevalence of quackery." Is it not time that the profession made an effort to abate this evil, the magnitude of which they alone are able to estimate? New legislation is urgently called for, but before this becomes possible, it will be necessary to prove that it is demanded more for the protection of the public than the advantage of the profession. This proof, as I suggested in the letter referred to, can be furnished in the most complete and convincing fashion through the medium of a Royal Commission, and in no other way. The infamy of quackery, including the quack medicine trade, could be there fully and clearly demonstrated. A hideous story of cynical villainy would be unfolded which could not fail to touch the consciences of the more intelligent classes and of their representatives in Parliament. In the case of the lawyers, it has been shown that practice by fraudulent pretenders can be easily prevented; and there could be no difficulty in constructing equally effectual legislation for doctors. The greater part of the trade in quack medicines could be brought within the scope of ordinary criminal law. Quack medicine vendors could be made liable to prosecution for obtaining money under false pretences, and could be placed under the surveillance of the police. It must be borne in mind that no help in this movement will be given by the lay press. From the *Times* downwards they are all taking a share of the enormous sum—certainly more than a million sterling—which is being spent annually in advertisements by quacks. Exposure of the facts before a Royal Commission might bring shame to some of the wealthier newspaper proprietors, and we might perhaps hope that one or two of the noble lords who own leading papers, and are now augmenting their incomes by participation in a nefarious traffic, would turn away and throw in their influence on the side of reform. They would at any rate no longer be able to plead ignorance in justification of their conduct.—I am, etc.,

London, W., Nov. 11th. Henry Sewill.

MEDICAL BENEVOLENCE OR THRIFT.

Sir,—The important letter of "Validus" in the British Medical Journal of November 10th deserves a more prominent place than you accord it. The position of its poorer members is a scandal to the medical profession, and the pitiable plight of the dependants of any deceased members of the British Medical Association is a lasting disgrace to us. With our princely income of over £50,000 a year, we do absolutely nothing for the widows and orphans of our deceased fellow members. The report of a *so-called* medical benevolent association announced the startling fact that a poor widow had been granted £5, and that this stupendous amount was given "*all in one sum*"! It makes one blush for our meanness.

Again and again I have proposed that a *thrift* fund should be instituted—a grant of £2,000 a year from the Association, and an addition to the annual subscription of, say, 2s. 6d. This would bring in another £2,500, or a total of £4,500, and this fund would be at the *command* of the widows and orphans, who would have a right to benefit, and not have to demean themselves, as now, by going on bended knee for votes for "Epsom." Four years ago this scheme could have been readily carried out; we had large surpluses. These have vanished through the disastrous financial losses brought about by the unfortunate reconstitution of the Association, and it is utterly hopeless to expect any help either in defence, thrift, benevolence, or any other thing from the Association unless and until the subscription is greatly increased. Up to recently the objection was "it can't be done legally," now we must add "it can't be done financially." But will the maximum

subscription of £5 ever be tolerated? Imagine for a moment the Lancashire and Cheshire Branch allowing its annual subscription of £10,000 to go to London to be dealt with by the present management!

At the annual meeting a speaker referred to the Medical Sickness Society as an example of economy. What a contrast! This society was sketched out in a paper I read before the annual meeting of this Branch in Liverpool twenty-five or twenty-six years ago. A meeting to discuss it was held at my house a week or two after, Dr. Lloyd Roberts in the chair, and it was unanimously agreed to make a start. We reported this to the late Mr. Ernest Hart who, with his usual far-sightedness, grasped the whole situation, wrote it up in the JOURNAL, got a strong committee, and the meetings were held at his own house for years. This society is now twenty-four years old, has paid all its liabilities, has several permanent invalids on the books, and a reserve fund of £200,000!

The British Medical Association, three times as old, has never done anything and has not half the funds! I am pressing the Lancashire and Cheshire Branch to put by as a nucleus its reserve fund of several hundred pounds, and levy an annual fee of 5s. upon every member—or about £500. We shall forthwith do more for our needy neighbours than the whole of the wealthy (?) British Medical Association. Voluntary benevolence is useless—thrift must be compulsory—every member should be compelled to subscribe to the "self-help" fund.

It is my duty to say that the great success of the Medical Sickness Society is largely due to the able services of Dr. de Havilland Hall, who has been Chairman of the Executive so many years, and has personally watched the detailed management of the work.—I am, etc.,

Old Trafford, Nov. 12th. JAS. BRASSEY BRIERLEY.

SIR,—Might I suggest to "Validus" and to others who take an interest in this matter to bring the question before their respective Divisions? In this way it can come up before the Representative Meeting and receive the consideration of the whole Association.

Any scheme will present difficulties, but as these have been solved by other kindred professions they are not insuperable.

I have before me the last annual reports of the two funds in connexion with the clergy of the Irish Presbyterian Church. The annuity from one to widows or representatives is £42, from the other £60.

In comparing these reports with those of our Benevolent Fund the most striking thing is that the annuitants' names in the first case are printed in full, while in the second the personality of the recipient is concealed by initials.

It does not tend to increase the dignity and respect of the medical profession in the eyes of the general public when the widow of a clergyman is known to be in the receipt of a fair competence, while the widow of a doctor is ashamed to own that she receives as a dole about one-fourth of the amount.

A scheme for a medical provident fund seems to me quite feasible. As there would be every probability of receiving from time to time generous donations, an annuity of about £50 with actuarial solvency could be secured by an initial payment of £50 with an annual subscription of £2 per annum.

I expect that this important matter will come up before the Ulster Branch in time for the next Representative Meeting.—I am, etc.,

Belfast, Nov. 12th. R. M. FRASER, M.B.

ORGANIZATION OF BRANCHES AND DIVISIONS.

SIR,—I have felt disappointed that Dr. Frederick Smith's letter has not evoked more replies.

Personally, I should much regret any alteration in the constitution of Divisions. Doubtless there are wide differences in the actual working of Divisions. One can, of course, only speak of the results of one's own Division, and I must say that it has been eminently satisfactory from every point of view. The attendance has been good, and the discussions have been extremely interesting. Our members have taken the trouble to make themselves thoroughly acquainted with the politics of the profession. I should be sorry to see any of the work of the Divisions transferred to the Branches.—I am, etc.,

Cardiff, Nov. 13th. T. GARRET HORDER.

THE RUBBER TEAT AND DEFORMITIES OF THE JAW.

SIR,—Dr. Pedley's explanation (use of rubber teat) of the causation of deformities of the hard palate and dental arches, and of deviations of the nasal septum, is open to objections.

If these deformities are due to the use of the rubber teat in babyhood, they should be common at this period of life. But they are not. In fact, they are rare before the age of about 6. Dr. Lack, in *Diseases of the Nose*, p. 105, says: "I have never seen a true deviation (of the nasal septum) under the age of 6;" and deformities of the hard palate or dental arches before this age are so uncommon as to have led many to deny their existence.

Again, is Dr. Pedley sure that the "comforter" is always treated by the babe as he supposes—sucked? I asked the first mother I met, and was told, "It is asleep half its time with the 'comforter' lying at the angle of its mouth, and in a very short time it bites a hole in every new 'comforter.'" Thus it seems that biting is possibly as common a use of the "comforter" as sucking, and if the child does suck, air is soon admitted. Or is a bottle always difficult to suck? It used to be urged against bottles that the child sucked too easily and filled its stomach too fast.

Caries of certain teeth is ascribed by Dr. Pedley to the use of the comforter, but constant chewing and flushing of the teeth with saliva tends strongly in the opposite direction.

Adenoids are ascribed to the same source, but I must acknowledge to being unable to follow the argument, and should be glad of any assistance in this direction.—I am, etc.,

London, W., Nov. 13th. J. G. TURNER.

"A SIDELIGHT ON MEDICAL EDUCATION."

IN a further letter on this subject, Professor Dixon writes: In your statement printed at the end of my letter of October 29th, and published by you November 10th, you say that the numbers complained of by me are not percentages but are averages, and that "as they are averages they are correct." I maintain that the figures in question, namely, those published by you June 3rd, 1905, are equally incorrect and equally inconsistent, whether they are regarded as "averages" or as percentages. To take two examples, it is impossible to understand how the "average" success of the same group of candidates (153 in number) can at the same time be represented by 33.9, 54, and 47.8; or how the "average" of failures can at the same time be 35.1, 22.6, and 29. These are some of the contradictory "averages" which you assert "are correct."

A CONFERENCE on nursing organized by the Provisional Committee of the National Council of Nurses will be held on Thursday, Friday and Saturday next, at St. George's Hall, Mount Street, Berkeley Square, London, W., at 8 p.m. on each day. On Thursday evening a discussion on the care of the consumptive will be opened by Dr. Kelynack and Miss Helen Todd, Matron at the Royal National Sanatorium, Bournemouth; on Friday evening a discussion on maternity nursing will be opened by Dr. W. J. Gow and Miss Amy Hughes, Superintendent, Queen Victoria's Jubilee Institute for Nurses; on Saturday evening a discussion on mental nursing will be opened by Dr. Robert Jones and Dr. G. M. Robertson, Medical Superintendent, Stirling District Asylum. Persons interested in the subject are invited to be present. A nursing exhibition will be held in the same building on the same days, opening at 11 a.m. on each day.

AT the meeting of the Metropolitan Asylums Board on November 3rd the Hospitals Committee presented a report in reference to the proposed provision of new central laboratories at Peckham Rye for the production of anti-toxic serum. In view of the impracticability of completing any scheme by the time when the existing temporary arrangements with the Royal Colleges of Physicians and Surgeons expire at the end of the present year, the Committee had been in communication with the Colleges with a view to the extension of the temporary tenancy of the existing laboratory accommodation at the Examination Hall, and the Colleges intimated that they were willing for the tenancy to be continued at the present annual rental (£500) for a further period, on the understanding that it be determinable by three months' notice on either side at an time. This was agreed to.

OBITUARY.

ROBERT HAMILTON BELL, F.R.C.S., M.R.C.P.

The death of Dr. Robert Hamilton Bell has caused widespread regret amongst a large number of medical men in London, and has robbed obstetric medicine of one of its most able and energetic workers. The sad event has befallen with appalling suddenness. Only 35 years of age and of good physique, he was generally regarded as a robust man, but there can be little doubt that of late he had tried his powers of endurance very severely by untiring devotion to his work. A neglected cold and a severe family bereavement had recently told on his health and spirits. On October 26th, when he gave a lecture at St. Thomas's Hospital, he was far from well; that night he was suffering from acute laryngitis, and on the following day a small patch of consolidation appeared in one lung. The pneumonic process made rapid strides and appeared to be of a low but virulent type. On October 28th both lungs were consolidated, the pulse rapidly failed, and death came to him after a few hours of unconsciousness on the night of Monday, October 29th.

Robert Hamilton Bell was born in 1871, and in 1891 went to Trinity College, Cambridge, where he graduated B.A. in 1894, obtaining a second class in the Natural Science Tripos. His active mind and love of athletics caused him to take an active interest in the life of the University, which he retained undiminished in after-years. He formed there many enduring friendships, and his loss will be greatly deplored by many old Trinity College men. In 1895 he entered St. Thomas's Hospital, and graduated M.B.Camb. in 1898. After filling with distinction the posts of House-Physician and Obstetric House-Physician at St. Thomas's Hospital, he started in general practice in Kensington in 1899. He soon decided to take up obstetric medicine as his special work, and in 1901 was appointed Physician to outpatients at the Samaritan Free Hospital; in this and the following year he took the diplomas of M.R.C.P.Lond. and F.R.C.S.Eng. In 1902 he was appointed Registrar and Obstetric Tutor at St. Thomas's Hospital. In 1905 he was appointed Assistant Obstetric Physician to the Great Northern Hospital, and in the following year Assistant Physician to the British Lying-in Hospital. He was a Fellow of the Obstetrical Society of London, and contributed many valuable papers at their proceedings, much original work of his also appeared in the St. Thomas's Hospital reports and in several papers in the *Journal of Obstetrics and Gynaecology*. He was engaged on an elaborate analysis of cases of tubal gestation intended for the latter journal when death stayed his hand: nevertheless, it is hoped that the paper will be published in a forthcoming issue.



It is obvious that Dr. Hamilton Bell had not spared himself in order to obtain a position in London as an authority on obstetric medicine; into the five years during which he had devoted himself to this ambition he had crowded an amount of work few men could have accomplished, and attained a distinguished position. The tragedy of his death is intensified by the reflection that he had established himself on the path which was to lead to a certain success, and that he had put the greater part of his anxiety as to the future behind him.

Dr. Hamilton Bell was a very popular and inspiring teacher, possessing the gift of being able to impart his knowledge to others. His whole-hearted enthusiasm in his work and his genuine interest in the welfare and progress of the students at St. Thomas's Hospital never failed. As a clinician he was no less capable, and his courtesy and kindness to his patients and the extreme thoroughness with which he studied his cases served as a fine example to the younger men. His sound judgement and clinical acumen also made his opinion valuable to his colleagues. He inspired confidence and a sense of reliability which could only come of a high standard of rectitude and a great honesty of purpose. Intellectually he was well equipped. He had a most receptive mind and an excellent memory. The wide field of outside interests into which he threw himself with all the thoroughness which characterized him made him a most interesting companion. He was an excellent citizen, and entered into the political life of the country with keen zest and ability. Literature of the best sort had a great fascination for him, and he was an able critic and a writer of no mean ability. He brought to bear on all he said or wrote a clearness and originality of thought that could not fail to impress and attract. His nature was unselfish, and he never sought his own ends when there were larger and more important issues at stake. He was possessed of so charitable a spirit and so gentle a temper that it was always a joy to be in his company, and his keen sympathy and enthusiasm made of his friendship an inestimable privilege. He had a keen sense of the humorous side of life, and was always ready to enliven a dull hour by his quick wit and ready, but never untimely, jest. Dr. Bell has passed away, but his earnest, kindly face, his cheerful disposition, and his strong, manly character will not be readily forgotten by his many devoted friends.

> The gain of such large life as match'd with ours
> Were sun to spark.

One of his colleagues at the Samaritan Free Hospital writes: Dr. Hamilton Bell was esteemed as a friend and admired as a man of real ability by the entire staff and governing body of that institution. Notwithstanding his engagements elsewhere, he was ever punctual in his appointments and assiduous in his duties, devoting a large share of his time to work in the hospital. His colleagues were deeply impressed by his judgement and clinical knowledge when they met him in consultation in the wards of the hospital. They were all of one accord concerning his ability as an operator. As a teacher who had gained experience in a large medical school he tried hard, in conjunction with several of his colleagues, to increase the reputation and utility of the Samaritan Hospital by establishing courses of post-graduate lectures.

We may note the melancholy fact that when we announced, in the Diary of the British Medical Journal for October 27th his lecture on the Diagnosis and Treatment of Ectopic Gestation he was still up and about; when the number appeared he was already stricken, and three days before the appointed date he was no more.

As Hamilton Bell was public-spirited, judicious, and conciliatory, he was appointed Honorary Secretary to the Medical Committee of the Hospital, proving an excellent diplomatic intermediary between the staff and the management of the institution which he loved so well.

WILLIAM HORROCKS, M.R.C.S., L.S.A., of Turton, near Bolton, Lancashire, died on November 4th, from bronchitis and hypostatic pneumonia. He was born in 1839 and began his medical career as an apprentice to a medical practitioner. He entered Guy's Hospital, London, in 1858, and commenced practice in Turton in 1862. After forty years' work he retired four years ago. He was beloved by the poor folk amongst whom he had served so long. He was kind and genial and particularly fond of animals. He took an active part in educational and sanitary matters in his own district. He leaves a widow and three daughters.

MEDICO-LEGAL AND MEDICO-ETHICAL.

A MISCARRIAGE OF JUSTICE.

ON November 5th application was made to the judge of the Southwark County Court for a new trial in a case in which a medical man had been cast in damages of £25 by a jury for alleged negligence. The patient concerned in the matter was attended by the appellant during her confinement, and all seems to have gone well for about three weeks. At the end of that time she began to suffer from haemorrhage, and was seen by another medical man, who removed what he said was a piece of placenta.

At the original trial, after the general facts of the case had been stated in evidence, Dr. Boxall appeared as a witness on behalf of the defendant. His evidence was to the effect that the defendant's treatment had been correct throughout, and that what had been removed by the other medical man was probably merely a piece of organized blood clot. He did not believe that the medical man who gave evidence for the plaintiff could possibly have identified the substance as placenta if he examined it only in the way described. In any case, the leaving of a small piece of placental tissue in the uterus was by no means necessarily a proof of negligence. On the conclusion of the evidence the jury, after consultation, made a statement to the effect that it did not consider itself qualified to decide on the question of negligence. The judge, however, told the jury that it must return a verdict on the point, and after prolonged consideration it decided in favour of the plaintiff.

When the application for a new trial was made, as stated, the judge refused it on legal grounds, but added that he thought it right to say that, if the decision in the original trial had rested with him, he would have had no hesitation in deciding in the appellant's favour.

Throughout the proceedings the medical man in question was represented by the London and Counties Medical Protection Society.

PLACENTAL TISSUE OR BLOOD CLOT?

AT the East Ham Coroner's Court at the end of October, Dr. E. McW. Bourke called the attention of the coroner to a case recently before him in which death had taken place some ten days after childbirth, and in which Dr. Bourke, who was called in at the last moment, had refused to give a certificate. Subsequently, on making a *post-mortem* examination by the coroner's order, in the presence of another medical man, he found in the uterus two pieces of placenta, one attached and the other loose, which he testified were portions of an ordinary placenta. When he had given evidence to this effect, the case was adjourned, and at a further hearing another medical man, who had seen the tissues when placed in spirit, described them as a placenta succenturiata. Dr. Bourke having disputed this view, the case was then again adjourned until October 15th, when Dr. John Phillips said that he had made a microscopic examination of the substance, and found it to be only blood clot.

The question originally before the Court was whether the midwife in charge of the case had performed her duties properly and duly attended to the removal of the afterbirth. In Dr. Bourke's view much of it had been left behind. After the evidence of Dr. Phillips, however, a verdict of death from natural causes was returned. Nevertheless, Dr. Bourke, by permission of the coroner, removed a portion of the disputed substance and sent it for examination to the Clinical Research Association. He received in return the following certificate, a copy of which he submitted to the coroner on the occasion indicated.

> The specimen marked "Mrs. ———, ——— Road, East Ham," received here on October 15th, 1906, has been duly examined, and I have been instructed to forward the following report thereon:
>
> "This specimen consists of portions of placenta and blood clot. The chorionic villi, in different stages of degeneration, are very typical, and show small areas in which fibrin has been deposited around them. This condition of white infarction is normal towards the end of pregnancy."

MEDICAL PRACTITIONERS AND NEWSPAPERS.

WE learn from *American Medicine* that a committee of the Philadelphia County Medical Society recently passed resolutions condemning the publication in the lay press of the description of operations, new treatment, and allied medical matters in connexion with the name of the practitioner, and calling on members of the society, with the object of preventing such publication, to make such representations to the superintendents or other officers of the hospital with which they are connected, as will, as far as possible, prevent internes, nurses, employés or friends from giving information to reporters. It was further resolved that the society should try to prevent reports of the papers read at its meetings from being publicly mentioned unless such publication were conducive to the public welfare. The secretary or reporter was to be instructed to give to the press a censored report which should always be anonymous so far as the authorship of the papers was concerned. The society also condemned the publication of medical interviews in connexion with the names of physicians, excepting such as related to municipal sanitation and other matters concerning the public welfare. Finally, it was resolved that copies of all articles appearing in the press of Philadelphia relating to regular practioners of that city should be placed in a scrap book by the assistant-secretary for the inspection of members. A member whose name appeared therein should be allowed to attach thereto a written explanation.

THE ASSUMPTION OF TITLES BY REGISTERED PRACTITIONERS.

DR. FREDERIC C. WOOD (Wood Green, N.) writes: In your Medico-Legal and Medico-Ethical column of November 10th, p. 1336, with reference to the assumption of titles by registered practitioners, you say that "he (Hunter) claimed to possess a diploma of Doctor of Medicine of the University of Philadelphia, a notorious institution which existed simply for the sale of its diplomas or degrees to any one who would pay for them, and has since been suppressed by the State of Philadelphia." In justice to Herbert Kingsley Hunter's memory, I feel constrained to write and tell you that he was a Doctor of Medicine of the Jefferson Medical College, Philadelphia, a State-recognized university. If this degree had been obtained before the passing of the Medical Act (1886), it could have been registered as an additional qualification.

*** In the *Medical Directory* for 1897 the entry after Mr. Hunter's name is "M.D.Phila." As far as we are aware, the information contained in Dr. Wood's letter has not previously been published.

MR. A. MOWBRAY UPTON (Clerk to the Society of Apothecaries) writes: I have read with considerable interest the article appearing in your last issue under this heading. Personally, I am inclined to think that the question as to whether a registered practitioner is entitled to call himself "physician," "surgeon" or "Dr." irrespective of his diploma or degree, is of more academic than real importance. I further venture to think that the legal decisions to which you allude at some length, are not of any very great value in helping to decide the question. I am sure that any one who has read the judgements of the Divisional Court (not the Court of Appeal) in the case of Hunter *v.* Clare, would be sorry to think that these judgements constitute a final and binding decision as to what the holder of the licence of this Society, or any other qualifying diploma, is or is not entitled to call himself. As a matter of fact, the Society were advised immediately after that decision by the most eminent counsel, that the decision of the Court was not correct, and the Society at once proceeded to authorize their licentiates to continue to designate themselves by the style of "physician and surgeon," which they have done to this day without let or hindrance.

NOTICES OF MEDICAL MEN IN THE LAY PRESS.

A. M.—We do not think medical men can be held responsible for paragraphs about them in the newspapers unless it can be shown that they have in some way brought about their publication. The story told in the newspaper strikes us as rather absurd. A doctor who takes upon himself to present what he calls a "medal" to the wife of a patient who has shown more than ordinary devotion and intelligence in the work of nursing seems to be arrogating to himself a function which is an attribute of Royalty, or at least of some publicly constituted body.

MEDICAL CONTRIBUTORS TO LAY NEWSPAPERS.

L. H.—We know of no rule or warning given by the General Medical Council condemning the publication of articles in the lay press by medical practitioners, but the subject is now under the consideration of a Subcommittee of the Central Ethical Committee of the British Medical Association.[1] It is no doubt true that certain articles which appear under the names of medical practitioners are of the nature of advertisements, and are much to be deprecated.

CONTRACTS NOT TO PRACTISE.

XENOPHA.—If consulting practice is to be excepted from the general terms of the agreement it must be expressly mentioned.

[1] SUPPLEMENT to the BRITISH MEDICAL JOURNAL, November 3rd, 1906, p. 245.

PATIENT'S CHOICE OF MEDICAL ATTENDANT: DOOR PLATES.

ETHICAL.—(1) Under the circumstances stated our correspondent is perfectly at liberty to attend the husband. The rule about interference applies only to cases where another practioner is actually in attendance. The fact that some one else attended the patient some time ago is not important, as he is at liberty if he pleases to select a new medical attendant in any subsequent illness. (2) So far as we know we have not said that we thought a doctor ought not to put up a plate at any address at which he does not "actually reside," by which we suppose our correspondent means eat and sleep, for in that case we should have condemned many of the consultants of London, Manchester, and other large towns who do not actually reside at their consulting rooms. What we have frequently said is that we do not approve of plates being put on houses, where the practitioner has no bona fide tenancy, for simple advertising purposes, a very different thing; consequently, we see no objection to our correspondent taking consulting rooms in Harley Street or anywhere else he may please.

DOOR PLATE.

INQUIRER.—It is not unusal, and would certainly not be wrong, to place a door-plate at the corner leading to our correspondent's house.

SCHOOL CLOSING CERTIFICATES.

A. G. asks: (1) Is a guinea, or two guineas, a reasonable fee for granting a school closing, or opening, certificate? Can both be charged for? (2) A doctor entitled to such fees, who has not collected them, though an account had been rendered, becomes a member of the Board at the next election. Can he still claim the fees?

*** (1) A guinea, or even two guineas, might be a reasonable fee for granting such certificates, according to the work required to be done. Whether for closing or reopening a school a fee could be claimed for the certificate. (2) If the fees in question were earned before the doctor became a member of the Board he may legally claim the payment of the same.

MEDICAL ATTENDANCE ON POLICEMEN.

J. M. writes that a policeman in a neighbouring town, having contracted pericarditis, was seen for a short time by the police surgeon and then sent home to his father's house; our correspondent was sent for by the father and attended the patient till convalescent. The man then reported himself at head quarters, and was pronounced unfit for further service. J. M. asks who is responsible for his fees. Must he send in the bill to the policeman, or can he recover from the police force?

*** We are advised that the bill should be sent to the policeman or his father, and that our correspondent has no claim to be paid by the police authorities.

LABELS ON MEDICINE BOTTLES.

R. A. KEYS.—The labels put upon bottles of medicine should not be made mediums of advertisement, and should therefore contain only the necessary directions for the patient, except where the law directs that the name and address of the person dispensing a poison must be placed upon the bottle.

OBLIGATIONS OF A SUBSTITUTE.

QUAERO writes that twelve years ago A. attended a gentleman as a substitute for B., who was absent on a holiday. The patient died after a few days. In the present year, that is twelve years after, A. was asked to attend the widow. In the interval the family had resided for some years in another place, but after return B. had attended the daughters as stately as last year. Was A. free to attend the case?

*** Considering the length of time that has elapsed, we do not think that the obligation originally imposed on A. by his having acted as B.'s substitute should be held still to debar him from attending.

GLASGOW UNIVERSITY CLUB, LONDON.—The Right Honourable H. H. Asquith, K.C., M.P., Lord Rector of the University of Glasgow, will preside at a dinner of the club to be given in the Trocadero Restaurant, Piccadilly Circus, W., on Friday, December 7th, at 7.15 for 7.30 p.m. Application for tickets to be made to the Honorary Secretaries, 63, Harley Street, W.

WE are asked to state that during the months of November, December, January, and February charges for the various types of treatment at Harrogate—numbering forty-six altogether—will be considerably reduced, in many instances to half the usual rates.

THE British Electro-Therapeutic Society is organizing an exhibition of x-ray and electrical apparatus to be opened at Queen's Hall, London, W., on December 14th.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF CAMBRIDGE.

THE following degrees were conferred on November 8th:

M.B., B.C.—S. G. MacDonald, Joh.; R. M. Courtauld, Pemb.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on October 24th.

Appointments.

Dr. J. K. Fowler and Dr. A. D. Waller were re-elected Deans of the Faculties of Medicine and Science respectively.

Dr. P. H. Pye-Smith was reappointed the Representative of the University on the General Medical Council.

Dr. J. D. Thomson and Dr. H. M. Woodcock were appointed Assistants to the Professor of Protozoology, Mr. E. A. Minchin, M.A., formerly Lecturer on Zoology at University College.

UNIVERSITY COLLEGE.

The Council has conferred the title of Professor of Clinical Medicine upon Dr. J. S. Risien Russell.

Inter-Collegiate Scholarships.

The Provost, Dr. T. Gregory Foster, and Professor Hill have been reappointed the Council's Representatives on the London Inter-Collegiate Scholarships Board, which was founded in 1904, for the award of Entrance Scholarships to several of the London Colleges, including University, College, King's College and the East London College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN Ordinary Council was held on November 8th, Mr. Henry Morris, President, in the chair.

Issue of Diplomas.

Diplomas were issued to 120 candidates who passed at the recent examination as members.

The Royal Commission on Vivisection.

The President was appointed to give evidence before the Commission as representative of the College, in reply to a letter dated November 25th from the Commission, asking whether the College was desirous of nominating such a representative.

University of Sheffield.

Professor Howard Marsh was appointed to succeed Sir John Tweedy as the representative of the College on the Court of Governors of the Sheffield University for the next three years.

Bradshaw Lecture.

This will be delivered by Mr. Edmund Owen on Wednesday, December 12th next, at 5 o'clock, on "Cancer: its Treatment by Modern Methods."

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A QUARTERLY meeting of the Royal College of Physicians of Edinburgh was held on Tuesday, November 6th, Dr. Playfair, President, in the chair.

The Fellowship.

Robert Cranston Low, M.B., Ch.B., was introduced and took his seat as a Fellow of the College. Robert Brooks Popham, M.R.C.P.E., F.L.S., West Ealing, was admitted by ballot to the Fellowship of the College.

Admission to the Membership.

On a ballot the following candidates were admitted to the Membership of the College after examination: William Herbert Fawcett, L.R.C.P.E., F.R.C.S.E., D.P.H., Bournemouth; Robert Durward Clarkson, M.D., C.M., B.Sc., Falkirk; Robert William Johnstone, M.B., Ch.B., Edinburgh; Hugh Angus Stewart, M.B., Ch.B., Pitlochry.

Admission to the Licence.

The Registrar reported that since the last quarterly meeting 49 persons had obtained the licence of the College by examination.

Recognition of Lecturer.

Dr. Alexander Goodall, F.R.C.P.E., was recognized as a Lecturer on Physiology.

UNIVERSITY COLLEGE, CARDIFF.

AT the meeting of the Council of the University College of South Wales and Monmouthshire on November 7th at the College, Cardiff, it was reported that a cheque for £4,500 had been received from the Worshipful Company of Drapers for the new College Building Fund; also, that a sum of money had been received from the trustees under the will of the late Dr. Isaac Roberts, F.R.S. Mr. M. Y. Orr (Glasgow) was appointed Demonstrator and Assistant Lecturer in Botany. It was reported that the short course for farmers would commence at the College on November 12th. This course is con-

ducted by the College in association with the Agricultural Committee of the Glamorgan County Council. The arrangements for the unveiling of the late Principal J. Viriamu Jones's statue at the City Hall on December 1st, 1906, were approved. The resignation of Mr. A. Longbottom, Demonstrator and Assistant Lecturer in Geology, was received, he having been appointed to a post on the mineral survey of Nigeria under the Colonial Office.

CONJOINT BOARD IN ENGLAND.

THE following gentlemen having completed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and having complied with the by-laws of both Colleges, the Licence of the Royal College of Physicians was conferred upon them on October 25th last, and the Diploma of Member of the Royal College of Surgeons on November 8th, namely:

E. H. Adams, E. Alban, E. Balthasar, A. L. Baly, G. B. Bartlett, H. G. Bennett, A. W. Berry, M. Birks, P. Black, H. O. Blanford, L. H. Bowkett, J. E. M. Boyd, G. G. Butler, W. E. Carswell, C. Cassidy, J. B. Close, A. G. Cole, H. G. Cole, I. R. Cook, J. Couper, S. B. Couper, P. P. Daser, H. R. Davies, G. H. Dive, F. C. Doble, L. Doudney, S. F. Dudley, A. G. Dunn, L. Edwards, R. R. Elworthy, D. Embleton, C. H. J. Fagan, J. S. Farnfield, C. H. Fernie, P. Fiaschi, R. D. Forbes, *G. Ford, W. Gabe, R. F. Gerrard, C. W. Gittens, G. E. Green, S. W. Grimwade, J. R. Gunne, E. H. R. Harries, T. S. Harrison, T. S. Hele, D. W. Hume, R. W. Ironside, T. J. Jenkins, D. M. Keith, T. L. Kenion, W. R. Kilgour, W. H. King, C. Lebon, W. H. Lee, R. B. Low, J. A. McCollum, O. R. McEwen, *W. E. McLellan, P. D. F. Magowan, E. S. Marshall, J. D. Marshall, D. M. Masina, E. W. Matthews, H. B. Maxwell, C. A. L. Mayer, E. W. Meadows, O. Le F. Milburn, S. W. Milner, H. V. Mitchell, W. S. Mitchell, E. Morgan, R. J. Mould, L. D. Neave, F. M. Neild, R. B. Nicholson, H. J. Nightingale, T. Norman, H. W. Ogle-Skan, M. W. B. Oliver, H. G. Packe, G. S. Parkinson, E. H. A. Pask, W. D. Perry, G. R. Phillips, A. J. S. Pinchin, A. M. Pollard, E. S. Prior, A. E. Pryse, R. M. Rendall, A. T. Rivers, P. M. Roberts, R. C. Roberts, I. J. Roche, T. R. St. Johnston, C. N. Slaney, H. A. Smith, F. M. W. South, H. McL. Staley, P. K. Steele, A. C. H. Suhr, D. W. Tacey, D. C. Taylor, O. Teichmann, H. E. H. Tracy, F. C. Trapnell, W. H. Trethowan, C. Tylor, I. Valerio, J. P. Walker, S. L. Walker, C. G. Welch, C. E. Whitehead, A. H. Williams, W. S. Williamson, H. D. H. Willis-Bund, J. G. Willmore, J. L. Wood, E. M. Woodman, H. N. Wright, A. B. Zorab, C. E. Zundel.

* M.R.C.S. granted on October 11th last.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

THE HOUSING QUESTION.

DR. GORDON, Physician to the Royal Devon and Exeter Hospital, at the request of the Bishop of Exeter, addressed the Diocesan Conference last week on the housing question. Dr. Gordon disagreed with the statement that the housing of the poor was not so important in the country districts as in the towns. If he were asked where the problem was most pressing, he would say in the country. There were three questions intimately connected with each other. The first was the threatened deterioration of the people, the second was the threatened exodus from the country into the towns, and the third was the defective conditions of the housing, both in the country and in towns. Private enterprise in this matter had failed—it could not do otherwise—and local enterprise was very slack. An adequate central co-ordinating body was wanted. The Local Government Board should have far more influence, and he was certain that if progress was to be made in this matter, the health service must be absolutely independent. A higher position, a more independent place, and absolute security of tenure in office for medical officers of health, were changes advocated by the medical profession in the interest of the public health of the community which they served. Cheaper houses and better by-laws were also wanted.

INSTRUCTION IN INFECTIOUS FEVERS.

THE Hospitals Committee of the Metropolitan Asylums Board reported on November 3rd the receipt of a letter from the medical superintendent of the hospitals at which classes of fever instruction are held, pointing out that the fee for attendance at a class of fever instruction is £3 3s. for the first two months, and £1 1s. for each additional month (in practice students do not attend for more than three months), and the medical superintendent who acts as instructor receives a fee of £2 2s. in respect of each student, irrespective of the length of the course taken by that student, the additional £1 paid for attendance during a third month being retained by the Board. The medical superintendents urged that, having regard to the fact that attendance during a third month involves additional work on the instructor, the extra guinea paid for this month should be allotted to them in return for the extra instruction afforded. The Committee was of opinion that this request was a fair and reasonable one, and recommended that, subject to the sanction of the Local Government Board, it be granted. The recommendation was carried unanimously.

AT a meeting on November 8th the Ophthalmological Society of the United Kingdom, after a long debate, decided *nem. con.* to remain a separate Society.

MEDICAL OFFICERS' FORTNIGHTLY REPORTS TO GUARDIANS.

PARISH DOCTOR writes as follows: My Board of Guardians have requested me in future to send my register every fortnight instead of the report sheets, which they have accepted up to the present. This, I believe, they have a right to demand, but I shall be obliged if you will inform me whether they are equally within their right in asking me to fetch the register away again. I live six miles from the board room, and should have to send a special messenger. To have to pay postage of 12s. a year on the register out of a salary of £30 is bad enough, but to be expected to send a man and horse a journey of twelve miles once a fortnight seems very unreasonable. Yet this is what one of my colleagues will have to do, unless he can post his register and rely upon the guardians to return it.

*** We believe it to be within the power of guardians to insist on the medical officer's register book of his cases being sent to them periodically instead of a copy of such, on loose sheets, which can be so easily transmitted by post. It is not easy to understand why any Board of Guardians should have become dissatisfied with the last-mentioned easy method specially sanctioned as it has been by the Local Government Board, it being a great convenience to all parties concerned; such being the case we are inclined to regard the demand of the guardians of which our correspondent complains, as unreasonable and even vexatious. Should they persist in having the heavy and cumbrous register sent to them by their medical officers it may, perhaps, be within their power to throw the expense of its transmission upon them as the medical officers have probably undertaken by contract to be responsible for this duty. Having done so much as this it appears to us that it would then rest with the guardians to return the same at their own cost, and this at a sufficiently early date, to enable all subsequent necessary entries to be regularly inserted therein. Should they fail to return the register within reasonable time, they could hardly expect to receive it again at their next meeting properly filled up.

NOTIFICATION FEES.

B. was quite right in notifying the case. Sec. 3 (*b*) of the Infectious Disease (Notification) Act 1889 requires "every medical practitioner attending on or called in to visit" a patient suffering from one of the scheduled diseases to forthwith, on becoming aware that the patient is suffering from the disease, send a certificate to the medical officer of health. B. should return the certificate to the medical officer of health, and in due course require payment from the sanitary authority. During the first few years after the passing of the Notification Act several medical practitioners had to sue sanitary authorities who repudiated liability to pay fees under circumstances similar to those detailed by B. In every case the medical practitioners succeeded in recovering their fees.

HOSPITAL AND DISPENSARY MANAGEMENT.

DOWN DISTRICT LUNATIC ASYLUM, DOWNPATRICK. On December 31st, 1904, there were 700 inmates in this asylum and on the corresponding date in 1905 there were 723. The total number of cases under treatment during the year was 865 and the average number daily resident 715. During the year 165 were admitted, being 16 less than those of 1904. Of these 120 were first admissions. In 46 the attack was a first attack within three months, and in 24 more cases within twelve months of admission, 40 were the subjects of "not-first" attacks within twelve months of admission, and the remainder were either of more than twelve months (41), of unknown duration (2), or congenital cases (10) on admission. As to the forms of mental disorder the admissions, Dr. M. J. Nolan, the Medical Superintendent, says, presented nothing of exceptional interest in their character, being mainly melancholic in type. They were divided into mania of all kinds 41, melancholia of all kinds 87, secondary and senile dementia 12, general paralysis 5, acquired epilepsy 6, congenital or infantile defect 10 and not insane 2. As to the probable causes of the insanities in the admissions, alcoholic intemperance was assigned in only 14, venereal disease in none, puberty or change of life in 11, old age in 17, various bodily diseases in 29, previous attacks in 7, and "moral" causes in 11. Hereditary influences were ascertained in 62, or 38 per cent. After commenting on the misleading nature of the statistical information hitherto set forth in asylum reports and the improvement which it is to be expected will accrue from the adoption of the new tables formulated by the Medico-Psychological Association, Dr. Nolan continues: "To cope with causes it is necessary to understand thoroughly the causes and this understanding can only be arrived at by an accurate investigation of the conditions which produce them. These conditions are extrinsic

to the asylums. They are created and perpetuated by the people themselves, who should, therefore, be educated in the laws of mental soundness, so that they may be able to recognize and avoid the many pitfalls in their midst. Leaflets on the subject are at least as essential for the guidance of the Irish peasant as are the leaflets from the Agricultural Department to advise him as to the improvements of breeds of cattle and crops. There is, however, no national department of hygiene, no Minister of Public Health, no organization to promote sanity, no attempt to deal with insanity until it is an accomplished fact. Asylums are but as salvage tugs after the storm. Then, when asylums are packed to overflowing, and the burden of taxation presses, people begin to ask themselves what has produced such a state of affairs. Surely this condition of things shows that our legislators are not attempting to deal adequately with so grave a problem."

During the year 77 cases were discharged as recovered, giving the high recovery rate on admissions of 47.24 per cent.; 3 as relieved, and 2 as not improved. With regard to these discharges Dr. Nolan again states his conviction that the recovery rate might be further increased if the payment of a capitation grant for the support of patients discharged from the asylum on extended periods of probation, such as is in force in England and Wales, were empowered by legislation in Ireland. During the year there were 58 deaths, giving a death-rate on the average numbers resident of 8.1 per cent., and were due in 16 cases to cerebro-spinal diseases, in 36 to chest diseases (including 14 deaths from pulmonary consumption), in 1 case to dysentery, in 1 to cancer, and in 4 cases to general tuberculosis. Tuberculous diseases thus accounted for 18 deaths, or 31 per cent. of the total deaths. On the other hand, the deaths from general paralysis were only 2 in number. No deaths were due to accident or violence, and only 2 casualties had to be recorded during the year. The general health was satisfactory, and the only cases of zymotic disease were 9 cases of erysipelas and 11 of dysentery, only 1 of which terminated in death. In a summary Dr. Nolan discusses the general history of the asylum for the year and possible future developments. "The air is full," he says, "of schemes of 'devolution' in the asylum care of the insane. It is suggested that there should be intercepting 'homes' for those 'incipiently insane'; that 'mental hospitals' should receive all acute cases; that lifelong cases of acute excitement should be restricted to 'asylums'; that the quieter-demented remainder should enjoy 'family care.' All this implies an ideal scheme, but borders on the Utopian when considered in relation to its adoption in a country characterized by national poverty, a diminishing sane population, and an undue proportion of mentally-affected persons." Certainly the schemes mentioned are ideal, but they need not therefore be regarded as Utopian. A country characterized by "national poverty, a diminishing sane population, and an undue proportion of mentally-affected persons," and particularly a country like Ireland, possessing wide stretches of agricultural land populated extensively by an honest, kindly peasantry who find difficulty in making both ends meet, is, above all others, favourably situated for the adoption of "family care." The pecuniary saving effected by this would set free, for the establishment of mental hospitals for acute and curable cases, large sums of money at present uselessly expended on the asylum care of chronic and incurable patients.

The students' annual dinner of the National Dental Hospital will be held at the Trocadera Restaurant, Piccadilly, on Friday next; the chair will be taken by Mr. Henry Morris at 7 p.m.

The late Mr. George Herring.—An authoritative statement as to the provisions of Mr. George Herring's will, issued by his solicitor, leaves unaffected the bequests to medical charities. As already stated, the residue of the estate goes to the Metropolitan Hospital Sunday Fund; but unless the amount should be equal to at least half a million pounds the Fund seems likely to be a loser rather than a gainer by Mr. Herring's regretted decease. Half a million pounds invested at 3 per cent. would bring in a net annual income of some £14,250 after reduction of income-tax at present rates. Though this sum would be some £2,000 in excess of the average amount annually received by the Fund from Mr. Herring during the past five years, yet the Fund will lose the stimulus given to the general collection by the method Mr. Herring adopted to determine the amount of his subscription year by year. The Fund, however, will benefit to the amount of £60,000 should the Salvation Army "back-to-the-land" scheme fail of success.

On November 17th Professor Bernhard Fraenkel, of Berlin, will celebrate his seventieth birthday with the festal rites thought proper for such occasions in Germany. He has outlived all the early pioneers of laryngology except Professor von Schrötter, of Vienna. The Laryngological Society of London has sent him its congratulations. Professor Fraenkel was one of the initiators and most active promoters of the sanatorium movement in Germany.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Simplex asks whether there is any objection to keeping silk ligature intended for eye work in a watery solution of mercury biniodide, say 1 in 1,000?

Sore Tongue.

I. Q. asks for advice in the treatment of the following case. The patient, a stout, well-nourished man of about 46, has suffered for the last twelve months from general soreness of the tongue. Though somewhat red and hyperaemic, the tongue looks quite normal. It is not glazed, fissured, ulcerated, or indurated. In other respects he is in perfect health and feels so, and there is no suspicion of any constitutional disease, syphilitic or otherwise. He has tried everything he could think of, both local and general, but nothing seems to have done any good. Has given up smoking and takes no alcohol nor anything in his food likely to irritate. What pains him more than anything else is prolonged talking, and his occupation compels him to talk a good deal.

"Syphilis by Conception."

Dubito asks for information on the following points: (1) If a woman gives birth to a syphilitic child, does it follow that she must suffer from syphilis herself, or does she undergo a modified form of the disease which protects her from contracting syphilis from her child? (Colles's law). (2) Is it possible for a woman to contract syphilis through the placental circulation without exhibiting any primary lesion? If so, is this attack of a much milder form, and liable to be overlooked? What is the prognosis as to tertiary symptoms if left untreated? (3) Ought every woman who gives birth to a child who at birth, or at any subsequent period, shows signs of inherited syphilis, to undergo a course of mercurial treatment?

*** All these three queries bear on the question of the reality of so-called "syphilis by conception." (1) It was at one time universally held that every woman bearing a syphilitic child was perforce herself syphilitic, either from having acquired the complaint before conception or from deriving it from the tainted fetus during gestation. Nowadays a modified form of this belief is accepted by many—namely, that whilst such a woman does not acquire actual syphilis from the fact of bearing a syphilitic infant, nevertheless she absorbs some product from the fetus, and thus gains immunity for herself, partial or complete. On this theory such a woman stands in the same relation to syphilis that one efficiently vaccinated does to small-pox. (2) The theory of "syphilis by conception" implies a syphilis contracted by way of the placental circulation and an absence of any primary sore. The upholders of the theory, however, differ widely among themselves as to the time of origin of the complaint and its manifestations. If "syphilis by conception" occurs in every possible case, then many of the attacks of syphilis must be mild in the extreme, as many women bearing syphilitic infants pass through life without exhibiting any trace of the complaint themselves. The prognosis as to tertiary symptoms must depend upon the views held as to "syphilis by conception." (3) If there are any certain, or even equivocal, signs of syphilis in the mother a course of mercury is absolutely essential. Considering, too, the amount of doubt there must be in every such case, on the whole, a carefully-supervised mercurial course is, perhaps, advisable in every instance.

ANSWERS.

L. D.—Mr. Charles Baker, optician, etc., 244, High Holborn, W.C., would probably be able to supply the plates and lantern slides required.

A. R. G.—There is no institution other than the County Lunatic Asylum (Binghill, near Hereford) which would receive the boy referred to. If dangerous, the relieving officer should apply for his admission thereto. The case looks like "juvenile insanity."

J. M. N.—Lieutenant-Colonel Elkington's *Notes on Military Sanitation* (London: St. John Ambulance Association, Fcap. 8vo, pp. 104. 1s.) should prove a sufficient guide to our correspondent in the preparation of a course of lectures to regimental officers.

IN CRUCE SALUS.—The *Chemist and Druggist* of September 2nd, 1905, contains the following paragraph translated from an article by Dr. Aufrecht, of Berlin, published in the *Pharmaceutische Zeitung*:

Dr. Nathan Tucker's Specific for Asthma.

This was found to be a reddish-brown fluid with a weak acid reaction, the principal active ingredient being cocaine. A qualitative analysis showed that the liquid is possibly of about the following composition:

Cocaine hydrochloride	1 per cent.
Potassium nitrate	5 ,,
Glycerine	35 ,,
Bitter-almond water...	30 ,,
Water	25 ,,
Vegetable extract	4 ,,

LETTERS, NOTES, Etc.

WARNINGS.

A CORRESPONDENT in Liverpool writes with reference to a warning as to a person calling himself Dr. Colgrove, which appeared in the BRITISH MEDICAL JOURNAL of November 10th, p. 1344, that a year or eighteen months ago he was called upon by a person calling himself Dr. Colgrove Perry, who told a plausible story and borrowed money, which has not been repaid.

UNQUALIFIED PRACTICE.

MR. MACLEOD YEARSLEY, F.R.C.S., Senior Surgeon to the Royal Ear Hospital, writes: I have read with pleasure and approval your annotation in the BRITISH MEDICAL JOURNAL of November 10th concerning a certain impudent bonesetter. Unhappily, the question immediately occurs to one's mind, What good will it do? I fear practically none. What is required to stop this and a hundred other quackeries that disgrace our country is a strong agitation by the profession for legislation upon the matter. Our profession stands alone as the most expensive to enter, the most trying to practise, and the one whose members get the least privileges. We are at once the most philanthropic and the hardest worked of all men. We spend five of our best years in arduous and unremitting study, we pay heavily for our education, we spend goodness knows how many years and how much cash in building up a practice, and for all this we are absolutely without one single privilege, except that of giving as much as we like of our services for nothing. But, not only do we enjoy no privileges, we are accorded no protection. Any man or woman may practise medicine and surgery so long as he or she keeps just outside certain technical offences against the law. They—unauthorized practitioners—can advertise, and so drain the gullible public of its money. We—legal practitioners who have spent our lives gaining knowledge—may not advertise that knowledge, our legitimate stock-in-trade. Will the Association, with the great power it possesses, push forward a Bill to remedy this great abuse? It is not only to protect a long-suffering profession, but to protect the public that such legislation is needed. It is not by amending the Medical Acts, but by framing and getting made law a Bill to suppress illegal practice, that this end can be gained. It should not be a question of whether this man or that has "wrongfully assumed the title of doctor," but of whether he is or is not legally qualified to practise medicine or surgery. If the Association will take this matter up it shall have my utmost help, as well as, I feel sure, that of every member of our profession. Let such a Bill be made law and we shall hear less of the awful plight of the medical profession.

*** It might almost be assumed, though we have no doubt the assumption would be incorrect, that Mr. Yearsley was unaware that the British Medical Association had given much attention to the subject, and had after full inquiry and discussion come to the conclusion that the proper way to proceed was by promoting a Bill to amend the Medical Acts.

NOTE ON PROFESSIONAL AND PERSONAL EXPERIENCES OF URIC-ACID-FREE DIET.

DR. J. CUTHBERTSON WALKER (Derby) writes: It is now some six years since my attention was first called to the part played by uric acid in the causation of many common diseases. It happened in this way: I had under my care a middle-aged asthmatic woman who was suffering from a severe protracted headache. This headache lasted for nine months, except during a short period when great heart weakness and pulmonary congestion supervened. After many futile attempts at treatment, and a visit to a consultant without any benefit, thinking that in some way possibly uric acid might be the cause of the trouble, I sent my patient to Dr. Alexander Haig. He diagnosed high blood pressure headache from uricacidaemia, and put the patient on his special diet and a mixture containing salicylate of sodium. From that time she steadily improved.

Since then I have induced a number of patients to adopt a dietary free (or comparatively free) from the "stimulant poisons," as Haig calls them, of flesh, tea, coffee, etc. My experience is comparatively limited, but I think it is no exaggeration to say that if mankind lived on such a diet as Haig advises at least half the work of the medical profession would disappear. But it is often impossible to make patients change their lifelong habits, and among the poorer classes especially any fundamental alteration of diet is in most cases quite out of the question; though even among the working classes one now and then finds a patient willing to be severely dieted. In many cases a good deal may be done by modifying the diet and reducing animal foods, etc. If we admit, with Haig, that uric acid, by its presence in or absence from the blood, to a large extent controls the circulation, it is clear that no drug should be used without some thought as to its effect on uric acid, as to whether that substance is likely to be dissolved or rendered less soluble by the exhibition of the drug in question. My own personal experience of Haig's diet extends over some five and a half years. I formerly suffered from severe attacks of megrim, with vomiting and prostration, and now and then from rheumatism. I am now almost wholly free from these troubles. Formerly, if I went an hour or two beyond my usual meal hour, a headache almost invariably resulted. Now I should merely feel a little more hungry than at the usual meal time. Any return to ordinary "mixed" diet is apt to be followed by a headache, unless special means are taken to prevent it, such as a few doses of salicylate of sodium. I may say that while I adhere to Haig's diet in the main, I do not strictly exclude eggs, and sometimes I take a small quantity of fish. There is no difficulty in doing plenty of hard work on the diet. In fact I find fatigue comes less quickly and is more rapidly recovered from than on ordinary diet. But on this (as on any diet) care must be taken that enough nourishment, especially enough proteid, is taken and digested. To attempt to live largely on such foods as potatoes, green vegetables, etc., can only end in disaster. And may I say here parenthetically that if some people eat too much, probably quite as many eat too little. We are too apt to be satisfied with some general statement of a patient as to his diet, such as "I take my food well," or, "I have not a very good appetite," instead of taking pencil and paper and calculating as nearly as possible the dietetic worth of an average day's food. All medical men who use the results of Haig's work in their daily practice—and they are more numerous than some think—should be grateful to him for his laborious researches as to the rôle of uric acid in many diseases.

"PSYCHASTHENIA."

DR. PHILIP MIALL (Bradford) writes: As reported in the BRITISH MEDICAL JOURNAL of October 20th, Drs. Putnam and Meyers suggest the word "psychasthenia" to denote the pre-insane stage of mental disease. A good term would be valuable, not to alienists alone, but it ought to be a good one. It does not appear that an anatomical meaning is especially required, nor that weakness is an integral part of the meaning; and the same objections apply to the cumbrous terms "psycho-encephalon-asthenia," and, worst of all, "cerebrasthenia." But there are suitable words, some of which have already been used by writers on mental disease and yet are hardly current. "Anoia," for example. "Ageoia" or "agnoëia" would perhaps be better, to avoid obvious puns. Mason Good's "ecphronia" would be unexceptionable, but perhaps the best is "taragmus." Pindar has *φρενῶν ταραχαί* for disturbances of the mind. I cannot ascertain that any cognate word has been adopted in technical medicine.

MEDICAL BENEVOLENCE OR ASSURANCE.

EUTHANASIA writes: May I strongly support the scheme proposed by "Validus" in the BRITISH MEDICAL JOURNAL of November 10th, 1906.

A CORRECTION.

IN the paragraph on the inspection of vessels by the Medical Officer of the Manchester Port Sanitary Authority, published last week, page 1331, it should have been stated that the number of vessels inspected was 246. We are informed that the insanitary conditions in a number of instances were very serious.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Inaugural Address
ON
THE PAST OF DERMATOLOGY IN EDINBURGH.

By NORMAN WALKER, M.D., F.R.C.P.,
LECTURER ON DISEASES OF THE SKIN IN THE UNIVERSITY OF EDINBURGH.

Gentlemen,—Although the inauguration of a new lecturer is not surrounded by any university pomp and circumstance, and although I am not, I think, in most persons' minds so associated, I am, nevertheless, an upholder of a certain amount of form, and it does not seem to me fitting that I should take up the duties of this important post without some sort of introductory remarks.

I have so recently, in another place, and to another audience, dealt with the subject of the teaching of dermatology that it would be impossible for me to say anything fresh upon that subject, even if I had not before me the opportunity of practising what I have already preached.

I am a believer in introductory addresses to students, and would strongly advise you all to read the published ones of Osler, for I think it is good for the student, in the hurry and bustle of this extremely practical age, to now and then stop and either survey the present or, as I propose to do, to cast an eye backward on the past.

My purpose this morning is to go back and to recall the past of dermatology in Edinburgh, and to sketch for you some of those who have ploughed, sowed, and watered the harvest which it falls to my lot to gather, and I hope to do my share in preparing the ground for a yet more bountiful harvest in the future.

The first association of Edinburgh with dermatology which I have been able to trace is the fact that Willan, the father of British dermatology, was a graduate of our University. He was born in 1757 near Sedbergh, and educated at the famous Grammar School there. He came to Edinburgh in 1777, and graduated M.D. in 1780. He practised with great success in London, began the publication of the famous atlas which was completed by his pupil Bateman, and was elected F.R.S. in 1809. Shortly thereafter he contracted phthisis, and went to live at Madeira; there he died in 1812, in his 55th year.

Robert Willis was born in Scotland in 1799, and graduated M.D. in 1819. He appears to have commenced practice in Edinburgh, for it is recorded of him that he went to London in 1823. It is further recorded that, not succeeding so well as he expected, he threw himself with great zeal into the paths of literature. In time he became editor of the *London Medical Gazette*, and subsequently the first librarian of the Royal College of Surgeons library. This he remained till 1845, when he resigned in order to devote himself to practice, "his official salary being quite inadequate to provide for an increasing family." He published an atlas of Illustrations of Cutaneous Diseases in 1848. He must not be confused with the more famous Willis, the Willis of the Circle, who also devoted some of his abundant energies to the subject of dermatology, into which his insight was as keen as into other matters medical.

These are merely interesting reminiscences, and the influence of Willan and Willis on the school can only have been indirect.

I have inquired of two of the veterans who in a vigorous old age are still among us, and who were students in Edinburgh in the Forties. Sir Henry Littlejohn says:

> When a student in the school of medicine I never heard a lecture on skin diseases, and during my term of service in the clinical wards no skin patient was admitted or treated. In common with others, I had to go to Paris to receive instruction in this most important department of medical study.

Dr. John Smith's reply is in almost the same words.

The first man who did anything practical for dermatology in Edinburgh was John Hughes Bennett. This was only a part of his work; only those who have dipped a little into the history of the past, or whose fathers have spoken unto them, can dimly realize what the Edinburgh Medical School owes to John Hughes Bennett. Others have carried on and developed his work, but the admitted pre-eminence of this school in the subject of clinical medicine is the direct issue of his labours. He was born in London in 1812, and was apprenticed to a surgeon in Maidstone. There, in the manner of the day, he no doubt compounded medicines, drew teeth, and learned in the worst possible way the routine of practice before he knew anything of its principles. But his zeal for knowledge was great, and fortunately for us his zeal outran his discretion. He and another pupil one day made a *post-mortem* examination without their master's knowledge, and his apprenticeship was abruptly terminated.

After anxious consultation as to his future it was decided to send him to Edinburgh. He came here in 1833, and graduated M.D. in 1837 with the highest honours, obtaining a gold medal for the best surgical report on Syme's recommendation, while Sir Charles Bell recommended his thesis on the physiology and pathology of the brain for another, which, however, could not by the regulations be awarded. After graduating he spent two years in Paris and two years in Germany. I would draw your attention to the fact that his post-graduate equalled his undergraduate career.

When he returned to Edinburgh in 1841 he at once commenced to lecture in our Extramural School. Here are the words of his first class bill:

> *Histology.*—Dr. Bennett, during the summer session, will give a public course of lectures on the Minute Structure of Organized Tissues, with reference to Anatomy, Physiology, Pathology, and the Diagnosis of Disease. These lectures will be illustrated by numerous preparations, diagrams, and demonstrations under the microscope; the latter by means of twelve achromatic instruments of great power, manufactured by Chevalier of Paris expressly for this course. An introductory lecture will be delivered on Friday, May 13th, at 11 a.m., in the Class Room, Surgeons' Square, and the course will be continued every Monday, Wednesday, and Friday at the same hour, throughout the session; fee £2 2s. Dr. Bennett will also give private courses on the practical manipulation of the microscope. Each class is limited to six, and the time of lecture regulated by the wishes of the majority. The lectures embrace the optical and mechanical arrangements of microscopes, illumination, mensuration, optical illusions, mode of displaying objects, and every information necessary for the medical inquirer, in his examination of the animal textures in a state of health and disease. Fee £3 3s. 16, Pitt Street. May 2nd, 1842.

Bennett's work as an extramural lecturer—he began his teaching in the Royal Public Dispensary—was mainly devoted to clinical medicine, where he introduced method and revolutionized the system of teaching. Hear and mark his words:

> Clinical instruction is not attendance on lectures, not learning the opinion of your teachers. It is not deriving knowledge from others. It is *acquiring* information for yourselves, learning how to observe, educating the senses.

In 1842 he was an unsuccessful candidate for the chair of pathology, and it was not till 1848 that the chair of the institutes of medicine—now termed physiology—became vacant. The contest is an interesting one to look back upon. There were three candidates, the others being Dr. Gunning and Dr. Martin Barry, whose fame as a physiologist was considerably greater than Bennett's.

But in those days there were religious tests applied to all the professors, and these Dr. Barry could not see his way to subscribe. The election was by the magistrates and town council, and as Drs. Gunning and Barry withdrew their names, Dr. Bennett was unanimously elected. It is rather interesting to note that, after he had been proposed by the Lord Provost and duly seconded, Mr. Gulland, the grandfather of our Dr. Gulland, rose and said that the mere circumstance of tests existing had a tendency to prevent gentlemen from coming forward who would otherwise do so; and he therefore thought that they should urge the Government to bring in a Bill for the immediate abolition of these tests. Largely, I understand, owing to his energy, this was ultimately done, and neither professors nor University lecturers are any longer subject to that inquisition.

It was when he became a professor and shared in rotation with Laycock the charge of what were known as the clinical wards, that he found his opportunity of teaching dermatology. His introductory lecture to the course of clinical medicine delivered November 9th, 1849, concluded with these words:

> We shall never rest contented until the Edinburgh School of Medicine is complete in all the means necessary for studying every kind of disease at the bedside.

In a footnote to a clinical lecture on the Classification and Diagnosis of Cutaneous Diseases, published in April, 1850, he was able to report:

> Two wards, Nos. 12 and 2, which have for some time been in disuse, shall be resumed by the professors for the purpose of clinical instruction. It has in consequence been arranged by the Medical Faculty that one of these shall be set aside for the treatment of diseases peculiar to women and children, and Dr. Simpson (Sir James) having expressed his willingness to take charge of it, he will in future give clinical lectures on this important department of practical medicine. The Faculty has decided that the other ward shall be devoted to the reception of skin diseases, so that in this department also the facilities for study will be greatly increased. . . . No doubt the concessions granted enable us to make advance, but they are not sufficient. We must keep pace with other schools.

Bennett's most important contribution to dermatology was his work on Favus. He confirmed the observations of Schönlein, the discoverer of the fungus, and was one of the first, if not the first, to successfully inoculate the disease. He repeatedly tried to inoculate himself, first on the arm and then on the scalp, and finally succeeded on one of his students whom he had evidently inspired with his own enthusiasm. I regret that we only know that enthusiast under the contraction of Mr. M., but I commend to you his example. I have not time to refer to all Bennett's dermatological work. He evidently fully realized the importance of local causes in the production of dermatitis, and I am told by those who were his students that it was one of their delights to hear Bennett and Laycock explaining each other's theories away. By the rotation system they succeeded to each other's cases.

There are, however, one or two quotations that are of interest. One is extraordinary. "Ringworm," says he, "is a disease I have never seen in Edinburgh, and I am ignorant of what it consists." It is inconcievable that one so constant in the use of the microscope as Bennett could have overlooked the disease had it existed to anything like the extent it now does. One last quotation I especially commend to you:

> The great difficulty in the treatment of skin diseases generally consists in their having been mismanaged in the early stages—a circumstance I attribute to their not having until a recent period been much *studied*—note the word—by clinical students.

After twenty years' occupancy of the chair his health began to fail; long leaves of absences were necessary, and he finally resigned his chair in 1874. He died in 1875 at Norwich, aged 63. He did whatever his hands found to do with all his might, and his works follow him.

It will, perhaps, surprise you to hear that the next name I put forward is that of Sir James Simpson. It is true his main energies lay in other directions, and that his connexion with dermatology was limited to one disease. But his researches on the history of leprosy in Scotland, though of little practical value, are of much archaeological interest, and are well worth perusal.

It is necessary here, for the sake of clearness, to mention a fact of which you, gentlemen, are probably not aware—namely, that all the professors of the Medical Faculty at one time had—and I am not sure that they do not still have—the right to teach medicine clinically in the wards allotted by the managers to the University. The professors of chemistry, botany, anatomy, physiology, and medical jurisprudence have in the past exercised this right.

In virtue of it Sir Douglas Maclagan comes next in my roll, and here I am able to pass from hearsay to personal recollection, for when I was a student it was Maclagan we associated with skins. It is only a little over six years since he died full of years and honours in his 88th year. He had a remarkable career. He was educated at the High School, was admitted L.R.C.S. when he was 19, and became M.D. two years later. It is recorded that he was admitted thereto by the Commissioners appointed at the request of the University by the Royal College of Physicians. He owed yet another advantage to that College for his father being a Fellow he was exempt from the then necessary apprenticeship, the official means of clinical instruction. After graduating he studied in London, Paris and Berlin, and then returned to Edinburgh to practise. He began as a surgeon, and was for some time on the staff of the infirmary in that capacity, but his instincts were not surgical and he soon began to lecture on Materia Medica, and so continued for eighteen years until he was appointed Professor of Medical Jurisprudence and Public Health, which post he held for thirty-five years. As one of the Professors of Clinical Medicine he lectured in rotation, first with Bennett and Laycock, and later with their successors. When the new infirmary was opened, and he had a ward all his own, he devoted a great part of it to dermatology, and his clinical lectures were largely on that subject. I remember some of them well. He had great faith in tar, as all experienced dermatologists have, but I particularly associate him in the dermatological part of my mind with the advice to give iron in eczema. It seems to me that he advised it in all forms of the disease, and there I cannot agree with him; but it is very often indicated, and I like to emphasize the advice, for one famous living dermatologist teaches that iron is contraindicated in that disease.

It is more, however, as a man than as a dermatologist that Maclagan is remembered. He was Ultimus Romanorum, the last of the old school of courtly physicians. As a toxicologist his fame was world-wide, and as a medical witness he was only equalled by his successor. He and his father enjoyed the unique distinction of filling the presidential chair of both our Royal Colleges.

If I might put it without offence—and no one could wilfully be guilty of saying anything offensive of Douglas Maclagan—I would say that the chief service he rendered to dermatology was the advice he one day gave to Dr. Allan Jamieson to take up the special study of the subject.

Other physicians devoted some of their time to dermatology. Warburton Begbie now and then gave a lecture on some disease of the skin; and I would be singularly ungrateful if I omitted a reference to my own chief, Dr. Claud Muirhead. I have no doubt that it was his interest in the subject that first turned my thoughts towards it, and many generations of students have learned from the valuable set of casts which he gave me when he demitted office here. It was largely to his influence that I owed my first appointment to the staff.

Bennett's desire to see every subject taught in the Edinburgh School of Medicine was not immediately fulfilled. So long as the teaching of the special subjects depended, if one may so put it, on the individual hobbies of individual professors, it was obvious that it rested on an insecure basis. It was left to my immediate predecessor to place the teaching of dermatology on a sure foundation.

William Allan Jamieson was born in the manse of Dreghorn, near Irvine, in 1839, the year of the great tournament at Eglinton Castle. He was educated at the Irvine Academy, of which school he was dux, and graduated M.B., C.M., with honours, in this University in 1865. Had the Ettles Prize then been in existence it would have been awarded to him. After graduation he acted as assistant for two years to a relative in Preston. He then practised for nine years in that part of this island which until the passing of the County Councils Act of 1885 was neither in England nor Scotland—I mean the town and liberties of Berwick-on-Tweed. In 1876 he came to Edinburgh and commenced practice. Not long afterwards there occurred one of those—we call them chance—conversations which had far-reaching effects. Discussing his prospects one day with Douglas Maclagan and Douglas Argyll Robertson, the former suggested to him that he should devote himself to dermatology, and after consideration he decided to do so. On Maclagan's advice he gave up his work in Edinburgh and went to Vienna to study under Hebra, who was then the source of all dermatological inspiration.

On his return he commenced practice as a dermatologist, and I fear he found it at first a weary business. Looking round our busy department now it is difficult to understand the arguments put forward against a skin department then. There were no cases; if there were any the ordinary physicians could easily deal with them, and so on. The old, old arguments—you will all meet with them in your future careers. The best he could do was to get the permission of the physicians of the Royal Public Dispensary, the same which gave Bennett his first opportunities, to become one of their number, and to encourage the attendance of skin cases. Later, he was allowed to drop the medical work and confine himself to skins.

At intervals he knocked at the door of the Royal

Infirmary in vain and the opening came at last not by conviction, but as those things so often do, by chance. The chance came in an attack of eczema in one of the managers, and had Daniel Rutherford Haldane, the uncle of the Minister for War, not been cured of his eczema by Dr. Jamieson, we might not have been here to-day.

In 1884 permission was grudgingly given for the opening of an out-patient department, and for some years this was carried on in what is now our male ward, and was then the ear and throat, dental and skin out-patient department. Gradually the clinique grew, patients got more numerous, and students began to find out the advantages of learning something about skins. The numbers grew so great that it was found necessary to move to the extramural clinical theatre, where for some years Dr. Jamieson taught the greatest number of English-speaking students that have anywhere assembled to learn dermatology. All this was a labour of love; but as the students grew more and more numerous it was obvious that further advances required to be made and a regular class established. This last ditch took a long time to carry; the vested interests fought hard. Ultimately the managers gave permission to institute a class, and shortly after the University capitulated and appointed Allan Jamieson Lecturer in Dermatology.

Six beds were allotted to him in 1891, and the numbers have gradually increased to sixteen. When the re-drainage scheme is completed the number will be twenty-four.

Thus at last Bennett's ambitions were fulfilled, and, so far as dermatology is concerned, "the Edinburgh School of Medicine is complete in all the means necessary for studying every kind of disease at the bedside."

In 1886 Sir Henry Littlejohn, in whose gift the post is, offered to Dr. Jamieson the Consulting and Visiting Physicianship of the Edinburgh City Hospital for Infectious Diseases, then established independently. This afforded him the opportunity of pointing out, among other things, the diagnostic features of the exanthemata and the characteristics of erysipelas, and during the five years he held office there he found the hospital most valuable for teaching purposes, as well as for research. He resigned on the opening of wards for dermatology in the Royal Infirmary.

This is not the time to dwell on what Allan Jamieson has done for dermatology at large—to have established the subject on a firm footing in the greatest British school of medicine is a triumph which might make the humblest man proud.

One personal word. We have worked together for fourteen years, his kindness and generosity to me have been beyond praise, and the only cloud on my natural gratification on my promotion to this proud position is the fact that it involves his retirement.

In the college honours that will before long be offered him we all, I am sure, wish him much enjoyment and happiness.

And now, Gentlemen, I have dealt with the past, and we look forward to the future. It shall be my ambition to follow Bennett's principles and to endeavour to teach you to observe for yourselves. This, I believe, can only be done in small classes, and, though I shall deliver lectures here, I shall regard the limited classes which I shall teach on the other days of the week as at least as important parts of the course.

In the anonymous articles on the teaching of medicine which are appearing in the *Scottish Medical and Surgical Journal*, and which it is my editorial duty and privilege to peruse in their unabridged form, you will find a striking unanimity in the view that students waste their time at operations. Between the hours of 11 and 12 there are many departments of the hospital where time may well be spent. I can assure you that in your after-career you will not regret the three or four hours a week which I ask you for the next ten weeks to devote to dermatology.

ANTWERP EXPOSITION.—An international exposition is to be held at Antwerp in April, May, and June, 1907, under the patronage of Her Royal Highness the Countess of Flanders. There will be a Medico-Pharmaceutical Section, including within its scope exhibits relating to hygiene, food, and beverages (wine, liqueurs, beer). Full particulars can be obtained by application to the Secretary's Office, 30, Rue d'Arenberg, Anvers (Antwerp).

A Clinical Lecture
ON
THE ACTION OF SALICYLATES IN ACUTE RHEUMATISM.

BY RALPH STOCKMAN, M.D.,
PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF GLASGOW, AND PHYSICIAN TO THE WESTERN INFIRMARY.

SALICYLIC ACID had been well known to chemists for about half a century when Kolbe, in the course of a research on chemical constitution, succeeded in making it on a large scale from phenol, and announced in a series of papers published in 1874-5 that it was a powerful antiputrefactive and antifermentative, capable in dilute solution of killing low organisms and of annulling the action of yeast, pepsin, emulsin, and similar ferments. He recommended its use in medicine as an antipyretic and antiseptic, with the result that Buss, while investigating its action in various febrile conditions, observed that it was specially valuable in acute rheumatism—a discovery which was amply confirmed by Stricker in 1876. In the same year J. T. Maclagan published an account of his successful treatment of rheumatic fever with large doses of salicin. Since then salicylic compounds have been universally relied upon for the treatment of acute rheumatism, most authorities regarding them as exercising a specific action on the cause of the disease, which is now generally assumed to be a microbe. Previous to the introduction of salicylates such drugs as aconite, veratrum, colchicum, quinine, alkalis, opium, and a host of others, had been in vogue, but they had for the most part come to be regarded as either quite useless, or at best very unsatisfactory in their curative effects. Under the administration of these, cases of acute rheumatism probably all ran their normal course until a natural cure resulted, but with the difference, as compared with many other fevers, of having no definite limit of duration. From three to six weeks used to be a common computation, but many cases lasted much longer either with successive exacerbations or with continuous slight fever, while others recovered in two or three weeks, or even in a few days. Whether the natural cure results from an antitoxic or from an antibacterial substance formed in the body is unknown, but it is evident that this hypothetical body is of satisfactory amount and potency in some cases, while in the majority it fails to rapidly and completely cut short the disease. During the fever there is a moderate leucocytosis, and one attack predisposes to others instead of acting as a protective.

In the absence of any certain knowledge regarding the specific microbe of acute rheumatism and its toxins, it is impossible to determine experimentally whether salicyl compounds act as bactericides or as antitoxins in the disease. When we try to solve the problem indirectly by studying their effects on known organisms and ferments, we find that salicylic acid and its sodium salt are capable of preventing the action both of living ferments and of enzymes outside the body, so that in the body their action might conceivably be exerted in either or both directions. These are questions, however, of which the settlement can be attained only by further research, and which cannot be profitably discussed in a clinical lecture. When salicylates are given in sufficient dose in an uncomplicated case of rheumatic fever, the pain in the joints and the temperature begin to be favourably affected at once, the former subsiding in twelve to twenty-four hours and the latter within forty-eight hours. The joint swelling disappears in two to four days, and the frequency of pulse and respiration diminishes with the fall of temperature. The course of events closely resembles a crisis in fever.

The Charts 1 and 2 show the immediate and continuous drop of temperature, accompanied by cessation of pain and the fall in pulse-rate which characterize the successful action of sodium salicylate. In Chart 2 the accidental omission of three doses was followed by a slight rise which quickly subsided on resuming the medicine.

In Charts 3 and 4 the course of the temperature resembles the "pseudo-crisis" which is so common in pneumonia, and, like it, is followed by a definite termi-a-

tion of the fever, although in Chart 4 it has taken some days to settle down finally. It is quite evident that in all four cases there has been a radical interference with the *materies morbi*, and that the salicylate has either killed the organism or neutralized its toxin.

In other cases the effect is not so rapid. In Charts 5 and 6 the reduction of temperature is by lysis rather than by crisis, while in Chart 6 an exacerbation occurred which was only overcome by substantially increasing the dose. In all these cases the resemblance of action to that of quinine in malaria, or to the natural curative body in pneumonia, is very marked. In some cases the temperature can only be brought to a settled condition by increasing the original dose or by giving one large additional dose (40 to 60 gr.) on one or on several days in succession (Chart 7).

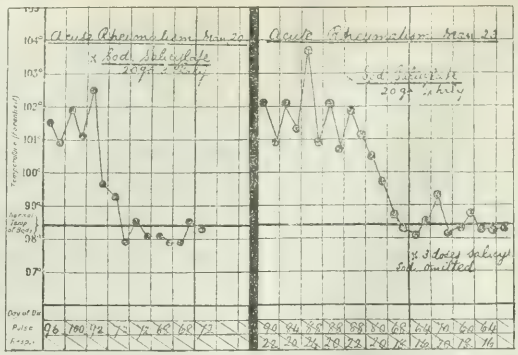


Chart 1.—Sodium salicylate, 20 gr. 3-hourly.

Chart 2.—Sodium salicylate. 20 gr. 4-hourly.

The fall of temperature is continuous and resembles a crisis.

In many cases the results of salicylic treatment are not so satisfactory. Thus, it not uncommonly happens that the patient has a relapse or exacerbation while still taking salicylate, or on reducing the daily dose. This can usually be rapidly overcome by giving an increased amount, as shown in Chart 8. In other cases the condition becomes subacute, or chronic with a slight temperature and ceases to be visibly influenced by salicylates alone (Chart 9).

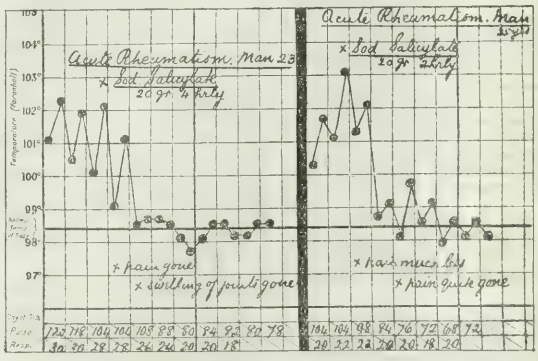


Chart 3.—Sodium salicylate, 20 gr. 4 hourly.

Chart 4.—Sodium salicylate, 20 gr. 2 hourly.

The permanent fall of temperature is preceded by a pseudo-crisis.

In cerebral rheumatism with hyperpyrexia (Chart 10) and in severe endocardial and pericardial infection with hyperpyrexia (Chart 11) salicylates have little effect, cold bathing being the only efficient way of reducing temperature. In certain cases of rheumatic pericarditis, however, the action is as decided and rapid as it is on the joints (Chart 12). These charts illustrate fairly well the different ways in which cases of acute rheumatism may react to salicylic treatment, and a fuller consideration of the results may help us to understand these differences and the reasons for them.

In many cases of acute rheumatic infection, pain and swelling of the joints are the most prominent symptoms, and it is always described as a very characteristic feature of the disease how different joints are affected in turn, and how in each, after a few days, the pain and swelling subside very rapidly without causing any permanent damage. This used to be called a metastasis, but there is no transference of the disease from joint to joint, and it simply means that all the joints are not invaded simultaneously by the morbific agent. The most probable explanation of the rapid subsidence of the swelling and pain is that locally in the joint an antitoxic or antibacterial substance is formed which powerfully antagonizes the poisonous agent, and does it so rapidly that the joints are very seldom injured. The closed cavity of the joint probably favours the accumulation of the antibody until it reaches a highly active degree of concentration. This view is supported by the circumstance that while the fibrous tissues of the joints, tendons, and aponeuroses are also very often the seat of rheumatic infection, it is well recognized that in these places the inflammation is usually very persistent, and apt to leave behind permanent fibrous thickenings; and this, I think, is owing to the antibody being in much less quantity in the body serum than in the joint effusion.

The explanation of the rapid action of sodium salicylate on the pain and swelling of the joints is that it is excreted into the joint-cavity from the blood in comparatively large amount, as can be readily shown by its detection in the fluid withdrawn by means of a hypodermic syringe. On the other hand, colonies of microbes settled deep in the fibrous tissues, or in the valves of the heart, are more or less sheltered from the action of the salicylate, and are probably scarcely reached by it; or, if reached, the solution in the serum is too dilute to exert much action. I suggest this as the explanation why valvular rheumatic infections, and infections of the fibrous tissues generally, are not nearly so amenable to the action of salicylates as the joints are. The important practical deduction to be drawn from this is to treat the patient at once and with large doses, so as to kill off the microbes while they are still in the blood stream or joints, and before they have had time to establish themselves in the fibrous tissues. Early treatment with sufficient doses greatly lessens the risk of acquiring valvular disease and chronic fibrositis. It also diminishes the frequency of prolonged subacute fever and of relapses, as these are due to organisms surviving in the fibrous tissues. Both in adults and children the rheumatic infection frequently manifests itself first in the fibrous tissues, whence it may or may not spread to

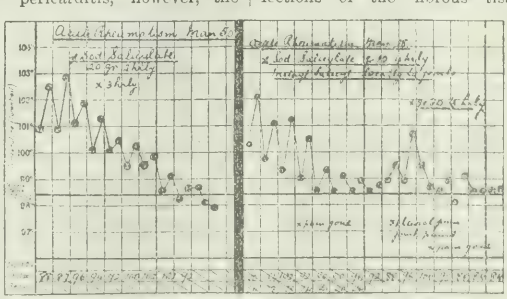


Chart 5.—Salicylate, 20 gr. 2-hourly and 3-hourly.

Chart 6.—Sod. salicylate, 10 gr. 4-hourly and methyl salicylate on joints.

In both the temperature falls by lysis.

the joints and heart, and in these cases it has long been recognized that salicylates do not act so rapidly or so satisfactorily as in cases where the joints are chiefly involved. Nevertheless the internal administration of sodium salicylate together with free local application of methyl salicylate gradually subdues the infection. In

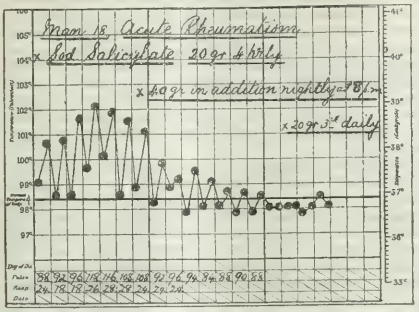


Chart 7.—Sod. salicylate, 20 gr. 4-hourly. The temperature fell only when 40 gr. was given in addition in one dose.

these protracted cases the prolonged irritation is apt to give rise to considerable reactive proliferation of the fibrous tissue locally, hence the valves of the heart and the aponeurotic structures very frequently do not return *ad integrum*, while the joints practically invariably do so. Under the administration of salicylates, the tendency to

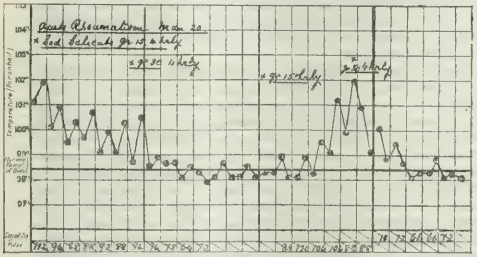


Chart 8.—Relapse while taking sod. salicylate. It came on when the dose was reduced, and subsided on increasing the dose again.

rheumatic hyperpyrexia and to cerebral rheumatism is undoubtedly diminished. In spite of frequent assertions to the contrary, I believe also that endocarditis is often prevented, although it is still deplorably common. When one considers that under the action of salicylates certain cases are aborted, that many others are at once diminished

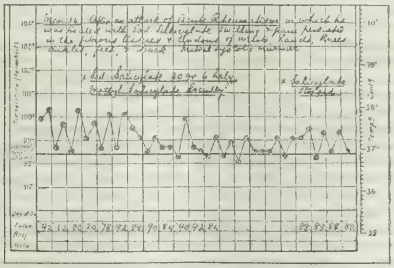


Chart 9.—Chronic feverish condition not subsidiing under salicylate of sodium.

in severity, and that along with the fall of temperature the number of heart beats may be reduced to the extent of 15,000 to 30,000 in the twenty-four hours, it is apparent that the strain on the valves and their liability to infection must be greatly lessened.

As regards dosage, 15 or 20 gr. of sodium salicylate every three or four hours usually suffices (90 to 160 gr. daily), but similar amounts or more may be given every two hours for the first twelve or twenty-four hours, so as to get as much as possible into the system in a short time. From one-half to nearly the whole of it is quickly converted into salicyluric acid, which is an inert substance,

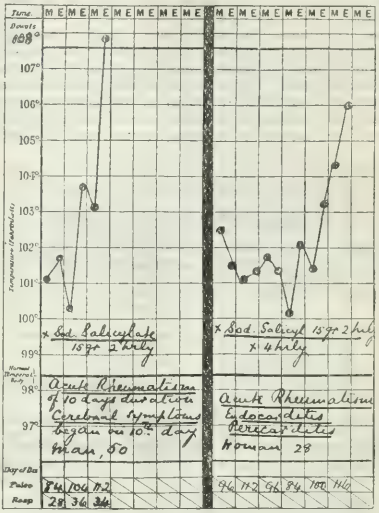


Chart 10.—Cerebral rheumatism. Chart 11.—Rheumatic pericarditis and endocarditis.

In both cases the temperature is unaffected by sodium salicylate.

and the remainder is rapidly excreted, hence the necessity for frequent administration.

It is often impossible to push it owing to the production of deafness and other well-known poisonous effects. These are chiefly due to an action on the nerve centres, the heart and pulse being scarcely affected. Mendel has given sodium salicylate intravenously and Bouchard

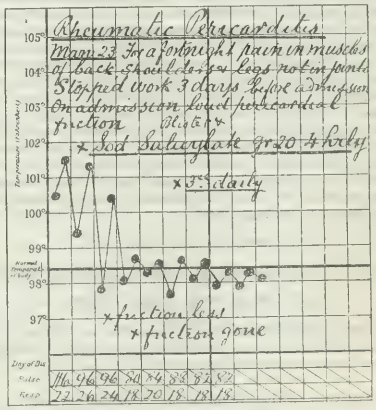


Chart 12.—Rheumatic pericarditis. Rapid cure under sodium salicylate.

hypodermically, and both say that the results are very satisfactory if proper precautions are observed.

Methyl salicylate can be given internally, as an emulsion or in milk, in 10 to 20 minim doses. It is very active, and it has not the unpleasantly sweet taste of sodium salicylate, but it is often very irritating to the stomach. It also acts well when applied over the joints or limbs, and thus applied is especially useful in acute

muscular rheumatism. Chart 13 shows the course of a case treated with it.

Salicin, saligenin, and aspirin (acetyl-salicylic acid) form salicylic acid in the body, and in virtue of this have an antirheumatic action; while besides these there are numerous other compounds of salicylic acid which are active, but for the most part inferior to sodium salicylate.

There can be no reasonable doubt that compounds of salicylic acid, or substances from which it can be formed in the body, have a specific action against the poison of acute rheumatism. The number of such specifics is small in medicine, comprising quinine in malaria, mercury in syphilis, a few serums and arsenic in malaria, in pernicious anaemia, in chorea, in lymphadenoma, and in sleeping

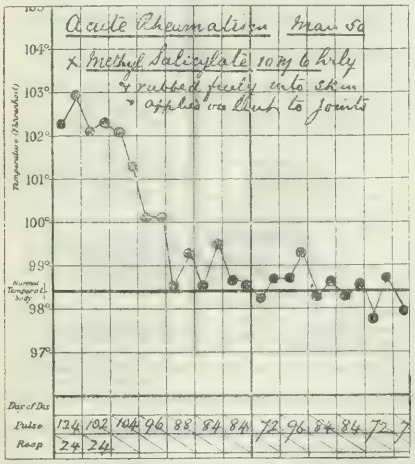


Chart 13.—Action of methyl salicylate.

sickness. The action of arsenic in all these diseases is comparatively feeble. In all it requires prolonged administration, in some it merely lessens the vitality and virulence of the parasite, and hence improvement is often slight and relapses are very common. In the same way it is evident that salicylates in acute rheumatism frequently exert an action too feeble to satisfactorily cut short that disease, and that this is most apparent when the inflammation is seated in the fibrous tissues connected with the muscles and joints, or in the valves of the heart. It would certainly be an advantage to have a new remedy acting similarly but more powerfully, and, if possible, without its toxic effects on the central nervous system. There is no reason why such specific remedies should not be discovered for all the ordinary fevers if a large series of likely substances was systematically tested in our fever hospitals.

THE RECOGNITION OF MYELOPATHIC ALBUMOSE IN THE URINE.

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The detection in the urine of the peculiar substance first described by Bence Jones in the year 1847, is one of the most significant clinical observations which it can fall to the lot of the physician to make. Its presence is one of the few signs of disease which can be strictly called pathognomonic, admitting, as far as our present knowledge goes, of only one interpretation, and it is usually for many months the only indication of the true nature of the disease from which the patient is suffering, and may for a long time be the sole evidence that he is seriously ill at all.

Multiple myeloma, the morbid condition of which it is the sign, goes on to a fatal termination with the certainty of malignant disease, and no measures hitherto attempted appear to have the slightest influence in retarding its progress. In fact, a correct diagnosis has seldom been made until the disease has become pretty widely distributed, and clearly beyond the reach of any local measures which might conceivably be employed to arrest it. We may be certain that in this, as in other forms of new growth, any remedial measures that may hereafter be devised will be only applicable in the early stages of the disease, and their success will depend upon an early diagnosis. As this is only possible by the detection in the urine of the body which is the subject of the present paper, I think it is of the highest importance to have a clear understanding of the means by which it may be recognized.

Myelopathic albumose, as, for reasons set forth in former contributions, I designate the body in question, is a member of the great group of nitrogenous colloid substances known as proteids. Elaborate investigations have been made during the last few years, especially in Germany, with a view to determining its exact position in the group; but, as might be expected in view of our scanty knowledge of the constitution of the proteids in general, no great progress has been made in this direction. This much, however, may be taken as established—it differs essentially from all other proteids which have ever been met with either in health or disease. It is closely related to the native albumins, but at the same time presents characters which bring it near, if not within, the group of albumoses. It is remarkable in this that it is the only simple proteid derived from the human body that has ever been made to crystallize artificially. Further, it shows a remarkable readiness to undergo what I can only describe as molecular changes under conditions not easy to determine, changes which make its detection difficult if we are not aware of the possibility of their having taken place.

Myelopathic albumose is physically and chemically closely related to the albumins, and when present in urine generally gives a positive response to the common tests for albumin, for which it is consequently most likely to be mistaken. Thus it is thrown out of solution by heat in the presence of a trace of acid, by ferrocyanide of potassium and acetic acid, by picric acid, and by mercurio-potassic iodide. On the other hand, its response to these tests is, as a rule, not identical with that of albumin, the most noticeable points of difference being with regard to its solubility or otherwise at various temperatures and the greater or less readiness with which it is precipitated by various mineral acids. Some of the points of distinction can only be properly demonstrated by somewhat tedious chemical methods, and will only be briefly alluded to here. The object of this paper is to point out simple methods of analysis which are within the reach of every practitioner who pays attention to the urine at all, which require no complicated apparatus, and which, if carried out with ordinary care, may be relied on to distinguish myelopathic albumose from all other possible constituents of the urine.

I. *Heat Test.*

Myelopathic albumose coagulates at a much lower temperature than albumin—namely, at 58° C., or thereabouts (while serum albumin coagulates at about 75° C.)—the exact point varying a little in both cases according to the degree of acidity of the fluid, the concentration of the solution, and other conditions not thoroughly understood. Thus, in the case of albumose coagulation is sometimes accelerated by agitating the fluid. The best way of applying the heat test is on a water bath, which can be easily improvised by placing the test tube with the urine inside another of larger calibre containing water. When thus used the test is very striking, the whole column of urine becoming suddenly opaque at about 58° to 60° C., and the coagulum running together to form flakes at two or three degrees higher. Occasionally some turbidity is noticed at a much lower temperature, especially if the acidity is somewhat high. The recognition of this low coagulation point I consider conclusive evidence of the presence of albumose. I have never failed to find it in myelopathic albumosuria, and it never occurs in albuminuria. Care must, however, be taken to add only enough acid to ensure coagulation. A slight excess of acid may prevent its taking place altogether.

II. *Solution on Boiling.*

Another important characteristic of myelopathic albumose is that the coagulum formed at a comparatively low temperature undergoes more or less complete solution when the temperature of the fluid is raised to the boiling point. The fact of solution having occurred may be obvious from the clearing up of the turbidity; if it has only taken place to a slight extent it may be demonstrated by throwing the liquid while hot on a pleated filter, when the filtrate will become turbid on cooling. This reaction, when positive, is highly characteristic of myelopathic albumose, but it is not always obtained unless certain precautions are taken. Mere excess of albumose alone seems to interfere with it, so that it only appears after dilution. Again, it may be obtained merely by adding a little acetic acid to the hot urine. The conditions which determine the solution of the coagulum at the boiling point are not thoroughly understood. In this connexion it is worthy of remark that where little or no solution takes place on boiling the flakes of coagulum run together to form a putty-like mass, which collects on the top of the fluid, leaving the lower part almost clear. This appearance is rather characteristic of albumose, but must not be mistaken for clearing of the fluid by actual solution of the coagulum.

III. *Reaction with Hydrochloric Acid.*

Another characteristic of scarcely less importance even than the low coagulation point is the behaviour of this body with strong hydrochloric acid. If the albumose is abundant the acid may be poured in freely, when a dense precipitate takes place immediately, and is not dissolved unless an enormous excess is added. If the albumose is only present in small quantities the contact method should be employed, the urine being carefully floated on to the acid, when a sharp white band will appear at the line of junction of the fluids. This test is exceedingly delicate, and does not depend on the presence of excess of salts. A positive result may be obtained with it after free dilution of the urine; I have observed it after dilution with some thirty volumes of water. It is, however, more distinct if the dilution is made with a weak solution of a neutral salt. The hydrochloric acid test, though less sensitive than the nitric acid test to be presently described, is sufficiently delicate to indicate the presence of myeolopathic albumose in quantities less than 0.5 per 1,000. Its great value, however, lies in the certainty with which it enables us to distinguish the albumose from other proteids. Hydrochloric acid added to abuminous urine causes no turbidity unless either the albumin is present in a very large amount or salts are in a concentrated state. If either of these conditions is present a moderate degree of turbidity may be produced by hydrochloric acid, especially on standing, but in these cases the previous dilution of the urine with three or four volumes of water will prevent the appearance of any turbidity. If these precautions are attended to, the appearance of a turbidity with hydrochloric acid is conclusive evidence of the presence of myelopathic albumose. This test is convenient for ordinary bedside use; it requires no special apparatus or manipulative dexterity, and is but little, if at all, less conclusive than the determination of the coagulation point.

IV. *Reaction with Nitric Acid.*

Myelopathic albumose is thrown down by strong nitric acid in the cold, and so far behaves like albumin. On raising the temperature to the boiling point, however, the coagulum dissolves more or less completely and reappears on cooling. This reaction, which is commonly accepted as one of the most characteristic reactions of the primary albumoses, is of great theoretical interest, and in my opinion justifies the provision inclusion of the body we are considering among the albumoses, notwithstanding the fact that it differs in some of its properties from the other members of the group. When the test is applied directly to the untreated urine the solution on boiling is generally only partial, and sometimes does not take place at all. If, however, the urine is first diluted, it almost invariably takes place to a very large extent. The same conditions which interfere with the solution of the heat coagulum already referred to seem also to interfere with the solution of the coagulum formed with nitric acid. The best way to apply the test is to add the acid drop by drop until the maximum degree of precipitation is produced, which may be recognized by a tendency for the precipitate to dissolve where the acid collects in excess at the bottom of the test tube. The whole column of liquid is then boiled for a few seconds while stirred with a glass rod and is thrown on a pleated filter. A positive result is shown by the filtrate, first clear, becoming densely turbid on cooling, and it may be confirmed by finding that clearing again takes place on heating. This process may be repeated several times. If a negative result is obtained at first the test should be repeated with the urine diluted with three or four volumes of water or of normal urine. The coagulum with hydrochloric acid is likewise soluble on boiling.

V. *Reaction with Potassium Ferrocyanide.*

Myelopathic albumose is coagulated by potassium ferrocyanide and acetic acid, but in a manner somewhat different from albumin. With the latter complete coagulation takes place immediately, but with albumose it often takes time to develop, and unless a good deal of acid is used it may not appear at all. If this test is the one commonly used for the detection of proteids in general, as is the practice with some physicians, the presence of albumose may be altogether overlooked.

Trustworthiness and Delicacy of the Tests.

Since the year 1897, when I first became interested in the subject of myelopathic albumosuria, I have examined the urine in 9 cases of the disease; generally more than one sample has been submitted to analysis, and in some cases I have examined a large number. In every instance I have found the foregoing tests responded to in such a way as to leave no room for doubt that the body under investigation was myelopathic albumose, and in every case which has been watched to its termination the association with disease of the bony skeleton has been confirmed. Until recently, however, I had always found the albumose, if present at all, in enormous quantities, sometimes as much as 20 parts per mille, and I have often felt a doubt whether, if it were excreted in small amount—say as little as 0.5 per mille—the tests which I rely upon would be equally effectual for its recognition and differentiation from other proteids.

It is true that after free dilutions of the urine the same reactions were noted, but in the case of a substance of so doubtful a nature, and one whose behaviour seems so much influenced by environment, one felt that it was not safe to predicate what its behaviour would be under new conditions; that if it were excreted only in traces it might undergo some molecular or other changes which would interfere with its reactions to the various tests. In the latter part of 1904, however, my friend and former house-physician, Dr. Cyril Moss, who was then in the service of the P. and O. Steamship Company, was kind enough to bring me two bottles of urine from a woman who was in hospital in Sydney, N.S.W., with well-marked symptoms of multiple myeloma, and who has since been proved by autopsy to have suffered from that disease. This urine was high coloured, was amphoteric, and had a specific gravity of 1030. It gave the heat test for albumose distinctly. I acidulated it faintly with acetic acid, and heated it on a water bath, when a turbidity, moderate in amount, came on quite suddenly, just about 60° C. It disappeared on further heating, and reappeared on cooling. Similarly a turbidity was produced by dropping in nitric acid; it disappeared on heating and returned on cooling. A white band also appeared in contact with hydrochloric acid.

The turbidity was about the same intensity as would be yielded by a trace of albumin, or less than 0.5 part per mille.

Estimation by means of Esbach's picric acid albuminometer also indicated that the quantity of albumose was not more than 0.5 per 1,000. By comparison with gravimetric estimates of the quantity of albumose present in other cases, I have found that the readings of this instrument are approximately correct for this body. I conclude, therefore, that the tests I have advocated can be relied on to distinguish albumose from albumin in any case in which the former is present in sufficient amount to be capable of recognition at all.

I have stated that albumose is liable to undergo certain molecular changes which are difficult to explain and may puzzle the inexperienced. One of the most remarkable

and constant of these is that it becomes deposited in an insoluble form on standing for a longer or shorter time. This insoluble dysalbumose, as it has been called, is generally to be found in a specimen that has stood for some weeks.

I have by me a bottle of urine which I filtered quite clear twelve months ago, and which now contains a dense deposit. This deposit may take place very rapidly; in my first case it sometimes took place in the patient's bladder, and consequently the urine looked like milk when voided. This change is apparently of the same nature as the coagulation by heat.

Other Tests.

Before concluding I should like to allude to certain tests for myelopathic albumose which have been mentioned by various writers, but which have proved in my hands absolutely worthless. Of these the best known is the so-called biuret test, performed by treating the solution with caustic potash or soda and a trace of copper sulphate. The result is supposed to be that in the case of albumin a violet colour is produced; in the case of albumoses and peptones a rose red. Professor Huppert of Prague, however, states somewhat emphatically that the biuret reaction given by peptone is in no way distinguishable from that of albumin.[1] If this be true with regard to peptone, we may suspect that it will *a fortiori* be also true of albumoses, which chemically stand much closer to albumin. My own experience with the biuret test convinces me that it is of no use whatever as a means of distinguishing the different proteids as they occur in the urine. A rose pink is always obtained if the amount of copper is small, no matter what is the kind of proteid under examination. I have therefore no hesitation in saying that in practice the biuret reaction is absolutely worthless in the examination of urine.

Another test has been brought out by Boston of Philadelphia, and is described at length in his book on clinical diagnosis.[2] It depends on the fact that albumose contains loosely combined sulphur, which in the presence of alkali unites with lead salts to form black sulphide. Boston says that many chemists regard this reaction as one of the most characteristic features of the body we are considering, and that it distinguishes it from the digestive albumoses. I may remark in passing that in practice we are hardly likely to meet with difficulty in distinguishing myelopathic from digestive albumose; the real problem is to distinguish it from albumin. However, I have applied Boston's test to urine containing albumin, digestive albumose (Witte's peptone), and myelopathic albumose respectively, and I find that the results obtained in all three cases are quite indistinguishable.

Again, Dixon Mann states,[3] on the authority of Grutterink and Graaf, that with an equal volume of 50 per cent. acetic acid the albumose will become solid, so that the test-tube can be inverted without spilling. This in my experience is certainly not the case. However, I maintain that the simple tests I have already described are sufficient to enable us to identify this body, and that from the point of view of the practising physician there is no practical advantage in adding to their number.

There are many points with regard to the nature of this interesting body which I have not touched upon in the foregoing remarks. If I were to deal with them I should have to enter into various chemical problems which are outside the scope of the present communication, the purpose of which is to place clearly before my readers the means by which the presence of myelopathic albumose in the urine may be determined.

REFERENCES.

[1] Neubauer and Vogel. *Analyse des Harns*: 8te Aufl., p. 478. [2] Boston, *A Textbook of Clinical Diagnosis*, p. 137. [3] J. Dixon Mann, *Physiology and Pathology of the Urine*, p. 128.

FRENCH CONGRESS OF GYNAECOLOGY AND OBSTETRICS.—The fifth periodical Congress of Gynaecology, Obstetrics, and Paediatrics, will be held at Algiers, April 1st to 8th, 1907, under the general presidency of Professor Queirel, of Marseilles, who will also preside over the Section of Obstetrics. Dr. Boursier, of Bordeaux, will be President of the Gynaecological Section, and Dr. Guinon, of Paris, of that of Paediatrics. The General Secretary is Professor Jules Rouvier, 52, rue Daguerre, Algiers.

RHEUMATIC FEVER AND AMYLOID DEGENERATION.

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[From the Pathological Laboratory, University of Edinburgh.]

THOUGH the causes of amyloid degeneration are not clearly understood, still it is generally recognized that in the great majority, if not all cases, the condition is secondary to some infective agent. This infective agent is generally bacterial, and has been acting for a considerable length of time. The experimental work of Krakow, Maximow, Davidsohn and others has all gone to support the bacterial agent as the cause, and if we exclude the experiments of Czerny, which have not been confirmed by others who carried out similar work, the degeneration has been produced artificially only by bacteria or their products. It is true that cases of amyloid degeneration have been recorded as following cancer, leukaemia, malaria, and lymphadenoma; one of these is due to a parasite which can produce toxic products, very much allied to the products of bacteria, and, while the cause of the other three diseases is still unknown, I do not think I am stating too much in saying that the majority of pathologists favour the parasitic origin of at least two of them. In view of these facts, it seemed to me that in investigating and upholding the bacterial origin of acute rheumatism some help might be obtained by a study of the more chronic lesions which all recognized as sequelae of acute rheumatism, and the possibility of their experimental production by the streptococcus which has been claimed as causal.

At the commencement of my observations my attention was directed to the presence of amyloid degeneration in various organs of a case of cardiac disease following acute rheumatism. Since that time three other cases have been noted by me.

CASE I.

A. P., female, aged 28, was admitted to the Royal Infirmary, Edinburgh, on November 9th, 1904, complaining of breathlessness.

History.—Seven months previously she had arthritis in the right ankle and was treated for acute rheumatism. This was followed a month later by arthritis in the knees and ankles, and in October, a month before admission, she had pains over the heart and she became breathless. There was no history of any previous attack of acute rheumatism, and till June, 1904, her health had been perfectly satisfactory.

Condition on Admission.—There was a well-marked systolic murmur over the mitral area and other signs of definite cardiac disease.

After-history.—November 13th. There was a purpuric rash over the chest and upper part of the abdomen. On the flexor surface of the left forearm, about ½ in. below the bend of the elbow, there was an egg-shaped swelling 1½ in. long by ¾ in. wide. This was more definite on the radial than on the ulnar aspect. The left radial pulse at the wrist was hardly perceptible. The liver was slightly enlarged and tender on palpation. On November 16th there was marked diarrhoea. The diarrhoea continued. Tenderness over the liver increased, and very acute tenderness developed over the right lower ribs, especially the fifth and sixth anteriorly, and in the axilla, and continued till the death of the patient on December 4th, at 6.10 a.m.

Autopsy (December 4th, 11 a.m.).

Heart and Pericardium.—There was 1 oz. of clear serous fluid in the pericardial sac, no adhesions, and no recent pericarditis. The endocardium showed a few thickened patches of chronic endocarditis. Over the right ventricle there was an excess of fat. The right auricle was filled with recent blood clot and was slightly dilated. The right ventricle was also slightly dilated. The tricuspid and pulmonary valve segments showed no special change. The left auricle was dilated and filled with recent blood clot. The left ventricle was hypertrophied and slightly dilated. The aortic valve segments were slightly thickened, especially at their attached margin, but there was no evidence of any recent aortic endocarditis. On the inferior surface of the anterior segment of the mitral valve there was a large mass of fairly firm vegetations, in the form of irregular nodules. The largest of these was ½ in. in diameter. On the auricular surface of the posterior segment there were some small recent warty vegetations, which spread upwards for ¾ in. over the wall of the auricle. There was neither ulceration nor rupture of any of the segments. There was chronic thickening of all the mitral segments; but no stenosis apart from that caused by the vegetations. From the vegetations a culture corresponding in all characters with the *Streptococcus rheumaticus* was isolated.

Lungs.—There was slight emphysema with collapse at the

base. There were no infarctions, and chronic venous congestion was only slight in amount. There were a few fragments of recent lymph on the diaphragmatic surface of the left lower lobe.

Liver.—There was slight enlargement, with a moderate degree of chronic venous congestion. No amyloid reaction was obtained with iodine, but on microscopic examination some of the smaller branches of the hepatic arteries in the portal tracts gave the reaction with methyl violet. The change was very slight, and in some sections only one artery showing the change could be found.

Spleen.—It was much enlarged, and there were several yellowish recent infarctions. The Malpighian bodies were distinct and translucent, and with iodine gave a definite amyloid reaction. Microscopic examination showed the amyloid change confined to the Malpighian bodies. In some only the reticulum at the periphery was affected, but in others the degeneration had spread almost to the centre.

Arteries.—The walls of the smaller arteries were swollen and homogeneous, and gave a distinct amyloid reaction, but the larger ones were unaffected. There was an embolism of the left brachial artery.

Kidney.—This was the only one present. It was enlarged, and contained old and recent infarctions, and with iodine it gave a very slight amyloid reaction. On microscopic examination there was amyloid change in some of the capillaries in the glomerular tufts. No degeneration was made out in any of the afferent or efferent arterioles, and only here and there in the walls of the straight arteries in the pyramids could any amyloid reaction be obtained.

The suprarenals and thyroid showed no amyloid change, but the intestine gave a very definite reaction with methyl violet.

There were congenital deformities in the generative organs, but as these could have no special relation to the amyloid degeneration they need not be discussed here.

Case II.

C. M., male, aged 19, was admitted to the Royal Infirmary, Edinburgh, on February 17th, 1904.

History.—On February 7th, 1904, his left knee was swollen and very painful. On the 8th his wrists were swollen, and on the 9th he developed pain over the sternum. There was no history of any former attack of acute rheumatism.

Condition on Admission.—There was effusion in both knee-joints, but no pain or redness in any of the joints. The fingers were clubbed, and the shape of the chest and its localized bulging suggested old-standing cardiac disease. In the aortic area there was a soft systolic murmur with a suspicion of a diastolic, and in the mitral area there was a very distinct systolic murmur.

After-history.—On February 28th the patient was perspiring very profusely, but there was neither pain nor swelling in any of his joints. On February 29th there was slight pain in the left knee. On March 2nd the right knee was swollen, red, and painful. The patient recovered, and was discharged on April 5th. During his stay in the infirmary the urine contained albumen which varied from 2 to 10 gr. to the ounce. The albumen was absent when the patient was discharged.

On April 9th he was readmitted with considerable swelling in the right knee, which had been present for two days. There was also swelling in the left knee. He was discharged on May 4th, though there was still a slight trace of albumen in his urine.

He was readmitted on January 7th, 1905. There was marked dyspnoea and cyanosis, and slight diarrhoea. The heart murmurs were unchanged. On January 11th there was dullness with moist sounds at the base of the right lung, and the sputum was slightly blood-stained. On January 22nd diarrhoea was again present, and on January 23rd there was an erythematous rash over the trunk and face. This became more marked, and on January 26th it was distinctly purpuric, and was specially marked over the whole of the lower extremities. There was slight oedema of the feet. The patient was extremely prostrate, and died the same evening.

Autopsy (January 27th).

Heart and Pericardium.—The pericardium was thickened and universally adherent to the epicardium. The right auricle was dilated and hypertrophied, and contained some recent *ante-mortem* thrombus. The right ventricle was hypertrophied but not dilated. The tricuspid orifice was dilated and the valve segments slightly thickened. The pulmonary valve segments were healthy. The left auricle was dilated and hypertrophied, and the left ventricle was hypertrophied. The aortic valve segments were thickened, especially at their free margins, and were slightly incompetent. There was no stenosis and no recent endocarditis. The mitral valve segments were very considerably thickened, and the orifice was dilated. There was no recent endocarditis.

Lungs.—There were numerous fibrous adhesions in both pleural sacs and very numerous subpleural petechial haemorrhages over both lungs. On section, the lung tissue showed advanced chronic venous congestion, and several infarctions were present in the left lung.

Liver.—There was advanced chronic venous congestion but no amyloid reaction to iodine. Microscopically there was a definite amyloid reaction to methyl violet in some of the smaller branches of the hepatic artery in the portal tracts.

Spleen.—This gave a very definite "sago-waxy" reaction to iodine. The Malpighian bodies were enlarged and translucent.

Kidneys.—The surface was smooth, extremely pale, and somewhat mottled. On section, there was marked pallor of the whole organ, with, however, congestion of the veins in the pyramids. The larger vessels were not thickened. Both superficial and deep cortex were much swollen and of a uniform pallor. The Malpighian bodies were prominent, and gave a definite mahogany brown colour with iodine. Microscopically the capillaries of the glomerular tuft showed well-marked amyloid degeneration. The afferent and efferent arterioles showed the reaction only occasionally. The amyloid change was also seen in a few of the intertubular capillaries, and was very marked in the straight vessels in the pyramids.

Small Intestine.—The solitary glands were enlarged, and the amyloid change was quite definite in the capillaries of the villi.

Case III.

J. W., male, aged 21, was admitted to the Royal Infirmary, Edinburgh, October 29th, 1903, with cough and with swelling of feet and legs of six weeks' duration.

History.—He had rheumatic fever at the age of 17, and has had bronchitis every winter since.

Condition on Admission.—There was palpitation and dyspnoea, bulging of the praecordia, and diffuse pulsation in the sixth interspace and in the episternal notch. There was a diastolic thrill over the apex beat, and on auscultation a presystolic murmur was heard in the mitral area, and a systolic in the aortic. There was dullness, with harsh vesicular breathing and rhonchi at the base of both lungs. The urine was alkaline, had a specific gravity of 1010, and contained a large quantity of albumen.

After-history.—On November 2nd there had been profuse diarrhoea for two days. This continued, and the patient died on November 9th.

Autopsy.

Heart and Pericardium.—The right auricle was dilated, and contained some *ante-mortem* clot. The tricuspid orifice was stenosed to a moderate degree, the valve segments were thickened, and there were some recent vegetations along the free margins of the cusps. The right ventricle was small, the wall was hypertrophied, and at the apex showed a moderate degree of fatty infiltration. The pulmonary valve segments were healthy. The left auricle was hypertrophied. The mitral orifice was narrowed and the cusps were thickened. There were no vegetations. The left ventricle was dilated and hypertrophied. The aortic orifice was stenosed, and the cusps thickened. There was no recent endocarditis. The pericardium was universally adherent, and there was some fibrous invasion of the myocardium.

Lungs.—Both were emphysematous and showed chronic venous congestion. In the lower part of the right lung there was a recent infarction.

Liver.—There was slight enlargement. Early chronic venous congestion and fatty change were the only pathological conditions noted. There was no amyloid reaction to the iodine test. Microscopically the branches of the hepatic artery in almost every portal tract showed a definite amyloid change. In some of the tracts the wall of the portal vein was also affected. There were a few patches of amyloid change in the capillaries between the liver cells, and especially in the intermediate zone of the lobules.

Spleen.—There was well-marked chronic venous congestion. The Malpighian bodies were enlarged and translucent, and gave a definite amyloid reaction with iodine. Microscopically all the Malpighian bodies showed the amyloid change. In some only the peripheral zone was affected, and in some the wall of the arteries was free from the degeneration. There was very slight amyloid change in the walls of the sinuses of the pulp, and this only in a few scattered areas.

Kidneys.—These were pale and enlarged. The cortex was swollen and translucent. There was definite amyloid reaction to iodine in the glomeruli and in the vessels in the pyramids. Microscopically amyloid change was present in all of the glomerular tufts. In some there were merely irregular patches near the periphery, in others the change was most marked near the centre, and in others the whole of the capillaries of the tuft were affected. The afferent arteriole showed the change irregularly. A few of the intertubular vessels were waxy. The straight vessels in the pyramids showed the degeneration in a marked degree.

Adrenals.—In the adrenals the amyloid change was very extensive both in the cortex and in the medulla.

Small Intestine.—The small intestine showed the degeneration in a marked degree, and there were a few patches in some of the mesenteric glands.

Case IV.

M. D., female, aged 20, was admitted to the Royal Infirmary, Edinburgh, on March 10th, 1906, complaining of pain in the left side, dyspnoea, and swelling of face and ankles.

History.—She had rheumatic fever in childhood, and had had rheumatic pains frequently.

Condition on Admission.—She was cyanosed and had very marked dyspnoea. There was a well-marked systolic thrill in the episternal notch, and in the neck. A soft systolic murmur was heard in the mitral area, and in the aortic area a systolic and a faint diastolic. Over the whole of the chest there were numerous bronchitic sounds. The urine contained 4.2 gr. per oz. of albumen.

Death.—While in hospital the patient became very dropsical, and died suddenly on March 31st.

Autopsy.

Heart and Pericardium.—The pericardium was adherent to the epicardium over the anterior surface of the heart, and in the adhesions there was some calcareous deposit. The right auricle was dilated and its endocardium thickened. The tricuspid orifice was narrowed and the valves showed recent vegetations. The right ventricle was hypertrophied. At the apex there was fatty infiltration. The pulmonary valves were slightly thickened, especially at their margins, and there were several small clusters of recent vegetations at the corpus Arantii. The left auricle was dilated and its endocardium thickened. The mitral orifice was stenosed. The valve segments were thickened, and on the auricular aspect there were irregular vegetations, some calcified, others soft and easily broken down. The left ventricle was hypertrophied. The mitral orifice was narrowed, the cusps were thickened and contracted, and the chordae tendineae were also thickened. The aortic valves were incompetent, were very much thickened by old endocarditis, and also showed some recent vegetations.

The liver showed nothing specially important, and there was no reaction to the iodine test. Microscopically some of the smaller branches of the hepatic artery in the portal tracts gave a definite amyloid reaction with methyl violet.

The spleen was enlarged and soft. The Malphigian bodies were prominent, but gave no reaction with iodine. Microscopically there was very definite amyloid change in the fibrous reticulum of the Malphigian bodies, especially at their periphery, but very little atrophy of the lymphoid cells.

Kidneys.—There was enlargement and pallor. On section the cortex was swollen, pale, and translucent. There was amyloid reaction to iodine in the glomeruli and in the vessels of the pyramids. Microscopically the capillaries of the glomerular tufts showed the degeneration, and there was also very definite change in the straight vessels in the pyramids. The intestine was not examined.

These four cases present many features in common. They were all young subjects who had cardiac disease. In all there is a very definite history of rheumatic fever. The rheumatic attacks were frequent, and in all of them there is evidence that the rheumatic poison, be it what it may, was circulating in the body for from seven months onwards.

In the first case the history points to the first infection being only seven months before the death of the patient; but during that time the attacks had been frequent—in fact, the poison seems to have been absorbed almost continuously during these months.

In the second case the history is of a year's duration, with again frequent attacks of the disease. The third and fourth cases are of several years' duration.

Thus we have in these cases the usual history of amyloid degeneration: a toxin being absorbed fairly constantly for a prolonged period, and, so far as could be made out from the history and from the microscopic examination of the organs, the only poison acting here was that of acute rheumatism. There certainly was neither tuberculosis nor syphilis in any of the cases. Now it is generally admitted, as has been already stated, that the causal toxin is bacterial in origin, and in one case an organism corresponding with the *Micrococcus rheumaticus* was isolated. Lending support to the view that the amyloid degeneration was caused by the poison of rheumatism is the relation of the infection to the only definite clinical manifestation of the degeneration—the diarrhoea. This is recorded in three of the cases (in the fourth there is unfortunately no record, either clinically or *post-mortem*, of the condition of the intestine), and in all it appeared just a short time before death.

The distribution of the amyloid change is also very similar in the four cases, but as this is given in detail in the report of the cases it need not be again referred to.

These cases seem to me to give considerable support to those of us who maintain that acute rheumatism is a bacterial disease, and it is for this purpose and this alone that I bring them forward.

In conclusion, I have to thank Professor Greenfield, Dr. Byrom Bramwell and Dr. James for permission to use the notes of the cases, and my colleague, Dr. Carnegie Dickson, for the *post-mortem* record of one of the cases.

MYOMECTOMY DURING PREGNANCY AND LABOUR AT TERM IN AN ELDERLY PRIMIPARA:

WITH NOTES ON SIMILAR CASES.*

BY ALBAN DORAN, F.R.C.S.,
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MYOMECTOMY has often been performed during pregnancy with the most satisfactory results. Gestation is, as a rule, uninterrupted, and when labour sets in the expulsive powers of the uterus seem to be but little impaired. This has been noted even in subjects where the wound in the uterine walls inflicted at the operation was of considerable length, breadth, and depth. The case which I will now relate is mainly of interest because the patient had reached the age of 35 years and was pregnant for the first time. The history of the subsequent first labour is therefore, in my opinion, worth reporting. I will also make some mention of a few other instances of labour in elderly primiparae following myomectomy during pregnancy, taken from the reports of the experience of others published during the current year.

A woman, aged 35, was brought to me for examination at the end of February, 1906. She had consulted Dr. Meerwald, of Maida Vale, on account of amenorrhoea. The last period began on October 25th, 1905. Morning sickness troubled her during November and December. Dr. Meerwald detected a swelling, with all the characters of a gravid uterus, above the pubes, but the pelvic condition appeared abnormal.

The patient was strong and healthy; the abdominal walls showed no lineae albicantes. The body of the uterus could be clearly felt in the hypogastrium, occupying two-thirds of the space between the umbilicus and pubes. The cervix was fairly long and firm; the os externum narrow and oval. A prominent conical body occupied the left fornix; it was very tender when pressed, and moved slightly with the uterus. On rectal examination it was found to lie in front of the bowel. The upper limits of the body in the pelvis could not be clearly defined. The patient's general condition was satisfactory.

Thus there was evidently a morbid growth connected with the posterior part of the lower segment of the uterus, most probably a fibroid likely to prejudice labour. Considering the small risk, even of interruption of pregnancy, which attends myomectomy, I decided to operate, although the tumour lay in a rather awkward position for manipulation without much disturbance of the gravid uterus.

Operation.—On March 6th I operated, with the assistance o Mr. Butler-Smythe. Mr. Morley administered ethyl chloride, followed by ether and then chloroform. The pelvis was elevated. I prolonged the abdominal wound to 1 in. above the umbilicus, so that I was enabled to draw out the gravid uterus and examine its lower and posterior aspects without dragging or pressing. I then discovered two subserous, pedunculated growths springing from the posterior aspect of the inferior uterine segment, close to the left border of the uterus. By cautious rotation of the uterus towards the right I was able to bring the two growths out of the lower part of the abdominal wound. Gauze pads were packed behind the uterus and in the left iliac region. The smaller growth was 2 in. long, very tough, and attached to the uterus by a short vascular pedicle, awkwardly near to the larger tumour. It would hardly have interfered with labour, but I found that I could not very well reach the bigger outgrowth until I had removed it. I enucleated it in part, split it open, and then was able to secure its pedicle by transfixion with No. 4 China twist.

The larger growth was now more conveniently placed for removal. It measured over 4 in. in length and 2 in. at its broadest part, and it ended in the very blunt point so prominent in the pelvic cavity when the patient was examined. The pedicle was relatively thick. I enucleated the growth to a certain extent after splitting it, and closed the remains of the capsule with a No. 1 continuous silk suture; then I transfixed it with stouter silk. The growth, a calcified fibromyoma, adhered strongly to the capsule, so that only a short piece of capsule could be saved. On that account I was compelled to transfix, as not until the transfixing suture was tied could I stop the bleeding. The peritoneum was closed with No. 1 Van Horn catgut; the integuments and sheath of the recti with interrupted silkworm gut.

There were no complications during convalescence, nor in the further course of the pregnancy, which went on to

* A paper read before the Obstetrical Society of London, November 7th, 1906.

full term. The patient was attended by Mr. W. H. F. Oxley, of Poplar, to whom I am indebted for the following report of the labour:

Mrs. —— sent for me first on August 10th. She was then having pains about every ten minutes, and the os was of the size of a shilling, the vertex presenting in the occipito-posterior position. The membranes were very thin and ruptured after the first examination. There was very little liquor amnii.

The pains continued fairly strong, about every five minutes during the next three days. A sedative draught each evening gave relief for about a couple of hours.

On the 13th I was able, though with great difficulty, to introduce the forceps under chloroform through the os, which was then not much larger than half a crown.

There was no trouble in extraction. I think that the age of the patient, coupled with the early rupture of the membranes and the position of the head, was sufficient to account for the slow dilatation of the os, and I do not think that the operation had any effect whatever upon the course of labour.

The uterus contracted well after extraction.* There was no pelvic deformity.

On September 14th the patient came to see me at the Samaritan Hospital, bringing her infant, a healthy female child. She had suckled it for about a week, but it did not thrive until it was fed artificially.

The patient herself was in very good health. The abdominal wound had healed well, and was deeply pigmented along its entire course† The uterus could be freely moved, involution was perfect, and the fornices were quite free. I failed to detect anything abnormal in the posterior part of the inferior segment of the uterus, the seat of the myomectomy. The cervix was slightly lacerated on the left side of the os; the perineum was entire.

Myomectomy and Elderly Primiparae.

The patient was 35 years of age, and carried the child to term. The first stage was long; but, as I have explained, there is no evidence that the delay was due to the operation. The child was saved and reared.

Recently published reports show that, as in my case, the gravid uterus in an elderly subject pregnant for the first time tolerates myomectomy. Thring, of Sydney,[1] enucleated a necrotic interstitial fibroid, of the size of a large orange, from the anterior wall of the uterus of a woman aged 38, in the sixth month of her first pregnancy. "At one point the mucous membrane lining the uterine cavity was exposed." Yet the patient was delivered spontaneously of a healthy living child at full term. On the other hand, a woman, aged 40, underwent myomectomy at the end of the sixth month of her first pregnancy, but aborted thirty-six hours after the operation. In this instance, however, the operation was severe, as the fibroid, enucleated through an incision made in the fundus and anterior surface of the uterus, was "about equal in size to an ostrich's egg." The fœtus, placenta, and membranes came away easily, but the uterus did not contract well and the temperature rose. After the use of the curette on the fifth day the patient recovered.

Dr. Joseph Stewart, of Leeds,[2] recently operated on a woman aged 35 in the sixth month of her first pregnancy. There had been symptoms simulating axial rotation of an ovarian cyst. He enucleated a large sessile fibroid attached to the left of the fundus, rotating the gravid uterus somewhat towards the right. A large gap was left not easily closed. According to the published report, "the patient was delivered of a boy at full term."

Dr. Stewart has kindly sent me fuller details of the labour. It ended spontaneously in six hours and a half: the head was in the first position, and the liquor amnii seemed normal in amount. There was no difficulty about the expulsion of the placenta.

I was chiefly interested in the contractions of the uterus; they were normal so far as I could make out. I could discover no indentations representing the spot from which the tumour had been enucleated.

A general survey of current opinions and experience relating to the treatment of fibroids during pregnancy lies beyond the limits of this brief communication. I may refer the reader to Dr. Amand Routh's[3] recently published lecture on the subject: and to Tuffier and de Rouville's memoir,[4] read and discussed at the Lisbon meeting of the International Medical Congress. References to earlier writings about myomectomy in pregnancy will be found in a report of a case in my own practice, where the patient was a primipara 28 years of age.[5] I removed, during the second month, a sessile fibroid over 2 lb. in weight from the back and fundus of the uterus. Labour took place at term, and was lingering on account of breech presentation and hydramnion; but the child was saved and reared. I mention this case because the age (28) is beyond the average for primiparae in the United Kingdom. The great excess of liquor amnii in this instance of labour after myomectomy is worth noting, as in the case which I have reported above in full it was very deficient. The relation of the excess or deficiency to the operation is not evident.

* There was no post-partum haemorrhage.

† On March 28th, the day of her discharge from the hospital, I observed slight pigmentation around the suture tracks.

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[1] Six Cases of Myomectomy during Pregnancy, *Journ. of Obstet. and Gyn. of Brit. Emp.*, September, 1906, p. 263. [2] Enucleation of Fibromyoma of Uterus during Pregnancy, British Medical Journal, vol. i, 1906, p. 548. [3] A Lecture on Fibroids and Ovarian Cysts Complicating Pregnancy, Parturition, and the Puerperium, *Clinical Journal*, May 23rd, 1906, p. 81. [4] McCann, F. J., Fifteenth Medical Congress, Lisbon, *Journ. of Obstet. and Gyn. of Brit. Emp.*, August, 1906, pp. 159-166. [5] A Myomectomy and an Ovariotomy for Fibroma during Pregnancy: Labour at Term in Both Cases, *Journ. of Obstet. and Gyn. of the Brit. Emp.*, November, 1905, p. 297; also Fibromyoma Removed by Abdominal Myomectomy in Second Month of Pregnancy: Labour at Term, *Trans. Obstet. Soc.*, vol. xlvii, 1905, p. 426.

CONGENITAL LARYNGEAL STRIDOR.

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Discussion on the nature of this interesting affection has generally revealed a difference of opinion upon two points, namely, the appearance of the larynx and the mechanism of the stridor. This want of agreement is due to the difficulties of laryngoscopic examination in children, which are so increased in this affection by the great excursion of the larynx that trustworthy observation is well-nigh impossible. It is true that with a laryngeal mirror one may recognize during the early stage of inspiration a curved epiglottis, with its lateral margins touching and the aryepiglottic folds lying so close as to leave only a small intervening slit; further observation is, however, prevented by the rapid descent of the larynx, and we are left to conjecture what is happening. In these circumstances the direct method of examination becomes of great value, and indeed the only possible means of accurate investigation, and the purpose of this short paper is to place on record some observations thus made on five children within the last two years.

The cases, whose ages varied from 8 months to 2 years, were of the classical type so well described by Thomson.[1] Examination took place under chloroform by means of the Killian tube-spatula, with the parts about the pharynx and larynx well cocainized. The influence of irregular and convulsive action of the respiratory muscles as a factor was eliminated, for, in all, stridor became more marked the deeper the anaesthesia. On the other hand, it varied notably with the position of the patient, being most evident in the dorsal posture, distinctly less on the side and with the tongue pulled out, whilst it was very definitely relieved by placing the tube-spatula on the base of the tongue and tilting it forwards.

On passing the tube-spatula the curving of the epiglottis was noted in varying degree and the approximation of the aryepiglottic folds, but the most striking appearance was the extraordinary excursion of the posterior wall of the larynx. With each inspiration the soft parts on the cricoid, including the arytenoids and the interarytenoid fold, disappeared, so to speak, into the interior of the larynx, being drawn downwards and forwards, and to such an extent in pronounced cases that the upper border of the cricoid could be seen as a transverse ridge through the stretched mucous membrane. The accompanying diagrams (Figs. 1 and 2) show this change in position of the posterior wall. It was this movement which produced the stridor. With the aryepiglottic folds coming into close apposition during inspiration, the passage of air was only possible by the downward and forward displacement of the posterior wall through suction, and it was the vibration of this section of the laryngeal entrance which gave rise to the noisy stridor. This was confirmed when

the posterior wall was held back by means of a curved probe and the air passed in easily and without stridor. If a short tracheal tube (child's size) were inserted just within the entrance of the larynx, all noise at once ceased, the glottis appearing quite normal, and showing no sign of spasm or paralysis of the vocal cords. Pushing the tube further, the trachea was found unaffected in all, and there was no encroachment on its lumen, so that the influence of an enlarged thymus must be regarded as accidental and no part of the classical affection.

With expiration the parts resumed their natural upright position, and at the end of that act the larynx had the

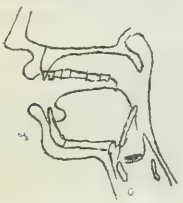


Fig. 1.—To show upright position of posterior wall, in normal larynx.

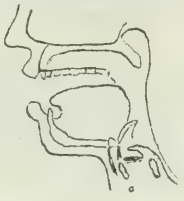


Fig. 2.—To show folding forwards and downwards of posterior wall in congenital laryngeal stridor.

appearance of the slightly accentuated infantile type. A slight incurving of the epiglottis persisted; this, however, could be readily unfolded by means of a probe, and with the same instrument the aryepiglottic folds and the posterior wall could be felt lax and mobile. Beyond that no sign of malformation was present. Fig. 3 represents the aperture of the larynx during expiration, and Fig. 4 the same part during inspiration.

In two cases where the posterior wall looked slightly oedematous, and flapped with great freedom, I tried the effect of adrenalin as an astringent, applying it on a cotton-wool carrier. The resulting shrinkage led for the time to some improvement in the stridor. In the very marked cases it was necessary during recovery from the anaesthetic, in order to relieve the stridor, to place the patient on the side and hold the tongue out firmly until the child was awake. The effect of this procedure, as observed through the tube, was to give a pull on the aryepiglottic folds and prevent their too close approximation.

In all the children there was a definite history that the



Fig. 3.—Appearance of aperture of larynx during expiration.



Fig. 4.—Appearance of aperture during inspiration.

noisy breathing was worse during "colds." This was very noticeable in a boy whom I saw first of all when he was nine months old. Spells of comparative freedom alternated with severe relapses associated with wheezing in the chest. As moderate-sized adenoids were present, which seemed to keep up the catarrhal state, I removed them when the child was two years old. In three days the breathing was almost normal, and a rapid recovery took place.

In another child, the stridor became much worse after a series of fits when three months old.

The following conclusions may be drawn from these observations:

1. There is no malformation beyond an exaggeration of the natural incurving of the infantile epiglottis which can be easily unrolled by the probe.

2. There is no evidence of abnormal breathing, as suggested by Thomson and Turner. In deep anaesthesia the breathing is regular and the stridor very marked.

3. Stridor takes place at the entrance of the larynx by the vibration of the soft structures on the posterior wall. The vocal cords take no part in its production and compression of the trachea by an enlarged thymus is no essential element.

4. Variation in stridor is often due to the relative position of the tongue. It is also affected by catarrhal states of the respiratory tract, and probably by conditions of the general health.

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NOTES ON AN UNUSUAL CASE OF PAPILLOMA OF THE LARYNX IN A CHILD TREATED BY THE LOCAL APPLICATION OF FORMALIN.

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X., a boy, aged 10, was perfectly well up to Whit Sunday, 1905, when he fell asleep on the wet grass and caught a severe cold, which kept him in bed for a few days. He was very hoarse. The cold soon disappeared, but the hoarseness continued, and did not yield to ordinary local treatment. The tonsils and some adenoids were removed in August, 1905.

I first saw the boy in February, 1906. He had been hoarse for nearly a year, but during the last few weeks had been much worse, and had had several attacks of spasm of the glottis. The vocal cords were practically normal; there was a large, irregular pedunculated tumour which grew from below the anterior commissure, and occasionally protruded between the vocal cords on phonation and expiration. I removed the greater part of the growth with forceps, and the voice improved considerably for some time. The hoarseness then returned more marked than before. When I saw him again in May there were numerous small papillomata growing on the vocal cords. I removed these twice with the forceps, but they recurred. After a third operation I prescribed a formalin spray, 1 in 100. There was no recurrence of the papillomata, and in three weeks the vocal cords were, apart from a slight irregular hypertrophy, normal, and have remained so ever since. The subglottic growth had slightly increased in size, and was again partly removed by forceps. I saw the boy last in September. The larynx was practically normal, with the exception of a small growth below the anterior commissure. He is still using the formalin spray (1 in 50) a few times a week.

The case is interesting and instructive from several points of view:

1. The sudden growth of the papilloma, probably after an acute attack of laryngitis. Thrasher[1] records a case of papillomata of the larynx after inhalation of flames.

2. The initial growth was large, pedunculated, not multiple, and situated below the vocal cords, and not on the cords, as in most cases.

3. The papillomata on the cords only appeared after the use of the forceps. Was this due to traumatism and infection?

4. After the local application of formalin there was no recurrence.

Some years ago I published a case of papillomata of the larynx in an adult in which the growths recurred several times after removal by forceps, but did not recur after the use of a formalin spray. I have failed to find any record of similar cases which have been treated by formalin. We know how difficult it is to prevent recurrence of laryngeal papillomata in children, and how they seem to grow more rapidly after any operative interference by forceps, or by thyrotomy. The most successful method of treating these cases is by tracheotomy. But this is attended by many obvious disadvantages and dangers. If formalin prevents the recurrence of laryngeal papillomata after their removal by forceps, no surgical interference will ever become necessary.

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UNDER the will of the late Mr. Harry Lewis Saltarn, of Lyndhurst, it is directed that one-fifth of the residue of his estate shall be paid to the Manchester Royal Infirmary; one-fifth to the Royal South Hants and Southampton Hospital; one-tenth to the Manchester Eye Hospital, and one-tenth to the Southampton Eye Hospital. The sum eventually to be divided would appear to be about £25,000.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF THERAPEUTICS.

Donald MacAlister, M.A., M.D., D.C.L., LL.D., F.R.C.P., President.

THE TREATMENT OF URAEMIA.

By Egbert Le Fevre, M.D.,
New York.

From a clinical and therapeutic standpoint, it is necessary to keep clearly in mind that under the term "uraemia" are grouped various conditions characterized by certain common symptoms, as urinary symptoms (diminution in the quantity of urine, low urea content, albumen, casts, and haematuria); nervous symptoms (headache, slight muscular twitching or general convulsions of epileptiform character, coma); gastro-intestinal symptoms (loss of appetite, nausea, vomiting, and sometimes diarrhoea); respiratory symptoms (dyspnoea with asthmatic breathing); circulatory symptoms (high arterial tension, which may be transient or more prolonged). The tendency has been either to consider all cases presenting to a greater or less degree such a combination of symptoms as due to one cause and to apply a routine plan of treatment, or else to subdivide the condition into types, according to the suddenness of the attack and the presence or absence of prodromal symptoms, as fulminating, acute, and chronic uraemia, and to treat the types as such.

The types of uraemia that can be recognized clinically are, first, those occurring in patients whose kidneys, as far as was known, were previously normal, or at least gave no symptoms of any insufficiency. The uraemic attack in this type occurs during the course of an infectious disease, and comes on with great suddenness. There is anuria, or marked reduction in the amount of urine, with abundant albumen, blood, and casts of all description. The blood shows either a normal percentage of urea, or such a slight increase as to be insufficient to cause any symptoms. In this class of cases there is considerable elevation of temperature. A toxic substance, either the product of bacteria or dependent on it, is the primary cause of both the symptoms and the renal condition. Comparable to this type are puerperal eclampsia, the uraemic-like condition that follows the ingestion of certain mineral and vegetable poisons, and the intoxication from the intestinal canal.

In a second type of cases there has been some previous disturbance of the kidney, as shown by the urinary findings, but the patient has been free from all or most of the ordinary symptoms of chronic renal insufficiency. There is no cardio-vascular change, but the blood shows a persistent increase in the amount of urea, although this never reaches a high grade, and, while the amount of urine may be generally within the range of normal, there are periods when there is polyuria and a fall in the urea content of the blood. These cases, under the influence of an acute infectious disease or the taking of a large quantity of alcoholic stimulants, suddenly develop all the symptoms of acute uraemia, with the evidence of a complicating acute nephritis. In these cases, as in the former type, the uraemic condition seems to be dependent upon the toxaemia of some acute infectious disease, or the ingestion of toxic material.

In a third type there is present chronic nephritis with marked insufficiency of the renal function, associated with the usual changes in the other organs, especially the cardio-vascular, and the symptoms are those of the so-called chronic uraemia—headache, dizziness, drowsiness, some impairment of sight, gastro-intestinal disturbance, dyspnoea of an asthmatic type, high arterial tension. The urea percentage in the blood is persistently high, and many of the symptoms vary in intensity in direct relation to this percentage. Apparently they are dependent on it, or, at least, as Herter believes, a high percentage renders the patient more susceptible. The true uraemic condition is easily induced in this group by many circumstances, as over-fatigue, either mental or physical, or disturbance of the gastro-intestinal canal with associated putrefactive or fermentative changes of the food. Many of these patients are peculiarly susceptible to the action of certain cathartics. It has been frequently observed that the giving of the ordinary laxatives is sufficient to aggravate all the uraemic symptoms, while, on the other hand, the more active cathartics, such as the salines, or mercurials combined with the salines, do not produce such effects. Those who have had a service in a general hospital where large numbers of alcoholics are treated, know how frequently after a long debauch an acute uraemia is apt to develop in cases whose urine shows but slight evidence of acute inflammation.

The treatment of these types is directed to prophylaxis and to the symptoms as they arise. This really means that the treatment is symptomatic, whether the disease is considered as a whole or divided into types.

Under the head of Nervous Symptoms the uraemic convulsion is most striking. This comes from stimulation of the medulla and cerebral cortex. The convulsions can be controlled temporarily by chloroform inhalations, although these have no influence whatever upon the course of the disease. Chloral given by the mouth in dosage of from 10 gr. to 15 gr. or by the rectum in dosage of from 30 gr. to 40 gr. has a similar effect. This dosage may be repeated once or twice at half-hour intervals, afterwards at hour intervals, until the spasms are controlled. The advantage of chloral over chloroform is that it has a more lasting action. Like chloroform it has no direct action on the cause of the symptoms, but merely antagonizes its effect upon the nervous system. The use of opium and its alkaloids has been both advocated and condemned. The late Professor Loomis strongly recommended the employment of morphine in the treatment of uraemic convulsions occurring in acute types of nephritis. It is to be given hypodermically in $\frac{1}{4}$ gr. to $\frac{1}{2}$ gr. dosage, and repeated frequently enough to control the convulsive seizure. Those who have restricted its use to the treatment of uraemia occurring in acute kidney conditions have seen no bad effect: the uraemic convulsions are controlled, the cardio-vascular system quieted, and diaphoresis increased. In many cases it also seems to influence beneficially the functional activity of the kidney. Its use in the uraemia that occurs with chronic nephritis is not devoid of danger. While it may control the uraemic convulsion, it increases the tendency to coma, and seems to interfere with the eliminative function of the kidney. The continued use of morphine to control uraemic symptoms, either in acute or chronic kidney disease, is contraindicated.

In the treatment of coma the most important indication arises from the condition of the blood pressure. When the blood pressure exceeds a certain point the coma is of the type that occurs in cerebral apoplexy, so that the name of serous apoplexy has been given to this condition. In cases where the tension is very high it must be reduced as quickly as possible. This may be accomplished by venesection when the symptoms are urgent, or by rapid catharsis by the use of croton oil. When coma occurs with low blood pressure and rapid-acting heart, digitalis should be administered.

The dyspnoea occurring in uraemia should be considered, from the therapeutic standpoint, as another form of spasmodic seizure. The treatment of this local spasm is practically the same as that of convulsive seizure. Treatment directed to the respiratory tract itself is of little use.

The paralytic form of uraemic attacks may occur either as a hemiplegia or as a localized paralysis. When the paralytic condition lasts for a short time only, it is undoubtedly due largely to a disturbed circulation of the brain and to the resulting anaemia or hyperaemia. It is impossible in many cases, without a thorough knowledge of the patient's kidney condition, to say whether the paralysis is due to a rupture or thrombosis of a cerebral vessel or is a uraemic symptom. When there is a history of acute or chronic kidney disease and the paralysis is associated with other symptoms of uraemia, the treatment

of the paralytic condition should be that of an acute uraemic attack.

On the part of the circulation, increased arterial tension is so commonly associated with the occurrence of convulsive seizures and with paralytic forms of uraemic attacks, that it demands special treatment. The high tension may come on suddenly and be followed by convulsions, localized paralysis, or coma. In extreme cases venesection may be needed to reduce the tension. The amount of blood withdrawn must be governed by the effect upon the tension, which should be definitely lowered. The nitrites lower the tension, but their effects are of short duration. When used they should be given in dosage sufficient to diminish the blood pressure perceptibly, and be repeated at frequent intervals. Certain of the drugs given to control the nervous symptoms act upon the circulation also. This applies especially to chloral. Given in full doses it promptly reduces the high tension and lowers the blood pressure for a longer time than any other means at our command. The quieting effect of morphine on the circulation has been mentioned.

The high tension seems to be due chiefly to an arterial spasm. This entails an extra amount of work upon the heart, and the condition of this organ must be carefully watched. In cases where cardiac stimulants, such as digitalis, seem indicated, vasodilators should be given at the same time.

Attempt should be made at the outstart to further the eliminative function of the kidney. In uraemic attacks there often seems to be present some direct inhibitory action on the kidney. This may occur whether or not acute nephritis was previously present. In such conditions diuretics are of little value, and an effort must be made to bring about elimination by other channels. In cases where diuresis may be induced the condition of the circulation determines largely the form of diuretic to be used. When there is high blood pressure and excessive cardiac action, reduction of the arterial tension by the use of nitrites, combined with administration of diuretin, or other members of the theobromine group, gives an increase in the amount of urine. The beneficial effect of aconite in lowering the blood pressure in acute uraemia, and at the same time increasing the output of urine, has been strongly emphasized by Dr. William H. Thomson. In some instances, even though the blood pressure is high, the circulation through the renal vessels seems impeded, and the use of digitalis, strophanthus and other members of the digitalis group, may be indicated. These drugs, as in the case of the caffein group, bring about a dilatation of the renal vessels. In acute uraemia the action of the digitalis group must be carefully watched. If the pulse is regulated and the flow of urine increased, there is no danger in increasing the dosage, or even in continuing the use of the drugs. The occurrence of increased dyspnoea, somnolence, or cardiac distress during their administration should always raise the question whether these symptoms are not due to the untoward action of the drugs.

The possibility that potassium salts are partly responsible for some of the uraemic symptoms should preclude the use of any potassium combination as a diuretic.

The gastro-intestinal symptoms seem to be due, in part at least, to the presence of toxic substances excreted into the stomach or intestines. The treatment should be directed toward the aiding of the removal of these substances. The use of opium and its alkaloids for the control of nausea and vomiting is contraindicated. Lavage of the stomach is a much more rational procedure, and generally gives relief. The use of cathartics is of aid, not only in removing toxic substances which have been excreted into the bowel, but also in preventing the absorption of toxic substances formed in the intestine. As uraemia is so frequently attended by nausea and vomiting, the choice of a cathartic is often a difficult matter. The salines, when they can be retained by the stomach, meet the indications, especially when the elimination of water from the tissues is desired. The compound powder of jalap, in dosage of ½ to 1 drachm, has long been a favourite cathartic in uraemia, and can be given for some time without producing intestinal irritation. When the stomach is irritable, however, it is not well borne. Elaterium in dosage of $\frac{1}{10}$ gr. to ¼ gr., or elaterin in the same dosage, may be given every three or four hours until free catharsis is produced. If combined with the extract of hyoscyamus, the tendency to induce griping is controlled. The claim has been made that elaterium has the power of increasing the elimination of nitrogen by the intestine, and that when administered in small doses, two or three times a day, it often rapidly removes most of the symptoms of acute and chronic uraemia and reduces any oedema present, even though it does not bring about marked purging. The mercurials, either alone or in combination, are believed by many to be the most beneficial of the cathartics. In chronic uraemia, the use of mercurial cathartics often relieves the symptoms most markedly. The relief is not in proportion to the cathartic effect. Care must be taken in the use of mercurials that the cathartic action is fairly marked, however, for in chronic nephritis, if the mercury is absorbed, salivation is especially likely to occur. Further, in chronic nephritis, the more irritating cathartics, such as are employed in the treatment of chronic constipation of the atonic type, must be used with great caution, as frequently they seem to cause increased absorption from the intestines of toxic material, and thus may bring on acute uraemic symptoms.

The uraemic diarrhoea is undoubtedly the result of the system to eliminate toxins, and no attempt should be made to check it.

Elimination by the skin by means of hot packs, hot vapour baths, or electric light baths, is very important. The electric light bath induces diaphoresis rapidly without raising the temperature of the surrounding air as high as is necessary with the ordinary hot air bath. The claim has been made that the amount of elimination by the skin is greater under its action than by other forms of diaphoresis; patients are not prostrated, and its use can be continued for a long time.

Pilocarpin, while the most powerful of the internal diaphoretics, is not always safe on account of its tendency to depress the heart. The liability to induce secretions from mucous membranes, as well as from the skin, must be borne in mind, for suffocation may be caused in unconscious patients by the salivation and free secretion from the bronchial mucous membrane. It has been noted, however, that in chronic nephritis with imperfect action of the skin, pilocarpin given in small doses often causes a diminution of the symptoms.

The treatment as above outlined is in nowise specific. This must naturally be the case as long as the disease is considered merely from the symptomatic standpoint. Any other plan of treatment can be based only on a more intimate knowledge of the etiological factors of the disease, and unfortunately this knowledge is still very scanty.

In the past years much work, both clinical and experimental, has been done with the idea of making clear the true nature of uraemia. The simplest and earliest explanation given was that the uraemic condition is due to the retention in the blood of substances which normally have no difficulty in passing the kidney. Of these substances first urea, and later uric acid, kreatin, kreatinin, and potassium salts, have been thought to be the toxic agents. This explanation falls to the ground, however, when it is known that the presence of any of these substances in the blood in a far greater amount than could be the case in retention, is productive of no such symptoms as occur in uraemia, and in experiments in which double nephrectomy is performed, although death occurs in a comparatively short time, the condition of the animal shows no resemblance to uraemia. The same can be said concerning clinical cases in which there is complete anuria often lasting several days. In these cases, as Krehl points out, the circulatory changes and the convulsions are absent entirely.

Herter states that a patient is in grave danger of developing unmistakable signs of uraemia whenever the urea content of the blood increases beyond 0.2 per cent., and that a fatal issue will invariably occur within a few weeks in patients in whom the urea content of the blood amounts to more than 0.3 per cent. This, however, is no proof that the excess of urea has any causal relationship to the symptoms.

It is known that the kidney has other functions than that of excretion. Thus it has to do with certain processes of tissue metabolism, the pairing of glycocol with benzoic acid being an example. The idea has been advanced that the diseased kidney is unable to carry on these processes, and that this gives rise to the presence of

toxic substances in the blood. Were the explanation true, however, one would expect typical uraemic symptoms to exist after nephrectomy. This, as has been just stated, is not the case.

Since the time of Brown-Séquard many attempts have been made to explain uraemia by some abnormality in an internal renal secretion. No definite proof has been brought forward that such a secretion actually exists, much less that it has any relationship to uraemia.

Although no proof of the existence of any definite substance which causes uraemia has been given, the general belief is that the condition is due to toxic substances in the blood. Examination of the blood in uraemic cases by means of freezing-point determinations shows that the molecular concentration is increased. That the increased concentration is due to an accumulation of organic molecules is shown by the fact that the electrical conductivity is not materially increased. The nature of these organic substances is completely unknown, although considerable work on this subject has been recently done. They are quite different from the substances which give rise to the toxicity of the urine in uraemic cases. These latter are inorganic substances and appear to consist of potassium salts chiefly. Although toxic they fail to induce the typical uraemic condition.

Recently Suner has endeavoured to throw some light on the toxic nature of the blood in uraemia. He has shown that an extract obtained from uraemic blood clots, by means of a saline solution, induces an inhibitory action upon the secretory activity of the renal epithelium. More typical effects were not obtained, however. The question has been approached lately from a different standpoint. This has been rendered possible by the advances in knowledge concerning cytotoxins. It is known that just as the animal organism is influenced by bacterial cells and their products, the toxins, so does it react to foreign tissue cells, juices, and their active decomposition products, when these are injected subcutaneously or intravenously. A nephrolytic serum of a rabbit—that is, the juice obtained by the expression of a finely-divided kidney of a rabbit—when injected into an animal of another species, as a dog, induces very definite toxic symptoms. Very severe, persistent albuminuria is noticed, and pronounced effects upon the circulation and nervous system have been observed. The nervous symptoms are most striking, and consist of general convulsions or deep coma. When these symptoms occur, the animal usually dies within six hours. According to Ascoli, even when a nephrolytic serum from an animal is injected into another of the same species, changes in the kidney of the injected animal may sometimes be brought about. This is evidenced by the occurrence of albumen and the presence of cylindrical casts and renal cells in the urine. These effects come on after a latent period of from four to eight days, and may persist for weeks and months. Usually other symptoms are not present, but occasionally death occurs, the *post-mortem* examination revealing extensive parenchymatous renal inflammation. Ascoli points out the possibility of nephrolysins being taken up in the circulation in cases of renal disease. He shows that the blood serum in dogs in whom renal inflammation has been induced artificially contains a substance capable of causing quite pronounced albuminuria when injected into healthy animals of the same species. Ascoli seems to lean quite strongly toward the belief that in renal disease nephrolysins are formed, and that these may be of much importance in explaining the etiology of uraemia. His experiments are not altogether convincing, however, and at the present time too little work has been done to throw much light on this phase of the question. Even admitting a formation of nephrolysins in renal disease, the rôle these play in uraemia can be at present only a matter of speculation.

The belief is quite prevalent, that there is present in uraemia a derangement of normal tissue metabolism. The diminution of urea nitrogen and the increase of other substances, especially ammonia, point strongly to this. The perverted metabolism might be merely an accompaniment of a nephrotoxic action, or, on the other hand, it might be directly caused by this. Whatever its origin, it might easily give rise to substances which directly bring about the symptoms. In this connexion it is interesting to consider other pathological states accompanied by similar symptoms. One of these may be brought about experimentally by an operation which throws out the liver from the functional standpoint. To do this the portal vein is made to connect with the inferior vena cava by means of a lateral anastomosis, and is then tied off just above the anastomosing point. This is the well-known Eck's fistula, and results in sending the portal blood directly into the vena cava. The detoxifying power of the liver is removed, or, at least, markedly delayed in action, and substances coming from the intestinal tract are distributed throughout the rest of the body in the form in which they are absorbed. On feeding meat to animals which have undergone the operation, symptoms somewhat analogous to uraemia are induced.

In a recent paper on cyclic vomiting by Howland and Richards, the conclusion is reached, from urinary examination, that there is present in this condition a diminution in general oxidative changes in the body. There is found in the urine here, especially preceding and during the early stages of the attack, large amounts of indican. The indican comes from putrefactive changes in the intestinal tract and is absorbed as indol, which is oxidized in the body to indican. Indol, when given to animals in large amounts, is non-toxic, owing to its rapid change to the inert indican. Howland and Richards induced in animals a condition of diminished tissue oxidation by means of potassium cyanide, chloroform, or partial occlusion of the trachea. They found that when indol, which under these conditions would be oxidized only very slowly, was administered to these animals, it induced a very characteristic train of symptoms. These symptoms resemble those of uraemia in a striking manner.

In cholaemia and acute yellow atrophy of the liver and certain other diseases the symptoms again resemble those of uraemia, and yet those diseases are generally considered far apart from each other as far as etiology is concerned. Undoubtedly the primary cause is quite different in each instance, and yet the most striking symptoms point to an intoxication by some common or very closely-related poisons. It seems, further, quite probable that there is present in all these cases a condition of abnormal tissue metabolism, and that this is a factor of extreme importance. In fact, from analogy, at least, it seems more than likely that the symptoms of uraemia may be explained better as due to the direct action of products of perverted metabolism than to the action of a nephrotoxin. But this is as far as we can go with safety in explaining the etiology of uraemia. We seem justified at present, however, in believing that the cause of the symptoms is the presence of toxic substances circulating in the blood, substances which exert their chief influence on the central nervous system and the circulation. Any specific treatment for the condition must have, then, for its object the removal of these unknown substances.

The removal of the toxins can be best brought about by venesection. This offers the best result when the attack comes on suddenly in acute nephritis in a previously robust patient with high blood pressure. In such cases 12 oz. to 24 oz. of blood may be removed. In weak and debilitated patients and in uraemia occurring in chronic cases, venesection is not so well borne, and the relief of the symptoms may be more than counterbalanced by the depression which follows. The toxicity of a substance is generally proportionate to its degree of concentration. It would seem desirable also, then, to diminish the concentration of the poison in the blood, and for this purpose the introduction of large amounts of normal saline may be made use of. It is not improbable that the toxins are excreted by the intestine, and colon irrigation with saline solution may be of aid. The use of the saline has the additional advantage in that it is often followed by free diuresis. Elimination of the toxins may be furthered by the administration of diuretics and diaphoretics. In the acute cases, however, the use of such diuretics as caffeine and theobromine is often without effect. The induction of diaphoresis by means of the hot pack or pilocarpin may be of benefit, but these measures must be carried out cautiously, on account of the danger of subsequent depression. The electric light bath, as has been mentioned, is usually preferable. The use of oxygen, which has been so warmly advocated of late, can have no direct effect upon the toxins, and any good results which follow it must be ascribed to other causes.

Dr. N. S. Davis (Chicago) said: Total cessation of urine flow does not lead to development of uraemic symptoms. The cause of uraemia is unknown, but certain points act as guides in treatment. Two things are essential, cessation of food and cleansing of the gastro-intestinal tract. The liver plays a part in uraemia. This is indicated by various facts. The symptoms in cholaemia are correlated to those of uraemia, and in the late stages of chloroform poisoning with dissociation of the liver cells there are gastro-intestinal and secondary renal disorders. Further, the diminution in the urea output suggests that disturbance of the liver is an important factor in the provocation of uraemia.

Professor O. T. Osborne (Yale) said: I think the malmetabolism of the liver, allowing more nitrogen to go into, or remain in, ammonia formation and less into urea, is a large factor in so-called uraemia. In other words, I am not convinced that uraemia is due to diseased kidneys alone. I think there is strong evidence of an internal secretion of the kidney, without which a patient cannot live, but with which he can tolerate a serious nephritis as evidenced by albumen and casts. I find thyroid feeding an efficient means of preventing uraemic convulsions and increasing the urine output, though it will probably not save life in chronic nephritis. The tone of the circulation must always be reckoned with in nephritis, and any treatment of nephritis or uraemia should be modified by the condition of the heart and blood vessels.

Dr. S. Solis Cohen (Philadelphia) said: It must not be forgotten that uraemia is a phenomenon of pathologic kidneys. Removal or destruction of normal kidneys need not, therefore, produce it; nevertheless, they produce death by loss of kidney function. Therefore, we ask the physiologists, What is the kidney function? Evidently it is complex. Our gain in knowledge has enlarged the vista of our ignorance. One point may be made: Meltzer has shown that in normal frog's bile exist two poisons—a tetanogenic and a paralysant poison. Call these *A* and *B*. When they exist in neutralizing proportions there is no cholaemic intoxication. If by excess of *A* or diminution of *B*, *A* becomes disproportionately great, we have spasm, or, if *B* becomes disproportionately great, we have paralysis. Uraemia, or, at least, urinaemia, probably depends on a similar condition of disturbed balance. If one chooses to limit the term "uraemia" to convulsive seizures or coma, then some other term must be found for the outstanding phenomena of kidney failure. But we must not forget that these exist. To show the effect of altered blood pressure on the excretion of urine, Dr. Solis Cohen cited a case of vasomotor ataxia in which slight lowering of pressure was accompanied by extensive perspiration, with polyuria and great lowering of pressure by suppression of urine without toxic symptoms. There was probably no kidney lesion, although albumen occasionally leaked—he could use no other term—into the urine.

OPSONINS AND BACTERIAL VACCINES.

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I need hardly tell you that in the short space of time at my disposal I shall be quite unable to discuss in any detail this already considerable subject. I propose to refer briefly to the bare principles of the opsonic theory, and then to consider the principles and practice of therapeutic inoculation with illustrative cases.

Let me first of all recall to your minds certain important characters of the antibacterial substances in the blood known as opsonins.

1. Opsonins act by chemically uniting with the invading bacteria and so altering them that the leucocytes are able to phagocyte the bacteria and destroy them. It is important to remember that these substances do not stimulate or otherwise affect the leucocytes.

2. It is probable that there are many varieties of opsonins present in the blood plasma, each having to do with combating a particular kind of microbic invasion.

3. Opsonins have been shown to be distinct from other bacteriotropic substances, such as the bacteriolysins, the agglutinins, and the antitoxins.

The rôle of the leucocyte now calls for attention. Wright and Douglas and Bulloch have shown that the leucocytes of people in good or in ill health have the same ability for phagocytosis, provided only that the bacteria have been acted upon by the same blood serum. If that be so, then the amount of phagocytosis of bacteria determined in any given preparation is an indication, not of leucocytic activity, but of the richness of the plasma in those substances which are essential for phagocytosis—namely, the opsonins.

The opsonic content of any blood, therefore, is arrived at by comparing the amount of phagocytosis observed as a result of the activity of its serum with the amount of phagocytosis observed in the case of a normal serum used as control. The figure so obtained is termed the "opsonic index" of the patient's blood.

If, therefore, we say that a patient's blood has an opsonic index of 0.5 to the tubercle bacillus, what do we mean? Simply that it contains but one-half the normal quantity of those opsonins which are essential to a combating of the *Bacillus tuberculosis*.

These, gentlemen, are the bare principles of the opsonic theory.

Therapeutic Inoculation.

Let us now pass on to consider the treatment of bacterial infections.

This has been, and must continue to be, either the surgical removal of a bacterial focus (such as is done with a small patch of lupus vulgaris) or the determination of an adequate antibacterial substance to the focus (such as is possibly done by the application of carbolic acid to a furuncle, or by therapeutic inoculation of an appropriate bacterial vaccine).

It is important to consider antibacterial or bacteriotropic substances for a moment. They may conveniently be divided into:

A. *Chemical antiseptics* extracorporeal in origin, such as carbolic acid and perchloride of mercury.

B. *Immunizing substances* intracorporeal in origin, such as the bacteriolysins, the agglutinins, the antitoxins, the opsonins, and probably others as yet undiscovered.

Hitherto we have pinned our faith to chemical antiseptics, and the history of medical therapeutics is replete with failures of the many varieties of chemical antiseptic to control bacterial infections. To-day there are but two left, namely, quinine and mercury, and, strange to say, both of these antiseptics are effectual in diseases which are protozoal in origin, and not bacterial.

In surgery even, the efficacy of antiseptics is being more and more questioned. There is a large and increasing school that practises asepsis; and furthermore, Sir Almroth Wright has recently shown that the application of antiseptics to a healthy wound may predispose to bacterial invasion because of the fact that the natural bacteriotropic substances of the body fluids are completely neutralized, even by weak solutions of antiseptics.

Since, therefore, chemical antiseptics have proved somewhat disappointing, we naturally turn with renewed hope to the other great class of bacteriotropic substances, namely, the immunizing substances.

The best known of these is the antitoxin of diphtheria. Of this I need not speak. The bacteriolysins and the agglutinins have so far not knowingly been exploited to any great extent in the production of artificial immunity. The opsonins, however, demand especial consideration because of the important position they have already come to occupy in a rational system of therapy.

I shall first of all submit to you a classification of bacterial disease that has emerged from many thousands of estimations of the opsonic power of the blood in almost every variety of microbic infection.

A. *Diseases in which the Bacterial Process is Strictly Localized* (that is to say, in which the focus is shut off from the lymph and blood circulations).—This class includes almost all chronic infections. I will cite a very few as examples: Furunculosis, sycosis, tuberculous adenitis, lupus, probably early pulmonary tuberculosis, etc. In this class the opsonic index of the blood is persistently below normal owing to the absence of immunizing stimuli.

B. *Diseases in which the Bacterial Process is but loosely shut off, especially from the Lymph Circulation.*—These are more acute in their course, and furthermore, are continually sending into the circulation immunizing stimuli in the form of the bacterial products of the infection. Consequently, the opsonic index tends to fluctuate from high to low.

The best example of this class is ordinary fibro-caseous pulmonary tuberculosis.

C. *Diseases in which the Bacterial Infection is in the Blood Stream.*—This class includes amongst others, ordinary septicaemia, Malta fever, enteric fever, and ulcerative endocarditis. It is probable, moreover, that most of the acute infectious fevers are included here. The outstanding clinical characteristic of diseases of this class is that they tend quickly to cure or to death. It is probable that the opsonic index in these diseases is usually below normal. We need not stop to discuss the reason for this.

The above observations acquire especial interest and importance from a therapeutic standpoint, because it would seem that chronicity of a bacterial infection is dependent upon a deficiency of particular bacteriotropic substances, and furthermore that the increase of these substances by a proper inoculation with an appropriate bacterial vaccine will usually determine the eradication of the infection.

The general principles of treating any bacterial invasion after the manner of Sir Almroth Wright and Captain Douglas are briefly:

1. Isolate in pure culture the causative micro-organism.
2. Estimate the opsonic power of the patient's blood to this micro-organism.
3. If the opsonic index be at or below normal, prepare and standardize a vaccine from this micro-organism.
4. Inoculate the patient with this vaccine with appropriate doses and at proper intervals as shown by a systematic estimation of the opsonic content of the patient's blood.

We ought, perhaps, to consider for a moment what supervenes upon the inoculation of a proper dose of a bacterial vaccine. Shortly after inoculation there is a depreciation in the amount of the opsonic content of the blood; this is the negative phase of Wright and Douglas. After a variable period this phase of depreciation passes off, and there is an increase in the amount of the opsonins above the original point. This is the positive phase. After a time the blood tends to return to the antecedent condition. These considerations are not academic, but most practical, because they, and they alone, tell us when to reinoculate. The cardinal principle is to reinoculate only when we observe (by examination of the patient's blood) that the positive phase of opsonic power is waning. We must never reinoculate during a negative phase, or we will still further drive down the bacteriotropic power of the patient's blood and do him harm.

Let us now consider that first great class of bacterial infections referred to above—namely, those in which the process is strictly localized. I can, perhaps, best illustrate the method of approach to a case by referring in some detail to a case of empyema which I treated at the Victoria Park Chest Hospital, London.

The patient, a male aged 20, was under the care of Dr. Glover Lyon. He developed right-sided empyema, which was treated by resection of a portion of a rib, evacuation of the pus, and drainage. Seven weeks later, in spite of careful surgical treatment, the wound was discharging $\frac{3}{3}$ss of pus every day, and a sinus quite 4 in. long persisted. I investigated the pus bacteriologically, and obtained a pure culture of the pneumococcus of Fraenkel. With this organism I estimated the quantity of pneumococcic opsonins present in the patient's blood—that is to say, I determined the patient's opsonic index to the pneumococcus. This I found to be 1.0, or normal. In spite of the fact that there was no deficiency of the pneumococcic opsonins, I still thought that I might do good if I could increase their quantity to a point well above normal, for it seemed probable that the thick pyogenic membrane of a chronic empyema would so impede the flow of lymph to the bacterial foci that normal lymph would have insufficient opsonic power to prevent the growth of bacteria there. I therefore prepared a vaccine by inoculating a dozen milk-agar tubes with the pneumococcus I had isolated from the patient's pus. Having obtained a vigorous growth, I removed the colonies from the agar tubes to normal salt solution. This I sterilized at 60° C., and then standardized. I gave the patient a quantity of my vaccine containing 100,000,000 pneumococci. On the day following this first inoculation his opsonic index shot up from 1.0 to 2.5, that is to say, he had more than doubled the quantity of his pneumococcic opsonins. During a period of two weeks he had three inoculations, and upon each occasion there followed an exaltation of the opsonic index. The clinical result was very striking. At the end of the first week of treatment there was a diminution of the discharge, and a shortening of the sinus. At the end of two weeks the discharge had entirely ceased, and the sinus had closed. All that remained was a scab covering the original wound. The patient left the hospital a few days later, and went to work at once. He has remained quite well since.

After a similar fashion do we approach all forms of localized bacterial infection in which we are able to isolate and cultivate the particular micro-organism. Those infections due to the *Staphylococcus pyogenes* require a staphylococcic vaccine. The more common of these conditions are pustular acne, furunculosis, sycosis. Of these, I have treated 2 cases of severe chronic acne with success, and 1 case of intractable furunculosis. I know, moreover, that sycosis, as a rule, reacts readily to inoculation without having recourse to epilation.

Furthermore, such conditions as *Bacillus coli* or proteus or pneumococcic cystitis and the various chronic staphylococcic and streptococcic infections, and many others, are usually amenable to inoculation treatment. But by far the most important variety of local infections hitherto treated has been that due to the bacillus of tuberculosis—important chiefly because of the extraordinary success that has been achieved by inoculating with new tuberculin, safeguarded by estimations of the opsonic index.

I have seen or known of cases representative of the following:

1. Lupus and tuberculous ulceration of the skin and subcutaneous tissues.
2. Tuberculous disease of bones and joints.
3. Tuberculous cystitis.
4. Tuberculous nephritis.
5. Tuberculous epididymitis.
6. Tuberculous peritonitis.
7. Tuberculous adenitis.
8. Tuberculous laryngitis.
9. Tuberculous iritis.
10. Early pulmonary tuberculosis.

I have treated a number of cases of localized tuberculosis during my work at the Victoria Park Chest Hospital, and I propose to refer briefly to some of them.

Lupus.—I have treated with success one case of dry lupus of four years' standing.

The second case of lupus was that of a girl of 16, whose lupus began when she was 9 months old. She had been scraped by the surgeons nine times, she had had x-ray treatment for two years, Finsen light for six months, and ultra-violet rays for two months. In spite of all, however, the disease steadily advanced, and when I first saw her her face and neck below her eyebrows was almost completely covered with dirty-looking patches of lupus. There was considerable ulceration, crusting, and oozing. There were several other patches on her arms and shoulders.

So extensive and so chronic was the condition that I felt that the case was almost hopeless. Much to my surprise, however, great improvement followed three months' careful inoculations with tuberculin and with staphylococcus vaccine. The latter was used to combat the secondary pus infection which I thought was chiefly responsible for the crusting and oozing.

When I last saw her a few weeks ago and after a period of six months, she was quite a different looking girl. The lupus ulceration had healed in many places and the pus infection was manifestly almost controlled. I am hopeful that ultimately we may succeed in entirely eradicating the disease.

Another rather remarkable case was that of a tuberculous iritis sent me by Mr. Lang, of Moorfields Eye Hospital, to whom I am indebted for permission to refer to the case. Inoculation was again the last resort, previous to enucleation.

The patient, a boy, had definite tuberculous nodules on both irises—two on the left and one larger one on the right. Corneal opacities and keratitis punctata considerably obscured his vision. Under inoculation with tuberculin in doses of $\frac{1}{1000}$ milligram we could watch the nodules slowly melt away and the opacities clear up, until now, after a period of nine months, there is but very little to be seen on either iris. There could not be, to my mind, more striking testimony of the specific efficacy of tuberculin than such a case as this where we had the foci of disease before our eyes, and could watch the changes that took place as the result of inoculation.

I have treated in a similar way one case of rather severe tuberculous cystitis, the diagnosis of which was deter-

mined by the finding of tubercle bacilli in the urine and by cystoscopic examination. After six months' treatment by inoculation with tuberculin the frequency of micturition and pain both left him and the tubercle bacilli disappeared from his urine. Nine months subsequently he was in perfect health, and so far as I was able to tell by examination of his urine it was quite normal.

Tuberculous glands, as a rule, disappear under treatment with tuberculin. I have had two such cases. In one the glands diminished rapidly; in the other case the progress was slower, but large masses decreased greatly in size, and at the present time, in place of unsightly lumps, they are just palpable. The general experience of those who have treated cases of tuberculous glands, and also tuberculous disease of the genito-urinary system (such as cystitis and epididymitis) is that these conditions are especially amenable to inoculation with tuberculin.

Let us now consider briefly pulmonary tuberculosis. From the opsonic standpoint there are two great classes. In one of these the process is localized and the opsonic power is low; in the other the process is not strictly localized and the opsonic power fluctuates from day to day. In the first class are included most cases of early phthisis, and in the second the moderately advanced or advanced cases. I have treated 7 cases in the second and more severe class with tuberculin, and although as a rule symptoms were alleviated and the condition of the patient improved, still I am sure that nothing substantial was gained by inoculation, nor do I believe that even moderately-advanced pulmonary tuberculosis will ever be controlled or cured by tuberculin.

As concerns the early cases, however, I hold strongly to the opposite opinion. I have treated 6 of these, and, with one exception, they were poor patients who had to earn their living by hard work and to live in unhealthy surroundings. They all showed marked improvement, as concerns such symptoms as cough, expectoration, and pain. Whether the improvement observed is permanent or not it is too early to say. One patient, however, whom I treated for three months at the Victoria Park Chest Hospital, and who showed marked and rapid improvement, had gained 5 lb. in weight and was quite well after the lapse of a year in spite of hard work as a domestic servant. I show the tracing of her opsonic curve, and you will see how excellently she reacted to inoculation. I may also say that the opinion I have expressed here with regard to the efficacy of new tuberculin in the treatment of early pulmonary tuberculosis, provided that the inoculations are given in proper dose and at approximate intervals, as determined by estimations of the opsonic power of the blood—I may say that this opinion is held by the great majority of investigators in England.

May I just add one word about that great class of disease in which the infection is in the blood? I shall refer first to a case of ulcerative endocarditis. This girl was treated by Captain Douglas, who isolated a streptococcus from the patient's blood and prepared therefrom a vaccine. Previous to inoculation with this vaccine antistreptococcus serum had been given an extended trial without producing any good effect. Inoculation with small doses of the vaccine, however, was followed by a marked rise in the opsonic power of the blood, and *pari passu* with this there was a fall of the temperature and a marked improvement in the clinical condition. The ultimate result was that the patient got quite well.

My friend Staff-Surgeon Reid, of the Royal Naval Hospital, Chatham, has treated 16 cases of Malta fever, and is greatly pleased with his results.

Wright has suggested (and with considerable reason) that the brilliant results of Chantemesse in the treatment of typhoid fever with his so-called antityphoid serum are not due to its possessing any antitoxic qualities, but to its effect as a vaccine.

I feel that I owe you an apology for this somewhat cursory contribution, but the short space of time at my disposal has prevented a complete or even an adequate consideration of this important subject. If, however, I have succeeded in even indicating to you what has already been achieved with this newly-forged instrument of therapy, and what are its great possibilities, I shall be more than satisfied.

THE ACTION OF DRUGS IN VASCULAR HYPERTENSION.

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The methods of determining the vascular tension or blood pressure in man have not been developed with exactitude, owing to the manifest difficulties of subjecting human beings to the experiments undertaken on animals. However, the past few years have witnessed many efforts towards perfecting a satisfactory method, and with the Stanton instrument, which I have employed for two years in extensive series of observations. I believe we possess a fairly constant means of recording the systolic and diastolic pressure, and consequently, what is at times even more important, the mean pressure in man. Stanton's sphygmomanometer has certain manifest advantages over earlier instruments, and without discussing these for the present I wish merely to state that the determinations on which this paper is based were made with the Stanton instrument. The older clinical methods of endeavouring to determine the tension by palpating the pulse, noting the resistance offered, etc., while of distinct value in certain cases, are entirely inaccurate in others, as a control experiment with any good sphygmomanometer will often illustrate. As an example, in a patient suffering from aortic regurgitation we observe the strong impulse of the radial under the palpating finger, and the sudden collapse during which the vessel is soft and compressible. Palpation offers no means of determining the important question of average pressure in such a case.

This contribution is presented before this Section necessarily in brief form and as a preliminary to a fuller exposition of the studies on which it is based. I am aware, as has been forced upon every clinician by the fruits of experience, that the drug control of vascular hypertension is, in the vast majority of cases, the poorest means of attaining the end sought. However, there is distinct use for help from drugs in this field as well as a need of knowledge of such action. These studies were undertaken with the view of determining how far we are able to modify high tension by safe medication. We are well aware that the dosage employed to produce fall of blood pressure is a most important consideration; for if huge (toxic) doses of a drug must be absorbed before such fall of pressure occurs, this can in no sense be ascribed to the physiologic action of a therapeutic dose.

Vascular hypertension is an index of a number of conditions, a knowledge of the underlying cause being essential to adequate treatment. As an important principle it may be stated that in many instances the hypertension is a distinctly conservative process, and no effort should be made to reduce it by direct means. In some familiar conditions we have no palpable evidence of sclerosis or marked cardiac change, the affected areas being the abdominal vessels and not the peripheral. In other cases there may be marked sclerotic changes in the peripheral vessels with no vascular hypertension—this being an index of failing myocardium. We are also aware that in certain patients with advanced sclerosis the amount of pressure required to obliterate the pulse is not a true criterion of the tension, for often considerable external pressure is required before any influence whatever can be exerted on the blood wave itself (Bramwell).

Briefly, three factors contribute to the production of high arterial tension: (1) Increased peripheral resistance, (2) increase in the strength of the heart, and (3) increase in the volume of the blood. Thus deficient oxygenation of the tissues, as in emphysema and certain other affections of the respiratory apparatus, and imperfect elimination of waste products, as in renal disease and gout, result in a toxaemic condition in which the altered blood, acting on the capillary walls, keeps them in a constant state of contraction. Plethora and hypertrophy of the cardiac muscle bring about the same result, each in its own way (Musser).

The conditions which bring about obstruction in the capillaries are (according to Broadbent): (1) Age, (2) heredity, (3) diseases of the kidney, (4) gout and lithaemia, (5) diabetes in the aged associated with gout,

(6) lead poisoning, (7) pregnancy, (8) anaemia, (9) emphysema and chronic bronchitis, (10) mitral stenosis.

From a mechanical standpoint arterial pressure is dependent upon: (1) The heart, especially the left ventricle, (2) the arteries, which by their elasticity transform the intermittent action of the heart into a constant one; (3) the peripheral resistance, produced chiefly by the capillaries and small arterioles which are under the control of the vasomotor system; and (4) the quantity of blood. The latter factor varies so little in a given case under ordinary conditions, and the vasomotor system presents so great a power of accommodation, that this may generally be left out of consideration (Stanton).

In approaching the question of drug control of hypertension it is, of course, of paramount importance to recognize the underlying causes. For instance, we believe that the splanchnic nerves regulate blood pressure (from one view-point), and that irritation of the nerves causes an intra-abdominal and often general rise of blood pressure. Then we see the wisdom of regulating digestive disturbances and increasing the elimination of toxins by proper measures. The mere presence of increased tension (unless it be excessive) does not necessarily indicate drug treatment.

There are three general classes of drugs which possess as part of their pharmacologic action the lowering of blood pressure. Many of these have no place in therapeutics for this purpose.

1. The heart depressants: Antimony, veratrum viride, aconite, alcohol, potassium salts, chloral, quinine, salicylic acid, mercury, arsenic.

2. Vasodilators: Nitrites, alcohol, quinine, salicylic acid, arsenic, mercury.

3. Purgatives.

In the effort to determine the effect on blood pressure of many of these drugs, and to study the concomitant symptoms induced by dosage sufficient to bring about a decided fall, if this has been possible, I have selected three series of subjects for experimentation:

1. Those in approximately normal health with average mean pressure.

2. Those past the meridian of life with slight hypertension, but no subjective or objective symptoms of disease.

3. Those with vascular hypertension as a morbid process complicating many diseased states.

Series 1 consisted of young men between 20 and 35 years, with a mean blood pressure of 110 mm., determined while at rest. The drugs used were standard preparations, selected with great care, and in conformity with the last edition of the *United States Pharmacopoeia*.

Aconitine (potent—Merck).—I am aware of the impurities and differing potential of commercial aconitine. The product employed seemed active, and was used throughout the experiments.

SERIES I.

In six cases aconitine was administered by the stomach in doses of $\frac{1}{100}$ gr. and repeated every two hours until distinct symptoms were observed. The pulse and pressure were determined at half-hour intervals. To summarize: in four of the six cases the pulse became slowed, average 66 (from 74), after the third dose and the mean blood pressure fell to 120-85.

In one case four doses were necessary to produce a fall of pulse from 74 to 60 and the blood pressure from 130-90 to 110-72. In the sixth case six doses were taken before any change in pressure was observed, but the pulse dropped after the third dose from 78 to 70. One hour after the sixth dose the blood pressure fell from 124-90 to 108-80. In every case there were symptoms of discomfort from the drug. Vomiting took place in four cases, which occurred at or about the time of fall of blood pressure. These results bear out the observations of Cash and Dunstan, that with pure aconitine until the late stages of poisoning are reached there is no distinct loss of force of the individual systole, the muscle itself not being affected.

SERIES II.

In this series the results closely paralleled Series I in three cases, save that the tolerance for the drug was less marked. In two cases vomiting and nausea occurred after the third dose with no prior slowing of pulse or fall of pressure. In one case a distinct fall of pressure occurred after the third dose, with rapid signs of poisoning. The heart action was feeble, the pulse rapid and thready, with continued fall of pressure.

In the third series the results were more interesting, largely from the negative action in therapeutic dose. Ten studies were made in patients with varying pathological conditions. Two of these cases are of sufficient interest to summarise:

CASE XL.—Clergyman, aged 38 years. Interstitial nephritis, with acute exacerbation; pulse 66; blood pressure 336 to 295. Patient had been subjected to violent purging and confined to bed for ten days. Ten $\frac{1}{100}$ gr. doses of aconitine were given at two-hour intervals, with no toxic symptoms, no fall of pressure, and but slight change in pulse-rate.

CASE LXII.—A. H., 67 years. Marked arterio-capillary fibrosis; probable splenic infarct; interstitial nephritis. Blood pressure, 295 to 257. After seven doses, each $\frac{1}{100}$ gr., the drug was stopped, owing to the patient's highly nervous condition, quickened pulse, and great discomfort. The blood pressure remained unaltered.

Veratrine (Merck).—One-twelfth grain doses administered at two-hour intervals. In Series I and Series II the results were almost identical with aconitine. Exceptions, slight increase (4 to 6 mm.) of blood pressure after three to four doses in three cases, succeeded by rapid fall from 20 to 30 mm. There was violent purging in one case after the fourth dose.

SERIES III.

Therapeutic action sought was found in 2 cases out of 12. Both of these were patients with marked cardiac hypertrophy accompanying valvular lesions, and were strong, muscular men. In one case there was a drop of 25 mm. after the fifth dose, and in the other 12 mm. after the sixth dose. There were no marked objective symptoms.

Antimony.—In the doses employed in Series I, five being the maximum, vomiting occurred in but 1 case. In the 4 remaining cases no fall of pressure or change of pulse-rate (other than slight increase) was observed. In the 1 case violent vomiting took place, followed by subsequently slowed pulse, but there was no alteration in blood pressure. No cases of Series II were subjected to the administration of tartar emetic. In Series III it was tried in continued small doses ($\frac{1}{10}$ gr.) for ten days in a sharply localized pleuropneumonia. No results followed the dosage employed. This drug, on account of its nauseant and violently purgative qualities as well as pronounced depressant action, can scarce find a place in therapeutics to meet the indication of producing fall of blood pressure.

Alcohol.—The results with alcohol have been particularly unsatisfactory, and will be continued. In small doses, Series I and II, quickening of the pulse was constant, with, however, an increase in blood pressure (60) of 10 mm. in but one case. I have had the opportunity of studying the blood pressure in alcoholics on prolonged debauch, the subsequent average blood pressure being determined when the patients were sober. In seven of nine observations—all were men under 40 years of age—there was pronounced fall, 15 to 35 mm. In an old man, aged 58 years, and a chronic alcoholic, the heart action was weak and feeble, and the blood pressure low, 100 to 78; his normal was but 106.70 mm. In therapeutic doses in 18 cases of enteric fever no fall of pressure could be determined. However, these patients were directly under the influence of an acute toxaemia. In connexion with the influence of disease as complicating the action of drugs used as depressor principles, it may not be out of place to record that in a number of cases of high tension associated with cardiac or renal disease I have repeatedly seen drugs—the nitrites, for example—produce distinctly harmful effects, while digitalis has done good. This would lead to the conclusion that the high tension was essential to proper blood distribution, the well-being of the patient being actually increased by increased blood pressure. The indications for lowering the pressure, therefore, must be evident before depressor principles are employed.

Chloral.—The action of chloral on the circulation has been studied in 10 cases of insomnia in patients presenting no evidence of circulatory diseases. There is a normal fall of blood pressure during healthy sleep (in twelve determinations 4 to 6 mm. with corresponding slowing of the pulse). The chloral action in 10-gr. doses on repeated examination slightly exaggerates this—6 to 8 mm. The same holds true in this dosage in Series II. With large doses corresponding fall of pressure occurs. In 2 cases as great as 30 mm. In cases of insomnia in patients with advanced arterio-sclerosis an analogous change occurs with at times alarming subsequent depression, probably due to the cardiac action predominating.

The Iodides of Potassium and Sodium.—With these drugs must be considered the ion action as well as the salt action. In ten healthy individuals taking 5 to 10 gr. doses thrice daily over protracted periods gastric symptoms alone were manifest. No fall of pressure or change of pulse-rate was evident (too small doses were used to look for marked results).

In Series II twelve observations were made, all were negative. In no case was the slight hypertension altered in any respect, while in 2 cases distinct evidences of iodism occurred.

It is especially in Series III that our interest centres in conjunction with the administration of the iodides. The use of the iodides so firmly fixed by empiricism is undoubtedly based on their action in syphilitic affections. There is but unsatisfactory evidence that good follows the use of these drugs in other than syphilitic cases, Vierordt and a number of clinicians of the French school to the contrary.

It is quite possible that slight improvement may follow the administration of potassium iodide by the vague so-called alterative action. I have followed Vierordt's method persistently in six cases of advanced arterio-sclerosis with absolutely no results upon the blood pressure. A serious problem confronts us in our efforts to restore the vessels affected with arterio-sclerosis. If we accept Thoma's doctrine that the development of connective tissue in the intima is a compensatory process by which is attempted to make good atrophic changes in the intima, then what is to be expected from any therapeutic measures which do not restore the intima to its normal condition? What more can be hoped from the routine administration of the iodides than to possibly prevent or remove deposits of lime and the hyaline degeneration that ultimately occurs in the newly-formed connective tissue? (Babcock.)

Quinine.—In normal individuals small doses of quinine exert no influence on blood pressure or pulse—that is, 2 or 3 gr. doses three times daily. In 10-gr. doses thrice daily (in 4 experiments) the pressure was raised in the seventy-two hours 6 to 8 mm., then gradually fell to slightly subnormal (4 to 6 mm.). Evidences of cinchonism were present. In one patient with severe malaria—a sailor from the Indies—huge doses of quinine produced a fall of 30 mm.; but the man was young, with a mean pressure of 120 mm.

Salicylic Acid.—(Owing to the violence of the subjective symptoms produced there is but little possibility of employing either salicylic acid or quinine in sufficiently large doses to produce a fall of blood pressure.) In normal individuals there is a slight increase in pulse-rate and blood pressure (6 to 10 mm.) following the use of 5 to 10 gr. doses thrice daily for several days. In one case 50 gr. caused a primary rise of 10 mm. and secondary fall of blood pressure of 20 mm. In Series II the slight hypertension was increased by 10-gr. doses for several days.

In Series III large doses (20 to 40 gr. t.i.d.) were administered to rheumatics with increased tension. No fall of pressure was observed. One patient with severe acute articular rheumatism took 120 gr. in one day, with a drop in blood pressure from 260-210 mm. to 240-215 mm. for several hours, with a gradual return to the point preceding administration.

Arsenic.—My results with arsenic were negligible in the first two series, but in Series III were distinctly promising, especially in obese patients past the prime of life with hardened arteries. Arsenious acid in doses of $\frac{1}{60}$ gr. was used.

The prolonged administration of arsenic in cases in which the sclerosis was not extreme (average blood pressure 155) showed slow but gradual diminution of blood pressure from 3 to 10 mm. This fall was accompanied by distinct improvement in health, perhaps due to other action of the drug.

In nine cases of advanced arterio-sclerosis minute doses ($\frac{1}{120}$ gr.) were given, and after tolerance had been to some degree established this dose was slowly increased to $\frac{1}{30}$ gr. The medication was continued for ninety days. There was no lowering of arterial pressure, but, as in the previous series, the patients showed considerable gain in health.

Mercury.—The administration of $\frac{1}{10}$-gr. doses of the bichloride in healthy individuals gave no result on pressure other than a slight increase (2 to 4 mm). In the form of calomel the drug has a distinct place in treatment, both for its diuretic and laxative action, aiding elimination and ridding the system of toxic products which are themselves vaso-constrictors.

In cases of arterio-sclerosis of plethoric type calomel and other purgatives have done far more than any other medication towards reducing the labour of the circulation by removing the toxic products. However, the readings of the sphygmomanometer in a series of 10 cases of this character showed but slight and temporary fall in pressure (3 to 6 mm.), but the cardiac action was in every case improved.

In conclusion, it would appear from the determinations summarised that the action of a drug on the normal circulation is not paralleled in cases of circulatory disease; witness the action of veratrum, aconite, and nitroglycerine. Further, that the routine use of iodides of potassium or sodium will produce no effect in cases of marked hypertension. Arsenic may be of value in certain cases of arteric-sclerosis of plethoric type, but more for its general than depressant action on the blood pressure. Among drugs, those increasing elimination are most logically employed. In many cases of hypertension the increased pressure is physiologic and should not be interfered with. The use of aconite or veratrum viride is scarcely justifiable for the purpose of reducing pressure, and if employed the cardiac strength must first be ascertained by a careful study of the systolic and diastolic pressure.

Dr. W. E. Dixon (Cambridge), in discussing this paper, pointed out that many of the drugs tested by Dr. Foley had no direct action on the vessel walls, and others acted on the circulation only through their depressing action on the heart. With regard to potassium iodide, he agreed with Professor Stockman's view that it might act through the thyroid gland. For lowering general pressure he preferred a drug which would act upon the central nervous organism, and for this purpose suggested sparteine.

Professor Osborne (Yale) agreed with the former speaker as regards the action of iodides. He found thyroid medication very useful in the hypertension which occurred in people of 45 years of age and upwards and in many gouty states.

THE RESPECTIVE SPHERES OF HYGIENIC AND MEDICINAL MEASURES IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

By Solomon Solis Cohen, M.D.,
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[Abstract.]

In the morbid complexus of pulmonary tuberculosis three main pathologic stages correspond respectively with three main groups of etiologic factors, and treatment must be governed accordingly:

1. Congenital.
2. Tissue changes recognizable microscopically and then macroscopically.
3. Mixed infection.

Treatment, which is the more hopeful the earlier it is instituted, must throughout be directed mainly against the underlying causes of the first stage (hypertrophy). Such treatment is chiefly hygienic, but may be aided by judicious medication.

Twenty-five years ago medication was often used irrationally, while open-air life and hygienic measures in general were neglected by the majority of physicians. Hygienic measures were more generally taken up, soon, unfortunately, passing into fads, while sanatorium treatment came to be urged in an extreme fashion.

Hygiene, dietetic, and medical measures, and their application were discussed in outline.

THE WORKING BULLETIN SYSTEM FOR THE COLLECTIVE INVESTIGATION AND CLASSIFICATION OF THE NEWER MATERIA MEDICA.

By F. E. Stewart, M.D., Ph.G.,
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Progress in materia medica science is dependent upon the publication of the researches and discoveries of those persons engaged in the practice of the pharmacologic arts, namely, pharmacy, pharmacognosy, pharmacodynamics,

and drug therapeutics. The knowledge evolved by the experience of physicians and pharmacists, to be classed as science, must be reduced to law, embodied in system, and protected from error by a stable nomenclature. To promote progress in the pharmacologic arts this science must be taught practitioners by means of colleges, textbooks, and periodic literature. For the proper development of pharmacologic science each new introduction to the materia medica must be impartially discussed by the professional societies and press and its merits compared with other products used for the same purpose. Tests for determining the identity, character, quality, and strength of each new product must be devised, standards established and maintained, and the public protected from the results of ignorance, incompetency, and greed, by proper medical and pharmacal laws.

The professions of medicine and pharmacy are mutually dependent, and both are the servants of the public. The public demands that the physician shall take care of the sick, and the pharmacists supply the medicine for that purpose. Unfortunately for the peace and harmony that should obtain between the two professions, the public also demands the privilege of self-diagnosis and self-treatment, and the pharmaceutical profession are expected to supply medicine to meet that demand also. Consequently there has always been more or less friction between the two professions, and doubtless always will be, unless, in course of time, pharmacists obtain a medical education, are licensed to practise therapeutics, and thus become part of the medical profession.

While the two professions have been fighting over the ethical bone, the nostrum manufacturers have improved the opportunity to run away with the bone. By great shrewdness they have built up a gigantic system of monopoly, known as the proprietary system, to protect their business, by which the inventors of nothing but names are enabled to obtain greater patent privileges than those granted by the Government to inventors of things really new and useful. Under the guise of trade-mark legislation they are endeavouring to obtain a secret patent law, by which they may protect their monopolies indefinitely. This system is in marked contrast with the patent system, which limits monopolies to definite periods of years, secures the publication of exact knowledge of inventions for the benefit of science, and insists that inventions shall be inventions in fact, and not mere aggregations of old and well-known drugs under fanciful names registered as trade marks in the Patent Office.

The professions of medicine and pharmacy are at last waking up to the situation and endeavouring to harmonize their ethical relations. Harmony can never be secured until both professions and the manufacturing houses supplying them repudiate the "proprietary" system and place the practice of pharmacy on a scientific and professional basis. By that I mean every new introduction to the materia medica must be given a name comporting with scientific nomenclature, provided with tests for identity, character, quality and strength, and fitted for a place in the *Pharmacopoeia*. And full knowledge of its properties and uses must be published, discussed by medical and pharmaceutical societies and press, taught in the professional schools, and the knowledge used by the physicians and pharmacists in the practice of their respective vocations.

That does not mean that the commercial interests of the manufacturers should not be protected. On the contrary, it should be protected, but the commercial interest of the physician and pharmacist should be protected also. The question is how to protect the commercial interests of all concerned, and protect the interests of the public also. In this paper I hope to show how this desirable object can be accomplished.

Theoretically, the commercial interests of the medical and pharmaceutical professions, including those of legitimate manufacturers or materia medica supplies, are protected by the medical and pharmacal laws. Practically the field is open to exploitation by unlicensed practitioners because manufacturing houses are permitted to practise without licence.

On this account legitimate manufacturers have endeavoured to obtain by patent and trade-mark laws that protection which should be accorded them by medical and pharmacal laws. In so doing they have followed the example of the publishing houses. The principle is the same. Physicians, pharmacists, chemists, pharmacologists and others, associate themselves with business men for the purpose of writing and publishing books, and making money out of them. Physicians, pharmacists, pharmacologists, and chemists also associate themselves with business men in conducting the materia medica supply business. Is this not perfectly ethical?

And is it not also just as ethical for experts in the pharmacologic arts to patent their inventions, and share in the profits, as it is for physicians to copyright their books and share in the profits?

In my opinion the answer must be affirmative if the patent system is so applied to the materia medica supply business as to promote progress in materia medica science, and in the useful arts of healing the sick and preparing medicine for that purpose.

I can only agree with those who object to the monopolizing of new materia medica products, and the names of such products, and introducing them by misleading advertisements.

The only way in which a new materia medica product can be properly introduced is by the co-operative investigations and researches of many chemists, pharmacists, pharmacologists and clinicians, working under different conditions of environment, in all parts of the world, comparing and verifying each other's observations, impartially discussing results, publishing the results for the benefit of science, classifying the same in the forms of science, and teaching the knowledge to those engaged in practising the pharmacologic arts.

As no manufacturing house, no matter how great, can afford to pay for all the work necessary for the introduction of a single new product, this work ought to done *pro bono publico*, and at public expense; and the results of the work should not be subjected to monopoly.

Furthermore, this work of introducing new materia medica products, if done properly, requires the facilities of hospitals and dispensaries, colleges and universities, all belonging to the public domain and supported by the people for educational or charitable purposes, or both. To permit those institutions to be used by individuals or firms for the purpose of advertising their goods as against the goods of their competitors is admittedly contrary to good public policy. What is done in them should be confined to what is equally valuable to all concerned.

Again, the object of all this work should be to fit the product for a place in the *Pharmacopoeia* and in scientific literature, that standards may be established and maintained, uniformity secured, and definite therapeutic value given to each new product introduced.

The pharmacopoeial revision work represents one of the greatest altruistic services contributed to science by the medical and pharmaceutical professions. Delegates to the pharmaceutical conventions travel from distant parts of the country at their own expense, and give up their valuable time to this work. The revision committees appointed by these conventions donate an immense amount of time and valuable work for the common good.

On the other hand, it is absolutely essential that capital invested in the materia medica supply business should be protected, and the business of manufacturing and marketing materia medica supplies be made sufficiently remunerative to attract both capital and brains. This fact has been appreciated by legislators in all civilized countries. Inventors should be encouraged to invent and produce things new and useful. Thereby civilization is advanced and the happiness of the world augmented. Consequently it has always been considered wise public policy to grant inventors, for limited times, the right to prevent others copying their inventions and discoveries. These grants are known as patents. They are given to inventors of things new and useful in exchange for the publication of full knowledge thereof for the benefit of science. When the patents expire the inventions, and the names of the inventions, become public property.

Now what I am advocating is that the patent system should be so applied to the materia medica supply business as to promote progress in materia medica science, and in the practice of the pharmacologic arts, and protect the public and the public institutions from incompetency, ignorance, and greed upon the part of those desiring to exploit the sick for personal gain.

The plan to which I now ask your consideration is one of co-operation between the medical and pharmaceutical professions, and the manufacturers of materia medica products with that intent.

The plan includes protection to commercial interests by patents on processes, and the use of word-marks, in conjunction with the scientific names of new products, for specifying purposes, provided the products are properly classified scientifically.

As originally proposed, the plan included the founding of a national bureau of materia medica and national pharmacologic laboratory at Washington for the investigation and classification of the newer materia medica, aided by the medical departments of the United States Army, Navy and Marine Hospital Service; the founding of scientific departments by the great manufacturing houses engaged in the pharmacal and medico-chemical industries, and the organization of an American Pharmacological Society composed of members of the medical and pharmaceutical professions and the members of the scientific departments of the manufacturing houses.

The plan was presented to the Smithsonian Institution at Washington (a governmental institution for the free diffusion of knowledge) in 1881. The Honourable Secretary pronounced it to be one of the most important plans ever presented to his notice. He took it up with great enthusiasm, consulted with the various heads of departments at Washington, obtained endorsement from all, suggested the working bulletin system of collective investigation to be hereinafter described, and commenced at once to make plans for securing an appropriation from Congress. But in this he was defeated by the conflicting commercial forces.

Later on the American Medical Association renewed the attempt to secure an appropriation for putting the plan into effect, and memorialized Congress on the subject but without success.

However, one of the large manufacturing houses took up the work, organized a scientific department which became the progenitor of all the scientific departments of all the houses in the same line: adopted the "working bulletin" system for the collective investigation of the newer materia medica; sent out scientific expeditions to explore the flora of the Amazon Valley; donated the results of its investigations to the Smithsonian collection of materia medica; published a final report founded upon the working bulletin system, known as "The Pharmacology of the Newer Materia Medica"; changed its house organ to a professional journal devoted to scientific drug therapeutics; instituted a campaign of education to enlighten the allied professions regarding the unscientific nature of the secret proprietary medicine business known as the "proprietary" system; and, through its journals, literature, and detail force, distributed no less than fifty tons of publications on the subject.

The American Pharmaceutical Association then took up the work, appointed a committee on national legislation to study the nature of the proprietary claims made by the manufacturers, and transmitted its conclusions on the subject to the American Medical Association. The views of both associations were harmonized by this action. You are respectfully referred to the *Proceedings of the American Pharmaceutical Association*, reports of Special Committee on National Legislation for the years 1896, 1897, 1898, and 1899, also to "Preamble and Resolutions," p. 90, *Proceedings* for 1897.

Next the American Therapeutic Society took up the work, and a Special Committee on National Bureau of Medicines and Foods was appointed. The work of this Committee led to a most important move on the part of the California State Medical Society, in which its President and Secretary and Editor of its journal have been actively engaged. Their work resulted in the appointing of a Joint Committee on National Bureau of Medicines and Foods by the American Medical and American Pharmaceutical Associations for further elaboration of the plan. This Committee reported favourably, but the plan was again defeated by the commercial forces arrayed against it. However, the effort led to the organization of the Council on Pharmacy and Chemistry of the American Medical Association, so the work was not in vain.

The American Pharmacologic Society was then organized to develop and perfect the plan and put it into active operation. Many faults will probably show themselves and be eliminated as the work goes on. The plan is necessarily many sided, and, while it may appear simple, is very complex. Briefly stated, the plan is as follows:

Aided by the manufacturing houses engaged in the pharmacal and medico-chemical industries, and the medical and pharmaceutical professions, and acting under a board of directors and advisory council representing these several interests, the Society will collect all obtainable information regarding the newer products selected for collective investigation, classify the same in the forms of science, and publish it in the "working bulletin." These bulletins, accompanied by the products undergoing investigation, will be sent to physicans engaged in hospital and private practice for clinical test and report. The results will be incorporated in subsequent editions of the bulletin, whether favourable or otherwise.

When finished, each bulletin will be a complete monograph on the drug investigated, classified in the forms of science.

By a study of the plan as described in the prospectus of the Society, which I herewith present to you in connexion with this paper, you will note that it is intended to bring the manufacturing houses under the censorship of the medical and pharmaceutical professions through the medium of their scientific departments. It also admits the manufacturing houses to fellowship with the professions through the same medium. Public policy demands that every statement made in scientific literature shall first appear under the name of the author, and that such author shall be known to the profession as a competent observer. This important requirement is met by the plan of joint professional and commercial censorship over the publication of working bulletins in which the name of each investigator appears.

Another very important requirement is met by the plan, and that is censorship over advertising. The medical and pharmacal press are dependent in great measure upon the advertising patronage of the manufacturers. This advertising matter must be honest, or the professional journals publishing it become *particeps criminis* in swindling operations.

The plan is protective to physicians and pharmacists dependent upon the manufacturers for the standardization of materia medica products. This work can only be carried on in a practical manner by large laboratories. By associating the manufacturers with the profession through the medium of their scientific departments, and holding the houses responsible for this work by the censorship thus established, the professions can be assured that the standardization work is being properly conducted.

The plan opens the door of opportunity to expert chemists, pharmacists, and pharmacologists, graduates of our universities, not only to salaried positions, but to places where their work can obtain recognition and wide circulation. The circulation of the literature of the manufacturing houses is world-wide in scope and enormous in volume. By making it scientific literature in fact, as well as in name, these publications can be made immensely valuable to science and to the professions of pharmacy and medicine.

The American Pharmacologic Society is in embryonic condition, and has been kept so by its organizers, so as to obtain full discussion before any permanent organization is effected. It is considered very desirable that the plan shall be fully ventilated and thoroughly considered before its final adoption. Thanks to one of the large manufacturing houses and its co-operation, we will soon be enabled to place a working bulletin before the professions by way of illustration. The first annual meeting of the Society will be held in New York, October next, preceded by an invitation from the President requesting the presence of all those desiring to aid in the work of standardization.

Upon reference to the prospectus it will be immediately apparent that the working bulletin system is but a small part of the plan.

The object of the plan is to place the materia medica supply business under the joint censorship of those directly affected by the business of supplying medicine—namely, the medical and pharmaceutical professions and the drug trade—and secure their co-operation in the investigation, classification, standardization, and maintenance of standards for medicinal drugs and chemicals, and preparations of the same.

This standardization work requires the outlay of capital by those engaged in the pharmacal and medico-chemical industries, and money for the payment of experts. The work cannot be carried on practically except by the large manufacturers engaged in the industries.

Retail druggists cannot afford to do the work except by charging a sufficient advance on the cost of their goods to make such work prohibitive on the small scale. The temptation on the part of all is to neglect standardization on account of the trouble and expense involved. This temptation is especially strong owing to the indifference of the medical profession, and the fact that thus far in the history of America it has been possible to sell drugs, chemicals, and preparations under pharmacopoeial names without conforming to pharmacopoeial standards.

No one Government department is capable of dealing with this important work of regulating the materia medica supply business, for there are a number of Government departments equally involved.

No existing society of physicians, pharmacists, druggists, or wholesale dealers in drugs, can properly regulate the materia medica supply business, for there are questions of science, professional obligations, and commercial relations involved that vitally affect the practice of medicine and pharmacy, and commerce in drugs, which no society dealing with only once branch of practice is capable of discussing in an intelligent manner. There must be a separate society representing all of these interests, in which each interest involved may have a voice. Such a society would be in a position to speak with knowledge, therefore with authority. Such a society would be of inestimable value to humanity.

DRUG FALLACIES.

By W. E. Dixon, M.A., M.D.

It cannot be too strongly impressed upon us that all our knowledge of the action of drugs has been obtained by experiment. It is the only means we have of obtaining knowledge and advancing the art of healing. Some of these experiments have been made on inanimate objects; such experiments have told us much of the manner in which the tannins act. But the enormous majority have been made, until within the nineteenth century, on man; and the millions of experiments which have been required before the action of one single drug has been indicated, and the pain and suffering which have been indirectly caused, is beyond calculation. But in spite of these experiments on man, which must have been in progress since his existence, the art of healing made little progress until the last century, when science demanded that experiments, to be of value, must be undertaken under definite and fixed conditions and with adequate controls. Physiology and pathology advanced, and with the increased knowledge of these sciences treatment improved, but still it was almost impossible to undertake satisfactory clinical experiments with drugs on account of the very variable conditions, and because any bold experimentation was unjustifiable. I cannot, perhaps, better illustrate the difficulty of drawing conclusions from ordinary clinical observations—that is, from observations without suitable controls—than by recounting the story of a friend who was treating a patient for some bladder trouble with small doses of urotropine, but without success. The prescription was changed, therefore, and cystogen, in equivalent doses, was substituted for urotropine, and the patient soon recovered. I had some difficulty to persuade him that both were the same chemical body—hexamethylene-tetramine. Because a morbid condition improves after the exhibition of a drug, that is not necessarily evidence that it is the result of the drug. This case also illustrates the fallacies into which we may be led by the host of fancy names which are advertised and thrust upon us for more or less common drugs. Thus, acetyl-salicylic acid is sold as aspirin, xaxa, saletin, acetysal, and salacetin. All may be prepared by the same manufacturer, and they differ only in name and price; and if we are foolish enough to prescribe drugs with protected names we must pay for them. It should be remembered, however, that we are paying for the name as well as the drug.

Drug fallacies cover so enormous a field that I can do no more than briefly refer to some of the more common.

Fallacies of Composition.—In the first place, I would point out the advisability of adhering to the well-recognized preparations of the *Pharmacopoeia*; these have been tested in a more or less exhaustive way, and their composition and action is in most cases clearly defined. Elegant preparations of copaiva can be obtained which will please the eye and palate much more than the pharmacopoeial preparations; but to attain this condition they have been treated until they contain little or none of the essential oil which is the most important feature of the drug. This leads me to speak of the advantages of employing the pure active principles in place of galenicals wherever this is possible. Undoubtedly this change is gradually coming about. Quinine has superseded cinchona in the treatment of malaria, and morphine opium for the relief of pain; but we still employ nux vomica and belladonna instead of strychnine and atropine. We know the action of the alkaloids, we can tell their rate of absorption and gauge the exact dosage; but this is not so with the crude drugs, for, even if they are standardized, the percentage of each constituent is not determined, but only total alkaloid, or the percentage of one alkaloid. Opium is a body which is particularly liable to vary in composition, and the *British Pharmacopoeia* directs that it must be standardized so as to contain roughly 10 per cent. of morphine. But even so it varies in its action, one sample of opium may cause convulsions, whilst another will immediately bring about the typical depression of sensory nerve cells. The explanation of this fact is to be found in the presence of narcotine, which occurs in varying amounts from 2 per cent. to 10 per cent. Opium obtained from Persia and India is unsuitable as a drug on account of the large quantity of narcotine which it contains. This, then, affords another reason for prescribing the pure alkaloid when a certain and definite action is required.

In Cambridge we have already directed attention to the variability of action of the group of cardiac tonics. At the present time we have no guarantee of any kind as to their activity, and many samples we have examined have been practically worthless. This is because they cannot be standardized by any chemical means, otherwise the various pharmacopoeias would long ago have insisted on such standardization. The result is that both the physician and his patient are at the mercy of the wholesale chemist. For my part I unhesitatingly express the belief that many hundreds of patients die annually from digitalis and its allies not possessing the virtues which are required of them. The remedy of course is to standardize these drugs by physiological means, and Dr. Haynes and myself have lately drawn attention to the ease with which this may be effected. Lastly, under this section, I would speak of ergot. This drug is peculiar in that the majority of the galenicals which are sold in the ordinary retail way have little of the action characteristic of ergot and we may even have a little trouble in getting good samples. The accompanying diagram, obtained from experiments on blood pressure by Dr. Haynes and myself, shows how extremely variable is this action. We do not say that good samples of ergot properly extracted are not always active, but only that those which are in daily use for dispensing prescriptions show the variability here marked out. We further think that the only effective way of standardizing the drug in this case is to note its action on the mammalian blood pressure. The effect of ergot on the cock's comb is of an entirely different nature, is not brought about, we believe, by vaso-constriction, and is, therefore, not necessarily a criterion of useful activity in the drug.

I propose now to refer briefly to some common *fallacies concerning the actions* of drugs. These are very numerous, as one would expect having regard for the fact that pharmacology is a comparatively new science. First, I may mention some drugs which have been administered empirically and which clinical experience has shown have a distinctly beneficial action. For example, bitters increase appetite, this we know now is due to their effect on the gustatory nerve endings, to which they impart a powerful though disagreeable stimulus. Probably they would act as well if the patient were only required to gargle with them half an hour before food and to avoid swallowing. Again the alkalis influence digestion beneficially when given to dyspeptics half an hour before food; this they do, not as is sometimes taught by increasing gastric secretion, but by inhibiting it, and so for the time being resting the stomach.

Most of the expectorants act reflexly by exciting the stomach and not by any direct action on the bronchial mucous membrane after absorption. Tartar emetic, ipecacuanha, senega, ammonium carbonate act in this way, and with the exception of ammonium carbonate they are not absorbed and so cannot exert a specific action.

Opium affords another example of a drug the action of which must be largely misunderstood. It depresses certain sensory nerve cells, and during its excretion by the alimentary canal inhibits peristalsis. Yet it is commonly employed for local application to sensitive parts, apparently on the supposition that it depresses sensory nerve endings. It cannot be too strongly stated that neither opium nor morphine has any such action; the whole effect is central, and such beneficial results—that is, relief from pain—as it may produce, when applied locally, are caused after the absorption of the drug into the system. I have shown elsewhere that morphine has a slight depressant action on the sympathetic ganglion cells when first it reaches them through the circulation, and this, by paralysing inhibition, augments movement and,

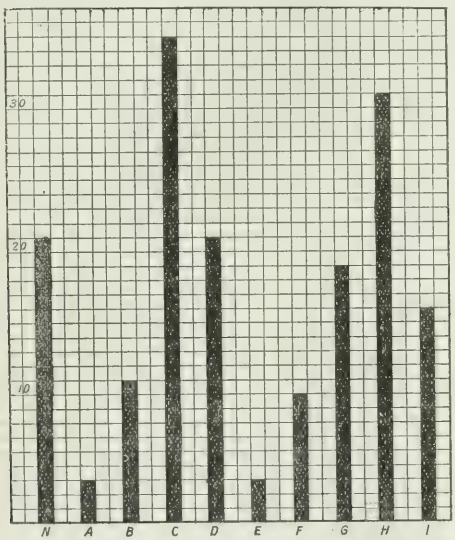


Diagram showing the relative toxicity of some samples of ergot bought as the liquid extract in the ordinary retail manner from different chemists. They were standardized by their effect upon blood pressure. The first sample, N, may be regarded as the minimum of activity such samples should possess. (Details of experiments are omitted.)

after a large dose, may cause vomiting and diarrhoea as a preliminary effect. It is rarely marked with morphine, but is quite considerable with certain allied alkaloids, such as apomorphine, and particularly apocodeine. We are apt to put down this normal action of morphine to the presence of an impurity such as apomorphine.

The hypophosphites are employed because it was thought that they would supply the body with the necessary phorphorus and help to build up proteid; but there is no satisfactory evidence to show that they can influence nutrition in any way differently from other indifferent salts, and the whole of the hypophosphite administered can be recovered unchanged from the urine.

The cardiac tonics and the difference between their action require more careful study. They all act on ordinary cardiac muscle, slowing the rate and increasing the force of the beat. I lay some emphasis on this because other drugs also act on heart muscle and yet quicken the beat. There are, then, at least two portions of the cardiac muscle upon which drugs may act. The members of the digitalis group affect the ordinary musculature, whilst the caffeine and aconitine groups attack that portion of the cardiac muscle which gives the rhythm to the heart—the excito-motor area—and ultimately send the heart into fibrillary twitchings; but all drugs which act on heart muscle will, in large doses, attack this more irritant portion, quicken the heart, and produce sudden death from delirium cordis. Here I would draw attention to the difference between digitalis, strophanthus, and squill. Squill has the more powerful effect on ordinary cardiac muscle, and, provided the three drugs reach the circulation in equal amounts, it increases the output from the heart more than the other two.

Strophanthus, in anything like equal doses, is a dangerous drug, because of the ease with which it gives rise to delirium cordis and sudden death. Digitalis occupies a position between them, but is only very slightly more toxic than squill. Squill, though by far the most effective drug both on the heart and vessels, has the disadvantages that it is but slowly absorbed and tends to produce some constriction of the coronary vessels.

Of all the cardiac tonics, apocynum is the most irritant. In comparatively small amounts it causes intense inflammation of the alimentary canal, followed by diffuse ulceration. I do not think it is a drug to be employed advantageously in medicine.

The last fallacy to which I wish to draw attention is that of remote astringents, and in considering this subject we are supposed to have decided that to constrict the peripheral vessels, let us say, to allay haemorrhage, is a desirable treatment. If, in spite of the general rise in blood pressure, it is, then we have still other factors to consider. It is now known that the heart, lungs, liver, and brain are practically devoid of vasomotor nerves, so that in haemorrhage from these organs the administration of such drugs as digitalis or ergot will raise the general blood pressure by constricting the splanchnic and limb vessels, and force the blood from these into the non-innervated vessels, which will therefore become passively congested; that is to say, we are giving the worst possible treatment to our patient. It is true that some remote astringents, such as veratrine, barium, and lead, produce their effects by acting directly on the plain muscle of the blood vessels; but once again it is doubtful if these drugs produce other effect than passive congestion of the liver, lungs, and brain, the general rise in systemic pressure overshadowing the tendency of these vessels to constrict. Their only legitimate use is probably in haemorrhage from the intestines and uterus, or from vessels innervated by the splanchnics. The employment of tannin and its allies for remote astringency has already been exploded. Of the tannin taken by the mouth, probably not more than 1 per cent. reaches the blood as sodium gallate, and this substance tends rather to dilate than constrict vessels.

THE ACTION OF DRUGS ON THE UTERUS.

By Arthur R. Cushny, M.D.,

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The action of drugs on the uterine movements has been comparatively seldom the subject of experimental investigation in recent times, and very few observers have made use of the graphic methods, which have been so fruitful in results when applied to other organs. Yet the details of the movements of the uterus in response to drugs cannot be satisfactorily followed except by this means. And in most of the experiments in which the movements have been recorded the organ has been excised and subjected to perfusion with saline solutions, a method which, however useful in interpreting previous observations made on the intact animal, can scarcely be held to replace these. The changes in the uterus induced by drugs are so important from a practical point of view, that I have taken up the question afresh, and have performed a large number of experiments on cats, rabbits, and dogs. The animals were anaesthetized with morphine and paraldehyde; a cannula was placed in the trachea, and the animal was then immersed in a bath of physiological salt solution heated to 98° F., and maintained at that temperature. The uterus was exposed by an incision along the median line, the hypogastric nerves were generally cut, and a system of levers resembling a myocardiograph was attached to one horn of the uterus, by means of which the contraction of the organ was transmitted to a lever writing on a slowly-moving smoked surface. The blood pressure in the carotid was also recorded in the usual way, and the drugs were

applied by injection into the jugular vein. A considerable number of my experiments were performed on animals in different stages of pregnancy, and as a general rule in these the movements set in more promptly, and were more extensive than in virgin animals.

In the course of the investigation it soon appeared that diametrically-opposite results were often obtained in different animals from the same drug. Thus *nicotine* causes marked contraction of the uterus in the virgin rabbit, while in the virgin cat the organ relaxes under it; in pregnant cats and rabbits nicotine causes powerful contraction. The same reaction generally occurs in multiparous cats as during pregnancy in these animals, but in some multiparae the contraction is followed by relaxation, showing a tendency to return to the virgin condition. The virgin uterus in the cat thus reacts in the opposite way to the pregnant or post-pregnant one to nicotine, and the same is true for *adrenalin*, whose effects in cats and rabbits are similar to those of nicotine. The explanation is given by examination of the reaction to stimulation of the hypogastric nerve, which in virgin cats is found to cause relaxation, while in pregnant and post-pregnant cats and in rabbits at all times it causes powerful contraction. This nerve appears to contain inhibitory and contractor fibres to the uterus in both the cat and the rabbit, and the reaction to stimulation depends on the relative activity of these two sets of fibres. In the virgin cat the inhibitory fibres predominate, in the rabbit the contractor fibres. During pregnancy in the cat the contractor fibres gain the upper hand, either through an actual change in the nerves themselves, or because the uterus is in a peculiarly irritable condition, and reacts to contractor impulses, which would in the virgin cat be neutralized by the simultaneous excitation of the inhibitory fibres. The latter view seems the more probable, as the uterus reacts to local irritation much more powerfully in pregnancy than in the virgin. The presence of inhibitory fibres in the hypogastric nerve in the rabbit and pregnant cat can be shown by the results of stimulation after large quantities of ergot preparations, which paralyse the terminations of the contractor nerve fibres (Dale). Stimulation of the hypogastric, then, induces relaxation and inhibition of the spontaneous movements.

Nicotine, then, stimulates the ganglia on the hypogastric nerve, inducing contraction or inhibition according to the character of the predominating fibres and the condition of the uterus. After large doses it loses its effect, apparently through the ganglia being paralysed.

Adrenalin induces the same effect as nicotine, but acts after large quantities of the latter; so that its seat of action must be more peripheral, and may be located in the myoneural junction of the hypogastric nerve (Elliott). Both nicotine and adrenalin act on all fibres whether inhibitory or contractor.

Atropine has no apparent effect on the normal uterus; stimulation of the hypogastric nerve is followed by the usual effects after large quantities have been injected, and the action of nicotine and adrenalin is unchanged by its previous injection. The only change induced by atropine is in the reaction of the uterus to pilocarpine.

Pilocarpine causes marked contraction of the uterine fibres both in the virgin cat and in pregnancy, and whatever be the nature of the response to hypogastric stimulation. After the first powerful contraction has passed off, a certain increase in tone continues, and periodical weaker contractions are superposed on this. These are all removed by atropine injection, and the previous injection of atropine prevents any effect from even large doses of pilocarpine. The contraction induced by pilocarpine is not altered by the previous injection of large quantities of ergot, sufficient to prevent any motor effects from adrenalin or from hypogastric stimulation. Pilocarpine and atropine thus appear to act on some structure which is independent of the hypogastric nerve fibres; in the intestine and stomach, also, the action of pilocarpine and atropine appears not to be due to their influencing the terminations of the splanchnic and pneumogastric fibres (Bayliss and Starling).

Quinine hydrochloride was injected in a number of experiments, and induced marked contraction of the uterus. The contraction was not so prolonged as that following ergot as a rule. In some instances after the uterus had resumed its ordinary degree of relaxation it appeared to be more irritable, and the spontaneous contractions were more numerous and stronger than before quinine. The action of quinine seemed to be independent of the nerves of the uterus, for contraction occurred after large doses of ergot. The previous injection of atropine had no influence in it, so that quinine acts upon some other point than pilocarpine. This seems to indicate that quinine acts on the uterine muscle fibres directly. The fact that abortion often occurs after quinine has long been recognized in malarious regions, and the drug has been employed to a considerable extent in obstetric practice to overcome uterine inertia; but I am not aware of any experimental investigation of its effects on the uterus, or on unstriated muscle in general. My results are in complete accord with clinical experience, and may perhaps help to vindicate the position of quinine in obstetrics.

Aloes has long been used empirically in certain uterine abnormalities, notably in amenorrhoea; but its effects have generally been attributed to its causing hyperaemia and passive engorgement of the uterus through its well-known purgative action. In four experiments in which a solution of aloin was injected intravenously, it induced strong contraction of the uterus, which passed off slowly; the reaction was not altered by the previous injection of atropine or ergot in large doses. It thus acts like quinine on the uterine muscle. A freshly-made solution had no effect whatever on the uterus. This is in accord with Meyer's observation that pure aloin is inactive in the bowel, and that the true purgative effect is elicited only by an oxidation product.

Ergot.—A large number of observations were made on the action of various preparations of ergot, but they coincide so closely with those recently published by Dale[1] that they require only brief mention. Ergot injection was generally followed by a powerful tonic contraction which lasted for several minutes, and then gradually passed off with repeated smaller contractions. The uterus appeared more irritable afterwards, for it responded to smaller doses of ergot, and often underwent spontaneous rhythmical contractions. In other cases an injection of ergot induced repeated rapid contractions and relaxations, without any prolonged tonic contraction. Large quantities of many preparations caused paralysis of the terminations of the motor fibres of the hypogastric, as was shown by stimulation of the nerve or by adrenalin inducing pure inhibition in rabbits and pregnant cats. Some preparations which had very little effect on the contraction of the uterus induced this paralysis in very small doses, so that there appear to be at least two different bodies contained in the drug—one causing contraction, probably through direct muscular action, the other inducing paralysis of the motor terminations of the hypogastric while leaving the inhibitory fibres intact. The effects of ergot differ according to the relative amounts of these two constituent bodies, and as its practical use depends upon the contractor substance only, it is of the greatest importance to use preparations in which this body has been shown to be present in sufficient quantity.*

REFERENCE.
1 *Journal of Physiology*, xxxiv, p. 163.

A DISCUSSION ON ALCOHOL AS A THERAPEUTIC AGENT.

OPENING PAPERS.

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THE subject which has been proposed for discussion this morning is not a new one, but one which has claimed a great deal of thought from the profession. The use of alcohol as a remedial agent goes back to hoary antiquity, and has received the endorsement of almost all the Fathers of Medicine, including Hippocrates himself. Nevertheless, throughout all the history of its employment there have been a variable number in our profession who have questioned its therapeutic value, and, either as a

* The expenses of this investigation were defrayed in part by a grant from the Scientific Grants Committee of the British Medical Association.

result of theoretical fancies or of more or less exact observation, have opposed its use. With the birth of physiological investigation, the exact action of all our remedial agents became a matter of scientific inquiry, and since then, and especially during the past twenty years, an enormous amount of painstaking investigation has been expended in attempts to elucidate the action of this drug on the circulation, on the nervous system, and on general metabolism.

As a result of these investigations the position of alcohol in therapeutics has been seriously questioned. Most of us were taught to regard alcohol as a rapidly diffusible stimulant, affecting both the heart and nervous centres, easily appropriated by the organism, and leaving few injurious after-effects. To-day the indictment runs that alcohol does not stimulate the heart and does not raise blood pressure; it has no antipyretic action; on the nervous system it is not a stimulant, but a depressant and narcotic; it has little or no food value; furthermore, it weakens the natural protective powers of the organism against infection, and thus increases the tendency to bacterial invasion. Briefly stated, it is said that alcohol fulfils no important indications in the treatment of disease; its employment favours degenerative changes in the tissues, and weighty social reasons loudly demand that the profession cease prescribing it medicinally.

In opening a discussion like the present one, my part will be simply to present a concise statement of the recorded results obtained by pharmacologists in their investigations, and criticize them briefly from a physician's point of view.

To begin: The exact action of alcohol on the heart and circulation, notwithstanding all the work that has been expended upon its elucidation, is still obscure. The majority of investigators in Germany, England, and America have told us that careful experiments on animals have indicated that alcohol has very little direct action on the heart. There is a slight stimulation due to reflex from the stomach. There is also a slight transitory action on the heart muscle, as on all the muscles of the body, lasting about thirty minutes, but followed, especially if the dose be large, by a depressant action, which more than outweighs the temporary stimulation.

A few pharmacologists, notably Binz in Germany and Wood in America, still claim, however, a definite stimulant action on the heart muscle from small doses of alcohol. They state that, in their experiments, in the excised mammalian heart low concentrations induce stimulation, distinct depression occurs only when the perfused solution exceeds the strength of 1 per cent.

On the peripheral blood vessels alcohol produces marked dilatation, chiefly through an action on the vasomotor nerves. Notwithstanding this dilatation, blood pressure in animals is maintained, indicating that either the output from the heart has been increased or that a constriction of vessels in the interior of the body has taken place. Kochmann in Germany and Meltzer in America claim that the indications point to a constriction of the vessels in the splanchnic area; Wood maintains that the output from the heart is increased. It is admitted by all, however, that with large doses alcohol acts as a direct depressant to the heart and to the general arterial system and produces a notable fall in blood pressure. The result so uniformly obtained in the laboratory from experiments on animals have been corroborated by observations at the bedside. On the normal individual, when placed in bed or in some unchanging environment, alcohol induces no appreciable change in the pulse rate or in the blood pressure.

In the wards of the Massachusetts General Hospital Cabot took more than 1,000 observations on the blood pressure, temperature, pulse, and respiration of patients, chiefly typhoids, before, during, and after the administration of alcohol in varying therapeutic doses, and found that neither the maximum nor the minimum blood pressure showed any variation that could reasonably be referred to the action of alcohol; neither was the temperature, pulse rate, or respiration affected by it, as judged by an additional series of observations on 309 other patients suffering from a variety of diseases. Cabot concluded that, so far as could be measured by the instruments at our disposal at present, the action of alcohol upon the circulation was *nil*. Crile of Cleveland also, as the result of most carefully-conducted experiments, came to the conclusion that alcohol had no effect on the circulation, so far as can be judged by an estimation of the pulse and blood pressure, either of normal animals or of those in a state of shock. Similar investigations carried out in the wards of the Montreal General Hospital have given practically the same results. The conclusion, therefore, appears inevitable that the stimulating action of alcohol upon the heart has in the past been overestimated, and must now be considered as of a feeble and transient character.

The effect of alcohol on the respiratory system may be summed up in a similar way. In moderate doses it has little therapeutic value as a respiratory stimulant. In large doses it becomes a depressant.

The action of alcohol on the nervous system is a more complex one, and on men its apparent effects vary considerably in different individuals. The first effect may be one of apparent stimulation, with indications of increased mental and motor activity. This apparent effect, physiologists affirm, is not due to the direct action of alcohol on the centres controlling this activity, but to a depressing action on the higher inhibitory centres. Cushny illustrates the character of this action by comparing it to the heightened speed of an engine which occurs on the removal of the brakes. An increased blood supply to the brain may have some part in this effect. The true direct effect of alcohol on nerve tissues is undoubtedly a depressing one, manifesting itself first on the highest and last acquired centres of judgement, discrimination, and self-control; these become paralysed, with the result that the centres of thought and motion, which, under ordinary circumstances, are inhibited and retarded by these higher faculties, act now with increased freedom.

The studies of Kraepelin, and many others who have since corroborated his work, indicate clearly that alcohol does not increase either the mental functions or the activity of the motor centres of the brain, or of the centres for associated action in the cord. On the contrary, it distinctly lessens their capacity for work, and under large doses produces a distinctly benumbing effect.

This action of alcohol, however, is not in conflict with its clinical use. If alcohol were a true cerebral stimulant, how seldom could we employ it to advantage in medicine, especially in acute disease, in which our great object is to secure rest for irritated nerve centres! The great objection against the use of caffeine in therapeutics is its stimulating action on the cerebrum, inducing wakefulness and mental and motor activity. In contrast to such an action the benumbing narcotic influence of alcohol on the mental, motor, and sensory centres is often of the greatest advantage to the patient.

Much careful experimental work has been done in the investigation of the effect of alcohol on the normal resisting power of the individual to resist bacterial invasion. Hare, as the result of recent experiments, claims that alcohol in medicinal doses increases the bacteriolytic powers of the blood. But a long series of experiments previously carried out both in Germany and America upon animals has proved very conclusively that the continued administration of alcohol in full doses in infectious disease increases the duration and severity of the intoxication and favours a fatal issue; in rabbits artificially immunized against alien blood it diminished the number of free specific receptors, thus lessening the immunity. It has been urged against these investigations that the doses of many of the investigators were unduly large, and that, instead of giving the alcohol as we do clinically in small and repeated doses, the total daily dose was administered in one or two potions. It is also contended that the result of studies on animals cannot be used as evidence of its action on sick men. Such considerations may influence our judgement to some extent; but, qualify them as we may, the results obtained in these experiments speak very emphatically against the lavish use of spirits in every form of bacterial invasion.

Of the value of alcohol as a food we can speak at the present fairly positively. The experiments of Atwater in America and Rosemann in Germany have been recently corroborated in an excellent piece of research work by Goddard in England. The conclusions arrived at, briefly stated, are as follows: Alcohol appears to have to a greater or less extent a definite food value. When given to fasting dogs to the extent of about

one 750th part of the body weight it is almost entirely burnt up in the system, a small residue only passing off in the respired air and through the kidneys. If the law of the conservation of energy obtains in the living organism, as we have every reason to believe that it does, the potential energy of alcohol must be transformed into kinetic energy in the body; and if the conditions which are true of the dog can be applied to human beings an average man of 160 lb., if fasting, can burn up in his tissues about 3 oz. of alcohol, or 6 oz. of strong whisky, in six hours, representing a food value equivalent to about 6 oz. of pure starch or sugar. Alcohol can therefore be utilized as a source of energy in the body, especially in conditions when other food can with difficulty be taken, digested, or absorbed. In thus acting as a food alcohol conserves proteid metabolism. Not only has alcohol this definite food value, but it has properties which, to my mind, enhance this value in conditions of exhaustion. It is a food which requires no digestion, but is promptly absorbed from the stomach. Still further, it undoubtedly promotes increased secretion from the gastric follicles, thus favouring the digestion of other foods—a fact which may be of inestimable value in those conditions of diminished or altered secretion met with in pyrexia and exhaustion.

To sum up from the standpoint of a physician we may say it appears that alcohol in fever and in some other conditions associated with exhaustion of the nerve centres or an inability to digest or appropriate other nutriment may be employed as food, replacing the carbohydrates and conserving proteid metabolism. It places no task upon the digestive organs, on the contrary, if used carefully it increases their secretion, thus favouring the digestion and absorption of other foods. In such conditions it may also have a favourable action on the hepatic cells, stimulating them to increased activity.

Alcohol is not an efficient cardiac or respiratory stimulant to be used for long periods. In some conditions associated with a determination of blood to the interior of the body alcohol, by dilating superficial vessels and equalizing the circulation, may be of considerable service.

Alcohol is not a stimulant to the nervous system. Its action is that of a narcotic benumbing sensation, including that of fatigue, allaying subjective symptoms, relieving nervous strain and promoting rest. No other narcotic can be used so freely with so few injurious after-effects.

In infections of all forms alcohol should be used cautiously. In such cases it may be of value to the system either as a food itself or as favouring the digestion and absorption of other foods, but in large amounts it may, and probably will, do harm by interfering with the resisting powers of the organism.

As clinicians we have to recognize that the effects of alcohol varies much with the individual, and its action is dependent to a great extent on the condition of the gastric mucous membrane and portal circulation. Its employment demands much discrimination and careful and frequent observation. We should also bear in mind that its prolonged use is liable to produce degenerative changes in the heart, blood vessels, and secreting organs.

II.—S. J. Meltzer,
New York.

About four years ago, in an address before the Massachusetts Medical Society, I discussed the subject of the therapeutic use of alcohol at some length. In the present discussion I intend to confine my remarks to a few points in which I take a special interest, and some of which indicate a certain progress in the discussion of our subject.

In the first place I wish to point out one or two facts which we can learn from the clinical side of this question.

Alcohol has been used in medicine continually now for about six or seven decades. It has been used more or less extensively by most of the physicians and by the best ones. There is one thing we have positively learned from this vast experience, namely, that the judicious use of alcohol in disease never harmed any patient. If there had been a record to the contrary, even if ever so hidden, the very diligent opponents of alcohol would have dug it out and brought it to everybody's attention. I repeat that I believe it to be a fact, well established by vast clinical experience, that a judicious use of alcohol in disease never harms a patient.

The opposition to the use of alcohol is not based upon a claim that it harms the patient, but upon the claim that patients do just as well, or just as badly, without alcohol as with it. And here we should take notice of another instructive fact. Most of the medical opponents to the therapeutic use of alcohol never used it themselves in disease; we have their own word for it; their judgement is based upon distant observation of the doings of others and upon mortality statistics. It seems somewhat paradoxical to assume to speak with authority on a subject of which one has no personal experience. Every well-qualified practitioner ought to know that the information and impressions which a well-trained, observant medical man gets at the bedside of his patient cannot be supplanted by any amount of statistics. Besides, it is high time that physicians should grasp the view that their mission is not only to attempt to cure, but also, and sometimes foremostly, to make the suffering patient comfortable; an activity about which mortality statistics give no information.

The situation, then, as far as clinical experience is concerned, is this: all physicians agree that alcohol, given judiciously, does no harm to any patient. The great majority of the physicians who have had extensive personal experience with the administration of alcohol in diseases believe that it does some good to the patient. A small minority of physicians who have given alcohol, and a number of estimable practitioners who have had no experience with it, claim that it is of no use in disease. Can the earnest man who has not yet had any personal experience with alcohol in medicine, but wishes to do his full duty towards his patient, be in doubt whom he has to follow in this question?

Now as to the differences between the clinical experience on man and the results of laboratory experiments on animals. Here, in the first place, are the experiments on the influence of alcohol upon experimental infection. In my last review of ten separate investigations I reported that they were all adverse to the use of alcohol. They seemed to demonstrate that alcoholization before infection increases the susceptibility to disease and alcoholization after infection decreases the resistance of the animal. I have, then, shown that for various reasons the results of these experiments have no application to the use of alcohol in diseases of man. To mention one point, many of the experiments were carried out with doses of alcohol which would correspond in human beings to the giving of a quart of brandy in a single dose. Who would give such a dose to his patient, and who is in doubt that such a dose could be harmful even without an infection?

I have also pointed out that infections produced in animals by a single inoculation with virulent bacteria cannot be compared with infectious diseases in man. I shall not dwell here longer on that side of the subject, but shall report on results of some newer investigations which are rather encouraging for the use of alcohol in infectious disease. From the bacteriological laboratory in Koenigsberg, Friedberger reported about two years ago that rabbits inoculated with cholera bacilli which received a single dose of alcohol, contained in their blood more amboceptors than rabbits which received no alcohol; that is, the serum of immunized and alcoholized animals could save the lives of other infected animals more readily than the serum of immunized but non-alcoholized rabbits. When repeated doses of alcohol were given to the animals, the favourable effect was absent. These experiments were repeated later by Professor Carl Fraenkel, the well-known bacteriologist of Halle, who extended them also to typhoid bacilli. His results are even a good deal more striking than those of Friedberger. The blood of all animals which received alcohol contained invariably more immune bodies than that of non-alcoholized animals. The increased protecting power of the blood was evident even in animals which repeatedly received large doses of alcohol. The greatest immunity of the blood Fraenkel observed in animals which received repeated doses of alcohol and at the same time were repeatedly inoculated with the infecting material—a condition more similar to the course of infectious disease in man. Could we apply such results to man, it would mean that, in typhoid for instance, patients who receive alcohol acquire a greater immunity than those

who receive no alcohol. Fraenkel has administered the alcohol by the stomach and used immense doses, his single doses given to a rabbit being equal to a pint of whisky given in a single dose to a woman of 100 lb. body weight. Fraenkel is on this subject an especially unbiassed witness. He is somewhat actively engaged in "temperance" work in Germany, and the best and most extensive work which was done on the increased susceptibility of animals to infection, the work of Laitinen, was done under Fraenkel's direction. We shall mention that already before Friedberger and Fraenkel, Mircoli stated that alcohol increased the resistance of the individual to the toxins of the tubercle bacilli, and the same author stated recently that animals which received alcohol showed also a greater resistance to tetanus toxin.

These are surely not the last words on that important subject, and clinical medicine can well afford to wait for further developments.

The experimental work on the relations of alcohol to the circulation has been frequently utilized by the opponents to the use of alcohol in medicine. It should be stated at the outset that this line of work never brought out a single fact which could be seriously construed as showing that the medicinal use of alcohol was harmful to patients. The experimental investigations have established that large doses of alcohol will undoubtedly cause lowering of blood pressure and other harmful effects. But such toxic doses were never used in the practice of medicine. The essential contention is here, again, that experiments upon circulation demonstrate that small and medium doses of alcohol exert neither a favourable nor a harmful influence upon blood pressure or upon the activity of the heart. While this contention was by no means based upon unanimity of opinion, the experimental material collected a few years ago seemed to favour such a conclusion.

Recent work, however, carried out with great care, seems now to support the opposite view—namely, that the circulation benefits by the administration of small doses of alcohol. The investigations of O. Loeb and of Bachem, carried out in the Pharmacological Laboratory of Heidelberg, and the researches of Dr. W. E. Dixon, bring out the fact that small doses of alcohol are capable of moderately stimulating the heart to greater activity, and the careful investigations of Martin Kochmann seem to establish that such small doses cause a moderate or fair rise of blood pressure, lasting for thirty to forty minutes. Of special interest are his investigations on men, in which the blood pressure was taken every five minutes after the administration of alcohol. It was thus found that the first rise was noticed about twenty to thirty minutes after the alcohol was given, and that about thirty or forty minutes later the rise was practically over again.

The negative results of other investigators Kochmann explains either by the use of too large doses, or, as in some instances, because the blood pressure was not taken until one hour after the administration of alcohol, when the rise was over. Possibly this explains also the failure of Dr. Cabot to notice any influence of alcohol upon the blood pressure of his patients. The pressure was taken simply every four hours, and—perhaps accidentally—never just thirty or forty minutes after the alcohol was given.

From our own observations in animal experiments we may add that, at least under certain circumstances, alcohol is apparently capable of stimulating the heart to activity. This tracing (demonstration) is obtained from a dog in which through the intravenous injection of large doses of alcohol the respiration was completely abolished and the blood pressure reduced to only a few millimetres above zero. You can see how at this stage each injection of concentrated alcohol stimulated the heart to strong activity.

I wish, however, to state that in my opinion the studies in blood pressure, as they are carried on at present, are far from giving us the information we need for understanding the actual conditions of the blood pressure in the entire body. Our present methods give us at best information with regard to the pressure obtaining within the aorta or carotid artery. This, however, does not tell us about the distribution of the blood among the different sets of organs of the body. The distribution, for instance, might be, indeed, such that each organ has a proportionate amount which might then be considered as normal. On the other hand, the distribution of the blood might be such that one set of organs has more and another set less than is due to them; while the general blood pressure still remains normal, the distribution is now abnormal. Furthermore, if in this pathological distribution of blood it is the set of vital organs which receives less than is due to it the condition might be even dangerous; still the general blood pressure would give no indication of it. To my mind it is essentially this pathological distribution of the blood which brings danger to the patients in infectious disease, and our measuring of the blood pressure never reveals the actual threatening state.

Now we can well conceive of a remedy capable of assisting either in the complete restoration of the normal blood distribution, or at least bringing about a less dangerous distribution, without changing the aortic pressure. I have suggested some time ago that alcohol is such a remedy. We all know that alcohol, even in comparatively small doses, causes a dilatation of the cutaneous vessels. Now, since alcohol changes only slightly the general blood pressure, the cutaneous dilatation must be compensated for by a constriction of the blood vessels somewhere else. It seemed to me probable that it is the splanchnic region where this compensatory constriction takes place. This view of the effect of alcohol is now advocated also by Dr. Dixon, Kochmann, and other recent investigators.

To recapitulate briefly. I maintain that in disease a dangerous distribution of the blood might develop without much change in blood pressure, and that alcohol might assist in righting this pathological distribution without affecting much the general blood pressure.

The opponents to alcohol find fault with this drug because it depresses the nervous system. The trouble with these writers is that they do not distinguish between depression, which means a lowering of vitality, and stimulation of inhibition, which is a normal function of the body. I discussed this point in my former paper, and shall not dwell on it here except to quote my former conclusion: Alcohol protects the patient against harmful excitation by stimulating some of the normal inhibitory mechanisms of the body.

In the question of the metabolic influences of alcohol upon the body a distinct progress is made. All seem to agree now that alcohol not only can take the place of carbohydrates and fats, but is capable also of saving proteid. Many writers believe that this takes place only after alcohol has been given for a number of days. However, Rosenfeld, in a recent communication, asserts on the basis of newer experiments, that alcohol, if given not in addition to but instead of other food, serves positively as a proteid saver on the first day of its administration. It should be remembered that Rosenfeld, whose monograph against alcohol served as an inexhaustible source for many anti-alcoholic papers, is certainly on this point an unbiassed witness.

To sum up briefly: the facts as they are known to-day are favourable to a judicious use of alcohol in disease. The vast experience of medical men proved that it does no harm to patients. The great majority of the clinicians who employed it in disease are convinced that it is beneficial to the patient. There are reliable experiments on record showing that alcohol supports the development of immunity in experimental infections. Recent experiments show that alcohol is capable of moderately stimulating the heart, and also of increasing blood pressure moderately. The main value of the influence of alcohol in disease with regard to the circulation is its activity in the direction of correcting the dangerous distribution of blood. Alcohol does not depress the vitality, but stimulates the inhibitory mechanism of the neuro-muscular system, and thus assists the diseased body in obtaining the necessary mental and bodily rest.

Alcohol assists in covering the expenditure of energy of the diseased body, and protects its tissues from breaking down.

Alcohol in health may be a poison, but alcohol in disease is a beneficent drug. May we get rid of its misuse in health, and may we get rid of the opposition to it in disease!

A DISCUSSION ON THE TEACHING OF MATERIA MEDICA AND PHARMACOLOGY.

OPENING PAPERS.

I. Professor J. T. Halsey, M.D.,

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It may be accepted as an axiom, that the teacher of any branch of medicine will fail to accomplish his full measure of usefulness if he conducts his department without constantly bearing in mind its relationship to the rest of the curriculum. In addition, he must keep before him the aims of the institution with which he is connected, and have a proper knowledge and understanding of the student material which he is called upon to teach.

In a properly constituted medical school, the one pre-eminent aim should be and is, to give its students a training which will aid them to become capable and useful physicians and surgeons. Of the correctness of this view there can, I believe, be no question, but doubtless there is much divergence of opinion among us as to how this end may best be reached.

As a working hypothesis, the writer would propose that that school will best fulfil its mission which most effectually aids its students to acquire knowledge of essential facts, proper methods of observation and execution, and last, but by no means least, the ability to think correctly.

How should the Department of Materia Medica and Pharmacology be conducted in order to aid in the consummation of these results?

Here, as elsewhere, the answer will depend on the teacher himself, his own knowledge and ability, his material equipment, and on the character and ability of his co-workers in the ranks both of teachers and of students. The author will ask you to allow him to put before you his views as to this matter for those working under what he believes are the average conditions in the better medical schools of this continent, schools with courses lasting but four years, and whose students commence the study of medicine with, as a rule, no knowledge or a most imperfect one, of the fundamental sciences of physics, chemistry, and biology. Three questions which must be answered by the teacher are When? To what extent? and How?

It will be advantageous on this occasion to consider materia medica and pharmacology separately, commencing with the former. When should materia medica be taught? To this there can be but one answer. Not until the student has learned enough of the basic subjects of physics and chemistry to properly appreciate and understand those elements of materia medica and pharmacy which are but applied physics and chemistry. And yet, in a large number of our schools we see materia medica studied contemporaneously with these two branches. A course treating of the elements of pharmacy, including a knowledge of its more important principles, of methods of preparation, and of the names and characteristics of at least the most important classes of pharmaceutical preparations should form an introduction to the study of this branch. The materia medica of the individual drugs may best be taken up when their pharmacological properties are being studied. As to the amount of materia medica which should be taught, there must be a wide divergence of opinion. An acquaintance with physicians, medical students, and teachers of many countries has, however, convinced the writer that a few of us err in teaching or attempting to teach too little, and that most of us have erred in not insisting on a sufficiently exact knowledge of dosage, nomenclature, and important pharmaceutical properties of those preparations of drugs which we are called upon to use in the practice of medicine. In this branch of the medical curriculum, the writer would urge that utility of knowledge be alone considered.

How is materia medica to be taught? Hard study alone will enable the student to make this essential knowledge his own, but this uninteresting and dreary task may be lightened and the knowledge acquired be both firmly fixed and moulded into useful shape by means of a practical course in dispensing, which will yield its best results if conducted simultaneously with, or immediately subsequently to, the course in pharmacology. In connexion with the later study of therapeutics, frequent exercises in prescription writing have, in the writer's experience, proved of great assistance in aiding his students to assimilate the essentials of materia medica.

Pharmacology.

A study of current and past therapeutic literature will, the author believes, convince any doubter who possesses sufficient knowledge to enable him to form an intelligent opinion, that there is no branch of medical science other than therapeutics wherein medical men display a more culpable and harmful ignorance of essential facts than is the case with pharmacology. This gathering will agree with me that without an exact knowledge of the pharmacological actions of some, at least, of our more important drugs a physician must become and remain an empiricist—one shooting into the dark with deadly weapons whose range and power are unknown to him.

When, to what extent, and how should pharmacology be taught? All teachers of this branch will agree that a student should not undertake this study until he has acquired enough knowledge of physiology and physiological chemistry to have become conversant with the essential and major facts of these sciences. This seems to us self-evident and in no need of demonstration, but in numerous schools it is demanded of the teacher of this branch that he teach the action of drugs on various functions and organs before his pupils have had an opportunity to learn even outlines of the physiology of these functions and organs.

The extent to which pharmacology should be taught is a matter about which it is difficult to dogmatize. The author's own practice is to teach as exhaustively and as completely as possible the physiological and toxicological action of a comparatively small number of drugs, among which are found those so dear to the pharmacologist's heart, such as strychnine, atropine, curare, digitalis, and others. They lend themselves to demonstration, arouse the student's interest, educate his powers of observation and reasoning, and impress upon him a conviction that a drug may be indeed a "fearful and wonderful thing." There is, indeed, danger that the teacher may forget the relative importance of the various physiological actions of a drug, but, if he bears in mind that ninety-nine of his hearers will become practising physicians where one will devote himself to theoretical study, he will, by a proper attention to emphasis, succeed in having his students make their own that knowledge which is most important to them.

Besides these drugs whose action are so manifold and so well known to us, there are others, by no means few in number, which are constantly and profitably used by physicians, but which do not lend themselves to demonstration and whose study can hardly be rendered interesting to the average student and which must be carefully studied and taught. However, by considering them in groups, by emphasizing the comparative importance of these drugs and their actions, the teacher can do much to aid his pupils to secure the greatest results with the least possible expenditure of effort.

Bearing in mind the importance of forming in his pupils habits of thought and reasoning, the teacher will do well to devote no little of his time and energy to elucidating and emphasizing the why and wherefore of drug actions, wherever our knowledge permits this.

In teaching this branch of the curriculum, the author believes that all four of our ordinary methods of instruction may be used to advantage. Didactic lectures, recitations or "quizzes," demonstrations before small or large groups, and practical laboratory exercises, have each their especial value. One soon learns by experience how and where to use these various methods. Especially are the demonstrations and practical exercises the means of making drugs and their actions realities to the student. The author has frequently been convinced by words and actions of his students that the time and effort which must be expended in conducting such exercises is well repaid by its visible results.

While it is the conviction of the author that pharmacology is best taught separately from therapeutics, still he believes it often serves a most useful purpose to emphasize certain drug actions by reference to clinical conditions

and applications. Such references aid in holding before his hearers the close relationship of pharmacology to therapeutics; they also aid the student in appreciating the relative practical importance of the various actions of the different drugs. Undoubtedly one can go too far in this direction; but many teachers of this branch, and especially those who are purely pharmacologists, fail largely through lack of bearing this relationship in mind.

It should also be emphasized that the teaching of pharmacology and materia medica should not cease with the completion of the courses in these branches. In order to secure the results desired the teaching throughout the clinical years should emphasize, reiterate, and expound the practical bearing of these subjects on the practice of medicine and surgery. If our clinical teachers can learn that it is worth while to devote a proper proportion of time to this matter, then and then only will we see a properly rounded and completed teaching of materia medica and pharmacology.

It is not enough to tell the average student to give this patient or that class of case hydrochloric acid, calomel, or strychnine. He should be brought to see why this should be done, and then the instructor should require the prescription to be written or the full directions to be given, and, where necessary, errors should be pointed out and corrected.

As long as our clinical teachers consider that they have done their full duty when they have devoted only the last few minutes of their time to a hurried consideration of treatment, giving only vague directions as to this all-important matter, just so long will our recent graduates find themselves ill equipped to treat their patients and our older ones continue to prescribe chiefly stock prescriptions or proprietary medicines.

In conclusion I would summarize:

Materia medica and pharmacology should be studied after the student has completed his courses in chemistry and physiology. Careful selection as regards quantity to be taught and insistence on exact and complete study of this limited amount will give the best results. Didactic lectures, quizzes, demonstrations, and laboratory exercises should all be used as methods of teaching. The value of practical work in dispensing and in study of drug actions is very great. The teacher of materia medica and pharmacology should constantly keep before himself and his students the practical bearing of these subjects on his field of future activity. Students and their future patients will never obtain the best results of the study of these subjects until the clinical teachers fulfil their obligation to show the student how to apply and make full use of his knowledge of drugs, their properties, and their actions.

II.—THOMAS MCCRAE, M.D., M.R.C.P.,

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IT is said that a student of medicine rarely learns therapeutics as a student, but has to acquire his knowledge after graduation through the necessity of actual experience. That there is some truth in this cannot be denied, for the doing of a thing means more in every sense than the hearing how it should be done. This must always be true to some extent, and therefore our aim in teaching should be to give the student the opportunity of doing before he graduates, and also learning how to be in the best possible position to utilize his chances after graduation.

It is taken for granted that the student comes with a sound knowledge of materia medica and pharmacology. In what way can we give him the most thorough training in the art—and it is in some ways more an art than a science—of treating disease and handling patients? It may be said that the word "therapeutics" is here understood as including everything that is done for the patient; it is no matter of drug-giving only.

There are many special departments in which the student learns certain parts of therapeutics. Thus in dermatology, in the children's department, in ophthalmology, etc., he sees various methods carried out and special treatment advised. These, however, vary more or less, and it is the general course of work, to which these others are more or less incidental, that is discussed here. A comparison may be drawn with the instruction in diagnosis, which is carried on to some extent in all these departments, but the general methods require a special course, and so with therapeutics.

There are certain things which should be brought home to the student so often that they finally become part of him. One is his use of the word "cure." We may think we cure a patient, and perhaps we think correctly at times, but far better to cultivate therapeutic humility and keep James Jackson's definition in mind that "cure = care." The man who thinks he cures typhoid fever or pneumonia dwells in a pleasant land of delusion, but probably would object to having the natural inference drawn if the patient dies.

It will be granted that it is essential to constantly endeavour to have the student work on correct principles, not by a rule of thumb method, but by studying the treatment of every patient in the line of a problem, the conditions of which have first to be determined and then the solution. In doing this, one has to fight against many obstacles. "Men are apt to like ready-made knowledge." Some textbooks and journals are full of prescriptions by this man and that for a certain disease or condition, and it is so easy to use them. In doing this, we are not one bit better than the layman who passes around to all his friends who seem to have a like ailment the prescription he obtained for some disorder. Some men never get beyond this method of associating certain remedies with certain diseases. A similar condition is often seen in diagnosis, a man never gets out of the habit of associating a disease with a certain physical sign. Thus a crepitant râle always means pneumonia to him, and in therapeutics an analogous state is seen in the man to whom any cardiac disease suggests digitalis. The repetition of this soon becomes reflex, and reflexes rarely change except for the worse. Such men are like the registering targets by means of which the bullet strikes a certain spot which is immediately shown on a disc besides the firing point. The idea of a certain disease hits the target of their mind, and automatically up comes the corresponding remedy. It has been well compared to a penny-in-the-slot machine. It is not easy to avoid this. We all get into certain lines of treatment, and most of us could quote eminent consultants whose prescription for a certain ailment can be predicted in the majority of cases.

The result of this is seen in poor therapeutics as practised by the profession. Much of the use of proprietary mixtures is due to this lazy habit of accepting what some one else says, without investigation. Let a student begin to accept merely what some one else says is good for any disease, without any effort to work out the matter for himself, and it is easy to see why as a practitioner he will continue to do so. His frame of mind becomes so receptive that after a time he accepts the statements of circulars and of the travellers for drug firms exactly as previously he did those of more eminent authorities. Sir James Paget, in an interesting study of the careers of one thousand of his students, came to the conclusion that the general rule was clear, "Such as the student had been, such was the practitioner." How important it is, then, to start the student in proper methods. While on this subject reference may be made to the duty of teachers of therapeutics to give their students proper ideas regarding the many proprietary preparations. Many of the older generation are "wedded to their idols," but if in every school of medicine this matter was properly put before the students, the next twenty-five years would see a great change in the attitude and practice of the profession.

To make the student view the treatment of every patient as a new problem is not easy. It is of some assistance to insist on his stating what has to be dealt with before the means of doing it are gone over. Thus a patient with typhoid fever is to be regarded as an individual with an acute infection which cannot be aborted and characterized especially by toxaemia and a liability to certain complications. The means of handling toxaemia and the methods of recognition and treatment of the complications can then be taken up. A patient may be admitted with a break in compensation. By recalling the physiology of the circulation it is easy to estimate what the pathological condition is, and then the best method of handling it can be gone over. The necessity of rest, the value of purgation and bleeding, can be discussed and the indications for certain drugs. Here other factors may

have to be considered; for example, one patient has a failure of compensation with a high blood pressure, the next with low pressure. The importance of considering these and their influence on the drugs to be used can be well brought out. At every step the student should be made to give his reasons for the treatment he recommends. This makes him think why any given thing is done, and he is less likely to go by routine. A man's reasoning faculties should be used in therapeutics as much as in diagnosis.

In acute disorders the same lesson may be given in another way. To prevent death is our main object; we cannot prevent the majority of complications. Taking the patient with typhoid fever, the student goes over the conditions which may lead to a fatal issue and then discusses the means which may reduce the danger of each. This, of course, should not be done in the hearing of the patient, a lesson which can well be brought home to the student.

It is evident that many of the evils we have to guard against are concerned with drugs; and perhaps the second lesson we should teach is the proper place for them in therapeutics. In doing this we have to avoid making our students therapeutic nihilists as well as keeping them from blind polypharmacy. This can be done by demonstration very frequently. In such a disease as typhoid fever they may see a patient go through an attack without any medicine, or a patient with diarrhoea may get well with rest and proper diet. On the other hand, in tertiary lues it can be shown that nothing but potassium iodide is of any advantage. At the same time much can be done by systematically making them go through a certain order in answering questions relating to the treatment of a patient. Drugs they are sure not to forget, and consequently they can well be placed last. With my students it is the rule in laying down the treatment for a patient to proceed in this order: (1) Rest (?); (2) general hygiene, bathing, etc.; (3) diet; (4) bowels; and (5) drug treatment. Of course, in some instances all of these are not necessary, or other things are added, but this serves as a general guide. Take, for example, the treatment of pernicious anaemia. The student suggests absolute rest in bed out in the open air, nutritious diet, care of the bowels, and, lastly, arsenic. Of course in this instance the last is most important and some might say should be put first; but when a patient with this disease comes under observation with the history of having taken large doses of arsenic while going about on his feet, one feels that his physician might have well been instructed to consider other things in addition to drugs.

It should not be necessary to point out to the student how essential it is to have diagnosis before treatment. This lesson should be before him for the reading very frequently, but the teacher can bring it home as well. Take a man with a condition which may be cholangitis, cholelithiasis, malignant disease, or severe catarrhal jaundice, and until the diagnosis is determined the student has a good example of how treatment other than symptomatic must wait. With this can well be associated the value of getting at the causes if possible. This applies more to chronic than to acute diseases. We cannot influence the cause of an attack of typhoid fever—so far as that particular patient is concerned—but in a patient who has chronic gastric trouble, improper diet, badly-cooked food, and lack of teeth, may be the most important factors. It is easy for the student to see how useless any treatment directed to the stomach alone will be. Such instances also help to impress the importance of attention to treatment other than the giving of drugs.

Another lesson difficult to learn is the treating of symptoms. In some instances they are all we can treat, and these should be carefully pointed out, but the importance of not allowing them to draw one from the main road must be emphasized. Examples are useful in this regard and help to fix the matter in the student's mind. One which came under my observation and which I quote frequently was that of a man with myocarditis and dilatation. He was suffering, the physician ordered a sedative; he was wakeful and had not slept for two nights, a hypnotic was ordered; he was vomiting, a gastric sedative was given; he was constipated, a purgative was given; he had considerable cough, a sedative expectorant was given; his urine was scanty, a diuretic mixture was ordered. Thus he was taking six medicines, and the one he needed most was not given. Such an example is an extreme one, but it serves to fix the absurdity of such treatment in the student's mind. Certain conditions in typhoid fever offer a good lesson. Thus a patient has severe abdominal pain. This may be from many causes, but as an example we may take perforation, haemorrhage, diarrhoea, a distended bladder, or pneumonia. The harm of merely treating the symptom—pain—without determining to which of these it is due, must be very evident. The importance of determining a condition which has to be treated, before this can be done intelligently, is brought home. The treatment of pain due to a distended bladder and that of perforation is a very different matter. This may be stated in other words as the need of a definite understanding of what we have to do.

Then, too, the hopelessness of any treatment in some conditions must be brought home or the reason for which the usual measures cannot be carried out. Perhaps a man with myocarditis is to be discharged from the ward and he is being given instructions as to care in exertion. He shakes his head when rest is advised. Let the student be sent to his home and see the wife and children dependent on him, and some of the difficulties of the application of therapeutics is brought home. These factors are many, but the more we can make the student realize them, the better for him. A woman comes to the dispensary complaining of stomach trouble. Careful diet is advised, but go to her home and find that she and her family cook, eat and sleep in one room, and the question of treatment takes on another appearance. There are many ways in which the importance of these factors may be shown. One is in regard to tuberculosis. If the student be sent to the patient's house to view the conditions and make suggestions as to sleeping out of doors, care of sputum, etc., he is learning practical therapeutics in the best way.

It is important to give the student a thorough training in certain diseases. It is better for him to learn thoroughly the handling of one than to obtain a partial knowledge of many. If he learns by practical experience the method of treating typhoid fever and pneumonia, he has a good foundation on which to build a knowledge of the treatment of other infections. It seems that the best way to carrying this out is to have the training in therapeutics go along with that in internal medicine. In the third year the student is busy with the learning of methods of physical diagnosis and general principles. In the fourth year he enters the wards and studies special diseases. In the same way his work in therapeutics is concerned especially with methods in the third year, and with the handling of special diseases in the fourth year. The methods of instruction which we have adopted in the Johns Hopkins Medical School is best described by taking up the work in each year. The student enters his third year, having completed his course in materia medica and pharmacology. It is an open question whether there might not be some advantage in having pharmacology and therapeutics in the same year. To work over the effects of a drug experimentally and also see it given to a patient should be of value in giving a clear idea of its action. In the third year attention is specially directed to therapeutic methods, and the work consists largely of demonstrations. Thus, under the discussion of counter-irritants, the various methods are shown—blistering, the cautery, etc. With this the explanation of their use and conditions for which they are employed are discussed. Under hydrotherapy the various methods—such as sponges, packs, and tub baths—are demonstrated, and their indications discussed. Tapping of the pleural cavity and abdomen, bleeding, etc., are demonstrated as often as possible. In an ordinary-sized clinic it should be possible to show the students all the ordinary therapeutic procedures in the course of the session.

With this study of methods the various classes of drugs are considered, such as purgatives, diuretics, expectorants, etc. A certain subject is assigned for each day, and the students are expected to be prepared on it. No student knows on what day he may be questioned. In addition certain students are asked to give five minutes' talk to the class on assigned subjects. For example, if cardiac stimulants are under consideration, one may give a sketch of the history of the use of digitalis, another a brief summary of its action, and a third a comparison of the action of digitalis, strophanthus, and squill. These seem

to be very useful both for the man presenting them and for the whole class. In all this the methods of influencing the various systems by means other than drugs are gone over before drugs are discussed. Thus, under measures for cardiac disease, the importance of rest, purgation, bleeding, diet, etc., are all considered before the special drug medication is taken up. This tends to foster in their minds the fact that measures other than drugs are necessary and important.

Prescription writing is also taken up, and as the students are working in the medical dispensary in the latter part of the year, they have there an opportunity under supervision to write prescriptions, which are gone over and criticized by the instructors. An arrangement is made with the pharmacist by which all incorrect prescriptions are set aside and kept. Once a month these are brought before the class and put on the board. The name of the writer is, of course, not given. Criticism is then asked and usually freely given. This results in very rapid improvement, and incorrect prescriptions usually fall to less than half the number in the second month.

In the dispensary observation class, in which out-patients are brought before the students, primarily for their training in physical diagnosis, especially inspection, there is necessarily some discussion as to what is to be done for the patient. Here the students are assigned to the patients in rotation and are encouraged to follow them to their homes and see the conditions under which they live, which may or may not have some influence on their disease. If the patient has tuberculosis, the student unconsciously learns practical therapeutics in planning how the patient can do the best in his surroundings, and in trying to increase the thoroughness of disinfection of the sputum. If he be a patient with syphilis, who comes irregularly to the clinic and is evidently not carrying out treatment as he should, the student hunts him up, sees that he has an inunction, and impresses on him the necessity of steady treatment. Again, it may be he has a patient with neurasthenia. The régime has been laid out and the student does his best to see that it is followed. He sees the patient at his home and learns something of the progress and results of his efforts. He can always consult the instructor when difficulties arise. He is learning therapeutics in the most thorough way. Then, also, in this work he is learning to deal with human nature and seeing the individual in his home surroundings. It may require tact to manage this, but he needs the opportunity of acquiring this as much as he does the knowledge of how to tap a chest. A report of success or failure is made to the whole class, so that all can learn something from the individual cases. It may be objected that the student has no time for this, but he can devote part of Saturday or Sunday afternoon to it if no other time is available.

In the fourth year the work in therapeutics is much like that in general medicine. The group who are in the wards acting as clinical clerks are given bedside instruction. In the morning they have gone over a patient with special reference to diagnosis, in the afternoon they take up the treatment. This does not mean that no attention is paid to treatment in the usual morning medical rounds, but that special stress is laid on it in the "therapeutic rounds." The patients are followed throughout their course, and the students are expected to keep as careful watch on the treatment as on the other features of the course. This seems better than large amphitheatre clinics, where the student may see a patient and hear the course of treatment laid out, without any opportunity of following the results. It is exactly comparable to the relative advantages of amphitheatre and bedside clinical teaching generally. An example may be given of a patient brought in with cardiac disease and loss of compensation. In the amphitheatre the treatment is laid down, and the patient goes back to the ward. Perhaps he vomits all the food and medicine given by mouth. The student who is working in the ward has the difficulties impressed upon him, and sees what is done to meet them; the one who sees patients in the amphitheatre may hear of it some days later.

As far as possible, the students are allowed to do the usual therapeutic procedures. Each one should give hypodermic injections, wash out the stomach, give an enema, and pass a catheter. It is hardly likely that opportunities of tapping a pleural effusion, the abdomen in ascites, etc., can be given to every one, but they should be given to as many as possible, of course under careful supervision. Every such procedure done in the clinic should be seen by all the group. In this way they are likely to see more instances of difficulty from various causes. The methods of giving wet packs and tub baths can be learned by each student doing them.

The keeping of records is of advantage. Thus, when a patient is admitted, the student should write out the treatment which he suggests. This can be criticized and the value of his ideas and the suggestions compared with the subsequent course. Changes and the reasons for them may be noted. In this way the impression of what is done and why is made stronger. With this goes the matter of directions for the patient after he is discharged. Our hospital teaching is often lacking in that it gives training only in the more acute and severe conditions. When a patient is to leave the hospital the student writes out complete directions for his mode of life, diet, clothing, exercise, etc., as if he were to be responsible for the patient's welfare subsequently. It is evident that this will also help to impress on him the importance of measures other than drugs in treatment and the value of diet, regimen, and general good hygiene. With this ward work there should be a constant review of the methods which have been taken up in the third year. For example, the making of poultices can be taken up and demonstrated when they are required. The preparation of the simpler foods—such as egg albumen, whey, etc.—is easily done before the group. The question as to whether dietetics should be taught in a special course or not is a matter about which there is some difference of opinion. It has to be considered in nearly every patient, and it seems better to give instruction with the particular patient in view rather than to lay down general rules in a didactic course.

In addition to the ward work, once a week a conference is held on patients from the dispensary. These are brought in from the usual outdoor clinic, and an attempt is made to choose the ordinary, everyday ailments, for which the patients would not be admitted to the wards, rather than serious ones. Dyspepsia, chronic bronchitis, constipation, and syphilis are common examples of this group. Here also attention is paid to the need of regulating the patient's whole life rather than trusting to drugs alone. Home worries, bad food, intemperance, occupation, and many other conditions are brought home to the students as causal factors which we may or may not be able to remedy.

In all the work, both in the wards and dispensary, the students are kept frequently writing out directions and prescriptions. These are criticized and mistakes pointed out. In this way they should all be able to write ordinary prescriptions with readiness and correctness.

The training in the methods of administering anaesthetics is given in the surgical clinics, and is largely practical. It is carried on during both the third and fourth years.

There are other matters bearing on the handling of patients about which much might be written. Take, for example, the question of psychotherapy. The student learns more of this by observation than by verbal instruction. If he observes at all, the influence of confidence on the part of the patient or suggestion from the physician, must impress him early and constantly in his study of therapy. The application of such factors, in neurasthenia for example, is best shown by the study of these in reference to a particular patient.

The value of kindness in handling patients—to say nothing of any higher motive—may be impressed by example rather than by precept. The students of my day in the University of Toronto perhaps carried away no better lesson from the teachings of the late James E. Graham, the Professor of Medicine—and there were few better instructors—than the example of his kindness and consideration even to the most annoying and worrying patient. We may all strive for Stevenson's "tact, tried in a thousand embarrassments."

To sum up, it is suggested that the teaching of therapeutics should be carried along parallel to the instruction in general medicine. At first the study of the methods and the more general considerations, later the handling of patients and the treatment of special diseases. Throughout, the effort should be made to keep the student thinking for himself and working out his own reasons and

conclusions rather than accepting what is said or laid down by some one else.

III.—C. R. Marshall, M.D.,

Professor of Materia Medica in the University of St. Andrews, Scotland.

After a trial of various systems I believe that the most advantageous method, in view of the time that might reasonably be devoted to materia medica and therapeutics, and irrespective of the requirements of various Examining Boards, is to divide the course into two parts: (1) a short course dealing with the *Pharmacopoeia:* (2) a longer course on the action and uses of remedies and the methods of combining drugs.

Outline of Courses.

The initial course should include only such parts of the *Pharmacopoeia* as are necessary for medical practice. The source of origin and differentiating features of crude drugs, the mode of making pure substances and tests of purity are of little use to a medical practitioner and might well be omitted. Nor is a knowledge of the ingredients of preparations which are present for purely pharmaceutical purposes or of the ingredients of formulae which are intended to interact and produce other substances essential. It is sufficient to know, for example, that the quinine sulphate pill contains five-sixths its weight of quinine sulphate (or better, that it contains half its weight of quinine as sulphate); and it is more advantageous to know the composition of yellow wash—that it contains rather more than 1½ gr. of yellow oxide of mercury and a little calcium chloride and calcium hydroxide in each fluid ounce—than the method by which it is prepared. By limiting the teaching to the names and active principles of drugs, the therapeutic ingredients of their preparations, and the suggested doses, the time required is so short that even if the course be taken concurrently with anatomy and physiology it need not seriously interfere with the teaching of these. Such a course may, however, be taken at any period subsequent to passing the examination in chemistry, but is preferably taken as near the succeeding second course as possible. The advantages of this preliminary course are that it forms a useful introduction to the second course, and a student acquires a knowledge of the *Pharmacopoeia* more easily and is less liable to confound official and non-official remedies than when taken in conjunction with pharmacology and therapeutics. Moreover, the time it saves and the convenience it affords the lecturer on pharmacology subsequently more than counterbalance the time expended on it.

The second and more important course on the action and uses of remedies should not be taken until anatomy and physiology have been passed. Pharmacology, being applied physiology and applied pathology, can only be taught efficiently after physiology and at least a portion of pathology have been studied; and, as there is little difficulty in arranging courses of pharmacology and pathology which will be mutually helpful, the best position I believe for pharmacology is along with general pathology (and hospital attendance). The plan I have always advocated is that pharmacology and therapeutics should form with general pathology a third examination, and this view I have as yet seen no reason to modify.

IV.—J. B. Bradbury, M.D.,

Downing Professor of Medicine in the University of Cambridge.

Those who are responsible for the business of this Section are to be congratulated on having selected the place of materia medica, pharmacology, and therapeutics in the medical curriculum as one of the topics for discussion. It has often surprised me how little attention has been devoted to these subjects, considering the important bearing they have upon the success of the future practitioner. For it is really lamentable to find in the present day how little some of the recently-qualified medical men know about prescribing official drugs and the medicinal treatment of diseases generally. As a consequence they trust to "tabloids," and try every new drug which is thrown upon the market instead of relying upon the well-tested remedies in the *British Pharmacopoeia*. The subject is, therefore, one of importance to the student, to the profession, and to the public.

In my presidential address at the Portsmouth meeting of the British Medical Association in 1899[1] I pointed out what I regarded as the proper position of these subjects in the medical curriculum. Extended experience, both as a teacher and as an examiner, has convinced me that pharmacology—or, at any rate, that portion of it which deals with the *physiological* action of drugs—should be taught immediately after the student has passed his examination in anatomy and physiology, and concurrently with general pathology and elementary clinical instruction at the hospital. This is the course pursued by students in the University of Cambridge, and it has been found to work satisfactorily.

Along with the study of the physiological action of drugs, our students are also put through a short course of pharmaceutical chemistry, and some of them also at this stage take out a course in practical pharmacy and the elements of dispensing. We do not think it necessary or desirable to burden them with materia medica, as it is ordinarily understood. The recognition of crude drugs and the details of manufacturing methods belong more to the province of the pharmacist than to that of the physician.

Having become familiar with the physical and chemical properties of some of the more important official drugs and their compounds, and with their actions on the normal organism and on the lowest forms of vegetable and animal life, as well as with the doses of the more potent remedies, the students are found to appreciate more thoroughly the prescriptions dictated by the physician for the bed tickets in the wards. They also become initiated into the art of prescribing correctly and intelligently, and learn to watch the effect of drugs on the abnormal organism, that is on the human subject in disease. At the end of the course of lectures and demonstrations, which occupies a period of two terms (practically about six months), our students are examined in pharmacology (exclusive of therapeutics) and in general pathology. They are thus exercised in the principles of prescribing and of medicinal action in general, before they come to the application of those principles in actual treatment; in other words, to the art of therapeutics.

Therapeutics, or the application of remedies to the treatment of diseases, should, in my opinion, be taught practically, in conjunction with clinical medicine, at the hospital. It is also advisable for students to attend a course of lectures on general therapeutics, comprising such subjects as dietetics, climate, massage, baths, electricity, etc. But here, too, oral discourse must be supplemented by practical illustration and demonstration in the wards. At this stage of his education the student should be capable of learning by observation, by seeing things done rather than by hearing them spoken about. Needful explanations must of course be given by the teacher; but it is the visual and the manual faculty rather than the verbal memory which must now be cultivated if the learner is to become a well-trained practitioner of the healing art.

In our medical schools the subject of suitable feeding in different diseases is too much neglected. I regard it as a very important one in the medical course; indeed it is just as necessary to call the student's attention to the diet which the physician prescribes as to the medicines.

The student's knowledge of therapeutics should not be tested until the end of his medical curriculum, when a separate paper on prescriptions, on dietetics, and on the action of remedies in special diseases should be set.

V.—Robert B. Wild, M.D.Lond., M.Sc.Manch., M.R.C.P.Lond.,

Leech Professor of Materia Medica and Therapeutics in the University of Manchester.

The question as to the proper place of materia medica and therapeutics in the medical curriculum can be settled only when a general agreement has been arrived at as to the scope of the teaching in these subjects.

Owing to the developments which have taken place in therapeutics during recent years it seems desirable at the present time to review the group of subjects usually included under the names of materia medica and therapeutics, and to determine what is essential for the proper training of all medical men: what—though important

[1] British Medical Journal, August 12th, 1899, p. 402.

and valuable knowledge—is non-essential and suitable only for advanced students; and what is obsolete.

At present great diversity exists in the requirements of the various examining bodies, and much difficulty is experienced in arranging the curriculum in those schools where the students are not all preparing for the same degree or diploma. Consequently valuable time is lost, and the intrinsic importance of the subject is obscured in the student's mind by the fact that knowledge considered essential by some of the examining bodies is ignored by others.

The group of subjects to be considered falls into three divisions, namely:

1. Materia medica.
2. Pharmacology and the principles of therapeutics.
3. The special therapeutics of individual diseased conditions.

In the overcrowded medical curriculum I assume that for the average student not more than 110 hours can be allotted to the first two of these divisions.

1. Materia Medica.

This includes pharmacognosy, pharmaceutical chemistry, pharmacy, and posology. Surely it is time that pharmacognosy (including the recognition of crude drugs) may be either dropped entirely or much limited in the medical curriculum. It is a needless expenditure of valuable time for medical students, and may be relegated to the pharmacist, for whom it is essential.

Pharmaceutical chemistry, on the other hand, is of increasing importance, and a good knowledge of it is the best safeguard against the exploitation of the medical man by unscrupulous traders. A practical knowledge of pharmacy and the chief pharmaceutical processes, with a firm grip of posology, are absolutely necessary if the practitioner is to be saved from a servile dependence upon proprietary preparations.

The essential portions of materia medica really form a branch of applied chemistry, and are, I consider, best studied at an early period of the curriculum, as soon as possible after the student has obtained a knowledge of chemistry.

So far as time will allow, the course should consist of practical work, and on the basis of the *British Pharmacopœia* as a schedule of drugs not less than fifty hours will be required, of which twenty-five should be practical work and the remainder rather demonstrations than lectures. In this time the important drugs can be individually studied and the remainder taken in groups.

One point I consider of great importance, and that is that these subjects should be taught to medical students by a medical man, and from a medical rather than a pharmaceutical standpoint.

While recognizing the wide knowledge and great ability as teachers of many pharmacists, I cannot but feel that the point of view of the dispenser is so opposed to that of the prescriber that the knowledge essential to the one is often unsuitable for the other. For example, the subject of incompatibility from a dispenser's standpoint is chiefly how best to dispense an incompatible prescription. From the medical standpoint this knowledge is unnecessary, as a medical student should be taught never to prescribe such combinations.

2. Pharmacology and the Principles of Therapeutics.

The knowledge of the actions of drugs in health and disease cannot be taught until anatomy and physiology have been studied, but should begin immediately the examination in anatomy and physiology has been passed. The subjects of pathology and the principles of hygiene may well be taken concurrently with pharmacology, so that the work of this session will lay the scientific foundations for the practice of medicine and surgery.

The time required for pharmacology and the principles of therapeutics is not less than sixty hours, some of which should be devoted to laboratory demonstrations. In this time a fairly complete account can be given of all the important drugs and their therapeutic applications. This will include a definite teaching of therapeutic principles and the aims and limitations of drug treatment. An account can also be included of the effects of heat and cold, rest and exercise, the principles of dietetic treatment, and their general therapeutic applications.

The results of experimental pharmacology should be freely drawn upon and the methods demonstrated, but in the limited time allowed the details of experimental work or actual experiments by the students cannot be included. A special course of experimental pharmacology should be reserved for advanced students preparing for honours or for higher degrees, and this course should consist entirely of laboratory work.

3. The Special Therapeutics of Individual Diseased Conditions.

Special therapeutics of individual diseased conditions is included in the courses on systematic medicine and surgery and in the clinical teaching of the hospital. No special course of lectures ought to be needed, but I would most earnestly plead for a larger recognition of therapeutics in all clinical teaching. Many clinical teachers are admirable therapeutists, but in their hospital work they allow the fascinations of pathology or the minutiae of diagnosis to overshadow the not less essential therapeutic problem.

DISCUSSION.

Professor Oliver T. Osborne (Yale) said: I believe there are few medical subjects that need discussion more than the best method of teaching materia medica and therapeutics. For a number of years, until very recently, the subject of therapeutics has been sadly neglected, in the United States at least, both in medical schools and in scientific societies. Now, owing to the stimulation caused by the Therapeutic Society of Washington, the American Therapeutic Society, and the Section of Pharmacology and Therapeutics of the American Medical Association, other societies, notably the Association of American Physicians, which for years had utterly neglected therapeutics, have begun to more carefully study and discuss the treatment of disease, and soon it will be more carefully taught. The necessity, also, for better teaching of materia medica, prescription writing, and applied therapeutics, is shown by the statements coming from Boards of State examiners that the men from all schools stand lower on the subject of materia medica and therapeutics than on any other. This emphasizes the necessity for better correlated teaching of this branch. However, I, as a teacher of this subject, wish to defend these low marks on this ground—namely, the more advanced the medical student, that is, in his senior year and his post-graduate course, the more he comes in contact with men who are poor teachers of therapeutics and poor writers of prescriptions, and the formulary adopted and used in dispensaries and hospitals, all of which precede his State examination, materially militate against his use of the good teaching he may have had in his actual course on materia medica and therapeutics. Many of our materia medicas are purely reference books and cannot well be used as textbooks. Each drug, however unimportant, is elaborated into an essay. This series of essays bewilders the student. The better book with which to teach is one that makes a complete scientific study of one or two important drugs of a class and then states the slight differences of other drugs of the same class. Also many classifications of drugs I think are useless. I believe in classifying by a method that will cause a student to retain such classification, that is, a classification based upon therapeutic indications. Such classification he will always need, not only for his examination, but during his practice of medicine. The old names of classes of drugs as ancient, obsolete, useless, and often faulty, should be dispensed with, and I ask pardon for referring for a moment to my classification in a little book which I have just issued where this heading occurs: "This classification is based upon therapeutic indications. The drugs named under each heading are those which by their physiologic action best meet the indication." The subheadings are as follows: "To disinfect," "To soothe mucous membranes," "To stimulate the nervous system," etc. Cabot's statement[1] that not more than one-tenth of the sick people in the world are capable of being benefited by surgery and the other nine-tenths we must attempt to help by therapeutics, should not be forgotten, and therapeutics comprises everything that is of importance to the patient. Of what value to the medical student or

[1] *Journ. Amer. Med. Assoc.*, July 2nd, 1905

physician is all of his science and practical ability to diagnose if he cannot use what he has learned to aid the patient—namely, practical therapeutics? This does not mean drugs only, but every possible practical and physical method, whether it be climate, air, water, massage, or diet, should be all his subservient tools. We should also not forget and well teach that a good drug properly prepared and properly used to full physiologic activity will save many and many a patient. Much of the agnosticism of drug therapy in medicine is due to poor preparation of a drug supposed to be active. The careless therapist then repudiates the drug and its ability to cure, and so teaches his students. This is especially true in teaching internal medicine. The teacher of the practice of medicine also too often ignores the correction of disturbing symptoms. He may attend to this in his private practice, but he does not emphasize it to his students, lest he be accused of "symptomatic treatment," which phrase he is specially anxious not to have applied to him. Nevertheless, the student should be carefully taught that no one but the consultant can ignore the treatment of troublesome symptoms. All successful quackeries succeed because of their ability to relieve symptoms or to cause such mental suggestions as will relieve overtaxed minds, and many a loyal patient is driven to employ quackery by scientific neglect. Proprietary remedies are used by physicians, because, in the medical schools, they have not been taught simplicity in prescription writing, neither have they been taught the best method to give a bad-tasting or disagreeable-smelling drug. In other words, elegancy and more pharmaceutical improvements should be taught to the medical student, and he then should be told how to write for the best that we consider ethical. He will then not as often order nostrums and proprietary frauds. Also, he should be told of all the fraudulent preparations that there are on the market, and of the certified analyses. The very demonstration of these will prevent him from ordering something brought to his office of which he knows nothing. The teaching of materia medica and therapeutics I divide progressively into an experimental pharmacologic laboratory course; a laboratory and lecture course on toxicology; a laboratory lecture course on pharmacy; introduction to materia medica, with a demonstration of drugs; prescription writing with blackboard work; at least fifty hours spent in the prescription department of some drug store, dispensary, or hospital; a recitation course of detailed pharmacology; lectures on physical therapy of all kinds; and, lastly, a long course on applied therapeutics with clinical lectures, placing more stress upon the management of the individual who is ill than on the diagnosis of what he might have had if he did not have what he has; in other words, the management of the individual case, and then when the case is again seen the results of such management. The lectures on therapeutics are, I think, best led up to by the following scheme, and this diagram, which I pass round, is the schedule of the way I believe a lecture on therapeutics should be planned. I also wish to submit the course given at the Medical Department of Yale University, as I believe it is only by this exchange of methods that each one can improve his own. I wish to thank the most genial and honourable Chairman, the able Secretaries, and the grand old British Medical Association, for the honour of the invitation to take part in your discussion.

THERAPEUTICS OF ACUTE ACQUIRED INSANITIES.

By D. R. BROWER, M.D.

[ABSTRACT.]

1. The acute acquired insanities, carefully selected, can be successfully treated in a general hospital.

2. The treatment consists in isolation, rest in bed, an efficient nurse, a generous diet; elimination by skin, kidneys, and bowels—the correction of any error in general metabolism that can be reached.

3. The isolation should be in a sunny, well-ventilated, comfortably warm, and quiet room.

4. A nurse who is cheerful, tactful, and resourceful should be selected, and often two are necessary.

5. The rest should be secured by hot-water packs, by hypodermic use of codeine as necessary, and by mild restraining appliances. Sleep should be secured by the addition of hyoscine, hydrobromate, veronal, chloral, or such hypnotic as will best produce it.

6. The diet should be nutritious, easily digested, and assimilable—eggs, milk, meat juice, and any other food the patient will take. The nose or stomach tube should be freely used when necessary.

7. Elimination must be pushed by the use of massage and general faradization and hydrotherapy; by the free use of alkaline waters for kidneys, and the use of colonic flushings and mild laxatives for the bowels.

8. The error in metabolism is often difficult to discover, but almost every case is benefited by the moderate use of alteratives.

SECTION OF LARYNGOLOGY AND OTOLOGY.

J. DUNDAS GRANT, M.D.Edin., F.R.C.S.Eng., President.

(*Continued from page 1393.*)

SUBPERIOSTEAL ABSCESS OF THE FOREHEAD,

COMPLICATED WITH THROMBO-PHLEBITIS OF THE SUPERIOR LONGITUDINAL SINUS, EXTENDING TO THE LATERAL SINUS AND JUGULAR VEIN OF THE OPPOSITE SIDE: MENINGITIS: DEATH: NECROPSY.

By V. DELSAUX, M.D.,
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THROUGH the kindness of the President, I have been invited not only to attend the present meeting, but also to read a paper on a subject which, I hope, will be of some interest.

Two months ago there came under my treatment at St. John's Hospital, Brussels, a woman, aged 29, who was complaining of severe headache, sleeplessness, fever, and prostration of two days' duration. Before that time she was quite healthy; she had never suffered from disease of the nose or accessory cavities. She was married, and had two children, both perfectly healthy. On examination of the patient the condition was found as follows:

Pharynx somewhat inflamed, the mucous membrane being relaxed and secreting pus.

Naso-pharynx covered with muco-pus.

Nose partially obstructed on the left side by deflection and spur of the septum. The right nasal cavity was quite free, but somewhat purulent in its inferior part, while the middle turbinate and the septum were found to be in contact. After a few minutes' use of cocaine and adrenalin the mucous membrane of the middle turbinate had not become less swollen. The pain remained as severe as before. By transillumination both the frontal sinuses and maxillary antra were transparent on each side. No exploratory puncture was performed.

Ears.—Nothing particular to be noted. The patient did not complain of diminution of hearing power, pain, or noises in the ears.

Before recommending any surgical intervention I advised the patient to snuff up boro-menthol-cocaine ointment every half-hour, to take an aperient, and have a warm foot-bath in the evening. The following day, the condition of things remaining quite the same, I told the patient to come into the hospital, but she refused to do so.

In view of the possibility of purulent retention in the ethmoid cells, the anterior part of the middle turbinate was resected, and, after light plugging with stypticine gauze, the patient proceeded home.

Two days afterwards the woman came into the hospital. I found her complaining of more and more pain in the right side of the forehead above the eyebrow. The pressure upon this point caused severe pain: there was a swelling of the skin, but no fluctuation. The temperature was 102.5° in the morning, rising to 104° in the evening. Lumbar puncture was immediately performed, as also the examination of the fundus of the eyes.

The day after I found the patient's condition much worse; the swelling of the forehead had greatly increased

and fluctuation was present. The notes on the lumbar puncture were as follows: Pressure of the liquid much increased; lymphocytes about 35 per cent., polynuclear 16 per cent., some blood corpuscles. The examination of the oculi fundus gave the following results: Congestion and subpapillitis on the *left* side (whereas the pain was felt on the *right* side).

I then opened the subperiosteal abscess, evacuating a teaspoonful of pus, and exposed the right frontal sinus, which was found to be quite normal; no congestion or swelling of the mucus membrane; no pus. I put a drain in the sinus opening and another under the periosteum and applied a dressing,

In the evening there was no improvement; the temperature was 104.5°, and when I saw the patient on the following day the fever was still up to 103.3°; the prostration had increased, and there was a swelling behind the left ear. The pressure on the mastoid was very painful, whereas the examination of the ear showed the drumhead free from all swelling, Shrapnell's membrane somewhat rosy but not bulging. Below the mastoid process there was an extensive oedematous area, but on twice puncturing no pus was to be found.

The prostration increased very considerably in the evening of this day, and death occurred the following night without convulsions, rigors, or paralysis of any kind. I was fortunate enough to be able to get the *post-mortem* examination of this interesting case, which gave the following results:

On opening the skull, there was much difficulty in separating the meninges from the bone on the right side. Those membranes being divided in the median line, an intradural layer of pus was found over the surface of the anterior part of the right frontal lobe.

The superior longitudinal sinus was thrombosed, while the *left* lateral sinus was found to be so also, but to have undergone purulent disintegration as far as the bulb of the jugular vein. Further on, lower down in the neck, the vein was thrombosed, but there was no pus. Both frontal sinuses, ethmoid cells, sphenoidal and maxillary sinuses were explored without my being able to find the least trace of inflammation or pus. The left ear was also explored with negative results. In the heart cavities, there was nothing worth mentioning; the uterus, which was specially examined for obvious reasons, was quite healthy, as well as the kidneys and other organs.

CRITICAL REMARKS.

If I may attempt to give a plausible explanation of this case, it would be the following one:

For some reason remaining unknown a subperiosteal abscess formed above the right eyebrow, rendering the diagnosis uncertain during the first three or four days.

The resection of the anterior part of the middle turbinate had nothing to do with the fatal result.

While macroscopical examination does not enable us to prove any association between the external purulent focus and the obliteration of the superior longitudinal sinus, it is most probable that the microscope would have shown a purulent thrombosis of one of the communicating bone veins—the so-called "emissary veins."

As to the extension of the thrombosis to the *left* lateral sinus, it is to be supposed that there was a wide and direct continuity between these two blood vessels.

If we ask what indications the lumbar puncture could give us, it is to be noted that there was a positive and undoubted change in the lumbar fluid.

At the same time, the examination of the fundus of the eyes revealed a distinct difference between the two optic papillae, the most considerable alterations being found on the same side as the lateral sinus thrombosis.

On the other hand, the fever was quite continuous—not at all remittent, as it commonly happens in the cases of thrombosis of the jugular vein.

Finally, it is to be considered that, no paralysis being present, there were no focal localizing symptoms, and consequently no indications for operating on the skull.

CONCLUSIONS.

Thus, my conclusions will be:

1. A genuine thrombosis of the longitudinal sinus may occur without being an extension of a septic infection from the nose.

2. Epistaxis, as principal sign of the above thrombosis, may be entirely absent.

3. The anatomical reason for the more frequent extension of thrombosis of the superior longitudinal sinus to the *left* lateral sinus is the broad and direct communication between these two blood vessels, found in the majority of instances, while the straight sinus opens rather directly in the right lateral sinus.

4. A preliminary exploration of the frontal sinus may be performed for the same purpose as exploratory laparotomy in abdominal diseases.

A DISCUSSION ON LARYNGEAL DISTURBANCES PRODUCED BY VOICE USE.

OPENING PAPERS.

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OUR President in inviting me to open this discussion requested that I should not try to give a complete summary of the whole subject, but should rather prepare a clinical paper based as far as possible on my own experience. I have done my best to carry out his instructions, and to this end have arranged my material under the following heads:

1. Use of voice through its whole compass, at definite degrees of pitch, and usually for short periods of time—singers. Lesions: Hyperaemia, muscle paresis.

2. Use of voice for long periods, but with prolonged intervals of rest—preachers, public speakers. Lesions: Chronic congestion, phonasthenia, neurotic disturbances.

3. Daily use of voice for many hours at a stretch—school teachers. Lesions: Laryngeal nodules, fibromata.

4. Violent use of voice for long or short periods and in unfavourable surroundings — hawkers, drill sergeants, auctioneers. Lesions: Submucous haemorrhage, rupture of muscle or ligament, pachydermias.

5. Use of voice for long or short periods at an unnatural pitch or in an unnatural manner—actors in certain rôles, choirmasters, falsetto singers. Lesions: Congestion, hypersecretion, benign growths, especially fibroma.

The term "laryngeal disturbances," though no doubt purposely chosen, is rather a vague one. I take it to include those changes which are detected by the ear of the observer, or by the subjective sensations of the patient, as well as the objective changes seen in the laryngoscope. And here I should like to insist that for the discovery and cure of many of those laryngeal disturbances more is needed than skill in the use of the laryngoscope. A practical knowledge of the essentials of voice production and some acquaintance with the art of singing are also necessary. Our ears will frequently come to our assistance in detecting vocal defects when the laryngoscope leaves us without guidance. I have learned more from hearing such patients sing, or preach, or teach, or act than from examining their throats. I have therefore followed them to the concert room, the church, the school, or the theatre with much enjoyment and profit to myself, and, I trust, not without advantage to them.

As in singing the greatest demands are made on the functional integrity of the larynx, the most trifling alterations in that organ or in the general health, which would in no way inconvenience other voice users, may become of the greatest importance. We therefore constantly have singers come to consult us when as yet there is no visible lesion of the larynx, at least when they present themselves for examination. The complaint may be of slight hoarseness, or rapid fatigue after any vocal effort, or that the voice breaks on a certain note.

> It is the little rift within the lute
> That by and by will make the music mute.

How are we to discover the nature and cause of such a disturbance? By hearing the patient sing and examining the larynx immediately afterwards, we may then find a congestion of the cords or a paresis of the vocal muscle, which will have passed off the next day or even earlier.

We are all agreed that the voice troubles of the singer are almost always due to wrong method and rarely to overuse. So much has been written on this subject that I

need say but little. "There has been enough truth in the world for centuries to redeem every soul in it," says Mark Rutherford, and there has been "enough truth" known about voice production for some centuries to save every voice if it were only acted upon. The art of singing is centuries older than the science, and I am afraid that the science has not always advanced the art.

The foundation of all artistic singing rests upon the right management and control of the breathing and on the perfect looseness of the tongue, throat, and jaw, which naturally follow. "He who knows how to breathe and how to pronounce," said one of the greatest Italian singers, "knows well how to sing," which means that unless the breath is controlled by the muscles of respiration only and the tongue left in perfect freedom for pronunciation, artistic singing is impossible. Till these things have been learnt nothing has been learnt, and the learning of them takes years of practice. From the neglect of these two essentials arise most of the singers' troubles. Straining of the muscles of tongue, pharynx, and larynx leads to congestions, pareses, new growths, vocal fatigue, cramps, and the many other evils we are familiar with.

Apart from what I have called the foundations of all artistic singing there are two errors in training which constantly lead to serious voice disturbance. The first is the forcing upwards of the registers, especially the carrying of the chest tones too high; and the other is the mistaking of the natural quality of the voice, so that a tenor is trained as a baritone or vice versa, or a mezzo-soprano as an alto. The first mistake should never happen under a competent master, but the second will occasionally occur to the most experienced teacher. Though these are primarily questions for the singing master to decide, the laryngologist will be able to assist by examining the larynx after certain vocal exercises have been used for a time, to determine if an undue amount of laryngeal congestion follows.

Here I should like to refer to what has been called physiological congestion of the larynx. The late Professor Stoerk declared that he had never seen congestion of the cords follow the use of the voice in trained singers. His experience, however, does not agree with that of other observers. In the majority of singers, whether trained or in process of training, though more commonly in the latter, a slight congestion of the cords, especially around the vocal processes and in the arytenoid region, will be found if the larynx be examined after any big vocal effort. If this passes off quickly—say in half an hour—then I think it may be regarded as physiological. If, however, it remains for some hours, or reappears whenever the voice is used even a little, then I should consider it pathological. In many bass and baritone singers I have met with a slight permanent congestion of the cords, even where the voice was in perfect order. This I do not look on as physiological but pathological, and due to some chronic catarrh of the upper respiratory tract arising from something in the habits or general health of the individual.

The use of the voice, especially in women, while suffering from any inflammatory trouble in the upper air passages, or any disturbance of the general health, may be followed by serious results. Through the menstrual period, for instance, there is often congestion, and even swelling of the interarytenoid space. I have known sopranos who always lost the upper part of the voice at such times, and I once examined a well-known soprano the day after she had sung at a big concert of Handel's music at such a time, when I found a large extravasation of blood occupying more than half the upper surface of one vocal cord. She was conscious that something happened in her larynx while singing, but finished her solos in good voice. Next day she was slightly hoarse, and had a feeling of something in her larynx which could not be cleared away.

Much has been written about the baneful effects upon the larynx of the *coup de glotte*, and I quite admit that if wrongly understood and practised it must be most injurious; but rightly understood what does it mean but the exact correspondence between the arrival of the air at the larynx and the adjustment of the cords to receive it? If the cords are too late in closing a portion of the breath is wasted. If on the other hand the cords are tightly closed, *hermétiquement fermé*, as Mandl describes it, and then burst apart by the out-rushing column of air, there is waste of power in forcing the cords apart as well as unnecessary straining of the "vocal" muscle. To show how the *coup de glotte* can be wrongly taught, I will quote a description of it from a well-known musical authority: "The *coup de glotte*," he says, "is affected by closing the larynx by means of the sphincter action of the ventricular bands, and so collecting an amount of air pressure to impinge upon the approximated membranes the moment the sphincter is suddenly relaxed. After the note has sounded it can be 'pinched off' by contraction of the sphincter." No wonder the *coup de glotte* has fallen into disrepute if this be a correct description of it.

The laryngeal disturbances arising from misuse of the singing voice take many forms. There may be aching and sense of fatigue coming on at once with any attempt to sing, or slight hoarseness either temporary or constant, or the loss of certain notes at the upper part of the voice or in its middle—what the Germans call *ein Loch in der Stimme*—or an involuntary tremolo occurs on certain notes or throughout the whole compass, or the whole voice simply becomes weak and loses its carrying power or it may be completely lost. Probably the commonest trouble is the development of an involuntary tremolo, and in women the loss of certain notes in the lower part of the head voice.

When we come to the laryngoscopic examination of singers who suffer from the foregoing disturbances, we may find a perfectly normal larynx, or more or less extensive congestion or excessive mucous secretion, or evidence of muscle paresis. Now, in my experience, the muscle paresis of singers, as seen in the laryngoscope, always takes the form of imperfect closure of the ligamentous glottis, the form we recognize as resulting from paresis of the internal thyro-arytenoid muscle, in which an elliptical opening remains between the cords. I observe that certain writers state that they find in many cases a wavy outline of the edges of the cords, which is said to indicate paresis of the crico-thyroid muscle. All I can say is that I have never seen this form of change of the glottis and that I do not know of any way in which we can determine by laryngoscopic examination how far a paresis of the tensors of the cords is due to paresis of the thyro-arytenoids, or how far to weakness of the crico-thyroids. I think, however, that if by pressure on the anterior part of the cricoid cartilage we can restore the lost tones to the voice, we are justified in concluding there is some paresis of the crico-thyroid. I agree with Ewald when he says, "the thyro-arytenoid is the true vocal muscle which makes the larynx a musical instrument, its function being to stretch the cords and make them thin."

Another condition met with in singers as a result of wrong use of the voice is a persistent hypersecretion of mucus, at times accompanied by some laryngeal congestion. I have seen it most frequently in basses and baritones. The amount of vocal disturbance caused by this condition, in which beads of mucus gather and dance along the edges of the cords during the singing of a note, varies very greatly. In using full chest tones nothing may be noticed wrong, but when the singer uses his medium register, and in singing piano passages, the tone becomes rough or breaks, or the larynx refuses "to speak." It is a condition I have met with in many professional singers, and one which in my experience is very unsatisfactory to treat.

In turning to the voice troubles of the preacher and occasional speaker, the first fact to note is that he approaches his work almost always without training. While no singer appears in public without some training in voice production, he seems to think that public speaking, like reading and writing in the opinion of Dogberry, "comes by nature." And perhaps it is for this reason that the treatment of voice failure is often more successful in the preacher than the singer. He has no method to unlearn, for he has never been taught any.

It is at once the ruin and the salvation of the preacher that his voice has prolonged periods of rest from professional use. He has a week to recover from the injury done to his larynx on a Sunday, and if he be a man of good physique he may go on for many years, though violating every canon of voice production. We all know that the clergyman who has daily services suffers less than one who makes a big effort once a week. It is just like going a big cycling or walking tour, for which the best preparation is to cycle or walk a few miles every day.

Moreover, the man who makes daily use of his voice will soon discover if he is doing anything wrong, and either by dint of practice hit on a right method or quickly break down and come into the hands of the physician and the voice trainer.

Another peculiarity in the clergyman is that often the bad production he has acquired in church becomes habitual in everyday speech, and is therefore more difficult to eradicate. This is so notorious that when the English actor wishes to represent a parson on the stage he stiffens his tongue and throat muscles and raises his voice some tones above its normal pitch.

For the speaker or preacher the method of voice production is the same as for the singer—a proper control of the breath and perfect looseness of the throat, tongue, and all the muscles of articulation. It will be found, as a rule, that the speaking voice is best developed and brought under control by the practice of musical sounds, though many great speakers have had no skill in song.

The two chief faults of the preacher and speaker are pitching the voice too high and the uttering too many words on one breath, or, rather, with imperfectly-controlled breath.

Now, this question of pitch is a difficult thing to manage, because it must vary with the building in which the speaker finds himself and with the size of his audience. The object of the speaker should be to increase intensity with very little rise in pitch, and to cultivate the music of speech, the vowel sounds, for upon these will depend for the most part the carrying power of the voice. I cannot agree with the advice, "Take care of the consonants, and the vowels will look after themselves." Much more frequently the speaker should be taught to subdue his consonants, to take them crisply and lightly, and to get roundness and musical quality into his vowels, allowing the consonants to act merely as lines of demarcation in the current of vowel sound. Undue force in the articulation of the consonants produces stiffness of the jaw and tongue, which extends to the laryngeal muscles, and thus produces strain.

The laryngeal disturbances of the preacher nearly always take the form of rapid exhaustion of the voice when used professionally, and especially common are those forms of neurotic trouble which Fraenkel has described under the name "mogiphonia." The complaint may be of aching or even severe pain in the throat and chest whenever the voice is used, or that its tones are tremulous and uncertain, or rapidly become weak and fail entirely, or that in attempting to speak spasmodic contraction of the pharyngeal and laryngeal muscles occurs, and no tone can be emitted. In fact we have a laryngeal neurosis similar to writer's cramp, which may take a neuralgic, tremulous, paralytic, or spastic form. Of course the great majority of cases never get beyond the stage of vocal fatigue. That clergymen are more liable than other voice users to the severer forms of nerve trouble I regard as often the result of sedentary habits and the want of healthy out-of-door exercise.

The laryngoscopic appearances in these cases are not well marked. There may be no more than a slight muddy congestion of the cords, and what we call relaxation of the laryngeal mucous membrane. There is not, as a rule, the bright localized congestion or the marked paresis met with in the singer. The trouble is more a neurosis than merely a local injury. For this reason, in many cases, prolonged voice rest with change and general tonic treatment are needed before the patient is sent to the voice trainer. In no class of voice users, however, have I seen better results from treatment, and I can recall many cases of serious vocal collapse where the voice was completely restored, and years of hard work followed without further trouble.

There are two important facts regarding the third class of voice users—the teachers. First, that in them the voice has to be used professionally for many hours daily; and, secondly, that the overwhelming proportion of those who come under our care for laryngeal troubles are females.

Now, the symptoms of the teacher's throat troubles are very characteristic. She complains of hoarseness which increases towards the close of each day and towards the end of each week. She begins Monday's work with a good voice, and after her summer holiday she thinks her trouble quite gone. At this stage a change from a large and noisy town school to a small country one will probably result in her cure. But if she continues to work under the same conditions permanent hoarseness is developed and loss of voice follows, at first towards week ends, and then at the close of each day's work. The amount of laryngeal disturbance, in fact, is directly proportionate to the number of hours she teaches. No doubt there are faults in her voice production. She speaks at too high a pitch—much too high—and even shouts at times, and she has no knowledge of breath control. She has to make herself heard in noisy class rooms, either due to more than one class being taught in the same room, or from the proximity of noisy streets. The room is often badly ventilated and the atmosphere full of dust and other impurities. But all these facts are equally true of the male teacher, and yet he rarely suffers. What is it that makes the difference? Well, her voice is naturally weaker, and she forces it more in her effort to be heard and in maintaining discipline. At the same time her organs are more delicate, and therefore more easily injured, and often she is anaemic and her general health is below par, either from the strain of study for examinations or from other causes. In a word, the voice troubles of the female teacher are due to over-use of an organ inherently delicate or rendered so temporarily by the condition of the general health. Like the singer, she also suffers from vocal disturbance at her menstrual periods, but continues to use her voice without any rest.

When we examine the larynx in these patients we may find some slight chronic congestion, but oftener there is no change in colour. Frequently we see at the junction of the anterior third with the posterior two-thirds of the ligamentous glottis a persistent pearl of mucus, which vibrates between the cords on phonation. If this is cleared away, we may find at the same situation the faintest elevation on the edge of each cord, or well-defined nodules may be present. We know that histologically these may be merely epithelial thickenings, or small fibromata, or retention cysts.

Much discussion has taken place as to what determines the site of those nodules. Is it due to attrition of the cords at this point, or that this is the spot where vibration is most active, or to the fact, established by Fraenkel and others, that at this point in the cords there is often the opening of a mucous gland? The idea that they correspond to a nodal point must be abandoned. The observations of Oertel with the stroboscope throw light on this question. He found that in the production of the upper register of the voice the most active vibration takes place along the inner margin of the cords, and that if there be a slight catarrh of the larynx, tiny pearls of mucus gather at the point of greatest movement, which exactly corresponds to the situation where we find nodules develop. From these facts we may conclude that the nodules in female teachers result from inflammatory thickenings occurring at the points of most active vibration when the voice is over-used at too high a pitch. Attrition may come in as a secondary cause after a nodule has begun to form.

An important point to remember in these cases is that the nodules alone are not the cause of the laryngeal disturbance, for they have been observed in singers and others whose voices were in perfect condition. Their removal, too, will not always cure the voice trouble, for there are often chronic inflammatory changes in the underlying muscle and in the elastic tissue of the cords. Quite recently I saw a case which illustrated the etiology of this affection in a young married lady who was neither a singer nor a teacher, but merely a lively and incessant talker. She had a few months before coming under my care developed a passion for motoring, which she indulged in daily, generally accompanied by a few friends, with whom she incessantly talked in a voice much above her normal pitch. The result was a slight chronic laryngitis with typical nodules, just as would have happened if she had been an elementary school teacher.

The fourth class of voice users, or perhaps I should call them voice abusers, is chiefly of interest as illustrating the extreme forms of local injury to which the larynx may be subjected. Here the voice is used violently in shouting or bawling, and every rule of production is set at defiance. The external conditions are also unfavourable, as it is in the open air, amidst noisy surroundings, or in dusty rooms where the voice is used.

The immediate effect of such violent vocal strain may

be the rupture of some muscular or ligamentous fibres in the cords, or a more or less extensive submucous haemorrhage, or an acute paralysis of the "vocal" muscle. Even rupture of the trachea has occurred in rare cases. The immediate result in these cases is extreme hoarseness or complete loss of voice. As the saying is, the voice "has been shouted away." My experience of these acute lesions has been gained among my friends on the Liverpool cotton market after an exciting day, when some American speculator had been trying to corner the market.

The more chronic lesions take the form of a hypertrophic laryngitis with the development of pachydermias in the usual situations, around the vocal processes and in the interarytenoid space. The amount of vocal disturbance in these patients varies from slight dysphonia to complete loss of voice, and is by no means proportionate to the changes visible in the laryngoscope. In fact, I have often been surprised at the amount and quality of the voice work done by persons with extensive chronic inflammatory thickenings in the larynx. It is doubtful how far these advanced inflammatory changes are the result of voice use alone and how far the influence of alcohol, tobacco, and syphilis must be taken into account. Many will try to persuade us that, like Falstaff, they have lost their voices "with halloing and singing of anthems" and never mention the "intolerable deal of sack" which has been consumed in between.

For the sake of completeness, I have put in a separate class, those who for professional purposes deliberately use the voice in a wrong method or outside its natural compass. The actor, in playing old men's or so-called character parts, the society entertainer who strives to reproduce all varieties of human speech, the choirmaster, who sings alternately with his sopranos and his basses, and that abomination of the English choir, the male falsetto, all come under this head. It is a class which has furnished me with many patients, and though they are liable to all the lesions met with in other voice-users, they have, in my experience, shown an excessive proportion of benign laryngeal growths in the form of soft fibromata.

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That which is merely "use of the voice" for one person may be overuse for another, hence, both are pertinent to the present discussion. To the singer with failing voice, to the orator with lack of carrying quality, the teacher with recurrent aphonia, the clergyman with spastic vocal contortions, and to a host of business folk—dictating correspondents, salesmen callers, and others—the gathering of knowledge tending to the preservation of the voice is of weighty importance.

The laryngeal disturbances produced by voice-use may be grouped under three divisions: vascular, cellular, and neuro-muscular. Strenuous vocalization excites vascular congestion even in a vigorous larynx, as may be observed in singers after the rendition of difficult rôles, and in clergymen on the Monday morning following an arduous Sunday. When the larynx is previously weakened by disease, hyperaemia is induced by correspondingly less vocal effort, ordinary conversation then sufficing to maintain congestion of the larynx and consequent relaxation of the vocal muscles, as exemplified by the following case:

Case I.—An incessant talker, while suffering from acute laryngitis, ran the gamut of sprays and pigments, but permitted no rest to the larynx. Finally, discouraged, and contemplating a change of climate, at great business sacrifice, he consented to a strict adherence to pencil and writing pad, which sufficed to restore his voice in so short a time that it was jocularly referred to as a miracle.

This incident is mentioned to emphasize the well-known but much-neglected principle of the need of comparative or even complete vocal rest to an acutely-inflamed larynx as a means of treatment. The same principle is of value as a preventive measure, the neglect of which was illustrated in the following case:

Case II.—An exceptionally forceful concert singer had been in excellent voice prior to an attack of acute laryngitis, during which she persisted in meeting her singing engagements. Shortly afterwards an angeioma of one of the vocal cords was seen to have developed (Fig. 1). In confirmation of its origin through a persistent hyperaemia, I quote from Wyatt Wingrave,[1] that microscopically laryngeal angeiomata "show an increasing vascularity from a simple hyperaemia up to permanent distension and thrombosis." In order to certify its permanence in this case I delayed interference for many weeks, but succeeded then in restoring her voice by a light galvano-cautery application.

Moreover, if there be disease of the accessory vocal organs—for example, the pharynx, which is more than a mere resonator—the larynx functionates at a distinct disadvantage, and then vascular congestion, muscular atony, and even cellular hyperplasia of the vocal cords, is liable to result from what may be little more than a customary use of the voice.

Cases III and IV.—A vaudeville singer was handicapped by an unreliable voice; he had laryngeal congestion with atony of the cords, accompanied by redness and thickening of the pharyngeal pillars due to retention tonsillitis in the deeply-placed bases of imperfectly operated tonsils. A radical tonsillectomy remedied the whole difficulty, his voice becoming thoroughly competent. *Per contra*, a country clergyman, who continues to endure a chronic retention tonsillitis, meanwhile attempting to preach thrice on Sundays and to furnish the music as well, suffers much from voice fatigue and many periods of vocal disability.

These experiences, being typical, justify formulating a second principle of prevention which is known to laryngologists, but not yet generally recognized, although of great

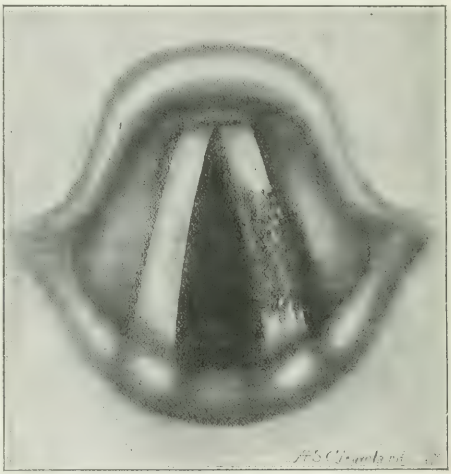


Fig. 1.—Angeioma of the vocal cord.

economic value to vocalists, namely, to conserve the voice under maximum use, diseases of the pharynx or nose should be promptly remedied.

Although masters disagree as to what constitute right or wrong methods of singing, it surely is wrong, in technical phrase, "to force the voice," whether in singing or speaking—that is, to compel higher notes than are natural to a given register, to maintain an abnormally loud intensity by reinforcing the blast, to habitually pitch the voice into the falsetto register, or to time over-work the muscular mechanism. Likewise, to attempt even one's customary rôle of song or speech at a time of disability, either of the larynx or accessory vocal organs, is equally a forcing of the voice.

The fact that "singer's nodes" occur also in speakers and others who by habit or necessity force the voice in some of these particulars indicates that the method of singing known as "striking the glottis," although possibly the main cause with singers, as explained by Holbrook Curtis, is not the only wrong or forcing method which is capable of exciting these minute cellular hyperplasias at points of attrition. All artificiality of method certainly can be excluded by reason of youthfulness in the following instance of typical "singer's nodes" observed in a boy who did not sing:

[1] Wyatt Wingrave, *Journ. of Laryn., Rhin., and Otol.*, March, 1906, p 161.

CASE V.—A boisterous lad of 9 years, described by his parents as an incessant talker and shouter, whose voice always dominated the field of boyish sports, had suffered increasing hoarseness for a year. A small adenoid has been operated on simply for the purpose of exclusion. The laryngeal image plainly discloses a pair of vocal nodules on the edge of the vocal cords at the junction of their anterior and middle thirds (Fig. 2).

The formation of nodes during that sort of forcing of the voice which is impelled by ordinary use through periods of disease of the larynx or accessory vocal organs is exemplified by two cases:

CASES VI AND VII.—The former, a choir singer, with chronic retention tonsillitis, which she disregarded notwithstanding frequent inconvenience, until a pair of vocal nodules causing roughness of the voice compelled attention. The outcome was unusually fortunate for this affection, as the comparative ease of vocal execution which followed a fragmental tonsillectomy enabled her to continue "in voice" in spite of the nodes, which when last seen had grown smaller as if gradually to disappear. In the latter case (VII) a kindergarten teacher, with unsuspected incipient tuberculosis, presented an anaemic larynx, paretic vocal cords with a pair of nodes, but no other inequalities. Rest being advised, she left the city for six months, and on her return tuberculous pyriform swelling of the arytenoids was present, but the nodules were gone. The inference is that they had formed under the stress of her kindergarten vocal teaching which, for a larynx partly disabled by incipient tuberculosis amounted to a forcing of the voice.

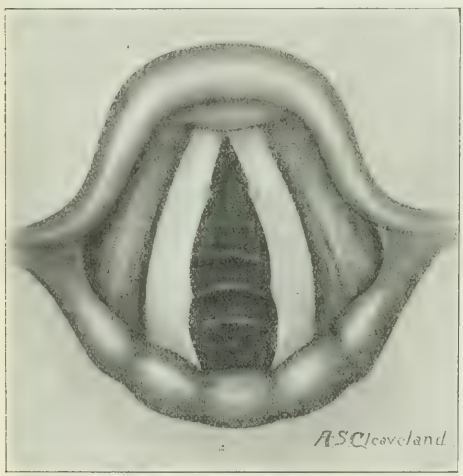


Fig. 2.—"Singer's nodes" in a shouting boy.

My observation of papilloma of the larynx in adults serves merely to support the general experience that voice users are especially subject to it. This inference is the more reasonable since, as stated by Wyatt Wingrave,[2] "hyperaemia if sufficiently prolonged or repeated may result in the histological dystrophic changes" which constitute a papilloma. Of course there are other etiologic factors, but excessive vocalization and consequent hyperaemia were the only evident causes in the following cases:

CASES VIII and IX.—Two middle-aged gentlemen, one a Board of Trade operator accustomed to extreme vocal effort on the "floor," and the other a political campaign speaker much in demand at open-air meetings on account of his sonorous bass. Each was obliged to relinquish his vocation on account of increasing persistent hoarseness due to a characteristic papillated neoplasm of the anterior half of the right vocal cord removal of which by intralaryngeal methods eventuated in perfect recovery without recurrence during periods of ten to fifteen years, although neither exacted as much use of his voice thereafter.

In designating my third division of disturbances of the larynx due to voice use as neuro-muscular, I am conscious of entering upon a phase of the subject of which, even after all is said, our conception is still but vague.

Lesions cannot be said to be strictly muscular unless implication of the peripheral nerve endings can be excluded. However, the rupture of the fibres of the internal tensor muscles during their use is certainly a purely myopathic lesion. This sort of functional traumatism is said to happen sometimes to singers, but my own observation of it is limited to the following case:

CASE X.—Mr. A. R., a Board of Trade operator, while vociferating during a panic "on change" felt suddenly a twinge of pain, and found himself voiceless. On examination a few hours later the right vocal cord appeared as if it had been struck by a hammer—ecchymotic, swollen, relaxed. The left cord was normal.

Muscular strain from forcing the voice which affects chiefly the internal tensor muscles—the thyro-arytenoidei interni and perhaps the arytenoideus—may be viewed simply as a milder degree of functional traumatism, and therefore chiefly a myopathic lesion. In inflammatory paresis the terminal nerves are thought to participate; therefore it is neuro-muscular, while in the following notable instances of unilateral double tensor paresis and of dysphonia spastica the neuropathic element predominated.

CASE XI.—Rev. C. G. spoke, in part, in the low measured tones of the cultured, but his voice on approaching the several climaxes of a sermon would suddenly break into the falsetto register, like the high pitched enunciation of certain persons in anger but intensified by an enforced blast. It sounded as if it were very wearing to the larynx, and toward the close the exhausted mechanism would weaken, become hoarse, and emit jerky and scarcely audible tones, defects which with time so augmented as to threaten his professional career and to strongly suggest an impending dysphonia spastica. On examination there was noted pronounced paresis of the left vocal cord, its excursion on phonation falling far short of the middle line. On close analysis it proved to be a conjoined paresis of the external tensor muscle (crico-thyroideus) and the internal tensor (thyro-arytenoideus internus). The paretic cord and the arytenoid seemed to occupy a lower vertical level in the larynx than the sound ones, so that their edges did not meet in the same horizontal plane, which is stated by Gottstein to be a sign of double tensor paralysis. The right arytenoid would override the left, but the picture was not identical with recurrent nerve paralysis, and the usual causes of the latter were excluded by subsequent observation through a period of ten years. After a few weeks' rest he was able to resume preaching by complying with my advice to restrict the delivery to his more pleasant conversational style. The cord recovered in large measure after some months, but relapsed the following year as he lapsed into the old emotional falsetto style; it again recovered, but three years later again relapsed. During the past six years his more quiet delivery has become habitual, the cord remaining fairly well and just now quite normal in appearance.

The following case of dysphonia spastica, for the purpose of comment and comparison with the preceding case, I abstract in part from the published report by Dr. John Edwin Rhodes,[3] as the patient was observed by myself only informally as a friend, although over a long period of time. I will take occasion to add the termination of the case and to amplify a few other details:

CASE XII.—Rev. C. L. was a prominent clergyman, who first came under my notice in 1883, when in his fifty-fourth year, at which time his voice was beginning to show the earliest definite indications of this phenomenal disease. In opening conversation he would first strike an attitude by posing his head backward and aside as if in an effort to facilitate an impeded utterance. The words, when they came, seemed to be popped out under high pressure, and had a disagreeable tense clang, the fewest possible being made to suffice. In preaching he did better, but the pitch was erratic, with much falsetto, and syllables were sometimes suppressed. Three years later, on seeking advice, Dr. Rhodes observed paresis of the right cord, and again observed it five months later; but at subsequent examinations this feature was not noted, possibly having been incidentally due to the forcing of the voice in the face of its disability. In this connexion I would recall the paresis of one vocal cord in conjunction with the falsetto habit in the preceding case (XI).

In 1893, ten years from the time of my own first observation, he was obliged to retire from the pulpit, having become nearly inarticulate in spite of long periods of rest and varied treatment. In attempting utterance, spasmodic contortions of the facial muscles, contraction of the neck and chest, and congestion of the face would precede by some seconds the jerking out of a few words, which came finally, perhaps in a loud oratorical tone, or in a hoarse whisper, or falsetto key, the pitch being uncontrollable.

About this time quite a sensation was caused by the announcement that a new treatment by a new physician had finally effected a cure and that he would preach the following Sunday, when to my astonishment he spoke understandingly, albeit far from well. It subsequently transpired that the new

[2] *Journ. of Laryn., Rhinol., and Otol.*, May, 1906, p. 218.

[3] Rhodes, Spasm of the Tensors of the Vocal Cords, by John Edwin Rhodes, M.D., *Trans Am. Laryn. Assoc.*, 1898, p. 197.

treatment consisted merely of spraying a cocaine solution into the nostrils, that its beneficent effect endured but an hour and was followed by "terrible reactionary suffering," which caused him to limit its use to occasions of special church celebrations. However, the cocaine expedient did enable him occasionally to "make a few remarks," when otherwise he could not have done so.

During the next ten years he grew worse, notwithstanding an almost continuous silence. Attacks of asthmatic dyspnoea conjoined with heart weakness, both said to be of a nervous functional nature, helped toward a final exhaustion.

Now, what was the exact "laryngeal disturbance" in this case? in what manner was it "produced by voice use"? and how did cocaine serve to partially suspend the disability?

Rhodes,[4] following Mackenzie,[5] ascribed the laryngeal impediment to spasmodic contraction of the tensor muscles of the larynx, which he was able to observe in another similar case but not in this one, in whom at the worst stage the muscular movements as seen in the laryngoscope appeared normal. Semon[6] refers to several cases which presented symptoms identical with this one, in all the worst of which he observed laryngoscopically a spasmodic sphincter-like closure of the larynx on attempts at phonation, indicating, in addition to the tensors, a spasm of the adductors. In other words, the larynx under cortical superexcitation overdoes its effort at tone formation, contracts too quickly, too violently—that is, inco-ordinately with the other elements of speech, ideation, volition, respiration, articulation; hence, it fails to emit the tone at the proper psychological moment—a sort of laryngeal stammer. Like common stammer, it is aggravated by the intuitive accessory muscular efforts of the patient to make himself talk, as evidenced by facial and chest contractions, but, unlike common stammer, the habit is induced later in life during the course of years, and is acquired chiefly by professional voice users, notably clergymen, through unnatural and enforced methods of address in which the high-pitched falsetto register is a factor. The emotional temperament, which is a natural characteristic of clergymen, is a predisposing condition, in so far as it is prone to find expression in the falsetto key, and otherwise to render speech unstable; and if to emotionalism is added that dyscrasia—whether it be a pure neurosis or a toxaemia—which underlies asthma, hay fever, nervous dyspepsia, and nasal reflexes, the predisposition to dysphonia spastica may be said to be accentuated. Phonetic adduction of the vocal cords is for the purpose of speech in expression of thought; hence, the major adductor centres are located in the cerebral cortex, and it is conceivable that, under years of emotional impulses leading to high-pressure speech, these centres should acquire a vicious habit of spasmodic violence in action.

The third principle of prevention which I seek thus to establish is that voice users, especially preachers, should avoid falling into the custom of using high-tension speech or the falsetto register, for the reason that it not only does local violence to the neuro-muscular mechanism of the larynx but, being an expression of emotionalism, it is liable to habituate the cortical motor centres to an undue excitability, leading to dysphonia spastica.

It remains to suggest an explanation of the action of cocaine, whose salient effect is local anaesthesia, in ameliorating a spasmodic dysphonia, primarily of centric origin. Two premisses may be restated: First, that the fundamental laryngeal spasm was aggravated by accessory spasms, some intuitive, some doubtless reflex, as co-ordinated articulate speech is dependent in part upon a local feeling which guides the play of the delicate muscles through a reflected stimulus. Secondly, that the cocaine only partly, not wholly, ameliorated the dysphonia. It is a fair deduction that, by overflow of the nasal cocaine spray into the throat, this reflex stimulus was dulled, and to this extent only was the disability ameliorated.

DISCUSSION.

Dr. G. Hudson Makuen thought this discussion very opportune. Laryngologists gave too little attention to what must be regarded as the chief function of the larynx, namely, vocalization, and were apt to overlook the possibility, and even strong probability, of the development of grave laryngeal disease as a result of faulty methods of vocalization. As a rule, pathological results did not follow the physiological use of the voice. The larynx, like other organs in the body, usually grew strong with physiological exercise, but the trouble was that in the majority of instances the exercise was unphysiological. The origin of vocalization was, in his opinion, the most abused of all the organs of the body. This was due to the fact that man's vocation was generally prejudicial to its normal use and development. He desired, therefore, to emphasize the importance of vocal training, not only as an aesthetic measure, in order to make the voice more agreeable and effective in speech and song, but also as a measure both for the prevention of pathological lesions in the larynx and pharynx, and for the relief and treatment of these when once they had appeared. The man that went into the game of football without preliminary training would surely come to grief, and just as surely would disaster follow hard upon the man who undertook some extraordinary use of the voice, as in public speaking and singing, without adequate preliminary training and practice. The laryngologist had not quite fulfilled his mission until he had fitted himself to become a teacher of the teachers of vocalization. It was only in this way that they could help to place this matter of vocalization upon a scientific basis.

Dr. Peyre Porcher (Charleston, South Carolina) urged the advisability of rest in all laryngeal disease with one exception, when the voice should be forced—namely, bilateral adductor spastic (pseudo) paralysis. He expressed surprise that authorities permitted patients with tuberculous disease to use their voices during treatment. He reported several cases of tuberculous laryngitis cured by rest of two or three months' duration.

Dr. StClair Thomson (London) emphasized the possibility of hoarseness without surface changes in the larynx, as also of the presence of vocal nodules without alteration of voice. These nodules might develop rapidly and disappear quickly. Rest in the early stage was of primary importance.

Dr. Henry Smurthwaite (Newcastle-on-Tyne) showed paintings of a case of polypus of the larynx with aphonia, also one of paralysis of the internal thyro-arytenoideus in a hysterical patient.

Dr. P. Watson Williams (Bristol) said the lesions resulting from improper voice use were essentially inflammatory, the vocal cord lesion being almost always partly or entirely a myositis. Thus the key to successful treatment lay in remembering that the vocal cords were muscles, and that the cords as seen were the tendons of the internal thyro-arytenoideus muscles. Rest, then, was the most important of all methods of treatment, and could not be too strongly emphasized. First, voice rest, and second, general rest and hygienic measures. The recurrence of the mischief would have to be subsequently prevented by physiological voice training before the patients' return to their avocations.

The President referred to the importance of careful diagnosis. Nothing was more deplorable than the mistaking of early tuberculosis for faulty voice-production—an error which was by no means unknown. Fortunately many voice trainers were sufficiently sagacious and conscientious to call for the advice of the physician or laryngologist. It was necessary to recognize and treat such constitutional conditions as anaemia or general debility and such local ones as laryngeal neoplasms or paralysis. He had seen students whose vocal disability depended mainly on over-study, over-anxiety, and defective alimentation. In the presence of paresis of the internal tensors he was often at a loss how to substitute exercise for rest of the voice. Rest might be continued too long in these cases. Among other injurious factors in the laryngitis of school teachers was the chalk dust from the blackboard; a damp sponge should be used instead of a dry duster. Preachers in the Anglican Church often suffered from intoning on a note unsuitable for their voice, while those of some other denominations were affected owing to the violent emotional enunciation required by their congregations. Dr. Hunt had properly dwelt on the errors in deciding on the nature or class of the voice. Dr. Joal of Mont d'Or was of opinion that the nature (*tessiture*) could be judged of by means of the laryngoscope, and the President, while not going so far as Dr. Joal, thought this was often a reliable guide. He (the President) thought many voices were injured by forcing

[4] John Edwin Rhodes, *Trans. Am. Laryn. Assoc.*, 1898, p. 194.
Morell Mackenzie, *Diseases of the Throat and Nose*, vol. i, p. 474.
[6] Felix Semon, Heyman's *Handbuch*, Band I, S. 753.

the "chest" register (he adopted the expression for the sake of being clearly understood) too far upwards. He was convinced that in the ordinary singer there was a thinning of the vocal cords at the change from the chest to head register, as shown by transillumination during the singing of the same note first by the "chest" and then by the "head" voice. An eminent Welsh singer insisted that there were no varieties of register in the voice, but one continuous register throughout the whole range. The President could conceive of some exceptionally gifted individual being able to apply from tone to tone the mechanism (for thinning the cords) which ordinary singers employed in passing from one register to another in combination with the usual increasing tension of the cords, but he thought this very exceptional, and that as a rule the register must be respected. The remarks of Dr. Casselberry and StClair Thomson concerning nodules were particularly important, as showing that there were often contributory factors present at the same time requiring attention more than the nodules. It was sometimes perhaps a misfortune to the voice user for the nodules to be discovered, as local treatment was liable to do more harm than good. He considered a discreet use of Dr. Holbrook Curtis's exercises often of the highest value, and regarded them as a means of coaxing the voice on to the "head" register, thereby thinning the cords so as to diminish the necessity for increased tension and at the same time diminishing the vascularity by compressing the vessels. Defective breathing was often a factor, and respiratory exercises could be advantageously practised in silence or with the whispering voice. He had referred to the danger to otology proper threatened by the brilliance of surgical otology. He thought that rhinology was, in a way, a source of danger to rhinology, but not a danger to the larynx, and he was sure most would agree with Dr. Graef as to the value of attention to the nasal passages both directly and by lessening activity in the larynx itself. A great German laryngologist was credited with advising his *confrères* never to touch a singer's larynx. This sweeping statement contained a large element of wisdom. The President had deprecated the superficial study of the anatomy of the throat on the part of singers, as it centred their attention on the organ instead of on the voice.

Replies.

Dr. Middlemass Hunt, in closing the discussion, expressed the opinion that where laryngeal nodules rapidly appeared and went they were really cases of obstruction to a mucous gland in the edge of the cord, as described by Fraenkel. As to the origin of nodules from misuse of the *coup de glotte*, while recognizing the excellent work done in this subject by Dr. Curtis, he pointed out that in a vast majority of cases there was no question of such misuse, for example, in female teachers and non-singers, and he recorded a case seen quite recently in which nodules developed in a singer doing much hard voice work, whose voice had been trained entirely by using the soft attack, the vowel sound "ah" being preceded by an "h."

Dr. W. E. Casselberry, in reply, said that he quite agreed with Dr. Porcher and the others regarding the value of rest to the voice, within limits. He would recall the case of the kindergarten teacher who had vocal nodules as the result of voice use in the presence of incipient laryngeal tuberculosis. Six months' rest caused disappearance of the nodes, although the tuberculosis progressed. Rest, however, had its limits, and after a time gentle exercise was of benefit. The whispering voice as a substitute for loud tones had the objection of tending to a whispering habit difficult to break. Also it was idle to order repeated periods of rest, when by putting the pharynx and nose into a proper condition the need of rest might be avoided. After all, it was the use of the voice and not the rest that their patients desired.

INFLAMMATORY NASAL OBSTRUCTION AS AN ETIOLOGIC FACTOR IN THE PRODUCTION OF SPUTA.

By W. Peyre Porcher, M.D.,
Charleston, S.C.

I have selected this subject for your consideration chiefly because of my conviction—

1. That the word "sputa" is a misnomer in that it defines all expectoration to be a product of the lower respiratory organs alone and saliva.

2. That inflammatory nasal obstruction is a much more frequent source of profuse expectoration than is commonly accorded it.

3. That the symptoms of chronic bronchitis are so varied and uncertain that the diagnosis is often based alone upon the prolonged expectoration.

If we could account for this expectoration in no other way, that is, if the upper respiratory passages are unobstructed and the amount of nasal secretion not above normal, such a diagnosis would be justifiable, but if together with nasal obstruction there be history of prolonged and excessive expectoration, with considerable tickling and irritation in the throat and inflammatory conditions in the ear and other adjacent organs, aural polypi, etc., we must of necessity conclude that the nasal obstruction was a prime factor in the production of such a chain of symptoms.

In a careful research into the literature of the subject, I have been unable to find a single instance where inflammatory nasal obstruction has been noted among the etiologic factors of laryngeal expectoration.

On June 14th, 1890, I published an article on The Origin of Sputa in Subacute Cough. (See *New York Medical Journal*.) In this article I endeavoured to prove that profuse expectoration, resulting from most cases of subacute cough, originated in the nose and naso-pharynx, and not in the lungs or bronchi. A number of cases were reported at that time in substantiation of these facts. It is maintained by some authorities that naso-pharyngeal secretions do not pass down into the laryngeal box but accumulate around the pyriform sinuses, or trickle down into the gullet, or are swallowed. It will be my endeavour in this paper to show that as a result of pathological conditions in the nose and without any signs of bronchitis or pneumonitis present, naso-pharyngeal secretions do pass down into the larynx, that they accumulate in the false ventricles, and are expelled by contraction of the muscles of vocalization or by coughing, just as irritating substances, secretions, etc., are expelled from the nose by sneezing.*

It is my belief that the following conclusions are true: First, that, as a result of inflammatory obstructions in the nose, posterior nasal secretions do pass down into the sacculi laryngis, and are expectorated by the contraction of the muscles of vocalization. Secondly, that nasal obstructions are often overlooked among the etiologic factors in the production of profuse expectoration, diseases of the middle ear, aural polypi, facial neuralgia, refractive errors, and other pathological conditions in the eye, as well as many reflex neuroses and other diseases of the adjacent organs.

The President thought Dr. Porcher's views would receive general acceptance.

THYROTOMY AND LARYNGECTOMY FOR MALIGNANT DISEASE OF THE LARYNX.

By Chevalier Jackson, M.D.,
Pittsburg, Pennsylvania.

It is not my intention to write an essay on malignant disease of the larynx. Only two phases of this broad subject will be considered, namely, the operations of thyrotomy and of laryngectomy. In addition, a few words will be said in regard to pre-operative microscopy.

It is hoped that the writer's omission of reference to the work of others will not be deemed egotistical. The opinions of, and results obtained by, the world's workers in this field—laryngeal malignancy—are so well known to you, that it would be but a waste of time to review the literature. Instead, only the results of the writer's own work will be given.

Thyrotomy.

For malignant disease of the larynx I have done 15 thyrotomies, of which 3, though including portions of the cartilage, may be classed as thyrotomies.

Age.—The age varied from 33 to 81 years.

* Dr. Porcher related an illustrative case in the language of the patient herself.

Sex.—All of the 15 cases were males.

Site.—Left ventricle, 3; right ventricle, 2; left ventricular band, 1; right band and ventricle, 1; left cord, 1; left cord and ventricle, 1; right cord, 3; both cords (anterior commissure), 1; interarytenoid fold, 1; aryepiglottic fold, 1.

Pathology.—All of the growths were small in size, the largest not much exceeding a cubic centimetre, and the smallest rather smaller than a pea. Histologically, 12 were squamous-celled epitheliomata, 1 was scirrhus, 1 glandular-celled carcinoma, 1 sarcoma.

Recurrence.—Of 15 thyrotomies for malignant disease done by me, 1 is too recent (three months) for record. Of the remaining 14, 1 was alive and well at the end of six years, 1 at the end of four years, 2 were alive and well at the end of three years, 1 at the end of two years. Two died of general diseases after one year, 4 were lost trace of at the end of about one year, and 3 died of local recurrence, in spite of subsequent laryngectomy. Omitting the recent case, there were 14 thyrotomies, with 11 (78 per cent.) well at the end of one year, at which period the writer thinks the term "relative cure" may be applied.

Two of the recurrences were in cases which were unsuitable to thyrotomy, being extrinsic, and total laryngectomy should have been the operation. For this mistaken judgement I have only myself to blame.

Unfortunately, there is no certainty that recurrence may not appear later than one year, and, in the poorer classes, escape observation until too late. But in the better classes there seems no reason why, by occasional observation, a recurrence should not be discovered sufficiently early to enable an equally satisfactory second thyrotomy. The other recurrence was after the removal of all the soft parts from the left half of the larynx for a squamous-celled epithelioma about the size of a pea. I never had a case more promising of cure, as the growth was so small and the removal so wide; yet recurrence in the scar occurred inside of two months, for which I did a second thyrotomy, removing half the larynx. Upon a second recurrence one month later, I removed the entire larynx but without avail, as the lymph nodes on both sides of the neck began to enlarge, and the patient died at the end of six months from the first thyrotomy. My only explanation of the utter failure of thyrotomy in this case is that the growth was of an unusually malignant type, or that the patient was unusually vulnerable. There are, certainly, degrees of malignancy, or degrees of vulnerability, or both.

Voice.—The ultimate vocal results in 11 cases could be classed as fairly good. In the 2 cases thyrotomized through errors of judgement, recurrence followed so soon that nothing but a loud rasping whisper was obtained. In the other case of recurrence, there was no time for anything above a whisper to be cultivated. In the recent case the voice is already strong, though very rough, at the end of three months. In some of the cases the voice was high in pitch, in one case a full octave higher. In this case all of the left cord, and the anterior portion of the right cord was removed. When healed there was a short cicatricial band attached to the short remainder of the cord, the shortness probably accounting in part for the high pitch.

Laryngectomy.

There is no question in the writer's mind that thyrotomy is the operation of election for early intrinsic malignant disease of the larynx. But what about the later cases, those extrinsic by origin or extension? Are we to let them die unrelieved except by palliative tracheotomy, and without hope? In many instances, Yes; in others, No.

Out of 29 cases of extrinsic malignant disease of the larynx I advised palliative tracheotomy and its hopeless outlook in 21. In 8 I advised and performed total laryngectomy. These 8 were in good physical condition. Though 2 of them had slightly palpable arteries, they were otherwise organically sound, save for their laryngeal neoplasm.

To laryngectomize a patient frail, emaciated, cachectic with primary or metastatic malignancy elsewhere, or with organic disease, or one worn out in his fight for air, is to court disaster.

If he have vitality enough to react from his chronic carbonic acid poisoning and he be otherwise sound, a preliminary tracheotomy may fit him for operation in a few weeks. This matter of the general condition of the patient is of more importance than the extent of the disease, as shown in two of my cases in whom I removed, besides the larynx, large masses of infiltrated glands, muscles, nerves, and arteries, including in one case the external, internal, and common carotid, the pneumogastric nerve of one side, and a portion of the oesophagus, pharynx, and tongue. The patient has to withstand, besides the shock, the five days' starvation that the writer deems essential.

In many cases, unfortunately, when we see them, it becomes a question, not of which operation is the better, but of whether any operation at all is admissible.

Mortality.—Eight consecutive cases of total laryngectomy without mortality within thirty days after the operation seems a rather unusual series. I know that the mortality of so serious an operation cannot be *nil*. I expect fatalities in the future, and it is only by reason of the small number of cases in the series that none has happened.

Age.—The age ranged from 52 to 75.

Sex.—All (8) were males.

All of the cases of malignant disease of the larynx that I have operated upon have been men. Of the 49 cases of this disease of which I have records 4 have been in women. They were among those upon whom I declined to operate.

Pathology.—Of the 8 cases, 6 were epitheliomata; 1 was columnar-celled carcinoma, and 1 of mixed type, endothelial sarcoma (Wright). The histological examinations after extirpation in these and in the thyrotomized cases were made either by Dr. Jonathan Wright, Dr. Ralph Duffy, or Dr. Joseph H. Barach.

Site.—Aryepiglottic fold, 1; aryepiglottic fold, epiglottis and arytenoid, 1; interarytenoid fold and posterior surface of the cricoid, 1; right half of larynx, 2; left half of larynx, 2; posterior half of larynx, 1. In these last mentioned 5, the infiltration and deformity were so great that the exact point of origin could not be determined. In 3 cases the infiltrated tributary lymphatics were removed. In 1 case an immense mass of glands was removed, and in another case in addition to the glands, the infiltrated external, internal and a portion of the common carotid arteries, a portion of the jugular vein and of the pneumogastric nerve were resected. In 3 cases the oesophagus was involved, one of them to the extent of nearly 2 in. of the exterior wall.

Complications.—Of 8 total laryngectomies, 1 was followed by pneumonia, 1 by bronchitis, 1 by cellulitis, and 1 by persistent vomiting, from all of which they recovered. Only two had complete primary union throughout the pharyngeal closure without leakage, the others having more or less leakage into the wound—in most instances at only one small point, requiring a tampon to prevent it; but as in all the trachea had been stitched to the skin, this leakage did not reach the air passages.

After healing, 2 cases were troubled with superficial ulcerations of the tracheal mucosa, which would heal and reappear, and 1 case developed a chronic tracheitis. These conditions were deep down in the trachea, and were only visible upon tracheoscopy with bronchoscopic tubes, and did not occasion serious discomfort. The ulcers readily healed under applications through the tracheoscope of argentic nitrate.

Voice.—In all of my laryngectomized cases that lived more than one year a buccal voice developed that could be understood by those constantly associated with the patient. Strangers could not catch certain words. Much depends on the practice and effort exerted by the patient to develop a buccal voice. From observation in my cases I am firmly convinced that any patient who will work at it can develop a good buccal voice that will be intelligible to any one. Unfortunately, at the time of life when we usually see malignant disease systematic effort in new lines is irksome.

In one case 2 in. of the anterior wall of the oesophagus had to be resected. This rendered the restoration of the oesophagus at the primary operation impossible, and the lateral edges of the oesophagus and pharynx were stitched to the skin, while the upper edge of the resected anterior wall was drawn upward and forward as far as possible toward the tracheal orifice. The result is shown in the photograph. I planned a plastic closure of the gap, but it gradually closed itself to a small aperture that could be obturated. No troublesome degree of stricture

of the oesophageal lumen developed. While in the state shown in the photograph the patient could talk in a loud whisper with the assistance of a rubber cup (colostomy pad) placed tightly over the two apertures in such a way as to allow the air to pass out from the tracheal orifice over the intervening bridge of tissue into the pharyngeal orifice.

Recurrence.—Of the 8 total laryngectomies done by me, 3 were hemilaryngectomies followed by recurrence and the total operation. (Three other hemilaryngectomies without recurrence were included under thyrotomy.) Of the 8 laryngectomies, 1 lived seven years. I felt justified in claiming a cure, but upon inquiry a few weeks ago I was informed by relatives that he died of "cancer of the stomach." Details are as yet unobtainable, but from the lay statements I do not doubt the diagnosis. One case lived three years without recurrence, dying of cerebral haemorrhage, and 1 eight months, dying of alcoholism. Of the remaining 5, 3 recurred within a year, 1 apparent cure was lost to observation after a year, and 1 is too recent to record; 1 of the 3 prompt recurrences had metastases in the lungs, liver, and pancreas. Thus, of 8 laryngectomies no absolute ultimate cures can be claimed, though 3 were apparent cures at the end of one year.

In view of the case of "recurrence" after seven years it cannot be said that cancer is ever cured in the sense that some would apply the term. Recurrences have been reported after thirteen years. Without going into the



Mr. P. after laryngectomy and oesophagotomy.

matter of the period after which the word "cure" should be applied, in my opinion, for the purpose of considering the relative efficiency of different methods of operation, freedom from recurrence for one year indicates adequate removal. There is no such thing as absolute cure of malignancy. Recurrences after one year, in my opinion, indicate a vulnerable soil rather than a repullulation of the primary process. This has nothing to do with operative efficiency. You cannot cure vulnerability by operation. If you have no recurrence within a year you have removed the malignant process. If it recurs thereafter, it is because you have failed to do the impossible—remove the vulnerability of the soil.

Palliative Tracheotomy.—Of 21 cases of malignant disease of the larynx in which only a palliative tracheotomy was done, 9 were followed to termination. Of the 9, none lived more than thirteen months.

Comparing this duration of life with the laryngectomized cases, the latter show much better results, but they were selected for their excellent general health, and with two exceptions had a limited extent of disease, while the tracheotomies were in most instances considered unfit for radical operation.

Mortality after Radical Laryngeal Operations.—Of 15 consecutive thyrotomies done by me for malignancy, not one died within thirty days of the operation, hence the operative mortality was *nil*.

Of 8 consecutive laryngectomies, the operative mortality was likewise *nil*. As before stated, the writer is aware that a larger series of cases will show a considerable mortality, and no claim is made that these operations are without risk.

Four things have contributed to the high mortality of radical laryngeal operations in the past, namely, the bad state of health of the patient, shock, sepsis, and pneumonia.

These were minimized in the cases herewith reported by adherence to certain rules. No case was operated upon that was not in reasonably perfect general health. Of course, senile changes and slight arterio-sclerosis were not considered a bar, but no case with chronic bronchitis, nephritis, or other organic disease was reported upon.

This selection of the case as to general condition stands next in importance to selection of the case as to extent and site of the growth, that is, whether intrinsic or not. Doubtless by advising against operation some cases have died that might have been saved, at least for a time, but it has been, and still is, my opinion that the patient with malignant disease of the larynx *plus* organic disease or frail general health will last longer if not operated upon radically.

Shock, sepsis, and pneumonia were minimized by the technique hereinafter detailed.

In the minimization of shock, besides the general precautions that apply to all surgical work, there are some special precautions to be taken, as alluded to under technique.

Dr. John W. Boyce, whose aid in detecting and fore-

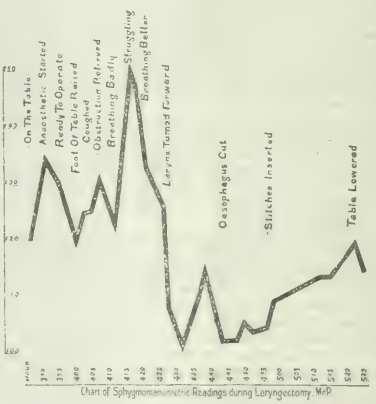


Chart of Sphygmomanometric Readings during Laryngectomy. Mr P.

stalling the causes of shock have many times served me and my patients well, took a number of sphygmomanometric readings during some of my operative work. The following report from him, in my opinion, is of great value as indicating one reason for the great difference in the amount of shock from laryngectomy and from thyrotomy, and as pointing a lesson in the lessening of operative shock:

In regard to your last thyrotomy (for epithelioma of the larynx) in which I took sphygmomanometric readings, they never fell below what I take to be the patient's ordinary tension. He was at no time deeply anaesthetized, and frequently struggled. The high readings I attribute rather to muscular effort than to operative irritation.

In regard to the two laryngectomies of yours in which I took sphygmomanometric readings, I may say that the most interesting feature of the blood-pressure chart in the case of Mr. P. was the fall that occurred when the larynx was turned upward. A subsequent fall occurred when the upper end of the oesophagus was drawn on just previous to incising it. In the subsequent case of laryngectomy, Mr. M., the blood pressure was seen to fall steadily as long as the oesophagus was being manipulated. In this later case the fall went almost to the danger point I had fixed on in my mind as the one at which the operation should be stopped. This fall of pressure is so remarkable, and so out of proportion to the apparent severity of the operation, that it suggests the theory that the

depressor nerve mechanism of the human heart runs in the substance of the oesophagus. If so, it might account not only for death on the table, said to occur in these operations, but also, by the profound prostration induced, for some of the inhalation pneumonias that are reported as following. Whether other observations shall confirm this theory or not, the practical effect indicates most extreme caution in making traction on the oesophagus, and that incisions into it should be made with the part as nearly as possible in its natural position.

Sepsis and pneumonia can be prevented in most cases by observing the technique, as well as pre-operative and post-operative care, outlined below, and should they supervene, as happened in four of the writer's cases, the chances for recovery are good if the patient be of perfect general health. Herein lies in great measure the reason for the writer's good results. Had he operated upon all cases that locally justified it, the death-rate would have been considerable. Only 15 cases were operated on out of 23 that locally justified thyrotomy, and only 8 out of 29 that might have been laryngectomized, a total of 23 out of 52 cases of malignant laryngeal disease. (Really only 49 cases, as 3 underwent both operations.)

The writer hopes he will not be misunderstood. He begs to repeat that he does not claim that the operative mortality of either thyrotomy or laryngectomy is nil. On the contrary, he expects his next series of cases (of laryngectomy at least) to show a considerable mortality, the absence of which in his present series simply means that it contains too few cases. Nevertheless, he feels absolutely certain that if every case of laryngeal disease that is encountered be operated upon radically, even in the latest stages, as general routine surgery, and if the post-operative care be entrusted to the routine surgical nursing, the mortality of thyrotomy cannot be kept under 35 per cent., nor that of laryngectomy under 50 per cent. Every breath of air, every detail, every person, from the surgeon himself to the cook and the housemaid, must be under the most rigid discipline to ensure reasonable success. To show what trifles may make mortality, think of imperfectly sterilized milk leaking into the wound, and follow mentally that milk back through its unclean handling all the way to the filthy hands of the milker in the foul stable where are housed the excrement-bedaubed cows that shed hair and exfoliated epidermis into the milk-pail. Think of the leaking into the wound of a raw egg, which when broken has run over the porous shell which has been its covering when it escaped from the fowl's vent, which is also the fowl's excrement passage, to say nothing of what that shell may have afterwards encountered. Yet one surgeon whose operative mortality of laryngectomy is 36 per cent., feeds his patients on raw egg, milk and sherry wine, mixed by the cook. By this it is not meant that his high death-rate is due to this, but simply to show what attention to detail is necessary to limit mortality.

Technique of Radical Laryngeal Operations.—Time forbids more than a brief allusion to this all-important subject. No claim is made as to great originality in the technique of either the operations or the after-care. The technique has been culled from various sources, modified and elaborated, and carried out with great attention to detail. For this, credit is due to my assistant, Dr. Ellen J. Patterson, whose aid has been invaluable in bringing the detail to the approximate perfection reached in the later operations.

1. *Local Preparation by the Dentist.*—All dead teeth that show the least signs of surrounding suppurative processes and all dead roots are extracted, and all carious cavities are filled. This precedes the operation by as long an interval as necessary for healing, if extraction has been done, the teeth in the interval being cleaned with a brush after each meal and the mouth rinsed with 1 in 500 carbolic solution every three hours for a number of days. An active pyorrhea alveolaris is an absolute contraindication to laryngectomy. Oral sepsis is a source of disaster. Lurking infections about bridge work are searched for and eradicated. In sum, the mouth is got into the nearest possible approach to asepsis. The nose is let alone. If purulent nasal discharge is passing into the throat, the case is not favourable for operation, and treatment for the limited time available is not likely to cure it.

2. *General preparation of the patient* by bath, purgative, and enema, as for any operation. No food after the light supper of the night before. If operating in the afternoon, a cup of black coffee at 7 a.m. is permitted.

3. *Assistants.*—In addition to the anaesthetist there is one assistant whose exclusive duty it is to see that the patient at all times gets enough air, and to institute artificial respiration if need be. In my later cases the sphygmomanometer has been used also and is of service. Two assistants, one to hold retractors, the other for sponging and haemostasis, besides the sterile nurse. With this corps, all trained in tracheal work, a death on the table is almost an impossibility, with a light anaesthesia.

4. *Anaesthesia*, preferably by chloroform, must be partial. The tracheal cough reflex must never for a moment be abolished. It is the greatest safeguard against inspiration pneumonia. The laryngeal cough reflex is abolished by the local application of a 20 per cent. cocaine solution which has been sterilized, not by boiling, but by the addition of 1 per cent. of carbolic acid. This cocaine also blocks reflex cardiac inhibition and renders partial anaesthesia safe. After the start anaesthesia is a secondary matter and the patient is often completely out. This makes the surgeon's work harder and his mortality records less. In my later cases I have added adrenalin to the cocaine solution, not to forestall haemorrhage, but to render the outline of the growth more distinct, as suggested by Mr. Butlin. The chloroform is administered first with an Esmarch inhaler; later, after the air passages are opened, it is continued with a gauze sponge held in a haemostat over the wound or over the tracheal cannula, as the case may be. In previously tracheotomized cases the sponge is used from the start. The Trendelenburg inhaling tube is a needless complication. I place, not only the anaesthetist, but everybody, including myself, under the orders of one physician, whose sole duty it is to watch the condition of the patient. Every pulse beat and every breath is watched, and either anaesthetic or operative manipulation is stopped promptly at command before the danger signal in any of its many forms is reached. It is impossible for the operator or his assistant to do this. Still more dangerous is it to place upon the anaesthetist this duty. Herein lies one of the many differences between these operations and, for instance, abdominal work. In the latter the anaesthetist has full charge of the patient's head and neck, with its arteries, its colour, and its reflex indices. How different in laryngectomy! The anaesthetic is inhaled intermittently through the neck wound; the balance of the neck and the entire face and chest are covered with wet towels. The number of persons around the patient's head prevents the anaesthetist doing more than intermittently pushing an arm through the crowd with his chloroform-wetted gauze sponge held in a haemostat.

5. *Posture.*—I have tried the Trendelenburg tampon cannula and abandoned it. Hahn's and Gerster's cannulae I have never used. Instead, the patient is put in the combined Trendelenburg-Rose position, which not only prevents the blood and secretions flowing into the lungs, but forestalls shock by increasing the cerebral blood supply.

The posture differs slightly from the Trendelenburg, in that the shoulders are not supported. The patient is hung by his knees; the legs, flexed at the knee, are strapped to the dropped foot-board, which is all that keeps the patient from sliding clear off the incline. The head is dropped over the break when the head-board is dropped at the moment of incision.

If the table be of the proper length, as the one I designed, no sandbag is needed. The table of the abdominal surgeon is too long in its main top portion, requiring more or less of a sandbag to throw the neck up prominently. The larger the sandbag, the less steep the incline of the trachea, which incline I rely upon, with the aid of an active cough reflex, to keep blood, secretions, or pus out of the lungs in all tracheal and throat surgery. As to a possible argument against this position that in these old patients the viscera dangerously crowd the diaphragm, lungs, and heart, I would answer that in a patient so feeble no operation at all is justifiable.

Illumination by an electric headlight is essential for rapid, careful, thorough work.

Operation.—In regard to thyrotomy, I have nothing to add to the operation as advocated by Sir Felix Semon and Mr. Butlin, save as mentioned above under posture, and also as to the use of the curette.

In laryngectomy three different plans have been followed: The method of Glück, working from above downward, severing the trachea last; the method proposed by Keen without even temporary tracheotomy, the trachea being severed and stitched to the skin, as the first step after baring the trachea and larynx; and the method with preliminary tracheotomy done a week, or preferably more, before the principal operation. For reasons already given, the larynx is quickly cut clear of the oesophagus with a sharp knife, without tugging. I have never found a transverse incision necessary if no more than the larynx was to be extirpated. I always remove the epiglottis whether involved or not.

In all cases the trachea is stitched to the skin as advocated by Cohen—preferably to a buttonhole if possible. The anterior wall of the oesophagus is stitched to the tissues about the hyoid bone, the epiglottis being removed. These stitches are of fine "ten-day" chromicized catgut and closely placed with the greatest care to guard against leakage into the wound, which is closed by buried and superficial stitches to obtain primary union to as great an extent as possible, and properly to support the oesophagus in place. Where, as in one case, the anterior wall of the oesophagus has to be extensively resected, the walls are stitched laterally to the skin, making an opening



Self-illuminating laryngeal speculum.

in the skin (above the tracheal wound, as shown in the photograph), to be later closed by a plastic operation if desired.

For reasons which time forbids entering upon here, I prefer a preliminary tracheotomy. One condition often makes it imperative. If there is the slightest stenosis the patient will take a general anaesthetic badly. Respiratory arrest will be synchronous with unconsciousness. Preliminary tracheotomy can be done painlessly by Schleich's local infiltration—an excellent method which I adopted reluctantly after much urging by Dr. John W. Boyce, who thus first locally anaesthetized 3 cases for me.

When a tracheotomy for stenosis has been required, I have always made them high, not low, as the textbooks advise. They should, I think, be as high as possible, and yet avoid entering the infiltrated area. I have done this high operation with a threefold object:

First, it allows me to take an adequate specimen (if I so desire); secondly, it enables inspection of the growth from below, which often yields valuable information; thirdly, and perhaps most important, it leaves the greatest extent of trachea available for mobilization, which is invaluable in the event of a later laryngectomy, when it will be desirable to stitch the trachea to a buttonhole in the skin.

Post-operative Care.

Most imperative are the orders against the administration of morphine or any other sedative that lessens the activity of the cough reflex, which is the watch-dog of the lungs. For the same reason the patient must be completely out of the anaesthesia before the end of the operation, so there will be no post-anaesthetic sleep. Two special nurses, long trained in tracheal work, alternate duty so that the patient never draws an unwatched breath. Either my assistant or myself are always within a few minutes' call.

The foot of the bed is elevated on chairs for the first twelve hours, and after that a less elevation maintained only during sleep suffices for three days. After the first twelve hours the bed is lowered, in a few hours a pillow is given, then more pillows, then a back rest, so that the patient is sitting up in bed at the end of twenty-four hours. On the second day he is sitting in a reclining chair, and the third day may move about a little. Here again is seen the absolute necessity of a strong general condition. Syncope would be frequent and possibly fatal were a feeble man subjected to this while being starved.

Dressings.—In this matter I differ most radically from other workers. In laryngectomies, thyrotomies, and tracheotomies the dressings are changed every three hours. They are invariably sterile gauze wrung out of mercuric bichloride 1 in 10,000.

After thyrotomy no tracheal cannula is inserted, but it is in readiness, sterilized for immediate insertion if need arise. The thyroid cartilage is not stitched, nor the outer wound, except one or two stitches at the upper part if it gape too much. The wound is kept open until it heals from the bottom. This invariable rule (to secure union of the divided cartilages first) prevents exuberant granulations forming on the internal aspect of the wound within the laryngeal or tracheal lumen. Dressings wrung out of bichloride solution, replaced every three hours, absorb secretions and filter the air which leaks through.

Should a tracheal cannula have to be inserted it is managed as after laryngectomy.

After laryngectomy the wound above the tracheal cannula is drained by a small wick of gauze inserted (not firmly) above the cannula and renewed every three hours. The gauze around the cannula is renewed as often as soiled, as is also the filter piece of gauze over the orifice. All of these are sterile gauze wrung out of weak mercuric bichloride solution.

The inner cannula is dispensed with and the outer cannula is replaced by a fresh one every three hours. All of these manipulations are carried out with the same strict technique as obtains in a perfect operating room. If any one doubts the necessity of the frequent dressings or cannula changes let him smell a dressing or a cannula that has been *in situ* for a day. I never pack a laryngectomy wound, as it prevents primary union, which is obtainable in more or less of the wound.

The mouth and teeth are carefully swabbed every half-hour with a very cold solution of boric acid in menthol-ated water. This is agreeable and allays thirst. The patient is turned upon his face frequently (without pillow) to allow pus and secretions from the pharyngeal wound to escape, as screatus is impossible after laryngectomy.

Food as well as water must be sterilized by the nurse, whose technique equals that of the operating-room nurse. Milk, eggs, everything, must not only be sterilized, but must be sterile when given to the patient with sterile utensils.

After thyrotomy almost all my patients have been able within a day or two to swallow normally. A few have been obliged for a few days to swallow "up hill" as after an intubation—that is, supine, without a pillow, and with the foot of the bed elevated on chairs, and the sterile liquid food being taken through a bent glass tube.

After laryngectomy no food or water is given by mouth for five days. Unquestionably, thirst can be allayed by enemata. As to the value of nutrient enemata, however, I have always been an absolute sceptic until my last case of laryngectomy, in which Dr. Jacob Wolf, by a system of rectal feeding, succeeded in preventing any loss of weight during the five days that no food was permitted to pass the mouth.

After five days the patient is allowed to swallow sterile water and sterile fluid food. If it leak through into the wound the stomach tube is used. After the eighth day, if leakage persist, the stomach tube is abandoned, and the leak is "corked" from below with a small tight tampon of gauze, placed before and removed after eating. Semi-solids are permitted after two weeks and general diet after three weeks.

During the first few days after laryngectomy vomiting

must be avoided at all hazards, lest stitches be dragged upon and primary union prevented. Hence the first feeding must be in very small quantities, both as to total amount at one feeding and as to quantity at each swallow. For the same reason all feeding tubes are to be avoided.

Preoperative Microscopy is of undoubted aid to diagnosis if an adequate specimen can be removed. Late in the disease such a specimen can always be obtained, but in those early cases in which we most desire help, it is frequently impossible by the old indirect endolaryngeal methods to bring away a sufficient depth of tissue to afford the microscopist a basis for a dependable opinion. For this reason, in cases of doubt, the writer has always advised exploratory thyrotomy with complete removal of the growth, which can then be examined in its entirety. If it prove upon the then reliable microscopical examination to be malignant, and if more radical removal be deemed advisable, it can be done immediately. If it prove benign, it requires removal; the patient is well rid of it, and with equal or greater safety to his voice as compared to indirect endolaryngeal removal. In some of my later cases, however, I have used a tracheoscope, modelled after Killian's, but with improved illuminator, for the removal of a specimen. Usually a general anaesthetic is required, so that it is not so satisfactory in cases with much stenosis. An attempt in such cases usually ends up in a stabbing tracheotomy. In this class, however, the old method is feasible, as stenosis comes late in the disease. Where a patient has come with severe stenosis requiring tracheotomy, I have taken a specimen through the tracheotomy wound.

In one of the negatively-reported cases the clinical appearances also were negative, both before and at thyrotomy, so that the sound perineoplastic tissues were spared a wide removal. Before the wound had healed, however, Dr. Duffy reported the case, upon examination of the entire growth, undoubtedly an epithelioma. The external wound was at once opened, and a wide area around the intralaryngeal wound was removed. There was no recurrence.

Of 20 cases of malignant laryngeal disease operated upon by me, negative preliminary microscopical reports of removed fragments were made in 14. That this was due not to the pathologist's error, but to the inadequate specimens, goes without saying. In each of the 14 cases, operation, in the face of the microscopist's negative report, was advised, on the strength of the age of the patient and laryngoscopic appearances, coupled with failure of benefit from mercurial inunctions and 180 gr. daily of potassium iodide continued for three weeks. Pachydermia, syphiloma, and syphilitic fibrosis can be to-day eliminated from the diagnosis without difficulty. Having excluded these, there is almost no disease of the larynx (that the laryngologist is likely to confuse with a malignant neoplasm) but can be benefited by thyrotomy and inclusive measures.

Benign neoplasms in adults require removal anyway, even if they be not considered precancerous conditions, and some of them, as papillomata, certainly require wide removal to prevent recurrence. This wide removal enables the pathologist to give a trustworthy opinion, which an endolaryngeally-removed fragment cannot. Laryngeal tuberculoma is now too frequently advantageously treated surgically to cause any one to regret thyrotomizing a tuberculous larynx. The same may be said of lupus. Of course, in the event of macroscopically evident extrinsic malignancy being uncovered at this exploratory thyrotomy, immediate laryngectomy is the course to pursue. In the event of finding a benign condition, such as a paralysis associated with a laryngitis, or an everted ventricle, no harm will have been done, and the good discovery will have been ample compensation.

Before the work of Sir Felix Semon and Mr. Butlin demonstrated the low mortality and good vocal results following thyrotomy, there might have been some justification for hesitancy in opening the larynx until after the endolaryngeally removed specimen had been reported malignant. But in view of the work of the authorities just referred to, and that of others, as well as the little I have been able to add, I venture to assert that the day is not far distant when almost every doubtful case (in an adult) of laryngeal neoplasm that does not yield to antisyphilitic treatment will be excised by thyrotomy, and that the subsequent management of the case will be determined by the entirely trustworthy results of the microscopic examination of the extirpated growth and its bed of normal tissue. In no case have I regretted adherence to this rule.

In the state of our knowledge at a time when it was thought that to open the larynx was to ruin the voice, such a procedure was inadmissible in possible benignity.

Bearing on this point I beg to refer, in passing, to 24 cases in which for benign conditions (stenosis following typhoid fever, syphilis, tuberculosis and traumatism) I exenterated the larynx down to a bare perichondrium. In every one of these cases (19) that lived over one year, a good useful voice resulted. Details are out of place here, and these cases are only referred to to emphasize the (at the present day) needlessness, in many cases, of a preliminary microscopical examination of an endolaryngeally-removed specimen. Of the occasional harmfulness of this removal I feel convinced, though in only two instances have I been able to attribute the early fatality to the removal of a specimen. In one of these the consent to a radical operation was withdrawn, and in the other I had unfortunately neglected to obtain such consent prior to the taking of the specimen. In both cases rapid local spread required tracheotomy in about one and two months respectively. In one the cervical lymphatics became rapidly involved and prompt extension to the introitus oesophagi superioris required gastrostomy, which was but the beginning of the end, death following six months after the taking of the fragment. In the other case, general carcinomatosis developed, followed by death in four months after the removal of the specimen. In both instances the entire growth at the time of the fragmentary removal did not much exceed a cubic centimetre in size. It is not impossible that had a radical operation followed immediately, metastasis would not have occurred. Further, there are degrees of malignancy, or, what may be the same thing, degrees of vulnerability, which may account for the rapid spread in these cases, as it does for a varying duration of freedom from recurrence after radical operation.

My conviction is that we subject our patient to some risk in the removal of a specimen a week or more before radical operation.

These views have been so often and so ably expounded by one of America's foremost laryngologists, Dr. John N. Mackenzie, that it is unnecessary for me to disclaim originality.

As to the naked-eye diagnosis of malignant disease of the larynx, I have come to rely greatly upon it in a certain class of cases. Within the present year, Dr. Emil Meyer promptly pronounced a case of mine malignant. In another instance, Dr. Francke H. Bosworth concurred with me as to malignancy on the first examination. I removed the larynx in both instances, and the histologic examination by Dr. Jonathan Wright proved these eminent laryngologists correct. In both instances a report (not by Dr. Wright) had been negative on an inadequate specimen removed, in one instance endolaryngeally and in the other through the tracheotomy wound. In some cases we must, I think, remove the larynx upon a naked-eye diagnosis.

In these cases no doubt could exist. In other cases, especially where there is a possibility of mixed lesions, mistakes are apt to occur. I have reported two such cases—one of syphilis and epithelioma, and one in which syphilis, epithelioma, and tuberculosis all three existed in the same case at the same time in the form of a mixed lesion. In another case, seen with Dr. J. A. Lichty, I made a diagnosis of laryngeal syphiloma. Orbital and cerebral gummata, with hemiplegia, exophthalmos, and diplopia, had yielded promptly to antisyphilitic treatment. An apparent paralysis of the left vocal cord developed suddenly about the same time as the hemiplegia. That this was really a fixation was evident later when infiltration became evident on that side of the larynx around the arytenoid and aryepiglottic fold. As these conditions were yielding rapidly to specific treatment, I felt so confident of their specific nature that I did not take a specimen. The case later fell into the hands of Dr. F. Whitehill Hinkel of Buffalo, and proved to be malignant, as Dr. Lichty had suspected.

The yielding to specific treatment indicated that the lesion was mixed, as the improvement was greater (healing

of ulceration) than that slight improvement we so often see in malignancy after the iodides.

It will be observed that errors in these cases were of omission, and, I think, do not render my position untenable as to cases that do not yield to antisyphilitic treatment.

Summary.

Of my 49 cases of malignant laryngeal disease, 29 were deemed unfit for operation, 20 were radically operated upon, making 15 thyrotomies and 8 laryngectomies, 3 patients undergoing both operations. There were no deaths within thirty days of operation.

Of the 15 thyrotomies 1 was alive and free from recurrence after six years, 1 four years, 2 three years, 1 two years, and 1 three months; 2 died of general diseases, 4 were lost track of after about one year, and 3 died of recurrence, in spite of subsequent laryngectomy. Omitting the recent case, of 14 thyrotomies 11 (78 per cent.) were well at the end of one year, relatively cured.

Of 8 laryngectomies 3 were hemilaryngectomies, followed by recurrence and the total operation. (Three other hemilaryngectomies without recurrence were included under thyrotomy.) Of the 8 laryngectomies 1 lived seven years, dying of "cancer of the stomach" (details unknown); 1 lived three years without recurrence, dying of cerebral haemorrhage, and 1 eight months, dying of alcoholism; 3 cases had recurrence within a year, 1 apparent cure was lost to observation after one year, and 1 is too recent (three months) to record. Omitting the recent case, there were 3 (42 per cent.) apparent cures well at the end of one year out of 7 cases, but no absolute cures of malignancy. On what would be the efficiency of laryngectomy, if done in intrinsic disease of limited extent, my work throws no light, as my laryngectomies were all for extrinsic disease.

Conclusions.

1. Thyrotomy is the operation of election for early intrinsic laryngeal malignant disease. Until a therapeutic cure shall have been discovered, surgery cannot hope for better results than this operation yields, if done only in intrinsic disease of very limited extent.

2. Laryngectomy is advisable in all cases extrinsic by origin or extension, provided the patient is in vigorous health.

3. There is no such thing as absolute ultimate cure of malignancy. Recurrence may take place after many years. For the purpose of comparing the relative efficiency of operative methods, freedom from recurrence for one year indicates adequate removal. Varying periods thereafter indicate varying degrees of malignancy or varying degrees of vulnerability, not repullulation of the primary process from operative inefficacy. If cancer can reappear in the stomach seven years after removal of cancer of the larynx, there is no reason why it should not reappear in the neck or the scar, where it would be called a "recurrence" rather than a "reinfection."

4. No operation other than a palliative one is justifiable in a patient of feeble general health, nor in one in good condition if he have metastasis or organic disease. Hence, in only a few cases is operation justifiable at the time they come under observation.

5. If this rule be adhered to in the selection of the case, and a careful technique, pre-operative and post-operative as well as operative, the mortality of laryngectomy can be reduced to a point where any surgeon will not hesitate to advise it. The mortality must always be considerable. It is not possible to reduce it to *nil*, and it is only so in this series by reason of the small number of cases.

6. One of the greatest factors in the production of operative shock in laryngectomy, as shown by the sphygmomanometer, is the tugging at the oesophagus while the larynx is being freed. This can be minimized by clean cutting without tugging or dry dissection and by a minimum of displacement of the oesophagus. Cocaine assists.

7. Shock, sepsis, and pneumonia can be minimized by perfection of technique, and should they occur the chances of recovery are good if the patient be in good general condition.

8. Routine surgery and routine after-care invite mortality.

9. Preoperative microscopy is often of aid in diagnosis, but it involves some risk of metastasis. It is better in any case of doubtful laryngeal neoplasm deemed operable to remove by thyrotomy the entire growth with its bed of normal tissue, and let the subsequent management of the case be determined by the then dependable report of the histological examination. When desired, a specimen may be taken in some cases by the self-illuminating tracheoscope, or through the tracheotomy wound.

10. While the surgery of malignant disease is discouraging, it need be so, in the larynx, only in default of an early diagnosis.

Dr. Herbert Tilley (London) referred to the importance of having teeth and mouth thoroughly cleansed for a few days previous to operation; in this way the danger of septic pneumonia might be minimized. Cocaine anaesthesia of the trachea to relieve the reflex coughing after opening the trachea was unwise, because it destroyed a valuable sign of tracheal irritation which might be due to the flowing of blood into the lungs. The thyroid cartilage might be drawn together by a stitch which did not enter the lumen of the larynx; if it did enter, granulations might form in the anterior angle, which might look like recurrence of the growth. The skin wound was to be sewn up in the upper three-quarters of its extent. Haemorrhage from the posterior end of the cut cord might often be checked by the application of Whitehead's varnish. It was an important point in after-treatment to see that the patient changed his position every two hours or so, in order that the lungs might be equally aërated.

Dr. J. A. Stucky (Lexington, Kentucky) said that in all major operations upon the larynx, mouth, or accessory sinuses, the question of maintaining complete anaesthesia was a most important and often serious one. The production of ether narcosis by the rectum had not been referred to. This was an old method recently resurrected and perfected by Frank Cunningham of Boston, and used by himself in four cases of the complete Killian operation, with most satisfactory results to patients and operator. The advantages in the method were the unobstructed operation field, whereby the danger of infection by anaesthesia apparatus was diminished, a small amount of ether was used, there was a rapid recovery from anaesthesia, and the absence of nausea and of the usual post-operative effects of prolonged anaesthesia. The method was described in full in the *Boston Medical and Surgical Journal*, and by himself in a paper recently read before the American Laryngological, Rhinological, and Otological Association at Kansas City in June, 1906.

Dr. StClair Thomson (London) complimented Dr. Jackson on his work, which he had followed for some years. He was in almost complete accord with all Dr. Jackson's views and methods, and would, therefore, limit his remarks to a few questions. Had Dr. Jackson ever performed thyrotomy under cocaine? Did he still use Hahn's tube? Did he leave the trachea wound open? Dr. StClair Thomson saw no gain in closing the wound completely, and it was a safety valve both for bringing up sputum and for testing swallowing powers. Dr. Thomson allowed his patients to sip water within twelve hours, and to get out of bed in two or three days. Finally, he asked Dr. Jackson whether he had any experience of mental changes in his patients after laryngo-fissure or laryngectomy—melancholia, mania, or suicidal impulse.

The President congratulated Dr. Chevalier Jackson on his brilliant results, and agreed as to the importance of the selection of cases, the mental element being very important. He (the President) had done two total extirpations; both patients were of cheerful and courageous disposition, otherwise he was sure they would not have got through the after-treatment as they did. One (sarcoma) lived for about a year, the other (extensive intrinsic carcinoma) was still alive and free from any sign of recurrence a year and a half after the operation.

Reply.

Dr. Chevalier Jackson, in reply, said that he thought Dr. StClair Thomson's suggestion to do thyrotomy under local anaesthesia an excellent one. Though he had never tried it for thyrotomy, it had proved perfectly satisfactory for tracheotomy. He considered it feasible to do a total laryngectomy thus also, but would hesitate to advise it lest some one should be tempted to use it on a patient too feeble to stand a general anaesthetic; if too feeble for the latter he would never

survive the operation. He always had faith in anything Dr. Stucky advocated, and therefore felt inclined to try rectal anaesthesia. In regard to the granulation tissue anteriorly in the larynx after thyrotomy, warned against by Dr. Herbert Tilley, he had twice committed the blunder of removing it. It had not occurred in his later cases, because he did not sew up the wound in the cartilage, and because he packed the wound until the divided cartilage had been firmly bound together by inflammatory tissue. It was not his custom to insert a cannula after thyrotomy, though one was sterilized and ready to hand for immediate insertion if needed. He was glad to hear the importance of preliminary local preparation by the dentist emphasized. In regard to mental trouble, he had to confess that one patient had melancholia—possibly due in part to the feeling that he was different from his fellows in breathing through his neck, and partly to the slow development of buccal voice which he would not systematically practise.

A DISCUSSION ON CONGENITAL STRIDOR (LARYNGEAL AND TRACHEAL).

A Discussion by the combined Sections of Laryngology and Otology and Paediatrics.

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In introducing the discussion upon congenital laryngeal stridor, it is my intention to limit my remarks to a consideration of the different views that have been advanced regarding the etiology of the affection. Before doing so, however, it is very essential that we should have a definite conception of the clinical features presented by a typical case of congenital laryngeal stridor. A perusal of the literature of the subject reveals the fact that there is sometimes a misconception as to what really are the clinical phenomena of this condition, a misconception which must necessarily lead to some confusion in the study of its etiology.

The symptoms have been accurately described by John Thomson. The infant, who appears in other respects normal, is noticed shortly after birth to have noisy breathing. The noise consists of a croaking sound accompanying inspiration, which assumes the character of a high-pitched crow when a more forcible inspiration is taken. Expiration may be accompanied by a short croak when the stridor is loud, but at other times it is noiseless. There are occasionally brief intervals during which no sound is audible even in very severe cases, but with this exception the stridor goes on constantly while the child is awake, and sometimes even when he is asleep. Emotional excitement or any physical cause of deeper breathing, such as exposure to colder air, or the act of crying, may intensify the sound. The child's power of crying and coughing is unaffected. A feature of very considerable interest in the case is the fact that although the breathing is noisy, it is not accompanied by the slightest distress, and there is no cyanosis. There is, however, marked inspiratory indrawing of the thoracic and abdominal walls, except in the mildest cases.

The stridor increases in loudness during the first few months, and after remaining about the same for a few months more, it gradually lessens and finally disappears during the course of the second year of life.

Various explanations have been offered to account for these clinical phenomena: thus we have a reflex laryngeal irritation induced by the presence of adenoids in the nasopharynx (Robertson, Eustace Smith); pressure upon the trachea from an enlarged thymus (Avellis, Hochsinger); congenital malformation of the upper aperture of the larynx (Lees, Sutherland and Lack, Refslund, Variot, Koplik); an ill co-ordinated spasmodic action of the respiratory muscles inducing an exaggeration of the normal infantile type of larynx, an acquired deformity (Thomson and Logan Turner).

1. *Adenoid Vegetations.*

Eustace Smith has ascribed the origin of the condition to the presence of adenoids and the associated naso-pharyngeal catarrh: "I attribute the stridor to a spasmodic contraction of the aryepiglottic folds, and believe that it is due to irritation set up by the adenoids in the naso-pharynx." He points out that while the size of the post-nasal vegetations may be insignificant in any particular case, they may none the less be the cause of the symptoms, as the nervous irritation may be produced not so much by the adenoids themselves as by the associated naso-pharyngeal secretion. To support his contention Smith describes a case in which the symptoms were entirely relieved by the removal of the adenoids. The infant, aged 1 month, had had noisy breathing since birth, and at times the crowing was so loud and the breathing so laboured and distressed as to raise fears of the child's life. Suffocative attacks of an alarming nature occurred from time to time, the lividity and distress being so great that immediate tracheotomy appeared imminent. On account of a suffocative attack of exceptional severity the child, at the age of 3 months, was admitted to hospital. The adenoid vegetations were removed, and in a very short time the noisy breathing ceased and there was no return of the threatened suffocation.

One is at once struck in the description of this case with the fact that the clinical picture differs in one very essential feature from the classical cases of congenital stridor, namely, in the occurrence of severe attacks of dyspnoea accompanied with cyanosis, and by the evident distress which the infant at times laboured under. Suffocative attacks of this nature do not occur in congenital stridor. With the exception of one of the fatal cases reported by Sutherland and Lack, we are not aware of any case of congenital stridor being accompanied by serious symptoms of this kind. That adenoid vegetations and their associated catarrh will produce attacks of difficulty in breathing, sometimes of an alarming nature, is quite well known, but such cases, to which that described by Smith corresponds, cannot be classified under the term congenital laryngeal stridor. Further, adenoids are very rarely met with in cases of congenital stridor, and when they are occasionally present their removal does not influence the character of the breathing.

In none of the cases examined by Sutherland and Lack were the tonsils much enlarged, nor were there adenoid vegetations of any importance. In none of them were the symptoms usually associated with such lymphoid hypertrophy present. Thomson did not find adenoids in his cases. In one of Variot's there was a small mass in the naso-pharynx, but its removal made no difference to the stridor. In regard to only one of the eleven cases published by Massei was the statement made that adenoids were present.

2. *Compression of the Trachea by an Enlarged Thymus Gland.*

In order to estimate what value can be attached to the views of Avellis and Hochsinger as to the origin of congenital stridor from compression of the trachea by the thymus, it is necessary to consider first, whether the trachea can be compressed by that gland, and, secondly, if such compression can be regarded as the causal factor in the production of this affection.

Both clinical and *post-mortem* evidence certainly appear to show that an enlarged thymus can compress the trachea and produce respiratory difficulty.

Clinical evidence is to be found in the small number of reported cases in which the respiratory embarrassment has been relieved by an operation upon the thymus. Thus, Theodor, Siegel, Koenig, Perrücker, Moritz Schmidt, and Morse have reported cases in which the thymus has been exposed and the gland, either in whole or in part, removed or stitched to the periosteum covering the upper end of the sternum. In Theodor's case the operation was performed by Ehrhardt; in Siegel's and Schmidt's cases Rehn was the operator; and in the case reported by Morse the operation was done by Murphy. I have not been able to find the report of more than seven cases operated upon. In six of them the operation proved successful, the difficulty in breathing being relieved. In Morse's case, in which the thymus was stitched, immediate relief was obtained, but the symptoms recurred in a few days, and the child gradually sank and died.

Post-mortem evidence of tracheal compression is also obtainable, but in selecting evidence of this kind I have been careful to cite only those cases in which it was

distinctly stated that compression of the trachea was observed after death. This is very necessary, for the reason that there are many cases in which at the autopsy the thymus is described as enlarged, and death is believed to have been due to compression of the trachea without any actual evidence of the same. In Marfan's case the trachea was found almost completely flattened by the hypertrophied thymus; Weigert also succeeded in demonstrating tracheal compression. In Massei's case a similar appearance was observed.

Sufficient evidence in support of the contention that the trachea may be compressed by a hypertrophied thymus has been recorded.

It is now necessary to determine whether such compression can be regarded as the etiological factor in cases of congenital stridor. It is advisable at this point to quote briefly two of the cases of thymus compression, selecting one in which an operation was performed for the relief of the dyspnoea and one in which there was *post-mortem* evidence of compression.

Theodor's case, an example of the first, was that of a child, aged 2 years, strong, pretty well nourished, and with no evidence of rickets. For four months it had suffered from attacks of dyspnoea with cyanosis. The intervals between the attacks became shorter and the dyspnoea increased in severity. It was accompanied by indrawing of the intercostal spaces and suprasternal notch—the stridor was present in both respiratory acts. Intubation failed to relieve the distress. The thymus was removed by Ehrhardt and there was no further respiratory difficulty. Massei's case was that of an infant four days old. There were sudden and violent attacks of dyspnoea, bordering upon asphyxia; these followed each other at intervals, their duration being about five minutes. Cyanosis, turgescence of the veins of the neck and great distress were present. Death occurred after three days, and the autopsy revealed a very large thymus compressing the trachea.

It is at once evident that these cases present a very different clinical picture from that which we associate with congenital laryngeal stridor, so that it is difficult to believe that the same causal factor can be present in the two classes of case.

It is necessary, therefore, to analyse the evidence brought forward by Avellis and Hochsinger in support of their contention. The cases described by the former in his paper correspond in every respect to the recognized clinical picture of congenital laryngeal stridor. Avellis argues that the approximation of the aryepiglottic folds in such cases is consequent upon a deeper-lying stenosis, and is comparable to the sucking in of the alae nasi in cases of nasal or post-nasal obstruction. No clinical or *post-mortem* evidence is advanced by him to support this assumption. In his cases there are no attacks of dyspnoea, no cyanosis, and no real respiratory distress which forms so essential a feature of the authentic cases of thymus compression of the trachea. In addition to the greater respiratory distress associated with thymus compression, the stridor is mainly of an expiratory type, and the up and down movements of the larynx are restricted or absent when the trachea is stenosed. In Avellis's cases these features are not present.

Hochsinger, too, is of the opinion that the condition known as congenital stridor is due almost exclusively to compression of the trachea by a hypertrophied thymus, and that the stridor is produced in the trachea. He supports his contention by the aid of two clinical methods—radiography and percussion. Out of 58 infants in whom a radiograph was taken, the thymus was regarded as hypertrophied in 26. In 20 of the latter there were symptoms of congenital stridor. With our knowledge of the great variations both in the size and in the weight of the thymus, and our knowledge of the fact that along with considerable hypertrophy of the gland there may not be the least interference with respiration, it would obviously be injudicious to attach too much importance to the evidence furnished by the *x* rays, and by percussion.

Further, we have analysed the notes of the 10 published fatal cases of congenital stridor, and in only one of them—namely, in Koplik's case—is the thymus stated to be enlarged, and in it there was no evidence of tracheal compression. In five of the cases the gland is described as not being hypertrophied, while in the remaining four no mention is made of its condition. In the four latter it is reasonable to suppose that the gland presented no abnormal appearance. In typical cases of congenital laryngeal stridor, therefore, there is no *post-mortem* evidence that the thymus plays any part in the causation of the stridor. Until more reliable evidence can be brought forward we are unable to accept the view of Avellis and Hochsinger.

3. *Congenital Malformation of the Upper Aperture of the Larynx.*

Sutherland and Lack are of the opinion that congenital laryngeal stridor is dependent upon two factors—namely, a peculiar congenital malformation of the upper aperture of the larynx, and the flaccidity of the structures which form that aperture. In six cases in which they made a laryngoscopic examination the epiglottis was found sharply folded upon itself, its lateral margins being in close apposition and in some cases in contact. The aryteno-epiglottidean folds were approximated, and thus the upper aperture of the larynx was reduced to a small slit, the thin folds bounding it seemed quite flaccid and flapped to and fro on respiration. In only a few of the cases could a view of the vocal cords be obtained. In one of their fatal cases the epiglottis was soft and folded inwards, but no structural change could be detected in the larynx on microscopic examination. While a certain amount of deformity of the upper aperture is essential for the production of the stridor, the valvular action produced by the flaccidity of the soft parts forming its boundary is also necessary to cause the obstruction.

The stridor is produced by the approximation of the aryepiglottic folds; as the respiratory column of air enters the larynx, the folds, already lying closer to each other than in the normal infantile larynx, become approximated. The fact that they are wider apart at the commencement of respiration and become more closely approximated as the act progresses bears out the observation that the stridor becomes higher pitched at the end of respiration when the folds are near together. Sutherland and Lack state, further, that as the child grows the malformation remains, but the stridor passes off, because the parts forming the upper laryngeal aperture become less yielding. They found the malformation persisting as long as the cases remained under observation, in one case up to the age of 6 years. Occasionally a similar malformation is met with in advanced life, but they could bring forward no evidence that such cases had suffered from stridor in infancy.

Other writers have expressed similar opinions with regard to the pathology of congenital stridor. Lees depicts the larynx of an infant aged 1 year, who had suffered from stridor since birth and died from laryngeal diphtheria. The deformity was of a very marked type. Refslund describes the larynx of an infant aged 2½ months, who had been the subject of persistent crowing from birth. Death occurred from pneumonia, and *post-mortem* examination showed that the upper laryngeal aperture was reduced to a mere slit. Variot's patient was a boy aged 1 year and 10 months, who commenced to suffer from inspiratory stridor shortly after birth. He died from scarlet fever, and the upper aperture of the larynx showed a lesser degree of the deformity which is figured in Refslund's case. Haushalter has published the history of a child, who died at the age of 8 months from bronchopneumonia. Two days after birth inspiratory stridor was noticed. At the autopsy the upper laryngeal aperture was considerably narrowed. The epiglottis was rolled backwards upon itself, its lateral borders being in contact. It presented somewhat the appearance of a funnel, only a small rounded opening being left at the apex of the epiglottis. The aryepiglottic folds were also approximated, and the arytenoid cartilages lay more closely together, so that the interarytenoid fold was effaced.

In Koplik's case, to which reference has already been made, death took place at the age of 1 year from extensive bronchopneumonia. Symptoms of laryngeal stridor were first noticed three weeks after birth. The upper laryngeal aperture showed a well-marked example of deformity, the epiglottis being curved backwards with its lateral borders almost in contact. The arytenoid cartilages and aryepiglottic folds were also approximated, the latter being thin and membranous, so that the upper aperture of the larynx was represented by a mere slit.

In all these cases presenting symptoms typical of the

clinical picture of congenital laryngeal stridor the appearance of the upper aperture of the larynx had been ascertained by *post-mortem* examination. Death occurred in the majority from an intercurrent respiratory affection. In all of them a very similar and characteristic malformation, varying only in degree, was observed.

It is regarded by these observers as a congenital malformation. The clinical features present in all of them were typical of the classical picture of congenital stridor. The attacks of dyspnoea and cyanosis which form so marked a feature in cases of compression by the thymus were not observed in these cases. In studying the illustrations of the larynx figured in the fatal cases of Lees, Refslund, Haushalter, and Koplik one cannot fail to be struck with the marked deformity of the larynx. It is difficult, indeed, to believe how respiration could have been carried on without any dyspnoea or cyanosis accompanying it. They are drawings, however, and not photographs. In Variot's case, which has been photographed, on the other hand, the deformity is not nearly so marked.

4. *An Acquired Deformity of the Upper Aperture of the Larynx, the Result of a Disturbance of the Co-ordination of the Respiratory Movements.*

John Thomson regards the primary element in the causation of congenital laryngeal stridor to be a disturbance of the co-ordination of the respiratory movements, possibly due to some developmental backwardness of the cortical structures which control them. As a result of the ill co-ordinated and spasmodic nature of the breathing a change takes place in the upper aperture of the larynx; there is a constantly-recurring sucking in of the soft structures which form the aperture, so that an exaggeration of the normal infantile type results.

The Larynx in the Infant.

In order to make the above statement more clear it is necessary to consider both the type of the larynx and the character of the respiration in infants.

For this purpose Thomson and the writer examined a number of larynges from stillborn infants and from children up to the tenth year of life. Some of them were examined *in situ* by means of a dissection which exposed the larynx from behind, while the remaining larynges were studied after their removal from the body by the usual *post-mortem* method. Our attention was directed mainly to the upper aperture of the larynx. The structures forming the boundaries of this space—namely, the epiglottis in front, the tips of the arytenoid cartilages, and the interarytenoid fold behind, and the aryepiglottic folds laterally, were found to be much softer and more collapsible than they are in the adult. In addition to the evidence of this, as furnished by the handling of the parts, it was observed that the upper aperture of the larynx of the stillborn infant was relatively wider than that of the infant which had breathed. In the latter the space is narrower from side to side owing to the folding backwards and inwards of the epiglottis, with the consequent drawing together of the aryteno-epiglottidean folds. This is due to the soft collapsible character of these structures acted upon by the inspiratory air current. The form of aperture thus produced constitutes the infantile type of larynx which has been described by Merkel, Luschka, and other anatomists. As the child grows a change takes place in the form of these parts, the epiglottis becomes more expanded, the aryepiglottic folds are separated, and the upper aperture is in consequence broadened. At the age of 3½ years the opening of the larynx is wider, while at 9 years of age the infantile type has almost entirely disappeared.

While varieties are met with in different infantile larynges at the same period of life, all of them possess in a more or less marked degree the characteristics above described. These peculiarities combine to make the upper aperture of the larynx liable to changes in form under the action of influences which have no corresponding effect upon the adult organ. The most important influence of this kind is a sudden drawing of air into the larynx. In the larynges of newborn children and very young infants the effect on the larynx of drawing in air can be easily demonstrated after death by a simple experiment. A bent metal tube is introduced into the trachea, and in order to open up the chink of the glottis a piece of rubber tubing is placed between the vocal cords. Forcible inspirations are then made through the tube, when it is found that with each a striking alteration in the form of the upper aperture of the larynx occurs. The exact change varies in different cases, but the following main types may be noted:

1. In some cases the lateral margins of the aperture become sucked together so that merely a narrow mesial slit is left between them.

2. In others the epiglottis is drawn backwards and downwards, so as to act as a lid to the aperture.

3. In others again the arytenoid cartilages meet in the middle line, the margins of the anterior part of the aperture remaining unaffected.

When this experiment is repeated several times upon the same larynx one observes that the upper aperture retains to a very considerable degree the deformity which the suction has produced. Thus, when the aryepiglottic folds are drawn in so that a vertical mesial slit is left between them, they are found after a few experiments to be permanently nearer one another. We were further struck by the fact that in some of the experiments the form assumed by the upper laryngeal aperture closely resembled the deformity which has been figured in the fatal cases described by Refslund, Thomson, and others. In Thomson's case, an infant dying at the age of 3 months, the epiglottis was folded back in such a way that its lateral margins were in contact, and the aryepiglottic folds approximated so that only a narrow slit was left between them. In other words, the malformation, which has been regarded by some writers as a congenital one, can be acquired by such a simple experiment as that just referred to.

The objection will doubtless be raised that such experiments conducted upon the cadaver cannot be regarded as entirely trustworthy, because the exact conditions which exist during life are not present. We would, however, again emphasize the fact that the aryepiglottic folds, which are mainly concerned in the production of the deformity, contain only a few muscular fibres, and are thin, lax folds of mucous membrane which are readily acted upon by such a mechanical force as the sucking in of air between them. Further, it is well known to all who have attempted to examine during life the larynx of healthy infants and young children that the aryepiglottic folds tend to become approximated when the child forcibly inspires during the examination—that is to say, that the structures can assume in the living body the same position that they can be made to take up in the cadaver and as a result of a similar cause.

Respiration in the Infant.

In very young children the respiration under normal conditions is peculiar in being irregular in rhythm and in force, as if the co-ordination involved in its movements were not as yet under full control. There often occur, therefore, relatively sudden respiratory efforts. When a young baby is excited, it is no uncommon thing for it to develop a temporary crowing noise with inspiration, although it has none at other times. A similar but louder and more persistent crowing, which exactly resembles that in a case of infantile stridor, is not infrequently observed in young infants while they are beginning to come out of chloroform narcosis, and a similar loud crowing is a not uncommon accompaniment of operations on the genital organs owing to the sudden forcible inspiration which the stimulation of the nerves of these parts brings about. Along with the crowing there is always a degree of indrawing of the lower chest wall proportionate to the loudness of the crow.

It is evident, therefore, that in infants in whom the respiratory conditions are normal under ordinary circumstances, there may be produced by any cause which will bring about a sudden and increased inspiratory effort a crowing respiration similar to that which is observed in cases of congenital laryngeal stridor. This is due to the soft, collapsible nature of the structures forming the boundaries of the upper aperture of the infantile larynx. In the typical stridor cases, owing to the ill co-ordinated and spasmodic character of the breathing, which forms the primary element of disturbance in these cases, there is also produced a narrowing of the upper laryngeal aperture and a consequent more or less constant condition of stridulous breathing, the same as occurs temporarily in normal children. We believe that the sound is produced

mainly at the abnormally approximated aryepiglottic folds. The inspiratory croaking and crowing sounds vary in loudness according to the vigour of the inspiration. It is never constantly present, there being always occasional free intervals.

There appears to be sufficient anatomical, clinical, and experimental evidence, therefore, in favour of the view that an acquired deformity of the upper laryngeal aperture, the result of an ill co-ordinated type of respiration, is probably the cause of the condition known as congenital laryngeal stridor.

II.—Henry Ashby, M.D., F.R.C.P.,
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The larynx is provided with two physiological stops, one at the entrance, which comes into play during deglutition, and is effected by the associated actions of the external thyro-arytenoid, transverse arytenoid, and thyro-aryepiglottidean muscles; and the second at the vocal cords. The latter stop serves the double purpose of regulating the passage of air passing to and fro during respiration and also for vocalization.

The muscles which operate the vocal cords are innervated in co-ordination with the muscles of respiration, both in breathing and vocalization, including crying; the stop at the vocal cords is readily put into action reflexly during infancy and childhood, and also by motor impulses descending from the higher level centres during an emotion, especially anger. A familiar instance of this is witnessed in the so-called "child crowing" and the "blue fits" or "inspiratory standstill," brought on in neurotic children by suddenly aroused anger. There is a "standstill"—that is, a tonic contraction of one set of muscles and a failure of inhibition of the opposing set.

Under normal circumstances, even in prematurely-born infants, the timing of these movements, or, in other words, their co-ordination with the associated movements of deglutition and respiration, is perfect. Moreover, however lax and delicate the epiglottis and its muscular folds may be, they are physiologically fit.

In the class of cases which during infancy are associated with stridulous inspiration there is clearly some form of stenosis at one or other of the stops—namely, at the entrance of the larynx or at the vocal cords.

The commonest form to which the name of congenital stridor is applied is heard soon after birth, and is heard with inspiration; it is usually well marked during the greater part of the first year, and gradually disappears during the second. It strangely varies from time to time, almost or entirely disappearing at times, but is always exaggerated when the infant is disturbed or attempts to cry. Any attempt to inspire deeply is accompanied by sucking in of the chest walls, and a stridulous, high-pitched crow. Usually there are no attacks of dyspnoea, no holding of the breath, the cry is unaltered, and the infant does not suffer in health. In exceptional cases a difficulty or spluttering in swallowing is associated with congenital stridor. Slow and deliberate swallowing, like easy breathing, is effected without difficulty, but hurried swallowing, as when the infant is thirsty and eager to satisfy its thirst, is accompanied by spluttering. All this may happen without any nasal obstruction whatever.

During the second year the stridor usually disappears, first entirely disappearing during easy breathing, but reappearing when the child is running about and excited. Bronchial catarrh, in some cases, at least, makes the stridor worse and causes it to reappear.

In the following case, which proved fatal from pneumonia, the stridor and stenosis were exceptionally severe.

A female infant was first seen when 3 weeks old; there was marked stridor of the usual type; it had also an occipital meningocele. The stridor had existed since birth; it took the breast well, and appeared to thrive. When 5 weeks old it was admitted to hospital, as the stridor seemed worse. There was clearly a stenosis, which varied from time to time, but was always worse when the infant was undressed for examination. At times at night, when asleep, the stridor was very marked. Later there was some bronchial catarrh and a temporary stopping of respiration, with cyanosis. Tracheotomy was performed one night, as the distress was great, with complete relief to the breathing. Death occurred a few days after at 9 weeks of age. At the necropsy it was noted there were no adenoid overgrowths, no enlargement of the thymus. Double bronchopneumonia. The larynx, including the epiglottis and cords, were normal. The larynx did not differ in any respect from the larynx of an infant of the same age that did not suffer from stridor. The meningocele was the size of a Tangerine orange, and communicated by an opening in the lower part of the occipital bone with the membranes at the base of the cerebellum.

It seems clear that in this case the stop was at the vocal cords, the muscles regulating the size of the aperture of the rima glottidis failing to act in co-ordination with the muscles of respiration, so that the aperture was abnormally narrow during the inspiratory act, and this was most marked when a deep breath was taken as in crying. What part, if any, the meningocele played in this tragedy seems quite uncertain. Possibly both were the result of developmental anomalies. There was no evidence of any laxity of structure of the epiglottis or its folds or any suggestion that a sucking in of these structures had taken place as in the cases recorded by Lees, Variot, Refslund and Koplik.

Personally, I am inclined to the belief that in the cases of congenital stridor which I have watched, the efficient cause was a neurosis, the result of a disturbed co-ordination, the rima glottidis failing to open its portals sufficiently, especially during a vigorous inspiration. The fact that it varies from time to time, and is associated in some cases with a difficulty of swallowing, seems to me to point more in the direction of a neurosis than to primary failure of development of the structure of the larynx.

There is no doubt that an overgrowth of the pharyngeal tonsil and nasal catarrh is at times present at birth, and will give rise to stridulous and noisy breathing. These troubles cease after suitable treatment; but the cases I have referred to are not in this category.

It is conceivable that an enlarged thymus may press on the trachea and give rise to spasm of the glottis as well as tracheal stenosis, but I have no evidence of this from my own cases. I have seen several cases of tracheal stenosis in infants, which tracheotomy failed to relieve, and at the necropsy a tuberculous abscess involving the lymphatic glands and thymus, situated in the anterior mediastinum, was found compressing the trachea. My own impression is that an enlarged thymus or enlarged or caseous lymphatic glands in the mediastinum does not tend to compress the trachea or bronchi seriously or produce symptoms unless pus forms.

DISCUSSION.

Dr. Edmund Cautley (London) showed the larynx of a child, aged 5 months, who had suffered from laryngeal stridor during life, and had died from epidemic diarrhoea. For comparison, he exhibited a normal larynx from a child of the same age and weight. The abnormal larynx showed close approximation of the edges of the epiglottis and of the arytenoid cartilages. During life the stridor persisted to a certain extent during sleep, and in addition the child had occasional attacks of severe stridor and urgent dyspnoea. There were no enlarged post-nasal adenoids and no enlargement of the thymus. Dr. Cautley regarded the persistence of stridor during sleep as an argument against the theory of neurosis. He supported the view that the condition was due to a congenital malformation of the upper laryngeal orifice, exaggerated by the approximation of the unduly lax tissues during inspiration. Recurrence of the stridor on sudden and deep inspiration in later life suggested that these tissues still remained somewhat lax, although recovery from the stridor had occurred as the result of more complete development.

Dr. A. Jacobi (New York) said a single case, no matter how well observed, should not give rise to the building up of a theory. That was where so many mistakes were made. In a case of stridor, the many causes to which Dr. Turner had directed attention should be considered. One form of stridor which he believed had not been mentioned was what he might compare with the purring of a cat, accompanied by very moderate dyspnoea and retraction. Some babies—he had seen a few such—developed and got well after many months. In one an autopsy had been made, and a moderate hypertrophy of the mucous membrane and submucous tissue about the insertion of the arytenoid cartilages had been found, but nothing else.

Dr. D. J. Gibb Wishart (Toronto) had seen some six cases. The last was that of a child less than one day old. The stridor was present even while it slept. Cyanosis set

in at intervals if it got upon its back, and relief was obtained by turning it on its side. No adenoids were present, and the other parts were apparently normal, while the epiglottis lay over upon the glottis. The child was doing well without any medicine by simply watching its position. In another child, aged fifteen months, the position of the epiglottis was well seen falling over the glottis and being sucked in with every inspiration. The interior of the larynx could not be inspected. It was examined subsequently under an anaesthetic and tracheotomy was performed. The parts were found to be normal. The child recovered.

Dr. A. Brown Kelly (Glasgow) said that the stridor was not due to vibration of the aryepiglottic folds as commonly held, but to vibration of a flap of loose mucous membrane on the summit of each arytenoid. This statement was based on the laryngeal examination of (1) a case of congenital stridor, (2) a child, aged 7 years, who had similar croaking inspiration for a period of three weeks, and (3) children during anaesthesia. The stridor and respiratory embarrassment were usually regarded as due to a common cause, but this he questioned. As an exception he reported the case of an infant suffering from congenital stridor in which the entrance to the larynx was normal but for the vibration of the mucous membrane over the arytenoids. With intubation the croaking ceased, but the respiratory difficulty was not relieved. There were no signs in the chest. As the obstruction seemed to be situated in the trachea or bronchi, Mr. R. H. Parry removed the upper part of the thymus. The operation had been quite recently performed, so an opinion as to the ultimate result could not be expressed. The impression gained during the operation, however, was that the thymus did not cause the dyspnoea. It might be said that this case was not one of congenital stridor, of which he had had several of the ordinary mild variety. It differed from the typical cases in the degree of expiratory difficulty, but in that only. He had seen two similar cases, both of which died.

Dr. Dundas Grant (London) remarked that these cases came less to throat clinics than to children's hospitals, and that laryngologists saw comparatively few of them. In one of his cases in an infant the stridor was due to a lax epiglottis (as seen by the laryngoscope), and disappeared as soon as the epiglottis was lifted by means of a hook. In another the sides of the vestibule were undoubtedly sucked in. He attributed the symptom to abnormal developmental laxity of the parts.

Dr. A. Jacobi (New York) took it that such cases as developed after months were mostly embryonal and congenital. To that class belonged tumours, and congenital mobility of the tongue, which might result in what had been called "swallowing of the tongue." This might lead to sudden death after having given rise to occasional attacks of temporary stridor and dyspnoea.

Dr. E. Fletcher Ingals (Chicago) had happened to see several of these cases, and in one was fortunate enough to get a good laryngoscopic examination. In that case the walls of the opening of the larynx were constantly sucked in with inspiration, and he came to the conclusion that this resulted from inco-ordination of the muscles—in other words, that it was a neurosis; he made no research to establish that theory. Recently, however, after removing a papilloma from the larynx of a child 2 or 3 years of age, by means of Killian's tubular laryngoscope, he was obliged to do a tracheotomy suddenly because of swelling of the larynx. On examination afterwards, while breathing was carried out through the tracheotomy tube, he found the walls of the larynx were constantly sucked together in inspiration, so that it was impossible to see the inner surface of the larynx unless the bronchoscope were crowded in to open the organ. This child had no laryngeal stridor, and the larynx was normal, excepting the presence of the papillary growth.

Dr. Hudson Makuen (Philadelphia) had been impressed with the fact that they knew so little about the symptom laryngeal stridor. The difficulties of arriving at the exact physiology of the condition that caused the symptom were very great, because they could not see the entire larynx during the stridor. There must, however, be present at least one of two conditions—(1) a faulty development of the cartilaginous portion of the larynx, and (2) an insufficiency of the muscles whose function it was to hold the larynx open during inhalation. As to etiology, the condition was analogous to asthma, and there might exist any one of many causes.

Dr. G. A. Sutherland (London) said that this affection was a distinct clinical entity, regarding the diagnosis and treatment of which all were agreed. The only difference of opinion was as to the pathology. That a malformation was present in the larynx was admitted, but some held with Drs. Thomson and Logan Turner that this was secondary, while others held that it was primary and congenital. In suporting the latter view he referred toe the absence of any other evidence in support of the neurosis theory, to the continuous nature and persistenc of the stridor, and to the fact that the breathing in every other way was normal. On the other hand, the presence of a malformation could be determined by visual inspection from the earliest months of life.

Dr. W. Peyre Porcher (Charleston, South Carolina) reported a case of immediate tracheotomy in which the tube was retained for three weeks. He expressed the opinion that congenital stridor was due to congenital cachexia. Resort to surgery was an acknowledgement of conscious weakness or ignorance, and proper medicaments should relieve the condition.

Dr. Chevalier Jackson (Pittsburg, Pennsylvania) said the only case he had ever seen in which the stridor was congenital was that of a 2 months old infant that died before he could reach it for tracheotomy. There had been a history of stridor without cyanosis since birth. He split the larynx, and found a papilloma at the anterior commissure dangling by a narrow pedicle. The growth was too small to cause stenosis; whether there was a spasm of the glottis or an indrawing of the border of the laryngeal orifice on account of the increased inspiratory effort due to partial stenosis he did not know. Nor could he say whether the papilloma was congenital or not; the history only indicated that the breathing at times had been stridulous since birth.

Replies.

Dr. Logan Turner, in closing the discussion, thanked the members for the kind way in which they had listened to him. He wished to again emphasize the statement which he had made when opening the discussion, that the subject had been intentionally limited to the condition known as congenital laryngeal stridor. It was a well-recognized clinical condition, and its etiology was still a matter of difficulty. He had sought to lay before the meeting the four main views that had been enunciated regarding its etiology. He thought the first two might be put aside. The question as to whether they had to deal with a congenital malformation of the upper aperture of the larynx or an acquired malformation the result of a respiratory neurosis still remained an open one. They had had an expression of opinion from the adherents of each of these views. The discussion did not seem to Dr. Turner to have thrown any fresh light upon this interesting subject. He had heard nothing to cause him to change his view, which was in accordance with that put forward by Dr. John Thomson.

Dr. Ashby, in reply, said that he distrusted the explanation which sought to fasten the onus on a "floppy" epiglottis, of producing the stridor in these congenital cases. He thought that in this instance, as in the case of defective speech and a difficulty in swallowing, the origin of the trouble lay in a failure of co-ordination, or, in other words, the nerve muscle arrangements were imperfect. The close association between an emotional state of the infant and an exacerbation of the stridor and stenosis seemed to point to this.

International Congress of Practical Hygiene.—An International Congress of Practical Hygiene will be held in Paris, March 21st to 31st, 1907, under the presidency of Professor Raphael Blanchard. He will be supported by Drs. Jeanselme, Roger, physicians to the Paris hospitals; M. Jeannot, inspector of instruction; Dr. Georges Petit, Professor Quénu, and others. The work of the Congress will be distributed among eight sections, dealing respectively with food hygiene in country districts; the hygiene of the dwelling, of workshops, of colonies; general hygiene, puericulture, the hygiene of adolescence and alcoholism. A complete programme, and all other necessary information, may be obtained from the General Secretary, M. Schaer-Vesinet, 15, Rue des Petits-Hôtels, Paris (Xe.).

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

RUPTURE OF THE ADDUCTOR LONGUS.

THE following reports of three cases of rupture of the adductor longus have been forwarded by Inspector-General H. M. Ellis, Medical Director-General of the Navy. They have all been received by him this year, and he suggests that the accident cannot be so rare as is generally supposed. It will be noted that two of the cases occurred in the practice of one observer. Only one set of the photographs mentioned in the reports is here reproduced, as the appearances in all of them were precisely identical, although the assigned etiological pathology differs.

CASE I.

The accompanying two photographs illustrate the case of a warrant officer who was admitted into the Royal Naval Hospital, Chatham, with rupture of his adductor longus femoris. The accident occurred while on the bridge of a destroyer in rough weather. The deck was very wet, and the officer's feet slipped widely apart in a lateral direction, and the muscle was ruptured by voluntary effort to adduct the limbs. The one photograph shows a well-



Fig. 1.—Showing appearance with adductors relaxed.



Fig. 2.—Showing appearance with adductors contracted.

marked tumour in the position of the upper third of the muscle. This tumour was most prominent when the patient forcibly contracted the adductors. The other photograph shows the tumour much less marked, and was taken when the adductors were relaxed. No operation appeared to offer any likelihood of success, so that the treatment consisted of rest in bed and gentle massage. The patient returned to duty, at that time being scarcely at all affected by the accident. The case was so rare that I venture to report it now. The photographs were not ready in time to send them in at Chatham.

A. GASKELL, F.R.C.S.Eng.,
Staff Surgeon, R.N.

CASE II.

W. D., 26, stoker H.M.S. *Highflyer*, came sick on February 10th, 1906, at Bermuda. He had been playing football that afternoon, but remembered no kick or twist, or straining effort. He stated that on January 5th, 1906, he had sprained the muscles on the inner side of the upper part of the left thigh "by running." After the football match he bathed, and he then noticed pain and swelling at the inner side of the thigh. When he came to the sick bay he had a hard, painful, non-fluctuating, flat swelling about 4 in. by 6 in., lying vertically in the position of the upper half of the adductor longus. There was no pulsation in the swelling. The limb was fixed on a splint, and an evaporating lotion applied to the swelling. He remained in bed on the sick list for fifteen days, and much discoloration of the skin appeared from the effused blood. When he returned to duty the limb was a little weakened from the loss of function of this muscle. The patient was able to voluntarily contract the upper portion, and make it harder and shorter and more prominent. Attached are two photographs of the case.

A. GASKELL, F.R.C.S.Eng.,
Staff Surgeon, R.N.

CASE III.

History.—W. D., stoker, in February, 1906, when clearing fires with a slice, a piece of the clinker slipped, and the handle of the slice struck the inner side of the left thigh. He noticed a swelling an hour after the accident.

Signs.—There is a tumour in the inner and upper aspect of the upper third of the left thigh. When the leg is held in the position of abduction, and the patient abducts his thigh as strongly as he can, the tumour becomes twice as large, and as hard as a board. On manipulation, the running bundles of the muscle fibres can be felt in a direction downwards and outwards. There is no pain, and it does not cause him any inconvenience. A rupture evidently took place at the time of the accident in the fascia lata, and so allowed the muscular belly of the adductor longus to protrude. This is undoubtedly a case of a hernia of the adductor longus muscle through the fascia lata, and is published owing to its extreme rarity. A photograph of the tumour is enclosed. A short description of this condition will be found in *Tillman's Surgery*, vol. iii, p. 728.

ROBERT J. MACKEOWN, M.B., B.Ch., D.P.H.,
Staff Surgeon, R.N.
PIERCE L. CROSBIE, F.R.C.S.I.,
Surgeon, R.N.

VERONAL IN THE VOMITING OF PREGNANCY.

THE following case is of interest, both from the gravity which it at one time assumed and from the markedly beneficial effect produced by large doses of veronal administered rectally at a time when the question of procuring abortion was seriously under consideration:

A healthy primipara, aged 29, developed serious symptoms of vomiting at the end of the second month of pregnancy. Nothing was retained by the stomach, and the retching and vomiting prevented her obtaining any sleep for more than a few minutes at a time. No improvement resulted from treatment by any of the following measures, namely: Iced champagne, effervescing saline mixtures, vinum ipecac. mj every hour, oxalate of cerium gr.v four-hourly, complete rest, careful constant nursing, entire rectal feeding, everything by the mouth being stopped. Hypodermic injections of strychnine were given to improve the pulse, which became rapid and feeble. Pot. brom., gr.xxx, was given in one of the nutrient injections, and repeated in two hours, without any appreciable effect, and no relief followed morphine, gr.¼, hypodermically. At the end of three days veronal, gr.xxxii, in powder was administered in a nutrient injection. The patient fell asleep within half an hour, and slept well for eleven and a half hours, and at intervals afterwards for the next six hours, merely rousing up while the nutrient injections were given. No vomiting occurred for twenty-five hours after the administration of the veronal, but after that time it gradually returned, though not to the same distressing extent as formerly, and during the following ten days small quantities of Brand's essence, kreochyle, drachm doses of pepsin wine, peptonized milk, lime water and barley water were occasionally retained for a few hours.

At the end of that time, as sleep was chiefly being obtained in snatches of one to one and a half hours, and as the patient was not getting on, another dose of veronal, gr.xxxii, was administered by the rectum. This was followed by ten and a half hours' sleep with no ill effect other than a purpuric rash on the arms, which passed off in twenty-four hours.

Vomiting recurred at intervals, but the patient gradually began to take more varied nourishment by the mouth, the nutrient injections being continued as well for a time. Sleep was obtained naturally in longer periods each day, and a week after the veronal she was getting from five to nine hours daily without the aid of drugs.

The intervals between the attacks of vomiting became longer, and by one month from the commencement of the illness she was convalescent, taking ordinary food, and getting out each day. Since that time, four months ago, she has remained quite well, and quickening took place normally.

The sleep obtained by the veronal was apparently sound and peaceful, and the patient awoke refreshed and feeling better in every way. Apart from some amount of dysmenorrhœa and an attack of ovaritis (?) two years previously the history was good, and there was no evidence of any co-existing renal or cardiac mischief, and the position of the uterus was normal.

F. M. ROWLAND, M.D., B.A.Cantab.,
Lichfield. M.R.C.S., L.R.C.P.

REPORTS OF SOCIETIES.

OBSTETRICAL SOCIETY OF LONDON.

W. R. Dakin, M.D., President, in the Chair.

Wednesday, November 7th, 1906.

Myomectomy during Pregnancy.

A communication on this subject was read by Mr. Alban Doran, which is published in full at p. 1446 of this issue.

The President asked what the indications for operation had been in the case just described.

Dr. Lewers referred to a case in which he had performed myomectomy at the fifth month of pregnancy for a subperitoneal fibroid the size of a Tangerine orange. The pregnancy was not interrupted, and the patient was delivered normally at full term. He had operated under the impression that the tumour was an ovarian dermoid.

Mr. Doran, in reply, observed that he had stated in his communication the reason he had decided to operate. The diagnosis was, as in Dr. Lewers's case, not quite certain. He did not approve of the removal during pregnancy of fibroids of the fundus, or of any part of the uterus above the pelvic brim, save under exceptional circumstances.

External Version.

Dr. Rivers Pollock read a paper on external version, reviewing the present position of the operation in England, America, and on the Continent. The essential point in performing it was to suspend the patient by the feet approximately or actually in the vertical position. This led to the disengagement of the breech from the pelvic brim. The breech could be prevented from descending again by pressure of the hand. The patient could then be placed on her back and the remainder of the operation completed in the usual way.

Dr. Champneys said that all would be glad to have new methods of dislodging the fetus from the pelvis in the performance of external version. The method adopted with success by Dr. Pollock seemed to him to require some explanation, and also testing against other methods. As regards the first, it struck him that the position of the legs of the patient was not essential; it was the position of the trunk, and especially of the pelvis, that mattered. In the erect position the brim of the pelvis was inclined to the horizon at an angle of some 60 degrees. In the inverted position it would be still inclined at that angle to the horizon. In the genu-pectoral position, however, if properly arranged, the brim of the pelvis pointed vertically downwards. He wanted to know, under these circumstances, why the inverted position—suspension by the legs—was superior to the genupectoral position. In the second place, he would like to know whether it was, as a fact, superior to that position.

Dr. Herman asked Dr. Pollock in how many of his cases the Trendelenburg position alone had not been enough and he had had to have the patients raised by the heels. It appeared to him that in the Trendelenburg position the long axis of the uterus was horizontal, and therefore he should not have expected it to accomplish what Dr. Pollock wished to bring about.

Dr. Herbert Spencer said the subject of external cephalic version of breech cases had interested him for many years. He referred to a paper published by him five years ago in the British Medical Journal, in which he recommended the operation towards the end of pregnancy, and especially at seven and a half months. The operation at that period was usually easy, and could be performed sometimes in a few seconds with the patient in the dorsal position. After this date, especially in primiparae, the operation became increasingly difficult, and was usually impossible at term or during labour. The raising of the pelvis certainly seemed, from the remarkable series of cases in the table, to facilitate the operation of external version, but none of the patients were at term, and he asked the author whether he believed the same results were obtainable at term or in labour, as it was then that the real difficulty occurred. He did not think that the author's method could be said to be altogether new. Elevation of the pelvis and legs and cephalic version during labour were recommended by Hippocrates, and in the sixteenth century shaking or rolling movements to turn the child while the patient was in this position were recommended by various authorities.

Dr. Williamson said he had employed the method in a modified form. A few weeks ago he saw a primpara near term where the breech was presenting. He attempted the operation of external version with the patient in the dorsal decubitus; the attempt failed because the presenting part could not be dislodged from the pelvis. He then placed the patient in the Trendelenburg position over the back of the chair. In this position version was performed easily. Labour ensued a fortnight later and the child presented by the vertex.

Dr. Nepean Longridge said he had performed external version in numerous breech cases in primigravidae, and had employed the Trendelenburg position on three occasions. In cases where the liquor amnii had drained away, he asked if the position advocated by Dr. Pollock would not allow of artificial liquor amnii being poured into the uterus and so facilitate the version.

Dr. Pollock, in reply, said that he had tried the genu-pectoral position in one of the cases, the last of the series, as had been suggested to him by Dr. Champneys, but the lower pole of the child did not, in that attitude, move out of the pelvis. Moreover, it was most difficult in that position to get at the child to push it towards the fundus. Dr. Pollock was interested to hear how old was the method of shifting the mother's attitude in the hope of changing the position of the child. In the 15 cases he had reported there was no tendency for the child to revert to a breech presentation.

EDINBURGH OBSTETRICAL SOCIETY.

J. W. Ballantyne, M.D., President, in the Chair.

Wednesday, November 14th, 1906.

The Future of Obstetrics.

In an inaugural address on this subject the President advocated the reading of standard textbooks by students and the employment by the teacher of the time now devoted to systematic lectures to practical work both outside and inside a maternity hospital. In the future both the cinematograph and the gramophone would play an important part in the teaching of obstetrics. Speaking of the failing birth-rate, he contended that the present infantile mortality of 148 per 1,000 could be greatly reduced, and that by paying increased attention to pregnant women the stillbirth-rate and abortion-rate could be lowered. It would be impossible to stop the birth-rate falling, but if the improvements indicated could be effected they would compensate for the decline in actual births.

Occipito-Posterior Cases.

Dr. Lamond Lackie read a paper on the management of these cases when the forceps slip off the head during extraction. When the head was still movable and at the brim, it was possible by slipping the right hand past the head, with two fingers on the child's right shoulder and the operator's left hand acting through the abdominal wall, to effect rotation of the whole child, and thus bring its occiput to the front, delivery by forceps then presenting no difficulties. The procedure would not be employed if the head were descending with the uterine contractions, since 90 per cent. of occipito-posterior cases then rotated naturally.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

Section of Medicine.

J. M. Redmond, M.D., President, R.C.P.I., in the Chair.

Friday, November 9th, 1906.

So-called Functional Cardiac Murmurs.

Dr. Travers Smith, in a paper dealing especially with the pulmonary systolic functional murmur, urged that it had been too closely associated with anaemia. Apart from anaemia it was common in neurotic individuals, in those who were "out of training," in connexion with many fevers (especially during convalescence), in all of which conditions one might expect a "flabby" state of the body musculature and lowering of tone. In most of his cases the author had established a history of some strain, often inconsiderable to any normal individual. Under these conditions the ventricles of the heart were liable to suffer, especially at the weakest point of their outer boundary wall—namely, the infundibulum, or conus arteriosus. The

weak myocardium being strained resulted in incomplete systole or actual dilatation of the infundibulum, the blood being forced from the body of the right ventricle at systole through the unobliterated cavity of the infundibulum into the pulmonary artery. This was the cause of the murmur.

Dr. Moorhead said he had himself first accepted without much thought the idea that the functional murmurs generally were produced by some alteration in the normal relation between the blood and the vessel wall, accepting that normal blood flows through normal vessels without producing murmurs. Very soon, however, he had to give up that idea, and he found it necessary to find some theory which would explain the murmurs heard in cases of acute endocarditis as well as the ordinary so-called functional murmurs. He then took the view that functional murmurs and the murmur of acute endocarditis were due to muscular relaxation, and were functional in the sense that the muscle from its weakness relaxed, and regurgitation took place. Anything in the way of relaxation that would give rise to aortic systolic murmur—a rare condition, he admitted—would surely also give rise to a pulmonary functional murmur and to a mitral functional murmur. Although it was possible that Dr. Smith's theory would be applicable to the other valves, he was not prepared to accept it fully.

Splenomegaly with Eosinophilia.

Dr. Parsons read a paper on the above subject. Treatment by *x*-rays had had no appreciable effect in a case shown.

Dr. Rowlette said he had seen the case some years previously, and the spleen did not appear to have increased in size. During observation the health of the patient had remained exceedingly good, apart from the discomfort through the weight and size of the tumour.

Dr. Peacocke quoted a case which turned out to be one of Hodgkin's disease. The splenic tumour was simply a mass of lymphoid tissue. An operation was successfully performed, and he suggested the removal of the spleen in the case before them as a curative method.

Dr. Harvey said he had seen cases of an ordinary type treated with *x* rays with apparently very different results from those in the present cases. Such treatment was likely to have altered the pathology of [the spleen considerably. The effect in animals was to destroy the lymphocytes in considerable degree.

Dr. Parsons, in replying, said the patient at no time had syphilis. He did not consider the cases identical merely because they had eosinophilia. The cases were on the same level. There was no deterioration in health, no threatened shortening of life, and no inconvenience, except in the weight of the tumours. Lymphocytosis was not very marked; exactly the same was found in the case of splenectomized animals, which tended to confirm his view that the two patients were functionally splenectomized. Several examinations of the blood had been made before the *x* ray treatment was commenced, and there was found to be no diminution in the number of the lymphocytes.

Liverpool Medical Institution.—At a meeting on November 8th, Mr. Frank T. Paul (President) in the chair, Dr. Hugh R. Jones read a note on the death-rate of the central wards of the city of Liverpool. He pointed out that, despite a large expenditure of money and the demolition of much insanitary property and the building of many model buildings, the death-rate of Scotland ward had not fallen as much as the death-rate of all England and Wales. The deaths of children under 5 years of age accounted for half the death-rate. Organized sanitation affected only early maturity. The density of population in Scotland ward was greater now than it was fifteen years ago. He recommended the opening up of closed courts, the utilization of schoolyards as playgrounds, etc., rather than a waste of public money in wholesale demolition. The landlord was to blame as well as the sanitary authority for not enforcing the wholesome provisions of the Housing Acts. He declined to discuss the social aspect, inasmuch as he believed the sanitary authority had a definite duty imposed upon it by the Legislature. Dr. Wm. Carter believed that in omitting any reference to the personal element the reader of the note had omitted the most important factor in the production of a low or high death-rate. He instanced cases of similar courts in which the same vicious structural defects—tunnel entrances, back-to-back houses, common trough closets, etc.—were found, but in which there was no other resemblance. In one court, order, cleanliness, decency, and apparent good health prevailed; in the other, disorder, filth, and obvious ill health—the reason of the difference being that drunkenness was the rule in one, sobriety in the other. When children came to be taught the principles of temperance and hygiene as part of their school curriculum, they might hope for an elevation of personal character and as a result diminished drunkenness and diminished mortality. Dr. Richard Caton remarked that during the past thirty-eight years great improvement had taken place, overcrowding had diminished, the death-rate had fallen, order and sobriety had advanced. But much yet remained to be done—insanitary property still existed. Many of the more respectable working people had moved away from the district, leaving behind the less satisfactory residuum. There was still drunkenness and too much sacrifice of child life through ignorance and neglect. Dr. Permewan, Dr. Stookes, Dr. Young and Dr. Stanley Gill also spoke.—Dr. F. W. Baker Young showed two patients who were under treatment for phthisis by the intravenous injection of formalin. Dr. John Hay, who had seen the cases before treatment, thought some improvement had taken place since he had last examined the patients.—Dr. Caton gave an account of the newly-discovered Health Temple of Hippocrates in the Island of Cos.

Hunterian Society.—At a meeting on November 14th, Mr. John Poland, President, in the chair, a discussion was held on *Gonorrhoea*.—Dr. Lewis Smith dwelt on the disguises under which gonorrhoea is seen by physicians, particularly mentioning albuminuria, appendicitis, lumbago, and pyaemia. In gonorrhoeal arthritis the occurrence of the oedema was important; it was specially likely to be found in patients who were rheumatic, or "run down" from any cause.—Dr. Ernst Michels, speaking also of gonorrhoeal arthritis, said: (1) It might occur at any stage, but was more frequent in the late one; (2) it was not less common in women than in men; (3) many joint affections called "puerperal" were gonorrhoeal in origin; (4) some cases of rheumatoid arthritis of the fingers might be gonorrhoeal in origin; and (5) the best results were obtained by the constriction treatment.—Dr. Russell Andrews laid stress on the importance of avoiding in labour and during the puerperium any measures that might favour the ascension of the gonococcus from the vagina into the uterus.—Dr. M'Callough Ettles, speaking of gonorrhoeal ophthalmia, considered silver nitrate to be a more trustworthy application than any of the organic compounds of silver. He dwelt on the importance of preventing pressure on the cornea, and advocated division of the outer canthus in adult cases. He preferred warm to cold applications, as tending to prevent ulceration of the ill-nourished cornea.—Dr. Zum Busch described a case of gonotoxic ophthalmia in which no gonococci could be found in the discharge from the eyes, although many were found in the urethral discharge. He spoke highly of the prophylactic value of a 10 per cent. solution of protargol in glycerine and gelatine.—Dr. Richard Warren spoke of the resemblance seen sometimes between tuberculous and gonorrhoeal joints. He considered that splinting was necessary at first in some of the acute cases.—Dr. James MacMunn considered that the joints were peculiarly liable to attack in patients with the "rheumatoid arthritis diathesis." Aspiration should be performed in every case of hydrops, and a free incision made if any pus were found. He related a case in which a man had infected his wife fifteen years after contracting gonorrhoea himself.—Dr. R. Fortescue Fox discussed cases in which the metatarsophalangeal joints alone were affected. In some of these he had had good results from the injection of anti-streptococcic serum.

North of England Obstetrical and Gynaecological Society.—At a meeting at Sheffield on November 16th, Mr. R. Favell (Sheffield), President, in the chair, Mr. Favell showed a *Pregnant uterus with a fibroid* which had obstructed premature labour at the seventh month. After the tumour had been enucleated it was found necessary to complete the operation by supravaginal hysterectomy.—Dr. H. Briggs (Liverpool) showed two fibroids, both

enucleated from the anterior uterine wall during pregnancy. In the first case (aged 4½ months) bleeding could not be checked until the uterus had been emptied by an incision made through the head of the tumour. In the other case (aged 3 months) no difficulty was encountered, and pregnancy continued undisturbed after the operation. —Dr. P. Barber (Sheffield) showed a patient, aged 36, who, though English and always well nourished, had a history and configuration quite typical of *Osteomalacia*. Her labours became progressively more difficult until Dr. Barber ended the seventh by Caesarean section, and removed both ovaries, with great advantage to the patient's health.—Dr. H. Briggs showed an *Ectopic gestation sac* removed six weeks after full term. It was dissected from the rectum, uterus, and pelvic floor, 2 in. of ureter being exposed. The patient made a good recovery. Dr. MacGregor Sinclair (Burnley) also showed three examples of early tubal pregnancy.— Dr. W. K. Walls (Manchester) mentioned a case in which a large solid tumour of the ovary proved after removal to be a *Carcinoma*. Metrostaxis continued after the operation, and the abdomen being reopened panhysterectomy was done. The body of the uterus was then seen to contain the primary carcinomatous growth.—Dr. A. J. Wallace (Liverpool) described two cases of *Pelvic contraction* obstructing labour in which he had divided the pubic bone to the left of the symphysis. Bleeding was met with in one case and difficulty in extraction marked the other, but both children were born alive, and the mothers recovered without impairment of their walking powers. The vagina was cut in the second case by the end of the pubic bone. On the whole, Dr. Wallace was not favourably impressed by his experience of the operation.

Glasgow Pathological and Clinical Society.—At a meeting on November 12th, Dr. J. Lindsay Steven, President, in the chair, Dr. Ebenezer Duncan and Mr. A. Ernest Maylard showed a case of abscess of the lung successfully treated by operation. The patient, a man aged 27, was admitted to hospital in June last suffering from bronchiectasis with cavity formation in the upper part of the lower lobe of the left lung. He had been suffering for five and a half years. In the earlier stages of his illness the signs were those of a bronchiectasis without cavity which only showed itself after a year or two. A large amount of expectoration, usually yellow, but occasionally blood stained, was present, and was brought up without difficulty. In the morning on getting up or bending forwards his body a considerable amount of expectoration was brought up. The existence and position of the cavity being definitely determined, the case was transferred to the surgical side for operation. Mr. Maylard performed a preliminary resection of ribs, secured adhesion of the parietal and visceral layers of pleura by irritation of the surfaces with the point of a needle and kept the wound patent for some time by packing. On first exploration the cavity was not found, but a subsequent attempt with a large-sized trocar and cannula revealed the presence of pus; a director was then passed and next dressing forceps, by means of which the channel was dilated. The cavity on exploration with the finger was found to have smooth walls; it was cleansed, treated with iodoform, and a drainage tube inserted. For the first three weeks the discharge was copious; after another three weeks the wound had closed. The patient was instructed to perform breathing exercises, and when shown the cavity had disappeared, there was a slight retraction of that side of the chest, and the expectoration had greatly lessened and was free from fetor from the breath.—Dr. A. Louise McIlroy gave a demonstration of primary carcinoma of the ovary, based on a study of fifteen cases. The conclusions derived from the cases were that a number of apparently benign tumours showed malignant changes, that they usually occurred at or near the menopause, that the occurrence of pregnancy had little or no influence on their origin, that both ovaries were usually affected, and that the occurrence of metastasis depended on the duration of the disease and the integrity of the tumour capsule.

Glasgow Southern Medical Society.—At a meeting on November 1st, Dr. T. K. Monro, President, in the chair, Dr. W. F. Sommerville read a paper on the influence of high-frequency currents on the surface temperature of the body. Patients undergoing high-frequency treatment had often remarked to him that they "felt warmer" after an application, and to determine whether this were real or imaginary he had conducted a number of experiments. It was first noted that in all patients the surface temperature varied with the individual, the locality, and on different days in the same individual and the same locality. Even the same situations in different limbs tested at the same time showed a lack of uniformity in surface temperature. In patients undergoing high-frequency treatment there was during the application a rise of surface temperature ranging from 1.4° to 17.4°, the rise varying according to (1) the individual, (2) the locality chosen, (3) the milliampèrage, (4) the method of application. The greatest rise of temperature invariably took place on the flexor surface of the forearm, the rise in the lower limbs not being so rapid or so marked. When a thermometer was placed upon a forearm and another on a lower limb the rise on the forearm was greatly in excess of that on the lower limb. After the current was switched off there was usually a fall in temperature, but it seldom returned to the original level within the next fifteen minutes. In one case (that of a medical man) the temperature during an eleven minutes' application rose to 103° F., an increase of 17.4°. The patient was unable to bear the current any longer, not so much on account of the heat in the arm as because the whole limb swelled to such an extent, apparently from dilatation of the deeper vessels, that the tension of the bandages and elastic bands holding the thermometers *in situ* became unbearable. On switching off the current relief of tension immediately followed. The rise of temperature was undoubtedly due to the action of high-frequency currents on the vasomotor system permitting of increased peripheral circulation, and to a dilatation of the deeper as well as of the superficial vessels. This explained why the blood pressure, as shown by the sphygmomanometer, fell. Hence these currents might be employed with confidence on patients of advanced years, when, perhaps, the heart muscle was feeble. With an increased peripheral circulation there must be a withdrawal of blood from the brain and abdominal organs, so the circulation as a whole was temporarily aided.

Association of Registered Medical Women.—At a meeting on November 6th, Miss Aldrich-Blake in the chair, Miss Thornett read a paper on certain eye symptoms in the course of general disease. Two illustrative cases of tabes were shown, in which the lesions were probably in the upper part of the cord only, as the symptoms were analgesia of certain parts of the face, changes in the pupil and optic nerve, and, in one case, lightning pains in the throat. The itching and burning of the eyes, and subconjunctival haemorrhages, found in some cases of arterio-sclerosis, were also mentioned, and the changes in the retinal vessels discussed. Cases of glaucoma were frequently mistaken for general disease; symptoms of the former being ascribed to rheumatism, gout, brain disease, influenza, neuralgia, migraine, ear disease, erysipelas, bilious attacks, and gastritis. In all cases of pain about the head and neck the eyes should be examined.—Miss Turnbull read notes of a case of puerperal septicaemia. The patient, aged 27, had previously had one normal pregnancy. On July 17th she had a short normal labour, and the placenta and membranes were intact, but on the second day after delivery, a small patch of thrombosis was noticed in the left internal saphenous vein about the middle of the leg. The temperature and pulse at this time were normal, but next day there was a rigor, and eventually she died on July 27th—ten days after delivery. On *post-mortem* examination the uterus and adnexa and the pelvic peritoneum were found healthy, but the left internal saphenous vein contained pus from the middle of the calf up to the junction with the femoral vein. From this pus a pure culture of streptococcus was grown. There was also pus in the pelves of the kidneys. The interest of this case lay in the question as to the origin of the septicaemia. The absence of any evidence of septic inflammation in the pelvis suggested the possibility of the thrombosed vein being the primary focus. The case did not seem rapid enough or virulent enough at its onset for one of the rare forms of acute sepsis which kills by the

blood infection alone without showing any local changes. If the infection did enter by the genital tract, careful investigation failed to discover the source. The patient had only been once examined vaginally during labour, and then with strict antiseptic precautions.

Manchester Pathological Society.—At a meeting on November 14th, Dr. A. Hill Griffith, President, in the chair, Dr. Dixon Mann showed a *Three-chambered heart* which contained two auricles but only one ventricle. The auriculo-ventricular openings were furnished with valves. The ventricle was large in capacity and had extremely thick walls; the heart weighed 1½ lb. The aorta and the pulmonary artery emerged from the ventricle, the positions of the vessels being transposed. The foramen ovale was patent. The patient from whom the specimen was derived lived to the age of 35 years, and until the last six months of his life he enjoyed average good health, and was never cyanosed.—Mr. E. T. Milner and Dr. W. Mair showed a large *Renal tumour* which had caused fatal haemorrhage in an apparently healthy woman aged 28. The patient was a mill hand, and had only lost half a day's work during the last ten years. On October 9th, when stooping to tie up her right boot, she was suddenly seized with severe abdominal pain, followed by other symptoms of peritonitis. An exploratory laparotomy was performed, and a large retroperitoneal haemorrhage was found in the region of the right kidney. The patient's condition prohibited removal, and she died the same night. The *post-mortem* examination showed the tumour to be a lipoma with angeiomatous areas forming a large mass in the upper end of the kidney. Haemorrhage had occurred into the substance of the tumour and into the surrounding tissues.—Dr. Lees showed a *Sarcoma of the left kidney* from a male child aged 9 months. There was no palpable abdominal tumour until shortly before death. The tumour almost filled the whole abdomen, displacing the descending colon to the right side. Histologically it showed epithelial tubes, smooth and striated muscle fibres, fibrous tissue, and sarcomatous elements. Other specimens were shown as card specimens.

Dermatological Society of London.—At a meeting on November 14th, Mr. H. Willmott Evans in the chair, the following were among the exhibits: Dr. Wilfrid Fox: (1) A case of a *Bromide eruption* in an infant. There were numerous warty-looking tumours upon the limbs. A prescription containing bromide of potassium had been given by a local practitioner, but this was dated after the eruption had commenced to show itself. It was, however, probable that a mistake in dates had occurred. (2) A case of *Recklinghausen's disease* in a woman, aged 45, who had had the small tumours (soft fibromata) since the age of 12 years. She complained of tenderness in the tumours, which was an unusual feature. She had had epileptiform seizures, not of a Jacksonian type, since the age of 20, and was markedly hysterical. A section of one of the small tumours was shown, and nerve fibres were distinctly visible in the body of the fibroma.—Dr. Graham Little: (1) A case of *Pityriasis rubra*, primary in onset, in a boy aged 12. He had had a previous attack of the same nature seven years ago. In neither attack had there been any preliminary skin disease. The boy had been very ill, and had been an in-patient at St. Mary's Hospital for two months. The eruption had been absolutely universal, but had now improved. The nails were typically affected, and the hair had been largely shed. (2) Two cases of *Dermatitis herpetiformis*, one in a man aged 25, the other in a boy, aged 8. The man had the disease nearly continuously for about five months. He was a very nervous patient, and had complained of peculiar premonitory sensations before individual outbreaks of the eruption. His blood showed a proportion of about 11 per cent. of eosinophiles. In the boy the eruption had appeared acutely after an accidental immersion in water. There were numerous large blebs, as well as small vesicles grouped in a herpetiform manner.—Dr. J. A. Ormerod showed a case of *Lichen planus* in a woman, the chief interest of which lay in the fact that the face was the seat of a vivid erythematous eruption which suggested lupus erythematosus. It was generally agreed that it was probably, however, an unusual form of lichen planus. There were unmistakable lesions of lichen planus on the hands and legs.—Dr. J. H. Sequeira, a case of typical *Lupus vulgaris* of the face, with infiltrated masses of "erythema induratum" on the right leg, and on the same leg and confined to it, an eruption of acne scrofulosorum. The association of all these different tuberculous manifestations, together with the asymmetrical arrangement of the eruption of acne scrofulosorum, excited great interest.

Pathological Society of London.—A laboratory meeting was held at St. Mary's Hospital on November 20th. Among the communications were observations by Sir Almroth E. Wright: (1) On the rôle of *Micrococcus neoformans*, (2) autoinoculation in infective processes. Captain S. R. Douglas: Inoculation treatment in Malta fever, streptococcal endocarditis, streptococcal pyaemia. On the beneficial effects of tuberculous vaccine in cases of phlyctenular ophthalmia, by Dr. J. B. Nias; while Dr. J. Wells and Dr. F. S. Patch recorded observations showing that the good results of Bier's method of inducing congestion were due to the passage of toxic materials into the circulation and the consequent rise of the opsonic index.

REVIEWS.

OTOLOGY.

Although published in 1904, no account of recent books dealing with the ear, nose, and throat would be complete without reference to Dr. Kerr Love's[1] textbook on *Diseases of the Ear*. The feature of the book is a series of stereograms, upwards of fifty in number, placed as an appendix at the end, illustrating the anatomy of the temporal bone, the mastoid operation, malformations and diseases of the auricle, and the manner of passing the Eustachian catheter. Readers of the *Medical Annual* are already familiar with Dr. Kerr Love's work with stereograms, and will turn with interest to this more extended and complete series, which afford to those who are unable to handle the actual specimens the best way of acquiring a knowledge of the anatomy. Incidentally we may mention that stereoscopic photography is not a "new departure in a book on diseases of the ear," as believed by the author in his preface; we have met with it in at least one similar book published upwards of ten years ago. Passing to the text itself, there appears to be a disproportionate allotment of space to some departments of the subject. The author enters very fully into the tests for hearing, and perhaps rather too fully for the practitioner who requires a concise and handy book of reference. Then, again, the chapter on deaf-mutism and the education of deaf-mutes, a department of otology to which the author has devoted much study, would probably appeal more to the reader who is making a special study of ear diseases. The modern treatment of middle ear suppuration and its complications has thrown, as the author rightly remarks, a responsibility on the general practitioner; and the chief object of this work is to spread a sense of that responsibility, and at the same time a knowledge of the modern methods of treatment; we are glad, therefore, to see that suppurative disease of the ear has been discussed at considerable length. The object is a good one; it is regrettable that there exists among all classes a very large amount of ear disease which is preventable and curable, and any work having for its object the security of children against the consequences of ear disease is deserving of the most cordial sympathy.

Dr. Whiting[2] in his preface states that his work on the modern mastoid operation is intended for those who are desirous of acquiring the technique requisite for the performance of the mastoid operation under stress of emergency, as well as for the beginner who is making a serious study of otology with the ultimate purpose of exclusive practice in that branch. The author further states that readers who scrutinize this book with the expectation of finding the technique of the radical operation for chronic otorrhoea described, or the methods of procedure in sinus thrombosis, brain abscess, or other intracranial inflammatory process, included in its scope will be disappointed.

[1] *Diseases of the Ear: for Practitioners and Students of Medicine.* By James Kerr Love, M.D. Bristol: John Wright and Co. 1904. (Demy 8vo, pp. 356; 54 photographs, 2 plates, 63 illustrations. 25s.)

[2] *The Modern Mastoid Operation.* By Frederick Whiting, A.M., M.D. London: Rebman, Ltd. 1905. (Demy 4to, pp. 453. 27s. 6d.)

for the writer has reserved these complications of mastoid disease for similar treatment in the not distant future. The description of the operation is illustrated by seventeen large plates; the first is devoted to showing the lines for the initial incisions, and the last to the folding of the bandage. Incidentally, we notice that the book is dedicated to Dr. Gorham Bacon, who at the recent meeting of the Association in Toronto read an instructive paper showing what could be done by adopting conservative methods in the treatment of aural diseases. The book is well got up, and with its leather back, large paper—wide margins—and gilt edges presents a striking appearance. Leaving the book and passing to the subject, a very serious question presents itself, whether sufficient prominence has not already been given to the mastoid operation in the treatment of middle-ear suppuration. Notwithstanding the improvements in the technique of the complete post-aural operation, still the resulting conditions are not always so satisfactory as some enthusiastic surgeons may ask us to believe. Dr. Gorham Bacon in the paper referred to remarks that it is the duty of those who are engaged in teaching medical students to impress upon them at all times the value of conservative methods in many cases, for at the present moment there is too great an inclination on the part of many to operate too early, and that they would do well to bear in mind what Oliver Wendell Holmes once said: "Nature is kinder than the doctors think!" It has been said by more than one aural surgeon of experience that the boast of the aurist should not be the number of mastoid operations he has done, but the number of suppurating ears he has cured without the operation. It may not be a very pleasing statement, but it is one that contains a great deal of truth, that owing to the alluring fascination the mastoid operation has had upon the beginner in this country there has been very little patient research work done in otology.

In an unpretentious volume with a humble paper cover Professor Denker[3] of Erlangen presents a record of a most painstaking research into the most intractable form of deafness—otosclerosis. It is one of a series of otological monographs edited by Professor Korner of Rostock. As Dr. Thomas Barr pointed out in opening a discussion on otosclerosis recently held by the Otological Society of the United Kingdom, our knowledge of stapes ankylosis suffers from the fact that few opportunities for *post-mortem* examinations present themselves, as, of course, the condition does not lead to a fatal issue. That much valuable information can be gained by *post-mortem* observation following clinical investigation has been shown by Professor Denker, who has collected the records of 27 cases, in each of which anatomico-pathological examination supplemented careful clinical observations. Such work as this, it is needless to say, is a valuable addition to the scientific knowledge of the subject. A very full bibliography is appended to the monograph, and it is regrettable that, with the exception of the name of Toynbee, the names of British contributors to the elucidation of this difficult problem are conspicuous by their absence. So far as we know, the omission is in no way due to the author.

LARYNGOLOGY.

The name of Dr. Heryng[4] is so well known to laryngologists, through the useful instruments he has devised for the treatment of laryngeal disease, that his work on the methods of investigating and treating diseases in this region is sure to be well received. Dr. Heryng, within recent years, has paid considerable attention to inhalatory therapy—a form of treatment which, as he very rightly says, has never enjoyed very much sympathy. The diffidence of the profession he attributes partly to the treatment having been conducted by untrained hands, but more especially to the apparatus hitherto in use being far from adequate for the most moderate requirements of a rational therapy; the spray was not sufficiently fine, the temperature could not be regulated, it was not possible to administer the less volatile substances in an inhalable form, and the quantity of the medicament inhaled was too insignificant to produce any effect worth mentioning. To overcome these difficulties, Dr. Heryng has devised an apparatus by means of which atomized liquids can be conveyed—as shown by animal experiments—into the more remote part of the respiratory organs. In illustration of the utility of this form of therapy, the successful treatment of a case of laryngeal syphilis with inhalations of sodium iodide is cited; the patient had been treated previously for six months with inunctions of grey ointment and had been given iodides by the mouth without any improvement; the inhalation of iodides was not followed either by any symptoms of irritation nor by cough. The dose was 2 grams in 100 parts of water. The apparatus used is fully described and illustrated in an appendix to the book.

RHINOLOGY.

Dr. J. B. Ball's work on *Diseases of the Nose and Pharynx*[5] has now reached its fifth edition—a tribute to the excellence of the book which we again heartily endorse. Since the publication of the fourth edition in 1901 there have been few very sensational advances in practical rhinology, so that the changes in the book are not very considerable. Many statements which in previous editions were accompanied by the names of the authorities from whom they were derived now appear without any such appendage. This is doubtless due to their having, in Dr. Ball's opinion, become established as accepted facts in rhinology. This is interesting as evidence of the firmness of the basis on which rhinology as a branch of medical science has been founded. Some of the references which are omitted in this edition might have been retained with advantage to the student, in spite of the space they occupied. The size of the volume is not increased—and, indeed, the pages, though larger, are less numerous. Such additions as it contains are therefore accommodated mainly because some judicious pruning and condensation have been carried out. The submucous resection of the nasal septum is, perhaps, the freshest region in the hunting ground of the modern rhinological surgeon, and this is described in considerably greater detail than before. Sections have been added on anomalies and malformations, and on "certain forms of ulceration of the throat," the latter including Moure's ulcerative lacunar tonsillitis and Vincent's ulcero-membranous tonsillitis. "Acute infectious phlegmon of the pharynx"—rechristened "diffuse phlegmonous pharyngitis"—remains still the same bugbear, the description of which closes, as before, with the discouraging and scarcely disputable remark that "in the cases of this disease recorded up to the present no treatment has been of avail to save the life of the patient." We are disposed to think that the timely administration of the appropriate serum has occasionally appeared to be beneficial. In the section on irrigation of the antrum of Highmore we are pleased to note the more favourable view expressed regarding the opening through the inferior meatus (p. 246). The surgery of the frontal sinus has received valuable amplification, the characteristic points in Killian's operation being clearly specified. The author may confidently anticipate a continuance of the successful career of his excellent book.

Members of the Association who attended the annual meeting held at Oxford in 1904, and had the good fortune to be present in the Section of Laryngology when Professor Onodi gave a demonstration on the anatomy and surgery of the accessory sinuses of the nose, will be glad to learn that the excellent photographs which were then demonstrated, together with many others, have been published in a volume. To those who were not present the book will be a consolation. The general scheme of Professor Onodi's[6] work on the accessory sinuses of the nose is a series of 124 photographs of natural size. The larger number relate to the anatomy of the subject; these are followed by a very important section illustrating those anomalies and vagaries of the sinuses which unexpectedly present difficulties to the most experienced operators. After some skiagrams indicating the position of

[3] *Die Otosklerose.* Von Professor Dr. Alfred Denker. Wiesbaden: J. F. Bergmann. Glasgow: F. Bauermeister. 1904. (Demy 8vo, pp. 135. 4s 9d).

[4] *Untersuchungs und Behandlungsmethoden der Kehlkopfkrankheiten.* Von Dr. Theodor Heryng. Berlin: Julius Springer. 1905. (Demy 8vo. pp. 424. M. 12.)

[5] *A Handbook of Diseases of the Nose and Pharynx.* By James B. Ball, M.D. London: Baillière, Tindall and Cox. 1906. (Demy 8vo. pp. 400: 78 illustrations. 7s. 6d.)

[6] *Die Nebenhöhlen der Nase.* Von Professor Dr. A. Onodi. Vienna: Alfred Hölder. 1905. (Demy 8vo, 124 plates, with letterpress.)

instruments passed into the frontal sinus, the work concludes with plates illustrating operations in nasal surgery. The text throughout is brief, but concisely explanatory of the plate which it faces. The book is thoroughly practical, and will be largely used by all interested in the subject, whether in a special capacity or otherwise.

Renewed interest has been given to Professor KILLIAN'S[7] atlas of the accessory sinuses of the nose by the appearance of an English translation of the text by Dr. D. R. PATERSON. The work consists of fifteen coloured drawings of dissections. Professor Killian found that after preservation in a 10 per cent. solution of formalin it was possible to remove the bony walls of the accessory sinuses of the nose and to leave the lining mucosa intact. The plates represent the results of most painstaking dissections, which could only have been performed by one thoroughly familiar with the anatomy of the parts. In order not to confuse or blur the drawing by indicators a sheet of transparent paper is accurately superimposed over each plate, and carries with it the descriptive lettering, which is given in great detail. The man who derives the greatest benefit from a work of this kind is, of course, the one who makes the dissections, but Professor Killian's atlas will be greatly valued and appreciated by all engaged in the operative treatment of suppurative disease of the accessory sinuses of the nose.

OESOPHAGOSCOPY.

IT has been said that in medicine it takes twelve years for a scientific fact to become generally known and accepted; facts relating to one particular branch would seem to require a little longer to mature. By a perusal of the chapter on the development of oesophagoscopy in Professor HUGO STARCK'S[8] excellent monograph we are reminded, with a feeling of pardonable patriotic pride, that the possibility of passing a rigid tube down the oesophagus and of extracting through it a foreign body, was first demonstrated as a scientific fact by one of our own countrymen. Upwards of a quarter of a century ago the late Sir Morell Mackenzie (*Diseases of the Throat and Nose*, vol. ii, p. 16, p. 193) devised an oesophagoscope, and used it with success in 37 out of 50 patients, both in the diagnosis and treatment of disease as well as in the extraction of foreign bodies. Since that date direct endoscopy, not only of the gullet but also of the air passages, has been greatly assisted by the improved means of illumination now at our disposal. The instruments and technique have been elaborated by many workers, notably by Professor Killian. It is more particularly in the search for and removal of foreign bodies that endoscopy has demonstrated both its own utility and also the means of avoiding the dangers arising from a blind and indiscriminate use of the probang and the coin-catcher. As far back as 1902 the Council of the British Medical Association, recognizing the importance of the more modern methods of searching for and removing foreign bodies, and the need for causing them to be more generally known, selected the subject for discussion in the Section of Laryngology when the Association met at Manchester in that year, and invited Professor Killian and Dr. Macintyre to introduce the subject. The introductory papers dealt—the one with the subject by means of endoscopy, and the other with investigations by x rays and electro-magnets. The eight plates illustrating Professor Killian's Short Hints for Examining the Oesophagus, Trachea, and Bronchi by Direct Methods (*Journal Laryngol., Rhinol., and Otol.*, vol. xvii, p. 505) would be of great help in acquiring a knowledge of the technique of endoscopy. Oesophagoscopy has not only its physical limitations, but also its dangers and contraindications. To these Professor Starck very properly devotes a chapter, by no means the least important in the book. It would indeed be regrettable were a method of examination of proved utility to be allowed to pass into disfavour by being used indiscriminately in all and sundry cases. Viewed, however, from the utilitarian standpoint of the practitioner who has to deal with cases of foreign bodies promptly, oesophagoscopy, when possible, is a safe and certain method.

[7] *Die Nebenhöhlen der Nase.* Von Professor Gustav Killian. Jena: Gustav Fischer. 1903. (Demy 4to, 15 plates, with letterpress. M. 25.)
[8] *Die direkte Besichtigung der Speiseröhre. Oesophagoskopie.* Von Professor Dr. Hugo Starck. Wurzburg: C. Kabitzsch. 1905. (Demy 8vo, pp. 219. M. 7.)

Dr. GUISEZ has written a useful little manual[9] introductory to the direct examination of the air passages and gullet. The subject is dealt with in eight sections, in which the history of the subject, the technique, the instruments, the indications and contraindications are described. It is perhaps as well to point out that the manipulations necessary for the performance of direct bronchoscopy at times have been the means of inducing profound shock. The manual is illustrated by several figures demonstrating the manner of conducting these methods of investigation.

NOTES ON BOOKS.

THE *Essays in Pastoral Medicine*,[10] by Drs. O'MALLEY and WALSH, are evidently written by two cultivated Catholic physicians for the use and guidance of the clergy of the Catholic Church, as the subjects discussed are those likely to give rise to doubts in connexion with such ministrations of the Church as baptism, extreme unction, and absolution. Perhaps it is difficult for the Protestant lay mind to follow with sympathy the discussion of all of these subjects, such as the question of baptism as it arises in connexion with ectopic gestation, or whether or not it is bigamy to marry a dipygus monster, which question, by the way, Dr. O'Malley answers in the affirmative. They argue that it is allowable to administer extreme unction to a person apparently dead, on the ground that the absence of respiration, or even of the heart movement, is not absolute proof of death. Dr. Walsh talks very good sense on the relations of the clergy to patent medicines, and points out that "if clergymen would only realize that the clergyman has, as a rule, much less right to express an opinion on medical subjects than has the physician to air views with regard to theological principles, there would be much less friction, and it would be better for patients in the end." It is attempted to answer some of the questions by referring to the decisions of the Holy Office as approved by the Pope, but these are published in Latin, and on p. 21 three alternative translations are given of such a decree, differing widely in their bearing upon the ethical point at issue! The work concludes with an essay by Dr. O'Malley entitled De Impedimento Matrimonii Dirimente Impotentia, and in an appendix some account is given of examples of "bloody sweat," taken from medical and profane literature. We have no doubt that the book will be found useful for the purpose for which it was evidently written.

[9] *Trachéobronchoscopie et Oesophagoscopie.* Par le Dr. Guisez. Paris: Bailliere et Fils. 1905.
[10] *Essays in Pastoral Medicine.* By Austin O'Malley, M.D., Ph.D., LL.D., Pathologist and Ophthalmologist to Saint Agnes's Hospital, Philadelphia, and James J. Walsh, M.D., Ph.D., LL.D., Adjunct Professor of Medicine at the New York Polyclinic School for Graduates in Medicine; Professor of Nervous Diseases and of the History of Medicine, Fordham University, New York. London and Bombay: Longmans, Green and Co. 1906. (Demy 8vo, pp. 363. 10s. 6d.)

MEDICAL AND SURGICAL APPLIANCES.

Absorbent Powers of Ramie Fibres.—Ramie is the name now commonly used in commerce for a textile material formerly called rhea fibre, obtained from a plant extensively cultivated for the purpose in India, China, and Malaya. It has the advantages of being strong and cheap, and the disadvantage of being rather brittle and difficult to prepare. We called attention very recently to the mosquito nets made from this material by the firm of A. M. Hart and Co., Limited, in which these difficulties appeared to have been overcome. We have now received a copy of a paper by Messrs. Eric Drabble and F. A. Upsher-Smith, pharmaceutical chemists, published in the *Quarterly Journal of the Institute of Commercial Research in the Tropics*, upon the absorbent value of ramie fibre compared with cotton wool and other materials commonly used as surgical dressings. They find that ramie fibre is "distinctly and greatly absorbent," and that by a process of saponification its absorbent power can be considerably augmented. At present its power is in this respect inferior to defatted cotton wool, and even to commercial cotton wool of good quality. The investigators propose to repeat their experiments with a finer product suitably carded, and they have reason to think that when so treated it will hold more water.

HIS Excellency Professor Ernst von Bergmann will celebrate his 70th birthday on December 16th.

DAVOS PLATZ.

III.

The Basle Sanatorium.

The Basler Heilstätte für Brustkranke is designed for 90 patients, and the average number of inmates during 1905 was 87.

It exists for the benefit of the working and small shopkeeper classes, but a few patients belonging to the middle class—pastors, missionaries, students, schoolmasters—are received.

The number of patients discharged during 1905 was 208, but the case of a woman who was admitted when very ill, and only remained thirteen days, is omitted from the statistics. The remaining 207 cases are classified by the Director, Dr. E. Nienhaus, in his annual report as follows:

	Male.	Female.	Total.	Per Cent.
Stage I. (Slight cases)... ..	24	55	79	38.13
Stage II. (Medium severity) ..	32	31	63	30.44
Stage III. (Severe cases) ...	33	27	65	31.43

It should be added, however, that 17 applicants were rejected because the disease was too severe or accompanied by complications which rendered them unsuitable for admission. The majority of the patients were received on the recommendation of a medical practitioner in Basle, a large number came from the hospital or policlinic in that city, and a few from other districts. About half the patients were between the ages of 15 and 25 years. Children are not admitted.

Of the 207 patients 183 stayed six months or less, and 57 three months or less. Attention is called to the fact that in the men admitted the disease is usually more advanced than in the women. This is shown by the above table, but still more strikingly in the following table showing the percentage of each sex admitted in the several stages:

	Male.	Female.
Stage I	23.5	43.6
Stage II	34.0	27.5
Stage III	40.5	23.9

The statistics with regard to tubercle bacilli are rather surprising. In 76 cases the bacilli were not found at any time; in 61 they were found both on admission and on discharge; in 35 on admission but not on discharge; in 4 they were not found when the patient was admitted, but were present when he was discharged, and in 31 there was no expectoration.

The results shown are surprisingly good, since it is claimed that 77.8 per cent. were fit to return to full work, and that in their case there was recovery in the scientific sense of the word. The results in this respect for the four years 1902-5, and for the three stages of the disease, are given in the following table, which shows the percentage of those alleged to be able to return to full work:

	1905.	1904.	1903.	1902.
Stage I	95.3	96.4	95.3	94.5
Stage II	87.3	80.3	68.0	63.1
Stage III	46.1	35.7	16.6	17.6

These statistics, as Dr. Nienhaus says, are very good, but he judiciously adds the warning that it must not be forgotten that they refer only to the immediate results. Among the patients treated were 34 with laryngeal tuberculosis. It is claimed that 2 were cured, 4 notably improved, and 26 improved to some extent; nevertheless, it is stated that the working capacity of no fewer than 19 was fully restored. We cannot reconcile these figures, which seem to throw an unfavourable light on the degree of improvement reckoned as restoration of the full working capacity.



The Basle Sanatorium, Davos.
The buildings of the German Sanatorium are seen in the distance.

There is no regular system of following up patients after they leave the sanatorium at Davos, but the report for 1905 contains the results of a special inquiry made by Dr. C. F. Meyer, a former assistant medical officer, with regard to the patients discharged from the sanatorium since its establishment in 1897 to 1904. They number 1,107, and information was obtained with regard to 884; of these, 319, or 36.08 per cent., were dead.

Year.	1897	1898.	1899.	1900.	1901.	1902.	1903.	1904.	Total.
Traced ...	52	69	81	72	75	66	78	74	565
Dead ...	47	55	67	41	39	20	31	13	319
Per cent. ...	42.5	44.36	45.26	36.28	34.21	28.26	28.37	14.95	36.1
Not traced...	8	24	22	32	37	40	34	26	223

Classified according to the stage of the disease on admission the results for the eight years are:

	Stage I.	Stage II.	Stage III.
Traced	426	117	22
Dead	62	136	121
Percentage ...	12.7	53.76	84.6
Not traced ...	145	65	13

A comparison is made with statistics of a group of cases treated in Basle, and the conclusions drawn are that the patients sent to Davos had a much smaller mortality during the first year, while the number fit for work was on an average three times as great.

Although patients are not systematically watched after returning to work, it should be added that linked with the committee of the sanatorium at Davos is a society which gives help to the families of the patients while they are at Davos. If the patient is a man, his wife is given orders for food and is helped in paying rent. If it is the mother who goes to Davos, the Society either sends a woman daily to keep the house in order, or helps to defray the cost of boarding out the children.

The cost of maintaining the sanatorium at Davos in 1905, including a sinking fund on the buildings of 1 per cent., was in round numbers 148,000 francs; of this amount the patients contributed 99,000 francs, the deficit being made up by gifts and bequests, but mainly by two sums of 10,000 francs each from the city of Basle, and from the Society mentioned above.

The charges are graded according to the means of the patient. Thus, for accommodation in a four-bedded room, 2 francs a day is charged, 3 francs for a two-bedded room, and 5 francs for a room where the patient can be by himself. A stay of three months is compulsory, but patients are kept on indefinitely in the sanatorium, and taken back if desired if relapse occurs.

There are deaconesses to nurse the women, and a trained male nurse for the male patients. Drugs are little used, more reliance being placed upon diet and air.

And here it will not be out of place to express great wonder why the custom prevails in Davos of shutting up all windows during the meal times of patients. To sit in a closed room with a large number of sick people, and with the smell of food, would be an ordeal for the strongest; but to an invalid it must be still more trying, and as they have six meals a day must actually retard their recovery.

The daily routine at the Basle Sanatorium is as follows:—

7. Get up.
7.30. Breakfast: Coffee, roll, and honey. This is followed by douche, friction, and walk, according to the prescription of the doctor.
10 to 10.30. Rest.
10.30. Milk and bread and cheese.
11 to 12. Walking exercise.
12 to 1. Rest.
1. Dinner: Meat and vegetables.
2 to 4. Complete rest, sleep if possible, and silence.
4. Coffee and bread.
4.30 to 6. Walking exercise.
6 to 7. Rest.
7. Supper: Meat and vegetables.
8 to 9. Rest.
9. Milk.
9.30. Bed.
Milk may be asked for between meals.

It will be seen from the above table that the patient is kept well occupied—eating, walking, and resting—and that the term "rest cure" may be misleading.

A MEDICO-HISTORICAL EXPOSITION.—The Congress of Natural Science and Medicine will be held at Leyden in April, 1907. We learn from *Janus* that Professor van Leersum, of the University of Leyden, is organizing for the occasion an exposition of all sorts of instruments and other things employed by practitioners of the art of healing and naturalists in the past. His object is, by exhibiting the instruments formerly employed by physicians and surgeons, to show which of them are still in use at the present day.

THE FIRST BRITISH VILLAGE ASYLUM.

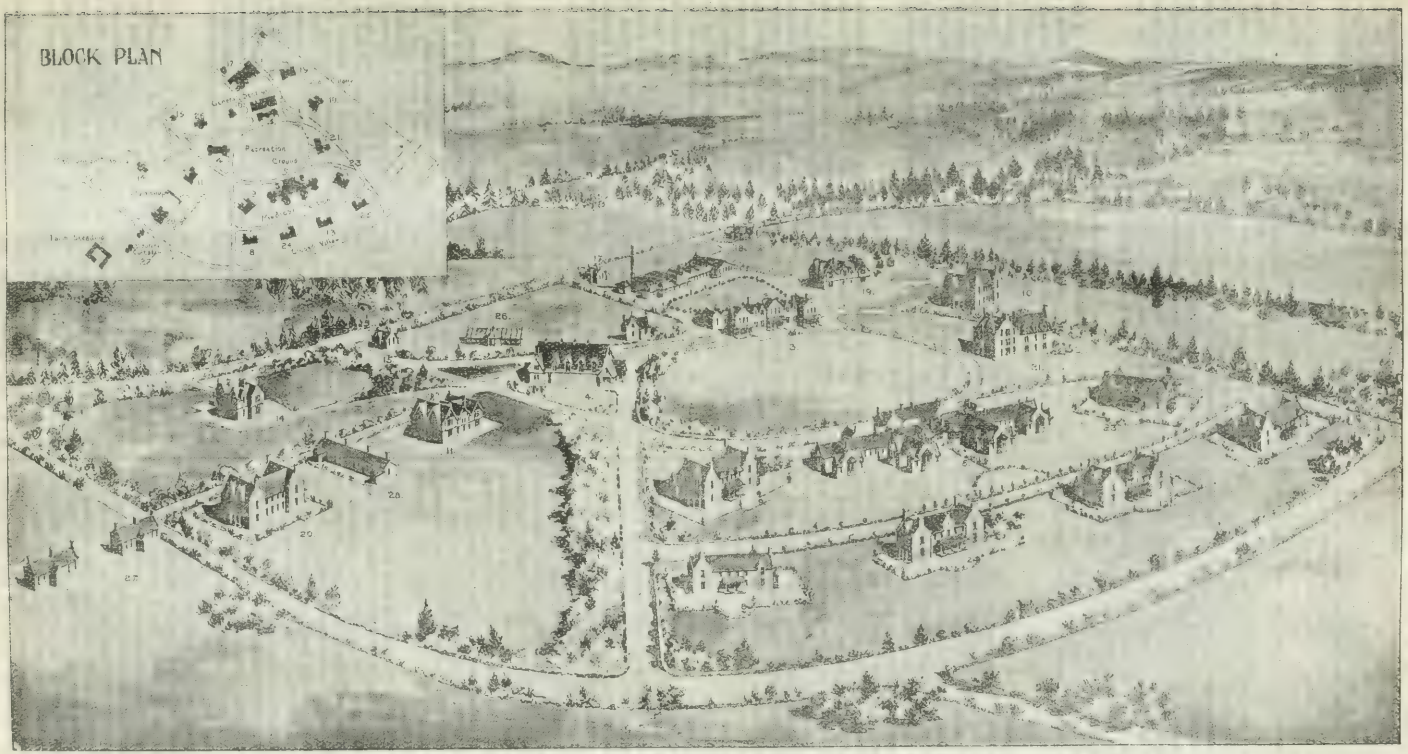
AN account of the village asylum at Bangour, near Edinburgh, which was opened by Lord Rosebery on October 3rd, was given in the BRITISH MEDICAL JOURNAL of October 13th. It may be well to remind our readers that the Bangour institution is not the first of its kind established in the United Kingdom. The honour of having taken the initiative in this method of dealing with the lunacy problem belongs, as far as the United Kingdom is concerned, to Aberdeen. The priority of the Granite City in this matter is not, we believe, disputed by Edinburgh. It may not be superfluous, however, to insist on the claim of Aberdeen, as that modest body, the London County Council, which loves to hide its light under a bushel, may otherwise be led into what we are sure would be the distasteful position of allowing itself to be credited with leading the way where it is following, at some distance, in the footsteps of another body. At a meeting of the Council held on May 22nd, 1906, a report from the Asylums Committee was presented, in which attention was called to the need of additional accommodation for the insane. The Committee recommended that the unappropriated area of the Horton Estate, covering some 350 acres, should be utilized for this purpose. They went on to say:

> The asylum which it is proposed to erect will be a departure from the present type of building, being designed entirely upon the villa principle. It will be divided into two sections—that is, a hospital section and a chronic section, and in connexion therewith there will be provided a chapel, recreation hall, administrative centre, stores, kitchen, boiler house, bath house, workshops, laundry, isolation hospital, and staff quarters. The area to be covered by the buildings will be approximately 40 acres. We are not at present in a position to give any estimate as to the cost of construction of an asylum built upon the lines suggested, as it is entirely a new departure in asylum construction, so far as Great Britain is concerned, although the villa principle is adopted to some extent in other countries, notably the United States.

We do not feel called upon to express any opinion here as to the propriety of this recommendation considered in itself; but we think it well to point out that the statement that the scheme is "entirely a new departure in asylum construction so far as Great Britain is concerned" is absolutely contrary to fact. It is, indeed, difficult to understand how such a statement could have been made by any responsible body when the most superficial inquiry might have shown that, so far from being an entirely new departure, the villa plan had already been carried into effect in this country nearly two years and a half earlier. It might not unreasonably have been assumed that the Asylums Committee of the London County Council had at some time during the last two years had before them that not very recondite document, the Forty-seventh Report of the General Board of Commissioners in Lunacy for Scotland. In that volume they might, with a very little research, have found a report dated October 5th and 6th, 1904, by Dr. John Fraser, one of the Commissioners, on the Aberdeen City and District Asylum at Kingseat. In that document occurs the following statement:

> The asylum is built on the segregate principle, and is the first in Scotland of that type to be completed and occupied. The buildings consist of a central hospital, five villas for men, five villas for women, an administrative block, with accommodation for attendants on its upper floor, a nurses' home, laundry and power-house, kitchen and stores, recreation hall, workshops, and mortuary. There is a house for the Medical Superintendent, three lodges for officials, and two double cottages occupied by an attendant, the blacksmith, and farm servants.

It is inconceivable that the Asylums Committee of the London County Council should have stated that they were suggesting a new departure had they known of the existence of the Kingseat Asylum; on the other hand, their ignorance of a matter as to which accurate information could have been obtained so easily, is difficult to explain and scarcely possible to excuse. As the ignorance of the Asylums Committee of the London County Council is probably largely shared both by the profession and by the public, it has occurred to us that it might be well to give some account of a remarkable experiment in the care of the insane. A brief historical sketch of the provision made by the city of Aberdeen for the treatment of lunatics may serve as an introduction. For the facts we are indebted to an account of the Aberdeen Royal Asylum



General Plan of Kingseat Asylum.

written by the Clerk, Mr. William Carnie, on the occasion of the opening of a new hospital and administrative offices in 1896.

The Royal Asylum, Aberdeen.

The Kingseat Asylum is an offshoot of the Royal Asylum, Aberdeen, which itself is an offshoot of the Royal Infirmary. The Aberdeen Royal Infirmary was founded in 1742. It was then a comparatively small house, containing 40 beds; the lower floor was partly occupied by a few small rooms, called "Bedlam cells," which were reserved for persons bereft of reason. In 1774, owing to complaints by the infirmary physicians as to the inconvenience of the "Bedlam cells" being within the hospital building, and the danger to the patients "from the great noise made by such of the Bedlamites as are furious," made some improvements in the cells, but were soon afterwards obliged to secure "an outer ward or separate building at a proper distance from the infirmary for persons disordered in reason." The result was that in 1800 the first Aberdeen Lunatic Asylum was opened. It had accommodation for 15 to 20 patients. Enlargement, of course, became necessary, and in 1836 the number of patients had grown to 107. In the asylum report of 1839 Dr. John Macrobin, who had adopted the non-restraint system, says:

No more cheerful sight can be presented than a number of patients varying from 20 to 30, as happens every day when the weather admits of it, employed in the grounds, each in a manner suitable to his former habits or bodily strength—the farm servant at the spade: the gardener, as he was wont, sowing or planting; and the man in better circumstances hoeing, raking, etc. Employment in the fields is perhaps the only one in which patients of all ranks can equally join, being the natural occupation of the poor, and no degradation to the rich.

In that spirit the Aberdeen Asylum continued to be conducted. During the long period (1852 to 1884) that Dr. Robert Jamieson was superintendent of the asylum, further extensive enlargements were made, and in 1888, when the patients numbered over 600, a branch of the main asylum was established in the parish of Daviot. A few years afterwards the whole asylum was reconstructed and a hospital in connexion therewith was erected. It was opened in 1896. At that time the total number of patients under treatment at the main asylum, at the better-class asylum at Elmhill House, and at the Daviot branch was 730, the ground attached to the three places extending for 340 acres.

The Kingseat Asylum.

The increase of lunacy in the north-east of Scotland and the means of dealing with it formed the subject of an inquiry held on June 1st, 1898, by the General Board of Commissioners in Lunacy in Scotland. The Commissioners took council with the members of the Aberdeen Parish Council, the directors of the Aberdeen Royal Asylum, and the Aberdeen District Lunacy Board. As the result of that inquiry, it was decided by the General Board that the Aberdeen City Parish should be erected into a separate lunacy district, to be called the Aberdeen City Lunacy District; and the City District Board was empowered to build an asylum for the accommodation of the Aberdeen City Parish patients. By a minute of agreement between the Aberdeen City District Board, the directors of the Royal Lunatic Asylum, Aberdeen, and the Parish Council of the City of Aberdeen, it was arranged that, on the opening of the asylum, 50 male and 50 female patients should be transferred to it from the Royal Asylum. Thereafter 25 male and 25 female patients were to be withdrawn each year until the whole of the patients chargeable to the Aberdeen Parish Council were removed. Before fixing on plans for the new asylum great pains were taken to get information as to other institutions at home and abroad. A deputation from the Sites and Buildings Committee visited the asylums of St. Anne and Ville Juif, Paris; Herzeberge, Berlin; and Alt Scherbitz, near Leipzig. A further deputation visited the Perth District Asylum, Murthly; the Stirling District Asylum, Larbert; the County Asylum, Rainhill, near Liverpool; the West Riding Asylum, Menston, near Leeds; the Claybury Asylum, Essex; and the Cane Hill Asylum, Surrey. The advantages of the segregated type of asylum appeared so manifest that Alt Scherbitz was chosen as the model to be followed, with the modifications rendered necessary by climate and other local conditions.

The estate of Kingseat at Newmachar was secured as a site for the new asylum. The foundation stone was laid on September 14th, 1901, and the asylum was opened for the reception of patients on May 16th, 1904, when 261 patients—127 male, 134 female—were admitted. The late Dr. Charles Angus was appointed medical superintendent. The following description of the asylum is condensed from reports made at various dates by Dr. John Fraser and Dr. John Macpherson, Commissioners in Lunacy for Scotland: The whole asylum has accommodation for 478 patients. Of the ten villas only two are closed—that is, kept constantly locked during the day. These closed villas are occupied by epileptics, paralytics, and patients of uncleanly habits, and they are under constant supervision by night as well as by day. In a central position in the village is the hospital, containing wards for men and women who are sick or infirm, morbidly depressed, or excited. Here all the patients are kept under observation for a time after admission before they are transferred to the department that seems most suitable. The various sections have been furnished in a manner well fitted to secure the efficient care and treatment of the patients. In the day rooms sofas and various kinds of easy chairs have been liberally provided and in many of the day rooms there is a piano. The rooms are abundantly decorated with pictures, plants, and ornaments. A sum for the purchase of books has been granted. The beds are of good design, and are provided with wire and hair mattresses and coverings of good quality.

All the buildings are lighted throughout by electricity, and the electric plant is of the best design. The installation of telephonic communication is most complete, and electric bells have been provided in many of the dormitories, by which a nurse or attendant can be summoned. The ventilation of the hospital and villas is carried out by means of electric extract fans. The heating of the various rooms is, in addition to open fires, by hot-water radiators. The bath fittings are excellent; a bath can be filled to the depth of 9 in. in 30 sec., and emptied in about the same time. The arrangements for bathing the patients are described by the Commissioners as satisfactory.

Administrative Staff.

The administrative staff of the asylum consists of the medical superintendent, an assistant medical officer, a matron, two assistant matrons, and a house steward. There is no head male attendant, and the matron has immediate charge both of the male and female sides of the asylum. One of the assistant matrons takes charge of the institution during the night, the other assists the matron during the day. When there are more patients in the asylum a third assistant matron will be appointed, and there will then be an assistant matron in charge of the male and female divisions of the asylum respectively, under the matron.

Nursing.

The matron and assistant matrons are trained hospital nurses, and have charge of both male and female divisions of the asylum. One assistant matron is on day duty, and the other is night superintendent. The day staff consists of 26 nurses and 8 attendants, the ratio being 1 to 8½ patients. For night duty there are 7 nurses and 3 attendants, which gives a proportion of 1 to 29. Ample provision has thus, in the opinion of the Commissioners, been made to secure efficient care and supervision of the sick, suicidal, epileptic patients, and those of defective habits during the night. A feature in the nursing arrangements to which Dr. Fraser calls special attention is the employment of nurses in the male wards. There are 8 nurses on day and 2 on night duty in the male division. Two wards in the male section of the hospital are, both day and night, staffed by nurses; one of the male villas is in charge of 2 nurses, and the staff in another villa consists of an attendant and his wife. An attendant is always available to assist in those wards under the charge of nurses.

Clothing and Food.

In a report dated February 13th and 14th, 1905, Dr. John Macpherson says:

> The personal clothing of both sexes was neat, warm, and well-fitting, and the beds with their coverings were in excellent order. On the second day of the visit the dinner and the service of food from the main kitchen was inspected. The dinner consisted of broth with bread, minced meat, and potatoes. The food was well cooked and of sufficient quantity. The various articles were placed in separate covered vessels, labelled for each house, and conveyed in a special wagon to the various villas. The last consignment was delivered at the last villa within ten minutes from the time that the wagon left the kitchen, and the food so conveyed was tasted in that villa and found to be as hot and as palatable as could be desired. . . . One of the best and most carefully constructed departments of the asylum is the store. It is spacious, well-lighted, and replete with every convenience for storing and issuing supplies with the least possible labour. The cold-storage room, and the electro-motor driven machines for such purposes as grinding coffee and mincing meat, are a great advantage in respect of expedition, labour saving, and the prevention of waste.

Occupation for Patients.

Care is taken that such patients as are fit for work of any kind are properly employed. The chief occupation of the men is outdoor labour. The asylum estate has an area of 346 acres, of which 126 are at present let on lease. The site and farm extend to 177 acres, and afford varied beneficial and remunerative work for the men, 58 of whom are daily employed on the farm, garden, and grounds. The garden, which is 5 acres in extent, supplies the vegetables required for the institution.

On July 17th, 1905, when there were 370 inmates—183 men, 187 women—Dr. Fraser reported that 83 men were

engaged in outdoor labour. The daily register showed that 129 men and 76 women were industrially employed at that time. The farm and garden workers occupy a villa with 44 beds, adjacent to the farm and garden, while tradesmen and skilled artisans live in another, with 34 beds, which adjoins the workshops. On the female side, a similar villa, for 34 patients, adjacent to the laundry and kitchen, is occupied by workers in these departments, while the inmates of another, with 44 beds, are engaged in dressmaking and millinery, and the repair of clothing.

Cost.

Both in the construction and in the management of the asylum the aim is economy without sacrifice of efficiency. How favourably the cost of erection and fitting up compares with that of other district asylums in Scotland is shown by the following figures supplied by the Architect to the Aberdeen District Lunacy Board when the buildings were on the eve of completion:

Glasgow District Asylum.

Total expenditure from commencement of erection to May 15th, 1897:

Land.	Buildings.	Furnishings.	Total.
£8,500	£162,868 17 9½	£6,767 13 8	£178,136 11 5½

Number of beds available for patients at May 15th, 1898, 382.

These figures do not include any expense for water supply works, water being obtained from the Glasgow Corporation mains passing the asylum, for which the District Board pays the usual water rate.

Lanark District Asylum.

Total expenditure from commencement of erection to May 15th, 1896:

Land.	Buildings.	Furnishings.	Total.
£12,000	£152,427	£9,703	£174,130

Number of beds available for patients at May 15th, 1896, 500.

Govan District Asylum.

Total expenditure from commencement of erection to May 15th, 1899:

Land.	Buildings.	Furnishings.	Total.
£15,340	£200,000	£20,000	£235,340

Number of beds available for patients at May 15th, 1899, 570.

Aberdeen District Asylum, Kingseat.

Total expenditure from commencement of erection to May 15th, 1904:

Land.	Buildings.	Furnishings.	Total.
£12,942 6 3	£98,533 19 9	£8,139	£119,885 6 0

Number of beds available for patients at May 15th, 1904, 472.

Comparative cost of the above asylums per bed available for patients immediately after completion:

	Price per Bed for Buildings.	Price per Bed of Total Cost of Scheme, including Land, Buildings, and Furnishings.
Glasgow	£426 7 2	£466 6 6
Lanark	304 17 1	348 5 2
Govan	392 3 1	461 9 0
Aberdeen (Kingseat)	208 15 2	253 10 11

These figures represent more than the true cost per bed of the Kingseat Asylum, which, as it stands, has accommodation proportionate to an asylum with 700 beds. When the full complement of patients is reached, it is estimated that to accommodate the 228 extra patients the sum of £26,817 10s. will be required for buildings and furniture. This reduces the cost per bed of the asylum at Kingseat, when completed to accommodate 700 patients, to £179 15s. 2d. for buildings, etc., and £200 19s. 2d. for the total cost of the complete scheme, including land, buildings, and furnishings.

In regard to maintenance, it is estimated that for an average number of patients, taken as 428, during the year ending May 15th, 1907, the cost will be £10,700. This gives an estimated average cost per head per annum of £25. For these figures we are indebted to the Clerk and Treasurer, Mr. C. B. Williams, of whose courtesy acknowledgement must here be made. Roughly, therefore, the cost of providing may be put at £200 per patient, and that of maintenance at £25 a year per head.

Comparing the cost of maintenance with that of boarding out, we find that on an average each patient boarded out costs £19 a year. Against the cheapness of the latter system, however, must be placed some serious objections which more than justify the slightly greater expense of the villa asylum. Among these may be mentioned the danger of offences against females. It may here be mentioned that the city of Aberdeen was an early pioneer of the boarding-out system in this country. Mr. C. B. Williams remembers several pauper lunatics belonging to the parish of St. Nicholas who were boarded out as far back as 1865. Mr. Wallace, formerly inspector of the parish just named, claimed, we believe, to have been the first in the United Kingdom who boarded out both pauper lunatics and children. He was certainly the first in Scotland to do so.

Impressions of a Visitor.

In July of the present year a representative of the British Medical Journal—not, it should be explained, a "visitor" in any technical sense—had an opportunity of inspecting Kingseat Asylum, where he was courteously received and shown over every part of the asylum by Dr. Douglas McRae, of the Royal Asylum, Morningside, then acting as substitute for Dr. Angus, who was disabled by an illness which shortly afterwards cut short his valuable life. The visitor was struck by the cheerful and homelike appearance of the buildings, which, without architectural pretensions, have a simple beauty in harmony with their surroundings and with the purpose for which they are intended. The village is ten or eleven miles from Aberdeen, with which there is easy communication by train and telephone. The situation is almost ideal. Far from the smoke and din of the city—and it may be said in passing that Aberdeen pays for the cleanliness of its stone-paved streets by the nerve-shattering noise of its traffic—the asylum stands at an elevation of 439 ft. above the level of the sea; the air is pure and bracing, and around stretches a wide landscape bounded by mountains. The Kingseat estate on which it is built has an area of 347½ acres, and an abundant water supply was secured by the purchase of the neighbouring estate of Rainnieshill with its perpetual water rights. That estate cost the District Board £27,500, and after securing the water rights, seven acres of land, and some buildings, it was sold for £22,010. The excellent water supply was therefore obtained for £5,490. The grounds are abundantly planted with trees; when these have grown the amenities of the village will be greatly increased. At the time of our representative's visit the roads were unfinished. A number of the patients were engaged in the work, and we learn that the roads are now (November) finished and in splendid order. All the work of the institution, indoor and out, is done by patients.

In going through the villas a visitor gets the impression of neatness and even refinement. The floors are polished; the rooms tastefully as well as comfortably furnished and brightened with flowers and ornaments. The general effect is that of a private dwelling inhabited by persons of cultivated taste. Dr. Angus in his last report to the Committee says: "The idea of a home is the foundation of the colony system of asylum." Assuredly this idea finds embodiment in Kingseat, but if a hint of criticism may be allowed, the "home" which is made for its inmates is perhaps a trifle luxurious. The patients with the stigmata of degeneracy writ large upon them and their cheap "slops" hanging in ungainly folds about their awkward limbs, produced a curious effect of incongruity with the suburban aestheticism of their environment.

The principle of the "open door" is put in practice in all but two of the villas. There are no boundary walls around the asylum. Even at night the patients are not under direct supervision, though, of course, a nurse or attendant is never far away. The staff was organized by the late Dr. Angus, and the successful working of the asylum has fully justified his selection. There were at the time of our representative's visit thirty-eight nurses and eighteen attendants to some five hundred patients. Our representative was very favourably impressed by the nurses, all of whom struck him as exceptionally capable and interested in their work. It was pleasant to see them playing out of doors with the female patients, but sad to note that the women did not take much active part in the sports, looking on with apathetic indifference at the efforts of the nurses to amuse them.

Everywhere about the grounds were patients either at work or sitting in groups. There is a fine recreation hall, which is used for concerts and other entertainments, and also for religious services. Although the system of trust is adopted to an extent which might almost seem to invite attempts to escape and accidents, there has been only

one escape from the "open" part of the colony during all the time—now more than two years and eight months—the asylum has been in use. There has been no case of suicide, and the most serious injury has been a dislocated finger. It should be said that about 140 of the patients belong to what in the Scottish classification is called the "fatuous" category, and are harmless. Moreover, the Scottish character is to some extent manifested even when the mind is disordered; in looking at the Kingseat patients, who are for the most part quiet decent bodies, one is reminded of what Macaulay says of the nation which in the wildest excesses of popular passion preserved the appearances of sobriety and self-restraint.

To sum up our impressions of Kingseat. The asylum is as free as it is possible for such an institution to be from the prison-like appearance and depressing environment which in popular conception are inseparable from a madhouse. There is no evidence of restraint of any kind, though everywhere discipline, gentle but firm, makes itself felt. The patients are well fed and well cared for, and as happy as their condition will allow. The principle on which the asylum is conducted is that the true treatment of insanity is by plenty of good food, fresh air, suitable occupation varied with amusement, and such medical ministrations as may be needed in individual cases. It is recognized by the Aberdeen municipal authorities that insanity cannot be cured by bricks and mortar, even in the most massive doses. We earnestly commend their method to the notice and imitation of certain public bodies in England, which appear to think that the solution of the lunacy problem is to be found in covering as much ground as possible with palatial buildings. In this, as in other things, their motto would seem to be *Ad majorem Concilii gloriam*. In the Kingseat Asylum the foremost consideration has been the greatest good of the sufferers for whose relief it is intended.

It only remains to be stated that the Architect is Mr. A. Marshall Mackenzie, LL.D., A.R.S.A., to whose genius Aberdeen owes the new Marischal College.

NATIONAL ASSOCIATION FOR THE FEEBLE-MINDED.

UNDER the auspices of this Association a large and influential gathering of persons interested in the after-care of the defective pupils of the special schools (established under the Act of 1899) was held on November 8th at Denison House, S.W. Sir WILLIAM CHANCE, Chairman of the Executive Committee, presided at the morning sitting, and Lady FREDERICK BRUDENELL BRUCE (President of the Association) took the chair in the afternoon. The main object of the meeting was to compare and co-ordinate the work of the various after-care committees formed in different educational centres, and delegates were present from Birmingham, Leicester, Nottingham, and Bristol, as well as from the After-care Committee of the London County Council, recently formed.

Sir WM. CHANCE pointed out the absolute necessity of after-care committees being formed in connexion with all the special schools of the country. Without a watchful scrutiny of the after-history of the children leaving the special schools it was impossible to judge the value of the educational work carried out in them. The National Association had, therefore, organized a plan of recording in a uniform manner in the various districts not only what became of the children after leaving school, but also of such particulars of their family history as would throw light upon the great problem of degeneracy. By annual gatherings such as the present it was sought to bring together workers in this field, and to afford opportunities of discussing methods of work and of comparing results.

Mrs. HUME PENSENT (a member of the Royal Commission, and Chairman of the Birmingham Special Schools Committee) dealt with the statistics of after-care as gathered in that city, her general conclusion being that about 80 per cent. of those who had passed through the schools needed permanent care. Some steps had been taken in that direction by the Birmingham Educational Authorities in conjunction with the Poor-law Guardians and a resident institution would before long be opened.

Dr. BOULENGER, of Brussels, read a paper in French, giving particulars of the after-care committees formed to supplement the work of the special schools at Brussels, Antwerp, and Ghent. They aimed at finding suitable employment for those who had passed through the schools and keeping a watchful eye over them individually, for which purpose benevolent persons undertook to act as guardians (*parrains*), and frequent reunions were arranged so as not to lose touch with those who had left the schools. Good conduct was rewarded, thrift encouraged, etc.

Reports from English After-care Committees, which had adopted the model record recommended by the National Association, were subsequently made by Drs. Pott, Gill, Misses Clephan, de Lautour and Townsend, and the general trend of opinion seemed to be that much of the work of the special schools would be nugatory unless followed up in the majority of instances by employment in an industrial colony, which would also be protective to the community by affording permanent segregation. A resolution was passed to the effect that mentally defective pupils found to be incapable of substantial improvement should in the interests of themselves and those of the community be subjected to permanent control.

At the afternoon meeting Lady BRUDENELL BRUCE drew attention to the Colony scheme which the National Association hoped to organize, and deprecated a too pessimistic estimate of the results of training under proper conditions, a view confirmed by the statement of Mr. Taylor, Chairman of the L.C.C special schools, that more than 60 per cent. of the defective children trained in London were capable of some form of employment. It was also suggested that variations in results in different provincial centres might be accounted for by variations of the standard for admission into the respective schools, the Act of 1899 not contemplating the admission of idiots or low grade imbeciles (previously dealt with in resident institutions).

Dr. W. A. POTTS, of Birmingham, read a paper, entitled a Study of Family Histories, in which he divided defective children into two groups—the deviations from the normal (the smaller), and the large group of degeneratives. He laid stress on the far-reaching effects of alcoholism, and deprecated too early education and the employment of married women in factories. By a comparison of family histories of groups of children (1) in normal schools and (2) in special schools in Birmingham, he demonstrated the marked preponderance in the latter of such causes as nervous and tuberculous heredity and alcoholism.

Dr. ASHBY (Manchester) followed with a paper on the problems of causation and heredity, and uttered a caution against accepting third-hand statistics, pointing out that the problems of etiology were very complex, and that for the most part it was impossible to assign a single cause for mental deficiency, but it was necessary to take into account concurrent causes.

Sir EDWARD BRABROOK made a few remarks upon method and the value of uniformity in the statistical side of after-care work, and the meeting concluded with various votes of thanks.

It may be interesting to note that a model record form for the use of after-care centres may be obtained from the Secretary of the National Association, 72, Denison House, Vauxhall Bridge Road, S.W.

RESEARCH SCHOLARSHIP.

ONE of the scholars having resigned the scholarship awarded him in June last, the Council of the British Medical Association is prepared to receive applications to fill the vacancy thus created.

The scholarship is of the annual value of £150, and is subject to renewal by the Council provided that the whole term of office has not exceeded three years.

The scholarships exist for the encouragement of research in anatomy, physiology, pathology, bacteriology, State medicine, clinical medicine, and clinical surgery.

The scholars' work shall be subject to inspection.

Applications for scholarships must be made on forms to be had of the General Secretary, and returned on or before December 31st, 1906.

N.B.—Applications for scholarships and grants should, as a rule, be accompanied by a recommendation from the head of the laboratory in which the applicant proposes to work, setting out the fitness of the candidate to conduct such work, and the probable value of the work to be undertaken. This is not intended, however, to prevent applications for grants in aid of work which need not be performed in a recognized laboratory.

GUY ELLISTON,
General Secretary.

429, Strand, W.C., November 10th, 1906.

ELECTION OF DIRECT REPRESENTATIVES.

England and Wales.

The last day for the receipt of nomination papers was Wednesday last, November 21st, and we are informed that the following persons have been duly nominated as candidates:

Names of Persons Nominated.	Residence of Persons Nominated.	Registered Qualifications of Persons Nominated.
Broadbent, George Harry ...	8A, Ardwick Green, Manchester	Lic., Lic. Midwif. 1880, R. Coll. Phys. Irel., Mem. R. Coll. Surg. Eng. 1885.
Brown, George	Callington, R.S.O., Cornwall	Lic. Soc. Apoth. Lond. 1873; Mem. R. Coll. Surg. Eng. 1874.
Browne, Henry Langley ...	Moor House, West Bromwich	Mem. R. Coll. Surg. Eng. 1870; Lic. R. Coll. Phys. Edin. 1871; Fell. R. Coll. Surg. Edin. 1888; M.B., Bac. Surg. 1901; M.D. 1902, Univ. Birm.
Jackson, George	10, Portland Villas, Plymouth	Mem. 1864, Fell. 1876, R. Coll. Surg. Eng., Lic. Soc. Apoth. Lond. 1864; Lic. R. Coll. Phys. Lond. 1868.
Latimer, Henry Arthur ...	202, St. Helen's Road, Swansea	Lic. Soc. Apoth. Lond. 1871; Mem. R. Coll. Surg. Eng. 1871; M.D. Univ. Durh. 1895.
McManus, Leonard Strong ...	Mayo House, 25, Spencer Park, Wandsworth Common, London. S.W.	M.D., Mast. Surg. 1882, R. Univ. Irel.
Renshaw, Charles Jeremiah ...	Ashton-on-Mersey	M.D. Univ. St. And. 1862; Lic. Soc. Apoth. Lond. 1862; Mem. R. Coll. Surg. Eng. 1863; Fell. Fac. Phys. Surg. Glasg. 1894.
Rhodes, John Milson	Didsbury	Lic. R. Coll. Phys. Edin. 1874; Lic. R. Coll. Surg. Edin. 1874; M.D. Univ. Brussels, 1879.
Smith, Frederick John ...	138, Harley Street, London, W.	Mem. 1885, Fell. 1887, R. Coll. Surg. Eng.; Lic. 1885, Mem. 1887, R. Coll. Phys. Lond.; M.B. Univ. Oxford, 1885.
Smith, Joseph	18, Wellesley Road, Gunnersbury, London, W.	Mem. 1861, Lic. Midwif. 1862; R. Coll. Surg. Eng., Lic. Soc. Apoth. Lond. 1863; Dip. Pub. Health Camb. 1882.

Mr. Rutherford Morison has not been nominated owing, as we are informed, to an unfortunate misunderstanding through which his nomination paper was not sent in.

In England and Wales there are thus ten candidates for the three seats. Mr. George Brown and Mr. George Jackson, whose term of office is expiring, are standing again and in their canvass of the electors they are associated with Mr. Joseph Smith. Of the old members we need say no more than that Mr. George Brown has been a member of the General Medical Council since 1897, and was one of the delegates to the Annual Representative Meeting last year, and that Mr. George Jackson, who was first elected to the General Medical Council five years ago, is a member of the Medico-Political Committee of the British Medical Association. Mr. Joseph Smith is best known as one of those who have taken an active part in seeking to obtain for the Members of the Royal College of Surgeons in England a due share in the administration of the affairs of that College.

Dr. Langley Browne is very well known to members of the Association as a leading general practitioner in the Midlands, and as an active member of the Council of the British Medical Association, of which he is at the present time Chairman. Dr. Langley Browne has behind him a long record of good work for the profession, and there is no doubt that if elected he would be a worthy representative of general practitioners.

Dr. Latimer and Dr. McManus, whose names seem to have been usually mentioned in conjunction with that of Dr. Langley Browne, are both general practitioners. Dr. Latimer is Deputy Chairman of the Representative Body of the British Medical Association and a member of the Medico-Political Committee. As he resides in Wales, and as there is no other candidate from the Principality, it would seem that he has special claims for the support of those who approve the principle of territorial representation.

From this point of view we may take together the names of Dr. McManus of Wandsworth and Dr. F. J. Smith of Marylebone. London, with over 6,000 000 inhabitants and over 6,000 medical men, may well be regarded as deserving, like Wales, to be directly represented on the Council; but with the present limited number of Direct Representatives this principle of territorial representation cannot be completely carried out.

Manchester, if we may use that term to connote the teeming population within twenty miles of the centre of that city, is sending three candidates, Dr. G. H. Broadbent, a member of the Ethical Committee of the Association; Dr. Charles J. Renshaw of Ashton-on-Mersey, who has been Chairman of the Altrincham Division of the Association, and for many years a member of the Council of the Lancashire and Cheshire Branch; and Dr. J. Milson Rhodes of Didsbury, a well-known authority on Poor-law questions, an Alderman of the County Palatine, and a member of the Asylums Board.

In England the issue between the electors is not very clear, unless it be that between consultants and general practitioners, but owing to the disappearance of the name of Mr. Rutherford Morison, Dr. F. J. Smith is the only consultant nominated. He is one of the Secretaries of the Metropolitan Counties Branch, and has done good work in the interests of the profession as a whole rather than in that of any class.

The addresses of the various candidates have been published in the Supplement during the last few weeks, and will no doubt have been carefully scrutinized by the electors; at any rate we appeal to those who have not yet done so to look them up, and by all means to vote at the coming election. When the General Medical Council has been asked to represent to the Privy Council "that it is expedient to confer on the registered medical practitioners resident in any part of the United Kingdom the power of returning an additional member to the General Council," opponents have always been able to point to the apparent apathy of the profession, as shown by the fact that so small a proportion of those on the *Register* exercise their franchise. In 1896 40 per cent. and in 1901 57 per cent. did not vote.

The voting papers will be issued between November 24th and 29th, and the last day upon which a voting paper can be received is December 7th. The votes will be counted between December 8th and 11th. A meeting of the Branch Council will be held on December 11th to certify the result of the election, and the poll will be formally declared on the following day.

It may be added, as a warning to voters, that in 1901 no fewer than 208 voting papers were received too late to be lawfully reckoned in the enumeration, and that 187 were invalid for various reasons—in 102 instances because they were not signed in any way, and in 42 because they were insufficiently signed.

Scotland.

In Scotland there are two candidates. Dr. William Bruce, who graduated in 1858, and has represented Scotland since direct representatives were called into existence in 1886 by the Medical Act passed in that year. He was formerly engaged in general practice, but is now Medical Officer of Health for the counties of Ross and Cromarty. During his long service of twenty years on the Council he has done much useful work in connexion with

public health questions, and for some time past as Chairman of its Public Health Committee.

The other candidate is Dr. Norman Walker, who graduated in 1888. He, like his opponent, was formerly engaged in general practice, but is now Lecturer on Diseases of the Skin in the University of Edinburgh. He represented the Edinburgh Branch on the Central Council of the British Medical Association for a good many years, and when last year he did not seek re-election he was co-opted on to the Council, whose members had learnt to value his firm handling of complicated details and his strong grasp of general principles. He has shown special interest in questions affecting general medical education, and is Chairman of the Science Committee of the Association.

As neither of the candidates is at present engaged in general practice this point cannot affect the result of the election, which seems to turn rather on the desirability of seeking to obtain for Poor-law medical officers the security of tenure which their fellows in England have long enjoyed. Dr. Bruce, differing from the British Medical Association and the Local Government Board in Scotland, describes the attempt as "foolish." Dr. Norman Walker takes the opposite view, and is not only in favour of seeking to obtain security of tenure, but sees "good reason to hope for improvement in this matter in the not very distant future." The issue, therefore, is pretty clear, and the result of the election will tell us whether the profession in Scotland is really in earnest in this matter.

LITERARY NOTES.

THE *Progrès Médical* of November 10th is the "numéro des étudiants," and contains full information as to the medical schools, hospitals, and laboratories of France; as to the teaching, professional, clinical, and practical; and as to the curriculum required to obtain a medical degree.

The progress of specialization is strikingly shown by the number of journals devoted to separate organs—the eye, the ear, the larynx, etc. Now the intestine has one all to itself, in which it is dealt with solely in its surgical aspects. It is entitled *Annales Internationales de Chirurgie Gastro-Intestinale*, and appears under the aegis of Professor Monprofit, of Angers, who mentions casually in the prospectus that he has performed three hundred gastro-enterostomies. The editor is that experienced medical journalist, Dr. Marcel Baudoin.

On the occasion of the quatercentenary of the University of Aberdeen the French Academy and the Institute of France presented a beautifully printed address signed, among others, by MM. Jules Clarétie, Jannsen, Boutroux, Becquerel, and Salomon Reinach. It recalls the fact that in the ancient annals of the University of Paris the Scots College has remained famous. Scottish students had a second mother country in old France; and at Bordeaux and Paris, Poitiers and Bourges, the countrymen of Michael Scott and David Murray found asylums of knowledge and centres of study. The learning of the Scots was as proverbial as their pride, of which Rabelais speaks. There was no French university without a Scottish professor. Seventeen of the Rectors of the University of Paris were Scots. George Crichton was the master of Père Joseph, the "familiar" of Richelieu; and George Buchanan taught Montaigne Latin and philosophy. "For centuries," the address proceeds, "Scotland and France were not content to exchange—as in the Middle Ages—Scotch salmon and Gascon wines, and to march across the stage of history in a brotherhood of arms and of thought; a kind of reciprocal penetration united the two races in an *entente cordiale* which anticipated the future."

In the *Bulletin of the Johns Hopkins Hospital* for September, Dr. William J. Vogeler gives an account of John Huxham, a well-known physician and writer of the eighteenth century. Born at Totnes in 1692, he went in due course to Leyden to study medicine in 1715. Want of means prevented his completing the three years' curriculum required for graduation at that university; he therefore betook himself to Rheims, where he got a doctor's degree. He settled in practice at Plymouth, and in his efforts to get patients he used devices the invention of which is generally attributed to a celebrated practitioner of a later day—Sawyer, late Nockemorff. He would, it is said, go to chapel, leaving orders with his servants to call him out in haste as if to an urgent case; he would then mount his horse and ride furiously out of one gate of the town and back again by the other. The pity of it is that he was a man of wide learning and skill, who need not have stooped to such practices. Success came to him in time, and he acquired a considerable fortune. The Royal Society awarded him its Copley medal for his observations on antimony in 1735, and elected him a Fellow in 1739. He died in 1768. His best known work is his *Essay on Fevers*, which appeared in 1739. Of the fame which this work gained for its author, the following story, told by Polwhele, is an illustration:

> The Queen of Portugal being ill of a fever, and being reduced to the last extremity notwithstanding the efforts of a physician of the country, His Majesty hearing of the eminence of a physician of the factory at Lisbon, sent for him and inquired if it were in his power to give any assistance? He replied in the affirmative, the disorder took a favourable turn and in a short time the Queen was restored to perfect health. The doctor being complimented by the King upon his ability and success, said he had no claim to the application, that the merit was due to Dr. Huxham, an eminent physician of Plymouth, whose tract on the management of fevers he had implicitly followed. Upon which the King immediately procured the treatment, had it translated into the Portuguese language, and sent it richly bound to Huxham, as an acknowledgement of his debt of gratitude on the recovery of the Queen.

In 1752 Huxham published a treatise on Devonshire colic: he describes the symptoms accurately and notes that the disease was commonest when the fresh cider came, but it was reserved for Sir George Baker to discover that the cause was the lead used in the apple presses and dissolved in the cider. In 1757 appeared a dissertation on the malignant ulcerous sore throat, containing an excellent description of diphtheria; to Huxham belongs the credit of having been the first to observe the paralysis of the soft palate which is so frequent a sequel of the disease. Huxham wrote in a clear style and mainly from his own experience. This makes his writings valuable even at the present day. Dr. Vogeler says that the compound tincture of cinchona bark of the *B.P.* is still prepared from a formula devised by the eighteenth century Plymouth physician. It used to be known as Huxham's tincture.

The *British Journal of Inebriety* for October contains an interesting paper by Mr. F. J. C. Hearnshaw, Professor of History and Economics, Hartley University College, Southampton, entitled A Sidelight on the Liquor Traffic Three Hundred Years Ago. The records of the Court Leet of Southampton contain many references to the evils of abuses of drink. Mr. Hearnshaw gives selected entries from the records of the years 1550-1602. The national drink in the time of Queen Elizabeth was beer, though the upper classes had the light wines of France or the Levant and the dwellers in the orchard counties cider or perry. Probably few, except under stress of extreme poverty or urgent necessity, drank water; to do so was too dangerous. The conditions of life were in the highest degree insanitary, and water must have been a frequent vehicle of disease. Since the cup that cheers but not inebriates was unknown in any form, men quenched their thirst with beer. The indulgence cost little. We are told, for instance, of two men who drank together for six hours in an inn at a total cost of 4d. At the end of their debauch they went out and fought with swords till one slew the other. Of the prevalence of drunkenness the Leet jurors say:

> Item wee present the notorious sinne of dronkennes to be so Comon in this Towne as except some spedye reformacon be taken thereof in your discrecions yt will redown to the great infamye of the publicke government.

They also complain of the excessive number of alehouses:

> Item we present the inordinate and unnecessarie number of Alehowse keepers within everie warde of this towne being receptakles of all lewd persons and authors and maynteynors of them in there vices and wickednes.

And they pray that some of them may be suppressed. The jurors further make strong representations concerning the persons who haunt taverns and spend their time in drinking and gambling:

> Item we present that divers artificers of this towne do now usse to haunt taverns and alehouses not only by day but also by night so that many of them spend more than they get.

They ask that every alehouse-keeper who has any artificer on his premises after 9 p.m. shall be fined 5s., and that every one who allows gambling in his house shall be subject to a penalty of 40s. In order to facilitate the enforcement of these and similar regulations, they suggest that

all the back doors of the taverns leading into the fields shall be closed up, so that there shall be but one way of ingress and egress.

A MIRROR OF FALSEHOOD.

At a special meeting of the Council of the National Anti-vivisection Society held on October 29th, the Hon. Stephen Coleridge said, "We have three great London newspapers." We need not discuss the question in what sense the epithet "great" can be applied to the *Daily News* and the *Tribune*. Nor do we know whether the *Daily Mirror* is one of the papers on which greatness, in an antivivisectionist sense, has been thrust by Mr. Coleridge. But if it has not yet achieved this questionable greatness, it is trying hard to do so. In its issue of November 6th, under the headline Confessions of Vivisectionists, it professes to tell its readers "what the Royal Commission is hearing behind closed doors." It states without any reservation whatever that the evidence given before the Commission is represented by a "typical statement from the pen of Dr. Brachet, Professor of Physiology at the Ecole de Medicine [*sic*], Paris." He is quoted as saying that, after exciting the aversion of a dog by deliberate ill-usage, he put out its eyes and destroyed its ears and proved that the poor beast would then allow him to touch it without showing anger. Next comes the story of Magendie's sticking a knife into a dog to prove that the skin was sensitive. After this a writer in the *Revue Nationale* is quoted, without name or date, as relating how he beat dogs with a heavy wooden mallet "that he might know how much pain was inflicted from the creature's cries." "These," concludes the *Mirror*, "are the kind of facts which the Royal Commission is now discussing—behind closed doors." The lie is made circumstantial by a sketch of a number of animals—dogs, cats, rabbits, guinea-pigs, frogs, and a particularly dejected-looking horse, which are described as "anxiously awaiting their fate" outside the padlocked door of the Royal Commission, against which is a board inscribed "Meetings in Secret. Facts too Terrible to make Public." We do not suppose that many people, even of the intellectual quality of the readers of the *Daily Mirror*, will be misled by this vulgar appeal to hysterical sentimentalism, but this is no excuse for what is nothing else than gross and deliberate falsehood. Our contemporary knows perfectly well that these are not the kind of facts which the Royal Commission is now discussing. Even in these days of reckless expenditure, the appointment by the British Government of a Commission to inquire into cruelties perpetrated in the name of science in France more than half a century ago would be more than a long-suffering British public would stand. Nor will a plea of ignorance—fairly as that might be advanced in regard to other matters—here serve the *Daily Mirror*. The truth of the matter was brought to its notice by Mr. Herbert Sieveking in the following letter dated November 7th:

Sir,—In writing to the *Daily Mirror* I know I am writing to a journal which loathes the methods of the sneak, and which will give a fair hearing to both sides. I go further, and feel sure that had you known the infamous unfairness of the quotations in your journal of November 6th, p. 6, they would not have been admitted to your paper. I desire to make a few short statements, and leave you and your readers to judge as to whether my phrase "methods of the sneak" is one whit too strong.

In your issue of November 6th you give under the title of "Confessions of Vivisectionists," "What the Royal Commission *is* hearing behind closed doors," details of some revolting experiments alleged to have been performed by Brachet, Magendie, and a nameless writer in the *Revue Nationale*.

May I be permitted to add to the details you give the following facts: Dr. Brachet was a Professor of Physiology in Paris in 1837. Magendie gave up the active work of his chair in 1847, and died in 1855, that is, 51 years ago. How far back in the "dark ages" of medicine these dates are may be judged from the fact that the first operation on man under an anaesthetic in this country was performed in 1846. Before this time patients were strapped in a chair or on a table when undergoing an operation, in order to prevent their struggles under the agony they had to endure.

As the writer of the article in question gives neither the author nor date of his quotation from the *Revue Nationale*, it is impossible to vouch for, or impugn, its accuracy. It reads more like a quotation from the *Zoophilist* than from a contribution by a man of science. It is difficult to see, however, what bearing any of these statements have on the question of experiments on animals in England at the present day, the subject which the Commission is appointed to investigate. The object of the writer is, however, very evident. A deliberate and underhand attempt to mislead the public.

It would be as reasonable to compare the surgery of the time of Ambroise Paré, with its boiling pitch, red-hot cauteries, and dung poultices, to the aseptic and painless methods of the present day.

We need add nothing to Mr. Sieveking's letter, which the *Daily Mirror* was afraid to publish. At this, with our knowledge of the ways of antivivisectionists, we cannot affect to be surprised. But what is to be thought of a newspaper which, while publishing other letters applauding its slanders, suppresses one which conclusively proves that they are utterly unfounded?

MEDICAL NEWS.

The Empress of Germany has graciously consented to be a patroness of the Fourteenth International Congress of Hygiene and Demography, which is to take place in Berlin, in September, 1907.

The Spanish Minister of the Interior has laid before the Senate a Bill providing for the regulation of the labour of women and children, and for the creation of a national institute of social thrift.

Dr. G. Norman Meachen will deliver a lecture on the place of music in the healing art before the Incorporated Guild of Church Musicians, London, in the Brinsmead Concert Hall, 18, Wigmore Street, W., at 3 p.m., on Thursday, November 29th.

At a meeting of the Medico-Psychological Association of Great Britain and Ireland on November 15th, Dr. Robert Jones of Claybury Asylum was the recipient of an illuminated address in acknowledgement of the services which he has rendered to the Association. For nine years he acted as its Honorary General Secretary, and is now its President.

We are asked to state that a nursing home suitable for the reception of three or four cases requiring mountain air and personal attention is now ready for use at St. Moritz under the name of the Engadine Nursing Home. It is the undertaking of a syndicate of English trained nurses which last winter started work in the Engadine.

Under the will of the late Mr. Ben Haigh of Huddersfield, who died on September 25th, the Huddersfield Infirmary and the East Retford Cottage Hospital each receive a sum of £500.

Chicago Pasteur Institute.—Since the establishment of the Chicago Pasteur Institute in 1890 the total number of patients treated is 2,775. Of these, 2,474 were bitten by dogs, 100 by horses, 84 by cats, 29 by cows, 23 by skunks, 9 by calves, 9 by wolves, 5 by pigs, 4 by coyotes, 4 by mules, 2 by burros, and 1 each by a rat and a sheep. Thirty-one were infected by human sufferers from hydrophobia. Of the patients, 1,406 had received severe and multiple bites on the hands and wrists, 564 on the leg and thigh, 388 on the face and head, 359 on the arms, and 42 on the trunk. Only 7 deaths were reported, giving a mortality-rate of 0.25 per cent. Seven patients discontinued the treatment; two of these died later of hydrophobia.

A Monument to Servetus.—A committee has been formed at Vienne, in the Department of Isère, France, for the erection in some public place in that town of a monument to Michael Servet, the sixteenth-century physician who, unhappily for himself, meddled also with theology. His opinions were considered heretical by Calvin, who, using the decisive argument of the mediaeval divine, had him burnt at Geneva in 1553. The monument is intended as a recognition of the services rendered by Servet to the people of Vienne during twelve years, a testimony against "intolerance of all kinds," and a homage to the scientific investigator who discovered the pulmonary circulation and created comparative geography. Contributions have been received from sympathizers not only in France, but in Great Britain, Germany, Italy, Spain, Belgium, Switzerland, and the United States. Among the members of the Committee of Patronage are M. Berthelot, the Deans of all the Faculties of Medicine in France, and many men prominent in politics, literature, and science. It may be mentioned that the suggestion to honour the memory of Servet in this manner was made in 1903 before the people of Vienne knew anything of the monuments erected at Geneva and Paris. Subscriptions may be sent to the Mayor of Vienne, M. J. Brenier, who is treasurer of the fund.

British Medical Journal.

SATURDAY, NOVEMBER 24TH, 1906.

A HOSPITAL CONFERENCE.

A CONFERENCE between delegates from a large number of hospitals in the United Kingdom and members of the British Medical Association will take place in London on Thursday, December 6th, and it will be well, in view of the importance of the occasion, to recall the means by which this meeting has been brought about, and to consider the advantages that the medical profession has a right to expect from its deliberations.

Rather more than two years ago the old Hospitals Committee of the British Medical Association was replaced by another having the special mandate to inquire into and to seek to remedy the evils that undoubtedly exist in connexion with the present wholesale distribution of free medical relief. This Committee considered that the best way of going to work was to draw up certain model principles embodying what in their view should be the manner in which every voluntary hospital should distribute its relief, and then to approach each hospital individually and urge upon its managing body the importance, as much in their own interests and that of the public as of the general medical practitioner, of adopting such principles as the basis of their hospital rules.

When a considerable number of these principles had been drawn up, it was thought well to submit them to a preliminary conference of hospital managers, but before doing this the Hospitals Committee invited several of the leaders of the medical profession to meet them, and ascertained that they had their good wishes and support in this action. The first conference was held in the early part of last year, and was attended by a large number of gentlemen interested in and taking an active part in the management of many of the largest hospitals both in the provinces and London, and also by others representing the large collecting organizations of the metropolis. On the whole the conference approved of the principles. One or two points, such as the absolute abolition of all forms of payment by patients at voluntary hospitals, were not agreed to, and these were accordingly withdrawn on the principle that the first desideratum was to ascertain how far the medical and lay members were in complete accord, and to press forward those principles agreed upon, leaving for a later stage the process of persuasion in respect of points which the medical profession holds to be essential. The most practical outcome of the conference was the appointment of twelve gentlemen, representing hospital managers, to act as a joint committee with the Hospitals Committee of the Association, with instructions to complete the principles, taking into consideration the questions of the co-ordination of hospitals and provident charities and the different circumstances of "cottage" hospitals, to circulate the entire list to every hospital in the United Kingdom, and to arrange for a further conference in 1906 at which a delegate from each hospital should be asked to attend. The original twelve principles received the approval of the Representative Meeting at Leicester, and became thereby the expression of the policy of the Association in the matter of hospital abuse.

The completion of the proposals occupied some time and was hindered by the unavoidable resignation of Dr. Beverley, the Chairman of the Hospitals Committee, who had done so much to ensure the success of the Committee's efforts. The draft is now complete, and in addition to the subjects mentioned above, contains an implied recommendation to form where possible public medical services and self-supporting public nursing homes, on the managing bodies of both of which the medical profession should be adequately represented.

The completed proposals were then sent out, and in order to secure the attention and interest of the members of the medical profession in each district, a copy was also sent to the secretary of each Division of the Association with a request for co-operation and assistance in urging the acceptance of the proposals on the local hospital managers.

The result is encouraging; nearly two hundred gentlemen have intimated their intention of attending the conference on December 6th, and in many other cases the only reason given for not appointing a delegate was that the proposals were now in force at the hospital in question. In addition to the delegates from hospitals, the members of the joint Committee, certain large subscribers to hospitals, and the members of the Council of the British Medical Association will be asked to attend. The place of meeting will be announced later. The conference will probably be asked to give approval to the proposals, and means will be sought to arrange for future meetings, and to establish some machinery for carrying on the work continuously in the intervals.

We believe that such a meeting is quite without precedent, and it is reasonable to hope that some of the evils of hospital abuse may be remedied thereby. Some questions of the greatest importance still remain for solution, such as the total abolition of all payments by patients, the future of out-patient departments, and the establishment of a wage or other limit determining the eligibility of applicants for free relief. These will be the work of the future, but we believe that if the medical profession decides that certain reforms are imperative, and declares it by the mouth of its only efficient agent, the British Medical Association, reforms must inevitably take place.

THE VISITATION OF LUNATICS.

WE have already commented on the oddness of the course taken by the Government in referring to a Royal Commission on the Care and Control of the Feeble-minded the question also of inquiring into the constitution, jurisdiction, and working of the Commission in Lunacy, and of other lunacy authorities in England and Wales, into the expediency of amending the same or of adopting some other system of supervising the care of lunatics and mentally defectives, and of reporting on amendments of the law which may be thought to be required. This Commission, which has been sitting and hearing evidence for a long time, was originally very weak in the medical element, but was subsequently strengthened; still at the present time it contains only one medical member who has practical knowledge of ordinary lunacy work and the administration of lunacy law with regard to non-criminal lunatics. The other members have been chosen mainly on the ground that they have special knowledge of efforts made for the management of feeble-minded persons, either under the Poor Law or by charitable agencies. The one member of the

Royal Commission who has special lunacy experience is Dr. Needham, who is himself one of the Lunacy Commissioners. It would be well that the precedent established in the early days of this Royal Commission should be followed, and that it should be strengthened by the addition of persons having an intimate acquaintance with lunacy administration both from the point of view of the public and of the medical profession. The mention in the terms of reference of "other lunacy authorities" is generally taken to refer to the Lord Chancellor's Visitors, who are three in number, one legal and two medical, and it seems to be thought by some that the addition to the medical element of the Board of Lunacy Commissioners in England and Wales, which is admitted to be a necessity if the present system is to be continued, should be obtained by an amalgamation of the two bodies, the Lord Chancellor's Visitors and the Lunacy Commission. At the same time it must be remembered that the majority of the Committee over which the late Sir George Jessel presided, appointed by the Lord Chancellor in 1882 to inquire into the desirability of transferring the duties now performed by the Lord Chancellor's Visitors of Lunatics to the Lunacy Commission, reported against the transfer, pointing out that the whole expenses of the Lord Chancellor's Visitors were now paid out of the percentage levied on the property of Chancery lunatics, and that, unless the property of all lunatics was made to pay a contribution to the expenses of the Lunacy Commission, the transfer would cause a direct pecuniary loss to the State. They further thought that the addition of three or more members to the Board of the Lunacy Commission could scarcely fail to impair its efficiency as a deliberative body, while not increasing its inspecting staff to the extent even then recognized to be necessary.

A minority of this Commission, including the gentleman who was and is Secretary to the Lord Chancellor, took a different view. It pointed out that the term "chancery lunatics" embraces only a part of those lunatics of whose lunacy the Court of Chancery is officially cognizant. Many lunatics, whose property, on the express ground that they are lunatics, is regulated by the Court of Chancery, are detained upon order and certificate only, and are not visited at all by the special Chancery Visitors. The minority argued, therefore, that the present practice does not rest upon any consistent interpretation of the Lord Chancellor's official care for the persons of all lunatics as such. From this point of view he ought to take equal care of all of them, and this equal care is represented by the Lunacy Commission which was created in 1845. The Lord Chancellor appoints the members of this Commission, as well as the Chancery Visitors, and the salaries and the qualifications are in both cases the same. Each body of officers, therefore, must be qualified to perform the others' duties. Their field of inspection is the same, with the exception of those Chancery lunatics—about one-third of the whole—detained in private houses not required to be licensed under the Act. The Chancery Visitors are required to visit the patients in private houses four times a year, but they are required to visit only once a year those Chancery lunatics who are in institutions under inspection by the Lunacy Commissioners. This, it was urged, was practically an admission that five-sixths at least of the work, done by the Lunacy Commissioners, does not need to be repeated on account of the Chancery lunatics. The institutions visited by the Lunacy Commissioners receive six official visits a year, independently of any visit made by the Chancery Visitors. If they are in the metropolitan district, all the six visits must be made by the Lunacy Commissioners themselves, and so must at least two of the six visits elsewhere, the other four visits being made by the Justices' Visitors. To the argument that Chancery lunatics are made to pay special charges presumably to ensure them special benefits, it was replied that even so it did not follow that a separate visiting department ought to be maintained for them, nor that the object could not be attained by special instructions from the Court of Chancery to the Lunacy Commissioners, for the execution of which special fees might be charged.

The existence of duplicate establishments for duties which a single body might perform is, no doubt, an evil; and if in 1845 the Chancery Visitors had not already been in existence, it is not probable that they would have been created side by side with the new Commission. On the other hand, the Chancery Visitors are called upon by the Courts to carry out special inquiries; and unless a substantial economy or a real addition to the inspecting strength of the Lunacy Commissioners can be shown to be likely to ensue from the amalgamation, there is very much to be said for Sir George Jessel's view that things should be left as they are so far as the Chancery Visitors are concerned.

A solution of the difficulty, which seems to be commending itself to many persons of experience, is that it would be well for England in this, as in some other administrative matters, to follow the example of Scotland. In Scotland the Board consists of a lay chairman and four commissioners—two legal and two medical—but the Board has the services of two deputy commissioners. A larger staff of deputy commissioners would, of course, be required for England and Wales, but the plan would have the advantage of providing a Board sitting permanently, and a mobile body of deputy commissioners, consisting of younger men, to whom would be in the main entrusted the duty of visiting asylums and private patients.

We understand that the Medico-Psychological Association has appointed a Committee to meet the Special Committee of the British Medical Association, with the view of considering the representations which should be made to the Royal Commission.

THE HOUSING PROBLEM.

It is more than half a century since the people of this country awakened to the deplorable conditions under which a large number of the poorer classes was living. Although at that time the most urgent need was for an adequate supply of pure water, and in the urban districts for sufficient drains and sewers, it was recognized that there must also be some improvement in the surroundings and structure of the dwelling houses. The most pessimistic cannot deny that much has been done in this direction during the past sixty years. Cellar dwellings have been practically abolished, courts have been opened out, and in other ways closely-built houses have been provided with a sufficiency of air space. In recent years industrial villages, such as Bournville and Port Sunlight, have been established on much the same lines as Saltaire, which was built by Sir Titus Salt in 1850, and Etruria, which Josiah Wedgwood founded quite early in the last century. Nevertheless, in spite of the improvements we have indicated, few will deny that a large number of persons are to-day living under conditions which must not be allowed to continue.

The task of betterment has been undertaken by the National Housing Reform Council, an association

which has realized that "danger lies in pointing out an "evil, safety in exhibiting a remedy." The reforms advocated by the Council were recently placed before the Prime Minister and the President of the Local Government Board; they include among other things the stimulation of local sanitary authorities to carry out their duties under the Public Health and Housing Acts, the closing and demolition of unhealthy dwellings, the clearance of slum areas, and certain amendments of the Public Health Acts. In connexion with the last-named reform the Housing Council ask that there should be laid on all local authorities a statutory duty to appoint properly qualified medical officers of health and sanitary inspectors who should give their whole time to their duties and should not be removable except with the consent of the Local Government Board. This is a reform which has been consistently advocated by the British Medical Association for many years and has been urged in these columns time after time. It is to be regretted that in their replies to and criticisms of the views of the Housing Council neither the Prime Minister nor Mr. Burns made any reference to this aspect of the question.

Mr. Burns said that, with respect to more diligent house-to-house inspection, a great deal could be done if the local authorities were willing to do their duty: but he must surely be aware that such inspection is initiated and carried out by the sanitary officials, who are not very likely to undertake this part of their duties with enthusiasm, when by doing so they are extremely likely to find themselves turned out of office because they act in opposition to the pronounced policy of inactivity of the body which elects them. The Prime Minister admitted that he was struck with a remark made by one member of the Housing Council as to the contrast between the care we take of the health of a workman when he is in a factory, and our neglect of him when he goes to a home, if it is really a home. We venture to think that if His Majesty's inspectors of factories were subject to re-election year by year (as is the case with most medical officers of health) at the hands, say, of the manufacturers, they would not have been so successful in the administration of the Factory Acts as it is admitted they have been. Sir Henry Campbell-Bannerman said, indeed, that he was not sure a man would not be better who had a good healthy home, even if he had to submit to worse conditions for part of the day in a factory than if we reversed the process and secured the best sanitary conditions in the factory whilst leaving him to live and sleep under unhealthy conditions in his home. If this is so, the least that can be done is to make the conditions of inspection as effective in the case of houses as they are with respect to factories.

With the general views expressed by the Housing Council the Prime Minister and the President of the Local Government Board were in agreement. On one point urged by the Council Mr. Burns joined issue. He did not consider that more extended powers of entry into private houses was desirable, and in this we are in entire agreement with him. The experience of the most successful medical officers of health is that entry to a house is very rarely refused, provided it is asked for in a proper spirit, and up to the present no sufficient reasons have been brought forward to justify the establishment of arbitrary and universal right of entry. The housing problem, though most pressing, or, at least, most obtrusive in the towns, exists also in the country, and we are not sorry to find that the President of the Local Government Board is inclined to adopt the view that county councils should have wider powers with regard to housing and sanitary administration generally, and should be given authority to intervene if the parish, rural, or urban district council does not do its work.

The Prime Minister's reply was very kind and paternal and indefinite: let the deputation trust a sympathetic Government and a well-meaning and earnest House of Commons, and some day something would be done, he could not say when and he could not say what. And with this kindly blessing on their enterprise the deputation had perforce to be content. It is true that the housing problem is large and difficult, and that its solution involves considerations of a complex character, some social and some economic. It is bound up more or less with the rights of landowners, with the question of unearned increment, and not least with that of the rate of wages. But strong Governments, with large majorities, exist to deal with difficult problems, and we may therefore hope that some good will follow the interview between the two Cabinet Ministers and the Housing Reform Council, either by the activity of local sanitary authorities in the administration of the existing public health laws being increased, or by the Government being induced to do its part in seeing that those laws are properly administered; or haply in both ways.

ECONOMIC PROBLEMS IN THE PRACTICE OF MEDICINE.

THE date for the special meeting of the Marylebone Division to be held in the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., is Monday, December 3rd, at 8.30 p.m., and not November 30th, as at first announced. As already stated, the first of a series of discussions on economic problems in the practice of medicine will then take place. Any member of the profession will be admitted on presentation of his card. Dr. Comyns Berkeley, the honorary secretary, will be glad to receive the names of any gentlemen who may be willing to take part in the debate, which will be opened by Sir Richard Douglas Powell, Sir John Tweedy, and Dr. Kingston Fowler.

A UNIVERSITY FOR MUNSTER.

A NEW element, which may have considerable effect, has been introduced into the discussion of the problem of higher education in Ireland. There are some educationalists who think that a settlement will be more surely found in endowing the Queen's Colleges of Belfast and Cork as universities, open to all comers, but having respectively a Presbyterian and a Roman Catholic atmosphere, just as Trinity College has a Protestant Episcopalian atmosphere. The President of Queen's College, Cork, Dr. Windle, is a strong advocate of this plan, and he has influential support. In Belfast some prominent persons hold like views, but, on the other hand, there is probably a majority who would oppose such a scheme for the north of Ireland. The initial difficulty will be to determine the question whether one or two universities, or five, are best suited for the educational wants of Ireland. If Archbishop Walsh is correct, the present Commission can only deal with one question, and that is certainly not the creation of several new universities. Meanwhile, however, the important public meeting reported elsewhere in this issue has been held in Cork under the presidency of the Lord Mayor; and at it Mr. William O'Brien, M.P., proposed a resolution affirming that it is essential that local facilities for university education on a much more generous scale than at present should be secured for Munster in Cork, and announced that his wife and he had resolved to bequeath all they were worth in the world as an endowment of

a Cork University. If the borough and county council would undertake a very temporary burden—every shilling of which would be repaid on the death of his wife and himself—it would be possible to provide a sum of, say, £50,000. If all the councils of the province participated, the rate for a few years would not amount to more than half a farthing in the pound. That would provide an endowment of £10,000 a year for five years in addition to the £10,000 the College at present had, and private benefactions would be forthcoming rendering it possible to start the University at once even if the State contributed nothing. He further mentioned that Dr. Windle's scheme had secured the approval of several members of the present and the late Cabinets. The meeting further resolved that whatever settlement of the general question in Ireland may be arrived at, the reconstituted College in Cork should possess the largest possible measure of autonomy, in order that it may develop along the lines desired by the people of Munster and become an independent Munster University with its seat in Cork.

THE ARMY MEDICAL SERVICES AND THE INSPECTOR-GENERAL.

The *Army and Navy Gazette* recently, in an editorial article, backed up a suggestion made by Surgeon-General Evatt to the effect that there should be an Inspector of Army Medical Services on the Staff of the Inspector-General of the Forces; and the *Broad Arrow* last week published a statement "that the Army "Council has under consideration the desirability of "the appointment of such an Inspector, with functions "similar to those exercised in their respective branches "of the Service by the Inspector of Cavalry and the "Inspector of Artillery." There can be no doubt that the Esher Committee was right in recommending the appointment of an Inspector-General of the Forces, who should review and report upon "the practical "results of the policy of the Army Council within the "financial limits laid down by the Cabinet," and who should "provide the Secretary of State and the Army "Council with eyes and ears . . . thus enabling the "governing body of the Army to know the practical "results of the measures it adopts." The subordinate inspectors recommended were for cavalry, artillery (2) engineers, and ordnance and equipment. The Inspector-General was to report "generally on all that affects the "readiness of the Forces for war." The inspection of the medical service was not included within the Inspector-General's reference, and it certainly seems anomalous that he should be required to report on the readiness of the Army for war without including the readiness of the medical services. If, however, he is expected to report upon the medical services, it must, in spite of the large experience possessed by an officer holding the post of Inspector-General, be a matter beyond his technical capabilities to report adequately upon their efficiency either for peace or war. The surmise may be permitted that a medical inspector was not included because it was not contemplated that the Inspector-General should report upon medical efficiency. This duty appears to have been left to the medical Director-General; if that be so, he alone of the Directors recommended has been left to review and report upon the practical results of his own policy—in other words, the policy of the Army Council. The Director-General's administrative duties must, in the nature of things, be such as to require his presence almost continuously at head quarters; so that inspection of the widely-scattered medical arrangements cannot be carried out by him in addition to his duties at the War Office without entailing a physical strain such as is not required of officers in other departments of the army. Besides the hospitals and their working, the operations of the medical units at manœuvres require to be specially reported upon in order to gauge their preparedness and efficiency, not only for the service of the troops upon the spots, but also to meet problems in medical tactics and strategy which will demand solution in war. There are, therefore, reasons for placing the medical services on the same footing as regards inspection as the rest of the army. It is not necessary in this Journal to lay stress upon the essentially specialized nature of the duties of the army medical services. No layman is in a position to grasp the technical details of the various branches of medicine, and consequently, if the Inspector-General is to report on the medical services, it is essential that he should have upon his staff an officer with medical knowledge to report adequately to the Inspector-General upon the results of the medical administration of the Army Council, and as to the readiness of the medical forces for war.

ATTENUATION OF SYPHILITIC VIRUS.

In a fifth article[1] on their experimental studies of syphilis Professors Metchnikoff and Roux describe their attempts to produce a modification in the virus of syphilis by repeated passage through rhesus monkeys. In their earlier experiments they found that these animals were highly resistant, but they have at last succeeded in perpetuating a syphilitic virus in the rhesus and have now got as far as the twenty-second passage. They commenced by inoculating a chimpanzee with syphilitic material from two rhesus monkeys inoculated by MM. Finger and Landsteiner of Vienna; of these two animals one represented the eighth and the other the ninth passage in the rhesus. The chimpanzee was severely affected, showing both primary and secondary lesions. Inoculation of one rhesus from this chimpanzee proved a failure, but a second rhesus, inoculated from the same chimpanzee two months after the appearance of the primary lesion, developed the disease, and thenceforth the virus has been passed from rhesus to rhesus without interruption. During the series of passages the period of incubation has progressively diminished from 19 to 7 days, the times required for each successive incubation being 19, 16, 17, 19, 17, 14, 13, 8, 8, 7, and 7 days. This virus, though now of marked virulence for the rhesus, is of only slight virulence even for nearly-related animals such as the *Macacus cynomolgus*. A still more interesting feature about it is that, though virulent for the chimpanzee at the eighth passage, by the time the eleventh passage was reached virulence for this animal was completely lost. The fact that the virus in the rhesus still remains of a genuinely syphilitic nature has been confirmed by microscopic examination and the discovery of the spirochaete of Schaudinn. In view of these facts the authors suggest the possibility of employing a virus which has been long resident in the rhesus as a vaccine for man. Another very interesting case of an apparently-attenuated syphilitic virus has been brought to light through an accident which happened to one of their laboratory assistants, who was constantly handling the infected animals, and was therefore exposed to the risk of infection. He discovered a small round ulceration on his lower lip, which lasted a few days, and then disappeared without causing the slightest glandular enlargement or any other suspicious symptom. He was examined by Professor Fournier, the eminent authority on syphilis, and was unhesitatingly pronounced to be absolutely free from the disease. He has now been under observation for six months, and not the slightest sign of the disease has manifested itself. Moreover, Professors Metchnikoff and Roux declare that they have strong reasons for accepting the man's statement that he had never

[1] *Ann. de l'Inst. Pasteur*, October, 1906.

previously contracted a syphilitic infection. In order to relieve the man's uneasiness, apparently quite unnecessary, about his ulcerated lip, they inoculated with scrapings from the lesion a *Macacus cynomolgus*. Very greatly to their surprise, the animal, 35 days after inoculation, developed typical syphilitic lesions, which were found to contain numerous spirochaetes of Schaudinn. In order to throw further light on the nature of the virus, 17 anthropoid apes and monkeys were inoculated with this material, including 3 chimpanzees. They all developed typical primary lesions, but none of the chimpanzees exhibited any secondary manifestations, a fact which clearly pointed to an attenuation of the virus for these near relatives of man. There appears, therefore, to be no doubt that the virus in question was below the average virulence of human viruses. It was also found that animals successfully inoculated with this virus resisted subsequent inoculation with ordinary typical human syphilis. At the conclusion of their article Professors Metchnikoff and Roux provide further evidence that men, as well as lower animals, can be successfully protected against recent syphilitic infection by the application to the infected part of an ointment containing from 25 per cent. to 33 per cent. of calomel.

THE RESPONSIBILITIES OF ACCOUCHEURS.

Cases have occurred lately in which medical men have been brought into sad trouble, because they either had, or were said to have, left something in the uterus after delivery or abortion. One case occurred at Hastings. The doctor sent in his bill for £13 13s. 6d., and the patient's husband refused to pay it, and claimed £50 damages for what he alleged was neglect. The patient was delivered of a child before the doctor's arrival, on March 18th. The report in the local paper, which we have before us, is deficient in technical details. According to it the doctor *asked the nurse* to examine the placenta. If he had himself made a careful and complete examination of the placenta and membranes, as every accoucheur should, nothing would have been gained by the less perfect examination of the nurse. On the days following delivery, the report is that the doctor asked the nurse whether she was douching the patient, and when told she was, asked if she had boiled the tube, and was told she had not. Here, again, if the report is correct, is an abnegation of his proper position by the doctor. It is for him to direct, not for the nurse to choose whether the patient is to be douched or not, whether the tube is to be boiled or not. On March 22nd there was a rise of temperature; this occurred again on March 26th. On April 1st there was a rigor. A consultation was held: an "operation" was performed, and something which was alleged to have been offensive was removed. On April 12th the patient had "epileptic convulsions"; on April 13th a consultation with a physician was held and the patient found to be paralysed. Finally the woman died. It was not denied that she died from blood-poisoning, but it was asserted that the source of the poison was not the uterus. The nurse stated that the discharge was offensive, and that she reported this to the doctor; but he having a cold did not detect the bad smell, and so made no examination until alarm was caused by the rigor. The jury found that the doctor in not making an examination at this time had committed an error in judgement, and was therefore not entitled to his fees; and they found damages against him to the amount of one shilling. The moral of this case appears to be that an accoucheur should give close personal attention to every detail of his work, and not leave things to be decided by the nurse; and that when serious symptoms develop during the lying-in period he should without delay make a thorough examination. In another case heard in the Southwark County Court a medical man attended a patient in her confinement. She went on well for three weeks, and then some haemorrhage occurred. Another doctor was sent for, who removed what he said was a piece of placenta. The jury cast the medical man who had attended at the confinement in damages of £25. A physician who gave evidence said that the substance removed could not possibly have been identified as placenta by the method of examination described. It is most unusual that a bit of placenta, if retained, should have caused no symptoms till as long as three weeks after delivery. Yet another case was investigated in the East Ham coroner's court. A midwife had attended a woman in childbirth, who died ten days later. On *post-mortem* examination two pieces of placenta were found in the uterus—one attached, the other loose. One doctor said they were pieces of an ordinary placenta, another that they were part of a placenta succenturiata. One piece of the so-called placenta was sent to Dr. John Phillips, who reported that it was only blood clot. Another piece was sent to the Clinical Research Association, and this was found to be placenta. We ourselves know of no test by which to decide whether a little bit of placenta found in the uterus ten days after delivery was a detached bit of a placenta of the usual kind or a placenta succenturiata. Retention of a placenta succenturiata can only be detected by careful examination of the placenta and membranes after they have been expelled. Retention of a piece of placenta can be discovered (if, which is unusual, haemorrhage has not called for exploration) by putting the placenta in a basin of water, uterine surface uppermost. This will make the villi float up together, and a missing bit will show as a visible gap; but retention of a succenturiate placenta will not be revealed in this way. To find this out, first the chorion must be examined. A succenturiate placenta will have chorion attached to it and retained with it, and therefore examination of the chorion will show a gap in that membrane close to the uterus. But if, as often happens in such cases, there has been undue haemorrhage, and placenta or membranes have been manually removed, the membranes may have been torn and twisted, and the doctor may be uncertain whether a missing piece of chorion may not have been stripped off by his own manipulations. Secondly, the fetal aspect of the placenta must be examined. A succenturiate placenta receives an artery and vein from the umbilical cord. If such a placenta is retained, an artery and vein will be seen running to the edge of the placenta, and there stopping abruptly, not breaking up into capillaries as in the normal termination of such vessels. These cases appear to us to be a sign of the times. Medicine and especially the part of it called surgery, is approaching more and more to an exact science. Forty years ago recovery after an operation, however skilfully performed, was a matter of chance; it depended, we now know, on whether the patient was septically infected or not. To the public, a misfortune was due to the finger of God, or accident, according to people's views. But nowadays the surgeon, or the accoucheur, can no longer invoke the finger of God as an agent of septic infection. The public are getting better informed, and they are beginning to inquire if the medical man is not responsible for accidents that happen during his attendance.

TRUTH IN A HEADLINE.

A well-known judge is reported to have said, "Truth will out, even in an affidavit." We are pleased to note that truth in regard to vivisection will out—even in a headline in the *Daily News*. In its issue of November 17th our contemporary reports a reply given by Sir Edward Grey to a question about the work of the Khartoum Laboratories under the heading, "No Vivi-

"section at Khartoum." Now Sir Edward Grey said that from time to time painless hypodermic inoculations have been given to living animals. The *Daily News*, therefore, in its too candid headline has deviated into an admission that such experiments are not of the nature of vivisection. For this it will doubtless be called to account—privily and under seal—by the agitators for whom it provides a resonant mask. It is the lumping together of inoculations and experiments involving vivisection that supplies them with one of their most telling "platform facts," and if they are to be deprived of this by the accidental indiscretion of a sympathetic newspaper, they may well complain that they have been smitten in the house of their friends.

THE SIMPLE LIFE.

The simple life does not seem to be so simple a thing as it sounds. In the first place, it is very difficult to carry out in the midst of a highly artificial civilization; in the second, it is not always satisfactory when it is tried even under favourable conditions. To some of its votaries—and those with the greatest pretensions to be regarded as *intellectuels*—the simple life would seem to be a convenient pretext for throwing aside the restraints in regard to behaviour and personal cleanliness which civilized society imposes on its members. We know of a case in which a lady who had undertaken to nurse another in her confinement was made seriously ill by the want of proper food and the lack of rudimentary comfort and social decency in a family of which the head was a brilliant graduate of the University of Oxford. Recently the Berlin correspondent of the New York *Sun* gave an account of a trial of the simple life made by a band of German authors, painters, and philosophers. These enthusiasts wished to return to the life of primitive man. The scene of the experiment was the Island of Kabakon, in the Bismarck Archipelago. The party formed themselves into a colony under the name of Sun Brothers, which expressed their wish to enjoy permanent sun baths in the costume of Adam. Their food was to be limited to nuts and fruit, and their labour was to consist of tilling the soil and tending herds. The experiment was brought to an untimely end by the action of influences against which primitive man struggled as best he could, but which the civilized philosophers and artists forgot to take into account. Two of their number, Herr Lutzow, an author, and Herr Engelhardt, a philosopher, died from the combined result of exposure from not wearing clothes, and exhaustion from an inadequate diet. Another philosopher named Bettman, was killed by the natives, whose notions of the simple life did not agree with his. The other members of the colony have, it is stated, returned to civilization in despair.

SIDE OR CROSS SADDLES.

During the last few days the question of what is the desirable position for women when riding a horse has been the subject of ardent discussion in a section of the press. At an epoch when so many of those who might otherwise have aspired to emulate the fame of Diana Vernon have become motor maniacs, and at a time of the year when, of the ladies who still ride, the majority are followers of hounds with well-fixed notions of their own, the utility of the controversy is not very apparent. It has, however, given rise to the exhibition of so much energy and historic and physiologic lore as to be worthy of brief notice. The skill of the tailor and of the saddle maker has abolished much of the danger formerly intrinsic to horse-riding by women, which was such that no medical man could see a lady riding across country with entire tranquillity of mind, in view of the probability of a fall resulting in her being dragged by her habit or pinned by a pommel and crushed by a falling horse. The modern equestrienne is in this respect possibly safer than her male companion, since in the nature of things her seat is somewhat looser and she is more likely to fall clear and escape unharmed. For the rest, there is possibly little to be said physiologically in favour either of the side or cross-legged seat in the saddle. The female pelvis is broader than that of the male and the thighs relatively wider apart, and in a separation of the thighs to a sufficient extent to grasp a horse of ordinary girth there is no harm whatever. This qualification is, however, of importance, for if the girth of the horse is too great there is a tendency for the rider to sit, not as she should, on her ischial tuberosities or seat bones, but on her thighs and pubic arch. This danger avoided, whether the saddle be of the side or cross-legged variety is, so far as normal women are concerned, probably a matter of entire indifference; while in the case of growing girls or of those who ride far and often there is something to be said in favour of the cross-legged position. Undoubtedly many cases of spinal curvature have originated in frequent exercise on a side-saddle. One of the contributors to the correspondence mentioned records that when in Australia his sister, already a mother of several children, rode only a few days after a confinement some fifty miles across country on a man's saddle to warn the police of the approach of bushrangers. She did herself no harm, and subsequently increased the number of her family to twenty-one. As an instance of what women are capable, when they will, the incident is notable, but from a physiologic standpoint is in no wise incredible or remarkable. The remarks made about the desirability of the girth of the horse being appropriate to the girth of the rider, or rather to the length of the rider's thighs and legs, apply with equal force to male riders, and especially, perhaps, to small boys. For the latter, when they commence riding, a fat, round pony is often chosen intentionally, but very foolishly. They cannot circle its back with their short legs while sitting back, and so stand practically upon their thighs and stirrups. The result is that, apart from the risk of injury to the perineum and the adjacent structures, an undue amount of strain is thrown upon the abdominal muscles, and the chance of an inguinal hernia developing thereby increased.

OPSONINS ON THE STAGE.

It was, if we mistake not, as a member of the St. Pancras Borough Council that Mr. Bernard Shaw made his first appearance as a critic of the men and methods of modern medicine, and his speeches and letters while holding that office and subsequently have sometimes made it necessary that we should point out to him the error of his ways. He has now transferred his criticism to the stage, where he enjoys some of the immunity which traditionally belongs to the pulpit. In choosing the foibles and failures of medicine as the subject of his satire, Mr. Shaw follows the example of some great masters of the past—of Molière, for instance, to go no further back, and of Daudet, who wrote a fine description of a medical consultation under circumstances not altogether dissimilar to those imagined by Mr. Shaw. We shall not say that he has used his opportunity unfairly, and we could even wish the *Doctor's Dilemma*, when played in London this week, had been more successful. The audience was a little wearied by the long-drawn-out first act, amused by the second and third, unmoved by the cheap pathos of the dying bath-chair scene which filled the fourth, and left cold by the fifth, which for some not obvious reason is called an epilogue. Mr. Shaw's stage is generally filled by a procession of

physicians and surgeons who, though extremely eminent, seem to have very little to do; and the plot turns round one of them, a pathologist, who has discovered a vaccine for tuberculosis, which, if used with proper regard to the opsonic index—it will be seen that the dramatist is here thoroughly up to date—will, he believes, and other people believe with him, cure the disease. The treatment is still in the experimental stage, and he has only been able to prepare enough vaccine for ten cases; these have been carefully selected and are all in St. Ann's Hospital awaiting its application. Enter a beautiful lady who is the wife of an artist—at least she believes herself to be a wife, but the artist is such a complicated rascal that the audience is left in some doubt; the lady has made up her mind in her Devonshire home to devote her small fortune to smoothing the early steps of the career of some man of genius; she has found this man in Dubedat; she adores him as a man and worships him as an artist; but he is dying of consumption. Will the pathologist save him? At first he refuses; but, touched by the beauty of the pleader, and impressed by the excellence of the drawings she shows, he finally consents. In the next act it is made clear that Dubedat is a person somewhat after the type of Benvenuto Cellini, a combination of artist and blackguard, and the pathologist begins to wonder whether his life is worth saving—whether, in fact, it would not be kinder to the wife that her husband should die before her illusions are destroyed. His hesitation is increased when he finds that an old fellow-student, a good but unsuccessful general practitioner, has developed phthisis. Finally, it appears that the pathologist has fallen in love with the lady, and hopes to marry her if the artist dies. That is the doctor's dilemma. He solves it by treating and curing the poverty-stricken general practitioner, and handing over the artist to a fashionable physician who bungles badly. Dubedat dies on the stage after making an artistic profession of faith, and inducing his wife to promise that she will speedily marry again because a sorrowing widow has always shocked his aesthetic sense. In the epilogue the pathologist asks the engaging widow to marry him, confessing also that when he left the artist to the treatment of the fashionable physician it was in the full expectation that death would be the result, and he calls himself a murderer. The lady is shocked, especially that a gentleman so elderly as the pathologist should have dreamt that she would marry him, and triumphantly announces that she has already married again. On this the curtain goes down, leaving the audience, as we have said, cold. It is a pity, because the play contains some good character studies. There is the old physician who believes that all new discoveries and ideas are merely revivals of the old, and that his father knew all about them sixty years ago—a very delightful figure; there is the surgeon who thinks that the whole secret of medicine is in the nuciform sac, which must be excised to prevent the chronic blood-poisoning from which 95 per cent. of the population suffer (by the way, so up-to-date a surgeon as Mr. Cutler Walpole would not use the term "blood-poisoning," which is old-fashioned); and there is the court physician, Sir Ralph Bloomfield Bonnington. The first conception of this character is good, but Mr. Shaw has been unable to resist the temptation to make it farcical, and not all the skill of that accomplished actor, Mr. Eric Lewis, could make it quite credible. A man may attain to very considerable success in medicine or any other calling and be an ignorant fool, but he can hardly be such an obvious donkey as Bonnington. The rear of Mr. Shaw's medical procession is brought up by a very strange figure, a Jew from Germany, who has made a fortune in the East End by writing "Cure Guaranteed" on his window; we must confess that we have never met this person, and that Mr. Shaw failed to convince us of his existence. Nevertheless, in spite of its fourth act, and in spite or perhaps because of its farce, this Shavian tragedy is well worth seeing.

THE "BLOODLESS SURGEON" AGAIN.

MR. H. A. BARKER writes—in response to the suggestion, made in the JOURNAL of November 10th, that he should make known his manner of procedure and report his cases in a way that might enable surgeons to judge of his methods—that for long he has been trying to do the very things we condemn him for not doing. He goes on to ask if we will assist him in making known his methods, and allow him to invite, through our columns, a thorough professional investigation of those methods. "Or am I once again," he concludes, "when coarsely and insolently challenged to produce "my proofs, to find any immediate offer to do so con-"temptuously ignored?" It may be said, in passing, that the complaint of coarseness and insolence comes with a bad grace from the author of the open letter to the President of the Royal College of Surgeons of England, a copy of which was sent to us by Mr. Barker. We invited him to make known his methods, and he has means of doing this that are not open to regular surgeons. Why does he not do so? He boasts freely to interviewers of his exploits in manipulation, but he does not describe either his cases or his way of dealing with them. What does he mean by a "thorough "professional investigation" of his methods? If he means a demonstration of a few selected cases before a medical jury chosen by himself, and carried out under conditions laid down by himself, it is obvious that such an investigation can lead to no satisfactory result. As far as we are aware, the nearest approach to a genuine investigation was made some two years ago by a representative of the *Lancet*; the result is reported in the issue of that journal of January 14th, 1905. We venture to quote a part of it, and this we do all the more readily as it bears testimony to Mr. Barker's good faith: "We witnessed a remarkable exhibition, not so "much of Mr. Barker's powers, but of what people are "willing to endure at the hands of a quack when the "same treatment would be pronounced as intolerable "cruelty in the hands of the medical man. We may "say at once that Mr. Barker appeared to us a "hard-working individual believing in himself. He is "capable of doing good in certain cases, cases in which "medical men upon scientific methods are doing more "good. He is capable of doing great harm in other "cases and we are in little doubt that he does it. We "saw cases of adhesions, of old Pott's disease, of old "tuberculous hip disease, and of latent curvature "treated, and how much damage was done can only be "told when a certain period of time has elapsed. We "saw much done with great pain that is in hospitals "and private surgeries daily effected painlessly. We "saw several cases rejected on the ground that no good "could be done, and in these cases we saw no fee taken." This is obviously a fair and dispassionate statement by a competent observer of what he saw; it needs no comment. Mr. Barker, in his open letter, emphatically repudiates "the assertion that [his] methods are "dangerous or that they *ever* result in damage to the "patient." He claims to have found out "something "that the Man of Science does not know." Again we invite him to explain his discovery in the way that is done by the man of science, that is by a full and accurate statement of facts which can be proved, and a clear description of methods that will enable them to be subjected to the thorough and prolonged testing which alone can make it possible to arrive at trustworthy conclusions.

A DANGER TO HOMOEOPATHY.

Tertullian cited certain utterances of a heathen writer, which seemed to breathe the spirit of Christian morality, as *testimonium animae naturaliter Christianae*. It is, perhaps, the unconscious working of a mind naturally orthodox, in the medical sense, that has led the *Homeopathic World*, under the suggestive heading "The Coming Peril," to deliver itself as follows: "To "our thinking the danger to homoeopathy in the future "lies far less in the opposition of the allopaths than in "their acquiescence. There are signs that the great-"ness of truth is about to prevail, and the danger to "homoeopathy is in this—that when the landslide does "occur, it may find the forces of homoeopathy unpre-"pared to cope with it." Obviously to our separated brethren the question of truth is a matter entirely secondary to the interests of their sect. So little, indeed, do they seem to care for the truth that they look upon the prospect of its prevailing as a danger, and the mere possibility of the "allopaths" accepting it fills them with dismay! We knew before of course that, to the more intelligent among the disciples of Hahnemann, the true inwardness of homoeopathy was that it displayed itself before a mystified public as a sacred medical caste which deemed itself defiled by contact with rational medicine. This attitude has obvious advantages, but it is surely impolitic to let the world see that it is a pose and nothing more. If the dreaded peril does come, will the homoeopaths leave the truth profaned by "allopathic" acquiescence to their rivals, and bring forward a new system to "cope with" the "landslide"?

NOISE IN LONDON.

A conference, summoned by a body called the Street Noises Abatement Committee, met on November 13th, at the rooms of the Medical Society of London, under the chairmanship of Sir Theodore Martin. It was attended by a number of well-known medical men, and resulted in the passing of a resolution expressing the opinion of those present that the amount of noise in London was excessive, and such as to cause disastrous consequences to the health of its inhabitants; and that legislation for its abatement was urgently needed. With this statement we generally agree, as the police seem indisposed to move actively in the matter on its own initiative; but, at the same time, we in no way otherwise associate ourselves with the body which caused the conference to meet. It would appear to be an offshoot of one known as the Betterment of London Association, for we notice on the fly-sheet of the circular, by which our attention was drawn to the holding of this conference, a number of extracts from periodicals relating to the association mentioned. One of them is an extract from the British Medical Journal; it is undated, and we take this opportunity of protesting against its continued utilization.

PIROPLASMOSIS.

Dr. Christophers, who recently telegraphed to us from India to the effect that he had confirmed Koch's work on the development of piroplasmata in ticks, has been following up this subject in detail. Working, as far as we know, with the *Piroplasma canis*, a parasite of dogs, he now sends a further telegram stating that he has traced the piroplasmata into the salivary glands of the nymphae of the ticks—that is, into the second generation or stage of development of those creatures. From this the final stage should be the discovery of the parasites in the resulting adults, and probably this will soon follow. He also states that he is dispatching an article on the subject by mail, and the arrival of this will be looked forward to with interest by those who follow the study of the protozoa in their minute details.

THE WARNING NOTICE.

By the addition of Lutterworth Union and Walkden (Lancs), the Warning Notice published at p. 59 of the advertisements contains thirty entries. We would recommend medical practitioners who may be approached with reference to contract practice appointments in any of the places enumerated to communicate, in the first place, with the Secretary of the Division, whose name and address is given in each instance; from him they will learn particulars of the nature of the dispute in each case.

The next session of the General Medical Council will commence on Tuesday next, when the President, Dr. Donald MacAlister, will take the chair at 2 p.m.

Sir Victor Horsley will deliver the Hughlings Jackson lecture of the Neurological Society, at 11, Chandos Street, Cavendish Square, on Thursday next, at 9 p.m. This lecture is delivered every fourth year, and on this occasion will be devoted to the illustration by recent researches of Dr. Hughlings Jackson's views on the functions of the cerebellum.

The students of the University of Pavia are organizing a festal celebration in honour of Professor Golgi, who shares with Professor Ramon y Cajal, of Madrid, the Nobel Prize in Medicine. It is proposed to present him with a magnificently-illuminated address on parchment, and to give his name to a local philanthropic institution.

Medical Notes in Parliament.

[From Our Lobby Correspondents.]

Medical Inspection of School Children.—The subclause of the Education Bill imposing on local education authorities the duty of providing "for the medical inspection of children before or at the time of their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools," was discussed in the House of Lords on Wednesday. Lord Belper, on the ground of economy, moved an amendment to make the provision permissive; this was opposed by the Bishop of Ripon, the Earl of Meath, the Earl of Crewe (who is in charge of the Bill), the Marquis of Lansdowne, and Lord Goschen who suggested that the cost should be an Imperial charge. The amendment was eventually withdrawn. Amendments proposed by the Bishop of Ripon to make the inspection of children at the time of their leaving school compulsory, and to impose on educational authorities the duty of attending to the health and physical condition of children attending school, were opposed by the Earl of Crewe for the Government and withdrawn, and the subclause was passed without alteration.

The Merchant Shipping Bill in its report and recommittal stages occupied the last two days of last week, and gave rise to some interesting discussions. One point which occupied a long time referred to the cubic space allotted to Lascars. Mr. Havelock Wilson tried to secure that Lascars should be provided with the same cubic space as Europeans when serving outside the tropics, but was willing for them to have the smaller space of 72 cubic ft. within tropical regions. He contended that to limit the Lascar to 72 ft. while the European was allowed 120 ft. was a direct encouragement to shipowners to prefer Lascars. In the tropics the extra space did not matter, as the Lascars slept on deck. Mr. Lloyd George resisted the amendment as an insidious attempt to exclude Lascars from the mercantile marine. If it were adopted, 240 ft. of cubic space would be required to secure the labour equivalent of one British sailor by Lascar labour. Lord Robert Cecil opposed the hygienic argu-

ment, which was based on a reference to Dr. Collingridge's criticism of the space given to Lascars. In 1905 some 70 fatal cases of respiratory diseases had occurred among Lascars, but it was estimated that 40 000 to 60,000 were employed in the mercantile marine, and on the whole the death-rate was lower than among European seamen. A number of other members joined in the debate, and after some two hours a division was taken, and Mr. Havelock Wilson's amendment was rejected by 248 to 105.

Industrial Poisoning.—Mr. Jowett asked the Secretary of State for the Home Department whether he was aware that, during the first nine months of the present year, 483 cases of poisoning had occurred among workers in various industries: and whether he could promise early legislation with a view to dealing more effectively with the industries in which the cases occurred. Mr. Gladstone answered that he was aware of these statistics of poisoning cases for the current year, which had been compiled by his department. The Home Office had very full powers under the Factory Act of dealing with dangerous trades—in particular by the issue of regulations under Part IV of the Act. That its action had been attended by a considerable measure of success was, he thought, shown by the fact that the number of cases of poisoning had fallen from 1,331 in 1899 to 663 in 1905, a reduction of 50 per cent. in six years. Earlier in the session he had laid on the table of the House a memorandum showing the action taken by the Home Office with regard to dangerous trades, to which he would refer the hon. member. Further codes of regulations were in preparation, among which he might mention a code for the horsehair industries in connexion with anthrax, and the revision of the existing codes for paints and colours and the enamelling of metals, which had been found to be inadequate. He might also mention that he was inquiring into the use of poisonous woods in certain manufactures. He did not think he could usefully propose further legislation on the subject at the present time, but as the hon. member was aware, the Government were taking an important step and one which he anticipated would have beneficial results in bringing industrial poisoning within the scope of the Workmen's Compensation Bill.

Vivisection at Khartoum.—Mr. George Greenwood asked the Secretary of State for Foreign Affairs whether, as the result of the inquiries promised, he could now say whether vivisectional experiments were habitually performed at Gordon College, Khartoum, in the Wellcome Research Laboratories, or elsewhere; whether the Gordon College, though not under the control of the Foreign Office, was in any way subject to British control; whether the Wellcome Research Laboratories formed part of such College, or what was their connexion with it: how such laboratories were maintained, and whether or not by public money; and whether operators in such laboratories or otherwise at the Gordon College were subject to any inspection, regulation or control. Secretary Sir Edward Grey replied that no vivisectional experiments in the ordinary sense of the term were conducted at the Wellcome Research Laboratories, but from time to time painless hypodermic inoculations had been given to living animals in order to further the diagnosis and cure of the obscure tropical diseases to which men and animals were exposed when living in the Soudan, and many valuable results had been obtained. The Gordon College was under an Executive Committee and trustees appointed under the Gordon College at Khartoum Act, 1899. The Research Laboratories, the equipment of which was given by Mr. Henry S. Wellcome to the Soudan Government, were affiliated to the Gordon College. The maintenance of these laboratories was a charge upon the Gordon College, the revenue of which was derived partly from an endowment and partly from a grant made annually by the Soudan Government. The laboratories were constantly visited by several members of the Soudan Governor's Central Sanitary Board.

Exemption from Vaccination. Mr. Lupton asked the Home Secretary whether his attention has been called to the case of Mr. Walden of Catford, who had been summoned for not vaccinating his youngest child after having been refused an exemption certificate in the Greenwich police-court, although on previous occasions two certificates had been granted him in the same court for two other children. Mr. Gladstone replied that he had received a letter from Mr. Walden, but he regretted that he had no authority to take action. The matter was one placed by statute within the discretion of the magistrate, and the only remedy for the anomalies which at present occurred was in an alteration of the law. Legislation for the purpose would be in the hands of the President of the Local Government Board. Mr. Arthur Black also asked the Home Secretary on what grounds a certificate had been denied to a Mr. Chambers of Southend after he had stated in court that he conscientiously believed that vaccination would be prejudicial to the health of his child. Mr. Gladstone answered that it appeared from a newspaper cutting which he had received from Mr. Chambers that he declined to give any reasons for his belief, and maintained that a certificate ought to be granted on an applicant declaring that he had a conscientious objection. The magistrates, he presumed, were not satisfied as to the conscientious nature of his objection. The matter was one placed by statute within their discretion, and, as he had said, the only remedy for the anomalies which at present occurred was in an alteration of the law.

Blood-poisoning after Vaccination.—Mr. Lupton asked the President of the Local Government Board if his attention had been called to the death of an infant as the result of vaccination performed when only a week old, in the Liverpool Lying-in Hospital; if he had received a resolution referring to this from the Liverpool and District Antivaccination League; and what action he proposed to take to stop the practice of vaccinating newly-born infants. Mr. John Burns replied that he had seen a newspaper report of the inquest in this case, from which it would appear that the death of the child took place from blood-poisoning, but that according to the finding of the jury there was no evidence to show how the infection which caused the blood-poisoning had been set up. He proposed to cause an inquiry to be made as to the case. He had received the resolution referred to, and would give consideration to the subject to which it related.

Vaccination in India.—Mr. Lupton asked the Secretary of State for India if he was aware that during the season of 1903 4, 2,748,638 persons were vaccinated in Bengal, and that of that number, 2,066,716 were vaccinated with human lymph: that in the Bombay Presidency human lymph continued to be used for vaccination in the majority of cases; that the use of human lymph in India was liable to propagate leprosy, a disease that was on the increase; and whether, in view of the liability of propagating other bad diseases, and of the fact that, owing to the heat of the climate, glycerinated calf lymph did not keep well, he would put a stop to this system of vaccination, seeing that the revaccinated British troops were not exempt from small-pox. Mr. John Ellis replied for Mr. Secretary Morley, and said that Bengal and Bombay, for special causes, were behind other parts of India in introducing calf lymph, but both provinces were endeavouring to extend its use, and thereby reduce the risk of communicating disease. The method of preserving calf lymph in India in an aseptic form had of late years been improved, and the preparations now made were reported to withstand the climate. In the meantime the Secretary of State could not undertake to stop the present system of vaccination.

Crèches in Prisons.—Mr. Pickersgill asked the Secretary of State for the Home Department whether his attention had been drawn to the report of the medical officer of Birmingham Prison for last year, that no fewer than 68 babies at the breast with their mothers were admitted to the prison during the year, and that, in the case of these babies, the recently-established crèche was found very beneficial; whether a crèche existed in other prisons which had a similar proportion of babies among their inmates; and, if not, would he consider the desirability of establishing crèches in all prisons in which a considerable number of babies were received. Mr. Gladstone replied in the affirmative, and said that it was decided that crèches should be established at prisons where more than 50 babies were received during the year. This had now been done at all such prisons, with the exception of Manchester, where the work was in progress.

Liverpool.

Health Temple of Hippocrates at Cos.

On November 8th Dr. Richard Caton delivered an interesting lecture on the recently discovered Health Temple of Hippocrates at Cos before the Liverpool Medical Institute. The lecture was profusely illustrated by limelight views of the island and of the recently excavated remains, and by plans and "reconstructions" of the ancient Temple and sanatorium. The lecturer said that the site, about two miles from the modern town of Cos, had been so changed by earthquakes, by the growth of vegetation, by the destructive work of the lime-burner, and by the erection in mediaeval times of churches and mosques, that all traces of the magnificent Coan sanctuary had disappeared, and the association of the place with Asclepios had remained absolutely unknown for centuries. Professor Rudolf Herzog of Tübingen began to investigate the site some years ago, and had been rewarded by the discovery of highly-interesting remains of the ancient Temple and precinct. To him and his fellow-workers belonged the whole credit of the excavation. The Temple precinct consisted of three terraces, arranged in steps on the mountain side. A vast number of ancient earthenware pipes brought water to the baths and fountains, probably from the spring of Hippocrates, and from the celebrated red water, or iron spring, a couple of miles higher up in the mountains. The north side of the quadrangle contained many rooms—dispensary, library, and rooms for teaching purposes, for Cos was a medical school. About the centre of the second terrace there stood a huge altar, reminding the visitor of that of Pergamon, though on a smaller scale. This was interesting as being the scene of the fourth mime of the Greek poet Horondas. To the west of the altar stood an ancient Ionic prostyle temple, divided into "naos" and "pronaos." On the south side of the "naos" the floor contained a large rectangular coffer, or cyst, composed of great slabs of marble, each a foot thick. The coffer was about 5 ft. long, 4 ft. in breadth, and 3 ft. in depth. The massive block which formed the lid was pierced in the centre by an aperture about 6 in. in diameter. Professor Herzog believed this to have been a treasure chamber. The extreme difficulty of removing the massive lid in order to deposit or to remove treasure led Dr. Caton to believe this to have been the Ophiseion or home of the sacred serpents, from which they emerged when fed by votaries with the "popana," or cake offerings. Probably also a bronze tripod stood adjacent, on which incense and bloodless sacrifices were offered to the god in his serpent form. The views from the temple commanding the mountains and plains of Cos, the blue Aegean, the islands and the hills of Asia Minor, were most striking. The sanctuary had no theatre or stadium, those of the town of Cos being easily accessible. The sacred grove of cypresses surrounded the upper part of the temple on three sides.

Closure of Insanitary Dwellings.

In the City Police Court the presiding magistrate recently made closing orders in respect of fifty-six court houses which were condemned by the medical officer of health as insanitary. Twenty of the dwellings were in courts off Blenheim Street. Dr. Hope stated that they were in a very insanitary condition, and that their occupation should be immediately discontinued. They were of the ordinary three-roomed description, back-to-back and side-to-side, and had no through or adequate ventilation. The watercloset accommodation was inadequate, and the general condition of repair was bad. The houses were situated in a narrow court approached by still narrower openings. The owner of the property said he assented willingly to the order, and that he approved very strongly of the Corporation doing this work. Other houses condemned were of much the same kind. Describing five insanitary houses in Northampton Street, Vauxhall Road, which were ordered to be closed, Dr. Hope said they were situated in one of the oldest courts now in existence in the city. The court was approached by a tunnel entrance 3 ft. wide and 23 ft. long. All the houses were back to back, and the fronts abutted on a narrow court only 9½ ft. wide.

The Brussels Municipality and the Liverpool Corporation Dwellings.

On November 10th a deputation from the Municipality of Brussels, consisting chiefly of members of the Municipal Council, visited Liverpool for the purpose of inspecting the workmen's dwellings erected by the Corporation. The deputation was received by members of the Housing Committee and some of the officials, and full information was given regarding the work of the Corporation in this department. At the close of the inspection Mons. Lemonnier, on behalf of his fellow-visitors, said they were exceedingly pleased by what they had seen. The problem which was being solved in Liverpool was exactly similar to the one which presented itself in Brussels—that of rehousing the poorest poor—and they thought they had found in Liverpool the very remedy they were in search of. He had no doubt that the result of their inspection would be an endeavour to emulate what they had seen in Liverpool, and to produce similar types of buildings in Brussels.

South Wales.

Elementary Education and Medical Officers of Health.

A meeting of the West of England and South Wales Branch of the Incorporated Society of Medical Officers of Health was held at Newport on November 15th. An address was delivered by the President (Dr. J. D. Jenkins, Rhondda) on Elementary Education from the Point of View of the Medical Officers of Health. Hitherto, he said, medical officers had taken little or no part in the direct or indirect education of the young; but the trend of public opinion and consequent legislation were leading to a change, and medical officers were often in a position to wield great influence upon the policy of education authorities. Until recently very little importance was attached to the physical welfare of the scholars, as was evidenced by the want of prominence given to subjects the teaching of which would tend to create in every child a wholesome respect for his personal health and well-being, and it would seem desirable that the *personnel* of the Education Department should be augmented by the appointment of an adequate staff of men who had undergone medical training upon lines similar to those of the medical section of the Local Government Board. It now appeared probable, however, that in the near future medical officers of health would themselves be expected to take an active part in elementary education. Dr. Jenkins said the first desideratum was the education of the central authority, education of the kind that would convince them of the wisdom of seeking the aid and advice of men with special knowledge and experience. At present the curriculum for scholars, other than infants, consisted of the English language, handwriting, arithmetic, etc., but where possible older girls should be given practical training in domestic subjects, supplemented by studies in temperance, elementary physiology (especially in reference to the relative values of different food), gardening, and the care of infants and home nursing. It was generally admitted that much of the time of every child was now wasted in learning our system of weights and measures, and still more time was thrown away in their application in every branch of life. If the Government would make the metric system compulsory, a great deal of time would very soon be at the disposal of education authorities, which could be more profitably devoted to some of the subjects he had mentioned. Dr. Jenkins welcomed the new regulation allowing organized games to be played during the hours set aside for an afternoon attendance, remarking that organized games were much better calculated to aid the development of certain desirable qualities than set drill or gymnastics. Dr. W. Williams, Glamorgan County Council, said there were some 65,000 children in the area under the jurisdiction of the Glamorgan Education Committee. He had also calculated that about 10,000 of these children entered annually, and some probably entered every school on each day of the school year. He failed to see how such a large number could be examined within a reasonable time and proper attention given to each scholar. Dr. Williams stated that the examination of schools and

scholars naturally divided itself into (*a*) sanitary control of school buildings; (*b*) medical inspection of scholars, and that these were inseparable and ought to be carried out by one and the same authority; and he also pointed out that this work ought to belong to the County Health Department, but there were some difficulties in the way which might be easily overcome. With regard to boroughs, district councils, etc., employing whole-time medical officers of health, there were but few difficulties, but in those who only employed part-timers there were many difficulties. Dr. D. S. Davies, Bristol, said the Bristol authority had made inquiries as to how this inspection of children was being carried out by other authorities, and in some cases they found that the work was done by an independent medical officer. This had caused friction, and there appeared to be a general feeling that these inspections should be in the department of the respective medical officers of health, and that they should receive the reward of added responsibility. They should direct the parents how to treat their children. Dr. E. Walford, Cardiff, urged that they should educate the public as to the importance of this work. He agreed that the parents should not be relieved of any of their responsibility. Last winter they had given 51,000 free meals to school children at Cardiff, at a cost of £100, but he found that the meals were partaken of largely by the children of parents who were improvident and addicted to drink, and that the children of the more modest and thrifty class did not get much assistance. Drs. Eben. Davies (Swansea) and Herbert Jones (Hereford Combined District) also spoke. The latter, in dealing with the defective eyesight of school children, said it was very often due to the existing construction and arrangement of the schools. The authorities first of all caused the defective eyesight, then proposed to examine the children who suffered from it, and later to provide the remedy. They should start at the proper end.

Birmingham.

VOLUNTARY NOTIFICATION OF CONSUMPTION.

OUT of a total of 8,718 deaths from all causes in Birmingham in 1905, there were 939 deaths from tuberculosis, that is, 1 death in every 9 was caused by this disease. Of the deaths due to tuberculosis, 759 were the result of phthisis. In 1904 the Health Committee resolved upon a scheme for the voluntary notification of consumption, and in March, 1905, each medical man in Birmingham received a letter from the Medical Officer of Health asking him to notify cases of tuberculosis of the lungs. At the same time arrangements were made with the authorities of the University for the examination of any specimens of sputum sent by medical practitioners, in order that only cases which were in an infectious condition should be notified. The Health Committee thought that voluntary notification would enable them

(*a*) To deal with many of the housing conditions which contribute so largely to the causation of this disease.
(*b*) To deal with the workshop and trade conditions which so influence the spread of the disease.
(*c*) To prevent a considerable amount of infectious matter from being scattered broadcast as at present.
(*d*) To take appropriate measures for disinfection when this is necessary.
(*e*) Incidentally to amass evidence as to the chief causes which are in operation in this city in the spread of tuberculosis, so that further action may be taken in reducing the present enormous mortality of over 1,000 lives every year.

As the result of this appeal to the medical practitioners 666 cases were notified during the remaining portion of the year. The notified cases were visited by an inspector, who gave verbal instructions and distributed printed rules to prevent the spread of the infection to others. Very many of the patients had no knowledge of the infectious nature of consumption, and it was frequently found that patients in a highly infective condition were sleeping in beds with other persons who were not consumptives. Other persons in a similar infectious condition were found selling food in shops, and others were expectorating on the floor and wall of their houses. The voluntary notification of consumption is a great step forward in further reducing the very large mortality of a disease which causes more deaths every year than any other morbid condition.

HEALTH LECTURES.

The Health Lectures delivered under the auspices of the Birmingham Athletic Institute are again being given this year, and seem to be doing a good work in educating the general public in those medical subjects of which it is so necessary for them to have some knowledge. There are four lecturers, and the lectures are delivered weekly during the winter in four districts of the city. The lecturers for this year are: Dr. Rhodes, Mr. C. H. Howkins, M.R.C.S., L.D.S., Mr. Billington, M.S., F.R.C.S., and Mr. F. Victor Milward, B.C., F.R.C.S.

HALL OF RESIDENCE FOR LADY STUDENTS.

Over two years ago a scheme was initiated to provide a hall of residence for lady students attending the University. For this purpose a house was taken in Edgbaston with accommodation for ten students. In the first year there were so many applicants for residence that another house was rented, and at the close of the summer term of 1906 the lack of accommodation for new students made it necessary to take a third house. This term all the houses are full and more room is required. It is found that the system of detached houses is very extravagant and inconvenient in working. The experiment of providing resident accommodation for lady students has been so successful that the promoters are now desirous of building a permanent hall which will suffice for fifty or more students. For this purpose it is estimated that a sum of £12,000 will be required, and an appeal will be made to the generosity of the friends of the University.

Manchester.

NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.

THIS is the jubilee year of this hospital, and by way of signalizing the event, and at the same time improving its financial position, a great effort has been made to obtain a sum of £25,000 in aid of the funds of the hospital. Nearly £17,000 has already been subscribed, and during last week a great bazaar was held with a view to raise an additional sum of £10,000. About £8,000 was realized at the bazaar. It appears that the hospital owes about £3,000 to the bank, that its annual expenditure exceeds its income by £900; the £25,000 is needed to wipe out accumulated deficiencies and to give a helpful send-off to the new half-century of philanthropic work.

Ireland.

THE IRISH UNIVERSITY QUESTIONS.

THERE have been rumours that the Roman Catholic hierarchy are not at one regarding the solution of the education problem in Ireland. These have probably had their origin in the circumstance that at least one of the body has declared his opposition to any scheme which would result in the existence of only one university in Ireland, with federated colleges. Archbishop Walsh has informed an interviewer that he has not changed his views. He is still of opinion that a second college in the University of Dublin would be a good line of settlement. He said he was aware that it was stated that some of the bishops, or the great body of them, were opposed to the establishment of a second college in the University of Dublin. It was false. In the statement sent by the bishops to the Commission the settlement of the university question by the establishment of a new college in the University of Dublin was distinctly put forward as one of the three solutions of the problem that the bishops "would be prepared to accept." He held that the only one of the three solutions with which the Commission was competent to deal was that of the establishment of a new college to be a college of the University of Dublin. The choice lay between that and nothing at all.

PROPOSED UNIVERSITY FOR CORK.

On Saturday, November 17th, a public meeting, convened by the Lord Mayor and the Chairman of the County Council, was held in the City Hall for the purpose of "affirming the necessity of obtaining satisfactory facilities for university education in Munster by the reconstruction of Queen's College, Cork, and investing it with the largest

possible measure of autonomy on such a basis as to render it acceptable to all sections of the community in the province." There was a large attendance of delegates from the city and county of Cork. The Lord Mayor presided, and amongst those present on the platform were Dr. Windle, President Queen's College, Mr. William O'Brien, M.P., Sir T. O'Brien, Bart., and the Chairmen of the various boards in the county. Mr. O'Brien, M.P., who was warmly applauded, proposed:

That whilst pressing for a complete settlement of the university question in Ireland, this meeting, representative of the South of Ireland, declares that it is their assured opinion that it is essential that local facilities for university education on a more generous scale than at present should be secured for Munster in Cork.

Two things, he said, ought to be emphasized. The first was that they had not been too hasty in taking action, and the second that they did not propose in the slightest degree to encroach upon the legitimate interests of Dublin or to run counter to any body who had larger plans to put forward. Any institution established in Cork would be a democratic institution; it would belong to the people, and in the ultimate resort be governed by the representatives of the people, and he did not think there was a single rational Protestant who knew the Irish people who would have the smallest fear of interference with his creed, or of disabilities arising out of his creed, in any institution where the power and the magnanimous instincts of the Irish people would have free play. On behalf of his wife and himself he said that they had an attachment to Cork, which all the world would understand, but had hitherto had no substantial opportunity of proving it, and as they could not imagine any object that was likely to fructify in such a multiplicity of blessings for the people of Cork and of the province of Munster as the success of the movement, they had made up their minds, if the people would allow them, to bequeath on their demise practically all that they were worth in the world as a contribution towards the endowment of a Cork University. They did not intend to say die for a while, but if it seemed well it would be possible to arrange that, if the borough councils and county councils of the Province were willing to assume a temporary burden, which would be exceedingly slight, and every shilling of which would be repaid at their death, a sum of say £50,000 could be at once made available. Mr. O'Brien calculated that, even if the burden was confined to the City and County of Cork, it would not involve more than one farthing in the £ for a few years, with the absolute security of being then recouped the whole sum, and if the borough and county councils of the other counties in the Province desired that their children should share in the privileges of university education, the temporary rate would scarcely amount to half a farthing in the £. They would thus have immediately at their command an additional endowment of £10,000 a year for five years, added to the present endowment of £10,000, and that, with the private benefactions that they would be quite certain to have in abundance to any necessary extent from the open-handed citizens of Cork, would enable them to make a start at once without demanding an additional pound from the State, though he doubted not that if the proposal were made the State would not hesitate for a moment in taking this £10,000 a year on its own shoulders and leaving to Cork its own resources for further equipping and endowing the Cork University. Mr. O'Brien had reason to believe that Dr. Windle's projected constitution had obtained on its broad lines the approval of some of the most eminent men in the present Cabinet, and also in the last Cabinet, and he did not expect there would be much difficulty in getting Parliament to arrange the matter by a simple Order in Council, and so have this University in full swing within the next couple of years.

The resolution was seconded and supported by Sir T. O'Brien, and the following resolutions were duly proposed and carried:

That this meeting further declares that it is essential to the success of any college or university in Cork that it should be of such a character as to be satisfactory to all classes of the people in the Province, which has not been the case with the Queen's College, Cork, in the past.

That this meeting agrees with the conclusions arrived at by the President of Queen's College, Cork, in his recent report to the King, and joins with him in calling on the Government to make such alterations in the constitution of the College as will render it acceptable to the people amongst whom it is placed, and for whose use it was intended, and expresses its opinion that there will be no difficulty in carrying this out in such a manner as to avoid giving offence to any section of the community.

That this meeting claims that whatever settlement of the general question in this country may be arrived at, the reconstituted college in Cork should possess the largest possible measure of autonomy in order that it may develop along the lines desired by the people of Munster; and that they consider that this end may be most satisfactorily attained by the creation of an independent university for Munster with its seat in Cork.

The Conferring of Degrees at the Royal University.

It will be remembered that the students of the Catholic University College, on the occasion of the conferring of degrees at the Royal University in October, made a considerable demonstration in condemnation of the limitation of admissions to the function. They endeavoured to hold a public meeting on the steps of their college, but were prevented by the police. This was alleged to be the result of interference by the President, Rev. Wm. Delany, S.J. A meeting was then held at the Catholic Medical School, where a resolution was passed condemning Father Delany. The *Evening Telegraph* says that at a subsequent meeting of the Literary and Historical Society a resolution similar in tone was passed. Dr. Delany asked to have it expunged. The committee of the Society refused. Thereupon the College Council met, and rusticated Mr. F. Cruise O'Brien, the auditor, for one year, deprived him of the position of auditor and expelled him from the Society. Mr. Mangan and Mr. Ronayne, the mover and seconder of the resolution, have been censured. It is said the Society has now resolved to hold its next meeting in a public room, under the presidency of a member of Parliament.

The rustication is only from the College and will not prevent Mr. O'Brien from pursuing his studies elsewhere and presenting himself in the ordinary course for his degree examination. The conduct complained of does not concern the University at all. It does not appear how the College Council can expel him from the Society or deprive him of his position as auditor. These would appear to be powers to be exercised by the Society alone.

A State Medical Service in Ireland.

The Irish Medical Association held a special meeting in Dublin on Wednesday last, November 14th, to consider the recommendations made by the Viceregal Commission in reference to the medical service of the Poor-law department. Mr. J. McArdle, the President, occupied the chair. The following resolutions were adopted. Proposed by Dr. Warnoch (Donegal), and seconded by Dr. E. Thompson (Omagh):

That we, the members of the Irish Medical Association, offer our congratulations to the members of the Viceregal Commission on Poor-law Reform in Ireland upon the production of their able report, and upon the broad and statesmanlike view that they have taken of the subject, and that the Council of this Association be directed to urge upon the Government the importance of giving effect in the main to the recommendations contained in this report with as little delay as possible; and that in any reform the members of the Poor-law Medical Service and those of the County Infirmary Service should form a homogeneous State Service, and be in all respects dealt with in a similar manner.

Proposed by Dr. O'Carroll and seconded by Dr. Singleton Darling:

That this meeting of the Irish Medical Association is strongly of opinion that any body or council administering the Poor-law Medical Service should contain a majority of members elected periodically from among the members of the profession practising in Ireland.

Proposed by Dr. Magennis and seconded by Dr. Powell:

That all hospitals and infirmaries under the contemplated reformed Poor-law Service should be designated by a uniform title.

The first resolution was carried by an overwhelming majority in a meeting of nearly one hundred members. Only eleven voted against it.

The declaration is important in view of the impression that a majority of the members are really opposed to any scheme which would bring them under the control of what is described as the Castle.

The scheme is that which was put forward by Sir William Thomson in his report to the BRITISH MEDICAL JOURNAL on January 23rd, 1892, p. 182, and was supported by Professor Kinkead of Galway. Of course the establishment of a State service is attended by considerable difficulty. The Government at present pay about three-fourths of the cost of the medical service, and it will not be easy to induce the Treasury to pay all in days when everything is apt to be sacrificed for economy. Nor will the Boards of Guardians lightly surrender the patronage which the present arrangement places in their hands. But if the security of the unhappy dispensary doctor is to be made certain, and his whole life made tolerable, there can be no question that State service is the only way. We have no faith in the generosity or fairness of Boards of Guardians, and the Poor-law medical officers have none either. The Commission has given their case a great help forward, if they will take advantage of it and act unitedly.

BELFAST MEDICAL STUDENTS' ASSOCIATION.

At the opening meeting of this session, Dr. Leighton, the incoming President, took the chair, and delivered his address on Quacks and Quackery. He then introduced Professor Schäfer, who gave an address on the Resuscitation of the Apparently Dead. Professor Schäfer showed that all recent investigations proved that a fatal dose of chloroform always meant an overdose; if chloroform was administered beyond a certain percentage, powerful inhibition of the heart occurred, and it was difficult to make the heart beat again; if the chloroform was sufficiently diluted with air, that result never ensued; with such an overdose there was no certain means of resuscitation. The lecturer then referred to the effects of atropine and of transfusion—that is, the junction of artery to artery. He described artificial respiration, and explained the "prone pressure" method. A hearty vote of thanks was proposed by President Hamilton, and seconded by Professor Milroy, and accorded with great heartiness.

ULSTER MEDICAL SOCIETY.

The annual dinner of this Society was held in the Medical Institute, Belfast, on November 15th; the President, Dr. D. P. Gaussen, occupied the chair, and over 60 Fellows and members sat down. The guests of the Society were Mr. Swanzy, President of the College of Surgeons, Dublin; Professor Schäfer, F.R.S., Edinburgh; Rev. Dr. Hamilton, President of the Queen's College, Belfast; and Professor Symington, President of the Ulster Branch of the British Medical Association.

After the toast of "The King," the President proposed "The Lord Lieutenant and Prosperity to Ireland," which was responded to by Sir John W. Byers. "The Irish Medical Schools" was proposed by Dr. R. W. Leslie, and responded to by Mr. Swanzy and Professor Symington. "Our Guests" was proposed by Professor Sinclair, and responded to by President Hamilton and Professor Schäfer. "The President of the Ulster Medical Society," and "The Honorary Secretary," was proposed by Dr. H. L. McKisack, and responded to by Dr. Gaussen and Dr. Stevenson. Drs. Mackenzie, MacIlwaine, Morrow and Calwell also contributed to the enjoyment of the evening by songs or recitations.

Scotland.

GENERAL MEDICAL COUNCIL ELECTION.

Dr. Bruce's Candidature.

DR. WILLIAM BRUCE writes: As I value the good opinion of my friend Dr. Muir, with whom I have had much pleasure in working for the benefit of the Poor-law medical officers in Scotland, may I request you to do me the favour to reproduce the portion of a letter I have written to him referring to this question in connexion with certain remarks I made in my speech in Glasgow on the 8th, and which you have done me the honour to publish in the BRITISH MEDICAL JOURNAL of last week:

MY DEAR DR. MUIR,—You will, I hope, pardon me for holding to my opinion as to the agitation for security of tenure of Scottish parochial medical officers. It must not be understood I am not in sympathy with such a movement. More than forty years ago I was an active party in promoting such an object. But I have come to see that the fight is useless, and that it is really "foolish" to persist in such a struggle.

Tempora mutantur, nos et mutamur in illis.

The then Scottish "Board of Supervision" lost a golden opportunity of effecting this much-wished-for change, and I am convinced the present Scottish Local Government Board will merely content itself with pious good wishes.—Best regards, yours truly, WILLIAM BRUCE.

Dr. Bruce has also forwarded us the following address to the registered medical practitioners resident in Scotland:

"I beg respectfully to again offer myself as a candidate for the honourable post of Direct Representative for Scotland at the approaching election.

"For twenty years I have endeavoured to discharge the duties of that position to the satisfaction of my constituents, and with a single eye to the interest of the medical public. I hope I have not been unsuccessful in my endeavours to do my duty honestly and properly.

"I hold strongly that the profession is not fully enough represented at present in the Council, and my first efforts will be directed to induce the Council to enlarge the present number of Representative selected directly. Failing to get the Council to take up the duty which it is legally entitled, if not bound to do, I propose, along with my English and Irish colleagues in the direct representation, to petition the Privy Council to come to our rescue and appoint, at least, one more Representative for each of the three Divisions of the United Kingdom.

"As regards medical education and training, I hold strongly that these should be more practical and clinical than they are now. In particular, the great department of midwifery is not taught as it should be. Clinical attendance at a lying-in hospital ought to be compulsory. The present medical curriculum much requires to be lightened in its first stages by relegating botany, physics, and biology to a *preliminary* science examination. In this way more time could be devoted to general clinical work, as also to special subjects such as psychology, eye, ear, throat, and skin diseases.

"If successful in my candidature, I trust I shall be able to assist also in dealing with the question of the sale of patent medicines, in reform of hospital abuse, and in maintaining the reputation of the profession by discountenancing, as far as the Council can, contract medical practice."

Dr. C. E. Douglas (Cupar, Fife) writes: I desire to draw attention to a speech made by Sir T. McCall Anderson at the recent meeting held in Glasgow in favour of Dr. Bruce. In that speech he made the statement that Glasgow, with a population of 750 000, had three Representatives on the General Medical Council, whilst Edinburgh, with about a third of that number, had the same number of members. Further, he said that if Dr. Bruce was not elected Edinburgh would have four Representatives, and the rest of Scotland, with the exception of Glasgow, would have only one. The argument I shall leave untouched. He is wrong in his facts, as is well-known to everyone concerned. What I lament in this part of his speech is the evident attempt to work upon local jealousy. That such jealousy exists between the two great cities is undeniable, however grievous it may be to those who, living outside them, are fully conscious of the world-wide commercial importance of the one and the splendid traditions, worthily upheld, of the other; and I protest that such an argument is unworthy to be offered for the consideration of a constituency of "intellectuals." But a further statement was made by Sir T. McCall Anderson, a statement which must have been made unwittingly, for it is not in accordance with fact. He said that it was well that the medical practitioners of Scotland should be represented by a general practitioner, intending the inference to be drawn that Dr. Bruce was such; and this statement was silently acquiesced in by Dr. Bruce, who was present. Now, Sir, the fact is that Dr. Bruce is the Medical Officer of Health for Ross and Cromarty, and is expressly debarred from private practice; the terms of his contract permit consulting practice at his house, or with the other medical men, but not otherwise. It is the case, moreover, that Dr. Bruce disposed of his private practice to another medical man. The medical practitioners of Scotland have a right to know the position of the candidates upon this important point. If he is a general practitioner, how does that fit in with the terms of his appointment? If he is not, why did he let Sir T. McCall Ander-

son's appeal for support on that ground pass uncontradicted? Will Dr. Bruce kindly say upon which horn of this dilemma he prefers to rest?

Dr. Norman Walker's Candidature.

Dr. Norman Walker writes: Will you allow me a few lines to explain that the reason I am not asking the electors by means of a post-card to say whether they intend to support me is that the election this time is by ballot, and it seems to me to be better not to interfere with the spirit of this new arrangement.

Dr. Norman Walker addressed a meeting of medical practitioners in Glasgow on November 20th. Professor Stockman, who presided, said that a very influential member of their profession had spoken to him seriously about supporting Dr. Walker's candidature, and had said that Dr. Bruce's long experience was of very great value to the Council and to them as medical practitioners. In reply to that he had to say that if mere experience and age, such as were mentioned, were great recommendations, they had plenty of that sort of thing already on the Council. From the universities and corporations—although not nearly so bad as they were, since there had been great improvement by putting on younger men—there was still a very large proportion of men who were sent to the Council as a sort of compliment. When they became so aged and infirm that they were not able to deliver correctly the lectures they had been delivering for a great many years past, their colleagues thought it a very nice compliment to send them up to represent them on the Council. There had been far too much of that in the past. He did not think there was a lack of experienced men on the Council, but even if there was, in his opinion, as general practitioners, they should not send a man of that stamp, or even approaching that stamp, to the Council. It was for those reasons that he supported Dr. Walker.

Dr. Walker said that he had read with amazement Dr. Bruce's reference to the question of security of tenure for parochial medical officers. He did not know that there were any medical men, except cranks, who held any other views than that the medical officers of Scotland were as entitled to security of tenure as their brethren in England. They were making no extravagant claim. He had been pretty actively engaged in medical politics during almost the whole of his professional career, and he had yet to learn that there were any cases in which the real interests of the profession and the public conflicted, and that it was good for a community to have a succession of doctors, each one more disappointed with the practice than his predecessor. Was a community entitled to expect a medical man to accept a post from which he might be removed, on a chance vote, simply for doing his duty? A man who had a choice between such a post and another in which he had security of tenure would not hesitate which to accept. When the medical profession claimed security of tenure they were asking it as much for the public as for themselves. He also differed radically from Dr. Bruce in the method in which medical education should be reformed. On the whole system of education they differed fundamentally. If they read Dr. Bruce's remarks they would see that these tended back towards the old system of apprenticeship. Dr. Bruce would like the student to begin his education in the out-patient room, to finish off chemistry, physics, biology, and anatomy under two years. He omitted all reference to physiology, therapeutics, and pathology, the last of which had grown so important that it was quite obvious more time must be devoted to it. So far from commencing the education in the out-patient room, he (Dr. Walker) would forbid the student to enter it until he had passed his First, and he would like to say, his Second Professional. He was sure the results would be better if that reform could be carried out. In discussing the methods in which improvement could be brought about, he said that, owing to its constitution, the General Medical Council could not move in advance of medical opinion, which could only be ascertained through an organization such as the British Medical Association. He entirely believed in local autonomy, but believed that a single association was required to focus the interests of the profession.

Several questions having been addressed to Dr. Walker and answered by him, the meeting, on the motion of Dr. Muir, seconded by Professor Edgar, unanimously passed a vote of confidence in him.

Dr. F. W. N. Haultain, Secretary to Dr. Walker's Committee (Edinburgh), writes: Will you allow me a few lines to say that in sending off over four thousand circulars some mistakes and omissions are bound to occur. If any one who has not received Dr. Norman Walker's address, or does not receive a voting paper, will communicate with me I will endeavour to repair the error.

Among those who have signed Dr. Norman Walker's nomination papers are: Professor Stephenson, Mr. Gray, Drs. Rose and Christie, Aberdeen; Professors Stalker and McEwan, and Drs. R. Sinclair, Mackie Whyte, D. M. Greig, and McGillivray, Dundee; Professor Littlejohn, Drs. G. A. Gibson, Haultain, Gulland, Allan Jamieson, McKenzie Johnston, Graham Brown, John Thomson, Underhill, F. D. Boyd, C.M.G., and Messrs. T. M. Cotterill, and Harold J. Stiles, Edinburgh; Professor Stockman and Drs. Jardine, W. L. Muir, Whitehouse, McKail, MacGregor and Syme, Glasgow; Dr. Muir, Selkirk; Dr. Carlyle Johnstone, Melrose; Wm. Blair, Jedburgh; and G. G. Bannerman, Hawick.

SPECIAL CORRESPONDENCE.

VIENNA.

Treatment by Letter.—Enormous Hydrocephalus.—Medical Supervision of School Children.

An interesting case of fraud, in which the main offender was a medical practitioner, was recently before a law court. His speciality was advertising in several cities somewhat distant from his place of living, so that intending patients had to write to him, unless they preferred to take the trouble of a journey. He promised to cure every disease pronounced by other doctors incurable. Most of the patients received from him powders to be taken twice daily. Several admonitions addressed to him by the Medical Council of Vienna had no effect. Finally the post-office officials turned their attention to the number of packages dispatched by the doctor and had samples of them examined. They were found to consist of sugar, with an admixture of alum or talc or starch. The Board of Health was informed, and the attorney-general prosecuted the doctor for fraud. A sentence of confiscation of all powders found in his apartments was passed, and a fine of 500 kronen inflicted. In reference to this case the Aerztekammer takes occasion to remind its members that treatment by post is not regarded as consistent with the dignity of the medical profession, and that remedies may only be given personally.

A very interesting case of hydrocephalus was shown at the last meeting of the Gesellschaft der Aerzte. The patient was a child 4 months old, born with a head of normal shape and size, but with a spina bifida. It also had coryza, and other symptoms of congenital syphilis soon manifested themselves. The opening of the spine closed at the tenth week, but meanwhile the mother noticed an enlargement of the head, which steadily increased, until it reached the present dimensions: The horizontal circumference is 67 cm. (26½ in.), the distance from the bridge of the nose to the occipital protuberance 72 cm. (28 in.). Spastic and paretic phenomena ensued shortly after the beginning of the hydrocephalus. The main feature of this case is the balloon-shaped head and the manifest connexion of the malformation with congenital syphilis. Such marked cases are rare, and treatment, unless begun early, cannot be expected to bring about any material change or to reduce the irritation of the brain tissue produced by the great pressure. The disintegration of bone and broadening of the sutures were not well marked in the case. Lumbar puncture had been tried, besides antisyphilitic treatment, in hope of reducing the hydrocephalus, but with little effect.

Medical supervision of school children has at last been resolved upon by the municipal school board, and regulations have been framed, but without consulting medical experts. Thus it was decided that the fee should be 40 cronen (about £2) per class of fifty per annum, and that the doctor should not treat the diseased children but simply look for cases of disease. The Medical Union has decided to accept the offer for the sake of the principle, but to try to secure a better rate of payment for the school doctors.

CORRESPONDENCE.

THE PROPOSED UNION OF MEDICAL SOCIETIES OF LONDON.

SIR,—As there appears to be some misunderstanding with regard to the present position of the above movement I should be glad if you would kindly permit me to draw the attention of the societies concerned to the following facts. After a thorough investigation the amalgamation of the societies was considered feasible, and a committee (called the organizing committee) was appointed by representatives of the various societies to draw up a definite scheme of union on lines likely to be approved by the majority of the societies. The report of this committee was adopted by the representatives of societies on July 17th, 1906, and was distributed. Each society was asked to inform the Honorary Secretaries (Dr. Arthur Latham and Mr. H. S. Pendlebury), on or before December 7th, whether it approved the scheme as drawn up or not. In the event of a society approving the scheme—that is, deciding to join the union—it was requested to nominate a representative to serve on the first council of the new society.

As soon as the decision of the societies concerned is known a meeting of this Council will be called, and the necessary business of initiating the new society will be carried out with every dispatch.

It is hardly necessary to point out that the refusal of one or more societies to join does not in the least affect the movement.—I am, etc.,

London, W., Nov. 19th. W. S. CHURCH.

A VOLUNTEER MEDICAL SERVICE.

SIR,—The volunteer promotions in this week's BRITISH MEDICAL JOURNAL clearly demonstrate how urgently a proper Volunteer Medical Service is required, for we have:

1. A Brigade-Surgeon-Lieutenant-Colonel promoted from a Surgeon-Captain to a Surgeon-Major.

2. A Surgeon-Captain appointed a Brigade-Surgeon-Lieutenant-Colonel.

3. A Captain of a R.A.M.C. Volunteer Company appointed a Brigade-Surgeon-Lieutenant-Colonel.

Now a Volunteer Medical Service as recommended by the Army and Navy Committee of the British Medical Association would prevent these incongruities, for:

1. We should have the medical officers designated by their rank and there would be no compound titles.

2. There would be one common uniform.

3. It would permit in those cases in which there are no Lieutenant-Colonels willing to accept, or eligible for promotion for officers of that rank to be selected outside the units forming the brigade and so throw promotion open to medical officers of all branches.

Again, under regulations Brigade-Surgeon-Lieutenant-Colonel is a substantive rank; how then can a Brigade-Surgeon-Lieutenant-Colonel be a Major or Captain as this *Gazette* states?

The rank of Brigade-Surgeon-Lieutenant-Colonel was fully considered in correspondence which passed between the War Office and representatives of the Volunteer Medical Association, and Senior Medical Officers, and it was decided to retain that somewhat cumbrous title with its substantive rank.—I am, etc.,

Bletchley, Bucks, Nov. 18th. P. B. GILES.

THE TAXATION OF MOTOR CARS.

SIR,—Letters that appear in your columns from time to time on the above subject show that physicians in England who use motor cars realize the necessity of protesting against the taxation of these carriages at the same rate as the "pleasure vehicles of the rich." It is even claimed that medical men should be altogether exempt from such taxation, and various suggestions have been made to remedy the matter—by writing to Members of Parliament, appealing to the public, etc.

It may, perhaps, strengthen the hands of those seeking this very just reform to know that in France it has been recognized that the physician's car is used for professional purposes, and the authorities consequently subject it to only *half the tax* usually levied.

When a physician registers his car he is asked if he uses it in his practice, and a reply in the affirmative suffices to obtain the 50 per cent. reduction. This, after all, is only fair.

The scale of taxation, also, seems more reasonable. An automobile is charged 5 francs per horse power plus—50 francs if for one or two persons—90 francs if for more than two persons. This is the Paris scale, but it diminishes considerably in smaller towns. Thus, in a town of from 20,000 to 40,000 inhabitants, a car for two people pays 30 francs per annum—one with more than two places pays 60 francs per annum, plus, of course, the 5 francs per horse power.—I am, etc.,

Paris, Nov. 18th. A. A. WARDEN.

SIR,—At the recent conference of motorists I was able to carry a recommendation that the motors of medical men should receive preferential treatment.

The letter on the subject of taxation of medical motors, I am glad to say, received exceedingly sympathetic treatment at the hands of the general press, and I hope that when any scheme of taxation of motors is brought before the House of Commons our profession will receive special treatment.—I am, etc.,

H. E. BRUCE-PORTER,
Honorary Secretary of Committee of Medical Men
London, W., Nov. 18th. who are Users of Motor Cars.

THE TEACHING OF HYGIENE AND TEMPERANCE IN ELEMENTARY SCHOOLS.

SIR,—In your editorial notice of the reception by the President of the Board of Education of the deputation which waited upon him at the office of the Board on November 12th, you state (page 1412) that the deputation represented "the Committee (of the medical profession), and the British Medical Association, and the Advisory Board for the teaching of hygiene and temperance."

As one of those who on that occasion represented the International Association for the Prevention of Tuberculosis, I should feel obliged to you, Sir, if you would kindly publish in the BRITISH MEDICAL JOURNAL the enclosed copy of a letter sent by my colleagues and myself to Mr. Birrell on November 9th. In that letter is stated what we asked the Board of Education to do, and, as you will observe, our objects were not identical with those of the other members of the deputation.

We had expected to meet Mr. Birrell without reporters being present; but at his suggestion we joined the other deputations.—I am, etc.,

London, W., Nov. 19th. G. A. HERON.

To the Right Honourable AUGUSTINE BIRRELL, M.P., K.C.,
President of the Board of Education.

SIR,—We, the undersigned, desire to press upon the attention of the Board of Education the following considerations:

It is, in our opinion, of great importance to the public interest that those who intend to devote themselves to the teaching of the young in our public elementary schools should be required by the State to give due attention to the study of elementary hygiene.

Were this done, a knowledge of the laws of health would in course of time become part of the professional equipment of all school teachers, with the result that they would know, better than they now do, how to safeguard the children entrusted to them from the grave dangers to preventable disease.

Moreover, school teachers who had thus themselves acquired a sound knowledge of elementary hygiene, would be able, given suitable opportunities, to impart some of this knowledge to their older scholars. In particular, the scholars would learn the fact that many disorders, with whose names and dangers their home life has made them familiar, are in their nature preventable, and by simple means can be prevented.

Children so trained would, on reaching maturer years, be more intelligently alive to questions concerning the preservation of health than is now the case with the majority of our people.

We believe it is within the power of the Board of Education to further these ends by suitable changes in the regulations for the training of elementary teachers, such as the following:

1. That elementary hygiene should be made a compulsory subject of study in training colleges.

2. That before receiving a certificate of proficiency every teacher should be required to show a sufficient knowledge of the laws of health, and in particular of those relating to the prevention of infectious disorders.

3. That whenever possible the instruction in elementary

hygiene given in training colleges should be entrusted to specially-qualified medical practitioners.

We are, Sir,
Your obedient servants,

T. CLIFFORD ALLBUTT, M.D., F.R.S.,
Regius Professor of Medicine, University of Cambridge.
G. L. BRUCE,
Late School Board for London and London Committee of Education.
G. A. HERON, M.D., F.R.C.P.,
Representing the International Association for the Prevention of Tuberculosis.
DONALD MACALISTER, M.D., F.R.C.P.,
President of the General Medical Council.
WILLIAM OSLER, M.D., F.R.S.,
Professor of Medicine, University of Oxford.
JOHN TWEEDY, F.R.C.S.,
Late President of the Royal College of Surgeons of England.

BACTERIOSCOPIC ANALYSIS OF EXCREMENTAL POLLUTION.

SIR,—In the BRITISH MEDICAL JOURNAL of October 27th, p. 1090, Dr. Klein has a "Note concerning the Bacterioscopic Analysis of Excremental Pollution," in which he states that:

Unfortunately the MacConkey medium makes no selection between typical and atypical *B. coli*, nor does it exclude a number of other microbes capable of producing acid and fermenting glucose. Amongst these notably some liquefying microbes present in shellfish and also in other materials. It is well known that one of the principal differential characters of *B. coli communis* is its power to ferment lactose, a character not possessed by many species of coli-like microbes, which are nevertheless possessed of the power of fermenting glucose. This character of lactose fermentation could, therefore, be used at once in the preliminary tests for *B. coli communis* if we substitute glucose for the lactose in the ordinary MacConkey medium; by this a distinct simplifying of the analysis could be achieved.

I presume there is here a typographical error, and that Dr. Klein meant to say "substitute lactose for the glucose." These remarks suggest that bile salt lactose broth had not been thought of before in this connexion. I have, however, already called attention to this very point in a letter published in *Public Health*, May, 1904, p. 491, in which I said: ". . . there appears to have been a great deal of misapprehension with regard to bile salt broth. The first kind of broth used was one containing not glucose but lactose, and obviously this is to be preferred if search is being made for typical *B. coli* only. The change to glucose was made simply so as to include other organisms, for example, *B. enteritidis* (Gaertner)."

By using lactose it is possible to overlook many organisms of importance, as not only do they give no sign of their presence, but they may be inhibited by the acid produced by the lactose fermenters. The safest plan is, I think, to inoculate bile salt glucose broth with the material to be examined, and, after eighteen to twenty-four hours' incubation, to make from the glucose broth surface-plate cultivations on bile salt neutral red lactose agar. Next morning subcultures may be made from the colonies on the plates into ordinary nutrient broth. In six hours the growth in the broth will usually be far enough advanced for observations to be made with regard to morphology, motility, and staining reactions and for inoculating any other media it may be desired to use. I have found nutrient broth, nutrient gelatine, litmus milk, and bile-salt broths containing lactose, cane sugar, dulcit, adonit, sorbit, and inulin to be the most valuable.

As regards streptococci, to which Dr. Klein also refers, some grow very well in ordinary bile salt broth, but the growth is slow. Recently I was asked to examine a piece of membrane from a case of suspected diphtheria, and being curious to know if there were present any organism which would grow in bile salt broth (the Klebs-Loeffler bacillus will not) I put a portion of the membrane into a tube of bile salt lactose broth. After several days incubation at 37° C., there was good growth, which a microscopical examination showed to be due to streptococci only. Some cocci grow well when freshly isolated but soon die when subcultured.

The addition of "*Fleischwasser*" or of "beef extract" has always seemed to me to decrease the selective action of bile salt media, and it is upon this selective action that the value chiefly depends. As an example of this action, I may mention that the bacilli of plague and of pseudotuberculosis rodentium grow well, while the bacilli of fowl cholera and its allies show very little, if any, multiplication in bile salt media.

These media seem also to have somewhat of a selective action with regard to the different strains of the same bacillus. Thus, in the course of a series of experiments carried on with another object, I have derived the impression that in the case of *B. typhosus* a virulent bacillus will grow better in bile salt media than an avirulent one. If this impression turns out to be correct, the value of these media will be increased, and the idea will naturally suggest itself that possibly the virulence of an organism might be raised by a series of subcultures in bile salt media.

ALFRED MACCONKEY.

Lister Institute of Preventive Medicine,
Queensberry Lodge, Elstree, Herts, Nov. 13th.

THE REPORT OF THE COMMISSION ON POOR-LAW REFORM (IRELAND).

SIR,—Dr. Rhodes's letter in your issue of November 10th furnishes clear evidence that he is not in a position to form a correct opinion on some of the findings and recommendations of the Commissioners. The enormous difference that maintains between the conditions that affect the English and Irish Poor-law systems absolutely precludes any person from forming a correct judgement who views the matter from an English standpoint. His reference to paupers shows that he is ignorant of the fact that we do not recognize paupers as such, but that our Poor Laws provide for the medical treatment of all poor persons who are not in a position to provide the same for themselves or families. We make no invidious distinction, and, if such a distinction were originally contemplated when our workhouse system was established, it was entirely upset by the passing of the Medical Charities Acts, and by the unrestricted admissions into our workhouse hospitals.

The Commissioners deserve the thanks of every public body in Ireland, not only for the manner in which they have exposed the rottenness of the foundations upon which the Poor-law system was established, in complete opposition to the recommendations of the Irish Royal Commission, which, after three years' inquiry reported in 1836, but still more so for their bold and statesmanlike suggestions to do away with, once and for all, the hybrid institutions which have been evolved from the original Unions. The separation of the hospital from the workhouse proper, and the installation of district hospitals properly equipped and officered, would in itself command the very highest praise; and when we contemplate the segregation of epileptics, the establishment of auxiliary asylums for the harmless lunatics who are at present hopelessly huddled together in cheerless outbuildings without intelligent attendants, and the erection of consumptive sanatoriums under county management, we are simply carried away by the magnificence of the suggested reforms.

The establishment of a State service for all Poor-law and county medical officers may, perhaps, be viewed askance by many Boards of Guardians, but I have no doubt the more it is thought over the more it will be appreciated and the fewer difficulties will be raised to bar its progress. If such a service were to be confined to the hospital surgeons, insuperable objections would be raised, but the Commissioners themselves suggest the inclusion of the dispensary medical service as tending to facilitate the scheme. In the 120th paragraph they say: "But the foregoing suggestions as regards hospitals could more easily be worked into some general scheme for the entire Irish County and Union Medical Service. The establishment of a State medical service in Ireland would mean a very small increase in the Parliamentary grant in comparison with the benefits involved—that is, "a State-supported medical service, both for county and district hospitals, and for dispensaries also." A State service on these lines has been adopted with practical unanimity by one of the largest meetings of the Irish Medical Association ever held (there were only eleven dissentients), and when we reflect that the intention of such a procedure is to supply the poor in every country district in Ireland with the best medical skill that can be obtained without any expense to the ratepayer—which skill would be available to all, for in the large majority of dispensary districts there would only be the State medical officer—we cannot see that the offer will not be gladly accepted. As to the details of the

scheme, we must, of course, wait. I have no doubt the final composition of the Governing Council will be such as to command the approval of both the people and the service, and until a complete scheme is formulated we can only watch and wait.

Dr. Moorhead's statement that the restriction of the service to Irish practitioners is a most unfortunate one, is amply borne out by the opinions of all with whom I have had the privilege of communicating. I am sure it will not be persevered in. We Irish doctors do not fear competition. I hope, however, before Dr. Rhodes uses his influence to create prejudice against the report he will make himself acquainted with the history of the origin and development of the Poor-law system in Ireland, and the conditions under which the Poor-law medical officers have been groaning for the past thirty years.—I am, etc.,

Lurgan, Nov. 17th. SAMUEL AGNEW, M.A., M.D.

SIR,—The recommendation of the Commission—that the medical officers of the county and district infirmaries of Ireland should have "hospital experience" and "capacity for operating" over and above what is indicated by the possession of a qualification in medicine and surgery—seems to me so reasonable and so necessary that I cannot understand why Dr. Rhodes should attempt to ridicule it in your issue of November 10th. He says that it means that an Irish graduate may be competent to treat the Lord-Lieutenant or a peer, but not a policeman or a pauper. Of course it means nothing of the sort—no more than the examinations for the army, navy, and Indian Medical Services mean that he is fit to treat a prince or a peer but not a soldier or a sailor.

The appointments to county and district hospitals should be held by men who would, by their scientific attainments, practical knowledge, experience, and skill, be capable of advising, and operating if desirable, on all cases submitted to them. No one who knows the circumstances of rural Ireland can doubt that such men are urgently required and should be procured, by competition or otherwise. Many lives are lost and much unnecessary suffering endured in country districts for want of such men.

The proposal that such appointments should for the present be restricted to candidates educated in Ireland is both just and reasonable. Under present conditions Irishmen get these appointments as English and Scotchmen get them in their respective countries. The exceptions to this rule are a negligible quantity.

If the country and district hospitals were thrown open to competition, the English and Scotch appointments being made as at present, of course it would be "another injustice to Ireland," *pace* Dr. Rhodes's sneer. As it would be an injustice to England and Scotland if the similar appointments in these countries were thrown open to public competition while the present mode of appointment continued in Ireland. When, if ever, the medical services of England, Scotland, and Ireland are thrown open to competition, Irishmen will face the test with confidence. This is "reciprocity" as we understand it in Ireland, not the one-sided reciprocity for which Dr. Rhodes clamours.

I venture to disagree with my friend Dr. Moorhead when he says this recommendation has caused dissatisfaction in the ranks of the Irish profession.

We may be poor, and we may be proud, but we are not foolish, as we certainly would be if we threw open to the competition of the United Kingdom the few appointments which we now obtain until the similar appointments in Great Britain are reciprocally thrown open to us.—I am, etc., RICHARD RYAN, M.D., J.P.

Ballieboro', co. Cavan, Nov. 19th.

LIFE AND HEALTH ASSURANCE ASSOCIATION, LIMITED.

SIR,—We trust that you will be good enough to give due prominence to this letter, that it may serve as an efficient warning to other medical men.

Some three months ago we were severally and unknown to each other approached by a man called "Robins," an agent of the Life and Health Assurance Association, Limited, with a view to become their medical referee for the whole of the Isle of Wight at certain specified rates of payment.

The agent made it virtually compulsory that we should first insure in the company in order to become eligible for the appointment. Foolishly, we did so, paying our premiums on the spot, each having been given to understand that he would be the sole representative of the company in the island, and that the income resulting from the appointment would cover our premiums many times over!

For a considerable time nothing further transpired, until, after much correspondence and agitation on our part, we were eventually informed that we had been appointed to our respective local districts at rates considerably lower than those specified by the agent. These appointments being, of course, utterly valueless, we both rejected them, demanding at the same time the immediate return of our cheques.

Thanks to the good offices of the Medical Defence Union, our premiums have at length been returned with a very bad grace.

We have recently discovered, on p. 1164 of the BRITISH MEDICAL JOURNAL of October 27th, 1906, a note about this company, which shows that, in spite of the repudiation by the head office in Edinburgh of the methods practised by their agent, he is still in their active employ.

As fools we undoubtedly stand convicted, but, under the strong impression that in this respect we are not wholly unique, we have determined to publish our folly in the hopes that others similarly approached may know how to deal with, and what to expect from, companies who do business on these lines.—We are, etc.,

J. A. B. HAMMOND, M.B.,
Shanklin, I.W.
DRURY PENNINGTON, M.B.,
Sandown, I.W.

November 15th.

THE EVAPORATION OF CHLOROFORM DURING INHALATION.

SIR,—In reference to Dr. Levy's reply to my criticism of his paper, I would ask one question and make one suggestion. The question is—How does Dr. Levy in giving chloroform from a mask arrange that "the whole of the chloroform is evaporated through the agency of the respiratory air currents only?"

The suggestion is that it would be wiser to concentrate all our mental efforts on watching the patient and attending to his requirements. I quite agree that counting drops is not a laborious mental exercise, but it must to some extent take our attention off other matters.—I am, etc.,

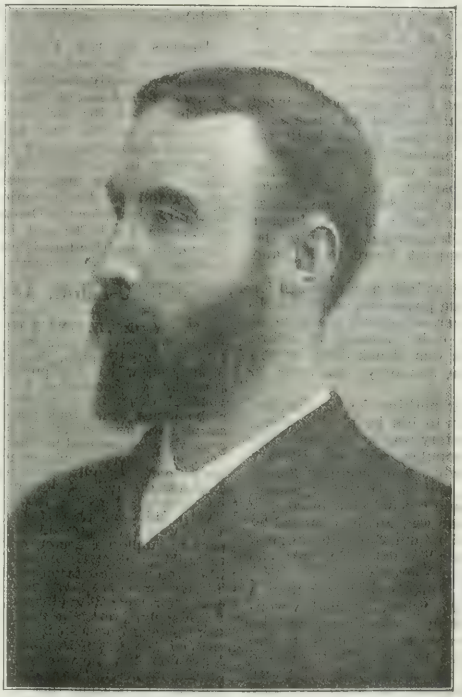
London, W., Nov. 16th. G. A. H. BARTON.

FROM an article on the Needs and Advantages of an International Congress of Military Surgeons, reprinted from the *Journal of the Association of Military Surgeons of the United States*, by Colonel Nicholas Senn, there would seem to be a desire to create a congress whose main object shall be to "render war more and more humane until the millennium of peace will take possession of the earth." Never were wars more humane than they are to-day; yet never were they of more frequent occurrence. Truly, their duration is shorter, and fewer people are hurt than was formerly the case, but there is no indication of any diminution "of the narrowing lust of gold" or of "the thousand wars of old." Probably at no previous period have men been so keen on preparing for war as at present; the prospect of diminished suffering on the field is not likely to restrain men from the fray. The line of argument adopted by Colonel Senn seems, therefore, to be faulty; it might have appealed to an audience so long as the spoken words rung in the hearers' ears sentiments of perfervid humanity, but subsequent reflection must have shown that some higher motive will be required to diminish wars than the desire to render them less painful. Colonel Senn acknowledges that "the military section of the International Medical Congress has done much in promoting that part of the healing art which it represents," and also that "among the most important duties which now concern the military surgeons is the one which has for its object to convey the blessings of modern medicine and surgery as practised in civil life to the soldiers in camp, field, and hospitals." These blessings may surely be better acquired at a conjoint international congress of civil and military surgeons than at one composed only of the latter branch of the profession.

OBITUARY.

J. G. DOUGLAS KERR, M.B., C.M Glasg., J.P., BATH.

By the death of Dr. Douglas Kerr, which occurred on November 14th, at the early age of 49, Bath loses a widely-known medical practitioner. He was educated at Glasgow University, where, after taking the gold medal in surgery, he graduated in 1880, and was appointed House-Surgeon at the Glasgow Western Infirmary. At the end of his period of office he travelled abroad, and then joined the late Mr. T. G. Stockwell in practice in Bath. His genial and assured manner inspired his patients with confidence to an exceptionally marked degree, and gained for him a large and very lucrative practice amongst those who flock to that health resort for mineral-water treatment. After Mr. Stockwell's death Dr. Kerr was joined by his brother-in-law, Mr. A. Mackenzie, but even then his practice was almost more than he could manage. The stress of the season's work was to some extent relieved by the long holiday which it was his custom to take.



Without a rest of two or three months in the summer there is no doubt that his strenuous life's labour would have been still further curtailed. At one time these holidays were spent in mountaineering, and, with his restless energy and determination not to be outdone, it is not surprising that he was only satisfied when all the highest Alpine peaks had been conquered. In later years he threw himself in the engrossing pleasure of yachting, and not until he had won the Kaiser's cup at Kiel, two years ago, in his yacht *Valdora* was he satisfied. Whatever Dr. Kerr did, whether practising medicine in Bath, peak climbing in Switzerland, yachting in many waters, or deer-stalking in Scotland, he never rested until he had reached the summit of his ambition. Doubtless it was this overwhelming determination to be top in all he undertook that led to his success, and possibly also to his premature death.

An old and intimate medical friend sends us the following appreciation of Dr. Kerr's character and work: In Douglas Kerr, Bath has lost one of her best friends. During the past fifteen to twenty years he had by his personality been the means of bringing to the city of Bath patients from all parts of the world, patients who became his firm friends, and who year after year sought his advice.

It was in the autumn of 1905 that a severe attack of influenza played sad havoc with a heart overstrained by his hard-working life, and which probably had been overtaxed during those years in which he spent his holidays in climbing the high mountain peaks of Switzerland and the Austrian Tyrol. Directly he was well enough to travel he started for the Canary Islands, but before he reached the bay another attack of influenza almost proved fatal. However a sojourn at Orotava for several months much improved his condition, and after a few days at home he went to Nauheim, where for six weeks he underwent the treatment. A short stay in Switzerland seemed to do him much good, and in the latter part of September he came home and resumed some of his work, and it was hoped by his many friends that his heart had rallied from its serious condition. On November 2nd another attack of his enemy influenza again laid him low, and in spite of all that human aid could do the end came on Wednesday, November 14th. During his last illness he had been attended by Dr. Cave, by his devoted partner and brother-in-law, Dr. Mackenzie, and his partner, Dr. F. G. Thompson.

About seven years ago, he took to yachting as a pastime and for the first three years cruised in the well-known old racer *The Raven*. In 1902, he had built for him by W. Fife, the yawl *Valdora*, 106 tons and went in for first-class handicap racing. During her first year she won no less than twenty-three flags, while in her second year she won the International Cup, from Dover to Heligoland, given by His Majesty the Emperor of Germany, in record time, besides twenty other winning flags. During the year 1905, she was not so successful, being heavily handicapped, but she won the Royal Albert Cup, which she had lost the year before by a few seconds.

He had no unusual advantage over others, but by force of will and all that is summed up in the word "go" he did what he did. Dr. Kerr was a frequent attendant at the meetings of the Balneological Society and a few years ago was its President. In private life his patients quickly became his staunchest friends. His house was a rendezvous for all, and round his hospitable table were frequently gathered men and women of mark in science, in art, and in society.

Dr. Kerr was unmarried, but in addition to a large circle of friends and patients he has left to mourn his loss a mother to whom no son was ever more devoted, and to her the profession in Bath extend their sincerest feelings of sympathy.

The funeral, which took place at Bathwick Cemetery on November 19th, amidst manifestations of deep regret, was attended by many members of the medical profession in Bath.

We regret to have to announce the sudden death of Mr. G. Everett Norton, on November 17th. It appears that Mr. Norton was in his usual health on that morning, but on leaving the house of one of his patients fell down and cut his face, losing a good deal of blood. He was taken home and on the advice of his friend, Dr. Rayner, who was called in, went to bed. A short time afterwards, Mrs. Norton on going into the room, found him in a state of collapse and in a few minutes he died, the cause being heart failure. He had been known to be suffering from his heart for some months, but of late appeared to have been improving. Mr. Norton was born in 1847, and after going through his curriculum at the Middlesex Hospital, obtained his diploma of L.S.A. in 1868 and of M.R.C.S. in 1869. He immediately became House Surgeon and at the end of his year of office took the post of Obstetric Assistant. Later he started in practice with his father in Upper Baker Street, and since his death in 1875 he has continued by himself, moving in 1882 to Upper Gloucester Place. Since October, 1870, Mr. Norton had been Anaesthetist to the Middlesex Hospital, and was held in high esteem by his colleagues there. He leaves a widow and five children to mourn his loss, and we sympathize with them in their bereavement.

G. I. SCHORSTEIN, M.A., M.D.Oxon., F.R.C.P.Lond.,

PHYSICIAN TO THE LONDON HOSPITAL AND TO THE HOSPITAL FOR CONSUMPTION, BROMPTON.

We regret to have to record the death on November 16th, at the early age of 43, of Dr. Schorstein, Physician to the London Hospital and to the Hospital for Consumption, Brompton. The sad event, though it will be the cause of deep grief to his many friends, has not come as a surprise to them, for they were aware that he had suffered for some time from diabetes of a severe type.

Gustav Isidore Schorstein was born in 1863, and received his early education at the City of London School. In 1881 he was elected Junior Student of Christ Church, Oxford. He took a First Class in Honour Moderations and a Second in the Final Honour School of Literae Humaniores. For about a year and a half after taking the B.A. degree in 1885 he remained at Christ Church, acting as tutor and at the same time working at anatomy and physiology. He afterwards entered as a student at the London Hospital, and graduated M.B., B.Ch. in 1889. He became a member of the Royal College of Physicians of London in 1891 and a Fellow in 1897. In 1904 he proceeded to the degree of M.D.Oxon. He held the posts of House-Physician and House-Surgeon to the London Hospital, was appointed Assistant Physician in 1894, and was also for some time Pathologist to the hospital. He was at an early stage of his career appointed Assistant Physician to the Royal Hospital for Diseases of the Chest, City Road, and at the time of his death was Physician to the Hospital for Consumption and Diseases of the Chest, Brompton. Only last year he was elected full Physician to the London Hospital. He was Lecturer on Medical Pathology in the Medical School, and was at an earlier period Lecturer in Public Health, further showing his interest in the latter subject by taking the diploma of D.P.H. of the Conjoint Board in England in 1892.

He had thus prepared himself as fully as a man can for the difficult career of a consulting physician, and his wide knowledge and courteous manner, enhancing the value of native abilities of no mean order, seemed to afford sure promise of success when he was struck down by the insidious malady to which he was only too soon to succumb.

Dr. Schorstein wrote little or nothing for publication, believing that in strict attention to his hospital teaching lay the surest and most satisfactory way to success. His clinical lectures were most popular, and his literary abilities made them models of what such lectures should be—clearly thought out, logical, and beautifully expressed, so that the most thoughtless could not help but learn.

The personal charm of the man was much enhanced by the versatility of his conversation and the wide range of subjects over which his knowledge extended, and one always left his presence with regret after a chat.

There is no surer judge of a man's character than a child, and for the little ones Dr. Schorstein had a wonderful charm; they looked to him instinctively, and he never failed them. Of outdoor recreations Schorstein had none, unless it were his fondness for going to the Zoo to take some dainty new morsel for the animals. He was, however, an artist in the true sense of the word, and took the greatest delight in the masterpieces of architecture and painting to be seen in Italy.

The funeral ceremony took place at the cemetery of the West London Synagogue, Golder's Green, on November 20th, and among those who attended to show their respect to the dead were the Regius Professor of Medicine in the University of Oxford, the Bishop of Dorking (an old and intimate friend), Dr. Robert Maguire representing the medical staff of the Brompton Hospital, many of the medical staff of the London Hospital, including Dr. Percy Kidd, Dr. F. J. Smith, Mr. Mansell Moullin, Mr. Openshaw, and Mr. Furnivall, and representatives of the lay staffs of both hospitals.

The death is announced of Deputy Surgeon-General Randolph Webb, retired Army Medical Staff, on October 8th, at Rathmines, Ireland. He was appointed Assistant Surgeon December 15th, 1854; Surgeon, October 23rd, 1867; Surgeon-Major, March 1st, 1873; Brigade-Surgeon, April 4th, 1880; and Deputy Surgeon-General, July 16th, 1884. His war record includes: The Crimean campaign in 1854, including the bombardment of Sebastopol and the battle of Tchernaza (medal with clasp, and Turkish medal); the Indian Mutiny campaign in 1857-8, being present at the battle of Banda and the capture of Kirwee (mentioned in dispatches, medal with clasp), and the Abyssinian war in 1867-8 (medal).

Deputy Surgeon-General Julius Wiles died in London on November 10th, aged 78, the result of an accident while cycling. He joined the Army Medical Department as an Assistant Surgeon, November 24th, 1854; became Surgeon, February 4th, 1871; Surgeon, March 1st, 1873; Brigade Surgeon, October 15th, 1881; and retired with the honorary rank of Deputy Surgeon-General, July 1st, 1883. He served in the Crimean campaign in 1855, and was present at the siege and fall of Sebastopol and at the attacks on the Redan on June 18th and September 8th (mentioned in dispatches, medal with clasp, and Turkish medal); in the China war of 1860, including the action of Sinho, the capture of the Taku forts, and the surrender of Pekin (medal with two clasps); and in the Ashanti war in 1874, when he was present at the battles of Amoaful and Ordahsu and the capture of Coomassie (medal with clasp).

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are Dr. Nikanor Chrzonszczewski, sometime Professor of General Pathology in the University of Kieff, aged 70; Dr. Lew Pawlow, of St. Petersburg, Physician to the Czar and President of the Russian Medical Association, aged 59; Dr. Plantau, Professor of Histology in the Medical School of Algiers; Professor Liugu Casati, for many years editor of the *Raccoglitore Medico*, and founder, in conjunction with Professor Ruata, of the Institute for the Orphans of Medical Practitioners at Perugia, aged 76; and Dr. Reincke, who reorganized the public health administration of Hamburg.

MEDICO-LEGAL AND MEDICO-ETHICAL.

"DR. MASINA'S HOSPITAL," BOMBAY.

We have received a long letter from "One of the Trustees of 'Dr. Masina's Hospital, Bombay,'" relating to the article on this institution which was published in the British Medical Journal of September 8th, 1906, p. 603. Our correspondent wonders how in 1906 we came to comment on a correspondence which took place in 1902. The explanation is simple: the printed letters were sent to us along with the report of the hospital for the year 1905, and the association between the correspondence and the hospital was suggested by the sender. We quite agree that the sooner the former is consigned to the limbo of oblivion the better. Our correspondent forwards with his letter the first report of this hospital (1903-1904) in which the reasons for its establishment in 1902 are stated. These were (1) to provide for Parsees of the middle-class, too poor to employ a doctor privately and too proud to resort to a public hospital, accommodation and treatment during illness on moderate terms; and (2) to break the Indian Medical Service "monopoly" and provide "superior practical experience" for medical graduates. This Indian Medical Service "monopoly," which is also disparagingly mentioned by our correspondent, consists in the faithful and efficient performance by members of the Indian Medical Service of the duties for which they have been engaged. It is to this that the indigenous medical profession in India owes its existence and success. It is time that this senseless detraction of the Indian Medical Service, which we are glad to find is not overtly resented, should cease. A spirit of harmony and co-operation should govern a profession which is, above all others, altruistic. We observe with satisfaction that Mr. Masina has proposed to alter the name of this institution now that it has become to a large extent charitable. His proposal has been rejected by the Trustees of the Building Fund, who, it appears, are to "have some share in the management of the institution." We incline to think that it is no kindness to Mr. Masina to perpetuate the association of his name with a place where business and charity are so intimately connected—a combination for which the medical profession has a well-grounded dislike.

MIDWIFERY SUPERSTITIONS.

An inquest was held at Hammersmith on November 6th on the body of a child which had been found dead in the bed of its mother some twenty days after birth. The medical man who performed the *post-mortem* examination said the child had died of asphyxia, but he could not say whether such asphyxia was due to overlying or to convulsions brought about by an abscess which he found in its breast. For the latter the child had been taken once to the West London Hospital, a medical officer of which stated that the abscess was due to a silly superstition prevailing amongst midwives. A midwife who gave evidence admitted having tampered with the child's

breasts; she did not know why she had done so, except that it was a custom. The jury returned an open verdict, and the coroner expressed his intention of bringing the case to the notice of the midwife authorities.

THE ASSUMPTION OF TITLES BY REGISTERED PRACTITIONERS.

With reference to the editorial note appended to Dr. F. C. Wood's letter published last week, page 1,432, Dr. A. G. Bateman, General Secretary of the Medical Defence Union, writes to point out that a full official narrative of the prosecution of Mr. H. K. Hunter was printed in the minutes of the General Medical Council for 1899, pp. 591 to 633, and contained the information in question.

Dr. F. C. Wood (Wood Green) has written to us to the same effect.

A RETIRED R.A.M.C. OFFICER ENGAGING IN PRACTICE.

Retired R.A.M.C. is not debarred from engaging in private practice. If he desires to practise he should call upon the medical practitioners already established in the neighbourhood and inform them of his intention.

CORONERS AND PAYMENT OF MEDICAL WITNESSES.

W. B. B. writes as follows: I shall be obliged if you will inform me whether I am legally entitled to the usual fees for making a *post-mortem* examination and giving evidence at an inquest on a case dying in the workhouse of which I am the medical officer. The coronership has just changed hands, and previously I always received the usual fee, but the new coroner says he has no authority to pay it, although such is done at a neighbouring workhouse.

*** If the patient dies in a workhouse, the medical man who gives evidence at the inquest legally receives one guinea, and one guinea for making a *post-mortem* examination, if ordered. In public hospitals, medical institutions, and lunatic asylums no fee is payable, but in workhouses the fee is payable.

THE CHOICE OF MEDICAL ATTENDANT.

Three correspondents have written expressing their dissent from the observations published under this heading in the British Medical Journal for November 10th. They all agree in supporting the principle which is very well put by one of them in the following terms: "When a practitioner is called to an urgent case, either of sudden or other illness, accident or injury, in a family usually attended by another, he should (unless further attendance in consultation be desired), when the emergency is provided for, or on the arrival of the attendant-in-ordinary, resign the case to the latter; but he is entitled to charge the family for his services." We thoroughly appreciate the excellence of this rule, but deny that it is always applicable, especially in large places, or when practitioners are not willing to reciprocate, for there is a Pathan proverb which says "Brotherly love is all very well, but there should be some sort of account kept." We should like to quote in this connexion words which we wrote some time ago: "If A. is out when sent for and the patient calls on B., the latter ought to regard himself as acting for A., and do only what is necessary, leaving the case for A. on his return; under like circumstances A. should do as much for B.; but the 'squatter' throws away no chance, and when called in through such an accident does his best to secure the patient permanently; hence quarrels arise. It is frequently maintained that under such circumstances B. is ethically obliged to give up the patient to A., but we cannot deny the right of the patient to choose or change his medical adviser; the circumstances would be different if B. had attended at A.'s request; he would then be acting as A.'s agent, and would be in a position of trust of which he could not ethically take advantage to A.'s prejudice."

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

Degree of D.M.

In a Congregation held on Tuesday, November 6th, the degree of Doctor of Medicine was conferred on the following persons: John Abernethy Willett, University College, and Tom George Longstaff, Christ Church.

Appointment of Demonstrators.

The Linacre Professor of Comparative Anatomy has appointed G. H. Grosvenor, M.A., New College, and G. W. Smith, B.A., New College, to be his Demonstrators, upon terms submitted to the Vice-Chancellor and approved by him.

Board of the Faculty of Medicine.

The following persons have been co-opted to membership of the Board of the Faculty of Medicine: Joseph F. Payne, D.M., Magdalen College; Gustav Schorstein, D.M., Christ Church; and Cecil B. Wall, D.M., Queen's College.

Appointment of Examiners.

The following nominations of examiners have been approved in Congregation:

In Elementary Mechanics and Physics—R. E. Baynes, M.A., Student of Christ Church.

In Elementary Chemistry—H. B. Hartley, M.A., Fellow of Balliol College.

In Elementary Physiology—F. Gotch, M.A., D.Sc., Fellow of Magdalen College.

In Elementary Zoology—R. W. T. Günther, M.A., Fellow of Magdalen College.

In Organic Chemistry—N. V. Sidgwick, M.A., Fellow of Lincoln College.

In Materia Medica—R. Stockman, D.M.Edin.

In Anatomy—A. Thomson, M.A., Exeter College.

In Physiology—H. M. Vernon, D.M., Fellow of Magdalen College.

In Forensic Medicine and Public Health—H. H. Littlejohn, D.M.Edin.

In Medicine—A. E. Garrod, D.M., Christ Church.

In Surgery—D'Arcy Power, B.M., Exeter College.

In Midwifery and Gynaecology—J. S. Fairbairn, B.M., Magdalen College.

M.B., B.Ch. Examinations.

The examinations for the Degree of B.M., B.Ch., will commence on Thursday, December 6th.

UNIVERSITY OF CAMBRIDGE.

Lectureship in Botany.

A University Lectureship in Botany is now vacant by the resignation of Professor Seward. Applications should be sent to the Vice-Chancellor before November 30th. R. P. Gregory, M.A., of St. John's College, has been appointed Senior Demonstrator in Botany.

The Previous Examination.

The Council of the Senate propose that under certain conditions certificates of having passed the Baccalauréat in France or the Reifeprüfung of Germany, Austria-Hungary, or Russia, should entitle holders to exemption from the Previous Examination.

Appointment of Examiners.

The following have been appointed Examiners in State Medicine for 1907: Dr. Anningson, Dr. Nuttall, Dr. Lane Notter, Dr. R. D. Sweeting, and Dr. Newsholme; and for the Diploma in Tropical Medicine and Hygiene for 1907: Dr. Nuttall, Mr. C. W. Daniels, M.B., and Mr. W. B. Leishman, M.B.

UNIVERSITY OF LONDON.

King's College.

The Council have appointed Dr. Arthur Whitfield, F.R.C.P., Professor of Dermatology.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Annual Meeting of Fellows and Members.

The annual meeting of Fellows and Members of the Royal College of Surgeons of England was held at the College on November 15th, with the President of the College, Mr. Henry Morris, in the chair.

Report of Council.

The President, in placing the report of the Council for the last year before the meeting, explained the nature and scope of the work accomplished by the Council. An abstract of this report was published in the British Medical Journal of October 27th (p. 1161).

Payment of Medical Men Summoned to Assist Midwives in Cases of Difficulty and Danger.

The President referred to the representation made by the Council of the Royal College of Surgeons to the Privy Council, drawing attention to the injustice of practitioners throughout the country being without any legalized security for the payment of fees when called in by midwives to attend difficult cases. It was perhaps a little early for the Privy Council to move towards procuring a new Act of Parliament, which was necessary in this case, but from the tenor of the reply received by the College it would be seen that the Privy Council would see to this matter when the time came for the passing of a new Act. It was open to the County Council to secure adequate fees for medical men when called in by midwives; that had already been done in Cardiff and Liverpool. He hoped that until legislation rendered the course compulsory the good sense and proper feeling of the County Councils would prompt them to do the right thing by medical practitioners and secure for them the necessary payment of fees.

Position of the College as a Qualifying Body.

The President said that the gradual decrease in the number of students entering the profession of late years necessarily caused a falling off in the number of candidates for examination. In spite, however, of the numerous degrees and diplomas in the country the Conjoint Examining Board continued to attract each year to the examination much the same proportion of the students who commenced professional study five years previously.

Diplomas of Deceased Members.

Dr. Walter Smith asked what steps were taken to get back the diplomas from members who had died, as some of those diplomas were being used at the present time by dishonest persons.

The President replied that hitherto no steps had been taken in the matter. The subject, however, was important, and would receive the attention of the Council.

The Title of "Doctor."

Mr. F. W. Collingwood raised the question of the title of "doctor." The Royal College of Physicians, he said, refused to alter their by-law prohibiting their Licentiates from calling themselves doctors. He was proceeding to make a speech on the subject when the President explained to him that the matter had been dealt with in the last report of the Council of the Royal College of Surgeons.

Historical Summary in the Report of the Council.

Mr. Vinrace expressed his pleasure at the historical summary of the Royal College of Surgeons given in the report, and the President, in replying, said that he had great pleasure in stating that the historical summary was written by the late President of the College, Sir John Tweedy.

Direct Representation of Members on the Council.

Mr. Joseph Smith then moved:

That this twenty-second annual meeting of Fellows and Members again reaffirms the desirability of admitting Members to direct representation on the Council, which as now constituted does not represent the whole Corporation.

He briefly recounted the history of the long struggle carrried on by the Members for representation. He warned the Council that the sword of Damocles was hanging over it, and that it would soon find it out, for the Members did not intend any longer to make supplication on their knees to the Council for the rights denied to them.

Sir Charles F. Hutchinson, who on rising was received with great applause, said that they did not wish to throw mud at those who managed the affairs of the College. The lawyer and the soldier were treated with respect in the House of Commons, but the doctor had always to "take a back seat." It was not to be expected in this democratic age that the Privy Council would listen to representations from the Council of the Royal College of Surgeons, because that Council itself only represented a sort of House of Lords, consisting of the Fellows of the College. If they wanted to make the influence of medical men felt in the way it ought to be, then the Royal College of Surgeons, which should be the centre and life of the profession, ought to set an example of being in the very van of reform. Was it right for the Council to deny reasonable representation to the Members of the College who supplied most of the money? and, further, was it right to lower the position of the College in the eyes of the world by refusing that reform so long urged by the Members? There were vital questions of national importance in which the College ought to take the lead. On such subjects as physical deterioration and the feeding of school children the College ought to say to the Legislature that it spoke with the united voice of the Members of the College. Sir Charles Hutchinson concluded by seconding the motion proposed by Mr Joseph Smith.

Mr. Collingwood said that unless attention was paid to the rights of Members the College itself would pass away.

Mr. George Brown said that the head of the Local Government Board ought to be a medical man. Medical men should have a voice in the administration of the affairs of the kingdom when the health of the people was considered. The College must not be regarded as a diploma shop, but should take its proper position at the head of all sanitary and scientific measures.

The resolution was then put to the meeting, an carried by 40 votes to 3.

The Admission of Women as Fellows and Members.

Dr. W. G. Dickinson moved the following:

That this meeting recommends that, when the question of admitting women to the College examinations is brought before the Fellows and Members, this should be done either by means of a corporate meeting or by a poll of the Fellows and Members, inasmuch as the meetings as hitherto held under the regulations of the Council have no authority to determine any question whatever, and their resolutions on other subjects are almost invariably disregarded by the Council.

In the course of his remarks, Dr. Dickinson drew attention to the various by-laws of the College relating to the meetings of Members and to the meetings of Fellows and Members, and quoted the opinion of counsel as to the duty of the Council to carry out the medical defence of their Members in their professional work.

After Mr. Brindley James had seconded the motion, Mr. Edmund Owen said he would support the motion if the mover and seconder would consent to the omission of the sting in its tail.

Dr. Dickinson and Mr. James thereupon agreed to the omission of the words after "inasmuch."

After some further discussion, Mr. A. S. Morton moved and Surgeon-Major Ince seconded that the motion should read as follows:

That this meeting recommends that, when the question of admitting women to the College examinations is brought before the Fellows and Members, this should be done by a poll of the Fellows and Members.

This was put to the meeting and duly carried.

Standard of Preliminary Examinations.

Mr. George Brown then moved the following:

That this meeting strongly urges the Council to use all its influence to secure the raising of the standard of the Preliminary Examinations in General Education and in Science; and this meeting is further of opinion that the time has arrived when chemistry, physics, and biology should be treated as matters of preliminary education, and an examination passed in them before the commencement of medical studies.

He said that so many subjects were crowded into the medical curriculum, such as biology, microscopy, histology, and various other "ologies," which in the majority of cases were useless to the practitioner in the diagnosis and treatment of his patients, that the newly-qualified man, when he went out as an assistant or *locum tenens*, was found incapable of writing a prescription, and Mr. Brown was informed that in many cases before prescribing these young men had to look up the price list of some druggist.

Mr. George Jackson, in seconding the motion, said that it was desirable that the subjects in question should be acquired before the study of medical subjects was commenced.

After Surgeon-Major Ince had spoken, Mr. Edmund Owen declared that the study of biology had grown to such an extent, and had been invested with such importance, that it was ruining the career of many young medical students. He was in favour of abolishing the subject altogether.

After Mr. Collingwood had addressed the meeting, and Mr. Brindley James had deplored the disappearance of the old apprentice system, the President put the question to the vote, and declared the resolution carried, 12 voting in favour and 2 against.

A vote of thanks to the President for his services in the chair was passed with acclamation, and the proceedings terminated.

AT the First Professional Examination in Anatomy and Physiology for the Diploma of Fellow, held on November 8th, 9th, 13th, 14th, and 15th, 95 candidates presented themselves for the examination, of whom 27 were approved and 68 were rejected. The following are the names of the successful candidates, namely:

A. E. A. Carver, B.A.Cantab., Cambridge University; W. L. Cripps, B.C.Cantab, M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital; W. I. Cumberlidge, B.A.Cantab., M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; R. D. Forbes, M.D., C.M.McGill University, Montreal, M.R.C.S., L.R.C.P., McGill and King's College; W. H. Forshaw, M.R.C.S., L.R.C.P., Sheffield University, King's College, and London Hospital; H. Frankish, M.A., M.B., B.Ch.Oxon, M.R.C.S., L.R.C.P., Oxford University and Middlesex Hospital; E. Gillespie, M.B., Ch.B.Glasg., Glasgow University, London and Middlesex Hospitals; H. T. Gray, M.A., B.C.Cantab, M.R.C.S., L.R.C.P., Cambridge University and St. Thomas's Hospital; P. T. Harper, St. Thomas's Hospital; W. B. Johnson, St. Thomas's Hospital; C. A. Joll, B.Sc Lond., University College, Bristol; H. T. Mant, M.B., B.Sc Lond., M.R.C.S., L.R.C.P., University College Hospital; C. M. Plumptre, Guy's Hospital; N. Prescott, University College and King's College Hospitals; F. A. Roper, B.A.Cantab., Cambridge University and St. Bartholomew's Hospital; R. J. L. Sladen, M.R.C.S., L.R.C.P., London Hospital; E. W. Somerton, Edinburgh University; H. J. Smith, Guy's Hospital; A. E. Stansfeld, B.A.Cantab., Cambridge University and St. Bartholomew's Hospital; A. C. Sturdy, B.A.Cantab., St. Bartholomew's Hospital; F. K. te Water, Edinburgh University; H. G. Thompson, M.D.Liverpool, Liverpool University; R. G. Turner, M.R.C.S., L.R.C.P., St. George's Hospital and King's College; P. J. Verrall, B.A.Cantab., St. Bartholomew's Hospital; K. M. Walker, B.A., M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; W. E. Wilks, Charing Cross Hospital; A. S. Worton, M.B.Glasgow, Glasgow and Liverpool Universities.

UNIVERSITY OF LIVERPOOL.

Appointment of Deputy Professor of Pathology.

IN consequence of the regrettable illness of Professor Sir Rubert Boyce it has been found necessary to make arrangements for carrying on the work of the Chair of Pathology in the University. Accordingly, on the recommendation of the Faculty of Medicine and the Senate, Mr. Ernest E. Glynn, M.A., M.B.Cantab., M.R.C.P.Lond., has been appointed Deputy Professor of Pathology for the ensuing twelve months. Mr. Glynn, who is one of the Assistant Physicians to the Royal Infirmary, has been Assistant Lecturer on Pathology for several years, and, in consequence of Sir Rubert Boyce's numerous engagements in connexion with his university and public work, has often been called upon to carry on the work of the Professorship. He also holds the position of Pathologist to the Royal Infirmary, and has therefore the best opportunity of obtaining specimens for his lectures and demonstrations. The acceptance of the appointment of Deputy Professor will involve the resignation of the position of Assistant Physician.

Appointment of Professor of Comparative Pathology.

At the same meeting of the Council, Dr. H. E. Annett was elected to the newly-established Chair of Comparative Pathology. Professor Annett, who was a student of University College, Liverpool, and of the Royal Infirmary, graduated with

honours in Medicine at the Victoria University in 1894. Subsequently he was awarded one of the 1851 Exhibition Scholarships, choosing as the subject of his research The Relation of the Diseases of Animals to those of Man. During his tenure of the scholarship he studied at the Royal Veterinary College, London, and also in Berlin. The treatise published as the result of his studies was awarded a gold medal. On his return to England, Dr. Annett was appointed Assistant Lecturer in Tropical Pathology in the Liverpool School of Tropical Medicine, and in 1903 he became Lecturer in Comparative Pathology in the University. He was a member of the first expedition sent out by the School of Tropical Medicine to West Africa in 1899, and in 1900 he directed the second expedition of the School. The results of his investigations made on this expedition were published in a treatise on filariasis, which has become a standard work on the subject. Since 1902 Professor Annett has had charge of the Serum Department of the Liverpool Institute of Comparative Pathology.

Lecturer on Forensic Medicine.

At the same meeting of the Council Dr. R. J. M. Buchanan, M.D.Liverpool, M.R.C.P., was appointed Lecturer on Forensic Medicine and Toxicology, vice Professor F. T. Paul, resigned. Dr. Buchanan, who is the Senior Assistant Physician at the Royal Infirmary, has been assistant lecturer on the same subjects for several years.

The Physiological Department.

Dr. H. E. Roaf, M.D.Toronto, was appointed Demonstrator and Assistant Lecturer in Physiology.

THE VICTORIA UNIVERSITY OF MANCHESTER.

A special meeting of the Court was held on November 15th.

The Medical School.—From the report presented it appears that the number of medical students attending the Medical School during the present winter session is 319 (including 12 women students). The number during the session 1905-6 was 307 (including 12 women students). There are 166 medical students pursuing Manchester University degree courses and 141 students pursuing other courses. The number of those who took the degrees of M.B., Ch.B. in the University in 1905-6 was 33.

Cancer Research.—Mrs. Pilkington has given an endowment for investigations in cancer, which are being carried out by Dr. Powell White.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

PUBLICATION OF NOTIFICATION RETURNS.

H.—It is the rule not to state publicly the name and address of a person notified to the medical officer of health as suffering from an infectious disease. A solicitor would best advise as to whether a sanitary authority is liable to pay compensation for damages caused by a neglect of this rule.

HOSPITAL AND DISPENSARY MANAGEMENT.

THE VENTILATION OF OPERATING THEATRES.

A new wing of the Central London Throat and Ear Hospital, part of a scheme for the rebuilding of the entire hospital, was opened by Princess Louise on November 19th. It contains on the lower ground floor an examining room, staff room, and other offices; on the ground floor a recovery ward for minor operations, and a single bed ward, and on the first floor an operating theatre, anaesthetic room and sterilizing room. The new operating room is ventilated on the system devised by Dr. Glover Lyon. The air is taken from above the roof of the theatre, well away from ground dust and neighbouring chimneys, and is passed through a perforated zinc screen, which arrests small particles of all kinds. It was decided that any further filtering was unnecessary, and it has been proved by Dr. St. George Reid, Bacteriologist to the hospital, that air thus obtained is free from pathogenic organisms. The air is thrown down by a noiseless propeller fan upon a number of electric heat lamps controlled by switches. After passing the heater the air is thrown along the wall just below the ceiling behind two screens, through which it issues evenly into the room at a slow velocity. It then passes across the room in a horizontal direction towards an outlet in the ceiling at the other side of the room. This outlet is furnished with a propeller fan, which sucks the air out of the room and discharges it into the open air. By this means a volume of air enough for twenty persons is thrown slowly over the heads of the operators, assistants, nurses, and students, whose breath rises, and is replaced by good air from above. The capacity of the supply fan is rather greater than that of the exhaust fan; hence there is a slight plenum in the room, which prevents undesirable air entering the room through open doors or crevices. Three hot-water radiators are also fixed in the theatre.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original articles and letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any circumstances be returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the Editor of the British Medical Journal is *Aitiology, London.* The telegraphic address of the Manager of the British Medical Journal is *Articulate, London.*

Telephone (National):—
EDITOR. 2631, Gerrard.
GENERAL SECRETARY AND MANAGER. 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

M. D. asks for advice in the treatment of a patient aged 65 who suffers from painful priapism coming on about 3 a.m., and preventing sleep. The sufferer is a professional man of regular and sober life, temperate in all things.

SLOW RESPIRATION.

Dr. A. Hill Joseph (Glanmor, Bexhill-on-Sea) asks for references to cases or papers in English medical literature relating to extreme infrequency of respiration and its causes (12 or 10 or less per minute). References to other abnormalities of respiration would also be a help.

ANSWERS.

INCOME TAX.

J. A.—The purchaser of a practice is liable to pay income tax on the basis of the profits made by his predecessor, unless he can prove to the satisfaction of the Income-tax Commissioners that his income has fallen short of such profits from some "specific cause," in which case he may claim to be assessed according to the earnings of the practice from the date when he took it over. If he has lost the appointments held by his predecessor he will not be charged for them, as the salaries are not allowed to be merged in the general profits of a practice, but are assessed separately, under Schedule E, on the person holding the appointments.

SORE TONGUE.

Dr. Claude A. P. Truman (Reading) writes that "I. Q." will probably find the following simple remedy give relief to the sore tongue: ℞ Glycothymoline ℥ij, glycerin. ℥iv, aq. ad ℥vj; ℥j to be held in the mouth frequently and eventually swallowed.

Dr. A. J. Mathison (Wood Green) writes: "I. Q.'s" case of sore tongue reminds me of a somewhat similar case in a man of about the same age as his patient, in which I diagnosed gouty neuritis, and gave a mixture of colchicum and bromide which proved very successful. Vin. colch. mxv and pot. brom. gr.x three times a day might prove very efficient, even in the absence of any other symptoms of gout.

CALCIUM IN THE TREATMENT OF CHILBLAINS.

F.R.C.S.Eng.—The effect of calcium salts on the blood was investigated by Sir A. E. Wright a good many years ago, and it was suggested that their exhibition would be useful in cases of chilblain. Attention was again drawn to the matter by Dr. G. Arbour Stephens, of Swansea, whose communication, published in the British Medical Journal this year, was followed by several others. The net result is that there is evidence that calcium, administered either as chloride or lactate, is of marked utility in doses of from 10 to 20 gr. It may be given in liquorice water, orange-peel syrup, or other suitable excipient three times a day. It should not be given for more than two days without an interval, because if continuously administered, it appears to diminish instead of increase the coagulative properties of the blood. In some persons the most effective way to give it is to administer three doses only of the chloride at intervals of two hours. Chilblains at any stage appear to be improved even those which have broken down.

LETTERS, NOTES, Etc.

THE CASE OF MR. PEERS: A MISCARRIAGE OF JUSTICE.

MR. C. H. PRING, M.A., L.S.A., Honorary Treasurer, 278, Old Kent Road, S.E., writes: With reference to the report of this case in the BRITISH MEDICAL JOURNAL of November 17th, p. 1432, and in view of the marked injustice of the verdict, it is proposed, in order to emphasize the sympathy of his professional brethren, to raise sufficient money to defray the damages awarded and the costs of the plaintiff; Dr. Peers's own costs being defrayed by the London and Counties Medical Protection Society. Donations will be gratefully received and acknowledged by me.

WARNING.

A MEMBER writes: "Dr." (?) Colgrove has not confined his amiable attentions to Liverpool medical men, but has also favoured some of us Londoners. He borrowed from me, stating we had met at the annual meeting of the Association some years ago, and that he was an intimate friend of the late Sir W. Mitchell Banks. He promised to repay the amount on a certain day, but, of course, he did not, and had actually the coolness to write to me from Cambridge apologizing for the delay, and asking a little longer indulgence. Need I say the money has not yet come to hand? The borrower passed off as a Canadian graduate.

NEGLECTED EARS.

MR. F. FAULDER WHITE, F.R.C.S. (Coventry), writes: This month we have lost two cases at the Coventry Hospital, one from septicaemia, the other from intracranial suppuration, both the result of infective ear disease. As usual in such cases, the friends were most surprised that a running ear could cause such trouble. As one of them remarked, "no one thinks much of a running ear." The disease is, indeed, so common that almost every one knows of people who have lived for years in spite of an otorrhoea. It would, however, be difficult to overestimate the trouble and loss of health and life that are occasioned by this disease. In many fatal cases the cause of death has not been suspected till after an examination. In some cases that prove fatal no discharge may have been visible, and the membrane of the tympanum may appear intact. These facts are, of course, well known to surgeons, and for these reasons the rather formidable operations on the temporal bone, that are termed radical, are nowadays frequently performed. Dr. Bronner has recently alluded to them as "difficult." They are difficult, dangerous, especially to the hearing, and often unsatisfactory. And here I would say that they are often inevitable if the patient is to have any chance, but they are inevitable because these cases do not generally come under the surgeon's care until serious complications or extensions of the aural disease have taken place. And yet almost every case of infective ear disease can be saved by comparatively simple measures if only the right thing be done at the right time. So strongly do I feel the truth of this assertion and its importance that, at the risk of being misunderstood, I lose no opportunity of insisting that the cure of suppurative otitis is attainable by otectomy and irrigation. The earlier we get these cases the quicker the cure, but I believe otectomy should be performed in most cases that seem to call for the radical operation. In some of these the less serious operation will be found sufficient, and I can give several cases, in which meningitis was believed to exist, that recovered after otectomy. In one case, in which the existence of meningitis was proved by *post-mortem* examination, great relief was given by this operation. The patient, who had been semiconscious or unconscious for some weeks, to all appearance, almost completely recovered, and for some days seemed quite himself, but a heavy meat meal having been taken the bad symptoms reappeared, and he eventually sank. The success and safety of otectomy, as shown in several hundred cases, should commend it to the increasing number of medical men who believe that we should not hesitate "to meddle with the ear" in the face of such grave dangers as undoubtedly attend suppurative otitis.

REMORSE IN MELANCHOLIA.

DR. JOHN I. SHEPHERD (Ayrshire Sanatorium, Glenafton, New Cumnock) writes: In reading the remarks at the end of your interesting survey of Dr. Dumas's researches in the BRITISH MEDICAL JOURNAL of November 10th, 1906, it occurred to me that considerable confusion is apt to rise from want of strict and clear thought on the subject of causation. Scientific causes are only one of the elements in a complete study of causation, and other causes may be equally, even sometimes more important, to the practical man, the physician. Suppose a man, "morally" led to join in a drinking bout, on his way home on a cold winter's night, he falls intoxicated into a ditch, the pneumococci in his respiratory passages seize upon his right lower lobe, and he gets pneumonia, to which he is predisposed by a previous attack. What are the causes here? The "moral" process is an essential link in the causation of this pneumonia; the physician, still more the man's friends, knowing his "moral" defects, and perhaps his physical predisposition to pneumonia, would endeavour to prevent such an occurrence by moral or mental means, recogniziag the reality of the moral causation. They would not directly achieve prevention by attacking the scientific cause, the pneumococcus, or the predisposing cause. The medically scientific cause is the common cause, expressed in terms of physics, chemistry and biology (or, as some would have it, ultimately physics), which connects this particular case with others of similar clinical features. None the less, there are other causes, more distant, which are responsible. The same applies in the case of other physical diseases, including those in which mental symptoms predominate. But apart from such distant causation, is there not room for emotions excited by the perception of moral inconsistency as "exciting causes" of cerebral disturbance? The power of moral ideas to excite the emotions (through the lower somatic innervation, as Dr. Dumas's work goes to show) is dependent partly upon training—that is, environment—which again involves moral elements. These emotions might conceivably precipitate the effect from a combination of circumstances that, without their culminating influence, would have dispersed or gone on accumulating till something else completed the necessary antecedent conditions. The question whether mental influences alone acting on a brain average or perfect (if that be possible) nutrition, excretion, and development—that is, anatomically and histologically—ever cause morbid changes, and, if so, how often, is not at all affected by Dr. Dumas's work, nor is the question of the influence of external circumstances acting solely through the mind on the development and devolution of a brain.

SLANDERS ON MEDICAL MEN.

THE readiness with which medical men are often slandered was well illustrated at an inquest at Stepney on November 12th, when the mother of the deceased child, the wife of an insurance agent, indulged in an harangue against medical men as a class as mere money-grabbers, and described the medical man engaged in the case as an angel of death. The coroner asked the medical man for his version of the story, and was told by the medical man that he had visited the case immediately he was requested to do so, and found the child so ill that he sent at once to the chemist to get some medicine for it. The coroner then asked whether he had taken a fee and guaranteed to keep the child alive, to which the reply was, that so far nothing had been paid. "And yet," said the coroner, "you have been called a money-grabber. That is very unfair."

CURIOSITIES OF INFANT MORTALITY.

RECENTLY a coroner's jury, after investigating the death of an infant, brought in a verdict that it had died of "sudden birth." This is a danger to which every man born of woman is exposed, though fortunately many manage to survive the shock of their sudden entry on "this great stage of fools." The following case, for a knowledge of which we are indebted to the *St. James's Gazette*, is more unusual: A native dispenser to a medical man at a station in Southern Nigeria, in a report on a child born with six fingers on each hand, adds that it had no nose. He goes on to say: "And the poor fine little thing could not take any vitality such as human milk or water at all being it breaths from its mouth it cann't sup and at the same time breath too and for as much as any one cann't do so in this transitory world, so it did not exist any longer and turned away to its distination whence it come since last Thursday the 2nd inst. I would not have believed it if I were not at the sport (at that time) where it was born, but this I went there myself and I did see it with my own eyes. One thing I did was that what I told them (the parents) to look after him well and 3 days after I went in and inquired for the child the parents told me that it is dead since yesterday whether they suffocated him or what, that I cann't tell and the truth is mystery, being they are savage."

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An Address

ON THE

PUBLIC ASPECTS OF THE PREVENTION OF CONSUMPTION.

Delivered before the Edinburgh Sanitary Society.

By R. W. PHILIP, M.D., F.R.C.P.E., F.R.S.E.,

PHYSICIAN AND LECTURER ON CLINICAL MEDICINE, ROYAL INFIRMARY, EDINBURGH; SENIOR PHYSICIAN, ROYAL VICTORIA HOSPITAL FOR CONSUMPTION, EDINBURGH.

Twenty-five years have wellnigh passed since the essential cause of consumption was definitely determined and announced to the world. Of the scientific fact there can be no manner of doubt. This is admitted on every side. Yet this evening the question forces itself urgently, What practical benefit has accrued therefrom to the communities of men? Have *communities* enjoyed the fruits to which they are entitled from Koch's great epoch-making discovery?

In answering the latter question decidedly in the negative, it is admitted freely that certain natural causes have contributed to the result. In 1881, the world was hardly prepared for the swift intimation that consumption, whose nature seemed popularly known, and whose causation was regarded as ascertained, had been thoroughly misunderstood, and that in place of depending on a variety of ill-defined causes, was due to a specific micro-organism, recognized then for the first time.

The existing generation of medical authorities looked askance at the novel doctrine and, in many instances, offered determined opposition. As the older generation has receded and the younger has advanced, a change of thought—in some quarters a remarkable change of thought—has been effected. Through the labours of individual workers in different lands there has occurred a great determination of attention on more scientific lines. Especially is this true so far as the pathology of the disease is concerned. The change which has come over the pathological conception during a quarter of a century is immense. The comparison of any treatise on consumption of thirty years ago with the present-day treatise on the same subject reveals an extraordinary advance.

And no less on the therapeutic side have great strides been made. Striking alterations have been effected in relation to the curative treatment of the individual. The consumptive patient nowadays occupies a platform of hopefulness previously but little dreamt of. His horizon to-day is brighter with promise than ever it has been.

But the more public aspect of the question calls for much to be done. Happily, throughout the world there begin to emerge indications of awakening to the rightful claims of *communities* in this respect. The adoption of preventive measures against tuberculosis on a more or less extensive scale has been proposed in most parts of the civilized world. To some extent these have been carried out. *But if communities, as communities, are to benefit practically by the discovery of the tubercle bacillus to the extent which the discovery warrants, there is clamant need for a vastly wider organization and co-ordination of measures than has yet been realized.*

In proceeding to elaborate this thesis, I desire it to be clearly understood that the significance of general sanitary measures in relation to the limitation and prevention of tuberculosis is not underestimated by me, far less forgotten. The importance of these can hardly be over-estimated in relation to the entire group of infectious diseases—a group to which we now relegate consumption. The earnest thinker and worker in the sphere of tuberculosis will be the first to admit that those great principles which have rescued the world from incursions of infectious disease, through overcrowding and ignorance, are applicable, in the fullest sense, to the solution of the tuberculosis problem. It is freely admitted that, with the development of wiser and wider sanitary measures, the incidence of, and mortality from, tuberculosis have remarkably lessened.

Notwithstanding, it remains true that an enormous proportion of the human race is still affected by, and a still greater number remains unnecessarily exposed to, tuberculosis. There is great reason to doubt whether the frequency of tuberculosis is even distantly guessed. The usually-accepted statement that from one-seventh to one-tenth of the race die from tuberculosis—grave as it is—does not exhaust the truth. The records of *post-mortem* examinations show that at least one-third, and probably one-half, of all persons dying bear traces of tuberculosis in one shape or another. The experience of our hospitals and dispensaries emphasizes the view that the statistics of mortality from tuberculosis insufficiently suggest the great frequency of its incidence. Through the system of domiciliary visitation instituted by me many years ago in connexion with the Royal Victoria Dispensary for Consumption in this city, I have had occasion to realize the appalling frequency with which several members of the same household in the contracted dwellings of the poor are simultaneously affected by tuberculosis. There is abundant reason for the statement that there are in every great centre crowds of infected dwellings—veritable nests of tuberculosis—entrance into which, or at least residence for any time in which, is necessarily accompanied with the greatest risk.

In a previous paper[1] on this subject, I made a calculation that the ascertained mortality from consumption in any city might be safely multiplied by 10, in order to represent approximately the number of persons living, *already seriously affected*. Fuller investigation into the subject has convinced me that this figure is, as I indeed hinted it probably was, much within the mark. I am satisfied that twice the figure is still below the mark. Taking, then, for example, the city of Edinburgh, whose mortality from consumption is approximately 400 per annum, we may assume that, within the area of the city, more than 8,000 persons are already seriously affected by the disease. And it is to be kept in view that this figure applies to involvement of the lungs only, and is exclusive of tuberculous affections of other organs.

What, then, should be the attitude of the citizen to the question? He is entitled to assume that the etiological relationships of the tubercle bacillus to consumption have been completely established. He is entitled to demand, as a member of the community, in the interests of the community, that information should be obtained as to the actual extent of the disease in the community. He is entitled to inquire what special measures have been taken by the authorities for dealing directly with the tubercle bacillus as an existing cause of disease. He is bound in self interest to weigh intelligently the sufficiency of these, with the help of such expert advice as may be attainable. In so far as they appear insufficient, he is entitled to insist on their amendment, or their completion.

As I have had occasion to point out elsewhere,[2]

> Most existing movements against tuberculosis fail in attaining all they might, because they are too partial. In many centres throughout the world antituberculosis societies have been founded. The intentions of these have been good, but in practice less has been effected than is to be desired, from insufficiency in the plan of operations. Excellent as much of the work has been, there is too generally lacking the element of efficient organization.
>
> Through the agency of such societies there has been disseminated a large amount of serviceable information regarding the nature and prevention of the disease, and public interest in the subject has been aroused. Under the *aegis* of such societies, or other charitable or public bodies, provision has been made for the treatment of a certain number of cases of tuberculosis. Sanatoriums have been founded in many places for the curative treatment of more hopeful cases, and hospitals or asylums have been established for the reception of patients in more advanced stages of the disease. Some communities have favoured attacking the early cases, and aimed specially at the cure, or at least the relief, of the individual; while others have attacked specially the later cases, with a view to preventive treatment.
>
> In not a few instances the conception of founding sanatoriums has bulked too largely in antituberculosis movements. The public have been led to expect too much from sanatorium régime, in respect both of individual cures and of the extinction of the disease. As the results of sanatorium treatment accumulate, and as these are found less uniformly good than the hopefulness of the over-sanguine had expected, there begins to be manifested a feeling of disappointment and almost of annoyance. Already the question is being freely asked, "Are sanatoriums worth while?"
>
> It is not my purpose on the present occasion to refute the view that sanatorium treatment is a failure. To any one familiar with the facts this will appear needless. The sanatorium constitutes an important division of the work. But the problem of the extermination of tuberculosis is too vast to be solved in so simple a fashion. The outlook of the

sanatorium is towards the recovery of a certain proportion of early cases. But the number of cases ultimately cured by sanatorium treatment is small in proportion to the major issue, namely, the suppression of the disease.

Tuberculosis is a disease of infectious nature, and as such must be treated on the same broad principles on which we treat other infections. While this is true, there are many difficulties of a practical nature. Although of infectious nature, tuberculosis is a peculiar disease—peculiar in respect of its mode of dissemination, and the conditions of environment on which this depends, peculiar in the variety of its manifestations, and peculiar because of its commonly prolonged course. On these grounds, the plan of combating tuberculosis cannot be modelled entirely on those which have been found serviceable in the treatment of other fevers.

The solution of so vast and far-reaching a social problem can only be hoped for by means of a most carefully organized and co-ordinated plan of action. Much will be gained by uniformity of plan throughout the country, and, so far as possible, throughout the world. Such a scheme of organized and co-ordinated operations against tuberculosis must, in my opinion, include for all our larger centres the following factors, to which I desire severally to direct your attention.

1. Notification of the disease.
2. A tuberculosis dispensary.
3. A hospital for dying patients.
4. A sanatorium, or sanatoriums, for selected patients with a view to cure the disease.
5. Colonies for the residence and guidance of patients in whom the disease is latent, or has been arrested, and for whom carefully-selected and supervised employment is desirable.

I.—Notification of the Disease.

Since my earliest intimate associations with the subject, I have been convinced of the necessity for and the advantages which must follow from the adoption of compulsory notification. It is almost exactly sixteen years ago since, on the invitation of the Edinburgh Health Society, I delivered a lecture on the subject of consumption. On referring to the published volume, in view of the present meeting, I find that I expressed myself as follows: "So far as infectious conditions are concerned, as you know—thanks to the foresight and untiring energy of our veteran medical officer of health—we live in peculiarly happy circumstances. All cases of infectious disease which occur within the city must now be reported and recorded at the city's expense; and the result is that within a very short time after the outbreak of an epidemic, it is known exactly at head quarters how the disease is distributed, and special measures of investigation or treatment can be instituted. Again, it is similarly known if the epidemic continue longer in certain districts than in others, and an explanation may then be suggested. To-night I should press strongly for the inclusion of consumptive cases in such compulsory returns. Nothing but good can, in my opinion, result from this extension of a most valuable method. Were it adopted, we should soon have most valuable confirmation—or let us suppose, the opposite, although I do not think this latter likely—of the statements which have been made regarding the communicability of consumption, and the tendency to its occurrence in certain houses and districts. Edinburgh will make a big move—and a move, I make bold to say, in which she will be speedily followed by many—if her medical officer of health will stimulate the authorities to this further development."

This view, as expressed in 1890, has continued unchanged. It has remained my fixed conviction that compulsory notification affords the only sound and ultimate solution of the consumption problem.

All the difficulties which, so far as I am aware, have from time to time been suggested in relation to the practical carrying out of notification, were all similarly advanced in connexion with the proposed notification of other infectious diseases, and indeed in relation to other State and municipal procedure. Such difficulties were promised in relation to the income tax schedule and other Government inquiries. Experience has shown that these difficulties rapidly melt away in practice. At the worst, they are insignificant, in the present issue, when compared with the vastness and gravity of the evil to be combated.

Until recently the real practical difficulty in the way of compulsory notification has been the attitude adopted by the Local Government Boards, both in England and Scotland. In the case of England, that attitude remains one of reserve, partly, no doubt, because of the lack of unanimity among medical authorities in the South. The Local Government Board for Scotland has recently, in its circular of March 10th of the present year, thrown aside its earlier reserve and voiced the view that a system of notification promises the solution of many of the difficulties of the tuberculosis problem.

The circular, which I would commend to your careful perusal, boldly pronounces that pulmonary phthisis is an infectious disease within the meaning of the Public Health (Scotland) Act, 1897. As a consequence of this, the sections of the Public Health Act applicable to other infectious diseases are applicable to pulmonary phthisis. The circular indicates that a system of notification is necessary if the Public Health Act is to be applied effectively to pulmonary tuberculosis. It sanctions the addition by the local authority, with the approval of the Board, of pulmonary phthisis to the lists of diseases notifiable under the Infectious Diseases Act, 1889. It announces the readiness of the Board to give favourable consideration to applications from local authorities for such inclusion of pulmonary phthisis, insisting, however, that the local authority should first put itself in a position to deal sufficiently with cases after notification.

It thus appears that there is no need—as was at one time suggested—for fresh legislation, but that the Local Government Boards are possessed of sufficient powers to sanction and recommend compulsory notification. The chief cause for delay, in Scotland, at least, has been the need for assurance that local authorities were able financially and otherwise to take such effective action after notification as the facts should justify.

Compulsory notification of consumption is not an untried conception. It has been introduced and carried out with much success in Norway and the United States—New York in particular. I have the direct personal assurance of Dr. Hanssen, the leading authority on tuberculosis in Norway, who was largely instrumental in carrying through the system of notification, that the plan has been carried out there for some years without the slightest hitch.

The experience in New York is similarly of a most reassuring character. In 1893, among other measures taken for the prevention of consumption, notification "was *required* of cases of consumption in all public institutions, and notification was *requested voluntarily* from doctors, of cases occurring in their private practice." In 1894 there were notified 4,166 cases, in 1895 5,618, and in 1896, 8,334. This striking increase in the figures notified, even under a voluntary system, affords a strong proof that no hitch is likely to occur. Not only so, but so satisfactorily did the matter work out that in 1897 the Health Board of New York declared pulmonary tuberculosis to be "an infectious and communicable disease," and *required* "notification of all cases of consumption occurring in the city." Let it be kept in view that that declaration and enactment were made nine years ago. I have excellent authority for saying that since then compulsory notification has been carried out smoothly and efficiently.

In the United Kingdom opinion is gradually ripening. Several towns in England have during the past few years adopted a system of voluntary notification. Manchester was especially early in the field, and a most complete and effective system of voluntary notification has been established. Similar methods have been instituted in Brighton, Leeds, Bradford, and Liverpool. Finally, Sheffield, which for several years had had experience of voluntary notification, obtained powers in the Sheffield Corporation Act, 1903, to introduce compulsory notification. Notification was finally declared compulsory two years ago.

In Scotland the first attempt at notification was made in Edinburgh, where a system of voluntary notification was instituted in 1903. The system, for one reason or another, seems to have been carried out with less completeness than in some other centres. Notifications were made, apparently, with a certain amount of hesitancy. So far as I can make out, from inquiry among medical men, this was less from unwillingness than from uncertainty as to what was really proposed. No great encouragement was extended to practitioners to co-operate in notification. In spite of this lack, I may mention, as showing the significance of the method, that no fewer than 855 notifications were made during 1903-05 to the city

authorities by the Royal Victoria Dispensary. The notifications were attested by bacteriological examination at the dispensary and the determination of the tubercle bacillus.

Since the publication of the circular by the Local Government Board (March, 1906), there are not wanting signs that compulsory notification will speedily be adopted throughout Scotland. Edinburgh has already faced the question, and almost carried compulsory notification. Glasgow is on the eve of achieving the same result. Several of the smaller burghs have either obtained, or requested, the sanction of the Local Government Board to the same end.

Looking further afield, the International Congress on Tuberculosis, held at Paris in October, 1905, with representatives from all the civilized countries, whose outlook on the question was correspondingly very various, adopted unanimously the following conclusion: "That it is desirable that it should be the general practice to notify all cases of advanced tuberculosis."

After Notification What Then?

Two mistaken conceptions are current as to what is implied in notification. On the one hand, there are those who suppose that notification implies the removal of every notified person to some institution—the segregation of all cases of pulmonary tuberculosis in the same way as segregation is practised in relation to the acute fevers. It is assumed that, unless sufficient hospital accommodation is available, there can be no significance in notification, and the expense employed in a system of notification is therefore unwarranted. On the other hand, there are those who seem to suppose that notification itself is somehow to effect the extermination of the disease.

I fear that in neither of these views is sufficient account taken of the far-reaching ramifications of tuberculosis. In some instances, notification need be followed by no special measures. In some, the removal of the patient to a suitable hospital will be sufficient. In many instances, notification of a case of consumption is tantamount to the discovery of a whole nest of disease. As I have indicated, my experience in Edinburgh is that very generally several cases of consumption are found in the same household—some of them not previously dreamt of—and the house itself is probably infected. In such case, then, notification will raise a vast number of questions as to the suitable disposal of the varying elements at this focus of infection. The several elements will require different lines of action. This naturally leads us to a consideration of—

II. The Tuberculosis Dispensary.

The dispensary as a factor in the campaign against tuberculosis is no longer on its trial. In any complete organization against tuberculosis the dispensary will be found to play a most important part. This has been my belief for many years. It was this that led to the foundation by me in 1887 of the Victoria Dispensary for Consumption in Edinburgh.

The practical value of what was then an *a priori* conception has been firmly established during the development of details. Increasing familiarity with the idea has led recently to a widespread recognition of the significance of the dispensary. The rapid, and apparently independent, erection within the past six years of similar institutions in Belgium, France, and Germany, affords remarkable testimony to their value. The recent international congresses at Paris and The Hague have voiced a unanimous opinion regarding their extreme utility.

The object I had in view in proposing the establishment of a dispensary for tuberculosis was the formation of a central institution to which persons of the poorer classes affected by tuberculosis should be invited or directed. It seemed thereby that access would be readily obtained to existing foci of disease, not merely in affected individuals under examination, but also in other members of the same household, and in affected dwellings. The programme of the Victoria Dispensary was as follows:

1. The reception and examination of patients at the dispensary, the keeping a record of every case with an account of the patient's illness, history, surroundings and present condition, the record being added to on each subsequent visit.

2. The bacteriological examination of expectoration and other discharges.

3. The instruction of patients how to treat themselves, and how to prevent, or minimize, the risk of infection to others.

4. The dispensing of necessary medicines, sputum bottles, disinfectants, and, where the patient's condition seemed to warrant it, foodstuffs and the like.

5. The visitation of patients at their own homes by (1) a qualified medical man, and (2) a specially trained nurse, for the double purpose of treatment and of investigation into the state of the dwelling, and general conditions of life and the risk of infection to others.

6. The selection of more likely patients for hospital treatment, either of early cases for sanatoriums, or of late cases for incurable homes, and the supervision, when necessary, of patients after discharge from hospital.

7. The guidance, generally, of tuberculous patients and their friends, and for inquiries from all interested persons on every question concerning tuberculosis.

Premises and Staff.

The Victoria Dispensary, as at present arranged, contains:

Two consulting rooms, a laryngoscopic room, one large waiting room, two dressing rooms (male and female), a general office where names are entered, a laboratory for bacteriological examinations, a drug and food store.

The dispensary is open thice weekly for three or four hours.

The staff consists of:

1. Four qualified physicians who attend when the dispensary is open for the purpose of examining and instructing patients. Three of the physicians are honorary.

2. One of the medical officers receives a salary of £60 a year, and devotes a large amount of time to the work. In addition to examining patients at the institution, along with the honorary physicians, he pays domiciliary visits to the dwellings of patients in co-operation with the trained nurse. He makes bacteriological examinations of expectoration and other suspect discharges. By arrangement with the city authorities, he notifies all cases of tuberculosis which he meets. He advises regarding the disinfection of houses during illness and after the removal or death of the patient. He supervises treatment of patients at their own home when this is desirable. He selects suitable patients for the sanatorium. In co-operation with the city authorities he drafts the more advanced or dying patients to a hospital now dedicated to such cases in the neighbourhood of the city.

3. A nurse who has been carefully trained in modern open-air methods at the Royal Victoria Hospital for Consumption, Edinburgh—the sanatorium in connexion with the Dispensary—visits the homes of the patients. She readily wins their confidence by her interest in their welfare. She instructs the patients, or their friends (wives, mothers, etc.), both as to treatment and prevention. In co-operation with the visiting physician, she reports regarding the patient's residence and other conditions according to the annexed schedule of inquiry. The reports, when completed, are vouched for by the signature of both doctor and nurse.

Schedule of Inquiry Regarding Dispensary Patients.

No. in Ledger..... *Date of Report*.....

Name Age

Address Married or single?

Occupation Has patient changed occupation?

Able to work full time? Or part time?

If unable, confined to bed?

How long ill?

Situation of house (area, ground floor, first, etc.)?

Number and ages of inmates?

Number and description of rooms?

General aspect of house (clean, damp, dusty, smelly)?

Number of windows? Can they open?

Are they kept open (*a*) by day?

(*b*) by night?

Have they always been kept open?

Does patient sleep alone (*a*) in bed?

(*b*) in room?

How is washing of clothes done?

How long in present house?

If has moved within two years, previous addresses?

Have there been illness or deaths in house?

(*a*) In own time?

(*b*) In previous occupancy?

Exposed to infection (*a*) at home?

(*b*) at work?

(*c*) among friends?

Present health of other members of household ?
What precaution taken to disinfect ?
T. B. in sputum ?
T. B. in dust of room ?
General dietary ? Teetotal ?
General condition (well-to-do, badly off) ?
Proximate income of household ?
Assisted by societies, church, friends, rates ?

Signed.....*Reporter.*
.....*Medical Officer.*

4. A volunteer Samaritan Committee of ladies, in conference with the doctors, take charge of more distressing cases, where, through prolonged illness, the financial conditions have been much reduced. In many cases they visit the patients' houses. With the assistance of the numerous charitable and parochial organizations which exist in the city, they are enabled to adapt the relief necessary to the particular case. The members of the Samaritan Committee further occupy themselves with the question of suitable employment for tuberculous persons fit for some effort, although unable to work an entire day. In some cases they arrange likewise for persons who have been discharged from the sanatorium. Attention is also paid to the case of school children affected with the disease, so as to have their education supervised on more physiological lines. The operations of the Committee are regulated at fortnightly meetings, and a minute of the business is kept.

5. An officer—a working man who gives his entire time to the dispensary—lives on the premises. This man receives and enters the names of the patients on the afternoons when the dispensary is open. When the dispensary is not formally open he attends to requests from patients or other persons. The officer is conversant with the home and work conditions of many of the patients, and is a valuable lieutenant both to the doctors and nurse.

RESULTS OF DISPENSARY OPERATIONS.

The organization of the dispensary is thorough. Each part of the system is closely related to the rest, so that a large amount of work is expeditiously and inexpensively overtaken. From first to last we have found no difficulty whatsoever in relation to the nurse's house-to-house visits. On the contrary, these have been most gladly welcomed by all types of patients and her inquiries willingly answered. There can be no doubt that the system of domiciliary visitation by a specially-trained nurse, in co-operation with the doctor, has been a sanitary agent of great importance to the city.

The dispensary's programme has been successfully carried out by the staff during the past nineteen years. During each year some 17,000 attendances have been registered. As many as 87 individual patients have been received in one day. About 1,000 reports are made annually regarding the home conditions of patients, and about as many notifications have been made to the city authorities.

By means of the systematic record of the home conditions, according to the schedule referred to, there has been accumulated a great mass of valuable statistics and information regarding the incidence of the disease in the district. These are continually added to from day to day.

An analysis of these records has yielded facts of the greatest importance. Thus, there has been illustrated the extreme frequency of tuberculous disease in children and in housewives. A map of the city has been made, showing the frequency of the disease in certain houses and streets. Proof has been obtained of its occurrence along with various insanitary conditions of dwellings (insufficient air, absence of sunlight, etc.), and the attention of the authorities has been drawn to the fact. The reports show the frequency with which one or more persons share a room, or even a bed, with the consumptive patient. Particular attention has been paid to such cases, either by removal of the affected patient (*a*) to a sanatorium, or (*b*) to a hospital for dying cases, or by removal of unaffected members of the household to healthier surroundings. One of the doctor's duties in such circumstances is to examine into the health of other members of the family. It is remarkable how frequently two, three, or even more persons, not previously suspected, have thus been shown to be tuberculous. Another important point has emerged, namely, the frequency with which the tuberculous patient, from one cause or another—often from financial reasons—changes his house. By this means infected areas become quickly multiplied. The records also show the absence—apart from the interference of the dispensary—of precautions with a view to disinfection. Now, happily, by arrangement with the city authorities, the dwellings of such patients are disinfected at the city expense.

It has been sometimes maintained that such a dispensary is impracticable, as running counter to the interests of, and therefore likely to be opposed by, the medical practitioners of the place. This has not been the experience of the Victoria Dispensary. From the first, a large number of the doctors co-operated cordially with the promoters of the movement. Now that the aims of the institution are thoroughly understood, the great body of the profession avail themselves freely of its resources. A large proportion of the patients received at the institution are sent by medical practitioners, either for diagnosis, in doubtful cases, or for treatment and other guidance. The Royal Infirmary and other hospitals throughout the city work similarly in harmony.

It should be clearly understood that a dispensary such as this is a much more elaborate institution than exists in relation to the out-patient departments of consumption or other hospitals. The latter, doubtless, do excellent work, so far as their resources allow. Their effort is, however, primarily directed towards the treatment of the *individual* patient, and little attention is extended to the wider aspect of the tuberculosis problem.

The tuberculosis dispensary should be, for every city or district, the uniting point of all other agencies. It should not be an isolated institution, but form an integral part, indeed the centre, of a great network of operations. To the dispensary, tuberculous patients of the poorer classes, and patients with chronic colds or persistent ill-health, should be invited. Tuberculous patients presenting themselves at infirmaries, hospitals, and other charitable institutions, should be directed to the tuberculous dispensary. Employers of labour and heads of public works should be apprised of the existence of the dispensary, so that invalid employés may be directed thither. The public should be made aware that the dispensary is prepared to answer all inquiries regarding tuberculosis, and to advise, in a given case, what is best to be done. The dispensary should constitute a centre for the dissemination, in the widest fashion, of information regarding prevention and treatment.

You may perhaps get a clearer notion of my conception of the dispensary if you will glance at the accompanying diagrammatic scheme (Diagram 1). It illustrates the position of the dispensary as the centre towards which patients and other inquirers regarding tuberculous matters are directed, and from which advice and other information are distributed. The double lines indicate the connexion which should exist between the dispensary and the other elements in the organization—on the one hand the hospital for advanced cases, and on the other the sanatorium for early cases. Other points illustrated by the sketch will appear as we proceed.

Every step in the gradual development of the Edinburgh scheme has strengthened my belief in the efficacy of the tuberculosis dispensary as a base for further operations. In this belief, I recommend to every considerable community the establishment of such an institution, which will serve at once as a developmental centre and uniting point of other agencies.

It seems to me, indeed, difficult to overestimate the value of the dispensary as an instrument of preventive medicine—whether as a bureau for receipt and distribution of information and assistance, or as a clearing house in respect of the vast amount of tuberculous material with which every community will find itself called upon to deal.

III. HOSPITAL FOR ADVANCED OR DYING PATIENTS.

There can be no manner of doubt that the far-advanced or dying cases constitute the greatest source of infection. This is most especially true in the case of those affected by the disease resident in the contracted dwellings of the poor, where perhaps an entire family shares a room with the consumptive patient. All such patients require immediate removal to a hospital reserved for advanced and dying cases of consumption.

Take, as an example of the sort of thing, two recent cases from the dispensary list:

1. E. F., a married woman, aged 35, visited the dispensary, and was found to be so ill that she was immediately ordered

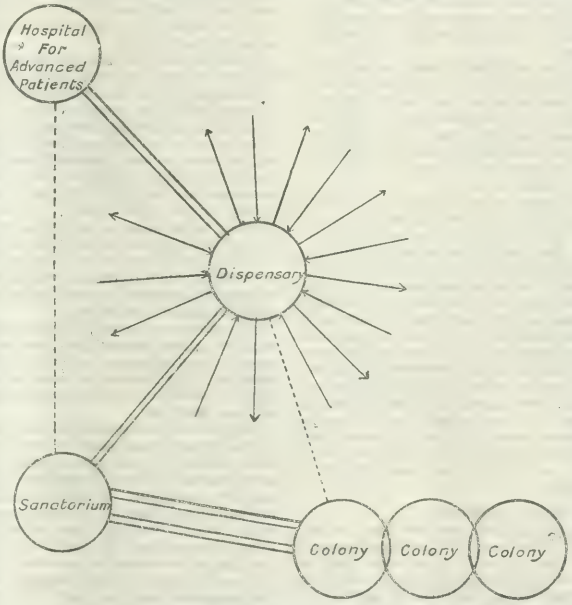
home to bed. The dispensary medical officer visited her and determined the presence of very advanced disease. As no hospital accommodation then existed for such cases, he continued attendance for months, till her death. His report is that he never visited such a filthy, desolate house. It consisted of one room, in which resided the patient, her husband, and child. The patient was bedridden for many weeks. Beside the bed stood a pail into which the poor creature made feeble attempts to expectorate. The expectoration was visible all over the bedclothes, the floor, and the wall. Till the visit of the Victoria Dispensary Medical Officer, followed by that of one of our trained nurses, there was no attempt at nursing or proper feeding, still less of disinfection. Suitable nursing and strict measures of disinfection were then instituted, both during the patient's life and after death.

2. W. B., aged 20, presented himself at the dispensary suffering from advanced consumption. His case was similarly undertaken by the dispensary medical officer. He lived in a sunk flat, in a room where his father had died of consumption just twelve months before. The room was large and clean, but sunlight never reached it. Ventilation was defective in the extreme. His mother supported herself and three more of a family by going out, from this insanitary home, to wash and assist in other people's houses. Treatment, disinfection, and other measures of prevention were undertaken by the dispensary medical officer.

Such cases might be multiplied indefinitely from the records of the dispensary.

It was with a view to the reception of such advanced patients, whose surroundings and hygienic conditions are prejudicial, not only to themselves but to all who are brought into close contact with them, that in the Health Lecture referred to (1890) I proposed that a portion of our city hospital should be devoted to the reception of dying cases of consumption:

With a view of preventing the spread of phthisis among the very poor, for the community's sake, I should have a portion of our city hospital—in lieu of any better institution elsewhere — devoted to the reception of dying cases of phthisis whose surroundings and hygienic conditions are not only fatal to themselves, but, in my judgement, eminently prejudicial to all those who are brought into the close contact with them which the life of a family in one or two rooms involves. Such cases cannot, of course, in any number be received into the Royal Infirmary, nor is it desirable that they should. But I desire to-night to rouse the citizens to the responsibility they assume in permitting such chronic sources of infection to smoulder in their midst under conditions which are undoubtedly most calculated to fatal propagation.



Diagrammatic scheme showing interrelations of the dispensary and other elements in the antituberculosis organization.

More recently I was frequently consulted regarding this and other aspects of the question by the late Mr. Pollard, the then convener of the Public Health Committee, whose keen, far-reaching interest in this matter is worthy of fresh record. His desire to have the matter viewed from most varying standpoints resulted in a Conference within the City Chambers on February 9th, 1899, between a Subcommittee of the Public Health Committee, representing the Town Council, and Representatives of the Medical Faculty of the University of Edinburgh, the Royal College of Physicians, the Royal College of Surgeons, and the Veterinary Colleges.

The outcome of all this was the proposal—contained in a careful and elaborate report by Mr. Pollard, dated July 23rd, 1900—to the effect that 100 beds in the old City Hospital should be utilized for the purpose. This proposal, after what has appeared—may I say with all respect?—rather unnecessary delay, has finally come to fruition in the arrangement, happily achieved by Convener Gibson, for the reception of 50 cases of advanced consumption at the new City Hospital, Colinton Mains, an arrangement which, I understand, is working well.

At no distant date, I anticipate we shall have hospitals for advanced consumption as generally distributed throughout the country as are hospitals for the more acute infectious diseases. The Local Government Board for Scotland has, in the Circular already referred to, indicated most plainly that "the isolation of such dangerous cases is a primary duty of the local authority."

With reference to hospitals for advanced cases, it should be strictly kept in view that patients must, in the ordinary course, continue in the hospital until the end. The end may, and in many cases certainly will, be long delayed. If the hospital is to fulfil its mission, from the sanitary and economic standpoint, patients once admitted must not be discharged, save for quite exceptional reasons. To make the patient a little better and then discharge him from further treatment, is almost completely to negative the purpose for which the hospital was instituted.

IV. Sanatorium for Selected Persons with a View to Cure.

While isolation for advanced cases is desirable from the point of view of prevention, the sanatorium is concerned chiefly with the effective arrest of the disease.

The great aim of sanatorium treatment is to get the patient at a sufficiently early stage, and, by means of open air treatment, proper dietary, and a carefully conceived regimen, to assist Nature in her attempt to resist invasion by the tubercle bacillus. The purpose is to increase vital resistance and thus establish more or less immunity to the disease. As the discovery of more specific methods of treatment proceeds these will naturally be utilized.

The essential of the present-day sanatorium idea is the free exposure of the patient to open air. He must be bathed in fresh, pure air day and night, and this irrespective of the goodness or badness of the weather, as popularly understood. The more sunshine, or at least sunlight, the better for the patient. The two conditions which the tubercle bacillus cannot withstand are fresh air and sunlight. If the patient will only be out of doors, lying, sitting, walking, or working, according to the nature of the case, a large part of each day, and, when indoors, will allow the freest access of fresh air day and night, satisfactory results may be obtained almost anywhere.

Sanatoriums should be founded in *immediate* relationship to the large centres. I desire to insist on this point with much emphasis. It is of the first importance to the hopeful tackling of the question, in the widest sense, that patients and the public should get rid of the prevalent, but most erroneous, belief that a cure can only be effected and health maintained under conditions which their ordinary residence and station in life will not permit them to enjoy.

It has been demonstrated in the most conclusive way—

and in this matter the experience of the Royal Victoria Hospital for Consumption at Edinburgh has been frequently cited in evidence—that, just as consumption occurs in all countries where the disease has obtained a footing, "it can be treated in all climates with approximately equal success, or want of success, according as the larger indications for treatment are fulfilled or overlooked."[3]

It is consequently evident, and is emphatically advantageous, that the sanatorium or hospital for curative treatment should be reasonably near the town chiefly interested.

Results of Sanatorium Treatment.

The results of sanatorium treatment are highly encouraging, notwithstanding statements made from time to time to a contrary effect. Under sound sanatorium treatment the lives of thousands have already been saved. Hundreds have to my knowledge been rendered fit to return to ordinary work, or, without complete recovery, have been able to resume work of a less exacting nature. If treatment be undertaken reasonably early, it is the exception to find a patient who does not progress persistently so long as treatment is maintained. In many instances results are obtained which can only be described as marvellous.

If the results are not so uniformly good as might be desired, the sum total of complete or economic cures is still very great. The results would be much better if there were a more complete understanding as to what constitutes an early and suitable case. In too many instances sanatoriums are overloaded with advanced and even dying cases which ought to be dealt with in the special hospitals already referred to.

From the educational point of view, both as regards patients and the community, the sanatorium plays a highly important part. Patients learn how to treat themselves, and they leave the hospital apostles of the true faith, which thus gradually spreads throughout the land.

The immense economic value of working men's sanatoriums is best illustrated by facts relative to the system of compulsory insurance against sickness in Germany. Since the year 1897, such insurance societies have, in self-interest, maintained no fewer than 101,806 tuberculous patients at special establishments for a period amounting to 7,687,805 days at a cost of about £2,000,000 sterling. The insurance companies have spent £10,550,000 sterling in building sanatoriums. The percentage of patients who, five years after treatment, were still able to work, and did not require any allowance from their insurance fund amounted to 27, 31, 32, and 31 for the years 1897, 1898, 1899, and 1900 respectively.

Sanatorium Buildings.

As to sanatorium buildings, these need not—and should not—be expensive. As the result of prolonged experiment and thought on this matter, I am satisfied that the separate one-storied pavilion is the best type of building for the purpose. The Royal Victoria Hospital for Consumption Edinburgh, was designed by Messrs. Sydney Mitchell and Wilson, Edinburgh, to meet my views in the matter. After trial of those portions of the building which have been in existence for some years, I can most confidently recommend it as answering every purpose of a sanatorium perfectly.

Each pavilion is of winged form, the obtuse retreating angle being oriented, so as to face south-south-east. Each of the two wings constitutes a ward. The three outside walls of the wings consist largely of windows. Thus there is secured a maximum of air and sunlight. The pavilion is entered from behind. From the entrance passage a short projection northwards contains bathroom and lavatory accommodation. The intervening triangle between the wards and back passage serves as a nurses' room, where simple cooking or other special service may be arranged in the case of patients confined to bed. Opening off the passage also are two dressing-rooms for patients' clothes. No luggage or clothing of any kind is allowed in the wards proper.

Internally the wards conform in all respects to those of a modern isolation hospital as regards smooth surfaces, absence of angles, and unnecessary furniture. There are no steam or hot-water pipes in the pavilions. An open fire is provided. This is less for heating purposes than for the sake of a cheerful appearance and ventilation. There is no attempt made to keep the ward temperature at any fixed point. It is deliberately allowed to approximate to that of the outer air. Lighting is by electricity. The windows are of French form, opening outwards, with swinging fanlights above. These are kept open to the fullest, constantly, both day and night. Thus the patient when indoors is practically as if he were in the open air. The cubic space per bed has been kept about 12,000 cubic feet. In view of the entirely free access of air, that amount might be lessened. About 100 square feet of floor area are allowed per bed. As each patient commonly has a bath daily, the number of bathrooms is considerable, one bath being provided for every four patients.

The adjacent pavilions are some 40 ft. apart. Each pavilion contains accommodation for eight to twelve patients. The pavilion is raised on pillars some 3 ft. above the ground, so that air may circulate freely beneath. The building material is of brick. Verandahs and balconies have been avoided, as tending to interfere with the entrance of sunshine and passage of free air throughout the building. The winged form of building is serviceable, as its sides afford shelter to weakly patients who may be allowed to lie out in front. Hinged screens may be attached to the end of the buildings, so as to afford further shelter.

In addition to the pavilion proper, open shelters are distributed in large numbers throughout the grounds. These are occupied by the patients most of the day, and many of them are similarly occupied by night. In a public sanatorium stationary shelters are, on the whole, advisable, distributed round the periphery of the park, so that they can be more or less governed from a central point. Such shelters should be shallow—only of sufficient depth to accommodate the width of a bed—say 3 to 4 ft. The roof should slope from behind, forwards and upwards, to prevent accumulation of stagnant air. In addition, the roof should be provided with skylight or ventilator. The roof and sides should be largely of glass. The shelters are entirely open in front. During wet and more stormy weather waterproof screens, which are readily attachable, afford sufficient protection.

The sanatorium should be provided with reasonably extensive private grounds, so that walking and other exercises, including games and the like, may be enjoyed with comfort. The planting of trees is advisable, to break the force of the wind, to aid in drying of the soil, and to serve as dust catchers.

In addition to the patients who reside for longer periods in the sanatorium—that is, until an effective cure has been attained—a certain number of patients are received at the Royal Victoria Hospital for day treatment, returning home at night. Where the patient's home conditions are sufficiently good, this arrangement has been found to work well. Thereby the extent of the sanatorium's operations is much increased and the excessive demand for admission somewhat relieved. Such an extension can be readily made to any hospital without serious outlay. Extra shelters and the cost of board are the only added expenses.

In this connexion it is worthy of consideration by the city whether a portion of some of the public parks should not be more freely provided with suitable shelters, where patients, more particularly in the early stages, might practise rational treatment on their own account. There seems no reason, indeed, why a *special* park should not be devoted to this, with a central dining-room, where suitable meals might be provided at cheap rates for such affected citizens, who in this way would be enabled to practise open-air measures in the fullest sense without inconvenience.

The value of the sanatorium has been increased at the Royal Victoria Hospital by allowing certain patients to use shelters, or other accommodation, over night, while during the day the individual pursues some calling outside the hospital. This ensures the advantage of medical supervision without the economic loss involved in more formal detention in hospital.

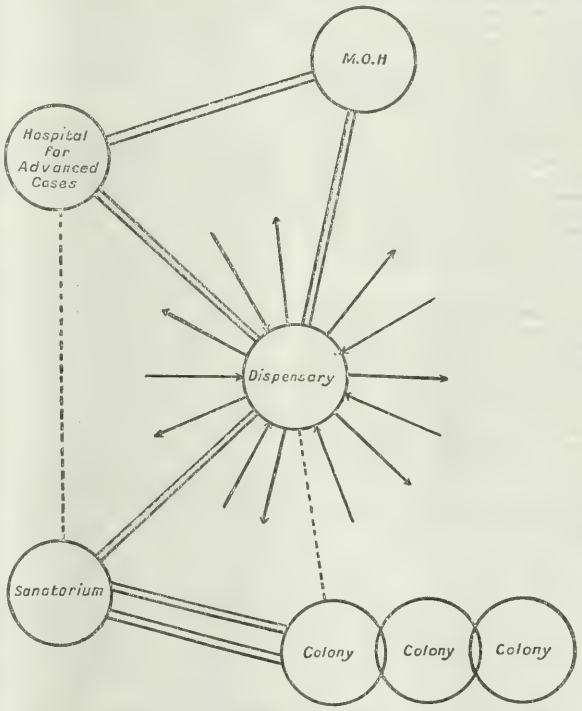
V. Tuberculosis Colonies.

The charge has sometimes been brought against sanatoriums that they tend to produce habits of indolence and idleness. I can conceive of conditions which justify the charge, but it is far from the truth in respect of properly-regulated sanatoriums. While sanatorium life is a life of treatment, it need not, and should not, be for the great proportion of patients an idle existence.

My idea of a sanatorium for the working class is that of a busy hive, where patients, subject to doctor's directions, contribute—some less, some more—by their own regulated efforts to the upkeep and beauty of the place—a kind of working colony. Thus, out of some 80 patients, presently under treatment at the Royal Victoria Hospital, approximately two-thirds do more or less to assist the institution. Of patients working an entire day there is a joiner, an engineer, a bath attendant, a laboratory assistant, two gardeners, and a groom and handy man. There is a regular corps of painters—some six or more patients—who work for a couple of hours in the morning and a like time in the afternoon. There is an infinite variety of minor engagements, such as raking, weeding, cleaning in various departments, and assisting in different branches of household work. In most instances the work, of whatever kind, is conducted outside. In the case of patients who work all day, suitable remuneration is afforded, in addition to their keep.

This is satisfactory so long as the patient remains in the sanatorium. But, as the time for his discharge approaches, a difficulty arises regarding the sort of life he should lead. Return to ordinary occupation is apt to be synonymous with relapse. It is on this account that, for many years, I have been endeavouring to create public interest in the establishment of working colonies for tuberculous patients in whom the disease has been arrested more or less completely.

After many inquiries I am satisfied that such colonies could be made practically self-supporting. The residents on the colony would be recruited by selection from patients whose disease had been successfully treated at the sanatorium. The reduplication of the double lines on the diagrammatic scheme (q.v.) emphasizes the close relationship which must exist between the colony and the sanatorium. The workers would remain at the colony under medical surveillance, and the character and amount of their work would be suitably gauged and directed. The produce of the colony resulting from the patients' labours would form an important supply for the sanatorium. Thus the two divisions of the scheme would work together conveniently and economically. Above all, a satisfactory solution of one of the ultimate difficulties in relation to the problem would be achieved.



Diagrammatic scheme showing relation of Public Health Department to anti-tuberculosis organization.

Co-ordination of Measures.

This rapid review of the Public Aspects of the Prevention of Consumption may, I fear, have overstepped the usual limit of introductory addresses to your Society. If it has exhausted your time, I trust it may not have exhausted your patience. The subject is an immense one, covering, as it does, the conception, elaboration, and adoption of suitable measures, not merely for the limitation, but for the final extinction of tuberculosis. It has been possible for me only to present a sketch of what appears to me the most effective plan of campaign. Let me add that, such as it is, it represents no hasty conception, nor does it rest on mere theory. It is the expression of convictions and opinions which have gradually taken shape while I have been occupied, close on twenty years, with the development of the various departments of the Royal Victoria Hospital and Dispensary for Consumption.

For the sufficient elaboration and maintenance of such a scheme it is impossible to trust entirely to individual effort or benevolent enterprise. It is essentially a matter for communities. If the issue be placed clearly before the citizens I am confident they will readily fall in with well-devised, comprehensive measures. It cannot be doubted that it is in the best interest of communities that sufficient measures should be undertaken, and the financial responsibilities involved must rest with the communities. The anti-tuberculosis organization should be more or less completely under the direction of the medical officer of health. It should form, however, a separate, well-defined department of public health activity.

The accompanying extension of the previous diagrammatic scheme illustrates the relationship which should exist between the medical officer of health and the organization.

The medical officer of health must be in close touch with the hospital for advanced cases and with the dispensary. By means of these two arms he will effect a vast deal in the direction of prevention. Where notification is in operation the significance of the relationship will be enhanced. His connexion with the sanatorium and the colony may be less direct. None the less he will find both these factors of service, even from the preventive point of view.

It has been my endeavour to indicate the leading features of each factor in a scheme of organized and co-ordinated operations against tuberculosis. It cannot be too strongly emphasized that the strength of such a scheme lies especially in its organization and co-ordination. Each factor is doubtless of value. Each department has its own sphere of operations. As isolated elements their possibilities are relatively limited. In proportion as the various departments are intimately connected and co-ordinated, they each become more serviceable. The key to complete success in the campaign against consumption lies in the harmonious co-ordination of well-directed measures.

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THE COMPARATIVE FREQUENCY OF IMPAIRED NASAL RESPIRATION AS AN ANTECEDENT TO PULMONARY AND TO EXTRA-PULMONARY TUBERCULOSIS.

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In the British Medical Journal of date June 16th, 1906, endeavour is made to show quantitative or qualitative impairment of nasal respiration in the light of a common predisposing cause of pulmonary phthisis, two reasons being advanced in support of this contention:—

1. The condition in question presented itself nearly twice as frequently amongst some male phthisical cases as in a series of non-tuberculous men, comparable in respect of age and of occupation and social condition.

2. That whereas several causes of nasal and of naso-pharyngeal abnormality are known to be hereditary, a family history of pulmonary phthisis* was found to be much more frequently given (except amongst those of very poor physique) by the subjects of impaired nasal respiration than by others; and this held good of non-tuberculous as well as of phthisical males.

It was concluded, in short, that the initial channel of infection in pulmonary tubercle was, in a good number of instances, almost certainly respiratory. In order to institute a comparison of pulmonary tubercle with extrapulmonary in this respect, the following cases were collected from the wards of the Royal Sea-Bathing Hospital, Margate, and of Charing Cross Hospital, through the courtesy of Dr. B. E. Moss and others. The cases comprised bone, joint, and gland affections and lupus.

It was thought best, in order to approximate as closely as possible to the age of infection, to record in each case the age at which symptoms became apparent—roughly, that is, when the disease became clinically evident. The extrapulmonary tuberculous cases (taken first) were thus grouped according to age of onset of disease, and also according to sex. Cases of pulmonary tubercle, from a series gathered at English public sanatoriums, were then picked (in rotation and without further selection), conformable to the first set in both these respects. Each series, then, had the following age and sex distribution:—

Table I.—*Distribution, as regards Sex and Age of Onset of Disease, of Two Series of Tuberculous Cases, Pulmonary and Extrapulmonary.*

Age Group.	Men.	Women.
Years.		
11—13	2	2
14—16	10	6
17—19	7	4
20—22	3	4
23—25	0	3
26—28	3	0
29—31	0	1
32—34	2	1
35—37	1	0
38—40	1	0
Totals	29	21

It is to be regretted that so few cases were available, by reason, of course, of the fact that the common age of onset of extrapulmonary is so much lower than that of other tubercle. There was no obstacle to getting many cases of the former in children, but it would have been very difficult to find a like number of juvenile cases of pulmonary phthisis.

* Infection was approximately excluded.

The result of the comparison may be presented as follows:—

Table II.—*Comparative Frequency of Impaired Nasal Respiration as an Antecedent to Pulmonary and to Extra-pulmonary Tuberculosis.*

Causes of Impaired Nasal Respiration.	Men.		Women.	
	E.P.T. 29 cases.	P.T. 29 cases.	E.P.T. 21 cases.	P.T. 21 cases.
The commoner causes of anterior nasal obstruction	5	6	1	4
Probably as a result of posterior nasal obstruction or its sequelae, or contributed to by an overhung condition, or by projecting teeth ...	3	7	3	4
From clinically prominent catarrhal conditions	0	3	0	2
From other causes (trauma, habit, and uncertain) ...	1	1	2	0
Totals	9	17	6	10

Thus, in 50 (29+21) cases of extrapulmonary tubercle, there were 15 (9+6) cases showing impaired nasal respiration, a percentage of 30: while in the same number of pulmonary tuberculous cases there were 27 (17+10), a percentage of 54.

Now, these figures come very close to some previously found. In the communication already alluded to, in the course of a comparison of phthisical with non-tuberculous males, the percentages of the subjects of impaired nasal respiration were found to be respectively 56.7 and 30.8, and these proportions were found to be inherent fairly uniformly in each 40 or 50 cases examined. Thus it would not seem to be likely (one writes with a lively sense of the paucity of the cases here brought forward) that mouth-breathing and "qualitative" impairment of nasal respiration are commoner in cases of extra-pulmonary tuberculosis than in healthy people, who constituted the great majority of the non-tuberculous males in question. It is concluded that there may exist, as between pulmonary and extrapulmonary tuberculosis, the following etiological point of differentiation—namely, that a certain mode of infection, a prerequisite of which is some abnormality of the upper respiratory tract, obtains more frequently in pulmonary than in extrapulmonary tubercle; and that perhaps, in the latter, it obtains very rarely or never. As to the exact route of invasion, it must be remembered that there exists a body of French and German evidence fairly conclusive as against direct respiratory infection of lung tissue. Conformably with the theory of intestinal origin, the common way in which the subject of impaired nasal respiration gets infected would seem to be by deposits left by unfiltered air in the mouth or nasopharynx or oropharynx reaching the alimentary tract. The anatomical relations of Waldeyer's ring and the mucous membranes to the lymphatic system may also be invoked.

It only remains to suggest again the importance (as a wide and almost untouched field of prophylaxis and treatment of pulmonary phthisis) of the securing, by medical and other means, of normal nasal respiration, notably, as regards prophylaxis, among school children and among recruits.

THE TREATMENT OF PHTHISIS BY SANATORIUM METHODS.

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At a time when the usefulness of sanatorium treatment has been called in question, the following brief description of one of many successful cases under my own supervision will be of interest. Sufficient time has elapsed to justify one in classing the patient amongst the cured.

Alfred B., single, aged 31, was received into the Sanatorium on February 25th, 1903. His father had died of phthisis; pre-

vious health good, excepting one week in bed with "inflammation of the kidneys."

His present illness began about eleven months before with a "cold" attended by cough and expectoration and occasional vomiting. These symptoms remained in evidence until August, 1902, from which time until January, 1903, there was some remission of the symptoms and apparent improvement. In the latter month the symptoms became again more pronounced; vomiting was more frequent, and cough and expectoration were much increased; night sweating and slight haemoptysis began; diarrhoea, at times frequent and severe.

State on Admission.—These symptoms were all markedly present on admission to the Sanatorium, and signs of consolidation were conspicuous, extending over an area representing the upper and middle lobes of the right lung, front and back. Patient very anaemic, weak, and short of breath; weight, 8 st. 2 lb.; tubercle bacilli present in sputum.

Treatment.—The patient was kept in bed for a month, carefully dieted, and received special nursing attention. He then began to sit up, at first for a few moments daily, which were gradually increased in number. At the beginning of the fifth week he was visited by a relative, the result being a rise of temperature to 102° F. (the previous day the temperature had not risen above 100° F.). In seven weeks he had entered upon the exercise stage, at first only ten minutes being allowed.

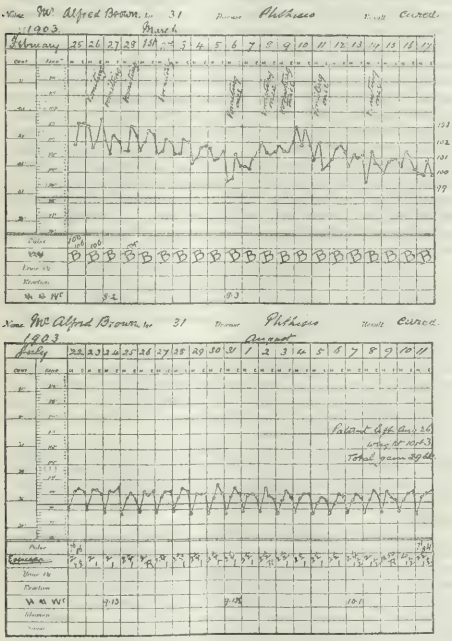
Chart I shows the course of the temperature at four stated periods of the day during the first three weeks of treatment.

Chart II relates to three weeks approaching the end of the period of treatment. Total duration of treatment, 26 weeks.

Points of Interest.

1st Chart: (*a*) The height of temperature in comparison with the comparatively small daily variation. (*b*) The maintenance of the latter characteristics, accompanied by the gradual subsidence of the "mean" temperature. (*c*) The steady increase in weight in spite of vomiting.

Over six weeks elapsed before the temperature was normal at any time of the day.



2nd Chart (approaching the end of the period of treatment): (*a*) The strongly marked contrast when compared with the first three weeks of treatment. This contrast becomes even more noticeable when the chart is subjected to a careful scrutiny. (*b*) The *second* temperature (taken per rectum directly after exercise) is seldom over 99°, though the exercise (hill climbing) varies between 2 and 2½ hours; in fifteen instances it is 99° or below, and in *two* of these it is 98.4°. The total gain in weight was 29 lb., and the physical signs were indicative of complete arrest of disease.

Other points of interest will occur to those exclusively devoted to sanatorium work. I have selected a few of the most striking.

The patient is now (three years afterwards) perfectly well, and is following his ordinary duties. I have seen him recently, and he is the picture of health.

The rise in temperature from a maximum of 100° to 102° after the reception of a visitor is suggestive.

A CASE OF HAEMOPTYSIS,

WITH NUMEROUS SPIROCHAETES IN THE SPUTUM.

By C. W. BRANCH, M.B., C.M.,

KINGSTOWN, ST. VINCENT.

The following are the notes of the case:

T. S., male, aged 30, black. Admitted to hospital on July 28th, 1906, in the evening, with profuse haemoptysis and a temperature of 105° F., having been picked up by the police in the street. Stated that he had been ill only four days with slight haemoptysis and cough, and that he had the severe haemorrhage while trying to reach a doctor. Insisted that he had been quite well previously. Was not emaciated. One leg is terribly deformed by an unset fracture of the femur dating from childhood. There are scars of tertiaries on both legs. Examination of the chest gave evidence of a cavity below the right clavicle in which were coarse râles. Dullness and fine crepitations extended over the lower part of this lung. At the first examination of the sputum no tubercle bacilli were seen, but numerous spirochaetes which stained with methyl blue. No ova of parasites were found in the fresh sputum. The blood contained malarial parasites.

The patient continued to have attacks of haemoptysis, in two of which he was nearly asphyxiated by the tough, tenacious sputum and clots. He had to be turned over and his head allowed to hang over the side of the bed to relieve him. The temperature rose every evening, but never dropped to normal.

He was treated at first with ergot and hazeline, with occasional doses of adrenalin; later with hazeline and inhalations of amyl nitrite. The last-named seemed to have the best effect in checking the haemorrhage. He was given some quinine whenever there was a chance. He died on August 8th, 1906.

On *post-mortem* examination an old cavity of disintegrating indurated tissue was found in the upper lobe of the right lung, full of blood clot. There were tubercles throughout the lung. The lower lobe showed profuse miliary tubercles. Under the sternum was seen a point of bloody pus. The spleen presented two fibrous scars and a small abscess adherent to the abdominal wall.

Smears from the pus under the sternum and the spleen abscess stained with Giemsa showed no spirochaetes nor other organisms. In the blood from the cavity and in the bloody mucus from a small bronchus of the base no spirochaetes were found. Squash preparations of tuberculous tissue from apex and base showed tubercle bacilli, but no spirochaetes. Smears of the sputum taken before death were again examined, and tubercle bacilli were found.

Other films of the sputum were stained with Giemsa, Romanowsky, carbol fuchsin, and acetone gentian violet (McLennan's formula); all show the same spirochaetes, which were best prepared by the Giemsa. This sputum was dark brown, bloody, and very tenacious.

The spirochaetes were of two distinct types. One stout, strongly stained, and usually of regular waviness; ends tapering, rarely blunt. The other more delicate, with much closer curves, not usually so regular, though straighter and stiffer than the first. The former is apparently *Spirochaeta refringens:* the latter is rather stouter than *Spirochaeta pallida*, the curves rather wider, and it stains with ordinary aniline stains in a few minutes.

To compare the curves of spirochaetes I suggest the use of a ratio—the length in microns divided by the number of curves. Thus, $\frac{10.5}{6}$ and $\frac{9.2}{8}$ represent respectively individuals of the two types above described. By dividing out we get the average curve-length in microns. After measuring forty spirochaetes I found their curve-lengths fell almost entirely within two groups—the first between 1.6 and 1.8 microns, with the length 1.7 occurring most frequently; the second between 1.0 and 1.3 microns, with a great preponderance of the number 1.15. I found that 37 per cent. of the spirochaetes fell into the first group, and 35 per cent. into the second. There were 22 per cent. of all the spirochaetes with a curve-length of exactly 1.15 microns. The curve-length of *Spirochaeta pallida* seemed to be about 1 micron. This smaller spirochaete is, therefore,

almost indistinguishable to the eye from *Spirochaeta pallida*.

Some of the spirochaetes were limp and irregular, and others were mere ghosts of dead spirochaetes. Most, however, were crisp and well stained with Giemsa.

Dr. A. Castellani has reported (*Lancet*, May 19th, 1906) two cases of haemoptysis in which he found spirochaetes of various types, which stained with ordinary aniline dyes. In both these he failed to find tubercle or other cause for the haemorrhage. He speaks of the condition as a haemorrhagic bronchitis.

In my case it is to be noted that I failed to find the spirochaetes in the lung tissue, in the cavity, and in the mucus of a small bronchus. From their position and associations in the sputum, as well as their numbers, it is impossible that they were derived from the mouth. But, at the same time, they were distributed very irregularly in the sputum, none at all being found in some smears.

In ulcers I have found *Spirochaeta refringens* and another almost straight spirochaete to be associated with a peculiar glairy mucoid secretion. The tenacity of the sputum in my case was quite remarkable.

While my observations, therefore, do not tend to prove anything but a saprophytic existence of the spirochaetes in the large bronchi, yet it is possible that their presence is connected causatively with the viscid character of the sputum. And the cases of Castellani make it very probable that some spirochaetes do have an effect on the bronchial mucous membrane.

THE TREATMENT OF CHRONIC CONSTIPATION.*

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At the present stage of evolution, the human subject is in a most unfortunate position. Man has adopted a vertical attitude, while his internal viscera are still arranged for a horizontal one. He is thus at a great disadvantage for the regular performance of some of the animal functions.

Modern civilization has also so altered the character and methods of preparation of his food, that he now finds himself with an internal mechanism which has to perform duties for which it is not yet properly adapted.

Man is burdened with some feet of large intestine, a remnant which is probably not only more or less useless, but to which the origin of many of the ills to which flesh is subject can be traced. In this large bowel the excreta from the foodstuffs are apt to collect or to remain much longer than is desirable; this is designated constipation. In dealing successfully with cases of this condition, it is first necessary to ascertain which part of the digestive apparatus is primarily at fault. Having ascertained the cause, the treatment of chronic constipation should be mainly directed to the regulation of the habits and diet of the individual, aided by suitable internal medication, rather than by the perpetual drugging or artificial stimulation of an already partly worn out or enfeebled mucous membrane.

The large majority of people at the present day eat much more, and far oftener, than the demands of the animal economy require. Not only this, but the diet is frequently of an ill-chosen assortment of soft bodies, which modern civilization endeavours to present in as palatable a form as possible. Moreover, present-day culinary processes remove all the hard bodies which would, by their mechanical irritation, stimulate peristalsis. As the result of a long-continued over-burdening of the digestive organs, first weakness and then atony of the muscular walls ensue. After a varying period of so-called sluggishness of the bowels constipation to a varying degree comes on.

For the treatment of this condition regular habits as to time should be insisted on. The patient should attempt evacuation at the same hour each day; as a rule, directly after the first meal, as, after the recumbent position of the body during the night, the contents of the ascending colon (not having had to contend with the forces of gravity as during the hours of the day with the body in the vertical position) have the more readily been passed on into the lower bowel. Again, the partaking of the first food, especially if suitably chosen, has a stimulating effect on the peristalsis, which tends to become exhausted as the day goes on.

In order to take full advantage of the recumbent position, so that the force of gravity should have full play, it is desirable to get patients to sleep on their left side, so that the contents of the transverse colon can be gravitated onwards into the descending colon, and also to prevent the ascending colon (often in such cases practically a distended cesspool) from becoming the most dependent part during the hours when the body is in the recumbent position, and so endeavouring to prevent the excretions collecting in this region.

The active treatment of constipation may be divided into two classes—external and internal.

I. The external, or what is now called physical therapeutics, is of great importance if permanent good is to be obtained. This treatment should be directed to muscular exercise, both active and passive. The former should be encouraged by way of all forms of bodily movements, especially as in cycling, rowing, and climbing (mountaineering), but also in walking, and all active outdoor games and sports.

If desirable, certain definite movements of the trunk and limbs may be prescribed, with or without the addition of resistance. The latter, or passive exercise, should be by way of massage, possibly general, but especially local to the walls of the abdomen. Abdominal massage should be firmly performed for manipulation of the superficial abdominal muscles and subcutaneous tissues, but very lightly performed over and in the direction of the natural peristalsis of the large intestine—commencing in the right inguinal region upwards to the hepatic flexure, then across the transverse colon to the splenic flexure, and downwards along the descending colon to the left inguinal region. A most important point to be remembered in connexion with this subject is that in most cases of old-standing constipation the position of the various parts of the colon is entirely changed, and parts, especially of the ascending and transverse colon, may be much out of the normal regions. Massage of the abdomen should always be very carefully performed, and chiefly with the object of improving the condition of the abdominal muscles, rather than for any direct mechanical effect upon the contents of the bowels. In no case should massage or kneading be prescribed with the idea of breaking up faecal accumulation, as in this way grave injury might be done.

In addition to manual massage, great help may be obtained by the use of the vibrator, especially if worked by electricity, as this can be so finely adjusted to meet the individual case. So also "succussion" may in some selected cases be practised.

Combined with the various forms of massage, electricity in its numerous modern applications is most useful, not only in producing peristalsis during its application, but especially in its after tonic effect on the muscular walls of the intestines, in addition to those of the abdominal parietes.

The aim of the electrical treatment should be threefold: To improve the tone of the innervation to the intestinal walls, to restore tone to the involuntary muscle fibre of the gut, and to strengthen the external abdominal muscles.

The ordinary constant current, applied to the different regions of the abdominal wall for a few minutes daily, has long been recognised as of great value. To get the full benefit from this in certain selected cases it is desirable to insert one pole into the rectum. More recently the high frequency currents have become popular, on account of their general tonic effect, in addition to their local action.

II. Internal treatment may be subdivided into three divisions—diet, drugs, and enemata.

A. Diet should be considered the most important, and no case can be satisfactorily treated unless the condition of constipation is considerably improved, if not cured, by the supervision of the foodstuffs. Patients must avoid (1) bodies containing astringents in any form, such as tannin, found in most teas as generally infused, and also in red wines, especially Burgundy; (2) bodies which are deficient in cellulose, such as potatoes, rice, sago, tapioca; (3) milk; and (4) last, but not least, hard water—that is, water containing lime salts;

* Paper read before a meeting of the St. Pancras and Islington Division.

this should be avoided not only for drinking, but also for all cooking purposes.

On the other hand, these patients should consume plenty of bodies containing abundance of (1) *cellulose*, such as cabbage, spinach, asparagus, carrots, onions, leeks, garlic, rye, oats and bran, either in bread or biscuits; (2) those containing *sugars* and aperient salines, such as apples (raw or baked), rhubarb, prunes, figs, treacle (the old-fashioned black or molasses), honey, and orange marmalade; (3) some bodies which stimulate the hepatic secretions, as salads; and (4) bodies rich in fats—butter, fat meats, etc.

The quantity of liquids taken should also be regulated. Many subjects troubled with constipation do not take nearly enough fluids in the course of the twenty-four hours, and an extra pint or two of plain water, with a lump of sugar if agreeable, hot or cold according to season of the year or individual taste, should be given, especially as far as possible on an empty stomach, the last thing at night or the first thing in the morning, or both night and morning.

B. Drugs. At the commencement of systematic treatment some medicines are important to make a good start, especially in getting rid of any old-standing accumulation, but the object should be to diminish and in time do away with these altogether as a routine treatment.

In deciding on the question of drugs, the following different therapeutic actions must be taken into consideration, which for practical convenience may be divided as follows:

1. Laxative: Such as aloin, aloes, cascara, rhubarb, senna, castor oil.

2. (*a*) Secretion stimulants: Salines, such as natural aperient waters (Apenta, Condal, Hunyadi, Rubinat), chloride of ammonium, sulphate of soda, and sulphate of magnesium. (*b*) Hepatic stimulants: Aloes, sulphate of soda, colocynth, jalap, rhubarb, podophyllin, ipecacuanha. (*c*) Chologogue: Calomel, blue pill, grey powder.

3. Peristalsis excitants: Strychnine and nux vomica.

4. Spasm relievers: Belladonna, bromides, valerian, and asafoetida.

5. Nerve tonics: Zinc valerianate, arsenic, silver nitrate, glycophosphate of soda.

As to a choice in the multitude of drugs, old and new, probably many of the old-fashioned, such as calomel, rhubarb, magnesia, and senna, in various combinations are the most valuable, or rather, perhaps, are the least deleterious; but it is not every patient who will nowadays take a medicine which is not palatable or convenient, and so we have to resort to various tricks of the pharmaceutical trade to obtain the desired result. It is always very important not to allow patients to take the same form of aperient medicine for too long a period, and generally desirable to let them have more than one variety to be taken on alternate days. At the time of prescribing an aperient medicine or pill, it is necessary to add to it some drug which will have a tonic effect on the walls of the digestive apparatus, in addition to the simple aperient action. Valuable drugs of this nature are belladonna or strychnine, which in combination with aloin or ext. aloes, calomel, or cascara, not omitting a little resin as a valuable adjunct, will make a reliable pill. After a time the dose of the aperient drug should be decreased and the quantity of the tonic one increased. A very successful method in many cases of chronic constipation, especially in anaemic subjects, both young and old, is to prescribe a pill containing the dried sulphate of iron, with aloin, and possibly at first a small quantity of extract of aloes, two or three times a day after food. In the course of a few days the quantity of iron should be increased and of the aloes decreased, till a pill containing iron alone is found to be sufficient, and this should be continued for a long period, modified from time to time, according to circumstances. It is often better to commence by giving a milder aperient pill night and morning rather than a stronger one at night only, and from time to time to order a saline, or one of the natural aperient waters, to be taken the first thing in the morning. Saline waters in some cases will be sufficient by themselves, but in very obstinate ones they often only produce discomfort with watery evacuations, leaving large quantities of solid material behind. Of the natural aperient waters, those with a preponderance of salts of the sulphate of soda over magnesia are probably the best to prescribe in most cases, as being less irritating to the mucous membrane.

C. Enemata. Great assistance, especially in removing recent or even old-standing accumulations in the large intestine, can be obtained by the judicious administration of an enema. In some cases injection of warm water and soapsuds acts well; if necessary, the addition of olive or castor oil or turpentine will greatly assist the result.

It is, especially in old-standing cases of constipation with accumulations, most important that the enemata are given with the patient in the knee-elbow position, or, if on the back, with the buttocks well elevated on pillows, and the foot of the bed raised on blocks. In some cases it may be desirable to shift the position of the patient to one side or the other according to the part of the bowel it is necessary to get the fluid to flow into by gravitation. By carefully regulating the position and elevation of the patient, it is often possible to inject large quantities of water high up as far as the caecum. In some cases a long, soft tube may be found advantageous over a short one, but this requires considerable skill in passing up satisfactorily.

The temperature of the fluid injected should be as nearly as possible the same temperature as the body if we wish it to be retained for any time, and should be injected by a continuous stream from a suspended irrigator, and not in an interrupted one forced in by a bell-pump syringe.

If cases of old-standing, hard, dry, faecal accumulation are being dealt with, much assistance will be obtained by injecting a few ounces of olive oil, and leaving this in for some hours before the bowel is washed out; by this means the hard, dry masses will be softened.

If it is only necessary to excite the rectum, injection of a drachm or two of glycerine or the insertion of a glycerine suppository is very efficacious.

In most cases after giving aperient remedies by the mouth for a few days, and having excited the upper region of the digestive apparatus into more vigorous action, an occasional simple enema greatly assists the treatment in the earlier stages.

In many cases of simple constipation, the injection of a drachm or two of olive oil into the rectum at bedtime will produce a satisfactory evacuation the following morning.

THE USE OF DIGITALIS IN VALVULAR DISEASE OF THE HEART.

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The efficacy of digitalis in cases of aortic insufficiency and of some other forms of valvular disease has long been a matter of controversy. It has been pointed out, and no doubt with reason, that the discrepancy in the remedial effects of digitalis in cases of valvular disease is based on practical as opposed to theoretical considerations.

I have elsewhere[1] endeavoured to show, and it seems hardly possible to resist the conclusion, that the primary and essential feature in the production of dilatation and failure of the heart is a decrease, either absolute or relative, of the cardiac tonus.

The influence exerted by digitalis and its allies on the cardio-vascular system may be briefly stated to be a persistent and well-marked increase in the tonic contraction of the muscular tissue of the heart and arterioles whereby (that is, on mechanical and dynamical grounds apart from neuro-muscular and other considerations) the action of the central organ is rendered more deliberate and at the same time more powerful and effective. I wish more particularly to draw attention to the fact that digitalis increases *the cardiac tonus* in a very remarkable manner, and, although the tonus of the systemic arterioles and capillaries is simultaneously augmented, the balance of advantage, provided the cardiac parietes remain healthy, must always be with the heart, and this is more especially the case when the organ has undergone hypertrophy.

In aortic incompetence the left ventricle has to withstand during its diastole the distending effects of the regurgitant blood stream under the pressure of the arterial recoil. The total intraventricular pressure during diastole on a unit of surface is the resultant of the respective pres-

sures which prevail at the aortic and mitral orifices, and is of course enormously in excess of the normal. The magnitude of the pressure that is exerted by the arterial recoil is more readily appreciated under experimental conditions, for it has been shown in animals that if the aortic valve be suddenly rendered incompetent the aortic pressure is sufficient to produce aneurysm, or even rupture of the wall of the unprepared heart.

The strain imposed on the wall of the ventricle under the conditions ordinarily connected with the incidence of aortic incompetence comes into operation gradually, and its magnitude is ultimately determined by the extent of the lesion and the state of the arterial blood pressure, but in any event it constitutes the chief source of overwork which has to be performed by the heart. It is of course obvious that the resistance to progressive and unlimited diastolic distension of the left ventricle in aortic regurgitation must be and is provided by an increase of the tension of the muscle fibres of the ventricular wall, and this is initiated and regulated by the cardiac tonus. Did the regurgitant stream distend the ventricle "while it is relaxed and defenceless in diastole," as is so often stated, there would be little further to say about aortic incompetence. Fortunately, the heart is enabled to fall back on a second line of defence—to wit, the cardiac tonus, which, assuming valvular functions, staves off unlimited dilatation and maintains more or less adequately the systemic blood pressure. Dilatation would quickly get the upper hand of hypertrophy at the outset were it not that the ventricle falls back on its reserve power, which temporarily wards off the distending effect of the lesion. This increased display of functional activity leads, under favourable nutritional conditions, to hypertrophy, which restores and maintains the tonus of the ventricular wall up to the level of the requirements that are demanded by the increase of intraventricular pressure. There is no doubt a further cause for hypertrophy in that the ventricle has to propel a greater quantity of blood at each systole; but this factor must be unimportant compared with the task of maintaining the tonus of the cardiac wall.

From a theoretical standpoint the action of digitalis would appear at first sight to afford promise of considerable assistance in the treatment of aortic insufficiency; but a very little consideration is sufficient to banish this expectation.

In uncomplicated aortic incompetence, under the most favourable conditions of established compensation, the left ventricle is working in the face of diminished reserve power, and, consequently, of a lessened margin of safety. The exhibition of digitalis would no doubt augment the tonus of the ventricular wall, but concurrently the tonus of the peripheral vessels is heightened and the length of the diastole is increased. Provided the cardiac parietes were sound, and so long as the conditions of the circulation were fairly equable, the balance of advantage would doubtless rest with the heart; but the introduction of any further strain, in the shape of nervous or physical exertion and so forth, might seriously imperil or even overcome the integrity and resistance of the ventricular walls. The concomitant presence of mitral incompetence would sensibly diminish the risk of a cardiac breakdown, by enabling the distressed ventricle to discharge part at least of its contents along the path of lesser resistance provided by the imperfectly closed auriculo-ventricular opening. The administration of digitalis is absolutely contraindicated by the presence of degeneration or disease of the ventricular wall.

On the other hand, it is readily conceivable that in the course of aortic incompetence a comparatively sound ventricular wall may be temporarily overpowered by exposure to inordinate extraneous strain, such as may be entailed, for instance, by undue physical exertion, intercurrent disease, and so forth; under circumstances of this kind digitalis should be invaluable for the purpose of restoring the vigour of the heart. The simultaneous action of the drug on the right side of the heart is not without influence in the restoration of compensation; but the consideration of the operation of this factor, which is not altogether favourable in aortic disease, will be discussed under the head of mitral incompetence.

In practice, then, it may be inferred that digitalis should seldom, if ever, be given in cases of aortic regurgitation which have developed during or after middle life, since the ventricular wall is seldom perfectly sound under these circumstances; and never in cases which give evidence of myocardial degeneration or disease. If complete rest is obtained, digitalis is permissible and beneficial up to a certain point in young, otherwise healthy adults showing signs of circulatory failure, more especially when the aortic lesion is combined with mitral incompetence. The drug should be discontinued for some time before exercise is resumed, and for reasons which I have already advanced this rule should be rigidly observed. Neglect of this precaution might be followed by rapid failure of the ventricle and sudden death.

Theoretical considerations, then, suggest that the utility of digitalis in aortic incompetence is strictly limited. It may be accepted as a good working rule that digitalis is beneficial in cases of aortic incompetence proportionally to the magnitude of the stress which has led to failure of the heart, and *vice versâ*. These conclusions are, I believe, in accord with sound medical practice.

The problem connected with the administration of digitalis in aortic stenosis presents very little difficulty. In this lesion an augmentation of the tonus of the heart and peripheral vessels could but increase the work with which the left ventricle has to contend. Failure of the heart and the establishment of mitral incompetence may arise in the course of the disease, and, provided this result is due to extraneous stress and not to myocardial degeneration, digitalis would assist in the restoration of the cardiac tonus and the re-establishment of the systemic circulation. Digitalis, therefore, is contraindicated in aortic stenosis apart from the occurrence of cardiac failure. Practical experience endorses these conclusions with respect to the use of digitalis in aortic stenosis.

In mitral incompetence all observers bear testimony to the beneficial results invariably obtained from the administration of digitalis. The theoretical explanation of the efficacy of digitalis in mitral incompetence is of considerable interest. On the left side of the heart, a rise of cardiac tonus resists the overfilling of the ventricle, which is the initial effect of the valvular insufficiency: while subsequent hypertrophy maintains the tonus of the ventricle and promotes the expulsion of its increased content. On the right side of the heart, a rise of tonus and consequential hypertrophy enable the right ventricle to cope with the increased resistance in the pulmonic circuit, and, by maintaining the blood pressure in the pulmonary veins and left auricle, it resists the reflux through the mitral opening and ensures an adequate supply of blood to the left side of the heart. Under the most perfect conditions of compensation in mitral incompetence there must always be a sort of see-saw relation with respect to the pressures that are kept up between the right and left sides of the heart through the pulmonic circuit, so that the supply of blood to the left ventricle and hence to the systemic circulation is liable to considerable variation. A rise of tonus in the arterioles and capillaries would no doubt greatly minimize the disturbance in the systemic circulation due to this cause, though the increased resistance to the discharge of the ventricular contents would augment the reflux through the mitral opening. It will, therefore, appear that the action of digitalis in mitral incompetence is almost wholly beneficial, and this is found to be the case in practice.

Mitral stenosis offers a striking contribution to the value of theoretical considerations in the matter under discussion. In uncomplicated examples of this lesion the supply of blood to the systemic circulation tends to become increasingly restricted. A rise in the tonus of the left ventricle and peripheral vessels would still further diminish the charge of blood delivered to the aorta. No doubt the effect of increased cardiac tonus on the right side of the heart would be of benefit provided the blood supply to the left ventricle could be thereby augmented. It may be inferred, therefore, that digitalis can be of no benefit to mitral stenosis in the absence of failure of the right ventricle, and in this event, so soon as the pulmonary blood pressure has been raised to the point at which the maximum charge of blood is delivered to the left ventricle, the drug would again act prejudicially. Clinical experience lends support to the employment of digitalis in mitral stenosis along the lines indicated by theoretical considerations.

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SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF PATHOLOGY.

Professor J. G. Adami, M.D., F.R.S., President.

A CONSIDERATION OF THE POISONS OF AMANITA PHALLOIDES.

By W. W. Ford, M.D.,
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It has previously been shown that aqueous extracts of the poisonous fungus, *Amanita phalloides*, possess profound toxicity for experimental animals, and that by the gradual introduction of subiethal doses it is possible to produce in susceptible species an immunity sufficiently high for them to withstand the introduction of several multiples of a fatal dose, while their blood serum completely neutralizes extracts of the fungus for other animals, and *in vitro*. This fungus, known usually as the *white* or the *deadly* amanita is a powerful poison, there being well over 300 fatalities from its consumption recorded in medical literature.

In view of the fact, therefore, that antibodies can be prepared which completely neutralize the poisons of this fungus, it becomes necessary to study more carefully its constituents with the primary object of making an efficient practical antitoxin, but with the additional interest which attaches to all toxins for which antibodies can be made.

Several months ago I succeeded in interesting Professor Abel, of the Johns Hopkins Medical School, in the chemical study of the fungus, and assisted him in carrying out a number of analyses. It is with his permission that I report briefly the main results of this chemical work, while at the same time I wish to include in this paper several observations which I have recently made at the Marine Biological Laboratory at Wood's Hole, where I had the opportunity of studying a number of fungi in their bush state.

The earlier chemical work upon the deadly amanita—including that of Lehltur and Speneux, Boudier, and Oré—are mainly of historical interest, since the names "amanthin," "bulbosin," and "phalloidin" have crept widely into the literature. The entire matter was in a chaotic state until Koberts in 1891 discovered that aqueous and saline extracts of the deadly amanita were powerfully haemolytic, dissolving a variety of corpuscles in great dilution. Ox corpuscles were dissolved, for instance, in a dilution of 1 in 125,000 of the dried material. Kobert showed that this haemolytic subtance in solution was destroyed by heating to 20°, by digestion with pepsin and pancreatin, and was precipitated by several well-known proteid precipitants. From these facts, and from the resemblance of this material to *Spinnengift*, a haemolytic body found in spiders, which Kobert had previously concluded was proteid in character, he was led to assert that the active principle of *Amanita phalloides* is a toxalbumin, to which the name "phallin" was given. The blood-laking action of phallin was considered by Kobert in his first communication as sufficient to explain the lesions found in man, and in his earlier papers he maintained that phallin was the sole toxic constituent of this fungus.

While this early work of Kobert has been universally quoted as clearing up the toxicology of *Amanita phalloides* poisoning, it should be noted that such authorities as Bourquelot in France and Kunkel in Germany were never convinced of the correctness of Kobert's assertions, the former from the fact that cooking the fungi does not destroy their toxicity, as would be the case if phallin were the sole substance present, since this is destroyed at 70° C.; the latter from certain experiments made by Seibert in his laboratory. This student of Kunkel was unable to demonstrate any haemolytic substance in *Amanita citrina*—a variety of *Amanita phalloides*—although his extracts were definitely toxic.

Some two years ago, while studying the action of aqueous extracts of *Amanita phalloides* upon animals with a view to establishing a dosage for their immunization, it was at once apparent that the course of the experimental intoxications and the lesions found at the autopsy could by no means be explained on the basis of Kobert's conclusions. Heating extracts of the fungus to 70° and to 80°—thus destroying their haemolytic properties—and digesting them with pepsin and pancreatin, left behind a highly toxic substance which killed animals quite as quickly as the whole extracts. The pathological picture here found differed profoundly from that found after injection of the crude material, no subcutaneous oedema, no haemoglobinuria, and no pigmentation of the spleen being present. On the basis of these experiments, I described, under the name of "amanita toxin," a second poison in the deadly amanita, and it was only within a short time that I learned of a later communication of Kobert on the subject.

In this second paper Kobert states that in addition to the toxalbumin phallin, the fungus contains an alkaloid which is possibly the substance I later described as "amanita toxin." This substance is highly toxic to all experimental animals, and is quite devoid of haemolytic properties.

Kobert has recently published the second edition of his *Textbook*, and I am informed that in this edition he states that there is present in this fungus a third toxic substance in addition to a toxalbumin and an alkaloid.

The fungi employed in this chemical work were collected in the Blue Ridge Mountains of Pennsylvania, and were identified as *Amanita phalloides* in the fresh state. After drying, they were ground to a fine powder, soaked twenty-four hours in water, the juice then being expressed through heavy cotton cloth. This juice was then filtered through filter paper several times, and finally passed through a Berkefeld candle. When prepared from the dried fungi this extract is dark brown in colour, with an odour resembling that of the fresh plant. Several hundred cubic centimetres of this material were evaporated to a small bulk under diminishing pressure at 35° C., and to this material, usually measuring 50 to 60 c.cm., absolute alcohol was added. An abundant precipitate was formed, which was found to contain the haemolysin, and which would as well contain the proteid material present in the fungus. The clear filtrate contained the amanita toxin.

Both fractions, when freed from alcohol and redissolved in water, were toxic to small animals, the haemolysin by the production of a chronic intoxication in which subcutaneous oedema, pigmentation of the spleen, and haemoglobinuria were the most marked lesions, the toxin killing acutely, usually in 24 to 48 hours, with no well-marked lesions *post mortem* except possibly degenerative changes in the parenchymatous organs. The haemolysin could be still further purified by the use of Columbian spirits or by the pure methyl alcohol. From this point the haemolysin was tested purely upon blood corpuscles, and the toxic fraction upon animals, the effort being made to answer one or two essential questions as to the probable nature of these two bodies. Kobert's assertion that the haemolysin is a toxalbumin made it necessary first to establish the definite presence of proteid in the alcohol precipitate fraction. With many of the extracts the dark brown pigment so obscured the biuret reaction that it could not be obtained. Finally, the pigment was removed by dialysis through collodion sacs, the haemolysin not passing through this membrane and the pigment rapidly disappearing. The contents of the sac, still actively haemolytic, were now precipitated by trichloracetic acid, transferred to a separatory funnel, and shaken with ether. The proteid collects at the boundary between the ether and water, and can be obtained upon a filter. It is now free from pigment, gives the fine violet colour characteristic of the biuret reaction, and also responds to Millar's reagent.

Having thus established the presence of proteid, it becomes necessary to determine what relation this bears to the haemolysin. Is it the haemolytic substance, or is

it merely present with the haemolysin, carried down by the same reagents which precipitate the blood-laking material? After trying a number of proteid precipitants it was eventually found that at least the well-known precipitating reagents could be added to the haemolysin, the subsequent precipitants removed by filtration, and that after this treatment the haemolysin remained absolutely unaltered in strength.

The first method consisted in the use of freshly-prepared metaphosphoric acid. When this is added to the haemolysin abundant precipitation occurs. After filtration the solution is neutralized with sodium bicarbonate, when it is found to have retained its haemolytic strength undiminished. (Controls negative.)

To prove that this actively haemolytic substance is free of proteid lead acetate may be added, the precipitate removed, basic lead acetate added to the filtrate and another precipitate obtained. Both precipitates when suspended in water decomposed by H_2S and the filtrates concentrated give no biuret reaction.

The second method consists in the use of uranyl acetate. The haemolysin is dissolved in water, made alkaline by sodium bicarbonate and a saturated solution of uranyl acetate added. The resulting precipitate is removed by filtration and it is found that the filtrate is still actively haemolytic.

It should be stated that Kowalewsky has shown that uranyl acetate removes proteid completely from albuminous fluids and that Jacoby has used it extensively for the removal of proteids from alkaline solutions.

It has been stated that the haemolytic solutions when freed of proteid by these means no longer give the biuret reaction—that is, they no longer contain proteid in the ordinary sense of the term, and yet they still are actively haemolytic. The haemolysin therefore, it seems to us, cannot be considered as a toxalbumin, and we believe Kobert to have been in error when he so characterized it. Should it be argued, however, that this haemolytic substance, while not giving the biuret reaction, is nevertheless a proteid in the sense of certain proteid derivatives which do not give the biuret reaction but which on chemical grounds are to be looked upon as proteid in character, it may be stated that bodies of this class may be completely ruled out by their behaviour to certain reagents. Peptids and peptoids, for instance, can be eliminated on the basis of their resistance to acids and heat, their solubility in weak alcohol, their diffusion through collodion sacs, and their resistance to digestion by pepsin and pancreatin. Uroproteic and oxyproteic acid can be eliminated on the basis of their precipitation by cupric acetate, which reagent fails to precipitate the haemolysin.

What, then, is the nature of our haemolytic substance if it is not a toxalbumin? We believe that this haemolysin is a glucoside. We have removed proteid from considerable quantities of it at various times, have found that it can be precipitated by several reagents without destruction of its haemolytic activity, such reagents being ethyl alcohol, methyl alcohol, basic lead acetate, and a number of others. In all cases the actively haemolytic substance had the reactions and properties of a glucoside, and in no case could any haemolytic material be precipitated without at the same time precipitating the glucoside.

What Part is Played by this Substance in Intoxications in Man?

In the course of these chemical investigations it became apparent that this haemolytic glucoside is very easily decomposed. For instance, it is very sensitive to the action of heat, 70° C. in half an hour completely destroying it. It is rapidly destroyed by pepsin and hydrochloric acid, and by hydrochloric acid alone in the strength of 0.3 of 1 per cent. It is also quickly destroyed by digestion with pancreatin. Can this substance play any rôle whatever in intoxications by this fungus in man? It should be stated at this point that the pathological lesions described in man, in a considerable number of cases, at no time include lesions which are the result of haemolytic agents. Haemoglobinuria and pigmentation of the spleen have never been noted, while the changes found in man can be produced experimentally by the toxic fraction alone. It became of importance, therefore, to make a more careful study of individual specimens of *Amanita phalloides*, as well as of other poisonous or non-poisonous fungi.

This work I was enabled to do at Wood's Hole, where a very damp season made the collection of fungi a comparatively easy matter. Primarily it has been found that the *Amanita phalloides* differs very much in regard to this haemolytic substance. Many perfectly typical specimens of deadly amanita are quite devoid of haemolytic activity, while others possess it to a high degree.

Furthermore, another amanita, the so-called *A. solitaria*, an edible fungus, contains a powerful haemolysin for rabbit's corpuscles. The *Amanita solitaria*, however, is a very rare fungus, and while no cases of poisoning are reported from it, should such occur, they would, in all probability, be referred to an admixture with the deadly amanita, since both species are quite similar. We have, however, in Wood's Hole a very beautiful amanita known as the *rubescens*, which grows abundantly in nearly all the outlying woods. This fungus is very easily identified by its size and by its reddish colour. It is considered edible in all textbooks of mycology. No cases of poisoning have, so far as I know, been attributed to it, and I know personally of it having been eaten by a number of collectors. This *Amanita rubescens* contains a powerful haemolysin for a variety of blood corpuscles, a haemolysin which is apparently identical with that of the deadly amanita.

This furnishes the final proof, therefore, that the haemolytic substance described by Kobert which, as Kunkel states, is very interesting from the pharmacological point of view, has nothing to do with the intoxications in man. The lesions produced by ingestion of the fungi are to be attributed, as their pathological character suggests, entirely to the amanita toxin which we regard as the active principle of the plant.

Dr. E. J. BASHFORD said: If Dr. Ford has obtained an active immunity to glucosides, it is the first occasion on which success has attended such attempts. Some years ago, working under my respected teacher Ehrlich, I was unable to obtain any evidence of immunity to vegetable glucosides. I became engaged in controversy with Pohl of Prague in regard to this matter, but, on repetition of the observations, no immunity was obtained, and Pohl was unable to establish his claims. The production of immunity to glucosides would be of fundamental importance, and a link between the proteids proper and the carbohydrates proper. Hitherto one of my great difficulties in committing myself to the side-chain theory of immunity has been the absence of immunity to such foodstuffs as the sugars. The matter is so important as to deserve further attention.

Dr. FORD, in reply, said that animals had been successfully immunized to extracts of *Amanita phalloides* which contained poisonous glucosides—in some cases to these glucosides in association with proteid, in other cases to glucosides freed of proteid.

THE APPLICATION OF PHYSICAL CHEMISTRY TO SERUM-PATHOLOGY.*

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THE discovery that certain serums possess antitoxic and bactericidal properties marked a new era in experimental therapeutics. Investigation was soon blocked, however, by failure to isolate the active principles of such serums in sufficient purity for chemical study. A knowledge of the chemical composition of these substances is essential to the ultimate progress of curative science.

Direct analysis being apparently impossible, recourse was had to indirect methods. The most promising of these indirect methods is the method of physical chemistry. It is the purpose of the present paper to examine certain attempts to apply physico-chemical laws in this field, and to point out fundamental conditions that must be fulfilled in future attempts.

I. The Partition Coefficient.

What is probably the simplest physico-chemical law to be thus applied is the law governing the distribution of a soluble substance between two immiscible solvents. This

* Work aided by the Rockefeller Institute for Medical Research.

law has been very accurately determined for a number of simple organic and inorganic substances, and is expressible in mathematical terms.

To illustrate it, let us suppose that benzene and water are placed together in the same receptacle (Fig. 1), and

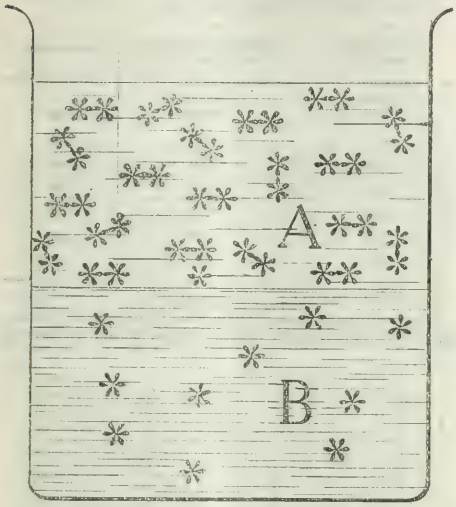


Fig. 1.—The partition of a dissolved substance between two immiscible solvents. A = Layer of benzene, containing double molecules of dissolved benzoic acid. B = Layer of water, containing single molecules of benzoic acid. The benzoic acid divided itself between the two solvents, so that

$$\frac{\text{Concentration of benzoic acid in water}}{\sqrt[2]{\text{Concentration of benzoic acid in benzene}}} = 0.03.$$

The constant, 0.03, is spoken of as the partition coefficient.

that benzoic acid, which is soluble in both, is added to the mixture. How will the benzoic acid divide itself between the two solvents?

Benzoic acid dissolved in water has the chemical formula C_6H_5COOH. Dissolved in benzene, it polymerizes to form $(C_6H_5COOH)_2$. We should, therefore, expect, theoretically, that division would take place in accordance with the formula:

$$\frac{\text{Concentration of benzoic acid in water}}{\sqrt[2]{\text{Concentration of benzoic acid in benzene}}} = K, \text{ a constant.}$$

This has been found experimentally to be true, K being approximately equal to 0.03.[1]

To make the formula concrete, let us suppose that 100 c.cm. of benzene and 100 c.cm. of water are placed together, and that 17.2 grams of benzoic acid are added to the mixture. How many grams of the benzoic acid will be held in solution by the water? How many by the benzene?

If x represents the number of grams of benzoic acid dissolved in the water, then $(17.2-x)$ will represent the number dissolved in the benzene. The concentration of the benzoic acid in water will equal:

$$\frac{x}{\text{volume of water}} = \frac{x}{100} \text{ grams per c.cm.}$$

The concentration of the benzoic acid in benzene will equal:

$$\frac{17.2-x}{\text{volume of benzene}} = \frac{17.2-x}{100} \text{ grams per c.cm.}$$

Substituting these values in the above formula, we have:

$$\frac{\frac{x}{100}}{\sqrt[2]{\frac{17.2-x}{100}}} = 0.03,$$

Number of grams per unit volume (1 c.cm.).

from which

$$100x^2 + 9x = 154.8,$$
$$x = 1.2,$$
$$17.2 - x = 16.0.$$

Of the 17.2 grams added to the mixture, 1.2 grams will therefore be held in solution by the water and 16 grams by the benzene.

Applying this idea to serum phenomena, it is conceived,

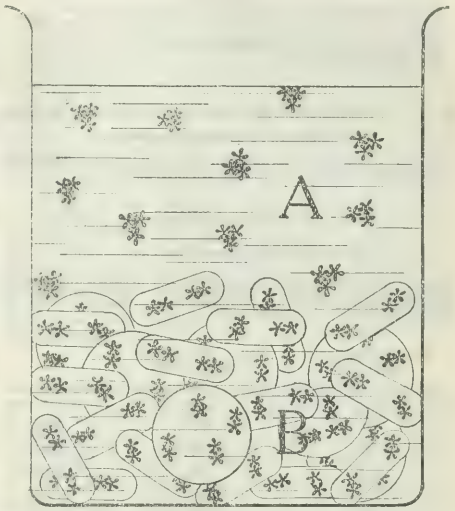


Fig. 2.—The partition coefficient applied to serum phenomena. The specific thermostable substance of haemolytic serum is conceived to exist as double molecules when bound to corpuscles, but as triple molecules when free in the surrounding fluid. Division between fluid and corpuscles is thought to take place in accordance with the formula:

$$\frac{\sqrt[2]{\text{Concentration of bound thermostable substance}}}{\sqrt[3]{\text{Concentration of free thermostable substance}}} = K$$

A = Supernatant fluid, containing the hypothetical triple molecules of the free thermostable substance. B = Settled corpuscles, containing the assumed double molecules of the bound thermostable substance. This conception can neither be proved nor disproved, due to the impossibility of applying direct analytical methods to absorption phenomena.

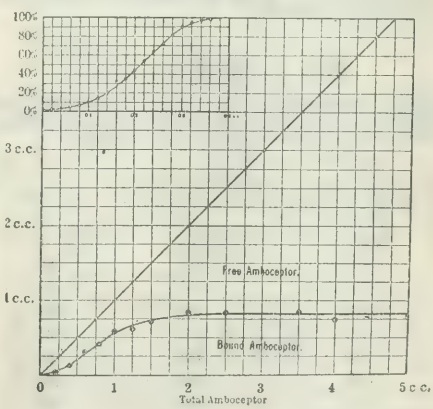


Fig. 3.—Absorption of the specific thermostable substance by blood corpuscles. Data from Table I. represented graphically. The small curve in the upper part of the figure is the "Amboceptor Curve" † used in the analysis.

† For the use of the "Amboceptor Curve" in analysis, see *Journ. Infect. Dis.*, 1905, vol. ii, p. 471; *Centralb. f. Bakt.*, Ed. xl, p. 401.

for example, that the specific thermostable substance of haemolytic serum divides itself between corpuscles and surrounding fluid (Fig. 2) in accordance with a similar law. It is conceived that the thermostable substance exists as a double molecule when bound to corpuscles, but as a triple molecule when free in the surrounding fluid, and that division takes place in accordance with the formula:

$$\frac{\sqrt[2]{\text{Concentration of thermostable substance in corpuscles}}}{\sqrt[3]{\text{Concentration of thermostable substance in surrounding fluid}}} = K.^2$$

TABLE I.—*Attempt to Apply the Physico-Chemical Partition Coefficient to Haemolytic Serum.*

Amount of free and bound thermostable substance determined experimentally, and K calculated from the formula:

$$\frac{\sqrt[2]{\text{Bound thermostable substance}}}{\sqrt[3]{\text{Free thermostable substance}}} = K.^a$$

The fact that K is not a constant, does not disprove the physico-chemical law, on account of a fundamental error in the experimental method. (Same data shown graphically in Figs. 3 and 4.)

Free Thermostable Substance.	Bound Thermostable Substance.	K.
c.cm.	c.cm.	
4.22	0.78	37.5
3.28	0.72	28.8
2.66	0.84	11.0
1.63	0.84	4.7
1.16	0.84	2.3
0.79	0.71	1.7
0.64	0.61	1.9
0.42	0.58	0.9
0.39	0.41	2.7
0.29	0.31	2.8
0.27	0.13	33.2
0.17	0.03	1070.0

[a] K is a multiple of K, obtained by omitting to divide by volumes. Since the volumes are constant throughout the experiment, this omission introduces no error.

TABLE II.—*The Serum Paradox.*

Data obtained experimentally, as in Table I. The data show, when certain amounts of serum are used, an apparent increase in thermostable substance, after contact with corpuscles. The table indicates a fundamental error in the analytical method. (See Fig. 5.)

Total Amount of Thermostable Substance Present in the Serum.	Apparent Amount Present After Contact with Corpuscles.	Percentage.
c.cm.	c.cm.	
1.00	0.55	55
2.00	1.20	60
3.00	2.15	72
4.00	3.35	84
5.00	4.80	96
6.00	6.25	104
7.00	7.60	109
8.00	8.90	111
9.00	10.28	114
10.00	11.62	116

TABLE III.—*Non-agreement of Duplicate Analyses.*

Analytical data from Fig. 6. Duplicate analyses show that after contact with corpuscles the serum contains apparently anywhere from 32 per cent. to 77 per cent. of the original amount of thermostable substance, the observed amount depending on the volume taken for analysis. This finding shows the impossibility of applying direct analytical methods to absorption phenomena.

Volume Analysed.	Apparent Thermostable Substance Found.	Percentage.
c.cm.	c.cm.	
0.88	0.279	32
0.77	0.277	36
0.66	0.271	41
0.55	0.264	48
0.44	0.249	57
0.33	0.229	69
0.22	0.169	77

Can this be proved experimentally?

In attempting its proof,[a] data were obtained that do not agree with the formula (Table I, Figs. 3 and 4), that is,

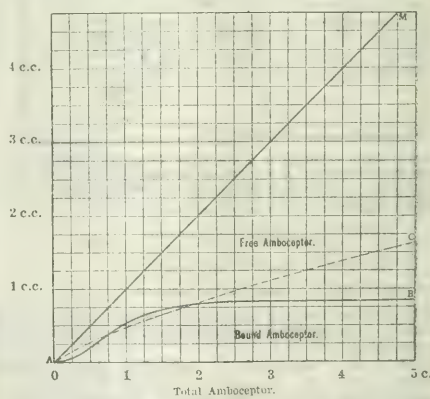


Fig. 4.—Observed absorption and theoretical absorption compared. Curve AB=observed absorption curve, as in Fig. 3. Curve AC=absorption curve calculated from the constant, K=2. The fact that the two curves do not agree, does not disprove the physico-chemical law, on account of a fundamental error in the experimental method.

data that do not give a constant value to K. The data, in certain cases, even lead to paradoxical conclusions, for the amount of thermostable substance present in the supernatant fluid is at times apparently greater than the total amount originally added to both fluid and corpuscles (Table II, Fig. 5).

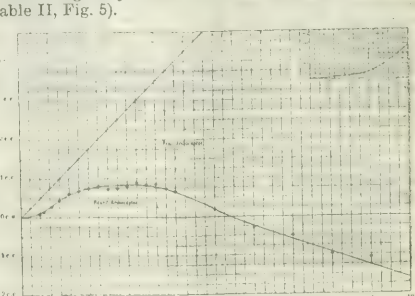


Fig. 5.—The serum paradox. Data from Table II, represented graphically. The data show the amount of free thermostable substance at times apparently greater than the total amount of thermostable substance used in the experiment. The small curve in upper part of the figure is the "amboceptor curve" used in the analysis.

This paradoxical result is explained by the fact that heated haemolytic serum undergoes marked chemical changes when placed in contact with corpuscles [4] (Fig. 6).

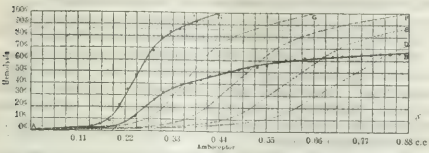


Fig. 6.—Qualitative change in heated haemolytic serum, after contact with corpuscles. Curve AN=curve showing the changes in haemolytic power as increasing amounts of thermostable substance (heated haemolytic serum), before contact with corpuscles, are added to a constant amount of thermolabile substance (normal serum). Curve AN=curve obtained with the same thermostable substance after contact with corpuscles. Curve AB should be similar to one of the dotted curves of the figures, if the heated haemolytic serum suffered only a quantitative change during contact with corpuscles (AD=33⅓ per cent., AE=40 per cent., AF=50 per cent., AG=66⅔ per cent.). The fact that AB crosses a number of these curves, shows that there is a change in the chemical composition of the serum as well. This change leads to non-agreement of duplicate analyses (see Table III).

Occasionally, after contact when used in certain quantities the serum is haemolytically more active than originally (Fig. 7).

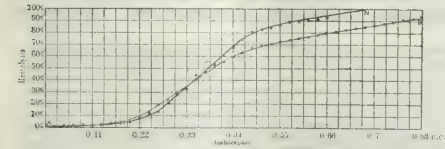


Fig. 7.—Qualitative changes in heated haemolytic serum, after contact with a minimal number of corpuscles. Curve AN=curve as in Fig. 6, showing the changes in haemolytic power as increasing amounts of the original thermostable substance (heated haemolytic serum) are added to a constant amount of thermolabile substance. Curve AB=curve obtained with the same thermostable substance after contact with a minimal number of corpuscles. The fact that when used in certain amounts the thermostable substance after contact is apparently stronger than at first explains the paradoxical phenomenon previously noted. (See Table II, Fig. 5).

This chemical change is partly due to the fact that such serums contain, in addition to the specific thermostable substance, certain non-specific auxilytic and antilytic substances [5] (Figs. 8, 9 and 10), the amount and nature of

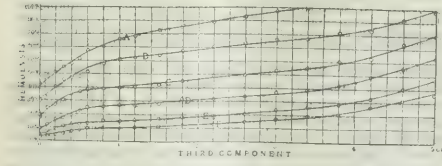


Fig. 8.—The auxilytic action of certain non-specific serum components. The curves show the changes in haemolytic power as increasing amounts of the non-specific substances are added to constant amounts of haemolytic serum. The constant haemolytic serum used for the different curves are, in themselves, capable of producing the following percentages of haemolysis: A=42 per cent., B=31 per cent., C=18 per cent., D=8 per cent., E=5 per cent., and F=3 per cent.

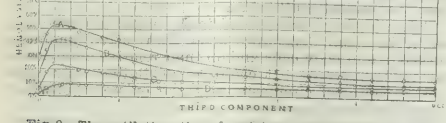


Fig. 9.—The antilytic action of certain non-specific serum components. Curves, as in Fig. 8, showing changes in haemolytic power as increasing amounts of the non-specific substances are added to constant amounts of haemolytic serum. The constant haemolytic serum used for the different curves are, in themselves, capable of producing the following percentages of haemolysis: A=30 per cent., B=17 per cent., C=8 per cent., and D=2·5 per cent. The curves show an auxilytic action of the non-specific substances when used in small amounts, but their antilytic action when present in larger amounts.

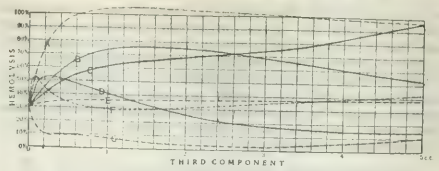


Fig. 10.—The action of the non-specific components of different serums under different experimental conditions. Sample curves, as in Figs. 8 and 9, superposed from different experiments, showing differences in the action of the non-specific substances in different normal serums, under different experimental conditions. All quantitative work heretofore done with haemolytic serum has neglected to take into account variations in these components. This fact alone renders all previous work inconclusive.

which are changed by contact with corpuscles.[6] Whether there is an independent change in the specific thermostable substance itself, or not, has not yet been determined.

Heated haemolytic serums, before and after contact with corpuscles, are not analytically comparable. It is consequently at present impossible to draw quantitative conclusions from serum experiments regarding the absorption of the specific thermostable substance. The proposed quantitative law cannot be proved. It cannot be disproved. Its proof or disproof will come only with future ability, either (1) to separate such serum into its individual components, or (2) to render all but the specific thermostable substance inactive.

II. Reversible Reactions.

A second physico-chemical law, whose application has been attempted to serum phenomena, is the law governing reversible reactions. This law also has been very accurately determined for a large number of simple organic and inorganic substances, and is likewise expressible in mathematical terms.

To illustrate it, let us suppose that common salt is dissolved in water (Fig. 11). As the molecules of the NaCl

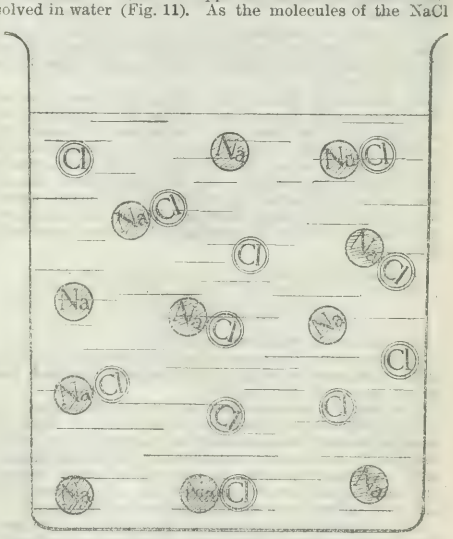


Fig. 11.—The ionization of sodium chloride. A certain percentage of the NaCl molecules break up each minute, forming free Na and Cl atoms. A certain percentage of the Na and Cl atoms thus set free recombine, per minute, to form molecular NaCl. When equilibrium is established in the solution, the number of molecules decomposing each minute exactly equals the number recombining. The quantitative relation between the bound and free atoms is then expressed by the formula:

$$\frac{\text{(Concentration of free Na)} \times \text{(concentration of free Cl)}}{\text{(Concentration of molecular NaCl)}} = K.$$

K is found experimentally to be approximately equal to 1.

Na = Free Na atom. Cl = Free Cl atom.

Na Cl = NaCl molecule.

enter into solution they begin to decompose, forming free ions of Na and Cl. This ionization goes on at a definite rate, but is antagonized by a tendency of the atoms thus set free to recombine, forming anew molecular NaCl.

The ionization and recombination at first go on at different rates; but eventually a state of equilibrium is reached, in which the rates of dissociation and recombination exactly balance each other. When this is true, it follows theoretically that:

$$\frac{\text{(Concentration of Na ions)} \times \text{(concentration of Cl ions)}}{\text{(Concentration of the molecular NaCl)}} = K.$$

This formula has been tested experimentally, and it has been found that for NaCl, at ordinary temperatures, K is approximately equal to 1, provided the concentration of the Na and Cl ions is expressed as the number of gram ions per litre, and the concentration of the molecular NaCl as the number of gram molecules per litre.

To make the law concrete, let us suppose that 117 grams of NaCl are dissolved in 1,000 c.cm. of water. How much of the NaCl will exist in the molecular form? How much as free Na and Cl?

The molecular weight of NaCl is 58.5; 117 grams dissolved in 1,000 c.cm. will therefore give a concentration of 2 gram-molecules per litre. If, then, x represents the number of gram-molecules ionized, $2-x$ will represent the number remaining in the molecular form.

The ionization of x gram-molecules of NaCl will give rise to x gram-ions of Na and x gram-ions of Cl. Substituting these values in the above formula, we obtain:

$$\frac{x \times x}{2-x} = 1,$$

from which

$$x^2 + x = 2,$$
$$x = 1.$$

One gram-molecule of the NaCl will therefore be ionized, leaving one gram-molecule as molecular NaCl. In other words, half, or 50 per cent., of the 117 grams will be dissociated.

If, in place of dissolving 117 grams, 44 grams of NaCl were used, about 67 per cent. would be ionized. If but 14 grams, about 80 per cent.; if only 6 grams, about 90 per cent.; and so on.

(*a*) *Haemolytic Serum.*—This idea has been applied directly to serum phenomena. It has been conceived, for example, that the haemolytic substance of haemolytic serum is a complex molecule formed by a union between the specific thermostable and the specific thermolabile substances of such serum. It has, further, been thought that this complex molecule, like the NaCl molecule above, is undergoing constant dissociation and recombination, and that equilibrium is established in accordance with the formula:

$$\frac{\left(\begin{matrix}\text{Concentration of free}\\ \text{thermostable substance}\end{matrix}\right) \times \left(\begin{matrix}\text{Concentration of free}\\ \text{thermolabile substance}\end{matrix}\right)}{\left(\begin{matrix}\text{Concentration of the combined}\\ \text{thermostable-thermolabile molecule}\end{matrix}\right)} = K.?$$

Can this be proved experimentally?

In attempting its experimental verification, using a method proposed by its author,[8] data were obtained that do not agree with the formula.[9]

This lack of agreement does not necessarily disprove the formula, because the experimental method is at fault. It is experimentally impossible to vary the amount of either the specific thermostable substance or the specific thermolabile substance present in haemolytic serum without producing simultaneous changes in the non-specific auxilytic and antilytic substances necessarily present.

This impossibility is due to the fact that the non-specific substances differ, under identical experimental conditions, both in amount and in chemical composition, in different serums[10] (Fig. 12).

On account of this difference, data that exactly agreed with the proposed formula would not prove the formula to be true. The experimental proof or disproof of the formula is at present impossible, and will come only with the discovery of a method either (1) to render these supplementary substances inactive, or (2) to make them identical in different serums.

(*b*) *Diphtheria Toxin.*—A second attempt to apply the law of reversible reactions to serum phenomena is the attempt to apply it to the interaction of diphtheria toxin and antitoxin. This interaction has been conceived to be similar to that between the Na atoms and Cl atoms above, the toxin and antitoxin molecules uniting to form a complex, dissociable, non-toxic compound. Equilibrium is thought to be established in accordance with the formula:

$$\frac{\text{(Concentration of free toxin)} \times \text{(concentration of free antitoxin)}}{\text{(Concentration of the combined toxin-antitoxin molecule)}^2} = K.^{11}$$

The data from which this conclusion was drawn were obtained by estimating the toxic effects on guinea-pigs of numerous toxin-antitoxin mixtures. Doses of the different mixtures having the same toxic action were assumed to contain the same amount of free toxin. Is this necessarily true?

If to a solution of NaCl there are added ions having an affinity for free Cl, not only will the new ions unite with the free Cl already present, but they will draw a certain amount of the bound Cl from the molecule NaCl as well. The number of Cl atoms thus split off will depend on the relative amounts of the Na atoms and the new ions, and on their relative affinities for free Cl.

For example, if Ag ions are added, they will enter into combination with the free Cl present, forming insoluble AgCl. New Cl ions will then split off from the molecular NaCl to restore equilibrium. The new Cl ions thus set free will in turn unite with the free Ag ions present, and this union will continue till either the Ag ions or the available Cl atoms are exhausted.

If, in place of Ag ions, ions are added that are capable of forming a dissociable compound with Cl, a similar

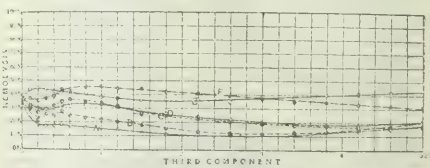


Fig. 12.—Comparison of non-specific components of different serums under identical experimental conditions. Curves, as in Figs. 8 to 10, showing changes in haemolytic power as increasing amounts of the non-specific substances of six different normal serums are added to the same constant amount of haemolytic serum. The constant haemolytic serum used in this experiment is in itself capable of producing 36 per cent. haemolysis. While 0.2 c.cm. of the non-specific substances of one serum (A) is capable of reducing the haemolysis to 17 per cent., the same amount of the non-specific substance of a second serum (B) will increase it to 45 per cent., and that of a third serum (F) will leave it unchanged. The curves show the impossibility of varying the amount of the thermostable or of the thermolabile substance in haemolytic serum without producing marked changes in haemolytic power, due solely to alterations in the non-specific serum components. This fact alone demonstrates the impossibility of testing experimentally the physico-chemical law proposed for the interaction of the specific thermostable and thermolabile substances.

robbing of the molecular NaCl will take place, but to a less extent. Thus, if to the 1,000 c.cm. of NaCl solution above, 4 gram-ions of K are added, the K will not only enter into relation with all of the free Cl present, but will draw 45 per cent. of the bound Cl from the molecular NaCl as well; 8 gram-ions of K would draw over 60 per cent. of the bound Cl, 12 gram-ions over 70 per cent., and so on.

Returning now to the guinea-pig experiment: we inject a toxin-antitoxin mixture into that animal. Toxins are known to have affinities for body cells.[12] If the hypothetical, dissociable, toxin-antitoxin compound really exists, the amount of toxin that would enter into chemical relation with the body cells would be not only all of the free toxin already present in the solution, but a certain amount of the bound toxin as well, that would be split off from the toxin-antitoxin molecule in accordance with the laws of chemical equilibrium.

This additional amount of toxin might be large or it might be small, depending upon the relative amounts of antitoxin and body cells and on their relative affinities for the toxin molecule. It could be negligible only under most exceptional circumstances,[13] the existence of which, to say the least, has not been proved.

The assumption that the toxic action of a toxin-antitoxin mixture depends entirely on the amount of free toxin present,[14] is unthinkable, if the proposed physico-chemical laws themselves hold good. Being fundamentally untrue, quantitative deductions from data obtained by its use are erroneous, regardless of the accuracy with which the data fit into the proposed formulae.

Summary.

We can sum up the main conclusions of this paper as follows:

1. That the physico-chemical law proposed for the absorption of the specific thermostable substance of haemolytic serum by blood corpuscles can neither be proved nor disproved, due to changes in the chemical nature of heated haemolytic serum after exposure to corpuscles, and the consequent impossibility of at present applying analytical methods to the phenomenon.

2. That the physico-chemical law proposed for the interaction of the specific thermostable and thermolabile substances of haemolytic serum can neither be proved nor disproved, due to the impossibility of varying the amount of either of these substances in a serum experiment, without producing indeterminate changes in the non-specific auxilytic and antilytic substances necessarily present in such serum.

3. That the physico-chemical law proposed for the interaction of diphtheria toxin and antitoxin can neither be proved nor disproved, due to the impossibility of measuring, by animal experiments, the amount of free toxin present in a toxin-antitoxin mixture, if the physico-chemical law itself holds good.

In conclusion it must be emphasized that the above facts do not prove that physical chemistry is not applicable to serum phenomena. They simply show that the phenomena here mentioned are too complex for accurate quantitative measurements by present experimental methods.

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GASTRIC EROSIONS.

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Read by F. J. Smith, M.D., F.R.C.P.,

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It sometimes happens that a patient is seen who is suffering from severe and repeated haematemesis. The surgeon may operate, and find nothing in the stomach which can account for the condition. Lastly, the pathologist may be unable to find any macroscopic changes in the wall of the stomach. With a lens he will probably see many minute areas from which the mucous membrane has been shed, but frequently it is impossible to find the vessel or vessels which are responsible for the haemorrhage. If sections are cut of such a stomach, very definite and constant changes are found. Before describing these changes it will be necessary to point out the distribution of lymphoid tissue in the stomach.

In the newly-born infant there is no lymphoid tissue in the stomach. At three months there is some lymphoid tissue. At three years it is present in about the same proportions as in the healthy adult. In the healthy adult there are large quantities of lymphoid tissue in the pylorus and lesser curvature. In the greater curvature and fundus the lymphoid tissue is in solitary follicles. In all situations of the healthy stomach the aggregations of lymphoid tissue are superficial to the basement membrane, and are covered over by the gastric mucous membrane.

About 50 the lymphoid tissue disappears. In the stomachs of dyspeptics it is the rule for the amount of lymphoid tissue to be increased, for the solitary follicles to be larger, and in some cases for the mucous membrane to be thinner. In addition there is thickening of the basement membrane and of the fine subdivisions which support the glandular cells.

The result is that the lymphoid follicles are less completely covered than in the healthy stomach. Future events will depend on the ability of the mucous membrane to cover up the deficient area. If the mucous membrane is thick and mobile, the exposed basement membrane will be immediately covered over and the destructive process will be arrested. But if there is delay in the accomplishment of this protecting process, owing to the thinness and the stiffening of the mucous membrane—that is, in the stomach of dyspeptics—it is possible for the basement membrane and submucous tissue to be digested by the action of the gastric juice.

If the digestive process goes further than this the result will be an ulcer of considerable proportions. But the chief characteristic of a gastric erosion is that there is little or nothing to see with the naked eye.

It has been proved by experiment that if the healthy muscular layer of the stomach be suddenly exposed to the action of gastric juice, it will contract vigorously and remain contracted. In this way the edges of a superficial erosion are brought together, and the mobile redundant mucous membrane can cover up the deficiency completely. It is probable that this is the method by which all signs of a gastric erosion are made invisible.

Changes.

In stomachs such as those with which we are now concerned the changes in the lymphoid tissue are remarkable. Many swollen lymphoid follicles are seen, which are disintegrating and softening, and sometimes they can be seen pushing their way to the surface (Fig. 1). In other places they have burst (Fig. 2), and have temporarily left the basement membrane exposed to the action of the gastric juice.

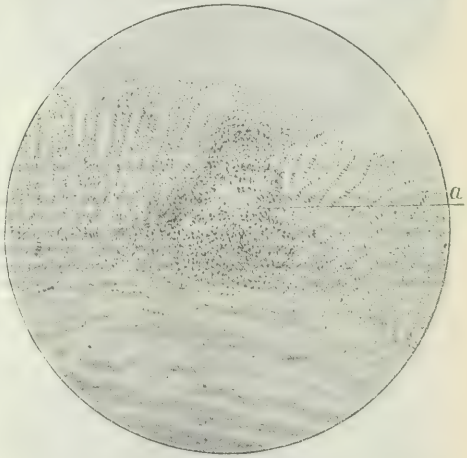


Fig. 1.—Acute erosion of the stomach: Condition preceding the actual erosion. *a*, A large swollen lymphoid follicle about to burst.

The vessels of the submucous layer are engorged with blood. In the submucous layer there are numerous vessels. The walls of these vessels may be digested in the same way as the other tissues, with the result that there is haemorrhage.

The first change in the wall of an arteriole is a loss of staining properties in the cells of the side nearest the surface. Soon there is an apparent bulging of the wall of the vessel leading to the formation of a small aneurysm (Fig. 3). The coats of the arteriole separate and give way and blood is poured into the stomach. At the same time blood forces its way between the coats of the vessel, leading to the formation of a dissecting aneurysm.

The whole process is merely the reaction of inflammation in lymphoid tissue complicated by the additional factor of the digestive powers of the gastric juice.

It may be argued that in any case of acute gastritis these little lymphoid ulcers are made. They probably are, and it is certainly on record that Alexis St. Martin, an individual of intemperate habits, sometimes suffered from "boils of the stomach." But in the majority of such cases

nothing is known of the existence of these shallow erosions, for the deficiency is made good as soon as it appears. It is only in the cases which are accompanied by haemorrhage that the condition is suspected, and even then the lesion is microscopic.

In conclusion, one is justified in regarding the condition as one of the events in acute gastritis, the result being dependent on the condition of the stomach.

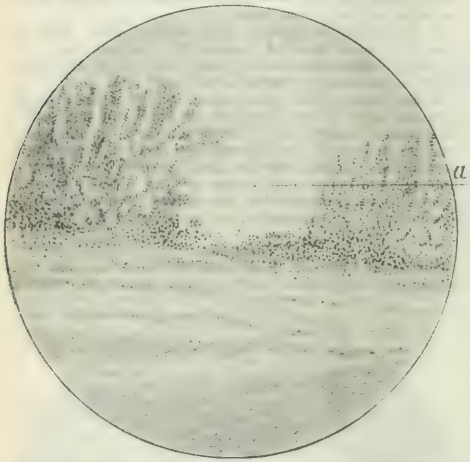


Fig. 2.—Acute erosion. *a*, Space left by the bursting of a lymphoid follicle.

Thus, in a perfectly healthy stomach the erosion will be covered over at once. In the stomach of a dyspeptic the erosion will not be covered over so quickly, and there is a chance that the basement membrane and submucous layer will be digested. Lastly, in the most advanced degree of dyspepsia the erosion will be large and will not

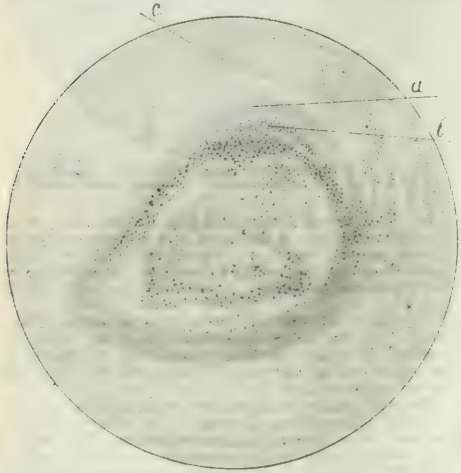


Fig. 3.—Arterial aneurysm in the floor of an ulcer. *a*, Bulging of vessel wall—that is, the beginning of an aneurysm; *b*, blood between the coats of the vessels—that is, dissecting aneurysm; *c*, cavity of stomach.

be covered over at all, the terminal result being a chronic ulcer.

There may be, and probably are, many different factors at work in the formation of a gastric erosion, but the formation of lymphoid "abscesses" is a most constant characteristic, and is sufficient to explain the process of the disease and the difficulties in the way of recognizing it.

A STUDY OF THE INFLUENCE EXERTED BY A VARIETY OF PHYSICAL AND CHEMICAL FORCES ON THE VIRULENCE OF CARCINOMA IN MICE,

AND OF THE CONDITIONS UNDER WHICH IMMUNITY AGAINST CANCER MAY BE EXPERIMENTALLY INDUCED IN THESE ANIMALS.

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The discovery of the ease with which mouse tumours may be transplanted from one individual to another has led to the development in the course of the last few years of an entirely new field of experimental research in cancer. A large amount of data regarding the nature of these mouse tumours and the conditions under which immunity may be established against them has been accumulated in the New York State Cancer Laboratory in the last two years. This work has been carried out for the most part by Dr. Gaylord and the writer, with the co-operation of Professor Calkins of Columbia University, and the assistance of Mr. Baeslack and other members of the laboratory staff.

It is proposed to give a brief summary of certain biophysical and biochemical experiments dealing with the stimulating or inhibiting action of heat, and of certain chemical bodies upon tumour materials. It is also proposed to present evidence regarding the existence of a definite immunity against tumour development, and to indicate briefly the methods whereby an artificial immunity has been induced in certain cases.

In addition to the Jensen tumour, for the gift of which we are indebted to Professor Jensen of Copenhagen, 35 primary tumours have been placed at the disposal of the laboratory in the course of the last two years. Of 15 employed for transplantation 3 which were infected caused the death of the mice employed, and 7 out of the remaining 12 gave positive results, 16 tumours being obtained from 204 mice inoculated.

It will thus be seen that our percentage yield from primary tumours compares favourably with that of Bashford and is higher than that of Ehrlich.

Three distinct strains of mouse carcinoma derived from entirely independent sources are now being employed in our laboratory for experimental purposes.

1. The well-known Jensen tumour, the virulence of which, whilst varying within very considerable limits, shows an average over any great length of time of about 30 per cent., both in our hands and in those of other investigators. This tumour develops relatively slowly, causing the death of the mouse in the average of a large number of cases in fifty-six days from the date of inoculation. About 22 per cent. of the tumours of this series recover spontaneously.

2. Known as the Brooklyn tumour, derived from a primary tumour sent to the Gratwick Laboratory in May, 1905. This tumour has now reached, in fifteen generations of transplantation, an exceptionally high degree of virulence, the last 612 mice inoculated having given 557 fatal tumours, or 91 per cent. The average duration of the life of the mice from the date of inoculation to the date of death has been twenty-six days, the average weight of the tumours slightly over 4 grams at death. This tumour was fairly virulent at the start, giving 5 tumours in 28 mice in the first generation, and it is interesting to note that with transplantation through succeeding generations the percentage yield of tumours rapidly increased, whilst the period in days intervening between the date of inoculation and the fatal termination of the disease steadily diminished. Thus the average of the first, second, and third generations shows 19 per cent. of tumours requiring an average of seventy-four days for development. The fourth generation shows 46 per cent. of tumours requiring forty-one days for development. The fifth and sixth generations show 69 per cent. of tumours, with an average of thirty-two days; whilst, as stated above, the seventh to the fifteenth generations have shown over 90 per cent. of tumours, requiring an average of twenty-five to twenty-six days for development. The great increase in virulence in this series is certainly not attributable to rapid transplantation of small tumours,

as seems to have been the case in Ehrlich's highly virulent series. We find, on the contrary, that tumours under 2 grams give very unsatisfactory results on transplantation, whilst the best yields are obtained from large, moderately-necrotic tumours which have already reached a stage at which the animal may be expected to succumb in the course of two or three days. The number of spontaneous recoveries occurring in this series is extremely small, at the present time less than 4 per cent.

3. A tumour known as the Springfield tumour, possessed of a very low degree of virulence, far less than that of the Brooklyn, and considerably less than that of the Jensen tumours. This series has only been established and maintained by incubation of the tumour materials at temperatures ranging between 38.5° and 41° C. for half an hour or more previous to inoculation. Primary tumours of this type had invariably failed to produce tumours in the following generation until the incubation method was employed, 13 tumours being obtained from incubated material before any were obtained from normal material. A comparison of the normal and incubated lots in this series shows at the present time 20 per cent. of tumours in the normal as against 57½ per cent. in the incubated. The relatively low virulence of this tumour at the start was associated, as might be expected, with a fairly high percentage of spontaneous recoveries, over 30 per cent. The series being now only in the seventh generation, it is too early to make any positive statements regarding its exact degree of virulence and tendency to retrogression.

From the statistical results recorded above it must be concluded that:

1. The virulence of a tumour bears a definite relationship to the average speed of development of the tumour; that is to say, the larger the percentage yield obtained on transplantation of a tumour the more rapid will be the development of the tumours of that series, and vice versa.

2. The greater the virulence or speed of development of a given series of tumours the smaller will be the proportion of spontaneous recoveries in that series, and vice versâ.

Experimental Methods.

Every possible effort has been made to eliminate so far as possible those errors commonly associated with animal experiments, both by employing large numbers and also by ensuring a uniform dosage on inoculation. The procedure is as follows:

A tumour is ground up in a mortar with a given volume of salt solution, the connective tissue residues removed by means of fine rakes, and uniform doses of the macerated tumour material introduced subcutaneously into each mouse of a series. In case it is proposed to study the relative effect of a series of chemicals or any other agent like blood serum, calculated to inhibit the development of the tumour cells, equal amounts of the uniform macerated cancer material are treated with uniform doses of the bodies in question, and allowed to stand for equal periods of time. Mice derived from the same source and of the same size are then divided into a series of lots containing ten or more individuals apiece. A batch of mice is employed for each of the prepared admixtures of cancer and chemical or serum, the greatest care being observed that not only do all mice in the same batch receive an exactly equal dose, but also that all mice in the same series receive exactly the same amount of cancer material, so that the only varying factor is the chemical body or serum admixed therewith.

Further, in order to maintain a complete control of every individual mouse in each series, with a view to observing the occurrence of tumours, their speed of development, and final fatal termination or spontaneous recovery, a system of charting has been introduced whereby a permanent record of the progress of each tumour from the date of inoculation to the date of death of the animal is preserved in the laboratory.

Spontaneous Recoveries.[1]

The adoption of the above charting system enabled us to detect the occurrence of spontaneous recoveries very shortly after the commencement of the transplantation work on the Jensen tumours. Excluding all tumours the diameter of which was not equal to 3½ mm. not less than twenty days after inoculation, we found that upwards of 100 definite spontaneous recoveries had occurred in the Jensen series alone previous to January 1st of this year, the tumours varying in size from the minimum to a weight of 3 or 4 grams.

To summarize the statistical results obtained in this work, it may be said that the larger the yield of tumours and the more rapid their growth the smaller is the number of spontaneous recoveries; and also that the more advanced is the tumour in its development the smaller are its chances of retrograding. It would, in fact, appear probable that a very large number of spontaneous recoveries occur previous to the time at which the tumour has reached such dimensions as to be readily recognizable.

Influence of Incubation.[2]

Whilst all tumour cells appear to be destroyed at 45° C., incubation of the macerated tumour materials previous to injection, at temperatures ranging from 38.5° C. to 41° C., for periods of twenty minutes to half an hour, appears to exert a stimulating effect upon tumours possessed of a low degree of virulence. On the other hand, tumours possessed of a high degree of virulence suffer considerable attenuation when subjected to such a treatment. This remarkable fact was first recognized whilst attempting to immunize animals against subsequent injections of tumour materials by treating them with incubated material, which it was anticipated would lose thereby in virulence to a sufficient extent to enable the animal to overcome it by natural means. The incubation of weak tumours, as stated above, has proved of considerable value from an experimental standpoint, one series of tumours having been established entirely in this manner.

Action of Chemicals in Inhibiting Development of Tumours.

In a considerable series of experiments, mercuric chloride, potassium cyanide, ammonium fluoride, and other bodies of this nature were admixed with normal tumour materials in varying proportions with a view to determining

1. The point at which development of the tumour cells would be absolutely inhibited.

2. The action which materials treated in this manner would have in developing an immunity in the animals so treated.

3. A possible means of removing bacteria from infected tumours.

The resistance of the tumour cells to inorganic disinfectants was found to be extremely high. Treatment of the cancer material for one hour previous to inoculation with mercuric chloride at a concentration of 1 in 3,500 was insufficient to prevent the development of a small proportion of slow-growing tumours, final complete destruction of the cells being effected first at a concentration of 1 in 2,000.

Mercuric iodide effected a similar result at a concentration of from 1 in 2,000 to 1 in 2,500.

The action of potassium cyanide was most remarkable. The powerful, highly-virulent Brooklyn tumour still gave 100 per cent. yield after treatment with potassium cyanide at a concentration of N/250, and tumours were produced both in this and the Jensen series when the concentration of potassium cyanide was raised to N/100. In one experiment in which 10 mice were employed the concentration of potassium cyanide was so high that half the mice succumbed within a couple of hours after receiving the injection, in spite of which one large and one small tumour developed in the remaining 5, thus showing that the resistance of a tumour cell to potassium cyanide is greater than that of the mouse itself.

Bacteria are entirely destroyed by treatment with potassium cyanide at a strength of N/200, and in one series in which the tumours were seriously infected, thus causing the death of the animals, the treatment of a portion of a tumour with potassium cyanide at a concentration of N/200 resulted in saving a considerable portion of the animals and the production of several tumours.

Ammonium fluoride inhibits all tumour development at a concentration of 1 in 1,000, a few small tumours making their appearance at 1 in 2,000.

The reinoculation of those mice which received the injections of materials which had been previously rendered innocuous through treatment with chemicals gave no indications of immunity.

Careful examination of the percentages of tumours in the varying groups, and the rate at which the individual tumours develop, would indicate that not only do the tumour cells offer a great resistance to the action of the disinfectants referred to above, but also that at suitable concentration a distinct stimulating effect may be observed when compared with the normal, similar to that observed by Biernecke in studying yeasts.

The discovery that rapidly-growing tumours contain a large proportion of potassium[2] and slow-growing tumours a large proportion of calcium, led us to test the effect of substituting isotonic solutions of potassium and calcium chloride for the ordinary salt solution in admixture with the cancer material. The mice which received potassium injections and were subsequently fed on food containing potassium in considerable quantities showed a larger percentage of tumours than did those treated in a similar manner with calcium. We propose, however, to repeat this experiment before attaching any importance to the results obtained.

Immunity.

It is necessary at this stage to refer briefly to the results already published on immunity against cancer. That immune forces exist antagonistic to cancerous development in mice, is now an established fact. In January, 1905, a paper was published from our laboratory and read at Johns Hopkins University,[4] in which it was stated:

1. That in the Jensen series mice recover from true tumours in at least 20 per cent. of cases.

2. That small tumours treated with serum of such mice might be retarded in development and in a few cases cured, whilst those treated with normal serum showed a less marked effect.

Whilst a considerable number of such recoveries had already been reinoculated, it was not possible at that early stage to furnish any reliable data regarding the chances of their developing tumours. On July 15th, 1905, a second paper,[5] affording further evidence of immunity, was sent to the publisher. In this paper it was shown that 30 spontaneous recoveries from genuine tumours on reinoculation, many of them for the third time, had failed to show a single tumour, whilst those which had not recovered from tumours on first inoculation showed a few tumours, and normal animals the usual 30 per cent. yield. In one series the mice were intentionally inoculated with an extremely weak strain, with the result that 50 per cent. showed abortive tumours, and subsequently recovered, whilst the remainder gave no indication of tumour development. Those that had recovered on the first occasion failed entirely to develop tumours on further inoculation with a far more virulent material, whilst the remainder that had not developed tumours on the first inoculation showed a fair proportion of tumours after inoculation with the more vigorous strain.

A further experiment carried out at this time, treating tumour materials previous to inoculation with the serum of spontaneously recovered mice, in comparison with that of normal mice, showed that whilst 31 per cent. of tumours were obtained in the normal series, only 12 per cent. were obtained in the immune series, or, if rapidly-growing tumours only were considered, 24.8 per cent. in the normal series, as against 5.6 in the immune series. In his report[6] of that year Bashford criticized our preliminary communication, stating:

1. That only one spontaneous recovery had occurred in his experience with 3,000 tumours in the Jensen series after fourteen days' growth, and that our large percentage of spontaneous recoveries was to be accounted for by assuming that some septic process following inoculation had given rise to swellings in the subcutaneous tissue which were in no sense to be looked upon as tumours.

2. That whilst transplantation fails on the first attempt in a certain number of animals, subsequent inoculation gives almost the same percentage as first obtained, and that the variations in the success attending transplantation in unused mice, and any mice which have been inoculated unsuccessfully, are not greater than those obtaining in different series of unused mice.

Early this year, a paper dealing with spontaneous cure of cancer[1] was published from this laboratory, in which upwards of 100 such spontaneous cures were carefully investigated from a pathological and statistical standpoint, and no doubt remains that true, growing tumours had existed in every one of the cases dealt with. Subsequent efforts to reinoculate these 100 mice were without result. Bashford's contentions that our spontaneous recoveries were ulcerations and that all mice might be reinoculated successfully, were therefore both disposed of.

Unfortunately, owing to a severe epidemic in which we lost upwards of 3,000 animals and barely retained our valuable tumour mice for subsequent work, a large proportion of the spontaneous recoveries were lost in the course of the winter, and it has consequently been found impossible, up to the present time, to repeat the experiments referred to above, treating tumour material with immune serum previous to injection.

In April of this year, Ehrlich[7] published an exhaustive discussion regarding immunity against mouse tumours, in which he demonstrated, with figures more elaborate than those which we, with our smaller facilities, were able to present, that mice which have survived a first inoculation, even with attenuated materials, may remain immune when reinoculated for a second and third time with a far more virulent strain than that originally employed, a smaller percentage of tumours being obtained on each occasion, until finally the remaining mice are immune to all further treatment.

Ehrlich states (p. 89) that we had recognized the existence of immune forces in mice that had recovered spontaneously from cancer. He further notes, in a subsequent sentence, that Michaelis, after injecting carcinoma material killed by means of chloroform, had failed to find an immunity in mice so treated, an observation which he apparently considers contradictory to our results. Ehrlich then states on page 90 that, "instead of using chemically-destroyed carcinomatous material, as had his predecessors in this line of research," he was himself employing a living but weakened tumour strain as a means of inducing immunity. Ehrlich appears to have accidentally overlooked the fact that we were using mice which had recovered spontaneously from growing tumours, and have included our work with that of others who had attempted unsuccessfully to immunize mice by means of inanimate materials. Our very first experiences, more than two years ago, demonstrated the futility of any such method as that which Michaelis had employed, and we were the first to emphasize the rôle played by the living cell in inducing immunity. We still believe that an actual growth must take place in order that immunity may be conferred. We are, and since the commencement of our experiments have always been, convinced that immunity against cancer is not induced by means of any inanimate material, but only by the intervention of the living cells or virus.

A paper has just been published by Bashford[8] in which he apparently repudiates his own statements of the previous year, and confirms our results, although no statement appears to that effect. Bashford recognizes the occurrence of spontaneous recoveries in large numbers (in certain series as many as 50 per cent.), and, further, that on reinoculation a very small percentage of tumours is obtained from such recovered mice as compared with normal controls—a corroboration of our results. He finds, further, that all mice are not reinoculable, as stated in his previous report, and, whilst he obtains nearly the same percentage of tumours on the second as on the first inoculation, eventually a stage is reached at which the percentage yield on reinoculation is much lower than that of normal control animals—a further confirmation of the results obtained by Ehrlich and ourselves.

He states that body fluids of some protected mice when injected into mice with experimental cancer, have given indications of a power to retard the growth of well-established tumours—a confirmation of the statement in our first preliminary report, to the effect that serum of spontaneously recovered mice exerts a more powerful influence on tumours in other mice than does the serum of normal individuals, leading in certain cases to a recovery and in others to a distinct retardation in the development of the tumour.

By making use of a feeble primary tumour, in which a large majority of the tumours that appeared recovered spontaneously, and subsequent inoculation with a more virulent strain, Bashford was able to demonstrate that a smaller proportion of tumours develop in those that so recovered, than in normal control animals, a confirmation

of similar results obtained on a larger scale by Professor Ehrlich.

Finally, we would take exception to Bashford's statement that "we have at our disposal a means of protecting healthy mice from all the consequences of inoculating them with experimental cancer." Such a statement is, to say the least, misleading, unless, indeed, the loss of a certain number of individuals in the process of immunization is ignored. It is to be hoped that in the future means will be discovered of immunizing mice with non-living material. So long as it is necessary to take the risk of losing a certain percentage when inoculating with attenuated materials in order to confer immunity against more virulent materials, it cannot be stated that we have a means at our disposal of protecting healthy mice at pleasure.

Since the completion of the work referred to above we have carried out further experiments in the New York State Laboratory directed toward the demonstration of the existence of immunity. I would call your attention especially to one experiment demonstrating the existence of immune forces distributed throughout the bodies of animals already developing tumours of considerable size.

Very early in our experiments, the careful observation of charted records led us to recognize the fact that a large number of tumours apparently remain stationary at a certain stage of development, and at that time are more susceptible to the influence of x rays, serum, and various chemical agents. Recognizing this fact, so soon as we had tumours of great virulence at our disposal, in which a yield of 95 per cent. could be relied upon, we started the following series of experiments, which, whilst carried out independently of Professor Ehrlich, must be looked upon as a confirmation of the results included in his recent paper under the heading of Double Inoculations.

Ten series each of 10 mice were inoculated at the head with a virulent tumour, with the result that the large majority showed developing tumours of a fair size in the course of five or six days. All those that showed such tumours were inoculated at periods from five to ten days after the first inoculation with a second dose of a tumour of the same or even more virulent strain, at the tail; in each case a series of unused animals being inoculated with the same materials at the same point, as a control. Whilst in the control series in the course of twelve or fourteen days from the time of inoculation, a yield of 95 per cent. of large tumours was obtained, in the series which had already had tumours at the head, previous to the second inoculation at the tail, only one or two small tumours were to be found at the tail, the yield being less than 6 per cent. The fact that the presence of a fair-sized growing tumour inhibits the development of materials of the same virulence, and even of materials of greater virulence at the second point of inoculation, indicates to our minds the probability of the existence of powerful immune bodies in the serum.

It has long been recognized that metastases are formed with difficulty, and only in a relatively small percentage of cases reach any considerable size even in those mice which have large tumours.

It may well be supposed, from the above experiments, that the growth of a tumour meets with an energetic resistance on the part of the host; that antibodies of some type antagonistic to the development of tumour cells are produced in the serum, which, whilst powerful enough to inhibit the development of isolated cells, such as would occur in secondary inoculations and metastasis formation, are not necessarily sufficiently powerful to inhibit the development of the more virulent tumours. When, however, a tumour is retarded in its development, remains stationary, and eventually recovers spontaneously, it may well be supposed that such recovery is due to the natural production in the body fluids of the animal of antibodies antagonistic either to the tumour cells in their development or to some body within those cells stimulating them to proliferation. This theory finds support in the fact that such spontaneous recoveries are not reinoculable with tumours of the same virulence and show less tendency to inoculation with tumours of a higher grade of virulence than do normal mice; the resistance being apparently larger, the larger the tumour from which the mouse originally recovered.

We have collected the data accumulated in this laboratory regarding the reinoculation of mice which had failed to give tumours on the first inoculation. Excluding those cases in which the use of chemicals and high temperatures may be expected to have destroyed the tumour materials employed, it may be said that in the Jensen series from 30 to 35 per cent. of tumours are obtained on first inoculation; the second inoculation giving 10 per cent., and the third *nil*. We regret that the occurrence of an epidemic rendered it impossible to inoculate these mice, as would otherwise have been done, a considerable number of times.

In the Brooklyn series the last 400 mice have yielded 95 per cent. of tumours; the remaining 20, 3 or 4 of which had recovered spontaneously, gave 3 tumours on reinoculation. The immunity developed is not, therefore, as great as that observed by Ehrlich under similar conditions. The reinoculation of the survivors of less virulent strains, such as the Jensen and Springfield strain, with our more virulent tumour, whilst giving a yield considerably below that normally obtained from unused mice, would not indicate, especially if large doses are employed, that as great a degree of immunity had been conferred, as was found by Ehrlich in the results reported in his last communication on this subject. This difference may, however, be accounted for by the difference in our methods of transplantation, the probability being that a larger number of free tumour cells are introduced by the method which we employ than by that used in Ehrlich's laboratory; in which case the effect exerted by immune forces might be expected to be relatively less.

The evidences of immunity so far presented are:

1. The occurrence of spontaneous recovery from true tumours.
2. Such spontaneous recoveries are not reinoculable.
3. The reinoculation of mice which have failed to develop tumours on the first occasion with a tumour of an equal virulence leads to a reduction in the percentage, in Jensen tumour from 35 to 10 per cent., and in the virulent Brooklyn tumour from 95 per cent. to 20 per cent.
4. The reinoculation with virulent materials of mice previously inoculated with a weaker strain, leads, as has been found by Ehrlich, to a reduction in the percentage of tumours as compared with the normal.
5. When mice are suffering from tumours of a certain size it is not possible, as found by Ehrlich and ourselves, to bring about development of a tumour at a second point by further inoculation.
6. The serum of recovered animals apparently produces a certain effect upon small tumours in other animals.
7. The serum of recovered mice appears to exert an inhibiting or retarding effect upon the development of macerated tumour material when admixed with the latter previous to inoculation.

Attempts at Artificial Immunization by Means of Inanimate Material.

Tumour materials were incubated at a temperature sufficiently high to entirely destroy the cells, so that no tumour development took place on subsequent inoculation. The mice, on reinoculation after a considerable period, showed no evidences of immunity.

The treatment of tumour materials previous to inoculation with chemicals, such as mercuric chloride, potassium cyanide, iodine, etc., at a concentration just sufficient to prevent tumour development, and subsequent inoculation of mice with this material, failed to confer on these animals any degree of immunity as compared with the normal.

The treatment of tumour materials previous to inoculation with immune serums—that is to say, the serums of mice which have recovered from cancer, whilst reducing the percentage of tumours on that occasion, does not confer upon the mice an immunity against further inoculation, these groups showing if anything a larger yield of tumours on the second inoculation than do other reinoculated series.

Chemical analyses[3] of over 350 tumours have shown that nucleo-proteids, potassium, and other constituents of the cell nuclei were present in a relatively large amount in tumours possessed of a high degree of virulence which had developed rapidly, whilst the reverse was the case in slow-growing, feeble tumours, in which the element calcium was found to preponderate. This being the case, it was decided to attempt to immunize mice by means of one of the following processes, following the

lines adopted by Beebe in his work on exophthalmic goitre: A suitable weight of tumour material was extracted with water or weak alkali for a couple of hours, filtered, and precipitated with acetic acid. The centrifuged precipitate was washed and redissolved in weak alkali, filtered, subsequently precipitated, and once more redissolved and used in definite doses in a series of mice, rats, rabbits, and chickens. The animals employed received four or five doses, increasing in amount, at intervals of from five days to a week, the amount finally injected being from eight to twelve times that used on the first occasion—a dose which would have proved fatal for many mice. The tumours of upwards of 300 mice, belonging for the most part to our virulent strains, were used for this experiment, and an attempt was made to immunize in all 250 mice. The animals were inoculated from a week to fourteen days after receiving the last dose, but we have not so far been able to observe any indications of an immunity having been conferred upon the mice by such a direct treatment. The rats, rabbits, and chickens which had also received increasing doses of nucleo-proteids were killed and their serum used in comparison with that of normal animals of the same species, employing the method of admixing macerated cancer materials with the serums for an hour previous to injection. No result was obtained from rat and rabbit serum. In 1 case the serum of an immunized chicken appeared to retard development to a very slight extent; but since 3 other chickens similarly treated gave no result, this result will require further confirmation.

The nucleo-histons present in tumours were isolated by extracting with weak salt solution, precipitating with calcium chloride, centrifuging, dissolving in 3 per cent. sodium chloride, dialyzing, reprecipitating, etc. These nucleo-histons were used in the same manner as the nucleo-proteids, increasing doses being employed at intervals of five or six days. The results were in every sense negative.

From the above experiments it will be seen that great difficulties are to be anticipated in any attempt to immunize animals by means of dead material.

Theoretical Considerations.

In conclusion, it is necessary to refer briefly to certain interesting and suggestive theories recently advanced by Professor Ehrlich, by means of which he attempts to explain the proliferative energy of tumour cells, and the indications of immunity referred to above. Adopting his side-chain theory as a working basis, and assuming that all cells are possessed of side-chains or receptors, by means of which the necessary foodstuffs are attached to the cell, he considers the abnormally rapid growth of tumour cells is attributable either to an increased number of such receptors or to an increase in the affinity possessed by such receptors for foodstuffs. As a result, in the establishment of equilibrium in the system, the cancer cells obtain a larger proportion of the foodstuffs available than do the other cells of the body. As a result of his experiments, Ehrlich concludes that the normal food affinities of the cell are either stimulated by a specific X body, the nature of which he does not further describe, or that some peculiar nutritive material essential to the development of the cancer cell has to be supplied, and in its absence the cancer cell fails to develop. He is, however, forced, in certain cases, to the conclusion that the immune forces exhibited, both by rats and mice that have developed an immunity after one or two injections of tumour material, are attributable to specific antibodies induced in the serum which he looks upon as cytolysins, and the formation of which he explains by assuming that the receptors of the tumour cells have become sufficiently changed to permit of the production of antibodies to them, which do not affect those of the normal body cells.

In developing a theory conforming with Ribbert's existing theory regarding the origin of cancer, Ehrlich has apparently ignored the possibility of some active stimulating agent foreign to the body being the cause of cell proliferation. It is well known that the normal protoplasmic functions can be stimulated to increased activity by chemicals, poisons, and bacterial toxins, and it appears to us possible to explain the experimental results referred to above by assuming that the stimulus to proliferation both of the original cell and its descendants may be supplied by the secretion of some virus within the cell, or immediately in its neighbourhood. Such stimulus would, in all probability, lead to cell division associated with an increased capacity for food absorption along the lines depicted by Ehrlich, but rather as effect than cause. Our experiments would indicate that immunity is conferred as a result of active growth followed by recovery, some antibody being produced in the serum antagonistic either to the cell development, or more probably to that of the agent stimulating the growth of the cancer cell.

Evidence in support of the theory that some virus acting as a stimulating agent either on epithelial or connective tissue cells leads indirectly to the formation of carcinoma or sarcoma, and that immunity against cancer is the result of a reaction against such a virus on the part of the body, is afforded by the following observations:

1. Ehrlich finds that a mouse which, through inoculation, has become immune to carcinoma is also immune to sarcoma and vice versa, thus indicating a reaction against some common agent. Ehrlich assumes the existence of a specific *Wuchsstoff* or X body, which, when attached to an epithelial cell, gives it the character of carcinoma, and when attached to a connective cell, that of sarcoma, and he evidently looks upon this body as an agent capable of stimulating the ordinary receptors of the cell in question, giving them an increased affinity for the assimilation of foodstuffs; but might not the stimulus in question be equally well attributed to the action of some common virus capable of infecting cells of either type?

2. Haemorrhage is apparently very frequently associated with retrogression of tumours. Any treatment tending to bring about haemorrhage retards the development of tumours, and as Ehrlich has pointed out, those tumours which were originally haemorrhagic, show the least tendency to produce tumours when transplanted, indicating that the presence of blood serum is anything but favourable to tumour development, attributable in all probability to the presence of antibodies.

3. The serums of animals which have recovered from tumours exert an inhibiting effect both on tumours in other animals, and also on macerated cancer material previous to inoculation—a fact which can scarcely be explained by other means than the assumption of antibodies directly antagonistic to the development of the cells, and since test tube experiments carried out in this laboratory would indicate that the serum in question is not possessed of any marked haemolytic or cytolytic characteristics, it would appear probable that the effect is exerted directly upon some virus within the cell, and not upon the cell itself.

4. The following observations made both by Ehrlich and ourselves:

A. That large metastases occur very seldom until near the close of the animal's life.

B. That if mice already developing tumours are inoculated for a second time from five to ten days after the first inoculation, even with a more virulent material than on the first occasion, tumours are practically never produced, and, even if produced, develop far more slowly than in normal control animals.

If, as Ehrlich believes, virulence is simply dependent upon the relative ability of the cell receptors to attach foodstuffs, the establishment of equilibrium should certainly permit of the development of the second tumour, since the receptors of the latter are supposed to be more active than are those of the normal body cells, and either equal to or more virulent than are those of the first tumour. Ehrlich explains this phenomenon by assuming that the original tumour, being well established and having a good blood supply, grasps all available foodstuffs for itself, thus depriving the cells injected on the second occasion of the necessary nourishment. Since, however, the whole question, according to Ehrlich, resolves itself into one of the establishment of chemical equilibrium between the active food receptors of a series of cells and the available supply of foodstuffs, the cells of the second tumour should at least be able to overcome the weak affinities of the normal body cells, and there is every reason to anticipate that they should develop; but, as stated above, this is practically never the case, and at autopsy merely the smallest residue of connective tissue is usually to be found at the point of inoculation. It is,

however, possible that immune forces are induced in the serum, as a result of reaction against the developing tumour, powerful enough to affect the virus within the isolated cells introduced on the second occasion, but not sufficiently powerful to penetrate and destroy completely the original well-established tumour.

Further support of this point of view is found in the fact which we have frequently observed, that considerable quantities of tumour material must be employed on inoculation, if the maximum yield is to be obtained, indicating the existence of immune bodies even in the serum of normal mice, which, when distributed over a large number of cells, are incapable of producing as great an effect as would be the case were a smaller amount of tumour material employed.

That immune forces are produced in the serum in gradually increasing quantities as the tumour progresses, is indicated by the tendency frequently exhibited by tumours to remain stationary after fairly rapid development, and then subsequently either to grow rapidly once more or to retrogress. In this connexion it must be noted that *x* rays produce a much more marked effect at this stage than at a subsequent stage, at which apparently the tumour has quite overcome the natural immunity of the mouse and is developing rapidly.

5. Perhaps the best evidence in favour of the theory of a stimulating virus is afforded by the following experiment published from this laboratory, July, 1905, as follows:

A group of upwards of 50 mice were inoculated with an exceptionally weak strain of the Jensen tumour, with the result that only 1 fatal tumour was produced. A large number of abortive tumours resulted, and in one particular group, 209, in which 3 mice showed no tumour development and 3 recovered spontaneously, a subsequent inoculation with a more virulent Jensen strain gave no tumours in those which had previously recovered spontaneously from the weaker strain, whereas in the other 3 tumours made their appearance, 1 of them subsequently proving fatal. If it were a question of affinity for foodstuffs with which we had to deal, why did not tumours develop in all of the mice on the first occasion, or in those that had spontaneously recovered on reinoculation. It would appear more probable that the 3 mice that failed to show tumours on the first occasion were possessed of a weak immunity, insufficient, however, to protect them against the stronger materials on the second inoculation, whereas those 3 which developed the disease on the first occasion, and subsequently spontaneously recovered, possessed as a result an immunity which was sufficiently strong to protect them against all subsequent inoculations, even with vastly more virulent materials.

6. The great variation in the speed of development of tumours in the same series, the variation in the speed of development of the same tumour at different stages, the almost complete recovery, and subsequent fatal termination of certain tumours, and especially the influence of incubation on weak tumours, stimulating thereby to more active proliferation, appear to conform with the conception of a stimulating virus.

Ehrlich has presented one series of experiments which is certainly capable of a more ready explanation by his assumption of a specific *Wuchsstoff*. He found that a virulent mouse tumour was capable of growing for a short time in a rat, but subsequently retrograded. It was further demonstrated that such a tumour after remaining for four or five days in a rat, could still be transplanted to a mouse but not to a normal rat, neither could the rat which had recovered be further inoculated. Ehrlich explains this by assuming that the mouse tumour introduced into the rat carries with it a certain amount of a specific *Wuchsstoff*; that it is capable of assimilating ordinary foodstuffs from the rat, but that so soon as its specific *Wuchsstoff* is exhausted it succumbs. Transplantation back to a mouse provides the cells once more with their specific *Wuchsstoff*, and enables them to develop, so that they are once more capable of transplantation in a rat for a short period of time; on the other hand, when passed from the first rat into a second rat, the absence of the *Wuchsstoff* in the rat prevents further development. He argues that since the mouse tumour is apparently still possessed of the same virulence after spending a certain time in the rat, the failure to take in the second rat is not attributable to attenuation, as would appear to be the case. It is, however, perfectly conceivable that the virus capable of stimulating mouse cells to proliferation is incapable of living in a rat—at any rate, for any length of time.

Ehrlich recognizes the existence of antibodies conferring immunity on those mice which, after the first or second inoculation with attenuated materials, prove incapable of developing tumours on subsequent inoculation.

The experiments enumerated above, when considered in conjunction with the cases of cage infection reported by Gaylord from this laboratory, offer very strong evidence in support of the theory that the cell is stimulated to proliferate by a parasite, or the toxins produced by a parasite which has infected the cell. If such a parasitic stimulus may be considered identical with Ehrlich's specific *x* body or *Wuchsstoff*, a ready explanation of the subsequent process of proliferation may be derived from Ehrlich's theory. The close correspondence in the experimental results obtained by Ehrlich and ourselves is of considerable interest in view of the fact that the materials employed were derived for the most part from entirely independent sources, and the experiments carried out under widely differing conditions. The existence of a definite immunity against cancer in mice has been demonstrated in a variety of ways, and any slight difference of opinion regarding the theoretical interpretation of certain experimental results should only lead to renewed efforts directed towards the final solution of the problem.

Summary and Conclusions.

From the above experiments, in which over 7,000 mice have been employed, it may be concluded that:—

1. Primary tumours are only transplanted with great difficulty; after the first generation the yield of tumours gradually increases until a maximum virulence is attained, which subsequently remains fairly constant for a considerable period of time.

2. Increase in virulence of a tumour strain is invariably associated with an increased rate of growth of the individual tumours.

3. The proportion of tumour mice recovering spontaneously in any series is apparently inversely proportional to the virulence and speed of development of the tumours of that series.

4. The larger the dimensions actually reached by a tumour the smaller are the chances that it will recover spontaneously.

5. Incubation of tumours possessed of a low grade of virulence, previous to injection into mice, is found to exert a stimulating effect, larger yields of tumours being obtained than in control series.

6. The resistance of tumour cells to mercuric chloride and other inorganic disinfectants is very high. It was found possible, for example, to destroy the bacteria present in badly-infected tumours by means of potassium cyanide without seriously affecting the virulence of the tumour on subsequent transplantation.

7. The chemical analysis of over 300 tumours shows a relatively high potassium and nucleo-proteid content, associated with high virulence and rapid development, and a low potassium and high calcium content, associated with low virulence and relatively slow development.

8. The principal evidence of the existence of immunity against cancer is as follows: Spontaneous recovery of mice from true tumours actually occurs. Those mice which have recovered are not reinoculable with tumour materials possessed of the same degree of virulence as that previously employed, and exhibit in addition a considerable immunity to subsequent injections of far more virulent strains. The reinoculation of mice which have failed to develop fatal tumours shows in our experience a great reduction in the proportion of tumours, and inoculation for a third time has so far failed to be productive of a single tumour. The serum of recovered mice apparently exerts a definite though slight effect on the small tumours in other mice when directly injected, and also on tumour materials when admixed previous to inoculation. Mice on which tumours are already developing are, with a few exceptions, immune to subsequent inoculation, even with a more virulent tumour, indicating the production of immune forces in the serum antagonistic to the development of cancer.

9. The injection of tumour materials incubated at such temperatures as to render development impossible, or of tumour materials previously treated with chemicals at such a concentration as to inhibit development, fails entirely to confer immunity on the mice so treated.

10. The treatment of mice with increasing doses of nucleo-proteids (extracted from the most virulent tumours) at stated intervals of time has so far failed to confer an immunity.

11. The process of immunizing mice against cancer appears to be analogous to that of vaccination against small-pox, the animals which recover from an attenuated form of the disease developing an immunity capable of protecting them in the large majority of cases against injections of a more virulent cancer strain than that originally employed.

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THE INVESTIGATIONS OF THE IMPERIAL CANCER RESEARCH FUND.

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[ABSTRACT.]

DR. BASHFORD gave a general account of the investigations, which, he stated, had been distinguished from all others by a much more comprehensive character from their commencement in 1902-3. It was not wise to concentrate their efforts to elucidate the cause and nature of malignant new growths on any particular line of inquiry in the present state of our knowledge. The whole field of cancer investigation was therefore covered in the attempt to collate the data associated with the spontaneous appearance of malignant new growths in man and animals and to further interpret them by the aid of experiment.

Investigations into the spontaneous appearance of malignant new growths made with Dr. J. A. Murray were outlined under the following heads: (*a*) Ethnological distribution; (*b*) zoological distribution: (*c*) statistical (clinical and pathological) investigations in London, provincial, colonial, and Indian hospitals, together with a study of the national mortality from cancer, in collaboration with Dr. Tatham, of the General Register Office. The main conclusions drawn were as follows:

1. Malignant new growths were devoid of a specific symptomatology, whose absence necessitated caution in making comparisons on the basis of all existing statistics, since the data from which the statistics were compiled were often enumerations of opinions and not of facts.

2. Accurate and extensive data from civilized and aboriginal races of mankind, from domesticated and wild mammals, as well as from other classes of the vertebrates, went to prove that malignant new growths (carcinoma and sarcoma) increased in frequency with advancing age in man and in animals. This was true whether the absolute duration of life was short, as in the mouse, or long, as in the case of man. Instances were given showing the probability that the malignant new growths of the individual organs and tissues of the body developed in a manner corresponding to their development in different animals with long and short lives respectively. The higher death-rate from malignant new growths in the earliest years of life, as compared with that of children 10 to 15 years old, was possibly also a manifestation of the association with senescence—for example, with that of fetal tissues and transitory structures. The association of malignant new growths with senescence was the only constant feature in their spontaneous appearance. Since there was no evidence to the contrary, it was permissible to assume, from this constant association and from the evidence yielded by experiment, that the disease arose *de novo* in each individual attacked in conformity with the very definite laws which determined the duration of life and the size (amount of growth) not only of the organisms themselves, but also of the individual organs of the animals comprised in the vertebrate scale.

3. To those able to appreciate the biological significance of the peculiar age-incidence of malignant new growths, and also its statistical importance, there was no evidence proving that "cancer" was either on the increase or endemic in its occurrence. The numerous cases of "cancer" discovered by the Imperial Cancer Research in regions, races of mankind, and in animals hitherto asserted to be exempt were no evidence of a sudden increase of the disease, but merely the results of searching investigations. Assertions of the endemic occurrence of "cancer" in animals were based without exception on a small and insufficient number of cases: account was not taken of the normal frequency of the disease, of the total number of animals of all ages examined, and still less of the all-important factor of the varying proportion of aged individuals. "Cancer" was easily found if a sufficient number of aged individuals was examined. In the absence of the necessary data, conclusions as to relatively greater and less frequency of the disease in animals were absurd.

4. The questions of influence of race, heredity, diet, soil, climate, etc., were left open; that of heredity was being experimentally tested by means of in-breeding experiments with the offspring of mice that had suffered from cancer naturally.

The study of all the circumstances associated with the spontaneous appearance of malignant new growths had failed to reveal any absolute necessity for assuming the existence of an external parasitic cause, and there was much biological evidence in favour of the problems of malignant new growths being cellular problems in the strictest sense. A general conviction that this was so had, in the opinion of the speaker, been the incentive to the valuable discussion on the function of the nucleus so ably opened by Professor Adami before the joint meeting of the Physiological and Pathological Sections of the Association, and to which so much that was interesting and instructive was contributed by those who followed him. The experimental investigations conducted with Murray, Cramer, and W. H. Bowen were outlined. Reference was made to experiments on various vertebrates, including mammals, amphibians, and fish. The gulf separating the unique results obtained in the propagation of malignant new growths in rodents, especially in mice, from the absolutely negative results with other mammals, had been bridged over by the propagation of a mammary carcinoma of a dog through at least three transplantation generations. Some general results were then summarised: (1) Of the mouse tumours experimented with, 60 per cent. had been successfully transplanted at the first essay. (2) In a total of eighteen different transplantable tumours the parenchyma had been found capable of transplantation, as Jensen first proved, and the stroma not. (3) The stroma was always supplied afresh, and was of the nature of a specific reaction on the part of the connective and vascular tissues of the host, the characters the stroma ultimately assumed being determined by the different nature of the influence exerted by the parenchyma cells of different primary growths. The process differed from all known processes of infection. (4) Although the sporadic cases always occurred in old mice, young mice were more suitable for continuing growth in transplantation experiments. Hence, although senescence was associated with the origin of cancer it was not necessary for growth to continue once it had started, and the origin of "cancer" was to be sharply distinguished from the continued growth of cancer. (5) A piece of tissue, 0.01 to 0.02 gram in weight, frequently gave 1.5 gram of tumour after ten days' growth in a new mouse, that is, the increase was one hundredfold. This power of growth was unparalleled in the mammalia, and had no relation to the restrictions which limited the growth of adult vertebrates. (6) All the lesions of spontaneous cancer could be reproduced experimentally, for example, extension by the blood and lymph vessels gave rise to very large metastases almost constantly. The experience in this respect appeared to be in contrast to that of Ehrlich, who emphasized the importance of the small size of the mestastases. (7) The "infiltrative" and "expansive" modes of growth were interchangeable. The same tumour could be made to behave in either way by varying the site of implantation, that is, the surrounding tissues. (8) Malignant new growths of the mamma had occurred once in every 3,500 mice in a total of more than 100,000 of all ages examined, yet these tumours had grown in one out of every thirty-six mice inoculated, and for individual tumours the successful inoculations had risen to one in

three, or even higher, and in the subinoculations the percentage often rose to 100 per cent. The rarity of spontaneous cancer in mice was determined, therefore, not solely by the absence of soil suitable for the growth of the cancer cell to continue, but by the frequency of the initial change or changes which created the cancer cell. The negative results obtained by housing large numbers of healthy mice throughout life with others suffering from spontaneous and inoculated cancer were not due to the unsuitability of the normal animals as a soil for cancer to grow in. Normal mice were eminently suitable subjects for the transmission of the disease, but there was no experimental evidence which necessitated, or at the present time so much as justified, the assumption that the disease was communicable in a manner analogous to any known form of infection. (9) Apart from the difference between young and old animals there was definite evidence that some mice afforded a more favourable soil for the growth of cancer than others, even when of the same age. (10) Spontaneous tumours behaved differently under similar experimental conditions. (11) A single tumour exhibited alternating phases of augmented and diminished powers of growth during prolonged propagation. Growth was not homogeneously progressive in any one animal (or in a batch of mice with tumours), but, on the contrary, heterogeneous. It proceeded rapidly in one area, and slowly or actually ceased in another area of a single tumour in any one animal. By subdividing a tumour repeatedly and distributing its component parts over a large number of mice, this heterogeneous nature could be demonstrated, and then, while the tumours progressed rapidly in some mice, in others they ceased growing and were absorbed. This heterogeneity of growth resulted in a rise and fall in the percentage of successful inoculations, and the fall often corresponded with absorption of other tumours which were not transplanted—that is, which were left undisturbed. By carefully selecting the intervals between successive inoculations and inoculating a large amount of tissue, the fall in the percentage could be avoided, and then a maximum success in inoculation could be maintained and the fluctuations obscured. The heterogeneity in the growth of experimental tumours appeared to correspond with the periods of amelioration and exacerbation so familiar in the clinical history of cancer in human patients—for example, the healing at one part of a rodent ulcer while growth was proceeding at another, and the typical progress of cancer of the uterus. The further study of these fluctuations was of the utmost importance. (12) Reviewing the bearing of the experimental, the biological, and the statistical evidence on the nature of the cell problems apparently involved, the speaker said that cell division was only the most easily-observed feature in the continued growth of "cancer." It was in reality merely the end-phenomenon in the life-history of every cell responsible for the continued growth, and but the manifest result of the power of ceaseless asimilation of food and the resulting growth of the cells to dimensions necessitating division. The time had not yet come when it was wise to commit oneself to definite views on the cause and nature of the unlimited growth of propagated cancer and the manner of its inception. There might be one or many causes. The very different behaviour of tumours of the mouse's mamma, even when their histological structure appeared identical, pointed to the cells of different tumours possessing different properties, and so did the specific nature of the stroma reaction the cells called forth in new hosts. There was also great diversity in the characters of the malignant new growths of the mouse's mamma. All these differences might be due either to a variety of causes, or to one cause acting with varying intensity in different cases. Emphasis had already been laid on the fluctuations in the rate and amount of the growth of Jensen's tumour. If these fluctuations were as real as they appeared to be, they were possibly to be interpreted, at any rate in part, as manifestations of alternating negative and positive phases in the assimilative powers of the cells, and, if so, Ehrlich's views of the importance of assimilation might have much in their favour. Speculations on the nature of cancer must, however, remain futile till there was more definite evidence to work on.

It was asserted that those working for the Imperial Cancer Research Fund had been content to do much of the donkey work necessary to establish the comparative biological, statistical, and experimental investigation of "cancer" on a secure basis, without a too great anxiety to speedily attain to important results. It was pointed out that much of the work was necessarily preliminary to the satisfactory carrying out of immunity experiments and other efforts to artificially control the growth of propagated tumours. In view of the detailed account given by Dr. Clowes of certain aspects of immunity to cancer, Dr. Bashford expressly refrained from discussing what he described as very extensive experiments in this field conducted with Murray and Cramer in the course of the past three years. Acknowledging that he had expressed his scepticism of Dr. Clowes's earliest results, and had criticized them in the light of his own experience at the time, the speaker said that he could confirm Dr. Clowes's statement on the main point that mice in which tumours had been spontaneously absorbed could not be subsequently inoculated, and concluded by assuring Dr. Clowes that there had been no intention to do him any injustice.

EVIDENCES THAT INFECTED CAGES ARE THE SOURCE OF SPONTANEOUS CANCER DEVELOPING AMONG SMALL CAGED ANIMALS.

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The employment of small animals suffering from cancer for purposes of laboratory experimentation has brought to light the fact that the endemic occurrence of cancer in animals is a not uncommon phenomenon. The classical case of carcinoma in rats reported by Hanau, and the more recent observation of endemic occurrence of carcinoma of the breast in mice by Borrel, are well known. Michaelis has likewise recently reported the finding in the course of one year in a single cage of 5 cases of carcinoma in the mouse.

Loeb refers to an article by Cooper in the *Veterinarian* on the endemic occurrence of cancer of the parotid and submaxillary glands in the cow, and has himself reported the endemic occurrence of epithelioma of the inner angle of the eye in cattle observed in the Chicago stockyards.

The endemic occurrence of malignant tumours in animals, especially laboratory animals which are confined in cages and whose diet is controlled, and which are under much closer supervision than even the animals of the field, renders observations in regard to the infectiousness of cancer among these animals of much greater significance than many of the similar observations applying to cancer houses and the endemic occurrence of cancer among human beings.

In the light of these interesting observations, the recently reported discovery of the endemic occurrence of cancer of the thyroid in the brook trout hatcheries in Germany by Pick is of the greatest significance. Pick finds that cancer of the thyroid in the different varieties of trout occurs in certain hatcheries in a percentage varying from two to seven, and he refers to an epidemic of this affection reported by Bonnet which occurred in the fish hatchery at Torbole on the Gardesee, which, between the middle of February and the end of June destroyed no less than three thousand fish. Pick's investigations show that certain hatcheries are entirely free from this affection; that where the fish are affected the disease is confined to individual tanks or pools in which the fish are kept; that wild fish introduced into these ponds for the purpose of replenishing the stock acquire the disease, which observation, to his mind, obviates the necessity of considering heredity an important factor in the development of the infection. His observations establish beyond doubt the nature of the affection, which is true carcinoma, and he concludes that the endemic occurrence of cancer among trout only in certain tanks of hatcheries indicates that the water of these tanks contains the agent which is the cause of the disease. This occurrence he compares with the drinking water origin of struma as it exists in Switzerland, and concludes that the agent, whether chemical, bacterial or protozoon, must be present in the water in which these fish have been kept.

During the past two years there have come under our observation cases of endemic occurrence of tumours in small animals confined in cages, which strongly indicate that cages under given conditions can become infected. In the case of sarcoma rats about to be reported the manner in which the cage became infected would appear to be fairly obvious. The facts pertaining to this observation are as follows:

In 1904, Loeb, in the article referred to above, described the endemic occurrence of primary cystic sarcoma of the thyroid in rats confined in a group of cages in the laboratory of the Chicago Polyclinic. The rats in question were found in three or four closely-arranged cages, which were used to confine a number of rats which were presumably the offspring of a few males and females which had originally been brought into the laboratory. The rats were changed about from cage to cage during the period referred to. In January, 1900, there was found in these cages a case of cystic sarcoma of the thyroid. This tumour was transplantable. In August, 1901, a second rat with cystic sarcoma of the thyroid was found in these cages. This also was transplantable. In the autumn of 1903 a third case of cystic sarcoma of the thyroid was found in these cages, and this, in the hands of Dr. Herzog, who reported the fact, did not yield results on transplantation.

The structure of these tumours showed but slight differences. Loeb called attention to the fact that the great similarity of the tumours and the fact that they occurred in a relatively small number of rats which had all at one time or another occupied the same cage indicated that the tumours must owe their origin to a common source. Inasmuch as the rats were all descendants of common ancestors, he was unable to exclude the possibility of the endemic occurrence of these tumours being due to heredity, but felt that the observation just as strongly indicated the possibility of a common source of infection in the cages.

These three cystic sarcomas of the thyroid proved on microscopic examination to possess practically identical histological characteristics. These characteristics in the first and second tumour persisted on transplantation. The clinical course of the disease in inoculated rats was the same. They grew rapidly on inoculation, and in the later stages developed cysts of considerable size, which contained a straw-coloured serum which coagulated on exposure to the air. Areas of necrosis were not infrequent in both primary and transplanted tumours. Loeb demonstrated that the inoculated tumours were derived from implanted cells, and that the tumour was a true sarcoma and not an infectious granuloma, in the sense which Bashford has recently employed in attempting to show that the round-celled sarcoma of Sticker was not a true tumour. Dr. Loeb demonstrated sections of both the primary tumours and the inoculation tumours on various occasions before scientific societies, and the universal opinion of all pathologists has been that they were true spindle-celled sarcoma.*

In the spring of 1902 Dr. Loeb was engaged in the transplantation of the second tumour, and, at our invitation, came to the State Cancer Laboratory in Buffalo, bringing with him a number of rats inoculated from the second tumour. This tumour had at that time been transplanted through a number of generations. For his accommodation there were made for him two large cages and a number of smaller ones. During the course of his stay in Buffalo these cages all contained at one time or the other numbers of successfully inoculated rats. In October, 1902, Dr. Loeb went to Montreal, taking his rats with him. There were some inoculated rats left in the cages, but none of these developed tumours, and by December, 1902, the remainder were disposed of. During the period from December, 1902, until the summer of 1903, there were no rats in the laboratory. The smaller cages were placed in the hot-air sterilizer and sterilized; the two larger being too bulky for this procedure, were brushed out and stored in the back part of the animal room, where they remained unused until the summer of 1903, when they were employed for a number of rats brought into the laboratory for purposes of study other than tumour implantation. These rats were killed at various periods, and on the conclusion of the work there were left in the two large cages perhaps a dozen rats; in one cage 4 rats, in the other 6 or 8. This entire lot of rats were obtained from a totally distinct source from those which Dr. Loeb had employed. In July, 1904, there was discovered in one of the two large cages, which had not been subjected to sterilization after Dr. Loeb's departure, and which at that time contained 4 rats, a rat with a large tumour on the right abdominal aspect, and a smaller tumour adjacent to it in the axillary region, about the size of a hazel-nut. The large tumour was movable, quite dense, and about the size of an English walnut. The rat appeared to be in good condition, and on July 12th the large tumour was removed by operation. It proved on section to be a slow-growing fibrosarcoma. Portions of the tumour were inoculated into a number of rats, but none of these subsequently developed tumours. There was no local recurrence of the tumour at the site of operation, and on the death of the rat some months later the smaller nodule in the axilla was found not to have changed in size. The remaining rats were removed from both cages.

There were now placed in the cage in which the tumour had appeared 8 rats from an entirely new source. In the other cage of similar size were placed 6 or 8 rats from the same source as the rats now placed in the infected cage. Both cages were now removed to the basement. They had previously been in the animal room of the laboratory, which is on the fourth floor. The conditions in the basement were not essentially different except that the room was not so well heated and possibly more damp. The rats remained undisturbed in these cages in the basement of the laboratory from August, 1904, until October, 1905. At that time there were in the cage in which the first tumour had been found 3 adult rats, the survivors of the 8 which had been originally introduced into the cage in August, 1904. 5 having died of intercurrent disease (tuberculosis); 1 three-quarters grown female which had obviously been born in the cage, and a litter of 10 half-grown rats, not over 6 months old, all of these the offspring of the adult rats originally placed in the cage. Of the 3 adult rats, 2 were males and 1 a female. The two males were found on examination to each have a large tumour. One of these had a tumour located on the right side of the abdominal aspect directly behind the right foreleg. It was about the size of a 50-cent. piece, 1 c.cm. in thickness. The other male adult rat possessed a tumour the size of a walnut in the thyroid region. This tumour, because of its great size, embarrassed the respiration of the rat, and it died on October 6th. This rat is known as Buffalo Rat III. The notes of the autopsy are as follows:

The tumour occupies the thyroid region, and extends from the chin to the sternum. It is nearly spherical. It measures 35 mm. in the long axis by 45 mm. in the transverse axis. The skin over the tumour is thin, of bluish appearance, but everywhere perfectly movable. The tumour is fixed at its base, is nowhere adherent except in the median line in the deeper portion of the neck. The greatest thickness of the tumour is 35 mm. Its weight is 19.8 grams. On dissecting up the tumour it is found to be distinctly encapsulated, easily dissected from the skin, with areas of deep purple mottling on its superior surface with injected blood vessels in the capsule. Toward the base the tumour is of lighter colour and greater consistence. It is easily dissected down to a point where its anatomical relations correspond with the thyroid. There is no evident compression of the trachea.

On opening the abdominal cavity the mesentery is found to contain a considerable amount of fat. Intestines are collapsed and pale. The liver is greatly enlarged, and presents a typical nutmeg appearance.

On examination of the lungs the lower lobe on the left side is found to be in a state of consolidation, with mottlings of deep red, upon which are distributed well-defined areas of pale white. The upper middle lobe on the right side shows the same condition. The left adrenal is enlarged, hyperæmic, and nodular in appearance, is very friable on removal. The kidney is soft and large. The right adrenal is small and of normal appearance. Kidneys on both sides present the same appearance, somewhat enlarged, dark-red, granular surface.

The liver on section presents the characteristics of high-grade fatty degeneration and cyanosis, typical nutmeg appearance. The spleen and pancreas appear to be of normal size and appearance. The retrobronchial lymph nodes are not enlarged, the mesenteric lymph nodes are also not enlarged. The enlarged left adrenal on section is of dark-red colour, friable, and soft.

On opening the tumour the left half is found to consist of a thick-walled cyst containing clear, straw-coloured fluid,

*In this connexion, it may be stated that Ewing and Beebe have recently investigated a similar round celled sarcoma in the dog to that of Sticker, and have arrived at the conclusion that Bashford's interpretation is not correct, and that both of these tumours are round-celled sarcomas.

which, on exposure to the air, coagulated. The wall of the cyst is pinkish-white, the interior smooth and glistening. The right lobe of the tumour consists of friable, pinkish-white tissue, with large areas of haemorrhage. The entire tumour, after removing specimens for microscopic examination, was ground up with salt solution and injected into rats.

Histological examination of this tumour shows it to be a spindle-celled sarcoma, containing frequent cysts. Here and there in the primary tumour are remnants of thyroid epithelium, arranged in the form of irregular nests, but showing no evidence of proliferation. The typical sarcomatous structure is well-defined at the margins of the large cystic cavity, which forms the bulk of the tumour. After removing sufficient material for hardening, the remainder of the tumour was broken up into small pieces, under aseptic conditions, and used to inoculate 10 white rats and 6 parti-coloured rats by placing small pieces of the tumour beneath the skin, with a sterile trocar. Four rats were also inoculated with the serum obtained from the large cystic cavity. The result of the first attempts at inoculation yielded four tumours, all in the white rats, none appearing in the parti-coloured; two of these in white rats inoculated with fragments of tumour through a trocar, and two from the four rats inoculated with the serum of the cyst cavity.

From the four tumours thus obtained, the tumour has now been carried to the sixth generation of successful transplantation. In the course of inoculation we have had one or two tumours develop in the parti-coloured rats, and although the percentage of successful inoculations is not as yet very high, the virulence of the tumour and the percentage of successful inoculations appear to be increasing.

Sections from the tumours obtained by implantation present the histological characteristics of the primary tumour. These tumours grow to great size, and in the later days of the disease rapidly form cysts by taking on large quantities of serum. The behaviour of these tumours is in every way like the implanted tumours which Dr. Loeb had in the laboratory in the spring and summer of 1902. The histological characteristics of this tumour, both in the primary and implanted tumours, differ from Dr. Loeb's primary and his secondary implantations only in minor details. They show the same characteristic structure of sarcoma tissue into a network surrounding the cysts. The only point of difference is an occasional appearance in the arrangement of the cells, which suggests alveolar sarcoma, but most of the tumours are of the simple spindle-celled variety.

The second rat found in the cage in October, 1905, was in good condition. On October 23rd, this rat was subjected to an operation at which the tumour was removed. At the operation it was found that the tumour extended beyond the median line. There was a small nodule detached from the tumour on the thoracic aspect and this was left *in situ*, after being cut in several directions with sterile shears. The tumour weighed 19.3 grams. It presented the macroscopic appearance of a fibroma or fibrosarcoma. It was transplanted into 20 white rats. On section it proved to be a fibrosarcoma, identical in appearance with the first rat discovered in the cage in the summer of 1904. Attempts at transplantation were all unsuccessful, no tumours developing in the 20 rats inoculated. The rat lived until January 10th, 1906, when it was found dead in its cage.

The autopsy showed that the nodule which was left in place at the operation in October, had increased in size, had infiltrated the surrounding tissues, and proved on section to be somewhat softer than when incised at the time of operation. The liver showed marked evidence of fatty degeneration. In the median fissure between the right and left lobes was a large metastasis of irregular shape, somewhat larger than a hazel nut. It involved the structure of the liver and on section was pinkish-white in colour. On elevating the liver, numerous mesenteric metastates, one somewhat larger than a pea, and numerous metastases scarred over the peritoneal surface of the intestines, spleen and mesentery were found. The tumour material and organs of the animal appeared to be badly contaminated and transplantation experiments were not undertaken.

The histological sections of the metastases of this tumour showed that it had assumed the characteristics of a rapidly-growing spindle-celled sarcoma.

During the period in which these three tumours were found in one cage in the State Laboratory no tumours appeared in the control cage, in which there were kept approximately an equal number of rats during the entire period, nor in the other cages in the laboratory, although during the greater part of the time there were no less than 100 rats in various cages. No tumours developed in the smaller cages which were used by Dr. Loeb, but which were subsequently sterilized.

Sarcoma of the thyroid in the rat appears to be a rare affection. We have been unable to find reports of this disease except in the case of the 3 primary tumours observed by Dr. Loeb. For the purpose of ascertaining how frequent this affection might be, there were sent from this laboratory to 325 breeders of small animals in the United States postal cards on which was printed a photograph of Rat III, with the inquiry as to whether or not these dealers had observed any case of a rat with a similar tumour in the neck, and offering 25 dols. reward for each animal so affected. The inquiry was also made as to how many white rats the dealer had observed or handled during the preceding three years. Answers were received from 57 dealers, who reported having had approximately 20,000 white rats in their establishments. All but one or two stated they had never seen anything like the photograph of Rat III, and none were able to give a description which clearly indicated that they had observed anything but abscesses or indefinite swellings in other regions in their animals.

A summary of the facts in this observation is as follows:

There were 7 rats in all which survived in the infected cage. In the first instance 4 rats remained in the cage for a period somewhat over a year. One of these developed a large fibrosarcoma on the abdominal aspect. In the second case 3 rats survived in the cage a period of fourteen months. Two of them developed sarcomas—one, Rat III, a primary sarcoma of the thyroid, Rat II a fibrosarcoma on the abdominal aspect. The histological findings showed that the first fibrosarcoma and the second fibrosarcoma were neither transplantable. They presented the same histological characteristics. The first one was totally removed and did not recur. In the second a nodule was left *in situ* and the animal died with abundant metastases of rapidly-growing spindle-celled sarcoma. These tumours must, then, be looked upon as malignant tumours, although they are not transplantable, and the first one did not recur. The thyroid tumour presents all the essential characteristics of Dr. Loeb's sarcoma of the thyroid, implanted rats from which had previously occupied this cage.

It would be natural to attempt to separate the two fibrosarcomas from the transplantable and rapidly-growing sarcoma of the thyroid, and we should have expressed a possible doubt that they were derived from the same form of contagion were it not for the recent experiments of Ehrlich and Apolant, which have demonstrated beyond doubt that even a carcinoma can, under given conditions, lead to the development of a sarcoma in connective tissue immediately adjacent to it. For this reason it would seem an unnecessary refinement to consider that the three cases of sarcoma, although in different regions of the animal and somewhat different in histological details and experimental characteristics, were attributable to other than a common source. In the light of Borrel's observations on the endemic occurrence of carcinoma in mice, in which he succeeded in tracing the origin of twenty mouse tumours to one cage, it would seem that the source of infection in this case is vested in the cage in which these rats were contained. That we may positively exclude heredity is owing to the fact that the rats which occupied the cage from 1903 to 1904 were derived from a distinct source in a widely distant city from the rats which occupied the cage from 1904 to 1905. That local environment is not the essential factor is shown by the fact that the cage occupied space in the animal room on the fourth floor of the building from 1903 to 1904; from 1904 to 1905 in the basement of the laboratory.

The most logical explanation of the manner in which this cage became infected with the contagion of sarcoma is found in the fact that it was used in 1902 by Dr. Loeb, who kept in it at that time rats inoculated with the second cystic sarcoma of the thyroid discovered in Chicago. It is to be noted that a period of three years elapsed from the time of its employment by Dr. Loeb to the development of

the primary cystic sarcoma of the thyroid in 1905. From this it would appear that the contagion of sarcoma in the rat is extremely persistent as to time, extending over a period not less than one-third the life of the rat.

It is of interest to note that two of the three primary sarcomas of the thyroid in Chicago were first detected in the summer or autumn; that all three of our rat tumours were likewise detected during the summer or autumn, and that in both cases a period of approximately one year intervened between the development of the different tumours. From this it seems probable that the incubation period, or the period in which a rat must be exposed to the contagion, must extend over a number of months. Our cage at present contains a number of rats which have been undisturbed in it since October, 1905. To these have also been added a number of rats during the past month. The conditions of the cage are unchanged. These rats have been obtained from another distinct source than any of the rats thus far employed, and a further report will be made after a sufficient time has elapsed.

Our second observation relates to the endemic occurrence of cancer among mice in the establishment of a dealer who has been engaged in the raising of these animals for several years in Springfield, Ohio. In view of the completeness of the data placed at our disposal, we consider that this case affords the most striking illustration of cage infection thus far reported.

One of us visited the establishment in question on June 8th, 1906, in the company of Dr. Rand of Springfield, who heard the entire statement made by Mr. Landes, the owner of the establishment, who is a man of considerable intelligence. The statement which he gave us regarding the occurrence of these tumours, many of which came under our own personal observation, appeared to be perfectly logical and entirely free from discrepancies. Mr. Landes had sent this laboratory in the course of the previous year 6 white mice with spontaneous tumours, which proved on microscopic examination to be adeno-carcinomata of the breast. They were all in females and all located on the abdominal aspect. We found on inquiry that Mr. Landes recognized the fact that the source of these tumours was one old cage, built of wood, one end of which was screened off with netting. He stated that the cage was three years old, and that it had contained for three years an average of about 100 old mice. He estimated that these mice bred to such an extent that he was able to get between 1,000 and 2,000 young ones out of this cage per annum.

The history of this cage is as follows: It was built in July, 1903, at his place of business, which was then at the corner of Shafer and Columbia Streets, two and a half miles distant from its present location. It was kept in a barn, the boards of which were poorly matched, and the place was cold and windy in winter. It remained nearly a year in this barn and contained during this period about 100 mice. During the course of the winter he found one or two mice with tumours in the cage. In April, 1904, he moved to the corner of Light and Cedar Streets, two or three squares from the first location, and the cage was kept in a large coal shed, which was warm and comfortable. It remained from April to November, 1904, in this locality, and during that period he removed from the cage 25 to 30 mice with tumours. In November, 1904, he moved to his present location, two and a half miles distant from the first two mentioned. Before the cage was removed from Light and Cedar Streets he observed 12 mice at one time with tumours, and for the purpose of ridding himself of this unfortunate development of tumours, he decided to entirely change the stock in the cage. All the mice which had occupied the cage were removed and 12 adult healthy mice (10 females and 2 males) were imported from Washington, D.C., and introduced into the cage, which was placed in a small, detached outhouse, at least 50 ft. distant from its present location. During the course of this winter three or four tumours developed.

Since the spring of 1905 the cage has been in a large room 30 ft. by 50 ft. in size, which was previously a dance hall, and it now stands on a table 6 ft. to 7 ft. from a window where the conditions of light and ventilation are excellent. It previously stood in a different position in the room, about 20 ft. from its present location. During the last year he has removed between 25 and 30 mice with tumours from the cage, several of which have been sent to us. Owing to a misunderstanding on his part he had the idea that only tumours between the front legs were what we desired, and those which appeared on the flanks or lateral aspect of the abdominal region he killed. At the time of my visit there was in the cage one mouse with two large tumours on the right abdominal aspect. He pointed this out as an example of the kind of tumours which he thought we did not require. He states that he has never seen a tumour on the back of any mouse. He thinks they were mostly females, and in several instances when he examined them as to their sex he found they were females. He has never seen a male with a tumour. The tumours have frequently grown to great size.

Besides the old cage, his establishment contains a dozen or fifteen other cages of similar construction. One of these is two years old, the remainder one year old. They are regularly stocked from the old cage. His custom is to remove from the old cage a dozen or more females with one or two bucks, and place them in the new cages, and allow them to remain there until each cage contains approximately 100 mice. The half and three-quarters grown offspring are removed and sold. In the cage which is now two years old he has during the past year observed 4 to 6 mice with tumours. So far no tumours have appeared in any of the other cages in the establishment. He remembers having seen one or two tumour mice in some of his old cages in his previous establishment; but these cages were always stocked from the old cage already described, which seems to have been the source of all his operations, and which he referred to as his incubator. The cage was purchased by the laboratory, and brought to Buffalo with the mice in it. On reaching the laboratory it was found to contain 3 mice with large tumours. The interior of the cage is dark and damp, encrusted with excreta, and presents a generally unhygienic appearance.

An examination on the date of sending this manuscript for publication (August 3rd) shows that the cage contains 28 adults and perhaps twice as many half-grown and young mice. On the floor of the cage is the carcass of a mouse, which has apparently been dead some hours, with a large tumour on the abdominal aspect. This is ulcerated, and shows evidence of having been gnawed. A second mouse, with a tumour the size of a large hazelnut protruding between the hind legs, and evidently springing from the posterior part of the mammary tissue, is also found. The skin over this tumour is adherent, and the tumour is evidently far advanced.

Briefly stated, the facts in the above case are as follows: a cage has been discovered in which upwards of sixty spontaneous tumours have occurred in the course of three years. The fact that the location of the cage was frequently changed and the stock entirely renewed on at least one occasion without any permanent interference with the production of tumours, makes it apparent that the cage itself was the source of infection.

The observations recorded above indicate that both sarcoma in rats and carcinoma of the breast in mice may be looked upon as contagious, and when considered in conjunction with the classical observations of Loeb and Borrel, in which, however, it was impossible to entirely exclude the factor of heredity, should lead us to pay more serious consideration to the interesting statistics constantly accumulating which show the probable infection of the surroundings of human cancer cases in so-called "cancer house." It should also lead us to the earnest consideration of the desirability of sterilizing the dressings of cancer cases and the complete sterilization of rooms which they have occupied, and it should, at least to no inconsiderable extent, offset the recent statement of Hansemann, that we have no right to add to the difficulties of the cancer case, by the unnecessary suspicion that he is suffering from an infectious disease. It should tend to combat the belief among pathologists that there are no grounds for even suspecting an infectious factor in malignant tumours.

LITERATURE.

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A STUDY OF THE BIOLOGY OF TUMOUR CELLS.

BY

S. P. Beebe, M.D., New York. and Prof. James Ewing, M.D., New York.

Perhaps the most interesting result of the experimental study of transplantable tumours has been the direct access it has furnished to the problem of the mechanism of immunity against malignant neoplasms. Already many facts of importance have been elicited in this field. Chief among these is the very narrow range of variation in the soil which suffices to inhibit the growth, indicating, as Bashford has pointed out, a delicacy of nutritive requirements far exceeding that of any biological relation heretofore observed. Thus, a precipitin prepared in the rabbit against human blood affects considerably the blood of distantly-related monkeys, but human tumours fail to develop, according to Metchnikoff, in the anthropoid monkeys, and Jensen's mouse tumour propagates feebly or not at all in foreign mice of the same species. Many of the facts surrounding the spontaneous disappearance of transplanted tumours in mice and dogs suggest an extremely delicate and very complex balance between the forces of nutrition and decay of tumour cells. The excision of one of several growing tumours in dogs has in the experience of ourselves and others been followed by the rapid regression of all the others and the establishment of complete immunity: in our experience with the infectious lympho-sarcoma of dogs, age has been an important factor in determining growth of transplanted cells, the older dogs, as a rule, with some exceptions, proving more susceptible. Physical condition has seemed of much greater influence. The percentage of successful plants in young healthy dogs being uniformly much less than in weak, diseased, and older animals. We have repeatedly noted that when a dog began to suffer from the mange his tumours began to grow rapidly. Such phenomena seem of great importance in estimating an increase of virulence on the part of the tumour strain. We have not observed an increase of virulence in our dog tumour which we could satisfactorily separate from such variations in the soil, and we think that similar observations on such a small and short-lived animal as the mouse must be very difficult to control in this respect.

Regarding the immediate factors which determine the growth or regression of transplanted tumour cells, little is definitely known. In fact, few direct efforts have been made to detect these factors. When tumour cells are transplanted into an alien species, one, and possibly the chief, factor preventing their growth is doubtless the absence of suitable nutritive molecules, and the theory of atreptic immunity suggested by Ehrlich and Apolant finds an application in such cases. Yet in the rat Ehrlich finds that mouse tumour cells do for a time absorb nutriment from the rat's tissues and grow for a few days, under the influence, according to this distinguished observer, of a specific substance which is not itself the nutriment but which stimulates the cells for a time to absorb their proper nutritive molecules. The theory of atreptic immunity, therefore, appears to require not so much a very accurately-adapted nutritive molecule, since this is found in a rat for mouse tumour cells, but rather a specific substance or influence presiding over cellular nutrition, as the secretion of lutein cells is supposed to stimulate the nutrition and growth of syncytium. In any case, the theory of atreptic immunity in this form seems to apply chiefly to the conditions surrounding the transplantation of tumours into alien animals which are highly artificial, while in the real problem of immunity furnished by Nature, and which is to be found in the animal organism struggling against a growing malignant neoplasm, it seems to have little if any significance. There seems little doubt, as Borrel has pointed out, that an explanation of the colossal avidity of tumour cells for nutriment would carry with it the solution of the cancer problem. Albrecht supposes that the absorption of nutriment by tumour cells is not merely increased in quantity, but is so changed that it continues longer than is necessary for the normal division of cells. Ehrlich suggests that in the organism suffering from a malignant tumour there is diminished affinity on the part of the body cells for nutriment, together with increased avidity in the tumour cells, so that the tumour cells rob the body cells of their proper food supply, thus producing a constitutional basis for the growth of tumours. This theory of atrepsia seems to be an entirely different matter from that which involves the existence of a special nutritive molecule peculiarly adapted to the receptors of tumour cells, and in this form the theory may be tentatively accepted as probably representing a fundamental character of neoplastic growth.

That an active immunity against tumour cells exists, residing in antagonistic substances developed against the derivatives of these cells, is indicated in the studies of Jensen, Gaylord and Clowes, Borrel, Ehrlich, and Sticker. Jensen prepared in rabbits a serum apparently effective against his mouse tumour, and immunized mice by injections of killed tumour cells; but uniform results were not obtained. Gaylord and Clowes report that they were able to protect mice against Jensen's tumour by means of the serum of recovered mice. Michaelis, however, reports negative results from this procedure. Sticker could observe no direct influence of the serum of recovered dogs on the cells of the infectious lympho-sarcoma. Jensen reported the regression of the mouse tumour following the injection of isolated tumour cells, but Sticker found that in dogs the injection of tumour emulsion killed by cold stimulated the growth of the infectious lympho-sarcoma by producing a general cachexia, and failed to render animals immune. On the other hand, the intravenous injection of living tumour cells in emulsion appears to have caused the regression of multiple tumours, after which regression the animal was immune. This single experiment is suggestive, but does not prove that the injection of tumour cells renders the animals immune. Michaelis was unable to produce any immunity in mice by injections of killed tumour material. Ehrlich was able to render a large proportion of mice refractory to his most virulent tumour strain by inoculation with strains of minimum virulence which apparently did not necessarily produce tumours. These studies are practically in agreement that definite immunity arises only after an actual growth of tumour cells has occurred in the body. That this immunity resides in some principle in the blood is much less clearly indicated, since there is no experimental evidence to show that the receptors of tumour cells differ from those of other body cells, while attempts to demonstrate any antagonistic action in the blood or serum of immunized animals have failed; however, Gaylord and Clowes have recently reported that mouse tumour cells exposed to the action of the serum of immune animals gave fewer successful plants.

It has seemed to us that important information regarding the biology of tumour cells bearing upon the question of immunity might be obtained by the direct study of the effects of the blood of susceptible and of immune animals upon these cells *in vitro*, and we have carried out a study of this character upon the cells of the so-called infectious lympho-sarcoma of dogs. It should be mentioned that all observers are not agreed that this disease of dogs is a neoplasm, but in a communication presented at the meeting of the American Association of Pathologists and Bacteriologists, May, 1906, we believe we presented satisfactory evidence that this process is a genuine malignant tumour of which the cells possess, perhaps, a greater capacity for independent existence than is shown by any other tumour which has been studied experimentally.

The scope of this study included the exposure of freshly removed sections and coarsely comminuted fragments of an actively growing tumour to the following fluids:

1. Normal salt solution, 0.8 per cent.
2. The serum of a rabbit immunized against the pure nucleo-proteid prepared from the tumour cells.
3. The blood of a susceptible dog.
4. The blood of an immune dog.

The fluids were maintained at different temperatures, namely, in a refrigerator at 6° to 10° C., at ordinary room temperature 20° to 24° C., and in the incubator at 37° C. In several series of experiments the fluids were thoroughly saturated by a constant stream of carefully purified oxygen, in others the fluids were merely exposed to the ordinary atmosphere, while in still others the oxygen was largely replaced by pure nitrogen.

By susceptible blood we mean the sterile defibrinated blood of an animal in which multiple tumours were actively growing and had shown no sign of regression.

By immune blood we mean the sterile defibrinated blood of an animal in which tumours had previously grown but had completely regressed and which had repeatedly proven refractory to repeated inoculation. In the two last experiments we used the blood of a naturally immune animal which on repeated inoculation had failed to take the growth. In order to determine the effects of the procedures, the following methods of examination were employed:

1. The examination of cells in the fresh condition.
2. Spreads of cells on glass slides fixed and stained by various methods.
3. Histological study of sections of the pieces and fragments fixed in Orth's fluid and stained by hematoxylon and eosin.
4. Biological tests by inoculation of the tumour fragments into susceptible animals, in fact, into the animals from which the tumours were originally removed, and in which other tumours were growing. We are not certain that such animals are always to be regarded as susceptible to new implantation. The removal of one tumour has sometimes been followed by the spontaneous regression of the others. This occurred in two of our dogs and thus rendered the result of the biological test valueless, while in the others sufficient time has not yet elapsed to enable one to judge of the result, hence our present report relates only to the experiments *in vitro*.

The results of these experiments show first that in salt solution under all the above conditions the tumour cells rapidly necrosed with or without the growth of bacteria. The cells on the outskirts of the mass suffer first and most extensively, few traces of stainable cells remaining after forty-eight hours at room temperature. The nucleo-proteid serum caused pronounced agglutination of the cells and fragments but preserved the cells considerably longer than salt. This nucleo-proteid serum, it may be said, was comparatively inactive.

Comparing the effects of the susceptible and the immune blood, we found several points of interest. First, there was observed the preservation of a peripheral layer of cells for a period which far exceeded our expectations. After forty-eight or even seventy-two hours this peripheral layer of cells was found in an excellent state of preservation and apparently capable of growth. Throughout the entire series the preservation appeared to be distinctly better in the susceptible than in the immune serum: likewise the presence of oxygen undoubtedly greatly favoured the continued life of the cells and seemed to be, as might be expected, an essential factor in the result. In the atmosphere of nitrogen, the cells perished much earlier. The living peripheral layer of cells presented appearances identical with those observed in pieces transplanted into the subcutaneous tissue of dogs and sectioned after twenty-four or forty-eight hours. Whether any of these cells actually multiplied *in vitro*, we are unable to state, but after forty-eight hours some appearances highly suggestive of mitotic figures were to be found. The possibility that the cells might really multiply in the test tube under suitable conditions suggested finally the following experiment.

Since some bacterial strains die out unless frequently resown we undertook to change the blood surrounding the tumour fragments every twelve hours, comparing again the effects of the susceptible and of immune blood. By this means we were able to secure apparently complete viability of the peripheral layer of cells for as long as ninety-six hours, and here again the results show a more favourable action on the part of the susceptible blood. No evidence of mitosis, however, could be traced after forty-eight hours. We feel that these results are sufficiently encouraging to warrant their continuation along the same lines, especially by the more frequent changes of the susceptible blood. The experiments are still in progress, and until we are able to couple the results of the biological tests with those in the test tube we are not ready to draw any conclusion regarding their significance.

STRUCTURAL CONTINUITY IN NEW GROWTHS.

By F. G. BUSHNELL, M.D.,
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In the histological examination of a very large number of normal and abnormal tissues there can be observed certain features which are structural evidence of continuity between normal tissues and tissues which have undergone an abnormal but benign growth and an abnormal malignant growth. As this observation appears to my mind to emphasize the need for study of natural as well as unnatural perverted or degraded growth, I have thought it of sufficient interest to bring before this meeting, many of whose members are engaged in cancer research. In any case I should value highly your deductions as to the lines along which investigation of new growths should run.

I have not found that there is any one trait by which the original departure of the cell from its specific maintenance of form and activities can be detected. Thus, the abnormal mitoses observed by Farmer, Moore, and Walker in malignant growths, which I have myself recorded and repeated afterwards in 1902 in the BRITISH MEDICAL JOURNAL, though of much importance, are not essential or diagnostic of malignancy.

Closely allied as structure and function are in cell life, I limit these remarks to the former on this occasion. The functions of new growth, if any, are of course unknown.

It should be noted, too, that not only can a gradation of cells of normal and abnormal growth be traced, but in carcinoma it is quite usual for it to spread by continuous cell growth along the lymphatics. Thus, I have recorded, with Mr. F. Hinds of Worthing, 3 extreme cases of cirrhosis of the stomach and intestines, 2 of which were of malignant nature. In these cases the stomach, small and large intestines, gall and urinary bladders were practically continuously malignant, though without ulceration or metastasis to the unaided eye. There appears to be a subtle power of growth gained by this continuity in carcinoma, for as a rule carcinoma is destroyed in the blood stream, though rarely forming syncytium-like structures. It is, on the other hand, clear that multiple primary malignant foci and malignant transformation of areas of tissue of considerable extent also are not uncommon. Sarcoma, on the contrary, flourishes in the blood, to which it is, however, genetically related in origin, having a mesoblastic source in common.

A point of interest occurs to one in two instances of a peculiar stimulation of growth in neighbouring structures from the presence of growing neoplasms. One was in a case of large-cell sarcoma mammae which had been removed from a middle-aged woman, in which proliferation of the epithelium lining the small ducts and acini had occurred to such an extent as to block the lumens and suggest the formation of adenoma. The other was recorded as occurring in a woman of 63, in whom the ovaries had been removed for cystic adenomata. All stages of ova and of follicle formation—derived from the ingrowth of germinal epithelium—were present, though of course the ovaries had long ceased to function.

I will now enumerate concrete examples of this structural linking up of tissues.

1. We learn from the description of the earliest human ovum by Peters that the young trophoblast or chorionic epithelium has a striking power of growth. Moreover the chorionic epithelium in the early stages of the embedding of the ovum has physiological relationships which are clearly destructive to the enclosing zone. In short, it has a destroying or malignant action (of a purposeful function it is true) on the maternal tissue. The study of simple granulation tissue shows that this, too, can invade and remove by erosive action useless or dead structures by a process that may be termed one of purposeful malignancy comparable to phagocytism. I have myself seen that the villi of ova of later date show luxuriant power of growth of epithelium which is normal, and have seen in the placenta of the third or fourth month masses of epithelium.

2. My second example is the hydatidiform mole, which is *not* a myxoma of the chorion, but which is characterized essentially by an excessive proliferation of both layers of the chorionic epithelium. It is thus structurally closely allied to normal placenta, and its embryonic connective tissue (mucous tissue) is merely dropsical.

3. In the malignant mole we have a certain amount of overgrowth of epithelium, with some infiltration of decidua and invasion of vessels, with perhaps metastases

also containing villi. In some cases it is, however, impossible to distinguish histologically between the proliferation of a simple and that of a malignant mole.

4. Again we find the pure chorion-epithelioma without a trace of mesoblastic tissue, or made up almost entirely of epithelial tissue with a few villi normal or hydatidiform in character. It is of interest to note here that Marchand emphasizes the similarity between the proliferating epithelium of a "mole" and the cells which form chorion-epithelioma (deciduoma malignum). The cells were morphologically the same, and they infiltrated the maternal tissues and invaded the blood vessels similarly, if in different degrees. The condition is an exaggeration of that of the attachment of the villi to the decidua in the young placenta. In these diseases the active element is the chorion epithelium. It takes on an excessive and aberrant form of growth, which differs from that of its prototype, which is physiological, and becomes parasitic or invasive and destructive.

5. Similarly, I have seen instances of a simple adenoma of the mamma become malignant, of a melanotic papilloma of the cutis giving rise to enormous growths in the liver, of simple epithelial overgrowth becoming epitheliomatous, of a simple callus or osteoid tumour of the humerus becoming sarcomatous of low type. There is really no sharp structural difference between certain embryonic granulation tissue, fibrosarcoma, and sarcoma.

6. A feature which I believe bears out these views is seen in growths of the testis and ovary. Thus, I have recently examined exhaustively a malignant growth of the testis which appeared to be derived from the tubules of the rete. Structurally it might be claimed as an adenocarcinoma, as a sarcoma, and again as an endothelioma. Thus you see it was an atypical tumour of complex nature. So much so was this the case that one of various eminent pathologists to whom I showed my sections was even unable to exclude chorion-epithelioma or teratoma testis, though no typical syncytial masses were present. This complexity I should explain as due to the genetic potential qualities intrinsic in the cubical cells lining the rete testis tubules and vasa recta from which the growth arose. Being derived, as these lining cells are, according to our present embryological knowledge, from mesothelium or mesoblastic tissue, their descendants, as in this neoplasm, would have the characters of mesoblastic tissue, and not of a typical carcinoma or sarcoma. Again, we can recognize in multilocular ovarian cysto-adenomata a resemblance, though perhaps not a very close one, to the downgrowths of germinal epithelium; or, again, to the Graafian follicles from which they originate, as we can in paroöphoretic and parovarian cysts to the Wolffian body and ducts from which they are derived. There can be traced, too, in primary cancer of the ovary, certainly in the glandular cystic form, a transition from benign cystadenoma to carcinoma. Some observers even claim that regular goblet-cell epithelium can be seen to pass into regular carcinoma cells, and cells resembling those of the benign growth can be found in the cancerous portion which differ solely in their distribution and proliferation.

7. It is well established that there is a histological gradation from ordinary thyroid tissue to carcinoma. In fact, the estimation of the degree of malignancy of epithelial thyroid tumours solely from the type and arrangement of epithelial cells is impossible. Invasion and metastasis is a surer guide, though the latter is not very common. In these growths it is of interest to note that after total extirpation of the gland for carcinoma and the subsequent development of cachexia strumipriva, when secondary growths develop elsewhere in the body, the cachexial symptoms are recorded as lessening. This is clearly an example that in these growths structure and function have not deviated in certain respects from the type, though they are so atypical as to be malignant.

8. The leukaemic diseases closely resemble neoplasms, and the cell elements in these conditions are linked closely in structure to their ancestors in the marrow or lymph glands; and lastly

9. The growths derived from "cell seclusions," which are normal or abnormal during embryonic life, are evidences of the close relationship of normal and abnormal benign and malignant growths. These are the teratomata, fetal implantations or inclusions, parasitic monsters, dermoids and growths in connexion with nests or embryonic clefts and organs. This view of the histogenesis of new growths is allied closely to "metaplasia," which has been observed in carcinoma of the stomach, uterus, and gall bladder, and in tumours of the breast. Ribbert, Rolleston, and others regard metaplasia as a reversion of certain innate cell characteristics to a previous type histogenetically identical. I think there is reason for saying that organic structure cannot be made an absolute basis for explaining all peculiarities of cell activities or reproductive functions or the cause of their deviation from the normal type. Yet it is by the study of the bio-chemical relationships of growths to their surroundings that future research in this direction lies, as seen in the bearing of alkalinity to excessive nuclear activity, and the estimation of the part played by heredity in the transmission of qualities by the development of work on experimental embryology.

Summary.

In conclusion I would emphasize the fact, observed in the histological examination of a large number of normal and abnormal tissues, that continuous features link up normal and perverted cell growth. A few examples are as follows:

I. (*a*) The striking power of growth exhibited by young trophoblast, which in the early stages of the embedding of the ovum has physiological relationships which are destructive to the "boundary zone."

(*b*) Again, the chorion epithelium may proliferate in both layers excessively, with the formation of a hydatid mole as a result. (Hydatid mole is no longer considered to be a myxoma of the chorion.)

(*c*) Hydatid mole passes insensibly into malignant mole, which possesses a little more overgrowth of epithelium, slight infiltration of the decidua, and inversion of the blood vessels. But histological distinction may be impossible.

(*d*) Also, a chorion-epithelioma (malignant deciduoma) may be composed purely of epithelial tissue, and thus resemble a "mole" (epithelial).

In short, these new growths are an exaggeration of the normal attachment of villi to decidua in the young placenta.

II. Other instances are numerous. I have observed a fibroadenoma of the breast of years' duration become carcinomatous; a melanotic papilloma cutis become sarcomatous, and a papilloma become epitheliomatous; a callus tumour of the humerus following a fracture become a lowly malignant sarcoma and also a fibromyoma uteri undergo sarcomatous changes.

A multilocular ovarian cyst derived from follicle epithelium may in time change its characters from innocency to malignancy; as may the numerous "rests" or cell seclusions, which may commence a neoplastic growth of high grade malignancy.

Lastly, I would cite the growth which may be called "lymphomata." I have observed cases which combine the characters of lymphadenoma and lymphosarcoma; and of lymphocythaemia (lymphocytic leukaemia), lymphosarcoma and sarcoma. In short, a hard and fast line cannot always be drawn between these conditions, the types of which merge into one another, though they themselves may possess very distinct characters.

There is the well-established phenomenon of metaplasia, too, which illustrates the varying potentialities which tissues possess for growth.

What deduction is to be drawn from these observations? A hopeful one, I think, as to the ultimate knowledge and treatment of new growths. A study of the laws that govern growth and of the bio-chemical conditions which initiate and constrain it, are bound to reveal the secrets which underly the development and spontaneous cure of abnormal growths of all kinds.

Already Dr. Clowes has described the spontaneous cure which occurs in many mice inoculated with Jensen's tumour, and given reasons for this immunity.

Study will go along two lines; that of structure in an attempt to find a feature by which the departure of the cell from its specific maintenance of form and activities is to be detected; and incidentally I would say that heterotype mitoses are not absolutely essential to malignancy.

And then there is the study of bio-chemical activities, in other words of function. A simple illustration is that of

granulation tissue. We know its origin and its structure; its function is purposeful, but what are the forces which initiate its growth, which limit its exuberance, or which allow it to become malignant?

DISCUSSION.

THE foregoing papers on the etiology of malignant new growths were discussed together.

Professor SIMS WOODHEAD (Cambridge) regretted that he had been unavoidably prevented from hearing the earlier papers on the subject, and he felt some diffidence in continuing the discussion. He was, however, so much interested in the later papers that he would make no further apology for intervening at this stage. The points that impressed him most were, first, the promise of further results, from the fact that so large an amount of spontaneous tumour growth in mice could now be obtained, and, secondly, the importance of the work founded on the side-chain theory, as expounded by Ehrlich and his school. So far most of their efforts had been directed to clearing the ground and to removing many of those hampering traditions that cling around the question of cancer growth. It was hoped that greater attention might thus be centred in the real and prime factors in this very complex problem. With a large amount of material—during the collection of which some of the factors in the question might be solved—many of those questions as to the difference or likeness of structure and function between cancer cells and normal epithelial cells of various types might be gradually attacked. The specificity of antibodies, and the relation of these antibodies to the cells, might give them light as to the specificity of the cells. Minute differences in albumens in blood gave specific differences in the form of the antibodies, and it remained for them to see whether there might be equally minute but specific differences between cancer cells and normal epithelial cells. Along these lines they might through the study of function learn something of structure, and of structure learn something of the nature of the altered function of cancer cells.

Dr. WILLIAM H. WELCH expressed great satisfaction in the opportunity of hearing these important subjects presented by those actually engaged in the researches. He expressed the view that the extraordinary observations reported by Dr. Clowes regarding the insusceptibility of cancer cells from tumours of mice to the action of strong germicides such as corrosive sublimate, the cyanides, etc., could be explained only on the assumption that in some way the germicide was prevented from coming into actual contact with the living substance of the cells, and he referred to his observations on the influence of sublimate in cutaneous disinfection where this explanation applied. Dr. Welch called attention to the differences between spontaneous tumours of mice and of dogs, the latter being often complex and even teratomatous. As to the question of the unicentric origin of cancer in Ribbert's sense the examination of beginning of adeno-carcinomata of the uterus in scrapings showed often cancerous metamorphosis of groups of cells over comparatively wide areas.

THE RARITY OF CANCER AMONG THE ABORIGINES OF BRITISH CENTRAL AFRICA.

SQUAMOUS CARCINOMA: ACINOUS CARCINOMA: PHYSIOLOGICAL REASONS FOR IMMUNITY FROM CANCER OF THE BREAST: COLUMNAR CARCINOMA.

By H. HEARSEY,
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[ABSTRACT.]

THERE can be little doubt but that cancer as a disease affecting natives of British Central Africa is of the utmost rarity. Inquiries from medical men of lengthened residence in the country, and who have been in constant touch with natives, have elicited replies confirming this statement.

Repeated efforts made by Government medical officers throughout the country for some time past have so far resulted in the discovery of but two cases, and a third provisionally so diagnosed. Cancer of the breast has not yet been met with, and not a single case has been recorded by medical men attached to the various missions, and who have been in the closest touch with natives for many years.

The question naturally arises, What is the cause of this extreme rarity of cancer among aborigines? for the rarity is undoubtedly obvious.

It should be stated at the outset that, so far as non-malignant growths are concerned, natives of this country furnish examples of several kinds of growths. Thus cystic tumours are not uncommon; tumours composed of fully-developed connective tissue, such as fibroma, lipoma, enchondroma and bony exostosis, are frequently observed; tumours consisting of complex tissues furnish examples in the cases of naevus, lymphangioma, lymphadenoma, occasionally met with; tumours composed of embryonic tissues are rare, and so far only one case of doubtful sarcoma has been reported.

It would therefore follow that the main etiological factors connected with the production of morbid growths—namely, heredity, local irritation, mechanical injury—must all be present.

How comes it, then, that these causes, which also operate to produce carcinoma, fail in the case of aborigines to produce this growth? The explanation appears to be difficult of solution, but I would venture to offer the following opinion:

(*a*) To begin, first, with that variety of carcinoma called squamous carcinoma, or squamous epithelioma.

The commonest etiological factor connected with the production of these growths is local irritation. Thus it is not uncommon to find that cancers of the tongue, cheeks, and gums, which furnish the largest proportion of cases, are due to the irritation of a jagged tooth. Natives as a rule have remarkedly good teeth, strong, "bony," and free from brittleness. Another common situation of cancer is the lips, and here again the native is exempt because he does not smoke in the sense in which smoking a short clay pipe, for example, furnishes the requisite irritation.

(*b*) Spheroidal-celled or acinous carcinoma.

The favourite seat of these growths being the female breast, and cancer of this organ furnishing by far the largest proportion of cases, it would be of interest to endeavour to ascertain how it comes about that native women in this country are practically immune from cancer of the breast.

Are the influences producing this growth racial and climatic, or social?

Racial and climatic influences, as causative agents, are generally admitted to have no apparent bearing on this affection.

An inquiry into the differences in social conditions, therefore, should possess some value.

Of the various theories advanced to explain the origin of cancer the theory that it is purely local in origin appears to have obtained the widest acceptance.

Premising that cancer of the breast is local in its origin, that for physiological reasons the breast is subject to great and sudden alternations in its functional activity both at puberty and during pregnancy and lactation, it appears to me that any disturbance of the physiological functions of the breast during lactation would act as an exciting causative agent of no small value in the production of cancer.

All native children have of necessity to be brought up on the breast. In civilized communities, even among the poor, there is a marked and growing tendency to wean infants at the outset. In consequence of the physiological increase of supply of blood to the breast during lactation, the artificial suppression of the latter may act as a powerful exciting cause in the production of cancer.

If this is not so, how is it to be explained that aboriginal women, who are always compelled to suckle their young, are so immune from cancer of this organ that it is practically unknown amongst them?

I do not here minimize in any way the fact of hereditariness, so fully established by Paget and Velpeau, acting as a predisposing cause. On the contrary, I incline to the belief that heredity may play an important part in those cases in which it can be shown that cancer has developed in patients who have brought up their infants on the breast. Such cases I maintain do not negative the above statement, for it would still remain a subject of inquiry whether these patients have inherited the predisposition from parents who have not suckled their infants, and who

may on this account have themselves been the subjects of cancer, or predisposed thereto.

It has been variously estimated by Bryant and Gross that from 80 to 88 per cent. of cases of cancer of the breast occur in married women.

How is the balance of from 12 to 20 per cent. to be accounted for, if we are in a position to exclude a hereditary predisposition?

This again leads me to revert to the social conditions obtaining among women in this country, and to point out that from childhood practically all live in what for convenience may be described as the married state.

The physiological disturbances taking place in the breast and uterus from puberty onwards till the change in life, find in the unmarried no physiological response to the ovulation occurring at every menstrual epoch. May not this account for abnormal structural changes of the nature of cancer taking place in the organs referred to?

(*c*) With regard to the third variety of cancer, namely, columnar carcinoma or columnar epithelioma, I have no remarks to offer beyond stating that, so far, neither during life nor *post mortem* has this form of cancer been met with.

I have finally to add that so far as the important factor respecting age is concerned, an analysis of a very large number of cases under the care of Bryant and Gross has shown that about 31 per cent. of cases occur before the age of 40, and about 36 per cent. between the ages of 40 and 50.

Those who have resided in this country for any length of time, will, I think, agree with me, that although it may be stated in a general way that natives fail to attain extreme old age, yet that there are ample instances of natives reaching the age of from 40 to 50 years, sufficient at any rate to negative the statement that natives are exempt from cancer because they do not live to attain the age at which cancer is most frequent.

BERI-BERI:

SOME CLINICAL CASES AND THEIR BACTERIOLOGY.

By Hamilton Wright, M.D., C.M. (McGill).

At the last meeting of the Association I submitted a paper and material which summarized some five years of etiological, clinical, and pathological observation of beri-beri in endemic areas. The general nature, course, and pathology of the disease were dwelt upon, and a working theory and classification propounded which seemed to me to best satisfy all observations made up to that time by other workers as well as by myself. Before presenting new evidence in support of my views it will be well to state as concisely as possible that working theory and classification.

Beri-beri is an acute infectious disease with a short incubation period (10 to 20 days). The essential cause is not any foodstuff, or deficiency of any constituent of such foodstuff. Nor is it a specific micro-organism whose special habitat is a particular food material such as fish or rice. On the contrary, it is a specific bacillus which exists under those general conditions which govern the existence of nearly all well-known specific micro-organisms.

Under defective hygienic conditions the bacillus contaminates food, water, eating utensils, etc. It thus gains the alimentary canal, and in the gastro-duodenal region elaborates an extracellular neurotoxin which, entering the circulation, necroses the gastro-duodenal mucosa, and then more or less rapidly poisons the peripheral terminations of certain bilateral, symmetrically situated, autonomic, and somatic neurones.

The onset of the disease is notified by a longer or shorter prodromal stage (twenty-four hours to a week), the symptoms pointing to gastro-duodenal irritation. There may be loss of appetite, occasional vomiting or diarrhoea, bulging of the epigastric region, and various forms of pain or other sensations referred to the stomach. The latter are intensified on deep pressure of the epigastric region.

This gastro-duodenal prodromal syndrome appears to mark the action of the specific bacillus on the mucosa and neuronal terminations in the stomach and duodenum. It is soon followed by demonstrable signs of flaccid paresis, anaesthesia, cardiac irritation, and varying grades of oedema, signs which now mark the action of the neurotoxin after it has gained the circulation. The specific micro-organism and its toxin appear to continue their action for two to four weeks. In the meantime, the gastro-duodenal syndrome which marks the local action of the organism and its virus, and the symptoms of acute neuronal poisoning, which mark the remote action of the virus, march together, reaching a maximum about the third week of the disease. The organism and its toxin then appear to be eliminated. Gastro-duodenal symptoms now rapidly subside, and if the cases are properly treated, almost all signs of neuronal poisoning quickly pass away. The continued loss of the knee-jerks is the only evidence that may be elicited to show that the patient has been affected.

To this prodromal stage, and the stage of acute poisoning, which last from three to six weeks, I would limit the term acute beri-beri.

In regard to course and classification. Following the prodromal stage, the disease may run a very rapid course ending in death from the wholesale acute poisoning of the entire cardiac nervous system (acute pernicious beri-beri); or, a fairly regular course, as outlined above, during which the cardiac irritability, flaccid paresis, anaesthesia, and oedema reach a maximum and then gradually subside (acute and subacute beri-beri); or, a course beginning as the latter classes of cases, but on the elimination of the toxin, ending in chronic cardiac irregularity, chronic atrophic paralysis, slackened tendons and paraesthesiae of various degrees (beri-beric residual paralysis).

In the former classes of cases (acute pernicious, acute and subacute beri-beri), my view is that we have to deal with the real disease due to an active poisoning of neurones by a specific neurotoxin. In beri-beric residual paralysis we deal with a condition no longer due to an active specific toxin, but due to a true degeneration in the neurones, an inertia degeneration, following the impact of an acute specific toxin. During the residual stage of beri-beri there is evidence that reinfection may occur and end in death.

There has been considerable misconception of my view of beri-beri as expressed above, and there has been considerable criticism based on such misconceptions. Perhaps the question may be made clear if it is expressed by diagram as follows:

The exhaustive observations on which the above theory and classification are based are now so well known as not to bear repetition.[1–6] But it may be asked: Is the theory broad enough to embrace those cases of beri-beri which, minus a prodromal gastro-duodenal syndrome, undoubtedly occur in amputation and ulcer cases when warded with beri-berics, and those cases of beri-beri which, as shown by Hirota, develop in post-parturient women and in children at their breasts?

This question may be answered affirmatively. The central idea of the above theory is that beri-beri is caused by a locally-acting bacillus which induces its effects by means of a diffusible extracellular neurotoxin. If this is borne in mind, it is comprehensible (diphtheria and tetanus being the analogies) that the disease may be caused by the bacillus acting in surface and other wounds as well as in mucous surfaces. It is also clear that a sufficient amount of the essential virus may circulate in an infected mother to induce symptoms of neuronal poisoning in an infant at her breast, and that these symptoms may rapidly subside when mother and child are separated.

Since submitting my observations and conclusions on beri-beri to the Association, I have, through the courtesy of the Committee of the London School of Tropical Medicine, been able to study the course and termination of several more cases of acute beri-beri. It is the clinical aspect and certain bacteriological observations on these cases which form the main basis of the present paper. It will be seen that the new data bear out what I have already contended as to the onset and general course of the disease and confirm some rather important bacteriological facts which I published several years ago. To complete the entire picture of beri-beri I have added full notes of one of my Kuala Lumpor cases of fatal acute pernicious beri-beri.

In the study of the new clinical material I am greatly indebted to Dr. A. T. Stanton. To Dr. K. S. Wise I am indebted for the bacteriological examination of the blood

of these and several other cases. It will be seen in the sequel that his observations ought to set at rest the question of their being a bacteriaemia in the acute stage of beri-beri.

To turn now to the bacteriological side of this question. I must confess to meagre results so far as positive evidence is concerned. The bacillus which is so frequently found in the necrosed gastro-duodenal mucosa of fatal acute cases has not yet been isolated. A bacillus secured from one fatal acute case which resembled somewhat that found in the damaged mucosa has given no result in Dr. Dudgeon's or my own hands. This particular point in the above conception of beri-beri remains as yet not proven, and probably will until a large number of acute cases can be examined by a skilled bacteriologist.

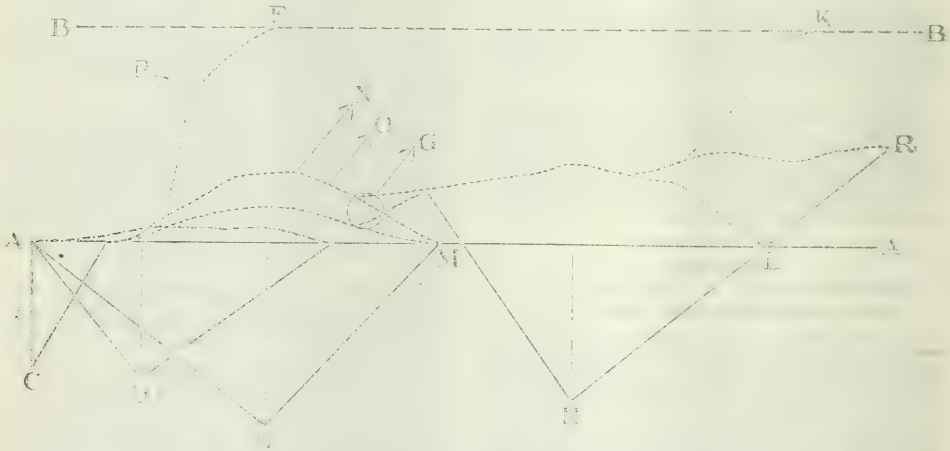
There follows an outline of what has been done from the bacteriological side.

BACTERIOLOGY.

The bacteriological investigation of the above cases admitted to the hospitals of the Seamen's Hospital Society, along with others to be published later, was directed along two lines.

In view of these findings there ought to be no further advocacy of the idea that beri-beri is primarily a bacteriaemia, or that bacteria in the blood bear any sort of causal relationship to the disease.

In my own bacteriological work the following general plan was followed: The stools of Cases I to V in the above series, as well as several others admitted to the Branch Hospital, were secured in sterile capsules every second or third day. At the same time two or three capillary tubes of the patients' blood were taken and allowed to coagulate. Several broth tubes were inoculated every night, and in the morning an attempt was made to agglutinate out an organism, not only with the serum corresponding to the stool, but also with the blood of all other beri-berics who happened to be in the wards. Different stools were tried with different bloods. In only one instance did an agglutination take place. The serum of Case IV of November 16th rapidly agglutinated out an organism from an eighteen-hour old broth culture made from his stool of the same day. The agglutination occurred in dilutions as high as 1 in 50 in half an hour. The serum of another acute beri-beric taken a few days previously had a slight agglutinating effect on this



A A, Health line. F F, Death line. C, Prodromal stage of gastro-duodenal irritation marking the early action of bacillus and its toxin on gastro-duodenal mucosa, etc. D, Entire gastro-duodenal syndrome lasting about three weeks, and marking the activity of the bacillus and the elaboration of its virus in the contents of the pylorus and duodenum. P, Acute pernicious beri-beri, which is preceded for a short time by the gastro-duodenal syndrome, develops quickly and rapidly ends in death at F, because of the especially severe impact of the virus on the cardiac nervous system. N, Acute beri-beri which more or less rapidly follows the gastro-duodenal syndrome, C, is accompanied by the latter for a time, reaches its maximum about the second week, then gradually subsides to health at M. O, Subacute beri-beri which follows the general course of acute beri-beri, and ends in health at M. K, Acute beri-beri, or beri-beri proper, including the prodromal and accompanying gastro-duodenal syndrome, and all signs of acute poisoning of the neurones. G, Point in the third to sixth week of acute beri-beri where the acute disease neurones insensibly develops into an inertia degeneration due to the impact of the toxin in the early active acute stage of the disease on the damaged neurones. From this point on we have to deal with beri-beric residual paralysis. R, An atrophic paralysis residual to an acute flaccid paralysis, not post to a condition minus any sort of paralysis. S, Beri-beric residual paralysis ending in death from cardiac failure or some intercurrent disease. L, Beri-beric residual paralysis ending, if properly treated, in health.

First, an examination of the peripheral blood was made by Dr. K. S. Wise to determine if a bacteriaemia existed in the acute stage of the disease, as claimed by Pekelharing and Winkler,[1] and more recently by Dangerfield.[2] Secondly, I myself investigated the stools at short intervals, and made agglutination experiments to detect an organism of a morphology corresponding to that seen in the gastro-duodenal mucosa of previously submitted fatal acute cases.

Dr. Wise's investigation may be disposed of at once. His plan was to make broth and other cultures from blood drawn from the median basilary vein under the most approved conditions. Several cubic centimetres of blood was taken from each case into a sterile hypodermic. Proportionately large amounts of broth were inoculated with a few drops of the blood, following Adami's plan, and thoroughly shaken before incubation. In no single case did growth occur, and in no single case did microscopical examination of the broth or blood reveal micro-organisms.

This result fully confirms my own extensive examination of the blood of many beri-berics in all stages of the disease, and a similar examination made later by Daniels.

bacillus. The attempt to agglutinate out an organism from the stools of acute beri-berics was therefore a failure.

The other line of investigation followed was to make aërobic and anaërobic cultures from the stools of the various cases which came under observation with the object of isolating a bacillus morphologically similar to that found in the gastro-duodenal mucosa of acute cases. All aërobic cultures failed. In all but one of the above acute cases such a bacillus was found anaërobically. This bacillus ranged from 4 to 9 microns by 1 to 1.05 microns. It stained readily by basic dyes, and was Gram positive. It was strictly anaërobic. It grew best in 2 per cent. glucose agar stabs. On surface media in Buchner's tubes and in Bulloch's apparatus it grew scantily. In young cultures the bacillus was of constant morphological character. In old cultures it became granular, barred, and irregularly elongated. In the fourth, and fifth, and older generations it also grew atypically, and reproduced in shorter rods. A somewhat similar bacillus was found in the gastro-duodenal contents of a fatal case of acute beri-beri. Tentative inoculations made by myself were unsatisfactory; so, for thorough

study the bacillus was handed to Dr. L. S. Dudgeon, who kindly undertook the labour.

The cultures handed to Dr. Dudgeon were in the fifth or sixth generation, each generation except the last being about 3 weeks old. My description of the bacillus was based on the examination of first or second generations. This may account for the different measurements found by Dr. Dudgeon and myself. Dr. Dudgeon found the length of the bacillus to range from 0.5 to 5 microns. This is considerably shorter than my own measurement as given above. Dr. Dudgeon will give the details of this bacillus elsewhere. It will suffice here to state that he concluded against the bacillus being causally related to beri-beri after extensive cultural studies and several inoculations of guinea-pigs and mice.

Case I.—*Acute Beri-beri.*

Osman, age 50, Mohammedan, admitted to the Branch Seamen's Hospital (Sir Patrick Manson's clinic) July 24th, 1905; discharged September 1st, 1905.

Notes on Admission.—Dr. A. Finlay, surgeon on ss. *Jelunga*, sent the patient in with the following note: "I fear he is qualifying for beri-beri. Some few days ago—before there was any evidence of dropsy—he complained of pain in the region of the liver and stomach, which pain still continues." Patient is a large, well-developed man. A serang of firemen by occupation. Was very well until present illness began. Last voyage was from Calcutta to London, via Odessa. Ship was well found. Chief diet was rice *a la* Bengal. Illness began, patient says, five days before admission, with loss of appetite and severe pain in the deep epigastric region. He indicated quite clearly that the seat of this pain was in the pyloro-duodenal region. Within twenty-four hours the pain had become almost general over the whole abdomen, and has so continued up to the present time. Two days after onset of pain he noticed swelling of the lower thirds of his legs, which soon extended to his ankles and the upper part of the legs. As soon as the pain became general over the abdomen he had shortness of breath.

Physical Examination.—Temperature, 98°; pulse at rest, 90; respirations, 20. The abdomen is prominent. There is a moderate oedema of the dorsa of the feet: also of the pretibial regions and ankles. There is slight oedema over sacrum and two lower lumbar vertebrae. There is no apparent loss of voluntary power anywhere. Dolorific sensibility is moderately reduced over distribution of cutaneous branches of musculo-cutaneous of legs. There is a patch of analgesia about the size of half a crown on both calves. The distribution of the cutaneous branches of the anterior crural is moderately dull to painful stimulation. Dolorific sensibility of rest of body normal. There is no disturbance of tactile or thermal sensation anywhere. The calf muscles are slightly painful on pressure. Also the nerve trunks in the popliteal spaces. The latter sensations are not referred peripherally. Deep pressure of the epigastric region is resented by patient. There are distinct reflex signs of pain when pressure is made in the epigastric region and in the flanks. The knee-jerks are absent. Cremasteric, plantar, and abdominal reflexes are normal. The voluntary muscles are not specially over-active on sharp percussion. There is a slight diffuse precardiac pulsation. The apex beat is normal in position. There does not appear to be any cardiac dilatation or enlargement. The pause between diastole and systole is decidedly shortened. The sounds as heard at the apex almost approximate in character, that is, are embryonic in type. There is reduplication of the pulmonary second about 1 in 3; of the aortic also. There are no murmurs. The pulse in the recumbent position is 96. On exertion it quickly jumps to 120, and the cardiac beat becomes more embryonic in character. The patient is a Mohammedan. His chief diet is rice *a la* Bengal, beef, and fish. He occupied a cabin alone.

July 25th. Oedema of feet and legs is subsiding. The analgesia of the legs is more marked, and has extended to the distribution of the terminations of the anterior tibials and internal saphenas. The cardiac sounds have grown more fetal in character. Passive raising and lowering of his body causes some irregularity as well as a marked rapidity in the beat. There are no murmurs, but the reduplication of the pulmonary second is now more frequent. Reflexes and sensations as before. There is no motor disturbance. A new feature in the case is a slight rise of temperature (101°).

July 27th. Temperature still up (100° to 102° F.) Area of abdominal pain is contracting, and the deep epigastric pain is not so acute. Cardiac sounds now distinctly embryonic in character, and the aortic and pulmonary seconds reduplicate frequently. There are no murmurs. The pulse is easily compressed. On passive exertion it runs to 140. At rest it averages 110. The oedema has completely disappeared. Reflexes as at first.

July 31st. Temperature has lowered to normal, while coincidentally the deep epigastric pain has contracted and disappeared. Sensory disturbance as last noted. Also state of reflexes. Pulse averages 90. The cardiac sounds are tending towards the normal, but the rhythm is still decidedly embryonic. The pulse rises on the slightest passive exercise.

August 1st. Motor power is still undisturbed. Tactile sensation not at all affected. The disturbance of dolorific sensation has extended, however. In the arms and hands it is considerable. A slight numbness was noticed yesterday; to-day it is more marked, and has reached the elbows. In the lower limbs it has extended to the middle of the thighs. The trunk and face are normal. The pharynx is unaffected. The cardiac state as last noted. There is now no deep epigastric pain nor any complaint of strange epigastric sensations. Reflexes as last noted. No oedema.

August 15th. The temperature has been normal since the 31st ult. The cardiac rhythm has been gradually approaching the normal, until now there is scarcely any abnormality. The pulmonary second sound is occasionally reduplicated. The analgesic area of the upper limbs is reduced to the hands and wrists; that of the lower limbs to the lower third of the legs, ankles, and dorsa of the feet. Reflexes as before.

August 27th. Cardiac condition apparently normal. Knee-jerks still absent. Other reflexes normal. The analgesia has cleared up. Patient has been up and moving about ward for a week without recrudescence of symptoms.

September 1st. Patient discharged, normal except for absence of knee-jerks.

This case, it seems to me, must be placed in the acute category of my classification. It should be noted that the surgeon of the ss. *Jelunga* detected an epigastric onset in this instance. Symptoms of gastro-duodenal irritation preceded the oedema and sensory disturbance by several days. Even after admission to hospital the gastro-duodenal syndrome intensified, and, *pari passu*, the cardiac and sensory irregularity. The gastro-duodenal symptoms were accompanied by a slight rise of temperature—an unusual occurrence. By the end of the second week all symptoms had reached a maximum. They then began to subside, and, excepting the knee-jerks, disappeared before the patient was discharged. The treatment was rest in bed without the exhibition of any special drug.

This is a good illustrative case of acute beri-beri, beginning with a gastro-duodenal onset, running a definite course, with final recovery at the end of six weeks.

Case II.—*Acute Beri-beri.*

Abdul Russit, aged 20, native of Calcutta, Mohammedan: admitted to Branch Seamen's Hospital (Sir Patrick Manson's clinic), July 14th, 1905; discharged September 1st, 1905.

Notes on Admission.—Patient is a native of Calcutta. Is a coal trimmer on ss. *Jelunga*. Illness began twenty days before admission. Says that he first noticed slight swelling of the front of the leg and ankles. He gives a definite history of having had deep epigastric pain, but he is not positive as to whether this came on before or with the swelling. He describes the deep epigastric disturbance which is now present as one of pressure. Since the onset he has been getting weaker in the legs. His chief article of diet has been rice prepared *a la* Bengal.

Physical Examination.—Temperature 98°, pulse 90, respirations 18. There is moderate oedema of the lower pretibial region. The face looks puffy but does not pit on pressure.

He can rise from the recumbent position without assistance and walk without perceptible loss of power. When upright he rises on toes easily, but when he begins to kneel there is undoubted weakness in the extensors of the legs. The extensors of the toes are slightly weakened, the flexors normal. Flexion of ankles slightly weakened, extension not affected. The peroneals are weak, and he cannot voluntarily evert his feet. Flexors of the legs not involved, extensors moderately weakened. Flexion, extension, adduction, abduction, and internal and external rotation of the thighs not affected. The right hand grasp registers 60, the left 55 on the dynamometer. Extensors of wrists and fingers slightly weakened, flexors normal. Supination and pronation normal. Muscles of upper arm, shoulder girdle, face, and of the eyes normal. Deglutition and respiratory muscles normal. He locates tactile stimulation well. There are no patches of anaesthesia anywhere. Dolorific and thermal sensation normal. Knee-jerks absent. Plantar and other superficial reflexes normal. The myotatic irritability of the extensors of ankles, legs, and wrists is *plus* on direct mechanical stimulation. These muscles are notably flaccid. Complete flexion of the legs on thighs is possible when he is recumbent, but there is no retroflexion of the knee-joints when he stands. Pressure of chest, liver, spleen, umbilical region, and cardiac area of stomach is not resented and the patient says that he feels nothing unusual. Pressure in the right epigastric region on the contrary is resented and the patient winces. He says that the pressure gives rise to a dull oppressive feeling.

The pulse is soft and easily compressible. In the recumbent position it is 60 and regular. There is no pulsation in the superficial veins. The apex beat is displaced slightly to the left. The right cardiac area reaches to the left border of the sternum. The first sound is diminished in intensity at the mitral area, and the second sound reduplicated about 1-5 beats. The pulmonary second sound is constantly reduplicated. No murmurs. On walking patient the length of the ward the pulse rises to 110, and becomes slightly irregular. Forty ounces of urine passed the first twenty-four hours: specific gravity 1026. No albumen. The faeces show nothing abnormal.

July 17th. Oedema of legs has gone. The sacral oedema has

almost disappeared. The calf muscles are now somewhat tender on pressure. Otherwise the same.

July 25th. Pulse-rate has sunk to an average of about 50. Complains of slight pain in cardiac region. The right cardiac area has contracted to almost normal. The pulse not quite so soft. The sounds have not changed in character. The pain on pressure of the calves is worse. Passive or voluntary flexion and extension of the ankles does not cause pain in the calf muscles as does pressure of them. The oedema over sacrum has gone. The subjective sensations in the stomach and those elicited by deep pressure of the epigastric region have disappeared. Knee-jerks still absent. Still no change in tactile or other sensations. Muscular weakness improving.

August 15th. Patient has been up for past few days. The muscular weakness has about gone, though the affected muscles are still flabby. Pulse and heart almost restored. The pulmonary second sound is still frequently reduplicated.

August 27th. Muscular power restored, though the affected muscles are a bit flabby. Sensations normal. Occasionally the cardiac rhythm shows slight irregularity, especially after a walk. No complaint of palpitation, however. The cardiac area is reduced to normal. Knee-jerks and other reflexes as on admission.

Patient was discharged on September 1st, apparently well, except for absence of knee-jerks and occasional slight cardiac irregularity. The latter was not notified by any subjective sensations.

This case also was of the acute type in my classification of beri-beri. There is a history of onset with deep epigastric pain, followed or accompanied by oedema and slight muscular weakness, and then by cardiac disturbance. The sensory neurones do not appear to have been involved in any stage of the disease. The deep epigastric tenderness presented for about two weeks after admission (four weeks altogether) the symptoms of poisoning of the cardiac and motor neurones, increasing and reaching a maximum at the end of the sixth week. Thence onward the patient made a complete and uninterrupted recovery, except for the continued loss of the knee-jerks.

Case III.—*Acute Beri-beri.*

Kooti, age 24; Mohammedan; admitted to the Branch Seamen's Hospital (Sir Patrick Manson's clinic), July 14th, 1905; discharged September 1st, 1905.

Notes on Admission.—Patient was coal trimmer on ss. *Jelunga*. Is a native of Calcutta. His chief diet on board ship was rice prepared *à la* Bengal. He says that illness began twenty days ago. First thing noticed was swelling of face. This soon extended to arms and legs. Patient is quite positive about this march of the oedema. In four days the swelling had reached a maximum, and then continued for another six or seven days. He had difficulty in walking, owing to the massive swelling of his legs. The swelling subsided, and then weakness of the legs developed. He felt, too, that he had no arms or legs. This condition still persists.

Physical Examination.—Temperature 98°, pulse 74, respirations 18. There appears to be total loss of tactile sensation of whole of body except scalp and face. The mucosa of the nasopharynx is also insensitive. Tactile sensation of hard palate and mouth normal. Dolorific sensation is dulled over abdomen, flanks, and the thorax as high as the third ribs. It is absent to the same extent as tactile sensation in other parts of the body. Loss of thermal sensation follows same lines as tactile. The calves and extensors of the arms are tender to pressure. The hand grasp is decidedly weakened. He cannot impress the dynamometer. The extensors of the fingers and wrists are nine-tenths weakened. The flexors of these parts are also decidedly weak. The extensors and flexors of the arms are very weak, the former more than the latter. Supinators and pronators of wrists markedly weakened. The deltoids are moderately weakened. So, also, are both of the great serrati. When he lies down from sitting position he falls back suddenly, and cannot recover. The flexors and extensors of the head do not appear to be involved. There is only slight power in the flexors and extensors of the toes and ankles. Flexors and extensors of legs are almost powerless. Flexors of thighs very weak, also the extensors. Internal and external rotation of thighs markedly weakened. The peroneal muscles are powerless. Protrudes tongue in straight line, but slowly. Internal and external ocular muscles seem to be normal. The facial muscles are not involved. The motor weakness is decidedly flaccid in type. There is no sign of motor atrophy. The legs can be flexed with ease on the thighs. But there is no particular looseness about the joints. The myotatic irritability of all the weakened muscles is markedly plus on direct mechanical stimulation. The wrist-jerk is decidedly plus. The knee-jerks are absent. Occasionally a slight contraction is seen in both the internal vasti when the patellar tendon is tapped under reinforcement. Plantar reflexes are absent. Abdominal and cremasteric reflexes are plus. There is no oedema anywhere. The pulse is small, easily compressible and irregular. At rest in the recumbent position it beats 74. After slight passive exertion it rises rapidly to 94. There is no pulsation in superficial veins. The apex is in the fifth interspace, nipple line. Right cardiac dullness extends to middle of sternum. At the mitral area the first sound is constantly reduplicated and occasionally lost. The pulmonary second is also constantly reduplicated and occasionally lost. The aortic second is normal. At the apex the first and second sounds are about equal in quality and in loudness, and are equidistant in time. There is nothing unusual in the respiratory system. Twenty-seven ounces of urine in first twenty-four hours; specific gravity 1026; acid; no albumen. The stool is normal.

July 16th. As first noted, except that tactile and other sensations are improving in hands and arms.

July 20th. *In statu quo*, except that tactile and other sensations are more acute over trunk, upper limbs, and nasopharynx. Even in these parts it is decidedly delayed.

July 25th. The sensory disturbance has practically disappeared, and motor power is being recovered in the arms and trunk. The cardiac condition remained fetal in character. The reflex as when first examined.

July 31st. There is now some tenderness of the calf muscles on pressure. The flaccid weakness of the arms has almost disappeared, and the flexors and extensors of the wrists and fingers have almost recovered. Cardiac condition unchanged.

August 5th. The heart rhythm is steadying. Reduplication at the mitral area is now rare and no beats are lost. The pulmonary second is occasionally reduplicated. The spacing is more nearly normal than since admission. There is still a slight flaccid weakness in the muscles of the wrists and fingers, more especially in the extensors. Weakness in adduction and abduction of the thighs, rotation of the legs, and flexion of the legs is scarcely demonstrable. Extension of legs and ankles is moderately weak. Sensation appears to be normal. Reflexes as at first.

August 15th. Has been allowed up. There is now a slight pretibial oedema. The flaccid weakness has almost gone. It now only shows when he walks, and then only in the extensors of the legs and ankles. The heart is almost normal.

September 1st. The weakness in the extensors of the legs and ankles has gone entirely. There is no sensory loss. The cardiac state is normal. All oedema has disappeared. The knee-jerks are still absent, but the superficial reflexes are restored. The calf muscles are slightly tender on pressure. The blood of this patient was taken from a vein at the elbow, under strictest precautions, by Dr. Wise, and cultured in an excess of broth. No growth.

This case gave no history of onset with gastro-duodenal symptoms, nor was there any gastro-intestinal disturbance during observation. This and the preceding cases occurred about the same time on the same ship. Two out of the three gave a history of onset with deep epigastric pain and other symptoms of gastro-duodenal irritation. It is possible, of course, that slight symptoms of gastro-intestinal disturbance may have been swept from this patient's mind by the rapid development of the oedema and spread of the motor paresis. However, this is more or less conjecture. The case will have to be regarded as one of those with insidious onset followed by most severe paresis. Such cases remind one of those cases of diphtheritic palsy which rapidly supervene on a scarcely noticeable throat lesion.

These 3 cases occurred on the same ship and within a short time of each other. Cases had occurred on the same ship on previous voyages. Beri-beri arising under such circumstances more than suggests the infectious nature of the disease.

A point to be noted about these cases is that they occurred on a diet of rice prepared *à la* Bengal. Braddon denies beri-beri on such a diet. I have already exposed the weakness in his view, so that it is not necessary here to do more than just record these cases as further opposition to his theory.

Another point to be noted about the last of this group of cases is the rapidity with which the motor paresis developed and spread, and the almost equal rapidity with which it subsided. I have already published, and later in this paper will submit further evidence of the slight though general pathological lesion in the neurones which underlies this flaccid paresis. The paresis is really due to a slight general toxic poisoning of the terminations of many motor neurones, a poisoning which rapidly clears up on apparently the elimination of the beri-beric virus, provided that the change in the neurones is not confirmed by bad treatment or the forced use of the affected muscles.

Case IV.—*Acute Beri-Beri.*

Ah Lung, aged 46; Chinaman. Admitted to Branch Seamen's Hospital (Sir Patrick Manson's clinic) November 6th, 1905. Discharged January 8th, 1906.

Notes on Admission.—A native of Canton. Storekeeper on ship. At sea for past five years. Last voyage from Singapore via Cape. Arrived in England nineteen days before admission to this hospital. Was admitted to Seamen's Hospital, Greenwich, on 19th October, 1905. Seven weeks previously his illness began with loss of appetite and nausea. This continued for about three weeks, during the last few days of which he had a great deal of "inside pain" in the epigastric region.

Following this he had shortness of breath, oedema of the legs, and was unable to walk properly. His brother, who shared his cabin, was similarly affected, and died at the end of two weeks' illness.

Notes on Admission to Greenwich Hospital.—October 19th, 1905. Temperature 98°; pulse 64; respirations 18. There is pain on deep pressure of the epigastric region, especially in the left aspect. He has a subjective sensation of fullness in this region. The knee-jerks are absent. Superficial reflexes present. The area of cardiac dullness seems to be normal, but there is a rumbling systolic murmur heard at apex. The pulmonary second is occasionally reduplicated.

October 25th.—The area of cardiac dullness has now enlarged to midsternal line. Apex beat in fifth interspace, nipple line. Both sounds at apex are alike in quality and intensity. The spacing is almost embryocardiac. First sound at mitral area is reduplicated every second or third beat. Pulmonary second constantly reduplicated. The aortic second is weaker than normal. Pulse at rest 96. Passive raising and lowering of his body quickly sends it to 110. It then becomes weak and slightly irregular. The respirations are chiefly thoracic. There are a few bronchial rales in both bases. There is marked oedema of the whole of the lower extremities and trunk. There is also some acites. Extension of ankles and toes is moderately weakened. The peroneals are decidedly weak. The extensors of the legs also decidedly weak. The flexors of the legs are not involved. Extension of wrists and fingers moderately weak; flexion slightly weak. Pronation and supination of wrists slightly weak. No other muscular weakness. The calves are slightly tender to pressure, but active or passive contraction does not produce pain. Says that he has feelings as though ants were crawling in his legs. There is moderate anaesthesia as high as the knees. Tactile sensation is also moderately delayed in these parts. Doloriflc and thermal sensations do not appear to be involved. The knee-jerks are absent. Superficial reflexes normal.

Between admission to Greenwich Hospital and the taking of the last notes the patient was difficult to control. He insisted on walking about the ward and was manifestly alarmed about his condition. He did not improve; in fact, grew worse. The cardiac, vasomotor, motor, and sensory symptoms all rapidly developed. The deep epigastric pain and subjective sensations bothered him considerably. The oedema and acites became so bad that it was decided to tap. A small amount of fluid was withdrawn from the pleurae on October 25th. On the 26th the abdomen was tapped and 32oz. of fluid withdrawn. This appeared to relieve the dyspnoea and cardiac distress.

By October 26th the anaesthesia appeared to clear up. On November 6th he was transferred to the Branch Hospital.

Note on Admission.—No sensory disturbance. Apex beat within nipple line in fifth interspace. The rumbling systolic murmur still present. The muscular weakness of arms, hands, ankles, and legs more marked. The oedema of the legs is still marked. There is slight acites. No dyspnoea. Deep epigastric pain has subsided.

November 25th.—The weakness in extension of the legs is moderate; in the flexors slight. The anterior tibials, peronei, and extensors of the toes are slightly weak. Movements of legs are accompanied by a coarse wavy tremor. There is no inco-ordination, however. Hand grasp much weakened. Extensors of wrists and fingers also very weak. Flexors of elbow normal, but extensors are moderately weak. Supination and pronation of wrists normal. Sensations are normal. Knee-jerks still absent. From now on patient gradually recovered voluntary power, first in muscles of upper limbs. By December 15th little or no muscular weakness could be demonstrated. Sensations were normal. The oedema had subsided. A soft systolic murmur persisted at the apex, but the cardiac area had retracted to the normal limit. By January 1st, 1906, all symptoms had cleared up except a slight pretibial oedema. By January 8th the patient was whole again, except that the knee-jerks remained absent.

This is a good illustrative case of acute beri-beri. Ushered in with several days of gastro-duodenal disturbance, as evidenced by loss of appetite, vomiting, and subjective gastric sensations, there soon followed distinct signs of poisoning of the automatic, vasomotor, cardiac, and sensori-motor neurones. The patient was, according to his own account, unable to work or get about even after his arrival in the Thames. As soon as he could be removed he was sent in to Greenwich Hospital. On admission he appeared to be on the mend; but the strange environment, the recollection of his brother's death from beri-beri, and his restlessness in hospital seems to have been followed by a distinct relapse. There was a recrudescence of the gastro-duodenal symptoms, the oedema became massive and rapidly spread, dyspnoea and palpitation came on again, and the sensori-motor paresis became more marked. These symptoms reached a maximum in a week or ten days, and then gradually subsided. When the patient was discharged he was apparently well again, except for the continued loss of knee-jerk. As pointing most emphatically to the infectious nature of beri-beri, witness the death of the patient's brother from the disease contracted at the same time and in the same place. The only medicinal treatment applied in this case was sod. sulph. every few mornings and a short course of Easton's syrup; but he was kept at constant rest in bed till all cardiac symptoms had cleared up.

All the foregoing cases illustrate the onset, course, and termination of the acute disease, or beri-beri proper. The following case, on the other hand, illustrates not only the acute disease, but the stage of atrophic paralysis residual to the acute disease.

Case v.—*Acute Beri-beri Ending in Beri-beric Residual Paralysis.*

Ah Fook, aged 24; Chinaman. Admitted to Branch Seamen's Hospital, February 8th, 1906; discharged May 10th, 1906. Left Hong Kong about August 17th, 1905. Went to Calcutta and other ports, but did not leave the ship. Left Port Said October 30th, 1905. Four days later he had an attack of nausea and vomiting, with hot burning sensations in his stomach. A few days later he began to grow weak in his legs. His legs also became numb. Swelling came on in a few days, and remained confined to the lower third of the legs. He was able to walk fairly well in spite of the weakness and swelling, but his appetite was poor, and he had uneasy feelings in his belly. He was kept at work on board ship. He had no rest except at night. His legs gradually weakened, and then his hands and arms. By the time he got to Copenhagen, November 22nd, he could scarcely walk, and his fingers were so weak that he had to be fed. He was sent into hospital at Copenhagen, and remained there for a month. During this time he thinks that the weakness of the arms and thighs got better, but his hands, ankles, and feet grew weaker and thinner. He regained his appetite, however, and has been a good eater since. In the beginning of his illness his heart did not trouble him much. But two weeks after the weakness of the legs appeared he suffered from palpitations. Patient arrived in London on January 15th, 1906. He could not walk, and was sent into Limehouse Sailors' Home. He remained there for two days, and was thensent into this hospital.

Status Praesens.—Patient was carried into ward, being quite unable to walk. He is greatly wasted, loose jointed, but cheerful and clear-headed. There is complete atrophic paralysis of the extensors and flexors of the toes. The ankle movements are almost abolished, foot-drop is marked and the flexors are greatly wasted; the extensors are also wasted, but not so greatly as the flexors. He cannot evert his feet, and the peroneal muscles are markedly atrophied. The extensors of the legs are almost completely paralysed and wasted. The flexors are similarly affected, but not quite so noticeably. Flexion of leg on thigh very weak and the muscles atrophied. Both legs may be passively flexed on thighs and thighs on body with great ease. Internal and external rotation of thighs almost abolished. Adduction and abduction also markedly weak. The affected muscles, so far as they can be seen, are greatly atrophied. The trunk muscles appear to be weak, especially the erectors of the spine. They are wasted also. There is wrist-drop. There is marked weakness and atrophy of the extensors and flexors of the fingers, wrist, and arm. The supinators and pronators are likewise involved. Elevation of the shoulder is considerably weakened and the deltoid is atrophied. All shoulder girdle muscles are somewhat weak and atrophied. Muscles of expression and internal and external ocular muscles not affected. Tongue, pharyngeal and laryngeal muscles appear to be normal. The diaphragm is paralysed, the breathing being purely intercostal. The knee-jerk is absent. All somatic muscles are hypersensitive to direct mechanical stimulation. Pharyngeal sensation normal. Calf muscles extremely tender on pressure. Passive extension and flexion of the muscles does not cause pain. The nerve trunks in the popliteal space do not appear to be tender. Thenar eminences, intercarpal spaces, and flexors and extensors of wrist very tender to pressure. Skin sensations cannot be accurately determined, but there appears to be anaesthesia and analgesia of the legs and hands. There are filaria in the blood. The pulse is 78 in the recumbent position. It is irregular in time. It is also weak and readily compressed. The apex beat cannot be found readily. The right cardiac dullness is about an inch beyond the normal line. The left dullness is about half an inch wide of the normal. The apex beat is behind the fourth rib outside the nipple line. It would appear that the heart is not only enlarged but tilted up and out to the left by the paralysed diaphragm. The cardiac sounds are weak and irregular. The pulmonary second is reduplicated every second or third beat. There is a frequent reduplication of the aortic second as well. A faint systolic bruit may be heard at the apex. The urine is diminished. Otherwise normal.

This patient remained under observation until May 10th, ninety-one days altogether. During this time the heart remained in about the condition as outlined above. Towards the end of the observation it steadied somewhat, and the area of dullness diminished. The wasting of the muscles improved a little under massage. A short time before discharge the patient could walk with assistance, but foot-drop remained. The pain in the muscles improved. When discharged, however, he had still to be regarded as a residual paralytic.

It will be manifest that this case, when it first came under observation, was largely different from Cases I to IV. In the latter we had to consider an acute flaccid paralysis which came on more or less suddenly, preceded or accompanied by gastro-duodenal irritation. The flaccid (never atrophic) paralysis developed to a maximum in a few weeks, and then gradually subsided. In Case V, on the other hand, we had to do with a case that gave a history of an acute onset, followed by abuse rather than rest of the poisoned neurones and muscles, with the result that instead of the original flaccid paralysis clearing up, it gradually changed in character to marked atrophic palsy. There is much in the history of the acute cases to point to an acute poisoning of the neurones. There is nothing in the history of this residual case to suggest that the atrophic residual palsy is due to any other cause than an inertia degeneration of neurones from the impact of a poison active in the early acute stage of the disease. The history of such cases as this may be summed up as acute neuronal poisoning plus abuse of the damaged neurones by work.

Only one case of fatal acute beri-beri occurred during the fourteen months' observation at the Seamen's Society hospitals. This was not because the cases were not severe, but because it was recognized that the disease is an acute toxaemia, the treatment being directed accordingly. The one fatal case was of the acute cardiac type (acute pernicious beri-beri). The clinical and pathological notes of the case have been published in an earlier number of the BRITISH MEDICAL JOURNAL. They are not, therefore, available here. So, to complete the whole picture of beri-beri in this paper, there follows a complete history of one of my Kuala Lumpor cases, fatal in the thirtieth day of the disease.

Beri-beri, as expressed by the clinical histories 1 to 4, will be readily comprehended by a study of the pathological lesion of this fatal acute case:

CASE VI.

H. Y., Chinaman, aged 23. Admitted to Kuala Lumpor District Hospital, December 26th, 1901. Died January 20th, 1902, 5.30 p.m. Autopsy, January 21st, 1902, 7 a.m.

Notes taken January 3rd, 1902.—Patient born at Kong See, China, twenty-three years ago. Lived there continuously until one and a half years ago. Health always of the best. Never saw any one suffering from his present disease. Came to Selangor in July, 1900, and worked as a contract coolie in the tin mines at Salak. Until twenty days ago he continued in good health, although many coolies contracted his disease from day to day. He was the first to contract the disease in his kongsie. The first indication of his illness was a chill during the night. The next morning he could not eat, and there were heavy, sickish feelings in his stomach. Two days later he felt numb and cold in his feet and legs, and that evening, after a hard day's work, his feet and ankles began to swell. Then weakness came on in his ankles, and the numbness and swelling spread quickly to his thighs, arms, hands, and scrotum. He was still able to walk, however. But he could not eat with any pleasure, and the sickish, oppressive feeling in his belly continued. The weakness of his legs progressed, and eight days after the onset of his illness he had to take to bed. He rapidly grew weak, and soon was unable to move ankles, legs, or hands. He has not improved at all except that now he eats better, and the oppressive feelings in his stomach have almost gone. Six days ago he first felt weak in the heart. Even when lying quite still his heart would sometimes become very rapid, and he would gasp for breath.

Status Praesens, January 6th, 1902.—He cannot walk. He has no power over toes or ankles. Flexion of the legs is extremely weak. He cannot extend his legs, nor can he flex his thighs. He lies on his back with legs flaccid, fully extended, and with thighs and legs fully rotated outwards. He cannot rotate his lower limbs inwards. The movements of the peroneals are completely paralysed. Adduction and abduction of thighs is lost. He cannot sit up. He falls back to the recumbent position without restraint. Flexion and extension of the wrists are markedly weakened, also of the arms. The deltoids are greatly weakened. Flexion, extension, and rotation of the head are moderately weakened. The muscles of expression are apparently normal; they may be more flaccid than they should be. He cannot protrude his tongue much beyond his lips. He blows out his cheeks with difficulty. His voice is thin, and there is partial aphonia. The internal and external muscles are apparently normal. All affected muscles are very flabby. The knee-jerks are absent. The plantar and cremasteric are minus; abdominal normal. All voluntary muscles are hypersensitive to direct mechanical stimulation. The fibres where struck heap up rapidly and subside slowly. The wrist and elbow jerks are plus. The facial and tactile areas are normal. Those of the trunk are enlarged 25 per cent. There is almost complete anaesthesia of the hands, legs, and feet, except for scattered areas of anaesthesia dolorosa. Thermal sensation is normal over entire body except instep and antero-lateral aspect of legs. The pharynx is totally anaesthetic, the tongue and gums to a lesser degree. Doloriic sensation is maintained. There is a moderate oedema of the legs, thighs, scrotum, and sacrum. The cardiac area is enlarged to the right, positive dullness extending to the left edge of the sternum. The enlargement to the left is slight. At the apex and in the lower sternal region a marked systolic bruit can be heard: it is also heard, but not so loudly, as far as the right axilla. The aortic and pulmonary seconds are frequently reduplicated. Dropped beats are more than occasional. The precardiac impulse is massive and irregular. The pulse is soft, easily compressible, and rapid. It runs to 145 to 160, when the patient is passively manipulated. Irregularity develops with the rapidity. The cervical veins throb irregularly, so also does the epigastrium. He complains of great pain when the calf muscles and nerve trunks in the popliteal spaces are pressed. Passive movements of the legs do not induce the pain.

I did not see this patient again; but there is a short hospital record by Dr. McClosky to the effect that the patient grew rapidly worse and suddenly collapsed after a short period of delirium cordis. He was completely aphonic and suffered from shortness of breath two days before death.

Autopsy.

7 a.m., January 21st, 1902. Body has been in cold chamber since half an hour after death. Cadaver of a well-developed Chinaman. There are several small bed abrasions on the buttocks and ankles. There is no scar on the penis or luetic scars on the shins. Oedema of the legs, thighs, scrotum, and sacrum is moderate. The pupils are dilated but regular. There is a small amount of unstained froth on the lips. The skull is rather thin, but otherwise normal. There is a slight increase in the cerebro-spinal fluid. There are no naked-eye changes in the encephalon. The spinal cord is in good order to the naked eye. The right pleura contains 60 c.cm. of clear straw-coloured fluid. There are no adhesions. A few petechiae are scattered in the visceral layer. The left visceral layer is similarly affected. The left pleural sac contains 90 c.cm. of clear straw-coloured fluid. There is marked hypostatic congestion of the entire lower lobe of the right lung and a moderate congestion of the upper lobe. There is marked acute emphysema of the apex and anterior border. The organ is crepitant throughout. All of the tissue floats. There are no signs of thrombosis. The left lung closely resembles the right. The heart is very flabby and all the chambers are dilated. The dilatation of the right chambers is more marked. The wall of the right ventricle is thinned, measuring but 2 mm. It is greasy to the touch. The wall of the left ventricle is 15 mm. thick. It is flabby and pale. It feels slightly greasy. The veins of the heart are engorged. The pericardial sac contains 50 c.cm. of clear straw-coloured fluid. There are a few scattered petechiae in the visceral layer. The stomach is dilated and empty. The fundus and pylorus are moderately congested. Here and there are a few patches and rings of brilliant congestion. The congested patches are made up of innumerable dilated capillaries. The mucosa looks thick and opaque not only about but between the congested patches and rings. The duodenum and upper few feet of the jejunum are similarly affected. In the tips of the valvulae conniventes there are occasionally small haemorrhagic injections. There is no evidence of the presence of ankylostomes. The rest of the small gut and the large intestine are normal to the naked eye. The liver is large, round-edged, and deeply congested. There are no haemorrhages to be seen. The spleen is soft, rounded, and moderately congested. When cut the surfaces bulge slightly and bleed freely. The pulp is fairly firm. The capsule of the right kidney peels readily, leaving a deeply congested surface. The cortex measures 4 mm., and like the rest of the organ is congested. Except for a difference in weight, the left kidney resembles its mate. The pancreas and organs of generation exhibit nothing of note. The bladder is normal. The muscles are well developed and in a state of rigor. There is no sign of wasting. The antero-lateral leg muscles are slightly oedematous.

Microscopical Notes.—The mucosa of the stomach and duodenum is pale and decidedly necrosed. The necrosis is chiefly of the cells of the necks and mouths of the glands. The bodies of the glands are rarely affected. Many small sloughs are to be seen clinging by mucous threads to the surface. Occasionally deep sloughing at the surface mucosa has occurred. In the submucosa there are here and there foci of small round cells. Occasionally polynuclear leucocytes are seen in the submucosa and amongst the necrosed cells of the mucosa. A slight amount of fibrin has been precipitated in the necrosed mucosa. The congestion patches and rings seen on autopsy are found to be composed of bunches of dilated capillaries. No actual erosion of the vessels was observed. A few bacilli are to be seen in the necrosed mucosa. They are more frequent in the small sloughs that still cling to the surface of the gut. They measure from 6 to 9 microns in length by 1 to 1·05 microns in breadth. The ends are slightly rounded. They stain best by methylene blue slightly heated and decolorized by anilin oil alcohol. With this stain the bacilli are found to possess one to three striped transverse bars. The

bacilli are Gram-positive. A piece of the ilium examined was found free of necrosis. The tissue of the right cardiac ventricle appears to be slightly dissociated. The muscle fibres are moderately fatty, more especially those of the papillary muscles. No fragmentation was found. A few foci of small round cells are occasionally seen beneath the endocardium. The left heart is not different from the right except that the muscle fibres are not dissociated. The intramuscular fibrosa is not increased. Seven out of the twelve ganglion cells seen exhibited the first stage of change—that is, their nuclei are more or less excentric and there is a moderate chromatolysis. An occasional transcurrent nerve fibre is seen in the first stage of change. The myalin at the nodes and along the internodes is flecked with irregular small black patches. Rarely a rounded drop of myalin is observed. Those larger strands of nerve fibres which course over the right auricle are all moderately poisoned, and so exhibit the black patches just described. The changes in the lungs are those seen in extreme hypostatic congestion and acute emphysema. The vessels, especially the central capillaries of the liver, are engorged. There are no extravasations, however. The liver cells contain a small fatty deposit, but are otherwise healthy. There are occasional foci of old malarial pigment. The splenic vessels are decidedly overfull, but no extravasations were found. There was a slight general deposit of old malarial pigment. Nothing suggested recent malarial infection. The capillaries of the kidneys are moderately engorged. No other changes are observable. The great majority of the anterior tibial and peroneal muscle fibres are in an early stage of fatty degeneration. No interstitial changes, bar a few scattered foci of small cells, have occurred. An occasional transcurrent nerve fibre shows the action of the beri-beric virus. The change is more advanced than that seen in the cardiac nerve fibres, in that the myalin drops are more frequent.

The cerebral and cerebellar cortical cells are normal. No abnormal cells could be found in the nuclei of the 3rd, 4th, or 6th cranial nuclei. In the motor nuclei of the 5th cranial nuclei there are from 2 to 5 cells in each section in the first stage of change as above described. Each section of the 7th nuclei exhibits from 3 to 7 cells in the first stage of change. In the combined nuclei, especially in the lower levels, there are a few cells in each section in the early stage of change. In the ambiguus nuclei quite two-thirds of the cells in each section are morbid. A few have advanced beyond the first stage of change, and are actually in a state of degeneration. The nuclei are almost extruded and the cell bodies are vacuolated and even fragmentary. In the 12th pair of nuclei there are in each section from 1 to 3 cells in the first stage of change.

Spinal Cord.—Sections of the accessory nuclei of the cervical region show a few cells in the first stage of change. In the phrenic nuclei of C. 4 to 5 fully a third of the cells in each section are in the first stage of change. Occasionally a cell is seen in the second or degenerative stage. All levels of the columna extremetatis superioris contain altered cells. Fully two-thirds are in the first and second stages of change. In the columna intermedio-lateralis of the cervical regions there are in each section from 1 to 3 cells in the first stage of change. Sections of the columna medialis of the C. region exhibit from 1 to 3 cells in the first and second stages of change. In the same column in the T. region a few cells, from 1 to 2 in each section, show the first stage of change. They are most numerous in T. 9, 10, 11, and 12. In the columna intermedio-lateralis of the T. region no abnormal cells are to be seen. This column in the lumbo-sacral levels exhibits in each section from 1 to 3 cells in the first and second stages of change. Sections from all levels of the columna medialis of the lumbo-sacral region exhibit from 2 to 4 cells in the first and second stages of change. All levels of the columna extremetatis inferioris are notably involved. Fully two-thirds of the cells in each section are in the first and second stages of change. The larger number of altered cells are seen in the nuclei of the quadriceps, peronei and anterior tibials. A few of Clark's cells are apparently in the first and second stages of change. But normally the nuclei of many of these cells are excentric, and so it would, perhaps, be better to neglect their appearance in this case. The other large cells of the posterior horns are in no way abnormal.

Posterior Spinal Ganglia.—Sections from C. 6 to 8 and T. 1 exhibit from a third to a half of their cells in the first and second stages of change. The cells of T. 2 to 10 are not so widely involved. About a third of the cells show the two stages of change. T. 11 and 12 and all of the lumbo-sacral ganglia are as widely affected as the cervical ganglia. The second stage of change is, however, in greater evidence.

The right Gasserian ganglion contains in each section from one to four cells in the first stage of change. The left was not examined. Two solar, one mesenteric, and the fifth and seventh right thoracic ganglia were examined. Sections exhibit a moderate number of cells in the first stage of change and a few in the second stage of change. Both lower cervical sympathetic, and both first thoracic sympathetic ganglia contain a large number of cells in the first and second stages of change. Fully one half of the total number of cells in each section are affected. Median sections of the ganglion of the trunk of the left vagus exhibit from six to ten cells in the first stage of change. A few are seen in the second stage of change. A moderate number of Meissner's and Auerbach's cells exhibit the first stage of change.

Nerves.—About a third of the fibres in the lower portion of the left hypoglossal (only one examined) are in what I have described as the first stage of change. That is, the myalin is dotted and streaked with osmic at the internodes and at points between. Only rarely are signs of the Wallerian type of true degeneration seen. The buccal twigs of the right facial are in a similar state of change. The twigs of the left facial to the masseter contains a few changed fibres. In the superior constrictor of the pharynx a few transcurrent poisoned fibres are present. The terminal twigs of the right eleventh cranial to the sterno-mastoid contain a moderate number of moderately-poisoned fibres and a few showing clear signs of the Wallerian type of true degeneration. The vagal trunks at the level of the clavicles are but slightly poisoned. About 1 to 5 fibres exhibit the early stage of change. In the deep cardiac plexus and in those vagal twigs that course over the right auricle there is scarcely a fibre not to some degree affected. The majority of all medullated fibres are in the first stage of change. A few are changed to the second degree. As the vagi pass through the diaphragm there are a few fibres in each trunk in the first stage of change. The branches of the right nerve traced to the stomach exhibit a few similarly-affected fibres. The trunks of the phrenics midway in their course are free of change. As they penetrate the diaphragm, however, a moderate number of fibres are seen in the first stage of change. The terminal portions of the radials, ulnars, medians, and musculo-spirals to the skin and muscles of the forearm contain numerous fibres changed to the first and second stages; 1 to 2 fibres are affected. Muscular twigs to the recti of the legs, to the anterior tibials, peroneals, and adductors of the thighs are likewise changed. In these twigs there are, perhaps, a larger proportion of fibres in the second stage of change—that is, signs of true Wallerian degeneration of the myalin are present. The cutaneous twigs to the skin of the instep and outer side of the thighs contain a moderate number of fibres changed to the first and second degree.

It will be seen that the changes in the neurones of this case were not advanced if each individual fibre is regarded. Only occasionally is true degeneration seen in the fibres. The great majority of fibres exhibit a change which cannot be regarded as more than a poisoning. The serious side of the poisoning in this case, as in other similar cases, is not the grade of change in each fibre, but the extent of fibres involved.

No bacteria of any sort were found in the nerves, nerve centres, or organs other than the stomach and duodenum of this case. Both Gram's and Loeffler's were used in the search. The nervous system was investigated by Nissl's and Marchi's methods.

It will not be necessary to submit the morbid anatomy of a case of beri-beric residual paralysis to illustrate the difference between it and the acute disease. It suffices to say that in the former we have a true and extensive degeneration in the neurones, atrophy of muscles proportioned to it, and true hypertrophy of the cardiac muscle, dependent upon the extent of cardiac neuronal degeneration, the amount of work which has been thrown on the organ, and the time that has elapsed since the original poisoning occurred.

Conclusions.

No observations have been made that disturb the main facts on which the above conception of beri-beri was based. The cases submitted here are fresh evidence that beri-beri is an acute infectious disease which onsets with gastro-duodenal disturbance, runs a fairly definite course, ending in recovery or a residual paralysis. Part of the bacteriological work submitted confirms my observation that beri-beri is in no stage a bacteriaemia. The bacillus which I look upon as causally associated with the disease has not, however, been isolated and found to fulfil Koch's laws.

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INFECTION AND INTOXICATION IN EXPERIMENTAL GLANDERS.

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In this communication and in the one which will follow, I will mention the principal results of researches, as yet

unpublished, which I have conducted during the last four years on experimental glanders. My time being limited, I will confine myself to the study of the phenomena observed in the guinea-pig, the animal principally used in my experiments.

Glanders Infection in the Guinea-pig.

The characters of the infection are most varied, depending on changes in the mode of inoculation, the age, and sex of the animals, the virulence, and dose of the germs given. Before examining in some detail the most interesting features of the intraperitoneal inoculations, it will be necessary, at first, to point out briefly the arrangement of the testicular apparatus in the male guinea-pig, an arrangement very little known it appears. We know that in the male guinea-pig the testicle passes easily from the abdomen into the scrotum, and vice versa. When it ascends into the abdomen we find its course limited by a special muscle, the musculus testis, a hollow cone of striated fibres, the apex of which is attached to the epididymis, while the base spreads itself at the level of the inguinal ring. As the testicle redescends into the pouch it falls back, the musculus testis, which encloses it more and more completely, like a contractile sac. The testicle is then situated in the middle of a temporary serous cavity, a dependence of the peritoneum, which forms the true tunica vaginalis. The testicular muscle separates this from another serous cavity, which we will name the scrotal serous cavity, one wall of which is mobile, and covers the surface of the contractile sac, while the other is fixed and lines the internal surface of the scrotal integuments. In the young guinea-pig—according to Livon—the descent of the testicles commences, at earliest, on the thirty-fourth day and ends, at latest, on the forty-seventh. Having said so much I will take up the study of the various types of infection in glanders.

When the virus is injected into the peritoneal cavity of the adult male guinea-pig in infectious doses, death always follows; but the phenomena vary with the activity of the germs and the dose employed. Sometimes one has to deal with a very acute peritonitis, without any special anatomico-clinical characters, sometimes the experimental disease shows various forms of decreasing intensity, to which the genital localizations give their own peculiar stamp. Therefore I will speak of them under the name of scrotal, ectopic, and ephemeral forms. The scrotal forms may be acute or subacute. The acute scrotal form, the only manifestation of genital glanders of the male guinea-pig which authors have described up to the present, shows itself by the following successive symptoms: paralysis of the testicle, which ceases to return spontaneously into the abdomen; oedema of the scrotum and of the root of the penis; "starchy crepitation" (*crépitation amidonnienne*) when one presses back the testicle; definite fixation of this organ in the scrotum. The pouch becomes more and more swollen and the integuments inflamed. If death has not yet intervened, pustules and sloughs appear, followed by ulcerations; through these ulcerations can be seen the peritesticular exudate; and then the animal dies. The subacute scrotal form commences just like the preceding, but, once the testicles are fixed, the phenomena lose their acuteness. The pouch slowly increases in size, and finally fluctuates; the death of the guinea-pig follows, according to the case, before, during, or after the opening of the genital abscesses. Local healing is possible, but this does not save the animal from death (intoxication). In the acute scrotal type the lesions begin on the peritoneal surface of the musculus testis, as exudates surrounded by a zone of violent inflammation (hence the paralysis of the testicle). The exudates soon unite and invade the two surfaces of the tunica vaginalis. These adhere at first loosely (starchy crepitation), then intimately (fixation of testicle). The scrotal serous cavity is then obliterated; the testicular muscle is destroyed, and the only one cavity which now surrounds the testicle becomes filled with a fibrino-purulent exudate, more or less haemorrhagic. We have seen, from the clinical features, what may be the end of these lesions.

In the subacute scrotal type the reaction never advances to such an extent, and, once the testicle is fixed, it becomes gradually pressed upwards by the pus, which collects in the pouch. The testicle becomes more and more atrophied, till it is finally reduced to a fibrous nodule, soon indistinguishable from the walls of the genital abscess. The scrotal forms are accompanied by visceral granulations (especially splenic) in the acute cases and by "farcinic" metastases in the slow ones.

The ectopic forms begin as usual, but soon the phenomena vanish, and there appears the sign which is pathognomonic of this type of genital glanders, the persistence of the testicle in the abdomen. Then there is developed at the level of the inguinal ring a nodule, which sometimes reabsorbs (retrogressive type), but at other times invades the scrotum, and, increasing gradually in size, takes on the characters of a cold abscess (progressive type). The opening of this abscess may take place at all stages of its progress; when this opening is delayed the collection, before being evacuated, contracts adhesions with the internal surface of the pouch, and the symptoms then completely resemble those of the subacute scrotal type. In the ectopic types the lesions localize themselves very rapidly to the musculus testis, which becomes the seat of a nodule; this may be curable or it may be capable of further growth, as we have just seen. It is impossible to insist any longer on the intraperitoneal inoculations in the adult male guinea-pig; I will simply add that the scrotal and ectopic forms can be combined in a given animal; the same applies to the ectopic and ephemeral forms (the latter sufficiently defined by its name).

When one inoculates the virus into the peritoneal cavity of an adult female guinea-pig the phenomena observed vary according to the activity of the germs and the dose administered. They are: Very acute peritonitis, peritoneal farcy, formation of an abscess in the abdominal wall (due to the deposit of bacilli at the time of inoculation, or their subsequent reflux); metastases, more or less distant; intoxication, rapid or slow, with disappearance of the inoculated microbes. But, in order to infect the animals, in this case, it is necessary to employ a much larger dose than in the male guinea-pig; for example, 10.3 cg. of a strong virus, instead of 10.7; or 1 cg. of a feeble virus, instead of 10.2 cg. (1 cg. even may fail). If we inquire into the cause of this difference, we see that it only depends on the absence in the female of the hypersensible serous membrane, which invests the peritoneal surface of the musculus testis of the male. In fact, if in the latter one removes the testicles, destroying their muscles, and, after recovery from the operation, practises infection by the abdominal way, the castrated animal behaves exactly like a female. One will perhaps be inclined to attribute this curious vulnerability of the tunica vaginalis, which covers the testicular muscle, to the movements of the muscle itself. These movements, which are so frequent, expose at every time the serous membrane to friction and pulling, a condition of affairs well suited to give rise to a point of lowered resistance. But this explanation teaches nothing as to why this vulnerability should be elective (or nearly so) towards the bacilli of glanders. Thanks to the relatively weak sensibility of the female peritoneum towards this microbe, it is easy to show clearly the individual differences of receptivity. By inoculating abdominally a large dose of a feebly-active specimen (for example, 1 cg.), one exceptionally finds females which are completely resistant, whilst the others display the various clinical types mentioned above, and die.

In young male guinea-pigs the intraperitoneal infection is often followed by cure. Such a resistance, unknown in the adult, cannot be explained by the physiological ectopy of the testicle at this age; it is caused both by a less sensibility of the serous membrane which covers the musculus testis and by a lower general sensibility towards glanders.

The intrapleural inoculations in the two sexes are quite comparable to the intraperitoneal inoculations of the female. Subcutaneous or intramuscular inoculations, according to the virulence and dose of the microbes and the susceptibility of the animals, give rise sometimes to transient indurations and at other times to abscesses, which develop more or less rapidly. These lesions are accompanied or not by glandular reaction, and "farcinic" metastasis (pustules, abscesses, massive engorgements of the limbs, periostitis, orchitis, paraplegia). As for the inoculations into the circulatory system, they provoke, as one could expect, a generalized glanders. This, according to the case, is found as a fatal infection, a curable infection followed by a fatal intoxication, or an infection which is definitely curable.

A large number of guinea-pigs have been submitted to repeated inoculations of glanders bacilli (with the object of immunizing them). In these inoculations, various ways of infection have been adopted and naturally inoffensive doses of the virus chosen. Certain of the guinea-pigs have borne this treatment easily, but the greater part have exhibited a hypersensibility. This is revealed by three types of accident: (1) Local infection (more or less grave, according to the mode of inoculation—as extreme cases: subcutaneous, and always benign abscesses; very acute, and rapidly fatal inflammations of the serous cavities) or infection at a distance; (2) acute or slow intoxication; (3) lighting up or development of one of those extraneous diseases, of which I will speak shortly. The hypersensibility may even appear when the doses are not increased and when they are administered at suitable intervals; it is, naturally, more frequent in the reverse conditions.

Glanders Intoxication in the Guinea-pig.

One usually distinguishes, to-day, two kinds of bacterial poison, the soluble toxins and the endotoxins. Admitting provisionally this distinction, the bacilli of glanders, studied in guinea-pigs as reactive animals, appear to give only an endotoxin. This is encountered, in the dilute condition, in mallein and, in a more or less concentrated form, in the bodies of the microbes treated in various ways. From the bodies of the microbes can be prepared a whole series of products of decreasing activity; it suffices to act, for example, on the living bacilli, with heat, alcohol, ether, chloroform, ammonia. Amongst these agents, heat is the one which alters least the toxicity, and ammonia the one which destroys it most.

The dead germs produce, *mutatis mutandis*, the same effects as the living ones. The intra-abdominal injections can cause the animals to die, according to the case, from a rapid intoxication (very acute peritonitis) or from a slow poisoning. In the adult male guinea-pig which has received by this way a non-fatal dose, or a dose which is only fatal after a long time, one finds under an attenuated form the characteristic lesions of genital glanders. Clinically, they show the following signs: superficial induration of the epididymis; friction, more or less rough, when the testicle is pushed back to the top; limitation of the upward course of the testicle, and even fixation in the scrotum. Anatomically, it is a question of exudates developed on a congestive foundation at the level of the musculus testis and sometimes also on the testicle and epididymis, exudates which end in sclerosis. It is a curious fact that if one injects with the death germs, or just before their injection, 8 to 10 c.cm. of horse serum (warmed for half an hour at 88°), the genital lesions are exaggerated to the extent of realizing very characteristic scrotal or ectopic forms. The serous membrane, which covers the musculus testis, thus shows itself to be electively vulnerable not only to the living, but also to the killed bacilli.

The dead microbes, injected in suitable doses (for example, 1 cg. of bacilli killed by alcohol-ether, weighed dry) under the skin of normal guinea-pigs, only give rise to transient local infiltration. On the contrary, if introduced into the cellular tissue of the hypersensible animals, they can cause a whole series of lesions, which are, in increasing order, prolonged reaction; prolonged reaction, with partial softening of the local induration, followed by reabsorption; the same reaction, followed by suppuration (aseptic); acute reaction, with simple suppuration; acute reaction, with sloughing and suppuration, more or less marked; very acute reaction, with sloughing and merely eliminative suppuration. These anomalous reactions (which are accompanied by a more or less grave emaciation) may occur at any given moment in all infected guinea-pigs. They are also met with in animals which have recovered from the clinical point of view, and also in those which are undergoing inoculations of inoffensive doses of virus, in order to produce vaccination. In the two last cases this anomalous reaction is sometimes followed by the spreading of glanders germs from the point of some latent lesion, or by the appearance of an extraneous disease. But it often appears alone, even at different times, which enables one to state that it has no diagnostic value as to the presence of an actual glanders infection.

The repeated injections of dead microbes very often produce hypersensibility, which reveals itself by a local reaction, a general one (more or less intensive poisoning), and, in many cases, by the lighting up or the development of an extraneous infection.

Glanders and "Spontaneous" Diseases of Guinea-pigs.

Amongst the extraneous infections which have just been mentioned the two most important are pseudo-tuberculosis and the "nasal disease" of guinea-pigs.

Pseudo-tuberculosis.—It is due to the bacillus of Malassy and Vignal, which sometimes reveals itself by characteristic signs, and at other times progresses in concealed lesions (latent infection), or on the surface of the normal digestive apparatus (virtual infection). The pseudo-tuberculous animals usually stand the glanders infection very badly, but, exceptionally, they are immune to it. These animals are often hypersensible to dead glanders bacilli—a new proof of the chemical relationship between the two kinds of micro-organism. Finally, in guinea-pigs, in the condition of latent or virtual infection, the infection of even inoffensive doses of killed glanders germs frequently causes the lighting up, or the development of, the pseudo-tuberculosis. This is more often the case if the injections are repeated. It is necessary to insist very particularly on the difficulty which an inexperienced observer encounters in distinguishing the visceral and glandular pseudo-tuberculous lesions from those of glanders, especially if they coexist side by side. One has certainly made, and is always liable to make, serious mistakes if one neglects to undertake systematic cultures from the granulomes met at the autopsies.

Nasal Disease.—Its cause is a pseudo-pneumonic bacteria; our knowledge we owe to Dr. Girard (researches unpublished). In its typical or nasal form it reveals its presence by "running of the nose" (*jetage*) and emaciation. Cure is generally only apparent, and the guinea-pigs die cachectic or succumb to an acute attack (pulmonary or peritoneal). The guinea-pigs infected with nasal disease are generally found to be very sensitive to inoculations of glanders, but at times they enjoy a relative resistance. They are often hypersensible to dead glanders bacilli. Let me add, in conclusion, that animals in a condition of latent or virtual infection conduct themselves as do pseudo-tuberculous animals towards living and dead glanders germs.

HYPERSENSIBILITY AND IMMUNITY IN EXPERIMENTAL GLANDERS.

By M. Nicolle,
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The hypersensibility to living or dead glanders virus, produced by this same virus or by others—as well as the hypersensibility to the latter produced by the former—is found to occur under the aspect of a series of facts at the same time both complex and mysterious. When one wishes to determine the relations which unite them, and, *a fortiori*, when one wishes to elucidate, however little, their intimate nature, it is necessary to proceed with order and with a certain order. It is for this reason that I will examine first, amongst the various kinds of the hypersensibility, that which is produced by the injection of dead glanders germs, and which is directed towards these same dead germs; after which I will deal successively with cases more and more difficult.

Hypersensibility towards Dead Glanders Germs produced by Dead Glanders Germs.

This is evidently, of all, the most simple case, since, the development of the microbes being eliminated, the problem is reduced to one of a purely toxicological nature. At the same time, it is the most general case. In fact, of the two causes of glanders virulence, vegetability *in vivo* and toxicity of the pathogenic agent, the second does not appear at all susceptible of variation in one and the same specimen during the successive stages of its weakness, and hardly varies at all from one specimen to another, no matter what their difference of activity.

The hypersensibility can reveal itself, as we have seen, by two primary phenomena of an exclusively toxic nature:

the local and general reaction, and, by secondary phenomena of an infective nature, the lighting up or the development of cutaneous diseases.

Apparent Causes of the Hypersensibility.—These depend on the animal, the microbe, and the mode of its injection. The individual predisposition plays a predominant rôle, and this is shown more clearly when one administers more feeble doses at longer intervals. Each variety of dead microbes (microbes killed by heat, alcohol, ether, etc., and mallein likewise) can sensibilize guinea-pigs against itself, but does not always sensibilize them against another variety. Finally, the hypervulnerability is observed with all possible kinds of intoxication, and it occurs to an equal extent when the kind is changed.

Real Cause of the Hypersensibility.—The typical hypersensible animal evidently is one which, treated with very moderate doses of dead germs, at suitable intervals, will exhibit the characteristic phenomena after the injection of a quantity of microbes which would be quite inoffensive in a healthy guinea-pig, and is one whose perfect general condition would cause it to appear to an uninformed observer as the opposite of the *noli tangere*, which it is in reality. Just as in a vaccinated animal nothing is able to reveal the augmentation of its resistance, so in an animal which has become hypersensibilized there is nothing to make one suspect the strange diminution of this resistance. In both cases the injected products have long since disappeared from the organism, but in each case they have left there traces of their former presence in the shape of a "something." This "something" evidently can only be a property or a substance. Of these two hypotheses, I choose the second without any hesitation, though up to the present it has only been possible to demonstrate the existence of this substance (or substances) in one single experiment. The following are the reasons which determine this choice: First, the comparison which it is impossible to avoid making between the hyperresistence and the hypervulnerability, which both diverge from the normal resistance, as two symmetric phenomena from an initial zero. As regards glanders, it is curious to notice that the antimicrobic substances are as impossible to disclose (this will be shown further on) as the substances which regulate the hypersensibility. But let me give some more tangible proofs. We are acquainted with the remarkable experiments of Arthus, on the anaphylaxy of rabbits treated with horse serum. In some researches, unpublished and already old, I have been able to show that this anaphylaxy is a property transmissible by serum, that is to say, is allied to the existence of a specific antibody. The works of Bail and of Wassermann and Bruck on the tuberculous hypersensibility bear in the same direction. I will not take up now the inquiry into the nature and the mode of activity of the substances to which I attribute the hypervulnerability to glanders, and I will at once pass on to a second order of facts.

Hypersensibility towards Dead Glanders Germs Produced by Living Glanders Germs.

This reveals itself, as the preceding type of hypersensibility, by local and general reactions and the lighting up or the development of extraneous infections; but one may observe, further, the lighting up of latent glanders lesions. The apparent causes (and therefore the real cause) of these phenomena are evidently the same as those just considered, for it is of little consequence whether the glanders endotoxin be introduced in the form of living microbes, which become destroyed totally or in part, or in the form of germs already killed. The toxic effects are also the same—that is to say, they show a rapidity of reaction greater than normal towards the dead bacilli injected; hence, a local and general poisoning, such as the administration of a larger quantity of microbic products would have determined in a healthy animal. It remains now to explain the remote reaction (*réaction à distance*) at the site of latent lesions of glanders. I will examine at first a more simple case, that of a new guinea-pig, under the skin of which have been introduced on two occasions and at two different places killed germs, the second time before the local phenomena following on the first have quite disappeared. The indurated nodule, which represents the last vestige of the first injection, then becomes the seat of a "remote reaction" of variable intensity, but which has been found always to end in resolution. This nodule, a kind of large artificial glanders tubercle, contained an excess of specific antibodies, and these antibodies reacted with the bacillary substances which had come from the point of the second inoculation (these bacillary substances have no peculiar characters; they are, in fact, veritable mallein formed, *loco laeso*, by decoagulation of the microbes introduced beneath the skin). I will now consider the case of an animal which has recovered, for example, from an abscess due to a virulent inoculation, but still possessing a small gland, which inflames and may suppurate when one administers, at a point remote from it, dead bacteria (or mallein). This gland differs from our artificial glanders tubercle, just mentioned, only in the eventual presence of some living germs. It contains, then, an excess of antibodies, which are able to bring about, as before, a more or less great reaction. How is it that this reaction is followed by a multiplication, and even by a generalization of intraglandular virus? The reply is, without doubt, that "reaction-intoxication," and that "intoxication-paralysis of the means of defence of the organism." This explanation of a general nature takes no count of any other possible favouring mechanism of specific kind. Of what this mechanism consists is a question into which it is impossible to enter here, but it may be remarked that its conception applies just as well to the lighting up and the development of pseudo-tuberculosis and of the nasal disease, the pathogenic agents of which show, with that of glanders, a chemical relationship mentioned in the first communication.

Other Types of Hypersensibility.

The hypersensibility towards living glanders germs produced by living glanders germs will now explain itself without any difficulty; it is useless to enter further into the subject here. The same applies to the hypersensibility towards dead glanders germs, produced by living foreign germs. As regards this, it must be mentioned that Borrel has already shown the extreme sensibility of tuberculous guinea-pigs towards mallein, injected into the brain. Repeating the experiment of Borrel, with an inoffensive dose of mallein, added to the serum of a rabbit, which had been treated with considerable quantities of mallein, I have succeeded in killing a tuberculous guinea-pig. The serum of the treated rabbit certainly contained the antibodies to which I attribute the phenomena of hypersensibility, since the serum of the normal rabbit was found to be quite inactive.

It is unnecessary to consider here the details of the following subjects: Hypersensibility towards foreign living germs, produced by living glanders germs or hypersensibility towards living glanders germs, produced by living foreign germs, etc.

Immunity.

For the first time attempts at immunizing guinea-pigs against glanders have been attended with success. It may be accomplished by repeated injections of dead microbes (of course, in inoffensive doses), by repeated injections of living microbes (here, also, in inoffensive doses), or, finally, by inoculating living microbes, in infective doses, but in such a way that the animal recovers from the disease without complications. This resistance is somewhat difficult to bring about. Nevertheless, it has been possible to produce immunity not only against homologous modes of infection, but also against others. The results of the experiments show that the first of the three methods is least effective, while the third is the best, the second holding an intermediate position. In fact, with dead bacilli, the treatment extends over a very long time, and the majority of animals subjected to this method of immunization die, for the most part, from extraneous infections; with living bacilli, employed in inoffensive doses, the statistics are much more hopeful, but the result does not always justify the amount of harm done. With the living bacilli, administered in infectious doses, one obtains, on the contrary, with little trouble and sometimes quite rapidly, a perfect immunity. Unfortunately, the last process is somewhat uncertain, since one has to encounter here the sensibility limits.

How are we to interpret this difference in value of the three methods of vaccination? That is simply done, since

it depends on the difference in degree of the hypersensibility produced. The more one injects bacillary masses the more one renders the animals vulnerable; and when one attempts to substitute simple for natural reasons of caution, dead germs for living ones (or living germs in a feeble dose for living germs in offensive dose) it is found necessary to markedly increase these bacillary masses.

This leads me to the question of the connexion between hypersensibility and immunity. According to my opinion, every time a guinea-pig is "immunized" against glanders, it forms at the same time in its organism (naturally in quantity varying with the case) antimicrobic substances and substances regulating the hypersensibility; or, to speak in the terms of teleologists, "good" and "bad" antibodies. Knowing the conditions which determine the hypersensibility, it may be possible to limit the production of the latter. It has not been actually demonstrated that we may limit their production without at the same time hindering that of the others.

If, after "immunization," the "bad antibodies" predominate, the guinea-pigs, after having reacted abnormally to the test by dead microbes (for example, to the subcutaneous injection of 1 cg. of bacilli, killed by alcohol-ether), will not stand the test by living microbes. It is useless to await the end of the hypersensibility, in order to make the virulent test, since the "good antibodies" have, naturally, disappeared before the "bad ones."

If, after "immunization," the "good antibodies" predominate, they will exist only at a given moment, and then the guinea-pigs, after having reacted normally to the test by dead microbes, will stand the test by living ones. The question then occurs, if given two guinea-pigs, both "immunized" and hypersensible, we can distinguish the one in which the "good antibodies" predominate, from the one in which predominate the "bad ones." It has been impossible to establish such a diagnostic certainly (though the connected study of each case gives very great probabilities, with the help of experience), but the fact that hypersensibilized animals can resist the injection, cannot be explained otherwise than by a predominance of antimicrobic substances over those which regulate the hypersensibility. These two orders of substances are, then, independent the one of the other and act independently also. So, an animal which is hypersensible, may not only be one which has recovered, but even one which has been vaccinated!

Further, I will draw attention here to the possibility of rendering guinea-pigs resistant to glanders, by treating them with exudate, obtained as follows: A suitable dose of dead microbes is injected into the peritoneum of a normal guinea-pig, and the next day, after having bled the animal, the abdominal effusion is removed and serves as "vaccinating material"; also. I will mention the possibility of obtaining the refractory condition by repeated ingestion of mallein.

The intraperitoneal injection of various substances, normal humours, and foreign bacteria can confer on male guinea-pigs an immunity against the same mode of infection; this immunity, perhaps, does not deserve the consecrated name of "artificial resistance," but the time is too short for me to discuss this point.

I will conclude by pointing out that the serum of infected guinea-pigs offers no agglutinating power nor coagulating power much superior to that of normal animals, while the serum of immunized guinea-pigs possesses, to a much more marked degree, these two properties, which, moreover, are quite independent of one another. On the other hand, the serum of immunized guinea-pigs does not possess any greater therapeutic power than that of normal guinea-pigs.

RELAPSING FEVER AND SPIROCHAETES.

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The purpose of this paper is to present in brief outline the main results of an investigation which we have carried out during the past year on the spirochaete of relapsing fever. These results, it will be seen, throw considerable light upon the nature of spirochaetes; they form a solid basis for the prevention and cure of the disease, and at the same time indicate the existence of a plurality of relapsing fevers. For the details of this study the reader is referred to the extended memoir which appears in vol. iii of the *Journal of Infectious Diseases*.

Plurality of Relapsing Fevers.

The spirochaete with which we have been working was derived from a case of relapsing fever which occurred in New York in the summer of 1905, and has been described by Dr. Carlisle. The organism has also been studied by Dr. Norris and his co-workers, and our thanks are due to him for kindly supplying us with the virus. In view of the clinical features of the disease, which differ in no wise from those of the classical type, and the agreement of the spirochaete with the rather meagre description of the organism of relapsing fever, as given by Obermeier, we regarded it as identical with the latter, and hence have designated it as *Spirillum obermeieri*. As to whether this assumption is correct remains to be demonstrated by comparisons of living and stained preparations, and, above all, by animal inoculations and serum tests. There is one noteworthy discrepancy arising from the traditional statement that *Sp. obermeieri* can be inoculated only into man and monkeys. This is certainly not true, either for the organism with which we have been working, or for that of tick fever, since these can be transferred to rats and mice.

We have been unable to make any direct comparisons with European material, but through the kindness of Captain W. S. Patton, I.M.S., we received several blood smears from cases of relapsing fever occurring in Bombay. A study of these preparations revealed the interesting fact that the Bombay spirillum was quite different from our organism and that in some respects it resembled that of tick fever. In length the Bombay spirillum is about the same as ours, the single cell measuring 8 μ and the double one 16 μ. It is, however, apparently thinner, shows a greater flexibility, a marked absence in the regularity of the turns, and considerable variation in their width. As a result of agglutination, our spirillum forms long spirals which may attain 50 or even 100 μ in length. The individual cells are joined together, end to end, so perfectly as to make it difficult to make out the components. On the other hand, the Bombay spirillum does not seem to give rise to a continuous spiral, but the long forms consist of several cells which, on account of the curled ends, are rather loosely apposed. This fact may be taken to indicate the presence of diffuse flagella, which presumably would not permit the perfect end-to-end union seen in the New York organism, which is due, as we have shown, to the presence of a single terminal flagellum.

The Bombay spirillum shows the well-known curled ends, and in addition exhibits a tendency to form loops, either circular or figure-8 forms, the same as those seen in preparations of the tick fever spirillum. Another important feature is the evidence of multiple transverse division. The resulting segments or units have an elongated S-shape. None of these features are presented by the organism studied by us.

The differences outlined above obviously do not prove that the two organisms in question represent distinct species. They may be taken, however, to indicate the probability of such being the case, and at all events it is hoped that they will lead to careful comparisons of the living organisms. It is very desirable that the pathogenic spirilla met with in the relapsing fevers of Europe, Asia, Africa and America be subjected to a close study, and it is not unlikely that this will lead to the recognition of a fair-sized group of spirillar infections. The question of the plurality of relapsing fevers is rendered all the more prominent by the demonstration that the spirillum of African tick fever is different from our *Sp. obermeieri*.

In a preliminary note, published on January 15th,[1] we pointed out the probability that tick and relapsing fevers were two distinct diseases, due to different species of spirilla. This view was based upon the behaviour of the two spirilla in experimental animals. Thus, in rats the spirillum of tick fever was found by Dutton and Todd to persist in the blood for from three to nine days after inoculation, a condition quite different from that noted in our experiments, in which the spirilla disappeared from the blood in about three days. Moreover, they showed that the tick fever spirillum was usually fatal to monkeys and that the organisms were constantly present, or nearly so. The spirillum studied by us and by Norris was non-fatal to

monkeys or other animals, and was present in the blood only during the attack and subsequent relapses. The behaviour of the tick fever spirillum in rabbits and guinea-pigs was likewise different from that of ours.

Subsequently Breinl and Kinghorn presented additional evidence bearing upon the individuality of the tick fever spirillum. They showed that this organism was fatal to rats, mice, and even rabbits, and were able to infect a dog and a pony. From these experiments on animals they reached the conclusion—the same as that which we arrived at two months before—that the two spirilla are different.

Through the courtesy of Dr. J. L. Todd, of the Liverpool School of Tropical Medicine, we received some slides of the tick fever spirillum, made from the blood of rats and monkeys, and were thus enabled to make a direct comparison of the two organisms. A very great difference was found to exist between our *Sp. obermeieri* and the spirillum of tick fever. Thus, while the single cell of the former is but 8 μ long, that of the latter is 16 μ in length. Notwithstanding this difference in length, the number of turns (two or three) in the single cell is about the same in each. Again, the width of the spiral in the case of the tick fever spirillum is from two to three times that of the *Sp. obermeieri*, the former being from 2.0 μ to 2.7 μ, while the latter is but 1.0 μ.

Another feature which serves to distinguish the two organisms is the tendency of the tick-fever organisms to curl up into figure-8 forms, or even into perfect circles. No evidence of such curling is met in preparations of our spirillum. Again, the former shows the presence of several divisional zones, as a result of which it apparently yields a number of comma or S-shaped segments. A similar condition we have observed in the spirillum of relapsing fever from Bombay, but not in the one studied by us.

The most important evidence, however, which we brought out is with reference to the arrangement of the flagella. In a number of preparations stained by Loeffler's method we have been able to demonstrate that our spirillum has but a single whip, at one end, and this is about as long as the cell itself. At no time have we been able to detect the slightest indication of the presence of peritrichous flagella. On the other hand, Zettnow, working with the tick fever spirillum, brought back by Koch, has shown that this organism has diffuse flagella. This difference in the number and arrangement of the flagella clearly establishes the fact that these two organisms represent distinct species.

In view of the evidence which has been outlined above we have reached the definite conclusion that, notwithstanding the clinical similarity, the two diseases are etiologically different, and accordingly we designated the organism of tick fever as *Spirillum duttoni*. This view has been fully verified recently by Breinl, who has been able to make comparisons of the two living strains. He has shown that rats immunized to one of these remained susceptible to infection with the other. Without knowing of our work—an interesting coincidence—he applied the same name, *Spirochæta duttoni*, to the tick fever spirillum.

The recognition of the existence of two relapsing fevers in man should serve as an incentive to a further study of the human spirillar infections. As shown above, there is reason to believe that the American spirillum is different from that of Bombay. In collaboration with Captain J. P. Mackie, I.M.S., of Bombay, we hope to be able to throw further light upon this interesting question.

THE NATURE OF SPIROCHAETES.

Up to 1904 it was generally assumed that the spirillum of relapsing fever and the other known pathogenic spirilla were bacterial in nature, but since then, as a result of the studies of the late Dr. Schaudinn, the view has prevailed that these organisms belonged to the protozoa, and more especially the trypanosoma. It is unnecessary in this brief summary to consider at length the reasons which led to the latter view. While Prowazek and others have upheld the protozoal nature of the spirochaetes, Koch and also Borrel have brought out facts which do not support that position. Thus, Koch, in his publication on the spirochaete of tick fever, has shown that this organism presents evidence of transverse division, and that there is no evidence of nucleus, blepharoplast, or undulating membrane. Borrel has shown the same to be true for the chicken spirochaete (*Sp. gallinarum*), and in addition has been able to show that it possessed many lateral flagella, as is often the case with bacteria. Zettnow shortly afterwards also demonstrated diffuse flagella on *Sp. duttoni*. These facts are difficultly reconcilable with the supposed protozoal nature of these organisms.

We have taken up this question with our *Sp. obermeieri*, and all the evidence which it has been possible to obtain tends to corroborate the work done on *Sp. gallinarum* and *Sp. duttoni*. In our opinion it conclusively shows that these organisms belong to the bacteria and are in no wise related to the protozoa. The facts which we have brought out are here briefly given.

The study of the living spirochaete or of stained preparations failed to show any indication of the presence of a definite nucleus, blepharoplast, undulating membrane or flagellum, structures which are readily seen in trypanosomes, and hence this organism cannot be compared to these flagellates.

On the supposition that the motility of the organism depended upon the presence of very delicate flagella, as in the case of bacteria, preparations were stained by Loeffler's method, with the result that a single, long, wavy flagellum was demonstrated at one end of the spiral. This whip presented all the characteristics of the flagella on bacteria, and was unlike that seen on the known protozoa. In this respect the spirochaete studied by us differs from *Sp. gallinarum* and *Sp. duttoni*, which, as mentioned above, possess lateral flagella.

Assuming the protozoal nature of this organism, it should be possible to show that it multiplied by longitudinal division, the same as the trypanosomes. It is an easy matter to find forms which at first sight might be interpreted as showing longitudinal division. Thus, two cells may be side by side and these may presently separate and become free. This condition, however, does not mean that fission has taken place, for, on further observation, it will be found that two cells will frequently come together only to unwind a short time afterward. In like manner it may be seen that the cells may come together and temporarily unite to form long spirals which in turn soon break up into the component parts. These lateral or end-to-end linkings are largely due to the spiral form which permits entwining of the cells and is also due to the presence of the single flagellum. An agglutinin undoubtedly assists in bringing together the cells, since such forms are best seen in decline blood or in blood to which immune serum has been added. In short, we have never been able to find any satisfactory indication of the longitudinal division, while, on the other hand, the presence of cells 16 μ in length with a pale central portion affords evidence of transverse division. The single cells resulting from such division are 8 μ long.

Another feature which may be taken to indicate a bacterial nature, though it does not definitely prove it, is the rapid multiplication of the spirochaetes in the blood of rats. After intraperitoneal injection, they appear in the blood in about eighteen hours and rapidly increase, so that forty-eight hours after injection there may be found hundreds in each field of the 2 mm. objective. All known protozoa require a much longer time than this before they become very numerous in the blood. Even in the case of *Trypanosoma brucei* or *T. gambiense* no such rapid multiplication is observed under four days.

A valuable indication as to the nature of the organism is afforded by its behaviour on dialysis in distilled water. Thus, if some spirochaetal blood is placed in a thin collodium sac and dialyzed against running distilled water the spirochaetes will remain motile for twenty hours or more, and even if motion has ceased it can be restored by the addition of dilute salines. Moreover, the form of the cell persists unchanged. In these respects it behaves remarkably like the cholera spirillum or the *Sp. rubrum*, which retain their vitality for many hours, and are not altered in form by the plasmolytic process. On the other hand, if trypanosomal blood is placed in the sac and subjected to identically the same conditions, the organism will be found to become non-motile in less than two hours, and at the same time they change form and seemingly dissolve, so that after a while it is almost impossible to find any trace of the trypanosomes. From this it will be seen that the spirochaete is structurally and biologically more closely related to the bacteria than to the protozoa.

The action of heat shows a similar difference. Thus, if trypanosomal blood is heated to 45° the organism is killed and disappears in less than thirty minutes. The spirochaete under the same condition may remain alive for a longer time, and when dead it undergoes no change in form.

The persistence of the spiral form is good evidence of the bacterial nature of the organisms. This is in accord with what we know of bacteria, which, when killed by heat, chemicals, or other adverse agents, retain their typical form. Protozoa, however, are exceedingly prone to change their form, to round up, and eventually to disappear altogether by solution or digestion. We have found that, no matter how the death of the spirochaete was brought about, the original typical form persisted. The only exception to this is met with in Pfeiffer's reaction.

Another significant property possessed by the spirochaete is the production of a well-marked active immunity in animals. Immune serums, as is well known, are not readily produced by protozoa, and if so, they possess but a weak action. Thus, the serum obtained with trypanosomes or piroplasma may exert a preventive action, but there is little or no germicidal and curative effect. With our spirochaete we have been able to produce a high degree of immunity, comparable to that which can be obtained with the cholera spirillum. The blood of the hyperimmunized animals is intensely germicidal, and even in minute amounts exerts a preventive action, and in large doses produces a prompt cure. These facts go to show the close relationship which this spirochaete bears to the bacteria.

A still further argument in favour of the bacterial nature of the organism is adduced from its behaviour to air. Rapidly-multiplying trypanosomes, such as are found in cultures, show a marked avidity for air. Thus, if an air bubble exists in the fluid under the cover-glass, the flagellates tend to surround it. They mass themselves many rows deep around the border of the bubble. The bacteria, on the other hand, are practically indifferent to air globules, and such is also the behaviour of the spirochaetes. The absence of aërotropism is, therefore, to be taken as additional proof of the bacterial nature of the spirochaetes.

It will be seen from the foregoing that the spirochaete studied by us presents so many features unlike the trypanosomes, that the only conclusion which can be drawn is that it belongs to the bacteria. This conclusion also holds true for *Sp. duttoni* and *Sp. gallinarum*, and probably also for *Sp. theileri*, *Sp. ovinum*, *Sp. equi*, etc., and perhaps for the *Treponema pallidum*. Inasmuch as the type of the genus Spirochaeta is *Sp. plicatilis*, which, according to Schaudinn, has an undulating membrane, it follows that the above-mentioned organisms cannot be considered as belonging to this genus. For this reason we prefer to designate them by the old generic name "spirillum."

Serumtherapy.

One of the most interesting questions which we have taken up is that of immunity. It is not possible to enter into a full presentation of the results obtained, and hence only a brief and partial summary can be given. For this work the white rat has been found particularly useful. After the disappearance of the spirillum from the blood of the rat, which occurs about the third day after inoculation, the rat becomes immune. If the blood of such rats is injected together with 0.1 c.cm. of spirillar blood into another rat, it will be found that infection can be prevented by a dose of 0.5 c.cm. of the immune blood. Accordingly, such recovered blood is said to possess 2 immunity units per c.cm.

By repeated injections of spirillar blood it is possible to markedly increase the strength of the immune blood. We have in this way been able to hyperimmunize rats so that 0.002 c.cm. of the rat blood was sufficient to prevent infection when injected simultaneously with 0.1 c.cm. of spirillar blood. Such blood, therefore, contains 500 units, or, in other words, it is 250 times more active than the recovered blood.

The infection can be prevented not only in rats, but also in mice and monkeys. In the latter two, however, relapses occur, although the first attack is prevented. The curative action of such immune blood is equally marked. Given a rat which shows many spirilla in the blood, an injection of a sufficient amount will cause their complete disappearance in less than an hour. The same result has been obtained with infected mice and monkeys. It should be stated that unless the curative dose is sufficiently large, although the immediate effect is to cause the disappearance of the spirilla, a mild relapse may occur in the cured animal. The full curative dose is about five immunity units per gram body-weight, while the preventive dose is naturally less, about 0.1 unit per gram body-weight.

The immune blood possesses a marked germicidal and agglutinating action, and this action is manifested not only *in vitro* but also *in vivo*. Even in dilutions of 1 in 1,000 the blood will cause the spirilla to agglutinate in large radially arranged rosettes. Very active serums in less dilution promptly agglutinate and at the same time kill the spirilla. Thus, in a 1 in 100 dilution all the organisms may be dead in less than ten minutes. These facts can obviously be used for the purpose of identifying the various spirilla and also for a serum diagnosis of the disease.

Reference.
[1] *Journ. Amer. Med. Assoc.*, January 13th, 1906, p. 116.

RHINOSPORIDIUM KINEALYI (MINCHIN):

A sporozoon of the nasal mucous membrane.

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This parasite was first brought to notice by Major F. O'Kinealy in May, 1894, but the first full description of O'Kinealy's preparations was published by Minchin and Fantham in December, 1905.

At the Leicester Meeting of the British Medical Association in July, 1905, Dr. Nair of Madras showed some microscopic sections of a nasal polypus, which I had prepared for him, in which this parasite was present. At that time my impression was that we were dealing with a new sporozoon, but as I was not competent to give a definite opinion specimens were submitted to Professor Minchin and to Professor Laveran. Laveran had not seen a sporozoon anything like the bodies present in my preparations, and he expressed doubt as to its parasitic nature. Minchin had completed his work with O'Kinealy's preparations, and he wrote: "There is no doubt whatever that the parasite is the same as that to which we gave the name of *Rhinosporidium kinealyi*.

As I have already published a full description of the parasite, I propose merely calling your attention to some of the main features, which I will illustrate with lantern slides.

The tissue is studded with minute white dots perfectly visible to the naked eye. These could be dissected out, were round or oval, and had a somewhat chitinous envelope.

Microscopic examination of sections showed the cysts in great numbers in the subepithelial tissues. The cysts varied much in size and shape, and in some, it seems, the shape can be best accounted for by assuming an amoeboid movement to be present during life.

Character of Cysts.

The cyst wall varies very much in thickness, but it does not appear that this variation has any relation to stages of development of the cyst. Two distinct layers can be made out: (*a*) An external fibrous layer, apparently derived from the tissues in which the cyst lies; (*b*) a very much thicker layer, internal to (*a*), which Minchin and Fantham described as homogeneous and structureless, but in which I was able to make out very definite transverse striation. In some of the cysts this layer may be subdivided into an outer dense and an inner less dense.

Contents of Cysts.

1. Small cysts, 0.1 to 0.3 mm. in diameter, round or oval, with thin cyst wall, and filled with an undifferentiated mass of granular protoplasm. In some a very definite nucleus, with nuclear membrane and nucleolus, can be made out. In others irregularly-scattered chromatin masses are seen. These correspond with the trophozoite stage of the sporozoon.

2. Large, fully-developed cysts, 6 to 8 mm. in diameter. These are filled with spherical or ovoid bodies—the spore morulae. Each spore morula has a definite cell wall, and in its interior four up to fifteen or sixteen spores.

3. Various intermediate and degenerating forms, which need not be referred to except to say that in these we can see stages from the undifferentiated protoplasm with scattered chromatin granules up to the definitely-formed spore morulae. Thus at first we see scattered chromatin granules, which collect round themselves a certain amount of protoplasm, and then develop a definite wall and form the pansporoblasts. Division of the nucleus takes place (no evidence of mitosis was made out), and eventually we get great numbers of spore morulae and spores formed. This development of pansporoblast to definite spore morula goes on progressively from one pole to the opposite. Thus it would seem that only one part of the undifferentiated protoplasm lining the cyst is germinal and that polar.

At the periphery of some of the cysts the early pansporoblasts are separated from one another by an indefinite framework continuous with the capsule of the cyst. This is less obvious as we pass to the centre, and there seems little doubt that it is made up of the residual protoplasm, and that the capsule of the spore morulae is simply also a condensation of this. Further, each spore morula in the fully-developed cysts seems to lie in a bath of fluid or semi-fluid material, which is also a part of the residual protoplasm. When the cyst ruptures, or possibly when the ripe cyst discharges through a pre-existing pore, this fluid material is expelled, forming, as it were, a tail to a comet, the head being the spore morula.

Spore morulae and free spores were found in the tissues, but no developmental stages could be traced. This development may take place, but it is not unlikely that the spore morulae protected by their envelope are discharged with the secretions and undergo further changes outside the body or in the tissues of another host.

THE VIRUS OF SMALL-POX AND VACCINIA.

By W. E. DE KORTÉ, M.B.Lond.

(From the Bacteriological Laboratory, King's College.)

THREE views on the nature of the contagium of small-pox and vaccinia have been advanced in recent times. There is the view promulgated by Copeman and Klein that the specific germ is a spore-bearing, (?) bi-polar staining bacillus. It being spore-bearing, it conforms to the exigencies which would by analogy be required of a virus possessing the peculiar qualities displayed by the infective agent of small-pox. It would appear, however, in the experience of the majority of observers, that the contents of a small-pox or vaccinia vesicle may be free from any visible bacterium, and yet be capable of conveying the contagium. The evidence thus far adduced is not in favour of a bacterial cause for small-pox and vaccinia. I have repeated the cultural experiments of Copeman on the contents of fertilized eggs, but have not succeeded in growing on this medium any form of bacterium from sterile calf lymph or variolous lymph.

The second view on the causative agent of small-pox and vaccinia is that originally advanced by Guarnieri,[1] advocated by Jackson Clarke in England, and minutely extended by Councilman, Magrath, Brinckerhoff, and Calkins in America, and by Bosc in France.

The third view on the nature of the etiological agent of variola and vaccina is that first enunciated by Funk[2] of Brussels, rediscovered and further elaborated by myself.[3]

Whether these two views are essentially distinct from one another, or whether they treat of different stages in the development of one and the same organism, I cannot positively affirm, for the two series of observations embrace two localities, which, though coterminous, differ in that, while Guarnieri, Jackson Clarke, and the American observers confine their attentions to the intracorporeal lesion, Funk and myself investigated the contents of a lesion which, to all intents and purposes, is extracorporeal. It has been objected that the minute changes described by Guarnieri and the other observers in the nucleus and the cytoplasm of the epithelial cells are not, indeed, due to the development of a parasite, but are the result of nuclear fragmentation, reticular and ballooning colliquation, perinuclear vacuolation—degenerative changes described by Unna as occurring in the skin in small-pox. The matter must, from its very nature, be difficult to decide, especially as cells in a state of degeneration alter materially in their staining reactions. Though this theory of degeneration has weight so far as the intracellular phenomena are concerned, it does not apply with equal force to those small coccoid bodies found lying between the prickle cells of the epithelium, in the dilated lymph spaces beneath the rete Malpighii, and in spaces between the connective tissue bundles of the hypoderm at the summit of a papilla. The constancy of the appearance of these coccoid bodies when the exciting agent is the virus of small-pox or vaccinia, an appearance which apparently cannot be evoked by other irritants. Their relative position is, moreover, such as cannot be due to nuclear fragmentation. These considerations, in conjunction with their early appearance in relationship to the development of the pock, render it probable that these bodies do not arise from altered cells, but are parasites. In discussing the views of Funk and myself, I would direct your attention to certain distinctive features possessed by the contents of the pock. Variolous matter is capable of being dried, kept as dust for several years, and can at the end of this term excite small-pox. It can also be kept in a fluid state in a sealed capillary tube for twelve months or longer, and will be found to have retained its virulence. Calf vaccine lymph can be mixed with a certain proportion of glycerine or exposed to the action of chloroform vapour for many hours, the effect of either form of treatment being to remove all bacteria except such as are spore-bearing, though the absence of the latter from the lymph does not influence the activity of the virus. If the contents of the small-pock be collected with antiseptic precautions, it will almost invariably be found sterile up to the seventh or eighth day of the eruption. On this day pyogenic organisms such as the *Staphylococcus pyogenes aureus*, *S. cereus flavus*, *S. cereus albus*, appear in the vesicular contents. Coincidently with the appearance of these pus-producing organisms, the secondary fever of small-pox occurs. It can hardly be that the supervention of the secondary fever and the occurrence of pyogenic organisms is a mere coincidence. The sequence is too invariable to admit of this explanation. It seems more reasonable to suppose that the so-called secondary fever of small-pox is an epiphenomenon, brought about by the invasion of the system by pyogenic organisms through the breaches in the skin effected by the specific etiological agent of small-pox. If this explanation of the secondary fever be correct, the supervention of this fever would be presumably preventable in proportion as the patient's skin could be freed from adventitious bacteria during the period of the small-pox eruption. This object, I believe, can be accomplished to a considerable extent by the use of antiseptic baths and ointments during the period of eruption. I would direct your attention to the clinical observation on the complete absence of infectivity during the incubation period of small-pox. It may fairly be concluded from this that the virus is not given off during this stage of the disease from the body of the patient, in short that it is imprisoned in some part of the system. There is strong presumptive evidence in favour of this nidus being the skin,[4] for how else could the instance where variola was conveyed during the period of incubation, to a second individual, by means of a skin graft, be explained?

Calmette and Guérin[5] have shown that if vaccine lymph be injected directly into the circulation by the intravenous method, no spontaneous eruption is observed on the skin or mucous membranes; but if, within the first twenty-four hours following the introduction of the virus into the veins, the animal's back be carefully shorn, there appeared on the third day in the shaven area a number of perfectly characteristic pustules. They tried to ascertain if the virus was localized in any other organ. They experimented with the blood, the liver, the kidney, the spleen, the lung, and bone marrow, but they did not succeed in raising any eruption on a freshly-shorn rabbit, or in conveying any immunity through the agency of the before-mentioned tissues. They conclude that the vaccine virus is unable to multiply in any organ where the leucocytes have access. As regards the presence of leucocytes in vaccine lymph, Monckton Copeman says,[6] "Leucocytes are usually present also, the number depending on the stage at which the lymph is taken; few or even none are to be found in the contents of the vesicle when first formed." An observation supported by Ewing and other American observers is in conformity with my own experience,

that in the papular and early vesicular stages of small-pox and vaccinia the leucocytes are kept at a distance from the lesion by negative chemiotaxis, and that such white corpuscles as may happen to be present are lymphocytes and not polymorphonuclear leucocytes. I think, therefore, that the maturation of the pock, by which the clear vesicular contents become opalescent, cannot be ascribed to the formation of pus, if we understand pus as a substance consisting of lymph and polymorphonuclear leucocytes. Preparations of the variolous lesions when fixed and embedded in the usual manner often show the vesicle at this early stage free from any cellular element whatsoever, and an entire absence of leucocytic infiltration of the hypoderm. This apparent freedom from, or rather relative paucity of, cellular elements in the lymph may be observed to obtain even as late as the ninth day in the human vaccine vesicle, provided the original insertion of the vaccine virus were done aseptically. Smears from such vesicles fixed and stained in the usual manner may show very few cells of any kind. It must not, however, be conjectured that, because of their absence in permanent sections of the vesicle or smears of the vesicular contents made by fixing and staining in the usual manner, no cellular elements are present in the natural state. To give a concrete example of the erroneousness of this assumption:

Let a smear be made on a cover-glass of some variolous lymph at the seventy-second hour of the eruption; let the preparation be fixed with heat or other fixative (except Leishman's or Jenner's stain) and stained with the ordinary dyes. The specimen will present a granular detritus with few if any cellular structures. Take, however, some of the lymph from the same vesicle and make a hanging-drop preparation. The latter will now present a very different appearance. It will be seen to contain a large number of morphological elements resembling pus cells, containing highly refractile grains within the cell substance. Among them will be seen large cells having a definite nucleus and karyosome, and limited by a thick-walled ectosarc; this form I have termed the encysted parasite. Again, as more readily obtainable, fix and stain a cover-slip preparation of fresh active glycerinated calf lymph; beyond some epidermic cells nothing but a granular detritus is visible on examination. Yet this same lymph suspended in normal saline solution will display, in addition to the refringent grains constituting the granular detritus, a large number of circular elements varying in size, some having thick ectosarcs, also some less numerous segmented bodies; these may consist of a few or of a considerable number of segments; this body I have termed the morula, and probably represents amitotic multiplication of the germs.

If the vesicular contents of a human vaccine vesicle be examined as a hanging drop with the highest powers of the microscope and suitable adjustment of the light, disregarding any gross cell element which may be present, the fluid will be seen to contain a vast number of exceedingly small grains, which appear to be motile on a warmed stage; their shape and size, because of their smallness, is practically indeterminable. These grains I think are spores; they are larger and more distinct in variolous matter and always normally situated within the cell; they are motile in calf lymph, immobile in glycerinated calf lymph. The various bodies thus far described will be seen to consist of four elements—spore, sporidium or amœba, encysted parasite, and morula body found in glycerinated calf lymph. Two objections have been raised to the parasitic nature of these bodies. It has been affirmed on the one hand that they are degenerate epithelial cells, and on the other hand that they are nothing but leucocytes. Both arguments are refuted by the experiments already described. There is no difficulty in fixing epithelial cells or leucocytes. An object cannot both be present and absent from one situation at one time, yet at a period when all are agreed on the absence of leucocytes from the vesicular contents of the pock, the bodies above described are seen to be present in large numbers in hanging-drop preparations. If variolous matter be gathered with antiseptic precautions and stored in a capillary tube, at the end of twelve months the parasites will be found to be present provided they be sought for in a hanging-drop preparation, not otherwise. It is extremely improbable that leucocytes will remain intact for this period outside the living body in whatsoever manner they may be kept.

It may be objected that variolous lymph has a specific conservative action on leucocytes, and that they may live in this fluid for a very long time. For this assumption there is no warrant; for if human vaccine lymph be gathered on the eighth or ninth day of the eruption in a capillary tube and subsequently centrifugalized—if the centrifugilate be examined as a hanging drop, certain cellular elements very like leucocytes will be seen; if the preparation be kept for seventy-two hours longer the cellular elements will have disappeared. It can therefore be affirmed that in human vaccine lymph the bodies which are assumed to be leucocytes disappear in a comparatively short space of time. Furthermore, the parasites in the forms of spores, encysted parasites, and morulae [7] have no morphological resemblance whatever to either leucocyte, lymphocyte, or epithelial cell.

References.

[1] Richerche sulla patogenesi ed etiologia dell' infezione vaccinia e variolosa, *Arch. per Sci. Med.*, xxvi, p. 405. [2] British Medical Journal, February 23rd, 1901. [3] *Lancet*, December 24th, 1904. [4] The Distribution of the Eruption of Small-pox, *Medical Magazine*, September, 1905. [5] *Annales de l'Institut Pasteur*, No. 3, March 25th, 1901. [6] *System of Medicine*, Allbutt, vol. ii, 1897 edition, p. 649. [7] *Practitioner*, September, 1905.

(To be continued.)

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

PAINLESS LABOUR.

With reference to Dr. Horrocks's address on Medicine of the Present Day, which appeared in the British Medical Journal of March 10th, 1906, and the subsequent correspondence on the subject of the existence of painless labours, the following notes of a case may prove of interest:

On October 28th, 1906, at 10.30 p.m., I was called to attend Mrs. McL., aged 38, a 5-para. None of the previous pregnancies had reached full term, labour coming on in approximately the fourth, fifth, sixth, and eighth months. The patient proved herself to be a woman of intelligence, decidedly above the average of the working class, to which she belongs; and she stated that on none of the former occasions had she suffered any pain whatever. In the present instance the membranes had ruptured at 8 a.m., which first caused her to suspect she was in labour. On arrival at the house I examined her, and found the os dilated to fully the size of a five-shilling piece, the vertex presenting and the head fixed. The rectum was unloaded by a large soap and water enema, and the patient walked quietly about the room for fully an hour and a half. During that time, on five or six occasions, at intervals from fifteen to twenty minutes, she said she felt a sudden desire to defaecate, which passed off in a few moments. At these times, on placing the hand on the abdominal wall, a distinct contraction of the uterus could be plainly felt. On examination at 12.50 a.m. the os was found to be fully dilated, and the head approaching the perineum. The patient then remained in bed, the uterine contractions continuing as before, and at 1.55 a.m. the child was born—a female—alive, mature, and of average size. Just as the head was passing through the vulva the patient complained for the first time of pain, which she described as being of a "cutting" character, and only slight in intensity. The placenta was expelled naturally and painlessly at 2.10 a.m., and its expulsion was followed by a large gush of blood. The uterus then retracted well, and remained firmly contracted. The patient's recovery has been entirely uneventful.

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INTRACELLULAR INJECTIONS OF QUININE IN MALARIA.

In the British Medical Journal for June 25th, 1904, I called attention to the fact that a mixture of quinine sulphate and vaseline injected into the deep cellular tissue of negro children prevents the growth of malarial parasites in their blood. The injection of this ointment-like substance is somewhat difficult, and the same result, but not lasting for so long a time, can be obtained by

injecting a warm dense solution of quinine hydrochloride (neutral salt).

The method is as follows: (1) Place from 7 to 15 drops of water (by choice 10) in a test tube, and add 15 gr. of quinine hydrochloride in crystals. (2) Shake the crystals down to the bottom of the tube; the water will be soaked up by the lower crystals. (3) Pass the tube through the flame of a spirit lamp until all the crystals have gradually dissolved; the fluid should then be made to boil. (4) The tube is now allowed to stand with a sterile cover placed over its mouth, until the end containing the fluid feels "just warm" to the hand (that is, 100° F.). The whole of the fluid should now be injected with an ordinary hypodermic syringe under aseptic precautions either into the cellular tissue under the skin of the anterior abdominal wall, in the case of a child able to walk, or into the deep tissues of the outer side of the thigh in the case of a baby in arms. The aperture made by the needle may be closed with a saturated solution of gum mastiche in rectified spirit, and a piece of lint applied. This quinine solidifies in the tissues, and is absorbed in about two months, during which time the child's general appearance greatly improves.

When a number of children are being injected a sufficient quantity of the crystals can be kept in solution by placing the test tubes containing them in a water bath at 100° F.

Care must be taken that the temperature of the fluid, even when in the syringe, has not fallen much below 100° F., otherwise solidification will take place; should this happen, warmth will again liquefy the crystals, which can then be washed out.

Similar results can be obtained by injecting euquinine dissolved in rectified spirit, but asepsis is more difficult to maintain.

While investigating the above I found that dense solutions of the acid salts of quinine (those used for intramuscular injection in cases of malignant malaria) disorganize the tissues where they are injected, and so are not absorbed as quickly as may be desired. Hence I would suggest that in pernicious cases of malaria the quinine injected should be in dilute solution, say 1 gr. in ten drops of water, several injections being made at the same time if necessary.

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SUPRAPUBIC ENUCLEATION OF THE PROSTATE IN A PATIENT AGED 78: RECOVERY.

A FAIRLY healthy-looking old man had had increasing difficulty in micturition for some years, and had lately passed no urine except by aid of catheter; pain in the bladder having become troublesome he sought admission to the hospital in the hope of obtaining relief.

On admission he was found to have cystitis, and a catheter was passed with some difficulty. On examination by the rectum the prostate was found greatly enlarged. With rest in bed and treatment the cystitis passed off, and he decided to have the prostate removed.

On February 28th, 1905, I removed the prostate suprapubically; the capsule was very tough, otherwise there was no difficulty, and it came away entire, weighing 3½ oz.; the urethra appeared uninjured. I stitched the bladder to each side of the wound, and put in a large drainage tube. The patient, who was on the operating table half an hour altogether, bore the operation well.

He did not have a bad symptom until a fortnight after the operation, and five days after removal of the drainage tube, when there was a sudden haemorrhage from the bladder; by washing out with hot boric lotion this was arrested, and there was no further trouble. He shortly began to pass urine naturally, the wound healed, and he was discharged cured on April 19th.

I saw him six months later, and he was then quite well.

CHARLES E. BELL,
Surgeon, Royal Devon and Exeter Hospital.

UNDER the will of the late Miss Mary Isabella Carver, of Southport, who died on October 14th, the Northern Counties Hospital for Incurables, and the Southport and Birkdale Nursing Society each receive a sum of £1,000.

REPORTS
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ROYAL INFIRMARY, LIVERPOOL.

SOME CASES OF INTRATHORACIC TUMOUR.*

(By J. HILL ABRAM, M.D.Lond., Physician to the Infirmary; Lecturer on Clinical Medicine, University of Liverpool.)

SINCE my appointment as Physician to the Royal Infirmary in 1902, I have had 14 cases of intrathoracic tumour in my wards. In 7 of these cases the diagnosis was a matter for consideration, and inasmuch as a correct diagnosis is the only basis for a sound prognosis, the consideration of their main features is of interest. Two cases came under observation with somewhat similar histories.

CASE I.

Philip H., aged 30, a dock labourer, gave a history of "pleurisy and pneumonia" one month before admission, on October 23rd, 1905, he said the pneumonia had never cleared up. He was spare, healthy looking. He had a slight cough, with scanty purulent sputum in which no tubercle bacilli could be found. On physical examination, the movement of the left upper chest was absent, there was absolute dullness with some increase of resistance exactly corresponding to the limits of the upper lobe of the lung. Over this area the vocal fremitus and resonance was absent, the breath sounds feeble and bronchial in character. The lung was explored with an aspirating needle, a little blood only being withdrawn.

On December 3rd, he noticed an alteration in the voice, and the left vocal cord was found to be paralysed.

The man left hospital, gradually wasted and died. Thanks to the keenness of his doctor, Dr. Owen Morris, of Birkenhead, permission to examine the chest was obtained. The examination revealed a lymphosarcoma, compressing and infiltrating the bronchus, with secondary pneumonic changes in the lung.

CASE II.

The other case was that of Mary G., aged 15, admitted into my women's ward on March 2nd, 1906. Eight weeks previously she had vomited; three weeks later she had pneumonia, which persisted. She was sent in as a case of empyema of the upper pleura, a diagnosis justified to some extent by the history and the physical signs, namely, deficient movement, absent vocal fremitus and resonance with feeble breath sounds. I was struck by the limitation of the dullness—that is, it was definitely in the line of the interlobar fissure. Matters were complicated, too, by the presence of a well-marked leucocytosis, 26,000. I also noted that the left palpebral fissure was narrow, and the left pupil small, sympathetic nerve palsy. A diagnosis of tumour was made. A few days later glands were found above the right collar bone, and both vocal cords became paralysed. The autopsy revealed an extensive growth pressing upon and infiltrating the bronchus. There was suppurating bronchopneumonia in the left lung, which accounts for the polynuclear leucocytosis.

In the first case, I do not think the correct diagnosis could have been made until the nerve symptoms appeared, for it might well have been a case of unresolved massive pneumonia. Short of this, however, the occurrence of dullness limited to a lobe with feeble breathing and absence of vocal vibrations is suspicious, especially when the exploring needle, if of good calibre, draws no fluid.

I shall emphasize here the importance of the loss of the vocal fremitus; this, with a resonant note over the lung, is one of the earliest and best signs of pressure on a bronchus.

In the first case the percussion note varied; at one time there was some return of resonance, and we hoped for the best. I have since learned that this is not uncommon in bronchial stenosis. Radiographic examination may help also. In both cases mentioned, however, any tumour was lost in the general shadow, but on inspiration the shadow seemed to move to the affected side; this has been stated by Jakobsohn to be an indication of bronchial obstruction. The question of glands I shall leave till the end. Two cases came with evidence of fluid in the chest.

CASE III.

Samuel S., aged 64, a warehouse porter, came in for "bronchitis" and breathlessness. He attributed his troubles to a severe cold contracted two months previously. He was well made and well nourished; was most comfortable when

* Read at the North Wales Branch meeting at Rhyl, April 24th, 1906.

lying down. Temperature 98°, pulse 100, respirations 28. The usual signs of effusion into the right pleura were present, the heart's apex being 5 in. from the middle line. A needle withdrew 26 oz. of clear, yellowish fluid; no improvement occurred, and the vocal fremitus especially did not return.

We therefore suspected growth, and in the event were justified, a soft white growth being found at the root of the lung. (A microscopical examination has not yet been made.)

CASE IV.

The other case, Wm. H. E., aged 28, was admitted on November 10th, 1905, for cough, weakness, and dyspnœa. His cough had troubled him for five months. He was anæmic, poorly nourished, had irregular fever, 102.8° to 98.8°. Urine contained a trace of albumen. Physical signs of effusion into both pleural cavities, most marked on the left. A needle withdrew ʒxxij haemorrhagic fluid from each pleura, and this with the detection of nodules under the skin over sternum and the second left costal cartilage made the diagnosis quite obvious. It was confirmed later.

These cases illustrate the importance of remembering growth as a cause of pleural effusions, in addition to tuberculosis in young subjects, and chronic granular kidney in old ones.

Again two somewhat similar cases:

CASE V.

Francis W., aged 48, a gardener, was sent to me as a case of neuritis. He complained of marked pain in the right arm, which was weak and wasted. I was struck by the distension of the superficial veins, and careful examination disclosed growth in the posterior triangle.

The gravity of the condition was clear, and ultimately a sarcoma, apparently arising from the vertebral column, was found.

CASE VI.

The other case, James O., aged 46, a carter, a steady hard-working man was admitted for pain in the right side, spreading into the right shoulder and arm. It had existed for about a month. The nature of the case was made manifest by the sympathetic paralysis, the right pupil was small, and the right palpebral fissure narrow. At the autopsy a sarcoma, again arising from the spinal column, was found.

These cases emphasize the importance of seeking a local explanation for persistent unilateral pain. I well remember a chronic case of sciatica I was asked to see some years ago in which a rectal carcinoma was found to be at the root of the mischief.

CASE VII.

The last case, Wm. S., aged 54, a farm labourer, was admitted in September, 1902. The signs of intrathoracic pressure were obvious, pressure on the left bronchus, on the œsophagus, and on the recurrent laryngeal nerve. The interesting point in this case was the occurrence of pulsation in the second left space. Was I dealing with an aneurysm or a growth? The detection of an enlarged gland above the left clavicle made the latter the probable one, and this was confirmed later.

I shall conclude by urging the importance of a search for glands above the collar-bones in abdominal and thoracic cases. I hope to collect my cases some day on this point, but perhaps I may give a most striking recent one, although not one of intrathoracic growth.

CASE VIII.

J. W. T., aged 70, admitted for persistent vomiting. There was a four months' history of dyspepsia, first simply discomfort, then actual pain. For six weeks before admission constant vomiting. Although the old man was very thin, nothing could be made out in the belly. A gland, the size of a horse-bean, was found under the left sterno-mastoid near the clavicle.

In spite, therefore, of the rapid and complete disappearance of all gastric disturbance under careful diet and treatment, and the man's own conviction of his recovery, I gave a gloomy prognosis, and in the course of a month or so a *post-mortem* examination revealed a malignant growth, apparently commencing in the wall of a simple chronic ulcer.

There are many points of interest in this case, but I wish now simply to show the importance of a search for glands in these areas. In mediastinal cases direct extension may occur to either supraclavicular area, but in abdominal cases the gland must be sought in the left one, as stated by Troisier many years ago.

UNDER the will of the late Rev. J. B. Wickes, of Boughton, which has now been proved, the Northampton General Hospital receives a sum of £1,000, and the Northamptonshire Sanatorium for Consumptives £500.

ST. LEONARD'S HOSPITAL, SUDBURY, SUFFOLK.

VESICAL CALCULUS: SUPRAPUBIC CYSTOTOMY: RECOVERY.

(Reported by EDGAR HUNTLEY, B.S.Lond., Honorary Surgeon.)

A. B., aged 70, a Crimean hero, was admitted for painful micturition and haematuria on June 12th, 1905. I had seen him twelve months previously with similar symptoms, but he refused to go into hospital or to have his bladder sounded. In the intervening months the symptoms got worse, and just before admission were such that he could only beg for something to be done.

History.—He had served twenty-three years with the Marines; on leaving he was employed as coachman and gardener, and had practically been a teetotaler all his life. He had no particular illness whilst in the army, and remembered nothing going amiss with his urinary apparatus until he was at work as coachman, when he was seized on two separate occasions with great pain in the back over his right kidney, accompanied by bloody urine. Both attacks passed off with rest, and beyond an attack of sciatica in the right leg he had had no trouble whatever until about three years ago, when he sought advice for a dragging sensation about the pelvis, accompanied by an increased frequency of micturition. There was no blood in the urine at this time. The dragging gradually passed into a dead aching about the lower part of his back and in the lower part of the abdomen, and these were always worse on walking, riding in a cart, or whenever he was in any way jolted. Twelve months ago he began to pass blood, and he now had pain at the tip of his penis, which was very marked at the end of micturition. He was convinced that he had a "sore place" just inside the urethra, and although this portion was examined, and he could locate the spot to a nicety he was most unbelieving. The urine was acid, specific gravity 1030, and in addition to blood contained many uric acid crystals. When seen about six months ago the urine was still acid, and contained a good deal of mucus. Very soon after admission into hospital a sound was passed without any sign of obstruction, and a stone struck.

Operation.—The following day he was given chloroform by Dr. B. N. Molineux, and the bladder opened suprapubically. There was some difficulty in reaching this with safety, as he had not only a good thick layer of fat to get through, necessitating one working at the bottom of a pit, but the fold of peritoneum very low down. This had to be peeled upwards off the bladder, thereby flooding the wound with blood. When opened, the edges of the incision in the bladder were raised well up, and the finger passed in to ascertain the size of the stone. This incision had then to be enlarged little by little until one could extract it. After this the prostate was examined and found to be healthy, and not unduly large. As the urine was not, and never had been, foul, the bladder was first stitched up above and below and on either side to the soft parts, and the incision into it brought as nearly as could be together by Lembert sutures. This was most difficult, as the distance down to the bladder was so great. The abdominal incision was then sutured with salmon gut except below, as one felt doubtful about the soundness of the incision in the bladder. A catheter was tied in the urethra, and the patient put back to bed.

Progress.—A short while after he pulled this out, and as he then passed urine freely in the natural manner it was left out altogether. However, on one or two occasions we had a little urine come through the abdominal wound, but this entirely ceased in a few days.

RESULT.—Three weeks afterwards he walked to the post-office and back, a distance of half a mile, to get his pension. He left the hospital on July 9th, 1905, and walked home, a distance of three miles. He returned to see us about a fortnight after, for a small suprapubic sinus. This was enlarged under cocaine, and four salmon-gut sutures removed. After this there was no more mischief, and he once more attends entirely to his garden, and walks as well and as far as "I did twenty years ago." The dimensions of the stone are: Greater girth, 12.5 cm.; lesser girth, 11 cm.; circumference, 14.75 cm.; and the weight 45 grams.

For the great help I received at the operation I have to thank both Dr. Molineux and Dr. Pettitt, from Long Melford, as well as our nursing staff.

The late Mr. John Sanderson, of Hull, who died on July 10th, left £100 to the Victoria Hospital for Children.

AN INVESTIGATION OF HUMAN HEREDITY.—A committee of scientists and educators has, says the New York *Medical Record*, been appointed by the Assistant Secretary of Agriculture for the purpose of investigating the practical application of the principles of heredity in relation to the welfare of the human race. The investigation is the outcome of work done in the Minnesota experiment station on the subject of heredity in plant and animal economies.

REPORTS OF SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

J. Warrington Hayward, F.R.C.S., President, in the Chair.

Tuesday, November 27th, 1906.

Discussion on the Operative Treatment of Gastric Ulcer.

Dr. Norman Moore, in opening the adjourned discussion on this subject, said the only question was whether operation was the best method of treatment. The answer depended largely on the differentiation of various kinds of ulcer. During ten later years 323 patients under 30 were admitted to St. Bartholomew's Hospital suffering from gastric ulcer, with 6 deaths, and 188 over 30, with 23 deaths. Of those under 30, 308 were women, of those over 30, 117 were women. He would classify the cases into the following groups: those occurring in pale young women, those that followed corrosive poisoning, those with tuberculous ulceration, and those associated with vascular degeneration. Pyloric adhesions, except those due to ulcer and a few other diseases, were, he thought, rare. Out of 2,038 necropsies in only 2 were there adhesions (excluding cancer, tuberculosis, and general peritonitis), in which there was no ulcer of stomach. In 15 cases with adhesions there was ulcer. The commonest explanation of blood in the stomach *post mortem* was blood from the lung, after that cirrhosis of the liver, and after that gastric ulcer: other causes were insignificant. In the first group of cases operation should be extremely exceptional; the course to follow was rectal feeding for ten days, prolonged rest, and careful regulation of the heart's action. In the poisoning cases gastro-jejunostomy was indicated. If the cases with vascular degeneration were treated early, operation might often be dispensed with.

Mr. Herbert J. Paterson said he was glad that Mr. Mayo Robson now adopted the view which he (Mr. Paterson) had suggested in his Hunterian lectures, that peptic jejunal ulcer was a preventable complication due to insufficient size of the gastro-jejunostomy opening. He gave an analysis of cases of gastric ulcer he had collected, which showed that the proportion of real cures was probably not more than 25 per cent. Acute ulcer, apart from its complications, rarely called for surgical interference. As regards chronic ulcer, the indications for operation which he had given in his lectures were as follows: "If after six weeks' complete rest on a milk diet followed by a further period of six weeks on a milk diet with comparative rest, followed by three months' careful dieting, the patient is not free from definite symptoms, or if after apparent cure the patient has a relapse, operation is probably in the best interest of the patient." As to the question of excising the ulcer to prevent the future development of cancer, he thought that further proof was required before patients were submitted to the added risk of excision. He pointed out that the mortality from gastric haemorrhage was probably not greater than 5 per cent., while the mortality from operation during haemorrhage was between 66 and 70 per cent. Even as regards the successful operations they were entitled to ask, in the words of Sir James Paget, what would have happened if the operation had not been done? Consideration of the facts at present available led him to doubt whether it was ever expedient to operate during the course of gastric haemorrhage. He emphasized the fact that a second attack of haemorrhage from an acute ulcer was often reactionary or recurrent, due to displacement of the clot, from too early stimulation, or injudicious moving of the patient. In such cases Nature should have one more chance before operation was advised. In chronic ulcer a recurrence of haemorrhage was due not to mechanical displacement but to septic disintegration, therefore probably the haemorrhage would be repeated. If, then, the second haemorrhage was a severe one, an operation was advisable to prevent the serious and possibly fatal result of further loss. In haemorrhages which, although slight, were frequently repeated, operation was advisable before the patient became very anaemic. As regards perforation, he doubted whether early operation influenced the mortality to as great an extent as was supposed. While early operation was highly desirable, probably other factors—such as the extent and nature of the extravasation, the presence of other ulcers, and the rapidity and completeness of the operation—were important factors. He believed that better results would be obtained when gastro-jejunostomy was recognized as part of the routine treatment of perforation. Briefly his reasons were as follows: Gastro-jejunostomy lessened the risk in cases in which a second perforation was undiscovered, diminished the risk of perforation of a second ulcer, diminished the risk of haematemesis after operation, promoted more rapid healing of the line of suture, and so lessened the risk of leakage, permitted earlier feeding, earlier administration and more rapid action of purgatives, and so secured more efficient drainage of the peritoneal cavity. He considered that the worse the patient the more important was the performance of gastro-jejunostomy. Usually death was due not to shock, but to chest complications and peritonitis, hence the importance of the early establishment of thorough intestinal drainage. As regards the after-results of gastro-jejunostomy, he found from an investigation of the after-history of 143 patients, that relief had been complete in about 82 per cent. The operation had been so successful that it was in danger of becoming too fashionable. He hoped that one of the results of the discussion would be to stem the gastro-jejunostomic tide, by defining more clearly the uses and limitations of the operation. It was not a panacea for all gastric ills, and its performance in vague disorders of the stomach, unaccompanied by definite clinical and chemical signs, could not but bring discredit on a valuable and, in suitable cases, legitimate and brilliantly-successful operation.

Dr. H. P. Hawkins gave a report on 556 cases of gastric ulcer and its consequences, from St. Thomas's Hospital. About 95 per cent. of the cases were sent out as cured, but 25 per cent. of these returned as relapsing ulcer, and it was among these that the deaths nearly all occurred. Medical treatment for such had about reached finality. Return to active life was usually too soon, and the extension of treatment to a minimum of six months was all probably that could be done from the medical side. In every case that had not made a good recovery under the first course of medical treatment, or in case of relapse, gastro-enterostomy should be recommended. Death from haemorrhage was low, 4 out of 556 cases, hence operation during haematemesis was not indicated. Cases with local peritonitis should disappear if gastro-jejunostomy were systematically performed. Operation for adhesions was not a hopeful matter.

Dr. S. H. Habershon also pointed out that it was in the chronic cases that operation was required. The symptoms calling for operation were excessive vomiting and pain, recurrent haemorrhage, gastric dilatation with its concomitant symptoms, the formation of a localized or subdiaphragmatic abscess the sequel of perforation, and pyloric spasm. The symptoms held to be characteristic of pyloric spasm were given, and their occurrence was considered an indication for a posterior gastro-jejunostomy. Recurrent vomiting might be treated by another short-circuiting operation, a duodeno-enterostomy.

Mr. C. Mansell Moullin gave statistics derived from the records of the London Hospital both before and after the adoption of operation for gastric ulcer. Of 500 prior, there was a direct mortality of 18 per cent.; but of these, 42 per cent. had been relapsing cases. All recent acute cases should have one thorough and prolonged course of medical treatment. Operation was rarely indicated in acute haemorrhage, but if a patient were dying from it, the attempt should be made to arrest it by operation. Three cases of fatal haemorrhage were alluded to. In all cases of chronic ulcer in which there had been one thorough trial of medical treatment without relief, or only temporary relief, an exploratory operation should be performed. The ideal operation was excision; but this was rarely practicable, hence posterior gastro-enterostomy with a lateral anastomosis lower down the loop was the method to be adopted. Physicians seemed to take a too low standard of comfort in cases of gastric ulcer. The majority of cases of chronic gastric ulcer, short of operation, were never really cured. The whole question was one of diagnosis, and the best aid to this was an early exploratory operation.

The discussion was adjourned.

CLINICAL SOCIETY OF LONDON.

H. H. Clutton, M.A., M.C., F.R.C.S., President, in the Chair.

Friday, November 23rd, 1906.

Haemorrhage into Prefrontal Lobes of Brain.

Dr. Walter Carr read notes of a case:

A painter, aged 58, was admitted to the Royal Free Hospital in a semi-comatose condition, having suddenly become unconscious about seven hours before. He had had albuminuria about five years, had been growing thinner, and had suffered from anorexia and vomiting some time before his final illness. His temperature was 98.6° F., pulse 56, of very high tension. The urine, almost solid with albumen, contained sugar, but gave no reactions for diacetic acid and acetone. Otherwise the results of physical examination were negative; there was no indication of hemiplegia or any unilateral symptoms. The man gradually improved, and after two or three days completely recovered consciousness. About the seventh day, however, he again became restless and drowsy, his temperature slowly rose, and he died comatose on the ninth day from the onset. After the first day or two sugar completely disappeared from the urine, and only an occasional trace of albumen was present. At the *post-mortem* inspection a small saccular aneurysm was found on the anterior communicating artery which had ruptured into the left prefrontal lobe; the haemorrhage had subsequently extended into the right prefrontal lobe. The kidneys showed an early stage of chronic interstitial nephritis.

Dr. Carr said the case illustrated the difficulties of diagnosis in lesions of the prefrontal lobes. Many examples of these difficulties had been afforded in the case of tumours of this part, but the recorded instances of haemorrhage were far fewer. The diagnosis lay between diabetic coma, uraemic coma, or apoplexy, but up to the end no certain opinion could be given. The case also showed that a small haemorrhage might occur into one prefrontal lobe and recovery follow, without there having been any indication that the patient had had so grave a lesion.

Dr. A. E. Garrod recalled a similar case. The patient recovered from the first attack but died of a second haemorrhage, and the necropsy revealed an old clot in one anterior lobe.

Acute Peritonitis with Fat Necrosis: no Disease of Pancreas.

Dr. John Fawcett described a case in Guy's Hospital under Dr. Hale White:

The patient, a woman, aged 59, had severe abdominal pain and vomiting of one day's duration. The abdomen was not distended nor rigid, but extremely tender in the upper part. The temperature was subnormal, and the pulse did not rise above 92. Laparotomy was performed next day, when areas of fat necrosis in the great omentum and a small amount of extravasated blood were found. The patient died the following day. *Post mortem*, a widely-spread fat necrosis was found, and a recent haemorrhage in the lesser omentum. The pancreas (examined microscopically) and other organs were healthy.

Three other cases from the hospital records of the last six years were also cited in which fat necrosis had occurred, and yet no lesion of the pancreas had been found. These cases were difficult to explain. Possibly there was a production elsewhere than in the pancreas of a fat-splitting ferment, perhaps as the result of bacterial action. More knowledge was certainly required of the conditions under which the pancreatic fat ferment might be set free even in health.

The President thought it impossible at present to be dogmatic as to cause of the presence or absence of fat necrosis in many cases.

Dr. Hale White said it would be a valuable step to diagnose such cases, and so prevent a needless operation. In the case recorded he did not seek the surgeon's aid at once because after forty-eight hours the pulse was only 90, the abdomen supple, and the patient free from pain. At the onset, however, there had been a sudden attack of very acute pain.

Dr. Cecil Bosanquet suggested that haemorrhage from the neighbourhood of, or from a small vessel in, the pancreas might by bursting through the pancreatic tissue enable a small quantity of pancreatic secretion to escape into the peritoneal cavity. The disease would thus be due to haemorrhage and not inflammation. Blood, too, was often present in these cases in the peritoneum.

Mr. W. F. Fedden narrated a similar case in which he had performed laparotomy. The patient recovered.

Dr. H. S. French said that Professor Starling had shown that the pancreatic juice had no fat-necrotic power until it was mixed with the succus entericus.

Mr. W. G. Spencer suggested that possibly supernumerary pancreatic lobules might be the origin of the fat necrosis.

Dr. Fawcett replied.

Cystic Dilatation of Lower End of Ureter.

Mr. W. G. Spencer described a case in which the lower end of the ureter contained calculi which became engaged intermittently in the urethra.

The patient, a young man, had for six years suffered intermittently from difficult micturition and nocturnal incontinence. Generally he presented no symptoms whatever, and the usual evidences of renal and bladder calculus were absent. No abnormal physical signs were noted until he was examined bimanually under an anaesthetic, when a hard mass was found slipping about within the bladder. On the patient straining, this became engaged in the urethra like an impacted calculus. By perineal section a cyst containing three calculi was found tightly grasped in the sphincter. The pedicle of the cyst was traced up to a portion of the orifice of the left ureter, where the pedicle was burnt off. The man had now no urinary trouble.

The President described a similar case in a man aged 20 treated by suprapubic cystotomy. The patient recovered.

Mr. Makins remembered a case under the late Mr. Sydney Jones successfully treated by lateral lithotomy. He considered it risky to snare the cyst and its contained calculus and remove both together.

Mr. Spencer, in reply, said that in five girls so treated death had been recorded in four instances. The cut ureter became retracted, and led to infiltration of urine behind the bladder.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

J. Lindsay Steven, M.D., President, in the Chair.

Friday, November 16th, 1906.

Gastrostomy for Oesophageal Obstruction.

Drs. T. K. Monro and A. N. M'Gregor showed two patients on whom gastrostomy was performed by the Stamm-Kader method. In one case the stricture was malignant, in the other cicatricial.

In the former the patient was a man, aged 70, whose difficulty in swallowing was noticed about seven months before his admission to the Royal Infirmary. The dysphagia increased markedly during the later months. At the date of admission he could swallow fluids, but not solids. There was no complaint of sickness, vomiting, or pain, nor was there any evidence of haemorrhage. He had lost 2st. in weight. The feeling of obstruction was referred to the level of the fifth costal cartilage. The stomach tube was passed with some difficulty, and on withdrawal yielded a little blood, among which large squamous cells were found. The cicatricial stricture occurred in a woman, aged 22. She was first admitted to the Royal Infirmary on June 15th, having drunk a quantity of ammonia. She was semicomatose, and the skin of the lips, as also the buccal mucous membrane, was sloughing. In about a week's time she was able to swallow milk and to retain it. She was dismissed on July 3rd, to all appearance well. Very soon, however, she became unable to swallow, and was readmitted on July 23rd with complete obstruction of the gullet. Examination by bougies on the 25th showed the obstruction at about 10½ in. from the incisor teeth.

The operations were practically identical. A straight vertical incision was made through the left rectus at the level of the eighth and ninth ribs. A cone of stomach was withdrawn. Its base was sutured to parietal peritoneum and the cut edges of the posterior wall of rectus sheath. An opening was made into the stomach at the apex of the cone, a tube inserted, and fixed by catgut suture. The cone was gradually invaginated, and a continuous catgut suture was inserted through stomach and tube during this process. When the invagination reached the level of the posterior wall of the rectus the whole depth of the wound was sutured close up to the tube from both ends; the skin was sutured by Michel's clamps. The after-history was uneventful. In the first case the tube came out on the fourteenth day, and in the cicatricial case on the tenth day. Notes were read from Dr. John Macintyre, from which it appeared that a No. 3 oval Mackenzie bougie had been passed in the stricture case, and that inspection by Killian's instrument showed the mucous membrane to be fairly healthy above the stricture, which was situated at the fifth dorsal vertebra.

INTESTINAL OBSTRUCTION CAUSED BY BANDS.

Mr. G. H. EDINGTON read notes on 2 cases of intestinal obstruction by a band. In the first case, a band stretched from an upper tuberculous mesenteric gland to the right iliac fossa and obstructed the ascending colon. The band was divided, the gland excised and the patient recovered. In the second case, a band extended from a tuberculous gland in the lower mesentery to the ileo-colic region, constricting a loop of the lower part of the ileum. The band was probably an omental adhesion between two glands some distance apart. Death thirty-one hours after operation. Sections of the appendix showed only a catarrhal condition with extremely congested fibrous adhesions.

TUBERCULOUS HERNIAL SAC.

Mr. EDINGTON also showed a tuberculous hernial sac removed from a child with bilateral inguinal hernia. The serous surface of the open funicular process (the hernial sac) was studded with tubercles. Recovery. Tuberculous disease of a metacarpal bone developed. A year after the first operation there was no recurrence at seat of operation and the other cord felt normal. In another case of bilateral inguinal hernia similar nodules were found to have disappeared in four months. A case of tuberculosis of the processus vaginalis was successfully treated by injection of iodoform and oil, but was followed by descent of a hernia.

THE CARRIAGE OF INFECTION BY FLIES.

Dr. R. M. BUCHANAN read a paper on this subject. Flies caught in a typhoid fever ward were placed in Petri capsules containing lactose, neutral red, crystal violet agar, and allowed to walk about. Growths of coliform organisms appeared but no *B. typhosus*. Other flies were placed in capsules smeared with typhoid stools and transferred to the culture media. One or two colonies of *B. typhosus* developed among an abundant flora. Flies were caught walking over the carcasses of two pigs dead of swine fever. In one plate the bacillus was identified. Abundant growths were got in similar experiments on the carcasses of animals dead of anthrax, and 1 c.cm. of bouillon used to wash the surface of an agar plate contaminated by a fly which had been walking over a plate smeared with a tuberculous sputum, was injected into a guinea pig. Tuberculosis developed. These experiments proved that flies carried organisms in large numbers, and means should be taken to prevent their access to sources of infection such as latrines, ashpits, etc. Food, and especially the food of children, should be carefully protected.

MEDICAL SOCIETY OF LONDON.

C. A. BALLANCE, M.V.O., M.S., F.R.C.S., President, in the Chair.

Monday, November 26th, 1906.

LARGE ARTERIO-VENOUS ANEURYSM OF THE NECK TREATED BY OPERATION.

MR. JAMES BERRY communicated this case, which was remarkable for its rarity. The aneurysm occurred in a young female patient, was as large as a man's fist, and caused dyspnoea, palpitation, and hoarseness. It seemed that all the deep and most of the superficial veins of the right anterior and posterior triangles were implicated, but after exposure the main trunk of the internal jugular vein and the common carotid artery were found not to be involved. The tumour was dissected out, the sterno-mastoid being previously completely divided. The exact point of communication between the arterial and venous systems remained undetermined. Recovery was uneventful. It was suggested from this case that cirsoid aneurysms of the scalp when traumatic were composed not of arteries but of dilated, thickened, and tortuous veins.

The paper was discussed by the PRESIDENT, who described cases of cirsoid aneurysm he had seen, which he believed to have been arterial, but suggested that in some cases they might be both venous and arterial; by Mr. CUTHBERT WALLACE, who said that South African experience had shown that when arteries and veins communicated in the neck there was great dilatation of the veins as contrasted, for example, with those in the popliteal space; and by Mr. W. G. SPENCER, who thought cirsoid aneurysms of the scalp were essentially arterial.

CASE OF ENCAPSULED SARCOMA IN THE PTERYGOID REGION.

Mr. W. G. SPENCER showed this case, in a man of 30, who had suffered from recurrent attacks of rheumatic fever, complicated by endocarditis, and who had become weak and exhausted from difficulty in swallowing, breathing, and sleeping, consequent on the bulging of the tumour inwards so as almost to fill the fauces. The tumour also protruded behind and below the ramus of the lower jaw. The encapsuled nature of the tumour was indicated externally by the mobility of the superficial structures and the absence of glandular enlargement, and internally by the mucous membrane of the pharynx and the soft palate gliding over the tumour without any sign of ulceration or induration. The tumour was shelled out through a horizontal incision below the jaw without perforating the pharynx, and without haemorrhage. The tumour proved to be a fibro-sarcoma the size of the fist, and six months after the operation there was nothing abnormal to be observed except a linear scar. A similar case was described by Mr. Patrick Heron Watson in 1869, in which, after a large incision through the jaw into the mouth, the tumour was found and easily shelled out. Sir Felix Semon removed such a tumour from the lateral wall of the pharynx, about the larynx, for which a lady had worn a tracheotomy tube for years.

The case was discussed by the PRESIDENT and Mr. JAMES BERRY.

CLINICAL SOCIETY OF MANCHESTER.

JOHN F. LE PAGE, M.D., President, in the Chair.

Tuesday, November 20th, 1906.

UTERINE HAEMORRHAGES.

IN the course of a presidential address, Dr. Le Page strongly denounced the teaching of the medical schools and of the textbooks with reference to *post-partum* haemorrhage as antiquated, conventional, unscientific, and delusive, and based on absolutely false premisses. His experience was derived from a responsibility for about 5,000 parturitions, which included some cases in which death from *post-partum* haemorrhage appeared to have actually taken place; but he had never seen a death. These cases were essentially of a nature which demanded instant, as it were intuitive, action. There was absolutely no time for deliberation. Every man who had seen a really severe case knew only too well that if he did not do something there and then, his patient would in a few minutes be past all that human skill could do or ingenuity devise. The whole teaching of the schools was—try this, try that, try everything—kneading, cold water, hot water, ice put into the uterus, hot water injected into the uterus, iced water injected into the rectum, etc. If all failed, then thrombosis by iron perchloride. If that failed, "the art of the physician failed." Far from that, it was here that art, and a juster conception of the truth which underlay much error, dawned. The Registrar-General afforded a striking proof of the insufficiency and the futility of the strenuous efforts made by the profession, on lines which were supported alone by tradition, and were wholly innocent of reason. The deaths registered in England and Wales alone, in 1905, from placenta praevia, "flooding," and *post-partum* haemorrhage were 619. If, before there was any haemorrhage, the uterus did not contract, why in the name of commonsense should we, when the system was drained of vital fluid and the whole nervous system paralysed, hope for a miracle—hope that the impotent uterus would, in response to equally impotent castigations, take, as it were, an independent life, and rhythmically contract and retract itself into a firm and vital organ whilst all around it was practically dead? It was verily past understanding that whilst all, every one, without the slightest hesitation accepted and fully endorsed as absolutely sound the rules of surgery anent the arrest of haemorrhage, those very rules were entirely ignored when, from flooding, the life of a woman was in the balance. (1) The one rational initial treatment in all cases of *post-partum* haemorrhage was instantly to compress the abdominal aorta against the spinal column, by which means the current through the uterine arteries was at once shut off. A very important fact was that, although no blood was allowed to pass the compressing hand, there was still a sufficient, although a very limited, supply through the ovarian arteries to maintain uterine vitality. Compression should be made by the ulnar portion of the left clenched hand, than which nothing could be more convenient and effective. At short intervals the pressure should be made to slide from one part to another of the available 3 or 4 in. of aorta, that no injury might be done to the sympathetic system of nerves, which formed a network around the vessel. The pressure should be continued until uterine contraction was

secured, and the greatest care in its release, which should be gradual, was essential. (2) The pelvis was elevated by means of a firm support under the loins, and (3) the legs and arms were raised to the perpendicular and bandaged. The effect of this manœuvre was that, in many cases, almost a normal tension of whole blood was attained in one or two minutes. (4) The right hand, previously sterilized, was then passed into the uterus to detect any laceration, or remove any remaining portion of placenta; and to afford a *point d'appui* for grasping and compressing the uterus from without. The bandages were loosened with the greatest care, very gradually, and in proportion to the amount of liquid nutriment taken and the effect. The vast advantages of such intrafusion of whole blood were that, in extreme cases, tension in the blood vessels was immediately restored, and the heart and lungs were filled with normal blood. The paramount importance of this consummation was evident. In fine—(1) instantly arrest the flow of blood; (2) re-establish the vitality of the nerve centres; (3) and last, secure normal uterine contraction and retraction.

Liverpool Medical Institution.—At a pathological meeting on November 15th, Mr. Frank Paul, President, in the chair, Mr. Monsarrat showed a *Sarcoma of the kidney* removed from a child, aged 3 years, weighing 2 lb. 6 oz., round-celled in type, and uniform in structure; a *Cylindro-epithelial carcinoma* of the transverse colon removed from a man aged 40, and a section from a case of *Lupus* showing marked hypertrophic downgrowth of the surface epithelium.—Dr. Gullan showed (1) the stomach and intestines from a girl, aged 19, who had died suddenly in hospital from syncope. She had manifested all the typical symptoms of *Gastric ulcer*—that is, haematemesis, tenderness in the epigastrium and over the stomach on pressure, with marked anaemia, gastric pain, etc. The stomach showed no gastric ulcer, but numerous small haemorrhagic erosions were scattered over its mucous membrane, which was congested in certain patches. These erosions were most numerous in the pyloric portion. The duodenum was very congested, and showed similar small erosions, chiefly in its second portion. The jejunum was less affected, but the ileum was markedly congested and swollen in patches, and contained numerous haemorrhagic erosions or points from which small quantities of blood exuded and many old subperitoneol haemorrhages were scattered all over its surface, some of which were petechial in character. (2) The heart of a man aged 22, who had been under his care for four years suffering from *Congenital morbus caeruleus*—pulmonary stenosis, the clinical features of whom he described in the *Liverpool Medical Journal*, 1902. The man had ultimately died from tuberculous disease of both lungs. The interesting features of the heart were a very narrowed pulmonary orifice, through which only a small quill could pass, and which opened into a dilated pulmonary artery; the ventricle was single and hypertrophied, being only partially subdivided by the septum inferius of His; only one auriculo-ventricular orifice was present, and that opened from the dilated left auricle, the right auricle being small and having a large patent foramen ovale through which all its blood passed. The aorta and aortic valves were normal, and the ductus arteriosus though present and well developed was obliterated. —Dr. Leighton described the method of preparing, and showed specimens of, slices of organs (among them one of anaemic infarction of the liver) mounted in flat shallow cases made from old photographic dry plates. Four narrow strips of plate glass are sealed with the aid of heat, by means of solidified Canada balsam round the margin of one of the plates, a space being left at one corner (to allow of finally filling the case with glycerine jelly). The slice to be mounted is drained fairly dry and placed in the centre of this shallow cell, and another dry plate is sealed over it by heating the edges gently till the balsam melts once more. Glycerine jelly is poured in finally by means of a thistle-head funnel, the tube of which is drawn out fine in the flame to enable it to enter the hole left for this purpose. These cases are strong and permanent. Some of the specimens shown were three years old and showed no signs of deterioration. There were no vacuoles due to inclusion of air, and the cost of making them was very small. —Mr. R. E. Kelly read a note on a case of *Extroversion of the bladder*. It was curious in this respect—that there was extroversion not only of the bladder, but also of the intestinal mucous membrane, the latter structure being central and bounded laterally by the separated bladder halves. This central mucous membrane even also showed a prolapsed upper opening into the fore-gut and a second non-prolapsed opening into the undeveloped hind gut only represented by 2 in. of undifferentiated bowel. There was an imperforate anus and a spina bifida. The interesting feature of the specimen was the support that it seemed to give to the allantoic origin of the urinary bladder.—Dr. Chas. A. Hill gave a short description of a *Prehistoric skeleton* lately discovered in a limestone cave in Upper Wharfedale. The skeleton, which is as yet incomplete, was shown. From the measurements of the brachycephalic skull, it had been identified as that of a female Celt about 45 years of age. The teeth showed signs of considerable attrition. The presence of an irregularly-shaped hole above the right mastoid process was discussed as being the possible cause of death.

Leeds and West Riding Medico-Chirurgical Society. —At a meeting on November 2nd, Dr. Bampton in the chair, Dr. Churton read a paper on cases of cerebral tumour, in connexion with the operation proposed by Sir Victor Horsley for the cure of optic neuritis. The latter had urged the desirability of trephining in every case which did not recover after three months' drug treatment, because (1) the operation could do no harm; (2) the tumour might be removable; (3) if not removable or not found it might, after operation, disappear spontaneously; (4) the associated optic neuritis would be arrested, even if no further good could be done. For this and other reasons mentioned it had become necessary to localize brain lesions with greater accuracy. Hospital patients, on admission, often presented signs of great pressure (stupor, incontinence of urine, etc.) on the surface, and also at the base (tremor, eye movements, etc.). In order to determine the site of the original or prime lesion it was necessary to discover which set of lesions appeared first. To do this was sometimes easy, sometimes very hard. He then quoted some cases in point.—Mr. F. Ward quoted some cases that had been relieved by operation, and suggested the removal of a strip of skull all round, as had been practised in microcephaly.—Mr. A. L. Whitehead advised the operation in rapidly progressive cases with impairment of vision, but thought that slow progressive optic neuritis with associated retinal changes would probably not be benefited. He drew attention to the occasional incidence of optic neuritis after the relief of pressure caused by a cerebral abscess.—Mr. Lawford Knaggs was in favour of operating for neuritis and pressure, and pleaded that more opportunities to operate on such cases should be given to the surgeons.—Dr. A. Bronner emphasized the risks attached to cerebral surgery—oedema, haemorrhage, and cerebritis—and said that not all cases of optic neuritis were due to pressure, but some were inflammatory.

At a clinical meeting on November 23rd, Dr. Bampton in the chair, Mr. W. Thompson showed a case of extensive rupture of the posterior surface of the liver in a boy of 6, with recovery after packing and drainage through the loin. —Mr. H. Littlewood showed a case of amputation of the penis for an epitheliomatous ulcer of over thirteen years' duration. The man had been regularly catheterized since infancy. Also a series of cases of renal surgery.—Mr. R. L. Knaggs showed a boy of 14 with fracture of the lower cervical spine in May—paresis of all limbs. Recovery with immobility of cervical spine and some bony prominence.—Mr. J. F. Dobson showed a case of paralytic talipes calcaneo-valgus treated by tendon transplantation.—Mr. W. H. Brown showed a girl of 13 with outward dislocation of both patellae—symptoms on walking for three years.—Dr. T. Churton showed a case of Still's disease, or (?) congenital syphilitic arthritis, in a boy of 10. Four years before, acute attack of "rheumatism," becoming chronic. Now arthritis and periarthritis of many joints, enlarged glands, spleen not palpable, evidence of congenital syphilis. Improvement took place under syr. ferri iodidi. Also a case of arthritis purpura with abdominal symptoms, showing marked improvement under chloride of calcium.—Dr. T. W. Griffith showed three cases of Friedreich's ataxia

(two in sisters). Attention was drawn to the peculiar tense, hard feeling in the calf muscles in one case, resembling pseudo-hypertrophic paralysis; the same patient also arose from the supine position in the manner characteristic of this latter disease.—Dr. MAXWELL TELLING showed a case of acromegaly in a woman of 23. The symptoms were of two years' duration, principally a feeling of "tiredness" and getting stouter. No cerebral or visual symptoms. Also an unusual form of bromide eruption—large, chronic, infiltrated, papillomatous patches on the limbs, in addition to the bromic acne, in a man of 22.—Dr. TELLING and Mr. ST. C. STOCKWELL showed a case of cerebral diplegia, in a man aged 56. The onset was mainly hemiplegic at two and a half years, with mental dullness and athetotic and grimacing movements. Six years ago the opposite side became more seriously affected as the result of a severe illness.—Dr. E. F. TREVELYAN showed two cases of infants with obstetrical paralysis. In one case the paralysis affected both arms (except the hands). Also a case of hemiatrophy of the tongue, with facial symmetry and fits in a girl of 4. Also a case of pseudo-hypertrophic paralysis, with no enlargement of muscles.—Mr. C. HAYES showed a case of syphilitic irido-cyclitis and interstitial keratitis in a child aged 9.—Mr. M. A. TEALE showed an example of absence of the lens and iris following a blow. The lens appeared to have been shot through the ruptured coats of the eye: vision fair with glasses.—Mr. A. L. WHITEHEAD showed a case of cerebellar abscess following mastoid disease in which horizontal nystagmus on the side of the abscess was the only localizing sign.

REVIEWS.

BLOOD PRESSURE.

WE strongly recommend Dr. OLIVER'S compact little volume, entitled *Studies in Blood Pressure*,[1] to the perusal of every general practitioner. Its contents consist of two lectures, the first devoted to a consideration of the means of measuring blood pressure, with special reference to a convenient form of sphygmomanometer introduced by the author, and including just those theoretical considerations of the principles underlying the maintenance and variation from the normal of blood pressure under physiological conditions as are useful and necessary to the busy practitioner anxious to make use of one of the most valuable means of diagnosis that has been developed in recent years. In the second part the clinical value of haemomanometry is considered, and Dr. Oliver has contrived to put together in terse paragraphs a great deal of the large mass of knowledge on this part of his subject. We fear that in certain particulars he is too much wedded to some older traditions in medicine, for despite the very careful survey of the subject which he must have made to be able to condense into so small a compass knowledge which is scattered through a very extensive literature, in discussing various chronic maladies in which blood pressure rises as a result of the contraction of the area of the peripheral circulation, he places before his readers as a first subject for discussion "senility." Senility would appear to be a condition in which blood pressure rises, and we expected that some factor would be stated which is more or less constant in senility, and which has been demonstrated to be a cause of high blood pressure. But senility, Dr. Oliver quite well knows, means to most of us old age, and yet, as he says, we quite often meet with cases of old age and of moderately old age in which a rise in arterial pressure is *not* present. So, too, with regard to chronic rheumatism and gouty ailments, it is not quite clear what bearing such disorders have upon the genesis of hyperpiesis or high blood pressure. Dr. Oliver admits later on a bias in favour of a biochemical agent, but what this agent is appears to be a conundrum, and until we are able to say what is the cause, chemical or mechanical, which produces the departure from normal, sphygmomanometry does little but present us with an array of observations which only mystify us; and, if the cause is still hidden from us, the real value of sphygmomanometry in diagnosis is lost, and the therapeutical attack will be confined to mere symptomatic treatment, which we admit is admirably put by Dr. Oliver. We would suggest to the advocates of sphygmomanometry the application of the lessons which have been taught years ago, by none more ably than the Guy's school of physicians, who pointed out that there exists a close relation between rise of blood pressure as shown by various clinical methods, such as the ordinary examination of the heart and the application of the sphygmomanometer, that rise of tension occurs over a protracted period in renal disease, even when the ordinary urinary tests would seem to prove that the renal excretory and other functions are being normally performed, and albuminuria does not occur.

We should say that sphygmomanometry has done this for us: it has supplied us with a means of observation which in comparison with the older methods of determining renal disturbance in its relation to exalted blood pressure is as a clean photographic picture to a fogged one. It must not be thought that Dr. Oliver has overlooked this association, but the space devoted to this part of the subject is far less than it should be, and the connexion is shouldered out of place by pure speculation, such as, for example, the one which attributes a rise of blood pressure to a toxaemia which is a result of disorderly metabolism, for there is no known product of metabolic disorder which, acting as a biochemical agent, can cause a rise of blood pressure.

As we have already hinted, this little volume is a very good guide in many particulars of treatment, and, although we disagree with Dr. Oliver's pathology, we are most anxious to recognize that he has achieved success of a high order in his discussion of the practical side of the management of the disorders in which high blood pressure is the least well understood, and therefore the most interesting feature, and do not hesitate to say that practitioners should learn to use the sphygmomanometer if for no other reason than that it is of first-rate importance in treatment: it is also, we venture to think, of much greater value in diagnosis than even Dr. Oliver would have us believe.

[1] *Studies in Blood Pressure.* By George Oliver, M.D., F.R.C.P. London: H. K. Lewis. 1906. (Fcap. 8vo, pp. 151, illustrated. 2s. 6d.)

GYNAECOLOGY.

GREAT progress has recently been made in the histology of the products of conception. The phenomenon of abnormal implantation of the ovum in tubal and ovarian gestation has turned the attention of experts to the normal properties of the chorion. Vesicular moles may develop and eat into the uterine walls. Chorionic villi, it is well known, grow into the thin wall of a tubal sac with grave results, but whilst all these pathological changes are recognized, we are not so sure about the normal limitations of chorionic villi. Why is so deadly a disease as chorion-epithelioma relatively rare? The ever active and essentially "young" elements of the products of gestation play their part in every pregnancy, from conception till long after delivery, yet malignant deciduoma was unknown thirty years ago. Professor VEIT has produced a treatise[2] on the histology and physiology of the chorionic villi, which should be studied by all obstetricians and gynaecologists who really wish to understand the significance of the products of conception. Hirschmann has already written on the significance of the deportation of chorionic villi, and Veit does not entirely agree with his views: but both these observers, as well as others, admit that fragments of villi have been found in the veins between the uterus and the right chambers of the heart in cases of uterine as well as in extrauterine pregnancy, a fact of obvious importance. Professor Veit demonstrates the histology of the normal plantation of the ovum in the endometrium. He further shows that undoubtedly the cellular elements of the chorion are in part passed into the maternal blood. Normally no mechanical accidents result from this deportation. Veit discusses the equally-important physiologico-chemical question, the effects of deportation of villi on tissue change in the mother. Other observers seem to have implied that such changes must be prejudicial—in other words, that pregnancy goes on at the expense of the

[2] *Die Vorschleppung der Chorionzotten.* (Zottendeportation): Ein Beitrag zur geburtshülflichen Physiologie und Pathologie [Deportation of the Chorionic Villi; a Contribution to Obstetrical Physiology and Pathology]. Von Dr. J. Veit, Ord. Professor an der Universität Halle-Wittenberg, Geh. Med. Rat. Mit 13 Abbildungen auf den Tafeln I bis VIII. (Wiesbaden: J. F. Bergmann. 1904. 4s. 6d.)

mother for the benefit of the embryo. Veit denies this teaching, finding that the deportation does not normally poison the maternal blood any more than it normally plugs the maternal veins. He describes the abnormal conditions in which deportation undoubtedly causes well-known puerperal disasters. The reader of this treatise will profit if alone it impresses him with the fact that everything is not necessarily morbid that is seen in a microscopic section of the wall of a gravid Fallopian tube or of the muscular coat of the uterus from a fatal puerperal case. It is well, too, to feel more sure than many of us can feel at present about the precise meaning of appearances seen in scrapings where placenta has been retained. We must recognize what is healthy before we can judge what is morbid, and Professor Veit's book will show us how to work on that principle.

Dr. Bäcker's essay on infectious diseases of the female genitals[3] is a good example of a "series of impartial treatises on gynaecology and obstetrics specially designed for general medical practice," under the editorship of Dr. Max Graefe. It is a short review of diseases of the female genital tract clearly due to infectious processes, from vulval discharges in infancy to the too familiar chronic pelvic inflammations in the adult due to puerperal and gonorrhoeal germs. Dr. Bäcker sketches the latter type of disease with great clearness, and rightly explains that mixed infection is by no means infrequent. This is not surprising, since there are many puerperal accidents which may admit the streptococcus and staphylococcus, whilst many men enter married life unaware that they are the subjects of latent gonorrhoea. The damage to tissues caused by one form of germ exposes them to attack from other forms. The author dwells rightly on Bumm's discoveries which established this truth; a similar phenomenon is seen in tubercle of the testis. Lastly, the author discusses how far society can check gonorrhoea. The suggested means are of a kind repugnant to public opinion in this country, as experience has already shown, but the author makes one practical suggestion, which is that the law should, as far as is possible, check the sale of alcoholic drinks to women known to be prostitutes. Intemperance promotes gonorrhoeal infection, and prevents the cure of gonorrhoea. We may add that Spillmann of Nancy, at the Paris Congress last October, read a paper on the influence of prostitution in spreading tuberculosis, the intemperate habits of these women playing a distinct share in the diffusion of tuberculous diseases.

Dr. Francillon's *Essay on Puberty in Women*[4] is an interesting little book, containing many observations, put in a numerical form, showing the changes in the female organism that take place at puberty. Some are quoted from previous observers, but many are original. Many instances of disease occurring at or about puberty are quoted from books. Some may think that the author attaches too much importance to the coincidence in time between disease and the advent of puberty. He describes paraplegia ("congestion rachidienne") as due to menstrual suppression. Most people, we think, would regard the cases he quotes as instances of hysterical paraplegia, which may, of course, occur about puberty, and coexist with amenorrhoea, but may also occur at different ages and in patients whose menstruation is regular. The only criterion the author gives whereby this "congestion rachidienne" is to be distinguished from hysterical paraplegia is that in the latter disease "electro-muscular sensibility" is diminished. We doubt if neurologists would regard this as sufficient. Again, further on, limitation of the field of vision is instanced as a disease of puberty. The author correctly states that it is often more marked before, during, and after menstruation. Neurologists, we believe, consider it one of the most important objective signs of hysteria, but not one having any special relation to the age of puberty. The most important original work in the book consists in detailed measurements showing the growth of different parts of the body at different ages. There is a copious bibliography, made to appear fuller than it is by the quotation of the same book or paper several times over under different headings.

The nature of Dr. Shaw's *Fibroid Tumour*[5] is indicated by its title, by its dedication "to suffering women and their responsible advisers," and by the glossary at the end "for the convenience of the non-medical reader." Dr. Shaw seems to have been aggrieved by the treatment he has received at the hands of editors of medical papers, the Journal itself having incurred his displeasure. We are under the impression that a great deal has been written about the harmlessness of many uterine fibroids, and that the employment of electricity in place of hysterectomy and oöphorectomy is hardly to be termed "a new treatment." Dr. Shaw's book adds nothing new to our knowledge of electro-therapeutics for fibroid disease of the uterus. The chapter on the evidence of the author's clinical cases only includes eight instances of fibroid tumour, and the after-histories are very imperfectly reported. In six there is no statement of the patient's age; in one the patient was 50 years of age when first seen, "the womb measured 4 in., and there was a fibroid tumour in the anterior wall." Under the treatment "the patient lost her pain, and the courses (*sic*) diminished in quantity and duration (five days), whilst the intervals increased to three weeks." Those who have any experience in the disease in question must be well aware of the fact that at the age of 50 it often subsides spontaneously; hence the case above quoted is of little value as evidence in favour of electrical treatment, which has acknowledged merits, and deserves more convincing arguments in its favour than are to be found in this work.

NOTES ON BOOKS.

How to Buy a Business,[6] is a little book by A. W Bromley, which deals with the relations existing between vendors and purchasers when negotiating the sale of a business. Medical practices are included, but nearly all the examples are taken from the commercial world. None the less the book gives useful hints to practitioners desirous of buying or selling a practice or partnership. Much of the author's advice to purchasers of commercial enterprises and warnings against fraudulant devices employed to deceive unwary purchasers applies equally to medical practices. Dealing with "agents," he says: "The agents' interest is almost identical with that of the vendor." In the commercial world "Three-fourths of the businesses that are for sale in any trade are more or less undesirable investments." This should be borne in mind when regarding the number of practices constantly advertised for sale. "When a man has a good business he usually keeps it, until he wishes to retire. Even then he may have a son, or a relation, or friend to whom he transfers it without its coming into the market at all." In testing the bona fides of the vendor the author thinks the reason given for selling should be carefully considered, and his remarks are instructive, as also with regard to the "cooking of books" by vendors, a fraud sometimes very difficult of detection. Under "unavoidable depreciation" he treats of the unavoidable losses that many businesses are bound to sustain on sale, due to the removal of the personality of the vendor. Of this he instances medical practices as the best examples. "In old practices," he says, "half the patients have a second preference. They don't leave Jones, but they say to themselves, When Jones gives up I shall go to Smith." There is a concluding chapter on "Partnership," which might be read with advantage by those proposing to enter into that relationship.

A fifth edition of Dr. Samuel Gee's *Auscultation and Percussion*[7] has appeared, and ought to receive as warm a welcome from students of to-day as previous editions from students of past generations. The author says in the preface to this edition, "No doubt the time has come when skiagraphy by x rays should be reckoned among the

[3] *Die Infektionskrankheiten der weiblichen Genitalien.* [Infectious Diseases of the Female Genitals.] Von Dr. Josef Bäcker in Budapest (Für praktische Aerzte vorgetragen in Budapester Aerzteverein). Halle am Saale: C. Marhold. 1906. (Demy 8vo, pp. 43. M. 1.20.)

[4] *Essai sur la Puberté chez la Femme* (Essay on Puberty in Women). Par le Dr. Marthe Francillon, Ancien Interne des Hôpitaux de Paris. Paris: Félix Alcan. 1906. (Crown 8vo, pp. 300. Fr.4.)

[5] *Fibroid Tumour: a New Treatment for Fibroid Tumour and some other Diseases of Women without Operation.* By John Shaw, M.D. Lond., M.R.C.P. Lond., Physician for Diseases of Women, North-West London Hospital. London: Swan, Sonnenschein, and Co., Limited. 1906. (Demy 8vo, pp. 80. 2s. 6d.)

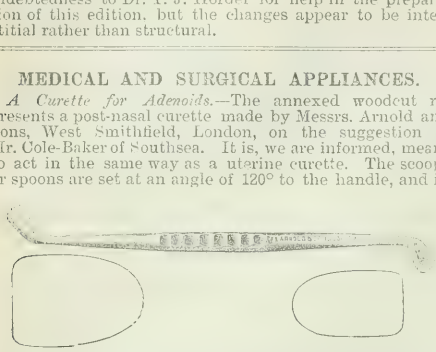
[6] *How to Buy a Business*, with a Supplementary Chapter on Partnerships. By A. W. Bromley. London: T. Fisher Unwin. 1906. (Demy 8vo, pp. 116. 2s. 6d.)

[7] *Auscultation and Percussion*, by Dr. Samuel Gee. Fifth edition. London: Smith, Elder and Co. 1906. (Cr. 8vo, pp. 325. 6s.)

methods of physical examination of the chest; yet, inasmuch as few medical men possess the necessary apparatus, the topic has been excluded from the present book." But with this exception, which appears to be justified, the work is singularly complete. Dr. Gee acknowledges his indebtedness to Dr. T. J. Horder for help in the preparation of this edition, but the changes appear to be interstitial rather than structural.

MEDICAL AND SURGICAL APPLIANCES.

A Curette for Adenoids.—The annexed woodcut represents a post-nasal curette made by Messrs. Arnold and Sons, West Smithfield, London, on the suggestion of Mr. Cole-Baker of Southsea. It is, we are informed, meant to act in the same way as a uterine curette. The scoops or spoons are set at an angle of 120° to the handle, and in



consequence are readily inserted behind the palate. The end of the scoop is straight, so that it removes a portion of the growth equal to the width of the instrument. No damage can be done to the posterior wall of the pharynx; there are no sharp, angular corners and no hooks to render cleaning difficult. The rounded surface of the back will prevent any injury to the choanae or other structures in front.

THE PLAGUE.

PREVALENCE OF THE DISEASE.

INDIA.

DURING the weeks ended October 20th and 27th the mortality from plague in India numbered 6,216 and 5,230 respectively. The fresh cases in the corresponding weeks numbered 7,426 and 7,167. The mortality in the principal centres during the weeks in question was as follows: Bombay Presidency, 2,692 and 2,796; Bengal, 35 and 48; United Provinces, 2,058 and 331; Rajputana, 1 and 8; Kashmir, 6 and 10; Madras Presidency, 11 and 17; Mysore, 134 and 142; Burma, 69 and 80.

In Eastern Bengal and Assam the deaths from plague during the week ended October 20th amounted to 462. During the week ended October 27th the deaths from plague in Central India were 725; in the Punjab, 660; and in Central Provinces, 415.

In Poona (city and cantonment) the deaths on the following dates were: October 19th, 57; 20th and 21st, 78; 24th, 57; 25th, 52; 26th, 48; 27th and 28th, 74.

In Poona a few deaths from plague have occurred amongst British soldiers in the cantonment, and a nurse in the General Plague Hospital died from the disease.

In the city of Bombay during the weeks ended October 25th and November 1st the number of deaths from plague amounted to 31 and 19 respectively.

SOUTH AFRICA.

During the week ended October 20th, 1906, no cases of plague in man or animals were reported. In East London no fresh cases of plague in man have been reported since July 18th, 1905. No plague in animals (rodents) has been met with since August 29th, 1906. No further plague reports concerning East London will be issued unless a recrudescence of the disease occurs. As the last cases of plague occurred in East London and no other places in Cape Colony have shown infection subsequently to East London, it may be concluded that the recent outbreak of plague in Cape Colony is ended.

AUSTRALIA.

Queensland, Cairns.—During the weeks ended September 29th and October 6th no further developments of plague were reported. Four cases remained under treatment on October 6th, 1906. The total number of plague cases to date in Cairns during the outbreak is returned as 7.

MAURITIUS.

During the weeks ended November 8th and 15th the fresh cases of plague in Mauritius numbered 37 and 52, and the deaths from the disease 28 and 30 respectively.

THE late Miss Angelina Rietti, of Whitchurch, Hants, who died on September 26th last, left £2,000 to the Hospital for Sick Poor, Kingston, Jamaica; £250 to the Winchester Hospital, and £200 to the London Hospital.

THE PROPOSED AMALGAMATION OF LONDON SOCIETIES.

AT a meeting of the Clinical Society of London held on November 23rd Dr. HALE WHITE proposed, Dr. FREDERICK TAYLOR seconded, the following resolution, which was carried *nem. con.*:

> That the Council's advice to the Society to join the proposed Union of Medical Societies be adopted.

At a joint special general meeting of the Fellows of the Obstetrical Society of London and of the British Gynaecological Society, held at 20, Hanover Square, W., on November 21st, Dr. F. H. CHAMPNEYS in the chair, the draft report of the Representatives of the Council of the Obstetrical and of the Gynaecological Societies on the amalgamation question, already passed by the two Councils, having been circulated, the following resolution was put from the chair, and carried unanimously:

> That this Joint Special General Meeting of the Fellows of the Obstetrical and of the British Gynaecological Societies agrees to the scheme of amalgamation adopted by the two Councils, and authorizes the Honorary Secretaries to communicate this decision to the Honorary Secretaries of the Union of Medical Societies, and to notify them that Dr. Champneys has been appointed the Representative of the Obstetrical Society, and Dr. Macnaughton Jones that of the British Gynaecological Society, to serve on the new Committee.

After some explanatory remarks from the CHAIRMAN as to the working of the amalgamation scheme, Dr. MACNAUGHTON JONES proposed, and Dr. HEYWOOD SMITH seconded, a vote of thanks to Dr. Champneys for his conduct in the chair, which was carried by acclamation.

A general meeting of the Pathological Society of London will be held on Tuesday, December 4th, at 8.30 p.m., in order that the final opinion of the members upon the incorporation of the Pathological Society in the new Royal Academy of Medicine may be ascertained.

DR. J. NIELD COOK, M.O.H. Calcutta; Dr. D. S. Davies, M.O.H. Bristol; Dr. S. Davies, M.O.H. Woolwich; and Dr. W. A. Evans, M.O.H. Bradford, were recently elected Fellows of the Royal Sanitary Institute.

INTESTINAL OBSTRUCTION BY GALL STONES.—An instructive article on this subject, with abundant references, has recently been published by Dr. Miles F. Porter of Fort Wayne, Indiana—Intestinal Obstruction due to Gall Stones, *Amer. Journ Obstet.*, November, 1906, p. 893—who adds two instances of the essential type, which he rightly terms obturation. The other varieties are rather obstructions indirectly due to the calculus—as where volvulus or kinking of the intestine is present. Dr. Porter's first patient was a very stout woman, 44 years of age, who had been subject for a long period to characteristic pains in the upper part of the abdomen. A particularly severe attack ended in death by acute obstruction. An oval calculus over 1½ in. in its long diameter was found impacted in the ileum, about 6 in. above the ileo-caecal valve. The gall bladder was obliterated and replaced by adhesions to adjacent intestine, which was fragile and easily torn. The calculus had probably entered the duodenum through ulceration of adherent gall bladder. The second patient, 55 years old, had had an attack of cramp in the abdomen and vomiting in 1894. The liver was enlarged and a tumour of the size of a man's fist was found in the region of the gall bladder. All pain ceased after the hypodermic administration of morphine. In March, 1905, she had very acute symptoms of biliary colic and great distension of the abdomen, with complete obstruction following. On the sixth day Dr. Porter operated, and discovered a calculus of the size of a small hen's egg lodged in the ileum. It was removed through an incision parallel with the long axis of the gut, which was closed and returned into the abdominal cavity. The incision through the abdominal parietes was also closed, without drainage. The patient recovered her long-lost health, and was able to do farm work two months after the operation. Dr. Vance, of Louisville, Kentucky, in a discussion on Dr. Porter's case, stated that he had cured two similar cases without operation. The first patient passed a gall stone 3 in. long and 1½ in. in diameter. The second had an attack of pain and tenderness in the right iliac fossa. The abdomen was manipulated, and within a short time the patient passed a gall stone "as large as a ping-pong ball."

LITERARY NOTES.

Messrs. Lea Brothers and Co. of New York announce the early publication of a new work entitled *Modern Medicine*, to the editing of which Professor Osler has devoted more than two years. The work will extend to seven octavo volumes of about 900 pages each. Professor Osler has secured the co-operation of the leaders of medical thought throughout the civilized world, including Japan. It is intended that the work shall present the theory and practice of medicine in its most modern aspects.

Dr. Donald MacAlister's introductory address on the General Medical Council, its Powers and its Work, delivered at the University of Manchester on October 2nd, 1906, and published in the British Medical Journal of October 6th, has been issued as one of the series of Manchester University Lectures.

In a reprint from the *Library Association Record* for September, Mr. W. R. B. Prideaux gives an interesting account of the medical libraries of London. First comes that of the College of Physicians, with which he is himself connected. The books of Thomas Linacre, the founder, formed a nucleus. In 1603 William Gilbert, the discoverer of terrestrial magnetism, left his library, globes and instruments with a cabinet of minerals to the College, and in 1609 it was determined that a catalogue should be made. When the College moved into its new house at Amen Corner, more accommodation was provided for the library, and gifts began to flow in. In 1629 Dr. Holsbosch, a German who had practised in England for fifty years, left 680 volumes; other bequests came from Harvey, Maherne, Selden (who left all the Arabic MSS. relating to physic which he had collected), Ashmole, and others. The first printed catalogue was issued by the librarian, Dr. Christopher Merrett, in 1660. The College was burnt in the Great Fire of 1666, only 140 volumes and some MSS. escaping destruction. Soon afterwards the Marquis of Dorchester announced his intention of presenting his private library, consisting of 3,200 volumes, to the College, which, however, was not able to provide proper accommodation for the gift till 1688. In 1728 Dr. Richard Hale bequeathed £500 for the purchase of books, and in 1751 the College received under the will of Dr. Crow a fine collection of Greek and Latin classics. A printed catalogue dated 1757 shows that the library at that time contained more than 6,650 volumes. The total number is now about 25,000. In the collection are 42 books printed before 1500, and over 200 printed books of dates before 1640. The library of the College of Surgeons contains over 50,000 volumes, including about 40 works printed before 1500. The library of the Royal Medical and Chirurgical Society has about 60,000 volumes. University College comes fourth on the list with 16,000. The library of the Medical Society is rich in fifteenth and sixteenth century works, and contains a collection of Greek medical MSS. of the Byzantine school from the famous classical library formed by Dr. Askew. The library of the British Medical Association is especially rich in finely illustrated works on medicine and the allied sciences, and in theses presented at Paris and elsewhere. The Hunterian Society has some interesting old books. Among other bodies which have libraries are the Society of Apothecaries, the University of London, the Obstetrical, Ophthalmological, Laryngological, Otological, British Balneological, and West London Medico-Chirurgical Societies, besides the various medical schools.

In the November number of the *Journal of the Association of Military Surgeons of the United States*, Dr. John C. Wise, Medical Director in the United States Navy, contributes a short note on Dr. Kane, whose name is honourably associated with Arctic exploration. Elisha Kent Kane was the son of a judge, and was born at Philadelphia in 1820. He entered the University of Virginia in 1838, where he devoted attention mainly to mathematics and engineering, with a view to adopting the latter as a profession. He was a delicate youth, and left the university in 1840 on account of heart disease. The same year, however, he entered the University of Pennsylvania as a student of medicine. He graduated in 1842, and soon afterwards was appointed assistant surgeon in the Navy. In 1843 he was appointed physician to the United States Embassy in China, and on his way to take up his duties he explored much of Brazil and the Andes, Ceylon and India. He must have journeyed as leisurely as the English diplomatist who was sent to Constantinople and was found in Paris six months afterwards. His excuse was that the pay was so small he could not afford to travel in the ordinary way, and he was therefore walking to his destination. During the voyage to China, Kane visited the Island of Luzon and went down into the crater of Mount Tael, being the first foreigner to make the descent. Ill-health compelled him to return in 1844, but we are told that on his way home he visited "Borneo, Sumatra, Ceylon, the Himalayas, Persia, Syria, Egypt, Greece, Germany, Switzerland, Italy, France, and England, devoting himself in every place to a study of its geography, geology, and other scientific features." In 1846 he visited the coast of Africa, where he made acquaintance with the King of Dahomey. He served with distinction in the Mexican war; and in 1850, while on duty with a vessel surveying the Gulf of Mexico, he was ordered to join the Grinnell Expedition, which was to sail in search of Sir John Franklin. He wrote the story of the expedition in a singularly interesting manner, and on his return to the United States in 1853 he delivered a series of lectures, devoting the proceeds to the next expedition, of which he was appointed Commander. Of that expedition, too, he wrote an account. He died exhausted in 1857. With a feeble frame, Kane managed in his brief span of thirty-seven years of life to visit and study nearly every country on the globe.

In the *California Medical Journal* Dr. F. D. Bullard sings wrathfully of the "lodge doctor," who,

> Tho' he knows that contract practice
> Leads to more and more abuse;
> For it steals his colleague's patients,
> Makes himself to be a sneak;
> On his back it puts this label,
> "Taken for two cents a week,"

Yet "stultifies his conscience" with the plea that

> Since the other fellow does it,
> To keep even, so must I.

The poet invokes a curse upon his head:

> Here's to that foolish M.D.
> Who would for a dollar agree
> To doctor a lodge
> For a livelong year;
> And never to dodge,
> Tho' the work be severe;
> May he ever scamper
> His patients to pamper
> At all hours of the day and the night;
> For hives and for phthisic
> May he ever give physic
> To people who call him for spite!

Dr. Bullard's verses somehow remind us of those of another poet, who sang:

> I sit with my legs in the brook,
> And if anyone asks me for why,
> I give him a crack with my crook;
> 'Tis sentiment makes me, says I.

If Dr. Bullard's "crook" is a little rough, his sentiment is admirable.

The *Gazette Médicale du Centre* of November 1st contains an account of a French medical poet, Dr. Robert Poirier de Narcay. Born at Saint Symphorien les Tours in 1859, he received his literary education at Chinon, the birthplace of Rabelais, and, after passing through the School of Medicine of Tours, finished his studies in Paris, where he took his doctor's degree in 1884 with a thesis on congenital ascites. He was for eight years in general practice at Beaumont le Roger, in the Department of the Eure, where he employed the scanty leisure of a country doctor in wooing the Muse. In 1886 he published a first volume of verse, entitled *Coups de Cravache et Aquarelles*, in which he lashed the vices and follies of the age with something of the vigour of Juvenal. Three years later appeared *Les Filles du Hussard*. A specimen of his political satire may be given:

> Les pseudo-libéraux font des lois tyranniques
> Cachés sous le jupon court de la liberté.
> Les clameurs des faubourgs leur donnent des paniques.
> Alors pour tenir tête ils deviennent cyniques.
> Ils ont comme les rois aussi leur prévôté.
> Bien des libres-penseurs, qui s'intitulent sages,
> Sont de fous furieux ou des intolérants.
> Ils feraient volontiers pour les autres des cages
> De fer ou des cachots tout comme aux anciens âges.
> Pas de place au soleil pour les récalcitrants.

In *La Vie au Grand Air*, published in 1891, the poet is in a different mood; he sings of the woods, fields, and far-spreading landscapes of Normandy. Dr. Poirier de Narcay

is also the author of *Pour la République*, a comedy in verse, and of several novels dealing with social problems in France. He is a member of the Société des Gens de Lettres, to which he was elected in 1890 on the recommendation of François Coppée. He has abandoned medicine for public life, and is an active and influential member of the Municipal Council of Paris and of the General Council of the Seine.

THE REPORT OF THE INSPECTOR UNDER THE INEBRIATES ACTS.

Dr. R. Welsh Branthwaite's report for 1905 shows that steady progress has been maintained in determining the best mode of treatment of a very large class of social unfortunates. Four hundred and forty-three individuals were committed to certified reformatories during the year, though doubtless these were only a fraction of the numbers eligible for committal throughout the country. Of these 70 were criminal inebriates, committed under Section 1 of the Act.

Inebriety and Infant Mortality.

Particulars are given regarding the life-histories of 362 women who were made inmates of reformatories during 1905. Excluding 44 childless women among the married or widowed, the remaining 149 women have given birth to an average of 7.4 children, or, excluding widows and taking women actually married at the time of admission to reformatories, to 9.2 children per woman. Ninety-two women were responsible for the birth of 850 children. About 45 per cent. of all children born of these mothers died in infancy or early youth. A mere handful of 193 mothers were responsible for 499 child deaths, and the inspector justly asks the question, "What must be the awful total from the thousands of habitually drunken women of the same class?" The appalling child death-rate in England is at any time a national calamity and disgrace, but when it comes from such a cause as alcoholism a brutalizing element is added for which the country cannot but pay most dearly in the end.

Mental Characteristics of Inmates of Inebriate Homes.

Almost the whole of Dr. Branthwaite's report is devoted to one theme, an elaborate discussion of the character and condition of the persons under detention. His one aim is to enforce the conclusion that in the great majority of cases inebriety is one feature in an underlying morbid or congenitally defective mental condition. In this connexion Dr. Branthwaite says:

> Of scarcely less interest is Table XVI, which refers to the mental condition of the same women. The mental question in its general relation to drunkenness will be considered later; in the meantime reference is made to this table merely to drive home the bare facts that 200 women admitted to reformatories during last year were found to be actually suffering from some form of mental defect, and that the mental defect was found to be much less evident in the single women, who were younger, had been drinking for shorter periods, had suffered less prison, and had not been exposed to the exhausting influence of multiple childbirth, than it was found to be in older married women who had been subjected to all these influences.
>
> Family histories of these 200 mentally defective cases show in the majority of cases previous conditions of both bad heredity and bad surroundings. For instance:
>
> Two grandfathers, two grandmothers, father, mother, uncles, aunts, and sister inebriate: sister insane.
>
> Grandfather, grandmother, father, mother, uncles, aunts, brothers, and sisters inebriate.
>
> Both parents inebriate.
>
> Father, brother and sister, uncle and aunt inebriate; mother insane.
>
> Grandfather and two sisters inebriate; grandmother and mother insane; two maternal aunts epileptic.
>
> In 112 of these cases a definite family history of inebriety or of mental or nervous disease was forthcoming.

Dr. Branthwaite draws a graphic but truly pitiful picture of the common method of dealing with the initially weak and predisposed individual from the moment of his bad start up to the time of his conversion into what, from the reformatory point of view or the failure point of view, he calls the "finished article." After showing beyond doubt that the material to be dealt with includes 62 or 63 per cent. of insane or mentally-defective persons, as well as persons probably improvable if taken in time, he speaks in no measured terms of the cruelty and futility of repeated prison sentences as a method of dealing with drunkenness. He says:

> Let us glance for a moment at a typical story: Owing to some of the circumstances already described a man or woman gradually drifts into habitual drunkenness. During the early days of the habit there may remain sufficient self-control to avoid public exhibition and disgrace; but this soon disappears, and the inebriate is ultimately brought before a magistrate for drunk and disorderly conduct. Even then every consideration is given to first offenders: for some time cautions are the order of the day, and small payable fines. The dread of arrest, which acts at first as a deterrent, wears off, and appearance at police courts becomes more regular and more frequent. Poverty, the result of drunkenness, and the increased amount of fine render payment of the latter impossible: prison then and thereafter takes its place. Thus is the drunken recidivist made. The cycle afterwards becomes monotonous in its regularity, a drunken orgie, the police cell, a prison van, a bath, prison clothes, a tramp to the cells, a horrible night followed by tremulous days, bare subsistence diet, many hours of monotony, expiry of sentence, discharge to the streets, a few days of liberty, more drunkenness, and a repetition of the "treatment." At the moment of writing there are considerably over a thousand persons under reformatory detention whose history tallies with this sketch, very many of whom have submitted to the last phase (as prison recidivists) for between ten and fifteen years, some for longer. In one extreme case the prison history has lasted for over a quarter of a century, of which period the woman has spent in the aggregate more than nineteen years under penal detention.

Again:

> It is hardly pleasant to realize that our insane inmates, 48 of them, have been punished for years as sane criminals, being thrown into prison with monotonous regularity simply because their ravings were intensified by drink, or mistaken for drunken disorder. Nor can we view with greater equanimity the fact that 271 persons, who are definitely imbecile or epileptic, have met with similar treatment, merely because drunkenness happened to be the most prominent symptom, and because the exact condition was so marked by inebriate habits as to be impossible of diagnosis by non-medical administrators of justice.

Dr. Branthwaite points out that the intention of the promotors of the Act of 1898 was primarily the provision of means for reformation of reformable inmates, and only secondarily for the detention of the irreformable. And so he pleads that the irreformable should not be made by a continuous process of manufacture, and asks for the earlier committal to reformatories of patients who have not passed beyond possibility of hope.

THE COVENTRY PROVIDENT DISPENSARY DISPUTE.

The dispute which has so long existed in Coventry between the Provident Dispensary and the medical profession in the town and district has led to an incident which calls for the serious attention of the profession. We need not recapitulate the history of the last ten or fifteen years. It will be sufficient for the present purpose to say that the dispensary possesses a very large number of members, and is managed by a committee of which an overwhelming majority are laymen. It has been shown that it admits persons in a superior position, and altogether it presents a striking example of the abuses which grow up in connexion with contract medical practice if not conducted with the safeguards laid down by the profession through the British Medical Association.

In February last, after having been asked for advice and support by the medical staff of the dispensary, the Coventry Division adopted a scheme of fundamental principles and rules for the management of provident dispensaries, founded upon that recommended by the Medico-Political Committee of the Association. Subsequently the Division passed a resolution declaring that no member of the profession in the area of the Division should associate himself with, or continue to be associated with, any provident dispensary managed on lines fundamentally different from these principles and rules. In consequence of this action by the Division the medical staff of the Coventry Dispensary entered into negotiations with the committee of the dispensary in the hope, as we have reason to assume, of bringing the rules of the dispensary into accord with the principles approved by

the medical profession. These negotiations, it would appear, are not yet concluded. The spirit in which they have been approached by one side is sufficiently shown by a letter addressed to the Mayor, Aldermen, and Councillors of the City of Coventry by the Committee of the Coventry Provident Dispensary, and signed on its behalf by the Chairman and Honorary Secretary. The latter called "the attention of the City Council to the fact that the dispensary is placed on the 'black list' of the British Medical Journal by Dr. Snell, acting as Honorary Secretary of the local Division of the British Medical Association, and inquired whether such action on the part of a public servant against an institution in which over 1,800 (probably a misprint for 18,000) of the inhabitants of the city are interested, is in accordance with the wishes and desires" of the "Council and the right discharge of the duties of his office." The Sanitary Committee, to whom this letter was referred, resolved:

> That inasmuch as Dr. Snell, in acting as honorary secretary, is discharging an honorary office, and acting purely within his private capacity, the committee consider that the matter does not concern them.

When the minute of the Sanitary Committee came before the City Council, it, after some discussion, was referred back by a large majority. The Sanitary Committee at its next meeting adopted the following resolution.

> That this Committee re-affirms its opinion that, if Dr. Snell acts as Honorary Secretary of the Coventry Division of the British Medical Association in his leisure time, and such work does not interfere with his duties to the Corporation, the matter is no concern of the Corporation. The statement in the memorial from the Committee of the Coventry Provident Dispensary that that institution is placed upon the "Black List" of the British Medical Journal by Dr. Snell, acting as Honorary Secretary, is not correct, inasmuch as the same event would have happened were any other person the Honorary Secretary. Dr. Snell does, however, recognize that the appearance of his name in the advertisement concerning the dispensary in the British Medical Journal may lead to irritation among the members of the dispensary, inasmuch as it suggests the wrong impression that he has himself taken an active part in a dispute from which he has hitherto kept aloof; and he has informed the Committee that he is willing to undertake that his name shall disappear from that advertisement.

This minute came up at the meeting of the City Council on November 20th, and a motion was again made to refer the matter back to the Sanitary Committee. The mover of the resolution asserted that Dr. Snell had taken an active part in the matter, had been present at meetings where deputations from Friendly Societies had been received by the Branch of the British Medical Association and had taken a leading part in entertaining deputations. The seconder, who said he was a firm believer in trade unions, while admitting that Dr. Snell was entitled to be a member of the Association, made a distinction between Dr. Snell as a private individual and as medical officer of health to the city; it was unsatisfactory that the medical officer of health should be mixed up in the dispute. Dr. T. Webb Fowler, an alderman of the city, considered that the Council was not concerned in the dispute; it was a matter concerning the rights of a number of medical men, and a medical man did not lose his right because he happened to be an official of the Council. Dr. Snell, as a member of the British Medical Association, had attended the meetings, but so far from originating any active policy against the dispensary, he had been elected Honorary Secretary because he had taken an independent position; it was not a question of 18,000 inhabitants of the city, but the rights of a medical man who belonged to the British Medical Association, an institution mainly concerned in medical research and the discussion of scientific matters. In some further discussion, Mr. Gardner said that he thought that Dr. Snell as a public official would have been better advised had he not taken a side. Alderman Drinkwater said that while he believed no member of the Council would object to an official belonging to a union, it was wrong that he should be acting secretary to the union. Dr. Snell was an official they all respected, and he hoped he would see his way to withdraw from the secretaryship. Mr. Player said this was a private matter, and did not think the Council should dictate to Dr. Snell what he did. In his free hours the man had a right to his opinions and private actions. A motion was made that Dr. Snell should be allowed to make a personal explanation, but this was rejected, and the minute was again referred back to the Sanitary Committee.

PUBLIC HEALTH OF GLASGOW.

Report of Medical Officer of Health.

The story of the public health administration of the second city of the Empire must always be interesting and important, and we therefore turn to Dr. Chalmers's annual report for 1905 with interest. It should be stated that owing to the unfortunate Scottish method of having a separate sanitary department co-ordinate with instead of subordinate to that of the medical officer of health, this report deals almost solely with the medical aspects of public health administration. Such a system of dual control necessarily implies a less degree of efficiency than the English system of single control; and it speaks well for the department over which Dr. Chalmers presides that under such conditions he is able to show such a record of work accomplished as is given in this report.

Births and Deaths.

The population of Glasgow is now estimated to be 785,474, much of the increase being accounted for by the fact that the city has thrown out its tentacles and absorbed surrounding rural or semi-urban parishes. The same fact undoubtedly accounts in part for the fact—as it does also in Liverpool and Manchester—that Glasgow in 1895 had a death-rate of only 17.9 per 1,000, that of Liverpool being 19.6, and of Manchester 18.0 per 1,000.

The birth-rate of Glasgow has declined as in other parts of the country. In 1870-72 it was 174, in 1900-2 it was only 124 per 1,000 women aged 15-45. Stated as comparative figures, the birth-rate was 100 at the earlier, 72 at the later, period. The comparison of birth-rates on the basis of total women aged 15-45 is scarcely satisfactory, unless it can be shown that the proportion of married women among these is identical at the compared periods; and this is scarcely likely to be the case in view of the swallowing up of suburban districts by Glasgow.

The Necessity for a National Clearing House for Death Returns.

Dr. Chalmers makes some important observations on this point. He says: "There is presently no national system of transferring deaths to the place of residence of the deceased. Consequently, it may be assumed that the sum of the deaths dealt with in local returns will not equal the number dealt with annually by the Registrar-General. It needs no argument to show that this discrepancy is undesirable, and may be misleading, and that some reform of present custom is required. The object of local statistics is to reflect the influence of local conditions affecting health. In a true accounting, impairment of vitality, as well as loss by death, should be indicated. For many persons in all populations impaired vitality implies a drift towards parochial relief. But the administrative areas for Poor Law and for public health purposes do not always coincide, and Poor-law hospitals and asylums are not always erected even within the limits of the parish from which their inmates are drawn."

Infant Mortality.

On this question Dr. Chalmers incorporates in his report the substance of an important paper read by him at the recent National Conference on Infantile Mortality in London. His statistics show a stationary position of infant mortality at ages under 3 months when 1870-2 is compared with 1900-2, a decrease of 16 per cent. between 3 and 6 months, and of 30 per cent. between 6 and 12 months of age. Thus, the only part of life showing no improvement is the first trimester, and even at this period there is no worsement. By arrangement with the Maternity Hospital, Dr. Chalmers received within forty-eight hours of birth intimations of 1,026 births occurring between August and December, 1905; and the parents were visited, and in each case revisited once. The date of the revisit does not appear to be given, but it is noted that notwithstanding the large proportion of children breastfed on the occasion of the first visit, on the occasion of the second visit of the 35 who had died 9 were artificially fed. Detailed results on these points, as the result of continued investigation, will be most instructive.

Infant Milk Dépôt.

The largest number of baskets of milk sent out daily was 547, during November. The largest average daily number of gallons of milk received was 119 gallons. The outlay in connexion with the dépôt for the financial year was £3,407, the revenue £1,672.

Many other subjects of great interest are dealt with in Dr. Chalmers's report, but we propose to summarise only two of these—the first dealt with in a short note, the second in great detail, and both of much social interest.

Classification of Feeding according to Housing Accommodation.

It is well known that the incidence of disease increases in descending the scale of house accommodation. A special inquiry was made on the feeding of over 3,000 persons in 500 families. These were families which needed visiting in connexion with the occurrence of cases of infectious disease, and were consequently pre-eminently families with young children. Diets were classified as good, medium, and bad, and the differences between these may be gathered from the contents of the good and bad diets. The good diet comprises for breakfast porridge, milk, and "kitchen"; for dinner—soup, meat, and potatoes; for tea—bread, tea, and occasionally "kitchen." The bad diet comprises for breakfast tea, bread and butter; for dinner the same; and for tea—bread, tea, butter, and occasionally "kitchen." The families investigated numbered 134 living in one apartment, 379 living in two, and 42 living in three apartments. The families were fed as shown in the following table:

Families Living in—	Percentage of the Total Families whose Feeding was—		
	Good.	Medium.	Bad.
One apartment	27	40	33
Two apartments	46	44	10
Three apartments	71	24	5

As might have been anticipated, the proportion of badly fed families is much higher as the social ladder, indicated by the number of dwelling-rooms, is descended.

These are the facts. It is in attempting practical action on these facts that difficulty at once arises. How by giving help not to do more harm than good, how to avoid destroying such possibilities of self-help as remain, is the problem. Dr. Chalmers clearly sees these dangers, and he confines himself to two suggestions, one of which is entirely, and the other almost, free from risk of doing more harm than good, and which would doubtless be productive of much good. First, the establishment by voluntary effort of food canteens in poorer-class districts where substantial fare could be obtained at reasonable cost. He points out that in all our poorer working-class districts there are many motherless families where the children's food is a succession of tea meals with little variation, and where no reliable female help is available. Secondly, Dr. Chalmers emphasizes the pressing need for educating the poorer classes of our citizens in the food values of the common articles of diet.

The Notification of Phthisis in Glasgow.

Dr. Chalmers gives the results of a very detailed inquiry into 287 cases of phthisis notified during three months of 1905. Of these, for various reasons, a number of cases had to be excluded, the final inquiry relating only to 156 cases. Many of these cases were "revisited time and again, the object being to make each the subject of detailed inquiry, so that its ultimate bearing on administrative requirements should be defined." In reporting on these cases Dr. Chalmers begins by stating that "mankind is naturally refractory to tubercle, but conditions which depress vitality make him susceptible." He also considers that "the most active and virulent form of infective agent is the droplet or spray infection" during coughing. He then points out that in 16 out of 135 cases—that is, nearly 12 per cent.—there were no tubercle bacilli in the sputum. He considers that the effective power of a given number of virulent bacilli is reduced by their dissemination, and that, as in the bursting of a charge of shrapnel, the dangers of being hit are very small outside the danger zone. Of a total of 108 houses, 37 per cent. only had through-and-through ventilation, and not one of these was a single apartment. It is a suggestive fact also that "in no case was the patient aware of the risk attendant on coughing, and none had been informed of the value of the expedient of holding a handkerchief in front of the mouth during the act of coughing." With regard to the disposal of sputum, the record was more satisfactory, effective precautions being taken in 34 per cent. of the cases in one-apartment houses, 41 per cent. in those of two apartments, and 60 per cent. in those of three apartments.

With regard to healthy persons living in the same apartments as the consumptives, it was found that 228, or 46·6 per cent. of the whole number, were exposed to risk because either no, or very incomplete, precautions were being taken, and of these 48 lived in one-apartment dwellings. Attention is also drawn to the frequent changes of address of consumptives. One-half of the notified cases living in one-apartment dwellings had lived there for less than a year.

Dr. Chalmers concludes from his short experience that a not inconsiderable number of cases for whom administrative control is desirable do not come early to the knowledge of the medical officer of health, and that "it is the need of the individual patient rather than the requirement of public health which is the controlling factor in bringing him to knowledge at all."

Dr. Chalmers is emphatic as to the essential relationship between tuberculosis and poverty. If interpreted in the light of the next sentence in his report all, whatever their views, will agree with him: "Neglect of precautions against sputum increases as the available house-room diminishes, until we reach 65 per cent. of the cases in lodging-houses, who take no precautions whatever." There is great administrative wisdom in his remark—as shown by the experience of the towns that have made voluntary notification of phthisis a success—that "each case as it occurs should be made the rallying point of administrative action." His further remark, which follows, obviously opens up much more debatable ground as to the relative importance of the segregation of advanced cases of phthisis and of improved house sanitation: "It cannot be too frequently reiterated that the prevention of phthisis will only be accomplished by removal of the conditions which foster it. Phthisis prevails in our midst because of the low standard of housing we are still perforce compelled to accept. No provision of sanatoriums for early cases, or of homes of rest for the very advanced, will in the least degree abate the necessity of keeping this steadfastly in view."

Sanatorium Treatment, etc., of Consumptives.

There has evidently been little done in this direction in Glasgow, and probably we have here the key to the partial failure of voluntary notification of phthisis. It would appear from Dr. Chalmers's report that the present provision of accommodation either for purposes of treatment or education of patients is very inadequate. Dr. Chalmers states that educative treatment "to be effective must be available at an early stage of the disease." Doubtless this is the end to aim at; but as in another part of his report he regards the droplet infection of the late stages of the disease as a main cause of danger, it is evident that practical training of the patient may be useful at any stage of the disease. It has to be remembered also that the ordinary course of phthisis commonly intermits, and that even for patients with pulmonary cavities several years of working life may still remain. Tuberculosis dispensaries, Dr. Chalmers thinks, should for executive purposes be ranked with the provision of isolation for advanced cases as of the first importance, their organization combining home supervision with treatment of the patient, and ensuring his admission to a sanatorium when this is necessary.

LIEUTENANT-COLONEL WILLIAM HENSMAN, R.A.M.C. (retired), died at Ilfracombe on November 3rd, at the age of 72. He entered the Army Medical Department as an Assistant Surgeon, January 12th, 1859; was promoted to be Surgeon-Major, April 1st, 1874; and retired from the service with the honorary rank of Brigade Surgeon, April 1st, 1880.



St. Moritz.

ST. MORITZ.

St. Moritz lies in a beautiful valley in the Engadine. The village is situated on the left bank of a lake surrounded by mountains covered with pines, above which tower snow peaks. Unfortunately, immense and unsightly hotels have sprung up everywhere, and have marred the natural beauty of the valley. There are delightful walks and excursions to be made in the neighbourhood, and Pontresina, with its two great glaciers, the Roseg and the Morteratsch, is within an easy walk through the pine woods.

Although at a somewhat higher elevation (6,033 ft.) than Davos (5,115 ft.) and infinitely more beautiful naturally, St. Moritz has never become a resort for consumptives. This is due probably to the fact that the meteorological conditions are reversed, and the prevailing wind, a "valley wind," is from the south-west, and is often strong, especially in the afternoon, so that it would be impossible for invalids to make the open-air cure in comfort. St. Moritz has a typical Continental mountain climate, warm days and cool nights in summer, and a cold winter with bright days. As a matter of fact, a sprinkling of tuberculous patients do go to St. Moritz for the mountain climate, but no special arrangements are made, and they are not very welcome visitors. On the other hand, the baths are much frequented. There are three principal springs situated close together at the foot of the Pic Rosatsch, La Vieille Source, Source Paracelse, and Source de Surpunt. The analysis of the waters is given in the accompaning tables.

The waters of all three springs are slightly effervescent owing to the carbonic acid gas and agreeable to drink, the ferruginous taste being masked. Taken in moderation the effect is stimulating, digestion being assisted and appetite improved. Taken in excess, headaches, dyspepsia, and constipation may be produced. The most important constituents are the iron and carbonic acid, the others being present in quantities too small to have much therapeutic influence. The water may therefore be classed among the acidulated ferruginous.

The waters are particularly recommended in chlorosis and anaemia; the action of the waters is of course assisted by the climatic and other conditions; the bracing and pure air, complete freedom from domestic worries, a careful

Chemical Composition of Mineral Waters of St. Moritz: 10,000 grams of Water contain:

	Vieille Source.	Source de Paracelsus.	Source de Surpunt.
Potassium sulphate	0.19651	0.21172	0.03455
Sodium sulphate	2.67182	3.16012	2.48539
Lithium chloride	0.00891	0.00927	0.00630
Sodium chloride...	0.39682	0.42848	—
Ammonium chloride	0.02021	0.01885	0.01610
Magnesium bromide	0.00377	0.00132	0.00120
Magnesium iodide	0.00010	0.00003	—
Calcium fluoride	0.00492	0.01691	0.00180
Sodium nitrate	0.00206	0.00372	—
Magnesium borate	0.02558	0.03670	0.02023
Calcium carbonate	7.74700	8.75714	8.98697
Calcium phosphate	0.00283	0.00290	0.00151
Strontium carbonate	0.00061	0.00073	0.00050
Iron carbonate	0.24499	0.29160	0.36654
Magnesium carbonate...	0.03581	0.04004	0.02673
Sodium carbonate	2.12001	2.23417	—
Magnesium carbonate...	1.30094	1.21924	0.71696
Aluminium oxide	0.00057	0.00040	0.00035
Silicic acid (anhydrous)	0.37150	0.59132	0.62127
Hydrated oxide of iron in suspension)	—	0.05016	—

With traces of salts of barium, caesium, arsenic, and copper in the Vieille source and the Paracelsus spring, and of organic matter in the Surpunt spring.



Pontresina.

The Gases in 1,000 Parts of Water by Volume are:

	Vieille Source.	Source de Paracelsus.	Source de Surpunt.
Carbonic acid	971.2	963.4	954.3
Oxygen	1.6	3.5	2.3
Nitrogen	27.2	33.1	43.4

dietary combined with the stimulating effects of the baths, enable patients who cannot take iron in the lowlands to assimilate it at St. Moritz. The special stimulating quality of the baths is due to the large amount of carbonic acid; elaborate arrangements are made to ensure that the water is always under pressure and is never exposed to the air until it is actually drawn when the patient is ready to take the bath. The water is driven up to a reservoir constructed like a gasometer about 160 ft. higher than the source of the spring. Immediately before it reaches the baths the water is warmed quickly by steam. The baths are taken rather cold and the time the bather stays in them is short. As the course progresses the baths are taken colder and colder. On entering the bath the patient experiences a sensation of cold, but very soon, as the carbonic acid gas is liberated in minute bubbles, stimulation of the skin, which becomes red owing to capillary dilatation, is produced, and after the bath the patient feels warm and invigorated. The bath house is adequately fitted, and behind it is a large douche room, where hot, cold, Scotch, and circular douches are given. Rooms are also fitted for sitz and vapour baths, and for special douches. Masseurs of both sexes are on the premises during the season. At the Stahlbad (Source Surpunt) there is a large hall for gymnastics, with apparatus, and fencing is also practised.

Summer is the season for the baths, but St. Moritz is *par excellence* a winter pleasure resort. For five months snow lies, and during this period the town and hotels are crammed with visitors bent on outdoor amusements, such as ski-ing, tobogganning, skating, and sleighing. The air is so dry, and there is as a rule so little wind, that, although in the shade it is bitterly cold, in the sun there is no need for warm clothing.

In a neighbouring valley, almost at right angles to that in which St. Moritz lies, stands Pontresina, built on the northern slope, facing south-west. It is in the main a summer resort, frequented by mountaineers, and by visitors who enjoy the bracing climate, clear air, and numerous short excursions to the glaciers and lower peaks.

IN a recent report of scientific investigations instituted by the German Imperial Board of Health, there is an article by Dr. Xylander on the presence in the rat of a bacillus which belongs to the Friedländer group, but possesses some differences from varieties previously described. The main importance of the organism is that it closely resembles the plague bacillus, and must therefore be carefully distinguished from the latter when rats are inoculated for diagnostic purposes. The distinguishing characters are its rapid growth on all culture media, the formation of acid, the coagulation of milk, and its capacities for producing fermentation. Dr. F. Bock discusses the relative values of various culture media employed for typhoid diagnosis, and also records a lengthy series of researches on bacilli belonging to the "paratyphoid" group. Dr. Beck, as a contribution to the subject of the bacterial production of aromatic substances in milk, butter, and cheese, describes the characters of an interesting micrococcus which he has isolated. This organism resembles in some of its cultural characters the *Staphylococcus pyogenes aureus*, but produces, when grown on ordinary culture media, a peculiar and pleasant aromatic odour. It still retains this property, although it has now been kept up in culture for ten years. The aromatic substance is readily soluble in ether, and also, though less readily, in chloroform and carbon bisulphide; it is insoluble in alcohol. The organism is not pathogenic for experimental animals. Dr. Beck suggests that it may possibly be found useful in the preparation of butter.

SIR EDGAR SPEYER, Bart., will preside on Monday, March 11th, 1907, at a festival dinner at the Whitehall Rooms, in aid of the National Hospital for the Paralysed and Epileptic and its Nervous Diseases Research Fund.

General Medical Council.

[A full report of the first day's proceedings of the Council is published in the Supplement *of this week and will be continued next week.]*

NOTES.

The eighty-fourth session of the General Council of Medical Education and Registration opened on Tuesday, November 27th.

The President's Address.—In a short and business-like address, printed in full in the Supplement to this issue, the President gave an account of the more important events which had happened since the last session. The refusal of a charter to the British Opticians' Association, against which the Council had entered a protest, and the subsequent and perhaps consequent dropping of the Sight Testing Opticians Bill were alluded to, and it was stated that an attempt on the part of the herbalists to obtain recognition had come to the notice of the President during the recess; an adverse representation was sent in to the Privy Council by the Executive Committee, and this attempt to legalize the position of a class of irregular practitioners was also frustrated, and the interests of the public and of the profession safeguarded. In alluding to his visit to Canada, the President stated his personal conviction that reciprocity should be furthered as far as possible, and he mentioned that an application from Nova Scotia to that end would come before the Council during its session. Another important matter mentioned was the abandonment, under advice, of the proposal to introduce during this autumn's session the Bills relating to company practice in which the Council is interested. The question of "privilege" as touching the documents printed for the disciplinary work of the Council was alluded to, and it was stated that counsel's opinion upon the subject had been obtained, and might render it desirable to alter the standing order. With regard to the fifth year of medical study, it was mentioned that the liberty to count pupilage with a registered medical practitioner was not in practice made use of, and perhaps might with advantage be abolished as leading to possible difficulties in the direction of the employment of a person in a position more or less resembling that of an unqualified assistant. The penal business not being heavy, and there being little other business of a contentious nature, the President expressed a hope that the work of the Council might be concluded within the week.

Midwifery Examination.—A motion by Mr. Young to remit to the Examination Committee the duty of reporting to the Council upon the inclusion of clinical and practical work in midwifery and gynaecology at qualifying examinations was agreed to without much discussion.

The Place of Lectures in the Curriculum.—Sir Thomas Myles's motion, instructing the Examination Committee to report upon the advisability of dispensing with compulsory attendance upon systematic lectures in the medical schools, so as to set free more time for scientific study, gave rise to a short but animated debate, and to an amusing reply from Sir Thomas Myles. Those who defended the existing system claimed that the personal experience of the lecturers might be of the greatest value to the students, and that by a lecturer of sufficient ability, life might be imparted to the subject quite unattainable in the pages of a book. It was also argued that after all a very large discretion was allowed to the qualifying bodies in determining the extent to which formal lectures should form part of the curriculum, and that already the Council's recommendations contained little mention of formal lectures as requirements, so that the motion was somewhat superfluous. Sir Thomas good-humouredly remonstrated with his critics for not having read his motion, and at once jumping to the conclusion that it was identical in terms with a resolution passed by his College, in which specific mention had been made of lectures on surgery and medicine. The motion was lost, a majority of the Council appearing to attach value to the existing system of many systematic lectures.

The Apothecaries' Hall of Dublin.—The remonstrance against the repeated inspections of the examinations of this body which is made every session took this time a novel and unexpected line. Under cover of a motion that in order to save expense surgical examiners in future should be chosen from Dublin surgeons, the question of the legality of the tenure of the present examiners, who act in the dual capacity of examiners and inspectors, was raised. It was argued by Dr. Adye-Curran (the Representative of the Apothecaries' Hall) that they had taken the places of examiners appointed for a two-year period, and that by implication their appointment was for two years only, whereas they had gone on for seven or eight years without authority. This view received no countenance from the President, who laid down that their appointment was not for any definite period, and was only terminable by their resignation, or by special resolution of the Council.

Various alterations in the Standing Orders, for the most part in order to bring them into accord with the new rules as to the inspection and visitation of examinations, came up for final adoption. One of them, which deputed to the Examination Committee the duty of advising the Council as to the dates at which inspection should take place met with some criticism, and was finally amended by the addition for this purpose of the Education Committee to the Examination Committee. It was pointed out that the old cycles of inspection had now been abandoned in favour of inspection at uncertain periods, and that the Chairman of the Examination Committee was avowedly desirous of inspection being made continuous, a course which some of the Council, notably Sir John Tuke, did not approve. If the matter was to rest in the hands of Committees at all, then, it was argued, the addition of a second committee would at all events bring in a larger number of the Council to judge of the advisability of an inspection. Another point, raised by Dr. McVail the Chairman of the Examination Committee, was that persons who were at the time examiners upon some Board should still be eligible for the office of inspector. But this proposal was negatived, being considered likely to give rise to inconvenience. The Council has no power to delegate the duties of an inspector, so that under Dr. McVail's proposal it would happen either that some one examination could not be inspected during the tenure of office of such a person, or else that the anomaly of a man inspecting his own examination would arise.

MEDICAL NEWS.

At a meeting of the Society of Engineers at the Royal United Service Institution, Whitehall, on Monday next, at 7.30 p.m., a paper on the prevention of the bacterial contamination of streams and oyster beds, by Mr. W. Pollard Digby, A.M.I.E.E., and Mr. Henry C. H. Shenton, M.S.E., will be read and discussed.

The seventeenth Cookery and Food Exhibition promoted by the Universal Cookery and Food Association was opened at the Horticultural Hall, Westminster, by H.R.H. the Duchess of Albany on November 27th; the exhibition remains open until Saturday evening, and numerous demonstrations and competitions are taking place.

A conference on leprosy held at Buenos Aires brought its labours to a close on November 27th. A resolution was adopted advising the Government to establish an institution or isolated colony for the detention of lepers and to prohibit the admission into the country of any foreigner suffering from the disease.

A Rhino-Laryngological Exposition.—On the occasion of the recent celebration of Professor Bernhardt Fraenkel's 70th birthday, an exposition of rhino-laryngological instruments, apparatus, preparations, and other objects connected with the speciality, was held in the Kaiserin Friedrich House, Berlin. The idea was to illustrate the development of knowledge of diseases of the upper-air passages. Among the exhibits were some of historical as well as scientific interest, such as the mirror with which Manuel Garcia studied the movements of his own larynx, and the original instruments employed by Czermak, Türck, Stoerk, Victor von Bruns, Tobold, and Voltolini in their pioneer work.

British Medical Journal.

SATURDAY, DECEMBER 1st, 1906.

THE PSYCHOLOGY OF WOMEN'S SUFFRAGE.

The noisy efforts made recently by a few women to obtain for their sex the power of voting at Parliamentary elections deserve to be considered from the psychological point of view. The forcible demonstrations to which we have been treated are either the eccentric acts of people out of harmony with their environment, or they are the result of strong and legitimate convictions carried to extremes fraught with much discomfort to the authors, or they are due to nothing more respectable than a yearning for notoriety. Whatever view we take, it must at least be admitted that the action taken has certainly called attention to the subject by exciting the admiration of the few and the ridicule of the many.

Let us admit that the mere man experiences a shock when he sees women of good position, some of them married and mothers of families, and others of considerable University distinction, in bodily conflict with the legal guardians of order, screaming and shouting in their mental tension, and finally exulting in forcing for themselves an entry into a prison the custodians of which would gladly have kept the doors closed against them. It seems a display of attributes so different from those usually connoted by what used to be called the "gentler sex," that the average man rubs his eyes in astonishment and asks if he has hitherto underestimated the potential energy of the sex, or if a new and strange development has arisen in consonance with the change which has of late occurred in the social status and functions of women. The world has got into the way of thinking that in the distinction between the sexes there is a parallel modification in the mental equipment; that as the man is cast in the stronger mould and has been called upon to exhibit the more robust mental qualifications, so the woman, with her more delicate organization, is only fitted for acts of gentleness, for pliability, and for the tender side of emotion; that she is, in fact, possessed of a less insistive and obdurate will. Experience, however, shows that this theoretical female passive subjectivity and male active and compelling objectiveness is not a complete analysis, but that there are men-women and women-men, with mixed mental characteristics quite independent of complete sexual separateness. The recognition of this should cause us to view with equanimity the occasional excursions into the other domain, or what is crudely thought to be an act of trespass.

The female mind has in it all the elements of strong feeling and, as a consequence, of a mastering will, and if in an individual this feeling is very intense, the motives to action will lead to striking results. Such results, indeed, are to be expected, and instead of being surprised at what is called the incongruity of these demonstrations by women, we ought to look upon them as the natural results of their mental organization under the circumstances.

There is no limit to ideas, either in range or intensity or clearness, peculiar to the female sex; and since we know that, psychologically, the emotional tone of an idea is one of its inseparable constituents, and that the stronger and clearer the idea the more "conviction" does it carry, nothing more is required to make us acknowledge that, in acting as they have under the stress of strong emotional idealism, they are behaving just as might have been foreseen. There is no insanity in this, there is no question of the part of agitator being something non-congenial to the female mind: the real question is as to the propriety of the idea. But this question of adequacy or ineptitude is just one for women themselves. Because it is the woman's function to bear and to tend children, and because in most countries she has had delegated to her the care of the home, and is more or less completely sequestrated from active participation in State and municipal duties, it does not logically follow that she is incapable of other distractions and ideals, any more than that it is the prescriptive right of the man to have sole possession of a certain class of ideas, because his relation to his home and to his children is less intimate than that of the woman. Man has said for ages that the "helpmeet for him" shall do the drudgery of looking after him, or at any rate of seeing that it is done; he has dubbed himself the lord of creation, and has consistently paraded the subjugation of the partner of his dioecious existence. On isolated occasions he has found it convenient to delegate some of his functions to his hitherto submissive partner, and he is now beginning to be rather rudely awakened to the fact that the partner has equalled, or even surpassed, the principal; social and legal rights have been asserted to a degree he did not expect, and this has led some men to ask themselves whether the rule of the male has not been a usurpation of force which had no true basis in logic or physiology. It is, perhaps, not surprising that the average man has yielded with a bad grace and very grudgingly to the demands of the other sex for a more just appreciation of their aspirations and faculties, and has not recognized that the spirit of conviction, persistence, and endurance which enabled him to redress some of the wrongs under which he suffered at the hands of the monopolists above him are just the same qualities that are being used by women as the weapons for fighting the battle they have set themselves to win. All women are not suited to play the coveted parts which have hitherto belonged to the male sex; but there are many men who find it hard to play a manly part. But in the assumption of women who have the ability to discharge the social duties hitherto generally held to be the special privilege of men there is no unsexing. If most men earn the money, there are many who live on the wife's fortune or earnings. Why not? The whole question is one of co-ordination and reciprocity; but if either sex wishes to assume the part hitherto considered to belong exclusively to the other, then that individual or that limited group of new thinkers must fight for it, and this is just what the ladies recently liberated from Holloway did, cheered by the knowledge that they had allies and abettors in the enemy's camp who are helping them to storm the position.

History and modern experience alike show that some women can govern, fight, endure martyrdom, and display literary and artistic powers of the "first order." Recognition of the possession of these qualities cannot be denied to them; even the number of those who

possess them is, partly by nature, partly by force of circumstances, not great. They may be wrong in their idea of trying to extend to a class the privileges which can be rightly exercised only by the few; but, since the same may be said of the sex which at present holds the power, it is an issue to be settled not by arbitration, but by revolution. Since the modern "emancipation" of women and the removal, to some extent, of the weight of disability which lay heavily upon them they have revealed their true nature, and the revelation has astonished those who were unaware of the latest force of the female mind. It now appears that in the pursuit of sport there is the same eagerness to kill something, that in matters of competition there is no difference between the keenness and the selfishness of the woman and the man, that in self-sacrifice to secure an end the woman will go to as great, or greater, lengths as a man, that in short the type of mind is the same in one as in the other, modified perhaps in its external manifestations by the immaturity of faculties recently called into activity and needing time and experience for their full development.

Women demand equal rights at least, and if numbers go for anything, they must have them, but let them understand that they will have to fight for what they desire and to endure the consequences of defeat if they lose. Men, on the other hand, must recognize that by their compliance with a few plausibly-urged demands they have encouraged the growth of an idea which has developed both vitality and fighting power, and that it is not by ridicule or the use of contemptuous cries about insanity and hysteria that the attack of these intellectual Amazons must be met

INTESTINAL WORMS AND APPENDICITIS.

On several occasions during the present year we have published reports of cases of appendicitis associated with parasitic worms.

At a meeting of the Clinical Society of London[1] Mr. Carson described two instances of acute attacks in which he removed the appendix and found that it contained the *Oxyuris vermicularis*. In the first case the mucous membrane of the distal half-inch of the appendix was congested, but not ulcerated; in the second there was neither injection nor ulceration of the mucous membrane. Various opinions were expressed at the meeting as to the significance of these parasites. Mr. Carson took the view that the appendicitis was directly attributable to them: the President (Mr. Clutton) thought the worms were merely coincident phenomena, and Mr. J Hutchinson, jun., recalling a case of his own in which the appendix was found stuffed with threadworms, but was only inflamed, not ulcerated, commented on the rarity of this condition compared with the frequency of appendicitis. Shortly afterwards we published a communication[2] from Surgeon F. E. Anley, R.N., who was serving on the China station, where intestinal worms are particularly common. He had met with two cases of typical attacks of acute appendicitis; both recovered without operation, and in both instances a round worm was passed shortly after the attack. He also mentioned two similar cases which had come under the observation of his colleague at Wei-hai-Wei. Surgeon Anley's observations attracted the attention of Captain H. L. Whale, I.M.S., and of Dr. Castellani, who sent us interesting accounts of somewhat similar cases. Captain Whale's patient[3] was a Gourka who was found to have a resistant mass in the region of the caecum. His condition at the time was not very urgent, so the effect of a dose of santonin was tried. Thirty-six hours later nothing had been passed per rectum, but all the classical signs and symptoms of appendicitis had developed. Captain Whale wished to operate, but the man obstinately refused to give his consent. The following day he passed twenty-four large round worms and was much better.

Dr. Castellani described[4] a *post-mortem* examination which he had made in Ceylon on the body of a young girl who had been suffering from intestinal helminthiasis for a long time. After receiving a dose of santonin she had vomiting, pain and tenderness of the abdomen, especially over the right iliac fossa, and some rise of temperature. This condition lasted for two days and was terminated by death. The appendix showed vascular engorgement, but was quite free from adhesions. On opening it, an ascaris was found firmly imbedded for about one-half its length in the appendix, the other half being free in the intestine. The worm was dead, and was much too tightly fixed in the appendix to justify the supposition that it had entered that organ after death. Dr. Castellani calls attention to the onset of the symptoms of appendicitis soon after the administration of santonin, and quotes the experiments of Schroeder and Coppola, who found that santonin has a convulsive action on the ascarides, rendering their movements for a time much more active; possibly, therefore, the santonin may have indirectly caused or facilitated the entrance of the worm into the lumen of the appendix. This suggestion is very interesting, and may help to explain the onset of the acute symptoms in the case of Captain Whale's Gourka.

Another instance of parasitic invasion of the appendix has been recorded by M. Oui of Lille.[5] The characteristic signs of appendicitis had developed, and the appendix was removed by operation. It was carefully examined, and two specimens of *Trichocephalus dispar* were found, each with the whip end of the worm deeply sunken in the mucous membrane. Little brown spots seen on the surface of the mucosa proved to be collections of the ova of the parasite. Interesting corroboration of this case has been provided by Mr. R. F. Moore, of St. Bartholomew's Hospital. We learn from his communication[6] that an appendix removed by Mr. D'Arcy Power after a typical attack of appendicitis appeared on first sight to be normal, but on splitting it open a *Trichocephalus dispar* was found inside it.

In the *Archives de Parasitologie* for October 15th, Professor Blanchard writes very emphatically on the frequency with which intestinal worms are responsible for inflammation in the appendix or its neighbourhood. He deals particularly with ascaris, oxyuris, and trichocephalus, and cites numerous instances where one or other of these parasites has been associated with appendicitis. There is no doubt in his mind that the worms were not harmless lodgers, but were the actual cause of the disease; and, indeed, he is able to provide many examples where the administration of a vermifuge has been sufficient to effect a cure. He strongly protests against the view, held by many authorities, that the presence of worms in an appendix removed by operation is merely an accidental circumstance of no particular significance, and rejects the theory that helminthiasis, though it may simulate appendicitis, is really of a different nature. "Helminthiasis," in his opinion,

[1] British Medical Journal, vol. i, 1906, p. 501.
[2] Ibid., vol. i, 1906, p. 677.
[3] Ibid., vol. i, 1906, p. 1100.
[4] British Medical Journal, vol. ii, 1906, p. 252.
[5] Ibid., vol. ii, 1906, p. 995.
[6] Ibid., vol. ii, 1906, p. 354.

"does not 'simulate' appendicitis; it produces it." To the part played by bacteria he attaches only a secondary importance; they attack the rents and ulcerations caused by the parasitic worms, and thus set up inflammatory lesions, abscesses, and other complications; but these bacteria are merely the ordinary inhabitants of the intestine, and none of them can be regarded as the specific cause of the disease. Holding these views, Professor Blanchard is strongly in favour of medical rather than surgical treatment for appendicitis. He thinks that a great many cases might be cured by the mere administration of a vermifuge. As an aid to diagnosis, he recommends that the patient's stools should be carefully searched for the ova of ascaris, oxyuris, and trichocephalus, all of which have a structure and size which render them easy of identification. But even in the absence of ova, anthelmintic treatment is recommended, since grave disturbances might be attributable to a single worm which might be a male or an immature female. The chief danger of infection lies in the ingestion of drinking water or uncooked vegetables which have been contaminated with excreta. It is important to bear in mind that the ova of parasitic worms, unlike the pathogenic bacteria, are not destroyed by the nitrifying organisms of the soil; they adhere to any vegetables with which they come into contact, and consequently the consumption of these may involve the ingestion of living ova. On this account Professor Blanchard strongly protests against the habit, common in many parts of France, of using human excreta for fertilizing the soil in which vegetables are grown.

Professor Metchnikoff, in an article on "The Hygiene of the Intestines," published in the *Revue Générale des Sciences* for October 30th, expresses much the same view as Professor Blanchard. He considers that intestinal worms are responsible for many cases of appendicitis, and regards outbreaks of this disease amongst different members of the same family, or amongst several people living in the same locality, as being probably due to infection from a common origin. He also remarks that appendicitis is not uncommon in the chimpanzee, an animal which frequently harbours a large number of intestinal parasites.

We have said enough to show that a large mass of evidence has accumulated pointing to a direct causal connexion between the presence of parasitic worms in the intestine and the production of true appendicitis. But, important though this evidence is, it is not enough to justify any sweeping generalizations to the effect that parasitic worms are either the most important or the most common cause of this disease. We must not travel beyond our facts. Appendicitis is a very common disease, but, up to the present time, the percentage of cases which have actually been found to be associated with helminthiasis is very small: the most that we can say, therefore, is that these parasites must be regarded as one out of many possible causes of the affection. Again, there appears to be no doubt that certain cases of typical appendicitis have been cured by the administration of a vermifuge, but it is not at all likely that medical practitioners will jump to the conclusion that a vermifuge ought to be given as a matter of routine, in any and every sort of case. They will naturally use their discretion, and they will very probably find that in a good many cases drugs of this sort are distinctly not indicated. Moreover, helminthiasis may be a medical rather than a surgical disease, but the very obvious fact must not be ignored that in the majority of cases of appendicitis the person who saves life is the surgeon. Appendicitis is, and probably always will be, a disease which may at any moment necessitate surgical intervention. Provided that the physician never forgets that fact, he may usefully remember that the expulsion of parasitic worms has occasionally rendered an operation unnecessary.

THE RIGHT OF PRIVATE ACTION.

ELSEWHERE in this issue (page 1588) a short article will be found giving an account of a recent development in the course of the long dispute in Coventry between the medical profession and the managing Committee of the Coventry Provident Dispensary. It is now a good many years since the methods of the Coventry Provident Dispensary were strongly condemned by the local Branch of the British Medical Association, and recently the medical staff of the dispensary applied to the local Division for advice and support. The Coventry Division, founding itself upon the recommendations of the Medico-Political Committee of the Association, replied by adopting a scheme clearly indicating fundamental principles and rules for the management of provident dispensaries, and declaring that no member of the profession should associate himself, or continue to be associated with, a dispensary managed on lines radically different. The medical staff of the Coventry Dispensary, therefore, entered into negotiations with the committee in the hope, as we understand, of inducing that body to remodel its rules on the lines approved by the medical profession. We are not aware what course these negotiations have taken, but we should judge that the committee is struggling against a sense of approaching defeat, for, taking very literally the old adage that "all is fair in love or war," it has resorted to a stratagem which will hardly commend itself to fair and reasonable men. In the warning notice published weekly in the advertisement pages of the BRITISH MEDICAL JOURNAL there has been for some time past an entry referring to the Coventry Dispensary, and medical men who might be approached with regard to appointments in connexion with that dispensary were advised to obtain information with regard to the nature of the dispute from the honorary secretary of the Coventry Division. This is quite in accord with custom, and in the case of other disputes in other districts similar advice is given. That is to say, possible applicants are invited to communicate with the honorary secretary of the local Division. Now it so happens that the honorary secretary of the Coventry Division is Dr. Snell, Medical Officer of Health for the City of Coventry. In the hope apparently of diverting public attention from the real issue, and of inconveniencing the British Medical Association, the Committee of the Coventry Dispensary has, through its chairman and honorary secretary, addressed a letter to the Mayor and Corporation of Coventry asserting that the dispensary is placed on the "black list" of the BRITISH MEDICAL JOURNAL by Dr. Snell, and inquiring whether such action on the part of a public servant against an institution in which over 18,000 of the inhabitants of the city are interested, is in accordance with the wishes and desires of the Council and the right discharge of the duties of his office. This appears to us to be a very petty act: in the first place, it could do no more than cause some slight temporary inconvenience to the Association, because, if Dr. Snell ceased to be Honorary Secretary of the Coventry Division, some other member of the Division in the district would at once take his place, and the policy of the Division would be in no way affected; in the second place, any action taken is not directed "against" the institution, but is in its best interests; in the third place, we understand that

Dr. Snell was asked to become honorary secretary partly because, standing outside the controversy and not being engaged in ordinary practice, he might be expected to take an impartial view; in the fourth place, the dispensary is not placed on the "black list," so-called, by Dr. Snell, but by the Coventry Division; and, in the fifth place, Dr. Snell acts as honorary secretary entirely in a private capacity, and his acts in that private capacity have nothing to do with the right discharge of his duties as medical officer of health. This, we are glad to say, was the view taken by the Sanitary Committee, and reaffirmed by it after the matter had been referred back by a plenary meeting of the Council. So much for what we have not hesitated to call the pettiness of this stratagem. But the incident, which is not yet concluded, raises a point of considerable importance. It would seem that some people who ought to know better, profess to believe that when a man, whether a professional man or another, accepts a salaried post, he thereby sells not only his services within working hours, but also his soul and his conscience and his leisure to his employers. Such a principle would be repudiated, and most justifiably repudiated, by working men if it was sought to apply it to them; it has in fact often been repudiated by them in the past, but the suggestion is frequently cropping up with regard to professional men. Mr. Crooks, for instance, as we reported in our issue of March 18th, 1905, asked from his seat in the House of Commons whether the Medical Inspectors of the Local Government Board were permitted to accept appointments for pay outside their official duties, and the reply he received was that a medical inspector was required to devote the whole of his official time to the duties of his office, but that this rule was not intended to interfere with the manner in which he employed the rest of his time or his holidays. If this principle applies to paid work, it must apply with even greater force to unpaid work done in the interest of the worker's profession, and we hope that the Council of the city of Coventry will at its next meeting take the only course open to a body composed of liberal and enlightened men and unanimously resolve not to countenance this unworthy attempt to curtail personal freedom of opinion and the right of private action.

THE FOOD OF LONDON.

At the meeting of the London County Council this week the Medical Officer presented a report by Dr. Hamer on the inspection by riparian sanitary authorities of food coming into London. The report, in fact, raises the whole question of the inspection of all food coming into London, and Sir Shirley Murphy, in a memorandum prefixed to the report, said that the main outcome of Dr. Hamer's investigation is to show that river inspection needs to be considered in relation to the inspection which should be practised at other portals of entry of foodstuffs into London, otherwise the devotion of special attention to one avenue of approach will merely lead to the diversion of traffic in unsound foods to other avenues less subject to scrutiny. In fact, the work already done by the port and riparian authorities, while it has been hampered in many ways by uncertainty, for example, as to the limits of the powers possessed by the authorities concerned, and by the smallness of the staff engaged upon the duty, has at least made it quite obvious that one of the most important questions arising in connexion with attempting to perfect the system of river inspection is the need of co-ordination of the methods of supervision exercised at the various points of entry, whether by river, rail, or road, and, indeed, of the adoption of a general scheme of inspection of foodstuffs brought into London. Sir Shirley Murphy, while admitting that in the case of meat the public health could, in a measure, be safeguarded, so far as relates to diseased conditions visible at the time of slaughter, by ensuring that proper inspection was carried out at that time, whether in foreign countries, at the various ports of this country, or in the country itself, insisted that in addition to such original inspection, it is essential that the condition of the meat as to soundness at the time it enters London be investigated. The need for such frontier inspection on entering the country is equally necessary in the case of fish, and tinned and preserved foods, which for the most part have not undergone any examination with a view to guaranteeing fitness for consumption prior to being brought into London. Another point to which reference is made is the need for ensuring that food once surrendered or condemned as unfit for human food should not again find its way back into the market either in its original form or more or less completely disguised.

SINGING FOR SOLDIERS.

At a meeting held recently in the Tin Hall, Aldershot, Surgeon-General Evatt pleaded strongly for the encouragement of singing both in the army and the navy. He said that as a doctor he could bear witness to the value of singing in preparing the lungs for the strain put upon the internal organs by physical training. He also spoke of its value as a recreation and the immense advantage to be derived by the cultivation of good music and high-class songs, which would elevate, just as surely as low-class songs would be injurious to, the mind and morals of any man. He could imagine the great effect which would be produced upon the men of a regiment and the bystanders if it were permitted for the men of the regiment to sing "God save the King" at a Royal inspection as well as the National Anthem being played by a band. Surgeon-General Evatt read a number of letters expressing approval of his suggestion that choral societies should be established in regiments, and hopes that it would be supported, from His Royal Highness the Duke of Connaught, Lord Wolseley, Sir Evelyn Wood, Lord Methuen, Sir George White, Lord Grenfell, Sir Redvers Buller, Lord Charles Beresford, Admiral Seymour, Sir William Butler, General Baden-Powell, and Sir Alfred Keogh. Among the musicians who wrote warmly approving of the proposal were Sir Walter Parratt, Sir A. C. Mackenzie, and Sir F. Bridge. Dr. Arthur Summerville, His Majesty's Inspector of Music of the Board of Education, Whitehall, then delivered an address in which he said nothing trained men to work together better than the sound created by music and rhythm. In Japan this was thoroughly understood, and all youths of the fighting class were bred to singing and music. It balanced in the mind the physical training of the body, and was a source of strength. In England generally there was an immense revival of the art of music. He advocated that the Scotch regiments should learn their own songs, the Welsh theirs, the Irish theirs, and the English their grand old national airs. A time would come when regiments would compete with one another for prizes in public, when prizes would be offered for the individuals who could sing the best and largest number of songs, and when these military contests might take place in London under the most distinguished patronage. Such music would bring the men into touch with the hearts of the people and fill them with ardour in support of the great throne of the Empire so dear to them all, whilst nothing would do more than the subtle influence of music to promote the *esprit de corps* so desirable in the Army. He suggested that unison singing should be tried first. A few good men being found, choral work would probably soon follow. We already possessed most

beautiful music, suitable for bass and tenor voices. Colonel Wavell, honorary secretary of the institute, moved that a soldier's musical society should be formed; this was seconded by the Rev. E. P. Lowry, and carried unanimously. The Rev. J. W. Pickance then moved that General Evatt and Dr. Summerville be asked to form an executive committee, with Mr. Fowles as secretary. This was carried. There can be no doubt that singing is a most valuable exercise for developing the chest in young men. Apart from the physical benefit to the individual singers, the moral effect must be very great. The Puritans went into battle singing hymns, and whatever may be thought of their theological tenets or their religious temper, there can be no question that they were first-class fighting men. The Russian soldiers are trained to sing in chorus, and we have heard that the effect of the Imperial Guard singing to the Czar at a review was extraordinarily impressive. We hope that Surgeon-General Evatt's public-spirited efforts will meet with the success they deserve, and that his scheme will be taken up in earnest by the military authorities.

LEADLESS GLAZED POTTERY.

Notwithstanding the contradictory opinions that have been expressed in regard to the finish, durability, and cost of production of the leadless glazed ware exhibited at Church House, Westminster, on November 20th, 21st, and 22nd, the exhibition marks an important event in the history of the manufacture of pottery both at home and abroad. In a report presented to the Home Secretary seven years ago by Professor T. Thorpe, of the Government Laboratory, and Professor T. Oliver, Newcastle, upon lead poisoning in the Potteries, attention was drawn to the fact that, apart from highly-finished ware requiring special colouring, there was a considerable quantity of ordinary ware which could be manufactured without lead. This report of the Departmental Committee was received at the time with such marked expressions of dissent from several of the manufacturers that the matter was referred to arbitration by them and by the Home Office. Lord James of Hereford acted as umpire at Stoke-on-Trent. Although since that date the number of cases of lead poisoning in the Potteries has been steadily declining, a section of the public has never lost sight of the fact that it is possible to manufacture ordinary ware free from lead, and that as this particular ware bulks large in the production of pottery it would be well worth while to see what can be accomplished without lead. Accordingly, under the auspices of the Church Social Union, there were gathered together last week in Church House, Westminster, specimens of various kinds of pottery that had not been dipped in lead glaze. The exhibition, which was under the patronage of the Princess of Wales, lasted three days, and attracted large numbers of people interested or otherwise in the movement. We do not go the length of saying that the goods exhibited were in all respects equal to the more highly-finished lead-glazed pottery with which we are familiar; but having regard to the fact that the manufacture is still largely experimental, there was much not only to gratify the unbiassed and satisfy the fastidious, but to encourage those who had promoted the undertaking. It is acknowledged that at present it costs fully 10 per cent. more to produce leadless than lead-glazed ware; but, as Sir Charles Dilke said in his opening remarks as Chairman on the second day of the exhibition, against this must be set greater durability. To that might be added the probability that as the demand for leadless glazed ware increased the cost of production would fall. It was scarcely to be expected that the Staffordshire manufacturers would regard this exhibition with complacency or give it their countenance, but the day has gone in which manufacturers can constitute themselves the sole judges in such matters. There is no proposal before the public to abolish altogether the use of lead in the manufacture of pottery, but there is a desire to have produced as far as possible ordinary ware without lead glazes. While the amount of lead poisoning in the Potteries is only one-third of what it was a few years ago, it is still too high. The public has surely the right to object to the employment of a large amount of unskilled labour in any industry, or in any department of an industry, in which there are risks to health. It is urged against leadless glazed ware that if the demand for it should increase, a lower quality of goods will have to be accepted, but greater demand would stimulate enterprise and lead to improvements. We have an open mind in regard to leadless glazed ware. It is generally admitted that there is a large quantity of cheap ware that can be made without lead. The exhibits at Church House demonstrated this. For higher class goods and artistic forms requiring special colouring lead may be necessary. Experience shows, however, that it is not in the production of the highest class of pottery in which lead is used that lead poisoning is most likely to occur. The men and women who do this work are skilled persons; many of them are artists, and are careful in their work and cleanly in their habits. Even in cases where so-called leadless glazed ware is made, it might yet be necessary, where particular colouring is wanted, to use lead compounds; but with reasonable precautions in the manufacture of transfers and the application of colours, the risk to health in the department might be small. Instead of manufacturers looking with suspicion upon this exhibition, they should read in it the expression of a public wish, and try to create as well as to supply a demand. By adopting this course, their investigations might lead to fresh discoveries. Sir Charles Dilke spoke with no uncertain sound when he said that in the matter of leadless glaze Germany has gone ahead, France is watching and prepared to follow, and that so far as Britain is concerned there is for leaded ware no fear of foreign competition. In the choice of pottery as in many other things, fashion rules and is autocratic but surely the health of pottery workers is a subject not to be banished from our mind altogether. While several visitors to the exhibition may have been only interested and not convinced, others have been interested and convinced, for they feel that what manufacturers have already accomplished is but earnest of what they can do.

DYING DECLARATIONS.

Of the branches of the law which closely affect members of the medical profession that which relates to the admissibility in evidence of dying declarations is not the least important. To the general rule that hearsay evidence is inadmissible the law makes the exception that a statement made by a person who is in certain expectation of death may be admitted. It must be clear, however, that the deponent entertained no hope of recovery. In a recent case at one of the metropolitan police courts a man was charged with the murder of a woman, the immediate cause of death being said to be blood poisoning following an alleged illegal operation. Shortly before she died she made a declaration in the presence of a justice of the peace, which was subsequently repeated to the prisoner, who made a reply. Counsel for the prosecution refused to tender the statement. The law on the subject, he said, was in a most unfortunate state. Unless a person, believed by a skilled medical man to be about to die, was himself certain of the fact, no statement that he might make would be admissible as evidence as a dying declaration, and it could not be brought within Sections 6 and 7 of Russell

Gurney's Act (30 and 31 Vict., c. 35) unless some person was charged or implicated who could be brought there to hear the statement made. Medical men, he said, would never run the risk of telling their patients that they were about to die; their duty prohibited them. The result was that in no case was a dying declaration ever admissible. In this he appears to have been right, so far right that it must always be proved that the deceased at the time of making the statement was under the impression that death was impending, not merely that he has received an injury from which death may ensue. So a declaration by a person who said: "I "have no hope at present of recovering" was not admitted in evidence. Inasmuch as the hopes and fears of a dying man are to a large extent influenced by a medical adviser, considerable care must be exercised in giving an opinion where the patient is likely to make a statement charging some third person with crime.

GOAT'S MILK AND MEDITERRANEAN FEVER.

A NOTEWORTHY feature of the recent Colonial Office Report on Malta is the continued marked increase in population in spite of the very large infant mortality and the increasing prevalence of Mediterranean fever. On April 1st, 1906, the population numbered 205,059. The death-rate is high, being 25.51 per mille, but the more than correspondingly high birth-rate of 40.68 has increased the population by nearly 3,000 souls. The various reports of the Mediterranean Fever Commission have already been noticed in these columns, but we are here given the summary of the cases and deaths for the year ending April 1st. The number of cases reported was 822, which is 174 in excess of the average for the last ten years. Of these no less than 117 died, or over 14 per cent., and one of the most striking facts in connexion with the disease in its increase in virulence, the percentage of deaths to the number of cases having just doubled since 1901. This is especially marked in the figures for the last three years, though it is possible that mild cases of Mediterranean fever are often not reported, while mild cases of enteric figure pass as Mediterranean fever, which would make the death-rate for both diseases appear higher than it really is. As a result of the examination by the Commission of 1,000 goats, over 40 per cent. of which gave a serum reaction, while 10 per cent. were actually excreting *Micrococcus melitensis* in their milk, the naval and military authorities have not been slow to take action. In all the military hospitals and all the barracks except one the use of goat's milk has been forbidden. At the Naval Hospital the goat's milk was used at first, but has now been entirely given up. The Government has issued an order that the milk is to be boiled in all the civil hospitals, and every effort is being made to persuade the people of the imperative necessity of taking this measure, though it is doubtful whether the lower classes pay much attention to the advice. The striking effect of giving up the milk is specially shown by the garrison record, which returns the number of cases monthly per mille. While in July, 1905, the figure was 9.6, it was only 2.0 for the corresponding month this year. Enteric fever was less frequent than in the previous year, only 139 cases occurring, but the case-mortality was alarmingly high, especially among the civil population, in which 39 died out of 70 attacked. Diphtheria also showed a very high case-mortality, 59 deaths occurring in 180 persons attacked. It is curious that in Malta the lower orders have a great objection to isolation or serum treatment, and hence suffer much more than the people of Gozo, who are more enlightened in these matters. In the latter island only one case of diphtheria proved fatal out of 36. The rate of infant mortality is still enormously high, being 107 per mille. It is chiefly due to enteritis, the result of improper feeding. Notwithstanding this, the population, as the Governor points out in the report, is increasing so rapidly that unless the people can be brought to see that the only remedy lies in emigration on a considerable scale the position will in a few years' time become critical.

GREEK AND ROMAN SURGICAL INSTRUMENTS.

FOR some years Dr. Milne of Hartlepool has been a diligent student of Greek and Roman surgical instruments, and in the pursuit of this special work has visited all the important museums of Europe. An illustrated work on the subject from his pen will appear in a few months. On November 22nd Dr. Milne gave a lecture before the Oxford Medical School, and a number of the college tutors and others interested in classical work. Photographs were shown of nearly all the important forms of instruments: knives, forceps, probes, drills, and shears. It is remarkable how many instruments which we regard as modern were in reality used by the old Greek and Roman surgeons. Three forms of specula were shown, each one of which has its modern counterpart. Hegar's uterine dilators are identical with those recommended by Hippocrates. It is remarkable to learn that an aspirator syringe, with the modern solid piston, was in use by the old Greeks. Dr. Milne has not only collected in different parts of Europe an interesting set of the originals of the old instruments, but he has taken great pains to construct models of many of the more important of them, particularly the specula, the knives, the forceps, and the cupping glasses. Our knowledge of the armamentarium of the Graeco-Roman surgeon has been enormously increased by the progress of archaeological discovery, particularly by the finding in several places of the complete kits of surgeons whose names in some instances were attached to them. Dr. Milne's work—to be issued from the Clarendon Press—will be a most valuable contribution to a subject which throws much light on the state of medicine in the palmy days of Greece and Rome.

A CHALLENGE FROM THE "BLOODLESS SURGEON."

WE have received another communication from Mr. H. A. Barker, in which he accepts our challenge to make known his manner of procedure, and report his cases in such a way that surgeons may be enabled to form a judgement as to his methods. He does so, however, in his own way, not in that intended by us. He describes his method as one of manipulation pure and simple, and states that it can be taught by demonstration and acquired by practice. He goes on to say: "I am ready to receive six cases of flatfoot (not con- "genital) in patients of 11 to 16 years of age which have "been professionally pronounced incurable without "recourse to the knife." He is also ready to accept six cases of knee-cartilage displacement which have been professionally pronounced incurable without recourse to the knife. He adds: "I stipulate in each "case that it shall not have been subject to a surgical "operation, or be in a state of mature ankylosis." Mr. Barker declares that he is ready to operate in the presence of a committee of qualified surgeons, and he proposes that the pathological history of each patient's case shall be established to the satisfaction of that committee before he operates, and that the patient shall present himself at given intervals for examination by any one or more members of the committee. He further proposes to submit to the committee a list of a large number of cases in which a cure was effected from one to four years ago, in which there has been no relapse. In respect of any possible damage being done to his patients, he offers to deposit in any bank the sum of 100 guineas to be handed to a charity if we can instance a single case in which his treatment has caused injury to the patient. It sounds a sporting offer, but Mr.

Barker is doubtless well aware of the difficulties that would arise in arranging such a test if it is to be anything more than a farce. To be a trustworthy judge in such a matter a good deal more is required than that a man shall be, in the technical sense, a "qualified surgeon," and we doubt whether it would be possible to get really competent men to form a committee. The fact is that those who have really studied the subject have no particular curiosity about Mr. Barker's methods. Again, how are the patients to be provided? In the face of the report of the representative of the *Lancet*, which we quoted in the JOURNAL of November 24th, p. 1512, surgeons with a proper sense of responsibility to their patients would scarcely be justified in asking them to submit to the manipulations practised by Mr. Barker, which are admittedly painful, and which, notwithstanding his confident assertion, are obviously likely to cause injury. We confess, however, that we should greatly like to see Mr. Barker's "bloodless surgery" put on its trial in the presence of an impartial and scientifically-competent tribunal; but we have no power to appoint one, and, as we have said, we have little hope of seeing one constituted. Mr. Barker's challenge must therefore be addressed elsewhere. Our challenge to him was something quite different. We invited him not to make a public display of his skill in manipulation, but to publish a plain account of his methods and a precise and detailed description of his cases and the results, immediate and remote, of his treatment. The failures must be recorded as well as the successes. By way of illustrating what we mean we may quote a letter which we have received from a patient who went to Mr. Barker with a sprained wrist, and was told that "two small bones had been displaced and had grown together." Immediate "operation" prevented this catastrophe, and the grateful patient writes: "The day is bound to come "when his method and treatment will be taught and "practised in all hospitals; then will humanity be "spared much suffering, and there will be few, if any, "cripples left in the civilized world, and the use of the "surgeon's knife and appliances will be mere memories "of the dark ages." As congenital flatfoot is expressly excluded from the range of Mr. Barker's "bloodless "surgery," it is not likely that this prophecy will be fulfilled. But what is there to prevent Mr. Barker's teaching his method now? That is just what we ask him to do. We are quite sure that if he is as anxious to diffuse a knowledge of his methods as he professes to be, he would not lack pupils who would gladly learn what he can teach. This would do more to prove the value of his manipulations than any number of tests of the kind he suggests. But we warn him—if indeed he needs the warning—that they would be pretty sure to show an inconvenient curiosity in verifying such diagnoses as "two small bones displaced."

THE LORD MAYOR'S INSTITUTION FOR LONDON CRIPPLES.

THE scheme for the establishment at the seaside of a Home for Crippled Children, launched by the Lord Mayor of London, is one which will appeal strongly not only to the benevolent public but also to the members of the medical profession. Sir William Treloar recognizes that the crippling disease is in many cases tuberculosis, and it is for this reason that he wishes to see his Cripples' Institution placed at the seaside. That further provision for tuberculous children is required all who know London will agree, and the Lord Mayor states that his scheme "will not displace "a single existing agency," and "will not compete with "the hospital, convalescent or holiday home, or special "school," though it may nevertheless "necessarily "partake of the character of each." We have no doubt that there is no intention to allow overlapping; but the scheme must be carefully thought out if this is to be avoided, and in the case of tuberculous children we are not sure that distance from London may not more than counterbalance the good to be derived from sea air. We await the publication of the details of the scheme with much interest.

THE CENSUS IN PORTUGAL.

THE summary given by the Lisbon medical gazette, *A Medicina Contemporanea*, of vol. iii of the general census of Portugal and oversea possessions for 1900—which, by the way, can hardly be said to be remarkable for the rapidity of its issue—is unsatisfactorily short, but it reveals some curious facts. It deals with the blind, the deaf-mutes, and persons of unsound mind. Comparison with the census of 1890 shows, apparently, that blindness is more or less stationary, the total number of blind persons in the former year being 12,632, as against 15,310 in 1900, which seems to be scarcely more than may be accounted for by increase of population. But while in Evora and some of the country districts there is an actual numerical diminution in the figures, the increase in the large centres of Lisbon and Oporto is out of all proportion, being almost double in the capital. Deaf-mutism shows quite different figures. Here increase has not been nearly so marked in the large towns as in the country districts; yet the sum total of cases in 1900 (6,040) is almost exactly double what it was in 1890 (3,068). The most striking figures, however, are those of the third group—the persons of unsound mind. Here there is a very marked diminution, not merely proportionately but actually. In 1890 the total returns, including all insane persons whether idiots or lunatics, amounted to 15,644 persons, in 1900 to 13,200; this corrected for increase of population must mean a very considerable diminution. It is further stated that this decrease occurs both in the lunatic and idiot class.

EXTRAORDINARY GENERAL MEETING.

THE extraordinary general meeting of the British Medical Association, summoned for 3 p.m. on Wednesday last, could not be held as a quorum was not present. In accordance with regulations the meeting stood adjourned at 4 p.m. until that day week, Wednesday, December 5th, at 3 p.m. At this meeting, which will be held at the Examination Hall, Victoria Embankment, London, W.C., the members present will form a quorum.

SUDDEN DEATH OF DR FERGUSON.

THE news of the tragically sudden death of Dr. Ferguson of Cheltenham will cause a shock of sorrow to all members of the British Medical Association who remember the energy with which he gave himself to the duties of the office of President and the high spirit and geniality with which he conducted the business of the annual meeting at Cheltenham in 1901. On Tuesday, November 27th, Dr. Ferguson had arranged to operate at 4.30 p.m. upon a man suffering from strangulated inguinal hernia. He began operating at 5 p.m., found he had to remove over 2 ft. of gangrenous perforated small intestine, and was in the act of tying-off the mesentery, when, without a single cry or moan, he fell back dead, in the presence of three house-surgeons who were assisting. His colleague Mr. Howell was sent for, and completed the operation, and the patient has so far gone on well. Dr. Ferguson had suffered from heart trouble for some time, and had only recently consulted his colleague, Dr Kirkland, on the subject. The sympathetic reference to Dr. Ferguson's death made by the Chairman of Council at the meeting of the Association in London on Wednesday, and the resolution of condolence unanimously adopted, on the motion of Sir Constantine Holman, seconded by Dr. Cuthbert of Gloucester, are reported in the SUPPLEMENT.

We hope to publish a full biographical notice in an early issue.

One ordinary meeting in each session of the Royal Medical and Chirurgical Society will in future be set apart for papers and discussions on the history and antiquities of medicine and for the exhibition of books, MSS., works of art, instruments, or other objects illustrating these topics. Papers accepted by the Council will be published in the *Transactions*, and a record of all objects exhibited, with descriptions, will be preserved.

Medical Notes in Parliament.

Death Certification.—On Tuesday Sir Walter Foster asked the Secretary of State for the Home Department whether any legislation under consideration in reference to child insurance and child mortality would also deal with the subject of death certification generally, on the lines recommended in the report of the Select Committee of 1893. Mr. Secretary Gladstone replied that he feared he was not in a position to make any statement with regard to legislation of the kind referred to by his right honourable friend, but he doubted whether the subject of death certification generally would be germane to a Bill whose object was to place restrictions on child insurance. He understood, however, that his right honourable friend the President of the Local Government Board thought that such a Bill might properly deal with the registration of stillborn children.

The Training of Midwives.—Mr. Bateman Hope asked the President of the local Government Board whether the Board had formed the opinion that it was illegal for county councils to pay for the training of midwives either out of the county fund or out of the funds set apart for the purposes of higher education; and, if so, on what grounds. Mr. John Burns replied that it would seem to the Local Government Board to be competent for a county council to incur expenditure for this purpose in exercise of the powers conferred on them by Section 2 of the Education Act, 1902, if, after consultation with the Board of Education, it appeared to them desirable to do so. But they were not aware of any legal authority which would enable a county council to incur any such expenditure apart from these powers.

The Geographical Distribution of Cancer. Mr. B. S. Straus asked the President of the Local Government Board whether he could arrange that in future the Registrar-General would, when he issued his report upon deaths from cancer, show the geographical distribution of such deaths, clearly stating the districts of each town or centre where these deaths occurred. Mr. John Burns answered that the Registrar-General's reports already gave statistics as to the deaths from cancer in respect of each registration district, but he informed him that he had no materials at his command which would enable him to supply statistics of this kind in respect of the areas referred to in the question.

Pensions for Ailing Soldiers.—Mr. J. P. Farrell raised this subject by two questions at the end of last week. He cited the case of a soldier who had served 2 years and 4 months in India, where he contracted disease for which he was discharged without a pension, and a second case of a man who was discharged after 2 years and 59 days' service for pulmonary tuberculosis contracted in the discharge of his duties, and for this case a gratuity was asked to enable his parents to have him properly treated. Mr. Secretary Haldane answered that the first man was discharged after a service of 2 years and 265 days only, on account of valvular disease of the heart. The Commissioners of Chelsea Hospital, after careful consideration of the case, had decided that the man was not entitled to any pension. He had rendered no war service. The second man was discharged after the service stated in consequence of tubercle of the lung, which, according to the medical authorities, was not caused by his service as a soldier. Under these circumstances the Commissioners of Chelsea Hospital had decided that he was not entitled to a pension from army funds. The regulations precluded the grant of any gratuity to him other than that referred to in Article 1123 (ii) Pay Warrant.

The Brentford Infectious Hospital.—Dr. Rutherford asked the President of the Local Government Board whether his attention had been called to the fact that recently a child suffering from scarlet fever was put into a ward used for measles at the hospital belonging to the Brentford District Council, that the child took measles and died; that the sister of the same child, also affected with scarlet fever, was discharged from the hospital before peeling was complete, to the risk of the public; and that the nursing staff for thirty-six cases of infectious disease consisted of an aged woman and her daughter; and what steps he proposed to take in the matter. Mr. John Burns answered that his attention had been called to this matter, and he had been in communication with the district council with regard to it. He understood that the father of the children made complaint to the council, and that they at once referred the subject of the reorganization of the hospital to a committee, who discharged the nurse and her daughter and made a temporary appointment of a nurse as superintendent, and directed the medical officer to find two assistant nurses. They also advertised for properly-certificated nurses to act as matron and assistant. Subsequently the nursing staff was fixed at one nursing matron and two certificated nurses. When the hospital was first erected it was contemplated that only scarlet-fever cases would be treated there; but recently all forms of infectious disease seem to have been admitted, and it had become evident that the hospital must be enlarged. This, he understood, was now being done. He feared that the management of the hospital in the past had not been satisfactory, but, looking to the action taken by the district council since complaint was made to them, he had not thought it necessary to interfere further in the matter.

Medical Out-relief in Whitechapel.—On Tuesday, Mr. Alden asked the President of the Local Government Board what sum of money the Whitechapel Guardians had spent on medical out-relief (exclusive of salaries) during the last year of which their accounts had been received by the Local Government Board. Mr. John Burns replied that the sum spent during the year ending Lady Day last, exclusive of salaries and extra medical fees, appeared to be £123. Mr. Alden also asked the President of the Local Government Board, whether he would take steps to secure that, in cases of serious or infectious sickness (including phthisis, tuberculosis, measles, whooping-cough, and chicken pox) of persons destitute of the means of obtaining a doctor otherwise, the Whitechapel guardians or their relieving officers would give orders for the district medical officer to visit such persons at the beginning of the sickness instead of waiting till the sickness was urgent. Mr. John Burns said that he was informed that in all cases of sickness at Whitechapel the relieving officers on application gave orders for the district medical officer to visit. There was no delay pending inquiries into the cases. These were made afterwards. The district medical officer visited when he received the order. There was no question of waiting until the sickness became urgent.

Opium for Coolies in South Africa.—Dr. Rutherford asked the Under-Secretary of State for the Colonies whether, in view of the fact that the recent Transvaal Ordinance only allowed each coolie opium on the prescription of the medical officer of the mining company, there was any widespread disease in the compounds requiring opium for its treatment. Mr. Winston Churchill replied that he did not know the extent to which opium was medically required, but he would make inquiry.

The Course of Business.—The progress of business in the Commons is slow, and the Workmen's Compensation Bill will in its Report stage occupy two or more days next week. The Provision of Meals (Children) Bill has also been promised time for discussion. There are a number of minor Bills, too, down upon the paper which will have to be considered. The date for closing the session has been provisionally fixed for December 20th, but to bring this about, in view of the Education difficulty, will require the sacrifice of many Bills.

Scotland.

GENERAL MEDICAL COUNCIL ELECTION.

The Candidature of Dr. Bruce.

ON November 22nd a meeting was held at the Medical Club, Glasgow, to hear an address from Dr. Bruce.

Dr. Ebenezer Duncan, who presided, said that Dr. Bruce had been a general practitioner for thirty-one years, and therefore possessed the experience of town and country which qualified him to be a Direct Representative. The population of Edinburgh and of the counties of which it was the centre was something like 735,000, whereas the population of the district in and around Glasgow was about 2,200,000. Edinburgh at the present time had three Representatives on the Council—one from the University, one from the College of Physicians, and one from the College of Surgeons. Glasgow had two Representatives—one from the University and one from the Faculty of Physicians and Surgeons—but as it so happened that the Crown Representative (Dr. McVail) resided in Glasgow, that city had three Representatives, the same as Edinburgh. As to the allegation that there were jealousies between Glasgow and Edinburgh, he thought they were not known in Glasgow, and referred to the appointment of Edinburgh graduates to chairs in the University of Glasgow. He advised those present that they would be better represented by their old and tried friend, Dr. Bruce, than by Dr. Norman Walker.

Dr. Bruce referred to the letter signed by Dr. C. E. Douglas, of Cupar, Fife, and said that on the face of it it appeared not only unfriendly but actually hostile and unfair. Dr. Bruce emphasized the fact that he had large experience as a general practitioner; when he gave up his practice in Dingwall he did not receive a penny for it, and in no way did he ever get any pecuniary equivalent. As to security of tenure, he felt convinced that Parliament was not likely to look on the restriction of the powers of local authorities in a favourable way; at the same time, he held strongly that there ought to be fixity of tenure, and that medical men ought to hold their positions in an independent way, so that they could do for the poor all that they desired to do. With regard to the club system, he expressed the opinion that no fresh contracts ought to be entered into, and stated his belief that there could be no peace till medical fees for sick workmen were paid on the same principle as sick pay. The payment should be for work done and not in a lump sum.

After certain questions had been answered by Dr. Bruce, votes of thanks to him and to the Chairman were adopted.

Dr. Norman Walker's Candidature.

Dr. Norman Walker addressed a meeting in Glasgow on Monday evening, Dr. Richmond, ex-President of the Glasgow Southern Medical Society, in the chair. Dr. Walker dealt with the various problems before the profession, including security of tenure, contract practice, and hospital abuse, and then said that he supposed he ought to feel complimented by the fact that the chairmen of Dr. Bruce's meetings devoted so much of their time to him. He would like to say that he was absolutely satisfied that his old friend Sir T. McCall Anderson spoke in ignorance of the facts when he claimed Dr. Bruce as a general practitioner. They all knew Sir Thomas was something of a politician, but he must say he was surprised to find him advocating proportional representation, and he thought he would have to explain to his political associates that that was meant for medical consumption only. Lastly, he said that he had been advised to make a strong appeal to the electors. He hoped that all those who believed Dr. Bruce was the better representative would vote for Dr. Bruce. But if any were for any less worthy motive making up their minds to vote against himself (Dr. Walker), he entreated them to think not once nor twice, but often, whether in so doing they were serving the best interests of the profession to which they belonged.

Dr. Norman Walker addressed a meeting of practitioners at Dumfries on November 22nd. Dr. Cunningham presided, and a vote of thanks was awarded to Dr. Walker on the motion of the chairman.

Dr. Stuart McDonald (Leith) writes: As one of the younger teachers in the Edinburgh Medical School, would you kindly afford me space in the BRITISH MEDICAL JOURNAL to appeal to my colleagues in the various medical schools in Scotland for their support for the candidature of Dr. Norman Walker as Direct Representative on the General Medical Council? It is seldom we have the opportunity of voting for one who has so keen an interest in the teaching of medicine. One is aware that, as a rule, the members of the scientific staffs of the various departments take but little interest in an election such as this, but with a candidate so fully alive to the need for reform in medical teaching it is to be hoped that on this occasion the teachers will exercise the privilege of their votes, and do their utmost to secure Dr. Walker's election.

JUVENILE SMOKING.

The Scottish Anti-Tobacco Society met in Edinburgh on November 21st to discuss the legislation proposed by the House of Lords' Committee to deal with the evils of juvenile smoking. Sir Henry Littlejohn was in the chair. Mr. William Todd, the secretary, explained that the House of Lords' Committee had adopted the Hygienic Bill, which provided that the man who sold tobacco to a child under 16 should be fined not exceeding 40s. for a first offence and £5 for any subsequent offence: the child found smoking would be punishable by a fine not exceeding 40s., and would be subject to the provisions of the Youthful Offenders Act, 1901. The Lords' Committee proposed to entrust the police with the power to stop youths under 16 and confiscate their smoking materials, and to give park-keepers, schoolmasters, and railway and dock employés a similar right. Mr. J. Rutherford Hill, Chairman of the Edinburgh Band of Hope, moved a resolution urging the Government to assist in dealing with the clamant vice of narcotics, especially when used by the young, in view of the consensus of opinion obtained from the Medical Faculty, the united churches of the nation, the School Board, and the unanimous decisions of the Interdepartmental Committee on Physical Degeneration, 1904, and the Lords' Committee on Juvenile Smoking, 1906. This was seconded by Mr. W. M. Ramsay, and adopted. A Vigilance Committee to consider any legislation bearing upon juvenile smoking was appointed, consisting of the chairman, the Rev. Dr. J. C. Russell, and others.

VICTORIA INFIRMARY, GLASGOW.

The third biennial dinner of the past and present resident assistants of this institution was held in Glasgow on November 15th. Dr. Douglas W. Russell presided. The Chairman, in a few excellently chosen words, proposed the toast of "The Victoria Infirmary." He stated that a new wing had been added to the infirmary since their last dinner, and he was sure that those present rejoiced with him that one of themselves had been added to the chief staff. Dr. E. Duncan, in responding, gave a brief account of the origin of the infirmary, of the difficulties that had to be overcome, and of its gradual but steady growth, not only in size but in usefulness. The toast of "The Resident-Assistants, Past and Present," was proposed by Mr. R. H. Parry. He said that he scarcely liked to think of the length of time that had elapsed since the infirmary was opened, and of the many "residents" who had been connected with the institution. He had heard that including the present resident-assistants, sixty-four names were upon the roll, three of whom had died. He assured the past and present "residents" of his interest—and he spoke for all the staff—in their welfare, in proof of which he hoped to promote and encourage in every way he could the establishment of laboratories connected with the infirmary, where good work could be done. Dr. E. J. Primrose, a past Resident, and Dr. A. A. C. McNeill, a present Resident, suitably replied. Dr. Donald J. Macintosh, M.V.O., Superintendent to the Western Infirmary, gave some interesting reminiscences of his connexion with the Victoria Infirmary in its early days. On the proposal of Dr. Hugh McLaren the health of "The Chairman" was drunk with acclamation, and a very happy evening was brought to a close.

POST-GRADUATE LECTURES AND DEMONSTRATIONS IN FALKIRK.

Much as many a general practitioner would like to attend post-graduate courses at one large medical teaching centre, by force of circumstances he is often unable to absent himself for the necessary time from his practice. To bring the post-graduate teaching to practitioners necessarily deprives it of much of its value, owing to the

inevitable detachment of the lecturer from his clinical material. Still, much good may be derived from a local post-graduate course when the subjects and lecturers are judiciously chosen.

This has been proved by the success attending the course conducted under the auspices of the Falkirk and District Clinical Association. A committee of that body, after consultation with Dr. David Newman of the Glasgow Royal Infirmary, arranged for a course of seven lecture-demonstrations, extending over seven weeks, by members of the staff of the Glasgow Royal Infirmary.

Dr. D. Newman gave an interesting demonstration by means of the opaque projector on the uses of the cystoscope in bladder and renal diseases, also a clinical demonstration on cystoscopy. Dr. Lindsay Steven took for his subject arterio-sclerosis, Dr. T. A. Campbell the opsonic index, and Dr. T. K. Monro modern methods of examination in stomach cases.

The interest in the course was well maintained, as with a membership of twenty-one the attendance averaged seventeen. The meetings were held in the Falkirk Infirmary, which was kindly placed at the disposal of the Society by the managers, to whom, along with the matron, Miss Glendinning, the best thanks of the Society are due.

Complimentary Dinner to Dr. R. T. Halliday.

A number of his professional friends recently entertained Dr. R. T. Halliday at a complimentary dinner in honour of his appointment to be Medical Officer to the Glasgow Police Force. Professor Stockman presided over a merry party, and a pleasant evening was spent. Dr. Halliday's health was proposed by Dr. Pollock, who referred in eloquent terms to Dr. Halliday's many-sided interests in ambulance affairs, in volunteering, and in the working of the Victoria Infirmary.

Edinburgh Town Public Health Committee.

At a meeting of the Edinburgh Town Council on Tuesday, November 20th, Dr. Matheson Cullen was unanimously elected Convener of the Public Health Committee, in room of Mr. Gibson, who has become the new Lord Provost. Dr. Cullen is a man of energy and insight, and may be trusted to make a good record in his new position.

Ireland.

The Suggested State Medical Service for Ireland.

The proposal by the Viceregal Commissioners—that the present public medical services in Ireland should be converted into a State service with an examination for admission to it—has aroused much interest amongst the Poor-law medical officers. So far as open expression of view goes, the great weight of opinion is in favour of the suggested scheme. Mr. John S. McArdle, President of the Irish Medical Association, now writes to the papers:

> I feel a grave responsibility in this matter, and I assure you that, whatever private views I might hold, I would subordinate them to the good of the people in whose interest this Commission has reported so eloquently.
>
> I hold that opposition to the suggested medical scheme might interfere with the acceptance of the many recommendations contained in the report. And, rather than imperil the whole scheme, I advised the Association over which I preside to pass the resolution proposed by Dr. Warnock in favour of a State service.
>
> The Association accepted this proposition by an overwhelming majority; subsequently, several propositions were carried unanimously safeguarding all the interests concerned.
>
> In the entire proceeding there is not the slightest suggestion that the power of election or control of the medical officers should be taken entirely out of the hands of the representative of the people, as suggested in many letters of protest which I have received, and in some newspaper comments.
>
> My belief is that, could the reforms suggested in the report of the Commissioners be carried out immediately, we could enter on a successful campaign against the diseases which now exact such a terrible toll from our people.

Mr. McArdle has not always held these views, and indeed appears to have expressed himself very strongly to an interviewer in opposition to the proposal. Of this he is being reminded, and "Rusticus" in the *Independent* quotes several of the most telling phrases. The correspondent doubts

> if, in its not too politic line of action, the Irish Medical Association has ever entered on so fatuous a policy, or one so detrimental to the interests of Irish dispensary doctors, as when a number of its members in assembled meeting declared in favour of "a State medical service." Ireland is at present on the eve of a larger measure of local government. I would ask the dispensary doctors of Ireland to take warning, and not be led away by sophistry from the Irish Medical Association, to which they do not owe very much, into endorsing a pronouncement which means the turning of the whole Irish representation, both in and out of Parliament, against their just claim. I feel as strongly as any one on the position and treatment of the Irish dispensary doctors, and I feel strongly on the necessity of a really efficent medical health service. I feel strongly on the baneful and degrading methods of "canvassing," and the still more baneful and degrading practice which, in some places, accompanies it. But I feel still more strongly at the "insidious" attempt made to deprive Irish local government of one of its rights, and to endeavour to restore again by a sidewind the prestige of a too long dominant minority.

The North Dublin guardians will hold a special committee meeting to consider the whole report, and will send delegates to the conference to be held in the Mansion House on December 11th.

Dr. Mayne and His Governors.

Dr. Mayne is Surgeon to the Longford Infirmary, and he and the Board of Governors have been at variance for some time. The Roman Catholic bishop, Dr. Hoare, lately proposed that no money should be paid to the surgeon by the county council so long as there was a resolution of the joint committee against it. It was also resolved that no member of the committee would sign a certificate for payment. The county council, however, took counsel's opinion, which was to the effect that to deprive the surgeon of his salary, whilst the joint committee had no power to dismiss him without the sanction of the Local Government Board, would be wrong. It would be wiser to pay, as on the present resolutions it was most probable that a writ of *mandamus* could be obtained to compel them. The money was ordered to be paid.

The Crusade against Consumption.

At a special meeting of the Health Committee of the Derry Corporation an exhaustive report was submitted by Dr. Ferguson, M.O.H., on the subject of consumption. The report stated that in Ireland 12,500 people died annually from tuberculous disease; in 1904, 9,833 people died from consumption, and of every 100 deaths in Ireland 16 were from tubercle. In Derry, 110 died each year from this disease. In England and Scotland during the last thirty-five years, the death-rate had decreased one-half; in Ireland it had increased. The report recommended a joint committee from the counties of Derry, Tyrone, and Donegal to consider the question of a common sanatorium, and of the best method of diffusing instruction in a regular and continuous manner, and of encouraging and if necessary forcing greater personal and household cleanliness. Voluntary notification was also recommended.

Cork Medical and Surgical Society.

The Cork Medical and Surgical Society has begun work for the session. Professor C. Y. Pearson, M.D., F.R.C.S., has been chosen President, and at the annual dinner, held a short time ago, a most enjoyable evening was spent by the medical members and their guests. This year's reunion was pronounced to be one of the most successful that the society has held. The first meeting of the session took place on November 11th, when the President introduced a discussion on Caesarean Section, prefacing his remarks by reading notes of a successful case operated on some months ago, in which pregnancy was complicated by an enormously large fibroid, which absolutely blocked up the pelvic cavity. A discussion followed on the relative advantages of Caesarean section and craniotomy, the President holding strong views in favour of the former operation.

North Staffordshire.

The North Staffordshire Infirmary.

The annual meeting of the Governors of the North Staffordshire Infirmary and Eye Hospital was held on November 22nd. The ninety-first annual report of the General Committee, which was presented, stated that

during the year 1905-6 2,420 in-patients were treated, being an increase of 219 on the previous year; 13,937 out-patients, an increase of 413; and 915 casualties. The ordinary expenditure for the year had been £12,053, being an increase of £121. The average cost per in-patient was £4 7s. 10d. The entire cost of the installation of electric light—now being proceeded with—is being defrayed by a few friends, of whom Mr. J. W. Phillips of Tean has already paid £200. During the year 217 articles were received from the North Staffordshire Infirmary Branch of the County Needlework Guild. Mr. J. T. Harris of Stone was elected President of the Infirmary for the year 1906-7. It was reported that 128 patients had been sent to convalescent homes during the year through the Sir Smith Child Convalescent Fund, at a cost of £238.

South Wales.

Defective Eyesight.

At a meeting of the Pontypridd Education Committee, held on November 22nd, the Secretary said that parents did not appear to appreciate the efforts of the committee in dealing with the question of defective eyesight of school children. The medical officer had reported 210 children suffering from ophthalmia, and though he (the Secretary) had sent a stamped postcard to the parents on the matter, 87 of them had not troubled to reply. A large number of the parents pleaded poverty as a reason for not carrying out the advice of the committee to provide the children with spectacles. A subcommittee had dealt with these cases, and 25 pupils had been supplied with glasses at the expense of the committee. In 71 cases the parents had totally ignored the committee's suggestion. Mr. D. Arnott moved a resolution that the committee regretted the indifference of parents, especially after the committee had gone to great expense. The committee, said Mr. Arnott, had gone beyond their powers in providing spectacles. Several other members expressed surprise at the apathy of the parents. The resolution was adopted.

Condemned Food.

Dr. Walford, the Medical Officer of Health, submitted his report for the third quarter of the year to the Cardiff Health Committee, whereupon a member called attention to the fact that during the three months 3,113 lb. of unsound meat and 6,932 lb. of other articles of food had been seized or surrendered to their officers and destroyed by arrangement with the owners. It had not been found necessary to take a single case before the magistrates. This seemed to show that they had very excellent officers and that the tone of the tradesmen was all that it should be. The chairman thought this was very creditable to all concerned, and showed that the testing of the samples had been carried on in a way that was satisfactory to both sides.

New South Wales.

Medical Act Amendment Bill.

Dr. Richard Arthur, Member for Middle Harbour in the State Parliament, has introduced a Medical Act Amendment Bill, the principle of which is to secure reciprocity as regards medical registration. The Bill proposes to restrict the registration of medical men coming from abroad, and to allow only those to practise here on the strength of their diplomas who come from countries which extend the same privilege to practitioners who have graduated at the Sydney University. At present the only countries where a New South Wales medical graduate can practise without the necessity of passing examinations afresh are Great Britain and Italy, certain restrictions being imposed in the latter country. Contrasted with this treatment of local graduates by such countries as the United States of America, Canada, France, and Germany, New South Wales at present admits medical men to the State register who come here from anywhere, provided they can show that they are duly qualified to practise in their own country. The aim of this Bill is to force the countries outside Great Britain and Italy to "open their doors" to medical men trained at the Sydney University, where the examinations that students have to pass are as severe as in any other part of the world. It was not expected that a measure embodying so fair a principle would meet with much opposition: but, to the surprise of every one, the leader of the Labour party opposed the Bill on the ground that it would grant "preference to unionists" of a dangerous character. He also opposed it on the grounds that such a provision in the law would prevent people here getting the benefit of the skill and experience of a foreign trained doctor, simply because his country declined to allow New South Wales medical graduates to practise there without obtaining diplomas anew. Other members opposed the Bill as tending to make a closer preserve than ever of the medical profession in the State. The second reading discussion of the Bill was interrupted by a rule of the House preventing private members' business being taken after 6 o'clock, but Dr. Arthur intends to bring the matter forward again on the first opportunity. It is a matter of regret that the lay press has taken up an attitude of hostility to the measure, but the arguments used by it show how unable it is to see that this Bill has something more in it than the benefit of the doctors; and when a leading newspaper can write such a paragraph in an editorial article as the following:

> The obvious mistake of its author is in forgetting that the paramount interest in legislation for regulating the practice of medicine is not that of doctors, but of the public. When a man is sick his one thought is to get cured, and it is quite immaterial to him who prescribes the remedy so long as it is successful,

it is clear that the medical profession has little to hope for in the way of legislation for the protection of its interests. The public appear to overlook the fact that all medical legislation is primarily in the interest of the public.

CORRESPONDENCE.

THE LATE SIR WILLIAM FLOWER, K.C.B.

Sir,—In the interesting and appreciative review of the life of Sir William Flower by Mr. Lydekker, in the British Medical Journal of November 10th, there is yet a serious mistake in attributing "invalidism" to him. Instead of being a "sickly boy," he grew up a tall, strong man of unusually fine presence, as Mr. Lydekker himself bears witness.

The period of ill-health in boyhood, and from privations and frost-bite in the Crimea, were both outgrown; and Sir William Flower led one of the healthiest and happiest all-round lives possible, with strenuous work, much social intercourse, and great enjoyment of country rambles and hill climbing. Indeed when the Editor of *Who's Who?* asked for Sir William's favourite "recreations," he replied, "Walking and reading aloud," both proving strength.

That a period of ill-health should have unhappily supervened in closing years is only the lot of mortals in this world.—I am, etc.,

London, S.W., Nov 26th. G. Rosetta Flower.

YELLOW FEVER IN BELIZE.

Sir,—In the British Medical Journal of November 10th, 1906, p. 1334, appears a letter by Mr. Eyles which attempts to criticize the report of Sir Rubert Boyce on the Outbreak of Yellow Fever in British Honduras in 1905. Through illness Professor Boyce is at present unable to reply himself to this communication. In his absence, therefore, rather than permit its many errors to obtain even a temporary acceptance, we wish to refute its statements. The conclusions of Mr. Eyles's communication, in his own words, seem to be:

> At its best mosquito extermination is an expensive undertaking. Hence small undeveloped colonies with limited finances can barely be expected to undertake pioneer and experimental work in a field where so much has been done with uncertain results.

We shall not here attempt to controvert Mr. Eyles's statement that "the results of mosquito extermination are uncertain": we can only refer him to the results, of which he is evidently ignorant, obtained by such measures at Ismailia, Havana, Rio de Janiero, New Orleans,

and in the Malay States. The experience gained in these places irrevocably and absolutely proves the certain efficacy of properly-executed antimosquito measures.

The real gist of Mr. Eyles's conclusions is, therefore, that in a small colony, as for instance Belize, mosquito extermination is too expensive a measure to be regularly applied.

Undoubtedly, the first outlay may be large, but experience shows that money so spent is certain to be amply repaid by the resulting benefits. Mr. Eyles has appealed to "simple arithmetic"; he will, therefore, doubtless appreciate the reasoning of one of us, who has mathematically shown that it is impossible under ordinary circumstances for a sufficiently large number of mosquitos to come into an efficiently protected, though comparative small, area from the outside to nullify the effect of thorough antimosquito measures.[1]

As a result of his experience at Belize, Mr. Eyles considers that an epidemic of yellow fever may be stamped out by isolating the cases as they occur from mosquitos by the use of nets and, as an additional precaution, by destroying mosquitos in the immediate environments of the cases. The most casual consideration of what is known concerning yellow fever demonstrates the fallacy of such reasoning. The difficulty of diagnosing yellow fever is admittedly often very great. It is certain that in every epidemic some cases altogether escape contemporary recognition until the disease has passed its infective stage; so that an unknown and uncontrolled number of mosquitos may feed upon the cases during the first three days of their illness, and may thereby become infected. Again, Marchoux and Salembeni[2] state that mosquitos hatched from eggs laid by infected insects are also capable of transmitting yellow fever.

Mr. Eyles's dictum makes no provision for the destruction of mosquitos infected in these ways. The measures he advises, though excellent, are therefore in themselves inadequate, especially since they leave a community depending upon them alone, in constant danger of becoming infected through the importation of infected persons or mosquitos by shipping.

Since Mr. Eyles's conclusions are so manifestly mistaken, it scarcely seems profitable to discuss the premisses from which they are reached. One last mistake, however, may be pointed out—Belize is surrounded by localities in which yellow fever is endemic, and from 1886 to 1891 deaths occurred there practically yearly from this cause. Mr. Eyles therefore admits that in 1891 the whole population was probably immune to yellow fever, but he asserts that the 5,000 persons by which that population had increased in 1905 were all non-immunes. He has evidently forgotten that yellow fever does not quickly leave a locality in which it has become endemic, and also that the disease in children, though it confers immunity, may be extraordinarily benign, and often passes unnoticed. A considerable proportion of those born at Belize since 1891 may therefore be safely considered to be immune. Moreover, is it certain that none of the immigrants, constituting the remainder of the increase in population, were immunes coming from neighbouring fever-ridden territories?—We are, etc.,

R. Ross,
A. Breinl,
J. L. Todd.

Johnston Tropical Laboratory,
University of Liverpool, Nov. 22nd.

INFLUENCE OF RAINY WINDS ON PHTHISIS.

Sir,—I have read with great interest the paper written by Drs. Gordon and Harper which appeared in the British Medical Journal of November 3rd.

They prove fairly conclusively in a series of very interesting statistics that those villages in North Devon which are exposed to the west, south-west, and some also to the north-west, possess a higher death-rate from pulmonary tuberculosis than the more sheltered ones. What is to be deduced from this?

I am inclined to the opinion that the higher rate from the above cause is not due directly to the exposure, but chiefly to a question of hygiene. The inhabitants living in the exposed districts (Class III in the paper) shut the doors and windows of their houses, and consequently live in a tainted atmosphere. More especially is this the case, as the districts named being mainly agricultural, the dwellings are probably of the cottage type, and therefore made all the more easily unhygienic by closed doors and windows, with probably a smoky chimney thrown in. The health of each occupant is consequently undermined, and a suitable soil provided for the growth of the tubercle bacillus.

On the other hand, the inhabitants of the non-exposed villages (Class I in the paper) do not shut themselves up in the same way as those living in the exposed districts, and so the death-rate from this special disease is lower.

The influence of soil does not throw much light on the subject, because the villages named in the sheltered section lie generally on more or less impervious soil, which would render dwellings, unless carefully built, damp and unhygienic. As a consequence, a higher death-rate from pulmonary tuberculosis would be expected in these villages, instead of the present low one, if soil were the chief factor.

The writers only take statistics from the female population, and they show that the largest mortality occurs amongst the married women. This is what one would expect, since they must necessarily remain at home occupied with their household duties, and are more exposed for a longer period to the bad hygiene of their rooms. It would be interesting if the male population were considered, and statistics of their death-rate from this disease shown, both in the exposed and non-exposed districts. These districts being mainly agricultural, the men would live more out-of-doors and not exposed for such long periods in the twenty-four hours, as are their womenfolk, to the bad hygiene of their homes. One would look for a lower death-rate in the male population in the exposed districts.

An interesting fact is the number of cures which can be obtained in the exposed districts of Dartmoor. Take, for example, the results obtained at the Devon and Cornwall Sanatorium for the working classes at South Brent, which has a south-westerly exposure, they will compare favourably with those obtained at any other sanatorium.

I do not undervalue the paper written by Drs. Gordon and Harper, but I think they only show what one naturally expects, and that good hygiene in the building of cottages is of the utmost importance, especially those situated in exposed districts.—I am, etc.,

Yelverton, S. Devon, Nov. 6th. J. Penn Milton.

Sir,—Dr. Gordon is still "pegging away," and trying to prove that populations exposed to S.W. winds suffer from phthisis more than the same people sheltered from them. If any medical man cares to take the trouble to visit the district Dr. Gordon refers to, he will soon convince himself that the spread of phthisis is chiefly due to dirt and *want* of ventilation.—I am, etc.,

Lechlade, Gloucestershire, Nov. 8th. F. W. Pilkington.

THE PROPOSED UNION OF THE LONDON MEDICAL SOCIETIES.

Sir,—There is a paragraph in the letter under the above heading by Sir William Church, published in your issue of to-day, which demands more than passing notice. He writes: "It is hardly necessary to point out that the refusal of one or more societies to join does not in the least affect the movement." Precisely! nothing could show more plainly than this the attitude assumed by the promoters of the scheme. At all hazards they have made up their minds to carry it through, despite any and every opposition. Moreover, the paragraph in question implies a threat. Obviously it reads: "If you don't join us—well, it will be all the worse for you." Surely this is not the spirit which should actuate a movement of such import as that under discussion? Is there or is there not a general feeling of enthusiasm for this proposed "combine" of the London medical societies? Emphatically there is not, even apart from those who have actively opposed it. The question is not one of old-time conservatism which is rebellious against untried innovations, but one in which no practical advantage, so far as the individual societies are concerned, can be advanced in support of the proposed change.

[1] R. Ross, 1905, The Logical Basis of the Sanitary Policy of Mosquito Reduction, British Medical Journal, vol. i, p. 1025.
[2] *Annales de l'Institut Pasteur*, vol. xx, No. i, p. 39.

I am well aware of all the alleged advantages which have been brought forward as justifying this great "combine," but I am not aware that any one has been genuinely impressed by them, apart from those who have pledged themselves to carry the scheme through. I may be in a very small minority, nevertheless my conviction has always been that autonomy, as illustrated in the separate existence of the London medical societies—which in the past has always worked well—is the best and only principle for securing their efficient organization, a principle, be it observed, upon which the members of the Ophthalmological Society have set their seal by refusing to take part in the "combine. In what respect and to what degree do such societies as the Medical, the Obstetrical, and the British Gynaecological—societies of world-wide reputation—expect to profit themselves by submerging all their past distinguished careers in this proposed heterogeneous creation? Surely further reflection should "give them pause," and suggest the expediency of giving effect to the courage of their convictions by following the lead of the members of the Ophthalmological Society.

But in respect to the question of the foundation of a Royal Academy of Medicine in England, every one is probably agreed regarding the expediency of the realization of such a scheme. The method, however, of proceeding to the organization of this undertaking must obviously be vastly different from that by which it is sought to be accomplished in the attempt to form a combination of the existing medical societies.—I am, etc.,

London, W., Nov. 24th. PERCY DUNN.

THE TAXATION OF MOTOR CARS.

SIR,—The subjoined resolution, based on the letter from Mr. Lockwood and Dr. Bruce Porter on this subject, was proposed at a recent meeting of the Shropshire and Mid-Wales Branch, and carried unanimously, and it was decided to send a copy to each member of Parliament for the district. Perhaps other Branches may think it worth while to bring forward some similar resolution on this important subject, as it would probably carry more weight than letters from idividuals.—I am, etc.,

Shrewsbury, Nov. 24th. R. DE L. STAWELL.

The members of the Shropshire and Mid-Wales Branch of the British Medical Association feel strongly that any increased taxation on motor cars will press heavily and unfairly on the large and increasing number of medical men who use motors for their professional work, and earnestly hope that members of Parliament will assist them in obtaining exception from any such additional burden.

They would desire especially to draw attention to the following points:

1. To meet the exacting requirements of medical practice cars must be substantially built, and of adequate horse-power to carry a suitable body affording protection from the weather. To be reliable, and capable of withstanding hard work over any roads in all weathers, the materials and workmanship must be of the best. Thus a tax, whether based on weight, horse-power, or price, will fall heavily on the medical man.

2. The use of motors by medical men is of great advantage to the public, not only especially in all cases of urgency or in times of epidemics, but under routine conditions, as the rounds are shortened, and visits can be paid at more suitable times.

3. Although the use of motors presents so many advantages that medical men are feeling more and more obliged to adopt them in preference to horses, yet no economy is effected; but, as a rule, a considerable increase in yearly expenditure results from the change. And it is already increasingly difficult for the general practitioner to make a living, owing, among other causes, to the greatly-increased cost of medical education, the fees obtainable showing no corresponding augmentation, while the burden of taxation in general now falls heavily enough on the professional man of moderate means.

4. Medical men do not belong to the class who tend to damage the roads, and to make motoring offensive to the community. Their work is carried on in an area where they are well known, they have their reputation constantly to consider, and they cannot afford to run risks in any sense.

LIFE AND HEALTH ASSURANCE ASSOCIATION, LIMITED.

SIR,—I was approached by the same man Robins referred to in the letter written by Drs. Hammond and Pennington. As a graduate of Edinburgh University, I thought that the names of their chief medical officers—Joseph Bell, F.R.C.S.E., and C. W. Macgillivray, M.D.—were a sufficient guarantee that it would be safe to accept the appointment of Medical Examiner for the Reading District and to insure in the company.

The man Robins informed me that there were on an average two or three examinations every week, but since my appointment in June I have not been called upon to examine a single case for them. I know, however, that one report at least has been sent to them during that time, and it is possible that one or more other medical examiners have been appointed to the district of which I am the "sole medical examiner."

I have written to the manager at the head office in Edinburgh, and find that he appears to agree with the methods pursued by Robins, as he entirely ignores my references to those methods.—I am, etc.,

Reading, Nov. 26th. SIDNEY GILFORD, M.B.

ANIMAL EXPERIMENTATION.

SIR,—The wise remarks in the BRITISH MEDICAL JOURNAL on the immoderate and untrue statements of the *Daily Mirror* on the subject of animal experimentation induce me to give the practical results which ensue where such "vivisection" agitation has weight. Personally I may say I am one who is distressed by any unnecessary suffering in animals. It seems, however, clear that there is a choice between human suffering and animal experimentation, for where animal experimentation is not available (*a*) assistance in making a diagnosis is not forthcoming, and (*b*) research work by such means is debarred.

I have visited numerous hospitals in Canada and the United States this summer, and in the past similar splendid institutions on the Continent. It was quite clear, I regret to say, that they possessed a distinct advantage over many of our hospitals in this respect, for they could offer a more rapid and more accurate diagnosis to their patients than can we.

It is deplorable to add that the diffusion of scientific research on these lines is also materially diminished thereby throughout the country, and we are voluntarily allowing ourselves to drop behind in progress.

How much more practical it would be to devote our energies to the prevention of the vast amount of unnecessary suffering in animals, such as of homeless cats and dogs, that does exist.—I am, etc.,

Brighton, Nov. 27th. F. G. BUSHNELL.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.—The friends and members of the Irish Medical Schools' and Graduates' Association dined together at the Hotel Great Central, London, on November 28th, with the President, Dr. E. Irwin Scott, in the chair. Amongst those present were Inspector-General Lloyd, R.N., Sir J. W. Moore, Dr. Pye-Smith, Surgeon-General Keogh, Admiral Sir E. H. Seymour, Sir Dyce Duckworth, Sir Lambert Ormsby, Surgeon-Lieutenant-Colonel J. Moorhead, Mr. C. Ryall, Mr. E. Ryall, Dr. James Stewart, Mr. S. Boyd, Mr. Mayo Robson, Dr. Swanton, and Dr. McVail. Director-General Keogh, in proposing the toast of "Our Guests," welcomed Sir E. H. Seymour, and particularly extended a warm welcome to Dr. James Stewart. The Association honoured him as a guest because it was anxious to show him how it appreciated his twenty-two years' service as Secretary. Admiral Sir Edward Seymour, in replying to the toast, said that Irishmen would always be found fighting the foes of the Empire side by side. Dr. James Stewart said that the work to which he had devoted himself for thirty years near Clifton had had to be abandoned. Henceforward he hoped to do something to help those who had at heart the welfare of the general practitioner, who was being crushed between two millstones; the upper one was represented by the licentiates of the Obstetrical Society and of the Central Midwives Board, the lower stone was the out-patient departments of the hospitals. The British Medical Association had done its best for the unfortunate practitioner by its JOURNAL and by its Medical Secretary's department. Meanwhile the magnates of Harley Street and Rodney Street, with a few exceptions, were doing practically nothing to save their professional brethren from financial ruin. The hospital physicians and surgeons were not helping forward the effort of the British Medical Association to stop the abuse of the out-patient departments by making those people who were quite able to do so pay fees to general practitioners. The evening concluded with a musical entertainment.

MEDICO-LEGAL AND MEDICO-ETHICAL.

SOUTHERN *v.* THOMAS AND SKYRME.

The second hearing of this action was commenced on November 22nd, and continued on November 23rd, before Mr. Justice Bigham and a special jury in the King's Bench Division. When the case was heard at the Cardiff Assizes in December last, the jury failed to agree. The action was brought by Mr. Thomas Angus Southern, a mining engineer, against Mr. John Lynn Thomas, F.R.C.S., L.R.C.P., etc., consulting surgeon, and Mr. Henry Edward Skyrme, M.R.C.S., L.R.C.P., a general practitioner, to recover damages for alleged negligence in their treatment of the plaintiff. The defendants by their joint defence denied negligence, and alleged that they had exercised all due skill and care.

Mr. Duke, K.C., and Mr. Bailhache, appeared for the plaintiff; Mr. Rufus Isaacs, K.C., Mr. S. T. Evans, K.C., and Mr. Colam (instructed by the Solicitor to the Medical Defence Union), appeared for the defendants.

In opening the case, Mr. Duke stated that the questions at issue were very serious. The defendants were two surgeons practising at Cardiff. By reason of their alleged failure to exercise proper skill the plaintiff had been virtually deprived of the use of his right arm. It would be for the jury to say whether he was right in laying this injury to the charge of the defendants. On July 19th, 1904, while riding his bicycle in Cardiff, he was knocked down and dragged by a trap. His face and hands were torn along the ground, and in trying to stop himself he sustained an injury to his right arm. He retained consciousness, and was able to walk to a shop, from whence he telephoned to Dr. Skyrme, his usual medical attendant, to call upon him at his house. Dr. Skyrme arrived at about 6 p.m., when the plaintiff said he thought his arm was broken. Having dealt with the superficial wounds, Dr. Skyrme examined the arm. He said it was dislocated, not broken, and that he would reduce the dislocation by the "heel in the axilla process," by which means the head of the humerus might be persuaded to go back into the glenoid process. Dr. Skyrme told the plaintiff that he would hear the noise of the bone returning to the socket; but as a matter of fact he heard no noise which suggested any such thing. Subsequently Dr. Skyrme adopted treatment which was quite proper for dislocation. He placed the arm in a sling, and inserted a pad in the armpit; but finding that the patient could not bear the pain he wrapped a bandage round the body to keep the arm in position. Being anxious about his condition, the plaintiff desired a second opinion, and Mr. Lynn Thomas, the other defendant, came to see him at 8 o'clock the same evening. The plaintiff told him what had happened, and how he had been treated. Mr. Thomas examined the arm, and said he could detect a slight crepitus, showing that there was a slight fracture, a fact which he mentioned to the plaintiff. Having the knowledge and the warning of the existence of a fracture, he simply advised the plaintiff to continue the treatment already recommended, saying, in reply to the plaintiff, that a Roentgen ray photograph would be an unnecessary expense. Subsequently the plaintiff's arm commenced to swell daily, until on August 3rd it was the size of a man's thigh. Dr. Skyrme then advised the plaintiff to see Mr. Thomas once more and have a skiagram made. The skiagram, when developed, showed that the humerus was broken transversely just below the neck, the fractured part being drawn inwards by the muscles, while the fractured shaft was drawn upwards. On August 6th, Mr. Thomas said to the plaintiff: "I could have put the parts together, but they would have come apart." He also said that he might have performed a cutting operation, but that he did not recommend it, as the arm might become as good and as strong as ever. After this the plaintiff communicated with his friends. In consequence of the fracture not being reduced, bony union had begun, and had been continuing ever since, so that the shoulder was now locked in such a way that the plaintiff could scarcely move it. He (counsel) would submit to the jury that if a bone was broken, the first rule of surgery was to bring the ends together. That was common sense. What the defendants would say was that they thought there was no fracture, but dislocation. If that was a mistake, it was a serious mistake, which might have been remedied by better diagnosis; but it was no mistake, for Mr. Thomas had himself detected crepitus. Mere dislocation could have been reduced by the hand. If there had been a dislocation with a fracture, he had evidence that the treatment adopted was wrong, inasmuch as there was no attempt from first to last to set the fracture. The substantial question for the jury was whether the defendants had failed in their duty to the plaintiff.

The plaintiff, in giving evidence, said that he was formerly an inspector of mines for some years, but recently he had been teaching mining engineering by correspondence. This involved the making of diagrams and calculations for which the use of his right arm was essential. It was also necessary for him to go down the mines occasionally. He met with the accident on July 19th, 1904. His face and hands and toes rubbed along the ground. The upper part of the arm did not touch the ground. He never lost consciousness. He went to a grocer's shop, from which he went home in the trap. When he got home he waited a short time for Dr. Skyrme. When Dr. Skyrme arrived, witness said he thought his arm was broken. After dressing the face and hands, Dr. Skyrme took the witness's shirt off, and put one hand on his shoulder, moving the arm about. He said: "I see what is wrong, your shoulder is dislocated: there is no fracture. It is a subglenoid or downward dislocation, and it is very important to reduce it as quickly as possible. I am going to put my foot in your armpit. You will feel the bone go back into the socket with a thud." The pain was so great that the witness cried out. Dr. Skyrme then asked him if he heard the bone going back. Witness said he had heard something, but that it would require a great stretch of the imagination to believe that it was the bone going back. He then gave it another pull to make sure, placing his foot in the witness's armpit. Subsequently, Dr. Skyrme measured both arms and said they were the same length. He put his arm on the shoulder and said, "There is no fracture." I said, "Are you quite sure?" He said, "I am quite sure." I said, "I am very glad to hear it, Dr. Skyrme." Prior to this he had put a pad under the plaintiff's arm about 4 in. long and 1½ in. thick, which he said would prevent the shoulder joint slipping out again. Having put the pad in he held the arm against the side, but witness said he could not bear the pain. Since then he had never had a pad in his arm. Dr. Skyrme then put a bandage twice round witness's body just above the elbow, and said he was putting it on loosely in order to prevent the arm swinging out from the side. Witness then asked for a second opinion, and it was decided to summon Mr. Lynn Thomas. Before Dr. Skyrme left he said that the arm would be well in about three weeks' time. He also explained what had happened to the arm. In the evening at about eight o'clock Mr. Lynn Thomas arrived. Witness told him what Dr. Skyrme had said and what he had done. Mr. Thomas felt his arm all round the shoulder and then moved his arm. He measured both arms, said they were the same length, that he could detect a slight crepitus, and that there was a slight fracture which might be a small piece split off the bone. He offered to move the arm again in order that witness might detect the crepitus. He then said that he could do no more, and when witness mentioned setting, Mr. Thomas said there was nothing which required setting. Mr. Thomas ridiculed the idea of an *x*-ray photograph, saying, however, that he would take one if the witness liked, but that it would not alter the treatment, and would be an unnecessary expense. His uncle helped him to bed. In the early morning he slackened the bandage, which was too tight. At about 10 30 on that day Dr. Skyrme came to see him. On the same day he got up, and had his typewriter to help him. Nurse Hill was called in on witness's suggestion on July 22nd. The bandage round his arm and body was kept on until about the end of July, when it was removed as Dr Skyrme thought the arm should have a certain amount of movement. Dr. Skyrme never told him to place any restriction on his movements. The arm swelled and continued to swell. Witness expressed surprise at this to Dr. Skyrme, who, about the end of July, said that the forearm was as thick as his thigh. He also said: "There cannot be much of a fracture, because I moved the arm about in all directions and did not discover it." At the beginning of August Dr Skyrme suggested that an *x*-ray photograph should be taken. This was done at Mr. Thomas's house. On August 5th Dr. Skyrme told him that he had seen enough of the skiagram to know that the capsule was very much torn, that the condition of things was not such as he and Mr. Thomas had thought, and that they could not have discovered it without an *x*-ray photograph. Dr. Skyrme then recommended another consultation, which was held with Mr. Thomas on August 6th. On this occasion Mr. Thomas explained the negative to witness and his uncle. It was explained to him that the shaft of the bone was up in the armpit. Mr. Thomas said that nothing could be done except by an operation which would involve cutting down to the bone. He said, however, that such an operation would be dangerous, as there had been so much swelling of the arm. He advised witness to leave the arm as it was and it would get all right in time. He mentioned another patient whose arm had suffered in the same way and had come right. He accepted the advice. Witness put the matter into writing to his friends.

Mr. Justice Bigham: Why did you do that?—I put it into writing because I distrusted the defendants' treatment.

Continuing, witness said he obtained some prints of the skiagram. On August 10th Dr. Skyrme said he had made a mistake on August 5th when he told witness that the capsule was torn. He was not experienced in *x*-ray photographs. Witness asked him why he had not set the fracture, and he said, "You could not have borne it in splints, for with such swelling they would have stopped the circulation. Don't you remember that I put a pad in your armpit and you could not bear it?" I said, "If you had first set the fracture I could have borne it quite well." Witness then explained that he was dissatisfied.

Mr. Justice Bigham: In the meantime you had consulted your friends?—Yes; I had seen a doctor.

Mr. Justice Bigham: When was that?—On August 11th or very soon after.

Continuing, witness said he knew something of surgery through having attended ambulance classes. On August 20th he went abroad, and arrived in Hamburg on August 22nd. The arm was then quite stiff. Skiagraphs were taken at the Zander

Medical Institute, and he was treated at that place. The result of the treatment was that sling and bandage were discarded. He returned home about the end of September. On August 11th the plaintiff wrote to Mr. Thomas making certain inquiries with regard to his condition. On August 17th Mr. Thomas replied that he was accustomed to communicate with his patients through a general practitioner. On September 28th, Mr. Skyrme wrote saying that gangrene would have supervened if they had adopted any other course. The witness replied to this on October 1st. He could now use his arm to some extent, but even signing his name to letters was painful. He could not raise his arm to a greater angle than 30° from his side. In making his claim for special damage he made allowance for six weeks as being a period during which he was disabled owing to the accident. He claimed special damage to the extent of £164 6s. 6d. At the present time he was having massage constantly. His net income during the year previous to the accident was £450. His gross income was £1,100.

Cross-examined by Mr. Isaacs, witness said that Dr. Skyrme had attended his family for three years. He had every confidence in him. His arm was in the same condition now as it was during the Cardiff trial. It had been hurt in the crowd coming into the court. He could not dress or undress without pain. He had not studied any medical work other than an ambulance book prior to the accident. Since consulting Dr. Cooke at Cardiff he had consulted about a score of doctors. He could give a list of them if necessary. Cross-examined as to the details of the accident, he said that his arm was not on the ground. His hand was trodden on by the horse's foot. He brought an action against the owner of the horse and trap. It was brought for him by the Cyclists' Touring Club. Witness said that there was no blow or injury given to his arm.

Mr. Isaacs: I suggest that in that action you said your arm was trodden on?—I say it was not. It was a mistake in the answer.

Mr. Isaacs: In that case did Dr. Skyrme say there was a dislocation?—Yes; but it was not true.

Continuing, witness said that while being dragged he was conscious. He was in great pain when he got home. Dr. Skyrme reduced the dislocation on the couch in the dining-room. It was true that he gave two pulls in order to make sure.

Mr. Isaacs: I suggest that you did not mention the second pull at the last trial?—I cannot remember.

Mr. Isaacs: How many times did Dr. Skyrme say there was no fracture?—Twice. I cannot say exactly when he told me the second time.

Continuing, witness said he did not complain of the treatment prior to August 6th, although he was doubtful at times. He had had nothing to do with *x*-ray photographs prior to that Saturday. Mr. Thomas did say on August 6th that it was exactly where he thought it was. That, however, did not agree with what he said before. It was a lie.

Mr. Isaacs: Do you suggest that he was saying what was untrue?—He was committing downright perjury. The trial at Cardiff was obtained by false affidavits.

Mr. Duke: You had better not go into that.

Continuing, witness said they had a discussion about an operation. He said he would not take the responsibility of such an operation. He also said that on the former occasion he could have put the parts together, but they would not have remained so.

Mr. Isaacs: You say as to Dr. Skyrme that he treated you for dislocation which did not exist?—Yes. He acted from that time in the way Mr. Lynn Thomas suggested?—Yes, I suppose so.

The responsibility was then upon Mr. Lynn Thomas?—Yes.

Witness: Other things might occur which would shift the responsibility.

By the Court: This is hardly a question for the witness.

Continuing, witness said that his great complaint against them was that they did not set or attempt to set on July 19th. On that day Mr. Lynn Thomas said, in effect, that there was no displacement, nothing that required setting.

At the sitting of the Court on November 23rd, Mr. Justice Bigham intimated that in view of the fact that the cost of the proceedings would probably be out of all proportion to the damages, if any, which the plaintiff recovered, he hoped that the case might be shortened as much as possible.

Mr. Isaacs said that having regard to what his Lordship said, he would not take the plaintiff through the whole story. It was sufficient that he laid the foundation of his cross-examination.

Mr. Justice Bigham: You are right. The real question in this case is between the medical experts.

Mr. Watson Southern, the plaintiff's uncle, said that he was present when Mr. Thomas arrived. The plaintiff told Mr. Thomas that Dr. Skyrme had reduced the dislocation and that there was no fracture. He also said that he wanted a second opinion; it was his right arm, and he wanted to be sure that there was nothing further wrong with it. Mr. Thomas, on feeling the arm, said that he could detect crepitus; that there was a slight fracture, but nothing of any consequence. He explained that crepitus meant the rubbing of one bone against another. Plaintiff was to keep his arm in the sling, and in a few weeks it would be all right. His nephew suggested an *x*-ray photograph, but Mr. Thomas said it was unnecessary, nor was it necessary to set the arm or put it in splints. Witness let Mr. Thomas out. There was no interview between Mr. Thomas and Dr. Skyrme in his presence. Witness went to Mr. Thomas's office on August 6th after the *x*-ray photograph had been developed. Plaintiff had given a correct account of the interview.

Cross-examined by Mr. Isaacs: Plaintiff told Mr. Thomas that Dr. Skyrme said there was no fracture.

Mr. Isaacs: The important question is whether Dr. Skyrme told the plaintiff that there was no fracture. There was nothing said about displacement in his presence. It might have been said, but he did not remember it. He could not detect any swelling in the arm. There might have been, but he did not detect it.

Certain other witnesses having been called,

Mr. Augustus Joseph Pepper, F.R.C.S., M.B.Lond., etc., Consulting Surgeon to the London Commissioners of Police, and Consulting and Advising Expert to the Treasury, was called and examined by Mr. Bailhache. Witness had seen Mr. Southern on February 20th, 1905. He had previously had a statement from him about the accident and injuries, which was substantially the same as what he had said in his evidence. He examined him in consultation with Mr. William Rose. He found that there had been a fracture of the surgical neck of the humerus. He had the two skiagrams before him, that taken by Mr. Thomas and that taken at Hamburg. The right arm was considerably wasted from disuse, and was 1½ in. shorter than the other. The bones had been joined side by side, not end on, partly by fibrous tissue and partly by new bone. The union was in the position shown on the skiagrams. There was marked displacement of each fragment.

Mr. Justice Bigham here pointed out to the jury the position of the fractured parts in the skiagraph.

Continuing, witness said that the ordinary treatment of such a fracture would be to bring the two fractured surfaces together end on. The union was now permanent. Plaintiff could at that time move the the elbow 5 in. from the side, and it was no better now. The disability which he had described was correct. An operation could now be performed to separate the two pieces of bone, but he would not urge it. Fracture of the surgical neck of the humerus was a common fracture. Assuming there was no dislocation, the recognized treatment was to bring the two ends into proper position—in other words, to set the fracture. Fractures like this were generally accompanied by an effusion of blood. There must be some and might be much. This blood went partly in and around the broken bone, and there might be considerable escape into the armpit. Such a fracture was generally easy of diagnosis, but not always. It might be difficult. Here marked displacement of the broken pieces would make the diagnosis more easy. The rigidity of muscles, effusion of blood, and swelling might make the diagnosis difficult. Assuming that the fracture was diagnosed, and that there was considerable effusion of blood, the general rule would still be to reduce the fracture, and the usual practice now and in 1904 was to use the *x* rays. If there was an abnormal effusion of blood and he thought it unwise at once to reduce the fracture, he would keep the patient in bed and the arm on a firm pillow in order to allow the blood to become absorbed. He had heard a description of what Dr. Skyrme did—[counsel here referred to Dr. Skyrme's evidence on the last occasion]—namely, the adoption of the "heel in the axilla" process. Witness was familiar with the method as described by Mr. Southern—namely, the heel in the armpit—which was a well-known method of dealing with dislocation. A dislocation might by the barest chance have been reduced by the method described by Mr. Southern, but it would have been exceedingly dangerous. The danger would be the risk of moving the fractured head of the bone and damaging the blood vessels in the armpit. No leverage could be got except upon the long fragment.

Mr. Justice Bigham: It is common ground that there was a fracture of the bone right through. Mr. Southern says Dr. Skyrme placed his heel in the armpit, and pulled the wrist. The object of that was to pull the bone into the socket. How could it?—I do not suggest the pulling could do it. The pushing of the heel might by the barest possibility push the short piece into place.

Continuing, witness said the method adopted and described by Dr. Skyrme in his evidence was useless, and would be less likely to be useful than manipulation with the fingers.

Mr. Bailhache: This is what Dr. Skyrme said on the former occasion: "I put him lying on his back on the bed, and I seated myself on the edge of the bed, and then, taking hold of the arm by the wrist, I pulled gently on it, and held it out a little from the side. I should say I had taken off my boot before then, using the side of the sole of my foot and my toes, I pressed them against the side of his chest, pushing upwards when holding on the wrist so as to insinuate them between the end of the bone and side of the chest. I then felt the head of the humerus go in. I examined the armpit and found that it had left the axilla." Witness said he had never heard of such treatment. No purpose would have been served by pulling on the arm. To judge from the evidence, he was of opinion that there was no dislocation. Assuming there had been dislocation and fracture, the first thing would have been to reduce the dislocation.

Mr. Justice Bigham: The bones could not have been jerked

into position?—No, it would have to be done by manipulation. The fragments would then be brought together as if no dislocation had occurred.

Continuing, witness said there would have been no difficulty in keeping the pieces in end-to-end apposition with splints. The fracture in this case was nearly transverse.

Mr. Isaacs: Does that mean that it is not oblique?—There was a slight obliquity.

Continuing, witness said that the greater the obliquity, the greater the difficulty of keeping the parts together. Fracture with dislocation was rare. As a rule, where there was a fracture only, the arm would get right in three months at the very outside. Where there was fracture and dislocation, recovery would take longer, as the capsule would be injured. Assuming that the patient had been unable to bear the pain of reducing the fracture, he would have given an anaesthetic.

Mr. Bailhache here read the defendant's answers to one of the interrogatories, which was in the following terms: "The plaintiff was suffering from fracture of the surgical neck of the right humerus with marked displacement of the lower fragment upwards and inwards. He also had a large haematoma or effusion of blood into the region of the fracture due to the main blood vessels being injured, and therefore the arm was in danger of becoming mortified." Witness said that the large artery and veins under the arm might have been injured. If so, there would have been enormous swelling in the armpit, and a weakening or absence of the pulse in the wrist. Had this occurred, it would have been necessary to open the armpit, clear out the blood clot, and tie the vessel. Even if the veins had been injured, there would have been a great effusion, but this might not have necessitated an operation. If there had been such injury as to cause danger of mortification, the patient should have been kept in bed, and his arm kept quiet. No apparatus could have been used if there was danger of gangrene. He did not think there was any reference to gangrene in the defendants' case books.

Mr. Justice Bigham: We had better have these entries.

[Counsel read them. Dr. Skyrme made no mention of fracture. In Mr. Thomas's diary it was stated that he "felt crepitus, and explained to patient the existence of dislocation with slight fracture."]

Mr. Pepper: There is mention of a trivial matter, such as the use of boracic acid, but no reference to the serious matter. Continuing, witness said that no doctor would allow a patient to walk about with impending gangrene. If there was impending gangrene on the day of the accident, it had obviously disappeared, or the doctor would not allow the patient to walk about. The threatening of gangrene must have disappeared in two or three days, and the defendants should then have proceeded to set the fracture; within that time there would have been no growth of callus. The object of putting a pad under the armpit was to prevent the lower fragment slipping out into the armpit. It acted much as a splint acts.

Mr. Justice Bigham: According to the plaintiff, this was only put in for a second or two, and it was so painful that he could not bear it?—At the previous trial a different pad was discussed. The plaintiff did not say whether the pad was compressed or not.

Mr. Duke: On the former occasion it was alleged that the plaintiff had interfered with the pad.

Mr. Justice Bigham: A good deal of this examination appears to anticipate the cross-examination.

Continuing, witness said that the treatment was improper in that there was total absence of treatment of the broken arm. From what he saw when plaintiff described his case, the witness thought that there never had been dislocation.

Cross-examined by Mr. Isaacs: He had had two cases of subglenoid dislocation under his observation. One he had seen, and in the other he was consulted as to what should be done. One was twenty-five years ago, and was mentioned in a surgical work, and the other was about three years ago.

Mr. Isaacs: Is yours a large experience of fractures?—I am surgeon to a large hospital, and have seen many.

This is a rare case?—Yes, it is very rare.

There are specimens of it at the Museum of the College of Surgeons?—Yes, I have probably seen them. I do not know how many specimens there are there.

Mr. Isaacs: Assume fracture without subglenoid dislocation, are there instances of that in the museum?—Yes, but I cannot say I remember any of the specimens.

Is it not the fact that in the large majority of instances there is not a union of the bone end to end, but by an overlapping?—Witness was understood to say yes.

Will you agree that the specimens are put in the museum to show that the ordinary union is by overlapping, if Sir Frederick Treves says so?—Of course, if he says so.

They are put there as specimens of ordinary not of extraordinary cases?—Yes.

Mr. Duke: The witness assumes by hypothesis that the specimens are there.

Mr. Justice Bigham: If some witness comes to say that they are there that will be sufficient.

Continuing, witness said that in his opinion the vast majority of such fractures are united end to end. He had seen dozens of cases of fracture of the surgical neck, several in recent years. He had operated on two cases since the last trial. He could produce an *x*-ray photograph showing an end-to-end union. He could also produce the patient. He had *x* rays taken both before and after the union, so that both displacement and union could be shown. In that case he had not seen the case until eighteen days after the accident, and he operated on the twenty-first day. He cut down, and fixed the ends together, not by peg or wire, but by splints. Skiagrams only show the bone; they would not show callus, and although callus might be forming it would not be apparent. It was necessary to know how to interpret an *x*-ray photograph.

Mr. Isaacs: The patient would require to have the skiagram explained?—Yes.

Cross-examining the witness as to the accuracy of *x*-ray photographs, Mr. Isaacs here read a passage from *Three Lectures on Complicated Fractures and their Treatment*, by Mr. Keetley.

Continuing, witness admitted that *x* rays enabled the operator to find out what he had done much better than before. In the case which he (counsel) had referred to, it was true that the skiagram had shown the union of the wrong bones, although to all outward appearance the operation had been successful.

Mr. Isaacs: Is it right to say that you do not usually set or succeed in setting broken bones?—In the vast majority of cases we do.

You know Dr. Frank Hastings Hamilton's book published in 1834?—Yes. It is a classic.

[Mr. Isaacs referred to a passage (on p. 43) in which the writer said that in the vast majority of cases the bones were not brought into apposition.]

Mr. Isaacs: Do you agree with that? My opinion is that in the majority of cases you get apposition, but not complete apposition. That is an important distinction. If he means that surgeons do not "completely set." I agree with him.

Continuing, witness said that in Mr. Southern's case there was complete displacement and overlapping. The two surfaces did not remain in apposition. It would have been impossible to put the two parts of the broken bone into splints. The head of the bone was about 1½ in. long. Ordinary splints would not be able to compress the short piece. A poroplastic splint might have been moulded on to the shoulder. The sole object of that would be to prevent the fragments getting out of place.

Mr. Isaacs: I suggest that even with that the upper fragment would always be beyond your control?—Certainly not; it would be affected.

Continuing, witness said that, assuming that there was dislocation and fracture, the only way to reduce the dislocation, short of an operation, was by manipulation or "heel in the axilla." To reduce the dislocation he would require steadiness. Pulling on the wrist would tend to steady the broken shaft, but it would also have an undesirable effect, which would counteract the steadiness; it would cause contraction of the muscles.

Mr. Isaacs: I suggest that by a pull you would get the upper head of the bone out of the way?—You could never pull it away sufficiently far to do any good.

Would there be anything improper in Dr. Skyrme's method of pushing with his foot?—Yes, if he had his hand to use it.

But he was using his hands to pull the shaft away?—Yes, but I say that would do no good.

Mr. Isaacs: That is the point at issue between us.

Witness: You cannot produce any surgical book which says that pulling was the proper treatment.

Mr. Justice Bigham: You must not cross-examine Mr. Isaacs.

Mr. Isaacs: I shall have living witnesses on the subject.

In answer to further questions witness said that he could not tell from looking at the patient now whether there had been dislocation or not. Dislocation and fracture would undoubtedly indicate a very severe injury. Displacement was a very important element. The wider the displacement the greater, in general, would be the difficulty of bringing the parts together. It did not, however, always depend upon distance. Assuming the fracture, a sling was suitable where there was extravasation. The use of a sling had the effect of counteracting the weight of the forearm. If there was broken tissue in the shoulder which might lead to gangrene, no splints could be put on, nor could the poroplastic be put on immediately. The only method would be to keep the arm in the sling. After about a week there would be an exudation of callus which would ultimately turn to bone.

Mr. Justice Bigham: They say the condition of things was quite different to what you say it was.

Continuing, witness said that the main cause of the swelling, which continued up to August 3rd, was the presence of the broken portion in the armpit. Assuming that the swelling did continue between July 19th to August 3rd, the defendants were negligent in not trying to stop it. They could have done this by bringing the two parts into apposition in the ordinary way—that is, by traction—pull in one direction, and pressure in the other. This could be done, although the swelling was there.

Mr. Justice Bigham: We are getting into a mist. I understood him to say a short time ago that if there was a swelling the man should be sent to bed. Now he says that if the swelling continues he could stop it by reducing the pressure in the arm.

Continuing, witness said he would not give an anaesthetic if it was dangerous to give it. As to danger of gangrene, there might be some. So long as there was danger of that, none of the remedies to which he had alluded could be adopted.

Re-examined by Mr. Duke: Assuming the patient was in danger of mortification, it would be exceedingly dangerous to allow him to go about his work. It would require the greatest care. He had never heard of any patient being allowed to behave as Mr. Southern had behaved. If a fractured arm were left unattended it would unite in a faulty position.

Mr. Duke: It is suggested that this is what you expect in surgery? Certainly not. My experience is that you endeavour to get the parts in to end-to-end position. I see no reason in this case why Mr. Southern's arm should be crippled—at any rate to the extent that it is. The way in which the alleged dislocation was said to have been got rid of leads me to think that there was no dislocation.

Mr. Duke here referred to a diagram of the reduction of a dislocation without fracture which is printed in *Erichsen's Surgery*.

Questioned as to this, witness said it was the application of power at the upper and lower parts of the arm. He could not see the use of it where there was dislocation fracture. If there was mortification the treatment would be a finishing stroke to the patient.

Mr. Duke at this point cited passages from *Hamilton's Surgery*, 1871 edition. The passage is also set out in the 1884 edition, p. 62, from which it was read by Mr. Justice Bigham.

Continuing, witness said he quite agreed with the passages which had been read. It had never been in accordance with his practice to make no attempt to produce apposition of the broken ends. In this case the fracture was very nearly transverse. With reasonable precautions, he was of opinion that sufficient apposition might have been obtained to make the plaintiff's arm as useful as it was before. The coaptation of the fragments had a very important effect upon the success of the treatment. Assuming that this was a case of great doubt and difficulty on July 19th, the patient should have been given an anaesthetic in order to prevent muscular contraction. The *x* rays should then have been applied. He had heard nothing to indicate that this injury had been caused by a direct blow: it was more likely the result of indirect injury.

Mr. Justice Bigham: It is said that Mr. Thomas alluded to a slight fracture. What is it?

Mr. Duke: I do not know what it is.

Mr. Pepper said there might be a small piece broken off. There might also be a "green stick" fracture which would not produce any crepitus.

Mr. William Rose, F.R.C.S., M.B., B.S.Lond., said he had examined the plaintiff together with Mr. Pepper. He had read the defendant's evidence. He agreed generally with Mr. Pepper. Assuming there was fracture without dislocation, the treatment was not proper. Assuming there was fracture and dislocation, it was also improper. The method adopted by Dr. Skyrme was a new method to him—a variation of the heel in the axilla process.

Mr. Justice Bigham: I do not think it is suggested that it is right to use the toes instead of the fingers.

Mr. Isaacs: What I say is that hands are used in another part of the operation.

Mr. Justice Bigham (to witness): Did you ever hear that given as a reason for using the toes?—No.

Continuing, witness said that assuming dislocation, fracture, and gangrene, what Dr. Skyrme had done was dangerous. The proper way of proceeding to reduce the dislocation would have been manipulation by both hands while an assistant steadied the arm.

Mr. Justice Bigham: You mean to say the servant girl you saw to-day would have done?—Yes, she would have done for me. I would have made her hold the patient's forearm. I should have used the ten fingers instead of the five toes.

Continuing, witness said that in his opinion there never was dislocation. The bone never left the socket. The first thing which should have been done on finding fracture would have been to put the bones in apposition. From the skiagram he thought there was every reason to think that the bones would have been brought into apposition. It was the ordinary treatment. Assuming that there was serious risk of injury from mortification the patient should have been put to bed and kept at perfect rest. If the swelling continued examinations should have been made, and when the swelling subsided every effort should have been made to bring the bones into position. The swelling was caused by effusion of blood and serum due to the presence of the jagged end of the lower fragment in the armpit as well as to the jagged end of the upper fragment under the shoulder. The lower fragment would have been in contact with the large veins, and any movement of the jagged end would have been likely to produce fresh haemorrhage. Even if there was no laceration the presence of the bone would obstruct the flow of blood, and cause the engorgement of the veins in the lower arm. *X* rays should be used as early as possible in all cases. He would not urge an operation on the plaintiff at the present time, but would undertake it if he asked him.

Cross-examined by Mr. Isaacs: *X* rays were most necessary in all injuries about the shoulder. Witness's knowledge of Mr. Thomas was that he would be only too glad to avail himself of the *x* rays. Subglenoid dislocation was an easy thing to diagnose. With fracture it was exceedingly difficult; he meant when there was swelling.

How many cases have you had of fracture and dislocation?—That is a difficult question. In the three or four cases in which I have seen it I had not the advantage of the *x* rays, and could not say the nature of the fracture. I have had three or four fracture dislocations which might have been cases such as this. The fracture might have been in the surgical neck of the humerus.

Mr. Justice Bigham: Have you ever had a case where there was fracture of the surgical neck and dislocation?—Yes, but I could not actually locate the fracture. In one such I reduced the head of the bone by manipulation.

(To be continued.)

THE "CHRISTIAN SCIENCE" CASE.

AT the Old Bailey last week, Mr. Robert F. Chisholm was indicted on a double charge of manslaughter and neglect, under Sec. 1 of the Prevention of Cruelty to Children Act, 1904. This offence may be established by proving a deliberate failure by the defendant to supply proper medical aid where such aid would have prolonged the child's life—see the cases of R. v. Downes (1875) 1 Q.B.D. 25, and R. v. Senior (1899) 1 Q.B. 283. Apart from the Act, a person is guilty of manslaughter if he is (*a*) under a duty to supply food or medicine; (*b*) to a child or person who is unable to provide it for himself; and (*c*) wilfully neglects to do so; and (*d*) the person dies in consequence.

In this case the defendant's boy was taken ill on October 4th. No doctor was called in, but on the 6th a "Christian Science healer," a Miss Turner, came in and treated him with "prayer." All supposed it to be mumps. Miss Turner had been a nurse, and on the 11th suspected that it was diphtheria, but after consulting another lady, a Christian Scientist, Miss Jones, dismissed the idea. On the 15th the defendant, fearing the boy might die, reminded Miss Turner of the probability of an inquest and asked her if she feared publicity, and she replied she did not. A change was suggested, but the same treatment was continued. The boy died early the next morning. He was 10 years old, and was said to be a believer in Christian Science.

The prisoner was defended by Mr. G. C. Kingsbury, and Messrs. C. Matthews and A. Gill appeared for the prosecution.

The evidence of Miss Turner was to the effect that she was a "practitioner," that is, she "prayed" for healing, and received a fee for so doing; anyone could be a practitioner who had "faith" in "prayer." This boy did not recover because she had not strong enough faith. If she had the same faith that Jesus exercised when upon earth she would have a right to expect similar results. All along she thought the boy was only suffering from mumps. If she had thought it was diphtheria she would have reported it to the medical officer of health in accordance with the law.

Dr. T. H. Bishop was called in when the boy had died, and hearing of the symptoms formed the opinion that he had died of diphtheria. He said he had no doubt if the usual remedies had been applied, life would have been prolonged. He referred to the antitoxin treatment.

Dr. W. H. Wilcox supported this opinion, and both witnesses admitted the possibility of mistaking diphtheria for mumps in its initial stages.

The defence was that the prisoner could not be held guilty of manslaughter or *wilful neglect* when he had simply made a very reasonable mistake in diagnosis and had had the boy most carefully treated, and that medical aid could not have prolonged life.

Mr. Kingsbury called Dr. R. A. Birdwood, who also said it was reasonable for a layman to mistake diphtheria for mumps, and that it was possible to have a case of diphtheria that no medical man could diagnose until after death. In this case fatty degeneration of the heart had set in, and neither the antitoxin nor the strychnine treatment could have prolonged life.

Mr. Justice Grantham, in summing up, said there were difficulties in the case owing to the fact that the diphtheria had been mistaken for the trifling disease of mumps, and, as the doctor's evidence showed, reasonably mistaken. This fact served to distinguish the case from those cases where the prisoners knew the child to be suffering from a serious disease.

The prisoner was found guilty of neglect, and acquitted on the charge of manslaughter.

The Judge, after solemnly warning the prisoner and his co-religionists, allowed him to be discharged on entering into his own recognizances in £100 to come up for judgement if called upon.

A DISCLAIMER.

SOME time ago we drew attention to a column headed "My Lady's Boudoir" in the *Free Lance*, conducted by "Dr. A. W. Wheatley," and we pointed out that there was no one on the *Medical Register* whose name exactly corresponded, but that there was a "Dr. Arthur W. Wheatly." This gentleman promptly noticed our annotation, and wrote to state that he had nothing whatever to do with the column in question. We have received a further communication from Dr. Arthur W. Wheatly complaining that while he has succeeded in getting this column in the *Free Lance* suppressed, he is troubled by the same annoyance cropping up in a new and aggravated form as

the "Du Barri" Face Treatment Company, of 17, North Audley Street, which advertises "Dr. A. W. Wheatley" as the medical supervisor of the company's institute. He wishes to repudiate all knowledge of this company, and to publish a disclaimer in the lay press. We can see no objection to his doing so, and should advise him to consult one of the medical defence societies to see whether nothing further can be done to check the proceedings of this "Dr. A. W. Wheatley."

EXCLUSIVE CLAIM TO APPOINTMENTS.

J. N.—We agree that when a medical practitioner having reached the age limit, is compelled to retire from a Government appointment, his son has no exclusive claim to the post, which is thrown open to all duly qualified applicants who have a right to apply. It would be contrary to the public interest if the medical profession were to attempt to maintain a rule that such appointments should always be allowed to pass from father to son, or to be transferred with the practice.

OBITUARY.

EDMUND SYMES-THOMPSON, M.D.Lond., F.R.C.P.

We regret to record the death on November 24th of Dr. Symes-Thompson. He was born in 1837, the son of the late Dr. Theophilus Thompson, F.R.S., and received his early education at St. Paul's School. He afterwards entered King's College, where he gained numerous prizes and certificates of honour. He commenced his medical studies in 1856, and at the M.B. examination of the University of London in 1859 he took honours in surgery, obstetrics, and physiology, and was University Scholar in Medicine. He served the offices of Clinical Clerk and Dresser and of House-Physician at King's College, and in 1860—the year in which he graduated M.D.—was elected Assistant Physician to King's College Hospital. In the following year he was elected Assistant Physician to the Hospital for Consumption, Brompton, and shortly determined to devote his attention especially to this disease. He resigned the position at King's College Hospital in 1865, and became full Physician to the Brompton Hospital in 1871. Four years earlier he had been elected Professor of Physic at Gresham College, an appointment which he retained until the end of his life. He was also Physician to the Home for Consumptive Females and to the Artists' Benevolent and Artists' Annuity Funds, as well as to several other charitable institutions. He published a revised and extended edition of his father's clinical lectures on pulmonary consumption, and wrote many articles on the treatment of the disease and on the influence of climate. He was one of the foundation members and an ex-President of the British Balneological and Climatological Society.

Dr. Symes-Thompson was a consistent Churchman, and took a deep personal interest in many church institutions for the benefit of the people; he was one of the founders of the Guild of St. Luke, and its Provost from 1893 to 1902; he helped to establish the annual medical service at St. Paul's Cathedral and the Medical Missionary College. Another direction in which he did valuable public work was as Chairman of the Training College for Teachers of the Deaf on the Oral System at Ealing.

For many years Dr. Thompson's chief recreation was travel, but some years ago he took a country house at Finmere, near Buckingham, and it was there that his fatal illness, characterized by aphasia and paresis, overtook him about three months ago. Up to that time his mental and physical activity had not diminished, he had resumed the study of botany, always a favourite pursuit, and had recently consented to be nominated a J.P. for Oxfordshire. Although he had not relinquished practice he had for some years not shown so much activity in this respect as formerly, his interest being much centred in assurance work. He had long been Physician to the Equity and Law Insurance Society, and was an active member of the Life Assurance Medical Officers' Association.

We are indebted to Dr. Theodore Williams for the following note:

I should like to bear testimony to the worth of my dear old colleague, Symes-Thompson, who passed away on November 24th, after a long and useful medical career. I had the privilege of being his colleague at the Brompton Hospital for thirty-nine years, and always found him an excellent fellow-worker, never failing in energy and in courtesy, and the best of friends.

He was appointed Assistant Physician in 1863, and became Physician in 1869, succeeding, with a ten years' interval, to the same wards which his father, Dr. Theophilus Thompson, had held, and, after holding these wards for twenty years, Dr. Symes-Thompson, in 1889, became Consulting Physician and retired from the active staff of the Brompton Hospital, but continued to take deep interest in the work of the institution.

He was remarkable for his rapid examination of patients, especially of out-patients, and the quickness of his diagnosis, which was generally correct. I remember the late Sir J. Burdon-Sanderson, who was then on the staff of the hospital, remarking to me that he never knew an assistant physician deal so quickly and effectively with out-patients as Dr. Symes-Thompson. This happy facility showed itself in his wards and private practice; but where it proved invaluable was in examining candidates for life insurance. When there were a number of applicants and a fidgety Board of Directors waiting for the medical officer's reports on each, Symes-Thompson was the man to settle matters quickly and satisfactorily. Not unnaturally he attained a high position in the insurance world, and some of his best contributions to medical literature were those on the medical examination of lives.

Symes-Thompson was not an extensive writer, but he was a good lecturer, and, as he showed in his Gresham lectures, he had a great power of mastering a variety of subjects and then placing them before his audience in a very intelligible form, a process which his fine voice and clear articulation considerably aided.

He was a good reader, and some of us who had papers read before the Medico-Chirurgical Society when he was Secretary, felt that the estimation of the papers owed something to the Secretary's excellent reading.

He was a man of strong religious feelings, and assiduously promoted the connexion between medicine and religion, and I believe was one of the founders of the Guild of St. Luke, of which he was Provost for some years. His life testified to his convictions: he was kind-hearted and generous, especially to poor patients, as I have often witnessed, and his constant amiability of manner sometimes led strangers to distrust him at first, but a more intimate acquaintance soon showed them that it was the genuine outcome of the kindest of hearts.

SAMUEL EDWIN SOLLY, M.R.C.S.Eng., M.D.Denver

The news of the death on November 18th, at Ashville, North Carolina, of Dr. Samuel Edwin Solly, of Colorado Springs, will be received with great regret by many friends in this country.

Samuel Edwin Solly was the fourth son of the late Mr. Samuel Solly, F.R.S., Surgeon to St. Thomas's Hospital; he was born in May, 1845, and received his early education at Rugby. He became a medical student at St. Thomas's Hospital, then in temporary premises in Surrey Gardens in 1863, his father being at that time senior surgeon to the hospital, and in the enjoyment of an extensive practice in the city. Edwin Solly was a diligent student, and obtained the diploma of M.R.C.S. in 1867. Shortly afterwards he was appointed Medical Registrar of St. Thomas's Hospital, and discharged the duties of that office with assiduity and success. His father, who had in the meanwhile removed to Savile Row, died in 1871, but the son continued to practise there until 1874, when failure of health induced him to leave this country and settle at Colorado Springs. He married an American lady, and became thoroughly identified with the medical profession of his adopted country. In 1886, he took the degree of M.D.Denver. He was well known as an authority on the climatic treatment of pulmonary tuberculosis and was the author of a handbook on medical climatology. He wrote many articles in medical journals and systems of medicine on the treatment of tuberculosis and on diseases of the throat and nose, with special reference to their relation to pulmonary tuberculosis, and he was also among the first to study the influence of altitude upon the composition of the blood. Dr. Solly was fond of travelling, and at one time was a frequent visitor to this country.

Dr. Theodore Williams writes: My first acquaintance with Dr. S. E. Solly must have been about 1867, when he

was introduced to me by his father, Mr. Samuel Solly F.R.S., the then well-known Senior Surgeon of St. Thomas's Hospital. Young Solly had taken his M.R.C.S. diploma, and was, I believe, assisting his father in his surgical practice; but after this he married and went to the United States, where he took the M.D. degree of Denver and settled at Colarado Springs—a rising high-altitude health resort which he did much to develop and improve. When I visited him there in 1892 he was one of the leading physicians, engaged in extensive practice, chiefly in diseases of the lungs and throat, and frequently summoned to distant consultations. He was also connected with a large sanatorium, and was at work on his well-known book on *Medical Climatology* which appeared later. He had created for himself a wide reputation throughout the United States, and had the active support of such authorities as Dr. Weir Mitchell and Dr. Vincent Bowditch, who entrusted him with their pulmonary cases. He was an active member of several of the American medical societies, and to show the confidence placed in his talents and high character by his American colleagues he had been elected president of no less than three of these associations. Dr. Solly was loved and appreciated by both colleagues and patients, and was a very good example of an English medical man changing his field of practice, and by industry and perseverance and careful adaptation to his surroundings achieving great professional and social success in the country of his adoption. His experience of pulmonary tuberculosis and of the effects of American climates was extensive, and the more valuable because based on the statistics of well-kept records and communicated in a simple masterly style.

Few English doctors understood and appreciated our Transatlantic cousins better than Solly, and there is no doubt he owed much to his thorough knowledge of Americans and their modes of life. His gentle courtesy and kindliness will long be remembered on both sides of the water.

Sir Hermann Weber, to whom Dr. Solly dedicated his excellent *Handbook of Medical Climatology*, writes: As a young man he showed a cultivated mind and a great love for the study of medicine, especially for the study of the influence of climate on man with regard to general development, health, and disease, and particularly its prophylactic and curative power on tuberculosis. He had a high opinion of the effect of residence at high elevations, and this induced him, if my memory is correct, to settle at Colorado Springs for the sake of a near relative. Dr. Solly was not only an accomplished, but also a sympathising, physician and a warm friend.

WILLIAM LLOYD ANDRIEZEN, M.D.,

LONDON.

WE regret to have to announce the death of Dr. Andriezen at the comparatively early age of 36 years. Born of Cingalese parents, he came to this country to study medicine, gaining the Medical Entrance Exhibition at University College in 1887. During his student career he obtained many medals and distinctions, among them being the Liston Gold Medal for Original Research in Pathology in 1891; the subject of his essay was the Pathology and Treatment of Lesions of the Brain which lead to Insanity. In 1887 he was appointed Demonstrator in Physiology. In 1888 he was Exhibitioner and Gold Medallist in Organic Chemistry at London University. He graduated as M.B.London with First-Class Honours in 1891, and M.D.London in 1893.

He had held the posts of Pathologist and Assistant Medical Officer at the West Riding Asylum, Wakefield; and Deputy Medical Superintendent at the Metropolitan Asylum, Darenth; latterly he was Assistant to the Director of Cancer Research in the laboratories of the Middlesex Hospital.

His contributions to scientific literature were numerous. In 1893 he contributed to the *Internat. Monats. f. Anat. u. Physiol.* an article on A System of Neuroglia Fibre Cells Surrounding the Blood Vessels of the Brain. In 1894 he wrote a long account of the Newer Aspects of Pathology of Insanity, which he published in *Brain*. He contributed to the BRITISH MEDICAL JOURNAL an article on The Neuroglia Elements in the Human Brain, and another on The Pathogenesis of Epileptic Idiocy and Imbecility. In 1899 he submitted to the Medico-Psychological Association a paper on The Bases for Scientific Psychology and Classifications of Mental Diseases. In 1903 he published in the *Journal of Mental Science* an article on Stereoplasm of Nerve Cell: a Study in Nerve Dynamics; and in 1905 another paper on The Problem of Heredity, with Special Reference to the Pre-embryonic Life.

During the last year or so he devoted himself to investigations in connexion with the causation and pathology of cancer.

Dr. Andriezen was well known to members of the Neurological and Medico-Psychological Associations of Great Britain. His work in connexion with neuropathology was known in every country. He was a man of wide reading, and an earnest thinker in many departments of biological science. He lived a strenuous life of hard work and but little recreation. All his time and inclination seemed to be centred upon his work and his books, and he appeared to wish to cultivate but few friends. In debate, as in private life, he was always courteous, earnest and just, and few could fail to admire his indomitable energy and his mental grasp of the various theories and advances in psychology and neuropathology.

His last illness was of one year's duration, and he was laid to rest on Friday, November 23rd, his funeral being attended by Dr. Robert Jones, the President of the Medico-Psychological Association of Great Britain and Ireland, and Dr. Hyslop of Bethlem Royal Hospital.

A WELL-KNOWN figure in Newcastle-upon-Tyne has just passed away in the person of Mr. NICHOLAS HARDCASTLE, who died on the morning of November 15th. A native of Newcastle, where he was held in high esteem, Mr. Hardcastle had been long identified with the life of the city. He received his medical education at University College, London, and obtained the diploma of M.R.C.S.Eng. in 1853, and that of L.S.A. in the following year. He became L.S.Sc.Durh. in 1889, and was at one time M.O.H. for Benwell and Fenham Urban District. Although never taking an active part in public affairs he was for several years Medical Officer to H.M.'s Prison. In this capacity he discharged his responsible duties in such a manner as to gain the confidence and win the respect of all with whom he was brought into contact. A few years ago he retired from his prison appointment and was succeeded by his son, Dr. William Hardcastle, who still remains in office. For some time past Mr. Nicholas Hardcastle had been in failing health, but until recently he might be seen taking his daily walk. He died at the age of 73, and is survived by a son and two daughters, his wife having predeceased him a few years ago.

MR. HOWARD HAYWARD died at the age of 72 on November 13th at Ealing, where he had lived since his retirement some nine years ago. Mr. Hayward was educated at University College School and St. Mary's Hospital, and obtained the diplomas of M.R.C.S. in 1858, and of L.D.S. in 1861, soon afterwards succeeding to his father's practice in Queen Anne Street. He was appointed Dental Surgeon and Lecturer on Dental Surgery to St. Mary's Hospital, and served in that office for twenty years, and on retiring was made Consulting Dental Surgeon. He was also Dental Surgeon to the Brompton Hospital, and Assistant Surgeon to the Dental Hospital. He contributed certain chapters to Pye's *Surgical Handicraft*, and was the author of *Dental Practice in Relation to Medical Science*. His name is also known in reference to a splint used in cases of fracture of the jaw. For many years Mr. Hayward was a keen volunteer and rifle shot, serving in the Hon. Artillery Company from 1858 until he retired in 1877 with the rank of Captain. He was a successful rose grower, and obtained numerous prizes at the local societies' exhibitions. For some years he assisted the Liberal party as Vice-President of its local association. Soon after his retirement symptoms of paralysis developed, but the long illness which he bore without complaint was cheered by the attentions of his old medical friends and the devoted nursing of his wife and daughters. The funeral service was held at St. Saviour's, Ealing, and the interment followed at the Westminster Cemetery, Hanwell.

PUBLIC HEALTH

AND

POOR-LAW MEDICAL SERVICES.

THE NEED OF SECURITY OF TENURE FOR MEDICAL OFFICERS OF HEALTH.

The Story of Chipping Sodbury.

During the past eighteen months we have on several occasions commented upon the action taken by the Chipping Sodbury Rural District Council with regard to their medical officer of health. In October, 1904, the sanitary district of Barton Regis was dissolved, the greater portion being added to the city of Bristol, and three parishes, with a population of 4,600 persons, were added to the adjoining district of Chipping Sodbury. About this time the Medical Officer of Health for Barton Regis died. Since 1873 Dr. Francis T. Bond, F.R.S.Ed., had acted as medical officer of health for the Chipping Sodbury Rural District, together with several other adjacent districts. The Chipping Sodbury Council desired Dr. Bond to undertake the sanitary administration of the added parishes, but refused to give him any additional remuneration; and he very properly objected to this proposal. After an abortive attempt had been made to appoint a local practitioner, he was given an increased salary of £33 per annum until the expiration of his term of office in the following May, when the council advertised for a medical officer of health, insisting that the officer elected should live within the district, with the obvious intention of preventing the election of Dr. Bond, who is bound by the terms of his appointment to other authorities to live in or near Gloucester. The Local Government Board took a grave view of this desire of the council to cast adrift an official who had ably and faithfully served the district for more than thirty years, and instructed Dr. Theodore Thomson, one of its medical inspectors, to ascertain from the council the reasons for this action. These were apparently considered insufficient, for the Board refused to sanction the appointment of the local practitioner elected by a majority of the council. A conference of delegates from the councils who had re-elected Dr. Bond was then held, and a representation was made to the Local Government Board, in accordance with the provisions of Section 286 of the Public Health Act, 1875, to the effect that it would be of advantage to appoint a medical officer of health jointly for several districts, including Chipping Sodbury. The Local Government Board subsequently made an order combining the districts for the purpose of appointing a medical officer of health, and this order was confirmed by provisional order. A meeting of representatives from the constituent councils in the new combination was held on November 24th, when Dr. Bond was unanimously elected medical officer of health.

Although the conclusion to this dispute is satisfactory to Dr. Bond, to the Local Government Board, and, indeed, to all those who have the interests of the public health at heart, it is greatly to be deplored that such an incident should have been possible. It affords, indeed, an illustration of the grave disability under which most medical officers of health in the provinces hold office. Elected for a definite term of one or more years, they may at its termination fail to secure re-election, for no fault, with no reason given, and possibly merely owing to the caprice of one or more members of the sanitary authority, or, more likely still, through a feeling of resentment following official action. No public officer ought to be subjected to such conditions as these, and medical officers of health are the only public officials who are so subjected. Conscientious health officers all over the country have long been appealing for sufficient security in their office to enable them to carry out their duties without any fear of being treated as Dr. Bond was, and this appeal has been endorsed over and over again, not only by the medical press, but by the lay press. How much longer the Local Government Board will remain deaf to this appeal it is difficult to say. The inefficiency of the public health administration in many parts of the country is made evident by the reports of the medical inspectors of the Board; and when we read the criticisms of these gentlemen upon the inactivity of medical officers of health we cannot but feel that the Board is in itself in great measure responsible, since it permits the anomalous, and in some instances intolerable, position in which provincial medical officers of health are placed, to continue.

AMERICAN HEALTH PROBLEMS.

The reports of the State Board of Health of Massachusetts are never without interest to the student of comparative sanitation, and the issue for 1905 (the 37th) is in no way behind its predecessors. Perhaps the most serious matter contained therein has reference to the continued and apparently unavoidable pollution of the rivers by sewage and manufacturing refuse and the necessity for communities to go elsewhere for their water supplies. The procedure as to the prevention of sewage pollution differs much in the different States, as was set out by some of the American speakers in the Public Health Section at Toronto, but the necessity for putting into operation such powers as exist or acquiring sufficient powers to deal with pollution is abundantly shown by this report. It is also to be noticed with regret that Boston Harbour has become so sewage-laden as to render all shellfish in its vicinity unfit for food except after prolonged cooking.

Considerable space is also given to the subject of mixing copper sulphate with the waters of ponds and reservoirs for the purpose of removing organisms, but the process seems to be accompanied by much risk, as the chemical shows a tendency to collect in patches and not to be sufficiently diffused to render it innocuous. A number of detailed experiments of much value are set forth in the report.

Under the head of Food and Drugs Inspection, it is very satisfactory to note that preservatives have almost disappeared from the milk supply, only one sample containing formaldehyde out of 522 examined. Boric acid has now been entirely absent for two years. Preservatives were found in 40 per cent. of the food examined, the worst being lime juice, all the samples of which contained salicylic or sulphurous acids or both.

DISTRICT MEDICAL OFFICERS' QUARTERLY RETURNS OF PAUPER LUNATICS.

Poor-Law Medical Officer asks the following questions: (1) Whether *idiots* are to be included in the quarterly list of pauper lunatics? (2) Whether the minor degree of idiocy should be included in such list? (3) Are imbeciles idiots? and, if so, are they to be included in the list? (4) Is there legally any difference between an idiot and an imbecile? (5) What to do in the event of the guardians refusing to pay for quarterly visits and reports upon idiots of a minor degree or imbeciles, if there be a distinction between the two.

*** (1) Yes, if undoubtedly paupers. (2) This is somewhat doubtful. (3) Imbeciles are not of necessity idiots, as the mental imbecility is of a minor degree only. The term "idiot," if applied to such cases, would be misleading as well as inaccurate. (4) This is a legal question, to which we are not prepared to furnish a definite reply. (5) As there has been much difference of opinion in reference to the propriety of district medical officers entering in their quarterly returns of lunatics *all forms* of mental imbecility, whether of a major or minor character, we should recommend the report of those cases only in which the imbecility is so marked as to prevent the patients in question from earning their own livelihood, or being such as to render them incapable of contributing thereto *to any material extent*. If this rule should be adopted, we consider district medical officers ought not to meet with any difficulty in obtaining the usual fees for all cases which appear in their quarterly returns.

The matters upon which we have expressed doubt will in all probability be dealt with in the report of the Royal Commission now sitting.

CERTIFICATE OF PROFICIENCY IN VACCINATION.

If a certificate of proficiency in vaccination was required by the Royal College of Surgeons in Ireland at the time of our correspondent's examination for the licence, no further certificate of proficiency is required by the Local Government Board's regulations, even if he cannot produce the certificate which was furnished for the College. If, however, no such certificate was demanded by the College, a certificate will have to be produced. The regulations under which such certificates are issued are from time to time changed by the Local Government Board, so that application should be made to that body for information, giving the date of qualification.

The Municipal Council of Turin has decided to erect a new hospital for acute diseases with accommodation for 600 patients. It is estimated that it will cost from five to six millions of lire (£200,000 to £240,000). The funds for the hospital will be provided partly by the municipality, partly by the administrators of the San Giovanni Hospital, while the expense of the clinics will be defrayed by the Government.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

REGULATIONS FOR ADMISSION TO THE ARMY MEDICAL RESERVE.

The following rules were issued with Army Orders, dated November 1st, 1906:

CANDIDATES FOR COMMISSIONS.

Qualifications.

1. A candidate for a commission in the Army Medical Reserve must not be over 30 years of age at the date of his appointment.

2. He must be registered under the Medical Acts in force in the United Kingdom at the time of his appointment.

3. He must complete the form of application and declaration shown hereafter.

Appointment and Promotion.

4. If his application is approved the candidate will be directed to present himself at a military station convenient to his place of residence, in order that he may be examined by an officer of the Royal Army Medical Corps as to his physical fitness for a commission.

5. The standard of physique required will be that laid down for candidates for the Royal Army Medical Corps.

6. If selected, he will be appointed a lieutenant on probation, and will be required to undergo a course of instruction at the Depôt, Royal Army Medical Corps, at Aldershot, for two months. Classes will begin about February 1st, July 1st, and September 1st in each year, and a candidate will, as far as possible, be permitted to select the class most convenient to him. At the conclusion of this course he will be examined as to his fitness to have his commission confirmed.

7. Commissions will date from time of joining the class of instruction at the Dépôt.

8. Lieutenants when appointed will be required to provide the following articles of uniform, towards the expense of which an allowance of £5 will be issued:

Cap, field service, khaki.
Frock, khaki.
Pants, khaki. 1 pair.
Puttees, khaki. 1 pair.
Boots, regulation, brown, 1 pair.
Sam Browne belt and sword.

9. Before becoming eligible for promotion to captain, a lieutenant will be required to undergo a second course of instruction for one month, at the conclusion of which he will be examined as to his fitness for such promotion.

Conditions of Service.

10. Officers of the Army Medical Reserve will be liable to be called to army service at home or abroad at a time of emergency.

11. Officers of the Army Medical Reserve who are willing to offer their services in times of peace will be considered for employment with troops in the locality in which they reside.

12. Extracts from the Royal Warrant for Pay and Promotion.

The following extracts are given for the information of candidates:

Commissions as lieutenants in Our Army Medical Reserve may be given to persons, not over 30 years of age, who may be duly qualified under regulations approved by Our Army Council. (Art. 654.)

The ranks of officers of Our Army Medical Reserve shall be those of captain and lieutenant, and the total period of service in the Reserve shall be limited to 7 years. On the completion of 3½ years' service a lieutenant shall be eligible for promotion to the rank of captain, if recommended for that rank. (Art. 655.)

Appointments to commissions will be made on promotion, and persons so appointed will undergo an initial training of two months, on the expiration of which, should their work and conduct be considered satisfactory, their commissions will be confirmed. Officers of the Reserve before promotion to the rank of captain shall fulfil such conditions as Our Army Council may determine, and shall undergo one month's further training. (Art. 656.)

When called to army service, or while undergoing training, officers of the Reserve shall receive the pay and allowances of officers of similar rank in the Royal Army Medical Corps. After the first year's service an officer shall, in addition to any such pay and allowances for days of actual service, receive pay at the rate of £20 a year. This rate shall be increased to £25 a year if the officer is promoted to the rank of captain. (Article 657.)

Officers of the Army Medical Reserve will be subject to the general regulations applicable to Army Reserve Officers as laid down in the following extracts from the Pay Warrant, so far as such regulations do not conflict with those laid down in the foregoing Articles.

Officers who volunteer for service in the Reserve of Officers, and whose services are accepted, shall receive commissions from Us as officers in Our Land Forces. (Art. 660.)

An Army Reserve Officer shall report himself at the commencement of each year, in writing, to Our Army Council. Should he fail to do so, he shall (unless he is an Officer retired from Our Regular Forces, with liability for further service in cases of emergency) be removed from Our Reserve of Officers at the end of the year in which he fails to report himself. (Art. 662.)

An Army Reserve Officer shall, if his services have been of a special character, and if recommended to Us by Our Army Council, be eligible on retirement for a step of substantive or honorary rank, or of brevet rank for distinguished service. (Art. 664.)

An Army Reserve Officer may, with his own consent and the sanction of Our Army Council, be employed on Army Service at any time. (Art. 667.)

All inquiries are to be addressed to the Secretary, War Office, London, S.W., from whom a form of application, together with the necessary declaration to be signed by the candidate for a commission in the Army Medical Reserve, can be obtained.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

Examinations for the Diploma in Public Health.

The following candidates have passed in these Examinations:

Part I.—P. de Mello, E. M. Griffiths, A. H. Hogarth, A. H. Gerrard, H. C. Lecky, A. H. Macdonald.

Part II.—A. H. Hogarth, A. H. Gerrard, H. C. Lecky, A. H. Macdonald.

UNIVERSITY OF CAMBRIDGE.

The following degrees were conferred on November 22nd:

M.D.—W. J. Fenton, Gonv. and Cai.

M.B.—F. F. Leighton, Joh.; H. M. Clarke, Clare.

UNIVERSITY OF LONDON.

Guy's Hospital Medical School.

The Treasurer of Guy's Hospital has received two anonymous donations of £200 and £10 respectively towards the Fund for the Endowment of Medical Education and Research at Guy's Hospital.

The following candidates were approved at the M.B., B.S. Examination in October:

W. Arnott, T. H. Barton, H. H. Bashford, A. W. Berry, J. S. Bookless, A. T. Bradley, Hilda Margaret Byles, H. J. Cates, I. R. Cook, I. J. Davies, C. N. Davis, S. W. Daw, J. B. Dawson, A. D. Edwards, W. H. A. Elliott, E. W. Giesen, L. F. Hirst, B. W. Jones, Edith Anne Jones, H. A. Kisch, W. A. McEnery, P. F. McEvedy, I. C. Maclean, A. T. Marshall, Dorothea Clara Maude, C. A. L. Mayer, Sylvia May Moore, E. H. A. Pask, Eleanor W. Perkins, W. C. Pickering, A. Randle, E. F. Reeve, J. E. Robinson, W. O. Sankey, H. B. Scargill, W. L. Scott, Zilla Mary Scruby, J. E. S. Smith, Grace Maud Stagg, G. W. Sudlow, Bessie Weldon Symington, A. K. B. R. W. Taylor, Ida Clare Tengely, S. Upton, Margaret Ida Waller, E. J. Wyler, G. P. Young, A. Zorab.

Group I only.—G. F. E. Allison, W. F. Cornfield, A. B. Fearnley, J. N. Glaister, B. T. Parsons-Smith, Catherine Payne, J. M. Plews, T. W. Wade.

Group II only.—E. Alban, H. O. Blandford, J. F. Broughton, H. D. Clements-Smith, Rose Lillian Humphrey Davy, G. S. Earl, K. E. Eckenstein, S. L. Graham, Leopoldine W. D. Griffiths, E. C. Hadley, H. Holroyd, Emily Helen Morris, A. J. S. Pinchin, E. L. Sandiland, St. J. A. M. Tolhurst, A. G. Tresidder, T. E. Walker, C. G. Welch, J. B. F. Wilson.

Honours were awarded to the following:

‡E. F. Finch (University of Sheffield), †§R. A. Hendry (University of Liverpool, *‖‡C. A. Pannett, B.Sc. (St. Mary's Hospital), *A. Pearson (Guy's Hospital), ‡G. F. Stebbing (Guy's Hospital), ‡D. C. Taylor (University College), *†§¶W. H. Trethowan (Guy's Hospital), ‡E. Wragg (Guy's Hospital).

* Distinguished in Medicine. † Distinguished in Pathology.
‡ Distinguished in Surgery.
§ Distinguished in Midwifery and Diseases of Women.
‖ Bracketed equal with Mr. Trethowan for the University Medal.
¶ Bracketed equal with Mr. Pannett for the University Medal.

The following was approved at the B.S. Examination for students who graduated in medicine in or before May, 1904:

J. W. F. Rait.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

Fellowship Examination.

The following candidates, having passed the necessary Examination, have been admitted Fellows of the College:

A. Leventon, L.R.C.S.I., etc., Captain, I.M.S.; W. L. Martin, L.R.C.S.I., etc., Surgeon, R.N.; and A. W. Tuke, M.R.C.S.Eng., Captain, I.M.S.

The following candidate passed the primary part of the Examination:

Mr. H. S. Meade.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have passed in the subjects indicated:

Surgery.—†*F. G. Edholm, *C. J. M. Lawrence, †*W. S. Mitchell, †*L. Nicholls, *J. W. Peatt.

Medicine.—*L. C. W. Brigstocke, †*C. L. Driscoll, †*C. G. Grey, †*C. J. M. Lawrence, *L. Nicholls, †S. Singh.

Forensic Medicine.—C. J. M. Lawrence, S. Singh, W. V. P. Teague.

Midwifery.—L. G. H. Furber, C. C. Morrell.

The diploma of the Society was granted to the following gentlemen: L. C. W. Brigstocke, F. G. Edholm, C. J. M. Lawrence, W. S. Mitchell, L. Nicholls, and J. W. Peatt.

† Section I. * Section II.

HOSPITAL AND DISPENSARY MANAGEMENT.

NATIONAL DENTAL HOSPITAL.

The Students' Annual Dinner of the National Dental Hospital was held at the Trocadero Restaurant, Piccadilly, on November 23rd. The President of the Royal College of Surgeons, Mr. Henry Morris, was in the chair, and there was a large attendance. The Chairman, in proposing the toast of the evening, "The National Dental Hospital and College," said that he could bear witness to the admirable manner in which relief was afforded to tens of thousands of poor patients who, in former times, when there existed no special hospital in London for dentistry, were obliged to repair to general hospitals, where the usual treatment consisted in removing peccant teeth. The patients, nowadays, received conservative treatment, and the National Dental Hospital did more than that, for it provided cards to old pupils of the hospital, so that the patients could seek advice in their own neighbourhood at the hands of properly qualified members of the dental profession. The Chairman observed that the adoption of that particular plan of relief by the general hospitals of London was much to be desired. The hospitals also distributed instructions concerning the care of the teeth to the relatives and friends of the patients. The Dental Medical School provided an up-to-date education for students, and he was also glad to observe that the school offered them inducements to take up a general medical qualification. Mr. Sidney Spokes, the Dean, in replying to the toast, referred to the satisfactory working of the Dental College and Hospital, though he had to deplore the fact that the finances still required a further amount of about £1,000, which he trusted would soon be forthcoming. He enumerated the successes obtained by the students sent up for examination, and said it was a matter for congratulation that the College still attracted representatives from New Zealand and from Australia. "The Past and Present Students" was proposed by Mr. L. Matheson, and responded to by Messrs. Gudgeon and J. A. Rose. Mr. K. W. Goadby submitted the toast of "The Visitors," which was acknowledged by Mr. E. L. Williams. Mr. W. Rushton then proposed the health of "The Chairman," and after this had been suitably acknowledged the proceedings terminated.

ROYAL DENTAL HOSPITAL OF LONDON.

The annual dinner of the staff and past and present students of the Royal Dental Hsspital of London was held on November 24th at the Hotel Métropole, London, with Mr. William Hern in the chair. The Chairman, in proposing the toast of "The Past and Present Students," gave some friendly advice to the newly-joined students. The toast was acknowledged by Mr. W. Harrison for the past students, and Mr. A. E. Ironside for the present students. Mr. Henry Morris, the President of the Royal College of Surgeons, in proposing the toast of "The Hospital and School," described how the efforts of the Royal College of Surgeons had placed dentistry in the position of a legitimate branch of surgery. The progress of dentistry was, in his opinion, shown by the character of the dental literature, which now ranked high. He looked forward to the time when the powers of the General Medical Council would cause the practical disappearance of unprofessional conduct. Mr. Morris concluded by describing the work of the Royal Dental Hospital as one of great beneficence, aiming at the raising of the standard of physical health of the people. Mr. David Hepburn, in replying, drew attention to the advantage the hospital had in having as their Secretary, Mr. Pink, who was so conspicuously successful in securing donations and bequests for the hospital. The toast was also replied to by the Dean, Mr. J. F. Collier, who declared that the students of the hospital held their own well in the profession. The "At home" which had been held that afternoon at the Royal Dental Hospital, in Leicester Square, was given with the object of letting the old students have an opportunity of seeing cases of interest that had been under treatment and of inspecting in a general way the methods of treatment usually adopted by the various members of the staff. Those attending had been much interested in the demonstrations relating to mechanical dentistry and in cases of surgical interest connected with diseases of the teeth. Nearly 150 old students were attracted to the hospital by the "At home."

The toast of "The Visitors," proposed by Mr. C. F. Rilot, was replied to by Sir R. Douglas Powell, who said that no one who had arrived at middle age could fail to appreciate the vast advances in scientific knowledge and appliances which made a visit to a dental friend one of pleasure than rather of pain. Speaking as a physician he said that there was every reason to be grateful to the dental profession for their help in many difficult cases of dyspepsia.

A very agreeable evening was brought to an end by Mr. E. Lloyd-Williams proposing the toast of "The Chairman," which was duly replied to.

A handsome silver tea tray was recently presented to Dr. G. S. Boulton, bearing the following inscription: "Presented to Dr. G. S. Boulton by a few friends and patients on the conclusion of thirty-eight years' practice in the district.—Ingham, Lincoln, October, 1906."

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

Communications respecting Editorial matters should be addressed to the Editor, 2, Agar Street, Strand, W.C., London; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Manager, at the Office, 429, Strand, W.C., London.

Original Articles and Letters *forwarded for publication are understood to be offered to the* British Medical Journal *alone unless the contrary be stated.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Manager, 429, Strand, W.C., on receipt of proof.

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Correspondents not answered are requested to look at the Notices to Correspondents of the following week.

Manuscripts forwarded to the Office of this Journal cannot under any circumstances be returned.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal, and not at his private house.

Telegraphic Address.—The telegraphic address of the Editor of the British Medical Journal is *Aitiology, London.* The telegraphic address of the Manager of the British Medical Journal is *Articulate, London.*

Telephone (National):—
EDITOR, 2631, Gerrard.
GENERAL SECRETARY AND MANAGER, 2630, Gerrard.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Uric-Acid-Free Diet.

Dietary writes: It would be interesting if Dr. J. Cuthbertson Walker (British Medical Journal, November 17th, p. 1436) would kindly say what his actual dietary has been, and what his height and weight are.

ANSWERS.

W. J. P. has omitted to forward his name.

Scots.—We know of no encouraging results from the treatment mentioned.

Dr. H. S. Thorp (Ipswich) writes in reply to "M.D.," who asked for advice in the treatment of priapism, to suggest anti-gout treatment.

J. H. P. writes: I would suggest from experience that "M.D." should direct his patient to place cotton-wool under the prepuce on going to bed. On waking let him inject with a pen-filler about 3 gr. of 10 per cent. solution of cocaine, which the cotton-wool will retain, and effectually control the condition. Should this prove insufficient, let him paint the scrotum with solution of cocaine in addition, and add to the solution adrenalin.

Lectures on Tuberculosis.

District Medical Officer doubtless has a knowledge of general hygiene and sanitation. For information on the prevention of tuberculosis the following may be found useful: Huber, *Consumption: Its Relation to Man and His Civilization; its Prevention and Cure* (London: J. B. Lippincott Co. Demy 8vo, pp. 536. 15s.); Hillier, *The Prevention of Consumption* (London: Longmans and Co. Crown 8vo. pp. 242. 5s); Murrell, *Lectures on the Prevention of Consumption* (London: Baillière, Tindall, and Cox. 1895. Crown 8vo. 3s. 6d.); *The Hygienic Prevention of Consumption*, by Dr. J. E. Squire, C.B. (London: C. Griffin and Co. 1893. Demy 8vo, pp. 206. 6s.) Any good modern book on diseases of the lungs will give information as to the precautions needed for the prevention of tuberculosis. The following syllabus of lectures is issued by the National Association for the Prevention of Consumption and other Forms of Tuberculosis, 20, Hanover Square, London, W.: Syllabus of Lectures—(1) Nature of Tuberculosis: (*a*) Tuberculosis in Animals and Man: Prevalence of the Disease, with selected statistics—for example, 60,000 deaths annually in England and Wales; (*b*) The Researches of Koch; (*c*) The Tuberculous Nodule; (*d*) Microscopic Appearance of the Bacillus and its Spores; (*e*) Chief Channel of Communication of the Disease—Sputum. (2) Transmission of Tuberculosis from Man to Man: (*a*) The Viability of Tubercle Bacilli in Sputa when Dry; (*b*) Great Danger from Dust Infected with Dried Tuberculous Sputa; (*c*) Ransome's Researches; (*d*) Paths of Invasion: Inhalation, Ingestion, Inoculation; (*e*) Auxiliary Forces of Invasion: Adenoids, Measles, Catarrh, General Weakness, Alcoholism, Injuries to Lungs by various forms of dust, for example, in quarries, mines, and certain textile factories. (3) Prevention in Everyday Life: (*a*) Control of the Sputum: (*b*) Pocket Spittoon an Essential in Consumptive Cases; (*c*) No Spitting in Places of Public Resort—rail-

way platforms, carriages, public halls, all covered passages, etc.: (*d*) Modes for Removing Dust—in factories, in houses; (*e*) Conditions Required in a Healthy House; (*f*) The Open Window by Day and by Night; (*g*) All Milk to be Boiled. (4) Prevention by Public Action: (*a*) Notification of Phthisis—compulsory, voluntary; (*b*) Disinfection; (*c*) Factory Acts: (*d*) Housing of the Working Classes Act; (*e*) No Back-to-Back Houses; (*f*) The Airing of Cities. (5) Treatment of Tuberculosis: (*a*) Sanatoriums—for early cases, for advanced cases: (*b*) Sanatoriums may be erected and maintained under existing laws by all local authorities, by County Councils, by private subscription, or by a combination of these means. (6) National Movements against Tuberculosis: (*a*) England: (*b*) Germany; (*c*) France; (*d*) America and all other civilized countries.

LETTERS, NOTES, Etc.

The Pretensions of Opticians.

We have received an advertisement cut from one of the Exeter local papers which illustrates in an amusing way the ridiculous pretensions which opticians are making to diagnose and treat refractive errors of the eyes. The paragraph is headed "Eyesight Specialist," and, with a singular glimpse of the truth, is further entitled "A Farce"! It informs all whom it may concern that "Mr. Melson Wingate, F.B.O.A., thinks it is time to disabuse the minds of the public respecting the claim of many so-called opticians to examine free the eyes of all who call on them—absolutely for nothing": the point being that Mr. Melson Wingate charges 5s., as "Skill of the highest order cannot be thrown away"! He is, he asserts, "the acknowledged expert of the West, and, although he never before made a claim to being a pioneer, he is not only THE pioneer this side of Bristol in Ophthalmic Optics, but as yet the only fully qualified expert and specialist attending to one thing only, but doing it well." We commend this modest production to the notice of the authorities of the British Optical Association, who protest that their diplomates do not advertise themselves unbecomingly, and are not allowed to make claims which are unfair to their fellow tradesmen or to the medical profession.

The Case of Mr. Peers: A Miscarriage of Justice.

Mr. C. H. Pring, M.A., L.S.A., Honorary Treasurer, 278, Old Kent Road, writes: I have received, and beg to gratefully acknowledge, the following contributions towards the fund being raised for Mr. Peers. Any further sums sent to me will be acknowledged at a later date:

H. Montague Murray, M.D., F.R.C.P. ...	£2	2	0
G. H. O'Reilly, M.D.	1	0	0
Hugh J. M. Playfair, M.B., M.R.C.P., F.R.C.S.	1	1	0
Walter W. H. Tate, M.D., F.R.C.P. ...	1	1	0
A. Langley, L.R.C.P., L.R.C.S.E.	1	1	0
J. F. Williams, L.R.C.P., M.R.C.S. ...	1	1	0

An Undesirable Advertisement.

Scarcely a week passes without bringing complaints from some aggrieved practitioner who is shocked to see another doctor's name in the local newspaper. We have often pointed out that a man's name may easily find its way into the papers without any connivance or even knowledge on his part. Pressmen have not yet learnt that notices which appear innocent to them are contrary to the spirit of medical ethics. Sometimes from an altogether different point of view the advertisement they give is of a kind that is scarcely likely to be gratifying to the subject of it. The following appeared not long ago in a Scottish newspaper: "On Wednesday, a boy named Alexander Cairns, while climbing among the crags near Dunottar, slipped and fractured his collar-bone. He was promptly attended by Dr. ———. Fortunately this was apparently the only injury the lad received."

Impaction of a Hatpin in the Urethra.

Dr. H. Salomon (Leicester) writes: I was called recently to see an old man who had difficulty in micturition from an enlarged prostate, and had been in the habit of passing a hatpin down the urethra to help him in passing his water. He found this plan always relieved him. On this occasion he introduced the pin as far as he could, when it suddenly slipped from his fingers and became "engulphed" in the urethra. I found him leaning over a table in great pain, and on examining the penis, which was in a state of erection, was able to feel the point about 2 in. from the meatus. Placing the patient on his back, I passed one forefinger into the rectum and distinctly felt the head through the anterior wall. By pressure forwards and at the same time drawing the penis backwards with the other hand I was fortunately able to bring the point close to the meatus. Passing now a slender pair of urethral forceps, I succeeded in seizing the pin and drawing it out without any laceration of the parts. If this procedure had failed I should have forced the point through the skin, drawn the pin out as far as the head, then, directing the point backwards, pushed it head-foremost out of the urethra.

A Japanese Quack Advertisement.

Captain N. W. Mackworth, I.M.S., sends us the following copy of an advertisement which he saw in Tokyo. We give the author of this work of art, H. Morishita, Jin-tan Manufacturer, Osaka, Japan, the publicity which his inventive genius deserves:

"Jin-tan Pills."

"Virtue."

"It is said that Human body is a sack of sickness is an old saying and whenever one is seized with illness there is no mercy of delay or place.

"Thereby it is necessary for oneself and another to possess constantly excellent medicine and apply it in crisis especially so for travelling or going among the crowd, as well as a life buoy on the ship. The Jin-tan is prepared as a most perfect medicine by the prescription of two Doctors of medicine with the best precious material and not only it has a special virtue for all forms which is related to the Dose and Direction but by taking a little usually one ought to be relieved by, fever of the mouth, to be made vice better, to be increased memory, to be flug from the trouble of indigestion, and very refreshed heart, stomach, intestines. To be far out of catching malignant epidemics, for Visitor on the epidemic hospital or sick bed, to be got rid of poisons of tobacco, wine, for smoker or even toper, to be got longevity, and making healthy constitution for all.

"Dose and Direction.

"To be taken 5 or 6 pills a day for Headache, Melancholia, Dizziness, Asphyxia, Hemiplegia, Dropsy, Intestinor, weak appetite, marasmus of child.

"15 or 16 pills for stomach ache, pyrosis, constipation, illness resulting from intoxication, sea-sickness, acidity, gastralgia.

"24 or 25 pills for Fever, Dysentery, ague, the sickness caused by something eaten or water drunk and caused by heat or cold, vomiting.

"5 or 6 pills 3 times a day for circulation of the blood, asthma, dizziness, or after parturition, cold.

"5 or 6 pills for before calling on sick bed and for decayed teeth stuff chewed pill into hole of the teeth."

The advertisement is another proof how the Japanese can better the instruction of their Western masters.

Strange Story of a Medical Officer.

The case of an officer who won a commission from the ranks in South Africa, and finding he could not live on his pay resigned his commission and enlisted again as a private soldier has recently been before the House of Commons. Grant Duff, in his *Notes from a Diary* (1886-1888), says. "They used to tell a story at Madras of a man who has climbed up the whole of the ladder until he retired as Surgeon-General, and soon felt so bored that he positively applied for permission to begin his medical career again as an Assistant-Surgeon." This is stranger than the story of the retired soap-boiler who was such a burden to himself when he had nothing to do that he begged to be allowed to help on certain days. Grant Duff, however, had been Governor of Madras and was in a position to know the facts. Most of the retired military officers whom it has been our privilege to know, have been too busy telling the world that the service is going to the devil to have much time to feel bored.

Given up by the Doctor.

A man, trying to comfort a friend who was seriously ill, held himself out as an example. "Look here," said he, "I, strong as I look now, was given up by the doctors." "They thought your case hopeless?" said the friend. "Oh, no!" was the reply; "I hadn't paid their bills."

"Edible Earth."

The inhabitants of New Mecklenburg, part of New Guinea, who live chiefly on fish, are in the habit of eating a certain kind of earth, with the object, as is supposed, of counteracting the laxative effects of their diet. We learn from *Nature* that Mr. W. Meigen has recently made an analysis of the earth, the main constituents of which are oxides of silica and aluminium, with a smaller quantity of ferric oxide, and traces of other substances, including ammonia. It is a fatty clay of yellowish colour, not unpleasant to the taste, and consists of very small particles.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under	£0 4 0
Each additional line	0 0 6
A whole column	2 13 4
A page...	8 0 0

An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication; and if not paid for at the time, should be accompanied by a references.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Poste Restante* addressed either in initials or numbers.

Clinical Lectures

ON THE

BORDERLAND OF EPILEPSY.

III.—MIGRAINE.*

Delivered at the National Hospital for the Paralysed and Epileptic,

By SIR WILLIAM R. GOWERS, M.D., F.R.S.,

physician to the hospital.

Gentlemen,—Not long ago I pointed out to you that epilepsy, though usually a well-defined malady, presents features that are also met with in some other affections. These symptoms common to epilepsy and to what we may call borderland diseases, involve a resemblance to it in aspect, and sometimes in character, which easily causes confusion. Indeed, the resemblance may involve the nature, as well as the character, of the common symptom, while occasionally there is an actual blending which may involve a transition from one to the other, so that cases beginning outside epilepsy may pass within its boundary. We then considered that province of the borderland of which vertigo is the prominent feature. To-day I will ask you to consider another region—that occupied by migraine and of other forms of periodical headache.

We cannot separate the unilateral pain in the head to which the term "migraine," by its etymology, is strictly applicable from other forms of paroxysmal headache. Both occur with the same associations, have a similar course, and may occur in the same subject. One may pass into the other. An inevitable result of this is that the word migraine is losing its original use—that is, its application to strict "hemicrania," and is employed as a name for all forms of paroxysmal headache. Some may regret that a word should lose its strict significance, but the fact that localization cannot be made a reason for distinction, because it has nothing to support it, makes regret futile. When names are based on unessential features their meaning has to change.

Some of you may be surprised that migraine has any relations to epilepsy, but it is a malady of which the student gains little practical knowledge in the course of his hospital work, unless he is so unhappy as to learn from the most effective of all instructors, personal suffering. Migraine is hardly ever found, except by accident, in a hospital ward, and cases are few even among out-patients. It is common enough, but seems, to most of its subjects, by long experience so much an inevitable part of life that few seek relief. In private practice you will often meet with the more severe and more varied forms; some of these are sure to cause you perplexity. The details I shall have to mention to you of those cases that come into the borderland of epilepsy will be instructive. If you consider them carefully they will help you to recognize the nature of features that differ in character, and to discern that they are of the same nature. The facts of cases are too often allowed to flit past the mental vision: in proportion as they are considered and comprehended they educate as well as instruct.

Alternation.

Migraine comes into the borderland of epilepsy in many ways. One relation—which may seem a disconnexion rather than a connexion—is that the two affections sometimes alternate in the same patient. Migraine may cease when epilepsy develops. I have met with so many instances of this that it seems almost superfluous to cite any, but it is better not to treat anything as superfluous. A woman of 32 had become subject at the age of 8 to periodical headaches—general, not one-sided; each was preceded by dimness of sight, and usually ended, after some hours, with vomiting. At the age of 30 she became subject to epileptic fits—severe, with loss of consciousness and tongue biting. The headaches, which had continued, ceased entirely when the epilepsy began, and remained absent until she came under treatment. By this the fits were arrested, and during eighteen months she was under treatment she had only one batch of two or three attacks. But the headaches returned soon after the arrest of the fits, and they were of greater severity. The pain extended from the head down the sides of the face, and lasted the whole day. During these headaches—not before them—she often had brief impairment of sight for a short time, sometimes in one half of the field, sometimes in both. This fact also makes the case worth mention. We shall see other instances of the fact that the sensory disturbance which usually precedes the headache may also occur during its course.

Another example of alternation was presented by a member of our own profession, who was 38 when first seen. There was a family history of gout and migraine, not of epilepsy or insanity. He had suffered from characteristic migraine, which began at the age of 15; the headache was preceded by visual spectra. At the age of 7 he had some brief attacks of micropsy, in which objects seemed small and far away, without headache. (This is an occasional aura in epilepsy and may occur alone.) When 20 he had attacks in the early morning, consisting of a peculiar flavour and a brief dreamy sensation for a few seconds. After these had gone on for a few weeks a distinct epileptic convulsion occurred in the afternoon, but no more. Other minor attacks followed, now a sense of smell, not of flavour, and a brief confused feeling, instead of a "dreamy" state. These ceased and the headaches returned, which had been absent during the epileptic period, but they were no longer preceded by the visual sensation. They ceased, however, on the return of still slighter minor attacks without any sensation, consisting only of a brief inability to speak, so brief as to be seldom noticed. After a time these also ceased, and with no recurrence of the headaches.

Sometimes we find epileptic attacks and headaches continuing together, but in such cases the latter is seldom definitely hemicranial, unless the epilepsy is only the minor form. The alternation is often so pronounced as to be significant, although we can only conjecture what its meaning may be.

Premonitory Symptoms.

The most frequent prodroma is visual, as you all know. It is so characteristic as not to lead to confusion with epilepsy. But its features should be noted. The most frequent among the many forms is that of a small star near the fixing point; it enlarges towards one side, its rays expanding into zigzags, often coloured—the "fortification spectrum." Within it vision is dimmed by bright scintillation. It becomes faint when it has almost reached the periphery, and ends in various ways which are not relevant to our present object. It lasts a quarter of an hour or more, and as it ceases the headache comes on, usually on the opposite side of the head. Sometimes the visual disturbance is central and bilateral. Many other forms are described and illustrated in my Bowman Lecture on "Subjective Visual Sensations."[1]

These symptoms are familiar. It is not so, however, with another premonitory symptom which occurs in the arm. A sensation of tingling, often like "pins and needles," is felt in the hand and slowly ascends the arm as a zone, leaving behind it "numbness," diminished sensibility. It occupies about a quarter of an hour in passing up the arm, and as it ceases the headache begins, on the opposite side of the head. The ascending zone of tingling obviously corresponds to the expanding luminous zigzag in the field of vision, and the impaired sensibility left behind it is similar to the dimness of sight within the zigzag. We can scarcely doubt that the symptoms are due to the same process in different regions of the brain, in the visual centre, and in that for sensation in the arm. The latter concerns us now on account of its resemblance to the aura of the epileptiform fits that are caused by organic disease of the cortex, active disease—as a tumour—or an old stationary lesion, in what may be termed "organic epilepsy." The resemblance is important for many reasons, practical and pathological. One practical reason is obtrusive; the symptoms of migraine may be mistaken for those of epilepsy, or at least of epileptic discharge; since the mistake may be made by men of experience, the causes of such error need consideration.

The process which precedes the headache of migraine is very mysterious, whether it is referred to the eye or the

* Lectures I and II, on Vertigo, appeared in the British Medical Journal for July 7th, p. 7, and July 21st, p. 128.

arm; there is a process of intense activity which seems to spread, like the ripples in a pond into which a stone is thrown. But the activity is slow, deliberate, occupying twenty minutes or so in passing through the centre affected. In the region through which the active ripple waves have passed, a state is left like molecular disturbance of the structures. There is a subjective sense of "numbness" in the arm and a peculiar scintillation in the field of vision. The structures are less susceptible to stimuli reaching them from without, so that there is dimness of sight in the eyes and defective sensation in the arm; they slowly subside to the normal condition. Then comes on the pain, often so intense, on the side opposite to the peripheral symptoms. We must refer the latter to disturbance of the cortical centres of the brain, but we know nothing of the precise nature of the process. It has been conjectured to be due to local arterial spasm, but of this we have no proof. Contraction of the peripheral arteries commonly attends the pain as it develops, causing pallor and coldness of the surface, but this is apparently an effect of the pain, as the arteries of a frog's foot contract when its brain is injured. A peculiar spreading disturbance of the nerve structures is evident; that it depends on arterial spasm is an assumption which may or may not be true. The opinion is difficult to reconcile with the character of the "discharge," so uniform in its general character, so orderly in its disorder. Not less mysterious is the pain, so intense, often so restricted, and felt at the seat of the disturbance which causes the peripheral symptoms, in the side of the head opposite to that to which the sensory derangement is referred. But the pain does not concern us now.

Distinction from Epilepsy.

The important fact is that a sensation beginning in the hand and passing up the arm occurs, not only in migraine but as the aura of convulsions due to organic disease of the cortex, although the two differ in their duration. The epileptic aura occupies a few seconds, the premonition of migraine is almost always many minutes, often twenty, in its deliberate course. Another point of resemblance is that a sense of weakness may accompany the sensory disturbance in each malady. Each may have headache as its sequel, but the pain of severe migraine is incomparably greater than the headache which follows a minor epileptic seizure which does not develop to convulsion. When the right arm is the seat of the sensory disturbance, in each disease there may be some degree of transient aphasia, another source of confusion. But the duration of the symptoms affords a decisive indication. In the following case this was so clear that I should hesitate to mention the facts to you were it not that the nature of the case was actually misconceived. The patient was a boy of 13, belonging to an intensely gouty family. For several years he had been subject to periodical headaches, formerly general or vertical, but of late they had been only on the left side. (Here we have an illustration of the fact that, as I have said, we cannot separate the periodical headaches that are bilateral from those which are "hemicranial.") When the pain in the head became limited to one side, each attack was preceded by a sensation in the right arm, the characteristic tingling, beginning in the hand, passing up the arm, and leaving numbness behind it. It occupied a quarter of an hour in its transit, and with it there was distinct aphasic difficulty in speaking. As it ceased the left-sided headache began; and it lasted some hours. These symptoms were typical; and yet an experienced physician had expressed the opinion that the case was one of focal epilepsy, "Jacksonian epilepsy," probably due to a tumour of the brain, and had advised an operation. The diagnosis of migraine was entirely confirmed by the subsequent course of the case.

Besides the difference in duration there are other distinctions. The sensory disturbance in migraine may affect both hands, but this is never the case in Jacksonian epilepsy. The aura of this may start in the foot or the hand; that of migraine never begins in the foot, and seldom involves the lower limb. At least, I have never met with onset in the foot; it is always unwise to affirm a universal negation. I have only once known the premigrainous sensation to pass to the leg, and never down the trunk, whereas the sensory aura of epilepsy often passes from one limb to the other, down, or up the trunk. The epileptic aura, ascending the arm, may seem to pass to the face or the head, but that of migraine is never thus described. Often, however, after ascending the arm, or even simultaneously, it is felt in the lips, and usually in both sides of the lips, sometimes also in the tongue. This is of interest, because the lips are essentially bilateral in function and are closely related to the tongue. You cannot narrow your lips without also narrowing your tongue, and vice versa.

Although it is rare for headache with premonitory visual symptoms to be thought to be epilepsy, the mistake was made in the case of a man, 38 years of age when seen, who had suffered from nocturnal fits since 17. They were general, and occurred at intervals of several months. He was thought to suffer from minor seizures also, because attacks of migraine were regarded as epileptic. These began by "haziness over his sight, with bright specks in front of him," impairing vision sufficiently to compel him to stop what he was doing. There was no zigzag spectrum or hemianopia. This generally lasted for only five minutes, but sometimes longer, even for an hour. Before it ceased, headache commenced, slight at first, but gradually becoming intense. It began in the occipital region, and "worked round the head, to fix itself at last in the right eye." It often lasted two or three days.

The same mistake of regarding the symptoms of migraine as those of epilepsy was made in another case, but with more excuse. A boy of 16 had suffered for a year from attacks which were regarded as certainly epileptic. Each began by the appearance of misty blotches in his sight, without colours or spectra of definite form. This amblyopia continued for half an hour; as it passed off, pain came on in the left side of the forehead, increasing to great severity. After two to four hours vomiting occurred and immediately the pain lessened and soon passed away. So far the symptoms are typical. But a few minutes before the vomiting, after the headache had lasted some hours, a sensation of "pins and needles" was felt across the upper lip and in both hands. In the earlier attacks the sensation was felt only in the first and second fingers, but in the later ones it had spread over the whole hand. It accompanied the vomiting and ceased with it. This is another instance of the occurrence of sensory symptoms during the course of the headache, and this unusual feature helped to give rise to the diagnosis of epilepsy. It seems to have preceded the discharge of nerve-tension by the vomiting which often frees the sufferer from the pain. Such bilateral symptoms do not often precede a headache that is on one side. As in the previous case, the sensation in the lip was bilateral. The limitation in the hands, quite symmetrical, is one of the peculiar features of the sensory disturbance of migraine, and when bilateral it is distinctive. The case illustrates also the fact that the variation in the order and character of the symptoms is often a cause of perplexity. We shall see other examples of this, and their consideration will enable you to discern the nature of other diverse symptoms of this most variable disease.

Isolated Prodromas.

It is important to remember that the sensory prodroma of migraine may occur alone, without succeeding headache to emphasize its nature. Any form may be thus isolated, and may sometimes give rise to perplexity—the visual symptoms, indeed, rather curious than misleading. When they occur alone, they are often excited by some peculiar visual impression—a gleam of light, or the thrilling sensation which quickly-moving objects cause, or the rapid alternations of light and shade produced by double palings. This may be connected with actual visual impressions. In a strange case I have described[1] a coloured zigzag circle was sometimes seen around an object, for example, a plate that was before him; he raised his eyes to the window, and it was still before him, but slowly disappeared. He described it: "I looked up and the phenomenon was still before me, but it went out of the window." He was a mechanical draughtsman, and depicted what he seemed to see in quaint drawings, which are in the possession of the Ophthalmological Society.

The error of mistaking the visual prodroma for minor epilepsy has some excuse when the visual sensation occurs without a succeeding headache. This often happened in a patient whose symptoms presented other features of interest. He was a man of 24, who began to

suffer from migraine at 16, and had two epileptic fits during the six months before I saw him. The headaches had always been preceded by hemianopia, often on the left side, lasting ten or twenty minutes, followed by pain on the right eye and right side of the head. Still more frequent, however, was transverse hemianopia, loss of the upper half of the combined field. (This remarkable feature I have met with in a few other cases of migraine.) The loss, whether lateral or transverse, was attended by a "flickering" but never by a zigzag spectrum, although occasionally there was a spectrum "like a Catherine wheel." The succeeding headache lasted two or three hours or longer, even the rest of the day. Afterwards he frequently had the visual symptoms with very slight and brief headache, and often with none. They were induced by a sudden change of light, especially by going into bright sunlight; sometimes by going into a darker place. When thus induced, and without headache, they were much briefer, lasting sometimes for a minute, and often less than five minutes. In such detached form they might easily have been thought to be minor epileptic seizures, but the identity of character with those that preceded the headaches made their nature certain. He afforded, also, an illustration of the real difficulty which such cases sometimes cause. He had one attack unlike the others. Suddenly, voices seemed far away, his field of vision became lessened on each side, and he was extremely pale, as if fainting, but presently recovered. He had no others like it, and its nature is uncertain. He had only one more epileptic fit, and his headaches became much less frequent during the eighteen months he was under observation.

The cases in which such isolated sensory disturbance is in the arm, especially in the right arm, and is attended with definite aphasia, may give rise to great perplexity. This is not quite relevant to my present subject, but nothing that is important is irrelevant to your needs. The symptoms seem like those of sudden arterial obstruction in the brain, causing transient hindrance to the blood supply. The fear is specially aroused, if there has been no previous similar attack. This is not improbable in medical experience, because it is then more likely that the patient will seek advice. Subsequent headache if it occurs, may not lessen the concern. The difficulty is greater if the patient presents conditions favourable to arterial obstruction, if he is in the degenerative period of life, if he has had syphilis, or presents any sign of heart disease. The guiding points are the following. In most cases the sufferer has been liable to paroxysmal headaches, with or without preceding visual spectra. The sensory symptoms in the arm predominate, and their peculiar character, as I have described it, is really distinctive, if only you know the fact. So also is a sensation in the lips, subsequent or simultaneous. Lastly, the symptoms seldom last more than half an hour, and at the end of an hour all is normal, unless some headache remains. It requires courage on the part of a doctor, confronted with such symptoms for the first time, to dismiss them as functional, because he knows that he will be blamed should they be the harbinger of grave disease. In the degenerative period of life, indeed, symptoms of this nature may have the feared significance, but then they are not so transient. A few days since I heard of a lady whom I saw some time ago, who was in late life the subject of migraine with a visual premonition, and had sudden weakness in the right arm and some aphasia. They did not pass away until a week afterwards, and were evidence of a slight organic lesion. But the arm was weak, not tingling, and the duration of the symptoms was clear proof of their nature.

Vertigo before Migraine.

It is not common to meet with vertigo as a premonitory symptom of headache, but when it occurs its rarity may render it a cause of perplexity. It is usually slight, but in those who are subject to it, is occasionally more severe, and its nature may then be easily misunderstood. Even when severe enough to involve actual instability, it is seldom so definite in character as to permit a description of its features. The following case is an example of prodromal vertigo, and also of another feature, the variation in duration of the premonitory symptom in the same patient. In this case they were generally much shorter in duration than they are in most patients.

A man of 30 had been subject to migraine since he was a boy. The headaches were bilateral and preceded by loss of sight, sometimes general, sometimes hemianopic, which lasted only a few minutes before the headache came on. Sometimes, instead of the affection of sight, there was numbness of the lips or of the tongue or of both, equally brief. These symptoms occasionally occurred without a succeeding headache. With them there was often a slight vague sense of giddiness. On one occasion, two months before I saw him, there was a much more prolonged warning. It began with giddiness, and, although he could not describe it, the intensity was such that he could not stand. It was attended by flushing of the face with a pricking sensation in it and in the right limbs. After half an hour it lessened so much that he could stand, but in a few minutes it returned with renewed and more severe "pricking" in the right limbs; this seemed to cause weakness in them. The symptoms gradually lessened and passed away, but before the giddiness had ceased, the headache began, of the usual character: at first a sense of pressure at the vertex, gradually passing into severe pain, much more intense than he usually experienced, which continued for twelve hours.

Such a long prodroma bears a resemblance to the symptoms of an organic lesion, rather than to epilepsy, and this was increased by the weakness that attended the sensation in his limbs. It is important to remember that any sensory discharge may exert an inhibitory influence on the motor centres, although the usual effect is to cause a sense of weakness rather than actual loss of power. In this case, a mistake should have been prevented by the fact that the symptoms differed only in degree from the usual premonition, and by the perfect resemblance of the character of the headache to that from which the patient had habitually suffered. The brevity of the premonitory symptoms in the ordinary attacks may seem a resemblance to epilepsy, but their character was distinctive. Tingling in the lips or tongue on both sides is confined to migraine, as I have said. Lateral hemianopia is a symptom which, strange to say, seems to be unknown as the aura of an epileptic attack, although a brief transverse loss is occasionally met with. In one case the aura of the fits was a sudden green colour in the lower half of the fields of vision, from side to side; to the patient it seemed as if "he was standing in a field of grass." It was this case that led me to investigate the colour-fields in relation to the area of the testing object, and I found that with a sufficiently large object the fields for red and green extend almost to the limit of the field for white.[1]

Symptoms during Pain.

Another class of symptoms which may sometimes bring migraine near epilepsy, and frequently seem to do so, is disturbance of other brain functions during the pain. As I have said, we do not know by what mechanism the pain is caused. The fact that when unilateral it is on the side of the head opposite that to which the sensory symptoms are referred, must indicate a direct relation to the substance or membranes of the hemisphere. The fact that it seems to have a cortical origin, and is not due to derangement of the lower centres, is all that concerns us now. It enables us to understand that signs of other disturbance of function of the cortex should sometimes coincide with the pain. They seem to result from its intensity, as they do not from pain in other parts, however severe, and they always coincide with its extreme degree. One such effect is very common—the over-sensitiveness to sensory impressions which accompanies all severe attacks. The pain itself is increased by light and sounds, so that darkness and silence are needful for endurance of the suffering.

Somnolence in Migraine.

A very rare and very merciful effect of the pain is sleep. It is so rare that it may not be right to speak of it as an effect, although it has this semblance; it may be another manifestation of the brain disturbance that causes the pain. When it occurs it entails peculiar difficulty in the diagnosis, and may even make it hard to say whether the malady is or is not epilepsy.

This difficulty existed in the case of a boy who was 11 years old when I saw him, whose symptoms had been confidently ascribed to epilepsy. A year before, at a party, he struck his head against that of another boy. The blow was near the left parietal eminence, but not severe. He had immediately some difficulty in speaking and headache

came on quickly. A few hours afterwards a doctor saw him; he could then speak well, but the pain was severe, and he had begun to vomit. There was no sign of injury to the head. He went to sleep, and next day was quite well. He continued so for six months, when, one morning, he started alone for a walk along a country road, and was afterwards found by the side of the road, fast asleep. He was roused with difficulty and taken home; at once he went to sleep again and slept for several hours. He then said that he had had a little headache on starting; it increased, he felt he must lie down, and at once went to sleep. A month later, headache began in the morning, slight at first, gradually becoming severe, and again he went to sleep for several hours; when he woke up he was violently sick and then was better. Half an hour after the headache came on he felt a sensation of tingling in his lips and spoke with difficulty; his lips seemed contracted and could not be moved properly. This lasted about an hour, and passed off before he went to sleep. After another, he was feverish, with a pulse of 120. The headache always began at a spot just behind the left parietal eminence, and spread thence forwards and backwards, but never went to the other side.

That the case was one of migraine admits of no doubt, and was confirmed by the effect of treatment. It presents many instructive features. The excitation of the first attack by a slight blow on the head is unusual, and was misleading; the immediate symptoms might reasonably be ascribed to damage to the brain. The deep sleep in the second and subsequent attacks bore a suspicious superficial resemblance to the post-epileptic sleep, and vomiting is not uncommon after convulsive attacks. But severe headache never follows attacks too slight to be noticed; while vomiting is not a sequel to such slight seizures, nor does it follow prolonged post-epileptic sleep. It occurs soon after the attack. The occurrence of the lip sensation after the onset of the headache, instead of before it, reminds us of the similar relation of the symptoms in a case already mentioned, and it is probable that the difficulty in speech was due to an inhibition of the lip movements rather than to actual contraction. A similar inhibition may attend the sensory symptoms in the hands, as we have already seen. It is difficult to ascertain whether there is real inability or only a sense that it exists. One other feature also deserves note, though it is not connected with our present subject. It is the feverish symptoms which attended one attack. I think that there is no doubt that in young children migraine is represented by feverish attacks, with headache, which bear an alarming resemblance to meningitis, but pass off in about twenty-four hours, to recur after a few months. These attacks may be replaced by simple headaches in later childhood. Apart from this, the case shows how easily the features of migraine may mislead. The first attack, indeed, excited by a blow, could scarcely have been interpreted aright.

Delirium in Migraine.

The intolerance of sensory impressions which the pain causes may pass into more pronounced cerebral disturbance. The intense suffering may induce a state of stupor, in which the pain seems to be felt as acutely as ever, but is not afterwards remembered. The condition is often attended by quiet delirium of which nothing can subsequently be recalled. The patient is usually said to be "unconscious." It must be remembered that the word "unconsciousness" is used as loosely as "giddiness," and is applied to delirium as often as to stupor. Such delirium was presented by a married woman, aged 30, whose mother suffered from headache, and father from gout. "Sick headaches" began when she was a girl, and became more severe at 23, and gradually more frequent. They began in the morning suddenly; the pain was at first occipital and later extended forward over the eyes. No sensory symptoms preceded the attack, but sometimes double vision occurred just before the headache. An unusual feature of the pain was that it compelled her to sit up, being greater when she lay down. As it grew most intense she became paler, her hands and feet extremely cold, and she passed into a delirious state, making strange statements, of which she afterwards remembered nothing. Her condition was described by a doctor who saw her as resembling epileptic mania. As the pain lessened, her mental state became normal.

A similar condition, more variable in duration, occurred in another woman, who was 28 when first seen; her headaches were then attended by a similar delirium, and ten years later it still accompanied them. As in the last case, there was a family history of headaches, of gout, and also of rheumatism. The day before one of her headaches she always felt particularly well; although easily tired as a rule, she then felt as if she could walk any distance. (This antecedent is often described by the sufferers from migraine.) Her headaches began suddenly, without any preceding sensory symptoms, with pain at the back of one eye, either right or left. It spread through that side of the head and then invaded the other side, without ceasing on that first affected. When at its height she often had a strange feeling that she was going to say or do something odd, and immediately began to ramble in her talk. This wandering state often continued for an hour or more; sometimes it lasted only three or four minutes. It passed away with a dazed feeling, not with any sense of faintness. Afterwards she remembered the strange initial sensation that she was going to talk nonsense, but absolutely nothing of the period of delirium.

Epilepsy from Migraine.

Such delirium as I have described may not only resemble the post-epileptic state in its character, but its nature may, perhaps, be similar. We ascribe the automatic action, and also the hysteroid state met with after slight epileptic seizures, to transient loss of control of the structures involved. We can conceive that the intense pain may produce a similar effect, inhibiting the controlling centres. It can only be a conception, because we know nothing of the actual mechanism of the pain. But the influence on the cerebral functions is important for our present subject because it may be more profound. We have seen, from the last case, that the mental aberration may be brief. Such a condition, if more profound, might produce a loss of consciousness very similar in aspect to that of epilepsy. The case I am about to mention shows that such a state may result from this disturbance.

A married woman of 47 had suffered for a long time from occasional headaches ending in vomiting. During some of these, when the pain had become very intense, she lost consciousness for a few moments, the loss being preceded by a sense of falling, attended by pallor of the face, and followed by cold perspiration. It was probably more than syncope, for consciousness returned through "dazedness," not by a sense of faintness. After a time, she occasionally had a similar attack when she had no headache. Thus it seemed as if the effect of the pain had produced a tendency which became independent of its excitant. Such a case passes out of the borderland of epilepsy, over the border line.

Equally distinct was the relation of epilepsy to migraine in the case of a married woman of 38 without neurotic heredity, who had suffered from periodical headaches since the age of 6. For many years they occurred at intervals of about three months, but they subsequently became more frequent. The headaches were chiefly frontal, severe, lasting all day, without any sensory prodroma. For many years, when the pain became most intense, she suddenly felt a peculiar sensation at the epigastrium, which passed up through the chest to the head, and seemed to spread over the whole head. It continued for ten minutes, and ended as suddenly as it began, but with an eructation of flatus. During the sensation she was unable to see, or to speak, or to understand what was said to her. She heard the words as sounds but could not tell their meaning. When the sensation ended sight returned, and her power of speech came back gradually; at first, on trying to say a word, she could not utter it correctly. This arrest of cerebral function at the height of the pain, following a sensation resembling the epigastric aura of epilepsy, is sufficiently remarkable, although consciousness was unimpaired. But it proved to be more than a resemblance. Five years before she was seen, at the age of 33, this sudden state became a definite epileptic fit. When the headache reached its height, she lost consciousness, and fell if she was upright, without warning; general convulsion occurred, with tongue biting and micturition. These fits had become her chief trouble, but they always occurred during the course of the headache. Thus the development of the epileptic

attacks from the cerebral disturbance during the pain, apparently as its effect, is clear. Unfortunately, I saw the patient only once; but she was intelligent, and gave a clear account of her symptoms. The facts are in close harmony with those of the preceding cases.

Prodromal Connexion.

Another remarkable illustration of a relation between migraine and epilepsy is afforded by a case in which the headaches did not cease when epilepsy set in, but became preceded by the aura of the fits. The aura was visual, and the headaches at once appropriated it. This is the only interpretation we can put upon the facts. The patient was a girl—16 when seen—in whose family there was a history of gout on the mother's and insanity on the father's side. From about the age of 5 she had been liable to periodical headaches, general. When 13½ she had an epileptic fit during sleep; since then three others had occurred—two during sleep and one when awake. Since the first fit the headaches had continued, but preceded by a brief, very definite, visual spectrum, and the single epileptic attack which occurred when she was awake was preceded by precisely the same aura. The headaches had been frequent, at intervals of about six weeks, and the preceding visual spectrum was always of the same character, so that she was able to give a precise description of it. A bright object appeared a little to the right of the fixing point; it was not quite a star, although it had projections which were in constant movement. To illustrate this movement the patient moved her fingers just as cilia move. These projections were each of a different colour—yellow, blue, and red, never green. It was so bright that she called it "fiery," and behind it there was a misty dimness, not blackness. At once it began moving to the left, and when it had passed to a place about half-way from the fixing point to the left edge of the combined fields it stopped and moved to the right, passing above the fixing point, obliquely downwards to the extreme right edge of the field, "as far as she could see to the right," and she felt compelled to follow it. Then it passed again to the left the same distance as before, and again to the right, although not quite so far. The movements were repeated two or three times, and then the object suddenly disappeared, she could not say where. The duration was estimated at "a minute." It left for a time dimness of sight in the region through which it had passed, the middle and right parts of the combined field. For instance, she said that immediately after it had disappeared, if looking at a person's face who was near her, she would only be able to see the ear that was on her left side. As soon as it ceased, pain in the head came on; sometimes it was bilateral and frontal, from temple to temple, lasting most of the day, and ending with vomiting; more often it was left-sided, and especially intense just above the eyeball, at a spot indicated as midway between the eyeball and the eyebrow. The pain here began as soon as the luminous spectrum ceased, and continued for several hours. During a year the patient was under observation she had no more fits, and the headaches became slight, but the spectrum occasionally occurred before them.

This case is specially instructive. The visual sensation resembled in its brevity an epileptic aura rather than a prodroma of migraine; it was similar also in its movement as a whole, in its change of place but not of character, and likewise in the sense of a compulsion to follow its movement across the field. The visual process seems to have been introduced into the brain disturbance by the development of epilepsy and immediately to have attached itself also to the attacks of migraine. It preceded these after the first fit, which was during sleep, and some time passed before the single attack in the day revealed its relation to the epilepsy. Although as brief before the headaches as before the fits, there was no trace of any minor attack after it, and the succeeding pain was characteristic of migraine. A focus of pain behind or above the eyeball is common in these cases, and its mystery is increased by the fact that, like the one sided cranial pain, it is on the side opposite to the preceding peripheral disturbance. In this case, the visual spectrum was in the region of the combined field subserved by the right eye. It did not invade the left portion of the fields subserved only by the left eye and the right hemisphere. This agrees with the occurrence of the localized pain on the left side.

Elaborate Premonition.

The premonitory symptoms of headache sometimes attain a high degree of intensity and of complexity, far exceeding the common forms. Such cases are very rare, but may give rise to great difficulty. The following case is an example; I have reserved it to the last because it combines with other features many of those already described, and its proper position in the series we have considered is not easily assigned. Its importance arises from the fact that it shows what strange and diverse combinations may be met with, only to be understood by discerning their character, and especially their relation to succeeding headache. The chief diagnostic danger is that this pain may be regarded as the secondary consequence of the disturbance, which is really the elaborate forerunner of the headache. The case is further important as presenting motor symptoms as part of the prodroma, but they really emphasize the significance of their general absence. The symptoms, indeed, belong, in part, to some other sections of the borderland yet to be considered, but it has close relations to the region we are now concerned with.

The patient was a married woman, aged 31, who had suffered since 18 from headaches, about once a fortnight. They were very intense, limited to the right side, and ending with sickness. Three years before, at 28, a sorrow befell her, the death of her mother. Since then the headaches had changed in character, and an elaborate prodroma had preceded each. First her sight was lost, not on one side, but in front of her, where "a black curtain seemed to have dropped down, brilliant with thousands of golden points." In a "minute" the luminous points disappeared, and were replaced by a feeling that the whole room was turning towards the right, though she was still. This was followed by a sense that her limbs, arms and legs, and also her jaw, were being fixed—"drawn" was her expression; apparently they passed into a state of rigidity, like that of tetany in character, but not in form, since the fingers were flexed at all joints and not in the tetany position. After this had continued for "ten minutes," she became "unconscious" (apparently really so) for about a quarter of an hour, but this state was sometimes replaced by a sense of faintness, followed by general tremor, with chattering of the teeth. Then the headache came on; the pain was felt at first in both mastoid processes, and passed up to the top of the head and thence down to the throat. At a later date it began in the ears, as before, and extended to the vertex, but then passed to the middle of the cervical spine, where it was very intense. It always continued for several hours. In connexion with the aural seat of the pain, a curious fact was described. There was some reduction of nerve-hearing on the left side, but each membrana tympani and meatus was normal. The day after each attack of pain she almost always had a yellowish discharge from the meatus. This is quite credible, as a "flux," the effect of the pain, analogous to the subcutaneous swelling of the forehead, etc., met with in cases of neuralgia.

In spite of the unusual prodromal symptoms they were dominated by the pain, most intense and prolonged. Although complex and strange, they were only an elaborate premonition of the pain, and the discernment of this fact and recognition of its significance afford the most important lesson the case can teach. It should prevent a misapprehension, even of the disturbance of consciousness, most rare as a part of the premonition, and then so easily mistaken for a symptom of epilepsy. It should even prevent a mistake as to the nature and meaning of the motor symptoms, regarding which a word more must be said. Although the contracture was not like tetany in the posture of the hands, it probably was so in nature; in true tetany the fingers are sometimes in flexion. Such contracture may be due to a state of the motor centres similar to that which, in the sensory region, causes the subjective "numbness," and surprise may reasonably be felt that it does not often accompany the sensation. Such general fixity of the limbs is a condition quite different from epileptic spasm, and should not mislead, even apart from its position in a series of functional states, leading up to the headache.

Conclusions.

In connexion with the cases described their chief lessons have been pointed out, but it may be well briefly to enumerate the more important facts they illustrate. I

have thought it better to confine myself to my own personal observations, and as I claim no novelty in what I have adduced, it has been unnecessary to encumber the lecture with references to the observations of others. Yet an allusion should be made to the classical work of Dr. Edward Liveing,[1] which, as a medical monograph, has few rivals on any subject. In it will be found an impartial account of the speculations that have been put forward regarding the nature of the process, some upon grounds so insecure as to enable opposite opinions to be urged with almost equal plausibility. Great as would be the advantage could we compare the real nature of the morbid process in epilepsy and migraine, we must wait for the advantage until the necessary knowledge is obtained.

It is, indeed, somewhat curious that the most frequent relation of migraine to epilepsy that we have encountered in our survey of the facts is as a source of error. The danger of this is greater than I anticipated when I began to consider the cases which brought the two maladies together, and to lessen this has become of greater importance than I expected. That there is some relation between the two we cannot doubt, and yet the actual evidence of it is very slight. It is clearly indicated by their frequent alternation, by the fact that, in so many cases, migraine lessens when epilepsy develops. But of the strongest evidence of a direct relation—that of the same premonition being followed by an attack either of epilepsy or of migraine—I have been able to adduce only a single instance. We are hardly justified in saying more than that in each malady a state of nerve tension seems slowly to develop, which is at last relieved by a violent functional disturbance. In the two diseases this disturbance differs so much in character that we should, perhaps, not be surprised to find that there is so little evidence of a direct relation between them.[2]

We cannot regard the occurrence of epilepsy during the intense pain of migraine as evidence of a direct relation. The connexion it establishes is close but indirect. The pain has this effect, as any other source of intense disturbance might have, and the result does not prove a special relation of cause and consequence. There is not even evidence that unilateral pain causes unilateral fits. The effect of the pain on cerebral function may be traced through slighter disturbances, stupor, delirium, and loss of consciousness, to definite epileptic symptoms, as in the cases considered—clear evidence of the secondary indirect character of the relation between the two affections.

The differences between migraine and epilepsy are definite and distinctive. Their antecedents differ. When heredity is to be traced in epilepsy, the antecedents present either the same disease or insanity. These are seldom to be heard of in the case of migraine, in the more marked forms of which parental or ancestral gout is seldom absent, and generally is pronounced; and there is often also a history of severe headaches or neuralgia. However difficult it may be to understand, observation makes it certain that the offspring of gouty parents are specially liable to the painful neuroses, and this is especially true of those who are of the female sex. These antecedent relations are, of course, true only of the majority of cases. Other differences have been emphasized in connexion with the cases that illustrate them. The difference in the duration of the premonitory sensory symptoms is especially important. The brief warning of the epileptic fit, lasting only a few seconds, is not met with before pure migraine, and to this the deliberate disturbance, lasting ten to twenty or thirty minutes, is confined. Rarely it is over in five minutes, but in such cases the same prodroma on other occasions endures for a much longer time, and the variations indicate its nature. The character of the forerunning disturbance is generally also distinctive. In the arm, the zone of tingling, slowly passing up the limb, is never described in epilepsy, of which any clonic spasm is distinctive, and unknown in migraine. The visual symptoms which so often precede migraine similarly differ in duration from those that constitute the warning in epilepsy, and they usually differ also in character. Dimness or loss of sight is general in epilepsy, and is momentary; in migraine it is blotchy and irregular, or one-sided and prolonged. A more definite sensation has a mechanical elaboration, and consists of an angled line, simple or multiple, straight, curved, or expanding, which may limit an area of loss. A stellate body, still or moving, may occur in either affection, but the simple flash of light, or multiple momentary bright "stars," so common in epilepsy, are not known in migraine. In this, also, we never meet with the elaborate psycho-visual sensation—a face, a figure, a scene, or the like, which are not rare in epilepsy. The contrast is curious between this form of elaboration and that which is so common in migraine, which I have called "mechanical"; it suggests that the latter is due to a disturbance in a region of the cortex that is at a lower level of function than that in which the epileptic process occurs, or that the mode of disturbance is quite different.

The special characters of the pain are also important. The severe degree and long duration common in migraine are never met with after an epileptic attack of minor character, with which alone the symptoms of migraine can be confused, nor is severe headache, even after a convulsion, one-sided. Vomiting occurs soon after the fit in epilepsy, not after the headache has lasted some hours, as in migraine. The occasional occurrence of prodromal symptoms during the headache may be a cause of error, but this should be prevented by a knowledge of the fact. The effects of the pain itself, stupor, somnolence, delirium, and loss of consciousness, also need only to be known for the due recognition of their nature and significance.

I hope to deal separately with the subject of the treatment of these borderland cases, but its effect has been mentioned in connexion with some of the cases, as affording confirmation of the diagnosis of their nature. Bromide, so often effective in epilepsy, has much less value in migraine, in which nitroglycerine is of service, especially in combination with strychnine. This may be held to support the opinion that the symptoms depend on vasomotor spasm, but the conclusion is scarcely justified. It is not for the attack itself that it is useful; its service is obtained by continuous administration between the attacks, combined with whatever other agents are indicated by the condition and history of the patient. I will end with an illustration of one sufferer's conviction of its value, although I know full well how little weight we can wisely attach to the belief of a patient. A young man, whose life had been almost transformed by the reduction to a trifling degree of severe and frequent migraine, said that if I stopped his nitroglycerine mixture, he should get a lump of dynamite, carry it in his pocket, and nibble it from time to time.

References.

[1] Bowman Lecture on Subjective Visual Sensations, *Trans. Ophth. Soc.*, 1895, reprinted in *Clinical Lectures*, Second Series (London: Churchill, 1896). [2] *Megrim, Sick Headache*, etc. (London: J. and A. Churchill, 1873). [3] In a short article on Epilepsy and Migraine (*Lancet*, August 11th, 1888), Sir Samuel Wilks has seized, with characteristic precision, the general significance of the facts, although his conclusion is more absolute than is justified by the cases considered in this lecture.

French Society of Military Medicine.—The foundation of this Society was mentioned in a recent issue of the British Medical Journal. It owes its initiation mainly to Medical Inspector Delorme, Director of the Val de Grace, who in 1903 induced the late Ministers of War, General André and M. Berteaux, to accept the proposal in principle. Now it is duly constituted with the Ministers of War, Marine, and the Colonies as honorary presidents. The Society held its first meeting on November 15th, when Dr. Delorme was elected President; Dr. Primet, of the Colonial Service, Vice-President; Médecin Principal de 1re Classe Mareschal, General Secretary; Surgeon-Majors Huble, Salleta nd Lamoureux, Secretaries; and Lafeuille, Treasurer. The objects of the Society are purely scientific; it will devote itself to the study of questions relating to military hygiene, epidemiology, medicine, and surgery; and to military law in its bearings on the medical service. Among the leaders of the medical profession in France who joined as honorary members are Professors Bouchard, Roux, Lannelongue, Berger, Landouzy, Lucas-Championnière, Chauffard, Reynier, Segond, Picqué, Schwartz, and Lejars, of Paris; Forgue, of Montpellier; Jeannal, of Toulouse; Lacassagne, of Lyons; Lagrange and Verdelet, of Bordeaux; Le Fort of Lille; Freille, of Algiers; Bosquet, of Clermont-Ferraud; and Monprofit, of Angers, ex-President of the French Surgical Society. The Society has already a membership of 400.

Remarks
ON
THE THERAPEUTIC VALUE OF COMPLETE VOCAL REST DURING THE SANATORIUM TREATMENT OF LARYNGEAL TUBERCULOSIS.*

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The idea to employ complete vocal rest as a remedial agent in the treatment of laryngeal tuberculosis is not new. As far back as 1887 Professor Moritz Schmidt of Frankfort, when warmly recommending tracheotomy in cases of laryngeal tuberculosis, stated that "the rest afforded to the larynx" probably was the most effective element in obtaining success by this method.† It is true that Schmidt strictly differentiates between "quiescence of the larynx" and "mere vocal rest." On this point he expressly states in the third edition of his excellent textbook:

"As a matter of fact it is extraordinary that after tracheotomy the tuberculous disease often disappears without further treatment. Very likely one has to regard in the very first place the quiescence of the larynx as the effective element, and in addition the prevention of dust and bacterial infection. Mere quiescence without tracheotomy I have very often obtained in the case of reasonable patients, who did not speak a syllable for months. Complete silence alone, however, is not so surely effective as tracheotomy."

Now, I wish to state expressly that nothing could be further from my intention than to assert that mere long-continued vocal rest was an infallible remedy in laryngeal tuberculosis. I have myself repeatedly seen proofs to the contrary. Nevertheless, the time seems to have come to recommend this method for repeated testing under exceptionally favourable conditions, that is, during the sanatorium treatment of pulmonary tuberculosis complicated by tuberculous laryngeal manifestations.

Whilst I do not doubt that in former years, as stated by Schmidt, a number of patients, suffering from laryngeal tuberculosis, who were endowed with unusual strength of will, and were living under exceptionally favourable conditions, have succeeded in preserving silence for months, insuperable difficulties, according to my own experience, oppose themselves to a general employment of this method under the conditions of ordinary life. The claims of their calling in men, of their domestic duties in women; the characteristically sanguine temperament of most phthisical patients; the absence of constant supervision by a medical man; the unreasonableness of many so-called friends of the patients, who in spite of all warnings tempt them time after time to use their vocal organs—all these are very weighty factors, which in most cases are likely to make real vocal rest lasting through months illusory. Such at least has been my own experience in former times, and the confessions of repentant patients, as well as the statements of relatives, have made me rather sceptical whether, even in cases in which apparently complete vocal rest had been obtained for some length of time, the assurance that my advice had been conscientiously followed actually corresponded with the facts. At any rate, I do not remember that in former years I have ever seen a really convincing proof of the usefulness of complete and lasting silence in laryngeal tuberculosis, and though my own belief in the efficiency of genuine and persevering vocal rest remained unshaken, I ultimately, seeing the undeniable difficulties of strict observation of complete silence under the conditions of daily life, limited myself to merely recommending patients to spare their vocal organs as much as possible.

Recently, however, a very powerful ally has arisen to the silence-cure through the greater generalization of the sanatorium treatment of pulmonary tuberculosis. The prejudice of the public against this, which only a few years ago was often very difficult to overcome, and not rarely could not be overcome at all, has given way to a better understanding of the situation, and particularly the early stages of the disease have profited from this better knowledge. Patients nowadays are ready to drop all other considerations and to live for three or four months for their health only. With this many of the difficulties all of a sudden disappear which formerly militated against the observance of really complete voice rest. The consumptive who makes up his mind in an early stage of his disease to leave his family and his profession for several months—not for the purpose of finding in the south, in addition to health, change and amusement, but in order to live for his health only under the severe discipline of a sanatorium—takes his illness seriously from the first, and is ready to submit even to irksome regulations in order to regain his health. When he enters the institution not only the necessity but usually also the temptation ceases to needlessly use the vocal organ which is in want of repose. Other obnoxious influences—such as irritation of the air passages by dust, tobacco, unsuitable food and drinks—can be entirely avoided. Causes for fresh congestion of the larynx from unsuitable clothing, late hours, staying in badly-ventilated rooms, are altogether prevented, and, above all, the patient finds in the constant superintendence and encouraging advice of the physician in charge of the sanatorium a most valuable help in the persevering observance of undoubtedly very tedious and depressing silence. Owing to all these circumstances the quiescence of the vocal organ becomes a reality, and the results, according to my experience, are in many cases much more pleasing than they could be under less favourable external conditions.

True, one must not approach the method—I wish to emphasize this again—with exaggerated expectations. It is neither absolutely certain nor indicated in all cases of laryngeal tuberculosis, nor is its exclusive use sufficient in many instances in which it may be advantageously employed. I rather look upon it as a very valuable helpmate which, although it might in some cases render local treatment superfluous, is not at all intended to altogether do away with the latter. On the contrary, in more severe cases a combination of the two methods will often produce excellent results.

I consider complete vocal rest particularly indicated in cases of inflammatory irritation of the larynx in pulmonary tuberculosis, especially in obstinate catarrh of the larynx, congestion of the vocal cords, relaxation of the ventricular bands, and—in more advanced cases—in circumscribed ulceration of the vocal cords, ulceration in the inter-arytenoid fold, general infiltration, and in impeded movements of the crico-arytenoid articulation. But I do not expect anything of it in those hopeless cases of the last stage in which the whole larynx has become a prey to deep ulceration and partial perichondritis, and I do not conceal from myself that, in a number of cases in which one had from former experience been entitled to hope that it would prove useful, the result is disappointing.

Nor can it be denied that even during the stay at the sanatorium the method is very irksome for the patient. Seeing that anyhow—especially at the commencement—the stay at a sanatorium acts rather depressingly upon many patients, this state of matters is further increased by the curtailment of intercourse with other patients, which is inseparable from the employment of the method. Even strong-minded patients have told me that they had needed their whole reserve of energy in order to strictly preserve complete silence for a long time. Much depends in this connexion upon the temperament of the patients; much also upon the question whether by chance they are together with reasonable or with unreasonable patients in the sanatorium. Concerning this point I have heard diametrically opposed statements. Whilst one lady patient told me that she had been supported and most sympathetically encouraged by her companions in distress in preserving complete silence for many months, another very energetic patient, whose severe laryngeal tuberculosis has now for years been arrested by means of the silence method combined with local treatment, told me that nothing had rendered his undertaking so difficult as the unreasonableness of other patients in the sanatorium, who had time after time endeavoured to tempt him to talk. It

* Being the substance of a paper read at the meeting of the Berlin Laryngological Society on November 16th, 1906.

† In the discussion following the reading of this paper Dr. Lublinski claimed that he too had recommended complete vocal rest in the treatment of tuberculosis as far back as 1887. Whilst willingly registering this fact, it seems hardly necessary for me to point out that this paper was not intended to give a full historical retrospect of the whole question, and that its only purpose is to emphasize the value of complete silence in certain cases of laryngeal tuberculosis during *sanatorium* treatment.

is here that the task of the physician to the sanatorium begins. If he will take the trouble to help his patient to successfully go through his difficult ordeal by means of suitable arrangement of the patient's daily life, by prescribing solitary walks, by suitably placing the patient who is to be silent between two other reasonable patients at the common meals, and by instructing the other patients accordingly, he will be able to do very much to lighten the disagreeableness of the method.

I must be prepared for the question whether the results of such religiously-maintained and long-continued silence are worth the difficulties and unpleasantnesses of the method emphasized by myself. In reply to this question I am able to state that in quite a number of cases in which it was employed, either alone or combined with suitable local treatment, the results were such as in former times I have hardly ever observed. Obstinate inflammatory irritation, which had defied every local treatment, disappeared; infiltration, if not too much developed, receded; isolated ulcers on the vocal cords, the ventricular bands, and in the interarytenoid fold lastingly healed, and even motor disturbances in the crico-arytenoid articulation improved, or in a few particularly favourable cases entirely gave way to a return to normal conditions.

I am further able to state that the cure or improvement in quite a number of these cases has remained a lasting one, as I have been able to convince myself by examination a long time after the end of the treatment. Surely these are pleasing results. On the other hand, as already stated, I have not entirely escaped disappointment. In the majority of my cases, however, in which the method was strictly enough and long enough persevered with, the results have been distinctly encouraging.

I wish, however, particularly to warn against being too easily discouraged by apparent want of success at the commencement of the treatment or by occasional slight relapses. Perseverance is never more required than during the silence-cure of laryngeal tuberculosis.

The total number of my cases is not large enough to form from them a final opinion, but they entitle me, I think, as the following cases will show, to recommend the method for further trial.

Case I.

Mr. L. C., aged 29, consulted me on November 14th, 1900, on account of obstinate pharyngeal and laryngeal catarrh, from which he had been suffering for several months past, and which had been aggravated by influenza. There was nothing characteristic of tuberculosis in the appearance of the parts named. The fauces, pharynx, and vocal cords were considerably congested, the latter somewhat relaxed, but there was no evidence of any graver mischief. The obstinacy of the huskiness, however, and the history of frequent cough, together with a somewhat hectic flush, which developed during our interview induced me to examine the chest, when I found dullness in front and behind over the apex of the right lung, together with prolonged harsh expiration in the right first intercostal space and some crepitation after coughing in the same locality. His expectoration was examined by Mr. Shattock, who found tubercle bacilli in every preparation, although not in very large numbers. In consultation with Sir Thomas Barlow and Dr. Howard Barrett, it was decided to send the patient to the Cotswold Sanatorium under the care of Dr. Braine-Hartnell. No local laryngeal treatment of any kind was employed.

At the sanatorium a suspicion was entertained that there might be a syphilitic element in the case, as occasionally white patches appeared on his uvula. At no time, however, either then or later, could I convince myself as to the coexistence of syphilis with the tuberculous pulmonary process, which was undoubtedly then present. Nevertheless, a course of mercurial inunctions was instituted as a matter of precaution whilst he was at the sanatorium. No definite results followed this treatment.

On March 7th, 1901, I saw the patient again, and found very great improvement. He had gained 18 lb., the tubercle bacilli, although not entirely absent from the sputum, were gradually disappearing, auscultation showed only slight crepitation, and this only after coughing, at the right apex, and the larynx was somewhat less congested than when the patient had gone to the sanatorium.

On April 30th, 1904, I received a letter from Dr. Burton of Cromer concerning my patient, whom I had meanwhile lost from view for several years. He reported that he had seen an ulcer on the posterior third of the right vocal cord, and that the rest of the cord in front was irregular, and red in appearance. The left vocal cord opposite the ulcer on the right vocal cord was swollen. No other sign of disease was present in the larynx, but Dr. Burton, knowing the history of the case, did not doubt the tuberculous nature of the ulcer on the right vocal cord. At the same time Dr. Burton's brother, Dr. F. B. Burton-Fanning of Norwich, wrote to me that he had watched the patient closely for the last three years, during which time he had been a patient in the Mundesley Sanatorium. During this time his general health had remained at one level, and until lately no unsatisfactory symptoms had been shown. The pulmonary affection had remained stationary since I had last seen him, suggesting infiltration with much fibrosis. About two months ago his evening temperatures had become less satisfactory, above 99°, and he had lost 7 lb. in weight. With very strict rest and feeding the temperature gradually resumed its usual level below 99°; the weight was regained all but 1 lb. There were then no laryngeal symptoms, and the slight fever was attributed to increased toxaemia. The present hoarseness came on only a week after the subsidence of the temperature.

When I saw the patient on April 30th, 1904, I found that he had, generally speaking, remained much *in statu quo*, and that the old fibroid condition in the right lung had not changed. With regard to the larynx matters were less satisfactory. The right vocal cord was in a condition which almost amounted to papillomatous degeneration, whilst the posterior part of its inner aspect was distinctly ulcerated. Its movements also were somewhat impeded. The left vocal cord was slightly swollen and superficially eroded, but moved freely. The rest of the larynx was clear. I strongly recommended immediate and energetic local treatment, consisting in curetting of the right vocal cord, and applications of strong lactic acid to both. This being agreed to, I twice curetted the ulcer on the right vocal cord, and followed this up with application of 50 per cent. lactic acid solution. Cicatrization took place more rapidly than could have been hoped for, and the irregularity still seen on May 11th, 1904, on the right vocal cord represented merely scarred tissue resulting from the ulceration and curetting. The patient was now strongly advised to rest his voice completely, not to go motoring, not to smoke, and, in fact, to avoid every possible form of irritation. One month later, unfortunately, again a distinct formation of granulations was seen on the right vocal cord, where only a few weeks previously the surface had been more or less even; 50 per cent. lactic acid was again applied, and the patient dismissed with renewed strong recommendations as to complete silence. This time the patient obeyed my injunctions most strictly, and when after an interval of nearly two years I examined him again, on June 11th of the present year, I had the pleasure of seeing that the ulceration had completely healed, and that its place was taken by a distinctly visible scar on the right vocal cord, which was at the same time a good deal more mobile than it had been when I had last examined the patient. He told me that he had religiously stuck to the order of complete silence. With most praiseworthy energy he had withstood all temptations to use his voice, trying though this had been, and had for more than a year's time conversed with the outer world only by means of little notes which he had jotted down whenever there had been any need for communication. The laryngeal improvement was quite independent of the condition of his general health, inasmuch as the state of his right lung had undoubtedly not been so satisfactory of late, and as he had had an attack of pleurisy. On examination I found marked consolidation of the upper part of the right lung, with a good deal of pleuritic friction in both clavicular regions.

Wishing to bring the case quite up to date, I wrote a few days ago to Dr. Burton-Fanning, asking him to tell me how the patient was getting on, and received the following reply:

"October 22nd, 1906.

"As regards his laryngeal condition, Mr. C. could not be better. From the time of your operation there has been nothing but uninterrupted progress in the right direction. I do not think he has suffered consciously or otherwise from his larynx for the last two years. I examine it periodically; for the last year its condition has been the same; there appears to be less loss of structure of right vocal cord, as if some regeneration had occurred; anyhow there is some movement in phonation of what remains of the cord. Otherwise the larynx is normal.

"It may interest you to know that he was absolutely silent from May, 1904, to January, 1905; then he began whispering, but did not talk till June, 1905. Since then he has talked reasonably and without trouble. So strict was he about not even whispering during the first eight months, that he used to take his writing tablet to bed with him in case, as he said, he might want to talk in his sleep. His pulmonary condition is not so satisfactory; breaking down is occurring in right lung, and for the last year and a half there has mostly been slight evening fever—about 100°. He absolutely lives in bed in a shelter, and is very happy."

Case II.

Mrs. C. Sent by Dr. Theodore Williams on December 19th, 1902, with a letter in which he stated that the case was "one of lung tuberculosis, following slight pleuritic effusion (which was *never* aspirated) seven years ago, and large haemoptysis in August last in India. Hoarseness began in the middle of July, after the haemorrhage (August) dysphagia appeared, and though less is present now."

He further stated that there was a cavity in her right lung, but that the throat symptoms were by far the most trouble-

some. The patient was about to become an inmate of the Linford Sanatorium under Dr. Felkin's care.

On examination I found a very bad case of laryngeal tuberculosis. There was enormous infiltration of the mucous membrane over both arytenoids with a small ulcer just in the middle of the interarytenoid fold. The front part of the right vocal cord was superficially ulcerated, the left cord was congested, and the left ventricular band swollen. The difficulty in swallowing was obviously due to the enormous infiltration of the posterior wall of the larynx. I advised that at present no local treatment should be had recourse to, as I was afraid that any application to the posterior wall of the larynx would increase the ulceration, and make matters worse. On the other hand, I suggested complete rest of the voice, swallowing food in the horizontal lateral position, a Leiter's coil with ice-water round the neck. Should the ulceration increase, I advised that curetting and applications of lactic acid followed by insufflations of anaesthesin or orthoform should be resorted to. In view of the laryngeal condition just described, the prognosis certainly appeared to be very serious.

On February 24th, 1903, I saw the patient again. She had with rare energy strictly followed the rules laid down for the treatment of her case. There was still a good deal of swelling over the arytenoid cartilages and their neighbourhood, but the condition compared to what it was just two months previously showed a very pleasing improvement. The infiltration had considerably diminished, and no actual ulceration was seen going on on the right vocal cord. She could swallow with much greater ease than was the case on her admission into the sanatorium, and had gained fully a stone in weight. The lungs had remained *in statu quo*.

I suggested that she should stay at least another six weeks at the sanatorium, that the rigidity of her silence should now be slightly relaxed, and that she might attempt to take fluid food in the natural position. The patient, however, was so anxious to get well, that she spontaneously preferred to be still absolutely silent, and to take her food in the lateral horizontal position.

On May 30th, 1903, Dr. Felkin reported that Mrs. C. had gained in weight 1 st and 12 lb. altogether, that the signs of disease in the lungs had not greatly altered, although the right apical cavity was somewhat drier, and that the larynx had generally improved, there being less swelling, less congestion, and no longer any interarytenoid ulceration. The vocal cords, he stated, were both less injected, especially the left. She now walked more than she had done, often from a mile to a mile and a half daily, and frequently ate dinner at the general table. She still drank all fluids in the lateral horizontal position but took ordinary solid diet—that is, she had no minces now. There was very little cough and expectoration. A Leiter's tube was still used externally, whilst a little menthol and boracic powder were three times daily insufflated.

On May 5th, 1903, I had the opportunity of confirming Dr. Felkin's statements about the pleasing improvement which had taken place. There was much less general swelling in the larynx, the interarytenoid ulceration had quite disappeared, the right vocal cord was granular. Corresponding with this objective improvement the voice was a good deal stronger than it had been, although it was still rather weak. Whilst now hoping that complete cicatrization and further diminution of the swelling would be obtained, I still thought it most desirable that she should give her larynx for some length of time as much rest as possible.

On July 3rd there was still a certain degree of infiltration over the arytenoids; both cords looked red and somewhat granular, and there was a distinct longitudinal cleft to be seen in the left one. Compared with the condition when I had first seen it, there certainly was a very noticeable amelioration; but I must confess that I should have anticipated the improvement, after six months' stay at the sanatorium and strict observance of the régime, to be greater. I suggested that a weak spray of sulphate of zinc (10 gr. to the ounce) should twice daily be applied to the larynx, and that externally a weak faradic current should be used over the crico-thyroid muscles, whilst at the same time voice use was still to be considerably restrained.

The patient at this time left the Linford Sanatorium and went to the Mundesley Sanatorium in Norfolk. After a month's stay, during which the suggested treatment was regularly carried out, Dr. Noel Bardswell reported continued improvement, both with regard to her general health and to her larynx, the voice being a good deal stronger than it was at the time she entered the sanatorium.

On August 11th, 1903, I was able to corroborate this by personal examination. I advised her to go on a little longer with the zinc spray, faradization, and moderate voice use.

On October 20th, 1903, the improvement was still continued. No actual ulceration was visible anywhere in the larynx. There was still some swelling over the arytenoids. On the whole, however, the improvement was very marked, and the voice better and stronger than ever before.

On December 12th, 1903, when I saw her again, she was very much depressed because her voice had been weaker meanwhile. In reality, however, the larynx looked better than ever before, having practically returned to normal condition. I spoke encouragingly to the patient, and suggested to Dr. Theodore Williams that she should go on as before, and be as much as possible in bracing air.

On January 26th, 1904, I saw her again. She had recently had a general cold, and with this the left ventricular band had become swollen. Her voice was correspondingly a little more husky than it had been, but the whole larynx had kept wonderfully well, and there was no actual ulceration anywhere. I quite approved of her going to Montreux, but advised to discontinue astringent sprays and indeed any local treatment.

I saw her again in August, 1904, when her larynx had entirely healed, and the patient who at first had seemed to be in a very serious condition indeed, could be allowed to return to India.

Curiously enough, this patient, whom I had not seen for 2½ years, came just whilst her case was being prepared for publication to-day (October 24th, 1906). She told me that after her return to India she had had a smart attack of pleurisy on the left side, which her doctors in India had not considered to be tuberculous, and which had cleared up completely. This, however, was followed by persistent night sweats and loss of weight. She came back to this country, and has since been living at Eastbourne. Her voice, without any other laryngeal symptoms, became somewhat weak and husky again in the course of the present year, but the trouble was so insignificant that she took little notice of it. Early in September, however, she had a smart haemorrhage, which she attributed to her throat. Dr. Fraser, of Eastbourne, put her to bed and fed her with cold food for several days. The attack passed completely over without her temperature having been raised at all. The patient, however, began to experience the old feeling as if the inside of her throat were swollen. This induced her to consult me to-day. Since I last saw her she had lost exactly 1 st. in weight. She looked well, but was a little thinner than when I had last seen her, and her voice certainly was somewhat weaker and slightly husky. On examination it was seen that the mucous membrane over the arytenoids was again slightly infiltrated, and there was a small, somewhat oedematous-looking projection in the interarytenoid fold. The amount of infiltration, however, was incomparably smaller than it had been nearly four years ago. There was no ulceration anywhere in the larynx, the left vocal cord was very slightly congested. Certainly there was no evidence that the haemorrhage which occurred in September had come from the larynx. The condition of the lungs was very little changed since I last had seen her. Occasionally after coughing there was slight crepitation in the right apex, where the signs of the cavity continued otherwise unaltered.

A consultation was held with Dr. Theodore Williams, and it was decided that the patient should go again to the Linford Sanatorium, with a view of preserving complete silence for a while, of being fed up, and of having tuberculin injections under the control of the opsonic index, should the latter be below the normal.

Case III.

Mrs. B., aged 40, was brought to me on May 12th, 1904, by Sir Thomas Barlow on account of long-standing but slight hoarseness. She had been very ill two years previously with right-sided pleurisy. At that time her voice was not affected, but had gradually become so recently. On examination, abductor paralysis of the right vocal cord was found; the cord otherwise appeared healthy. The left vocal cord was much swollen and superficially eroded; its movements were free. There was absence of any definite change in the lungs, but the condition of the larynx was very suggestive of tuberculosis. I was inclined to explain the paralysis of the right vocal cord by the right recurrent laryngeal nerve having been caught either in pleural thickening following the acute pleurisy, or in some enlarged bronchial gland, whilst the condition of the left vocal cord was suggestive of actual tuberculous infiltration of the part. Sir Thomas Barlow and I agreed that her sputum should be repeatedly examined, and her temperature and weight taken, whilst at the same time she was to give her voice complete rest for a month's time whilst staying at Bournemouth.

The examination of the sputum confirmed my diagnosis, a small number of tubercle bacilli being found on each occasion when the expectoration was examined. The patient having meanwhile preserved complete silence, on June 6th, when I examined her again in conjunction with Sir Thomas Barlow, a slight return of mobility of the right vocal cord was noted, and the congestion and erosion of the left cord were distinctly diminished. On the other hand, on examination of the chest occasional distinct crackling and wheezing were heard posteriorly on the right side over one limited spot, just corresponding to the angle of the scapula. The patient adopted our advice, namely, to go to the Cotswold Sanatorium. No local treatment to the larynx was to be instituted, but perfect silence was insisted upon.

On July 27th, the patient having observed complete silence for two months, the movement of the right vocal cord was again distinctly better, and the ulceration of the left cord had quite disappeared, but the cord was still much congested.

On November 11th Dr. Edlinger reported that the patient had made good progress in every way, although the voice was not strong yet. He had allowed her to make use of it in moderation, and had applied electricity over the crico-thyroid muscles. When I saw the patient on the 16th of the same

month I was glad to find that the mobility of the right vocal cord had been quite restored, and that the only remnant of her laryngeal complication was slight congestion of the left vocal cord.

On May 23rd, 1905, the larynx was perfectly normal, but the voice was still a little weak.

I saw her again in May of the present year, when the larynx was *in statu quo*. Since then neither Sir Thomas Barlow nor I have seen the patient.

This lady has been throughout, as Dr. Etlinger described her, "a model patient," obeying most strictly the rules laid down for her.

Case IV.

Mr. W., aged about 40, was sent to me by Dr. Etlinger on January 19th, 1905. He had been an inmate of the Cotswold Sanatorium for nearly two months on account of consolidation of the apices of both lungs. Previous to his coming to the Cotswold he had been suffering from periodical attacks of loss of voice, which during his stay at the sanatorium had been weak and occasionally husky. Dr. Etlinger had observed general congestion of the larynx, most marked on the left side, and recently there had been distinct hyperaemia of the left vocal cord, with some deficiency of movement on that side, whilst the right side had been practically normal. As this unilateral condition had persisted, Dr. Etlinger had thought of the possibility of tuberculous infiltration, and had recommended Mr. W. to consult me.

On January 23rd, 1905, when I examined the patient, I found the condition, both in the chest and in the larynx, exactly as described by Dr. Etlinger, namely, some consolidation, particularly of the right apex, with a good deal of dullness, and the same in a lesser degree in the left apex. In the larynx there was congestion of the left ventricular band, with distinctly diminished mobility and considerable congestion of the left vocal cord. There was nowhere any ulceration of the larynx. I thought that the deficient mobility might be due to tuberculous infiltration in or around the left crico-arytenoid joint, or to pressure of an enlarged bronchial gland upon the recurrent laryngeal nerve. The former hypothesis seemed to be more likely to be correct in view of the coexisting congestion of the parts. The patient was about to become an inmate of the Ringwood Sanatorium, and I strongly advised him to keep complete vocal rest for a month, after which time I wished to see him again. No local treatment seemed to be indicated.

On February 22nd Dr. Felkin reported that the patient had kept silence most strictly. The congestion of the left vocal cord had become much less evident, but movement was still hardly perceptible at all, and the swelling of the ventricular band had remained the same. Tubercle bacilli had been found in the sputum.

When I examined the patient again, on February 24th, the mobility of the left vocal cord was, if anything, slightly better than it had been a month previously. I strongly recommended continuation of the system of silence.

I saw Mr. W. again on June 16th, 1905, when I found a very satisfactory condition both with regard to his larynx and the physical signs over his lungs. The mobility of the left vocal cord had gradually improved, and the cord was now only very slightly congested. In the lungs no trace of actual mischief was discovered, but there was still a considerable quantity of expectoration, and the temperature got up after every bodily exertion. The patient had kept his weight.

On June 21st Dr. Felkin reported that his sputum had again been examined, and that the quantity of tubercle bacilli had sensibly diminished.

On November 6th, 1905, I found the patient getting on very well indeed. The movement of the left vocal cord had been practically restored, and there was no trace of actual mischief in his chest. He was going to St. Moritz.

On July 12th of this year, I saw him again and found him practically well in all respects.

Case V.

Miss S., aged 30, consulted me on July 15th, 1903, on account of great dryness in the throat and pain after singing. She was markedly anaemic, and had much-developed dry pharyngitis. She spontaneously stated that she was much troubled with micturition, that she passed a much larger quantity of water than previously, and that she had lost a good deal of flesh. Examination of her urine showed neither albumen nor sugar. The specific gravity was 1015. Tonics and salt-and-water spray were given and singing encouraged.

I then heard nothing of the case until March 19th, 1904, when Dr. Middlemass Hunt wrote to me that he had seen the patient in December, 1904, on account of cough and discomfort about her larynx. He had found an ulcer extending over the whole of the right ventricular band, but without any swelling or infiltration of any other part of the larynx. He considered the lesion to be tuberculous, and got Dr. Barr of Liverpool to examine her chest. He found slight catarrh of one apex, and on the sputum being examined abundant tubercle bacilli were discovered. For a few weeks Dr. Hunt carried out local treatment of the larynx, lactic acid and menthol being applied, but no improvement resulted. It was then decided to send her to a sanatorium, but a severe attack of herpes prevented this.

On March 21st, 1905, I examined her again, and corroborated Dr. Hunt's statements with regard to the condition of the larynx. In the chest I found only insufficient entry of air into the right apex and slight harshness of breathing over that apex posteriorly. I quite agreed to her going to the Linford Sanatorium, and recommended complete vocal rest as the only form of laryngeal treatment to be adopted for the present.

I saw her again, together with Dr. Felkin, on May 2nd, 1905, when, to my regret, I found that, although the patient had kept silence regularly, the ulceration of the right ventricular band, so far from subsiding, had a little extended to the lower surface of the epiglottis on the same side. The pulmonary symptoms had remained *in statu quo*, and the patient had gained about 5 lb. in weight. It was decided to scrape the ulcerated part and to apply strong lactic acid to it.

I saw the patient again on July 20th, 1905, with Dr. Felkin, when the ulceration on the ventricular band, which had repeatedly been curetted and touched with pure lactic acid, at last showed signs of improvement. The condition of the epiglottis on the right side had hardly changed at all. I advised continuation of the local treatment, whilst persevering with the vocal rest, and agreed to her going to Scotland for a month's time.

On November 16th, 1905, Dr. Felkin reported that he thought the ulcer on the ventricular band had now healed, but the epiglottic ulceration not yet entirely. Tubercle bacilli had five weeks ago still been present in fair numbers in her sputum. Her general health and weight had improved. She wished to know whether she might talk at all. All local laryngeal treatment had been discontinued for some time.

Two days later I saw the patient, when I was greatly pleased with the progress. There was no actual ulceration either on the right ventricular band or on the ventral aspect of the epiglottis, and actual cicatrization had taken place in that region. I recommended leaving the larynx quite alone, and letting her use her voice naturally, although not excessively. This was the last time I saw the patient, but on October 27th of this year Dr. Felkin reported that she was in a good general condition, and that the laryngeal scars were perfectly sound.

Case VI.

Miss W., aged 30, was sent to me on November 11th, 1905, by Dr. Felkin with a letter in which he stated that she had been at the Linford Sanatorium for some time with pulmonary tuberculosis affecting both apices, with a moderate amount of nummular sputum, normal temperature, and fairly good general health, that she had been troubled again and again, even before coming to the sanatorium, with slight huskiness and loss of voice, only lasting a day or two, and that after various attacks of congestion of the larynx she had now developed a definite ulcer in the interarytenoid fold with projecting and prominent upper margin, which had evidently started from below out of sight. The development appeared to have been fairly rapid, and he wished to know my opinion as to the treatment. I found an ulcer, as described, on the posterior surface of the larynx with a stalactite-like margin appearing on the inner side of the interarytenoid fold. The fold itself was intact, which explained the absence of cough and of pain in swallowing. I recommended applications of 30 per cent. lactic acid and complete silence. Scraping I did not advise, lest a further breach of surface should be caused by it, giving rise to cough and difficulty in swallowing. I was the more afraid of advising anything too energetic in this patient's larynx, as the crepitation heard all over the right apex gave evidence of still-existing active mischief in that lung in spite of her excellent appearance.

I saw the patient again on December 11th, 1905, when I found distinct diminution of the stalactite-like excrescence in the interarytenoid fold, but there was a little actual ulceration just below it. The results of the lactic acid applications were still visible in the form of whitish patches on the mucous membrane covering the posterior surface of the larynx, and the patient complained a good deal about cough and difficulty in swallowing. I suggested that for a week's time no further applications should be made, and that she should then come to town in order to have the ulcer scraped and pure lactic acid applied to it. This was done, and after her return to the sanatorium Dr. Felkin reported, on January 5th, 1906, that the cough and sputum had diminished. I saw the patient again on January 6th, and was very pleased with the progress she had made. The stalactite-like projection in the interarytenoid fold was replaced by a healthy-looking granular surface, and I advised that nothing further should be done in the way of energetic local treatment, and that only a weak sulphate of zinc solution should be applied to the somewhat congested right vocal cord every second day, whilst gentle faradization was to be used externally over the crico-thyroid muscles. I also thought that the silence which had hitherto been rigidly observed might now be relaxed a little.

The granulating process in the interarytenoid fold resulted in the formation of a moderate thickening of that part. The voice improved considerably, as I convinced myself on February 12th. In the chest at that time there was no evidence of actual disease. The patient went for a month to the seaside, but this did not turn out to be a success. She caught a bad cold and had high temperatures, whilst the voice was lost again completely. When I saw her in March the laryngeal mucous membrane was so much swollen that one could not

make out whether recurrence of the tuberculous process had taken place, or whether there was merely catarrhal swelling of the parts. The latter fortunately turned out to be the case, and with a few applications of astringents and complete rest of the voice the latter gradually returned. I advised renewed silence and again weak astringent applications to the larynx.

On July 16th Dr. Felkin reported that there had been a recurrence of the ulceration in the parts just below the interarytenoid fold, which were then treated with applications of pure lactic acid on alternate days. This again resulted in healing of the ulceration and great improvement of the voice. When I saw her on July 19th I found nothing abnormal in her larynx with the exception of a very slight pyriform thickening in the interarytenoid fold, and slight general congestion. There certainly was no actual ulceration, and the voice was better than I had ever heard it before. The condition of the chest had very greatly improved by tuberculin injections under observation of the opsonic index. She went, by Dr. Felkin's advice, for a few months to Scotland.

I last saw her on October 23rd of this year, when I found a very pleasing improvement indeed. Although the voice is still slightly husky there is no active mischief in the larynx. The right vocal cord has completely healed, with some loss of substance near the vocal process, where very distinct cicatrization is visible. There is not a trace of the old prominence to be seen in the interarytenoid fold. The state of the lungs is equally satisfactory, there being no active mischief, and only very occasionally slight pleuritic friction-sounds are heard, after coughing, on the right side, both in front and posteriorly. The patient has gained several pounds since leaving the sanatorium, but is returning there for the winter. She is still easily fatigued, and her temperature goes up on exertion.

Case VII.

Mr. G. H., aged about 40, was sent to me by Dr. Morell Thomas, of Newport, Mon., in December, 1905, on account of long-continued hoarseness. On examination a well-marked ulcer was seen to occupy the posterior third of the right vocal cord, extending nearly to the arytenoid cartilage. The rest of the larynx was congested. The appearances were so characteristic as to enable one to make the diagnosis of tuberculosis from the larynx alone, but there was additionally a history of probably tuberculous hip disease in early infancy, and a history of serous pleurisy on the right side two years ago, whilst recently, during the patient's stay in Switzerland, tubercle bacilli had been found in the sputum. Careful examination of the lungs did not give evidence of actual disease, the only abnormality being that air did not enter as freely into the right lung as into the left. In the course of the following week the ulcer was scraped twice and pure lactic acid applied. The ulcer became much cleaner-looking and began to cicatrize.

After three weeks' stay in the Cotswold Sanatorium, during which the patient preserved complete silence, I heard from Dr. Etlinger that the patient was looking much better, and that the healing of the laryngeal ulcer had proceeded so satisfactorily that no further applications had been made to the throat. On February 3rd, 1906, I saw him again; he was very much improved, had gained a good deal of flesh, no ulceration was visible in the larynx, the only abnormality being slight congestion of the right vocal cord. He had not used his voice at all since I last saw him. When I tested it there was a good deal more ring in it than there had been. I recommended astringent applications to the larynx, and weak faradization externally for a fortnight's time, after which I thought he might leave the sanatorium.

On February 19th Dr. Etlinger reported that the patient had returned home. The larynx had further improved since I had last seen him, but there was still some redness and relaxation of the right vocal cord, so that Dr. Etlinger had urged upon him the necessity of sparing his voice as much as possible for some time longer.

On October 27th of this year the patient reported that Dr. Etlinger, who had seen his throat in September, had been very pleased with its appearance, that personally he felt nothing amiss with it, that the voice appeared quite normal, and that even his singing voice was coming back. His general health had been and was excellent.

Remarks.

The history of these 7 cases forms, I am afraid, but dull reading, they being so monotonously like one another. Nethertheless I have thought it right to give them somewhat in detail, for the following reasons:

1. It will have been seen that several of them, notably Cases I, II, III, V, and VI, distinctly belong to the category of grave tuberculous lesions of the larynx, which under ordinary circumstances are but very rarely found capable of such complete restitution of tissue and function as has taken place in these cases.

2. Case I teaches more particularly the value of vocal rest, as it will have been seen that other conditions, namely, general sanatorium treatment and local treatment, having been the same throughout the duration of the case, a real improvement only took place when the patient had been brought to maintain complete and prolonged silence.

3. The number of cases communicated protects, I think, the method against the objection that similar results might have been obtained even if no silence had been preserved. I certainly do not deny the occasional occurrence of the spontaneous cure of a tuberculous ulcer in the larynx, but such cases are very rare indeed, and I have never seen a retrograde metamorphosis without the aid of complete vocal rest, either alone or combined with local treatment, in such severe cases as Nos. I, II, III, and V.

Finally—and this is the main reason for the full communication of these 7 cases—their description in detail shows better than any words of mine could do the necessity of perseverance, when once the silence method has been adopted, in the face of initial disappointment and of repeated relapses. As this is the point which I have most at heart, I have risked rather boring the readers of this paper with tedious repetitions than failing to convince them of the value of the method. I shall look forward with much interest to contributions to this question either corroborating or rectifying my own experiences.

A Lecture

ON

PRESENT VIEWS ON DISEASES OF THE JOINTS.

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Many things have small beginnings. It was in 1818 that Brodie published the first edition of his *Diseases of the Joints*. Here was the opening of a new chapter in surgery. Yet when we look back, unless we remember that the work of the pioneer must often, from the nature of the case, be limited to the seemingly humble office of clearing the ground and turning the first sod, we are struck by the meagre and rudimentary character of Brodie's production. He founded no school, he established no principle, he announced no discovery, he foreshadowed no generalization; his work was, as we now see it, wholly commonplace. His claim to be remembered lies in the fact that he made a beginning—that is all. What he had to say was easily comprised within the compass of 285 pages, consisting largely of records of cases; for his field of vision was limited to what he could observe at the bedside, or ascertain by naked-eye inspection of joints after amputation (and here he had many opportunities), or at *post-mortem* examinations. At the time of Brodie's new departure there were still some thirty years to elapse before microscopic investigation was to lend its aid, and therefore before any sound progress could be made in pathological research.

In the meantime it was customary to speak of some salient feature of a case as if it were itself the disease—in other words, to mistake symptoms for diseases, effects for causes. In Brodie's day one patient had a disease termed inflammation, another a disease termed dropsy, a third a disease termed jaundice, a fourth a disease termed angular curvature. Brodie and his contemporaries could deal only with the phenomena which hidden causes had produced; this was all that was as yet possible. His book consists of three sections, in which he treats of disease beginning in (*a*) the synovial membrane, (*b*) the cartilage, and (*c*) the bones, as if these forms were separate and independent processes. His descriptions were based on examples of chronic inflammatory conditions which had reached an advanced stage, and the majority of which were probably tuberculous. After Brodie's day knowledge, in respect to diseases of the joints, gradually increased, but mainly on clinical lines. The association of acute arthritis with pyaemia was frequently observed at the bedside; the clinical phenomena of rheumatic fever and the heart affection which was frequently present became more and more familiar; "gonorrhoeal rheumatism" was already clearly recognized, as were also the various clinical manifestations of gout; while the idea that joints were often the seat of an admixture of gout with rheumatism was a conclusion which naturally arose from clinical observation; and, although it was erroneous, it formed a link in the chain of progress.

In 1853, when Charcot published his account of acute

rheumatism of nervous origin — *rhumatisme noueux d'origine nerveuse*—he was limited to a clinical investigation. As to pathology he was altogether in the dark, for what views could he have had as to the nature of acute rheumatism; what did he mean by the term; and what, in such a connexion, did he intend to convey by the phrase, "of nervous origin"? In 1868 he carried the matter a stage further, and established the connexion between the remarkable changes in the joints with which we are all familiar and locomotor ataxia. But how the connexion arose, whether it was that of cause and effect, as he assumed, or whether, as some now believe, the changes in the nervous system and the joints are both due to the same cause, he had no means of forming an opinion.

But in the last thirty years the whole subject of diseases of the joints has attained a new position, and has been brought into the field of modern pathology. In this period, which must always stand out as one of the great epochs of medicine, the recognition of the part which bacteria play in the production of disease has transformed the whole outlook. Old conceptions, mere day-dreams and fantasies, have vanished once for all; and with the help of the higher powers of the microscope, and the accessory processes of staining, etc., the true nature of many affections has been brought to light. As the work has proceeded it has passed through different phases; there has been an advance from the particular to the general, the building up of fragments into the completed whole. Perhaps the clearest illustration is furnished by the pneumococcus. This micro-organism was originally discovered in the lung in cases of lobar pneumonia, and was named accordingly. But subsequent investigations have disclosed the fact that it is by no means confined to the lung, but is met with in the peritoneum, the cerebral meninges, and the joints. Nor is this different from what might, on consideration, have been reasonably anticipated; for the several structures mentioned—the lung, the peritoneum, the cerebral meninges, and the synovial membranes—although they are differentiated in adaptation to their various functions, are yet in their essential characteristics very much alike, in that they include, (*a*) connective tissue, and (*b*) a vascular system, through whose channels bacteria readily make their way. To regard the synovial membranes as members of the vascular connective tissue group is the first step towards a proper understanding of the pathology of a large majority of diseases of the joints. And this brings me to the subject to which I desire to direct attention. I propose to refer—as far as time will allow—to the knowledge which has recently been acquired of the part which infection plays in the production of many—indeed, the great majority—of the diseases of the joints. This conception may, in fact, be well called the new pathology so far as the joints are concerned.

CLASSIFICATION.

The various examples of infective arthritis which are now recognized may be arranged for my present purpose under the following heads:

1. Those with which we have long been familiar from a clinical point of view, and in regard to which mistakes are little likely to be made, such as acute arthritis following wounds, or, however rarely, operations, and such as occur in the progress of acute infective osteomyelitis or pyaemia.

2. Those met with in the specific fevers—acute rheumatism, scarlet fever, typhoid, influenza, or in dysentery, etc. Of these I will only say that they do not offer any particularly interesting material for study, for in the first place—with the exception of rheumatic fever—they are comparatively rare; and, occurring as they do in immediate connexion with an acute illness, the nature of which is readily grasped, their origin is usually at once obvious; and they are generally transitory, or, if more persistent, can be treated only on general principles.

3. But a group remains which I wish to discuss somewhat fully. It is one of great clinical importance on several grounds, but chiefly because the cases it includes are apt to lead to serious oversight and mistakes. This group is composed of examples in which infection is produced by such everyday agents as the streptococcus, staphylococcus, and gonococcus, but in which the symptoms differ so widely from those which we are in the habit of associating with these several infections that the connexion is apt to remain undetected.

SEPTIC ARTHRITIS.

Take the gonococcus. All are familiar with the symptoms—involving one, two, or several joints—of an arthritis developed in the course of an acute attack of gonorrhoea:—rapid effusion, heat of the surface, and severe pain, associated with general illness and a high temperature. Here the gonococcus, being of full virulence and suddenly introduced in large quantities, produces the symptoms of an acute infection. But under other conditions infection by the gonococcus may present an entirely different picture. Take a case of slight gleet of long standing. Here the gonococcus is growing on an exhausted soil, so that its virulence is dwindling towards extinction; it is present in small amount, and it is probably growing in company with streptococcus or some other bacterial elements, by which it is still further enfeebled. Placed in such circumstances as these the gonococcus may give rise to an arthritis which differs *in toto* from an attack in the active stage of gonorrhoea. It produces none of the features of an acute inflammation. On the contrary, it acts all along at a low grade of intensity; when a joint is attacked it gradually becomes enlarged, in part by some effusion, generally of quite limited amount, into its cavity, but chiefly by slowly increasing swelling of the synovial membrane and peri-synovial tissue; pain, unless the joint is actively used, is slight, or entirely absent, the surface is free from anything beyond a slight degree of heat; stiffness is usually marked, and there is the muscular wasting which invariably accompanies chronic arthritis of whatever origin. Such a case, instead of conforming to the usually accepted type of gonorrhoeal arthritis, bears a very close resemblance, from a clinical point of view, to tuberculous disease. And the likeness is readily explained. It is due to the fact that, under the influence of its environment, the gonococcus has been deprived of so much of its original virulence, and is in such small quantity that the degree of irritation which it produces is practically identical with that to which the *Bacillus tuberculosis* gives rise. The point is, as I have said, one of great importance, for undoubtedly many cases—for instance, of disease of the knee-joint—are diagnosed and treated as tuberculous, when in reality they are not tuberculous but septic in their origin.

CASE I.

Shortly before I relinquished active duty at St. Bartholomew's Hospital, A. B., a man aged 27, was sent up for admission, as he was believed to be suffering from tuberculous disease of the right knee, of five months' duration. On examination all the symptoms fitted in exactly with this view—the considerable and uniform swelling dependent on "pulpy thickening" of the synovial membrane, and a little fluid in the cavity; the slight surface warmth, the stiffness, and the marked muscular wasting, together with pain, usually slight but becoming marked when any attempt was made to use the limb. To all appearances here plainly was a case of tuberculous disease. But it was ascertained that the patient had a very slight gleet remaining after gonorrhoea contracted nine months previously. A bougie was passed and narrowing of the bulbous portion of the urethra detected. The urethral discharge was examined and found to contain a few gonococci and streptococci. The urethral condition was set right by treatment, and in three months, under passive movement, massage, douching, and, later, gradually increasing exercise, the knee completely recovered.

CASE II.

A man, aged 29, had been under treatment for nine months for what was taken for granted to be tuberculous disease of the knee. The appearances very closely resembled those met with in the case of A. B. The history was that at first the case was somewhat acute and attended with marked pain, heat, and considerable effusion. Under treatment by rest, secured by a plaster-of-paris splint, the effusion disappeared and the other symptoms became less marked. Each attempt, however, to discontinue the rest treatment led to an immediate sharp relapse. When I saw the knee it was and had been for five months in a Thomas's splint. There was no pain, or surface heat, but there was considerable enlargement due to thickening of the synovial membrane. The thigh muscles were markedly wasted. Thus, so far as superficial appearances went, this was a case of tuberculous disease. Persistent inquiry failed to elicit any history of infection. The existence of gleet was denied. Yet the improbability that a perfectly healthy-looking man of this patient's age was suffering from tuberculosis was manifest, while the chance that he might have been the subject of urethral infection was so obvious that the condition of the urethra was investigated.

The examination disclosed a narrowing in the bulbous

portion, and a slight gleet. In this secretion some gonococci were found. The stricture was dilated and the gleet cured. Then the knee was manipulated under ether, and treated by passive movements, hot douching, and massage. In three months it had returned to a normal condition.

CASE III.

A gentleman who had been residing abroad returned home with the following history: Nine months before he had an acute illness, with continued high temperature, loss of flesh, and a marked degree of anaemia. Several of the large joints were swollen and painful. He was thought to be suffering from rheumatic fever. When he returned to England he was in an anaemic and enfeebled condition. His knees and ankles were stiff and swollen, and his walk, rendered difficult by the condition of his joints, was suggestive of locomotor ataxia. His back was stiff and painful, and the question had been raised whether he was not suffering from either Pott's disease or osteo-arthritis of the spine. When I saw him, shortly after his arrival, I learnt that he had been examined by some of the ablest physicians of the day, but that much difference of opinion as to the nature of his illness had arisen. Some thought that he had extensive degenerative changes in the cord to which the condition of his joints was secondary, while others considered that he had osteoarthritis following rheumatic fever. Close and repeated inquiry failed to elicit any history of gonorrhoea. The question, in fact, was answered by a direct and sturdy denial, and no appreciable gleet was then present. As the patient had been living in an unhealthy climate the probability seemed to be that he had some form of blood poisoning, the exact origin of which, however, could not be traced. A few weeks later, during a conversation with the surgeon who was attending him, and who was also an old acquaintance, the patient became confidential and mentioned some circumstances of his life abroad which indicated the probability that, after all, urethral infection had been present. This was enough for his surgical friend, who persuaded him to submit to examination, with the result that he was found to have a stricture, and that washings from his urethra contained gonococci. The treatment of the urethra soon led to a remarkable improvement in the patient's general condition, and he gained flesh, strength, and colour; at the same time the swelling and stiffness of his joints and spine decreased, and his ability to walk improved. In eighteen months he had practically recovered.

Although the form of septic arthritis under discussion is best illustrated by that which is of urethral origin, yet infection may be derived from many other sources. Indeed, the ground can only be adequately covered by the generalization that wherever, in any organ, or any part of the body, a septic process exists, joint infection may result. The part played by the tonsils and the lymphatic tissues of the pharynx in harbouring agents by which the joints may be infected has only recently been fully appreciated. So long as the true pathology of rheumatic fever was unknown no explanation could be given of the association—with which clinical observers had long been familiar—of this condition and inflammation of the tonsils. But now that it has been shown that acute rheumatism is due to infection, the connexion between it and septic conditions of the fauces has become obvious.

The primary septic focus may be connected with a necrosed tooth. A gentleman who had been out of health for several months was attacked with what was regarded as acute rheumatism of the right knee, which suddenly became painful, considerably enlarged from synovial effusion, and infiltration of the surrounding structures. The surface was hot, the skin was a little dusky and there was some pitting on pressure. No other joint was involved. It was found that purulent discharge had been going on from the sockets of three of his teeth for at least a year. When the teeth had been removed, and the alveoli scraped and rendered aseptic, the patient's general health considerably improved, and was ultimately completely regained. The joint, however, remained stiff from fibrous ankylosis, and the patella was firmly adherent to the condyles of the femur. I have seen two cases in which, after carious teeth were cut down level with the gum and a new crown was applied, on the American system, the patients became subject to what was regarded as acute osteo-arthritis, involving several of the large joints, and those also of the hands. Infection being suspected, attention was turned to the teeth, in which, ever since the crowns had been fixed, there had been some discomfort. On investigating their condition, a dental surgeon expressed the opinion that the fangs were probably necrosed. The fangs were therefore removed, when a small amount of pus was found in the sockets.

In both these cases the joint affection was arrested. In the one the finger-joints remained somewhat enlarged but were otherwise normal, and the large joints regained their full range of movement. In the other, one knee and one ankle were left in a condition of partial fibrous ankylosis and the finger-joints were enlarged and the fingers deflected towards the ulnar side. In another case, a lad of 14 had enlargement and slight stiffness of several finger-joints and swelling and stiffness of both ankles and one elbow. He was anaemic and pale, but had not been acutely ill. The condition, regarded as chronic rheumatism, had been present for six months, but in varying degrees, sometimes almost disappearing and then becoming more pronounced. On searching for some infective focus it was ascertained that the discharge of a small quantity of pus had been going on intermittently for four months from a pinhole opening in the gum opposite the bicuspid teeth of the lower jaw. As the teeth in the neighbourhood of the sinus were all normal in appearance and free from pain, it was uncertain which was at fault. A skiagram was therefore procured in order to see if any further evidence could be obtained. This showed quite definitely that one fang of the second bicuspid was necrosed and that the alveolus was enlarged into a globular cavity and filled with either pus or granulation tissue. This tooth was removed and the alveolus, which contained three or four drops of pus, was scraped out. Improvement of the boy's general health quickly followed and the joint affection receded, and in three months had practically disappeared.

Many cases have, within the past fifteen years, been recorded in which an infective arthritis has been met with in connexion with septic cavities in the lungs. In the *Transactions of the Clinical Society* (1902), Dr. Percy Kidd reported the case of a female patient, aged 26, who, eighteen months before, had become the subject of chronic bronchiectasis. Six months later the sputum was copious and very offensive, and the ankle-joints became swollen and stiff. Subsequently the wrists and knees were involved. When the patient was exhibited the wrists were tender, swollen, and stiff. The fingers were generally enlarged, their joints swollen and painful, and their ends clubbed. The knees were swollen and contained fluid; the ankles were swollen. It was noticed that the condition of the joints varied with that of the bronchiectasis. When this was, as is said of volcanoes, active, and there was expectoration of much fetid pus, the joints were much worse, while they improved when expectoration was smaller in amount and less fetid. The features of this case were so marked, that the connexion between the joint affection and the condition of the lung was readily apparent.

In other instances infective material, whether derived from a pulmonary cavity or an empyema of long standing, may be in such small quantity, that when arthritis makes its appearance its septic nature is overlooked, and it is attributed to a mild form of rheumatism.

A boy of 17 had empyema. A portion of rib was removed and a drainage tube introduced. In two months the opening was nearly closed, and the discharge amounted to only a few drops in the twenty-four hours. This limited discharge of pus continued for six months, when painless swelling and stiffness were noticed in the ankles, one knee, one wrist and in almost all the finger-joints, and the patient became anaemic and lost flesh. For some months he was treated for rheumatism, and salicylates of sodium, quinine and arsenic were prescribed, but the results were disappointing; later on he was sent into the country and ordered to take iron in various forms, and arsenic. His condition remained unchanged except that while one of the ankles and the wrist slowly recovered, one shoulder and the joints in the lower part of the cervical spine became affected. When the case was seen three months later, a probe introduced into the sinus passed in a direction downwards for about 3 in. Two inches of the seventh rib were removed and a cavity defined which was found to contain 3 drachms of odourless pus, in which a few streptococci were to be seen under the microscope. This cavity was scraped and drained. Favourable healing took place and was completed in eight weeks. After this the arthritis slowly cleared up and in twelve months had disappeared, but the spine and the shoulder were still stiff.

Arthritis may be secondary to an infective process in the skin.

W. R., aged 54—a patient of Mr. John Adams of Aldersgate Street—who had been intemperate, and now had diabetes, had a boil on his abdomen near the groin. This was opened, and 2 drachms of fetid pus were let out. Within three days he had very acute inflammation of the right knee-joint, which became flexed, considerably swollen, and globular from periarticular infiltration (there was no fluid in the joint), and intensely painful. The skin was red and shiny, suggesting early suppuration; but none occurred. The patient had a high tempera-

ture, and was very ill. The knee was treated by rest and extension. Slow improvement occurred, and in six months the patient was able to be up on crutches. Ankylosis, however, followed.[1] No other joints were involved.

A boy of 18 had a quite superficial excoriation of the skin over the middle of the tibia, the result of a fall on a gravel path. This youth was so careless and neglectful that he neither mentioned the injury nor took any care to keep the surface clean. A fortnight later he was attacked with "rheumatism" in his left knee and ankle, and had a temperature of 102°. The wound in the leg was dirty, and the leg of his drawers was sticking to the exposed surface over an area about an inch square. In the next fortnight his right shoulder and wrist and several finger-joints became stiff, swollen, and painful, but all ultimately recovered except the knee, which remained stiff from adhesions. Movement, however, was restored to nearly the full extent by manipulation under chloroform, and hot douching and massage.

In the course of last year I saw, in consultation, a young lady, several of whose joints were on mere inspection the seat of osteo-arthritis. Yet the strong probability appeared to be that the real condition was that of infective arthritis due to absorption from the septic area of skin at the heel, which had been chafed by a tight boot and on which a crop of small pustules had formed. Some of the joints originally involved had recovered, but one shoulder was stiff and one wrist was permanently damaged.

Infective arthritis may be secondary to vaginal discharge (other than gonorrhoeal), and to septic conditions within the uterus. This sequence of events is probably more common than is usually supposed, and not a few cases which have been regarded as rheumatism or tuberculosis have been due to absorption from a septic vaginal or uterine mucous membrane.

Mrs. R., aged 34, after a long railway journey in the winter of 1904, was attacked with a rigor, and severe pain in the left knee, which became hot and considerably swollen. The evening temperature was 103° and the pulse 102. The illness was regarded as acute rheumatism. The joint was so painful, in spite of the use of a splint, that subcutaneous injections of morphine were used for several nights. No other joints were affected. Salicylates gave no relief. For two months pain continued and was aggravated by any movement. At the end of this time the joint appeared to be firmly ankylosed. It has remained stiff. This patient had a chronic brown discharge associated with painful menstruation, from which she recovered under treatment.

I have no proof that the arthritis was produced by the septic uterine discharge, but I think there can be no reasonable doubt on the subject.

In another instance an infective arthritis of the knee-joint, of uterine origin, had been treated for four months as tuberculous disease:

A lady, aged 29, had a miscarriage, followed by a brown fetid discharge. Six months later her left knee became swollen and painful. At first the affection was thought to be rheumatic, and salicylates were prescribed. But when no improvement followed, and when the synovial membrane became more and more infiltrated and thickened, the condition was regarded as tuberculous, and rest in a splint was ordered. When I first saw the knee the appearances of the joint were in every respect similar to those commonly met with in advanced tuberculosis, yet they were also such as might be due to sepsis. During the interview it transpired that the patient was under the care of a gynaecologist, who had recommended, as the discharge still continued, that the uterus should be curetted. I was glad to hear of this, for it seemed likely that the proceeding might have a very advantageous effect on the knee. This anticipation was fulfilled. Two months after the operation was carried out a marked improvement had taken place, and in six months the joint, after passive movements, douching, and massage, recovered.

It is enough simply to mention cases of septic arthritis following parturition, which were formerly regarded as examples of acute rheumatic arthritis, and in which patients became anaemic and debilitated, and had raised temperature and multiple arthritis, involving several of the large joints and those of the fingers. The nature of such cases is now generally recognized.

In reference to arthritis which is produced by absorption from the surface of the intestine, nothing very definite or conclusive is at present known beyond the fact that infection by the *Bacillus coli* has been observed.

Cases are by no means rare in which, although it is clear that septic arthritis is present, the source from which infection has been derived cannot be ascertained. In some of these it seems probable that further investigation may show that they are of intestinal origin.

Diagnosis and Prognosis.

When arthritis occurs in the circumstances I have described, it takes the form of a plastic inflammation attended with the development of adhesions leading to a varying degree of fibrous ankylosis. Usually effusion into the synovial cavity is limited. It seldom amounts to more than 3 oz. or 4 oz.; often it is entirely absent. The subsynovial tissue and the periarticular structures are infiltrated, considerably thickened, firm, inelastic, and brawny, so that the joint is enlarged from uniform swelling. When the knee is affected, thickening may extend to the periosteum and adjacent structures investing the lower end of the femur, and the bone may feel enlarged for 4 in. or 5 in. above the condyles. The skin covering the joint, in severe cases, is dusky red, as if suppuration was imminent; but generally its appearance is unaltered. Pain is very variable in degree. In acute cases it is severe and persistent, difficult to relieve, and aggravated to intensity on any disturbance of the joint. In the case of W. R., the patient was in great suffering for three weeks, in spite of complete rest of the joint in a carefully-adjusted splint. In the case of Mrs. B., pain continued to be very severe for nearly a month, although the joint was kept at absolute rest, and weight extension was employed. In mild cases pain is slight, or even entirely absent. In some it is present only when the joint is moved; in other words, it corresponds with that which attends the usual run of tuberculous cases. In acute cases reflex irritation leads to a high degree of muscular spasm and a tendency—in the knee—to flexion, which it may, subsequently, be difficult, or, I may add, impossible, on account of adhesions, to remove. In slight cases spasm is practically absent. Muscular wasting always supervenes, but varies widely in amount. When it is marked and associated with persistent swelling of a joint it readily misleads the unwary, as it exactly corresponds with what is observed in tuberculous disease. The body temperature is usually between 99° and 101° F. In mild and prolonged cases it may be normal. I believe it is correct to state that suppuration never occurs in these cases, even in those which are most severe, and are attended with severe and persistent pain, and with a dusky tint, and, as is occasionally to be observed, some oedema, and pitting of the surface. When these cases first attracted my attention I often felt assured that pus was about to form, but I have never known suppuration to occur.

In acute cases the result to be expected, or feared—for it is almost inevitable—is firm and complete fibrous ankylosis. I have seen this occur in the course of six weeks. Indeed, it has often been a matter of surprise to observe the rapid way in which such an abundance of inflammatory material is developed into new fibrous tissue that the joint is completely effaced and replaced by a cicatrix.

Treatment.

As an obvious preliminary, every effort must be used to find out the source of infection. In many instances this is at once indicated by a gleet, or a discharge of pus from a sinus in connexion with an empyema of long standing, or when there is bronchiectasis with purulent expectoration, a fetid ozaena or suppuration connected with the skin. In female patients a vaginal or uterine discharge must not be overlooked.

Unless it is remembered that a very limited amount of septic material may produce infection, the presence of some chronic and scanty discharge may be thought too insignificant to deserve attention. And further, it must be borne in mind that the amount of discharge coming from a sinus of long standing is by no means a trustworthy indication as to the condition of things at the deep end of the sinus. Every surgeon of experience will agree that a sinus in the lower part of the thigh, although it has only a pin-hole external orifice, and gives issue to only a few drops of thin pus in the twenty-four hours—even although it appears, every now and then, to have finally closed—may yet lead down to an extensive necrosis of the femur, and a large sequestrum lying in a bed of granulation tissue pervaded by infective bacteria. In such a case the staphylococcus or streptococcus, whichever it is, although it has become less and less virulent by prolonged growth in a soil tending to become exhausted, may yet, by maintaining a continuous though limited supply of infective material, lead to the low-grade arthritis which I have described. Every surgeon also will agree

that a small sinus in the heel may communicate with the os calcis, whose cancellous interior has been extensively destroyed by tuberculous disease and replaced by septic granulation tissue. The fact that in conditions such as these infection is very rare must not be allowed to obscure the possibility of its occurrence. The important point is that whenever any source of infection—however limited it may appear to be—can be detected, means should at once be adopted to cut it off, and to this end treatmen must be thoroughly and persistently carried out. There is, however, a serious difficulty which may present itself, namely, that in a case which there are good clinical grounds for regarding as one of infective arthritis, there is nothing to show where the infection has originated. In such circumstances the condition of the intestinal canal must be suspected, and if there are any signs of an unhealthy state of the secretions, corrective measures must be adopted. When once the source of infection has been removed, the joint condition will improve, but at different rates of progress in different instances. I have seen joints infected from a chronic gleet recover under treatment in the course of three months, while in others repair has extended over nine months, or even a still longer period.

In considering the line of treatment which should be adopted, the life history of the bacteria concerned must be remembered. This in the case of streptococcus, staphylococcus, and gonococcus is widely different from that of the *Bacillus tuberculosis*. A chief characteristic of the tubercle bacillus is its prolonged vitality and the manner in which it is able to resist destruction by phagocytes and kindred agencies. The other bacteria just mentioned are much more easily eliminated. Although the streptococcus, for example, may be present in large numbers in cases of diffuse suppuration or acute abscess, it may by incisions and drainage, disinfection and phagocytosis, be got rid of in the course of a few days. After this the tissues, freed from infection, are in a position to undergo repair; and the object of treatment is limited to the removal of such symptoms as remain and the repair of damage which the process of infection, now at an end, has brought about. Thus the necessity, in relation to treatment, of distinguishing between tuberculous disease and infection by the gonococcus or streptococcus becomes obvious. If arthritis is tuberculous the joint must be kept for many months at complete rest, and the patient must, if possible, be treated on the open-air system, while in the other group the purpose of treatment, when the supply of infective material has been cut off, will be the removal of coagulable lymph, the separation of adhesions, the restoration of movement, and the repair of atrophied muscles. These several results are best attained by hot douching, massage, and often by manipulation under an anaesthetic.

Douching should be employed morning and evening, at the highest temperature that can be borne without discomfort. A series of small blisters is often very useful. So are hot-air baths. Manipulation to overcome stiffness in slight cases may be carried on without an anaesthetic, and should be combined with voluntary efforts on the part of the patient.

In suitable cases—those, namely, in which the joint is cool and painless, but yet stiff—manipulation should be the first step. It will be well borne, and followed by quite moderate swelling and heat, which will subside in a few days. After it the other treatment referred to will act with much more marked effect. In employing manipulation, however, there is an important point which must always be kept in view. In infective arthritis the inflammatory process is often of such a plastic character—although the symptoms are of only moderate severity—that complete fibrous ankylosis may occur, as it were, stealthily, in the course of six or seven weeks, or, as I have seen, in a still shorter time. Indeed, the formation of new tissue may be so active as to remind us of what is seen in the repair of fractures, and the period occupied in the production of ankylosis is one of weeks, not months.

Hence it may be found on manipulation under an anaesthetic that the joint is so fixed that it does not yield to considerable force. This will be conclusive evidence that the joint has been obliterated and replaced by cicatricial tissue. In such a case all hope of restoring movement must be abandoned; for, although by the use of more force it may be possible to tear the cicatrix across, and so produce movement at the time, the cicatrix will inevitably re-form, probably over a wider area than before, and stiffness will return, and the damage done will be followed by a period of much suffering, lasting several weeks, and by thickening and brawny swelling extending over many months.

In cases in which it is found on manipulation that firm fibrous ankylosis has occurred it may yet be advisable to employ force enough to rupture the union. This is the case when the joint has become fixed at an unfavourable angle, when, for instance, the foot forms an angle of 120° with the leg, so that the heel cannot be brought down. In a man of 25, after gonorrhoeal infection, the ankle-joint was fixed in the position described. Ankylosis was so firm that it was broken down only by very considerable force. The foot was then put up in plaster-of-paris just within a right angle. Stiffness returned, as was inevitable, but the patient could now stand firmly on his heel. Subsequently, by the persistent use of manipulation, as forcible as could be used without producing pain, and by exercises, compensatory movement of the joint (medio-tarsal) between the astragalus and the scaphoid became so free that scarcely any lameness remained, and the patient said that he was conscious of no more than slight difficulty in using the foot in dancing and running. When it is the knee which is ankylosed in a bad position, and cannot be moved without considerable force, excision, in patients between 15 and 45, had better be performed. This will secure, at practically no risk in the hands of a competent operator, a straight and sound limb with less than an inch of shortening, and ready for active use within two months; whereas manipulation may fail to correct the position of the limb, and be followed by recurring and disabling inflammatory attacks, and by recurrence of deformity.

In cases in which the adhesions easily give way under manipulation it may be necessary to repeat this proceeding once or more at intervals of a fortnight—if stiffness is threatening to recur—so that the reunion of adhesions may be prevented and their absorption promoted. The latter is a point on which a word may be said. The absorption of superfluous callus as the last stage in the repair of fractures is a process with which all are familiar. That adhesions may also be completely removed is sometimes overlooked, with the result that manipulation and exercises are not used with sufficient perseverance, and limitation of movement, which might have been removed, is allowed to remain.

An officer in South Africa was shot transversely through the posterior segment of the knee-joint. Primary union occurred, but the joint became stiff, in a position of flexion, and the patient was invalided home. When he was examined under an anaesthetic, while the patella was movable, the adhesions between the femur and tibia were so firm that they gave way only when the attempt to separate them had been carried to the full degree which seemed advisable. Manipulation under an anaesthetic was repeated twice in the course of the next month, and then the joint could be moved through an angle of 40°. Daily movements of the joint by means of an arrangement of a weight and pulley were ordered. In the course of a few months movement gradually increased, until no defect remained except a slight limitation of flexion. In this instance, which may be regarded as representative of many others, extensive adhesions were removed as completely as peritoneal adhesions often are after tuberculous and other forms of peritonitis.

REFERENCE.
[1] Bradshaw Lecture on *Infective Arthritis*. 1903. Smith and Elder.

In celebration of their golden wedding, Mr. and Mrs. Bischoffsheim have divided £100,000 among certain charities in which they take special interest. Of this sum, £20,000 has been set apart for Jewish charities, including £10,000 to the Daneswood Sanatorium, and the following are among the other institutions receiving donations:—Imperial Cancer Research Fund, £40,000; the King Edward's Hospital Fund for London and the King Edward VII Sanatorium (for tuberculosis research in connexion therewith), £10,000 each; London Hospital, Middlesex Hospital, Charing Cross Hospital, Queen Charlotte's Lying-in Hospital; Hospital for Children, Great Ormond Street, and the Metropolitan Provident Medical Association, £2,500 each; and St. George's Hospital and the Surgical Aid Society, £1,000 each.

ON SPRAINS AND THEIR CONSEQUENCES, MAINLY IN RELATION TO TREATMENT.

[WITH SPECIAL PLATE.]

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THE commonly-reckoned "little things" of surgery are, it must be admitted, not popular with surgeons generally at the present time, when the great achievements of operative work are apt to overshadow so completely the treatment of minor ailments, that they are frequently relegated to the category of cases too uninteresting to call for much attention at the hands of those who are mostly concerned in dealing with matters which are apparently more important. Unless, therefore, I had been asked to do so, I should not have presumed to contribute to the BRITISH MEDICAL JOURNAL an article upon such a trivial subject as sprains. It is, nevertheless, probable that the neglect or indifferent treatment of some of these minor matters result in more disability amongst the community generally, especially the wage-earning classes, than would arise from a considerable percentage of the cases which are considered to require operation if they were left alone; and, further, it is undeniable that, if the minor things were always adequately treated at their commencement or when they threatened, operations would be less frequently necessary.

DEFINITION AND CLASSIFICATION OF SPRAINS.

A reference to the latest textbooks will give but scanty information on these points; indeed, excepting sprains of joints, little mention is made of them.

A few years ago the definition of a sprain was "a wrench or strain resulting in stretching or laceration of the soft parts, without external wound." Academically this definition may still be regarded as sound, but for working purposes it has been conclusively shown by the *x* rays that sprains commonly so called are in quite a large proportion of cases complicated by slight fractures, a very important point in relation to treatment. In fact, under the usual nomenclature a good percentage of sprains should be classified as fractures. The fracture, however, in these cases is of subordinate importance in a pathological sense, because the sprain of the soft parts is the predominating feature. A fracture can hardly occur without a sprain at the same time, but a sprain may of course, and frequently does, occur without a fracture. For my own convenience I am in the habit of classifying sprains as follows:

1. Simple sprains involving the soft parts only.

2. Sprains with fracture, by which I mean a sprain complicated by a fracture, the symptoms of which are so slight as to make it undiagnosable under ordinary circumstances, the symptoms of sprain being altogether predominant.

3. Sprains with gross nerve injury.

For clinical purposes this classification will be found not only reasonable but useful. Speaking generally, then, a sprain may be considered as a subcutaneous laceration; at the same time, it must be allowed that certain parts may be susceptible of stretching, without actual tearing, to a degree that will cause great pain. Hence, for working purposes, sprains may be divided into those associated with swelling and those followed by pain and stiffness only, the latter condition being formerly spoken of as "strain."

Immediate swelling means, of course, blood extravasation or the contraction of the proximal portion of extensively ruptured muscle; deferred swelling in the immediate region of the injury being due to inflammatory exudation into the soft parts in the continuity of a limb or about the trunk, or, in the case of a joint, synovial effusion.

In relation to the question of swelling, it must be borne in mind that the possibility of defining it is in direct proportion to its nearness to the surface of the part. A swelling from extravasation on the deep surface of the erector spinae would be quite intangible, whilst in the quadratus femoris it would be easily felt: moreover, it must be remembered that deferred or remote swelling in deep sprain may show itself a long way from the seat of the original injury, in consequence of its being caused by the blood tracking along the fascial planes in the line of least resistance. I have, for example, recently seen a large haematoma below the buttock show itself a week after a severe sprain of the erector spinae whilst fencing, and I have seen a large blood tumour appear in the popliteal space many days after a sprain of the upper part of the thigh.

DIAGNOSIS AND TREATMENT.

The first essential in all cases of sprain is to determine whether fracture co-exists, which can readily be done by the *x* rays when they are available; it should, indeed, be an accepted practice that, when possible, every sprain, especially those near joints, should be examined by the *x* rays. In the event of the *x* rays being unobtainable, it is wise to regard any case in which the symptoms of sprain near a joint are unduly exaggerated as being complicated by fracture, especially if the parts concerned be the phalanges of the fingers or the metacarpal region. Figs. I to V are from *x*-ray photographs of cases of so-called sprain in which the bone lesion had been undetected until revealed by the *x* rays some time after the injuries had occurred.

The frequent overlooking of bone lesions in so-called sprains seems to be greatly due to the fixed idea on the part of many people that crepitus is a necessary symptom of fracture, and that absence of crepitus means absence of fracture, a sadly mistaken belief, inasmuch as, it need hardly be said, fracture often occurs in circumstances in which the detection of crepitus is impossible. On the other hand, crepitus after injury, especially if near a joint, may be elicited when no fracture is present. I have seen several cases of injury near joints in which fracture has been either diagnosed or strongly suspected on the strength of crepitus resulting from osteo-arthritis in the adjacent articulation.

The next desideratum is to eliminate the existence of gross nerve lesion. Speaking generally, the pain in cases of sprain is referred to the seat of injury. Should it be referred to a distant part, to the side of the foot, for example, in a case of sprain of the knee, definite nerve lesion is indicated. In all cases of sprain, especially of the knee, elbow and shoulder regions, the distal parts should be examined for numbness, a much commoner condition than it is usually supposed to be, and one which is frequently, when it does exist, at first unnoticed by the patient. This numbness, which may be exceedingly limited in area, if due merely to nerve shock disappears in a few hours; if, however, it persists for more than twelve hours, a gross lesion of the nerve branch concerned is pretty certain.

Simple Sprains.—Setting aside cases complicated by fracture on the one hand and by nervous lesion on the other, sprains may be, for purposes of treatment, divided into two classes—those with swelling and those without, the latter being a very small minority, which is practically limited to sprains about joints and amongst the deep muscles of the back and neck.

Sprains without Swelling (formerly called "Strains").—Here the main immediate indication is the relief of pain, which in these cases is frequently intense. Rest of the part, combined with very firm compression of the region immediately concerned, is usually effectual in this respect if the pressure is of the right kind; and I know of no means of applying effectual pressure excepting strapping, which should, if obtainable, be to a certain extent resilient, like, for example, the wash-leather strapping made by Messrs. Ewen and Son, which is ideal for this purpose. It is, however, perhaps too expensive for ordinary use, the best alternative being Leucoplast, which, although made in Germany, is in my experience so far superior to the English varieties of the same thing that my patriotism does not prevent my using it. (It should be borne in mind that the real object of the use of strapping in these cases is to give support, and hence rest, to the part; its proper application is therefore a matter of some moment, especially in parts constantly moving, like, for instance, the chest wall. In sprain of one side of the chest the strapping should, of course, be made to include at least two-thirds of the circumference of the thorax, passing well beyond the middle line in front and behind, the application of each strip being made quickly at the end of a complete expiratory effort. An apology is needful for these elementary details, but my experience shows that some little facts of this kind are not familiar to us all.) The immediate pain having been thus relieved,

massage cannot commence too soon: but passive movement in these cases is better deferred for six or seven days, as secondary swelling is apt to follow its use if employed too soon. Voluntary movements by the patient may, however, be allowed from the first, the extent of these movements being determined by the amount of pain; as a matter of fact, in many of these cases, as well as in some other varieties of sprain, voluntary movements by the patient are frequently a source of immediate comfort.

Sprains with Immediate Swelling (from Blood).—The classical indications here are threefold: (*a*) Arrest of bleeding; (*b*) promotion of absorption of extravasated material; (*c*) prevention of adhesions and muscle waste.

(*a*) With regard to the first indication, I do not think local treatment other than rest has any material effect. I have rarely seen the application of ice do anything but harm, although in an occasional case the instinct of the patient may lead to its being suggested. At all events, it is wise, if its application should be decided upon, to ascertain, especially in middle age and later, whether the kidneys are sound, for I have seen three cases in which extensive sloughing followed the continued application of ice in sprains with swelling in confirmed albuminuria, no precaution having been taken before the adoption of the treatment to inquire as to the possibility of renal disease: an excellent example of the way in which the apparently trivial nature of a case may lead to careless treatment of it. So far as the comfort of the patient is concerned, a fomentation, the hotter the better, has served my purpose best. Pressure during the increase of immediate swelling I do not use: it is as often as not distressing to the patient, and frequently produces oedema of the tissues below, if the part concerned is a limb. To sum up, rest of the part with very hot fomentations are the means I have come to rely upon.

(*b*) The increase of the immediate swelling having ceased, should the part involved be a joint, firm pressure by means of a porous bandage, such as crêpe velpeau, firmly and evenly applied for twenty-four hours, followed by massage, gives the best and quickest results. The use of impermeable rubber bandages I have long since given up. Should massage not be available, skilfully-applied strapping is the best alternative, the frequency of its renewal being determined by the rate of diminution in the swelling. If the sprain be of the soft parts without joint complication, hot soothing compresses, such as the old and well-tried lot. plumbi cum opii, frequently changed, are more helpful than any other means, so far as I have seen, the pressure being increased as the swelling subsides. As soon as appreciable diminution in the swelling has occurred massage is indicated unless the part is abnormally hot to the touch.

(*c*) For the prevention of adhesions and muscle waste, voluntary movements, massage, and passive movements rank in the order mentioned. Slight voluntary movements cannot be commenced too soon; splints, therefore, should in a general way not be used. The patient should, in fact, from the earliest moment amuse himself by seeing how far the part, if a joint, can be bent without permanent increase of discomfort. Massage should not, except in special circumstances, be delayed for more than twenty-four or at the most thirty-six hours after the cessation of increase in the local swelling. Passive movements should follow freely as soon as all heat has left the damaged part, whether the swelling be tense or not; and if the tension be rapidly diminishing, gentle passive movement may be used in spite of slight local increase of heat; but if the increase of the heat, which under these circumstances is sure to follow, does not subside within an hour or two, passive movement should be deferred for a time, although voluntary movements may be continued.

When an interval occurs between the receipt of the injury and the oncoming of the swelling, and in cases in which swelling, having followed directly after the injury, reappears after it has entirely disappeared or nearly so, the line of treatment mainly depends (1) upon the absence or presence of heat, and (2) in the case of joints upon the amount of tension.

In the absence of local heat, free massage and manipulation are indicated, combined with firm elastic (not rubber) pressure. In effusion without heat occurring in joints a fortnight or more after the accident, the possibility of syphilis or gout as contributing factors must not be overlooked. Iodides in some form internally are often helpful, especially when combined with free inunction of vasogen iodine locally. I know of no application which ensures the local effects of iodine without irritation to the same extent as this.

In well-marked haematoma in easily accessible soft parts coming on immediately after sprain, the course of the case may be greatly shortened by free incision and cleaning out of all clots, followed by immediate suture of the wound.

Tension in Joints after Sprains.—This may be immediate or secondary, that is, occurring after an interval varying from two or three days to a week. When occurring later than this it may be regarded as due either to a repetition of injury, or to some constitutional cause, for example, syphilis, rheumatism, gout, septicaemia, etc.

Tension is always associated with local heat, although in some cases this is very slight; the more quickly a high degree of tension follows the injury the greater is the heat: the same may be said of the pain, which, in immediate tension, is sometimes of great intensity. Hence it is the pain from which relief is sought. Rest, of course, is essential, and if this, aided by very hot fomentation, fails to give comfort, direct relief by means of the aspirator is the indication. This in the hands of a competent practitioner who understands the value of cleanliness is not only more effectual than the alternative usually recommended, namely, leeches, but is also, I think, safer. I have seen no harm follow aspiration, which I cannot say in the case of leeches. The withdrawal of only a sufficient amount of the bloody fluid to relieve the tension should be made, as this is less likely to be followed by a recurrence than when as much fluid as possible has been drawn off. The tendency to recurrent tension in cases of this kind is also, I have reason to believe, diminished by the administration internally of calcium chloride. In the case of tension coming on after an interval, on the other hand, if relief by aspiration become necessary as much fluid (synovia) should be removed as possible, and firm pressure immediately applied. After the relief of tension, the use of massage and movement, voluntary and passive, will be regulated entirely by the behaviour of the local temperature of the part, to which reference has already been made.

Sprains with Fracture.—The treatment of these injuries differs only from that of simple sprains in the following particulars: Although massage may be, and as a rule should be, commenced at once, rest for the part in splints of some kind must be maintained for a long enough period to enable the detached piece of bone to reunite sufficiently to retain its position during voluntary movements. Hence, as early movements are essential to quick recovery, these must be *passive*, and not voluntary, as in simple sprain. This is a most important point in the treatment in these cases, especially in connexion with deformities following sprains—a matter with which I shall deal presently. The treatment of simple sprains may be tabulated thus: (1) Voluntary movement, (2) massage, (3) passive movement and exercises; whilst that of sprains with fracture would run: Massage, passive movement, voluntary movement, and exercises; the reason for the early use of passive rather than voluntary movements being obviously that the detached piece of bone is not disturbed during the use of passive movement if properly carried out; whereas, if voluntary movement were allowed, imperfect or faulty union would not improbably follow, with the usual imperfect recovery.

These remarks apply only to cases in which there is a definite detachment of a portion of bone; they have no bearing upon cases of so-called "sprain-fractures" in joints in which the cartilage is in part torn from the articular surface, the bone being involved in the lesion. The treatment of such cases, which are generally undiagnosed if they often occur, differs in no respect from that of simple sprains.

Sprains with Gross Nerve Injury.—Of all cases of sprain, these are in some respects the most important, because of the difficulty in their treatment and the resulting imperfect cure which so commonly follows, although it must be admitted that the defective recovery is not generally attributed to its real cause. As is the case with sprains with fracture, many of the imperfect results are due to indifferent diagnosis, the nerve lesion having escaped notice in consequence of the slightness of its

symptoms at the time of injury. Hence, as I have already said, the importance of a definite search for evidence of nerve damage in cases of sprain cannot be overemphasized.

In the treatment of these cases, when the evidence of nerve lesion is pain along the line of distribution of the nerve, rest and rest only will bring about a complete and permanent cure. This rest, if it is to be successful, must be continued until all symptoms of nerve pain have passed away. Herein lies the difficulty in treatment, for it is next to impossible to induce some patients to realize the importance of resting the part concerned long enough to ensure immunity from the persistent pain which is prone to follow in these cases. Massage does nothing but harm in the early stages of this type of case, but if the condition becomes chronic from neglect of treatment in the early stages, it may be of use, especially if associated with static electricity; and the exacerbation of pain in chronic cases is frequently greatly relieved by the repeated application of the fine point of the thermo-cautery along the line of pain.

In cases where numbness is the indication of nerve lesion the treatment is altogether different, for if this symptom has not disappeared in 24 hours the only hope of cure lies in the skilful use of massage, supplemented after two or three days by galvanism. If the affected part be a limb, exercise should be encouraged, and in any part flying blisters *over the seat of the lesion* may be safely used, since in a certain number of cases they do good, and in none does harm arise from their employment. It is singular how readily areas of numbness may sometimes escape the notice of both surgeon and patient. In a case which came under my observation a patient having "sprained" his leg was entirely unaware of any loss of sensation in the foot until, in attempting to get some warmth into the part, he found he was charring his toe by unconsciously holding it in contact with the bar of the grate.

Remote Consequences of Sprains.

The later consequences of sprains may be tabulated in the following way:

Preventable	Persistent pain. Stiff joints. Wasting of muscles (apart from gross nerve lesion). General relaxation of joints. Deformity.
Unavoidable in certain cases	Osteo-arthritis. Local paresis. Myositis ossificans.

Preventable Consequences of Sprains.

Persistent Pain.—This condition is usually caused by excessive immoblization in ordinary cases giving rise to adhesions and matting of the parts, but it may be due to too early movements in cases associated with nerve lesion. Speaking generally, it may be said that in simple sprains the discriminating use of massage and movement cannot be commenced too soon after the immediate effusion has ceased to increase; on the other hand, if nerve lesion *with pain* exists, rest is essential until the pain has passed away.

Stiff Joints.—Stiffness of joints after sprains is almost always due to the prolonged use of splints or delay in the commencement of voluntary and passive movements. Stiffness of this kind can be nearly always avoided by the removal of splints, if their use is considered necessary, once daily for an hour or so, during which the patient is encouraged to move the part as much as the pain will allow. It appears that one of the main reasons for the prolonged use of splints in sprains of joints is the fear of tubercle, but in the absence of persistent local heat it is hardly needful to say that the fear of tubercle is entirely unnecessary.

Recently I have seen a case in which, in consequence of acute effusion into the knee-joint after sprain, the part was immobilized in splints for six months, with the result that a bony ankylosis followed. Nothing can be more harmful in sprain of joints than the too prolonged use of splints. Personally, in sprains—the existence of fracture having been excluded by the use of the *x* rays—I have long since given up the use of splints altogether.

General Relaxation of Joints.—This, the exact reverse of the condition just referred to, may, in the absence of very extensive laceration of the capsule, etc., for practical purposes be considered to be due to wasting of muscles on the proximal side of the articulation, the knee for many reasons being the joint mainly concerned. Wasting of the muscles of the thigh invariably leads to laxness of the capsule of the knee-joint, and the bagginess of the capsule thus resulting means passive effusion, a fact which does not seem to be familiar to some people. The resulting fullness of the joint, especially when the patient stands, leads the inexperienced to devote the entire attention to the "fluid in the joint," with the result that one of two extremes in the way of treatment is adopted—(1) prolonged use of splints, or (2) vigorous methods confined to the joint itself—for example, blisters, actual cautery, strapping, etc., the result being almost invariably a "'wobbly" joint.

If, in cases of this kind, it were generally recognized that the primary factor of importance is the muscle waste, the condition of the joint being secondary, the number of lax joints would be very small, because, with very few exceptions, the condition follows only in cases improperly treated. If voluntary movements be commenced sufficiently early, whilst the patient is resting, and are aided by massage, and later on by passive movements *plus* resistance exercises, muscle waste will be entirely avoided unless the injury has caused gross tearing of muscles, especially at their aponeurotic or tendinous attachments; for example, the muscle waste in "rider's sprain" (laceration of the tendon of origin of the adductor longus in the thigh) is rarely, if ever, so far as I have seen, completely repaired.

Deformity.—This is in some respects the most interesting of the remote preventable results of "sprains" so-called. These deformities are met with most commonly in the fingers, but are also seen in the knee, in the form of genu valgum principally; in the hip, and at the wrist and ankle. In adults they are virtually always the result of undetected fracture; in growing people they may arise from injuries to the epiphyses, but even in these subjects undetected fracture is the commonest cause. Sprain of an epiphysis may cause arrest of development or irregular growth, the best example of the latter condition being certain cases of genu valgum.

Fig. A is a diagram showing the mechanism of a characteristic case of deformity of a finger following "sprain." There has been an oblique fracture of the base of one of the phalanges; the fracture having been undetected, no means were taken to secure adhesion of the separated part during the use of massage, etc. The result is that

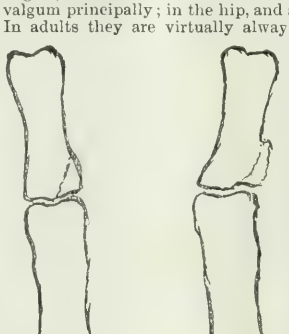


Fig. A.—Diagram illustrating the mechanism of deformity following upon undetected fracture of base of phalanx of finger.

Description of Figures on Special Plate.

Fig. VII.—Myositis ossificans of quadratus femoris following sprain of the thigh. The photograph was taken fifteen months after the injury. The disposition of the layer of calcification is characteristic.

Fig II.—"Motor sprain." Comminuted fracture of lower end of radius, caused in the same way as Fig. I. There was no deformity; the fracture had not been detected until shown by *x* rays three months after the injury.*

Fig. I.—"Motor sprain" of wrist. Separation of styloid process of radius caused by attempt at starting the engine of a motor car. Fracture discovered by use of *x* rays some time after the injury.

Fig. IV.—Fracture of base of fifth metacarpal bone shown by *x* rays after ten weeks' treatment for sprain.

*In three cases of "motor sprain" the *x* rays showed separation of the lower epiphysis of the radius; it was intended to illustrate one of these, but the negative had been too much damaged to provide a presentable print.



Fig. VII.

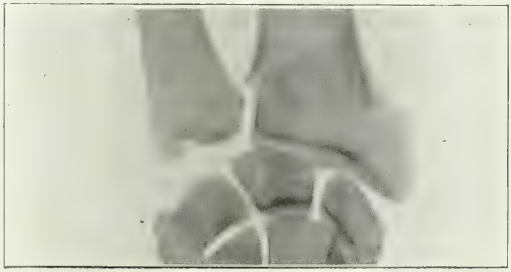


Fig. II.

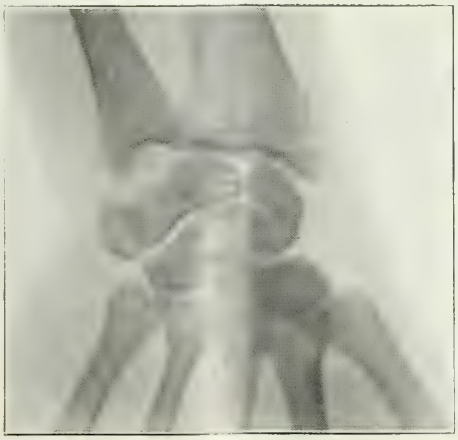


Fig. I.



Fig. IV.

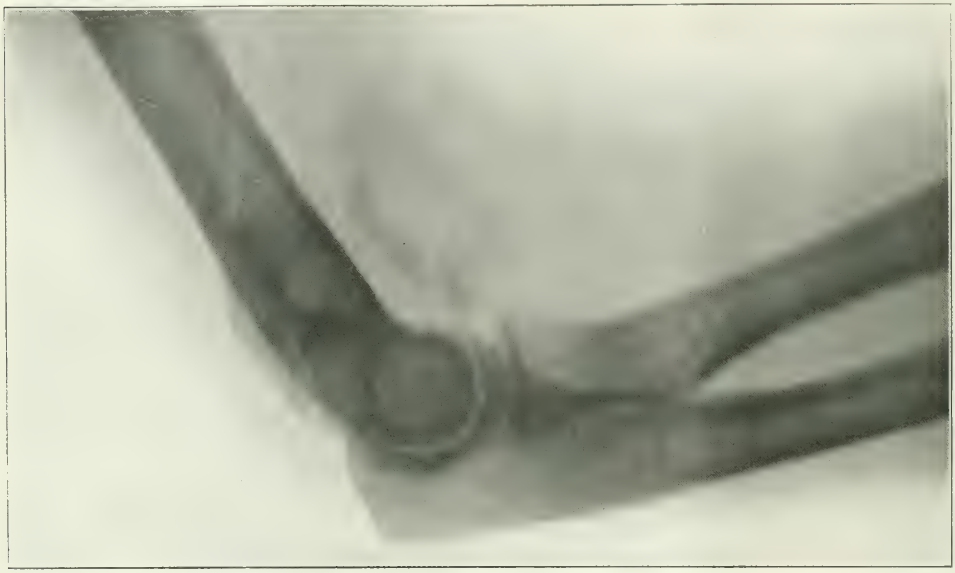


Fig. VIII.



Fig. VI. Fig. III. Fig. V.

the fragment has glided upwards in such a way as to cause the distal part of the finger to fall over in an angular deformity.

Fig. VI is a skiagram of a case of a very exaggerated kind in which the same distortion is in course of occurrence. Such deformities of the fingers after sprain are not unfrequently attributed to osteo-arthritis; genu valgum and genu varum may arise in the same way. The following is a typical example.

A young man, 22 years old, strong and healthy, consulted me on account of genu valgum of an exaggerated kind, which was said to have come on rather rapidly during the convalescence from a severe sprain of the knee. An *x*-ray photograph clearly showed that the external condyle had been detached by an oblique fracture and had glided upwards, so that when attempts at walking were made the leg necessarily bent outwards from the knee. A few years ago "sprains" of the hip were spoken of as being sometimes followed by shortening of the limb from a mysterious change in the bone, which was thought to bring about an alteration in the angle at which the neck of the femur left the shaft. The *x* rays have abundantly shown that the common cause of this deformity is undetected fracture of the neck of the thigh bone, and in a few cases perhaps injury to the epiphyses in growing subjects.

It is a singular thing that there is even now a disinclination upon the part of some people to utilise the *x* rays in cases of sprain. Recently an instance has come to my knowledge in which a practitioner of large experience and repute advised against the use of the *x* rays on the grounds that they would merely corroborate his diagnosis in a case of "sprain' of one of the larger joints. Symptoms having subsequently arisen which were hardly consistent with a mere sprain, however severe, the *x* rays were employed, upon the recommendation of another authority, with the result that a very manifest fracture was revealed.

An attitude of this kind towards a means of diagnosis which in competent hands can set at rest once and for all any question as to fracture with absolute certainty passes the comprehension of a person of only ordinary intelligence.

DESCRIPTION OF FIGURES ON SPECIAL PLATE.

Fig. VIII.—Ossific masses in relation with the elbow, eighteen months after a sprain. Absence of fracture was shown by *x* rays shortly after the accident.

Fig. VI.—A very exaggerated case of undetected fracture of the finger, showing deformity arising as in Fig. A. The case came under observation about six months after the injury, as the appearance and character of the swelling around the part suggested tuberculosis.

Fig. III.—Fracture of head of phalanx of finger shown by *x* rays after two months' treatment for sprain.

Fig. V.—Fracture of base of proximal phalanx of thumb after six months' treatment for sprain. Acute pain was the symptom complained of, which rendered the hand quite useless. Removal of the ununited fragment effected a cure.

Unavoidable Consequences of Sprains.

Osteo-arthritis.—The relation of osteo-arthritis to injury cannot be said to be much understood; it is, however, quite certain that its first manifestation frequently follows upon some comparatively slight injury to a joint, especially if this is followed by effusion. The subject generally is too large for discussion here, but it is I think undeniable, if my own experience is of any value, that excessive immobilization of joints after injury tends to the development of this condition. In other words, the chances of osteo-arthritis developing after injury is much greater when unnecessary rest has been used than when, by massage and rational movements, the parts have been kept supple from the commencement.

Local Paresis.—Gross nerve lesion may of course result in permanent loss of power, in spite of the most skilful treatment; but it is often of much moment that the practitioner should be able to warn a patient of the possibility of results of this kind; hence, as has been already indicated, the desirability of ascertaining immediately after the injury whether nerve complication does or does not exist is a matter of some urgency.

Traumatic Myositis Ossificans.—This is, perhaps, the rarest, and at the same time the most interesting, of the remote consequences of sprains. Sprains of muscles, involving as they may do the points of attachment to the bone, may be followed, especially in the case of the quadratus femoris, by gradual ossification, completely or in part. The process is slow and little, if at all, painful, such pain as may be felt being of the nature of a dull aching or feeling of weight. The joint controlled by the ossifying muscle becomes increasingly restricted in its movements. For example, in myositis ossificans of the quadratus femoris (Fig. VII) flexion at the knee becomes slowly less and less, although it is rarely that flexion to a right angle cannot be ultimately accomplished. The muscles involved become hard and seem to be exaggerated in size; there is little or no tenderness, but the limb becomes more and more heavy as the disease goes on. The liability to this condition seems to be too little understood.

Fig. VII is a skiagram of a portion of the thigh of a girl about 24 years of age, by whom I was consulted in consequence of amputation having been advised on account of sarcoma. In another case which came under my notice amputation had been suggested by a very experienced surgeon on the same grounds. Again, within the last six months a naval officer was referred to me on account of a large mass involving the middle of the thigh after an injury, which had been regarded as malignant disease. In this case, as in the others with which I have met, the *x* rays showed superimposed layers of calcification arranged in accordance with the muscle structure as shown in Fig. VII.

With regard to the treatment of this condition, it seems certain that, once it has actually commenced, rest is essential until it has ceased to increase; massage and movements, passive or voluntary, during its progress, undoubtedly stimulate it to increase. Operation in some of these cases has been adopted, masses of bone-like material having been removed, but unless the periosteum with which some of these masses are connected is also completely removed, regrowth with increased vigour follows. Operation is, in fact, generally harmful, and should be rejected. Rest having been used until the tendency to increase in the condition has ceased, massage and exercise should follow, with a view to obtaining as much usefulness as possible in such portions of the muscle as have remained intact. The alteration in the bulk of the muscle remains permanently, the normal state is never recovered. The comparative painlessness of the condition should make it difficult to confuse it with periostitis, the lesion for which it is generally mistaken.

Fig. VIII shows traumatic myositis ossificans after a sprain of the elbow—the possibility of fracture having been originally eliminated by the *x* rays. Massage and exercise were tried in this case, with the result of steadily increasing the bulk of the mass; subsequently complete rest for six months caused a diminution to about one-half of the previous size.

The relation of tuberculosis of joints and of tendon sheath to sprain is of much interest, but its discussion is out of the question in an article which has already exceeded a reasonable length.

Colonel Nicholas Senn has reprinted from the *Journal of the Association of Military Surgeons of the United States* an address on First Aid on the Battlefield, delivered before the Military Section of the International Medical Congress at Lisbon. The introduction affords numerous sententious observations, from which the following may be selected: "The military surgeon must imitate the example of his colleagues in civil life. This most important function consists in making ample preparations for war in times of peace." Passing on to first aid, the address enunciates some general propositions directed mainly to the importance of inculcating the principles and practice of asepsis among soldiers, to the nature of the dressing, and the extent of the first aid to be given. The duties of surgeons at the first dressing stations are touched upon, the address concluding with the "Instrumentarium of the Surgeon in the Field," and a demonstration by Colonel Senn of his surgeon's field case. The weight of this—4½ lb.—precludes the case forming a portion of the surgeon's personal equipment. The address was suited to its purpose, even though no important facts unknown to military surgeons were included.

ERRORS OF VISION AS A FACTOR IN MOTOR CAR ACCIDENTS.

BY CECIL CLEMENTS,
OPHTHALMIC SURGEON TO THE LINCOLN COUNTY HOSPITAL.

AN ideal driver of motor cars must be an excellent judge of pace and distance, keenly on the alert to seize every opportunity, and ready to act quickly on any emergency. All these qualities call for perfect and binocular vision, and must of necessity cause considerable eye and nerve strain even by day. How much more so, then, when daylight becomes uncertain, or fails altogether.

In looking back through accounts of motor accidents, one cannot fail to be struck by the number in which no explanation can be given of the initial cause except that "somebody blundered." We have a right to know "the reason why," so that in the future precautions can be taken to prevent their occurrence.

My attention was first seriously called to this subject by the following cases, which, to me, appear to point out a very simple and easily rectified cause—namely, errors of vision; and I certainly think that all would-be motor drivers ought to produce satisfactory evidence of good vision before being granted licences.

CASE I.

A healthy-looking man, 39 years old, came to consult me about his eyesight. He gave the following history:

A fortnight previously he had competed in a long-distance, non-stop race. As dusk was coming on he suddenly misjudged his distance from a turn in the road, whilst travelling at a moderately high speed, overshot his mark, and would have crashed into the trunk of a tree, possibly with fatal results, but for the sudden and vigorous application of his brakes. From that time he found it impossible to drive safely at more than lowest speed, and finally had been obliged to give up driving altogether. He had also noticed increasing difficulty in reading moderately-sized print. Previous to the accident he had had no idea of anything the matter with his vision, near or distant.

His vision was $\frac{6}{12}$ in each eye; $\frac{6}{5}$ with + 3 D.

What had happened was that his accommodation had gone and disclosed his hypermetropia, which he had previously been able to overcome.

CASE II.

A young man, 22 years of age, had noticed nothing the matter with his eyesight until three days previously, whilst driving a motor cycle. After a long ride, and hurrying home to escape being run in for riding without a light, suddenly everything seemed to go flat (his own words), and he found himself over a hedge instead of round the corner he was trying to turn. He had noticed himself seeing double occasionally since that time.

His vision was—Right $\frac{6}{5}$, left $\frac{6}{5}$ 2 L.; right eye normal, left + 0.5 cyl. vert., together with a latent divergence.

What had happened was that, owing to eye and nervous strain, the divergence became real, and he got monocular vision, or diplopia.

CASE III.

A young man, 23 years of age, came to consult me, complaining of frontal headache and pain in the eyes when driving his motor, together with difficulty in steering correctly. He was undoubtedly suffering from spasm of accommodation.

His vision was $\frac{6}{24}$ in each eye, — 1.0 sph. = $\frac{6}{5}$, but under atropine + 2.0 sph. in each eye.

CASE IV.

Wishing to substantiate my theory, and hearing that a motor friend of mine had had a narrow escape from a serious accident, I cross-questioned him about it, without giving him any indication of my purpose, and obtained the following data.

He had been driving most of the day, during the latter part of which he had made one or two slight errors in steering, when suddenly, towards dusk, he crashed into the hedge instead of turning the corner. Luckily for him there was no ditch, and he escaped with a few scratches. Previous to this he had never had any trouble with his eyesight.

I was not surprised to find on examination that he had 1.5 D. hypermetropia.

CASE V.

Whilst discussing the pros and cons of the above cases with a doctor, himself a motorist, he suddenly chimed in with "I wonder if my vision will account for my bad driving of late!"

I found he was slightly astigmatic in each eye, and what is of more consequence, a difference of + 0.75 sph. between the two.

In each of the above cases correcting glasses relieved all symptoms, and up to the present time there has been no recurrence.

Both eye and nerve strain, if at all excessive, are always liable to emphasize an error of vision or a deficiency of muscular tone. This tendency is much increased by approaching dusk, as may be noted in three of the cases.

In conclusion, a word of warning about motor goggles will not be out of place here. Goggles with bowed glasses should never be used under any circumstances, and for this reason—though theoretically they are similar to plain glass, practically they are really myopic glasses of varying strength. Hence they may just turn the scale in favour of spasm of accommodation. Case III had been wearing goggles of this kind. Flat, glazed goggles should be worn, and, if required, they can be replaced by the requisite correcting lenses, care being taken that the existing goggles are properly centred. No smoked goggles should be worn after sundown, as they are liable to create a false dusk and so increase the existing danger.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

EPITHELIOMA OF THE CLITORIS.

LAST month a patient presented herself to me complaining of irritation of the vulva and scalding after micturition, together with pain in the genitals. She also stated that a lump was present. There had been no discharge or haemorrhage. Examination showed a scarlet mass, shaped like a strawberry, protruding between the anterior edges of the nymphae. On palpation it was found to be very tender, and to project from the prepuce of the clitoris.

Subsequently I removed the mass, which was evidently an enlarged glans clitoridis. Histological examination showed it to be a squamous-celled epithelioma, consisting of large branching masses of ingrowing epithelial cells. Large cell nests were present, and keratinoid changes well marked. The patient had noticed nothing until four months ago, and was then troubled with pruritus. She noticed no swelling until two months ago, hence the growth must have been rapid.

The patient's age was 60. She had borne eleven children, and had had one miscarriage. The menopause occurred at 41.

LEIGH DAY, M.D., B.Ch., B.A.Oxon., etc.
Colchester.

A CASE OF SPRENGEL'S DEFORMITY.

THIS deformity occurred in a young lady aged 17 years. The faulty position of the scapula was first noticed in infancy.

The right side of the neck is irregular. The superior border and superior angle of the right scapula project above the clavicle into the neck anteriorly, forming quite a marked prominence. The change in the position of the scapula is such that it lies nearly at a right angle to its proper position. The angle of the scapula is fixed, and cannot be brought nearer to or further from the middle line on movement of the arm. The angle appears to be moored to the spine by a band of muscular or ligamentous fibres, corresponding in position to the rhomboideus major. The arm cannot be lifted actively or passively above the horizontal line. When the horizontal position of the arm is reached the right pectoralis major, latissimus dorsi, and rhomboideus major all become tense. On bending forward, the latissimus dorsi is seen crossing the angle of the scapula. There is also secondary scoliosis, most marked in the lumbar region.

The etiology of this condition is obscure. A certain number are associated with other congenital defects, as absence of the radius. Bradford and Lovett say:

> The theory of intrauterine pressure and the persistence of a position of the scapula natural to a certain period of fetal life have been urged as the cause of some of the cases.

The treatment recommended in this case was division of the shortened structures passing from the spine to the vertebral border and angle of the scapula.

W. DUNCAN LAWRIE, M.D., F.R.C.S.E.,
Honorary Surgeon, Birmingham Cripple Children's Union.
Llandudno.

REPORTS

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

HER MAJESTY'S HOSPITAL, STEPNEY.

AN UNUSUAL CASE OF RAYNAUD'S DISEASE.

(Reported by J. A. Milne, M.B., B.S.Lond., M.R.C.S., Resident Medical Officer.)

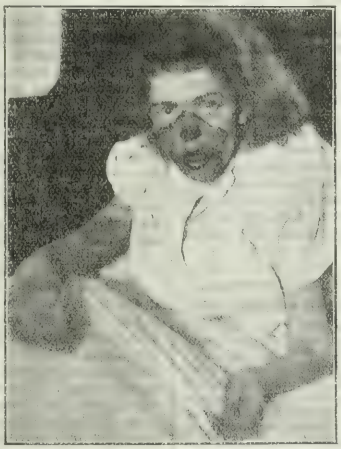
The following case is interesting in the fact that Raynaud's disease and mitral disease were combined, and in the unusual nature of some of the symptoms manifested.

The patient, M. J. P., aged 14 years, was admitted from Darlington, on July 22nd, 1904, suffering from painful stumps.

Dr. Middlemiss, of that town, has very kindly provided me with the following facts in her early history:

M. J. P. was admitted into Darlington Workhouse Infirmary when 10 months old, with ringworm; and whilst under treatment it was noticed that the fingers of her right hand, the tip of her nose, and the tips of both ears became blue and cold, causing the child considerable pain.

This continued for six or seven weeks, when the parts over the right ankle were noticed to be blue and shrunken. After a few weeks the skin broke, resulting in a sloughing wound. On examination of the parts in this region some time later, the bones of the leg (exact site not remembered) were found broken, and portions of dead soft tissue and bone were from time to time cut away, leaving a healthy granulating stump, which healed quickly.



For twelve months the child improved in health, when the other foot became affected in a similar way, and the same sequence of events followed, the limb gradually sloughing off. For the next six years she regularly had to have morphine for the pain, and her extremities had always more or less to be wrapped in wool.

The same train of symptoms and signs took place during the remaining years she was here, the "local asphyxia" being worst in cold weather, and treated by rest in bed, warmth to the affected parts, and opium.

No haemoglobinuria, no peripheral neuritis or other lesions sometimes associated with Raynaud's disease were noted.

State on Admission at Stepney.—Her general condition was good. There was a systolic murmur heard over the apex beat and conducted to the axilla; no appreciable dilatation of the heart was noted. The lungs and other organs appeared normal. The left stump was conical, contained 8½ in. of tibia, and was painful on pressure. The right stump was also conical, much more painful, and contained 8¼ in. of tibia, over the tip of which there was an ulcer about the size of a florin. There was a great deal of scar tissue about both stumps. The tips of the fingers of the right hand were somewhat atrophic in appearance. Owing to the pain in the stumps, and in order to render these suitable for wearing artificial appliances, the stumps were on August 31st and November 17th trimmed up.

Progress.—On December 23rd the first attack of local asphyxia since admission was noticed; this affected the left ear, which became blue and swollen, and very painful. After this date these attacks recurred frequently.

January 1st, 1905. There was a rise of temperature, with slight cough. On examination dullness of base of right lung, with fine rales on inspiration, were found. January 19th. Cough better; left ear blue; hands and fingers reported to swell and become bluish-black occasionally. February. Frequent attacks of local asphyxia in right hand and fingers. Electrical bath tried, but without much success. March. Much improvement after warm bath and massage. July 4th. Discharged to our convalescent home at Felixstowe. October 5th. Readmitted. While at Felixstowe the patient is said to have had a severe attack of pneumonia, with endocarditis, and an attack of local asphyxia in her hands. Her general condition is good. The area of cardiac dullness extends to the nipple line, impulse somewhat diffuse, while over the apex beat a loud blowing systolic murmur, which is conducted round to the back, is heard. Over the base of the right lung there is slight dullness, and occasional crepitations are heard. The condition of the hands is much the same. October 23rd and 24th. Tip of nose and of left elbow purple; right hand and fingers swollen and purple to above the wrist, and intensely painful. November. Somewhat better. December 12th. Blueness of left middle finger and right hand. February and March, 1906. About this time the patient suffered repeatedly from local asphyxia of the margins of ears and tip of nose, with resulting dry gangrene and loss of substance. Also the apices of the stumps, the right hands, and the fingers of both hands became blue and painful repeatedly. Tip of nose also purple and gangrenous (dry). March 14th. Acute attack of dyspnoea, cough, and sharp pain in right side of chest. Temperature, 101·2° F.

Result.—March 20th. Local asphyxia increasing in extent. Helices of ears and tip of nose undergoing dry gangrene. Face purple from below eyes to under chin and over cheeks. (See Figure.) Arms and hands both knees purple, and also apex of right stump. purple (right arm up to shoulder, left up to elbow); On March 22nd the patient died. At the necropsy, on the following day, the purple colour of the skin was the same as during life; the heart, considerably enlarged, weighed 12 oz.; the mitral valve was semi-cartilaginous and somewhat stenosed; all the chambers of the heart were dilated; the heart muscle appeared fairly healthy; there was a slight excess of pericardial fluid. Lungs: Right pleura densely adherent. The base of this lung was solid, exuding frothy blood and serum on pressure; in the apex there was a calcareous nodule. Left pleura slightly adherent; lung healthy. Liver was enlarged, presenting typical nutmeg condition. Spleen and kidneys showed an increase in fibrous tissue. Stomach was displaced to below umbilicus. Subclavian and radial arteries were examined, but nothing abnormal could be detected.

[For permission to publish these particulars I am indebted to Dr. R. Milne, Medical Officer of Dr. Barnardo's Homes, with which this hospital is in connexion.]

SUNDERLAND INFIRMARY.

MYOMEOTOMY DURING LABOUR.

By Wm. Robinson, M.S.Dunelm., F.R.C.S Eng.)

The paper and discussion on the above subject at the meeting of the Obstetrical Society on November 7th suggested the publication of the following notes:

Mrs. A. B., aged 47, was brought into the Sunderland Infirmary on November 17th at 11.30 p.m. by Dr. Watson, of Hetton-le-Hole. She had had seven children, the last seven years ago; labour had begun seven hours previously, but her medical attendant was not sent for until 8 p.m. On examination one hour after her arrival I found a hard mass, nearly the size of a child's head at birth, growing in and from the posterior wall of the cervix, and couched in the cavity of the sacrum; it could not be pushed up above the pelvic brim; the fingers could be passed through the dilated cervix, though there was only an inch and a half of space between the growth and the pubes; an arm was presenting, and the head was felt lying on the left side of the abdomen above the pelvic brim: the growth was sessile.

As it was impossible to extract the child with forceps past so large a tumour, with the help of my colleague Mr. Morgan, and with the patient in the lithotomy position and under chloroform, I snipped through the mucous membrane covering the growth with scissors, and whilst continuous traction on the growth with strong vulsella was kept up I managed to perform enucleation with my fingers and by dividing several firm bands of adhesions with the scissors. The child was then readily extracted with the forceps, the whole operation lasting only forty-five minutes. There was very little bleeding, and after ligaturing and dividing some of the redundant mucous membrane which had covered the growth—a fibromyoma—the interior of the uterus was douched with two quarts of hot

saline solution. The child died at the end of twenty-one hours from a congenital heart affection (as ascertained *post mortem*).

The mother made an uneventful and uninterrupted recovery.

REPORTS OF SOCIETIES.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

R. D. PUREFOY, M.D., F.R.C.S.I., President, in the Chair.

Friday, November 16th, 1906.

SPECIMENS.

SIR WILLIAM SMYLY showed a fibro-cystic tumour of the broad ligament weighing 13½ lb. He said that such tumours must be rare, as this was the first he had met with.

Dr. E. H. TWEEDY showed (*a*) tubal pregnancy, (*b*) perithelioma of uterus, (*c*) fibroids undergoing sarcomatous degeneration.

PRESIDENT'S ADDRESS.

The PRESIDENT read his introductory address, in which he referred to the work of the preceding session, noticing the various communications read by members and the reports of the Rotunda Hospital, in one of which was recorded a case of spontaneous inversion of the uterus occurring in the hospital while the patient was under observation. The theories recently adduced as to the causes of eclampsia were mentioned, and the value of the old treatment by bleeding, followed by saline transfusion, was emphasized. The views recently put forward by Halban as to the secretion furnished by the ovaries and placenta, and its influence on the genital organs of both mother and child, were noticed; also the supposed influence of luteum tissue in causing the development of hydatidiform moles, malignant or otherwise. Reference was made to three causes of accidental haemorrhage, recently reported, all of which ended fatally, and in all of which autopsy showed incomplete external rupture of the uterus had taken place. Attention was directed to the renewed interest in, and good results obtained by, serum injections in puerperal sepsis.

REPEATED TWIN ABORTIONS AND VENTRI-SUSPENSION.

Dr. SPENCER SHEILL read a paper on this subject.

A woman, aged about 30 years, married four years, had had four abortions, all at about the tenth week, the first one being twins. There was a family history of twins; she had twin sisters. On May 3rd, 1905, when she came under his care for the first time, he curetted the patient for an incomplete abortion, and at that time he made the diagnosis of acute retroflexion with a fibroid, and recommended operation, as she was very desirous of having a living child. She agreed, and on June 23rd he removed a pedunculated fibroid about the size of a hen's egg, which was attached to the fundus, and did a ventral suspension. The patient menstruated normally on July 19th and August 21st, her husband being away in the country. He returned—and cohabited with her for the first time since the operation—on September 1st, 1905, with the result that Dr. Sheill delivered the patient of a child, which showed every evidence of being full term, on June 16th, 1906, so that the conception must have taken place on or about September 16th, 1905—for example, sixteen days after the husband's return. But on October 21st, 1905, exactly two calendar months after the last menses, the patient had a uterine haemorrhage, and with it came away an ovum of about six weeks' development. The haemorrhage was not very profuse, and soon ceased. There was no pain, so active interference was withheld. The patient was taking potassium chlorate at this time. No further menses occurred, and on examination early in January, 1906, Dr. Sheill diagnosed a "uterus large enough for four and a half or five months pregnancy, which might be a mole or a twin of the ovum aborted last October."

Dr. Sheill said it was interesting to note that the ventri-suspension caused no pain, unusual vomiting, or frequency of micturition during gestation, and that there was no dragging on or alteration in shape of the uterus other than a slight dimple at the fundus. The labour was uneventful, and the ventral scar showed no signs of weakness. A vaginal examination a month later showed the uterus to be normally involuted and in perfect position. An enlargement of the thyroid gland had been described in infants born of mothers who had been taking potassium chlorate during pregnancy with a view to prevent abortion. There was no such enlargement in the infant's thyroid in this case.

The case was discussed by Sir W. SMYLY, Professor A. SMITH, Dr. JELLETT, Sir A. MACAN, Dr. ASHE, Dr. FITZGIBBON, Dr. HASTINGS TWEEDY, Dr. HORNE, and the PRESIDENT; and Dr. SHEILL replied.

CARD SPECIMENS.

The following were shown:—Dr. E. H. TWEEDY: (*a*) Adeno-carcinoma of vulva; (*b*) epithelioma of vulva; (*c*) adenoma of uterus; (*d*) epithelioma of cervix; (*e*) myomatous uteri, 8; (*f*) pyosalpinx and salpingitis, 6; (*g*) ectopic pregnancies, 2; (*h*) ovarian cysts, 10.

PATHOLOGICAL SOCIETY OF LONDON.

P. H. PYE-SMITH, M.D., F.R.S., President, in the Chair.

Tuesday, December 4th, 1906.

SARCOMA OF THE STOMACH AND ABDOMINAL GLANDS.

Dr. NORMAN DALTON recounted the case of a male, aged 15, in whom abdominal swelling and pain had been noticed for three or four months. After death extensive disease of the structures named was found; there were metastases in the liver and kidneys. The author thought that the disease had started in the glands and secondarily invaded the stomach. Histologically, the growths were of the small round-celled kind.

LATERAL FRACTURE OF THE AXIS.

Mr. E. M. CORNER read a paper on this form of fracture, due to indirect violence transmitted through the head or trunk. The line of fracture ran between the superior and inferior articular processes. The axis was supported upon two inclined planes, one formed by the inferior articular process, the other by the obliquely set lower surface of the body; the weakest part of the bone lay between these. The fracture usually started in the posterior part of the superior articular facette and traversed the pedicle in front of the inferior articular facette. The great occipital nerve might be injured. The speaker had collected twenty-two examples. The injury was more common in persons over 40. In half the cases there were no physical symptoms; about 70 per cent. recovered.

EOSINOPHILIC PLEURISY.

Dr. J. J. PERKINS and Mr. L. S. DUDGEON read a paper upon this condition. The patient, a girl aged 22, was taken ill with acute pleurisy and bronchitis; within a few days she developed acute pericarditis, and twenty-two days from the date of admission into St. Thomas's Hospital acute endocarditis of the mitral and aortic valves was detected. Nine ounces of clear yellow fluid were aspirated from the inflamed pleural sac. A cytological examination of the exudate showed 34.6 per cent. of coarsely-granular polymorphonuclear eosinophiles in a count of 500 cells, 10 per cent. polymorphonuclear neutrophiles, 23 per cent. of small lymphocytes, and 32.4 per cent. of endothelial cells. No micro-organisms were detected in film preparations of the fluid. A blood examination at the same time showed a marked leucopenia, a slight amount of anaemia, eosinophilia, and a considerable increase of the mononuclear cells. The typhoid serum action was negative. There were 92.5 per cent. of polymorphonuclear cells in the sputum, many of which contained diplococci. The *Staphylococcus aureus* and *albus* were cultivated from it. A second blood examination was similar to the first, but a third blood examination which was made six weeks from the date of admission, showed absence of eosinophiles, a normal number of leucocytes, and a normal differential count. At the *post-mortem* examination there were found numerous pleural adhesions on both sides of the chest, adherent pericarditis, and vegetations on the aortic and mitral valves. There was no evidence of tuberculosis anywhere in the body. The uterus, uterine appendages, vagina and bladder were normal. The authors were unable either during life or after death to obtain any positive information as to the nature of the infection from which the patient suffered; possibly it was influenzal.

INFECTIVE TUMOURS IN DOGS.

Mr. C. G. SELIGMANN exhibited a series of infective venereal tumours in dogs from the coast villages of the

Central Division of British New Guinea in the neighbourhood of Port Moresby. There had been so much crossing with imported dogs of European breed in this district that it was impossible in any case to say that an animal was of the pure native breed, but the disease occurred in animals that appeared to be so, and, according to the natives, the disease was endemic before the advent of the white man. The beginning of the disease was in no case observed, but in all those seen there was either a considerable amount of new growth in a breaking-down and ulcerating condition around the vulvae of bitches, or the penis and the inner surface of the prepuce of the male were covered with coarse polypoid masses of growth. In bitches the growth invariably infiltrated the muscular wall of the vagina, but in dogs the condition observed was one of luxuriant surface growth rather than of infiltration. The only case of metastasis occurred in a dog in which both testes were completely replaced by new growth, which had, however, nowhere penetrated the tunica albuginea. Microscopically these growths, whether in dogs or bitches, presented dense masses of polyhedral cells in close apposition and of uniform character, none of which showed any transformation to fibroblasts; simple capillaries ran among the cells, and here and there a thin strand of connective tissue. Polymorphonuclear leucocytes, lymphocytes, and plasma cells were absent in the growth, except superficially, where ulceration had taken place. The nuclei of a considerable number of the tumour cells were undergoing mitosis. These tumours were probably identical with those described in this country by Mr. G. Bellingham Smith and the late J. W. Washbourne as occurring in certain highly-bred dogs; the position and microscopic character of the lesions is identical, and in both series of cases the disease was transmitted by coitus, and invaded the tissues of the vaginal walls, but did not produce metastases in the thoracic and abdominal viscera.

Mr. S. G. Shattock observed that the position of such growths had been contested, and that these specimens were of particular interest in that in one, the growths of the prepuce were associated with growths in the testicles, and this not as a result of continuous extension, but of proper metastasis. The growths in these various situations were identical in structure; it was not that a sarcomatous transformation of what was once a granulomatous formation had taken place. They presented the perfect histological picture of a large round-celled sarcoma, with none of the common signs of inflammation; there were no leucocytes, lymphocytes, plasma cells (Unna), or fibroblasts; mitotic figures occurred in conspicuous numbers. That the growths were contagious was no proof that they were not malignant neoplasms. It was to be remembered that contagiousness and infectivity were relative terms. This was abundantly illustrated amongst infective processes in man and animals, and it was enough in the case of cancer in man that its contagiousness was established, though it might be so in a few cases only. These sarcomata of dogs (which were similar, as Mr. Seligmann had observed, to those described by Bellingham Smith and Washbourne) did not, however, exhibit much tendency to produce metastasis or to invade, but the same phenomenon presented itself amongst tumours included in the group of sarcomata; the fibrosarcoma was locally malignant only. In one of the editions of the *Nomenclature of Diseases* issued by the Royal College of Physicians, the term "non-malignant sarcoma" was actually to be met with. This indicated how widely such tumours differed in malignancy. It seemed preferable to the speaker to class the tumours shown by Mr. Seligmann with sarcomata. To name them—for example, infective sarcoses—and ignore them, would hinder the study of the etiology of malignant tumours in general; and possibly it would be by the investigation of such ambiguous forms or connecting links that the pathogenesis of cancer would eventually be revealed.

LIVERPOOL MEDICAL INSTITUTION.

Frank T. Paul, F.R.C.S., President, in the Chair.

Thursday, November 22nd, 1906.

No-loop Gastro-enterostomy.

Mr. K. W. Monsarrat read a paper on posterior gastro-enterostomy, with special reference to its performance without a loop. He discussed the functional results obtained by this method, particularly in regard to the absence of regurgitant vomiting, and illustrated his paper by clinical cases.

The President stated that he had had the opportunity of seeing the condition present in three cases of gastro-enterostomy suffering from regurgitant vomiting, and failed to find an anatomical explanation. In these and other cases he had met with the only common element was gastric atony. The patients were either neurotics or exhausted cancer cases, and the most perfect "no-loop operation" was no bar to this cause of failure in such people. In past times and recently on special occasions he had done the anterior operation, altogether perhaps twenty times, and it was noteworthy that he had not met with regurgitant vomiting following the operation. When the trouble occurred it could be cured by entero-enterostomy, especially with partial occlusion of the ascending limb of bowel between the intestinal anastomosis and the stomach. Such an operation, however, was difficult to accomplish after a genuinely "no-loop operation."

Mr. Thelwall Thomas said he had always performed posterior gastro-enterostomy by the "no-loop" method, and considered the anterior operation and the Y method open to grave objections. In only one case had he observed any symptom suggestive of "vicious circle," and it was with difficulty that he had then performed entero-enterostomy.

Mr. R. W. Murray and Dr. E. T. Davies also spoke.

Spontaneous Fracture of Urinary Calculi.

Dr. T. R. Bradshaw related a case of spontaneous fragmentation and evacuation of uric acic calculi in a gentleman, aged 80. Fragments had been passed at intervals extending over nearly a year. Calculi had been located previously in one kidney by the *x* rays, and there had been attacks of renal colic and haematuria. He believed, with Prout, that uric acid calculi frequently had a radial structure which facilitated fragmentation, and that the latter was brought about by the action of healthy urine containing a minimal quantity of nitrogenous waste products. He thought urine of this character was not common in the subjects of calculi; hence the infrequency of spontaneous disintegration. He considered that the attempt to dissolve calculi by administering alkalies was useless, and might be injurious by tending to the deposition of phosphates on a uric acid stone.

Erb's Paralysis.

Mr. George G. Hamilton showed a patient with Erb's paralysis caused by a fall by which the brachial plexus was in part ruptured. Only three cases had been previously reported.

General Management of Section Cases.

Dr. W. Blair Bell read a paper in which he first discussed the personal equation of the patient, which must enter largely into all considerations of treatment and prognosis. The preparation of the patient, with a detailed consideration of the value of atropine before the administration of the anaesthetic; the anaesthetic, and the reasons for preferring ether to chloroform; together with points in connexion with the technique of general operative procedures, especially in septic cases, were fully dealt with as essentials to be observed in the prophylaxis of post-operative complications and discomforts. He then described the routine post-operative treatment of a straightforward case, pointing out the value of frequent changes of posture; of early feeding with glucose solution and egg-albumen in water, and the free use of salines by the rectum to prevent shock and thrombosis. He also discussed the treatment of the chief post-operative complications, indicating that most of them could be prevented by the methods of prophylaxis to which he had alluded.

Dr. H. Briggs said the Trendelenburg position was now almost universally appreciated. On the etiology and treatment of post-operative, gaseous, intestinal distension there was now as much obscurity as ever; hence they were unprepared to receive the often-confused and worthless reports of therapeutical and surgical resources.

Sir James Barr said that he had many years ago recommended the systematic use of atropine before the administration of chloroform. He thought strychnine

was very much abused in the present day, but that morphine, in small doses, was very valuable in all abdominal affections, and did not check peristaltic action in the same degree as was generally supposed. He was pleased to find that Dr. Blair Bell took systematic records of blood pressure, as the impression even of the educated finger was often very deceptive, especially when the pulse was of small volume. In cases of collapse and shock the life of the patient often depended on the maintenance of the blood pressure, and about the best drug for that purpose was adrenalin; unfortunately the action of the drug was comparatively evanescent, and it was very difficult to get its physiological effect except when it was injected into the veins, or, in abdominal operations, by injecting it and normal saline solution into the peritoneal cavity. In cases of sepsis the blood pressure fell to a very low point owing to paresis of the splanchnic vessels; in such cases the injection of saline into the veins was only a temporary advantage, as the fluid was at once effused into the tissues, while fluid injected into the subcutaneous tissues was frequently not absorbed; adrenalin then served a very valuable end.

Mr. Thelwall Thomas was a warm advocate of the administration of atropine before ether. He criticized adversely the Clover type of inhaler, which compelled the patient to breathe his own putrid exhalations as well as ether. In recording recoveries from operations following septic peritonitis it had become too much the habit to consider them due to some detail of procedure, such as dry swabbing or flushing, and to forget the two important factors—the resistance of the patient and the virulence of the infection. In the after-treatment of abdominal section cases there was no special rule, but each case had to be taken on its merits, and he did not absolutely forbid morphine in some cases. Alcohol had, as a previous speaker had mentioned, beneficial uses in after-treatment.

Mr. G. P. Newbolt, speaking of general peritonitis, advocated rapid operating and washing out, as time was thus saved and less damage done than when extensive dry swabbing was attempted. In some cases he regarded morphine and alcohol as of the greatest value. His experience in draining gut for distension had not been favourable, and in some cases of marked distension the patients had recovered without that procedure.

Dr. T. B. Grimsdale said that as long as the true general principles were adhered to the small details could be varied *ad infinitum*: if an operation was well performed, it seemed as if one could do almost anything one liked in the after-treatment. The thing to aim at was simplicity.

Dr. W. Fingland referred to the administration of atropine before ether as a most valuable procedure, which he had adopted as a routine practice for many years. It had the effect of abolishing salivation, diminishing after-sickness, and facilitating the administration of the ether. In dental surgery it was equally valuable, as the operator had only the haemorrhage from the extractions to deal with.

Dr. F. W. Bailey thought that chloroform suited some cases better than ether. Ether should be given by the open method—preferably with an Allis inhaler—as this method avoided the difficulty of salivation and reduced the risk during the operation and the danger of subsequent respiratory troubles. He generally began with chloroform, in order to get complete relaxation of the muscles, which was so important in abdominal operations, and then went on with ether.

Mr. R. W. Murray, Mr. G. G. Hamilton, and Dr. E. T. Davies also spoke.

The late Mr. Henry Norris, of Victoria Street, Westminster, bequeathed £500 each to the following institutions: The Westminster Hospital, King's College Hospital, Charing Cross Hospital, Guy's Hospital, St. Thomas's Hospital, the Hospital for Sick Children, Great Ormond Street; the Royal Hospital for Diseases of the Chest, City Road; the Hospital for Consumption, Brompton; the London Hospital, the Royal Free Hospital, Gray's Inn Road; the National Hospital for the Paralysed and Epileptic, Queen Square; the Victoria Hospital, Folkestone; the Belgrave Hospital for Children, the Royal Hospital for Incurables, Putney; the Surgical Aid Society, All Saints' Convalescent Hospital, Eastbourne; and St. Andrew's Convalescent Hospital, Folkestone.

REVIEWS.

THE HYGIENE OF MIND.

Certainly one of the most noticeable signs of our times is the increasingly prominent place which the medical man is taking as social reformer. The chasm which for some hundreds of years separated science and religion, across which priest and man of science engaged only a few years ago in a fierce and at times undignified warfare, is now being bridged over in many places, and a cordial *rapprochement* is being slowly but surely brought about. The theologian of to-day not only admits the validity of scientific explanations of the universe as a natural process, but is becoming imbued with the scientific spirit in pursuing his own investigations, and in consequence leans less and less on tradition and superstition and more and more on the ethical basis of all religions for the inculcation of morality and right conduct. Thus we see to-day the preacher modifying his teaching in accordance with the evolutionary hypothesis on the one hand, and on the other the man of science, like Sir Oliver Lodge, formulating a religious catechism on the basis of scientific knowledge.

This reconciliation after centuries of divorce has not, however, exactly reproduced the *status quo ante*. Science, and particularly medical science, formerly an appanage of the priesthood, is now becoming the predominant partner, and by its true derivation of conduct from physiological and psychological principles must in the future more and more encroach on domains formerly relegated to spiritual advisers. Many books have appeared of late which distinctly indicate this trend of social evolution, but none, perhaps, more clearly than *The Hygiene of Mind*, by Dr. Clouston.[1] Dr. Clouston argues that the man who would write about mental hygiene, in addition to a knowledge of preventive medicine in the ordinary sense, must have

> a special acquaintance with brain structure and function, and must take into special account mental evolution, heredity, psychology, ethics, education, sociology, and the religious instincts. It implies also a special study of mental diseases . . . . and perhaps even more than a study of fully developed mental disease it needs a knowledge of those innumerable mental eccentricities, stupidities, lethargies, impracticabilities, losses of control, obsessions, impulses, associalisms, perversions of feeling, morbid laziness, and all such mental and moral abnormalities as fall short of actual insanity.

Dr. Clouston disclaims his compliance with these requirements, but there is probably no man in the kingdom better able than he to fulfil these special qualifications. The book is rightly addressed to the popular ear, is broadly comprehensive in treatment, and the lessons of a singularly wide and fruitful experience are conveyed in terms of characteristic lucidity. In a book such as this, whose sole aim is to instil such principles of conduct, to counsel such ways of living and thinking, as may avert bodily and mental deterioration, the question necessarily arises at the beginning how far inherited tendencies or defects are modifiable; whether a heredity, if evil, can be antagonized or counteracted, or, if good, aided. On the answer to this question everything depends for the purpose of the mental hygienist. No question, perhaps, has been more hotly debated, and every shade of opinion is to be found, ranging from the free-will position, according to which man is the sole arbiter of his mental fortunes, to the pessimistic determinism which abandons him to the "tyranny of his constitution." Until science, however, can give us very much more information as to the laws of heredity than we have at present, we may glean much from the ripe experience of alienists like Dr. Clouston, and may believe that even if a man may not by taking thought add a cubit to his stature, he may by a sedulous cultivation of the highest of all functions—the power of voluntary restraint or inhibition—and by employing this in repressing some and encouraging other instincts, so alter the balance of power in the mental hierarchy that he may become, if not a new man, at least a different, a saner, and a healthier one.

> For use can almost change the stamp of nature,
> And either . . . the devil, or throw him out
> With wondrous potency.

[1] *The Hygiene of Mind.* By T. S. Clouston, M.D., F.R.S.E., Lecturer on Mental Diseases, University of Edinburgh; Physician-Superintendent, Royal Edinburgh Asylum. London: Methuen and Co. 1906 (Demy 8vo, pp. 284; 10 illustrations. 7s. 6d.)

But to be successful the preludes of mental abnormalities and disorders must be detected at their beginning. As Dr. Clouston well says, "*obsta principiis* is the most valuable motto in all effective hygiene;" and it is precisely in this direction, in giving to patients and others the forewarnings of mental deterioration, in indicating the danger signals on the path of life and the sharp curves of the critical periods when the pace should be slackened, that the book will be found of most value. The applications of "mental hygiene" are many and enter into every period of life, bearing directly upon every phase of man's social activity—his work and his play, his religious life and his relations to others, his physical training, and, above all, his education during the formative period of life. In consequence, its adequate treatment will require many volumes; and if, as seems probable, this branch of preventive medicine should yet take the place its importance in the formation of character would justify, these volumes will doubtless be forthcoming.

In the meantime we welcome Dr. Clouston's work as embodying the sagacious counsels of one who has spent the greatest part of his life in the study of these questions, and every one of whose conclusions will be fully endorsed by the profession as a whole.

The book abounds in pithy sayings, such as that "If we set out at the beginning of adolescence to make every woman a Senior Wrangler and every man a Hercules, we stand a very good chance of turning out poor mothers and fools;" and in trenchant criticism of our educational systems, and particularly of competitive examinations. In more than one place Dr. Clouston advises the greatest care in bringing religious tenets and sanctions before the youthful mind. He says:

> It would really be an unnatural thing to see schoolboys and schoolgirls religious in the largest acceptation of the word. If religious facts and truths are taught, and if they strengthen and give sanction to moral habits, truthfulness, and the simpler virtues of school life, and arouse the feeling of reverence, that is all that can reasonably be expected at this age.

Naturally, he lays great stress throughout on the physical side of culture, and in this connexion makes one or two suggestions which could not but be productive of good if put into effect. One is that it should be made compulsory for all municipalities to provide a playground near their homes for every group of five hundred children of the industrial classes; and another that Parliament might so modify local taxation in outlying country districts as to encourage residence in these, the real breeding-places of the stable-minded, non-nervous elements of our population. "Let the breeding of a good race, in short, become an operative political motive." This comes very near to what Ruskin said many years ago in *Fors Clavigera*, when he pointed out that the principal concern of the State should be not the amassing of wealth or power but the culture of souls.

A NURSE IN THE SOUTH AFRICAN WAR.

The *Tragedy and Comedy of War Hospitals*[2] is an account of some of the experiences of Sister X. during the Boer war, written in the midst of the scenes and occurrences which she describes in a series of letters. In a witty preface Sister X. beseeches the R.A.M.C. reader not to rise up in arms against her. The volume, she says, is purely a relation of personal experiences and not a Blue-book account of events, and no dates are given; so far from judging or criticizing the service, Sister X. thinks that, considering how the R.A.M.C. were bound down by red tape, it was marvellous that they were able to achieve so much.

> To be chained to a dead system is, in its way, just as unpleasant and insanitary as to live chained to a dead body, and this was practically their position. I can really only liken the system to the vermiform appendix: that, in all probability, would have done admirably in a prehistoric period, when we had tails, but not in our present state, when we have none. To carry on my simile, one thing that impressed me as odd was that *all* the victims—namely, officials—although suffering acutely from the inconveniences of appendicitis, were not aware of the fact. They were, I may even say, blissfully unconscious of it, and perhaps, in the circumstances, it was just as well, as summary operations on the spot would have been more than disastrous and out of the question. Such operations have taken place since the war, and great reforms are in progress in the R.A.M.C.; so that if I have laid some emphasis on their shortcomings, it is not with the intention to "show them up," but to point out that the disease from which their system suffered was out-of-dateness and not indifference or carelessness.

The letters are dated from Maritzburg, Mooi River, Ladysmith, Bloemfontein, and Pretoria, Sister X. having by force of will and courage got through from place to place in order to be in the thick of the fight. Her experience is extensive, and her book is remarkable for its great width of outlook; she criticizes keenly, but without a shade of unkindness or bias, and her praise—where she can give it—is warm and unstinted. Sister X. is evidently a cultured and well-read woman, and her book gives matter for reflection to those who realize her capabilities as a critic and observer. For the rest it is a curious mixture of raciness and pathos; the reader finds himself laughing aloud at, for instance, the stories of the railway journey and the ride with the parson in Letter VII, or weeping from sympathy with the pathetic story of the raid on the farm, or with some of her descriptions of wards, where she and her fellow-workers had to face insuperable difficulties with the courageous determination to make light of obstacles. The interest with which those men who went through the war and their wives and families, who suffered at home, will read this book can well be imagined. No one can fail to be the better for reading it, and its lessons, or those of them which have not already been learnt, should be taken to heart by the military authorities.

[2] *The Tragedy and Comedy of War Hospitals.* By Sister X. London: John Murray. 1906. (Demy 8vo, pp. 185. 6s.)

ORNITHOLOGY.

We have received the first three parts of the *Birds of the British Islands*,[3] by Mr. Charles Stonham, F.R.C.S., C.M.G., Surgeon to the Westminster Hospital. These three parts more than fulfil the promise of the prospectus to which we called attention some months ago. The object before the author and publisher was to provide a work on British ornithology giving portraits of birds in black and white for those bird lovers who cannot afford to buy books such as Gould's *British Birds* and Lilford's *Birds of Great Britain*, which are adorned by costly coloured plates. The drawings from Mr. Stonham's work have been made by Mr. L. M. Medland, and are both accurate and characteristic. As examples we may take the picture of two such common birds as the blackbird and hedge-sparrow; in both instances not only is the drawing accurate, but the attitude is true, the wary, almost sedate inquisitiveness of the larger bird, and the perky boldness of the smaller. The size of the paper used, 13 in. by 9¼ in., is large enough to allow most of the drawings to be life-size, all in fact, in the parts so far published, are so. Mr. Stonham has written a description of each bird, its habits, food, nest, eggs, and plumage; particular points of plumage, such as the outspread wing or tail, which the ordinary drawing does not show, are illustrated by special drawings, as are also those nestlings and young birds whose appearance and plumage call for special description. Separate drawings are also given when the sexes differ in any marked degree. The description of each plate includes a note of average measurements and a technical description of the plumage. A good feature in the letterpress is the care taken to explain the etymology of the scientific name, and also of the common name of the bird when this can be ascertained. The book is to be completed in twenty parts, which, it is announced, will be sold to subscribers only, and not separately. The three parts we have seen are in every way admirable, and if this standard is kept up the book will be a treasured possession, not only to every ornithologist but to all who love birds for their own sakes. There is no country in Europe so rich in bird-life as the United Kingdom. Birds form an essential part of the picture which the country-born who has migrated to city or foreign lands summons to his memory of his early home. By them this book will be welcomed not less than by those more fortunate who will find it an invaluable help in identifying the birds of our hedgerows, woods, and shores, and in learning to understand their habits.

No words could convey an adequate idea of the perfection of Messrs. Kearton's photographs and the value of all

[3] *The Birds of the British Islands.* By C. Stonham, C.M.G., F.R.C.S. Parts I, II, and III. London: E. G. Richards. 1906. (Pp. 232: 7s. 6d. each part.)

their volumes dealing with wild-bird life. The entire bird-loving public can testify to the excellence of their work, and praise from an individual reviewer is like a drop in the ocean. We may confidently say that the photographs taken by Messrs. Kearton excel those of every other ornithologist. The book at present under our notice is *Nature's Carol Singers*.[4] Its aims are thus described by the author in his preface: "This little book deals in a concise and popular manner with the appearance, haunts, habits, nests, eggs, songs, and call-notes of the winged melodists that breed in various parts of the British Islands. I have endeavoured to describe them in such a way that the reader may be able to identify them for himself or herself in wood or field, and, where two species bear a similarity of appearance or song, to emphasize the points wherein they differ. . . . Nature is never prodigal in giving up her secrets, but the diligent student is sure to discover some entertaining problem; and I would urge all young people who care for the delights of the country to take up the study of Nature's charming musicians." Certainly Mr. Kearton deserves the gratitude of every boy and girl sufficiently intelligent to take a delight in the study of natural history. This book is none the less instructive because the subject has been treated many times before, for the pleasure and interest to be derived from watching the habits of wild birds is never-ending. However, it is no discredit to Mr. Kearton to admit that *Nature's Carol Singers* is less original and remarkable than *Nature's Wild Ways*, a work which we had the pleasure of noticing in these columns a couple of years ago.

NOTES ON BOOKS.

WE have books on rural folklore, and a host of romances dealing with ancient history and mediaeval races, but Mr. RUDYARD KIPLING is probably the first to bring the tricksy sprit, Robin Goodfellow, into close companionship with imaginary Saxon, Danish, and Roman heroes, and under strange but modern circumstances. As the book is intended for children, it seems only natural that these phantoms of the past should be spirited up by *Puck of Pook's Hill*[5] to relate their life-adventures to a certain pair of favoured youngsters, a boy and a girl, who by Puck's white magic were induced to accept every word as sound fact; they did not question how or whence the warriors were summoned, nor whether they returned after entertaining them with their stirring narratives. Dan and Una must have learnt more through the few visits of Sir Richard, a Norman follower of William the Conqueror, and Parnesius, a Roman in charge of a battalion of troops in Britain, than they could ever have remembered from school history books. It was a happy thought of Mr. Kipling's, for the stories will please other children besides Dan and Una, provided they are not too matter-of-fact to appreciate impossible happenings, a jumble of magic, romance and reality. But we would hardly rank *Puck of Pook's Hill* with the delightful *Jungle Books* and *Just So Stories*. The verses preceding every chapter are written in Mr. Kipling's familiar style, and there is a pleasant vein of humour running through the whole book, verse and prose. The illustrations are not quite worthy of the book; Mr. Kipling should have made it his business to see that they were more distinct and attractive.

Mrs. MOLESWORTH has again been faithful to her charge of providing her many "unknown little friends with a new story each Christmas." *Jasper*[6] is the name of the latest addition to the collection. Though perhaps of a less entertaining nature than some of her earlier books, more especially the fairy tales, it is nevertheless a pleasant little story, written in Mrs. Molesworth's usual simple, breezy style. It relates how two thoughtless, turbulent, quarrelsome little girls were transformed into gentle and amiable children through the grave illness of their little brother, occasioned by their own disobedience. Seven-year old Jasper, in contrast to his sisters, is a model of sweetness and unselfishness. The story is prettily illustrated by Gertrude Demain Hammond. Messrs. Macmillan have also sent us a copy of what is, we presume, a new edition of *The Ruby Ring*[7] also by Mrs. Molesworth, a pretty child's story, which we had the opportunity of noticing two years ago.

The Green Gateway,[8] by FRANCIS GEORGE HEATH, is one of the charmingly written and illustrated little volumes belonging to the *Nature's Doorstep Series*; it is confined almost exclusively to botany, explained in a simple and very attractive manner for young children. The author clearly realizes "the great importance from the national education point of view of inculcating a love at the earliest possible age—directly a child has been taught to read—for the beautiful and wonderful in Nature." We heartily agree with Mr. Heath's ideas, and warmly commend his efforts to interest little children in this fascinating subject.

Mr. F. A. POND, M.R.C.S., L.R.C.P., has published a pamphlet, entitled *Is Red Antimonial Rubber the Cause of Appendicitis?*[9] Mr. Pond has done well to draw attention to the presence of sulphide of antimony in red rubber and the undesirability of using this rubber in putting up articles of food and drink. The risks of poisoning through its use are extremely small, but when other forms of rubber free from antimony are available, it is just as well that they should be used in preference to the red antimonial kind. The connexion between the use of this rubber and gastro-intestinal disorders is a matter worthy of consideration, but Mr. Pond's view that it is to be held responsible for the great increase in recorded cases of appendicitis during the last twenty years is not based on arguments which carry conviction.

BRITISH MEDICAL BENEVOLENT FUND.

AT the November meeting of the Committee twelve applications were received, and grants amounting to £141 voted in relief. An annuity of £20 was declared vacant, and filled by the election of a suitable candidate.

The receipt of legacies of £500 and £100, bequeathed by Dr. Thomas Trollope and Dr. John Cameron respectively, was announced, and their investment in Great Northern 3 per cent. debenture stock sanctioned.

Appended is an abstract of the cases assisted:

1. Widow, aged 50, of L.R.C.P., L.R.C.S.Edin., who practised in Staffordshire and as a civil surgeon in South Africa during the war. Seven children, aged 21 to 9, the three eldest just self-supporting. Quite unprovided for at husband's death. Recommended by Dr. H. Malet. Voted £12 in twelve instalments.

2. Widow, aged 64, of L.R.C.P., L.R.C.S.Edin., who practised as superintendent of a private asylum. Only provision the sum assured by a small life policy, and not yet received. Five children, but only one able to give any help. Recommended by Dr. H. Whitby Phillips. Voted £10 in one sum.

3. L.R.C.P.Edin., aged 55. Was operated on early in the year for a new growth, which has now recurred, and quite incapacitates applicant. No means, and only very slight help from children. Recommended by Mr. Edmund Owen, Vice-President. Voted £20 in two instalments at intervals of three months.

4. Daughters, aged 86 and 83, of a surgeon who practised in South Devon. Applicants have been hitherto helped by a brother, recently deceased, and their only income is a pension from the United Kingdom Beneficent Association. Recommended by Dr. H. A. Martin. Voted £18 in twelve instalments.

5. Daughter, aged 35, of late M.R.C.S., L.S.A., who practised in Yorkshire. No income, and unable to undertake any permanent employment on account of ill health. Recommended by Mr. Forrest Leeder, Honorary Local Secretary. Voted £10 in two instalments.

6. Widow, aged 56, of M.R.C.S., who practised as a *locum tenens*. Unprovided for at husband's death, and unable to obtain work on account of her age. Slight help from a son-in-law. Relieved three times, £34. Recommended by Dr. J. Mitchell Bruce, Vice-President. Voted £12 in twelve instalments.

7. Daughter, aged 64, of late M.D.Edin., who practised in Scotland. Lives with her mother, whose income is very slender, and receives a small allowance from the Indigent Gentlewomen's Fund. Relieved three times, £18. Recommended by Dr. J. M. Hunt. Voted £6 in six instalments.

8. Daughter, aged 60, of late M.D.Edin., who practised in Manchester. Is companion to an invalid lady, but only receives a small salary. Relieved twice, £24. Recommended by the Salters' Company. Voted £12 in twelve instalments.

9. Daughter, aged 54, of late M.R.C.S., L.S.A., who practised in Kent. No income; dependent on needlework and the kindness of friends. Relieved twice, £20. Recommended by Dr. N. W. Barrington. Voted £12 in twelve instalments.

10. Widow, aged 64, of M.D.Edin., who practised in London. Supported herself for several years after husband's death, but

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[4] *Nature's Carol Singers*. By Richard Kearton, F.Z.S. Photographs by Cherry and R. Kearton. London: Cassell and Co. (Cr. 8vo, pp. 251. 6s.)

[5] *Puck of Pook's Hill*. By Rudyard Kipling. London: Macmillan and Co. (Crown 8vo, pp. 305. 6s.)

[6] *Jasper; a Story for Children*. By Mrs. Molesworth. London: Macmillan and Co. 1906. (Cr. 8vo, pp. 235. 4s. 6d.)

[7] *The Ruby Ring*. By Mrs. Molesworth. London: Macmillan and Co. (Cr. 8vo, pp. 213. 2s. 6d.)

[8] *The Green Gateway, a Peep into the Plant World*. By F. G. Heath. London: The Country Press. (Cr. 8vo, pp. 138. 3s.)

[9] Liverpool: Edward Howell. London: Simpkin, Marshall, and Co. 1906.

was advised to resign the post she held on account of ill health, and is now dependent on a married daughter who can ill afford to help. Relieved five times, £50. Recommended by Mrs. Stamford Felce. Voted £12 in twelve instalments.

11. Daughter, aged 36, of late L.R.C.P., L.R.C.S.Edin., who practised in Northumberland. Endeavours to support herself by taking resident patients, but at present is without any. Relieved four times, £35. Recommended by Sir George Hare Philipson. Voted £5.

12. Widow, aged 50, of L.R.C.P., L.S.A., who practised in Yorkshire. No income; lets lodgings; only child, a daughter, stays at home to assist. Husband's means exhausted by long illness before death. Relieved six times, £72. Recommended by Dr. J. Gordon Black. Voted £12 in twelve instalments.

THE REPORT OF THE INCOME-TAX COMMITTEE.

The report of the Select Committee appointed to inquire into the practicability of graduating the income tax, and of differentiating, for the purpose of the tax, between permanent and precarious incomes, was issued on November 29th. The feature of the report is the declaration of the Committee that both graduation and differentiation are practicable.

Graduation.

The Committee point out that the income tax is already graduated by the system of abatements applicable to all incomes not exceeding £700 a year, and that it remained for them to consider how far graduation could be extended beyond its present limits. The report deals first with the method of collecting a graduated tax directly from each person upon his own declaration of income; and the conclusion of the Committee is that direct personal assessment for the whole tax is not practicable in this country, mainly because such a system would involve the abandonment of the present method of collecting the tax at the source of income where possible, for example, by deducting it from mortgage interest and dividends before payment, and the consequent loss of a considerable amount of revenue.

The second method of graduating the tax is by means of the imposition of a super tax, which is defined as "a second income tax distinct from and supplementary to the existing tax, to be levied on individuals by direct personal assessment." The Committee have had prominently before them a suggestion that the existing tax shall be left undisturbed, subject to such changes in rate as may from time to time be determined, but that all persons having a net annual income of, say, £5,000 and upwards, should be required to make a separate return showing the amount of their income, and to pay an additional tax upon it according to a graduated scale. This proposal they regard as practicable, although they call attention to some difficulties and disadvantages inseparable from it, the chief being the not unnatural reluctance of persons in receipt of large incomes to declare their actual income, when the object for which the information is required is the imposition of an additional tax.

The Committee next deal with graduation by degression—that is, by the imposition of a single *nominal* rate of tax, in combination with the allowance of abatements from the smaller incomes, thus in effect reducing the *real* rate of tax charged upon such incomes. This is the system at present in operation to a limited extent, and the Committee has considered how far it could be extended without introducing serious difficulties and objections. Their conclusion is as follows:

> Graduation of the income tax by an extension of the existing system of abatements is practicable; but it could not be applied to all incomes from the highest to the lowest with satisfactory results. The limits of prudent extension would be reached when a large increase in the rate of tax to be collected at the source was necessitated, and the total amount which was collected in excess of what was ultimately retained became so large as to cause serious inconvenience to trade and commerce and to individual taxpayers. Those limits would not be exceeded by raising the amount of income on which an abatement would be allowed to £1,000 or even more.

Differentiation.

In dealing with the question of the practicability of differentiating for income-tax purposes between permanent and precarious incomes the Committee felt it desirable at the outset to define clearly the meaning of the terms "permanent" and "precarious." Other terms which have been used are "industrial" and "spontaneous," "earned" and "unearned," incomes resulting from "investment," and incomes from "personal effort." They say that

> probably the words "earned" and "unearned" most accurately represent the distinction we have in our minds.

They admit, however, their inability to define logically and satisfactorily what constitutes an earned as distinguished from an unearned income.

> There is a large number of cases which for practical purposes must be placed under the heading "earned" into which the elements of investment and return upon capital distinctly enter. Private traders and manufacturers earn their income by personal effort and supervision combined with the investment of capital in their business. The profits of public companies will usually be regarded as "unearned," and as being derived from "investment." But a private trader may turn his business into a company and devote as much personal attention to its supervision as he did before. The line of demarcation is not strictly logical or accurate, but if the profits of private traders be regarded as earned and those of public companies and similar undertakings as arising from investment, a rough working distinction would be established which would probably meet with general acceptance. . . . The owner of land who cultivated it himself would be regarded as earning the income which he derived from it, but the owner of an estate who let it to others to cultivate would not be regarded as earning the net income which he derived from the rents of that estate, although he might act as his own steward and devote much time to its supervision.

Having in this way practically substituted the term "earned" for "precarious," and "unearned" for "permanent," in their reference, and having so defined an earned income as to include not only the incomes of professional men and employés but also those of traders and of landowners farming their own lands, the Committee proceed to recommend a differentiation in favour of earned incomes below a certain amount. They consider that:

> The existing feeling in favour of some differentiation in the amount of the tax levied upon earned incomes does not require that all incomes irrespective of size should receive privileged treatment. . . . The more extensive and remunerative a business is, the larger, as a rule, is the part which capital plays in it, and the more practicable and equitable it will be to regard the profit derived from it as an income derived from an investment which is personally supervised, as distinguished from an income earned by personal effort.

A specific recommendation is then made that differentiation between earned and unearned incomes should be limited to incomes not exceeding, say, £3,000 a year. The Committee

> are of opinion that such differentiation is practicable and can most conveniently be carried into effect by charging on such incomes a rate of tax lower than the normal or foundation rate. This class of income is almost invariably directly assessed and collected. It would, therefore, be possible to charge the tax directly at the reduced rate.

Summary of Recommendations.

The practical working out of the Committee's suggestions, both as regards graduation and differentiation, is stated in a paragraph which we reproduce in full:

1. There would be an extension of the present system of abatements to incomes of £1,000 a year, and possibly more.
2. In the case of the earned portion of incomes below the limit of abatement, there would be a lower rate of tax in addition to the reduction in the amount of incomes on which the tax would be charged.
3. In the case of earned incomes between the raised limit of abatement (£1,000) and the limit of differentiation (£3,000), the rate of tax would be lower than the normal rate.
4. The normal rate of tax would be levied upon incomes from property and investments above the limit of abatement, and on earned incomes above the limit of differentiation.

It is pointed out that the Committee have kept in mind the fact that a tax, to be practicable, must be the means of raising revenue in a simple and effective manner, and possess elasticity in times of national exigency. They consider that the scheme of graduation and differentiation suggested would satisfy these conditions, and that whenever it became necessary to increase the yield of the tax, the additional burden could be placed upon those who would be most able to bear it.

General.

The Committee endorse the opinion expressed in the report of the Departmental Committee of 1904-5, that a personal declaration of taxable income by everyone called upon to make it should be compulsory; and think that such a requirement would be of value in preventing

evasion of the tax, and in supplying information on which a system of graduation and differentiation could be based.

Some interesting statements appear at the end of the report on the bearing of the death duties on graduation and differentiation. From a calculation made by Sir Henry Primrose, Chairman of the Board of Inland Revenue, it appears that the existing estate duties, if regarded as a tax upon the person who succeeds to the estate, are equivalent to an income tax payable yearly during the life of the inheritor, of

9d. in the pound on estates yielding an income of from £40 to £400 a year;

1s. 6d. in the pound on estates yielding an income of from £4,000 to £6,000 a year; and,

2s. in the pound on estates yielding an income of £40,000 a year and upwards.

And there are further taxes in the form of legacy and succession duties which increase these charges.

The Committee, therefore, concludes that if the income tax and the death duties be regarded together as a form of income tax,

there is already a very substantial graduation of taxation on incomes derived from large estates, and differentiation between large incomes derived from personal exertion and those derived from inherited property.

THE MILK SUPPLY.

WOOLWICH AND WILTSHIRE.

DR. SIDNEY DAVIES, M.O.H. for Woolwich, having ascertained that more than half the milk sold in the borough came from various farms in Wiltshire, undertook to inspect the farms. He visited twenty-two farms and six local milk dépôts.

Wiltshire is said to be the only county having regulations under the Dairies, Milkshops, and Cowsheds Order in force over its whole area. In two districts the following regulation, which is a distinct advance on those usually in force, have been made:

No purveyor of milk may cause or suffer any cow to be milked unless at the time of milking the udders and teats of such cow are thoroughly clean and free from all infection and contamination.

Dr. Davies found that the existence of this regulation was generally known, but adds significantly:

In two or three instances I found that provision was made in the way of basins, soap, and towels for the milkers to wash their hands; so that it is possible to say that the regulation is actually complied with at some farms.

The cows are kept out in the fields all the summer and at several farms by day in winter as well. Dr. Davies considered that the light and ventilation in the cowsheds was, as a rule, ample, but in ten farms the pavements and channelings were defective, so that it was impossible to keep the sheds clean, and at eight farms the yards on to which the sheds opened were in a very dirty condition.

Of the twenty-two farms visited ten only appeared to have a sufficient water supply, three had no supply on the farm, the cows having to drink at a neighbouring stream. In most cases the water was obtained from a shallow well, and Dr. Davies could not ascertain that there was any arrangement for periodical analysis. The medical officer of health at Tisbury called attention in his report last year to the frequent neglect of the regulation as to cleanliness of the cows' udders and the hands of the persons milking. In the report for the previous year he had called attention to the amount of dirt in the milk when delivered at the station dépôt in the following terms:

In my annual report for 1903, I drew attention to the fact that I did not consider that sufficiently cleanly methods were adopted in collecting milk from the cows, and in support of this view the result of an investigation into the amount of extraneous matter left after the milk had been strained was given, namely, that on the day the note referred to each gallon of milk contained 1.58 gr. of cow-dung, hair, and straw when delivered at the milk dépôt.

On November 5th, 1904, I again estimated the amount of impurities present in that day's delivery at one of the dépôts, with the result that the dried residue from 710 gallons weighed 234 gr., equal to ⅓ gr. per gallon. This is a considerable improvement upon the result of the previous estimation, though still far from satisfactory, considering that the milk is supposed to have been already strained before being delivered at the factory.

Country Station Dépôts.

The general plan of the large milk companies is to have a dépôt in the immediate vicinity of a railway station. The farmers send their milk, as soon as it is drawn and strained, to the nearest dépôt, where it is cooled, and, if necessary, pasteurized. It is then sent off twice a day by train to Waterloo Station, and from there to Woolwich. Milk drawn in the morning is usually sent in time for delivery in the afternoon, and afternoon's milk on the following morning. If milk is delivered at the dépôt in time to go off immediately, it is only cooled, but, if it arrives late and has to be kept for several hours until the next dispatch, it is pasteurized before cooling, and kept in a cool shed until the time for the train. In such cases, presumably, the milk is not delivered for twenty-four hours after being drawn. The rule is to pasteurize milk at a temperature of 160° to 170°, and to cool it to the temperature of deep well water, which is generally from 52° to 56°. Cooling is sometimes assisted by ammonia and brine.

The dépôt usually consists of one large shed in which are conducted all the processes of emptying the milk from the churns into the receiver, straining it, pumping it up into a tank, passing it through the pasteurizer, and from that through the cooler, and thence into the churns for conveyance by rail. Two or three other sheds may be used for purposes of washing milk cans, storage, etc. Upon these arrangements Dr. Davies makes the following observations:

The sheds in which the milk is manipulated are practically open to the public; not only do the farmers' men enter to empty their churns, but they are exposed on one side, through large doors always open, to the outer air. The cooler is usually a large structure measuring some 5ft. by 4ft., and which freely exposes the milk to the open air. Steps should be taken that the air which comes into contact with milk should be kept as pure as possible, and nobody but the man immediately in charge allowed to go near it: instead of which it is usually freely exposed to the dust from an unpaved and often dirty yard and adjoining road, as well as to possible contamination from the breath, hands, or clothes, of any of the numerous employés who enter the dépôt.

The machine employed for pasteurization allows the milk to pass continually through it, but the degree and duration of the heating is insufficient to destroy disease-microbes. In commenting upon the management of the dépôts Dr. Davies says:

Considering the importance of the manipulation carried on at them, and the simplicity of constructing a perfectly sanitary milk dépôt, it must be stated that the five dépôts belonging to the two large companies, *A* and *B*, are in a much less satisfactory condition than the farms.

In concluding his report Dr. Davies makes the following recommendations:

1. The water supply to every farm and milk dépôt should be analysed by the county council, and the regulations as to water supply strictly enforced.

2. The regulations as to light, paving, and cleanliness of cowsheds, and cleanliness of cows' udders and teats, and milkers' hands, should also be diligently enforced.

3. A necessary corollary of the foregoing requirement is that provincial medical officers of health and sanitary inspectors should not require annual re-election, but should have the same security of tenure as metropolitan sanitary officials. They cannot otherwise be expected to commit official suicide by condemning the premises of those who can any year refuse to reappoint them.

4. Milk dépôts should be constructed with far more regard to protection of the milk from contamination. The milk should be exposed as little as possible. No milk should be manipulated or exposed to the air except in a spotlessly clean dairy, which no one enters but the dépôt manager.

5. Dépôt managers and employés should be better educated men, acquainted with the scientific reasons for the process which they carry out.

6. The Local Government Board should draw up new model regulations for dairies which are milk dépôts, and press local sanitary authorities to adopt and enforce them.

7. All cowsheds and milk dépôts should be annually licensed by the county council, and no milk allowed to be sold from unlicensed premises. This is the case now as regards cowsheds in the County of London.

8. The county council should employ a veterinary surgeon to periodically examine all milch cows whose milk is intended for sale. Only in this way can the regulation be enforced that forbids the sale of milk from diseased animals, including cows with tuberculosis of the udder.

9. Milk should only be conveyed by train in locked or sealed churns, and in suitable vans which are effectually cooled in summer.

Dr. Davies is to be congratulated on having made this inquiry. If all his colleagues would follow his example and see that their reports reached the hands of the rate-

payers there is no doubt that the milk supply would soon improve. His experience with regard to the distribution of milk in Woolwich, which is carried out, not directly by the companies which purchase the milk from the farmers, but by so many middlemen and retailers that in one instance it passes through the hands of five different dealers, proves the futility of schemes of milk inspection based on an attempt to trace the Odyssey of milk from cow to customer.

Wensleydale Pure Milk Society.

The Wensleydale Pure Milk Society is an encouraging sign of the times. The Society, which is registered under the same Acts as co-operative societies, began business in October, 1905, and the profit is limited to 5 per cent., the real object of the Society being, first of all, to improve the sources of the milk supply of towns, and secondly, having secured the milk in a pure condition, to see that it is not contaminated between the sources of supply and delivery at the doors of the consumers.

The bottling dépôt is at Northallerton, and bottled milk—ice-cooled and produced under standard regulations for securing cleanliness—is now being supplied to the following places, namely, Newcastle-on-Tyne, West Hartlepool, Middlesbrough, Wallsend, South Shields, Leeds, Scarborough, Hebburn, Jarrow, and Murton Colliery.

The members of the Society hope eventually to give the producers some real interest in the business beyond the price of their milk by introducing a system of profit-sharing, but some time must naturally elapse before the Society can be in a position to do this. Mr. S. W. Meyer, Sheriff of York, is the Chairman, and Dr. Moore Ede and Dr. Ethel Williams are among the members of the Managing Committee.

A Bacteriological Inquiry.

A Joint Committee of the County Councils of the East and West Ridings of Yorkshire and the county boroughs of Bradford, Hull, Leeds, Rotherham, and Sheffield is about to appoint a bacteriologist to carry out an investigation during the ensuing year as to the conditions of the milk supply of the district. This decision has been reached after the consideration, at a meeting between the authorities, of a memorandum prepared by Dr. J. Mitchell Wilson, Medical Officer of Health for the East Riding. In this memorandum he argued that whereas it is common experience that fatal cases of infantile diarrhœa are most numerous during the summer and autumn, the conditions under which the cows are then being fed and generally milked are such as to render contamination at the farms and during milking less likely than during any other part of the year, since during the summer the majority of the cows never enter a cowshed, but live continuously in the open air. It is well known, of course, that if the number of bacteria in milk when first drawn is compared with the number in a sample of the same milk which has been transmitted to a town dwelling in the usual way, an enormous increase will be found to have taken place; whereas a sample of the same milk bottled on the farm and conveyed direct to the consumer would show a very much smaller increase. The difference may be taken as a measure of the impurities which it receives in transit. The object of the investigation to be undertaken is to study the varying conditions of samples of milk in every stage. The remuneration offered to the bacteriologist is £250; and full particulars of the appointment will be found in an advertisement in this issue of the British Medical Journal.

At the meeting of the Royal Meteorological Society on November 21st, Mr. W. Marriott read a paper on the unusually hot and sunny weather of the last summer. On four consecutive days—August 31st to September 3rd—the temperature rose above 90°. There was no previous record of readings above 90° for a similar period. When the mean maximum temperature for the week reached 72° the death-rate at once began to rise, the increase being due almost entirely to deaths of infants under 1 year of age. Owing to the drought keep for cattle was deficient, and there was a falling off in the milk supply of as much as 30 per cent.

At a meeting of the Medical Officers of Schools Association at 11, Chandos Street, W., on Thursday, December 13th, at 3.45 p.m., Dr. Ralph H. Crowley will read a paper on the Need, Object, and Method of the Medical Inspection of Primary Schools.

THE COMPOSITION OF CERTAIN SECRET REMEDIES.

III.—Kidney Medicines.

The next group of nostrums which we have taken for analysis consists of those which are put forward for the cure of kidney troubles. Several of these are in the form of pills, while others are liquids. The two principal drugs employed are oil of juniper and potassium nitrate, separately or together; in some cases aperients are added. Altogether extravagant claims are made for some of the articles, as is usual, of course, with proprietary medicines; we refer more fully to these in individual cases.

In analysing complex mixtures, such as some of these nostrums are, it is of course not possible to attain the same precision as when dealing with medicines which consist chiefly of inorganic salts, as in the case of nostrums for epilepsy, dealt with in an earlier article. A vegetable extract containing no definite active principle, such as, for instance, extract of taraxacum, cannot be identified by any direct test; if such an extract is mixed with another, with a powdered drug, an essential oil, or other preparation, its identification with perfect certainty may become almost impossible. The large variations, again, which may occur in the proportion of solid matter in a tincture or infusion, as well as the variations in the relative proportion of the different constituents of drugs, prevent the results of analysis being translated with certainty into the formula from which the mixture was compounded. These considerations apply to several of the articles in the present list; while the principal ingredient or ingredients in each case can be determined with little or no possibility of error, the subsidiary ingredients in some cases cannot be so determined; we have endeavoured to indicate in each case the possibility of such minor errors. Full use has been made of check methods, by compounding mixtures according to the formulae obtained by analysis and comparing them with the originals.

Doan's Backache Kidney Pills.

Put up by Foster-McClellan Co., 8, Wells Street, Oxford Street, London, W. Price 2s. 9d. per box, containing 40 kidney pills and 4 dinner pills.

These pills are probably familiar by name to most people from the extensive way in which they are advertised in the newspapers. They are described on the wrapper of the package as a "Specific for kidney complaints and all diseases arising from disorder of the kidneys and bladder. Cure Back-ache, Weak Back, Rheumatism, Diabetes, Congestion of the Kidneys, Inflammation of the bladder, Gravel, Bright's disease, Scalding Urine, and all Urinary troubles." A circular is enclosed with the box, in which a dissertation on "Diseases of the Kidneys and Bladder" is given, together with directions for taking the pills for various complaints. The following extracts are taken from the circular: "Doan's Backache Kidney Pills are composed of rare and valuable medicinal agents in a combination best adapted to the speedy relief and cure of Kidney Disease, urinary and bladder affections, and all diseases resulting therefrom. They are purely vegetable, containing no ingredients of a deleterious nature, and may be taken by the most delicate person, with every confidence of their giving quick and permanent relief, without anyafter ill effects." ". . . they are the only medicine known that quickly relieves and permanently cures." "This medicine has restored to health thousands of women. As a means of healing the kidneys, and as a tonic to the whole female constitution, it is unequalled." The last sentence of the next extract shows ingenuity and originality: "Chronic cases of long standing. These frequently come under our notice, and we hear that the patient, after trying every known remedy and failed (*sic*), has despaired of ever getting relief. Now in all stages of Kidney Disease this is where Doan's Backache Kidney Pills are the most needed, and, indeed, are the only remedy possible to give permanent relief. But it takes time. One cannot expect to be cured in a few weeks. . . . In some cases three or four boxes of Doan's Backache Kidney Pills are sufficient: but in these cases of long standing, 8, 10, and even 20 or 30, are required to effect a cure. But they will cure in the end if the patient

perseveres. We are emphatic on this point, because in kidney disease patients are so easily discouraged. It is one of the symptoms of the disease."

The directions are to take from two to four of the dinner pills at night before commencing to take the kidney pills; then to begin with one kidney pill after each meal and one at bedtime, increasing the dose to two or three, after a short time of taking them. For children under 8, the dose is given as half a pill after each meal and at bedtime.

The kidney pills are ovoid in shape, and of a brown-grey colour externally, with sugar-coating beneath the thin, coloured layer; after removing the coating, the average weight of the pills is about 2 gr. Analysis showed them to contain oil of juniper and (in spite of their "purely vegetable" nature) potassium nitrate, together with a considerable proportion of a resinous substance, and of powdered fenugreek seeds and wheat and maize starches. Examination of the resin showed it to be derived from a coniferous source, and on comparison with various coniferous resins it agreed in characters with that of *Abies canadensis (Pinus canadensis)*, known as hemlock pitch. The proportions of the different ingredients were determined by analysis; the oil of juniper, in such small quantity, can only be approximately determined, and the amount found was confirmed by comparison of a pill containing this quantity with the pill under examination. The following formula gives a similar pill:

Oil of juniper	1 drop
Hemlock pitch	10 gr.
Potassium nitrate	5 „
Powdered fenugreek	17 „
Wheat flour	4 „
Maize starch	2 „

In twenty pills.

Estimated cost of the materials of the 40 kidney pills and 4 dinner pills, one halfpenny.

The dinner pills, of which 4 are included in the box of kidney pills, are also supplied separately in boxes of 50 for 1s. 1½d.; these were examined as well as the kidney pills.

It is stated on the label that "Doan's Dinner Pills Cure Constipation, Sick Headache, Biliousness, Dizziness, and all deranged conditions of Stomach, Liver, and Bowels." The directions are—"For adults, 1 to 3 Pills; for children, ½ to 1 Pill." These statements and directions are amplified in a handbill enclosed in the package.

The pills are ovoid and enclosed in white sugar coating: the average weight of one, without coating, is about ¾ gr. Analysis showed the presence of podophyllin, aloin, oil of peppermint, a resin that appeared to be jalap resin, cayenne, liquorice, gum, maize starch, and a small quantity of an extract that resembled extract of henbane; as the latter extract has no sufficiently well-marked characters to distinguish a small quantity of it perfectly when mixed with larger quantities of the other drugs named, the identity of this ingredient could not be completely established. The following formula gives a similar pill:

Oil of peppermint	1 drop
Podophyllin	3·8 gr.
Aloin	6·9 „
Jalap resin	0·8 „
Powdered capsicum	0·5 „
Powdered liquorice	0·6 „
Maize starch	0·5 „
Acacia gum	1·5 „
Extract of henbane	1·5 „

In twenty pills.

Estimated cost of materials of 50 pills, one penny.

Dodd's Kidney Pills.

Prepared by the Dodd's Medicine Co., London; 35 in a box for 2s. 9d.

The label round the box states: "A positive cure for all kidney diseases: cures rheumatism, Bright's disease, diabetes, back-ache; cures female weakness, purifies the blood, cleanses the system." The following extracts are from a circular enclosed with the pills: "Experience has proved that Dodd's Kidney Pills are the only cure for kidney diseases." "Dodd's Kidney Pills is the only remedy that has cured Bright's Disease." "Diabetes—Dodd's Kidney Pills will cure this disease." "Dropsy—The first object in treating dropsy is to restore the kidneys to their normal condition. This is what Dodd's Kidney Pills do, and hence their peculiar efficacy for this disease." "Dodd's Kidney Pills will cure any form of heart disease." "What is known as the 'change of life' is a period of great importance to woman. At such a time, no remedy could be mere effective than Dodd's Kidney Pills." "These pills . . . consist of the active principles of vegetable substances, which have been carefully studied by the discoverer of the remedy, both as to their nature and effect, and finally given to the world in the form of a sugar-coated pill, which to-day is universally acknowledged to be the best kidney remedy obtainable."

The directions are: "Take one to three pills morning, noon, and night, before or after meals. In the majority of cases one pill is a dose."

The pills are ovoid in shape, coated and coloured red on the outside. The colouring-matter forms a strongly fluorescent yellow solution, showing it to be fluorescein or an allied substance; the coating is of sugar on the outside, with an inner layer consisting of chalk. In spite of the statement quoted above, that the pills consist of the active principles of vegetable substances, it is no surprise to find that the principal ingredient is potassium nitrate, of which each contains about 1 gr.; the other constituents are sodium bicarbonate, soap, hard paraffin, wheat flour, powdered turmeric, two resins respectively soluble and insoluble in ether, a small quantity of a bitter substance, and a little extractive. Examination of the resins showed that they agreed in their characters with the two constituents of jalap resin; the bitter substance was not alkaloidal, and after careful comparison with a large number of bitter principles was found to agree with that of cascarilla. The following formula gives a pill which is practically identical with the one under examination.

Extract of cascarilla (alcoholic) ...	0.15 gr.
Jalap resin	0.3 „
Hard soap	1.0 „
Potassium nitrate	1.0 „
Sodium bicarbonate	0.85 „
Hard paraffin	0.5 „
Turmeric	0.3 „
Wheat flour	0·8 „

In one pill.

Estimated cost of materials of thirty-five pills, one penny.

Dr. Var's American Kidney Pills.

Sole proprietor, G. W. Harrison, 118, Broad Street, Reading; 14 in a box for 1s. 1½d.

On the outside of the package these pills are stated to "correct the stomach and stimulate the liver and kidneys." In a circular enclosed with the box they are referred to as "Certain Corrective! Positive Cure!" while the obscurity of the following is perhaps intended to make the warning conveyed more effective: "Do not let slight or severe Kidney Disorders develop into Cancerous Decay, Twin Complaints—Kidney Liver Diseases. Cure them! Put both in strong active order. There is not a safer, surer, speedier remedy in existence. Myriads of people thank Providence for Dr. Var's Kidney Pills. *Should be taken for Natural Weak Kidneys.*" The directions are "One to be taken three times a day after meals."

The "pills" are in reality flexible capsules, each containing about 5½ gr. of a soft mass in which oils of juniper and peppermint can be recognized in small quantity; examination also shows the presence of potassium nitrate, of small quantities of iron and magnesium compounds, and of lycopodium, together with powdered squill, wheat starch, and a "green" extract containing a trace of alkaloid, and which appears from its characters to be a mixture of extracts of henbane and taraxacum. The iron is perhaps an accidental impurity, and the magnesia and lycopodium are probably added to assist in making up the mass and not for therapeutic effect. The following formula gives a similar mass:

Oil of peppermint	1 drop
Oil of juniper	8 drops
Potassium nitrate	8 gr.
Powdered squill	3 „
Wheat flour	6 „
Extract of henbane	7 „
Extract of taraxacum	21 „

In ten capsules.

Estimated cost of materials of 14 capsules, under three farthings.

Fitch's Kidney and Liver Cooler.

Inventor, W. B. Fitch, Mornington Road, S.E. Rather under four fluid ounces in a bottle for 2s. Directions: "Take two teaspoonfuls mixed in water every morning."

The label and package of this article appear to have been devised for the purpose of suggesting, without explicitly stating, that it is a cure for the complaints named. On one side appears the following (divided into sections by use of different type): "Oh my back, how it aches! Why? Fitch's Kidney and Liver-Cooler. Trade Mark. Sluggish Liver. Inactive kidneys. Over-heated blood. Bad urine. Acts chemically by absorption"—and on the other, "Oh my back, how it aches! Why? Because your Kidneys and Liver are Sluggish, and a deposit has formed in the urine which will contaminate the whole system unless dissolved chemically. Try this; you won't regret. It's a grand conception."

Analysis showed the liquid to consist simply of a solution of potassium nitrate in water, the strength being 56 gr. in a fluid ounce—that is, 14 gr. in a dose. Estimated cost of contents of bottle, one-eighth of a penny.

We shall give the results of the analysis of some other nostrums for kidney complaints in an early issue.

LITERARY NOTES.

Professor Osler's Harveian Oration, entitled the Growth of Truth as Illustrated in the Discovery of the Circulation of the Blood, has been issued in pamphlet form by Mr. Henry Frowde. It is needless to say that the University printer has done his share of the work excellently well, though there are at least two slips to show that the Oxford University Press is subject to the law of ordinary humanity. At p. 37 "Reynaud," the author of the *Les Médecins au temps de Molière* is referred to; Maurice Raynaud's fame as the godfather of a disease of the circulation should have ensured him a better fate, particularly in a monograph on Harvey. At p. 41 Riolan is credited with *Opuscula Anatomia*, a title which as a Latinist he would doubtless have repudiated with some heat. Of the substance of the oration our opinion was expressed in a leading article which appeared in the British Medical Journal of October 27th.

The fifty-seventh volume of the *Transactions* of the Pathological Society, which has lately been issued, contains, as is now customary in this publication, abstracts in Latin prefixed to several of the papers. Of the wide variety of subjects thus dealt with—and on the whole very satisfactorily—a notion may be formed from the following list: T. W. P. Lawrence: *De hermaphroditismo vero apud homines*; S. G. Shattock and C. G. Seligmann: *De hermaphroditismi exemplo veri in* Gallus bankiva; S. G. Shattock: *De ratione mammam inter et fetum*; Leonard S. Dudgeon and Athole Ross: *De cellulis phagocytis ut indagatis per horas viginti quattuor postquam in cavum abdominale injectae sunt bacillorum culturae aut cretae pulvis, etc., una cum effectubus in sanguine et in ossium medullâ concurrentibus*; and Charles Bolton: *De sero gastrotoxico*. As an example of Pathological (An thou lovest us, Master Printer, see thou thrust not the capital down to "lower case" here, or verily equivocation will undo us) Latinity, we may quote the following passage from the summary of Dr. Bolton's paper:

Postquam cellulae in cavum abdominale cuniculi injectae sunt, cuniculi serum sanguinis ad caviam toxicum fit; et hoc serum in cavum abdominale injectum necrosem ac ulcerationem membranae ventriculi mucosae efficit.

Good honest modern Latin, which doubtless would have made Quintilian stare and gasp, but which adequately conveys a meaning that would be obscured by pseudo-classical affectations. It may be mentioned that this is not improbably the penultimate volume of these *Transactions*, as next year the Pathological Society will be incorporated in the new Academy or Society of Medicine. We venture to propose for it a new motto suitable for its new condition: *Fluctuat nec mergitur*.

The *Journal of the Royal Army Medical Corps* for November contains an account of the last moments of Lord Nelson, abstracted by Major E. M. Hassard, R.A.M.C., from the *Medical and Physical Journal* of 1805, now in the library of the Military Hospital, Shorncliffe. The volume, which at one time belonged to Sir J. M. MacGrigor, Bart., was presumably presented by him to the library.

To the Editors of *The Medical and Physical Journal*.

Gentlemen,—I beg leave to transmit you a statement of the scite and nature of the wound which produced the death of the exceedingly lamented and late illustrious hero, Lord Nelson; and request that you will please to insert it in the next number of *The Medical and Physical Journal*. Enclosed is likewise a drawing of the fatal ball, with its appendages, which were carried before it through the whole course it described — I am, etc. W. Beatty, Surgeon.

H.M.S. *Victory*, December 15th, 1805.

About the middle of the action with the combined fleets on the 21st of October last, the late illustrious Commander-in-Chief, Lord Nelson, was mortally wounded in the left breast by a musquet ball, supposed to have been fired from the mizen-top of *La Redoubtable*, French ship of the line, which the *Victory* fell on board of early in the battle. His Lordship was in the act of turning on the quarter deck, with his face towards the enemy, when he received his wound; he instantly fell, and was carried to the cockpit, where he lived about two hours. On his being brought below, he complained of acute pain about the sixth or seventh dorsal vertebra, of deprivation of sense and motion of the body and inferior extremities; his respiration short and difficult, pulse weak, small and irregular; he frequently declared his back was shot through, that he felt every instant a gush of blood within his breast, and that he had sensations which indicated to him the approach of death.

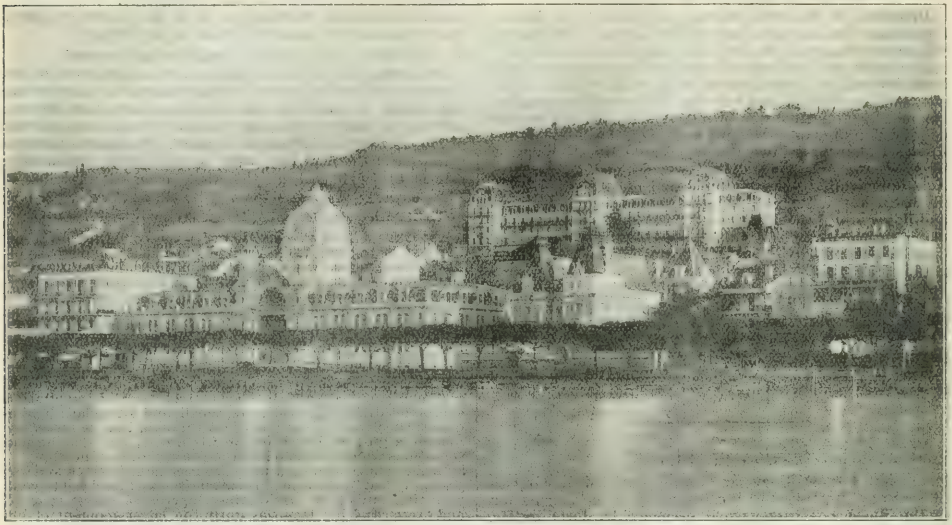
In the course of an hour his pulse became indistinct, and was gradually lost in the arm; his extremities and forehead became soon afterwards cold. He retained his wonted energy of mind and exercise of his faculties until the latest moment of his existence; and when victory, as signal as decisive, was announced to him, he expressed his pious acknowledgements thereof and heartfelt satisfaction at the glorious event in the most emphatic language; he then delivered his last orders with his usual precision, and in a few minutes afterwards expired without a struggle. Course and scite of the ball, ascertained since death: The ball struck the fore part of his Lordship's epaulette, and entered the left shoulder immediately before the processus acromion scapulae, which it slightly fractured. It then descended obliquely into the thorax, fracturing the second and third ribs; and, after penetrating the left lobe of the lungs, and dividing in its passage a large branch of the pulmonary artery, it entered the left side of the spine between the sixth and seventh dorsal vertebrae, fractured the left transverse process of the sixth vertebra, wounded the medulla spinalis, and fracturing the right transverse process of the seventh vertebra, it made its way from the right side of the spine, directing its course through the muscles of the back, and lodged therein, about two inches below the inferior angle of the right scapula. On removing the ball, a portion of the gold lace and pad of the epaulette, together with a small piece of his Lordship's coat, were found firmly attached to it.

A drawing is given of the bullet, which was for a time in the possession of Dr. Beatty, and is now among His Majesty's treasures in the Armoury at Windsor Castle. The account of Nelson's last moments quoted above appears in the "professional report" appended to Beatty's book entitled *The Death of Lord Nelson*, which was published in 1807. The report is there dated "His Majesty's ship *Victory*, at Sea, 11th December, 1805." It may be added that the book was reissued by Messrs. Archibald and Co. in 1905 on the occasion of the centenary of the hero's death.

A book has recently appeared which should be of great interest to physicians interested in health resorts. Alfred Martin has written an account of German watering places in the olden time, with a history of bath treatment in Germany from the time of Tacitus. The book, which is extremely readable and abundantly illustrated, is published by Eugen Diederich, of Jena.

Messrs. P. S. King and Son (Westminster) will shortly publish a work entitled *Employment Pictures from the Census*. It gives a series of comprehensive views of the occupations of all classes in the Census of 1901 and comparisons with 1891 and 1881. One section deals with the whole country; then follows the County of London; and the figures and proportions in each borough are arranged in tables and exhibited in sixty diagrams. The last section treats of the marriage conditions and the age limits in the various occupations. Mr. Loch contributes a preface.

From January 1st the *Medical Age* and *Medicine* will be incorporated in the *Therapeutic Gazette*, which will be issued under the editorship of Dr. Hobart A. Hare and Dr. Edward Martin.



Evian-les-Bains.

EVIAN-LES-BAINS.

Evian-les-Bains is situated on the Lake of Geneva opposite Lausanne, and for many years had been a favourite spot with a moderate number of tourists wishing to spend a quiet time in pleasant surroundings. Within the last few years, however, owing to the exertions of a company possessing plenty of energy and plenty of money, Evian has sprung from a small pleasure resort into a thriving watering place frequented by large numbers of persons, including many fashionable *malades imaginaires* bent on doing a pure water cure. In Burton's *Anatomy* we read: "Cardan cracks that he can cure all diseases with water alone, as Hippocrates of old did most infirmities with one medicine." And again under the heading "Dyet rectified" Burton writes: "Pure, thin, light water by all means use, of good smell and taste; like to ayr in sight, such as is soon hot, soon cold, and which Hippocrates so much approves, if at least it may be had."

This applies to the springs at Evian, their water being colourless and tasteless, and quite agreeable to drink; its uniform temperature is about 12° C. A picture of an ambitious company may be imagined racking its brains to make good use of this picturesque spot, with its copious supply of unmineralized springs, and no doubt the Japanese system of internal and external cleansing by water suggested itself as an appropriate therapeutic measure. "As, by wicked incredulity, many men are hurt," says Wierus, "we finde in our experience, by the same meanes many are relieved," and there is a great charm about the Lake of Geneva, so that, although the purely practical and brutal may think that a filter and a bathroom at home would answer nearly as well, it is permissible to believe that beautiful surroundings and gay company, in certain cases assist the cure immensely.

The water of the Source Cachat is chiefly employed, and as the inflow is 596 litres a minute there need be no limit to the number of baths taken or tumblers of water swallowed; indeed, 3 litres a day is stated to be no unusual amount for a patient to drink. The physiological effects are said to be rapid absorption by the stomach and intestines, rapid circulation through the tissues, rapid and complete elimination through the urinary passages—in brief, the elimination of toxins from the organism. The complaints for which the treatment is said to be specially beneficial are chronic gout, chronic urinary affections, diseases of the digestive organs, of the liver, and of the biliary apparatus.

The principal mineral constituents present in the water of the Source Cachat are the carbonates of calcium and magnesium, but the amount is very small, though sufficient to render the water slightly alkaline. It is well aërated, containing a small quantity of carbonic acid.

A fine new bath house was opened in 1902 containing a complete bathing equipment large enough to enable 1,200 patients to take baths or douches in one day. There is the usual drinking hall, and patients in process of depuration swallow their tumblers of water as they stroll about the terrace to the strains of the usual band. A great feature of the *Etablissement* is the bottling factory. The Source Cachat water has been widely advertised, and the annual sale already amounts to 8,000,000 bottles, and is constantly increasing. It is to be seen on every table in the hotels and restaurants at Evian, and as other waters are not so easy to obtain, and as Source Cachat is decidedly cleaner than lake water, it is usual for every one to drink it.

As we have said, Evian is a charming place, situated as it is on the borders of the Lake of Geneva, and backed by gently-rising country covered with vineyards, walnut groves, and fruit orchards. But, fair as it looks, the olfactory sense of the enterprising company is evidently blunt so far as the hygiene of the town is concerned: the smells, indeed, are poisonous. The lavatory arrangements at the station and along the banks of the lake are foul; the odours from them seem to spread far and wide, and to an untrained British nose recall Coleridge's description of Cologne. Surely this poison breathed must do much to counteract the purifying effect of the spring water, and until it is abolished very few English visitors will be induced to stay at Evian. That is perhaps why the summer crowd is chiefly French, a large number of them being sent on from Vichy as an after-cure, and not a few from Aix-les-Bains. When the smells are removed we shall be conscientiously able to recommend Evian as a halting place where patients *en route* for Davos for instance, may break the journey and become partly acclimatized. As far as other visitors are concerned—the chronically gouty, for instance—a period devoted to depuration is to be strongly advocated, and, if they have time and money to spare, Evian is as good a place as any to carry out the interior and exterior cleansing.

Although we are not a dirty nation as compared with many others, we have still a great deal to learn from a people like the Japanese; a good many of us might bathe more thoroughly, and still more of us have not yet begun to realize the immense depurating effect of pure water drunk in considerable quantities.

SEVENTY-FIFTH ANNUAL MEETING
OF THE

British Medical Association.

EXETER, 1907.



The Guildhall, Exeter.
(*Photograph by W. G. Dighton, Exeter.*)

IN the summer of next year the South-Western Branch looks forward to giving a hearty welcome to the Association. There is much to appeal to the visitors within its broad area. History and legend alike have cast a glamour over its wealth of beautiful scenery, and the seeker for health will find that the merits of moor and coast have not been overrated. To the archaeologist Dartmoor and the Cornish hills, with their hut circles and cromlechs, stone avenues and crosses, cannot fail to be full of interest. The brief notes which follow indicate the richness of the local history. For the geologist and naturalist there is a fertile field to explore. The lover of Gothic architecture will find in the cathedrals of Exeter and Truro an ample reward for his journey to the West, the lover of sport will not have to complain of want of opportunity, and the discerner of good things will discover that Devonshire and Cornish cream are never so excellent as when tasted in their own lands.



Photograph by] Exeter Cathedral from the Palace Garden. [*W. G. Dighton, Exeter.*

History and Archaeology.

The history and archaeology of Devon and Cornwall are exceptionally interesting. In no other part of England are there so many relics of remote antiquity, and no English city except Exeter can boast an unbroken civic life for more than eighteen hundred years. Exeter, says Freeman, "is the one city in which we can feel sure that human habitation and civic life have never ceased from the days of the early Caesars to our own."

About Devon and Cornwall, before the landing of the Romans, history is almost silent. Strabo states that the Phoenicians were accustomed to trade with Cornwall for tin, and the remains of ancient tin works over both counties appear to corroborate his story. Of the monuments of prehistoric man, however, no part of England can show such an abundance as the hillsides of Cornwall and Dartmoor. Hut circles, stone avenues, dolmens, kistvaens, clapper bridges, and walled enclosures exist in wonderful profusion, and have given rise to much controversy as to their origin and object. More remote even than these, the discoveries at Kent's Cavern, near Torquay, of the bones of animals and cave men, which form the earliest records of man's presence in Britain, indicate an antiquity of human existence beside which even the Punic wars may be regarded as modern events.

Of Exeter itself, before the Roman occupation, only the most fragmentary information is available. The remarkable natural strength of its site—a plateau with steep sides, only joined to higher ground by a narrow ridge of hill—as well as its advantages for trade in the nearness of a tidal river, lends colour to the legend which describes it, at the time of the invasion of Vespasian, as already ancient and considerable. But of the occupation by the Romans there can be no doubt, though the exact date is uncertain. The soil has supplied abundance of Roman coins, and many of these belong to the reigns of Nero and Claudius; legend and coins alike suggest that it was under Claudius that the city became part of the Empire. This fixes the probable date of occupation between A.D. 43 and 54. The Romans seem to have found "Isca" already a fortified place. The defences of the castle hill, the deep fosse on the city side, and the earthwork encircling the summit are apparently British work. On this substructure the Romans erected their citadel, and the plateau beside it became a fenced city, crossed by the four arms of the Roman "castrum." Two of these arms were formed by the Icknield Way, which, crossing the Exe at the foot of the rise, passed over the plateau and went out along the narrow ridge to the east. The ford in the river fixed the position of the West Gate, the eastern ridge that of the East Gate, and the British fortress the north-eastern angle of the enclosure.

Of its history in Roman times we possess no written record. Doubtless, like the rest of the civilized world, the inhabitants became Christian before the close of the fourth century. But no documents remain to tell us of its social life, its changes of faith, its communications with the outer world, or the gathering of the cloud that hung over the destinies of the Empire. We hear no echo of the first news of Saxon pirates in the Channel, of the departure of the legions into Gaul, or of the final letter of Honorius bidding the Province of Britain provide for its own government and defence.

There is something terrible in the silence, broken only by Gildas, that broods over the cities of Britain at the opening of the fifth century, when, severed from civilization, the provincials turned to bay against the hordes of merciless savages that practically hemmed them in. Nowhere, Green tells us, in the wreck of the Empire, does the ground seem to have been disputed with such desperate bravery, nowhere does the extermination of the vanquished appear to have been so complete as in Britain. But Devon and Cornwall were fortunate in the moment of their conquest. Thanks to the natural barriers that fenced in Devon on the east and to the courage that so long successfully defended them, the South-West escaped the ruin that blotted out the rest of the Roman province in the two fearful centuries which followed the landing of Hengist. Out of this terrible period come

to us the legends of King Arthur. Very dimly and doubtfully, through the mists of the time, we seem to gain the luminous vision of a great ruler, terribly beset, wonderfully rallying all that was left of Christianity and valour to beat back the invaders. It may have been at Tintagel, whose sea-beaten stronghold still bears his name, that Merlin found him in the foam; it may have been in Cornwall, or in Wales, or in Strathclyde that he held his Court of Caerleon with his knights; Badbury Hill in Dorset may have been the scene of his victory of Mount Badon, which threw back the West Saxons for more than thirty years; Camelford may have witnessed his last fight; Glastonbury may have been "the island valley of Avilion" in which they buried him. But, real or imaginary, it is to the West Country pre-eminently that the vision belongs; it is with "King Arthur's Castle" of Tintagel and the lost land of Lyonesse that it must ever remain associated.

The Saxons do not seem to have entered Exeter until at least the end of the seventh century. Christianity by that time had modified their warfare. Devon and Cornwall, it has been said, were fortunate in the moment of their conquest. West Saxon victory then no longer meant absolute destruction, and in Exeter, Saxon and Briton settled down side by side within the walls which the Roman had built. The dedications of churches to British saints on the north of the High Street, and to Saxon saints on the south of it, corroborate the account of a corresponding division of the city. Exeter was Saxon, at all events, by 720; Devon had been conquered by 786, and by 823 the frontiers of Wessex had been pushed to the Land's End. To this earliest Saxon period belongs the story of St. Boniface. Born in the parish of Crediton, and educated in a monastery at Exeter, he conceived the idea of becoming a missionary to the Germans, and, soon after 716, sailed with two or three monks to Utrecht. He became the Apostle of Germany, was consecrated, in 743, Archbishop of Maintz, and, in 753, when already "infirm and decrepit in body," set out for Frisia, and was there martyred.



Photograph by] Royal Devon and Exeter Hospital. *[W. G. Dighton, Exeter.*

Towards the end of the ninth century Britain—now England—had again to face the horrors of a heathen invasion. At the coming of the Danes, both coasts of Devon and Cornwall were extensively harried, and the first historic series of Exeter's sieges began. The earliest of these ended tragically in 876. Exeter was captured, probably because the defences had been allowed to fall into disrepair. Next year King Alfred re-took it, and seems to have repaired the walls, so that, at its second siege in 894, the citizens held out till he came again to their relief. Then, for upwards of a century, the Danes came no more to Exeter. Alfred's son, Edward, first Overlord of all England, and, after him, his son Athelstane, held their Witanagemots in the city. Athelstane drove out the Britons, perhaps as part of his campaign against them in the West, and rebuilt the walls, which he further strengthened with towers. He also founded a monastery where the cathedral now stands and established a mint. In 1001 the Danes returned to Devonshire, sailed up the Exe and laid siege to Exeter. But, although they defeated the citizens in a desperate battle at Pinhoe, the defences of the city proved too strong for them. The last siege by the Danes ended tragically like the first. Sweyn's vengeance for the slaughter of his subjects in 1002 on St. Brice's day fell first on the West Country: Exeter was taken and sacked, the churches burnt and half the walls broken down.

From such a blow as this the city seems to have rapidly recovered, and forty-five years later became of more importance than ever. In that year Edward the Confessor came in person to install his Chancellor, Leofric, as the first Bishop of Exeter. Since 909 Crediton had been the centre of the see and nine bishops had ruled there in succession. Leofric had used his interest with the Pope to secure the change to Exeter because of the greater defensibility of the place. No doubt the ravages of the Danes had shown the necessity for this. The deed of transference is still to be seen in the cathedral library, as well as the greatly prized *Exeter Book*, a collection of Saxon poems which belonged to Bishop Leofric.

In 1066, after the battle of Hastings, Gytha, the mother of Harold, and his two sons sought refuge in Exeter, and thither came the Conqueror in 1068. In the tale of the Conquest, says Freeman, "no city of England comes so distinctly to the front as Exeter." William sent to the citizens demanding an oath of allegiance and entry into the city. The reply went boldly back that they would acknowledge him as Emperor of Britain, not as their own king; they would pay him tribute, as they paid the kings of the English, but they would swear no oaths to him; they would not receive him within their walls. For William, Exeter was the key of the West, and his coming was not long delayed. He came along the eastern ridge and summoned the city under the East Gate. But not even the barbarous blinding of a hostage under their eyes shook the resolution of the defenders. All the military skill of the time was brought to bear, yet for eighteen days every attack was beaten back. Only when their walls were mined and began to crumble beneath them did the defenders ask for terms. They were promised their lives, limbs, and goods, and Gytha and her following were allowed to escape unscathed. The castle was now built, and the walls were once more strengthened. These defences were soon tested. In 1069 the sons of Harold laid waste a great part of Devonshire and besieged Exeter, and later in the same year the men of Devon and Cornwall besieged it a second time. Both attacks failed, and the rebellion of the West was put down with a heavy hand.

In 1112, Bishop Warelwast, nephew of the Conqueror, began to build the cathedral, and the two Norman towers which remain were part of his work. The anarchy of Stephen's reign was illustrated by the siege of the castle, then held by Earl Baldwin. During this siege the new cathedral was much injured by fire.

With Henry II a new era opened for Exeter. In 1160 he granted the first charter, which is countersigned by Becket, and from this time forward charter followed charter, as the citizens accumulated money, and the kings became in need of it. John's charter in 1206 gave the right to appoint a mayor. Between 1224 and 1244 Bishop Brewere went to the Crusades, and his miserere seats in the cathedral perpetuate his quaint recollections. In 1231 Henry III made his brother Richard, Earl of Cornwall, "Lord of Exeter," and, as he was afterwards made King of the Romans, and therefore entitled to be crowned Emperor at Rome, Exeter may claim to have then been ruled by the "Lord of the World." When Simon de Montfort in 1264 first called the burgesses to Parliament, Exeter sent two members. The great King Edward I visited Exeter

on two occasions, in 1285 and 1297. Between 1280 and 1291 Bishop Peter Quivel designed and began to construct the cathedral as we now see it. Those were exciting and exasperating times. So far the city had flourished exceedingly, but now it fell foul of Isabel Countess of Devon, who in 1290 built Countess Weir to cut off the access of ships to the city. The contest with the Earls of Devon went on for a very long time and caused great injury to the trade of the citizens. In the reign of Edward II



Photograph by] Torquay. General View from the South-west. *[J. C. Dinham, Torquay.*

Bishop Stapleton of Exeter was that feeble monarch's best counsellor. But in 1326 he was killed in a rising of the citizens of London. Exeter ought to remember him; he had the splendid sedilia made and the bishop's throne, and founded Exeter College at Oxford. Bishop Grandisson, who completed the nave, became Bishop in 1328.

In 1356 the Black Prince twice passed through the city, once, it is said (although the story is doubtful), with his prisoner, King John of France. But no stirring

defeat at Tewkesbury the citizens again made peace with the long-suffering Edward. In 1483 Richard III came on a visit and did some sight-seeing. On hearing that the castle was called Rougement, he was much disturbed, having been warned to beware of "Richmond"; the warning was right enough, but the Richmond was another. It was in Exeter that Henry VII was first proclaimed King, and, soon after, the city stood two sieges on his behalf. First, the men of Cornwall rebelled under his heavy taxation and marched into Devon. Exeter was not taken, and they passed on to their rout at Blackheath. A few weeks later Perkin Warbeck landed in Cornwall and attacked Exeter. The siege was desperate; the North Gate was set on fire and forced, but the enemy was driven out. Then the East Gate was forced, but again the enemy failed to make good his entry. Henry's approach relieved the city. When the King took his departure he left his sword and Cap of Maintenance, commanding that they



Photograph by] Falmouth. *[H. Opie and Sons, Falmouth.*

general events moved Devon and Cornwall until the Wars of the Roses.

These began soon after the body of the present Guildhall was built. Clarence and Warwick took refuge in Exeter in 1469, and the city was besieged. They were, however, suffered to sail to France, and next year Edward IV entered Exeter. He seems to have borne no malice, and left his sword as a gift behind him. The following year, however, Margaret of Anjou crossed from France and made Exeter her head quarters. After her

should always be borne before the mayor when he went in state. When the East Gate was rebuilt his statue was placed on it, looking down High Street, and when the gate was pulled down the statue was removed to a house-front nearly opposite the present post office, where it still remains.

Henry VIII made Exeter a county in 1537, a privilege it retains. In his time, and for long afterwards, the woollen industry was a flourishing one, and extended over the country districts of Devonshire. In 1544, the

river never having recovered from the weirs made by the Earls of Devon, the canal was constructed to Topsham. It was the first canal made in England. In 1549 the introduction of the new Church Prayer Book by Edward VI caused a rebellion in Devon and Cornwall, culminating in a siege of Exeter, which was unsuccessful. The leaders were executed, one of them—the Vicar of St. Thomas—being hanged in full canonicals from his own church tower, where his body is said to have hung till the Roman Catholic revival under Mary. Bishop Coverdale was Bishop of Exeter in 1551.

With the accession of Elizabeth opens the most splendid chapter in the history of Devon. The daring of Drake, his exploits on the Spanish Main, his wonderful voyage round the world in his ship of 100 tons, his descent on Cadiz; Raleigh's founding of Virginia, Sir Richard Grenville's last battle off the Azores, Sir Humphrey Gilbert's last venture in the annexation of Newfoundland, would alone make any period illustrious. But all these great deeds fade into insignificance when set side by side with the sea fight of 1588. To gather some sense of its vast importance, it is necessary to recall for a moment the circumstances that surrounded it. For a brief space the history of Devonshire becomes the history of the world, with Francis Drake as the central figure of her achievement.

About the beginning of the sixteenth century civilization had taken a sudden stride forward. Men seemed, within a single lifetime, to step out of mediaevalism into the realm of modern thought. The invention of printing had disseminated the new learning; Columbus had opened the New World to enterprise and to imagination. Luther, at the time we speak of, had hurled the defiance that split Europe into two camps. The Reformation, which had rolled to the foot of the Alps and the Pyrenees, had receded almost to the northern shores of the Continent. England and the United Provinces alone remained active strongholds of the New Faith, and of these the latter were already under the heel of Spain. It was in no idle sense that Philip II spoke of his attack on England as "a laying of the axe to the root of the tree." But there was more than religious zeal that urged Philip to enter on a fight to a finish. Spain's colonies in the New World were endangered by the English privateers; English colonies also had begun to arise on the shores of North America. It was as much for maritime supremacy as for Mother Church that the Most Christian King fitted out his expedition.

In 1588 Spain stood at the height of her greatness. The possession of the two Sicilies, the Milanese, the Low Countries, Franche Compté, Mexico and Peru, made her monarch the most powerful prince in Europe; her military prestige was unrivalled, her navy was fresh from the laurels of Lepanto, the gold of the Indies had been poured into her treasury, her zeal against Protestantism was backed by the thunders of the Vatican. On the other hand, England had fallen from her former fortunes, her change of faith deprived her of effective alliance on the Continent, her troops were untried, her natural resources were weakened by internal divisions. The success of Philip seemed certain, and no one who has not read the pages of Motley can imagine what that meant to the Englishman of the day. The horrors which turned Holland into a veritable hell on earth find no parallel in European history except in the terrific records of the days of Torquemada himself. In the face of such a carnival of devilry as the Spanish occupation of the Netherlands, the cruelties of Nero and Diocletian almost sink into trivialities. Victory for Spain at that time meant intellectual death for newly awakened Europe.

Such were the opposing forces, such was the prospect before this country and the world, when, in the summer of 1588, the invincible Armada set sail. It was at sunset on July 19th that Fleming, a Scotch scout, sighted it off the Lizard. The Spaniards had been tempted to break their orders, which were to keep under the French coast, by the expectation of catching the English Admiral off his guard in Plymouth Sound. But the warning came in time. The West Country, indeed, had not shared the dangerous belief that the invasion had been deferred. One can picture the sea captains when they heard the news on Plymouth Hoe; one can fancy the watchers on the hills round Exeter, as beacon after beacon burst into flame that night, bearing the news to London. One can imagine the long agony up the Channel, the heavy Spanish galleons holding sullenly on their way to join Parma's flotilla, the smaller English ships hanging fiercely on their flanks, and cutting them off one by one, till friend and foe alike sank from sight of Devon beyond Portland, moving eastwards to Drake's fireships and to the great storm which was to settle Spain's quarrel for ever. Five of the eight fireships were owned by Devon men, two Devon captains, Yonge and Prowse, piloted them into Calais harbour, and, in the final conflict off Gravelines, it was Drake who seized the critical moment. It is to Drake that history points as the chief figure in this great deliverance. His statue, with the Armada Memorial, still watches over the sea from Plymouth Hoe. Exeter was given the motto *Semper fidelis* by Elizabeth to commemorate the city's share in the national defence, and the front of the Guildhall, built only a few years later, remains to remind us of the time.

In 1604 Peter Blundell was founding his school at Tiverton. Another stirring time was then at hand. England was about to enter on the period of her civil war. Sir John Eliot of St. Germans was the first martyr of his cause, dying in the Tower in 1629. It was from the Barbican in Plymouth that the Pilgrim Fathers set sail in the *Mayflower* for the shores of North America. Devon



Photograph by] Plymouth Hoe, showing Drake's Statue and the Armada Memorial. [*Messrs. Heath and Stoneman, Plymouth.*

and Cornwall generally sided with the King, Plymouth and Exeter held out for the Parliament. The siege of Plymouth was one of the longest on record, lasting three years and costing the Royal cause much vainly spent time and treasure. Exeter had more varying fortunes. Taken by Price Maurice, it received Charles I and his Queen. Within its walls Princess Henrietta was born. Later Fairfax besieged it and took it. After the Restoration, Charles II visited Exeter and gave the portrait of his sister. General Monk was a Devon man and the grandson of a Mayor of Exeter.

In 1650 England's greatest general, Marlborough, first saw the light at Ashe, near Axminster. Monmouth's landing at Lyme Regis involved Devonshire little, though he marched through Axminster, towards Taunton, but Judge Jeffreys held part of his "Bloody Assize" at Exeter Castle. In the protest against James II's encroachments, Bishop Trelawny, a Cornishman, and later on Bishop of Exeter, headed the seven bishops. In 1688 William of Orange landed at Brixham (where the stone is still shown on which he first set foot), slept his first night at Ford House, near Newton, which still exists, and in Exeter Cathedral Bishop Burnett read the Prince's declaration to guard the liberties of the people of England.

With this event the South-west settled down to quieter times, but not to sleep. Plymouth Dockyards, amongst the finest in Europe, were begun during the reign of William III. The Exeter Workhouse, erected in 1707, is said to have been the first in England. Its schools were opened the next year, and the hospital founded in 1741. Then two notable things happened. The Wesleys began their preaching throughout England, and largely in the South-West, and in 1755 the Seven Years War broke out, in the course of which Canada and India came into our possession. England's greatness at that time was chiefly due to the genius of William Pitt, afterwards Earl of Chatham; Cornishmen are proud to remember that he was born at Boconnoc. In 1723 Sir Joshua Reynolds, the founder of English portrait painting, was born at Plympton, and in 1775 J. M. W. Turner, the greatest of English painters, at Barnstaple; in 1772 Samuel Taylor Coleridge began life at Ottery St. Mary. In 1778 Sir Humphry Davy, the great chemist, was born at Penzance. More recent history shows that the South-West is not unworthy of its traditions. Charles Kingsley, churchman, poet, novelist, philanthropist, was born in 1819 at Holne Vicarage, on the southern borders of Dartmoor; in the same year John Adams, the discoverer of Neptune, was born near Launceston. The volunteer movement was initiated in Devonshire by Sir John Bucknill in 1858. Plymouth has grown to be a great town, and is the second naval station in Great Britain. Alone amongst English counties Cornwall has recently completed a cathedral worthy of the best times of English architecture.



Photograph by. **Albert Memorial Museum, Exeter.** *[W. G. Dighton, Torquay.*

Thanks to the vandalism of the beginning of last century, Exeter has lost much of ancient interest which might have been retained. The gates are gone, and most of the old houses have followed them. But the cathedral, the Guildhall, and the remnants of the castle and walls still stand to attest the greatness of the past. The walls can still be traced in almost all their extent, and probably retain the lines of the Roman fortifications. The High Street is the same roadway as that trodden by the legionaries. Of the castle little is left save the British substructure, a collection of Roman coins, and a fragment of the Norman wall. The Guildhall keeps the picturesque front, erected soon after the defeat of the Armada, whilst the portraits within it of General Monk and the Princess Henrietta recall the days of the Civil War. The cathedral is the chief antiquity of the city. Rather smaller than most other English cathedrals, and unique in the curious disposition of its twin towers, it was chiefly built in the best period of English architecture, and is said to represent the most beautiful specimen of the Decorated style. The towers alone are Norman. The west front is interesting, with its quaint gallery of statues and beautiful west window. The nave and choir, though less lofty than many—70 ft. in height—are exceedingly fine. Their superb vaulting, their fine columns and carving, and the admirable geometrical tracery of their windows, have well deserved the admiration that has been bestowed on them. The minstrel's gallery, in the triforium of the nave, is the most perfect in England; the heads supporting the niches beneath it are those of Edward III and Philippa; it was new when the Black Prince passed through the city. The fine bishop's throne, the only one of the sort in existence, and the exquisite stone sedilia, were the work of Bishop Stapeldon. The clock in the north transept is said to be 700 years old; the bells, which have recently been recast, form the heaviest peal rung in the kingdom. The organ has lately been restored, and is now a very fine instrument.

Medical History of Exeter and its Neighbourhood.

The founding of the Hospital in 1741 has already been alluded to. The West of England Eye Infirmary was erected in 1808. It was the second such institution established in England, the hospital at Moorfields alone having preceded it. The Exeter Dispensary dates from 1818. The efficiency of all these has been well kept up to date. A new wing of the Hospital was completed in 1895, and the new operating theatre, the generous gift of Mrs. Nosworthy, has only recently been opened. The new Eye Infirmary has been completed with the exception of the west wing, and when finished will contain upwards of 70 beds. A new Dental Hospital in West Southernhay has also been given by Mrs. Nosworthy.

Of the past medical worthies of the district the name of Thomas Blackall will always be associated with the greater name of Bright. James of Exeter was the second surgeon in the world to tie the abdominal aorta. In the annals of climatology Thomas Shapter holds an honourable place; his *Climate of South Devon* is still, in spite of changes of medical terminology and opinion, the most satisfactory account of the area he described. On the northern borders of Dartmoor, in the little village of North Tawton, seen from the train between Exeter and Okehampton, Richard Budd discovered the important fact that typhoid is water-borne, and, before the epoch-making discoveries of Pasteur and Lister, asserted his belief in the microbic origin of disease.

Of somewhat remoter interest is the record of the former existence in Exeter, as in so many other places, of a hospital for lepers. It would seem to have been founded outside the South Gate and was dedicated to St. Mary Magdalen, the Magdalen Almshouses now standing upon its site. The Grey Friars, who settled in the city in the reign of Henry III, seem to have especially devoted themselves to the care of these unfortunates.



Photograph by] **Lantern Hill and Hillsborough, Ilfracombe.** *[W. H. Puddicombe, Bideford.*

Scenery and Points of Interest.

It would be hard to find in England a district of more varied beauty and interest than that comprised in the two counties of Devonshire and Cornwall. In the north, the uplands of Exmoor, once the scene of the Doones' forays, still the haunt of the red deer, look out over the Severn to the grey line of the Welsh hills. Blackmore has made this country, its deep wooded combes, tumbling streams, wild valleys, and scattered lonely farms, familiar to every one. Lynton, with its Watersmeet and Valley of the Rocks, needs no introduction, since he has described it. Ilfracombe however, sheltered from Atlantic gales, is of later date than Lorna Doone, although none the less notable in its own way.

Towards the south, the moor slopes gradually to the meadows round Barnstaple and the estuary of the Taw and Torridge, rivers famous for their salmon. Here we come to the scenes which Kingsley has made famous. Bideford and its ancient bridge, Appledore and Northam (the home of Amyas Leigh). Westward Ho, well-known to golfers, Clovelly, most beautiful of seaside villages, Lundy Island far away in the Channel, whose fatal shutter rock has sunk many a good ship besides Don Guzman's galleon.

At Hartland Point, the Hercules Head of Ptolemy, the coast, grown more precipitous, bends sharply south towards Bude. From Tintagel and King Arthur's Castle to Newquay stretches, perhaps, the finest piece of coast scenery in England. About Camborne and Redruth is the chief mining district of Cornwall. Further west, at St. Just, the mines are very interesting and pass under the sea. St. Ives is a picturesque little town much frequented by artists. All along the Cornish coast the colours of the sea are extremely fine. The blues, greens, and purples of the Atlantic have a vividness which seems peculiar to this region. The Land's End is a rather desolate mass of sloping rock. On a clear day the Scillies can be seen from it. Penzance shelters under the western headland of Mount's Bay, and looks across to St. Michael's Mount and beyond it towards the Lizard. Kynance Cove is deservedly celebrated. The bright tints of its serpentine rocks contrast vividly with the white shingle. Not far from the Lizard opens the estuary of the Fal. The town of Falmouth is picturesquely placed, and the further course of the river towards Truro is well worth tracing to its source on Tregoss Moor, the fabled hunting ground of King Arthur. Following the cliffs from Falmouth, the next notable inlet is at Fowey, a quaint little place, familiar to many as the "Troy Town" of Quiller Couch. Then comes Looe with St. George's Island, after which the coast opens again at Plymouth Sound. This fine estuary turns in between Plymouth itself—whose front is formed by the historic Hoe, where Drake's statue looks out to sea—and the wooded heights of Mount Edgecumbe. It runs westward to the creeks and woods of the St. Germans River and northward up the Hamoaze towards the Tamar. From Plymouth eastwards jutting promontories and land-locked river mouths alternate, and this part of the coast is remarkable for the ruggedness of its rocky outline, culminating at Bolt Head, behind which opens the beautiful Salcombe harbour. It was Salcombe bar which suggested Tennyson's last lines. Beyond the Start lies Dartmouth. There is no more interesting seaport

in the South than this ancient town, which guards the entrance to the finest of Devon's rivers. Its history is closely associated with the Elizabethan era. At Greenway, opposite Dittisham, Sir Humphrey Gilbert was born. Due north from Dartmouth lies Berry Head, and beyond it Brixham, the landing place of William of Orange, where the bells that were ringing as he stepped ashore on November 5th (ringing "lest gunpowder treason should ever be forgot") are now rung to commemorate his landing. At the other extremity of Torbay, on whose shores is the pretty little town of Paignton, lies Torquay, queen of English watering-places, looking out from its cliffs over the great anchorage in which the whole British navy can safely ride. Round the headland are Anstey's Cove and Babbacombe Bay, whose beauties have been painted by many well-known artists. From Babbacombe Downs the eye follows the long red line of the coast by Teignmouth and Dawlish to the estuary of the Exe, then rising beyond Exmouth to Budleigh Salterton and Sidmouth, changing to white at Beer and Seaton, and finally fading into the distant grey of Portland. Inland from Sidmouth, whose old-world charm adds to its modern well-deserved repute as a health resort, the road runs north to Ottery St. Mary—the "Clavering" of Thackeray and the home of Samuel Taylor Coleridge and Raleigh. Raleigh was born at Hayes Barton, a farm not far from Budleigh Salterton. The church of Ottery dates from the thirteenth century, and is one of the finest parish churches in England. Further north is Honiton, the town which has given its name to the beautiful lace which still forms a thriving industry in Devonshire. Tiverton and Blundell's School, where Blackmore and Archbishop Temple were educated, are familiar to all readers of *Lorna Doone*. Dulverton is celebrated as the centre of the stag-hunting country; the opening meet is in the first week of August. Dartmoor is the principal natural feature of Devonshire. Its great waste tableland, dotted with rugged tors, is the source of nearly all the rivers of the county, their richly-timbered valleys forming a marked contrast to the solitary stretches of rock and heather. In a valley on the south of the moor is Dean Prior, where Herrick, long ago, wrote the greater part of his delightful *Hesperides*.

Access and Accommodation.

Exeter is fortunate in the possession of excellent train services. It can be reached in a little over three hours from London, either by the Great Western or the South-Western Railway, and the expresses on both lines are provided with luncheon and dining cars. From Exeter, lines diverge in five different directions (exclusive of the two main lines towards London)—namely, the Exmouth Branch line, the Exe Valley Railway to Tiverton and Dulverton, the South-Western main line round the north of the moor to Plymouth, Barnstaple, and North Cornwall, the Teign Valley Railway to Ashton and Bovey Tracey, and the Great Western main line running south of the moor to Torquay, Plymouth, and South Cornwall. Coaching and steamer trips supplement the train services, so that in summer the most beautiful parts of the two counties are readily accessible.

The hotel and lodging accommodation in Exeter is good, and the frequent trains on both sides of the estuary make the neighbouring seaside towns easily available for those who prefer to put up by the sea and to come in daily to the meetings. The list of hotels and lodgings, to be published in due course, will include Exmouth, Dawlish, and other places within easy reach.

International Congress of Dermatology.—The sixth International Congress of Dermatology will be held at New York, September 5th to 14th, 1907, under the presidency of Professor James C. White of Boston. The General Secretary is Dr. John A. Fordyce of New York. The subjects proposed for general discussion are: 1. The etiological relations between the micro-organisms found in skin eruptions (to be opened by Dr. Councilman); 2. Tropical diseases of the skin (to be opened by Drs. Radcliffe Crocker, Riehl, Dubreuilh, Brinkerhoff, and Wright); 3. (*a*) the possibility of producing immunity against syphilis (to be opened by Professor Neisser and Drs. Finger and Leredde); (*b*) the present state of knowledge of the parasitology of syphilis (to be opened by Dr. Hoffmann).

General Medical Council.

[*A full account of the proceedings of the Council is published in the* Supplement *of this week.*]

NOTES.

The Fifth Year of Professional Study.—The Education Committee sent up a recommendation that the reference to pupilage with a registered practitioner, now allowed as counting for six months of the fifth year, should be expunged from the Council's recommendations, and this was agreed to. It was stated that in practice it was very seldom resorted to, and was of doubtful desirability for a student about to go up for his final examinations, so that in fact, the permission had come to be a remainder from a past state of things, and might possibly give rise to a position not far removed from that of an unqualified assistant. It was also resolved to insert references to special instruction in anaesthetics and to attendance at *post-mortem* examinations. The Council, notwithstanding that the insertion of so much detail had been deprecated, nevertheless, perhaps because it found itself with time in hand, debated at some length, whether the question of actual performance of *post-mortem* manipulations should be required; the discussion was only terminated by the moving of the closure, and the details were left out after all. The report of the Education Committee contained some interesting statistics on the length of time taken by 400 students to obtain their diplomas. No less than 71 per cent. took six years or more altogether to qualify, and no less than 80 per cent. took three years from the date of passing in anatomy and physiology. It would therefore appear evident that if additional subjects are to be included in the curriculum there is grave danger that the length of time taken by the average student will be yet further increased.

The Medical Curriculum.—More than half of the last day's session was occupied by a discussion upon the advisability of more sharply differentiating the whole curriculum into two periods, the first to be concerned mainly with anatomy and physiology, the second with medicine, surgery and midwifery. Sir John Tuke's original motion, Sir T. McCall Anderson's amendment to it, and Dr. Kidd's amendment, were all in different ways directed to this end. On the one hand, it was held that it was desirable that the student should have completed the study of anatomy and physiology and have passed the examinations in them before he was allowed to commence the study of medicine and surgery, or, at all events, before his attendance on these subjects began to count towards the fulfilment of his curriculum. Dr. Kidd's motion pointed to the extension of the same principle to the preliminary subjects of chemistry, physics, and biology. If these suggestions were carried out, the student's career would be divided into three stages, none of which could be entered prior to the completion of its predecessor. It was argued that if it were further required that a period of two years should elapse between the passing of the examination in anatomy and admission to the final examination, more time would be secured for the adequate study of the final subjects than was now generally devoted to them. But there were many of the Council who did not share these views—some upon the general ground that it was never a good thing to hedge everything round with detailed requirements; others on the ground that it was a matter with which schools and qualifying bodies were competent to deal, and which ought to be left to their individual judgement; and others, again, on the wider ground that this proposed hard-and-fast differentiation was not to the advantage of the student, to whom the study of anatomy and physiology would be rendered easier and more interesting if he were meanwhile getting some inkling of their application to medicine and surgery. The discussion, which was in some part instructive, had strayed away from the point, and was terminated by a motion for the closure. In the course of the debate, it appeared that some of the Scottish teachers had not found that the five-year period of study was habitually exceeded, and they deprecated the drawing of inferences from statistics from so small a number of

candidates as the four hundred quoted in the Education Committee's report. They even seemed inclined to claim for the Scotch student a greater degree of industry than was displayed by his English fellows, an inference which drew forth some protest. The matter was referred to the Education Committee, with instructions to procure wider statistics as to the average time consumed by the student in obtaining his qualification; and, indeed, reliable information on this point is indispensable prior to the consideration of any change in the requirements.

Reciprocity.—It was reported that the Executive Committee has taken steps towards the recognition of the degrees of Nova Scotia, but that negotiations were still going on. With respect to Japanese qualifications other than those of the universities, no recommendation for their recognition was sent up by the Executive Committee, information regarding them being still somewhat incomplete; moreover, it appeared that a new Japanese law will, so soon as a period of grace has expired, place them upon a different footing from that which is held at present.

Dental Business.—The Dental Education and Examination Committee recommended that the degree of the University of New Zealand should be recognized, but that further information was needed before a similar application from the University of Sydney was dealt with, it not being clear that the general side of the curriculum was equivalent to that obtaining in this country, nor that reciprocity was fully assured. The Committee made an important recommendation that the period of instruction in mechanical dentistry should be reduced from three to two years, a course already adopted by the Royal College of Surgeons in England and by the Victoria University of Manchester. The grounds for this reduction were that, owing to the crowded state of the curriculum, the third year's study was likely to be, and in fact often was, merely nominal, and that the period of two years rendered practicable the substitution of systematized instruction in the mechanical department of dental hospitals for the always indefinite private instruction. All of these recommendations were adopted by the Council.

Additional Direct Representatives.—A motion by Mr. Brown, that one additional member be returned, came on very late in the session, and did not elicit much discussion. Perhaps, too, the unwieldy size of the Council was very much in evidence, as, although the much-needed enlargement of the Council chamber has given adequate seating room, the inconvenience of the distance at which some of the members sat was felt, and the absolute necessity of referring such things to smaller bodies, such as the committees, was recognized and acted upon.

Dental Companies.—Three practitioners, all of them registered as having been in practice prior to 1878, were summoned before the Council to answer the charge of having associated themselves with an advertising company which conducted practice by means of unqualified persons. The defence was in all cases that they had done no more than lend their names, and had received no advantage from, nor knew anything about, its conduct; and, further, that one of them had long believed the unqualified brother, Edward Foley, to be the duly registered dentist, Samuel Foley. The Council decided to remove the name of Samuel Foley from the *Register*, but accepted the defence of the other two in so far that, while finding the facts proved, it deferred passing any judgement on the gravity of the facts till the next session. Another case in which the name of a registered dentist, William Alnwick, was directed to be removed from the *Register* presented some peculiarities. It was doubtful how far Alnwick was to be regarded as really a dentist at all, though his name appeared as having been in practice prior to 1878; it rather appeared that he was one of the old order of unqualified assistants who had continued to carry on a large medical practice, keeping in his house a registered practitioner, McDonnell, whose name had been struck off on a previous day. The habit appeared to be to call in the registered practitioner, against whom several convictions for drunkenness had been recorded, only when there seemed to be likelihood of a death certificate being required. In the present case Alnwick had signed McDonnell's name on a certificate declaring that McDonnell had seen the patient (which was not the fact), and had been convicted and punished for forging the certificate.

MEDICAL NEWS.

At the forty-fourth annual general meeting of the Surgical Aid Society, on December 3rd, it was reported that 36,474 different appliances had been supplied during the year to 23,393 patients.

The Danish Government has submitted to the Second Chamber a Bill forbidding children under 16 years of age to smoke in public places and making the giving or selling of tobacco to them a punishable offence.

The French Parliamentary Medical Group has been reconstituted. The chairman is Dr. Labbé, senator; the vice-presidents, Drs. Lannelongue, senator, and Dubuisson, deputy; secretaries, Drs. Pédebidou, senator, and Cazencave, deputy; treasurer, Dr. Devins, deputy.

At a meeting of the Royal Sanitary Institute, to be held at the Parkes Museum, Margaret Street, London, W., on Wednesday next, at 8 p.m., a discussion on the advantages and disadvantages of heating buildings by gas stoves of various types will be opened by Mr. S. Rideal, D.Sc.Lond., F.I.C.

The annual *conversazione* of the British Electrotherapeutic Society and exhibition of new apparatus will be held in the Small Queen's Hall, Langham Place, W., on Friday next. The exhibition will be open from noon. Many new forms of apparatus will be on view and shown under working conditions, and all medical men will be admitted. The *conversazione* will be at 7.30 p.m.

In connexion with the Eighth International Conference of the Red Cross Society to be held in London in May, 1907 there will be an exposition of appliances and inventions for the relief of the sick and wounded in war. Three prizes will be awarded for the most useful inventions of the kind from the fund of £10,000 given by the Empress Maria Feodorovna for the purpose.

The Medical Society of London held a special meeting on December 3rd, with the President, Mr. C. A. Ballance, in the chair, to hear an address by Dr. Henri Hartmann, of Paris, on the surgical forms of ileo-caecal tuberculosis. There was a large attendance, and a cordial vote of thanks to Dr. Hartmann, who spoke in English, was proposed by Mr. Mayo Robson, seconded by Sir Lauder Brunton, and carried with acclamation.

An urgent appeal for funds is being made by the authorities of the Chalfont Colony for Epileptics. The therapeutic value of the life led at the Colony has become so widely known that it is impossible to meet the demands upon its accommodation, and applicants have to wait on an average over two years. Obviously this is very undesirable, since the best results are obtained by early treatment. The Colony possesses plenty of land, and if supplied with some £20,000 two additional homes for adults, and two homes and a school for children could be built, and all outstanding charges paid off. The Honorary Treasurer is Mr. H. N. Hamilton Hoare, Denison House, Vauxhall Bridge Road, S.W.

Dr. Major Greenwood gave evidence before the Royal Commission on the Poor Laws on December 3rd, on behalf of the Poor-law Medical Officers' Association of England and Wales. The points specially urged by that Association were (1) the inadequacy of the salaries paid to Poor-law medical officers; (2) the necessity of a revision of the Local Government Board order of July, 1847, by granting payments for other operations than those there enumerated, and particularly ordering the payment of a fee for the administration of anaesthetics; (3) the right of the district medical officer to be paid a fee for all midwifery cases he attended on account of urgency when called in his official capacity.

The President of the Royal College of Physicians of London, the President of the Royal College of Surgeons of England, and the Dean of the Faculty of Medicine of the University of London, were entertained at dinner, on Tuesday, at the Café Royal, by their colleagues of the Middlesex Hospital. Mr. Andrew Clark was in the chair, and among those present were Prince Francis of Teck, Lord Cheylesmore, Lord Duncannon, and many other members of the weekly Board. It is a great thing for a hospital to be able to say of Sir Richard Douglas Powell, Mr. Henry Morris, and Dr. Kingston Fowler what Cornelia said of her sons, "These are my jewels." The occasion was worthy of the dinner, the dinner of the occasion, and the speeches worthy of both of them; altogether, a great success, and a pleasant example of goodwill and Hospital loyalty.

British Medical Journal.

SATURDAY, DECEMBER 8TH, 1906.

THE ASSOCIATION AND THE *JOURNAL* IN 1907.

The annual meeting of the British Medical Association next year will be held in the historic city of Exeter, and readers will find in another part of this issue an illustrated article, which not only gives a sketch of the history of the city and of its medical institutions, but makes it plain that a more convenient centre for visits to some of the most beautiful parts of the South-West of England could not be found.

It is five-and-thirty years since the Association last held its annual meeting within the borders of the South-Western Branch, and during that period it has increased enormously in numbers, and very greatly extended the sphere of its activities. In 1871, when the Association met in Plymouth, it had about 4,400 members, now it has over 20,000; then the scientific business of the annual meeting was conducted in four Sections: Medicine, Surgery, Midwifery, and Public Medicine. Next year there will be thirteen: Medicine, Surgery, Obstetrics and Gynaecology, State Medicine, Pathology, Psychological Medicine, Diseases of Children, Ophthalmology, Laryngology, Otology and Rhinology, Tropical Diseases, Naval and Military, Electrical, and Dental: and although the number of members who actually attend the annual meeting is a very variable quantity, there can be no doubt that the number present at Exeter in 1907 will very greatly exceed the 260 who took part in the meeting at Plymouth in 1871. At Plymouth the President of the Association was Mr. John Whipple, F.R.C.S., Consulting Surgeon to the South Devon and East Cornwall Hospital, and the general addresses were delivered by the late Dr. G. Johnson and Lord Lister, then Professor of Clinical Surgery in the University of Edinburgh. Next year the Association will be equally fortunate in having for its President Dr. Davy, Senior Physician to the Royal Devon and Exeter Hospital, while the general addresses will be delivered by Mr. Butlin and Dr. Hale White. In accordance with a practice established a few years ago, mainly at the suggestion of Dr. Ferguson, whose recent death is so much deplored, a popular lecture will be delivered in Exeter, the orator on this occasion being Sir John William Moore of Dublin.

The Association encourages and stimulates the study of clinical medicine and the sciences upon which it rests in many ways. In the first place, at its annual meetings those subjects in practical medicine and surgery and in pathology, which are most prominently engaging the attention of the profession at the time, are submitted to free discussion in the Sections; in the second place, at the periodical meetings of Divisions and Branches members have opportunities of recording their observations and hearing them criticized; in the third place, through its research scholarships and money grants made on the advice of the Science Committee, the Association directly encourages scientific research, expending over £1,000 a year in this way; in the fourth place, it appoints committees, for example, the Special Chloroform Committee, from time to time to investigate particular problems; and lastly, it supplies to its members the British Medical Journal, in which all scientific advances are faithfully recorded by expert writers.

The medico-political work undertaken by the British Medical Association has likewise very greatly increased. Five-and-thirty years ago the Association was indeed showing much activity in certain directions. It had, for example, a Medical Reform Committee, which had recently drafted a Bill for the Amendment of the Medical Acts, founded upon a Bill introduced by the Government in the previous year, but withdrawn because the Association had declined to accept any amendment of the Medical Acts which did not embody direct representation of the profession on the General Medical Council. The Association had to wait fifteen years for the desired Bill, and even then, though the principle of direct representation was recognized, the representation created fell far short of the demand formulated in 1871, that the Council should be constituted on the principle of containing representatives of the universities and corporations in the proportion of one-half of its members, nominees of the Government in the proportion of one-fourth, and representatives elected by the registered members of the profession in the United Kingdom also in the proportion of one-fourth of the Council. There was also in 1871 a Parliamentary Bills Committee, a Poor-law Committee which worked in co-operation with the Poor-law Medical Officers' Association, and a joint committee with the Social Science Association, which was able to state that it had brought about the appointment of the Royal Sanitary Commission, whose report laid the foundations for the existing public health medical service. In subsequent years the medico-political work of the Association increased and was better organized, and since the reconstitution of 1902 it has been still further increased and its organization improved, a special officer, the Medical Secretary, having been appointed to act as executive officer of the Medico-Political, Organization, Ethical, Public Health, and other central Committees, while the Representative Body to which these committees report has been called into existence.

The British Medical Journal, which was founded in 1840, has been since 1843 the organ of the British Medical Association, although it was only given its present title in 1856, the year in which the Association itself assumed the name of the British Medical Association. Since 1871 the Journal has been very greatly enlarged, in response to the increased interest displayed by members in the progress of scientific and clinical medicine and in social and political questions. In 1892 the Epitome of current medical literature was added, and in 1903 the publication of a Supplement, to contain records of the political and ethical work of the Association and documents bearing upon these matters, was commenced. In the first number of this year improvements were made in the type, printing, and general get-up of the Journal, which, we believe, have been generally appreciated by members, while there is reason to expect that the financial result will be satisfactory; at page 320 of the Supplement this week will be found a preliminary announcement giving a list of some of the clinical lectures and addresses which it has been arranged to publish during 1907, and in other directions no pains will be spared to maintain the high reputation already won by the Journal as a representative exponent of

medical knowledge and opinion, and to increase its usefulness to members of the British Medical Association.

PUTTING BACK THE CLOCK.

The case Southern *v.* Thomas and Skyrme has been fully reported in the issues of the British Medical Journal for this week and last because it raises certain points of considerable interest to the medical profession, the importance of which has only been enhanced by the unfortunate fact that they were not comprehended by the judge and jury. They seem never to have been brought clearly before the mind of the Court. We are almost tempted to say that this failure of comprehension is the most important lesson of the case for the medical profession. It is at any rate one which must be taken to heart by us, and efforts must be made to enlighten the public mind so that a similar misapprehension may not occur in the future. This education is necessary in the interests of members of the medical profession, that they may not suffer injustice, but still more in the interests of the public, who would be the chief sufferers were surgical methods in Europe stereotyped as in China. The legal profession is trained to rely on authority, the medical on the scientific observation and study of Nature; and it is perhaps inevitable that when these two different lines of thought first come into collision the impact should produce confusion in the minds of spectators, as is evidenced by the illogical verdict of the jury in this case.

The facts of the case are fairly simple: The plaintiff, who was riding a bicycle, came into collision with a cart, and was thrown, bruising his face, wrist, hand, knee, and ankle on the right side, and sustaining a fracture of the surgical neck of the humerus, complicated by subglenoid dislocation of the head of the bone, and much bruising of the soft parts about the shoulder. The dislocation was reduced, but the head of the bone remained rotated with the articular surface inwards, and the fractured surface outwards. The fractured end of the shaft was drawn upwards and inwards into the axilla, and the fractured surfaces could not be brought into end-to-end apposition. The best that could be done in the circumstances was done—the bones were brought into lateral apposition, and union took place; the patient recovered with an arm the movements of which were limited. Skiagrams were taken which of course showed the displacement of the head, and the fact that the bones had united not by end-to-end but by lateral apposition.

Upon these skiagrams the plaintiff founded his action for damages, claiming £2,000. The jury showed by their verdict that they had failed to comprehend the point at issue. That, as we think, was not wholly their fault; they were confused by side issues about splints, and the dicta of ancient textbooks, and were not helped by the judge's summing-up. After prolonged hesitation they awarded one-twentieth of the damages claimed, having apparently somehow been induced to believe, by the evidence of surgical witnesses called for the plaintiff, that by putting a poroplastic "plaster" on the shoulder the fractured ends of the bones could have been brought into end-to-end apposition. Every surgeon of experience except these witnesses for the plaintiff, knows that this is impossible under the circumstances stated by the surgeons who saw the plaintiff immediately after the accident and under the conditions disclosed by the skiagrams which the plaintiff produced in support of his case.

The clearest exposition of the surgical aspects of the case was given by Mr. Bowlby, who stated that in fractures of the surgical neck of the humerus any one of three conditions might be found—in the first, impaction; in the second, separation with displacement of the shaft upwards and inwards into the axilla, but without displacement of the head and upper end of the bone; in the third, the same displacement of the lower end, with in addition displacement of the upper fragment, so that the fractured surface is rotated outwards. When the injury belonged to the second class it was difficult to bring about complete end-to-end apposition, but the patient in time regained fair use of the arm; in the third class, to which the injury sustained by the plaintiff belonged, complete recovery of function never occurred.

This brings us to the first point upon which, as it appears to us, the jury did not receive sufficient enlightenment in the course of the trial. Throughout the plaintiff's case, and throughout, as we think, the judge's summing up, the tacit assumption was made that, had the injury been properly treated, the fractured ends of the bones could have been brought into end-to-end apposition and would have united in that position. The judge said that the case was of the greatest importance to the plaintiff because he had been seriously maimed, but he does not seem to have grasped the fact that it was the accident and not the treatment that maimed the plaintiff. The judge, indeed, clearly told the jury that the law did not require more from the surgeons than that they should have shown the care and skill which might reasonably be expected. A surgeon, he said, was expected to have equipped himself with the necessary knowledge for the purpose of his duties; but as we understand his summing-up, he practically directed the jury that they were to appraise the skill displayed at the present day by comparison with the statements contained in books, some of them many years old. Sir Frederick Treves was, in fact, confronted with a statement contained in a book edited by him and published some twelve years ago, which statement did not agree with the evidence he had just given; he answered, very reasonably, that in the interval new facts had come to light which had caused him to change his opinion. Chief among the new facts to which he referred have been those discovered by the application of the Roentgen rays to the study of the condition of the parts in fracture of the long bones.

As has been pointed out frequently in our pages by many surgeons during the years which have elapsed since Roentgen made his discovery, skiagraphy has shown in the first place that perfect apposition even in the simplest fractures of the long bones is seldom or never obtained; even when the conditions are most favourable to the surgeon some overriding or overlapping or displacement always or almost always remains. In the second place it has shown that union in this apparently faulty position commonly results in a strong and useful limb, often in one which is functionally as good as before. More than five years ago Mr. Golding-Bird pointed out in our columns[1] that when a skiagram is taken the surgeon ought clearly to explain to his patient that "even after the restoration of all function the fracture may look very much "as it did at first." Naturally the patient in whom complete restoration of function occurs does not very

[1] British Medical Journal, vol. i, 1901, p. 1393.

much trouble his head about the displacement shown by the skiagram, but when, owing to the nature of the injury, restoration of function is not complete, he is apt to think that the deformity shown might have been corrected. The mere persistence of evidence of bony displacement is no proof of unskilful treatment; the nature of the injury may have been such as to render complete replacement impossible. The result as to function depends on a variety of considerations, of which the perfection of apposition is only one. In the third place it has been proved, and herein lies a serious danger, that an attempt to treat a fracture strictly under the guidance of skiagrams may lead to meddlesome surgery causing unnecessary suffering to the patient, and leaving him in a worse condition than would have been his lot had no attempt at skiagraphic perfection been made.

There are many other points of surgical and professional interest with which we should like to deal, including the question of the use of splints, upon which, by an interesting coincidence, M. Lucas-Championnière touches in the letter received from him this week; but in view of the fact that a stay of execution has been granted, and that the defendants may be advised to appeal, we refrain from further comment at the present time.

THE ADJUSTMENT OF THE INCOME-TAX BURDEN.

The professional man who reads the report of the Income-Tax Committee, an abstract of which appears in another column, will probably ask the question, "What does all this mean to me?" The subject is so technical that it is difficult for any one but an expert to master the intricacies of the different matters to which reference is made, but it is easy to appreciate the importance of the principal recommendations, and to realize their bearing on the position of the medical profession.

Stripped of technicalities, the proposals affecting the professional classes may be stated as follows: (1) Abatements to be allowed on all incomes exceeding £700 and not exceeding £1,000 a year; (2) in addition to these abatements, which, with those already applicable to incomes not exceeding £700 a year, would confer relief on all incomes up to £1,000, a lower rate of tax than the normal rate to be charged on all professional and other "earned" incomes not exceeding £3,000 a year; (3) incomes from £3,000 to £5,000 a year to be taxed as at present; (4) incomes exceeding £5,000 to be subject to an additional tax, the rate of which would increase with the income.

Until the actual proposals of the Chancellor of the Exchequer are made known it is not possible to translate the effect of these recommendations into pounds, shillings, and pence; but, judging from the statements of witnesses and members of the Committee, from the evidence collected by former committees on the income tax,[1] and from the writings of economists, it may safely be assumed that the relief to professional incomes not exceeding £3,000 a year, if passed into law, will not be less than 20 nor more than 33 per cent. of the tax at present levied.

It is said that the average income in the medical profession is about £300 a year; it is certain that the great majority of practitioners earn less than £1,000 a year, the proposed limit of the extended abatements; and the statement that no less than 95 per cent. of the profession earn less than £3,000 a year is not likely to be seriously contested. If, therefore, the recommendations of the Committee are carried out, nineteen out of twenty practitioners may expect to be relieved of not less than one-fifth, and possibly one-fourth or one-third, of the income-tax burden which is at present laid upon their shoulders.

We cannot help thinking that such a result would be regarded by the profession as a whole as satisfactory. No doubt those who advocate the total repeal of the impost, so far as it affects the income of the professional classes, will experience a sense of disappointment that the proposals do not go further; but it is to be remembered that the Committee was not asked to deal generally with the question of the fairness or otherwise of the income tax, nor to report as to the practicability of its being repealed. Its duty was merely to "inquire into and report upon" the practicability of graduation, and of differentiation between earned and unearned incomes (for these terms have in effect been taken as representing what is meant by "precarious" and "permanent," the words used in the reference); and, in asserting confidently that differentiation is practicable, and, with some hesitation, that the difficulties of working a graduated supertax in this country are not insuperable, it has prepared the way for the conferment on the professional classes of a boon for which they have been appealing for more than half a century. Those who desire to convince themselves of this fact have only to turn to the report of the proceedings of the Select Committee of 1851-2, in which will be found a considerable body of evidence in support of the differential treatment of earned incomes. A second Select Committee, that of 1861, made differentiation the main subject of its inquiry, but felt itself unable to report in favour of the change, although the Chairman, Mr. J. G. Hubbard, had drafted a report strongly recommending "a diminished assessment of one-third in the amount of industrial incomes." The Departmental Committee of 1904-5 confined its attention to details of income-tax administration, and did not touch the wider questions investigated by the earlier and the recent committees.

A point of considerable interest not referred to in the report of the Committee is the question whether a pension is to be treated as earned or unearned income. It is generally regarded by the recipient as deferred pay, and this view was upheld by the Royal Commission of 1902-3 on Superannuation in the Civil Service. The question is not wholly free from doubt, but it is probable that a pension would be classed as earned income for the purposes of a differential income-tax.

We have said little in this article respecting the recommendation that incomes exceeding £5,000 should be subject to a graduated supertax, although as a means of raising revenue it may well be considered the most important of the proposals of the Committee It has, however, no special relation to the incomes of the professional classes, but affects the wealthy as distinguished from the possessors of moderate incomes. Nevertheless, the fact that few professional incomes approach £5,000 cannot be overlooked, and therefore the imposition of a supertax on large incomes would be viewed with equanimity by the vast majority of the members of the medical profession. At the same time, the proposal is too closely connected with party politics for opinion to be unanimous.

A word of caution may be addressed to the more optimistic of our readers who may be inclined to expect that the recommendations of Sir Charles Dilke's Committee will immediately be placed on the statute book It has been the fate of too many Royal Commission

[1] British Medical Journal, vol. i, 1906, p. 91.

and parliamentary committees to have their proposals shelved for an indefinite period—not infrequently until the circumstances of the country have so changed as to render them for all practical purposes obsolete. That this will be the case with the present report we do not believe, although it is necessary to keep the possibility in mind. Mr. Asquith has yet to justify the hopes of his friends by producing an epoch-making budget, and all indications point to the income tax as the most promising material for reform. His budget speech last April, and the appointment of the Committee immediately afterwards, evince a desire on the part of the Government to meet the reasonable demands of the income-tax payer. Those demands have been justified by the report which has just been issued, and the chief of them is a reduction of the burden of the professional classes. If the Chancellor of the Exchequer will take upon himself the readjustment of this burden, and thereby render the tax more equitable—popular it can never be—he will earn the lasting gratitude of the medical profession, irrespective of party. If, on the other hand, the report of the Committee is pigeon-holed and no steps are taken to carry out the recommendations made, a sense of injustice will remain, which a continuance of the present high rate of tax must inevitably foster, until further temporizing becomes impossible.

MEDICAL INSPECTION AND THE EDUCATION BILL.

The fate which the Education Bill as amended by the House of Lords is to meet at the hands of the Government and the House of Commons is still uncertain, and political meteorologists are exhausting their ingenuity in the search for signs of coming calm or storm. Compromise is said to be in the air, but there is also a good deal of uncompromising hostility. This hostility is aroused by the alterations made in the provisions with regard to religious instruction, but it must be pointed out that to wreck the Bill will mean the loss, for the time being at any rate, of the principle of medical inspection, which to many persons of scholastic and medical experience, seems to be by far the most important piece of constructive legislation which the Government has yet attempted. It must be remembered that the paragraph of the Bill dealing with this matter—24 (*b*)—is not a Lords' amendment. The substance was inserted in the Bill after a debate which showed that the House of Commons was unanimously of opinion that the principle should be distinctly established. An attempt was made in the House of Lords by Lord Belper to whittle it down but it was unsuccessful, and the subclause will go back to the Commons unaltered. It therefore embodies the opinion of both Houses of Parliament—an opinion formed in consequence, not of noisy agitation, but of the unanswerable strength of the arguments advanced in its support by the medical profession, as represented in particular by the British Medical Association, and of educational experts. It is already more than two years since the principle was accepted by the Committee on Physical Deterioration and made one of its principal recommendations. Everybody is now agreed about it and the Government will accept a very grave responsibility if it allows the institution of medical inspection to be still further delayed. It is, perhaps, too much to hope that the decision of the Government and of the House of Commons should be solely determined by a recognition of the immediate importance of this matter, but it ought at least to be one of the chief considerations in the coming discussions, for it affords a strong reason for saving the Bill from the ruin with which it is threatened.

THE ARMY MEDICAL RESERVE.

The regulations for the Army Medical Reserve published last week (p. 1614) are evidence that the lessons of the past have been taken to heart in the Medical Department of the army. In the South African war a large body of civil surgeons was thrown into the field without military training or status. The report of the Royal Commission on the care and treatment of the sick and wounded in the South African campaign showed that while the professional work carried out by the civil surgeons was most valuable, they were at first handicapped by "a want of acquaintance with the methods of "working in the army." It became manifest, therefore that medical men who might take service in future wars should be prepared beforehand for the duties required of them in a sphere which presents novelties in the machinery for the execution of their work But besides this lesson there is another, which is of essential importance, as it bears upon efficient organization. This is that the national war organization should be completed in peace, the medical portion equally with the army as a whole being prepared beforehand with the *personnel* it will require for service at the front as well as in the war hospitals. The requirements at the front must be met from two sources: first, the Royal Army Medical Corps, whose allotment of officers is insufficient for the strain of a big war: and, secondly, an army medical reserve, officered in numbers sufficient to supply the deficiency of regular medical officers, and taking the place formerly occupied by the "civil surgeons." The War Office scheme for an army medical reserve[1] purports to afford to those members of the profession who are in a position to hold themselves in readiness to give their services in the event of national emergency an opportunity of acquiring in peace time the military training necessary for their ready efficiency in war. Under this scheme a medical officer of the reserve at the end of seven years therein could continue his military career in a Volunteer unit should he feel so disposed, with the advantage of possessing some familiarity with military matters, and with the consciousness that even if he has not been actually exposed to the risks of service in the field, he has at least been prepared to take his share in the military operations of his native land. His knowledge of army matters will not be without avail should he subsequently join the second line of national defence, at a period of his life when local interests may interfere with his desire to serve in foreign wars. The new scheme will enable the younger members of the profession to enrol themselves in the first line of national defence, at the same time that the second line of defence continues intact for the purpose for which it was designed. A medical officer of the Volunteers cannot serve as such with the regular army in the event of war without damaging the Volunteer organization, and it is therefore essential that the regular army should possess a system for calling up medical men to its aid without trenching upon the efficiency of the home defence army. The scheme is intended to place the war organization of the Royal Army Medical Corps on a footing similar to that of the combatant service, but it does not coincide with the recommendations of the Volunteer Medical Service Committee of the British Medical Association.[2] In March last (31st, p. 760) we intimated that the intention with regard to the reserve was "to limit the period of "service in the reserve to seven years, as it is thought "that after that time practitioners would not care to "incur the general liability of reserve officers to serve

[1] British Medical Journal, December 1st, 1906, p. 1614.
[2] Supplement, July 14th, 1906, p. 40.

"at home or abroad in case of emergency." This cannot apply to Volunteers who are prepared to engage on the terms required for the reserve, consequently in the search for an adequate explanation of the elimination of Volunteer medical officers from the first line of defence, we are driven to the conclusion that the recommendations of the Volunteer Medical Service Committee have not been adopted by the War Office because it was thought that they would add to the cost of the schemes of national defence. It must be acknowledged that the admission of Volunteers into the reserve while retaining them as supernumerary to the establishment of their units would lead to a duplication of the national payments on their behalf. It would, however, remove the objection that they are required for the second line, for by classing those who enter the reserve as supernumerary the cadres of the Volunteer establishments for home defence would remain intact. Such a measure would give Volunteer medical officers admitted to the reserve a preference for employment at home in times of peace as well as in war, and it would hold out to them the probability of service in future wars—a privilege which was denied them in the South African campaign. At the same time it would open to the War Office the sole avenue through which the ranks of the new reserve could be filled, because in peace time medical men are not likely to join a service which bears no connexion with the locality in which their lot in life is cast. After all, the only real difficulty which stands in the way of the adoption of the recommendations of the Volunteer Medical Service Committee on this matter is the fact that the capitation grant earned by supernumerary Volunteer medical officers will have to be paid to the units to which they belong, at the same time that the retaining fee is paid to the individuals joining the reserve. This difficulty might be adjusted to the satisfaction of all concerned, whereupon the Army Medical Reserve would be rapidly filled with officers who, though Volunteers, would undertake to serve wherever required, while the State would obtain the services of medical officers who in many cases are in possession of certificates of proficiency, and who would, consequently, save the State the expense of putting them through the course of instruction required by this scheme of those entering the Army Medical Reserve.

THE ANTIVIVISECTIONISTS AND THE ROYAL COMMISSION.

We learn from an article by Mr. Stephen Coleridge which appears in the *Contemporary Review* for December, that three antivivisectionist societies have decided to have nothing to do with the Royal Commission on Vivisection. These are the National Antivivisection Society, the London Antivivisection Society, and the British Union for the Abolition of Vivisection, which between them, we are told, number 95 per cent. of the people of this country who belong to any antivivisectionist societies. "It may therefore," says Mr. Coleridge, "safely be asserted that never for a generation have "antivivisectionists been more solidly united" than on this matter; and we take advantage of the rare opportunity thus afforded us of agreeing with Mr. Coleridge that certainly solidity of union is not a conspicuous feature of those societies. We are asked to believe that without the assistance of Mr. Coleridge and his friends the Commission will be unable to perform the task allotted to it, and that its proceedings will be "a pompous "travesty of justice." This is hard on a body which includes two militant antivivisectionists and two medical members (Sir William Collins and Dr. George Wilson) who, as we learn from Mr. Coleridge, were recommended to the Home Secretary for nomination by the antivivisection societies. But even without Mr. Coleridge and his temporary allies, the Commission will not be seriously inconvenienced by the want of expert evidence on the antivivisectionist side. The National Canine Defence League has sent in a preliminary list of names of forty-four witnesses whose evidence will be offered to the Commission; and it is said to be preparing a further list of more than sixty additional names. The list, we are assured by the *Tribune*, which seems to be in the confidence of the antivivisectionists, includes the names of some of the most eminent men in the medical and veterinary professions. Of the veterinary profession we are scarcely in a position to speak, but we know something of the medical profession, and our estimate of what constitutes "eminence" therein probably differs widely from that of the *Tribune* and the National Canine Defence League. It is a pity, however, that the representatives of the National Antivivisection Society have decided not to give evidence and submit themselves to cross-examination. The public will be deprived of an entertainment in which instruction would have blended with amusement. They are trying to make up for their failure to face the Commissioners by abusing them on platforms where corrections and arguments can be met by the easy logic of howls. At Hampstead the other day, one of their professional orators—Mr. Somerville Wood—described the Commission as "Gilbertian," and said they might as well place Bill Sykes in the chair to inquire into the doings of the burglary profession. This must be pleasing to Colonel Lockwood, Mr. Tomkinson, Dr. Wilson, and any other member who, as Mr. Coleridge delicately puts it, "has "certainly no present bias towards vivisection." Mr. Coleridge's grievance would seem to be that he is debarred from the pleasure to which he had been looking forward—of putting on his wig and gown and acting as junior counsel to Mr. Rufus Isaacs, whom the National Antivivisection Society had actually briefed to appear before the Commission. It was doubtless his vivid recollection of Mr. Isaacs's power as a cross-examiner that made him so anxious to get him on his side this time. We are inclined to sympathize with him in his disappointment, for it would have been interesting to see the famous counsel in his new part of "nightmare" before the Commission. The more severe the ordeal the greater the brilliancy with which the truth would have emerged.

AN IRISH SURGEON TO LOUIS XIV.

Dr. George Sigerson, President of the National Literary Society, delivered a lecture in Dublin on November 19th on an Irishman who was barber-surgeon to Louis XIV. He said it was not generally known that three of the greatest monarchs of modern Europe had Irishmen as their medical attendants. Napoleon had Barry O'Meara; John Sobieski, King of Poland, the champion of Christendom, had Brian O'Connor, and the Grand Monarque had George Marshall. The first of these was well known; students of Polish history knew something of the second; but the third was unknown out of France. George Marshall was the son of an Irish officer who, in the reign of Charles I, entered the service of France. At the age of 18 George went to Paris and served in the shop of a surgeon-barber named Le Breton. Owing to the good offices of a friend, Remy Roger, he got admission to the wards of the Charité Hospital, and used the opportunities thus afforded him to good purpose. Roger was surgeon to the Prince de Conti, and Marshall—or Mareschal, as he wrote his name—was often allowed to act as his substitute. In 1688 he was admitted a Master-Surgeon and opened a shop in the Rue Jacob. At the age of 23 he was appointed by the Prior of the Brothers of St. John of God, to whom the Charité belonged, to be Master-

Surgeon-in-Ordinary to the hospital; in no long time he became its Surgeon-in-Chief. The tide which taken at the flood led on to fortune came when the Sun-King suffered from a carbuncle in his neck. His Surgeon-in-Ordinary, Felix, made a small opening and wished to make the classic crucial incision, but the august patient hesitated. Felix suggested that Mareschal should be called in consultation. Having made his examination the Irish surgeon without a word made a sign with his fingers indicating that a crucial incision was called for. The King submitted and was cured. Other royal and princely persons soon sought Mareschal's services. When Felix died he was appointed to succeed him. He took up his abode in the Louvre and in the palace at Versailles, but for a time retained his shop. He was a man of generous mind and when he got the Court appointment he threw into the fire all bills due from indigent patients, to the amount, Dr. Sigerson says, of some thousands of pounds. When, in later years, the costs of war pressed heavily on France, and the King gave his gold plate to the Treasury, Mareschal was among the first of those about the Court to follow the Royal example by sacrificing his silver plate. Among Mareschal's patients were Bossuet, the "Eagle of Meaux," Fénelon, Racine, Boileau, Saint-Simon, Villars, whose life he saved when he was wounded at Malplaquet; Villeroy, and many others of the foremost men of the time. He attended his royal master in his last illness and superintended the embalming of his body. He watched over the early years of Louis XV, the "Well-Beloved," and died in 1736. Mareschal was ennobled by Louis XIV, becoming Seigneur de Bièvre, as is related with all the facts of his career by his descendant, Count Gabriel Mareschal de Bièvre.

THE HOSPITAL SYSTEM OF BRITISH COLUMBIA.

DR. EDWARD HASELT, Resident Medical Officer, Provincial Royal Jubilee Hospital, Victoria, British Columbia, contributes to the *Outlook* of November 24th an account of the way in which hospitals are managed in that colony, and incidentally throws light on the conditions of medical practice there. He says that every municipality is bound by law to provide for the indigent sick in its area, and also that no hospital which does not provide accommodation for the sick poor is eligible for a Government grant. All hospitals which admit the sick poor are entitled to State aid according to a sliding scale ordained by Act of Parliament, the smaller hospitals getting more in proportion than the large ones. Hospitals in cities also get a small grant from the municipal authorities for looking after their indigent sick. No disgrace attaches to any one for entering a hospital as a patient, because every hospital in the province provides accommodation for the sick, from the pauper to the millionaire. If a man, woman, or child is ill, he is at once ordered to the hospital, where he knows he can obtain the best advice, and skilled nursing and all modern medical appliances, for a charge ranging from seven dollars a week in a public ward to twenty dollars a week in a private room. If he is too poor to pay the lowest charge, he can be admitted free by obtaining a card of admission, signed by two directors, declaring him to be in need of hospital treatment, and a certificate from his medical man to the same effect. Every medical man has the same privileges; he can attend his patient in the public ward or in a private room; he has his prescriptions filled and his orders carried out with a certainty which he can never hope for at the patient's home. Specialists are very scarce; every practitioner does his own work, and is saved an enormous amount of time and labour by having all his patients under one roof, whereby he saves hours which otherwise would be spent in house-to-house visiting. There are no out-patients, except such people as have been in hospital and who come up occasionally for dressings or medicine. By this means, says Dr. Haselt, every one concerned is benefited: the hospital, because it can be run within its income, the patients who pay helping to support those who cannot; the doctor, because he has the use of all the latest instruments, appliances, and drugs; the patient, because he knows that he gets the best of everything, and is paying for it according to his means. Every doctor has his own office in the town, where he sees patients at stated hours; but every kind of small operation or examination takes place at the hospital. The only clubs are those belonging to the ordinary fraternal societies, such as Oddfellows, Foresters, Sons of England, etc., and the fees members pay do not include operations. There are no dispensaries or private medical clubs, such as obtain in Australia and New Zealand. Dr. Haselt holds that in British Columbia, instead of the hospital being a detriment to the general practitioner, it is a great boon and help both to him and his patient.

SIR THOMAS BROWNE.

MR. CHARLES WILLIAMS of Norwich, during a long and honourable professional life, has devoted much of his leisure to setting forth in a clear light the history and personality of Sir Thomas Browne. It may with literal truth be said that what he does not know about Browne is not knowledge. He is still busy in his labour of love. We have received from him a most interesting reprint from the Norfolk and Norwich Archaeological Society's proceedings, which contains the will, dated 1613, of Thomas Browne, who was a mercer of Cheapside, in "famous London town"; remarks on the early life of the author of the *Religio Medici*, and an oration delivered by him at the inauguration of Pembroke College, Oxford, in 1624; lastly Sir Thomas's own will, dated 1679. Thomas Browne, the father, expresses the wishes that "such goods and chattels whatsoever that hath "pleased God to bestow on me shall be, according to the "laudable custom of the City of London, divided "into three equal and equivalent parts and "portions." One of these parts was to go to the widow; another to his children, Thomas Browne, Anne Browne, Jane Browne, and Mary Browne, "and unto "such child or children as Anne, my now wife, is great "withal, equally among them to be divided"; the remaining third was reserved for legacies and other purposes. Of Sir Thomas Browne's sisters, nothing is known; he makes no allusion to his father, mother, sisters or other relatives, in the voluminous correspondence published in 1836 by Simon Wilkin. Mr. Williams reminds us, however, that a large portion of his correspondence still remains unpublished in the Rawlinson and Sloane collections. The elder Browne's will completely disposes of the statements made by biographers, including Samuel Johnson, that he was robbed of his patrimony by his guardians. The executors named in the will are his mother and his uncle ("my loving "brother, Edward Browne, citizen and brewer of "London"); "surely," says Mr. Williams, "they would "be too closely related to the boy to be so rapacious as is "stated." His mother married again, but there is no appearance of poverty in Browne's bringing up; indeed, he was exceptionally well provided for. When his scholarship at Winchester had expired, he did not avail himself of one which must have been ready to his grasp at New College. He preferred to go to Oxford as a Fellow Commoner, and entered Broadgates Hall (now Pembroke) in 1623. After going through the usual academic course he took the degree of M.A. in 1629. He then studied medicine at various Continental schools, and, as he says himself, "spent his patrimony in travel." His *Wanderjahre* extended over four years, in the course of which he visited France, Spain, Holland, and Italy. On his

return he stayed two years at Shibden Dale in Yorkshire, going through a kind of "rest cure," and writing the book which has given him place in English literature. At last in 1636 he settled in Norwich, where he practised his profession for forty-six years. All this seems absolutely to disprove the legend that he had been defrauded by his guardians. In fact, he was able to get his intellectual and professional training in an enviably leisurely fashion. That he prospered greatly may be inferred from his will, which is dated December 9th, 1679. He bequeathed "unto my deare wife, Dame "Dorothie Browne, all my lands, leases, tenements, all "my bonds, bills, movables, money, plate, jewells, and "all my goods whatsoever, thereby to have a provision "for herself and make liberal maintenance and portions "for my deare daughters Elizabeth Browne and "Frances Browne, excepting such lands and tenements "as were assigned and made over unto my sonne "Edward Browne upon marriage, and to be entered "upon a year after my decease." The document breathes the spirit of a man who has made for himself a comfortable estate and is able to provide amply for those whom he leaves behind. The impression one gets from Browne's career, now that Mr. Williams has dispersed the clouds which the imagination of some of his biographers had gathered about his early years, is that of a man who had never felt the bitterness of Johnson's line—

Slow rises wealth by poverty depressed.

We cannot somehow think that he knew the fierceness of the struggle for life or ever had his lettered ease disturbed by anxiety about his daily bread.

ALCOHOLIC AMNESIA.

In the *Journal of Abnormal Psychology* for August, 1906, Dr. Isador H. Coriat, of Boston, discusses the experimental synthesis of dissociated memories in alcoholic amnesia. In this condition the lost memories are merely subconscious, and during a distraction or inhibition of the upper consciousness may come to the surface and occupy a place in the conscious mental life. This emergence of lost memories occurs in dreams or in delirious or hallucinatory states; it may also be attained by means of proper experimental methods, such as hypnosis, or by the experimental distraction method (hypnoidal) of Sidis. This last method has been employed by Dr. Coriat, and has yielded useful results in the experiments which he records. His first case was admitted to hospital suffering from delirium tremens. On recovery it was found that the patient had a sharply localized amnesia, from noon of one day to the morning of the next. The experiment was made in a quiet and somewhat darkened room; no leading questions were asked, and the only suggestion made to the patient was that he must try and fill up the blank period. "The patient was asked to close his eyes and "to listen intently while a magazine clipping relating "to the Monroe doctrine was read to him, the reading "occupying about three minutes." He was then told to open his eyes and say what events had come into his mind. He immediately replied, "I have it all now," and then proceeded to recall the sequence of events which he had previously forgotten. In a second case of a similar nature reading experiments were again tried. The first was unsuccessful, but the second produced a partial return of memory; a complete restoration of memory could not be brought about, although further experiments were attempted. In the third case of alcoholic amnesia reading methods proved unsuccessful, and as a substitute for these the patient was ordered to listen for three minutes to the tick of a stop watch. This treatment was adopted on four occasions, and resulted in a partial restoration of memory. In Dr. Coriat's fourth case the extremely monotonous sound stimulus of the stopwatch was again applied. Three trials were made, and memory was restored in isolated patches, which afterwards were connected and fused together in chronological order. Dr. Coriat observes that in the deep-seated amnesias the accurately gauged form of stimulus provided by the stopwatch is more efficacious than the reading method for inducing the hypnoidal state. We congratulate Dr. Coriat on discovering a new application of the Monroe doctrine. He has shown it to be a useful restorative for alcoholics, though with a scientific candour which transcends patriotism he admits that it is less stimulative than the ticking of a stopwatch.

THE PREVENTION OF INFANT MORTALITY.

The little candle of the good deed done at Huddersfield has thrown its rays as far as Marylebone. It is announced that the mayor of that borough, Sir Thomas Brooke-Hitching, with a view to diminishing a high infantile mortality rate in the poorer parts of the borough, intends to present the mother of each child born in Marylebone with £1 on its attaining the age of one year. The gift will be limited to poor parents in the receipt of less than £2 per week. At the same time, efforts are to be made to educate parents in the best methods of nurture and treatment. While congratulating Marylebone on the possession of so truly philanthropic a mayor, we think it right to call attention to the excellent work in the same direction that has been done for some time past by the St. Marylebone General Dispensary in co-operation with the St. Marylebone Health Society. Leaflets containing directions for the feeding of infants; hints to patients suffering from indigestion; the means of preventing or arresting consumption; and information as to fresh air and ventilation are circulated. Courses of lectures are delivered to members in the hall of the Charity; the character of these lectures may be gathered from the very practical book entitled *Infant Education*, by Dr. Eric Pritchard, which has recently been published by Henry Kimpton. It is the first of the series. A system of "infant consultations" has recently been established at the dispensary somewhat on the lines of the well-known "Consultations de Nourissons," introduced at the Paris Charité Hospital by Professor Budin. Baby consultation letters are issued, the object of which is to supply practical advice to mothers on infant management, so as to obviate preventable disease, and thereby to reduce infantile mortality. Prizes to the value of £5 have been offered for distribution amongst the mothers who have been most regular in their attendances, who, in the opinion of the physicians attached to the dispensary, have most satisfactorily complied with the instructions given them at the consultations, and whose infants show the clearest evidence of careful management.

THE "BLOODLESS SURGEON'S" CHALLENGE.

We have received another communication from Mr. H. A. Barker, in which, taking no notice of our challenge to him, he repeats his challenge to us. We can only refer him to what we said in the British Medical Journal of December 1st. He clamours for investigation; we quoted the report of an investigation made by a competent observer, and he does not accept it. We are driven to conclude that it is not dispassionate investigation that he wants, but an opportunity of displaying his manipulative knack before judges of doubtful competence. He cannot complain of the medical profession for ignoring his methods, for he has never given it an opportunity of learning what they are. A demonstration of the knack without an exposition of the principle is nothing. Let Mr. Barker teach his art openly, as would seem to be his duty both as an artist and as a philanthropist; let him describe his manipulations as surgeons describe their

methods of operation, fairly and honestly, nothing extenuating nor setting down aught in malice. If he does this we think we can assure him that he will not lack earnest and unbiassed students. He could not lose by the plan, if his methods will bear investigation; it would be a better advertisement for him than any number of "interviews." We may mention that we have received four letters from grateful patients of Mr. Barker, in which the similarity of phraseology might almost suggest verbal inspiration. Of these we need only say with Bion, the atheist, when he was shown in a temple the votive offerings of those who had been saved from the sea: "This is well: but where are the "records of those who were drowned?"

THE HUGHLINGS JACKSON LECTURE.

Sir Victor Horsley's Hughlings Jackson lecture before the Neurological Society of the United Kingdom on November 29th, was entitled "The Illustration by "Recent Research of Dr. Hughlings Jackson's Views "on the Functions of the Cerebellum." Sir Victor Horsley showed that the results of many separate experimental investigations carried out in recent years, when collected, fitted together like the parts of a puzzle, and that their general effect was to confirm in a most striking manner the theories put forward twenty years ago or more by Dr. Hughlings Jackson as the result of the study of clinical phenomena and *post-mortem* appearances. The lecture concluded with an eloquent tribute to the value of Dr. Hughlings Jackson's contributions to neurology; this was warmly applauded by those present, and Dr. Hughlings Jackson, who was called upon by the President, Sir Thomas Barlow, was again warmly applauded when he rose to acknowledge the compliment. We hope shortly to publish the full text of the lecture with illustrations.

Medical Notes in Parliament.

Vaccination and Vivisection.—On Tuesday Mr. Lupton asked the Secretary of State for the Home Department if his attention had been called to the vaccination of calves, and to the fact that the calf was strapped down upon the operating table, that its belly was then shaved, that 100 or more cuts were then made with a knife in its belly, and that vaccine matter was then rubbed into these cuts; would he say if the calf was put under anaesthetics during this operation; and whether, in view of the law preventing cruelty to animals, he would cause proceedings to be taken, or, if necessary, introduce legislation to deal with this question? Mr. Secretary Gladstone said that he had conferred with the President of the Local Government Board, and that the facts were as stated in the question. The operation referred to was not an experiment, and did not come under the Act of 1876. It was open to any one to take proceedings under the ordinary law.

Revaccination and the Rates.—Mr. Lupton also asked the President of the Local Government Board if his attention had been called to the statement in the Blue Book on Vaccination Expenses [Cd. 2421, 1905], that in the four years ended Lady Day, 1903, there were 1,168,058 revaccinations charged to the rates, and if he would state under what statute the rates could be charged with revaccination, except in the case of voluntary applications for revaccination; if he had any official information showing that the bulk of these revaccinations were of persons who did not voluntarily apply for revaccination, but were compelled to do so by their employers on pain of dismissal; and if the auditors of the Local Government Board had surcharged the guardians with any portion of the amount paid for these revaccinations. Mr. Burns replied that he was aware of the number of revaccinations the cost of which was charged to the rates in the period referred to. He had no information to show that the bulk of these revaccinations was of persons who did not voluntarily apply for revaccination, nor did he know of any surcharges made on the ground that any of the applications were not voluntary. It was the duty of the public vaccinator to revaccinate any person applying to him for the purpose who was not less than 10 years of age, and subject to the observance of certain conditions which did not affect the present matter, he was entitled, under Section 8 of the Vaccination Act, 1867, as amended by later Acts, to be paid for these revaccinations out of the rates. Whether the application made to him was voluntary or not seemed to be immaterial.

A Vaccination Officer's Prosecutions.—Mr. Maddison asked the President of the Local Government Board whether his attention had been called to the remarks of the magistrates at the Burnley Police Court concerning the conduct of the vaccination officer of that union, in which, amongst other things, it was stated that he had instituted prosecutions four, six, eight, and even eleven years after the birth of the children in question; whether he was aware that in one case a summons was taken out two and a half years after a child's death: and whether he would take steps to give the Board of Guardians control over this vaccination officer, so that the present unsatisfactory state of affairs might be ended. Mr. Burns said that he had seen a newspaper report of the proceedings before the justices. He understood that they had not been finished, as some of the cases, including the one specially referred to, were adjourned. He was not empowered to take any action of the kind suggested.

Vaccination Acts Amendment.—Sir William Collins asked the President of the Local Government Board whether he was now prepared to state what improvements he proposed to make in the administration of the Vaccination Acts in the directions indicated by him on April 25th. Mr. Burns said that he had lately stated this matter was receiving his attention, but he was not at present able to make any statement with regard to it.

Cancer in London.—Last week Mr. B. S. Straus asked the President of the Local Government Board whether he could give him any information as to the districts in London where deaths from cancer were most prevalent. Mr. John Burns answered that he did not think he could add anything to the information on this subject given as respects each registration district in London in the reports of the Registrar-General, who, however, would be happy to see Mr. Straus with regard to the matter.

Medical Relief for Women After Confinement.—In reply to Mr. Bennett, the President of the Local Government Board said that it was the duty of the guardians of the poor to give medical relief to destitute married women, when necessary, before, at, and after confinement, on their own application, just as much as to destitute single women under the like circumstances.

Delay at the Local Government Board.—Mr. Rogers asked a question with regard to delay in replying to letters from the Pewsey Rural District Council, and inquired whether the Board would reconsider its refusal to receive a deputation on the subject of the medical officer's salary. The President of the Local Government Board answered that this particular case stood over as some general questions affecting the subject to which it related were under consideration. The Local Government Board had, however, consented to the interview desired, and it was proposed that it should take place this week.

Children in a London Workhouse.—Mr. Henry J. Wilson asked a question with regard to a report made by an assistant inspector of the Local Government Board in reference to the overcrowding of children in the St. John's Road workhouse of the Islington Guardians. Mr. Burns said that he had been in communication with the guardians, and had learnt that the number of children over 3 years of age in the workhouse had been reduced to 15. New buildings were nearly completed, and he was assured that when they came into use better arrangements would be made for the children.

Ambulances for Street Accidents in London.—On Monday the Home Secretary stated, in reply to Sir William Collins, that he had resolved to appoint a small committee to consider the provision of a better ambulance service for street accidents in London.

Scotland.

A Sanatorium for the Highlands.

Tuesday, November 27th, is now to be marked as a red-letter day in the medical history of the Highlands, since it witnessed the formal commencement of an undertaking of immense importance to the County of Ross and Cromarty, to residents in the ancient town of Dingwall, and the inhabitants of the islands of Lewis. Probably, too, it was an event unique in the British Isles, since it is believed that on no previous occasion has the erection and complete equipment of a sanatorium for the open-air treatment for consumption been the outcome of the philanthropy of one individual. This, however, is the case with the Seaforth Sanatorium, of which the foundation-stone was laid on the date mentioned by Mrs. Stewart-Mackenzie. It is she who, with her husband Seaforth, the head of the Clan Mackenzie, is the creator of the new institution. Great public interest was naturally evinced in the ceremony, which was performed in the presence of a gathering thoroughly representative of all classes of society, the Lord Lieutenant and the Dingwall Town Council, in a corporate capacity and escorted by its halbardiers, being present, the Brahan Company of the Seaforth Volunteers furnishing a guard of honour. The proceedings were initiated by Seaforth himself, who in his address gave such an excellent account of the purposes which the open-air sanatorium should fulfil, and which it is intended the future building shall realize, that his exact words on the subject may well be quoted:

> Medical experience proves that consumption if taken in time may be cured, and this is the object at which we aim in this sanatorium. (2) We also trust that those patients who have been treated, and we hope cured, here may on their return to their homes instruct those among whom they live in the principles of hygiene that they have learnt here, so that this building may be not only a sanatorium but a school for the people in that great essential of the health and prevention of consumption—fresh air and open windows. If we can achieve these two objects we shall not have built this sanatorium in vain.

He went on to say that after a long investigation it had been decided to take as a general model for the new buildings the corresponding edifice erected in Surrey in connexion with Brompton Consumption Hospital. The patients would be under the charge of Dr. Adam and Dr. Pender Smith, two medical men well known in the locality, and no charge of any sort would be made to them either for their maintenance or treatment; moreover, they would be allowed to remain for as long a time as it was considered in each case would be beneficial to them.

The site which has been been chosen is in every respect excellent; it lies to the west of the village of Maryburgh, and the buildings will be placed on the crest of rising ground facing south and commanding an extensive view of the Cromarty Firth, and the Black Isle and the country to the south, the beautiful Brahan Woods being in the vicinity. The grounds slope southwards and include so many wooded knolls and sheltered hollows that whatever the state of the weather may be it will always be possible for patients to take exercise and rest in sheltered spots.

All drainage from the establishment will be passed into a tank and thence, after filtration treatment, discharged into a brook just as it enters the sea. The water supply will come from the Somerby Well, an excellent source, and will be stored before distribution in a reservoir. The buildings which are now to be erected comprise two main blocks, one lying behind the other. The front block consists of a row of patients' rooms, placed side by side in two wings, and the block behind of the administration quarters and general dining hall. In addition, behind each wing of the front block, there is a small annexe containing bath-rooms, waterclosets, and dressing-rooms. The two wings of the patients' block have together a frontage of 184 ft. and will accommodate six male and six female patients, each in a separate room, each wing being further provided with a ward 17 ft. by 14 ft. for the reception of any case requiring special treatment. The rooms can be entered either from the front or rear, as on the one side there will be a corridor, and on the other an open balcony from which each room will be separated only by a sliding glass screen covering an opening sufficiently wide to enable a bed to be wheeled through it. The building, as a whole, has been designed to permit of extensions whenever required, and it is understood that it is proposed to expend altogether upon the undertaking a sum of not less than £100,000. However this may be, the scheme now definitely in process of realization cannot fail to be of immense benefits to the Highlands where pulmonary phthisis is relatively common.

Edinburgh Royal Infirmary.

At a meeting of the managers on Monday, December 3rd, it was stated that a number of letters had been received from subscribers protesting against postcards which had been sent to them regarding a "snowball" prize competition in connexion with the postcards of a London firm. it was explained that an Edinburgh lady had started a "chain" on behalf of the Royal Infirmary in July last without the consent of the managers. Within the last few days, large numbers of cards with a printed communication on them had been posted to the citizens of Edinburgh. The opinion was expressed that this was merely an advertisement, and the managers agreed to insert an advertisement in the newspapers stating that the cards had been issued without their sanction or approval.

Notification of Births in Glasgow.

On December 4th, the Parliamentary Bills Committee of Glasgow Corporation received a deputation, headed by Professor Stockman, consisting of sixteen medical practitioners, with reference to the clause in the Glasgow Corporation Order, 1907, which provides that doctors must notify to the medical officer of health within forty-eight hours all births which they attend. The deputation urged that the proposal was unnecessary, and that in any case they should be allowed a fee for making the notification. The Committee promised to consider their representations.

Ireland.

A State Medical Service in Ireland.

We understand that at a meeting of the Council of the Irish Medical Association held last week the resolutions passed at a special general meeting of the members in support of a State medical service were considered and approved. A special committee was appointed to take charge of the matter and to report from time to time.

There is a difference of opinion as to the application of the recommendations of the Viceregal Commission to the case of the dispensary doctors. The majority believe that it does apply and in that belief express their enthusiastic approval of the proposal. Even if the terms of the reference are limited it is clear, we think, that the Commissioners had in their minds the inclusion of the dispensary medical service in their proposals. This is evident from their observation:

> The present grant for half the salaries of all the workhouse and dispensary medical officers is £63,613 per annum; and if the whole of the salaries of the surgeons of county infirmaries were included, an annual grant of say £139,726—that is to say, an additional grant of £67,113 over and above the annual amount for pensions, and for salaries and pensions for medical officers of health, would be necessary at the present rate of expenditure in order to establish a State-supported medical service both for county and district hospitals and for dispensaries also.

In this connexion we think it will prove interesting to republish the sketch schemes which were published by Sir William Thomson in the British Medical Journal of January 23rd, 1892, one being his own and the other that of Professor Kinkead, of Galway. The first deals with the Poor-law Service alone, but Dr. Kinkead's is of particular importance at the present time, because its suggestions anticipated the wider proposals of the Commission.

Sir William Thomson's Scheme.

Observations.

I find that, out of all the answers sent in, not more than thirty are hostile to the suggestion that competition should be necessary for admission to the Irish Poor-law Medical Service. This is a very important fact, because the men who thus give their views have the actual experience in the working of the department, and are the best judges of what would be the best for the improvement of the service. It has been urged, in the rather candid manner that friends are said to assume, that all this is hopeless, and that it is worse than absurd to look for it. But many things have been achieved that were more unlikely

than this, and if an effort is now to be made to deal with the dispensary officers' grievances it is better that it should be done thoroughly, and not in a half-hearted way.

Of course the guardians and the dispensary committees would resist any change which would deprive them of their present rights. It is said that they pay the doctors, and, therefore, they should elect them. But this is not true. They only pay one-half the salaries; the Treasury pays the other. And the claim to have the appointment is at least equal. But we have an example of the change here advocated in the case of Irish country surveyors. Formerly, I believe, they were appointed by the grand juries; now they are examined by the Civil Service Commissioners, and enter the service only by that means.

I set out in the following suggestions the outlines of a scheme which I believe would meet the views of the great majority of the dispensary doctors:

1. That all dispensary and union medical officers should be admitted to the service by competitive examination by special examiners appointed by the Local Government Board.

2. That pending appointment to a district, successful candidates should be employed as *locum tenentes* during the absence of the incumbent from any cause, such as illness, annual holiday, etc.

3. That junior officers should, in the first instance, be appointed to distant and poor districts.

4. That promotion should be recognized in the service, so that an officer might be moved from a poor to a better district, where private practice would be available, but that in no case should an officer be moved on promotion unless he was willing to accept the offered position.

5. That promotion should also include the moving of a medical officer from a dispensary to a union hospital appointment.

6. That there should be an increased salary at least in the poorer districts, where practice is not available to any appreciable extent. Probably it would be found best to arrange the salaries in three groups: (1) in the distant sparsely populated district, as in the north-west, west, and south-west; (2) in the better rural districts; (3) in the cities and large towns. The basis of pay might be in such proportion as this: (1) 2½; (2) 2; (3) 1½; with allowances for vaccination and sanitary work.

7. That in all cases pensions should be allowed after a fixed number of years' service at the rate of two-thirds of the whole official income, that is, including fees for vaccination and salary for sanitary work.

8. That in every case retirement should be compulsory at the age of 65 years.

9. That the limit of age for entrance into the service should be 30 or 35 years.

10. That the higher appointments, such as inspectorships, should be given to medical officers of the service.

This, of course, is a mere sketch. It suggests no violent change, unless the assimilation of the department to other departments of the public service be deemed one. It places the appointments simply on the merits of the candidates, irrespective of religious and political influence. It allows the doctor to practise, give at least a bare existing salary to men in poor districts where the work is very heavy, provides for promotion, and secures a pension on the terms provided for Civil servants. I place this first, because in my memorandum the principal points were suggested, and these have been generally approved. But I do not think it is the best possible. I should be glad to see a very much larger scheme adopted, such as would include all the official appointments in a county: in fact, a State civil medical service. I have had the advantage of communications from Professor Kinkead of Galway on the subject, and I give

PROFESSOR KINKEAD'S SCHEME.

Dr. Kinkead says the proposal to create a State service is the real key of the matter, and he has laboured at it for years. He goes on: "The objection made is that the tendency of the age is that the body paying should have appointment and control. At present half the expenses of the medical charities, including medical officers' salaries, are paid by money voted by Parliament or charged on the Consolidated Fund, the other moiety out of the poor rates. The Dispensary Committee appoint, the Local Government Board sanctions appointment, and it alone can remove from office. It seems to me, therefore, that this objection does not fairly lie, and that a compromise between the public and local payers might be effected by which the officers should be appointed by competitive examination.

"I have no doubt whatever that the only way to meet the case, the only reform that will be of benefit, is a recasting of the entire system, the essential features of which should be:

"1. Entrance by competitive examination.

"2. The entire time of the medical officer to be given to the public service.

"3. Proper salaries and promotion in the service.

"4. Right to superannuation, as in other divisions of the Civil Service."

As to extra cost, Dr. Kinkead thinks this would be met by a consolidation and rearrangement of districts, so that the number of dispensary doctors could be reduced, and the merging of workhouse and dispensary doctors in one department.

The entire civil medical work of the country and all public sanitary work should be placed in the hands of this civil medical department. The money now paid to the medical officers of bridewells, prisons, visiting physicians of district asylums, for attendance on police, county infirmaries, should go to pay the civil medical staff. In addition, there would be the sums now paid to medical witnesses, nine-tenths of whom are dispensary doctors. In general outline the department might be thus organized:

Director-General, with seat on Local Government Board, corresponding to present Medical Commissioner of that Board; four Assistant or Provincial Director-Generals, corresponding to the four Medical Inspectors of present system; a principal medical officer for each county, a chief medical officer for each union, and ordinary medical officers of dispensary districts.

As to medical aid in private cases in the sparsely-populated districts which could not support a doctor, special arrangements could be made by which the Local Government Board would sanction private patients being attended on terms to be agreed on.

MEDICAL FEES IN LUNACY CASES.

A very important question has been decided, on appeal, by the Court of Queen's Bench, Ireland, in the case of Dr. J. C. King *v.* the Guardians of Delvin Union. The plaintiff (whose case was presented by the Irish Medical Association) had recovered before the county court judge three sums of £2 each as "reasonable remuneration" for examining three lunatics. The magistrate's order did not bear any stamp. There were other "reasonable expenses," such as conveyance of the lunatics and subsistence of the police. The defendants contended that the orders should have been stamped, but the court held that in the particular certificate this was not necessary.

But the defendants further argued that the 14th Sec., 38-39 Vict., c. 67, provided that £2 should cover the doctor's fee and all other "reasonable expenses," and that, therefore, in awarding the sum of £2 in each case to the doctor the justices were wrong. The court now held that the magistrates had no power to grant compensation for loss of time. The words "other expenses" were general, and referred to other matters as well as medical remuneration. The expenses of a policeman in bringing a patient to a doctor or of witnesses would not come within the county-at-large charges. The "expenses" could not be limited to the payment of the doctor, and this expression could not be regarded as having such a limitation.

GIFTS FOR HOSPITALS: A REMARKABLE CASE.

Last week the Master of the Rolls, at Dublin, had before him a very curious case:

Miss Augusta Magan, of St. Stephen's Green, Dublin, and Killyon Manor, Meath, died in 1905. Her mother predeceased her in 1880, appointing her daughter executrix. Miss Magan on her death left all her real estate to her heir or heiress, and left also several legacies. The residue of the personal estate she left to build or assist in building hospitals, one to be erected to the memory of her mother, one to the memory of the late Dr. Christopher Fleming, Surgeon to the Richmond Hospital, Dublin, and the third to the memory of Colonel Richard W. Bernard. The money required for these last purposes would amount to £200,000 or £300,000, but so far the personal estate only amounts to £55,285 1s. 1d. gross. This being insufficient, it will be necessary to carry out that part of the testator's wishes *cy pres*. Questions of difficulty arose as to the administration of the personal estate, and in ascertaining what benefit the testatrix derived in the personal estate of her mother.

A valuer was sent to report upon the contents of the house at Killyon. He reported that every room and passage was packed with parcels of all descriptions. The litter on the main stairs and vestibule was almost knee-deep. It took the men three days to clear the bedroom of papers and rubbish. Bank notes for small and large amounts were found adhering to old newspaper wrappers or in wastepaper baskets. Sovereigns and other coins were found on the floors or in teacups or kitchen utensils. There were uncashed cheques of fifty years old. There were several chests of silver and plated ware, and wearing apparel which had never been removed from the original packing. The house in St. Stephen's Green was, if possible, worse. It had been shut up for fifty years.

The Revenue authorities held that all the property was aggregable in order to increase the duties. A sum of £600 is involved, and the executors will contest the claim of the Revenue.

The Master of the Rolls decided that the personal estate must be administered by the Court.

New South Wales.

Patent and Proprietary Medicines.

Some months ago Mr. O. C. Beale, who holds a prominent position in commercial circles in New South Wales, on contemplating a tour abroad, was charged by the Federal Government with the task of inquiring into the methods by which European and American countries controlled the sale of patent and proprietary medicines and drugs generally. To facilitate his inquiries Mr. Beale was appointed a commissioner, and he has now returned with an abundance of data, which he will shortly present to the Government. His investigations were carried on in European towns, Great Britain, the United States of America, and Canada, and he considers that Great Britain is the greatest offender. He comes to this conclusion, because Great Britain derives a revenue of £330,000 a year from taxes on proprietary medicines, and to give that amount of revenue at the rate of 12 per cent., 43,000,000 bottles and boxes of proprietary medicines contributed last year. In addition, there were sold masses of American soothing syrups, containing morphine, opium, or chloroform, or all combined, which escaped taxation because they did not specify what they were designed to soothe. Mr. Beale says that what he is bringing together for the Federal Government is actual legislation in regard to drugs and actual evidence of the effects of drugs, and he considers that the data will establish an unanswerable case for prohibition. The hurtful and cruel stuff which Germany will not allow to be sold to her own people is sold without restriction in Australia; the same opiates for children which are working havoc in the United States are sold here. The evil is rapidly on the increase in Australia, more especially in the sale of headache cures, and other dangerous heart depressants.

Hospital Management in New South Wales.

A new Hospitals Bill has been prepared and will shortly be introduced into the New South Wales State Parliament. According to the *Australasian Medical Gazette*, the measure provides for radical changes in the existing system of hospital management. The fundamental principle is to make hospital committees bodies corporate, with all the powers and functions belonging to such bodies. It is understood that certain clauses will be included which are intended to do away with defects in the existing law which afford ground for complaint, and to prevent abuses.

Sight testing Opticians Bill.

The Sight-testing Opticians Bill, which was introduced into the New South Wales Legislative Council, was thrown out on the second reading by 18 votes to 5. The object of this Bill was to establish a grade of medical practitioners who were supposed to be competent to test the vision and prescribe glasses for all classes of persons. No provision was made in the Bill that these persons should acquire any knowledge of anatomy or physiology, or, in fact, acquire any special knowledge beyond the ability to make spectacles. The obvious danger to the public, if these persons should have some hall-mark of qualification by Act of Parliament, was apparent even to the lay members of the Council, and the Bill was vigorously opposed by the Vice-President of the Council, Sir Arthur Renwick, M.D., and others, with the result just mentioned.

A BRITISH NOBEL PRIZE.

[FROM A CORRESPONDENT.]

I have been asked by friends in England and America to write to you on a subject mooted in your issue of September 8th, p. 587, and I trust you will allow me to do so anonymously, as it is a somewhat delicate theme, from the discussion of which, I think, the personal element should be excluded as much as possible. In the passage referred to, you called attention to the great importance of recent discoveries in connexion with yellow fever, and very kindly and properly expressed a hope that those who had made them might not be forgotten in the distribution of the Nobel Prize, awarded every year on December 10th at Stockholm.

As is well known, the Nobel award is divided into prizes given respectively for work done in connexion with medical science, physics, chemistry, literature, and the peace propaganda. Each is worth about £8,000 in money, but the value of it is much enhanced by the charming manner in which it is presented by the King and the people of Sweden, and, not less, by the scrupulous care expended in the selection of the laureates. It is obviously felt that, in order to avoid injustice, the claims of each discovery and of each worker must be examined with the utmost minuteness; and the deliberations are consequently prolonged over the whole year, the opinions of all those connected with the various branches of study being taken and considered. We may therefore rest perfectly assured that those who gave the world the inestimable boon of the knowledge of the manner in which yellow fever is propagated will not be overlooked among the many who deserve the thanks of mankind for their labours.

But I think the time has now come when we should do well to examine the whole question in its more general aspects. For example, one of those who gave us the revelation just mentioned is or was a British subject, and after years of labour on his hypothesis is well advanced on the road of life. Yet though five years have elapsed since his conclusions were verified, he has never, so far as I know, received a single acknowledgement of his work—invaluable and immense as it was—from this country. And now, after this neglect, we express wishes that the Swedes will reward him. It does not seem to strike us that there is anything singular—to use a mild word—in such a hope. Sweden, a small country, does not reserve her rewards for her own numerous and able workers, as she well might, but gives them with both hands to the workers of the whole world. But we, who pride ourselves in being the greatest of modern peoples, whose eminence is based not so much on the magnitude and natural wealth of our country as on the labours of our men of genius, have to go begging hat in hand to her for some little recompense for those to whom we owe so much! And the same must be said of the Americans, who profit still more than we do from the discovery—the greatest scientific discovery ever made in America—and who go about everywhere boasting of their wealth. Yet it was only with difficulty that a small pension could be extracted from them for the widow of one of the discoverers, widowed by the very labour which benefits them! All those who are invited to suggest candidates for the Swedish award will remember how often they are asked by friends to vote for So-and-so. One feels tempted in reply to propose only Swedish names and to advise correspondents of other nationalities to look after their own people. We are reminded of the British worker who said that he always felt towards his countryman as a doctor would towards a patient whose life he has saved but who has omitted to offer him his fee.

The obligation of the State to give pecuniary payment for great scientific work was fully recognized when Parliament voted £30,000 to Jenner. It is evidently a just obligation. The nation does not hesitate to give large rewards to successful generals, even though they have merely done the duty which they were already paid to do. It gives immense, and often disproportionate, pensions to certain high officials. It has rightly admitted its duties towards inventors and writers by creating the Patent and Copyright Laws, which practically impose a special tax on the public in order to pay them for their efforts. The work of the discoverer in science is greater than that of most of these. He serves, not only one people, but the whole world, and not only one generation, but all time. Without him the inventor would not succeed, and the general very often not conquer. Frequently—and this has been especially the case in pathological work—he has not been paid at all for making his researches; he was, let us say, a medical man dependent on his practice for the maintenance of his family, but one who gave up the ability and the time which would certainly have won him success and wealth in his profession to years of toil over some line of research which, after all, may have proved a very wrong line; and, as we well know, failure occurs in a large proportion of such cases. Yet, when by persistent

and sometimes, to him, ruinous efforts, he does succeed, does he then take refuge behind a law of patents or copyrights, and thus recoup himself for his labours? No; the gold which he has discovered he gives away freely to the whole world. He himself may profit little or nothing by his great service to humanity.

But, it will be said, he obtains fame and the esteem of his fellows. Not always. The pioneer, often thwarted and restricted by his circumstances, is frequently condemned to see the bulk of the credit pass to others who have merely, perhaps, given an easy finish to his researches, or have written them up in an unscrupulous manner. At best his fame may extend only among a small band of fellow-workers; and even general fame will not educate his children or pension his old age. But, it will be said again, he will obtain professional, academical, or official preferment and honorific degrees and titles. Not at all. We are fully cognizant of a number of men who have done really great work (it is too delicate a matter to give their names), but who have received no public recognition at all in return—who have even been suppressed or ousted by the action of jealous mediocrities. As for preferment, it frequently goes in this country not to the great workers, but to local people of no particular eminence. In some cases scientific discovery brings success in practice to medical men; but this is obtained only at the cost of the time which might be given to research. As for public honours, they are certainly often bestowed upon workers in science, but not to a degree commensurate with the services rendered—Government officials and even party wire-pullers are clearly preferred for the highest awards. In the medical profession, they fall chiefly to successful clinicians. No one grudges them to these gentlemen; but in drawing the comparison it is necessary to remember that successful practice brings its own pecuniary reward, while, of itself, it is not nearly so valuable to the world at large as is the solution of difficult problems in general medical science. The one is a service to a comparatively few individual patients; the other an invaluable asset for the whole of humanity. At the best, the use of such an inexpensive coinage for the payment of public debts does not redound to the credit of the public.

Thus the national obligation, so clearly recognized by Parliament in the case of Jenner, has now been forgotten by this nation, which, while it pays largely for most other services rendered to it, thinks that it can get, and ought to get, its scientific investigations done for it for nothing. Certainly, Government subscribes a few thousand pounds annually for the purpose; but, as John Ruskin pointed out, this sum compared with the national income is equivalent to the annual disbursement of a few pence by a man with a thousand pounds a year. Further sums are occasionally subscribed by philanthropists to institutions, which give low salaries to a small band of workers for discoveries which they hope to make; but the total amount is infinitesimal for so rich a country; and the sounder and juster policy of paying for discoveries already made is ignored. The result on the progress of science is mischievous. Men of great capacity must often hesitate before undertaking work which, even when successful, may condemn their children and themselves to poverty. In the medical profession, for example, although most men are eager to add as much as they can to the common stock of knowledge, and nearly all have great opportunities for doing so, yet comparatively few can afford to venture upon the more difficult general problems of pathology which are of such vast importance for humanity. The first duty of medical men, both to their patients and to their families, lies, not in the path of general investigation, but in that of clinical proficiency. The result is that only a minute proportion of the hundreds of thousands of them in the world are able, much to the regret of most of them, to study the more complex questions which otherwise they might attack. I think that most of the really great medical discoveries have been made by clinicians in spite of their difficulties. Many more would be made if these difficulties could be removed. For example, the enormously-important problems of zymotic diseases remain unsolved, chiefly for this reason, that the workers are few and far between. And who suffers? Precisely that public which has forgotten to pay for the benefits which it has already received. Condemned to watch helplessly their children dying in thousands by probably preventable diseases, few of them recognize the justice of the retribution which fate inflicts upon them for their ingratitude.

It is often said that the great worker in science does not and should not, look for payment—that his merit is its own reward. Certainly, even in the workhouse, he has this recompense that he must be conscious of having done for his fellows more than any other class of men. But this is not the issue at all. The question is, not what he expects, but what he deserves; and, still further, not what the nation owes to him, but what it owes to itself. If the individual has duties to perform towards the public, has the public none towards the individual? On what grounds does it recompense the inventor, the politician, the statesmen, and the soldier, and yet withhold it from those who are perhaps greater than these? Is there not something indescribably sordid in the history of the world's treatment of its benefactors—in life, penury; in death, a cheap apotheosis. To me it appears—and I say so with all due hesitation, because personal opinion so often proves to be fallacious—that the matter is one which concerns, not so much the welfare of the individual, as the honour and integrity of the whole nation. If the individual shirks payment for work done for him he is looked upon as dishonourable; by what right, then, does a nation seize the fruit of a man's lifework for nothing?

In my judgement, then, the time has come when some attempt should be made to recall the attention of our countrymen to their obligations in this matter. The Swedish prize is so great because it is, so far as I know, the first organized effort recorded in history to discharge such obligations in a real manner. But other countries than Sweden have similar duties to perform. Would it not be possible to accumulate a British fund for this purpose? Several friends of mine have expressed themselves in favour of the scheme; and I now venture to ventilate the matter publicly in the hope that, if others are equally favourable, some movement in this direction may be started. I propose here a fund to pay, I will not say reward, medical workers only—men who have actually achieved results which have advanced medical science without bringing pecuniary recompense to themselves. We may appeal especially on behalf of medical workers because of the professional nature of their employment; a medical man who works for all men deserves payment as much as one who works for individuals. If a committee could be formed to press the proposal, an adequate fund might be collected in the course of time, drawn partly from public subscriptions, partly from bequests, and partly from the national Government. Every year sees enormous bequests which would singly suffice for this purpose, but which are now often squandered on unworthy charities which serve only to pauperize the people they are intended to benefit. The great medical profession of this country should have the power, if it possesses the will, to set an example toward rousing the conscience of their fellow-citizens in this matter.

SPECIAL CORRESPONDENCE.

PARIS.

The Relationship between Syphilis and Cancer.—The Proposed Cancer Institute.—Opening of New Pavilion for Clinical Surgery in Children at Hôpital des Enfants Malades.—Disturbances among Medical Students.

Since October 30th, when Professor Poirier made his interesting communication and gave the statistics of his personal experience in operations on cancer of the tongue as noticed in the British Medical Journal, the Académie de Médecine has each week continued the discussion. At the last meeting Professor Fournier spoke on the connexion between cancer of the tongue and syphilis, and quoted Professor Poirier, who said:

> Every body cannot have cancer of the tongue: two conditions are almost indispensable—you must be a smoker or syphilitic; and those who combine those two conditions, especially the latter, have a much greater risk than other people. . . . Cancer of the tongue might be called the cancer of syphilitic smokers.

Professor Fournier finds that among 184 cases of cancer of the mouth seen in his private practice, 155 had decided syphilitic antecedents, a proportion of at least 84 per cent.; in the 29 other cases the antecedents were not given.

Of the 32 cases operated on by Professor Poirier during the last five years 27 were syphilitic, and in 3 out of the remaining 5 cases a stricter inquiry might have revealed syphilitic antecedents. The peculiarities of cancer of the tongue were much less of the nature of a complication grafted by chance on a syphilitic subject, than a part of a morbid whole of a morbid series. The considerations in support of this argument were:

1. This form of cancer is especially common in males. Of 180 cases, Professor Fournier found 176 in males.

2. It is especially a disease of middle or advanced life, the maximum number of cases (12) at any one age being in Professor Fournier's cases at 52 years.

The following table shows the ages in 133 of his cases:

	Cases.
From 35 years (lowest) to 39 years	9
,, 40 to 49 years	38
,, 50 to 59 ,, ...	52
,, 60 to 69 ,, ...	25
Over 70 years	9
	133

3. As a necessary corollary it is found that this cancer is a manifestation of old syphilis. It attains its maximum frequency from the twentieth to twenty-fifth year after infection, as the following table shows:

	Cases.
From 7th to 10th year of infection... ...	6
,, 11th to 20th ,, ,, ...	31
,, 21st to 30th ,, ,, ...	45
,, 31st to 40th ,, ,, ...	28
,, 41st to 50th ,, ,, ...	10
,, 51st to 56th ,, ,, ...	3

4. Although syphilis produces cancer of the tongue it only does so exceptionally of itself. It has, it seems, need of a collaborator, which is tobacco. It is the excessive and chronic abuse of tobacco which helps cancer to develop in these cases, because it is rare (*a*) in syphilitics who do not smoke; and (*b*) it is very rare in women who do not smoke, or who use tobacco in moderation compared with men. Of the two partners, syphilis and tobacco, the former has the predominating harmful influence, for in some cases syphilis alone is sufficient, but few syphilitics who do not smoke ever develop cancer; still fewer cases are found in smokers who are non-syphilitic, although many smoke to great excess. Dr. Barthelemy has recorded the case of a man who for thirty years smoked to excess, never being without a pipe or cigar in his mouth, without the slightest lesion in the mouth. He then contracted syphilis, continued to smoke, and came back two years later with an intense form of leucoplasia.

5. Syphilis rarely leads in a direct way to cancer. The rule is that it only does so by the intermediary of a special lesion—that is, leucoplasia.

As to the therapeutics of cancer of the tongue, Professor Fournier thinks that the antispecific treatment has too often been abused in these cases, so that the favourable time for operation is allowed to slip by. The best preventive measure is the treatment of every case of syphilis for a sufficiently long period and with sufficient doses.

An influential committee has been formed to organize the Cancer Institute in France; it includes the Deans of the Faculties of Medicine in the provincial medical schools, the managers of the leading banks in France, etc. Professor Poirier has already received over £12,000 towards the fund.

Professor Kirmisson gave an inaugural lecture at the opening of a new pavilion at the Hôpital des Enfants Malades for clinical surgery in children. The ground-floor of the pavilion contains a waiting room, a room for examination of patients, an operating theatre, and an instrument room, all divided by a central passage from rooms for orthopaedic gymnastics, massage, electricity, and dressings; a lecture room is built out from the building. The first floor contains laboratories for radiography, chemistry, bacteriology, and histology, divided by a central passage from the library, museum, and a private room for the medical officers.

During the last ten days or so there have been many disturbances among the students in the Latin quarter. Several of the lecturers have been interrupted and have been unable to deliver their lectures, and on November 30th eggs were thrown, the door of the library was broken in and the University notice-board torn down and burnt. As a result, the classes have been stopped till December 10th. The students object to the introduction of the proposed certificate of higher medical studies, which has been disapproved of by the French medical societies as tending to produce two orders of practitioners—those holding a higher diploma and those who are simply doctors in medicine, thus reproducing a state of affairs similar to that existing before the abolition of the "Officiers de Santé." Another cause has been the rumour that the Municipal Council proposed to appoint to the chair for diseases of the throat, nose, and ear, which it has practically decided to establish, a doctor who is not a professor *agrégé*.

CORRESPONDENCE.

THE TREATMENT OF FRACTURES.

Sir,—Dr. Bowser's very remarkable article on early movement and massage in the treatment of fractures[1] has led to a very interesting letter from Professor G. A. Wright,[2] which contains some instructive remarks, and some criticisms which I should like to answer.

Professor Wright grants that absolute rest could never be the foundation of the treatment of fractures. He thinks, however, that without rest there will be an over-production of the plastic materials which contribute to the process of healing. Further, he thinks that the only movement permitted should be spontaneous, because all forced movement, all massage is painful, and disturbs the necessary rest.

The first remark is true; it is precisely on this clinical fact that my method is based.

I have established, as the result of my observations—contrary to the notion accepted by most surgeons who held that moving the fragments led to non-union, the delay of callus formation, and even to the production of pseudarthroses—the fact that a certain amount of movement is beneficial to new bone formation.

I have shown that a certain amount of movement is necessary for the union of the broken ends. But I have said that this movement must be regulated. Badly regulated and exaggerated movement might lead to bad union, and in some cases to excessive callus formation.

I have indicated with care that in the case of young subjects who manifest a tendency to the over-production of callus, much prudence must be exercised. I have shown that in these cases recourse must only be had to moderate and methodical movements, and rarely to massage.

The latter, it must always be remembered, can never be practised over the actual site of fracture. We must begin at the extremity, and pressure should never be exerted over the point where union is taking place.

Mr. Wright finishes by saying that, whilst assured of the value of massage carried out according to my rules, and of active movements, he is still convinced of the dangers of passive movements.

This criticism can only arise from an insufficient study of my method and from the fact that Mr. Wright has not seen me apply it. He bases his argument chiefly on the fact that in the case of active movements pain will limit them, whilst it cannot do so in the case of passive movements.

I cannot share this opinion of Mr. Wright's nor accept this criticism. Observation of facts leads to a totally opposite conclusion. If Mr. Wright would read my publications, or could he see the application of my method in my practice, he would have found out that the consideration of pain is precisely the very first which I use for limiting the movements. It is pain, or rather the total absence of pain, which ought to guide the surgeon. If the patient suffers from the application of the method, it is because it is badly applied. This must be the more striking in that I expressly state that the surgeon must apply the method as soon as possible after the injury—that is to say, when the sensibility of the tissues is at a maximum.

Of course, one must carefully distinguish this method from that practised by those who modify the immobilization of parts after an injury to a certain extent, permitting some movements, so as to avoid future stiffness. At this juncture in the treatment of fractures all spontaneous movement is dangerous, often even though it be not painful. Methodical movements alone have no contraindications and can be carried out without pain. After the first few days I always look upon spontaneous movements with

[1] British Medical Journal, October 25th, 1906.
[2] Ibid., November 3rd, 1906.

distrust, more especially as massage well applied has diminished sensibility and suppressed the chances of pain.

When I allow movement I always take great care to point out to the patient not only that he must cause himself no pain, but to what extent he may carry out movements.

To give examples: Since I do not put on any apparatus which really fixes the wrist joint in fracture of the radius—on the thorax for fractured clavicle, on the shoulder for fracture of the upper end of the humerus—I point out to the patient that I only allow movements of small range at the joints in question. In the case of the wrist I only allow movements of the fingers; I recommend extreme caution in extension and flexion of the wrist, and absolutely forbid backward bending of the wrist on the forearm. In the case of the clavicle I recommend the patient not to allow the shoulder to drop, and not to make any rotatory movements of the arm. For fracture of the upper extremity of the humerus the patient should make no rotatory movements of the limb, whilst each period of massage must be followed by slight movements in this direction, so as to assure suppleness of the joint.

For each fracture the surgeon who is thoroughly competent clinically must himself control the range of movement permitted, and not trust to the patient guided by pain. When the latter, whilst doing the movements, is stopped by pain he may already have done some damage which should be prevented.

Results which contradict the fears expressed by Professor Wright can be counted by hundreds, and I have shown them for more than twenty years to all surgeons who have done me the honour to visit the hospital wards which I direct. I therefore feel justified in saying that Mr. Wright cannot be certain of the dangers of passive movements. It seems to me, in this connexion, that the difference of appreciation is due to an insufficient knowledge of the method. I remember that during a discussion on the massage of fractures, at the Congress in Moscow, M. Zabludowski, who is an authority on massage in Berlin, declared that if it were not painful it was not true massage, and any effect was due to suggestion. I could answer him that this definition of massage only leads to confusion; and if he would honour me by visiting my wards, he would soon feel himself convinced that he was dealing with a very special procedure which he certainly did not know of, and the efficacy of which he could easily test.

Long years of experience have proved the reality of the results which I obtain. I cordially agree with Mr. Wright that this method is much more difficult to apply than that which consisted in fixing on a splint and awaiting results for one, two, or three months. I would even willingly acknowledge that this method in the hands of inattentive surgeons is not devoid of danger. But in view of the immense advance it has led to in the successful treatment of fractures, have we not the right to say that surgeons must learn it as thoroughly as they learn the technique of operations which are themselves equally dangerous if the surgeon is not sufficiently experienced?—I am, etc.,

LUCAS-CHAMPIONNIÈRE,
Chirurgien Honoraire de l'Hôtel Dieu; Membre de l'Académie de Médecine.

December 3rd.

LEPROSY.

SIR,—I see by a reference to your paper in *Nature* of August 9th, which has just reached me, that Dr. Goodhue of Molokai has succeeded in demonstrating the presence of the leprosy bacillus in *Cimex lectularius*, as well as in *Culex pungens*. I think the following observations may be of interest as bearing on the matter:

In my diocese we have tribes where till quite recently European influence has been practically *nil*. We find among them sporadic cases of leprosy—one in a village, or perhaps two, but hardly ever more. These natives eat and drink out of the same pots; if there is food, whether fish or other, they all share alike. They practically live all together, with one exception—no healthy person ever sleeps with a leper, or one suspected of leprosy. In the case of married people, they have intercourse, but it is always in the daytime if one of them is a leper. The children of such parents are, as far as I have seen, quite normal.

They build the sick people a hut, or huts, quite close to the village, but no healthy man or woman sleeps there.

I have traced one or two cases of leprosy to "forced labour" and to going to work on the mines. My explanation is that no employer of forced labour gives his men the choice of sleeping apart from others; they are huddled together in prison till the time comes to go to work, and then the master provides common sleeping-places for all; those going to the mines are huddled together in the trains and steamboats day and night.

If the intermediate host were winged, it would fly from hut to hut, and therefore leprosy would spread in the villages in a way that it does not seem to do; if it were infectious, like some other diseases, they would catch it from the common spoons and cups; if it were due to food, all who eat that food would be liable to get it. Therefore, I think, we must conclude that *Cimex lectularius*, or some similar wingless parasite that eats at night, is the means of conveying it from man to man.—I am, etc.,

W. R. SMYTH, M.B.Camb.,
Bishop of Lebombo.

P.O. Box 120, Lourenco Marques, Nov. 5th.

INFLUENCE OF RAINY WINDS ON PHTHISIS.

SIR,—Dr. Pilkington states the spread of phthisis in Devon is due to dirt and want of ventilation. Having been District Medical Officer for eight years in part of the district referred to by Dr. Gordon, I take exception to that statement. On the whole, cottages are kept very clean; and, as to lack of ventilation, it is quite the exception to find a cottage door closed save in very inclement weather, and the inhabitants spend most of their time in the open air.

Assuming that Dr. Pilkington accepts Dr. Gordon's figures as correct, does he want to infer that only the populations exposed to SW. winds are dirty and live in unventilated houses?—I am, etc.,

SIDNEY E. ATKINS,
Formerly Medical Officer for the Hatherleigh and Northlaw Districts of the Okehampton Union.

Exeter, Dec. 1st.

SIR,—I am glad to see the two letters on Dr. Harper's paper and mine in your issue of December 1st, partly because they show that the views expressed in that paper are gaining ground, partly because they enable me to once more deal with unsupported objections, which seem the only resource of those who disagree with these views.

Dr. Penn Milton has evidently not followed the controversy, or he would be aware that his objection (of closed doors and windows)—which has not a scrap of evidence to support it—has been already answered. Does he contend that all doors and windows are on the west and south-west sides of the houses in country districts? Are cottages with windows which do not open only met with in situations exposed to west and south-west winds? How does he explain my results in Exeter streets, where exposure of the roadways seems to raise the corresponding phthisis death-rates? With regard to his objection to female statistics, has he overlooked the fact that my first evidence rested on mixed male and female populations, and that I have since used female death-rates only, because the very sound objection was raised that the men had more varying occupations and might work in one parish and sleep in another?

I imagine that Dr. Harper of Barnstaple, who has lived all his life in the district we dealt with, and as medical officer of health has special acquaintance with its sanitary conditions, knows at least as much about his own part of Devonshire as Dr. F. W. Pilkington of Lechlade in Gloucestershire.

The proof of the relations of wet winds and phthisis now rests on too much solid evidence to be shaken by armchair criticism. Those who mean to refute it will have to do some work at it.—I am, etc.,

Exeter, Dec. 1st. W. GORDON.

IT is announced in the *Chronique Médicale* that Dr. François de Martel de Janville, a son of the clever lady who, under the pen-name of "Gyp," has added greatly to the gaiety of readers of contemporary French literature, is to be married to Mlle. Eugenie Saint-Martin. "Gyp," whose real name is the Countess de Mirabeau-Martel, is, we believe, the grandniece of the famous orator of the Revolution. Among her novels is one of peculiar interest to medical practitioners. It is entitled *Le Docteur Tant pour Cent.*, and illustrates the evil results of the practice of sharing the spoil between the consultant and the general practitioner, which is known in France as "dichotomy."

OBITUARY.

GEORGE BAGOT FERGUSON, M.D., M.Ch.Oxon., F.R.C.S.Eng.

SENIOR SURGEON TO CHELTENHAM GENERAL HOSPITAL; EX-PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

We gave last week some particulars of the tragic circumstances of the death of Dr. G. B. Ferguson of Cheltenham, who was President of the British Medical Association in 1901 when the annual meeting was held in that town, and placed on record the resolution of condolence adopted at the meeting on November 28th.

George Bagot Ferguson was the only son of Mr. William Bruce Ferguson of Cheltenham; he was born on January 13th, 1843, and received his early education at Cheltenham College. He went up to Magdalen Hall, Oxford, and graduated B.A., with first-class honours in natural science in 1865; he then became a student of St. Bartholomew's Hospital, and graduated M.B. in 1871; he proceeded to M.D. in 1875, but did not take the degree of B.Ch. until 1900, and that of M.Ch. until 1903. After holding the office of House-Surgeon at St. Bartholomew's Hospital he settled in practice in Cheltenham and was appointed Honorary Medical Officer to the Branch Dispensary, becoming a member of the staff of the General Hospital in 1874; he was also surgeon to Cheltenham College and Cheltenham Training College. He took a keen interest in his hospital work, and at the time of his death was Senior Surgeon. The fact that he took his surgical degrees at Oxford at about the age of 60, is a proof not only of his devotion to the study of surgery, but of a certain elasticity of mind which was one of his most striking qualities. The distinction which he won as a surgeon, led to his election in 1902 to be a Fellow of the Royal College of Surgeons under the rule with regard to members of twenty years' standing.



During his thirty years' practice in Cheltenham, Dr. Ferguson won for himself many friends and showed his gratitude to the town itself by his efforts to restore the popularity of Cheltenham waters. In 1895 he was a member of a medical committee formed to investigate their value and to make them better known, and one result of these efforts was the opening of the new spa counter at the Town Hall in June last.

The position which he had attained marked him out for the office of President of the British Medical Association when the local profession resolved to extend to it an invitation to hold the annual meeting in that city in 1901. With regard to his services in that capacity we are glad to be able to give the following tribute to his memory, which we owe to Dr. Roberts Thomson, of Bournemouth, who at that time was President of the Central Council. Dr. Thomson writes:

"The tragic circumstances attending the death of Dr. Ferguson of Cheltenham will cause a great shock to many in the Association far beyond the district where he had laboured so successfully for so many years.

"He had been so recently President of the Association, and the recollections of the successful Annual Meeting held at Cheltenham under his genial guidance are so fresh that very many will feel deeply that they have lost a personal friend.

"During his term of office I was necessarily brought into somewhat close connexion with him, and I have a mournful satisfaction in calling to mind, and in bearing testimony to, the ardour and enthusiasm with which he approached every arrangement which would help forward the success of the meeting over which he was to preside, or the welfare of the Association.

"Some points stand out prominently as distinguishing him in this respect:

"1. His unbounded hospitality. He issued his invitations in a most generous way, and a very large number of members enjoyed the advantage of forming part of the bright gathering which assembled twice daily in the rooms he had reserved at the hotel. This added much to their enjoyment of the meeting, and enabled them to appreciate the great social gifts of their genial host.

"2. His desire that the annual meeting should attract outstanding men in the profession from other countries. I think the Cheltenham Meeting was marked by the presence of a greater number than usual of distinguished men from the Continent and elsewhere. Dr. Ferguson's familiarity with the French language enabled him to show many of them personal attentions, and must have done much to render their sojourn at Cheltenham bright and happy.

"3. The tact with which he dealt with questions to which he had to address himself, with no previous preparation. At that time the Association was somewhat agitated by the new constitution. As President, he was necessarily to some extent involved in the discussions and debates. His tact in meeting difficulties with which, as a matter of course, he was not very familiar was very marked.

"4. His desire that the Association at its annual meetings should be identified in some useful and practical way with the inhabitants of the district where the meetings were being held. This bore fruit at the Oxford Meeting in a Popular Lecture which he was requested to deliver.

"To me, and I am sure to very many in the Association outside the more immediate circle of Dr. Ferguson's acquaintance, there is a pleasant memory of a genial, urbane, cultured man, keenly interested in his profession, but also with a wide range of interests covering many fields. The Association has lost a Vice-President who was keenly anxious that the Association should not only prosper, but that it should exercise an increasing influence and power in dealing with the important problems in medical politics which are pressing for solution; that it

should strengthen the bonds of good fellowship in the profession, and that it should also, to the utmost of its power, help forward the progress of scientific knowledge. Such men can be ill spared. While we unite in the expression of deep sympathy with the bereaved ones left behind, we record also our sense of the loss both the profession and the Association have sustained by his sudden removal."

Sir J. W. BYERS (Belfast) writes:

"The many friends of Dr. G. Bagot Ferguson in the north of Ireland were greatly shocked on hearing of his tragic death while at the post of duty last week. He was connected closely with one of the oldest Ulster families—the Bruces—his father being a brother of Mrs. Samuel Bruce, whose son is Mr. James Bruce, D.L., of Thorndale, Belfast, and Benburb, co. Tyrone, whose wife established and endowed the Thompson Memorial Home for Incurables at Lisburn, near Belfast, in memory of her father, a very distinguished medical men, the late Dr. Thompson, of Lisburn. Those members of the medical profession from Belfast who were at the Cheltenham meeting of the British Medical Association will always remember Dr. Ferguson's extreme kindness, dignified courtesy, and lavish hospitality."

To Dr. Wilson, Physician to the Cheltenham Hospital, who had been intimately associated with Dr. Ferguson for nearly forty years, we are indebted for the following appreciation, written from the standpoint of a professional colleague and professional friend:

"The salient feature in a character which had several lovable sides was a never-failing amiability and kindly consideration for the feelings of all who were brought into contact with him. To his patients, whatever their status in life might be, Dr. Ferguson gave ungrudgingly of his time and skill, and they became, to a remarkable degree, his warmest personal friends; indeed, it might almost be said that he never made an enemy. The attendance of nearly every medical man in Cheltenham and the neighbourhood at his funeral showed the respect in which he was held by his professional brethren, and to all who knew him, whether rich or poor, his tragic end has brought with it a deep sense of personal loss.

"His many acts of kindness, though unrecorded, are well known to those most intimately associated with him on the hospital staff, and have made his loss felt in many a humble home. Coming to Cheltenham with a brilliant reputation won at Oxford and St. Bartholomew's Hospital, George Bagot Ferguson joined the Dispensary staff in 1872, and soon displayed that indefatigable aptitude for work which has characterized him to the close of his life. No opportunity for improving his surgical knowledge and skill was ever neglected, and during the many years of his busy life the chief centres of medical activity were visited not only in Europe but in America; the best methods of surgical procedure were carefully studied and afterwards put into practice at home; while the knowledge acquired by wide reading and a very remarkable memory were brought to bear on the daily work of his profession; indeed, no greater proof of the freshness of his intellectual ardour could be found than the fact of his qualifying for the M.Ch. at Oxford in 1903, when the Fellowship of the Royal College of Surgeons had been already conferred upon him in the previous year. But Dr. Ferguson was not merely a surgeon, his interests extended widely into the general fields of science, and each new discovery in turn claimed his special attention and study. Whether it were the *x* ray, or bacterial infection, or wireless telegraphy, or photography in colour, the subject would first be thoroughly mastered, and then communicated to others in a lecture of singular eloquence and perspicuity. Dr. Ferguson was a ready speaker and an admirable *raconteur*, with a keen appreciation of humour, which made him welcome in any society, and no one who was present at the great gathering of the British Medical Association in Cheltenham in 1901 can forget the grace and urbanity with which he occupied the position of President, and the complete success of the meeting, due in large measure to the infectiousness of his genial and kindly personality. To his many patients his loss is simply irreparable, and many among his brethren in the profession will miss the skilled counsel on which they were wont to rely in times of difficulty and doubt; while among his immediate colleagues at the hospital it is felt that a gap has been made which it will be difficult indeed to fill."

Dr. Ferguson was a man of wide reading both in literature and in science. He was an excellent amateur photographer, and when the value of the application of Roentgen rays to medicine was first perceived, he took steps to procure a suitable apparatus for use in the Cheltenham Hospital. He also took a practical interest in wireless telegraphy: indeed, there was no development of science which did not find in him an enthusiastic supporter. He was a fluent and effective speaker, and had an easy graceful style in writing, nevertheless he was by no means a voluminous contributor to medical literature, but some valuable papers on surgical subjects from his pen have been published in the BRITISH MEDICAL JOURNAL and in the columns of some of our medical contemporaries.

The funeral service held in Cheltenham College Chapel on Saturday, December 1st, was attended by a large congregation, including the majority of the medical men practising in the town; the interment took place at Prestbury churchyard. The Cheltenham Hospital was represented at the graveside by Colonel Croker-King, Mr. Grundy, and by members of the medical staff, as well as by representatives of the nursing staff.

Multis ille bonis flebilis occidit.

MEDICO-LEGAL AND MEDICO-ETHICAL.

SOUTHERN V. THOMAS AND SKYRME.

(Continued from page 1610.)

When the case was resumed on November 28th, Mr. Wm. Rose said that the fracture of the arm must have been caused by tremendous violence, and, if there was dislocation as well, the violence must have been still greater. He agreed with Mr. Pepper as to the way in which the accident happened.

Mr. William Henry Battle, F.R.C.S., Surgeon to St. Thomas's Hospital, said he examined the plaintiff's arm on March 14th, 1905, independently of the last two witnesses. Fracture of the surgical neck was a common accident. He had seen many cases, and the result of treatment was generally good. Such a fracture would be readily diagnosed; it was always accompanied by an effusion of blood. The proper treatment was to endeavour to bring the ends together, so as to get apposition. Side by side apposition, if effectually made, would have left the patient with a fairly useful arm. Assuming diagnosis was difficult by reason of excessive effusion, a skiagram should be taken. In such a case the patient should be kept in bed.

Mr. Justice Bigham: Assuming there was a fracture was it proper to use the foot?—No, there would be great danger.

Cross-examined: Mr. Battle said he had not sufficient material before him to say there was no dislocation. What was described as the "heel in the axilla" process was correctly described in *Erichsen's Surgery* (tenth edition), p. 307.

Continuing, witness said that while there was swelling no one would try to reduce the fracture by incision, unless he had failed to reduce it otherwise. The right course during the swelling, while there was danger to the arm, would be to bind the upper arm to the body and keep the arm in a sling. The fractured surface was looking straight outwards, which would make a join more difficult. It might be that sometimes after treatment there would be less apposition than before. In a case of this kind it was difficult to keep the broken parts in apposition by wooden splints. A shoulder-cap might be used. It was not only used for protective purposes.

In re-examination witness said that where there was fracture and dislocation treatment was exceedingly difficult, but there was a definite way of doing it. The manner in which Mr. Southern's arm was now set was not an example of side-to-side apposition.

This closed the plaintiff's case.

Mr. Isaacs, in opening the defendant's case, said he had never suggested that the plaintiff was stating what he knew was untrue; but he was a man with a grievance, and, where he was in conflict with the defendants, he (counsel) would ask them to believe the defendants. Coming to the facts, it was clear that Dr. Skyrme had been there for hours. Why should he not be believed when he said there was a dislocation? It was common ground that he told the plaintiff so at the time. They were entitled to deal with Mr. Lynn Thomas as a gentleman of high skill. He did detect crepitus. Having found it he adopted a treatment which many of the most eminent men in the country approved. It was wrong to say that a surgeon must always set and bring the bones into apposition. It was an impossibility in this case. They had to consider the danger of mortification setting in. It was said by the plaintiff's witnesses that he should have been kept in bed; but this was not the case. At least one eminent man would tell them that he would keep his patient out of bed as long as possible. The laceration was fully accounted for by the accident. As to the charge that no skiagram had been taken, that was only necessary if there was doubt as to the position of the parts. Here there was no doubt. When the skiagram was produced on August 6th Mr. Thomas said, "That is just as I thought." He had said on July 19th that a skiagram would be unnecessary expense. On August 6th he said he would not operate. As a rule, the reproach made against surgeons was that they advise operations. It was novel to found a charge of negligence upon a refusal to operate. It was impossible for a surgeon to guarantee that a broken arm should be as good as ever.

Mr. Justice Bigham told the jury that the question they would have to consider was whether the plaintiff sustained the injury of which he complained by reason of want of care or skill on the part of the defendants or either of them. The question was whether, having regard to the different views of eminent medical practitioners, they could say that the defendants' treatment showed want of that reasonable care and skill to which a patient was entitled. It was not necessary for them to inquire whether the best treatment had been applied. It was preposterous to say that medical men gave any guarantee that their treatment would be successful.

Dr. H. E. Skyrme, M.R.C.S., L.R.C.P., one of the defendants, said that he was winner and holder of several scholarships in medicine and surgery, and that he had practised in Cardiff for fifteen years. He said that when he saw Mr. Southern he had *(inter alia)* external wounds on the arm and shoulder, and a dislocation at the shoulder. He was suffering from marked muscular relaxation. After treating the superficial wounds he felt the shoulder, when he discovered the dislocation. He then took him into the dining room, pulled the arm, and detected crepitus. He then knew that he had both dislocation and fracture of the surgical neck. He then thought it important to proceed to reduce the dislocation as soon as he could. He took the plaintiff upstairs and placed him flat on the bed. He pulled the arm down and out, so as to let the foot into the axilla, and pressed with the side of the foot so as to push the bone out. It was successful, and he found that it reduced the dislocation. He then took the plaintiff down when he found there was a considerable effusion of blood in the arm. If Mr. Rose had his opinion of maid servants he would not have suggested having a maid servant to assist. He never told plaintiff there was no fracture. The plaintiff suggested a second opinion. Witness went himself to fetch Mr. Lynn Thomas. He had no conversation with Mr. Lynn Thomas before Mr. Lynn Thomas saw plaintiff. While Mr. Lynn Thomas was examining the plaintiff he said he had found a fracture and ½ in. shortening. He (witness) told Mr. Thomas that he had found and reduced the dislocation. Mr. Thomas congratulated him and the plaintiff upon its having been reduced. Mr. Thomas then told the plaintiff that there was a slight crepitus. He also told him there was fracture. "Slight fracture" was not a term used in surgery. He never heard Mr. Thomas tell plaintiff that there was no fracture. Neither he nor Mr. Thomas said there might be a small piece split off the bone. They went out together on to the doorstep, where they had a proper consultation. They discussed the question of splints. The amount of injury to the soft parts was a difficulty in the way. They concluded that a small pad should be put in the axilla, and that the arm should be bandaged to the body. Before leaving the patient in the first instance he put the arm in a sling. He never said the pad was to prevent the shoulder coming out again. The object of it was to promote the comfort of the patient. As he left the plaintiff the upper part of the arm was bound to the body. There was no discoloration then, but there was swelling in the armpit and over the deltoid. He was attending on the patient for three and a quarter hours. The pad was not put in until after the consultation. Before leaving on the 19th he told the patient to go to bed and keep quiet. Mr. Lynn Thomas never told him there was no displacement. He did not think that it was material that plaintiff should stay in bed during the day. He saw the plaintiff next morning. The reason he removed the pad was because of the pain. He continued to visit the patient daily until August 3rd. Swelling reached its height between July 23rd and 26th. The cause of the swelling was the bruising and the blood clot in the axilla. He never told the plaintiff the he detected no fracture. The plaintiff so often asked him why the arm was allowed to hang that the witness recommended him to have an *x*-ray photograph. It was to reassure the plaintiff. He had told him he would be able to move it backward and forwards, but the movements upwards would be limited.

Mr. Justice Bigham: What would the *x* ray show him?—The position of the fracture, for his satisfaction, not for mine as I knew it already.

Continuing, witness said the position of the fracture had been explained to him by Mr. Thomas at the consultation. The skiagram was taken by Mr. Thomas. No particular remark was made. On August 5th witness saw the negative. He said nothing about the capsule. He told plaintiff the fracture was not exactly as he (witness) thought, but told him nothing of what Mr. Thomas thought. Witness had thought the fracture was in the usual position, but instead he found it ¾ in. higher up. On August 6th he was at Mr. Thomas's again, when Mr. Thomas said he would have a good useful arm; that some surgeons might operate, but he (Mr. Thomas) would not.

Cross-examined by Mr. Duke (on November 29th), witness said that on the occasion of the last trial the defence was undertaken by the Medical Defence Union. He had not heard that the Secretary of the Union had written letters to the experts approached by the plaintiff asking for anything in the nature of a report which they had made. He did not know that Mr. Openshaw, who had examined the plaintiff, had been communicated with and as a consequence that he had decided not to give evidence in court. Asked as to his examination of the plaintiff, he said that the dislocation was quite distinct. He felt the head of the humerus in the armpit just below the glenoid cavity on the chest side of the armpit. A fracture high up in the humerus might be mistaken for dislocation of the humerus. He had not made that mistake.

By the Court: It is a mistake that may be easily made.

Continuing, witness said the lump he found was high up on the chest side of the armpit. He could not have placed his fingers above the head of the object producing the lump without doing mischief. He told the plaintiff of the dislocation because of the lump, but he did not then know of the fracture, and he did not tell him of the fracture at all. The heel in the axillary process was mentioned in Sir Astley Cooper's book. He believed that the treatment which he adopted was described in the last edition of Mr. Rose's book.

Mr. Justice Bigham: Have you not for the purpose of this case searched the textbooks in order to see your method described?—I believe it was *Rose and Carless*.

Mr. Duke: I believe that is on page 628 in the sixth edition. Do you seriously say it describes what you did?—No. It describes treatment for fracture simply. I was dealing with dislocation and fracture.

Mr. Duke: Is not the object of the treatment there described a method of getting purchase on the arm?—Yes.

Mr. Justice Bigham: It does not follow that because he has been unable to find the method which he adopted described in a book he did not do the best thing.

Continuing, witness said he did not know of any book which exactly described the process he adopted.

Mr. Justice Bigham: I should have thought you would have read all the books you could since this case in order to fortify you in your defence?—My answer is that I adopted the best means I could in the circumstances in which I was placed. Continuing, witness said that manipulation meant the use of the hand in a skilful way. There was a shocking state of bruising in the arm and on the outside. There was nothing abnormal in the external appearance of the arm on the first night. He saw nothing up to 7 o'clock on that day to indicate that gangrene was imminent. He did not see anything in the external condition of the arm before he reduced the dislocation to prevent his using his foot in the armpit and extending his arm. The amount of effusion in the armpit made it all the more imperative that the reduction should be effected.

Mr Justice Bigham: I hope you realize what you are saying?—I did not apply leverage, my lord.

Continuing, witness said that what Mr. Southern had described was the ordinary "heel in the axilla" process. There were powerful muscles connecting the arm bone with the shoulder and the back, which, when the arm was broken inwards, tend to drag it upwards and inwards into the armpit. To alter the position a great pull would be required, if there was no muscular relaxation. When he made his pull he brought the two ends together and felt crepitus. Whether they were in end-to-end apposition or not he could not say. The parts were not now in end-to-end apposition. At the present time the distance between fracture and fracture was about half an inch. He reduced the dislocation at about 6 30. The second opinion was taken at plaintiff's instance. Up to the time he left he did not mention fracture or broken arm to Mr. Southern. He was in a serious difficulty.

Mr. Justice Bigham: What was the difficulty? You did not mention the fracture because you thought it desirable not to alarm him?—Yes.

Continuing, he said he told plaintiff that it was simple dislocation. He never told him anything else. The first thing Mr. Thomas said was that there was a slight crepitus. When he spoke to Mr. Thomas on the telephone he said he was engaged with a guest or guests. He then told Mr. Thomas that there were serious complications about which he wanted to consult him. He did not mention the dislocation with fracture to Mr. Thomas, because he knew he would soon see him. The account which Mr. Thomas gave of what passed when they first saw the patient together was correct.

By the Court: The first observation between him and Mr. Thomas relative to fracture or crepitus came from Mr. Thomas. He had a consultation with Mr. Thomas on the doorstep. The visit to Mr. Thomas to have an *x*-ray photograph was to relieve plaintiff's anxiety.

Examined by Mr. Isaacs, Mr. Lynn Thomas, F.R.C.S., L.R.C.P., said he was Surgeon to the Cardiff Infirmary and five other hospitals. He had had twenty years' experience, and had been in charge of the Welsh Hospital in South Africa. He was the first to use the skiagraph in Cardiff. On July 19th he had a call on the telephone from Dr. Skyrme, who told him he had a case of dislocation, and wanted him to share the responsibility. Witness asked if the morning would do, as he had some friends to dinner; but Dr. Skyrme said he wanted him at once. He arrived at plaintiff's house before Dr. Skyrme. While Dr. Skyrme was telling him what he had done, he detected crepitus, and mentioned it at once to Dr. Skyrme. This was before fracture was mentioned. Witness asked Dr. Skyrme what he proposed. He said he put the arm in a sling bandage, the elbow to the side, and put a pad in the armpit. He added that there was half an inch shortening. Witness found this to be accurate. Shortening with crepitus indicated complete fracture, and that the fragments were overlapping to the extent of about half an inch. The slight crepitus also indicated that the broken end of the lower bone was scraping against the side of the upper bone.

Mr. Justice Bigham: Would the crepitus be different in that case?—Yes, it was crepitus between naked bone and periosteum.

Continuing, witness said this was a recognized method of detecting fracture both by feeling and sound. He did not hear anything in this case. He agreed with the treatment which Dr. Skyrme had decided upon. He thought it was the right treatment. There was effusion of blood in the axilla. He never said there was a slight fracture. Crepitus would not occur unless there was complete severance. This was an oblique fracture of the surgical neck. [Mr. Thomas here pointed out the position of the fracture on the skiagraph.] He noticed congestion of the veins in the right hand and that the right pulse was feebler than the left. Witness told Mr. Southern that an *x*-ray photograph would show him the exact position, but would not be of any assistance to witness as he knew the position already. They then decided not to have an *x*-ray photograph. There were no symptoms to show whether there had been dislocation, nor would there be either then or thereafter. The pulse being feeble at the right wrist showed that there was compression. There was more effusion here than usual; he had never seen so much before except on one occasion of fracture of the surgical neck. Nothing was said about a small piece being chipped off the bone. A patient might have a piece of the tuberosity broken off, but, in order to get crepitus, the bone would have to be much compressed. As soon as he got outside he told Dr. Skyrme that he was glad he came, that it was an anxious case, and that on no account should splints of any kind be used. He (witness) had seen a similar case in which splints had been used, the result of which was gangrene, loss of limb, and subsequent death. He told Dr. Skyrme to keep a sharp look-out on the circulation for the next few days. He saw the patient again on August 3rd, when he took an *x*-ray photograph, but he did not know why it was to be taken. On August 6th he held the negative up to the light and said, "This looks very ugly to a layman. Nature is very kind. All these jagged corners will in time disappear. The bones will probably unite, and you will have a useful arm." Witness said he told plaintiff there were men in the profession who would operate; that he would not recommend it, and he thought he told him he would not do it. He had only seen one case in which such an operation had been performed. In his experience, the functional result to the limb was quite as good without as with an operation. During the time he saw plaintiff he never appeared to be dissatisfied. As to the means of reduction adopted by Dr. Skyrme, he did not think there was more danger in it than in any other method. A distinction should be drawn between heel in the axilla and foot in the axilla. Working by himself Dr. Skyrme would have to do what he did. He agreed that the first thing to do in case of fracture was to reduce the dislocation. The fragments were in lateral apposition; and no other means should have been adopted for bringing them into end-to-end apposition. In the condition in which they found the arm, Dr. Skyrme had adopted the safest method. The object was to allow the weight of the forearm to bring the bones together. Bringing the elbow to the side tended to bring the bone further away from the blood vessels. With regard to the poroplastic plaster, that might have been a comfort to the plaintiff, but it would have been dangerous, inasmuch as it would involve pressure. It would have no effect on the small fragment. He knew of nothing which would have had any control over that. In all these cases the functional use of the limb was affected not so much by the injury to the bone as by injury to the soft parts. Having displacement it was impossible to keep the two parts end to end. Here the fragments had united side by side, and the reason why the patient was unable to use his arm was the injury to the soft tissues.

Mr. Justice Bigham: Was that put to the plaintiff's witnesses?

Mr. Isaacs: Not in that form.

Mr. Justice Bigham (to witness): Would not the injury to the soft parts gradually get better?—Yes, but these cases take a long time to recover. A man might be partially disabled by an injury to the shoulder although the bone was not injured.

Cross-examined by Mr. Duke: He could not say how far Mr. Southern was now disabled. He had seen him walking along moving his arm, and carrying newspapers. He would not expect him to be able to put his arm over his head. He cheered him up on August 6th by telling him of another man who played golf.

Mr. Justice Bigham: Do you believe that Dr. Skyrme had detected the fracture before you told him of it?—Yes; because he told me of the shortening.

Continuing, witness said he had no doubt there had been dislocation. The head of the humerus was easily discernible if it could be got under touch. He would know at once that there was fracture with dislocation. He would expect Dr. Skyrme to tell him at once that there was combined dislocation and fracture. He never told him. He never had an opportunity.

Mr. Justice Bigham: Don't say that.

Continuing, witness said that Dr. Skyrme told him there were serious complications. He did not see Dr. Skyrme before seeing the patient.

Mr. Justice Bigham: What do the words "symptoms of dislocation" mean which occur in your case-book?—Dr. Skyrme had told me what had happened.

Mr. Justice Bigham: It is an odd expression if Dr. Skyrme was sure that there was dislocation, and that he had reduced it.

Continuing, he said that he could not add anything to what Dr. Skyrme had said about dislocation. If a lump which did not move with the shaft of the bone was felt, fracture would be easy to diagnose when the arm was quite free. Witness's task was also easy, because he detected a slight crepitus. He remembered being asked in an interrogatory whether there were any complications which rendered diagnosis difficult. [Mr. Duke read his answer, which was that accurate diagnosis was rendered difficult by bruising and laceration and by hæmatoma.] Questioned as to the discrepancy, he said that it was not difficult for him to diagnose fracture of the surgical neck. The answer given to-day was correct as far as he was concerned, but the diagnosis might have been difficult for Dr. Skyrme. The *x*-ray apparatus was not used because he had made his diagnosis in a simple manner. The broken lower fragment had been permitted to mend in the position—near the veins—where the accident had put it.

Mr. Duke: Understand that that is what I complain of. Our case is that it should have been moved.

By the Court: The long fragment could be moved away from amongst the veins and arteries. An attempt was made to bring it away in this case by bringing the elbow to the side.

Mr. Justice Bigham: The attempt was not successful?—That is not so.

Continuing, witness said that after a time the circulation would readjust itself.

Mr. Duke: Why was the shaft of bone left in amongst the veins? The displacement had thrust it there, and it is there now. Why was it not brought into a different position?—It was put in contact with the small fragment, and was in contact before the joining material formed between them.

Was there not half an inch of space between them?—It would be impossible to say from the skiagraphs, but it is my belief that there was sufficient contact to allow new bony substance to be thrown out.

When his cross-examination was resumed on November 30th, witness said that when the pulse became normal the danger from gangrene as a result of the original injury would pass. He had attended Dr. Bateman, who had suffered fracture of the surgical neck. He fitted a poroplastic cap, the bones being already in apposition, and he bandaged and placed a pad under the arm. The whole process took about fifteen minutes.

Mr. Justice Bigham: It appears to me to be extraordinary to pull a fractured bone.—It is the proper treatment, as the periosteum does not generally tear, although it might do so.

Mr. Justice Bigham: Did Dr. Skyrme say that he pulled?

Mr. Isaacs: He said he "pulled and pushed."

Witness said the principle was the same. It was extension and pressure.

Mr. Duke: The following passage appears in a textbook: "On no account should the lower fragment be employed as a lever." Is that good surgery?—I should agree with that, having regard to my interpretation of it.

Re-examined by Mr. Isaacs: Until Dr. Skyrme had moved the shaft, it would have been impossible for him to get at the upper part. So far as he could judge, from what he saw at plaintiff's house, he had no reason to doubt that dislocation had been reduced.

Mr. Justice Bigham: I thought you said there would be nothing to show there was dislocation or not?—That is so, but Dr. Skyrme told me nothing which led me to doubt his statement.

Continuing, witness said that bandaging the arm would tend to bring the parts into lateral apposition, and in that sense it would have an effect upon the upper fragment. The sharp edge of the lower fragment would be tilted outwards, so as to bring the two pieces into as close lateral apposition as was possible. When the arm was brought to the side the bone moved further from the veins and arteries, and the effect would be to ease the pressure on the veins. In Dr. Bateman's case they used a "cap," because he wanted to return to London, and they were able to use a large pad. There had been no direct violence, there was no bruising, and he was able to bear it.

Mr. Anthony Bowlby, F.R.C.S., surgeon to St. Bartholomew's Hospital and to the King's household, examined by Mr. Isaacs, said he had had considerable experience of fractures, including fractures of the surgical neck. In the one recent case of this kind which he had seen, the dislocation was not reduced because it could not be. In cases of fracture the severity of the injury depended to a great extent upon the amount of injury inflicted to the soft part as well as to the bone. Assuming there was a blow of sufficient violence to dislocate and to fracture, there would be considerable injury to the muscles and tendons. The *x* ray would not indicate the condition of the flesh. The fact that there had been dislocation which had been reduced would not affect the treatment of the fracture. Fractures of the surgical neck could be divided into three classes: (1) Impacted fractures, where the ends of the bone were driven into each other; they united in that position. (2) In the second class the bone was broken completely across, and the shaft was displaced upwards and inwards. The head remained in its natural position. (3) In the third class not only was there the same displacement of the shaft, but the upper fragment was also displaced. The fracture in Mr. Southern's case was in the third class. This was clear from the skiagraph. In Class (2) it was difficult to effect complete apposition, but the patient recovered the fair use of his arm. Assuming that in a case coming under Class (3) the upper fragment was twisted outward and the lower was shifted inward and upward, which was the condition of Mr. Southern's arm, there would never be complete recovery; Class (3) would, in fact, be the worst class as regards the possible recovery of the complete use of the arm. Any fracture with dislocation was generally associated with great injury to the soft part of the arm.

By the Court: He had had one case in his experience coming within Class (3) with dislocation. That was two or three years ago. At that time the dislocation was not put right.

In further answer to Mr. Justice Bigham, he said that after a fracture muscles and tendons did not necessarily become as well as before. If the patient were under an anaesthetic, which would counteract any unconscious effort on his part, it would be possible to ascertain whether the tendons and muscles were injured. In the case above referred to he had tried to reduce the dislocation by holding the wrist and pressing on the head. It did not succeed; a cutting operation was performed, as a result of which the dislocation was reduced. In the healing of a torn muscle adhesions were formed. Tendons and muscles would become matted together round the joint—matted by scars; such adhesions would not be detected.

Mr. Justice Bigham: Do you consider the injury to this man's arm to be entirely due to injuries to the soft parts?—I have not seen the arm, but I should say not.

Continuing, witness said that, taking the case as shown in a drawing of the skiagram made on August 6th, it was clear that the fracture in the plaintiff's case was within Class (3). The position of the upper fragment affected the recovery of the use of the arm, because it could not be returned to its proper position.

Mr. Justice Bigham: Why can you deal better with a fracture in Class (2) and not one in Class (3)?—Because it is impossible to rotate the upper fragment in Class (3). It is beyond all control.

Witness, continuing, said it was this which made the fracture more difficult to treat. Even if apposition could be brought about it could not be maintained. That was, in end-to-end apposition. He had been in court when Mr. Thomas and Dr. Skyrme gave evidence. The treatment which they resorted to was right. This applied to the treatment throughout. As to Dr. Skyrme's method of reducing the dislocation, this was right in view of the position in which he was placed. In subglenoid dislocation it was impossible to get the hand above the head of the bone.

Mr. Duke: Dr. Skyrme said he could not do it.

Mr. Isaacs: That is enough for me.

Cross-examined by Mr. Duke: When he attempted a reduction of the dislocation (where there had been fracture as well) he used both hand manipulation and "foot in the axilla."

Mr. Justice Bigham: Was that case reported, or have you written anything about it?—No. It was some years ago.

Continuing, witness said in that case there was effusion. He used an anaesthetic, but even then he did not succeed. A fortnight later the dislocation was reduced by a cutting operation. He knew (*ex relatione*) that where there was fracture and dislocation, reduction of dislocation was difficult.

Continuing, witness said that, according to the textbooks, the reduction was a delicate operation. The textbooks generally recommended manipulation but not always. [He referred to a German book which was translated into English, where "traction by weight" was mentioned.]

Mr. Justice Bigham: Does "traction by weight" mean pulling. I should be surprised if it meant that?—I took it to mean that.

Mr. Duke: Is this a German translation?—Yes.

Mr. Justice Bigham: I should like to see the original. Is there any other textbook which recommends any method other than manipulation?—Yes, *Hamilton* (1891), p. 594, which is an American book.

[Mr. Bowlby here read a passage from p. 594, where it is said that if manipulation fails extension would be justifiable.]

Continuing, witness said that he could not refer to any English textbooks which recommended extension. It was true that the manipulation was mentioned in English textbooks. If the task was easy manipulation would be right. As to the passage in *Thompson and Milne* as to using the arm as a lever, it was absurd, because it could not be used as a lever if the bone was broken.

Mr. Justice Bigham: Suppose a doctor told you that there had been a dislocation and that he had reduced it, would you write "symptoms of dislocation" in your notebook?—I would most likely write that I had been told there had been dislocation.

Continuing, witness said he had heard in court that the soft parts of the shoulder on the outer side were pulped or reduced to a pulp. A man in that condition could walk about. In all cases of this kind there was tearing of the muscles. There would be an accumulation of blood in the arm. He had heard the accident described.

Mr. Duke: After his arm was broken would it be possible for him to thrust it on to the ground?—No, but he could move it at the elbow.

Continuing, witness said that the dragging along would not, in his opinion, break the arm. Unless the shoulder was hurt there would be nothing to cause pulping of the outer side of the shoulder. The blood clot under the arm would be gradually absorbed. There was nothing in the presence of the blood to prevent the gentle manipulation of the lower fragment. Mere extension of the arm would generally fail to bring the bone into its proper position. Assuming—which was a large assumption—that the two fragments could be brought together, they could not be kept there. It was true that the textbooks said that in fractures in general the ends should be brought together. It was true that the textbooks advised the use of a poroplastic plaster on the shoulder for keeping the ends together. But he did not agree with that.

Mr. Duke (mentioning the names of a number of textbooks): Do you mean that?—May I explain? Where

as in this case, there is great displacement, poroplastic plaster would fail.

Assuming they were in position?—I do not think poroplastic plaster was efficient to keep them there.

Mr. Duke: Did not Erichsen think that the pieces could be brought together?—Yes, but that was before the days of *x* rays.

Continuing, witness said that he could have felt the top of the broken shaft in the armpit. In the case of such a fracture he did not think that an anaesthetic was required.

Mr. Justice Bigham: Then you think a passage in *Thompson and Milne* to that effect is nonsense?—I do not think anything of the kind. I merely do not assent to it.

Continuing, witness admitted that a poroplastic cap would help to steady the arm. Steadiness was what was aimed at. He did not agree at all that the surgeon had absolute control over the lower fragment. The angle could not be adjusted at will. He did not know that in this case there was pressure on the veins by the bone. There was no evidence of it. It might be in the described position without interference with the veins. That was his experience of these cases.

Mr. Duke: Do you know that the bone was allowed to set in the position in which the accident left it [Mr. Duke here read the question and answer of Mr. Thomas on this point]?—No; the position of the bones had been altered by Dr. Skyrme in reducing the dislocation.

Mr. Justice Bigham: Do you think the pulling was intended to restore the bone?—No, but I think it did. It disentangled it from the muscles.

It was an accidental benefit?—Yes.

Mr. Duke: It might have been an accidental injury?—Yes, but only if the force had been excessive.

Continuing, witness said that the lower end of the bone would have been in the armpit. It would produce a lump, which the doctor might have felt. He heard that Mr. Thomas had predicted that the plaintiff would have a useful arm. Witness had no knowledge of the present condition of the plaintiff's arm. He had not seen it.

In re-examination, he said that the effect of the pull given to reduce the dislocation would have been to pull the shaft away from the position in which it was put by the accident.

Mr. Justice Bigham: It has not yet been suggested that the object of Dr. Skyrme in exerting a pull was to alter the position of the shaft.

Mr. Isaacs: His object was to move the shaft out of the way so that he could use his foot to reduce the dislocation. Mr. Thomas, at Cardiff, said it was a proper thing to do.

Mr. Duke: He also said that as soon as you let it go it goes back into the same position.

Mr. Isaacs: That refers to the upper fragment.

Continuing, witness said that pulling would be the right thing to do in case of fracture. Assuming that the arm was bandaged to the side the bone would tend to return to the right position. In his view there was no pressure upon the veins caused by the bone. A blood clot was much more likely to cause it.

Mr. Justice Bigham: What is a blood clot? Is it not a clot in the vein stopping the flow of blood?—That is not the surgical meaning. Blood escaping into the armpit would commence to coagulate, and would eventually form a clot. The pressure would be equally great whether the clot had formed or the blood was fluid and forcing its way between the torn muscles and pressing on the veins.

How long would it be before the circulation would be interfered with by effusion?—That question could not be answered without knowing what vessels were torn, and a number of other things.

[Mr. Isaacs here referred to p. 71 of the German work above mentioned, which treats of dislocation and simultaneous fracture of the surgical neck, in which reduction of dislocation was recommended by pressure and traction by weight.]

Mr. Justice Bigham: I don't understand traction by weight to mean pulling. That is why I want to see the original work in German.

[Mr. Isaacs referred to Hamilton on *Fractures* (1891 edition), at pp. 593 and 594, where the writer said that in certain circumstances "it would be proper to employ extension and abduction with manipulation" in order to reduce dislocation.]

Continuing, witness said that with regard to arms thought to be "good" before *x* rays, many were now found not to be good, as far as the appearance in a skiagram went, though they might be quite useful. This was well explained in Keetley's *Complicated Fractures and their Treatment*. Where there had been much displacement the fragments never were brought into good position, although the arm might be "good." He had seen cases in which the union was very much the same as it became in this case.

Sir Frederick Treves, Bart., F.R.C.S., etc., examined by Mr. Isaacs, said there were ten specimens of ordinary fracture of the surgical neck in the museum of the Royal College of Surgeons. There was perfect union in one. As to the other nine in five the union was fair and in the other four it was gross. Having seen the skiagram of Mr. Southern's arm, he was of opinion that two out of the ten were about the same as in Mr. Southern's case and two were worse. With regard to the dislocation he had heard what Dr. Skyrme did. In his view that treatment was right. Had he been called in afterwards there would have been nothing to guide him upon the question whether there was dislocation except the doctor's statement. He agreed with Mr. Bowlby that Mr. Southern's fracture was in Class (5). The bones might have been brought together but could not be kept in complete apposition. It was desirable to get the parts into as good position as possible, but the results were seldom satisfactory. The treatment followed in this case was right, namely, to bandage the arm above the elbow to the body, keeping the wrist up in a sling, and leaving the elbow free, as it was found to be impossible to bring the upper fragment to the lower. He had also in a series of cases tried to bring the lower to the upper by abduction, and had abandoned the method as hopeless. His practice now was to put the bone approximately in position and leave it so. Traction should certainly be used. Splints in the sense of appliances to keep bones together would have been inapplicable.

Mr. Duke: I accept that. I never suggested it. Continuing, witness said that the poroplastic plaster was a comfort to the patient, and might be used as a protection. Assuming there was swelling and bruising, it would be better not to use it. In this case there must have been effusion. If there had been bruising, there would not be discoloration at once: it would show as time progressed. Having regard to the displacement which had happened, the upper part would be beyond control. That was what made the treatment difficult. As to Mr. Thomas's refusal to operate on August 6th, that was a matter of doubt and difficulty. He could not say whether Mr. Thomas was right or not without knowing all the facts as they then were. He agreed with Mr. Bowlby's evidence in the main.

In cross-examination he said that he did not know the history of all the ten specimens in the museum. The point was that it was an educational museum. The specimens said, in effect, that in 50 per cent. of these cases the union was incomplete, but he could not say how those particular fractures were caused, or how they were treated. The abduction method was one which a man might or might not be advised to use. He would look for more satisfactory results from suspending the arm and adjusting the lower fragment as far as possible. All his operations would be with the lower fragment. Traction should be so applied that it would place the lower fragment in the best position. The bandage to the side and the pad should be used. The pad might be taken out if it could not be borne. Temporary traction was effected by drawing on the limb, the extent being influenced by the resistance of the muscles and other parts. In the present case the upward displacement was about one inch. It would be difficult to say how much without an *x* ray. Prior to the days of *x* rays measurement would have indicated the extent of displacement. It would now be desirable to ascertain the extent of displacement by the *x* ray. He would exercise traction by drawing upon the arm; it might be necessary to exercise a considerable pull. He would prefer to use no anaesthetic. The objection to using an anaesthetic was that in recovering the patient might struggle, and interfere with a perfectly-adjusted fracture. It would be routine practice to endeavour to adjust the fracture. He would not say that the surgeon should make his estimate of the displacement. He could judge whether the traction was effective by the coming of the limb to its normal length. It was possible to bring the limb to its normal length, but when let go, he was bound to confess, it nearly always went back to the old position. By traction the shaft might be brought against the upper fragment, and an *x* ray would show the position of it. Mere feeling or touch would not be sufficiently reliable to ascertain the extent of the separation. Having brought the arm to the best position, he would use the treatment as described in this case, and as adopted by Dr. Skyrme. Traction would be maintained by the weight of the limb. He had tried extension with weights at all angles, and had found it most unsatisfactory. The expression generally used in surgical books was "traction by weights." "Traction by weight" was not a technical description of pulling. What he had described was an attempt to get apposition. If a surgeon had made no attempt to get apposition he would not have done his duty.

Re-examined by Mr. Isaacs: That did not apply here, as there was an attempt made by one or other of the defendants in bandaging the arm to the side. He would never have said that everything had been done which ought to have been done unless he was satisfied there was an attempt to bring the broken parts into apposition.

Mr. Isaacs: From what you have heard, do you think there was anything left undone which ought to have been done?

Mr. Justice Bigham: That is for the jury.

Continuing, he said it was best to keep the patient up, not to make him go to bed.

Mr. Duke (interposing): You know this book—a *System of Surgery* (1893)—edited by yourself [Mr. Duke read a passage from this work in which it was stated that the patient ought to be put in bed and kept quiet]?—I did not write that. It was written by one of the gentlemen who contributed to the work. It was a view which I would have endorsed twelve years ago but not now.

Mr. Justice Bigham: Why?—The introduction of *x* rays has altered our whole opinion on these questions.

At the sitting of the Court on December 1st,

Mr. Herbert W. Page, M.Ch., Senior Surgeon to St. Mary's Hospital; Consulting Surgeon to the L. and N.W. Railway,

examined by Mr. S. T. Evans, said he had heard nearly all the medical evidence it the case. He had heard nothing to lead him to believe that there was no dislocation. He was of opinion that the case came within the third class mentioned by Mr. Bowlby. The treatment adopted by the defendants was quite proper.

Cross-examined by Mr. Duke: Assuming there was fracture only, would it not be a misfortune to the patient to be treated for dislocation?—I do not think it would make any material difference.

Mr. Justice Bigham: Would the pull for dislocation not be injurious to the arm?—It would not necessarily do harm if done with reasonable care. I do not say it would do any good.

Mr. Duke: Reasonable care means the application of some process which the operator understands?—Yes.

Assume there was much local injury?—That would influence the surgeon in judging of the amount of force to use.

Mr. Justice Bigham: Do you mean that, assuming dislocation and fracture, you would not first try to reduce the dislocation by manipulation? That is what the textbooks say?—Were I confronted with a case of the kind I might resort to manipulation at once, or I might not.

Mr. Duke: Take it there is much local injury, would not every movement of the end of the bone tend to increase it?—There would be risk of it. Manipulation would most likely be the best. May I make an observation with regard to the foot in the armpit? That might be used as a mere fulcrum; but it might also be used with a certain degree of intelligence?

Mr. Duke: The surgeon is not specially trained to use his foot?—No.

Continuing, witness said that treatment for fracture was not the same as treatment for dislocation, but they had many features in common.

Mr. Justice Bigham: Do you mean to tell me that it does not matter whether the treatment is that applicable to a dislocation or to a fracture?—It does; but not seriously. They are both for the same part of the body.

Mr. Duke: One involves reducing the dislocation, the other of returning the shaft to its proper position? Is not that a vital difference?—Yes, if you put it that way.

Mr. Justice Bigham: Even assuming Dr. Skyrme made a mistake, it does not follow that he is responsible in this action. A mistake, even if it was made, is not enough.

Mr. Duke: I quite appreciate that, and do not so found my case.

Continuing, witness said that the space between the broken parts of the bone could be readily detected in a thin man, but not so easily in a stout man. The wish of the surgeon was to bring the bones into apposition. End-to-end apposition was perfection, and was never attained. It was the business of the surgeon to bring the broken parts into the best possible apposition.

In re-examination, Mr. Evans read Dr. Skyrme's account of the way in which he treated the plaintiff.

Questioned as to this, witness said that even assuming there was no dislocation that treatment would have done no harm. After the dislocation was reduced the treatment by bandaging, etc., was quite proper. It had no reference to dislocation.

Mr. Justice Bigham: There is one question which I must ask you. Assume the state of things which Dr. Skyrme found. Is it possible, in your opinion, that a man exercising proper skill and care might think there was dislocation when there was not?—Yes, it was a mistake which a careful man might make. I have heard of it being made.

Mr. Justice Bigham: Upon that I shall allow Mr. Duke to cross-examine.

Mr. Duke: Suppose you were instructing me in surgery you would tell me how to differentiate between dislocation and fracture?—Yes.

Would you tell me that if I found bony crepitus there was fracture?—Yes.

Suppose that I was diagnosing a case of fracture and dislocation, they must be both taken together?—Yes. The reduction of the dislocation would be very difficult in the circumstances.

Continuing, witness said that it might be of some assistance to know the exact position of the fracture. Force would have to be used with great care. To a student he would say, "The best thing to do is to try manipulation." Probably manipulation would fail. Failing manipulation without an anaesthetic, he would try manipulation with an anaesthetic; but before that he might try the foot in the armpit. That might be a violent method. It depended upon the general condition of things.

Mr. C. W. Mansell Moullin, F.R.C.S., Senior Surgeon and Lecturer at the London Hospital, etc., examined by Mr. Colam, said he had been twenty-five years on the staff of the largest London hospital. He knew the fracture in question. As to the treatment of the dislocation, it was right under the conditions present at the time. The subsequent treatment for the fracture was quite proper.

Mr. Justice Bigham: To tell me that a useless operation for dislocation does no harm to a broken arm is incredible.

Witness, continuing, said that a certain amount of force was necessary to bring the lower fragment down. He would not have put his foot in the armpit if there was only a fracture, but the placing of the foot would do no harm. Here the counter-extending force was Dr. Skyrme's foot. If he had been in Dr. Skyrme's position, he would have first tried without the foot.

Mr. Justice Bigham: Even assuming it to be improper, did it do any mischief? Has it tended to produce the condition of which the plaintiff complains?—No, my lord.

Continuing, witness said he agreed that no other method could have been adopted to keep the bones in apposition. On August 6th the defendants could have broken down and reset the bone, but they would not have effected any improvement in the position of the bones.

Cross-examined by Mr. Duke: Having a fracture it was as well not to interfere more than was necessary. He agreed with Mr. Page that manipulation should be resorted to in order to reduce dislocation. Failing manipulation, the heel in the axilla might be resorted to. Questioned as to whether Dr. Skyrme could not have obtained assistance in reducing the dislocation, witness said it was essential to make the attempt to reduce dislocation as soon as possible after the accident. It would have been useful to know on July 19th that the upper fragment was rotated outwards. Relaxation of the muscles would not affect the treatment of the upper fragment. As to the lower fragment, relaxation governed the result, but not the treatment. Under certain circumstances, an anaesthetic might be used to cause relaxation. Anaesthetics were commonly, but not universally, used to admit of momentary control. Relaxation due to injury might last for a period of from twenty minutes to twenty-four hours. The time would depend upon various things. The best time for securing apposition was during the period of relaxation.

Mr. Duke: Do you consider that what Dr. Skyrme did was sufficient to bring the bones into apposition?—He did all he could do to the lower fragment.

Would that exhaust the resources of science?—No. He could have pulled again.

Continuing, witness said that if Dr. Skyrme made no attempt to obtain apposition he would not have done all he could have done.

In re-examination, witness said that, assuming a patient was in danger of gangrene, the first thing the surgeon should do was to remove the source of danger. After that he should reduce the dislocation as soon as possible. He would have done the same as Dr. Skyrme did.

Sir William Bennett, F.R.C.S., Consulting Surgeon at St. Thomas's Hospital, examined by Mr. Isaacs, said he had seen a number of cases of fracture of the surgical neck. He agreed with Mr. Bowlby's evidence in the main. As to the treatment in this case, there was nothing improper in it, having regard to the circumstances in which Dr. Skyrme was placed at the time. Dislocation should be reduced as quickly as possible after the more urgent matter had to be attended to. He had to consider whether he should adopt the orthodox method of manipulation. That required an assistant, who was not forthcoming.

Mr. Justice Bigham: Having no assistant, he did what he would not have done with an assistant?—That is so, my lord.

Continuing, witness said there would be nothing to show whether the shoulder had been out or not.

Mr. Duke: That is common ground.

Mr. Isaacs: We may leave it once for all.

Continuing, witness said the treatment followed by the defendants was proper.

[Mr. Isaacs referred to a passage in Sir William's book relative to the use of protective caps on the shoulder.]

Witness said that when he said "protective" he meant "protective."

In cross-examination by Mr. Duke, witness agreed that the first thing in treating a fracture was to get apposition. In all sound treatment it was necessary to get as good apposition as possible. Where the upper fragment was rotated outwards it was the more essential to get as good apposition as possible.

In re-examination, witness said that there did not appear to have been any deliberate attempt to bring about apposition, but the result was the same. He would have pulled the arm in order to bring the shaft away from the muscles in which it was immesbed.

Mr. Edmund Owen, F.R.C.S., Consulting Surgeon at St. Mary's Hospital, etc., examined by Mr. Isaacs, said he had heard of the treatment used by Mr. Thomas and Dr. Skyrme. He agreed with it. There was nothing which he thought was wrong. He agreed in the main with the defendant's witnesses.

In cross-examination, he said he agreed with what the other witnesses had said when cross-examined.

Sir Thomas Smith, F.R.C.S., Consulting Surgeon to the King, said he had heard the treatment of the defendants described, and he agreed with it.

In cross-examination, he said that it was true that at Cardiff he said that pressure might be caused by the bone in the armpit.

Mr. Herbert Furnival Waterhouse, F.R.C.S., Surgeon at the Charing Cross Hospital, said that in his view there was nothing improper in the treatment followed by the defendants.

Mr. Arbuthnot Lane, M.Ch., F.R.C.S., Surgeon at Guy's Hospital, gave evidence to the like effect.

Mr. Isaacs said that Mr Makins, a colleague of Mr. Battle, could also be called. His object was to adduce evidence from all the leading London hospitals.

This closed the defendants' case.

Mr. Isaacs and Mr. Duke having addressed the jury,

In summing up Mr. Justice Bigham said: This case has taken a long time, and the fact that it has been so carefully tried out relieves me of having to address you at length. The first thing you have to do is to take care that your minds are not swayed by sympathy for the plaintiff in the calamity which has overtaken him, or by sympathy for the defendants on account of the position in which they are placed. The case is essentially one for you. There is some law in the case which you must take from me, but the real question is one of fact. The action is brought by the plaintiff to recover damages for injuries sustained by the alleged failure of the defendants or one of them to treat his case with that reasonable care and skill which he is entitled to expect. The man making that complaint is the person upon whom the burden rests of making it good. He must satisfy you affirmatively that the defendants failed to bring to his case the care and skill which might reasonably be expected from them, and he has also to satisfy you that by reason of the failure he has suffered damage of which he complains. I must say a word as to the legal liability which, in cases of this kind, the law imposes upon persons in the position of the defendants. They belong to a special profession, and any man who belongs to a profession and is engaged to do something in connexion with that profession is bound to bring to the performance of his task reasonable care and reasonable skill. I need hardly say that when a surgeon is employed, the care and skill which he has to bring to the case put in his hands are of a different kind altogether from those which could be expected from a layman. The surgeon is expected to have equipped himself with the necessary knowledge for the performance of his duties, and he is expected to add to that knowledge the care and attention which make that knowledge of value to the patient. The degree of skill and the degree of care must depend upon the circumstances of the case. For instance, if a man with a broken arm were to call in a young practitioner of 22 or 23 years, who had just started his career in some country practice, he would neither expect, nor ought he to expect, the same skill which he would expect if he had called in some of the very eminent gentlemen who have appeared before you in this case. It does not at all follow that because a man in the position of a surgeon makes a mistake, he is therefore liable. There are what are called "mistakes of judgement"; and that very expression shows that some thought was exercised before the mistake was made, and a mistake of judgement—of proper judgement—cannot make a man liable in a case of this kind. It would be, as Mr. Isaacs said, a shocking thing if, where a skilful man attended a case with proper care, he should be held liable in damages because his treatment was not successful. It comes back, therefore, to this, that, in order to render the defendants liable, the plaintiff must satisfy you affirmatively that they were guilty of negligence in not bringing to the case the skill, care, and attention which in all the circumstances you think they reasonably ought to have brought. The charges against the defendants may be divided into several heads, some relating to one defendant, and some of them, and one charge in particular, to both. It is said that Dr. Skyrme upon first being called in, failed in his diagnosis. It is said, first, that he diagnosed something which did not exist, a dislocation of the shoulder, and then he failed to diagnose something which did exist, namely, a fracture, and it is suggested that from this initial mistake the consequences followed which resulted in the present condition of the plaintiff's arm. [His lordship here reviewed the evidence of what took place when Dr. Skyrme first saw the plaintiff and continued.] Dr. Skyrme says that he did not tell the plaintiff that there was a fracture, and excused himself by saying that he did not do so because the plaintiff was in a nervous condition. You will have to consider whether this was probable or not. It is to be observed that Mr. Thomas had no scruple of the kind, for he told the plaintiff that he felt crepitus. In his communication to Mr. Thomas on the telephone, Dr. Skyrme made no reference to what was obviously the most serious part of the case; and it is strange that in what was a mere private conversation he made no reference to the fracture. It goes to support the contention that Dr. Skyrme failed to diagnose it. That, however, does not necessarily fix him with liability. It may well be that he used his best skill in trying to find out the condition of his patient, and it may be that he failed because of the special difficulties in the case. If you consider that he failed to diagnose fracture, you must then consider the next question—namely, was he mistaken in his diagnosis when he said there was dislocation? It is agreed that after a shoulder is set, there is nothing to show that dislocation ever existed. Mr. Thomas spoke of the dislocation to Dr. Skyrme, and made a note in his case-book that there were "symptoms of dislocation." I asked certain of the medical witnesses what this meant, as it was a curious entry; but it certainly looked to me (the question is for you) as if Dr. Skyrme had failed to satisfy Mr. Thomas that there had been dislocation. Nothing was done in the nature of treatment for fracture. Something was done which might be described as treatment for dislocation; but nothing was done in the nature of special treatment for fracture. It is agreed by the witnesses that no one has ever heard of this use of the foot in a case of dislocated shoulder when the arm below is broken. You must consider whether putting the foot in the armpit and pulling the wrist was proper treatment for a broken arm; but I must again warn you that if, in doing what he did, Dr. Skyrme merely made an error of judgement, he is not liable. He puts his case very high. He says he diagnosed the two injuries; but if he is wrong in one or the other, still if you think there was no want of skill you cannot hold him liable. Nor would he be responsible in damages if you think that the putting of the foot in the armpit did not conduce to the injury of which the plaintiff now complains. At 8.0 that evening Mr. Thomas arrived. [His lordship read the evidence of the plaintiff as to what was said when Mr. Thomas arrived, and continued.] It was noticeable that crepitus was not mentioned until Mr. Thomas mentioned it. If Mr. Thomas said, "there is no displacement and nothing to set" (it is for you to judge), it was a very singular observation for him to have made. [His lordship here referred to what was said to have passed between the plaintiff and Mr. Thomas at their interview.] There are three charges made against Dr. Skyrme: (1) That he made a mistake in diagnosis; (2) that he failed to diagnose fracture; (3) that in the existing condition of things he applied heel in the armpit treatment, which was quite inapplicable to the real injury. Then it is said against both the defendants that not only was there active carelessness, but that there were negative acts to the number of three. These were: (1) That they did not use the *x* rays, which would have shown them the exact position of the bones; (2) that they omitted to use an anaesthetic, by which they could have reduced the muscular opposition which a patient unconsciously offers when an attempt is made to set a bone; and (3) that they both wholly failed to try and bring about apposition. This appears to be the thing upon which the plaintiff relies, and it appears to me to be the most important point. It is the strength of the plaintiff's case. As to the first point, it is said that the *x* ray was only used at a time when it was almost impossible to derive any benefit from it—namely, August 3rd. By that time the callus had begun to form, and the only course to pursue was to perform a cutting operation. The plaintiff alleges that if they had used the *x* rays before they would have been better able to appreciate the position. Here I must again tell you that if, after giving thought to the matter, the defendants concluded that an *x*-ray photograph was a useless expense, then failure to take such a photograph was a mere error in judgement for which they are not to be held liable. As to the use of anaesthetics, the same observations apply. You have heard from textbooks that recourse should be had to anaesthetics where muscular opposition must be overcome; and, by way of answer, it is said that in the condition of the patient at that time, it was not wise to use anaesthetics. It is for you to judge. As to the real point in the case, it is said that there was no real attempt to obtain apposition. We are told that here there was no attempt, although the textbooks say it is the first thing to do. I understood Sir Frederick Treves to say so. It seems to me to be common sense. I did not understand the defendants to say they attempted to do it, nor did they say it is not the usual thing to do; they merely said that in this case it would have been a useless thing, because even if they had brought about apposition they could not have kept the parts together. One witness—I think it was Mr. Bowlby—suggested that the foot in the axilla was an attempt to bring about apposition. That was a mere accidental attempt. Many of the surgeons called for the defendants were of opinion that it was a difficult thing to do. Is it or is it not careless to omit to do that which is recommended in all the books—first to bring the broken bones into position and then try to keep them there? That is the question for you. Although you should allow your judgement to be guided very largely by the bulk of the eminent testimony put before you, you should not be overborne by numbers. The gentlemen who have helped you have done so to the best of their ability and knowledge; but you must remember that they were, possibly unconsciously and certainly honestly, influenced in favour of their professional brethren. That is human nature. I think, further, that there may be something in Mr. Duke's observation that persons in the position of the plaintiff had a difficulty in procuring medical evidence. Therefore, although you should listen with the greatest respect to the evidence of these eminent men, yet if on the whole you form a clear opinion, you ought not to let it be overborne by the number of witnesses who have been called. It is a case of the gravest importance to the plaintiff, because he has been seriously maimed, and it is of the gravest importance to the defendants, because one cannot help seeing that their professional reputation is in your hands. For these reasons you should be most careful in this case: careful to do justice and to do it properly after anxious thought.

After consulting in private for more than an hour, the jury reported that they could not come to a unanimous decision.

Mr. Justice Bigham said it would be a grave misfortune if the case had to be tried again, and suggested that where a decided majority of the jury took a particular view it was highly desirable that those who were in the minority should do their best to bring their decision into line.

The jury again retired, and after half an hour sent a note to the judge, which was as follows: "We have discussed it further, and are now almost unanimous, but not entirely. So far, we are agreed as to facts."

They then retired for a third time, and after about twenty minutes sent in another note to the judge. Summoning them again to the court, Mr. Justice Bigham said that the question was—"Provided the doctors made an error or errors in their diagnosis and subsequent treatment, and believed that the fracture should be left to heal as it was, would the failure to attempt apposition amount to want of reasonable care?" That appeared to be an attempt to get him to find a verdict for them. This he would not do. He again urged them to try to come to some agreement.

Eventually, after an absence of two hours, the jury gave a verdict against both defendants, damages £100.

Mr. Colam applied for a stay of execution.

Mr. Justice Bigham said the application might be renewed the following morning.

On December 4th Mr. Isaacs applied for a stay of execution pending an appeal. Mr. Bailhache, on behalf of the plaintiff, opposed the application. He said that the only possible ground of appeal was that the verdict was against the weight of evidence. That was hopeless in this case. There was no reason why the plaintiff should be kept out of his money.

Mr. Justice Bigham: I do not want to express any opinion upon the verdict, and especially I do not want to express any opinion adverse to the plaintiff; but the matter is of so much importance to the defendants that there must be a stay of execution. I should be glad if I could do anything to put an end to this litigation. It has occurred to me that I might be able to do something, but I must consider the question. There will be a stay of execution for a fortnight, within which time the defendants must give notice of appeal. The damages must be paid into court, and the costs paid over upon the usual undertaking to return them if the appeal is successful.

AN UNSUCCESSFUL SLANDER ACTION.

An action was tried in Westminster County Court on December 3rd, in which the plaintiff alleged that he had been slandered by the defendant, Dr. Charles Fowler, of Thornton Heath, and claimed damages. Dr. Fowler had been cited by him as a co-respondent in a divorce action, and the alleged slander consisted in remarks Dr. Fowler was stated to have made to the effect that he had been dragged into the divorce case merely in the hope of extorting money. The plaintiff, in cross-examination, admitted that in the divorce action the jury found that no blame whatever attached to Dr. Fowler, and that the judge said he had absolutely cleared himself and left the court without a stain upon his character. On the conclusion of the evidence for the plaintiff and defendant, the jury, after a brief consideration, returned a verdict for the defendant, and judgement was consequently given in his favour, with costs. Dr. Fowler was defended by the London and Counties Medical Protection Association.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

Degrees.

In a Congregation held on Thursday, November 29th, the degree of Doctor of Medicine was conferred on H. M. Turnbull, Magdalen College.

Radcliffe Travelling Fellowship.

An examination for a Radcliffe Travelling Fellowship of the annual value of £200, and tenable for three years, will be held in Hilary Term, 1907, commencing on Tuesday, February 26th.

The examination will occupy four days. Papers will be set in Physiology, Pathology, and Preventive Medicine, and a subject will be proposed for an Essay. There will also be a practical examination in Pathology.

Candidates should send in their names, addresses, and qualifications to the Regius Professor of Medicine, University Museum, on or before Saturday, February 9th, 1907.

The conditions of the Fellowship are published in the *University Gazette* for November 27th, 1906, p. 197.

Competition is no longer restricted to persons who have obtained either a First Class in the Final Schools or a University Prize.

UNIVERSITY OF CAMBRIDGE.

The Teaching of Hygiene.

The General Board of Studies recommend that, owing to the resignation of Dr. Nuttall of the Readership of Hygiene, a University Lecturer of Hygiene be appointed at an annual stipend of £100, and also that a Lecturer in Pathology be appointed at an annual stipend of £100.

Appointments.

Dr. MacAlister, Dr. Humphry, and Dr. Barclay Smith, have been appointed members of the State Medicine Syndicate for three years.

Dr. Anderson has been appointed a member of the Special Board of Medicine for three years.

Professor Macalister has been appointed a member of the Board of Anthropological Studies.

Degrees.

The following degrees were conferred on December 1st:

M.D.—E. J. Woolley, Gonv. and Cai.

M.B.—A. H. Miller, Trin.

D.Sc.—A. Strahan, Joh.

UNIVERSITY OF EDINBURGH.

The following are the numbers of matriculated students in the Faculties of Medicine and of Science on November 30th during the last five years:

	Medicine.	Science.
1902–3	1,141	161
1903–4	1,165	192
1904–5	1,156	194
1905–6	1,178	236
1906–7	1,192	239

TRINITY COLLEGE, DUBLIN.

The following candidates have been approved at the examinations indicated:

Midwifery.—*W. Pearson, M. K. Acheson, R. G. S. Gregg, R. E. Wright, G. G. Vickery, H. I. Keane, W. S. Thacker, A. L. Robinson, E. C. Stoney, J. W. Lane, F. Stevenson, J. H. Morton, J. A. L. Hahn, J. C. C. Hogan, E. T. Jameson, L. V. Hunt, J. C. A. Ridgway, H. P. Hart.

Surgery.—*J. du P. Langrishe, *T. O. Graham, *C. T. Conyngham, R. Connell, M. K. Acheson, L. V. Hunt, F. Casement, F. O'B. Ellison, W. Hutcheson, T. C. Somerville, M. P. Leahy, P. B. Egan, H. B. Leech, J. H. Waterhouse, H. J. Wright, G. T. Walton, D. F. Torrens, C. G. Sherlock.

Medicine.—*T. O. Graham, C. T. Conyngham, J. Gray, P. B. Egan, D. F. Torrens, A. E. Knapp, J. E. McFarlane, T. B. W. MacQuaide.

* Passed on High Marks.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

SON'S LIABILITY TO DESTITUTE MOTHER.

Surrey writes as follows: An old woman confined to her bed lives with her son and his wife. There are no children. She is not attended by any medical man, but is visited daily by a district nurse. The daughter-in-law does not help the nurse and resents the presence of the old woman in the house. The son has applied to have his mother taken into the infirmary. He does not wish her to go as a pauper and will not (or cannot ?) pay about £30 a year for her maintenance. Is there any institution where the old woman could be taken in and cared for at the cost of 6s. or 7s. per week ?

*** As this old woman appears to be seriously neglected by not being supplied with the ordinary necessaries of life, we apprehend that if the case were to be properly represented to the relieving officer of the district, with an urgent request for something to be done at once, he would have to regard it as his duty to see that her wants are relieved, either by supplying her with requisites where she now is, or by removing her to the workhouse. It would probably then become a question as to what portion (if any) of the expense thereby incurred should be borne by the son, who appears to be in a position to contribute towards the maintenance of his mother; if proved to be so, this liability might be enforced upon him as a legal duty. We do not know of any institution where such a case as this could be received for 6s. or 7s. per week.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

The annual competition for the Maclure Challenge Shield took place on Saturday, December 1st. Seventeen squads competed, representing the Imperial Yeomanry, Infantry, and R.A.M.C. of the Volunteers of the London district and Eastern Command.

The subjects were ambulance drill, roller bandaging, hospital duties, and the sanitation of camps, the competition being confined to those non-commissioned officers and men who had already obtained the army ambulance certificate.

The Shield was won by the first squad of the 1st Cadet Battalion of the King's Royal Rifles, which made 522 marks out of a possible 600. The second squad of the same corps made 498 marks and gained the second place. The Senior Medical Officer's Cup was won by Staff Sergeant F. W. B. Carter, of the same corps, with 142 marks out of 160.

Surgeon-Lieutenant-Colonel R. R. Sleman, in the unavoidable absence of Surgeon-Colonel P. Giles, S.M.O., thanked the large staff of examiners present and announced that Lieutenant-General W. H. Douglas, C.B., Adjutant-General, would inspect the school and present the prizes on December 12th.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

RENAL asks: What is considered the most efficient and up-to-date form of belt for floating kidney?

L.R.C.P. asks for advice in the treatment of impotence in a patient 53 years of age.

M.D., B.S. asks if there is any school in the country (North preferred) where boys who suffer from asthma are educated. A warm, moist atmosphere is required.

BROMIDROSIS.

M.B. asks for advice as to the best method of treating a case of fetid perspiration of the armpits, where scrupulous cleanliness is observed without satisfactory results. The patient complains that his coats quickly become foul, and he has to discard them after they have been worn for a comparatively short time, as ordinary cleaning has very little effect in removing the foul odour of the perspiration.

WEST COUNTRY HOMES FOR IMBECILES.

D. E. F. asks for the names of homes for mentally-deficient children, if possible in the West of England, where a girl of 12 years could be placed at small cost.

*** If the parents can pay remunerative terms, application might be made to Miss King Turner, Southend House School, Pittville, Cheltenham. If only a few shillings a week, to Mrs. Gilmore Barnett, 7, Great George Street, Bristol; or to the Secretary, Western Counties Asylum (for imbecile children), Starcross, Devon; or to the Superintendent, Rock Hall House, Combe Down, near Bath.

RHINORRHOEA IN INFANCY.

SNUFFLES asks for advice as to treatment of an infant (now 6 months old) who had a discharge from the nose and snuffling three days after birth, but got quite well in a fortnight. Two months ago it began to "snuffle," and when it lies face downwards a clear mucous discharge comes down the nostrils. He adds: The turbinals appear swollen, but I cannot see any ulceration; there is no smell from the discharge and no excoriation about the nostrils. There is no history of syphilis, nor does the child show any signs of it, but I put it on hyd. c. creta. ½ gr. three times a day for nearly a month, without any signs of improvement. I have been using an alkaline nose spray with sodii chlor., pot. bicarb., āā 2 gr. to the oz., with boric acid 5 gr. to the oz. The child is otherwise perfectly healthy, and is able to sleep with the mouth shut, but there is a constant snuffle.

LUNATICS IN ENGLAND AND AMERICA.

H. E. T. asks: Can you tell me the proportion of lunatics to the population in England and the United States of America?

*** We have referred this question to Dr. Milson Rhodes, of Didsbury, Manchester, who writes: I have not any very recent figures. About ten years ago the figures were: England 291, United States 323 per 1,000. At the present time the latter is about the same as our pauper lunatics, 322. In a good many of the States they are doing away with county, that is, union, and substituting state, that is, county, care, for the insane and epileptic. In Massachusetts the number rose from 5,700 in 1868 to 12,239 in 1898. An inquiry was held, and the Commission reported as follows: (1) That the increase of registered insane does not necessarily imply an increase of occurring insanity out of proportion to the growth of population. (2) That the rate of increase of occurring insanity is certainly much less than the apparent increase of the insane. (3) That there is a marked and growing tendency to commit all classes of insane to institutions, especially in the case of old people, of the feeble-minded, and of criminals.

ANSWERS.

SORE TONGUE.

DR. BERNARD O'CONNOR (Luarca, Asturias, Spain) writes: In reply to "I. Q." (BRITISH MEDICAL JOURNAL, November 17th, 1906, p. 1435), I would suggest that he look to the condition as to smoothness of his patient's teeth, especially on the inner sides of the molars and premolars of the lower jaw. If the patient is a meat eater, it may be of advantage to lessen considerably the quantity of, or to stop entirely, the meat eaten and to give occasionally Marienbad salts as a purge. For this purpose the Marienbader Tabletten, nach Recept des Professor Med. Dr. Ritter v. Basch, of Vienna, are the best.

DEFECTIVE CHILDREN.

MEDICAL INSPECTOR.—The following are some of the best-known works on defective children: *The Mental Affections of Children, Idiocy, Imbecility and Insanity*, by W. W. Ireland, M.D. London: J. and A. Churchill. 1900. 14s. *Mentally Deficient Children*, by G. E. Shuttleworth, M.D. London: H. K. Lewis. 1900. 5s. Ingleby Lectures on Mentally Deficient Children, by Dr. James Kerr (*Birmingham Medical Review*, June, 1905). *The Health of the School Child*, by W. L. Mackenzie, M.D. (London: Methuen and Co. 1906. 2s. 6d.), might also be consulted on the subject of medical inspection generally. The Departmental Committee's Report on Defective and Epileptic Children, published as a Blue Book in 1898, might also be useful. It is announced that a book on the subject by Dr. Ashby of Manchester will be published by Messrs. Methuen and Co.

LETTERS, NOTES, Etc.

THE second appendix to *Squire's Pocket Companion to the British Pharmacopoeia* contains information as to the newer remedies useful to all medical practitioners. As in the issue of last year (1905) there is a section (A) reviewing recent investigations and experiences on the composition and therapeutic employment of various drugs, and a second section (B) giving a description of the special preparations of Messrs. Squire and Sons. In addition to these there is in this present appendix a new section giving the various weights and measures, a tabular comparison of the chief standardized potent preparations of the British, United States, and German pharmacopoeias, and solubility tables. A copy will be sent on application to Messrs. Squire and Sons, free of charge, to any medical practitioner who has not already received one through the post.

KHOSAM SEEDS.

AS a comment upon a note in the EPITOME in the BRITISH MEDICAL JOURNAL of October 27th on Khosam seeds, Messrs. F. B. Power and F. R. Lees, of the Wellcome Chemical Research Laboratories, have forwarded us a pamphlet containing the results of an investigation into the nature of these seeds conducted by them some four years ago. It would appear to have been of a very thorough nature, and led them to conclude that the seeds contained neither quassine nor anything to which such a name as khosamine could rightly be given. The belief is also expressed that any therapeutic value possessed by the seeds probably depends upon the action of several constituents, and not of one.

A WARNING TO ADVERTISERS.

A FRENCH lady lately brought an action against a pharmacist who published in a trade circular a letter from her stating that she had been cured of a certain disease by a remedy advertised by him as "infallible." She was awarded £12 damages.

THE DOCTOR AS AN ORDINARY MAN.

WE take the following interesting little dialogue from a German journal:—Doctor; I must absolutely forbid you to drink alcoholic beverages. Patient: But, doctor, you yourself drink alcohol. Doctor: Yes, my good friend, but not as a doctor. When I drink I do so only as an ordinary man. After all, doctors are but human, and few have the resolution to stand always on the pedestal of professional virtue for the admiration of a world which is content with a less lofty ideal of life. It is convenient, therefore, to be able on occasion to distinguish between the doctor and the ordinary man, as Harpagon's servant did between himself as coachman and himself as butler.

A TRUE CARMINATIVE.

WE take the following from the *St. Thomas's Hospital Gazette:* A parson complained to his doctor that the powder he had prescribed for his little son made his little inside make such a noise that it kept the whole nursery awake. The doctor thought a minute, and then remembering that he had given him pulv. rhei co., remarked: "I suppose it sets up a sort of Gregorian chant."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

Eight lines and under	£0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

Advertisements should be delivered, addressed to the Manager, at the Office, not later than first post on Wednesday morning preceding publication: and if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the General Post Office, London. Small amounts may be paid in postage stamps.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.

The Bradshaw Lecture
ON
CANCER:
ITS TREATMENT BY MODERN METHODS.

Delivered before the Royal College of Surgeons of England on December 12th, 1906.

By EDMUND OWEN,

VICE-PRESIDENT OF THE COLLEGE AND CONSULTING SURGEON TO ST. MARY'S HOSPITAL, LONDON.

Mr. President,—In the gift let us not forget the giver, nor him in whose name this Lectureship has been founded. The giver was Mrs. Bradshaw, who, in order to perpetuate the memory of her late husband, left £1,000 to this College for the endowment of an annual Lecture upon Surgery.

Never did a course of Lectures have a happier "send off" than when, in 1882, Sir James Paget delivered the first "Bradshaw." He chose as his subject "Some Rare and New Diseases," occupying himself chiefly with that chronic affection of the bones with which his name will for ever be associated, and with that morbid condition of the joints which bears the name of the illustrious Charcot. With evident satisfaction he spoke of the large amount of time and thought which he had spent in pathological museums, and, for the illustration of his discourse, brought forth out of our Hunterian Treasure-house things new and old, imparting fresh interest and importance to each by the double charm of his words and voice.

William Wood Bradshaw was a Fellow of this College, and a Member of the Royal College of Physicians of London. He was for some time in practice at Reading, but he held there no public appointment, and the statement that he was mayor of the town is incorrect. A week after his death the local newspaper [1] thus spoke of him:

> He was a kind and warm-hearted friend, and during a residence of many years in this town he was ever ready to alleviate the sufferings of the poor . . . and by them his death will be especially felt.

To have earned such a character as this might well suffice to fill the highest ambition of each one of us.

The Treatment of Cancer.

Having been left unfettered as regards the choice of subject for this lecture, I have fixed upon that of cancer; indeed, in various ways, time and circumstances seem almost to have suggested it. But the subject is so vast, so personally interesting, and so deeply important, that it is quite impossible for me to treat it, or any part of it, in detail. I shall, therefore, satisfy myself (though I may not succeed in imparting that feeling to others) with pointing out various directions in which the treatment of the disease has been advanced by modern methods, and by suggesting ways in which further progress may be obtainable.

I shall begin my remarks with an absolute statement (which there may be occasion to repeat later) that, in the present state of medical and surgical knowledge and experience, the only way in which the cure of a cancer can be obtained is by its prompt and thorough removal by operation; and when a surgeon has made up his mind that a growth is malignant, and that it can and ought to be removed, he should lose no time. It is more than likely that, for one reason or another, precious days or weeks have already been wasted, or worse than wasted. And, in spite of the unfortunate associations of the quotation, one may venture here to apply it:

> If it were done, when 'tis done, then 'twere well
> It were done quickly.

The surgeon will probably be asked forthwith as to the nature of the operation advised; and this question may possibly be followed by the rejoinder that in no circumstances will consent be given to an operation by the *knife*. And so it comes about that a surgeon is sometimes unwillingly led to discuss the problem of treatment by *x* rays, or by some other method based upon electricity, when his opinion is that reliance ought not to be placed on anything short of a cutting operation. Thus to fall in with a patient's wish is not kindness. No surgeon in a desire to lessen mental distress, or allay the dread which a patient may have of a tumour being removed by the knife, should be led to consent to his or her dallying with any problematical scheme of treatment.

The custom has grown up of recent years for certain daily papers to instruct the public on important questions relating to disease and its treatment. Whether this is to the mental and physical advantage of the public is open to question, but there can be no doubt that people in general are taking an increasing interest in such matters. Some of the journalistic productions to which I refer are written in an authoritative, convincing, and equally irresponsible style; whilst others are, at the best, only disguised advertisements of individuals who have been permitted to bask in editorial sunshine; but the result is that the newspaper-reading public are by no means ill-informed as to the lines on which surgical treatment is advancing. The subject has a weird charm for them, and details, real or imaginary, of such things as the possible therapeutic influence of the Finsen light and the *x* rays in the treatment of malignant disease have proved specially attractive: and so it has come about that these agencies, which are still on their trial, have been popularly accredited with powers which, to say the least, cannot rightly be claimed for them, and the risk has arisen of their being exploited by the incompetent and quacked by the unscrupulous. And thus, in the desire to try the effect of specious methods, patients may be led to waste time—and time is everything in the treatment of cancer.

The public have apparently the idea that somewhere in the invisible spectrum, beyond the *x* rays, they are to find certain "rays of hope"; and to these they cling with increasing tenacity when they learn from the operating surgeon that, even if he be allowed to deal with a cancerous growth by a free cutting operation, he still is unable to *promise* a cure. And, unfortunately, no operator could ever be justified in making such a promise. Surgery must not go in advance of facts, or she will assuredly be overtaken and tripped up, as she has learnt from sad experience. At present it is beyond her power to promise to *cure* cancer, whether by a cutting operation, by *x* rays, by Finsen's light, or by any drug or nostrum injected into the blood, taken internally, or applied locally. Treatment is, unfortunately, not the same thing as cure, and the most effectual treatment for cancer—no matter how small it may be—is still removal by the knife. No measure is so trustworthy as this, and the great advantage which it has over every other is that it enables the surgeon to take away also the neighbouring lymphatics, and the outlying lymphatic glands. It is by the freedom and thoroughness of recent improvements in operating that surgery has made such great advances in the treatment of the disease. That she has advanced, and is still advancing, is beyond dispute. But all that the surgeon is at present justified in promising a patient is that he will *do his best*. And with this in view he makes a wide sweep of the growth with his knife, getting so far beyond it, indeed, that he may well hope and believe that, together with the tumour, he has taken away every outlying cancer germ. But, notwithstanding his wide sweep, he cannot be *sure* that none of these germs had already passed beyond its range. And a cancer germ adrift in the lymphatic stream is like a message thrown out to sea in a bottle—it may be found years afterwards, who can say when or where?

Cancer of the Breast.

It would be impossible for me to allude to the advances which surgery has made in recent years in the treatment of cancer of the breast, without speaking of the work done in this direction by the late Sir William Mitchell Banks. I regret to say that his teaching has not received in this country that recognition which was its just due. Too much is it the fashion here, when surgeons are writing upon any professional subject, to quote German, American, French, or unpronounceable Russian authorities, and to leave in the cold shade of neglect all that has been done by workers near at hand.

Banks was one of the very first surgeons in the whole world to show that if we were to obtain better results for our operations on cancerous breasts, we must be more *thorough* in our dealings with them.

His earliest essay [2] on the subject appeared in 1877, just on thirty years ago, and in it he insisted on a greater thoroughness.

His second paper was read at the Worcester meeting of the British Medical Association in 1882. Its title was *On free removal of mammary cancer, with extirpation of the axillary glands as a necessary accompaniment.*[2] He was then preaching from the text of the need of clearing out the armpit, and he said, "until we have these glands in our hand, and have split them open with a knife, we cannot tell whether they are infected or not. The usual fumbling in the axilla, which is practised by surgeons" (this was written twenty-four years ago) "tells nothing," and he urged that *in every case where the breast is removed the axilla should be cleared out as a necessary accompaniment.*

His third paper[3] was read before a meeting of the Harveian Society in 1887. In it he insisted that by clearing out the armpit as part of the operation for the removal of a cancerous breast, "the duration of life was prolonged, and the recurrence of cancer less often took place."

It is well worth the while of any surgeon who is interested in the work of Banks having bare justice done to it to turn up the report of the discussion on that Harveian paper, and to see how poor a measure of support it received. The address was in Banks's happiest, most breezy style; and those who heard it, and those who read it subsequently, should have no need to steam across the Atlantic Ocean or the North Sea to find the surgeon who has been the chief pioneer in the more thorough treatment of cancer of the breast.

Having written these few words in devoted memory of Banks, I see him once more in my mind's eye—a welcome speaker in the Council chamber of this College, or at some professional or social gathering. No need when he was speaking, Ulysses-like, to stuff one's ears; the magic of his words was all for good. There was a something about them which showed that they came from his heart as well as from his head; and this not only gave them the stamp of downright honesty, but also made them full of life. No one, I admit, could claim that they never caused a passing wound. How can a man who speaks from his heart help that at times? As he feels so he speaks; and though this may not make for popularity it does for honesty. And Banks was honest as the day. He would doubtless have agreed with the great Lord Mansfield—that not that popularity is to be desired which a man seeks for himself, but rather that which follows him. In spite of his fearless words, popularity followed Banks; and it is not too much to say that those who knew him loved him.

In connexion with the subject of the modern treatment of mammary cancer, I would like to insist that, when a surgeon is setting out to operate, he must not have a thought as to how he is ever to get the edges of the wide wound together subsequently. The one important thing for him to do is to cut clear of all tissue that may possibly be infected. Nature can be trusted to heal the gap that he needs must leave, and he may draw heavily upon her.

In the early stage of his operation, when he is working deeply at the inner end of the wound, he should cut down until he has laid bare some of the fibres of origin of the pectoralis major, then he should get his finger-nail under the pectoral fascia and peel it with the breast, and superjacent skin, in one mass, towards the axilla. In this way, with great rapidity, the muscle can be left as bare as after a prolonged dissection. In most operations the fat and the glands in the armpit can be easily cleared out by using the finger and the blunt dissector. And I think that the ideal way of operating is that which enables the surgeon to remove breast, skin, pectoral fascia, lymphatics running to axilla, and the axillary fat and glands all in one bulky mass—and to do it quickly.

I cannot believe that it is necessary to remove the thoracic part of the pectoralis major as a routine practice (as some advise), even when the breast shows no attachment to it. One surgeon of experience tells me that he now always takes away the muscle lest its subsequent contraction should cause the arm to be bound to the side. This practice does not appear to me to be advisable. Of course, if there were invasion of the muscle, it should be sacrificed upon the altar of thoroughness. But it is not as if the lymphatics from the breast passed through it on their way to the axillary, the cervical, or the mediastinal glands.

CANCER OF THE LIP.

To excise an epithelioma of the lip without opening up the submaxillary region, and clearing away the lymphatic glands is to invite disappointment, for the glands contain epithelial growth almost as surely as did the labial sore, and if they are left it is but a question of time when they will involve the neck in malignant ulceration. They should be dissected away whether they are apparently involved or not.

A few years ago the operation for epithelioma of the lip was deemed of slight importance—an operation that might almost be handed over to a dresser. A thick wedge-shaped piece of the lip was removed, and the edges of the wound were neatly adjusted by sutures. And because after this the lip scarce showed a mark, everybody was satisfied. But when, later on, the glands beneath the jaw began to enlarge, to break down and to ulcerate, satisfaction gave way to disappointment, and disappointment to remorse. That simple operation of the removal of a wedge from the lip is now, happily, a thing of the past. The modern method demands the free use of the knife, so that not only the tissue may be incised wide of the growth, but also that the whole submaxillary region may be opened up and cleaned out bare, so as to get rid of all the lymph channels. The existence of these lymph vessels, which linked up the cancer and the lymphatic glands, has too often been lost sight of, not only in the case of cancer of the lip, but in cancer of other regions also. The surgeon examining for the presence of enlarged lymphatic glands, and, finding none, was apt to say to himself, "It is in good time; the glands are not yet affected." And all the while epithelial seeds were steadily travelling along the delicate vessels, the fact being unrecognizable by either sight or touch. To cut out the cancer and excise the gland, and yet to leave the intermediate, full-charged, lymphatic vessels, is but a slight improvement upon the old operation of removing the labial wedge. All should be taken away.

To see the thoroughness of the modern operation for cancer of the lip, reference may be made to the *Practitioner* for last July, in which is an able and a well-illustrated article by Mr. Lenthal Cheatle.

Briefly, if the surgeon is going to excise a wedge-shaped mass, the *apex* of the wedge is to be represented by the tumour, and the sides are to spread away to such a degree that when their distant ends are joined by a cross-cut, all the loaded lymphatics and the infected glands may be taken away with the cancer. And in planning the incisions the surgeon is to be guided by the course of the lymphatics rather than by the desire of leaving the patient a good-looking lip.

In this modern operation for cancer of the lip, some surgeons,[3] in their desire for greater thoroughness, tie the facial vessels, and then remove the submaxillary salivary glands, and all the lymphatic elements from one angle of the jaw to the other, as well as the glands over the carotid bifurcation. If the epithelioma had a lateral situation they might be content to clear only the corresponding submaxillary and carotid regions; but their operation must be *thorough*.

And even if the growth seems to be so adherent, or so widely spread that operation can offer the surgeon but a poor hope of his being able to get it all away, still I would be in favour of his making the trial. It not seldom happens that, when a surgeon has gone some distance with an operation, difficulties which had previously seemed well-nigh insurmountable are completely vanquished, and the business is brought to a happy ending. It is, moreover, a great satisfaction to the patient as he looks back—even if the operation were disappointing in its results—to feel that he unflinchingly took the chance, even though the odds were heavily against him.

CANCER OF THE TONGUE.

Cancer of the tongue is of great local malignancy, in that it quickly infects the lymphatics and the lymphatic glands, but it differs from other cancers in that it is inclined to leave distant organs alone. Therefore, if the local affection can be removed root and branch, the outlook should be promising. But there is an unhappy feature in the lymphatics of the tongue which is apt to spoil the best-laid surgical plans; it is that they do not observe that anatomical precision which nerves, arteries, and even veins are accustomed to follow, but, passing irregularly across the median plane, may bring infection to the glands on both sides of the neck, whilst the lingual ulcer, perhaps still small, remains one-sided. The result of this, as it affects modern methods, is that the

surgeon is less inclined than he was formerly to remove half a tongue for cancer; and that in those cases in which he excises the whole tongue, he may think it desirable to clear out all the lymphatics and lymphatic glands on both sides of the neck. This, of course, adds to the gravity of the modern operation, but it renders it far more complete and promising.

Without fear of contradiction, I will say that no surgeon has done more towards making the operation for cancer of the tongue thorough and efficient than Mr. Butlin. Chiefly by his teaching and example, cases are now brought within the scope of practical surgery which, a few years ago, would have been hopelessly shut out, whilst the chance of obtaining a permanently good result has been greatly increased. Mr. Butlin's operation for cancer of the tongue" is planned upon the same lines as those of the modern operation for cancer of the breast. That is to say, not only is the tongue removed, but the lymphatic glands, and the lymphatic vessels which run from the tongue to the glands, are also cleared away. The submental, the submaxillary, and the upper and lower carotid lymphatics are all to be dissected out, together with the submaxillary salivary gland, and the anterior triangle of the neck is to be left just as naked as the armpit is left after the complete operation for cancer of the breast.

Needless to say, it is a trying and anxious operation, but to the surgeon who, by a longer apprenticeship, is used to operating upon tuberculous cervical glands, it offers nothing of alarm or difficulty.

In some cases it may be best to perform this operation at the time that the tongue is removed by the submaxillary (Kocher's) route, but perhaps the supplemental, or rather the *complemental*, operation can be more conveniently and safely carried out ten days or a fortnight after the excision of the tongue. The operator need not insist upon the clearing out of the carotid regions on both sides of the neck in those cases in which the cancer is absolutely one-sided, and there is no evidence of bilateral glandular infection. But, in view of the uncertainty of the course which the lymphatics may take, he must be always on the look-out for the hint that he must carry out the two-fold clearance.

Modern methods of investigation and procedure are confining within limits of ever-increasing narrowness those chronic inflammatory conditions of the tongue which made up the clinical picture of the so called precancerous stage of lingual cancer. Far less time is now spent in watching their behaviour under expectant treatment, for experience has abundantly shown that their course was almost always in that direction in which the possibility of further doubt could, unhappily, no longer be indulged in.

Our forefathers would not fail to be astonished at the thoroughness with which the modern operative methods deal with cancer. To them the presence of enlarged glands was almost looked upon as a bar to direct interference, and they might likely claim that in their days patients could not have successfully undergone such serious operations. They might even go so far as to suggest that this toleration had been begotten only by the training which all and sundry patients had undergone since their time, in order to fulfil the demands now made by the surgical profession. Our reply would be, however, that probably men and women have no greater power of resistance to-day than they had 50 or 100 years ago, but that the possibilities and triumphs of modern surgery must be ascribed, to put it figuratively, to Lister having shown us the virtue which lies in the proper use of soap and water, and a nail-brush.

The Method by Local Starvation.

If a tissue does not receive its needful supplies of blood it becomes degenerate. This is seen in the wasting of the testis which follows obliteration of the spermatic artery; in the flabbiness of the muscular tissue of the heart when the coronary vessels are ossified, and in the softening which takes place in the brain when, as the result of syphilitic deposit, or of chronic arteritis, a clot has formed in the middle cerebral artery.

Dr. Dawbarn, of New York, has recently founded a method of treatment of cancer upon this well-known pathological phenomenon. He describes it as the "starvation operation for malignancy in the external carotid area," and he gave an account of it in the *Journal* of the American Medical Association for September, 1904. In thus introducing it, he modestly asked that the method might be allowed the justice of a thorough study and trial, by which alone its corroboration or overthrow could be effected.

He seemed to be disappointed that so few surgeons had up to that time made trial of the method. But inasmuch as it entails a great demand upon the resources of the patient as well as upon the determination and enterprize of the surgeon who proceeds to carry it out there is small wonder if, on looking back, he sees but few of his *confrères* following in his steps. Still, the scheme rests upon a solid foundation, and is worthy of respectful consideration amongst the modern methods of treating malignant disease. Dr. Dawbarn admits that it is likely to secure better results in sarcoma than in cancer inasmuch as that disease spreads chiefly by the blood vessels, but he claims for it a field of great usefulness also in some of the very worst cases of cancer. Taking the case of advanced inoperable cancer involving the lower jaw, he excises the whole of the external carotid artery on each side, the operations being done "for safety" at different dates. He ties the inferior dental artery and its mylo-hyoid branch at the entrance to the inferior dental canal, so that there may be no chance of blood finding its way into the jaw through the generous anastomoses of the internal maxillary artery with the internal carotid. But when he comes to consider the application of "the starvation method" to malignant growths involving the orbit, he throws up his hands in despair in view of the impracticability of clearing away the entire external and internal carotid arteries on both sides. His plan for cutting off all chance of blood finding access to the malignant mass by means of anastomatic loops certainly does not err upon the side of inefficiency. Having begun to dissect away the external carotid, he follows the vessel up into the parotid gland, and injects into its distal end a fluid mixture of hard white wax and vaseline. This he calls supplemental treatment, its object being to prevent all chance of a reversed arterial flow by plugging the superficial temporal and internal maxillary. But he offers the caution that sometimes the vessel which is giving off the external carotid branches is actually the internal carotid, and that if in these circumstances the operator should inject the upper end of the artery (under the impression that he is about to block the internal maxillary and superficial temporal), he will cause a fatal plugging of the circle of Willis. In his operation for resecting the external carotid, he removes also the veins which present themselves to his view, thinking that their absence will be a further check upon the establishment of collateral circulation. He makes it to be clearly understood that *both* external carotids are to be similarly dealt with, allowing an interval of two or three weeks between the operations, and he urges that the vessel which is apparently the less concerned with the growth be first dealt with. He says that if the artery which seems the more concerned with bringing supplies to the malignant mass is first operated upon, the improvement is so great that the patient believes that enough has been done to effect his cure, and, therefore, declines further treatment. That subsequently the opposite artery does double work, and that the end is disappointment. That to excise one artery and leave the other "is simply a waste of time," and he is of opinion that this is equally true with regard to ligation of both arteries "without vascular excision." This refers, of course," he continues, "to control of malignancy." But he strongly advocates ligation of both external carotids before carrying out extensive operations for the removal of malignant growths of the face and mouth. And, looking forward, he thinks that he sees the time when this step will "come into regular employment before such otherwise bloody work."

When a surgeon is examining a malignant mass in the mouth with a view to its removal, his chief thought is in connexion with the bleeding which must inevitably attend the operation. And when, as must often happen in these cases, he decides to expose the side of the neck for the preliminary cleaning away of enlarged lymphatic glands, it is but a short step to tie off the external carotid artery and thus simplify the future operation. So beneficial has the starvation method proved in certain cases of

inoperable cancer, that Dawbarn hopes to gain on an average a year by its adoption. He has seen masses shrink and become so much less painful after it has been performed that the patient has been able greatly to diminish the amount of morphine which he had previously been compelled to take.

Dr. da Costa tells of a man with an extensive cancer of the face which two distinguished Philadelphian surgeons had declined to attempt to remove. In this state of hopelessness da Costa performed carotid excision on both sides. At once the growth began to shrink, and a few weeks later he was enabled to excise it. This report shows that by local starvation an apparently hopeless cancer may be brought within the range of practical surgery. The operation is, of course, a very serious one, but in such advanced cases no operation of less severity could possibly be of avail:

> Diseases desperate grown,
> By desperate appliance are relieved,
> Or not at all.

Operations and Statistics.

In reviewing these various methods it would ill become the most conservative of us to condemn; or to stand upright and stiff in the temple of Æsculapius, and, with self-satisfied look, express smug thanks that he is not under the influence of such restless surgical activity. In the direct treatment of cases which are otherwise hopeless, we must allow freedom of judgement and action to the honest and enterprising surgeon, and if personally unwilling to lead a forlorn hope, we must not try to hinder others whose judgement may, after all, be just as good as our own. In the world of therapeutics there are still dark tracts and continents which can be discovered only by men of imagination and energy; and possibly the Columbus or the Raleigh is to-day with us who, later on, will bring back the glad tidings that he has found out the nature of cancer, and can tell us of its cure. And when this happens, there will be no need for him to "cry aloud" in the pages of the British Medical Journal in order to convince, or to "strive" upon its cover. Nor will the discovery have to be made manifest by columns of figures and percentage calculations of cures, which, like pancakes on Shrove Tuesday, have to be served up quickly, lest delay should spoil them. But it will be as the lightning under heaven.

To deal with percentages as applied to human beings may be correct enough when figures are worked out in large numbers by an unemotional, disinterested actuary in the office of a Life-insurance company; but I do not look upon such calculations as of real, practical value, when they are compiled by a surgeon, in his evening leisure, to set forth the result of his own treatment of certain sick people. Two patients with a disease called by the same name are not of the same clinical value, nor are 20, nor 200, and the sooner Surgery discards the actuarial method in setting forth progress in connexion with the treatment of cancer the better.

Again, in an almost pardonable wish to show the results of his operative work in an attractive form, the surgeon is sometimes tempted to set up for himself a "time limit," and then to say, "If after operation for cancer there is no sign of return in any part of the body within this period, I shall count the case as *cured*." After all, this time limit of his is but arbitrary. One surgeon may fix for himself a ten-years' limit; whilst another, who is, perhaps, more sanguine, makes his a three-years' limit. And if *three years*, why not *three months*? But can a surgeon who looks at facts, rather than at figures and fancies, rightly claim the three-year group of operation cases, or even the ten-year group, as *cures*? I think not. It may be more than ten years before that little mass of drifting cancer cells is, by chance, found cast up in some outlying area of tissue.

Treatment by Injection.

Two years or so ago "all Paris," and a great many other people, were set talking about a method of treatment of cancer which had sprung from the brain of Dr. Doyen, a surgeon of acknowledged manual dexterity and enterprise. Much was expected from it, especially as he said that his inspiration had been drawn from the work which Pasteur had done in the treatment of rabies and Koch in the treatment of tuberculosis.

In the *Introduction* to his large book[7] he explains how his first observations upon what he took to be the pathogenic microbe of malignant tumours, were sent in a sealed envelope to the Académie des Sciences in 1886, and that fifteen years later he named this microbe *Micrococcus néoformans*. That after waiting another three years he had the sealed envelope opened and its mysterious contents made known, for he was of opinion that his further experiences had fully confirmed his early hopes. And in these days of notoriety-seeking and advertisement, one can but admire the restraint which, up to that time, the French surgeon had imposed upon himself in keeping his experiences in the treatment of cancer hidden from public view. He said that he had found certain microbes in various malignant growths, and in the cancer-juice of infected glands, and he asked if these micrococci were without importance, or if they were of the nature of a special ferment of pathogenic property and capable of reproducing themselves. This, briefly, is a review of his position: A microbe infects the edges of rapidly-growing malignant tumours, which he calls micrococcus neoformans; this is the cause of the growth just as the bacilli are of tubercle, or as the ray-fungus is of actinomycosis. That the neoformans may be cultivated, and that cultivations injected into certain of the lower animals may produce a growth very like cancer. That injections of the culture into persons affected with cancer sets up a reaction comparable with that following the injection of Behring's serum in the subject of tuberculosis, and, lastly, that injection of the serum in the subjects of malignant disease retards the growth of the tumour or even causes it to disappear. If this were actually so, he would probably have been justified in heading one of the paragraphs of his book in large type, *Vaccination anticancéreuse préventive et curative*.

The reading of the book, however, does not bring conviction. It will be noticed, for instance, that in nearly all the cases which he claims as evidence of the value of his injection treatment the patients had, in addition, been submitted to operation by the knife. He himself is apparently struck by this fact, for he would have his reader specially remark that in the successful cases numbered 62, 78 and 79 there had been no operation on the cancer deposit itself. Case 62 is one of "pyloric cancer" which he had treated by gastro-enterostomy, and No. 78 relates to some enlarged glands under the jaw arising after the removal of an epithelioma of the cheek by some other surgeon. Doyen truly remarks that a certain diagnosis of cancer could be made only by examination of the glands after removal, and this was not done, for the enlargement disappeared. The 79th case is that of a woman whose vaginal wound did not heal after hysterectomy, though it cicatrized after the "antineoplastic" injection had been used. There is no proof that the local trouble in these persons was cancerous. And as regards the stomach-case, I would remark that it has probably fallen to the lot of most surgeons with experience in the operation of gastro-enterostomy for pyloric obstruction, to meet with a pleasant surprise of this nature. The abdomen having been opened, and the small end of the stomach having been reached, a mass of wooden hardness is found blocking the outflow; and this mass may also be so firmly fixed that the surgeon has finished his operation in the belief that it could be nothing but cancer. However, after the operation, the patient has steadily become strong and robust once more, and the question of the growth having been cancerous has happily and finally to be abandoned. This, I say, is no uncommon experience, and I venture to think that the case which the French surgeon professed to have cured by the serum injection was of a similar nature.

In March last a paper was read before the Royal Medical and Chirurgical Society of London[8] by Drs. Alexander Paine and David Morgan on a series of cases treated after Doyen's method. Doyen had himself seen most of these patients and had regarded them as suitable for the treatment. No other surgical measure was used with them. In some of the cases the injection was followed by severe pain; and in some it caused alarming symptoms, with sudden, widespread vasomotor disturbance and collapse. All of them went steadily downhill; "in none was there any improvement," and "it was decided to suspend the treatment." Further, Drs. Paine and Morgan reported that they had sought, found, and cultivated the micrococcus neoformans in many cases, and having injected rats and mice with serum duly prepared

from it, could obtain no local results other than those of an inflammatory nature. In no single instance did they succeed in producing any approach to a malignant tumour, nor, so far as their knowledge went, had Dr. Doyen ever succeeded in producing it.

The Imperial Cancer Research Fund.

I feel that I should be neglecting this opportunity if I did not specially refer to the work and claims of the Imperial Cancer Research Fund, which was established four or five years ago under the common roof of the Royal Colleges of Physicians and Surgeons. As a member of the Executive Committee I am in a position to know, and able to give assurance to those interested in the welfare of the Fund, that the Director, Dr. Bashford, and his staff are steadily, patiently, and hopefully plodding away at the mysterious problems of the cause and cure of cancer. But at the same time I am sorry to say that they are running the risk of being hampered in their researches by the somewhat limited space in which they have to carry on the work, and by the inadequate amount of skilled assistance which the Executive Committee are able to afford them. As regards the cramped accommodation, we are assured that the Fund is at present, from shortness of income, unable to make better arrangements. And as regards the supply of further competent helpers, our President, Mr. Henry Morris, who is regretfully compelled to hold the purse-strings somewhat tightly drawn, is inspired by a dread (which bears tribute to his capacity as Treasurer), of the Fund living beyond its means.

At the time that Italian Art was at its highest pitch, rich and large-minded men were proud to come forward and stand as "Patrons of Art"—a position which was not without occasional advantage to themselves, as they were thus enabled to see and acquire treasures which might otherwise have been missed by them. At the present time in England Science is in want of such men. Fortunately, we have already some with us—fortunately, indeed, for without their help this Cancer Research Fund could scarce have been established. But more are needed. And I am sure that I shall have the approval of our President when I say that each one of us should take every opportunity of making known the existence, the objects, and the needs of the Fund to any one who may be at all likely to come to our assistance.

But in becoming a "Patron of Science," so far as this great Cancer-problem is concerned, the individual can expect no prompt or visible return for his bounty; he will have to be content with the knowledge that his gift will be faithfully and economically administered, and with the reasonable hope that it may help to bring relief to some unknown persons who, perhaps in the very prime of life and usefulness, are overtaken by a peculiarly distressing and intractable disease. We are given to understand that when, as now, times are financially bad, men are apt to be sorely troubled as to the security in which they may invest their spare money with the greatest advantage and least anxiety. Here, then, is a golden chance for them! And, having availed themselves of it, there will be no need for them to turn with eager glance to a certain column of the *Times*, and, with the risk of losing appetite for breakfast, find how the stock is quoted. For the present, only once a year will this great imperial trust be officially mentioned, namely, after the annual meeting under the Chairmanship of His Royal Highness the Prince of Wales, the President of the Fund. But I must not hide the fact that it is a matter of growing and sincere regret that the number and the amount of yearly subscriptions to this Fund have lately somewhat fallen off. It is as if certain of its early friends had grown disheartened because, after the ploughing, the sowing and the reaping of the quick elapsing time, a full harvest had not already been gathered.

In these circumstances, it is a great satisfaction to those who are practically and confidently interested in the success of the Fund to know that, by the liberality of our Patrons of Science, the Fund has now an endowment of £116,000 (inclusive of the splendid Golden Wedding gift of Mr. and Mrs. Bischoffsheim). But in order to ensure its continuous, even, and unpinched working, its endowment ought still further to be increased. To put it bluntly, the Fund wants about £20,000 more. It would, I should think, be impossible to find upon the front page of the "prospectus" of any other undertaking the names of men better known or more highly respected in the world of philanthropy, of finance, and of science. And the friends of this Fund need no assurance that these names stand at the head of our reports not for the purpose of decoy, but as proof of the righteousness of the scheme and of the practicability of its success.

But should this looked-for success happily be reached in the near future, so that further need of Research in the matter of cancer might be considered at an end, a Special General Meeting of the Supporters of the Fund would be called, so that a decision might be arrived at as to the way in which the invested capital or the income should thenceforward be dealt with. But this is surely going too fast! As La Fontaine's bear whispered into the ear of the eager hunter, one should not arrange for the sale of the bear's skin whilst the animal is still alive.

Comparative Study of Cancer.

One of the first matters to which the Director of the Research Laboratory turned his attention, was to ascertain precisely how far down the Animal Kingdom cancer could actually be traced. And in the course of this inquiry he discovered the interesting fact that amongst the lower vertebrates, as with the human subject, there is a close association between the incidence of cancer and advancing age. Thus, out of 63,000 head of cattle slaughtered in Glasgow in the year 1902, cancer was detected in 27 cases, but all in old cows sent over from Ireland. As a rule, a cow is killed before it reaches the cancer-age, and this is, probably, the reason of the comparative smallness of the number of malignant tumours met with in the slaughter-house; but where cows are kept on year after year for purposes of haulage, or for other reasons, a liability to cancer increasingly shows itself. In the examination of upwards of 100,000 mice, 42 cases were found, but a large number of them were young mice. The extreme age of a mouse is three years, and cancer is most likely to hit it in the second or third year. And in the case of horses, dogs, cats and fish this same association of age and incidence is regularly noticed.

In these days, when well-meaning but over-zealous persons are for ever telling us that the chief part of our illnesses are brought on by our own misdeeds, and especially by even a moderate indulgence in what they are pleased to call "alcoholic beverages," it is something of a comfort to find that the trout and the carp, undoubted water drinkers, are, with the rest of us, liable to cancer. And if so be that the record of this consoling fact be read by any of those either inside or outside our profession who take their recreation with rod or gun, I would beg that if at any time they meet with an animal marked by some strange growth or diseased patch, whether the animal be clothed in feather, fur, or scale, they send it forthwith to the Director of the Imperial Cancer Research Fund on the Victoria Embankment, where, I can promise, it will be cordially welcomed and carefully examined. Such specimens may prove of the utmost value to those engaged upon the great cancer-problem, and by giving themselves this little trouble the senders will be materially helping our patient workers, as well as showing sympathy with their work.

And here I would express the grateful acknowledgement of the Executive Committee of the Fund for the favourable response which their Deputation received a few months ago from the Postmaster-General to their request that specimens, if securely packed, might still be sent through the post to the Director of the Laboratories. Taking advantage of these postal facilities, the Head-keeper of the Duke of Rutland recently sent to the Laboratories an old cock grouse who was found to have a cancer of the bowel; and Mr. Goodall and Mr. Cousens, Fellows of the Royal College of Veterinary Surgeons, have forwarded, respectively, a blackbird with cancer of the liver, and a canary with cancer of the ovary. All these specimens were of great interest, and more of them are desired.

It is strange that at present the mouse is wellnigh the only animal in which cancer can be obtained by grafting; that cancer-grafts from a mouse will not grow continuously in other animals, even in one so closely allied as the rat; and that the graft is so particular that it will take root only in mice of the same species. A graft from a tame mouse most likely perishes in the tissues of the

common grey one, and a graft from a cancer-infected English mouse will seldom live in a German mouse.

It is likely that the question of experimentation upon mice in the laboratories of the Imperial Research Fund will receive mention at meetings of the Vivisection Commission, and that some misinformed and, therefore, apprehensive witness, or some Little Englander of the Science-world, may be asking himself what profit can be forthcoming from such experimentation, claiming that mice are of more value than many human beings who are or may be the subjects of cancer, and demanding that further experimentation—the only means by which a cure for cancer is likely to be discovered—shall forthwith cease. As to the precise value of the work it is yet too early to speak; but seeing into whose care the direction of the laboratories has been placed, the public may trustingly await results, and in full assurance that no cruelty will be allowed to dishonour the research.

The inoculation of the mice with cancer is done by the mere prick of the skin with a slender, hollow needle; it is no more a "vivisection" in the ordinary acceptance of the word than the giving of a hypodermic injection to a patient is a surgical operation. And, as regards the mouse who has thus been rendered cancerous, he is, to all appearances, except in extreme and unusual circumstances, as comfortable as his companions are. But even were facts the reverse of what I have stated, and of what I know them to be, I should still claim that if there is a chance of Research bringing forth something for the relief of men and women who are suffering from cancer, it is more than justified—it is sanctified. And this, I think, would be the opinion of the ordinary run of English people. And should the attempt be made blindly to cause this great and promising work to cease—a work to the perfect success of which even the most uncompromising opponent to experimentation on living animals can scarcely be indifferent—the stones would immediately cry out! Experimentation with, and the careful microscopical examination of the tumours which grow from transplantations in mice, show that spontaneous and propagated cancer are, so far as can be made out, identical. This is of importance to Laboratory workers, as it enables them to secure an unlimited supply of living and dead cancer-material; to watch the behaviour of the disease in the earliest days of its growth, and to study the effects of treatment in the most impressionable age of the morbid tissue.

And here I may say that amongst the various attempts which have been made to modify the growth of well-established inoculation-cancers, the results obtained by exposure to radium have given very little encouragement. And so it has been with the experimental study of the reputed empirical remedies which, from time to time, have been forwarded to the Laboratories to be tested—one and all, they have proved complete failures.

THE "CURE" OF CANCER.

At the annual meeting of the Fund held on July 25th last, it was officially announced that due attention had been given to the examination of various so-called "cancer-cures," but that investigation had failed to show that any value could be attached to them. This is, at any rate, an assurance to the public that the Committee are taking interest in the practical, as well as in the scientific side of the question, and I am in a position to state that they are at all times ready to make impartial investigation of any such claims.

The Committee then go on to say that they "cannot but regret the publicity afforded from time to time in newspapers and periodicals, to very misleading notices in favour of the numerous so-called cures." *Cure* is the one word which appeals to the public, and naturally so. As one reads the quack advertisements continually appearing in the public press, one sees how every trap is baited with the promise of cure. In the dealings of the cunning quack with the anxious patient there is no suggestion of uncertainty; a *cure* is promised as soon as the money is paid. Whether the disease is cancer, tubercle, rupture, gout, or alcoholism, the quack is ready not with mere treatment, but with the welcome promise of certain cure. And this is what the public desire. They like being deceived; and the lay press (and especially the so-called religious newspapers) does its best to help. But in these days when public journalism has obtained for itself so high an estate, it is pitiful to see the class of people whom certain newspaper proprietors welcome to their columns as "paying guests." The newspaper man may claim that of the fraud he knows nothing; that he is of so innocent and trusting a nature that he takes as gold everything that glitters; and that with the disappointment, the remorse, or the financial ruin which may result from his spreading abroad shamefully misleading advertisements he has really nothing to do. Quackery is, of course, much older than the public press, but at the present time it is by means of the public press that the quack is enabled to gather in the greatest part of the rich harvest which he reaps from the suffering and the ignorant.

Is it too much to hope that as time goes on it will be made illegal for any one to act as a medical practitioner unless by study, examination, and registration he has acquired the right and the privilege to do so? In some respects England is far too free a country, and though an impostor may not act as a clergyman, a policeman, or a lawyer, he may at any time set up as a cancer-curer, in which position he is apt to do grievous harm to the individual, not only by robbing him of his money, but by delaying his coming under that method of treatment which, so far as is known at present, is the only one which can offer him any real prospect of relief.

I regret that it is out of my power to call attention to any modern method of treatment of cancer which can honestly and confidently promise a cure. As yet, Surgery knows of none. Nevertheless, the surgeon may be able by operation to do a great deal for the individual, may be able, indeed, to set him quite free from his disease. But the word *cure*, if used at all, must at present be mentioned only in a whisper, as it were. Later on, perhaps, it may be proclaimed upon the house-tops. It is, of course, disheartening to be compelled to confess that no certain cure for cancer has as yet been found, and that, so far as is known, searchers are not yet upon the obvious track of one. But such is the fact; and it is only right that the Public, who, equally with our Profession, are interested in the long-wished-for discovery being made, should know just how matters stand. The Public may be assured of this, that if a cure were known, those who are strenuously working at the subject would be in immediate possession of it. And it may be that if the exact position of affairs could be placed before the Public, it might have the effect of inducing more people to give financial support to the great National Fund which has recently been established in England for the prosecution of Cancer-research, as well as of preventing some of those who believe themselves to be the subjects of that disease, from falling blindfold into the hands of the so-called "Cancer-curers."

One fact of importance obtained in our Research Laboratories, in the course of inoculation experiments upon mice, is that, every now and then, a mouse which has been infected with cancer gradually triumphs over the disease, and at last gets entirely free from it. The same thing sometimes occurs in the human subject—an undoubtedly malignant deposit steadily growing smaller, and eventually fading away. Unfortunately, this takes place so rarely in the human subject that it is impracticable to hope for it. *But it may happen:* and in cases in which the disease is regarded as inoperable, the surgeon does not lose sight of this possibility. And when he hears non-medical friends or neighbours discussing some extraordinary case in which, under gentle treatment by coloured liquids, by violet-leaves, or by goodness knows what, a tumour which had been called a cancer has been cured, he is likely to say to himself that if it *were* a cancer (which, perhaps, he may make so bold as to doubt), this was probably one of those rare instances of spontaneous cure. The question arises as to what there was in those mice, or in that happy individual, which enabled the natural forces to vanquish the disease. And as soon as we are able to imitate that process in the Laboratories, the cure of cancer will be within our reach. Is it due to some extraordinary property in the colourless blood corpuscles which has, somehow or other, been awakened into activity, so that the cancer-cells—which, in the absence of proof of the existence of specific cancer-germs must still be deemed the essence of the disease—are routed and destroyed? In this direction experimenters are already at work, some with drugs administered by the mouth; others with injections of sterile cultures of potent germs; others with

animal or vegetable juices; with chemical solutions, or with emanations from radium or from the electric arc.

In the course of their experimentation upon mice, Drs. Bashford and Murray made the discovery that by injecting a few drops of blood from a normal mouse into the circulation of a healthy mouse on which they are about to graft a cancer, they can effectually prevent that graft taking root, though blood of a rat or of a guinea-pig similarly injected has no such protecting influence on the mouse. If these results be confirmed by other workers, the next thing will be to find out *why* this happens. And if it be conceded that the mere injection of a few drops of healthy blood can prevent the mouse becoming a prey to cancerous infection, the thought comes home to us that, after all, it may be only some small thing which is needed to check the progress of a cancer by which a human being is infected—it needs but an infinitesimal amount of vaccine lymph to render a whole country proof against the ravages of small-pox. The time is surely ripe for the advent of a Jenner in the world of cancer!

PROSPECT AND GREETING.

In virtue of my position as Bradshaw Lecturer, which has thus enabled me to take in view the chief modern methods of the treatment of cancer, and to cast wistful glances upon the prospect of the perfect understanding of, and the eventual triumph over, that disease, I seem for the moment to be standing, as it were, upon the top of Pisgah, and looking "to that good land that is beyond, that goodly mountain" which Surgery promises herself shall, in the fullness of time, be made her own. And the thought naturally arises as to the exact way by which this happy descent will be effected. In the midst of much that is uncertain, I feel sure that the final victory over cancer will not be solely by the knife. Excision of the cancerous growth has rightly been practised as long as Surgery has been an Art, and of late with increasing thoroughness and success; and though this has enabled us to accomplish great results, even to the effecting of absolute cures in undoubted cases of cancer, yet, even in its freest exercise, it leaves much to be desired. But whatever the great curative method may eventually prove to be, the knife will, in all probability, still be needed for the removal of the primary lesion.

And having thus ventured to compare my position with that of Moses as he looked towards the Promised Land, I think that I cannot do better than bring my remarks to a close by using the last verse of the Chapter from which I have already made quotation; it contains the cheering, hopeful exhortation which was to be given to Joshua.[9] And I will make so bold as to pass it on, with a mere change of pronouns, as a respectful greeting to the Imperial Cancer Research Fund, which, guided by our two Royal Colleges, has the high distinction and advantage of carrying on its work under the immediate patronage, and with the keen personal interest of His Royal Highness the Prince of Wales. The message runs thus: "Charge them, and encourage them, and strengthen them; for they shall go over before this people, and shall cause them to inherit the land which ye shall see."

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WE quoted recently from *Nature* Professor Minchin's account of the discovery of the pupa of the tsetse fly in loose crumbling soil around the roots of bananas in a plantation on the shore of Albert Edward Lake, and added his statement that the fly was found on the deserted island of Kimmi, where there were no banana plantations. In a further communication to *Nature* Professor Minchin states that he is informed by Lieutenant A. C. H. Gray, R.A.M.C., that there are deserted banana plantations on Kimmi. Should it turn out that the pupa only frequents the soil around bananas, the difficulty of attacking the pest will be great, since the plantations cannot be destroyed, bananas being the principal food of the natives. Professor Minchin suggests that something might be done if the natives were encouraged to keep fowls in the plantations; the birds would probably find the pupae and devour them readily. He suggests that an experiment in this direction should be made on the island of Kimmi.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF SURGERY.

SIR HECTOR CLARE CAMERON, M.D., President.

A DISCUSSION ON ACUTE SEPTIC PERITONITIS.

OPENING PAPER.

By C. J. BOND, F.R.C.S.,

Honorary Surgeon, Leicester Infirmary.

BEFORE entering on the technical part of the subject before us, allow me to express my deep sense of the honour you have done me in asking me to open the discussion on the Treatment of Septic Peritonitis at this important meeting of the British Medical Association in the city of Toronto.

My interpretation of the duties of the important post assigned to me is as follows:—

That I should endeavour to lay before you as fully and fairly as the time will allow the surgical position of this important matter as it stands to-day, together with any suggestions or impressions which may have occurred to me as the result of my own personal experience; to compare as far as I am able the practice of English surgeons with those of Canada and America, and to suggest for your consideration any lines of inquiry which call for further investigation.

Now, at the very threshold of my remarks I wish to pay my tribute to the very valuable and untiring labours of Canadian and American workers in this important field. In fact, much of our knowledge of the bacteriology of peritonitis, and much help in the differentiation and recognition of the different forms of the disease, we owe to our transatlantic colleagues, among whom may I be allowed to mention only the names of Cushing, Crile, Welch, Flexner, Cannon and Murphy, Fowler, Conte, Knott, Keen, and Kelly; while other well-known workers are present with us to-day.

In England the laborious and important work of Dudgeon and Sargent and Hewitson, and on the Continent that of Tarval and others, have placed the bacteriology of the disease on a more scientific basis.

Nor must we forget the important inquiries into the possibility of immunization carried out by Dr. Miyake, of Japan, under the direction of that lamented surgeon, von Mikulicz, or the valuable impetus which was given to the treatment of peritonitis by Lawson Tait, not only surgically, but especially through his strenuous advocacy of aperients as the proper substitute for opium in the medical treatment of the disease.

Those of us who can unfortunately look back some twenty-five years will thankfully acknowledge with me that though when confronted to-day with a case of acute generalized septic peritonitis (to which condition of things I understand our remarks are limited) our position is still one of grave anxiety, yet it is not as hopeless or as powerless as it was a quarter of a century ago.

We have learned in that time, and especially in the latter portion of it, to do certain things which we then feared to do, and to leave undone certain things now which we then blindly carried out. For instance, we now open the abdomen at the earliest possible moment, in order, if possible, to overtake the disease: and we now carefully avoid the evisceration and the wiping away of the protecting fibrinous lymph deposit—both such potent lethal measures in our earlier attempts at surgical interference.

Before, however, we can usefully discuss the surgical treatment of this very fatal disease, we must have some picture in our minds of its etiology and pathology, and I

must ask you to allow me to draw your attention for a few moments to one or two points in our present knowledge of the normal physiology of the peritoneum and its behaviour when attacked by micro-organisms.

Firstly then, it is now recognised, chiefly from the work of Mascatello, that the upper dome or diaphragmatic portion of this extensive lymph sac is by far the most active area in the absorption of both fluid and solid particles. It is in this area that phagocytosis is most active and most efficient; and if, as Dudgeon and Sargent have shown, the phagocytes can collect with sufficient rapidity and in sufficient numbers in this area, in obedience to the stimulus of the comparatively harmless *Staphylococcus albus*, which frequently precedes the more virulent invasion by other pathogenic organisms, then there is some chance of the patient's recovery.

For in the surgical treatment of peritonitis we must remember it is especially true that the patient's organism must take the first steps in repelling the invasion. The surgeon by his incisions, his irrigation, and his drainage is practically acting as the ambulance corps department of the body, conveying away dead and dying combatants on both sides, invader and invaded, and thus preventing the further poisoning which arises from their detention on the field of battle, while at the same time promoting the arrival of further reinforcements of phagocytic defenders.

Next to this diaphragmatic area, the portion of the peritoneum which suffers most in the presence of septic infection is that extensive part of the membrane which covers the small intestines. Whether this fact depends on a difference in phagocytic power, or whether it has reference to the constant movement and dispersion which goes on amongst the coils of small bowel before agglutinated by inflammation, we do not definitely know. It is, however, the case, as Sir F. Treves has pointed out, that septic inflammations tend to be more diffuse in this area than in those parts of the peritoneal cavity bounded by the caecum and colon at the sides or in the cavity of the true pelvis below.

Further, we know that the peritoneum, when irritated by the presence of infective organisms, if not too virulent or in too large a dose, protects its endothelial cell layer by the exudation of a fibrinous deposit, which covers the surface of the viscera. This fibrinous sticky deposit is the main agent in glueing together the moving coils of bowel; and also, by preventing the further egress of organisms from the bowel, it limits the spread of the disease.

It is, in fact, on the integrity of the endothelial and phagocytic defence that the safety of the patient depends; for if this breaks down, either from failure to react to the poison, or from loss of phagocytes by unwise irrigation, or by injury to endothelium by rough handling on the part of the surgeon, then the vascular channels of absorption are laid directly open, toxins enter the blood stream in overpowering doses, and the patient succumbs, as most of these sufferers do succumb, to septic intoxication.

These facts have an important bearing on details of surgical treatment, as we shall see later.

Further, the question of subsequent and permanent adhesions turns largely, almost entirely, on the preservation or the permanent destruction of this endothelial layer.

Every surgeon must have been astonished at the rapidity and completeness with which firm and extensive adhesions are removed in the peritoneal cavity. This removal and the accompanying return to normal conditions of sliding movement, and glistening surface, depends almost wholly on the absence of destruction of endothelium; hence the importance of every factor which favours its vitality and preservation.

We must now devote a few remarks to the bacteriology of septic peritonitis.

It is on modern researches into the behaviour of the various pathogenic organisms inside the peritoneum and the reaction on the part of that membrane against this invasion, that all our real knowledge of peritonitis depends, and all our treatment must inevitably follow in the footsteps of, and wait upon this bacteriological knowledge.

First, then, we are coming more and more to the belief that so-called chemical peritonitis in the absence of bacterial infection does not exist, at any rate clinically, for us as surgeons.

Take, for instance, all those cases of peritonitis which follow on the intraperitoneal extravasation of blood, cases of ruptured tubal pregnancy, of ruptured liver or spleen, or injured mesenteric or omental blood vessels. Such cases frequently present clinically the features of peritonitis, sometimes of a more or less acute and diffused type. Now, Dudgeon and Sargent have shown that in all cases of peritoneal haemorrhage from a ruptured tubal pregnancy the *Staphylococcus albus* can be found in the blood clot, and that this organism and not the effused blood is very probably the active agent in producing the reaction which is associated with, and in fact constitutes, the peritonitis.

In intraperitoneal haemorrhage from ruptured spleen, on the other hand, the organism is not so invariably present, and I have been wondering whether the explanation may not have reference to those upward mucous currents which, in the Address on Surgery to the British Medical Association last July at Leicester, I showed to exist in the Fallopian tubes and genital tract. In one case indigo particles previously inserted into the vagina were recovered from a ruptured tubal sac removed intraperitoneally by operation, and the special proclivity of pelvic haematoceles to suppuration may depend on the same upward passage of pyogenic organisms.

In this category all cases of injury to the bowel are of course excluded, for under such conditions the organisms may easily penetrate the damaged walls.

However this may be, the peritonitis which attends these haemorrhages, and which is of a very mildly virulent type, probably always depends on the presence of organisms, and this fact must influence our treatment. The removal of the foreign body, the effused blood, by free irrigation and the closure of the wound without drainage will often be the best treatment and arrest the inflammation.

When peritonitis follows on the intraperitoneal effusion of healthy urine and healthy bile, it is due to the association with the same or an allied organism: whereas the virulent peritonitis due to the escape of bile or urine from infected passages presents the features of inflammation due to the infection from the intestinal canal.

The septic peritonitis which is associated with disease of the female pelvic organs—such, for instance, as that due to rupture of a pyosalpinx—seems to rank somewhat higher in virulence than that due to haemorrhage.

Much difference of opinion has surrounded the question of the *rôle* of the gonococcus in peritoneal inflammation. Wertheim and Cushing have demonstrated its presence in the peritoneal exudate. From my own experience of cases, and especially of two occurring in elderly women during acute gonorrhoeal infection of the genital tract, and in which at the operation the acutely inflamed Fallopian tubes were seen exuding yellow pus, I certainly think that this form of peritonitis is more virulent than that due to a ruptured pyosalpinx presumably of gonorrhoeal origin. Possibly the difference in virulence depends on the attenuation of the culture in the case of the pyosalpinx, or in the production of partial immunity by the previous vaccination.

Even in the former more virulent class free pelvic irrigation and drainage will frequently arrest the spread of infection.

On the other hand, diffuse peritonitis arising from the rupture of a suppurating ovarian cyst is much more virulent in character, and depends on the association of intestinal organisms, frequently the *Bacillus coli*.

We now come to the bacteriology of acute septic peritonitis depending on perforation of, or the escape of, organisms through the wall of some portion of the alimentary tract; and in the first place to cases of perforated gastric and duodenal ulcer.

The gastric and duodenal contents are probably sterile in health. A strepto-diplococcus has been found by Dudgeon and Sargent in the peritoneal exudate, and in the edge of the ulcer in cases of gastric perforation. Glion, in France, has described the pneumococcus as the active organism. Under any circumstances it is, I think, clear that the actual virulence of the infection in these cases is not very great; the seriousness of the patient's condition lies partly in the escape of foreign particles, and digestive juices, which injure the endothelium, and partly on the rapid pouring of the material over the peritoneal cavity.

In no form of peritonitis is the life-saving and disease-arresting power of immediate operation so manifest.

We now come to the bacteriology of diffuse septic peritonitis due to the invasion of the cavity by organisms derived from the intestinal canal below the duodenum. Such cases include the general peritonitis due to necrosis of the appendix with or without perforation, perforation of intestinal ulcers, and malignant growths, traumatism, typhoid perforation, and perforation of infected biliary, pancreatic or urinary passages.

All these cases have certain common features which it will be convenient to mention first.

It is, for instance, abundantly clear that it is not necessary to have an actual perforation of the intestinal wall in order to allow the egress from the bowel of pathogenic organisms; their presence in a hernial sac, in the absence of gangrene or perforation of the bowel, demonstrates this fact, and it is extremely probable that the wide diffusion of an infection over the peritoneal cavity in the absence of perforation, and when not due to the transference of infection by intestinal movement, is brought about by the migration of organisms through the inflamed coats of separate portions of the intestinal tube, as successive coils become involved by inflammation, glued together by sticky exudation, and distended by gas and faeces.

What *does* seem necessary to bring about this migration of germs seems to be a distended condition of the bowel wall, with retarded blood supply, and the presence in the lumen of a faecal culture medium, and organisms of exalted virulence, such as those always found in all forms of intestinal obstruction and paresis.

Thus, while the empty bowel with contracted walls well supplied with arterial blood will powerfully resist the egress of organisms, a distended coil full of gas and liquid faeces, with walls thinned by distension, and dusky with venous stasis, will readily allow their passage into the peritoneum.

And hence it is that the condition of the intestinal tube as regards its contents, and its bacteriological flora at the time the patient is seized with the acute infection is a matter of such great importance and has such a powerful influence on the ultimate issue. I regard this question of the hygiene of the intestinal canal at the time of, or immediately preceding, the onset of the peritonitis, the perforation, or the injury, as a matter of the greatest importance, and will digress for a few moments to mention one or two facts bearing on this point.

I do not think it is generally known that the specific gravity of the faeces of similar consistence varies with the state of health—that is, with the normality of the assimilation and absorption taking place in the large intestine.

Without going into the question of the specific gravity of the faeces in different groups of the animal kingdom, I will here only mention that the flotation or sinking of human faeces gives some information as to the state of the colon and affords a rough indication of the specific gravity of the faeces. My attention was drawn to this matter by noticing that lumps of faeces of the same consistence, when passed directly into water, swim or sink according to the state of health at the time, or the day or two preceding the passage of the faeces. A slight attack of indigestion, the interference with digestion and assimilation which accompany nerve exhaustion, all these conditions will cause the faeces to sink; while a return to normal diet, the invigoration of change or rest, will in twenty-four hours cause faeces of even less firm consistence and equally full of moisture to swim for some time.

To return to the consideration of cases of septic peritonitis due to infection by organisms derived from the intestinal canal. Dudgeon and Sargent have shown that in most of the serious cases, and in nearly all the cases which recover, the first organism to migrate from the bowel and invade the peritoneum is the *Staphylococcus albus*; not only so, but the patient's chances of recovery are distinctly improved by this preliminary invasion of the peritoneal cavity by an organism of only very slight virulence. Its presence appears to stimulate phagocytosis, especially in the diaphragmatic area, and so in some degree to prepare the membrane for the subsequent invasion of the more virulent *Bacillus coli*.

The importance of this fact on the treatment of these cases of multiple infection is very great.

The removal by irrigation and sponging of the peritoneal exudate containing the protective phagocytes, especially from the diaphragmatic area, and the very probable substitution by the manipulations of the virulent *Bacillus coli* from the primary focus for the less virulent *Staphylococcus albus*, will materially reduce the patient's chances of recovery.

In fact, it is probable that the great reduction in mortality—in the hands of some surgeons from 80 to 40 per cent. (Conte, Knott)—which followed the substitution of dry local sponging and drainage for free irrigation and partial evisceration, depends on this fact, that under the former method the virulent purulent exudate is removed at the primary focus of invasion, while the defensive processes which are going on in the peritoneum at a distance from this spot are not interfered with.

But in addition to these more favourable, or perhaps we should say rather less fatal, cases, in which the *Bacillus coli* infection is accompanied with and preceded by the *Staphylococcus albus*, there remains a large group of very fatal cases in which the invasion is from the first due to the virulent *Bacillus coli*, either alone or with other allied organisms.

In the worst of these infections (and especially in those due to streptococci, especially the *Streptococcus pyogenes*) the patient may be killed outright by the virulence of the poison. Little or no reaction occurs, no agglutination of coils of bowel by protecting fibrinous deposit, no pouring out of exudation containing vigorous phagocytes.

In the cases of rather less virulence in which some reaction occurs, the clinical picture on opening the abdomen is as follows:—

There is some evidence of reaction at the primary focus, around the gangrenous or perforated appendix, in the shape of some pus formation; but instead of local abscess with defined walls there is no true boundary, and spreading away beyond this point is the thin turbid exudate covering the diffusely reddened membrane.

It is in such cases also that the improved technique in treatment has given encouraging results.

Evisceration and forcible general irrigation have given way to dry local sponging or local open irrigation, combined, perhaps, with drainage of the pelvis, or loins.

If evisceration and complete washing of the intestinal coils are ever justifiable, it must, perhaps, be in those almost hopeless cases of *Streptococcus pyogenes* infection, in which the patient dies within a few hours of seizure, from rapid poisoning, without reaction or attempt at phagocytosis.

There still remain some other forms of diffuse septic peritonitis due to other less frequently seen organisms. Amongst these, we must say a few words about the pneumococcal form.

Messrs. Armand and Bowen have lately (*Lancet*, June 9th, 1906) given an excellent summary of our present knowledge of this form of peritonitis.

There are certain peculiar features in its incidence and pathology. First, the large proportion of cases occur in children, and chiefly in female children, the female cases being nearly double the number of males.

Now, if we exclude the cases of pneumococcic peritonitis in which another possible focus of infection exists, such as a pneumonic or pneumococcal suppuration in pharynx or ear, and take only the cases of primary peritonitis due to invasion of the peritoneum by the pneumonia bacillus, then it is difficult to explain the special frequency in female children by infection through blood stream, or by migration of the organism through the bowel wall, although Jensen's experiments on mice, as far as they go, favour this route of invasion.

Brun has laid great stress on the genital canal in females as the frequent route of invasion, and in some cases vulvitis and vaginitis have preceded the peritoneal seizure. If I may be allowed to refer again to my own observations, I think the presence of ascending mucous currents in the uterus and Fallopian tubes, which I described in the Address on Surgery last July, throws some light on this matter; in fact, it seems likely that the pneumococcus may be rapidly carried up the whole length of the genital canal within a few hours, without dwelling long enough in vagina or uterus to give rise to symptoms, and in cases in female children arising in this way we should expect the initial symptoms of inflammation to start in the pelvis.

In one case lately under observation in a child of three, in which death occurred from pneumococcic peritonitis, the Gram-staining capsulated diplococcus was found lying

upon and amongst the epithelial cells lining the Fallopian tube, without any evidence of infiltration of mucous or submucous tissues. In this case, therefore, the organism was conveyed into the tube either from above through the fimbriated openings, or from below through uterus and vagina, and was not accompanied by signs of inflammation in the tube.

The other peculiarities of this form are the curious way in which diffuse inflammatory exudation will end in a very large collection of pus in the peritoneum, peritoneal empyema, as Leuwaude has called it, which often points at the umbilicus.

Diarrhoea, also, is a frequent symptom in the earlier stages of this form of peritonitis. The virulence of the infection is not extreme, and the treatment by laparotomy, local irrigation, and drainage gives very good results, if undertaken before the patient is too deeply poisoned.

The naked-eye characters of the exudate are very striking. the thick greenish-yellow, odourless pus containing numerous flakes of dirty white fibrin; in fact, Jensen described the pneumococcus as pus-forming and fibrinogenous

And this leads me to say that I attach much importance to a careful recognition of the naked-eye characters of the exudation in all cases of abdominal section for peritonitis.

I feel sure that a surgeon of experience in peritoneal matters, by careful observation of the surfaces exposed, the odour, colour, and consistence of the exudation, can gain a good notion of the character and degree of virulence of the infection, and in some cases can give a shrewd guess as to the organism present; and this knowledge will be a material help in guiding him as to how much or how little he should do in order to give the patient the best chance of recovery.

Having now, as it were, laid the foundation by a very hasty and imperfect survey of the bacteriological and clinical facts which must underlie all our peritoneal therapeutics, we are at length in a position to bring to a focus, as it were, our considerations as to the rational treatment of that form of peritonitis—namely, the acute diffused septic form—which we are to discuss to-day.

First, as regards drugs:—

I have already mentioned von Mikulicz's work in attempting to increase the peritoneal leucocytosis by the preliminary injection of nucleic acid in 2 per cent. solution, either alone or in combination with peritoneal saline transfusion. This was done as a preventive measure before operation, and will hardly be applicable to cases already advanced when first seen, and in which it is necessary to operate immediately.

THE ADMINISTRATION OF MORPHINE.

There seem to be three chief reasons against the administration of morphine or opium in any form, and in favour of the substitution for it of some purgative, such as calomel or salines.

First, there is no doubt that by masking the symptoms and easing pain morphine produces an illusory sense of betterment which may be a cause of serious delay in operating, and bring about loss of valuable time.

Secondly, Dudgeon and Ross have shown that morphine exercises a marked inhibitory effect on leucocytosis.

Now, the patient's primary chance of recovery lies in an active and efficient peritoneal reaction, and the neutralization and destruction of the invading organism by a vigorous leucocytosis. Any drug, therefore, which hinders this favourable reaction must be looked upon with suspicion.

Thirdly, the question of the effect of morphine in increasing intestinal paresis, and so furthering the accumulation in the bowels of toxic fluids, is a very important one.

We have abundant evidence that the retained faecal fluid in all forms of intestinal obstruction provides a very favourable nidus for the culture of organisms of exalted virulence; while, on the other hand, the walls of a contracted and empty intestine offer great resistance to the egress of these organisms. From its powerful action in favouring this paresis and stagnation of intestinal contents morphine is quite an unsuitable drug. The only point that arises is whether, in the very earliest stages of the invasion of the peritonitis, during the intestinal turmoil, pain, and shock of the initial seizure, intestinal peristalsis may not aid in disseminating the infection. Personally, I think it does; at any rate, I have learned during operations to regard the appearance during manipulation of what I call "new bowel"—that is, a coil of hitherto uninfected and glistening intestine amongst the sticky coils in the field of operation—as an accident to be carefully avoided.

Hence I think, if there is any room for the administration of morphine in the treatment of peritonitis, it is in the very earliest stage of the disease and when given in one unrepeated and sufficient dose.

The use of aperients also requires notice. Lawson Tait's valuable advice in this matter has already been referred to. It is quite clear from experience—and, indeed, Tait in his original paper admitted the fact—that purgatives will have no curative effect on advanced cases, where infection is general and virulent, and intestinal paresis extensive and complete. Indeed, I would go further and say that if the administration of purgatives by the mouth does not take effect in the shape of some passage of flatus, not necessarily faeces, it generally does harm by increasing the vomiting and intestinal distress.

This remark does not apply to the administration of turpentine or purgative enemata by the rectum; these may be commenced early and repeated throughout the illness.

Of all purgatives given by the mouth the most reliable, and in my opinion the most generally useful, is calomel in grain doses repeated at frequent intervals. A considerable amount, gr. x or gr. xv in twenty-four hours, may often be given with benefit in the early stages, while some power of intestinal peristalsis remains; and even if retained in the body, salivation is curiously absent or rarely produced in these abdominal cases.

Saline aperients may usefully follow or be combined with the administration of calomel. It is, however, on the preventive or prophylactic side that the most striking results of purgative treatment in peritonitis are obtained.

In all cases, especially after operation, where there is reason to fear soiling, and therefore risk of infection of the peritoneum, especially in the case of virulent organisms, the early administration of calomel or saline, by promoting the passage of flatus and intestinal toxic fluids, will prevent the further egress of organisms through the bowel wall; and it is probably from the beneficial effect of purgatives in these cases that the idea has arisen that they will cure peritonitis.

There are also certain other most valuable adjuncts to post-operative treatment which it is necessary to mention.

First, the introduction into the vascular system of large quantities of water, preferably normal saline fluid. Since it is impossible to give this by the stomach it must be introduced either through the peritoneal lymph sac itself, by leaving the fluid in the pelvis, or by subcutaneous or intravenous transfusion, or by the intermittent or continuous injection of large quantities of fluid into the rectum.

The effect of the increased hydraemia so produced is to favour the peritoneal exudation and increase leucocytosis.

The position of the patient after operation is also important, and there is no doubt that the suggestion to raise the diaphragmatic area and lower the pelvic area (which we owe to Fowler, and which is brought about by the semi-sitting position) has been of much benefit.

SERUM TREATMENT.

Since the vast majority of cases of diffused septic peritonitis, especially those connected with appendix disease, and bowel infection owe their virulence either wholly or partly to the *Bacillus coli*, I quite agree with Dudgeon that our hope lies in some form of anticolon serum, valent against the various strains of the colon bacillus.

Unfortunately, at present such an antidote is not forthcoming.

The streptococcal infections are so rapidly fatal that there is less chance of successful intervention in these cases.

On the other hand, in the case of the less virulent infections—the gonococcus and pneumococcus and the staphylococcic forms—the patient is able to manufacture his own antitoxin, and then, aided by wise surgical interference, the chances of recovery are good.

The surgical treatment of septic peritonitis by abdominal section, owing to incomplete bacteriological knowledge, and in the absence of the efficient serum-therapy, must still be a matter of anxiety to the surgeon when called upon to deal with these cases of diffused infection.

In looking back some twenty years one regretfully

recalls the number of cases of diffuse septic peritonitis which in the early days died after, or rather in spite of, abdominal section. In fact, it was then rare to see a case of advanced infection recover.

But, dissatisfied with tentative and exploratory incisions, it was soon thought that more heroic measures should be adopted; the inflamed coils of bowel were drawn out of the abdominal cavity, and they, and it, were thoroughly washed and sponged. But, unfortunately, this method of evisceration and forcible irrigation yielded but little better results, and the mortality after operation remained till the last few years at some 80 per cent.

It is, indeed, only in recent years that surgeons have learned that it is necessary to work in harmony with the organic processes of phagocytosis, etc., if we wish to aid instead of to hamper the peritoneum in its battle against infection.

And it is a source of satisfaction to know that the improved methods which experience has taught us as surgeons are confirmed by, and harmonize with, recent bacteriological knowledge which we owe to the labours of Welch, Dudgeon, Sargent, Hewitson, and others.

As a general rule, in the large class of cases of diffused septic peritonitis which depend on infection from some portion of the intestinal tract and are associated with the *Bacillus coli*, either alone or in combination with staphylococci, the surgeon should regard the upper or diaphragmatic area of the peritoneal cavity, unless itself the seat of primary infection, as sacred, and leave it severely alone.

Any violent or free irrigation of this area will wash away the serous exudates containing the active phagocytes, possibly also the stimulating, helpful *Staphylococcus albus*.

Moreover, any exploration of this upper dome, if necessary to settle the question of local infection here, must be undertaken as a distinct operation with fresh instruments, in order to avoid reinfection with more virulent germs.

In the next place, since the great majority of cases of septic peritonitis begin at one focus or primary seat of infection, the guiding surgical axiom is that the first object of operation must be to attack this primary focus.

Thus, all local abscesses must be drained. The perforated or gangrenous appendix must be removed or isolated, and the virulent purulent exudate in its immediate neighbourhood sponged away, and the potential cavity tamponed or drained.

The perforated bowel must be sutured, the necrotic area of intestine sequestered, or the gangrenous portion of bowel removed. In like manner, the perforated gall bladder or the ruptured pyosalpinx or suppurating ovarian cyst must be the primary object of attack.

Where the peritonitis is due to obstruction from distended coils, which, unless emptied, are hopelessly paretic, the question of enterotomy and siphonage must be anxiously considered. It is, however, certain that the opening of bowel so distended introduces a serious risk of further infection by organisms of exalted virulence.

Having thus dealt with the primary seat of invasion, the very important question arises as to our proper attitude to the general cavity with its diffused infection, sticky coils, and thin, turbid exudate.

There is little doubt that in the majority of cases of moderately virulent infection, such, for instance, as those arising in connexion with a gangrenous or perforated appendix, the cost of interference with the general cavity is too great. Evisceration is fatal; while free and forcible irrigation is apt not only to wash away the defending phagocytes, but also to spread the virulent organisms from the primary focus over the whole area of membrane, already taxed to the uttermost to repel the invasion.

As a general rule, we shall find that our safety lies in making things secure locally, by the removal of the primary focus, combined with dry sponging or strictly local and open irrigation and local drainage. While if considerable collections of fluid exudate exist in the pelvis or loins, then it is better to drain these areas, especially the pelvis, suprapubically with large rubber drains or rubber tubing combined with gauze wicks.

Such is the treatment of the large number of cases of diffuse peritonitis of moderate severity. There are, however, other groups of cases, violently virulent on the one hand and mild on the other, which call for special remark.

First, the infections due to the most fatal *Streptococcus pyogenes*, or the less common but almost as fatal *Bacillus pyocyaneus*. These organisms are introduced from outside, as in cases of puerperal peritonitis. Here the infection is diffuse and virulent from the outset; there is little or no chance of dealing with any primary focus, and phagocytosis is feeble or absent.

It is, perhaps, in these most fatal cases that the freest irrigation, with drainage of the pelvic and lumbar areas, is really called for.

Even in these extreme cases I would avoid, if possible, interference with the diaphragmatic area. One has repeatedly seen a patient going fairly well through an abdominal section for general peritonitis, preserving a good colour and fair pulse, when for some reason or other interference or irrigation takes place in this sensitive area—a rapid change for the worse at once takes place, the aspect, colour, respiration, pulse, and blood pressure all alter, and the patient never returns to his former point of vitality again.

Then there are the cases of much milder degrees of virulence—those due to intraperitoneal haemorrhage. These may be safely and advantageously treated with free irrigation after the primary bleeding focus has been dealt with; not only so, but large quantities of normal saline fluid may be left in the peritoneal cavity, and drainage is not, as a rule, necessary.

The same treatment applies to cases of perforated gastric and duodenal ulcer, in which, though the urgency for immediate operation is extreme, yet the virulence of the infection is not of a very high degree, and consequently the efficient treatment of the perforation, together with removal of all foreign material by free irrigation, may render drainage unnecessary, or it may be limited to the pelvic basin if that contains much turbid exudate.

Cases of gonococcic infection due to extension from infected Fallopian tubes, or the rupture of a pyosalpinx, may be treated in the same way, though in these cases the pelvis should be drained.

Cases of pneumococcic peritonitis also require irrigation and drainage.

Peritonitis from Perforation in Typhoid Fever.—The efficient closure or sequestration of the perforation is essential in these cases, and Haller and Ashurst have shown that the actual virulence of the infection, unless accompanied by streptococci, is not very great. The seriousness of the position lies in the patient's exhausted state, and in the delay which so frequently occurs before the operation takes place; hence the extreme importance of an early recognition of the cardinal symptoms pointing to perforation, while local irrigation and drainage will in a certain number of cases—some 20 per cent.—limit the spread of infection and save the patient.

Thus we reach certain general conclusions about treatment.

First, the absolute necessity of preventing further infection from the primary virulent focus by appropriate treatment at this spot, together with the removal of the local purulent exudate and extravasated foreign material.

Secondly, the lower the degree of virulence of the infecting organism or organisms the greater the safety and benefit of general irrigation, provided due regard be paid to the sensitiveness of the diaphragmatic area; while in the infection of greater virulence, such as the *Bacillus coli* in cases of appendicitis and intestinal necrosis, irrigation of the general cavity is distinctly harmful in removing protecting phagocytes and spreading infection.

In the case of the severest type of infection—streptococcal—our only hope, in the absence of an efficient antitoxic serum, lies in very free irrigation, though most of these cases are hopeless from the first.

In fact, I would sum up the question of irrigation with this statement:

It is beneficial where the peritoneal cavity contains foreign material, such as blood, gastric or duodenal contents, or faecal matter, infected bile or urine, capable of removal by flushing. It is also useful locally for the removal of purulent material at the primary focus of invasion, in which case the phagocytes are no longer living and active. It is harmful in the case of fibrinous deposit and sticky coils without fluid, and must be used with the greatest reserve, if at all, in the case of sero-purulent exudates containing active phagocytes.

I have spoken incidentally of drainage, local and general, in connexion with the treatment of each class of cases of

peritonitis. I may, however, repeat that while of course the free drainage or tamponage of all local abscesses and areas of perforation or gangrene is essential, the drainage of the upper abdominal area, unless primarily infected, is harmful; while drainage of the middle zone or small intestine area is generally of very little use. Drainage of the loin areas and dependent pelvic basin, on the other hand, is frequently of much value, especially when combined with the Fowler position and the free injection of saline fluid by the rectum.

In fact, we should remember that the efficiency of any drain depends on the integrity of the peritoneum—that is, the endothelium in the area to be drained; and where this is destroyed or coated with fibrinous and sticky exudate any drainage tube becomes rapidly blocked and useless. In fact, the true rôle of the drainage tube and gauze tampon in peritoneal surgery lies in prevention—in preventing local peritoneal exudations from becoming generalized infections; and by the withdrawal of exudation at one spot to induce a flow of serum to this area from the neighbouring lymph sac, thus bringing up phagocytes to the seat of danger, and preventing the outward migration of virulent organisms from the primary focus.

And, in speaking of preventive measures in peritonitis, I should like to mention that in the operative treatment of local infective foci, especially in the pelvis, much depends on the condition of things and position of parts in which the surgeon leaves the peritoneum after operation. Thus, after all pelvic operations, the importance of covering up the true pelvis, and thus shutting off the small intestine area from the pelvic area, is considerable.

I have been accustomed to refer to this state of things as the "ideal position." After the completion of the operation and the insertion of drainage if necessary, care is taken to see that some portion of the large bowel, sigmoid or rectum, is packed into and fills the lowest portion of the pelvic basin; the omental apron is then brought down over the small bowels and, if long enough, is tucked in behind the uterus or bladder below. In this way the sensitive small-bowel area is self-contained and protected as far as possible. In the same way, in the lateral regions, much may be done by barricading with caecum, colon, and omentum to shut off the small bowel from dangerous local areas.

Finally, we should remember that rapidity of operation and delicacy of handling the sensitive membrane are of supreme importance.

We owe to Cannon and Murphy the knowledge that of the three elements of danger, of the three depressing factors in every abdominal operation—namely, anaesthesia, exposure, and handling—by far the worst is handling. It is this which acts most powerfully in checking intestinal movement and favouring that intestinal paresis which has such a deadly influence in promoting further infection and causing death from peritonitis.

I have said but little about the symptoms of peritonitis, having limited my remarks to the bacteriology and the treatment of the disease.

But, in conclusion, I should like to say that of all the signs on which we are accustomed to rely as indications of the patient's state, and as criteria of the extent and severity of the disease—namely, the vomiting, the want of correspondence between pulse and temperature, the pain, the rigidity, and the distension—I place most reliance on the aspect of the patient, that subtle state of neuro-muscular tone which depends on the presence or absence of toxic effects on the nervous system. A cheerful expression after abdominal operation is the one great reassuring feature. It is, indeed, wonderful to see the quick change for the better which may come over a patient's countenance a few hours after the arrest of the spread of a virulent infection, or the cessation from the absorption of the poison of a retained exudate, brought about by abdominal section.

APPENDICITIS: SOME POINTS IN DIAGNOSIS AND TREATMENT BASED ON OVER 600 OPERATIONS.

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My excuse for taking up such a common malady is simply that it is so common and even yet so imperfectly understood. There is perhaps no disease which a surgeon is so frequently called upon to see, and in which he must act with more promptness, than appendicitis. It is therefore desirable that not only the surgeon but the general practitioner should have clear-cut views as to its treatment. I thought this a most favourable opportunity for getting the views first hand, of British and American, as well as our Canadian surgeons, and I hope that we shall have a free expression of opinion on the various points raised.

I think we are all of one opinion in regard to the important point of its treatment, namely, that the appendix should be removed. There will probably be a difference of opinion as to the best time to accomplish this. My own opinion is that in all cases of acute appendicitis the operation should be undertaken at the earliest possible moment. If this is the correct plan of treatment it is of the highest importance that the physician should make a very early diagnosis, for the responsibility of quick action rests upon him. Unfortunately all of us have had the sad experience of being called too late, when twenty-four or thirty-six hours earlier would have saved a valuable life. It is highly important also that the laity should be educated up to expect an operation in cases of appendicitis.

The strong opposition of friends has often improperly influenced the family attendant against suggesting an operation, knowing that it would be displeasing to them. I have many times been told by a family physician that knowing the objection of the patient and his friends to an operation he has hesitated about suggesting it, until the patient was so ill that it became urgently necessary to have something done. Then, unfortunately, it is often too late, and the operation becomes discredited. I remember very well a case of an only son who had an acute attack of appendicitis, and on the second visit, twelve hours after the beginning of the attack, the attending physician advised operation. The parents' objections were so very strong that he consented to treat the case in a "medical way," and was afraid to again suggest an operation until the patient was practically moribund. Then, when the friends realized that death was inevitable, they were most anxious that an operation should be done. At their earnest solicitation, although it was felt that his chances were practically *nil*, a simple incision was made and drainage provided, for the abdomen was filled with pus. He died, and the friends were unreasonable enough to blame the operation for his death. It may not be amiss to say here (what I have frequently said to my class) that it is the duty of the medical man to tell his patient and the friends what is best to be done, even though it is displeasing to them, and leave to them the responsibility of delay. If it is clear that the patient's life is jeopardized by this, it is better that the physician should withdraw from the case than to have his advice disregarded.

A few words on diagnosis. Some of the conditions which are mistaken for appendicitis:

1. Purulent salpingitis.
2. Acute cholecystitis, empyema, or perforation of the gall bladder.
3. Tuberculous peritonitis.
4. Acute indigestion.
5. Malignant disease of the caecum.
6. Perforation of the stomach or intestines, with general peritonitis.

One should note carefully the method of onset of the illness and the symptoms present. In appendicitis the illness begins suddenly, usually in a patient who has until then been in his usual health, although on close inquiry one may find that he has not felt quite himself for a day or two.

I wish to emphasize the point that the temperature and pulse are not to be relied upon, as in many severe cases there is very little elevation of temperature and little increase in the pulse rate. In all of my acute cases there has been rigidity of the right rectus muscle; in more than one half of the cases there has been vomiting; and in practically all there has been nausea. One should be able to distinguish between appendicitis and conditions in the pelvis, such as pyosalpinx, by a vaginal examination. In the latter condition there will be enlargement and tenderness of the tube, together with some fixity of the uterus. In acute appendicitis, where the appendix is lying to the outer side of the colon and pointing upward toward the liver—it may actually be in contact with

the liver—and, if perforation occurs, an abscess may form here, closely simulating empyema of the gall bladder. However, in the latter condition the outline of the gall bladder is more clearly defined and usually pear-shaped, whereas an abscess would be more irregular and indefinite. In perforation of the stomach one would likely have symptoms of indigestion for some time preceding the perforation. There would be a history of shock and collapse at the time of the perforation, followed by pain in the epigastrium and then all over the abdomen. In tuberculous peritonitis one might be able to make out free fluid in the peritoneal cavity and distension with general tenderness, and a longer history, although (as in two cases quoted) the patient was practically in perfect health until suddenly taken ill. To sum up, we may briefly put the symptoms thus:

1. Pain. This is the first symptom usually complained of, at first referred to the stomach or umbilicus, but later on settling down in the right iliac region.
2. Nausea or vomiting within the first few hours.
3. Tenderness, most marked on the right side over the appendix.
4. Rigidity of the right rectus muscle.
5. After some hours some elevation of temperature and increase in pulse rate.

Treatment.

In regard to the treatment I cannot too strongly insist upon very early operation in all cases of acute appendicitis. If this in only a few hours after the beginning of the attack so much the better. There is a very prevalent opinion among some members of the profession that if an operation be done within the first forty-eight hours everything will be all right. Of course this is an absolute fallacy, as very serious damage may be done even in twelve hours.

When a physician is called to a patient suffering from abdominal pain, and he is doubtful as to the cause, he should see him again in three or four hours, and if he then cannot make a diagnosis he had better have a consultation.

Give no morphine until a diagnosis is made; to relieve the pain an icebag may be applied or hot fomentations used; then as soon as the diagnosis is made call a surgeon and let him decide as to the time for operation. Do not give calomel and salts or any purgative, as the peristalsis thus produced will aggravate the condition.

In most cases occurring in a city or town where there is a hospital it is best to remove the patient into the hospital, as some hours would be lost in preparing a room and getting the necessary supplies, etc., for the operation in the patient's house. I have frequently operated upon patients in the hospital two hours after seeing them in their homes, and in several cases as early as one hour after. I am satisfied that moving the patients carefully in an ambulance does them no harm. If perforation has occurred and pus has formed, and one is doubtful if it is walled off, the patient should be sent to the hospital in the sitting posture, as recommended by Fowler.

Now, as to the actual operation. The incision which I have found most useful is one through the sheath of the right rectus muscle, at a little distance from the outer border, with separation of the muscular fibres. This incision has two advantages: first, it is less likely than any other, unless McBurney's, to result in a hernia; secondly, if one requires more room it can readily be extended upwards or downwards. When one opens through the peritoneum, if pus is found apparently free in the cavity it should first be mopped out with gauze before making any further investigation. This is done so that if the pus be limited and localized there will be no risk of spreading it. I have many times found pus lying free in the abdominal cavity around the appendix without any limiting adhesions, and looking just as if it had been poured in, and that if the patient turned on the left side it would gravitate in that direction. By mopping this up with pieces of gauze all the pus can be removed and drainage provided, and the general peritoneal cavity shut off by aseptic or iodoform gauze. If diffuse septic peritonitis is already present we will open, wash out with normal saline (or not, as we think best), remove the appendix, and put in a drain; also a second drain above the pubis. The treatment of septic peritonitis will be fully discussed in a set paper, so I will not dwell upon it here.

When in doubt as to the condition of the appendix it is well after opening the peritoneum to wall off the general peritoneal cavity with gauze sponges or pieces of gauze, so as to limit the field of operation to the region of the caecum and appendix. Then if there be a mass, in opening it and searching for the appendix if one suddenly comes upon pus it will be caught in the gauze without distributing it throughout the general peritoneal cavity. This is a most important step in all operations for acute appendicitis, and I would consider any one guilty of neglect who did not take this simple precaution.

Next, the mass should be approached from the outer side, insinuating a finger down toward the situation of the appendix. If the omentum is found surrounding it, this should be lifted up from the outer side. If an abscess be opened it should be mopped out with strips of gauze, and then the appendix sought for and removed. If it is gangrenous it will only be necessary to throw a ligature of chromic catgut around its base and cut beyond this. I think in all cases of appendicitis the appendix should be sought for and removed if possible. I have seen a number of second attacks where there had been a former operation and an appendical abscess opened, and no attempt made to remove the appendix. I would not advise an inexperienced operator, however, always to try to remove the appendix, for if he succeeds in opening the abscess the patient is likely to recover from the attack, and the appendix can be removed at a subsequent operation. But in experienced hands it is practically always possible to remove the appendix without increasing the risk.

Another thing to which I would like to refer is the position of the patient after operation. In all cases of diffuse septic peritonitis I think the Fowler position a most valuable one, that is, to elevate the head of the bed a couple of feet, semi-sitting, so that drainage is downward toward the pelvis.

It has been clearly shown that there is more rapid absorption in the peritoneum of the diaphragm than in the pelvic peritoneum, and therefore if we drain upward we will permit of greater absorption. I have placed patients in this position a number of times with most satisfactory results.

I wish also to refer to the after-treatment of a patient with an abscess localized to the region of the appendix but not walled off. In order to prevent its becoming diffused the patient should have no nourishment by mouth for two or three days after the operation. Exclusive rectal feeding and administration of sufficient morphine to keep the patient free from pain should be the treatment. This latter has also the effect of limiting peristalsis. Formerly I gave normal saline by the bowel every two to four hours in small quantities (8 oz.), but I have lately been giving it in large quantities according to the plan recommended by Murphy, that is, by inserting a nozzle containing three or four openings into the anus, to which is attached a rubber tube leading to a bag. This bag is filled with water, and elevated but a few inches above the plane of the rectum, the idea being that the water shall just trickle into the rectum not much faster than absorption takes place. In this way from a pint to a quart of water should be allowed to trickle in during an hour, the process being a continuous one, and the flow so regulated that no accumulation of fluid takes place in the bowel. In other words, an attempt is made to run the water in as fast as it is absorbed. The object of having more than one outlet in the nozzle is that in case flatus accumulates in the rectum it will pass out through one of the openings in the tube, while the others continue to discharge the water into the rectum. By this method large quantities of water will be absorbed within the first few hours after operation. After twelve hours the patient is given sips of hot water, and this is gradually increased until he is taking 2 oz. of hot water every hour. I am satisfied that this treatment helps to limit the disease, and to confine it to the region first involved.

Another question of great importance is the occasional development of ileus after an operation for acute appendicitis. It has been my misfortune to have had three fatal cases from this complication. The two great factors concerned in post-operative ileus are of either mechanical or septic origin. Finney, in an excellent article in the *Annals of Surgery* for June, divides post-operative ileus into three classes—mechanical, septic, and adynamic.

The diagnosis of obstruction is of chief importance, and once this is established there is but one rational course to pursue. The sooner the necessary relief is accomplished the better. The main point is to differentiate between the mechanical and the septic variety, since these are the two forms most often met with, the mechanical being very amenable to treatment, the septic to a less degree. In a general way, mechanical ileus is characterized by its later onset, the presence of visible peristalsis, severe colicky pains, with slight change in temperature at first, and asymmetrical distension. Where peritonitis is present the picture is obscured, the infection masking the obstruction; the septic symptoms usually predominate. Where, following an operation, an ileus develops, unaccompanied by the above-mentioned symptoms, one has probably to deal with the adynamic variety.

As to the causation of the different forms of ileus, the early obstructions are in the vast majority of instances due directly to infection and its results. The later cases are more often due to old inflammatory adhesions which may have been drawn out into bands, and around or beneath which coils of intestine have become constricted. It will be seen, therefore, that the septic or adynamic forms of ileus occur more frequently in the early obstructions, while in the later ones the mechanical variety predominates. Just why inflammation of the peritoneum causes intestinal paresis, whether it is due to oedema or reflex action, vasomotor disturbance, or the local effect of the toxins upon the nerves of the intestines, is not known, but that all these factors are concerned is highly probable. If high enemata do not soon relieve the condition the abdomen will have to be opened again. If the cause of the obstruction can be found it should be removed, otherwise the distended loop of bowel should be opened and irrigated out. When this is done the opening may be closed. Unfortunately all of my fatal cases occurred in the country, and I was not called again to see them, otherwise I would have opened the abdomen. In one case the wound was opened by the local physician, and an opening made in the distended loop, but no irrigation of the intestine was done. I have recently had a recovery from a case of adynamic ileus treated by enterotomy, with washing out and closure of the opening in the bowel.

An interesting fact in this connexion, and as helping to explain the restlessness and, later, the great prostration noticed in ileus, is brought out in the work of Nesbitt and Ranzi. They found the constant occurrence of cholin and neurin in the intestine where the food contained a quantity of lecithin. While cholin is inert, neurin is a very active poison, very like muscarin in its effect. It has a paralytic action on the heart and upon the intestinal movements. Lavage of the stomach and intestine will mechanically lessen the amount of toxic substances absorbed.

I would like herewith to report the following cases, some typical ones, others showing conditions closely simulating appendicitis:

Case I.

J. O., aged 23, patient of Dr. Burgess, August 11th, 1906. Patient went to business as usual on Friday morning, August 10th. He did not feel quite right, however, and took a dose of salts in the morning. About eleven o'clock he was taken with pain in the stomach, and went home and sent for Dr. Burgess, who saw him about one o'clock, when his temperature was 98°, pulse 80. He complained of general pain in the abdomen, particularly about the umbilicus, and was nauseated but had not vomited. The doctor ordered mxv of chloranodyne, to be repeated in four hours. He saw him again at six o'clock, and found him still suffering somewhat, although his mother had given him three doses of chloranodyne an hour apart. The temperature was now 99½°, pulse 90. Dr. Burgess telephoned me, and I saw him at 8 p.m.; temperature 99⅘°, pulse 80. He was feeling more comfortable, but examination elicited tenderness on pressure over the appendix, and a slight amount of rigidity. He was quite comfortable, and felt no pain unless pressed upon over the appendix. I explained to the friends, as is my usual custom, that the safest plan was to have the appendix removed at once, and suggested that he be taken to the hospital as soon as an ambulance could be got. As he lived little way out of the city it was not possible to get him to the hospital until midnight, and as his symptoms were not urgent the operation was arranged for nine o'clock next morning. When he arrived at the hospital an ice-bag was applied. The next morning he looked and felt well, and was free from pain, with a normal temperature and pulse of 80. The operation, nevertheless, was proceeded with, and the appendix was found slightly adherent to the posterior parietal peritoneum with a perforation at its base, and some of the contents of the intestine, together with pus, lying free in the peritoneal cavity. The appendix was removed in the usual way, and the pus and intestinal fluid mopped up with gauze, and a rubber tube with iodoform gauze put in for drainage. He made a nice recovery. This is a case in support of the statement made early in the paper—that the pulse and temperature are of no importance as a guide to the gravity of the condition.

Case II.

M. G., aged 10, patient of Dr. Hawke, June 26th, 1906. He felt some cramps in the evening, but said nothing about them. At eleven o'clock he awakened his mother, crying out with acute pain; later he vomited. He had a very bad night, vomiting several times. Dr. Hawke saw him in the morning, when his temperature was 102°, pulse 110, and diagnosed "appendicitis." I saw him at 3.15 p.m., temperature then 103°, pulse 122; rigidity of the whole abdomen, most marked over the appendix. His cheeks were flushed, but around the mouth and nose he was quite pale. He was very tender to the touch over the appendix, but not particularly so over the rest of the abdomen.

Diagnosis.—Acute appendicitis, with perforation or gangrene of the appendix. He was sent to the General Hospital in an ambulance, and operated upon immediately after arriving there at five o'clock, that is, eighteen hours after the beginning of the attack.

Operation.—On opening the abdomen I found the intestines around the caecum injected and covered with sticky fluid. Around the base of the appendix the caecum was very red, having very enlarged vessels upon it. The appendix was lifted out with difficulty, and the terminal 2in. found of a greyish colour, and covered with lymph. There was a small perforation at a point of constriction about 1 in. from the tip. He made a good recovery.

Case III.

Mrs. C., aged 45, patient of Dr. Tilley, May 5th, 1902. She was suddenly taken ill with severe pain in the abdomen, general at first, then becoming localized to the right side. There was some rigidity of the right rectus and tenderness over the appendix; she had been vomiting; temperature 103°, pulse 120. I saw her three days after the beginning of this illness, when the condition was as given above. She gave a history of having had some trouble in one of her knee-joints, which we thought was tuberculous.

At the operation I found general tuberculous peritonitis and a very thickened appendix with tuberculous nodules through it, and also much thickening of the caecum. Large caseous nodules covered the entire peritoneum and peritoneal surface of the intestines. Both Fallopian tubes were very much enlarged, with caseous nodules all over them. I simply flushed out the abdomen with saline, and closed it. She made a good recovery, and has been in good health since.

Case IV.

Miss C., aged 18, patient of Dr. W. J. McCollum, November 5th, 1905. The patient had been ailing for a week; temperature 101°, pulse 110. On examination a mass could be felt in the lower part of the abdomen, extending across to the opposite side. The diagnosis of appendicitis was made, although I suspected pus tubes, but for special reasons did not make a vaginal examination.

On opening the abdomen in the middle line I found the right tube greatly distended, and it had made two complete turns at its uterine end. It was as large as a banana; its tip was quite black, and the rest of a reddish-brown colour. It was untwisted and removed, a small portion of the ovary being left behind. The other tube was examined and found to be distended about the size of a small banana, so it was removed. The appendix was also removed, although normal. She made a good recovery.

Case V.

Miss S. Operation, March 8th, 1906. She had been ailing with more or less pain in the abdomen for two weeks. On Monday it became worse, and she became jaundiced. Her physician saw her on Wednesday, when her temperature was 102°, pulse 110. A mass was felt on the right side, which he diagnosed "appendicular abscess." He advised her removal to the hospital, but consent was not given until the morning of the operation, March 8th. I saw her in consultation with her physician at 11.15, and on examination found a mass in the right hypochondrium, as low as a line between the umbilicus and anterior superior spine. The lower margin was sharply defined, and dullness extended up and continued with liver dullness; below this the rectus muscle was not rigid, and the abdomen was soft. The hardness extended forward within 1 in. of the middle line and back to the lateral side of the abdomen.

A diagnosis of acute suppurative cholecystitis was made, probably associated with gall stones. Advised immediate operation, which was proceeded with at 12 o'clock. An incision was made over the gall bladder, and, as soon as the peritoneum was opened, bile was found free in the abdominal cavity. This was mopped up with sponges, and the gall bladder found to be of a reddish-brown colour, having a somewhat gangrenous appearance. The omentum was adherent along the lower margin. The general peritoneal cavity was

carefully walled off with sponges around the gall bladder and the latter punctured with a trocar. At first 2 oz of opaque, glairy fluid came out, then 1 oz. of creamy pus. I then removed fifty gall stones; two or three of these were large and impacted in the cystic duct, and one in the common duct. She made a good recovery.

CASE VI.

Mr. W., aged 48, patient of Dr. A. R Gordon, March 10th, 1906. Two or three hours after returning home from a dinner party he was taken with colicky pains in the abdomen. Hot-water bottles were applied, and Dr. Gordon saw him at 7 o'clock in the morning. At this time the pain was diffused over the abdomen. Temperature 99½°, pulse 70. Later on the pain settled down in the right iliac region.

At 8 p.m. temperature 100°, pulse 80, marked rigidity of the right rectus. I saw him at 9 30 p.m., when there was rigidity of the right rectus and very definite localized tenderness over the appendix. He said it pained him to move his leg up or down, but no pain was present when lying quiet and not touched. Sent him into the hospital and operated at 12 30 that night. The operation was done twenty-two hours after the beginning of the attack. Some fluid of a serous character came out immediately on opening the peritoneum. The appendix was adherent to the brim of the pelvis. When separated it was found to be club-shaped, the terminal inch being covered with lymph. On separating this lymph a patch the size of the end of one's finger was of a dark reddish colour and was evidently becoming gangrenous. He made a good recovery.

CASE VII.

Mr. S., aged 35, patient of Dr. John Noble, March 10th, 1906. He was taken ill at 1.30 p.m., with acute pain in the abdomen. Dr. Noble saw him and sent him home, after giving a hypodermic injection of morphine. Dr. Noble saw him again at 8 p.m. and telephoned me about 9 p.m., telling me the condition. I advised his removal to the hospital, and said I would see him on his arrival, and, if necessary, operate at once. On arrival at the hospital his temperature was 100.8°, pulse 110; the abdomen was rigid all over, but particularly over the appendix. There was some slight distension.

Operation.—1 a.m, twelve and a half hours after the beginning of the attack. As soon as the peritoneum was opened pus escaped. I then searched for the appendix, and, in separating two coils of intestine below the appendix, 1 oz. of creamy pus escaped into the sponges I had placed around. The appendix was pointing towards the middle line, 5 in. in length, and very much swollen. The terminal 1½ in. was as large as one's thumb, gangrenous and perforated. The base being healthy it was amputated in the usual way. Three strips of iodoform gauze were placed in for drainage. He made a good recovery.

CASE VIII.

Miss D., aged 20, patient of Dr. Moorehouse, March 17th, 1906. She had been ailing for four days, having all the usual symptoms of acute appendicitis. Pain was the prominent symptom, with vomiting every few hours from the beginning of the attack. On examination I found tenderness and rigidity over the appendix, and some rigidity and tenderness over the whole abdomen. Temperature 101° F., pulse 120. I advised operation, and she was sent into the General Hospital.

Operation 3.30 p.m.—On opening the abdomen we found miliary tubercles over the peritoneum and intestines. There was no fluid; the appendix was inflamed in common with the rest of the intestines, but there seemed to be more inflammation about the caecum than elsewhere. The appendix was removed. The large intestine was distended and of a dark colour, and, on following it down on to the pelvis, we found that the sigmoid flexure was held and constricted by a band of adhesions which prevented even gas passing. Below the distended portion, which was about 6 in. in circumference, the bowel was collapsed. The band was evidently producing complete obstruction, which accounted for the vomiting. The abdomen was flushed out with normal saline, and closed with interrupted silkworm-gut sutures. She made a nice recovery

CASE IX.

Mrs. N., aged 35, April 23rd, 1906. Complained that eighteen months ago she had appendicitis for ten days. Before the attack was over she had severe uterine haemorrhage, and was in bed for seven weeks. Six months later she had another attack of appendicitis (?), and since has had pain in the right side, and for two months has had a yellowish discharge. Menses six days, getting more profuse.

Operation.—A curettement was first done, and a good deal of thickened endometrium removed. Then on examination we found the uterus enlarged and hard on the right side. I thought this might be due to a fibroid, and therefore made a median incision. Nothing was found wrong with the right tube, but the ovary was surrounded by inflammatory adhesions binding it down to the rectum and uterus. The right tube was involved in these adhesions, but not diseased. I separated the adhesions, and removed a fibroid about the size of a walnut from the right cornu of the uterus. The wall of the uterus was sewn with catgut. The appendix was then removed, although it seemed healthy. It was opened after removal and its lining membrane was quite healthy. It was evident that she had not had appendicitis, or if she had, the appendix had returned to normal. Recovery.

CASE X.

Sir Wm. H., aged 96, patient of Dr. John Caven, April 25th, 1906. Patient had a typical attack two weeks ago, a mass gradually making its appearance in the region of the appendix, 3 in. long by 2½ in. wide. It was thought that this might be carcinoma, but as it was adherent to the anterior abdominal wall and made its appearance suddenly and enlarged rapidly, we diagnosed "appendicular abscess." This case is simply mentioned on account of the age of the patient. The abscess was opened under cocaine, and 3 oz. of offensive pus evacuated, and two small drainage tubes were put in. He sat up daily after the third day. May 25th: Wound healed, and patient has been out driving daily for a week.

CASE XI.

Mr. J. M., patient of Dr. J. T. Clarke. I saw the patient, in consultation with Dr. Clarke, at 9 a.m., and got the following history: The day previous to this attack he had had a hearty meal at noon, eating a large quantity of lobster, etc. Two or three hours afterwards he had pain in his stomach. In the evening he took opening medicine, and his bowels moved between midnight and 2 o'clock, and again at 4 o'clock. He went into the bathroom and fainted while there. His parents were aroused, and found him in an agony of pain with cold perspiration standing out on his face. Dr. Clarke saw him at 6 a.m., pulse 160 and very weak, cold perspiration on face and neck, and complaining of severe abdominal pain and tenderness over the abdomen. Dr. Clarke gave him morphine ¼ gr. When I saw him at 9 o'clock his temperature was 100.2°, pulse 100, respiration 18, and he was complaining of pain in the region of the appendix. Abdomen was tender and quite rigid all over. He did not seem to be more tender on one side than the other. His face was pale and pinched. The diagnosis of a perforated appendix with general septic peritonitis was made. We had great difficulty in persuading him to have an operation done, although he had had two previous attacks in which Dr. Clarke had seen him and had diagnosed appendicitis. Another doctor had seen him two weeks after one of these attacks, and had said the boy had never had appendicitis, but that his symptoms were due to acute indigestion. On account of this opinion and the fact that this attack followed a large meal we had difficulty in persuading him and his parents that operation was necessary and that it really was appendicitis.

Operation.—Immediately on opening the peritoneum some thin pus escaped. The appendix was found pointing downward towards the pelvis, 2½ in. in length, thickened, and with a perforation 1½ in. from its tip. There was no attempt made at walling off. After removing the appendix and mopping up the pus around it and putting in a tube surrounded with iodoform gauze, suddenly a large quantity of sero-purulent fluid came up into the wound. It was found that the pelvic cavity was filled with this. After mopping it out well with gauze, a drainage tube was passed down into the pelvis, a second one to the position of the stump, and a third up toward the liver. Gauze was placed down in similar positions, and one piece into the general peritoneal cavity. He made a good recovery.

CASE XII.

Mr. C., age 63, patient of Dr. Macdonald (Markham), May, 1906. Patient had a typical attack of appendicitis two weeks previously from which he made a good recovery, but the mass which was present on the third day remained. A mass could be felt in the right iliac region lying 1 in. to the inner side of the anterior superior spine and running parallel with Poupart's ligament. The mass was irregular and hard, 2½ in. in length by 1½ in. in width, and crossing at right angles the line extending from the anterior superior spine to the umbilicus. It did not seem to be attached to the anterior abdominal wall, and felt like a malignant growth in the caecum.

Operation.—Made an incision 3 inches long through the right linea semilunaris. On opening the peritoneum I found the omentum attached to the parietal peritoneum on the right side and posteriorly, this being also attached to the caecum, and a nodular mass apparently in the caecal wall. There seemed to be very little doubt on exposing it that it was malignant, and if it was malignant it was impossible to remove it, as it extended into the abdominal wall to the right and behind. A piece of omentum 2 in. square and ¾ in. thick was removed. I could then feel a hard mass behind running into the caecum and apparently extending into the peritoneum posteriorly. The appendix could not be seen. I decided to try and separate the mass from the abdominal wall, and this was done with considerable difficulty, but when got up it was found to be an enormously thickened appendix with a perforation in its middle. It was about 5 in. in length, and the size of two fingers in thickness. The mesentery was also enormously thickened. The appendix was removed by throwing a ligature of chromic gut around its base and inverting it into the caecum by a purse-string suture of catgut. About 1 drachm of pus was found around the appendix, and a few drops around the thickened omentum. Iodoform gauze was put in for drainage, and a second piece to wall off the general peritoneal cavity. The abdomen was closed except for the opening for the gauze. Patient left the hospital quite well, and with the wound closed

on May 26th. Examination of the omentum showed it to be inflammatory.

CASE XIII.

M. W., age 17, May 17th, 1906. Diagnosed by his physician "colitis." History of two previous attacks like this one. The present one commenced with pain over the whole abdomen, settling down in a few hours to the region of the appendix. Vomiting; temperature 100.4°; some diarrhœa with passage of mucus. When I saw him tenderness was marked over the appendix, and a diagnosis of "appendicitis" was made and an operation advised.

Operation.—Found the appendix 3 in. in length, very congested and having, about 1 in. from the base, a constriction with a good deal of thickening A number of newly-formed vessels ran up in the form of a leash from the mesentery of the appendix to the appendix at this situation. Around the base was another leash of newly-formed vessels. On opening the appendix after its removal it was found to be filled with pus and there was an ulcer at the site of the thickening. Recovery.

CASE XIV.

L. P., aged 25, patient of Drs. W. P. Caven and H. J. Hamilton, June 17th, 1906. Was taken ill Friday morning with pain in the stomach. He was given an emetic by his mother, after which he vomited two-thirds of a cup of pure blood. The next morning his abdomen became rigid and tender all over, temperature up two degrees, pulse 100. Evening temperature 102°, pulse 110, abdomen rigid all over but slightly more tender in the region of the appendix. At first gastric ulcer was suspected, with perforation and general peritonitis, but on Sunday evening appendicitis with general peritonitis seemed probable. Operation Sunday evening.

Operation.—Under the anæsthetic I could find a distinct mass 1 in. above McBurney's point, and extending down to within 1½ in. of Poupart's ligament. An incision was made through the sheath of the rectus over this, and as soon as the peritoneum was opened a quantity of thin pus poured out. I mopped this up with sponges, and then found the appendix, which was very large, lying downward, and dipping over the brim of the pelvis. I lifted it out of the abdomen, when it was found to be 4 in. in length; the terminal half gangrenous, with two or three perforations. The proximal half was distended to the size of a banana, with a large faecal concretion in it. As the base was healthy, it was removed in the usual way. There was no lymph in the abdomen, and no attempt at walling off the pus. The abdomen was washed out thoroughly with normal saline. Another opening was made above the pubis, and a rubber tube inserted down into the pelvis; another was placed in the appendical opening down to the cæcum, and one up towards the liver. Gauze was placed along these tubes and into the general peritoneal cavity. Patient was placed in bed in the semi-sitting position of Fowler, with the head of the bed elevated. Salines were given every two hours by bowel, nothing by mouth but sips of water. He made a good recovery.

INTESTINAL OBSTRUCTION IN ASSOCIATION WITH THE VERMIFORM APPENDIX.

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IT must have fallen to the lot of all operating surgeons to encounter cases of intestinal obstruction in connexion with the vermiform appendix. Ileus is prone to occur at any time during the life-history of an appendicitis, and cases in which obstruction is a late sequel are not uncommon. This condition may arise so long after any active appendix mischief that the relationship is but ancestral. I have had the opportunity of seeing a good many cases, and a review of the series has shown that they may be conveniently classified as follows:

1. Obstruction due to appendicitis or its results:
   - *a.* During the acute attack.
   - *b.* During convalescence, or after operation for acute appendicitis.
   - *c.* In recurrent cases.
   - *d.* At some period remote from the acute attack.
2. Obstruction produced by the appendix but without appendicitis.

I have not made use of the reported cases of this complication which are scattered throughout the literature of appendicitis, because the only aim of this paper is to record my personal experiences of the subject.

It is not easy to estimate the frequency of intestinal obstruction occurring under these circumstances, because it is impossible to say what number of cases of appendicitis furnish the examples which fall under heading *d*. From the records of my own hospital and those of some of my surgical friends (to whom I am greatly indebted for permission to use the notes of their cases), together with my own private cases, I have in all been able to collect the details of 47 cases which have occurred during the past six years. These have arisen among some 2,500 cases of appendicitis which (without allowing for the difficulty with regard to group *d*) gives a frequency of nearly 1 case of obstruction in every 53 cases of appendicitis. The different varieties have been distributed as follows:

Group *a*—3 cases.
Group *b*—23 cases.
Group *c*—2 cases.
Group *d*—19 cases.

Appendicitis is a common cause of all those varieties of obstruction which depend upon bands or adhesions, and in the male I believe appendicitis, recent or remote, is as common a cause of obstruction as tubercle. The anatomical factors necessary for the production of intestinal obstruction are very often present, and when the peritoneal cavity is opened for some purpose other than the relief of obstruction, conditions are frequently found which are not only favourable to the production of obstruction, but which actually invite it. When intestinal obstruction occurs after any intra abdominal operation, it is brought about either by antecedent pathological conditions favourable to its production, or by inflammatory changes set up by sepsis. It is because appendicitis so frequently means intraperitoneal sepsis that obstruction so often follows in its wake, none the less surely if sometimes far off.

The anatomical conditions met with may take the form of universal adhesions—a legacy from a general septic peritonitis—or to a less extent the bowels are matted together over an abscess; or there may be one or more slight adhesions between the convexity of loops of bowel and adjoining coils or the mesentery or the parietal peritoneum; or there may be one or more bands formed by the omentum or the stretching of adhesions. But it is well known that the intestines may be universally adherent and yet not give rise to any obstruction, a condition perhaps most often seen in cured cases of tuberculous peritonitis. Under these circumstances there are other factors at work, and a simple experiment in the *post-mortem* room will show that when water from a tap is allowed to flow slowly it can usually travel through intestine, however adherent; but if the current is quickened the flow is soon obstructed, or even arrested. To explain the conditions often disclosed we must suppose that obstruction may lie latent for some years, only to be precipitated by some indiscretion in diet, which has perhaps given rise to a temporary enteritis, and it is just this class of case in which recovery may follow temporizing measures.

When the bowel is only slightly adherent the mechanism of the production of obstruction is simple, for then kinks or angulations account for the majority of the cases. The bands are the cause of the worst varieties of obstruction, and the most terrible calamities have occurred with a single band, the rest of the intestine being freely movable, and therefore prone to become entangled.

Speaking broadly, adhesions are most likely to lead to purely mechanical obstructions, while bands generally produce strangulation.

The mechanical factors which influence the spread of peritonitis not only determine the situations in which adhesions are most likely to form, but also where they are most likely to persist. Peritonitis starting from the neighbourhood of the cæcum may spread downwards into the pelvis, and thence up by the sulcus on the outer side of the ileo-pelvic colon into the left loin pouch, and so up towards the spleen, but *en route* it may overflow from the pelvis among the small intestines. Taking the opposite direction inflammatory products may spread up the outer side of the right colon, and pass through the hepatic pouch over the liver. Similarly, if a peritonitis originates amongst the small intestine, or has spread to that situation, it still tends to localize in the pelvis, so that under almost any circumstances the pelvis is the part of the peritoneum least likely to be spared in any case of spreading peritonitis from appendicitis. But intraperitoneal adhesions are for the most part quickly absorbed where they are subjected to active intestinal movements, and it is only where there is little movement that they tend to persist, and they are invariably strongest in such situations as the

loin pouches, about the sigmoid, over the liver, and around the spleen, and as the last few inches of the ileum is one of the most fixed parts of the small bowel, it is also commonly involved in adhesions. The site of the obstruction entirely agrees with this distribution, for in the majority of cases the bands or adhesions causing the mischief are situated somewhere in the pelvis or about its brim, though I have seen two cases in which the small intestine was adherent, in the one in the loin pouch of the right side, and in the other on the outer side of the descending colon.

The Clinical Features of the Different Groups.

a. During the Acute Attack.—Very often there is obstruction, but only quite rarely is it mechanical. Even in those cases where it appears to be clearly of the latter type, the inflammation of the parts exaggerates the condition; and localized peritonitis, principally affecting the last few inches of the ileum, and possibly causing spasm of the valve, has a good deal to do with its production. There were only three examples of this variety of obstruction in the series. In one case the patient was a man of 44, and the symptoms of obstruction were so marked as to lead me to make that diagnosis. At the operation I found clear fluid in the belly, with distension of the small intestines. The inflamed and perforated appendix passed up behind the ileum to be adherent to the mesentery, and in this situation there was a small abscess. The appendix evidently acted like a band across the ileum. In the other two cases there were abscesses, and it was small intestine taking part in the formation of their walls that was collapsed and obstructed. One patient had been ill for nine days, while the other had only been laid up for three, but in both the symptoms of obstruction were the most prominent feature.

b. During Convalescence or after Operation for Acute Appendicitis.—Under this heading many examples are met with, and in the series there were 23 cases. The average time after operation or the date of onset of the attack (in those cases in which there was no operation) was twelve days. In those cases submitted to operation the longest period that elapsed before the onset of obstruction was thirty-five days and the shortest two days. In this group the obstruction is most commonly due to the shrinking of an abscess, or to separate adhesions at the very bottom of the pelvis, bands not being so common as in the remote cases.

As it is now customary to operate on most cases of acute appendicitis, and in every case in which an abscess is diagnosed, I have had very few opportunities of observing cases treated by the expectant plan, but I have notes of some in which no operation was performed, but in which obstruction developed in convalescence.

In the following case the symptoms came on so soon after the operation, and the pathological conditions were of such a nature that obstruction must certainly have occurred about the same time had no operation been performed:

A boy of 14 was suddenly seized with acute abdominal pain twenty-four hours before his admission to hospital. He vomited and had retention of urine. An immediate operation was performed. As soon as the belly was opened, some turbid yellow serum escaped, and the appendix was found wrapped up in omentum and lying along the lower end of the ileum; when uncovered it was found to be gangrenous. The condition was therefore one of acute fulminating appendicitis with spreading peritonitis. The abdomen was drained with tube and gauze. After operation, his condition was never satisfactory, and he had more pain than usual. The bowels were only got to move with difficulty. On the eighth day he had slight pain, which gradually got worse as he developed symptoms of undoubted mechanical obstruction, and on the morning of the ninth day laparotomy was performed. A loop of small intestine 6 in. long was found closely adherent in the right iliac fossa; this was freed, and as no further adhesions were noticed, the belly was closed. Unfortunately the obstruction was not completely relieved, and on the eleventh day an enterostomy had to be performed. This gave relief until the tube separated, when the skin became excoriated and he gradually lost flesh, food taken by the mouth soon appearing at the intestinal opening. The bowels were moved once or twice after enemata. On the thirtieth day from the time of the first operation the faecal fistula was closed; this required an extensive operation, with resection of the involved portion of bowel. Death occurred the night after the operation. At the necropsy, the pelvis contained several coils of small intestine so closely adherent that further obstruction was almost certain to have occurred had he survived.

A more fortunate case following an operation for acute appendicitis was under my care.

I operated on a boy aged 10 just twelve hours after perforation of the appendix and forty-eight hours after the first symptoms of any abdominal trouble. The gangrenous appendix lay in the pelvis, and there was purulent fluid around it, while the adjacent coils of small intestine were lymph-covered. The pelvis was well mopped out, and both gauze and tube were placed so as to drain that cavity. Nevertheless, the probability of intestinal obstruction or pelvic abscess occurring was discussed and borne in mind. Exactly one week after the operation I was called upon to reopen the abdomen for acute obstruction, several coils of the ileum having become adherent in the pelvis. Eleven days later he again had pain and symptoms pointing to an abscess among the bowels; this found its way into the pelvis and burst into the rectum. The patient made a good recovery.

The next case is an admirable example of those in which the obstruction is due to the shrinking of the abscess cavity.

A child of 11 was admitted to the infirmary, having been ill of acute appendicitis for the previous six days. There were signs of a large abscess which was drained, the appendix being removed. The child went on very well until the eighth day, when she had an attack of acute abdominal pain with vomiting. On the evening of the ninth day there was no doubt she had acute intestinal obstruction. The abdomen was opened and the intestines found greatly distended, but in the region of the old abscess several feet of gut were found collapsed and adherent to the caecum, to the peritoneum of the iliac fossa, and to the old incision. It is to be noted that there were no general peritoneal adhesions, and that the omentum was away at the other side of the abdomen. The intestine was freed, and the child made a very good recovery.

Obstruction is not an uncommon sequel of pelvic appendicular abscess. If we include those cases next considered, where a small amount of pus has leaked into the pelvis and produced adhesions, then this basin is to be blamed for the majority.

A miner, aged 20, was admitted to the infirmary with an acute appendicitis. There had been two previous attacks, but the present of four days' duration was the most severe. He was very ill; an indefinite mass could be felt under the lower part of the right rectus muscle and per rectum some swelling was made out. An abscess was found on the pelvic brim and extending down the right wall into its cavity. I removed the appendix, which lay with its tip hanging into the pelvis, and drained the abscess. On the fifth day the patient complained of colicky pain. During the night the typical symptoms of intestinal obstruction developed, and at 1 a.m. of the sixth day I reopened the abdomen. A loop of small intestine was found adherent to the pelvic wall on the right side just where the abscess had been noted to extend. There was a further adhesion between the convexity of a distended coil and the mesentery of a collapsed piece. These were freed and for a time the patient did well. Ten days after the second operation he developed the symptoms of a pelvic abscess, but these soon disappeared, and he made a good recovery.

The adhesions may be just at the very bottom of the recto-vesical or Douglas's pouch, exactly where any small collection of pus is likely to lodge.

A young man of 23 had an appendix abscess opened and drained, the appendix being removed. This was on March 3rd; until the 15th recovery was uneventful, but he then developed severe colic, which gradually became worse, and on the 17th a second operation was performed. A loop of the lower ileum was found adherent by its convexity at the very bottom of the recto-vesical pouch, and under the mesentery of this loop a second portion of bowel had found its way, the latter also being adherent to the pelvic wall. Recovery was uneventful.

But the leaking of inflammatory products is not always into the pelvis, and in whatever direction it may be, there adhesions are most likely to form and give rise to trouble.

A girl of 16 was operated upon for acute intestinal obstruction following an appendix abscess which had been drained four months previously. A loop of small intestine was strangulated under a band formed by the great omentum adherent in the sulcus on the outer side of the ascending colon.

Similarly, in the case of a girl who had recovered from general septic peritonitis, and who subsequently developed obstruction, the offending band was found in the left loin pouch, and *post-mortem* examination showed that the inflammation had travelled via the pelvis up into the left side.

Mild attacks of obstruction are not uncommon after appendicitis or operations for its relief, and they are sometimes due to residual abscesses, which burst into the bowel, leading to spontaneous relief of symptoms.

Sometimes the gauze which is used to drain or tamponade the cavity after the operation may be a cause of mechanical obstruction. Every now and again cases occur where the bowels cannot be got to act until the gauze has been removed. I know of one case at least in which a fatal obstruction was produced by the adhesion of a loop of bowel to a strip of iodoform gauze. In a recent case an appendix abscess in the right loin pouch was packed with gauze, which obstructed the second part of the duodenum and gave rise to persistent vomiting, leading to the death of the patient.

c. In Recurrent Cases.—In the recurrent cases we have to consider those in which the attacks resemble mild appendicitis, but where probably the obstruction has more to do with the production of the symptoms.

A young girl had two attacks of pain in the right iliac fossa; they were both severe, and made her shout out and perspire. There was marked constipation. A diagnosis of recurrent appendicitis was made. At the operation the appendix was found passing up behind the last part of the ileum, where its tip was adherent to some old tuberculous glands in the mesentery. It was just in such a position as to be likely to produce a temporary obstruction if the intestine became at all distended. The appendix itself showed some slight catarrhal inflammation with haemorrhagic points on the mucous membrane. The operation gave complete relief to all her symptoms.

Some years ago Mr. Hume[1] recorded a similar case:

The patient was a young lady who for several years had suffered from attacks of abdominal pain. Appendicitis was diagnosed and an operation undertaken. The organ lay on the inner side of the caecum, and, passing over the ileum, was adherent to its mesentery in just such a way that when the caecum became distended the traction on the appendix would cause it to temporarily occlude the bowel. The truth of this explanation was further strengthened by a knowledge of the treatment which the patient had used during the attacks. As soon as they developed repeated enemata were given until an offensive stool came away; the patient then knew she could take a large dose of oil, which always acted, terminating the attack.

There have only been two cases of intestinal obstruction after interval operations in the series. Their pathology is not different from that of the cases occurring in the next group (remote cases) and the bands or adhesions are legacies from some previous attack rather than anything depending on the operation, but it is useful to include them in a separate group to emphasize the danger that may follow even so simple an operation, and explain why it is attended with a small but unavoidable mortality.

A man of 30 had the appendix removed in a quiescent interval. The operation was perfectly easy, and no adhesions were encountered. On the second day he developed an acute attack of intestinal obstruction, which was found to be due to a volvulus of almost the whole of the small intestines. Unfortunately he died after a second operation performed for its relief.

One of the most acute cases of obstruction that I have ever seen occurred under these circumstances:

A strong, healthy young sailor had the appendix removed during an interval. The organ was rather adherent, and a few drops of pus were encountered. The operation was performed on September 19th. On October 6th he was perfectly well; on the seventh he was seized with severe abdominal pain at 11 p.m. On the 8th at 7 a.m. he vomited; at 10 a.m he was obviously dying, and by 4 p.m. he was dead. At the necropsy 5 or 6 feet of small intestine were found tightly strangulated under a band which passed between a coil of small intestine and the top of the caecum.

d. At Some Period Remote from the Acute Attack.—Examples of this variety turn up in the most remarkable way, and they are sufficiently frequent to make it a rule to always examine the region of the appendix in operations for intestinal obstruction in which the cause is not otherwise obvious. In the series there were 19 examples, and the average date of onset after the last acute attack in the 12 cases in which this point could be determined was three years and six months. All cases have been included in which the patient enjoyed a period of good health between the original illness and the onset of the obstruction. The longest interval that elapsed was seventeen years, and the shortest four months.

Sometimes no history pointing to an antecedent appendicitis can be obtained, or the details of such an attack are so meagre as to leave room for doubt as to its nature. Two cases occurred in patients who had been operated upon for psoas abscess, and who were lying in hospital at the time.

In one patient, a man of 32, laparotomy disclosed the condition. The appendix was adherent to the small intestine about 5 in. from the caecum and under the loop so formed the portion of ileum between the adhesion and the caecum had become strangulated.

The other case occurred in a man of 26, who died with obscure abdominal symptoms three weeks after the operation for psoas abscess. The last few inches of the ileum were collapsed and involved in a mass of adhesion around the appendix, which was very much altered from previous inflammation.

A third case occurred in a man, 60 years old, who was supposed to be suffering from a growth in the large bowel. He died ten days after enterostomy. At the necropsy 2 ft. of the ileum were found densely adherent in the appendix region, and the latter was just like a fibrous cord only an inch long.

In the first case there was no previous history of appendicitis; in the second this point was not carefully gone into; and in the third the only complaint was of pain in the stomach after food of twenty years' duration.

The cases are more instructive when the sequence of events can be clearly traced, as in the following examples:

A boy of 13 had an acute abdominal illness of five days' duration in December, 1904. An appendix abscess was opened and only very slowly healed. During convalescence he had several attacks of pain, but was never laid up until February of 1905. At this time an attack started acutely one morning at 5 a.m., and at 4 p.m. the abdomen was opened and several bands divided among the coils of the lower ileum. Recovery was uninterrupted.

The interval is usually much longer.

A man of 22 was operated upon for fulminating appendicitis with spreading peritonitis. The appendix was removed and the peritoneum drained with tube and gauze. For several days he lay apparently beyond the hope of recovery, but he eventually did well. Four years after this operation he developed most acute obstruction, which was found to be due to a tight band constricting the ileum in the right iliac fossa; this was divided, and he made a perfect recovery.

In another case a girl of 18 developed an acute obstruction ten years after the incision of an appendix abscess; she recovered after enterostomy, but three years later died after an obstruction produced by a band on the left side of the abdomen.

This variety of obstruction is common after pelvic abscess, and I have notes of several cases.

So far, all the cases have been examples of acute obstruction of the small intestines, but I have notes of one case in which adhesions following peritonitis from appendicitis produced a chronic obstruction affecting the descending colon.

The patient was a man, aged 65, who had usually enjoyed good health, and from whom no history of appendicitis could be obtained. He came to the hospital complaining of increasing constipation of two and a half years' duration, associated for the three months preceding his admission with attacks of abdominal pain, with rumblings and distension. These symptoms were thought to point to malignant disease of the sigmoid, and the abdomen was explored. Several bands were found surrounding the lower end of the sigmoid so as to constrict it, the bowel above being distended and that below collapsed. It was found impossible to free the bowel by the division of these bands, and a lateral anastomosis was made between the transverse colon and the sigmoid. Seven days after operation the patient developed a volvulus of the small intestine, which caused his death. At the necropsy the small intestines were found free from adhesions. The appendix was closely imbedded in adhesions about the caecum and showed signs of old disease. There were adhesions all up the outer side of the right colon and over the right lobe of the liver, around the sigmoid, and in the left loin pouch. Nothing could be found to account for these adhesions other than an antecedent appendicitis.

Obstruction Produced by the Appendix, but without Appendicitis.

Examples of this condition are not very uncommon, for the appendix is prone to become adherent if there is any inflammatory mischief in its neighbourhood. In such cases it is very likely to form a band under which the intestines may pass and become obstructed.

A woman of 23 was operated upon for ruptured ectopic gestation. The left tube and ovary were removed. Unfortunately on the 11th day she died of acute intestinal obstruction. At the necropsy the appendix was found adherent to the stump of the left ovary. The appendix itself showed no signs of disease.

The following cases, both quoted by Kelynack,[2] may be regarded as almost unique:

Partridge, in 1861, showed a preparation at the London

Pathological Society, in which a knuckle of ileum immediately above its termination was found strangulated and much congested, in consequence of having passed through a hole in the mesentery of the appendix.

Little, in 1871, brought a specimen before the Dublin Pathological Society, in which strangulation of the ileum occurred through an aperture in a peritoneal fold of the appendix.

Recently,[3] Messrs. R. W. Leeming and Mitchell Innes Dick have recorded an example of intestinal obstruction produced by the appendix, which was 6 in. long, having passed over the bowel and through a hole in the mesentery, its swollen bulbous end acting like a button and preventing its return.

Diagnosis.—The diagnosis of these cases presents very largely the same problems as obstruction of the small intestines occurring under other circumstances. Sometimes a residual abscess among the bowels or in the pelvis is attended with symptoms of obstruction; but this is rarely mechanical, and either yields to a purgative—the abscess bursting into the bowel—or is cured by the incision of such an abscess if in an accessible situation. The most difficult cases are those coming on in patients recovering from general septic peritonitis, for the onset may be very insidious and the patient only slowly develop complete obstruction. If the nature of the case is not clear at first, I am greatly in favour of establishing the diagnosis by the exhibition of a purgative, as advocated by Mr. Rutherford Morison. In cases following an infection of the peritoneum early operation is most urgently needed, because intestines whose walls have recently been inflamed, and have perhaps only recently recovered from paretic distension, will not tolerate procrastination. The best plan is to give a strong turpentine enema, which usually gives relief if the obstruction is not mechanical; but if the result is not satisfactory, calomel should be given in divided doses, 1 gr. every half-hour, until either the patient begins to pass flatus easily or the symptoms of obstruction become quite definite, so that no further doubt as to the necessity for an operation can be entertained. These patients often exhibit exalted peristalsis after the calomel, the movements being easily seen and felt. Not infrequently the peristalsis can be traced up to a spot where it ceases, a useful indication of the site of obstruction. Once the diagnosis has been made and an operation decided upon, there can be no objection to a hypodermic injection of morphine until arrangements for abdominal section can be made, provided that the relief obtained is not made an excuse for delay.

Treatment.—The occurrence of so many cases of obstruction in association with appendicitis is eloquent testimony of the necessity for early operation in all acute cases. Some reliable method of preventing peritoneal adhesions is a surgical desideratum of the first importance, and until we become happily possessed of this secret I am not familiar with any method of operation that will banish the fear of obstruction. During convalescence it is important to see that the bowels are regularly moved, and especially is this so where there has been general or spreading peritonitis. This, and the avoidance of indigestible meals, is on a par with the other matters of post-operative hygiene which common sense suggests. I have practically no experience of the treatment by posture and other non-operative methods. In my personal series of 8 cases, 6 occurred either in hospital or where I could watch their after-progress, and the whole of the six were operated upon within twelve to twenty-four hours of the onset. In all a complete operation was carried out, and all made a perfect recovery. Taking the whole series of cases there were 46 acute, and of this number—

7 died without any operation being performed.
6 were treated by enterostomy, with 4 deaths.
33 were submitted to complete operations, and of these 15 died and 18 recovered, nearly all the deaths occurring after late operations.

If the site of the obstruction can be arrived at, then the incision is sometimes conveniently made directly over it. With an unhealed appendix wound it is important to reopen the abdomen through as clean an area as possible. To attain this object, the old wound is shielded with wet antiseptic gauze fixed to the skin with catch forceps. An incision is then made through the middle line or through the middle of the left rectus muscle. Some operators reopen the old wound, and this is the practice of one of my colleagues.

Having opened the abdomen, it is important to avoid evisceration as far as possible, and to facilitate the search for the site of obstruction I have sometimes found the Trendelenburg posture of assistance. Adhesions can nearly always be separated by the finger, though sometimes the peritoneum is stripped to a considerable extent. This should be repaired as far as ever possible, but if the patient is very ill, valuable time should not be lost, because experience shows that even gut stripped of its peritoneum is well able to take care of itself. It is, however, a good plan to pull down the omentum and wrap it around the denuded intestine. But very firm adhesions are only likely to be met with in late cases, for in those operated upon soon after the acute attack separation has always been easy. Sometimes there is severe haemorrhagic oozing from the separated adhesions, but I have never seen any untoward result that could be traced to it, and personally I have always closed the abdomen without taking any special steps to check the oozing, and I have had no cause to regret my non-interference.

Infected areas are sometimes opened up and must be dealt with. I have always been content to swab away any pus and re-establish drainage through the old wound. Peritoneum which has been recently infected seems to have a particular faculty for taking care of itself.

Enterostomy is an unsatisfactory operation, but sometimes it is the only procedure likely to save life. If the obstruction is of long duration and the intestines enormously distended, it is useless to attempt a complete operation, and in those cases where the obstruction follows close on peritonitis, the condition of the patient is often so bad that to attempt anything but enterostomy would be to court disaster. In the cases of obstruction which come on soon after the inflammatory processes have somewhat subsided it might be supposed that enterostomy would tide the patient over the immediate danger, and possibly be sufficient to bring about cure.

I have notes of two cases that recovered after enterostomy, the only ones out of six cases treated by this operation. It has been my lot to open the gut below the obstruction, and I have drained the intestine of a patient who nevertheless died from toxaemia, the result of the strangulation of a loop of bowel by a tight band, the patient never having been well enough to explore the abdomen. I have seen a patient who survived an enterostomy for many days die of a second obstruction caused by the bowel passing beneath the loop of intestine going up to the enterostomy opening, and in another case a patient was tided over an attack of obstruction but became so weak from starvation that he did not survive the operation for the closure of the fistula. Very often, even if apparently successful, draining the intestine fails to relieve the toxaemia from which the patient dies. No cases cause more anxiety to the friends, while as for the patients, they must endure the torments caused by the digestive action of the intestinal juices on their own skin while at the same time their voracious appetite does not for long keep off starvation though it helps to increase their misery by stimulating the flow of intestinal juice. To avoid the necessity of an appeal to so unsatisfactory an operation the aim of the surgeon should be early diagnosis followed by early and complete operation.

Usually the onus of making an early diagnosis rests with the practitioner, and the credit belongs to him if such cases are carried to a successful conclusion, for the responsibility of the operation is comparatively slight when surgical aid is summoned sufficiently early.

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[1] Mr. Hume, Report of Meeting of North of England Branch of the British Medical Association, October, 1895 [2] Kelynack, *Pathology of the Vermiform Appendix.* [3] British Medical Journal, February, 1906.

SECTION OF ANATOMY.

Professor Arthur Robinson, M.D., President.

THE VALVES OF THE ILIAC VEIN.

By Professor J. Playfair McMurrich, M.D.,
University of Michigan.

[*Preliminary Note.*]

The predisposition towards thrombosis which seems to exist in the iliac veins, together with the fact that, so far as I have discovered up to the present, only the most general statements have been made regarding the arrangement of the valves in these veins, suggested the idea

that an examination of these latter structures might be advisable. Accordingly, as time and opportunity permitted, I examined during the past winter the arrangement of the valves of the common and external iliac veins in thirty cadavers in the Anatomical Laboratory of the University of Michigan.

It was found that the valves of the external iliac veins, when present, tended to arrange themselves in two groups, one group situated at from 1.5 to 3.5 cm. from the mouth of the hypogastric vein, and the other at from 7 to 12 cm. from that point. This would seem to indicate that in the typical condition two pairs of valves occur in the external iliac veins, one of which pairs is associated with the entrance of the hypogastric vein, while the other is considerably lower. The departures from this primary condition are, however, frequent, only two of the veins examined—one a right vein and the other a left—showing both pairs of valves. In 9 cases no valves were distinguishable in either vein; in 4 cases (+ 2 doubtful ones) none were observed in the right vein; and in 6 cases (+ 1 doubtful one) none were observable in the left vein. Furthermore, in many cases the valves were clearly inefficient.

As regards the common iliacs, as a rule no valves were present, but in two cases—one upon the right side and the other upon the left—a pair were found.

It is of interest to note that in 5 cases a single valve, instead of a pair, was found in the external iliac, these single valves being, as a rule, very broad and frequently oblique in position. This observation is of interest in connexion with the positive statement of von Bardeleben that single valves never occur. Undoubtedly the paired condition is usual, but that single valves, probably due to the fusion of the two members of a pair, also occur is likewise indubitable.

In several of the veins examined, however, an interesting peculiarity was observed, namely, an adherence of the anterior and posterior walls of the common iliac, just below its termination in the inferior vena cava. The adhesion is of small extent, not measuring more than 2 mm. as a rule in either its lateral or vertical diameter, but it varies in its horizontal position and also in its height. In some cases it appeared as if the two walls of the vein came into direct contact, in others the adhesion took the form of a column, a couple of millimetres high, extending from one wall to the other. As to its horizontal position, it was found sometimes almost in the centre, but more usually somewhat towards the outer side of the vein, and, indeed, sometimes quite at the outer side, where it took the form of what appeared to be a linear thickening of the wall of the vein, of slight extent longitudinally. In the majority of cases, however, it was far enough away from the outer border to divide the lumen of the vein, the outer of the two lumina so formed being usually the smaller.

In the 31 cadavers examined this adhesion was found in 10, making a percentage occurrence of 32.26. In every case but one the adhesion was in the left vein, a fact of great interest, since it is well known that thrombosis of the iliac vein is much more frequent on the left side than on the right. It would seem, if further observations show that the frequency of occurrence is as great as has been so far observed, that in this adhesion may be found one of the contributory causes of the thrombosis.

As to the morphological significance of the adhesion, I cannot speak definitely as yet. It seems probable, however, that it is a persistence of an embryonic condition, and in this connexion the form assumed by the adhesion, in the single case in which it occurred upon the right side, is of especial interest. In this instead of an actual adhesion the vein formed a loop—that is to say, it divided, and, after a course of 7 or 8 cm., united again. I could discover no stricture running through the opening, and the student who was performing the dissection assured me that he had removed nothing from it.

This seems to be instructive as indicating the persistence of an original condition perhaps somewhat similar to what McClure has described in the opossum when the iliac vein surrounds the umbilical artery. The absence of the artery perforating the vein in this case is a marked difference, but it is known that the umbilical artery itself undergoes a change of origin, changing from the abdominal aorta to the iliac, and so converting this artery, which is primarily a somatic branch, into a mixed visceral and somatic stem. Perhaps the combination of the changes of both artery and vein may explain the condition found, but direct observations of the embryonic conditions are necessary for an explanation of the details of the changes.

THE ARTERIOLAE RECTAE OF THE MAMMALIAN KIDNEY.

By Professor G. Carl Huber,
University of Michigan.

The origin of the arteriolae rectae of the mammalian kidney constitutes one of the controversial questions in the minute anatomy of the kidney. These arterial branches are relatively straight arterioles and capillaries which pass from the cortex of the kidney through the so-called boundary zone into the medulla. A review of the literature bearing on the question under discussion enables the following classification of the views expressed concerning the origin of these arterial branches:

1. They arise from the efferent branches of the glomeruli situated in the deeper portion of the kidney cortex.
2. They are branches of small arterial twigs which arise directly from larger branches of the renal vessels, and are then designated as "arteriolae rectae verae."
3. They arise from the capillary network situated in the deeper portion of the renal cortex.
4. A combination of the above views—namely, that certain of the arteriolae rectae arise directly from the larger branches of the renal vessels (arteriolae rectae verae), others are branches of the efferent branches of glomeruli (arteriolae rectae spuriae), and others from the capillary network surrounding the uriniferous tubules of the lower part of the cortex; this, the more comprehensive, statement is the one more generally voiced at the present time.

In a section of renal tissue injected with coloured gelatine masses or with silver nitrate solution (Golubew) it is difficult to obtain preparations which enable the observer to reach definite and final conclusions as to the origin of the arteriolae rectae. On making use of a celluloid injection and corrosion method it was found that in favourable preparations the relations of the arteriolae rectae could be readily ascertained.

The injection mass is of the following composition, modified from a mass suggested by Krassuskaja:

Photoxylin	...	...	30 grams
Camphor	...	...	20 grams
Aceton	...	...	600 c.cm.

The mass used for injection is made by adding 0.5 gram of alkanin dissolved in 20 c.cm of aceton to 80 c.cm. of the above mass. This is forced into the vessel of the organ to be studied.

About ten minutes after the completion of the injection the organ is cut into pieces as desired, and these are placed for twenty-four hours in 75 per cent. hydrochloric acid, in which the tissues are so macerated that they may be readily washed away with water, leaving a cast of the blood vessels. These may be studied in water or they may be mounted in Canada balsam. Preparations thus obtained are best studied under a Zeiss binocular stereoptican microscope.

In the rat, rabbit, cat, and dog it has been found that practically all of the arteriolae rectae are branches of efferent vessels of glomeruli. Now and then, and more particularly in the dog, a group of arteriolae rectae appear as branches of an arterial twig that arises directly from one of the larger renal vessels. There is evidence to show that such arteriolae rectae verae are at one time in their development efferent branches of a glomerulus, the latter with the uriniferous tubule degenerating during the development of the kidney.

This leads to the conclusion that practically all the blood surrounding the different parts of the uriniferous tubules is blood that has passed through the glomerular capillaries, and is, therefore, blood which has very probably been altered in its concentration owing to the passage of water and other constituents into the uriniferous tubules.

THE MORPHOLOGY OF THE URINIFEROUS TUBULE OF THE REPTILIAN KIDNEY.

By Professor G. Carl Huber, M.D.,
University of Michigan.

After studying the development and form of the uriniferous tubules of the mammalian kidney (see *American Journal of Anatomy*, Supplement to vol. iv), it seemed desirable to study more fully the form of the uriniferous tubules of the other vertebrates possessing a metanephros, and particularly of the reptiles, the lowest vertebrates in which this organ appears, in the hope that a fuller knowledge of the shape and structure of the tubules of the simpler reptilian kidney would throw additional light on the more complex tubules of the mammalian kidney.

Kidneys of representatives of the turtles, alligators, snakes, and lizards were examined as to their duct systems, shape, and structure of the uriniferous tubules, and, to some extent, as to their blood supply. The course of the collecting ducts is readily ascertained by injecting them through the ureter by means of a celluloid injection mass and then removing the other tissues by maceration in strong hydrochloric acid. As the reptilian kidney possesses no pelvis, the injection mass passes readily into all parts of the collecting ducts, even to the finest branches. The entire duct system of the reptilian kidney, although differing somewhat in the different orders studied, is of the type of a duct of a compound tubular gland. The ureter, as it reaches the kidney, divides into a varying number of primary branches, which in turn give off secondary branches, and these a varying number of relatively long and straight tertiary branches. The uriniferous tubules terminate in the latter in large numbers, that portion of the tubule joining the collecting duct ending therein at nearly a right angle.

The shape of the reptilian uriniferous tubule was ascertained by reconstructing the same after the Born wax-plate method. In all of the types studied the shape of the tubule is very similar, although varying somewhat in complexity, so that one may speak of a fundamental form or shape of a reptilian uriniferous tubule. Such a tubule begins with a relatively small Malpighian corpuscle, having about the same diameter as the proximal convoluted portion. This is followed by a narrow neck lined by ciliated epithelium. The proximal convoluted portion consists typically of a single long loop, which may be quite regular, or show slight folding or even present minor loops. This portion of the tubule joins a short and very narrow segment, which is much coiled, and generally is near the Malpighian corpuscle of the respective tubule. It is homologous with the thin arm of Henle's loop of the mammalian tubule. This narrow portion joins a part of the tubule which is in size about midway between that of the narrow segment and the proximal convoluted portion, and is at first much coiled, the coil corresponding to the distal convoluted portion of the mammalian tubule, then it becomes straighter, and joins a collecting tubule; throughout this portion the tube has a like epithelial lining. If one disregards the Malpighian corpuscle and the short neck there are, therefore, found three portions in the reptilian uriniferous tubule, each with special epithelium—the proximal convoluted portion, the thin segment, and the remainder of the tubule—confirming, it seems to me, the view expressed as to the existence of three corresponding divisions of the uriniferous tubule of the mammalian kidney.

THE MECHANICAL SUPPORTS OF THE PELVIC VISCERA.

By A. M. Paterson, M.D.,
Professor of Anatomy, University of Liverpool.

[Summary.]

The rectum on the one hand and the genito-urinary organs on the other are fixed and supported in the pelvic cavity by entirely different mechanisms, and the arrangements which are found in the human subject are essentially the same in other mammals.

Rectum.

The rectum lies free in the pelvic cavity down to the anal canal, and occupies a definite space or channel from which it is separated below the reflexion of peritoneum by an investing layer of loose areolar tissue devoid of fat. This space or channel occupies the dorsal half of the pelvic cavity, and is bounded in front by the genito-urinary organs and their membranous connexions (to be described below), posteriorly by the sacrum and coccyx, and laterally by the pelvic fascia, which sweeps down over the obturator internus, pyriformis, ischio-coccygeus, and levator ani, and gets attachment to the rectum at the point of origin of the anal canal.

The levator ani muscle is attached to the anal canal below the attachment of this pelvic fascia.

The effect of this arrangement is that the rectum is free to dilate in the dorsal part of the pelvic cavity. It is not attached to the pelvic fascia, and only the anal canal is fixed by its lateral connexions with the pelvic fascia and the levator ani.

Genito Urinary Organs.

The ventral part of the pelvic cavity presents in its floor a tough membranous diaphragm, which fixes and surrounds the prostatic urethra in the male and the urethra and vagina in the female. This membranous diaphragm forms posteriorly a crescentic fold, which curves backwards and outwards on each side of the prostate gland or vagina, to be attached to the pelvic wall in the neighbourhood of the ischial spine. It presents a well-defined concave posterior border, which is pierced near the viscera by numerous (prostatic or vaginal) vessels and nerves, and forms the anterior boundary of the channel described for the passage of the rectum.

Through its attachment to the spine of the ischium the pelvic fascia gives off two or three more or less definite bands which radiate upwards and forwards. The most obvious of these is the "white line," a tough ligamentous band, which stretches like a bowstring between the ischial spine and the symphysis pubis. The chief purpose of this band of fascia is the support of the genito-urinary organs.

Below the "white line" the pelvic fascia sweeps down to the perineum over the pelvic surface of the levator ani, and constitutes the lateral portion of the capsule of the prostate or the investment of the urethra and vagina in the female. From the spine of the ischium the concentric fold of fascia mentioned above curves forwards and inwards to suspend the genito-urinary organs. It divides into upper and lower layers, continuous with one another posteriorly; the upper layer (ischio-pubic) has a lateral attachment to the white line, and covering the upper aspect of the prostate and base of the bladder—or in the female the urethra—it forms the lateral true ligament of the bladder, continuous in front with the anterior true ligament or pubo-prostatic ligament. Tracing the lower layer, it is found to have a lateral attachment to the (ischio-perineal) pelvic fascia independent of the attachment of the upper layer. It passes inwards behind the prostate gland or vagina, and joins below the base of the posterior layer of the triangular ligament, which completes the capsule of the prostate gland anteriorly. This lower layer is responsible for forming the incomplete sheath of the vasa deferentia and vesiculae seminales, and forms the anterior boundary of the rectal channel.

Thus while the rectum is free in the dorsal part of the pelvis, the urethra (and vagina) are firmly fixed in the ventral part of the pelvic floor by ischio-pubic and ischio-perineal layers of the pelvic fascia, the intrapelvic arrangements of which are closely associated with the ligamentous mechanism of the perineum.

There is further a remarkable contrast in the depth of the parts of the pelvic floor. The dorsal part extends down to the level of the anal canal. The ventral part is limited by the membranous diaphragm which suspends and supports the prostate, urethra (and vagina), leaving the bladder (and uterus) freedom to dilate within the pelvic cavity.

PRELIMINARY COMMUNICATION ON SOME FEATURES OF THE BRAIN AND SKULL IN MONGOLISM.

By David Waterston, M.D.,
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[Abstract.]

Dr. Waterston's communication was a preliminary account of the brain and skull as shown in a series of

specimens, but as the results are not completed a full account cannot be given yet, and will be published separately at a later date. So far as the investigation has gone, however, it has shown that although the clinical features are markedly constant in different cases, an examination of the central nervous system proves that many of the prevalent ideas regarding the condition of the cerebral hemispheres are erroneous. In many cases the hemispheres are large and well convoluted, but the pattern of the convolutions departs in several respects from the normal; on the whole there appears to be a retention of infantile type in the convolutions of both the frontal and parietal lobes.

THE MORPHOLOGY OF THE HIP JOINT.

By G. J. JENKINS, M.B., C.M., F.R.C.S.,
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[ABSTRACT.]

IN the human embryo, up to 2.7 cm. in length, there is a primitive acetabulum formed by ilium and ischium, the pubis being kept out of the fossa by a mass of prechondral mesoblast.

Eventually the pubis forms part of the acetabular cavity, as in the adult. There are three membranous defects in the margin of this cartilaginous acetabulum. The ischiopubic defect is partially obliterated by the growth of ischium forming the floor of the cotyloid fossa. The iliopubic and ilio-ischial notches are almost entirely obliterated by growth of the iliac cartilage. The growing margins of the cartilages are indicated by ridges in a reconstruction model of the joint in a 3.2 cm. embryo.

In the 1.8 cm. embryo the head of the femur is represented by a prechondral cap on the upper end of the chondrified shaft. A relatively large flattened area on the head is in the morphological position of the impression for the ligamentum teres of the adult.

The capsule of the joint in the adult consists of a true and a false capsule. The latter is derived from extracapsular structures. The true capsule, of perichondral origin, consists of two parts, a primary, which was attached about the margin of the primitive acetabulum, and a secondary part, formed when the pubis has advanced into the joint.

The ligamentum teres is a part of the primary capsule, and contains only a small amount of extra-articular tissue. The retinacular bands are formed in association with the three groups of nutrient vessels passing to the head of the femur.

The antero-inferior and postero-inferior bands have an origin in the mass of loose tissue found on the inferior aspect of the neck in young embryos.

The cells of the synovial membrane are derived from extra-articular mesoblast, and invade skeletogenous mesoblast in a layer several cells thick. Up to the time of this invasion the anlage of innominate bone is continuous with that of femur, and this invasion of external mesoblast may be regarded as the means of separating the innominate bone from the femur.

EXPERIMENTS ON THE DEVELOPING EAR VESICLE OF THE TADPOLE.

By Dr. G. L. STREETER,
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AT a very early stage the ear vesicle with acoustic ganglion was removed, in some cases on one side and in others on both sides, and the larvae were then kept under observation until the completion of metamorphosis. Following the operation there was no regeneration of the ear vesicle and the neighbouring structures continued in their development undisturbed. The operation was always followed by characteristic and persistent disturbances in equilibrium; where only one vesicle was gone the disturbance was slight, but where both had been taken out it was so great that the animal was practically incapacitated for swimming. Disturbances of equilibrium easily detected in the swimming tadpole were not easily seen in the same specimen as a jumping frog.

In another group of tadpoles the ear vesicle was transplanted to an abnormal situation, where it continued in its growth but gave no evidence of performing its usual function.

THE DEVELOPMENT OF OVA OF THE TOAD FERTILIZED BY SPERMATOZOA WHICH HAVE BEEN EXPOSED TO THE ROENTGEN RAYS.

By CHARLES B. BARDEEN, M.D.,
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[PRELIMINARY NOTE.]

1. The fertilizing power of spermatozoa of the toad is injured by prolonged exposure to the Roentgen rays.

2. Ova fertilized by such spermatozoa may die early or may develop into swimming tadpoles, but in practically all instances are highly abnormal in development.

3. The nervous and vascular systems are those chiefly affected, but all the organs are more or less abnormal.

4. Occasionally the abnormality is in large part unilateral.

THE DEVELOPMENT OF THE NERVE ELEMENTS IN VERTEBRATES.

By ROSS G. HARRISON,
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THE following conclusions are based upon experiments made with amphibian embryos.

The axis cylinder of the nerve develops as the outgrowth of a ganglion cell. The cells of Schwann (sheath cells) play no part in the formation of the axis cylinder, though they may be of importance for its protection and nutrition.

The connexion between ganglion cell and end organ is not primary, though in most cases it is established early, at a time when the end organ is not far from the nerve centre, so that few nerves have a very great distance to grow before reaching their ultimate ending. Long paths are for the most part formed by the drawing away of the end organ from the nerve centre, as development proceeds after the original connexion is established.

When the cutaneous nerves grow out, they branch below the epidermis. At first no anastomoses between neighbouring nerves are present, but soon outlying twigs come into contact with each other, and form a peripheral network. How intimate the union of the individual elements of this network is is uncertain, though the study of myelinization shows that in many cases at least there is merely a close apposition, and not a permansnt fusion of the elements.

THE EARLY DEVELOPMENT OF GEOMYS BURSARIUS.*

By THOMAS G. LEE, B.S., M.D.,
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[PRELIMINARY COMMUNICATION.]

GEOMYS is a genus of small rodents belonging to the family Geomidae. All members of this family are peculiar to North America. *Geomys bursarius*, or the pocket gopher as it is commonly called, is found in the Mississippi Valley; it lives underground, and is strongly photophobic; it rarely comes to the surface, and is characterized by large cheek pouches, which open externally.

After several years of collecting, an unbroken series of pregnant uteri in all stages of development were obtained.

It will be noted that many of the following points are peculiar to *Geomys*, and differ from corresponding stages so far described for any other mammal, while in other features it shows many resemblances to several of the other rodents.

1. *Geomys* develops entirely outside the uterine cavity, in a decidual cavity formed in the ventral portion of the uterine mucosa. In this it resembles the guinea-pig among rodents and also resembles the human development.

2. The blastocyst at the time of the perforation of the uterine epithelium is rather large. It is didermic, consisting of the trophoblast which is continuous with the margins of the germinal area, and of an entodermal vesicle which nearly fills the blastocyst. Rauber's layer would seem to be lost at the time of or shortly after perforation.

* The complete paper, with illustrations, will be published in the *American Journal of Anatomy*.

3. The decidual cavity is formed by contact of the trophoblast with the ventral portion of the uterine mucosa, this bringing about a softening and destruction of the connective tissue. In the outer walls of this cavity there is developed a very large number of capillary blood vessels which later become intimately associated with the yolk sac placenta.

4. At the point of rupture the epithelium bordering the opening becomes slightly everted, and this opening does not close up as in the guinea-pig, nor does it become filled with a fibrin clot as in man, but it remains open; and the epithelium cells are practically unchanged until later in the development, when they become destroyed by the trophoblastic tissue of the fetal placenta.

5. The trophoblast becomes adherent to the everted epithelial margin of opening in a zone somewhat external to the germinal area. This occurs at the time of the escape of the blastocyst from the uterine lumen.

6. There is the so-called inversion of layers: the germinal area sinks into and invaginates the entodermal vesicle or yolk-sac, this cup-like structure being suspended by the adhering trophoblastic zone noted above. The cavity of the uterus is for the time being continuous with the inner portion of this cup.

7. The amnion is formed by a folding over of the outer margin of the germinal ectoderm, the adjacent trophoblast forming the serosa or false amnion which now separates the uterine cavity from the extra-embryonic body cavity.

8. The trophoblastic layer constituting the false amnion now undergoes a folding over similar to the formation of the true amnion. The edges of the folds unite to form a two-layered, rather rounded plate of trophoblast, which now constitutes the fetal placenta.

9. This placental plate, where it comes in contact with the uterine epithelium, causes a destruction of the cells, which is followed by an intimate union with the uterine mucosa.

10. The allantois is very much later in its development than in the mouse and guinea-pig, and does not become joined to the true placental area until after the embryo is well outlined; on the other hand, the yolk-sac placenta soon becomes highly developed and remains active during all the early period of development.

THE DEVELOPMENT OF THE STRIA VASCULARIS.

By C. E. Shambaugh, M.D.,
Chicago.

The stria vascularis of the labyrinth of the ear is a membrane made up of three distinct elements: First, a surface layer of epithelium, consisting of a single layer of cells with long, fibrillar, protoplasmic processes; second, a rich supply of blood vessels which follow the spiral direction of the coils of the cochlea; and, third, a deeper layer of cells scattered irregularly among the blood vessels and the protoplasmic processes from the surface layer of epithelium. The opinion of anatomists has been divided regarding the origin of the cells found in this deeper layer, some observers believing that these, too, are epithelial cells, while others hold that they are connective tissue cells derived from the underlying spiral ligament. By tracing the development of this membrane in the embryo I have been able to demonstrate that the cells found in the deeper layer are in a large measure derived from the surface layer of epithelium.

THE CHROMAFFINE CHARACTERS OF CERTAIN PARIETAL CELLS OF THE STOMACH.

By B. C. Harvey, M.D.,
University of Chicago.

In the fundus glands of the stomachs of the rabbit and dog the parietal cells are separated into two classes by their reaction with aqueous solutions of potassium bichromate. In mucous membranes fixed in this fluid a few parietal cells stain yellow or brown, while the majority of them are not stained at all. In cats no cells are found presenting this reaction. They are most numerous in rabbits. The number presenting the reaction, in dogs, is considerably increased after operations on the stomach in the immediate neighbourhood of the incisions. Popoff reported the presence of pale parietal cells in the mucous membrane of dogs in which he had produced gastric catarrh.

These cells resemble the chromaffine cells described by Kohn and Gierke as existing in the medullary part of the suprarenal gland and in the sympathetic nervous system. They present the reaction with chromic acid salts which Kohn describes as the most dependable of the means of identifying chromaffine tissue. In them also the reaction is prevented by alcohol. They blacken with osmic acid, and take an intravitam stain with neutral red. They are from 10 to 20 microns in diameter, containing granular protoplasm, vacuoles, and often two nuclei. They possess an intracellular canalicular system, and are closely related to blood vessels. In all the above particulars they resemble the chromaffine cells of Kohn.

Their absence from the stomachs of cats, and the fact that their number is increased in the stomachs of dogs after operations, suggest that they may be transformations, possibly pathological, of ordinary parietal cells.

I found substances presenting the above reaction with bichromate of potassium in the entoderm of a hydroid "tubularia," and also in the petals of a primrose "oneothera."

Kohn states that this reaction is the most trustworthy one for the detection of chromaffine tissue, to which he ascribes an origin from the sympathetic nervous system, and a function somewhat similar to that of the medulla of the suprarenal gland. In view of the above facts it seems difficult to believe that all tissues presenting the reaction have that origin or function.

AN UNUSUAL PERITONEAL ANOMALY SIMULATING RETROPERITONEAL HERNIA.

A Dissection made by Mr. Emil Goettsch.
Reported by Dr. B. C. H. Harvey,
University of Chicago.

In an adult female subject dissected by Mr. Emil Goettsch the position of the radix mesenterii was occupied by a fold of peritoneum with a free edge directed towards the left. This fold extended from above downward and to the right, and was continuous with the peritoneum on the posterior abdominal wall above, about the origin of the superior mesenteric artery, and below, along a line 3 cm. in length from the right margin of the body of the fifth lumbar vertebra to the brim of the pelvis. Between these extremities the fold was unattached, and behind its free border was an entrance towards the right into a large pouch containing all the small intestine. This pouch was bounded anteriorly by a double layer of peritoneum, being the continuation to the right of the fold above mentioned. On the right it was bounded by the attachment of this double layer to the posterior abdominal wall just at the medial side of the ascending colon. It was bounded behind by the peritoneum of the posterior abdominal wall (see diagram).

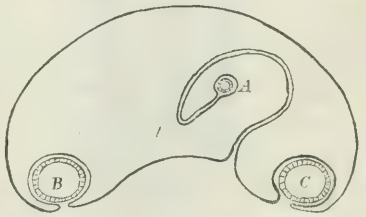


Diagram of peritoneum in transverse section of the abdomen. A, Pouch; B, descending colon; C, ascending colon.

The duodenum did not cross the middle line, but entered this pouch from above and became continuous with the jejunum, remaining entirely on the right side.

This condition probably arose by the arrest during development of the upper extremity of the middle loop of intestine, so that it took no share in the process of torsion.

A SYMELIAN MONSTER (SYMPUS DIPUS).

By Reginald J. Gladstone, M.D., F.R.C.S.,
London.

[Preliminary Communication.] *

In symelian monsters the two lower limbs are fused together so as to form a single tapering extremity. The specimen under consideration is of the variety known as *Sympus dipus*, and was obtained by Dr. J. Strickland Goodall, who furnished the following notes of its birth. The fetus was born at full time with the feet foremost. The mother had given birth previously to healthy children, and had noticed nothing unusual in the pregnancy. There was no history of malformations having occurred in any of the family.

The fetus (Fig. 1) measured 39 cm. in length: the two



Fig. 1.—Symelus.

lower limbs were completely fused together as far down as the feet, and were bent forward, so as to form an angle of 160° with the trunk. Each lower limb was also rotated outward (Fig. 2), so that the patellas were directed back-

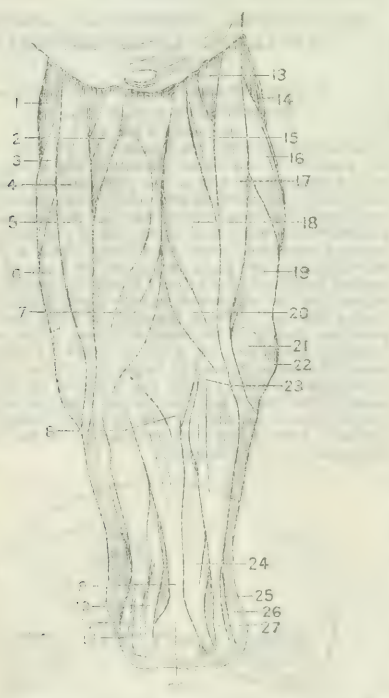


Fig. 2.—Anterior aspect of composite limb. 1, M. tensor fasciae femoris; 2, M. adductor longus; 3, M. rectus femoris; 4, M. sartorius; 5, M. gracilis; 6, M. vastus internus; 7, M. semimembranosus; 8, M. gastrocnemius; 9, tendo Achillis; 10, M. flexor longus hallucis; 11, M. flexor longus digitorum; 12, M. tibialis posticus; 13, M. ilio-psoas; 14, M. tensor fasciae femoris; 15, M. adductor longus; 16, M. rectus femoris; 17, M. sartorius; 18, M. gracilis; 19, M. vastus internus; 20, M. semimembranosus; 21, internal condyle of femur; 22, patella; 23, M. popliteus; 24, M. flexor longus hallucis; 25, M. tibialis posticus; 26, malleolus internus; 27, M. flexor longus digitorum; 28, os calcis.

* A more detailed description will be published later.

ward and outward, and the heels, which were fused together forward. The peroneal borders of the two lower limbs were joined, and the imperfectly developed feet were in the position of talipes calcaneus, the toes being directed upward and backward. The penis was imperforate, and the anus absent.

The colon terminated in the urinary bladder; there was thus a persistence of the cloacal stage of development. The kidneys and ureters were absent; the suprarenal bodies were, however, present, and had the normal histological structure. A testicle and vas deferens was present on each side. The testicles were situated in the inguinal canals.

The main artery of the abdomen (Fig. 3) divided into a

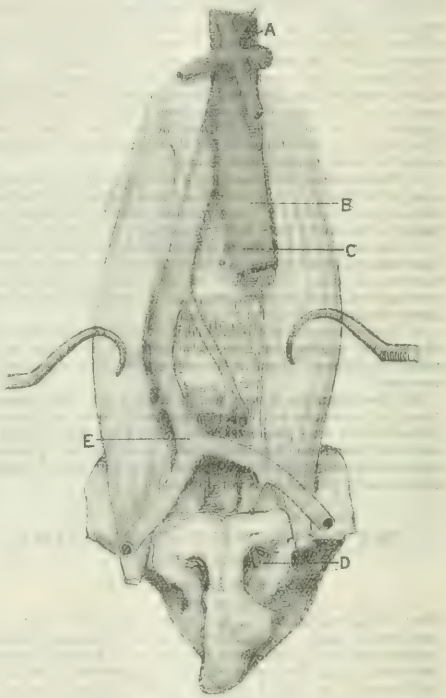


Fig. 3.—Symelus. A, Abdominal aorta; B, common umbilical artery; C, division into left and right umbilical arteries; D, left obturator artery; E, division into right and left external iliac arteries.

large artery which passed into the umbilical cord, and a vessel which ran down the front of the vertebral column, in the position of the abdominal aorta, and divided below into *external* iliac arteries. The main umbilical artery gave off a small branch on its right side. This appeared to be a bifurcation of the main vessel into a larger left, and a smaller right umbilical artery. The renal arteries were absent.

The innominate bones were dislocated from the sacrum and bent forwards (Fig. 4). The sacrum thus lay in a V-shaped interval between the iliac crests. The posterior borders of the innominate bones were fused together from the posterior superior spines of the ilia to the great sciatic notches. The latter came together in the middle line in such a way as to form a single median opening for the exit of the great sciatic nerves. The tuberosities of the ischia and the ischial and pubic rami were also joined. The two innominate bones thus lay side by side, and the cavity of the pelvis was almost obliterated. Moreover, owing to the fusion of the ischia and the rami of the pubes, there was no perineal region, and consequently neither anus nor urethra.

The condition appears to be due to a fusion of the post-axial borders of the limb-buds over the cloacal area; and the outward rotation of the limbs to be partly caused

by the inward rotation of the lower extremities, which takes place in the course of normal development, being prevented by the union of their post axial or peroneal



Fig. 4.—Symelus. A, Pelvis from the side; B, pelvis from behind.

borders, and partly by the approximation of the acetabula, due to the flattening of the pelvis.

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A CASE OF INNERVATION OF THE NERVUS LATERALIS OCULI BY THE NERVUS OCULO-MOTORIUS, WITH ABSENCE OF THE NERVUS ABDUCENS.

By B. C. H. Harvey, M.D.,
University of Chicago.

On the left side of an adult male subject the abducens nerve could not be found. It was carefully searched for where it usually goes through the dura mater, in the cavernous sinus, superior orbital fissure, and in the orbit. The third nerve gave a large branch to the orbital surface of the lateral rectus muscle. The brain had been removed from the subject, and it was not available for dissection.

A pamphlet has reached us in which Dr. J. Cleasby Taylor describes some of the attractions of the Canary Islands for those in search of either health or recreation. These lie more particularly in the facilities offered for an open-air existence, either at sea-level or at elevation of from 1,000 ft. to 2,000 ft., and for sea bathing right through the winter. The value of sea bathing and the indications for and against it in various classes of disease are discussed at length, the author being a great believer in its virtue in many forms of functional disease, provided air temperature and water temperature are both relatively high. Neither prolonged residence in these islands nor a holiday visit to them appears to be an expensive undertaking.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

A. H. Freeland Barbour, M.D.Edin., President.

DISCUSSION ON THE APPENDIX VERMIFORMIS IN RELATION TO PELVIC INFLAMMATION.

OPENING PAPER.

By T. Arthur Helme, M.D., M.R.C.P., F.R.S.E.,
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THE APPENDIX VERMIFORMIS IN RELATION TO PELVIC INFLAMMATION.

The appendix in woman has an importance which in man it does not possess, in that disease of this structure may seriously influence the functions of the generative organs, and impair the reproductive life of the woman; it is, in consequence, a structure of special interest to the gynaecologist. Although it is commonly stated in surgical works that appendicitis occurs much less frequently in females than in males, gynaecologists have long been familiar with the association of appendicular and pelvic affections, and the frequency of this association has within recent years received much attention.

In order to lead up to important questions that will arise, it is necessary to refer to some preliminary matters.

Position of the Appendix.

1. Whilst the position of the appendix may vary, and its direction correspond to almost any of the points of the compass, statistics show that it more frequently has an inward than an outward direction.

In 1,225 collected cases it was found to be directed inwards in 59 per cent.

The appendix is frequently a pelvic structure. Thus, Lockwood in 309 consecutive operations found the appendix in the pelvis in 52 instances, or nearly 17 per cent. Hawkins in a series of autopsies found the pelvic position in 19 per cent. Robinson in 418 autopsies (300 males, 118 females) found the appendix in the pelvis in 48 per cent. of the women and in 37 per cent. of the men.

The greater frequency of the pelvic position in women is doubtless associated with the shape of the pelvis and the feebler development of the iliac muscles. In my own experience of laparotomy for pelvic disease, however, I have not found the appendix in the true pelvis in anything like so large a proportion.

The frequency of this dependent position is of importance, because by this topographical arrangement the appendix is brought into close relationship with the female generative organs, two elements of danger being thus introduced:

(*a*) The healthy appendix is brought within reach of a possible source of infection extraneous to itself, namely, the Fallopian tube; and (*b*) in case of primary disease of the appendix this may become a source of damage to the pelvic structures.

The dependent position is further of importance in its effect upon the drainage of the gut, especially in relation to the formation of adhesions the result of neighbouring pelvic inflammation. Indeed, this dependent and pelvic position of the appendix in women seems to me to be the supreme factor in the association of appendicular and pelvic disease.

2. It has been stated that there exists a special fold of peritoneum, known as Clado's ligament, running from the meso-appendix to the right infundibulo-pelvic ligament, and that lymphatics pass by way of this ligament from the basilar lymph sinuses of the appendix to the broad ligament, the pelvic connective tissue, and the internal iliac glands; also that the appendix not infrequently receives a special vascular supply from the ovarian artery of the right side.

If such a direct anatomical relationship between the appendix and the right appendages, both vascular and lymphatic, does exist, then a very ready channel of infection from one to the other is provided and the causal association of appendicular and pelvic disease is readily explained. Unfortunately for this simplicity of explana-

tion researches do not support these views; the appendiculo-ovarian ligament would appear to be very rarely present; some writers altogether deny its existence, and, if present, as pointed out by Kelly, it probably exists only as one of the many irregularly situated peritoneal folds in the region of the iliac fossa that are established by the fusion of the large intestine and mesocolon with the parietal peritoneum, or, as suggested by Durand, it may represent a fold of the mesovarium and arise in connexion with the descent of the ovary.

The history of development of the appendix and the right ovary would not support the probability of any direct vascular connexion between the two; they are developed at points remote from one another and the blood vessels of both are completely formed before they become neighbouring organs. Professor Birmingham, who has examined into this point, says that "he has never been able to trace a branch of the ovarian artery to the appendix." In reference to the lymphatics Kelly states that all his experiments in injecting the lymphatics of the appendix from the periphery to the centre demonstrated that the lymphatic channels of the appendix pass inside the meso-appendix towards the ileo-colic group of glands, or through the caecum in the same direction ultimately to the same group. Not a single lymph channel was seen to pass in the peritoneum towards the ovary.

If, therefore, there is any vascular or lymphatic connexion, it is probable that it exists only through the minute lymphatics and blood capillaries of the parietal peritoneum.

To sum up: It would appear that there is very little evidence of the existence of any direct or special anatomical connexion between the appendix and the pelvic structures, such as would afford a direct (lymphatic or vascular) channel for infection from one to the other, and that therefore the cases must be rare in which disease, spreading from the appendix to pelvic structures or in the reverse direction, does so by direct *continuity* of structure, but that, on the contrary, it is rather by the accidental *contiguity* of organs that the association of appendicular and pelvic disease is brought about.

Association of Appendicitis and Pelvic Diseases.

It is the experience of every gynaecologist (whether frequent or infrequent) to meet with disease of the appendix in operating for pelvic disease, and similarly the general surgeon, in operating for appendicitis, at times finds associated disease of the pelvic organs; clinical experience shows that the appendix on the one hand or the pelvic organs on the other hand may be the primary source of disease, for example:

1. *Where the Appendix is the Seat of the Primary Disease.*

Periappendicular abscess is a not infrequent complication of acute appendicitis; in women the abscess not infrequently occupies the pelvis and may point in various directions. Kelly, in 86 cases of acute appendicitis, found the pelvis involved (that is, pelvic abscess) in 25. Of these 25, 10 were periappendical abscesses; in 15 the appendix did not enter the pelvis, and in many of them the appendix was remote from the pelvic brim.

Rotter, in 132 cases of appendicular abscess, found pus occupying the pelvis in 40 cases, and in 21 of these the abscess was confined to the pelvis.

The pelvic abscess may fill the pouch of Douglas and cross over so as to cover the left half of the pelvic brim, and it may ultimately point in one of many directions.

Sonnenberg, in 424 cases of periappendicular abscess, found that the abscess opened into the rectum in 4, bladder in 3, uterus in 1. It may open into the ureter or vagina, and recently I saw a case in which the pus tracked along the right iliac vessels and ultimately pointed over the right external inguinal ring.

These cases often present serious difficulties from an operative standpoint, and may offer great difficulty in diagnosis, as they closely simulate some acute diseases of the pelvic organs—such as acute pyosalpinx, ovarian abscess, or necrosed or suppurating ovarian cyst.

Again, a milder form of appendicitis may lead to pelvic peritonitis without abscess formation, and, as a result, the appendix may become permanently fixed by adhesions to the pelvic organs; or the appendicitis may be cured, leaving peritonitic adhesions which may cause fixation of the tubes and ovaries or uterus with permanent displacement and sterility.

Of 11 cases of retroflexion associated with appendicitis, Kelly found that in 5 the uterus alone was involved and fixed by adhesions, the Fallopian tubes being perfectly healthy, and he is of opinion that the appendix was the primary source of the peritonitic adhesions in these cases.

It is often a difficult matter, if not an impossibility, to recognize the original source of infection, but my own experience has led me to the conclusion that in some of those cases of bilateral or unilateral chronic peritonitis in unmarried women, where one finds the Fallopian tubes apparently healthy, and where no history or evidence of vaginal infection can be obtained, and in virgins, the appendix has been the source of the mischief.

Appendicitis, too, may cause adhesion of the appendix to either set of appendages and their direct infection, leading to tubo-ovarian abscess or pyosalpinx. Bland-Sutton has recorded a case where the appendix was adherent to the Fallopian tube, and the abscess had ruptured into the fimbriated extremity. One such case has occurred in my practice. I found an appendicular abscess adherent to, and communicating with, a large pyosalpinx of the right side which reached half way to the umbilicus.

Finally, cases are recorded, too, where a primary appendicitis has led to infection of ovarian or fibroid tumours, but this is a rare affection. Hewetson, of Birmingham, who has recently recorded a case of this kind, says that after a careful search through the literature of the last ten years he can find reference to only 7 cases of ovarian cystoma complicated by appendicitis, and of these cases the greater number were cases of catarrhal or chronic appendicitis, and not perforative or suppurative.

I presume that in this list he has included only cases in which operation has been undertaken definitely on account of the appendicitis; for American statistics would show a not infrequent association of diseased conditions of the appendix with ovarian cystomata. I have had occasion to operate only on one case of ovarian cyst in which there had been a typical attack of acute appendicitis; in this case the appendicitis did not lead to infection of the cyst, though there was extensive peritonitis with adhesions.

2. *Where the Pelvic Disease is Primary.*

In primary pelvic disease it is usual to find the inflammatory process affecting both adnexa, though often to a different degree; in this condition the pelvic disease may lead to appendicitis (*a*) directly or (*b*) indirectly.

(*a*) In the first group the appendix, because of its contiguity, becomes involved in the inflammatory exudate, and infection may travel directly to the appendix through this exudate.

(*b*) In the second group the appendix becomes indirectly involved; the pelvic inflammation leads to congestion, and consequent circulatory and nutritional disturbance, with blocking of the lumen or occlusion of the outlet; or adhesions may be formed, leading to impeded peristalsis and defective drainage, appendicitis being thus secondarily induced.

Similarly my experience coincides with that of other gynaecologists in meeting with cases where the appendix has been involved in tuberculous or malignant disease of pelvic origin; or where it has become adherent to inflamed or necrosed ovarian cysts with twisted pedicle, or spread out over those burrowing tumours, ovarian or uterine, which grow beneath the peritoneum, or where in ectopic pregnancy the appendix, in common with other portions of the intestine, helps to roof in the extravasated blood.

This association of pelvic and appendicular disease, where the appendix is secondarily involved, is not infrequent, though my experience is that the cases are the exception and not the rule. I have found it necessary to remove the appendix in less than 5 per cent. of my operations.

3. *Post-operative Appendicitis.*

Another group of cases must be referred to, namely, the cases of post-operative appendicitis, for it is an important fact that appendicitis may follow operation for pelvic disease, as the result of adhesion of the appendix to scar tissue, however carefully we may cover denuded areas, when the appendix is a pelvic structure.

Only one case of this nature has come under my own notice. I had removed the adherent (gonorrhoeal) tubes

and ovaries; twelve months later I operated for acute obstruction, and found that the appendix and last portion of the ileum were adherent to the scar of the right stump, and that perforation of the appendix had occurred.

Kelly refers to 9 cases where subsequent operation has been necessitated by the adhesion of the appendix to the scar of a previous operation, and says, "Judging from the evidence just collected, it seems likely that adherence of the appendix to the scar of a previous operation stands in etiological relation to a post-operative appendicitis much more frequently than has hitherto been supposed. Further data, therefore, on the subject are to be desired."

4. *Appendicitis may simulate Pelvic Disease, and vice versa.*

Not infrequently has the surgeon operated for a supposed appendicitis only to find a strangulated ovarian cyst, tubo-ovarian abscess, or ectopic pregnancy, and the converse is probably equally true. Time would not permit me to go into this matter, but I would call attention to and ask the opinion of members upon the importance of appendicitis as a source of *menstrual pain.*

That this should be so is not surprising if we consider the mutual innervation of the appendix and the pelvic organs. Five striking cases of this condition have recently come under my notice, and in all these cases removal of the appendix resulted in cure or relief.

Further, I would call attention to the frequent association of dysmenorrhoea and mucous colitis, and to the probability that these associated conditions are referable to the same cause, namely, appendicitis. I have, however, only in one case removed the appendix with the definite object of relieving these two associated conditions, and in this case the mucous colitis was cured and the dysmenorrhoea relieved. The question of the etiological relationship between appendicitis and dysmenorrhoea with mucous colitis is worthy of observation.

5. *The Relation of Appendicitis with Pregnancy and the Puerperium.*

Though this scarcely falls within the title of this discussion, it would not be fitting that in this Section we should not allude to its importance if only to urge the advisability of early operation; for experience has shown that the earlier the operation can be done the better for the patient; that the operation need exercise no harmful action on the pregnant uterus or the child; that once appendicitis has occurred pregnancy predisposes to its recurrence; that disastrous results follow the neglect of operation, and, further, that an unoperated appendicitis may be the cause of a fatal peritonitis in the puerperium.

Lastly, we must refer to

6. *The Simultaneous but Independent Disease of the Appendix and the Pelvic Organs.*

Of recent years this relationship has assumed a novel aspect; it has been observed that, in a large proportion of women suffering from disease of the pelvic organs, the appendix, on microscopical examination, shows abnormal appearances, which have been interpreted as the result of disease, though to the naked eye it may appear healthy, and though clinically it has not given rise to symptoms which have been recognized as being the result of appendicular disease; in consequence it has been suggested that it is the duty of the surgeon whenever he opens the abdomen on account of pelvic disease to systematically remove the appendix.

Petersen advances the proposition thus:

> Since it is impossible for the surgeon by gross appearances alone to determine which appendix is diseased, and since nearly 50 per cent. of appendices, where the abdomen is opened for other purposes, are found microscopically to be diseased, it is the surgeon's duty in the absence of contra-indications to remove the appendix in every case. Otherwise he will leave behind diseased appendices, which may prove a subsequent source of suffering to the patient.

This thesis is so radical that it is worth considering and discussing to-day, and in so doing it will be well to recall certain facts.

(*a*) It is a common experience of those who conduct *post-mortem* examinations to find diseased appendices or old adhesions around the appendix in patients who have not during life exhibited symptoms of appendicitis, or in whom, at any rate, symptoms have not been such as to lead to the recognition of the existence of appendicitis. In a large series of statistics by various observers, I find the estimated frequency varies greatly—from 1.7 per cent. to 70 per cent.

(*b*) The question of what may be termed the normal involution of the appendix has been investigated by certain pathologists, and their observations leave little doubt that in many instances an involution or retrogressive atrophy of the appendix does take place *without preceding inflammation.*

(*c*) The observations and statistics of those American surgeons who have made it a rule systematically to remove the appendix, even in the absence of evident disease, during laparotomy for pelvic disease are certainly interesting. Thus: (1) Petersen, in 285 cases, found lesions of the appendix in about 50 per cent.; (2) Hunter Robb, in 370 cases, found the appendix normal in only 103 cases; (3) J. G. Clark, in 120 laparotomies, found only 25 normal appendices. In other words, these three surgeons find that in 2 out of every 3 patients operated upon for pelvic disease the appendix is abnormal.

The results of these examinations are somewhat astonishing, and suggest the following observations:

1. Though accepting the findings of these examinations as evidence of the frequency of structural changes in a large percentage of appendices, it is important to remember that after a certain age very few organs in the body would pass a minute microscopic examination without sacrificing their claim to be classified as normal. It is not established that the microscopic changes found are in all cases such as to stamp the appendix as so far diseased as to require removal, or as liable to offer any certainty or even probability of serious subsequent trouble if not removed.

2. This is supported by the experience of pathologists as to the frequency with which abnormal conditions of the appendix are found *post mortem* in patients who during life exhibit no symptoms of appendicular disease.

3. Further, the question must be asked, How far are these microscopic changes not truly pathological, but associated with a natural atrophic retrogression or involution of the appendix, comparable to that of other structures containing lymphoid tissue?

4. That these microscopic changes do not imply a certain prospect of future trouble is supported by the subsequent history of the majority of those women upon whom laparotomy for pelvic disease has been performed without removal of the appendix.

What has been the subsequent history of those thousands of women upon whom we have collectively operated? If 50 per cent. of these women had diseased appendices, and if these appendices were the probable source of danger as postulated by the thesis of Petersen and others, one would expect:

(*a*) From the standpoint of the gynaecologist, that a large proportion would return to us or to the general surgeon on account of subsequent appendix trouble. But such is not the case; although statistics are not available, so far as I can gather it is the general experience that only a very small proportion of these patients return for subsequent operation on account of appendicular disease.

Let us take the cases of ovarian cysts. Petersen found in one series that 70 per cent., and in another series 50 per cent., of these cases had diseased appendices. In the majority of ovariotomies the operation is simple and short; the peritoneal cavity is disturbed as little as possible, and its contents barely seen. These are just the cases where the majority of operators, unless led by special indications, would not even look for the appendix. Yet we are told that 70 per cent. of these appendices are diseased and require removal; but certainly my experience in these cases has *not* been that the non-removal of the appendix has led to subsequent trouble.

(*b*) From the standpoint of the general surgeon: Similarly, if the association of appendical and pelvic disease is so frequent, one would expect that a proportion of these women would submit themselves to operation for appendicitis at the hands of the general surgeon, and that subsequently they would come into our hands to be operated on for pelvic disease; but experience does not show that this occurs with any frequency. Sir Frederick Treves, in reviewing the after-history of 1,000 cases of appendectomy, found that 45 were incompletely relieved, and that in 9 only were the persistent symptoms due to disease of the right appendages.

5. But if we allow that 50 per cent. of the women upon

whom we operate for pelvic disease have some lesion of the appendix, which may or may not be recognizable, and which may or may not be such as to warrant its removal, is this a just reason for depriving the other 50 per cent. of their appendices?

Such a course would stand absolutely condemned if it could be shown that the appendix performs any useful function, and would only be admitted within the possibility of justification on the basis that the appendix is a vestigial and useless structure.

Considerable doubt at least has been thrown upon this assumption by the observations of Dr. Berry and Sir W. Macewen.

1. *Histology.*

J. A. Berry has made and published a series of histological researches upon the apex of the caecum and the vermiform appendix in representative types of the vertebrate kingdom. He states that the caecum in warm-blooded animals and the higher vertebrates generally is a special seat of lymphoid tissue; the vermiform appendix of man represents the true apex of the caecum, and the characteristic feature of the normal human appendix is lymphoid tissue; he concludes that the histological homologue of the human appendix is to be found in the caecum of the lower animals. Berry shows that the precise seat of the lymphoid tissue in the caecum varies somewhat in different animals; in the majority it occupies the caecal apex, and in the higher vertebrates it is collected into a specially differentiated portion of the intestinal canal—the vermiform appendix. This tendency for the lymphoid tissue to be specially collected together into a differentiated portion of the alimentary canal becomes more marked in certain groups of the vertebrate series as follows:

In the pigeon and in all the other birds examined the lymphoid tissue occupies the whole length of the caecal wall. In two of the rodents, the mouse and the rat, there is an attempt at a constriction in the caecum, and the lymphoid tissue is confined to its apical portion. In the rabbit this constriction has become much more clearly defined, there being both a caecum and an appendage; the appendage contains such large quantities of lymphoid tissue as to be nothing but a lymph gland, whilst the caecum contains but little lymphoid tissue. In the higher anthropoids, the Simiidae, there is a vermiform appendix.

Lastly comes man with a caecum containing little lymphoid tissue, and a vermiform appendix with large quantities of such tissue.

Assuming this view to be correct, that the lymphoid tissue tends to be collected together into a specially-differentiated portion of the intestinal canal, a knowledge of evolution would almost inevitably require the occasional occurrence of an appendix in some one of the lower animals. This actually is the case, not in one but in at least two of the lower animals, the wombat and the capybara.

His conclusions are that:

1. Lymphoid tissue is the characteristic feature of the caecal apex. The vermiform appendix of man is therefore represented in the vertebrate kingdom by a mass of lymphoid tissue situated most frequently at the caecal apex.

2. As the vertebrate scale is ascended this lymphoid tissue tends to be collected together into a specially-differentiated portion of the intestinal canal, the vermiform appendix.

3. The vermiform appendix of man is not, therefore, a vestigial structure; on the contrary, it is a specialized part of the alimentary canal.

2. *Physiology.*

Then again, in a thoughtful and original paper, Sir William Macewen gives the results of observations made by him which suggest in the most forcible manner that the appendix, instead of being a useless structure, possesses a true function, which plays no unimportant part in the elaborate process of intestinal digestion. In this paper Sir William records his observations on the effects on health of faecal fistulae, on the behaviour of the caecum and appendix when viewed through defects of the abdominal wall, and also on the secretion of the caecum and appendix as seen through defects in the caecal wall.

He observed peristaltic movements of the caecum and appendix; he found that there was an escape of fluid from the appendix into the caecum at intervals corresponding to the escape of the contents of the ileum through the ileo-caecal valve, and he found that mental states affected the secretion of the appendix in a manner comparable to their effect on the salivary secretion.

In a case where the anterior wall of the caecum had been removed by an explosion, the ileo-caecal and appendicular orifices being exposed, he observed that shortly after food was taken into the stomach, and to a marked extent just before food began to pass through the ileo-caecal valve, there was a considerable flow of glairy mucus from the appendix into the caecum; this fluid was invariably alkaline; he observed that usually the contents of the ileum pass through the ileo-caecal valve in small quantities, which slide over the orifice of the appendix, and get smeared with the exudation therefrom, as well as mixed with the exudation from the general caecal cavity.

Macewen suggests that the flow of the acid chyme from the ileum through the ileo-caecal valve is so regulated by a nervous mechanism that it may be mixed with and neutralized by the alkaline secretions of the caecum and appendix, and that this regulation is due to reflex action induced by the impression on the nerves of the mucous membrane of the caecum and appendix brought about by the quantity and quality of the contents of the small intestine which are received into the caecum.

He further concludes that the nervous mechanism of the appendix may initiate the larger movements of the caecum by first inducing movements in the appendix, and that inhibition of these movements may cause caecal disturbance. The same energy, by control of the vascular supply, will regulate the exudation from the appendix, and that in accordance with the impulse received from the small intestine.

Macewen points out the similarity of structure of caecum and appendix, refers to the great development of lymphoid tissue as contrasted with that of the small intestine, and the importance of its secretion as a "most powerful adjuvant to the completion of digestion," and concludes that the secretion of the appendix is a valuable aid to digestion.

In the light of histological and physiological observations such as these, are we justified in removing an apparently healthy appendix during the course of a laparotomy for pelvic disease, unless some new source of danger to the appendix is introduced by the operation itself?

The majority of surgeons, I believe, by their practice give to this question a negative reply.

For the purposes of this discussion I would submit the following propositions:

1. The association of appendicular and pelvic disease is due to contiguity rather than continuity of structure.

2. The accidental inward direction or pelvic position of the appendix is the chief factor in this association.

3. The appendix or the pelvic organs may provide the primary source of disease.

4. Appendicitis is a frequent source of dysmenorrhoea and its associated mucous colitis.

5. The association of appendicitis with pelvic disease is the exception and not the rule.

6. The appendix is not a vestigial structure but a highly differentiated portion of the intestinal tract and plays an important part in intestinal digestion.

7. The systematic removal of the appendix during laparotomy for pelvic disease in the absence of evident disease is not justifiable.

DISCUSSION.

Dr. Todd Gilliam (Columbus, Ohio) said that the synonymous involvement of the appendix and the pelvic organs were in most instances a mere coincidence, both conditions being so common independently. The appendix could not be infected from its peritoneal surface, nor yet the appendages without a break in the surface. The gonococcus, which was the cause of the majority of pelvic inflammatory conditions, was not a deep-sea fish, nor did it travel by way of the lymphatics, blood, or through the interstices of tissues; it skimmed the surface, and confined itself initially to the mucous surfaces. There could be no infection without abrasion of the surface.

Dr. Lapthorn Smith thought that appendicitis and disease of the tubes were very frequently coincident, but it was uncertain whether one disease caused the other

He had many times found the appendix deeply imbedded in a pus tube or a tubal pregnancy, and knew of at least one case of purulent tube in which the gonococcus was found by microscopical examination in the tissue of the appendix, while many times the colon bacillus had been found in pus tubes. He was quite sure that the same cause which brought about appendicitis—namely, constipation (which enormously increases the number of colon bacilli), also predisposed to disease of tubes. When a woman had suffered for a long time with pain on the right side, they should remove both the appendix and the right ovary and tube. In several cases he had to do a second operation for appendicitis when he had only removed the ovary and tube, and vice versa; so he was in favour of removing the appendix whenever it appeared at all diseased.

Dr. Arnold W. W. Lea believed that lesions of the vermiform appendix, if carefully searched for, were present in a large number of individuals, and often existed without producing any symptoms. He wished to call attention to a form of appendicitis which was not uncommon in women, characterized by iliac pain, aggravated at the menstrual periods. This type occurred in the absence of any history of acute inflammation. The pain was indistinguishable from ovarian pain, but was cured by removal of the appendix, which was found to show pathological changes. There was also a tendency for adhesions around the appendix to develop after operations on the pelvic organs, and he related four cases in which pain following these operations had been cured by removal of the appendix. In view of the importance of the appendix as a cause of pelvic pain, he believed that it should be examined as a routine measure in all cases of abdominal section for pelvic disease. The appendix should be removed if it lay at the brim of the pelvis; if it showed any peri-appendical adhesions or contained a concretion; if it was adherent to any inflammatory swelling or tumour; or if it lay in close relation to the pedicle or raw surface left after the removal of any pelvic organ.

Dr. J. H. Carstens (Detroit, Mich.) said that as only about 1 person in 50 has appendicitis, only those appendices should be removed that were adherent and diseased. The danger added to the operation was not much, as a rule, but in some cases might be great. The small amount of mucous membrane in comparison with that of the caecum made the speaker think that the appendix could not be of much use in digestion, and that it was better "out than in" (*sic*).

Dr. Temple (Toronto) strongly deprecated the indiscriminate removal of the appendix in pelvic operations.

Dr. F. A. L. Lockhart (Montreal) said that all operative gynaecologists met with cases in which disease of the appendix complicated that of the appendage of the right side. In the majority it would be found that the appendical disease was secondary to that of the tubes, and this was especially the case when the tube had been invaded by the *Bacillus coli* or the streptococcus. In cases where the abdomen was opened for pelvic disease, it was his custom to leave it to the patient's discretion as to whether or not the appendix should be removed. Its excision in an uncomplicated case added but very little to the danger of the operation, and relieved the patient of considerable risk.

Dr. Cuthbert Lockyer introduced into the discussion the question of the relationship of appendicitis to pregnancy. He pointed out that during pregnancy this disease was often undiagnosed, largely owing to the fact that the symptoms of appendicitis—for example, vomiting and pain—were regarded as the molimina of gestation. As to whether pregnancy predisposed to appendicitis, he had come to the conclusion, from a review of his own cases, that there was no etiological connexion between the two conditions, but remarked that pregnancy predisposed to constipation, and the latter to a formation of stercoliths. A natural question to ask was, How did pregnancy influence appendicitis? It might exert a directly unfavourable influence upon an old or recently-inflamed appendix, especially after the fourth month of gestation, when the uterus first rose up into the false pelvis and began to open up the layers of the broad ligament, with consequent engorgement of the ovarian veins. The fundus uteri now lay in close apposition to the caecum, and the appendix lay in contact with the right appendages. One particular case illustrated this point; the caecum was found adherent to the top of the uterus and the appendix adherent to the right tube. No urgent symptoms occurred until the end of the involution period, when the caecum and appendix had been dragged down to the small pelvis, and recurrent attacks of pelvic pain led Dr. Lockyer to perform laparotomy. The right adnexa were found to be densely adherent to the appendix and the diseased tissues were removed *en masse*. It was only fair to say that in this case there were symptoms of appendicitis before gestation occurred, so that it cannot be said that the pregnancy set up the predisposition to the disease. Only when the appendix was inflamed would its close relationship with the gravid uterus give rise to trouble. Boije and Krönig explained the rarity of severe appendicitis during pregnancy as due to cellular hyperplasia and increased blood supply to the pelvic organs during gestation. This increased circulation favoured absorption, exerting thereby a beneficial therapeutic effect upon the inflamed tissues. Then came the further inquiry as to how appendicitis might affect pregnancy. This depended upon the gravity of the lesion. In mild cases the pregnancy was undisturbed. In severe cases abortion or miscarriage generally ensued. The act of labour was accompanied by great danger in cases of acute appendicitis. The contraction of the uterus would stretch and tear any adhesions which bound it to the wall of an abscess, and this would result in the leakage of pus into the general peritoneal cavity. During the puerperium there might sometimes be witnessed a type of puerperal fever due to appendicitis, and *Bacterium coli* had been found in the uterus, fetus, and lochia. Such cases had been recorded by Dr. Labhardt of Basle and substantiated by v. Winckel and Krönig. Again, from the dragging of the diseased tissues into the small pelvis, a pelvic abscess might result. In a case recorded by the speaker elsewhere general peritonitis and death followed abortion at the seventh month, both disasters being due to appendicitis with perforation. Severe appendicitis was a very fatal lesion. In 31 cases operated upon for appendicitis in pregnancy, abortion, with death of the child, occurred in 18—that is, in 58 per cent. As regards the mother, in 31 operations 14 died—45·1 per cent.—and in 24 cases not operated upon 6 died—25 per cent. (Boije). All authors agreed that acute appendicitis occurring in pregnancy was extremely dangerous for the mother and child. Hlawecek said the occurrence of diffuse peritonitis was favoured by labour pains which break down adhesions. Fraenkel and Brandt thought the danger was over-estimated. With regard to maternal prognosis, it was to be remembered that in pregnancy, as without, adhesions, bands, and cords might lead to strangulation and incarceration of bowel. Mikulicz recorded a fatal case where in the fifth month 30 cm. of bowel became gangrenous through strangulation by a cord uniting the appendix to the posterior aspect of the right broad ligament. The diagnosis might be rendered difficult by atypical situation of the pain. It might be on the left side or only at the umbilicus. In primiparae the onset of appendicitis was often put down to a miscarriage, and in one of the speaker's cases the diagnosis of extrauterine gestation was entertained. In the later months palpation was difficult, and the patient should be laid on the left side during the examination. During the puerperium acute constitutional disturbances occasioned by the rupture of an appendix abscess might be attributed to puerperal uterine infection, and the uterus had been removed with a fatal issue under such circumstances. Again, the uterus might become secondarily infected from a diseased appendix, and the foulness of the lochia resulting in consequence, together with the subinvolution, might mask the primary lesion. Parametritis and pelvic abscess on the right side might be put down to uterine infection of puerperal type. In chronic cases a localized swelling in the right fornix, either early in pregnancy or in the late puerperium, often proved to be a diseased appendix adherent to the right tube and perhaps to the right ovary. The danger here was of overlooking the possibility of appendicitis altogether, and of diagnosing simply a tubal or ovarian swelling. If they met with definite right-sided pain coming on in definite attacks during pregnancy, especially in a dyspeptic and constipated subject, they ought to keep the possibility of appendicitis clearly in view. Primary tubal disease was so frequently bilateral that a unilateral pain (right-sided)

was far more likely to point to an appendicular lesion than to a tubal lesion. As regards the treatment of appendicitis in pregnancy the latter must be ignored. The appendicular lesion should be treated as if pregnancy did not exist. The speaker believed that in America this advice would be criticized, as there seemed to be a tendency among Americans to regard the indication for operation as more urgent in pregnancy than in the non-gravid state. Boije said it was better in operating only to regard the pregnancy to the extent of being cautious in abdominal manipulations. The speaker also raised the question as to whether every case should be operated upon as soon as it was diagnosed. Some authorities, he said, advised this course on prophylactic grounds, but Boije's statistics clearly showed that the risk of recurrence in consequence of pregnancy had been over-estimated. For an abscess in the pouch of Douglas they must open the pouch of Douglas and drain and leave the uterus alone. Induction of labour was never indicated, but if the lesion was diagnosed during labour the latter should be completed and the appendix dealt with afterwards. If appendicitis complicated the puerperium, they were face to face with a very grave condition. Where pus was present the speaker advised the freest drainage possible, using a free opening through the pouch of Douglas if necessary. Should the uterus be secondarily infected it should be removed.

Dr. HOLMES (Chatham, Ontario) asked Dr. Lockyer if he would induce abortion in a case of appendicitis complicating pregnancy, and stated that he (Dr. Holmes) would remove a diseased appendix in a woman likely to become pregnant, on prophylactic grounds.

ANTISTREPTOCOCCUS SERUM IN PUERPERAL FEVER.

By MURDOCH CAMERON, M.D.,
Regius Professor of Obstetrics and Gynaecology, Glasgow University.

THE subject of puerperal fever has always attracted the attention of the profession, and from time to time expectations were raised that either by medicines internally, by serumtherapy, or surgical interference a solution of its treatment was to be attained. Each new method brought forth some enthusiastic observations, but each of them after a time passed away, and men were left to their own choice to do this or that as they might think proper.

In private practice little opportunity is offered for the observation of *post-mortem* appearances, and in fever hospitals, to which cases from amongst the poor are drafted, a clinical history is too frequently wanting, and as a result the treatment of such cases is apt to take a routine form.

Advance can only be made in the treatment of this complex condition by a thorough knowledge of the clinical facts and in the case of death by *post-mortem* appearances.

Dr. MacHarg,[1] of Belvidere Fever Hospital, Glasgow, stated that of 57 cases of puerperal infection 31 proved fatal, and in 21 a *post-mortem* examination was obtained.

As regards the history of these cases injuries were traced ranging from slight wounds to more extensive lacerations in 17 cases, whilst in 9 cases very severe injuries were found. These comprised ruptures of the perineum, lacerations into the rectum or vagina and also of the cervix uteri. In 67 per cent. of the cases the illness began from the first to the fourth day.

As might be expected, cases of severe injury are not likely to add credit to any method of treatment. Besides these, there are a large number of cases in which endometritis with peritonitis, oöphoritis, parametritis, or thrombosis may be met with. Where diarrhœa is a marked symptom the cases as a rule are serious, owing generally to the presence of enteritis.

In many cases it may be possible to secure a bacteriological examination.

In two cases I have had an opportunity of trying antistreptococcus serum as prepared by Parke, Davis and Co.

CASE I.

In the first case the attack began on the sixth day, when the temperature was 104.5°, rising to 105.6°. Next day it fell to 101.8°, but in the evening rose to 104°. It then fell to 100.2°, but in the evening reached 102°. On the ninth day it was 103.6°, but in the evening fell to 100.2°. On the tenth day, however, it rose to 106°, and the condition of the patient was such (the pulse being 140) that serum treatment was decided upon. Previous to this quinine, salicylates, and douches had been tried; 10 c.cm. of antistreptococcus serum were given. At midnight the temperature had fallen to 100°, with marked diminution of the pulse. On the eleventh day it rose to 103.6°, but fell again to 100.2°. On the twelfth day it rose to 101.8°, but fell after the use of the serum to 97.6°. On the thirteenth day no serum was given. On the fourteenth the temperature rose to 105°. For the next three days 20 c.cm. were given daily, with the result that after each administration the temperature fell from 105° to 100°, from 104° to 99°, and from 105° to normal.

As the patient's condition improved it was thought advisable to push the serum, and therefore 20 c.cm. were given daily for the following three days, during which time the temperature ranged from normal to 100.5°. The dose was then lowered to 10 c.cm., and eventually to 5 c.cm. till the twenty-fifth day, when it was stopped.

CASE II.

In the second case the patient was delivered on a Sunday, and the temperature rose on the fourth day, May 3rd, to 104° and the pulse to 146. The treatment was limited to quinine and other agents, along with antiseptic tampons. The torn perineum had been sutured.

On May 7th the temperature fell to 100.8°, but immediately rose again to 104.4°. On May 8th it fell to 100.8°, but the same night rose to 103°, and next day to 104.6° and the pulse 100. On May 10th it again rose to 103.8°, the pulse remaining at 100.

As symptoms of parametritis manifested themselves and the general condition of the patient was alarming, serum was tried. She had 10 c.cm. in the afternoon. In twelve hours the temperature touched normal and the pulse 86. It then rose to 104°, but the pulse remained the same. It may be noticed that the serum treatment appears to have the effect of lessening the pulse beat. In the afternoon 10 c.cm. were given, and in twelve hours the temperature fell to 100.2°, but rose again to 104°, when 10 c.cm. were given.

Next day, May 13th, the temperature was 101.4°; 10 c.cm. were given, and on May 14th the temperature was again normal. Next day, however, it rose to 104.4° and the pulse to 112: it then fell to 99.8°, but rose again to 103.8°. Again 10 c.cm. were given, and in six hours the temperature fell to normal, but rose again to 100° when 10 c.cm. were given. The temperature then remained quite normal, with the exception of May 17th, on which date it fell to 96.4°. On May 21st, however it began to mount, rising to 101°, but falling again to 98.8°. In the evening it rose to 103.4°, falling at midnight to 101.6°. On May 25th it rose to 105° and the pulse to 118: 10 c.cm. of serum were given. After four doses the temperature again touched normal, and owing to the prostrate condition of the patient it was thought wise not to push it further. The temperature kept ranging from nearly normal to 102.8°, but on June 4th it rose to 105.6°, and, as thrombosis was very marked, 10 c.cm. of serum were again given, and continued daily in 5 c.cm. doses. On June 12th thrombosis in the other limb was detected, the temperature rising to 104.2°, when 15 c.cm. were given.

During the succeeding days only 5 c.cm. were given. From June 14th the temperature and pulse continued about normal. The serum was continued till June 26th as a preventive. The patient, after a most trying illness, is now able to be removed into the garden on a stretcher to avoid any chance of embolism resulting. The chart speaks for itself, and I am convinced that without the serum treatment both of these patients would have died.

REFERENCE.
1 BRITISH MEDICAL JOURNAL, February 17th, 1900, p. 373.

SECTION OF PAEDIATRICS.

G. A. SUTHERLAND, M.D., President.

THE EARLY DIAGNOSIS OF INFECTIOUS DISEASES BY THE RECOGNITION OF THE GENERAL INVOLVEMENT OF THE LYMPHATIC GLANDULAR SYSTEM.

By ALBERT E. VIPOND, M.D.,
Montreal.

FOR some time past I have devoted considerable time to the study of glandular fever, and have made it a practice to examine the lymph nodes in any child who suffered from elevation of temperature and other signs of acute illness, without any local condition to account for the general symptoms. On several occasions I found only the cervical, axillary, and inguinal nodes to be enlarged and painful, and without hesitation made a diagnosis of glandular fever, but was not surprised to find measles or some other acute infectious disease develop in a few days' time. This observation led me to believe that the nodes

were enlarged in other infectious diseases besides glandular fever. I made a careful examination of over twenty cases of measles, before and after the development of the rash, and found the lymph nodes to be enlarged and painful in every instance.

If the nodes were enlarged in measles, the question presented itself, Why should they not be involved in other acute infectious diseases?

During the past few months I have examined the lymph nodes in every case of infectious disease coming under my observation, and I have arrived at the conclusion that the lymph nodes are enlarged in all acute infectious diseases.

The enlargement is modified according to the period of incubation of the infectious disease. The longer the incubation, the greater the enlargement of the nodes; and the shorter the incubation the less pronounced the enlargement. For instance, measles, rubella, mumps, and chicken-pox, with an incubation period of over ten days' time, present a considerable enlargement of the cervical, axillary, inguinal, and mesenteric nodes; while diphtheria and scarlet fever, with a short incubation period of from three to seven days, present a less pronounced enlargement of the same nodes. This rule, however, does not hold good in whooping-cough. In this disease, with its long incubation period, there is found only a slight enlargement of the nodes, which takes place principally during the spasmodic stage.

The nodular enlargement is marked some days before the onset of active symptoms; and I am satisfied that this condition is a reliable sign indicating that an acute infectious disease is incubating, and thus isolation will prevent the spread of the suspected disease.

In measles the nodes are enlarged for some days before Koplik's spots appear. I may add that by the enlargement of the nodes I have made a diagnosis of incubating measles seven days before the rash declared itself. The child had been exposed to the contagion of measles four to five days before this time.

The nodes in the different regions of the body are not all equally affected by the particular poison. For instance, in cases suffering from measles or chicken-pox, the anterior and posterior cervical nodes may be only slightly enlarged, but those in the axillary and inguinal regions will present considerable enlargement. Even in a case of diphtheria, where one would expect to find considerable enlargement of the anterior and posterior cervical nodes, in many cases they are only slightly enlarged, but the axillary and inguinal nodes may present great enlargement. The poison seems to be absorbed by certain nodes, while others seem to resist its invasion. As a rule, the nodes on the left side are larger than those on the right.

Character of the Nodes.

The nodes vary in size in children who suffer from the same disease and at the same period of the disease; for instance, one child in a family may develop measles, and the nodes may be found to be much enlarged and extremely tender, especially in the axilla and groin; whilst his brother, who suffers from the same disease, presents a much less involvement of the nodes. Again, the nodes vary in size from that of a pea to that of a filbert nut.

I shall presently point out that the nodes vary also in the different diseases.

The nodes are isolated, freely movable, painful on handling, and, as a rule, do not suppurate. Two to three may be involved in a region, or many may be found enlarged, even to the extent of whole chains being affected in the posterior cervical and inguinal regions. However, as a rule, the greatest enlargement is found in the axillae, and more especially on the left side.

In scarlet fever, where a mixed infection through the tonsils is frequently found, suppuration in the cervical nodes is not uncommon. The duration of the enlargement varies in different patients, and I am convinced that the nodes resolve much more quickly in certain diseases than in others. Resolution may take place in ten days' time from the onset of the disease, and, on the other hand, it may not be complete until the expiration of three months.

I am satisfied that as soon as a child is exposed to and contracts an acute infectious disease the poison is carried at once through the tonsils into the lymphatic system, and the nodes in three to four days' time begin to enlarge, and probably sooner. However, where a local inoculation is found, as in erysipelas, vaccination, etc., the absorption is at the point of inoculation.

I have tabulated cases of the following infectious diseases: Measles, glandular fever, rubella, chicken-pox, mumps, whooping-cough, scarlet fever, diphtheria, and erysipelas.

I may state here that an examination of the nodes in several children before and after the inoculation of the vaccine virus revealed an enlarged condition of the nodes in about three days' time.

Each infectious disease presents, more or less, something peculiar as regards the involvement of the nodes, so that it will be advisable to review each separately.

Measles.

As already stated, one can detect enlargement of the nodes seven to eight days before the rash appears; this is three to five days after the absorption of the particular poison.

Case III (see table).—In this case the nodes were found to be enlarged on May 20th; there was no cough, no rash, and no Koplik's spots. The sister was suffering from measles at the time, and I made a diagnosis of incubating measles, and expected the rash to appear in about seven days' time. On May 23rd the nodes were considerably larger, and Koplik's spots present, yet no rash had developed. By May 27th the rash was well out, the nodes now being quite large and tender, the temperature being 102° F., and pulse 120—in fact, a typical case of measles. Resolution in this case took place about June 15th.

Case IV.—K. McT., aged 6, showed a severe attack of measles on April 27th. Profuse rash, temperature 104.4°, pulse 120. The enlargement of the nodes was well marked, resolution not being complete until May 25th.

Case V.—On June 29th W. D. developed an average attack of measles, with well-marked enlargement of the nodes, especially in the right and left axillae, when they were very large and extremely tender on handling. No Koplik's spots could be found. On June 30th the nodes were the same size, but not so tender.

Case VI.—On May 15th David B., aged 7, who had been exposed to the contagion of measles, was examined and found to have general enlargement of the nodes. No Koplik's spots. I expected measles would soon develop. On May 18th the rash appeared.

Case VII.—On May 3rd P. B., aged 5 years, developed a very mild attack of measles, temperature being only 99.4°, pulse 88. Nevertheless, all the nodes were enlarged.

In measles the enlargement of the nodes is always present, and well marked in the cervical, axillary, and inguinal regions, also very tender. The greatest enlargement is found in the axillae, and particularly on the left side. The involvement is most marked in a child who suffers from a good average attack, although (as pointed out in Case VII) even in the mildest types there is no difficulty in detecting the condition if carefully looked for. The nodes are extremely tender in some children, especially in the axillary and inguinal regions (see Case V).

In my list there are four cases of haemorrhagic measles, the nodes being enlarged in every case, but not more so than in an ordinary attack.

As long as the temperature is high and the rash well out the nodes remain large and tender, the first sign of improvement taking place when the temperature falls to normal, the nodes remaining the same size but the tenderness much less. No diminution in the size of the node takes place until six or seven days after the appearance of the rash. Resolution then begins, but is not complete until the twentieth or the thirtieth day after the onset of the disease.

Glandular Fever.

In the *Archives of Pediatrics* for January, 1906, I reported 12 cases of this disease. Since that time I have come across 20 other cases of this fever. The enlargement commences in the anterior and posterior cervical nodes, and we soon find the axillary and inguinal nodes to be involved. The nodes are early enlarged, but not painful until they reach the size of a bean, when they become very painful. Suppuration, as a rule, does not take place, resolution taking place in from ten to thirty days.

Scarlet Fever.

It will be observed on reference to my reported cases that the milder the attack of scarlet fever the less pronounced is the enlargement of the nodes.

Case I.—A. T., aged 9, developed a mild attack on May 15th, 1906, with a temperature of 99.6°. The nodes were not seriously involved, resolution being complete on May 30th.

Case II.—J. K., aged 5 years, developed an average attack on May 4th, 1906, with a temperature of 102° and pulse 112. Here the nodes were very much enlarged, whole chains being involved, and especially marked in the axillae. Resolution took place only on about the thirtieth day.

Case III.—W. B., aged 6 years, was admitted to St. Paul's Hospital on April 18th, 1906, during the stage of desquamation, the temperature then being normal. I examined the child for the first time on May 19th, a month after the appearance of the rash. At this time resolution was far from being complete.

In an attack of average severity of scarlet fever the enlargement is not most marked in the cervical nodes, as might be expected, but is more pronounced in the axillary and inguinal regions.

I may state that every case I examined at the different stages of the disease presented enlargement of the nodes. Resolution is not complete until the end of desquamation, and as a rule takes place earliest in the cervical nodes. In some of the cases examined by me at St. Paul's Hospital I found desquamation to be practically complete, the cervical nodes being normal in size, yet the inguinal and axillary nodes still showed slight enlargement. Again, in scarlet fever we may find practically no enlargement of the cervical nodes, but on examining the axillary and inguinal regions it is found to be well marked.

Chicken-pox.

Several points worthy of note may be mentioned:

1. Frequently no enlargement of the cervical nodes can be found in this disease; the greatest enlargement is found in the axilla, while the inguinal nodes rarely escape.

2. The younger the child the less the involvement of the nodes.

3. The more pronounced the symptoms and more profuse the rash the greater the involvement of the lymphatic system.

Case I.—Baby W., aged 1 year, developed chicken-pox on July 1st, 1906. Temperature normal. The nodes were certainly enlarged, but this was not marked owing to the sparseness of the rash and the age of the child.

Case II.—Mabel W., aged 5, sister to Case I, developed the disease on June 26th, and on examination of the patient I found only six to eight small vesicles on the body. On this date the nodes were not much involved, but on July 1st the rash was profuse, the nodes much enlarged, and more especially in the axillae, where whole groups were involved and tender.

Case III.—H. W., aged 6, sister to Cases I and II, presented a profuse rash; the enlargement of the nodes was well marked, especially in the axillae.

Rubella.

Unfortunately, during the last four months I have had only a few cases of this disease under observation. In this disease the involvement of the nodular system is general, and, as a rule, is always present. In fact, it ranks with measles in regard to nodular infection, the nodes being large and tender, and especially marked in the axillae; resolution being complete from 15 to 35 days.

Case I.—L. H., aged 16 years, developed this disease on May 18th, 1906, the nodes being large and tender. Resolution was complete in twenty-five days.

Case II.—D. M., aged 6 years, on May 9th developed a fairly severe type of rubella, temperature being 101° F. and pulse 104. Most of the nodes were enlarged and very tender, whole chains being involved.

Mumps.

Here we find the whole nodular system to be involved, and, in many cases, it is very marked in the axillae, especially on the left side.

Case I.—M. F., aged 6 years, on June 29th, developed a temperature of 104° F., and pulse 130. The right parotid was found to be much swollen. The nodes in different regions of the body were both large and tender, and most marked in the axillae.

Case II.—K. N., aged 28 months, on April 7th, 1906, developed mumps on both sides of the face. The enlargement of the nodes was well marked, but not nearly so much as in Case I. On April 19th the nodes were smaller, but not fully resolved.

Whooping-Cough.

In this disease we do not find much involvement of the nodes until the spasmodic stage is reached.

As will be observed in Case I, the boy, who had reached the spasmodic stage of this disease, presented well-marked enlargement of the nodes. At the same time I examined the little sister, who was still travelling through the catarrhal stage and presented practically no signs of enlargement.

Case I.—P. H., aged 6 years, who had reached the spasmodic stage of this disease on May 19th, 1906, presented a well-marked enlargement of the nodes.

I may state that the involvement of the nodular system is not as well marked in whooping-cough as in measles, however, on careful examination some enlargement of the nodes is generally found. It is more pronounced in the spasmodic stage in children over 4 years of age.

Diphtheria.

Diphtheria presents three peculiarities worth noting:

1. The enlargement of the cervical nodes is much less marked than that of the axillary and inguinal regions. In some cases it was difficult to detect enlargement in the cervical nodes, while this was well marked in the axillary and inguinal regions.

2. The younger the child the more difficult it is to detect the enlargement of the nodes. From the ages of 4 to 15 we find the greatest involvement of nodes.

3. Influence of the antitoxin on the resolution of the nodes. They begin to resolve in about two days after the injection of the antitoxin; and in the list of cases of diphtheria it is seen that resolution is well advanced by the seventh or eighth day after injection, and fairly complete by the twelfth to the seventeenth day. In other words, the injection of antitoxin produces an early resolution, but I have not had the opportunity of observing the difference between large and small injections of antitoxin in diminishing the size of the nodes. The cervical nodes seem to resolve first.

4. Severity of attack is no index of the amount of enlargement of the nodes. In severe types with considerable mucous membrane involved we may find practically no enlargement of the cervical nodes and only slight involvement of the axillary nodes. On the other hand, in mild cases we find at times considerable enlargement. Laryngeal diphtheria produces only slight enlargement of the different nodes.

Case I.—J. D., aged 4½ years, developed diphtheria of the tonsils and uvula on April 30th, when the antitoxin was injected. This child was examined by me at St. Paul's Hospital on May 5th, when I found the nodes in the different regions to be quite large.

Case II.—A. H., aged 13 years, developed diphtheria, July 31st, 1906, the tonsils and uvula being covered with diphtheritic membrane. This case was of a severe type; all the nodes were enlarged, but only slightly in the cervical region. After the injection of antitoxin the nodes became smaller from day to day, and the swelling had practically disappeared by the fifteenth or sixteenth day.

Erysipelas.

I have examined only six or seven cases of erysipelas. The following points were noticed: (1) In erysipelas neonatorum the nodes could not be detected to be enlarged. This was a fatal case which ran an acute course; the child developed numerous abscesses, dying from an infectious peritonitis. (2) In children under 1 year of age the nodes are not found to be enlarged. (3) In people over 60 years it is difficult to detect enlargement. (4) They are certainly markedly enlarged in patients between the ages of 2 and 45 years. (5) Resolution in some cases is not complete until three to four months' time. (6) In most cases the nodes will be found to be enlarged some days before rash appears.

My opinion is that when a patient develops a second attack of erysipelas within three to four months' time the poison still remains in the nodes, and only requires some lowering of the vitality to assert itself.

Case I.—M. C., aged 12 years, developed erysipelas on May 2nd. At this time the cervical nodes were found to be enlarged, those in the axilla being very much enlarged, whole chains being involved in the inguinal region. This child was examined every week, when the nodes were found to be still enlarged on August 7th.

Case II.—M. C., aged 25 years, developed erysipelas on about April 24th, the left side of face and head being affected. All the nodes were found to be enlarged. On May 10th the nodes were practically in the same condition.

Vaccination.

I have vaccinated several patients and examined the nodes before and after inoculation, and found them to be enlarged after the introduction of the vaccine, especially those of the axillary and inguinal regions, the enlargement being much more marked on the side of inoculation.

Measles.

Name.	Age.	Temperature.	Pulse.	Koplik Spots.	Remarks.
Case I G. L.	4 years	103°	125	Not present	Universal enlargement of nodes, with considerable tenderness.
Case II W. McT.	8 years	100.4°	114	Not present	Nodes enlarged. Very much so in axillae. Extreme tenderness.
Case III M. S.	6 years	103.4°	144	Present	May 20. Nodes all enlarged. No cough. No rash. No temperature. May 23. Temperature 103.4°. Pulse 144. No rash. Nodes larger. Koplik spots. May 27. Rash fully developed. Haemorrhagic measles.
Case IV K. McT.	6 years	104.4°	120	Present	Nodes all enlarged. Resolution in thirty days.
Case V W. D.	6 years	101°	110	Not present	Nodes all enlarged. Very tender.
Case VI D. B.	7 years	101°	110	Not present	May 15. No rash. Nodes all enlarged. May 18. Rash profuse.
Case VII P. B.	5 years	99.04°	88	Not present	Very mild type. All nodes enlarged.
Case VIII C. L.	4 years	103°	136	Not present	All nodes enlarged.
Case IX E. S.	5 years	103.2°	144	Present	Nodes very large and tender. Resolution in twenty-four days.
Case X B. M.	6 years	104°	132	Present	Severe type. Nodes much enlarged.
Case XI J. S.	7 years	102.8°	144	Present	Nodes all enlarged. Resolution in twenty-two days.
Case XII B. B.	6 years	102°	116	Present	Well marked enlargement of nodes.
Case XIII M. S.	5 years	103°	130	Present	Nodes very large and tender. Haemorrhagic measles. Sister to Case III.
Case XIV M. L.	23 years	102.04°	96	Present	Nodes large and tender. Resolution in twenty-five days.
Case XV A. B.	5 years	103.6°	120	Present	May 15. Nodes enlarged. No rash. No Koplik. No fever. May 18. Rash profuse.
Case XVI L. J.	3 years	100°	101	Present	June 26. Temperature normal. All nodes enlarged. June 29. Rash well out.
Case XVII E. J.	5 years	101°	112	Present	June 26. Nodes involved. No rash. July 1. Rash well out.
Case XVIII A. J.	1½ years	100°	110	Present	All nodes involved. Resolution in eighteen days.
Case XIX S. B.	6 years	103°	120	Not present	June 26. No rash. No Koplik. Nodes all involved. No fever. June 29. Rash.
Case XX E. B.	7 years	103.4°	118	Present	All nodes enlarged. Resolution in twenty days.

Rubella.

Name.	Age.	Temperature.	Pulse.	Remarks.
Case I M. C.	3 years	Normal	Normal	Well-defined rash. Enlargement of nodes characteristic.
Case II G. W.	3 years	—	—	Rash well defined. All nodes enlarged.
Case III M. B.	24 years	—	—	Nodes enlarged. Rash well marked. Resolution twelve days.
Case IV L. H.	16 years	—	—	Well-defined rash. Nodes large and tender. Very large in axillae. Resolution in fifteen days.
Case V D. M.	6 years	101°	104	Rash well out. Nodes very large and extremely tender. In left axilla as large as filbert nut. Resolution twenty-five days.
Case VI R. P.	9 years	Normal	Normal	Marked enlargement of nodes, which were extremely tender.
Case VII B. L.	1 year	—	—	Very mild attack. Nodes only slightly involved.

Glandular Fever.

Name.	Age.	Temperature.	Pulse.	Remarks.
Case I H. P.	4 years	101.2°	110	Cervical nodes, anterior and posterior, much enlarged. Not so marked in axillary and inguinal regions.
Case II F. P.	7 years	99.2°	90	Mild attack with well-marked enlargement of nodes. Four children in this family have the disease. Second attack for this boy.
Case III J. P.	12 years	100.2°	110	Well-marked enlargement of nodes. Second attack.
Case IV B. P.	2 years	101°	120	Nodes very large and extremely tender, especially in neck.
Case V L. M.	6 years	—	—	Nodes quite large in all regions.
Case VI G. G.	7½ years	103°	120	Nodes all enlarged. Especially in neck, where they were very tender. Resolution about thirty days.
Case VII G. N.	1½ years	103°	120	February 25. Nodes in neck large and tender. February 26. Temperature 104° and pulse 132. All nodes involved.
Case VIII E. P.	6 years	100.8°	108	Nodes all involved. Most marked in neck.
Case IX V. B.	4½ years	—	—	Nodes much swollen and painful.
Case X H. S.	5 years	—	—	Nodes large and tender.
Case XI W. S.	3 years	101.4°	130	Nodes large and tender.
Case XII L. McN.	2 years	103°	132	Nodes large and tender.
Case XIII J. G.	7 years	—	—	Nodes very large and painful. Marked in neck.
Case XIV G. M.	10 years	—	—	Nodes in neck large and tender. Same in axilla and groin. Resolution about thirty days.
Case XV S. B.	10 years	102.6°	120	Nodes very large and extremely tender. Most marked in axilla.
Case XVI M. D.	16 years	102°	116	Nodes are large and tender.
Case XVII B. D.	9 years	103°	120	Nodes very large and tender.

Chicken-pox.

Name.	Age.	Temperature.	Pulse.	Remarks.
Case A G. J.	6 years	Normal	Normal	Diffuse rash. Nodes well enlarged.
Case I B. W.	1 year	—	—	Only few vesicles out. Not a marked enlargement of nodes.
Case II M. W.	5 years	Normal	Normal	On June 26th only six to eight small vesicles developed, and nodes not much enlarged. July 1. Rash well out, and nodes much enlarged, especially in axillae.
Case III H. W.	6 years	—	—	Body covered with vesicles. Nodes very much enlarged.
Case IV B. P.	4 years	—	—	Only few pocks developed, and only slight enlargement of nodes. Resolution eighteen days.
Case V B. W.	2 years	—	—	Pock profuse. Nodes quite large.
Case VI B. P.	8 years	Normal	Normal	Body covered, and nodes very much enlarged. Resolution in twenty days.
Case VII D. W.	4½ years	100°	104	Body well sprinkled with pocks, and nodes much enlarged.
Case VIII M. S.	6 years	—	—	Body well sprinkled. Whole of nodes involved, especially marked in axillae and inguinal regions. Resolution twenty-five days.
Case IX G. L.	6 years	—	—	Many pocks to be seen. Nodes enlarged and very tender in axillae. Resolution eighteen days.
Case X V. H.	3 years	—	—	Whole body well sprinkled. All nodes enlarged. Resolution fifteen days.
Case XI E. L.	9 years	—	—	Body well sprinkled. All the nodes are large and tender.

Erysipelas.

Name.	Age.	Temperature.	Pulse.	Remarks.
Case I M. C.	12 years	103°	128	Both sides of face involved. Nodes very much enlarged. Resolution over three months.
Case II M. S.	25 years	103.2°	120	Left side of face and head involved. Nodes enlarged. Resolution over two months.
Case III G. A.	34 years	99.2°	100	Nodes involved some days before rash developed. Slight attack.
Case IV H. S.	25 years	101°	108	Left side of face and head. Average attack. Nodes involved.
Case V Mc C.	50 years	—	—	Developed three attacks within nine months' time. Nodes enlarged for this period.
Case VI Baby R.	2 weeks	104.4°	150	Erysipelas neonatorum. Nodes not enlarged. Fatal case.

Mumps.

Name.	Age.	Temperature.	Pulse.	Remarks.
Case I S. M.	3 years	—	—	Right and left parotids both involved. Enlargement of nodes well marked.
Case II M. F.	7 years	104°	130	All the nodes very large and tender. Right and left parotids involved.
Case III K. N.	28 months	—	—	Right and left parotids involved. Nodes quite large. Resolution twenty-five days.
Case IV C. N.	8 years	—	—	Right and left parotids involved. All nodes enlarged. Resolution about eighteen days.
Case V W. N.	5 years	—	—	Right and left parotid involved. Nodes quite large, and remained so for after fourteen days.
Case VI M. S.	8 years	100°	116	Left parotid involved. Well-marked enlargement of nodes. Resolution in about twenty days.
Case VII D. G.	10 weeks	102°	130	Left parotid involved. Nodes very large.
Case VIII M. C.	15 years	102°	118	Both parotids involved. Nodes enlarged and tender.

Whooping-cough.

Name.	Age.	Temperature.	Pulse.	Stage of Disease.	Remarks.
Case I P. H.	6 years	—	—	Spasmodic	Enlargement of nodes well marked.
Case II J. S.	5 years	—	—	Spasmodic and declining stages	Enlargement of nodes well marked in both stages.
Case III D. W.	4 years	—	—	Declining	Nodes enlarged.
Case IV L. B.	21 years	100.4°	104	Spasmodic	Enlargement of nodes well marked in axillae and inguinal regions.
Case V M. S.	6 years	—	—	Spasmodic	Enlargement of nodes well marked.
Case VI M. S.	10 months	—	—	Spasmodic	Axillary nodes involved.
Case VII M. J.	9 months	—	—	Spasmodic	Could only detect enlarged nodes in left axilla.
Case VIII M. M.	6 years	—	—	Spasmodic	Nodes only slightly involved.
Case IX B. J.	7 years	—	—	Spasmodic	Well-marked enlargement of nodes.
Case X S. H.	3 years	—	—	Catarrhal	Difficult to detect enlargement of nodes.
Case XI C. B.	4 years	—	—	Spasmodic	All nodes enlarged.
Case XII B. B.	8 years	—	—	Spasmodic	All nodes enlarged.
Case XIII B. R.	16 months	—	...	Spasmodic	Nodes all enlarged except cervical.
Case XIV T. de R.	3 years	—	—	Spasmodic	All nodes enlarged and tender.

Scarlet Fever.

Name.	Age.	Temperature.	Pulse.	Remarks.
Case I A. J.	9 years	99.6°	72	Mild attack. Nodes only slightly involved. Resolution complete in fifteen days.
Case II J. K.	5 years	102°	112	Rash well marked. Nodes much enlarged, especially in both axillae.
Case III M. B.	6 years	—	—	Saw this child after one month's time, and the nodes still enlarged
Case IV M. F.	7 years	104°	130	Rash appeared on May 15. Nodes quite large, except in cervical region.
Case V I. H.	9 years	104°	130	Severe attack. Rash April 29. Nodes quite large, and on May 19 still some enlarged.
Case VI A. O.	21 years	101°	98	Rash, May 16. Nodes quite large.
Case VII B. N.	5 years	103.3°	100	April 28. Rash. Nodes quite large. May 19. Enlargement still marked.
Case VIII P. T.	11 years	101°	108	May 15. Rash. Nodes very large. May 18. Nodes in same condition.
Case IX H. W.	10 years	102°	108	Rash. May 14. Nodes very large. Resolution in about thirty days.
Case X D. G.	3 years	103°	130	Nodes enlarged. Resolution in about ten days.
Case XI G. L.	8 years	102°	130	April 28. Rash. Nodes quite large. Some enlargements still remain May 19.

Diphtheria.

Name.	Age	Temperature.	Pulse.	Surface Involved.	Date Antitoxin.	Remarks.
Case I J. B.	Yrs. 4½	100.2°	104	Tonsils and uvula	April 30	May 5. Nodes still remained much enlarged.
Case II B. J.	4	101.4°	120	Tonsils and uvula	April 22	Nodes well enlarged, and on May 5 normal in size.
Case III E. L.	4	99.2°	—	Tonsils	April 20	Nodes quite large and still remain so on May 5.
Case IV K. S.	5	100.4°	—	Tonsils and uvula	April 28	On May 5 only slight enlargement of nodes remaining.
Case V M. B.	9	100°	—	One tonsil	April 28	Nodes enlarged. Nearly normal in size May 5.
Case VI H. A.	7	100°	—	Tonsils	May 4	May 5. All nodes enlarged.
Case VII T. M.	7	102.6°	—	Larynx	April 18	May 5. Nodes nearly normal in size.
Case VIII E. B.	6	100.2	—	Tonsils and uvula	April 23	Nodes quite large, and on May 5 cervical nodes normal in size, but axillary and inguinal remain enlarged.
Case IX J. W.	2½	107.1°	—	Larynx	April 29	Cervical nodes not much involved. Axillary and inguinal quite large. On May 5 cervical nodes normal in size.
Case X A. D.	3	100°	—	Larynx	April 30	Cervical nodes not much involved. Axillary and inguinal nodes quite large, and on May 5 much smaller.
Case XI A. D.	3	102°	—	Tonsils, uvula, and larynx	April 30	May 5. Enlargement of nodes still well marked.
Case XII W. L.	1½	—	—	Tonsils, uvula, and nose	April 27	Cervical nodes only slightly enlarged. Axillary and inguinal well marked at this time. May 5, cervical nodes normal in size. The axillary and inguinal nodes remain enlarged.

SUPPURATION.

Does suppuration take place in the nodes in infectious diseases? I do not think that it takes place in any of the infectious diseases mentioned—that is, when we are only dealing with the particular poison of that disease; but, no

doubt, suppuration may take place, and often does so, in the cervical nodes in diphtheria and scarlet fever when a mixed infection is carried through the tonsils into those nodes.

We now come to the question, Why do the nodes become enlarged in infectious diseases? Is the enlargement produced by the irritation of the rash which accompanies most infectious diseases? Decidedly no, for the following reasons: (1) The nodes are enlarged for some days before the rash appears; (2) in infectious diseases presenting no rash, such as mumps, glandular fever, diphtheria, and whooping-cough, the nodes are enlarged; (3) sometimes the less pronounced the rash the greater the enlargement; (4) in erysipelas, where the rash may be confined to the face, the inguinal and axillary nodes are much involved.

I admit that in mild chicken-pox, where only a few vesicles appear, the nodes are not nearly so large as in the case where we have a profuse rash. This is no evidence that the enlargement is due to the irritation of the rash, but points to its being caused by the absorption of a greater dose of the poison. In this disease the extent of the rash is an index of the amount of poison absorbed.

If the condition of the nodes is not due to the irritation of the rash, there must be some other cause for it. I do not hesitate to state that the enlargement or inflammatory condition of the nodes is produced by "the irritation of the particular poison or toxin of that disease."

The question arises, How or through what channel do we absorb the poison, or whatever it may be, of infectious disease? I can imagine only one portal of entry, and that is the tonsil.

As we all know, infectious diseases are not common in the nursing infant, and it is supposed that the mother's milk exerts some special influence, or has some antitoxic power. No doubt this may be so, but the most important point is that the tonsil of the infant does not readily absorb poisons, as it is small and not very active.

The same applies to the adult over 40 years, who, as we know, does not readily contract infectious diseases. The reason is that the tonsil atrophies after a certain age, and resembles the infantile type of tonsil. This does not apply to erysipelas, where one can look for local inoculation.

Why are infectious diseases most common between the ages of 2 and 20? Between these two periods of life the tonsils are larger and are prone to take on inflammatory action, and are thus in a condition to absorb readily any poison which enters by the mouth.

I am of the opinion that, if a child's mouth is kept clean, and if tonsils and adenoids are removed when enlarged, infectious diseases, including tuberculosis, would be much less frequent.

Conclusions.

To sum up:

1. The nodes are enlarged in infectious diseases.

2. They are enlarged some days before the development of the disease. I have found them to be enlarged and tender seven days before the rash of measles appeared.

3. The enlargement is most marked between the ages of from 3 to 18 years.

4. The enlargement is not produced by the irritation of the rash, but is due to the absorption of the poison or toxin.

5. As a rule nursing infants do not contract infectious diseases readily, as the tonsils are small and inactive.

6. The tendency to contract infectious disease would be much lessened if the mouth and tonsils were in a healthy condition.

7. The enlargement of the nodes is more marked in certain infectious diseases than in others. For instance, they are larger in erysipelas, measles, and rubella than in scarlet fever and whooping-cough.

8. They resolve more quickly in diphtheria under the influence of antitoxin than they do in measles and erysipelas.

9. In all infectious diseases (except those of local inoculation) the poison most likely enters the system through the tonsils.

10. Suppuration does not take place in the nodes unless we are dealing with a mixed infection.

Finally: When called to see a child suffering from an infectious disease, it is one's duty to examine the other children in the family who have been exposed, and, if the nodes are found to be enlarged, they too should be isolated immediately, and thus do away with the dangerous custom of billeting children upon friends and relatives, with the inevitable result of spreading the disease broadcast. I am satisfied that in the future the practice of isolating children already suffering from infected nodes will largely do away with epidemics in public schools.

A glance at the mortality tables of all our large cities will show a high death-rate from infectious diseases, and the early recognition of infectious diseases by means of the node involvement would result in these precautions, which would prevent the spread of the disease, thus materially reducing the death-rate resulting from infectious diseases.

My best thanks are due to Dr. Leduc, superintendent of St. Paul's Hospital, Montreal, for allowing me to have free access to the wards of that institution.

SECTION OF STATE MEDICINE.

Frederick Montizambert, M.D., D.C.L., President.

PLAGUE PROCEDURE IN HONG KONG.

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Although, fortunately, plague has not made its appearance in Canada, it occurred to me that a paper dealing with plague procedure might prove of interest to the members of the Association, some of whom, namely, members of the Indian Medical Service and of the Royal Army Medical Corps, have been actively engaged in combating this disease.

The procedure now in force in Hong Kong is as follows:

1. Notification.
2. Isolation.
3. Disinfection.
4. Segregation of contacts.
5. Cleansing operations.

A return showing the number of plague cases known to have occurred in the colony from 1895 to 1905, and a copy of the regulations in force in 1904, are appended to this paper (see Appendix A and Appendix B), as also a series of photographs kindly supplied to me by Dr. Pearse, Medical Officer of Health.

1. With reference to *notification*, the main trouble with us has been that the Chinese will not notify the disease; they prefer to hide the case, and when the patient has died to watch their opportunity and "dump" the body in the streets. This applies to persons dying from other infectious diseases, such as small-pox, diphtheria, etc.

That it is to a great extent due to the dread they have of the disinfecting operations is proved by the fact that the percentage of "dumped" bodies increased very considerably after the enforcement in 1903 of disinfecting the houses on either side of the houses in which plague rats had been found, as recommended by Professor Simpson; for example, the percentage of "dumped" bodies was 25.1 in 1898 as compared with 32.7 in 1903.

2. *Isolation.*—Those attacked by the disease are treated in the infectious diseases hospitals at Kennedy Town, one a Government institution on Western lines, the other a native branch of the Tung Wah hospital, administered by the Chinese themselves, but of course under our sanitary supervision. It is proposed to establish cottage hospitals all over Victoria and in Kowloon should the disease again become epidemic, so as to overcome, if possible, the innate aversion of the natives to European methods.

3. *Disinfection.*—This is rigidly enforced, and in order to overcome the aversion of the Chinese to disinfection in 1903 compensation was given for any damage done to clothing. "Kai Fong" were appointed, who, together with the Sanitary Inspector, considered the claims; these were afterwards considered by a Committee of the Board consisting of the President and the two Chinese members, who appraised the amount to be given. Notwithstanding this the "dumping" still continued.

4. *Segregation of Contacts.*—At the commencement of an outbreak the infected premises are evacuated and the residents kept under medical supervision for twelve days, they being allowed to carry on their usual avocations during this period.

5. *Cleansing Operations.*—In the spring of 1903 the Governor, Sir Henry Blake, decided to endeavour to obtain, if possible, the co-operation of the Chinese in the work of sanitation.

He took over a district in the most plague-stricken portion of the city, and endeavoured to show what could be done by a thorough cleansing of the houses and clothing by the people themselves. As a practical result the Chinese henceforth co-operated in the "cleansing operations," and at the beginning of the winter of 1903-4 it was determined to effect a general cleansing of the houses by the people themselves. Hot water in portable boilers was supplied, also soft soap and Jeyes' fluid; and practically by the end of February, 1904, every floor of every Chinese house had been cleansed, and when it is remembered that there are over 7,000 Chinese houses in Victoria, the magnitude of this work can be seen. The procedure was as follows:

Each householder received a notice in writing stating that in two days' time a visit of inspection would be paid by the sanitary authorities, and if the premises, etc., were found dirty, they would be cleansed by the sanitary staff.

Those notices were sent seriatim to the different houses, commencing with each health district simultaneously. In very few instances—less than half a dozen—was it found necessary to enforce this.

In February, 1904, it was determined to continue this cleansing, as very few cases of plague had occurred. This was practically continued until September of that year. In this way every house in the city was cleansed at least twice or thrice.

Whether the result of this cleansing or no, it is a fact that 1904 was a lighter plague year than any since 1897, only 506 cases occurring. Cleanliness is undoubtedly the bed-rock of sanitation, and to ensure cleanliness of persons, houses, etc., the co-operation of the people must be secured, this being more especially so when one has to deal with an alien race.

It has often been stated, especially by non-medical persons, that sanitary measures have effected practically nothing in dealing with this disease, as the epidemics arise, attain their height, and wane in the same way in Canton as in Hong Kong.

As regards 1904 this was not so, as the disease was more prevalent that year in Canton and the surrounding districts than in any year since 1894.

We cannot expect to be able to stamp out plague from Hong Kong, seeing how next to impossible it is to prevent the introduction of cases from outside. Our experience in 1904 certainly shows that much can be accomplished by cleansing; but when one considers the form of the Chinese tenement houses—namely, long, narrow buildings, some of them 60 ft. to 70 ft. deep and 13 ft. wide—it will be seen that it is only by their reconstruction on improved plans and by the rigid prevention of overcrowding that this or any similar infectious diseases can be stamped out of Hong Kong. This will be necessarily a slow process, but it is being steadily effected by means of the new Public Health and Buildings Ordinance, which was passed in 1903, and by the Government each year resuming some of the most insanitary areas of the town.

Situated as Hong Kong is, we shall always be liable to reinfection from the neighbouring country; the disease is endemic now in Canton, Swatow, Macao, and the Philippines, and, seeing how intimate the river communication is—2,000 to 3,000 passengers arriving and leaving daily by the Canton River steamers alone—it will be seen how impracticable any quarantine measures can be.

Our sheet-anchor must be cleanliness and the improvement of the sanitary condition of the houses.

With reference to plague serums, Haffkine's prophylactic has been used, but the Chinese will not avail themselves of this.

I am taking out with me some of Klein's new antiplague vaccine for trial.

The accompanying photographs illustrate the cleansing methods in operation in the streets and houses of Hong Kong.

[The President, Dr. Frederick Montizambert, expressed himself as surprised that the medical authorities had been able to induce an alien race like the Chinese to co-operate in the "cleansing operations."]

APPENDIX A.

Table Showing the Number of Cases of Plague known to have Occurred in the Colony of each Month from 1895 to 1904.

Month.	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904
January	—	49	—	9	1	8	7	1	4	—
February	—	125	—	67	2	8	14	1	29	3
March	—	168	—	137	25	5	54	2	115	4
April	3	316	—	468	101	94	160	27	272	40
May	2	344	3	534	421	326	701	157	515	135
June	13	113	1	92	514	325	551	194	343	194
July	2	52	11	7	263	209	109	131	85	96
August	4	25	1	2	86	80	27	50	32	19
September	3	9	1	1	57	16	24	2	9	9
October	—	2	—	2	4	12	1	2	5	*Nil*
November...	5	1	2	—	1	2	1	1	4	5
December	12	—	2	1	11	2	2	4	2	5
Totals	44	1204	21	1320	1486	1087	1651	572	1415	506

APPENDIX B.

PLAGUE PROCEDURE, 1904.

1. On finding a suspicious case of plague, notify the M.O.H. at once.

2. Removals of sick must be to the district hospitals when they are established, or to the existing hospitals, as may be decided by the M.O.

3. When a guard is required the police must be applied to, the District Watchmen's Committee being unable to arrange for the employment of district watchmen. Further, when any one reports a case of sickness or a death in a house voluntarily, the guard, pending the diagnosis of the case, may be dispensed with, provided that the occupants of the infected floor are willing to give their clothes up for disinfection at once. In such a case the tenants of the infected floor will be free to go where they like after giving up their clothing, and if the case should be returned as one of plague the disinfection of the floor can then be proceeded with.

4. On receiving confirmation of the suspicion of plague in a house proceed without delay to the house with the necessary assistance and equipment, and disinfect.

5. The disinfecting operations are to be confined to the floor in which the case occurred, unless there is reason to believe that the sick person frequented other floors.

6. The whole of the house should, however, be cleansed, and the tenants of the non-infected floors may do this themselves if they are willing. Disinfecting fluid (Jeyes') to be given for this purpose.

7. In cases where it is considered necessary to pull down ceilings, etc., in other than infected floors, the tenants may, if they wish, assist by first removing their furniture and afterwards clearing away the débris; but the Board's officers must see that the débris is properly sprayed before removal, so as to lay the dust, and that the débris is put into the dust carts and not made use of by the people. The joints, etc., bared by such removal of ceilings or linings should also be sprayed.

8. The cleansing and disinfection of the infected floor must be wholly done by the Board's officers.

9. People turned out of houses on account of plague must always be offered shelter in the blocks of houses rented by the Board for this purpose, and help in the removal of their effects to such shelters must be offered.

10. The disinfecting operations are to be done in the manner and order laid down in the attached directions.

Disinfection of Infected Premises.—This is carried out by a European officer assisted by eight coloured foremen, a Chinese foreman, and a varying number of coolies. As soon as it is known that a case of the disease has occurred at any house, a Chinese constable is sent from the nearest police station to detain all persons found therein (By-law 22, Ordinance 15 of 1894), and the officer in charge of the disinfection proceeds to the house to ascertain how many persons are detained there. He then procures, either from the matshed at Praya East or from the disinfecting station, as many suits of Government clothing as are needed for the persons so detained, and having thus provided these persons with clothing he removes their own clothing, bedding, curtains, and carpets to the steam disinfecting station, the clothing being tied up in sheets dipped in a solution of Jeyes's fluid and conveyed through the streets in baskets; persons who are able to obtain new or clean clothing from some uninfected premises are, however, not detained after they have discarded their infected clothing and handed it to the inspector for disinfection. New goods, silk clothing which has not been recently worn, furs and leather goods are not removed to the steam disinfector, but



Fig. 1.—A street in Hong Kong, showing the furniture, etc., emptied into the streets and being cleansed by the Chinese themselves.

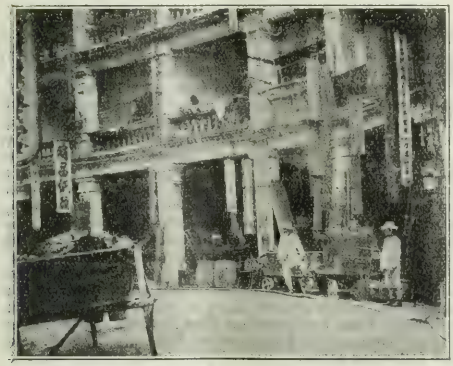


Fig. 2.—Queen's Road, Hong Kong. One of the boilers on wheels with two of the Chinese Sanitary Service coolies.

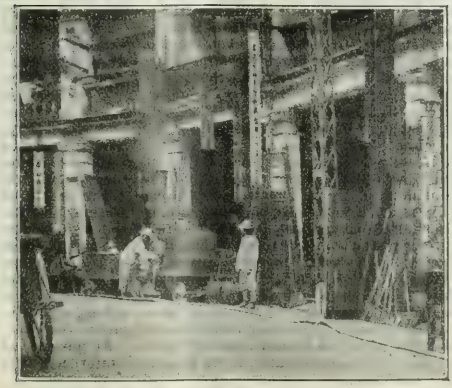


Fig. 3.—Carbolic tank and boiler. Notice the uniform of the Chinese Sanitary Staff.



Fig. 4.—A street in one of the most overcrowded districts, showing the goods, chattels, furniture, etc., in the streets.

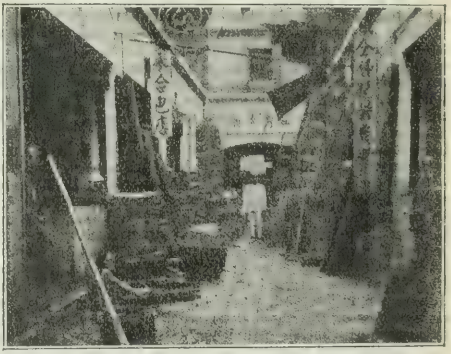


Fig. 5.—One of the back streets, or rather lanes, being cleansed.



Fig. 6.—A carbolic tank in which the bed boards are cleansed, with one of the hot-water boilers.

must as a general rule remain on the premises until they have been fumigated. When the clothing, etc., is returned (in the course of some two hours) from the disinfecting station, the persons who have been detained are required to put on their own clothing and must then leave the premises for some five or six hours while it is disinfected and cleansed. The Government clothing is returned to the disinfecting station to be steamed before it is again used. The people so displaced from their homes are at liberty to make use of the Board's matshed shelters until the processes of disinfection of the premises are complete.

The disinfection of the premises consists in the spraying of the walls with a solution of perchloride of mercury (1 in 1,000) or fumigation with free chlorine obtained by the addition of diluted sulphuric acid to chlorinated lime (1 quart of a 1 in 8 solution of the acid to each pound of the chlorinated lime). Floors and furniture are then scrubbed with solution of Jeyes's fluid and the walls are then lime-washed, chlorinated lime being added to the lime-wash in the proportion of ½ lb. to the gallon.

THE PREVENTION OF TUBERCULOSIS.

A discussion on Tuberculosis, in the Section of State Medicine, was opened by Dr. Samuel G. Dixon, President of the Academy of Natural Sciences of Philadelphia and Commissioner of Health of the Commonwealth of Pennsylvania; his paper, entitled, The Prevention of Consumption, was published in the British Medical Journal of September 15th, p. 609. By some error or misunderstanding which we regret, though we cannot accept responsibility for it, the concluding portion of the paper which was read at the meeting did not reach us. We have now received it, and gladly comply with Dr. Dixon's request that it should be published. It should take the place of the concluding lines of the paper (p. 611, left hand column, lines 25 to 35) beginning "With this opportunity granted me," etc. The passage should run as follows:

I have, therefore, been working to obtain that substance which we know produces immunity to this disease in cattle, and yet while nothing has been obtained which will warrant results being given to the world, I am tempted, because of this occasion, to suggest the line of thought upon which my new work is being executed, hoping to tempt my co-workers to help me follow out investigations to either a positive or negative conclusion.

The results of necropsies and the vaccination of cattle with tubercle bacilli have taught us that there is not only something curative but also preventive. Tuberculin is not an antitoxin. It is a diagnostic agent, and stimulates an incapsulation of tubercle foci, and also causes a special degree of febrile reaction in tuberculous animals. Therefore I am injecting cows in the tissue of the neck with 20 c.cm. of concentrated tuberculin with the idea of producing a reaction, and, while the temperature is rapidly rising, drawing the blood and separating the serum, which is tested for its active principle by being introduced into both healthy and tuberculous animals, the reaction being carefully noted. The normal serum, of course, is also being injected into check animals.

Upon second thought, I appreciated the fact that we have immunity more marked in some parts of the body than in others, which suggests the possibility of the latter containing an antitoxin; yet, so far, we have failed, as I have said, to get an antitoxin of sufficient potency to be curative. This failure is likely due to the fact that, in the first place, if it is produced by the tubercle bacillus, we have not used the right solvent. It has occurred to me, therefore, that it might be possible to obtain the antitoxin by the use of fluids from the animal (but more certainly if we take the serum from those parts of the body which are more naturally immune, like the pancreas). If this protective substance, on the contrary, is produced by the animal cells, would it not be best, in making our antituberculous serum to take the blood, not from the general economy, but from parts of the animal which show the greatest tendency to immunity; therefore, from the pancreatic vein?

Again, I am trying a line of experiments by intercepting the blood in the portal system and using solvents to extract any antitoxin that it may contain before it is acted upon by the liver.

This is an intimation of the line of work now being conducted in the very newly-created laboratories of the Commonwealth of Pennsylvania—too new, however, and the time allotted me by this Association too short to venture to give any further details upon this occasion. The results of the work, however, will be published by the State Government from time to time. Should these results be successful, I shall be content, in view of the great good which will accrue to humanity, regardless of credit to myself.

MEMORANDA:
MEDICAL, SURGICAL, OBSTETRICAL.

IODINE IN THE VOMITING OF PREGNANCY.

With reference to Dr. Rowland's memorandum on the treatment of the vomiting of pregnancy in the British Medical Journal of November 24th, 1906, p. 1490, I should like to draw attention to a very simple and, in my hands, a very efficacious remedy. It is seldom a pregnant woman consults her medical attendant for this complaint; she takes it as a matter of course, and does not believe there is any remedy. For some years past I have given tr. iodi mj in an ounce of water, to be repeated every two hours until the sickness ceases. In one or two cases no second dose was required; in the words of one patient, "it acted like magic." As a rule, three or four doses suffice, and no special diet is needed. The treatment is so simple that it is worth trying in every case, and in all mine it has been most successful. I cannot find this form of treatment named in any textbook on midwifery.

Brixton, S.W. Arthur H. W. Ayling.

CHRONIC ULCER AND CALCIUM IODIDE.

The following case of chronic ulcer seems worthy of record, partly from the simulation of epithelioma, but chiefly as showing the beneficial effect of calcium iodide.

The patient was a healthy woman aged 19, who came to the Halifax Infirmary suffering from an ulcer in the left groin. The history was that it began two months before as a boil, which burst, leaving an open sore; this was aggravated by the friction of her dress, so that on her admission it measured 1¼ in. by ¾ in. in diameter, and was oval in shape. The edges were hard, everted, inflamed, and raised one-eighth of an inch above the surrounding skin. The surface of the ulcer was smooth, and few granulations were to be seen; it was freely movable with the skin. No other sores could be found, and no history of syphilis obtained. I advised the patient to have the ulcer excised, partly from a suspicion of malignancy, but mainly because it seemed likely to be a very long time in healing. This was done on May 2nd by the Assistant House-Surgeon, Mr. Fox, to whom I am also indebted for the following notes:

An elliptical incision ½ in. from the edges of the sore was made, the ulcer completely removed, and the wound closed by three sutures of silkworm gut. Three days later, on dressing the wound, it was found that all the stitches had cut out, that the sore was consequently much larger, and that the edges both of the wound and the stitch tracks had taken the appearance of the original sore. Portions of the ulcer were separately examined by expert pathologists at Leeds and London, one saying it was probably epitheliomatous, the other that it was simply inflammatory. The patient was now put upon potassium iodide, but this had to be stopped on account of symptoms of iodism. Locally, compresses of lotio ac. carbol. were applied, and later on of lotio nigra. On May 16th treatment by means of *x* rays was begun and continued daily (exposures of fifteen minutes) until July 21st. The *x* rays lessened the induration, and for the first fortnight seemed to diminish the size of the ulcer, but for the last seven weeks had very little effect. Seeing the article on calcium iodide in the British Medical Journal by Dr. G. Arbour Stephens about that date, I decided to give it a trial, and ordered gr. iij thrice daily. In a few days improvement was evident, and this continued until September 7th, when the patient was discharged with the wound soundly healed. At the date of writing, two months later, there is no discomfort nor sign of recurrence.

Halifax. T. H. Hunt, M.D., B.S.Lond.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BIRMINGHAM BRANCH.

PATHOLOGICAL AND CLINICAL SECTION.

Birmingham, November 30th, 1906.

Professor J. W. TAYLOR, M.Sc., F.R.C.S., in the Chair.

Plastic Operation on Median Nerve.—Mr. LEEDHAM-GREEN showed a patient on whom he had performed a plastic operation on the median nerve some two and a half years ago:

The patient was a man who had been wounded in the South African war in May, 1902, by a rifle bullet which entered the right forearm from behind at the junction of the upper fourth with the lower three-fourths. In passing through the arm it shattered the radius and divided the median nerve. Immediately after the injury the patient completely lost sensation over the portion of the palm and fingers supplied by that nerve, together with the power of movement in the muscles supplied by this nerve below the point of injury. Six months later an operation was performed at Netley for the removal of a necrosed portion of the radius, but apparently no endeavour was made to unite the divided nerve. In April, 1903, the man came to the Queen's Hospital complaining of inability to earn his living on account of the loss of power and sensation in the right hand. He was admitted under Mr. Leedham-Green with a view to suture of the nerve. A free incision at the site of the injury exposed the median nerve, completely divided, in the midst of dense cicatricial tissues. The distance between the two ends of the severed nerve being too great to allow of their being brought into apposition, each end was refreshed, implanted, and sutured into the uninjured ulnar nerve. At the end of a fortnight the patient left the hospital with instructions to rub and massage the hand and arm persistently. He was lost sight of until recently, when he stated that some six months after the operation he began to feel occasional tingling sensations in the anaesthetic area, and from that time onward the sense of touch and power of movement very gradually returned.

At the present time the restoration of the function was practically complete. The anaesthesia had entirely disappeared, but on the outer side of the thumb and index finger for a limited area the sensibility was still slightly impaired. The muscular atrophy and trophic changes had disappeared and the power of movement was fully restored.

Syphilis of Palate.—Dr. LAMB showed a man with healed syphilis of the palate. There was a large hole in the hard palate, and the soft palate had been entirely destroyed. The patient was in the habit of plugging the hole in the hard palate with cotton-wool, and when this was done he suffered no inconvenience from regurgitation of either solids or liquids into the nose. The mode in which the naso-pharynx was shut off from the pharynx was clearly shown. It was seen to be effected chiefly by the action of the upper fibres of the superior constrictor, which by their vigorous contraction raised the mucous membrane of the posterior wall into a prominent transverse ridge, exactly as if the pharynx were a purse, and one had pulled the string to close it. All the time the throat was being examined this part of the constrictor was seen to be in rhythmical action, the transverse ridge of mucous membrane slowly rising and falling.

Functional Paralysis.—Dr. STANLEY BARNES showed a patient who had had functional paralysis of 24 years' duration, where the results of treatment had been most satisfactory. Mr. R. ROLLINSON-WHITAKER, under whose care the patient had been, spoke and described the surgical aspect of the condition.

Suprarenal Capsules in Chorea.—Dr. CARTER showed the suprarenal capsules from a fatal case of chorea. The capsules were extensively affected by tuberculous disease. The full details of the case were being published elsewhere.

Cancer of Uterus.—Mr. J. W. TAYLOR showed the internal genitalia extensively removed from two patients suffering from cancer of the uterus. In one case, a single woman aged 43, the patient was suffering from malignant disease of both uterus and ovary. The operation was done two years ago, and the patient continued well. In the other, a married woman aged 62, the operation was recent, and the sewing of the peritoneal flaps across the pelvic floor had apparently resulted in kinking of the ureters. The abdomen was reopened on the following day, and suturing undone. The patient was doing well. In this case the "collar" of vagina surrounding the cervix was dissected up from the vagina before removing the uterus, ovaries, tubes, and broad ligaments from the abdomen.

Appendix Vermiformis Removed from Inguinal Hernial Sac.—Mr. HEATON showed a specimen removed from a girl aged 11, who had suffered from recurring attacks of pain in the right iliac fossa and right groin for several years. She had had a small right inguinal hernia since babyhood. Three days before operation she was seized with violent pain in the abdomen and in the hernia, which had become larger than before and irreducible. The hernia was acutely inflamed and tender, and a diagnosis was made of probable torsion of an ovarian hernia. On opening the sac, which contained some turbid serum, it was found that the vermiform appendix, acutely congested and distended at its distal extremity, was imprisoned an inch. The inguinal canal was laid open and the caecum exposed, and the appendix removed in the usual manner. The sac was at the same time removed, and the inguinal canal closed in layers.

Strangulation of Appendix Vermiformis in Femoral Hernia.—Mr. GEORGE HEATON showed an appendix vermiformis which he had removed from a strangulated femoral hernia. The patient, a woman aged 55, had been seized with violent abdominal pain with vomiting three days previously. At the onset of her attack she was much collapsed. Soon after the onset of her symptoms diarrhoea set in, and continued at intervals until her admission to hospital. She had had a small hernia on the right side for many years. On admission she had an irreducible femoral hernia on the right side, and though diarrhoea was present in the place of the usual constipation, her symptoms were thought to be due to strangulation either of omentum or of an appendix, or Meckel's diverticulum. At the operation the sac was found full of offensive, darkly blood-stained serum. The vermiform appendix was found with some omentum highly strangulated at the femoral ring. The opening was enlarged, a portion of the caecum pulled down into the sac, and the appendix was amputated. She made an uninterrupted recovery.

Bronchiolectasis.—Dr. MILLER showed the lungs from a case of bronchiolectasis in a child aged 2 years. There was a condition of broncho-pneumonia over both lungs, and in the lower lobe and upper part of upper lobe of the right lung the bronchioles were obviously dilated. On microscopic examination there was found an acute inflammatory condition of the walls of bronchi and bronchioles; the latter showed marked dilatation, with extensive destruction of their elastic coats. The lung substance around was pressed upon and partially collapsed, the alveoli containing a certain amount of exudate consisting of fibrin, leucocytes, and catarrhal cells. Dr. Miller pointed out that this was a condition not commonly described or usually recognized. It was, however, a condition which tended to occur to a certain extent in all broncho-pneumonias, especially among children. In its most marked degree it had been called "honeycomb lung," and had been described and figured by Sharkey, Howard Tooth, and Ewart. The pathology of the condition was—an acute inflammation in the walls of the smaller air tubes, which led to a destruction of their elastic and muscular coats. Through coughing and accumulation of secretion, and unsupported by consolidation of the lung substance, the tubes became dilated. In the case of the larger air passages where there was cartilage present, this dilatation did not occur. The term "bronchiolectasis" appears therefore to be the most appropriate. Dr. Miller further pointed out that the pathology of the disease could not properly be demonstrated unless one or other of the elastic tissue staining methods was employed.

BIRMINGHAM BRANCH: COVENTRY DIVISION.—A meeting of this Division was held on December 4th, Mr. FAULDER WHITE being in the chair. Dr. C. E. PURSLOW read a paper on the diagnosis and treatment of abortion. Dr. Purslow dealt with the liability to mistake cases of extrauterine gestation for abortion; he mentioned the characteristics of missed abortion, fleshy mole, and incomplete abortion, and spoke of the difficulties in ascertaining if the fetus has come away. He detailed the treatment of threatened abortion, and in regard to inevitable abortion discussed the question as to whether

tents or Hegar's dilators should be used if evacuation of the uterus is necessary; he concluded that up to the fourth month either method may be used with equal safety, but that after that date Hegar's dilators are dangerous, and efforts should be made to bring about uterine action by tents or a plug in the uterus, and also in the vagina. In regard to incomplete abortion, he spoke of the danger of attempts to clear out a retained placenta when the patient is not under an anaesthetic and the os is not sufficiently open; also of curetting with the patient in bed in the left lateral position and not anaesthetized. He urged that operation was rendered much more satisfactory by using an operating table and Clover's clutch, with the patient under an anaesthetic. Dr. Phillips showed two fetuses that he had extracted from the same uterus at the same time, one apparently of 5½ months' and one of 10 weeks' development. A discussion followed, which was joined in by Drs. Davidson, Fenton, Milner Moore, J. Orton, Hawley, Soden, and the Chairman; and Dr. Purslow replied. A hearty vote of thanks was accorded to Dr. Purslow for visiting the Division and reading the paper. The meeting then resolved itself into a committee to discuss the Coventry Dispensary question.

South-Eastern Branch: Folkestone Division.—A meeting of the Folkestone Division was held on Tuesday, December 6th, at 8.30 p.m., at the Hotel Wampach. Dr. Barrett occupied the chair.—Dr. Samuel West read a paper on some clinical aspects of influenza. After giving a history of influenza, Dr. West dwelt on the complications. He said that depression was a distressing complication, which came on in a sudden manner with a subnormal temperature, and disappeared as suddenly like a crisis, and that it was remarkable that new growths sometimes appeared with the depression within a very short period. Pneumonia was a common complication which came on gradually, and was patchy, like broncho-pneumonia, in character, and spread in one part of the lung whilst it was dissolving in another. Patients occasionally spat blood, causing this complication to be diagnosed sometimes as phthisis. With regard to the heart, influenza did not cause valvular disease as a rule, but the chief cardiac symptoms were: (1) pain, either of a neuralgic or anginal character; (2) cardiac failure without pain. Among the general conditions sweating profusely was a troublesome one, which lasted weeks and sometimes for months. As to the treatment, no antipyrin or depressants ought to be given, but only stimulating drugs ought to be employed.—A discussion took place afterwards, in which the following members joined: Drs. Tyson, Lewis, Lidderdale, Sworder, Dobbs, Wainwright, and Wilgress.

Southern Branch: Portsmouth Division. — The autumn clinical meeting of this Division was held on November 22nd, Dr. Mumby (Chairman) presiding. Dr. Blackman showed a case of excessive pulsation of the abdominal aorta of neurotic origin.—Dr. Cole-Baker showed cases of entropion, ectropion, strabismus convergens, and cataract cured by operation. Dr. Carling showed a case of Raynaud's disease followed by chorea. He thought both diseases might be due to want of control of the nervo-vascular system.—Mr. Childe showed three cases of excision of the gall bladder for gall stones, and drew attention to the indications for cholecystotomy and cholecystectomy respectively for this condition.—Mr. Rundle showed a case of tumour of the thigh, weighing 22 lb., which had been successfully removed by Mr. Forde.—Dr. L. Maybury showed a case of malignant disease of the tonsil in a man aged 35, with infection of the glands on both sides of the neck. He considered it too advanced to attempt removal. He also showed a case of myxoedema subsequent to removal of the uterus and one ovary for fibromyoma six years previously.—Dr. Emmett related a case in which myxoedema had occurred after both tubes had been removed.—Mr. Rundle showed a case of gangrenous ovarian cyst due to a twisted pedicle which had been successfully removed. It presented some features resembling ectopic gestation. Dr. Carling drew attention to the dark colour of the vaginal discharge in ectopic gestation.—Mr. Ridout showed a microscopical section of mixed-celled melanotic sarcoma removed from the orbit. Eight years previously excision of the eyeball had been performed for some growth. He also showed a button removed from the inferior meatus of the nose, where it had been lodging many years, and been treated by many douches. Mr. Leslie Wright mentioned a similar experience, having removed a piece of clinker which had had a similar resting place for many years.—Dr. L. Maybury read a paper advocating treatment of haemorrhoids by the clamp and cautery, removing redundant skin in the same way. He showed various clamps. Sidney Jones's being, in his opinion, the best, to which he had added a rack for closing the blades. A discussion followed, in which the speakers differed considerably as to which was the best operation for this affection.

REPORTS OF SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Thomas Buzzard, M.D., F.R.C.P., in the Chair.

Tuesday, December 11th, 1906.

Discussion on the Operative Treatment of Gastric Ulcer.

Mr. Gilbert Barling, who commenced the adjourned discussion on the above subject, said that the patients who died after operation for perforation rarely died from want of the anastomosis from stomach to jejunum. They died because they were sent to the surgeon too late from sepsis which had passed beyond the control of the surgeon. In the early hours succeeding perforation the degree of infection was slight, but every two or three hours which elapsed before surgical intervention intensified rapidly the bacterial growth which found such favourable conditions. The intense pain usually following perforation appeared to be due simply to the scalding action of the acid stomach fluid which set up a rapid secretion of fluid from the irritated peritoneal surface and in this septic organisms, though few in number at first, developed most rapidly. Operation within from three to six hours after perforation would probably reduce the mortality to 10 per cent. or less. Operation in most cases was far later than that, and, though some patients had local conditions which would benefit by short-circuiting, most would have their chance of recovery depreciated by an extra twenty minutes' exposure on the operating table with the prolonged anaesthesia, which was especially baneful in septic peritonitis from whatever cause. He emphasized the necessity for absolute recumbency after perforation had occurred because gravity played a considerable part in the widespread sepsis not infrequently seen. He was prepared to acknowledge that cancer of the stomach followed upon simple ulcer, but certainly in nothing like 30 to 40 per cent. of the patients with cancer of the stomach who had come under his observation.

Dr. E. I. Spriggs said that there was a general agreement that a number of complications of gastric ulcer could only be efficiently treated by operation. A claim was made to include among these haemorrhage if severe or recurrent, and those cases which under ordinary medical treatment had relapsed. He thought that it was not justifiable to recommend operation because a case had relapsed until a fuller experience of the after-history of patients treated by gastro-enterostomy had been gained. The statement that one-third of the sufferers from gastric ulcer ultimately succumbed to it or to its complications was not verified by other writers. He believed that a study of the figures published showed that the medical treatment of haemorrhage of the stomach offered a greater chance of success than operation in most cases, but a great deal more was needed for the successful medical conduct of the case than the mere adoption of a routine, such as rest in bed and a milk diet. A considerable proportion of cases of gastric ulcer treated medically relapsed, but that was largely due to the fact that the ordinary medical treatment was discontinued before the anaemia was corrected and the nutrition fully re-established. Rectal feeding was always partial starvation, and he advocated the treatment of Professor Lenhartz, who gave a gradually increasing quantity of iced whipped egg and iced milk from the beginning in order that proteid might be present in the stomach to combine with any hydrochloric acid

secreted, and thus to protect the ulcer from it. The food was taken in teaspoonfuls, and so distributed that only a small bulk was present in the stomach at one time.

Mr. D'Arcy Power said he had performed his forty-first gastro-enterostomy for non-malignant disease of the stomach last week, and of those forty-one patients three died within twenty-four hours, and one two months afterwards; the rest, so far as he had been able to discover, were still living, some cured and others better for the treatment. The mortality of gastro-jejunostomy, therefore, in his hands had been 7.3 per cent. The cases had all been under medical treatment for a long time. Many were suffering from chronic gastritis due to ulceration of the stomach; 2 had drunk corrosive poisons, and 4 had suffered from symptoms of duodenal stenosis. He had also had 12 cases of perforated gastric ulcer with 3 deaths, and 6 cases of perforated duodenal ulcer with 4 deaths. In performing gastro-jejunostomy he had varied his operations from time to time, partly to suit the exigencies of the case, partly as the result of experience, and partly to verify the statements of those who said that their own methods were better than those he had been using. He was well satisfied with gastro jejunostomy as an operation, for in none of the three fatal cases was there any leakage through failure of technique, whilst in the patients who recovered there was always some improvement and often a cure. Mr. D'Arcy Power concluded by quoting the statistics on the subject supplied by Mr. G. E. Gask, the surgical registrar, and acting junior assistant surgeon at St. Bartholomew's Hospital.

Dr. H. S. French said that up to 1905 at Guy's Hospital only 47 gastro-jejunostomies for non-malignant gastric conditions had been performed in Guy's Hospital. Of these, 13, or over 27 per cent., died as the direct result of the operation within a fortnight of its performance. If they excluded 2 cases of these in which haematemesis was the cause of operation the direct mortality was still over 23 per cent. The high mortality depended largely upon the fact that the patients all had ulcers or their results and that their health was therefore much below par at the time of operation. His statistics overstated the direct risk of the operation if the cases were carefully selected, but he did not agree with the opinion that the risk of gastro-jejunostomy in cases of cicatrization of pyloric ulcers was small. Of the cases that recovered, at the very least 32 per cent. obtained no lasting relief from their operation. If one could pick and choose one's cases and operate only on the most favourable, the results would be far better. In regard to the after-histories of patients who had recovered after operation for perforated gastric or duodenal ulcer, he found that up to 1905, 30 patients in Guy's Hospital recovered. He had traced 18 of these for periods varying from under two years to over eight years, and found that 15 of these patients, or 83 per cent., had done absolutely well without recurrence of any gastric symptoms, whilst only 3 patients, or 17 per cent., had done badly. Those figures were of course for a comparatively small number of cases, but they were consecutive and not in any way selected, and they were more favourable than he had expected to find. In not one of the 18 cases was gastro-jejunostomy performed at the time of the suture of the perforated ulcer. He thought the argument against gastro-jejunostomy at the time of suturing the ulcer was strong. Eighty-three per cent. had since had no gastric symptoms at all, but had been able to carry on their laborious occupations uninterruptedly, whilst in the 17 per cent. of cases who had had subsequent abdominal symptoms the troubles were due to peritoneal adhesions which were a direct result of the general peritonitis, and which would be equally liable to form whether a gastro-jejunostomy were done or not.

Mr. J. Warrington Haward sent a letter (which was read by Mr. Stephen Paget to the meeting) pointing out that all were agreed that when the symptoms of perforation were decided an immediate operation was imperative. The shorter the time that elapsed between perforation and operation, the better was the chance of recovery for the patient. Even when recovery took place, the longer the time between the occurrence of perforation and the operation for its relief the greater was the probability for subsequent complications, such as basal empyema and subphrenic abscess. It was shown by Dr. Hale White that gastric bleeding in young women often came from other sources than an ulcer and was generally recovered from under medical treatment, but if repeated attacks of haemorrhage were undermining the health and medical treatment had failed, gastro-enterostomy should be performed, if possible in a quiescent interval. Operation for symptoms attributable to gastric adhesions were shown to be attended by a variable amount of success, partly, no doubt, from the difficulty of preventing fresh adhesions forming. While slight degrees of dilatation of the stomach were often curable by medical treatment, the severer cases called for gastro-enterostomy, which was usually followed by great benefit.

Dr. Hale White, in replying, said that in regard to haemorrhage from the stomach some surgeons would operate during the occurrence of profuse haemorrhage, whilst others would not do so. He himself would not advise operation under those circumstances. Physicians were accustomed to see violent haemorrhage in phthisis and cirrhosis without fatal result; and Dr. Hawkins, in a long experience, had only recently come across his first fatal case of bleeding from a gastric ulcer. In the case of a patient bleeding furiously from gastric ulcer, Dr. Hale White considered that the patient stood a better chance if the operation was deferred until after the haemorrhage had ceased. It was also to be remembered that the surgeons who operated during haemorrhage were very highly skilled, and it certainly would not do for the idea to go forward that the right teaching was that a doctor, when he thought a patient was in danger of dying from haemorrhage, should operate. He deprecated the attitude of a medical man who, because a patient was bleeding and would die, said that therefore he must do something in the way of operation. That did not follow at all, for it might be that the operation would make the patient's short life shorter still.

Mr. Mayo Robson, who also replied, said that surgical treatment presented a great variety of statistics. If they were to be guided by statistics given by Dr. French he thought they would all go away from that meeting and say that patients should no longer be treated surgically. He described the figures given by Dr. French as "dreadful," for there was a proportion of 32 per cent. of failure to relieve the symptoms and 27 per cent. of deaths. In the figures quoted by Mr. Mayo Robson the mortality was down to under 5 per cent.

The discussion concluded with a few words of thanks to the speakers from the Chairman.

ROYAL SOCIETY OF EDINBURGH.

Professor A. Crum Brown, M.D.Edin., F.R.S., in the Chair.

Monday, December 3rd, 1906.

Effects of an Excessive Meat Diet.

Professor Schäfer read three communications on the effects of an excessive meat diet (1) on the osseous system, (2) on the structure and development of the uterus, and (3) on fertility and lactation. These papers were in continuation of one formerly communicated to the Society by Professor Schäfer, on behalf of Dr. Chalmers Watson, on the effects of varying diets on growth and nutrition. The first of the three papers was read for Dr. Chalmers Watson, the second for Dr. Malcolm Campbell, and the third for Dr. B. P. Watson.

The Influence of an Excessive Meat Diet on the Osseous System.

In Dr. Chalmers Watson's paper on the influence of an excessive meat diet on the osseous system, it was shown that observations were made on the skeletons of over a hundred meat-fed rats, aged 1 day to 3 months, the parents also having been fed on meat. An equal number of control — bread-and-milk-fed — subjects were employed. There were changes in the osseous systems in all the meat-fed subjects; these were uniform in character but varied in degree. The bones were unduly soft and excessively vascular; many subjects showed marked curving of the bones, with curvature of the spine; in about 15 per cent. of the series there were small whitish nodules in the bony parts of the ribs. Microscopically,

there was imperfect bone formation, with great increase in size of the medullary cavity and proliferation of the marrow cells. While the naked-eye appearances of the skeleton were in many instances similar to those present in aggravated cases of rickets in the human subject, this similarity was not borne out on histological examination. The author also demonstrated the occurrence of similar changes in the bones in an infant aged 16 months suffering from an obscure disease, whose mother was tuberculous and had partaken for a prolonged period prior to and during gestation of an excessive meat diet for the cure of the tuberculosis.

The Effects of Diet on the Structure and Development of the Uterus.

Dr. MALCOLM CAMPBELL'S research was undertaken to discover what, if any, changes were induced in the structure and development of the uterus by various diets. Eighty-six rats were used for the research. They were divided into five groups, and were fed respectively on an exclusive diet of milk, bread soaked in milk, rice, porridge, raw meat. In the first two groups the structure and development of the uterus was found to be practically unaffected. In the rice, porridge, and raw meat groups relatively uniform changes were got. There was an arrest in the growth of the uterus; further, there was a marked structural change in the form of a fibrosis of the mucosa. These changes were most marked in the animals put on the abnormal diet at weaning.

The Influence of a Meat Diet on Fertility and Lactation.

Dr. B. P. WATSON'S observations were made upon rats, and were suggested by Chalmers Watson's previously-recorded statement that a meat diet was prejudicial to the occurrence of pregnancy if the diet were begun at weaning. In this investigation, the diet was not begun until the animals were from 2 to 4 months old, and of the eleven animals fed on meat, only eight became pregnant, while all the twelve control animals fed on bread and milk had litters. A meat diet, therefore, even when begun at this age, injuriously affects the power of reproduction. Its effect upon lactation is shown by the relatively poor mammary development of the meat-fed rats as compared with the controls when suckling. The average percentage weight of the mammary tissue to that of the mother in the latter was 9.6, and in the former only 8.2. The effect of this is shown in the young, as the weight of the young of the meat-fed rats was considerably less than that of the young of the control animals at the same age.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

J. O. AFFLECK, M.D., President, in the Chair.

Wednesday, December 5th, 1906.

TUBERCULOSIS IN SCOTLAND.

A PAPER on the problem represented by tuberculosis in Scotland was read by Dr. BYROM BRAMWELL, who said that to deal with it effectively the profession, the public, and the public health and other authorities must combine. During the thirty years 1871 to 1901, the phthisis mortality-rate had fallen from 275 to 153 per 100,000, owing, he thought, to improved sanitation and improved conditions of life generally. During the past ten years opinions as to the etiology and prophylaxis of the disease had clarified, the most important step forward which had been taken being the explicit statement of the Local Government Board in its circular of March, 1906, that phthisis was an infectious disease, and that the Public Health (Scotland) Act, 1897, applied to the disease. The circular required, he thought, some qualification and explanation, for otherwise it might give rise to grave misunderstandings on the part of the profession and the public. It did not sufficiently emphasize the fact that although phthisis was an infectious disease it differed from other infectious diseases in many important particulars, and that many of the measures—such as rigid isolation, removal to hospital, etc.—which were necessary in most of the other infectious diseases were not necessary for the great majority of cases of phthisis. Hitherto the attention of sanitary authorities had been chiefly directed to general sanitary measures; what was now required was a thorough and systematic effort throughout the country to deal with individual cases and individual patients. The deal to be aimed at was to ensure that every person suffering from phthisis, so long as his sputum contained the tubercle bacillus, disinfected or destroyed his sputum. Clause 59 of the Public Health (Scotland) Act, 1897—the public conveyance clause—as applied to phthisis, was far too drastic, and should be modified in accordance with the special characters of the disease. The last paragraph of the circular, with regard to compulsory notification of phthisis, was unfortunately worded. The public health authorities should only be obliged to provide effective measures for the treatment of dangerous cases of phthisis which were compulsorily or voluntarily removed to hospital, and the great majority of those dangerous cases were advanced and incurable. At the same time it was most desirable that sanatoriums for the treatment and education of early cases should be provided and established in every sanitary district. As for bovine tuberculosis, if, as the majority seemed to believe, it was communicable to human beings, and if infection by tuberculous milk, tuberculous butter, etc., was a fertile source of the disease in the human subject, restrictive measures were necessary to prevent bovine tuberculosis being conveyed to man, and means should be taken to stamp out tuberculous disease in cattle.

Dr. PHILIP considered the circular mentioned represented the high-water mark of official statement throughout the world, and its statesmanlike character was justly appreciated by those who best understood the intricacies of the problem. He had no strong feeling as to the necessity for amending certain clauses in the Act of 1897 so as to make them more applicable to phthisis. Similar objections might be raised in respect of them in relation to other diseases, but in practice no difficulty had arisen.

Dr. JAMES did not consider that the results obtained by compulsory notification of other infectious diseases were sufficiently convincing to warrant the Society in recommending compulsory notification of phthisis to the authorities.

Dr. LAWSON believed very valuable information would be obtained by compulsory notification. Disinfection of the sputum of phthisical patients did not afford sufficient protection to the public. Tubercle bacilli were expelled in large numbers by each act of coughing.

Dr. NASMYTH thought compulsory notification of phthisis was necessary, as otherwise it would be impossible to discover where such cases existed. He was strongly in favour of the removal of advanced cases to hospital.

Dr. DOUGLAS did not believe that compulsory notification of phthisis would mean large hospital extensions, as so many feared. Practical experience had made him a firm believer in the relationship of human and bovine tuberculosis.

SPECIMENS.

Dr. W. G. SYM and Mr. CAIRD showed a patient suffering from an extreme degree of proptosis owing to a tumour of the orbit. Krönlein's operation was performed and the growth was successfully removed. Dr. W. G. SYM, a child, aged 2½ years, from whom he had removed both eyes for glioma. The operations were performed a year since. Dr. BRAMWELL showed a patient who had met with an accident resulting in a fracture of the base of the skull. The right optic nerve was torn, resulting in blindness. For a time there was complete left facial paralysis with reaction of degeneration. This had now almost disappeared without operative interference. Mr. CAIRD showed (1) two patients after removal of naso-pharyngeal fibrous tumours. In one he had removed the right side of the upper jaw so as to allow of free access to the growth. In the other he had slit the soft palate for the same reason. (2) A child with injury to the elbow and contraction of flexor muscles of the forearm (Volkmann's ischaemic contracture).

MEDICAL SOCIETY OF LONDON.

C. A. BALLANCE, M.V.O., M.S., F.R.C.S., President, in the Chair.

Monday, December 10th 1906.

HEPATIC INADEQUACY IN RELATION TO GOUT AND OTHER DISEASES.

SIR LAUDER BRUNTON in a paper on this subject discussed inadequacy in general, and instanced some people who were perfectly healthy but whose muscles were inadequate for hard bodily work. There were others whose brains fitted them for routine work as clerks, but who were inadequate

for positions of responsibility, or whose lungs were inadequate for positions requiring exposure, whose stomachs were inadequate to deal with ordinary food, or whose kidneys were inadequate to remove more than a moderate proportion of waste. He quoted inadequacy of the liver in regard to carbohydrates, a condition occurring in diabetes and glycosuria. He considered that inadequacy of the liver in regard to proteins and purins was less generally recognized, although he believed it to be a condition usually known as torpid liver. He entered at some length into the chemistry of purins and the relationship of uric acid and other purin bases to cyanogen. He mentioned that uric acid could be oxidized by nitric acid to urea and oxalic acid and that pounded liver had been shown by Stokvis to have the power of converting urates into urea. In 1860 it was observed by Stokvis that on warming the alkaline urates with portions of finely-divided liver, a large proportion of uric acid disappeared and was replaced by urea. From that observation it was suggested that the metamorphosis of uric acid into urea was largely carried out by the liver. That suggestion, which was quoted in the earlier physiological textbooks, had apparently been to some extent forgotten, and it seemed worth while to make a reinvestigation of the matter in a fresh series of experiments. The work of Stokvis had been confirmed by Sir Lauder Brunton's experiments, along with Mr. Bokenham and also by Continental writers. From those results it seemed probable that the enzyme capable of decomposing uric acid was present only in the cellular juice obtained from the liver during periods of active digestion. This power was only possessed during digestion, and he suggested that the enzyme of the liver which rendered it able to destroy urates might be set free as an active zymogen by some secretion from an abdominal viscus or from the muscles in the same way that muscle juice had the power of destroying sugar increased by the addition of pancreatic juice. He recognized that inadequacy of the liver in regard to carbohydrates required to be treated by a meat dietary and that inadequacy in regard to purins required a purin-free dietary, but he considered that to put everyone on a purin-free dietary was just as absurd as to put all healthy people on the dietary of a diabetic. He concluded with the words of Professor Chittenden, who said "the best dietary for a man is a mixed diet and not too much of it." The subject that he had brought before the Society was an old one under a new guise and was the old idea of a torpid liver for which a blue pill and a black draught used to be considered the best treatment.

Sir Dyce Duckworth said that twenty years ago he thought he knew more about gout than he did to-day. He had, however, learnt to recognize the phases and the consequences of gout in the system, and he observed that very often they were not always led to look to uric acid as the cause of all gouty symptoms. It was a relief also not to hear anything about microbes in connexion with gout. He was glad to note that gout was still held to be benefited and relieved by the old-fashioned mercurial and colchicum treatment, including the use of exercise.

Dr. Fortescue Fox said that he had long felt they must make a distinction between acquired gout, which was a diet disease to be treated by diet, and inherited gout, which was an affection not amenable to dietetic treatment.

Dr. Ewart pointed out that the essence of the origin of gout was functional, and that it ended by producing structural changes. They were familiar with the kind of patient that was the offspring of a gouty family, and he advocated active treatment in order to prevent the structural changes he had mentioned.

Dr. Luff said that he wished to raise his voice against the present fetishism of uric acid to which Sir Dyce Duckworth had referred. Dr. Luff entirely failed to recognize that uric acid could in any sense be described as a poison. He regarded uric acid as a comparatively harmless by-product of the human economy which in many quarters had been most dangerously exploited as a poison. The liver was an important organ in regard to gout, but though it was capable of converting uric acid into urea, that amount of conversion had no part or parcel in the pathology of gout. Gout was an auto-intoxication, but he believed that might be due to the bacteria present in the intestinal tract which, under certain conditions, became altered and caused the toxin of gout. The liver could destroy that toxin, but if the function of the liver fell below par then the toxin would cause gout.

After Dr. Poynton had discussed the subject from the point of view of microbic origin, Sir Lauder Brunton replied and emphasized the fact that his paper was on the power of the liver to deal with the products of nitrogenous waste.

Functional Albuminuria in Athletes.

Dr. William Collier then read his paper on the above subject, which will be published in a subsequent issue of the Journal.

Sir Lauder Brunton reminded the meeting that a large number of observations had been made on German soldiers, and it had been proved that about a quarter or a third of a number of these men had albuminuria after a long march. He suggested to Dr. Collier that the nature of the albuminuria was an important point.

Dr. Poynton said that albuminuria was extremely prevalent in public-school boys who were taking much active exercise.

Dr. Cautley observed that under certain conditions the type of person who suffered from the albuminuria under discussion could not stand undue strain, especially in hot climates.

REVIEWS.

MENDELÉEF'S LAW.

A review of the second English edition of Mendeléef's *Principles of Chemistry*[1] appeared in the British Medical Journal of April 23rd, 1898. Apart from the fact that the third appendix of the second edition has been incorporated in the text, that Professor Brauner has contributed an excellent chapter on the Elements of the Rare Earths, and that a new appendix has been added containing the author's speculations on the nature of the ether, the book remains fundamentally unchanged. We can only regret that the translation still shows very serious blemishes. Thus, on p. 115, vol. i, we read, "The problem of showing the decomposability of water at high temperatures is apparently unsolvable," and the next two pages show how Deville succeeded in solving the problem. This actual mistake, which is only one of many, is several times repeated throughout the book.

Mendeléef has suffered, like many other great originators, from the brilliant success and speedy acceptance of his periodic system. For the last twenty years it has been incorporated in the textbooks of chemistry and accepted almost without comment as a satisfactory arrangement of the elements. The result has been that it has failed to receive the attention it deserves from the student of chemistry, and it has not been generally recognized as the powerful instrument of research which it undoubtedly is.

Mendeléef does not claim the credit of having discovered the system of the elements as the sole result of original work; others were engaged in the same field, and contributed no inconsiderable part to the theory. Without the accurate determination of the atomic weights between 1860 and 1870, and Cannizzaro's famous speech at the Karlsruhe Congress, which eventually led to the atom being considered "the smallest particle of an element which enters into a molecule of its compound," Mendeléef's work would not have been possible. It is interesting to notice that on the first statement of his law in 1869 he was unaware of Newland's much-ridiculed theory of octaves, or of De Chancourtois's *vis telluriqué*. He expresses his indebtedness chiefly to Gladstone, Pettenkofer Kremers, Lennsen, and Dumas. These workers had already pointed out the manifest similarity between the elements lithium, sodium, and potassium, and had remarked that their atomic weights increased by the constant factor 16. They had shown, too, that similar relations existed in the magnesium, phosphorus, and oxygen groups, but they had not ventured to attempt the inclusion of all the elements in any general scheme.

Mendeléef's law, stating definitely, as it did, that an arrangement of the elements according to their atomic

[1] *The Principles of Chemistry.* By D. Mendeléef. Third English edition. Translated from the Russian by G. Kamensky, A.R.S.M., and edited by Thomas H. Pope, B.Sc., F.I.C. In two vols. London: Longmans, Green and Co. 1905. (Demy 8vo, pp. 1222. 32s.)

weights, which increased by an almost constant factor, resulted in the manifestation of striking similarities in properties, came as a valuable and much-needed corrective to Prout's famous hypothesis that the atomic weights were simply multiples of the atomic weight of hydrogen. Prout's theory was merely a metaphysical attempt to arrive at a unification of all matter, and was quite alien to chemical method, for if the atomic weight of an element failed to be a whole number he considered the decimal as merely due to experimental errors, and expunged it. Mendeléef, on the other hand, arranged his eight groups (now nine owing to Ramsay's discoveries) in twelve series, based on the most accurate determination of atomic weights available. With admirable boldness he asserted that those few elements which failed to conform to the system of classification were wrongly determined, and appealed to experiment to decide whether his law was to be condemned or the atomic weights of the elements in question were to be altered. In a few years the accepted weights of osmium, iridium, platinum, and titanium were proved erroneous, and when corrected fitted in with the scheme of the law. An even bolder step was the prophecy of a number of unknown elements to which Mendeléef gave the name of ekaboron, ekaaluminium, and ekasilicon. Within ten years these were discovered as scandium, gallium, and germanium, and their properties found to correspond with the properties assigned to them on purely theoretical considerations. Further confirmation of the law has been given of recent years by Ramsay's discovery of the rare gases of the atmosphere. These fall naturally into a ninth group—the zero group—for they obstinately refuse to enter into any form of combination with oxygen.

The importance of Mendeléef's classification is clearly brought out by the bare statement of the properties demonstrated by the law. If the elements are written down according to the weights of their atoms, and a fresh series is started with every tenth element, they will fall into natural groups; those which lie in the same longitudinal division will show marked similarity of properties, while there is a constant and uniformly directed change of property as we pass along the series, crossing the groups. Thus the first (zero) group fails to show any power to unite with oxygen, the second is monovalent, the third divalent, and the last, the ninth, as represented by osmium, is octovalent towards oxygen (OsO_4). The oxides of the second group (Na, K, etc.) are the most markedly basic; the eighth, which includes the halogens, the most prominently acid. The position of the element in the series, however, has here a disturbing influence, which is duly controlled by law, increasing weight of the atom tending towards basicity, a decreasing weight towards acidity. It is again a matter of great importance whether the atoms lie in an even or an uneven series. The even series are magnetic, the uneven diamagnetic.

The law is, perhaps, of especial service in determining the atomic weight of the less common elements. The position of the element is defined by its properties, and its atomic weight is invariably found to be the average of those four elements by which it is surrounded. The weights of iridium, uranium, cerium, and ythrium, amongst others, were thus provisionally fixed, and subsequent research has proved the validity of the law. Conversely, of course, a knowledge of the atomic weight is sufficient data from which to predict the properties of a substance.

These instances are but a few possible applications. The same periodicity is revealed by a study of specific heats, melting and boiling points, coefficients of expansion, heats of formation of compounds, metallic alloys, specific gravities, and specific volumes. The law is, in fact, little short of all-embracing and proves unmistakably that the properties of various bodies are functions of the masses of their respective atoms. The question of this periodicity and its determining causes is a very promising field of research, and the work which is now being done in this direction should produce results of more than ordinary interest.

HYPNOTISM AS A THERAPEUTIC AGENT.

IN England the practice of hypnotism by medical men has up till recently always been regarded with a certain amount of doubt, if not actual suspicion, whereas in many Continental States, and in America, suggestion is extolled as one of the most valuable therapeutic aids in not a few—mainly functional—disorders. Doubtless the incredulity with which the results of hypnotic treatment have been received both here and in Germany has been largely due to the exploitation of hypnotic phenomena in public and private *séances* by charlatans and misguided spiritualists, who have persistently cloaked the facts of suggestion in an atmosphere of mystery, and regarded them as of supernatural origin; probably also a good deal of distrust has been due to ignorance of the *rationale* of hypnotism, producing, on the one hand, a suspicion of collusion between the hypnotizer and the hypnotized, and, on the other, a fear of damage to the subject by the exertion of undue or even evil influence. Many misconceptions will be at once cleared away by a perusal of Dr. FOREL'S interesting book, *Hypnotism or Suggestion and Psychotherapy*,[2] which has been most ably translated by Dr. ARMIT, although the fears of undue influence will be found not to be without some foundation in fact. To this forensic point we shall revert later. In an able exposition of consciousness, which forms the first chapter of the book, the author expresses himself as a convinced monist, and as thus at variance with the so-called "somatic" explanations of the phenomena of suggestion as embodied in the theories of Charcot and many of his successors in Paris. He particularly attacks the experiments of Dr. Luys, of La Charité, Paris, whose results, it may be remembered, were ably exposed by the late Mr. Ernest Hart more than a decade ago in the BRITISH MEDICAL JOURNAL. In fundamental agreement as to the mechanism of suggestion, that is, as the setting in motion of certain changes, by means of verbal or other suggestion, and not at all by any "influence" upon the subject by the operator, resulting in a heightened suggestibility during which any stage between waking consciousness and profound slumber may be produced, and isolated fields of any stage dissociated from the rest, these two writers, Mr. Hart and Dr. Forel, were in profound disagreement as to the therapeutic advantages of hypnosis. Mr. Hart believed that "for curative purposes hypnotism was very rarely useful, generally entirely useless, and often injurious," whereas Dr. Forel, in what are perhaps the most interesting chapters of a deeply interesting and instructive treatise—those on hypnotism and psychotherapy—gives a long list of the morbid conditions in which suggestive treatment has been found to be of great value. This list includes pains of all descriptions, insomnia, chlorosis, menstrual disturbances, habitual constipation or diarrhoea, chorea, hysteria, alcoholism and morphinism, and many other bad habits. Many of the cases described by the author in which suggestion has resulted in complete cure, particularly in the regulation of the menstrual flow and intestinal action, are really remarkable. Dr. Forel devotes a considerable amount of space to the elucidation of the control which can be effected by suggestion over lower functions, for which we must refer readers to the book itself.

It has been frequently maintained by the opponents of treatment by suggestion that its practice must have a baneful effect on the intelligence and will of the subjects. This idea is scouted by the author, who maintains, on the other hand, that in suitable hands and under proper guidance, the very contrary effect is produced, finding in this, indeed, one of the strongest arguments for its use. It needs to be pointed out, however, that Dr. Forel is not in agreement with many who hold that harm cannot be done under hypnotism, that an immoral act or one in opposition to the interests of the subject is invariably rejected. On the contrary, he says, in discussing the forensic aspect of suggestion:

> I am convinced that every conceivable crime may be committed on a hypnotized person, provided that a higher degree of hypnosis is attained.

In relation to this matter, for the protection of the public, Dr. Forel agrees with von Schrenk-Notzing that legal measures are required against unauthorized hypnotizing by non-medical persons. The more general adoption of suggestive treatment by medical men requires a careful

[2] *Hypnotism or Suggestion and Psychotherapy.* A Study of the Psychological, Psycho-Physiological, and Therapeutic Aspects of Hypnotism. By Dr. (Med.) August Forel, formerly Professor of Psychiatry and Director of the Privatmed Lunatic Asylum, Zurich. Translated from the Fifth German Edition by H. W. Armit, M.R.C.S., L.R.C.P. London: Rebman Limited. 1906. (Cr. 8vo, pp. 370. 7s. 6d.)

balancing of the benefits to be obtained against the possible dangers—a task which may safely be entrusted to the medical men themselves. However this may be, it is undeniable that study of hypnotic phenomena has added very greatly to our knowledge of morbid mentality, and that as a guide to the student of this branch of investigation no more fitting book could be chosen than this of the distinguished exponent of the Nancy school. Dr. Armit is therefore to be thanked for having presented to students unacquainted with the original his able and painstaking translation.

In the book which we have reviewed above the subject of hypnosis is treated in both its theoretical and practical aspects with extreme thoroughness and a minute attention to detail to which the small handbook of Dr. Ash entitled *Hypnotism and Suggestion*[3] makes no pretensions. Dr. Ash's object has been to explain the technique of experimental hypnosis and suggestive therapeutics in simple fashion, and at the same time to divest the subject of the air of mystery and secrecy in which it is popularly enveloped. This he has done with admirable lucidity, and the student or general practitioner who wishes to obtain a knowledge of the essential facts of hypnotism and of the technical details of hypnotic phenomena expressed in easily comprehensible form cannot do better than purchase this small volume.

NOTES ON BOOKS.

No man or boy who knows *The White Company* will need to be told more than that *Sir Nigel*[4] is that valorous little man who was always anxious to oblige any knight spoiling for a feat of arms to ensure his reading Sir A. Conan Doyle's new story; it will, indeed, be some consolation to those among them who dislike a tragedy to remember, as they read the many daring and desperate deeds of Nigel in his youth, that he lived to be old enough to have a marriageable daughter. The first chapter of the story tells the terrible tale of the black death of 1348; but the social consequences of that appalling pestilence are touched with a light hand, for the story is concerned with the way in which the hero, the last scion of an impoverished race, carved his way by courage and force of character through a turbulent world till he won his spurs on the stricken field of Poictiers. A spirited description is given of that battle, and the author has here been wise in following history closely, for it would be difficult for romance to add anything to the facts of the astounding story. To us *Sir Nigel* seems a much better romance than its predecessor; better written, better constructed, and more absorbing. Easy writing, said Byron, is d——d hard reading, and we have no doubt that the author has laboured hard and read widely—indeed, he admits as much in the preface—before he turned out this so easily read story. But the reader does not think of this, if he thinks of it at all, until he lays the book down. While he reads he is carried along, and carried away. May *Sir Nigel* have many successors!

Mrs. Thorburn, of Manchester, who last Christmas published *Mr. Ubbledejub and the House Fairies*, has this year presented children with another tale, entitled *My Friend Poppity*.[5] She has a simple, agreeable style, and has the instinct of the true storyteller. This is not one of those child's stories written for grown-ups, nevertheless it inculcates one or more excellent morals. The illustrations, by Alice B. Woodward, are graceful, and the portrait of the hero on the title page shows him to be a most engaging person.

It is difficult to know what to say about *Who's Who*[6] for 1907, for the stock of commendatory adjectives has been exhausted on previous issues. We can only apply to it the much-abused word invaluable. We are continually consulting it, and never in vain, and its information has proved uniformly accurate.

[3] *Hypnotism and Suggestion.* A Practical Handbook. By Edwin Ash, M.B., B.S., M.R.C.S.Eng. London: J. Jacobs. 1906. (Cr. 8vo, pp. 136. 4s.)

[4] *Sir Nigel.* By A. Conan Doyle. London: Smith, Elder, and Co. 1906. (Crown 8vo, pp. 394. 6s.)

[5] *My Friend Poppity.* By A. Thorburn. London: David Nutt. (Cr. 8vo, pp. 83. (2s. 6d.)

[6] *Who's Who*, 1907. London: A. and C. Black. 1906. (Crown 8vo. pp. 1368. 10s.)

THE MILK SUPPLY.

The Duties of Borough Councils.

The Managers of the Poplar and Stepney Sick Asylum recently decided to have analytical examinations made of the milk supplied to that institution, where there are frequently nearly 1,000 persons living at one time. The necessity for this action is apparent from the fact that one of the latest examinations revealed the presence of 34 per cent. of added water. The sample examined was also found to contain boric acid. The managers are to be commended for their vigilance in ascertaining the quality of so important an article of food. The question arises, however, whether this is a duty which properly falls upon the managers, or whether it should not be performed by the Borough Council. The Council is the authority charged with the administration of the Food and Drugs Act, and possesses powers of prosecution of offenders against the Act. The action of the managers has been quite justified, and will possibly stimulate the Borough Council to greater activity.

Lambeth Milk Dépôt.

Dr. Priestley has issued a report to the Lambeth Borough Council on the milk dépôt which was opened in York Road, Waterloo Bridge Road, on February 12th last. As the report covers a period of only twenty-six weeks, and is concerned with only 100 infants, it affords but slender basis for drawing conclusions. The general results are shown in the following table:

	Total.	Improved.	Not Improved	Died.
Healthy	22	21	0	1
Wasting	46	36	5	5
Diseased	32	22	7	3

It should be said, however, that three of the infants who died had only been taking the milk for a week or less, and Dr. Priestley considers that the following table gives the fairer estimate:

Length of Time during which Milk was Used Previous to Death.	Number of Infants and Children Fed.	Number of Deaths.
(*a*) 26 weeks and over ..	19	0
(*b*) 13 to 26 weeks	8	2
(*c*) 6 to 13 weeks	26	2
(*d*) 4 to 6 weeks	16	0
(*e*) Under 4 weeks	31	5
	100	9

He calculates the mortality-rate among the dépôt-fed infants at 58 to 90 per 1,000, whereas the quinquennial average for the whole borough was 134. In a future report it is to be hoped that Dr. Priestley will give particulars with regard to the source of the milk and the precautions taken to secure its purity and cleanliness.

COOKERY AND FOOD ASSOCIATION.

The Seventeenth Universal Cookery and Food Exhibition was held at the Horticultural Hall, Vincent Square, when there was a large show of attractive-looking dishes in the Central Hall.

The exhibition also included artisan cookery, household cookery, hospital dietary, pastry, confectionery, and bakery, army and navy cookery, and elementary cookery as taught to school children.

The Universal Cookery and Food Association was formed soon after the first exhibition. It seeks to encourage and develop every branch of the art, and, while endeavouring to maintain the highest standard of artistic cookery, also seeks to show the housewife of the working class how she can most economically prepare the household food. This

is done by means of lectures and lessons by competent teachers in the poorer parts of London, the course consisting of ten lessons, followed by a competition, at which prizes are given.

The work carried on by the Association is voluntary, and any surplus funds arising from exhibitions, etc., are spent in:

1. Promoting a better knowledge of cookery among the poor.
2. Assisting youths to become apprenticed as cooks and the better education of young men to the acknowledged uniform method of cooking.
3. The protection of the cook's profession by means of organizing competitions and examinations, and by granting certificates of competency, also diplomas and prizes for meritorious work.
4. Sending teachers of cookery into poor neighbourhoods with a view of demonstrating to them the best means of preparing economical, appetizing, and wholesome food.
5. Providing cookery scholarships, so as to stimulate young girls of the artisan and working classes to take up cookery as their vocation.
6. Organizing cookery competitions among elementary schools where cooking is taught, among army cooks, navy and mercantile marine cooks, etc., and for providing prizes for good work in connexion with the same.
7. Last, but not least, to help hospitals and other charitable as well as educational institutions, for which purpose over £3,000 has been given by the Association.

The Association has a Benevolent Fund for the relief of distress and assistance during illness among its members and licentiates; also an assurance against accidents while travelling, or when engaged in their profession as cooks, confectioners, or cookery teachers; this assurance is covered by the annual members' subscriptions.

LITERARY NOTES.

WE learn from *A Medicina Contemporanea*, the editor of which, Dr. Miguel Bombarda, was General Secretary of the Fifteenth International Medical Congress held this year at Lisbon, that the issue of the *Transactions* of the Congress is being rapidly proceeded with. The volumes containing the reports of Section I, extending to 403 pages, and Section II (170 pages) have already been sent out. Section III (388 pages) is in course of delivery; Sections IV (248 pages), V (668 pages), VI (528 pages), VIII (491 pages), and IX (496 pages) are in the hands of the binders. Considerable progress has been made in the printing of the proceedings of Sections VII and X. It is confidently expected that by April next the publication will be completed.

It is stated that the author of *The Young People, by One of the Old People*, just published by John Murray, is Mr. Stephen Paget.

The *Gazette Médicale de France*, the oldest French medical journal, will henceforth appear under the editorship of Dr. Lucien-Graux.

The December number of the *World's Work* contains an article by Mr. John S. Purcell on motor roads and military home colonies, which suggests a plan for a self-supporting citizen army. Among the other contents are a character sketch of M. Clemenceau; an appreciation, with excellent reproductions, of the work of Mr. George Henry, the well-known British artist; some beautiful marine photographs in colour; a discussion of the "Training of Taste" in youth, by Mr. A. C. Benson; and suggestions for the treatment of "The Young Delinquent," by Mr. Tighe Hopkins.

Looking through Sir Frederick Treves's breezy *Highways and Byways in Dorset*, one lights on several things of special interest to medical readers. Among the ancient notabilities of Lyme we find Dr. Case, a celebrated quack and astrologer of the time of James the Second. Having made a fortune by gulling the public, he retired, and to indicate his return to righteousness had arms painted upon his carriage with this simple motto, "The Case is Altered." At West Stour there flourished in the seventeenth and eighteenth centuries a physician named William Watson. He was born in the village, and having taken the M.D. degree at Oxford in 1683, returned to his native place to practise. There is a portrait of him in boots and spurs with a hanger and cane; he has, says Sir Frederick Treves, so truculent a carriage that he would pass rather for a buccaneer than for a healer of the sick. On Sundays the people flocked to him from every part of the country, as he saw all comers for a fee of one shilling. Rampisham should be proud of being the birthplace of Francis Glisson, whose name lives in the "capsule" which he described. He was also one of the first to recognize and describe rickets. Born there in 1597, he studied at Cambridge, where he became in due time Professor of Physic. At Purse Caundle lies buried Dr. Nathaniel Highmore, another man who has stamped his name indelibly on the human body. He studied at Oxford and practised at Sherborne, of which his father was rector, and died in 1685. The stone in the church marking his grave is partly covered up. Of Wynford Eagle Dr. Crane, a poet of Dorchester, writes:

> With aweful footsteps, stranger, tread this earth,
> The place rever'd which gave to Sydenham birth.

The manor of Wynford Eagle, says Sir Frederick Treves, came in 1551 to the Sydenhams, an ancient family from Sydenham, near Bridgwater. There Thomas Sydenham, our British Hippocrates, was born in 1624. He died at his house in Pall Mall in December, 1689, and was buried at St. James's, Westminster. The Sydenham family came to an unfortunate end in the person of the last squire, William Sydenham, who was committed to Dorchester Prison in 1709 for attempted fraud, and died there nine years later. The house of the Sydenhams still stands in Wynford Eagle, a beautiful specimen of the seventeenth century manor. Sir Frederick Treves relates the rise of Weymouth into hygienic fame as follows:

> In 1763 a new era dawned for Weymouth. In that year the foundations of its fortunes were unconsciously laid by an unknown medical man at Bath. It came about in this manner. At the date named, one Ralph Allen, of Priory Park, Bath, philanthropist, fell ill. He consulted a doctor, whose name has remained unrevealed, and who advised the sick philanthropist to adopt a treatment so extreme and so strange that it savoured of madness. This consisted of the heroic measure of bathing the bare body in the open sea. Ralph Allen selected Weymouth for the carrying out of this desperate remedy. Here he had a "machine" constructed for the purpose of the prescribed ritual, which machine is claimed to be the prototype of the bathing machine of the present day. From his course of treatment, watched with much concern and amazement, the inventor of the bathing machine "happily received great benefit."
>
> In due course he induced H.R.H. the Duke of Gloster to visit the scene of his restoration to health. The Duke was so pleased with the place that about 1780 he built a house on the Esplanade, known as Gloucester Lodge, and still surviving as the Gloucester Hotel.

The *Reader*, one of the newest additions to our periodical press, is well named, not only because it contains more matter than almost any other paper of its size and price, but also on account of the nature of its contents. There is hardly a line in it that is not worth reading, and hardly a subject that is left untouched. Lovers of fiction will revel in the two excellent serials, A. T. Quiller Couch's "Major Vigoreux," and "The Water Prison," by Robert Marr, as well as an occasional short story. Whilst for those who take their reading pleasures more sadly, there are articles on George Meredith and other serious matters, and reviews of the latest books. There are also political, theatrical, and society notes, with cookery receipts and hints on health and housewifery. The *Reader* should be popular in every household, appealing as it does to every taste.

The Christmas number of the *Daily Chronicle* is, even in these days of cheap periodicals, a wonderful pennyworth, and any slight defects in print or paper will be readily overlooked in view of the fact that the list of its contributors contains the names of Joseph Conrad, W. Pett Ridge, and George R. Sims. The reader is not likely to be disappointed in his expectations of the contributions of those deservedly popular authors. Joseph Conrad's tale of "The Brute" who turns out to be a ship with the reputation of killing a man every voyage, is pleasantly exciting, and Mr. Pett Ridge is in his happiest vein in "Mrs. Ballard's First." Besides these there is a very pretty historical tale by Marjorie Bowen, with two excellent Christmas tales (with more or less of a moral attached to them) by Edwin Pugh and Alfred Tresidder Sheppard. There is also an amusing little operetta by J. R. Monsell, entitled "Maud the Maudlin," which might prove useful at Christmas parties, and some pretty verses by John Davidson, Andrew Murray, and Francis Coutts.

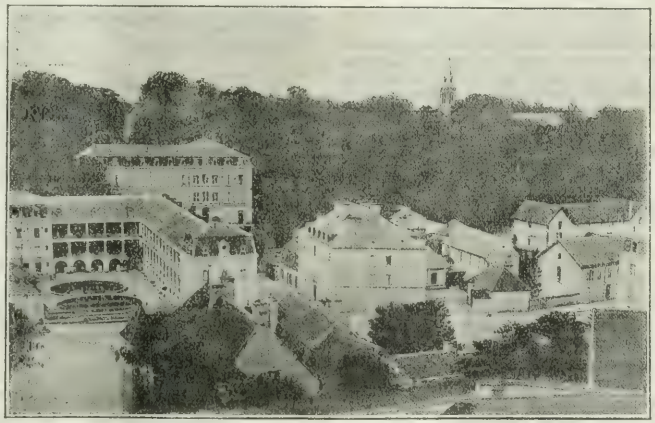
BOURBON LANCY.

Bourbon Lancy is situated about a mile from the river Loire, and is reached by a fast train in about seven and a half hours from Paris by the Bourbonnais line, via Nevers and Cercy-la-Tour.

The town of Bourbon Lancy is still small and primitive, and admirably suited to invalids wishing for rest and quiet. Immediately behind the bath house and at the entrance of the park is the one large hotel, an unpretentious building, formerly a convent. It contains over 200 bedrooms, simply furnished; it is quite close to the baths and the cooking is good. There are also some small hotels and lodgings in the town.

The bath season commences on May 15th and ends on October 15th.

There are five mineral springs, those most in use being named Lymbe, La Reine and Descures respectively. Their waters are conducted into the yard in front of the bath house, and may there be seen exposed in round wells throwing up bubbles of gas, so that they seem to be boiling. The wells receive more than 400,000 litres a day, a veritable torrent of mineral water, with a mean temperature of 50° C. The surplus water is taken away by a subterranean aqueduct a kilometre long. A striking feature of the wells is that, in spite of the seemingly boiling liquid which never stops passing through them, their walls are covered with a thick lining of confervoid growth of a brilliant emerald colour. As a consequence, the water, as it rises in the well, appears to be bright green, but when it is examined in a tumbler it is colourless. The water has a peculiar smell, which has earned for it the name of *bouillon de veau* (veal broth): when sipped warm it leaves a faint taste of weak brine, which is not at all unpleasant. The water is very unctuous to the touch; this is said to be caused by the green growths already mentioned, which, when detached by the gas imprisoned in them, rise to the surface of the water and become gradually disintegrated. It is said that this growth can only take place in the presence of ammonia, of which all the springs contain a trace, although there is probably less in the Lymbe than in the others, as the confervoid growth in its basin is slight.



Bourbon Lancy: Showing Wells and Baths.

The following are the principal constituents of the three chief springs, according to analyses made by Professor Willm in 1891:

In 1,000 Parts.	Lymbe.	Reine.	Descures.
Sodium chloride	1.284	1.284	1.279
,, sulphate	0.051	0.059	0.054
Potassium ,, ...	0.090	0.089	0.082
Calcium bicarbonate	0.291	0.299	0.289
Magnesium ,, ...	0.011	0.014	0.014
Sodium ,, ...	0.004	0.002	0.002
Iron ,, ...	0.018	0.001	0.022
Free carbonic acid	0.043	0.030	0.022
Temperature	133° F.	126° F.	136° F.

The waters contain also traces or minute quantities of sodium arseniate, sodium bromide, lithium sulphate, and iodides.

The management is sincerely to be congratulated on having the good sense and the honesty to profess only to cure one or two diseases by the treatment at Bourbon Lancy. If other watering places only realized how laughable to the critic seems their undertaking to cure every disease under the sun by the use of one or two springs, when it would be very creditable to ameliorate one disease, they would cease to make themselves ridiculous, and to bring their cures into disrepute. Bourbon Lancy professes to cure different forms of rheumatism and gout, and certain cardiac diseases.

The treatment consists of drinking the waters and of bathing, the latter being considered much the more important. The springs used for drinking have always been the two named La Reine and Descures. The water of the Source la Reine, in spite of its high temperature, may be taken without discomfort, and three or four tumblers a day is the usual dose; when taken fasting it produces, after a few minutes, a sense of heat, stimulates the circulation, and is followed by gentle perspiration. Taken before meals the water stimulates the appetite, and when drunk a couple of hours after meals renders digestion more rapid. A drawback to its use is that it is constipating to most persons (90 per cent.), and does not agree with all patients. The Source Descures is more disagreeable to take, and it often, but by no means always, has a very gentle laxative effect. It is therefore necessary in many cases occasionally to administer a purgative. The water of La Reine spring is believed to have a strong effect on general nutrition by encouraging more complete oxidation of the albuminoids, since the quantity of urea as well as of uric acid is increased.

The temperature of the bath is regulated according to the condition of the patient, and varies from 90° F. to 93.6° F. for cardiac cases, while for those suffering from rheumatism the temperature is from 88° F. to 104° F. It is a notable fact that a bath of 98.6° F. will seem colder to some patients than one of 90° F. to others. The baths last from fifteen to thirty-five minutes, and are often accompanied or followed by hot general or local douches, but the bath followed by the submarine douche is characteristic of the Bourbon Lancy treatment, although it has been adopted elsewhere. The water used in the submarine douche is generally warmer than that of the bath. The nozzle of the douche is held 5 or 6 in. from the patient under water, and the force of the spray is thus broken. It is applied first to the lower limbs—particular attention being given to the joints—then to the abdomen, especially over the hepatic region. The upper part of the body is seldom douched, but the patient turns on his face and the douche is directed to the loins and to the lower part of the thorax. The submarine douche is a kind of massage under water, but is much less fatiguing. After the bath the patient is wrapped in a thick flannel dressing gown, from the waist downwards a sheet is bound round him, and his feet and head are wrapped in bath towels, the face alone being uncovered. He is thus conveyed in a carrying chair to his bed, and left wrapped up from ten to fifty minutes according to the results wished for. In cases of rheumatism it is usual to peel off the coverings gradually, and then to rub the patient with horsehair gloves or with a flannel steeped in eau de Cologne. This rubbing stimulates the peripheral nerves

produces a general tonic effect, and guards against chill. During the first week of the treatment rheumatic patients feel worse during the day than when they arrived, nevertheless they sleep better at night, become less excitable and anxious, and the appetite improves. The general effect is to increase the elasticity and tonicity of the peripheral vessels, and so to produce a derivative and depletive effect on the internal organs. By varying the temperature of the bath, the effect on the frequency of the heart and on the blood pressure can be modified.

In short, then, the claim made for the treatment at Bourbon Lancy is that the baths accompanied by douches have a sedative effect on the nervous system, inducing sleep, while stimulating general nutrition.

General douches of various kinds are much employed, as well as massage and mechanical exercises, a room fitted with Zander appliances being at the disposal of the patients who are ordered this treatment. There is a splendid swimming bath, through which water from the springs, generally cooled, is constantly running. The water is of a clear bluish colour, and feels very buoyant and light to the swimmer.

An interesting institution at Bourbon Lancy is that founded by the Marquis d'Aligre, who left three and a-half millions of francs to endow a hospice, where yearly 500 sick poor people are housed and fed, in order to enable them to go through the cure. A bath-house, much more expensively equipped than the bath-house of the *Etablissement*, has lately been built and fitted with baths and douches.

As Bourbon Lancy becomes better known many people will find their way there who now journey to Nauheim. It is cheaper, it is in France, and the advantage to invalids of French cookery over German is indisputable.

GENERAL MEDICAL COUNCIL ELECTION.

ELECTION OF DIRECT REPRESENTATIVES.

ENGLAND.

The following is the result of the poll formally declared after the meeting of the English Branch Council on December 11th:

Browne, Henry Langley (West Bromwich) ...	4,861
McManus, Leonard Strong (Wandsworth) ...	4,286
Latimer, Henry Arthur (Swansea)	4,002
Jackson, George (Plymouth)	3,985
Brown, George (Callington, Cornwall) ...	3,773
Smith, Joseph (London)	2,489
Smith, Frederick John (London)	2,013
Broadbent, George Harry (Manchester)...	1,785
Renshaw, Charles Jeremiah (Ashton-on-Mersey)	1,088
Rhodes, John Milson (Didsbury)	855

Dr. Langley Browne, Dr. McManus, and Dr. Latimer were therefore declared duly elected.

SCOTLAND.

The following is the result of the poll formally reported by the Scottish Branch Council on December 11th:

Walker, Norman (Edinburgh)	1,397
Bruce, William (Dingwall)	968

Dr. Norman Walker was therefore declared duly elected.

We have received the following communications from candidates at this election:

ENGLAND.

Dr. Langley Browne telegraphs his most cordial thanks to his workers and supporters.

Sir,—I wish to express my thanks to the 3,985 of my professional brethren who voted for my return to the General Medical Council, where I had the honour to represent the members of the medical profession for the last five years. I have every reason to believe and trust that the newly-elected Representatives will carry out the same progressive principles as the late Direct Representatives did.—I am, etc.,

Plymouth, December 12th, 1906. G. Jackson.

Sir,—I will thank you to permit me through your valuable columns to express my gratitude to the 3,773 medical practitioners who during the election just concluded recorded their votes in my favour. My thanks are especially due to those who have voluntarily worked for me for several weeks past in the hope to secure my re-election. I must confess to feeling disappointed at the result as I had hoped that the recollection of past services—ten years as a medical councillor—would have had greater influence when voting papers were before the electors, but I am cheered by the reflection that more can be done for the profession and the public as a "Free Lance" than would be possible if wrapped in the constricting robes of a medical councillor. I have long felt that the battle of medical reform must be fought outside the Council Chamber.

Again thanking you for your courteous indulgence.—I am, etc.,

George Brown.

Callington, Cornwall, December 12th, 1906.

Sir,—Will you permit me to express my gratitude to every one of the 1,785, whether lady or gentleman, who has taken the trouble to vote for me, and to say that I do not regret having taken part in the fray; that many happy incidents have occurred, especially communications from old friends all over the country, and that the result will have no deterrent effect upon my efforts for the union and interests of the profession generally, and that I am glad to have had the opportunity of placing so prominently before the profession my views on essential matters in medical politics. It is just possible that organization has carried the day rather than sound views without it. We in the north are, perhaps, too happy in our independence.

Above all I must express my thanks to the medical press generally for the liberal grant of space both for my friends and myself.—I am, etc.,

Manchester, Dec. 12th. G. H. Broadbent.

SCOTLAND.

Sir,—Will you allow me through your columns to thank the profession in Scotland for the great honour it has done me in electing me as its Direct Representative on the General Medical Council? It shall be my earnest endeavour to warrant the confidence.—I am, etc.,

Edinburgh, Dec. 12th. Norman Walker.

Dr. Bruce desires to return his best thanks to the electors who recorded their votes in his favour on the occasion of the recent election of a Direct Representative for Scotland on the General Medical Council.

Although unsuccessful, he is not the less grateful for the large amount of support of which he was the recipient. He takes this opportunity of recording afresh his great obligations for the kind favour bestowed on him by his constituents in the course of the last twenty years, during which he has endeavoured, to the best of his ability, to serve their interests.

Dingwall, Dec. 11th.

REPORT OF REGISTRAR ON THE ELECTION FOR ENGLAND AND WALES.

At the meeting of the English Branch Council on on December 11th, the Registrar (Mr. H. E. Allen) presented the following report:

REPORT.

The Election which terminates to-morrow being the first that has been held under the new Regulations of the Privy Council, establishing voting by ballot, I should perhaps report on the steps that have been taken to carry out those Regulations.

Under the new system many of the old Regulations are unchanged. They remain the same as to the issue of advertisements, the fixing by the Returning Officer of the last day for the receipt of nominations, the issue by him of the precept to the Branch Councils, and the conduct of the proceedings by the Branch Councils; but the mode of recording and ascertaining the votes has been entirely changed, and the changes introduced had to be carefully studied. To this work the President kindly gave great attention, and under his supervision papers were framed and arrangements made to comply with the newly prescribed conditions. As a preparatory step, and one that occupied several months, an Electoral Roll had been produced containing the names only of those Practitioners who were resident in England and Wales and including all the latest registrations and changes. In this Roll a number constituting one of a continuous series was assigned to each Practitioner, and this number had to appear on all his papers. It was stamped on the envelope he received from the Office, it was placed on the back of his Voting Paper, and it was printed on the envelope, called

the Identification Envelope, in which the Voting Paper had to be returned. This plan served more than one purpose. It ensured that papers were issued to every Voter, for had any one been omitted, the numbered enclosures remaining unused would have been silent witnesses to call attention to the omission, and it was also rendered impossible for any one to vote more than once, for the series of numbers of the returned papers being recreated before the counting, any duplicated or fabricated number would be at once apparent.

The Voting Paper and the Identification Envelope in which it had to be returned were designed in conformity with the Regulations of the Privy Council. Towards the top of the envelope appeared the voter's name and description, in the form of a cutting from the *Register*, and this was followed by a declaration, to be signed, stating that the person whose signature was appended was the person respecting whom the preceding description appeared in the *Register*.

With the working of the system of voting members no doubt are familiar, the chief features of it being that the paper on which the voter had placed one or more crosses indicating the person or persons for whom he voted was to be folded with its face inwards, placed in the Identification Envelope, securely fastened, and then returned to the office in a covering envelope that was provided.

According to the time-table that was approved by the Branch Council, all the papers were sent out on or before November 29th, and as they were returned the work was at once undertaken by the staff of dealing with the letters, this work being chiefly done in the evenings after the usual hour for closing the office. The outer envelopes were removed and the Identification Envelopes (of course unopened) were arranged numerically and then carefully examined to ascertain that there were no duplicate numbers, and that they were properly signed so as to correspond with the registered description of the voter.

On Saturday the 8th, in the presence of the President as Returning Officer, the scrutiny was proceeded with, and was followed by the opening of the envelopes and the transference of the Voting Papers into the ballot boxes. This occupied nearly the whole of the day, and the actual counting only commenced at 6.30 in the evening, and was continued till about 11 o'clock, when the ballot boxes containing the uncounted papers were locked up and sealed.

On Monday the work was resumed, and the experience of Saturday having shown the heaviness of the work, a larger staff was employed to get it completed in time. On this day three candidates or their representatives attended and watched the proceedings.

The counting was finished at 6.30 p.m., and the result carefully ascertained on Tuesday morning.

To refer now to the statistics of the Election. The total number of Voting Papers sent out was 24,659, against 23,473 in 1902, the constituency having increased during the interval of four years by 1,186. The total number of papers received back was 12,828, or 52.02 per cent of those issued.

This total was made up of:
11,917 Envelopes containing possible votes.
911 Letters returned through the Dead Letter Office.

12,828 Total returned.

Unfortunately, however, all the envelopes containing possible votes did not contain valid votes, notwithstanding the great pains that were taken to give the clearest directions on the papers issued.

Want of familiarity with the new method of voting may have been one reason for this; but the fact remained that there were found to be no less than 1,503, or 12.61 per cent. invalid papers, as one or other of the prescribed conditions had not been fulfilled, and the Privy Council Regulations are stringent that if any one requirement is not complied with the vote is invalid.
Thus:

As to the Envelopes:
(*a*) The Declaration on the Identification Envelope must be signed by the Practitioner voting.
615 were not signed.
(*b*) The Identification Envelope must be securely fastened.
467 showed no attempt at fastening, the envelope being left entirely open.

As to the Voting Papers:
(*a*) The Voting Paper must be placed inside the Identification Envelope.
193 were not so placed.
(*b*) The Voting Paper must be folded face inwards.
2 were not so folded.
(*c*) The Voting Paper must arrive on or before the prescribed day.
165 did not so arrive.
(*d*) The Voting Paper must be marked only with a cross.
35 were not so marked.
For various reasons
26 other votes were also invalid.

In this connexion it may be stated that any doubtful points were not only considered by the Registrar, but referred to the President or the Solicitor.

To sum up:
The total of 24,659 Voting Papers sent out this year are accounted for in the following way:

11,752 (or 47.65 per cent.) were returned by the Voters within the proper time according to the Regulations;
165 (or 0.66 per cent.) were returned by the Voters, but received at too late a date to be lawfully reckoned in the enumeration;
911 (or 3.6 per cent.) were returned through the Dead Letter Office; and
11,831 (or 47.97 per cent.) did not come back in any way.

24,659

The following table is added to indicate the number o votes tendered at the successive elections that have taken place:

	Voting Papers Returned.	Percentage of Constituents taking part in the Election.
In 1886	13,395	74.1
1891	12,002	61.3
1896	12,227	54.2
1897	13,466	59.6
1901	9,179	39.4
1902	11,176	47.6
1906	11,917	48 3

In concluding this Report the Branch Council will perhaps allow me to do what I feel to be at the same time a duty and a pleasure—namely, to testify to the efficient manner in which I have been assisted by the Staff. The new method of recording the votes rendered the work heavier than it has often been. It was found necessary to supplement the strength of the office by the engagement of only four outside poll clerks, all the rest of the work being done by your Officials; and to Mr. King and the other members of the Staff my thanks are due for the zeal and energy with which they have carried out their duties. I beg leave to make this acknowledgement in the presence of the Branch Council.

Mr. Andrew Carnegie has promised to give £10,000 to the Philadelphia College of Physicians on condition that the College itself succeeds in raising £20,000. The money is to be applied to the erection of a new building.

French Congress of Gynaecology and Obstetrics.—The fifth meeting of the French Periodical Congress of Gynaecology, Obstetrics, and Pediatrics will open at Algiers on April 1st, 1907, under the presidency of Professor Queirel of Marseilles. Professor Queirel will also preside over the Obstetric Section, Professor Boursier of Bordeaux over the Gynaecological, and Dr. Guinon of Paris over that of Pediatrics. The General Secretary is Professor J. Rouvierm, 52, rue Daguerre, Algiers. The subjects proposed for discussion are as follows:—*Obstetrics:* Cancer and Pregnancy, to be opened by M. Oui of Lille. *Gynaecology:* Genital Prolapses, to be introduced by M. Delanglade of Marseilles. *Pediatrics:* (1) Medicine—Paludism in the Child, to be introduced by Dr. Crespin of Algiers; Splenomegalies in Children, to be introduced by M. Rist of Paris: Infantile Anaemias, to be introduced by M. L. G. Simon of Paris. (2) Surgery—Tumours of the Kidney in Children, to be introduced by Dr. Mouchet of Paris; Acute Peritonitis in the Child (exclusive of appendicitis and tuberculosis), to be introduced by M. Nové-Josserand of Lyons.

MEDICAL NEWS.

DR. ACLAND, having been appointed by the Royal Colleges of Physicians and Surgeons Official Visitor to the examinations of the Cairo Medical School, has left London for that purpose.

AT the meeting of the Hospital Officers' Association at the new Gaiety Restaurant, Strand, on Friday, December 21st, at 8 p.m., Sir Henry Burdett will introduce a discussion on the excessive free medical relief, medical discontent, and the remedy for both.

THE Odontological Society of Great Britain gives notice that it is prepared to receive applications for grants in aid of the furtherance of scientific research in connexion with dentistry. Further particulars can be obtained from the Honorary Secretary, the Scientific Research Committee, Odontological Society, 20, Hanover Square, W.

IT is stated by the *Tribune* that fully a year is likely to elapse before the report of the Royal Commission on Vivisection is presented. The testimony which has been so far given will be issued forthwith, and in future the evidence will be published monthly.

THE Congo State Government, which some time ago established a hospital for sleeping sickness in the neighbourhood of Leopoldville, has decided to erect similar institutions at Nouvelle Anvers, Stanleyville, and Lusambo.

The Anglo-American Medical Association in Berlin, founded three years ago by Dr. J. H. Honan, appears to flourish: its object is to advise British and American physicians visiting Berlin for study with regard to the post-graduate work in the University, clinics, and hospitals. The Association meets every Saturday evening at 7.30 in the Heidelberg Restaurant, and further particulars can be obtained from Dr. J. H. Honan, Lutzow-Strasse, 78, Berlin, W. Particulars as to the next vacation post-graduate courses, which begin on March 1st, can be obtained from Herr Melzer, Zeigelstrasse, 10 (Langenbeck-Haus), Berlin.

THE annual dinner of the Society of Women Journalists was held at Trocadero Restaurant on December 8th, when over 200 people were present. The toast of "the Guests," proposed by Mrs. Burnett Smith (Annie S. Swan), the new President, in a humorous speech was acknowledged by the Lord Advocate for Scotland, who expressed the opinion that women had the opportunity of raising the tone of journalism. Other speeches followed, and a *conversazione* brought a most successful evening to an end. The annual report for 1905-6 shows that the society is doing a great deal of useful work, and that its influence is extending in many directions.

THE Friday evening meetings of the Royal Institution of Great Britain will be resumed on January 18th, when Sir Andrew Noble, Bart., F.R.S., will give an address on Fifty Years of Explosives. On February 1st, Sir Almroth E. Wright, M.D., F.R.S., will speak on the Methods of Combating the Bacteria of Disease in the Interior of the Organism. During February and March Professor Stirling of Manchester will give a course of six lectures on the Visual Apparatus of Man and Animals. It is stated that the ventilation of the lecture room has been improved during the recess by the installation of a large exhaust fan.

AT a meeting of the Otological Society of the United Kingdom, on December 3rd, the following officers were elected for the Session 1906-7: President, A. E. Cumberbatch; Vice-Presidents, A. H. Cheatle, J. M. Hunt, A. B. Kelly, and R. Lake; Honorary Treasurer, E. Law; Honorary Editor of *Transactions*, W. Jobson Horne; Honorary Librarian, L. A. Lawrence; Honorary Secretaries, H. S. Walker and E. B. Waggett; Council, F. W. Bennett, C. H. Fagge, J. Nelson, W. Permewan, and H. F. Tod. The annual dinner was held the same evening, Mr. A. E. Cumberbatch occupying the chair.

THE members and friends of the Glasgow University Club, London, dined together at the Trocadero Restaurant, Piccadilly Circus, on December 7th, with the Lord Rector of the Glasgow University, Mr. H. H. Asquith, in the chair. The Chairman, in proposing "The University and the Club," said that he had done his best to struggle with the ineradicable disability of having been born on the wrong side of the Tweed. He had, however, been for twenty years a Scottish member of the House of Commons, and therefore might claim to be a naturalized Scotsman. He did not want to make invidious comparisons, but Edinburgh was prim, starched, and almost old-maidenish, and all he could say for St. Andrews was that it was the only town in Scotland that still had about it the atmosphere and the glamour of an old mediaeval centre of learning, except in August, when the golf links were so crowded. In regard to Glasgow, there was something there in the combination of the best teaching with the most refined culture that gave the University a character peculiar to itself. The next toast was that of "The Guests," proposed by Professor J. Adams. This was replied to by Sir Richard Douglas Powell, who observed that when he visited Glasgow he had noted the cleanliness of the streets, and the great advances the community had made in sanitary science. The toast of "The Chairman," proposed by Mr. Lorimer and duly acknowledged, closed the evening.

QUINCENTENARY OF THE UNIVERSITY OF TURIN.—The University of Turin should have celebrated the five hundredth anniversary of its foundation two years ago, but, owing to the disastrous fire which destroyed its magnificent library and wrecked part of the buildings, the ceremony was postponed. This was held on October 27th last. The Rector, Professor Giampietro Chironi, delivered an address; Professor Arturo Graf discoursed on the university of the future, and a tablet with a commemorative inscription in Latin by Professor Ettore Stampini was unveiled. A collection of the most important documents relating to the history of the University, edited by Professors Stampini and Cipolla, has been published in honour of the occasion.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society, was held at 429, Strand, London, W.C., on November 30th, Dr. D. Havilland Hall in the chair. The accounts presented showed that the operations of the present year had so far produced a substantial increase in the financial strength of the Society. The sickness claims had been rather more than usually numerous, but for the most part of very short duration, so that the total amount disbursed had been well under the expectation. There were, however, signs of an epidemic of influenza. On two previous occasions this scourge had caused heavy disbursements by the Medical Sickness Society, and a considerable number of influenza claims have lately been received, though they had been of short duration. The recurrence of influenza epidemics is one of the risks which have to be provided against, and this can only be done by a continuance of the policy hitherto carried out by the Committee of treating the surplus produced by a good past as a reserve to be retained against the risk of a necessarily doubtful future. Prospectuses and all particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

LORD CHANCELLOR'S VISITORS IN LUNACY.—The body still called the Royal Commission on the Care and Control of the Feeble-minded was occupied during its last two sessions in hearing evidence with regard to the Lord Chancellor's Visitors in Lunacy. At the first meeting Dr. Nicolson, C.B., said that the three visitors, two medical and one legal, visited all patients found lunatic by inquisition twice a year, and new and special cases four times a year; they also visited under orders from the Lord Justices or Masters certain cases of infirmity or lunacy under the Lunacy Act, 1890. The jurisdiction was limited to England and Wales, except in special cases, and during the twelve months ended October, 1906, 1,523 patients were visited. The Visitors were the general advisers of patients and their families, and their visits were unannounced. At the second meeting Sir James Crichton-Browne, who has held the office of Lord Chancellor's Visitor since 1875, gave evidence. He said that the addition of the Chancery Visitors to the Board of Commissioners in Lunacy would not afford that Board the assistance of which it was urgently in need. He deprecated a change which would sacrifice practical efficiency. Insanity was largely preventable and curable, and there should be a strong, well-organized department of the central Government, not merely to protect the insane, but to elucidate the causes of insanity and conduct scientific investigation. The Board of Commissioners should be an integral part of a board of health, presided over by a Cabinet Minister. To strengthen the Board of Commissioners, which urgently needed reinforcement, he suggested the following additions: A paid chairman of distinguished position, two additional medical commissioners, a special statistical clerk, a permanently retained architect, and such additional clerical aid as might be deemed necessary. In reply to questions he said that the Chancery visitors had no duties which could not be carried out by the Commission, but it could not carry them out as at present constituted. Evidence was also given by Dr. Claye Shaw, and by Mr. Ambrose, and Mr. T. H. Fischer, K.C., Masters in Lunacy.

British Medical Journal.

SATURDAY, DECEMBER 15TH, 1906.

HOSPITAL REFORM.

The proceedings of the United Hospitals Conference held in London on December 6th are fully reported in the Supplement for this week. It will be remembered that the Hospitals Committee of the British Medical Association, after full consideration and investigation of the abuse of hospitals, drew up a series of propositions embodying the principles which should be followed in the administration of hospitals. The Committee then summoned a conference, which was attended by representatives of the managing committees of many hospitals both in London and in the provinces, between whom and representatives of the British Medical Association a free interchange of views took place. This conference, which was held in March, 1905, appointed a Joint Hospitals Committee, which was instructed to prepare revised and extended proposals, to circulate them to hospitals throughout the country, and after a reasonable interval to call another conference. The Joint Committee, having carried out the first part of its instructions, accordingly summoned the conference held on December 6th.

The attendance was large and included representatives of the managing committees of a large number of hospitals. Sir William Church, Consulting Physician to St. Bartholomew's Hospital, and a member of the Committee of King Edward's Hospital Fund for London, took the chair, and opened the proceedings in a speech which contained many shrewd and pertinent observations. He mentioned incidentally that the excessive cost of out-patients had been felt at St. Bartholomew's as long ago as 1682, and dwelt upon the necessity for co-operation amongst the hospitals themselves if the present abuses, especially those affecting the out-patient departments, were to be changed. With regard to the procedure of the Conference, he stated that the paper of proposals as to the administration and management of hospitals drawn up by the Joint Committee was to be regarded as a report of that Committee. Amendments to its clauses, therefore, could not be accepted, but an amendment to the resolution for the adoption of the report as it stood would be in order, with the result that the report would be referred back to the Committee. The point of procedure is of some importance, and did not seem to be fully appreciated by some of those present; and indeed much of the time of the Conference was occupied in coming to a clear understanding on this matter.

The resolution for the adoption of the report was moved by Sir Henry Burdett, K.C.B., who quoted statistics showing that the growth of free medical relief had exceeded the growth of population in London in a very marked degree. He recalled the conference on Metropolitan Hospital Relief in April, 1877, at which Sir Charles Trevelyan read a paper, and at which Sir W. Gull made the following pregnant remark: "The "poor have an idea that disease comes from Providence "and that it must be cured by drugs. Now if there is "any idea that requires rooting out it is this." Sir Henry then stated the ratio of persons receiving free medical relief to the general population in large towns, ranging from 1 to 14 in Portsmouth and 1 to 1.3 in Dublin. He urged that as hospital staffs consisted of consultants, only cases of peculiar difficulty should be sent there, and said: "The seeing of an "inordinate number of trivial cases wasted the time "of the consultant, wearied the attention of the "students, and fostered a habit of hasty diagnosis "and careless observation which tended to erroneous "and ineffective treatment. . . . The abuse was four-"fold; it existed, first of all, whenever a patient who "could afford to pay something for his treatment "received it for nothing; secondly, when a patient for "whom the Poor-law provided means of medical relief "obtained it at a general hospital; thirdly, when a "patient who had no direct claim to receive relief at a "metropolitan hospital still received it there; and, "fourthly, when tens of thousands of persons every "year attended the casualty department of the medical "charities, although the greater number of them "suffered from trivial ailments for which people in "other stations of life who paid for medical attendance "probably would not seek medical aid at all." He pointed out also that, owing to the greater comfort and hygienic perfection of hospitals, persons who formerly would have dreaded the thought of entering a hospital now eagerly sought admission. Finally, he urged that all hospitals should accept the proposals and carry out the principles embodied in them, especially those which laid it down that out-patient departments should be restricted to consultative purposes, and that hospitals should co-operate with provident medical institutions.

Dr. Frank Pope, Chairman of the Hospitals Committee of the British Medical Association, in seconding the resolution dealt especially with the effect on the medical profession of excessive free medical relief, and the action of the British Medical Association in the matter, pointing out the exceptional opportunities which the Association possessed through its widespread organization of obtaining information and assisting hospital managers to remedy defects in administration.

The Conference was evidently not unanimous in wishing to endorse there and then all the principles *en bloc*; some speakers, perhaps, failed to perceive that all the clauses of the report hung together, and that by removing a paragraph here and another there its whole intention and effect might be nullified. The discussion illustrated curiously and effectively the remarks of the Chairman on special departments, and the general craze for specialism, for exceptions and objections to various points came largely from representatives of special hospitals and institutions. It is quite possible that were reform rigidly carried out on the lines advocated by the Hospitals Committee some special hospitals might disappear, a result which might not be disadvantageous to the public nor altogether regretted by the profession. On the whole, however, it was evident that the meeting was not in favour of rejecting proposals which had been the outcome of so much labour and research, and resolutions were passed welcoming the further consideration of the principles embodied in the report of the Joint Hospitals Committee, approving the holding of an annual conference, and appointing a committee to carry on the work in the interval, and to act as an advisory body to hospitals in conjunction with the Hospitals Committee of the Association.

It remains to attempt an estimate of the probable results of this Conference, in many ways the most

important meeting ever held on the question. In the first place, this Conference and its predecessor have made it evident that there is far more inclination on the part of hospital managers to put their houses in order than many think. It becomes more and more clear that out-patient departments are those most in need of reform, perhaps more particularly special departments. Advice and not medicine should be supplied. The letter system, so many tickets for a guinea, is mischievous and ought to be amended. The work of the Joint Committee appointed last week will be to look over the proposals and perhaps elaborate and add to them. It is unlikely that it will materially alter them, but after revision they will be presented to the next Conference in possibly a somewhat more mandatory form. Meanwhile what is the position of the Association? It is clear that the forces of reaction and inertia render it necessary for the British Medical Association to press on with more speed than the Conference seems at present inclined to display, and it may be necessary for the Divisions to take action at an early date to press reforms on hospitals in their area if they are not administered satisfactorily.

Such action has already been taken by one important Division. In the SUPPLEMENT for this week is published a full report of a meeting of the Marylebone Division held on November 30th, which took into consideration some of the problems mentioned above. The Marylebone meeting was the first of a series which will be convened to discuss certain economic problems in the practice of medicine, which are pressing year by year more urgently for a solution that shall be at once, in Bentham's formula, for the greater good of the greater number, and satisfactory to the medical profession. The riddle, How is a doctor to live when what he has to sell can easily be got for nothing? has not yet found its Oedipus, and till he comes the economic Sphinx will ruthlessly exact the penalty. The long looked-for deliverer was not forthcoming at the meeting, nor indeed was there much in the proceedings to encourage the hope that he has yet made his appearance among men. It must, however, be borne in mind that the meeting was only introductory to others which may prove more fruitful, and that the discussion was confined to a single point.

This was embodied in a resolution to the effect that it is desirable that concerted action should be taken to check the large amount of gratuitous medical attendance granted to many sections of the community, inasmuch as it tends to diminish the thrift and self-respect of the public, lessen the esteem in which medical science is held, and has a detrimental effect upon the position of many members of the medical profession. Sir Richard Douglas Powell, who opened the debate, showed how far the modern hospital had departed from the original conception of a refuge for those in whom the sufferings of want were aggravated by disease. Up to a time well within the memory of living men the charity of hospitals was bestowed with so rough and so grudging a hand that only those who had nowhere to lay their head cared to enter them. The advent of better nursing and the revolution in treatment initiated by Lister transformed the hospitals into temples of healing to which people who had not the claim given by poverty flocked for treatment which it was difficult, and often impossible, for them to get in their own homes. For these the President of the College of Physicians would have "big provident hospitals" built. He thinks, however, that if the essentials of antiseptic and aseptic medicine and surgery were thoroughly grasped, the costly luxuries now demanded in hospitals might be dispensed with. With a sufficient staff of visiting nurses and co-operative stores where drugs and dressings of the best quality could be obtained at a reasonable rate, an immense number of cases now sent to hospitals could be treated at home. These things could, he thinks, be secured by combination between provident dispensaries and sick assurance societies. The bulk of those who now encumbered the out-patient departments should be referred to provident dispensaries, and these might be associated for consultative purposes with the physicians and surgeons of the great hospitals. Sir John Tweedy expressed the belief that there was very little abuse, but much misuse, of hospitals. All sections of the community should make complete provision for minor ailments, and partial provision for serious and prolonged illness, and that provision should be made by some system of partial payments to the hospitals, to the staffs probably, and probably payments towards the maintenance of the hospital, always under the guarantee of the medical practitioner who had charge of the case in the first instance. Dr. Kingston Fowler said the out-patient question had made no progress partly owing to the competition between hospitals for patients, and partly to the supposed need of large numbers of cases for purposes of medical education; as a matter of fact, however, a large proportion of ordinary medical cases were not used for educational purposes. The attempted promotion of joint action among the hospitals had failed. But the establishment of the three great Hospital Funds had created an entirely new situation These bodies had the power of the purse and could thus bring pressure to bear on the hospitals. The out-patient department should be replaced by the provident dispensary. Mr. Eder said the present system of private fees made the medical profession a parasitic class upon diseased persons and upon the diseased community. There was a conflict of interest between practitioners and patients. He proposed as a practical remedy the nationalization of the whole medical profession, or, if that term were objected to, the extension of the contract system. It existed very largely among the Government departments, the army, the navy, the Local Government Board, medical officers of health, and, to a certain extent, of course, in hospitals. Dr William Hunter suggested that homes should be established where the cost of treatment should be within the means of patients, and where they could be attended by their own doctors. With regard to hospitals, he advocated payment by in-patients on the ground that the scale of medical and surgical attendance and comfort now supplied to hospital patients was far in excess of anything which was contemplated when the original hospital system was founded. Mr. Herbert Tanner, chairman of the Chelsea Division, said that general practitioners felt that the staffs of hospitals, with very few exceptions, had taken no active part in helping to remedy a state of things which they regarded as very serious. Dr. Heron believed that the solution of the question lay in a system of insurance against sickness, accident, and old age, such as existed in Germany. The debate was continued by Dr. Keay, Dr. C. O. Hawthorne, Dr. Scanes Spicer, and Mr. H. W. Armit, and finally the resolution was passed with one dissentient.

We hail these meetings and the Conference as the beginning of a combined movement which may finally lead to a thorough reform of the hospital system. It may be well to point out that much help may be given by members of the profession, especially by general practitioners. In some districts it may be found expedient by them to summon public meetings to

instruct subscribers and others in the matter, and so induce them to bring their influence to bear in righting any abuses that exist. No better texts could be found for any member of the Association who seeks to inform members of the public of the present position of this important question than the passages which have been quoted above.

THE CANCER PROBLEM.

In the remarks with which he opened his Bradshaw Lecture Mr. Edmund Owen said that "in various ways, "time and circumstances seem almost to have sug- "gested" cancer as the subject of his choice. He might have omitted the "almost," for to pathologists as well as the public cancer is the problem of the hour.

A curious reader turning over the pages of the British Medical Journal for this year could not fail to get the impression that the selection was inevitable. As he lights upon fact after fact, as idea crowds upon idea, as he grasps the greatness of the effort being made, he must catch something of the spirit of expectancy and hopefulness animating the many minds absorbed in the search for a solution. He feels it in the air, that we are on the brink of discovery. It is well, therefore, that a voice of solemn warning should be raised to cry, "The time is not yet." If some have felt the dawn-wind of expectancy, the sun of realization has not yet risen.

Upon this point Mr. Owen speaks with no uncertain, sound. He gives it as his deliberate opinion that in the present state of our knowledge the only treatment of cancer likely to be successful is the free use of the knife. A surgeon feels his way with the caution of one whom long experience has taught to let his promise wait upon his knowledge; of one who knows that till the possibly complex factors which give rise to the disease have been unravelled, no specific treatment worthy the name of cure can be found. And yet with what brazen assurance are false "cures" cried in the market-place!

It was doubtless because the lecturer felt that his audience was not confined to the four walls of the College of Surgeons, but comprised a wider public outside, that he seemed to include in one category of futility every measure save the knife. If we look at the chances of ultimate cure this is true, but it is not the whole truth. After all, we treat, not cancer, but its victim, who has anxious friends eager that something, anything, should be done, and it is no small measure of success if light, or high-frequency effects, or *x* rays, or drugs however administered, can do something to alleviate pain, arrest the spread of disease, and achieve euthanasia.

So much was tacitly and gladly admitted in the sympathetic reference to Dawbarn's "starvation" method, a purely surgical procedure for which all that its author claims is an added year to the expectation of life. Doyen's "serum" method is condemned and rightly condemned, but it must not be overlooked that Wright, working with vaccines of the *Micrococcus neoformans*, claims to have obtained in one or two of his first cases all the shrinkage and relief of pain claimed by Dawbarn. This is not particularly encouraging, but the least glimmer of hope is to be welcomed where all is hoped.

We cannot but welcome the admonition addressed to irresponsible newspaper scribes who delude the credulous with false hopes. At the best of times it is difficult enough to instil into the minds of patients and their friends a just appreciation of the true state of the case, and now when anticipation is so eager the task is doubly hard. Drowning men catch at straws, but no words can be too strong for the cruelty which throws them straws in the guise of life-belts.

The necessity for early interference, and wide continuous excision of the lymphatic tracts affected in carcinoma, has been the subject of several papers published in the Journal, and is so generally acknowledged that there is no danger of its importance being overlooked by the rising generation of surgeons. It seems to us, however, that Mr. Owen's remarks about surgeons' statistics are somewhat open to misunderstanding. Certainly the figures compiled by brains too tired for rigorous analysis are unlikely to be profitable to surgery; yet surely it was in some measure on his statistics of "recurrence" or "freedom," that even Sir William Banks, to whose memory a fitting tribute was gracefully paid, based his advocacy of free and wide removal of axillary tissues. For what is experience save statistics in essence? Yet how often is one in doubt as to the exact dictum of one's experience without the austere reference of hard figures!

Every one interested in the welfare of the human race and in the advance of science will regret to learn that there is danger of the work of the Imperial Cancer Research being hampered by lack of funds. Of the immense value of that work there can be no doubt, and there is solid ground for hope of ultimate success. We have the fullest confidence that the secret will in time be wrested from Nature; but the task is difficult and the work may be long. There are obstacles in the way to which Mr. Owen alludes, but we do not believe that the progress of a work which has received such influential and enlightened support will be seriously hindered either by waning faith or perverted sentiment. The impatience which clamours for immediate results is one of the greatest obstacles to scientific research. The builders of the Temple of Science build slowly, but they build for all time. As Parini says:

> Prove accumula a prove!
> Del popolare error l'idol rovina
> E la salute ai posteri destina.*

The results of experimental work in cancer conducted under the guidance of Dr. Bashford are well known to our readers. There is, however, stored in the textbooks of veterinary pathology an observation upon certain infective tumours of the genitalia of dogs which have been classed as sarcomata. So recently as last week Shattock was able to demonstrate that these growths were not only histologically indistinguishable from a large round-celled sarcoma, but that they produce true metastases. That cancer is communicable in mice by inoculation is an interesting and highly important observation, and this supplemental fact is deserving of consideration.

THE TEACHING OF MIDWIFERY.

In the British Medical Journal of June 9th, 1906, we commented on a report on the teaching of midwifery drawn up by a Committee of the General Medical Council. That report has since been sent to all the licensing bodies and teaching institutions in the United Kingdom other than those recognized for the first year's subjects only. Most of them have replied. The Committee have considered the observations received, and modified the recommendations in their former report to meet, so far as seemed to them advisable, various comments and criticisms sent.

* Experiment follows experiment: the idol of popular error is thrown down, and health is ensured to posterity.

The first of the recommendations they now make is that every student, before commencing the study of practical midwifery, shall be required to have held the offices of clinical medical clerk and surgical dresser. This only stiffens into law what has been the custom in most medical schools.

In their previous report of May 25th, 1906, the Committee advised the Council to enact that the student should have attended a course of lectures on medicine, surgery, and midwifery, and during one month have given "undivided attention" to the indoor practice of a lying-in hospital or the lying-in wards of a general hospital. Several of the bodies consulted pointed out that great practical inconvenience might result from too rigid an interpretation of the words "undivided attention," and the Committee, in its new report, have dropped the words "undivided attention," and substituted for them "regular daily attendance." It has dropped also the recommendation to require attendance on a course of lectures on medicine, surgery, and midwifery as a necessary preliminary to the practical study of midwifery. We think, as the Committee probably does, that the place in the curriculum of the lectures is not very important. The Committee also recommends that the student shall have "conducted twenty cases of labour "under official medical supervision." The Scottish authorities have for many years thought ten enough. The Committee of the Medical Council does not think so; and if the Council adopts the view of its Committee, Scotland will have to double the opportunities of midwifery instruction for its students, which is a large order.

But the most important of the changes which the Council proposes to make is that each student before attending his twenty cases of labour must either have "regularly attended the indoor practice of a lying-in "hospital for a period of three months, and to have "received therein practical instruction in the conduct "of labour, under the personal supervision of a medical "officer;" or "have during one month given regular "daily attendance upon the indoor practice of a lying-in "hospital or the lying-in wards of a general hospital, "and to have therein conducted cases of labour under "the personal supervision of a medical officer of the "hospital, who shall, when satisfied of the student's "competence, authorize him to attend out-door cases "under official medical supervision."

Before making these recommendations, the Committee consulted, as we have mentioned, each of the medical schools. Of the twelve schools in London, seven only have expressed their views; two have postponed their replies (although we should have thought they had had ample time to frame their answers), and three have not replied. One school contents itself with a general approval of the principle. One makes the singularly inept reply that it is satisfied with its arrangements for the teaching of midwifery, but on this pinnacle of self-satisfaction it stands alone. The others all agree that the proposals of the Medical Council's Committee are impracticable. We said so in our article of June 9th. This difficulty mainly affects the London schools; for the students of many provincial schools have the opportunity of attending lying-in hospitals, so that with them the only difficulty is as to the quantity, not the quality, of the teaching at present given.

What, then, will the Council do with the report of its Committee in face of the fact that the London schools declare that the scheme it proposes is impracticable? We may in passing express our surprise that so many London schools should have let so important a matter pass without expressing an opinion.

We can imagine some one may urge that the recommendations are right; that the method of teaching midwifery which is prescribed is the only right way; and that

> Because right is right to follow right
> Were wisdom in the scorn of consequence;

and, therefore, that if the London schools cannot completely change their method of teaching midwifery, so much the worse for the schools, which must in that case acknowledge that they cannot properly teach midwifery, cease to offer a simulacrum of proper teaching, and send their students to learn midwifery elsewhere.

What would be the consequences of this course? Without doubt a number of students who would otherwise go to London for their medical education would for economical reasons go to medical schools where they could get midwifery teaching of the prescribed kind; and the number of men studying medicine in London, much reduced of late years, would be still further lessened. Would this be a good thing? Looked at as a whole, all round, the medical schools of London are among the best in the world. They are so because London is the largest city in the world, the one which provides the largest amount of clinical material for teaching and research, and the one which provides a sufficient amount of private practice for high fees to enable those who have distinguished themselves in teaching and research to earn a livelihood and yet give much time to communicating their knowledge to others. Insistence on a measure which would cripple the London medical schools would be a disaster to medical science. The Council must remember that even if all the London teachers agreed with the report of the Committee and wished to provide the needful lying-in wards, the thing could not possibly be quickly done. We hope the Council will be cautious, and remember that midwifery, though an important thing, is not the only or the principal thing in the curriculum, and that although it may not be taught in the best possible way in London, yet it is taught, and the English accoucheur is not inferior to those of other countries. We hope also that the teachers in London will take the matter more seriously. The method of teaching midwifery recommended by the Committee is without doubt the best, but there is equally little doubt that so far as London is concerned it is at present impracticable. To make it practicable so much time and effort will be needed that the Council, we submit, must not be in a hurry. It is possible for improvement in midwifery teaching to be too dearly bought, and it certainly may be too hastily demanded.

There is an aspect of the question which does not come within the purview of the Council. The London hospitals have each of them large out-door maternity charities, much valued by the poor, and therefore by the subscribers to and committees of hospitals. If maternity beds in hospitals should be provided in number adequate for the midwifery teaching of all the students, these maternity charities will disappear. There is a large body of lay opinion that would have to be convinced that this change was for the benefit of the poor before it could be made.

The matter is important, but we must again plead against premature action. It is not worth while to restrict to a few the magnificent opportunities of learning clinical medicine and surgery that London offers in order that the many may be taught midwifery in lying-in hospitals. But this would be the result of forcing on this change at a time when it is impossible for the London schools to carry it out.

THE ELECTION OF DIRECT REPRESENTATIVES.

The result of the election for Direct Representatives in England and Wales and in Scotland is reported in another column. It will be seen that Dr. Langley Browne of West Bromwich, Dr. McManus of Wandsworth, and Dr. Latimer, of Swansea, have been elected, and that Mr. George Jackson and Mr. George Brown (the two former members who stood again) have been defeated, Mr. Jackson by a narrow majority. In Scotland the former member, Dr. Bruce, has been defeated by Dr. Norman Walker by a large majority. Thus during the present year the direct representation of the profession on the General Medical Council has been entirely changed, for last February Dr. Leonard Kidd was elected the Representative of Ireland by a majority of a few votes over Sir William Thomson, the former member. It is not worth while to go into the history of the proposal that the British Medical Association should, as an association, take an active part in the contest, nor need the reasons which led to the abandonment of the scheme be stated. As a matter of fact, there is reason to believe that members of the Association individually took far more interest in this election than in the preceding contest, and it will be observed that the successful candidates in England and Wales were all among those who were proposed for selection by the Association had the scheme been persevered in. Of the successful candidates in England and Wales, Dr. Langley Browne, who heads the poll by a considerable majority, has served the office of President of the Birmingham Branch, and is at the present time Chairman of Council of the British Medical Association. Dr. McManus, who stands second, is a member of the Medico-Political Committee of the British Medical Association, and chairman of its Parliamentary Subcommittee; while Dr. Latimer is deputy chairman of Representative Meetings and a member of the Medico-Political Committee. In Scotland the successful candidate, Dr. Norman Walker, is a member of the Central Council of the British Medical Association and chairman of the Science Committee. On the present occasion over 52 per cent. of those entitled to the franchise in England and Wales sought to make use of their votes; and this is an improvement on 1901, when less than 43 per cent. voted. The large number of abstentions even on the present occasion is, however, an unfortunate circumstance, since it will undoubtedly be used as an argument against making application for a further representative by those who are opposed to that course. An interesting feature of the result is that the electors appear to have recognized to a certain extent the principle of territorial distribution, since the successful candidates practise in the Midlands, in London, and in Swansea respectively. The North is unrepresented, and what might have happened had Mr. Rutherford Morison been able to persevere with his candidature, and had the Lancashire vote not been divided, it is impossible to say.

THE VICTORIA BRANCH AND THE MEDICAL SOCIETY OF VICTORIA.

The *Australasian Medical Gazette* announces that the negotiations which have been carried on for some months past between the Medical Society of Victoria and the Victoria Branch of the British Medical Association have been brought to a successful issue. All the details of union have been agreed upon, and the agreement has been forwarded to this country for confirmation by the Central Council of the British Medical Association. We understand that the Organization Committee has the matter under consideration, and that it formed the subject of discussion at the meeting of the Committee on December 11th. One result of the union will be the addition of three hundred members to the British Medical Association. But the union means much more than this. As the *Australasian Medical Gazette* says, it should prove of benefit not only to the profession in Victoria, but throughout Australasia, as the profession throughout Australia and New Zealand now becomes united into one powerful body. We heartily congratulate all concerned on the successful accomplishment of a measure that will strengthen the profession in the Antipodes, and help to promote its federation throughout the Empire.

UNION.

At a recent meeting of the Halifax Board of Guardians there was a hot discussion of considerable interest to members of the British Medical Association, since its starting point was action taken at head quarters and by the Halifax Division of that body. Some little time ago it was brought to the notice of the Division that the Halifax guardians in advertising for candidates for the post of lady resident medical officer at the infirmary, were assessing the value of the work to be done at a much lower rate than formerly and offering a salary which, with full information as to the nature of the work before it, the Halifax Division deemed considerably less than ought to be accepted. The appointment was therefore inserted in the list of warning notices published in our advertisement columns, with the result that the two ladies who had been selected for alternative choice both informed the guardians that they must withdraw their names unless the pay allotted was restored to the previously existing scale. The Committee of the Hospital considered the matter at length, and finally submitted to the General Board a memorandum on the matter. This roundly condemned both the British Medical Association and its Division for daring to interfere in the matter, and, generally speaking, was of such a nature as to be described by a member of the General Board as having apparently been drawn up by some one who had got on a kind of pedestal and was entirely unapproachable. Finally, the report was accepted, but only after long discussion and the deletion of passages considered offensive and likely to produce a deadlock between medical men and the guardians. The special interest of the matter lies, however, in the fact that several members of the General Board of Guardians upheld the view that it was wrong to reduce the salary from £140 to £100, and warned their fellows not to enter into a contest with medical men. Some said they themselves belonged to trade unions, and that the medical profession in taking up these matters were perfectly right, and the action in this particular case in every way justified. One went so far as to add that if any member of the profession had accepted the post, after warning notices had been issued and knowing that the pay had been cut down, the action would have been that of an ordinary blackleg. The incident is quite sufficient by itself to prove the value of the warning notices, and to show also that in attempting as a united body to safeguard the interests of its members the medical profession is taking a course which business men regard as sensible and just.

THE CONQUEST OF CANCER.

It is a curious coincidence that almost at the same moment as Mr. Edmund Owen uttered his solemn warning to the public to put no faith in cancer "cures," the "conquest" of cancer should be trumpeted forth with a peculiar brassiness of note in an evening newspaper by a member of the medical profession. While Mr. Owen, speaking with the dignified reserve of the scientific surgeon, regrets that it is out of his power to call attention to any modern method of treatment of cancer which can honestly and confidently promise a cure, Dr. C. W. Saleeby, whose right to speak *ex cathedra* on the matter may fairly

be questioned, proclaims in the *Pall Mall Gazette* of December 10th, that cancer has been "conquered," or at any rate that we are approaching this desirable consummation. He is so full of zeal that he disdains to offer any vestige of apology for the means he is taking to bring this matter before the public and the profession. "I must write," he says, "when "and where I can be best and soonest heard; "otherwise my unique opportunities and the "almost incessant study of the past ten months "would be wasted, so far as immediate action is con-"cerned." His excitement growing as he goes on, he exclaims, "If an Englishman's work, bruited in America "by me, can save despaired-of lives there, why in the "name of the Eternal, not here also?" Dr. Saleeby is not the Conqueror, but he claims to be his Prophet; unfortunately the prophet has to go abroad, and it is useless to write to him. The public may be expected to bear his absence with fortitude. And what is the wonderful weapon with which cancer is to be "conquered"? The profession will learn, without much enthusiasm, that it is nothing else than trypsin. For this substance marvellous virtues in the digestion of cancer cells and the destruction of cancerous tumours have been claimed by Dr. John Beard of Edinburgh, whose address is considerately given by Dr. Saleeby. We have no wish to speak harshly of a brother scribe labouring in his vocation, but in the public interest we feel it our duty to point out that the evidence of the destructive effect of trypsin on cancer offered by Dr. Beard is of the slenderest and most unconvincing character; and that the substance is among the things referred to in the following passage from the fourth Annual Report of the Imperial Cancer Research Fund: "Attention has been given to "the examination of various so-called 'cancer cures,' "but investigation has failed to show that any value "can be attached to them." Every journalist who has a proper sense of his responsibility will, we are sure, agree with the next sentence in the report, which runs as follows: "In this connexion the Executive "Committee cannot but regret the publicity afforded "from time to time in newspapers and peri-"odicals to very misleading notices in favour of "the numerous so-called 'cures.'" Dr. Saleeby has allowed himself to be carried away by reports of cases received from Dr. W. J. Morton and from another American surgeon, who, he says, made a pilgrimage to London to see him, and was sent on by him to the true shrine in Edinburgh, and from other American "pioneers" and unnamed Neapolitan "experts." Dr. Morton, it seems, has used the remedy in twenty-nine cases, and "writing after eight months' "trial," he is said to report three hopelessly inoperable cases "cured to date." But it is the "date" that matters, and as to that no information is forthcoming. We must therefore possess our souls in patience till the text of Dr. Morton's report reaches this country. In the meantime we note that great importance seems to be attached by Dr. Morton to the fact that trypsin produces local and constitutional reaction. Are we not all familiar with this reaction after tuberculin and other substances, the hopes founded thereon, and the miserable crumbling of these under the stress of after-experience? We may further call attention to the last of Dr. Morton's "comments" on the cases which Dr. Saleeby has thought it necessary to reproduce "with-"out a moment's delay." It is to the following effect: "It "is only lately (November 23rd) that I have been able "to get a microscopical report (Case 1) of the actual "effect of trypsin upon a cancerous tumour. This "report lent entirely another aspect to the work, and "encourages me, as it doubtless will others." On Dr. Morton's own showing, therefore, only three weeks ago he knew little or nothing about the effect of trypsin! Dr. Saleeby asks "those concerned whether an imme-"diate and imperative duty is not involved in "the knowledge of Professor Morton's report" which he has afforded them. To this we reply that we cannot accept Dr. Morton's cases as examples of cure on the authority of a gentleman who tells us that he does not practise medicine or surgery, who has not seen the patients, and whose "unique oppor-"tunities" would therefore seem not to have included any clinical experience of the treatment which he vaunts so loudly. We may remind him that in science, as in law, what the soldier said is not evidence. Moreover, to speak frankly, the tone in which Dr. Saleeby delivers his testimony does not inspire us with confidence in his capacity to see things steadily and see them whole. We are sorry to say, therefore, that we are inclined to think that the "conquest" of cancer is like Polonius's supper, "not where he eats, but where "he is eaten"—a conquest in which cancer is the conqueror and man the conquered.

PHARMACOPOEIA REVISION.

In order that the issue of a new *British Pharmacopoeia* may not only give official status to drugs and preparations that have come into use since the compilation of the previous edition, but may also embody the well-considered and sifted results of the criticisms levelled at the latter, some definite machinery is necessary for collating and weighing all such criticisms. The next *Pharmacopoeia* to be issued may fairly be expected to be more thoroughly abreast of the current work of pharmacists and others than its predecessors, inasmuch as the machinery for the collection and testing of improvements and criticisms has been much improved. At the recent meeting of the General Medical Council, the Pharmacopoeia Committee submitted a report from the Committee of Reference in Pharmacy, which consists of pharmacists nominated by the Pharmaceutical Societies of Great Britain and Ireland; their task has been to submit recommendations concerning various alterations that have been suggested from time to time in the paragraphs of the *Pharmacopoeia*. These recommendations are now published by the General Medical Council, in accordance with the intention expressed in May, 1905, when the Committee of Reference was agreed to, in order that they may themselves stand the test of comments by other experts. The report, which is before us, consists in some cases of suggestions for alterations in tests, descriptions, or directions that are now official, and in others of approval or disapproval of suggestions that have been published by many other workers. It is necessarily concerned mainly with matters of detail, and, does not lend itself to summarizing. It gives evidence of much careful consideration, and if other sections of the work are as systematically looked after, the pursuance of this plan of criticism and re-criticism should lead to the production of a *Pharmacopoeia* in which every contribution of any importance has been incorporated.

THE BRITISH RED CROSS SOCIETY.

The British Red Cross Society, as newly constituted under the patronage of His Majesty the King and the Presidency of Her Majesty Queen Alexandra, has made considerable progress in its organization with a view to being prepared to offer immediate aid in time of war by supplying additional comforts and rendering such general help as may be considered beyond the reasonable scope of the official bodies responsible for providing for the casualties of war. With the personal assistance of the Marchioness of Londonderry, local branches have been initiated in most of the counties of England and in several counties in Ireland, and a report of the formation of the Birmingham Branch will be found elsewhere

in this issue. The Duchess of Montrose, with the co-operation of the St. Andrew's Ambulance Association, is establishing branches in Scotland. These branches will enrol members and associates either by a yearly payment or by guaranteeing to subscribe a fixed sum in time of war, and will deal with all offers of voluntary aid in their respective districts, and determine the particular form which that aid shall take after consultation with the central society. The probable requirements of the medical departments of the navy and the army, in the nature of voluntary supplemental assistance, have been ascertained, and a register has been compiled of tradesmen and others who have expressed their willingness to supply the Society on the most advantageous terms on the outbreak of war; anticipatory provision has also been made for the necessary storage and labour involved in connexion with active operations. By means of these arrangements elaborated in advance the Society is prepared—should war break out—to take immediate action, and to commence operations at a few days' notice.

NATIONAL LEAGUE FOR PHYSICAL IMPROVEMENT.

The first annual general meeting of the National League for Physical Education and Improvement was held at the Caxton Hall, Westminster, on December 7th. The Bishop of Ripon, Chairman of Council of the League, who presided, sketched its objects, pointing out the great variety of reforms with regard to the physical welfare of infants, children, and young people which it desires to promote. He dwelt on the importance of medical inspection of school children, and expressed the hope that, whatever fate befell the Education Bill, the provision it contained to make such inspection compulsory would shortly find its way on to the Statute Book; he also referred to the importance of securing a pure, clean milk supply, and observed that it was desirable that the rules and inspection under them should be uniform in all districts, otherwise farmers in those districts in which the rules were enforced would be at a commercial disadvantage. The adoption of the annual report and accounts was moved by Professor Howard Marsh of Cambridge, who gave some account of the working of the Cambridge branch, which he said already employed two health visitors, who worked under the immediate supervision of lady superintendents. The expenses were met by two public-spirited citizens who had each guaranteed the salary of a health visitor for two years. The value of the work done was becoming more and more appreciated, and another gentleman had now come forward with an offer to defray the cost of a third health visitor; all this had excited the emulation of the Corporation, which he believed would shortly offer to defray the cost of a fourth health visitor. He referred also to the work done for the League as a whole by the special committee of ladies, over which Mrs. Boyd Carpenter presided, and of which Mrs. Watt Smyth was the energetic honorary secretary. The motion was seconded by Sir Lauder Brunton, who mentioned that the Twentieth Century League, better known perhaps as the "Anti-Hooligan" League, had become amalgamated with the National League. One of the objects of the League was to bring expert opinion to bear upon every question affecting the national welfare; as an example he mentioned that the League had appointed a Milk Committee to report on the steps which should be taken to ensure the enforcement of regulations with regard to the purity of the milk supply, and, if necessary, to seek the extension to the whole country of the special Sheffield, Liverpool, and Manchester milk clauses. He dwelt on the necessity of giving instruction in hygiene in elementary schools, and expressed the opinion that the low mortality of the Japanese during the recent war from typhoid fever was due to the fact that the Japanese soldiers were better taught as children, and were therefore better able to understand that they should refrain from drinking bad water. The International Congress on School Hygiene, which is to meet in London next August, would, he said, result in the publication of a great amount of valuable information with regard to the experience of other countries in respect of physical education, holiday schools, and other schemes for the improvement of the physical health of children, and it would be the business of the League to carry the lessons to be learnt from this Congress into practical effect.

THE FRENCH ANTICANCER LEAGUE.

A Committee of Initiative has been formed for the purpose of carrying into effect Professor Poirier's suggestion of an organized struggle against cancer in France. The President is Professor Duplay; the Secretary, Professor Poirier. Among the lay members of the Committee are MM. Poincaré, President, and Berthelot, Perpetual Secretary, of the Academy of Sciences; Chautard, President of the Paris Municipal Council; De Selves, Prefect of the Seine; Lépine, Prefect of Police; Ranson, President of the General Council of the Seine; Mesureur, Director of Public Assistance; Lavisse, Director of the Ecole Normale; Pallain, Governor of the Bank of France; Morel, Governor of the Crédit Foncier of France; and Baron Edmond de Rothschild. The medical members are Drs. Guéniot, President of the Academy of Medicine; Guignard, Director of the School of Pharmacy; Roux, Director of the Pasteur Institute; Debove, Dean of the Paris Faculty of Medicine; Mairet, Dean of the Medical Faculty of Montpellier; Combemale, Dean of the Lille Medical Faculty; Lortet, Dean of the Lyons Medical Faculty; Pitres, Dean of the Bordeaux Medical Faculty; Caubet, Dean of the Toulouse Medical Faculty; Barrier, Director of the Alfort Veterinary School; Professors Chauveau, Bouchard, Becquerel, Gautier, Appel, Guyon, d'Arsonval, Yves Delage, Dastres, A. Fournier, Dieulafoy, Ch. Richet, Cornil, Berger, Landouzy, and Alb. Robin, of the University of Paris; Dr. Calmette, Director of the Lille Pasteur Institute; Dr. P. Delbet and Dr. Henri de Rothschild. As already stated in the Journal, the last-named gentleman handed a cheque for £4,000 to Professor Poirier immediately after the speech in which the creation of the Anticancer League was proposed by the latter, and further subscriptions to the amount of £6 400 have already been received. The Committee of Initiative has issued a strong appeal to the public for funds for the establishment of an institution for the scientific study of malignant disease. It is to be "free, autonomous, open to all and working for all; there the biologist, the zoologist, the veterinarian, the botanist, the chemist, and bacteriologist, etc., will collaborate with the medical clinician." It is stated that the Committee is about to approach the Government with a proposal for a lottery of fifteen million of francs (£600,000) for the benefit of the institute.

THE HOUSING COMMITTEE'S REPORT.

The report of the Committee of the House of Commons appointed last May to examine the provisions of Mr. Mackarness's Housing of the Working Classes Acts Amendment Bill, has been laid upon the table of the House of Commons, but is not published at the time we go to press. It is understood, however, that the Committee has recommended that the administration of the Public Health and Housing of the Working Classes Act should be transferred to the county councils, the power to build under Part III being left to the rural district councils, subject to confirmation by the Local Government Board. It is recom-

mended, further, that all county councils should be required to appoint a medical officer of health and a sufficient number of sanitary inspectors to devote the whole of their time to the duties of their office; that the Local Government Board should issue a more specific memorandum of instructions to medical officers of health, and to require compliance with it, and that county councils should appoint annually a statutory public health and housing committee. It is also recommended that a special housing and public health department with a staff of sanitary and housing inspectors should be constituted by the Local Government Board, charged with the duty of supervising the administration of the public health and housing laws by the county councils.

LEPROSY IN PORTUGAL.

Senhor Alvaro Pimenta, who has recently been making a study of leprosy in Portugal, on which he read a communication at the Lisbon Congress, found 53 cases in the Oporto district alone, which works out at a rate of 8.6 per 100,000 inhabitants. A previous observer, Z. Falcao, gives a much higher proportion (29.9) for the country as a whole, though this may be explained by the fact, according to Gomes, that the centre and south of Portugal are most affected. While some of the parishes in Oporto are exempt, others have a large proportion of cases, such as Pacos de Ferreira, which has 50.4 per 100,000. Dr. Pimenta considers that one of the chief causes of the disease in Portugal lies in the unrestricted admission of immigrants, especially from Brazil, and that steps should be taken to forbid the return of persons affected with the disease. If Goodhue, who claims to have discovered the bacillus of leprosy in mosquitos and bugs, be correct in his theory, the mastery of the disease is within measurable distance. Such an idea has long been held by the people in parts of South America, and a curious instance in possible support of it is adduced, namely, that of a girl living in a locality free from any cases of leprosy, who became affected with the disorder five months after having been much bitten by bugs in a bed in which a leper had slept the previous night. This might also explain certain cases published by Azuero, in one of which a woman, not herself a leper, but married to one, had relations with two different men, both of whom became affected soon afterwards.

THE EXTRAORDINARY GENERAL MEETING.

The sole business before the Extraordinary General Meeting of the British Medical Association summoned for Friday next, December 21st, at 3 p.m., at the offices of the Association, 429, Strand, will be the confirmation of the special resolutions for the amendment of certain of the articles adopted at the meeting on December 5th. It will be remembered that the first Extraordinary General Meeting was summoned for November 28th, when there was no quorum, so that the meeting stood adjourned until the later date, when those present formed a quorum. It will again be necessary to have a quorum of one hundred at the meeting on December 21st, otherwise this meeting also will stand adjourned for a week, that is to say to December 28th. Members resident in London will therefore, perhaps, think it not unfair to make an appeal to them to attend on December 21st, so that a quorum may be formed for the dispatch of business.

The Nobel Prizes, each of which amounts this year to £7,659, were formally presented by the King of Sweden at Stockholm on December 10th. The Medicine Prize was, as already stated in the Journal, divided between Professor Ramon y Cajal, of Madrid, and Professor Camillo Golgi, of Pavia, both of whom were present. Each recipient of the prize received a diploma and a gold medal from the hands of the King.

Medical Notes in Parliament.

[From Our Lobby Correspondent.]

The Workmen's Compensation Bill.—When the report stage of this Bill came on last week there were several amendments of medical interest on the paper. The first proposed in connexion with Clause 8 (the application of the Act to industrial diseases), to allow any duly-qualified medical practitioner to certify, instead of the certifying surgeon, as to the industrial disease from which the workman suffered. Mr. Barnes, who moved the amendment, contended that there was not full confidence always in the certifying surgeon, and that the workmen would be glad to have the alternative proposal. Mr. Ward supported the proposal on the ground that the ordinary medical attendant knew more of the man than another doctor. The Under Secretary opposed the amendment, for the reason that the certifying surgeon became an expert in detecting industrial diseases, but he agreed that the workman's doctor might give valuable evidence, and he undertook that the medical referee should be instructed to take any medical evidence that might be submitted. The amendment was then withdrawn. Next came the important amendment to extend the scope of the Bill so as to include as an industrial disease any malady due to the nature of the employment. Mr. Masterman moved it in the absence of Mr. Tennant. He contended that the third schedule of the Bill, which limited industrial diseases to the effects of poisoning by lead, mercury, phosphorus, and arsenic, and to ankylostomiasis and anthrax, was too narrow. The poorest class of workers were affected, and their health and welfare should be the first charge on the industry. The proposal in the Bill to extend the list of diseases from time to time by a Provisional Order was cumbrous and dilatory. Mr. Barnes seconded the amendment, and the Under Secretary for the Home Office then assured the House that the schedule was only provisional. He had, indeed, been engaged on a small Committee investigating the subject with a view to add other diseases, and he hoped the report might be presented before the Act came into force. There was no objection on the part of the Home Office to substitute a simple order of the Department for the less speedy method of the Provisional Order. The subject of compensation for disease was much more difficult than compensation for injuries, and had prevented France and our colonies from touching it. Germany, with her system of general insurance for sickness as well as accidents, had been able to compensate for industrial diseases. The plan of the Government was that the sufferer should get a certificate from the factory surgeon, an appeal being given to the medical referee. The employer would have to show that the disease was not contracted in his employment. For instance, a young woman suffering from anaemia would get a certificate, and a shopkeeper would have to prove that the disease was not due to the employment in his establishment; so, again, a clerk advancing in years might claim compensation for myopia due to his occupation. The hon. member would cut out agriculturists; but there was no reason why he should; nor would the House be likely to sanction the distinction. An agricultural labourer, getting old, might suffer from rheumatism and claim compensation, not from the farmers who had employed him throughout his career, but from his last employer, and though it might be a very satisfactory thing for the labourer to receive half wages without work for the rest of his life, it would be exceedingly hard upon the last employer to have to make the payment. Did the House intend to establish such a provision? It might be said the burden of proof might be shifted on to the workman, but that would be doing an injustice to him. Then it might be said, "Keep in the burden of proof for certain trades," but then what became of the amendment, for there would have to be a schedule? It would mean that in every case of disease except where scheduled the Court would have to decide whether the illness was due to the employment, and the work would be impossible. It was said by a learned Judge of the Act of 1897, "A scandal

of litigation surrounds us," and that was a general complaint; but the cases would be trivial compared to the litigation that would arise under the amendment—the Courts would be choked. A further grave objection would be that in view of the enormous burden that might fall upon him, an employer would insist upon medical examination of every applicant for employment, and periodical examinations; and there would be dismissal of any worker who showed symptoms of disease. It was impossible for the Government to undertake the responsibility for passing legislation embodying a provision of this nature, and he hoped his hon. friend would not press the amendment. Sir Charles Dilke supported the amendment as a protest against a limited schedule which would leave outside the operation of the law the majority of cases of industrial disease. Mr. Lyttelton, Mr. Wedgwood, Mr. Keir Hardie having spoken, the Home Secretary defended his department as regards interest in this subject, and showed that in his experience the Home Office had shown much vigour in connexion with dangerous trades. The objection to the amendment was the enormous amount of litigation that would be involved. He would simplify the procedure as suggested, however, by substituting an order of the Department for a Provisional Order. Mr. Balfour followed, and after pointing out the complicated nature of the problem, said, was it not always true in one sense that our diseases were due to our occupations? Take the cases of rheumatism and consumption. If a growing young person of either sex showed a consumptive tendency they could, he believed, do nothing better than give that person an outdoor occupation. But this carried with it liability to rheumatism and other diseases, the consequence of exposure; and he wanted to know how they were going to deal with the complaint of a subject with some tendency to consumption who was not immune from these other diseases. A young woman entering into a shop got anaemia, and got it undoubtedly because she was in the shop. Did that make anaemia a disease incident to that particular business? Suppose, *per contra*, she entered, as young women of delicate constitution constantly did in his part of the country, into the fields to work and got some malady consequent on exposure? Was she to be compensated for anaemia if she went into a shop or into service, and for rheumatism if she went into the fields? If they said these were diseases incident to the employment they would get into hopeless confusion. Was it not manifest that if they were to treat this matter as analogous to compensation for accidents they must take the diseases which were quite plainly specific to the occupation, treat them as incidents of the industry, spread the charge over the whole industry, and get the insurance for the workmen out of the industry as a whole? If they meant to go further and make every disease to which poor humanity was liable a subject of compensation they would produce a crop of litigation, and no other crop whatever. If these were the cases they meant to meet, let them boldly take the course of universal insurance. He would support the Government in resisting the amendment. After some further discussion, the general tendency of which was in favour of widening the schedule, Mr. Gladstone promised to omit the word "provisional" in Subsection 6, so that it could be in the power of the Home Office to act through an order, but not a provisional order. When this point was reached the criticism as to this method of procedure was renewed. Several members objected to giving the Home Secretary a blank cheque upon which he could include any disease he thought fit. They argued for notice to the trade, but it was answered that this would involve the delay previously objected to. Notice might be given of the order, but not the many weeks' delay of the provisional order. Finally Mr. Gladstone's amendment was adopted by 281 votes to 47. The liability of the last employer to pay compensation was then raised, and it was agreed that if the workman could not supply a list of previous employers, that the last employer, on proving that the disease was not contracted whilst the workman was in his employment, should not be liable. On Clause 10, which deals with the appointment and remuneration of medical referees and arbitrators, Mr. Gladstone inserted an amendment to the effect that "Where a medical referee has been employed as a medical practitioner in connexion with any case by or on behalf of either party, or by any insurers interested, he shall not act as medical referee in that case." Later on domestic servants were included in the Act. The addition was at first opposed by the Home Secretary, but later on the Prime Minister agreed to it and this great change was made at the close of the sitting. On Thursday the report stage was resumed, and a provision was inserted whereby illegitimacy was not made a bar to compensation to dependents, and later on lessened compensation for elderly workmen was rejected by a free vote of the House. An amendment to add aniline poisoning and chrome ulceration to the third schedule of diseases was withdrawn, and the report stage finished on Thursday night.

The Education (Provision of Meals) Bill came on late on Thursday night when the Workmen's Compensation Bill was finished, and led to a lengthy and animated debate. The first amendment considered was one which proposed to place the duty of providing meals on the guardians instead of on the Education Authority. The discussion lasted the remainder of the sitting, and the Education Authority was retained by a large majority. The committee stage of the Bill was resumed on Friday, and the House sat for over fifteen hours continuously. The "midday meal" was struck out and "meals" substituted; a proposal to limit the meals to "underfed" children was defeated. On the whole, little change was made in the Bill, and the opposition to the several clauses was never very strong in numbers. The Bill was eventually reported for third reading soon after three o'clock on Saturday morning.

Tuberculous Cows for Food.—In answer to Mr. Scott, who inquired as to the sale for food in the open market of cows in an advanced state of tuberculosis, Mr. John Burns said that a copy of a letter signed "Medical Officer of Health," which appeared in the *Morning Post*, and which contained allegations of the kind mentioned in the question, had been sent to the Local Government Board, but the name of the place at which the market referred to in the letter was held was not stated. Other representations of a similar kind had reached him, and he had taken note of them for consideration when the time came for dealing with the subject by legislation. He was not, however, in a position to promise legislation with regard to this matter at the present time.

Sleeping Sickness.—Mr. Rees asked the Under Secretary of State for the Colonies whether he was aware that Sir Patrick Manson and Dr. Daniell had satisfactorily established the fact that a cure for sleeping sickness had been discovered by a medical practitioner in Ceylon; and, if so, whether he would supply the authorities in the British Central Africa and other Protectorates with the necessary information, in view of the apprehensions entertained in such quarters regarding the spread of this disease. Mr. Churchill said that he had communicated with Sir Patrick Manson, who informed him, he was sorry to say, that there was no truth in the statement.

Death Certification.—On Monday Sir Walter Foster asked the President of the Local Government Board whether he had considered the advisability of introducing a Bill to deal with the registration of stillborn children, and, if so, whether he could deal with the subject of death certification generally or partially, in accordance with the recommendations of the Select Committee of 1893. Mr. John Burns said that he thought that it was desirable that the law as to the registration of stillborn children should be amended when a suitable opportunity offered; but he was not in a position at present to promise a Bill on the subject, or to say how far any such Bill could deal with the other matters referred to in the report of the Select Committee.

Indian Army Medical Service.—Dr. Rutherford asked the Secretary of State for India if he could now say how many Indian Medical Service officers had been appointed as specialists under the Indian Army Order regarding specialists' appointments in India; how many officers so appointed by the Director-General of the Indian Medical Service had received the special remuneration authorized for such appointments; and how many were natives of India. Mr. John Ellis, replying for Mr.

Secretary Morley, said that up to September 20th, 1906, fifty-eight officers of the Indian Medical Service had been recognized as specialists, and fifteen of them had been posted to vacancies and drawn the allowance. Only one native of India had applied for recognition as a specialist, and he had received it. He had no later figures, but it was intended at the time mentioned that the other officers who had been recognized as specialists should (unless transferred to civil employment) be posted to appointments as soon as opportunities occurred.

Fees of Certifying Factory Surgeons.—Captain Craig asked the Secretary of State for the Home Department whether, in view of the coming into force on January 1st, 1907, of the Secretary of State's order extending the requirement of certificates of fitness to certain workshops, and the inadequacy of the sixpenny fee for professional services rendered by certifying factory surgeons, he would favourably consider the advisability of taking the necessary steps to fix the fee at one shilling and the definition of small employers as those who employed a total number of all ages not exceeding ten. Mr. Secretary Gladstone replied that the privilege of having children and young persons examined elsewhere than at the factory on payment of 6d. each was given to the small employer by Parliament, and, though he had power under the Act of 1901 to vary the scale of fees, he should be reluctant by administrative action to take away the privilege which Parliament had granted. A small employer was defined, by Section 64 (3) of the Act of 1901, as one who employed less than five children and young persons, and legislation would be required to alter this definition. Both points should be borne in mind in connexion with any amending factory legislation.

The Treatment of Inebriates.—Mr. Mond asked the Secretary of State for the Home Department whether his attention had been directed to the statements in the report of the inspector under the Inebriates Acts, 1879 to 1900 [Cd. 3246], as to the uselessness and inhumanity of prison treatment for habitual drunkards; and whether, at an early date, he could see his way to introduce legislation to institute a more scientific and humane treatment of habitual drunkards than the present system. Mr. Secretary Gladstone answered that he had had this report under consideration, and was now in communication with the various stipendiary and police magistrates on the subject of the treatment of inebriates who came before the courts. The striking number of inebriates who exhibited mental defect brought this class of persons under the consideration of the Royal Commission on the Feeble-minded, and he thought that any question of legislation must be postponed until after the report of that Commission had been received.

Vaccinal Septicaemia or Scarlatina?—On Monday Sir William Collins asked the Secretary of State for War whether his attention had been called to the death of Frederick Henry Geall, aged 19, who recently joined the Coldstream Guards at Caterham; whether he was aware that the cause of death was certified to be septic poisoning; to what cause the fatal disease was attributable; and whether any other recruits had been similarly infected. Mr. Secretary Haldane said that Private Geall, Coldstream Guards, died of septicaemia following ulcerated sore throat at Caterham on the 13th ult. On November 21st Private A. Morris, of the same regiment, was admitted to hospital with malignant scarlet fever, and died on the 24th, the local medical officer of health agreeing in the diagnosis. The similarity of the throat symptoms in these two cases pointed to the probability of Private Geall's death being due to scarlet fever, although the actual symptoms at the time of death did not justify such a diagnosis. Although it had not been possible to trace the origin of the disease in either case, it was thought that Morris derived his infection from Geall, or at least from the same source. Mr. Lupton asked whether it was not the case that Geall was vaccinated with impure calf lymph a short time before his illness, and that consequently his death was due to septicaemia after vaccination. Mr. Haldane said he did not know of the vaccination, and he could not go behind the diagnosis of the medical men.

The Death of a Post-Office Official.—Last week Major Coates asked the Postmaster-General whether he was aware that on November 17th last an assistant superintendent of the cable room, Central Telegraph Office, visited the official medical officer in consequence of illness whilst on duty; that he was suffering from peritonitis, and was sent home to Catford without assistance; and whether, seeing that his condition was such that the railway officials at Cannon Street Station and a stranger found it necessary to convey him to his residence, where he died a few hours later, he would say whether inquiry would be made into the matter. Mr. Sydney Buxton answered that he had inquired into the matter. He found that the officer in question resumed duty on November 15th, on the advice of his own medical attendant, after a month's illness. On November 17th, while on duty, he consulted one of the medical officers to the Post Office, who prescribed for him, but, as he showed no symptoms of serious illness, he was allowed, at his own desire, to resume duty. Shortly afterwards, as he still felt unwell, he was allowed to leave before the termination of his duty, but there was nothing in his condition or appearance to indicate the need for an escort home. If there had been, an escort would have been provided, in accordance with the usual practice. His death occurred two days afterwards, on November 19th. He was satisfied that he received all needful attention and consideration from the medical officer and other officials. He must express his great regret that, without any adequate inquiry into the matter, the informant of the hon. member should have brought such a serious and wholly unfounded charge against the humanity of the officers in question.

Piershill Barracks and Sanitation.—Mr. Dalziel asked the Secretary of State for War whether his attention had been drawn to the fact that such high authorities as Sir Henry Littlejohn and Dr. Williamson had reported that Piershill Barracks were in a perfectly sanitary condition; and whether, in view of the statements made on behalf of the War Office to a contrary effect, he had any objection to lay upon the Table the report on which the conclusion of the War Office was arrived at. Mr. Haldane said that his attention had been drawn to the statement that Sir Henry Littlejohn and Dr. Williamson had reported that Piershill Barracks were in a perfectly sanitary condition. As such reports would contradict the information he had received from the War Office experts, he had sent Lieutenant-Colonel Melville, R.A.M.C., and Mr. Tyndale, sanitary engineer, down to Piershill, and had made the request that Sir Henry Littlejohn and Dr. Williamson should meet them on the spot while they made a fresh inquiry. He would lay the report of these experts on the table of the House as soon as he got it, and would also lay on the table the report of Sir Alfred Keogh, the Director-General of Army Medical Services, who, at his request, inspected these barracks last summer, and who had informed him that, in addition to his dissatisfaction with other features of the barracks, he found it difficult to express in moderate language his view of the conditions under which the number of officers required for a cavalry regiment were being accommodated. Mr. Dalziel asked whether any special instructions had been given these experts to report on the sanitary condition of the barracks, and Mr. Haldane was understood to reply in the negative.

Hospitals for Soldiers at Bulford and Tidworth.—In answer to Captain Faber, Mr. Secretary Haldane stated that the present accommodation at Bulford was 148 beds. The hospital was a temporary one, and was occupied pending the erection of a new hospital at Tidworth. The ultimate disposal of the present buildings was under consideration. The scheme for hospital accommodation at Tidworth had been approved, and the plans were being pressed forward to enable the work to be commenced early next year. It was hoped that the service would be completed before the end of 1907, and that a number of the buildings, including wards, would be available within a few months of the date of commencement of work. The proposed accommodation provided: (1) A general hospital for 181 officers and men; (2) a families hospital for 31 women and children; (3) an infectious hospital.

Scotland.

Edinburgh Royal Infirmary.

Councillor Dr. George Matheson Cullen, Convener of the Public Health Committee, has been appointed the Representative of the Magistrates and Town Council of Edinburgh on the Board of Management of the Royal Infirmary. The Managers have appointed Miss Jane Bell, lately Matron and Superintendent of Nurses at the Brisbane Hospital, Queensland, to be Senior Assistant Superintendent of Nurses, in succession to Miss Walker, who has resigned.

The Proposed New Dispensary in Anderston, Glasgow.

In the British Medical Journal of October 20th, and again on November 3rd, brief reference was made to a project which has been mooted for establishing yet another medical charity in the Anderston district of Glasgow, and to a memorial in regard to it signed by a number of medical men resident in the area indicated. Thanks apparently to the latter circumstance, the *Glasgow Herald* has been making inquiry into the subject, with the result that its issue for December 4th contained a leading article devoted to the topic. In this the project is considered in detail, and the conclusion reached that there is no real call for a new dispensary in the area, the provision for the medical needs of its poorer inhabitants being even more ample than in other parts of Glasgow. In its account of what is already being done to help those who require assistance in time of sickness, it mentions the Queen Margaret Settlement, which devotes its energies chiefly to women and invalid children; the Glasgow Sick Poor and Private Nursing Association, a branch of the Maternity Hospital, a lady graduate in medicine employed by the municipality for the reduction of infantile mortality, and an arrangement by which medical men in private practice in the locality attend gratis any patient recommended to them by a Bible-reader or a missionary. All this, of course, is in addition to the work done by the Poor-law medical officers. It is also pointed out that, in the way of formal hospital and dispensary work, the district is in close proximity to the new dispensary of the Western Infirmary, where work in every department of medicine and surgery, with the sole exception of ophthalmology, is carried on with great energy, and upon the most modern lines; while for those who are suffering from ophthalmic disease there is a special hospital in the Anderston district itself—the Berkeley Street Eye Infirmary. The final conclusion is that the creation of a new dispensary would lead to a vexatious and wasteful overlapping of philanthropic effort.

Glasgow and the Prevention of Consumption.

The Council of the Glasgow District Branch of the National Association for the Prevention of Consumption in its annual report refers to the establishment of a public dispensary, where special advice and treatment may be received. The dispensary is under the charge of Dr. James Scott. It is to be regretted that for the many applicants who are found unsuitable for sanatorium treatment so little can meantime be done, as experience shows that, on failing to be admitted to Bellefield Sanatorium, their attendance at the dispensary ceases. The large number of this class, whose isolation and treatment would be a personal as well as a public advantage, points to the necessity of establishing a hospital or home in the city. During the year, 95 patients were admitted to the Sanatorium at Bellefield, of whom 40 are reported as having had the disease arrested, 36 were improved, 12 were not improved, and 2 died. These results show an improvement on those of the preceding year; this may be attributed to the fact that the establishment of the dispensary has proved a most valuable medium for examining and selecting cases in the earlier stage of the disease, when they are amenable to treatment. Owing to the large number of applications for admission to Bellefield, and the injurious results arising from delays in admitting patients through insufficient accommodation, the Council has had plans prepared for the erection of another pavilion to accommodate 22 additional patients and for the extension of the administrative department.

Galashiels and the Treatment of Consumption.

At a meeting of the Galashiels Town Council on December 10th a letter was read from the Honorary Secretary of the Galashiels and District Branch of the National Association for the Prevention of Consumption, asking whether the Council would grant the use of the small-pox hospital on Meigle Hill as a sanatorium for the treatment of consumptive cases which were considered curable. The Committee believed that the hospital, with some slight alterations, and with the addition of some wooden and iron shelters for outdoor treatment, would suit the object in view. The Public Health Committee recommended that the request be granted upon certain conditions. Provost Rutherford, in moving the adoption of the recommendation, submitted a communication from the Local Government Board sanctioning the use of the hospital in the manner proposed, and the recommendation was unanimously agreed to.

Notification of Births.

The Corporation of Glasgow, which has a well-deserved reputation for its enterprise in public health matters, has now elaborated a scheme for the notification of births within the first forty-eight hours. One of the regulations proposed to place this duty upon the attending physician. As no arrangement was made for payment of any notification fee, the proposal did not meet with the approval of the profession, and a deputation pointed out to the Town Council the injustice of the proposal, which has been dropped.

Dundee Royal Infirmary: Cancer Hospital.

The Cancer Hospital at Dundee Royal Infirmary, given by Mr. J. H. Caird, has now been completed and furnished, and will be open for inspection within the next week or two. This announcement was made at the quarterly meeting of the Governors of the Infirmary on December 10th. Mr. Caird has offered £1,000 per annum for five years for research work in connexion with cancer, and the Governors are considering how best to use this. To this end several of the directors, along with Dr. Fraser, have visited the Cancer Research Laboratories in Liverpool, Manchester, and London. Three wards are to be occupied, and a fourth has been set apart for electrical treatment.

Ireland.

Appointments in Dublin.

Dr. Edward Taylor has been appointed Professor of Surgery in Trinity College, Dublin, in succession to Dr. E. H. Bennett. Dr. C. A. Ball has been appointed Surgeon to Sir Patrick Dun's Hospital, Dublin, in succession to Dr. E. H. Bennett.

Health of Belfast.

At the monthly meeting of the City Council, the Medical Officer of Health of the city reported 801 births and 518 deaths; the death-rate from all causes was 18.5, and that for children under 1 year 4 1. The notifications for scarlet fever and diphtheria are still high, but those for typhoid have fallen 50 per cent. since last month. The Medical Officer of Health also reported that he had visited the watershed, filter beds, and reservoir of the Stoneyford water supply in respect to an alleged pollution, and the Health Committee had written to the Local Government Board asking them to compel the Lisburn Rural District Council to abate the nuisance. He had also prepared a report as to the composition and duties of his department. The Committee recommended the Council to arrange with Professor Symmers to do all the necessary bacteriological examinations for one year for a sum of £200.

A report from a deputation that had visited England and Scotland to inquire into the methods of dealing with sewage, unanimously recommended as the first stage the liquefaction of solids by septic action, and as the second sprinkling filters rather than contact beds, as three times the quantity of sewage can be treated per square yard of surface, the rate of working is not limited to the capacity of the beds, but can be increased to deal with storm water, and they are not liable to become blocked with sludge. The deputation was of opinion that the recommendations of Professor Letts as to the future works to be erected, which

are founded on the recent experiments, should be adopted.

PROPOSED CORK SANATORIUM FOR CONSUMPTION.

At a special meeting of the Cork Branch of the National Association for the Prevention of Consumption held at 74, South Mall, the President (Dr. Cremen) occupied the chair and there was a large attendance. Dr. Cremen made a statement dealing with the course of events since the last meeting, and particularly with the Myshall site for the proposed sanatorium. After some discussion the following resolution was adopted unanimously:

That we respectfully appeal to the Conjoint Hospital Board at their next meeting to take such steps as will expedite the erection of the sanatorium for consumptives, which is so sadly needed for this county and city, and that we are of opinion that the Local Government Board inquiry, presided over by the Engineering and Medical Inspectors, will be sufficient guarantee that the merits of the site and any possible danger likely to arise from the erection of the sanatorium at Myshall will be fully investigated before being sanctioned, and we therefore hope that they will see their way to apply immediately for the inquiry, as any postponement will endanger the project, and that a deputation from the meeting wait on the Conjoint Hospital Board to support this resolution.

Manchester.

SIR THOMAS BARLOW ON DERMATOLOGY.

THE new premises of the Manchester and Salford Hospital for Skin Diseases in Quay Street were opened on November 27th. The hospital began in 1884, and in the first year 631 patients were admitted. Finsen light treatment was introduced into the hospital in 1901, the department being the second started in this country. The appeal for £35,000 to build a new hospital was made in 1902; £33 568 has been received, but the hospital has cost over £38,000. Last year 43,415 patients were treated in the out-patient department.

On the occasion of the opening Sir Thomas Barlow gave an address, in the course of which he said that skin diseases did not appeal to the sentiment of humanity in the same way as did many other diseases, because they were not often dangerous to life, but they often took away from the joy of life. The hospital would not only treat skin diseases but study their cause. No work in medicine was good unless it was in living union with the study of the natural history of disease, and only in that way could solid advance be made. Skin diseases had always lent themselves to the quack and the charlatan. In furnishing a room for research with modern appliances the hospital had done its best to put its foot upon quackery in connexion with skin diseases. The English people, he said, are very benevolent, but they have not yet learned to give money for research to carry on the study of disease and advance knowledge on sound and progressive lines. That is one of the things which, practical people as we are, we have not yet thoroughly got hold of. Speaking of the part played by the hospital in the dissemination of knowledge by the admission of medical students to its clinics, Sir T. Barlow said: "Some people look upon the medical student as a rather rowdy person, who thinks more of his own amusement than anything else. I look upon the presence of medical students in any hospital as the greatest guarantee for kindness, for skill, and for conscientiousness in the treatment of patients. All my life has been spent in connexion with medical students and in hospitals, and I can say that if you will admit medical students you will be doing more towards securing efficiency, kindness, and thoroughness in the treatment of patients than by anything else you could do." No persons were so kind to the poor as medical students, especially in places like workhouse infirmaries. "Knowing," he added, "what hole-and-corner places skin hospitals often are, often set up by medical men who have their own axe to grind, and managed by people who like to see their names down as president, honorary secretaries, and so on, I have particular satisfaction in seeing that in Manchester the practical sense of the place has recognized the necessity of having a good central institution like this, officered by men of good standing and of high repute in the medical world, with a laboratory to which students may come. It is based upon right fundamental principles, and deserves to go ahead."

Liverpool.

THE SCHOOL OF TROPICAL MEDICINE.

IN addition to the Johnston Laboratories, the Liverpool School of Tropical Medicine is possessed of Research Laboratories at Runcorn, established some two years ago, because the Johnston Laboratories, although perfect for the purposes for which they were built, did not, being situated in a city, lend themselves well to researches demanding the keeping of a large number of animals, both great and small. Crofton Lodge at Runcorn, some sixteen miles distant, was therefore taken, some of its rooms converted into research rooms and ample stabling and pasture for all sorts of animals secured on a small adjoining farm. For the first year the chief energies of the newly-founded laboratories were devoted to the study of various forms of trypanosomiasis, but since September, 1905, the work has been mainly concerned with the spirochaetes of relapsing fever. Research work proper is, however, only part of the function of these laboratories, another being the important task of keeping the Johnston Laboratories supplied with living parasites, for the instruction of the students of the School of Tropical Medicine. To this end, therefore, the trypanosomes of dourine, mal de Caderas, nagana, Gambian horse sickness and "sleeping sickness" are kept constantly going in animals. Similarly, the spirochaetes of "relapsing fever," and of mice (*Spirochaeta laverani*), of "African tick-fever," and of fowls, are kept for the same purposes. The ticks, *Ornithodoros moubata* and *Argas miniatus*, which transmit the two last-named diseases, are likewise bred in the laboratories, and stocks of the *Ixodes reduvius* and *Rhipicephalus annulatus*, those transmitting the piroplasms of "red water" in cattle, kept. The equipment of the laboratories is not elaborate or showy, but everything is available which is required to permit full advantage to be taken of the material at disposal. The present director is Dr. J. L. Todd, who during the past twelve months has had some dozen research students working with him.

Birmingham.

THE BRITISH RED CROSS SOCIETY.

ON December 5th, Professor Barling, Dean of the Medical Faculty, in the large Medical Lecture Theatre of the University, presided over a large and influential meeting to hear an address by Mr. Anthony A Bowlby, C.M.G., F.R.C.S., upon the work of the British Red Cross Society. Among those present were the Lord Mayor of Birmingham, Lieutenant General Phelps, Lieutenant-Colonel Barnsley, V.D., Mr. Leedham-Green, F.R.C.S., etc The meeting was held in order to further the scheme of the Central Executive Committee for the formation of local branches in the chief provincial centres and counties of the United Kingdom. Birmingham can now be said to have led the way in the country by holding a public meeting for the establishment of such a branch. This has been brought about by the energy of the local honorary secretary, Mr. F. Victor Milward, F.R.C.S. The British Red Cross Society is the result of the amalgamation of the Central British Red Cross Council and the National Society for Aid to the Sick and Wounded. The Society undertakes to organize the voluntary relief of sick and wounded sailors and soldiers at the seat of war, and is the only society through which the Admiralty and War Office will recognize such aid in the future. Resolutions were adopted establishing a Birmingham Branch, appointing the Marquis of Hertford its President, and nominating a Committee.

THE JEWISH MEDICAL MISSION.

The annual meeting of the Birmingham Church Medical Mission for Jewish Women and Children was held on December 6th in Queen's College, Birmingham. The medical report showed that 450 new patients had been treated during the year, and that there were 2,520 attendances. There are many Jews in Birmingham who can only speak a few words of English, so that when they are ill they are unable to explain their symptoms at the

general hospitals. At the mission house are two resident missioners who can interpret what they say to the medical officers of the institution.

Cremation.

The sixth annual meeting of the Birmingham Crematorium was held on December 6th. In proposing the adoption of the report and statement the Chairman, Mr. Jacob Rowlands, regretted that the income was not yet sufficient to make the crematorium self-supporting. The deficiency on the year was £118, but this, compared with the deficiency of £137 last year, showed financial progress. The shareholders, who had subscribed £6,920 for the 1,384 paid-up shares, did not join the company with a view to dividends, but for the purpose of furthering the cause of cremation. The expenditure during the past year had been £295, and it was not likely that it would ever be much less, but if they had only sixty cremations a year it would cover all expenses. Dr. Bostock Hill, who seconded, said that in the minds of many people there was still a lingering doubt whether the general adoption of cremation would not result in crimes remaining undiscovered in the case of certain forms of death. As a matter of fact a crematorium was about the last place in the world to which a murderer could bring a victim with any safety. The precautions taken were so great that it was practically impossible for them to fail to detect that death had resulted from poisoning or from some form of violence, if such had been the case.

South Wales.

Dinner to Mr. Lynn Thomas and Dr. Skyrme.

Mr. Lynn Thomas, C.B., and Dr. Skyrme were entertained at dinner at the Royal Hotel, Cardiff, on December 8th, by members of the medical profession in South Wales and Monmouthshire. There were some 130 medical men present, representing every county in the area. Though organized at three days' notice, the dinner was one of the most successful held in Cardiff for many a day. The proceedings were of a strictly private character, and were attended by the medical profession only. Dr. C. T. Vachell (Cardiff), presided. After the loyal toasts, "Our Guests" was proposed by the Chairman, and spoken to by Dr. E. Naunton Davies (President of the South Wales and Monmouthshire Branch of the British Medical Association), Dr. J. Williams (Llanelly), Dr. J. T. Thompson (President of the Cardiff Medical Society), Dr. D. R. Paterson (President of the Cardiff Division of the British Medical Association), Dr. Joshua Powell (Neweastle Emlyn), and Dr. William Sheen, Cardiff (Secretary of the dinner). The last-named stated that letters and telegrams to the number of over 200 had been received from medical men unable to be present, all expressing concurrence with the objects of the dinner. A resolution was carried unanimously expressing the complete sympathy of the profession with Mr. Lynn Thomas and Dr. Skyrme. These gentlemen replied in suitable terms. A vote of thanks to the Chairman, proposed by Dr. William Taylor, concluded the proceedings. The fact that the question in dispute is still *sub judice* was taken into consideration by all the speakers, who avoided all criticisms as to the verdict of the jury in the High Court.

Lead in Water.

At a meeting of the Sanitary Committee of the Glamorgan County Council, on December 7th, a report was submitted by Dr. Williams, the County Medical Officer, upon his examination of the water supplies of the police stations situated in the area supplied by the Pontypridd Water Company, and the Aberdare District Council, which had been examined for the presence of dissolved lead therein. Samples were taken when the tap was first opened, and again after the water had been running for thirty minutes. Of the samples first drawn, those from Pontypridd, Mill Street, Porth, Aberaman, and Taff's Well were found to contain dissolved lead in large amount, ranging from ⅔ to ½ of a gr. per gallon. No lead cisterns were used in any of the stations, and none of the inmates were known to have suffered from lead poisoning. Dr. T. H. Morris expressed his surprise that the report from Pontygwaith showed that there was no lead in the samples, for he had three cases of lead poisoning from Pontygwaith, and found that his patients had been drinking water the first thing in the morning. He thought it ought to be made generally known that the great danger lay entirely in the first water that was drawn from the tap. It became practically *nil* after a couple of gallons had run. It was understood that the report would be further considered by the Police Committtee. The Deputy Clerk stated that already steps had been taken to fix tin-lined pipes where complaints were made.

Welsh Water Supplies.

The statement by the President of the Local Government Board that he is giving his close personal attention to the question of the protection and development of the gathering grounds and other sources of water supply, a statement made in reply to a question asked by Mr. D. Maclean, M.P. for Bath, is so far satisfactory that it shows the importance of the question is recognized by the Local Government Board. The Glamorgan and South Wales Water Act empowers the Glamorgan County Council to make inquiries and surveys with a view to the utilization of water supplies in South Wales, and other county authorities are following this example. It seems necessary, therefore, that the whole subject should be investigated by a Royal Commission, and Mr. Maclean and others in South Wales who have taken an active interest in the matter deserve the thanks of the community.

At a meeting of the Pontypridd Council on November 6th, Dr. Howard Davies, Medical Officer of Health, is reported to have said that the water supplied by the Pontypridd Waterworks Company was still very unsatisfactory. It was not pure and wholesome, as the two samples he produced would only too plainly indicate. One of the samples showed the presence of peat, and the other the decomposed remains of a lizard. Had the water from the Mardy supply been thoroughly and efficiently filtered through sand, the water would have been deprived in a great measure of those properties which acted upon the leaden pipes to the prejudice of health. As no promise had, since he reported to this effect, been received from the company assuring the Council that the continued serious condition of the water supply would be remedied, he recommended that an injunction should be sought to prohibit the company from allowing any water, unless properly filtered, to enter the mains. In order to safeguard the interests of the Council he recommended that an expert be appointed to report upon the water supply of the district. As to the future developments of the district, it was certain that the necessary impounding reservoirs of any scheme must be situated in localities outside the area of the South Wales coalfield, owing to the risk of subsidences as the result of mining operations. It was reported that a letter had been received from the secretary of the Pontypridd Waterworks Company, stating that having regard to the proceedings instituted against the company by the Rhondda Urban District Council, the directors considered it undesirable to carry on correspondence on the matters referred to in the clerk's letter, except to deny the allegations made therein. The clerk was instructed to inform the company that the Council did not consider the reply satisfactory, and that unless an assurance be given that steps would be taken for the purpose of providing an adequate supply and remedying the present impure and unwholesome conditions proceedings would be taken with a view to compelling the company to carry out their statutory obligations. It was also resolved to engage an expert water engineer to present a report upon the supply of the district.

Rural Sanitary Administration.

The report of Dr. S. W. Wheaton, L.G.B. Inspector, on the sanitary condition and administration of the Narberth Rural District has just been issued. Dr. Wheaton says that many houses have a cowshed under the same roof, and abutting on the house wall is also a pigsty. Frequently these two outbuildings are so placed that the filth from them must necessarily percolate beneath the floor of that portion of the structure which is used as a dwelling. The most common source of water supply in the district is the dip well, and except in Saundersfoot there are no sewers in the district. It is recommended that the Rural District Council should take steps to place the whole of their district under one medical officer of health. This

officer, preferably, should not be engaged in private practice, and he should be specially qualified and experienced in public health matters. The Council should also appoint one properly qualified and experienced inspector of nuisances. Attention should be given to improving the water supplies of various places in the district. Several of the more populous villages should be provided with sewers, and measures should be taken to avoid nuisance and danger from the disposal of the sewage. And finally the Council is recommended to consider the question of hospital provision for cases of infectious diseases. Meanwhile a disinfecting apparatus should be obtained. In some cases the Narberth Rural District Council has anticipated the recommendations of the Local Government Board Inspector. It has been proposed that Narberth should combine with the adjoining rural district of Haverfordwest and appoint one qualified medical officer of health, devoting the whole of his time to the duties, for the combined area. This matter has been under consideration, for the Local Government Board has only sanctioned the continuance of the four medical officers of health for the Haverfordwest district up till December next, so as to enable the Council to make other arrangements.

Glamorgan County Asylums.

Dr. David Finlay, who has been on the medical staff of the Glamorgan County Asylums for the past twenty-three years, has been appointed by the Asylums Committee Medical Superintendent of the institution, at a salary of £1,000 a year. Dr. Finlay acted as Deputy Medical Superintendent to the late Dr. R. S. Stewart, who died recently after having been Medical Superintendent of the Asylums for only a few years. During Dr. Stewart's illness Dr. Finlay was in charge, and the Committee showed its confidence in him by giving him his new position without advertising the vacancy.

Abattoir at Merthyr.

Dr. Spencer Low, of the Local Government Board, in his report on the sanitary condition of Merthyr, laid stress upon the necessity of establishing a public abattoir, and a systematic inspection of the meat sold to the public. A committee of the Town Council met on December 7th, and came to the conclusion that a public abattoir should be established, first as an experiment, before deciding whether others should be built in other parts of the borough, and a return was ordered showing the number of animals killed in the present slaughterhouses of the district. It was felt desirable to invite the opinions of the local butchers upon the project with a view to enlisting their support. The medical officer of health is to prepare a report upon the general question.

New Zealand.

Meat Inspection.

In a pamphlet on the subject of meat inspection by the Prime Minister of New Zealand, an account is given of the system which has been practised in New Zealand for some three or four years. There are numerous slaughterhouses, some private, some public, scattered about the Colony, but they are all equally subjected to the same stringent supervision, and all meat placed upon the market or exported is guaranteed by the Government itself to be derived from healthy animals, and to be fit for human food. The work is done under the control of the Chief Veterinary Surgeon of the Colony by Government inspectors, twenty of them being Members of the Royal College of Veterinary Surgeons of London There are also twenty-five assistants. Each of these inspectors has a certain number of slaughterhouses assigned to him and in practice the internal organs of every carcass as well as the carcass itself are examined immediately the animal has been killed. Any carcass found to be diseased, or even suspected of being unhealthy, is immediately destroyed. For all carcasses so condemned, the owners are compensated by the Government, at a rate which is considered high enough to remove any temptation to avoid the regulations. The more important rules for the conduct of slaughterhouses are as follows:

No calf weighing less than 60 lb. dressed weight (including the skin) shall be killed and dressed for human consumption.

In every slaughtering place the killing, dressing, and hanging places shall be floored with concrete or other material approved by the inspector, and thoroughly ventilated.

If the walls of the killing or dressing place are of wood, they shall be lined on the inside to a height of not less than 6 ft. from the floor with galvanized iron, and any wooden partitions or posts in those places shall in like manner be cased with galvanized iron.

The floor and lower portions of the walls, partitions, and posts of the killing and dressing places shall be thoroughly washed down immediately after slaughtering for the day is finished, or oftener if directed by the inspector.

(1) Every part of the interior of the killing, dressing, and hanging places (except such part as is lined or cased with galvanized iron) shall be thoroughly lime-washed at intervals of not less than three months, or oftener if directed by the inspector. (2) Where any part is constructed of such materials as would, in the opinion of the inspector, render lime-washing unnecessary, he may, by writing under his hand, waive the fulfilment of the requirements of this clause as to such part.

All knives, saws, cleavers, hooks, hanging-rails, and other instruments, and all trolleys or other conveyances used in or about the slaughtering place shall be kept thoroughly clean.

The race leading to the killing place shall be paved to the satisfaction of the inspector.

The yards and all other premises attached to a slaughtering place shall at all times be kept clean and supplied with a sufficient supply of pure water for the watering of the stock yarded therein.

No hide, skins, fat, or other portion of any carcass likely to become a nuisance shall be stored in any killing, dressing, or hanging place.

Every conveyance used for removing meats from any slaughtering place shall be kept clean and provided with a clean cover both under and over the meat conveyed therein.

Official tags or other identification marks are attached to all meat passed, and any interference with these or any other breach of rules is punishable by a fine not exceeding £50.

All the private slaughterhouses belong to companies which export meat, but a licence is only given them on condition that the inspectors shall have full access to the books and papers of each company, and the books have by law to be kept in such a way as to furnish complete lists of all animals slaughtered. A heavy penalty attaches to any attempt to deceive the inspectors, and the companies are usually keen rivals and on the watch for any evasion of the regulations by their fellows; the inspectors are shifted about from one company to another at intervals; it is believed that the law is scrupulously observed.

It is important to note that the care bestowed on meat in New Zealand does not begin at the slaughterhouse, for the Department of Agriculture also is active, and all flocks and herds, wherever situated, are periodically visited and inspected, all animals found diseased being condemned forthwith, and the owners paid half their estimated value. Any inclination among owners to retain diseased animals is thus materially diminished. The herds remain in the fields all the year round, and, owing perhaps mainly to this fact, epizootic disease is rare. The cattle are habitually submitted to the tuberculin test, and it is common now to find that no animal in a whole herd reacts.

These facts are of interest in view of the very large amount of meat received from New Zealand every year in the United Kingdom, the latest statistics showing that 3½ million carcasses of mutton and lamb are landed, as well as 10,000 tons of beef, and 1,000 tons of meat in tins. It will be observed that the system covers most of the desiderata put forward at a meeting of the Incorporated Society of Medical Officers of Health reported in these columns on October 27th.

With the object of raising money to push forward the Queen Alexandra Sanatorium at Davos, the building of which has been begun, a bazaar is to be held in Davos on January 23rd and 24th, 1907, under the patronage of the Queen. The sanatorium is intended for curable consumptives of small means, and the charges will only be such as may be found necessary to cover the cost of upkeep. An appeal for support has been issued by the Chairman of the Board of Management, Dr. William R. Huggard; by the British Chaplain; and by the Honorary Secretary, the Hon. G. F. McGarel-Hogg, to whom, at the Hotel Belvedere, Davos, or to Messrs. Sutton and Co., Whitecross Street, London, E.C., gifts may be sent.

Under the will of the late Rev. Henry Edmund Miles, of Gloucester, who died on October 24th, the Gloucester Infirmary and the British Home for Incurables are each to receive a sum of £200.

CORRESPONDENCE.

THE GENERAL MEDICAL COUNCIL ELECTION.

Sir,—Now that the election is over, but while it is fresh in our minds, perhaps I may be allowed a few comments upon topics connected with the General Medical Council.

First of all, what have we done as members of the profession in England and Wales to thank the late direct representatives for all their strenuous services? In particular, as far as I can ascertain, no public expression of thanks has been given to Sir Victor Horsley. He retired so quietly that our sense of his loss was obscured by the collapse of the scheme of the Association for selecting candidates, and by the subsequent turmoil of the election. Surely, however, we ought to record the gratitude which I am persuaded every member of the profession feels for his able and constant efforts to stimulate the rather inert Council on the path of progress. The idea of a dinner occurs as the usual method open to Englishmen to express their admiration of meritorious services, but there is reason to believe that Sir Victor Horsley does not care for eating, and certainly not for drinking, so that he might prefer a cordial vote of thanks from the Association through its representatives. Perhaps, however, you may receive better suggestions.

Nor should the work of Messrs. Brown and Jackson be allowed to pass without recognition. If they have failed of re-election the reason is not that the profession has not recognized the good work they have done, but that large and populous districts of the kingdom have felt the necessity of more directly local representation, and that the Association has for the first time ceased to be a passive spectator of the fight. Mr. G. Brown especially is worthy of our thanks, for his constant efforts to increase the direct representation, and we shall best give them by taking care that the next application for increase shall be successful.

This, I believe, can be effected in a very simple and natural manner; let each Division Secretary who has a member of the Council resident in his area fortify himself with a resolution of his Executive Committee, and approach the great man. I believe in most cases that the latter will only need convincing that this time the profession is in earnest in the matter, to immediately modify his previous position of hostility or indifference. We must, in fact, educate the Professors.

On November 30th last the following resolution was moved by Mr. Brown, and seconded by Mr. Jackson:

> That representations be made to the Privy Council that it is expedient to confer on the registered practitioners resident in England and Wales the power of returning an additional member to the General Council.

The motion was lost. On the requisition of Mr. Brown, the names and numbers of those who voted for and against the motion were taken down and found to be as follows;

Against (12).

Dr. Norman Moore.	Sir T. Anderson.	Dr. Finlay.
Dr. Pye-Smith.	Dr. Lindsay Steven.	Dr. Little.
Sir J. W. Moore.	Sir J. Williams.	Sir H. Beevor.
Mr. Hodsdon.	Sir G. Philipson.	Sir T. Fraser.

For (10).

Mr. Thomson.	Dr. Adye-Curran.	Dr. Saundby.
Mr. Young.	Mr. Brown.	Dr. Kidd.
Dr. McVail.	Mr. Jackson.	Dr. Bruce.
Sir Thomas Myles.		

Did not Vote (2).

The President. Mr. Morris.

Absent (9).

Mr. Power.	Dr. Mackay.	Sir C. Nixon.
Mr. Tomes.	Dr. Barrs.	Sir C. Ball.
Dr. Caton.	Dr. Cocking.	Sir John Tuke.

It is obvious that those who did not vote for the resolution should be persuaded that their opinions are not shared by the great majority of the profession. I do not know if the matter has ever been before the Medico-Political Committee, but I should like to respectfully suggest to that Committee that the Honorary Secretaries of Divisions in whose areas these gentlemen reside be respectively reminded of the desirability of approaching them on the subject.

Lastly, I must say a word about the *Register*. Having taken a part in the organization work of the election, I have had frequent need to consult this heart-breaking volume. I have no hesitation in saying that 15 per cent. of the entries are incorrect. Perhaps that is the wrong way of putting it—the *Register* must be correct, so that I will say that 15 per cent. of the electorate are living at unregistered addresses or are using unregistered qualifications. How this can be remedied I do not know, but that it is a very serious matter is perfectly obvious. One practical suggestion, however, I might make from the point of view of an election agent. Would it not be possible that the *Register* should be divided into sections, as the better known *Medical Directory* is? or, at least, that a column should be provided showing whether any individual belonged to England and Wales, Ireland, or Scotland. In its present form I reluctantly had to come to the conclusion that the *Register* for election purposes was useless.—I am, etc.,

E. D. Kirby,
Honorary Secretary, Central Division, Birmingham Branch; Honorary Secretary, Dr. Langley Browne's Election Committee.

December 12th.

NOTIFICATION OF PHTHISIS.

Sir,—On Saturday, December 8th, the Warwick and Leamington Division of the Birmingham Branch of the British Medical Association passed the following resolution:

> That this meeting of the Warwick and Leamington Division of the Birmingham Branch of the British Medical Association expresses its conviction that phthisis should be included amongst the compulsorily notifiable diseases; and that it should be made compulsory that efficient disinfection of premises where death has occurred from such disease should be undertaken by the local health authorities;

and resolved that a copy of this resolution be forwarded to the Birmingham Branch.

On Monday, December 10th, the Leamington Town Council passed a resolution from its Health Committee in these terms:

> Your Committee recommends that a strong representation be made to the President and Secretary of the Local Government Board as to the urgent necessity of powers being conferred on local authorities enabling them to require premises in which a death from phthisis has occurred to be disinfected.

A previous resolution from the same body, urging the compulsory notification of phthisis, had already been forwarded to the Local Government Board.

At the present time in this town phthisis may be voluntarily "notified," but the health authorities have no "powers," and can only offer to "advise."

There will, I presume, be little variety of opinion amongst members of the medical profession, or amongst local health authorities, on this question; the gain to the State and to communities by placing cases of phthisis under supervision and control is too obvious to need any very lengthy advocacy. The objections may be briefly stated as: (1) That patients afflicted with phthisis do not want the fact to be known; (2) that official action may lead to interference with the working prospects and livelihood of the patient.

Neither objection should be allowed to stand in the way of a real reform, and local health authorities may be trusted to do their work wisely and in such manner as to avoid the infliction of any hardship that is not absolutely demanded by the public weal.

The Local Government Board has not yet seen well to press for the very short Bill which would be necessary to deal with this matter; and I write this letter in the hope that it may catch the eye of many medical officers of health or members of the medical profession who may be, or who may become, interested enough in the matter to take action in their own districts. I do not see that local Divisions of the British Medical Association or local health authorities can improve very much upon the line of action that has been adopted in Leamington, as evidenced in the resolutions quoted above.

A widespread expression of opinion must greatly strengthen the hands of the Local Government Board; it may also assist in moulding official opinion upon the question, and would, I hope and think, tend to hasten their action. The necessary Bill would be purely non-party, scarcely contentious, and might reasonably be expected to pass into law.—I am, etc.,

Philip Hicks, M.D.

Leamington, Dec. 10th.

SHOULD FEES BE PAID BY HOSPITAL OUT-PATIENTS?

SIR,—I shall be glad to know the opinion of any of your readers who are interested in hospital work, on the question whether fees ought to be charged to hospital out-patients or not. At a well-known hospital in the North of England, for example, some of the out-patients pay a fee at each visit. Of course the majority of the out-patients are too poor to pay any fee, but there are others who pay 1s. or 1s. 6d. at each visit, and I know of one instance of 2s. 6d. being paid by the patient at one visit. Of course these fees are not received by the assistant physicians and assistant surgeons, but go to the hospital funds. The hospital Board may have very good and definite reasons for these charges, and no doubt there are many other hospitals at which charges are made. But the time which can be devoted to each poor out-patient is very small at most large hospitals, and to many it will scarcely seem fair that this time should be diminished by allowing patients to attend who can pay from 1s. to 2s. a visit. This rule will appear to many to be very unfair to the general practitioners in the neighbourhood of the hospital. I should like to know also whether, in the opinion of your readers, the medical and surgical staff of any hospital ought to treat out-patients who can pay the sums mentioned.—I am, etc,

November 21st. Y. Z.

THE INSPECTOR-GENERAL OF THE FORCES AND THE R.A.M.C.

SIR,—With reference to your leading article in the BRITISH MEDICAL JOURNAL of November 24th, dealing with the above subject, I desire to say that this proposal of mine is but one of three propositions put forward in the *Army and Navy Gazette* as to the higher medical organization in the army. Here are the three:

1. That a "Surgeon-General of the Forces" should be himself a member of the Army Council, and in no way subordinated to the Adjutant-General of the Forces, as at present, and that he should be the "thinking head" of the War Minister for all medical and sanitary army matters.

2. That at 68, Victoria Street, or elsewhere a "Principal Medical Officer, Home Army," should be established to carry out the medical and sanitary duties of the home army, not as a "thinker ahead," but as the executive carrier out of orders issued by the Surgeon-General of the Forces.

3. That independent inspection is vital and fundamental in a decentralized army. To secure this, I suggested an Inspector-General, R.A.M.C., on the staff of the Inspector-General of the Forces, to my mind a proposal second to none in its far-reaching effects on the well-being of the medical service.

A centralization of direction, control, inspection, promotion, punishment, executive carrying out of orders and presumed "thinkers ahead" are all now focussed in a Director-General A.M.S. It is an ironclad autocracy against which there is no court of appeal, and its sure result will be an injury rather than a benefit to the efficiency of the army. On the day when a centralized commander-in-chief was rightly found to be impossible for the army as a whole, the death knell of medical centralization likewise sounded. But the medical head quarter offices have ever resisted any step that meant independent action; and so to-day, while all the army is gaining decentralization, the medical service suffers from a fundamental defect in its centralized head quarters staff. With perfect confidence I await this change, which, like all other medical reforms, will, I presume, only come after "regrettable incidents" have startled a nation. The official most to be pitied is the "Inspector-General of the Forces," a truly responsible official whose post will daily grow in importance in the national army we all desire to see.

As I said in my *Army and Navy Gazette* essay, Of what value is the Inspector-General's report on Malta—an old world and neglected garrison needing special study and care—if he is unable to deal with its sanitary and medical side?

And who, pray, is to so advise him on the matter? Not a local Colonel R.A.M.C.—himself the subordinate of the local commander and without the experience, independence, and prestige which the rank of Surgeon-General would give to so important a post. The medical head quarters staff have withdrawn this Surgeon-General, and now along the whole Mediterranean basin including Egypt, there is no officer of high status and independence to speak for the soldier.

I greatly sympathize with the Inspector-General of the Forces thus so seriously handicapped by the want of a technical medical and sanitary adviser, but I sympathize still more with the soldiers in these garrisons so old-world and so needing betterment, deprived of the great benefit they would derive from a Surgeon-General as Principal Medical Officer of all three groups, or, at any rate visiting them on the staff of the Inspector-General of the Forces. In unison with the nation we all say with Turenne: "Notre bien le plus précieux c'est le santé du soldat."—I am, etc.,

GEORGE J. H. EVATT,
London, W., Nov. 27th. Surgeon-General late A.M.C.

THE PROPOSED UNION OF MEDICAL SOCIETIES OF LONDON.

SIR,—At last! Sir William Church has now announced that a decision will shortly be arrived at. Such a long period has elapsed since the first meeting—April 10th, 1905—that I hoped wiser counsels had prevailed, as in 1870, when Sir James Paget and Sir Richard Quain were alone able to crush a similar movement. Being a decided opponent to this scheme I ask you to publish the following comments on some of the societies' amendments.

Four societies approve of the title of "Royal Society of Medicine," and five of "Royal Academy of Medicine," the Pathological being "strong in their views" that the former shall not be the title, while the Epidemiological claim to retain the term "Society" to themselves, all these objectors forgetting that the Royal Academy of Music may object to another R.A.M.

Three societies claim that women shall have equal rights with men for election as Fellows. The Medical Society, however, claims to retain all its privileges, by which, I presume, women must be excluded.

The Pathological Society proposes the deletion of the recommendation by the Central Committee that a special committee be formed of representatives of the various sections to receive all papers to be read before the Society or sections and to decide before which section any given papers shall be read. Several societies claim special rights over and a continuity of their own transactions, the Pathological claiming an "adequate expenditure" upon the publications of their own section. The Central body states that societies which own or partly own journals shall make their own arrangements with regard to these quite apart from the question of amalgamation. Does this mean at their own expense?

Objection is raised by the Laryngological Society to power being given to Fellows who have been rejected as members of the Section to attend their meetings, and they wish to forbid such fellows to examine their patients. How can this be done?

Two societies claim to have separate libraries with access without extra fee.

Three societies object to union.

As regards admission of women, the Central Committee try to meet the difficulty by proposing that they may become members only at present, though nothing in the Charter shall prevent them from being admitted as Fellows at some future date. But, if women are to be admitted at all, why should any distinction be made between the two sexes with regard to election to one society?

Then, as to the publication of transactions in an annual volume. Who shall decide which papers must be expunged to enable the volume to be within reasonable dimensions when every section will naturally protect the interests of its authors?

With the above and many other points of divergence, what prospect is there of a harmonious amalgamation, though it has the claim of economy? What also is to prevent sections from seceding if they have no capital at stake?

I appeal to the Central Committee not to allow the old societies, with their centenaries and other cherished associations and individual prestige, to sacrifice all and commit suicide for an amalgamation with endless societies over which the Central Body can have no permanent hold.—I am, etc.,

A. B. M. MYERS,
Brigade-Surgeon-Lieutenant-Colonel.
London, S.W., Dec. 8th.

Sir,—I think the proposed Royal Academy of Medicine will be most advantageous to us, whether part or whole of the existing London medical societies join the union, and I believe so on the following grounds:

1. That the specialities of medicine and surgery are so wide apart that a concentration of its forces is desirable for the best interests of the whole profession in town and country.

2. That, like a general hospital, the proposed Royal Academy of Medicine will be a better school for acquiring up-to-date general medicine and surgery, for all its departments will be in one house, instead of being spread broadcast as they are at present.

3. That I believe it will materially improve the prestige, the glory, and the nobleness of the profession.

4. That a Royal Academy of Medicine is likely to encourage a large accession of members of the profession in the country to its portals.

5. That the Academy may tend to do away with the party nature of many of the societies, and thus enhance the value of the profession in the eyes of the practitioner, and indirectly in the eyes of the public.—I am, etc.,

December 3rd. A Country Specialist.

THE REPORT OF THE COMMISSION ON POOR-LAW REFORM (IRELAND).

Sir,—One side of the vexed question of a State medical service for Ireland has been very ably presented by two of your correspondents writing in the British Medical Journal of November 24th, p. 1521. Will you allow me to say a few words from a standpoint differing widely from theirs?

In the report of the Viceregal Commission recently issued, the principal reasons put forward by the Commissioners for proposing this new form of medical service are briefly:

1. It would terminate in Ireland the existing system of appointing local medical men to the charge of districts and hospitals.

2. It would facilitate the co-ordination of all local medical appointments in Ireland.

3. It would secure to the medical officer a motive for, and means to, promotion and pension.

I shall examine these reasons *seriatim*. Taking No. 1, let me quote from the Viceregal report:

Further, it is an undoubted advantage that physicians in any *country* should know intimately the *customs, habits, modes of expression*, and *general conditions* of the inhabitants, especially in the case of Ireland.

Substitute the word "district" for "country" in the above quotation and reason No. 1 falls to the ground. For I respectfully submit that what the Commissioners state is applicable to a country is equally applicable to the constituent districts of a country such as Ireland. To my mind the system of local appointment is infinitely to be preferred to the practice so common in England of transferring or selling union and other public (medical) appointments. A large number of transferable union and other appointments are each week advertised for sale in the Journal. It appears to be an established and recognized system, and no reforming voice is raised against it.

Coming to reason No. 2, we are informed that under the new scheme the medical officer of a district would be required to take charge of:

Constabulary, coastguard, soldiers, post-office officials, and such other persons in the prison or other public service as now receive medical attendance at the public expense. And they naively add, he "would of course also act as medical officer of health."

It is a pity they did not also suggest that he would do the lamp lighting and scavenging, and in his spare moments he could be utilized in summons-serving or some such other useful public work. But looking at the matter seriously, is not this conception of a highly-educated professional man as a jack-of-all-trades an insult to our profession? A cross between trades' unionism and nanki-pooism!

In studying reason No. 3, one finds underlying the Commissioners' remarks a suggestion of incapacity. At a medical gathering held in Dublin on October 14th, 1902, Professor McArdle, the President of the Irish Medical Association, and an ardent advocate of the scheme for a State medical service for Ireland, stated:

I have for a long time wished to say that the Irish provincial practitioner is a long way before his class in any other country in the world.

It may not be a direct argument, but anyhow it gives rise to a strong presumption in favour of the much-abused Irish Poor-law medical officer when it is recorded that the death-rate in Ireland is the lowest in the world, taking an average of, say, ten years. I think the incidence and spread of infectious disease is less in Ireland than in any other country. If this fact be as I suggest, in fairness some little credit must be conceded to the medical officers of the Poor-law medical service who have charge of the public health.

Occasionally some cases of culpable neglect are proved against medical officers, but the number is comparatively small. The great majority of public inquiries held prove abortive.

Perhaps your readers are not aware that though the Commissioners in their report deal with the dispensary medical service, they received no direction in their terms of reference to do so, and at their public inquiries expressly excluded witnesses whose evidence was confined to matters solely concerning dispensary district administration.

To me it seems utterly impolitic that in a country admittedly groaning under board rule it should be sought to set up a new and most elaborate administrative machine in addition to the numerous governing authorities at present at work in the country; and it is certainly and most emphatically retrogressive to propose ampler and more detailed methods of placing the Irish peasantry in a condition of dependence on the State at the very time when every one in Ireland and every friend of Ireland is proclaiming that on their own personal efforts and self-reliance must depend the future regeneration of the country.—I am, etc.,

C. L. Birmingham, M.D., D.P.H.,
Member of Council, Irish Medical Association.

Westport, Nov. 26th.

THE NUTRITIVE REQUIREMENTS OF THE BODY.

Sir,—You very truly infer in your leading article published on October 27th, p. 1145, on the discussion on diet at the annual meeting in Canada, that it seemed rather perfunctory, and has not advanced the question of surplus proteid diet very much.

This is to be regretted, as the profession is at present in a very undecided state of mind as to the diet to be ordered in certain conditions. For instance, a patient suffering from migraine may be told that his symptoms arise from excess of uric acid in his blood, and a purin-free diet ordered, he may be told that the same symptoms arise from an excess of carbon in his food, and the carbon factor reduced, or he may be put on a purely proteid diet. Here we have three diametrically opposed diets advocated for the same condition.

Again, the question of alcohol in diet is most important for the practitioner, and we have again diametrically opposite views. On the one hand it is shown that small quantities of alcohol are utilized in the system; on the other such great authorities as Sir Victor Horsley and Sir Frederick Treves express the opinion that alcohol is a direct tissue poison. This must be an opinion based on the effects of alcohol in excess. I would like to call attention on this point to Professor Calkin's experiments with the protozoon *Paramecium caudatum*. He found that when growing paramecia the strain died out apparently of senile decay at the 170th generation, but that by stimulation the vitality of the race improved, senile decay was averted, and the race actually prolonged to the 800th generation. The stimulant that effected this change was alcohol. (Among other stimulants strychnine was tried, but its effect only lasted while it was being administered, while that of alcohol continued after its administration was left off.)

Paramecia were kept in water to which alcohol was added, bringing the strength of solution to 1 in 5,000 to 10,000, while in this solution the rate of growth was increased by as much as 30 per cent. After this experiment, while the effect of alcohol in excess is undoubted, it is no longer true to say that it is a direct tissue poison.

However, we are coming to a more sensible view of treating diseases due to digestive derangement and realizing that individual digestive capabilities differ, and

each patient should be dieted according to these capabilities.

To return to the proteid question, there does not seem to be any evidence that excess of proteid in itself is harmful. Many races of mankind live entirely on animal food; the Esquimaux, who can only obtain animal food, and who eat enormous quantities, are peculiarly free from arterial degeneration and kidney disease—conditions in which with us excess of proteid is certainly harmful, which shows that under our conditions of life there is some other factor than the actual proteid excess that makes this undesirable.—I am, etc.,

Llandrindod Wells, Nov. 17th. W. RINGROSE GORE, M.B.

THE MEDICAL USE OF ALCOHOL.

SIR,—At the annual meeting of the British Medical Association Drs. Blackader and Meltzer, though differing as to its action on many points, agreed in recommending alcohol as a medicine.[1] The words of S. J. Meltzer apparently sum up the position of both: "May we get rid of its misuse in health and may we get rid of the opposition to it in disease."

I believe many of the contentions of the above therapeutists would be denied by men of no less authority; but my object in writing is—granting the utility of alcohol in disease under normal conditions—to point out once more what you yourself, Sir, and your contributors have often shown before, namely, that the conditions are *not* usually normal, and that the very way in which alcohol is usually prescribed inevitably prevents the conditions being normal, and perpetuates its misuse in health. Alcohol is of value as a narcotic—the least injurious narcotic, says Dr. Blackader. This he means, no doubt, theoretically; in this country it must be allowed to be the most dangerous narcotic, having regard to the facility of forming the drug habit. And of what medical value is a narcotic to a person who is chronically narcotized to an unknown extent by the same drug, which is probably the condition of 25 per cent. of the adult patients likely to be treated, and no one can say certainly whether any one patient is of the 25.

The value of alcohol as a stimulant is usually compared to the efficacy of a whip applied to a tired horse. If the horse were continually applying the whip to himself, the driver's whip would produce little or no result unless used to an excessive and dangerous degree. And a large proportion of patients are in this case. Hence the conditions are not normal.

Alcohol is usually prescribed in the most unscientific manner. The amount to be taken may be stated, but the administration is left to the patient, and usually no limit is put to the repetition of the dose. Result, the patient likes the medicine, continues to take it after the need for it has passed, and thus misuses it in health and makes it of little or no value in future illness.

No doubt there are difficulties in administering alcohol as carefully as laudanum is ordered, but I submit that the disastrous effects which so often follow the present haphazard mode of prescription make it morally incumbent on every physician to surmount the difficulties, and invariably give alcohol in a more or less disguised form and from a medicine bottle. Not until this has become the usual practice is there any prospect of S. J. Meltzer's pious hope being realized.—I am, etc.,

Woolwich, Nov. 27th. SIDNEY DAVIES.

THE TREATMENT OF FRACTURES.

SIR,—I have no doubt that Professor G. A. Wright's letter (November 3rd) on this subject came as an unpleasant shock to many. For some time the treatment of fractures by rubbing and early passive movement has been rapidly gaining ground as a trustworthy method, and one that had the advantage of shortening the period of inactivity for the patient; and now we are told that it is founded on a wrong principle, and is in itself actually harmful. That *passive* movement may injure granulation tissue must, I suppose, be admitted, and Professor Wright tells us that continued movement "beyond the borderland of pain" results in more and more granulation tissue, and consequently a larger cicatrix round the seat of fracture. This appears quite logical, and yet many of us are convinced that by such *passive* movement the limb is restored to its normal use and range of movement much earlier than it would be if treated by immobilization. Whether it would do better under early *active* movement I cannot say, having no experience in the matter.

Granulation tissue is thrown out locally, and I think also for some distance from the seat of the fracture. No one, I suppose, would willingly disturb that thrown out immediately round the fracture, although it must be done when the fracture extends into a joint where early movement is resorted to in order to prevent fixation. That granulation tissue is thrown out for some distance from the seat of injury in cases where there has been much displacement is, I think, proved by extravasation of blood and great tenderness of the muscles. I have seen this in the tibial and peroneal regions extending almost to the knee when the fracture has been near the ankle. It is this granulation tissue in the tendon sheaths and muscles, and the adhesions that may result, which forcibly attract our attention.

As to the question of pain; I should like to discriminate between pain on massage, pain from movement of fragments, and pain from movement of muscles and tendons.

I cannot think that pain caused by rubbing with the flat of the hand is an indication to desist, as the pain often rapidly subsides during the rubbing. Nor does Professor Wright urge this as a reason for leaving off. That a certain amount of pain will be caused by deep massage of the muscles is, I believe, inevitable. I can say from personal experience that such massage is painful after a prolonged disuse of muscles resulting not from injury but illness, and I can also vouch for the good effects in the nutrition of the muscles.

We are told, however, that movement which causes pain is harmful. Now the pain from movement of fragments I suppose no one inflicts unless urged by necessity in the case of a fracture into a joint. As to the pain from movement of tendon and muscle, I think it is inevitable that there will be a certain amount. It is often more painful after a sprain or dislocation to attempt movement than it is after a fracture. This pain being, I presume, almost entirely due to injured tendon sheath and muscle, and that a considerable amount of the pain is due to injured muscles and painful spasm, is, I think, proved by the greater degree of movement and the lessened pain when the muscles of the limb have been relaxed by position and careful massage.

I have neither the wish nor the knowledge to compare the results of treatment by active and passive movement, but I must say that the cases I have seen and those that I have treated myself by early passive movement have recovered quickly and with almost unimpaired movement of the joint and function of the limb.—I am, etc.,

Rushden, Nov. 14th. DUDLEY G. GREENFIELD.

SIR,—My attention has been called too late to Dr. Lucas-Championnière's letter in your last issue to enable me to discuss the question further this week. With your permission, I hope to send you a communication next week, and in the meantime I will ask M. Lucas-Championnière to honour me by looking through my letter again. I think that he will find that his impression of its contents is not quite in accordance with what I wrote.—I am, etc.,

Manchester, Dec. 12th. G. A. WRIGHT.

A CASE IN WHICH INSECT LARVAE WERE PASSED PER ANUM.

SIR,—I shall be glad if you will allow me to add a postscript to a short paper with the above title which appeared in the BRITISH MEDICAL JOURNAL for July 14th, 1906. Shortly after the publication of the paper I received a note from Dr. J. W. W. Stephens of the Liverpool School of Tropical Medicine, asking me to send him some specimens of the larvae, and this I did after a little delay, as the specimens had been mislaid. Dr. Stephens has now been kind enough to examine the larvae, and I have his report, dated November 27th. He identifies them, by comparing them with types previously identified for him by Mr. E. E. Austen of the British Museum, as the larvae of *Homalomyia scalaris*, a common species belonging

[1] BRITISH MEDICAL JOURNAL, November 24th, 1906, p. 1461.

to the family Anthomyidae. The specimen was stated in my paper to belong to the family Oestridae or botflies, and I am glad to avail myself of this opportunity to make the correction. A case of intestinal myiasis in which larvae of the same species were passed is mentioned by Osler in his *Textbook of Medicine*, 1905, p. 55, and Dr. Stephens has received the same species from a case at Ormskirk. As Dr. Stephens wishes to make a complete collection of larvae infesting the human intestine, he would be glad to receive reports and specimens from any readers of the British Medical Journal.—I am, etc.,

Nottingham, Dec. 3rd. C. H. Cattle.

LIFE AND HEALTH ASSURANCE ASSOCIATION, LIMITED.

Sir,—On September 10th last I was called upon by a man named Robins, representing "The Life and Health Assurance Association," who induced me to insure against accident and sickness for a fee of £10 per annum, and under promise of being appointed medical referee for the company. He gave me a "cover note" up to October 10th, and said that I should be medically examined during the time, but I waited until October 14th, and as nothing had been done I then requested a return of my cheque. A great deal of correspondence ensued with the London office of the company, but nothing has been done up to the present and the matter is now in my solicitor's hands.

In the issue of the British Medical Journal of November 24th a letter appears, signed by Dr. Hammond of Shanklin and a brother practitioner in the Isle of Wight, stating how they were both victimized by the same man.

The facts of my case are well known to the company at their head office in Edinburgh, and also in London, and yet they take no steps to refund the money. I think it right that your readers should be warned lest they also be asked to accept medical appointments in this office, as it may induce them to leave the matter severely alone.—I am, etc.,

Newbury, Dec. 1st. John Watson, M.D., F.R.C.S.E.

THE COST OF MOTOR CARS.

Sir,—Many medical men who are contemplating the purchase of a motor car must have read with interest the third point in the recommendation of the Shropshire and Mid-Wales Branch regarding motor cars, to the effect that, "although the use of motors presents so many advantages that medical men are feeling more and more obliged to adopt them in preference to horses, yet no economy is effected; but, as a rule, a considerable increase in yearly expenditure results from the change."

There can be no doubt as to the general accuracy of this statement. Many medical men can testify from personal experience as to the enormous expenditure required in the upkeep of the motor.

Four years ago I bought what was then regarded as the most reliable and economical car on the market. This I ran for two years, but the expenses were so tremendous that I was only too pleased to get rid of the motor and return to horses. My advice to any medical man who intended purchasing a motor has always been that he should not expect to effect an economy, and the recommendation quoted above seems that it is also the experience of many others.—I am, etc.,

Bideford, N. Devon, Dec. 2nd. Edwin J. Toye.

THE LATE MR. CHRISTOPHER HEATH.

Sir,—I would ask the hospitality of your columns to make known to University College Hospital men who were pupils or house surgeons to the late Mr. Christopher Heath that we are proposing to erect a memorial to him in our new school buildings. The memorial would take the form of a medallion portrait, and if funds sufficed a prize in surgery bearing his name would be established. Subscriptions are to be sent to me at University College Hospital.—I am, etc.,

Sidney Martin,
London, W., Dec. 8th. Dean of the Medical School.

Dr. H. E. Annett, Professor of Comparative Pathology in the University of Liverpool, has gone to St. Vincent in order to study certain diseases of animals for the Government.

OBITUARY.

ROBERT GRIEVE, M.D., C.M.G.,

late surgeon-general of british guiana.

After an active and varied career Dr. Grieve passed away on the evening of Thursday, November 15th, a victim to one of the dangers which beset the surgeon.

He was the son of Dr. James Grieve of Port Glasgow, and was born in 1839. He was educated at the Royal High School, Edinburgh, and in Glasgow University, and took the degree of M.D. in 1861, and in the same year the Licence of the Royal College of Surgeons of Edinburgh. He was House-Surgeon to Professor George Buchanan, and acted as House-Physician to the Greenock Infirmary, where he survived an attack of typhus fever. In 1862 he entered the Royal Navy as Assistant Surgeon, serving in the *Snake* and the *Warrior*, and, in charge of the hospital ship, *Acorn*, went through some of the fighting in the Tai-ping rebellion in China. In 1864 he married, and carried on a successful practice in Howden, East Yorks. On the outbreak of the Franco-German war he volunteered for service, and was attached to the hospital at Darmstadt (1870-1). At the end of the war he received the German war medal. After his return he was appointed Superintendent of the Metropolitan Asylums Board Hospital, Hampstead, where he worked through the great small-pox epidemic. He then for a short time practised in London. In 1875 he joined the staff of the Lunatic Asylum, Berbice, British West Indies. Of this asylum he became Superintendent, and effected great improvements in its conduct and sanitation. He edited the *Berbice Asylum Journal* from 1880 to 1885. In 1885 his work had so impressed the Colonial Administration that he was chosen to fill the office of Surgeon-General of British Guiana, and the wisdom of the choice was fully justified.

In this office he brought about great changes for the better in the sanitary condition of the Colony, and placed the work of the public hospital in Georgetown on a level with that of any great European hospital. He was also an active and valued member of the Court of Policy and Surgeon-General of the Militia of the Colony. He took a great interest in the British Guiana Branch of the British Medical Association, presided over its meetings, inspired it with his energy, fostered its growth and usefulness, and was happy in leaving it in a flourishing state. In 1889, in the course of operative work, his system was infected *per digitum*, and the consequent breakdown of his health led to his premature retirement from the service in 1894. The inhabitants of the Colony and his colleagues manifested the deepest regret, and expressed in the warmest terms their affection for himself and their trust in his great abilities. From the Government he received cordial recognition and substantial acknowledgement of the excellence of his work, and from his Sovereign he received the decoration of Companion of the Order of St. Michael and St. George.

After his return to this country he lived at Lasswade, near Edinburgh, then in Elloughton, East Yorks, and for the last five years at Barton-on-Humber. In spite of severe and oft-recurring attacks of pain, he was able to obtain much enjoyment from his garden and from the visits of old friends. He continued to take a lively interest in the progress of medicine, and in conversation with him members of the profession—to which he gave three sons—could not fail to be deeply impressed with the extent of his knowledge and the acumen of his criticism.

JOHN GREIG McDOWALL, M.D.Edin.,

medical superintendent of the west riding asylum, menston.

By the regretted death of Dr. John Greig McDowall, which took place, after a brief illness, on November 21st, the West Riding Asylum at Menston has lost its first Medical Superintendent, as also a most able and successful asylum physician.

After taking his degree at Edinburgh University in 1873, Dr. McDowall had a short experience in Scottish Poor-law work at Craiglockhart, but at an early date began his career in lunacy as Assistant Medical Officer at the West Riding Asylum, Wadsley, at that time under the medical superintendence of Dr. Samuel Mitchell. In that position he speedily showed himself to be possessed of

sound personal and intellectual qualities, which procured for him the highest confidence of his chief and of the Committee of Visitors, as well as the respect and esteem of all his colleagues. Accordingly when, in 1888, the new Menston Asylum was approaching completion the Visiting Committee of that institution showed its confidence in Dr. McDowall by selecting him for the chief medical charge. That confidence throughout the critical years which were to follow, and down to the hour of his lamented death, Dr. McDowall never failed to justify. Alike by his sound administrative capacity and devotion to duty, his kindness and consideration towards all with whom he was brought into relation, and his ready sympathy and tact in dealing with the insane under his care, the best traditions of British asylum management were at Menston worthily upheld. Under a singularly quiet and unassuming exterior there lay a powerful intelligence, a firm grasp of principles, ripe judgement, sterling integrity, and a warm heart.

The end came with startling suddenness. Dr. McDowall had been ailing for a few days only, and whilst there had been some indication of heart strain and failure, no immediate danger had been apprehended. Fatal syncope, however, supervened, death indeed occurring instantaneously as he was in the act of speaking with one of his assistants.

An impressive memorial service was held at the Asylum on November 23rd, prior to the removal of the remains to Dumfermline Abbey for interment.

At the meeting of the Visiting Committee held before the memorial service, a resolution was passed expressing great sorrow at the death of Dr. McDowall and appreciation of his zeal, foresight and care, in the equipment and management of the Asylum, as well as of the kind and rational methods which had characterized his treatment of the patients.

Dr. McDowall was 55 years of age at the time of his death. He leaves a widow and an only daughter, together with a large circle of devoted relatives and friends to mourn their loss.

ARTHUR H. WEISS CLEMOW, M.D.EDIN., M.R.C.P.LOND.

BY the death of Dr. Arthur H. Weiss Clemow, at the age of 45, a career of much promise has been cut short. He was an Edinburgh student, but worked also at University College, Liverpool, and for six months in the laboratory of the late Professor Cohnheim at Leipzig. At the University of Edinburgh he obtained a First Class Honours Certificate in Anatomy, and was Assistant Demonstrator of Anatomy. A short time prior to graduating M.B., C.M. in 1883 he gained the prize for clinical medicine. He was Resident Physician to the Edinburgh Royal Infirmary, and after holding the office of Honorary Secretary of the Edinburgh Royal Medical Society was elected President. In 1884 he was elected House-Surgeon to the Liverpool Royal Infirmary, and subsequently became Senior Medical Officer to the Royal Free Hospital, London. He afterwards practised in Waterloo, near Liverpool, and was Honorary Medical Officer to the Waterloo Dispensary. He took the M.D.Edin. in 1886, being specially commended for his thesis on Micro-organisms in their Relation to the Granulomata. In 1888 he settled in West Kensington where he acquired an extensive practice, which necessitated his removal to Earl's Court Road, where he continued to practise up to within a comparatively short time of his death. He found time to obtain the diploma of M.R.C.P Lond., but on taking a partner he was obliged to resign the diploma temporarily; on the entire transfer of his practice the diploma was returned to him shortly before his death, which gave him great satisfaction. Dr. Clemow was a Fellow of the Medical Society of London, ex-Vice-President of the West London Medico-Chirurgical Society, a member of the Clinical Society of London, a member of the British Medical Association, and a member of the General Council of the University of Edinburgh.

A friend writes: "If Dr. Clemow had lived he would have attained a position in his profession which falls to the lot of few general practitioners. He inspired his patients with confidence, and his kind, gentle, sympathetic manner endeared him to patients and friends alike, and it was this characteristic, together with the earnestness and thoroughness with which he did his work, which enabled him to build up such an extensive practice in so short a time. One might almost say of Dr. Clemow that his love for his profession was the cause of his death. In 1903 he contracted influenza, but, instead of going to bed and being nursed, he continued to carry on his practice whilst his temperature was still raised: this was too much for a frail constitution, and he contracted pulmonary tuberculosis, which eventually caused his death. The esteem and affection in which he was held was well evidenced by the number of friends and old patients who attended the funeral service."

Dr. Clemow leaves a widow and one daughter, to whom we offer our deepest sympathy and condolence.

FREDERIC AUSTIN ROBINSON, M.R.C.S., L.R.C.P., NATAL.

THE death of Frederic Austin Robinson, at the age of 36, from sudden heart failure due to his exertions as medical officer during the recent native rebellion, removes from Natal one of the best types of Colonist. Dr. Robinson was the youngest of eight sons of the Rev. George Robinson, sometime Vicar of Keynsham, Somerset, and later of St. Augustine's, Liverpool, at which latter place the subject of this memoir was born on June 14th, 1870. He received his general education at Rossall in company with his next brother, Forbes, the much-loved and lamented Subdean of Christ's College, Cambridge, who died two years ago at the same age. Of the eight brothers, Austin was the only one who adopted the medical profession; six followed in their father's footsteps by taking orders in the Church of England. Of these the best known is the present Dean of Westminster, Dr. Armitage Robinson.

Dr. Austin Robinson qualified in 1892, and his first appointment was that of Medical Officer to the Universities Mission in Central Africa. Into this work he threw his whole heart, but he was invalided home at the end of ten months, after an attack of fever which nearly cost him his life. The following year he joined a friend and much-esteemed colleague, Dr. Wilfred Grenfell, and spent a year on the wild coast of Labrador. He was then offered a post in Natal, and arrived in Durban in October, 1896. His first public appointment was that of District Surgeon of Ngutu, Zululand, which he held until his marriage in 1898. For the last six years he had been District Medical Officer of Nottingham Road, Natal, having secured a country practice for the sake of his wife's health. Here he gradually built up a sanatorium, which achieved a considerable measure of success. Dr. Robinson cared little for money excepting as a means of helping others, and it was laughingly said of him by his own household that every tramp who came within a mile of the sanatorium always found work there, no matter how unpromising a specimen he might be. The sanatorium was freely open to all who were friendless or temporarily disabled, or in any way "down on their luck." There are dozens of men in Natal to-day who could speak of the open-handed generosity and overflowing hospitality of the man who made them free of his home for weeks at a time. Though by no means a man of the world in the generally-accepted sense of the term, he was a shrewd observer and judge of men and their motives. For politicians who sought office primarily to further their own ends he had nothing but contempt, nor had he any respect for those of his fellow medical men who subordinated the ideas of their profession to the business of money getting. On the other hand, Dr. Robinson gave his hearty admiration to the men and women who stood the test of his own high ideals, and if a man is to be judged by the friends he makes, Austin Robinson's character will need no other praise.

More than three years ago Dr. Robinson prophesied that the "Laissez-faire" policy with regard to the great native question would bring about trouble before long. His prophecy was verified on February 12th when he was called out to serve with the Carabineers under Colonel McKenzie, in his capacity of Surgeon-Captain of the Natal Medical Corps. After the ill-timed interference of the Home Government last March, Dr. Robinson felt sure that three or four months more in the field would be necessary, and so strong was his conviction that he persuaded his wife, whose health needed special care at the time, to take a six months' trip home with their two little children. His family were just on the point of rejoining him when the cabled news came that he had passed

suddenly away. Reading between the lines of his lively and descriptive letters from the field, it is easy to see that Dr. Robinson's ardent, energetic spirit caused him to overtax his strength during the campaign. On his return from the front, early in August, he was noticed to be looking very run down; his partner, however, felt no real anxiety about him until about a week before his death, when he made him stay in bed for four days. The end came suddenly a few days later, without any warning, and an examination made after death showed an over-strained heart with valvular deficiency of an acute nature.

One pathetic incident attaches to Dr. Robinson's connexion with the Natal Medical Corps, of which he was a keen member, and for the interest and efficiency of which he consistently worked. When the corps was being reformed, between two and three years ago, a motto was wanted, and Dr. Robinson offered the first part of his own—"*Non nobis solum.*" It was accepted, and is engraved on the badge of every member of the Natal Medical Corps to-day.

The members of Dr. Robinson's profession may continue to gain inspiration from such a motto as they don their uniforms and recall the fact that the member of the corps who gave it has been the first to show them that in service for others, even unto death if it must be, lies the real meaning of life.

Deputy Surgeon-General Sampson Roch, who died at his residence, Woodbine Hill, near Youghal, Ireland, on November 9th, was born on June 29th, 1829, the youngest son of Mr. G. B. Roch, of Woodbine Hill. He received his medical education at Trinity College, Dublin, and became M.R.C.S.Eng. in 1854. In the same year he entered the Army Medical Department, and joined the troops before Sebastopol; during the siege he was frequently in the advanced works, and was present when the Russian rifle pits were taken in April, 1855. On June 7th, 1855, he volunteered to accompany the French when they stormed the Mamelon, and on June 17th, after twenty-four hours in the trenches, again volunteered for the attack which took place on the day following. On June 6th, 1855, when attached to the 12th Field Battery, Royal Artillery, while restraining, by digital pressure, haemorrhage from a wounded gunner's thigh as he was being carried to the rear, a shell dropped near the carrying party who took refuge behind a gun carriage, Surgeon Roch neither moved from his position nor relaxed his hold until the explosion of the shell scattered his patient's brains in his face. For this act of gallantry he was mentioned in dispatches. Surgeon Roch served in Bengal during the Mutiny from 1857 to 1859, he was in the Mauritius from 1860 to 1865, and was selected to accompany the embassy under Colonel Middleton to the Court of Radama, King of Madagascar. In 1867 he volunteered to go to Abyssinia and was appointed to the charge of the Golden Fleece Hospital Ship. He left the army in 1882 and took the diploma of L.R.C.P.I.; he was soon afterwards appointed Medical Officer of Health for Cheltenham, which post he held until 1892, when he retired to his family home in Ireland.

Deputy Surgeon-General Julius Wiles, late of the Rifle Brigade, died in London on November 10th, aged 78. His commissions in the Army Medical Service were thus dated: Assistant Surgeon, November 24th, 1854; Surgeon, February 4th, 1871; Surgeon-Major, March 1st, 1873; Brigade-Surgeon, October 15th, 1881; and Honorary Deputy Surgeon-General on retirement, July 31st, 1883. His war record is as follows: Crimean campaign, 1855, including the siege and fall of Sebastopol and the attacks on the Redan on June 18th and September 8th (mentioned in dispatches, medal with clasp, and Turkish medal); the China war of 1860, including the action of Sinho, the capture of the Taku Forts, and the surrender of Pekin (medal with two clasps); and the Ashanti war in 1874, when he was at the battles of Amoaful and Ordashu and the capture of Coomassie (medal with clasp).

Lieutenant-Colonel Henry Theodore Chapman, Royal Army Medical Corps (retired), died at Budleigh Salterton, on November 27th, aged 64. He entered the Army Medical Service as Assistant Surgeon, March 31st, 1866; was made Surgeon, March 1st, 1873; Surgeon-Major, March 31st, 1878; and Honorary Brigade Surgeon on retirement from the service, August 18th, 1886. He served in the Soudan campaign in 1884, receiving a medal and the Khedive's bronze star.

Lieutenant-Colonel William Daniel Amherst Cowen, late of the Royal Army Medical Corps, died at Southsea on November 24th. He was the eldest son of the late Edward Cowen, Inspector-General of Hospitals, and entered the Army Medical Service as Surgeon, March 6th, 1880, becoming Surgeon-Major, March 6th, 1892, and Lieutenant-Colonel, March 6th, 1900. He retired from the service, August 26th, 1905. He served in the Nile Expedition in 1898, receiving the British and Egyptian medals.

Lieutenant-Colonel Charles Richard Bartlett, Royal Army Medical Corps, died at Freetown, Sierra Leone, on December 5th, at the age of 47. His commissions in the Army Medical Service were thus dated: Surgeon, July 29th, 1882; Surgeon-Major, July 29th, 1894; Lieutenant-Colonel, July 29th, 1902. He served with the Ashanti expedition in 1895-6, for which he received a Star, and in the campaign on the North-West Frontier of India in 1897-8, including the operations on the Samana and the action of the Ublan Pass, receiving a medal with two clasps.

The death at a comparatively early age of Mr. Greenwood Pim, M.A.Dub., Secretary for many years of the Conjoint Board of the Irish Royal Colleges of Physicians and Surgeons, will be much regretted by a large number of old Dublin students. All with whom Mr. Pim was officially brought in contact were invariably impressed by his thoroughness, geniality, and courteousness. Many of those who had the good fortune to be acquainted with him personally during their undergraduate career gained much by the kindliness with which he often gave them sound advice. Having been himself through a complete arts course in Trinity College, Dublin, of which he was a distinguished graduate, he knew the difficulties and temptations connected with the student's life, and his words of wisdom were always listened to as those of a real friend. The Conjoint Board, after the passing of the Medical Act of 1886, was fortunate in securing Mr. Greenwood Pim's services as Secretary. Many difficulties had to be overcome in evolving a system of procedure on good business lines. The task was performed by him with singular ability. He was an enthusiast for his work, but his devotion to it undermined his health, and he was reluctantly obliged to resign his office a couple of years ago. A lingering illness terminated in death at his residence in Monkstown, co. Dublin, on November 14th, to the great sorrow of a large circle of warm friends not only in the medical profession, but in literary, musical, and artistic circles in Ireland.

The late Dr. Symes Thompson.—Mr. C. Devereux Marshall, St. Luke's College, Carlton Hill, N.W., desires to state that while Dr. Symes Thompson worked in the most energetic manner for the Guild of St. Luke during the whole of the time he was associated with it, and for nine years (from 1892-1901) was the Provost, he was not one of its founders, as he did not become a member until 1884, twenty years after the Society was first formed. Neither did he originate the annual service of the Guild at St. Paul's Cathedral, which was started many years before his provostship.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are: Dr. L. W. Popoff, Professor of General Pathology in the St. Petersburg Academy of Military Medicine, President of the Russian Medical Association, and sometime Professor in the University of Warsaw, aged 62; Dr. C. J. Berthier, a well-known laryngologist of Geneva, aged 40; Dr. Georg Heimann, Scientific Assistant in the Berlin Statistical Office, aged 48; Dr. Venneman, Professor of Histology in the University of Louvain; Dr. Benicio de Abreu, Professor of Clinical Medicine in the University of Rio de Janeiro, aged 56; Dr. J. Zabludowski, Director of the Berlin

University School of Massage, aged 55; Dr. Planteau, Professor of Histology in the Medical School of Algiers; Dr. Franz Sperck, of Nishni-Novgorod, well known by his ethnographical and geographical researches, and author of numerous writings on therapeutics, and of some four hundred articles in the Brockhaus-Effron Conversations-lexicon, aged 71; and Dr. Nikolai Wilczkowski, in his day one of the leading surgeons of St. Petersburg, and Honorary Surgeon to the Czar, aged 83.

MEDICO-LEGAL AND MEDICO-ETHICAL.

INSURANCE COMPANY AND MEDICAL OFFICER.

ON December 10th Mr. Justice Darling, sitting with a special jury in the King's Bench Division, heard the case of Carruthers *v.* the Mutual Life Insurance Company of New York, in which the plaintiff sought to recover damages for his wrongful dismissal from the medical staff of the company.

Mr. Bankes, K.C., and Mr. Bremner were for the plaintiff: Mr. Rawlinson, K.C., Mr. Rowlatt, and Mr. Moore for the defendants.

In opening the case, Mr. Bankes said that the company had dismissed the plaintiff from what he contended was a permanent position, and that it was in respect of such dismissal that he brought this action.

The letter constituting the contract said that "the position as long as you do your duty to the company should be a permanent one." This meant, according to the company's contention, at the outside a yearly contract, and not a post for life.

The plaintiff in giving evidence said that in 1892 he was appointed local medical officer of the company, retaining his private practice, which was worth about £400 a year, and receiving fees from the defendants as well as a salary of £100 a year. In 1902 he was appointed on the medical staff at the company's London office at a salary of £700 a year, rising by gradual increase to £1,000, and giving up his private practice. At the end of 1905 the business of the company began to fall off, and in the following May he received a letter in which the medical superintendent in New York said that as their business was falling off two medical attendants were unnecessary, and he was asked to resign. No aspersion was cast upon his capabilities. They offered him three months' salary in lieu of notice, which he declined to accept. He then commenced this action.

Counsel for the defendant having submitted that there was no case,

The jury, after a long absence, held that the engagement was permanent in the sense that it was to last as long as the company carried on their business. They also found that if the engagement had been for a year certain, and so on from year to year, twelve months' notice would have been reasonable, and in that case the damages would have been £795 15s.

Mr. Justice Darling held that the contract was one to endure for a year certain, and so on from year to year, terminable, as the jury had found, by a year's notice, and under those circumstances there would be judgement for the plaintiff for the £795 15s., with costs.

"GREASE CANCER" NOT AN ACCIDENT.

AT the Newcastle-upon Tyne County Court an application has just been heard under the Workmen's Compensation Act, in which a grease-mixer claimed damages from his employers on account of the loss of an arm which had to be amputated for malignant disease. The man had worked eight years with his employers, and was engaged in mixing grease and creosote. It is a well-known fact that men thus employed frequently suffer from warts on the forearms and on the back of the hands; as a result of friction and continued exposure at work ulcers form which do not heal, but take on malignant action. That this had occurred in the case of the plaintiff there was abundant evidence to show, both medical and other. For the respondents it was urged that the injury to the arm was the result of a gradual process, a trade risk in fact, and that as no specific date could be assigned upon which the disease had developed, the malady could not be regarded as an accident under the meaning of the Workmen's Compensation Act. Judge Greenwell gave his award for the respondents, on the ground that the injury was the result of the man's work, and that it was impossible to mark a point of time at which something happened that led to the unfortunate result.

A GREAT DRUG FRAUD.

AT the assizes held in Lewes on November 26th, a prosecution, originated some months ago by the Brighton Police, and of much interest, was successfully concluded. The prisoners were two men named Hawkins, father and son, who, under several indictments, were charged with conspiring by "divers false pretences and subtle and fraudulent means and devices to obtain money from such of His Majesty's liege subjects as should thereafter purchase from them certain powders called Gloxiensis and Corassa Compound, and to cheat them of such moneys, on January 1st, 1906, and divers subsequent dates."

The main facts of the case were threshed out at great length before the Brighton bench of magistrates some two months ago, the proceedings lasting six days. On the present occasion proceedings did not last long, as the elder prisoner pleaded guilty, and, by arrangement no evidence was tendered against the son.

From the statements made by the prosecuting counsel, it would appear that the prisoners had for a long time been engaged in a great quack fraud, having addresses at Brighton, Worthing, Wood Green, and elsewhere under various false names; among such were "Dr. Hawkins, M.D., U.S.A.," "The Rev. John Wilson," "The Rev. Thomas Stone," "Thomas Stone, Esq.," "W. Grey, Esq.," and "The Rev. William Grey." They issued advertisements and circulars broadcast, the usual output, it was stated, being from 200 to 500 circulars a day. The powders sold were represented as being a cure for some forty-seven diseases, it being stated sometimes that they were the discovery of the Rev. Joseph Hope when he was on the West Coast of Africa. The answers sent out to the letters received by the prisoners at Worthing were prepared in Brighton, and were often so bulky and numerous that they were sent back to be posted in Worthing in a cart. Further evidence of the large scale on which the business was conducted was afforded by the fact that between January 1st this year and September 20th the prisoners received £3,244, all in small amounts, from purchasers of the powders in question.

Powders purchased by a detective were analysed by Mr. R. A. Cripps, public analyst for the borough of Bournemouth, who found their composition to be as follows:

GLOXIENSIS POWDERS.		CORASSA COMPOUND.	
Bicarbonate of sodium ...	72.0	Bromide of potassium ...	56.5
Bromide of potassium ...	27.7	Bicarbonate of sodium ...	38.5
Dust and impurities ...	0.3	Powdered cinchona bark	4.0
		Dust and impurities ...	1.0
	100.0		100.0
Cost, 2d. Price 17s. 8d.		Cost, 2d. Price, 18s. 11d.	

Mr. Justice Lawrance sentenced the elder prisoner to three months' hard labour, but explained that had the case been tried out and the prisoner convicted by a jury he would have had to award a sentence of a much more severe character: a light sentence was only justified because the case was the first of the kind which had been tried, so in some respects was a test case. The Treasury, it would seem, had not hitherto seen its way to take such cases up; if it could put a stop to frauds of this kind it would be doing a great and good work.

A DEATH UNDER CHLOROFORM.

AN inquiry was held at Bishop Stortford on December 7th into the circumstances attending the death of a student, aged 22, who died while under an anaesthetic at the Diocesan Training College for Schoolmistresses, Hockerill. The more important evidence was to the following effect: The deceased was placed under chloroform for the removal of some tuberculous glands in the neck. She was examined beforehand by two medical men, and nothing abnormal observed in the condition of the heart. The anaesthetic was administered by the open method. All went well for some twelve minutes, when the patient, not at the moment deeply anaesthetized, suddenly became rigid as though in a fit, and breathing ceased. Artificial respiration and other measures were at once adopted, but beyond a few shallow inspirations no sign of life reappeared. The Superintendent of the College described the deceased as a strong healthy girl, but on being recalled, said that on one or two occasions during her three months' residence at the College the patient had had fainting fits, and had had to leave the class room. The *post-mortem* examination, conducted by Mr. C. Gordon Watson, of the Metropolitan Hospital, showed that, apart from the suppurating glands removed by the operator, there were other glands in the neck showing evidence of tubercle, and also signs of tubercle elsewhere in the body. The walls of the heart were fatty and dilated, and there were signs of fatty degeneration in the aorta likewise. The thyroid gland was enlarged, and there was also a thymus gland of abnormal size. He could not account for the occurrence of the sort of epileptic seizure which had been described. Death was due to the sudden failure of a weak heart under the influence of chloroform.

The jury returned a verdict of death from misadventure, adding a rider to the effect that all possible care had been taken in the treatment of the deceased.

AN UNQUALIFIED PRACTITIONER.

AT Burnley, on December 4th, a man named George Gill was fined £10 and costs, or two months' imprisonment in default, for falsely pretending to be a surgeon. In February and March this year he had been carrying on practice in Burnley in a house, on a window of which was inscribed "Dr. G. Gill, Provident Medical Dispenser." A child whom he had treated died, and on being summoned to attend the inquest he disappeared, and was only apprehended recently.

DELAY IN NOTIFICATION.

AT Tottenham Police Court on December 6th, Dr. David McAskie of Tottenham was summoned by the medical officer of health for failing to notify forthwith a case of scarlet fever. The allegation was that there was a delay of five days in sending in the notification. When an inspector went to remove the patient—a child—he found that it was in the streets. The

defendant pleaded that he was in doubt at the time as to whether it was a case of scarlet fever. Now he was satisfied that it was not. The Bench held that as he had notified it as scarlet fever he was prevented from raising such a defence. They considered a nominal penalty would meet the offence, and fined the defendant 5s. and costs.

THE OBLIGATIONS OF MEDICAL WITNESSES.

FORENSIC.—If the circumstances are correctly stated (1) D.'s conduct appears to have been irreproachable. C had no right to request him to abstain from giving the solicitor who employed him a certificate as to A.'s state of health. If D. was called to the court as a witness he was necessarily obliged to give evidence; presumably he was called for the defence, but both sides seem to have agreed to accept his testimony. It is unreasonable of C. to blame D because he was not called. (2) B., being under subpœna, was bound to attend the court, and if he had refused to give evidence when directed to do so might have been committed for contempt. His conduct seems to have been perfectly right and rational. A medical man cannot refuse to give evidence because in his opinion some other medical practitioner had seen the case first, and was therefore entitled to the fees. He could explain this if he liked to the police or other authorities which summoned him, but he could not refuse to attend or to give evidence

MEDICAL ETIQUETTE IN IRELAND.

B. writes that in A.'s dispensary district there is a seaside village six miles from his residence. Summer visitors to the place find a difficulty in sending so far for advice. B., a private practitioner in delicate health, who is thinking of practising in the village for a few months each season, asks if this would be considered wrong towards A.

*** We are advised that B can adopt the course he proposes without any breach of Irish professional ethics, and A. would have no reason to object.

A DISCLAIMER.

MR. J. HAMILTON HART, M.R.C.S., L.R.C.P., (Walton, Suffolk) writes: My attention has been called to the prospectus of "The British Orchid and Nursery Company (Cowans) Limited" in which the name of J. Hamilton Hart Physician and Surgeon, appears as one of the directors. As I am the only J. Hamilton Hart on the *Medical Register* I hereby state that I have no connexion with or knowledge of the above company, and I shall be much obliged if you will insert this disclaimer in your next issue.

DOORPLATES AND SIGNS.

E. M.—It would be contrary to professional propriety to put on the doorplate or surgery window the consulting hours for a speciality such as "Children's Diseases, 10 30 to 11.30." Nor can we approve a notice of "Free Consultations, 3.30 to 9.30" for diseases of children of poor people, as such an announcement of gratis practice is a doubtful expedient for obtaining a professional reputation.

DISPENSERS AND THE PHARMACY ACT.

J. H. MAINS.—Any person holding the dispenser's certificate of the Apothecaries' Society may dispense, make up, and sell mixtures containing poisons in accordance with the provisions of the Pharmacy Act, which requires that the ingredients of the medicine, together with the name of the person to whom it is sold or delivered, be entered in a book kept for that purpose (prescription book), and that the name and address of the seller be attached to the medicine. The drugs mentioned, chloroform and nux vomica, are contained in Part II of the Schedule.

POSITION OF *LOCUM TENENS* ON SALE OF PRACTICE.

DELTA was engaged as *locum tenens* by his principal for six weeks; he finds that the practice is for sale, and that it is quite likely it might be sold before the term for which he was engaged had expired. He wishes to know if, in that event, he can claim salary for the whole six weeks, with board and lodging. The principal, in the meanwhile, has gone away, leaving his wife at home. Would her authority be sufficient as regards his connexion with the practice?

*** If our correspondent was definitely engaged for six weeks he would be entitled to full salary for that period, but not to board and lodging after leaving the practice. Whether the wife had authority to bind her husband in matters connected with the practice would depend on the special circumstances of the case.

SCHOOL CLOSING CERTIFICATES.

J. L. asks if a medical officer of health is entitled to a fee when advising the sanitary authority to close or reopen a school, and refers to a paragraph in our issue of November 17th re school closing

*** A medical officer of health is not entitled to a fee under such circumstances. The paragraph referred to dealt only with private practitioners, and pointed out that the latter did not lose their right to a fee by being elected members of a public Board by whom the fees were payable, provided the fees had been earned before such election.

PROFESSIONAL SECRECY.

WHOLE-TIME MEDICAL OFFICER OF HEALTH writes: A medical practitioner has consulted me under the following circumstances: He is attending a railway signalman for asthma. The attacks come on suddenly, and are so severe that the patient falls on the floor struggling for breath, and is totally incapacitated for an hour or longer. He has not yet had an attack in his signal-box, where he is on duty alone, sometimes for many hours at a time. The man declines to inform the railway company of his illness, thinking it would result in his discharge, or at least reduction of wages. The doctor is afraid that if he reports the case to the railway company, who are not his employers, and therefore not entitled to a report from him, he will have to stand an action for damages brought against him by the patient. On the other hand, he fears that unless he breaks the seal of professional secrecy there will probably be a railway accident, possibly on a large scale, as many London and other expresses traverse the line. I have advised him to make, in the public interest, a confidential report without delay to the general manager of the company, but as the doctor is reluctant to do this I hope you also will give your advice as speedily as possible.

*** In our opinion the circumstances, extreme though they be, cannot be held to justify a breach of the law of professional secrecy. While the medical man should represent the criminal neglect of the patient if he does not explain his position to his employers, the former ought not to write direct to the railway company without the patient's consent, he fully understanding the nature of the communication to be made.

MEDICAL ADVERTISING.

CURIOSITY wishes to inquire (1) the difference between a poor practitioner putting labels on his bottles of medicine with his name and address and hours of surgery and a Harley Street consultant giving a prescription with his name, address, and hours of attendance? (2) He desires to know if the enclosed card savours of advertising; similar cards are given to every patient attending a hospital. The card enclosed is as follows:

——— EYE HOSPITAL.
Mr. ——, 30, —— Square, ——, and Dr. ——, 61, —— Road, ——,
Attends every Tuesday and Friday at 12 o'clock.
Always bring this card to the hospital with you.

(1) We suppose the main difference is that the label on the medicine bottle is open for everybody to read, but our correspondent should remember that custom regulates most ethical rules, and that while it is customary to put the name and address on notepaper, it is not customary and convenient to put it upon the labels of medicine bottles. It is not the accepted rule for Harley Street practitioners to put their hours of consultation upon their notepaper. (2) We think the card should be brought before the Ethical Committee of the local Branch, as, in our opinion, it is unusual to place the private addresses of the members of a hospital staff upon the cards or papers given to hospital patients.

UNREGISTERED DENTISTS.

R. B. A.—If the estimate of the respective abilities of the several dental practitioners be correct, that the unregistered person alone is competent, it is a very unfortunate circumstance. But a general principle right in itself cannot be safely set aside when in an individual case it appears to work disadvantageously, and for public purposes registration must be taken to be the equivalent of qualification, even though persons have been admitted to the *Dentists' Register* only because they were in practice prior to the passing of the Act. In the present state of medical politics it is most important that members of the profession should give no countenance to the unqualified, that is to the unregistered; the public are already far too much inclined to look with favour on the unqualified and to oppose any medical legislation of a more stringent kind.

THE USE OF FOREIGN DEGREES.

CELT asks if it is lawful for a medical man who has obtained the M.D. Brux. since 1886, the same not being registrable, to style himself "M.D." on his doorplate?

*** Strictly speaking, the holder of a foreign degree of M.D. should put after the title the name of the University from which it was obtained; but if he is a registered medical practitioner the omission of this description can hardly be said to be unlawful, as the law on this subject has never been clearly laid down, the legal decisions thereon being conflicting.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF OXFORD.

B.M., B.CH. EXAMINATIONS.

THE following have passed the Examination in Pathology in the Second B.M.:

M. B. Baines, B.A., Exeter College: S. Hertill, B.A., New College: H. A. Philpot, B.A., New College: S. E. Whitnall, B.A., Magdalen College.

UNIVERSITY OF CAMBRIDGE.

APPOINTMENTS.

PROFESSOR HOWARD MARSH has been elected a member of the General Board of Studies.

A. G. Tansley, M.A., Trinity College, has been appointed University Lecturer in Botany for five years.

The following additional Examiners for medical degrees have been appointed:

3RD M.B., PART I.—A. R. Cushny, M.A., M.D.Aberd., in Pharmacology.
" " R. T. Hewlett, M.D.Lond., in Pathology.
" PART II.—R. M. Simon, M.D., Gonv. and Cai., in Medicine.
" " R. Johnson, F.R.C.S. } In Surgery.
" " F. F. Burghard, F.R.C.S. }
" " C. Wallace, F.R.C.S. }

ANTHROPOLOGY AND TROPICAL MEDICINE.

The Board of Anthropological Studies recommend that it is desirable to establish a diploma in Anthropology.

The Examination in Tropical Medicine and Hygiene will begin on Wednesday, January 2nd, 1907, in the Medical Buildings, Cambridge.

A benefaction of £100 has been received from Dr. Hoffman, M.A., for the Clinical Laboratory at Addenbrooke's Hospital.

From returns kindly supplied by the tutors, it appears that the number of freshmen intending to study medicine in the University is 122. Last year the number was 117, and in the year before 89.

UNIVERSITY OF EDINBURGH.

STUDENTS' REPRESENTATIVE COUNCILS.

AT a meeting held in the Union on December 10th, Mr. E. Darwin Wilmot presiding, it was agreed, on the motion of Mr. H. Ballingall Watson, M.A., to petition the Senatus and University Court that students in medicine who have completed their Third Professional Examination may be allowed to present themselves for examination in the subjects of forensic medicine and public health in the July or March preceding the Final Examination as part of that Final Examination.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on November 21st.

Incorporation of University College.

The Senate have received from the Clerk of the Privy Council an intimation that His Majesty in Council has approved the new statutes made for the management of University College, and for the constitution and management of University College Hospital and the School of Advanced Medical Studies connected therewith. All the arrangements made in connexion with the incorporation of University College in the University will come into operation on January 1st, 1907.

Vice-Chairman of External Council.

Dr. Russell Wells, B.Sc., has been elected Vice-Chairman of the Council for the external students for the remainder of the year 1906-7, upon the resignation of Dr. James Bourne Benson.

University College.

Dr. T. Gregory Foster and Mr. Hugh Condy have been elected president and secretary respectively of the University College Old Students' Association, while Mr. G. A. Aitken has been re-elected honorary treasurer.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

SIR ARTHUR RÜCKER, Principal of the University, distributed the prizes to the successful students of the Charing Cross Hospital Medical School, on December 5th. Dr. Amand Routh was in the chair. The Dean, Dr. C. Addison, submitted his report, in which he pointed out that during 1905 the Committee of the King Edward's Hospital Fund for London required that the accounts of the medical schools should be kept distinct from those of the hospitals to which they were attached and that the schools should not derive benefit from the funds subscribed for the hospitals unless such subscriptions were specially signified as being available for the uses of the school. The required separation was effected by the end of 1905. Dr. Addison further stated that in the course of the last twenty years, during which the financial responsibility for the school had been common with that of the hospital, an account of the sums received by the hospital from the school, or paid by the hospital on account of the school, showed that the hospital had, on the average, contributed a sum of £61 a year to the school. There were certain advantages which accrued to the hospital in the constitution of its staff and in other ways through its association with a school of medicine, beside the gratuitous services rendered daily in nearly all the departments of the hospital's work by the students and others attached to the medical school. When the yearly contribution of £61 was balanced against these advantages, it was obvious that the sum was trifling, and that the two institutions had been very useful and necessary the one to the other. Dr. Addison concluded with the satisfactory announcement that the finances of the school were in a sound condition, and that there was a very substantial increase in the number of students.

Sir Arthur Rücker then presented the prizes, the Governor's Clinical Gold Medal being taken by Mr W. K. Beaman.

Sir Arthur Rücker in the course of an address to the students said that with modifications the relations of the University of London to the schools were much the same as the relations of the Universities of Oxford and Cambridge to their colleges. Each college managed its own teaching and looked after its own finance, but the University of London possessed the power of visiting its schools and of recognizing the teachers and the courses of study. The faculty of medicine was the largest in the University of London, and the policy of the University was to secure self-government to each faculty. The medical students of the London University were governed by a body that was in touch with the medical profession, and animated with a real desire to further and promote the interests of medical education in London. After nearly six years' work the University had 3,000 internal students, and about 8,000 other students attending the lectures of teachers approved by the University. About six years ago the financial budget for the University was £29,000, and last year it amounted to £95,000. Sir Arthur Rücker concluded by observing that the students at Charing Cross Hospital not only belonged to a great medical school, but they were also members of a great University.

A cordial vote of thanks to Sir Arthur Rücker was proposed by Lord Kilmorey, and carried with acclamation.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

VACCINATION.

The Duty of a Public Vaccinator when Four Marks are Refused.

SIGMA writes: I have recently had a visit from the L.G.B. Vaccination Inspector. My register contained a number of two-insertion cases. I pointed out to him that in these cases the parents flatly and emphatically refused to have more than two insertions in spite of all the well-known arguments for four. He recommends me, as public vaccinator, in future to decline to vaccinate in less than four insertions, and to return (on Form H) any other cases as having "refused efficient vaccination." Now, these people, being willing to have two insertions, do *not* refuse vaccination, and therefore cannot be convicted if they do not have the child vaccinated by the public vaccinator, and moreover, they cannot be compelled to go to the expense of having the child vaccinated by any other practitioner. And therefore, if I carry out the advice of the Inspector and refuse to vaccinate, a large majority of these cases will not be vaccinated at all, and I repeat, cannot be convicted, as they are quite willing to have the child successfully—if not efficiently—vaccinated. The certificate of successful vaccination says nothing about the number of insertions, and my point is, that it is better for the public vaccinator to vaccinate in two places than allow the child to go unvaccinated, which would happen in nearly every case, in spite of all the vaccination officer might do, which would not be much. Of course, I refer only to cases where four insertions are obstinately and finally refused. In such cases what is the public vaccinator to do? Is he to decline to vaccinate, let the case slide, cause no end of trouble to the vaccination officer and the parents, and lose the vaccination fees? Or is he, on the other hand, to vaccinate in two marks, incur the displeasure of the Local Government Board, and lose all chance of the "award"? The Act says the public vaccinator must aim at obtaining four distinct vesicles, and I always do *aim* at this, but I would rather miss the mark than be prosecuted for assault by some indignant parent who did not want more than two marks on his child's arm.

I should be grateful for your opinion on this question, and perhaps some public vaccinators might also give me an expression of opinion from their point of view.

*** The best answer we are in a position to return is to publish the following letter which the Local Government Board recently addressed to a public vaccinator who had raised the question of two-mark vaccination:

Local Government Board,
Whitehall, S.W.

I am . . . to point out that Article 8 of the Vaccination Order, 1898, requires that in the performance of vaccinations the Public Vaccinator shall observe the Instructions in the Third Schedule to the Order, and that paragraph 7 of those Instructions directs that "in all ordinary cases of primary vaccination the Public Vaccinator

must aim at producing four separate good-sized vesicles or groups of vesicles not less than half an inch from one another. *The total area of vesiculation resulting from the vaccination should not be less than half a square inch.*"

The Board consider that if, when the Public Vaccinator makes a visit for the purpose of public vaccination, any question arises as to the child being vaccinated in less than four places, he should in all ordinary cases use his best efforts to induce the parents to allow the child to be vaccinated in the manner referred to in the Instructions, and should explain fully the reason. On this point the Board may draw attention to paragraph 294 of the Final Report of the Royal Commission on Vaccination, in which it is stated as follows:

"Upon the whole, then, the evidence appears to point to the "conclusion that the greater the number of marks the greater "is the protection in relation to small-pox enjoyed by the "vaccinated person. This further indication also seems to be "afforded that, whilst the distinction in this respect between "those with one and those with two marks is not very great "there is a very marked contrast between those with four or "even with three marks as compared with either one or two."

If, however, notwithstanding this explanation, the parent in any particular case will only consent to the child being vaccinated in two places instead of four, the Board are not prepared to say that the Public Vaccinator should decline so to vaccinate the child, but it must be understood that *the total area of vesiculation to be secured must amount to at least half a square inch.*

The Board may state that they would regard as a serious dereliction of duty failure on the part of a Public Vaccinator to use his best efforts to secure such adequate protection against small-pox as is contemplated by the Instructions above referred to.

I am to add that the Board do not doubt that half a square inch of scar can be obtained by the insertion of lymph over a single scarification, provided such scarification is sufficiently widespread; but in the Board's experience, vaccinators do not, owing to the objections of parents to sore arms resulting from one mark vaccination on this scale, when resorting to one mark get habitually half a square inch of scar. For this, as for other reasons, the Board deprecate any approach to the competition of public vaccinators with private practitioners of the class referred to in your letter in the matter of one-mark vaccination.

Vaccination in the Presence of Small-pox.

J. S. writes: A case of small-pox (father of a family) occurs and a private practitioner is called in. He discovers three unvaccinated children for whom exemption orders have been obtained. He vaccinates the same and all other contacts. He notifies the medical officer of health of the small-pox case in the usual way. In three or four days' time the vaccination officer telephones the private practitioner that he is sending the public vaccinator to see the vaccinations. On being told that the three unvaccinated children are now vaccinated he (the vaccination officer) demands certificates of same. I should like to know:

1. Was the vaccination officer right in sending the public vaccinator before he himself made inquiries as to contacts requiring vaccination, the three children being legally exempt?

2. Can certificates for successful vaccination be demanded from the private practitioner free of charge, by the vaccination officer of the union where the vaccination took place?

3. Can the vaccination officer enter the house and demand to inspect the arms of these children privately vaccinated?

*** (1) A vaccination officer has very large powers and discretion under Sections 3 and 4 of the Memorandum of Steps Specially Requisite in Places where Small-pox is Prevalent (March, 1901). He is quite within his powers in applying to the public vaccinator, and is not likely to have done so (or he to go) before ascertaining that there were contacts. (2) Every practitioner is bound to furnish a certificate of successful vaccination to the parent, who is bound to forward it to the vaccination officer (Vict. 30, cap. 84, 22). It is the duty of the vaccination officer (Consolidated Orders, 1898) to obtain such certificates if they have not been sent in. No statutory fee can be demanded for such certificates. The previous issue of exemptions has no bearing on this clause. (3) Under the memorandum mentioned above the vaccination officer is instructed to "visit" houses, which must be taken to mean enter them. To inspect arms is not usual for a vaccination officer, but to do so in the case of contacts cannot be said to be in excess of his duties.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

R.A.M.C. (VOLS.) LONDON COMPANIES.

ON December 1st the annual challenge shield competition for companies of the Royal Army Medical Corps Volunteers (London Companies) was held at the headquarters of the Corps, 51, Calthorpe Street, and, after a spirited contest, was won by No. 2 Company under Captain Snape. The judging was done by Major Steele, R.A.M.C., who kindly came up from Aldershot for the purpose.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

QUERIES.

CHANGES IN THE COLOUR OF THE IRIS.

DR. ALFRED A. MUMFORD (Chorlton-cum-Hardy) writes: I should be obliged if any of your readers could give me any information about changes in colour in the iris occurring after the natural change in infancy and apart from disease. It is customary to take "eye colour" as a fixed standard of race, and to assume that it is very little influenced by outward circumstances. I have heard on good authority that changes in the pigmentation of the eye do occur, after infancy and apart from disease, associated with altered conditions of life, semi-starvation, etc, which may or may not be associated with general deposit of pigment in the body. If such changes do really occur, it shows that many qualities which we consider to be rigidly fixed by heredity are more amenable to outward influence than seems at first to be supposed. Perhaps by such observations as these we may learn to consider how much of an inherited quality is really an essential part of man's growth, and how much of it is dependent on similar circumstances of nutrition.

ANSWERS.

A MEMBER (Northampton).—It is impossible to take action upon anonymous communications, but our correspondent might bring the matter to the notice of the Council of the Northamptonshire Division.

LECTURER.—We think our correspondent will find what he requires in *Medical History from the Earliest Times*, by E. T. Withington, M.A., M.B.Oxon., published by the Scientific Press, Limited, 428, Strand, W.C.

ALCOHOLISM.

IGNORANT.—The following works and articles will probably answer our correspondent's requirements for the course of short addresses dealing with the question of temperance from a medical aspect which he has been asked to deliver. Foreign literature (for instance, *Die Alkohol Frage* by Professor Hellenius) on the subject is voluminous. Valuable abstracts of this foreign research are to be found in: *The Medical Temperance Review* (the journal of the British Medical Temperance Association) for the last fifteen years. (London: R. J. James, 3 and 4, London House Yard, Paternoster Row, E.C.) Lees-Raper Lectures for 1900, 1903, 1904: (*a*) *Effect of Alcohol on the Human Brain*, by Sir Victor Horsley, F.R.S.; (*b*) *Recent Researches on the Action of Alcohol in Health and Sickness*, by G. Sims Woodhead, M.D.; (*c*) *Labour and Drink*, by John Burns, M.P. To be obtained from the Secretary of the Trust, J. Kempster, 20, Tothill Street, Westminster. *The British Journal of Inebriety*, vols. i, ii, and iii. (London: Baillière, Tindall, and Cox.) Article on Alcoholism and Morphinism, in *Health and Disease in Relation to Marriage and the Married State* (Senator Kaminer). Vol. ii. (London: Rebman, Ltd.) The Alcohol Number of the *Practitioner*, November, 1902. *Proving Our Case*. By Walter N. Edwards, F.C.S. (Onward Publishing Co.). *Physiological Aspects of the Liquor Problem*. (Boston and New York: Houghton, Mifflin and Co.). *Alcohol and the Human Body*. By Sir Victor Horsley and M. D. Sturge (to be published shortly). The following pamphlets, published by the Church of England Temperance Society, 4, Sanctuary, Westminster, S.W., may also be consulted. (Large envelope size, 6 in. by 4½ in. One penny each, or 6s. per 100 net)—*Alcohol: a Poison*. By Sir Frederick Treves, Bart. Fourth edition. *The Medical Profession and Alcohol, and Is Alcohol of any Service?* By Sir Victor Horsley, F.R.S., F.R.C.S., etc. Second edition. *The Prevailing Intemperance among Women: Its Cause and its Remedy*. By Sir Thomas Barlow, M.D., K.C.V.O., etc. Fifth edition. *Alcohol and Efficiency*. By Sir James Crichton-Browne, M.D., LL.D., etc. *Alcohol and the Brain*. By Dr. G. Carpenter, Physician to the North-Eastern Hospital for Children. *Alcohol: a Paralyser*. By Norman Porritt, M.R.C.S., etc., Consulting Surgeon, Huddersfield Infirmary. *Alcohol in Motherhood*. By Dr. G. Carpenter. *The Use of Alcohol and its Results in our Public Schools*. By Dr. Clement Dukes, Physician to Rugby School. ½d.; 3s. per 100 net. Popular medical tracts (octavo). One halfpenny each, or 3s. per 100 net. Among other publications are: *Strong Drink not Food*. By Dr. Norman Kerr. *Physical Dangers of Strong Drink*. By Dr Norman Kerr *Motherhood from a Temperance Point of View*. By Mrs J. W. Bardsley. *The Heredity of Inebriety*. By Dr. Norman Kerr. *Beer as an Adjunct to our Meals*. By Dr. Crichton. *Some of the Effects of Alcohol on the Heart and Circulation*. By Dr. Law. *Alcoholism in Childhood and Youth: Its Causes, Results, and Prevention* By Dr. Thomas More Madden. *The Use of Alcohol in Children's Diseases*. By Sir Thomas Barlow. *Moderate Drinking: Can it Injure Health?* By Dr. A. E. T. Longhurst.

TREATMENT OF PRIAPISM

DR. B. O'CONNOR (Luarca, Asturias, Spain) writes: "M.D.'s" patient will find relief from the following, a dose an hour after breakfast and at bedtime for three or four days: ℞ Pulveris camphorae, gr. xvj; tr. belladonnae m1; tr. lupulini, ℥ij; misce, et adde mucilaginis tragacanthae, ℥iv; aquam camphorae, ad ℥iv. Misce ut fiat mistura, dequâ sumenda (ex aquâ) semiuncia fluida, bis die ut dictum est (agitetur phiala).

BROMIDROSIS.

DR. A. ROBERTS writes, in reply to M.B., to recommend the internal administration of sepia in small doses, and offers, should there be difficulty in obtaining it, to send some if our correspondent will apply to him.

TO MASK THE TASTE OF NAUSEOUS DRUGS.

DR. J. LINDSAY JOHNSON (London, W.) writes: I notice in the BRITISH MEDICAL JOURNAL of December 8th you quote Dr. Foch as recommending a pungent liqueur such as anisette to mask the taste of castor oil. In my experience a small teaspoonful of ordinary Scotch marmalade on a morsel of bread will effectually conceal the taste of the most nauseous drugs imaginable. I have for years recommended it to be given before and after the administration of castor oil, male fern, asafoetida, and other unpalatable medicines, and I have never known it to fail. I would not have thought it necessary to mention this fact had it not been for the statement you have quoted, but it is hardly worth while for a medical man to send his patient to hunt for anisette when a far more effective remedy lies at every one's door.

RHINORRHOEA IN INFANCY.

DR. G. A. GARRY SIMPSON (London) writes: I think the trouble described by "Snuffles" is due to congenital adenoids, keeping up a chronic rhinitis. The fact that the infant is able to sleep with its mouth shut is no proof that the growths are not present, as the natural inclination is for the child to adopt nasal respiration during sleep. I would suggest that the infant be given a slight anaesthetic, and any adenoids present can be removed with the smallest size curette.

DR. S. CONSTABLE (London) writes: If "Snuffles" will send the infant out into the open air all day long, no matter what the weather, dispensing with that relic of barbarism the veil covering the mouth, when the child will receive the maximum of oxygen and the minimum of carbonic acid and other irritating products of diet, he will find his patient well in two or three weeks. Of course, he must insist on the child getting nearly the same treatment indoors by means of open windows, no gas in bedroom, and other elementary rules of hygiene being attended to. He might also warn the mother to put no soap on its face, as there is sure to be a good supply left in the nostrils. The open-air treatment—another name for cleanliness—is applicable to many ailments be-sides phthisis—for example, ringworm, rheumatic fever (future attacks) when locomotion is allowed, etc.

LETTERS, NOTES, Etc.

AN umbrella left in a cab discharged at the central offices of the Association on December 3rd is in the custody of the Metropolitan Police.

WARNINGS.

DR. HERBERT G. COOK (Cardiff) writes: In the BRITISH MEDICAL JOURNAL of November 10th, page 1344, you print a warning about a certain Mr. F. B. Collins, who is travelling around selling "sparking plugs" to the unwary. I should like to endorse this warning. His sparking plugs are rubbish, he is not known at the address printed on his card (5, Lyric Road, Barnes, S.W.), and the firm he pretends to represent, Messrs. G. D'Orleans et Cie, Levallois (Seine), Paris, is not known to the French postal authorities.

RESULTS OF SERVICE EXAMINATIONS.

DR. FREDK. W. COLLINGWOOD (The Infirmary, Isleworth) writes: May I ask Professor Saundby, through the medium of the BRITISH MEDICAL JOURNAL, why he "hoped that the Council would not continue to publish these reports every year," and why "in his opinion, they were absolutely worthless"?

*** We have referred this to Professor Saundby, who writes:

In answer to Mr. Collingwood, may I be permitted to say that the reason I objected to the annual publication of the tables of results of the examinations for the Army Medical Department and the Indian Medical Service is that the numbers from each qualifying body are too small for the conclusions to be drawn from them not to be misleading. Mr. Tomes said that, having examined these tables for a series of years, he had found that they allow of interesting and valuable deductions, but he admitted that as published year by year they are of little value. I am satisfied with the result of the discussion, and I have no intention of taking part in the controversy on "A Sidelight on Medical Education."

THE ADJUSTMENT OF THE INCOME TAX BURDEN.

DR. WM. WOODRIFF-SMITH (Wimbledon) writes: The author of the article under the above heading writes: "Nevertheless, the fact that few professional incomes approach £5,000 cannot be overlooked, and therefore the imposition of a supertax on large incomes would be viewed with equanimity by the vast majority of the members of the medical profession." If this be true, the vast majority of the members of the medical profession are worthy the contempt of any *honest* man; if false, it is the most gross insult I can recollect during the forty years I have been a member of that profession.

*** We confess that we are unable to follow our correspondent. We imagine that the vast majority of members of the medical or any other profession would view the prospect of winning an income of over £5,000 not only with equanimity, but even with satisfaction.

THE CASE OF MR. PEERS: A MISCARRIAGE OF JUSTICE.

MR. C. H. PRING, M.A., L.S.A., honorary treasurer, 278, Old Kent Road, S.E., writes: I have great pleasure in acknowledging the following contributions towards Mr. Peers's indemnity fund:

Amount previously acknowledged ...	7	6	0
London and Counties Medical Protection Society	10	10	0
Robert Boxall, M.D.	5	5	0
Amand Routh, M.D.	2	2	0
Charles Stirling, M.B., C.M.	1	0	0
C. P. Gallie, M.B., C.M.	1	1	0
H. M. Walker, L.R.C.P., L.R.C.S.E. ...	1	1	0
R. Capes, M.R.C.S., L.R.C.P.	1	1	0
J. Kennedy, M.R.C.S., L.R.C.P.	1	1	0
J. G. Carter, M.R.C.S., L.R.C.P.	0	10	0
Stanley Boyd, M.B., B.S., F.R.C.S. ...	0	10	6
R. D. Muir, M.D.	0	5	0

As the list will shortly be closed, I shall be obliged if any further amount could be sent to me during next week.

THE TREATMENT OF UTERINE HAEMORRHAGES.

DR. PERCY NEWELL (St. Leonard's-on-Sea) writes: On page 1582 of the BRITISH MEDICAL JOURNAL for December 1st is an epitome of an address given by Dr. Le Page before the Clinical Society of Manchester on the above subject, with special regard to *post-partum* haemorrhage. The advice given by the lecturer is so excellent and practical, as well as successful, that it ought to be carefully noticed by all practitioners, more especially the general practitioner, to whose lot the majority of these appalling cases occur. I do not know if Dr. Le Page wishes us to consider his advice new or original, but I may mention that many years ago in the *Medical Brief* and the *International Clinics*, there appeared a lecture by Mr. Staunore Bishop on the treatment of *post-partum* haemorrhage, and this lecture is couched in almost the same words as Dr. Le Page's is. Mr. Bishop's lecture concludes with the terse and apt advice: "Cease flogging a tired uterus from within and without, by mechanical means and drugs, and turn off the tap." I am afraid Mr. Bishop's advice must to a large extent have fallen on stony ground, for one has only to take up a recent work on obstetrics to find the same old try-this and try-that methods which have been proved useless many times over in the past.

"SUN SPOTS."

A STORY is told of a young lady who had intended to be present at a lecture by Sir Robert Ball. Meeting him shortly afterwards she expressed her regret at having missed the lecture. "Well," said the great astronomer genially, "I don't know that you would have been greatly interested. The lecture was about sun spots." "Oh," replied the fair student of astronomy, "that would have interested me very much indeed. All my life I have suffered from freckles!" This reminds us of Byron's story of the Countess Guiccioli. Hearing Sir Humphry Davy spoken about a good deal when he was in Italy, she asked her noble lover what he was. When he told her Davy was a great chemist, she begged that he might be introduced to her as she wanted advice about her complexion.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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An Address

ON THE

EXANTHEM OF SCARLET FEVER AND SOME OF ITS COUNTERFEITS, AND THE CLINICAL SIGNIFICANCE OF SKIN HAEMORRHAGES IN DIPHTHERIA.

Delivered at a Meeting of the Stratford Division of the Metropolitan Counties Branch on October 18th.

By JOHN MacCOMBIE, M.A., M.D.Aberd.,

medical superintendent, brook hospital, shooters hill, woolwich.

When I was asked to address you it occurred to me that, as you are all called upon from time to time to attend cases of infectious diseases, either for the purpose of diagnosis with the view of removal to hospital, or for both diagnosis and treatment at home, some observations upon exanthems that not infrequently obscure and complicate diagnosis would be interesting, and might possibly be of some little service to you.

The most widespread of the eruptive fevers is scarlet fever. The difficulties that beset us in its diagnosis, and in the diagnosis of cases of acute illness in which an exanthem simulating that of scarlet fever presents itself, have induced me to devote the major portion of my observations this evening to the consideration of the exanthem of scarlet fever and some of its counterfeits.

The Exanthem of Scarlet Fever.

Perhaps you will permit me at the outset to indicate very briefly the salient features of the exanthem, and the characteristic lingual and faucial appearances of scarlet fever. The typical rash of scarlet fever is twofold in character. A finely punctate, slightly-raised papular portion, and an erythematous portion, the finely-punctate portion being usually regarded as the most characteristic feature of the rash. Most cases show erythema along with punctation; others, especially those showing evanescent rashes, have erythema and little or no punctation; while in others the punctate rash overshadows the erythematous.

The eruption is general; the tint of the rash in ordinary cases and at its first appearance varies from a delicate rose-pink to light red, the punctae showing as small specks of a more intense red than the general erythema. In many cases the rash is got present on the face, but not infrequently it appears there first, is mostly erythematous in character, affects chiefly the forehead and cheeks, and, as it usually avoids the skin round the mouth, an area of circumoral pallor results which contrasts markedly with the reddened cheeks. The rash on the face often attracts little or no notice, being regarded as merely a flush. Usually the complete exanthem is best marked on the trunk and extremities, the punctation being most noticeable on the neck, trunk, arms, and inner aspect of thighs. The rash appears on the first or second day of illness, and is usually—in children at least—preceded by headache, nausea or vomiting, sore throat, and some rise of temperature.

Generally speaking, the punctate portion of the eruption is slightly raised, while marked papulation of it is evident, in many cases on the upper and lower extremities, the papules being often as large as a good sized pin's head. The papulation shows as numerous red papules, well raised above the level of the surrounding skin; it is most marked on the legs and forearms usually, but it is often to be noted also on the thighs and arms, and sometimes it is noticeable on the trunk. It persists for some time after the disappearance of the general exanthem, the papules becoming smaller and less bright in tint, till they gradually disappear. It consequently affords valuable aid in diagnosis when one is called in to a case of suspected scarlet fever after the general eruption has faded. If in such a case the tongue and throat signs be those of scarlet fever, and papulation be present on the extremities, the case can with certainty be diagnosed as scarlet fever.

In regard to lingual and faucial appearances, the characteristic tongue is at first white with the fungiform papillae showing as red dots on the white ground; in the course of two or three days the tongue epithelium begins to peel off, and by the fourth day, usually, the tongue is clean and markedly red, the papillae being red and prominent, standing well out from the surface of the tongue. The majority of cases show this appearance of tongue, but not all; in children it is usually present, in adults it is often absent.

The faucial appearances in their simplest and mildest form consist of a ring of bright red injection involving the free edge of the palate and tonsillar pillars—with sometimes red punctation of the general surface of the soft palate. The tonsils may or may not be reddened. There is very little swelling of the parts in the mild cases. In more marked cases the tonsils share in the injection and are swelled, often showing small dots of exudation on the crypts.

A word with regard to toxic scarlet fever. In this there is great prostration from the onset and vomiting is usually marked and often persistent. The exanthem is not infrequently coarsely punctate and sparse, with little or no erythema. The lingual and faucial signs are invariably characteristic.

The typical desquamation that follows the disappearance of the exanthem is a general one involving practically the entire skin. It commences as minute points of desquamation which, speedily enlarging, assume the form of pinholes of various sizes, and thereafter it is more or less flaky. On palms, fingers, and soles the epidermis usually peels off in shreds and flakes. This general pinhole or ringed desquamation is, I think, characteristic of scarlet fever.

If, in every instance, scarlet fever conformed to the typical fever just described and were its rash not counterfeited by eruptions occurring in other acute diseases, mostly in their early stages, its diagnosis would be a comparatively easy matter. But these counterfeits simulate so closely the real article that they present many difficulties in diagnosis, and therefore they merit close consideration if one wishes to avoid arriving at an erroneous conclusion as to the precise disease from which the patient is suffering.

I will consider first the prodromal scarlatiniform eruption appearing in measles, small-pox, and chicken-pox.

Scarlatiniform Rashes.

1. *In Measles.*

The true eruption of measles is sometimes preceded by a bright red erythema investing the face, trunk, and extremities, appearing on about the second day of illness, when the catarrhal symptoms, it may be, are little in evidence or not at all. The erythema is usually not punctate in character, though in rare instances it is punctate. The tint is indistinguishable from that of the scarlet fever exanthem. So close is the resemblance that a good many cases find their way into fever hospitals, where on the third or fourth day of illness the true eruption of measles commences to appear. Concurrently with its appearance the prodromal erythema begins to fade, and the real nature of the attack is revealed. Before the vogue of isolation hospitals had arrived, you had better opportunities for observing such cases, but now, the moment you have made your diagnosis of scarlet fever, the patient is removed to the fever hospital, and you have no further opportunity of observing the case.

One naturally asks if the prodromal exanthem affords any sign that would lead one to doubt its being the rash of scarlet fever. Well, in the great majority of cases it does not show punctation, and, as most scarlet fever rashes do show punctation, that feature should at once prompt one to very careful examination of the case before arriving at a diagnosis. Probably the child—for these prodromals occur in children only as far as my observation goes—will not have complained of sore throat, vomiting will most likely be absent, and there may be a sharp, short cough. On examining the throat there may be, but usually is not, some redness of the fauces; no definite help will therefore be obtained from the signs there; but if, on examining the buccal mucous membrane opposite the molar teeth, Koplik's spots are visible, then the case is measles, not scarlet fever. These minute, whitish, raised spots of mucosa, about the size of a very small pin's head, may also be present on the buccal mucous membrane generally, but their most common site is opposite the molar teeth, consequently that is the spot

to which one's observation is directed in the first instance.

These Koplik's spots do not stare you in the face when you look into the patient's mouth. You want a bright light, and it is necessary to stretch the mucosa with the end of a spoon or tongue depressor before they will catch your eye. They are often exceedingly small, mere minute whitish dots, though in many cases they are of the size of a very small pin's head, and occasionally larger. In many instances there is a thin red line surrounding each spot, but this is by no means constant. Sometimes there may be only six or twelve such spots all told, while in other cases they are quite numerous, dotting the buccal mucosa, and occasionally they form confluent patches of the size of a large pea opposite the molar teeth. The favourite situation for these spots is, as I have said, the buccal mucosa opposite the molar teeth, and they are often limited to this region; but in some cases you will find them dotted along the mucosa of the lips, gums, and, in rare instances, on the palate and fauces.

They are not present in scarlet fever. I take it that, in arriving at a diagnosis in a case which suggests scarlet fever, we all examine the tongue and throat. If in addition we made it a rule to look for Koplik's spots in all such cases, the counterfeit eruption in measles would, in almost every case, be detected and increased accuracy in diagnosis be thereby attained. Of course, one may meet with a concurrence of measles and scarlet fever in the same patient, the two infections running their symptoms side by side; but that is an extremely rare event, and in very many years' experience I can only recall a few such cases.

Some cases of German measles may cause difficulties by reason of their resemblance to the scarlet fever exanthem. For instance, those in which the eruption is fairly abundant and the individual macules are small. As far as my observation enables me to speak, there is in these an absence of the purely erythematous rash of scarlet fever, the spots are to be noted on the face as well as on the trunk and extremities, and on the trunk the individual macules are larger than the fine punctation of scarlet fever to be noted in that situation. It is true that on the forearms and legs the scarlet fever rash is frequently observed to be papular, the individual spots being as large as a good-sized pin's head. But that, although very typical of many scarlet fever rashes in these situations, is not to be regarded as the typical punctation of the scarlet fever rash considered as a whole.

2. *In Small-pox.*

Scarlatiniform prodromal rashes counterfeit the scarlet fever exanthem in small-pox more frequently than in any other disease. Those of you who have had experience of an outbreak of small-pox will doubtless have seen examples of these. In many such cases the rash is purely punctate and limited to the trunk and thighs, and is especially evident in groins, flanks, and axillary regions. In others it is limited to flexures and does not affect the trunk generally. These rashes appear on the second or third day, and before the true small-pox eruption has come out. In tint they are bright brick red, with a tendency to deeper hue in the flexures, and the punctae are, generally speaking, larger than the punctae of scarlet fever, and are not raised; there is little if any superadded erythema, so that you have either a large extent of purely punctate rash or such a rash limited to flexures. The diagnosis of these scarlet fever counterfeits is sometimes puzzling, but due regard to their almost purely punctate character, the nature of the attendant symptoms, namely, severe headache, backache, and, usually, high pyrexia, and profound malaise, coupled with an absence of sore throat or scarlet injection of fauces—a point of the utmost diagnostic importance—should impel one to suspect the disease to be small-pox, not scarlet fever.

If definite history of exposure to infection of small-pox be obtained it is safe to say that such cases will prove to be small-pox, and may be certified accordingly. But if such cases occur when there is no prevalence of small-pox or history of its infection, it is well to defer the diagnosis for twenty-four hours, when the appearance of the characteristic small-pox eruption will have shown the true nature of the attack.

A much more difficult problem in diagnosis is presented when we are confronted with the scarlatiniform prodromal sometimes met with in haemorrhagic small-pox. The prominent features of this are, the most complete investment of the skin with a vivid red erythema closely resembling that of scarlet fever. It appears usually on the second day of illness, affecting the entire skin in most cases, including even the face, is at first of a bright red tint exactly resembling scarlet fever rash, except that there is no punctation. In the course of twenty-four hours the tint has changed to a deeper red all over, while in the groins it begins to assume a purple shade, and on close examination the presence of petechia may be detected there. But one is usually called to such a case before any marked deepening of tint is to be noted in any particular region, and at the first blush the eruption has a peculiarly scarlet appearance, which has often misled the unwary. To heighten the illusion the patient will sometimes complain of sore throat; on examining the fauces there will often be noted a general reddening of the palate and fauces, and it may be with some swelling, but be it noted that this reddening is more widespread than the injection of the free edge of the palate, tonsils, and tonsillar pillars observed in scarlet fever, and is of a deep red, perhaps of a slight purple tinge, in fact, a much deeper hue than the bright red injection of scarlet fever. The differential diagnosis of such cases is extremely puzzling, and I know of no cases in which one is more likely to come to an erroneous conclusion unless one has, in a pre-eminent degree, the gift of caution that gives pause to the first impression conveyed by the effulgence of the rash, and prompts one to investigate and examine more closely before forming a definite conclusion. What, then, are the important differential features of this prodromal erythema? Its very intensity arrests attention; on looking closely the absence of the punctation is remarkable. True you may have in groins and flexures commencing petechial eruption, which would not be present at so early a stage in scarlet fever, but the general punctation of the eruption, which would be evident on the neck and trunk and on the extremities were the case scarlet fever, will be absent. The profound illness of the patient, who is, if I may use a colloquialism, completely bowled over; the headache, above all the intense backache, so characteristic of small-pox, is often present in these cases in very exaggerated form, and backache is a symptom which is not marked in cases of scarlet fever; the absence of scarlet injection of the faucial ring, and in its place often a deep general reddening of the soft palate and fauces—these all point to the conclusion that the case is to prove one of small-pox, not of scarlet fever. Later, when purple spots begin to appear on the skin, with subconjunctival haemorrhage and blood in urine, there is absolutely no doubt that the correct diagnosis is small-pox.

3. *In Chicken-pox.*

In some cases of chicken-pox you may have observed scarlatiniform prodromals. It so happens that the concurrence of chicken-pox and scarlet fever is not at all uncommon, though usually the onset of the two is not simultaneous. If the two diseases be simultaneous in their onset, the case will present, in addition to the usual skin manifestations peculiar to both, the faucial appearance of scarlet fever, with sore throat and generally nausea or vomiting at the onset. On the other hand, if there be a scarlatiniform prodromal rash unattended by the throat and tongue signs, and initial symptoms of scarlet fever, then the case is probably one of chicken-pox only. The prodromal rash fades soon after the appearance of the pocks, consequently, persistence of the prodromal along with the true chicken-pox eruption is strongly suggestive of a concurrence of the diseases.

In cases of chicken-pox showing a counterfeit prodromal eruption, there are no throat signs or symptoms, and this alone should make one hesitate to diagnose scarlet fever, for a scarlatiniform eruption in children without confirmatory throat or tongue signs does not necessarily mean that the case is one of scarlet fever.

4. *In Enteric Fever, Scalds, etc.*

Other erythemas counterfeit the scarlet fever exanthem. For instance, in enteric fever, about the end of the second week, you may observe a bright red, flat punctation and erythema, limited to the upper part of the chest, unaccompanied by any rise of temperature or other signs of scarlet fever. The condition lasts a few days, and may

ot be followed by any desquamation. This is not scarlet ver, yet the limited eruption resembles most closely ne scarlet fever exanthem.

Erythemas of the scarlet type following on scalds, burns, nd wounds, are not by any means to be regarded as cases scarlet fever. Purely erythematous rashes without nctation, and with no throat or tongue signs, should ost certainly not be regarded as cases of scarlet fever; nctate scarlatiniform rashes without attendant throat nd tongue signs of scarlet fever may be, but probably e not, scarlet fever unless they be followed by the pical general pinhole desquamation which, if it be neral, is, I think, characteristic of scarlet fever; but hen you get a punctate scarlet eruption with the typical arlet appearances of throat and tongue, then you are ost certainly dealing with a case of scarlet fever.

5. *In Diphtheria after Antitoxin.*

A general erythema of a purely punctate character, naccompanied by other signs or symptoms of scarlet ver, must negative the diagnosis of scarlet fever, the roat signs being the really important confirmatory point the diagnosis of such cases. And the same remark plies to general erythemas of a non-punctate character sembling scarlet fever in point of distribution and nt, but unattended by other signs or symptoms of arlet fever.

Following the introduction of the antitoxin treatment diphtheria, a great variety of erythemas, usually rmed antitoxin rashes, made their appearance in a nsiderable proportion of the patients to whom the medy had been administered. All these erythemas, owever, are not due to antitoxin, for before the use of at remedy certain cases of diphtheria showed, about the ird week of the illness, erythemas of varying types, but ostly of the scarlatiniform. As it is now impossible to fferentiate the antitoxin erythemas from those following turally on the attack, they are all classed as antitoxin shes. We are now only concerned with those that mulate the eruption of scarlet fever. Many of you ve probably seen examples of these. They appear ually during the second or third week after the jection of antitoxin. In appearance they not inequently mimic the complete eruption of scarlet ver so closely that it is quite impossible to say om the appearance of the rash whether it is scarlet ver or not. The tint is the same; there is both nctation and erythema distributed generally over the nk and limbs. They are sometimes accompanied by a oderate rise of temperature, and in some cases by an jection of throat closely resembling that of scarlet fever; fact, the counterfeit of the scarlet fever exanthem is in ery respect most complete. I recollect well, many years o, when diphtheria was first admitted to the Asylums oard Hospitals, a few of my diphtheria patients deloped scarlatiniform rashes, throats, and pyrexia during rly convalescence. Believing these, in my ignorance, to instances of scarlet fever, I promptly had them transrred to scarlet fever wards. They developed that disease thin a week of their being so transferred. That was fore the days of antitoxin. The occurrence of these arlatiniform rashes is more frequent now, so many cases ing treated with antitoxin; and the more of these shes one sees the less inclined is one to make a positive agnosis in many of the cases. In the main, the folwing considerations will help in arriving at a definite inion. Whether the eruption starts from the site of jection or not, spreading thence over the trunk and tremities, if it be unaccompanied by vomiting, loss appetite, and symptoms of constitutional disturbances, en if some injection of the faucial ring is to be noted, e case is most probably not scarlet fever. If, however, e rash is ushered in by vomiting, quickened pulse, some e of temperature, and the eruption does not appear to rt from the site of injection, the case is probably one of arlet fever.

Many of the cases, however, are most puzzling, and the agnosis is so embarrassing that it is not infrequently ly possible to decide definitely by the occurrence or n-occurrence later on of general pinhole desquamation nether the manifestations have been those of scarlet ver or only of an antitoxin erythema. Many cases ow slight powdery desquamation, and perhaps some eling of palms and soles, but that is not, I think to be regarded as the characteristic peeling of scarlet fever.

Such are the more important counterfeits of the scarlet fever exanthem. Many are very puzzling in point of diagnosis, some are impossible, and most are difficult. A good light, daylight if practicable, a clean skin—often a difficult thing to obtain, I fancy, in general practice—and careful observation are essential in the diagnosis of these conditions.

It will have been noted that I have mostly refrained from placing reliance upon pyrexia as a point of value in diagnosis of the cases under consideration. And for the reason that the pyrexia of scarlet fever varies greatly in different cases. In some there is no rise of temperature from start to finish. This is, of course, quite rare, but it occurs. In others, although the temperature will have been raised on the first or second day of an undeniable attack of scarlet fever, yet by the time one may be called to see the patient the temperature may have fallen to normal, while the rash and throat signs persist. Consequently, to place much reliance on the presence or absence of pyrexia for diagnostic purposes would be inadvisable. The clinical thermometer in this connexion is sometimes a delusion and often a snare.

Skin Haemorrhages in Diphtheria.

There now only remains for me to offer a few observations upon the clinical significance of skin haemorrhages in diphtheria. Those of you who have seen a considerable number of diphtheria cases and have had an opportunity of observing them from start to finish will probably have met with some cases that showed such skin manifestations. It is true that now they are met with for the most part in cases that have escaped early treatment by antitoxin—that is to say, cases that have not come under the notice of the medical attendant until the patient is already poisoned by the toxins of the disease. These, which I may call neglected cases, form a considerable proportion of the cases of diphtheria that find their way into fever hospitals and contribute largely to the diphtheria death-rate. Were it possible to bring all diphtheria patients under antitoxin treatment on the first day of disease these haemorrhagic skin manifestations would be unknown, and the death-rate from diphtheria would be practically *nil*. In support of this statement—which to some of you may appear unduly optimistic—it may be permissible to refer to my own experience at the Brook Hospital. During the nine years that the hospital has been open there have been treated 6,755 diphtheria patients; of these, 214 came under treatment on the first day of disease. There has not been a single death among these first-day cases.

The number of cases that have shown skin haemorrhages has been a little over 200, and with very few exceptions death has resulted. No haemorrhages have appeared in cases brought under treatment on the first day of disease; one or two cases that came under treatment on the second and third days of disease have become haemorrhagic and died, but the great bulk of the haemorrhagic cases has occurred in those that came under treatment on the fourth, fifth, or later days of disease, and the recoveries have been practically *nil*.

At what age are these skin haemorrhages met with? Their occurrence in patients over 12 years of age is most exceptional. Consequently it is in children under that age that one expects their appearance, and they are perhaps more frequently seen in children under 7 than over 7.

In what forms of diphtheria do they most often occur? In severe faucial diphtheria, with which nasal diphtheria is usually associated, most rarely indeed in laryngeal diphtheria, and then perhaps only when marked faucial diphtheria accompanies the laryngeal. The haemorrhagic manifestations appear usually towards the end of the first week, from the fifth day onward, and consist of deep purple, or ink spots distributed on the skin, being in some cases more marked on areas subjected to pressure but by no means limited to these. The situations on which they most commonly appear are the trunk and extremities, but they also sometimes develop on the face, neck, and ears. The spots are not, as a rule, numerous, not exceeding half a dozen in the majority of cases, often only three or four. They vary in size from a small pea to that of a sixpence, or larger, sometimes assuming in extreme cases the dimensions of large bruises. There may also be scattered red petechiae

in addition, but these are not of the same prognostic significance as the ink spots. If there be only one or two small purple spots the patient has some slight chance of recovery, but if there be a greater number death is almost certain to result. For this reason they afford a most valuable aid to prognosis which it is wise not to overlook. In some of the cases persistent epistaxis precedes or accompanies the appearance of these skin signs. Incidentally I may remark that the occurrence of persistent epistaxis about the fourth or fifth day of faucial diphtheria leads one to anticipate the very probable occurrence of skin haemorrhages within a short time thereafter. Haematemesis is sometimes present, due in many cases to haemorrhage from the mucous membrane of the stomach.

Persistent vomiting and signs of cardiac failure are to be noted in most cases showing skin haemorrhages, the patient dying of toxaemia and cardiac failure. The duration of life after the date of onset of the skin haemorrhages is usually four or five days, sometimes less, while some cases live for a week or a fortnight. In pre-antitoxin days patients hardly ever survived more than two days after the skin haemorrhages appeared.

Cases which recover are those in which vomiting and cardiac failure are absent, or are little in evidence, but unfortunately such cases are extremely rare.

SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTIONS OF PATHOLOGY AND PHYSIOLOGY.

Professor W. D. Halliburton, M.D., F.R.S., in the Chair.

A DISCUSSION ON THE PHYSIOLOGY AND PATHOLOGY OF THE NUCLEUS.

OPENING ADDRESS.

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THE DOMINANCE OF THE NUCLEUS.

There are, it seems to me, two alternative reasons which should govern the choice of a topic for discussion at the meetings of Sections of this Association: either to afford to the general medical public an expression of opinion by specialists upon topics of the time, or, on the other hand, to direct the attention of the public to matters in which it is well that they should be interested. These discussions are not merely for the benefit of the participants; they are published *in extenso* in what has become the organ of the British practitioner throughout the world; and this public aspect must be kept in sight, nor should the debate be allowed to narrow itself into the discussion of minutiae.

It must be frankly admitted that nuclear function is not exactly a burning question of the day. Your ordinary medical man is little concerned about it; your routine physiologist is concerned in the main with mass effects; your pathologist sees, it is true, certain changes in the nucleus in various conditions of cell disturbance, but what these changes indicate are scarce discussed in his text-books or journals. It is for the second of the above-mentioned reasons that this topic has been chosen for to-day's discussion. Though we have not what has become a topic of the time, we have a matter which it is timely to bring forward.

For years individual observers in zoology and botany, cytologists and students of "Entwickelungs-mechanik," physiological chemists and morbid histologists have been recording facts regarding the nucleus, and these facts brought together point to the one conclusion that the nucleus is the dominating structure in the cell; dependent, it is true, upon the cytoplasm, or cell body, but nevertheless dominant. The time has come to realize that general advance lies in a recognition of these foremost properties of nuclear matter, to recognize the fact that within the unit, the cell, is the more intimate unit, the nuclear matter, so that the physiology and the pathology of the future is destined to be nuclear rather than cellular. Or, to be more exact, while the cell remains our natural unit, within that cell the modifications that have taken place must receive their explanation primarily in terms of nuclear change. Possibly this may seem to be a matter of little moment to the practitioner. So I doubt not appeared fifty years ago Virchow's insistence upon the all-importance of the cell. We can but say here, that to the thoughtful man, ever seeking the why and wherefore of things, even if the ultimate answer is never to be reached, each successive step onwards towards that ultimate answer is a notable achievement, and this because each such step affords wider generalizations and the recognition of a fuller harmony of phenomena.

And there are other and weighty reasons, first among which is the opportunity this choice affords as a means of *rapprochement* between the physiologists and pathologists, and, if the remark be not impertinent, as a means of encouragement to the former. It is good and natural that these two branches of medicine should come together. For many years they have tended to drift apart: the problems which have interested the one have had little compelling interest for the other; and I fear it must be admitted that there has been a feeling on the part of pathologists and of medical men in general that the teaching in the one subject has too often not been in the direct line of preparation for the study of other branches of medical science. In short, physiologists were already embarked in the study of mass effects before the cellular structure of tissues was discovered, and had so large a field before them, that for long years organs and their properties occupied their whole attention. Modern pathology, developing later under the guidance of Virchow, has been essentially based on the cell theory; it is the cell and not the tissue that has formed its unit. Only now are there indications, with the development of finer methods and the relative completion of the work upon mass effects, that physiologists in general are by a natural process gravitating from the study of the tissue, its functions and its chemistry, to that of its component cells. Physiology is becoming and must inevitably become more cellular. And it is peculiarly fitting that here in Toronto we should inaugurate this discussion, in recognition of the pioneer part played by Professor Macallum in emphasizing the importance of cellular physiology. It is no exaggeration to characterize Professor Macallum's long-continued work upon the nucleus, its histology and its chemistry, as the most important series of contributions to medical science that has proceeded, not merely from Toronto, but from Canada at large; no exaggeration to refer to him as the first English-speaking physiologist to consecrate his activities to work along these lines.

It is a sincere pleasure to me, coming from another Canadian city, and occupying in this respect the vantage ground of not being a Torontonian, that I can with propriety direct attention to a matter in which Toronto is among us *facile princeps*. I take it that in opening this discussion I shall perform the greater service if I devote myself to a rapid review of the various findings which together compel the conclusion that the nucleus is the centre of cell activity, leaving it to those who follow me to enter more particularly into the evidence of one or other order.

Such a general survey is more especially demanded because, to my knowledge, it has not yet been attempted; or, more correctly, when attempted, what I regard as the inevitable conclusions have not been drawn. While individual workers have demonstrated the controlling powers of the nucleus in one or other respect, there has been a curious disinclination to bring the various orders of data together and deduce their full significance. But here, as regards this morning's discussion, certain limitations must be introduced. The activities of living matter are to be divided into two categories, intrinsic and extrinsic, or

vegetative and functional. The observations which have been made upon the nucleus in connexion with vegetative activities, with cell multiplication and reproduction, are very abundant. To discuss these along with the data bearing upon the rôle of the nucleus in the functional activities of the cell would make this morning's debate altogether too diffuse. It has been thought wiser, therefore, to confine ourselves, save in one respect, to the latter—the functional activities. Nevertheless, if I have correctly interpreted my duties as introducing the subject in order to place in a clear light the controlling influence of the nucleus in the life of the cell, I cannot leave these vegetative activities out of count. As opener, I must as briefly as is possible, consistent with lucidity, bring forward the evidence of nuclear predominance as afforded by studies upon cell and individual reproduction. It was the studies upon mitosis that first revealed the high importance of this constituent of the cell.

We can, perhaps, best treat this section of the subject by means of a series of theses:

1. The properties which distinguish the individuals of any race or family from the individual of any other race or family are to be traced back to the constitution of a single cell, the fertilized ovum, from which that individual has been developed.

2. There must, therefore, be something in the constitution of the germ matter of the parent stock which differentiates it from the germ matter of other stocks. Nay, more, no two individuals appear to possess germ matter of absolutely identical constitution.

3. In individuals of gamogenetic origin, resulting from sexual union, the material contributed to the ovum by the paternal spermatozoon and the maternal ovum is, physiologically speaking, of equal value. As demonstrated by Mendel in his observations upon hybrids, like orders of offspring result whether the male cell of stock A be employed to fertilize the ova of stock F, or the female cells of stock A be fertilized by the male cells of stock B.*

It is evident, therefore, that matter of like order is contributed to the fertilized ovum by the two parents.

4. In studying more narrowly the process of fertilization we find that *the only matter contributed correspondingly by both parents is nuclear matter.* Ovum and spermatozoon are cells of widely different appearance, and the result of fertilization is that the female cell affords the cytoplasm, or cell substance of the fertilized ovum; the male cell provides the centrosome. The nucleus of the fertilized ovum or new individual is formed of corresponding amounts of nuclear matter (chromatin) from both parents



Fig. 1.—Schema of the stages of fertilization of the ovum, to indicate the respective parts played by contributions from the ovum and spermatozoon to the fertilized ovum or new individual (after Boveri). (1) Entrance of spermatozoon into ovum. (2) Head of spermatozoon enlarging to form the male pronucleus, the neck piece forming the centrosome of the cell. (3) Division of the centrosome; male pronucleus undergoing further enlargement. (4) Further enlargement of male pronucleus, until in (5) the male and female pronuclei are approximately equal. (6) Formation of equivalent chromosomes in male and female pronuclei. (7) Formation of nuclear spindle, equivalent chromosomes of paternal and maternal origin becoming distributed, so as eventually to pass into the two primary blastomeres of the segmenting ovum.

* In mammals intrauterine existence would seem to introduce a factor of differentiation. From their mother's womb male and female show constant differences.

5. Not only is this the case, but, most significantly—I shall take up a probable exception immediately—each supplies a like number of chromatin loops or chromosomes, and, as the fertilized ovum undergoes development and proceeds to divide and redivide, the like process of distribution is continued, so that each separate body cell of the fully-developed organism contains equivalent parts of chromatin of paternal and maternal origin.

6. We can proceed yet further and recognize that in certain species, at least, the chromosomes supplied by or derived from either parent while pairing with like chromosomes from the other parent, are not all identical in appearance and size, but vary among themselves, the variation being constant: that is to say, the same types of chromosomes are found in successive generations of cells. This peculiar variation, as has been pointed out more particularly by American observers (Montgomery and Sutton), is frequent in insects in the cells which ultimately give rise to the germ cells. As Moore and Arnold, of Liverpool, have just shown, a like constancy is to be made out in the types of chromosomes seen in the spermatocytes of mammals, even of man

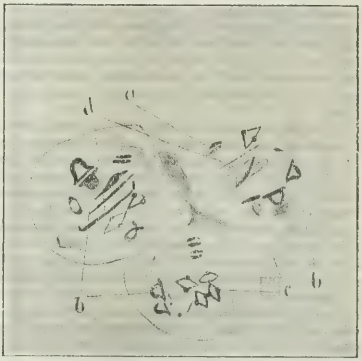


Fig. 2.—Spermatocytes from human testis (Moore and Arnold) to demonstrate the various forms of chromosomes contributed to the future spermatozoa, and the presence of the various types in the different cells. The letters *a, b, c, d* indicate distinct types of chromosomes always found present in the human sperm mother cells when undergoing maiotic division.

himself. The constancy of the particular varieties present in individual species suggests that the chromosomes of different orders possess different properties and determine different characters, or sets of characters, in the cells to which they are distributed, and in the individual formed from the aggregation of these cells. In support of this hypothesis are the remarkable observations, first, of McKlung, of Kansas, and, later, of E. B. Wilson, of New York, that the spermatozoa of sundry insects are of two orders, though there is but one type of egg. The one order of spermatozoon gives rise to males, the other to females, the difference between the two being in their chromosomes. In the maturing spermatocytes which gives origin to the spermatozoa, either the one set of cells possess an accessory chromosome, or, in other cases, a particular chromosome in one-half the maturing spermatozoa is large, in the other half is minute. To quote McKlung:

> A careful consideration will suggest that nothing but sexual characters thus divides the members of one species into two well-defined groups, and we are logically forced to the conclusion that the peculiar chromosome has some bearing on the arrangement.

Here we are not discussing sex, and I do but note these observations in passing. There are other cases, not as yet fully worked out, in which, as in the Aphides, there would appear to be one type of spermatozoon and two types of ova.

The natural conclusion to be reached from all these data is that *the nuclear matter conveys and determines, or controls, the inherited peculiarities of the individual: further, the conveyance is through matter contained in the chromatin loops or chromosomes, while it may be that these individual loops, varying among themselves, determine particular condition.*

What we know concerning the spermatozoon points very definitely to the conclusion that the *groups of chromosomes* distributed to the spermatozoa derived from a

single spermatocyte are not identical, each spermatozoon receiving only one-half the number of chromosomes proper to the primordial germ cell, and to the cells in general of any particular species. The ovum on its part exhibits a like reduction. To inquire further into this remarkable reduction process would lead us into the discussion of variation and the Mendelian doctrine. I do but mention these matters here to call attention to the fact that not merely inheritance but variation is seen to be most intimately associated with the nuclear material, and that, if we can trust our eyes, the one morphological constituent involved in and responsible for all cases of inherited peculiarities and gamogenetic variation is included in the nuclear chromatin. That the other constituents of the cell have an influence or can have an influence we do not deny. If in the fertilized ovum the nucleus influences the cytoplasm, so, conversely, the constitution of the cytoplasm must tell upon the nucleoplasm. The facts in our possession indicate that the latter is the subordinate process; the influence of the nucleus is dominant. This is best indicated by Boveri's remarkable observation that if the nucleus be removed from the sea-urchin's egg and the enucleated mass of cytoplasm be fertilized by the spermatozoon of another species of echinoderm the resultant larva is of the type of the species that afforded the spermatozoon, that is, the nuclear material; this has conveyed and determined the specific properties of the individual.

Now, if this be so, it must follow that the nuclear matter controls all the essential cell activities, and this because, studied narrowly, it is seen that the morphological properties of a cell are the expression of the constitution of the cell; it is the constitution that determines the properties and functions of that cell. All are bound together every whit as much as are the properties of any given salt and the constitution of the same. What is true of the cell holds also of the multicellular individual; the specific properties of the individual are the summation of the properties of its component cells. If, therefore, nuclear composition dominates the morphology of the individual cell it dominates likewise the properties of the individual.

It must now be asked, What evidence do we possess establishing that this is really the case? That evidence may be dealt with under many heads. We have to deal with the evidence afforded by: (1) The natural and experimental enucleation of cells; (2) gross changes observed in the nucleus as the result of cell activities; (3) the finer changes in the same which may be seen to follow functional activity; (4) the histological changes in the nucleus associated with morbid conditions; (5) the chemistry of nuclear and cytoplasmic matter respectively; and (6) the ferment actions of the cell and their relationship to nuclear activity.

I believe that we have the good fortune to see here to-day those who have conducted investigations along each of these lines. Let me now lay before you the main data that have been gained under each of these headings, and the conclusions that may reasonably be deduced.

1. The Effects of Removal of the Nucleus.

The cell which, like the erythrocyte, undergoes natural loss of its nucleus may continue to exist for a considerable period, and during that time actively perform function. The mammalian red corpuscle, for example, according to W. Hunter, Quincke, and others, exists from fifteen to thirty days. While it exists we see no evidence of growth, and certainly it never propagates itself. The same holds good for cells artificially deprived of their nuclei; they do not necessarily undergo immediate disorganization; they can be the seat of certain metabolic activities. According to Klebs, the enucleated cells of the alga, Spirogyra, can in the sunlight produce new starch granules; can, that is, synthesize starch from the carbon, oxygen, and water absorbed, the starch thus formed in the sunlight being used up in the dark; and this may continue for as long as six weeks. They may further continue to exhibit motion in response to external stimuli (Lacrymaria olor, Verworn); they may actively ingest food particles. But, on the other hand, the testimony is unanimous that higher metabolic activities are incomplete. Unlike nucleated portions of a vegetable cell, the enucleated is unable to develop a cell wall of cellulose. Among protozoa, also, Verworn has noted that enucleated pieces of foraminifera show not the slightest capacity to form the internal calcareous skeleton. If the enucleated cytoplasm of *Thalassicola pelagica* ingest foreign particles, it is unable to digest them wholly, and while the enucleated cytoplasm can develop a new centrosome (E. B. Wilson) it cannot give rise to new nuclear material. It may be laid down that if it can form new paraplasmic substances, like starch, it cannot form new cytoplasm and cell substance proper—that is to say, it cannot increase in bulk and undergo cell division and multiplication, or, otherwise, *these observations conclusively prove that the nucleus is essential, not merely for the vegetative activities, but also for the higher metabolic activities of the cell and their due co-ordination.*

That the nucleus alone, deprived of surrounding cell substance, cannot regenerate the cell is another matter. It has freely to be admitted, with Verworn, Boveri, and Lillie, that there must be a certain minimal quantity of cytoplasm associated with the nucleus before regeneration can take place. But what this proves is not that the nucleus is not the dominating portion of the cell complex, but only that the association of nucleus and cytoplasm is essential for full cell activity. By the lack of perception of this distinction it may be noted that Verworn's treatment of the whole subject of cell processes is greatly weakened if not vitiated. His facts prove that nucleus and cytoplasm are equally essential for the full function of the cell, not that they are of equal value. We may as well argue that in the community of bees the individual drone or worker is of importance equal to the queen, because we find that the queen-bee, if separated from the rest of the community, is incapable of obtaining food for herself and so starves to death. I shall refer later to what I regard as the right conception of the relationship between cytoplasm and nucleus.

2. Gross Changes in the Nucleus during Activity.

Among these may be noted, (1) alteration in the position of the nucleus in cases in which there are indications of localized as distinct from diffuse cell activities, and (2) alteration in size and shape of the nucleus accompanying active function.

In the animal organism possessing cells with a body which is small in proportion to the size of the nucleus, examples of the first order would appear to be rare, though they are not entirely wanting. Thus Korschelt has shown that in the egg rays of the water scorpion (Nepa) with their cells having remarkable branching nuclei, long branches from



Fig. 3.—Ganglion cells from brain of cat; in resting state (*a*) and that following excitation and exhaustion (*b*) (Gustav Mann). In the resting cell the nucleus is large and full, showing a definite network, and the Nissl bodies are also very distinct. In the exhausted ganglion cell the nucleus is shrunken with irregular contour, taking on a turbid stain, and the Nissl bodies are shrunken and badly staining. These Nissl bodies microchemically are found to have a composition allied to that of nuclear matter, and are, according to Macallum and Scott, a nuclear derivative.

two adjoining cells send out processes which come into close proximity. In the space between these a chitinous deposit gradually shows itself, and when the mass of chitin is fully formed the processes are withdrawn. In the plant, movement of the nucleus towards the area of new formation in the cell is relatively common; thus when there is the active formation of a thick cell membrane along one aspect of the cell it has been noted that the

nucleus becomes eccentric and approximated to the region of new development. There is a similar eccentric localization of the nucleus during the development of root hairs (Haberlandt). I need but mention instances of the second, namely, of alteration in size—they are now so well known. The earliest observations were those of Heidenhain years ago upon the different appearance of the nuclei of salivary glands when at rest and after stimulation. In more recent years we have had the striking observations of Hodge, confirmed by Gustav Mann, Lugaro, and others, upon the nuclear alterations in the motor ganglion cells of bees, birds, cats, and other vertebrates, brought about by natural and experimentally-produced fatigue.

These observations also clearly demonstrate that *the nucleus is not merely the vegetative centre of the cell, but is involved in its functional activities.*

3. Finer Changes Occurring in the Nucleus During the Course of Cell Activities.

If I am not mistaken, it was a native of what we regard as the youngest of the civilized great countries of the world—Professor Ogata—who first, in 1883, clearly recognized the finer nuclear changes associated with secretory activity. He called attention to the granules, or *plasmosomes*, appearing in the nucleus at the beginning of secretory activity—granules which take on the characters of nucleoli and pass from the nucleus into the cell body. In these he held that the zymogen granules are developed, which eventually become (part of) the protoplasm of the cell. In 1887 Lukjanow made confirmatory observations. He noticed in the secreting cell outside the nucleus an agglomeration of little spherules which in form, size, and reaction to dyes were closely related to certain nuclear bodies (*Kernkörperchen*). He drew the cautious conclusion that "it appears in any case that the hypothesis of a connexion between the nucleus and the cell body has in itself nothing improbable—a connexion shown outwardly by certain structural elements of the nucleus passing over into the cell body and there undergoing further change." In the following year F. Hermann noted the apparent discharge of similar minute globules in mucous goblet cells during secretion, and also called attention to the fact that these in staining powers resemble the nucleolus. These he found were absent

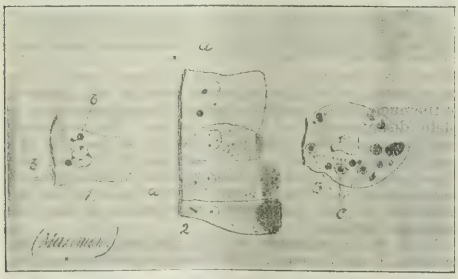


Fig. 4.—Cells of salivary gland (Maximow) to show (*a*) development of plasmosomes within nucleus; (*b*) passage of these out of the nucleus into the surrounding cell substance with subsequent conversion of the same into granules or globules. Cell 3 is abnormal, showing exhaustion of nuclear material. In the cell body are globules of various size, some still taking on nuclear stain, others taking on a contrast stain, while others (*c*) show a centre ta king the same stain as the nuclear chromatin, and an outer zone staining the same as cell secretion.

from the resting cell. In 1890 Professor Macallum made his first report upon similar phenomena. He pointed out that in the nuclei of developing ova of Necturus (the Lake Lizard, found here in Lake Ontario), as also in that of the frog, at one stage the chromatin is principally collected in the form of nucleoli at the periphery immediately beneath the nuclear membrane. These nucleoli are usually spherical and vary somewhat in size. At this stage yolk granules are absent from the cell. With an indigo carmine dye he found that the nucleus and cell body stained red, whereas the nuclear bodies took on a deep blue. At what appeared to be clearly a later stage yolk spherules made their appearance, and when this happened the whole ovum stained blue, the nuclei being diminished in size. What appeared to be an intermediate stage was seen in ova in which the nucleoli and the cell substance in their immediate neighbourhood exhibited a blue stain, while the rest of the nucleus and the main mass of the cytoplasm still stained red. It was difficult from these observations to arrive at any other conclusion than that the nuclear matter becomes differentiated into nucleolar, and that this diffuses gradually through the nucleus and then into the cell substance, the diffusion coinciding in point of time with the formation of the yolk granules. Macallum thus regarded the yolk granules as formed by the union of a derivative of the nuclear chromatin with a constituent of the cell protoplasm. And we here note that these yolk granules chemically are composed in the main of lipoid material, of lecithin, a compound to which I shall refer later. In the pancreatic cells Macallum found—and Steinhaus has made similar observations—that the nuclei possess safranophilous nucleoli, while the rest of the nucleus with double staining takes on a deeper red colour of haematoxylin. As the nucleus loses its safranophilous substance, the cell protoplasm acquires safranophilous granules. He concluded that the chromatin of the nucleus gives rise to a substance prozymogen; sometimes it is dissolved in the nuclear substance, sometimes collected in masses (plasmosomes); finally it diffuses out into the cell protoplasm, there meeting with a constituent of the latter to form the zymogen proper.

I might proceed to detail a long series of confirmatory observations by Carlier, by Bensley—made here in Toronto—by Maximow, Solger, Nicholas, E. Muller, Krause, Galeotti, Vigier, Garnier, Greenough, and others, all agreeing—save in minor details—and all bearing upon the processes seen in gland cells. All describe the smallest and first seen granules as situated in the immediate neighbourhood of the nucleus; describe these as identical in character with the plasmosomes or nucleoli seen within the nuclear membrane, and have observed that as they pass to a further distance from the nucleus they enlarge into definite secretory granules. It is with the exact stages of this process that there has been and still is some debate; whether they project as buds from the nuclear membrane or make their way out from pores opening into the same; whether they finally dissolve within the cell or undergo solution when discharged into the external medium. But Professors Macallum, Carlier, and Bensley are all here, and I must not further steal their fire. I would only add that what has been determined in the animal cell holds for the plant cell also. Thus, Torrey has described a succession of changes in connexion with the nucleus and cell body in the germinating maize seed associated with the production of diastase. The processes are of an identical nature: deep staining granules are first seen in the nuclei whence these exude in small streams into the cytoplasm; scattered at first through the cell, these later become collected at that end next to the endosperm, where they become ultimately dissolved. It is following upon their dissociation that the first action of a ferment upon the cell wall and matrix of the endosperm becomes evident.

Nor is it only in connexion with secretions possessing ferment action that we have evidence of nuclear function. In plants Schniewind Thies has observed nuclear changes in the nectar cells of flowers in connexion with the elaboration of nectar. In animals, the curious vacuoles in the nuclei of fat cells which have been known for several years have more recently been shown by Shattock to contain and to give the reaction for fat.

These data almost justify us in accepting Claude Bernard's remarkable prevision of more than a quarter of a century ago that the cell substance is the seat of vital expenditure, while in the nucleus resides the power of organic synthesis. This does not, however, in our opinion, exactly represent the relationship, for the nucleus is also the seat of expenditure, nay, appears often to determine that expenditure. But clearly *the indications are that the higher syntheses, those associated with growth and those governing the specific enzyme actions of the different forms of cell, are determined and initiated by the nuclear matter.*

4. The Nucleus in Pathological Conditions of the Organism.

Purposely when passing in review vegetative and proliferative phenomena I did not call attention to the evidence afforded by the study of the nucleus in

cases of aberrant cell growth. It appeared advisable to consider the pathology of the nucleus by itself and from all aspects, and that, more particularly, because while the normal vegetative activities are not subjects for discussion this morning, there are those here present who, from their studies upon tumours, are prepared to speak upon the abnormal. At this point we have to call attention to the evidence of nuclear dominance afforded (1) by cases of abnormal cell growth, (2) by cases of disturbed function.

Regarding the first of these I shall be brief.

It may be stated unhesitatingly that the majority of pathologists at the present moment regard neoplasia or blastomatosis as essentially a condition of aberrant cell growth, brought about not by the constant stimulus of intracellular parasitism, but by some primary alteration of cell environment. As a consequence of such alteration, if I may quote myself, the energies which, had the cells remained in their normal relation, would have been devoted to functional activities, become diverted to vegetative and proliferative. Your active malignant tumour cell has characteristically all the attributes of a vegetative cell, or, as it is usual, perhaps unfortunately, to express it, is of the embryonic type. Associated with this we find that the growing tumour exhibits abundant mitoses, and, what is more, the growth being aberrant, we find a well pronounced tendency for the mitoses also to be irregular. We thus encounter a great variety of changes, (1) dispersion of chromosomes in the cell body as the result apparently of rupture of the threads of the achromatic spindle, (2) asymmetrical mitoses, (3) multipolar mitoses, (4) hypochromatosis with diminution either in the number or in the size of the chromosomes, (5) hyperchromatosis with increase whether in number or size of the chromosomes. (6) Associated with degenerative changes and rapidly growing tumours we may encounter the development of paranuclear bodies (Nebenkerne), sometimes of large size and modified staining properties, lying in the cytoplasm and clearly derived from the nuclear matter.

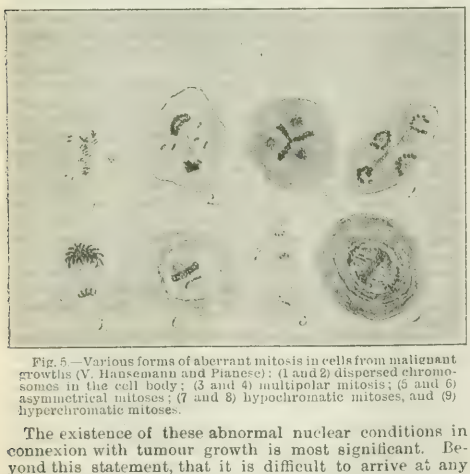


Fig. 5.—Various forms of aberrant mitosis in cells from malignant growths (V. Hansemann and Pianese): (1 and 2) dispersed chromosomes in the cell body; (3 and 4) multipolar mitosis; (5 and 6) asymmetrical mitoses; (7 and 8) hypochromatic mitoses, and (9) hyperchromatic mitoses.

The existence of these abnormal nuclear conditions in connexion with tumour growth is most significant. Beyond this statement, that it is difficult to arrive at any other conclusion than that there is an intimate relationship between these nuclear vagaries and the abnormal cell growth seen in malignant tumours, I feel it is unsafe to venture; for, as Dr. Bashford, who is here with us, has frankly acknowledged, more advanced hypotheses based upon these abnormalities have not stood the test of extended investigation.

Turning now to observations upon the nucleus in pathological conditions other than those associated with aberrant growth, it may, in the first place, be noted that cases may be recalled bearing upon the cell when it passes into a latent or dormant condition. While we cannot go as far as Grawitz and accept the existence of "slumber cells," in which the nucleus and its chromatin have become so shrunken as to be invisible, we can, I think, note that with the arrest of cell function and passage into an inert state, the nuclei undergo shrinkage, becoming extremely small and attenuated, as in the fully-formed connective tissue, fully-formed fat cells, etc.

It is in connexion with cell irritation and the commoner acute degenerations that the nuclear changes become most evident. It is a matter of familiar knowledge that pronounced changes take place in connexion with cloudy swelling and, to employ the old term, fatty degeneration, as distinct from fatty infiltration of the cell. In cloudy swelling, which so commonly accompanies the acute fevers and conditions of intoxication, we note, more particularly in the cells of secretory glands, that the nuclei, which in the first stage of irritation may become more intensely stained, rapidly lose their staining property and become indistinct, and the cell body becomes filled with granules of albuminous nature. Stolnikow was apparently the first to make accurate studies upon the changes that occur in these degenerative processes; many others have since noted the same collection of the chromatin in the region of the nuclear membrane; the discharge into the cytoplasm (well seen in the liver cells in phosphorus poisoning); have described these little masses as first staining like nuclear substances, and later losing the nuclear stain completely, the cell body becoming filled with shell-like clear-staining globules. The more recent work of Schmaus and Albrecht, Lubarsch and others has confirmed and extended these observations, the former observers calling particular attention to the formation of nuclear buds, as also to the hyperchromatosis and karyorrhexis in gradual death of the cells of various organs.



Fig. 6.—Showing some of the stages of pathological formation of plasmosomes; discharge of this material in the form of pediunculate globules (nuclear buds) and of larger masses still preserving the nuclear stain (Schmaus and Albrecht).

There are, needless to say, other changes seen in the degenerating cell—pyknosis, or contraction and clumping of the nucleus and nuclear material; karyolysis, or complete disappearance of the chromatin. These are evidently *post mortem* conditions (that is, in the cell), and need not here be considered. From those first mentioned it would seem that the cell may recover. They represent exaggerated conditions of normal processes, but, where the latter stages show themselves, regeneration of the cells becomes hopeless.

As to the significance of this discharge of nuclear material, I shall have a little to say after we have discussed the chemistry of the nucleus. Professor Ewing is here, and he and others will, I trust, discuss the relationship of these modified nuclear discharges to the intracellular appearances which by many have been regarded as cancer and vaccine or variolous organisms.

5. The Chemistry of Nuclear and Cytoplasmic Matter Respectively.

Here, in studying the chemical composition of the two components of the cell, we meet with certain remarkable facts, for not a few of which we are indebted to our colleague, Professor Macallum. There are certain substances of great chemical activity bound up in the nuclei which are present to but slight extent, if, indeed, at times they can be recognized in the cell body. Notably is this the case with phosphorus (Lilienfeld and Monti, Macallum), as also with "masked" iron—iron, that is, in fairly firm combination, so that it is only loosened and made to respond to the tests for free iron after having been subjected to preliminary dissociative treatment. On the other hand, certain substances found to be present in the cell body are absent from nuclear matter. Among these, as Macallum has pointed out, are potassium and chlorides. When now we come to study the proteid contents of the

nuclei, we find that these, unlike ordinary proteids of the cell body, are undigested by gastric juice, and that the undigested material consists of the nuclear network and its chromatin and the nucleoli. We owe especially to Kossel's investigations the explanation of these peculiar features. Cell nuclei, that is, contain as a main constituent a special group of proteids—the nucleoproteids. These nucleoproteids split up into albumen (histon) and nucleins, and it is these nucleins in particular that resist the action of gastric juice, and further, are characterized by high phosphorus content. These, like the nucleoproteids, are of a proteid nature; upon further decomposition they yield albumen and nucleic or nucleinic acid, and can be further broken down into the xanthin bases or purin bodies. It is more particularly the existence of phosphorus and these xanthin bases that differentiate the nucleus from the cell body. How the iron is combined is as yet undetermined. We know at most from Spitzer's observations that it is the iron-containing products of dissociation of the nucleoproteids that retain the oxidative properties. But clearly in the nucleus we have as essential constituents compound proteids of great complexity of organization. As Spitzer, Herter, and others have indicated, the iron is of the utmost importance in bringing about oxidative processes, while the phosphorus likewise would appear to favour oxidative changes. *These and other chemical considerations tend to the conclusion that nuclear material possesses in itself potentialities superior to those of any ordinary constituent of the cell body,* and again support the view that the nucleus is the centre or source of the higher cell activities.

6. The Ferment Actions of the Cell and their Relationship to Nuclear Activity.

Jacques Loeb, indeed, has been led to the conclusion that the nucleus is the centre of the oxidative processes of the cell, and the correctness of this view has of late been demonstrated by his pupil Lillie. It would open up too large a field to detail and weigh the data indicating that nuclear matter is the essential source of those bodies which afford the enzyme actions of the cell. We would merely note in passing that it is now universally accepted that much of the cell function—I do not say all—is the outcome of enzyme action, and I would recall the data already brought forward to show that in the absence of the nucleus the higher specific cell activities are at a standstill; the evidence also of the relationship of the nucleus to the formation of zymogens.

Referring to the discharge of plasmosomes or spherules of nuclear matter into the cell body it may now be asked, What chemical processes do these indicate? It is suggestive that under normal conditions this discharge has been noted in cells affording specific secretions, and in abnormal conditions accompanied by the accumulation in the cell body of modified paraplasmic granules or globules. It is at least suggestive that in autolysis (the self-digestion of tissues removed from the body under aseptic conditions) we note a diffusion out of nuclear chromatin, and following upon this the formation in the cell body of myelin granules and masses. Everything indicates that these myelin masses so formed are complex lipoid bodies; they contain fatty acids, more particularly oleates, and studying the composition of what is regarded as the simplest group, the lecithins, we find that they are compounds of a nitrogenous base (cholin), with glycero-phosphoric acid and a fatty acid. Where these make their appearance in the cell undergoing autolysis (and probably in other conditions), we must conclude that the glycero-phosphoric acid is of nuclear origin, and, leaving aside for the moment the question of the seat of origin of the nitrogenous base, remembering that the nucleus of the ordinary cell is devoid of fat, we are led to regard these lecithins as combinations between matter of nuclear origin and fatty matter from the cell body. These lecithins are bodies having very remarkable properties, both chemical and physical; they have great powers of holding other substances in solution, and this is true of all the myelin bodies. It may well be that the suggestive series of nuclear changes and cell accumulations which we find in the cloudy and fatty groups of degenerations, represents successive stages in which the development and dissociation of bodies of this type play the essential part. In our studies in Montreal during the last three years on calcareous and fatty degeneration this matter of the formation of compounds of albumen and fat has constantly been brought before us. Dr. Klotz (in this following upon the conclusions of Brücke long years ago) has brought forward data favouring the view that direct union may occur between the two; but he will be the first to admit that an absolute chemical proof of the existence of such compounds is singularly difficult to adduce. It is true that working with Professor Aschoff at Marburg, we have recently demonstrated the combination between nitrogenous bases, such as cholin and oleic acid, but this is another matter—nitrogenous bases while built up into proteids are not proteids. But if we are not as yet wholly certain of the existence of oleates of albumen, it is a well-ascertained chemical fact that lecithin can combine directly with albumen to form albuminates. Thus lipoids of the nature of the lecithins afford us the necessary linkage bodies between various albumens and between albuminous and fatty acids.* As regards their importance in this connexion we would only call attention to Preston Kyes's remarkable observations upon the part played by lecithin as complement, or linkage body, between certain serum proteids and cell proteids and snake venom. It is interesting to note how almost simultaneously during the last few months independent workers in Germany, France, the United States, and England, approaching the subject from widely different points of view, have converged to the same conclusion—that the lipoids are of singular importance in the cell and in relationship to metabolic processes. We seem at the threshold and in its shadow, and see already the light within. But here at the threshold I must stop.

Before closing, however, there is a question which I doubt not has arisen in your minds, and one which must be answered: "You arrogate," it will be said, "all these powers to the nucleus. What part is played by the cytoplasm?" To this I would answer that, passing further and further backwards in our endeavour to comprehend what is life, if we believe in living matter and that vital phenomena are the expression of the effects of physical and chemical forces acting upon that matter, then our ultimate conception of life must be that it is the function, or the sum of functions, of a special order of molecules. For convenience, we would term these ultimate molecules of living matter *biophores*. However much we strain our imagination it would seem impossible to conceive the existence within the cell of two orders of molecules of widely different type, but of equal value, which, by their interaction, initiate vital processes. We must premise that there is in each form of life one primal order of living matter. If so, the biophores must be contained either in the nuclear matter or in the cytoplasm, and as we have shown that the higher vegetative powers of the cell are intimately associated with nuclear matter,

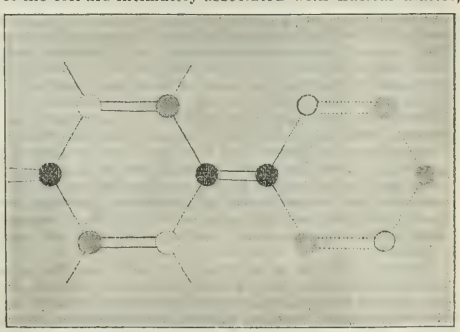


Fig. 7.

it is in the nucleus that we must locate these biophores, and we must therefore regard the cytoplasm as composed

* The mucins would seem to represent a parallel group of carbohydrate-proteid compounds, and the histological observations of Steinhaus, Maximow, and others demonstrate most clearly that nuclear matter is concerned in their development; indeed, in goblet cells, according to Steinhaus, there is a total conversion of the old nucleus of the cell into mucinogen. The figures given by this observer are of the same order as those afforded by Ewing of nuclear changes in epithelial cells in connexion with vaccinia and variola.

of subordinate matter, and as having what must be termed subvital functions.

Now, the simplest conception that we can form of these biophores—and even in the very lowest forms of life they must be singularly complex—is that they are rings or rings of rings, carbon and nitrogen containing, and of the benzol type. The only satisfactory conception of growth, of multiplication of these molecules, is that the pre-existing rings possess unsatisfied affinities, and attract side-chains of various ions, simple and compound, from the surrounding media, and that these become grouped in a manner identical with the grouping present in the pre-existing biophore. In other words, we must regard the building of the new biophoric molecules as obeying laws of the same order as those which determine the building of ions out of a solution to form crystals of a particular form of salt, but with this difference, that so far we have no evidence of biophores becoming formed anew save under the influence of pre-existing biophores—we know no case of spontaneous generation. Thus, *growth demands affinities and side-chain formation on the part of the biophores.* As with evolution the biophoric molecules have become more complex, we would suppose that ions and radicals have become attracted and attached not in ring arrangement but in loose series and loose connexion with the biophores. As in growth new biophoric molecules are formed in association with the pre-existing, the result is an inevitable tendency towards the grouping o the biophores in a central mass surrounded by a zone o

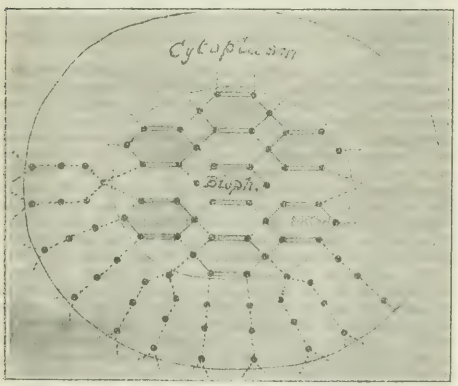


Fig. 8.

other attracted matter. With the development of such a complex system the biophoric molecules proper are no longer in direct and immediate relationship with the outer medium; there is interposed between the two an intermediate mass. The direct attraction of new matter is, in the main, accomplished by the intermediation of this outer cytoplasmic zone. So that eventually we reach the stage in which with increasing complexity of organization the biophoric molecules proper, deprived of the outer cytoplasmic zone, are unable to attract ions to themselves in the proper order—these must first have been built up into particular orders of radicals within the cytoplasm. In other words, the presence of preformed cytoplasm becomes essential for the continued existence and growth of the nucleus—of the nuclear-biophoric matter. Each becomes essential for the continued existence of the cell as a whole.

This, frankly, is all hypothetical, but it is the hypothesis which seems best to throw light upon and to harmonize the data we possess regarding the function and the relative importance of nucleus and cytoplasm respectively. Nay more, it is in harmony with what we know concerning the very lowest forms of life, and their imperfect nuclear development.

To-day I feel I shall have done some service if I have demonstrated the dominance of the nucleus and impressed you with the conviction that the future will see not merely a cellular but a nuclear pathology and physiology. From the *omne vivum ex vivo* to the *omne ovum ex ovo* and the *omnis cellula e cellula* of our predecessors we now reach the *omne chromosoma e chromasomato* of the modern student of development and see before us surely the conclusion *omne biophorum ex biophoro ejusdum generis.*

If this be the ultimate conclusion of the investigator, it is at the same time the point from which chemist and physicist, anatomist and physiologist, pathologist and physician must start to develop harmoniously, each along his respective line, their various conceptions of vital processes, and, as the indications are that these biophores exist in the nucleus, so it is that to the nucleus and its alterations each of us, whatever his particular branch of biological science, must apply himself for the fullest, intimate grasp of the succession of changes that take place in health as also in disease.

DISCUSSION.

PROFESSOR A. B. MACALLUM (Toronto) said: The problems of the nucleus which appear to be most important are: (1) How the nucleus arose in the primeval cell; (2) how and why mitosis originated; (3) whether the nucleus elaborates out of the materials diffusing into it its own chromatin or derives the chromatin already prepared from the cytoplasm; (4) the part played by the nuclear membrane. The origin of the nucleus has not yet been studied as a definite problem, and will be attacked only when a comprehensive survey of the cytology of the protozoa and of certain non-nucleated vegetable forms is accomplished. As to the origin of mitosis nothing has been really done, for though we know much of the phenomena of mitosis, this has been obtained from studies and observations on forms in which after millions of years the processes have been definitely fixed. These forms, therefore, would not reveal the stages by which mitosis originated, and until we do find these stages in some cells, it is idle to speculate whether mitosis is due to electrostatic or osmotic forces. It would seem to be of more promise to study the nuclear division in forms which are in their metabolism typically neither animal nor vegetable, for these must, in some cases at least, be representative of forms which existed before the differentiation of organisms into animal and vegetable began, and in which the process of nuclear division should also show a mitosis of a primitive type, thus giving a clue to the origin of this mode of division. The value of work in this line has been shown by the studies of Keuten on *Euglena* and of Lauterborn on *Ceratium hirundinella*, in the former of which, the mitosis, if the process indicated can be so called, is very atypical, and in the latter the nuclear division is such as to suggest that it represents a very early stage in the evolution of mitosis. That division can obtain and does obtain which is ceratinly not mitotic has been proved by the results of Schaudinn's studies on *Calcituba polymorpha*, a foraminifer in which there is no nuclear membrane in the resting condition, but one develops during the division. According to Schaudinn, a number of other foraminifer forms show a similar mode of division. The nucleus is free from inorganic salts even when these are abundant in the cytoplasm. Chlorides, and notably chloride of sodium, which is so common a constituent of tissues, are not even in infinitesimal quantities found in the nucleus. This indicates that the nuclear membrane has the function of preventing the entrance to the nuclear cavity of inorganic compounds. It must permit the diffusion from the nuclear cavity of colloids, for otherwise the zymogens could not form. This would indicate that the membrane has properties very different from those of a typical semipermeable membrane (parchment) used in osmotic experiments. Such a nuclear membrane, on the other hand, finds its parallel in the observations of Kahlenburg in the *Amer. Journ. of Phys. Chem.*, vol. x, p. 141, on rubber membrane separating solutions of sugar and either camphor or copper oleate in pyridine, in which the membrane permits the colloids (oleate or camphor) to pass through, but not the sugar or other crystalloids. Kahlenburg holds that the dialyzed substance is transmitted because the rubber combines with it first. Accepting this explanation and applying it, we can suppose that the substance of the nuclear membrane unites with the colloids and thereby passes them outwards or inwards, while it will not absorb and combine with the salts. This property of the nuclear membrane also explains why the nuclei of the male and female cells are not affected by the constitution of the parent organism.

Dr. GUSTAV MANN (Oxford) drew attention to the fact

that ordinary somatic cells during active metabolism resembled male cells in their large increase of nuclear chromatin, while resting cells resembled the ovum in possessing a large amount of nucleolar matter. During normal metabolic processes in Drosera there is a nuclear change resembling karyokinesis, but only one half the number of segments occurring in normal karyokinesis is found. By the administration of antipyretics it is possible to greatly retard nuclear oxidative processes, and thereby to postpone the increase of nuclear chromatin which occurs after feeding with peptone from five minutes to thirty hours. It was suggested that researches along these lines ought to be undertaken with the view of an ultimate chemical means of treating cancer. In addition to the absence of the ordinary halogen salts to which Professor Macallum drew attention, he pointed out the absence of sulphur in the nucleoproteids, and such nucleoproteid derivatives as haemoglobin.

Professor E. Wace Carlier (Birmingham) said: The nature, origin, and function, if any, of the nucleolus is much disputed. The term "nucleolus" has unfortunately been applied by different authors to different bodies, and here only true nucleoli (pyrenin) are considered. When the trophochromatin decreases during nuclear activity, the nucleolus increases in amount, to be then cast out from the nucleus at the first opportunity, that is, as soon as the nucleus takes up a food supply from the lymph. As chromatin is reproduced in the nucleus, the nucleolus also increases in size, and finally is expelled either bodily or after fragmentation. The same thing occurs in the ova of the hedgehog after the growth period and before reduction mitosis. Therefore with Haeker I believe pyrenin to be effete material, unavailable for nuclear activity directly, as maintained by some, though after resolution in the cytoplasm it may become useful. Further, zymogen is not derived from nucleolar material, but directly from chromatin with pyrenin as a by-product.

Dr. Herbert E. Roaf (Liverpool) said that the eggs of the sea-urchin when grown in sea water to which minute traces of alkali have been added exhibit increased rapidity of growth with a tendency to irregularity in size and shape of cells. The nuclear divisions accompanying this irregular growth show a typical mitosis (multipolar mitosis, irregular distribution of the chromasomes, etc.). Similar experiments, in which acid was used instead of alkali, show that acid does not cause any increase of growth but from the beginning inhibits the growth.

Dr. Bashford (London) said: From the outset of investigations of the Cancer Research Fund the work has proceeded on the basis that cancer was a cell problem requiring to be approached from the experimental aspect. This problem required to be attacked under conditions more favourable than those obtaining in man. Since we have found the disease pervading the entire vertebrate phylene we have studied the processes of cell division under the favourable—the classical—conditions obtaining in the amphibia. We have found that the so-called heterotypical mitoses have no existence in fact. In the case of tumours which can be propagated there is nothing to indicate the inter-relation of this form of cell division, nor of anything of the nature of nuclear fusion or fertilization. The irregular forms of cell division are apparently subsidiary phenomena. What requires explanation is the apparently ceaseless proliferation by normal bipolar mitoses, in which the normal number of chromosomes is retained. The cell division is, however, only the terminal phase in the growth of the cell itself, and merely the most evident expression of the more complex problem of cell nutrition which lies at its basis. Thus stated it is not so much the power of ceaseless proliferation as the ceaseless power the cells possess of nourishing themselves.

In Memory of Walter Reed.—A bronze tablet has been placed in the King's County Hospital in Flatbush, in memory of the late Dr. Walter Reed, of the United States Army, who was a former interne of the hospital. The tablet, which is the gift of the Alumni Association of the hospital, bears the following inscription: "Erected by the Association of Ex-Internes of the King's County Hospital to the memory of Walter Reed, M.D., interne in this hospital, 1871; Mayor and Surgeon, U.S.A.; Chairman United States Yellow Fever Commission, 1900-1901. He robbed the pestilence of its terrors, and caused the cities of the Southland to sit in peace within their gates."

SECTION OF PATHOLOGY.

Professor J. G. Adami, M.D., F.R.S., President.

A DISCUSSION ON THE CLASSIFICATION AND EXPERIMENTAL PRODUCTION OF ARTERIO-SCLEROSIS.

OPENING PAPER.

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EXPERIMENTAL PRODUCTION OF ARTERIO-SCLEROSIS.

Before taking up the study of the experimental production of arterio-sclerosis it is necessary to ask, What is arterio-sclerosis? (*a*) Is it an entity; or (*b*) are several distinct morbid conditions included under this one heading; or (*c*), what comes nearly to the same thing, in different states which we are accustomed to regard as arterio-sclerosis, do we find the different coats and constituents of these coats affected diversely?

It is necessary to ask these questions, because, as I shall show, different procedures and reagents have different effects upon the arteries, and whether we are to regard these experimental results as arterio-sclerosis must depend upon an answer to these questions. The subject of classification has been taken by Professor Welch; fortunately, therefore, I need not discuss the various forms. All that I need say as indicating my point of view is that I do not agree with Jores's narrower definition. His extensive studies, which have received much attention, have led him to include only a particular histological change in the vessels as coming under the category of arterio-sclerosis, while the mass of other scleroses in the arteries remains unclassified. He and those who follow him would limit the term to conditions of intimal hyperplasia, with a peculiar splitting of the internal elastic lamina, conditions which can only be distinguished under the microscope.

Are we, then, to exclude the clinician from diagnosing arterio-sclerosis? The answer can but be, No! And this for the adequate reason, that such is not the sense in which Lobstein applied the term arterio-sclerosis in 1835. Let us preserve the broader meaning, and regard all scleroses or hardenings of the arteries as included under this general term, recognizing, if need be, distinct varieties.

Thus I would point out that arterio-sclerosis is not a simple disease. Although, in some instances, a single coat of a vessel is found affected by a fibrous or other allied change, in others several tunics of the same artery are involved. Again, we may find that in a certain form of sclerosis particular tissue elements are picked out, while other tissues are unaffected, or that when muscle fibres are degenerating in the media the connective tissue elements of the intima are proliferating. Hence we find that we may have two or more such processes inextricably mixed in a progressive disease of the arterial walls.

Of the more common forms of sclerosis of the arteries I would point out that the hard radial vessels by which the clinician makes his diagnosis of arterio-sclerosis is a widely different disease from that recognized by the pathologist at *post mortem* examination of the aorta. The sclerosed radial vessels represent a disease which is peculiar to the media; it has its origin in the muscle cells of the middle coat, and the middle coat alone is damaged. The intima and adventitia are not essentially involved in the process, though occasionally a secondary intimal thickening accompanies the medial degeneration. The main changes in the media are a fatty degeneration of the muscle and later of the elastic fibres, both of which become calcified. It is through these calcareous plaques in the media that the beaded character is given to the radials. At these sites of medial degeneration and calcification the vessel wall is perceptibly thinned, so that many small pouchings result. These pouchings, though small, are true aneurysms distributed irregularly in the vessel wall, and when held to the light are seen to be thin and

quite transparent. This type of disease, which is most frequent in the vessels of the extremities I shall later speak of as the Moenckeberg type of arterio-sclerosis, and I shall point out how closely some of the experimental lesions resemble it.

On the other hand, the nodular aorta, which we so frequently meet with at autopsy, is the result of repeated insults telling upon the intima alone. The thickenings of the intima may again be entirely proliferative, and in this case represent a chronic inflammatory production. This I acknowledge is not the view held by all; those who still uphold Thoma's conception of the arterio-sclerotic process see also in the typical nodose sclerotic aorta a primary giving way of the media, and regard the intimal overgrowth not so much as an inflammatory as a compensatory process. Whichever view be accepted, or be correct, or whether, as would seem to be truly the case, we encounter both conditions, it is still an open question whether the newly-developed cells in the intima are of endothelial or of connective tissue origin: it may be again that both tissues take part in the overgrowth. At all events, few or many layers of cells, which are very like endothelial cells, are produced immediately beneath the endothelium, and it was the character of these cells which led Virchow to name it "endarteritis chronica deformans."

When a similar intimal thickening, by the proliferation of connective tissue or endothelial cells, occurs in the smaller arteries, so that the lumen of the vessel becomes distorted, or even wholly obliterated, the condition is spoken of as "endarteritis deformans sive obliterans." I may, however, mention that seldom if ever is a vessel occluded by the overgrowth of its intima alone. The usual result is that after a vessel has been partly obstructed by the thickened intima, complete blockage is brought about by thrombosis.

Now although we have ample opportunity to study the damage that has been done by the various noxae to the human arterial system, we are as yet largely without the means of recognizing which lesion has been produced by a particular irritant. It thus becomes evident that the histological changes in the arteries must be investigated by experimental means, for it is only in this way that the changes in the arteries produced by insults of different kinds can be followed step by step, and that a decision can be reached regarding the influence of the various injuries.

It is the common fault of experimenters that, having been able to reproduce a disease in whole or in part by experimental means, the conclusion is drawn that all the features of this disease are due to this one cause. To avoid this common mistake we must advance very cautiously towards our conclusions.

The Earlier Experiments.

In the earlier experimental attempts undertaken to produce arterio-sclerosis and aneurysms mechanical means were employed. Thus, Malkoff, and also Fabris, injured the vessel wall directly, either by forcibly pinching it through the skin or by laying it bare and crushing it, or applying corrosive substances to its outer walls. That damages of all kinds were obtained in this manner we can readily understand, but that neither true aneurysms nor arterio-sclerosis resulted is just as clear. Thromboses and inflammation of the arteries were the most frequent results of these violent measures, but these studies have thrown little light on the process of arterio-sclerosis. Malkoff, however, made another interesting experiment, in which he laid the end of the carotid artery bare, and, ligating the vessel about an inch or so away, he put the isolated portion of the artery under artificial pressure and then returned it to its natural bed. This treatment he claimed led to a calcification of the media—a condition which he said was directly referable to the high pressure to which the vessel was subjected.

Several authors claim to have obtained positive arterial lesions of the character of arterio-sclerosis by irritating or severing the nerves of the leg. Of these, Lewaschew, Bervoets, and Fraenkel each described changes in the femoral and tibial arteries after performing these experiments, but in each case, as Czyhlarz and Helbing pointed out, the influence of the trophic inflammatory disturbances extending from ulcers about the limbs cannot be excluded. These experiments, thus, do not teach us more than that the coats of the arteries, including the intima, take part in an inflammatory process by direct extension from without. That the intima itself could become involved in an acute or chronic inflammation was denied by Rokitansky, who held that the thickening of this coat was the result of the organization of lymph thrown out of the blood. This contention has, however, been shown to be incorrect.

Soon after Thoma brought forward his theory that arterio-sclerosis is a compensatory thickening of a vessel in a region where the media has been weakened and the lumen of the vessel enlarged, several workers endeavoured to prove this by experimental means. Thoma, himself undertook to show that the stimulus or irritation required for the proliferation of new tissue in the intima lay in the slowing of the blood current. By ligating a vessel he found that on the distal side of the ligature, as far as the first compensatory artery, considerable intimal thickening took place. However, Fuchs, who repeated the experiments, though he found the same changes to occur in the arterial walls, attributed the changes to a diminution of the blood pressure, while others again reported the occurrence of arterial thickening on both sides of the ligature, and ascribed its presence to local thrombosis and inflammation.

The inflammatory theory of arterio-sclerosis received further support in the experiments of Sumikawa, who irritated the vessels by painting them with turpentine or silver nitrate or infected them with bacteria. Vessels so treated showed an inflammatory condition in all the coats, or else in the intima alone. In each case there was a degeneration of the muscle fibres along with a small celled infiltration along the vaso vasorum. His experiments with bacterial infection of the vessel walls bear out the pathological findings in man, where it is noted that inflammatory foci not only lead to a new formation of capillaries in the granulation tissue, but also of vaso vasorum in the neighbouring large blood vessels, and moreover, that the reaction in these blood vessels is accompanied by a connective tissue proliferation and thickening of the intima.

That lead, phosphorus, and mercury produce arterial lesions has long been described in medical textbooks, and yet such lesions have not been produced experimentally. It is true that Lunz, in his experiments with these salts, has found that the elasticity of the vessels was diminished, but Jores could not verify these results, and was unable to find any change in the vessels of animals so treated.

The More Recent Experiments.

Thus until 1903 little advance was made in the experimental production of arterio-sclerosis despite the many attempts. In that year Jores instituted a series of experiments at the Bonn Pathological Institute in which he fed animals on adrenalin extract, hoping thereby to test the effect on the arteries of raising the blood pressure. Whether he obtained any marked rise in the blood pressure he does not report. His results, however, on the arterial walls were negative. Josué, using the same substance, applied it in a different way. He repeatedly injected a solution into the ear veins of rabbits. After several weeks of this treatment, he found that the aorta of the animals showed distinct pathological change with aneurysmal dilatations. The lesions, which varied from the size of a pin's head to a split pea, were distributed irregularly over the thoracic aorta and over the abdominal aorta as far as its middle. The vessel changes consisted essentially of medial degenerations lying in the middle zone of this layer. The destruction of the muscle and elastic fibres with the later deposition of lime salts in them led to a thinning and weakening of the vessel wall, which later became the site of aneurysmal dilatations.

The success of Josué in producing experimental arterial lesions led immediately to like methods being employed by a large number of workers, and in the main their findings have agreed with one another and with Josué's original report. Fischer points out that the lesions produced by adrenalin are all of a medial nature, and that the process is really one of necrosis. He described the elastic fibres lying more closely together, while the muscle cells between the elastic lamellae are in part lost. Similar results have been obtained by Erb, Scheidemandel, Kurt Ziegler, Pearce, and Stanton, and others. Sturli found no difference between the lesions produced by synthetic adrenalin and the adrenalin extract. Opinion,

however, remains divided as to whether we are right in comparing the experimental results in the lower animals with arterio-sclerosis as we find it in man. Some hold that the lesions are like those commonly seen in the human artery, while others again can find no similarity between the conditions.

Kurt Ziegler and I almost simultaneously compared these adrenalin lesions with the Moenckeberg type of arterio-sclerosis. We have both pointed out how in each the essential lesion is a degeneration of the muscular and elastic tissue of the media, while as a consequence aneurysms are produced in the vessels. I have found that the degenerations in both instances are of the nature of fatty metamorphoses of the involved tissue, which later goes on to calcification.

Ziegler holds that the lesions produced by the inoculation of adrenalin are of a nutritional character, or, rather, due to lack of nutrition. Torri and others, on the other hand, regard them as the outcome of heightened blood pressure, while Fischer considers the process as a pure necrosis due to the direct action of the drug on the muscle cells. Observations in favour of the degenerative or necrotic theory have been recorded by Braun. He found that the combination of adrenalin with amyl nitrite neutralizes the pressure-raising power of adrenalin, but notwithstanding, the arterial changes manifest themselves just as when adrenalin alone is administered. A somewhat different result, however, was gained by Mironescu. He found that the inoculation of euthalmin alone had no effect on the arteries, while at the same time he noted that it produced a drop in the blood pressure. If after the inoculation of adrenalin the animals were also given a dose of euthalmin he found an initial rise with a secondary drop in the blood pressure, and that these animals showed arterial changes much sooner than those treated with adrenalin alone. Hence Mironescu concluded that it was the sudden change from a high to a low pressure that had a deleterious effect upon the arteries.

Harvey has recently demonstrated some very interesting experiments in regard to the degeneration of vessels. He notes that vessels under pressure undergo a more rapid destruction than those which are lax. This throws some light on the effect of high blood pressure in the arteries.

Experiments have also been undertaken by some to observe the effect of bacteria and their toxins on the vascular system. Gilbert and Lyon claim to have produced lesions similar to those produced by adrenalin.

In the main the different experimental results agree with one another, yet the inferences as to the nature of the lesions and the similarity with arterio-sclerosis in man differ widely; the majority of authors hold that the changes brought about in the arteries of animals are of an arterio-sclerotic nature, but in my opinion only one of them draws the proper inference and shows the identity of the changes in the vessels of the "adrenalin animals," and the Moenckeberg type of arterio-sclerosis in man.

The Author's own Observations.

It was the indefiniteness of the results obtained in the experimental work that prompted me to attempt the production of arterial lesions. Simultaneously with Braun and Mironescu, I had conceived the idea of abolishing the high-pressure effects of adrenalin by combining it with a drug producing vasodilatation. I also observed the effect of adrenalin inoculated directly into the muscle tissue. Other substances, as digitalin and barium chloride, which have the effect of raising the blood pressure, were also tried. Lastly, the effect of producing a septicaemia with different organisms was made, and in these experiments some interesting arterial lesions were obtained. In my series of observations over forty rabbits were used. In these animals I found that results are most easily obtained. Control animals were used in all cases where necessary, particularly in cases where the animals were inoculated with two substances simultaneously.

Adrenalin Chloride, Barium Chloride, and Digitalin.

Adrenalin chloride was administered intravenously to animals in doses varying from 0.3 c.cm. to 2.0 c.cm. of the 1 in 1,000 solution. The best results were obtained by giving large doses at intervals of three to four days. In several cases the animals died of acute oedema of the lungs immediately after the inoculation of the adrenalin but I have never met with a case of death from cerebral haemorrhage, as has been reported by others.

The arterial lesions varied in extent and severity with the length of time the animals were under treatment, with the quantity of adrenalin inoculated, and with the idiosyncrasy of the individual animals. The lesions were usually present at the end of two or three weeks, and the early changes consisted in small isolated plaques of calcification with pittings in their centres. When these grew larger, saccular aneurysms made their appearance. These lesions were distributed mainly over the thoracic aorta and in the abdominal aorta as far as the renal vessels.

Again, in other cases it was found that the entire thoracic aorta, half of the abdominal aorta, the vessels of the neck and those of the abdomen were completely calcified. The thoracic aorta, however, alone showed a diffuse aneurysmal dilatation, beginning at the aortic opening and reaching as far as the diaphragm. Neither the abdominal aorta nor any of the smaller vessels were involved in this dilatation.

The results obtained by the inoculation of barium chloride were exactly the same as those produced by adrenalin; in fact, the similarity is so striking that the lesions cannot be distinguished from one another either macroscopically or microscopically. In several cases I was able to produce the diffuse aneurysm of the aorta by the use of barium chloride, and in each example it was striking how the aneurysm was isolated to the thoracic portion of the vessel and did not advance beyond the diaphragm.

Fischer's experiments, too, of producing arterial lesions by the intravenous inoculation of digitalin, were also repeated, and I agree with his findings that the arterial lesions isolated in the aorta are similar to the milder adrenalin destructions.

It was further found that, if the pressure-raising effect of adrenain be abolished by the use of nitroglycerin, although the arterial lesions were not as extensive as when adrenalin alone was used, nevertheless, tissue degeneration in no way differing from that produced by adrenalin did still occur in the vessel walls.

In such cases where the arterial lesions were just beginning there was no change to be noted in the vessels macroscopically. I might point out, too, that in none of the vessels that I have obtained from animals treated with adrenalin was I ever able to make out any naked eye changes in the intima. This coat was at all times stretched smoothly over the damaged media. The earliest damage was always found in the muscle cells of the middle zone of the media. Here patches of homogeneous tissue were met with, where the muscle nuclei were lost, but where the elastic fibres passed through these areas unaffected. With the loss of the muscle cells the parallel elastic fibres were crowded closely together by the blood pressure within the vessel. This crowding of the elastic fibres from within outwards naturally led to a small dimple at this point and this was the beginning of a saccular aneurysm.

The loss of the muscle cells takes place by a form of necrosis, as was pointed out by Erb and Fischer. The elastic fibres later become affected, losing their elasticity and contractile power. This degeneration of both muscle and elastic fibres occurs through a process of fatty change, which is in some cases difficult of demonstration, but which is, however, readily brought out in those cases where the metamorphosis is slower. With the high calcium content of the rabbit's blood these areas of fatty degeneration in the media of the aorta and other vessels are converted into calcified plaques by the process previously described. Microscopically, no connexion could be linked between the positions of the vaso vasorum and the arterial degenerations, and a true mesarteritis, as noted by Fischer, was not met with.

In no instance have I found a primary change occurring in the intima after any of the above treatments, though in one or two specimens I did note the slight thickening of the intima at the margin of the aneurysm.

It is to be noted, too, that with the abolition of the physiological effects of adrenalin, the arteries are still affected, though more slowly and to a less degree than where the vessels are under tension. Boveri claims to have abolished the effects of adrenalin on the blood vessels by combining it with "Jodipin," though he was

not able to prevent the toxic effect on the muscle cells.

The effect of adrenalin chloride inoculated directly into the skeletal muscle depends upon the strength of the dose given. When the undiluted 1 in 1,000 solution of adrenalin chloride is inoculated into the muscle tissue the cells are killed outright, so that the nuclei and cell membrane disappear. Weaker solutions produce a fatty degeneration of the muscle cells. It was found also that the animals receiving the adrenalin treatment over an extended time developed fatty degeneration of the heart. So we can but conclude that adrenalin has a selective action on muscle tissue, and that its toxic effect thereon is the primary cause of the arterial lesions. The same holds true for barium chloride and digitalin. The three substances are thus similar in their effects, differing only in the intensity of their reaction.

The influence of high pressure in producing arterial change is well brought out in these experiments. We have noted that the most frequent site and the most severe changes occur in the thoracic aorta, and that the vessels in the remote parts of the body are only affected when advanced lesions are present there. We must admit that the inoculated substances are distributed equally to all parts of the body, and that from toxaemia alone all vessels of similar structure should suffer equally. But the normal amount of work done, besides the increased strain that is produced by raising the blood pressure, is felt most severely in the aorta, mainly in the thoracic portion. As a result of this combined degeneration and high pressure, the thoracic aorta exhibits a fusiform aneurysm, extending from its origin to where it passes behind the diaphragm. From this localization of the diffuse aneurysm to the thoracic aorta, it is evident that the aortic opening in the diaphragm acts as a flood-gate in letting only a given quantity of fluid through. By this mechanical device the abdominal aorta is relieved of having an increased volume of blood thrown into it by the overworked heart, and thus is not subjected to the double degenerative forces of toxaemia and high blood pressure, as in the thoracic portion. Focal degenerative lesions are nevertheless found in the abdominal aorta.

The important rôle that the muscle fibres of the media play in the strength of the arterial wall is well known. In fact, it is pointed out that they are the mainstay of the vessel. This fact is exemplified in these experiments, where it is found that with the primary degeneration in the muscle cells the vessel wall begins to give way in this region. The elastic fibres at this time, though themselves not visibly altered, no longer take on the wavy contour which is characteristic of them in a relaxed vessel. It would seem from this that the apparent elasticity, as shown by their undulations, is not an inherent quality, but is due to the contraction of the muscle fibres surrounding them—or, otherwise, that when the artery is in a condition of tonus, its contracted state is due mainly, if not entirely, to the muscle fibres; when dilated it is possible that the elasticity of the elastic fibres comes into play.

A proliferation of the intimal tissue in these cases is to be regarded as secondary to degenerative processes in the media. The proliferation is either of the character of a hypertrophy of the musculo-elastic layer or of the subendothelial tissue. Whether this subendothelial tissue had its origin in connective tissue or endothelial cells we cannot discuss here.

INFECTIVE ARTERIO SCLEROSIS.

I have also undertaken the production of experimental arterial lesions with infective agents. For this purpose *B. typhosus* and streptococcus were used in separate experiments, while again in others diphtheria toxins were inoculated. Each of these agents was inoculated intravenously into rabbits.

The results obtained with *B. typhosus* and the streptococcus were of the same order. The first part of the pulmonary artery and the ascending limb of the aorta showed warty thickenings of the intima. There were no aneurysmal sacs nor any sign of a calcareous degeneration of the media. Microscopically there was a fatty degeneration of the subendothelial tissue, while there was, however, much connective tissue advancing into the degenerated area. A small-celled infiltration was wanting, as was also any sign of calcification. At the areas of thickening of the intima it was found that the internal elastic lamina had split into several parallel layers, which were stretched between the proliferating cells. The area affected included the intima and the inner layer of the media. Thus we find that these infective lesions (*B. typhosus* and streptococcus) differ entirely from those produced in our adrenalin series. What we may term the adrenalin group are agents producing destruction of tissue leading to calcification with little or no local repair to make up for the lost tissue, while the mild infections lead to a slight degeneration of the vessel coats, though the process is followed step by step by the process of repair, and instead of getting a thinning of the vessel wall there is an actual thickening. It becomes self-evident that with the absence of extensive destruction of the muscle fibres in the media no aneurysms were formed.

In our experiments it must be remembered that we dealt with cultures of low virulence. The possibility must not be overlooked that virulent micro-organisms gaining entrance into the adventitia through the vaso vasorum, and proliferating there, might invade the media and induce local degeneration and destruction, and if the reparative process could not keep pace the weakening of the media might result in aneurysm formation. Such lesions would correspond to the mitotic aneurysms in man, which have been described by McCrae and others; nay more, the observations of Heller, Chiari, and others upon syphilitic mesaortitis, afford a like explanation for aneurysms in the syphilized.

The presence of lesions in the pulmonary artery is worthy of note in comparing the distribution of the lesions with those of the adrenalin series. In the latter, the aorta and its branches were alone involved, while the heart became hypertrophied—a feature that was not seen after the bacterial inoculations.

The repeated inoculations of diphtheria toxin into rabbits gave surprising results. Here, instead of meeting with proliferative changes, such as the *B. typhosus* and streptococcus produce in the aorta, there were only lesions of a degenerative character. The degenerations were isolated to the first part of the aorta, and were identical with those produced in the adrenalin series. The thinning of the arterial wall, with calcification and aneurysmal dilatations, were all present, and the microscopical examination showed the lesions to be confined to the media. No proliferative or inflammatory changes were present in the intima, nor was there any change about the vaso vasorum.

Hence we have before us two interesting groups of arterial lesions resulting from infective conditions. On the one hand, lesions are intimal and proliferative, while on the other they are of a purely medial degenerative nature. The free toxins of diphtheria have a predilection for the muscle tissue of the circulatory system, whereas the endotoxins of typhoid and streptococcus infections are in small doses rather of a stimulating nature to the connective tissue and endothelial cells.

If, then, we are to consider the nature of the lesions produced in the arteries as a criterion in classifying the toxins, we must place the diphtheria toxin along with the adrenalin series, while the endotoxins, the stimulating or proliferative agents, form another. The marked differential characters which are brought out by the two series in experimental animals make it more than probable that such differences also exist in man—that is, that typhoid or streptococcus infection will lead to an endarteritis, while diphtheria will produce lesions of a degenerative character, affecting chiefly the muscle cells.

The fact that the streptococcal and typhoidal infections lead to a splitting of the internal elastic lamina with a proliferation of the subendothelial tissue (and also the musculo-elastic layer) places the lesion in very close relationship with arterio-sclerosis in man, as it is described by Jores.

To sum up the results of my experiments, I find that:

1. The effect of the high-pressure drugs (adrenalin chloride, digitalin, and barium chloride) on the arteries is a degenerative one, as was described by Fischer and Erb for adrenalin.

2. The muscle cells of the media are first attacked, while the elastic fibres of this layer are also involved later.

3. At a proper stage of the degeneration a fatty change can be demonstrated in the tissues, followed by calcification.

4. The middle zone of the media is always involved.

5. Occasionally secondary reactions occur in intima which are of a proliferative nature.

6. The effect of adrenalin is not abolished by lowering the blood pressure with nitroglycerin.

7. The aneurysms are produced as a result of the destruction in the media.

8. These experimental lesions are in every respect similar to the Moenckeberg type of arterio-sclerosis.

9. The effect of diphtheria toxins on the arteries is similar to that of the adrenalin series.

10. Typhoid and streptococcus infections produce little destruction of tissue cells, but tend to stimulate cell proliferation in the intima and inner layer of the media.

11. Vessel changes are brought about by these infections which correspond to arterio-sclerosis, as described by Jores.

12. Contrary to the general conclusions reached by Thoma, these experiments show that there is definitely a form of arterio-sclerosis in which, not a preliminary weakening of the media, but a primary proliferation of the intima, including the musculo-elastic layer, is the prime feature. To what extent this essentially proliferative type is to be encountered in the human aorta and other vessels must be left an open question. Undoubtedly, in the medium-sized arteries, the Moenckeberg type of medial degeneration is common. Undoubtedly also in syphilitic as well as other cases, we encounter in the aorta a secondary and adaptive or compensatory overgrowth of the intima—secondary that is, to the medial degeneration.

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DISCUSSION.

Dr. Pearce said experimental lesions were not analogous to those of man, but of great value in explaining degenerative and regenerative changes in vessels. Physiological studies of the action of adrenalin were of great value in explaining problems of cardio-vascular pathology.

Professor Clifford Allbutt said: I must begin my remarks, Sir, by thanking you for the compliment you pay me in calling upon me, who am no expert in pathology, to speak in this Section. The discussion of this morning is peculiarly instructive and gratifying to me in so far as it has come to the support of the doctrine in which for so many years I stood alone—the doctrine of the mechanical origin of a certain large group of cases of arterio-sclerosis, a group which includes that of chronic renal disease, and especially of granular kidney, but is by no means confined to cases of renal disease. And although it is true that mechanical causes, which we may express pretty nearly in terms of arterial blood pressure, operate in all cases of arterio-sclerosis, of the group of which I am now speaking it is virtually the sole cause; in other words, the arterial damage is due, and stands in proportion to a period or periods of excessive pressures, an excess which, in the first instance, is antecedent to the arterial disease, and may even within some such term as four or five years be subdued, and the arterial damage thus averted—an opportunity which we must be ever more and more on the alert to seize and to turn to advantage. But this mode of arterial disease, the mode which I have called that of hyperpiesis, is by no means the only one. Speaking as a physician, I recognize two other classes at least of arterial disease—classes which I have named respectively the toxic and involutionary classes—each of great extent and importance. In these classes the arterial pressures are not characteristically high. Tension or strain (which, of course, cannot be excluded) is not the prime factor in setting up the arterial disease. In these two classes, indeed, the arterial pressures often run low, and—intercurrent contingencies apart—do not exceed the average for the time of life of the individual. The mechanical wear and tear would be harmless but for some causes of other kinds which produce in the vessels a morbid liability to yield under ordinary stresses. Now it is here that as a physician I come to the pathologist to inquire if, in accordance with these several clinical features, he can separate arterio-sclerosis into corresponding histological varieties? I would suggest—and my own cruder efforts in pathology lead me to think—that in the arterial disease of toxic origin the poisonous agent enters by the adventitia and vasa vasorum, whence it penetrates to the intima, but on its way leaves the adventitia and the media not without traces of its deteriorating influence; that in the arterial disease of involutionary origin the disease begins early, if not first in the media, by spots and streaks of decay going on to calcification; that in the hyperpietic disease the damage begins by tearing and shearing stresses, by shears, or even by rents, which, indeed, do not always elude the microscopical eye. These shears act chiefly in the plane *minoris resistentiae*—the plane of apposition of the intima and the media. When the rents are manifest to the eye, they lie tangentially to this plane, and the elastica is fragmented, or is reduced to common fibre. Such, however, is the consequent obliteration of normal landmarks that we know too well how difficult it is to be topographically exact in these descriptions. From such considerations as these I have urged that the clinician should discard the name of arterio-sclerosis as the name of a disease, and be content to speak of arterial disease as of several kinds, or, at any rate, as a result of many maladies, maladies which are divisible between at least three different classes. With what reserves and distinctions the pathologist is to use the term it would not become me to discuss before this audience. In addition to the surmises I have just ventured upon, I may, however, propose one more consideration, namely, that in arguing upon the relative meanings of arteritis, arterio-sclerosis, atheroma, and so forth, we must constantly bear in mind the stage, the rate, and the place of the process in each particular case. Different as such processes may be—as indeed I have urged—yet we are apt, I think, at times to forget that in comparing tissues from a very slow case with those of a case whose course has been quicker, or in comparing, in the same case, a muscular artery with a piece of the aorta, or, again, in comparing an earlier stage of disease in a patient cut off by contingent causes with a later or final stage in another patient, we may in the differences of time and place overlook essential similarities or even identities. May I say, in conclusion, a few words on arterial hypermyotrophy? Whether there be in arterio-sclerosis a true hypertrophy of the muscular coat is a fallacious question, if so be that arterio-sclerosis is a general term including several kinds; for this hypertrophy may occur in one or more of the kinds, but not in all. This, in my opinion, is the case: arterial hypermyotrophy occurs in the kind of arterial disease I have called the hyperpietic—that in which the disease is a result of excessive pressures within the vessels, but does not occur in either of the kinds which I have called toxic and involutionary; unless, perchance, their ordinary course is modified by some incidental burden of blood pressures. Leaving these two kinds, then, and turning our eyes to the arterial disease of high pressures only, we shall find, if time be given, the first deviation from the normal to be this hypermyotrophy. At this stage, if the abnormal pressures be permanently reduced within normal limits, the hypermyotrophy will disappear also. Such transitory phases are best witnessed in young, or comparatively young, subjects. If, on the contrary, excessive pressures persist, unrelieved by Nature or art—say for more than four or five years—this hypertrophied coat seems to lose its specific quality and to deteriorate into fibre of inferior rank, but perhaps capable of more tenacious resistance. This process is deferred, I think, in small arteries in which constriction has been especially dominant, a constriction whereby the pressure within them and the consequent tension of their coats are reduced. This vascular hyper-

myotrophy was described first by George Johnson, and Dr. Savill and other recent observers have verified rather than enlarged his description. It fell to me, perhaps, to point out that this hypertrophy of the media is not confined to granular kidney, but arises in all cases of continuously high arterial pressure—all cases, that is, in which these parts are nutritionally capable of re-adaptation. Gull and Sutton erred, as I pointed out in a contemporary number of the *British and Foreign Medico-Chirurgical Review*, not in describing other kinds of pathological change in the arteries but in doing so to the exclusion of Johnson's kind. The problem in this hypermyotrophy now to be decided is whether spasm of the vessels concerned, under the influence, let us say, of some poison acting upon them directly or indirectly through the vasomotor centre, suffices to produce it, or, as I have ventured to urge, that it is due in the vessels, as in the heart, to enhanced dilating stresses. The answer is not easy, as the closer the constriction in any vascular area the lower must be the pressure, which, *caeteris paribus*, is converted into velocity. Perhaps if the resistance distal to the area of constriction be high, spasm and high internal pressure may co-operate to produce hypermyotrophy. That the muscular arteries on the hither side of areas of spasm will dilate and hypertrophy under the rise of pressure caused by it needs, I think, no asseveration. And how, thereafter, under this strain, arterial disease arises—hypermyotrophy is scarcely to be called disease—I have already stated; this is, of course, a later phase, a phase in which the state of the vessel passes into the irremediable. But for a moment I may return to calcification. Calcification rarely occurs in the arterio sclerosis originating in high pressures; it is characteristic of the involutionary kind. Yet it is a common error to suppose that calcification is a very slow process, or one confined to old age. It may scatter itself widely and profusely in comparatively short periods, and it may attain even extreme degrees so early as the fifth decade of life, possibly in rapidly decaying individuals, even sooner. On the whole, then, calcification is, clinically speaking, a presumption against hyperpiesis, present or past—hyperpiesis, that is, above the degrees usual for the time of life. Notwithstanding, I have records of a few cases, primarily of hyperpiesis, observed over long periods of time, in which calcification supervened—exceptions which test the rule. For in these it was apparent, on consideration of all the facts of each case—facts clinical as well as pathological—that the calcification appeared when the processes of hyperpiesis had ceased or become subordinate, and the life of the patient had been spared to undergo the ordinary involutionary changes which are present in the vast majority of elderly persons.

Professor ADAMI said: While appreciating fully the distinction which Professor Clifford Allbutt has drawn between compensation and adaptation, I feel bound as a pathologist to cross blades with him regarding the importance and the frequency of adaptive conditions; nay, more, I would go so far as to lay down that pathological processes so far as they are reactive are coincidently adaptive to a very great extent. As pathology widens itself from a study, histological and otherwise, of morbid states, to one of morbid processes, so inevitably are we driven to realize that this is so. I need but recall that the abundant and valuable recent studies upon acquired immunity, upon haemolysins, cytolysins, and the like, recall to us a vast series of these adaptations. And here, in connexion with the ordinary type of arterio-sclerosis, it has for long seemed to me that we encounter some of the most striking instances of adaptation. The studies made by me some years ago, to which I have referred in the Middleton-Goldsmith Lectures of 1896 upon Fibrosis and Inflammation, led me to support and confirm Thoma's contention that in the commonest type of aortic arterio-sclerosis there is (as in the later experimental researches of Josué, Pearce, Klotz, and so many other workers with adrenalin and allied drugs) a primary degeneration and giving way of the media. To that view, despite Jores's important studies, I still incline, and would harmonize the divergent opinions by laying down that while the primary lesion manifests itself in the media, the primary reaction to that lesion occurs in the intima. It is this reaction—this overgrowth of the musculo elastic layer—that Jores has so serviceably brought to our notice—an overgrowth which may or may not be accompanied by coincident hyperplasia of the sub-endothelial connective tissue of the intima. No one nowadays regards this intimal hyperplasia as strictly inflammatory, as a direct reaction to injury; it has none of the characteristics of inflammatory new growth; there is no primary new formation of vessels, no small-celled infiltration; it is a hyperplasia pure and simple, occurring not in the tissue primarily injured, the media, but in another tissue, the intima. But it is secondary to the giving way of the media, and to that extent reactive, and can, I think, only be regarded as adaptive, tending towards a restoration of the original lumen of the vessel and a strengthening of the wall at the region of giving way. I have elsewhere explained this overgrowth as an effect of strain within certain limits. Just as increased strain, up to a certain grade, favours muscular hyperplasia, and as exercise, by causing increased pull upon the tendinous insertions of the muscles is followed by overgrowth of the bony ridges of attachment of those tendons, so I hold that when the media gives way locally to a slight extent the overlying intimal tissue becomes stretched and strained, and as a result exhibits hyperplasia. Too severe and sudden an expansion of the intima arrests any such tendency to overgrowth. Thus, it is significant that in aneurysms intimal thickening is lacking. There is a similar lack of overgrowth in these aortas from rabbits treated with adrenalin and barium chloride, with their aneurysmal pouchings, as, again, in the pouchings of human iliac and femoral arteries of the Moenckeberg type. I shall not be surprised, however, if further observations demonstrate that the common or Jores's arterio-sclerosis and the Moenckeberg or medial degenerative type are the effects of common noxae acting with different grades of intensity, and, as Professor Aschoff suggests, upon arteries of different constitution. I am inclined, that is, to think that the experiments made so far with adrenalin have been somewhat severe, leading to an acute type of medial degeneration, and that slighter grades of intoxication conducted over long periods will afford the reactive overgrowth of the intima, such as we see in human arterio-sclerosis of the ordinary type; indeed, from Dr. Pearce's published description of certain of his experiments, which tended to fulfil these conditions—experiments in which he gained not merely medial giving-way, but also intimal hyperplasia—it would seem that this relationship between the two types is in a fair way to receive its proof. While saying this I need scarcely add that, as demonstrated by Dr. Klotz's most valuable observations upon the effects of bacterial toxins on the aorta, there is a wholly different type of sclerosis in which we have to recognize a primary intimal overgrowth after the type of a chronic endarteritis proliferans, as also yet another important type, as demonstrated by the Kiel school and Chiari, that following upon a chronic mesaortitis—the syphilitic type.

CHANGES IN THE NERVOUS SYSTEM PRODUCED IN CHRONIC TRYPANOSOME INFECTIONS.

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THE following material was used in this research: (1) Thirty cases of human sleeping sickness, including two Europeans. (2) Several cases of *Trypanosoma gambiense* infection, in which there was glandular infection, but in which the nervous system had not yet become involved. (3) Tissues of ten monkeys which had been inoculated in various ways with *Trypanosoma gambiense*, several by allowing affected flies to feed on the animal. In two of these definite lesions of the nervous system were found. (4) Nervous tissues of oxen inoculated with jinga trypanosome, probably a form of nagana, or the tsetse disease. (5) Animals experimentally inoculated with surra.

A full report of the findings and the methods of observation obtained is in print, to form a seventh report of the Sleeping Sickness Commission. In addition to this material obtained from Uganda, a large quantity of material has been forwarded to me by Dr. Lingard, Director of the Imperial Bacteriological Laboratory of India; this consists of tissues of animals affected naturally, or experimentally inoculated with surra, *T. evansii*, and of

tissues affected naturally or inoculated experimentally with *T. equiperdum*. The results of one case of dourine has already been published in the *Proceedings of the Royal Society* (B, vol. lxxviii, 1906).

Methods.

Tissues were hardened in formol, formol Müller, and subsequently embedded in paraffin or celloidin. Sections were cut of uniform thickness varying from 5 μ to 25 μ, and stained by appropriate methods for displaying the nerve cells, the nerve fibres, and the neuroglia cells and tissues, and trypanosomes and micro-organisms. A fully described account of these methods is given in the full reports. Besides this, films of gland juice, blood and sections of various organs and tissues were examined, including the lymphatic glands in a large number of cases.

My observations on the nervous system show that there is a parallelism between the chronicity of the infection and the intensity of change in the nervous system. In the acute and subacute fatal diseases due to trypanosome infection, such as surra and nagana, I could find no changes in any way comparable to those found in *Trypanosoma gambiense* infection or dourine. The only changes found are the result of blocking of the blood vessels by the trypanosomes or their degenerated products, causing capillary embolism and haemorrhage. The result of inter-

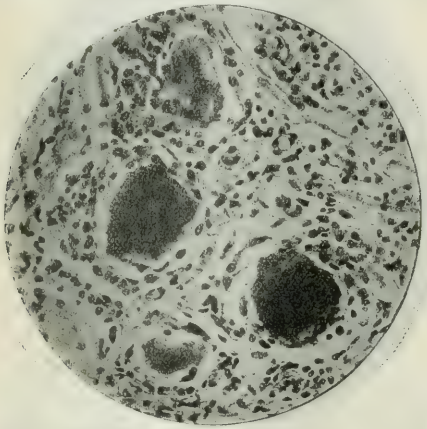


Fig. 1.—Lumbar spinal ganglion in longitudinal section, showing hyperplasia of the fixed tissue elements, namely, proliferation of the endothelial cells of the capsule and proliferation of the interstitial connective tissue cell elements and infiltration with lymphocytes. Case 11; magnification 350. Exactly the same change was found in the spinal ganglia of all the other four cases of dourine in horses examined. A less marked but quite definite change of a similar nature was found in human sleeping sickness and in syphilitic cerebro-spinal meningitis. In the latter, however, there was a more marked lymphocyte infiltration and plasma cells were more abundant and evident.

ference with the nutrition of the ganglion cells may lead to acute chromolytic changes, but there is no trace of chronic inflammation of the perivascular and meningeal lymphatics, nor of chronic degenerative changes of the nervous elements such as is found in chronic trypanosome infections.

A prominent symptom of trypanosome infection, and as regards sleeping sickness almost pathognomonic, is glandular enlargement; recognizing this fact, I suggested to Captain Greig that he should examine the fresh juice of the lymphatic glands for trypanosomes and micro-organisms. This he did, and found that in every case he could demonstrate more readily than by lumbar puncture the existence of living trypanosomes in the acutely swollen glands. These glands, as shown by Dr. Bulloch in two cases of sleeping sickness under the care of Sir Patrick Manson and myself six years ago, were sterile as regards micro-organisms. Greig and Todd and Dutton have likewise shown that the swollen glands contain trypanosomes, and if removed during life are sterile as regards micro-organisms. It may be reasonably inferred, therefore, that the glandular enlargement is due to the irritation caused by the protozoa.

Chronic trypanosome infection is accompanied by paroxysms of fever before any nervous symptoms have set in. One may therefore ask, Is the glandular enlargement due to a poison produced by the trypanosomes in the lymphatic glands or to mechanical irritation? Although experimental evidence does not support the toxic theory, yet it seems the more probable when one considers the effect produced by the few trypanosomes whose existence can be demonstrated. A few cases have died, and I have had the opportunity of examining the nervous, glandular, and other tissues of one case before any signs of the fatal lethargy set in.

The examination of the lymphatic glands showed exactly the same morbid appearances as those observed in the cases in which sleeping sickness had supervened. We may therefore suppose that in the majority of instances the glandular enlargement precedes the nervous affection.

I will now describe the changes which I have found in the lymphatic glands in the various stages of their affection:

1. Acute stage: Swelling and cell proliferation incidental to the trypanosome infection. Section of a swollen lymphatic gland shows (*a*) endothelial cell proliferation of the vessels, (*b*) lymphocyte proliferation, (*c*) nuclear mitosis of the branching retiform cells forming the sustentacular framework of the gland; precisely

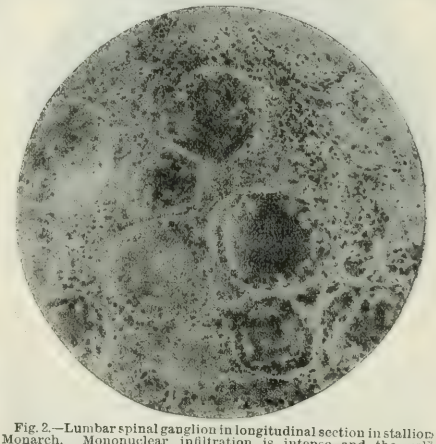


Fig. 2.—Lumbar spinal ganglion in longitudinal section in stallion Monarch. Mononuclear infiltration is intense and the cell destruction more obvious; in fact, all the ganglion cells shown in the section have undergone coagulation necrosis, and there was a corresponding destruction of posterior roots. Van Giemsen stain; magnification 200.

similar changes will be described as occurring in the perivascular and meningeal lymphatics of the central nervous system.

2. Subacute and chronic: Changes in the lymphocytes through all stages up to the formation of plasma cells and their final granular degeneration and disintegration are seen also.

Endothelial cells which have phagocytic properties, and finally terminate in granulation cells (*Körnchenzellen*), and granular products of disintegration of the various cell elements with which may be mingled the products of degenerated trypanosomes or modified thread-like forms. The evidence of degenerated trypanosomes is very difficult to substantiate in sections; still various chromatin particles and rings (micronuclei and macronuclei) may be seen, and occasionally a threadlike trypanosome.

3. Chronic fibrotic: The swollen gland is converted, for the most part, into dense fibrous tissue.

Comparison of the Glandular Changes with the Changes in Other Tissues.—Examination of other tissues—for example, liver, heart, serous membranes—shows in advanced chronic changes a profound affection of the lymphatic system by accumulations of lymphocytes; but in none of these instances is it nearly so marked, or is the affection so universal and intense as in the central nervous system. It may be stated as a fact that there is a parallelism between the length of period and the intensity

of the lethargy and the intensity and universality of the chronic perivascular and meningeal lymphangitis.

Why should this chronic inflammation be so intense in the lymphatics of the central nervous system as compared with the tissues of the body? It is quite a unique phenomenon, and characteristic of the disease. In sleeping sickness, as was first demonstrated by Castellani, the trypanosome is found in the cerebro-spinal fluid, and Bruce and others have since shown that this occurs in every case; and it is probable that not until this fluid is invaded by the trypanosome does the characteristic change take place. The infection of the cerebro-spinal fluid may be associated with the capillary haemorrhages so liable to occur.

The infection of the lymphatic glands by the trypanosome, as we have seen, causes inflammatory proliferation of various fixed cell elements, and it is probable for the same reason the invasion of the cerebro-spinal fluid sets up a chronic interstitial change, affecting those structures first and in the most intense manner where the cerebro-spinal fluid is most abundant—namely, the meninges about the base of the brain and the relatively large perivascular lymphatics surrounding the perforating arteries at the base of the brain.

After the lymphatic glands, the tissues most likely to exhibit a reaction hyperplasia of the conjunctival (neuro-

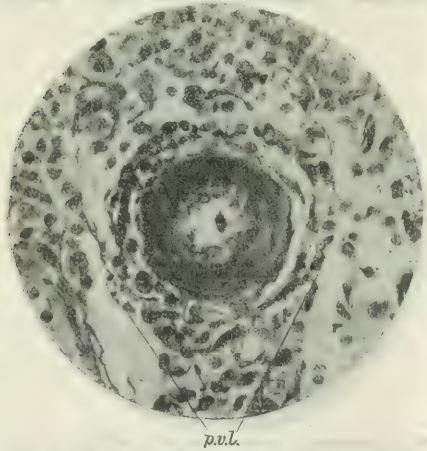


Fig. 3.—Transection of the cauda equina and conus medullaris, showing some of the interstitial connective tissue between the nerve root bundles. A small artery, with its perivascular lymphatic (*p.v.l.*) is cut transversely. There is a chronic inflammatory proliferation of the fixed tissue elements, consisting of lymphocytes, plasma cells, fibroblasts, and branched connective tissue cells exactly similar to the interstitial changes in the spinal ganglion. Magnification 430.

glial), endothelial and lymphocyte cell structures are the tissues of the central nervous system.

We must look upon this hyperplasia of fixed tissue elements as a defensive reaction on the part of the organism to some irritation proceeding primarily from the blood stream. It may be asked, Do the trypanosomes migrate from the blood to the lymphatic structures to find there more suitable conditions for multiplication or modification, and thus provoke the cell hyperplasia in defence? The paroxysms of fever in trypanosomiasis (G.) are very possibly associated with and dependent upon this lymphatic infection and tissue reaction.

There is reason to believe that that *T. equiperdum* can penetrate the intact mucous membrane; there is therefore no reason why the *T. gambiense* should not have the power of penetrating a capillary wall. Certain anatomical conditions would favour the passage of an active moving flagellated organism with an undulating swimming membrane, but no condition would favour it so much as the possibility of passage from one fluid medium to another. Consequently the capillaries in the walls of a lymph sinus of a lymphatic gland and the wide perivascular lymphatics of the brain, especially those of the terminal capillaries of the perforating arteries at the base of the brain, and the capillaries lying in the canaliculi filled with cerebro spinal fluid would afford mechanical advantages to the passage of the trypanosomes that lymphatics of the solid tissues would not do.

There is, however, another way of looking at the causation of this change—namely, a toxin is produced in the lymphatic glands during the process of inflammatory reaction, the products of which are absorbed by the lymphatics of the nerves and vessels entering the base of the skull and the intervertebral foramina. Whichever it is, both the successful experiments on animals (monkeys) and the 30 human cases show that there is some noxious agent which slowly, insidiously, and progressively acts as an irritative agent, causing a neuroglia cell proliferation, which is manifested not merely by an increasing number of the neuroglia cells by nuclear proliferation, but by an overgrowth of the cells themselves; so that around the vessels and in the subpial and septal structures there is an increase of neuroglia tissue, endothelial cell and lymphocyte proliferation with the formation of plasma cells.

In the tissues of the monkeys there is evidence to show that the neuroglia proliferation, especially the perivascular, may precede the lymphocyte accumulation. Whether this be so in the human subject I am unable to say. Certainly there is a very marked glia proliferation in all cases; the appearance of the cells with their large

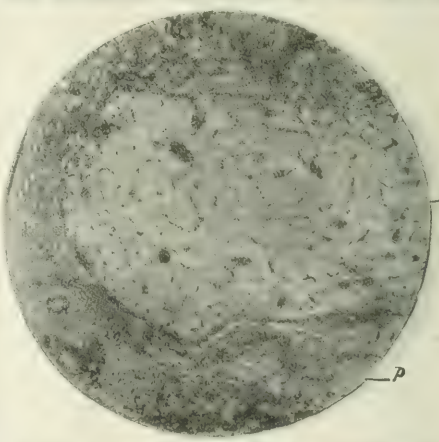


Fig. 4.—Transection of thirtieth posterior root corresponding to lumbar spinal ganglion described in Fig. 2. There is evidence of considerable shrinking in size and of chronic inflammatory changes in the sheath. There are no nerve fibres existent; all that remains is the inflamed perineurium (*p*) and the markedly vascular and congested and proliferated connective tissue element of the endoneurium and sheath of Schwann: the root (*r*) is devoid of nerve fibres. Magnification 50 × 1.

branching processes extending on to the vessels points to a chronic process of considerable duration.

Stained by the ordinary methods, it is extremely difficult to differentiate the glia cell nuclei from the lymphocytes, but by differential methods of staining it can be demonstrated that the intense cell proliferation around every vessel and in the membranes is the result of proliferative and degenerative changes similar to those met with in the lymphatic glands. There is (1) a great accumulation of lymphocytes, which may be traced in very chronic cases through a series of changes up to the formation of the plasma cells of Marsholko and their final disintegration; (2) we can observe around the vessels and in the tissues immense numbers of neuroglia nuclei with the different arrangement of chromatin particles to the lymphocyte nuclei, but I will not now enter into the minute details thereof. These nuclei are not unlike the proliferated nuclei of the large branching retiform cells of the lymphatic glands; and the large branching neuroglia cells may be compared to these sustentacular retiform cells. There is also an endothelial cell proliferation, not very obvious. These endothelial cells, however, have phagocytic properties, and occasionally red blood corpuscles can be seen to be contained in them in various stages of disintegration. These, together with granulation cells

or degenerated plasma cells are seen in chronic cases around and near the vessels. There is very little evidence of change in the capillaries. Unlike general paralysis, no rod cells (*Stäbchenzellen*) or evidences of sprouting capillary endothelial cells are met with. The characteristic change appears to be almost entirely interstitial, and the degeneration of the nerve cells and fibres is proportionally slight.

The neuroglia proliferation, although very extensive throughout the nervous system, is for the most part *primary* and not secondary to neural atrophy. This of itself would lead to an increase of intracranial pressure and some flattening of the convolutions. My observations tend to show that the nerve cell and fibre changes due to this interstitial inflammation are but slight, comparatively, or that when they are marked and acute they are mostly due to a secondary or terminal microbial infection, which occurs in the vast majority of these cases and leads to a fatal dissolution at an earlier period than would have otherwise been the case. The diplococcal infection occurs in 80 per cent. of the cases. The fact that the posterior spinal ganglia show chronic interstitial changes in all cases which I have examined is of interest—the changes are manifested by interstitial lymphocyte proliferation and capsular endothelial proliferation without any marked changes of the neural elements. This fact may be interpreted as indicating the absorption of a poison from the paravertebral lymphatic glands, or it may be indicative of a toxin in the cerebro-spinal fluid escaping along the roots.

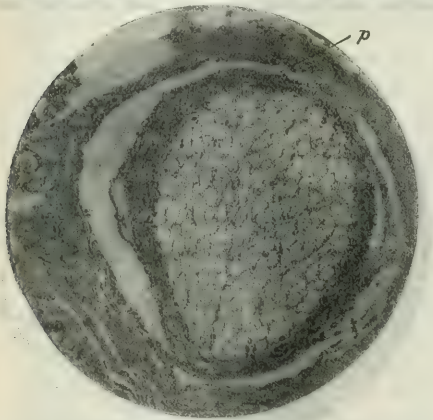


Fig. 5.—Anterior nerve root, thirtieth segment. The section shows a marked mononuclear infiltration of the perineurium (p) and to a less degree of the endoneurium. The anterior horn cells in this segment showed practically no changes of noteworthy import. The transections of the nerve fibres all show an axis cylinder. Compare the appearance with the posterior root of the same segment. Magnification 120 × 1.

The symptoms of the disease I have said are proportional to the characteristic change in the central nervous system—the lethargy, the fine tremors, the oscillating gait, the ready fatiguability, and loss of power of attention for more than a very short time without paralysis, or loss of comprehension and intelligence, or even defect of the senses, point more to functional neuronic depression than destruction.

The clinical signs and symptoms of the disease may be explained by the pathological change—namely, an interference with the functions of the neural elements, by an interference with their metabolic and gaseous exchanges, owing to the previously-described lymphangitis and consequent intracranial pressure.

First, as regards the demonstration of trypanosomes in sections. It has been asserted by Plimmer and Bradford, even when there are abundance of trypanosomes in the blood, they cannot be demonstrated in the blood vessels of sections of the tissues. It is true that a smear of brain tissue or lymph-gland juice will more readily display trypanosomes when present than sections of the tissue. The reason is easily comprehensible, for unless the organism lies in its long axis parallel to the section, only an unrecognizable portion may be seen. But when they are in great abundance in the blood, they can be readily displayed by the usual staining methods.

Of the several thousands of sections of tissues of sleeping sickness which I possess, there are not more than half a dozen in which one can find definite recognizable trypanosomes in them. This may be partly accounted for by the fact that in nearly all the cases there was a terminal microbial infection, in the great majority of instances diplostreptococcal, and this may lead to a disappearance of the trypanosomes, for Novy and MacNeal have shown that micro-organisms prevent the artificial culture of trypanosomes *in vitro;* and in one European case, which died with a terminal diplococcal infection, it was observed that the trypanosomes which were easily found in the blood films ceased to be apparent a week before death. Still, we know that the *Trypanosoma gambiense* is not found in abundance. In fact films, whether of the cerebro-spinal fluid or the gland juice, require a great deal of search in the majority of instances to demonstrate their existence; whereas, in other forms of trypanosome infection, such as nagana and surra, the organisms may be present in enormous numbers. There is undoubted evidence to show that *Trypanosoma gambiense* infection of the human subject may last a number of years, certainly five, probably ten, before death ensues; whereas animals infected with nagana and surra die within a few months or less, as a rule.

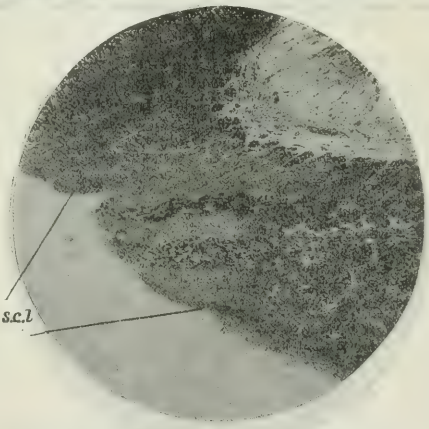


Fig. 6.—Section of posterior column and posterior horn of thirtieth lumbar segment. The light area in the root zone (*s.c.l.*) with two dark bands passing through is the area of sclerosis resulting from destruction of posterior roots lower than the thirtieth segment. The fibres in the bands passed through the sclerosed area are in a state of recent degenerative change. Magnification 30 × 1.

Professor James Welch pointed out in the discussion that in rabies there was a proliferation of the endothelial cells of the capsule of the spinal ganglia. He also referred to the fact that Councilman had shown that streptococcal infection occurred in every fatal case of small-pox, and he asked Dr. Mott if fatal cases did occur in which diplostreptococcal infection was not present. Dr. Mott, in reply to this question, stated that it was possible that terminal or secondary microbial infection recurred in every case. He did not believe it was the cause of the characteristic change in the nervous system, for there was a remarkable absence of polynuclear leucocytes as a rule. He had sometimes found diplostreptococci in lymphatic glands from cases in which the nervous tissues showed no microbial infection. To be absolutely certain that these micro-organisms had not invaded some of the tissues of the body was impossible under the circumstances. In the great majority of the cases there was certain evidence of microbial invasion by diplococci.

[Time did not permit of the reading of the remainder of this paper, which was as follows:]

The other chronic trypanosome infection in which I have found changes in the central nervous system is dourine or *mal de coit* of horses. Dourine, or *mal de coit* (*T. equiperdum*) is thus described by Lingard, to whom I am indebted for the nervous

tissues: "A disease of equines, generally contracted during covering. That the trypanosome gains access to the general circulation through the genital passages, either through an abrasion of the mucous membrane or through the unabraded mucous membrane is considered possible by many authorities (Laveran et Mesnil). Although the *T. equiperdum* or its immature forms are frequently met with in the blood of the general circulation, it is more easily studied, and occurs in much greater numbers, in the blood and *serous sanguineous fluids* derived from the cutaneous eruptions. "The pear-shaped oval, irregular-shaped immature forms of the trypanosome are all met with in large numbers in the blood of the cutaneous plaques at certain times, and in some cases these forms are also to be observed in the blood examined when collected on the first day of the manifestations. These forms become much more numerous when the plaque has persisted for some days, and a time arrives when only the immature forms are to be found in fair numbers, the mature flagellates having succumbed and undergone a granular change, as a rule leaving only as a mark of their existence the more resistant macronucleus and micronucleus. *It is conjectured* that on the resolution of the cutaneous plaques all the immature forms *are released* from the circumscribed cutaneous affected area, and when fresh return to the general circulation."*

CASE I.—A stallion which died of paraplegia twenty-seven and a half months after infective coitus. The

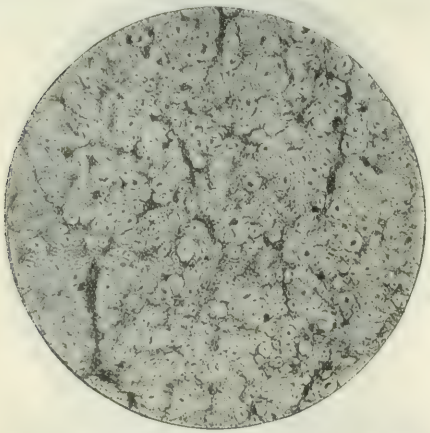


Fig. 7.—Section of the posterior column of Case III. The section shows a diffuse subpial septal neuroglia proliferation (only the latter is shown); it was not limited to the posterior column, the whole spinal cord was affected, and is exactly similar to that seen in sleeping sickness. It is due in part to a formative connective-tissue hyperplasm and in part to replacement of destroyed or atrophied nerve fibres, which the photomicrograph shows are greatly diminished in numbers and replaced by dark greyish, branching neuroglia cells. Magnification 120.

animal suffered with an eruption, occurring at successive periods, of cutaneous ring-like plaques, some of which terminated in leucoplakial patches. The animal before death suffered with paraplegia and its hoof dropped off. In some cases, according to Laveran and Mesnil, spontaneous fractures and dislocations occur. Examination of the spinal ganglia at different levels showed intense chronic inflammatory change, and in the lumbo-sacral region especially, where the change is most intense, a large number of the ganglion cells were destroyed, and there is a corresponding complete destruction of the posterior roots which can be followed into the posterior column as areas of sclerosis. The anterior roots show comparatively little change; there is a chronic perineural and endoneural inflammation, but the nerve fibres are intact. Around the cord at this level (lumbo sacral), especially in the neighbourhood of the posterior roots, is an intense round-celled infiltration with thickened arteries—the lesion is hardly distinguishable from a periarteritis syphilitica. There is also evidence of chronic irritation throughout the spinal cord and base of the brain, as manifested by general subpial and septal glia proliferation, but with only slight lymphocyte infiltration (vide Figs. 2, 4, 5, 6, 8).

Trypanosomes could not be found in the cerebro-spinal fluid centrifuged after death, but they were found in the blood during life and very readily in the exudate of the plaques. It has been claimed that these plaques are due to embolism of the cutaneous vessels by the trypanosomes, but seeing that the posterior spinal ganglia are so profoundly affected, it might be assumed that these angio-neurotic oedematous patches are due to irritation of the posterior spinal neurons, much the same as herpes is due to this cause. The resulting patches of leucoplakia are probably due to actual spinal ganglion cell destruction. This lesion of the posterior spinal ganglion roots would account for the trophic disturbances which have been described, and for an ataxic paraplegia; and I would rather believe that the lesion was primarily in the spinal ganglia and posterior roots than a multiple polyneuritis, such as described by Marek.

Unfortunately, I did not have the peripheral nerves to examine, but neither the appearance of the anterior roots nor of the anterior cornual cells accords with the theory that the paraplegia is due to a polyneuritis, although it is quite obvious that the destruction of the posterior spinal ganglion cells in this case must have given rise not

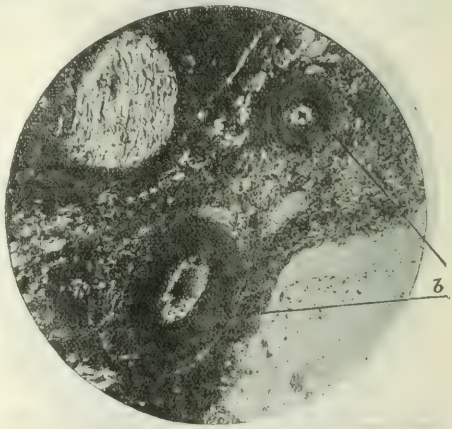


Fig. 8.—Section of root and spinal membranes, thirtieth segments. The vessel walls appear thickened (*b*), and there is an infiltration around them, and in the soft membranes of mononuclear cells and fibroblasts, very similar to a gummatous syphilitic meningitis. More highly magnified, the cell infiltration resembles that of Fig. 5.

merely to the destruction of the central projection of the T-shaped process of the posterior root, but also of the peripheral process forming the sensory portion of the peripheral nerve.

CASE II.—Scarification of a minute portion of mucous membrane of left labium vaginae of a mare with a needle and inoculation of fresh blood obtained from a dourine plaque of English thoroughbred stallion Kilngarth. Appearance on twelfth day of vesicle followed by a small ulcer which readily healed. Swelling and oedema of left labium which later involved the whole external genitals and perineal region. Vaginal mucus contained the trypanosome of dourine. First plaque appeared on the thirty-fourth day following inoculation; in blood from it the trypanosomata were found on microscopical examination. It was followed at intervals during a period of 117 days by successive crops of plaques (eighty in all, which involved the skin of the body and neck), slight enlargement of the submaxillary glands, weakness, later dragging of the hind limbs whilst walking, swelling and suppuration of near hind limbs, inability to stand, destruction; necropsy; course of the disease 207 days. The cord which was forwarded was not in a fit state for examination. Several of the posterior spinal ganglia were examined and showed exactly the same change as observed in the other cases.

* *Indian Medical Gazette*, vol. xl, No. 10, September 27th, 1905, The Significance of the Pyriform, Circular, and Irregular-shaped Bodies present in the Circulation and Organs in Various Forms of Disease in Man and Animals, with Suggestions regarding their Identification and Classification, by Professor H. Lingard, M.B., D.P.H.

Case III.—Mare covered by infected stallion Monarch, February 24th, 1905. *T. equiperdum* found in vaginal mucus, March 19th. May 2nd, No. 1 plaque appeared; *T. equiperdum* present. July 20th, No. 6 plaque appeared; no further plaque observed. August 16th, 1906, mare found in recumbent position; helped on to feet; walks *with uncertain action* of her hind legs and with great difficulty. August 22nd, 1905, death. Length of course of disease from the first covering until death, six months. Examination of the spinal cord and posterior spinal ganglion and roots of cauda equina. There was the same endothelial cell proliferation of the capsules of the spinal ganglion with lymphocyte and plasma cell infiltration affecting also the lymphatics of the attached posterior roots and cerebro-spinal nerves. The ganglion cells were not destroyed. There was a similar cellular hyperplasia of the endoneurium and perivascular lymphatics of the roots of the cauda equina. Vide Figs. 1 and 3.

Examination of the spinal cord showed a marked subpial and septal glial proliferation, with considerable subpial felting and infiltration of the soft membranes with mononuclear cells. There was more glia formation in the posterior columns than elsewhere (vide Fig. 7), but it was universally increased. There was a secondary sclerosis less marked than in the first case in the root zone and posterior median column. But throughout the posterior columns were an immense number of acutely degenerated fibres. *The condition of the posterior columns of the cord* would account for *the uncertain gait* of the hind legs.

Case IV.—Australian mare, aged 12 years, May 2nd, 1905, covered by Sangli (dourine). July 6th, 1905 muco-purulent discharge from the vulva and vagina July 15th, *T. equiperdum* found in vaginal mucus November 5th, 1905, lame left hind leg. March 6th, 1906, killed.

Posterior column of spinal cord showed a naked-eye sclerosis; and the posterior spinal ganglia showed the same change as the others. Sections were stained by Giemsa stain and examined. The spinal ganglia, cerebro-spinal nerves, and roots attached to the ganglia, exhibited marked changes of the lymphatic structures.

The lymphatics of the nerves, especially the perivascular lymphatics, showed proliferation of the endothelial nuclei, and a budding off of mononuclear cells in which the nucleus is stained deep blue; the surrounding more or less thin zone of cytoplasm is stained pink; these mononuclears are rather larger than the lymphocytes seen in the blood—they resemble more often the large mononuclears; but they vary in size considerably in different situations. They can be seen in all stages up to the formation of the typical plasma cells of Marscholko.

The view I take of this process is that following the primary sore there is inguinal gland enlargement then general gland enlargement. The virus is conveyed along the lymphatics of the pelvic plexus of nerves to the lumbo-sacral ganglia primarily, and to all the spinal ganglia eventually. This leads to the angio-neurotic eruption, which may subside, leaving no trace, or it may end in patches of leucoplakia, if the inflammation be intense enough to destroy the ganglion cells. Likewise, secondary degeneration of the posterior roots causing an ataxic condition in the hind legs, or a general neuritis, may be associated and cause paraplegia.

Schaudinn thought the *Spirochaeta pallida* was probably a modified trypanosome. Certainly, the tissue changes in syphilis closely resemble the changes occurring in the two chronic trypanosome infections dealt with in this paper. Moreover, dourine, or the *mal de coit*, agrees closely with syphilis in its mode of transmission, its period of incubation, its glandular enlargement and chronic adenitis, and a cutaneous eruption.

Professor Bose, in a series of articles, has pointed out that the histological characters of syphilitic lesions are the same whether the primary sore or the morbid tissues affected by secondary or tertiary manifestations of the disease be examined. He would (following Lassar) regard general paralysis and tabes as quaternary manifestations of the action of an attenuated syphilitic virus, and the histological changes, he says, are of a similar character to those met with in other stages of the disease.

I have examined the hard chancre, syphilitic condylomata, and gummatous meningitis, and I find that in these cases he is right in asserting that the changes are essentially the same, showing a hyperplasia of fixed cell elements, fibroblastic conjunctival proliferation, lymphocytic plasma cell, and endothelial proliferation. In the central nervous system the special conjunctival tissue (the neuroglia) undergoes hyperplasia.

It is certain that in the primary and secondary lesions of syphilis the *Spirochaeta pallida* is active, and seeing that Hofmann has lately succeeded in inoculating a monkey with syphilis from a gumma appearing three and a half years after primary infection, it does seem probable that Bose is right in asserting that these tissue changes are a defence of the organism against the virus.

The lesions of dourine closely correspond with the changes in the spinal ganglia, roots, and membranes of syphilitic cerebro-spinal meningitis. In the latter one finds a perivascular lymphatic infiltration of the nerve roots and ganglia with lymphocytes and plasma cells, proliferation of the endothelial cells of the ganglia, which may be intense enough to produce degeneration of the root fibres, subpial and septal glia proliferation, together with infiltration of the membranes with mononuclears, many of which are plasma cells.

Hofmann has successfully inoculated an animal with cerebro-spinal fluid from a syphilitic patient, and the question arises whether, as in sleeping sickness, the infection of the cerebro-spinal fluid by the *Spirochaeta pallida* may not account for the syphilitic cerebro-spinal meningitis, a severe and usually fatal form of early, or comparatively early, syphilitic complications of the nervous system.

With regard to the plaques in dourine containing large numbers of trypanosomes, it is probable that the angio-neurotic oedema, which I have indicated, may be directly excited by the intense irritation of the posterior spinal ganglia, and this oedema favours the migration of the trypanosomes through the blood vessels of the particular area of the skin affected. Having passed through the vessel wall, the accounts of Dr. Lingard seem to indicate that they modify, multiply, and eventually disappear, in all probability destroyed by the active hyperplasia of the cell structures invaded. The reaction, however, may have been so intense as in some instances to terminate in leucoplakia.

Infiltration of the perivascular lymphatic sheaths of the brain with lymphocytes and plasma cells has been regarded by Nissl and other authorities as pathognomonic of general paralysis of the insane. I have shown that this occurs in every chronic case of sleeping sickness, and is evidence of chronic hyperplasial reaction to an irritant virus, which is either the *T. gambiense*, some modified form of it, or toxins produced by it. I have examined a few acute, rapidly fatal cases of general paralysis in which the perivascular cell infiltration with lymphocytes and plasma cells has by its universality and intensity closely resembled sleeping sickness. But the destruction of the neural elements has always been much more evident in acute general paralysis than in even chronic advanced sleeping sickness.

The former disease is both parenchymatous and interstitial; the latter, sleeping sickness, is mainly interstitial.

It is possible that microbial toxins may play some part in producing the acute necrobiotic changes of the cells of the posterior spinal ganglion in dourine, and cause the definite areas of degeneration of the posterior columns.

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TREATMENT OF TRYPANOSOMIASIS BY THE "COLOURS OF BENZIDINE."

By M. Nicolle and F. Mesnil,

Paris.

We will state, briefly, the principal results of our researches, commenced two years ago, after the fundamental work of Ehrlich and Shiga on trypanroth, and, as yet, partially unpublished. These researches have been undertaken with nagana, mal de Caderas, surra and human trypanosomiasis. We will mention, finally, the conclusions which have resulted from the experiments, still unpublished, which Dr. Wenyon has conducted at the

Pasteur Institute with the infection due to *Trypanosoma dimorphon*.

Let us recall that the colours of benzidine are constituted, in their most simple form (disazo compounds), of one molecule of a diazotized base (benzidine or one of its homologues)—serving as a nucleus—united, it may be, to two molecules (identical or not) of a phenol or aromatic amine, or to one molecule of a phenol and one molecule of an aromatic amine—lateral chains of the disazo compound, so to speak. There exist, then, symmetrical derivatives and asymmetrical derivatives. Certain compounds of benzidine, which contain one or two molecules of amine, are able, after having been diazotized, to give rise, in their turn, by union with phenols and amines, to tridazo and tetrakisazo compounds.

The derivatives necessary for our researches have been kindly supplied to us by a large number of anilin dye works, notably, by Farbenfabriken of Elberfeld. The distinguished chemist of Farbenfabriken, Dr. Heymann, has willingly prepared for us a most excellent collection of new compounds, and we are glad to have this opportunity of expressing our thanks.

Treatment of Experimental Nagana in Mice.

We will first consider the therapeutic action of the symmetrical disazo compounds, and let us ask what is the respective influence of their lateral chains and their diazos on the curative power. This is what is revealed by the experiments.

The benzenic chains (even united to the best bases) give rise always to inactive derivatives. The same holds good for the naphthalenic chains which do not contain the group NH^2, or which, containing it, do not present, on the other hand, at least two do^3H groups. In consequence, the naphthols and their sulphonic derivatives, the dioxynaphthalenes and their sulphonic derivatives, the compounds of the type disulphonic chloroxynaphthalene 1.3.3.6, the naphthylamines and their monosulphonic derivatives, the monosulphonic aminonaphthols . . . constitute bad lateral chains. On the contrary, it is amongst the disulphonic naphthylamines, the disulphonic aminonaphthols, the disulphonic naphthalene diamines, the trisulphonic naphthylamines that one finds active chains. Amongst the disulphonic α-naphthylamines the best type is $1/7$; amongst the disulphonic β-naphthylamines the best are the types $1/7$, and especially 2.3.6 (the lateral chain of trypanroth); amongst the disulphonic aminonaphthols the best are the types 1.8.4.6 (acid K) and, above all, 1.8.3.6 (ac.H); amongst the disulphonic naphthalene diamines the best is the type 2.7.3.6. The α trisulphonic and β trisulphonic naphthylamines are very inferior to the α disulphonic and β-disulphonic naphthylamines, thus proving that the addition of a third sulpho group is more of an inconvenience than advantage.

Each of the good lateral chains has been studied in combination with a number, more or less great, of diazos (up to 27 for ac.H), and we have observed that, depending on the base employed, the activity of the resulting derivatives varies from 0 to ∞.

Ac.H, as all the disulphonic aminonaphthols, can be united with the diazos, not only in alkaline, but also in acid medium; in the latter case the mode of insertion of the azo group is completely inverted, and the therapeutic power is much diminished. Also, whilst the compound "dichlorobenzidine + ac.H — alkaline" is able to cure the animals in a single dose, the compound "dichlorobenzidine + ac.H — acid" gives at most only five days' survival. It is easy to unite successively two molecules of ac.H in acid and alkaline medium; the asymmetrical colours, thus formed, manifest an efficacy varying with the base selected.

Finally, we have studied the acetyl and glycyl derivatives of ac.H. The former is of no value; the influence of the latter, on the bases to which one combines it, will be mentioned later on.

We will not enter here into the discussion, somewhat tedious, of the conditions of activity of the lateral chains. We simply say that the best of these chains are those which contain the sulpho groups 5.7, 4.6, and especially 3.6.

What, now, is the part played by the diazos in the efficacy of our colours? As the title of this communication shows, the benzidinic bases are the only ones of any value. If, in fact, we diazotize the benzenic monamines, the benzenic diamines, the naphthalenic bases . . . and join to these even the best lateral chains, we obtain only compounds devoid of curative power. The activity of the benzidinic bases depends, moreover, on a series of conditions: First, on the position of the diazotizable group NH^2; the position meta (according to the benzidinic joining) is bad; the position ortho, on the contrary, is good. Next, on the general structure of the diazo the benzidinic nuclei, strictly speaking, seem always better than the bases where the two hexagones, instead of being directly united, are joined by a bivalent group or atoms (as in paradiamino diphenylurea). Benzidine is generally a good nucleus; in its derivatives the activity varies according to the position and nature of the substituting groups or atoms. Thus the position ortho (according to the benzidinic joining) is always bad. As for the influence of the nature of the substituting group, it is too complex a subject to lend itself to a short summary. We will content ourselves with saying that the groups CH^3 and OCH^3 ordinarily manifest a favourable action.

To determine, more or less completely, the influence of the lateral chains on the bases it would have been necessary for us to experiment with thousands of compounds. We have been able, however, with the resources at our disposal, to arrive at one, at least, of the laws which regulate this influence. This is the law: By classifying, in the following order, the three most commonly used bases—benzidine, dianisidine, and tolidine (B, D, T)—we have noted that when the lateral chain possesses a sulpho group in position 6, the activity of the compound, resulting from the union of this chain with one of the three bases, increases from B to T. When the lateral chain possesses a sulpho group in position 7, it is the opposite which holds (it is the same for the glycerine of ac.H.). When there exists at the same time a sulpho group in position 6 and one in position 7, it is the latter which prevails.

Similarly, a sulpho group in position 6 determines the superiority of B over meta-azoxyaniline and of dichlorobenzidine over B; a sulpho group in position 7 produces the opposite effect.

We see, then, that there exist, in themselves, good chains and good bases; but it is not sufficient to combine any good chain with any good base in order to produce an active compound; the formation of these products follows certain strict laws, of which the only one known at present has just been explained.

Theoretical considerations, impossible to develop here, have led us to the conclusion that the oxychrome NH^2 constitutes the essential element of the lateral chains. This group NH^2 is present also in other colours used by certain authors (green of ethyl and methyl in particular) in ammoniacal rutherium oxychloride (active, according to our researches), and certainly also in normal serums.

The derivatives, which are active *in vivo* against nagana, are solutions having a blue, violet, rose, or red colour; they are transparent or not to light, and colour the mice in a durable manner; they are completely inoffensive at the therapeutic dose (0 $/$ to 1.0 cg.), and often even in larger doses; and are inactive *in vitro*. The best of these derivatives is "dichlorobenzidine + ac.H—alkaline, alkaline" (in short, Cl—blue violet in solution). Then come the compounds "tolidine + ac.H — alkaline, alkaline" (A—violet) and "tolidine + ac.H — acid, alkaline" (A'—violet). These three colours can, in many cases, bring about the permanent disappearance of the trypanosomes after a single injection. Such results have only rarely been obtained with the compound, "benzidine + naphthylenediamine disulpho 2.7.3.6 (α—dark cherry red)" and quite exceptionally with trypanroth (T_2—clear cherry red), ortho monosulphonic benzidine + ac.R, and the compound "paradiamino-diphenylurea + ac.H" (Ph—violet).

The treatment of the relapses is only successful with the colour Ph. This compound is able to prevent the reappearance of the parasites when one injects at first a full dose and seven days later a weaker one. Finally, Cl and A exhibit a remarkable preventive power against the infection.

In concluding our remarks on nagana, let us add that the asymmetrical disazo compounds offer no advantage over the symmetrical, but rather the reverse, and that trisazo compounds and polyazo compounds never display

any curative power, even when they contain good lateral chains.

Treatment of Experimental "mal de Caderas" in Mice.

The colour Cl in this case also causes the complete disappearance of the parasites, in a good number of cases, after one single injection. Trypanroth gives also good results. The derivatives A, A′, and *a* cure only exceptionally, and Ph never. The treatment of the relapses is successful with Cl and T_2 (Ehrlich and Shiga and ourselves), and especially with *a*. The preventive power of T_2 has been indicated by Ehrlich and Shiga.

The comparative therapeutic study of nagana and mal de Caderas shows at once that the order of activity of the colours is subject to important variations when one passes from one trypanosome to the other. Let us say at once that the whole of our researches (corroborated by those of Dr. Wenyon) indicate that this variation depends on the structure of the lateral chains and that of the diazos. For as regards the latter, do we not see that T and paradiamino-diphenylurea (combined with ac.H) are greatly inferior for the cure of the mal de Caderas than for nagana? And as regards the lateral chains, we simply mention the mediocre action of ac. K in mal de Caderas compared with its somewhat marked activity in nagana (the diazo T remaining the same).

Treatment of Experimental Surra in Mice.

The best colour here is always Cl. It cures nearly all the animals after one single injection. After this comes trypanroth. The curative power of A and A′ remains doubtful, that of *a* and Ph inefficient. Cl displays a preventive power which is quite remarkable.

Treatment of Human Trypanosomiasis (Experiments with Monkeys and Rats).

In this case it is impossible to hope for a permanent disappearance of the parasite after a single injection of the coloured drug. The derivative most effective against the human trypanosomiasis is Ph; then come the compounds "paradiamino-phenylglycolether + ac.H" and Cl; then, further removed, T_2, and, still further, *a*.

Treatment of the Experimental Infection due to Trypanosoma Dimorphon (Mice).

In the summary for the four preceding trypanosomiases the best lateral chain is ac.H; for the three first the best diazo is dichlorobenzidine; for the last paradiamino-diphenylurea. The blue colours, as a general rule, are thus better than the red colours. In the infection due to *T. dimorphon* we find the opposite condition. The researches of Dr. Wenyon show, in fact, that the only derivative capable of curing the mice in one single injection is the compound *a*. T_2, administered even in repeated doses, is only exceptionally able to prevent the reappearance of the parasites. With other derivatives there has always been relapse, whatever the mode of administration employed; certain of the compounds, however, have given long periods before relapse. Such are: "Benzidine+disulphonic *a* naphthylamine, 1.4.7" (red), and "benzidine+disulphonic *a* naphthylamine, 1 *f* 7" (red). The colour "benzidine + glycine of ac.H" (violet) has shown only moderate activity. As for the derivatives of ac.H and K, they are quite inferior. If we refer to the very complete work of Dr. Wenyon for the theoretic results which his experiments indicate, we find that these results confirm the general laws which we have established and reveal some peculiarities special to the therapeutics of the infection due to *T. dimorphon*.

After what has been pointed out above it seems safe to hope that one will arrive at a means of distinguishing trypanosomes one from another by the help of a chromo-therapeutic criterion.

This completes the general considerations which we wish to present on the treatment of the trypanosomiases by the "benzidine colours." Let us draw attention, in concluding, to the triple localization of these colours, *in vivo*, in the convoluted tubules of the kidney, the cells of Kupffer of the liver, and the interstitial cells of the various organs, the result of researches conducted at the Pasteur Institute by Dr. Bouffard.

NOTES UPON EXPERIMENTS WITH VACCINE LYMPH.

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I. *On a Method of Obtaining Typical Vaccine Lesions in the Animals of the Laboratory.*

The study of vaccinia cannot be pursued to any extent without the use of animal inoculation. As Calmette and Guérin[1] have pointed out, the common method of inoculation, after scarifying, does not in the rabbit lead to the development of vesicles. They obtained typical results by rubbing the vaccine material into the skin without scarification, other than that given by shaving. But in our hands their method has afforded uncertain results. The shaving of the necessary space on small animals is a tedious process; the skin is often very thin and bleeds easily; it is difficult to gain an absolutely clean, hairless, uncut surface. But such can be obtained by the use of a depilatory, consisting of a 25 to 40 per cent. aqueous solution of sodium sulphide. Careful application of this solution allows the entire removal of the hair without causing visible abrasion of the skin surface. The sulphide is washed off and the skin wiped with pledgets of cotton. If now an active vaccine emulsion be rubbed on the cleaned surface without scarification, there follows about the third to fourth day a development of typical vesicles, which show a well-marked inflammatory areola, and in many cases umbilication. I had previously tried depilation, followed by light scarification, but the results were most inconstant, and it was evident that in the rabbit, even more than in man, the presence of blood and blood serum arrests the development of the presumed organism.

In the guinea-pig, as a rule, the ordinary method of scarification gives more positive evidence of success than it does in the rabbit. One finds that about the third or fourth day there is at the site of inoculation a subcutaneous thickening, induration, and more or less definite redness; but with this we have never seen the development of typical vesicles, and the very absence of characteristic lesion often renders it difficult to be sure whether one has not merely to deal with a simple reaction to injury or a secondary infection. Employing the method described above—namely, that of simple depilation by means of the sulphide solution—vesicles are obtained which are wholly typical. It is obvious that by this method more satisfactory results are obtained than by the corneal inoculation frequently used.

II. *On the Effects of Dialysis on Vaccine Lymph.*

Novy and Knapp[2] have shown, in the course of their work on *Spirillum obermeieri*, that the *Trypanosoma brucei* and *Trypanosoma lewisi* are disintegrated by dialysis against distilled water after two and six hours respectively. Inoculation with such dialysed material failed to infect animals. They are inclined to hold that absence of ability to withstand such dialysis is an indication that a given organism is of protozoal rather than of bacterial nature. In our work the methods used have been similar to those described by Novy. Celloidin capsules were made after the method of McCrae.[3] To test the permeability of the dialysing membrane so formed, we employed Novy's method of bringing about the laking of defibrinated blood, and found that this occurred in from one to two hours. A few drops of active vaccine emulsion were pipetted into the capsules, and they were then sealed and dialysed against distilled water for different lengths of time. The dialysed material was inoculated on rabbits and guinea-pigs. Typical vaccinations were obtained with material which had been dialysed for eighteen hours. The development of vesicles was quite as good with the dialysed emulsion as with that not treated, and in some cases seemed even better. In one instance material which produced a successful vaccination after eighteen hours' dialysis gave a negative result after dialysing for three days.

By directly diluting the emulsion with distilled water similar results were obtained. Entirely successful vaccination was given by material applied eighteen hours after diluting some three times.

It will be seen here that we used a test much more prolonged than Professor Novy's minimum period of

positive action, and alternative conclusions may be drawn. If Professor Novy's inference be correct and protozoa are destroyed by dialysis against distilled water, then the conclusion of Guarnieri,[4] Siegel,[5] Councilman,[6] and others, that the micro-organism of vaccinia is of protozoon nature, is shown to be false. If, on the other hand, the protozoon nature of the vaccine organism is to be accepted, then Professor Novy is wrong in his supposition that pathogenic protozoa do not resist dialysis. It would be interesting to observe what is the effect of dialysing a suspension of the amoeba of dysentery against distilled water.

III. *On Attempted Culture of the Vaccine Organisms in Vitro.*

I shall not here attempt to detail the very great number of methods and media employed by me during the last year in the endeavour to obtain definite growth of the specific organism of vaccinia. I would only, in passing, note that many months ago, at the beginning of my research, I encountered very characteristic forms of the order of those described by de Korté[7]—spherical bodies of various sizes, up to relatively large morula-like masses, of the size of a red corpuscle and larger, which at first strongly suggested sporulation. For a time I was inclined to consider that I had obtained a method of growing these bodies from test tube to test tube. I am, however, now convinced that these are neither specific nor, indeed, are they living matter. They do not, in the first place, react to drying and the ordinary methods of fixation, in the way characteristic of any of the bacterial and protozoal forms known to us. In the second place, I have encountered identical forms and series of forms in precipitates from various albuminous solutions and serum preparations. In the third place, it is possible to reproduce similar forms, showing the same variations in size and the same want of staining properties, in fine emulsions of oil in egg albumen, more particularly after making a magma with ether. I am inclined to regard them as albuminoid, or at most as lipoid matter.

Upon only one of my media have I noted a development which I think deserves mention. Taking as basis a 2 per cent. peptone broth made with Liebig's extract, and having a final reaction of + 1.5 (phenolphthalein), to it was added 20 per cent. of hay infusion and the mixture was then tubed. The tubes were thoroughly sterilized in the autoclave, and when cool to each was added an equal volume of sterile inactive calf serum. The tubes were then incubated for twenty-four hours to test their continued sterility. Inoculated with vaccine emulsion, which had been rendered sterile by the passage through it of chloroform vapour (Green's[8] method) these tubes showed no indication of growth. Encouraged by the success of Mouton,[9] Musgrave and Clegg,[10] and others, in gaining growth of the amoeba of dysentery in the presence of pure cultures of certain species of bacteria, I now employed an active vaccine emulsion containing as its only contamination a non-virulent streptococcus. The culture tubes were sealed in the flame and incubated at 37° C. In some cases there developed only the ordinary streptococcus growth, giving a sediment on the sides and at the bottom of the tubes. In a few cases, in addition to the growth of streptococci, there appeared a dense white or creamy cloud at the top of the fluid. In the different tubes this cloud extended for a varying depth into the medium, which remained clear below it. After the tubes were shaken up the cloud slowly formed again at the top. It was possible by planting fresh tubes with material from this opaque layer to obtain a similar development, in more than twenty successive subcultures. After the first development, the plants were made every second day.

The appearance described was not given by any of the unplanted controls, nor by tubes planted with streptococci or sarcinae, from different sources. The medium did not increase in acidity during the peculiar development, and, in fact there seemed to be some production of alkali. Microscopical examination of the cloudy material showed the presence of scattering streptococci, as also of great numbers of minute, spherical, highly refractile bodies. These varied considerably in size. They were generally about the third the diameter of the ordinary streptococcus, being just visible. They showed a very active revolving motion, which, however, did not carry them far, and may have been only of an exaggerated Brownian character. I have, so far, found no sure method of fixing and staining these bodies. Inoculation of guinea-pigs and rabbits has not given constant, nor what I can regard as indubitable, results. In a few instances the inoculated animals showed thickening and induration at the site of vaccination, and in two cases subsequent inoculation with active vaccine emulsion failed to give any reaction. In a large number of vaccinations with the cloudy material of the culture tubes the inoculations have been entirely negative.

These results, it will be seen, are not sufficiently constant for me to base upon them any claim in regard to the specific organism. They seem to me, however, to be characteristic, so far as they go, and to deserve mention. If, after all, the micro-organisms of vaccinia be of bacterial and not of protozoal nature, the extraordinarily small size of the particles in this cloud suggest that we may have to deal with members of the group of invisible or ultravisible bacteria. It will be remembered that the only means noted by Roux and Nocard[11] of recognizing the organism of contagious pleuropneumonia was by clouding of the medium. Here the clouding is very remarkable, and I repeat, using the same medium and the same methods, I have been unable to produce a similar development with any of the ordinary visible bacteria.

IV. *On Attempted Culture, in Vivo, by Means of Celloidin Capsules.*

In the course of our cultivation experiments, one method suggested itself to us—namely, that of growth within celloidin capsules in the peritoneal cavity of the rabbit. It is well known that a trace of blood drawn in the scarification materially diminishes the chance of obtaining a good "take." It seemed to us that could we place the vaccine in the fluids of the organism without the intervention of the body cells by planting in capsules filled with some relatively inert broth or salt solution, we might obtain, by successive transplantations, definite and relatively pure cultures, free from tissue débris, and of augmented virulence. The capsules used were made in the same manner as those described above for the experiments on dialysis, and were sterilized in the autoclave at 110° C. for fifteen minutes. Among the media tried were distilled water, normal salt solution, calf serum (heated to 70° C.), plain broth, and the serum broth combination described above. In different series of rabbits, capsules were allowed to remain for two, four, and six days. Usually the capsule was carried for four days. In the first place, plants were made with an active emulsion which gave no bacterial growth on ordinary media. No indication of growth occurred in any of the capsules of this series. Vaccination of rabbits and guinea-pigs, with material from the capsules, gave no "take." In the next series we used an emulsion containing bacteria. The latter grew very well in the capsules, but there was no indication of growth of a specific organism. In one instance a few typical vesicles developed on two guinea-pigs inoculated with material from the initial capsule. This capsule contained the serum-broth medium, which had been planted with a small amount of emulsion, and carried in the peritoneal cavity for four days. In every other case the inoculation gave a negative result. In some instances the subplants were carried from animal to animal until the fourth capsule was reached, but with no improvement in the results of vaccination. Calmette and Guérin have previously reported failure to obtain growth from vaccine emulsion by the use of capsules in the body cavity of rabbits. They used an emulsion which gave no bacterial growth on ordinary media.

The point in connexion with these capsule experiments which seemed to us interesting was the rapidity with which active vaccine became inert, when the capsules containing it were placed in the peritoneal cavity of the rabbit. One would expect a successful "take" from at least the first capsule, inoculated with an appreciable amount of an active emulsion. As mentioned above, a positive vaccination has been obtained in only one case, and in this instance the development was weak. In seeking the cause for this result, three possibilities have suggested themselves:

1. There may diffuse into the capsule antitoxic or germicidal substances from the body fluids. But the local lesion, in the ordinary process of vaccination, seems to offer an equally good opportunity for the diffusion of such

substances. We know, however, that the virus is not destroyed in the contents of the vesicle, but is active in the scab.

2. The anaërobic conditions under which the material is placed in the sealed capsules may have an attenuating effect. But an emulsion will remain active under favourable conditions after having been hermetically sealed for several months. Commercial vaccine is placed on the market at the present time almost entirely in sealed tubes, and it is accepted quite generally that the exclusion of oxygen favours the preservation of its activity.

3. There are several facts which seem to indicate that an important part may be played in the attenuation of the virus by keeping it at an elevated temperature. We know that the virus rapidly becomes inert in tropical climates and at summer temperature in northern regions. Calmette and Guérin obtained the best development of vaccine on animals kept in an atmosphere at a temperature of 18° to 20° C. Carini[12] has found vaccine emulsion to be almost inert after exposure for thirteen days to a temperature of 37° C. In small-pox it is on the face and hands, which are more exposed to lowering of temperature, that we find the greatest development of vesicles. In view of these observations it would seem that the temperature maintained may account, at least in part, for attenuation of the virus by direct transfer from animal to animal and for the failure of many culture experiments. We have started to investigate this point, but the attenuating effect of the summer temperature has rendered uncertain the results so far obtained, and we will leave the report for another time.

I wish to express my very great indebtedness to Dr. Adami for giving me an opportunity to undertake these studies, and for the many suggestions he has so freely given during its progress. My thanks are due also to Dr. Oskar Klotz and to others for much assistance. I wish to thank Drs. Kinyoun and Elgin of Glenolden, Pa., Dr. Le Duc of Montreal, and Dr. W. H. Park of New York, for material liberally supplied. I am also greatly indebted to Mr. James Ross of Montreal, by whose generosity this work was made possible.

Since writing these notes my attention has been called to the work of Copeman on cultivation *in vivo*, but I have not yet seen his report.

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A CONTRIBUTION TO THE BACTERIOLOGY OF RHEUMATIC FEVER.

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Since Wassermann in 1899, experimenting with a diplococcus which he had isolated from a case of chorea, produced what he regarded as typical rheumatic fever in a series of eighty rabbits, much has been written for and against his view.

I do not propose in this paper to in any way review the position, or to criticize the work of other observers.

The bacterial origin of rheumatic fever seems to need no defence. The clinical features, the epidemic nature, and the irregular periodicity all bring it in line with well-known bacterial diseases. Recently I have described amyloid degeneration in four cases of long-standing subacute rheumatism. These cases were very typical cases of rheumatism, and neither in the clinical history nor in the histological examination of the organs after death was there anything to suggest any of the ordinary causes of amyloid degeneration.

Though it is true that the causes of amyloid degeneration are not clearly understood, yet it is generally recognized that the condition is secondary to some infective agent, and that most generally bacterial. All the experimental evidence of Krakow, Maximow, Davidsohn, and others goes to support the bacterial cause. When, however, we come to deal with the specific bacterium, we enter much more controversial fields.

It seems to me that we can dismiss from our consideration all the organisms which have been described at various times as causal, except the diplococcus of Wassermann and that (probably the same organism) which has been isolated and described in England by Poynton and Paine, Walker, Shaw and myself.

By these observers this organism has been isolated from definite cases of acute rheumatism, has been cultivated outside the body, has produced in rabbits and monkeys polyarthritis, endocarditis, and other manifestations of rheumatic fever, and has again been isolated from the lesions in these animals. The case at first sight seems very strong, but various objections have been lodged, and it is with these that I propose dealing here.

1. The organism isolated is not causal. The infection is simply a terminal one. Had this objection not been raised in authoritative quarters it would have been hardly worth dealing with. Terminal bacterial infections are not by any means common, and besides the organism has been isolated from patients during life and when they were not specially ill. Again, if we get a terminal bacterial infection we expect it to be general, and would expect to find the causal organism in the blood. In the three cases which I have examined after death (two of them only a few hours after), culture tubes inoculated from the blood remained sterile, and cultures of the organism were got from isolated areas in the synovial membranes only.

2. Acute rheumatism is simply an attenuated pyaemia and the organism isolated is an ordinary *Streptococcus pyogenes*, or the organism isolated is a variety of *Streptococcus pyogenes* and has no causal relationship to acute rheumatism. This objection in one or other of its forms has been supported by many eminent bacteriologists, and must therefore be examined in detail.

Rheumatism in many respects does resemble pyaemia. Both exhibit themselves in arthritis, endocarditis, etc., but there are definite distinguishing features, and unless in the early stages clinicians do not mistake the one condition for the other.

Considering the very severe symptoms and often the rapidly-fatal issue in cases of acute rheumatism, it seems to me a travesty of terms to speak of it as an "attenuated pyaemia." Again, in pyaemia, and especially where the organism is not very active, pus formation is the common result; with acute rheumatism pus formation is the exception. In my experimental work pus was quite common in arthritis following injections of various forms of streptococci, whereas in the arthritis following inoculation with the *Micrococcus rheumaticus* pus was not seen in a single case.

For purposes of comparison I have examined and carried out inoculation experiments with twelve strains of streptococci and three of the special rheumatic organism.

Streptococcus (1) was isolated from a case of cellulitis; (2) from the pus in the knee-joint in a case of pyaemia; (3) from pus in the mastoid cells in a case of middle-ear disease; (4) from a similar case; (5) from a pyaemic abscess in the region of the appendix following an operation on a septic knee-joint; (6) from the throat in a case of measles; (7) from the throat of a patient with scarlet fever; (8) and (9) from separate cases of diphtheria; (10) from a case of measles; (11) from an acute tonsillitis; and (12) from a case of diphtheria.

The *Micrococcus rheumaticus* was isolated from 3 cases of definite acute rheumatism. These were all identical in their cultural characters, but as the majority of the inoculations were carried out with one strain only that is taken as the standard throughout the paper.

This organism was isolated from a case of acute rheumatism on December 9th, 1904, and since that time it had been subcultured frequently, often, however, intervals of two months elapsing between the times of subcultivation. The history of the case and the results of the inoculation experiments have already been published,[1] and need not be further referred to here.

Morphological Characters and Staining Reaction.

It may be stated as a general rule that the coccus we have isolated, and which for convenience we call the *Micrococcus rheumaticus* or the *Streptococcus rheumaticus*, is in its morphological characters and staining reactions indistinguishable from some strains of the *Streptococcus pyogenes*.

Cultural Characters.

The *Micrococcus rheumaticus* grows quite readily at the room temperature, and the growth on gelatine at 20° is very definite in twenty-four hours, and much more copious than the growth of any of the varieties of streptococci which were used. The acid production is extremely marked in any of the ordinary media, but some of the strains of streptococci used gave quite as marked an acid reaction, and the acid production and the reactions in the various sugars gave no help in distinguishing the one class of organism from the other.

The only definite and very distinctive reaction was the production of acid and precipitation of the bile salts by the *Micrococcus rheumaticus* in McConkey's bile salt lactose broth. No reaction was got in this medium with any of the strains of streptococci used. This difference was so marked that we considered it necessary to repeat the observations. The same result was again obtained. The vitality of the organism outside the body I have referred to in a previous publication, but this was most strikingly illustrated during these investigations. Constant subculture was necessary to keep the streptococci alive, and three of the strains were lost during the course of the investigations. With the *Micrococcus rheumaticus* there was not the slightest difficulty; several months could elapse and quite active subcultures could be obtained both on blood agar and on ordinary agar.

Inoculation Experiments.

Cultures for these were made on ordinary sloped agar tubes and an emulsion made in 0.85 saline solution immediately before inoculation. It has not been deemed necessary here to deal in detail with the microscopic examination of the various organs, though this has been carried out in a considerable number of cases.

I must content myself with merely a summary of the results of my experiments.

Summary (Streptococcus).

Inoculations:	
Intravenous	34
Intraperitoneal	7
Subcutaneous	3
Both intraperitoneal and subcutaneous	4—total 48
Number of deaths	7 or 14.5 per cent.
Number of animals with arthritis	9 or 18.7 ,,
Number of animals with endocarditis	1 or 2 ,,

In all cases the arthritis was definitely purulent and the most common site was the wrist joints. In those injected subcutaneously pus formed at the site of injection.

In the single experiment with endocarditis, there was distinct ulceration of the valves and the organisms were invading the adjacent muscle of the heart. There were pyaemic abscesses in the kidney, and an abscess in one of the lower dorsal vertebra, which by pressure on the cord had produced paralysis of both hind limbs.

This was evidently a case of pyaemic endocarditis, a condition which every one admits may occur in the course of a septic infection whatever be the organism present.

Summary (Micrococcus rheumaticus).

Inoculations:	
Intravenous	13
Into knee joint	1 } 15
Subcutaneous	1
Number of deaths	2 or 13.3 per cent.
Number of animals with arthritis	9 or 60 ,,
Number of animals with endocarditis, 5, including one doubtful case	33.3 ,,

In all the arthritis was non-purulent and the knee joints were most frequently affected. Recovery or improvement took place if the animal was allowed to live.

I would also call special attention to the presence of acute interstitial nephritis and myocarditis in the rheumatic cases. These were not seen in any of the streptococcal cases. Their significance I am not yet in a position to state.

If I had included in these experiments the results got with the organism shortly after isolation, the proportion of arthritis and endocarditis would have been very much higher.

3. The absence of the organisms from the blood and joint exudations during life.

Poynton and Paine and Walker and Beaton record quite frequently successful cultivations from the blood and the exudates in the joints during life. Philipp, in 24 cases of acute articular rheumatism, made cultivations twenty-one times from the blood and six times from the joint exudate, and twice from the blood and twice from the joints in chronic rheumatism. No bacteria were cultivated, though various kinds of media were used. Cole reports that for the last three years in practically all cases of acute rheumatism treated in the Johns Hopkins Hospital, routine cultures have been made from the blood and from the joints whenever any effusion was present. All the cultures were negative.

My own experience in this connexion has been very limited. I have examined 3 cases of acute rheumatism, and all of them *post mortem*. In all of them tubes inoculated from the blood remained sterile. In only one case cultivations were made from the exudate in the joint, and this also was negative.

In the three cases, however, the organism was grown from pieces of the synovial membrane. Several of the tubes inoculated with pieces of synovial membrane also remained sterile.

The results of my culture experiments, and also of microscopic examination, indicate that the organism may be missed altogether, in cases where the arthritis is the principal manifestation of the disease, unless several different areas of the synovial membranes are examined.

No doubt in some cases, and especially in severe attacks and those with vegetative endocarditis, the organisms may be found in the blood at certain stages of the disease, but in most of the ordinary cases the organisms appear to be localized, and probably produce their results by a toxin, and unless these localized areas are examined there is no possibility of getting cultivations.

One of the inoculated rabbits is of extreme interest in this connexion, as in it was reproduced a condition which is the common one in acute rheumatism in the human subject—that is, a localized bacterial infection in the synovial membranes, and secondary effects the result of a toxin, without the presence of organisms in the blood or joint exudates. By definite experiment I have thus shown a complete picture of a case of infection with the *Micrococcus rheumaticus* where joint exudation and blood were sterile. Unfortunately I have, through want of time, not been able to repeat this experiment.

Further, the "interstitial nephritis" seen in several of the rabbits shows the secondary results of the toxin. This, also, only came under my notice late in the research, and has opened up a field which will require careful investigation before any definite conclusions can be drawn from it.

CONCLUSIONS.

The conclusions I would draw from this work are merely those stated in a former paper.

1. The results obtained by injections of streptococci are different from those produced by the *Micrococcus rheumaticus*.

2. *Micrococcus rheumaticus* cannot be regarded as an attenuated streptococcus, nor acute rheumatism as an attenuated streptococcal pyaemia.

3. In uncomplicated cases of acute rheumatism the organism is not usually found in the blood or in the joint exudates.

REFERENCE.

[1] *The Journal of Medical Research*, vol. xiv, No. 2 (New Series, vol. ix, No. 2), pp. 399-421, January, 1906.

Dr. G. A. CHARLTON (Regina, Sask.) said a series of experiments were undertaken during 1902-3 in the Pathological Laboratory, McGill University, the results of which in general confirm Dr. Beattie's work. A micrococcus was isolated from 3 cases of acute rheumatism. This coccus was similar to a streptococcus morphologically and culturally, but the micrococcus grew more readily. Inoculation experiments with the *Micrococcus rheumaticus* resulted in production of arthritis without pyaemia. Inoculation with strains of streptococci gave arthritis with pyaemia in most cases. The experiments were not completed owing to absence from the laboratory, and have not been reported hitherto.

ON THE COMBINING PROPERTIES OF OPSONINS OF NORMAL SERUM.

BY

ROBERT MUIR, M.D., and W. B. M. MARTIN, M.B.,

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SINCE the publication of the original paper by Wright and Douglas[1] on opsonins much important work has been done on the subject, and many important facts have been established. The result has been to establish the cardinal part played by opsonic substances in the phenomena of phagocytosis, and also to supply a means of gauging the degree of immunity in one of its aspects. It must be admitted, however, that much doubt still exists as to the biochemical position of the substances in question. Is there, for example, a single type of substance which is thermolabile like bactericidal complement, and which increases during the process of immunization, or are there at least two classes of substances, one of which is thermolabile and another thermostable, and if so, what is the relation of these to each other? Among the phenomena of immunity already known, we have, on the one hand, certain effects produced by what, so far as is known, are single substances, of which agglutinins may be taken as the type; and, on the other hand, effects which are due to to the co-operation of two substances, namely, immune bodies and complements.

Further light is still required before we can say to which of these two types the opsonic action conforms, or whether, indeed, it is peculiar to a single class of substances. The work of Bulloch and Atkins[2] tends to show that opsonins are simple substances resembling agglutinins, though differing from them in being more labile, while the results obtained by Leishman[3] and by Dean[4] with regard to immune serums strongly suggest that more than one substance may be concerned, one of which resembles an immune body. So far, however, as the serums of normal animals are concerned, practically all observers are agreed that the opsonic substance is in most cases destroyed to a vanishing point by heating at a temperature of 55° C. No doubt Dean has shown by a special method that traces of opsonic substance can still be demonstrated in a heated normal serum, but the general fact is that just stated.

In the present research we have endeavoured to obtain an answer to a single definite question, namely, Are the opsonins of normal serum capable of being taken up through the medium of immune bodies? The term "complement" may be applied to the labile bodies in the serum which are taken up by the complex receptor + immune body, without reference to what may be the toxic result of such a combination. Unlike what is seen in the specific combining affinity of immune body, agglutinin, etc., for the corresponding receptor, the haptophore group of complement shows, as one of us has previously pointed out, a certain community in its combining affinities. The most diverse combinations of immune bodies with their corresponding receptors will take up the same complement; also a bacterial receptor + immune body may take up haemolytic complement, and a haemolytic receptor + immune body may take up bactericidal complement. This statement may be made in a general sense without implying that there may not be multiple complements in a serum; on the contrary, we know that some complements may not be taken up. So far as the general laws of chemical combination in immunity are concerned, the distinguishing property of complement is that it is absorbed or fixed through the medium of an immune body, whether it produces a bactericidal, haemolytic, etc., effect or not, is in a sense accidental, depending on the susceptibility of the cell to the zymotoxic group. It may be of interest to recall an instance recorded by Browning[5] and one of us, in which an agglutinating effect was produced by "complement" in this sense. Do the thermolabile opsonins of normal serum belong to the group of complements, or do they conform to antisubstances with specific combining affinity? In the present paper we leave out of consideration the opsonic substances which can be demonstrated in a heated immune serum and the small residuum which may be present in a heated normal serum. We simply determine what effects on the opsonic power of normal serum are produced by certain methods of absorption which lead to the fixation of haemolytic and bacteriolytic complements.

In investigating the question as to the absorption of opsonins we have used the immune bodies corresponding to the receptors of (*a*) red corpuscles, (*b*) blood serum, and (*c*) bacteria. The following are the results in the three cases:

I. Absorption by Red Corpuscles Treated with Immune Body (Sensitized Red Corpuscles).

The method here is to introduce red corpuscles combined with multiple doses of immune body into a normal serum, and then to determine what properties have been removed from the serum. This is most conveniently done by fixing the haemoglobin of the red corpuscles by heat, at a temperature which does not destroy the receptors—does not, that is, interfere with their powers of absorbing immune body and thereafter complement. The following are the details:

Twenty c.cm. of a 5 per cent. suspension of ox corpuscles, washed free of serum, in 0·85 per cent. NaCl solution are taken, and excess of immune body from a rabbit treated with injections of ox's corpuscles is added. (The corpuscles in question can take up about ten haemolytic doses of immune body, so we add rather more than this amount.) After an hour is allowed for combination of the immune body the corpuscles are centrifugalized and washed in salt solution. They are then placed overnight in a serum sterilizer at 55° C. By such an exposure to this temperature the mixture has been changed into a turbid brownish suspension, the corpuscles being clumped in small granular masses. The mixture is then centrifugalized and the altered corpuscles are washed twice in salt solution. After the last centrifugalization the fluid is removed as completely as possible, and the deposited corpuscles are used for testing their absorbing properties.

The deposit obtained in the above manner is added to 1.5 c.cm. of guinea-pig's fresh serum, and the mixture is placed in the incubator at 37° C. for one and a half hours. The mixture is then centrifugalized and the serum is pipetted off; it has become slightly brownish in appearance. We shall speak of such a serum as *treated serum*, and we may compare it as regards haemolytic, bactericidal and opsonic qualities with normal guinea-pig's serum, and with the same serum heated at 55° C. for an hour.

1. *Haemolytic Action of the Three Serums.*

This is tested on 1 c.cm. suspension of ox's corpuscles treated with immune body. The results are:

The treated serum is practically without effect, 0.2 c.cm. giving no lysis.

The heated serum, of course, is likewise without effect.

The normal serum produces complete lysis in a dose of 0.015 c.cm.

The treated serum has thus lost its haemolytic action, or, in other words, the complement concerned in haemolysis has been removed from it.

2. *Bactericidal Action.*

This is tested by the method of Neisser and Wechsberg. A small quantity, $\frac{1}{5000}$ c.cm., of a one day's bouillon culture of the bacterium is added to each of a series of tubes along with different amounts of the serum (0.05, 0.1, 0.2 c.cm.) and a few drops of bouillon; the mixtures are made up to 1 c.cm. with salt solution. The tubes are placed in the incubator for three hours and at the end of that time 0.025 c.cm. from each is added to a tube of melted agar and the agar is then plated. The colonies are counted after incubation at 37° C.

(*a*) $\frac{1}{5000}$ c.cm. of a bouillon culture of *B. typhosus*.

Amount of Serum.	Number of Colonies in Plates.		
	Treated Serum.	Heated Serum.	Normal Serum.
0·2 c.cm.	1,000-2,000	1,000-2,000	0
0.1 c.cm.	,,	,,	0
0.05 c.cm.	,,	,,	About 60.

(*b*) $\frac{1}{500}$ c.cm. of a bouilon culture of *B. dysenteriae* (Kruse).

Amount of serum.	Number of Colonies in Plates.		
	Treated Serum.	Heated Serum.	Normal Serum.
0.2 c.cm.	Some hundreds	Some hundreds	0
0.1 c.cm.	,,	,,	3
0.05 c.cm.	,,	,,	Hundreds.

It is thus seen that while the normal serum has a marked bactericidal action on both the organisms tested, the treated and the heated serums alike have been deprived of their bactericidal properties. (Controls were made at the same time without serum, and also to test the sterility of the serums.)

3. *Opsonic Action.*—This was tested, according to the method of Wright and Douglas, against a suspension of *Staphylococcus aureus*, with the following results:

Opsonic Indices.

Treated Serum.	Heated Serum.	Normal Serum.
1.1	1.25	28.5

It thus appears that the serum treated in the manner indicated has practically the same opsonic effect as the heated serum. In the films prepared with both of these serums, one met here and there with single leucocytes containing a considerable number of cocci, but nearly all were quite empty.

The general result of these experiments is to show that the receptors of red corpuscles in union with the corresponding immune body take up not only "haemolytic complement," but also "bactericidal complement" and "opsonin" of normal serum.

II. ABSORPTION BY SERUM PRECIPITATE.

It has been now well established by the researches of Moreschi, Gay, and others, including ourselves,[6] that a precipitate produced by a precipitin acting on the homologous serum has the property of fixing various complements. Certain molecules in the serum used for injecting the animal in order to develop the precipitin give rise to antimolecules, and the combination of the two takes up complement, as is readily shown by haemolytic tests. The antimolecules, so far as the fixation of complement is concerned, behave like immune bodies, though certain differences obtain, as we have pointed out elsewhere. We have inquired whether this combination of serum receptors *plus* immune bodies also absorbs the opsonins of normal serum. The experiments are carried out in a manner analogous to the previous, a serum precipitate being substituted for red corpuscles treated with immune body.

The precipitate is produced by adding 0.05 c.cm. of ox serum heated at 55° C. to 1.5 c.cm. of precipitin (produced by injecting a rabbit with ox serum) in 20 c.cm. of 0.85 NaCl solution. The mixture is allowed to stand overnight, and next day the precipitate is separated and washed several times in salt solution. After a final centrifugalization the fluid is removed as completely as possible and 2 c.cm. of guinea-pig's normal serum is added to the precipitate. The precipitate is well shaken up in the serum, and the mixture is placed in the incubator for one and a half hours at 37° C. The mixture is then centrifugalized, and the clear serum is pipetted off from the precipitate. As before, the resulting serum will be spoken of as treated serum, and its properties will be compared with those of heated and of normal serums.

1. *Haemolytic action.*

The treated serum, like the heated serum, has practically no haemolytic action.

The normal serum produces lysis of the test corpuscles in a dose of 0.015 c.cm.

2. *Bactericidal action*, tested on $\frac{1}{500}$ c.cm. of a bouillon culture of *B. dysenteriae* (Kruse).

Amount of Serum.	Number of Colonies in Plates.		
	Treated Serum.	Heated Serum.	Normal Serum.
0.2 c.cm.	Countless.	Countless.	0
0.1 c.cm.	,,	,,	About 20.
0.05 c.cm.	,,	,,	Thousands.

The treated serum has thus lost its bactericidal action.

3. *Opsonic action*, tested on an emulsion of *Staphylococcus aureus.*

Opsonic Indices.

Treated Serum.	Heated Serum.	Normal Serum.
0.40	0.48	27.7

The opsonic action of the treated serum is therefore as low as that of the heated serum.

III. ABSORPTION BY BACTERIA TREATED WITH IMMUNE BODY ("SENSITIZED BACTERIA").

The method is the same as in the previous cases. The bacteria, combined with immune body, are washed in salt solution, and after the salt solution is pipetted off as completely as possible, are added to fresh guinea-pig's serum. The mixture is placed in the incubator for one and a half hours, and then the bacteria are deposited by centrifugalization and the serum is pipetted off.

In this case there is, however, a complication, inasmuch as the bacteria alone absorb a certain amount of complement. We accordingly treat another sample of serum with bacteria only, this being done in exactly the same way, with the single difference that the bacteria are not previously treated with immune body.

The following experiment is an example of the different absorbing powers of treated (sensitized) and untreated bacteria. A test of this kind was always employed before their effect on opsonin was estimated.

Three series of tubes are prepared. Each receives 0.05 c.cm. of emulsion of a culture of *B. coli.*

To the first series (*a*) no antiserum is added.

To the second series (*b*) 0.001 c.cm. serum is added.

To the third series (*c*) 0.01 c.cm. is added.

To the several tubes in series increasing quantities of guinea-pig's complement are added. The contents are made up to 1 c.cm. with salt solution, and the tubes are placed in the incubator for one and a half hours to allow combination of complement to occur. To each tube 1 c.cm. of a suspension of ox corpuscles (sensitized) is added to test for free complement. Complete lysis is got in the different series with the following amounts of added complement:

Emulsion alone ... ... 0 03 c.cm.
Emulsion + 0.001 c.cm. antiserum, 0 075 c.cm.
Emulsion + 0.01 c.cm. ,, 0.125 c.cm. gives ¾ lysis.

The haemolytic dose of untreated complement was 0.015 c.cm.

It is thus shown that, while the bacteria alone take up a certain amount of complement, the addition of immune body (antiserum) leads to the taking up of much more. How is the opsonic effect influenced? The following examples show this clearly.

We shall call the serum treated with bacteria + immune body Serum A, and the serum treated with bacteria alone Serum B.

Antiserum to B. coli.

Serum treated A = 1 c.cm. of guinea-pig's serum treated with 0.25 c.cm. emulsion of *B. coli* + 0.05 c.cm. antiserum.

Serum treated B = 1 c.cm. of guinea-pig's serum treated with 0.25 c.cm. emulsion of *B. coli* alone.

The organisms were killed with heat before being used.

1. *Haemolytic Action.*

Opsonic Indices.

Serum Treated A.	Serum Treated B.	Normal Serum.
Practically without Haemolytic effect	Haemolytic = 0.075 c.cm.	Haemolytic dose. = 0.015 c.cm.

2. *Opsonic action*, tested on emulsion of *Staphylococcus aureus.*

Opsonic Indices.

Serum Treated A.	Serum Treated B.	Normal Serum.
0.5	26.2	46.7

It is thus seen that serum treated A is practically without haemolytic and opsonic action. Serum treated B occupies an intermediate position, and its haemolytic action appears to be more reduced than its opsonic action. This is probably, however, due to there being excess of opsonin in the normal serum, so that a considerable reduction of the quantity might be produced without there being a marked effect on the number of cocci ingested.

The following is another example, guinea-pig's serum being treated as above with *B. coli* + its antiserum, and with the bacillus alone:

1. *Haemolytic action*, shown by the minimum haemolytic dose.

Serum Treated A.	Serum Treated B.	Normal Serum.
0.3	0.075	0.02

2. *Opsonic action.*

Opsonic Indices obtained with Two Different Suspensions, (a) and (b).

Serum Treated A.	Serum Treated B.	Normal Serum.
(*a*) 2.85	26.6	51.2
(*b*) 0.6	1.31	8.06

In this experiment serum treated A has still traces of opsonic and haemolytic action, but both properties are much more reduced than in serum B.

The following is another example where the normal guinea-pig's serum was treated with *Spirillum metchnikovi* + its antiserum, and with the spirillum alone:

1. *Haemolytic action.*

Minimum Haemolytic Doses.

Serum Treated A.	Serum Treated B.	Normal Serum.
0.12	0.05	0.01

2. *Opsonic indices.*

Serum Treated A.	Serum Treated B.	Normal Serum.
2.8	6.1	31

The haemolytic action of Serum A is less reduced than in the previous examples, and the opsonic action is also relatively more marked.

3. *Bactericidal action*, tested on $\frac{1}{5000}$ c.cm. of bouillon culture of *B. dysenteriae.*

Number of Colonies.

Amount of Serum	Serum Treated A.	Serum Treated B.	Normal Serum.
0.2 c.cm.	1,000-2,000	1,000-2,000	5
0.1 c.cm.	more	more	800
0.05 c.cm.	thousands	thousands	1,000-2,000

Both of the treated serums have been practically deprived of their bactericidal power, though there is evidence of a smal residuum. The colonies appeared to be approximately the same in the two series but were too numerous to estimate accurately.

It is thus brought out that a bacterium combined with the homologous serum absorbs or fixes bactericidal complement, haemolytic complement, and normal opsonin alike. We have never been able to obtain a diminution of one of these without the other two being similarly affected, though further observations will be necessary before a general statement can be made.

It will be noticed on comparing the results in the above tables that there is remarkable similarity in the variations of the haemolytic action and of opsonic actions, produced by the methods used. Diminution in the opsonic effect associated with moderate fall in haemolytic power is best seen when the opsonic index of the normal serum comes out low. This is in accordance with what is seen on diluting a normal serum with high opsonic power, the effects of further diluting being most marked after the opsonic index has been reduced somewhat.

General Results.

We have thus tested the three chief varieties of immune bodies ("amboceptors"), namely, those obtained by the injection of (*a*) red corpuscles, (*b*) serum, and (*c*) bacteria, respectively, and have found that in each case the combination of receptor + immune body removes the opsonin of normal serum as tested by an emulsion of *Staphylococcus aureus.* We have also shown that a bacterium treated with immune body takes up more of the normal opsonin than the same bacterium untreated. If we define a complement from the chemical point of view as above explained, it is evident that the thermolabile opsonins of normal serum belong to the group of complements. As shown above, we found a striking resemblance in the diminution of haemolytic, bactericidal and opsonic action produced by the different methods of absorption, but at present we pronounce no opinion as to the identity or non-identity of the subtances producing these effects. Much remains to be done ere the relation of opsonins to other bodies in serum can be definitely assigned, but the above results are so definite and so much in accord with one another that we publish them now. We intend next to test whether the comparatively thermostable opsonin which may be present in an immune serum can be removed by the methods of absorption employed above. In this way we hope to gain some light on the question as to whether there are one or two classes of opsonins, so far as their combining relationships are concerned.

References.

[1] Wright and Douglas, *Proc. Roy. Soc.*, London, vol. lxxii, p. 357. [2] Bulloch and Atkins, *Proc. Roy. Soc.*, London, vol. lxxiv, p. 379. [3] Leishman, *Trans. Path. Soc.*, London, 1905. [4] Dean; *Proc. Roy. Soc.*, London, vol. lxxvi, p. 506. [5] Muir and Browning, *Journal of Hygiene*, 1906, vol. vi, p. 20. [6] Vide Muir and Martin, *Journal of Hygiene*, 1906, vol. vi, p. 265.

Professor Woodhead was glad to merge his paper in that of Professor Muir as he had only one or two points to raise. He had found opsonins corresponding to complements in cow's milk and also opsonins of a somewhat different character the results of the injection of tuberculin. He should take a future opportunity of going further into this matter.

Dr. G. W. Ross said the opsonic power of the blood of newly-born children to the tubercle bacillus was about one-half that of the mother; whilst it was about the same in each case to the *Staphylococcus pyogenes aureus.* The practical importance of these observations concerned infant feeding and whether or not mother's milk was essential in remedying this deficiency of tuberculo-opsonic power.

SECTION OF PHYSIOLOGY.

Professor W. Dobinson Halliburton, M.D., F.R.S., President.

THE ACCELERATION OF THE ACTION OF THE PANCREATIC JUICE BY THE SALTS OF CALCIUM.

By Professor E. Delezenne,
Paris.

[Abstract.]

Pancreatic juice obtained in its inactive form from the pancreatic duct, either by means of a permanent fistula or after the use of intravenous injections of secretin, acquires an extremely powerful proteolytic activity when mixed with a suitable quantity of a soluble calcium salt, and incubated for several hours.

As a rule, pancreatic juice prepared in this manner dissolves cubes of albumin as rapidly as if mixed with enterokinase. The activity is only acquired after a certain time has elapsed, and incubation is necessary, but, once acquired, the proteolytic power of the juice is not affected by removal of the soluble calcium salts, either by process of dialysis or precipitation by oxalate of soda. Careful study of the conditions under which the pancreatic juice becomes active shows that the amount of lime salts necessary for the transformation is exceedingly small. This is easily proved by dialysis of the pancreatic juice in the

first place, so as to remove all soluble salts; it is only necessary to add the merest trace of lime salt to juice thus treated in order to give it the power of digesting proteids.

The action of the salts of lime must be considered a specific one. The salts of other metals of the same series (barium, strontium, magnesium) have little or no effect. Any slow action they may appear to possess may be explained by the presence in them, or in the pancreatic juice itself, of traces of soluble calcium salts.

NUCLEOPROTEID IMMUNITY.

By S. P. BEEBE, M.D.,

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IN a previous paper I stated the evidence which led me to the conclusion that an active serum having highly specific properties can be developed by the injection of pure nucleoproteids into an animal of alien species. In the present paper it is my purpose to deal briefly in a general way with the methods and results of experiments designed to give additional information concerning nucleoproteid immunity. The study has been continued with a number of tissues and with a considerable variation in the methods of preparing the proteids and inoculating the animals. And I may preface the discussion to follow by saying that, in general, the conclusions which were reached in the first communication I still believe are correct, though in dealing with such an extremely complex problem it is only natural that additional study has revealed new difficulty in correctly interpreting results.

Since there appears to have been some misunderstanding in regard to the conclusions, I will quote briefly from the former paper: "Such a thing as absolute specificity under all conditions has never been demonstrated, and probably never will be, but it does, nevertheless, seem possible, in the light of these results, to make a serum which will act primarily on a given organ. The demand that a serum, in order to be called specific, shall limit its injury to one organ only, is unreasonable on the basis of the well-known altruistic relations of the viscera."

It is not a simple matter to develop a highly active serum by the injection of nucleoproteids. I have found the chief difficulty to be in preparing the proteids and in the idiosyncrasy of the particular animal towards the inoculations. It is necessary to use nucleoproteids of a high degree of purity to get the best results. These have been prepared in the usual manner by repeated precipitation, washing, solution, and filtration. We have found it possible by the use of a powerful centrifuge in the various processes to inject the pure proteid within ten hours after the removal of the glands. The first precipitate obtained by the addition of acetic acid to a saline extract of the gland does not yield a serum of as high degree of specificity as can be obtained by further purifying the proteid before injection. The proteid should be freshly prepared before each inoculation to obtain the best results.

I have encountered considerable difficulty in the failure of a large percentage of the animals to produce a highly active serum, even though they have the best of care and are inoculated with satisfactory proteids. For instance, out of a lot of five rabbits inoculated with liver nucleoproteids, only one produced a highly active serum; of four sheep inoculated with the nucleoproteids of the thyroid gland, only one produced an active serum. This may be an expression of the peculiar physiological reaction which animals show to nucleoproteids, another instance of which is seen in the intravascular clotting obtained with grey or black rabbits, but not with albinos. My experience in this matter has led me to the conclusion that it is a more difficult matter to obtain highly active antiserums to nucleoproteids than to albumins or globulins. The animals never become immune in the sense that many times the initial dose may be safely administered, as in the case with toxins. After repeated inoculation they cannot bear more than three to four times the initial dose. This is particularly true with reference to proteids of the thyroid gland.

A highly active antinucleoproteid serum may be expected to show the following reactions *in vitro*.

1. *Precipitin Reaction.*—The precipitin reaction is specific except in high concentrations, and even in the high concentrations the speed of the precipitation and the amount of precipitate formed both indicate a decided preference of the serum to combine with the specific nucleoproteid.

2. *Agglutinin Reaction.*—A suspension in salt solution of the very fine fragments of an organ is very quickly and completely agglutinated by the appropriate serum—that is, one developed from the nucleoproteids of that organ. The agglutinin reaction is highly specific. Only in the highest concentrations, 1 in 2, is it possible to agglutinate an emulsion of another organ, and then very slowly and incompletely. I have found the agglutinin reaction to be particularly useful in estimating the activity of the antinucleoproteid serum used in the treatment of exophthalmic goitre. The therapeutic activity of this serum, as well as the general and local reaction produced on inoculation can be quite accurately determined by a study of its agglutinating power. Of course patients show considerable individual differences in their reactions to the same serum, yet the agglutinin reaction has been found to be a very reliable guide to its activity. The most active antithyroid serum which I have yet produced had remarkably specific agglutinating action; in concentrations of 1 in 2 up to 1 in 5 it would agglutinate a thyroid emulsion in one second, while it failed to agglutinate muscle, kidney, liver, spleen, or lymph-gland emulsions in one half-hour at the same concentrations.

3. *Haemolytic Properties.*—The serum has very weak haemagglutinative and haemolytic properties in strong concentrations but this behaviour is not due to the same component of the serum that the precipitating and agglutinating actions are caused by. The haemolytic and haemagglutinating factors may be absorbed by washed blood corpuscles, and the serum after such treatment will show its precipitin and agglutinin reactions but slightly diminished. These properties shown *in vitro* are of considerable interest and indicate characters which, I believe, may properly be called specific, yet without doubt more interest and importance attach to the results obtained from animal inoculations.

Reactions in vivo.

1. *Haemolysis.*—In high concentrations *in vitro* the serum has haemagglutinative and haemolytic properties. Probably enormous doses of the serum *in vivo* would have a similar result, but I have never had any evidence of such behaviour in such doses as have already been administered. In fact, the administration at a single dose of a quantity of nephrotoxin sufficient to cause a severe nephritis lasting three months is followed within eight hours by an increase of 25 per cent. in the haemoglobin and in the number of erythrocytes. No evidence whatever of haemolysis is obtained. A number of observations upon patients to whom the antithyroid serum has been given shows that with this serum also there is an increase in haemoglobin and erythrocytes. It is possible to conceive of there being agglutination of erythrocytes without haemolysis, but no evidence of such an action has appeared. Moreover, it can be demonstrated that the lesions produced do not depend upon the haemagglutinative and haemolytic properties of the serum, for these factors may be removed by erythrocytes, and the resulting serum, although it no longer agglutinates or haemolyzes red blood corpuscles, will yet produce the characteristic lesions on injection, and the histological picture of the lesion cannot be explained on the ground of thrombus formation and embolism in nutrient blood-vessels.

Cytolytic Action on one Organ.—Again I wish to state that I do not believe that a serum can be made which will show absolute specificity under all conditions, but it is possible to demonstrate a high degree of specific action by serum made as I have described from nucleoproteids. My belief is based upon a large number of experiments in which such results have been obtained. In a few cases lesions have been found in other organs on which the attack had been directed, but these have been lesions which could in no way have come from the treatment and were present before any serum was given, or they have been found in fatal cases in which it is doubtful whether they were a primary event. It is possible to cause severe injury to the liver, kidney, or pancreas by means of a cytolytic serum without producing lesions in other organs. In demonstrating specific action it is much more satisfactory to use a small dose of a highly active serum than a large dose of a weaker serum. The weaker serum, as measured by its

cytolytic effect, will be found as haemolytic as the more active serum, that is, considering the two principles, haemolysins and specific cytolysins, present in the serum, the latter show a greater variation in their activity than the former. A weak cytolytic serum may be as haemolytic as a very active cytolytic one, and naturally if we wish to demonstrate specific cytolytic action it is better to use a serum which contains per unit of volume the largest possible amount of specific cytolysins, since the ratio of cytolysins to haemolysins is then much in favour of the former. Our experience in the treatment of exophthalmic goitre by a specific serum likewise has demonstrated that a small dose of a very active serum is much to be preferred to the administration of the same number of units in a weaker serum.

The main interest in the problem is to be found in the question of specificity, and the evidence which we have in the matter has been outlined above. The test-tube reactions show precipitin and agglutinin reactions of a high degree of specificity. The absorption of the haemolytic factors by erythrocytes, and the demonstration that such absorbed serum still has the power to precipitate the nucleoproteid and agglutinate the fragments of the particular organ from which it was developed, can lead to no other conclusion than that the serum has two factors. The final test of the matter is to be found in the results obtained by the inoculation of animals, and very striking pictures of specificity have been obtained. It seems doubtful whether we can injure such an organ as the kidney or liver to an extent sufficient to cause death without finding some small lesions in the other organs not directly subject to the primary attack. In a few cases I have produced death by an acute nephritis without finding serious lesions in other organs; likewise, the liver may be severely injured in a specific manner. However, when the injury caused by the serum is of itself allowed to go on to a fatal termination, secondary changes in other organs than the one primarily attacked are occasionally found. If the process is stopped after the animal has been severely injured, but before the agonal changes are allowed to take place, we find lesions indicating a remarkably high degree of selective action.

THE METABOLISM OF KREATIN AND KREATININ.

By Otto Folin, M.D.,
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The prevailing view that kreatin is the direct precursor of the waste product kreatinin is based (1) on the chemical relationship of the two substances and the supposed ease with which the one can be converted into the other, (2) on the fact that muscle extracts are rich in kreatin, and (3) on the supposed fact that the animal organism is demonstrably capable of converting administered kreatin into kreatinin, which is then eliminated with the urine.

A number of feeding experiments with kreatin and kreatinin have given me the following results with normal men:

(*a*) Kreatinin given with the food is almost completely eliminated with the urine in the course of twenty-four hours.

(*b*) Kreatin given in moderate quantities (1 to 2 grams) together with a low nitrogen diet (starch and cream) is neither converted into kreatinin nor eliminated as unchanged kreatin or as urea. It is, in fact, not eliminated at all.

(*c*) When large quantities of kreatin (5 to 6 grams) are given, together with a low nitrogen diet, a small quantity of kreatin (1 gram) is eliminated unchanged in the course of twenty-four hours. The remaining larger part is not eliminated at all. When the system is thus flooded with kreatin, its normal daily kreatinin elimination remains unchanged.

(*d*) When kreatin is taken together with diets rich in protein a very large part of it (50 per cent.) is eliminated unchanged in the course of twenty-four hours. The kreatinin elimination is not affected.

(*e*) When very large quantities of meat (1,300 grams beef) are fed to a normal person the normal kreatinin elimination is but slightly increased (0.2 to 0.3 gram). Under the same conditions the kreatin elimination, ordinarily absent or too small to be detected, amounts to 3.5 to 4 grams.

Conclusions.

(*a*) There is no experimental evidence showing that kreatin is the immediate precursor of the kreatinin appearing in the urine.

(*b*) Biologically there seems to be a fundamental difference between kreatinin and kreatin.

(*c*) In the author's opinion it is not yet clear whether kreatin is a waste product or a food.

CHEMICAL STUDIES ON GROWTH.

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[Abstract.]

Any profound study of nutrition during periods of growth demands a knowledge of the composition and chemical changes characteristic of developing organisms, together with their equipment for utilizing nutritive materials presented to them. The present paper aims at reviewing in a preliminary way some of the data recently obtained by the writer and his co-workers bearing on these topics.

1. *The Physiology of the Purins.*—New evidence regarding the synthesis of purins in embryonic forms has been afforded by an investigation of the eggs of the hen and duck after varying periods of incubation. Beginning with the fresh egg practically free from purins, the quantities of these compounds gradually increase during incubation until the young are fully hatched. The specific purin compounds which especially are synthetized as a part of the newly formed nucleoproteid constituents are guanin and adenin, traces only of hypoxanthin being obtained. Kossel demonstrated the synthesis of purins in a similar way in 1886. Working with less perfected analytical methods, he isolated guanin and hypoxanthin. Our findings correspond better with the present ideas regarding the bases which occur in the nucleic acid complexes, the formation of hypoxanthin by enzymatic processes from adenin and guanin being well recognized. Recent studies have demonstrated the co-operation of a number of enzymes in the transformations of purin-containing materials in metabolism. Nucleases liberate the guanin and adenin of the nucleic acids; specific amidases convert these amino-purins into xanthin and hypoxanthin respectively; oxidases transform hypoxanthin to xanthin and then to uric acid; and, finally, the latter is decomposed by uricolytic enzymes present in various organs. We have found that the liver tissue of the embryo (pig) has apparently not yet acquired the capacity of destroying uric acid to any considerable extent, if at all—in striking contrast with comparable material from adult animals. The specific amidases, however, appear early in embryonic life. This statement is based on the observation that embryo (pig) livers subjected to autolysis yield hypoxanthin in much larger proportion than the fresh glands, with a simultaneous diminution in the content of adenin. These transformations can be observed at very early ages, but in the smallest stages the differences are less pronounced. One may conclude that the embryonic organs, such as the liver, are early equipped for the preliminary reactions in purin synthesis and degradation, in harmony with the extreme richness of the embryonic liver morphologically in nuclear materials.

2. *Pentose Groups.*—Nucleic acids are characterized by the presence of pentose groups, as well as purin complexes. The egg itself is practically free from furfurol-yielding compounds. With the progress of incubation pentose groups are synthesized, as might be expected from the characteristic development of nuclear materials.

3. *The Development of Specific Enzymes.*—Some of the observations on the occurrence of inverting enzymes have already been briefly reported. (*Proceedings, American Physiological Society*, 1905.) Extracts of the entire intestine of embryo pigs of various ages have been examined by a diversity of methods for sucrase, maltase, and lactase. Maltase appears to be the most universal of all these enzymes. In the embryo pig lactase is present very early, while sucrase cannot be detected, even in very large embryos. The extracts prepared from the intestines of adult pigs contained no lactase, but always afforded sucrase reactions. Suckling pigs yielded all of the enzymes mentioned. In the dog there likewise appears to be a difference between the early and adult stages as regards their alimentary enzymes. Lactase was not found

in either the newly-hatched chick or the adult hen, while sucrase was obtained from the intestine of each. The search for pepsin and rennin in the embryonic stomach yielded entirely negative results, even in 11 in. pig embryos, thus agreeing with the observations of the majority of earlier investigators. The relation of these specific occurrences of the sugar-inverting enzymes to possible functional adaptations deserves further study.

4. *The Glycogen Content of the Embryo.*—In confirmation of recent observations by Asher and by Pflüger on various embryonic forms we find glycogen to be less abundant in these tissues than has been taught. The liver of the embryo pig is almost devoid of glycogen at most stages of growth, while the muscles are somewhat more richly supplied with the carbohydrate.

5. *The Lipoids.*—In the nervous elements, which are characteristically rich in lipoids, cholesterin makes its appearance at very early stages in considerable abundance. Sugar-yielding compounds of the cerebrin type, on the other hand, are not formed until later. The correlation of the chemical findings with morphological changes will be of interest.

6. Analyses of the water-free and fat-free tissues of animals fed on diets of widely-different character indicate the tendency of the tissues to maintain a constant chemical character.

The practical application of the foregoing observations cannot be discussed in detail here. The studies are being continued in various directions.

THE EFFECT OF IONS ON GROWTH AND CELL DIVISION.

BY

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AND

EDWARD WHITLEY, M.A.

THE experiments herein described were commenced in order to follow up some results obtained in connexion with the investigation of gastric contents in cases of carcinoma situated elsewhere than in the stomach.[1] The results there obtained showed that the free hydrochloric is relatively diminished in carcinoma as compared to cases of other chronic diseases, no matter where the malignant growth is situated. In that paper it was suggested that this alteration of the stomach contents might be due to an increased alkalinity of the blood serum bathing the oxyntic cells, thus rendering the secretion of acid more difficult; and in a later paper by Moore and Wilson[2] it was shown that such increase of alkalinity does actually occur in the serum of patients suffering from carcinoma. Our original object was to discover the effect upon the rate of growth of some rapidly-growing organism when it was placed in media of altered "reactivity." We decided to use for this purpose the fertilized eggs of the sea-urchin, as Loeb[3] had noticed increased rapidity of growth on the addition of minute traces of alkali to artificial sea water in which they were developing. During the course of our experiments our attention was arrested by irregularity in shape and size of the cells in the eggs growing in the media to which alkali had been added. This observation induced us to investigate the nuclear divisions as affected by the reaction of the media in which the eggs were growing.

EXPERIMENTAL METHODS.

The organisms used were the fertilized eggs of the sea-urchin, hyacinth and onion bulbs, and frog tadpoles. The sea-urchin eggs were grown in normal sea water, and the reaction was altered by means of the addition of a definite proportion of standard solution. The rate of growth was observed under the microscope, and in certain experiments, at the end of the time of observation, the eggs were fixed, sectioned, and stained in order to study the nuclear divisions.[4]

The hyacinth and onion bulbs were grown in tap water to which the standard solution was added. The rapidity of growth was studied by measuring the length of the green leaves and noting the stages of development of the flower from time to time. The nuclear divisions were studied in sections of the growing root tips.[5]

In these two series of experiments observations were confined to the effects of acids and alkalies and of acid and alkaline salts, but in the case of tadpoles neutral salts were also employed. The tadpoles were kept in tap water to which the standard solution of a chemical was added. The length of time which the tadpole could live in the stronger solutions was noted, and the rate of development in the weaker solutions was determined by weighing the tadpoles after a definite period of time.[6] In all cases controls were used to which no chemical had been added.

CONCLUSIONS.

From these experiments the following conclusions may be drawn:

1. Living cells are very susceptible to change in the relative proportions of hydrogen and hydroxyl ions, death occurring when either of these is increased to a comparatively slight degree.

2. A very slight increase of alkalinity tends to increase cell division, but as the hydroxyl ion concentration is increased the divisions tend to become irregular. This irregularity is shown in the shape and size of the resulting cells, and at the same time the nucleus shows many of the atypical mitoses seen in malignant disease. At the same time nuclear division tends to proceed in advance of cytoplasmic division, so that the cells tend to become multinucleated, but before the increase of alkalinity has proceeded much further the growth is entirely stopped.

3. Increase of acidity does not cause any increased rate of growth, but exhibits only a retarding influence, so that the cell development is arrested before there is much change of reaction.

4. Neutral salts (in the presence of traces of other salts, such as occur in tap water) do not show much toxic effect until the osmotic pressure of the medium is almost equal to that of the internal fluids of the organism used, but certain ions appear to possess a specific toxic effect. Such ions are those of the heavy metals — barium, ammonium, etc.

5. Certain ions in low concentrations tend to favour growth, but increase of concentration causes retardation. The presence of phosphates shows this effect in a particularly marked degree.

6. A compound organism reacts differently from a unicellular or one containing only a few cells (such as developing eggs). The presence of a regulating mechanism in the more specialized organism allows a neutralizing effect to be exerted on the surrounding medium. Thus, for sea-urchin eggs the lowest concentrations of acid phosphate of sodium exercise an inhibitory effect, whilst the alkaline phosphate in equally low concentration tends to increase the rapidity of growth, but tadpoles show increased rate of growth in both acid and alkaline phosphates. The explanation of this is that in these more complicated organisms the acid phosphate is converted into the alkaline salt when absorbed, and thus the favouring effect of the alkaline phosphate is produced. A single cell surrounded on all sides by a medium of altered composition can exert no such regulating mechanism.

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ON THE PHYSIOLOGICAL ACTION OF CERTAIN CHOLIN DERIVATIVES AND NEW METHODS FOR DETECTING CHOLIN.*

BY

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SEVERAL years ago cholin was a favourite subject of pharmacological study; this interest resulted largely from the close chemical relations of cholin and the much more poisonous bases, muscarin and neurin. More recently interest in this subject has revived, largely on

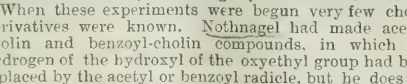
* Most of the cholin used in these experiments was prepared from eggs; a small amount was made synthetically from ethylene bromide and trimethylamine. We are indebted to Mr. M. B. Porch, assistant in pharmacology, for the preparation of nearly all of the large amounts of cholin needed.

account of the work of Halliburton and Mott, who reported finding cholin in the cerebro-spinal fluid in certain pathological conditions where there is an extensive disintegration of nerve tissue. This interest has been increased owing to the reported discoveries of cholin in the blood and cerebro-spinal fluid in cases of epilepsy and other nervous diseases. At the time of the appearance of Mott and Halliburton's paper I was engaged in a study of the blood-pressure lowering bodies which occur in the suprarenal gland. With the aid of the chemical and physiological methods elaborated by Mott and Halliburton I was able to demonstrate that the most prominent of these blood-pressure lowering bodies was cholin. I had very large amounts of material at my disposal, and obtained several grams of the pure platinum double salt of cholin. I early became aware, however, that extracts of the suprarenal from which the blood-pressure raising constituent had been removed contained blood-pressure lowering substances having a physiological action different from that of cholin. One of the interesting observations made by Mott and Halliburton was that whereas cholin caused a fall of blood pressure before the administration of atropine, either no effect or a rise of blood pressure resulted from its injection after atropine.

In these earlier experiments of mine, performed seven or eight years ago, I frequently obtained extracts of the suprarenal (and also of the brain) which caused a fall of blood pressure after, as well as before, atropine, and which were also much more powerful than cholin. Similar results with extracts of the brain have been obtained by a number of workers, and have led to considerable discussion, especially among English physiologists. I also got results at that time which led me to think it very probable that at least some of these results were to be attributed to a precursor of cholin or to some compound of cholin. Some of these results were reported at the meeting of the American Physiological Society in 1900, and an abstract published in the *American Journal of Physiology*, vol. v. I obtained preparations so active that $\frac{1}{100}$ mg. (per kg. animal) caused a very distinct fall of blood pressure; it required from fifty to one hundred times as much cholin to cause an equally great fall of blood pressure in the same animals. A solution of this preparation gave a precipitate with Florence's reagent, and also one with platinum chloride, which could be identified as cholin; at the same time, the preparation was not only very much more active than cholin but its effect was different in that it caused a marked fall of blood pressure after the administration of atropine. It seems to me that the activity was entirely too great to be attributed to traces of inorganic salts, which may have been still present. On attempting to remove the cholin from these solutions by platinum chloride or mercuric chloride and removing the excess of these reagents from the filtrate by hydrogen sulphide this second substance gradually disappeared and only cholin remained. From these observations it seemed not impossible that, under certain conditions, cholin compounds of a decidedly poisonous nature might arise in the body; and, further, that such compounds may have some importance in certain pathological conditions. Hence it seemed probable that a study of a series of cholin compounds might yield results of interest.

When these experiments were begun very few cholin derivatives were known. Nothnagel had made acetyl-cholin and benzoyl-cholin compounds, in which the hydrogen of the hydroxyl of the oxyethyl group had been replaced by the acetyl or benzoyl radicle, but he does not seem to have investigated their physiological action. Very recently Schmidt and his co-workers have prepared a few esters of cholin, and Meyer has reported briefly upon their physiological action.

I have recently taken this subject up again in conjunction with Mr. Taveau, and I desire to-day to report briefly some of our results. So far, we have investigated chiefly a number of derivatives in which the H of the OH of the oxyethyl group of cholin has been replaced by an acid radicle. Acetyl-cholin, for example, bears the following relation to cholin:



cholin — acetyl-cholin

We have studied 19 such compounds, all but two of which (the acetyl and benzoyl compounds) are new. The methods by which these compounds were made will be described later.

Compounds of the Fatty Acid Series.

Acetyl-cholin.—Acetyl-cholin, the first of this series, is a substance of extraordinary physiological activity. In fact, I think it safe to state that, as regards its effect upon the circulation, it is the most powerful substance known. It is one hundred thousand times more active than cholin, and hundreds of times more active than nitro-glycerine; it is a hundred times more active in causing a fall of blood pressure than is adrenalin in causing a rise. I shall quote a few typical results.

Thus (214) in an experiment upon a rabbit (weighing nearly 3 kilos), considerably less than 1 c.cm. of a solution about 1 to 5,000 caused the blood pressure to fall from 152 to 36 mm. of mercury, a fall of 116 mm.; a very small fraction of 1 c.cm. caused it to fall 92 mm. (from 125 to 33 mm.). Less than 1 c.cm. of a solution not over 1 to 500 caused instant and final stoppage of the heart (218). Death from stoppage of the heart also resulted from 1 c.cm. of a solution 1 to 5,000 (0.5 mg.) (220). In another experiment death seemed to result from 1 c.cm. of a solution of 1 to 50,000 (235). The above results were obtained upon curarized animals. The substance seems to be still more poisonous to the respiration. Thus, 1 c.cm. of a solution 1 to 250,000 (253) caused complete stoppage of the respiration.

The following figures show what extremely small amounts were active. In these experiments I think every precaution was taken to avoid error. The animals were thoroughly anaesthetized, and also, as a rule, curarized, so as to avoid any interferences from effects upon the respiration. Inasmuch as the injection of small amounts of normal saline solution, especially into curarized animals, sometimes causes distinct changes in blood pressure (sometimes a rise, sometimes a fall), control experiments in which the same quantities of saline solution of the same temperature were injected at the same rate were constantly made. In one experiment (246) upon a curarized rabbit, 1 c.cm. of a solution 1 to 100,000,000 caused constantly a fall of blood pressure varying from 20 to 26 mm. mercury; in a dilution of 1 to 250,000,000, 1 c.cm. still had a distinct though very slight effect, the blood pressure falling about 5 mm. Adrenalin 1 to 800,000 caused a rise of 10 mm.; 1 c.cm. of 0.8 per cent. sodium chloride solution caused a rise of 2 mm. Very similar results were obtained in the following experiment (248). In this experiment the injection of 1 c.cm. of saline solution tended to cause a slight rise of blood pressure; this did not, however, exceed 4 mm. Acetyl-cholin 1 to 100,000,000 caused a fall of blood pressure varying from 12 to 16 mm. Adrenalin 1 to 800,000 caused a rise of 9 mm. Acetyl-cholin 1 to 200,000,000 caused a fall of 5 mm. In another experiment (252), 1 c.cm. of a solution 1 to 200,000,000 caused a fall of 10 mm.; the following results were also obtained in this experiment:

Cholin ...	... 1 to 1,000 caused a fall of 14 mm.
Suprarenalin	... 1 to 800,000 caused a rise of 15 mm.
Nitro-glycerine	... 1 to 200,000 caused a fall of 10 mm.
Acetyl-cholin	... 1 to 100,000,000 caused a fall of 16 mm.

One c.cm. of normal saline had no effect whatever upon the blood pressure.

Similar results were obtained in a number of other experiments, and justify the conclusions already stated that acetyl-cholin is, roughly speaking, 100,000 times as active in causing a fall of blood pressure as is cholin, several hundred times as active as nitro-glycerine, and fully one hundred times as active in causing a fall of blood pressure as is adrenalin in causing a rise. Thus one two-hundred-millionth of a gram of acetyl-cholin suffices to cause a distinct effect upon the blood pressure of a large rabbit, or, in other words, 1 c.cm. of a solution containing but 1 mg. in 200 litres is distinctly active. We have not determined the cause of the fall of blood pressure from acetyl-cholin, but from the fact that it can be prevented entirely by atropine, I am inclined to think that it is due to an effect upon the terminations of the vagus in the heart. It is unusual for acetyl-cholin to have any effect upon the rate of the heart (except in poisonous doses); so that it seems probable that the effect is upon fibres which inhibit the force of the heart beat. If it can be shown

that no vasomotor changes occur, this may be a satisfactory way of demonstrating the existence of such nerves in the heart. I said that the effect of acetyl-cholin could be prevented by atropine; but as a rule large doses of the latter are necessary to prevent any action whatever. Thus acetyl-cholin in comparatively strong solutions (1 to 10,000, or even 1 to 100,000) will cause a moderate fall of blood pressure, although sufficient atropine has been given to render stimulation of the vagi with the strongest electric currents ineffective as regards any action upon the heart. After the administration of a few more milligrams of atropine, even a 0.38 per cent. solution of acetyl-cholin may be injected without having any effect upon the blood pressure.

Mott and Halliburton found that cholin usually caused a rise of blood pressure after atropine. Such a result occurs but rarely in the case of acetyl-cholin. The clearest evidence we have in favour of it is one experiment upon a cat, in which the injection of 4 c.cm. of $\frac{1}{2}$ per cent. solution of acetyl-cholin was followed by a rise of 16 mm.; 5 c.cm. of normal saline caused a rise of 7 mm. In several experiments the fall of blood pressure was followed by a considerable rise of blood pressure, but possibly this was of a mechanical nature; such a rise not infrequently follows the fall of blood pressure resulting from stimulation of the depressor nerve. In any case it is noteworthy that a distinct rise of blood pressure from acetyl-cholin rarely occurred, except when there had been a fall of blood pressure.

One other fact may be mentioned: under certain conditions acetyl-cholin will completely overcome the effect of adrenalin upon the blood pressure. When an amount of acetyl-cholin causing a fall of blood pressure of, for example, 20 mm. is injected with an amount of adrenalin causing a rise of 20 mm., no effect whatever is produced upon the blood pressure. Under other conditions, which have not been investigated, sometimes the action of one, sometimes that of the other, predominates.

Cholin Compounds, with other Acids of the Fatty Series.—Acetyl-cholin differs from cholin chiefly in that it is enormously more active than cholin in causing a fall of blood pressure; it also differs from the latter in having practically no power to cause a rise of blood pressure after atropine. In the case of the next higher member of this series, propionyl-cholin, we find a return to the cholin type—that is, propionyl-cholin—causes a fall of blood pressure before atropine and a rise after atropine. It is, however, roughly speaking, about 1,000 times as active in causing a fall of blood pressure as is cholin (100 times less active than acetyl-cholin); whereas its power to cause a rise of blood pressure after atropine does not seem to differ materially from that of cholin.

Passing to the next member of the series—the butyril-cholins—we find a difference between the normal and the iso-compound. The normal compound is practically a blood-pressure raising agent; only in very minute doses, or in exceptional cases, does it cause a fall of blood pressure. The iso-butyril compound, on the other hand, is very active in causing a fall of blood pressure. After atropine both the normal and iso-compounds cause a rise of blood pressure, but the former is more active than the latter. Butyril-cholin is much more active in causing a rise of blood pressure than is cholin.

Butyril-cholin has another property which seems to be almost absent in acetyl-cholin, and which is but feebly present in cholin and propionyl-cholin; it produces a considerable slowing of the heart through an action upon the medullary centres of the cardio-inhibitory nerves.

This property of causing a slowing of the heart is still more marked in the next member of this series—valeryl-cholin. As regards the other properties of valeryl-cholin our results have not been very concordant, but they indicate that there is an accentuation of the differences between cholin and butyril-cholin—that is, it causes a fall of blood pressure in very small doses (and not invariably then), whereas it seems to be more active in causing a rise of blood pressure, both before and after atropine, than any of the others of this series.

Succinyl-cholin was the only compound of the aliphatic dibasic acids studied; its physiological action is similar to that of the valeryl compound.

Aromatic Acids.—The compounds of cholin with the residues of the aromatic acids which we have studied are essentially blood-pressure raising agents; as a rule when they do cause a fall of blood pressure this is due to a central stimulation of the cardio-inhibitory nerves. This is not always the case, however, for benzoyl-cholin in very dilute solutions may cause a fall of blood pressure, although the vagi have been divided. This blood-pressure lowering action of benzoyl-cholin was at first overlooked, for we began our experiments with a solution 1 to 1,000, which was as a rule entirely inactive. Stronger solutions —1 to 500 and 1 to 200—almost always caused a rise of blood pressure, while a 1 to 100 solution almost always caused a pronounced rise of blood pressure. Working with solutions weaker than 1 to 1,000, however, the result was as a rule a fall of blood pressure. Thus in one experiment (257) a solution of 1 to 100,000 constantly caused a fall of 12 to 17 mm. mercury, whereas a solution 1 to 1,000 caused an insignificant rise followed by an equally slight fall; a solution 1 to 130 caused a rise of 45 mm. Had we not been working with a substance which could be obtained in a beautifully crystalline form I think we would have supposed that we had present two substances, one causing a fall of blood pressure, the other a rise.

That benzoyl-cholin may, under some circumstances, cause a very great rise of blood pressure is evident from the following (258): A cat had been kept under anaesthetics and curare for seven hours; a large number of drugs had been injected intravenously, the thoracic cavity had been opened, and the accelerator nerves cut and stimulated repeatedly. The blood pressure had fallen to 30 mm. The animal was in the condition where ordinarily but one drug—adrenalin—has any effect in causing a rise of blood pressure. Less than 2 c.cm. of a 1 to 135 solution of benzoyl-cholin, however, caused the blood pressure to rise 103 mm. or to a height of 133 mm., which was nearly as high as it had been at any time during the entire experiment. The same quantity of suprarenalin—1 to 50,000 (a strength which usually suffices to cause a maximum rise of blood pressure)—caused a rise of but 52 mm. Of course the activity of the benzoyl-cholin is not at all comparable to that of adrenalin; still, with the exception of the latter, there are few drugs which cause such a prompt and marked rise of blood pressure.

The introduction of the phenyl group into acetyl-cholin and propionyl-cholin diminishes to a remarkable extent the power of these compounds to cause a fall of blood pressure and increases the blood-pressure raising activity. Acetyl-cholin is practically devoid of any blood-pressure raising power, while 1 c.cm. of phenyl-acetyl in a dilution 1 to 8,000 caused a rise of 60 mm. Phenyl-propionyl was less active than phenyl-acetyl in causing a rise of blood pressure, but was still about thirty times as active in this respect as cholin. Both phenyl-acetyl and phenyl-propionyl caused considerable slowing of the heart from stimulation of the centres of the cardio-inhibitory nerves. This power to slow the heart is still more marked in the cinnamic acid derivative,

$$HON\begin{matrix}(CH_3)_3\\ C_2H_4O(C_6H_3CH{=}CHCO),\end{matrix}$$

which differs from the phenyl-propionyl compound only in being unsaturated. One c.cm. of a 1 to 4,000 solution of this caused complete inhibition of the heart for a few seconds. Another compound of this general class having a rather marked action upon the cardio-inhibitory nerves is anisyl-cholin, the oxymethyl-benzoyl compound:

$$HON\begin{matrix}(CH_3)_3\\ C_2H_4O(C_6H_4\begin{matrix}OCH_3\\ CO\end{matrix}).\end{matrix}$$

This compound is also quite active in causing a rise of blood pressure.

An interesting difference between meta- and para-nitro-benzoyl-cholin was observed. The meta compound in minute doses (1 c.cm. of a 1 to 100,000 solution) caused a marked fall of blood pressure, and hence is very similar to benzoyl-cholin. This fall of blood pressure from small doses was abolished by section of the vagi, but was obtained again by the uses of larger doses and persisted after atropine. The para compound in comparatively large doses caused a fall of blood pressure; this, if the vagi were intact, apparently depended upon slowing of the heart; after atropine and section of the vagi only very strong solutions (1 per cent.) had any effect, and then only a rise was obtained.

In conclusion I desire to speak of two methods for the

detection of cholin which have been suggested by these experiments. Much interest has been manifested in recent years in tests for cholin, for it seems very probable that the determination of the presence or absence of cholin in the blood and cerebro-spinal fluid may be of no little aid in determining, for example, whether a given pathological condition rests upon an anatomical basis or is functional.

There is at present no method for the detection of small amounts of cholin which is entirely satisfactory. Either of the ones now proposed is far more delicate, and, I believe, more accurate than those in use. The first one is the physiological test and is based upon the conversion of cholin, which is comparatively inactive, into acetyl-cholin, which is about 100,000 times more active. The following experiment (259) will illustrate this method. One mg. of cholin chloride—about the smallest quantity we have found to give a distinct fall of blood pressure in a large rabbit—was mixed with several milligrams of a mixture of potassium and ammonium chlorides, and the mixture acetylated; a blank containing the same materials with the exception of the cholin was made at the same time. (These chlorides were selected because they are a source of difficulty in ordinary tests for cholin.) The reaction product was dissolved first in 100 c.cm. of normal saline; 1 c.cm. of this solution, corresponding to $\frac{1}{100}$ mg. of cholin, was injected into a large rabbit; the blood pressure fell from 84 mm. to 45 mm., a fall of 39 mm. One c.cm. of the blank, which contained exactly the same things, except the product of the acetylation of the cholin, produced a barely perceptible rise of blood pressure. These injections were repeated a number of times with the same results. Another dilution was made so that 1,000 c.cm. now contained but 1 mg. of what was originally cholin. One c.cm. of this, corresponding to $\frac{1}{1000}$ mg. of cholin, was injected; the blood pressure fell 40 mm. and then rose 28 mm. (The blood pressure had, since the last injection, gradually risen to 114 mm., probably as a result of the wearing off of the effects of the curare and chloral.) One c.cm. of the blank, to which had been added, however, $\frac{1}{1000}$ mg. cholin chloride caused a fall of 5 mm., a result probably to be attributed to the normal saline alone. One c.cm. of a still greater dilution (such that 1 c.cm. corresponded to about $\frac{1}{10000}$ of a mg. of cholin) caused a fall of blood pressure of 18 mm.; 1 c.cm. of the blank, to which had been added $\frac{1}{1000}$ mg. of cholin, caused a barely perceptible rise, followed by an equally insignificant fall. One mg. of cholin caused the blood pressure to fall 12 mm. A physiological experiment with the 1 mg. of cholin with which we started might have suggested that cholin was present; it would hardly have sufficed for more than one experiment. By converting it into acetyl-cholin, however, we obtained material which would have sufficed for at least 10,000 experiments. We have not worked out the limits of this method; we have found, however, that we can begin with $\frac{1}{100}$ mg. of cholin, convert it into the acetyl-compound, and get at least 10 c.cm. of a very active solution.

We have not fully determined the best method of applying this test to animal fluids, but our results so far are very encouraging. Thus we added $\frac{1}{2}$ mg. of cholin to 10 c.cm. of normal horse serum, made an alcoholic extract and acetylated this; the product of the acetylation was dissolved in 1,000 c.cm. of normal saline. One c.cm. of this dilution caused the blood pressure of a rabbit to fall 29 mm. (from 104 to 75 mm.). One c.cm. of this solution corresponded to 0.0005 mg. of cholin. An alcoholic extract of 10 c.cm. of the serum to which no cholin was added was made. This extract was dissolved in 10 c.cm. saline; 1 c.cm. had absolutely no effect upon the blood pressure.

One difficulty which arises in connexion with the application of this test to the serum is that the alcoholic extract of normal serum to which no cholin has been added also causes a marked lowering of the blood pressure after acetylation; whether this is due to acetyl-cholin which has been formed from lecithin extracted by the alcohol we do not know. We have not yet tried acetylating an aqueous or saline extract of serum. In any case we hope to overcome the difficulty by the selection of the proper solvent. The other method by which we have been able to detect very small amounts of cholin rests upon the slight solubility of the platinum salt of benzoyl-cholin chloride; $\frac{1}{100}$ mg. of benzoyl-cholin chloride in 1 c.cm. gives with platinum chloride a very distinct crystalline precipitate of the double salt. The form and solubility of these crystals are so different from any we have seen in the controls that there seems little danger of confusing them with other substances. A confusion with the double salts of ammonium and potassium chloride, for example—substances which have hitherto caused so much trouble in the chemical detection of cholin—is utterly out of the question. We have not tested the limits of this test as applied to cholin; we got very satisfactory results, however, when we benzoated $\frac{1}{10}$ mg. of cholin.

It is our intention to immediately elaborate these tests, and to apply them to a number of pathological conditions.

ON THE LIBERATION OF PHOSPHORUS FROM NUCLEIN COMPOUNDS.

By F. H. SCOTT,

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THE methods used for the detection of phosphorus in cells have all depended on its precipitation as ammonium phosphomolybdate by a solution of ammonium molybdate in nitric acid. It was assumed that the nitric acid would liberate the phosphorus as orthophosphate, and that this would be immediately precipitated. To distinguish the yellow from the xanthoproteic reaction agents have then been employed to reduce the phosphomolybdate to one of the blue oxides of molybdenum. Thus Lilienfeld and Monti used pyrogallol, Pollacci zinc chloride, and Macallum[1] phenylhydrazine. This phenylhydrazine reaction has been more or less extensively used, among others, by the writer to localize phosphorus in cells. It has recently been stated by Bensley[2] that the reaction of Macallum is due to the reduction of adsorbed molybdic acid, and had nothing to do with phosphorus whatever. It was to test the principle of these reactions that this research was undertaken, and the only conclusion we can reach is that these reactions are no test for phosphorus, as the whole principle of the reactions is wrong. The evidence for this statement may be divided into (*a*) microchemical and (*b*) the liberation of phosphorus from tissues by acid hydrolysis.

It was found that a solution of ammonium molybdate in hydrochloric acid acts as well as a solution in nitric acid, provided the percentage of hydrochloric acid does not rise above 10 per cent. of HCl. The reagent used consisted of

Ammonium molybdate, 10 per cent.	...	80 c.cm.
Ammonium chloride...	...	20 grams.
Hydrochloric acid, 30 per cent. ...	...	15 c.cm.

Before use on sections or tissues add one-tenth of its volume of saturated potassium persulphate.

The oxidizing agent is added to prevent the reduction of the reagent by the tissue; as Bensley already observed, the tissues will reduce a solution of molybdic acid in the presence of hydrochloric acid.

Sections may be left in the above reagent indefinitely at 37°, and if they have been freed from inorganic phosphate will not show any yellowing. The same is true of fresh blood corpuscles of the newt or frog. Their nuclei will not yellow.

The reason for this absence of effect is found by the study of the action of acids on tissues. The method followed was that used by Bayliss and Plimmer[3] in their work on the liberation of phosphorus from caseinogen. The acid was added to the finely-ground tissue and shaken, and then a sample removed in a pipette and dropped into an equal volume of Cathcart's tannic acid reagent, where it remained till next day, when it was filtered. The phosphorus was determined in the filtrate by Neumann's method as modified by Plimmer. The phosphorus in this tannic-acid filtrate we term soluble phosphorus. The amount of inorganic phosphate was determined by filtering some of the acid digest and throwing the phosphate down with ammonia and magnesium citrate. Controls were made to show that the organic substances present did not inhibit the precipitation of the phosphate present.

The results are shown in the following table:

Ox testis, fresh. Action of $\frac{2N}{1}$ HNO_3.

Sample as soon as possible contained	43.8	mg.	P_2O_5 in 50 c.cm.
,, after 19 hours	49.2	,,	,, ,, ,,
,, ,, 24 ,,	62.7	,,	,, ,, ,,
,, ,, 43 ,,	64.1	,,	,, ,, ,,
,, ,, 67 ,,	64.6	,,	,, ,, ,,
,, ,, 91 ,,	64.8	,,	,, ,, ,,
Total in 50 c.cm.	= 72.3.		
Inorganic phosphate at end	= 18.0.		

It will be noticed that the acid very readily liberates the phosphorus as some soluble organic compound, but that very little of it passes into the inorganic condition. The inorganic phosphate present is derived (as is shown below) from the inorganic salts present in the natural condition. Other acids—hydrochloric and sulphuric—act similarly to the nitric acid.

If, instead of fresh tissue, we take tissue which has been freed from lecithin by repeated extraction with hot alcohol and ether, and also from inorganic constituents by subsequent extraction with water, we find acids will not cause the appearance of any inorganic phosphate, as the following table shows:

Ox Testis Free from all Phosphorus Compounds except those of Nucleic Acid.

To 100 grams (moist) 500 c.cm. HNO_3 $\frac{2N}{1}$ added.

	MgP_2O_5 in Tannic Acid Filtrate.	Inorganic Phosphate.
Sample as soon as possible contained	2.8	Absent.
Sample after 24 hours contained ...	14.2	,,
Sample after 48 hours contained ...	16.2	,,
Sample after 168 hours contained ...	17.5	,,
Total	24.0	

Such tissue, free from all phosphates except nucleic acid, may be hydrolized with acids until they will give no precipitate with tannic acid, and yet there is no phosphate present which will react with the nitro- or the hydrochloric molybdate reagent, or be precipitated with ammonia and magnesium citrate.

This whole work shows that it is much more difficult to cause the phosphorus to pass from its nucleic acid combination to an inorganic condition than was previously supposed. The whole principle of the Lilienfeld-Monti-Macallum reaction is therefore wrong, and we must conclude, with Raciborski and Bensley, that the deductions drawn from its use are worthless in so far as they relate to nucleic acid.

References.

[1] A. B. Macallum, *Proc. Roy. Soc.*, London, lxiii, p. 467, 1898. [2] R. R. Bensley, *Biological Bulletin*, x. p. 49, 1905. [3] Bayliss and Plimmer, *Journ. of Phys.*, xxxiii, p. 439, 1906.

AN ACTIVE ALKALOID FROM ERGOT.

By G. Barger, F. H. Carr, and H. H. Dale.

In a recent paper,[1] one of us (H. H. D.) described certain physiological actions as characteristic of all active preparations of ergot. These actions were described as falling into two classes: (1) The familiar primary effects on plain muscular organs—contraction of the arteries, the uterus, the sphincter of the pupil, and the urinary bladder; and (2) a secondary selective paralysis of certain myoneural junctions of the true sympathetic system, whereby the normal motor effects of sympathetic nerves and of the suprarenal active principle are abolished or replaced by inhibition. It was suggested as probable that these two sets of effects indicated the presence of two closely-associated principles. That suggestion, in the light of further knowledge, must be abandoned. The chemical investigation in which two of us (G. B. and F. H. C.) have been concerned has resulted in the isolation of an alkaloid which produces all the above effects in small dosage. Chemically this alkaloid appears to be closely related to the crystalline alkaloid ergotinine prepared by Tanret. There are, however, several clear and important points of difference. Ergotinine itself very readily crystallizes, but we have failed, as did Tanret, to obtain from it any crystalline salts. Our new alkaloid, on the other hand, has hitherto resisted attempts at crystallization in the free condition, but yields well-defined crystalline salts. Of these, the oxalate, tartrate, and phosphate have been prepared, and, by recrystallization, pure, colourless crystals of all have been obtained. A further most important difference from ergotinine is that the new alkaloid, thus purified, possesses a very high physiological activity: 0.0005 to 0.001 gram, given intravenously to a pithed cat, is sufficient to cause a large and long-continued rise of blood pressure, succeeded by the characteristic vasomotor reversal. Pure ergotinine, on the other hand, possesses very little if any such activity. A few experiments (made by Mr. Symons) on the cock have shown that our alkaloid produces, in doses of a few milligrams, the effects described as characteristic of sphacelinic acid and sphacelotoxin (Kobert, Jacobi).

The alkaloid was usually dissolved for injection in dilute caustic soda. This solubility in caustic alkalies is another point of distinction from ergotinine, and explains the presence of the new alkaloid, on the one hand, in alkaloidal mixtures, such as commercial ergotinine, Tanret's "amorphous ergotinine," and Kobert's "cornutine"; and, on the other hand, in preparations having acid properties, such as the "sphacelinic acid" of Kobert, and the "chrysotoxin" and "sphacelotoxin" of Jacobi.

It is clear that this alkaloid plays at least an important part in the physiological activities associated with ergot and their therapeutic applications.

Reference.

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ESTIMATION OF THE QUANTITY OF CHLOROFORM IN BLOOD AND TISSUES:

APPLICATION TO THE STUDY OF SOME POINTS IN RELATION TO CHLOROFORM ANAESTHESIA.

By Maurice Nicloux, M.D.,

Paris.

Method of Estimation.

The method enables one to make an exact determination of chloroform in blood and tissues. It may be divided into two distinct parts:

1. Separation of the chloroform by distillation conducted in such a way that the whole of the chloroform is, after the distillation, dissolved in alcohol.

2. Treatment of the chloroform thus separated by alcoholic potash. By this means all the chlorine of the chloroform is combined to form potassium chloride, which is subsequently estimated by a standard solution of silver nitrate.

The following is a short description of the technique of the method:

When we have to deal with an organic liquid, such as blood, 20 c.cm. are mixed with five times their volume of 93 to 95 per cent. alcohol, slightly acidified with tartaric acid; in the case of a tissue, this is cut in pieces with scissors in a vessel containing alcohol (100 c.cm. of alcohol for each 20 gr. of tissue); the blood or tissue with the alcohol is put into a flask connected with a Schloesing-Aubin apparatus (employed in all laboratories for the distillation of ammonia); the mixture is then distilled until it reaches two-thirds of its original volume. As the boiling point of chloroform is lower than that of alcohol, and the boiling point of alcohol lower than that of water, it is quite easily seen that under these conditions the distillate contains all the chloroform dissolved in strong alcohol, while the whole of the aqueous part of the blood or tissue remains in the flask with the excess of alcohol. In this manner the first part of the operation is performed.

The second part of the operation consists in the treatment of the chloroform with alcoholic potash; the reaction is

$$CHCl_3+4KOH=3KCl+HCO_2K+H_2O,$$

which shows that all the chlorine of the chloroform is combined as potassium chloride.*

Practically the operation is carried out as follows: The alcoholic solution of chloroform, which is the result of the preliminary distillation, is put into a flask, and 1 gram of caustic potash, free from chlorine, dissolved in 10 c.cm. of alcohol, is added to it; the flask containing the mixture is connected with an inverted condenser and boiled for thirty minutes, after which the reaction is complete. To

* This reaction has been employed previously by Chancel et Parmentier, de Saint Martin, Puckner and Harcourt. These authors used sealed tubes, which is a very great complication and quite unnecessary.

finish the estimation it is only necessary to determine the quantity of potassium chloride in one of the usual ways. I suggest for this that the flask and its contents be cooled, the excess of potash neutralized by pure sulphuric or nitric acid, and the chlorine determined by the use of a standard solution of silver nitrate, neutral potassium chromate being employed as indicator (Mohr's method). I use an aqueous solution of 8.535 grams of silver nitrate in 1,000 c.cm.; each c.cm. of this solution represents 2 mg. of chloroform.

Experimental control has shown the perfect accuracy of this very simple and rapid method. Therefore, I have been able to apply it to the elucidation of some very interesting points concerning anaesthesia by chloroform.

Applications.

1. *Determination of the Quantity of Chloroform in the Arterial Blood during Anaesthesia and at the Moment of Death.*—I have experimented on dogs. In a general manner, with certain exceptions, I can say that the proportion of chloroform in the arterial blood which causes the beginning of anaesthesia is from 30 to 40 mg. per 100 c.cm. of blood; the quantity which produces absolute anaesthesia is from 40 to 50 mg.; the quantity which causes death is from 60 to 70 mg. The difference between the anaesthetic dose and the dose causing death is, consequently, relatively small.

2. *Elimination of the Chloroform.*—As soon as the anaesthesia has ceased the chloroform is eliminated as follows: Five minutes after the administration of chloroform is stopped the quantity of chloroform in the blood has already half gone; then the disappearance of chloroform from the blood continues more slowly. After about three hours the quantity in the blood is about 7 mg. in 100 c.cm. of blood; after seven hours the chloroform has nearly disappeared from the blood, if not entirely.

3. *Determination of the Quantity of Chloroform in Tissues.*—If the determination of chloroform in tissues is made at the moment of death it is found that all the tissues contain a very notable proportion of chloroform. I have found, for instance (the quantity in arterial blood being 70 mg. in 100 grams of blood at the moment of death), in

	Milligrams.
Liver	50.5 in 100 grams
Kidneys	46.5 ,,
Spleen	38 ,,
Muscle	21.5 ,,
Heart	41 ,,
Brain	55.5 ,,
Bulb	85 ,,
Spinal cord	83 ,,

Therefore, of all the tissues just named it is the bulb and the spinal cord which contain the most chloroform. Nevertheless, they contain less than another tissue very common in certain subjects; this tissue is the fat. I have found in certain very vascular parts of the adipose tissue, for instance in that adherent to the kidneys, as much as 132 mg. of chloroform per 100 grams. This fixation of chloroform by brain, bulb, spinal cord and adipose tissue is easily explained because chloroform and fats or the substances of similar composition, such as lecithin, dissolve each other.

4. *Fixation of Chloroform on the Different Elements of Blood.*—Considering that a certain proportion of chloroform is fixed by the blood, one might ask what is its apportionment between the red corpuscles and the plasma. Pohl has already shown that the red corpuscles contain more chloroform. After a rapid centrifugalization of the blood of a chloroformed animal, I have determined by very accurate estimations the qualities fixed respectively by the red corpuscles and the plasma, and I found that the red corpuscles hold from seven to eight times more chloroform than the plasma.

5. *Passage of the Chloroform from the Mother to the Fetus.*—My experiments, which have been made on guinea-pigs, show that the chloroform passes from the mother to the fetus; the quantity of chloroform in the liver of the fetus is usually greater than the quantity of chloroform contained in the liver of the mother; the cause of this is, very likely, that the proportion of lecithin in the fetal liver is greater than that contained in the maternal liver. This passage is rapid. I found chloroform in the fetal organism after a deep anaesthesia which lasted only two minutes and caused the death of the mother. This passage may be compared in its rapidity to the passage of very soluble substances, such as alcohol,[1] impregnating in the same proportion red corpuscles and plasma; and as regards its mechanism it may be compared to the passage of substances having an elective affinity for the red corpuscles, such as carbon monoxide.[2]

6. *Passage of Chloroform into the Milk.*—My experiments were made on two goats which had milk in abundance.

On one of these goats I determined the quantity of chloroform in the milk from the beginning of the anaesthesia and compared it to that contained in the blood. In the beginning that in the milk was less than that in the blood, being 12 mg. as against 21 mg. per 100 c.cm.; after fifteen minutes they became equal, 26 mg.; after forty-five minutes the quantity in the milk exceeded very considerably that in the blood, being 60 mg. as against 37.5 mg. at the moment of death.

In the other goat I followed the disappearance of the chloroform in the milk after a profound anaesthesia which lasted forty minutes. I found the proportion contained in the milk was at the beginning of the respirations of pure air, that is to say at the moment when inhalation of chlorform ceased, 42 mg. per 100 c.cm. of milk, it then sank progressively but very slowly in comparison with the blood, so that after five minutes the proportion was still 40 mg.; after thirty minutes, 32.5 mg.; after one hour, 19 mg.; after two hours, 12 mg.; and after three hours, 9 mg.

So that the chloroform passes into the milk, and the comparative determination in milk and blood shows that at a certain moment the quantity contained in milk may exceed the quantity contained in blood. This ought not to surprise us, seeing the elective affinity of chloroform for fatty substances which I have already indicated; the fat in the milk follows this general law.

References.

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SOME OBSERVATIONS ON THE MICROCHEMISTRY OF THE BLOOD PLATES.

By George T. Kemp, M.D., Ph.D.,
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with the collaboration of
Chester E. Harris, M.D., and Henrietta Calhoun, M.A.

During the past six years I have been engaged in the study of various problems involving the blood plates, and in this work I have received much valuable assistance from graduate students in my department. Miss Calhoun and Mr. (now Dr.) Harris made the blood plates the subject of their thesis for the master's degree, and Dr. Stanley, formerly Assistant in Physiology, did so much in connexion with their work and my own that I feel all three are entitled to be mentioned as joint collaborators with me in the part of the subject which I shall present in this paper.

It was my intention to devote the most of this paper to those results of our researches which have a clinical bearing, but seeing by the advance announcements that the Section of Physiology is to give especial attention to microchemistry, especially that of the nucleus, I shall depart slightly from my first intention, as indicated by the prospectus, and dwell more at length on the microchemical side of the question.

In spite of all the work that has been done on the subject, the origin and nature of the blood plates is still unknown. It is obvious that a study of their microchemistry is one of the most certain means of gaining information as to their relationship and functions.

The old method of trying every stain in Grübler's list, without studying the true microchemical reaction, has led to a large number of recorded observations, which fairly threaten to swamp the observer who attempts to go through them. We have tried many stains which we have seen recommended, only to feel convinced that the stain was mechanical, and probably did not represent a true

chemical reaction at all. Again, we found (an old, old story) that the method of fixation was of vital importance to the reaction.

We employed, chiefly, three methods for preparing our specimens for observation:

(*a*) Dry smears, in thin films, on a cover-glass, which were afterwards fixed by different means.

(*b*) A special method which was first described by one of us (Kemp)[1] in 1886, but which we have since improved on, and which we will describe more at length.

(*c*) Adding the reagent to the blood the moment it emerges, and examining fresh.

Method (*a*) has the advantage of allowing the widest range of fixatives to be used with it. Many reagents which would precipitate the wet blood can be used without this disadvantage on the dry film. It is a serious mistake, however, to imagine that we have "chemically pure" cells to deal with when prepared by this method. There is always a film of the dried plasma over the corpuscles, and between them, and this behaves very differently with different fixatives and stains. In the case of the blood plates there is another grave objection to this method, namely, the blood plates are exceedingly susceptible to any rough treatment. The mere touch of a foreign body causes them to change their form *and composition*. They become granular and exude a sticky substance, within a few seconds. The drying of the film is not instantaneous, and it is almost impossible to get even an approximately normal appearance in them, in dry preparations. They are nearly always found granular and clumped in groups.

In method (*b*) the stickiness, developed by the plates when they touch a foreign surface, is made use of to get a large number of them in the field for observation. The old method was to take a drop of blood (just exuded) on a cover-glass, touch it (blood side down) to the surface of some 0.75 per cent. NaCl in a watch-glass and drop it into 1 per cent. osmic acid; the whole being done as rapidly as possible. The blood plates stick to the cover-glass, and the red corpuscles, which would obscure them, are washed away by the salt solution. This gives very good results, but so many of the red corpuscles are washed away that often not enough are left for comparison. The improved method is to put a few drops of osmic acid into a watch-glass, the amount being such that, if a cover-slip be placed in the watch-glass, the osmic acid will wet about half or three-quarters of the cover-slip's under surface. Arrange a number of such watch-glasses in a row, the osmic acid in them. Have a number of cover-slips placed so that they may be seized quickly (for instance, projecting partly over the edge of a book). Stick the finger and squeeze out a large drop of blood. Pick up a cover-glass quickly, pass it rapidly across the *top* of the blood drop, and place it in one of the watch-glasses of osmic acid; then immediately shake the watch-glass (best round and round), until considerably more than half of the red corpuscles are washed from the cover-slip. This requires only a few seconds. Cover the watch-glass to prevent evaporation, and allow the cover-slip to remain in contact with the osmic acid for twenty minutes or longer. It may remain so for hours without harm. Wash with water and examine. If the blood has been gotten into the osmic acid promptly, the whole field will be full of scattered blood plates lying between the red corpuscles. The plates will be well preserved, for the osmic acid fixes them very rapidly. Both red corpuscles and blood plates will adhere quite firmly to the cover-slip, which may be washed thoroughly, and put through any number of reagents. This gives a cleaner preparation (less of a film) than a dry smear. By having a series of watch-glasses, fifteen or twenty preparations may easily be made from one ordinary puncture. The blood should be wiped from the finger with a clean towel or handkerchief, and a fresh drop taken for each preparation.

Osmic acid is generally the best fixative to use with this method, because with it the red corpuscles stick to the cover-slip best. An aqueous solution of formaldehyde, 2.5 per cent., containing about 0.9 per cent. NaCl, is an excellent fixative, and may be used instead of osmic acid. In this case do not shake the watch-glass—the red corpuscles will fall off only too readily without shaking; in fact, the chief objection is that there are rarely enough reds left for comparison. For this reason it is often desirable to pass the slip from the aldehyde, through graded alcohols up to 95 per cent., or, in other words, to omit washing with water.

In a good preparation made by this method (especially with osmic acid), fields may be found showing red corpuscles, leucocytes, and blood plates, all well scattered. In using reagents which are supposed to detect nuclear matter it is very important to have leucocytes in the field for comparison.

Method (*c*) is really the only satisfactory way to study, at once, the chemical reaction of a reagent and the histological structure of the cell. In either of the methods (*a*) or (*b*) the blood plates are fast to the cover-slip, and are not as free to change their shape, the position of their granules, etc., as when they are floating in the blood mixed with the reagent.[2] Of course, only a limited number of reagents are adapted for this method, and in using a reagent which is not a fixative it must be remembered that the plates undergo a definite series of disintegration changes even when no reagent is added.

Our researches on the micro-chemistry of blood plates have been fairly extensive, and it would be impossible to describe them in anything like the allotted time, so we shall confine ourselves especially to three reagents, all of which represent more or less specific reactions, and all of which are tests for nuclear matter. These reagents are methyl green, nitro-ammonium molybdate, and HCl and pepsin.

Methyl green, as obtained even from the best dealers, is apt to contain impurities (methyl violet), so we purified all we used by shaking and washing with amyl alcohol until colour was no longer extracted. The stain was used with all three methods—(*a*), (*b*), and (*c*). It gave the cleanest results (not necessarily the deepest stain) when added to formaldehyde in physiological salt solution and slightly acidulated with formic or with acetic acid. The nuclei of the leucocytes take the stain well, and in a short time the plates will exhibit granules which stain like the nuclei without the plates altering their form or clumping together as they do when they become granular in the absence of a fixative. The red corpuscles are, for the most part, deprived of their haemoglobin, and in the colourless stromata of a few of them (not the majority) stained granules appear, which, as far as we could tell, were similar to the granules in the plates. These granules in the red corpuscles did not have a hard-and-fast position or arrangement. In examinations of fresh blood, made by two of us (Kemp and Stanley) by this method, at Cripple Creek (altitude, 9,400 ft.), the number of red corpuscles showing these basophile granules was noticeably larger than at Champaign (altitude, 700 ft.). The number of red corpuscles showed the ordinary numerical increase observed at high altitudes. The percentage increase in the blood plates was very much larger than in the red corpuscles; the average size of the blood plates also increased (that is, the number of large blood plates was greater); microcytes became so numerous as to attract attention; and finally, about ten days after remaining at this altitude, a few blood plates were seen which were undoubtedly coloured red in normal blood, and might have been taken for either coloured blood plates or microcytes. These intermediate forms were never numerous, but they were unmistakably present in the blood of six healthy individuals.[3]

You are all familiar with the different theories on the disappearance of the nucleus of the erythroblasts. Some think the nucleus is extruded as a whole; some think it is extruded, leaving a definite structural part behind; some think it is disintegrated, the fragments being scattered as granules in the stroma; and some think it is dissolved, the constituents still remaining in the stroma. Our observations do not conflict with these theories, except as to a definite structure of the nuclear remains. Certainly we have never found any *Innenkörper* of definite structure, staining with methyl green. In comparing our results with those of others, it must be remembered that in our experiments the corpuscles were floating freely in blood mixed with the reagent.

In connexion with this should be mentioned Hayem's haematoblast theory, namely, that the blood plates make red corpuscles. He has described intermediate forms (*globules nains*) between the plates and the red corpuscles, and says they exist in normal blood. We have never been able to demonstrate this, even in the blood of animals recovering from severe haemorrhage, though we have given

this point special attention, and some of our work on the subject has extended through twenty years. It is not impossible that there may be more than one process of blood making, and that certain organs are only called on under exceptional conditions. We refrain from indulging in speculative hypotheses at present, but our observations, as stated above, are correct, and whether they will ultimately be explained by showing that the plates are derived from nuclei, or that they are independent elements containing nuclear matter scattered through them, remains for further researches to show.

Passing now to the study of the reaction of the blood plates with nitro ammonium molybdate, we would say that this represents an ideal method, for we know how the reagent works, and just what its reactions would indicate. With orthophosphates the reagent gives a prompt yellow precipitate which is insoluble in the reagent. With phosphorus in complex organic compounds (such as nucleic acid) there is no immediate reaction, but at the end of some hours this phosphorus is converted into orthophosphate by the free HNO_3 in the reagent, and then the characteristic yellow precipitate of phospho-ammonium molybdate appears. Following Macallum,[1] we reduce this with phenylhydrazine hydrochloride, when the yellow colour gives place to a green. In searching for nuclear phosphorus in the histological elements of the blood, the preparations must be extracted for at least six hours with alcohol in a Soxhlet apparatus to remove the lecithin. Our method (*b*) of making cover-glass preparations lends itself well for this. The cover-glasses are stuck into slits in a disc of cork (the cork had been previously extracted). This floats on top of the alcohol, and receives the force of the dripping alcohol from the condenser, while the cover-glasses with their films are constantly immersed in the upper layer of fresh alcohol as it distils over. We have been in the habit of running preparations of frog's blood parallel with the preparations of mammalian blood, so as to have control observations where nuclei were plentiful. Our earlier work with this method gave uncertain results. Sometimes we obtained a green colour on reduction with phenylhydrazine, sometimes the colour was blue, and sometimes there was no change at all in the colour either of the red corpuscles or the blood plates, or the nuclei of the frog's corpuscles by the time they were mounted. If the cover-glass, with its film of blood, be taken from the nitro-ammonium molybdate solution, placed in a drop of the phenylhydrazine on a slide and examined immediately, a green colour will often appear for a few moments, then turn blue, and finally disappear. In other cases the green will persist for some time, especially in the nuclei of the leucocytes of mammalian blood, but we have had difficulty in preserving the green. On looking into this, we are inclined to believe that the green is really a mixture of yellow and blue. The first compound formed is yellow and insoluble. The phenylhydrazine transforms this into a different molybdenum compound, which is blue and soluble. While there is still some yellow present the mixture looks green, but after the yellow precipitate has all been transformed the green disappears, and blue takes its place. The blue, being soluble, is removed to a greater or less extent by the washing. In some cases the blue has remained as a fine precipitate, which is not removed by washing, but which clings to the blood film, between the corpuscles as well as in them. The following experiment confirms us that this view is correct:—Precipitate some of the nitro ammonium molybdate in a test tube with Na_2HPO_4. Wash the precipitate on a filter. Shake up some of this precipitate with distilled water, and add it drop by drop to a solution of phenylhydrazine hydrochloride in a test tube. As the precipitate sinks in the phenylhydrazine it dissolves, and a blue colour is formed as the yellow disappears. Where the yellow and blue are mixed it gives the characteristic green. After the whole solution has become blue cross the test tube containing it with another test tube containing some of the suspended yellow precipitate. Where the tubes cross will be seen the characteristic green. This does not vitiate Macallum's test as a genuine microchemical reaction, for neither the yellow, blue, nor green is formed (in the test-tube reaction) unless phosphorus is present; but there does exist the technical difficulty which I have pointed out, and which might cause some one to miss the phosphorus reaction in such delicate structures as the blood plates.

Digestion with hydrochloric acid and pepsin has been tried on the blood plates, by Lilienfeld,[2] by Sacerdotti,[3] and by Kemp and Calhoun,[7] all of whom found an undigested residue which was presumably nucleo-proteid. We have extended the work along this line, and were surprised to find that blood films which had been fixed in formic aldehyde showed a remarkable resistance to digestion by HCl and pepsin, while similar films fixed in osmic acid had the corpuscles in them digested readily. This was investigated somewhat at length in the thesis work* of Calhoun and Harris,† from which we quote as follows:

After fixing in formaldehyde (2.5 per cent. and over), none of the elements of the blood digested, even after the aldehyde had been thoroughly removed by washing. . . . We, therefore, extended our observations to include the effect of formaldehyde hardening on substances which are known to be readily digestible by hydrochloric acid and pepsin under ordinary circumstances. As the best example of this type of substances, we chose fibrin, obtained from whipping bullock's blood, and subsequently preserved in 95 per cent. alcohol. Separate specimens of this were treated with different strengths of formaldehyde; then, after thorough washing, these were subjected to digestion with hydrochloric acid and pepsin, under different conditions of pepsin concentration and of temperature. Side by side with these, control tests were made with the same fibrin which had not been subjected to the action of formaldehyde. The results of these experiments prove conclusively that formaldehyde has a profound effect on the digestibility, by hydrochloric acid and pepsin, of certain substances hardened in it; therefore formaldehyde cannot be used as a fixative for blood preparations in this line of work. The results of our experiments with fibrin are given in the following table:

Time in Aldehyde.	Aldehyde Solution.	Pepsin Solution.	Temperature.	Time of Digestion.
Hours.	Per cent.	Per cent.	Deg. C.	
12	5.0	10	18	Not digested in 3 days.
12	5.0	10	37	Not digested in 3 days.
12	2.5	10	18	At end of 12 hours.
12	2.5	10	37	At end of 12 hours.
12	1.0	10	18	At end of 12 hours.
12	0.5	10	18	At end of 12 hours.
12	0.1	10	18	At end of 12 hours.
12	5.0	1	18	Not digested in 48 hours.
12	5.0	1	37	Not digested in 48 hours.
12	2.5	1	18	Not digested in 48 hours.
12	1.0	1	18	Not digested in 48 hours.
12	0.1	1	18	Digested in 1½ hours.

As will be seen from our table, the strength of aldehyde affects the time of digestion, the stronger aldehyde solution retarding the action longer than the weak.

We also tried the effect of osmic acid upon the fibrin specimens in the same way, and we found that for a 1 per cent. pepsin the osmic acid, when not well washed out, retarded the action so much that the fibrin was undigested at the end of a week. With blood preparations hardened in 0.5 per cent. osmic acid for thirty minutes, and well washed in 0.75 per cent. NaCl before putting into the 10 per cent. pepsin solution, the reds digested at once, leaving nothing but the leucocyte nuclei and the plate granules. We decided that the 1 per cent. osmic acid is the best preserving fluid for digestion experiments. In every case there was granular residue left from the plates. Since we knew that the blood plates contain nuclear matter this residue might prove to be composed of nucleo-proteid, as has been suggested. We thought it might be possible to stain the preparation with methyl green before subjecting it to the influence of artificial gastric juice. We found that this would not work because, although the stain was very good for preparations hardened in weak aldehyde, it was decolorized by acid pepsin. With osmic preparations the methyl green no longer acted simply as a pure nuclear stain. After digestion of preparations hardened in weak aldehyde

* I have not repeated these experiments, but I was in close touch with the work, and can endorse it.—Kemp.

† Calhoun and Harris: Blood plates, coagulation, and regeneration of blood (unpublished thesis in the library of the University of Illinois, Urbana, 1903).

we found that this residue stained like nuclear matter with acid methyl green.

I beg that you will not consider this an attempt to discuss the whole question of the microchemistry of the blood plates. There have been many interesting researches made in this field which we have not undertaken to mention, and there is other work of our own in the same line which we believe to be not without value, but we have simply chosen those which would fall most into line with the subjects to be emphasized at this meeting, and we have already consumed more time than we had intended. We will, therefore, not attempt to discuss other points in the physiology and pathology of the blood plates at present, beyond calling attention to the fact that we believe them to be of value in diagnosis and prognosis. Those who are specially interested in this phase of the question will find an account of part of our work in a paper which was read last year before the American Medical Association.[5]

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TRANSPLANTATION OF BLOOD VESSELS AND ORGANS.

(WITH PRESENTATION OF SPECIMENS AND LIVING ANIMALS.)

BY

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Various combinations of arteries and veins can be successfully made by any of the several methods of blood-vessel anastomosis developed by us. The specimens presented illustrate some of the possible combinations. Also they show that the results may be considered as permanent. Entire organs may be transplanted by anastomosis of their blood vessels to suitable points on the circulatory apparatus of the host. Three methods have been chiefly employed, namely:

1. Simple transplantation—for example, by uniterminal or end-to-end anastomosis of the peripheral ends of the vessels of a transplanted kidney to the central ends of the renal vessels of the host.

2. Transplantation by patching—for example, the renal vessels are removed intact with the organ by cutting out oblong or triangular pieces of the aorta and vena cava containing the mouths of the vessels, and then suturing the patches to suitable openings in the walls of the aorta and cava of the host.

3. Transplantation *en masse*: (*a*) By biterminal anastomosis; the renal vessels are removed intact by cutting out segments of the aorta and cava, which are then interposed between and united to the ends of the divided aorta and cava of the host. (*b*) By terminolateral anastomosis; and (*c*) by latero-lateral anastomosis. Space prohibits a description here of the last two methods.

Transplantations of the kidneys, suprarenals, thyroid, ovary, a limb, or the intestines, heart, heart and lungs, head, and all of the subdiaphragmatic portion of the body have been made. While all of the transplantations have been successfully done, so far as the establishment of the circulation is concerned, we have not yet in all cases tried for permanent results. In the first five transplantations mentioned permanent results have been obtained. In the others no attempt was made to keep the animals more than a few hours, therefore strict aseptic technique was not employed. Nevertheless, the circulation was satisfactorily re-established, and evidence of return of function was obtained. Of course in different tissues differences exist in the resistance to the necessary temporary operative conditions.

The specimens presented are mainly of the replanted and transplanted glandular organs. They demonstrate (*a*) that after months transplanted organs may exhibit normal characters; and (*b*) that the anatomical condition of the blood vessels remains excellent.

Clinical examination of the animals shows that the replanted thyroid gland is in good condition after one year; that the circulation through the various combinations of blood-vessel anastomosis after eight to twelve months is good; and that animals may live in good condition with transplanted kidneys, ovary, suprarenals, or limb. A transplanted kidney continues to secrete abundant urine, which in composition differs but slightly from normal.

EVOLUTION OF ELEMENTARY TISSUES IN RELATION TO PHYSIOLOGICAL FUNCTION.

By Professor C. F. Hodge, O. P. Dellinger, and F. N. Duncan, M.D.,

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The subject was dealt with in two papers, as follows: (1) Physiological Functions and Structures in *Amoeba proteus*, by Professor C. F. Hodge and O. P. Dellinger (Clark University); (2) Differentiation of Contractile Protoplasm, by Professor C. F. Hodge and Dr. F. N. Duncan (Clark University).

Both these papers form a part of a more extended research which has for its aim the elucidation of the evolution of the elementary tissues as mechanisms for the performance of physiological functions. They may be thus conveniently reported together.

Function everywhere determines structure. We have in this simplest form of our animal series all the functions present in higher animals. These functions fall naturally into two main groups, the first of which we may designate as the functions of movement and co-ordination, or the neuro-muscular functions. These are active in the amoeba. What structural mechanism did we find?

In sections of amoebae we find no distinction between the so-called "ectosarc" and "endosarc," so clearly differentiated in the living animal, except that in the interior the meshes of the protoplasm are coarse, and over the surface they are fine. It is one uniform substance throughout so far as stains are able to demonstrate.

The other group of functions comprise — digestion, assimilation, growth, reproduction. Where do we find our glands in amoeba? The characteristic of gland tissue everywhere is the zymogen granule. The only gland we can find in the body of amoeba is the nucleus itself. This is composed of a mass of granules of different sizes, with clear intergranular substance. In many sections, also, we see evidences that these granules pass out of the nucleus into the food vacuoles and break down probably into the ferments that effect digestion. The fixture is complicated by the nuclei and food of ingested algae, paramecia, etc., but not very seriously.

We have then, in brief, only two functional elements in the amoeba—a spontaneously co-ordinative, conductive, sensori-motor protoplasm—the main body of the animal; and a digestive assimilative mechanism—the nucleus. We may properly add a third element—the circulating fluid, by which the formed structures of both nucleus and protoplasm are bathed, which at once supplies nutriment for growth and functional activity, and washes away waste matters.

Now, as to the differentiation of contractile protoplasm. Dr. Duncan's point may be briefly stated. In the finer pseudopods of amoebae, especially of the radiosa types, we find contractile protoplasm almost pure. It consists of finely fibrillar substance. We find this still better differentiated in the cilia of the infusoria and flagellates. Dr. Duncan has succeeded by special staining methods in tracing this differentiation through an extended series of smooth muscles from those of hydra and other coelenterates, starfishes, worms, molluscs, into the vertebrates. Whether he will be able to connect this series with the striated muscles of both invertebrates and vertebrates remains for a future research to decide.

THE LYMPHATICS OF THE LIVER.

BY

PERCY T. HERRING, M.D., F.R.C.P.E. and SUTHERLAND SIMPSON, M.D., D.Sc.

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THE lymphatics of the liver were described by Mascagni, Cruickshank, and other anatomists, who employed the method of rendering them visible by the injection of quicksilver. As a result of their work arose the old classification of the lymphatics of the liver into a superficial and a deep set. Teichmann[1] in 1861 described the lymphatics of the human liver. A superficial set, forming a network on the convex surface of the liver, unites in a trunk, which passes along the ligamentum suspensorium through the diaphragm to join the thoracic duct. On the concave surface the vessels unite near the gall bladder, some pass to the convex surface, some to the portal vein, while others sink into the substance of the liver. The deep set of vessels accompanies the branches of the portal vein, hepatic artery, and bile ducts, but does not penetrate into the lobules. Teichmann often found injection material penetrating even as far as the central vein, but could not satisfy himself that it was in the lymphatics. The deep set of vessels runs to lymphatic glands along the portal vein.

Shortly after Teichmann's work appeared Carter[2] and MacGillavry[3] independently described lymphatics inside the lobules of the liver everywhere surrounding the blood vessels and separating them from the liver cells. MacGillavry could find no superficial lymphatics in the liver of the dog and rabbit, but described the large vessel which runs from the fundus of the gall bladder to its neck and along the cystic duct. He injected the portal lymphatics with a cold watery solution of Prussian blue, and overcame the resistance offered by the valves by soaking the liver for some hours previous to the injection in weak spirit. The valves were shrunken and rendered non-efficient by this procedure. MacGillavry's results were not accepted by Hering, who considered his method too crude to be reliable. In the rabbit's liver Hering[4] could find no perivascular lymphatics within the lobules. Since then many investigators have worked at the subject, and most of them are in favour of the existence of intralobular lymphatics.

The methods of investigation employed have been numerous. Irminger and Frey[5] injected the bile ducts under pressure high enough to produce extravasation. They believed that the extravasated fluid found its way into lymphatics, and they described all situations that showed it as such. Asp[6] and Fleischl[7] adopted the same procedure. Budge[8] injected the portal lymphatics with asphalt dissolved in chloroform, and then used a coloured gelatine mass to fill the blood vessels. He also inserted the nozzle of an injection syringe into the adventitia of the hepatic veins. Disse,[9] too, injected from the walls of the hepatic veins. Most workers at the subject made use of the double method of injecting lymphatics and blood vessels with materials of a different colour.

Budge was the first to describe the lymphatics of the hepatic veins, and he argued that there must be intralobular lymphatics to connect them with the portal system. Disse showed that other connexions exist between the two by means of large trunks running in connective tissue septa between the portal spaces and the adventitia of the hepatic veins. Both Budge and Disse, by using silver nitrate, found that the large trunks of the portal and hepatic vein lymphatics are lined by endothelial cells. They could find no endothelial walls for the intralobular lymphatics they described.

Of recent years the observations of Kupffer[10] on the character of the endothelium lining the blood vessels of the liver, of Minot on their development, of Browicz[11] and of Schäfer[12] on the presence of fine channels in the liver cells communicating with the blood vessels, have rendered the question of the existence of intralobular lymphatics a more important one. We have injected the liver lymphatics in a number of dogs and cats with carmine gelatine. The main lymphatic trunks coming from the portal fissure were exposed as soon as possible after the animal had been killed by chloroform, a large trunk was selected, a ligature placed round it, and a cannula tied in. The injection was made by air pressure measured by a mercury manometer in connexion with the tube leading to the bottle containing the injection mass. The cannula and tube leading from the supply bottle were filled before the cannula was inserted so as to avoid entrance of air into the lymphatics. During the injection the animal and the injection apparatus were immersed in a bath of water at a temperature of 37° C.

Occasionally we injected the wall of a hepatic vein by thrusting the point of the cannula into it in the manner recommended by Budge. This method did not prove satisfactory, and the injection is limited to a very small portion of the liver. Injection of a large trunk near the portal fissure gives better results. The carmine gelatine distends the vessel and usually overcomes the resistance of the valves without any difficulty. Spread of the injection takes place into neighbouring vessels by branches, and its escape forwards to the thoracic duct is prevented by clamping all the lymphatics below the cannula. The injection takes place slowly, and is continued for one and a half to two hours longer. We always opened the inferior vena cava above the diaphragm to empty the blood vessels and prevent a rise of pressure in the liver. When the injection was complete the liver was rapidly removed from the body, leaving clamps attached, placed in cold 10 per cent. formalin until the gelatine had set, then cut up into smaller pieces, and left in the same fixative. Pieces were subsequently imbedded in paraffin, sections cut, and lightly stained with haematoxylin.

We find no evidence of superficial lymphatics in the liver of the dog and cat. The large vessel on the surface of the gall bladder is frequently injected, but it receives its radicals from the connective tissue surrounding it, and not from the surface of the adjacent liver. Inside the liver the injection mass is confined to the portal spaces and fills definite channels surrounding branches of the portal vein, hepatic artery, and bile ducts. In many places, especially near the site of the injection, the carmine gelatine diffuses into the connective tissue, but there is usually a sharply-defined border between the connective tissue and the liver parenchyma, and no injection passes into the latter. In other places carmine gelatine occasionally enters the lobules, and may reach the central vein. In all such injected lobules the carmine gelatine is present inside the large interlobular veins supplying them, and the injection of the lobules is one of the blood vessels and not of the lymphatics. Wherever the blood vessels are imperfectly injected and contain a mixture of blood and carmine gelatine the latter tends to adhere to their walls, especially in the neighbourhood of Kupffer's cells. If the blood vessels are subsequently injected with Prussian blue, the typical appearance described by MacGillavry is produced, but the ring of carmine gelatine surrounding the Prussian blue does not denote the injection of a perivascular lymph space; it is a deposit inside the wall of the blood vessel. The injection sometimes passes into the liver cells, but when it does so it is present inside the blood vessels in large amounts, and has undoubtedly entered the liver cells directly from the blood vessels. Lymphatics are numerous in the walls of the hepatic veins, but do not extend as far as the central veins of the lobules. The lymphatics reach the hepatic veins by accompanying the branches of the hepatic artery which supply the walls of the veins. The flow of lymph from the hepatic veins is probably in the direction of the portal fissure. Injection forced into the wall of a hepatic vein soon appears at the portal fissure, with very little spread into the adjacent parts of the liver. In the dog and cat all the lymph leaves the liver by the portal fissure, most of the trunks pass to lymphatic glands along the portal vein, but one trunk, at least, runs along the round ligament and joins the lymphatics of the diaphragm.

The lymphatics of the liver appear to be limited to the connective tissue, and have a distribution similar to that of the hepatic artery. The liver furnishes an exception to the general rule that the cells of a secreting gland receive their nutritive supply indirectly from the blood by means of lymphatics. The liver cells receive their nourishment directly from the blood by fine channels which communicate with the interior of the blood vessels. In mammals, birds, reptiles, amphibians, and fishes we have succeeded in injecting these channels from the blood vessels at pressures not exceeding those which may be present under normal conditions. Minot[13] has shown that the so-called capillaries of the liver are not true capillaries but sinusoids, and that their endothelial lining is one of

widely separated mesenchymal cells. These cells, generally known as Kupffer's cells, are large, and possess the power of phagocytosis. They form an incomplete lining for the blood vessels, and allow the ready passage of blood plasma, and even of fine solid particles into the liver cells.

Throughout each lobule of the liver there are fine intracellular plasmatic channels freely communicating with the blood vessels. In all probability these channels act as an intermediate system linking the blood vessels in the lobules to the lymphatics outside. If this is the case, the plasma must flow from cell to cell on its way to the periphery of the lobule, and the lymph be secreted directly into the lymphatics by the liver cells. The lymph will consequently pass through the liver cells, and its amount and degree of concentration will depend among other things on the activity of the liver cells.

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EXPERIMENTAL GLYCOSURIA.

By Professor J. J. R. MACLEOD, M.D.,

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IN a communication before the Physiological Society in June of last year, Dr. D. H. Dolley and I showed that after puncture of the fourth ventricle of the brain in rabbits, nicotine administration caused the resulting glycosuria to be much less marked than in normal animals. Thus, the reducing power of the bladder urine, removed in from two to three hours after puncture of the fourth ventricle, was much less marked in nicotinized than in normal rabbits; indeed, in several experiments, was found to be entirely absent.

On the other hand, we found nicotine injections to have no definite effect on the reducing power of the urine in dogs rendered glycosuric by stimulation of the central ends of the vagus nerve.

We pointed out that these results on the rabbit might be due to the action of nicotine on the sympathetic ganglia, through which pass the efferent impulses from the diabetic centre to the liver. Before such an explanation could be accepted we had, however, to show that the fall of blood pressure which nicotine produces is not the cause of the diminution in the glycosuria, and with this object in view we studied the effect on the reducing power of the urine of lowering of the blood pressure (by haemorrhage) in dogs rendered glycosuric by stimulation of the central end of the vagus. We found haemorrhage to produce a distinct diminution in the glycosuria. In order to confirm and amplify these observations, Dr. C. E. Briggs, Mr. Knox, and I have, during the past year, repeated most of the work, but instead of examining the urine have determined, by Waymouth Reid's method, the percentage of sugar in the blood. Very shortly after starting our investigations we noticed that the urine may acquire reducing properties when there is no excess of sugar in the blood. Whether it is to dextrose that the urine owes its reducing power or not we did not investigate. The results of our observations, briefly stated, are as follows:

1. On dogs rendered glycosuric by stimulation of the central end of the vagus, nicotine injections sufficient to cause blocking of the vagus produce a distinct fall in the amount of sugar in the blood. This diminution in blood sugar appears in from twenty to forty minutes after injection, and seems to pass off in about two hours.

2. Haemorrhage sufficient to lower the arterial blood pressure to about 50 mm. Hg, instead of causing a diminution in the percentage of blood sugar, causes a distinct increase. This increase is less marked when asphyxia is carefully guarded against by oxygen inhalation. The depression in reducing power of the urine after haemorrhage must therefore be due to some renal mechanism.

3. Stimulation of the peripheral end of the splanchnic nerves, or of the spinal cord below the fifth dorsal roots, causes no increase in the percentage of sugar in the blood.

ON THE EXCRETION OF URINE.

By V. E. HENDERSON, M.A., M.B.Tor.

THERE are some marked discrepancies in the experiments on the secretion of the kidney as reported in the literature. For instance, Dreser[1] reports an experiment as follows: Rabbit, 1.430 grams, under caffeine gave 35 c.cm. of urine with a $-0.38°$. In some work that I was doing I tried to confirm this result but was quite unsuccessful until I adopted the expedient of feeding my animals on watermelon, when a rabbit of 2,035 grams, which had for over a week excreted 500 c.cm. or more water per diem, gave in response to an injection of 1 c.cm. of a 10 per cent. solution of caffeine sodium salicylate, 20 c.cm. of urine in twenty minutes with a 0.36. I presume that Dreser carried out his experiments in winter, and that his animals were fed with sugar-beet or turnip.

Again, Starling states that increased blood flow through the kidneys always leads to an increased diuresis. Gottlieb and Magnus showed that this did not hold good, for when they injected into the circulation of an animal the blood of another animal they caused a plethora which led to a dilatation of kidney vessels, but to no increase in secretion.

Another case in which this fails to hold good was reported by Loewi;[2] a rabbit received several injections of caffeine, to all of which the kidney responded with a dilatation, yet while the first injections led to a marked flow of urine, to the last there was a very slight increase indeed and one that would have been quite overlooked had not each drop been registered graphically. I have had the same experience in several experiments; it seems, in fact, to be a regular occurrence. Further, I have found that often even the first injection of caffeine causes little increase in secretion in spite of a dilatation of the kidney. Rabbit, 1.981 grams, dry fodder, urine for twenty-four hours, 35 c.cm., normal rate one drop in five minutes or more under caffeine 1 c.cm. of a 10 per cent. solution; maximum diuresis four drops per minute, total 10 drops in three minutes. Dilatation of the kidney.

The water excretion of rabbits varies very largely and almost directly with the diet, but if large quantities of water are taken for some time a considerable quantity is stored up, as I think may be seen from the following experiments.

In each case the animal was bound down upon a table, cannulae were placed in the jugular, carotid, and bladder. Urethane, with ether, if necessary, was used as the anaesthetic. The blood pressure was taken towards the conclusion of the experiment in order to make sure that any lack or fall in the amount of secretion was not due to general circulatory failure. The rabbits weighed in all cases about 2 kg. The urine of the previous twenty-four hours and the fodder is given to indicate the state of the water content of the diet. The response to caffeine given is that to the first injection. Subsequent injections were given till there seemed to be no further response. The muscles removed were the gastrocnemii, one being as a rule taken before the first injection, the other after the caffeine injection to which response was slight. The same is true of the blood.

Further, in the course of experiments with phosphate diuresis, Loewi, and with Glauber salt diuresis, Gottlieb and Magnus noted that at first the amount of sodium chloride excreted rose with the amount of water and then fell very markedly. Cushny noted the same thing, and sought to show that it was due to a reabsorption of NaCl by the tubules. Loewi[3] directed the experiments to show that this was due to a poverty of the animal in chlorine.

The case of dextrose and the explanation of its absence from the urine comes here to mind. The best explanation for this seems now to be that the dextrose is held in some physico-chemical combination or absorption by the proteins.

Evidence is also accumulating that the same thing is true of the salts. For example, Moore and Wilson[4] state in a recent paper: "It looks from these results as if the content of the normal serum in inorganic salts corresponds exactly to the combining power of its protein constituents, thus indicating that these salts exist in feeble chemical combination or adsorption with the proteins." If this is true the rate of passage of the

Rabbit.	Urine in 24 Hours.	Response to Caffeine.	Muscle Solids.		Blood Solids.		Muscle.	Diet.
			Before.	After.	Before.	After.		
July 4	50	Drops	—	24.07	—	—	—	Hay, grass.
,, 4	100	8 c.cm.	23.44	—	—	—	—	Grass.
,, 2	60	Drops	24 14	—	—	—	—	Grass.
,, 9	400+	15 c.cm. in 10 min.	22.7	—	—	—	—	Beet and water-melon.
,, 17	—	> 1 c.cm.	24 44	—	18.99	—	—	Grass.
,, 19	—	9 c.cm.	23.65	24.43	18 07	—	—	Grass.
,, 31	540	30 c.cm.	23.2	24.92	—	18.56	—	Water-melon.
Aug. 2	560	25 c.cm.	23.6	24+	16.31	18+	—	Water-melon.
,, 3	—	17 c.cm.	23 89	24.13	16.91	18	—	Beet.
,, 5	550+	30 c.cm.	23.89	—	15	18 (?)	—	Water-melon.

salts into the urinary tubules by diffusion would depend upon the total amount of any salt present, the sodium chloride diffusing with greater difficulty out through the glomerulus and being reabsorbed with more avidity the more nearly the amount of salt present in the plasma approached the binding power of the protein present. We would expect also that for dextrose when an excess above the protein binding power is present in the blood it would escape in the urine, which we well know occurs. Urea, it may be, has no binding power, and hence, with its high power of diffusion, it might readily diffuse out into the glomerular capsule and be carried away by the outflow. Purin bases diuresis, with its increased blood flow, always causes, as we know, an initial rise in the amount of urea excreted with a subsequent fall which we might describe as the simple washing out of the free urea in the blood stream and tissues. This would also explain Loewi's result with iodide, which was not excreted in the same way as the chlorides when introduced into the blood stream.

Further, the experiments reported in this paper would go to show that not only the blood but in all probability the tissues, especially the muscles, would also play a part in the retention of water and probably of salt. This suggestion is also supported by such experiments as the one lately reported by Weber, who placed a dog on a chloride-free diet for a time, and then injected a solution of sodium chloride. The salt excess was eliminated from the body much slower than would have been the case in a normal animal.

The experiments above reported seem to me to be of value in that they necessitate a careful study of the condition of experimental animals as regards their water and salt content before conclusions can be drawn from the comparative elimination of salts and water, and this, whether the experimenter be an adherent of the Ludwig filtration (it might better be termed filtration-diffusion) theory, or of the Heidenhain vital secretion school.

Personally it seems to me difficult to explain on the vital secretion hypothesis how a drug stuff such as caffeine—which must be held to be a specific stimulant to secretory activity—may be so ineffective even when we know that the blood flow to the organ is increased. It seems to me to hold to the vital explanation the word "secretion" would have to be replaced by the word "excretion," and the theory modified so as to confine the activity of the kidney to getting rid of excess substances. On the diffusion hypothesis one would urge that while the amount of water diffusing through the glomerulus was increased by caffeine owing to the increased blood flow, the same cause again would tend, owing to the poverty of the blood and tissues in water, to increase the reabsorption until the two processes largely balanced each other, resulting in a small quantity of urine with a high concentration, as we know occurs under these conditions.

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[1] Dreser, *Arch. f. exp. Path. u. Pharm.*, xxix, p 303. [2] Loewi, ibid., liii, p. 16. [3] Loewi, ibid., i, p. 226. [4] Moore and Wilson, *Bio-Chemical Journ.*, i, p. 297.

ON A METHOD OF INVESTIGATING THE DEEP GANGLIA AND TRACTS OF THE CENTRAL NERVOUS SYSTEM (CEREBELLUM).

BY

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In the course of an investigation into the structure and functions of the cerebellum, the former by Marchi's method, the latter by observations of symptoms following artificial lesions and by excitation in normal animals, we found further progress checked by the want of a method of producing localized lesions in the deep structures—that is, nucleus dentatus, etc.—of the cerebellum without injuring neighbouring parts, and some such method was so essential for our purpose that it necessarily became for some time the principal object of our research. We were fortunate enough to find in electrolysis with insulated (glass) needles a method of producing accurately defined circumscribed excitation or lesions admirably adapted to our requirements. But to render it available for practical experiment it was necessary to find a satisfactory means of localizing deep centres and conveying the stimulation or electrolytic needle to them. The topographical methods best adapted to meet the first requirement, and the instruments to give effect to the second, had to be devised, and involved a good deal of time and experiment, which it is hardly necessary to say have not reached finality, but we have arrived at what we consider a good working method, which has the advantage of being applicable not only to the cerebellum, but to all parts of the brain. It being designed for excitation as well as for electrolysis, it admits of a combination of stimulation and electrolysis of deep centres by which accurate localization results can be obtained in the study of the central ganglia of the brain.

In connexion with these developments of method we have accumulated a large number of facts and observations which we are collecting for publication, but the completion of which must take some time. Meanwhile, we think it desirable to publish a very brief summary of the methods we have adopted and the results so far definitely ascertained.

Having solved the difficulty of producing a circumscribed lesion, the next point was its application. As our first object was the investigation of the cerebellar nuclei, it was necessary first to localize them.

Topography.

We have tried to meet this requirement as follows: First the brain is theoretically subdivided into cubic millimetres by parallel lines 1 millimetre apart in each plane. The planes employed we determine as follows: The whole brain is divided into 8 segments by three section planes roughly bisecting it in each dimension. (1) The Sagittal Section Plane, that is, the middle line, is arrived at by measuring the centre of a series of transverse diameters of the cranium. (2) The Frontal Section Plane is a section perpendicular to the last passing through

the centres of both external auditory meatuses. (3) The Horizontal Section Plane is perpendicular to the two previous and cuts the frontal plane at the same distance above the external auditory meatus on each side and resting in front on the nasion. These three section planes are the bases of measurement. Parallel to each plane the brain is assumed to be cut into a series of slices or lamellae 1 mm. thick extending on both sides of the section plane and counting from it as zero. Each lamella is divided into square millimetres by lines corresponding to the other two planes, indicated by letters and numbers like the latitude and longitude of a map (which, in fact, a lamella resembles), and working charts are made by cutting frozen sections of the lamellae, covering them with a glass plate ruled in millimetre squares with fine lines, and photographing them. By this means any cubic millimetre in the brain can easily be identified, recorded, and referred to.

Instruments.

A mechanical contrivance being required to direct the needle to any deeply-seated cubic millimetre, for example, part of a nucleus, etc., the principle on which it is constructed is as follows: A point in a regular cube of known distance from three surfaces representing three planes, can be identified by perpendiculars of correct length dependent from these surfaces. The desired point being the only spot where they can meet, if one of these perpendiculars represent a needle, and if it is introduced in one surface at the point where the perpendiculars to the other surfaces would meet and directed forwards parallel to these two surfaces, it will engage the deep point (representing a nucleus, for example). Now the eight segments into which the brain is divided by the three section planes are regular cubes so far as these surfaces representing three planes go; our instrument, therefore, is constructed to direct a needle through a particular point on one surface of a segment parallel to the other two till it reaches the required point within the segment. To carry this out the instrument consists essentially of four parts.

1. *The Frame.*—An oblong rigid structure adjusted as accurately as possible to coincide with the three section planes and firmly fixed to the head in this position.

2. *The carrier* supports the needle holder and moves on guides, which are fixed to the frame in two planes.

3. *The needle holder*, made of vulcanite, supports and insulates the needle and moves on the carrier, its movement being perpendicular to the guides on the frame and completing the movement in three dimensions, which is necessary to reach any point. The carrier can be moved on the guide to any part of the surface of a segment, and the needle, by the perpendicular movement between the carrier and holder, can be directed to any point within it.

4. The needle consists of a fine steel wire nickel-plated 24 to 26 standard wire gauge, insulated to within 1 millimetre of its point by a fine glass vaccine tube about two sizes larger. The wire needle is connected for electrolysis by its proximal end through a terminal with either the anode or cathode of a battery of dry cells, the current of which is regulated by a dead-beat ammeter and rheostat, or it can be equally well employed for excitation, being attached in that case to a coil and dry cell.

Electrolysis.

Currents of 2 to 5 milliampères are employed for two or three minutes; either anode or cathode produce a satisfactory lesion, those derived from the former being smaller and better defined. The lesion consists of a central coagulum surrounded by a necrotic zone and a very narrow zone of oedema which passes rather abruptly into healthy tissues. Lesions of any size, from a pin's point upwards, can be obtained by regulating the current, the time of its application, and the size of the needle (that is, area of metal exposed).

Application of Combined Method.

As already stated, the method of localization and instruments are equally applicable for stimulation or electrolysis, and the facility with which either can be substituted for the other possesses great advantages. When a particular result has followed an excitation and it is desired to secure an absolutely accurate record of the situation of the electrode where the effect was produced, it can be precisely defined by merely changing the leads and producing a very small electrolysis at the same point. This is subsequently verified in hardened sections by photographing it under a millimetre glass plate and comparing it with the original chart. If it is desired to mark by degeneration the tract by which the impulse travelled, the same result can be repeated in an aseptic operation by stimulation—then a sufficient lesion produced by electrolysis—the animal kept for three weeks—the brain treated by Marchi's method and the degenerated tract photographed. The whole process thus furnishes a very complete record and illustration of the structure and function of the area submitted to experiment.

EXCITATION.—RESULTS.

We have used all forms of electrical excitation with electrodes of varied arrangement—that is, for "unipolar" and bipolar stimuli, the latter giving the most reliable results.

The precise orientation of the points stimulated was secured, as above stated, by punctiform electrolysis without moving the electrode.

Cortex.

The cortex cerebelli is, in our opinion, inexcitable compared to the cortex cerebri or nuclei cerebelli. The response to excitation is that of a sensory receptive rather than that of a motor efferent centre.

The apparent localization of function in the several parts of the cortex cerebelli is dependent on the association between the latter and the nuclei cerebelli.

White Substance and Communicating Fibres.

The fibres leading from the cortex of the cerebellum to the nuclei are excitable in increasing degree as the electrodes approach the nuclei in which they end.

The effects produced on the muscles are the same as those obtained by direct excitation of the nuclei.

Nuclei.

(a) Nucleus Dentatus.

Excitation of the *nucleus dentatus* evokes an exceedingly constant motor result, namely:

(1) Conjugate deviation of the eyes, to the homolateral side, the homonymous eye tending to move more and earlier than the other.

(2) Head moves towards the homolateral side.

(b) Nucleus Tecti.

(1) Rotation and deviation of eyes to homolateral side. Frequently skew deviation.

(2) Head moves moves towards the homolateral side, but less actively than from excitation of the nucleus dentatus.

(c) Vestibular Nuclei, including Deiter's nucleus, Bechterew's nucleus, and the subdivisions of the nucleus of origin of the vestibular nerve (Sabin).

This important nuclear station we regard as intermediate between the cerebellum (that is, cortex and nuclei) and the spinal cord.

Direct excitation of these foci evokes movements of the face, trunks and limbs of definite character which have been regarded hitherto as of cerebellar origin.

LESIONS.—RESULTS.

The present preliminary communication is too brief to state the symptomatic results of the lesions produced in the degeneration experiments. They will be given in the detailed paper.

THE ELECTRICAL EXCITATION OF NERVES AND MUSCLES.

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[ABSTRACT.]

THE classical law of electrical excitation of nerves and muscles formulated by Du Bois-Reymond half a century ago is to the effect that the variation of an electrical current is the sole cause of stimulation. The duration of a constant current can be reduced to a very small interval of time without ceasing to be effective, provided that the current attains its maximum intensity. There are, however, certain facts which contradict this law.

In 1863 Fick stated that the passage of a constant current has a considerable influence on the adductor muscle of Anodonta. The same strength of current brings about a contraction of the muscle more or less complete, according to the length of time the current is flowing.

In 1870 Engelmann noticed a similar phenomenon in the contraction of the muscle fibres of the rabbit's ureter. In 1901 G. Weiss, with a special apparatus which enabled him to pass an electric current through the sciatic nerve of a frog, lasting only $\frac{1}{10000}$ second, also obtained like results.

Stimulation by condensers of different capacities give results which are not in accordance with Du Bois-Reymond's law. The variation of the current is not altogether the cause of excitation; the duration of the current and the quantity of electricity play important parts.

For five years the author (for the most part with the collaboration of Madame Lapicque) has been experimenting on electrical excitation, and has arrived at certain conclusions which have an important bearing on Du Bois-Reymond's law.

The excitation produced by a very short electric wave always takes its origin at the cathode. A stimulus lasting about one-thousanth of a second, whether produced by the apparatus of Du Bois-Reymond or that of Weiss, or by the discharge of a condenser, gives rise to a contraction of muscle corresponding to that produced by the closure of a constant current, and conforms sufficiently well with the classical law. But if one employs the apparatus of Weiss, after having placed a high resistance in its circuit, the current reaches its maximum intensity slowly and disappears abruptly, and the excitation according to Du Bois-Reymond's law should take place chiefly at the opening. One can directly demonstrate that the variation of the current due to rapid interruption after very short passage has no excitatory effect. A current of a suitable and constant strength is passed through the sciatic nerve of a frog for periods varying from $\frac{1}{4}$, $\frac{1}{2}$, 1 to 2 thousandth parts of a second, and the contractions of the gastrocnemius are registered graphically. The contraction gradually increases with the duration of the current to a maximum, which is reached with a duration of from 4 to 5 thousandths of a second. This shows us that the lengthening of the duration of the passage of the current is not indefinitely efficacious for the excitation, and does not permit an indefinite lowering of its intensity to produce the same physiological effect.

In different muscles of the animal series stimulated directly, the author finds that the duration of the passage beyond which an increase has no more appreciable effect on the necessary intensity of the current varies considerably. For the threshold of stimulation at the average laboratory temperature this duration has for several types the following values in thousandths of a second:

Gastrocnemius of *Rana esculenta*	3
Gastrocnemius of *Bufo vulgaris*	14
Ventricular muscle of *Testudo gracca* ...	80
Claw of crab (*Carcinus moenus*)	300
Mantle of *Aplysia punctata*	800

Weiss has presented this law in mathematical form. The author finds several variations, to meet which he has altered Weiss's formula.

The gastrocnemius of the frog is intended for a very rapid movement, and the process of excitation occupies an exceedingly small space of time. Du Bois-Reymond made his observations on this muscle, and drew his conclusions because he found no appreciable diminution of the physiological effect when he reduced the duration of the current to $\frac{1}{250}$ part of a second. If he had employed a tissue similar to the mantle of *Aplysia*, he would only have required to reduce the duration to half a second to have observed the influence of the constant current, and the true nature of the electrical excitation would not have been misunderstood for half a century.

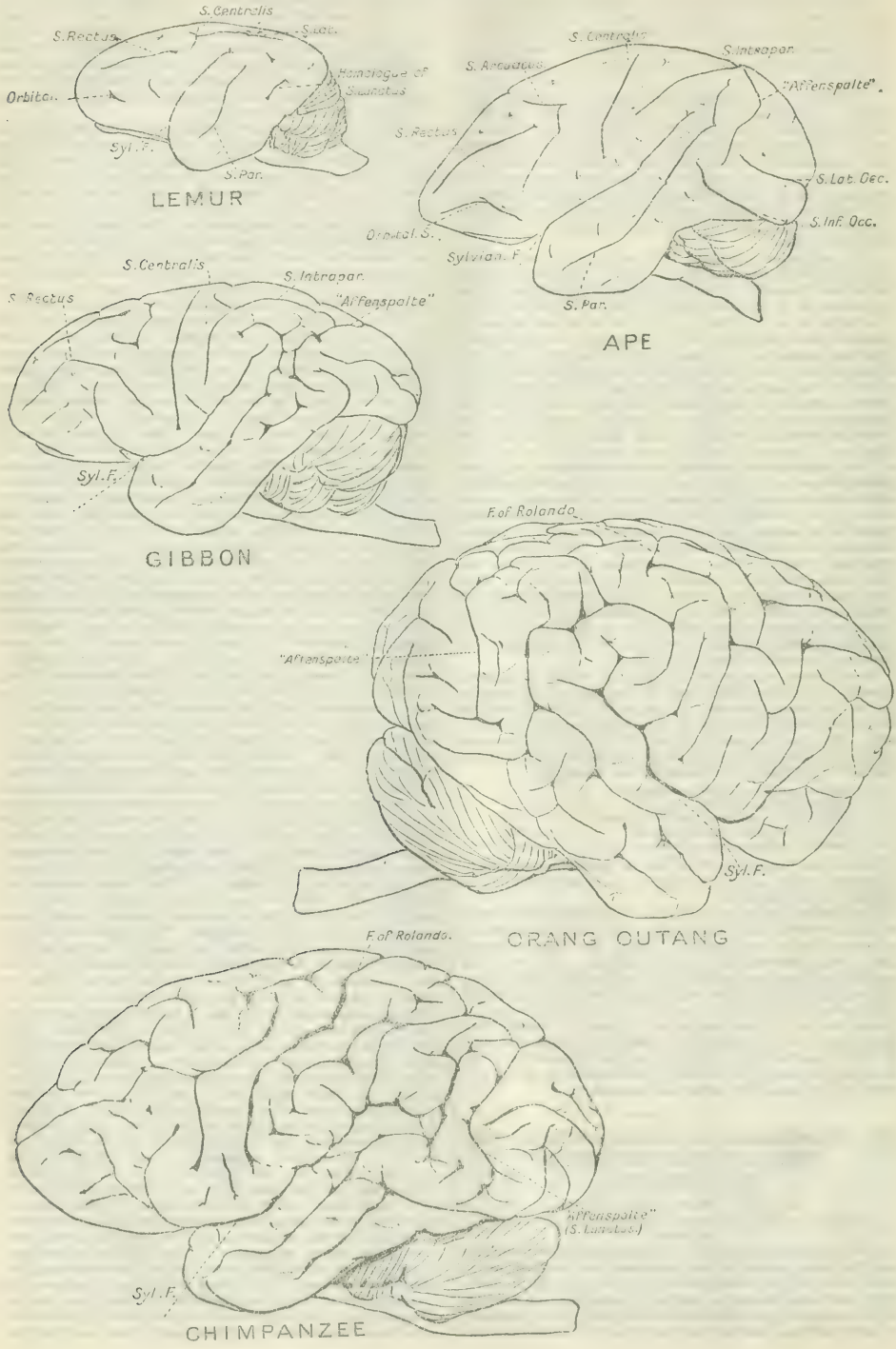
THE PHYSIOLOGICAL SIGNIFICANCE OF THE CONVOLUTIONAL PATTERN IN THE PRIMATES.

By F. W. Mott, M.D., F.R.S.,
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The habits and mode of life of the animal determine the convolutional pattern of the brain and the relative superficial area of the archipallium to the neopallium. In nocturnal insectivorous animals—for example, the bat and the armadillo—quite one-half of the hemisphere consists of archipallium, having the function of smell as the principal directive faculty in the existence of the individual and the preservation of the species. In certain animals where an aquatic life obtains (for example, the Cetacea), the sense of smell has become entirely deposed, and the rhinencephalon is completely absent. Each class of animal has a different convolutional pattern, and a comparison of the brains of carnivora and ungulates with the primates shows an obvious distinction.

The brain of the lemur seems to stand midway between the brain of the ungulate and the primate. The lemurs in their arboreal habits and in the possession of ape-like feet and hands are, in many respects, like the lower apes. But they have a face like a fox or a dog, with their eyes so set that parallel vision is not possible. Since they are nocturnal-feeding, the directive faculties in their preservation are especially smell and hearing, and vision to a much less degree than in the apes; consequently they have a large proportion of the cerebrum, consisting of archipallium, subserving the function of smell, and a relatively poor development of the visual cortex.

Let us consider the convolutional pattern of the lemur more definitely as regards its functions. One of the most striking features compared with the ape's brain is the absence of an occipital lobe, which leaves the cerebellum almost completely uncovered. The surface of the brain is marked by certain fissures, which, however, are not deep or numerous. The sulcus rectus in the frontal region; the Sylvian fissure; the parallel fissure; an indication of a second temporal fissure: and, close to the pole, an indication of a parieto-occipital fissure. On the mesial surface there is the calloso-marginal fissure, and a calcarine fissure which is joined by a fissure corresponding in the lower animals with the collateral, in the higher animals with the internal perpendicular or internal parieto-occipital. The motor area lies in front of the anterior portion of the lateral fissure, and extends forward to a little in front of the small triangular depression which is situated at the back of the posterior end of the sulcus rectus; it extends over on to the mesial surface in the same region as far as the calloso-marginal fissure. This would correspond to the pre-central convolution in the ape's brain. The motor area extends right down to the lip of the Sylvian fissure and lying in front of the anterior portion of the temporal lobe is the region concerned with movements of the jaw, tongue and face. We thus see that there is a region of cortex for movements of structures closely related with the sense of smell and taste. Behind this there is a region for the movements of the orbicularis and levator palpebrarum, and, still further behind, for movements of the ear. Again, we see that the placement of the appropriate motor region is close to the sensory; for we may presume that on the other side of the fissure of Sylvius is situated the cortex concerned with hearing. Thus, when this audito-sensory cortex is stimulated, it would only require a short distance for the stimulus to irradiate to the motor cortex for opening the eyes to see where danger is, and for moving the ears to judge whence the sound came—true protective psycho-motor reflexes. The cortex which corresponds to the post-central convolution of the ape is situated between the posterior part of the fissure of Sylvius and the anterior part of the sulcus lateralis; but it extends upwards and on to the mesial surface as far as the calloso-marginal sulcus, so that it is intercepted above by the middle part of the lateral sulcus. The small spur forming the posterior end of the lateral sulcus probably marks the termination of this cortex. A comparison of the brain of the lemur and the monkey seen laterally and from above will show what will result to these fissures by an expansion of certain regions of the cortex. A glance at the brains respectively of the lemur and *Macacus rhesus* shows that the development of the occipital lobe and the consequent expansion of the cortex cause a pushing down of the posterior part of the lateral sulcus, and at the same time an extension of the area above and below this. The expansion of the cortex in front and behind the central fissure (that is, the motor and kinaesthetic areas) leads to a further pushing down, and at the same time a separation of the middle portion from the anterior portion of the lateral sulcus, thus forming the intraparietal sulcus. Coincident with the development of the occipital lobe and macular vision, found first in the primates, is a large extension of the frontal cortex concerned with head and eye movements. This leads to the


S. Centralis
S. Rectus
S. Lat.
Homologue of Supinatus
Orbital
Syl. F.
S. Par.
LEMUR
S. Centralis
S. Arcuatus
S. Intrapar.
"Affenspalte"
S. Rectus
S. Lat. Occ.
S. Inf. Occ.
Orbital S.
Sylvian F.
S. Par.
APE
S. Centralis
S. Intrapar.
S. Rectus
"Affenspalte"
Syl. F.
GIBBON
F. of Rolando
"Affenspalte"
Syl. F.
ORANG OUTANG
F. of Rolando.
"Affenspalte" (S. Lunatus.)
Syl. F.
CHIMPANZEE

small dimple which we have seen in the frontal lobe becoming a precentral sulcus, with the sulcus rectus lying in front of it. Simultaneously with this development of the neopallium in the apes is a dwindling of the archipallium and a corresponding diminution in the sense of smell; so that in the ape's brain, unlike the lemur's brain, very little archipallium is left exposed.

Both in the lemur's brain and the ape's brain there is a large temporal lobe; and the first appearance of annectant gyri to the occipital lobe in the primates are the two temporo-occipital annectants in the ape's brain, one connecting the occipital lobe with the second temporal, and the other going to form a limb of the angular. In the ape's brain there are no visible occipito-parietal annectants, the anterior border of the occipital lobe forming an overhanging lip or operculum to the subjacent cortex.

On the mesial surface, as on the external surface, the fissure is almost perpendicular. There is a supramarginal gyrus encircling the end of the Sylvian fissure, which gives off a rudimentary annectant around the end of the parallel fissure.

It is generally accepted that the first temporal convolution is concerned with hearing. What, then, is the function of the remainder of the temporal lobe? The auditory nerve consists of two parts, cochlear and labyrinthine. We know that the cochlear impulses are conveyed to the temporal lobe. Why not also the labyrinthine? Horsley and Clarke, in their paper in *Brain*, state that the external fifth of the crus cerebri consists of temporopontine fibres; and the temporal lobe has probably connexions with the opposite half of the cerebellum. It may be that this portion of the brain is concerned with consciousness of the three dimensions of space, and the development of the annectant gyri between the temporal lobe and the occipital may not only subserve the function of associating sounds emanating from objects with the visual images of the objects, but of associating also their orientation in the three dimensions of space with visual spatial relationship. Thus, an animal —for example, a monkey—must be subconsciously aware of its position in space, when suddenly its attention is aroused by a sound of danger. Excitation in the auditory sensory sphere irradiates to surrounding cortical areas, and a visual representative image of the cause of danger by associative memory of past experiences occurs. The dominant desire is to defend or escape; and the animal by a conscious automatic, instinctive psychomotor reflex, seeks to locate the source of danger by appropriate movements of the head and eyes, and possibly the body, towards the direction whence the sound came. This is effected by irradiation to the occipital lobes. In order to make an appropriate defensive movement it must be aware of its change of position in space before and after it has located by vision the object of danger. The whole sensory cortex is thus aroused to activity, and the animal before it springs must again fixate by vision and judge the distance. This involves a conscious voluntary movement in which visual fixation is an important factor—Munk's highest psychomotor reflex, Jackson's highest level. The localization in space and spatial judgement depends largely upon a complexus of sensations derived from visual, semicircular and kinaesthetic impressions. An animal living in trees, depending upon vision and hearing as directive faculties in its preservation, requires a more complex motor adaptation for the judgement of distance than animals running on the ground which depend for their safety upon speed. The carnivora require a more perfect vision than herbivora, and they possess a certain degree of binocular vision. It has seemed to me probable that this development of the parietal cortex of the ape is largely dependent upon the development of the function which I have indicated.

In the gibbon we have an animal which is extremely active, possesses no tail, can assume a semi-erect posture, remarkable for its length of arms, well-developed hand, and fairly-developed thumb; generally leading an arboreal life, but using its hands and arms with great dexterity. The brain of this animal as regards its convolutional pattern stands midway between *Macacus* and the higher anthropoid apes, such as the chimpanzee, gorilla, and orang-outang. It is therefore very useful in showing the transition from the brain of *Macacus* to the highest anthropoid ape, as a glance at the convolutional pattern of the three will show. Let us commence with the occipital lobe. An increased expansion of the parietal lobe is shown. The superior parietal lobule is divided from the inferior by a definite intraparietal fissure, and the superior parietal lobule is relatively much larger than in *Macacus*. This has pushed backwards the upper part of the straight *Affenspalte*, so that it forms the upper half of a "lunate" sulcus. The development of an inferior parietal lobule has pushed back the *Affenspalte*, and this has been effected by the increase in development of the temporo-occipital annectants, as shown by the development of a commencing second temporal fissure which has pushed up the lower end of the *Affenspalte*, so that it now assumes a definite lunate shape, and has no longer an operculum. The result of this parietal expansion, operating against the tendency of the skull not to expand proportionally, is to infold and turn back the smooth external surface of the occipital lobe along a line which is indicated by a shallow groove in the brain of *Macacus*. In the brain of the gibbon the angular gyrus below the interparietal fissure shows its three definite annectants with the supramarginal, with the occipital, and with the temporal lobes. The Sylvian fissure runs obliquely upwards in its posterior part. The central sulcus is well defined and straight, and possesses no deep-seated buttress or annectant gyrus. The obliquity of the hinder part of the Sylvian fissure is indicative of a full development of the central convolutions, and a comparatively rudimentary development of the parietal lobe. The remarkable use this animal makes of its arms and hands in its mode of life, for the preservation of the individual and the species, can be correlated with a remarkable expansion of the cortex in the precentral region, as shown by the development of a broad gyrus extending from the middle of the precentral region to form the second frontal convolution. Now, if we turn to the ape's brain, and see what the effect of this development would be, we observe that it would push forwards and downwards that portion of the cortex which on stimulation gives rise to movement of the head and eyes, particularly that which gives rise to eye movements. In fact, it would push it down to that region which Sherrington has shown, in the anthropoid apes, on stimulation yields eye movements, an area which occupies a considerable extent of cortex; and I have no doubt that if gibbons had been used as well as chimpanzees and orangs this localization of the frontal eye centres would have been found in the situation indicated. This illustrates the very important part played by the dissociation of the fore limbs from progression, in the increased expansion of the cerebral cortex by the formation of annectant gyri and secondary fissures. It appears that the precentral sulcus of the anthropoid ape brain and that of the gibbon is broken by the formation of this gyrus; the anterior two-thirds being pushed down to form the second frontal fissure. The region which lies between the anterior oculo-motor centre and the ascending frontal is inexcitable, as Beevor and Horsley first showed in the orang brain. In situation it corresponds with the writing centre in the human brain. It probably represents an area connected with higher kinaesthetic images relating to the use of the hand under the guidance of binocular stereoscopic vision. The structures necessary for this purpose are known to have anatomical relations with this part. The visual cortex, especially the visuo-psychic region, is brought into relation with this part of the brain by the superior longitudinal bundle, and visual images revive sensory impressions of head and eye movements in which probably the fifth nerve and impressions from the external auditory play an important part.

In the Bowman lecture which I had the honour of delivering to the Ophthalmological Society in November, 1904, published in the *Transactions of the Ophthalmological Society*, 1905, I pointed out the reciprocal simultaneity in the development of the visual directive and the tactile motor executive faculties. The study of the lemur in conjunction with the ape enables us to see how the visual directive faculty precedes and determines this refinement of the tactile motor executive faculty. The lemur has ape-like hands, but it can never possess binocular stereoscopic vision, because the eyes are set too far apart for the axes to become parallel; it does not therefore possess a macula. The refinement of function distinctive of macular vision is dependent upon an increased complexity

of retinal and cerebral structure. In fact, the macular vision of the primates affords a beautiful example of the correlation of refinement of structure and of function. Each cone in the macula is connected with a separate optic fibre. The internal geniculate bodies are comparatively larger, and there is a considerable increase of the cerebral cortex associated with the function of vision, as shown by the existence of a large occipital lobe. (Compare the ape's with the lemur's brain.) Moreover, I have shown that the structure, particularly of the pyramidal layer, is more complex in the primates than in other mammals, and this no doubt is the reason why there is, to the naked eye, a visible line of Gennari as soon as there is a definite occipital lobe.

In the same lecture I also pointed out the great importance of the hand as the instrument of the mind when acting under the guidance of macular vision. We must also recognize the important part played in voluntary attention by fixation of the eyes, and distinct macular vision, under the influence of the will. To effect fixation and distinct vision innervation currents of equal intensity must flow from those regions of the frontal lobes, the excitation of which *singly* would give rise to lateral movements of the eyes.

In following a moving object associated head and eye movements occur, and the innervation currents of impulsion and inhibition from the two centres are co-ordinated according to the rapidity of the moving object, the distinct image of which is to fall upon the maculae.

The ape possesses this function of stereoscopic vision in a high degree, and continually associates visual with tactile motor images. It thus possesses a stereognostic sense, by which an associative memory of visual images and tactile motor impressions are stored up in that portion of the cortex which lies between the visual area (occipital lobe) and the kinaesthetic area (ascending parietal); thus primarily is developed the parietal lobe.

The gibbon's brain, as the figure shows, stands midway, as regards its parietal and frontal convolutional pattern, between the ape and the higher anthropoid ape, such as the chimpanzee and the orang-outang. In the two latter there is a still further expansion of cortex by an increased complexity of the convolutional pattern, especially in the frontal and parietal regions, corresponding to Flechsig's association areas, which he has shown in the human subject to be myelinated at a later period.

Elliot Smith showed that in a large proportion of the brains of the Egyptian felaheen the left hemisphere especially showed an extension of the calcarine fissure on to the external surface, and the persistence of an *Affenspalte* in the form of a lunate sulcus. The importance of this is fully dealt with in the Bowman lecture. Another point of interest is the oblique direction of the Sylvian fissure upwards and backwards in the anthropoid ape's brain, as compared with the normal human brain. It indicates a relative deficiency in the development of the parietal lobe, and, as Cunningham says, "the great size of the parietal lobe is a leading human character, and it has partly gained its predominance by pushing backwards so as to encroach to some extent upon the territory which formerly belonged to the occipital lobe.

In a high type of human brain the Sylvian fissure is parallel to the long axis. In low types we find evidence of deficient development, either by an obliquely developed Sylvian fissure or the extension of the calcarine fissure on to the external surface with a lunate sulcus like that of the anthropoid ape, or the two may be combined.

A fuller account of many of these points will be given in the forthcoming volume of the *Archives of Neurology* under the heading of "Progressive Evolution of the Visual Cortex in Mammals," being the Bowman lecture with considerable additions, also the bibliography.

Dr. Chas. K. Mills (Philadelphia) said he had listened with great interest to the demonstration of Dr. Mott. In his early years in neurology he had paid great attention to the anatomy and morphology of the cerebral surface especially as studied in low types of human brain and in the primates. In collaboration with Dr. A. J. Parker, of Philadelphia, a comparative anatomist and morphologist of unusual ability both as an investigator and a thinker, he had had the opportunity of making many interesting investigations in the direction of those discussed by Dr. Mott. His studies had been of standard or average human brains, of the brains of imbeciles, paranoiacs and other forms of mental disorder. Also of some racial types as of the negro brain. He had also investigated the gyral and fissural peculiarities of the brains of a number of criminals, in whose cases the question of insanity had arisen. With Dr. Parker, he had published probably the first description of the gyral and fissural appearances and peculiarities in a Chinese brain, at least he thought the first in the English language. The facts emphasized in the communication of Dr. Mott were those illustrated in his own early researches. Convolutional and fissural patterns were in the highest degree valuable as indicating degrees of development and of arrest. In his contributions regarding the location and extension of various cortical areas and centres, in the determination of which he had largely relied on clinical pathological observation, he had also been greatly influenced by these and other studies in comparative and human anatomy and morphology. The location of such centres as those for stereognostic conception and orientation, centres intercalated between the cerebral projectionaries out of which these higher functions have developed, were localizable on these anatomical and morphological principles, although clinical pathological observation was necessary for their confirmation.

THE CONDUCTION OF SENSORY IMPRESSIONS IN THE SPINAL CORD.

BY

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With regard to the paths of conduction of different kinds of afferent impulses in the spinal cord, we are still to a large extent in the dark. It is agreed that all afferent impulses enter the cord through the posterior nerve roots, but there is great difference of opinion as to the tracts by which these pass upwards in the cord itself.

Schiff[1] (1854), who was the first to study this question, concluded from a great many experiments on different animals, extending over a number of years, that pain and temperature impressions are conducted by the grey matter alone, while tactile sensibility is transmitted through the posterior columns. Claude Bernard[2] and Brown-Séquard[3] many years ago, and recently Herzen[4] (1900), after having repeated the experiments of Schiff, came to the same conclusion. Bertholet,[5] and many others, deny that the grey substance has anything to do with sensory conduction. Petren, Jolly, and Morton Prince[6] believe, on clinical grounds, that pain and temperature travel through the lateral columns. Van Gehuchten[7] states that the posterior columns convey impressions from the muscles, tendons, and joints, usually included under the term muscular sense, while those from the superficial parts (tactile sensibility) travel by the dorsal cerebellar tract, and pain and temperature by Gowers's tract. Finally, Marburg[8] is of the opinion that all the long ascending tracts of the posterior and lateral columns of the spinal cord are made up of fibres conveying impressions of muscular sense, and have to do with the maintenance of equilibrium and the co-ordination of movement.

Similarly with regard to the crossing of the sensory impulses in the spinal cord, there is no general agreement. Longet believed that the conduction for all impressions is direct, Brown-Séquard that it is completely crossed, Mott[9] that pain and temperature are conducted on both sides, but tactile and pressure sense only on the same side.

Our experiments have been performed on cats. The spinal cord was exposed in the mid or lower dorsal region, and a lesion made by means of a galvano-cautery. The animals were kept for three or four weeks after the operation, and the sensibility of the parts behind the lesion was tested at regular intervals. The lesion was located exactly *post mortem* by making serial section through the segment in which it occurred.

Briefly stated, we have arrived at the following general conclusions:

1. The integrity of the grey matter is not essential to the conduction of painful sensory impressions; in several

cases where the animals responded at once to all forms of painful stimuli this was found to be entirely destroyed.

2. Total destruction of both posterior columns does not affect pain sensibility. The effect of this lesion on tactile and on muscular sense could not be determined with certainty.

3. A lesion involving the whole transverse section of the cord, with the exception of the antero-lateral column on one side and a thin zone of grey matter adjacent to it, did not abolish pain sense on either side; the response was more ready on the side of the lesion than on the sound side, from which one would infer that sensory (pain) conduction is bilateral in the cord, but more crossed than uncrossed. In one case all that remained intact was a thin zone of white matter along the margin of the anterior half of the lateral column on one side (the peripheral portion of Gowers's tract), and in this case the hot water test (immersing the foot in water at 58° C.), but no other, was responded to on both sides, but much more quickly on the opposite than on the same side. In another case the whole cord was destroyed with the exception of the two posterior columns. When the animal was first tested, three days after the operation, water at 60° C. was responded to with the one foot in six and with the other in eight seconds; on the eighth day each foot reacted to water at 58° C. in four seconds, and on the thirteenth day in two seconds. Not until the twelfth day was any response obtained from the other forms of painful stimuli employed by us.

4. In one case the lesion involved the two posterior columns and the whole of the grey matter, except the extremity of one anterior horn. The foot was withdrawn at once on both sides from ice-cold water, but was allowed to remain indefinitely in water at the ordinary temperature. In another case one-half of the cord was completely destroyed and the whole of the grey matter of the other half, leaving intact the white columns of one side. Here also the same distinction was made between ice-cold and ordinary water in both hind limbs. These two cases together might be taken to mean that cold impressions pass by the lateral columns and that the conduction is both crossed and uncrossed.

5. The most noteworthy point in our observations so far is the fact that in the cat there does not seem to be any specific tract for the conduction of painful sensations excited by immersing the foot in hot water. While any part of the transverse section of the cord remains intact this form of stimulus can pass through, although the lateral column seems to be its normal path, judging by the delay which takes place in the response when this is divided. The only lesion which abolishes the passage of all forms of sensation is a complete transverse section.

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THE MECHANISM OF "LOCKED JAW" PRODUCED BY TETANUS TOXIN.

BY

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The object of the research was to discover the manner of production of that which may be in some respects termed the cardinal symptom of tetanus—namely, the locked jaw.

From preliminary observations in the smaller monkeys we ascertained that:

1. The cortical area of representation of the jaw is divisible into an extensive area which yields opening of the jaw, and a much less extensive area, situated in front and at about the junction of the middle and upper third of the opening area, which yields closure of the jaw. From this area the movement of the jaw obtainable —namely, closure—is less readily elicitable than is opening from the other, so that occasionally in an experiment closure may not result at all from the cortical excitation.

2. In the opening movement produced by cortical excitation the action of the muscles of the crossed half of the jaw is much greater than that of the muscles of the uncrossed side of the jaw; so, also, with the closure movement. If the stimulation of the cortex is weak, only the muscles of the crossed side of the jaw contract. These points we ascertained by splitting the jaw at the symphysis, and freeing each half from the muscles of the tongue and from the mucosa of the mouth. On stimulating the left cortex, then, the right half of the jaw only opens, the left half remaining motionless, and vice versa on stimulating the right hemisphere.

3. After inoculation of tetanus toxin (0·5 mg.) into the right facial nerve, the "locked jaw" affects first the nervous mechanism of the right half of the jaw, and may be confined to that half for a couple of days or so before affecting the left half.

4. After the "locked jaw" has set in, the stimulation of the cortex of the hemisphere of the side crossed from the incipient "locked jaw" causes, as one of us has pointed out,[1] instead of opening of the jaw, closure of the jaw; the cortical movement is reversed.

These results were confirmed in the case of a large baboon, and finally tested on an orang-outang.

The observation was carried out in this latter case by three successive operative stages. The right cortex was exposed over the Rolandic region, and stimulated by unipolar faradization over the face and arm areas. The results of these observations were recorded as exactly as possible on a scale map, and the extent and topographical arrangements of the points yielding jaw-opening and jaw-closing respectively were especially noted. After careful closure of this wound rather less than one milligram of the dry tetanus toxin was inserted into the sheath of the right facial nerve.

Two days later initial lockjaw appeared. The condition was allowed to progress, but not become marked. The left cortex was exposed over the Rolandic region, and the whole area examined by unipolar faradization, the results being noted, as before, on a scale map. After this had been done the right side was again laid bare and stimulated in a similar manner. Finally, the lower jaw was carefully divided at the symphysis, and each half freed from the muscles of the tongue and the mucous membrane of the mouth, thus making each half freely movable independent of the opposite half. The two sides of the cortex were again investigated by unipolar faradization.

The results of this experiment show that:

1. An area of cortical representation for closure of the jaw exists in the orang-outang, but is very much less extensive than that for opening of the jaw.

2. The extensive area for opening of the jaw in the orang has its reaction altered into closure of the jaw in the "locked jaw" produced by tetanus toxin.

3. The movement of opening of the jaw, as produced by cortical excitation of one hemisphere in the orang, is chiefly an action of the muscles of half the jaw on the crossed side to the stimulation and sometimes the action is entirely confined to the muscles of the crossed side.

4. The condition of "locked jaw" begins unilaterally on the same side as the nerve trunk inoculated, and the condition is for a time confined to the nervous mechanism of that side, although later it involves that of the opposite side as well.

5. Bilateral stimulation of corresponding portions of the cortex after inoculation of the facial nerve with dry tetanus toxin and splitting of the jaw causes opening on the uninoculated side and closure on the inoculated side.

As we know of no previous stimulation of the cortex of a baboon, the following points are of interest:

1. The baboon, like the human subject, possesses a snout, and we obtained cortical representation for movements of the same.

2. The cortical area for movements of the trunk is situated between that for the arm and leg.

Reference.

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THE CAUSES OF FATIGUE IN CERTAIN PATHOLOGICAL STATES.

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[ABSTRACT.]

IN continuation of the author's studies of fatigue an endeavour has been made during the past year to make more precise our knowledge of the causes of fatigue. These are generally acknowledged to be mainly chemical, and of two kinds—namely, the loss of substance that is essential to activity, probably chiefly carbohydrate; and the accumulation of products of activity which are toxic to the living substance. The relation of these two causes to one another is not yet understood; the present study deals with the latter only. The author believes that, in general fatigue, the muscles play a prominent rôle, even though they may not be the most active part of the organism. Three normal fatigue substances are now generally recognized—namely, paralactic acid, monopotassium phosphate, and carbon dioxide. A muscle when irrigated with any one of these substances in weak solution in physiological salt solution (the paralactic acid being used either as the free acid or as a neutral salt), and when compared with a companion muscle irrigated with physiological salt solution alone, is already in some degree fatigued, and on stimulation shows an earlier onset and more pronounced development of each successive stage of fatigue up to complete exhaustion. (Lantern slides from experiments by the author demonstrated this.)

Fatigue is one of the most common phenomena of disease. Examples of pathological conditions in which it is frequently present are fevers, diabetes mellitus, anaemia, various forms of indigestion, inanition, certain diseases of the liver, arthritis deformans, carcinoma, poisoning by arsenic and phosphorus, and also pregnancy. In all of these cases autointoxicants have been found to be present. Some of the latter are acid, such as β oxybutyric acid in diabetes mellitus and certain complications of pregnancy and paralactic acid in certain diseases of the liver, poisoning by arsenic and phosphorus, and anaemia. Other auto-intoxicants are not acid, such as indol, skatol, and methyl mercaptan, which may accompany excessive intestinal putrefaction. The author has irrigated muscles with all the substances mentioned, the β-oxybutyric acid both as the free acid and as the sodium, potassium, and ammonium salts, and he finds them to act like the normal fatigue substances, giving rise to the customary physical phenomena that are characteristic of normal muscular fatigue. (Lantern slides were shown, demonstrating the fatiguing action of free β-oxybutyric acid, potassium oxybutyrate, skatol and indol.) He ascribes the fatigue of the pathological states mentioned in large part to the action of the autointoxicants on the muscles.

The number of fatiguing intoxicants will probably be increased by future research, for both normal and pathological fatigue. It has been customary to attribute to certain intoxicants extreme pathological phenomena. For example, the coma of diabetes and eclampsia of pregnancy are probably due to the toxic action of β-oxybutyric acid. Long before these extreme effects are manifested, however, the same causes seem to be producing evil, if less oblivious, phenomena, namely, those of continued fatigue, and are rendering the cells less capable of their proper functions.

VAGUS REFLEXES UPON OESOPHAGUS AND CARDIA.

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WE wish to report briefly on reflexes which we obtained from the vagus upon oesophagus and cardia.

Reflex upon the Oesophagus.—We know that we can obtain a tetanic contraction of the entire oesophagus by stimulating the peripheral end of the cervical vagus. Of reflex contractions of the oesophagus we know only the familiar peristaltic movements after deglutition. In the present investigation we have established that a tetanic contraction of the entire oesophagus can be obtained also reflexly by stimulating the central end of the vagus. The reflex is quite reliable in dogs; in cats it is less constant and in rabbits only an occasional local twitch can be observed. This fact is, if not entirely new, at least very little known; however, its assumption would seem to be a natural consequence of other already well-established observations. In the experience of Kronecker and Meltzer, it was noticed that a foreign body, when brought into the oesophagus, will cause for a few minutes frequent local contractions of that section of the mucous membrane which comes in contact with the foreign body. Furthermore, one of us established recently the fact that by injecting liquid or air directly into the oesophagus under avoidance of mouth and pharynx, a regular peristaltic movement will run down the entire length of the oesophagus. This peristaltic movement, however, differs from the normal peristalsis after deglutition in the essential point that it does not progress in the lower section of the oesophagus if the latter be divided transversely at some place. That shows that this form of peristalsis depends upon consecutive stimulations of the mucous membrane of the oesophagus and consists of a chain of local reflexes. Now, since stimulations of each part of the mucous membrane of the oesophagus is capable of producing reflexly a local contraction of the corresponding part of the muscularis, the assumption would seem justified that a simultaneous stimulation of the entire mucosa or of all the sensory fibres of the oesophagus ought to bring out a simultaneous contraction of the entire muscularis of the oesophagus, in other words, a stimulation of the central end of the vagus which contains all the afferent fibres of the oesophagus ought to bring out a tetanus of the entire oesophagus.

The tetanic contraction of the entire oesophagus, however, is obtained only with an electric stimulus of a certain strength. If we began the stimulations of the central end of the vagus with weak currents, the first effect which we would notice would be a tetanic contraction of the cervical oesophagus with no effect at all upon the thoracic part. The stimulus would have to be increased considerably in intensity before we would see also a contraction of the thoracic oesophagus, and even then the contraction of that part would set in perceptibly later than the tetanus of the cervical region. With further increase in intensity of stimulus, the difference in the latency would gradually disappear. There was no difference with regard to the termination of the tetanus; all parts would relax nearly at once with the discontinuation of the stimulus.

We may say further that the deeper the animal was under the influence of anaesthesia, the more pronounced was the difference in the response of the two sections to the reflex stimulation. Very deep anaesthesia would abolish the entire reflex, but it would abolish it first for the thoracic part.

The difference between the thoracic and cervical parts of the oesophagus cannot be due to a difference in the character of the muscle fibres of the two parts, since these studies were made mainly upon the oesophagus of the dog, which, as is well known, possesses striated muscle fibres throughout its entire length. We have, besides, disposed of this point by a direct experiment. By stimulating the peripheral end of the vagus with different intensities, we found the threshold value for both parts to be the same; the weakest stimulus which causes a certain contraction of the cervical part causes a similar contraction also of the thoracic part of the oesophagus.

The difference in the responsiveness of the two parts is apparently of central origin; the reflex centre for the cervical part is more irritable and offers greater resistance to the effects of anaesthesia.

Of the details we shall mention here only that the reflex also acts promptly during artificial respiration as well as during apnoea. The reflex, therefore, has nothing to do with the respiratory effects upon the cervical oesophagus recently described by Ducchessi.

Reflexes upon the Cardia.—The specific contraction of the rabbit's cardia is very characteristic; it can even be distinguished from the contractions of the neighbouring parts of the oesophagus and the stomach. These contractions are seen to follow in the first place at the end of a peristaltic movement of the oesophagus after a complete deglutition. It occurs also in a very characteristic way after stimulation of the peripheral end of one of the vagus nerves. The behaviour of the cardia during stimulation depends largely upon the strength of the stimulus. If it is moderate or weak, the cardia may show no contraction

at all, on the contrary, it may become even a little relaxed. If the stimulation of the peripheral end of the vagus is strong, the cardia may show a distinct contraction even during stimulation, but the character of that contraction usually differs from that typical for the cardia—there is not the characteristic dipping-in of it into the stomach.

We know now that the cardia of the rabbit shows also inhibitory phenomena. The first observations in this line were made by Kronecker and Meltzer on the part played by the cardia in the mechanism of deglutition. Two inhibitory acts are here to be distinguished. One is the inhibition of the contraction of the cardia after each deglutition by an early onset of another deglutition; this inhibition the cardia shares with the oesophagus. Another inhibition of the cardia takes place at the beginning of each act of deglutition; it is brief and occurs simultaneously with inhibitions of the tonus of other functions, the centres for which are located within the medulla oblongata. Kronecker and Meltzer have, therefore, interpreted this inhibition of the cardia as a central inhibition of the vagus fibres which maintain the tonus of the cardia. Openchowsky reported later that by stimulation of certain branches of the vagus near the stomach an inhibition of the cardia can be produced. A few years ago Langley demonstrated conclusively that the vagus of rabbits contains efferent inhibitory fibres for the cardia.

We have now made the observation that inhibitory reflexes upon the cardia of rabbits can be distinctly elicited by stimulating the central end of one vagus nerve. This is demonstrable in many ways:

1. During stimulation of the central end of either vagus a relaxation of the cardia can be observed. The effect is usually only moderate, and can be sometimes disputed. However, after introducing air into the stomach by means of a catheter, the relaxing effect of the central stimulation becomes frequently unmistakable; the cardia bulges sikingly during stimulation. This bulging occurs also in cases in which stimulation of the peripheral end of the vagus has no other effect upon the stomach. In cases, however, in which some parts of the stomach respond to a stimulation of the vagus with a contraction the bulging of the cardia is, of course, no convincing proof of its being inhibited, since the effect could be simply a passive distension by the gases escaping from other parts of the stomach.

2. If, during a stimulation of the central end of the vagus, the animal is made to swallow, a peristaltic wave will run down to the very end of the oesophagus; the cardia, however, does not follow with a contraction. This is an undoubted fact of inhibition. This observation is facilitated by the fact that the stimulation of the vagus itself causes swallowing; if the stimulation is interrupted immediately after the appearance of the swallow, the characteristic contraction of the cardia appears in due time, but if the stimulation is continued no contraction of the cardia sets in.

3. The characteristic contractions of the cardia, which invariably follow after the discontinuation of the stimulation of the peripheral end of the vagus, do not set in if at this time the central end of the vagus is being stimulated.

4. If the peripheral end of the vagus is stimulated with such currents which produce a contraction of the cardia during stimulation, the onset of a stimulation of the central end of the vagus causes a visible relaxation of that contraction; and if the stimulation of the peripheral end would then be discontinued while the stimulation of the central end would still continue, the bulging of the cardia would then become very pronounced.

For the inhibition of the contraction of the cardia after deglutition, it could perhaps be assumed that it is a central inhibition—that is, an inhibition within the vagus centre of the fibres which have to carry the contracting impulses to the cardia. For the inhibitions, however, of the effects of the stimulations of the peripheral end of the vagus, there can be no doubt that the process of inhibition takes place at the peripheral end of the vagus—that is, that the stimulation of the central end of the vagus does not cause an inhibition within the vagus centre, but, on the contrary, causes an active reflex stimulation of the efferent inhibitory fibres for the cardia, demonstrated by Langley to be present in the vagus nerves.

Besides the above-described reflex inhibitory processes, stimulation of the central end of the vagus causes also a reflex contraction of the cardia, but this occurs after discontinuation of the stimulation. The cardia contracts, then, as a rule in the same typical manner as it does after discontinuation of stimulation of the peripheral end of the vagus.

VAGUS INHIBITION.

By Professor W. E. Dixon, M.D.,
Cambridge.

[Abstract.]

Professor W. E. Dixon gave an account of his experiments on vagus inhibition. He was of opinion that the heart contains a substance—"pro-inhibitin," which, as a result of vagus excitation, is converted into a chemical body—"inhibitin." This substance, combining with the heart muscle, results in cardiac standstill. He drew comparisons between the action of this substance on the heart and the action of secretin on the pancreas.

Professor Frederic S. Lee (New York) said that Professor Dixon was, of course, acquainted with Professor Howell's idea regarding cardiac inhibition, namely, that it depends upon the presence of diffusible potassium compounds in the heart tissue, and that the vagus impulses act by increasing the amount of potassium compounds. Had he investigated this supposed relation of potassium to inhibition?

Professor E. Wace Carlier (Birmingham) said that if Dr. Dixon's hypothesis could be proved to be correct, it would remove much of the difficulty that some had felt in accepting Pawlow's so-called "psychical" action of the vagus on the pancreas; for secretin being in the blood, the central nervous system could at any time cause a combination between it and the prezymogen in the gland cells; further, the same thing would hold good for the liver, which, in the speaker's experiments, showed marked secretion of liver ferments within half an hour when food was shown but not given to the animals.

THE VARIOUS FORMS OF THE NEGATIVE OR PHYSIOLOGICAL VENOUS PULSE.

By William S. Morrow, M.D.,
Assistant Professor of Physiology, McGill University, Montreal.

The first satisfactory account of the venous pulse is contained in Morgagni's *De Sedibis et Causis Morborum*, of which the first edition was published at Venice in 1762. Morgagni quotes many earlier writers on the venous pulse, and valiantly opposes those who were maintaining then—as Gibson and Mackenzie, with certain reservations, are to-day—that all forms of venous pulse are accompanied by tricuspid regurgitation. He considers such an assumption quite unnecessary in the case of the auricular venous pulse, and he points out how this may be distinguished from the ventricular form by observing the time relations between the movements of the jugular vein and the carotid artery.

The honour of first observing the venous pulse in a normal animal belongs to Wedemeyer, who in 1828 published an account of it as seen in the horse. He inserted a catheter into the jugular vein and connected this with a glass tube containing coloured fluid. He was able to observe fluctuations in the height of this fluid with every heart beat.

Bamberger, in 1863, published graphic records of the venous pulse of tricuspid insufficiency; and Marey, in the same year took tracings of the venous pulse from animals. Potain, in 1881, took simultaneous tracings from the jugular vein and either the carotid artery or apex beat so as to establish the time relations of the waves. He described the normal venous pulse substantially as I shall do to-day, and recognized its presence in healthy man. Riegel, in 1882, by comparing simultaneous tracings, was able to work out the time relations more fully, and showed how the normal and pathological forms could be definitely distinguished from one another by this means.

In recent years a very large amount of work has been done on the venous pulse. Especially worthy of note is that of Léon Fredericq on the dog and that of D. Gerhardt on man. James Mackenzie of Burnley, England, has done more than any other man to diffuse the knowledge of the

venous pulse throughout the English-speaking world. His most valuable work has been done from a clinical standpoint, and he has gained a world-wide reputation by the application of his knowledge of the venous pulse to the study of arrhythmia. I feel personally indebted to him for most of what I know about this aspect of the subject. At the same time I do not hesitate to differ from him on many points, to which I will refer as we proceed.

My experience has led me to agree with Potain, Mosso, Gerhardt, and others, in their experience that there is a pulsation in the neck veins of healthy men, and with Gottwalt that it exists and may be recorded in normal dogs. It is true that it is very difficult or impossible to see the pulsation in some individuals, and there are instances where one fails to get a record, but with the subject in the horizontal position a tracing may usually be obtained showing at least some of the waves that characterize the venous pulse. One must be prepared, however, to use different veins in different subjects. Usually the internal or external jugular on the right side gives the best tracings, but I have seen cases where I got better results from the veins on the left side of the neck or from a vein lying near the middle line over the trachea, presumably the thyroid vein.

In Fig. 1 is shown a tracing from the jugular vein of a dog under the influence of morphine and ether. The

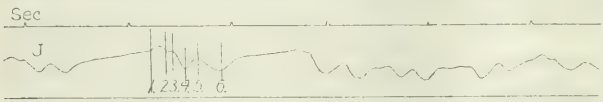


Fig. 1.—Tracing from jugular vein of dog. Respiratory variations in pulse-rate may be observed. Time in seconds. 1. Commencement of auricular or presystolic wave. 2. Systolic wave. 3. Auricular collapse. 4. First onflow wave. 5. Ventricular collapse. 6. Second onflow wave.

tracing shows respiratory variations in the pulse-rate, and we have the record of five complete pulse-beats, of which the one marked represents a rate of 42 a minute, as may be calculated from the time marking above. In this pulse tracing we find the following events recorded:

1. A positive wave, which can be shown to be synchronous with the auricular systole.

2. A second positive wave, which occurs at the very beginning of the ventricular systole.

3. A negative wave, representing a collapse of the vein, which occurs during the auricular diastole.

4. A positive wave, which begins about the time the semilunar valves are closing, and to which various causes have been assigned.

5. A negative wave or collapse synchronous with the expansion of the ventricle.

6. A positive wave, at first sudden and then more gradual, representing an increasing distension of the vein, which lasts up to the time of the next auricular systole.

The time relations of these waves are generally accepted as given, and may be confirmed by examining some of the simultaneous tracings which will be shown as we proceed (Figs. 2, 3, 5, 9, 12, 13).

Fig. 2, taken from a healthy woman a few days after confinement, shows the same waves as Fig. 1, although, as

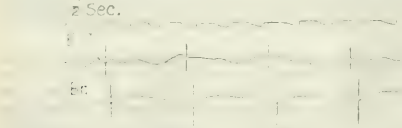


Fig. 2.—Healthy woman in childbed. Pulse-rate 52 per minute. External jugular vein above. Brachial artery below. Time in half-seconds. Points corresponding in time marked in vein and artery.

her pulse was a little more frequent—52 per minute—the waving filling in the space between the ventricular collapse and the next auricular systole is cut short. In her case the arterial pulse was recorded from the brachial artery to give the time relations.

Fig. 3 is a similar record of the venous pulse from a convalescent typhoid patient with a pulse-rate of 60. Here the apex beat is recorded simultaneously, and it may be observed that the ventricular wave in the apex beat slightly precedes the systolic wave of the venous pulse, but the presystolic waves correspond.



Fig. 3.—Convalescent typhoid patient. External jugular and apex beat. Pulse 60. Corresponding points marked.

Of the various waves mentioned, the first, Fig. 1, is universally attributed to the systole of the auricle, which sends back a wave of increased pressure along the veins. It is called by Gerhardt the "presystolic wave," and by Mackenzie the "auricular wave." Both are good names, and either may be employed.

The second wave (2, Fig. 1) has been explained in several ways. Potain regarded it as perhaps due to the impact of the ventricular systole, which may be transmitted through the tricuspid valves to the auricle, and so back to the veins. He suggested as an alternative that it might be caused by the impact of the aorta against the great veins.

Gerhardt opposes Potain's theory of transmission through the tricuspid valves. He holds that the auriculo-ventricular opening is so constricted by the contraction of the ring of muscle around it that the valves are in contact throughout nearly their whole surface and could not be forced back towards the auricle sufficiently to convey the systolic impact. If the wave is conveyed to the veins from the auricle he considers it more reasonable to ascribe it to the contraction of the above-mentioned ring of muscle, which might bring about a diminution in the capacity of the auricle itself and so originate the wave. He rather favours, however, the view of Bamberger, Friedreich, and others, that the veins are affected by the systolic impact of the arteries in their immediate neighbourhood. Mackenzie supports this view and ascribes this wave, as it appears in the jugular pulse, to the impact of the contiguous carotid artery. Under this conviction he has called it the "carotid wave" in all his publications for some years past.

I do not deny that the neighbouring carotid artery may contribute somewhat to the causation of this wave. On the contrary, I have tracings from a dog which seem to support this view. The right ventricle was apparently paralysed by asphyxia as there was no ventricular

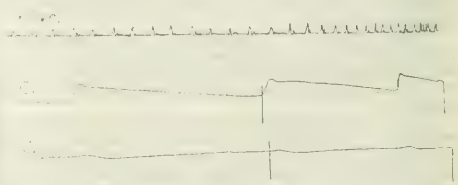


Fig. 4.—Dog under morphine and ether. Carotid and jugular. Air getting into thorax causing asphyxia and paralysis of right side of heart. Systolic wave still seen in jugular and believed to be caused by impact of neighbouring arteries or of aorta.

collapse, and, therefore, probably no systole of the right ventricle strong enough to cause a wave in the veins. Nevertheless, a systolic wave was still apparent in the jugular pulse, which is most readily explained by ascribing it to the systolic impact of neighbouring arteries (vide Fig. 4).

I also recognize the possibility of the receiving instrument used for the venous pulse being so applied as to include the area of pulsation of some artery. In spite of these admissions, however, I believe that the essential part of this wave is transmitted back from the right auricle, where it takes origin in one of three ways:

1. By a force exerted during the ventricular systole through the auriculo ventricular valves.

2. By the contraction of the ring of muscle around the auriculo-ventricular junction.

Or,

3. As a result of a pressure exerted upon the auricles by the systolic twist of the heart.

My reasons for believing that this wave is not primarily caused by the impact of neighbouring arteries are as follows: In tracings of auricular and ventricular pressures, taken with Hürthle's heart catheter (Fig. 5), the systolic

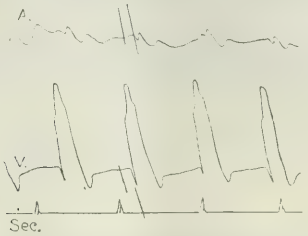


Fig. 5.—Dog, under morphine and ether. Pressure in right auricle and ventricle taken with Hürthle's heart catheter. Points corresponding in time marked showing presystolic and systolic waves.

wave in the auricular tracing is often higher than the presystolic. In the reflection of the auricular pressure back along the veins the systolic wave might reasonably be expected to continue as distinct as the presystolic without receiving any reinforcement from the arteries. Mackenzie's assumption that it is transmitted from the artery has led him to deduce conclusions that can be easily disproved. In the British Medical Journal for March 5th, 1904, he declares that we must reduce the auriculo-ventricular interval, as shown by the jugular pulse, to allow for a delay between the beginning of the ventricular systole and the opening of the semilunar valves. I have frequently found in dogs, however, that the auriculo-ventricular interval, as measured by the waves of the jugular pulse, is no longer than if measured in the heart itself.

In Fig. 6 we have a tracing of the auricular and ventricular pressures in a dog and the interval as measured here proves to be one-eighth of a second. In Fig. 7, from the

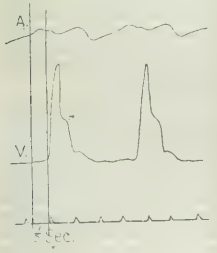


Fig. 6.—Dog, under morphine and ether. Auricle and ventricle. A-V interval as measured in auricle, $\frac{1}{8}$th second. As measured in ventricle, slightly less. Pulse-rate 85.

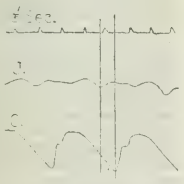


Fig. 7.—Same dog as Fig. 6. Jugular and carotid. A-V interval, as measured in jugular, is $\frac{1}{8}$th second. Pulse-rate 100.

jugular of the same dog, we get in one case a result of only one-ninth of a second. The slight difference is to be explained by the fact that between the times of taking these two tracings there was a change in the pulse-rate. In a number of estimates which I have made in different dogs, however, I have found the average time to correspond very closely as measured in vein and auricle.

Mackenzie has declared, too, that the systolic wave is not found in the femoral vein, and has used that as an argument for its origin from the carotid artery. We do occasionally find a systolic wave in the femoral vein, as is shown in Fig. 8, but the fact that it is commonly absent is really an argument that can be used in another way. Although the femoral vein lies just as close to its corresponding artery as does the jugular to the carotid, yet the presystolic and systolic waves are both commonly absent or indistinct, showing that the systolic wave of the venous pulse, like the presystolic wave, depends more on the nearness of the vein to the auricle than on the presence of an artery in juxtaposition.

An almost certain proof that this wave is not caused by the carotid artery is afforded by the fact that clamping the carotid close to the aorta does not affect it.

Figs. 9 and 10 were taken from the same dog under similar conditions, except that while No. 10 was being taken the carotid artery was firmly clamped by an artery forceps at the point where it emerged from the aorta. To make sure that the clamping was effective, the artery was opened half way up the neck and did not bleed. It will be noticed that the systolic wave is not affected

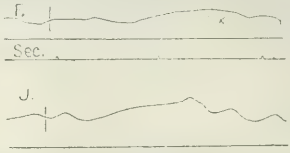


Fig. 8.—Dog, under morphine and ether. Femoral vein above. Jugular below. Systolic wave seen in femoral above cross.

materially, and, if it is a little less pronounced, the same may be said of the presystolic wave, and an easy explanation is found in the emptying of the vein by shutting off the blood supply from that side of the head.

I believe, then, that the essential factor in the causation of wave 2 is to be found in a direct action of the ventricle on the auricle, and through the auricle on the veins. I protest against this wave being termed the "carotid wave," and advocate rather Gerhardt's term, "systolic wave." I would like to call it the "ventricular wave" to indicate its origin, but as this term has been used in quite another sense confusion would result, so we must for the present call it the "systolic wave."

The negative wave (3, Fig. 1) is almost universally ascribed to the suction exerted by the auricular diastole on the blood in the veins. Mosso tried to explain it by changes in intrathoracic pressure incident to blood being forced out of the thorax by the ventricular systole. This was disproved by Gottwalt, who showed that it persisted even if the chest was opened.

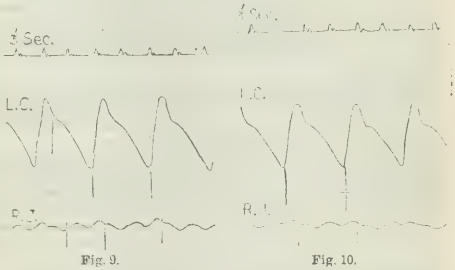


Fig. 9.

Fig. 10.

Figs. 9 and 10 are taken from the same dog. Upper tracing left carotid. Lower tracing right jugular. Between these two figures the right carotid artery was clamped securely at the point of origin from the aorta by an artery forceps passed along a finger used as a guide. Upward traction was made on the carotid to facilitate the process. The systolic wave was little affected by this manœuvre.

Léon Fredericq ascribed it partly to the downward movement of the auriculo-ventricular junction during the ventricular systole; but this was disputed by François-Franck, who showed that it persisted if the ventricle alone was inhibited, but disappeared if the auricles were inhibited and the ventricles still active.

The first part of François-Franck's contention may be verified in Fig. 9, and I have tracings which support the latter part also; but I do not wish to unduly extend my list of figures that show nothing new. In view of these results of François-Franck, I think we may at least say that the auricular diastole is the preponderating factor in the causation of this negative wave. It is known by several names, all of which are sufficiently descriptive. Some call it the "systolic collapse," and others the "wave of auricular diastole," or the "auricular collapse." The

last mentioned commends itself most to my taste and judgement.

The next wave (4, Fig. 1) calls for considerable discussion. Different writers cannot even agree as to the part of the cardiac cycle in which it occurs. Some claim that it occurs during the latter part of the ventricular systole, and that the dicrotic wave of the arterial pulse corresponds in time with its summit. Others (among whom is Gerhardt) state that it occurs during the diastole of the ventricle, and show simultaneous tracings of the venous and arterial pulse in which the dicrotic notch corresponds with the beginning of this wave. I have frequently confirmed this view of the time relations (see Figs. 9 and 13). Gerhardt does not find the time relations of this wave perfectly constant, however, and I too have found some variation. Sometimes the arterial dicrotic wave occurs before the beginning of the wave in question, and sometimes a little later. Gerhardt gives abundant proof for his statements, and thereby gives a very satisfactory answer to all those who connect this wave with the closure of the semilunar valves—whether, like Riegel, they think it is due to the impact of the arterial dicrotic wave on the veins, or whether, with François-Franck, they ascribe it to a wave transmitted back through the ventricle and auricle at the moment of closure of the pulmonary valves.

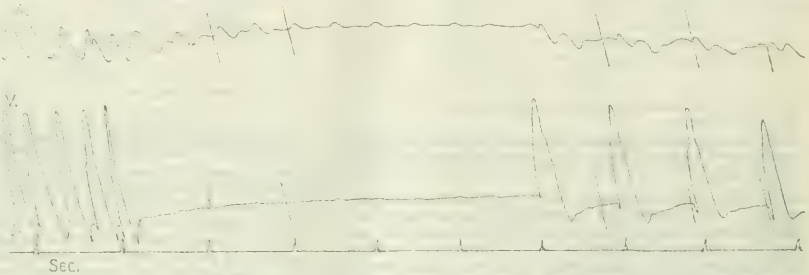


Fig. 12.—Dog, under morphine and ether. Pressure in right auricle and ventricle taken from Hürthle's heart catheter. Time in seconds. During the tracing the vagus nerve was stimulated with the unusual result of inhibiting the ventricle but not the auricle.

François-Franck has also suggested a change in intrathoracic pressure incident to the relaxation of the ventricle, but Gerhardt has shown that the wave remains the same under very varying conditions of intrathoracic pressure, which renders this view unlikely. François-Franck again, with Fredericq and Gerhardt, has mentioned an upward movement of the tricuspid valves during the ventricular diastole as a cause, but its varying time relation to the dicrotic notch excludes any such explanation.

Gottwalt ascribed it, and, I think, correctly, to more blood coming in from the peripheral capillaries than the auricle can make room for, which necessarily leads to distension of the veins and a positive wave.

There is another theory which calls for consideration simply because of the eminence of the men who have advanced it. I refer to Gibson and Mackenzie, who connect this wave with tricuspid regurgitation. Now this is one of the most constant waves in the venous pulse, and is practically universal in dogs and men. I have recorded it from my own neck when in excellent health (Fig. 11), and most of my audience could do the same from theirs.

Fig. 11.—Venous pulse tracing taken by the writer from his own external jugular. Time in half seconds.

It is always present in the jugular and femoral veins of dogs; see Fig. 8, where this wave is underlined.

The statement that it is connected with the tricuspid regurgitation involves the following assumptions: That tricuspid regurgitation is uniformly present in dogs and men; that after the semilunar valves close and the ventricles are beginning to relax there is still enough blood in the ventricle and enough force in its contraction to exert an influence backward through the veins of the trunk to those of the limbs. I do not believe that there is enough blood in the ventricle at this time to exert such a backward influence, and I do not believe that tricuspid regurgitation is a constant occurrence in men and dogs.

Gibson bases his belief in tricuspid regurgitation as a frequent occurrence very largely on experiments performed on dead relaxed hearts by himself and others. He does not claim that all tricuspid valves leak, but neither does he recognize that this wave is present in the veins of healthy individuals. In his textbook he clearly connects the two together as arising one from the other.

In the dead relaxed hearts on which he carried out his experiments on tricuspid regurgitation two of the chief factors in making the valves competent were absent, namely, the contraction of the circular muscle around the orifice and the proper contraction and position of the papillary muscles and chordae tendineae. It might seem difficult to supply these conditions in a dead heart, but L. Krehl has shown how it may be effected. He claims that if a heart be experimented on while in a condition of rigor mortis the parts will be in the same relative position as during ventricular systole and the valves will be found perfectly competent. Krehl also shows that even in the relaxed heart if the sides of the ventricle be pressed inwards by the hands so as to bring the attachment of the chordae tendineae into their normal position, regurgitation will not occur. Even if the ventricle be opened the valves may be made competent by simply bringing the papillary muscles into the position they would occupy during systole.

A consideration of Fig. 12, will, I think, convince you that the action of the ventricle is quite unnecessary for the production of this wave, and that it is produced, as Gottwalt claimed, simply from the onflow of blood from the systemic arteries and capillaries which refills the veins just emptied by the auricular diastole.

Fig. 12 is a tracing of the pressure in the right auricle and ventricle of a dog with a rapidly beating heart. The lower end of the vagus was stimulated during the middle part of the tracing, with the unusual effect of inhibiting the ventricle but not the auricle. It will be noticed that during the part of the tracing before the stimulus was applied the wave under discussion is not to be separated from the succeeding auricular wave because the heart is beating too fast. When the vagus is stimulated the ventricle stops beating, and now this wave is distinctly seen although the ventricle is at rest. After a few seconds the arteries have nearly emptied their excess of blood into the veins, the auricles are becoming paralysed and the wave becomes smaller and smaller. When the ventricle begins to beat again this wave reappears but is now followed by a collapse due to the ventricular diastole.

This tracing shows that this wave may be more distinct during inhibition of the ventricles than when they are active; I therefore maintain that the essential factor in its production is not the direct action of the ventricle but the onflow of blood from the periphery. The fact that in tricuspid incompetence this wave is obscured by the wave due to the regurgitation of blood from the ventricle, has nothing whatever to do with the interpretation of the normal condition of things.

I therefore protest against this wave being called the "ventricular wave" by Mackenzie, Gibson, and others. I also protest against its being called the "first diastolic" wave, as it is by Gerhardt, for it sometimes begins during the ventricular systole. I would suggest for it the name of the "onflow wave," and as it is necessary to distinguish

it from wave 6, Fig. 1, it may be called the "first onflow wave" and the other the "second onflow wave."

Wave 5, Fig. 1, is universally admitted to be due to the ventricular diastole and does not require prolonged discussion. It may be called the "diastolic collapse," or better, the "ventricular collapse."

The last wave, numbered 6 in Fig. 1, is generally held to be due to the blood flowing into the veins from the periphery during the pause of the heart. As far as I know, no one has seriously disputed this view. We sometimes find irregularities on the curve of this wave; I do not know the cause of them, unless they are produced by the contraction of the venous ostia near the auricle. Gerhardt calls this wave the "second diastolic," but, as his "first diastolic" sometimes begins during the ventricular systole, I cannot use these terms. I would suggest that this wave be called the "second onflow wave," which contains a suggestion of its causation, and at the same time distinguishes it from the "first onflow wave" occurring at a different part of the cardiac cycle, though originating in a similar cause.

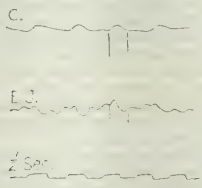


Fig. 13.—Tracing of carotid and external jugular from man of 22 with moderately enlarged thyroid, tremor of fingers, pulse of 100, but no exophthalmos. Shows in one case the systolic wave rising higher than the presystolic.

It will be noted that two principles have been used in naming the different waves. Some name them after their time relations, and others after their supposed cause. Both methods are widely used, and for the present one must recognize a wave by either of its names. A difficulty in using the names derived from the time relations is that the wave known as the "first diastolic wave" is partly systolic in time. In a former paper I suggested that it might be called the "prediastolic wave," although this name is scarcely elegant. In naming the waves after their supposed causation we are met by the difficulty that the name "ventricular" has been applied by a few eminent writers to a wave that has nothing to do with the ventricle, so that if we use this name for the real ventricular wave confusion may result. This difficulty will only last so long as the term continues to be illogically applied to the onflow wave.

When planning this paper I hoped to discuss at some length the variations seen in these waves in different cases, but space will only permit me to present a few additional figures, and make a few remarks on their salient points.

On looking over the figures already shown it will be noticed that the second onflow wave is very commonly

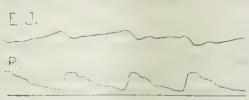


Fig. 14.—Simultaneous record of external jugular and radial. Man of 50 with arterio-sclerosis. Shows auricular collapse more marked than other waves.

absent. It is only seen when there is a long diastole, so that an interval elapses between the opening up of the ventricle and the next auricular systole.

Wave 2, the systolic, is very variable, sometimes being quite indistinguishable, as in Fig. 15, and sometimes very pronounced, even more so than the auricular wave, as in Fig. 13. A glance at the tracing of auricular pressure in Fig. 5, will show that even in the auricle this wave may exceed the auricular in height.

We sometimes find the negative waves very pronounced and the positive waves poorly marked (Fig. 14). Sometimes the auricular and systolic waves are fused, so that it is impossible to say where one ends and the other begins (Fig. 15). In such a case the only definite points in the tracing are the beginnings of the negative waves which mark the auricular and ventricular diastoles. This I believe to be the form of venous pulse found in very rapid heart action. In Fig. 16 the venous pulse denotes a rate of 180 per minute, but the arterial pulse is only apparent at every second or third beat on account of a failure of contractility in the ventricles from the too frequent contraction. Here the venous pulse form is essentially the same as in Fig. 15.

Fig. 16 also illustrates another point, namely, that the ventricular collapse is sometimes more pronounced than the auricular collapse. It may be proved to be so in this tracing by measuring out the time relations. In Figs. 6 and 7 we similarly find the ventricular collapse more pronounced than the auricular, and Gerhardt has shown that this is frequently the case in overworked hearts.

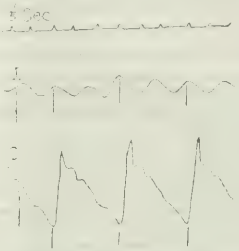


Fig. 15.—Dog, under morphine and ether. Jugular and carotid. Shows presystolic and systolic waves so fused with second onflow wave as to be indistinguishable.

Conclusions.

The so-called auricular venous pulse is a normal occurrence in men and dogs.

With a slowly-beating heart it is made up of six events which may be named either from their supposed causation or from their time relations to the cardiac cycle, as follows:

1. The auricular or presystolic wave.
2. The ventricular or systolic wave.
3. The auricular or systolic collapse.
4. The first onflow or prediastolic wave.
5. The ventricular or diastolic collapse, and
6. The second onflow or diastolic wave.

With frequently-beating hearts some of these waves may be absent, or several may be fused together. There is considerable variation in the relative prominence of the different waves.

Methods.

The methods used in this investigation were numerous. In the animal experiments the dogs were given a preliminary dose of morphine, and were anaesthetized with ether. Hürthle's large kymograph, membrane manometers, and heart catheters were used, and Jaquet's time marker. In recording the venous pulse in dogs a cannula with a long neck was passed into the vein through a side branch without interrupting the circulation.

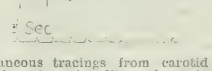


Fig. 16.—Simultaneous tracings from carotid and internal jugular of man with acute pericarditis and very irregular arterial pulse, the irregularity being due to a disturbance of contractility. Over the cross it will be noticed that the venous pulse shows two beats corresponding to a rate of 180 per minute while the arterial pulse shows only one beat. I believe as a result of a study of the time relations that this pulse form is to be interpreted in the light of Fig. 15, and that the most pronounced collapse corresponds to the ventricular diastole.

For human beings the chief recording apparatus was the Baltimore kymograph and a small portable kymograph designed by the writer. The time records in half seconds were recorded by a cheap American watch adapted for the purpose by the writer. The manometers used

most frequently were made from glass thistle funnels covered with rubber, and bearing light levers made from the fine canes of Japanese incense.

In closing, I desire to express my indebtedness to Professor Karl Hürthle of Breslau, who first drew my attention to the venous pulse, and under whose guidance I carried out my first experiments; to Professor Wesley Mills, my senior colleague at McGill, who has assisted and encouraged me in many ways; and to Dr. James Mackenzie of Burnley, England, who has taught me many things, and who, as a fellow general practitioner, has been a constant stimulus to me for many years.

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ACAPNIA AS A FACTOR IN SHOCK.

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THE term "acapnia" was originated by Mosso. It signifies a diminished CO_2 content of the blood and the disturbances of the respiratory centres which this diminution induces. The abnormally rapid escape of the CO_2 from the lungs on high mountains, in balloon ascensions, and in the low pressure chamber of the laboratory results in acapnia, as Mosso believes. In acapnia he therefore sees one at least of the principal causes of "mountain sickness." The importance of the CO_2 content of the blood in regulating the normal activity of the respiratory centres (and the relative unimportance of the oxygen content) is further attested by Haldane's demonstration of the uniformity of the CO_2 tension in the alveolar air in man. Thus Haldane explains the apnoea following rapid artificial respiration in animals, or following voluntarily forced respiration in man, as due to the diminution in the CO_2 in the blood supply to the respiratory centres—a slight temporary acapnia.

The observations which I have to report indicate that the influence of the CO_2 content of the blood upon the nervous centres which regulate the rate of the heart beat is quite as important, both under normal and abnormal conditions, as its influence upon those of respiration. In July of the present year I published in the *American Journal of Physiology* some of the results of a long series of experiments. In these experiments, all of which were performed upon dogs, the thorax was opened and the heart enclosed in a plethysmograph. The graphic records of the volume curve of the heart and of the blood pressure, which accompanied this paper, exhibit variations in the rate of the heart beat from 50 per minute up to 200 beats per minute. In some experiments, which have not yet been published, graphic records were obtained which show that the heart was kept for several minutes at rates below 30 per minute, was then forced up to a rate of beat of over 300 per minute, and then again slowed down. All these variations were brought about by merely varying the extent of the pulmonary ventilation. When artificial respiration was employed it was found that the more rapidly and extensively the alveolar air of the lungs is exchanged for fresh air the more rapidly the heart beats, and vice versa.

In another series of experiments, instead of artificial respiration the Sauerbruch-Brauer method of natural respiration of compressed air was employed. When the gasometer from which the air was supplied to the animal was connected directly to the tracheal cannula, so that the lungs at each inspiration received wholly fresh air, the results were invariably disastrous. The heart beat rapidly increased up to an extreme rapidity. From this condition the animals passed into a state of shock, and death occurred in the course of a few hours. On the other hand, when the ventilating apparatus was so arranged that at each inspiration only a fraction of the air entering the lungs was fresh, a normal heart-rate, arterial pressure, and respiration were maintained through as many hours as the experiment was prolonged. Many of these experiments lasted from 9 or 10 o'clock in the morning until 5 or 6 o'clock in the afternoon. Thus if the amount of fresh air is properly regulated the Sauerbruch-Brauer method affords—at least for experimental work in the thorax—almost ideal conditions.

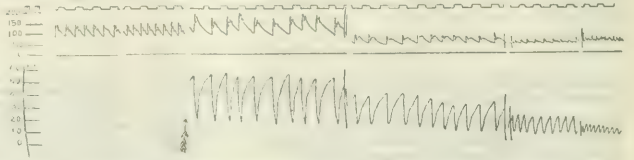
During the present summer I have carried out a new series of similar experiments, and have accompanied them with blood-gas analyses. The close relation which obtains between the results of these analyses and the pulse-rate in the graphic records indicates conclusively, it seems to me, that the CO_2 content of the arterial blood is the factor which thus determines the heart-rate, and that—at least in dogs under anaesthesia—tachycardia is due to acapnia.

Thus in a typical experiment:

When the pulse was	75	the CO_2 was	39	volumes per cent.	
"	"	115	"	37	" "
"	"	130	"	35	" "
"	"	230	"	7	" "

The variations in the oxygen content of the blood, on the contrary, were generally small, and showed no marked relation to the pulse-rate. Similar results were afforded by records and analyses upon animals of which the thorax had not been opened. Similar also are the results of yet other experiments in which the acapnia was induced by the hyperpnoea resulting from the vigorous stimulation of an afferent nerve (such as crushing the sciatic).

In this connexion a brief statement of the results of some observations on the pulse-rate of men which are now being carried out in my laboratory, may be of interest. We find that when a man, lying entirely at rest, forces himself to breathe deeply and rapidly for a few minutes, his pulse increases from 65 or 70 up to 95 or 100 per minute. When the subject holds a paper bag over his mouth and nose, so that a part of the air previously expired is again inspired, the pulse is markedly slowed (sometimes by as much as 10 or even 15 beats in the minute). If while breathing into a bag the subject performs forced respiration, the increase in the pulse-rate is relatively small.



The character of the changes in the arterial pressure and in the amplitude of the heart beats, when the rate of beat is progressively increased, is exemplified in the reproduction of a part of one of the graphic records. The subject was a 14.0 kilo dog. The time record indicates 0.5 second. The pulse was recorded with a Hürthle manometer connected with the carotid. At 12.20 the thorax was opened and the cardiometer placed upon the heart. The volume changes of the heart shown by the

lower curve were recorded by a large tambour connected with the cardiometer. This record shows that when (at 12.45) the pulse was slow the amplitude of each heart beat (that is, the volume of each systolic discharge) was about 35 c.cm. The mean arterial pressure at this time was about 125 mm. When, however, the pulse rate had been forced up to 150 and then to 200 the amplitude of the beats became very small. The arterial pressure fell to about 60 mm. This fall of blood pressure was not due to vasomotor failure, for it is sometimes followed by a partial recovery of the pressure even with a very rapid heart rate. It is therefore due to the diminished output of the heart. The diastolic intervals are too brief to allow the ventricles to be filled. In fact, if the volume record be turned upside down and examined, it will be evident that this curve presents the features characteristic of the curves obtained from a muscle which by an increasingly rapid series of stimuli is brought into a state bordering on tetanus.

Sometimes this "cardiac tetanus" causes almost immediate death. More often, if the acapnia is not too acute and has not been prolonged, it is possible to bring the heart back to a normal state by carefully-adjusted artificial respiration. If, however, any marked degree of acapnia is maintained for any considerable time, the animal thereafter passes into a state of shock from which all our attempts at revival have thus far proved uniformly unsuccessful.

In conclusion, it appears probable that the hyperpnoea induced by intense pain and the hyperpnoea incident to some of the stages of anaesthesia, by causing an overventilation of the blood, produces a condition of at least partial acapnia, and that acapnia is an important factor in the production of shock. Experiments are now in progress to determine the value of CO_2 inhalations and of intravenous perfusions of saline saturated with CO_2 in shock.

SECTION OF OPHTHALMOLOGY.

R. Marcus Gunn, F.R.C.S., President.

CHRONIC SUPPURATIVE DACRYOCYSTITIS AND ITS RADICAL TREATMENT.

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Introduction.

It is an acknowledged fact that, with the lachrymal sac in its normal condition, the secretion of tears and their irrigation through the lachrymal channels is a physiological necessity. In a cavity lined with a secreting membrane as the tear sac, where pathogenic bacteria and epithelial débris are most liable to collect, the flow of tears is a most important factor in cleansing the cavity by the simple process of irrigation.

The same argument does not hold in the case of the palpebral conjunctiva when once the sac has been excised; the lids and globe being in constant motion, bacteria are prevented from collecting at one point, as they do in the case of a strictured sac, but are distributed or expelled over the palpebral margins by the blinking action of the lids. These bacteria, found in the palpebral mucosa, assume a very much more benign character than the same species found in a stagnant tear sac either before it has been excised or before its lumen has been opened.[1]

Regarding the exact function of tears, the following information has been obtained: That in addition to their acting as a simple irrigating factor, they have some inherent power inhibiting bacterial growth. Exactly what this potency is due to has not as yet been satisfactorily explained. Two conclusions, however, have been arrived at.

1. That bacteria are removed from the conjunctiva by tears acting as a simple irrigating factor, the secretion being ultimately drained away through the lachrymal sac into the nose.

2. That there is something of a bactericidal nature in the composition of tears; cultures of various organisms, more particularly of the *Staphylococcus albus*, produce fewer colonies in media containing tears than in media not containing them, or even than in media containing a solution of sodium chloride supposed to correspond to the lachrymal secretion.

The modern practice in ophthalmic surgery of discarding all heavy dressings and bandages which inhibit the action of the lid should support the view that the prevention of bacterial growth in the conjunctiva must not be accounted for solely by the flow of tears, but in a large measure by the free action of the lids, a circulation which is not impeded, and a secretion of conjunctival mucus which when once collected can readily be distributed or expelled. In support of this assertion I may quote a case of keratitis neuro-paralytica, complicating a cerebellar neoplasm, which recently came under my care. An eye which, beyond a swelling of the optic disc, had always been normal, developed a paralysis of both lids a few days before death. The palpebral conjunctiva became very red, and a considerable quantity of mucus was collected in the lower cul-de-sac. I made bacteriological examinations of the secretion, which was found to contain enormous quantities of the *Staphylococcus albus*.

To enforce my argument that when the lids are covered or rendered immobile the number of bacteria are increased, I have made the following experiment, which I hope to be able to tabulate more extensively later. I have taken cultures on Petri dishes from the conjunctivae of eyes suffering from some mild inflammatory disturbance. After bandaging the eyes tightly for two or three days and taking a second series of cultures, a decided increase in the number of the colonies of the micro-organism first observed is noticed.

If a condition of this nature is produced in the eye by a simple bandage, a prevention of drainage in the lachrymal channels, particularly at the nasal duct where strictures most commonly occur, can readily be seen to produce similar, if not more emphatic results. A more fertile field for the production and cultivation of bacteria than a stagnant lachrymal sac is difficult to find. Bacteria thus fostered readily find their way back to the conjunctival surface, producing severe forms of conjunctivitis and lamentable results in the cornea, after some insignificant superficial abrasion.

Etiology.

After a routine bacteriological examination of all the patients which have come under my notice suffering from dacryocystitis I am able to concur with Ricchi[2] that the micro-organism by far the most frequently found in diseased sacs is the *Staphylococcus pyogenes albus*; other forms found are the *Staphylococcus pyogenes aureus* and *citreus* and streptococci. Saprophytes have been found, as the *Bacillus subtilis, radicosus, ramosus, luteus, fluorescens putidus*, and saccharomyces, while one case of *Actinomyces albus* has been reported. The diplobacillus of Morax-Axenfeld has been found in the sac as well as that micro-organism, the most dreaded by ophthalmic surgeons in cases of recent corneal abrasions, the pneumococcus.

Conditions of stricture occurring as they do, as a rule, at the nasal duct, have been shown to be due in the vast majority of cases, not to a hypertrophy of the mucous membrane of the sac, but rather to an engorged condition of the subperiosteal veins, directly beneath the duct, producing a partial or complete obliteration in its lumen. The cause of the engorgement of these veins can generally be attributed to some defect in the nose, in the neighbourhood of the inferior and middle turbinated bones. Stagnation may be produced by the ordinary cold in the head in its acute or chronic form; other varieties of rhinitis, as the scrofulous and luetic, may also be held responsible for a blocking at the nasal duct. In cases of atrophic rhinitis with ozaena, scar tissue formation in the mucous membrane about the nasal duct may prevent the passage of tears.

A second variety of causes from a nasal origin directly accountable for dacryocystitis are ulcers of various kinds, particularly the scrofulous and the syphilitic; lupus is one of these. When these disappear under treatment scar tissue remains and serious sequelae are likely to occur. When the bone in the neighbourhood of the nasal duct as well as the mucous membrane is involved the condition is still more serious.

A third variety of causes of nasal origin producing stagnation are tumours; the commonest of these are polyps.

During the past six months I have collected a series of 16 cases of chronic suppurative dacryocystitis from the Ophthalmological Clinic of the Royal Victoria Hospital, Montreal, and from my private practice, and have made an

examination of the nose in each case. Of these, 2 patients suffered from deviation of the nasal septum, 2 from chronic rhinitis, 1 from hypertrophy of the anterior end of the middle turbinated bone, and 2 from syphilitic periostitis about the nasal duct. Two of my patients suffered from ulceration of the cornea. Heilmaier,[3] of Wurtzburg, with an enormous experience of many years, reports a series of 352 cases of dacryocystitis; the nose was at fault in 220 of these, and 20 suffered from ulceration of the cornea.

Pathology.

The sacs which I have examined after extirpation have been mainly of two varieties: the first, with a very small lumen and very markedly thickened walls; the second variety, where the reverse has been the case, showed the lumen to be very much dilated and cyst-like, while the walls of the sac have become very much thinner than in the former variety. Microscopically, by low power, one can notice in the mucous membrane of sacs previously affected with suppurative dacryocystitis in its chronic form, a preponderance of smaller or larger tuft-like projections into the lumen (see Fig. 2). Some of these may be quite rough or shaggy, while others may be smooth. The rough projections are generally the smaller ones.

The epithelium for the most part is preserved and multiplied a number of times, while the cells may lose their high cylindrical form, and, becoming polymorphous, lie in a series of several layers, one above the other (see Fig. 3). In these layers of cells, goblet cells are frequently found in varying numbers, but these may frequently be mistaken for large degenerate epithelial cells (see Fig. 3). The condition of the epithelium constitutes to a great degree the projections and depressions in the mucous membrane already referred to. Sometimes these channels between the projections sink quite deeply into the sac, and Joers[4] has been led to consider them as glands. These might readily be mistaken for degenerate epithelium and cyst formation in its various stages, as I have shown in Fig. 3.

The epithelium is marked to a greater or less degree by a round-cell infiltration. A basement membrane which one should detect in the normal sac between the epithelium and the mucous layer proper can no longer be distinguished.

In the submucosa one notices a marked hyperaemia with a tendency towards the formation of new vessels. The veins which surround the sac are tremendously engorged, and their lumen in consequence dilated. The round-cell infiltration is, for the most part, quite pronounced, and can separate the mucosa from the submucosa. The surrounding muscular tissue may also be infiltrated.

In sacs which have become very much dilated and have assumed a cystic character the inflammatory processes are not so pronounced. The mucosa consists of dense fibrous connective tissue containing few nuclei, the vessels are few, and follicles are absent. The epithelial layer is thinned, and its cells are remarkably flattened.

In ordinary catarrh of the sac without suppuration the epithelium is also thickened to a considerable extent, but the round-cell infiltration is absent; the normal basement membrane is detected more readily, in the loose underlying connective tissue one may notice grooves or channels. Hertel[5] claims that in these cases one is able to detect infiltration and lymph follicle formation.

Tear sacs in which suppuration has existed for several years assume an atrophy of the walls which appears as scar tissue.[6]

Treatment.

A mild condition of dacryocystitis may frequently be present, manifesting few or no symptoms either to the patient or to the surgeon; a high crest of the lachrymal bone frequently prevents satisfactory pressure upon the underlying sac, and the anticipated regurgitation of pus or muco-pus is not found; the presence of the disease in the sac is thus disguised. Surgeons are also frequently misled in conditions where only a partial stenosis has occurred when the secretion, after pressure over the lachrymal crest, escapes through the nose and not through the puncta. It is in the latter of these cases only that the palliative treatment can be recommended and endorsed; the actual cautery, probes, and syringing are some of the measures to be adopted in such cases. Of these, the last is the one most to be recommended; it at least does the least damage to the sac, and produces no injury to the tissue in the neighbourhood. In conditions of actual dacryocystitis ophthalmic surgeons are slowly but surely becoming convinced of the fact that conservative methods of treatment are at their best unsatisfactory. Even though the stricture be opened bacteria are still likely to recollect in their former habitat when the stricture reforms, as it so frequently does, after treatment has been suspended for a short time. The employment of the galvanocautery only produces additional cicatricial tissue, rendering strictures both more numerous and more complete without thoroughly or satisfactorily destroying the secreting membrane of the sac. Probes are actually dangerous in the hands of the inexperienced; periostitis, false passages, rupture of ethmoid cells, with the formation of chronic inflammatory tissue in the neighbourhood of a sac rendering subsequent dissection and extirpation more difficult and tedious, are some of the results due to probes.

Besides, as has been already stated in cases of dacryocystitis, the stricture has been produced as a rule not by a swelling of the mucous glands and a consequent blocking of the lumen of the sac, as one might suppose, but by an engorgement of the subperiosteal veins in the neighbourhood of the nasal duct. Probing the sac in such cases can easily be seen to be useless as well as irrational. Further, in poor people, and still more in people living at a distance from medical attendance, it is actually impossible to have treatment of a conservative character satisfactorily carried out for any length of time. The palliative treatment in cases of chronic suppurative dacryocystitis, dilatation of the sac, fistulae, recurrent erysipelas and perilachrymal abscess with dacryocystitis we must admit as unsatisfactory. In actual hypopyon ulcer of the cornea, or keratitis with any of the abovementioned conditions an excision of the sac is not only indicated but imperatively called for; one must, however, in such cases take additional precautions in avoiding any undue pressure upon the globe.

Serumtherapy is unsatisfactory. Boucheron[7] has recommended the use of antistreptococcus serum in certain cases, but it is questionable if such a form of treatment is either rational or satisfactory; in cases of perilachrymal trouble the condition appears to be due rather to an acute inflammatory condition accountable to a different micro-organism than the *Streptococcus pyogenes*, but in a way attributable to a previous diseased condition in the sac wall itself. Romer[8] has recommended the employment of antipneumococcus serum which can be used in cases of invasion of the cornea by the pneumococcus. Its use, however, is suggested rather as a prophylactic than as a cure. As the first evidence of the presence of the pneumococcus is frequently a corneal inflammation, patients are generally too late to hope for any benefit from the use of serum. I saw one such case when a pneumococcus infection set in immediately after a cataract extraction; the pneumococci were demonstrated to be present and the antipneumococcic serum immediately employed, but without benefit.

That there are numerous cases of stenosis of the nasal duct and many of actual dacryocystitis where no rational treatment has been attempted or requested is a fact brought home to us every day by many of the unfortunate conditions of permanent blindness due to corneal ulceration complicating tear sac trouble. We cannot close our eyes to the fact that there are numbers who cannot or will not wear protecting glasses, and yet who are, on account of their respective callings, daily exposed to injuries of the cornea. The mechanic, the foundryman, the farmer, the lumberman, are amongst those who are frequently, unknown to themselves, afflicted with dacryocystitis, at the same time to whom superficial injuries of the cornea are of frequent occurrence. Country people, particularly, are subject to tremendous risks; such people suffering from dacryocystitis in a land of such enormous expanse as Canada are frequently practically isolated from any one with a definite knowledge of the special diseases of the eye, and disastrous results may follow an insignificant abrasion of the cornea by a wisp of straw or the end of a twig.

Although many have acknowledged that the complete removal of the lachrymal sac in diseased conditions is imperatively indicated, the operation has been unpopular on account of the haemorrhage which takes place during the operation. Further, the field of operation being

frequently hidden by blood, fragments of the secreting membrane of the sac are left remaining in the wound cavity, epitheliation occurs, and fistulae result.

Axenfeld's[8] work on the subject and the technique employed and recommended by him have rendered the operation decidedly easier, and have removed many of the difficulties which formerly prevented ophthalmic surgeons from excising the sac, appreciating though they did that a

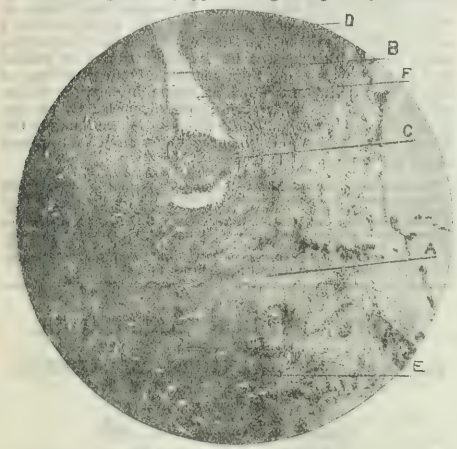


Fig. 1.—A, Thickened sac wall; B, small lumen; C, stricture; D, round cell infiltration of mucous layer; E, infiltration of sac wall with increase of vascular elements; F, epithelial debris.

total extirpation was indicated as the best prophylactic measure to be adopted against future corneal trouble. The method employed by Axenfeld is as follows: The field of operation is rendered as aseptic as possible by the use of soap and water and then by an application of a solution of bichloride of mercury. Should one prefer to operate under local anaesthesia, a few drops of a 4 per cent. solution of cocaine in 1 in 1,000 adrenalin is injected into the tissues about the sac fifteen minutes before the



Fig. 2.—A, Marked thinning of sac wall; B, large cystic lumen; C, tuft-like projections of epithelial layer into lumen.

patient is placed upon the table. The injection is repeated immediately before the operation. I, however, prefer to operate using general anaesthesia, because, after seeing a great many diseased sacs removed under a local anaesthetic, I am not satisfied that the method is a painless one. A veil of sterilized gauze, with an opening large enough to expose the patient's eye, side of the nose, and upper part of the cheek, is spread over the face. The initial incision is made from the inner canthus directly above the internal angular ligament, 2 or 3 mm. in front of the crista lachrimalis. The incision should be directed downwards and outwards in a crescentic direction for about 2½ cm. The incision must be quite deep, cutting through the periosteum. A shorter incision than the one I have specified should not be attempted. There are occasions where a very prominent crista lachrimalis will almost occlude a view of the sac in the underlying fossa,

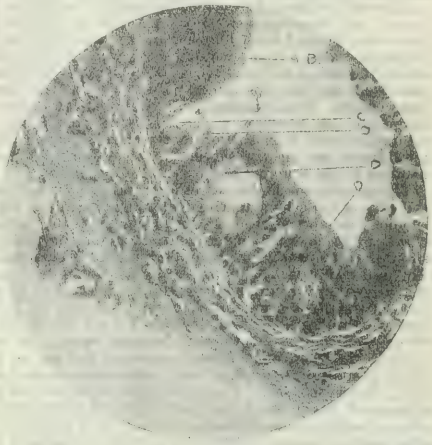


Fig. 3.—A, Increase in number of layers of epithelial cells; B, polymorphous character of epithelial cells; C, degenerate epithelial cell simulating goblet cell; D, cyst formation in various stages simulating glandular structure.

and unless an aperture is made sufficiently large to expose this fossa and its contents there is always the danger of leaving a part of the secreting membrane of the sac *in situ*. Subsequent fistula formation is the inevitable result. The consideration of a slightly smaller incision from a cosmetic standpoint is not to be considered; the wound heals by primary intention, and after a short time little or no evidence can be found of the previous line of incision.

One of the chief difficulties in this operation is the



Fig. 4.—Axenfeld's Spring Retractors. Müller's Speculum.

suppression of a violent and obstinate haemorrhage. The employment of Péan's forceps is impossible on account of the smallness of the cavity and because the vessels are situated so deeply that they cannot be seized. After the primary incision is made digital pressure is exerted over the wound for one or two minutes, and then Müller's small speculum is introduced, holding the edges of the wound apart laterally. A much larger speculum, with reversible and adjustable tips corresponding to the ends

of small, sharp retractors, an instrument especially devised by Axenfeld for use in this operation, is then placed in position. This separates the edges of the wound vertically (see Fig. 4). These specula serve two purposes: They expose a quadilateral field for operation, and are of decided assistance in arresting haemorrhage. In addition, they eliminate the necessity of having an assistant's hands holding retractors in front of the operator.

Bloch of Freiburg has made a suggestion regarding the control of haemorrhage which Axenfeld carries out, a procedure which I have followed in the cases upon which I have operated. A large number of wooden applicators about the shape and size of a penholder are previously sterilized, and the tips armed tightly with sterile absorbent cotton. Firm pressure and swabbing can be undertaken in this manner, procedures which could not be followed so well with the ordinary gauze sponge. These applicators are also of service in reapplying adrenalin solution to the wound.

The periosteum is now carefully retracted forward over the edge of the crista lachrimalis and downwards as far as the bony canal encircling the nasal duct. If the haemorrhage is sufficiently under control the lachrymal sac should be seen nestled in the underlying fossa lachrimalis. The sac is now seized by a pair of fixation forceps and drawn gently forward, while a careful dissection with a pair of small, sharp-pointed, curved scissors is begun beneath the sac. A method which I have found to be of decided value and which I always employ at this juncture is, when once I have separated the sac at one point from the underlying fossa, to introduce a tenotomy hook under the sac. I am now able to follow the sac downwards to the nasal duct and upwards to the puncta, always cutting beneath the heel of my hook without fear of wounding the sac above. Very little subsequent dissection of the overlying connective tissue is necessary, and the sac is severed as close to the puncta above and to the nasal duct below as is possible. When the sac has been removed a specially-devised curette is introduced into the nasal duct, which is quite denuded of its mucous surface; this procedure allows subsequent drainage of the cavity for one or two days after the operation, and assures the operator of complete stenosis by the formation of cicatricial tissue about the duct, rendering any subsequent infection through the nose impossible. The wound cavity formerly occupied by the sac is thoroughly irrigated with a warm bichloride solution, and the edges of the skin wound are brought carefully together by a few silk sutures. A small firm roll of absorbent cotton, about the thickness and half the length of one's little finger, is placed over the line of incision and a compress dressing applied. This should be left undisturbed for three days; the sutures may be removed three or four days later.

The advantages of this procedure are briefly as follows: The operation is not dangerous; a very small wound is necessary, allowing one all the space he requires to carry out a complete dissection. As very little disturbance takes place in the surrounding tissue, there is no likelihood of producing secondary complications, as injury to the ethmoid cells or periostitis.

The operation is a complete one, the sac being removed from the canaliculi above to the nasal duct below, and the mucous membrane lining the duct being completely curetted away, no secreting surface remains; a sense of absolute security from future infection from this source is thus afforded both the patient and the surgeon.

From a cosmetic standpoint it is all that can be desired; the very small incision is later hardly more noticeable than one of the ordinary lines of the face.

The objection that after excision of the sac tears are still secreted, and that epiphora continues, does not hold. Of the sixteen cases to which I have referred an extirpation of the lachrymal sac after Axenfeld's procedure has been performed eleven times with uniformly satisfactory results. It is difficult to explain exactly how the lachrymal gland adapts itself to the new conditions, when once the sac has been removed. We know from actual experience that when the source of infection has been removed irritation of the conjunctiva is allayed, and that reflex secretion of tears is not produced. The statement that after extirpation of the sac an atrophy of the gland follows has yet to be proved. Axenfeld and Bietti[10] have shown that in the normal gland microscopic indications of atrophic changes, as fat tissue and granules, are present. They examined sections of glands from numerous cases where the sac had been previously excised without finding further evidence of degenerative change.

Should tears persist to secrete the difficulty can be readily overcome by the simple operation of excising the accessory lachrymal gland, a procedure which is never followed by any untoward results.

In conclusion, I should like to express my thanks to Professor Axenfeld of Freiburg for the opportunities I enjoyed while working in his clinic, as well as for the many personal kindnesses he extended to me. I should also like to record my appreciation of the kindness of Drs. J. W. Stirling and W. G. M. Byers, my seniors in the service at the Royal Victoria Hospital, for kindly placing their clinical material at my disposal, as well as for the hearty co-operation and encouragement they have shown me in my work.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BIRMINGHAM BRANCH.

Birmingham, December 13th, 1906.

O. F. Wyer, M.D., in the Chair.

Operation for Hare-lip.—Mr. Leedham-Green showed a patient in illustration of a claimed improvement in the technique of hare-lip operation. He pointed out that one of the great defects of the present methods of operating in such cases was the frequent unsightliness of the suture marks, which considerably detracted from the otherwise excellent results. It was true that by early removal of the sutures this could to some extent be obviated, but not entirely, and where the child suffered from chronic nasal catarrh, as was not infrequently the case, the unavoidable infection of the stitches led to an exaggeration of the unsightly scars. For some time past he had done the chief part, if not the whole of the suturing, from the mucous surface of the lip, the stitches being so introduced as to bring together the whole thickness of the lip but without penetrating the skin. These stitches bore the whole tension of the lip, and it was only necessary to insert one, or at most two, minute horsehair sutures to bring the skin edges into perfect apposition.

Prostatectomy for Enlarged Prostate.—Mr. George Heaton showed a patient whose prostate he had removed four months previously for prostatic enlargement. The man was aged 67, and had been troubled for some years with frequency of micturition and occasional haematuria. During convalescence from the operation a large phosphatic stone formed in the bladder and required removal by lithotrity. He could now pass water with the utmost freedom, and all frequency of micturition had disappeared.

Bony Hypertrophy.—Mr. William Thomas showed a specimen of bony hypertrophy removed from a patient on account of the deformity it caused. The patient had her left leg injured by a piece of coal falling on it about six years ago. Two years later she consulted a surgeon, who said the short bone had been broken. After that the enlargement at the site of the injury continued to increase, and the deformity became very unsightly. The enlargement was removed with the osteotomy chisel, and consisted of about 2½ in. of the lower and outer side of the fibula about 1 in. above the malleolus. The line of fracture was clearly defined, but the enlargement was produced entirely by hypertrophy of the fibula above and below the fracture, callus being quite absent.

Transposition of Viscera.—Mr. Morrison showed the thoracic and abdominal organs of a child, an example of complete transposition of the viscera.

Spasmodic Asthma.—Dr. Simon read a paper entitled, The Nature and Treatment of Spasmodic Asthma. In

the subsequent discussion Mr. MARSH said he was pleased to hear Dr. Simon had specially referred to the importance of nasal examination in all cases of asthma. There was no doubt that nasal treatment succeeded in curing a certain percentage, and in relieving a much greater percentage, of cases. There were, however, a certain percentage of cases which were not relieved. It could not be said that any definite nasal condition produced asthma. There was, he thought, in all cases more or less instability of the nerve centres of the pneumogastric nerve. Very slight pressure on the nerve ends from opposing surfaces —whether due to congestion from toxaemic causes, catarrh, or even gravity, or to hypertrophy, or new growths, or abnormality of the nasal structures, were apparently sufficient to produce an attack, and intranasal treatment for the prevention of this pressure should be undertaken. He could instance cases of cure after removal of polypi, nasal spurs and ridges, turbinectomy, especially of the middle turbinated bone, and cauterization of hypersensitive areas over the upper half of the septum. Occasionally gross hypertrophic changes were found as a result of the asthma, and these cases were generally unsatisfactory. With regard to treatment other than operative, he found that many patients had a profound belief in the efficacy of "Tucker." The essential ingredients of this remedy—a spray—were cocaine and atropine. He quite agreed with Dr. Simon as to the importance of diet and care of the general health, and of the value of certain drugs, especially of iodide of potassium.

REPORTS OF SOCIETIES.

CLINICAL SOCIETY OF LONDON.

H. H. CLUTTON, M.A., M.C., F.R.C.S., President, in the Chair.

Friday, December 14th, 1906.

MIMICRY OF MALIGNANT DISEASE OF LARGE INTESTINE.

MR. MOYNIHAN (Leeds) recorded 6 cases (upon which he had operated within the last few years) in which a diagnosis of malignant disease of the large intestine had been made at the time of operation or before, yet subsequent examination of the specimens or the after-history of the cases showed that the diagnosis had been incorrect.

CASE I.—A woman, aged 29, had intestinal obstruction due to a growth blocking the rectum. Left inguinal colotomy was performed, and six weeks later the whole of the rectum and sigmoid flexure below the colotomy opening were removed by the abdomino-perineal route. Examination of the specimen, which was shown, revealed no evidence of malignant disease. The rectal walls were thickened and stenosed. The mucous surface showed heaped-up irregular masses of soft growth, here and there ulcerated to a degree which resulted in festoons of mucous membrane being left, attached at each end, free in the middle. There was no evidence of tubercle or syphilis.

CASE II.—A woman, aged 50, had a large tumour of the sigmoid flexure, with perforation, localized abscess, obstruction, and after operation the tumour disappeared and the patient recovered. The case was now considered to be one of subacute perforation of a false diverticulum of the sigmoid.

CASE III.—A woman, aged 50, had an inflammatory tumour, due to pericolitis transversa affecting the left end of the transverse colon. Colectomy was performed for a tumour as large as a cocoanut. Subsequent examination showed only immense thickening of the outer coats of the intestine. The mucous surface was intact.

CASE IV, in a woman aged 41, was similar to Case I.

CASE V occurred in a man, aged 52, operated upon for symptoms of duodenal ulcer, and who had for some months had intermittent attacks of acute intestinal obstruction. A large duodenal ulcer was found; also a tumour as large as the fist in the sigmoid flexure. This was removed and axial anastomosis performed. The tumour on section showed several false diverticula, one of which had perforated. The walls of the gut were 1½ in. thick. No evidence of malignancy could be discovered.

CASE VI, in a woman aged 62, was one of inflammatory tumour of the splenic flexure, which disappeared entirely after a short-circuiting operation.

Mr. Moynihan remarked that the mimicry of malignant disease in the caecum and ascending colon by a hyperplastic tuberculous process was well known. He had performed colectomy on two such cases in the belief that he was dealing with cancer. It was, however, not so generally known that inflammatory tumours presenting all the clinical appearances of cancer existed in all parts of the large intestine. Many of these were possibly due to the presence of false diverticula, the origin and complications of which were discussed.

The PRESIDENT considered the paper highly important. The cases were analogous to those of gastric tumours thought to be cancerous but disappearing after gastro-enterostomy. At one time the rectal cases were considered to be due to syphilis, but for many reasons he was sceptical of this interpretation.

Dr. C. WILSON (Tunbridge Wells) said such cases were liable to be considered inoperable and to be classed as "cancerous" in tables of mortality.

Dr. W. H. B. BROOK (Lincoln) described the case of a man, aged 65, who had a large tumour in the caecal region, with intestinal obstruction. Mr. Mayo Robson short-circuited the ileum with the transverse colon, and the tumour subsequently disappeared. Many cases of supposed cancer of the bowels were certainly not hopeless.

Mr. W. G. SPENCER had operated on a similar case, and seven years afterwards the intestine was found at autopsy to be quite normal. Iodide of potassium given as a placebo in some of these cases might account for the disappearance of the growth.

Mr. MOYNIHAN, in reply, said there was no evidence that any one of his cases was syphilitic. He had examined several specimens in museums wrongly described as malignant, which were cases of false diverticula of the large intestine.

RUPTURE OF DIAPHRAGM.

Mr. J. P. ROUGHTON (Kettering) described the case of a shunter, aged 49, who, having been squeezed between buffers, had great pain in the back and praecordia, which next day was increased on swallowing. The right hypochondrium was retracted, the cardiac dullness absent, the left side of the chest hyperresonant and its movement impaired. Upon opening the abdomen, seventeen hours after the accident, the patient's grave condition only allowed of the stomach, which had risen high into the chest, being pulled down and the wound stitched. There was passage of blood from chest into abdomen upon traction of stomach. The patient died a few hours after operation. *Post mortem*, the left lung was collapsed. The chest contained the spleen and about three-quarters of the stomach. The diaphragm was torn away from its attachment between the ensiform cartilage and ninth rib. There was a tear in the spleen. The points to be specially noted were: (1) The unequivocal nature of the signs of rupture; (2) the delay of serious symptoms which made the case an apparently favourable one for operation.

TRAUMATIC HERNIA THROUGH THE DIAPHRAGM.

Mr. JAMES BERRY described this case.

The man, aged 19, was also a shunter, squeezed between buffers, and admitted at once to the Royal Free Hospital. He was collapsed, and had physical signs of rupture of left lung, with effusion of blood and air into the pleura. It was believed the diaphragm also had been injured. During the next three days he remained in the same extremely bad condition. The heart became more displaced to the right; the pneumo-haemothorax increased; he vomited occasionally. The circumference of the abdomen gradually diminished from 28½ in. to 24½ in. On the fourth day the vomiting became frequent and violent; the vomit contained altered blood. It was decided, desperate as was the man's condition, to attempt to reduce the strangulation. The abdomen was opened. Through a large rent in the left posterior part of the diaphragm most of the stomach and transverse colon, all the great omentum, one half of the spleen (which had been cut in two), and the upper end of the left kidney had passed into the thorax. The herniated viscera, grasped by the edges of the opening in the diaphragm, were drawn back into the abdomen with some difficulty. The rent in the diaphragm was closed, partly with sutures, partly by fixing the left lobe of the liver so as to block up the posterior part of the opening, which could not be sutured. The operation lasted half an hour; the patient died almost immediately afterwards.

The difficulties of diagnosis were considerable, owing to the similarity of the physical signs of pneumothorax and hernia of the stomach, and to the fact that both conditions coexisted. The diminution in the circumference of the abdomen and the subsequent vomiting of coffee-ground material were the main points upon which the diagnosis of hernia of the stomach was made.

The PRESIDENT remarked that when, as rarely happened, these cases lived a few days, the diagnosis of hernia was put aside, and thus the time for operation passed by.

Mr. W. G. SPENCER said both cases were probably hopeless from the first, but in other cases which were a little less serious operation might be hopeful.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

DR. J. F. O'CARROLL, President, in the Chair.

Friday, November 23rd, 1906.

PATHOLOGICAL EFFECTS OF X RAYS.

DR. HARVEY read a paper on this subject, reviewing the main steps in the investigation of Roentgen effects since the discovery of the rays in December, 1895. Speaking of his own experiments, he showed microscopic and lantern preparations. The animals operated on were rabbits and guinea-pigs, and the organs chiefly examined were the spleen, ovaries, testicles, and suprarenals. The experiments, which are in a preliminary stage, so far supported Heineke's results in regard to the spleen. The germ centres of the Malpighian corpuscles were observed to be the first to suffer. Chromolysis and diffuse nuclear staining were present in most of the sections, and affected chiefly the young and proliferating cells. Vaso-dilatation and congestion were also common. The ovarian and testicular changes were similar to those described by previous authors. He also found congestion and haemorrhages in the suprarenals of all animals subjected to *x*-ray treatment.

Dr. STEVENSON mentioned vesication as occurring in lupus in an area of the skin which had previously been exposed to the Finsen light. The application of the *x* rays had made the skin react at that particular part, while there was no vesication or marked reaction in the surrounding parts.

Dr. WALTER SMITH thought that, broadly speaking, they might regard the action of Roentgen rays and the like as an act of stimulation; but they need not attempt to distinguish too narrowly between the phenomena of excitation and depression, since they were but quantitative opposites which followed from continued application of the same stimulus. Their nature had long been a puzzle to physicists. It was agreed that the Roentgen rays represented ethereal pulsations, and did not correspond in any way to a molecular bombardment. It was rather unfortunate for students that the word "ray" had acquired two different significations. It retained its old meaning of undulatory vibrations of the ether, and was also applied to a direct stream of particles like the hail of tiny projectiles from radium. To get at a satisfactory explanation of the phenomena would require a thorough knowledge of the effects of all sorts of vibrations of different wave lengths not only on animal, but on vegetable, tissues, distinguishing between the action on the higher and lower forms of vegetable life. The first indication of the therapeutic value of the rays arose, about 1900, out of the observation of their depilatory effect; it was premature to expect a coherent or fully satisfactory statement at the present time.

Dr. SCOTT said they knew certain tissues on which the rays acted; they might act on others, but that they should act on tissues of such a peculiar nature as the spleen and on the growing cells of epithelium would suggest that possibly growing cells were affected by the rays as they were by differences of acidity and alkalinity.

Dr. KIRKPATRICK thought they were perhaps frightened by the bugbear of permanent baldness in using the rays. He knew of a case of a woman in which depilation was produced, and after some months the hair grew more vigorously on her face than before the treatment.

Dr. HARVEY, in reply, said he had read of the *x* rays being considered a cause of abortion. It would seem possible that they should have such an effect, as they seemed to show a greater effect on young and actively-developing cells than on adult ones. His explanation as to what caused the death of the guinea-pigs in his experiments was that the *x* rays caused a degeneration of cells, whereby a toxic product was liberated which killed the animals. The toxic effects of the rays had been observed in several cases, and he was in the habit of seeing that patients undergoing the treatment for malignant disease should take aperient medicine. The epithelium of the skin was not at all as sensitive to the action of the rays as that of the testicles or ovaries or spleen.

THERAPEUTICAL SOCIETY.—At a meeting on November 20th, Dr. T. E. BURTON BROWN, President, in the chair, Dr. CECIL WALL read a paper on *The value of certain drugs in the treatment of chorea.* Several hundreds of cases of chorea had been treated systematically, both as in-patients and out-patients, at the London Hospital. One group had had no specific drugs, another had had arsenic, another sodium salicylate, and a fourth group aceto-salicylic acid (aspirin). The effects of the different kinds of treatment were compared, the criterion being the number of weeks before the choreic movements ceased. The figures were very striking, and showed clearly that under arsenic the course of the chorea was practically the same as without any drugs at all. With sodium salicylate the results were little better; whilst with aceto-salicylic acid the shortening of the attack was very remarkable. In half the cases the movements ceased in less than one month; in 92 per cent. of the cases in less than two months; whereas with arsenic the movements went on for over two months in 60 per cent. of the cases. There had been no ill results. Drs. BURTON BROWN, PARKER DOUGLAS, GRAY DUNCANSON, and HERBERT FRENCH joined in the discussion. Dr. Duncanson laid stress on the excellent results afforded by arsenic in the North of England, and thought the absence of similar results in the South must depend upon some difference either in the chorea itself, or more likely in the temperaments of the children affected. Dr. Douglas laid stress on the importance of isolation and abundance of milk diet, recommended by Dr. Byrom Bramwell.—Dr. A. F. HERTZ read a paper on *The importance of salt-free diet in the treatment of oedema and serous effusions.*

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—At a meeting on November 26th, Dr. LESLIE ROBERTS (President) in the chair, Mr. G. W. DAWSON showed (1) a woman with multiple swellings around the roots of the nails who had improved under antirheumatic treatment; (2) a *Case of Paget's disease of the breast* in an old lady of 78.—Dr. A. EDDOWES: (1) A girl with favus of the scalp which had been practically cured by the *x* rays; (2) a young man, aged 27, with *Pemphigus vulgaris*, chiefly affecting the dorsal surfaces of the fingers.—Mr. SPENCER HURLBUTT: A case of *Balanitis perstans* of long duration, unassociated with glycosuria or albuminuria. A water-colour drawing of a similar case was also shown by the exhibitor; it had not been so resistant to treatment.—Dr. GRAHAM LITTLE: (1) A girl of 16 with a scaly patch upon the outer aspect of the left leg. It resembled a psoriasis, but there were no other evidences of this disease; (2) two cases of *Acquired syphilis*, one occurring in a girl of 14, and the other in a little girl of 5. The ethical relationships as well as the medico-legal aspects of the former case excited much discussion. The latter case was believed to be purely accidental in origin.—Mr. G. W. SEQUEIRA: A *Case for diagnosis.* The patient was a woman, aged 28, who presented a papular condition of dermatitis affecting the left side of the face and neck. Eight weeks previously there were signs of ulceration over the malar region, and this had spread downwards. Five years ago she had had the left forearm amputated for "ulceration" of the back of the hand. None of the members felt disposed to give the disease a name.—Dr. E. STAINER: A woman with two infiltrated, button-like lesions upon the chin of two months' duration. There was some evidence of scarring in their immediate vicinity, but any specific history was wanting. It was generally agreed, however, that they were tertiary lesions.

LIVERPOOL MEDICAL INSTITUTION.—At a clinical meeting on December 6th, Mr. F. T. PAUL, President, in the chair, the following were among the exhibits: The PRESIDENT: A patient, aged 63, from whom he had partially removed an epitheliomatous cyst which had been growing for two years under the left sterno-mastoid muscle. The cyst contained a clear brown fluid and flocculi, and its walls resembled those of a dermoid cyst. There was too much surrounding infiltration to permit of the complete removal of the growth. The microscopical examination of the portion removed showed that it was a deep epithelioma.—Dr. T. R. BRADSHAW: A case of mitral stenosis with no cardiac murmur, but with marked backward pressure in the veins.—Dr. A. G. GULLAN: A case of exophthalmic goitre, which was improving under the internal administration of rodagen.—An instructive series of skin cases were shown by Drs. F. H. BARENDT, H. LESLIE ROBERTS, and G. STOFFORD TAYLOR.—Dr. TAYLOR: A case

of Recklinghausen's disease with elephantiasis of the left leg and fibroma of the palm. The patient was a woman, aged 44; the leg began to swell twenty-three years ago, and now measured 35 in. around the calf. The fibromata of the palm and trunk had begun twenty years ago. Dr. Taylor also showed a girl, 5 years of age, with urticaria pigmentosa, which began when the child was 9 months old.

REVIEWS.

A MANUAL OF MIDWIFERY.

Dr. Eden's *Manual of Midwifery*[1] is a very good book. The author has read and digested the recent literature of his subject, and in many cases confirmed or corrected it by independent observation. He has had the courage to leave the description of the anatomy of the generative organs to people who work in dissecting rooms. His description of the fertilization and implantation of the ovum, and the development and growth of the chorion and placenta, is the best yet given to the profession in England; for among those who have by original work elucidated these subjects, the author, if he were a less modest man than he is, might say, "*quorum pars magna fui*."

The section dealing with the diseases of pregnancy is good. The author knows and states that in retroversion of the gravid uterus if the patient is kept in bed with her bladder empty, the uterus will generally right itself, and in this knowledge he is in advance of most American writers on obstetrics. But he says that in the event of the pregnancy going on with the displacement danger and difficulty may be expected during labour. He does not mention that in every such case that has not been interfered with, natural delivery has taken place.

The account of moles is excellent: the best that we know of. The author's original researches into the morbid anatomy of the placenta enable him to throw overboard much of the old theoretical stuff that has been copied from book to book by so many previous writers upon midwifery. He gives us an account which is brief, but being based on personal investigation is trustworthy. Extrauterine pregnancy is also a subject in which the author's careful observations enable him to speak with authority. He rejects primary peritoneal pregnancy, but accepts ovarian pregnancy. He frankly states that the cause of tubal pregnancy is unknown. His account of tubal moles is admirable. He controverts Mr. Bland-Sutton's statement that "a tubal mole is due to blood extravasated from the circulation of the embryo." He points out that such a mole is much larger and heavier than the embryo, and therefore cannot be formed by extravasation of embryonic blood alone. The treatment of ectopic pregnancy he advises is that which most persons to-day would endorse. In abdominal pregnancy he says that "probably the safest plan is to allow the gestation to continue until false labour supervenes and the fetus dies, then to wait from two to three weeks in order that thrombosis of the placental sinuses may occur." But is it certain that the placenta will be thrombosed as early as three weeks after the death of the embryo? And if the patient is not suffering except from the size of her abdomen, is there any danger in waiting longer than three weeks? The author recognizes the risk that in pregnancy with chronic valvular disease of the heart compensation may fail. "Failure of compensation almost invariably leads to abortion or premature labour, and artificial induction is not to be recommended." Why not? It would seem to be but anticipating Nature; and there are those who say that they have seen wonderfully rapid improvement follow the induction of premature labour in cases of pregnancy with heart disease in which compensation had just begun to fail. The section on abortion is especially good.

Dr. Eden does not accept Dr. Berry Hart's exposition of the attitude of the fetus while it is passing the vaginal orifice. Hart, it will be remembered, maintains that the pressure of the perineum keeps the head flexed; that it is not extended till after delivery. According to Eden, it is extension of the head that causes rupture of the perineum, and pressure to keep the head flexed is the essential thing to prevent this accident. He follows Dr. Playfair in teaching that "the hand must not leave the fundus during the delivery of the body of the child." We think that if the accoucheur will allow the uterus to expel the body of the child he may be satisfied that the uterus is contracting and need not trouble to put his hand on the fundus. Among the causes of face presentation we do not find mentioned excessive size of the child, although this has been demonstrated by Winckel.

The author has not clearly thought out the question of position in prolapse of the cord. He tells the student that the knee-elbow position is most commonly employed, but that the knee chest position may also be made use of. He mentions not that the value of these positions lies in the fact that in them *the fundus uteri is the lowest part*, and therefore the cord sinks there by gravity, and ceases to be over the os uteri; nor that the knee-chest position is better theoretically than the knee-elbow, but is for most women impracticable. He says "these postures are all very irksome to the patient and cannot be long maintained." This sentence applies to the knee-chest position, but not to the knee-elbow. He says "in hospital practice the Trendelenburg position or the elevated lithotomy position has been employed." He is correct; they have been employed. But the Trendelenburg position is useless, because in it the long axis of the uterus is horizontal. The elevated lithotomy position is not so good as the left lateral position, for in it the os uteri is the lowest part.

The author briefly mentions "Johnston's" method of pelvimetry. He means "Johnson's," and he says of it "as hands are not of uniform size there is abundance of room for error." Johnson never said hands were of uniform size; he gave the measurements of a man's hand of average size, and told the practitioner to measure his own hand and see if it differed from the average. There is no room for error if the practitioner does this. The section on rupture of the uterus is particularly good. So is that which follows it, on inversion of the uterus; except that the author has not clearly grasped the fact that the obstacle to reduction of the inverted uterus is the contracted os internum, and that the business of the hand on the abdomen is not merely to "steady" the os internum, but to dilate it, and that if the os internum can be stretched open reduction will be easy. The author brings a very serious accusation against Champetier de Ribes's bag. He says, "a number of cases of spontaneous rupture of the uterus have apparently been caused by it." Is this a fact? If so, the statement ought to be substantiated and made widely known, for there are many practitioners who are cheerfully using Champetier de Ribes's bag under the impression that it is a safe instrument, and that in placenta praevia it gives better results than any other treatment. The word "apparently" makes the sentence seem as if the author was not sure of his facts. Dr. Eden says that the practice of digital separation of the placenta "is based upon the belief that when a placental cotyledon is completely detached the denuded site ceases to bleed." Robert Barnes, the chief advocate in England of this practice, did use language which implied this; and as Dr. Eden says, it is incorrect. But the practice has been advocated by others, on the ground that it accelerates labour, and this view Dr. Eden does not mention. Plugging the vagina for accidental haemorrhage, which is so warmly advocated by the Dublin school, is, according to Dr. Eden, "attended with serious risks, for spontaneous rupture of the uterus may occur if powerful uterine contractions are excited by it." Is this a fact? We commend this statement to the notice of the Master of the Rotunda; and we hope he may be induced to inform the profession how many cases of rupture of the uterus have been observed in that institution to follow plugging of the vagina for accidental haemorrhage. The account of the puerperium, and the instruction given as to the infant, are admirable. In the final section of the book—that on operation—there are some superfluous pages; for it seems to us unnecessary to describe instruments that nobody in this country uses and that the author does not recommend. We observe that he describes Ramsbotham's hook as having "either a cutting or a serrated edge." This is not correct; Ramsbotham's hook had a cutting, not a serrated edge. The serrated

[1] *A Manual of Midwifery.* By Thomas Watts Eden, M.D.Edin., F.R.C.P.Lond., Assistant Obstetric Physician and Lecturer on Practical Midwifery, Charing Cross Hospital, etc., with 26 plates and 233 illustrations in the text. London: J. and A. Churchill. 1906. (Demy 8vo, pp. 518. 10s. 6d.)

edge was a detrimental modification introduced by some one of less experience than Ramsbotham. The figure given at p. 498 does not represent Ramsbotham's hook. In spite of the few criticisms that we have made, we regard the book as one of the best that has been published in recent years.

BRITISH BLOOD-SUCKING FLIES.

An exceedingly interesting monograph on British blood-sucking flies[2] has just been published by order of the Trustees of the British Museum, Mr. ERNEST AUSTEN, the well-known author of the monograph on the tsetse flies, being responsible for its production. The publication illustrates how closely pure zoology has become allied with medicine. A few years ago blood-sucking and other flies only presented points of interest to the entomologist; now, however, their study forms such an integral part of medicine that the student who would be up to date must possess much more than a superficial acquaintance with them. As regards tropical insects much has recently been written, and this has led to greater interest being taken in the subject as a whole. How many people, however, even now, know that there are seventy-four species of British blood-sucking flies and that indigenous mosquitos live in England? A careful study of Mr. Austen's most recent work will reveal undreamt-of facts. Though all the text is interesting, perhaps the part that will appeal most to the medical mind is that on mosquitos. Malaria or ague used to be common in England; it now seems to be entirely absent, although two well known malaria-carrying mosquitos, the *Anopheles maculipennis* and the *Anopheles bifurcatus*, can still be found with the greatest ease throughout the country generally. Here at once a point of the greatest interest is raised, and a solution of it might lead to valuable results for other less fortunate territories. The conclusions of Nuttall, Cobbett, and Strangeway-Pigg on the subject are incorporated in the text, but they do not seem to meet the case specially.

The family of the Tabanidae, often popularly known as horse flies, are well represented in England, and most people accustomed to a country life will certainly remember their bites. Similar species of this fly are said to spread surra, a trypanosome disease of the horse in India, so that they must be classified as disease spreaders, and will have to be studied in the future. Again, *Stomoxys calcitrans*, a fly which must be viewed with suspicion abroad, is, as the author informs us, abundant in England. Passing over any criticism on the technical description of the different insects—a point which rightly belongs to entomological reviews—we may conclude by praising the beautiful coloured plates by Mr. Terzi which illustrate the monograph. Those are perfect, and greatly help to a good understanding of the descriptions in the text. The field notes and life-histories, after the usual description of each insect, are very interesting, and the book is written in Mr. Austen's clear style, is well printed on good paper, and should certainly find its way into the libraries of all medical men with leanings to entomology.

NOTES ON BOOKS.

THE aim of Dr. AUGUSTUS CAILLÉ's textbook on the *Differential Diagnosis and Treatment of Disease*[3] is apparently to make the study of the practice of medicine as objective as possible. To this end a large number of illustrations are given of apparatus for diagnosis, apparatus for nursing and treatment, of the application of apparatus in various minor operations and methods of treatment, such as gavage and lavage, bowel irrigation, venesection, cupping, aspiration of the chest and abdomen, spinal puncture, and a host of others. The sections on diagnosis are succinct and non-argumentative. Many clinical and pathological photographs are included as bearing on diagnosis. The aims of the book are praiseworthy, and yet they are not carried out quite satisfactorily—the pictures, for instance, of the minor operations and of methods of treatment do not show very much, and what points they do show are not always quite accurate.

[2] *Illustrations of British Blood-Sucking Flies*, with Notes by Ernest Edward Austen. London: Longmans and Co. 1905. (Demy 8vo, pp. 74: 34 plates. 25s.

[3] *Differential Diagnosis and Treatment of Disease.* A Textbook for Practitioners and Advanced Students. By Augustus Caillé, M.D. London: Sidney Appleton. 1906. (Demy 8vo, pp. 867.)

DIARIES.

Messrs. John Walker and Co., Limited (Farringdon House, Warwick Lane, London, E.C.) have sent us specimens of the excellent diaries which they issue. They are published in so many forms that one or other must satisfy every taste and fulfil every requirement. For the man of not many engagements the waistcoat-pocket form would suffice, while the editions on larger paper are printed in convenient shapes. A good specimen is No. 77, showing a week on an opening, and another is No. 24, showing four days on an opening. The specimens sent to us all contain contracts with one or other of the accident insurance companies to issue a policy of insurance against accident under certain conditions specified.

THE PLAGUE.

PREVALENCE OF THE DISEASE.

INDIA.

DURING the weeks ended November 3rd, 10th, and 17th, the deaths from plague in India numbered 4,791, 4,557 and 4,924 respectively. The deaths in the different provinces were: Bombay Presidency, 2,438, 2,042 and 2,138; Bengal, 53, 75 and 120; United Provinces, 340, 469 and 657; Punjab, 568, 949 and 1,125; Central Provinces, 389, 325 and 342; Central India, 552, 469 and 311; Burmah (during first and third weeks in question), 62 and 40. In Rajputana during the week ended November 17th there were 4 deaths from plague; in Mysore, 141; and in Madras Presidency, 13. In Cawnpore plague is raging badly, but in Poona the epidemic is subsiding.

PERSIA.

The disease has ceased in the Seistan Province, and the only quarantine that is now retained is at Birjand.

AUSTRALIA.

Cairns, Queensland.—During the weeks ended October 13th, 20th, 27th, and November 3rd, the fresh cases of plague in Cairns numbered 0, 0, 3 and 0. No deaths from the disease recorded. There are 7 cases under treatment at the Plague Hospital in Cairns. Active search is being made for rats, but few are being found.

MAURITIUS.

During the weeks ended November 22nd, 29th, and December 6th, the fresh cases of plague in Mauritius numbered 37, 24, and 22, and the deaths from the disease 23, 17, and 13 respectively.

BRAZIL.

At Rio de Janeiro, between September 30th and October 13th, the fresh cases of plague numbered 14 with 2 deaths. At Bahia during the week ended October 6th 1 case of plague reported. At Pernambuco during September 14 deaths occurred from plague.

PERU.

At three towns in Peru (Lembayeque, Lima, and Trujillo) cases of plague were reported during the early part of September.

EGYPT.

At Alexandria, between September 29th and October 11th, 8 fresh cases of plague were notified, of which 4 died. At Suez between the same dates 13 fresh cases were recorded, with 10 deaths.

CONTRACT MEDICAL PRACTICE.

MALINGERING CLUB MEMBERS.

IN the *Sheffield Daily Telegraph* of December 4th appears a report of a recent meeting of the Sheffield Equalized Independent Druids Friendly Society. In the course of the proceedings one of the speakers does not hesitate to make charges against members of the medical profession, as ridiculous as they are baseless.

It would appear that the Association is not in quite so good a financial position as it might be, and if, as the President states, levies are constantly being made to support two delegate meetings annually, when one is sufficient, a possible source of loss to the Society's funds is at once apparent. Brother Bradwell, however, prefers to ascribe it to the excessive sickness of the members, and makes the following gratuitous charge against their own medical officers: "The excessive sickness is not all owing to the minor accidents of the miners, but it is to the cupidity and the duplicity and the dishonesty of your medical men in many of your lodges. Now, that's truth; get over it if you can—men who will let the husband stay on the club as long as he likes so long as he does not lose the family practice."

At the present time, when the medical officers to mines have to attend the families as well as the miners under their contract, and when it is notorious that club work leads to little or no family practice, it is difficult to see where the temptation to the unfortunate club doctor comes in. If some of these malingering club members were made to resume work sooner and complained to the Committee of the doctor's conduct, Brother Bradley would not unlikely be one of the first to condemn the inhumanity of forcing a sick member to resume his work before he was fit to do so.

THE NECESSITY OF UNION IN THE PROFESSION.

Address by Sir Victor Horsley.

Sir Victor Horsley, on December 12th, delivered an address to members of the medical profession in Sheffield, in the Medical Library of the Sheffield University.

Mr. R. J. Pye-Smith, F.R.C.S., who was in the chair, referred to Sir Victor as a man of many parts, a leader and champion in the cause of experimentation on animals, and an advocate of temperance towards alcohol. Great, however, as those services were which he rendered to the profession, they paled before his scientific, professional, and surgical work, on which his fame would chiefly rest in time to come. They welcomed him to Sheffield, and he could assure him his views on the subject before them would be warmly appreciated.

On the Necessity of Union in the Profession, with Special Reference to So-called Trade-Unionism.

Sir Victor Horsley said: A friend of mine, who by his masterly direction of the affairs of the British Medical Association during its reconstruction a few years ago, enabled us to agree on the form of its reorganization and provided the profession with its first opportunity of speaking with a collective voice, said to me a short time ago, "I wish to do all I can for the Association, but I hate trade-unionism." It seemed to me at the time difficult to understand which half of the word he or anybody could object to. Is it unionism? What we want in the profession is absolute unionism; what we want is collective action to support each other. We want to build up like microscopic polypes, a barrier reef which shall not only shelter the less fortunate among us from the storms of a strenuous life, but we want to furnish a foundation on which new things and new ideas can take root, flourish and fructify. I believe we are all agreed that we ought to unite together, to help each other, and to further the progress of medical science. Therefore, it is not unionism that is objected to. Is it the word "trade"? To some extent possibly yes. I believe there are still some among us—certainly not my friend of whom I was speaking—who affect the fine gentleman, who seem to think, as in old days was the case, that the physician should receive his hire, that is to say his fee in secret; that there is something derogatory in working for your living. Such persons forget that the labourer is not merely worthy of his hire, but they also forget that in every community it is the workers who are alone worthy of the respect of their fellow-men. Now, of course, there are some persons who honestly regard wage-earning as sordid, simply because some plutocrats make it their object in life to heap up riches, but that adjective can obviously never apply to the ill-paid professional man whose capacity to obtain a reasonable wage for his services should be one of the first objects of care in our great British Medical Association. As long then as we work for our living, no one can honestly object to the word "trade."

Is it the whole word "trade-unionism" that is objected to? I believe it is. And I believe there is an unreasoning antipathy which is due to nothing else than a recollection of what went on in this very city of Sheffield years and years ago. I believe that for every hundred persons who have read Charles Reade's wonderful novel, perhaps not one considers how inevitably human institutions have been cradled with violence. The crudities attending the development of many human ideas which fifty or sixty years ago were called revolutionary, but are now part of the ordinary machinery of daily life, are not to be regarded as the finished production of human evolution, and so it has been with trade-unionism. The passion with which the principle of unionism was forced along by men to whom the State had not yet recognized its educational responsibility, ought in justice now to be forgotten.

We ought all of us to be trade-unionists in the highest sense, and if we honestly search our hearts we shall find we are all of us, each of us, interested in our trade, and therefore the time has now come for us to decide whether that interest is going to be self-interest, or whether it is going to be the interests of us all collectively. Those of us who (and perhaps there are many) have their disagreeable recollections of the way in which the seventh day of the week was made the means, not of rest, but of mnemonical labour in the study of the Catechism, must at any rate testify to the fundamental truths and values in the principles of life which are included in our duty towards our neighbour. What is true of the whole in elementary principle is true of the part, and the socialistic expressions of the early Christian faith which were intended to apply to the whole community of the highest species of primates are as a matter of fact applicable to any subspecies. In the great community of the public our profession is such a subspecies or community within the greater, and our duty towards our neighbour is not merely a duty towards any member of the public, but it is more forcibly our duty towards our professional colleagues. I suggest to you, then, it is our duty to be trade-unionists, in that we should help our professional colleagues by associating ourselves together closely as a profession, and the way to do that at the present day is to secure as far as we can that every member of the profession shall join the only existing collective organization, namely, the British Medical Association; or, as those of us who went to Canada feel very strongly, it ought to be more truly called the "Medical Association of the British Empire."

Now, on the need for action. Possibly there are some who do not realize there is any need for our all standing together. In fact, I have been answered more often than I care to say by men in this way: "What good is the Association to me?" Now such a speech means that it had never entered into the head of the speaker for a moment that though the Association might not necessarily help him in life it might be of the utmost utility and helpfulness to many to whom life does not come so easy, who do not see so readily as to how they are going to support their families or educate their children. Personally, the mere fact of belonging to a professional organization which is in the process of active social evolution has been an unfailing source of pleasure to me. But I want to press the point most strongly that indeed it is just those who do not want to take anything out of the Association who ought to put most into it, for the very plain reason they can best afford to do it, and thereby help on the material and moral progress of the less fortunately placed amongst us. All, therefore, should join the Association, not only for their own profit, but to secure that of others. How intensely necessary this is at the present time a very few examples taken from our work will presently show. We need, then, to unite to further the whole interests of the profession. Now what are the interests of our community as compared with those of the general public? I take three chief interests. First, the standard of professional life and professional conduct, to be maintained at a high level; second, that a medical practitioner shall receive a fair wage for his work; and third, that the State should recognize the importance, the difficulties, and the national responsibilities of medical work. The satisfaction of these requirements or interests will secure to the public the help of a thoroughly efficient medical service. Therefore, I repeat the interests of the public are exactly the same as ours. The only possible point of difference of opinion or of discussion that could arise between the public, the greater community, and the smaller, is the question of what is a fair wage. Now let us take this point first, partly because it stands out alone, but also because it is profoundly affected by the other requirements or interests.

During the past generation—the past twenty-five years—the income of the greater community has steadily risen and foodstuffs are cheaper. For our small community, on the other hand, taxation has increased, upkeep and working expenses have all increased. The wage, our wage for our services, as estimated in the only way we can estimate it, namely, by that offered in contract practice, has not increased. Now the word "contract practice" reminds me that of course at this time of night one cannot deal with an enormous subject of that kind as one would like, and I would only say that it is fortunately not necessary to go into detail on contract practice. The British Medical Association, by its report two years ago, collected from the profession all over the country the facts of contract practice, and they are embodied in that report, a volume which will for all time be a textbook of reference on that subject. But now the principle of securing a fair wage depends not merely on the sum which is to be regarded as a fair wage, but it depends on the way in which that amount is to be arrived at, and on that, I think, I can

profitably occupy your attention for a few minutes. As I said before, it is not a question of the sum which we are to call a fit wage. It is a question of how we are going to arrive at it. Now, the principle which has been laid down by the British Medical Association is that the wage should be determined by each part of the profession in the Divisions of its new organization locally. The conditions of practice vary so enormously in different parts of the country that the amount can only be usefully talked over among the members of the profession in any given district locally; and they, having come to a decided opinion in accordance with the general precepts of the Association as expressed in the Representative Meeting, their conclusion, their autonomic conclusion, is supported by the whole weight of the Association. Obviously, if our unionism is complete in membership and spirit, as it has been proved to be during the few years that have elapsed since the reorganization of the Association, the profession can dictate its own terms, and can obtain that fair wage. But this work can only be performed by the Divisions and Branches of the British Medical Association. They constitute the only collective medical organization representing the whole profession. Every member of the profession, therefore, in any given district, must join the Division in which he resides, and not only take an interest in the work for his own sake, for his own conditions of practice, but quite as much to help the struggles of his fellow-practitioners. You, of course, as I know, have not yet completed your own fight in Sheffield, but I would point out that your battle is a small one compared to that which has been waged most successfully in the North, and to that which is going on on such a large scale in Ebbw Vale in South Wales; thus, when we are thinking of our own difficulties, we must at the same time bear in mind the difficulties of others. In that way we shall all help each other, and each Division will learn to form a part of the great aggregate of the whole Association.

The question of contract practice, which I have thus briefly touched upon, leads to the next question—the present state of general practice. I have already mentioned the economic position of our profession as compared with the economic position of the general public. Now, unfortunately, those of us who are interested in the economics of our work and the success of our fellow-practitioners know that in parts of the country, at any rate, the average income of the general practitioner has not risen, or has actually fallen, while that of the larger community has risen. What economic conditions can be cited as the possible cause for this serious position? There are two. The first is the existence of certain great natural laws, and the second is the overstocking of the profession.

Now, on the first point—that less work in practice is available—undoubtedly the review of any part of our work shows that disease is being reduced in various directions and in actual amount by sanitation, and the profession has, of course, taken the honourable position of leadership in this reduction of disease. Even in the practice of surgery, although it is true that new operations are devised, new developments arise on the one hand, the inestimable boon of antiseptic surgery in securing the abolition of septic disease has reduced the amount of work very materially. Next, there is the reduction of the birth-rate, due to the unfortunate fashion in which some women apparently prefer to nurse on their laps some mongrel animal instead of a human baby. The reduction of the birth-rate has undoubtedly led to a diminution of general practice. Then next, as a cause of reduction of work in general practice, we come to the old, well-worn subject of counter practice by chemists, which is probably aided to a certain extent (although I think it is much less a significant factor) by tabloid medication. Now, on this matter of unqualified practice by chemists—a very important, a vitally important, question, as I believe—the position is really a very interesting one at the present time. The genuine pharmacists, the qualified pharmacists, although they are constantly attacking us, are in turn attacked themselves. The drug store companies, the cash chemists—persons who try to carry on a business without qualifications, and who do so unfortunately with the not unexpected support of the House of Lords—they are attacking the pharmacists in the same way as the pharmacists habitually attack us. Now, let me point out that the British Medical Association has always done its best to support the qualified pharmacists, both inside and outside the House of Commons, by means of the Medico-Political Committee. Yet the only expressions we have ever received from the body of pharmacists have been a few polite expressions and pious opinions on the part of their Presidents. Two years ago we endeavoured in the Medico-Political Committee to bring about, by a conference with the Pharmaceutical Society, a settlement of this matter. We were most courteously met by that Society, but the conference came to nothing. I am not going to waste your time with any further reference to that form of unqualified practice or to ordinary quackery in all its many forms. It is quite sufficient for me to sum up that part of the subject by saying that until we get the amendment of the Medical Act as moved for by the British Medical Association we shall get no help whatever from any one. The remedy for it lies in our hands, and that means, again, the action of the whole profession—that is, through the organization of the British Medical Association. Now we come to the fourth subject of diminution of medical practice, and that is hospital abuse. The hospital abuse question, which was first dealt with on modern lines by Dr. Horder, has been worked at by the Hospitals Committee of the Association for several years, and is now at last reaching some degree of satisfactory evolution, because at last, as is evident from reading the report of the recent conference in London—at last we have succeeded in getting the lay authorities of the hospitals to realize the evils of hospital abuse towards general practice—a very great step in advance. But that question again undoubtedly will have to be decided in the main locally by each Division of the Association with its autonomic powers. Let me say at present the general principles on which the Association has expressed itself favourably may be summed up under two heads: First, all hospital out-patient departments should be of the nature of places for consultation only, and that all subscribers' letters should be abolished. I only need to close this question of hospital abuse by quoting a successful instance of what might be done by a Division of the Association. You could not have a more striking instance than that of the town of Leigh of Lancashire, where the Division acted altogether with absolute unanimity, and succeeded not only in abrogating a proposed lay scheme which would have instituted hospital abuse in its worst form in their midst, but so far compelled (if you do not dislike to use the expression) the public that the scientific administration of the hospital, the election of members to the staff, and so on, has been given up, surrendered by the lay authorities and placed in the hands of the Division of the Association, so convinced were their opponents of the truth of their position. What can be done in one place can be done in another perfectly easily if the profession only holds together. There remains for discussion the other side, the other possible economic position for the diminution of work. That is the overstocking of the profession. Fifteen years ago undoubtedly the profession was overstocked. Fifteen years ago saw the major development, as I would like to call it, of the "sixpenny doctor"; ten years ago the overstocking began to diminish, and diminished very rapidly, because of the abolition of the unqualified assistants. That undoubtedly got rid of a great deal of the then existing overstocking of the profession. The Boer war helped also by furnishing employment on a large scale suddenly to a considerable number of men. And then, also, the economic conditions owing to the miserable lives led by the "sixpenny doctors" became known. The profession as a wage-earning body was not popular; consequently up to the last year, at any rate in the London medical schools, the entry of students had fallen off. Last year, unfortunately, it seemed to be beginning to show a rise. As regards the Scotch schools, as was shadowed forth by Dr. Woodcock many years ago when the Carnegie gift was first made public, the entry in the Scotch schools, at any rate in Edinburgh, has been steadily rising for the last four years. Therefore on this all-important question of overstocking the profession we are undoubtedly threatened again with the manufacture of the cheap doctor by the medical corporations, and, let me add, not only of the home-grown article. I moved for a return in the General Medical Council some years ago to show the number of exceptions which had been granted by the corporate bodies to gentlemen who had received their education

abroad, and the number is very considerable. You will readily understand that this question of overstocking is not one which interests the licensing corporations. On the contrary, it is to their financial interest to attract as many fee-paying students to their examinations as they can get. As regards what should be our action, Mr. Reginald Harrison, in a recent number of the British Medical Journal, suggested that a Special Committee of the British Medical Association should take up this one subject. That I do not think is necessary, but if we are to discuss how to fight against this evil we must first look to see what is the cause of overstocking, and if we descend to fundamental principles we shall find it is due to the lack of responsible power in the General Medical Council. The General Medical Council was reorganized under the Act of 1886 to provide that the licensing bodies should all conform to one scheme of requirements which were called recommendations; they are really requirements. They ought to be requirements; the whole idea of the Medical Acts, especially that of 1886, has been to bring the licensing bodies into line so that there should be no cutting or competition between them and there should consequently be no lowering of medical education. Unfortunately that ideal has never been attained, and even in the last session of the Council a week ago their Education Committee reported deliberately that they would not attempt to bring the licensing bodies into line. Now the result is that, as is well known, the portals of the profession are many. The action of the General Medical Council is not only impotent from that point of view; even in its own sphere of activity it is weak on the subject of preliminary examinations. Although the Direct Representatives have again and again insisted on a revisal of the admission to the profession; they have failed to get it. On the preliminary scientific examinations the same thing has prevailed. The result is that the whole question of admission to the profession is vitiated by the impotence of the General Medical Council. What is to be the cure? The cure is the amendment of the Medical Acts, which means the amendment of the General Medical Council itself, as I shall show you. To state this part of the subject in brief, the overstocking of the profession cannot be relieved until we have adopted the one-portal system and until the General Medical Council is made really representative of the profession. In this way, also, we meet the first of the great interests of the profession—namely, the maintenance of a high standard of professional knowledge—an interest which, as I stated just now, is the same as would be welcomed by the public at large. Then we come to the second part of that same interest, which is that not only the standard of professional knowledge is to be maintained at a high level, but also the standard of professional conduct. Here again we absolutely require an amendment of the Medical Acts. It is very interesting when one is speaking of trade-unionism to know that if the trade-union of years ago had adopted the lines of practice within the medical profession—namely, that as a profession they would endeavour to put out their black sheep from amongst their midst, they would have become at once popular bodies in a way one would probably never have imagined. That has been always the difference between our trade-unionism and their trade-unionism. We hear now that they are doing that, they are now also expurgating their black sheep. Now, in this very process of expurgation, the General Medical Council has undoubtedly done a good deal of useful work during the last ten years. It has tried test cases, and the verdict of those test cases has always been in favour of trade-unionism in the profession, if you will adopt my phraseology. Thus, for example, it has declared itself in favour of preserving the profession from canvassing and those numerous other methods whereby one man may dishonestly gain work from his neighbour. So far, then, we have gained undoubtedly in the action of the Council in this particular. But cannot it be improved? It can be enormously improved. In the first place, for the Council to be a properly judicious body for the regulation of medical practice throughout the country, it must be made representative of the profession at large. The Direct Representatives must be in the majority. No member representing a corporation, the College of Surgeons, the College of Physicians, and so on, can sit on that Council and be free from the incubus of having to preserve the interests of that corporation as against the profession at large. Consequently, the way, the only way, in which the interests of the profession, and so of the public, can be safeguarded, is by having a majority of Direct Representatives on the Council. How is that to be obtained? Simply by accepting the proposed amendment to the Medical Act. The present draft Bill propounded by the British Medical Association, I should say, is a consolidating measure. The Bills which have previously been before the profession have been Bills for the amendment of the Acts of 1886 and 1856. It was pointed out to the Medico Political Committee a year ago or rather less by the Parliamentary draftsman, the Parliamentary counsel who advises the Association, that it would be far better and more acceptable to the Government if, instead of a draft Amendment Act, a Consolidating Act were put forward, and therefore that is the form at present adopted.

Of course we shall have to meet the hostility of the ancient corporations and other vested interests. To meet such opposition the need for union in our profession is such that each Division of the Association should include every member of the profession resident within that district, and that Division should then promote medical practice, the most direct method of attaining which object is that the British Medical Association should, as a whole association, push forward the amendment of the Medical Acts.

I come now to the last interest—our last great interest—and that is the recognition by the State of the profession and its work. Perhaps to some of you this may appear a small matter—that if we can get along and do our work it does not matter whether the Government takes any notice of us or not. From one point of view it does not; but, considering that we cannot obtain any legislative reform without the help of the Government—that is to say, the State—we must look round now at this juncture and see with what force we can approach the Central Government, and speak to them as a profession demanding to be heard. I would venture to put before you the grounds on which we can appeal to the Government—that is to say, the State. For a man to enter the medical profession at the present time nominally he has to go through a five years' curriculum. Of course those of us who have been engaged in teaching know that that is a mere estimate. A Committee of the General Medical Council has just reported on this subject, and it appears that the very large majority of students take more than six years to get through their curriculum, and a very large number honestly take seven years to get through it. Now if a man has to spend six or seven years of time and money, what does he receive from the State by way of recompense, and how does he stand in comparison with other professions? Now, in the first place he receives, as you know well, under the Medical Act he receives no privilege worth mentioning, no real privilege. Those of us who have quoted from time to time cases heard in the Courts, whereby the present Medical Act has been instrumental in stopping unqualified practice, would of course be here challenged with a certain amount of contradiction. But for every successful case unfortunately an unsuccessful case can be quoted. In fact, under the present Act, the whole so-called protection of our practice which we have earned by going through our curriculum, is, owing to the caprices of magistrates and judges, a farce, and as recently stated in the speech of the President of the General Medical Council was, according to him, never intended to be anything else but a farce. However, let us take it that the statement is true, that from the State we receive no privilege worth mentioning to counterbalance our six or seven years of hard work. Is this true of any other profession? The answer is No. In the first place, there is no other profession in the great community, the public, which goes through such a curriculum of study to gain access to a statutory register. The majority go through a term which is half ours in duration, and the expense, as a rule, less. And if we turn to the professions composing the militant services or the civil services, what do we find? That in addition to an income their members are pensioned by the State. Then in the case of the law, not only is the professional practice of lawyers rigidly protected and strictly guarded, but there are numerous highly-paid posts placed at the disposal of that profession by the State. So that the medical profession is

the only one which remains to be recognized by the State, and to have common justice done to it. And what does that common justice amount to? First, that the Government should accept and support the reform of the Medical Acts that it should give us proper representation in our General Medical Council, and that it should protect the practice for which we have to work so hard. But in reality if these two points are conceded we shall have gained a great deal more. Because the Government will then recognize, will be forced to recognize, the position of the profession in the social community. Since the reorganization of the Association it is beginning to recognize us, as I pointed out when I left the chair in the Meeting of Representatives in the summer. Three Government departments have now stated to us that they understand we are now organized for the furtherance of reforms, that we can carry out reforms, we can get changes effected in legislation merely because we are now as an Association organized in Divisions, and can obtain the influence of those Divisions all over the country. Well, gentlemen, you see already within a few years what has been gained by unionism—trade-unionism as I prefer to call it. The organization is now in full working order, namely, the British Medical Association. Let us all join together and prove once more the time-honoured truth that unity is strength.

Professor Sinclair White thought trade-unionism in the profession could hardly run on similar lines to trade-unionism in the trades of the country. The idea of trade-unionism, as he knew it, was to bring the wage question to a level—that all should be equal, and that there should be no difference between one workman and another. In their profession he did not see that that would be possible. Let them fix a minimum fee if they liked, but beyond that he did not think they could go.

Dr. Wilkinson thought direct representation was all very well, but a self-constituted body like the British Medical Association would not have weight in the profession if it had not at its head men well known in the profession and trusted by them: men whose interest in these questions was absolutely disinterested. As to the question of trade-unionism in the profession he should feel inclined to lay most stress on the question of reorganization. The profession could not take any strong line unless it was a united body in itself. The question of raising the status of the profession throughout the country was a most important one, and unless the standard of medical education was raised and maintained, the standard of professional etiquette would never be very high. They must realize they were politically a weak body. So far as hospital abuse was concerned, he feared there was very great danger of setting the profession at odds with the general public.

The Chairman said he felt very much inclined to quarrel with the lecturer's introductory remarks, in that he endeavoured to saddle them with motives of a trade-union kind. He had always looked upon their profession as a noble and unselfish one, and he must say it somewhat grated on his ears to hear it called a trade-union. Trade-unions — in many trades, at all events — tended only to a levelling down, to make a man work as little as he could for the money he obtained, and made the bad worker receive as much remuneration as the good worker. Surely, their profession was somewhat different from this? Their first consideration was for human life and human health—the general wellbeing of the community. They had other rewards than money; they had the reward of honour and of gratitude.

Dr. Forrest thought probably the noble sentiments which had been expressed by their Chairman were to some extent responsible for their position. They had allowed the public to look so much for this "noble" treatment that they now expected it. He did not agree with the sentiments of the Chairman. The public's gratitude did not feed their children or send them to school. He thought they should be in a position to get a fair wage for their labours, and quite approved of Sir Victor Horsley's proposals as to the necessity for trade-unionism.

Dr. Kite said he practised in a locality where the British workman was predominant. There was no one more lazy, as a rule, more inclined to take something for nothing, than was the Sheffield working man, and the more that was done for him for nothing the more he expected. He was one of several generations of medical men. His grandfather bequeathed to his father a great deal of patients' gratitude and some book debts, and he himself had inherited from his father a lot more gratitude and the honour of a good name. They wanted something more than gratitude.

Dr. Keeling said he entirely agreed with Sir Victor Horsley that the remedy for all their present deficiencies, especially in the matter of remuneration, lay in collectivism, in conjoint action. Remuneration, in his opinion, was likely to be even less in the future than it was now. Let them bear in mind what was doing in the department of obstetrics. In future years the general practitioner, the man who lived in a small street and was satisfied with a small amount of remuneration, was going to be done out of one of his best sources of income—midwifery. This was going into the hands of half educated women, with the result that the general practitioner was finding that recent legislation was considerably emptying his pockets. To the rank and file man the obstetrics department was one of the most remunerative and reliable, but it was rapidly becoming a thing of the past. He entirely endorsed Sir Victor's contention that they had no right to ask what they were going to gain by joining this Association. Their leading men, their hospital men, ought to come forward, take their brethren by the hand, and say, "We will fight for you, and secure for you the respect of the community at large, and a proper remuneration for your work." As for the question of gratitude, he thought the proper thanks for what they did were given in the fees paid them. It was very easy for the seniors in the profession to get adequate fees, but it was exceedingly difficult for the rank and file, unless they were backed up by those leaders.

Sir Victor Horsley: I am exceedingly obliged to you for this very instructive discussion, and I am sure I am obliged to you for coming out at all on such a dreadful night. After all, these questions of a social being will always keep coming up before us. We will always have ample opportunities of ventilating them and forming our ideas as to how we are going to meet our difficulties. But this can only be done by raising more points—perhaps in an aggressively Radical way—although I must say Dr. Keeling is more Radical in some ways than I am. Only in that way can we elicit valuable points as we have done to-night, for instance, from Professor Sinclair White. Of course, I was speaking in the sense that our trade-unionism should go to the length that he has stated—namely, to the establishment of a minimum wage. We cannot pretend to fix the upper limit of the price of each man's services. Each man must fix that for himself. But we can fix the price below which he should not go, and that price must vary locally. If you read—perhaps it is rather tedious, but to some of us it is extremely interesting—if you read the report on "Contract Practice" issued by the Association you will see at once how this price does vary from one end of the kingdom to the other. You will see what, perhaps, you would hardly realize, that where you would expect to find contract practice, as, for instance, in the poor districts of Scotland, there is none. The price there has been fixed by custom, and that price will improve as the circumstances of the people improve. Of course, where you come to a community closely aggregated in a large city, there the question of price is easily dealt with, if only you have the profession united. And here you come to Dr. Keeling's position; you must unite. Then Dr. Wilkinson's speech interested me very much, because he pointed out to us so absolutely clearly that the organization of the profession itself must come before anything else. I heartily endorse his view, which I take is also the view of us all, if only you will keep up the standard of education, if only the General Medical Council can raise or would raise—it can very well—the standard of education, then its disciplinary duties would become *nil*. Upon the standard of education, the highest standard of professional knowledge, undoubtedly depends the standard of professional morality. He says the profession is politically weak. That may be true at the present moment, but that is no reason why we should be weak in the future. We have an enormous political weight if we choose to use it. The late Sir Frank Lockwood once told Dr. Woodcock, "What fools you medical men are! There is no profession in the world that has so unexampled opportunities of

thrusting its opinions down the throats of Members of Parliament, as well as its medicine." It is quite true there is no profession with such power of canvassing as we have for political objects if we chose each of us to do it, as for instance in the furtherance of legislation for the Medical Acts Amendment Bill. If each of us would only do something in speaking to a Member of Parliament on the subject, and explaining to him why it is necessary, that is all—ten minutes will do it—explaining why it is necessary in the interests of the profession, which are the same as the interests of the public. You will then get a Bill accepted by the House. That sort of information first hand is what Members of Parliament want, and you are the men to give it. It is because we do not exercise the gifts which are within us that we do not get what we want. Then as regards hospital abuses. Of course I quite agree that is a town matter rather than a country matter, and the provinces may differ; but of course in London the circumstances are peculiar. They are so peculiar that at one of my hospitals I found a patient who was willing to come from a remote part of Derbyshire to London every week for treatment, and she was called "a hospital patient." The ease of travelling about the country has, in fact, altered the circumstances of hospital abuse. Thus, the hospital abuse question, although the actual working of it occurs in London and Sheffield, and in other great centres of population, is going to extend far into the country. I sympathize with, and do not quite disagree with the Chairman. I sympathize with him because I consider ours is the only noble profession, and I do so because, of course our unselfishness is unbounded. We are continually exercising practical charity in a way no other profession does, or even thinks of doing. But we are not less noble or unselfish if we insist upon being properly paid by those people who should pay for work done. What we have done in the past has been very eloquently pointed out by Dr. Forrest and Dr. Kite. We have allowed people to think that we are willing to do gratuitous work when we ought really to have been paid for it, and people are undoubtedly ready to take advantage of us. It is only human nature on their part after all. We cannot blame them exactly. If they think they are going to get a thing for nothing, they will naturally try to get it for nothing. The fault is ours; and the real fault is owing to our not being united as a profession, and owing to one man not talking over the business of his social life with the other. There has been a certain amount of easy giving way which would not have occurred if the men had been in the habit of taking his fellow practitioners into his confidence. In other words, it means as our civilization advances in complexity, the circumstances of working must be organized in a more complex form. To take an example, the example Dr. Kite quoted of ambulance work. Why, the Medico-Political Committee had this matter brought before it by several Divisions of the Association eighteen months ago, and it circulated a certain set of questions to the Association to consider on purpose to report on those questions. This showed that ambulance work had entered upon a new sphere altogether, and that no ambulance lectures should be given unless the lecturer was properly paid for his services in a business-like way. In fact, whereas before we have been content to do things in a happy-go-lucky way, it is quite evident in the stress of modern civilization they must now be done in a business-like way, and I prefer to call that trade unionism. It is quite true in certain respects trade-unions in the past have done things of which we should be heartily ashamed even to think of, as the Chairman has stated; but it is really unfair—one must say that—to the present Labour leaders of trade-unions to say that their aspirations are as low as the aspirations of the early trade-unionists undoubtedly were. It is not fair for any one to say that the curtailment of the hours of labour is because a man is lazy. It is not only that he has to do less work. The aspiration is that manual labour is, after all, not a high developing thing to a man, that a man ought to do a certain amount of manual labour, and he ought to have a certain amount of time to spend in educating his intelligence, in forwarding his own intelligence, and in forwarding the intelligence of his children. Of course you may say he often takes his intelligence to the public-house. He does unfortunately, and drowns it there, but still the fact remains that the aspirations of the modern trade-unionist are for the socialistic improvement of the individual, and we cannot justly quarrel with that or complain of it now, although we know very well the previous history of trade-unionism was very black in the sense of reducing everything to a dead level, and bringing down the good man to the position of the bad man. But, as I said before, that is not in any sense what we have ever done in the profession, or, owing to our constitution, can ever do. In my opinion, what we can do is to imitate the trade-union in its capacity for organization and self-sacrifice of individuals. On the great question of gratitude, I have now had some twenty years' opportunity of testing the gratitude of the public; and my own experience very strongly and clearly is that the people who have been most grateful to me for the professional services I have rendered to them have been the people who paid me the most fees. The only occasions on which I have been attacked by evil doers have been those from whom I never asked a fee at all. So that, personally, now I do not care whether people are grateful to me or not, as a matter of fact, because, if some one asks me to do a thing, if I think it is my duty to do it, I am very glad to do it, and I do not ask for gratitude. So long as we are obliged to earn our living by our work gratitude need hardly be mentioned. It is a nice social feeling between one individual and another, but it does not come in any connexion with the question of our work. I am sure, gentlemen, I can only once more express my thankfulness to you for coming to-night. These occasions only last a few minutes, and, of course, necessarily it is impossible to do more than skim over the ground in respect of a few points. But I have always found that the influence of a discussion of this sort lasts for years; and, as regards the actual meeting together, unquestionably the social intercourse of a meeting of this kind helps us more in our work than anything else. It does not matter how few we are so long as we act together and hear what each other has got to say. It was for the enjoyment of this opportunity that I really rose to return you my best thanks.

Dr. Sinclair White moved a hearty vote of thanks to Sir Victor Horsley for his address, which, he said, contained material for very careful study, and would assist them greatly in their deliberations.

Dr. Gordon, in seconding, said he thought the discussion had been brief because Sir Victor Horsley had practically left them nothing to discuss. His suggestions were those of the ideal state to which they might all look forward, and which they hoped they might be able to realize.

The resolution was enthusiastically adopted.

Sir Victor Horsley, in responding, and referring once more to the subject of the evening, said: "I once went down to Leeds to give evidence in a case of a collier who brought an action for malpractice against a brother medical man, which, by the way, I am glad to say we won. When we came to the summing-up by the judge—and he really ought to have known better, in a popular sense, for it was Mr. Justice Charles, Chairman of our Senate of the University College—he said, 'The defendant carried on at Wath-upon-Dearne a profession or trade—trade, h'm—well, well I do not know which it is, trade or profession—of a doctor.' I am quite content to have it called either way, provided we understand that it means the earning of money in an honourable manner."

The meeting then terminated.

War against Quacks in Philadelphia.—Prominent members of the medical profession in Philadelphia have, we learn from the *New York Medical Journal*, suggested that the city, through its department of public health, in co-operation with the Philadelphia County Medical Society, might, with considerable chance of success, undertake a campaign against illegal practitioners of medicine and pharmacy. Dr. William M. L. Coplin, Director of the Department of Public Health, is said to have expressed the opinion that the Philadelphia County Medical Society ought to take up the subject on lines similar to those followed by the Medical Society of the County of New York. This includes the employment of counsel and the active prosecution of all quacks. It is understood that the Common Council of Philadelphia will be asked to appropriate £600 in 1907, for the purpose of prosecuting illegal practitioners, and the Philadelphia County Medical Society is to be asked to appoint a Committee to work in harmony with the officials of the department of Public Health.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE annual meeting of the General Council of King Edward's Hospital Fund for London, for the purpose of making awards for the present year, was held on December 17th at Marlborough House, His Royal Highness the PRINCE OF WALES being in the chair.

Lord Rothschild reported that the amount received by the Fund to December 12th, after payment of expenses, was £89,915, not including legacies to the amount of £35,000, as yet unpaid.

Sir Henry Burdett stated that the contribution from the League of Mercy would be £18,000, and added that the Home Counties had shown a great advance, the four counties under the presidency of Princess Victoria of Schleswig-Holstein being the largest contributors.

REPORTS TO THE COUNCIL.

The reports of the Executive Committee, the Distribution Committee, and the Convalescent Homes Committee were then read by their chairmen, respectively Mr. C. H. Smith, Sir William Church, and Mr. W. Latham. The brief report of the Executive Committee contained the statement that the Committee had decided to recommend a distribution of £110,000 to hospitals, making, with £1,000 entrusted to it by the London Parochial Charities for Convalescent Homes, a total of £111,000. Last year the total was £101,000, and the year before £80,000.

THE AWARDS.

The Distribution Committee reported that the number of Hospitals applying for grants had been 105 as against 106 last year, 5 having fallen out and 4 new applications having been received. The City Orthopaedic Hospital had agreed to amalgamate with the Royal National Orthopaedic Hospital, and the arrangements were in course of being carried out. In regard to the Throat, Nose and Ear Hospitals, the Committee was informed that the negotiations for amalgamation were proceeding. Hence it had set on one side for the future combined institution £1 000, instead of making separate grants to each hospital. This sum was in addition to considerable amounts already promised by the Fund. Including the sum recommended this year the total contributed by the Fund towards the removal of King's College Hospital out of London was now £16,000.

The Committee had continued the policy begun last year of making special grants, the amounts being regarded as advances to be taken into consideration in future awards to the institutions concerned. As an instance, the Hampstead General Hospital had been granted an exceptional sum of £5,000, to enable it to take advantage of a conditional offer of £20,000. It was recommended that in future, when grants were made towards specified objects, such as building, the money should be retained by the Fund until actually required, and that the amounts so granted should be liable to reconsideration every two years so long as they remained unapplied.

The attention of the Committee had been called to the extensive arrangements for teaching nursing at hospitals, and while not wishing in any way to disparage work so advantageous to the public, it was thought that it might become necessary to consider to what extent expenditure was incurred for nursing beyond the requirements of a nursing service for each hospital.

Overbuilding, especially by hospitals unable to maintain their existing beds, had been considered. Three years ago the following resolution was passed:

> In future any new hospital, or those reconstructed or extending to a considerable expenditure and in the area dealt with by the Fund, be requested before taking a definite action to submit their proposals to the Fund.

It was recommended that the full purport and intention of these resolutions should be brought each year to the notice of the hospitals.

The report concluded with expressions of satisfaction at the reduced cost per bed in a number of hospitals where expenditure formerly had been considered too high. The visitors' report continued to be very useful, and the practice of communicating any recommendations privately to the institutions concerned had been extended.

The list of proposed awards was then read, it being stated that the absence of a grant did not necessarily imply dissatisfaction with the institution concerned. The following extracts from the list cover some of the principal hospitals, and convey an idea of the grounds on which, when stated, awards were made or withheld:

Belgrave Hospital.—£1,250, of which sum £750 is to reduce debt.

Billingsgate Mission Hospital.—No grant. The Committee cannot view with approval the conversion of a dispensary into a hospital in a neighbourhood already well served with other institutions.

The Bolingbroke Hospital.—£2,500, which is for a building fund.

Cancer Hospital.—No grant.

Charing Cross Hospital.—£2,750. The Committee make this grant in view of the new management. They, however, call attention to the fact that in adding 40 beds to those already in use the former management seemed to ignore the fact that when there were in the hospital 40 fewer beds than there now are its income failed to meet its expenditure.

Cheyne Hospital for Sick and Incurable Children.—£75, in consideration of the fact that some curable cases are admitted.

City Orthopaedic Hospital.—£250. The Committee are glad to know that the hospital has now agreed to amalgamation, and £250 has been voted this year and added to the similar sum voted last year, and retained in hand. This is in addition to the amount previously voted as the basis of the amalgamation scheme.

Home for Consumptive Females.—No Grant. The Committee consider that this Home does not come within the description of a hospital as understood by the Fund.

Hospital for Consumption.—£2,500. The Committee view with satisfaction the large reduction in the expenditure per bed.

Hospital for Invalid Gentlewomen.—£200.

Infants' Hospital.—No grant. The Committee do not regard this institution as a hospital in the sense accepted by the Fund.

Italian Hospital.—£500.

Kensington General Hospital (late Queen's Jubilee Hospital).—No grant.

King's College Hospital.—£6,000, of which £4,500 is to Removal Fund.

London Homœopathic Hospital.—£500.

London Hospital.—£8,500. The Committee view with satisfaction the considerable reduction in the cost per bed.

London Lock Hospital.—£1,500, of which £1,000 to nursing accommodation. The Committee will be prepared to recommend a substantial grant towards the expense of rebuilding the Dean Street Hospital when a definite scheme has been prepared.

Dreadnought Hospital.—£3,000, of which £2,000 is to improvements. The Committee view with satisfaction the economical management of this hospital.

East London Hospital for Children.—£2,000, of which £1,000 is to improvements.

Evelina Hospital.—£1,100, of which £1,000 is to out-patients' department.

French Hospital.—£200.

German Hospital.—£200.

Gordon Fistula Hospital.—£25.

Guy's Hospital.—£8,000. The Committee view with satisfaction the continued economical management.

Hampstead General Hospital.—£5,000, to enable the hospital to take advantage of a conditional offer of £20,000 to complete the new building, for the maintenance of which continuous efforts to increase the annual revenue will be necessary.

Metropolitan Hospital.—£2,000. The Committee are pleased to see the successful efforts being made to reduce expenditure.

Middlesex Hospital.—£3,000. The Committee are pleased to see the substantial economies effected during the period the wards were closed for repairs.

Mount Vernon Hospital for Consumption (formerly entered as North London Hospital for Consumption).—£4,500, as a special donation this year in order to close the building debt.

National Antivivisection Hospital.—No grant.

National Hospital for the Paralysed and Epileptic.—£1,750, of which £1,000 is to reduce debt.

Norwood Cottage Hospital.—£50.

Oxygen Hospital.—No grant.

Royal Dental Hospital of London (formerly entered as Dental Hospital).—£500.

Royal Free Hospital.—£2,750.

Royal London Ophthalmic Hospital.—£3,000. The Committee consider that this hospital should receive more support from the public, and they trust that increased efforts will be made to secure such support.

Royal National Orthopaedic Hospital.—£1,500. As agreed, upon satisfactory completion of amalgamation of the two hospitals. The Committee are glad to learn that amalgamation with the City Orthopaedic Hospital may now be considered as assured.

Royal Waterloo Hospital for Children and Women.—£1,500, of which £1,000 is to building debt.

St. George's Hospital.—£2,000.
St. John's Hospital for Diseases of the Skin.—£100.
St. Saviour's Hospital, Osnaburgh Street.—£200.
Santa Claus Home.—£25. To improvements. In consideration of the fact that some curable cases are admitted.
Tottenham Hospital.—£2,000. The Committee view with satisfaction the economical management of this hospital.
University College Hospital.—£2,250.
West Ham and East London Hospital.—£1,500, of which £1,000 is to the building. The Committee are pleased to see the reduction in expenditure.
West London Hospital.—£3,000, of which £1,500 is for improvements.
Westminster Hospital.—£3,000, of which £2,000 is towards debt.

Convalescent Homes.

The sum of £1,000 at the disposal of the Convalescent Homes Committee was recommended to be distributed among 16 institutions, preference as in previous years being given to those directly connected with London hospitals. On this point the Committee remarked that country branches of London consumption hospitals could not in strictness be considered convalescent homes.

Prince of Wales's Speech.

The Prince of Wales, in moving the adoption of the reports and awards, referred to the late Mrs. Lewis Hill and the late Mr. George Herring; owing to the death of the former the Fund would now receive the sum of £250,000, left to it by the late Mrs. Lewis. It did not, however, mean an addition to income, as Mrs. Lewis had always generously handed to the fund the amount she received from this capital. Other large sums which he mentioned were a legacy of £20,000 from Mr. Beit, £10,000 from Mr. John Nicholas, a gift of £10,000 from Mr. and Mrs. Bischoffscheim, and an equal sum from an anonymous donor. It was considered that the time had come when a committee should be appointed in order to assist Lord Rothschild and Mr. C. H. Smith, who had hitherto so ably attended to the investment of the capital of the Fund, and Lord Revelstoke, Sir Ernest Cassel, and Mr. Fleming had been asked and had agreed to join it.

The Prince of Wales then made the following important statement as to the future of the Fund.

After careful consideration, acting on legal advice, I have, with the sanction of the King, determined to apply to Parliament for a short Act to incorporate the Fund and to place its administration upon a strictly legal basis. I much regret that owing to the shortness of the time at our disposal before the Bill had to be lodged, which happens to be this very day, and to avoid losing a whole year, the Bill could not be submitted to you as I should naturally have desired. Copies are now before you, and I trust that it will meet with your entire support and approval. I am sorry that time did not permit of my consulting you, gentlemen, as a whole, but I had the assistance and advice of those who are most closely connected with the matter, and I appointed a committee to confer with those responsible for the drafting of the Bill. As soon as we obtain our necessary statutory powers it may be advisable to consider the constitution of the Council and of the committees and take steps to ensure that their respective duties and responsibilities are more closely defined than they have hitherto been.

Continuing, His Royal Highness referred to the sources from which the Fund receives its income. Its capital was now large, but he would like to feel that it had the general support of the people of London—of those who received the benefits of the hospitals—and to see an increase in the number of annual subscriptions. The speech, concluding with an expression of thanks to the League of Mercy and an acknowledgement of the services rendered during the year by various persons, especially Mr. Danvers Power, in connexion with the statistical report on hospital expenditure and prices; to Mr. J. G. Griffiths for his work on the uniform system of hospital accounts; and to the Committee of Hospital Secretaries which had dealt with Mr. Griffiths's report. The revised system would come into force on January 1st, and would be of benefit to all concerned in the important work of regulating hospital expenditure, and thus saving money, which was the same thing as gaining it, or even better. Finally, the announcement was made of the appointment of a paid secretary in the person of Mr. Maynard.

The Future of the Fund.

The reports having been adopted, Mr. Stuart-Wortley moved that the Council approve of the Bill to incorporate the Fund, and explained that its clauses provided that the Fund should be a body corporate with power to hold land, and generally have all the rights of a body corporate. Full power was given to the President, who would be nominated by the Sovereign, and the scope of the Fund's work was described.

Speaking to the motion, Lord Rothschild said that the trustees had had legal advice to the effect that unless otherwise provided by donors, gifts of money to the Fund must be invested in trust funds. A large sum of £100,000 recently given to the Fund in bonds, which had been paid off, had accordingly been so invested, and that had given rise to some dissatisfaction. A Finance Committee could not deal with these matters until given the power asked for in the Bill.

The motion was put and carried unanimously.

Vote of Thanks.

The proceedings then terminated with a vote of thanks to the Prince of Wales for presiding and for his varied exertions in the interests of the Fund. This His Royal Highness briefly acknowledged, adding that the King desired him to congratulate those responsible on the great success of the work of the past year.

GENERAL MEDICAL COUNCIL ELECTION.

ELECTION OF DIRECT REPRESENTATIVES.

We have received the following communications from candidates at this election:

Sir,—Pray allow me, through your columns, to cordially thank the 4,002 electors who kindly recorded their votes in my favour at the recent election of Direct Representatives at the General Medical Council. I am most grateful to them for having supported me, whereby I am placed in the proud position of having been returned to a seat in that assembly.—I am, etc.,

Swansea, Dec. 15th. H. A. Latimer.

Sir,—Will you allow me, through the medium of the British Medical Journal, to thank all who have assisted me and voted for me in my candidature for the General Medical Council? Whilst sorry that the North and North-West of England, with its very large number of medical men, has not returned a Direct Representative, I feel sure that we all are satisfied that the gentlemen elected will do their best for the profession, and perhaps by the next election will have educated that profession to take more interest in medical politics than is shown by only 12,828 out of 24,659 returning their voting papers, of which 1,503 were invalid. I wish also to thank the Press for so kindly allowing me space in their papers. I must add the remembrance of the fight will always be a pleasure to me.—I am, etc.,

Cheshire, Dec. 15th. Charles J. Renshaw.

PROPORTIONAL REPRESENTATION AND THE GENERAL MEDICAL COUNCIL ELECTION.

A Note on the Election Figures.

Dr. G. C. Crichton (114, Lexham Gardens, Kensington, W.) writes: The number voting, whose votes were valid, is 10,249, and the highest number of votes given to any candidate is 4,861—that is, the three successful candidates were elected by fewer than half of those who voted. Under *proportional representation* one would have been elected—perhaps a second—from the first three. The number of votes for the second three equals 10,247, so that one-third of the voters would have elected one of this three. I assume that, in the main, the same voters gave their votes for the first three, and likewise for the second three. The votes given to the remaining four are thrown away. It may be assumed that those voting for them are less likely to be identical. Their number being 5,741, or one-half nearly, it would have been possible, with proportional representation, for one of them to be returned, instead of one of the first three, but perhaps unlikely. Please do not for a moment suppose that I am suggesting that the very best men have not been elected. They will be equal to the confidence reposed in them and be worth a dozen professors. I use the figures by way of illustration.

The gracious permission of His Majesty the King has been granted to Kenneth Scott, M.D., F.R.C.S.Edin., to accept and wear the insignia of the Fourth Class of the Imperial Order of the Osmanieh conferred upon him by His Highness the Khedive of Egypt, authorized by His Imperial Majesty the Sultan of Turkey, in recognition of his valuable services.

LITERARY NOTES.

AN intimation has been issued by the Carnegie Institute, Washington, that "unless it appears that the *Index Medicus* is of greater service to the medical profession and can help to support itself to a greater extent than in the past, it may become advisable to discontinue its publication." The *Index Medicus* was established in 1879 and died for want of support in 1899. In 1903 the Carnegie Institute made a grant of £2,000 a year to keep it alive, while the subscription price was reduced to £1 per annum in order to bring it within the reach of modest purses. We learn from the *St. Paul Medical Journal* that the total number of subscribers is only 532, of whom—to the shame of this country be it said—398 are in the United States. The subscriptions defray only about one-fifth of the cost of production. To medical writers and to all engaged in bibliographical research the work is invaluable, as in it are indexed the titles and authors of all medical writings published in book form or in periodicals throughout the world. It will be an irreparable loss to medical literature, and something of a disgrace to the medical profession, if the *Index Medicus* is allowed to die a second time.

A prize of 500 dollars (£100) is offered by the American Association for the Study of Epilepsy for the best essay on the etiology of epilepsy. All essays submitted must be in English, and their length must not exceed 14,000 words. They must be in the hands of Dr. W. P. Spratling, at Conyea, New York, not later than September 1st, 1907. The name of the writer must not appear on the manuscript or typoscript, but be placed in a sealed envelope authenticated with a motto corresponding to one at the top of the first page of the essay. The essays will be judged by a committee of three, and announcement of the award will be made at the November, 1907, meeting of the Association. No prize will be awarded if in the opinion of the judges none of the essays submitted is of sufficient merit.

The Edinburgh *Student* of December 7th contains a photograph of Dr. R. C. Buist of Dundee, late Chairman of the Medico-Political Committee of the British Medical Association. We have no doubt of the good intentions of the artist, but we do not think his victim is likely to be tempted to vanity by the result. An interesting account of Dr. Buist's connexion with the *Student* is given. "Before his time," it is said, "many efforts had been made to meet the demand for some weekly record of undergraduate life and thought, but none of these, however, were continued for more than a few months. It was left for Dr. Buist to publish, on November 2nd, 1887, *The Student: a Casual*, which has ever since become a continuous part of the life of our University. Throughout the two years of his editorship the magazine was published at his own financial risk, independently of the Students' Representative Council, and finally at his own financial loss, but every student to-day owes him a deep debt of gratitude for his splendid enterprise." A further "illustrated appreciation" of Dr. Buist is promised at some future date.

In its issue of October 20th the *Australasian Medical Gazette* gives a sketch of its own history. The first issue appeared a quarter of a century ago. The Victorian Branch of the British Medical Association, which was founded in 1879, having been refused permission by the Medical Society of Victoria to have its proceedings published in the *Australian Medical Journal*, then the official organ of the Victorian Medical Society, decided to start a journal of its own. For this purpose Mr. L. Bruck was approached in 1880 with a suggestion that he should found a journal on the lines of the BRITISH MEDICAL JOURNAL to be called the *Australasian Medical Gazette*. He went to Sydney to obtain the support of the New South Wales Branch, which, however, declined to have anything to do with the scheme. Mr. Bruck then applied to Dr. F. Milford, who had issued a medical journal then recently defunct, and he agreed to become editor of the new journal. The first number appeared on October 1st, 1881, and was well received by the profession throughout Australasia. Disputes arose and Dr. Milford resigned. The New South Wales Branch took some steps to establish a new journal, but the *Gazette* under its new editor, the late Dr. J. M. Creed, was quickened into such vigorous life that it became evident that opposition would fail. The Branch therefore came to an arrangement with Mr. Bruck, and the *Australasian Medical Gazette* had a successful career under Dr. Creed, who was editor from 1882 to the end of 1892. During 1893 and 1894 Mr. Bruck himself edited the *Gazette* with the help of able medical writers throughout Australia. The New South Wales Branch took the *Gazette* off the hands of Mr. Bruck, who continued to manage it till the end of 1895, when Dr. Crago became manager. It was conducted by an editorial committee of three, but as this arrangement did not work satisfactorily, Dr. S. T. Knaggs was appointed sole editor, and continued to hold that position till October, 1901, when the present editor, Dr. G. E. Rennie, was appointed.

We note that our excellent contemporary the *Midland Medical Journal* spells the name of the organism discovered by Schaudinn as "*Spiroketa pallida*." Is this a tentative effort in the direction of a Rooseveltian reform, which, we note, has already been abandoned even in American official papers? If "spirokete" why not "sifilis"? And even the new spelling does not seem to warrant "Metchinkoff" which occurs twice in one paper. We mention this because the distinguished Russian investigator is so often the victim of orthographical eccentricity. "Metschnikoff," is, like Dr. Johnson's definition of the pastern of a horse, due to "sheer ignorance"; but "Metchinkoff" is a gratuitous, though we are sure quite unintentional, affront. Metchnikoff is surely famous enough to have his name correctly spelt. But, as Byron says of a Waterloo hero who suffered a like indignity: "*There* is *fame!* A man is killed, his name is Grose and they print it Grove.'

The December number of *The Scottish Field*, which is published in Glasgow, contains an article on the Aberdeen Grammar School, which is said to be over 600 years old. At any rate, it is probably older than the University. It has had a long roll of distinguished pupils, but the one in whom it takes greatest pride is Byron, whose quarterly place in the various classes is on record, and shows that he occupied an average position in a class of some thirty pupils. There is a legend that sometimes, at any rate, he occupied a considerably lower position. It is related that his master would place him at the top with the encouraging words: "Noo, Geordie, ma man! lat's see hoo sune you'll get to the bottom." And generally—if we are to believe the legend—it was a case of *facilis descensus*.

To the *St. Bartholomew's Hospital Journal* for December Dr. Hubert Roberts contributes a translation, with commentary, of a description of a case of ectopic pregnancy which occurred in 1669 and is reported in Mauriceau's *Traités des Maladies des Femmes Grosses et Accouchées*, which was published in 1682. Mauriceau's illustration is reproduced. The point of interest to Dr. Roberts is that as far back as 1669 the anatomical relationship of the round ligament to the sac was taken as the point of differentiation between fetations that were truly tubal or truly cornual—that is to say, developed in a rudimentary horn of a uterus bicornis. On this basis, as we do at the present day (says Dr. Roberts), Mauriceau rightly argued that his case was developed in part of the uterus and not in the tube. He does not say that he thought the cornu to be imperforate; in fact, it is probable that he took the condition to be a hernia uteri. He also observed that in such cases the womb became enlarged, and contained "a spongy substance," like the afterbirth (the true decidua). The ovaries are described as testicles (*testicules*), having an ejaculatory duct; reference to his picture shows that the latter is probably what we now call the ovarian ligament, but he seems also to apply the same name to the Fallopian tube. The fimbriated extremities of the tubes he describes as "torn" (*déchiré*), though he does not state from what they are torn; anyhow, the fimbriae, as we describe them now, were not definitely understood. Another interesting point is that the vagina is described as the "neck" of the womb, while the internal os is mentioned as being "torn and irregular, as it is in all cases of women who have had many children."

We see it stated that Dr. Parkes Weber has presented the Guildhall Library with a valuable collection of historical coins, tokens, and pieces of money numbering in all about 1,200 specimens. The British Museum authorities have selected from his collection over 5,000 specimens. The rest will be sold for the benefit of the German Hospital, to which Dr. Parkes Weber is Physician.

MEDICAL NEWS.

Mr. Frederick Charles Heidenstam, C.M.G., Chief Medical Officer, has been reappointed a member of the Legislative Council of the Island of Cyprus.

The expenditure of the Russian Red Cross Society in connexion with the Japanese war is said to have amounted to £1,200,000.

The late Mr. William Burkitt, of King's Lynn, who died on June 7th, left £250 to the West Norfolk and Lynn Hospital, and £100 to the Hunstanton Convalescent Home.

Mr. W. McAdam Eccles, M.S., F.R.C.S., will open a discussion on the education of the public respecting alcohol in its relation to physical deterioration at a meeting of the Society for the Study of Inebriety to be held in the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Tuesday, January 8th. The address will be illustrated by a lantern demonstration. Each member and associate is at liberty to introduce a visitor.

Mrs. Osler, the mother of Professor Osler, of Oxford, of Mr. E. B. Osler, M.P. for West Toronto, and of Mr. Justice Osler of the Ontario Court of Appeal, celebrated her hundredth birthday on December 14th by a family gathering at which four generations were present. To each of her living descendants we are told she gave silver spoons with a handle in the form of a Cornish Cross. Mrs. Osler was born in England, and her husband was the Rev. F. L. Osler, M.A.Cantab., formerly of Falmouth, but afterwards the pioneer missionary of the Church of England in Western Canada.

At the annual meeting of the Presidents of the various branches of the League of Mercy on December 12th, it was stated that when this year is over the League will, in the course of its eight years' existence, have contributed £80,000 to King Edward's Hospital Fund. This includes some £18,000 which it is expected will be handed to the Fund at an early date. *The Book of the League*, which is in course of preparation, will, it is anticipated, bring in a good deal of money, many popular authors and other persons of distinction having promised to make gratuitous contributions to its pages.

It appears from details published in *A Medicina Contemporanea* that there is an alarming increase of rabies and hydrophobia in Portugal. In the Instituto Bacteriologico in Lisbon, where patients are received for Pasteur treatment, there have never previously been so many patients. There has been a steadily progressive increase in the number of persons treated since 1900, in which year 651 presented themselves for admission. The numbers then rose as follows: 1901, 763; 1902, 868; 1903, 909; and 1904, 1018. Last year there was a very marked increase to 1,296 cases, and it seems that even this number will be very much exceeded by the records of the current year. These figures, if correct, as they doubtless are, reveal a supineness on the part of the authorities which our Lisbon contemporary is fully justified in characterizing as shameful. He contrasts with it the energetic action taken by the British authorities, who, in spite of considerable opposition in many quarters, were successful in reducing the number of cases from 672 in 1895 to *nil* in 1903. It is stated that the Portuguese laws are amply sufficient to keep rabies in check, but are unfortunately in practice disregarded.

The eighth annual dinner of the Medical Graduates' College and Polyclinic was held on December 12th, at the Trocadero Restaurant, London, under the chairmanship of Professor T. Clifford Allbutt, F.R.S. In proposing the toast of "The Polyclinic," the Chairman said that the institution had in a comparatively short time attained a high position among the great educational centres of this country. The well-known difficulties experienced in trying to teach a mixed class of medical students and qualified practitioners emphasized the need for the Polyclinic. He deprecated the modern tendency to argue away and whittle down clinical observation, which must be protected from the assaults of the pathologist and physiologist. The science of medicine was living and growing, and the Polyclinic should take up the study of the prevention of disease, and should not rest till a Ministry of Health had been instituted. The official programme had not provided for any reply to this toast, but those present insisted on Captain Hayward Pinch, the popular medical superintendent, responding. In his speech he described the many advantages to be gained by a medical man joining the Polyclinic at a cost of little more than 4d. a week. He concluded by quoting from a letter written by Mr. Howard Kelly, stating that he knew of no institution doing so much public good. Mr. James Cantlie submitted the toast of "The Guests," which was acknowledged by Mr. Henry Morris; he said that when the history of higher education in England was written, the Polyclinic would be accorded a conspicuous place. The Director-General, A.M.S. (Sir A. H. Keogh), who also replied, described how he joined "The Polyclinic" when it first started. He agreed with the Chairman that prevention of disease was the great problem not only for the civil population but also for the army. Dr. C. Theodore Williams having proposed the health of "The Chairman," the evening ended with a few words of thanks from that gentleman.

Medical Magistrate.—Dr. B. Walker of Kirkby Stephen has been appointed to the Commission of the Peace for the county of Westmorland.

The Rearing of Babies.—At Blackburn some local philanthropists have decided to open a restaurant where, for twelve months, two good meals a day will be supplied to poor women who are nursing babies.

Professor Koch in Africa.—From the Sesse Islands, Victoria Nyanza, news has come of Professor Koch's expedition for the study of sleeping sickness. The expedition is divided into two parts. One, under the direction of Professor Koch himself, is working at Kion, the other, under Professor Beck, at Boumangi. Natives are said to be coming to both stations from the remotest provinces, the average number attending being some three hundred a day. Professor Koch, it is said, will publish nothing as to his method until he has had more definite results than have yet been obtained. The members of the expedition live in rooms destitute of the comforts of civilization, which serve as bedroom, dining room, and laboratory.

German Medical Missions.—A meeting was held recently at Frankfort-on-the-Main, which was attended by about sixty delegates of German and Swiss missionary societies and supporters of medical missions. The object of the meeting was to discuss the means of providing for the education of medical missionaries and for the medical instruction of missionaries in connexion with a German university. It was announced that £1,500 had been given by a sympathizer with the movement towards the erection of buildings in Tübingen for the accommodation of the newly-founded Institute of Medical Missions. So far £2,000 has been subscribed, but it is considered advisable not to begin to build till a sum of £5,000 is available.

Metropolitan Ambulances.—The Home Secretary has appointed a Departmental Committee, consisting of Sir Kenelm Digby, G.C.B., K.C., Chairman; the Earl of Stamford and Sir William Collins, M.P., with Mr. A. L. Dixon as Secretary, to report upon metropolitan ambulance arrangements. The instructions to the Committee are to inquire as to the provision made for dealing with cases of accident and sudden illness occurring in streets and public places within the metropolis, and to report whether any, and if so what, improvements in ambulance provision are necessary or desirable, and how they could be best effected, with due regard to efficiency and economy. In a sense the three members of Committee may be held to represent the three bodies whose interests have in some degree hitherto clashed in the matter; thus Sir Kenelm Digby was for long Permanent Under Secretary at the Home Office, which is responsible for the police; the Earl of Stamford formerly represented Westminster on the Metropolitan Asylums Board, and Sir William Collins was the active mover on the County Council in reference to ambulances.

The Mayor and the Midwives.—The Mayor of Rotherham, Colonel C. J. Stoddart, V.D., J.P., entertained the certified midwives of the borough at tea in the Town Hall on December 6th. Supporting the Mayor were Dr. A. Robinson, medical officer of health for the borough, and Alderman E. Hickmott, J.P., Chairman of the Health Committee. The midwives—being of course above indulgence in the gossip and scandal of the tea table—listened to some municipal eloquence in the Council Chamber after the entertainment. The Mayor explained that the midwives had now become a portion of the staff of the Corporation of Rotherham, and therefore it was essential that the Committee should be acquainted with the members of the staff. Infantile mortality, he said, had become a most serious problem, and in this connexion the responsibility upon the midwife was very great; that a large mortality arose, among other causes, from improper and unskilful treatment at birth, the want of knowledge of mothers, improper and unnatural feeding, want of cleanliness in feeding, insanitary and dirty surroundings, and in many cases the poor state of the women themselves. The Mayoress, he added, took a very great interest in the gathering, and had desired him to say that she would offer three prizes under certain conditions. Dr. Robinson spoke of the requirements of the Act of 1902.

British Medical Journal.

SATURDAY, DECEMBER 22ND, 1906.

BRITISH GENIUS.

To Mr. Havelock Ellis[1] the term "genius" is as comprehensive as the great sheet which St. Peter saw let down from heaven by four corners; it includes not only poets, artists, and other "inspired" persons, but all eminent men and women of more than ordinary intellectual ability who have done something of note. He has made a careful study of the chief biological characteristics—anthropological and psychological—of such persons, finding the material for his investigation in the *Dictionary of National Biography*, which contains 30,000 names. After sifting out Royal personages and members of the hereditary nobility, criminals, and such as owe their niche in the temple of fame to the part they played in history or to their connexion with eminent people, Mr. Havelock Ellis has a collection of 1,030 specimens (975 men, 55 women) of "pre-eminent intellectual ability." Comparing these with other human groups, normal and abnormal, he finds many features of resemblance between geniuses, and those other examples of abnormality, imbeciles and criminals. But he shows how much the frequency of insanity amongst geniuses has been exaggerated. Of his 1,030 geniuses, only 4.2 per cent. were mad at any period of their lives, a fact which disposes of the notion that insanity is an essential part of genius. Of the geniuses who were mad, very few did intellectual work of any kind while they were in the grasp of the disease, and scarcely any produced work of the highest merit.

But if madness is not necessary to the making of genius, it would seem, according to our author, that gout has a close association with genius of a virile character such as seen in Milton, Harvey, Newton, Johnson, and Gibbon. Consumption, too, would seem to be favourable to a certain kind of intellectual ability; the list of eminent consumptives is long, and includes Keats, Sterne, Priestley, and Black. This type of genius differs greatly from that of the gouty group, being restless, versatile, and feverishly active, very different from the "massive "and patient energy" of the others, "which proceeds "without rest . . . but also without haste, until it has "dominated its task and solved its problem."

The other diseases most common amongst British geniuses are stone, asthma, and angina pectoris. Various forms of nervous derangement, however, are common, while eccentricity is of frequent occurrence. Men of genius share with idiots and mental defectives a tendency to stammering and other vocal defects, as well as great clumsiness in using their hands and awkwardness in walking. While in the case of idiots this awkwardness depends on the lack of mental power, Mr. Havelock Ellis considers that in persons of genius it may be due to the mental power being directed into other channels. Twitching movements of the muscles of the face and shortness of sight are also unusually common, while the frequency of illegible handwriting is proverbial. A very large number of the geniuses appear to have been remarkably shy and timid, and very many were extremely nervous, sensitive, and emotional. On the other hand, over-self-confidence, arrogance, and insolence were conspicuous in not a few; these unpleasant characters, however, are usually seen in men who are not in the highest ranks of intellect. Melancholy is an almost universal accompaniment of genius, perhaps because the melancholy man finds relief from his depression in work, or because the temper of genius is sensitive and irritable, and its possessors have often had to suffer hostility and persecution.

In regard to the bodily appearance of geniuses, Mr Havelock Ellis has made some interesting observations. Perhaps the most frequently-mentioned character is the beauty and brilliancy of the eyes; this is especially seen in poets. Whilst many geniuses have been handsome or of imposing presence, a considerable proportion have been deformed or stunted, or peculiar in appearance. Many, notably those of lowly birth, have been exceptionally tall; on the other hand, many have been extremely small. There is a curious lack among geniuses of men of average height. By a careful study of portraits Mr. Havelock Ellis has been led to the conclusion that sailors, artists, men of science, political agitators, and social reformers tend to be fair, the two latter extremely so; whilst travellers, explorers, divines, religious reformers, and actors are mostly dark. Here the old physicians would have seen exemplifications of the sanguine and bilious temperaments respectively. Geniuses as a class are long-lived, as might be expected, for to become eminent people must generally live long. Poets, however, who come early to their season of mellow fruitfulness, often die young, like those whom the gods love.

An interesting point brought out by Mr. Havelock Ellis is the very marked tendency to celibacy amongst men of genius. We venture to suggest that this is due to absorption in things that seem to them of greater importance than the begetting of offspring and "matters "of the house"; the genius, like the soldier according to Bardolph, thinks himself better accommodated than with a wife. At any rate, it is a fact that many of our British geniuses never married; when they did it was usually late in life, and the union was often childless. Women of genius, it appears, marry either very early or very late. One-third of those on Mr. Ellis's list never married at all.

If it be asked under what circumstances genius thrives best, Mr. Ellis answers that its possessors tend to be either the first-born or the youngest of the family; their parents are usually elderly; and the class from which they spring is that of the country gentlemen, yeomen and farmers, and, above all, clergymen. The number of "sons of the manse," as they are called in Scotland, who have become famous, is out of all proportion to any other profession or occupation; and it may not be amiss to explain that here the masculine, as in the grammar, and sometimes also in real life, embraces the feminine. Men of letters have come from every class; on the other hand, painters seem to spring chiefly from yeomen, tradespeople and craftsmen only two in the list belonging to what Mr. Ellis terms the aristocratic group. It is not pleasing to our professional pride to learn that hardly any men of note have been sons of doctors. The ordinary school and college education seems to have had but little effect on the development of genius. With few exceptions, the geniuses in Mr. Ellis's collection

[1] *A Study of British Genius.* By Havelock Ellis. Published by Hurst and Blackett, London, W. Pp. 293.

received the ordinary education of their class; a few were educated at home by an intellectual parent. It may be remarked, in passing, that while some were precociously clever as children, many others were little better than dunces in school work. Intellectual ability is inherited equally from either parent, though men of genius get their moral and emotional character frequently from the mother. The parents of geniuses are often of marked abilities, intellectual tastes and force of character, whilst in many cases the mother is very pious; frequently one of the parents displays eccentricity, or inaptitude for ordinary life, such as drunkenness or extravagance.

Mr. Ellis has made a most interesting study of what may be called the distribution of genius. Instead of noting the mere birthplace, he has tried to discover to what districts the four grandparents belonged, as a means of finding out to what part of the country the genius is really rooted, and to what race he really belongs. By this method he has discovered that whilst Scotland has produced more than her share of eminent men, she has produced relatively the smallest number of eminent women. This may be partly due to the fact that till lately Scottish women have not shared in the great educational advantages enjoyed by their countrymen. Mr. Havelock Ellis has also found that in geniuses of mixed ancestry the English-Irish and English-Welsh predominate over the English-Scotch. In those of partly foreign ancestry, the French Huguenot occurs very frequently, German and Italian much less often.

In England, Norfolk and Suffolk is the chief centre of eminent women. There are three great foci of eminent men—East Anglia, the South-West, and the Welsh Border. These three foci produce different kinds of genius with widely different characteristics. Thus the East Anglian focus, consisting of Norfolk, Suffolk, Essex, Cambridgeshire, and Hertfordshire, has produced great statesmen, scholars, and ecclesiastics, with nearly half the British musical composers and a third of the painters. The East Anglian geniuses are characterised by humanity, grasp of detail, love of liberty and independence, love of compromise, the art of treating science philosophically, great aptitude for collecting and classifying facts; on the other hand, they have no aptitude for metaphysics or mathematics. The South-West focus, including Somerset, Dorset, Devon, Wiltshire, and Cornwall, is famous for its sailors, courtiers, free-thinkers, innovators, and pioneers in the physical and intellectual worlds. Painters and inventors are numerous, and most of the great scientific physicians belong to this district. The focus of the Welsh Border includes Gloucestershire, Warwickshire, Worcestershire, Herefordshire, Shropshire, and Cheshire. Its genius is artistic and poetic, tending to literary and oratorical eminence, and strongly tinged with moral and religious emotion. Whilst no very great scientific men have sprung from this district, it has produced such men as Shakespeare, Fielding, Purcell, Landor, and Macaulay.

There is yet another district in England, the Anglo-Danish, stretching from Lincolnshire to the Lowlands of Scotland. Its sons show greater aptitude for mathematics and the exact sciences than the men of any other part of England; apart from this, it has produced men chiefly remarkable for force of character and love of independence.

In Ireland the most productive region is Leinster, with the adjoining portions of Munster and Ulster. The genius of Scotland mainly springs from the tract of land between the Cheviots and the Grampians, Aberdeen and Edinburgh being especially prolific. Whilst Scotland stands at the head of the military genius of the kingdom and very high in science, she contributes no actors or actresses of pure Scottish descent, and very few sailors, to Mr. Havelock Ellis's list. Ireland has produced no scientific men, Tyndall being of English origin; on the other hand, the Irish actors and actresses are in great preponderance. England claims all the famous sailors on the list except two, while Ireland has none. Divines, men of letters, great lawyers and politicians are scattered over all the kingdom; whilst poets predominate in the South of England, Wales and the Welsh Border. It is obvious that the chief focus of English genius is in the southern half of the kingdom, which, though the most anciently civilized part, has been in more recent times the most thinly populated and the least prosperous. Kent stands at the head of English genius-producing counties. Though Mr. Ellis does not consider that the character of genius is entirely due to race, he thinks that the English and Scottish elements contribute largely to Irish genius, which also owes much to the French Huguenots who settled in Dublin and Waterford. In England the Teutonic element is great in regions prolific of genius, whilst the regions where the pure Saxon settled are notably barren.

Mr. Havelock Ellis does not discuss the causes of the distribution of genius in the British Isles. But he has made an addition to the literature of the physiology and pathology which is far more solid and better "documented" than the more showy treatises of writers like Lombroso and Nisbet. He spins no gossamer cobwebs of theory; he sifts his evidence critically, and he sums up dispassionately. His general freedom from bias makes it refreshing to come across a passage that, like poor Lear's hand, smells of humanity. "I have no sympathy with the bias of "patriotism," he says, in speaking of the very high amount of ability that Norfolk and Suffolk have contributed to the country, "for I recognize that . . . it is "an unfailing sign of intellectual ill-breeding." Nevertheless, it is not altogether surprising to find that Mr. Havelock Ellis, "though having no personal "connexion with this county, happens to have been "ancestrally connected with Suffolk during many "centuries."

Mr. Havelock Ellis has not thrown light on the source of the sacred fire of genius, but he has collected and tabulated much interesting information as to the places and circumstances in which it is apt to show itself in this country. He has shown that British genius, like Jaques's melancholy, is compounded of many simples. Many elements go to the making of it; it is the kindly mixing of these that has produced the results which are the foundations of our national glory.

THE UNITED STATES AND ALIEN IMMIGRATION.

A Blue Book of no little interest has just been issued by the Foreign Office on immigration into the United States. Mr. R. G. Lindsay, the Second Secretary of the British Embassy, who is the compiler of the Report, characterizes this alien peopling of America as "one of "the most remarkable movements of population to be "met with in history," and the expression cannot be regarded as exaggerated. Between the years 1820 and 1850 only about 1,250,000 persons entered the country,

but from the latter date to June 30th of last year the enormous number of 21,650,000 immigrants was recorded. Last year alone 1,026,000 landed, and, though the statistics are not yet issued, it is known that even this high figure has been surpassed this year. It is instructive to study the analyses of these shifting millions and the lessons they convey.

As the flood of immigration has developed, the stringency of the admission regulations has been increased. At present the law, in addition to demanding a tax of $2 for every alien passenger, the object of which is to create a fund to pay for the immigration service, rigorously excludes any person coming under any one of the following heads: 1. Idiots. 2. Insane persons or epileptics. 3. Persons who have been insane within five years of the date of landing, or have had two or more attacks of insanity at any time previously. 4. Paupers, persons likely to become so, and professional beggars. 5. Persons affected with any loathsome or dangerous contagious disease. 6. Persons who have been convicted of felony, but not political offenders. 7. Polygamists, anarchists, prostitutes, procurers, contract labourers, and assisted immigrants. Any ship which has brought a rejected alien is compelled to take him back free of cost, and any ship bringing an alien suffering from "a loathsome or dangerous contagious disease" is, in addition, subject to a fine of £20, unless it can be shown that the disease could not have been detected at the port of embarkation. This has brought about the custom of "tinkering" diseased aliens so as to enable them to pass the inspectors, a system that is especially in vogue in cases of trachoma. Some of the steamer companies, it is said, take the risk if the alien will pay his own fare back. It is not considered that the last word has by any means been said on the subject of these restrictions. Increase of the head tax is probable, and so too, before long, is the exclusion of tuberculous patients, persons who have at any time been insane and possibly even those of poor physique.

Passing now to the consideration of the alien after he has obtained admission, almost the first thing that strikes the reader is the complete and absolute change which has taken place in the last five years or so in the character of the immigration. Formerly the north-western European, the Briton, Scandinavian, or German—in short the Teuton or Celt—greatly outnumbered the other races. Now the south eastern people of Latin and Slav race, the Italian, Austro-Hungarian, or Russian, are equally preponderant. Formerly the proportions were about 390,000 to 62,000, but now they are about 158,000 to 478,000, and Mr. Lindsay remarks that "an "academic calculation would appear to prove that at "the present rate of increase the time will come when "the new element will outnumber the old, and nothing "less than a change of race will be effected." Of Italians 226,000 entered the country last year, and 102,000 Poles, but only 50,000 English and 62,000 Scandinavians.

Mr. Lindsay enters at some length into the characteristics, physical and moral, of the various races in their new homes, and this part of his report is an interesting study of the influence of the environment. We may pass over the British immigrant with the single quotation that "in almost all the statistics the "Scotch make the best and the Irish the worst "showing." The Canadian *habitant*, unpopular as an underbidder in the labour market, is particularly noticeable as being of remarkable fertility. The Germans, whose immigration stands only second to that of the British, number 170,000 in Chicago, and have supplanted the Irish vote in New York. The average German immigrant is physically vigorous, and his personal cleanliness is unhesitatingly ascribed to the military training which practically all have passed through before going to America. But the Scandinavians stand still higher in the scale; they live under the best hygienic conditions, and "their "intemperance does not seem to be very serious." The Italian retains very much the same characteristics as those he shows in Europe, the northerner being, of course, the best. The Slav spells illiteracy and unskilled labour. He is largely a miner in the coalfields of Illinois and Pennsylvania and is a hard drinker. The Jew is of poor physique and incapable of heavy manual labour; he goes to the cities and is very liable to disease, especially tuberculosis, which too often goes hand in hand with a deplorable moral degradation; but he does not easily become a pauper—indeed, the three last-mentioned races are described as becoming richer by leaps and bounds. One curious fact not very easy to explain is the extraordinary and increasing inefficiency of the coloured labourer, which appears to be correlated with the increased immigration. Yet it is not to the south that the newcomer goes; he will not try new districts and mistrusts experimental colonies, and the Southern States last year received only 4 per cent. of the total number of immigrants.

Mr. Lindsay's report, of which we here give only a bare outline, is particularly instructive, though we may join issue with him on one point. "It must take many "generations," he says, "before Americans are physio-"logically (he means, of course, physically) differentiated "from Europeans as much, for example, as the French "are from the Germans. . . . There is no such thing as "an American type, and even if, in the towns of Europe, "it is possible to point out a tourist as an American, "recognition is effected by mere outward marks, such "as the style of dress." With this opinion we confess we find it hard to agree, and in illustration we would draw Mr. Lindsay's attention to the photographs of college football and baseball teams in many of the American magazines, which exhibit a very well marked and, it may be added, a very fine type. What has become of the conventional Uncle Sam, the long, loose-limbed creature of *Punch* cartoons, we know not. The American of to-day presents a firm, square jaw, broad brow, and clear, keen eye, which together usually render the recognition of his nationality a matter of no very great difficulty.

PROFESSIONAL OVERCROWDING.

IN a letter which has reached us from Natal Dr. J. Booth-Clarkson discusses the overcrowding of the medical profession, citing among other testimony to its existence remarks recently made by Sir Victor Horsley and Sir James Crichton-Browne. He very reasonably suggests that the fact that overcrowding exists should be made known among laymen, and comments upon it not confined to professional journals, where, if seen by young men at all, it is too late for them to change their path. More initial capital and more initial work are required to enter the medical profession than any other, and from those who become qualified the exertions necessary to gain even a competence exceed those which in other professions often suffice to acquire riches and high social honours. Among circumstances which have helped to bring about the present position is the fact that the medical profession is always engaged in performing on itself "the happy dispatch." Public health work in particular, while a boon to the public, is not only badly paid in itself, but has been

of great detriment to the material interests of the profession. In the Colonies, again, there are many fewer appointments than there used to be; many of those who occupy them have been almost deprived of their original position and privileges, and put on "three months' notice," and an increasing number of posts are now being filled at reduced pay by men engaged in private practice. In foreign countries likewise openings grow fewer and fewer; formerly British medical men were welcomed on the Continent and elsewhere abroad, but this is no longer the case, difficulties being everywhere created for them so as to throw the work among English visitors into the hands of native medical men. On the other hand, not alone England, but every country under the British flag, is deluged with foreign practitioners, who absorb the greater part of such practice as is available among the innumerable aliens. The country, too, is itself becoming poorer, and the effects of diminished national wealth will be felt first by the medical profession. The admission of women to the profession is also helping to increase competition. Finally, the increasing power of the Labour party, with its tendency to "sweat" the medical profession when it is allowed to do so, is to be remembered. All these factors are already in operation, and none of them are likely to lessen in importance as time goes on. Dr. Clarkson believes that if the considerations here summarized from his letter could be brought home to the general public matters would partly be righted by the stream of candidates for the medical profession slackening. That there is a diminution in the number of candidates in England cannot be doubted, and the same is probably true of Scotland and Ireland, but it must be remembered that the two chief British colonies, the Commonwealth of Australia and the Dominion of Canada, have schools almost, if not quite, capable of supplying the local demand. Dr. Booth-Clarkson's views carry additional weight, as being urged by a man who is resident in one of the supposed great outlets for British practitioners, and who, as things go, is more than commonly successful. In any case it must be admitted that the medical profession as it is can scarcely content those who adopt it rather as a livelihood than as the outcome of a natural bent towards it.

FOOD INSPECTION.

The anxiety caused in this country by the revelations of the canned meat trade in Chicago have now transferred themselves to a more serious and definite anxiety as to the condition of our own food supply in London and elsewhere. The inquiries made all over the kingdom by the local authorities, moved by the Local Government Board, have resulted in very little evidence being obtained against the better class of canned meats, but it cannot be denied that there has been shown to exist a crying need for the more complete examination of food supplies generally, and for some more reliable and thorough destruction of the meat condemned. It has become more than a suspicion that meat condemned and sold for the ostensible purpose of being made into manure, has found its way to factories for potted meats, or in some other way into use for human consumption. Legal questions have even been raised as to the inspection of meat while in transit; and, finally, the difficulty of meat inspection in the metropolis has been accentuated by the possibility of conflict between the inspecting authorities. As in the case of milk so in the case of meat it has been found that the suspected article passes with great ease from the territory of one inspecting authority to another, and it has become a necessity that the Legislature should step in and adjust the claims of the London County Council, the City of London, and the various municipal boroughs. Meanwhile the Common Council have not been idle as regards the supervision of markets and imports under their own control; acting on the advice of Dr. Collingridge, they have now appointed three more meat inspectors who will be required to qualify as sanitary and meat inspectors in the terms of the Public Health (London) Act. This may be a very small step, but it is a step in the right direction; and the principles laid down by Dr. Collingridge in adjusting the mean between the rights of the trader and the interests of the consumer must be strongly approved. These conflicting interests must be reconciled in the interests of the latter, and the health of the community must be paramount to any consideration of intermunicipal jealousy. The development of the present system of riparian and railway dépôts, the coordination of the isolated inspectorial units, and the adoption of a uniform system for disposing of condemned foodstuffs at as little cost as possible to the trader, are the chief matters needing consideration. These points, which have been brought fully before the London County Council by Dr. Hamer's report, noticed three weeks ago, and analysed elsewhere this week, may be commended to the notice of the President of the Local Government Board, who, we doubt not, will either untie the Gordian knot, or cut it in some more drastic manner, according to classic precedent.

THE STUDY OF MEDICAL HISTORY IN FRANCE.

The study of medical history has never been neglected in France to the same extent as in this and some other countries. A chair of the history of medicine was established by the Convention, and occupied by no less a person than Cabanis. Suppressed in 1822 under the Restoration, it was created anew in 1871 when Daremberg was appointed professor. In the meantime an attempt had been made in the winter of 1865-6 to awaken an interest in the subject by Professor Tardieu, then Dean of the Paris Faculty of Medicine. Lectures on the history of their respective branches of medical science were delivered by Professors Lasègue, Béclard, Chauffard, Parrot, Gubler, Axenfeld, Follin, Broca, Verneuil, Tarnier, Trélat, and Lorrain. These attracted large audiences, which included many members of the general public as well as doctors and students. One of the most regular attendants was Count Leopold Hugo, brother of the poet, who was so interested that twenty years later he bequeathed a fund for a prize expressly designed to encourage the study of medical history. The prize is awarded by the Academy of Medicine every five years, and a report on the works sent in by competitors in 1906 was presented to the Academy at its meeting on October 16th by M. Hamy. From that report a notion of the activity of French workers in the domain of medical history may be obtained. There were nineteen competitors, who among them submitted fifty manuscripts and printed books. They may be classified roughly as studies of the history of the science of medicine, and studies of the history of the profession, including biographies, annals of corporations, records of hospitals, etc. To the former category belong four quarto volumes by Dr. Brunet, of the French Navy, on the Byzantine School. There is a gap in the history of medicine, as it is generally written, between the old Greek physicians and the Arabic writers and those of Salerno. Dr. Brunet's work aims at filling that gap by tracing the story of medicine through the later Greek writers of the Constantinople School. The age of Justinian was the most brilliant period of that school, and its most prominent representative was Alexander Trallianus, whose teaching and practice are minutely analysed by Dr. Brunet, who has also supplied a complete translation of his writings, which, he says, is the first in French. From the Byzantine School the torch

of medical science passed to the Arabians, among whose foundations was the University of Montpellier, which dates its existence from the eleventh century. The historical development of the doctrines of that ancient school is set forth by one of its *agrégés*, Dr. Virès M. Lemaitre deals with the history of surgery as illustrated in the Bordeaux School, while MM. MacAuliffe and Prévost trace the evolution of clinical teaching in Paris from 1562, when it was initiated by Ramus to 1902. Professor Folet of Lille deals with the doctrine of Broussais in the light of his correspondence with a disciple: and Dr. Schapiro gives the results of laborious researches in a history of obstetrics among the ancient Hebrews. Dr. Jules Regnault, another naval medical officer, deals with medicine and pharmacy among the Chinese and Annamites. In a work on physical therapeutics in the past, Dr. MacAuliffe describes the use of natural agents, such as air, heat, light, baths, massage and gymnastics in ancient Egypt, Greece, and Rome; and Dr. Cabanès, who is well known as a medical antiquarian, gives an account of the remedies used in bygone days. Among biographies mention is made of one of Dominique Larrey, by Dr. Triaire of Tours, and one of Laënnec, by Dr. Saintignon. Among works relating to the history of the profession we note a study of the medical world of Paris in the eighteenth century, by Dr. Paul Delaunay; a history of medicine in Geneva, by Dr. Léon Gautier: chronicle of the Toulouse Faculty of Medicine, by Dr. Barbot; and a volume by Commander Esperandieu, entitled *Signacula Medicorum Ocularíorum*, in which 233 specimens of Roman oculists' seals are described and figured. Of works relating to hospitals there are two: Dr. MacAuliffe gives an account of the condition and administration of the Paris hospitals before and during the Revolution, while Professor Folet enshrines in a pamphlet the memory of old hospitals of Lille which have disappeared. Dr. Folet also treats of Molière and the medicine of his day, and Dr. Triaire offers the first volume of a new and eruditely annotated edition of the letters of Guy Patin. Complaints have lately been heard in certain quarters of the disposition of France to cut herself adrift from her past. The competition for the Hugo Prize would seem to show that the medical profession at least is keenly interested in its own history. The prize has been awarded to Dr. Brunet.

POPULAR DIETETICS.

The York Health and Housing Reform Association has issued an ingenious coloured chart, prepared by Mr. S. H. Davies, M.Sc., showing the constitution and energy value of a shilling's worth of various sorts of vegetable and animal foods.[1] The different constituents of the food—proteid, fat, sugar and starch, and waste, under which is included mineral matter and water—are shown under different colours on a target, each being represented in its proper proportion. The proteid forms the bull's-eye in each case, and the other constituents segments of the remainder of the circle. The energy value is shown in a black square in a separate column. Notes on the selected foods are added, and a sane estimate is given of the relative value of vegetable foods as compared with animal. Herring, being cheap, is taken as an example of fish, and it is pointed out that the price of fish being determined by its flavour is no guide to its food value. During the recent Food and Cookery Exhibition at the Royal Horticultural Hall, Westminster, Mr. Eustace Miles gave a demonstration on "the cooking of "nourishing dishes without meat," which to some extent afforded a practical illustration of the facts given in the York chart. Mr. Miles had brought his chef, and stood with him behind a long table on which were cooking materials and a gas stove. While the chef demonstrated Mr. Miles lectured. The menu was: Soup, cutlets, Brussels sprouts, savoury sandwich, blanc mange, salad, cheese aigrettes. Mr. Miles began by explaining that while the true vegetarian theory meant that meat must not be eaten in any form, his own plan was to eat as little meat as possible, and to build up the body with nourishing substitutes. For example, he used protene food to a large extent, a floury-looking powder, said to be as nourishing as beef. Among body-building foods he placed cheese first, which he said was twice as nourishing as meat, provided it was rendered digestible by being passed through a nut mill and converted into fine flaked parings. The prejudice which many people feel against cheese was, he asserted, due to their eating it in lumps which they did not masticate properly. In the notes on the selected foods in the chart above described, Mr. Davies praises cheese as one of the cheapest and best sources of animal proteid, and adds that it should be used grated if found indigestible, a cheap American or Dutch cheese being the most nourishing. Mr. Miles has evidently found this out too, to judge from the raucous flavour of the cheese dishes at his restaurant. The diet illustrated by his test meal was, according to Mr. Miles, designed not only to supply heat and energy, but also purifying elements; and it seemed to be intended that the snacks, for they looked no more, should contain material enabling a man to go through seven or eight hours' work without heaviness or fatigue. Mr. Miles, like most other exponents of the art, declared that the great fault in British cooking is that it is too hurried, and that the true secret is to cook very slowly, the slower the better; by this means the natural flavour is preserved and very little artificial flavouring need be used. This theory was somewhat negatived by a statement repeatedly made by Mr. Miles with regard to the Brussels sprouts which were gaily cooking in a specially constructed saucepan. This saucepan was in two parts, the lower part containing water while the sprouts with only a small lump of butter and no added water reposed in an inner saucepan which fitted into the other, leaving a space underneath for the water. There were no holes in the upper saucepan so this mode of cooking was not steaming. The fact that there was no bad smell from the sprouts and that when cooked they tasted of something absolutely different seemed to constitute a triumph for Mr. Miles. No one could feel anything but deep sympathy with him for this state of affairs, but then what about his theory that the natural flavour must be preserved? Mr. Miles told his audience that green-leafed plants, for example, sprouts, celery, cabbage; and roots, such as potatoes, carrots, and turnips, cannot take the place of meat, neither can fruit and tomatoes. Thus to his vegetable soup were added barley, previously soaked in milk, a tablespoon of protene food, and the yolk of an egg; the vegetable dice floating in the soup were purely ornamental. In the blanc-mange a preparation of seaweed, the bacteriologist's old friend agar-agar, was used to replace gelatine. Mr. Miles has adopted the well-known vegetarian expedient of using cocoanut oil for frying, claiming for it the advantages that it has no objectionable smell and does not pick up the flavour of things cooked in it, that it could, therefore, be used over and over again, and that it only cost 8d. a pound. The sandwiches really seemed most practical; a paste consisting of grated cheese, tomato ketsup, protene, and some lemon juice was spread between slices of bread and butter. The mixture looked, and those who experimented on it said tasted also, like shrimp paste. The cost of the entire menu worked out at 7d. a head, but

[1] The charts can be obtained from the York Health and Housing Reform Association, 3A, Bootham, York, at 4s. per 100, or 39s. per 1,000, carriage paid.

Mr. Miles maintained that it was really far too elaborate if all the courses were eaten. For his part, he would choose the sprouts and the cheese aigrettes for his meal. The sprouts were a purifying element. Could Mr. Miles by any chance have meant putrefying? If so, his conclusion would be in harmony not only with the evidences of the ordinary man's olfactory organ, but also with the opinions of some of the best authorities on dietetics and intestinal disorders.

THE "CONQUEST" OF CANCER.

WE note with satisfaction that the latest cancer cure "boom" appears to be dying down even more rapidly than such things generally do. Like a modern Diogenes the enterprising journalist seems to have gone all over medical London with a lantern without finding one man willing to listen in any but a decidedly critical spirit to the wondrous tale of trypsin by Dr. Saleeby. The sensational manner in which the method was thrust upon the notice of the public could not but produce an unfavourable impression on those who know the difficulties of the problem to be solved and the severe and prolonged tests by which any solution must be tried before it is even provisionally accepted. Of course, like everything else that seems to offer the faintest chance of success in dealing with a disease which has so long baffled science, trypsin has been and will be tried; but it will be tried in the proper way, without hustling in the laboratory and hospital ward, and without beating of the big drum outside. We repeat, it is a matter of trustworthy evidence, and of such evidence at the present time there is little or none. We say this without the slightest imputation on the good faith of any of the workers, whose results, partial and immature and uncertain as they are, have been proclaimed from the house tops as decisive victories. The full report of Dr. Morton's cases, to which allusion was made in the BRITISH MEDICAL JOURNAL of December 15th, is now in our hands. It appears in the *New York Medical Record* of December 8th. At the earliest opportunity a full account of it will be given in the EPITOME. In the meantime, it may be stated that Dr. Morton has, since April of the present year, been making a trial of trypsin in the treatment of cancer in "about thirty cases," most of which were far advanced and practically hopeless as well as inoperable. The results claimed are "cure" in two cases, "remarkable "atrophy of an entire cancerous breast" in one, and arrest of the progress of the disease in "many." As cancer occasionally comes to a standstill spontaneously, at least for a longer or shorter period, we need concern ourselves here only with the "cured" cases. One of these is a woman, aged 48, who came under treatment on May 14th, 1906, with epithelioma of the nose of one year's duration. The notes are as follows: "Tissue involved about 1 in. "in diameter. Disease consisted of a deep and angry-"looking ulcer with raised edges, and had been existing "for several years, and incurable by numerous other "measures. Received twenty-five trypsin injections, "10 minims, increasing rapidly to 20. Ceased treat-"ment August 13th, 1906; completely cured to date." There seems to be some confusion about the length of time the disease had existed, but the point which interests us now is the length of time the "cure" has lasted. This is less than four months. How completely conquered would cancer have been long ago if every case in which no recurrence took place within three or four months were indeed cured! In the other case the patient was a man, aged 49, who came under Dr. Morton on September 19th, 1906. Two operations had been performed by a surgeon. The notes are as follows: "Epithelioma of "left cheek of five years' duration. Ulceration size of "the end of finger, but very deep, and surrounded by "extensive induration. During last five years has had "other operations with recurrence in each case. "Received twenty injections up to November 12th, "trypsin and amylopsin alternating. After the third "injection improvement set in, and the patient's disease "has progressively healed up to date. No ulcer now "exists, and no induration remains. The resulting "scar is excellent, but shows a deep depression. Cured "to date." In this case "cured to date" means less than one month. In the case of cancer of the breast the patient suffered much from the trypsin treatment, and, although she could not be got to consent to operation before, she submitted to the knife after six months of trypsin treatment. At the operation "cancer "nodules were found running along the lymphatic "system beneath both the pectoralis major and minor "and even involving the edge of the latissimus dorsi. "A cancerous mass surrounded the subclavian vein "which was with difficulty dissected out. In fact "cancer was disseminated over a wide and deep area on "the affected side of the thorax." But it was found that the breast had shrunk into a hard compact mass and microscopic examination showed that the epithelial cells were degenerated, especially in the centres of the larger alveolar nests where large areas had undergone coagulation necrosis. Dr. Brooks, who made the examination, thinks that had the process continued the result would have been such marked condensation of the fibrous connective tissue as to have made it very difficult to determine the carcinomatous nature of the growth. The finality of the process would, according to Dr. Morton, have been "a carcinomatous breast "(involving inclusively its skin envelope) which had "entirely disappeared—which had become, in short, "absolutely cured." Accepting this hypothesis to be well founded, the fact remains that, notwithstanding the great fear of it felt by the patient, recourse was had to the knife after six months of trypsin treatment. The case is no doubt, as Dr. Morton says, a remarkable one, but we confess we should like to know whether the patient thinks it was worth while to go through so much only to fall at last under the dreaded knife. To us the report of her experience of trypsin recalls the accounts of the sufferings of patients who have had cancers destroyed by arsenical paste. Dr. Morton states that in all the cases "signs of amelioration in the "progress of the disease were observed," and that the use of trypsin has "caused haemorrhages to cease and "has alleviated pain." He thinks the remedy "in all "fairness deserves further trial," but he cautiously concludes by reserving his opinion of its actual therapeutic value until he can speak from a larger experience. This is the attitude of the man of science. But we are far here from any proclamation, or even from any prophetic vision, of the "conquest of cancer."

"BLOODLESS SURGERY."

MR. H. A. BARKER, in reply to our request that he should describe his methods, repeats that they are "purely manipulative, and that they can be taught by "demonstration and acquired by practice." It might, he says, be tedious to offer many examples at this moment, and "a description must always be of less "value than a demonstration." He proceeds: "But I "take, by way of example, the common deformity "known as talipes valgus—the displacement of the "astragalus as a result of the weakening of the plantar "fascia. Whilst my patient is under the influence of "an anaesthetic I first break down all adhesions; this "usually causes slight inflammation, and a subsequent "partial re-formation of adhesions. After an interval "of two or three days I repeat the same treatment with "considerably modified result in the way of inflamma-

"tion and re-formation of adhesions. At the third, "operation I endeavour to replace the astragalus in its "normal position by the exercise of careful, but very "considerable force. The result of this first adjustment "is invariably impermanent, but at each successive "attempt a lasting cure is more and more nearly "approached, and I find in practice that from 5 to "20 manipulations suffice to bring the foot to its "normal state. During the treatment special exer-"cises are given to build up the muscles of the "parts." Mr. Barker maintains that "by this method "in practically every case—more especially if treated "at the age when this trouble most often appears—"the time of puberty—a complete and permanent cure "can be effected." Whilst thanking him for this specimen, we feel as Charles Lamb did when he was shown a small book entitled *Beauties of Shakespeare*, and asked: "Where are the other fifty volumes?" Doubtless Mr. Barker has much more than this to say; why, then, does he not say it, if he is really anxious that his methods should be known and have a place in the curriculum of every medical school? This would surely be better than complaining, like a *femme incomprise*, that fair play is denied him. If the doctors refuse to be instructed by him, so much the worse for them, and so much the better for him. What does Mr. Barker want? He has, we are led to suppose, as many patients as he can deal with, and he cures them all without a failure. He has in fact achieved a position which not the most self-confident of surgeons has ever even dreamed of claiming. His light is not hidden under a bushel, for certain newspapers are always ready to sing his praise. If we decline to join in the chorus, that cannot matter to him. If he wishes to be recognized by the medical profession, why does he not go through the simple process of getting a legal qualification? There would be much joy over his "conversion." But he doubtless is well aware that by regularizing his position he would in all probability damage his practice. Heterodoxy has a fascination for many people, while orthodoxy, if decorous, is dull. There is a story of a quack who was doing a roaring trade in Paris. By-and-bye the police called upon him with the usual official request for his diploma. To their surprise the man took them with much mystery into a back room, where he showed them the document, begging them at the same time not to betray him to the public, as his reputation would be lost if it were known that he was a genuine Doctor of Medicine. We have received several letters from patients of Mr. Barker bearing witness to the success of his treatment after orthodox practitioners had failed, and some of the writers are indignant that we have not published them. To these we reply that we do not publish reports by patients of their own cases. We are assured that the testimonials which have come to us from various quarters are unsolicited, and we are pleased to have this assurance, for it proves that the BRITISH MEDICAL JOURNAL has a wider circulation and a more far-reaching influence than we, in our modesty, had imagined. It would appear that among our constant readers are archdeacons, priests, professors of engineering, heroes of the football field, and members of fashionable ladies' clubs. We are sorry to be unable to publish their communications, for some of them are amusing. "Bloodless surgery" seems to have a wondrous power of heating the blood of those to whom it has been applied. One lady takes our reference to Bion and the votive offerings so ill that she asks, "Where are the "records of those who have been 'drownded' by "medical men?" We venture to disown the soft impeachment of the quotation marks; the spelling, twice repeated, is our fair correspondent's own. A member of the Corinthian Football Club writes that he is absolutely disgusted with our lack of courtesy, and says our articles "become more complex and unconvincing, "consisting for the most part of vulgar abuse which, "let me tell you, is *not* argument." "Complex and "unconvincing" would be a good variant of Herbert's "massive and concrete" in describing Mr. Wopsle's rendering of Hamlet. Our correspondent ends off with an amiable insinuation that we are really aware that Mr. Barker's method would show up ours to be worthless and obsolete. This, we suppose, is what Matthew Arnold would have called the Corinthian style. But will the writer tell us why on earth any one should adhere to methods which he knows to be worthless and obsolete? Another writer says that before going to Mr. Barker he had consulted several medical men, all of whom told him he had "compound lateral curvature of the spine." When doctors do agree their unanimity is wonderful. This patient says he was never free from pain in the spine and used to vomit daily, and his body was completely drawn to one side; the doctors looked upon the case as hopeless, but he was cured by Mr. Barker. The cure of so formidable a disease is indeed a triumph of "bloodless surgery." On the whole we do not think the publication of the letters which we have received would benefit Mr. Barker in the eyes of sensible people.

THE PATHOLOGICAL INSTITUTE OF LEIPZIG UNIVERSITY.

THE new buildings for the pathological department of this University have recently been completed, and were formally opened last spring. The plans and detailed description of the new institute, which have been published by the Director, Professor F. Marchand,[1] show that the new accommodation is excellent, and ought to meet all the requirements for modern scientific investigation. Professor Marchand gives an interesting account of the work of the Institute, its history and its collection of museum specimens. The museum is particularly valuable, and now contains 5,370 preparations; its commencement dates back to the eighteenth century, when the nucleus of the collection was provided by Prosector Werner, who died in 1785. From the *post-mortem* statistics for the years 1900-5 we learn that over 1,000 autopsies are conducted yearly, the numbers for 1900 and 1905 respectively being 1,018 and 1,352. Tuberculosis, as usual, takes the first place amongst the causes of death. Out of a total of 7,140 cases investigated during the six years, this disease was responsible for 1,652. The cases of malignant disease during the same period amounted to 799. The Director calls special attention to the frequency of carcinoma of the oesophagus amongst males, and its relative rarity amongst females. Out of a total of seventy-four cases, all except four were in men. He thinks the habit of tobacco smoking is largely accountable for this difference.

THE news of the death of Dr. Alfred Sheen, of Cardiff, will be received with very sincere regret by the many members of the British Medical Association who knew him as for twenty-one years Honorary Secretary of the South Wales and Monmouthshire Branch, as representative of the Branch on the Central Council for eighteen years, and as Local Secretary of the Annual Meeting in Cardiff in 1885. Dr. Sheen, who died on December 16th, was in his 68th year. We hope to publish a biographical notice in our next issue.

A WARD fitted with all necessary instruments and apparatus has been set apart in the buildings of the German Reichstag for the reception of members and others who may suddenly be taken ill, or who may be the victims of accidents.

[1] *Arbeiten aus dem pathologischen Institut zu Leipzig.* Herausgegeben von F. Marchand. Heft 3. Leipzig: S. Hirzel. 1905.

Medical Notes in Parliament.

The Workmen's Compensation Bill was read a third time on Thursday in last week amid a general chorus of approval. The points criticized mildly were the omission of out-workers and the necessity for extending the schedule of industrial diseases. It was suggested on the part of the Government that a second and separate schedule of industrial diseases might be made with regard to which the workman could only get compensation when it could be shown that the disease, although not specific to the employment, was in his case due to it. Hope was held out that as soon as the departmental inquiry was concluded many other diseases would be added to the schedule. The second reading was taken in the Lords on the following day.

Infant Mortality.—In answer to a question put last week by Mr. Bramsdon, Mr. John Burns stated that the Government fully realized the importance of the subject of infant mortality, and he was collecting information with reference to the influences affecting it. A suggestion had been made as to the appointment of a Royal Commission to inquire into the matter, but he did not think it would be desirable to appoint such a Commission at the present time. In reply to a further question, the right hon. gentleman said that the possibility of dealing with some of the questions involved by administrative means was under consideration, but there was no intention at present to appoint either a Commission or a Departmental Committee.

Relief for Conscientious Objectors.—In answer to a question put by Mr. Hastings Duncan, Mr. John Burns stated last week that he was giving consideration to the question whether some alteration should be made in the law as to the procedure to be followed by conscientious objectors to enable them to obtain exemption from penalties under the Vaccination Acts.

The Vaccination Act, which is included in the Expiring Laws Continuance Bill, gave Mr. Lupton his opportunity in the early hours of Friday last week. Between 2 and 3 o'clock in the morning he proposed that the Act be left out of the Bill, and so allowed to drop out of existence. He declared that the "pure glycerinated calf lymph" now used for vaccination was neither pure nor was it lymph, and that its introduction into the human system was frequently followed by the most terrible consequences. For the best part of an hour the honourable member told the House all about blood poisoning and all the other evil consequences of vaccination, and, amid many humorous interruptions, gave a popular account of bacteriological horrors connected with his subject. In the end, the proposal was negatived without a division.

Vaccination in India.—In reply to questions by Mr. Lupton, Mr. John Ellis said that fresh calf lymph was used in a large but decreasing number of the vaccinations performed in Bombay city, and the percentage of success in primary vaccinations with this lymph was very high indeed; no deaths from this cause had been reported. Glycerinated lymph had on some occasions been procured from England, and had been tried on calves with excellent results. In Bombay, as in other provinces of India, rapid progress had been made towards the substitution of preserved vaccine, prepared by means of chloroform, for the fresh lymph. The preserved vaccine, which was now used largely for vaccination in all parts of India, was prepared in a strictly scientific manner at special dépôts, and he was advised that the possibility of its contamination by plague in course of its preparation was excluded. In provinces where arm-to-arm vaccination was still practised great care was taken in the selection of the persons from whom the lymph was taken.

Vaccination and Infectious Diseases.—Sir William Collins asked the Secretary of State for War whether either or both of the recruits Geall and Morris of the Coldstream Guards, who died last month at Caterham, had been recently vaccinated; whether it was in accord with Government instructions to public vaccinators that the operation should not be performed during the prevalence of infectious disease in the neighbourhood. Mr. Secretary Haldane stated in reply that Private Geall was vaccinated with twenty-four other men on the 6th ult., and Private Morris with twenty-one other men on the 13th ult. All the other men had done quite well, and the arms of Geall and Morris were examined immediately after they had been put to bed and found in each case to be normal. The regulations alluded to were no doubt those of the Local Government Board, which applied only to the vaccination of infants.

Syphilis and Vaccination.—Mr. Lupton asked the President of the Local Government Board if he was aware that the official examiner of vaccine lymph stated in evidence to the Royal Commission on Vaccination, in answer to questions 4154 and 4164, that it was then impossible to ascertain by microscopic examination whether lymph contained the virus of syphilis or not; and if, since then, any practical means had been discovered by which the presence of syphilitic germs in vaccine matter could be ascertained; and whether he had any official information showing that the symptoms produced by inoculation with calf lymph were sometimes indistinguishable from those produced by syphilitic inoculation. Mr. John Burns replied that he was aware of the evidence referred to. He was informed that since 1889, when the evidence was given, it had been claimed that the microbe of syphilis had been discovered. Whether or not it had been detected in vaccine lymph from the human subject he was unable to say; but, as his honourable friend was aware, humanized lymph was not now used for public vaccination in this country. Calves, as he understood, were insusceptible to inoculation with syphilis material.

Chicken-pox and Small-pox.—Mr. Lupton asked the President of the Local Government Board if he had cognizance of the suggestion of the Registrar-General, in his annual report, that medical men were in the habit of ascribing some deaths to chicken-pox which were really cases of small-pox; and if he had taken any steps to prevent the continuance of this practice. Mr. John Burns said he presumed that his honourable friend referred to the opinion expressed by the Superintendent of Statistics in the letter from him to the Registrar-General, which was printed in the latter's last report, to the effect that it was at least probable that most of the deaths in 1904 said to have been from chicken-pox were unrecognized cases of small-pox. It fell within the province of the Registrar-General to direct public attention, in his annual reports, to such a point as that referred to as affecting the accuracy of vital statistics, but there was no authority to take further action in the matter.

The Strength of the R.A.M.C.—In answer to a question of Lord Balcarres, Mr. Haldane stated that the strength of the Royal Army Medical Corps on May 1st, 1905, was 1,137, and on November 1st, 1906, 1,574. There were no sick bearers connected with the corps, and outside the men of the corps there were no reservists.

Invalid Coolies in Natal.—Mr. Rees asked the Secretary of State for India whether statistics were available regarding the proportion of invalid coolies sent back to India from Natal before their indentures had expired and the proportion admitted into hospital for lengthy periods during their indentures in Natal. Mr. Secretary Morley answered that statistics under the first heading and a statement of the total number of Indians admitted to hospital were given in the annual report of the Protector of Indian Immigrants, published by the Government of Natal, a copy of which he should be happy to communicate to the honourable member. In 1905 the number of Indians who arrived was 7,917, the total number under indenture was 32,153, the number who were sent back as unfit for labour was 503, and the total number admitted to hospital (irrespective of the length of period of such admission, which was not stated) was 9,408.

The Sixpenny Fee of Factory Surgeons.—Last Monday Mr. Jackson, after pointing out the probable increase in the number of examinations made by certifying surgeons for the sixpenny fee, asked the Home Secretary if he would inquire from certifying surgeons as to the extent to which children and young persons were sent for examination by large employers of labour, who thus took advantage of a concession originally intended to be given only to small employers. Mr. Gladstone replied that he would make some inquiries of the nature suggested.

Scotland.

POST-GRADUATE CLASSES, GLASGOW ROYAL INFIRMARY.

DURING this year there have been three terms, one in January and February, a second in May and June, and a third in September and October. The number of those, not including members of the staff, who attended the classes were as follows: In the winter term 43, in the summer term 26, and the autumn term 68, total 137. The aggregate number of meetings during the year was 255, and the subjects included general clinical medicine and clinical surgery and practical instruction in such special subjects as diseases of the eye, ear, skin, bladder and kidney, throat and nose, as well as in gynaecology, neuropathology, haematology, bacteriology, electro-therapeutics, and surgical technique.

The instruction was of a thoroughly practical character, rendered easy by the large, clinical field at the Royal Infirmary, which affords abundant opportunities of studying disease in all its phases. Of this full advantage was taken by the teaching staff and by the practitioners who attended the various courses. In the endeavour to establish post-graduate medical classes the staff of the hospital, as well as the managers, is to be congratulated upon the marked success which has attended the work of their first year. As experience of the requirements of general practitioners is gained, modifications in the courses will suggest themselves, and changes will doubtless be made to keep the teaching abreast of the times. A notable feature, which has undoubtedly contributed largely to the success of the courses, has been the hearty co-operation which exists between the different members of the staff, as well as between them and the Board of Managers. The committee of the staff, who are immediately responsible for the arrangements, will during next year endeavour as far as possible to meet the demands of various sections of medical practitioners. The experience of the present year has shown that those who attended the winter and spring courses were drawn from the city and surrounding districts, whereas those who selected the autumn course were mostly from abroad or from considerable distances. For the former it is not necessary to concentrate the courses within a very limited time; for the latter it is desirable to limit the time, to group the subjects into a period of two, three, or four weeks.

The next winter term begins on Monday, January 14th, and the summer term on Monday, April 22nd, while arrangements for an autumn term will be made later on. Further particulars will be found in the advertisment column, but it may be said here that the course will include: (1) Clinical medicine, (2) clinical surgery, (3) surgical diseases of the urinary organs, (4) diseases of the ear, (5) diseases of the eye, (6) diseases of the skin, (7) diseases of the throat and nose, (8) electro-therapeutics, (9) gynaecology, (10) bacteriology.

It will facilitate arrangements if those desirous of joining any of the classes will apply to Dr. Maxton Thom, Superintendent of the Royal Infirmary, who will supply copies of the syllabus, and give any further information which may be desired.

FORMATION OF A HEALTH ASSOCIATION IN ANDERSTON.

The proposal to found a new dispensary in the Anderston district, to which reference has been made more than once, has now taken a somewhat different form. At the invitation of the Lord Provost and Mrs. Bilsland a meeting has been held in the City Chambers, and an association formed to promote the health and social well-being of the necessitous poor of Anderston, Broomielaw, and Kelvinhaugh districts by providing a dispensary, organizing a system of home visitation, and such other means as may from time to time be approved. In introducing the scheme the Lord Provost claimed that the whole desire was to be helpful to every existing agency in the districts. Church and mission workers were anxious to avail themselves of the association, and the dispensary part was to be strictly limited to the necessitous poor; it was proposed to ask mission workers to visit at their homes all those who received aid at the dispensary. Such visitation would prevent the abuse of the dispensary by people able to pay for advice. Further, there was good ground for believing that where cases are followed to their homes by well-instructed sympathetic voluntary visitors it would be possible to remove such causes of disease as arose from the ignorance of simple health laws. Certain anonymous donors had offered him the necessary funds to carry out the scheme so successfully applied in Huddersfield, where the terrible infant mortality had been greatly reduced by the offer of a premium of £1 to each mother whose infant survived one year. The proposed dispensary was more of the nature of a public health dispensary for preventing disease than a general dispensary for treating disease. Without questioning the excellence of the motives which actuate the Lord Provost and his friends, and while recognizing to the full the good that may be done by judicious health visitors, we venture to express a very decided opinion that the scheme as it stands is impolitic. A dispensary forms no necessary part of a public welfare association; on the contrary, it means, from the philanthropic point of view, an overlapping of organizations and a waste of effort. There is no reason at all why the health visitors to be appointed should not work in co-operation with existing institutions for giving medical relief to the poor, and therefore no reason for the establishment of a new dispensary.

DINNER TO DR. J. LINDSAY STEVEN.

On the occasion of his appointment to the wards in the Western Infirmary, Glasgow, rendered vacant by the death of Dr. James Finlayson, Dr. John Lindsay Steven was entertained to dinner by his old resident assistants in the Glasgow Royal Infirmary; eleven out of the twenty-three were present: Drs. Riddell (London), Martin (Cardiff), J. D. Graham (Captain, I.M.S.), Battersby, Glen, Crawford, McLaren, Edwards, Burns, Scott and Young, the last mentioned presiding, and proposing the toast of "Our Guest." Telegrams and letters were read from most of those not able to be present, some being abroad and others prevented for special reasons. Dr. Steven eloquently replied to the toast. A special decorative menu card, with a chronological list of the residents, and photographs of the guest and of the front of the old Royal Infirmary, had been prepared. The evening was most enjoyable, long to be remembered by those privileged to be present.

A SANATORIUM FOR ABERDEEN.

On December 5th Dr. Arthur H. Lister delivered a lecture at Aberdeen, in which he spoke of the means which existed for the treatment of a limited number of phthisis cases at the infirmary and Mrs. Smith's valuable home at Newhills, which at the present time provided accommodation for some seventy consumptive patients per annum; at Morningfield Hospital, where there was provision for some eight cases of phthisis in an advanced stage; and at the new poorhouse, where provision would be made for a certain number of both male and female pauper consumptives. Supposing they could obtain really early cases, and supposing they had a sanatorium at Aberdeen, would those early cases go to the sanatorium? They and he knew it was worth a man's while, because they looked to the future—a reasonable expectation of a working life five years hence if the man went; a reasonable expectation of a tombstone less than five years hence if he did not go. Having touched upon the collection of early cases, the isolation of advanced cases, the formation of a sanatorium, the providing of funds for the support of the dependants of the patients there, and the possible provision of work of a suitable kind for patients when they left the sanatorium, he said there must be an organization to carry all this out. The Aberdeen Medical Society, which included by far the greater number of doctors there, had unanimously agreed that something should be done. In reply to a question as to the probable cost of a sanatorium for the city, Dr. Lister said he thought that the proper treatment of consumptives could not be undertaken at less than £40 a head. For the erection and equipment of a sanatorium a total capital expenditure of £7 250 would be required, and the annual cost for twenty-five patients, he believed, would be £2,150. Mr. Alexander Duncan urged that the Friendly Societies should do something in the matter. Mr. Murdo Robertson said a representative committee of the Town Council, the County Council, and the Parish Council had been appointed to deal with that matter, but the committee had not been called together for something like a year. At the time of the appointment of the Committee a considerable sum of money had been promised — Lady

Lumsden had offered £1,000 for the purpose—but he was afraid, from the want of interest or neglect in the matter, that that might be lost. Mr. M'Hardy moved that the matter should be brought before the different courts, lodges, and tents, with the recommendation that they consider the scheme and report to the council on an early date. Mr. John Milne, in seconding, said he thought the Friendly Societies in this matter would have the support of the Operative Masons' Trades Union, in which many deaths from consumption had to be dealt with. The motion was agreed to unanimously.

Ireland.

Presentation to Sir John W. Byers.

At a private dinner given by Professor Sinclair to his colleagues on the staff of the Royal Victoria Hospital, Belfast, Sir John W. Byers, who was the guest of the evening, was presented by Dr. J. Walton Browne, the Chairman of the staff, on behalf of himself and the members of the staff of the hospital, with a handsome solid silver rose bowl, on a plinth of Irish design. The bowl bore on one side the inscription:—"Presented to Sir John William Byers, M.D., by his colleagues of the visiting staff of the Royal Victoria Haspital, Belfast, on the occasion of his receiving the honour of Knighthood, 14th December, 1906." On the reverse side is Sir John's crest with motto "Marte Suo Tutus."

Public Health Department, Belfast.

It was with great regret that both the public and the profession heard of the resignation of Mr. Conway Scott, C.E., executive sanitary officer, at the last meeting of the Belfast Public Health Committee. Mr. Scott has all along enjoyed the fullest confidence of every one. In addition to his recognized ability and skill, he was always outspoken and independent. The profession can testify to his uniform courtesy, and his readiness to oblige on all occasions when consistent with his duty. Mr. Scott presents a medical certificate of ill-health, and the Committee recommends a pension of £300 per annum. Mr. Scott carries with him the high respect and best wishes of every member of the profession in Belfast.

The Limitation of Lunacy by Legislation.

Dr. Nolan, Medical Superintendent of the Downpatrick District Asylum, has reprinted from the *Journal of Mental Science* a paper entitled The Possibility of the Limitation of Lunacy by Legislation. He apologizes for treating such an important and many-sided subject discursively; we accept his apology but can find in his paper no practical proposals for legislation to check the spread of insanity beyond the following:

1. *The Physical and Mental Education of Children.*—If the Clause as to medical inspection in the Education Bill becomes law in its present or any similar form, the physical education of children in England and Wales at least will receive greater attention, although it must be remembered that a great deal has been done in this direction in recent years.

2. *The Instruction of Adolescents in Psychological Laws.*—This suggestion has often been made, but we doubt whether public opinion is ripe for making such teaching compulsory; many parents would greatly resent it.

3. *The State Registration of Prostitution.*—This, however desirable on public health grounds, is, we believe, out of the question in the United Kingdom; the public rightly or wrongly will have none of it.

4. *The Enactment of Stringent Temperance Laws.*—Dr. Nolan does not define what he means and the discussion of the subject would take us too far.

5. *The Registration of the Mentally Unfit.*—This might be very useful if practicable, but Dr. Nolan himself admits that the difficulties are almost insuperable.

6. *The Prohibition of Early and Consanguineous Marriages and the Marriages of Mentally Unsound Persons.*—Such marriages are prohibited by the Catholic Church, but we know of no statistics to prove that the incidence of insanity in Catholic communities is diminished thereby. The county Waterford, practically a Catholic community, has the highest insane rate in the three kingdoms. Again, who is to decide the degree of mental unsoundness making marriage prohibitive? And, as for prohibiting marriage amongst very young people, we do not think Dr. Nolan can have read the statistics published some years ago in the *Edinburgh Medical Journal* by his neighbour Dr. MacDermott, who showed clearly that the incidence of insanity was much greater in rural communities where late marriage is the rule, than in city populations where early and improvident marriages and insanitary conditions prevail.

7. *Endowment of Research.*—We are very much disposed to agree with Dr. Nolan, although it may be contended that the State would attain the desired object better by subsidizing university laboratories. This policy would probably lead to the conversion of existing laboratories into university institutes.

Birmingham.

The Musical Festival and the General Hospital.

The amount received by the General Hospital as the net profit from the recent triennial Birmingham Musical Festival was £4,415. This is £105 less than in 1903. The total number of persons attending the Musical Festival was 11,053, and the amount of receipts £13,600. Since the foundation of the Festival about £152,000 have been presented to the hospital.

Open Spaces in Birmingham.

A society has been founded with the object of providing additional open spaces in Birmingham, and at a meeting recently held in the Council House considerable progress was reported. The society has already secured or helped to secure four valuable gifts of land. Whether these sites can be dealt with at an early date depends upon the amount of money subscribed. The society is working in association with the Baths and Parks Committee. One open space at least is required in each ward, and unless the land is given each will cost about £1,000, which means that a sum of £18,000 is required at once.

Royal Midland Counties Home for Incurables.

In recognition of the honour recently conferred by the King upon the Home for Incurables at Leamington, the Committee of the institution have decided to create two new free beds, and an additional pension of £20 per annum. The Committee have been greatly encouraged by the liberal support received during the year.

The British Red Cross Society.

A local Branch of the British Red Cross Society is being formed in Warwickshire by the Marchioness of Hertford. The County Honorary Secretary and Treasurer is Major Armstrong, of Morville, Warwick, and the work of the Society is being taken up with great enthusiasm.

General Medical Council.

It was with great satisfaction that the members of the medical profession in Birmingham and the Midland Counties heard that Dr. H. Langley Browne had been elected a Direct Representative for England and Wales on the General Medical Council, and they are very proud that he should have headed the poll. Great interest was taken in the election, as it was the desire of the great majority of the medical men in the Midlands to elect Representatives on the principle of territorial distribution.

New South Wales.

Home for Incurable Consumptives.

After long delay, the Government has at last arranged for the erection of a home for consumptives at Waterfall, a site on the South Coast railway line some twenty-five miles from Sydney. The Chief Secretary is pushing on with the preliminary work, and a gang of men is now engaged in clearing the land preparatory to the erection of the building. Provision is to be made for about 400 patients, and both curable and incurable cases will be admitted.

Plague Rats.

In spite of the fact that no case of plague in man has been reported for some months, plague-stricken rats are still being captured in various parts of the city. Recently several infected rats have been taken in premises in the neighbourhood of the Circular Quay. But the number of infected rats has fallen off very considerably, and this fact is regarded by the health officials as probably indicating that the epidemic is rapidly dying out; and this is the more satisfactory, inasmuch as a few weeks ago the number of infected rats appeared to be assuming alarming proportions. The hope is now expressed that any sign of

plague among the rats will before very long be completely obliterated.

VITAL STATISTICS OF SYDNEY.

The Government statistician's report on the vital statistics of Sydney for the quarter ending September 30th showed a birth-rate equivalent to 6.95 per 1,000 of population, and a death rate of 2.89 per 1,000. The equivalent annual rates are 27.80 and 11.56 respectively. The birth-rate and death-rate are both 4 per cent. below the corresponding quinquennial rates for the September quarter. As regards the causes of death, there were increases in deaths from cancer, old age, premature birth, endocarditis, enteritis, and decreases in deaths from phthisis, Bright's disease, pneumonia, and accidents; while diarrhoeal diseases were equal to the average.

Canada.

CANADIAN GENERAL SERVICE MEDAL.

THE Canadian Government has reconsidered the condition that no application for the Canadian General Service medal would be entertained after January 1st, 1904, and has decided that applications will be entertained if made by July 1st, 1907. The medal is issued to all officers and men of the regular and Colonial forces who were employed in repelling the Fenian raids on the Canadian frontier in 1866 and 1870, or who were engaged in the Red River Expedition in 1870. Clasps inscribed "Fenian Raid, 1866," "Fenian Raid, 1870," and "Red River," 1870," respectively, will also be issued to those entitled to the medal.

BY-LAW AGAINST SPITTING.

On October 13th, the *Quebec Official Gazette* published the text of the new by-law against spitting in public places. The by-law, as published, reads as follows:

Whosoever shall spit on the sidewalks of streets, roads, and public places, or on the floor of any public building or vehicle, or on the deck of any public boat, shall be liable to a fine not exceeding five dollars for every subsequent offence.

This by-law came into force on Sunday, October 28th. The *Montreal Medical Journal* for December says it has not observed that any improvement has followed. Indeed, says our contemporary, a correspondent of a newspaper relates that he spent some time in watching a policeman and a member of the Legislature diligently infringing the provision of the law.

CORRESPONDENCE.

EPSOM COLLEGE.

SIR,—As Treasurer of Epsom College, permit me to draw the attention of your readers to the urgent need of funds to carry on the work of the Royal Medical Foundation attached to the College. Every year a sum of over £6,000 is required to provide pensions of £30 a year each for fifty aged medical men, or the widows of medical men, and to educate, board, and clothe fifty foundation scholars, the necessitous sons of members of our profession.

This year the need of funds is more pressing than usual, because the Council has recently been compelled to spend £8,000 on drainage and sanitary works at the College; and as a result, in order to meet this heavy outlay, almost all the investments belonging to the General Purposes Fund have been sold.

There are so many deserving candidates for pensionerships and foundation scholarships that great distress would be caused if the numbers we assist were to be reduced; yet the Council cannot possibly continue to fill all vacancies as hitherto unless the income of the Foundation be maintained. Each year many supporters are lost through death, so that it is essential that fresh annual subscribers should be secured to take their places, if the beneficent work of the Foundation is to be continued uninterruptedly.—I am, etc.,

HENRY MORRIS,
Treasurer.

37, Soho Square, London, W.

THE TREATMENT OF FRACTURES.

SIR,—In view of the importance of the subject I hope you will allow further discussion in your columns, and permit me to comment upon some of Dr. Lucas-Championnière's remarks upon my letter. I find it a little difficult to follow certain of his criticisms, inasmuch as some of the more important are applied to statements which do not appear in my former communication. For instance, I did not say, nor do I think, that "all massage is painful, and disturbs the necessary rest." My objection is to any movement *that inflicts fresh injury*, for, as I said, the resulting exudation "impedes muscular movement, and interferes with vascular and nervous supply." I meant to make it clear that I used the word rest not as a synonym for absolute inertia or fixation but in its physiological sense of absence of strain or disturbance. Absolute stillness would mean cessation of nutrition and repair.

I have read and read again Dr. Lucas-Championnière's account of his system, which he very kindly sent to me, and I listened with the greatest interest to his remarks when he showed us some of his patients at the Hôtel Dieu, though I unhappily did not see his actual manipulations of a recent fracture.

The more important points, it seems to me, are these:

1. Any method of manipulation which repeatedly injures the young tissue of repair makes the ultimate scar more tough and resisting, and, *ipso facto*, increases the risk of impaired mobility. I am, of course, not now speaking of the union of the actual fracture of the bone.

2. The most delicate and the readiest test of injury is the infliction of pain.

3. The patient is a better judge of the moment at which pain begins than is any manipulator, however skilful.

4. Active movement by the patient, of course, duly regulated and directed, is less likely to inflict fresh injury, and more likely to procure a speedy restoration of natural function than is passive movement by another person; and, though I am quite ready to admit that in Dr. Lucas-Championnière's hands passive movement may have its dangers reduced to a minimum, I do not see how it is possible for another person to recognize the limit of painlessness as well as can the patient. With most manipulators some distinct degree of force is undoubtedly employed.

But further than this I specially stated "of the value of massage from the first, used with Dr. Lucas-Championnière's rules, I have no doubt. Of the value of early *active* movement I have no doubt. Of the danger and harm resulting and likely to result from *passive* movement as it is employed I am sure." I fear it is in the few words, "as it is employed," that I have been misunderstood. I referred to the practice of forcible flexion, extension, and other movements used with or without an anaesthetic, repeated, perhaps, several times, or even daily, in such cases as those of fractures about the elbow in young people or, indeed, in the neighbourhood of any joint at any age. The dread of the pain, the resulting swelling and increased stiffness, and the absence of any progress towards recovery that one used to witness under this system vividly impressed itself upon me, and I can specially recall the difference between the aspect of the patients who were brought after an experience of weeks of such manipulations, and who expected a similar process to be repeated, and their appearance when, after leaving off all appliances, they were told merely to practise movement as far as they could in each direction indicated and to stop short as soon as they began to feel any pain. In a fortnight such a patient would be a different person, fear of suffering had gone. With absence of injury swelling had subsided, mobility and power had increased, and steady improvement followed. I well remember in my own case of a comminuted fracture into a joint how massage soothed and relieved the pain, but, though the manipulator was exceedingly skilful, any attempt at passive movement was followed by pain and increased stiffness for a day or two, while when passive movement was stopped and massage and active movement alone employed rapid and painless progress was made till the joint nearly recovered its original usefulness. It is the passive movement "as it is usually employed" against which I specially wrote. As I have said, I, of course, admit at once that Dr. Lucas-Championnière has by his special attention to the subject acquired the power of carrying out manipulations without inflicting injury, but this is not the case with most people, and I must still hold that active movement is far safer than passive, since there is a surer index to the line of danger. There is in

active movement the additional advantage of the voluntary exercise of muscle and nerve.

The effect of movement in promoting the desired union of the fracture is, though an important matter, not the point to which my communication was directed.

I must add that in one paragraph Dr. Lucas-Championnière says: "At this juncture, in the treatment of fractures, all spontaneous movement is dangerous, even though it be not painful. Methodical movements alone have no contraindication, and can be carried out without pain." I am not quite sure that I understand Dr. Lucas-Championnière's use of the words "spontaneous" and "methodical." I do not, of course, advocate leaving the patient to move the part in any way he likes. The *active* movement is regulated and is as "methodical" as the *passive*. As to the injury possibly inflicted by disturbance of fragments during active movement, I should like to discuss that question also, but my letter is already too long, and it must stand over. I will only now add that I believe an immense amount of good has been done by Dr. Lucas-Championnière's method of treatment, and though the great majority of hospital in-patients are necessarily suffering from injuries of the kind that require treatment by what he has described elsewhere as the "mixed method," the duration of the treatment has been shortened, and the disability greatly lessened, by the employment of massage and early movement as a substitute for plaster-of-paris and other "immobilizing" agents. I hold, however, that the plan of forced passive movement, except for the definite purpose of breaking-down adhesions, is altogether bad, and that regulated active movements are safer and better as a systematic mode of treatment under most conditions and in most hands than passive movements, even when these latter are carefully and gently employed.—I am, etc.,

Manchester, Dec. 17th. G. A. Wright.

METROPOLITAN STREET AMBULANCES.

Sir,—By the appointment by the Home Secretary of a Committee another stage has been reached in the history of the street ambulance movement for London. Almost coincidently with this, it will be observed that the Corporation of London has been supplied with an automobile ambulance, which, though it appeared at the recent Lord Mayor's Show, has not at present come on duty in the City. For these signs of coming activity, all who are concerned in promoting a more efficient service for the metropolis will no doubt be grateful.

It is hoped, and may be expected, that the Home Secretary's Committee will, with the opportunities now afforded of obtaining information from experts who have given this subject their attention, and are practically acquainted with its most recent developments in this country and elsewhere, be able to present a report upon which action may be taken with as little delay as possible.

The deficiencies in existing systems are now generally recognized, and a remedy for them must be found with due regard to public economy. Whatever may be said about the remarkable development that has taken place in that kind of assistance to injured persons and to those struck down by illness in the streets, information about which may be said to have been popularized and diffused by the St. John Ambulance Association and its medical officers, there can be no doubt (1) that the condition of a large proportion of medical and surgical casualties now brought to London as well as other hospitals is, as an experienced witness stated, "very lamentable" so far as the method of conveyance is concerned; (2) that deaths have occurred as the direct outcome of the method of removal employed, not to say anything of the untold pain occasioned by the process; and (3) that in this way limbs have frequently been sacrificed which otherwise might have been saved.

These are facts about which there can be no doubt; they have been abundantly proved by coroners, doctors, and others who either casually or professionally have been brought into contact with persons thus unfortunately situated.

I feel sure that the inquiry, which has thus been placed in the hands of a competent and responsible committee, will be watched with the keenest interest by the public, the press, and the medical profession.—I am, etc.,

Reginald Harrison,
President Metropolitan Street Ambulance Association.

London, W., Dec. 19th.

MOSQUITOS AND LEPROSY.

Sir,—In your annotation on Leprosy in Portugal in the British Medical Journal of December 15th, p. 1738, you refer to the suggestion which has often been made, that mosquitos, bugs, and other insects may be the agents by which leprosy is communicated from person to person. Will you allow me briefly to state a few facts which appear to me to be strongly opposed to a hypothesis which might otherwise seem plausible:

1. If such conveyance were possible, the disappearance of the disease in the fifteenth and sixteenth centuries from England and the greater part of Europe where it had formerly prevailed would be inexplicable.

2. Leprosy now prevails extensively in south China, and is unknown, for the most part, in the north.

3. Husband and wife scarcely ever suffer together.

4. The medical officers and nurses of leper asylums never contract the disease.

5. In all leper asylums there are a certain number of inmates who have been admitted under erroneous diagnosis. These often remain there for years, yet they never acquire leprosy.

6. The lepers who are brought from abroad into England and northern Europe never become sources of infection to others.

These considerations may probably be deemed sufficient to discredit the suggestion, but I may add that it does not seem probable that the prick of an insect should convey a disease respecting which carefully-conducted experimental inoculation always fails. Moreover, leprosy never shows any primary sore.—I am, etc.,

London, W., Dec. 14th. Jon. Hutchinson.

PULMONARY PHTHISIS AND NOTIFICATION IN SCOTLAND.

Sir,—In your issue of April 21st appeared a short contribution by me on The Compulsory Notification of Pulmonary Phthisis: a Plea for its immediate Adoption by Local Authorities in Scotland. It was written soon after the issue to local authorities of the Local Government Board's circular of March 10th, in which it was officially declared that pulmonary phthisis was an infectious disease, and one to which the infectious disease sections of the Public Health Act of 1897 are applicable, and that it was obligatory on all local authorities to deal with it as an infectious disease. At the present moment, therefore, local authorities can through their sanitary officers carry out all the obligatory clauses of the Public Health Act, and such of the permissive clauses as they think fit, in every case of phthisis coming to their knowledge.

I endeavoured to make clear what was an undoubted misunderstanding in the minds of many—that the powers of the local authority were not increased or diminished by the addition of pulmonary phthisis to the list of notifiable disease.

As that view has not met with general acceptance, due, no doubt, to the mixing of the provisions of two separate Acts—the Public Health Act of 1897 and the Notification Act of 1889—to clear up the subject and to prevent, if, possible, the whole army of consumptives in Scotland losing for some time all the benefits conferred on them by the Public Health Act, I wrote the Local Government Board, and beg to enclose their reply.—I am, etc.,

Thos. F. S. Caverhill,
Chairman, Edinburgh (North-West) Division British Medical Association.

Edinburgh, Dec. 15th.

To the Secretary,
Local Government Board for Scotland.
November 22nd, 1906.

Pulmonary Phthisis.

Sir,—In consequence of the existence of some uncertainty in the medical profession in regard to the administrative control of pulmonary phthisis, I beg leave to inquire:

1. If the sections of the Public Health Act of 1897 relating to infectious disease are applicable to cases of pulmonary phthisis?

2. If a Local Authority can, through its sanitary officers, put them in force in an individual case without further authorization?

In the event of an affirmative reply, I have further to inquire:

3. If the same procedure can, when thought necessary, be followed in all cases of pulmonary phthisis coming to the knowledge of the Local Authority as is usual or considered necessary in other infectious diseases?

4. If, in virtue of its discretionary powers, a Local Authority, with the Board's sanction, adds pulmonary phthisis to the list of notifiable diseases—does this (commonly called the adoption of the Compulsory Notification Act) give greater powers of dealing with pulmonary phthisis than are already possessed by the Local Authority?

THOS. F. S. CAVERHILL.

To Dr. Caverhill, Edinburgh.
Local Government Board,
Edinburgh, December 3rd, 1906.

Pulmonary Phthisis.

SIR,—I have submitted to the Local Government Board your letter of the 22nd November with several questions addressed to the Board on the administrative control of pulmonary phthisis, and I am directed to reply as follows:—

In answer to your questions (1) and (2), I am directed to refer you to the last sentence of section 1 of the Board's circular of 10th March last. There it is stated that the sections of the Public Health Act applicable to infectious disease, and the obligation resting on the Local Authority to deal with and control infectious disease, extends to pulmonary phthisis.

With reference to your third question, I am to explain that phthisis as an infectious disease falls to be dealt with by the Local Authority in the manner most appropriate to its character and the peculiar nature of its infectivity. It cannot be said that there is a method of procedure common to all infectious diseases. Each disease is dealt with in the manner that is considered best adapted to meet and combat that disease.

The answer to the fourth question is that the extension of the Infectious Disease (Notification) Act to pulmonary phthisis does not confer greater powers on Local Authorities, but it enables them to ascertain where cases of the disease exist.—I am, Sir, your obedient servant,

G. FALCONAR STEWART, Secretary.

*** The Edinburgh Town Council on December 18th adopted compulsory notification by 35 votes to 3.

ACUTE SEPTIC PERITONITIS.

SIR,—I have read with great pleasure Mr. Bond's most able paper on appendicitis in the BRITISH MEDICAL JOURNAL for December 15th, and I can thoroughly endorse every word that he writes.

There is no doubt that the mortality after operations for suppurative peritonitis has steadily diminished since thorough drainage and much less local interference have been adopted.

Since I learned some years ago from Dr. Buist in Edinburgh the great value of atropine in soothing pain I have invariably used it, given subcutaneously, and have found it most satisfactory and not in any way masking the abdominal symptoms.

Internally $\frac{1}{6}$ gr. calomel and 3 gr. salol every two or three hours is generally sufficient to insure satisfactory movement of the bowels, either with or without an enema.—I am, etc.,

Glasgow, W., Dec. 15th. J. CRAWFORD RENTON, M.D.

GASTRIC EROSIONS.

SIR,—In an article published in the BRITISH MEDICAL JOURNAL of December 1st, Dr. C. H. Miller refers to inflammation of the solitary glands of the stomach as a cause of "gastric erosions," and since no mention is made of any literature on the subject it might be inferred by some of your readers that the observations recorded in it were original. May I, therefore, point out that the subject was brought before the notice of the profession in the middle of last century by Handfield Jones, Wilson Fox, and Shäpfer; while in 1892 an elaborate illustrated monograph from the pen of Soltau Fenwick appeared in the *Journal of Pathology*, and is to be found incorporated in his well-known work on ulceration of the stomach. In the latter monograph a clear distinction is drawn between "follicular ulcerations" and "erosions," and the liability of the former to be converted into true perforating ulcers is placed beyond the possibility of dispute.—I am, etc.,

London, S.W., Dec. 1st. HERBERT RHODES.

HOSPITAL REFORM.

SIR,—Those who believe, as I do, that Sir William Gull's words, quoted by Sir Henry Burdett in the recent discussion, "The poor have an idea that disease comes from Providence and that it must be cured by drugs. Now, if there is any idea that ought to be rooted out it is this," contains the essence of the whole matter as regards the out patient departments, can only wonder that in all the proposals recently made for reform, there is no mention of any suggestion for limiting the indiscriminate supply of medicines at out-patient departments. The suggestion is not a new one, having been made as far back as Sir Wm. Gull's time, but it has never been acted upon, as far I know, at any of our large hospitals, the tendency of whose casualty and out-patient practice apparently is to root into the minds of their patients the idea that disease is to be treated by pint bottles of mist.— or draughts of haust.—. If the three endowed hospitals would take the lead in diminishing by one-half their daily output of drugs, they would do a great service in educating the public, and earn the thanks of all hospital reformers.—I am, etc.,

Finchley, Dec. 17th. H. NELSON HARDY.

"INDISCRIMINATE CHARITY" IN HOSPITALS.

SIR,—At the meeting of the Marylebone Division of the Association held on December 3rd, Dr. Kingston Fowler offered by way of a remedy the one novel suggestion of the evening. The idea was to try to get the Hospital Saturday and Sunday Fund authorities to exercise a gentle pressure upon apathetic hospital committees with a view to the introduction of a more stringent system of inquiry and elimination.

The profession possesses a still stronger weapon, of the same indirect nature, against the undoubtedly growing encroachment of the out-patient system on general practice. That weapon, to describe it crudely, is the starting of a press campaign, or more particularly of a propaganda among the wealthier subscribers to hospitals; a proposal subject certainly to serious objections, but one which many a man in general practice would have little hesitation in initiating, with the usual "snowball" effect in the daily press. The fear of losing income would lead to declaration of changed policy in individual hospitals competing for funds, while on the other hand some enlightenment and education would reach the classes for whom hospital treatment is *not* intended.

As Dr. Fowler says, the most we can do is to appeal to "the power of the purse." It would be well if some of our hospital managers realized that we can add influence to the appeal by the power of the press.—I am, etc.,

London, W., Dec. 4th. WALTER SWAFFIELD.

THE LONDON UNIVERSITY QUESTION AND THE ROYAL COLLEGE OF SURGEONS.

SIR,—At the recent meeting of Fellows and Members of the Royal College of Surgeons the President did not permit me to move the following resolution. The Council virtually rejected, with a hostility to the Members, a perfectly fair inquiry:

> That a Committee of the College be formed to seek terms, make arrangements with the Council, and formulate the course necessary for joining the conjoint examinations as a constituent part of the medical degree examinations of the University of London and for transferring the collegiate status to that of the university status; and with power to incur expenses, obtain legal assistance, open inquiries, and issue any reports.

The President declared the resolution out of order, because it was not "consultative," which I submit it was, and because it was in the form of "action," which it was not.

My full arguments in support of this resolution could not be given within the short terms of a letter, but the interest in the London University question is broadening. My view has consistently been that the true justification for the medical faculty of the University of London is to be found in its ability to provide all the actual training and qualification of the domiciled and visiting medical students in London without injury to its imperialistic obligations. Of course, the preliminaries would have to be slightly improved; the Colleges would have to be absorbed and their members would be graduates of the University. The statistics of the service examinations support the high capability of the London diplomates when directly compared with the graduates of the universities; certainly also as practitioners the two classes meet and gain credit fairly equally. The present chaos of the College standards leads to most unfortunate regrets and just dissatisfaction. As an example, many diplomates spend a good part of their working life in trying to obtain partial, irregular, or foreign degrees. They, however, all come too late to be of real service; they are useless as the most important primary training, and at any time they can only look like a patch

work. This would all be changed, and an understandable straightforward, business-like course obtained in London if the Royal Colleges of Surgeons and Physicians would sink their pride and join the University of London.—I am, etc.,

Bognor. H. ELLIOT-BLAKE.

TRYPSIN IN CANCER.

SIR,—I have tried trypsin very thoroughly in three cases of inoperable cancer of the uterus, and have been unable to find that it has any good effect whatever. The growth was not checked nor the pain relieved; on the contrary, there were added to the other symptoms fever and malaise. The last patient died a month ago.

I have no intention of trying this much-vaunted "remedy" further, and consider it most deplorable that its supposed curative properties should be puffed in the press.—I am, etc.,

Lancaster, Dec. 16th. A. S. BARLING.

MEDICAL ASSISTANCE TO MIDWIVES.

SIR,—I am directed by a Committee of the London and Counties Medical Protection Society, which is considering certain matters affecting the interests of medical practitioners, and arising out of the working of the Midwives Act, to invite members of the medical profession to assist by giving information individually on the following points:

1. The number of instances, in a given time, in which each medical man has been summoned to the assistance of midwives, sending for him in pursuance of the rules of the Midwives Board.
2. What payment he received in each case, and from whom?
3. What was the nature of each case to which he was so summoned?

Will you kindly allow me to ask your readers to be good enough to send answers to the above questions, authenticated by the name and address of the sender, to me at the offices of the Society, 31, Craven Street, Strand, London, W.C.?—I am, etc.,

HUGH WOODS,
General Secretary of the London and Counties
December 16th. Medical Protection Society, Limited.

IMPROVED METHODS FOR RECOGNITION OF BLOOD AND SEMINAL STAINS.

SIR,—You were good enough to publish an article of mine on the above subject in the BRITISH MEDICAL JOURNAL of November 10th, p. 1261. I regret that my description of the method of treating seminal stains is defective, in that after treatment with tannin solution and with dilute ammonia, they should be immersed for five minutes in a solution containing 1 in 10,000 potassium bichromate and 1 in a 1,000 sulphuric acid. From this solution they are transferred to the cyanide solution as described in my paper, I shall be much obliged if you will publish this correction.—I am, etc.,

Agra, Nov. 26th. E. H. HANKIN.

LIFE AND HEALTH ASSURANCE ASSOCIATION, LIMITED.

SIR,—Many thanks to the BRITISH MEDICAL JOURNAL for information regarding the methods of Mr. Robins, the London agent to the Life and Health Assurance Association, Limited. I had taken out a policy, and paid a cheque, value £7 11s. 3d., under the promise of being appointed medical referee for the company. I read the warning notices in the JOURNAL, and immediately applied to the head office in Edinburgh for return of my cheque, which I received yesterday. I hope Dr. John Watson, of Newbury, will be as fortunate.—I am, etc.,

GEORGE PEREIRA, M.B.Edin., M.R.C.S.Eng.
London, N., Dec. 14th.

AT an inquest in Battersea on December 13th on a child shown to have died from pneumonia, but treated by the mother with some cough mixture bought at a grocer's shop, the Coroner for South-West London remarked that the practice of selling such things deceived people and the advertisements respecting them were essentially wicked; nevertheless, Government continued to raise revenue from the Stamp Duty. The Chancellor of the Exchequer should review the question.

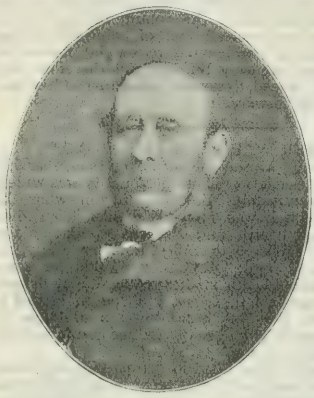
OBITUARY.

R. S. FOWLER, F.R.C.S.EDIN., M.R.C.S.ENG.,

CONSULTING SURGEON TO THE ROYAL UNITED HOSPITAL, BATH.

WE regret to have to announce the death of Mr. R. S. Fowler, which occurred at his residence in Bath on December 9th, at the age of 76.

The record of Mr. Fowler's life in Bath is intimately connected with two institutions—the British Medical Association and the Royal United Hospital—in both of which he took a continuous and very keen interest. As a junior student he was *locum tenens* for the House-Surgeon for six weeks at the hospital in 1849, and was appointed House-Surgeon when he obtained the diploma of M.R.C.S. in 1852. This was followed by the House Apothecaryship in 1855, an office he retained till 1859. During the small-pox epidemic of 1858 he came prominently before the public by the energetic way in which he combated the scourge then raging in Bath. There was, too, at that time an endemic prevalence of typhus and typhoid, and it is a singular fact that whilst in these later days typhus is unknown and typhoid very considerably curbed, yet small-pox, the most easy to deal with, still lingers and loiters as a shrunken spectre in the dark alleys of our cities; so difficult is it to rob the people of their inherent right to suffer from this most loathsome disease. But in Mr. Fowler's early days these diseases were real and virulent, and in his fight he almost succumbed. When the epidemic of small-pox had subsided the expression of the gratitude of the working-classes knew no bounds and he was publicly awarded at the Guildhall a testimonial of plate and a purse of gold. The confidence of the profession in Mr. Fowler was shown by his being appointed Honorary Secretary of the Bath and Bristol Branch of the British Medical Association and a Representative on the Central Council in the same year that he began private practice (1859). At that time the meetings were held at the York House Hotel and there are still living in Bath of those who were then his fellow-members Dr. Coates, Mr. C. Harper, Mr. Skeate and Dr. Spender. In 1867 Mr. Fowler was appointed Surgeon to the Royal United Hospital.



In 1878 much of the success of the annual meeting of the Association in Bath was due to his energy and enthusiasm. He held the Secretaryship of the Branch for twenty-three years, resigning in 1882. In 1884 he was appointed President of the Branch and sustained the position with much dignity and generous hospitality. In 1890 he found the work at the Royal United Hospital to be more than he could manage and resigned his appointment. In 1895 he was elected a Trustee and in 1904, fifty-five years after he was first connected with it as a student, he was made President of the Institution.

But, apart from the British Medical Association and the hospital, Mr. Fowler's energy found vent in various philanthropic channels. He was a warm supporter of the Royal Medical College at Epsom, and, later, a Vice-President; one of the chief supporters of the Bath Crèche; a Poor-law guardian for a few years, and a trustee of the Bluecoat School. He was a staunch Churchman and a churchwarden, and unsparing in the time and labour he gave to St. Paul's Church.

Whatever he found to do he did it with thoroughness. His genial manner and ready sympathy enabled him suc-

cessfully to influence those with whom he was brought in contact in his various societies. As Honorary Secretary of the Bath and Bristol Branch of the British Medical Association he was frequently able to prevent any ill-results from occurring from the differences of opinion which must occasionally arise in so large a Branch; and many a younger man had cause to thank Mr. Fowler in early, and, therefore, in impetuous, days. He was always essentially a man of peace, but it was never a peace at any price, but always a peace with honour.

After a long life devoted to the unobtrusive relief of suffering and poverty, and after gaining early the honour and respect of all classes of the community in Bath, a man who made no loud protestations of being better than others has crossed the bar, leaving to us the memory of one whose life was intensely human, and therefore very lovable. He was, indeed, "one who never turned his back but marched breast forward."

ALEXANDER WAUGH, M.R.C.S., L.R.C.P.

THERE passed away, at the age of 66, on December 9th, a member of the Association whose personality was widely felt in the country around Midsomer Norton, where he practised. Mr. Waugh was suddenly struck down when apparently in good health, and died from pneumonia in less than a week. He came of a West Country family, his father having been rector of Corsley, Wilts, for some years. Mr. Waugh began his medical education at Bristol, where he took medals and prizes, and then proceeded to St. Bartholomew's Hospital, obtaining his diplomas in 1863-4. At the age of 24 he began practice and joined the British Medical Association.

Mr. Waugh was a man of wide sympathies and broad views; how wide and how broad may be gathered from the circumstance that at his funeral were assembled official representatives of the Urban Council, the Choral Society, the Conservative Association, the local cricket club, the Paulton Conservative Association, the Wesleyan Church, the Methodist Church, the Salvation Army, the Education Committee, the Roman Catholic community, the large landowners (Earl Waldegrave and Lord Hylton), the gas company, and many Friendly Societies. Mr. Waugh was the universal friend of all the country-side, and for every one he had a cheery greeting on his daily round. Peer and pauper were alike to him; and whether in the humble cottage of the labourer, soothing the pains of the Salvationist, or in the cultured society at Downside Abbey, discussing the deeper mysteries of life, he was equally at home.

At the Cottage Hospital, which with Mrs. Mogg he had been instrumental in building, he had been for years the leading spirit. Much of his popularity was doubtless due to his geniality and his good humour. He could, moreover, discuss horses with the farmer, guns with the gamekeeper, flies with the fisherman, and medicine with his brethren. In the British Medical Association he soon came to the front and was elected a member of the Council of the Bath and Bristol Branch in 1871. His popularity gained for him the presidency of the Branch in 1880 at an exceptionally early age.

Of him it might well be said that

> The elements
> So mix'd in him, that Nature might stand up
> And say to all the world, "This was a man!"

JAMES GRAY, M.A., M.B., C.M., F.R.C.S.EDIN.,

ASSISTANT SURGEON, DUNDEE ROYAL INFIRMARY.

EDINBURGH students of the Nineties will regret to hear that on December 7th James Gray was found dead in bed. He had a college career of great promise, having graduated in Arts at St. Andrews, and with Honours in Medicine at Edinburgh. He was afterwards Resident in Edinburgh Royal Infirmary, Junior Assistant to the Professor of Surgery in the University and then Private Assistant to Professor Chiene. Returning to his native town of Dundee he was appointed Surgical Tutor and Assistant to the Professor of Surgery, and later Assistant Surgeon and Instructor in Anaesthetics at Dundee Royal Infirmary. He was an excellent and devoted teacher and a deft surgeon, and outside of medicine he was a highly-skilled musician. He was one of the kindest and most obliging of men, and if he has no tale of scientific work to correspond to the promise of his college course it is the result of devotion to his teaching and his readiness to sacrifice himself in assisting others. Two years ago he had a long and severe illness following an attack of erysipelas, and this was probably responsible for the sudden cardiac failure which occurred when he was apparently in his ordinary health.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

Death of the Treasurer.—The Council has adopted a resolution expressing the great regret with which it has heard of the death of Sir Richard Farrant. He accepted office as treasurer in 1901, when the College finances were in a critical position. It was largely owing to his initiative that the appeal for the fund for advanced university education and research was instituted, and its success made the incorporation of the College in the University possible.

Sir Victor Horsley.—Sir Victor Horsley, who has resigned his posts as Professor of Clinical Surgery and Surgeon of University College Hospital, has been appointed by the Council Consulting Surgeon of University College Hospital, and the title of Emeritus Professor of Clinical Surgery has been conferred upon him.

Surgical Appointments.—The Council have conferred upon Mr. Bilton Pollard the title of Professor of Clinical Surgery. Mr. Wilfred Trotter has been appointed Assistant Surgeon to University College Hospital.

Sharpey Scholar.—Dr. J. M. Hamill has been reappointed Sharpey Scholar.

UNIVERSITY OF WALES.

UNIVERSITY COLLEGE, ABERYSTWITH.

SIR JOHN WILLIAMS, M.D., presided over a special meeting of the Council on December 12th. It was decided that the income received from the bequest of the late Mr. D. C. Keeling, of Blundellsands, Liverpool, should be granted annually to graduates of the College for research work. Mr. A. W. Anderns, M.A., F.R.G.S., was elected to the new lectureship in geography, and it was decided to ask the County Councils of Mid-Wales to grant scholarships to schoolmasters and others engaged in teaching to pursue a course in geography at the College. Mr. Lewis Angell, of London, was appointed to represent the College at the International Congress on School Hygiene. Dr. Humphries, of Llanfair Caereinion, was appointed to represent the College Council at the Royal Sanitary Institute Congress to be held at Dublin in 1907. It was reported that Mrs. Jane Humphreys, of Aberystwith, had made a donation of £50 to the funds of the College. Mr. Alfred Stevens was appointed lecturer in physics during the absence of Mr. Schott, who has received permission to spend a year abroad for the purposes of research.

UNIVERSITY OF BOMBAY.

THE Calendar of the University of Bombay for the academic year 1906-7 is in two volumes. Part I provides the usual information as to the degrees granted by the University, the regulations concerning them, and a list of prizes, scholarships, and other awards placed at the disposal of the University authorites by private benefactors. It is so lengthy that the interest taken in higher education by the wealthier classes in India is at once evident. Part II is a complete set of the papers set at all examinations in 1905.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia was held at the College on Thursday, December 13th, the President, Sir R. Douglas Powell, in the chair.

Announcements.

The President announced that he had received a communication from the President of the Royal College of Surgeons, stating that Mrs. Bischoffsheim had offered £40,000 to the Imperial Cancer Research Fund. It was the wish of the donor that the sum should be invested and the income utilized for the general purposes of the fund. In the happy event of the discovery of a cure for cancer, then the income should be used for the study of such other disease as the authorities of the of the Royal College of Physicians and the Royal College of Surgeons should select.

Parkes-Weber Prize.

The President announced that the subject chosen for the Parkes-Weber Prize was the Value of Bacterial Products in Protecting against or Curing Tuberculous Diseases, with special reference to Pulmonary Tuberculosis in Man.

Licentiateship.

Licences to practise physic were granted to John Prescott Hedley, Cambridge and St. Thomas's Hospital, and Alfred Geddes Tressider, London Hospital.

Communications.

The following communications were received:

1. From the Organizing Committee of the Second Inter-

national Congress on School Hygiene, inviting the College to send delegates to the Congress to be held in London, August 5th to 10th next. Sir William Church and Dr. Heron were elected delegates to represent the College.

2. From the Liverpool School of Tropical Medicine, asking the views of the College on a scheme for lengthening and enlarging their curriculum of study. The question was referred to the Committee of Management to consider and report on to the College.

3. From the Secretary of the Royal College of Surgeons, reporting proceedings of the Council on November 8th, 1906. The report was received and entered on the minutes.

University of Sheffield.

Dr. Frederick Roberts, who retired by rotation, but was eligible for re-election, was reappointed as the representative of the College on the Court of Governors of the University of Sheffield.

Reports.

The following reports were received :

1. From the Representative of the College on the General Medical Council on the proceedings of the Council at their session in November last.

2. From the Committee of Management, dated November 19th, submitting the proposed arrangements with the London School of Tropical Medicine for the attendance of assessors at its examinations. The proposed arrangements were adopted :

1. That two Assessors be appointed by the Royal Colleges annually, on the recommendation of the Committee of Management, and that they be not re-eligible for more than two years without an interval.
2. That the Assessors be at liberty to attend any part of the examination, and shall be present at the clinical and oral examination of those candidates who seek the endorsement of the certificate by the Assessors.
3. That a clinical examination be added, at least in the case of such candidates.
4. That the Assessors have an absolute discretion as to the endorsement of the certificates.
5. That the minimum standard on which the endorsement of the Assessors is granted be 70 per cent. of the total marks.
6. That a candidate wishing to obtain the endorsement of the Assessors be required to pay a fee of 2 guineas in addition to the fee for the course and examination required by the school.
7. That after each examination the Assessors shall report in writing to the Committee of Management, who shall be at liberty to make suggestions to the London School of Tropical Medicine in regard to any matters to which their attention may be called by the Assessors.
8. That the Committee of Management shall report to the Royal Colleges from time to time, not less than once in each year, as to the working of these arrangements.

3. From the same, dated December 3rd, recommending :

(*a*) That Berkhamsted School, which is already recognized for instruction in chemistry and physics, be also recognized for instruction in biology.

(*b*) That the course of laboratory instruction in public health given at Guy's Hospital Medical School be recognized as fulfilling the conditions of Clause 2, Paragraph II, Section II of the Regulations for the Diploma in Public Health.

(*c*) That the Borough of Hornsey Isolation Hospital be added to the list of fever hospitals recognized for instruction in infectious diseases for the Final Examination of the Examining Board in England and for the Diploma in Public Health.

The report was received and the recommendations agreed to

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE FELLOWSHIP.

The following gentlemen, having passed the Final Examination, were admitted Fellows on December 13th :

E. H. Douty, M.R.C.P.Lond., M.A., B.C., M.D.Cantab., M.D. of Paris and Lausanne, Cambridge University and Middlesex Hospital; W. J. Richards, L.R.C.P., M.R.C.S., St. Bartholomew's Hospital; H. M. Davies, M.A., B.C.Cantab., M.R.C.S., L.R.C.P., Cambridge University and University College Hospital; A. M. de Silva, L.R.C.P., M.R.C.S., London Hospital; A. E. Johnson, M.B., Ch.B.Victoria, L.R.C.P., M.R.C.S., Manchester University; G. E. O. Williams, M.D., B.S.Lond., L.R.C.P., M.R.C.S., University College Hospital; W. G. Taylor, M.A.Aberd., M.S., M.B., B.Sc.Lond., L.R.C.P., M.R.C.S., Middlesex Hospital; B. B. Riviere, L.R.C.P., M.R.C.S., St. Bartholomew's Hospital; H. Gilbert, M.B., B.S.Melbourne, L.R.C.P., M.R.C.S., Melbourne University and London Hospital; H. P. Gibb, B.A.Cantab., L.R.C.P., M.R.C.S., St. Bartholomew's Hospital; R. F. Moore, M.A., B.C.Cantab., L.R.C.P., M.R.C.S., St. Bartholomew's Hospital; E. C. Hughes, M.A., B.C.Cantab., L.R.C.P., M.R.C.S., Cambridge University and Guy's Hospital; H. T. Mant, M.B., B.S.Lond., L.R.C.P., M.R.C.S., University College Hospital; R. Milne, M.B., B.S.Lond., L.R.C.P., M.R.C.S., London Hospital; W. W. Moore, M.B., Ch.B.New Zealand, L.R.C.P., M.R.C.S., New Zealand University and Middlesex Hospital; R. A. Greeves, M.B., B.S.Lond., M.R.C.S., L.R.C.P., Guy's Hospital; P. K. Steele, M.B., Ch.B.Victoria, L.R.C.P., M.R.C.S., Leeds University.

An ordinary Council meeting was held on December 13th, when the President (Mr. Henry Morris) took the chair.

Sir John Tweedy.

A vote of congratulation was passed to Sir John Tweedy, the late President of the College, upon his receiving the honour of knighthood from His Majesty the King.

The Bischoffsheim Donation.

A vote of thanks was passed to Mr. and Mrs. Bischoffsheim for their donation of £10,000 to the Imperial Cancer Research.

Diplomas.

Diplomas of Fellowship were issued to the seventeen candidates whose names appear in the foregoing list. Two other candidates qualified for the diploma, but as they were under the legal age of 25 years the grant of the diploma was deferred.

Diplomas of the Licence in Dental Surgery were issued to forty-one candidates found qualified.

The Brain of Professor Babbage

The thanks of the Council were given to Sir Victor Horsley, F.R.S., for his report upon the brain of Professor Babbage, at present in the possession of the College.

Annual Meeting of Fellows and Members.

In regard to the first resolution passed at the meeting of Fellows and Members held on November 15th, 1906—namely :

That this twenty-second annual meeting of Fellows and Members again reaffirms the desirability of admitting Members to direct representation on the Council, which as now constituted does not represent the whole Corporation,

the Council resolved that the mover and seconder be informed that the resolution has been laid before the Council.

In regard to the second resolution carried, namely :

That this meeting recommends that, when the question of admitting women to the College examinations is brought before the Fellows and Members, this should be done by a poll of the Fellows and Members,

the Council resolved that the mover and seconder be informed that the resolution has been laid before the Council, and is under consideration.

In regard to the third resolution carried at the same meeting, the following answer is returned :

"With regard to the suggestion that the standard of the examination in general education be raised, the Council would remind the Fellows and Members that, so recently as 1900, steps were taken with this object. From the beginning of that year the General Medical Council ceased to recognize, for the purpose of registration the first division Second Class Certificate of the College of Preceptors. As pointed out by the Council in the Report to the Fellows and Members in 1901, a decrease of 305 in the number of students registered during the year after passing the examinations of the College of Preceptors immediately ensued upon this alteration, while an increase of forty in the number of students registered after passing the preliminary examination of the Educational Institute of Scotland was noted. In view of these facts the Council think that, so far as this Division of the United Kingdom is concerned, it would be inexpedient at the present time to still further increase the difficulty of the Examination in General Education.

"Again, as regards the suggestion that the standard of the preliminary examination in science should be raised, the Council would remind the Fellows and Members that in this matter steps have been taken even more recently. During the years 1903 and 1904 the Council, in association with the Royal College of Physicians of London, devoted much time and attention to the regulations relating to the first year of the medical curriculum and the examination in the subjects of chemistry, physics, and biology studied during that period. After consultation with the teachers in those subjects at the several medical schools in England, and the past and present examiners, revised regulations, effecting a complete rearrangement of the examination, and materially raising its standard, were adopted. These regulations came into force in March, 1905

"With reference to the opinion that chemistry, physics, and biology should be treated as subjects of preliminary education and an examination be passed in them before the commencement of medical studies, the views of the Council upon this question, and their reasons for forming them, are fully set forth on pages 6 to 12 of the last Annual Report of the Council."

MEDICO-LEGAL AND MEDICO-ETHICAL.

TYPHOID FEVER FROM DRINKING WATER.

An action was settled on December 10th between a Mrs. Merton and Dr. J. C. Fergusson, the proprietor of a hydropathic establishment at Great Malvern. The plaintiff claimed damages for loss and expenses owing to (*a*) alleged breach of warranty by the defendant of the pureness of the drinking water in his establishment; (*b*) negligence.

The defendant denied negligence, but admitted breach of warranty and paid £1,250 into court. After consultation between the judge (Mr. Justice Grantham) and counsel the defendant submitted to judgement for that sum, with costs.

It was stated that the plaintiff and her two boys had been ill with typhoid fever as the result of drinking the water at the hydropathic; that one of the boys had died; and that she was bringing the action from a sense of duty to herself, her boys, and the public. £1,250 was stated to be her out-of-pocket expenses. It was also stated on her behalf that one of the objects in bringing the action was to draw attention to the matter, and to show the risks run by the public. On the part of the defendant counsel stated that although legal liability under the warranty was admitted the defendant was in no wise

to blame himself. The damage which had been done was due to the negligence of others, and not of himself or his servants. The allusion, it is understood, was to the local authorities, between whom and Dr. Fergusson, it would appear from statements made in court, an action in respect of the water supply is now pending.

THE CHOICE OF MEDICAL ATTENDANT.

ONE of our correspondents professes himself still dissatisfied. To put the difference between us as clearly as possible, we understand him to contend that any practitioner who sees a patient during the absence of that patient's ordinary medical attendant, but not at his request, "is bound to consider himself as acting as a substitute" for the latter. On the other hand, we say that while it is desirable that such a relation should exist between medical practitioners as to make this line of conduct the rule, we do not agree that it can be laid down as obligatory and binding in every case. We think he is mistaken in supposing that any opinion previously expressed in the BRITISH MEDICAL JOURNAL, or by the Ethical Committee, is inconsistent with this ruling, or supports what we venture to think is the extreme position he occupies. We may add that we do not think that this correspondence can profitably be continued. The opinions expressed in this column are intended to help individual practitioners in the application of the recognized principles of medical ethics and etiquette to particular cases. If any member of the Association considers that the principle is wrong or that owing to changes in conditions of practice or in medical opinion the rule ought to be modified or more clearly defined, the best course would seem to be to refer the matter to the Central Ethical Committee.

PROFESSIONAL SECRECY.

A BARRISTER writes: Apropos to the case of the sick signalman, I certainly think that the duty of the medical man, in the interest of the public welfare—which far transcends that of an individual and professional etiquette—is to forward a confidential report to the President of the Board of Trade, not disclosing his patient's name, nor the name of the railway company. The President of the Board of Trade could then call upon the directors of all railway companies to have at least two qualified employés in each signal box, and have them medically certified every week as being in good health. While the President of the Board of Trade is about it he might very well consider a further point of urgency in the interest of public safety, namely, that no express shall run unless on the engine there are, besides the driver, two qualified firemen, and that all three shall undergo a weekly medical examination. Should the railway companies allege that, in making such requirements, the President of the Board of Trade is acting *ultra vires*, what would prevent his insisting on such, and taking all responsibility, until he could secure the necessary power and an indemnity from Parliament? The late Grantham disaster has made it very clear that some such regulation would doubtless have saved the life of one eminent director.

DR. GEORGE BANKS, Medical Officer of Health (Wick), writes: I read with a shudder your opinion and advice given in answer to M.O.H.'s letter in the BRITISH MEDICAL JOURNAL of December 15th, p. 1753, as to the question of professional secrecy in the case of the railway signalman. I cannot believe that the law of professional secrecy covers or was intended to cover such an extreme situation as described in his letter where life and death are involved. Before this reaches you, many lives may be lost by not communicating with the railway authorities. I am sorry that you did not see your way to back up the advice given by the Medical Officer of Health, for assuredly the medical attendant is committing a grave mistake. No jury would give anything but nominal damages, and even if substantial, the sum would be readily raised by the profession or the travelling public. The driver of the Grantham train may have been affected by some grave disease which professional secrecy would not disclose, thus causing that fearful accident. A similar disaster may occur any day so long as this signalman is on duty. So impressed was I with the gravity of the situation that I telegraphed our M.P. to consult the Minister for the Railway Department so as to take immediate steps to avert disaster.

DR. HARRY E. DIXEY (Malvern) writes: I venture to think that the opinion given in this case as reported in your issue of last week is most dangerous and in every way wrong, and, if acted upon, would tend to do great harm to the deservedly high position which the medical profession holds in this country. The matter is to my mind all the more grave as the opinion is presumably given on the authority of the Editor of the BRITISH MEDICAL JOURNAL, the official organ of the British Medical Association. In my opinion the matter is outside any question of medical ethics. I hold that the medical practitioner ought at once to inform the general manager of the railway company in question of the condition of the man's health whether the patient himself consents or not, and I can hardly imagine either that an action for damages would lie against the medical man, or that in such a case the railway company in question would treat the man in any but the most generous manner.

*** This, as was recognized in our answer, is an extreme case, but it would not be to the public advantage to disturb the confidence which the public is justified in placing in the medical profession. The information was obtained in the course of the confidential relations which must exist between doctor and patient. If the signalman had not trusted to his doctor's secrecy he would not have trusted him at all; would it be to the advantage of the travelling public that the man should go untreated and unrelieved? The real moral of the case is that railway companies should realize more fully their responsibility to the public with respect to the physical condition of men to whom the safety of lives is entrusted.

OBLIGATIONS OF A SUBSTITUTE.

NEMO writes: (1) A year ago I did the work of a neighbouring doctor (X.) for him. To-day a gentleman asked me to see his little boy whom I saw at that time, giving as his reason for changing that "his wife did not think Dr. X. knew much about children." Was I right in declining to go, and, if so, am I for ever barred from attending them? (2) Again, I was sent for one day to give chloroform at a confinement by Dr. Y. A month or two later the mother brought her infant to me, and wished me to prescribe for the child. Was it my duty in this case to decline to attend?

*** "Nemo" ought not to accept either patient, as he had been introduced in the first case as a substitute, and in the second to assist. We do not say that he must be debarred "for ever," but certainly for a sufficient time to deprive the two events of any obvious connexion. Two years has been suggested as a reasonable period.

APPORTIONMENT OF PARTNERSHIP CHARGES.

J. F. F. writes: A. and B. go into partnership, A. to have three-fourths and B. one-fourth of the net profits. In what proportion should they pay the legal charges and duty payable to the Inland Revenue on the partnership agreement?

*** In proportion to their interests in the practice—that is, A. should pay three-fourths and B. one-fourth of the charges.

MEDICAL MEN AS COMMERCIAL AGENTS.

E. F.—We do not think that a medical man ought to become an agent for a motor car company or any other business firm so long as he remains in practice.

VACCINATION FEES.

P. T. J. writes that he has been told by a public vaccinator that to include vaccination of the child in a confinement fee of a guinea is unprofessional conduct, and he wishes to know is this is so. He adds that prior to his coming to the district the confinement fee was 15s.

*** We do not see that in principle it can be reckoned unprofessional to include vaccination of the child in the confinement fee, and in this instance there appears to be no question of underselling.

FEE FOR DEPOSITION.

H. B. writes that he was called in to attend a patient who had met with an accident owing to being thrown off his bicycle by a collision with a milk cart. As the driver of the latter appeared to be in the wrong, an action was brought against him by the patient to recover damages. Shortly before the action a clerk from the patient's solicitor called on our correspondent and took from him his deposition, duly signed, and on leaving gave him a subpoena and the usual guinea for his attendance in court. Before the trial of the action the case was compromised, and the solicitor has written asking for the return of the fee paid by his clerk. Is H. B. bound to return it?

*** Certainly not. When the clerk called two things were required of H. B.: (*a*) To draw up a deposition of the facts of the case so far as he had cognizance of them; (*b*) to attend at court when the trial came on to give evidence. He could fairly claim two guineas for this work, and he has only been paid one. As, however, he is not required to attend at court, the guinea received is a reasonable fee for the deposition.

FAMILY PRACTITIONERS AND THE MEDICAL OFFICERS OF SCHOOLS.

A MEMBER OF TWENTY YEARS' STANDING.—So long as boys are living under the schoolmaster's roof they form part of his family and he has a right to choose their medical attendant, but he ought not to refuse to allow any medical practitioner sent by the parents of a boy to see him in consultation with the school doctor. On the other hand, the school doctor ought to support his colleagues in this reasonable request; and, moreover, when a sick boy returns to his home he should be prepared to communicate with the family practitioner, to whose care the case should be handed over.

PUBLIC HEALTH AND POOR-LAW MEDICAL SERVICES.

STATE CHILDREN'S ASSOCIATION.

A letter from Mrs. S. A. Barnett, honorary secretary of the State Children's Association, now being circulated among its members, gives an interesting account of the progress made in getting rid of the practice of herding Poor-law children in workhouse and barrack schools. Boards of Guardians in increasing numbers are providing for rate-supported children in scattered homes, thus giving them the advantage of something like home life and saving them from the taint of the workhouses and the risks of ophthalmia, ringworm, and other institutional scourges. Good progress is being made in forming committees of voluntary workers to look after children boarded out in cottage homes, and the movement in favour of the formation of children's courts is also progressing favourably. A Bill authorizing the official appointment of Probation officers and the release of youthful offenders on probation has been promised by the Home Secretary, and it is increasingly common throughout the country for arrangements to be made for trying youthful offenders apart from other prisoners. There are still, however, some 21,000 children in the workhouses, and in the work of getting them into more hopeful surroundings the association requires assistance. Subscriptions can be sent to Mrs. Barnett, at the offices of the State Children's Association, 58, Old Broad Street.

INSPECTION OF FOOD.

The important report on the inspection of food presented to the London County Council by Sir Shirley Murphy, on November 27th, to which we referred a fortnight ago, is deserving of further study. The inquiry was conducted by Dr. Hamer, medical officer for general purposes, and, although commenced with a view only to the inspection of food brought into London by water, was of necessity extended to include the inspection of all the food supply of the metropolis, and of the difficulties which beset the carrying out of this important duty by the very limited staff of inspectors to whom it is entrusted.

Apart from the difficulty of inspection of food either on board or in the lighter, or of goods in transit the ownership of which may still be in dispute, there seems to be some divergence of opinion among the inspecting authorities as to the exact provisions of the law upon the subject.

The principal inspection authorities are the City Corporation as the port sanitary authority and in its capacity as an ordinary health authority, and the boroughs of Bermondsey, Poplar, Southwark, and Stepney, with other riparian boroughs of less importance.

Dr. Hamer calls special attention to the difficulty of obtaining knowledge from an authoritative source of the arrival of any kind of food, and to the legal question of surrender or seizure. How far this has arisen from a suggestion that goods in transit are not liable to "seizure" is not easy to decide. The proper answer to the legal question is probably that every case must be decided on its merits, and that the words "in transit" have no special value if the prosecution can show that the article is intended for the food of man

Proceeding further with the more practical problems which he has to face, Dr. Hamer points out that under the most favourable circumstances a detailed inspection is not practicable; and the reflection that more than 1,500,000 tons of food arrive in London by water every year will be enough to show that only samples can be examined.

Two samples of Chicago meat were seized and confiscated, but in one of them no preservatives were discovered. Meat purporting to have been inspected in the country of origin was received from Argentina, Belgium, Denmark, Holland, New Zealand, and the United States, and Dr. Collingridge, Medical Officer of Health for the City of London, has pointed out the necessity of some inquiry into the regulations which obtain in these and other countries from which meat is received in this country.

But the inspection of riverborne foods is only a part of the main problem—the efficient inspection of all the foodstuffs which enter London by any route. The City may and does exercise a considerable and valuable supervision over meat in the Smithfield Market, but what shall prevent the spiriting away of a vanload of unsound frozen meat to a cold storage from a suburban station, and its subsequent conveyance into an East-end borough for sale, as in the case quoted? Such a manœuvre could only under present conditions be unmasked by a happy accident. The remedy is stated to be the co-ordination and organization of the present inspection authorities.

Another point of the highest importance is the disposal of meat or other foods seized or surrendered to the authorities. The habit of disposing of such consignments to a contractor is obviously replete with risks of all sorts. The use of some of the food by the contractor's employés, the sale of the bulk to unscrupulous manufacturers of potted meat and even the use of it for manure is not free from suspicion.

Dr. Hamer's report is full of interesting facts and the reader will feel that his summary of the subject can only be the prelude to a more full and complete report on the evil and its remedies.

As to the work done by the City of London one may read in the report of Dr. Collingridge for the five weeks ending November 17th an account of what may be taken to be the average work of the City's inspectors. One hundred and forty-seven tons of meat were condemned and destroyed in the usual manner, that is, presumably were destroyed and not entrusted to contractors to destroy or deal with.

In a further report adopted on November 29th by the City of London, Dr. Collingridge states that three Assistant Inspectors have been appointed, with a further stipulation that they should qualify not only as meat inspectors, but also under the examination regulations of the London Public Health Act. The reasons which have led the City Council to adopt this course are well set out in Dr. Collingridge's report, which has been before the members for some months, it is dated September 25th, so that the Council cannot be said to have shown undue precipitancy.

In Manchester an inquiry has been carried on by Professor Delépine in conjunction with the Chief Veterinary Inspector of the City as to preserved imported foods, including canned meat, pickled tripe, and frozen meat. Of this inspection it may be briefly stated that as regards the canned meat and the frozen veal the results were quite satisfactory and as regards the tripe that the brine which contained it was charged with about 3 per cent. of boric acid: how much had been taken up by the tripe itself does not appear.

ROYAL NAVY AND ARMY MEDICAL SERVICES.

NAVAL MEDICAL OFFICERS.

In a recent address to medical students in Ireland Sir Lambert Ormsby considered in full detail the present position of medical officers in the navy, and for many undesirable circumstances found an explanation in the tendency among the executive officers to say, "he is only a doctor." A correspondent, signing himself "Surgeon-General," has written to emphasize the folly of this attitude, pointing out that surgeons on board ship should be more, not less, esteemed than their fellows on shore. The latter usually have at their call both substitutes to take their place if ill, and consultants to share their responsibility; hence as individuals they are really of much less importance to their patients than is the ship's surgeon to the crew of which he forms a part. He stands alone, and every officer and man on board may at a moment's notice, in time of sickness, or on the occurrence of an accident, have to look to him for help, and be dependent on his unaided exertions and skill for relief from pain and the safety of their lives. It is to the interest, therefore, of all concerned to make the position of a ship's surgeon as desirable as possible, and thus attract into the service the very best class of medical men.

AFRICA GENERAL SERVICE MEDAL.

The King has approved of the Africa General Service Medal, with clasps, being granted to the forces employed in the undermentioned military operations, provided that the claims of the officers and men are approved by the Army Council:

The medal, with clasp "Kissi 1905," will be granted to all officers and men under the command of Captain (local Major) C. E. Palmer, R.A., who took part in the operations in the Kissi country, between March 27th and June 28th, 1905, both dates inclusive.

The medal, with clasp "S. Nigeria 1905," will be granted to all officers and men belonging to the force employed in the operations in the Kwale district between October 10th and 18th, 1905, both dates inclusive.

The medal, with clasp "S. Nigeria 1905-6," will be granted to all officers and men belonging to the columns which concentrated at Bende and Oka under the command of Brevet-Major H. M. Trenchard, Royal Scots Fusiliers, and Captain G. T. Mair, R.F.A., and took part in the Bende-Onitsha Hinterland Expedition.

The medal, with clasp "Nandi 1905-6," will be granted to all officers and men under the command of Lieutenant-Colonel E. G. Harrison, D.S.O., Reserve of Officers, who took part in the operations in the Nandi country between October 18th, 1905, and February 27th, 1906, both dates inclusive.

Those already in possession of the Africa General Service Medal will receive the clasp only. The grants will be confined to those who had official sanction to be present.

ARMY MEDICAL RULES FOR ADEN AND BURMAH.

In the British Medical Journal of October 6th we gave the rules as regards medical service in the Aden Brigade and Burmah Division, issued by the Commander-in-Chief in India. They are now republished with some emendations, which, however, do not seem to necessitate their repetition here.

In consequence of the changes introduced, the establishment of the *personnel* in the commands and independent divisions affected will be revised, with effect from October 1st, 1906, those of Royal Army Medical Corps executive officers being: Northern Command, 88 officers; Western Command, 90; Eastern Command, 88; Secunderabad Division, 40; and Burmah, 18 Total, 324.

Under the will of the late Canon John Hankin Godber, of Nottingham, who died on July 22nd, the Nottingham General Hospital receives a sum of £500.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

MOTOR TYRES.

NOVICE asks for information as to the practical value of "elastic" tyres and how they compare with solid rubber tyres as to price and durability. Are they worth the extra expense of £4 to £5 a wheel for the smallest size? He asks also for experience as to the use of solid tyres on small motors, whether it is possible to run a 6-h.p. on solid tyres, and whether any company builds 6-h.p. for solid tyres.

DR. WALTER BAILY.

MR. D'ARCY POWER (10A, Chandos Street, Cavendish Square, W.) writes: I shall feel greatly obliged if any of your readers who may have a copy of one of the three works mentioned below will tell me to whom it was given by the author. The inscription will be found in each case immediately above the preface, and the autograph is at the end of the preface. In the preface of No. 2, I should also like to know how the blanks are filled in and if the printer's signature at the foot of the first page in each book is A2 or Aiiii: (1) *A Briefe Treatise Concerning the Preservation of the Eiesight, etc.*, 1586; (2) *A Briefe Discourse on Certaine Bathes of Medicinall Waters in the County of Warwick, nere unto a Village called Newnham Regis*, 1587; (3) *A Discourse of the Three Kindes of Peppers, etc.*, 1588. Dr. Walter Baily was formerly a Regius Professor of Medicine at Oxford and a Physician to Queen Elizabeth.

CERTIFICATES FOR DOCKYARD WORKMEN.

A. H. S. writes: I am practising in the vicinity of a Government dockyard. When any man who is employed in the yard is sick, the fleet surgeon at the yard requires a certificate, signed by the man's medical attendant, stating that he is ill and the nature of his complaint. I should be very glad if you can inform me whether he is justified in making this demand.

*** We are advised that the fleet surgeon is justified in demanding the certificate, as he is acting in accordance with the Dockyard Regulations. When a man is sick and cannot attend at the dockyard surgery he has to send in a certificate, for obvious reasons; otherwise he is liable to lose time or even to be discharged. The practice is a very common one, and many hundreds of certificates are sent in during the course of the year.

ANSWERS.

INCOME TAX.

M. B.—A medical man is entitled to deduct for the purpose of income tax returns the rent of a surgery used exclusively as such.

POTASSIUM MERCURIC IODIDE.

RUSTICUS.—271 gr. of mercuric chloride and 700 gr. of potassium iodide must be dissolved in water and made up to 10 fluid ounces, in order to produce a solution 1 fluid drachm of which diluted with water to 20 fluid ounces shall produce a solution containing 1 of potassium mercuric iodide per 1000.

MAY-GRUENWALD'S SOLUTION.

IN answer to several inquirers, May-Gruenwald's solution, mentioned in Poeppelmann's article on the Diagnosis of Typhoid Fever, which was abstracted in the EPITOME of December 1st, 1906, is a methylene blue-eosin mixture of somewhat similar composition to Jenner's blood stain. We believe it can be obtained from Grubler of Leipzig, or through Kanthack or any of the London firms which deal with microscopical stains.

BELT FOR FLOATING KIDNEY.

MESSRS. ARNOLD AND SONS (West Smithfield) write in reply to "Renal," who asks for a belt for floating kidney, to suggest that introduced by Dr. Macnaughton Jones.

TREATMENT OF IMPOTENCE.

FESTINA LENTE writes, in reply to "L.R.C.P.": The patient should wear a suspender, with understraps; he should rise early, and have either a bath or a sponge over with a wet sponge, and a good rub with a dry towel. A walk before breakfast and a walk before bed are both useful, and he should abstain from attempted intercourse till he is stronger. At all times it may be better for him not to attempt intercourse until he has had a good sleep, when nature is more likely to assert its power, and his consciousness is subdued by previous unconsciousness. To recognize the fact that at 53 he is not called upon to assert his manhood very frequently, and probably would not be any the worse for a prolonged abstinence, is a general piece of advice. Yet, supposing this has been already tried, then I would suggest a nervine tonic pill of iron, zinc, and quinine with meals, regular action of the bowels, and a light diet. There is nothing more to be desired than that the patient's health, physical, mental, and moral, be restored by means which are at his hand, and that he recognizes the condition as a passing one due to a variety of ordinary causes.

LETTERS, NOTES, ETC.

WARNING.

DR. HENRY W. SPAIGHT (Porthleven, Cornwall) writes: I wish to endorse Dr. H. G. Cook's warning about the man F. B. Collins, who is evidently touring the country victimizing medical motorists with an 8s. 6d. sparking plug. I weakly bought one, after listening to a specious tale that it was only sold at this price privately for advertisement and would be put in the open market shortly at 10s. 6d. The plug was absolutely useless, and after running four miles the "solid mica body" split into flakes.

THE INFLUENCE OF THE EARLY FEEDING IN THE TREATMENT OF TYPHOID.

DR. J. S. PURDY (Port Said) writes: Having in the summer of 1895 heard the advantages of solid feeding ably advocated by Dr. Barrs at the Leeds Infirmary, I lost no opportunity of observing its effects. At Cambois, Northumberland, in 1898, I began feeding a patient suffering from typhoid fever with food other than the orthodox three pints of milk a day, irrespective of the fact that the temperature was above normal.

On the first indication of a cleaning tongue and an emphatically affirmative answer to the request, "Are you hungry?" I made it a routine practice to give tripe well boiled. This, probably the most easily digested of all solid foods, was followed next day with "boily," the local name for a basin of small pieces of bread boiled in milk, lightly-boiled eggs, white fish, mashed potatoes, and gravy. Jaffa oranges, without pips when obtainable, were also given. It was soon remarked at the colliery that these cases of typhoid recovered more rapidly than formerly. Not only were they able to get up at the end of the seventh week, but, in some cases, even to return to the hard work of hewing coal within three months of the attack.

It was rather amusing the following year to hear at Ashington, a neighbouring large colliery, that the local tripe vendor was in the habit of quoting the Cambois doctor in advancing the sale of this cheap article of food.

At the request of Dr. J. M. Mason, Editor of the *New Zealand Medical Journal*, I published an article on Rational Feeding in Typhoid in the initial issue of that magazine in October, 1900, referring to the pioneer work of Dr. Barrs, and recording my own experiences with a series of 22 cases in private practice. With regard to Dr. F. J. Smith's reference to the South African campaign, I can testify that whilst with Plumer's column during the last twelve months there was not a single death from enteric fever whilst on trek, although, as the death-rolls of some of our Colonial contingents show, such occurred afterwards. Thus, in my own regiment, the 6th New Zealand Mounted Rifles, there were 12 deaths at the base hospitals.

It is only fair to state, however, that never did any case of enteric fever remain with the column more than a fortnight at the outside. Although the custom was to adhere as closely as possible to routine feeding with milk, many field hospitals like ours even sometimes having cows attached to them, on one occasion, while taking a large sick convoy chiefly composed of enterics into Charlestown early in February, 1902, some of them ate tinned chicken without any immediate ill effect.

In February and March of this year, during a severe epidemic of bacillary dysentery, we found the cases did much better when one did not adhere too strictly to a milk or liquid diet.

CHRONIC ULCER AND CALCIUM IODIDE.

DR. R. MANSELL-JONES (London) writes: As calcium iodide and chloride act like a charm in chronic ulcers of the skin, permit me to suggest a careful trial of these remedies in gastric and intestinal ulcers.

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SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Toronto, August 21st, 22nd, 23rd, 24th, and 25th, 1906.

PROCEEDINGS OF SECTIONS.

SECTION OF OPHTHALMOLOGY.

R. Marcus Gunn, F.R.C.S., President.

CONDITIONS OF EYESIGHT REQUIRED FOR MILITARY SERVICE.

By Arnold Lawson, F.R.C.S.,

Assistant Surgeon, Royal Ophthalmic Hospital.

That the subject which I am about to introduce is highly controversial there can be no doubt. In order to obtain information from as varied sources as possible, I have communicated with all the countries in Europe, and have from a considerable number received information which from its varied nature shows how different are the opinions held as to the requirements of the army in the matter of eyesight. It is quite impossible to adjust all these opinions into any one formula or deduce from them any dogma; but, anyhow, they show how great an importance is attached to this subject, by universally exhibiting a desire to formulate and place within exact limits the condition of the eyes in general and the visual acuity in particular to which every candidate for admission into the army is obliged to conform before he is accepted.

In this introduction I will first endeavour to lay briefly before you what I have gathered to be the universal need of every army with regard to eyesight, and I will then point out what seem to be the defects of our present English system, and suggest what appear to me to be the best remedies.

Briefly, then, what are the general requirements of military service? Perfectly normal vision being obviously too high a compulsory standard, an allowance must be made, which, whilst not so great as to admit inefficients, still must not be so small as to exclude from service men whose eyesight may be considered sufficient for ordinary duty.

What principles would naturally influence the fixing of a standard of visual acuity which might be deemed "efficient."

(*a*) As shooting is commonly practised from the right shoulder it is more important that the visual acuity of the right eye should be good than that of the left.

(*b*) At the same time the left vision should be also good—

1. Because under all ordinary conditions binocular stereoscopic vision is a distinct advantage.
2. Because if necessary a man can be taught to shoot from the left shoulder.
3. Because if the right eye be damaged there still remains a useful eye for service.
4. Because in the latter two cases the man, should he lose the sight of one eye, is not thereby thrown upon the country's support as a pensioner.

Theoretically, then, the sight should be as good in one eye as the other, but as it is very common for one eye to be visually slightly inferior to the other and also that the loss of an eye is a fairly remote contingency, it may be fairly urged that some latitude may be allowed the left eye over and above that granted to the right, and a candidate, therefore, passed as fit when the visual acuity of the left eye is rather less than that of the right, provided always that the sight of the latter is good.

(*c*) The maximum permissible defect is necessarily highly controversial. The fixing of it in the various countries of Europe has probably been influenced by the following considerations:

1. The presence of any racial peculiarity with regard to vision. Thus in Germany and Austria there is a greater leniency exhibited towards myopia than is the case in our country.
2. It must be guided by the opinions of committees often largely composed of cranks and faddists.
3. It must vary as alterations in methods of warfare and military training vary.
4. It must necessarily tend to be larger in an army supported entirely by voluntary service as in England than in a country where conscription is enforced and the supply of recruits in consequence very much larger.
5. It is generally conceded in all European countries that it must not in any case reduce the vision less that one-half in the right eye. With regard to the left there is rather more variety of opinion, but generally speaking, a still larger reduction is allowed.
6. The rejection of all candidates who exhibit evidence of a serious retinal, choroidal, or other organic mischief is universal, even though the central vision is good.

(*d*) The possession of perfect colour sense does not seem to be considered an important point in many countries. The matter is not even mentioned in some reports that I have received.

Having thus considered the principles guiding the formation of a compulsory visual standard, I will pass on to the practical application of these principles and to the consideration of the methods adopted in the examination of candidates in our country.

Take, for example, the examination of candidates for commissions. This may be divided into the following component parts:

1. A primary standard of visual acuity which must be reached by each eye. Every candidate failing to reach this standard is at once rejected. In England this standard amounts to $D = \frac{6}{24}$.

2. A secondary standard of visual acuity which must be reached if the candidate, although passing the primary standard, has not normal vision. Glasses correcting refraction errors may be worn to enable him to reach the standard. Should he be unable in this way to do so he is at once rejected. This standard represents the maximum permissible defect, and in England is represented by $D = \frac{6}{9}$ in one eye and $D = \frac{6}{12}$ in the other, no stress being laid on the right vision being better than the left.

3. The examination of the fundus by the ophthalmoscope, which is very often omitted.

4. Examination of the colour sense by Holmgren's wools.

Speaking generally, the examination is a good one in many particulars; but there are details which call for improvement, and to which I wish to direct your attention.

The first, and perhaps the most important, is the fixing of an artificial minimum of visual acuity ($\frac{6}{9}$) to which the candidate must conform, and upon which alone he is at once rejected if he fails to reach it. It looks a delightfully quick, simple, and effective way of weeding out cases, especially when a large number have to be examined. And so it is; but it is wrong, and it is wrong because it acts unequally, and therefore unfairly.

In the first place, it cannot and does not follow that, because a candidate at the time of examination fails to read the type $D = \frac{6}{12}$, he has necessarily a greater visual defect than the one who can read the type $D = \frac{6}{18}$. Often the candidate is nervous and cannot do himself justice, or it may be that the light afforded does not suit him. More important, it is well known that as regards myopia—and it is more especially with a view to detection of myopia that the standard is made—there is no mathematical ratio between visual acuity as represented by test types and the degree of myopia. Thus I have personal record of a myope with $M = -4.5d$ who could read $\frac{6}{4}$ and sometimes $\frac{6}{6}$, and who was admitted into the service. Again, on the other hand, I have recently had under observation a case in which the myopia amounted to $M = -1.25d$ in the right eye, and $M = -2.25d$ in the left. In this instance the less defective right eye could barely read $D = \frac{6}{9}$, and often hesitated and sometimes made mistakes; whilst with the more myopic left eye he could read $D = \frac{6}{18}$ and a letter or two of $D = \frac{6}{12}$. This candidate was passed as fit as regards the left eye, but was

refused admission into the service on account of the vision of the right, the less myopic eye of the two.

Further, it is, to say the least, an anomaly that a hypermetrope of $H = +5d$ who may easily read $D = \frac{6}{6}$ at 19 years of age should, *caeteris paribus*, be admitted into a service which declines a simple myopia of $M = -3d$. It is certainly true that in youth the hypermetrope has distinct advantage over the myope, although the latter may have an error of considerably lower dioptric value, but as age progresses the tables are gradually turned in this respect, so that there can be no question that at 40 years of age, when responsibilities are increasing, and at a time when a man's services to the State are at their highest level, a hypermetrope of $H = +5d$ is in an unfavourable position as compared with a myope of $M = -3d$.

What better method can be devised? The remedy is not, I think, difficult to find. There should be but one standard of fitness—namely, a visual acuity of $D = \frac{6}{6}$ in each eye. If a candidate reaches this standard, well and good, as now. But if he cannot do so, then, instead of fixing a primary minimum standard of $D = \frac{6}{9}$, every case should be investigated as to the cause. If the defect is found to be due to a refractive error, fitness might be assumed, provided that—

(*a*) His visual acuity with correcting glasses be brought to, say — $D = \frac{6}{6}$ in the right eye, and $D = \frac{6}{9}$, or $D\ \frac{6}{12}$, in the left; and

(*b*) That in any case the refractive error does not exceed a myopia of $M = -3d$ or a hypermetrope of $H = +4d$.

(*c*) In the case of astigmatism, a correcting cylinder of $3d$ might be allowed.

The exact amount of defect quoted is only, for example, as representing approximately a degree of error which is rather greater as regards myopia and rather less as regards hypermetropia than is at present allowed. The point is that in this way the occasional unfairness which the present compulsory minimum standard of visual acuity causes will be abolished, and the disproportionate and unreasonable difference in the treatment meted out to hypermetropia and myopia will be levelled.

Nor would this plan entail more work for the examining officers, for in all cases of candidates seeking commissions, an expert opinion on the exact refraction error could be obtained before examination, which could be checked by the verification of the lenses by the examining officer. In the case of recruits to the ranks, any man could, if thought so desirable, be sent to an ophthalmic hospital.

In Holland there is a sliding scale of primary visual acuity between the two eyes, which if perhaps rather complicated, is at least interesting.

Conscripts are exempted from service if R.V. is less than $\frac{6}{9}$ even if L.V. = normal, or

if R.V. = $\frac{6}{9}$ and L.V. = $\frac{6}{6}$
if R.V. = $\frac{6}{6}$ and L.V. = $\frac{6}{9}$
if R.V. = $\frac{6}{6}$ and L.V. = $\frac{6}{6}$

Surely, too, the visual examination of recruits to the ranks and those seeking commissions should be similar. Up to quite recently the laxity of the examination of recruits, no doubt largely due to depression in recruiting, was very great, but lately things have been altered, and it is to be hoped that the same standards will be exacted for the one as for the other.

A word now as to the methods employed for testing the sight. To approach the most difficult point first—namely, that of test types—it must be said that the present universal use of Snellen's types has its disadvantages. Some letters are much more difficult than others, and the arrangement of the types commonly printed leave something to be desired. A little unfairness is thus apt to arise, because, as it would obviously be unwise to use the same type for all candidates, some are apt to get an easier arrangement of letters than others. Of course, it is really only those cases which are on the borderland, so to speak, of rejection who would be affected, but it is precisely these cases which give the most trouble to the examiner desirous of being strictly fair, and the tests given to each should present a difficulty which, if dissimilar in kind, should be identical in degree. I may also point out that the letters of the alphabet lend themselves to the possibility of a candidate training his sight for the purposes of examination, and though it may seem a paradox, it is actually their very diversity that enables this to be done.

In our opinion these little difficulties are best met by the replacement of Snellen's types by a single simple universal optotype, such as that of the "Broken Ring," first suggested by Professor Landolt some years ago. Its very simplicity is its best recommendation. It can never be learnt, it can never be remembered, it permits a large variety of expression, and yet presents a general sameness of outline which renders it a perfectly safe test and one that is absolutely fair.

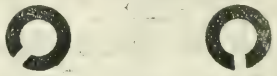


Illustration of Professor E. Landolt's universal optotype, or "broken ring" optotype. The type can be graduated according to the usual methods at present in common use. The break in the circle can, of course, be made at any point. By simply turning the type upside down a fresh type is made. A candidate set to read this type may be illiterate. The type is quickly read and easily expressed by a simple movement given to one or other extended arm illustrative of the angle at which the opening is placed, and no verbal answer is necessary. The type can never be learnt, and it permits an equality of test in every variety of defect which the ordinary test type does not possess.

Then, again, comes the important question of the illumination of the test types. In the English regulations there is a paragraph stating that the type must be read "without hesitation in ordinary daylight." This paragraph can only be described as puerile, and its effect can be but to confuse. What is meant by this abstruse proposition is best known to those responsible for it. What, for instance, is ordinary daylight in London? To most people the term would, I imagine, convey the impression the light of a bright sunny morning—a delightful condition of atmosphere which is unfortunately exceptional in our great metropolis, and when we are so blessed it is usually but for a very brief time. Were the examiners to attempt to conform strictly to the term stated, the examination would probably have to be postponed indefinitely in the winter time, or if, despite the weather, it were to take place without the aid of artificial illumination of the types, most of the candidates would be rejected. Practically, therefore, the regulation is stultified by its inherent absurdity, and artificial illumination ought always to be employed in England except under very exceptional circumstances.

The degree of illumination is certainly important, and some endeavour should be made to put this point on a more satisfactory basis than it is at present. It really requires much careful thought and the consideration of a committee of experts, who would draw up and formulate some positive statement. In my experience the present tendency is towards over-illumination, in order, no doubt, that the candidate may not complain of the opposite condition. But it must be remembered that over-illumination may confuse by dazzling almost as much as under-illumination does by obscuring.

A further point with regard to the types is that they should not be printed on a polished surface. The reason, of course, is that the reflection from a polished surface is very trying and confusing. It is a point so well known and so obvious that I should have hesitated to trouble you with it were it not that polished types are still in use at examinations.

With regard to examination by the ophthalmoscope, I should like to emphasize the importance of this being done in *every* case before a candidate is passed as fit. The fact that a certain vision of $D = \frac{6}{6}$, with or without glasses, does not necessarily imply a healthy condition of the internal ocular apparatus cannot be too strongly impressed, and examination by this method can, therefore, in *no* case be regarded as superfluous. It needs a good deal of training to quickly and thoroughly examine the fundus when the pupils are undilated; and if a large number of cases have to be got through, it no doubt becomes a tiresome and irksome business. Nevertheless, examination with the ophthalmoscope by a trained observer should be regarded as an integral portion of the examination and a full allowance of time made for it to be done thoroughly.

Lastly, as regards the examination of the colour sense, I cannot understand why the army have made and continue to make so strong a point of perfect colour sense.

In the navy the reason is, of course, obvious; but although it is, perhaps, desirable that a positive red-green blindness should not be allowed, there seems no reason why a slight or negative imperfection, in which saturated colours are easily recognized whilst there is some difficulty with the confusion shades, should not be condoned. Further, it is worthy of remark that if a candidate is previously aware of his defect in colour sense, it is quite possible in some cases, by careful training for a few weeks before examination, to bring him up to the examination sufficiently cunning to elude detection unless the examiner is very wideawake and insistent. Such a case, in which the successful candidate was markedly red-green blind, was under my observation some time ago. A relapse to the old condition of things will very speedily occur when the training is discontinued, and this happened in the instance just quoted; so that if it is to continue to be the rule that any colour defect must exclude, the examination should never be conducted in a perfunctory manner.

To sum up, I desire to draw attention to the following points, which I venture to think would improve the examination of candidates for military service, and all of which have been discussed in the foregoing remarks:

1. The abolition of the present minimum standard of visual acuity, and the substitution of an examination of every case in which the visual acuity is less than D. = $\frac{6}{6}$ in either eye, together with the determination of a standard visual acuity after correction (R. V. = $\frac{6}{6}$ and L. V. = $\frac{6}{9}$), and the rejection of a candidate in any case if the refractive error be greater than M. = − 3*d* or H. = + 4*d*. In the case of astigmatism the correcting cylinder should not be greater than 3 dioptres.

2. In cases of defective vision it is desirable that the standard of visual acuity should be higher for the right than for the left eye.

3. The substitution of Snellen's test types by a simple universal diagram, such as that devised by Professor Landolt, the type to be mounted upon an unglazed surface.

4. A more definite statement as to the illumination of the type.

5. The enforced examination of all candidates with the ophthalmoscope.

6. A reduction in the severity of the regulations with regard to colour vision.

The conditions of examination should be the same for recruits to the ranks as for officers.

VISUAL TESTS FOR RAILWAY AND MARINE SERVICE.

By Charles H. Williams, M.D.,
Boston, Mass.

In the railway or marine service careful tests must be made of all who are required to use signals. The test for acuteness of vision is even more important than that for colour perception, because the number of men with defective sight is much greater than of those with defective colour sense. On the Burlington railway system, for the ten years 1891 to 1901, there were rejected from those applying for work 1 888 on account of defective vison and 441 on account of defective colour sense. This number would have been larger except that many men who knew they were defective sought work on roads where no physical examination was required, thus increasing the proportion of such men which these roads received.

Since 1881 the Pennsylvania railway has made an examination of its men for vision and colour sense. On one part of their lines, east of Pittsburgh and Erie, there are about 125,000 employés, of whom about one-half may be required to use signals. The average number of men who are defective in their colour sense to a dangerous degree is from 3 to 4 per cent., and if no test had been made there might have been some 2,000 men on these lines using coloured signals who were defective in their colour perception. Such figures show the need of making these tests thoroughly and carefully.

In 1881 the directors of the Pennsylvania railway adopted the plan proposed by Dr. William Thomson for the examination of their men. A modified form of Snellen's test letters was used to measure the vision, a set of forty tagged worsteds and a set of signal flags was used to test the colour sense, and the hearing was tested with a watch and the voice. Quoting from the instructions, "If one eye is $\frac{20}{20}$ and the other not less than $\frac{20}{40}$, with or without glasses, the sight may be considered satisfactory." For the colour sense "anything but green matched with green indicates a defect in the colour sense." For hearing, "conversation in an ordinary tone should be heard at ten feet." No distinction is made as to occupation or class. In a paper with limited time it is not possible or desirable to read in full the instructions of different roads governing these examinations. [The more important ones were presented by the author as appendices to his paper.]

In 1891 the Burlington Railway, which up to that time had followed the Pennsylvania plan, adopted an improved method proposed by the writer while he was Medical Director of that system. For testing the vision, a set of Snellen's letters was printed on separate cards, with letters of only one size on each card, for the 15, 20, 30, 40, and 50 ft. sizes. This was done to prevent memorizing; it has worked well, and is now used on a number of roads. For each size of letter there are three separate cards, with a different arrangement of letters on each. For testing the colour sense, a full set of Holmgren coloured worsteds, 125 skeins each, with a numbered tag for recording the colours selected, was used, also a set of coloured signal flags, and for doubtful cases a lantern with coloured lights. For the hearing, a watch and conversation, and later a ratchet acoumeter was used.

In 1899 the N.Y.N.H. and H.R. adopted a new set of rules for these tests drawn up by the writer; these were amended in 1900, and extended over the whole system. In these tests the same cards for vision, and the full sets of tagged worsteds used by the Burlington were retained, and in addition a second test for the colour sense was made in every case with the Williams lantern, showing thirteen coloured lights, which could be varied in size and intensity, and could be shown with only one light at a time, or with two lights at one time. This feature of having a comparison of two coloured lights is a valuable one, and by far the larger number of mistakes are made when two reds of different intensity are shown together, one of the lights being often called a red, and the other a green. The same mistake is often made with two greens, and with a red and green shown together they are sometimes called two reds or two greens. Many of the colours in this lantern are pieces of railway roundels, and the range of colours includes red and green of various intensities, yellow, blue, smoke, and white. These colours do not fade, they resemble very closely the colours of actual service, and under each colour is an illuminated number, screened from the person to be tested, which can be used for record. When the lantern is placed at a distance of 20 ft., the smallest opening of the lantern corresponds to the apparent size of a semaphore signal lens with a 5 in. opening at a distance of 1,250 ft., and the largest lantern opening corresponds to such a lens at a distance of 160 ft.

In discussing a paper at the recent meeting of the American Medical Association in Boston, Dr. Parker of Detroit stated that he had found since he used the lantern test 6 men who passed the test with the worsteds but who failed with the lantern. The writer has had 4 such cases, and others who have used both tests have made similar statements. These cases are generally men with a small central scotoma for colour, often due to an excessive use of tobacco. In the early stages these men may not show enough diminished vision with the test letters to recognize this defect, and when they look at a skein of coloured worsted held in the hand the retinal image of this worsted may be large enough to extend beyond the affected area, in which case its colour will be easily recognized; but when the lantern test is made or when a distant signal is looked at the light may be focussed entirely within the affected area, and in this case the red and green are often confused. This lantern test does not replace the Holmgren test with worsteds, but it is a necessary addition to the worsted test if we wish to make sure that all the cases of dangerous defect in colour sense are recognized.

The N.Y.N.H.and H.R. has recently put in effect a new set of instructions, dated August 1st, 1906. In these new rules the old instructions have been retained, with some modifications so far as relates to the examination of new men coming into the service; but a new form of test called the "field test" has been adopted for

enginemen for re-examination or promotion, and a rule is inserted stating that any employé "failing to qualify for promotion or in re-examination by the above scientific test may take the field test, which will consist of the following:

"1. A standard bracket signal pole, carrying three standard main line and three standard route semaphores, located approximately half a mile distant from view point.

"2. Ten pairs and ten single clean and soiled standard hand flags, of the colours used in actual service; ten pairs and ten single standard hand lanterns of the colours used in service, one red and one green globe, to be smoked on the inside by the flame of lantern to the extent sometimes found in actual service.

"3. Written train orders from actual service. Flags to be shown in daylight, and lanterns in darkness approximating night conditions, at 250 ft. from the observer. Flags or lanterns to be separated at least 3 ft. when shown in pairs. To call red green, green red, or a danger or caution colour safety, as applied to this road or any road over which this company operates trains, or failure to name correctly the positions of semaphores in six combinations, or failure to read correctly five train orders, or failure to hear ordinary conversation correctly, disqualifies. Glasses may be worn for the field test in any examination for which glasses are allowed by the above standards of acuteness of vision."

Some of the defects in the above "field tests" will be referred to later. These tests are not portable, and on large systems it would mean the erection of many testing plants and the transportation of men over considerable distances to pass them. Much more time will be required for each test than by the present method, which gives more definite and accurate information in less time than the field test. The new test also brings up the question of what the position of a company would be in case of an accident caused by an employé on account of poor vision or colour perception who had passed the "field test," but who proved to be defective when tested by the methods and standards used by other roads and approved by medical authority.

In 1901 the Great Northern Railway, on the advice of their ophthalmic surgeon, Dr. Chamberlin, adopted some instructions very similar to those of the N.Y.N.H. and H.R. of 1900, without the field test, and these rules have recently (August 15th, 1906) been reprinted with slight changes.

In 1902 the Boston and Maine Railway adopted very similar methods. In 1903 similar examinations were adopted by the Northern Pacific Railway. A new and improved form of lantern was made for use on this road, with eighteen colours, instead of the thirteen formerly used; it is simpler in construction and cheaper, and is the only form now made. In the same year (1903) the United States Public Health and Marine Hospital Service put similar examinations in effect at the Port of Boston, and the following from the surgeon-in-charge will show that, after a trial of three years, they find these tests satisfactory:

Boston, Mass., July 11th, 1906.

Dear Dr. Williams,

I have been using your lantern and worsteds for three years, and find them a great improvement over the old Holmgren worsteds. The lantern is to my mind the best test yet used. The numbers on the worsteds make record-taking easy and valuable. I have seen some cases which I would not pass upon the worsteds, were that the final test, but who have easily passed the lantern test. My opinion is that the failure to pass was more the result of ignorance and perturbation rather than the actual defective colour perception. Some have passed on the worsteds but have not been able to discriminate the red and green lights. It has been where the worsted examination has been rather slow and laboured that the lights have cleared up the doubt as to the applicant's colour sense. After examining some six hundred sailors it seems to me that the tagged worsteds are a great improvement over the old Holmgren untagged ones which we formerly used. I regard the lantern as the final and best test. My examinations have been for enlistments in the Revenue cutter service, Life-saving service, Lighthouse service, and for masters', mates', and pilots' licenses.

Very truly yours,

(Signed) F. H. CLEAVES,
Acting Assistant Surgeon, P.H. and M.H.S.

In 1904 the Australian railways adopted a somewhat similar plan, using Snellen test letters for vision, the Holmgren wools, and Dr. Williams's lantern for the colour-sense, and the tuning-fork, acoumeter, and voice for the hearing.

April 5th, 1905, the American Railway Association adopted a code of rules. To this Association we are indebted for many improvements in our railway service and for more uniform standards in many departments, but in this matter of visual tests they seem to have made a step backward rather than forward. Their cards, with the Snellen test letters for acuteness of vision are printed with letters of the 20, 30, 40, 50, and 70 foot sizes all on one card. There are two of these cards with a different arrangement of letters on each card; the cards are for sale, and it is easy for a man with defective vision to obtain them, and to commit to memory the letters on each line on the cards. When such a man comes up for examination he can easily see at 20 ft. the letters on the 70 ft. line, and he then knows what the letters on the 20 ft. line must be, and can call them from memory as if he read them. A busy examiner, with a large number of men to examine, can hardly be blamed if he passes a man who apparently reads correctly the smallest letters on the card, yet the writer has seen cases who passed a test in this way, and when tested with a card they had not previously seen, or with the cards having letters of only one size on each, showed a real acuteness of vision of less than $\frac{20}{70}$ in both eyes.

In a letter recently received from Mr. H. A. Ives, who for many years was one of the examiners for the N.Y.N.H. and H.R., he says:

Many persons having defects of which they are aware will display remarkable skill in covering up the defects. I recall a case in point. My custom is to cover up the left eye with a card, being sure not to leave the slightest chance for the use of the eye that is covered, and have my assistant display a 20 ft. card. If the card is read correctly it should be removed, then the eye uncovered and the other eye covered, and a different card displayed. Sometimes, however, I have let the candidate read the same card, not removing it, with the second eye. If not read so much time is gained; if read, the card with a different arrangement of letters is displayed. One day a very quick, active, military-appearing man came up for examination; it appeared later on that he had just left the regular army, and with him everything was "Yes, sir," or "No, sir," and it came out with a snap. He read off the first card like a flash; I covered the other eye and told him to read the letters. He started a trifle, then strained forward a mite as if trying to see, and with a backward motion, as if satisfied that it was no use, he called off the letters, but I noticed that he *transposed two* of them. As usual, I directed the assistant to display another card, when our soldier said, "Can't see them, sir." I remarked, "Whatever your sight may be, you have a very excellent memory." He had, if I remember right, about $\frac{20}{30}$ in that eye. Just that first glance had enabled him to memorize the letters.

For testing the colour sense the Association has adopted the abbreviated set of 40 worsteds proposed by Dr. Thomson, but they have omitted the stick on which they were originally strung and have made the skeins smaller, which is an improvement. When the defect in colour sense is very marked it is easy to detect it with these worsteds, but in the troublesome cases where there is some uncertainty as to the amount of the defect, the writer would be sorry to pass or to reject a man with nothing more to rely on than these forty colours. The greater number of colours in the full sets of Holmgren worsteds, with the greater variety of shades of green, red and confusion colours, is a help, and the additional test with the lantern is of much assistance in determining the true condition of the colour-sense. The Association rules allow the use of such a lantern test if desired, but they do not require it in every case, as ought to be done if all the dangerous cases are to be discovered. Again quoting from the letter of Mr. Ives, he says:

I have examined something over 6,000 railway men, or applicants for railroad work, also had the privilege of seeing the re-examination of persons found defective by other examiners, and I cannot dwell too strongly on the use of the lantern in every case. Without referring to records I can recall a number who passed the worsted test all right but who had the central defect which the lantern disclosed. I believe that every one of them were users of tobacco.

In their classification of employés, the Association requires the same acuteness of vision in the case of brakemen, baggagemen and conductors that they require of enginemen and firemen. The writer has had some personal experience on the head end of the train, it having

been his habit for a time while he was medical director of the Burlington Railway System to fire an engine on the Chicago-Mendota run of eighty-three miles, on Saturday afternoons, on the train leaving Chicago at 4.30 p.m., and due in Mendota at 7.30 p.m. In the winter this gave a run beginning by daylight and finished after dark, and it has always seemed to me, that while a high state of vision should be insisted on for the men in the engine, it was not necessary to require the same standard for the other train men.

In July, 1905, the Erie Railway adopted a rather elaborate set of instructions, using the Snellen letters with only one size on each card for vision, and the full sets of 125 tagged Holmgren worsteds and the Williams lantern for the colour test in every case. They put only enginemen and firemen in the first-class (A) with a requirement of $\frac{20}{20}$ vision for entering the service; not less than $\frac{20}{30}$ for promotion and not less than $\frac{20}{40}$ for re-examination; the vision being tested in each eye separately without glasses.

Their Class B includes brakemen, conductors, drawtenders, towermen, telegraph operators, train baggagemen, yard masters, yard conductors, yard brakemen, and engineers retired from road service. The standard for entering the service in this class is $\frac{20}{30}$ in each eye separately without glasses; for promotion not less than $\frac{20}{30}$ in one and $\frac{20}{40}$ in the other without glasses; and for re-examination not less than $\frac{20}{40}$ in one and $\frac{20}{50}$ in the other without glasses.

Class C includes switch-tenders, station agents, station baggage men; vision for entering service not less than $\frac{20}{30}$ in each eye; for promotion not less than $\frac{20}{40}$ in each eye; and for re-examination not less than $\frac{20}{40}$ in one and $\frac{20}{50}$ in the other; in all cases with or without glasses.

Class D includes foremen and crossing flagmen; for entering service not less than $\frac{20}{40}$ in each eye; for promotion not less than $\frac{20}{50}$; and for re-examination not less than $\frac{20}{50}$ in each eye; in all cases with or without glasses.

In 1906 the Canadian Pacific Railway, after a very careful study of the methods used on a number of roads, printed a very satisfactory set of rules for visual tests. They require the same separate cards (Edition of 1905) for testing the acuteness of vision, and the same worsteds and lanterns for colour sense as used on the Erie.

In reviewing the above instruction, it seems undesirable to have the rules governing such examinations too complicated, or to call for higher standards of vision than safety requires, for if this is done it will be very difficult to avoid friction, or to get employing officers to live up to such rules, and it would seem as if the simpler standards adopted by the American Ophthalmological Society in 1901, and by the House of Delegates of the American Medical Association in 1902, would be sufficient for safety.

These standards of vision are: For Class A, enginemen and firemen in road service, for entrance to service or promotion, $\frac{20}{20}$ in each eye tested separately without glasses; for re-examination of those in the service, $\frac{20}{30}$ with both eyes open without glasses, each eye also to be tested separately and the vision noted. For Class B, other employés in the engine or train or yard service, and car and engine inspectors; for entrance to service or promotion, $\frac{20}{30}$ in one eye and not less than $\frac{20}{40}$ in the other, tested separately without glasses; for re-examination, $\frac{20}{40}$ with both eyes open without glasses, each eye to be also tested separately and its vision noted. For Class C, tower men, telegraph operators, station agents, and section foremen, for entrance to service or promotion, $\frac{20}{30}$ in one eye, and not less than $\frac{20}{40}$ in the other, tested separately with or without glasses; for re-examination, $\frac{20}{40}$ with both eyes open with or without glasses, each eye to be also tested separately and its vision noted. For Class D, crossing flagmen, for entrance $\frac{20}{40}$, and for re-examination $\frac{20}{50}$, in each case with both eyes open, with or without glasses.

These standards, of course, bring up at once the question of allowing the test for *re-examination* of old employés to be made with both eyes open, the vision in each eye being also tested separately and noted. Under this rule it would be possible for an old engineman to pass who had good vision in one eye and little or no vision in the other. The writer knows of one road where there are to-day three enginemen at work who have vision of $\frac{20}{70}$ in one eye and nothing in the other. Two of these men are at work in the yards, but the third has been, and is now, running a freight train. For the last twenty years he has run that train in his present condition, and during all that time he has never had a black mark against his name for accident or misconduct. If we say to his employing officer that such a man is not safe, the reply will probably be, "Look at his record." The writer does not advocate the employment of men as firemen who have less than $\frac{20}{20}$ vision in each eye without glasses, and in due time these men are promoted to be enginemen; but he believes, on the re-examination of old enginemen, many of whom were employed before the present tests were used, that cases will be found with an excellent service record and a character for sobriety and good judgement who may have not more than $\frac{20}{70}$, or even $\frac{20}{80}$, in one eye and little or no vision in the other eye, and yet who may be considered safe men. The vision in all such cases should be re-examined yearly to make sure that there is no decrease in its acuteness.

In addition to the test with letters, a reading test should be required, for men have been found who knew their letters but were unable to read printed or written matter.

In using the Holmgren test with coloured worsteds it is important to have the green test skein of the proper colour, as selected by Holmgren, so that it corresponds to the green in that part of the spectrum where those who are defective in their colour-sense see the neutral bands, for such persons will the more easily select the neutral greys and browns as looking like this test skein, and thus show their defect.

In some of the earlier American sets, and in some of those imported from Berlin, the green test skein has not been of the proper colour, and does not correspond to the green test skein of the sets of worsteds imported from Holmgren's laboratory at Upsala.

The test with the green test skein, showing the presence of defective colour perception for either red or green, and the test with the rose test skein, are both important, but too much stress should not be laid on trying to determine whether the defect is more for red or for green. Holmgren also used a bright red test skein, but he did not claim that it gave any additional information in regard to the colour-sense, and for the practical testing of railway men it has for many years seemed to the writer better to omit the test with this bright red skein; it takes valuable time, and it is often difficult to convince a man who has made no mistakes with the bright red skein but has made the usual mistakes with the green and rose test skeins, that he is dangerously defective in his colour perception. It is much easier for a person to educate his colour-sense to a proper selection of colours to match this bright red than it is to match the green or rose, and it is easier for him to learn to pick out the colours correctly with the set of 40 worsteds than it is with the set of 125 worsteds.

In connexion with this matter of educating the colour-sense the following quotation from a letter of Dr. Gardner, of Chicago, to the writer, is interesting: "A very intelligent and studious member of our profession is colour-blind, red green,—after carefully testing him and telling him the nature of his defect and how helpless the case is, he determined to educate himself and set to work with worsteds and colour glasses to accomplish this end. After one year of constant work he presented himself to me cured, and catch him I could not, coloured glasses, worsteds, all were recognized quickly and correctly. Unfortunately for him there was on my table a piece of *ruby* glass that he had not seen, it was of a peculiar red and had been sent to me for examination with the prisms: he picked it up, held it up to the light, and said, 'Why, Gardner, where did you get this beautiful *green* glass?' Since then he has given up the cure for colour-blindness." This case brings up the reliability of the "field test" recently adopted by the N.Y.N.H. and H.R. If the man mentioned in Dr. Gardner's letter was able in one year to educate his colour-sense so that he would have passed any ordinary examination, it is not to be wondered at that a man who is using the four signal colours—red, green, yellow and blue, year after year, will learn, even with a considerable amount of defective colour-sense, to give the right names to the colours he sees in such a "field test." Such an examination only shows how well a man has learned to give the right name to the impressions received from these colours at the time the examination is made; it

does not show whether he could give the right names when these colours are altered in their intensity, as by a dim burning light, a smoked glass, smoke or fog in the air, etc. It is not practicable to make these field tests under all the conditions of actual service. With the standard test we can get more information in less time than with the field test, and there is nothing in the standard test, when properly conducted according to the instructions, which any one with normal vision or colour-sense should have any difficulty in passing.

The effect of fatigue in reducing the acuteness of vision has been mentioned by several writers, but does not seem to have been given the consideration which its importance warrants. Dr. Denney, the Medical Director of the Burlington Railway System, has found that on a fast mail run of about 200 miles, the acuteness of vision of the engineman at the end of the run is only about ⅔ of what it was at the beginning of the run. After resting, the acuteness returns to its former figure, but this effect of fatigue shows that it is necessary to require for the head end of the train a sufficiently high standard to prevent the vision from falling to a dangerous point when reduced by fatigue.

There is another class of men who are daily becoming more numerous, and who should be required to pass tests for vision and colour-perception before obtaining their licence—namely, the drivers of auto cars. If we require these tests of men running engines on a well built steel track, supplied with all kinds of safety appliances, how much more necessary is it to examine men who run their engines on the public highway, often at a rate of speed comparable with that of railway trains! When such men are defective they are a danger not only to themselves, but to all whom they may meet. The writer has recently operated for strabismus on a cross-eyed chauffeur, and there are doubtless many others equally defective.

A DISCUSSION ON RARE FORMS OF CHOROIDITIS.

OPENING PAPERS.

I.—J. B. LAWFORD, F.R.C.S.,

Ophthalmic Surgeon, St. Thomas's Hospital.

[ABSTRACT.]

IN his opening remarks Mr. Lawford referred to the wide limits of the subject and to the difficulty in deciding what forms of choroidal disease could be legitimately called "rare," the experience of observers in different countries varying markedly in this respect. His desire in introducing the discussion was to solicit opinions especially as to the etiology of some forms of choroidal disease, rare in his experience, which he proposed to bring before the meeting.

The first group contained cases of widespread changes in the choroid, closely resembling the common form of disseminated choroiditis of syphilitic origin, and in which syphilis acquired or inherited could be excluded, at least with reasonable certainty. The patients were in most instances adolescents or young adults; the disease generally attacked both eyes, and its ophthalmoscopic features were strikingly similar to those of the syphilitic variety.

The changes were, he thought, more choroidal and less retinal than in the syphilitic disease, and vision was, as a rule, but slightly affected.

He fully recognized the difficulty of obtaining reliable evidence that such cases were not of syphilitic origin, but he felt convinced that disseminated choroiditis occurred from causes other than syphilis.

Among possible causes tubercle, gout, and septic infections of the choroid were considered.

The second rare form of choroiditis was that to which the term "localized exudative choroiditis" might be applied. In this variety there was an acute limited inflammation of the choroid with considerable swelling and exudation.

The overlying retina became hazy and oedematous, and fine changes were present in the vitreous. The disease ran a fairly definite course and terminated in an area of destruction of choroid. It occurred in young adults, and showed a decided tendency to recurrence. Syphilis probably played no part in its production; tubercle in the patient or in the family was not uncommon.

The third form was "family choroiditis"; the disease attacking two or more members of the same family, and showing considerable variation in type. In some of the published examples the choroidal lesion had been associated with gross disease (paralytic in character) of the nervous system.

II.—CHARLES STEDMAN BULL, M.D.,

New York.

FORMS OF CHOROIDITIS RESEMBLING THE WELL-KNOWN SYPHILITIC TYPE.

THERE is a variety of general choroiditis strongly resembling the choroiditis disseminata of constitutional syphilis, but in which it is impossible to discover the slightest evidence of inherited or acquired syphilis as an etiological factor. Of this variety I have seen a number of cases in which the cause was presumably intestinal intoxication due to ptomaine poisoning. I will give briefly a report of two such cases.

The first case was that of a young girl, aged 14, who had been seriously ill from ptomaine poisoning. The vomiting and diarrhoea were severe, and were accompanied by increased temperature, very rapid pulse, and profound prostration and delirium. Large pemphigoid bullae appeared on the abdomen and inner surface of the thighs. When the delirium passed away she complained of indistinct vision, which lasted and increased till I saw her six weeks after the attack began. The media were clear, the pupils were widely dilated, and the iris immovable, and there was complete paralysis of accommodation. There was a refractive error of compound myopic astigmatism, and under proper correction the right eye had vision of $\frac{1}{10}$, and the left eye vision of $\frac{1}{15}$. The optic nerves were pale. Scattered all over the fundus of both eyes were patches of yellowish-white exudation in the choroid, of varying size and shape, very flat, with scarcely any elevation above the general fundus. Some were in the stage of efflorescence, and others in the stage of retrogression. The retinal vessels crossed them without any change in direction or calibre. The older patches were surrounded by a reddish margin, but there were no pigment masses anywhere in the fundus. There was no scotoma in the visual field, and no peripheral limitation. The most rigid personal and family investigation failed to elicit the slightest evidence of syphilis. This patient was treated by iron, strychnine, and arsenic, and under this treatment the patches of choroiditis began to grow smaller. At the end of three weeks the paralysis of accommodation disappeared, and in three months the vision was restored to the normal. The choroidal patches slowly disappeared, the outlines became very indistinct, and about ten months after I first saw her, all signs of choroidal exudation had disappeared.

The second case was a lady, aged 27, whom I had examined some years before, and prescribed glasses for a compound hypermetropic astigmatism. In other respects the eyes were normal. About two months previously she had been seriously ill with intestinal intoxication from ptomaine poisoning, with high fever, vomiting and purging, delirium, and a general eruption of pemphigus all over the body. On recovering from the violent symptoms she complained of vertigo and great dimness of vision, and on consulting an oculist was told that she had a diffuse choroiditis. When I saw her, two months after the attack, vision was $\frac{1}{15}$ in each eye, and there was complete paralysis of accommodation and mydriasis. There were peripheral striae of opacity in both lenses, and in the choroid numerous flat patches of yellow exudation scattered all over the fundus. These patches were of varying size and shape, with little or no elevation, surrounded by a red margin but with no pigmentary ring, and no deposit of pigment anywhere in the fundus. There was no scotoma and no narrowing of the field. The more recent patches of exudation were around the posterior pole in each eye. The scars of the pemphigoid eruption were still evident. She was very anaemic and a blood examination showed only 75 per cent. haemoglobin, but there was nothing notable in the appearance of the red or white globules. There was a trace of albumen in the urine and a few hyaline casts, but the amount of indican was decidedly increased. In view of the anaemia, iron, arsenic, and strychnine were given continuously for about three months. By that time the mydriasis and paralysis of accommodation had disappeared, the lenses had become entirely clear, vision rose to $\frac{1}{8}$ and she read Jaeger No. 1 fluently. The exudative patches in the choroid, which had been bright yellow, had become very pale, the red margins had disappeared, and the outlines became very shadowy. There was no paralysis of any of the extrinsic muscles of the eyes at any time.

These two cases will serve to typify the variety of choroidal inflammation due to autointoxication.

Another variety of choroiditis, or of general uveitis, is that occasionally met with in persons who have been the victims of long-continued or of severe malarial intoxication. These are really cases of general uveitis, for the iris is almost always involved, either primarily or

secondarily. There are punctate deposits on the membrane of Descemet, posterior synechiae, but without exudation in the field of the pupil on the anterior lens capsule, and the vitreous is filled with fine dust-like opacities, and at times with small membranous floating opacities. The turbidity of the vitreous is at times so dense as to obscure all details of the fundus. There is usually no pain, but there is great intolerance of light, and very marked impairment of vision, which at times is reduced to counting fingers. The disease is almost never encountered, except among persons who have been long resident in malarial regions, and who have become saturated by the malarial poison. A careful examination of the blood rarely fails to discover the plasmodium, though not always on the first examination. There is no narrowing of the visual field, no scotoma, and no interference with the colour sense. The disease is characterized by extreme chronicity and great obstinacy in resisting treatment. The vision does not begin to improve, nor do the symptoms begin to disappear until large doses of quinine are administered. The usual duration of the disease in those cases which have been under my care has been from three to four months, and I have found it wiser to combine iron and arsenic with the quinine in the treatment, as these patients are almost always very anaemic.

SOME RECENT CASES OF DEATH AND BLINDNESS FROM WOOD-ALCOHOL POISONING.

By Casey A. Wood, M.D.,
Professor of Clinical Ophthalmology, University of Illinois.

My apology for this paper is the fact that wood-alcohol intoxication, as well as the amaurosis produced by it, is unknown in Great Britain, and is rather rarer in Canada than in the United States. The literature of the subject does not describe a single well-authenticated case of wood-alcohol amblyopia as originating in the United Kingdom, although on this continent they can be counted by the hundred. For this reason I thought a brief description of methyl-alcohol poisoning might be of interest to ophthalmologists and toxicologists from abroad, especially in connexion with a number of hitherto unpublished cases kindly reported to me by *confrères* in Canada and the United States.

Usually within twenty-four hours after the absorption of the poison, either by the stomach or by inhalation of the fumes mixed with rebreathed air, the patient complains of nausea, vomiting, abdominal distress, weakness of the extremities, pallor of the face, and coldness of the hands and feet. He generally has severe headache, difficulty of breathing, and partial unconsciousness, which may deepen into coma, and be followed in twenty-four to forty-eight hours by convulsions and death.

The eyesight, when large doses are taken, suffers more or less in the majority of instances, although it may remain good for several days, and may not be affected until almost every other sign of the intoxication has passed off. Whether it shows itself early or late, whether partial or total, it is almost always followed in a few days by more or less complete return of vision; in some cases central acuity may again become normal. After a time, however, in spite of this apparent improvement—often attributed to the effects of treatment—sight again becomes defective, the patient sees less and less, and as a rule becomes totally and permanently blind. The visual fields are generally contracted, and absolute central scotomata can be mapped out. At this stage of the intoxication the pupils are widely dilated and do not respond to light or accommodation.

The characteristic ocular lesion is an optic neuritis, which is generally recognizable by the mirror in the early days of the intoxication. The optic outlines are blurred, there is some papillary oedema and the central vessels are distinctly engorged. These organic alterations correspond closely to the symptoms. The onset of the neuritis gives rise to the primary blindness. As soon as the acute papillitis subsides vision somewhat improves, to be followed by a post-neuritic atrophy and permanent loss of sight.

The treatment of the eye lesions in wood-alcohol poisoning is far from satisfactory, as may be readily believed when one considers its pathology. Pilocarpin sweats with potassic iodide, or soda salicylate, in the early stages, and the use of full doses of strychnine hypodermically when optic atrophy declares itself, may be of some value.

The intoxicant is nearly always the so-called "purified" or "deodorized" form of wood alcohol (generally Columbian spirits) employed either as "mixed drinks" or an adulterant of, or substitute for, ethyl alcohol. When it is inhaled, also, in a closely confined, unventilated chamber the deadly effects of the poison are exhibited, just as they have been for many years past.

Since the publication, in 1904, of the reports by the late Dr. Frank Buller and myself[1] (when 275 instances of toxic amaurosis and death had been collected) until the present date possibly there has been a slight falling off in the record. During the last year, doubtless as a result of the agitation in the United States for commercial alcohol, and the discussion that has taken place in the newspapers anent the propriety of substituting this cheap and non-poisonous fuel and cleansing agent for wood alcohol and gasoline, the fact that methylated preparations are poisonous has been widely circulated and has had something to do with the less frequent occurrence of wholesale poisoning. Possibly, also, the makers of wood alcohol have been a mite more careful in the sale of their product. Be that as it may, the contention of Buller and myself that the only way to prevent poisoning from "deodorized" wood-alcohol is to prohibit or (what amounts to the same thing) render unprofitable its manufacture or sale. This we have accomplished in the United States, and I prophesy that when the provisions of our "denatured" alcohol Bill are carried into effect we shall in that country, hear no more of this toxic agent and its annual tale of victims. I hope that Canada will join Great Britain, Germany, the United States, and other countries, in availing herself of the numerous advantages that flow from the use of a cheap, untaxed, solvent and power-producing agent, and with that advantage remove from the market a poison that ought not to be openly sold, as it now is, under the guise of a comparatively harmless fluid.

My main purpose, however, is to speak of a few recent, hitherto unreported, and somewhat interesting series of cases of wood alcohol amblyopia that have occurred in Canada and the United States.

First of all, let us consider the example of poisoning *en masse*, so characteristic of methyl-alcohol intoxication poisoning. Instances of wholesale poisoning are too well known in this country to require extended comment. A few years ago the death and blindness of four, five, ten, twenty men or women excited considerable public interest, and served to fill a column or two in the daily paper; but these occurrences among people that go on "sprees" are now generally consigned to a short paragraph in the newspaper. It is an old, old tale.

Cases I to XVII.

The Associated Press Report, from Ashland Ky., U.S.A., printed on December 19th, 1904, the following story, which was corroborated, with some slight modifications, by Dr. E. K. May of Dwale, Ky., Dr. W. W. Richmond, and Dr. W. M. Salisbury of Prestonsburg, Ky., with whom I corresponded, and to whom I am greatly indebted for the medical details.

"Four more have been added to the list of six dead, and two are reported dying from the effects of wood-alcohol poisoning at the mouth of Beaver, Big Sandy, Friday night. Three pushboats, with a crew of seventeen men, were *en route* to Pikeville, the boats being loaded with freight. At the mouth of Beaver River, five miles above Prestonsburg, two of the boats sank, and the men swam and waded ashore with much of the freight. A jug of wood alcohol was one of the articles saved. It was dark and the men were chilled and wet. Fires were built and supper started. A man came along and sold them four bottles of 'Moonshine' whisky. They drank it and wanted more. One man said: 'Let's drink the alcohol.' Another said: 'It will kill us, see the poison label.' One of the crew began mixing drinks and said: 'Come on, let's have our Christmas now. If it's poison, we will all die together.' They drank the stuff, and while at supper became violently ill. Two doctors were called, but could not relieve them. The names of the ten dead men are given. Two other members of the crew are reported dying and three are missing."

From Drs. May, Richmond and Salisbury, I learn that the poison was partially purified wood alcohol, that the men's ages varied from 20 to 50 years, and the amount drunk in each instance was from one-half to one pint. There were, out of the 17 cases of intoxication, at least 7 deaths. In every fatal case the patient complained of

blindness before death, which occurred in from thirty-six to forty hours after the ingestion of the poison. They had abdominal cramps with pain, extreme muscular weakness, incontinence of urine, and general convulsions not controlled by large doses of morphine. Those who recovered (ten) complained of partial blindness.

The treatment was, first, emetics combined with mucilaginous drinks, followed by egg albumen, milk, hot coffee, brandy as enemata and by hypodermic injection, heat to the extremities, etc.

CASES XVIII TO XXIII.

I am indebted to the courtesy of the Surgeon-General of the United States and the Surgeon in charge of Fort Jay, New York, for the following account of a methyl alcohol debauch indulged in by six military convicts in the prison attached to that post.

The intoxicant which caused the poisoning in these cases was smuggled into the prison. A specimen could not be obtained, as it had either been drunk at the time of the discovery of the cases of intoxication, or had been thrown away to avoid discovery. It was stated by some of the prisoners who had indulged in its use that it was wood alcohol; this had been mixed with water, sugar, and lemon juice. The quantity introduced was reported as having been two quarts. Ten men are said to have indulged, though only six cases came under observation. One case resulted fatally. This case was as follows:

Prisoner E., aged 27; white; American. He was found unconscious, and sent to the hospital. It was reported that he had been unconscious for several hours prior to admission to the hospital, his fellow-prisoners having shielded him from observation, believing that he would sleep off his intoxication.

At the time of his admission he was in a state of stupor from which it was impossible to arouse him; he was restless, tossing about in bed, attempting to get up, moaning and retching. His pupils were widely dilated, and did not react to light; skin cool and moist; temperature by rectum, 97°; pulse was slow, feeble, and intermittent; breath gave off the odour of wood alcohol. Bladder contained about 120 c.cm. of urine, which was cloudy in appearance, contained a small amount of albumen and a few epithelial casts. Contents of stomach, which was washed out through lavage tube, did not have any odour of wood alcohol. The stupor increased: restlessness disappeared; pulse became feebler, and finally imperceptible; respirations, which on admission were apparently normal in number, became slower (8 per minute about one hour before death) and stertorous; pulmonary oedema set in, and two and a half hours after admission patient died.

Post-mortem Examination.—Autopsy twelve hours after death. Body well nourished. Rigor mortis present. Autopsy held February 7th, 1906, showed lungs oedematous, otherwise normal. Pericardium normal. Heart normal; left ventricle empty, right ventricle distended with fluid blood. Kidneys: stellate veins marked; glomeruli prominent; pyramids striated. Stomach and small intestines: mucous membrane eroded, and the seat of subcutaneous haemorrhages. No changes present in other abdominal organs. Brain not examined. Cause of death, poisoning by methyl alcohol—respiratory and cardiac paralysis.

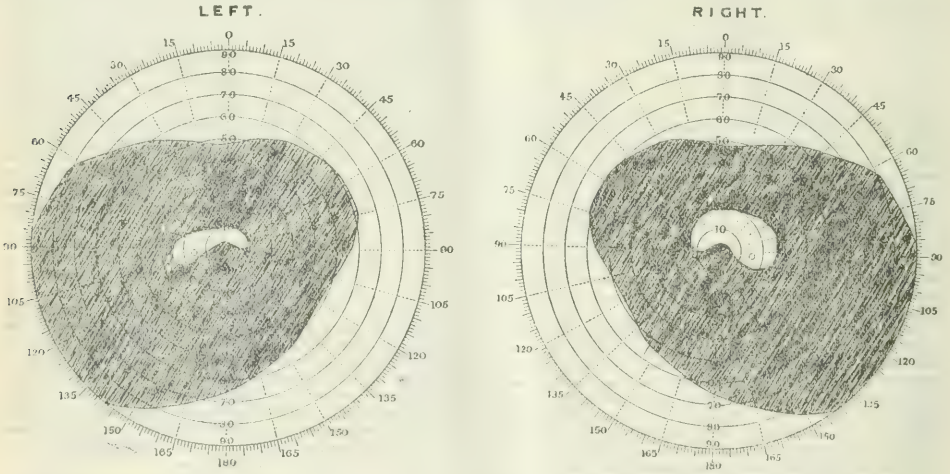
The other case admitted to hospital was:

Prisoner S., aged 24; white; American. At the time of admission the patient was in a state of stupor, from which, however, he could be easily aroused. There was persistent vomiting, the vomitus consisting of bile-stained mucus without odour. Skin cool and moist; temperature by mouth 97.2°; pulse 88, small, with an occasional intermission; respirations 22; pupils dilated, reacting slowly to light. Patient when aroused complained of headache and nausea. Urine contained albumen (trace) and a few epithelial casts. Breath had the odour of wood alcohol.

On the following morning the temperature was 98.2°: pulse 94, and regular; respirations 24; headache and nausea still present, but there was no further vomiting: pupils and skin normal. On the morning of the second day all symptoms had disappeared, and patient was returned to duty. No complaint of loss of vision was made in this case; fundus oculi was not examined.

Four other cases were seen on the day after the discovery of the indulgence in the spirits by the prisoners had been made. All of these had recovered from the stage of intoxication. They complained of frontal headache, pain about the heart and in the epigastrium, nausea and vomiting, and muscular weakness. In all of these cases the pupils were dilated, but none complained of defect of vision. All returned to duty on the second day following the indulgence.

Apropos of wood-alcohol poisoning *en masse*, I may say that in a personal communication from Dr. Ströhmberg of Dorpat, Russia, he tells me that since his first observation of wholesale poisoning from methylated balsam he has noted another village holocaust in which some twenty people died and many more had become blind from drinking "deodorized" wood alcohol, said to have been imported from America.



CASES XXIV AND XXV.

These instances of wood-alcohol poisoning about to be described came under my observation within the last four months, having been referred to me by my colleague, Dr. Wm. E. Gamble of this city. They are examples of poisoning by inhalation, and ought to have a peculiar interest not only for us as medical men but for all employers and employés engaged in any trade or occupation involving the use of wood alcohol.

Frank P., 45 years of age, has been engaged twelve years in a piano factory handling wood alcohol. His work is to pour the spirits from a barrel into 5-gallon cans and mix it with shellac for the stainers in the factory. It has been his custom to frequently wash the shellac from his hands and face with the wood alcohol. He knew the wood alcohol to be poisonous if taken internally, and firmly denies having ever drunk any of it. He says that his fellow-workers have noticed for some time that he has been looking badly and acting rather peculiarly in his work, in that he would have to turn his eyes somewhat to pour the wood alcohol, and also get closer to the cans in order to see. His weight when he first entered the factory was 210 lb., and is now reduced to 150 lb., with a sallow complexion and an anxious expression.

Nine weeks ago, on a Monday morning, he spilt five gallons

of alcohol on the floor, and over his legs and feet. He did not change his socks that day, and in the evening complained of headache, some dizziness, loss of appetite, and slight vomiting. He also got some of the alcohol in his eyes, more in the right, which became red and oedematous. This conjunctivitis cleared within a week. Tuesday he stayed at home and rested, experiencing a very strange and tired feeling without desire to eat anything. Wednesday morning he returned to the shop, but could do no work, and came home at noon. His vision up to that time was apparently not perceptibly affected; at any rate he did not himself notice any change, nor did he act in a manner that would attract the attention of his family to diminished vision. He went to bed and slept until 5 o'clock, when he was awakened by his daughters for supper. He complained bitterly, saying that he did not want to eat, and also that he did not wish to be awakened in the middle of the night. A lighted match held as close to his eyes as his daughter would dare hold it revealed no perception of light in either eye. He then experienced some slight pain in his stomach, refused food for two days, when he was taken to Grace Hospital and placed under the care of Dr. Phillips. Sweats and appropriate treatment continued for two weeks, when light perception returned. Since that time he has been at home, his only remedy being active purgation by magnesic sulphate. He consulted Dr. Gamble at Cook County Hospital.

Examination showed semi-dilated pupils with very sluggish reaction to light and accommodation. His vision in the left eye is fingers at 2½ ft.; and in the right, fingers at 3 ft. eccentrically. A rough estimation of the field of vision corresponds to the accompanying charts. Ophthalmoscopic examination without a mydriatic revealed atrophy of the optic discs with enlarged physiological cups and a greenish-grey appearance peculiarly noticed upon the temporal side. The veins are large and congested, while the arteries are very small. As much of the fundus as could be seen was otherwise apparently normal. The pupils were not sufficiently dilated to obtain a view of the macular region.

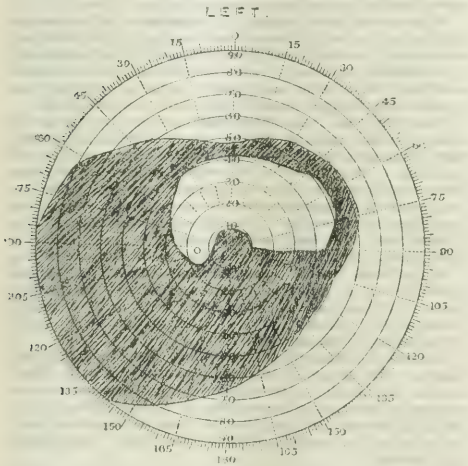
When I saw this patient his pupils were widely dilated, both fundi presented the usual picture of advanced grey-white atrophy with small central vessels. His visual fields were carefully measured by my assistant, Dr. S. G. Higgins, who found no field for colours; white was perceived eccentrically over a small area, as shown in the accompanying perimeter charts (page 1856).

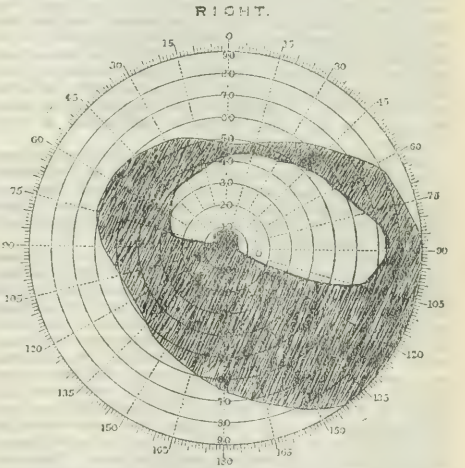
The next case was that of S. S., Russian, 47 years of age, an expert polisher in a piano factory, where he had worked eight years. His general health had always been good and his eyesight normal. About five months ago, while at work in the piano factory, he became ill, had cramps in his legs and neck, was nauseated, dizzy, and prostrated. He walked home, but felt so weak that he had to rest three times on the way. When he reached home he went to bed. He vomited and was still prostrated; had a "soreness" which extended from his forehead to the back of his neck. Soon after reaching home he found that he could see nothing. Next day his constitutional symptoms had become better, but his sight was still lost. For three weeks he could see nothing; then he began to improve. At this date he has no useful vision, as he can barely count fingers held a couple of feet in front of his face, and at times it seems to him that his eyes are full of sand. He denies having drunk any of the "alcohol," although he often used it in washing his hands, arms and face to get rid of the varnish. Patient has shown no signs of constitutional or other disease—apart from the exposure to wood-alcohol fumes—to account for his blindness.

I saw this patient with Dr. Gamble in March, 1906. His vision was, fingers—counting at one foot before the left eye; at two feet before the right. Both pupils were dilated *ad maximum*, and sluggishly contracted somewhat to bright light. The visual fields for a 10 mm. white object were limited to about one-fifth their usual extent, and their central areas showed large positive scotomata, as seen in the accompanying charts. The fundus pictures were, as in the previous case, those of a well developed, greyish post-neuritic atrophy.

For the following history I am indebted to Dr. J. B. Pellet, of Hamburg, N.J.:

H. T., aged 41, labourer, about three years ago took three glasses of wood alcohol, which a physician had prescribed for his wife for external use; he also drank three glasses of beer in the evening. Thinks he imbibed about a whisky-glassful of methyl alcohol altogether. This was on Friday. Saturday he did some work, but again became drunk, and "got drunker and drunker"—to quote his own words—until, on Saturday evening, "he knew nothing." His friend aroused him on Sunday, when he spoke, but went immediately to sleep again. He awoke Sunday evening, and all was dark. He asked why they did not light the lamps, for he could see nothing. He gradually recovered his former condition on Monday, excepting his sight. Tuesday he went to the barn to help the farmer do the work; could make out the form of the cows, but could not tell one cow from another. All colours were the same to him. Had no pain of any kind that he remembers; no numbness of hands or feet; "just gave out," he says.





Dr. Talmage found his vision as follows: R. $\frac{15}{200}$; L. $\frac{20}{200}$. Turns his eyes to right, and does not fix well. Ophthalmoscope shows nothing abnormal about retina or choroid, but there is marked atrophy of the nerves on the temporal sides. His fields seem to be normal. Pupils are active, at least not dilated.

June 1st, 1903, came again. R., fingers 5 ft.; L., fingers 20 ft.; cannot fix. At this time had "neuralgia."

For the last record I have to present I am indebted to Drs. George H. Matthewson and Fred. T. Tooke of Montreal, both of whom saw the patient.

Hermann R., Dane, October 28th was working in a lumber shanty, and was in perfect health until January 2nd, 1906. On the evening of that day a friend brought in a bottle of white fluid, which he had bought at a drug store, and which he called "alcohol," and vaunted as being better than whisky. The patient drank about half a cupful of the "alcohol" mixed with his tea. He felt dull and tired after drinking it, and the next day had severe pains in the epigastric region and in the limbs, also shortness of breath. To relieve the pain he drank half a bottle of "Pain killer." On the morning of the next day, January 4th, he found himself blind on awakening, vision being reduced to light perception. Two days later blindness became absolute, and remained so for three days, and then his vision improved to the present state, and has so remained. Several others took some of the "alcohol" without ill effect, but he cannot say in what quantity.

To-day, May 9th, 1906, over four months since the ingestion of the alcohol, the patient's condition is as follows: L. and R. vision = shadows. The pupils are widely dilated, and do not react to light. The optic nerves are chalk white. The retinal arteries are slightly narrowed.

In addition to the foregoing case-records, medical and other friends throughout the country have, since my last report upon this subject, sent me many newspaper accounts of poisoning from methylated mixtures. As these cases, although apparently authentic, were not examined with sufficient care to render them of scientific value, I refrain from publishing them. Moreover, the catalogue of recent deaths and blindness in the United States from methyl-alcohol intoxication is too long to read here. It may be interest, however, to note the death, last November, of two Delaware Indians at London, Ontario, from drinking cheap whisky, adulterated with wood alcohol, purchased at a drug store; and, about the same time, of the sudden demise of two more men in Winnipeg, Man., who purchased some "purified" methyl alcohol from a druggist in that city in lieu of whisky. The cause of death in all four instances was determined at the coroner's inquest.

It is well to remember that methyl intoxication is an example of idiosyncrasy. As I have before pointed out, it is not everybody who drinks even large quantities of wood alcohol, say 5 or 6 oz. within an hour or two, who is permanently injured thereby. Of ten individuals so indulging all will exhibit signs of intoxication, and four will die, two of them becoming blind before death. Of the survivors, two will be permanently blind from optic atrophy. This fact, and the escape of persons drinking a few ounces well diluted, is responsible for the belief that deodorized wood alcohol is innocuous, or, at least, "as good as grain alcohol." I may here remark that this idea is certainly fostered by the labelling of Columnian spirits, so widely sold in Canadian cities. Both the labels and the name are evidently close imitations of the deadly product once openly exploited without a poison label in American cities. A glance at the samples I pass round will serve as an object lesson to sanitarians in both countries.

Time will not permit me to speak of many anomalous cases, such, for instance, as that detailed by Dr. Harold Gifford in the June number of the *Ophthalmic Record*, of methyl-alcohol poisoning, nor to discuss the nature of the lethal agent in the fatal instances as well as in subjects of chronic poisoning, mixed intoxication, etc.

Prophylaxis of Wood-alcohol Poisoning.—On several occasions[3] I have urged the futility of simply labelling methylated products "poison" as a means of preventing people from drinking diluted Columbian, Columnian, or standard wood spirits, or from using them to adulterate whisky, lemon extract, Jamaica ginger, or other spirituous mixtures. These deadly forms of "deodorized" wood alcohol too closely resemble in taste and smell ordinary grain alcohol. As a consequence, they often overpower the prudence of him who drinks and the honesty of him who manufactures. In my judgement, the only effective remedy is to render unprofitable the sale and manufacture of every form of deodorized methyl alcohol. This can readily be accomplished in Canada, as it has recently been in the United States, and as it has for years been done in Great Britain, Germany, France, and other countries. This is not the place to discuss that matter, and especially not to urge its adoption on that part of my audience hailing from a country that last year consumed over two millions of gallons of cheap, untaxed grain alcohol for manufacturing and other purposes. Any one interested in this part of the subject will find it fully discussed in a paper entitled Tax-free Alcohol, by Professor W. P. Cohoe, of Toronto, in the July, 1906, number of *Industrial Canada*.

I may add that the price of deodorized wood alcohol, upon which there is no excise duty, as sold in Canada, is 1.75 dols. to 2.00 dols. per imperial gallon wholesale; refined wood alcohol, 1.25 dols. It is no wonder that there is a temptation to use these poisons illegitimately when Canadian grain alcohol, 65° over proof, sells for about 4.30 dols. per gallon. I am reliably informed that grain alcohol could be distilled and sold at a profit for light, fuel, varnish making, and other industrial purposes, for less than the factory cost of producing "deodorized," or even the so-called "refined" wood alcohol.

REFERENCES.

[1] *Journ. Amer. Med. Assoc.*, October 1st to 29th, 1904. [2] Sechszehn Vergiftungsfälle mit Methylalcohol, *St. Petersburger med. Wochenschrift*, October 8th and 15th 1904. An abstract of this article appears in a paper of mine (Poisoning by Wood or Methyl Alcohol and its Preparations) in the *New York Medical Journal*, January 7th, 1905. [3] See, for example, *International Clinics*, 1903, vol. i, p. 78.

A DISCUSSION ON SYMPATHETIC OPHTHALMIA.

OPENING PAPERS.

I.—G. H. BURNHAM, M.D.,

Toronto.

THE terms "sympathetic irritation" and "sympathetic inflammation" are applied to an affection in which one eye is implicated as the result of disease or injury to the other.

It is held by many, perhaps the majority, that these are two essentially different conditions. For my part, I do not agree with this view, and, on the contrary, think that they are the same as to origin. Traumatisms probably cause over 80 per cent. of these cases of sympathetic inflammation. These injuries receive their serious import, as a rule, according to the absence or presence of interference with the ciliary region, aptly termed by Nettleship "dangerous zone."

There may also be added as causes ossification and calcification of the choroid and ciliary body, and also pressure of an artificial eye or incarceration of the stump of the optic nerve in scar tissue after the operation of enucleation.

A premonition of trouble, especially if sympathetic irritation is passing into sympathetic inflammation, is, according to Marcus Gunn, the oscillation of the iris.

With or without warning sympathetic inflammation shows itself as an irido-cyclitis—plastic in character; as a serous iritis, which may pass into plastic irido-cyclitis; a choroido-retinitis, in which the outlines of the papilla are hazy, the retina oedematous, with or without the appearance of slight serous iritis. This is a rare form.

The symptoms in the sympathizing eye may be acute or chronic. The exciting eye may show marked inflammatory symptoms or may be very quiet. The period of incubation, or that period of time which intervenes between the reception of the injury in the exciting eye and the development of inflammation in the sympathizing eye, varies from three to six weeks. The extremes of the onset of the disease are, it is said, from two weeks to sixty years. I have seen a case arising after an interval of fifty-five years.

Sympathetic irritation may arise in the first forty-eight hours, but it is exceptional. It was almost universally believed at one time that this was due to a reflex action through the ciliary nerves, and hence the term "sympathetic" was applied.

The exact nature of this dreaded disease is not yet known. The theory of infection is now largely held. That is, that, according to Deutchmann, the inflammation is a progressive process in the continuity of the tissue of one eye to the other by way of the optic nerve apparatus and is bacterial in origin. Hence the term "migratory ophthalmia."

Also there is the ciliary nerve theory: that is, that disturbances of nutrition and in the circulation caused by irritation of the ciliary nerves in the injured eye create the inflammation in the eye sympathetically inflamed.

That the whole question is still in a state of doubt is allowed even by those who are strongly in favour of one or the other theory.

It is stated that the most important consideration is the management of the injured eye. This division of the subject, weighty as it is, I shall not dwell upon. Nor shall I refer to the operations upon the exciting eye, namely, enucleation or one of its substitutes.

That which especially interests me is the treatment of the eye sympathetically inflamed. Also, I shall say a few words regarding the transmission of the disease from one eye to the other.

It seems to me that, though an injured eye may remain for a variable length of time after the injury without exciting any apparent sympathetic irritation or inflammation, and then this disease—sympathetic inflammation—appears, we have during this stage of quiescence a comparatively benign condition, in which slow pathological changes begin, and become very active and destructive later on.

By using the combined treatment during this stage of quiescence, it suggests itself that the acute and malignant stage could be avoided. That is, that the onset of sympathetic inflammation could be prevented by this

constitutional treatment of the exciting—the injured—eye. Of course there are limitations arising from the seriousness of the wound, but otherwise the idea strongly commends itself to me.

In one of the cases of sympathetic inflammation reported by me,[1] the penetrating wound extended through the cornea from its centre down to the edge of the ciliary processes without apparently injuring them. I removed a portion of the iris so as to free the wound, and hence could plainly see the parts. For two months I watched it and could see no change. Everything was quite quiet. The sympathetic inflammation apparently developed itself rapidly—that is, in about twenty-four hours or so. Now, when I looked, I found that the point of contact of the wound with the ciliary processes, which previously was quite quiet, had become covered with a small fuzzy-looking exudate, noticed for the first time.

It is difficult to believe that the beginning of this sympathetic inflammation was coincident with this altered condition of the wound, nor do I believe it; but I regard it as the result of a pathological process in the injured eye which is variable as to its power for evil. However, after the removal of the eye, all the symptoms of this disease seemed to be in complete abeyance, only to reappear in a few days with great violence.

This goes to show that the process in the wound, which is followed by the sympathetic inflammation, is the origin. Hence there was this rapid temporary amelioration after the withdrawal of the cause by the removal of the eye, but it was not permanent, as the pathological process had now so far passed beyond its benign state as to render any other result an impossibility. Hence the long-drawn-out presence of sympathetic irritation, in that the unhealthy or pathological process in the wound may remain limited to this form, which may exist from a few days to several years, and the rapid change into sympathetic inflammation, or the presence of the latter almost from the beginning.

I deeply regret that, owing to a misadventure, the excised eye was lost, as otherwise a careful examination would have been made.

The successful treatment by the combined method of the severest forms of irido-cyclitis, arising from different causes, has enabled me to compare their respective virulency. The malignant character of acute sympathetic irido-cyclitis has particularly impressed me.

Again, is it not puzzling that sympathetic ophthalmia should so widely vary in its manifestations, namely, an irritation and nothing more; a slight punctate keratitis, which quickly passes away; a serous irido-cyclitis, painless, relapsing, and gradually becoming quiet, with damaged vision; and an irido-cyclitis of a most severe character; and we, though carefully examining the exciting eye, can so seldom forecast correctly the type that will ensue, and are sometimes astonished at its non-appearance?

I believe that the cause of sympathetic irritation and inflammation in all cases selects two routes to travel by—namely, the ciliary nerves and the optic nerve—and that in every case of sympathetic trouble these two routes are always made use of, but, of course, in varying degrees.

In cases of pure sympathetic irritation the removal of the injured eye is accompanied by a cessation of the condition, immediate and final, as the condition in the sympathizing eye is functional, not structural, and the pathological process in the injured eye, being as yet limited, is followed, after its removal, by a cure.

As to the other variety, operative and constitutional treatment, as usually followed out, is so rarely crowned with success as to justify the use of the phrase that the exception proves the truth of the rule, that even partial recovery is rare indeed.

The character of the impulse sent from the injured eye, which is something very difficult to define, is the cause of the various phenomena of the sympathetic trouble.

If I did try to define it, I should say that it was a hyperactivity of the physiological circulation of the part or parts injured, of an unhealthy character, that caused the mischief. If we can offset this by exciting physiological hyperactivity of a healthy character, the morbid process in the sympathetically inflamed eye can be stopped, and the tissues, even if much affected, restored to a state of practically normal functional power.

In the case of sympathetic ophthalmia already referred to, as long as I could get a view of the optic disc and fundus, till it was shut out by the exudate into the anterior part of the eye, there was no apparent change. And when later on, owing to the process of recovery established, I did get a view, there was seen a condition which showed that in the meantime the optic nerve had become inflamed after a fashion, which abruptly limited to the disc the dense, putty-like exudate which completely covered it and hid from view the vessels, leaving the fundus unaffected save for a few spots of choroido-retinitis in its outer part close to the ciliary processes.

When the combined treatment has so favourably demonstrated its ability to bring about so satisfactory a curative process in the greatly diseased tissues of sympathetic inflammation, I am driven to the conclusion that its success is due to its peculiar quality of being able to overcome hyperactive physiological circulation of an unhealthy kind by exciting hyperactive physiological circulation of a healthy kind. Moreover, this power which I ascribe to it is of such a character as apparently never to exercise a baneful influence, at least as far as the eye is concerned. Nature, however, being always keenly on the alert to arrest any process of unhealthy change in the body, responds to any treatment which can arouse the physiological activities to greatly-increased healthy exertion.

A medicine may at the same time influence the physiological circulation in some tissues for good and in others for evil. The combined treatment, however, in my hands has not as yet shown any influence save a good one. With your permission, I shall endeavour further to elucidate by examples the meaning of the above remarks.

Take one example of a lethargic infiltration of the cornea. Let it be treated solely by the dropping into the eye of a solution of eserine. In this case, just prior to the use of the drops, a few blood vessels can be seen upon the corneal surface close to the margin. The local use of these drops causes greatly-increased rapidity in the growth and number of these vessels, and the healing process is accelerated. Then again its use, though so satisfactory in regard to the corneal disease, can give rise to an iritis in the same eye at the same time. Thus the physiological hyperactivity aroused by this medicine concerning the cornea was quite healthy in its effects; but a contrary, that is an unhealthy, effect regarding the iris tissue showed itself in that an iritis not present at the beginning became evident.

That this unhealthy action upon the iris sometimes may excite an irritation and nothing more is granted; at others an inflammation more or less decided, according to the strength and duration of the presence of the cause; in this case, the eserine is also assented to. We also know that in eyes similarly affected their susceptibility to the unhealthy action of eserine greatly varies; that is, that one eye will endure a certain strength of the solution with very slight ill effects which in another will cause iritis or, as I term it, unhealthy action; therefore, this remedy has to be used with caution.

Now the use of the combined treatment shows no such effect. It will arouse the activity of the physiological circulation of the cornea to a much higher degree than eserine or any other remedy, as evidenced by its many and uniform successes, but at the same time will not act injuriously upon the iris and other tissues of the eye. Thus the hyperactivity engendered by the combined treatment is ever healthy, never unhealthy, and hence its widespread influence for good. Therefore, the manner and completeness or thoroughness with which the physiological hyperactivity is called into action has apparently a great deal to do with the effect produced, whether it be good or evil, and each of these latter may vary in degree.

This I consider in the light of a fact which has much to do with the explanation of the origin of sympathetic ophthalmia; for a pathological process is subject to the same laws, in its way, as a healthy one, and hence by analogy may it not aid us in the unravelling of the pathological condition now involved?

By the use of the eserine the hyperactivity excited is local and partial, and apparently chiefly limited to the blood vessels; whereas, by the use of the combined treat-

[1] *The Combined Treatment in Diseases of the Eye*, London, H. K. Lewis.

ment the whole nervous system is affected, and thus the circulation of every kind in the cornea is increased. This is what I call the physiological circulation of a part or organ.

Thus the treatment of sympathetic ophthalmia, in its many varieties, by the combined treatment has been successful in overpowering the unhealthy process. This latter is the offspring of a cause limited in effect to the eyes, and hence relatively a weaker pathological or unhealthy condition than the healthy and curative condition set up by the combined treatment, in that this latter is, so to speak, backed up by the whole nervous system.

Any cause which disturbs the whole nervous system is exceedingly powerful for good or evil, and allowed to be still much more powerful than a cause which influences it only partially. The so-called spontaneous cure of any disease is due to this heightened physiological activity overcoming the diseased condition. To be able to call this heightened healthy activity into operation is consequently to be able to overcome the disease. It is apparently the possession of this power by the combined treatment which has enabled me successfully to treat sympathetic inflammation, and also severe cases of hypopyon kerato-iridocyclitis. These are merely mentioned as examples, which, I think, do convincingly exhibit its power.

In one of my cases of sympathetic inflammation, the combined treatment not only stopped the progress of the disease but also removed the dense exudate, giving normal vision.

In another case, it is true, the sympathetic inflammation, which had been present for some time previous to the use of the combined treatment, was stopped; but the exudate being of such long standing could not be, at least was not, as fully removed as in the first-mentioned case, and, besides, the lens had become cataractous. The removal of the lens, and a subsequent iridotomy with de Weckers's scissors, gave excellent vision.

In conclusion, I beg to say that I am beginning to think that, in a wound in the ciliary region of such a character that it is advisable to enucleate the eye through the fear of sympathetic ophthalmia alone and not on account of the injury *per se*, I shall keep in the eye and use the combined treatment. By doing this I expect to accomplish two things—namely, to retain an eye which should otherwise be removed, and to prevent the development of sympathetic inflammation. This seems to me to be a course which is feasible and justifiable after carefully considering the results obtained from the use of the combined treatment.

II.—ARNOLD LAWSON, F.R.C.S.,
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THE PREVENTIVE TREATMENT OF SYMPATHETIC OPHTHALMIA.

IN the following remarks I intend to confine myself entirely to the practical side of the disease, and particularly to the preventive treatment. What I think is most needed are more authoritative lines upon which a surgeon can base his decision upon the propriety of attempting to save a dangerously wounded eye, and which will guide him through the dangers and difficulties which may follow the attempt.

Broadly speaking, there is no difficulty in a large number of cases of perforating wound of the globe, because the character of the wound and the extent of the injury have utterly destroyed all chances of saving the eye as a visual organ; and it is only in a few instances of this sort that cosmetic reasons would, in the slightest degree, justify a surgeon in running any risk of sympathetic ophthalmia by attempting to save the eye.

But there remains a large number of cases which present considerable difficulty, and which must cause great anxiety. This class includes cases of perforating wounds of the sclerotic, which are of a kind generally recognized as dangerous wounds, that is, in which the ciliary body has been lacerated but in which some sight is retained. It also includes wounds where a foreign body is lodged in the globe and cannot be extricated, but vision is not destroyed. Wounds caused by an instrument known to be septic, or those of a particularly lacerating character must always be sources of great anxiety when some vision is retained, and so one might elaborate a category of doubtful injuries where the surgeon, anxious to do his utmost for the patient, is face to face with a problem upon the right solution of which may depend not only the retention of a useful eye, but the preservation of the sight in the uninjured one.

It may be urged that a surgeon should accept no responsibility of this sort. If he encounters an injury from which there arises any question as to its likelihood to produce sympathetic ophthalmia, he should decline to take any risk, and should advise and carry out enucleation.

On the other hand, it may be argued that in many such cases the probabilities of sympathetic ophthalmia supervening are very small, and if it should arise by mischance, that in any case, the advent of the disease does not necessarily nowadays spell blindness. In other cases, too, the danger, though obviously present, may be much minimised by the right treatment of the wound, and especially when the other eye, for some reason or other, has defective sight, an attempt to save the injured eye may appear imperative and be held to justify the risk.

With regard to the first line of argument—that a surgeon should in no case accept responsibility and should advise enucleation in all and every doubtful case—I think that most surgeons will agree that such an attitude is unjustifiable, although in the present uncertain condition of our knowledge it may be condoned. It is in its power as a preserving agent that the chief glory of surgery lies, and relief by destruction of an injured organ or limb is being more and more relegated to the history of the past. The attention of a good surgeon must necessarily be turned first to the possibility of saving an injured eye, and all the various conditions of the case tending to effect such a result must be carefully considered before the thought of sacrificing the eye should cross the mind. The practical point is that up to the present time there has been but very insufficient and imperfect indications laid down by means of which a surgeon may be guided in his treatment of one of those most difficult cases of which a few examples have already been mentioned, and, as a consequence, the line of treatment adopted in any case is largely guided by the personal experience of the surgeon himself. This may, in the hands of competent, experienced surgeons, be a perfectly satisfactory solution, and probably no experienced surgeon having made up his mind on the propriety of removing an injured eye would yield his opinion on this point to any one. Nevertheless, there are many more surgeons who lack such experience, and to whom a more definite exposition of the pros and cons, the dangers and possibilities, the risks that should be taken and the risks that should be shirked, would be a great boon.

I have therefore endeavoured to summarize the whole matter in the form of five questions. It is not possible in our present state of knowledge to give a solution which may be considered completely satisfactory to any of them, but I venture to think that if from these questions could be drafted, so to speak, some plan of campaign with which a surgeon might be prepared when confronted with a difficult case of perforating wound of the globe, much good would result.

I will endeavour to answer these questions from what must necessarily be my own points of view. Personally, I am of opinion that a small committee to inquire into and draw up a few general rules on the lines I am suggesting would prove of general interest, and that a report of this kind would be very generally welcomed by ophthalmologists throughout the world.

1. *Can it be definitely stated of any wound of the globe that it will inevitably produce sympathetic ophthalmia in the other eye?*

My answer to this would unquestionably be in the negative. One has, in the course of ordinary hospital practice, seen so many shrivelled stumps, which are the result of terrible lacerations in bygone years, and which have not in the past and do not in the present cause any inconvenience, that one is inevitably led to the conclusion that sympathetic ophthalmia is an accident to be dreaded and not a certainty to be foretold.

2. *If not, what are the lines upon which a surgeon should decide upon immediate removal of the globe?*

The complete destruction of the globe as a visual organ must necessarily simplify matters, and this would be an answer in some instances.

Secondly, the presence of suppuration in or about the wound would render the possibility of saving the eye remote, and would lead the surgeon to sacrifice the eye with little compunction.

Thirdly, the presence of a foreign body impacted in the globe, which cannot be removed, and about the asepticity of which grave doubts are entertained.

Fourthly, extensive and lacerated wounds of the ciliary body, accompanied by prolapse and leakage of the vitreous, especially if not seen within twenty-four hours of the injury, and especially also in cases where the other eye is healthy and visually good.

3. What are the considerations which may decide him to attempt to save the eye?

In the last three examples given of cases where the surgeon would advise immediate enucleation some sight may be still retained when the patient comes under observation for the first time. In such cases, if the other eye is unsound or visually defective, it may be advisable to attempt to save the injured eye, provided:

(*a*) That the wound is seen immediately or very shortly after the injury.

(*b*) That the wound shows reasonable probability of being amenable to aseptic surgical measures, and that it can be satisfactorily closed without any entanglement of the ciliary body or vitreous.

(*c*) That, when a foreign body is impacted in the globe and is incapable of extraction without the complete, or almost complete, certainty of destroying the eye, such a body is known to be aseptic. This, for instance, would probably be the case in a wound caused by the lodgement of a game shot.

Further, any recent, cleanly-cut wound of the globe, if not of too extensive a character, and especially if not accompanied by prolapse of the uvea, or trespassing freely on the ciliary body, or accompanied by other injury which renders recovery of sight highly remote, should be cleansed and closed by aseptic sutures, and such wounds usually do very well and give rise to no complications. I may here remark that the sutures closing such a wound should be applied by using double-needled threads, which should be passed from within outwards, taking care to pass the needle through the sclera only, whilst an assistant smooths away the uvea round the wound with a spatula. By employing this method all pressure on the globe which would probably squeeze out vitreous is avoided; and, moreover, the inclusion of the uvea in the sutures, which is obviously undesirable, is the more easily prevented.

4. In the later history of a case, short of definite evidence of commencing sympathetic ophthalmia, what symptoms, if any, should decide the surgeon in advising enucleation?

This is a difficult question to answer. First, when an injured eye will not quiet down after prolonged treatment by all possible or available surgical methods, and is the subject of continued irido-cyclitis, with or without the addition of glaucomatous tension, the danger of the supervention of sympathetic ophthalmia becomes a steadily increasing one.

Secondly, in other cases the injured eye may apparently become more or less quiescent, but the other eye continues very irritable, exhibiting great lachrymation and photophobia. Sympathetic irritation, as this train of symptoms is styled, is now understood to be simply the expression of a reflex neurosis, and does not necessarily portend the advent of sympathetic ophthalmia. Nevertheless, one cannot but regard the long continuance of sympathetic irritation as of bad omen, and a symptom to cause some anxiety. It should, in my opinion, evoke a reconsideration of the propriety of enucleation in a doubtful case, and will justify the surgeon if he counsels this step.

Thirdly, in hospital practice, and more rarely in private practice, the question of the time that convalescence must occupy becomes one of great importance to the patient. A tedious, prolonged course of treatment extending, may be, into several weeks, with a doubtful prospect of recovery at the end, would be a very serious matter to an artisan or poor clerk; each case must be judged on its own merits; but the surgeon is surely wise who looks at the question from the broad standpoint of a patient's needs and welfare in the future.

5. Are there any premonitory symptoms which may accurately be described as heralding the approach of sympathetic ophthalmia, and upon the advent of which a surgeon, by immediate enucleation, may prevent the onset of the disease?

Most unfortunately, it is here that our knowledge fails us. I know of no symptoms that can be thus accurately described. The advent of any of the usual clinical signs is sure evidence that the disease is already present. There is some consolation in the fact that if the presence of sympathetic ophthalmia is recognized in its earliest stage, it may often be controlled and a fair recovery obtained, but the very insidious character of its onset may cause the earliest signs to pass unnoticed, unless the patient is at the time under the close supervision of the ophthalmic surgeon, which is often not the case.

III.—Charles A. Oliver, A.M., M.D.,
Philadelphia.

TRANSFERRED OPHTHALMITIS: SYMPATHETIC IRRITATION: SYMPATHETIC OPHTHALMIA.

For several years past I have taught my classes and private students that so-called "sympathetic irritation" and "sympathetic ophthalmia" are simply different stages of a condition which I have preferably termed "transferred ophthalmitis." I believe that the expression "sympathetic," as ordinarily understood in this connexion, has no significance and bearing whatever, and I am certain that the term "irritation" is just as false; I am also sure that it must be conceded that the word "ophthalmia" should not be applied to any form of inflammation of the interior of the eyeball. The word "transferred" is correct, no matter what the process may be, and the generic term "ophthalmitis" is both adequate and comprehensive.

Not desiring, in such a broad discussion as this, to enter into the many interesting questions of direct and indirect cause and effect, such as nature of offensive agent, character of wound, injury, or primary inflammation, position of chief local disturbance, introduction of aërobic and non-aërobic germ-life into the organ, degree and kind of blood and lymphatic reaction, presence of dyscrasic material in the vascular canals and lymph channels, condition and freedom of lymph spaces, etc., I shall limit my remarks to the one most important clinical finding which I was fortunate enough to obtain from a personally-prepared study of the relative prevalence of the disease as seen in the practice of Hill's Hospital in my own city during a period of over seventy years. To get these results I have spent much time, in association with three of my assistants,[1] in carefully collating everything possible upon the subject from the many records at the institution. Some quite interesting data upon the condition at large I shall reserve for a later and more extended communication.

Without entering into a tiresome, time-taking, and really useless exhibit of the tables obtained, the one great finding ascertained was as follows: Since the common and routine employment of *x*-ray study, and improved methods for the removal of foreign bodies from the interior of the eyeball, the introduction of newer and better forms of treatment of variously injured eyes, and the greater hygienic precautions now offered workmen and labourers in dangerous positions in and around Philadelphia, the number of recorded instances of the condition[2] has been, in spite of a vast increase of cases which are ordinarily supposed to be provocative of it (some 62 per cent.), actually reduced nearly 80 per cent. of the former proportionate amounts, both singly and combinedly in decade periods, within the past ten years. This is a most remarkable betterment, and one which is worthy of individual record.

SYMPATHETIC DEGENERATION.

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In the following communication I desire to bring before the members of the Section an ophthalmic condition to which I have provisionally given the name of "sympathetic degeneration," in order to distinguish it from that

[1] Drs. S. Rush Ketcham, Albert J. Britt, and I. Louise Haverstick.
[2] Necessarily even greater at present than formerly, by reason of more careful examinations made by those whose life-work is limited to the study of eye diseases alone.

serious inflammatory disease known as "sympathetic ophthalmia or ophthalmitis." There can be little doubt that the latter, like all other inflammatory diseases, will ultimately prove to be associated with micro-organic life; and to my mind the balance of evidence seems to point to sympathetic ophthalmitis being due to a specific and definite micro-organism which has till now escaped detection. Should a parasite be discovered and should the etiology of this disease thus become clear, then biological pathology may give us a method of robbing ophthalmic practice of one of its greatest terrors. Unlike sympathetic ophthalmitis, the condition to which I think the name of "sympathetic degeneration" may tentatively be given is non-inflammatory; moreover, there is this vital difference—that, so far as I have observed, it does not lead to blindness.

Its chief characteristic is a peripheral and, as a rule, a tolerable concentric contraction of the field of vision. Some years ago I commenced to make systematic perimetric investigations in all cases in which one eye was seriously injured. The hyperaemia of the optic disc and the retinal asthenopia in the sympathizing eye, which generally precede an attack of sympathetic ophthalmitis, led me to hope that perimetric examinations might give timely warning of a possible onset of the malady, and thus avert disaster. A few of the results of these early investigations were given in a paper which I had the honour to place before this Section at the meeting of the Association at Ipswich, and this communication may be considered simply as a continuation of that preliminary note.

The present paper deals with twelve cases, all seen at the Glasgow Eye Infirmary; ten of these were observed in 1905 and the other two in 1906. Notes of many more cases observed during the same period are included in my book, but time will not allow of my discussing more than the twelve already mentioned, which are taken almost at random from a much larger number. My conviction is that severe injury to one eye is generally followed by a certain amount of sympathetic degeneration ensuing in the other.

Of the twelve cases included in this series the right eye was injured six times and the left also six times. With one exception all the patients were males.

The results of the perimetric examinations were recorded on charts in the usual manner; but as these cannot very well be shown to this audience I have the information which they contain synopsized in the accompanying table. The ordinary method of making a graph of the field of vision is one by polar co-ordinates, where θ is the angle through which the perimeter arc has been turned, and ρ the number of degrees to which the field of vision extends for that value of θ. It is to be regretted that as yet we have no international system of recording fields. So far as the rotation of the perimeter arc is concerned there is at present no point internationally regarded as zero. For the right eye I always start with the zero at the right hand of the horizontal diameter of the circle, and trace the angle through the upper semicircle to the left-hand end of the horizontal diameter, and then on through the lower semicircle. For the left eye, for the sake of symmetry, I place the zero at the left-hand end of the horizontal diameter and trace the angle first through the upper half circle. For the purposes of this paper, values of θ differing from each other by 30 degrees have been thought to be sufficient. The perimeter used in making the observations was that of Mr. Priestley Smith. The test object has invariably been a small piece of white paper illuminated by ordinary daylight.

Values of θ	...	0	30	60	90	120°	150°	180°	210°	240°	270°	300°	330°
Normal	...	105	80	63	57	55	55	55	56	58	64	73	90
Case 1, R.	...	45	33	28	29	30	30	30	27	26	28	30	38
Case 2, R.	...	70	50	40	38	39	47	55	53	48	44	51	63
Case 3, R.	...	15	14	12	12	10	10	10	8	8	10	10	10
Case 4, R.	...	45	45	35	30	35	38	36	44	40	42	38	40
Case 5, R.	...	60	42	36	38	38	42	55	52	52	50	51	59
Case 6, R.	...	45	54	40	35	37	44	54	43	30	25	42	54
Case 7, L.	...	75	62	43	37	40	48	45	42	46	66	70	75
Case 8, L.	...	65	53	38	32	41	47	50	39	40	50	53	60
Case 9, L.	...	60	52	50	50	50	56	50	55	54	55	57	70
Case 10, L.	...	52	46	40	38	33	36	50	50	57	72	60	57
Case 11, L.	...	60	42	40	40	37	33	40	40	44	46	45	45
Case 12, L.	...	60	50	40	30	35	44	45	45	43	43	50	55

The first case to be mentioned is that of a riveter whose left eye was found to be sightless. There was old-standing iritis and probably cyclitis, the posterior synechiae being complete. The visual acuteness of the remaining eye without any correction was $\frac{6}{9}$ of Snellen's scale. The tension of the injured eye was high, but yielded to treatment. Notwithstanding the great contraction of the field of vision, this man had been able to work at his usual employment as a riveter during the twelve years that had elapsed since the injury to his eye was received.

The second case is of a man aged 50, whose left eye was injured about thirteen years before the time at which I saw him. This eye presents an atrophic stump, and there is a cicatrix in the upper part of the ciliary region. The injured organ is probably reduced to about one-third of its natural size. The visual acuteness of the uninjured eye is $\frac{6}{6}$ of Snellen's scale without any correction. Examination by the direct method reveals the presence of about two dioptres of hypermetropia. With spherical 14 he has J. 1 quite easily.

The third case is of special interest, for it shows the contraction in its most exaggerated form. Patient was a coal miner, aged 60. On or about May 27th, 1905, he received a blow on the left eye with a piece of coal. Shortly after the injury he was admitted to the wards of the Eye Infirmary, where he continued for fully five weeks suffering from ulceration of the cornea due to trauma. The ulcer gradually healed and left a dense leucoma. He was examined by me on September 15th, 1905, and again on May 8th, 1906, and on both occasions the field of vision was found to be as indicated in the diagram. The visual acuteness of the injured eye was $\frac{1}{9}$ of Snellen's scale, and was not improved by glasses.

The fourth case is that of a coachman, aged 35, whose left eye was injured by a blow from a poker. He was at once admitted to the Eye Infirmary, where it was found that the left eye was very badly contused and the ball ruptured. As there was no hope of saving any useful sight, enucleation was performed, and thus the eye was removed within four days after the injury was received. The vision in the remaining eye is $\frac{6}{6}$, not improved by glasses. It is to be noted that although the injured eye was removed so early as the fourth day from that on which the injury was sustained, still the field of vision has contracted.

The fifth case is again one of a riveter. The injury to the left eye was received seven years before he came under my notice—that is, when the patient was about 14 years of age. The vision of the remaining eye is $\frac{6}{6}$ of Snellen.

The sixth case is a patient aged 49, who was seen by me at the Eye Infirmary on January 16th of this year. On September 19th, 1905, he received a burn on the left eye, which led to the destruction of the cornea and ankylosymblepharon. The field of vision of the other eye is much contracted, but its visual acuteness without any correction is $\frac{6}{6}$ of Snellen's scale.

In the seventh case the right eye is the injured one. The field of vision of the left is not very much contracted, and its visual acuteness is $\frac{6}{9}$.

The eighth case is one in which the sight of the right eye had been lost from injury sustained four years before the time at which I was consulted. On examination I found that there was a very large ciliary staphyloma of the right eye. The left had a visual acuteness of $\frac{6}{5}$, not improved by glasses.

The ninth case is the only one in which I have a record of the condition occurring in a woman. I do not think that the female enjoys any greater immunity from it than does the male; but in a large manufacturing city like Glasgow the vast majority of accidents and injuries occur in the engineering shops or shipbuilding yards, and consequently women are much less liable to them than men. In this case the right eye was lost by accident about eighteen years before I saw her. The left eye was $\frac{6}{6}$ of Snellen's scale. The contraction of the field of vision is chiefly at the outer side.

The tenth case is that of a boilermaker, aged, at the time of my examination, about 35. His right eye was injured seventeen years previously, when he was serving his apprenticeship, by a chip of metal. I found on examination that there was a dense white cicatrix of the cornea to which the iris adhered. The sight in the injured eye was perception of light, but the eye was of about normal dimensions. The vision of the left was $\frac{6}{9}$ of Snellen's scale. The field of vision is much contracted, especially at the outer side. It is interesting to note that, notwithstanding his maimed condition, he has suffered no inconvenience at his work as a boilermaker all those seventeen years. His sole reason for consulting at the Eye Infirmary was to find out if by an operation any sight could be restored to the injured organ.

The eleventh case is that of a man aged 55. Eighteen years before, the right eye was injured by a piece of metal, and

two years thereafter—that is to say, sixteen years before he consulted me—the injured eye was removed. The vision of the remaining eye is also $\frac{6}{6}$ Snellen without any correction. The contraction of the field of vision is chiefly at the outer side, although it is also pretty considerable at the upper aspect.

The last case is one of the most typical. In the year 1888 the right eye was injured by a piece of steel, and on inspection a cicatrix is found which runs right down the cornea very nearly throughout its entire extent, and is also prolonged into the ciliary region. For that injury he was treated at the Glasgow Eye Infirmary at the time he sustained it, and he returned to the hospital after the lapse of seventeen or eighteen years on account of a catarrhal condition affecting the injured eye. On examination he was found to have the ordinary form of conjunctivitis due to the bacillus of Weeks, a condition in no way connected with the previous injury. There is not the slightest trace in the uninjured organ of sympathetic ophthalmitis, of iritis, or of cyclitis.

Here I would remark incidentally that on more than one occasion I have found bacteriological investigation to be of great use in helping me to come to an opinion as to the advisability of enucleation.

Take, for example, a man with an injured eye; supposing he turned up in the consulting room with lachrymation and the general symptoms of a slight catarrh. It is found to be of the first importance to make a bacteriological investigation so as definitely to determine whether the condition is or is not due to the presence of some of the well-known conjunctival micro-organisms. Again and again I have found this investigation to have a most important bearing on the treatment of the case.

These briefly are the facts which I wish to bring before the members of this Section. As already stated it seems to me that there are few cases in which one eye is damaged where there is not some degree of impairment in the other, totally distinct from sympathetic ophthalmitis or even from the well known sympathetic irritation. The chief indication of the changes to which I refer is the contraction of the field of vision; but in quite a considerable number of the cases there are also to be found other signs. Thus not infrequently we find coincident with the setting in of the contraction of the field of vision, a lowering of the visual acuteness.

In the 12 cases which I have here recorded only 2 had the full visual acuteness of Snellen. In the others it was found impossible to bring up their vision to the standard. Sometimes we find that a patient when first observed has a normal visual acuteness as well as a full field of vision; but as days pass on the field becomes contracted, and along with this there is very frequently a lowering of the acuteness of vision. Furthermore, in one or two cases other disturbances have been observed. I remember 3 at least in which the patient suffered severe neuralgic pains both on the side of the injured eye and on that of the healthy one. In 2 of these cases the extreme pain was by no means assuaged by the enucleation of the injured organ. This is a rare condition, but when present it is apt to be very severe. In one case I remember the severity of the pain kept the patient from sleep and rendered him quite unfit for work for a period of some months. This patient had received a blow from a piece of coal on the right eye, and panophthalmitis set in. The eye was safely enucleated; but notwithstanding he took the severe supraorbital pain, which rendered him quite unfit for the duties of life for a considerable time.

The occasions on which I have noticed the severe neuralgia have not been sufficiently numerous to enable me to draw any conclusion as to its causation. There can, however, be no doubt of the fact that it is often present in a marked degree.

A CASE OF SYMPATHETIC OPHTHALMIA, WHICH FOLLOWED A MULES'S OPERATION, AND ENDED IN RECOVERY.

By W. Gordon M. Byers, M.D.,

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The fact that a sympathetic ophthalmia, occurring after enucleation of the eye, usually runs a favourable course is well known; but, while it would appear from the cases already recorded that the same rule applies to Mules's operation, we are in need of more clinical data before the matter can be looked upon as definitely settled. The following case is of interest because of the additional light it throws on this point, and is of special value because of the long period—four years—through which I have been able to follow its course.

A young lady, aged 19, was injured on the afternoon of August 9th, 1900, through the explosion of a bottle of peroxide of hydrogen.

The following morning, on examining the patient, I found two large irregular gaping wounds in the right cornea. The upper, the smaller of the two, extended from the junction of the middle with the inner third of the cornea outwards along the line of junction of the upper and middle thirds of this structure to a short distance beyond the corneo-scleral margin. The second wound some little distance below the other, extended inwards from about the junction of the outer with the middle third of the cornea into the sclerotic and well beyond the ciliary region. From the outer end of this wound another cut extended for a short distance obliquely downwards and inwards in the substance of the cornea. A large tag of iris protruded from the lower wound; but the anterior chamber was so filled with blood that nothing definite in regard to the local conditions could be made out. The globe was quite soft and somewhat collapsed; but there was little or no pain. The vision = p. 1, and the projection was normal.

Later in the day I cut away the prolapse of iris, and dissected up the conjunctiva above and below the scleral wound, and brought it well over the inner third of the cornea by means of three sutures. While dissecting up the conjunctiva bulbi I saw that the scleral wound extended as far back as the orra serrata; but it contained no prolapse of uveal tissue or vitreous.

I conceived at the outset that the globe was lost, and desired to do an early Mules's operation, as recommended by the Select Committee of the Ophthalmological Society of the United Kingdom.[1] My views, however, were not concurred in by two other oculists who were called in consultation, and it was decided to treat the case along more conservative lines. Under atropine and cold compresses the edges of the wounds united and the anterior chamber reformed. The conjunctiva receded at the inner side of the cornea, and left this structure again circular in shape. As the blood in the anterior chamber became gradually absorbed the iris was seen to be attached to the lower wound outwards, and to be absent behind the upper inner quadrant of the cornea.

The accident was followed by very little reaction. There was always a slight blush of the conjunctiva bulbi made up of superficial and deep seated vessels; but there was at no time pain or tenderness. The reflex symptoms in the injured eye were at all times slight, and were entirely absent on the sound side.

Forty days after the accident it was decided that the conservative treatment had been carried out as far as safety would permit; for, while the injured eye as a whole had maintained its shape, presented no cyclitic deposits, and was free from pain and tenderness, the tension of the globe was reduced (– 1), the scleral wound inwards showed beginning retraction, and the projection of light, while not exactly faulty, was slow above and below.

It was my wish now to perform an ordinary enucleation; but, yielding to the judgement of the late Dr. Buller, I consented, even at this late time, to perform a Mules's operation. This was accordingly done on September 20th. The reaction which followed was, perhaps, a little more marked than usual, but the resulting stump was ideal in every respect.

Exactly two weeks after the operation the patient began to complain of misty vision in the sound eye, and four days later a typical serous cyclitis had developed. All the details of a long, tedious course need not be given; it may be briefly stated that the eye was at no time more than faintly injected, and that it was never painful, or tender, or the site of marked reflex symptoms. On November 15th—roughly, three months after the accident, two months after the onset of the cyclitis—the edges of the optic disc were seen to be blurred without measurable swelling, and the retinal vessels showed increased fullness and tortuosity. There was, in fact, a mild neuro-retinitis. In addition to this, fine dust opacities formed in the anterior part of the vitreous; and in April, 1901, the vision, which,

without correction of the myopia, equalled $\frac{6}{24}$, was reduced to $\frac{6}{9}$.

The patient went to the seaside on July 4th of the following year, and as the result of a month's outing experienced marked improvement. A slight relapse occurred on the return to the city; but from this time on a gradual improvement took place. It is impossible to state exactly when the inflammation ceased; but the cyclitis ran its course in about eighteen months and neuro-retinitis in a period of a few months longer.

Apart from an increase in the patient's error of refraction (from 7°—1.0—1.75 to 180°—2.5—5.0) during the first three years following her recovery, there has been no change in the eye for now over four years. At the present time the pupil is slightly oval in an oblique direction, but reacts as a whole fairly well. A few posterior synechiae still remain and the iris tissue is a little atrophic. The vitreous has cleared and there are no changes in the fundus apart from a small myopic crescent. T. N. and vision=$\frac{6}{9}$ in part with correction. The eye is comfortable and capable of doing a considerable amount of work.

So far as I am aware, there are in the literature only 5 cases similar to the one I have just described. They are contained in the report of the Committee on Excision in the *Transactions of the Ophthalmological Society of the United Kingdom*, 1898. In all of them the sympathetic inflammation ran a mild course; and supported by this knowledge, I gave a bright prognosis throughout my case which goes to further prove the rule.

It is to be noted that the interval of two weeks which elapsed between the performance of the Mules operation and the onset of the sympathetic inflammation was so short as to make it highly improbable that the operation and not the accident was the cause of the sympathetic mischief.

REFERENCE.

1 *Transactions of the Ophthalmological Society of the United Kingdom*, 1898.

PHLEGMON OF THE ORBIT, SIMULATING A MALIGNANT GROWTH AND ITS ORIGIN FROM THE ETHMOID CELLS.

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THE diagnosis of the character of orbital growths especially those of deep origin, is frequently quite difficult, especially when presented to the ophthalmologist in a fully-developed state and with an uncertain past history. In such cases it not infrequently happens that the diagnosis is not made until the operation develops the character of the growth. The fact that a growth is present is by no means difficult of recognition, but transillumination, the *x* ray, and other aids have as yet proved of no material value in diagnosing the character of these growths. Of more importance to the ophthalmologist is the past history of the case, with its mode and progress of development.

There is much similarity in the impression received from palpating an orbital phlegmon and a malignant growth in the same position, and yet the prognosis is so entirely different. My own observation leads me to consider the presence of great chemosis of the conjunctiva much more characteristic of an orbital phlegmon than of a malignant growth, consequently this symptom has aided me in no little in arriving at a proper diagnosis.

HISTORY OF CASE I.

J. M., male, coloured, aged 55, presented himself at the clinic in August, 1903, on account of loss of vision in the left eye and a protrusion of the whole orbital contents. He gave the following history: Two years ago he began to have pain in his left eye and the ball began to protrude. This gradually increased until two months ago, when all vision disappeared and has remained in that condition ever since. Complains at present of no pain. Examination shows the globe and orbital contents protruding outward, downward, and forward for $\frac{1}{2}$ in. There is great oedema of the palpebral and ocular conjunctiva. Cornea insensitive and the pupil widely dilated. No changes could be seen in the fundus except that the optic disc looked a little pale. Palpation showed the orbital cavity to be filled with a growth of some kind, firm and elastic to the touch, with no decided signs of fluctuation. From the history of the case I was confident that it was an orbital sarcoma, and had the patient placed in the hospital to be made ready for a complete exenteration of the orbit. The operation was started with this intention, but when an opening was made through the conjunctiva under the orbital rim there was a gush of pus, revealing an orbital abscess. The incision was enlarged and the abscess cavity thoroughly emptied. By means of the finger and ocular inspection I found the ethmoidal wall completely broken down, with disintegration of the cells. These latter were thoroughly curetted, free drainage established into the nasal cavity, and the post-orbital abscess wall packed with iodoform gauze. The parts gradually assumed their normal appearance, and in two weeks the patient was dismissed from hospital. At that time his vision was $\frac{6}{9}$ and the pupillary reflexes good.

The remarkable feature of this case was the total loss of vision, evidently from pressure, and the gradual return of the same after operation. At the time the patient was first seen there was absolute insensibility of the cornea with loss of the pupillary reflexes, so that even if we had contemplated the preservation of the globe, we should never have expected the preservation of the vision.

Few cases of phlegmon of the orbit due to ethmoiditis are on record, where there was such a chronicity in its development. Most of the cases reported have been those of rather acute onset accompanied by pain and fever. Dr. Axenfeld, in his article on the Pathology and Treatment of Ethmoidal and Frontal Sinusitis with Orbital Complications, which was published in 1902, has gone very thoroughly into this subject, and reported three or four cases of his own, besides making mention of the work of Killian, Kuhnt, Panas, Germain, and others. All of these cases, however, were acute in their onset, accompanied by fever and general systemic reaction.

Dr. H. Snellen, jun., in an article last year, calls attention to the fact that it is very difficult to make a differential diagnosis between tumours and abscesses of the orbit, since an orbital phlegmon does not always show symptoms of inflammation, nor does it always show signs of fluctuation. On the other hand, as mentioned by Axenfeld, an orbital phlegmon may occur as the result of an ethmoidal suppuration, and the intranasal examination be entirely negative in its results.

Such was the condition in the case here reported, and Dr. Dugan has only recently reported two such cases where the orbital suppuration was due to a like condition in the ethmoidal and sphenoidal cells, and where there was no previous nasal symptoms.

This leads me to remark that the oculist of to-day must also be familiar with the recognition and treatment of sinus diseases, for the close relationship existing between disease of the eye and those of the nose and accessory cavities is recognized every day as playing a very important part in the successful management of any of these organs.

For instance, cases of orbital abscesses have been reported where, upon opening into the cavity below the eyebrow, we found an intact orbital wall separating it from the frontal and ethmoidal cells, and yet we were perfectly confident that the abscess had its origin from these cells. In these cases, as Axenfeld points out, the abscess had its origin not through necrosed bone but by the inflammation travelling along the tract of the emissary veins and nerves, or even by means of a thrombo-phlebitis. Time does not permit us to discuss the question of a radical operation at the time of the opening of the orbital abscess. From personal observation and experience, I believe it the better part of conservatism not to enter the frontal sinus or even the ethmoidal cells direct from the opening made into the orbital cavity at the time of the first operation, unless we find the orbital plate very markedly diseased. For if one should find the orbital plate not diseased, you expose the sinuses to the danger of an infection which previously did not exist. A plan much more rational to my mind is later to do a radical operation at the usual site without any communication whatever with the original orbital opening, and even before the latter is undertaken, to attempt a more conservative treatment of these sinuses through the intranasal route.

That the latter procedure is feasible in a large number of cases is well known, and is practically illustrated in a case recently under observation.

Chas. M., aged 17, has always enjoyed good health. About two weeks ago he began to have severe pains deep behind the right eye. This gradually increased in severity although under a physician's care. About a week ago his eye began to

protrude, so much so that he had complete ptosis of the upper lid. Examination showed marked exophthalmos with ptosis and so much oedema of the bulbar conjunctiva that it stood balloon-like between the lids. Vision equalled $\frac{1}{10}$. A decided enlargement could be felt on the nasal side of the orbital cavity. There was very little movement of the eyeball. Examination showed suppuration in both ethmoidal and frontal sinuses. External operation advised but refused. Under the circumstances treatment was begun through the nose although I had little hopes of cure by this measure. The middle turbinate was removed and the ethmoidal cells curetted. A catheter was passed through the fronto-nasal duct and the frontal sinus thoroughly irrigated. Improvement was immediate and in one month's time the eye and orbital cavity resumed their normal appearance and vision returned to $\frac{6}{6}$. There has been no return of the trouble now for two years.

The question of disturbances of the vision induced by disease of the posterior accessory sinuses of the nose, has been very clearly set forth in a paper before this Association in 1904, by Professor Onodi. His anatomical investigations show very clearly the close relationship existing between these organs, and the report of clinical cases, substantiating these contentions, must always be of decided value to this important subject. Onodi in closing well says, "Whilst I commend these questions to the special attention of ophthalmologists, I shall hope that the joint rhinological and ophthalmological study of this subject, in many respects still unknown, will lead to successful enlightenment."

EYESIGHT IN RELATION TO COMPENSATION.

By Freeland Fergus, M.D., F.F.P.S.G., F.R.S.E.,
Surgeon, Glasgow Eye Infirmary; Examiner in Physics to the Faculty of Physicians and Surgeons of Glasgow.

There is an obvious, although at times little realized, connexion between all phases of the healing art and economic science. Vital statistics, giving as they do valuable information regarding the population of a district or country, are of immense importance to the political economist, for on the population of a country its power of material production largely depends. This dependence of economics on medicine, especially on that branch of it which is known as public health, meets the economist at many points which need not be elaborated in this paper. Two familiar examples will illustrate my meaning. The advance of medical science has appreciably increased the expectancy of life, at any rate in civilized countries. Owing to the efforts of public-health authorities, and probably, also, to the improvements which have taken place in surgical practice, the average of human life is now greater than it was only a few years ago. People, as a rule, live longer.

One of the effects of this on economic science is that the actuarial tables used, say, fifty years ago by companies doing life assurance business, are now found to be more or less obsolete. On the other hand, statistics may help to determine the line of treatment to be pursued by the physician or surgeon in a given case. We know, for example, from a study of comparative death-rates, that the treatment of diphtheria by antidiphtheritic serum is much better than any other line of treatment hitherto adopted.

All departments of medicine are of a certain economic importance to the community, and the connexion between economics and ophthalmic science has become much more obvious of recent years, at least so far as the United Kingdom is concerned, by the enactment of laws regarding workmen's compensation.

Several authorities both in the United Kingdom and in various parts of the Continent of Europe have made endeavours to derive formulae with which to assess the damages due for the loss or for the partial impairment of one eye. To my mind the question can only be decided by the observation of a large enough number of cases and the collection of sufficient data. But even when a sufficiency of observations has been made it seems to me extremely doubtful if any rule or formula can possibly be derived. Having been engaged for some years in the examination of persons suffering from injuries to the eye I naturally became anxious to determine what amount of injury to the eyesight prevented a man from doing ordinary work. For that purpose I began to gather together information about men possessed of only one eye and who, in many cases, were not entitled to compensation under the recent legislation on account of their having lost the eye either from disease or previous to the passing of the recent enactments.

The statements which are made in the witness-box are often wild in the extreme. Quite recently in a case in one of the Scottish courts, two of the medical witnesses for the injured man stated that it was quite impossible for a man with only one eye to wheel a barrow, and oddly enough the judge took that as being an ascertained fact. Any one who tries will find that it is quite easy to wheel a barrow along a plank with one eye shut; the evidence was totally erroneous. Another statement which is often made is that after the loss of an eye a patient is unable to wield a hammer with useful accuracy because it is said that his intuitive perception of the third dimension of space is destroyed. As a matter of fact, if a person shuts an eye and uses only one, he will find that he can handle a hammer practically as well in that condition as with both eyes. The question here is not the distances of several points relatively to each other, it is chiefly a matter of alignment and of the absolute distance of the object to be struck from the person who intends to strike it.

For the purposes of this paper I have taken 20 cases from my own clinic, and these show that men are often able to work at the most difficult and hazardous occupations with only one eye, or with defective vision in both. The first two are so exceptional that I wish to give them special prominence.

1. J. McE., aged 30, has been employed all his life as a collier. During the last three years he has been engaged in the same pit as a holer. In both eyes there is marked retinitis pigmentosa, which is tolerably far advanced. With either eye he can count fingers at a foot, but not beyond that distance. He says that the wages he has earned have been nearly the same as those made by other men in the same part of the pit, although perhaps he has been a little under the average.

2. The second case is also one of retinitis pigmentosa. I last saw this patient on July 14th, 1905, but had, on account of his malady, seen him from time to time for some years preceding. During my attendance on him I extracted a cataract from his left eye. On the day before mentioned I found an incipient cataract in the right eye, which diminished its vision to $\frac{3}{5}$ of Snellen's scale; with this amount of sight he was actively engaged below ground. At his work he wore no correction on the side which had undergone the operation.

3. The third case is that of P. S., who was seen by me at the Eye Infirmary, Glasgow, on November 23th, 1905. Eighteen years previously the right eye was injured, and two years thereafter it was enucleated. The vision of the remaining eye was found to be $\frac{6}{9}$ Snellen, and the field was much contracted. This man has throughout the eighteen years that have elapsed since he sustained the injury been actively employed as a stevedore's labourer, and has been largely engaged working at the end of a gangway.

4. The fourth case is that of an iron turner. J. McA., aged 45, lost the sight of his left eye when he was 33 years old by an injury from a chip of steel. Ever since he has had to depend on his right eye and states that he has made as good wages as any one similarly employed. The visual acuteness of the left eye is $\frac{6}{9}$ Snellen, and the field is not materially contracted.

5. W. B., seen by me at the Eye Infirmary, Glasgow, in 1905, lost the right eye in 1888. He has, however, been able to continue at his trade of boilermaking ever since. The vision of the uninjured eye is $\frac{6}{6}$ Snellen, but the field for white is much contracted.

6. D. C., aged 55, was examined by me at the Eye Infirmary in 1905. This man lost his left eye about forty years ago while serving his apprenticeship as a boilermaker. Ever since he has continued at his work, but recently has experienced great difficulty in reading figures on drawings. In the right eye there is a manifest hypermetropia of 1.5 D, and when this is corrected his vision is $\frac{6}{6}$. The lens of the right eye is somewhat muddy and the disc is hyperaemic; he smokes heavily but there is no colour scotoma. Apart from the difficulty of reading the figures he says he is fit for all the work of a boilermaker.

7. R. L., aged 40. Four years before I saw him the left eye had to be removed for injury by a piece of metal. Ever since he has continued at his work as a blacksmith without suffering any appreciable inconvenience. The vision of the right is $\frac{6}{6}$ Snellen, and the field is not contracted.

8. J. M., aged about 40. The left eye was hurt by a piece of steel about twelve years before I saw him at the hospital in 1905. There is old-standing iritis and cyclitis, with complete posterior synechia. Ever since the accident he has been able to continue his work, using his right eye alone, the vision of which is $\frac{6}{6}$ Snellen.

9. R. S., aged 48. This patient completely lost the sight of the left eye twenty-two years before I saw him at the Eye Infirmary in 1905. Ever since he has worked as an engine fitter with the right eye alone, and has earned as good wages as any one else. The vision of the remaining eye is $\frac{6}{9}$ Snellen.

10. J. B., admitted to the hospital on April 25th, 1905. The

left eye was injured twenty-four years ago. The damaged organ is of normal size; a cicatrix is seen at the upper part of the cornea, extending to the ciliary region, and the eye is quite blind. At the time of my examination he was working as a hole-borer and was earning full wages. The vision of the right eye, the one used for work, is fingers at a metre, but not at a greater distance. The defect in its sight is due to incipient cataract.

11. T. F., aged 53, was seen by me at the hospital on September 5th, 1905. This man's right eye was injured by a chip of metal seventeen years previously. There is found to be a dense white cicatrix of the cornea to which the iris is adherent. The vision of his left eye is $\frac{6}{9}$ Snellen, but his earning power has been quite good during all these years.

12. R. R., aged 59, was seen at the Eye Infirmary in 1905. This patient has been working all his life as a country blacksmith till within a few weeks of his visit to the infirmary. He has had to desist, not on account of his eyesight but because of stiffness in one of his legs, which makes it difficult for him to continue his work as a farrier. The vision of the right eye is less than $\frac{6}{9}$ and that of the left is $\frac{6}{36}$ Snellen. Yet he says that, so far as eyesight is concerned, he has not had the least difficulty in shoeing horses. There is a hypermetropia of 3·5 in each eye, and there is a nebula on the cornea of the left eye.

Most of the cases hitherto cited have been ironworkers; the rest of this communication is largely devoted to miners who have carried on their work with defective sight.

13. E. McW., seen at the Eye Infirmary in August, 1905. The right eye was lost by injury in the year 1901. For three years afterwards he was employed as a fireman, but for the last year he has been working as an ordinary collier. His vision in the remaining eye is only $\frac{6}{9}$ Snellen.

14. J. K., aged 47, lost the sight of the right eye when a baby, probably from ophthalmia neonatorum. There is a large leucoma occupying about a third of the left cornea to which the iris adheres, and the vision as tested by Snellen's illiterate types is $\frac{6}{9}$. He is occupied as a drawer and states that he has always earned as good wages as any man engaged at similar work in the same employment. He has on several occasions used a hammer to drive stobs and has often wheeled a barrow without finding any difficulty.

15. J. J., aged 42. Five years ago by the onset of cataract this patient lost the form sense of the left eye entirely. At the time this happened he was employed as an ordinary miner and his earnings were not diminished. Since that time he has been promoted to the post of overman, and is able for all the duties of that station. The visual acuteness of the remaining eye is $\frac{6}{6}$, and with cyl. −2·5, axis nearly vertical, it amounts to $\frac{6}{5}$.

16. J. McG., aged 58, lost the sight of the left eye when 13 years of age by injury from a stone. On examining him, I found a dense leucoma, with adherent iris at the inner aspect of the cornea, which reduced the vision of the eye to the perception of light. The acuteness of the remaining eye was $\frac{6}{4}$ Snellen. For a number of years he has been engaged repairing roads and shafts, and has earned as much as any other man similarly employed in the pit. In the useful eye there is a hypermetropia of 2 D, and when this is corrected the vision is $\frac{6}{5}$.

17. T. S., aged 34, lost the sight of the right eye thirteen years before I saw him. The injured eye was removed a fortnight after the accident. He has always worked as a brusher, and is at present earning as such full wages. He constantly uses a hammer for wedging material while repairing roads, and has never had any difficulty with it.

18. T. D., aged 57, is in full employment as a miner. His right eye was injured four years ago, and is now quite blind. The vision of the left is $\frac{6}{6}$ Snellen, but he has not found his earning power at all diminished by the accident, and can use either a pick or a hammer quite freely.

19. G. H., aged 60, has been a collier all his life, and is still employed as such, working full time. The right eye was injured twenty years ago, and is now completely atrophied. The vision of the other is $\frac{6}{6}$ Snellen. His earning power has undergone no diminution, and he can wheel a barrow along a plank and use a hammer quite freely. Recently he erected a paling round his garden and drove the stobs himself.

20. S. M., aged 23, ironstone drawer. Some years ago this patient's left eye was removed for injuries due to the kick of a horse. The vision of the remaining eye is $\frac{6}{6}$ Snellen. He has often to use a hammer in breaking up lumps, and has never experienced any difficulty in so doing; his earning power has not been diminished by the accident.

Such examples might be multiplied indefinitely; they open up a wide field for speculative thought, into which I do not mean to enter. There are, however, one or two practical aspects of the question which may properly receive some attention here. And first it is to be noted that a good deal is likely to depend on what may be called the patient's resource. No one would be justified in certifying, for example, that the men suffering from retinitis pigmentosa were fit to work at the face of a coal pit.

Yet here they are both actively engaged below ground. This factor varies considerably in different individuals, and is a thing which cannot be expressed by any formula. Consequently, any attempt to establish a definite relation between a person's wage earning capacity and his eyesight seems to me to be hopelessly futile. I know of one blind man who can get about the streets with very great ease, and another who can scarcely find his way to a house round the corner of the street from his own door. Individual differences in this element are probably very great.

Another element equally impossible of evaluation is the injured man's truthfulness. The only means which we have of measuring a person's visual acuteness is by letters, or by other objects of known size. But when a patient is placed in front of letters which gradually diminish in size we have no means of testing whether the smallest letters which he reads are the smallest which he sees. He may only read $\frac{6}{9}$, while all the time his vision is $\frac{6}{6}$. There is obviously a great temptation placed before frail humanity if the worse the vision the greater the compensation. Frequently a witness goes into the box and states on oath that the vision of the injured man is, say, $\frac{6}{9}$. What he really should say is that at the examination the patient read letters of $\frac{6}{9}$, but as to whether that is his best or not he (the witness) is entirely ignorant—unless, indeed, when he has during the examination found something which would account for such a diminution of the acuteness. Here, therefore, we have another factor which must falsify any formula which attempts to express a relation between wage earning capacity and the form sense.

Lastly, and most important of all, there are many kinds of employment in which the form sense does not seem to play any appreciable part; several of the cases just described are excellent examples of this. To these we may add all persons who have an excessively high degree of myopia. One instance will suffice to illustrate my meaning, and will recall to every ophthalmic surgeon's memory similar cases which he has seen in his practice. A young man had worked for several years in a coal pit. He thought he would try to get employment above ground, and accordingly applied to a railway company, but was rejected on account of his sight. He came to the hospital, and then I found that he had a myopia of 10 D in one eye and of 15 D in the other. The acuteness of the better eye was only $\frac{1}{36}$ Snellen. Yet this lad had no idea that there was anything wrong with his eyes.

Some of the facts connected with concomitant convergent squint may be adduced quite appropriately in this connexion. Take a person with this form of strabismus and a high degree of amblyopia in the squinting eye. If by accident the good one is lost, such a patient is nevertheless often able to do a great amount of work, and that even when the form sense of the squinting eye does not materially improve.

In conclusion, I wish to mention an experiment which I have recently made. I placed a lad with excellent visual acuteness at 5 metres from the ordinary types invented by Snellen for the measurement of the form sense. One of his eyes was kept covered, and with the other he followed my finger as it moved along the wall on which the types were suspended at the level of the largest letter—that is, of the letter corresponding to $\frac{6}{6}$ of the usual scale. So soon as the finger was taken to a distance of 14 cm. from the types, he was quite unable to make out the form of that letter which should be seen by a healthy eye, such as his, at 60 metres on direct fixation. The retina at a small distance from the macular region, as is well known, has practically no form sense.

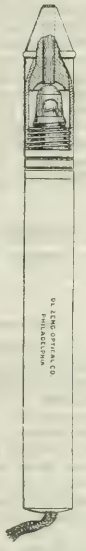
In the case of this lad, the form of this comparatively large object was not recognized when the angle between the visual axis and the line joining the object with the eye was approximately one degree. The same lad was then stood before a table which was covered with white paper, and was given a small black mark as a fixation point. A sixpenny-piece was put on the table at such a distance outwards from the point of fixation that the angle between the visual axis and a line joining the coin with the eye was about 45°. It was then found that when he kept steadily looking at the black mark he was able to bring down his clenched fist without any hesitation or difficulty on the top of the coin. This he did again and again without once missing it.

Before long I hope to make a series of experiments on the same subject with the view of determining limits;

any one, however, can perform the experiment for himself. It seems to go a long way to prove my original proposition that for many kinds of work the form sense, commonly called the visual acuteness, does not appreciably come into play at all. In these cases it is a question of alignment, for which the ordinary light sense of the retina appears to be amply sufficient.

DIAPHANOSCOPY OF THE EYE.

By H. V. Würdemann,
Milwaukee, Wisconsin, U.S.A.



Dr. Würdemann gave an account of his new apparatus on transillumination of the globe. The instrument which he had devised had the advantage over others already known in being very light and handy, and being made almost entirely of a slowly-heating material which prevented it from getting quickly hot, as did the instruments of Leber and Sachs. He went on to describe the methods of transillumination, and to point out the various uses to which the instrument might be put, such as the detection of foreign bodies, the condition of the iris in disease, etc. By this method the iris is rendered quite translucent, its folds and pigmentations are readily observed, and spots of atrophy are easily distinguished. Perhaps the most important use to which this method of examination can be applied is for differential diagnosis between serous retinal detachment, simple glaucoma, and intraocular tumours. The globe remains translucent in glaucoma and retinal detachment, but in intraocular growths a shadow will be cast, clearly defining the nature of the disease, its size, site, and area. It can be used for this purpose even when the lens is opaque.

TREATMENT OF UNRIPE CATARACT.

By W. Marcus Killen, B.A., M.D., M.Ch.,
Surgeon, Ulster Eye, Ear, and Throat Hospital, Belfast.

[Abstract.]

Dr. Killen showed the late Dr. McKeown's apparatus for intraocular irrigation in the removal of unripe cataract. Having assisted him for many years and seen a very large number of his operations, he could bear witness to the absolute accuracy of Dr. McKeown's results tabulated in his work on unripe cataract, to which he referred members of the Section for an exhaustive account of the method with details of cases and plates. He also showed a modification of this apparatus devised by his colleague, Dr. Allen. The fluid used is saline solution, 4 gr. to the oz., boiled in the glass flask before use, and rapidly cooled to blood heat. The eye tolerates this solution well, and very free intraocular irrigation can be kept up with it for a long time where sticky cortex has to be removed without any serious reaction.

The absolutely essential conditions are that the solution is sterile, at blood heat, and that the vitreous chamber is not opened. About a pint should be in the flask for an operation. Irrigation may be done in two stages. The first is injection of fluid under the capsule of the lens immediately after the corneal section and before the usual capsulotomy. The hollow needle is much like a fine hypodermic needle, and it should be introduced about half way between the section and the centre of the pupil, so as to avoid penetration of the edge of the lens or suspensory ligament. It must also be kept well in front of the nucleus. The use of the needle at this stage is a valuable means of diagnosis of the consistence of the lens. If it penetrates the capsule easily, without moving the lens, the fluid will spread usually and help to opacify the unripe cortex, and irrigation will be useful both now and after delivery of the nucleus. On the other hand, if it does not penetrate the capsule or if it commences to push the lens before it, we have probably to deal with a sclerosed cataract, which will not require irrigation. The section of the capsule is now made, and the body of the lens extracted, after which further irrigation through the nozzle, combined with massage, serves to soften and remove masses of cortex still remaining. In many cases the nozzle irrigation is quite sufficient, the needle not being used.

Unripe cataracts in patients from 30 to 60 years of age present most operative difficulty. After 60 sclerosis of the lens is of course a great help. This sclerosis of old age, however, cannot always be relied on where there is pearly, striated, or flaky cortex, and here irrigation through needle and nozzle will be useful, as in younger patients. A deep anterior chamber frequently suggests sclerosis and flattening of the lens and that irrigation may be done without, whereas a shallow chamber points to swelling of the lens where cortical substance will require this aid. In traumatic cataracts in young persons only the nozzle should be used, as the needle would penetrate the capsule when the soft matter came away. Dividing cataracts into nuclear, cortical, and nucleo-cortical, the pure nuclear require irrigation least, frequently not at all. A nuclear cataract is often met with so incomplete as to allow the patient to see to go about and yet proves easy of extraction by the usual methods, while a cortical one so far advanced as to prevent counting of fingers may present operative difficulty even with irrigation.

Very excellent results have been obtained in the Ulster Eye Hospital by using this method, and the writer, having seen many hundreds of eyes irrigated in the way described by the late Dr. McKeown, is not aware of any bad results which could fairly have been put down to this method properly used. One often derives assistance from it in other ways, such as removing blood from the anterior chamber, removing opaque lenses in cases of closed pupil, etc. There are undoubtedly dangers in irrigation before one acquires a large experience of it, and the writer would advise a careful study of the late Dr. McKeown's work before giving irrigation a trial.

The writer regards escape of vitreous, or any breaking up of that body, as a serious complication, as although the immediate results may be excellent after a year or two, detachment of retina or other grave change may show itself. In case of appearance of vitreous during operation, no further irrigation must be thought of. Whether this accident is more common with than without irrigation he cannot say, but the risk should weigh against the advantage obtained by earlier operation.

McKeown's apparatus can be had from Messrs. John Clarke and Co., surgical instrument makers, Belfast, or from Messrs. Weiss, London.

DEPENDENCE OF ACCOMMODATION AND MOTILITY ON THE REFRACTION OF THE EYE.

By Herman Knapp, M.D.,
New York.

Dr. Herman Knapp read a paper on this subject. He saw a distinct correlation between a degree of myopia and exophoria, and between hyperopia and the degree of esophoria. He detailed his method of examining the refraction of patients.

TENOTOMY OF INFERIOR OBLIQUE AND CONSIDERATION OF THE CONDITIONS THAT MAY CALL FOR THE OPERATION.

By Alexander Duane, M.D.,
New York.

After describing the technique of the operation, which consists in a division of the tendon of origin through a cutaneous incision, Dr. Daune discussed the conditions which may call for the operation, namely:

1. Conditions simulating spasm of the inferior oblique.
(*a*) Complete stationary paralysis of the superior rectus of one eye. Fixation with the other eye. No true spasm.
2. True secondary spasm of the inferior oblique.
(*b*) Partial paralysis or insufficiency of the superior

rectus, causing pronounced secondary deviation (upshoot) of the other eye due to spasm of its inferior oblique.

(*c*) Paralysis of a superior oblique or some other muscle, causing secondary spasm of the inferior oblique in the same eye.

3. Primary spasm of the inferior oblique.

Of course no operation should be done unless they were sure:

(*a*) That the condition was permanent and stationary, and

(*b*) That the symptoms were so marked as to call for interference.

ACCOMMODATION AFTER MIDDLE LIFE.

By Dr. Jackson,

Denver.

The object of this paper was to point out the fallacy of assuming a definite correlation between age and the onset and progress of presbyopia. Dr. Jackson analysed the refraction and accommodation of 559 patients, and showed how fallacious was reliance upon Donders's table of accommodation at varying ages.

SURGICAL TREATMENT OF TRACHOMA.

By G. Sterling Ryerson, M.D.,

Toronto.

Dr. Sterling Ryerson recalled briefly the history of the surgical treatment of trachoma from the time of Hippocrates to the present day. He suggested no fresh treatment, but laid stress on the point that medication should be persistent after operation and that the papillary form of trachoma was most successfully treated by Darier's method of scarification and brassage.

BINOCULAR VISION.

By A. Freeland Fergus, M.D.,

Glasgow.

Dr. Freeland Fergus read a short paper drawing attention especially to the use of plastograms or stereoscopic pictures—the one printed in red and the other in green—in testing a patient's consciousness of perspective. He pointed out how difficult it was to ascertain whether a patient really had this sense of the third dimension. All doubt on the matter could easily be dispelled by asking the patient to sway himself slowly from side to side whilst examining a plastogram, and any one who did so and who had fully developed binocular vision would find that the objects in the foreground appeared to move in the same directions as he moved. As he closed one eye this apparent movement at once ceased, for the condition of its being present was that both eyes should be used simultaneously.

ON THE SECONDARY INSERTIONS OF THE RECTI MUSCLES AND THEIR CLINICAL IMPORTANCE.

By Lucien Howe, M.D.,

Buffalo.

The supporting fibres of connective tissue which pass from the muscle to the globe and which supplement the tendon constitute the secondary insertions of the extra-ocular muscles. Practically all of the textbooks on anatomy and nearly all of those on ophthalmology, describe each of the extraocular muscles, especially the recti, as inserted into the globe by a single tendon. This is true only in a very general sense, and as a description of rough dissections. For, as many other muscles of the body have their insertions strengthened by tendinous bands, so is it with the muscles of the eye. It is not difficult to recognize these, even with the naked eye, especially if any one of the recti be drawn out straight from the globe. It may be said that there are fibrous bands stretching from the ocular face of the muscle to the globe. The secondary insertions, which pass off from the edge of each rectus muscle toward the adjacent edge of the next rectus, were long since recognized by Merkel, and were described by him in the first edition of Graefe Saemisch as the adminiculum tendinis. One of the best and most recent descriptions of these has been given by Max Virchow. In a monograph relating to this subject he gives a vertical section of the globe near the insertion of the recti muscles. This shows not only each of the recti in section, but also shows those fibres which extend from the edge of each muscle toward the adjacent muscle. So much as to what the secondary insertions are. But of what great importance these small fibres are! Every one who has made many tenotomies of the recti has noticed that after the main fibres have been divided, if the speculum is removed, the eye wiped, and the position of the globe is examined, it seems to remain in practically the same position as before the operation was begun. Then the operator, replacing the speculum, passes the hook in the wound, catching up some small fibre, which seems hardly larger than a thread, divides that, and immediately the globe swings in the position desired, or it may turn out decidedly further than is agreeable to either the patient or to the surgeon. In other words, it was one of these small secondary insertions which, when undivided, held the globe in an abnormal position, but when that was divided it allowed the globe to swing through a much larger arc. As these small fibres are not mentioned, however, in any of the textbooks on anatomy, nor even in the ordinary textbooks of ophthalmology, it seems worth while to call attention to them, and also to point out in a word their clinical importance.

A DISCUSSION ON AFFECTIONS OF THE LACHRYMAL PASSAGES.

I.—A. B. Osborne, M.D.,

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EPIPHORA AND DACRYOCYSTITIS.

Probably no page of ophthalmological literature has been more thoroughly written over than that dealing with the treatment of obstruction of the lachrymal apparatus and dacryocystitis. I shall not attempt to review the literature of the subject, nor have I anything new to suggest, but in the beginning I should like to draw your attention to some points which are apt to be overlooked. The first of these points is (*a*) that a simple obstruction of the lachrymal passages does not produce constant epiphora, and second (*b*) constant epiphora may exist where the lachrymal canals are perfectly normal. So that the more important pathological conditions of the lachrymal passages would appear to divide themselves naturally into epiphora associated with stricture of the ducts and epiphora due to some other cause than obstruction of the outlet for the tears.

It is a well-known fact that under normal conditions the outlet for the tears is only called into play when there is excessive secretion. The normal secretion of tears merely serves to moisten the conjunctiva and allow for evaporation from the conjunctival surface. Excessive secretion of tears—apart from direct irritation of the lachrymal gland—is due to one of two causes: first, central or emotional; and, secondly, irritation of some portion of the mucous membrane supplied by the first division of the fifth nerve. In either of these cases, you may have constant epiphora, even though the channels for the outlet of the tears are perfectly normal. So it is evident that the natural drainage for the tears is unequal to the task when called upon to remove excessive secretion, and what might be called a natural epiphora is the result.

The fact that the removal of the lachrymal sac with complete closure of the nasal duct does not cause constant epiphora proves that under normal condition the tears are not removed by the lachrymal duct. Also where there is obstruction of the nasal duct the epiphora which accompanies it is caused more by the involvement of the conjunctiva in the inflammatory process than by the obstruction of the outlet.

The foregoing points have been referred to in order to emphasize the difference between the operative procedures at present in vogue, each of which has the same object in view, and yet they are diametrically opposed to each other in the method of attaining it. Obstruction of the nasal duct is almost invariably accompanied by inflammation of the sac, and as a rule, it is more for relief of the dacryocystitis than for cure of the stricture that operative measures are resorted to.

The two operative methods referred to for the relief of the epiphora or chronic dacryocystitis are, first, opening and

keeping open by dilatation the nasal duct to allow the discharge to pass down the natural passages, as opposed to, second, the complete removal of the lachrymal sac involving absolute and permanent closure of the natural outlet. Each of these methods, although so entirely different in the manner in which they propose to relieve the diseased condition, are serviceable. The question as to whether we should open up and keep open the natural passage, or permanently close it in order to achieve the same end is the problem. From the operator's standpoint the dilating and probing of the nasal duct appeals on account of its ease and simplicity, but to the patient to whom this method means weeks and months of painful probing, together with uncertainty as to cure, the view point is different.

If the operation for extirpation of the sac were as simple as it sounds, it appears to the writer it would be the ideal method, because the patient is subjected to only one operation, the cure is permanent, and only a slight scar is left. The difficulty in performing this operation successfully is due to the haemorrhage, which so obstructs the operator's view that he is liable to leave a portion of the sac behind, and so cause a fistula or a recurrence of the original trouble. All attempts to distend the sac with molten wax appear to have failed.

It is recommended by some writers that extirpation of the sac should only be undertaken in cases where treatment by probing has failed. But—other things being equal—where the operation is undertaken as a preliminary to extraction of cataract, there appears to be no doubt that extirpation of the sac is the correct procedure without being preceded by probing. The saving of time, as well as the completeness of the cure, is an important feature in these cases. The argument against probing in such cases is that frequently where the passage has been made permanently free by the use of large probes, the nasal mucus is forced into the inner angle of the eye each time the patient blows his nose, and this could scarcely be called a desirable condition in an eye requiring an operation for cataract.

II.—S. D. Risley, A.M., M.D., Ph.D.,
Philadelphia.

Any additional light shed upon the nature, etiology, and treatment of the rebellious affections of the lachrymal drainage apparatus must always prove of interest to the experienced surgeon, for, notwithstanding the great relative frequency of tear-duct obstruction, and the vast amount of discussion in the past regarding its treatment, experience still forbids dogmatic statement as to the efficiency of any one method.

A review of the literature leads me to think that the importance of anatomical anomalies in the structure of the bony nasal duct and the contiguous parts, as a predisposing cause for disease leading to obstruction of the tear duct in many individuals, has not generally been appreciated. As distortions in the anterior segment of the skull may lead to deformity in the shape of the orbits, and this in turn to anomalies in the form of the eyeballs and in the length and direction, the origin and attachment, of the extraocular muscles, and so produce the important group of conditions presented under the heading of errors of refraction and of muscular balances; so here, not alone may the nasal duct be modified in size, form, and direction, but the contiguous sinuses, accessory to the nose, are also distorted, and assume anomalous relations to each other and to surrounding structures, often encroaching upon the orbital walls, upon the environment of the lachrymal sac, and, in the case of the maxillary antrum, upon the lumen of the nasal duct. By way of illustrating the practical importance of these anomalous relations of parts, I recall an instance where this encroachment upon the nasal duct was present. The surgeon had attempted "forcible dilatation" of the duct, and thrust the conical dilator through the projecting wall of the antrum, which led to its speedy infection from a purulent lachrymal sac. Careful study revealed the fact that there was no actual obstruction of the duct, since washes flowed freely through it into the nose when the point of a cannula was carried beyond the false opening which had been made.

It is doubtless true that a typically normal drainage system may become the subject of inflammatory processes as a local manifestation of some general dyscrasia, or through local infection from the conjunctiva or nasal chamber; nevertheless, it is probably true that even in the presence of these causes for disease a tendency to its occurrence is greatly enhanced by the existing anomalous relations which have been mentioned above. Our rhinologic studies have shown the practical significance of these deformities, especially of the scroll bones of the nostrils and of the deviations of the septum or vomer. These anomalous conditions frequently cause marked narrowing of the nasal chamber, so that the opposing sides lie actually in contact, or approach so nearly, that congestion of the overlying soft tissues brings them into contact. Under the ensuing pressure the circulation is impeded, the nose becomes stopped with the turgid soft tissues, and drainage from the accessory sinuses is prevented.

The semi-erectile tissues covering the inferior turbinals seem particularly liable to participation in this vicious circle of events, and the hypertrophied tissues which round out and enlarge their contour frequently close the exit for the tears into the retroturbinal space, the lachrymal drainage system being also accessory to the nasal chamber. It should be remembered in this connexion that the tissues lining the nasal duct seem to possess in some measure erectile characteristics similar to the tissues covering the inferior turbinals with which they have a common vascular supply. A system of abundant veins surrounds the duct in its bony canal, which Dwight, quoting Henle, cites as an instance of what he calls compressible cavernous tissue, which gives support to the mucous walls—a fact of much significance from the point of view of the etiology of any obstruction located in the duct, and which should be considered in any scheme of treatment adopted for its relief.

It is probable that a normal duct is rarely or never patulous, but that tears escape into the nose from the lachrymal sac by capillarity aided by gravity, and possibly, also, by muscular pressure upon the sac exerted in the act of winking. It is the opinion of some that a vacuum is caused in the sac by the alternate pressure relaxation of winking, and that the tears are sucked or drawn into it through the puncta and canaliculi from the lake formed at the inner canthus. The drainage system, according to this view, is therefore a pump forcing the tears forward into the nose.

The onward course of the tears may be obstructed in any part of the apparatus. The puncta, one or both, may be closed entirely or partially as the result of abnormalities or by chronic disease of the conjunctiva or lid margins; the lumen of the canaliculi may at the same time be obliterated or diminished; the lachrymal sac may be diseased and its cavity closed by hypertrophy or by swelling of its surrounding tissue caused by a phlegmonous inflammation; or the peculiar tissue lining the bony nasal duct may become turgid by congestion common to it and the inferior turbinals, or be so changed by disease as to close its calibre, and so obstruct the escape of the tears from the lachrymal sac. Lastly, the form of the nasal duct may be such as to render it susceptible to temporary or persistent obstruction by even slight causes. It is probable that the majority of cases of lachrymal retention belong to this class.

When the cause of the retention lies in the puncta or canaliculi, gentle dilatation after cocainization is usually sufficient to effect a cure. If the sac is diseased it will usually be found necessary to slit the lower canaliculus in order that a more ready access to the sac and the nasal duct may be secured for the purpose of subsequent treatment. In relatively few cases it will be found that the inflammation of the sac, dacryocystitis, or blenorrhoea exists without any marked stricture of the nasal duct. When obstruction exists in such cases it is apparently due to swelling or thickening of the sac itself, which readily closes the entrance to the duct. If the entrance to the duct is narrowed, the egress of the tears is prevented by the increased proportion of mucus or muco-purulent material which settles to the bottom of the sac formed either by the inflammation of the sac itself, or by that entering it from the conjunctiva. After thorough cleansing the sac from the muco-purulent collection, a few drops of a 4 per cent. solution of cocaine, followed by adrenalin, will contract the swollen or oedematous tissue in a few minutes, so that fluids will readily pass into the nose from the cannula of the lachrymal syringe, without the necessity of probing the nasal duct, a procedure which should, when-

ever possible, be avoided. When fluids can be made to pass into the nose freely, the inflammation of the sac and nasal duct will rapidly recover, and, I believe, more speedily and with better final results than when the already inflamed tissues are subjected to traumatism by probing.

In purulent affections the sac can readily be cleansed by solutions of peroxide of hydrogen and the inflamed surface treated by weak nitrate of silver solutions, sulphate of zinc, or, in chronic affections, by solutions of tannin and glycerine with iodine. These should not be allowed to remain in the cavity of the sac, however, but made to pass through it into the nose, and the surface subsequently washed with boracic acid or salt solutions. Many of these cases I often treat without ever passing a probe into the nasal duct.

In long-standing disease, however, the lining membrane of the nasal duct becomes thickened, and may quite close its lumen at one or more points in its course, usually at the bottom of the sac—that is, at the entrance into the duct—or the entire course of the duct is apparently closed by acute swelling, or by actual hypertrophy of the soft tissues, in which case probing becomes necessary. It should, however, be undertaken with caution, having in mind the peculiar anatomy of the tissue lining the duct.

When we consider the variable and irregular form of the bony duct, it is obvious that the probe impinging upon a bony angle may very readily be made to penetrate the soft tissue, and so pass between it and the bony wall, causing profuse haemorrhage by injuring the blood vessels, the traumatism produced in this manner doing more harm than the original disease. I am convinced by my earlier experiences that in some cases which would have been readily curable by other and milder measures, more or less permanent and troublesome stricture of the duct had been caused by this accident. It can certainly, in most cases, be avoided by filling the sac with cocaine solution and adrenalin chloride after cleansing, which as the tissues contract will pass into the duct, so that after the lapse of ten or fifteen minutes the probe can be cautiously passed through the duct to the floor of the nose. Too fine a probe should not be selected. No. 3 or 4 of the Bowman's series are less likely to penetrate the mucous membrane than No. 1 or 2. The design in using the probe should not be to rend or tear a stricture, as in urethral surgery, but to compress the tissue between the probe and the bony walls of the canal, where it should be allowed to remain for fifteen or twenty minutes. By this means the absorption of the thickened tissue can often be effected, much as the indurated edges of a leg ulcer are reduced by firm strapping. After withdrawing the probe the duct may then be readily treated with suitable washes or astringents with the aid of a suitable lachrymal syringe.

Since adopting the conservative measures here suggested, results in the treatment of lachrymal affections have rendered a far more favourable prognosis justifiable both as to time required for treatment and in the final outcome. Neither in my public clinic or private consulting room are now witnessed the long line of patients waiting with Bowman's probes projecting from the ducts, as was formerly seen daily.

I have found much caution necessary in slitting the canaliculus as a preparatory step to subsequent treatment. The probe-pointed knife of Weber is invariably employed, and care exercised not to carry the incision into the sac, since to do so is to destroy the admirable physiologic function of the part, that of a pump.

The drainage system should not be regarded as an open drain pipe, but as a delicate and most ingenious mechanism, the normal operation of which may be readily destroyed by bungling interference. The canaliculus should therefore be slit only to its junction with the common canal. The probe, or cannula of the lachrymal syringe, can then be passed into the sac and carried into a vertical position if necessary without the injury which would result from passing it through the uncut canaliculus. Great care is often necessary to avoid passing the probe-pointed knife through the lower floor of the canaliculus at its junction with the common canal. I have many times seen patients where this had occurred and a false passage made. It can usually be prevented by dragging the lower lid strongly toward the temple and in this manner straightening the course of the duct. The results of this accident are extremely annoying and often difficult or impossible to remedy because of the resulting cicatricial tissue, which by contraction displaces or distorts the common canal, or may even close entirely the entrance to the sac, and should therefore be sedulously avoided. In cases of acute dacryocystitis, or in phlegmon of the sac with great swelling of the parts, the direction of the canaliculus towards its opening into the sac is displaced, so that the operation of slitting should be deferred until the swelling has subsided under cold compresses, or by opening the abscess through the skin and subsequent treatment through this incision. Without this precaution it is difficult or impossible to avoid making a false passage, which under the existing circumstances is likely to lead to a pus pocket and subsequent contraction and permanent displacement or closure of the opening into the sac. After the parts have regained their normal relation the canaliculus can then be slit safely and the final treatment of the sac and nasal duct conducted through it, the opening through the skin being permitted to close.

In cases of blenorrhœa of the sac, with a large nasal duct through which a relatively large probe can be passed, it will usually be found that the retention of tears is due to obstruction at the nasal end of the duct produced by disease of the contiguous soft tissues, or by some deformity of structure at this point or by collections of mucus at the bottom of the sac. The passage to the floor of the nose does not always end with the bony duct. In one case, in which No. 8 probe of the Bowman series passed without difficulty, and where washes flowed freely into the nostril, the patient nevertheless had constant retention of tears and mucus and a chronic conjunctivitis which demanded more or less constant treatment. The bony duct was a short one and patulous, but opened as a narrow slit under a broad fold of membrane at the back of a scroll-like inferior turbinate, which hugged closely the wall of a very narrow nostril. A rapid cure followed the surgical correction of the nasal conditions. In all cases of lachrymal retention, therefore, no study should be regarded as complete which does not include a careful inspection of the nostril.

In this connexion, however, it should be borne in mind that lachrymal disease is rare when compared to the great frequency of affections of the nose. That the nasal disease does not more frequently cause obstruction to the outflow of the tears, I believe is explained by the protection afforded through the cleansing of the floor of the nose, by the constant and ready exit of the tears under normal conditions of the lachrymal duct. Given cases of abnormal anatomical structure, as, for example, the absence of the valve-like fold protecting the opening of the duct, or a slit-like exit which is readily closed, or some of the abnormal irregularities in the course of the duct itself, we have anatomical conditions which, even in health, introduce difficult conditions for the escape of tears and render certain persons susceptible to closure by disease. On the other hand, it is also probable that obstruction to the free flow of the tears into the retroturbinate space, or the presence of a muco-purulent disease of the conjunctiva and lachrymal sac may be the *fons et origo* of disease in the region of the exit of the bony duct. Which is to say that the disease of the turbinates and the floor of the nostrils may be secondary to the lachrymal affection.

In conclusion, I wish to urge the need for suitable instrumental aid in the treatment of these affections.

[A convenient dilator for the puncta and canaliculi, and a suitable lachrymal syringe both devised by the speaker, and the probes employed were presented for inspection.]

III.—SAMUEL THEOBALD, M.D.,
Baltimore.

DR. THEOBALD said he believed affections of the lachrymal apparatus to be consequent, in most instances, upon nasal disease. He had had no experience in removal of the lachrymal sac, but in dealing with stenosis of the lachrymal duct relied upon thorough dilatation with large probes. The probing was generally begun with No. 5 of his series, and for a time was repeated every other day. When as large a probe as seemed called for had been passed the intervals were gradually increased. The active treatment—the frequent probings—comprised about six weeks; the whole treatment, including several probings at intervals of four to six weeks, as many months.

A No. 16 probe was used in two-thirds of the cases. The average number of probings was twenty-four. Considerable force was permissible in passing the larger probes provided one was sure that the proper direction was being taken. During the whole course of the treatment a collyrium of bichloride of mercury (1 in 8,000) with the addition of sodium chloride (1 per cent.) was used by the patient three times daily, the sac being emptied by pressure before each instillation of the drops. Adrenalin was used in conjunction with cocaine, as it seemed appreciably to increase the anaesthesia. Nasal disease, if present, was given careful attention. It has been said that the use of large probes destroys the physiological action of the drainage apparatus. There is no warrant for this statement. No epiphora is complained of by patients whose lachrymal obstruction has been overcome by the passage even of the largest probes. The only objection that can be urged to the use of such probes is that after their employment the duct remains abnormally pervious, but this is of little moment. Exact statistics with reference to the results of the treatment of lachrymal strictures are difficult to secure, as the cases seldom remain under observation long enough to enable one to say that they are permanently cured. It is within bounds, however, to say that of the cases in which the treatment with large probes is carried out as it always should be, from 80 to 90 per cent. are completely and permanently cured. The unfavourable cases are those in which the lachrymal trouble is dependent upon serious and incurable nasal disease.

IV.—John E. Weeks, M.D.,

New York.

In taking part in the discussion of affections of the lachrymal passages it is my desire to call attention to the treatment of obstruction of these passages due to cicatrices or to thickening of the lining mucous membrane, with or without suppuration, by means of some appliance to ensure patency of their lumen. All who have studied cicatricial formation in the lachrymal passages will agree with me that the cicatrix or cicatrices form most frequently at the inner extremity of the canaliculi and at the neck of the lachrymal sac, the latter position being the more common. The cicatrix is usually the result of an ulcer that has affected the deeper part of the mucous membrane as well as the epithelium, and is usually annular. However, it may be the result of traumatism. An annular cicatrix occurring here, as an annular cicatrix occurring in the urethra or other narrow canal, contracts to such an extent that the entire, or very nearly the entire, lumen is occluded. This form of obstruction is probably not more frequent than that due to a thickening of the mucous membrane from a slow inflammatory process, the thickening being accompanied in many, but not in all, cases by the formation of pus. My *confrères* will, I have no doubt, agree with me that the treatment of these conditions is, as a rule, very tedious and may be very unsatisfactory. Medicinal means, so far as cicatrices are concerned, are of no value except in connexion with surgical means, and then only for the purpose of allaying inflammation or irritation in those parts of the mucous membrane not involved in the cicatrix. In cases of obstruction from simple thickening of the mucous membrane, medicinal means may be sufficient to bring about recovery; particularly if, in addition to the medication, the passages are occasionally dilated by means of lachrymal probes. I shall not dwell on this form of treatment at this time. Suffice it to say that I resort to measures of this nature in all suitable cases. In cases in which mild measures fail or are not advisable, the following procedures are usually resorted to: (1) The periodical dilatation by means of probes; (2) maintaining the lumen of the canals by means of a cannula or style; (3) extirpation of the lachrymal sac. The first two are preceded by a cutting operation of some degree. My object in this discussion is to consider the second of these procedures in particular.

We are all aware that probing, preceded by Bowman's or Stilling's operation and accompanied by suitable medication, directed to the mucous membrane of the nose when necessary as well as to that of the lachrymal passages, will bring about a cure in a certain percentage of cases. In a few cases recovery takes place in a few weeks or months, but there are many cases in which recovery is delayed many months. Under such circumstances the patient is very apt to become negligent regarding treatment and recovery is greatly delayed. Some form of treatment that will bring about recovery in less time in these obstinate cases is desirable. If we do not resort to extirpation of the sac—in some cases it is not desirable and in some the patient will not submit to the operation—the only other alternative is to employ cannulae or styles. Having decided to employ some such appliance, we must first prepare the lachrymal passage for its insertion. This I prefer to do by slitting up the lower or upper canaliculus to the caruncle, directing the incision backward toward the globe, cutting in mucous membrane, using an Agnew long shank or a Stilling knife which is not too wide, and continuing the passage of the knife through the lachrymal duct to the nasal cavity. I then dilate the passage, using a Theobald probe for this purpose, the size of the probe to be determined by the size of the lachrymal canal.* Usually a 3 mm. to 3.5 mm. probe is employed. The passage is then flushed with an antiseptic solution.

Cannulae.

At present the writer does not employ cannulae. A sufficiently extended experience has demonstrated their uselessness. The objections are: (1) They do not carry off the tears nor do they drain the passages. (2) The lumen of the cannula soon becomes obstructed by thickened mucus or muco-pus, no matter where openings in the cannula may be placed. If the openings are at the end only and are large, obstruction takes place less readily, but it occurs too soon to render the cannula of any service. If the openings are along the body of the cannula they are soon obstructed, either by the swollen mucous membrane or by granulation tissue, the granulation tissue pushing into and filling the lumen of the cannula if it is not disturbed for some days. (3) The cannula, particularly if perforated along its body, becomes a source of irritation, and actually tends to perpetuate the inflamed condition of the lachrymal passage. In the writer's opinion, cannulae should never be used.

Styles.

Material.—No material that will corrode or the surface of which will become rough from the effect of the secretions of the lachrymal passages should be employed for making styles. Silver, lead, aluminium, copper, hard rubber, if used at all, should be used only temporarily, principally for the purpose of determining the size, and more particularly the shape, desired. In order to bring about a rapid recovery it is absolutely necessary that the surface of the style should be smooth and well polished, and remain so. The newly-forming epithelium dips into all interstices that may be present in a style, and is more or less disturbed when the style is moved. Gold is the only metal that meets the requirements. The style may be solid or it may be gold plated. If gold plated the plating should be on some flexible metal, preferably copper. The objection to gold and gold-plated metals is the weight principally. This can be obviated by using hollow styles, but in this case the ends must be closed. Lead is the best material to employ for a temporary style—that is, for the purpose of obtaining the required length and shape. Its surface should be as smooth as possible.

Character of Styles to be Employed.—This depends on whether the surgeon desires to have the effect of wearing the style exerted in the upper part of the lachrymal passage only or throughout its entire length. In the former instance the style need not be more than 25 to 30 mm. in length; in the latter the style should be long enough to permit its lower end to rest on the floor of the nostril with the upper end the thickness of the style above the opening of the canaliculi into the lachrymal sac. The diameter of the style should depend somewhat on the size of the lachrymal duct, but it should not fit too snugly. If a probe of 3.5 mm. in diameter can be passed the style should be 2 to 2.5 mm. (No. 3 or 4 American gauge) in diameter. The upper extremity of the style should be bent almost, if not quite, at right angles with the shaft and should be long enough (5 to 7 mm.) to project outside the lachrymal sac. The shape of the extremity of the

* In a large number of measurements of the lachrymal canal made by the writer in skulls it was found that the diameter of the canal varied from 2.5 mm. to 7.5 mm.

upper part is immaterial provided that it is smooth and is so adjusted that it does not rub against the eyeball when in position. The lower extremity should be rounded and smooth. The short upper arm may lie in the lower canaliculus when the style is in position.

Adjustment and Plan of Wearing the Style.—In subacute dacryocystitis a temporary style may be inserted immediately after having opened the canaliculi and having passed a probe. The temporary style may be made of smooth lead wire, No. 3 or 4 American gauge. It should be carefully adjusted, examined, and modified, if necessary, from day to day until the surgeon is satisfied with shape and adjustment. This will ordinarily require a week. The gold style can then be made exactly after the shape of the temporary style. It is the writer's custom to make the style himself of 18 K gold wire, having it burnished subsequently. (The temporary style should be removed every second day, and the lachrymal passages cleansed with an antiseptic solution, the style sterilized, lubricated, and replaced.) In the early part of the wearing of the gold style it should be removed every three to seven days if there is much secretion from the lachrymal passages, and the canal and style treated, as when the temporary style was worn. The patient soon learns to do this, and requires to see the surgeon but seldom.

COMPLICATIONS AND ACCIDENTS.

Dragging the Inner Canthus Downward.—This will occur to some extent if short styles are employed. Because of this the writer prefers to employ long styles, even if the obstruction to the passage is in the upper part only. This result of wearing a style is not of much importance. The position of the inner canthus restores itself very shortly after the style is removed.

Irritation to the Eyeball.—This can be avoided by proper adjustment of the style.

Displacement of the Style.—This accident may readily occur if the upper limb of the style is not sufficiently long or properly shaped. The upper end may disappear in the lachrymal sac and present many difficulties in its removal. This is a complication that may readily be avoided, but it is difficult for a beginner to realize how large a style may disappear in the lachrymal passages. It is wise to start with a style the upper limb of which is too long rather than with one not long enough.

Concretions of inspissated secretion sometimes form on the style at exposed parts. If the style is cleansed every two or three days for a short period of time this will cease to annoy.

Absorption and Perforation of Horizontal Plate of Upper Maxilla.—Although this has been reported in the wearing of cannulae, I have never had any such experience in the use of styles.

Cutting through the Wall of the Canaliculus by the Weight of the Style.—This may occur if the style is too short and heavy, but the style should be so made that it will not press sufficiently heavy to cause such an accident. If this accident occur it is not of serious moment.

Formation of Granulation Tissue.—This sometimes, but rarely, occurs. Granulation tissue, if present, should be cut away or cauterized—that is, treated as granulation tissue occurring elsewhere.

RESULTS.

Permanent recovery, provided the nasal mucous membrane is in good condition, can be confidently expected at the end of from two to nine months if this form of treatment is carried out, and this without pain and with little discomfort to the patient. During the greater part of the time of the wearing of the style the lachrymal fluid gives very little trouble, as the excess finds its way to the nasal cavity along the sides of the style. When secretion has ceased and the period of cicatricial contraction (three to five months) has passed the style can be removed and the passages will remain patent. The patient should be seen a sufficient number of times after the style has been removed to enable the surgeon to convince himself that recovery is complete. Recurrences are not common; if threatened, reinsertion of the style can be readily accomplished. In almost all cases in which the lower canaliculus is slit up, whatever the subsequent treatment may be, the lachrymal fluid does not flow away from the conjunctival sacs quite so readily as in the normal condition. Cases treated by wearing a style are no exception, but certainly do not possess this quality to any greater degree than do those treated by any other method.

REPORTS OF SOCIETIES.

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Thursday, December 13th, 1906.

THE PUPILLARY MEMBRANE.

MR. E. TREACHER COLLINS described the macroscopic and microscopic appearance of an adhesion of a persistent pupillary membrane to the cornea in the eye of a cat, and compared these with four other recorded cases of a similar nature. It was suggested that they might be divided into three classes with the following characteristics: (1) A cicatrix of a perforating ulcer of the cornea, with the pupillary membrane attached to the scar (Wintersteiner). (2) A cornea in all respects normal, except for a defect in the endothelium on its posterior surface at the seat of attachment of the pupillary membrane (Collins, Ballantyne). (3) A cornea in all respects normal, except for an absence of Descemet's membrane and its lining endothelium at the position where the substantia propria and pupillary membrane become blended (von Hippel). The case the subject of this communication came under the third heading. In Class 1 the cause of the adhesion was undoubtedly inflammatory in origin. In the cases belonging to the other two classes there was an absence of all signs of past or present inflammatory changes, and in some of the eyes there were other congenital malformations which could not be inflammatory in origin. The balance of evidence in them would seem to be strongly in favour of the abnormality being due to an arrest of development. In Class 2 the arrest occurred in the differentiation of the mesoblastic tissue, posterior to the hyaline layer of Descemet's membrane into endothelium and pupillary membrane. In Class 3 the arrest occurred in the formation of a partition of the hyaline layer and the differentiation of the mesoblastic tissue between the lens and surface epithelium into two parts.

SARCOMA OF THE CHOROID.

Messrs. L. V. CARGILL and S. MAYOU described a case of a flat sarcoma of the choroid.

The patient, a man aged 61, was first seen in August, 1904, when he complained of failure of sight of the left eye. At the outer side of the macula was a patch looking like an area of choroido-retinitis. The retina had an oedematous appearance, and at the lower border of this area were some dark choroidal pigment spots, with other spots less pigmented: the patch was not definitely elevated, but there was a scotoma corresponding to it; the vision was $\frac{6}{9}$. The right eye was normal. In spite of warning the patient did not show himself for a year, and then the retina was partially detached, with much pigment along the border of the detachment. Vision was $\frac{6}{24}$. The use of Leber's transilluminator rendered the diagnosis of tumour certain. He was not again seen until March, 1906, when he had secondary glaucoma. Tension +2 and vision P.L.

The eye was removed, and a funnel-shaped detachment of the retina was present. In the outer half of the globe there was a flat, darkly pigmented growth. In the region of the ora serrata it was raised and tended to spread in a ring-like manner. The optic nerve and sclera were not involved. The growth was strictly limited to the choroid, and was composed of spindle cells with no alveolar arrangement and a few large chromatophores. Anteriorly it showed well-marked signs of degeneration necrosis; there were also some small haemorrhages.

PERFORATING WOUND OF THE EYE.

DR. CECIL SHAW (Belfast) read notes of a case of perforating wound of the eyeball, with complete destruction of the iris and retention of vision.

The patient was an engine driver, aged 37, who was removing the tyre of a bicycle, when the wrench, which he had inserted under the edge of the tyre, slipped and flew out, striking the right eye, and cutting the cornea from edge to edge a little below the centre. The anterior chamber was filled with blood, and when after some days this cleared off, it was seen that the iris had completely disappeared, leaving the lens in place, but evidently injured at its lower edge, from which a few opacities spread through its lower third. These showed no tendency to increase. The wrench was a particularly sharp and rough-edged one, and probably caught the iris and tore it out.

All signs of irritation passed off in about a month, but some floating opacities remained in the vitreous. The man was able to return to his work in six weeks with vision of $\frac{6}{9}$ and $\frac{6}{6}$ partly in the injured eye.

Royal Society of Edinburgh.—At a meeting of the Royal Society of Edinburgh on Monday, December 18th, Dr. Dawson Turner read a paper on the haemo-renal salt index as a test of the functional efficiency of the kidney. The author had compared systematically the electrical resistance of the blood and of the urine in a large number of medical and surgical cases, and had originated a ratio which, after consultation with Dr. George Gibson, he had termed the "haemo-renal salt index." In health this would be equal to three, four, or five whole numbers, namely:

$$\frac{\text{Electrical resistance of blood}}{\text{Electrical resistance of urine}} = \frac{900}{225} = 4.$$

The higher this number was, the healthier, other things being equal, was the condition of the patient. If this index increased, it indicated that the blood contained fewer salts or was richer in corpuscles—[Professor Stewart's and Mr. M. Wilson's work was here referred to]—and that the urine contained more salts and that the functional activity of the kidney was increasing. If the renal index diminished, then the kidney was becoming sluggish and less efficient. The author then referred to a number of cases, and particularly to some medical cases whose renal indices he had examined from time to time for more than two months; he pointed out that the renal index well reflected the general condition of the patient, rising when the patient's condition got better and falling when his condition got worse. In surgical cases this method of investigating the renal efficiency appeared to be of considerable value, and its indications so far seemed to tally with those based upon cryoscopy. Some surgical cases in which a successful operation had afterwards been performed were referred to in detail. In the report of the meeting of this Society on December 3rd it should have been stated that the papers by Drs. Chalmers Watson, Malcolm Campbell, and B. P. Watson were presented by Professor Schäfer as a Fellow of the Society, but were read by the authors.

West London Medico-Chirurgical Society.—At a meeting on December 7th, Dr. Leonard Mark in the chair, Mr. Donald Armour read a paper on *Perforation in typhoid fever*, in which he stated that perforation was more common in men than women, very rare in children, and the third week of the disease was the most frequent time. Out of 167 cases the perforation was situated in the ileum in 136, or 81.4 per cent.; in the large intestine in 20, or 12.9 per cent.; in the vermiform appendix in 5, or less than 3 per cent. The symptoms on which most dependence could be placed were sudden acute pain in the abdomen, collapse, and an abrupt fall of temperature. Intestinal haemorrhage and a steadily rising leucocytosis were danger signals. He dwelt on the great importance of early recognition of the symptoms and the calling in of surgical aid. In suspected cases in which it was impossible to arrive at a diagnosis in other ways, a small exploratory incision under local anaesthesia should be made. The use of opium was only justifiable after the diagnosis had been made. In operating, two points should always be remembered: (1) That there might be more than one perforation present; (2) that it was necessary to examine the appendix before closing the abdomen.—Mr. McAdam Eccles agreed that an operation should be prepared for immediately the signs and symptoms of perforation were apparent; a diagnosis between perforating appendicitis and perforations in enteric was difficult.—Mr. Paton thought that a Widal's reaction should always be taken as an aid to diagnosis.—Mr. F. G. Lloyd agreed that opium should be given after diagnosis so as to lessen shock and to keep the patient in a better condition for the operation.—Dr. A. E. Russell read a paper on the *Etiology of Uraemia*. The cerebral manifestations of uraemia were alone considered. Conditions of increased intracranial tension were apt to be associated with an increase in the blood pressure. Harvey Cushing had shown that an increase of intracranial tension was associated with a gradual and corresponding rise in the peripheral blood pressure. Without this compensatory rise in blood pressure the cerebral circulation would cease when the intracranial tension became equal to that of the blood pressure. He had also shown that in intracranial haemorrhage associated with a high-tension pulse, the blood pressure fell to a most marked extent on trephining and evacuating the blood. Similarly with cerebral tumour the general pressure symptoms were markedly relieved by operative measures designed to lower the intracranial tension; convulsions ceased, headache and vomiting were relieved, and optic neuritis subsided. In uraemia a very similar group of symptoms was often to be seen, and inasmuch as the condition was then commonly associated with an increased blood pressure, it was permissible to inquire whether the explanation might not be the same, namely, that the intracranial tension was increased. The large number of cases reported in which immediate and striking relief followed on lumbar puncture in uraemia seem to prove that it was so. The relief was most marked when the cerebro-spinal fluid spurted out from the needle, that is, when the pressure within the spinal space was greatest. Mr. McAdam Eccles said that it was a physiological fact that the removal of cerebro-spinal fluid was followed by rapid resecretion of the liquid, and suggested the advisability of prolonged drainage in cases where simple puncture was ineffective.

REVIEWS.

A HANDBOOK FOR THE MICROSCOPIST.

Sir A. E. Wright deals with the *Principles of Microscopy*[1] in an original and independent fashion, despising all attempts at the ordinary rule of thumb instructions, and basing every proposition on the direct application of scientific theory. A special feature of his method is that he is constantly asking the reader to make for himself simple optical experiments and to follow the requisite mathematical calculations which their interpretation involves. Much of the current technical vocabulary of optics is avoided and many new words are coined, the intention being to avoid circuitous and ambiguous expressions, and to present a clear statement to a reader who is approaching the subject for the first time. All this is praiseworthy, but the author somewhat prejudices his case by indulging in sarcastic expressions which are not necessary and can do no good. "The use of mathematical signs as a substitute for speech," he says, "can be defended only in the case of the inarticulate classes of the learned." This is one out of many instances in which no useful purpose can be served by falling foul of people who approach the subject of microscopy from a different standpoint. And, again, most medical students and research workers would gladly receive from so brilliant a pathologist as the author brief and concise instructions on the use of the microscope; but many of them may not have the time nor possibly the inclination to submit to the laborious course of study which he imposes upon them. For this class of person he appears to have no sympathy. "The present textbook," he declares, "has no message to those who are content to follow a system of rule of thumb, and to eke this out by blind trial and error." It is intended for those who wish to receive instruction "even at the price of some intellectual effort." There are many people quite worth considering who refuse to assimilate material which is offered to them in this independent "take it or leave it" style; they object to it not because it is masterly but because it is a little too masterful.

The book contains an interesting discussion of the relative merits of the Abbe condenser compared with the more expensive achromatic condensers which many English workers prefer. Sir A. E. Wright maintains that it is not the function of the condenser to furnish a perfectly corrected image of the light source, but rather to give on the stage of the microscope such radiant points as may be required for the development of the appropriate stage picture and for its proper representation in the microscopic image. He shows how automatic correction is obtained with the Abbe condenser and maintains that its use is justified; he is not inclined to concede to the achromatic condenser the general superiority which has been claimed for it. The volume closes with an account of Mr. Gordon's "tandem" microscope, by means of which magnifications of 10,000 diameters and over have been obtained.

[1] *Principles of Microscopy, being a Handbook to the Microscope.* By Sir A. E. Wright, M.D., F.R.S., D.Sc., F.R.C.S.I. London: Archibald Constable and Co. 1906. (Royal 8vo, pp. 259, with numerous illustrations, some in colours. 21s.)

THE PATHOLOGY OF URAEMIA.

IN Dr. DE LÉVIS'S monograph on the pathogenesis of uraemia[2] the subject is discussed more especially in reference to the modern theory that the kidney is an organ which has an internal as well as an external secretion, and that the toxic symptoms of uraemia are due more to the failure of the former than of the latter. In favour of this view are those remarkable cases of anuria following calculous obstruction, or the even more remarkable though rare cases of hysterical anuria in which complete or almost complete suppression of urine has lasted for days and weeks without giving rise to any of the so-called uraemic phenomena usually associated with the failure of the urinary secretion. Attempts to imitate the uraemic state by experiments on animals have generally taken the form of tying the ureters or extirpating one or both kidneys: these operations are rapidly followed by death, but numerous efforts have been made to prove the therapeutic value of certain renal derivatives supposed to contain the internal renal secretion. These rest on the somewhat insecure basis of the greater duration of the lives of animals treated by these substances as compared with others not treated. There are various preparations of this kind—nephrine, for instance, is a glycerine extract of kidney proposed by Jacquet, which has given favourable results in the hands of Teissier and others; but a preparation of serum obtained from the renal vein is preferred by the author. Nephrolysine is the name given by Maragliano to a supposed substance formed in the blood serum of animals treated by the injection of the renal pulp of animals of a different species (for example, dog with rabbit serum or vice versa); in this case the product is called heteronephrolysine; or animals are injected with the serum of others of the same species which have had their ureters tied, the product being called isonephrolysine. Many experiments have been made on these lines with substances of these kinds, especially by Professor Vitzou of Bucharest, but Dr. de Lévis holds that their results are fallacious, as the condition of an animal which has undergone double nephrectomy is not comparable with that of a patient suffering from uraemia due to kidney disease, and consequently the opotherapeutic treatment of these animals gives no information of clinical utility respecting the existence or non-existence of an internal renal secretion. He finds, moreover, that the survival of animals after double nephrectomy has been under-estimated, and holds that the duration of life depends upon the age of the animal, the quantity of water absorbed, and the state of the alimentary canal; the intestines become the chief channel for elimination, and Dr. de Lévis has discovered large quantities of urea *post mortem* in the liquid which it contains.

On the other hand, nephritis set up experimentally by the injection of a nephrotoxic serum prepared by bleeding a dog from which one kidney has been removed offers conditions which are better suited for the study of the subject. Experiments with serum of the renal vein show that it has no general antitoxic action, but that it directly influences the renal cells, stimulating their urinary, chemical, and glandular function, and increasing their resisting power to any toxins that may be present. In his opinion, it follows from this that opotherapeutic measures can only be of use in patients whose kidneys have preserved a certain amount of vitality, and are capable of having their functions restored. He devotes considerable space to describing the mode in which he prepares the serum, the precautions that he takes to prove that it is sterile, and his method of determining its proper dose. It is quite clear that such a remedy is difficult to manufacture, and would be exceedingly dangerous unless all the processes were controlled by some thoroughly responsible authority. It is a means which enables us to get over a crisis, but not to compensate for permanent organic disease. Its value appears to be strictly limited to instances in which organic disease of the kidneys is not far advanced, such as cases of uraemia occurring in the course of scarlatinal nephritis, or, as we sometimes see it in the earlier stages of interstitial nephritis.

With regard to the theoretical questions involved, Dr. de Lévis believes that the principal causes of the symptoms of uraemia are the cytotoxins which are formed by degenerated or diseased renal cells. So long as these poisonous substances are not formed, retention of urine is not attended by dyspnoea, convulsions, or coma.

[2] *Recherches Expérimentales et Cliniques sur la Pathogénie de l'Urémie. Sécrétion Interne des Reins et Cytolysines.* Par Marc de Lévis, M.D. Lyon. 1905. (Demy 8vo, pp. 290.)

NOTES ON BOOKS.

MESSRS. MACMILLAN have sent us a prettily-bound edition of GEORGE ELIOT'S *Scenes of Clerical Life*, illustrated by Hugh Thomson. *Don Quixote* was once recommended on good authority as a very suitable work for the perusal of an aspirant to success in the practice of medicine. Without questioning the wisdom of this advice, we may invite the young practitioner to add this volume, so full of intimate knowledge of the point of view of well-to-do rural England, to his library. Intelligently read, it will save him from many blunders apt to be made by the man fresh from the less curious and more tolerant world of London or Edinburgh. Mr. Thomson's illustrations, some of them in colours, are graceful and agreeable.

Sir WILLIAM CHANCE has written a useful pamphlet entitled *Vagrancy*,[3] which is a brief epitome of the conclusions and recommendations of the Departmental Committee on the subject. He was a member of that Committee, and is, of course, a partisan; but as he gives a fair statement of the criticisms the recommendations of the Committee have encountered, this is no disadvantage. The judicial attitude is very proper in its place, but sooner or later we look for a verdict. Sir William Chance, while recognizing that there are several sorts of vagrants—the genuine workman out of work and the more or less incorrigible tramp—appears to hold strongly that the male vagrant must be wholly handed over to the police, while the women and children are still cared for in the workhouse. It may be so; certainly it is difficult to discriminate between the several classes of male vagrants by the rough-and-ready methods which are alone possible. But we venture to think that he treats the question of how to deal with the children too lightly. While there is no doubt that the incorrigible vagrant is derived from various social grades, that he is as a rule made, not born, still there is the fact that there are children vagrant-born about whose possibilities for good very little is known. Sir William Chance would have them "sent to industrial schools or dealt with in such other way as may be thought best for them." What other way?

The *Practical Medicine Series*, under the general editorial charge of Dr. GUSTAVUS P. HEAD,[4] of Chicago, is planned upon lines befitting the dimensions of the United States. It comprises in ten annual volumes a record of the year's progress in medicine and surgery. Vol. vii of Series, 1906, includes Pediatrics, by Dr. Isaac A. Abt, and Orthopedic Surgery, by Drs. Ridlon and Bailey. The sections on Hygiene and Dietetics are well selected and give useful practical hints for the common-sense management of childhood. There are notices of a good many articles of interest, but it is obvious that any attempt to properly summarize a year's work in such a department of medicine as pediatrics must be at best only partly successful when only 200 pages can be devoted to it. Under "orthopedics" no startling evidence is discussed, but we are glad to see that the editor emphasizes the truth, that the only way to rest a diseased spine is by recumbency, although many advocates of corsets, splints and jackets would have us believe the contrary. Dr. Ridlon is very guarded in his estimate of the benefits to be expected from tendon transplantation. There are some good illustrations in the book, but those of infantile scurvy can hardly be included in this number.

Under the title *What are We?* Mr. JOSEPH[5] has written a book which, so far as we have been able to discover, never answers the question with which it sets out. The work was, its author relates, drawn up on a rough frame to satisfy himself alone. We gather that it has had this effect, but assuredly it will satisfy no one else. It contains a good deal of elementary chemistry, some still more elementary

[3] *Vagrancy.* By Sir William Chance, Bart., J.P. London: P. S. King and Son. 1906. (Crown 8vo, pp. 48. 6d.)

[4] *The Practical Medicine Series.* Comprising ten volumes on the year's progress in Medicine and Surgery. Under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Vol. vii: Pediatrics, edited by J. A. Abt, M.D., Chicago: the Year Book publishers. Glasgow: G. Gillies and Co. 1906. (Crown 8vo, pp. 267. 29 illustrations. 5s.)

[5] *What are We? An Attempt at an Intelligible Explanation of the Universe and the Place we take therein.* By Leonard Joseph, A.M.I.E.E. London: Kegan Paul, French, Trübner and Co. 1906. (Demy 8vo, pp. 394. 15s. net.)

biology, and a jejune and ultra-materialistic philosophy which is fortunately too incoherent to be mischievous; all set forth with a self-assurance which is the only striking feature of the book, and illustrated by numerous generally incomprehensible diagrams. That some information may be gleaned from its pages cannot be denied, for it abounds in quotations from a large number of writers and publications, ranging from Kant to *Answers*, and from Schopenhauer to the *Daily Mail*. On the flyleaf a "warning" is given that the work is not intended for juveniles; we agree, and do not think the "warning" need be so restricted.

The twenty-fifth session of the Ophthalmological Society of the United Kingdom came to an end only last July, and those responsible are to be congratulated on the rapidity with which they have got out the volume of the *Transactions*[6] relating to that period. It contains altogether a record of seventy-one papers and discussions, and in point of permanent interest and utility is well up to the standard of its predecessors. Some of the papers are well illustrated by coloured and other plates.

LITERARY NOTES.

The Caxton Publishing Company (London) announce for early publication an English translation of *The Nursling: The Feeding and Hygiene of Premature and Full-Term Infants*, by Professor Budin, of Paris, who writes from the fullness of his own experience. The translation is by William J. Maloney, M.B., Ch.B., and Sir Alexander R. Simpson, M.D., LL.D., D.Sc., Emeritus Professor of Midwifery and Diseases of Women and Children, University of Edinburgh, contributes an introduction. The book contains 111 diagrams in colour and other illustrations. A detailed account is given, with numerous coloured graphs, of the method of treatment adopted by Professor Budin, which has already been the means of reducing infant mortality to a considerable extent in Paris.

In the *Dublin Journal of Medical Science* for December there is a paper—happy in the opportuneness of its appearance—by Dr. Knott, on the mistletoe, which he treats from every point of view, as may be gathered from the title: "A Monster in Botany; a Dryad in Mythology; a Panacea in Therapeutics; and a Symbol in the Festive Folk-Lore of each Rising Generation of Humanity." The mistletoe was credited with therapeutic virtues long before the Christian era, as we know from Pliny, who says the Druids called it "All-Heale," "for they have an opinion of it that it cureth all maladies whatsoever." Its reputation continued through the Middle Ages, and it was enthusiastically praised as a remedy for epilepsy by Paracelsus. Dr. Knott quotes the following account of its properties from John Parkinson's *Theatrum Botanicum*, which was published in 1640:

> Misselto is hot and dry in the third degree, the leaves and berryes doe heate and dry, and are of subtill parts, for some acrimony is in them, which overcommeth the bitternesse, the Birdlime doth mollifie hard knots, tumours, and Imposthumes, ripeneth and discusseth them, and draweth forth thicke as well as thinne humours, from the remote places of the body, digesting and separating them; but it is not of that property to separate suddainely, but after some time as *Thaspia* doth, and being mixed with equall parts of Rossin and waxe doth mollifie the hardnesse of the spleene, and healeth old ulcers and sores: being mixed with Sandarach and Ortment, helpeth to draw of foule nailes, and if quick lime and wine lees be added thereunto it worketh the stronger. The Misselto itselfe of the Oke as the best (or of the chestnut tree as *Matthiolus* saith to be as good) made into powther, and given in drink unto those that have the falling sicknesse, doth heale them as *Matthiolus* saith, and that he had tryed it and healed many assuredly: but it is fit to use it forty dayes together: and with this caution, that the wood after it is broken from the tree, doe not touch the ground, which is in my minde too superstitious, as is their conceit also, that it hath power against Witchcraft, and the illusion of Sathan, and for that purpose use to hand a peece thereof at their childrens neckes. *Gentilis Fulginas* and others have so highly esteemed of the vertues hereof, that they have called it *Lignum sanctae crucis*, believing it to help the falling sicknesse, Apoplexy, and Palsie, very speedily, not only to be inwardly taken, but to be hung at their neckes, and some to hang it at their neckes, or weare it on their arme to helpe them to conceive: and saith *Matthiolus*, I have knowne ignorant emperickes to have given the Birdlime made into pilles to swallow instead of the wood: and further saith that he knew the Misselto that grew on a Peare tree, given to one that had the parts of his body drawne together, to doe him much good, and divers doe esteem of the Misselto that groweth on Hassell nuts, or Peares, as effectuall as that on the Oke, so it touch not the ground, for the falling sicknesse, to be taken in Wine. *Tragus* saith that the fresh wood of any Misselto bruised and the juyce drawne forth, and dropped into the eares that have Imposthumes in them, doth helpe and ease them within a few dayes: the leaves are often given to cattell, saith *Pliny*, to fatten and purge them first: but if they be diseased they cannot continue long, and the manner of curing them lasteth for forty days in Summer.

Mention of it is also made by William Salmon in his *New London Dispensatory* (1676 and 1684 5), and by James, the inventor of the antimonial "fever powder" (which is said to have killed Goldsmith), in his *Medical Dictionary* which appeared in 1745.

We are glad to announce the coming of the *British Journal of Tuberculosis*, for there is both room and need for such a periodical. It is to be edited by Dr. T. N. Kelynack. Among the contents of the first number, which will appear on January 1st, are articles by Professor Clifford Allbutt, Dr. R. W. Philip, Sir Lauder Brunton, Sir Hermann Weber, Sir Samuel Wilks, with a discussion on the care and control of the consumptive poor by Sir Richard Douglas Powell, Dr. Byrom Bramwell, and Sir John Moore. We look forward with interest to the appearance of our new contemporary, for which the names of its editor and contributors are excellent guarantees.

According to the *Lancet* there is in contemplation a series of lives of the private physicians of the Popes. Among them have naturally been many men of note. It is noteworthy that in the Middle Ages Jewish physicians often held medical sway at the Vatican.

The *Heraldo de Madrid* has made an interesting new departure. Each week it will publish a kind of medical supplement, entitled La Medicina y los Medicos, to which well-known members of the medical profession will contribute. The first, which appeared on December 12th, occupies nearly a page and a half of the *Heraldo*. There is an interesting "appreciation" of Professor Ramon y Cajal with a portrait by Dr. Pulido; an article on healthy dwellings by Dr. Montaldo; one on the heart and its diseases by Dr. Espina y Capo, Physician to the Hospital Provincial of Madrid; an essay on the doctor in society at the present day by Dr. Larra y Cerezo; a short account, with portrait, of the late Dr. G. B. Ferguson, and several other articles. The feature which seems to us especially noteworthy is that the contributors are all men who are recognized not only by the public, but by the profession, as entitled to be heard on the matters of which they speak.

The subject of accessory eyes and ears was (we learn from the *Broad Way*) discussed by Professor Peter Thompson at a recent meeting of the Guthrie Society. The pineal eye was shown to be embryologically a paired organ (pineal and para-pineal), and serially homologous with the frontal eyes. The subject of accessory ears was, after a short explanation of their development, chiefly illustrated by slides of Graeco-Roman and archaistic statuary. The statues in which accessory auricles are found are mostly those of satyrs and other combinations of man and beast. In connexion with this subject, the Professor remarked that it was doubtful whether they were introduced because they were observed in men or in goats, etc., since they are of frequent occurrence in many animals.

In a thesis on the heredity of stammering and functional *tics* and cramps generally, presented to the University of Bordeaux, Dr. Louis Bonnet devotes a chapter to famous stammerers. In religious history he finds only two, Moses and St. Charles Borromeo (whose name should always be remembered with honour for the part he played during the plague of Milan), though several of the Prophets are believed, with more or less reason, to have had defects in their speech. In literature the author cites Malherbe and Racan, who was a poet of reputation in his day; it is to be presumed that he has never heard of Charles Lamb. Among politicians he mentions Boissy d'Anglas, nicknamed the "ba, be, bi, bo, bu orator," and Camille Desmoulins; among painters, Louis David; among generals, Turenne; among Kings of France, Louis II, nicknamed on account of his infirmity Le Bègue; among professors in the Paris Faculty of Medicine, Professor Alfred Becquerel and the famous toxicologist Orfila, who, by the way, was a remarkably fine singer.

[6] *Transactions of the Ophthalmological Society*, vol. xxvi. London: J. and H. Churchill. 1906. (12s. 6d.)

RECONSTITUTION OF THE ARMY MEDICAL ADVISORY BOARD.

The Advisory Board for Army Medical Services having now completed the details of army medical reorganization referred to them by the Reorganization Committee of 1901, the Secretary of State for War has decided to reconstruct the Board, and to make it more distinctly advisory in its functions.

The new Board will consist, in addition to the Director-General who will be Chairman, of a civil sanitary expert, a civilian physician, a civilian surgeon and a civilian physiologist, an officer of the R.A.M.C. specially qualified in sanitation, an officer of the R.A.M.C. with special knowledge of tropical diseases, an officer of the Royal Engineers from the Department of the Director of Fortification and Works, and the President of the Medical Board India Office, as well as the Deputy Director-General who will act as Vice-Chairman.

The Army Hospital and Sanitary Committee will be dissolved, and all scientific questions hitherto submitted to that Committee will be referred to the Army Medical Advisory Board.

The Committee will carry out such scientific investigations as they may deem requisite for the elucidation of points referred to them. For these purposes they will have power to co opt members of the staff of the Royal Army Medical College.

The Committee will advise upon such matters under the following heads, as may be referred to them by the Director-General:

(*a*) Upon medical and surgical questions affecting the military services.

(*b*) Upon matters of hygiene and sanitation as they affect the soldier, especially as regards his physical training, rations, and clothing, as well as his housing and sanitary environment in peace and in war.

(*c*) Upon the provision of hospitals and their equipment.

The Committee will in each year take into consideration the statistics and reports furnished by the Army Medical Department, and furnish thereon an annual report for presentation to Parliament.

They will advise as to the mode of admission of candidates, the courses of study for officers, the appointment of examiners for all examinations for promotion, as well as the appointments of professors and teachers in connexion with the Royal Army Medical College, and make such recommendations for the government of the College as may seem to them desirable.

The Committee will advise upon the plans of all new barracks and hospitals proposed for construction and upon all fundamental questions connected therewith.

In future recommendations for promotion to the fixed establishments of the Army Medical Service will be made by a Board consisting of the Director-General and the Surgeon-Generals serving at home, before submission to the Selection Board.

Steps will be taken to appoint an officer of the Royal Army Medical Corps to act as Inspector of Hospitals and of Army Sanitation on the staff of the Inspector-General of the Forces.

MEDICAL NEWS.

His Majesty the King has become an annual subscriber of £10 10s. to the funds of the National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury.

Dr. Richard Bier, Professor von Bergmann's assistant, has accepted the post of Surgeon in Ordinary to the Sultan. He has also been appointed Professor in the Constantinople Medical School.

The necessary qualifications of applicants for the Gresham Lectureship on Physic have been altered as follows: Candidates must have taken the degree of M.D. in some university of Great Britain or Ireland, or must be Fellows of the Royal College of Surgeons. The age limit has been withdrawn.

Under the will of the late Mr. Samuel Holland, of Chester, which has now been proved, the Ancoats Hospital and Ardwick and Ancoats Dispensary is to receive a sum of £500, and the Northern Hospital for Women and Children, Park Place, York Road, Cheetham Hill, £250.

Mr. E. T. Newton, F.R.S., exhibited at a recent meeting of the Zoological Society of London the leg-bones of two foxes that had been caught in snares. The wire in each case had cut through the skin and was drawn tight round the bone, which in course of development had grown over the wire and enveloped it.

The twenty-eighth Balneological Congress will be held in Berlin in the early part of March, 1907, under the presidency of Professor Oscar Liebreich. The General Secretary is Geheimrat Dr. Brock, Thomasiusstrasse 24, Berlin, N.W.

The Bill for a railway under the Channel between Dover and Sangatte provides for two parallel tunnels, each 18 ft. in internal diameter, driven through the grey Rouen chalk. Traffic will be worked by electric motors, and the power will be obtained from large generating stations, which will also supply the current for lighting, and for the compressed air required for ventilation.

A fine monument in memory of the distinguished surgeon, Francisco Rubio, was unveiled in Madrid on December 13th by the King of Spain in the presence of a large crowd of spectators. The occasion was made a State ceremony, many members of the Ministry, the Alcalde, and the municipal councillors and representatives of the University of Madrid and other bodies being present. An account of Rubio's work was read by Dr. Angel Pulido, and a speech was made by the Mayor. The proceedings were brought to a close by a luncheon at which the King and Queen were present. The monument is from the chisel of the eminent Spanish sculptor, Señor Blay.

The Children's Sanatorium (for consumptive children) originated in 1904. The sum so far received amounts to over £4,000, and operations have been commenced by the purchase of a site at Holt, Norfolk, situated amongst pine woods, and in proximity to the sea. Since July accommodation for twelve children has been provided in a new home adjoining the site, pending the erection of the permanent building. Eight children are in residence, and the vacant accommodation will be filled when the maintenance funds suffice. Donations to the building fund and subscriptions for the maintenance of the cases are received by the honorary secretary, Mr. T. H. Wyatt, M.V.O., 68, Denison House, Vauxhall Bridge Road, S.W.

A number of his professional friends with some lay guests entertained Dr. F. H. Haynes at a complimentary dinner on December 15th at the Masonic Rooms, Leamington, more than forty being present. The dinner was given on the occasion of the resignation by Dr. Haynes, in consequence of pressure of private work, of the position of Honorary Physician to the Warneford Hospital, which he had held for thirty-three years, and his acceptance of the post of Honorary Consulting Physician to the Institution. Dr. Wyer, President of the Birmingham and Midland Counties Branch of the British Medical Association, presided, and was supported by two past Presidents, Dr. Thursfield and Mr. Lloyd Owen, of Birmingham, and the President of the Leamington Medical Society, Mr. Silvester. The health of the guest was proposed by Dr. Wyer, who referred to Dr. Haynes's long and admirable service at the hospital, to his great popularity with his colleagues and members of the profession generally, and to his more than brotherly kindness in assisting any of them in sickness, in trouble or difficulty of any kind. Dr. Bernard Rice and Dr. George Wilson also spoke in eloquent terms of his devotion to his hospital work, his geniality, and his absolutely correct bearing in upholding the dignity and honour of the profession. The toast was drunk with great enthusiasm, and Dr. Haynes replied in suitable terms.

British Medical Benevolent Fund.—Mr. Edward East, 26, Linden Gardens, W., writes: "I shall be much obliged if you will kindly insert a notice in the Journal to the effect that I am, as usual, very desirous of receiving clothing of any description for ladies or gentlemen for distribution, and that the wardrobe is in urgent need of replenishing. I have received many requests which I am unable to comply with satisfactorily."

Cancer in Hungary.—A national conference on cancer in Hungary was held at Buda-Pesth on November 15th and two following days. It was attended by more than 300 members of the medical profession. Professor Doellinger, to whose initiative the convening of the Congress was due, reported that, according to official statistics, there were on October 15th of the present year 3 650 patients under treatment for cancer in Hungary. It was estimated that the total number of sufferers from cancer in Hungary is about 56,000. At the census of 1900 the population was 19,254,559.

The Council of the British Association for the Advancement of Science has appointed Dr. A. D. Waller, F.R.S., President of the Section of Physiology at the meeting to be held in Leicester in 1907.

British Medical Journal.

SATURDAY, DECEMBER 29th, 1906.

VISION TESTING IN THE PUBLIC SERVICES.

The proceedings of the Section of Ophthalmology at the last annual meeting of the British Medical Association, the publication of which is concluded this week, afford several illustrations of the direct bearing which the results of the detailed investigations of specialists, when they reach a certain stage, may have upon general medicine and the work of the general practitioner. We need only refer to the discussion on sympathetic ophthalmia, its causes and its prevention, with the related paper of Dr. Freeland Fergus of Glasgow on sympathetic degeneration, and to the discussion on diseases of the lachrymal passages, as proof of what has been said. They deal with matters which may any day cause much anxiety to men engaged in general practice. We may go further, and point out that the results of investigations in this special department of practice may have important bearing on public affairs, on the administration of the army and navy, and on the working of those necessities of our present state of civilization—railways, steamships, and motor cars. The papers by Mr. Arnold Lawson on conditions of eyesight required for military service, by Dr. C. Williams of Boston on visual tests for railway and marine services, and by Dr. Freeland Fergus of Glasgow on eyesight in relation to compensation, all deal with matters which nearly concern the public welfare and the prosperity of important industries. Mr. Lawson asks what degree of form sense should be demanded by the nation of its soldiers, and how the question of its existence should be determined; while Dr. Williams of Boston raises much the same points in connexion with railway servants. Naturally they traverse somewhat different paths, but each is dissatisfied with the methods of vision testing in the connexion in which it is considered by him; and, if this were all, the interest of the matter, though still great, would be much more limited than it really is.

It may clearly be inferred, however, from what Dr. Williams says, that he would be glad to find a substitute for the system of examining acuity of vision by the subjective test of Snellen's reading types; while Mr. Lawson not only condemns this method as a criterion of the fitness or otherwise of any individual for military service, but supports his views by detailed arguments and examples which go far to prove that the conditions under which the test is really to be trusted must be very limited. This at once broadens the interest of the matter, for Snellen's test types are so easily and so quickly used that they are almost universally employed when examining persons the efficiency of whose vision is of more or less public interest; and the temptation to continue to employ the method is great. But if the test is undesirable when dealing with recruits—and on this point Mr. Lawson is very convincing—still less can it be desirable in the testing of engine drivers, of signalmen, of watch keepers, and officers on board ship, of claimants for compensation for alleged injury—a point on which Dr. Freeland Fergus touches—and in what has not yet come into existence, but cannot come too soon, the examination of candidates for an automobile driver's certificate.

Of Mr. Lawson's arguments, the foundations of a well-displayed case, it is unnecessary here to cite more than the main points. He reminds us that in myopes there is no true mathematical ratio between the vision as tested by letter types and the amount of myopia really present. It may even happen that a person myopic in both eyes may read better with his more, than with his less, defective eye. Similarly, it may happen that of two myopes the one whose refraction is really the more defective may make a better showing with test types than the other. That a corresponding paradox may occur from one individual being more nervous than the other, or the light suiting him less well, is likewise probably true and it might also be suggested that habit-spasm sometimes counts for something. It was undoubtedly habit-spasm, and not only unfamiliarity with the appearance of the country, which accounted for some of the apparently greatly inferior vision among the British troops in South Africa as compared with their Boer adversaries, and for the fact that as time progressed less need for glasses was experienced by those accustomed to use them. Then, again, there is associated with this method, though not of necessity, a tendency to favour hyperopia as against myopia; the young hyperope can read the types better than the myope with a corresponding dioptric error, but his defect is one which as time goes on and his responsibilities increase will make his vision less dependable than that of the myope. A further point is that the method—as indeed in some degree must be the case with any subjective test—opens a door to trickery. It is certainly true that by memorizing a candidate may appear to see better than he really does, and the liability is especially great when, as commonly in England, the test types are all printed on one sheet. In America endeavours have been made to overcome this defect by keeping different sheets for different sized letters, varying the letter sequence, and other devices, but none of them seem invariably effective, and possibly the best plan when test types are used at all would be, as suggested by Mr. Lawson, to substitute a simple optotype system such as Landolt's broken rings. Moreover, none of the American series meets the objection that sometimes it may suit the examinee's purpose to appear to see less well than he really does. This is of importance, because the use of Snellen's type is not uncommon in connexion with claims for pension and for compensation for loss or deterioration of vision from injury. In this connexion, indeed, the dictum in Dr. Fergus's paper, that there is no method at present in use by which the loss of working power brought about by an eye injury can be accurately estimated, is hardly open to dispute. It is common for persons to remain unconscious of a marked visual defect until accident or a scientific examination of their eyes accidentally reveals it to them, and in this paper will be found many details of cases in which patients performed quite successfully work for which *prima facie* their vision would have seemed entirely to unfit them. It may be that in much of our work we tend to over-estimate the part played by vision, and possibly in all actions associated with use of the eyes there is, as the author would seem to suggest, a further factor—a kind of *tertium quid*—not easily reduced to any formula. Possibly it

is muscular sense, an explanation the value of which can be tested by any person who, for instance, tries the experiment of going down an ill-lighted staircase alternately looking at the steps and looking straight ahead. Most people over the age of 40 will find that their progress, once the descent has commenced, is more assured when they trust to their feet alone.

In Dr. Williams's paper the chief stress is laid upon colour testing; and here, again, when they meet, Mr. Lawson and he express identical views. He shows that a certain number of colour-blind men pass the Holmgren skein test, but fail with the coloured-lamp test, and suggests that they suffer from a limited central colour-blindness, possibly due to tobacco smoking, which only comes into operation when vision is concentrated on a comparatively small or distant object. Like Mr. Lawson, he indicates, too, that colour blindness can be overcome by education this in certain connexions may be useful, but it is a source of risk as regards railway work and in similar connexions. For an individual whose colour sense is educative, and not natural, readily goes astray when looking at a colour with which he has not been trained, as, for instance, a dirty flag or a light obscured by fog. Another point already fairly recognized, but properly emphasized by Dr. Williams, is that the visual acuity of engine-drivers and similar persons should be high, since at the end of a run of, say, 200 miles, the vision of an engine-driver will be found temporarily to have diminished by at least a quarter.

Finally, to revert once more to Mr. Lawson's paper, it must not be supposed that his criticism of the tests in vogue when recruiting for the army are merely destructive. On the contrary he deals boldly with all the difficulties and outlines clearly a method of examination which may well seriously be considered by the authorities.

Still more do we hope that his general criticisms of subjective vision testing will not be forgotten when we have advanced so far as to insist upon the vision of would-be motor drivers being gauged. This is a question of great importance, for defective vision increased by strain and fatigue, and with its accompanying incapacity for judging pace and distance, is, as described by Mr. Cecil Clements in this JOURNAL on December 8th, undoubtedly responsible for many of the daily-occurring accidents, and the matter is one which should receive the early consideration of those who are responsible for motor regulations.

ARMY MEDICAL REFORM.

At page 1876 will be found an official announcement of important changes made by the Secretary of State for War in the administrative machinery of the medical services of the army. Briefly these are as follows: The Advisory Board is to be reconstructed, while the range of its functions is to be extended; the Hospital and Sanitary Committee is to be abolished; and a new office, that of Inspector of Hospitals and of Army Sanitation, is to be created.

The Advisory Board was intended to bring the medical service into closer touch with the civil branch of the profession, and to secure for the army the co-operation of men moving in the full tide of scientific progress, and representing modern medicine, curative and preventive, in its highest development. The Board appointed by Mr. Brodrick in 1901 has done the work it was given to do very efficiently; for this it is entitled to the gratitude of the army and of the nation. In the reconstructed Board we hope that, as has been suggested more than once by ourselves, provision will be made for the retirement in rotation of the civilian as of the military members. It is unfair to ask men who are busy in the practice of a profession, proverbially the most jealous of mistresses, to give more than a limited portion of their span of life to the discharge of duties which must lay a heavy tax upon their devotion and self-sacrifice as well as on their time. It may, moreover, reasonably be hoped that fresh blood will bring with it renewed vitality. This object will also be promoted by the addition to the Board of a civil sanitary expert and a civilian physiologist. Further elements of usefulness will be introduced by the inclusion of a representative of the Royal Engineers and the President of the Indian Medical Board. The Advisory Board is materially strengthened in scientific character as well as in constitution; this was necessary in view of the larger duties and heavier responsibilities imposed upon it. It has now absorbed the Hospital and Sanitary Committee; this change will, we have no doubt, tend to increase of efficiency by removal of an element of needless complexity and possible confusion. It is satisfactory that the importance of the sanitary function of the service is recognized by the appointment of civilian as well as military experts in hygiene.

It will be noted that the Board is to be "more "distinctly advisory in its functions." This is one of those official phrases which may mean much or little according to the way it is interpreted by the executive authorities. We hope that it is intended that the Board shall advise with greater authority than in the past, when its recommendations could easily be brushed aside, and, indeed, might even fail to reach the Army Council. The proper business of the Advisory Board is to tell the military authorities what should be done, leaving them the full responsibility of failing to do it. But the Board cannot discharge this important function with entire adequacy under a system which makes it necessary that its recommendations should be filtered through pipeclay before they reach the Army Council. If Mr. Haldane had the courage to undo the reactionary work of Mr. Arnold-Forster by restoring to the Director-General his place on the Army Council, he would repair a flaw in the organization of the medical service that prevents its attaining the maximum of efficiency. While awaiting this crowning reform, we welcome those which Mr. Haldane has now made. The members of the new Board will, we understand, be gazetted very shortly. We have confidence in the judgement of the Secretary of State for War, but we venture to offer a suggestion. It has been said that no man is indispensable, but there are exceptions to this as to other wise saws, and we are inclined to think that the present offers one of these. The members of the old Board are all men with many professional irons in the fire, and are doubtless glad to be free to look after them. Sir Frederick Treves, however, has retired from practice, and though we can well believe he is anxious also to be released from public employment, we venture to hope that his wish will not be granted. The country cannot spare him. His experience in the South African war has taught him all the details of the service; he understands its needs and is in sympathy with the aspirations of those who desire to see it all it should and might be. The withdrawal of an influence making so strongly for the good of the army would be a loss to the nation.

In regard to the decision to appoint an officer of the Royal Army Medical Corps to act as Inspector

of Hospitals and of Army Sanitation on the staff of the Inspector-General of the Forces, we need scarcely say that we warmly approve a step which was strongly urged, in commenting on a suggestion made by Surgeon-General Evatt, to which reference was made in a recent issue of the Journal.

PIERRE MARIE ON APHASIA.

Professor Pierre Marie is so good a clinical observer, and has enjoyed such remarkable opportunities for acquiring a masterly knowledge of nervous diseases during the ten years of his service at the great hospital at Bicêtre, that he deserves a respectful hearing, even when he tells us that in his opinion all the current doctrines concerning aphasia need reconsideration.[1]

He gives an interesting historical review of the stages by which Broca's doctrine came to be accepted, and a criticism of the original cases on which it is based, illustrated by figures from photographs of the specimens deposited by Broca in the Musée Dupuytren and still to be seen there. He contends that the first case, as shown by the specimens and confirmed by Broca's note, presented a lesion extending over a large area and involving not only the third frontal convolution but the lower portions of the ascending frontal and parietal convolutions together with a large part of the first temporal, nearly the whole of the supramarginal and part of the angular gyrus. In the second case the third frontal was not involved at all, Broca having been misled by want of familiarity with the appearance of senile atrophy of the brain (the patient was 84 years of age); moreover, Marie believes that it was probably not a case of aphasia but of senile dementia. Further important factors in inducing the profession at that time to accept Broca's doctrine were (1) the dominating influence of Bouillaud who had long obstinately maintained that the seat of language was in the anterior lobe, (2) the popularity of Gall's phrenological theories, which asserted the same opinion, (3) the work of Fritz and Hitzig and of Ferrier and Yeo, which, by giving a scientific basis to the doctrine of localization, carried away all opposition and caused even Charcot to forget the cases he had himself recorded in opposition to Broca; and finally the support that the doctrine of the localization of the intellectual functions gave to those philosophical views then becoming popular which regard the mind as a function of the brain; and therefore the followers of this school, which then included the majority of the younger men, gave a ready welcome to an apparent demonstration of the seat of one of the most important intellectual faculties.

Marie states that he has investigated personally all the cases of aphasia that have come under his care, in all nearly 100, and has made more than 50 *post-mortem* examinations; he has therefore good ground for claiming that he has not come to his conclusions hurriedly or without due consideration.

The orthodox teaching is that cases of aphasia may be divided into: (1) The aphasia of Broca, or motor aphasia, characterized by inability to speak, although the patient understands what is said to him, and is generally described as having retained complete intellectual capacity; and (2) the aphasia of Wernicke, or sensory aphasia, in which the patient speaks but does not understand, his speech being more or less incoherent. The former is generally held to be due to a lesion of the posterior part of the third left frontal convolution, and in the latter the lesion is localized in the temporo-sphenoidal lobe, more precisely in the angular and supramarginal convolutions, wherein have been placed the visual and auditory centres, destruction of which is held to obliterate the images of written and spoken language.

In opposition to this description, which he believes to be founded rather upon theory than fact, Professor Marie maintains that the third left frontal convolution plays no special part in the function of speech, and that there is no clinical or pathological evidence in favour of a centre of hearing in the first temporo-sphenoidal convolution. Further, he denies the assertion often made that in Broca's aphasia there is no intellectual disorder, but affirms that in every case there is more or less pronounced difficulty in understanding spoken language. In order to test this, he says, it is not enough to give such a simple order as, "Put out your tongue," or "Shut your eyes," which the patient may well be able to execute. He insists that the patient must be asked to perform more complicated acts. Looked at superficially such patients may appear of normal intelligence, but closer attention discovers their incapacity. A cook who suffered from aphasia was able to take part in the common life of the hospital ward; but when taken to the kitchen and asked to make the well-known dish *œuf sur le plat*, committed almost every blunder it was possible for a cook to make; mixing, for example, all the materials together in the saucepan before putting it on the fire, instead of melting the butter first and then breaking the egg into it, the result being that the dish was uneatable. Marie denies that these patients possess the power of intelligent mimicry so as to supplement their defect of speech. He says he has never found one who could indicate by mimicry any event that had happened to him, or describe his former occupation.

In proceeding to define the various terms in use, he affirms with regard to Broca's lesion, first, that there have been cases, no doubt limited in number, in right-handed persons, in whom the isolated destruction of the posterior part of the third left frontal convolution was not followed by aphasia, and he gives a drawing of a brain which shows softening of the third left frontal convolution from a patient who had presented no sign of aphasia or defect of speech. The reason that such cases are exceptional is that it is rare to find this region alone destroyed, aphasia being generally due to obliteration of the middle cerebral artery at a point above the origin of the branch to this convolution, so that its destruction is associated with that of parts which are the true seats of the function in question. Secondly, he states that there have been most typical cases of Broca's aphasia in which the third left frontal convolution was absolutely normal. He claims to possess records of many cases of the kind which he promises to publish later on, and in the meanwhile refers readers to those published by F. Bernheim and by Touche,[2] the latter being under the direction of Professor Déjerine.[3] He admits that in about 50 per cent. of all the cases the lesion of the third left frontal convolution has coincided with aphasia, but this is explained by the reasons already given.

The essential difference between the aphasia of Broca and that of Wernicke is that in the latter the patient can speak, and in the former he cannot; but for the rest they resemble one another in many respects; in both there is incapacity to read and write, and inability to understand what is said when the question is complicated. Such facts have been noted by many authors, notably word-deafness in Broca's aphasia has been made the subject of numerous

[1] *La Semaine Médicale*, 1906, pp. 241, 492, and 555.

[2] *Arch. Gén. de Méd.*, October and November, 1901.

[3] A case of aphasia with the third left frontal convolution intact was exhibited at the *Soc. med. des Hôp.* by M. Souques, and is described in *La Semaine Méd.*, October 24th, 1906, p. 514.

essays and is specially referred to in the works of Thomas and Roux. According to Marie, the aphasia of Broca is the aphasia of Wernicke minus speech. The third term which Marie desires to define clearly is anarthria or pure motor aphasia the consequence of a lesion of the brain. It is marked by loss of speech or at least of comprehensible speech to such an extent that it may be possible to confound it with Broca's aphasia, but the distinctions are numerous and decisive. The sufferers from anarthria understand perfectly what is said to them even when the phrases are complicated; they can read and write and are capable of indicating by signs the numbers of letters or syllables of which the words they are unable to articulate are composed. By these characteristics it is easy to recognize the clinical picture described as "subcortical motor aphasia," a name proposed by Déjerine at the Lyons Medical Congress, where Professor Pitres pointed out how desirable it is to separate this disorder of speech from the group of aphasias in order to place it with the pseudobulbar paralyses. With this view Marie agrees, anarthria being not true aphasia since aphasia includes in the first place inability to understand language, dependent upon intellectual decay, and in the second place loss of the power of reading and writing, neither of which is found in anarthria.

Having defined these three terms, he discusses the locality of the corresponding lesions, and illustrates his statements by drawings of brains. The lesion of anarthria is, he says, generally admitted to be localized in the neighbourhood of the lenticular nucleus or in the nucleus itself, or in the anterior part of the "knee" of the internal capsule. Anarthria is not specially connected with the left hemisphere, but may occur when the lesion is situated on the right side, and when only one side is affected it shows a spontaneous tendency to recovery or to considerable improvement, owing to the complementary action of the sound side.

Broca's aphasia is often merely aphasia complicated by anarthria or anarthria complicated by aphasia. The only part of the brain lesion of which gives rise to aphasia is the area of Wernicke, that is the gyrus supramarginalis, the angular gyrus and the posterior portions of the first two temporo-sphenoidal convolutions. The law that complete one-sided cerebral symptoms may result from a lesion of merely a portion of the zone in which these functions are seated, explains why a lesion of a portion of Wernicke's area may give rise to complete aphasia. Broca's aphasia occurs where in addition to a lesion of Wernicke's area or of the white fibres thence derived, there is also anarthria due to a lesion in the lenticular nucleus or its neighbourhood. Most commonly this is due to softening, the result of obliteration of the middle cerebral artery which causes destruction of the central ganglia and of their surrounding white substance, of the third frontal convolution, the Rolandic convolution, the gyrus supramarginalis, and part of the first two temporo-sphenoidal convolutions. The softening differs in extent in accordance with the point at which the artery is blocked, giving rise to various clinical types of aphasia and to the so-called "mixed aphasias," which in many cases are due to individual peculiarities in the distribution of the branches of the artery.

Marie objects to the use of the terms "subcortical aphasia" and "pure aphasia." According to Lichtheim and Déjerine subcortical aphasias are characterized by pure word deafness or pure word blindness or pure motor aphasia, but Marie believes this classification to be absolutely artificial, neither Broca's nor Wernicke's aphasia being purely cortical, the lesion always being found to extend into the subjacent white matter, so that in focal lesions, which are much the most frequent, it is never possible to say that we have to do with an aphasia of undoubted cortical origin. Subject to this reservation, there are cases which correspond to the types described as "pure aphasias." He is unable to admit the existence of pure word deafness, as he has never observed a single instance of it, and the few cases which have been published have been vitiated by some error, of which the most frequent is the neglect to take into account slight disturbances in the apparatus for the transmission of sound. While giving due credit to Wernicke for his discovery of a type of aphasia definitely distinct from that of Broca, he regrets that he should have sought to base it upon the existence of a hypothetical auditory centre. If a patient cannot understand the significance of words Marie does not attribute this to word deafness but to defective comprehension, the fact being that Wernicke's area is an intellectual and not simply a sensory centre. With respect to word blindness he admits that certain patients have a difficulty of reading, which if not absolutely isolated is at least definitely predominant, but the facts may be interpreted in a way different to that generally accepted. He believes the lesion is situated in the area of the posterior cerebral artery and involves injury to the occipital visual centres with hemianopsia, but this word blindness may be complicated with aphasia if the lesion encroaches upon Wernicke's area. Finally, he admits the existence of "pure motor aphasia," but would prefer to call it anarthria which, as explained, is not aphasia.

To sum up his teaching, Professor Marie holds that if we must classify the different forms of the disease they should be grouped as (1) intrinsic aphasia in which Wernicke's zone, or the fibres which come from it, are directly affected by the lesion (Broca's and Wernicke's aphasia); (2) extrinsic aphasia in which the zone of Wernicke and its fibres are not directly affected, but the lesion is situated in the neighbourhood and outside that area, in the lingual and fusiform lobes, giving rise to alexia or to pure word blindness, or in the zone of the lenticular nucleus causing pure anarthria or the "pure motor aphasia" of some authorities.

The true centre of language is not Broca's convolution but the area of Wernicke, which should be considered as an intellectual and not as a sensory centre; lesions of this centre determine, proportionally to their extent, failure in the comprehension of spoken words, in the ability to read and write, as well as the loss of certain didactic acquirements.

Anarthria is characterized clinically by the loss of speech with preservation of the comprehension of words, of reading, and of writing. It is caused by a lesion in the lenticular zone, which interferes with the co-ordination of the movements necessary for phonation and the articulation of speech without giving rise to true paralysis of the muscles. Word deafness does not exist. Word blindness exists clinically, but the lesion which causes it is one of the posterior cerebral artery and not of the middle cerebral artery.

In conclusion, he does not ask for any sudden acceptance of his ideas, but desires that they should be submitted to the criticism of new facts, to which he appeals, too many of the older observations being of doubtful value.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

As reported in the British Medical Journal of December 22nd, the Prince of Wales, at the annual meeting of the General Council of King Edward's Hospital Fund

for London, announced that, acting on legal advice, he had with the sanction of the King, determined to apply to Parliament for a short Act to incorporate the Fund, and place its administration on a strictly legal basis. It would appear that the decision was finally arrived at somewhat hurriedly, for His Royal Highness expressed regret that time had not permitted his consulting the Council as a whole before the Bill was drafted. It may be remembered that a few months ago an application was made to the King to grant a Royal Charter to the Hospital Sunday Fund. Owing to the action of the British Medical Association and the Charity Organization Society, the Charter was not granted. It was, we believe, deemed advisable that the consideration of all proposals relative to the administration of such funds should be reserved till the Poor Law Commission, of which Lord George Hamilton is chairman, has issued its report. To prevent misapprehension, it may be well to point out that the Council of King Edward's Fund is not applying for a Royal Charter, but for incorporation by Act of Parliament. The difference is that, whereas a Charter is granted by the Sovereign and confers whatever rights and privileges it is intended to grant by exercise of the Royal prerogative, the powers given by incorporation by Act of Parliament are derived from the authority of that body, not from the will of the Sovereign. Corporations are, in law, "artificial persons," and the artificial person which the Council of the King Edward's Hospital Fund is asking Parliament to create, will be a millionaire. It can readily be understood, therefore, that it should be thought desirable to give a Fund of such importance a strictly legal position. It is necessary in the public interest, however, that all applications for special rights and privileges should be closely scrutinized, and it is scarcely likely that legislators busy about what they regard as more important matters will concern themselves much about the King Edward's Hospital Fund. As the Bill cannot be discussed by the House of Commons before Parliament reassembles in February, there is time for the medical profession to present any objections it may have to the proposal, and we understand that the question will be brought before the Hospitals Committee of the British Medical Association as a matter of urgency at its meeting on January 8th. We are asked to say that suggestions on the subject will be welcomed by the Committee.

SLEEPING SICKNESS.

The greatest interest is still being maintained in the study of the many different problems presented by that deadly African malady, sleeping sickness. Money prizes of considerable value have even been offered to any one who may devise a cure for it, and, probably stimulated by this, the lay press have been publishing sensational rumours from time to time lately that such a cure has been found. It is needless to say here that this is not so, and, though devoutly wishing that such a result may eventually be obtained, for the present all that can be done is to wait and try. The old adage, "Prevention is better than cure," applies very forcibly to this disease, and its prophylaxis should receive more attention than in the past. In connexion with this there are some very interesting observations contained in the fifth report of the Sleeping Sickness Commission. Nabarro and Grieg show that the trypanosome of sleeping sickness can be conveyed by tsetse flies met with in British East Africa, meaning by that other species of tsetse flies than *Glossina palpalis*. This is exceedingly important in determining the possible extension of the disease away from its endemic centre, and further experiments are urgently required to see if other biting flies may act as carriers of the parasite. The authors above quoted made a few experiments with *Stomoxys* with negative results, thus confirming Bruce's original work with nagana, but surra in India and in the Philippines can be spread by flies of the genus *Stomoxys* and *Tabanus*. This point and the work on the differentiation of the different species of trypanosomes found in Uganda, several of which are mentioned in this report, require further investigation.

INDUCTION OF LABOUR.

At no school of medicine is clinical research more thoroughly carried out than in the obstetrical department of the Johns Hopkins Hospital[1]; therefore, the obstetrician and practitioner will read with interest Dr. Whitridge Williams's report of the results following the artificial termination of pregnancy amongst the first 5,000 women delivered in that department. Premature labour was induced in 11 cases, in every instance by the introduction of the bougie (Krause's method); all the patients recovered, and in only 2 was there laceration of the cervix. *Accouchement forcé* was practised in 100 cases, or 2 per cent., of all the labours in the department. Manual dilatation of the cervix, after Philander Harris's method, was preferred in 83 cases. In no less than 33 the complication was eclampsia, and in 7 pre-eclamptic toxaemia. There were 9 deaths in this subseries, but 7 occurred where eclampsia had already set in, and in 5 out of the 7 the condition of the patient was already so grave that consciousness was not regained after delivery. In 31 cases Harris's method was resorted to on account of danger to the mother and child during labour; only 1 mother was lost, and in that instance thrombosis of the left leg had developed during pregnancy. But in 12 other cases where Harris's method was employed for placenta praevia 3 mothers were lost. Whitridge Williams therefore rejects it where that complication is present, and stigmatizes it as both difficult and dangerous in all cases in which the cervix is intact and the external os not obliterated, except in the occasional instances in which the entire cervix is unusually softened. Champetier de Ribes's bag was employed to effect *accouchement forcé* in 15 cases, all saved. Williams, reasoning from the experience of others, considers that this bag is the very best agent to ensure a safe conclusion in most cases of placenta praevia. There remain 2 cases where vaginal Caesarean section was practised, in one for eclampsia and in the other for profound toxaemia associated with twin pregnancy; the patient was lost, partly from haemorrhage following uterine atony and partly from the underlying intoxication. Dr. Williams very reasonably reminds us that this operation is not adapted for private practice, nor do we expect that it will ever be popular in this country. He concludes his report with advice to the practitioner. The bougie is almost ideal as the agent in the induction of premature labour, which, however, must not be lightly undertaken on account of moderate pelvic contraction. *Accouchement forcé* is demanded in every case of eclampsia, as the labour should always be terminated as soon as consistent with the patient's safety. Harris's manual dilatation is satisfactory when the resistance to delivery is only offered by the external os, and when that orifice is already beginning to dilate the hand may be used with the best results. When the cervix is rigid the case should be dealt with by an expert if possible, and vaginal Caesarean section preferred. Unfortunately, we may observe, a bad case of eclampsia is not always within reach of expert aid. Dr. Whitridge Williams objects to Bossi's dilator. For placenta praevia dilating bags, or bipolar version followed by the gradual extraction of the fetus, is the ideal method of treatment.

[1] The Induction of Premature Labour and *Accouchement Forcé* in the First 5,000 Labours in the Obstetrical Department of the Johns Hopkins Hospital—*Surgery, Gynaecology, and Obstetrics*, September 1906.

Manual dilatation and the use of any metallic dilator are to be discarded, as the cervix is very friable in these cases. Williams finds that many women die, not so much from the haemorrhage, as from injury to the cervix due to dilatation. In hastening labour when the life of the mother or child is in danger, the bag or manual dilatation is best, according to circumstances; but Williams urges the practitioner not to be over-eager to hasten labour in the absence of a definite indication. He has attended a number of women for serious laceration or severe infection traced to *accouchement forcé*.

THE HEALTH OF HOUSE PAINTERS.

DR. D. VERHAEGHE has published[1] the results of an inquiry into the health of house painters in Lille. The inquiry dealt with 131 painters who were fully employed, also workmen's representatives who from their position in the trade were able to supply useful information. Of the 131 house painters 68 were found to be in good health, the health of 45 was fair, and that of 18 bad. The time of life at which the men ailed most was between the ages of 30 and 45, a period which bore some correspondence to the length of time the men had followed their occupation. It is noteworthy that in France, since a public agitation raised against the use of white lead, there has been an unfair attempt to attribute lead poisoning to alcoholic intemperance on the part of the workmen. No one doubts the influence exerted by alcohol in predisposing to plumbism and in aggravating symptoms, but it is only a contributing factor in cases of dual poisoning. Verhaeghe shows from his statistics that as house painters continue at their occupation the alcoholic workman becomes weeded out before that period of life is reached in which painters can still follow their occupation without any great risk, lengthened experienced having taught them the value of personal cleanliness and abstinence from alcohol. Colic and digestive troubles were present in more than one half of the men. Few painters reach the ages of 30 to 45 without having some signs of plumbism. The tendency in the trade is for the weak men to be eliminated and for only strong and healthy men to be left capable of carrying on the work after twenty-five years spent in the trade. The family details of these house painters are not without interest. Ninety of the workmen readily supplied information regarding their families. Between them they had 467 children. Of these children 107 were stillborn and 93 died under two years of age. The stillbirths formed 22.9 per cent. of the births, while the stillbirths of Lille generally for the same year formed only 8.2 per cent. Naturally in an inquiry concerning infantile mortality the occupation of the mother cannot be altogether ignored. Where the father has been a house painter and the mother has also followed some lead occupation the infantile death-rate is unusually high. Verhaeghe shows that there is a higher percentage of stillbirths of children born after the father has become a house painter than there is previous to his taking up this occupation, the percentages being 6.6 before going into the trade and 21.05 after it.

SCHOOL ANAEMIA.

UNRUH[2] objects to the term "school anaemia," because it suggests that the anaemia is due to school attendance rather than that it is a form of illness which attacks children during school age. The school does not play an etiological part in a very large number of these cases. Children who are tired and exhausted, who look pale, who have no appetite, who suffer from constipation and a number of minor symptoms, are often met with, and the school teachers complain that they are lazy, inattentive, and fractious. The symptoms are said to have appeared soon after the child started attending the school, or soon after the child has reached the higher classes. The objective and subjective symptoms are particularly manifest at the end of the day's lessons, and especially after a day in which an extra amount of work has had to be got through. The general impression is that the school has overburdened the child, and has caused the anaemia. Unruh does not discuss the question whether the schools overburden children in general, and excludes all those who show signs of mental or physical degeneration, and affections of the heart. The anaemic children may be divided into four classes: (1) Pure anaemic or chlorotic children; (2) children who show signs of myocarditis; (3) children who suffer from a hypoplasia of the heart; and (4) children who are affected with cyclical or orthotic albuminuria. The school is to a certain extent responsible for the condition in the first group, and very few children escape the exhaustion and tiring-out symptoms of anaemia after having gone through their hardest school years. Perhaps boys are more frequently affected than girls. Both young children and elder children suffer from this form of anaemia, and it is necessary to distinguish it from chlorosis, which attacks the children at a slightly later age. Not only scarlatina and diphtheria, but also a number of milder children's illnesses, sore throat among others, may give rise to myocarditis. The diagnosis is easy, as soon as attention is turned to the heart. The affection attacks both sexes equally, and may occur at any age, but the inclination towards it appears to increase with age. Hypoplasia of the heart and large vessels as a cause of anaemia in school children has certainly nothing to do with the school, but very little is known of its causation. Girls are more commonly affected with the albuminuric form of anaemia than boys. It would be extremely difficult to produce any proof in support of the argument that the school is responsible for this form. While he does not see his way to decide which group is most common, Unruh points out that the frequency of myocarditis in children and also of disturbances of growth is often much underrated. The treatment depends largely on the form present. It would be impossible to insist on the child remaining away from school on account of pure anaemia unless the signs were extremely marked, but the detection of a myocarditis makes this necessary. While great care must be taken in cases of cyclical albuminuria, it is not always necessary to keep the child at home. Exercise and muscular work are more likely to reproduce the albuminuria after it has disappeared than dietetic errors. In deciding whether a particular child should be kept at home or not, the standard of knowledge, the age, sex, and social position must all be taken into account. Violent exercise, sports, and gymnastics are often prescribed as cure-alls, but such lack of discrimination is highly dangerous. As a rule, rest and care are required, for a period to be determined in each case. When the medical adviser considers that it is safe to commence some exercise, this will have to be exactly measured, and excess strictly forbidden.

[1] *Echo Médical du Nord*, September 9th, 1906.
[2] *Deut. med. Woch.*, October 11th, 1906.

A PLAINT FROM THE BARBERS.

AT a meeting this summer of a Federation of Hairdressers in South Wales, formal plaint was made that medical men, when treating patients suffering from skin diseases situate on the face, told their patients that they were suffering from barbers' rash. An opinion was expressed that this was not fair to barbers, and that medical men, in speaking of the various skin diseases, ought to use the proper scientific names; the public would then recognize that these diseases were not

necessarily caught in a hairdresser's saloon, but might be acquired in various ways. In supposing that the term indicated is used in general of all skin diseases which attack the face, the Federation is certainly mistaken, but its complaint still remains reasonable, for barbers' itch is an old and still common term for sycosis parasitica or ringworm of the beard. The antiquity of the term does not in itself constitute a claim to preservation, and the profession at large might well abandon its use on more than one ground. In the first place, those who employ it are helping to perpetuate what was originally, in all probability, a blunder—a mistranslation of the phrase "tinea barbae"; in the second, the disease, not very often encountered nowadays in a severe form, is identical in pathology with ringworm of the head in children, and though its spores may sometimes be conveyed by an illkept shaving brush, they may equally be acquired either from children or from animals. Whether in former times its habitual cause was a visit to the barber may or may not be true; but in any case it must be admitted that the barber of to-day is much more alive to the possibilities of disseminating disease than his predecessor, and that the arrangements made in hairdressers' shops are often superior to what they used to be. This is not remarkable, for not only have barbers in the past decade been the object of many and often well-merited animadversions on the part of the public, but their trade journals have also been at much pains to point out where the path of salvation lies. There is even in existence, we believe, a species of college for barbers, where instruction in the science of trichology is now imparted. The public has demanded clean towels, clean head rests, and clean covering sheets, and it has more or less got them; what it should now exact is that every shaving brush, every razor, and every sponge, after use, should be immersed in boiling water. Corresponding precautions should be taken, of course, by hairdressers, for, however small the probability of acquiring disease at the hands of a barber or hairdresser may be considered by them to be, the possibility is incontestable. Finally, to revert to the phrase "barbers' itch," it may be mentioned that the orthodox term is that already here used—tinea barbae—but there are at least seven accepted synonyms besides one with which a complainant in a lawsuit recently supplied us—"foul shave." For general use, parasitic sycosis is possibly the most convenient, being identical with that used in France, while the German phrase is "beard rash" or *parasitäre Bartfinne*.

THE PROPAGATION OF MOUSE CANCER.

IN a paper recently read before the Royal Society Drs. Bashford and Murray and Mr. Bowen analyse the results obtained from 25,000 inoculations of Jensen's mouse tumour, and also discuss the effects of inoculating mice with 32 other mouse tumours which they have obtained during the past three years. They point out that irregularities in the rate and amount of growth of the inoculated material may be due to various causes, such as: (1) transference from one race of mouse to another even when nearly allied; (2) transference from young to old mice of the same race or vice versa; (3) variations in the site of implantation of the cancerous tissue; (4) variations in the amount of the tissue implanted and in the manner of introducing it; and (5) variations in the character of the tumour cells themselves. In order to study the influence of this last factor, they have arranged experiments in which irregularities due to the other possible disturbing conditions were, as far as possible, eliminated. They have been able to show, by continued propagation of Jensen's tumour, that fluctuations in the percentage success of the transplantations appear independently of the disturbing factors above referred to. These fluctuations they regard as being, in all probability, natural features of proliferation. They have always obtained a rise to a maximum percentage success which could not be maintained. The subsequent fall also was not permanent if continued propagation proved to be possible. Up to the present time they have encountered no exception to this rule in more than 600 series of inoculations with Jensen's tumour, and the rise to a maximum with a subsequent fall has been repeated fifty times in simultaneous series of experiments. The authors consider that their results do not support the view that the apparently continuous proliferation of Jensen's tumour is purely vegetative, but indicate that a cyclical process is involved.

LEPROSY IN SOUTH AMERICA.

AN important paper on the prevalence of leprosy in Argentina was lately read before the Argentine Medical Society by Dr. Aberastury, and published in a recent number of the *Semana Medica* of Buenos Aires. The actual number of cases existent, Dr. Aberastury thinks, cannot be arrived at by the tables of statistics, which necessarily lead to considerable underestimation, but there is no doubt that the disease is very common in the country and exists in all its forms. It therefore often escapes notice, figuring under other names; for example, leprous polyneuritis is diagnosed as neurasthenia, nodular manifestations of the disease as chancres, and so forth. It is unmistakably increasing. In 1892 the Professor of Pathology at Buenos Aires stated that there were then no cases of leprosy in that city, but there are now more than 200, and since the bucco-pharyngeal form is tolerably common and one of Dr. Aberastury's patients was a prostitute who refused to be segregated, the numbers are not likely to diminish. An important point is that the well-to-do classes are now attacked, and not merely here and there, but often. With regard to geographical distribution, the disease is most prevalent in Corrientes, this province being responsible for about two-thirds of the total number of lepers in the Republic. Entre Rios has also many endemic foci of the malady, and there are between 500 and 600 lepers in the city of Rosario. In the provinces of Santa Fé and Cordova leprosy is less prevalent, but it is calculated that lepers are in the proportion of 1 to 2,000 living in Argentina. The malady is spread over the whole of Argentina, and needs energetic measures if it is to be stamped out.

SCOTTISH POOR-LAW MEDICAL OFFICERS' INQUIRY.

IT is earnestly requested that those Scottish Poor-Law medical officers who received Schedules A B and C from the General Secretary of the British Medical Association during the early part of the month, will be kind enough to fill in the forms—if they have not already done so—and post them in the addressed envelope to 429, Strand, W.C., without delay.

EXTRAORDINARY GENERAL MEETING.

THE extraordinary general meeting of the British Medical Association, summoned for 3 p.m. on December 21st, could not be held as a quorum was not present. In accordance with regulations the meeting stood adjourned at 4 p.m. until that day week, Friday, December 28th, at 3 p.m. At this meeting, which will be held at the offices of the Association, 429, Strand, London, W.C., the members present will form a quorum.

A DINNER for past and present students of the Royal London Ophthalmic Hospital will be held at the Trocadero Restaurant, London, W., on Wednesday, January 30th, under the presidency of Mr. Jonathan Hutchinson, F.R.S. This is the first dinner of the kind,

and the Honorary Secretaries have had some difficulty in finding the names and addresses of old students. Further information can be obtained on application to Mr. Arnold Lawson, 12, Harley Street, London, W., or Mr. J. Herbert Parsons, 27, Wimpole Street, London, W.

Medical Notes in Parliament.

[From Our Lobby Correspondent.]

The Fatal Accidents Inquiry Act.—Mr. Morton asked the Lord Advocate whether the Fatal Accidents and Sudden Deaths Inquiry Act, 1906, was now in operation; and, if so, whether he had any official reports showing what it was rendering the Act of 1895 effective and useful. Mr. Thomas Shaw answered that the Act came into operation on August 4th last. During the four months up to December 3rd, 155 inquiries were held, and in 24 of these the verdicts of the juries contained recommendations or expressions of opinion of a special nature. In every case where a jury made a recommendation with the view of suggesting means for preventing or lessening the risk of the recurrence of such accidents the recommendation had been brought under the notice of the deceased's employers. In some cases special notice had been taken by the Government inspectors, and, it was understood, communicated by them to their departments. In many cases the special verdicts appeared to have been of much value in pointing out defects in machinery and in methods of working, and there seemed little reason to doubt that the Act was tending strongly towards the avoidance of risk of injurious or fatal accidents to employés. There had been four inquiries under Section 3 of the new Act. It was reported by the Crown Office that the recent statute appeared to have made an effective and useful amendment of the previous Act of 1895. He might add that he was in communication with the Home Secretary on the subject of issuing such instructions as would secure that in the administration of the statute due advantage should be taken of the services of the skilled inspectors, while on the other hand preserving the independent position which these gentlemen ought to occupy. The working of the Act was being made the subject of careful observation in his own and other public departments.

Medical Inspection of Emigrants.—Sir Walter Foster asked the President of the Board of Trade whether he was aware that at certain European ports emigrants were examined by a medical officer of the United States Government before embarkation, with a view to prevent rejections on arrival in America and to avoid the trouble and expense of reshipment to Europe; and whether any proposals for a similar examination at certain ports in this country had reached him. The President of the Board of Trade said that he had no information as to the practice which prevailed at Continental ports, but in this country emigrants had not, he believed, been inspected by United States officers since 1900. No proposals respecting the reintroduction of this inspection had reached him.

Overcrowding at Central Telegraph Office.—Sir John Bethell asked the Postmaster-General whether he was aware that the telegraph school at the Central Telegraph Office was greatly overcrowded, and that repeated complaints had been made by those responsible for teaching the male and female learners: whether the chief medical officer had inspected this part of the building since these complaints had been made: whether his report could be made known; and whether he could state when the necessary alterations would take place.—Mr. Sydney Buxton answered that the large room formerly allocated to the learners' school was only partly occupied. In August last the urgency of demands for space necessitated the use of the room for other purposes, and the school was removed to one of the instrument galleries; but it was found that at a certain hour in the afternoon the space there was somewhat overcrowded. The medical officer inspected the school in August, and again recently, and was of opinion that measures for relief were necessary. Temporary relief was afforded, and arrangements for further relief were about to be carried out. No formal complaints had been made by the teaching staff. The sick absence of the learners was below the normal.

Outdoor Medical Officers at Poplar.—Mr. Kendal O'Brien asked the President of the Local Government Board whether he was aware of the recommendation of the Poplar guardians, dated October last, as to the increase of the salaries of their outdoor medical officers; whether this recommendation had been replied to; and seeing that in one instance at least the work of the medical officer had been trebled during the last seven years, and that this officer was receiving at present less salary than what was then paid, did he propose to take any action in the matter. Mr. John Burns answered that the Local Government Board had before them the proposal referred to, and a communication on the subject would be sent to the guardians in the course of a few days.

The Deportation of Lunatics to Ireland.—On Monday Mr. O'Mara asked the Chief Secretary to the Lord Lieutenant of Ireland whether he would state the number of insane persons deported from England and Scotland to Ireland during the last ten years, and the total cost of all such persons during the same period. Mr. Bryce replied that the inspectors of lunatic asylums informed him that, so far as they could ascertain, the total number of insane persons deported from England and Scotland to lunatic asylums in Ireland during the past ten years was 256, and the total cost of maintenance of such persons during that period was £15,907. The cost of maintenance was defrayed partly out of the personal means of such persons, partly out of imperial funds, and partly out of local rates. As regarded the number of insane persons deported to workhouses, the Local Government Board had no information. A return might possibly be obtained from clerks of unions, but this would occupy considerable time and throw a great deal of additional work upon the union officials.

Sickness in the Cavalry.—Major Anstruther-Gray asked the Secretary of State for War whether he could now state the percentage of men in hospital, for the last twelve months, from the cavalry regiments in England, Ireland, and Scotland respectively. Mr. Secretary Haldane replied that the figures required were as follows: Percentage daily sick—England, 2.8; Scotland, 3.7; Ireland, 4.5.

Death-rate and Depopulation at Fiji.—Last week Sir Charles Dilke asked the Under Secretary of State for the Colonies whether the attention of the Colonial Office had recently been called to the continued decline in the Fijian population of Fiji and to the high death-rate among that portion of the population of the colony; and whether he could state what fresh steps it was proposed to take to prevent the natives, whose interest was alleged as a reason for annexation, being replaced by other Polynesian and by Indian immigrant labourers. Mr. Churchill said the right honourable member would have seen from the Fiji Report for 1905, published last month, that the decline in the native population had been checked, that year showing for the first time a slight increase. The death-rate last year, though still considerable, was lower than for some years past. He was not aware that the past decline in the native population had been in any way accelerated by the introduction of other Polynesian or Indian immigrants.

Close of the Session.—After a very busy and exciting week in both Houses, Parliament was prorogued on Friday, December 21st. The longest session for many years closed on the shortest day. The long-drawn-out death struggle of the Education Bill caused the prolongation of work in both Houses, and once the fate of that measure was settled, the remaining Bills were speedily amended and passed. The Lords altered the Provision of Meals for Children Bill, so that it should not apply to Scotland, and made many modifications in the Land Tenure Bill. But these matters were overshadowed by the crisis occasioned by the loss of the chief measure of the year—the Education Bill. The next session will begin on February 19th, and promises to be of unusual interest.

Scotland.

The Edinburgh School Board.

At a meeting of the Board on Monday, December 17th, it was agreed to appoint a medical officer for the Board, who should hold a degree or diploma in sanitary science, public health, or State medicine under Section 21 of the Medical Act, 1886, and who shall devote his whole time to the duties of the office at a salary of £400 per annum, applications to be lodged by Saturday, January 19th. At the same meeting plans were approved for the alterations of an existing school to make it suitable for the purposes of a special school for defective children at a cost of £1,380.

The Compulsory Notification of Phthisis.

At the meeting of the Edinburgh Town Council on December 18th, when it was resolved by 35 votes to 3 that the necessary steps be taken, under the Notification Act of 1889, for making the notification of phthisis compulsory, Dr. Matheson, the convener of the Public Health Committee, stated that the estimated cost to the city would be about £300 a year.

The Report of the Registrar-General for Scotland for 1904.

The Scottish Registration Act came into operation on January 1st, 1855, and the detailed Annual Report of the Registrar-General, recently issued, completes a fifty years' record of the vital statistics of Scotland. Dr. Crawford Dunlop, the Medical Superintendent under the Registrar-General, has taken advantage of the occasion to present a supplementary report reviewing the vital statistics of Scotland during the first half-century of national registration.

The population in 1855 was 2,978,065; in 1905 it was estimated to amount to 4,676,603, an increase of 57 per cent. The increase in the population of towns having over 10,000 inhabitants showed an increase equal to 151 per cent.; the population of the mainland rural districts had increased by only 3 per cent., but the population of the insular rural districts had fallen by 9 per cent.

Births and Marriages.

The number of births was largest in 1903, when 133,525 births were registered. The highest birth-rate occurred in 1876. Since then there has been a steady decline. Between 1856 and 1882 the birth-rate ranged from 33.5 to 35.6 per 1,000 of the population. In 1883 the birth-rate fell below 33, in 1887 it fell below 32, in 1889 below 31, in 1894 below 30, and in 1904 below 29.

About 42 per cent. of the female population of Scotland at the child-bearing period of life—15 to 45—are married. In 1855 the birth-rate amongst married women of child-bearing age was 290 per 1,000; in 1858 it had risen to 310, and it remained over 310 until 1882, having been as high as 328 in 1876 and 1877. It fell below 300 in 1887, below 290 in 1890, below 280 in 1894, while the minimum rate was reached in 1904, showing a decline from the maximum of nearly 18 per cent. In the case of illegitimate children, the birth-rate per 1,000 unmarried or widowed women of child-bearing age was 18.4 in 1855; it increased to a maximum of 24.6 in 1871, and has since then steadily declined, falling below 20 in 1883, and declining to a minimum of 12.9 in 1903, a drop of 58 per cent. from the maximum.

In 1855 the illegitimate births amounted to 7.88 per cent. of the total births. That percentage increased to a maximum of 10.27 in 1866, since which time it has steadily fallen to 6.21 in 1903. The illegitimate birth-rate has over the whole fifty years been highest in the mainland rural districts. The question arises, Has the decline in the illegitimacy-rate been due to the declining proportion of the population in the rural districts? To test this Dr. Dunlop has made a calculation applying the illegitimacy rates of the maximum year, 1866, in each group of registration districts to the populations of these districts in 1904, with the result that he found that if these rates had been maintained in 1904 there would have been in that year 11,347 illegitimate births, while, as a matter of fact, the actual number was only 9,010, or 21 per cent. less. This demonstrates that the diminished illegitimacy-rate is not by any means accounted for by the altered distribution of the population among the different groups of registration districts.

In the case of marriages, we find that the largest actual number, 32,978, occurred in 1899; the smallest, 19,655, in 1858. The highest marriage-rate, per 1,000 of the population, 7.8, occurred in 1873; the lowest, 6.3, in 1886.

Dr. Dunlop finds that from 1855 to 1880 the marriage-rate and birth-rate ran a nearly parallel course, rising and falling coincidently; but after 1880 the birth-rate fell with each fall in the marriage-rate, but failed to recover as the marriage-rate rose.

Marriages according to the rites of the Established Church constituted 45.12 per cent. of the total at the commencement of national registration; fifty years later they constituted 45.87 of the whole. The proportion of marriages according to the rites of the other Presbyterian churches in 1901-4 was 27.4, as compared with 38.7 in 1855. Roman Catholic marriages constituted 9.5 per cent. of the total marriages during the fifty years, and have been an increasing quantity. "Irregular marriages"—that is, civil marriages before the Sheriff—have shown a marked increase; from 1855 to 1875 they constituted less than 1 per cent. of the whole; in 1902 the proportion had risen to 6.6 per cent.

Education.

Dr. Dunlop has sought to gauge, in a general way, the improvement which has occurred in the education of the people, in the course of the half-century, by an analysis of the figures showing the number of persons who were unable to sign the marriage register. The illiteracy-rate, as deduced from these figures, remained fairly constant from 1855 to 1875; since the latter year it has steadily declined. The men who used "the mark" in 1855 were four times as numerous as they were in 1904, the women six times as numerous. For men the illiteracy-rate attained its maximum in 1857, when it was 12.1 per cent. In 1868 it fell to less than 10 per cent., in 1875 to less than 9, in 1876 to less than 8, in 1878 to less than 7, in 1885 to less than 6, in 1886 to less than 5, in 1888 to less than 4, in 1893 to less than 3, in 1898 to less than 2; while in 1903 and 1904 it reached a minimum of 1.7. In the case of women the maximum illiteracy-rate was in 1857, when it was as high as 24.7 per cent. Since then it has steadily declined. It fell below 20 per cent. in 1868, below 15 in 1878, below 10 in 1885, below 5 in 1892, below 4 in 1896, below 3 in 1899, reaching a minimum of 2.3 in 1903 and 1904. The decline in the illiteracy-rate has been most marked in the insular rural districts, where it has fallen, for men, from 29.6 per cent. to 3.8, and in the case of women from 45.6 to 6.2. In the principal town districts the maximum for men has been 13.1 per cent., the minimum 1.7; the maximum for women was 23.6, the minimum 2.2. In the mainland rural and small town districts the maximum for men was 9.5 per cent. in 1855; the minimum 1.4 in 1893 and 1902; the maximum for women was 19.1 in 1885, the minimum 1.3 in 1893.

Deaths.

The rate of increase in the number of deaths in the course of the fifty years was only about half that of the population.

The death-rate for all Scotland attained its maximum, 23.6 per 1,000 of the population, in 1864. Between 1876 and 1904, it ranged from 21.2 to 16.6, the latter rate being reached in 1903. The decline in the general death-rate of the country is principally due to the decline in the death-rate of the urban districts. The death-rate in the principal town districts reached its maximum, 30.7, in 1864; while it had fallen below 18 in 1903 and 1904. In the large town districts the death-rate reached its maximum, 27.6, in 1874, and was below 17.0 for the first time in 1896. In the small town districts with populations of between 2,000 and 10,000, the death-rate fell from 23.8 in 1864 to less than 16 in 1901-2-3. The death-rate in the mainland rural districts has shown a slight decline over the fifty years, while in the insular rural districts there has always been a slight but fluctuating decline. In the first year of civil registration of deaths the death-rate of the principal town districts was 14.5 above that of the insular rural districts; in the last year of the half-century the death-rate of the principal towns was only 2.8 in excess of that of the insular rural districts.

Altogether, Dr. Dunlop's analysis of the vital statistics of Scotland for the half-century is calculated to be of the greatest service to the student of sociology.

Yorkshire.

THE SANITARY CONDITION OF BATLEY.

THE Borough of Batley is one of a group of towns in the West Riding of Yorkshire having an aggregate population of considerably over 100,000 persons, the streets and houses in each town being more or less contiguous. The death-rate from all causes in Batley during the past ten years has averaged 19·4 per 1,000, the zymotic death-rate during the same period averaged 3.3 per 1,000, and the infantile mortality-rate was 181 per 1,000 births. In the previous decade the rates were respectively 20.2, 3.2, and 202.

These figures indicate very little improvement in the sanitary condition of the town during the past twenty years, and the recently-issued report of Dr. J. Spencer Low, a Medical Inspector of the Local Government Board, sets out in some detail the conditions which he found during the course of an inspection of the district made last spring. He considers that the main factors operating in maintaining the high general and zymotic death-rate, as well as the excessive amount of infantile mortality, are the prevalence of the privy-midden system and the absence of hospital isolation accommodation for infectious disease. The privy middens no doubt account for the presence of typhoid fever, about 60 cases occurring each year, and of diarrhoea, which causes some 80 deaths annually. In a town of 30,000 persons these figures are unquestionably high. With these grave results before them it is a little difficult to understand the attitude of the sanitary authority who consider "the privy-midden system as best adapted to a town like Batley." The conversion of the existing middens to waterclosets would not necessitate the construction of additional sewers, for those already existing—and they are about thirty miles in extent—are large enough to cope with the extra volume of domestic sewage which would have to be dealt with. When it is remembered, then, that although underground sewers have been laid down to carry away the sewage, the most offensive portion of the sewage is still, and at considerable cost, carted through the streets above ground, the proceeding appears to be as unreasonable and as extravagant as it would be to lay down a system of water mains, and then deliver water to houses in water carts.

In connexion with the sanitary administration of the borough Dr. Low makes an important recommendation. He pays a well-earned tribute to the capabilities of the medical officer of health, Dr. J. A. Erskine Stuart, who has, he states, worked energetically in connexion with various outbreaks of epidemic disease, and has on many occasions and persistently given on certain subjects excellent advice which has not, however, been always acted upon by the Town Council. He suggests that the Batley Corporation should consider the question of entering into a combination with some of the neighbouring sanitary authorities for the purpose of appointing a medical officer of health who should not be engaged in private practice. The salaries already paid to the medical officers of health in eight urban districts suitable for such a combination are given by Dr. Low. The majority of medical officers of health in the West Riding are notoriously underpaid as compared with their colleagues in other parts of the country, but we did not expect to find even in the West Riding a medical officer of health to an urban district, that of Thornhill with a population of over 10,000 persons, receiving a salary of £18 per annum! It is only fair to state that this pittance is not sanctioned by the Local Government Board, with the result that the sanitary authority receives no contributions from the Exchequer grants.

South Wales.

NEWPORT SMALL POX HOSPITAL.

THE representatives of the several districts in the Newport Union met at the Town Hall on December 13th to consider further the question of the erection of a small-pox hospital. The Town Clerk reported that the Newport Corporation had adopted a motion that a small-pox hospital be erected at Cefn, that it be also used by the several local authorities in the Union, and that the Corporation should arrange the terms on which patients from other districts could be admitted. Dr. Howard Jones (M.O.H. Newport) explained the details as to cost, etc., and said he thought the districts should be charged 10s. per £1,000 rateable value. Newport would contribute about £200 a year, and the outside districts £50 a year. The conference agreed to the Newport Corporation proceeding with the erection of the buildings.

Liverpool.

THE DEMOLITION OF INSANITARY PROPERTY.

AT an adjourned meeting of the City Council on December 12th, the resolutions passed at the citizens' meeting with regard to the housing of the poor were considered, and the following resolution was unanimously agreed to:

> That the resolutions be referred to the Health Committee and the Housing Committee for their consideration, and that the Health Committee report to the Council whether the powers under the existing Acts of Parliament and by-laws are sufficient to secure (*a*) health and cleanliness in dwellings (sublet or otherwise), courts, and alleys in Liverpool; (*b*) the prevention of the building up of areas in the outskirts without due consideration to the proper planning of such areas, and, if not, what further powers the Committee suggest should be obtained; and that the Housing Committee report to the Council (*a*) whether the work of clearing away insanitary dwellings and rehousing the people dispossessed can be expedited; and (*b*) whether the Committee can suggest any improvement in regard to the selection of areas for rehousing the dispossessed.

In the discussion it was stated that over 100,000 people were living in sublet houses, exclusive of the model lodging houses, and that during last year 1,300 convictions for overcrowding were obtained; it was admitted that the need for providing new houses at a moderate rental is pressing, the Corporation dwellings hitherto erected being quite inadequate to shelter families dispossessed by the demolition of insanitary dwellings. One of the chief difficulties in the demolition of the slums is, it was stated, the enormous sums required to compensate the owners of public-houses in the condemned areas.

NEW CHAIRMAN OF THE HOUSING COMMITTEE.

Dr. Richard Caton, Consulting Physician to the Royal Infirmary and Emeritus Professor of Physiology at the University, has been appointed Chairman of the Liverpool Housing Committee. It is a matter of congratulation that this important office is held by a gentleman of such broad culture and special knowledge of sanitary matters, and also that the question of improving the housing of the poor has been placed by the unanimous decision of the Council above the region of party politics.

ANTHRAX.

Two fatal cases of anthrax have been investigated by the coroner during the present month among workers in foreign hides. It was stated at the court that gloves were provided for the use of men working among hides, but that they were rarely asked for. When the regulations concerning anthrax were first published the gloves were distributed to the men, but they discarded them by degrees. An official of the White Star Line undertook to see that in future gloves were always worn by men handling hides and skins on the vessels belonging to that company.

ROYAL SOUTHERN HOSPITAL.

The thirteenth annual dinner of the Royal Southern Hospital was held on December 15th at the Adelphi Hotel. After the usual loyal toasts the Chairman, Dr. Charles Macalister, proposed "The Royal Southern Hospital," and remarked that that independent dinner would by no means take the place of the dinner of the united hospitals, which would be held later on. The united hospitals dinner would be a much larger affair than it was before. The staffs of the associated hospitals formed a clinical teaching body of which the university might be proud. He believed it was the largest clinical school in the kingdom. Mr. W. Adamson, replying for the hospital, said it was fifty years since he began to be interested in the institution, and he had become a member of the committee in 1864. It had then two house surgeons and only 100 beds. Since then the beds

had been more than doubled, and the staff now comprised sixteen honorary and seven resident medical officers. The question had been asked, Why should Liverpool have such large hospitals at so many different points? His answer was, Because they were required, not only for the treatment of patients but also for clinical teaching. Where would the efficiency of the future supply of medical men come from if it were not derived from experience gained in hospitals such as theirs? Only the other day the medical board granted permission for the patients to smoke between the hours of seven and eight in the morning, and also in the evening, and on one of the committee going his rounds he was received by the patients with three cheers and with "He's a jolly good fellow." Sir Edward Russell gave "The University," coupling with the toast the name of Professor Benjamin Moor, Dean of the Medical Faculty, who said that the four united hospitals formed the largest, and it was hoped that in a few years it would be the greatest, clinical school in the country.

The Infirmary for Children.

Invitations have been issued by the President and Committee of the Infirmary for Children for the opening of the new infirmary by Her Royal Highness the Duchess of Albany on January 10th. The ceremony will take place in the Liverpool Gymnasium, and an inspection of the new infirmary will afterwards be made. A special effort is being made to complete the building fund, so that when the building is declared open it may be also declared free from debt.

William Mitchell Banks Memorial Lecture.

The second William Mitchell Banks Memorial Lecture was delivered at the University on December 14th by Professor Sir William Macewen, who took for his subject the Regeneration of Bone. Sir James Barr, Chairman of the Medical Faculty, presided, and introduced the lecturer as one of Sir W. Banks's oldest pupils. The theatre was crowded by the members of the medical faculty and numerous medical practitioners in the neighbourhood. In the evening Sir W. Macewen was entertained at dinner at the Exchange Station Hotel, Sir James Barr being in the chair. The health of the principal guest was proposed in a charming speech by Mr. F. T. Paul, President of the Medical Institution, who said that he offered Sir W. Macewen his cordial thanks for his lecture, and for the appreciative reference he had made to Sir W. Banks. The time would come when Banks of Liverpool would be only a name, but to those present he was still a personality, and hence his old friend and colleague, Mr. Reginald Harrison, had been chosen to give the first memorial lecture. As a hospital surgeon he felt himself under a great debt of obligation to Sir W. Macewen. Sir W. Macewen replied.

Country Hospital for Chronic Diseases of Children.

At a recent meeting of the Liverpool Branch of the Child Study Association, in the Physiology Theatre of the University, Dr. Charles Macalister gave an address dealing with the chronic diseases of children. He said that a great deal had been heard lately about homes for cripples, but he thought that what was needed was the establishment of hospitals where the patients were actively treated rather than provided with a home of residence. Liverpool had been a pioneer in the acceptance of that idea, and had given practical effect to it by inaugurating a country hospital for children suffering from chronic diseases. The experiment was first started in 1899, and now a magnificent hospital, capable of accommodating 200 patients, was being built. Great success had been attained in the treatment of chronic cases, and there was promise of a greater success in the future. He emphasized the necessity of restful conditions for diseased children, and remarked that the out-patient department often did a great deal of harm, and that a diseased child should never be allowed to remain at home. Good food, relief from worry, and fresh air were also necessary. At the West Kirby institution the physicians and surgeons made their rounds among the children in the open air, which, together with the sunshine, had a constant stimulating effect. The children responded wonderfully to these conditions, for the reason that they were growing organisms.

Health and Sickness in West Africa.

At a recent meeting of the West African Trade Section of the Chamber of Commerce, Dr. R. E. McConnell gave a short address on his visit to the West African coast, where he has been some fifteen months with an important mine. No deaths took place in the mine from sickness, owing, he thought, largely to the improved class of men now employed, and to the great care Europeans have learnt to take of themselves. He had observed six cases of blackwater fever, in one of which the temperature reached 108.6°. They all recovered under careful nursing, and he thought that in places where it could be taken early and carefully treated blackwater fever was losing much of its terrors in the popular mind. He was glad to hear that an expedition of the Liverpool School of Tropical Medicine was being organized to inquire into the cause, course, and treatment of blackwater fever. Very few cases of sickness at the mines were traceable to the water supply. Where he was latterly stationed the rivers were the only source of water supply, but owing to careful filtering and boiling not a single case of sickness which could be traced to the water supply had come under his care. Everywhere he found the work of the Liverpool School of Tropical Medicine thoroughly appreciated, and a marked desire to help in every way possible any members of its expeditions.

India.

The King Institute of Preventive Medicine, Madras.

Lieutenant-Colonel King's report on vaccination in the Madras Presidency for the year ending March 31st, 1905, is exceptionally interesting, in consequence of the inclusion of Lieutenant S. R. Christophers's report on the work done during the year in the King Institute of Preventive Medicine. The principal part of that work during the year was the supply of vaccine throughout the Presidency. The lymph employed is exclusively animal lymph, and this is mixed with lanoline, so as to make a paste, 27 mg. of which are used for each vaccination. Over one and a half million of vaccines were distributed, or about twice as many as are manufactured in the National Vaccine Institution of England. All local dépôts have been closed, and other methods of vaccination superseded. Fortnightly reports of success are submitted, and material which appears to be inferior returned to the Institute for examination. The year was therefore a transition period, and some disappointments were experienced owing to the introduction of a novel system; but results improved as aptitude in manufacture and use were gained. The output of vaccination underwent a material increase. The Institute accomplished a large and increasing amount of clinical and bacteriological work, and of examinations of water and other substances for sanitary purposes. A department is being organized for the preparation of serums. The education of medical officers and employés in the Sanitary Department is also being carried out, and opportunities are being afforded for the prosecution of original research, in which some good results have already been achieved. The Institute has thus made a most prominent start, but further development and strengthening are still requisite.

Report of the Imperial Bacteriologist.

Dr. Lingard's report of the work done during 1905 in the veterinary bacteriological laboratory at Muktesar in the Northern Himalayas is full of interest. The institution serves three purposes: (1) The preparation of preventive and curative serums, (2) the carrying on of researches, and (3) the training of veterinary officers and assistants in comparative pathology and bacteriology. The manufacture of serums is conducted on a large scale. Large issues were made of anti-rinderpest, anthrax, and anti-haemorrhagic septicaemia serum, and smaller distributions of mallein and tuberculin. Statistics are given indicating satisfactory results. Experiments were also conducted with a view to the improvement of serums. Researches were conducted regarding piroplasmosis, horse and camel trypanosomiasis, anthrax, haemorrhagic septicaemia, *charbon symptomatique*, and dourine. The discovery of tuberculosis in camels, of a spirillum in cattle, and of a new organism in the red corpuscles of camels suffering from trypanosomiasis,

constitute notable incidents. Four veterinary officers and sixty-one veterinary assistants underwent instruction at Muktesar, and during the cold season at the branch laboratory at Bareilly. An outbreak of anthrax among workers in wool in the central gaol at Bareilly is referred to in which the use of anthrax serum seems to have been productive of benefit.

CORRESPONDENCE.

SURGERY PATIENTS.

SIR,—Will you kindly, through the medium of the BRITISH MEDICAL JOURNAL, give your opinion and invite the opinions of others on the following point of ethics?

It is generally considered correct medical etiquette for a medical practitioner called to see a patient, on becoming aware that the said patient is under the care of another practitioner, to decline to attend unless and until he is satisfied that the patient or his friends *have* notified the other medical man of their intention to change doctors.

This rule is fairly generally carried out as far as visits to the patient's house are concerned, but a case cropped up in this Division recently which revealed a great divergency of opinion on the question. Is it necessary to insist on the notifying of the superseded practitioner where *attendance at the surgery* is concerned? Attendances at a surgery may vary considerably in their nature—for example, convalescents recovering from an illness necessitating visits at the house, chronic patients who attend only at surgery, casuals, club patients, minor surgical cases, etc.

A meeting of the Division was called to discuss the question, when the feeling was distinctly in favour of making the rule apply to *all* cases, but the meeting was adjourned pending the acquisition of the views of medical men in other parts of the country, and in furtherance of this object I was instructed to write you.—I am, etc.,

FREDERIC E. DANIEL,
December 17th. Honorary Secretary, Furness Division.

VOLUNTEER MEDICAL ORGANIZATION.

SIR,—In the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of July 14th last is a report on the Reorganization of the Volunteer Medical Service which cannot fail to be a source of satisfaction to all well-wishers of that service. Should the scheme therein delineated be followed the result must lead to the emergence of the Volunteer Medical Service from the chaotic condition now prevailing.

As every scheme must present points which do not appeal to every one, I would ask your permission to offer observations upon two points which to my view appear open to criticism, because they occur in a report devoted to volunteer organization while the subjects themselves do not affect that organization so far as it has been unfolded in the scheme.

The first point is contained in paragraph (*c*), under "Instructions for Officers and Men." While agreeing that it would tend to efficiency if men of the R.A.M.C. (Vols.) could be trained as nurses, I must demur to the idea that men can be "nurses as well as bearers." Nursing requires a specialized line of training, and proper nursing cannot but be hindered by the nurse being also a bearer. It has been insisted elsewhere by an abler advocate than myself that the duties of a bearer render a man unfitted in the field for the duties of a nurse. But, besides this, there exists a more serious difficulty. How can a volunteer acquire that training and that experience which the duties of a nurse demand for their proper performance? He may become sufficiently trained to carry out rough-and-ready nursing in a field ambulance, wherein the sick and wounded do not rest for any length of time. But field ambulances are not hospitals. I am aware that the report makes no mention of volunteer hospitals, but the time must come when the Committee will extend its recommendations beyond the battlefield and will face the crux of the medical army problem, the provision of hospitals and nurses for the sick and wounded. When that time comes, I venture to predict that the volunteers will have to rely upon women nurses for nursing work. In the meantime, I merely desire to emphasize the inadvisability of confounding nurses and bearers, and the difficulty which will become apparent in training volunteers as nurses.

My second point comes under the head of "Army Medical Reserve," Paragraph (*a*). In the first place, volunteers cannot be a reserve to the army, and for this reason I submit that the Committee is dealing with a matter outside the volunteer organization. But, inasmuch as it has proposed that the Army Medical Reserve shall consist of two classes, one of which will contain those willing to serve at home, I am prompted to ask—What sort of war organization is this which limits itself to service at home, while the regular army, of which it is a part, is required to serve anywhere? The first principle of a reserve is that it shall when called up fulfil the same functions as the body to which it is the complement.—I am, etc.,

December 4th. UN GUERRILLA MALGRÉ LUI.

THE FIRST BRITISH VILLAGE ASYLUM.

SIR,—In an article on this subject in your issue for November 24th, it is stated that the Aberdeen City and District Asylum at Kingseat is the first asylum to be built in Scotland on the village system.

I desire to point out that this is not so, for at Englishtown, Inverness, the late Mr. William Hyslop, proprietor of this house, had established and was superintendent of an asylum of this description in 1860.

I take the opportunity of quoting to you some paragraphs from the reports of the Scottish Commissioners in Lunacy at that time (the period is 1860-65):

Englishtown House presents an example of what might easily and economically be effected in the formation of a village asylum.

Englishtown, near Inverness, where many acres of muir have been reclaimed, where a group of houses and huts, situate on pleasant slopes and amid gardens overlooking the Beauly Firth, accommodate some thirty or forty husbandmen, who, with no other bonds, nor walls, nor restriction than the will of the Governor, have made a large corner of desert to blossom like the rose—has fairly won for itself the position of a cottage asylum.—(Dr. W. A F. Browne.)

This asylum affords peculiar opportunities for assimilating the condition of patients to that of the sane community.

There are no airing grounds as this term is usually understood, and the patients take exercise in the open country, walk in the fields or gardens, or loiter about the doors under a certain amount of supervision, but free from all unnecessary restraint or control.

A fair and smiling domain, which presents more the aspects of a well-ordered rural village than a place of detention.

The absence of enclosing walls, the general nature of the accommodation, and the comparative liberty enjoyed by the patients, place this asylum in an intermediate position between an asylum and a private dwelling.

Mr. Hyslop has shown much ingenuity and taste in devising employment and amusements for his patients, who now take an interest in seeing their houses neatly whitewashed and in good order, and in promoting all the improvements in the garden and adjoining grounds.

We wish Mr. Hyslop all success, and at the same time we strongly recommend the authorities of Caithness to embrace the present opportunity of placing the remainder of the pauper lunatics under the care of a man whose humanity has placed him at the head of all who may hereafter adopt a system in the carrying out of which no restraint is exercised. —*Northern Ensign*, February, 1865.

Caithness may be congratulated on having its lunatic patients placed in circumstances so favourable as they are at Englishtown, which on the highest testimony is the best-managed establishment of its kind in Scotland.—*Inverness Courier*, July, 1865.

Englishtown Asylum.—A visit to this place, two miles from town, is likely to astonish all who believe that high walls and strong bolts and bars are indispensable adjuncts to the management and safe custody of insane persons. The building has all the appearance of a gentleman's ordinary residence, and the neat whitewashed cottages standing beside it, and forming part of the same establishment, might be readily mistaken for dwellings occupied by the gentlemen's dependants. Wandering over the place, the visitor will perceive no indications of its real character, unless he happen to remark in the faces of some of the dwellers a more than common vacancy of expression. Should he arrive during work hours, he will find a number of men busy as bees on the hill-side sloping from the house with spades, picks, and hand-barrows, delving and wheeling most industriously, and with nothing to indicate that they are anything else than agricultural labourers engaged in reclaiming a piece of waste ground.—*Inverness Advertiser*, May, 1862.

It is also recorded that "no patient has been put into

seclusion since the opening of the asylum." Considering that this was in 1860, and knowing as we do what were the conditions of the insane at that time, we must recognize how much Mr. Hyslop was in advance of the times.

It is true that he did not build the establishment, but simply took a country mansion and the adjoining village, which he converted into the first asylum village.

I think this cannot be disputed, and it is a little amusing to find the distinction claimed for an institution erected just forty-five years later. Mr. Hyslop was also a pioneer in asylum literature, for in 1870 he published *Loose Leaves*, the magazine of this asylum, which still survives. I think, therefore, we may claim for Stretton House a certain amount of reflected glory from Mr. Hyslop's foresight, for his system of treatment exists here to-day. We also dispute with Aberdeen and the L.C.C. the distinction of having evolved the first village asylum in Great Britain.—I am, etc.,

HORATIO BARNETT,
Medical Superintendent, Stretton House, Church Stretton.
November 27th.

*** With all due deference to Dr. Barnett, and all due respect to the memory of Mr. Hyslop, the fact remains that Aberdeen City District Asylum at Kingseat is the first district or county asylum for rate-paid patients of all varieties of acute and chronic insanities built on the villa principle in this country. It cannot be denied that Englishtown Asylum, or House, had strong claims to be reckoned the first village asylum in the kingdom, but there were certain important restrictions which may well be considered to lay it open to disqualification as an "asylum" in the ordinary acceptance of the term. We may deal with the matter more fully in a later issue.

THE INFLUENCE OF RAINY WINDS ON PHTHISIS.

SIR,—A note in the BRITISH MEDICAL JOURNAL of November 3rd, p. 1165, regarding the open-air treatment of phthisis during winter in the North of Scotland, and an instructive article on the influence of rainy winds on phthisis in the same issue, tempt me to make a few observations on the confusion which seems to exist in the minds of many practitioners as to the relative value of climate in this important question.

According to present-day views every climate is suitable for the open-air treatment of every case of phthisis, but every climate is not equally suitable for any case; or, to put the same thing in other words, the first desideratum in the treatment of phthisis is the scientific (and, therefore, thorough) application of the open-air system. This must always come first, but it is never the only desideratum. Among the remaining or secondary factors are: (1) Sunlight, (2) barometric pressure, (3) temperature, (4) relative moisture, (5) environment.

Now, it is surely a matter of mere common-sense to recognize that though none of these secondary factors can or should ever eclipse the great primary factor, they deserve consideration in so far as the patient's case allows of their being considered: which very nearly amounts to saying in so far as the patient's means permit.

Take, for example, the question of sunlight. Who will deny its value as an adjuvant of open air? What sanatorium is there in the British isles but boasts in its advertisements of its southern exposure? And yet at these very sanatoriums the patients are being constantly taught that open air is all they require, that no good can be gained by going abroad, and so on.

Again, a very valuable secondary factor is constantly being ignored in the matter of atmospheric pressure (I purposely avoid the expression "altitude," as many sea-level climates have a mean barometric pressure equal to that of others at considerably higher levels). Patients who should be sent to high altitudes are constantly allowed to go to some home sanatorium or to the Riviera, while others go there whose circulatory system is in a condition that renders such a proceeding more than risky. On the Continent, this factor is far more scientifically considered than in England, where patients are sent to one climate or another in a way one can only call haphazard.

Similarly, the moisture of the atmosphere is of great importance, as many a patient is less troubled with cough in a slightly humid atmosphere than in an absolutely dry one, while others are the reverse.

But it is needless to insist on the value of these secondary factors. My contention is that although secondary, they can only be ignored when the patient's circumstances render it impossible to consider them. I happen to have seen in the last five seasons a good deal of phthisis among crofters and gillies in the Highlands, and I have been astonished in many cases at the excellent results to be obtained by conscientious open-air treatment, while in other cases it has been painful to see the relapse that accompanied every change of the weather from dry to wet, or from mild to cold, leaving one to infer that, treated in a climate more consistently dry or warm as the case might be, the progress would have been less interrupted.

While agreeing with my friend, Dr. Philip, that every climate will give good results with open-air treatment, I must differ from him humbly, but very emphatically, if he insists that every climate will give equally good results in any case of phthisis.—I am, etc.,

H. CRICHTON MILLER, M.D.Edin. and Pavia.
San Remo, Nov. 20th.

SIR,—I should like to assure Dr. Gordon that I am not an armchair critic. I have studied tuberculosis for the last seven years, five of which I have spent on Dartmoor, and during that time I have lived in both the exposed and non-exposed districts. In my letter of December 1st I stated only what I had seen with my own eyes, and in this I am supported by Dr. Pilkington, a stranger to me, in his letter of the same date.

There is a pamphlet written by Dr. W. H. Pearse, entitled *Phthisis Viewed in Relation to Dartmoor, to Devonshire in General, and to Constitution.* Speaking of one district he says, "But it is the women who die in excess," and "Dr. L. Ash considered that the bad condition of the cottager's huts predisposed to phthisis in the women."

Here is a table taken from Dr. Pearse's pamphlet. The five villages given receive the full brunt of Atlantic winds and rain, and are exposed to the S.W. and W. Can one say that exposure here influences the death-rate?

To illustrate the influence of Dartmoor on phthisis, West Dartmoor, which receives the full burst of Atlantic winds, rain, etc., gives as follows:

Parish.	Mean Population of Parish.	Total Deaths of Phthisis in 10 Years.		Death-rate.		Acres to Person.	Death-rate.		Mean Death-rate, M. and F.	Average Acres to Person.
		M.	F.	M.	F.		M.	F.		
Meavy	271	1	1	0.73	0.75	12.1				
Sheepstor ...	103	0	2	0	4.00	34.9				
Walkhampton ...	731	3	2	0.78	0.57	14.4				
Samford Spiney.	506	3	1	1.25	0.37	3.4				
Peter Tavy ..	417	3	0	1.44	0	8.3	0.84	1.13	0.98	11.13

Each of the parishes is on granite.

It should be remarked that the high death-rate of women in Sheepstor was due to one family who were strangers to the district, and in which two sisters died of phthisis. Omitting this family the female death-rate of the moorland granite district is 0.36. This great freedom from phthisis finds a parallel in a similar freedom of the North Devon coasts, where the death-rate was males 0.50, females 0.21. This ratio is as to males 2.46, females 2.48 for England and Wales during the same years.

Here are two more exposed villages: Shaugh, with a mean population of 325, had no death from consumption in ten years. Ermington, with a mean female population of 972, had no death from consumption in ten years.

The following villages are situated on the eastern part of Dartmoor, and, therefore, may be considered to be fairly sheltered from the south-west. Lustleigh, North Bovey, Manaton, Widdecombe, and Buckland. They have a death-rate of 1.49, and this death-rate is higher than that of western Dartmoor. To come to another point, I should like to ask Dr. Gordon on what reasonable grounds can he apply his theory of the influence of winds on phthisis to a sanatorium site? Dr. Gordon condemned the Devon and Cornwall Sanatorium, South Brent, to the Devon County Council, who were asked to subscribe, because it had a

south-westerly exposure, although sheltered by high surrounding hills, and therefore under the influence of his rainy-wind theory. As far as I remember, he told one of the Sanatorium officials that if the Sanatorium was on the other side of the valley, which would give it a north and east exposure he might support the place. Can anything be more irrational? It is universally recognized that the site of a sanatorium should be such as to obtain the maximum amount of sunshine and consequently they face south-west.

With regard to Dr. Gordon's remarks as to Exeter streets, where exposure of roadways seems to raise the corresponding death-rate, I should say the reasonable explanation was that in the exposed streets the inhabitants were more exposed to dust infection than those in the more sheltered and less windy streets. Although Dr. Gordon expresses the opinion that his theory is gaining ground, I must confess I have never heard it supported.—I am, etc.,

Yelverton, R.S.O., S. Devon, Dec. 10th. J. PENN MILTON.

RESPIRATION AND PULMONARY TUBERCULOSIS.

SIR,—Although preventive medicine is the order of the day, few medical writers on the subject seem to give any serious attention to Nature's method of preventing that very prevalent disease—phthisis. The simplicity and completeness of her measures are unquestionable, hence my reasons for directing attention to them.

A proposition to which we all agree is that two factors are required to give rise to the disease—the lowered vitality of the lung tissue itself and the introduction of the tubercle bacillus. Neither will produce the disease without the presence of the other. (Dr. Kingston Fowler has shown that tubercle usually attacks different areas of the pulmonary tissue in a definite sequence. When the disease has rendered the apex of the upper lobe partially fixed or immobile the top of the lower lobe is next attacked owing to its then being the functional apex and offering the same susceptibility as the real apex, and finally the mischief extends to the dorsal parts of the lungs.) Now, the vitality of a tissue is dependent on the circulation of the blood and lymph therein, and in the lungs this is governed by the respiratory movements of the part, and Keith[1] contends that the full and free contraction of the diaphragm is the only efficient means of expanding the apex of the lungs—at least, as long as the chest is approximately normal in shape.

Keith's experience in the dissecting room bears out Naegeli's and Behring's statement that all of us by the fiftieth year have been the subject of apical tuberculosis, but how far our mechanism of respiration and how far a natural immunity has preserved us are problems on which he can throw no light. In this connexion the following extract from a communication by Dr. H. Aiken, which appeared in the BRITISH MEDICAL JOURNAL, September 9th, 1905, is very much to the point: "Important information has recently been gathered by the *Gazette Médicale* relating to the immunity of singers from tuberculosis. All the artistes appear to agree that their art has a beneficial effect upon the organs of respiration, and M. Isnardon, of the Paris Conservatoire, goes so far as to assert that only singers know how to breathe properly."

Without doubt singers are right in claiming a development which is antagonistic to tuberculosis, but it is equally certain that there are many excellent breathers amongst speakers and others who can make a similar claim; for proper or physiological breathing means neither more or less than silent, controlled nasal respiration. Whether the mechanism should be of the lower costal type or abdominal type—in both the diaphragm is brought into active use—entirely depends upon the amount of air required at the time to supply the needs of the individual.

The expression "silent, controlled nasal respiration" is used advisedly, for many people (medical men included) labour under the delusion that under ordinary circumstances they habitually breathe through the nose, and yet in ordinary conversation more often than not at the end of each sentence the breath is drawn in through the mouth with a little "gasp." It is, perhaps, needless to remark that no singer or speaker with any respect for his health or art would be guilty of such an unhygienic' inartistic, shallow, jerky method of breathing, for such an act not only causes lowering of the air pressure in the respiratory tract, which leads sooner or later to catarrh and the evil consequences resulting therefrom, but it is also the means of introducing cold, dry, dusty, and germ-laden air into the mouth, throat, and lungs.

In conclusion, I would add it is more than likely that a large number of the diseases (intranasal disorders included) from which man suffers are due to a vitiated method of breathing; and further, disorganization of the respiratory mechanism is as a rule the outcome of bad habits which hamper the movements of the diaphragm, such as an improper carriage of the body, etc. And it is no exaggeration to state that the number of persons who fondly imagine that they habitually hold their spine as extended as Nature intended it to be held can be counted by thousands. This and many other points of practical value in physical regeneration are ably discussed by Edwin Checkley in *A Natural Method of Physical Training.*—I am, etc.,

Chatham, Dec. 3rd. R. F. E. AUSTIN, Major R.A.M.C.

[1] *London Hospital Gazette*, January, 1904, "Why does Phthisis Attack the Apex of the Lung?"

THE BEST WAY TO REMOVE TONSILS.

SIR,—I was much interested in reading Dr. Bryant's article on the cold snare in tonsillar hypertrophy and the discussion which followed it. It is evident that surgeons of the New World have reason to be dissatisfied with the guillotine in the removal of tonsils. But it does not seem equally evident that they have devised a much better method. I think it will be readily conceded that the two most important requirements of any operation are efficiency and simplicity.

For a diseased tissue to be efficiently removed it must be thoroughly removed. Now it is perfectly certain that as the tonsils have a great part of their bulk lying deep to the edges of the pillars of the fauces, no operation can thoroughly remove them which works in a plane superficial to those structures. It is notorious that a great number of cases which have their tonsils "cut off" by the guillotine suffer with severe symptoms of recurrent tonsillitis in the remaining buried portions of tonsil at frequent intervals afterwards. I can only explain the fact that most throat surgeons in England are not influenced by this to abandon the guillotine by supposing that such patients do not return to the throat surgeon who "cut" their tonsils, but seek advice elsewhere. It has always seemed to me, since I was a personal victim to the procedure, that cutting off the superficial bits of the tonsils was about as rational a proceeding as it would be to pull the appendix out of a small abdominal incision and cut it off flush with the surface of the parietes, regardless of the amount of appendix which was left behind. I question whether the cold wire snare will be a much more efficient procedure, and I do not understand how it can be applied to those tonsils which lie buried behind the faucial pillars with little or no protruding mass. And it certainly is a very elaborate method. It requires a general anaesthetic, the patient has to be sitting up, and it takes from two to eight minutes. It requires a number of elaborate instruments and many intricate manipulations to pull the tonsil out and to get the wire to ride in the right groove.

What is the necessity for all this complexity when the tonsils can easily be shelled out from their bed by the tip of the finger? Of course a general anaesthetic is necessary for this, but the patient can be lying down with the head low. With a very little practice the proceeding is easy. The tip of the finger is forced into the supratonsillar fossa and the gland shelled out from its bed. It is then seized by a fenestrated forceps and either twisted off or the strip of mucous membrane which runs from it on to the side of the tongue cut with scissors. Bleeding is less than when the guillotine is used, and although I have adopted this method for every case I have had for the past five years, I have never had any alarming haemorrhage. The whole procedure occupies from one to two minutes. If 10 minims of adrenalin chloride is injected into each tonsillar bed before operating there is very little bleeding at the time, but I think it lasts longer afterwards, so that after trying it in a few cases I have given it up as unnecessary.—I am, etc.,

ERNEST W. HEY GROVES, M.S., F.R.C.S.,
November 20th. Assistant Surgeon, Bristol General Hospital

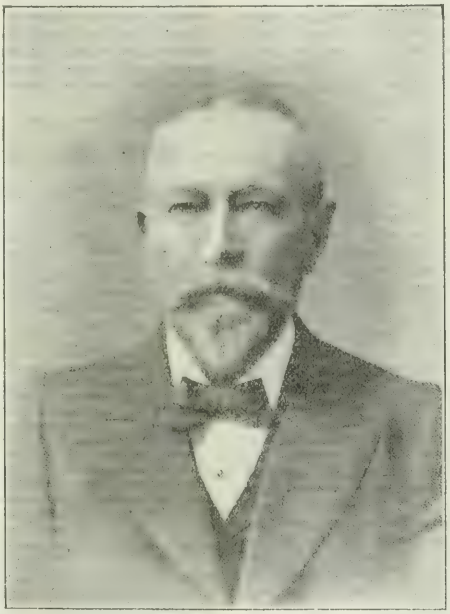
OBITUARY.

ALFRED SHEEN, M.D.St. Andrews, M.R.C.S.Eng., D.P.H.Cantab.,

CONSULTING SURGEON TO THE CARDIFF INFIRMARY.

As announced last week, Dr. Alfred Sheen of Cardiff died on December 16th. He was the eldest son of Mr. George Sheen of Leicester. He was born on September 23rd, 1839, and was educated at Hurstpierpoint. In 1855 he went to Madras to take up a civil service appointment, but this proving distasteful to him, he entered the Medical College, Madras, as a private student and remained there until 1860. As a student at Madras he was most successful, taking first prizes in anatomy, physiology, medicine, and other subjects. He took an interest in music, and was a member of the choir of Madras Cathedral.

Returning to England he continued his medical studies at Guy's Hospital, and became M.D.St. Andrews in 1862, and M.R.C.S.Eng in 1863. While at Guy's he was President of the Pupils' Physical Society and the fruits of his early studies at Madras were shown by his obtaining the Society's prize in 1862 for an essay on dysentery. He remained a member of the "Guyite Club" (founded in 1863) to the time of his death, some of his fellow members being George Eastes, A. Evershed, H. S. Muir, and W. A. Elliston.



Leaving Guy's Dr. Sheen was appointed House-Surgeon to the Cardiff Infirmary in 1864. In 1866 he relinquished this appointment and commenced practice in Cardiff, starting at the Docks, then a residential part of the town. In 1868 he married and moved to a more central situation. He was in active practice in Cardiff for a period of 40 years; indeed, up to within a month of his death.

Dr. Sheen will be best remembered for two things—his long and active connexion with the Cardiff Infirmary and the work which he did for the South Wales and Monmouthshire Branch of the British Medical Association.

Dr. Sheen was appointed Surgeon to the Cardiff Infirmary in 1871, and held this post for twenty years, being appointed Consulting Surgeon on his retirement. When first appointed the in-patients for the year numbered 432 and the out-patients 2,842, contrasting with 2,301 and 20,850 in 1905. In 1871 56 operations were performed during the year, whereas at the present time that number may be performed in a week. His twenty years' active work covered a time of much change in, and advance and extension of, surgical treatment, and many were the operations and innovations in technique introduced by Dr. Sheen at the Infirmary. The first dressing sterilizer—an American production—was obtained by Dr. Sheen for the Infirmary many years ago, and he displaced antiseptic by aseptic methods antecedent to most surgeons in this country. As an operator Dr. Sheen was most careful and thorough; he was particularly successful with ovariotomies, of which he performed a large number, and did much good general surgical work, publishing papers in the British Medical Journal and other medical periodicals from time to time. Particularly characteristic of him was the amount of time he gave to the Infirmary, the regularity and punctuality of his visits, and his careful note-taking, many of the notes of his hospital cases being written by himself. In addition to all this his other services to the Infirmary were numerous and arduous. When House-Surgeon the Infirmary ball was inaugurated by him and has proved ever since a successful annual function. Dr. Sheen was mainly instrumental in obtaining from the late Marquis of Bute the gift of the site of the present Infirmary; he was honorary secretary of the Building Committee, and of a bazaar which produced £3,000 for the new building. It would not be too much to say that the moving to the new building in 1883 and many of the subsequent extensions and improvements were largely due to his labours. In recognition of his services the governors in 1903 created him a Life President of the institution.

Dr. Sheen joined the British Medical Association in 1871. He helped to start the South Wales and Monmouthshire Branch and represented the Branch on the Central Council from 1875 to 1903; he was made a member of the Committee of Council in 1879. He was a regular attendant at Council meetings and took an active and useful part in the work of the Council. He was for many years secretary of the South Wales and Monmouthshire Branch of the Association, and for part of the time also treasurer. He relinquished the office of secretary in 1900 and of treasurer in 1904. His co-adjutor in the former office was Dr. D. Arthur Davies of Swansea, an old personal friend for whom he entertained a high regard, and who, together with Dr. H. G. Cook of Cardiff, attended him during his last illness.

When the Association held its annual meeting at Cardiff in 1885, Dr. Sheen was the Honorary Local Secretary. The success of that meeting will long be remembered. For the first time large dances were added to the list of social functions, and proved a great success. The pleasures of the meeting were intensified to members because they were somewhat unanticipated. Many thought they were coming to the edge of a coal mine; and some even went so far as to bring their own provisions with them. In this year, also, Dr. Sheen was President of the South Wales and Monmouthshire Branch. In 1903 Dr. Sheen was Vice-President of the Section of Surgery at the annual meeting at Swansea. He continued to take an active interest in the work of the Association up to the time of his death.

Dr. Sheen was appointed Visiting Medical Officer to the Cardiff Workhouse Hospital in 1870, and held the post to his death. He was a recognized authority on Poor-law medical work, and gave evidence before many Commissions, etc. He wrote a book—*The Workhouse and its Medical Officer*—which had a large circulation. At once on hearing of the open-air treatment of consumption he started it at the Workhouse Hospital.

Dr. Sheen was an original member of the Cardiff Medical Society (founded 1870), which now numbers over 100 members; for the first ten years of its existence its Honorary Secretary and Treasurer, and in 1888-9 its President. In recognition of his services to the Society, he was elected its first Honorary Member at the beginning of this year, at a meeting where Professor Kocher of Berne addressed the Society on exophthalmic goitre.

Dr. Sheen's interest in district nursing made him take an active part in forming the Cardiff Branch of the Queen Victoria Jubilee Nurses' Institute. He was Honorary Medical Officer to the Institute, its Treasurer, and President of its Committee.

Dr. Sheen was a Vice-President of the British Medical

Benevolent Fund, and a member of the Council of University College, Cardiff. He gave to the medical school the "Alfred Sheen" prize, awarded annually to the most proficient anatomical student.

Dr. Sheen enjoyed a considerable private practice, and also was for many years a recognized surgical consultant in the district in which he lived.

Personally he was a reticent man, blunt of speech, at times of apparent harshness of manner. Beneath these traits were concealed an exceeding kindness of disposition and gentleness of heart, so that he was the friend of all in trouble and the "inquire within" of all in need of information or help. He was most unwilling to hurt the feelings of others in the slightest degree, preferring rather that matters should react to his own detriment.

Dr. Sheen leaves a wife and eleven children. His eldest son, Mr. William Sheen, is a consulting surgeon practising in Cardiff. His second son, Engineer-Commander Charles C. Sheen, R.N., was in the siege of Ladysmith, and was wounded at Wagon Hill on January 6th, 1900. He obtained eight years' promotion for his services.

The funeral service was held at Cardiff on December 19th, and was attended by the Lord Mayor, representatives of the Board of Guardians and of the Infirmary Board of Management, almost the whole of the infirmary staff, and many of the medical men practising in the town. The first part of the service took place at St. German's, where the deceased was churchwarden for many years, and the interment at the town cemetery.

W. S. STEELE, M.D.

We regret to announce the death of Dr. William Stott Steele, which occurred at St. Marychurch, South Devon, on December 1st, at the age of 79. Dr. Steele was the third son of the Rev. J. W. Steele, vicar of East Harlsey, in the North Riding of Yorkshire, and was born at Harlsey Vicarage in the year 1829. He received his early education at home from his father, until he reached the age of 15, when he was apprenticed to Dr. J. Dunn of Wakefield. After completing his apprenticeship he entered Guy's Hospital as a student, and in 1850 obtained the diplomas M.R.C.S. and L.S.A. and later the M.D. degree of St. Andrews University.

For some years Dr. Steele practised at Boroughbridge, in Yorkshire, succeeding to his uncle's extensive practice. He was presented with a service of plate and a testimonial as a mark of sincere regard from his patients on leaving that district to settle at St. Marychurch, where he took the practice of the late Mr. William Pollard, to which was added that of Mr. Chilcote on the death of the latter in 1886. For several years he was Chairman of the Sanitary Committee in the days of the old St. Marychurch Local Board. In addition to holding the appointment of Medical Officer to the St. Marychurch District of the Newton Abbot Union, he was the Honorary Medical Officer to the St. Mary's Roman Catholic Orphanage, the Home of Rest for Women in Business, and the Mortonhampstead Convalescent Home.

Dr. Steele was a widely-read and cultured man, as well as a keen musician, being a skilled performer on the flute. He was a fine example of the old-fashioned general practitioner, a type fast passing away; a friend and adviser of those in need; a man of sterling uprightness, and one who did his best for those who sought his aid; one, in fact, who tried to uphold the noblest traditions of his profession. His motto was, "Love thy neighbour as thyself."

He leaves a widow, three daughters, and three sons, two of whom follow their father's profession.

Brigade-Surgeon George Dalziel Riddell, late of the Indian Medical Service (Madras), died in London on December 1st, aged 70. He joined the Madras Medical Department as Assistant Surgeon, February 10th, 1859; became Brigade Surgeon, October 20th, 1885; and retired from the service in May, 1890.

Lieutenant-Colonel William Hensman, retired Army Medical Department, died at Ilfracombe on November 3rd. He was appointed Assistant Surgeon, January 12th, 1859, and promoted to be Surgeon Major, April 1st, 1874. He retired from the service with the honorary rank of Brigade Surgeon, April 1st, 1880.

Surgeon Hamilton Edward Leonard Earle, R.N. (retired), died at Southsea on December 12th. He was the only son of the late Rear-Admiral H. G. Earle, and entered the Royal Navy as Surgeon, August 20th, 1886. He retired from the service, June 7th, 1895.

Surgeon-Lieutenant-Colonel George Edward Elton Burroughs, late of the Indian Medical Service, died on October 1st. He joined the Bombay Medical Department as Assistant Surgeon, March 31st, 1875, and became Surgeon-Lieutenant-Colonel, March 31st, 1887. He served in the Afghan war in 1878-80, and was present at the action of Kushk-i-Nakhud, at the affair at Girishk, the battle of Maiwand, the sortie from Kandahar, and the defence and battle of Kandahar. He was mentioned in dispatches, and had received the Afghan medal with clasp.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are Dr. K. Archangelsky, Extraordinary Professor of Pharmacology in the University of Kasan; Professor Pietro Celoni, Lecturer on Children's Diseases in the Royal Institute of Higher Studies at Florence, and one of the founders of the Italian Paediatric Society; and Privy Councillor Dr. Battlehner, formerly head of the medical department of the Duchy of Baden, aged 82.

MEDICO-LEGAL AND MEDICO-ETHICAL.

DISPENSERS AND PHARMACY ACT.

In our reply to the inquiry of our correspondent, J. H. Mains, published in the British Medical Journal of December 15th, p. 1753, it was stated that the dispenser's certificate of the Apothecaries' Society entitled the holder to sell mixtures containing poisons. This has, we find, been interpreted as entitling such a holder to sell scheduled poisons by retail which, apart from medical practitioners, can only be legally done by registered chemists and druggists.

CHANGE OF ADDRESS CARDS.

C. F. G.—Our correspondent's letter illustrates the need there is for greater care than is often exercised in sending out "Change of Address" cards, as similar complaints reach us frequently. Of course, the card should have been sent to our correspondent and not to the patient, but it is not unlikely that the consultant left the work to his secretary with merely general instructions, and that there was no deliberate intention to offend. It would be well if consultants sent such cards only to medical practitioners with whom they are in frequent communication, or to patients who are actually under their care.

PROFESSIONAL SECRECY AND THE NOTIFICATION OF PHTHISIS.

Scotus.—There is a legal obligation to notify infectious diseases scheduled for notification under the Infectious Disease (Notification) Act, but we should advise our correspondent not to notify phthisis or any other condition where notification is voluntary, without explaining to his patient what he proposes to do.

DUTIES OF CERTIFYING FACTORY SURGEON.

Trevor writes: Is a factory surgeon allowed to send in his bill to the patient for treatment of the injury received at work? I always understood a factory surgeon was paid so much and the mill hands were treated free of charge.

*** We presume that our correspondent refers to certifying surgeons under the Factory Act. The duties attached to this appointment are specific, and payment is made by fees. If a certifying surgeon attends and undertakes the treatment of an injured workman, he does so in his private capacity, and sends in his bill to the responsible party.

BRANCH SURGERIES AND TELEPHONES.

Doubtful.—The multiplication of branch surgeries for advertising purposes only must be condemned; where they are necessary the external signs or notice plates should conform as far as possible to the ordinary practice; the plate (not the window blind), in addition to the name and professional title, might bear the words at the top, "Branch Surgery," and below, "Consultation hours — to —. Messages received. Telephone."

SUBSTITUTE'S FEE IN MIDWIFERY CASE.

C. L.—Where a medical practitioner attends a confinement in place of another who is unable to be present, the custom of the profession is that the substitute receives half fees.

THE PRACTICE OF MIDWIFERY BY STUDENTS.

N. says that he is a medical student who has completed his curriculum, and has passed the final examination in medicine. He is at present acting as dispenser to a medical practitioner in a colliery district, and is desirous of gaining further experience in midwifery before presenting himself for his examination; he has taken out his full course of practical midwifery. His principal is willing to allow him to attend midwifery, if he can do so without "contravening the Medical Acts" or the rules of the General Medical Council respecting the employment of unqualified assistants. He asks further, whether "supervision by a qualified practitioner" means that the latter must be actually present, or that he can and will be sent for should the case present complications.

*** The proviso in the resolution of the General Medical Council as to the employment of unqualified persons as assistants or otherwise is as follows: "But the foregoing notices do not apply so as to restrict the proper training and instruction of bonâ-fide medical students as pupils, or the legitimate employment of dressers, midwives, dispensers, and surgery attendants, under the immediate personal supervision of registered medical practitioners." We take "immediate personal supervision" to mean in respect of midwifery that the registered practitioner is available if complications arise.

CONTRACT WITH INDIVIDUAL PATIENT.

J. A. H. writes: I have been visiting an old lady for some time who recently suggested that I might attend her professionally when required at a certain figure per annum; she has an annuity of £150, lives rent free, and has no dependents. I have attended her periodically since the beginning of this year, during which time her bill has amounted to £7. Would entering into such a contract be regarded as unprofessional? If not, what would be a suitable sum under the above circumstances to charge annually?

*** Such an agreement involves no question of unprofessional conduct. As to the sum to be charged in this particular case, a consideration of those circumstances which are mentioned, especially the advanced age of the patient, would justify the practitioner in charging £1 a month.

NOMINAL PARTNERSHIPS.

S. H. H.—All the desiderata set out by our correspondent in his question published on October 27th, p. 1164, ought to be possible in every district where there is that good feeling between the local practitioners which should always exist between professional men. "Nominal partnership" is a misnomer. No real partnership could exist without specified legal restrictions. What is really meant by the term is, no doubt, mutual assistance between practitioners in their professional life founded on medical ethics. Such a scheme is not impracticable, but it is often inexpedient for business reasons. It is found from experience that it is not advisable for a practitioner to avail himself too much of the services of a professional neighbour in carrying on his practice. The latter is a competitor in the district, and however careful he may be to be guided by the rules of profession ethics, he may find it impossible to avoid friction between himself and his friend. It is probably on this account that the necessity for legal partnerships has arisen, and most practitioners find it more conducive to their interests to engage the assistance of an outside practitioner, such as a *locum tenens*, rather than to trust to the help of medical neighbours.

SCHOOL CERTIFICATES IN SCOTLAND.

Midlothian.—Our correspondent is not bound to furnish the School Board with certificates relative to illnesses of school children unless the Board is prepared to pay for them. If the Board is prepared to pay for such certificates, it is, of course, entitled to prescribe the form in which the certificates shall be given.

LIABILITY FOR ACCIDENT FEE.

Xenophon was called in by a tram conductor to attend to a woman who had met with an accident, and was told by him that the company would pay his fee. He attended the patient at the time, and three times afterwards, but on sending in his bill for 3 guineas was refused payment on the ground that the charges were excessive, and that the company were only liable for his first attendance on the woman. He would like to know what would be a reasonable fee?

*** The company is liable only for the first attendance, and 1 guinea would be a reasonable fee.

THE CANCELLATION OF A MIDWIFERY ENGAGEMENT.

Retaining Fee writes that he was engaged to attend a lady in her confinement, and a week before it became due, he received a letter from her husband, cancelling the engagement on the ground that his wife had been called to Scotland on account of her father's illness, and would be confined there. Our correspondent wishes to know if he is entitled to his fee.

*** A contract duly entered into can only be dissolved by mutual consent, and on the authority of "Hochster *v.* De La Tour" (22 L. J. Q. B. 455), our correspondent might sue for his fee at once; whether he would recover it is uncertain, as there have been conflicting decisions at county courts on this subject. Most practitioners acquiesce in the cancelling of a confinement engagement where good reason is shown.

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF LIVERPOOL.

At a meeting of the Senate on December 19th, diplomas in Tropical Medicine were awarded to the following gentlemen: H. G. Bennetts, R. M. Carter, R. W. Clements, A. W. Sampey, A. E. Smithson, J. van S. Taylor.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

Annual Election Meeting.

At a meeting of the Royal College of Physicians of Edinburgh held on Thursday, December 6th, Dr. Charles E. Underhill was elected President of the College, and Dr. John Playfair Vice-President; and Sir Thomas R. Fraser, Sir John Batty Tuke, Dr. W. Allan Jamieson, Dr. James Ritchie, and Dr. R. W. Philip were elected to the Council with the President and Vice-President. The Council subsequently made the following appointments for the ensuing year:

Treasurer: Peter A. Young, M.D. *Secretary and Registrar:* Harry Rainy, M.D. *Librarian:* D. Berry Hart, M.D. *Curator of Research Laboratory:* Sir John Batty Tuke, M.D.

I. Examiners for the Licence.

First Board.—*Physics:* Dawson Turner, M.D., and Alfred Daniell, D.Sc. *Chemistry:* W. G. Aitchison Robertson, M.D., and John Gibson, Ph.D. *Biology:* John Macmillan, M.B., and W. Blackley Drummond, M.B.

Second Board.—*Anatomy:* Sir James A. Russell, M.B., and Joseph R. Whitaker, M.B. *Physiology:* Percy Theodore Herring, M.D., and A. Goodall, M.D.

Third Board.—*Pathology:* Robert A. Fleming, M.D., Wm. Thomas Ritchie, M.D., and Stuart MacDonald, M.B. *Materia Medica:* G. Lovell Gulland, M.D., Francis D. Boyd, M.D., and Harry Rainy, M.D.

Final Board.—*Medicine:* James O. Affleck, M.D., Chas. E. Underhill, M.B., W. Allan Jamieson, M.D., Alex. James, M.D., Byrom Bramwell, M.D., G. A. Gibson, M.D., J. Murdoch Brown, M.D., J. Graham Brown, M.D., Alexander Bruce, M.D., Wm. Russell, M.D., G. H. Melville Dunlop, M.D., and R. W. Philip, M.D. *Midwifery:* D. Berry Hart, M.D., A. H. F. Barbour, M.D., F. W. N. Haultain, M.D., J. W. Ballantyne, M.D., James Lamond Lackie, M.D., and Wm. Fordyce, M.D. *Medical Jurisprudence and Public Health:* James Andrew, M.D., P. A. Young, M.D., James Carmichael, M.D., J. Allan Gray, M.D., R. S. Aitchison, M.D., and C. J. Lewis, M.D. *Insanity:* Sir John Batty Tuke, M.D., T. S. Clouston, M.D., John Macpherson, M.D., and John Fraser, M.B.

II.—Examiners for the Membership.

Sir A. R. Simpson, M.D., Andrew Davidson, M.D., Sir Thos. R. Fraser, M.D., John Wyllie, M.D., James Andrew, M.D., Sir John Batty Tuke, M.D., T. S. Clouston, M.D., J. J. Kirk Duncanson, M.D., P. A. Young, M.D., James O. Affleck, M.D., John Playfair, M.D., W. Allan Jamieson, M.D., Alex. James, M.D., Peter M'Bride, M.D., Byrom Bramwell, M.D., G. A. Gibson, M.D., D. Berry Hart, M.D., Sir James A. Russell, M.B., W. S. Greenfield, M.D., J. J. Graham Brown, M.D., A. H. F. Barbour, M.D., Alex. Bruce, M.D., William Russell, M.D., G. H. Melville Dunlop, M.D., N. T. Brewis, M.B., R. W. Philip, M.D., John Thomson, M.D., F. W. N. Haultain, M.D., John W. Ballantyne, M.D., G. Lovell Gulland, M.D., W. G. Aitchison Robertson, M.D., John Macpherson, M.D., Norman Walker, M.D., William Elder, M.D., Charles Jas. Lewis, M.D., Harry Rainy, M.D., K. Mackenzie Downie, M.D., Claude Buchanan Ker, M.D.

III.—Examiners for Diploma in Public Health.

First Examination.—*Chemistry:* W. G. Aitchison Robertson, M.D.; *Bacteriology:* James Taylor Grant, M.D.; *Physics:* Dawson Turner, M.D.; *Meteorology:* Charles James Lewis, M.D.

Second Examination.—*Epidemiology and Endemiology:* Claude Buchanan Ker, M.D., and W. Leslie Mackenzie, M.D.; *Practical Sanitation:* J. Allan Gray, M.D., and Wm. Robertson, M.D.; *Sanitary Law, Vital Statistics, and Statistical Methods:* Sir James A. Russell, M.B., and Jas. Craufurd Dunlop, M.D.

Extraordinary Meeting.

At an extraordinary meeting of the College held on Tuesday, December 18th, the College unanimously appointed Dr. James O. Affleck and Dr. Charles E. Underhill to be representatives of the College on the Board of Management of the Royal Infirmary.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

The following gentlemen, having passed the requisite examinations, were admitted ordinary Fellows at a meeting on December 17th:

W. C. Allardice, J. Brydon, C. V. Cornish, H. S. Davidson, D. Dickie, H. N. Goode, H. W. Illius, R. W. Johnstone, T. W. Kirby, J. R. Lee, T. E. Lloyd, J. P. Morton, T. Y. Simpson, H. Stuart, F. W. Sydenham.

PUBLIC HEALTH
AND
POOR-LAW MEDICAL SERVICES.

THE SANITATION OF A RURAL DISTRICT.

It is not often that a rural district council has shown greater ineptitude in administering the Public Health Acts than that disclosed by the recently-issued report of Dr. F. St. George Mivart upon the Bourne Rural District, Lincolnshire. The report is the result of an inspection of the district which the Local Government Board deemed desirable in consequence of the prevalence of diphtheria and scarlet fever and because a certain number of unwholesome conditions had been reported from time to time to the Board. These conditions included dilapidated dwellings not a few of which should be condemned as unfit for habitation until repairs have been carried out, defective and insufficient water supplies, and inadequate provision for drainage, together with insanitary closet accommodation. It is small wonder that when infectious disease once obtained a footing in any of the parishes in the district it has been found difficult to stop its progress. For the purpose of isolating such cases a shed was erected by the Council with planks and timber that had formed part of the huts built by the Midland Railway Company for their navvies. The shed comprised three compartments divided by a wooden partition, the whole building being warmed by one stove, which was also used for cooking. In 1905 one entire family and three mothers and children occupied this shed. No nurse or attendant was employed, but the mothers looked after their own children. On one occasion one of the rooms was occupied by a mother, two girls of 12 and 14, and a young man of 17 round whose bed screens were said to have been placed. The disinfecting apparatus consists of a portable apparatus, recently purchased second-hand, for the disinfection of articles by dry heat. It cost £25, and had only once been used—when it was got to work with some difficulty, in the end destroying the clothes placed in it and nearly setting fire to a stack.

VACCINATION.

The Duty of a Public Vaccinator when Four Marks are Refused.

Dr. F. W. Stansfield (Public Vaccinator, Reading) writes: I must emphatically disagree with your correspondent "Sigma" in his contention that it is politic to vaccinate in two places rather than not at all. If the parent is to be allowed to dictate as to how we are to perform our duties, we shall be involved in endless disputes. If two marks are to be allowed to pass, why not one? And if one is to suffice, we may be required to whittle it down in size to vanishing point. In fact, I have myself seen an arm with one vesicle the size of a pin's head which was said to be certified as successfully vaccinated. No wonder there are cases of post-vaccinal small-pox to which the antivaccinators triumphantly point as evidence that vaccination is useless. No wonder also that the antivaccinators are anxious that the register should be the test as to the vaccinal condition of small-pox patients instead of the actual presence or absence of vaccinal scars. For a public vaccinator to give way on this point is, in my opinion, both traitorous to science and degrading to the dignity of his profession. What would be thought of a physician who meekly accepted the dictum of a patient's guardian: "You may give medicine to this patient, but you must allow me to be the judge of the dose?" Or of a surgeon who accepted permission to cut away an epithelioma on condition that he did not remove the adjacent infected area and glands? And yet these suppositious cases are exactly comparable to that of the vaccinator who gives a certificate and receives a fee for an operation which he knows to be inefficient.

For myself, I have often been importuned to vaccinate in one or two places or to "make small marks," but have invariably flatly refused to discuss the matter whether in public or private cases. My reply is: "I am willing to vaccinate your child, if you wish it, and will take all possible care that no harm shall result, but if I vaccinate at all you must allow me to be the judge as to what is necessary," or words to that effect.

"Sigma's" anxiety to avoid giving trouble to the vaccination officer *and the parents* seems a little ultra-altruistic. Surely the vaccination officer is paid to secure the vaccination of children in order that they may be protected from small-pox, and not merely to get them labelled or "certified" as vaccinated while really unprotected. As to the parents, are they not in "Sigma's" case themselves the cause of the whole trouble?

A Public Vaccinator writes: One cannot help sympathizing with "Sigma's" position. I have had similar arguments with the inspectors of the Local Government Board, and they have expressed their opinion that on the whole it is better to have the children vaccinated than to let them escape the operation altogether. I often come across parents who will not allow four marks to be made on their children's arms, and I generally succeed in bringing about a compromise and getting permission to make three marks. I hardly think that any inspector would withhold his recommendation for the grant by reason of the failure of a public vaccinator to get permission to make four marks in a certain number of cases.

Sigma writes: In thanking you for obtaining the opinion of the Local Government Board on the question raised by my letter, may I point out that the advice of the Local Government Board inspector does not coincide with that of the Local Government Board itself? This is, of course, very unsatisfactory to public vaccinators who faithfully carry out the directions of the Local Government Board, and yet are not considered by the inspector to be worthy of an award simply because they have the misfortune to have a few "not-more-than-two-marks" parents in their district.

INFECTIOUS HOSPITAL FOR WORKHOUSE.

Norfolk Workhouse M.O. asks for information, cost, etc., of an infectious hospital for a workhouse with an average of about fifty children. Six or eight of these attend a school at an adjacent village and import disease. One girls' and one boys' ward, with a large room for convalescents, accommodation for nurse, lavatories, etc., will be required. An isolation ward for observation would be an advantage.

*** Assuming that the hospital would be used at different times for different diseases, it would be necessary that the inside walls should be covered with an impervious material, such as Keene's cement, and that the building should be capable of thorough disinfection. A building with two three-bed children's wards, one convalescent room of the same size, an observation ward of about 1,000 cubic feet, and one nurse's room with bathroom and sanataries might, if local conditions were favourable, be erected for about £350.

RELATIONS OF MEDICAL OFFICERS OF HEALTH TO THEIR PROFESSIONAL COLLEAGUES.

H. K. W.—It is no part of the duty of a medical officer of health to examine a patient notified to him as suffering from an infectious disease. Only under very exceptional circumstances is this necessary, and the examination should then take place either in consultation with or without the knowledge of the medical practitioner in attendance. Medical officers of health must carry out the "lawful directions" of the district council. We do not think that a direction which compels a medical officer of health to break a very proper and well-recognized ethical rule ought to be considered "lawful."

ROYAL NAVY AND ARMY MEDICAL SERVICES.

ARMY MEDICAL RESERVE.

An officer on the Army Medical Reserve addressed a letter recently to the War Office inquiring as to the status of officers in that reserve who have been "permitted" to join as proficient, and has been informed that the new Army Medical Reserve "has no connexion with the older organization of the same name." Our correspondent observes that if the officers of the existing reserve are to receive no retaining fee, and are to be inferior to the officers of the new reserve, this will be extremely unfair, as the officers of the old reserve have given their services freely, many for prolonged periods for nothing.

THE VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

On December 12th the Adjutant-General inspected the classes recently under instruction at the Volunteer Ambulance School and distributed the prizes awarded. In the course of his remarks he said that the senior examiner had reported that the efficiency class under inspection was far above the average. The Director-General of the Medical Department had spoken very highly of the school, and the time had arrived when it was probable that if proper representations were made official recognition would be granted. Some form of practical nursing should be taught and every effort made to give instruction in camp sanitation and preventive medicine. In future subalterns of the regular army would have to pass an examination in camp sanitation before being promoted captain, and a manual on the subject would shortly be published.

The next course of instruction will commence at the head quarters of the 4th Volunteer Battalion of the Queen's Royal West Surrey Regiment, 71, New Street, Kennington Park, on February 8th. The Adjutant of the School is Surgeon-Lieutenant-Colonel R. R. Sleman, M.D., 23, Cambridge Street, Hyde Park Square, W.

INDIAN HOSPITAL ASSISTANTS.

We have received for publication a copy of an appeal addressed to officers of the Indian Medical Service, praying them to lend their weight to an attempt which has been in progress for a long time past to improve the position and prospects of hospital assistants.

It would appear that some sixty years ago it became the practice for Indian medical officers to give native compounders and dressers in the hospitals a certain amount of scientific instruction in general medicine and surgery; this has since developed into a compulsory course of training undergone by all those who aspire to appointment in the ranks of hospital assistants. The general result is that these medical subordinates now have to undergo at least four years' practical and theoretical training in a medical school. Of those who are successful in passing the prescribed examination some are apparently placed in charge of dispensaries and others fill various offices in the hospitals. It is claimed that although much more is demanded of candidates for appointment than formerly, and the work they perform is of a much more responsible character, the remuneration is the same as it used to be, while the cost of living has generally increased.

The highest rate of pay which they can reach is 70 rupees a month, and they are thus worse off than veterinary assistants, or than any other subordinate officers in other branches of public service. The appeal is signed by Mr. Raghunath Vaman Bapat, the editor of a paper called the *Hospital Assistant*, the existence of which is claimed as a proof that hospital assistants are endeavouring to improve themselves scientifically as well as materially.

HEALTH OF THE UNITED STATES ARMY.

We learn from the *Medical Record* that the report of the Surgeon-General of the United States Army for the year ending June 30th, 1906, which has recently been issued, shows a gratifying increase in the health of the troops and in the sanitary conditions in the various posts. The mean enlisted strength of the army, excluding native troops in the island possessions, as reported in the monthly sick reports of the Medical Department, was 56,901, and on returns to the Military Secretary's office, 58,556, the difference representing those temporarily absent from a command. The total number of admissions to sick report was 73,742, an admission rate of 1,295.97, as compared with 1,354.88 for the previous year, and 1,903.31 for the sexennial period 1898 to 1903. The death-rate was 6.28 per 1,000, compared with 6.75 for the previous year, and 16 for the sexennial period 1898 to 1903. As usual, venereal diseases were the most important factor affecting the efficiency of the army; next to these came malaria; then followed diarrhoeal diseases, but in these there was a decided improvement, the admission and non-effective rates being 84.67 and 2.87 respectively, compared with 108.36 and 3.87 for the previous year. Alcoholism was next in order, and in this there was an increase in the admission, death and non-effective rates compared with last year. The average enlisted strength of the troops serving in the United States was 42,834. Among these the admission and death rates were 1,303.83 and 6.44 respectively; these were lower than for the previous year, but slightly higher than for 1903. Venereal disease headed the list as causes of admission; next came in order of frequency bronchitis, diarrhoea, malaria and influenza. Of the deaths, over 42 per cent. were due to external causes; of these 23 per cent. were suicidal and 20 per cent. due to drowning. Among the diseases which caused death tuberculosis stood first with a rate of 0.86, as against 0.68 for 1904; pneumonia, typhoid fever, alcoholism and appendicitis were next most potent as causes of death. There was a remarkable diminution in the number of admissions for typhoid fever during the year, the total number having been 153 and the rate 3.57 as against 247 and 5.62 for 1904; the death ratio, however, was a little higher than for 1904, 0.30 and 0.27 respectively. There was an improvement in the ratios for malarial diseases.

THE PROMOTION EXAMINATIONS TO LIEUTENANT-COLONEL R.A.M.C.

Major R A M.C. writes:—In the examination on military law for combatant as well as non-combatant officers, the *Manual of Military Law* and the *King's Regulations* are allowed to be used by candidates. It has been realized that these books are always available when prisoners are "told off," even on active service. This being so, the question naturally arises, why in the part of the examination which relates to the knowledge of A.M.S. Regulations and Standing Orders R.A.M.C., the official books may not also be allowed? The books are always available. A small concession like this would go far towards removing the natural discontent which men over 40 years of age have to examinations.

HOSPITAL AND DISPENSARY MANAGEMENT.

SALOP AND MONTGOMERY COUNTY ASYLUM.

In the report of this institution for 1905, Dr. D. T. Rambaut, Medical Superintendent, again dilates on the presence of serious overcrowding. The need for additional accommodation is fully recognized by the Visiting Committee, and as the result of a special meeting held in February, 1905, they notified the three local authorities concerned of their opinion that the present asylum should be enlarged to accommodate a further 200 patients. The Salop County Council, however, intimated that though they recognized the need for this provision, they were not prepared to say how or when this could be carried out. Up to the time of the report no replies had been received from the County Council of Montgomery or the Town Council of Wenlock. Doubtless, however, steps will soon be taken to provide the much-needed accommodation, as at present the Visitors have been compelled to enter into agreements to board out cases in other asylums. On January 1st, 1905, there were in the asylum and boarded out in Forden Workhouse 811 patients, of whom 793 were pauper patients. At the end of the year there were 827 patients so distributed, of whom 25 were in Forden Workhouse. Thus there were 802 patients (364 males, 438 females) in the asylum, which only possesses an estimated sleeping accommodation for 330 men and 421 women, or for 751 in all. Including other patients boarded out in Abergavenny and Cotford Asylums there were 842 patients chargeable to the three authorities. During the year 230 cases were admitted, being an excess of 35 over the numbers admitted during the previous year. Of these 9 were private and 172 pauper patients, 39 were readmissions and 10 were transfers from other asylums. Of the total, 100 were the subjects of first attacks within three, and 38 more within twelve months of admissions; in 52 the attacks were "not first" attacks within twelve months of admission, and the remainder were of more than twelve months' duration on admission. No information is given either in the statistical tables or in Dr. Rambaut's report as to the forms of mental disorder in the admissions. As to the probable causes of the insanities amongst those admitted, alcoholic intemperance was assigned in 14 and associated with previous attacks in 5 more, that is, in 19 in all, or 8.2 per cent.; syphilis in 1; the insane diathesis in 38; old age and the climacteric in 27; previous attacks associated with other conditions in 45; and religious excitement, trouble, etc., in 27. No cause could be assigned in 56 cases, and the remainder are distributed over the usually mentioned causes. During the year 79 were discharged as recovered, giving a recovery-rate on the admissions of 36.07 per cent., 8 as relieved, 9 as not improved, 22 were removed under contract, and there were 96 deaths, giving a percentage death-rate on the average numbers resident of 12.22. The deaths were due in 25 cases to cerebro-spinal diseases, in 42 to chest diseases, including 20 deaths from pulmonary consumption, in 8 to abdominal diseases, and the remainder to general diseases, including 1 case of miliary tuberculosis. There was also 1 death from poisoning and 1 due to shock following a fractured thigh. Thus 21 deaths, or 21.9 per cent. of the total deaths, were due to tuberculous disease, a high proportion difficult to reduce, Dr. Rambaut says, in the present overcrowded state of the asylum. Three inquests were held during the year, the general health appears to have been good, and the few cases of zymotic disease (1 case of enteric fever and 5 of erysipelas) did not result in any death. The Visiting Committee has recommended to the local authorities that they should unite with others of the Midland counties in providing a special asylum for idiot and imbecile children certified under the Lunacy Acts to the extent of 20 beds for Salop, Montgomery, and Wenlock.

ARMAGH DISTRICT ASYLUM.

At this asylum there appears to be considerable overcrowding, for whereas the provided accommodation is given at 434 beds, there were 516 inmates in December 31st, 1904, and 522 on December 31st, 1905. The Inspector of Lunatics, Mr. J. M. Courtnay, in his report urges the Committee to consider the question of providing additional accommodation, and points to the excellent provision made at some Irish asylums by erecting detached villas in the asylum grounds. During the year 86 cases were admitted, of whom 68 were first admissions. In 40 the attacks were first attacks within three, and in 9 within twelve months of admission; in 18 the attacks were not first attacks within twelve months of admission; in 12 the attacks were of more than twelve months' duration, and the remaining 7 were either congenital cases or of unknown duration on admission. The admissions were classified as to the forms of mental disorder into: Mania of all kinds, 40; melancholia of all kinds, 33; dementia, secondary, senile, and organic, 6; acquired epilepsy, 2; congenital or infantile defect, 4; and 1 patient was of doubtful insanity on admission. There were no cases of general paralysis admitted during the year, and indeed this appears to be a rare form of disease at this asylum, there being on December 31st, 1905, out of a total asylum population of 522, not one case of general paralysis.

Turning to the probable causes of the insanities in the admissions, alcoholic intemperance was assigned in 5 or 5.7 per cent., and venereal disease in none. Old age was assigned in only 1 case, previous attacks in 9, various bodily diseases in 9, and hereditary influences were ascertained in 20, or 23.2 per cent. In 7 cases the insanity was ascribed to congenital defect, and in 23 no cause could be assigned. During the year 38 were discharged as recovered, giving a recovery-rate on the admissions of 44.2 per cent.—8 as relieved, 1 as not improved, and 1 as of doubtful insanity. There were 32 deaths during the year, giving the low death-rate of 6.2 per cent. On the average numbers resident, which is slightly below the average death-rate for this institution (6.5 per cent.), the deaths were due in 11 cases to cerebro-spinal diseases, in 8 cases to chest diseases with only 1 death

from phthisis, in 2 cases to abdominal disease, in 6 to general diseases, in 4 to senile decay, and in 1 case to asphyxia, a patient being choked through having an epileptic seizure whilst at dinner. Thus this asylum, notwithstanding overcrowding and various minor defects alluded to by the Inspector of Lunatics, shows a low death-rate, a high recovery-rate, and an almost entire absence of deaths from tuberculous disease or asylum dysentery.

WEST RIDING ASYLUM, WAKEFIELD.

THE annual reports of Dr. Bevan Lewis, the Medical Superintendent and Director of this important asylum, are always full of interest, and the present forms no exception to the rule. One of the many departments to which special interest attaches is that of the out-patients. This, Dr. Bevan Lewis says, is more than ever patronized, and much useful work is carried on therein. At the end of the previous year there were 155 names on the books; since that date 66 fresh cases have been admitted, making a total of 221 under treatment during 1905. Of the total number, 132 were epileptics, the remainder being cases of melancholia (26), neurasthenia (16), chorea (7), cephalalgia (5), Ménière's disease (3), vertigo (2), dementia (3), imbecility (3), psychopathia (2), and many other forms of neuro-psychic affection. The results of treatment are not stated, but there can be no doubt that this may form in the future a very valuable extension of the work of asylum officials.

Turning to the asylum proper, the eighty-sixth annual report of this institution for the year 1905 shows that there were 1,824 patients in residence on January 1st, 1905, and that the numbers on the last day of the year amounted to 1,847. The average number daily resident was 1,848, and the total number of cases under care during the year was 2,334. During the year 510 cases were admitted, of whom 424 were first admissions. In 223 cases the attacks were first attacks within three and in 70 more within twelve months of admission; in 113 the attacks were not first attacks within twelve months of admission, and the remainder were either of more than twelve months' duration on admission, 63; congenital cases, 31; of unknown duration, 9; or not insane, 1. The admissions were classified as to the forms of mental disorder into: Mania of all kinds, 154; melancholia of all kinds, 187; primary dementia, 18; secondary and senile dementia, 34; organic dementia, 17; general paralysis, 50; acquired epilepsy, 11; and cases of congenital or infantile defect, 41. As to the probable causes of the insanities in the admissions, alcoholic intemperance was assigned in 126, or 24.7 per cent.; venereal disease in 35; puberty, change of life, and old age in 86; privation and starvation, 34; parturition and the puerperal state in 11; various bodily diseases or disorders in 87; previous attacks in 108; and "moral" cases in 145; in 146, or 28.6 per cent., hereditary influences, collateral and direct, were ascertained, and congenital defect in a further 43. During the year 216 were discharged as recovered, giving a percentage recovery-rate on the admissions of 42.35, 74 as relieved, 1 as not insane; and there were 196 deaths. The deaths, giving a death-rate on the average numbers resident of 10.61 per cent., a slight improvement on the 10.88 per cent. of the preceding year, were due in 100 cases to cerebro-spinal diseases, including 40 deaths from general paralysis; in 71 cases to chest diseases, including 33 deaths from pulmonary tuberculosis; in 11 to abdominal diseases, including 3 deaths from typhoid fever and 2 from tuberculous peritonitis, and 14 from general diseases, with 1 death from general tuberculosis. There were thus 36 deaths from tuberculous diseases, or 18.3 per cent. of the total deaths. It is to be particularly remarked that there were no deaths during the year from asylum dysentery.

Very good work in the pathological field has been done in the past at this institution, but Dr. Lewis says that for some time the usual routine work in this department has been much hampered by the frequent change in the officer appointed thereto. Notwithstanding this a good deal of work appears to be carried on, including particularly bacteriological investigations into the etiology and pathology of general paralysis, an examination of the thyroid gland in mania and confusional insanity and also an examination of the pituitary body. Dr. Bevan Lewis's report further contains a tabular statement of the work carried on in the electro-therapeutic department, from which we see that 39 female cases, presumably selected, of various forms of insanity were treated, that 22 recovered, 9 were relieved and 5 not relieved. Also 24 males were treated at 1,168 sittings in all for lupus, rodent ulcer, cancer of the breast and neurasthenia by electrotherapy. The Stanley Hall Home for Imbecile Lads still continues to carry on its work of caring for and educating as far as possible idiot and imbecile boys, but its extension to include imbecile and idiot girls, recommended by Dr. Bevan Lewis, has so far not been put into effect. Reverting to the report on the asylum proper we see that the general health throughout the year was satisfactory with the exception of 3 cases of enteric fever in the male wards. There was 1 case of suicide and 6 inquests were held during the year, none of which are of particular note. The Committee report that the accommodation of the asylum was strained to its utmost, being exceeded in one part of the year by 20 cases. The asylum was visited in March, 1905, by the Commissioners, who reported very favourably on the able management of the institution.

LETTERS, NOTES, AND ANSWERS TO CORRESPONDENTS.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

DR. JAMES SHAW (Liverpool) writes to suggest that L.R.C.P. should try yohimbin. He has found it succeed in cases of functional impotence—notably in that of a patient over 60 years of age—where other reputed aphrodisiacs had failed.

R. W. M.—A patient who has rheumatic polyneuritis would probably derive benefit from a residence at Hot Springs, Arkansas. Whether he could live as comfortably on £200 a year in the United States as in England is a question which it is difficult to answer, but speaking generally living expenses are higher than in this country.

LETTERS, NOTES, Etc.

APPENDICITIS.

PROGRESS writes: A leader in the BRITISH MEDICAL JOURNAL of December 1st, page 1596, contains the following: "The very obvious fact must not be ignored that in the majority of cases of appendicitis the person who saves life is the surgeon." In opposition to the above I advance as an obvious fact that the majority of cases of appendicitis are cured by the physician. Without surgical aid 87 per cent. of cases of appendicitis recover. This is my experience, and I believe the experience of the greater number of medical practitioners. I have not at the moment access to Sir F. Treves's articles on appendicitis or, to call the disease by its old name, perityphlitis, as described by Tanner so very fully and clearly in his *Practice of Medicine*, sixth edition, 1869), but I think I am correct in stating from memory that Sir F. Treves admits that the majority of cases of this disease get well without the aid of the surgeon. Though I admit there is the greatest credit due to modern surgery, yet a little more surgical restraint, and better training as regards diagnosis (without puncture or abdominal section) are very desirable.

IRISH DOCTORS AND FOREIGN MONARCHS.

DR. H. G. MOLONY (Ballingarry, co. Limerick) writes: With regard to your notice of a lecture by Dr. G. Sigerson on the subject of Irish medical attendants on foreign monarchs, I can, from the history of my own family, adduce another example, though in this case the monarchs were but titular. In 1701 the Rev. John O'Molony, D.D., Canon of Rouen in France and afterwards Bishop of Killaloe and Limerick in Ireland, assisted in founding a college at Clermont in France, founding free bursaries for his relatives. In 1764 there was a deed made between this college and John Nihell de Molony, who is styled in it "Doctor of Medicine of the Faculty of Caen, Consulting Doctor to the Kings of England and of Poland." He was great grand nephew of Bishop John O'Molony, the benefactor of the college.

DOCTOR AND DRIVER.

WE take the following from an American medical journal "Dr. ——, of Baltimore, was awakened one stormy nigh recently by a man who declared the doctor's services were wanted three miles out in the country. Just before the doctor called up the stable for his horse the visitor asked what the charge would be. 'Three dollars,' was the reply. When the house containing the supposed patient was reached the man alighted first, and, handing the doctor three dollars, remarked: 'You needn't come in, doctor. You see, it is this way. No hackman would drive me out for less than six dollars, and it occurred to me that your horse might need exercise.'" The tale has more than one bitter moral. The doctor is expected to be at the beck and call of every one at any hour of the day or night; he is also expected to accept a fee which an ordinary workman would decline without thanks; and the worst of it is, the doctor so often does what is expected of him.

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AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

1. Movable Kidney in Women.

HEIDENHAIN (*Therap. Monats.*, February, 1906) discusses the causes and treatment of movable kidney, an abnormality which he believes to be the one of most frequent occurrence in women. Except in cases of traumatic dislocation of the kidney, he holds that several factors are needed for the production of the disease. The causes often given—as, for example, the diminution of the fatty capsule of the kidney, the stretching of the capsule of the kidney as a result of distension of the organ at the menstrual period, loss of support to the kidney by a lengthening of the vessels, dragging upon the kidney by the ureter as a result of pelvic abnormalities—can be all excluded as sole agents in the production of the disease. Thus, the fatty capsule of the kidney is one of the last fatty tissues to waste in wasting diseases; it is found still present when operations for movable kidney are performed, and in children in whom no fatty capsule exists movable kidney is yet found. Again, it is unlikely that a physiological process like menstruation should result in distension of the kidney, and if such were one of its results the condition should be as frequently met with in the unmarried as in the married woman. The vessels of the kidney are normally inserted almost at right angles into the hilus, and are therefore unable to exert a strong vertical tension upon the kidney; and, further, in no other part of the body is it found that the organs are held in position by the tension along the blood vessels. The theory of the drag upon the kidney by the ureter is negatived, first, by the fact that the ureter does not pass straight from the kidney to the bladder, but allows ample substance for stretching; and, secondly, by a consideration of the great force which is experimentally found needful to exert upon the ureter to bring about any considerable change in the position of the kidney. Chronic disorders—such as emphysema with chronic cough, obstinate constipation with frequent and excessive changes in abdominal pressure, etc.—will help to the condition, but cannot be sole causes of it. The kidneys are supported by their anatomical position, which is slightly less stable in women than in men, mainly as a result of the abdominal equilibrium due to the elasticity of the abdominal walls and the tension within the abdomen. If this is lessened from any cause there follows an abnormal mobility of the kidney. Aufrecht is of opinion that the right kidney is the organ in the female most liable to ptosis, and that nephroptosis is the beginning of an enteroptosis. He holds that ptosis of the kidney gives rise to the most severe symptoms when the organ first begins to sag downwards before the tissues have become accustomed to the drag upon them, and at a time when the kidney is not palpable. In considering the complications of movable kidney the author calls attention to the frequency of the occurrence of appendicitis. Edebohls, who found this complication in 60 per cent. of his cases, suggested a plausible explanation, namely, that the kidney in its changed position, by compression of veins between the head of the pancreas and the bodies of the vertebrae leads to venous stasis in the appendix, and so predisposes to appendicitis. The operative treatment of movable kidney which the author has found most satisfactory is Schede's operation, in which a part of the fatty capsule is excised, the true capsule partially split up, and the kidney fixed so that its lower pole is just palpable below the twelfth rib. This operation, while good, is not perfect. Riedel has recommended a more elaborate operation, in which the kidney is again brought to the diaphragm, but the fact that after the operation the patient must lie in bed for three months is in most cases prohibitive. In treatment by bandaging it is to be remembered that the organ cannot be in this way brought back to its absolutely normal position. The object to aim at is a diminution of the abdominal cavity in a direction from below up, from the symphysis to the diaphragm. By this means the displaced organs can be brought almost to rest, the tension upon the nerves is reduced, and the circulation improved. Teufel's bandage is in some ways a good one, but the one most strongly recommended by the author is Glénard's hypogastric belt. This belt is made of a middle piece of elastic, which reaches from the symphysis to the most prominent point of the abdomen; it has side pieces of flannel and buckles behind, and has in addition indiarubber thigh pieces; the belt needs careful fitting. The test by means of which the author decides whether in any case the belt will do good service is the so-called Féréol's hand grip. In this the patient stands up while the doctor grips the abdomen between the fingers and the palm of the hand. If the patient experiences relief from the pressure of the hand thus applied, then it may be assumed that the belt is indicated for the case. The author has found the belt of especial use in cases in which there is a tendency to enteroptosis after removal of an abdominal tumour. A case is also described of traumatic dislocation of the kidney in which wearing the belt relieved the symptoms and recovery quickly ensued.

2. Summer Diarrhoea in Infancy.

GEORGE THOMAS MYERS declares (*Medical Record*, June 2nd, 1906) that the only correct means of classifying summer diarrhoea will be from bacteriological examination of the stools. The infectious origin of this disease is the theory held by many authorities. Bad hygienic surroundings predispose to this disorder. The already weakened mucous membrane is inflamed by undigested food which acts as a foreign body. The most susceptible period in the child's life appears to be from the fourth to the twentieth month. Artificially-fed infants are more frequently attacked than the breast-fed. He believes that the greatest factor in the production of the disease is the feeding of infants upon cow's milk which has been brought from a distance in warm weather and kept in hot cans before being prepared for feedings. The symptoms of this disease generally abate in from a week to ten days. The milder cases are the more frequent. In respect to treatment the writer, among other suggestions, gives the following: A daily warm sponge bath should be given; the greatest care should be taken to keep the feeding utensils and the food absolutely clean; feedings should always be given warm, at a temperature of 100° F.; the napkins should be removed and disinfected as soon as soiled; the child should have plenty of fresh air and light clothing; diarrhoeal cases should be isolated.

3. Concealed Haemorrhage in Enteric Fever.

ROMANI (*Rif. Med.*, February 3rd, 1906) has examined the faeces in 50 cases of typhoid fever with a view to the detection of small amounts of blood. The tests used by him were the guaiac resin and aloin reactions on an ethereo-acetic extract of the faeces (15 to 20 gr.), with the addition of a little water. As a matter of practical experience, it does not appear to be absolutely necessary to make an extract of the faeces, as just as good results were obtained by merely shaking up with a little water. Water alone, if it contains any iron, will give a reaction to the guaiac test, but the H_2S of the faeces corrects this fallacy by precipitating any iron which may be in the added water. Of the two tests, the guaiac appears to be the more delicate, for this gave a positive reaction in cases where the aloin test was negative, and where even the spectrum gave no blood lines. As soon as the patients returned to a meat diet, the faecal examinations were discontinued, but of the 50 cases examined, blood was found in the faeces in 16 cases, but 2 of these must be excluded. Of the 14 cases, 7 were severe (1 death), 3 moderately severe and 4 slight. Of the 34 cases where no blood was found, 11 were severe, 15 moderate, and 8 slight. It is important to note that in some of these cases a positive blood reaction was the first warning (sometimes three or four days before) of severe intestinal haemorrhage later; and as far as the anthrax cases go, they seem to show that the presence of a positive blood reaction in the faeces in cases where there is evidence of peritonitis is indicative of a perforative peritonitis rather than of peritonitis due to mere extension of the typhoid. The author found that the administration of a mild purgative was liable to be followed by evidence of blood in the faeces. The presence of blood tends to show that the reparative process in the bowel is not complete. Lastly, no inference as to the gravity of the case can be drawn from the presence of blood. These chemical traces may be found in light cases as well as those that are more severe.

SURGERY.

4. Modern Diagnostic Methods in Cerebral Surgery.

Starr (*Med. Rec.*, March 10th, 1906) in the course of a practical paper on the symptoms and surgical treatment of intracranial lesions as sequelae of chronic purulent otitis media, refers to the results in cases of secondary meningitis and of abscess of the brain, of examination of the cerebro-spinal fluid obtained by lumbar puncture, and of examination of the blood. It is pointed out that while in a large number of cases of meningitis an increase in the number of leucocytes in the cerebro spinal fluid has been observed, this is not true of cerebral abscess. In a number of cases collected during the past two years the author has failed to find any record of an increase in leucocytes in the fluid withdrawn by lumbar puncture, except in instances of complicating meningitis. In the histories of many reliable cases collected from many sources, the record is invariably made that the examination of the cerebro-spinal fluid was negative. This method of diagnosis, the author holds, affords a valuable differential point between brain abscess and meningitis. It also affords another important indication. In meningitis micro-organisms according to almost uniform experience, have been found in the fluid. In cerebral abscess, on the other hand, such bodies have not been observed. The blood examination, it is urged, is of equal value. An inflammatory state like that of otitis media is likely by itself to increase, though only to a moderate degree, the leucocytes in the blood, but a very great and sudden increase in their number is a very valuable indication of a new inflammatory complication. The author thinks that it may be safely stated that a more rapid rise and a higher leucocyte count is found in meningitis than in brain abscess. In two cases—one of meningitis, the other of abscess—recently observed by the author the highest leucocyte count in the former was between 22,000 and 26,000, and in the latter did not exceed 14,000. A case under the care of Dench is referred to, which shows that an increasing leucocytosis, with a rapid rise in the ratio of the polymorphonuclear leucocytes to other elements of the blood, may be regarded as a reliable indication of the development of a brain abscess as distinguished from cerebral thrombosis or softening.

5. Retraction and Dilatation of Gall Bladder in Cholelithiasis.

Bazy (*Bull. et Mém. de la Soc. de Chir. de Paris*, No. 12, 1906) is opposed to the view that retraction of the gall bladder in cases of lithiasis is caused by sclerosis of the coats of this organ, which he holds may coexist with extreme dilatation. He argues that what occurs in diseased conditions of the urinary apparatus occurs also in alterations of the gall bladder. The bladder of a subject of urinary obstruction may be abnormally large or small. When it is small and retracted, the bladder, it is held, was attacked by interstitial cystitis before the occurrence of any marked impediment to the flow of urine. On the other hand, when the obstruction is the precedent lesion, the bladder first dilates, and its coats afterwards become sclerosed. In the case of the gall bladder, when the inflammatory action starts in this organ it shrinks, and its coats at the same time undergo sclerosis, but when the excretory ducts are first attacked, or are more intensely inflamed than other parts of the biliary apparatus, the gall bladder is subject both to dilatation and to parietal sclerosis. Sclerosis, it is urged, is not the essential condition of retraction, as it may be associated with well-marked and, indeed, exaggerated dilatation of the gall bladder.

6. The Reversal of the Circulation in a Limb.

Carrel and Guthrie (*Ann. of Surg.*, No. 2, 1906) publish the results of a series of experiments made on dogs with the view, both physiological and surgical, of studying the changes of the circulation of a limb after reversal, and of finding a method of preventing gangrene when the arteries of a limb become unable to carry the red blood to the capillaries. By reversal of the circulation is meant a flow of red blood through the veins in a direction opposite to the normal venous circulation, the dark blood returning towards the heart through the arteries. The reversion may be effected by dividing the main artery and vein of a limb, and uniting the central end of the artery to the peripheral end of the vein, and the peripheral end of the artery to the central end of the vein. In this way, from a functional point of view, the vein is converted into an artery and the artery into a vein. The authors' experiments show that the reversal of the circulation in a limb of a dog is possible. It can be established by an end-to-end arterio-venous anastomosis. Lateral anastomosis fails to establish reversal, as a very large portion of arterial blood returns immediately towards the heart through the central end of the vein. The results of further researches on this subject will, it is stated, be published later. If, the authors suggest, normal nutrition of the limb were possible, and the results of the end-to-end anastomosis perfect, the operation might perhaps be proposed for the preventive treatment of gangrene following obliteration of the arteries.

7. The Treatment of Fractures.

C. P. Antonini (*Il Policlinico*, March, 1906), with a view to obtaining perfect consolidation of osseous fractures by means of immediate reduction and accurate placing of splints, recommends and describes an apparatus invented by himself. This consists of fourteen pieces of aluminium, which can be conveniently packed up, and together suffice for the treatment of all the fractures occurring in the upper and lower limbs, and for fractures of the clavicle. They are to be padded with cotton-wool and kept in place by bandages for the application of which they are appropriately pierced The two plates, right and left, for application to a fractured clavicle are grooved to keep the ends of the bone in place. Six pieces suffice for the upper limb, and can be used for the right or left side. They are grooved to fit into one another, and a telescopic arrangement provides for the adjustment of the apparatus to the length of the injured part. For fractures of the lower limb extra pieces are provided, ingeniously arranged so as to strengthen and fix any selected part of the apparatus. Each piece is stamped with its name and an indication of the locality for which it is intended. The pieces are illustrated both separately and in position, and the author adds a brief account with reference to his own methods of the treatment of ordinary fractures.

OBSTETRICS.

8 Pernicious Vomiting of Pregnancy.

Markoe reports a case of hyperemesis occurring during the second pregnancy (*Bull. of the Lying-in Hospital, City of New York*, March, 1906). The patient was a healthy young woman. She last menstruated in October, and since the beginning of November had vomited everything she had eaten; she had been confined to bed for six weeks, and was admitted to hospital in a weakened condition in January. The patient showed extreme emaciation and raised a white froth every few minutes. She vomited food almost immediately; she was slightly jaundiced, but had no organic disease. Mouth feeding was stopped, and nutrient enemata given every six hours; the latter were retained, but the nausea persisted. Vaginal examination showed some erosion of the cervix; it was touched with nitrate of silver, and hot douches and a hot bath were given daily. A week later she was still vomiting and the emaciation and weakness were increasing; she also had some nystagmus and muscular twitching. As her condition threatened to prove fatal it was deemed advisable to empty the uterus ten days after admission. The operation was rapidly performed under ether, the uterus washed out and packed with iodoform gauze. The urine contained acetone, indican, amido acids, diacetic and beta-oxybutyric acids as well as leucin and tyrosin. There was no vomiting after the operation and she gradually retained more food daily, and the urinalysis became more favourable. Ten days after the operation she again vomited, and it was found that the amount of urine being passed was much diminished; she was given a hot bath, after which she perspired freely. She continued to make steady progress, and was discharged eight weeks from the date of admission; she had very little recollection of her illness. The fetal membranes were intact and the fetus had normal proportions. The placenta had a greyish-yellow appearance and the reflected decidua had a very dull yellow appearance. Microscopically the decidua showed old and recent haemorrhages; the membranes over the body of the fetal surface of the placenta show extensive necrosis. Necrotic canalized fibrin and recent haemorrhages were present. The villi contained an excess of fibrous tissue, which in some places had a necrotic hyaline appearance, and in others mucoid characteristics. There was extensive chromatolysis in the maternal and fetal cell layers covering the villi.

9 Urine in Normal Pregnancy.

Matthews (*Amer. Journ. of Med. Sci.*, June, 1906), from an examination of the urine in 25 cases of normal pregnancy, in each of which two to six examinations were made at

intervals of about a fortnight, found that the urine of the pregnant woman normally and with great constancy had a specific gravity considerably lower than that of the non-pregnant. The quantity was nearly always found to be above 50 oz., and from that to 60 oz. may be regarded as quite usual in pregnancy. In this connexion it may be noted that nearly all the examinations were conducted during the hot weather, when a diminished water elimination by the kidneys might be expected. As regards the solids, the quantity excreted appears to be considerably less than in the non-pregnant state. The daily elimination of 200 gr. of urea was not at all unusual in the latter months of pregnancy in women without evidence of renal insufficiency on an unrestricted diet and going on to normal delivery at term. This diminution in the nitrogen elimination may be explained as being due partly to the retention of nitrogen in the body to nourish the offspring and partly to variations in the mother's diet.

GYNAECOLOGY.

10. Surgical Treatment of Generalized Puerperal Peritonitis.

CYRIL JEANNIN (*L'Obstétrique*, May, 1906) discusses in detail the various factors which influence the prognosis of such cases. Of 121 cases in which operation was carried out the percentage of cures was 49.5. If, however, only those cases which have been published in series be considered, the percentage of cures after operation is found to be 44.6. The later the symptoms of peritonitis appear after parturition the better the prognosis after operation; thus, of 58 cases in which symptoms of peritonitis appeared within the first ten days after confinement 46.4 per cent. recovered; whilst of 16 cases in which evidence of peritonitis was delayed beyond the second week, 13—that is, 81 per cent.—recovered. Generalized peritonitis is apparently much more frequent after a full-timed pregnancy than after abortion, and the prognosis after operation is more favourable with the latter class of cases; this, the author thinks, depends upon the fact that in the early months of gestation the uterus does not offer such an extensive bleeding surface for the invasion of germs and the possibility of infection occurring as it does at full term. Even in 24 cases of peritonitis the result of criminal abortion, 54.1 per cent. were cured by operation. The commonest mode of production of puerperal generalized peritonitis appears to be by infection spreading from the uterus, without there being a traumatic lesion of either the uterus or its appendages; of 83 such cases, operation was successful in 44.5 per cent. When the cause is a perforation of the uterus, the mortality after operation is great; in 15 such cases, only 4—that is, 26.6 per cent.—recovered. The most successful results were obtained in cases of peritonitis secondary to disease of the uterine adnexa; in 7 such cases all recovered. When the peritonitis takes the form of a subacute affection, appearing soon after parturition and rapidly spreading, no treatment is of any avail; the patient often dies within twenty-four or forty-eight hours. In 32 cases of diffuse acute peritonitis, 15—that is, 44 per cent.—recovered after operation. Better results were obtained in 40 cases of phlegmonous peritonitis with great effusion of pus and thick false membranes; 60 per cent. of these cases were successful. In the generalized peritonitis with multiple purulent cysts, the latter being chiefly found either at the level of the uterine appendages near the ovary, in Douglas's pouch and iliac fossae, or under the liver and around the spleen, the percentage of cures after operation was 80; such cases as these were, however, rarely found. Of the whole number of cases analysed by the author, in only a few was a bacteriological examination carried out: in 11 of 18 such cases the *Streptococcus pyogenes* was found, 6 times in pure culture and 5 times associated with various other organisms; 8 of these cases were cured by operation. As the author points out, these figures show that streptococcal peritonitis is just as amenable to operative treatment as is the peritonitis caused by other organisms; the prognosis depends more upon the degree of virulence of the germ than upon its nature. The causes of failure of operation, the author says, may be delay in operating, excessive surgical traumatism (this is especially marked when hysterectomy is carried out), the presence of a subacute hypertoxic peritonitis. If the patient lives beyond the fourth day after operation, recovery generally follows. From the frequency in which in fatal cases peritonitis is the only lesion found, the author strongly favours the treatment of these cases by operation, and he rightly insists that in all such cases free drainage is essential for the successful issue of the operation. If from the statistics collected by the author one leaves out of consideration the cases of pelvic peritonitis and those cases of peritonitis cured by surgical intervention, it is found that all the cases of generalized puerperal peritonitis treated by medical means only die; from this fact and from the successes obtained by operation the author concludes that every case of generalized puerperal peritonitis, as soon as it is diagnosed, should be surgically treated. In a later paper the author proposes to discuss the various surgical methods which may be employed in the treatment of these cases.

THERAPEUTICS.

11. Organic Preparations of Phosphorus.

P. GALLENGA (*Il Policlinico*, March and April, 1906), criticizing the older methods of administering phosphorus, expresses doubts about the possibility of assimilating mineral phosphates and hypophosphites and the glycerophosphates. Failing these one must choose between the natural organic phosphorus compounds, such as lecithin, nuclein, paranucleoproteid, and fitin, and synthetic compounds of phosphorus and albumin, such as protylin, arsilin, ferriprotylin, and bromoprotylin. Though these remedies have hardly been in use more than two years, Gallenga quotes numerous authors who describe good results obtained from them in cases of anaemia, neurasthenia, hysteria, nervous anorexia, cancerous cachexia, and other diseases. Protylin contains 80 per cent. of albumin, and about 2 per cent. of phosphorus in a very volatile form. It is completely insoluble in cold water, and almost insoluble in hot water. In alkaline solutions it is readily soluble, even at low temperatures, and it is precipitated by the addition of acetic acid. Protylin is not digested in the stomach, but rapidly passes into the small intestine. It is there well absorbed and assimilated, both albumin and phosphorus, and it does not disturb digestion. It resists putrefaction, and may be kept mixed with water in a thermostat for four or five days without undergoing decomposition. Enormous doses, much exceeding anything recommended for ordinary use, may be administered without causing diarrhoea, vomiting, urinary changes, or other bad effects. To a dog weighing 5.6 kilograms the author administered daily 5 grams of protylin until 300 grams had been taken, without producing any ill effect except that the dog's voracity was much increased and its metabolism stimulated. The complete absence of toxicity attending the administration of protylin suggests the possibility that it is never absorbed from the alimentary canal. Gallenga performed experiments to test this point; he fed two dogs on white of egg, rice starch and butter, a diet as free as possible from phosphates, and in addition gave to one of them a variable quantity of protylin. At first no protylin was given for a week, and both animals lost weight. Then protylin was added to the diet of one dog, which remained well, lively, and hungry, but continued to lose weight, until its food was doubled. It then continued to eat heartily, and began to put on weight. The other animal steadily wasted, had no appetite, and died in a condition of marasmus, with albuminuria and choluria. The effect of protylin on the metabolism is illustrated by numerous figures, and the author concludes that the phosphorus contained in protylin is absorbed and assimilated in the same way as that contained in food, exercises the same influence on metabolism, and can be substituted for it without injury. To test these conclusions Gallenga made observations on two patients, a man of 42 with aneurysm of the superior mesenteric artery, and a man of 60 with spastic paraplegia of long standing. A constant diet was administered, and the urine and faeces analysed, the amount of protylin given varying from 0 to 20 grams a day. The only important difference between the results obtained in men and those with dogs was that, in the case of dogs, the nitrogenous metabolism appeared to depend on phosphorus, but in man to be independent of the amount of protylin administered. Finally, the author describes the progress of 22 cases in which he carried out treatment by means of protylin and its derivatives for a considerable time with more or less favourable results. In 7 other cases treatment was begun, but could not be satisfactorily carried out. The 22 cases belong to three groups: (1) Patients with a general depression of nutrition and of the nervous system, without phenomena of excitement, and with or without contemporaneous functional alterations of the digestive system. In them the treatment was invariably maintained

for several weeks following. Particular importance is attached to the cases with gastric or intestinal disturbance because of the difficulty of treating them with phosphorus by itself. (2) Patients in whom nervous exhaustion showed itself in the form of excitement: to these bromoprotylin was administered. (3) Patients needing iron or arsenic, and treated with ferriprotylin or arsilin.

12. Bornyval in Phthisis.

The difficulty of effectively treating the heart symptoms, whether organic or functional in origin, which are of such common occurrence in tuberculosis, is generally recognized. Elsaesser (*Zeit. für Tuberk.*, February, 1906) has employed bornyval in such cases with good results. He considers the irregular and frequent pulse to be a result of the injury inflicted upon the heart by the specific infectious material in tuberculosis, the injury being especially directed to the nervous apparatus of the heart, and it is because of the implication of the nervous system that the use of this drug is indicated. In the treatment of the condition he has used at one time or another every possible remedy, and before he had tried bornyval he had found digalen to give the best results, provided that it was given in large doses and for a long period of time; the treatment was, however, expensive, and not in all cases satisfactory. Six cases are given to illustrate the action of bornyval. In all of these the patients suffered from palpitation, sometimes so severe as to be almost unbearable, and in all the administration brought about improvement, while in some complete relief from the symptoms was obtained after a few doses. An equally good effect upon the pulse-rate was also observed, even where digalen had been previously tried without much result; in one case the pulse-rate fell from 120 to 100 a minute, in another from 105 to between 80 and 90, in another from 115 to normal. The author has also made use of bornyval in a few early cases of phthisis in which dyspeptic symptoms were prominent; in some cases it appeared to act well, but in others it aggravated the subjective symptoms, and was discontinued. A case is also described to show the action of the drug in nervous dyspepsia not complicated with tuberculosis.

13. Treatment of Lupus.

E. Lesser (*Zeit. für Phys. und Diät. Therap.*, February, 1906) discusses the treatment of lupus by means of the Finsen concentrated light and of Roentgen rays. The value of a treatment of lupus is to be estimated according as it fulfils the two requirements: first, that of destroying the diseased parts, and, secondly, of sparing all sound tissue. In so far as these conditions are fulfilled a good result will be arrived at, both from the point of view of complete recovery and of a good cosmetic effect. In certain cases the cosmetic effect is more important than the permanent healing, and, for example, a patient with extensive lupus of the face is more pleased with a good result as regards appearance, even if later from time to time the treatment of slight relapses should be needed, than with a permanent cure if that cure be accompanied by much disfigurement of the face. Histological examination as to the spread of lupus in the skin and subcutaneous tissue shows the difficulty of successful treatment, because in any area of lupus extension of the disease can be made out along the track of the vessels into healthy tissue, while even in regions where the infiltration is fairly dense areas of more or less normal tissue occur between infiltrated parts; an elective power is therefore needed in the means employed. Of the earlier methods of treatment, certain caustics, and especially pyrogallic acid, most nearly answered the above demands, but the newer methods, and especially the Finsen treatment, have surpassed the older methods, especially with respect to the cosmetic results to be obtained. The present author at an earlier time was against the Roentgen-ray treatment as a sole treatment of lupus, but he has now modified this opinion, and believes that the bad results obtained were due to a too free use of the rays. There is no doubt that Roentgen rays possess an elective power in a very marked degree. Their use is especially indicated in cases with much infiltration, in cases of lupus elephantiasis, cases of luxuriant growth and those with extensive ulceration. A combination of Roentgen ray treatment and of that by Finsen light has also been found most effectual. By means of Roentgen rays the great mass of the lupus infiltrate is destroyed and later by means of the Finsen light the single small areas can be dealt with. The doses of Roentgen are to be calculated so that they give rise to an erythema but never to a moist dermatitis or to ulceration. A few stronger applications of the rays are preferred by the author to many weak ones, but in every case the initial dose should be small in order to allow for any individual peculiarity. In slight cases where full healing is hoped for, the results with Finsen rays are so good that this treatment is to be preferred to excision as giving rise to the formation of a less obvious scar. The two conditions which are unfavourable to light treatment are (1) affections of the mucous membranes, and (2) extensive scarring caused by previous active treatment. The mucous membranes of the face are almost inaccessible to the Finsen light treatment and the Roentgen treatment is only applicable to lupus of the mucous membranes within certain somewhat narrow limits, while lupus nodules lying in the deeper part of thick scar tissue are inaccessible to the light. Very extensive infiltration is another circumstance which makes treatment difficult, and in such cases the Finsen or Roentgen ray treatment is the only one to give even a moderate result. The confidence of the public in the new methods of treatment is in itself helpful. The patients tend to come for treatment at an earlier stage than used to be the case—before the face has been scarred by the use of caustics, etc. The scars after the Finsen-light treatment are soft, never keloid, and are accessible to further treatment should a relapse occur. While the Finsen treatment does not make other methods superfluous it yet takes the first place amongst them. In a great number of cases it leads to permanent recovery, and that with a better cosmetic result than from any other method.

PATHOLOGY.

14. The Blood in Scurvy.

Senator (*Berl. klin. Woch.*, April 23rd, 1906) has made a careful investigation of the blood in a case of scurvy. In this disease, though it is known as a "blood infection," comparatively few cases are recorded where the blood has been systematically examined by modern methods of technique. In Senator's case the blood showed a marked diminution in the erythrocytes, which advanced from day to day, until the number was reduced to one-sixth of the normal. Concurrently with this diminution, the haemoglobin percentage fell to an even greater degree. There was a steadily-advancing leucocytosis, with a corresponding diminution in the lymphocytes; and poikilocytosis was observed, with polychromatic degeneration of the erythrocytes and the appearance of normoblasts. These characters corresponded to the course of a severe, simple, post-haemorrhagic anaemia running a subacute or chronic course. The presence of myelocytes in small numbers is regarded by Senator as a sign that the bone marrow was stimulated to reparatory activity. Megaloblasts were only found on one occasion. The percentage of albumen in the blood serum was tested and was found to be from 5.5 to 6 per cent., an amount which is considerably below the normal. Cultures of the blood in nutrient bouillon failed to yield any bacterial growth. The *post-mortem* examination corroborated the clinical evidence of extensive haemorrhages and advanced anaemia. The microscopic examination of sections and smear preparations from the spleen and lymphatic glands showed that there was no deviation from the normal structure and no change in the cellular contents. The medullary substance of the vertebral bodies was red, and the same appearance was observed in the epiphyses of the femur, whilst in the diaphyses the colour was yellow. Erythrocytes were present in notably diminished numbers, and consequently the proportion of white corpuscles was greatly increased, but no individual types of white cells were found in excess of the normal proportions.

15. Changes in the Blood Caused by Heat and Cold.

P. Ciuffini (*L'Idrologia e Climatologia*, No. 1, 1906) has investigated the alterations in the numbers and quality of the red and white blood cells caused by treatment with hot or cold baths of various kinds. The persons examined were in some cases neurotic patients, in others healthy individuals. The results arrived at by previous workers on the subject have been various and discordant. Ciuffini concludes that the variations in the counts of the red and white cells that appear to be caused by either hot or cold baths are inconstant, and that they depend upon peripheral disturbances of the circulation for the most part rather than upon any special action exerted on the blood-forming organs by the bathing.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

16. Dissecting Aneurysm.

HAMILTON (*Amer. Journ. of Med. Sci.*, June, 1906) records the case of a farmer, aged 72, who became insane twelve years before, having previously been alcoholic. He had always been considered unusually strong and healthy, and for several years prior to his death he had occasionally performed very heavy work with the masons. Death occurred suddenly during sleep. *Post mortem* a dissecting aneurysm was found separating the coats of the aorta, which at the beginning did not involve the entire circumference of the vessel. Further on the dissection was complete, except for a narrow band along the anterior surface. The condition extended into the innominate artery as far as its division and as far as the bifurcation in the left common carotid. It extended also throughout the thoracic and abdominal aorta, and for about 1 c.cm. into the coeliac axis, superior mesenteric, and right common iliac arteries. It was present throughout the left common iliac, the left external iliac and common femoral, and also in the superficial femoral to the point where it pierces the adductor brevis muscle. It extended for a short distance into the left internal iliac and deep femoral. The intercostal arteries were torn loose from the inner coat, and were attached only to the outer. With the exception of a general connective-tissue increase and arterio-sclerosis, nothing was noted in the other organs. Apparently the condition was of recent occurrence in this case, but *ante-mortem* diagnosis is almost impossible in such conditions.

17. Cancer of Stomach with Metastases in Cranium and Meninges.

PINATELLE AND CAVAILLON (*Prov. Méd.* for April 14th, 1906) describe two cases of gastric cancer with secondary deposits in the cranial bones and meninges, and have been unable to find any reported cases of cancer of the stomach associated with secondary deposits in these parts. The first case was that of a man of 45 years of age, who had suffered from gastric cancer for upwards of a year. A short time before he died a small, hard tumour developed at the upper border of the right orbit. *Post mortem*, the pylorus was involved in a growth, the stomach was dilated, and there was extensive glandular enlargement both of the glands of the lesser and greater curvatures of the stomach and of the retroperitoneal glands. Numerous secondary deposits were present in the liver. At the base of the brain, on a level with the anterior clinoid process, was a lump the size of a walnut, which protruded upwards and caused a depression on the under surface of the frontal lobe; on incising the dura mater covering it, this lump was found to extend to the orbit on a level with the optic nerve, and was here adherent to the bone. A piece of this tumour examined microscopically exhibited the characters of a cylinder-celled carcinoma. The second case was that of a man 34 years of age, in whom a tumour in the epigastrium was discovered accidentally. On *post-mortem* examination there was found a tumour of the stomach involving the omentum, together with some enlarged lymphatic glands. On the internal surface of the cranial vault in the posterior part of the left parietal fossa was a soft violet-coloured, villous growth, the size of a five-franc piece. On the internal surface of the dura mater covering this tumour there were found numerous small granulations similar in appearance to the large villous tumour, and in this region the meninges were found to be thickened. The brain was healthy. Microscopically the cranial tumour proved to be a carcinoma. Both these patients shortly before death developed symptoms resembling delirium tremens, and the second also developed bilateral ptosis.

18. Recovery from Leprosy.

PROFESSOR V. NEUMANN (*Wien. klin. Woch.*, January 25th, 1906) reports a case of maculo-tuberculous leprosy which underwent rapid and apparently complete cure. A man, aged 38, became infected with leprosy through sleeping in the same bed with his leprous brother. The first symptoms—pains in the hands and elbows, night sweats, and a characteristic eruption on the hands, chest, and back—appeared in 1899. In April, 1900, he came under the writer's observation with nodular lesions of the forehead, eyelids, cheeks, neck, back, palms of the hands, and legs, and disseminated patches in other parts. There were no disturbances of sensibility. The sputum and nasal mucus contained leprosy bacilli. He was given eleven injections of chaulmoogra oil, liquor arsenicalis, and inhalations of a solution of iodide of potassium. He was discharged in November, 1901, considerably improved, the skin of the forehead being smooth and no longer swollen though pigmentation remained. The nasal mucus no longer contained bacilli. He returned home to Bulgaria, and continued to take chaulmoogra oil (200 to 250 drops daily), with salol and iothion. In December, 1905, there remained no trace of leprosy. There were no cicatrices, nodules, pigmentation, or nervous symptoms, and the patient was in every way normal. It is difficult to believe that the treatment was responsible for the recovery. Danielssen has reported cases of recovery in the maculo-anaesthetic type of leprosy, but in these the disease had existed for many years and the virulence of the bacilli appeared to become finally extinct. But in these cases there remained extensive mutilations. More recently Tonkin, Cantlie, and Dubreuilh have insisted on the curability of leprosy.

19. The Variations in the Fat Content of Human Milk.

THE published analyses of mother's milk show that there are great variations in the amount of fat contained in it, not only between the values from different individuals, but also between those in the milk obtained from the same mother at different times. In order to ascertain whether this is owing to any definite circumstances samples were collected by Engel (*Zeit. für Physiol. Chem.*, vol. xl, 1905) each time in the day that the baby was nursed, in some cases immediately before and in some after the child had been at the breast. The percentage of fat in the milk was found to be higher after nursing. The differences, however, in the fat content of different samples from the same woman were not great, but a study of the figures when represented in the form of a curve showed that the milk was usually richest in fat at the latter part of the day. This is probably due to the fat taken in at midday with the principal meal, for the milk fat is derived both from that in the food and from body fat, and it has been found by Engel that there is an interval of six to seven hours between the ingestion of fat in the food and its appearance in the milk. The fact that the percentage in the milk of one mother does not vary to a great degree shows that with an ordinary mixed diet, such as was given in the cases observed, the child is supplied with a fairly constant amount of this foodstuff, and hence the author concludes that it is not necessary to provide a special diet for nursing mothers. Greater variations obtain when the milk from different individuals is compared, but here again an average amount is generally given by well-nourished women under normal circumstances.

SURGERY.

20. Treatment of Foreign Body in Oesophagus.

RICHELOT (*Bull. et Mém. de la Soc. de Chir. de Paris*, No. 16, 1906), in communicating a case of external oesophagotomy for the removal of an impacted foreign body, afforded occasion of an interesting discussion on certain disputed points in the treatment of this accident. The patient was a man, aged 65, and the foreign body, a small denture carrying three teeth, was swallowed during sleep on the night of January 26th, and removed by external oesophagotomy after an interval of over four days, part of which had been spent in a long journey from the country to Paris, and part in several ineffectual attempts to detach the impacted body and to extract it by the mouth. The operation of oesophagotomy, by which the artificial denture was easily removed, was preceded by gastrostomy, practised with the object of saving the patient the pain and discomfort held by the author to be the inevitable results of attempts at artificial feeding by the naso-oesophageal tube. The wound in the oesophagus was closed by suture but apparently with no sanguine expectations of success, as the author remarks that surgical writers who recommend this practice take care to point out that there is considerable risk of its failure. The patient, who at the time of the operation was much exhausted, died two

days later from pulmonary congestion. Pozzi, in summarizing his criticism of this paper, holds that immediate oesophagotomy is indicated in every case in which the impacted foreign body is one of an irregular shape; that the wound in the oesophagus should be completely and securely closed by sutures, and that in default of this a naso-oesophageal tube be retained during from eight to ten days; and that oesophagotomy should not be associated with gastrostomy, which operation would tend to prolong and aggravate the surgical treatment. A unanimous opinion was expressed as to the necessity in cases of impaction of any hard and uneven foreign body of immediate extraction by oesophagotomy, and of refraining from any attempt to detach or extract this by tubes, hooks, or catches introduced by the mouth. A general approval was also expressed of the practice of closing the oesophageal wound by sutures, which in Tuffier's opinion facilitates the proper nourishing of the patient and shortens the duration of the treatment. Delbet objects to the use of the feeding tube, the prolonged presence of which in the oesophagus is likely, he holds, to disturb the necessary repose of the walls of this canal by exciting an increased secretion of saliva, and frequent movements of deglutition. This surgeon for the first week after the operation allays the patient's thirst by injections of serum, and conveys food by the rectum.

21. **Removal of the Breast and Axillary Glands.**

Murphy (*Surgery, Gynaecology, and Obstetrics*, January, 1906) states that many surgeons have met with unpleasant sequences after the removal of the breast for carcinoma, the most frequent of these being (*a*) limitation of movement, (*b*) venous or lymphatic stasis, (*c*) neurosis. Limitation of movement is regarded as the result of faulty line of cutaneous incision, and adduction of the arm on the chest wall immediately after the operation. Stasis in the venous and lymphatic vessels is due to pressure of cicatricial tissue on the axillary vein and the lymphatic channels in the axillary space. The most desirable skin incision, it is held, is the rectangular one made high up on the chest, the apex of the angle being immediately beneath the acromion, the inner line being parallel to the long axis of the pectoralis major and directed toward the third costal cartilage, and the outer one parallel to the long axis of the humerus. With this method there are, it is believed, no risks of scar formation which might eventually restrict motion or compress the axillary structures. The author is of opinion that the integument covering the breast should be conserved as far as possible and he feels that surgeons remove more skin than is probably necessary. In adenocarcinoma of the breast the skin, he asserts, is not involved, at least in the early stages of the disease, and there is no indication for its extensive removal. A description is given of a plastic operation on the pectoralis major muscle, devised with the object of protecting the nerves and vessels of the axilla by a soft muscular flap. An objection against retaining this muscle on account of the possibility of recurrence of carcinoma from epithelial elements left in the muscular structure, has, it is urged, no foundation, as the lymphatics from the breast do not course through the muscle but on its aponeurosis. This opinion is supported by the experience of Bryant who has not seen a recurrence of carcinoma within the pectoral muscles in his surgical practice of forty years. The third step in Murphy's technique is the application of a plaster-of-paris splint cast in such a manner as to keep the arm at a right angle with the body during the healing.

22. **The Surgical Treatment of Traumatic Facial Paralysis.**

Depage (*Journ. de Chir. et Ann. de la Soc. Belge de Chir.*, No. 3, 1906) in a review of the reparatory surgery of nerve lesions of the face, discusses among other subjects the operative treatment of traumatic facial paralysis. With the view of relieving the hemiplegia of the corresponding half of the face, which had previously been regarded as a hopelessly irremediable result of destruction of the facial nerve in the Fallopian canal, or at its exit from the stylo-mastoid foramen, Furet, in 1898, proposed anastomosis of the peripheral end of the divided nerve to an adjacent nerve. Since this idea was carried into practice by Faure 20 cases have been published of anastomosis of the injured facial with the spinal accessory nerve. These records, the author states, show that this operation, when practised for facial paralysis of long standing, often fails altogether, and generally is followed by incomplete results. Associated movements are almost always established, that is to say, the patient when raising the shoulder can put in action the muscles of the face, but the dissociated movements are but seldom restored, and more or less deviation usually persists. Reference is made to other methods of anastomosis, in which the hypoglossal and also the small glosso-pharyngeal have been selected for anastomosis in preference to the spinal accessory nerve. The risk of unilateral lingual atrophy after hypoglosso-facial anastomosis and the absence of any decided advantage in this operation, have led the author to regard Faure's operation as the method of choice. The author concludes that spino-facial anastomosis is indicated as a promising operation in cases of facial paralysis of recent date, but that in cases of very old paralysis its results are less constant.

23. **Aspiration in Acute Articular Rheumatism.**

Cordeiro (*Amer. Journ. of Med. Sci.*, March, 1906) regards acute rheumatism as a surgical disease, and when the accumulation of fluid in a joint is sufficient he treats it by aspiration. Notes of a case are given in which the right knee, right ankle, and left knee respectively became affected in recurrent attacks, and aspiration of the joint in each instance was followed by recovery. In this as in other cases—too few, however, to warrant any general conclusions—it was noted that an aspirated joint never became reattacked during the same or subsequent illness. So radical a measure as opening the joint, irrigation, and drainage is unnecessary, as everything that is needed can be attained by aspiration, and recovery is immediate instead of being delayed while the wounds heal. Examination of the fluid from the aspirated joint showed a number of bodies which appeared to be zoogleae masses crowded with micrococci or spores. These latter did not stain readily. From this it would seem that any eventual discovery of a specific micro-organism will be in the joint fluid.

OBSTETRICS.

24. **Maternal Mortality in Tenement-house Confinements.**

Harrar (*Bull. of the Lying-in Hospital, City of New York*, March, 1906), in discussing his report upon the work done by the outdoor obstetrical service in East and West New York, points out that it is done under very imperfect hygienic surroundings, that the conditions are those of poverty and overcrowding, and that the resisting powers of the patients are lowered by illness or insufficient food, while their surroundings render them liable to septic infection. The labours are conducted by the outdoor staff of the hospital and by medical students. The series of cases referred to in this report number 32,000, and the mortality among the mothers has been found to be 114 cases, or 1 death to about every 280 confinements; 21 of these deaths occurred in hospital, to which the patients were sent as they could not be cared for in their own homes. Twenty-seven women, or about 1 in 1,200, succumbed to septic infection, it being almost impossible to ensure cleanliness in the lying-in chamber. Infection by the attendant is probably reduced to a minimum, but a nurse or midwife is generally present, and the early stages of the labour are often conducted by some such person, who may only send for the doctor when some complication occurs. Fifteen women died as the result of rupture of the uterus. In 5 of these cases rupture occurred as the result of internal version; in 1, where the cervix had been amputated previously, it was produced during a forceps delivery; in 2 others it was traced to severe falls sustained several days before delivery. Thirteen deaths are accredited to eclampsia, this complication being noted 50 times. Placenta praevia accounts for 12 deaths, lobar pneumonia for 6, *post-partum* haemorrhage for 5, premature detachment of the placenta for 4, chronic endocarditis for 4, and phthisis for 4. Four deaths are ascribed to shock and 4 to uraemia. As regards these it is not possible to state from the data at hand whether the shock cases ought not to come under the heading of haemorrhage, and some of the uraemic cases under the classification of eclampsia or the toxaemias of pregnancy. Three women died after Caesarean section had been performed; it is unusual to perform operations out of hospital. Other causes of death included embolism, thrombosis, toxic albuminuria, puerperal toxaemia, carcinoma, and erysipelas. The fact that almost one quarter of the mortality was due to sepsis indicates in which direction a possible future reduction in the mortality may be hoped for.

25. **Embryotomy on the Living Infant.**

Pierre Budin (*L'Obstétrique*, May, 1906) describes a case in which to save the life of the mother embryotomy on her

living child was carried out. In this case the woman possessed a Naegele pelvis and efforts to deliver by forceps were fruitless. The woman made a good recovery from the operation. He gives the opinions of many of the leading obstetricians as to whether embryotomy on a living child is justifiable or not. The majority of these agree that in certain cases the proceeding is quite justifiable and is especially indicated in those cases in which Caesarean section or symphysiotomy, even if successfully carried out, would not suffice to save a child the life of which had already been considerably imperilled by the prolonged labour.

GYNAECOLOGY.

26. Cornual Pregnancy: Rupture: Pregnancy in Opposite Cornu after Operation.

DORAN (*Journ. of Obstet. and Gyn. of the Brit. Emp.*, June, 1906) publishes a full report of a case in which in September, 1904, he removed a fetal sac, consisting of the right uterine cornu, for acute haemorrhage due to its rupture. The patient was 27 years of age, and had borne two children. The placenta and membranes protruded from the rupture in the sac; a fetus 3 in. long was found under the omentum. The sac, with the right Fallopian tube and ovary, was amputated; the left uterine cornu, which had twice been the seat of normal pregnancy, was empty. One year after the operation, in September, 1905, the patient was spontaneously delivered of a live child at term. Küstner (*Monats. f. Geb. u. Gyn.*, May, 1906) relates another case of cornual pregnancy, without rupture, where a similar conservative operation was practised. This patient was 32 years of age, and had been pregnant seven times (including four abortions). She believed herself to be six months pregnant, the period having ceased for that space of time. Uterine duplicity with arrested pregnancy or myoma in one horn was diagnosed and abdominal section performed. The left cornu was removed with the corresponding appendages; it ran into a cervix almost distinct from that connected with the right cornu (uterus pseudo didelphys, rarer than uterus bicornis unicollis). There were no complications during convalescence. The amputated left cornu contained a much-flattened fetus of about the sixth month, without a trace of amniotic fluid. In neither of the above cases did the cavity of the cornual sac communicate with that of the opposite cornu or with the canal of the cervix.

27. Cancer of the Vagina.

VON HERFF (*Correspondenzbl. f. Schweitz, Aerzte*, December 1st, 1905) dwells on the rarity of diseases of the vagina except catarrh and ulcers from compression. Hard chancre and chancroid are extremely uncommon; von Herff once detected a soft sore on the posterior vaginal wall of a pregnant woman. Carcinoma and sarcoma, like venereal lesions, are remarkably unusual in the vagina. Von Herff recently removed the vagina and uterus in a case where he detected a collection of papillary growths covering an area of the size of a penny on the free surface of the posterior vaginal wall. It was a cancerous growth. He has performed eleven such operations for vaginal cancer, either by Schuchardt's method or Olshausen's perineal procedure; all the patients recovered, but in one instance a vesico-vaginal fistula developed. Recurrence seems almost invariable, one patient, however, remains free three years after the operation, and has gained flesh.

THERAPEUTICS.

28. Electricity in Constipation and Entero-colitis.

LEBON (*La Clin.*, June 1st, 1906) has found that by employing galvanic currents of high intensity he has been able to cure patients suffering from chronic constipation and entero-colitis. His methods are as follows: One electrode is applied to the lumbar region and the other on the surface of the abdomen, or two small plates, well padded with cotton-wool, are placed on the surface of the abdomen, one over each iliac fossa. If the first method be employed, neither reversals nor interruptions of the current are to be made; if the second, reversals of the current should be made rapidly, to avoid burning of the skin, which might result from polar action. In all his cases the immediate results of the electrical treatment have been good. In cases of chronic constipation, spontaneous evacuation of the bowels may occur after only one *séance*. More frequently six or seven *séances* are necessary before this effect is produced; and the longer the constipation has existed the more prolonged must the electrical treatment be before cure results. Simultaneously with this improvement in the expulsive power of the bowels, the motions become softer and of a normal consistency, and patients who have suffered from chronic constipation for a number of years may, when treated in this way, be enabled to have a motion regularly every day, if assisted by some gentle laxative. Failure of this treatment is to be found chiefly in patients who have been addicted to taking strong purgatives, or who have been in the habit of having large rectal enemata administered. In muco-membranous entero-colitis the results of electrical treatment are no less remarkable, and in these cases treatment should be continued until all mucus has disappeared from the stools. The author finds that the majority of cases require about two months' treatment, and that the cure which results is lasting: if recurrence of the trouble takes place a short repetition of the treatment is sufficient for a cure. During the course of electrical treatment, the author stops all medical treatment. The patients are instructed to solicit an action of the bowels every day, and best on waking in the morning. If no action occurs he advises the introduction into the rectum of a glycerine suppository, and that the patient lie down again for a short time, and again attempt to empty his bowels. If this does not suffice he advises the patient the next day to take a dose of his usual purgative medicine, or preferably employ a small rectal oil injection. The author finds this electrical treatment most effective when the patient is strictly dieted. In those patients in whom the intestinal trouble appears dependent upon dyspeptic disturbances a mixed diet has a good effect: not only does the intestinal trouble improve, but the fullness after food and the eructations lessen and the appetite improves. In some cases of entero-colitis in which diarrhoea alternates with constipation, the author finds that the electrical treatment soon causes the diarrhoea to cease; he also finds that the same treatment strengthens and renders firm the abdominal muscles in cases where these are found soft and lax. To improve the neurasthenic condition from which patients suffering from chronic constipation or entero-colitis are often affected, static baths are advised by the author. He concludes that in cases such as these, if no improvement occurs in two or three months with ordinary medical treatment, electrical treatment should be had recourse to.

29. Ingestion of Sea Water in Tuberculosis.

JACQUES CARLES (*Prov. Méd.*, May 26th, 1906) has treated several cases of pulmonary tuberculosis by administering by the mouth small quantities of sea water, with a view of seeing if as good results cannot be obtained by this method as by the method of subcutaneous injection of sea water carried out on phthisical patients by Quinton. In 2 out of 4 cases treated by ingestion of sea water a well-marked remission of the disease has been obtained. The author finds the best results are obtained with patients in the first or second stages of the disease; of 10 such cases, in 8 the appetite and general strength improved, the expectoration diminished or ceased, and at the end of a few weeks a very marked amelioration of the lung signs occurred in 4 cases. These favourable results obtained by the administration of sea water are considered due to a rousing of the flagging digestive powers, and a comparison of the results obtained in patients treated by this method and in those in whom this treatment was not carried out (although the other customary treatment for phthisis was employed in both classes) has convinced the author of the benefit to be obtained by this method of treatment. This method possesses advantages over the subcutaneous injection plan in that sudden rises of temperature, headaches, backache, etc., sometimes produced by the latter method, are generally either entirely wanting or very slightly marked. The author has further found the ingestion of sea water of use in cases of dyspepsia associated with a diminution of the quantity of hydrochloric acid in the gastric juice; in such cases he finds a rapid increase of the appetite and a marked improvement of the general health. For administration the sea water must be freshly obtained and filtered; sterilization by heat impairs its therapeutic powers; it must be taken on an empty stomach, at first in spoonful doses, half an hour before the two principal meals of the day; in a few days' time the dose may reach half a tumbler. The treatment should be discontinued after every eight or ten days and then resumed a few days later.

30. **The Thyroid Treatment of Corpulence.**

M. Rheinboldt (*Berl. klin. Woch.*, June 11th, 1906) speaks of his experience of treating adiposity rationally and ideally by thyroid substance. He says that, basing his opinion on some experiments carried out in the dog, it ought to be possible to carry out a reduction treatment with thyroid, under definite conditions, without sacrificing the body albumen and without disturbing the nitrogen balance of the metabolism. The course must be rendered safe, if it is to find general acceptance. He quotes the cases (three in number) in which he administered thyroid tablets and at the same time overfed with nitrogenous material, in such a way that while the weight dropped steadily no unpleasant symptoms occurred. The first of these cases is detailed fully, a table showing the metabolism being given. In order to ensure that the thyroid administration is free from danger one has to consider the following points: An idiosyncrasy against the drug must not exist; he is inclined to believe that this is not so common as is usually believed. In the first place the drug may not be pure, and the products of decomposition may act somewhat in the same way as ptomaines do: or auto-suggestion on the part of the patient may be the cause of the intolerance. In any case, it is necessary to begin with extremely small doses in every case. The dosage must be correct if the drug is to be given safely. The small dose to begin with has already been mentioned, and one should then slowly increase it until a dose is reached which just affects the fat of the patient. The scheme which he follows is to give one tablet each day at first; after the lapse of two or three days he gives two, three, and so on. The tablets should be well masticated. He finds that seven or eight tablets per day is approximately the maximum dose advisable. Next he finds that bad preparations have been the cause of certain of the toxic symptoms of thyroid medication. Decomposition is less likely since one has given up using fresh thyroid-gland substance, and if one is careful only to use good and well-prepared tablets this risk disappears. The last danger depends on the fact that the reduction in weight is often attained at the expense of the body albumen. In his dog experiment he has shown that it is possible to allow the nitrogen intake to exceed the output on the daily average. One should overfeed during the treatment and give at least 3,000 calories. This should be largely albuminous, and at all events not less than 20 per cent. of the total diet. The thyroid tablets should be given for not longer than four weeks at a time. In concluding, he says that he does not wish to advise thyroid treatment in the place of diet reduction, but he finds that by its means much can be attained conservatively. The treatment, however, always necessitates a very strict control.

31. **Isopral.**

H. Klatt (*Die Heilkunde*, November, 1905) has made use of isopral during the last six months for different forms of sleeplessness. He found that in the maniacal attacks of paralytics 2 gr. had no effect, but that when the attack was over 1 gr. had a sedative and sleep-producing action. In several cases of delirium tremens the effect of the drug was strikingly good. In some cases of sleeplessness in neurasthenia or hypochondriasis a pleasant sleep of several hours' duration followed the dose of isopral, but in other apparently similar cases it had either no effect, or only succeeded in producing an unpleasant sensation of tightness about the head; patients of the last class were unwilling to try it again. An interesting case was that of an old lady who during severe melancholic and hypochondriacal attacks suffered from sleeplessness, and who had tried every sort of narcotic in vain. After the first dose of isopral she slept for several hours, and after some time became again able to sleep naturally; the action of suggestion could not be altogether excluded in this case. In any painful condition Klatt found isopral to be quite useless, but he did not find that dyspnoea or asthmatic symptoms were contraindications to its administration; the asthmatic symptoms were naturally not altered, but the ordinary narcotic action of the drug did not fail. One case demonstrated the danger of administering isopral where degeneration of the heart muscle was present. The patient, a woman, suffered from chronic myocarditis as well as from kidney and bronchial affections. While isopral was being taken, the condition became obviously worse, the pulse smaller and more irregular, the dyspnoea and cyanosis more marked, and the amount of albumen in the urine greater, either as the result of direct irritation of the kidneys or of the action of the drug upon the heart: the condition improved as soon as isopral was withdrawn. In general, it may be said that isopral is a pleasant but not always reliable hypnotic in depressed conditions or cases of neurasthenia, and that it is a useful sedative in many cases of excitement: there are no unpleasant side-effects in the absence of those conditions which are by this time well recognized to contraindicate its use.

32. **The Administration of Salts of Manganese.**

A. Bargero (*Bull. delle Sci. Med.*, April, 1906) gives a summary of the work done upon the administration of manganese, given by the mouth or intravenously, to man or to animals. He adds his own experiments, made upon dogs, and showing that manganese citrate given by the mouth is not poisonous, is stored mainly in the kidneys and liver, and is eliminated mainly in the faeces, but also in the bile and urine. The amount excreted in the first twenty-four hours is extremely small. He finds that manganese given intravenously is poisonous: a dose of 0.012 gram per kilo given thus kills a dog in twenty-four to forty-eight hours. It is deposited mainly in the liver, where it rapidly (forty-six hours) produces a marked fatty degeneration.

PATHOLOGY.

33. **Latent Meckel's Diverticulum.**

Morel (*Bull. et Mém. de la Soc. Anat. de Paris*, November, 1905) describes a specimen of Meckel's diverticulum discovered accidentally in a *post-mortem* examination on a woman aged 70. The diverticulum measured nearly 2 in. in length and proceeded from the free border of the ileum, 11½ in. above the ileo-caecal valve, forming a right angle with the bowel. In calibre it was rather greater than the adjacent intestine, in shape it was a cylindrical blind sac, and it was absolutely free from connexion with the umbilicus or any other structure. Between its cavity and the channel of the bowel was a well-developed semilunar valve. It bore no mesentery. Its mucosa near its intestinal attachment contained Lieberkühn's glands, absent towards its blind end where the muscular coat was almost wanting, so that the mucous membrane and serous coat were largely united. Morel notes that the gland question is of great interest in respect to Meckel's diverticulum. In Tillmann's specimen a fluid reacting like gastric juice issued from the diverticulum, hence that observer suspected that it had acquired new connexions, being freed from its original attachment to the ileum. Roser describes an analogous case, and interprets it in a similar manner. But Siegenbeek von Henkelorn, in dissecting a fetus at term, discovered a diverticulum nearly 4 in. long, which was divided into two portions by a circular constriction. The mucosa between the constriction and the opening of the diverticulum into the ileum bore columnar epithelium as in the small intestine, with Lieberkühn's glands, whilst between the constriction and the blind end of the diverticulum the epithelium was as that of the pylorus and Brunner's glands. This variation was explained by more than one authority as due to the entry of bile into the portion above the constriction.

34. **The Effects of Metazoan Parasites on Their Hosts.**

Shipley and Fearnsides (*Journ. of Economic Biology*, vol. i, Part 2, 1906), in an interesting study of this subject, point out that the host is influenced by metazoan parasites in four ways: (1) By the mere presence of the parasite in some organ in which it takes up a certain amount of space and displaces a certain amount of tissue: (2) by the migration of parasitic organisms from one part of the body to another: (3) by the loss to the host, which has to feed the parasite either on the half-digested contents of its alimentary canal or on its more elaborated fluids: (4) by the presence of certain toxins said to be given off by the body of the parasite, either as excretions or otherwise. These four methods in which metazoa may exercise a pathogenic influence upon their hosts are illustrated by a valuable summary of details for which the original article must be consulted. The authors attach particular importance to the evidence which has been brought forward in support of the view that metazoan parasites give off toxins which profoundly affect the tissues of their hosts. With this view they agree, and they regard the association of a marked eosinophilia with the presence of metazoa in the body as a conclusive proof that toxins are given off in considerable quantities by these parasites. But this subject is only just beginning to be elucidated, and they do not think that any substantial progress will be made until it is attacked from the chemical side.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

35. Diagnosis of Operable Cerebral Tumours.

MILLS (*Univ. of Pennsyl. Med. Bull.*, April-May, 1906) regards the presence and persistence of headache, optic neuritis, vertigo, and nausea and vomiting as more probably indicative of a tumour connected with the dura, and, with the exception of large and dense subcortical tumours, accessible if situated anywhere on the brain convexity. Tumours and vascular lesions—for example, haemorrhage, thrombosis, and embolism—tend to focus in special physiological areas, and a tumour generally starts in the heart of such an area, and occupies exclusively one such region, although it may invade in any direction from its initial focus. The left hemicerebrum is the leading half of the brain, and this disparity in favour of the left hemisphere varies, as a rule, directly with the amount of individual development. Since tumours are rarely strictly limited to either the cortex or subcortex, a sharp line of demarcation between symptoms of cortical and subcortical tumours cannot usually be made. Destructive tumours and other destructive lesions of the prefrontal lobe, and especially of the left prefrontal, cause symptoms of interference with the highest psychic functions; for example, loss of memory and power of attention, abstract conception, comparison, judgement, and higher imagination. Such lesion must be destructive and of some extent in order to produce any decided effect upon the mentality of the individual. Tumours of the orbital surface of the frontal lobe give especially psychic, olfactory, and optic tract symptoms. A tumour of the left mid-frontal or intermediate psychic-motor region may give rise to motor aphasia, motor agraphia, Jacksonian epilepsy with spasm of the face and arm muscles and movements of the head and eyes, and some special psychic symptoms from involvement of the prefrontal region. Tumours of the post-frontal or motor region give rise to paralysis of the face, arm, and leg, the arm being most frequently and most markedly affected, and a tumour strictly confined to this region does not cause any persistent objective sensory phenomena. Tumours of the parietal lobe—that is, that portion situated between the central fissure in front, the line of the parieto-occipital fissure behind, and that of the Sylvian fissure below, give rise to moderate impairment of cutaneous sensibility, especially of pain and temperature senses, diminution or loss of muscular sensibility, and astereognosis. If other symptoms are present they are due to pressure or invasion of neighbouring areas with different functions. The cortical representative of cutaneous and muscular sensation is separate from that of movement, and not only is it distinct for face, arm, trunk, and leg, but also for special areas of the skin, these being definitely correlated with subdivisions of the sensorial and stereognostic cortex. Tumours of the region of the junction of the parietal, occipital, and temporal lobes—the visuo-auditory area of the cerebral zone of speech—may cause word-blindness, letter-blindness, and number-blindness, verbal amnesia, visual agraphia, paragraphia, alexia, dyslexia, and paralexia. If the disease invades in a postero-inferior direction the chief symptoms will be auditory aphasias and hemianopsia, while if invasion is antero-superiorly, astereognosis and disorders of cutaneous and muscular sensibility will arise. Tumours of the mid-temporal region are rare, and would probably give rise mainly to word dumbness. Of tumours of the occipital lobe involving the lower and higher visual areas, only those situated mainly in the lateral occipital region are operable. Sources of error in diagnosis may arise in a case where cerebellar, sixth nerve, and other symptoms were present, due to the tilting of the brain and its becoming jammed into the foramen magnum by a prefrontal growth. Jacksonian epilepsy may be merely a part of the convulsive attack in a case of idiopathic epilepsy, and although due to a variety of focal lesions and general states, it may be attributed to a tumour in the motor region. Parietal or prefrontal symptoms may be masked by motor manifestations due to pressure and invasion. While sixth-nerve paresis may indicate direct involvement of this nerve, it may also be an indirect symptom of a large tumour in various regions. Where multiple tumours are present it is rare to find more than one in the cerebrum proper, the others being at the base or in the cerebellum. In diagnosing haemorrhage from tumour the former is usually sudden in occurrence, though it may develop more or less slowly, and it may sometimes occur during the growth of a tumour.

36. Syphilis, Tabes, and Paresis.

HÜBNER (*Neurolog. Centralbl.*, March 16th, 1906), has investigated the frequency with which tabes dorsalis and progressive paresis are found amongst prostitutes, and also the frequency with which these persons are affected with diseases directly the results of syphilis. As a result of his investigations, he found that amongst 84 prostitutes there were 23 cases of paresis (27·3 per cent.), 5 cases of tabes (5·9 per cent.), and 12 cases of cerebro-spinal syphilis (14·2 per cent.). These figures are in marked contrast to those obtained from an analysis of 150 cases of women none of whom were prostitutes. In these he found 2·7 per cent. with tabes, 16·7 per cent. with paresis, and 4 per cent. with cerebro-spinal syphilis. From these figures it is seen that tabes, paresis, and cerebro-spinal syphilis are twice as frequently found amongst prostitutes as in chaste women. The author further finds that if all his cases of prostitutes be considered together, 42·8 per cent.—that is to say, nearly half their number—were suffering from affections directly or indirectly due to syphilis, and these results confirm the idea as to the syphilitic origin of tabes and paresis. The author next investigated the frequency of childless marriages in tabetic and paretic women as compared with those in women not suffering from these affections. The results of his investigations on this point confirm those of Mendel—that is, sterility is twice as common in tabetic or paretic women as in healthy women, and this excess he thinks far greater than can be accounted for by the existence in these patients of gynaecological or post-gonorrhoeal troubles—well-recognized causes of sterility. If conception does occur in women with tabes or paresis, abortion subsequently occurs much more frequently than in healthy women; if a living child be born it dies early, or shows signs of congenital syphilis. Before concluding his essay, the author quotes the histories of three families to show the influence of syphilis in giving rise to tabes, paresis, or cerebro-spinal disease; and in these histories it is seen that only those members who became infected with syphilis developed those diseases; those members who were not infected with syphilis, in spite of being subjected to great fatigue and over-exertion, remained healthy.

37. Irrespirable Air in Ships.

G. GIEMSA (*Arch. für Schiffs und Tropen Hyg.*, Bd. 10, No. 5) calls attention to deaths which have occurred on board cargo ships as a result of the bad air in the holds. The accidents tend to occur when the ship has just returned after a sea voyage in which the hatchways and ventilators have been closed on account of the weather, the victims being the men who first go into the holds which have been closed up. Six instances are given, taken from newspapers. The deaths have occurred in holds, and in one case in an empty water tank, in another in a cabin. The cargoes with which the holds were loaded were not the same in all cases; amongst the different cargoes are mentioned dried grain, oil cake, resin, sardines, and chests with parts of machinery. In the case in which the death occurred in the fore cabin the cargo consisted of stable refuse. A light, when lowered into the cabin, was found to be extinguished at a distance of about 2 ft. 6 in. from the floor, and on removing the floor of the cabin the bilges were found filled with a quantity of black, filthy and offensive fluid. In some of the cases the irrespirable air acted very suddenly upon the victim—thus in one case a man going down into a hold became powerless before he reached the bottom step. The deaths were in most cases put down to carbonic acid gas poisoning, but the suddenness with which the effect was produced seems to point rather to a deficiency in oxygen than to an excess of carbonic gas, for experiments on animals have shown that carbonic acid gas up to 20 to 25 per cent. of the total volume of air does not kill in less than an hour. This supposition was supported by an examination made on the air contents of an empty water tank similar to the one in which a sailor died, the second tank not having been previously opened; in this tank the percentage of carbonic acid was almost unchanged, while that of oxygen was reduced to 21 per cent. of the normal. In order to decide upon the probability

of the absorption of oxygen from the air in shut-up holds, in the presence of certain forms of cargo, the author placed different substances, such as linseed cake, pieces of rosin, coal, coke, Indian corn, and iron shavings in different closed flasks, for periods of 8 and 21 days, under differing conditions of heat and moisture, and at the end of the times made examinations as to the amount of oxygen and carbonic acid gas in the air in the flasks. By these experiments he demonstrated that the materials in question absorb oxygen, and that this absorption is greatest if the air be damp and warm, when it soon becomes in the highest degree irrespirable; the oxygen in the flasks containing iron shavings and Indian corn respectively had completely disappeared at the end of eight days' time and in other cases the percentage of oxygen was as low as 0.2 and 0.3. The carbonic acid was found to be increased in amount when organic substances—for example, Indian corn—were experimented upon, but in other cases it was either not increased or only increased to a small amount. Two methods of testing the air in holds in order to avoid accidents suggest themselves—one that of lowering into the hold a burning lamp in order to see whether it will be extinguished; the other that of observing the effect of the air upon some small animal, such as a mouse, lowered into the hold in a cage. The first test is not satisfactory when deficiency of oxygen is in question. A lamp will go out when the amount of oxygen falls below 14 to 15 per cent., but the effect of lack of oxygen is shown on animals when 16 per cent. is reached. The second is a more satisfactory method. One of the author's suggestions, with a view to limiting the formation of irrespirable air, is that quicklime in metal vessels, with ventilated walls, should be placed at different points within the hold, and especially near to the ship wall.

SURGERY.

38. Hernia through Foramen of Winslow.

Faure (*Bull. et Mém. de la Soc. de Chir. de Paris*, No. 12, 1906), in a report on a case of intestinal strangulation at the foramen of Winslow, communicated by Jeanbrau and Riche, gives an instructive review of the diagnostic and therapeutical aspects of this rare form of internal hernia. In three-fourths of the recorded cases the strangulated mass consisted of small intestine; and in the remaining fourth of transverse colon which, it has been found, may drag with the ascending colon and even the caecum, which extension, however, is hardly possible, except in connexion with certain arrests of development, and with persistence of a mesentery common to both small and large intestine. In two cases the great omentum formed part of the herniated mass. The clinical phenomena are those of intestinal obstruction with epigastric or umbilical pain. The sole really important symptom in regard to the diagnosis of the localization of the obstruction is the presence of a swelling in these regions. Hitherto, Faure points out, a precise diagnosis has never been made before the performance of laparotomy, and, it is added, it has often been found difficult even after exposure of the abdominal contents. Attention is directed to the anatomical researches of Jeanbrau and Riche, made with the view of devising some effectual method of relieving, by incision of the margin of the foramen of Winslow, the intestinal constriction. It has hitherto been assumed that the numerous difficulties in affording such direct relief are insuperable, as incision of the margin of the foramen is rendered impracticable by the contiguity of the vena cava behind, of the portal vein in front and on the left, of the common bile duct in front and on the right, and the Spigelian lobe above. Jeanbrau and Riche have suggested a method of dilating the foramen by attacking its lower boundary in the interspace between the vena cava and the portal vein. Faure, regarding the procedure of these surgeons as complicated, dangerous, and ineffectual, suggests one which, though simple in theory, is not unlikely in its practical application to be found very difficult. He proposes to incise the peritoneum along the descending portion of the duodenum to the level where the membrane passes from the posterior abdominal wall to the second portion of this intestine. By means of the finger introduced through this incision the vena cava can be separated from the duodenum, the head of the pancreas, and the portal vein, and the inferior margin of the foramen of Winslow be thus relaxed. If in a supposed case of strangulated hernia through the foramen of Winslow, and, indeed, in other varieties of internal strangulation, the patient be in an alarming condition, and the intestine much distended, Faure would abstain from prolonged exploration and free handling of the abdominal viscera, and would establish a false anus above and as close as possible to the umbilicus. If the patient recovered, a second operation, should such be required, could be performed under much more favourable conditions for the removal of the obstacle and the reduction of the herniated intestine. Such procedure, though less brilliant, would, it is argued, be more successful than that proposed by Jeanbrau and Riche of making an incision in the wall of the distended intestine for the discharge of its contents, and then proceeding to explore and, if possible, to dilate, the seat of the constriction.

39. A New Method of Gastrostomy.

Tavel (*Zentralbl. für Chir.*, No. 23, 1906) points out that of the numerous methods of gastrostomy practised for the palliative treatment of oesophageal stenosis, those which are based on the formation of a more or less elongated canal give, with regard to continence, the best functional results. The operations hitherto devised with this object by Witzel, Kader, and others present, the author holds, several disadvantages. The canal formed in each of these methods, as it is not lined by mucous membrane, has a constant tendency to close, and moreover, as it is narrow and admits only a tube of small calibre, nourishment must necessarily be administered in a fluid form. The more recent have, in common with the older methods of gastrostomy, the serious disadvantage of anchoring the stomach to the abdominal wall, and of thus restricting the movements of the viscus, which might impair its functional action. These disadvantages, it is held, might be overcome by interposing between the gastric and the external openings an excluded or resected portion of small intestine, still connected with its corresponding portion of mesentery, the divided ends of the intestinal canal being united by end-to-end suturing. In this way may be formed a new oesophagus, with peristalsis acting in a direction towards the stomach. After very satisfactory trials of this method on animals the operation was practised by the author, with excellent results, on a man, aged 32, for the relief of impermeable stricture of the oesophagus. In this case a portion, 15 c.cm. in length, of the small intestine just beyond the jejunum, was resected, and, after the intestinal continuity of the rest of the intestinal tract had been re-established, was passed through openings made in the omentum and mesocolon, and fixed by its anal end to the margins of an opening made in the anterior wall of the stomach, and by its gastric end to the external wound. In this case, it is stated, not the slightest trace of fluid food, which could be freely and readily passed into the stomach, was extruded on coughing and violent exertion. In regard to the objection, a serious one in cases of advanced oesophageal stricture, of gastrostomy by this method being a long operation, the author suggests that this may be overcome to some extent by fixing the outer end of the excluded portion of the small intestine, not to the large original wound in the abdominal wall, but to a much smaller one made quite apart from this. A few minutes may be thus gained in the application of sutures, and, as a further advantage of such modification, it will be possible to feed the patient soon after the operation without any risk of soiling the sutures of the original and larger wound.

40. Operative Treatment of Exophthalmic Goitre.

Farquhar Curtis (*Annals of Surgery*, March, 1906), who in 1903 published 18 cases of exophthalmic goitre treated by operation, 7 by sympathectomy, 11 by thyroidectomy, gives later reports on the condition of the surviving patients, and adds 3 fresh cases of the same disease treated by the latter operation. Of the 21 cases 7 were fatal, death having been due in most instances to acute thyroidism. The ultimate results of sympathectomy, the author finds, are fairly satisfactory, but this operation, it is pointed out, is much more difficult than thyroidectomy, is not so easily practised with local anaesthesia, and its mortality is fully as high as that of the latter operation. For these reasons the writer prefers thyroidectomy. Combining the statistical results of his own practice with those of some other surgeons, the author gives a total of 136 cases of exophthalmic goitre treated by thyroidectomy with seventeen deaths, chiefly from acute thyroidism. Four relapses are noted in this list and several cases were not followed, but there appear we are informed, to be over 100 cases in which a cure was practically attained. It has been objected that the presumed operative successes represent the periods of temporary improvement so often seen in exophthalmic goitre with or without treatment. But, it is argued, as so many of the patients in these lists have been followed for several years, and have remained well without any kind

of treatment, doing ordinary work, and sometimes very hard work, this theoretical explanation of the results must be regarded as untenable. Whatever the danger of the operation may ultimately be shown to be, even if it should continue with a mortality of 12 per cent. or more, there can be no doubt, in the author's opinion, that nearly all of the survivors will be cured, and it will probably be long before any internal treatment will be able to show like results in advanced cases of this distressing disease.

OBSTETRICS.

41. Goitre Complicating Pregnancy.

MORGAN (*Bull. of the Lying-in Hosp., City of New York*, March, 1906) reports the case of a young woman suffering from a goitre who became pregnant for the fourth time. The swelling in her neck had been present for some years, but had caused her little inconvenience at former confinements. For the last five months of the present pregnancy her neck had been gradually increasing in size; it measured 46 cm. For two months she had suffered from dyspnoea and cardiac palpitations; at the time of admission she had air hunger and was cyanotic, her condition was poor, respirations 48, pulse 120, no exophthalmos present. Both lobes and the isthmus of the thyroid were enlarged, the swelling extending below the border of the sternum. The heart was much enlarged, no murmurs were observed, but there was slight oedema of the lungs. She was delivered without the use of instruments. Tracheotomy was considered, but as she breathed more easily after delivery it was not performed. Her condition suddenly became worse and she died a few minutes afterwards. The autopsy proved that the operation would have produced no benefit, her death being due to the cardiac condition. The thyroid gland measured 23½ cm., the right lobe was very firm; microscopically it showed congestion and oedema of the interstitial stroma, there was general adenomatous proliferation, the acini being distended by colloid material. The left lobe was semi-fluctuating, the gland was broken down, and the substance of the structure formed of loose fibrous connective tissue, in which there was a large deposit of colloid. The heart weighed 325 grams, all the chambers were dilated, the myocardium was thin and of a pale yellow colour, the right auriculo-ventricular orifice admitted four fingers, the left admitted two. The valves were normal except the mitral, which had small patches of fatty degeneration at the base. The lungs showed subpleural haemorrhages, and were very oedematous, with small areas of atelectasis throughout the substance. The liver extended three fingerbreadths below the margin of the ribs; it was much congested, and weighed 1,750 grams. The kidneys were large and pale, and generally congested, the parenchyma was granular and cloudy. Small haemorrhages were also found in the mucous membrane of the stomach; the arterial system was normal.

GYNAECOLOGY.

42. Perils of Intrauterine Instruments.

JAKOB (*Zent. f. Gyn.*, No. 19, 1906), in a thesis on the dangers of intrauterine instrumental treatment, has collected 141 cases of perforation of the uterus and others of alleged sounding of the Fallopian tube. The perforations were caused by the curette in 75 cases, the sound in 19, the dilator in 16, the ovum forceps in 14, and the nozzle of a syringe in 6. In 64 cases the uterus had been gravid, 30 being abortions, 34 puerperal. In 12 cases instruments were used for metritis independent of gestation, in 7 for malignant growths, in 3 for removal of a polypus, and in 1 the uterus was perforated during the application of the tampon after abortion. In 5 cases of perforation the case was under treatment for retroflexion, in 4 a fibroid uterus was perforated. Rupture of the uterus during pregnancy occurred in 4 cases where there had previously been instrumental perforation. Jakob declares that he has collected 7 authentic cases where the sound entered the tube, 23 out of the 141 cases of perforation ended fatally, mostly through septic peritonitis, whilst in 77 no grave symptoms were noted. When danger threatens the patient after an intrauterine wound, abdominal section, with or without extirpation of the damaged uterus, is indicated. In some cases the iodoform gauze tampon, or even opiates and application of ice, have proved sufficient. In 2 cases where spontaneous healing occurred abdominal section was necessary afterwards on account of extensive adhesions.

43. Primary Tuberculosis of the Vulva in a Child.

HAMBURGER (*Wien. med. Woch.*, February 3rd, 1906). A female child, 3 years of age, was found to be subject to bilateral inflammation of the inguinal glands with little pain. In hospital the source of the glandular inflammation was traced to an irregular ulcer of the labia minora in the region of the commissure. It was irregular, and suppurated but little. Diphtheria, gonorrhoea, and chancroid were excluded, and the *Bacillus tuberculosis* was found in great quantity in the discharge from the sore. The after-history confirmed the diagnosis of primary tuberculosis of the vulva. Chronic suppuration of the inguinal glands followed, then scrofulous cachexia, phlyctenular ophthalmia, suppurative otitis, eczema of the ears, and general glandular enlargements. The lungs were never involved, and the child's health rapidly improved when she was sent to the country. The vulvar ulcer healed, leaving a scarcely perceptible cicatrix.

THERAPEUTICS.

44. The Treatment of Tuberculosis of the Mucous Membranes.

E. HOLLAENDER (*Berl. klin. Woch.*, June 4th, 1906) speaks on the treatment of tuberculosis of the mucous membranes, basing his remarks on his own ten years' experience. Before entering on the therapeutic discussion he briefly sketches the clinical appearances of the affection, as he points out that the pathological picture which he has described from the experiences of many hundred cases is not generally accepted; that the course, frequency, and prognosis of the affection is not properly grasped, and that a treatment can only be fully understood after one has gained a knowledge of the pathogenesis. Tuberculosis of the mucosae of the upper air passages may be compared with that of the bladder. Formerly one thought that the process always ascended, but in more recent times one has learned that it may ascend. Although tuberculosis of the upper air passages frequently starts in the lungs and descends along the mucous track of the bronchi, trachea, etc., he states that it is quite common for it to spread in the reverse direction. It is not necessary to draw up a precise difference between tuberculosis and lupus; one meets with all sorts of transition forms; one may find destructive processes occurring simultaneously with hypertrophic tuberculous formations, especially in the gums and in the larynx. He is of opinion that the tumour-form growths which entirely block up one nostril are not primary disturbances of the mucous membranes, but start in the septum as tuberculomata, and are covered by smooth atrophied mucous membrane. He therefore prefers to divide the affections into two groups—the primary or ascending, and the secondary or descending—instead of distinguishing between tubercle and lupus. The primary affection climbs chiefly along the lymphatic channels centrally, attacking with preference the upper and lower surfaces of the soft palate, the posterior pharyngeal wall, the uvula, and, lastly, the larynx. It is only relatively late that one observes changes in the lungs, and then one finds that these are limited to the same side as the changes in the fauces and nose. While dry, ordinary lupus may not produce any gross defects in the tissues, the moist, vascular form frequently destroys the middle portion of the face in a few months. He has been able to show that this destructive process contains a certain curative tendency. The loss of the nose, for instance, removes the obstruction to respiration, and he has often seen an ascending tuberculosis heal up completely of itself as soon as the breathing is freely established again. One must therefore avoid favouring the development of stenosis, and for this reason tracheotomy is the worst conceivable treatment for ascending laryngeal tuberculosis, while, as one can easily see, it may do much good in the descending form. He therefore deals with his cases by his method of hot-air cauterization. He says that the technique remains the same which he published some time since, only he obtained greater deep action by the assistance of adrenalin, which renders the mucosae anaemic. He has treated 100 cases of nasal mucous membrane tuberculosis (mostly combined with lupus of the outer skin, but in a few cases without this), about 30 cases of tuberculous and lupous affections of the mouth and gums, about 12 cases of tuberculosis of the lips, and 1 case of extensive tuberculosis of the tongue. In 6 cases he was obliged to incise the nose, in order to get at the interior of the organ. In 3 cases he cauterized the interior of the larynx, after laryngotomy, with hot air. Tuberculous processes in the

gums show a somewhat marked obstinacy even towards hot-air cauterization, as compared with that of the hard palate, and the affection in the tongue yields well to the treatment. Instead of giving statistics of his results, he masses them all together, and says that scarcely one of them showed itself quite refractory against the treatment, while he was able to cure all more or less localized cases completely. He also reports excellent results obtained in the treatment of tuberculosis of the mucous membranes elsewhere by the same method. He then discusses another form of treatment, which has served him well. After trying a number of organic acids, and obtaining unsatisfactory results even with lactic acid, he achieved fair results at first with 1 in 1,000 perchloride of mercury and iodoform, but he found that the latter excited secretion too much, and therefore he left it out. But as he was anxious to utilize the antituberculous action of iodine, he introduced a treatment by quinine and iodine which answered extremely well for lupus erythematosus. The beneficial action of this combination depends on a chemiotactic action of the iodine, and he therefore sought to secure somewhat of the same action for the post-cautery stage of mucosal tuberculosis. He found that, by placing a plug containing some calomel powder on the affected mucous membrane, and giving iodides internally, not only did the iodine combine with the mercury to form the iodide, but that there was the same chemiotactic attraction for the iodine. The effect of this could not possibly be due to the pure action of calomel. The cauterization effected is absolutely elective, and he quotes cases in which the value of the treatment is exemplified. He advises it especially in treatment of tuberculosis of the bladder, of the larynx, and mouth.

45. X Rays in Graves's Disease.

R. Stegmann (*Wien. klin. Woch.*, January 18th, 1906) has treated three cases of exophthalmic goitre by the Roentgen rays. In the first the goitre was completely cured, though the disease was of five years' duration. In the second, the disease, which was in an early stage, was improved. The tachycardia and nervousness disappeared, and the patient could resume her occupation of pianist. The first patient was so completely cured that she could perform the most laborious of household duties. The third case, a girl aged 14, was also completely cured, though the disease had resisted electricity, strophanthus, rodagen (prepared from the milk of thyroidectomized goats), Möbius's serum, and other forms of treatment. The three cases prove that the Roentgen rays, properly applied, are capable of curing, or at least improving, the symptoms of Graves's disease. Probably the rays damage the thyroidal epithelium, so that their secretion undergoes both a quantitative and qualitative change. Further experience will decide whether a good result is obtainable in all cases of exophthalmic goitre or only under special conditions.

46. Treatment of Typhoid Fever.

J. R. Landers (*Med. Record*, June 2nd, 1906) holds that in typhoid fever the faeces can be relatively disinfected, the alimentary tract can be made normally clean, and the faecal contents can be rendered as aseptic as they are in health. He declares that if, simultaneously with intestinal antisepsis, the phagocytes are increased, the physician has the case in hand, so that the later dangerous complications, such as haemorrhage and perforation, do not occur. He prefers the sulpho-carbolates of lime, sodium, and zinc as intestinal antiseptics. The physician should assure himself of the purity of these salts. By the administration of nuclein, leucocytosis can be reinforced or augmented to almost any necessary degree, to the complete overthrowing of invading bacteria. The sponge or full bath should be used. The diet should be one that can be digested and assimilated. Mild salines will keep the bowel cleared out. The writer has used the method he describes for years, and he states positively that it will prove absolutely efficient.

47. Leprosy Treated by Subcutaneous Injections of Iodoform.

Diesing supplements his experience of the treatment of leprosy by subcutaneous injections of iodoform by 3 new cases, making 5 cases in all (*Berl klin. Woch.*, June 7th, 1906). He uses a 30 per cent. emulsion of iodoform in olive oil and injects from 2 to 8 c.cm. of this daily under the skin. At first he chooses the neighbourhood of the affected areas of skin, and later, when the lesions are healing, some suitable situation. He increases the dose fairly rapidly up to 8 c.cm. and finds that he attains the desired result in about six weeks. In one case the affection was localized on the skin of the forehead, cheeks and nose, presenting very numerous tuberous nodules, while on the body in various situations were largish patches of yellow-brown or red-brown colouration, where the skin became like leather. These patches were partly or completely anaesthetic patches. The case was therefore one of maculo-tuberous variety, a mixed form of anaesthetic and tuberous leprosy. In the course of six weeks, after 85.8 grams of iodoform had been injected, all the signs of the disease had disappeared. The other 2 cases were milder cases of the anaesthetic form. They, too, yielded easily to the treatment. The author states that all other iodine preparations and iodoform itself when given in any other fashion fails signally to influence the course of the illness, but tincture of iodine may be applied with benefit externally while the iodoform is injected subcutaneously. After about a fortnight, the affected areas, even far distant from the site of injection, begin gradually to be affected. In order to explain how the iodoform can work, he puts forward two possibilities: Either the amount of liberated iodine is sufficient to disinfect the whole body, or the bacilli having been killed by the iodine produce or set free antibodies, which eventually attack and destroy all the organisms present in the body. He says that although he has given doses which exceed the maximum pharmacopoeial doses, he has not met with any unpleasant side-effects.

PATHOLOGY.

48. The Staining of Blood Films.

Alphonse Huisman (*Méd. et Hygiène*, No. 4, 1906) has made a comparative study of the value of different methods which have been recommended for the staining of blood films. He has tried seventeen different formulae, following the directions given by their various authors, but finds that, with the exception of Jenner's stain, they do not readily yield good results, and often involve a long and complicated technique. With Jenner's method he is always able to obtain satisfactory preparations, but he thinks he can improve upon it by the introduction of certain modifications of his own. The stain he uses is a mixture of equal parts of a 1·175 per cent. solution of solid azur blue in pure absolute methyl alcohol, and a 0.825 per cent. solution of eosin BA (Höchst) in the same medium. He stains for two minutes without previously fixing the film. By this method the nuclei appear a violet-blue, whilst the basophile protoplasm takes a light blue stain which gives a good differentiation from the rest of the preparation. The red corpuscles are rose-coloured. The neutrophile granules are rose-violet, violet, or violet-blue; basophile granules are blue; the metachromatic basophile granules are violet-red, and the oxyphile granules are red. The author also observes that some of the lymphocytes exhibit, when stained by this formula, evidence of a fine, blue, or metachromatic granulation.

49. A Test for Bilirubin in the Blood.

U. Biffi (*Bull. delle Sci. Med.*, May, 1906) describes a new test for the presence of bilirubin in human blood. The tests at present employed all demand comparatively large quantities of blood, and cannot be employed until a clear serum has been obtained therefrom by coagulation. The author takes from 2 to 5 c.cm. of blood, adds to it a little powdered sodium oxalate to prevent coagulation, and shakes it up for two minutes with at least 2 volumes of chloroform, and then filters the mixture at once through thin filter paper. The blood stays behind and the chloroform comes through with a brilliant yellow or orange tint if any bilirubin is present. If large quantities of blood are taken and the filtrate is concentrated, it can be shown that bilirubin occurs in normal human blood. The presence of bilirubin in the chloroform extract can be proved by (1) evaporating to dryness, dissolving the residue in dilute acetic acid, which gives a bright yellow solution, and adding a trace of a 0.5 per cent. solution of sodium nitrite, when a play of colours—green, blue, violet, finally reddish-yellow—is obtained; or by (2) agitating the chloroformic extract with a few drops of 0.5 per cent. NaOH, when the bilirubin dissolves into the alkaline fluid, filtering, and washing with a few centimetres of alcohol strongly acidified with HCl. This produces a greenish-yellow fluid, which turns green and then blue on boiling.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

50. **Is Hysteria a Nervous Disease?**

P. KRONTHAL (*Berl. klin. Woch.*, May 28th, 1906) discusses the nature of the disease "hysteria." He first attempts to show that this disease is accepted as being a nervous disease; then he describes what one understands as hysteria; and, lastly, he formulates a new theory as to the nature of the disease. The first point is dispatched briefly. Turning to the question, What does one mean by hysteria? he finds that three definitions have been given. First, he quotes those who find it impossible to define it on account of the multifariousness of the symptoms: next he quotes those who regard it as a functional neurosis; and, thirdly, he deals with those who define it with the assistance of philosophical theories. With regard to the first, he objects on principle to defining any disease according to the symptoms, and is of opinion that in defining a disease one describes in a few words some tangible points of the disease, so that one can recognize it definitely again from the description. He objects to the second theory likewise. He regards functional and neurosis as tautology, and further believes that the term "neurosis" is only given to diseases of which we have practically no conception as to their pathology. He thinks that one of the reasons for having defined hysteria as a disease of the nervous system is that when an individual (for example, a person suffering from hysteria) reacts morbidly, one regards his or her nervous system as diseased. But the author points out that integrity of all the cells of the body, and not only of nerve cells, is required for normal reaction. Turning from this point to the third theory of disturbances of the psyche, he states that a person who reacts other than normally is considered to be mentally affected. It is therefore the same thing if one says that a person's mind is pathological, or if one says that the sum total of his reflexes is pathological. Regarding the mind as an action and not as a material object, he does not find any support to the theory that it should be localized in the nervous system. The differential diagnosis between hysteria and organic nerve diseases depends on the localization of the signs of illness, and if none is found one may conclude that hysteria is present. In this he finds support in his statement that hysteria is not a disease of the nervous system. His theory of hysteria depends on his conception of the reaction of the body. Normal reaction is regarded as the response to a stimulus which is usual. If a person does not react at all, or cries out violently when he is lightly pricked on the back, for example, we regard the reaction as abnormal. In hysteria these abnormal reactions vary in the same patient at different times. Arguing from this, he comes to the conclusion that hysteria is an easily changing morbid reaction of the cells, which make up the whole individual, or, as he expresses it, also of the elementary organisms of the individual. He believes that in the treatment of the disease the great aim should be to so influence the cells of the body that the total reaction becomes normal again. If one merely cures a temporary symptom of hysteria, for example, paralysis, one has only done a small amount of good, for the disease continues to exist, and will manifest itself in some other fashion at a later date. The patient is still hysterical; it is therefore necessary to use general means to influence the elementary cells.

51. **Arterio-sclerosis of Aorta.**

OPHULS (*Amer. Jour. of Med. Sci.*, June, 1906) found experimentally that in the early stages at least of arterio-sclerosis of the aorta there was no sign of weakening of the muscle underlying the thickened areas of the intima, and he considers that the muscular weakening found in later stages is a secondary result. From a study of seventy-five cases, varying from the early appearance of a few scattered, slightly prominent, yellow, translucent spots in the intima to the severest lesions presenting loss of elasticity and dilatation, he concludes that it is impossible to subdivide the condition anatomically into separate groups, as the disease is a chronic inflammatory process which attacks all the coats of the aorta simultaneously, the lesions being sometimes more marked in the intima and sometimes more in the media and adventitia, but generally the intima and adventitia are the first to show noticeable changes. In the former proliferation of the connective tissue cells takes place, followed by a fibrous thickening, and in the latter cellular infiltration takes place around the vasa vasorum, ultimately leading to a fibrous thickening of the external coat. In the muscle little may be found beyond a slight collection of cells around the vasa vasorum. The proliferation of cells in the intima is followed by a fatty degeneration, often commencing in the deeper layers and usually ending in necrosis. These changes often extend into the upper layers of the media. Although anatomically a unit, arterio-sclerosis of the aorta is etiologically very complex, and such varying factors as old age, mechanical strain, chemical irritation from poisons and infections, especially syphilis, may play a very important part in its production.

52. **Primary Infection of the Salivary Glands in the Old.**

G. ETIENNE (*Prov. Méd.*, May 26th, 1906) briefly summarizes the various means which prevent infection of the salivary glands and ducts occurring in a state of health; these are the sweeping away by mastication, deglutition, and the taking of liquids, especially when acidulated or alcoholic, of the numerous microbes occurring in the buccal cavity, and particularly the antiseptic properties which normal saliva possesses. If the acts of mastication and deglutition be diminished or suppressed, such as may occur after gastrostomy or gastro-enterostomy, the secretion of saliva is rendered sluggish, stagnation occurs in Steno's duct, and invasion of the orifice of the duct and infection of the salivary gland by microbes is liable to occur. In acute diseases, such as pneumonia or typhoid, a similar state of things is liable to be present. In old age these modifications of the buccal functions are most marked and readily explain the not uncommon occurrence of inflammation of the salivary glands found in these patients. The involvement of the salivary glands occurs by a spreading up of infection from the orifice of the excretory duct and is assisted by a previous affection of the gland parenchyma, such as may occur in acute infectious diseases. In old people the salivary glands are found to have undergone certain degenerative changes which render them very liable to infection spreading from the buccal cavity; in some the gland is found to be invaded by adipose tissue, which cuts up the lobules and surrounds the *cul de sac*, so that the secretory canals appear reduced in size; this invasion of fat begins at the periphery of the lobules and little by little reduces the whole gland, so that it resembles a tree with branches, but deprived of leaves; the excretory canals are much more atrophied than the secretory. In more advanced cases one finds the canals dilated, the cells lining them deeply coloured and presenting scarcely any longitudinal striation; they are small, cubical, crowded together, and with elongated nuclei. The glandular *culs de sac* are very small, and at certain places the canals are dilated to form ampullae, with very modified cells, possessing no trace of secreting function; around the canals the connective tissue is abundant. The author finds that acute salivary gland infection is common amongst old people (16 out of 45 cases were in the aged), and in such is much more frequently a primary manifestation than when occurring in younger people. The special frequency with which the parotid salivary gland is affected, the author thinks, is due to the exposed state of Steno's duct, to the parotid secretion being largely dependent upon reflex stimulation from the buccal cavity, and to the fact that the function of this gland is more affected by any interference with mastication and deglutition than is that of the other salivary glands. The sublingual gland is comparatively rarely involved by infection, probably owing to the movements of the tongue in speaking, etc., preventing any stagnation of secretion in its duct.

53. **Tertiary Syphilitic Fever.**

D'AMATO (*Rif. Med.*, March 10th, 1906) reports three cases of syphilitic fever occurring in the tertiary period and cured in each case by antisyphilitic treatment after other treatment had been tried and failed. This response to specific treatment is one of the chief points in the diagnosis of syphilitic fever. In one of the cases the fever was of the intermittent quotidian type, followed by profuse sweating when the temperature fell; in the two other cases it was more or less continuous. The primary infection

occurred fourteen, sixteen, and eight years previously. In two of the cases the fever had first made its appearance in the secondary period, and in one in the tertiary period. In each case the temperature remained febrile for long periods. In the first case it lasted two years and eight months (in two attacks); in the second case the fever lasted, with slight interruptions, for ten years; in the third case for eight or nine months. Perhaps these cases are somewhat exceptional in their duration. Each case had some hepatic complication; the first suffered from perihepatitis, the second from hepatic gumma, and the third had jaundice. Although a visceral syphilis not infrequently accompanies syphilitic fever, it is not essential, for during the first attack of syphilitic fever in Case No. 1 there was no hepatic trouble. It is possible that syphilitic fever may cease spontaneously, but in these cases there is very likely to be a relapse; the only security is adequate specific treatment.

SURGERY.

54. The Accidental Origin of Abdominal Hernia.

Berger (*Revue de Chirurgie*, Nos. 4 and 5, 1906) publishes an elaborate memoir on the etiology and origins of hernia, with special reference to the responsibility of industrial employers in cases in which it is alleged that this affection has been accidentally produced in labourers whilst engaged in their work. The author, who bases his opinions on a long and very wide study of the causation and pathogenesis of the different forms of abdominal hernia, alludes in his preliminary remarks to the complexity of his subject, and to the many difficulties with which the medico-legal expert has to deal. He has, in the first place, to make out whether in any genuine case the accident was the primary and direct cause of the hernia, or whether it first directed the bearer's attention to a small pre-existent protrusion, or again, whether it accelerated the development of the protrusion which, though not affected at the time of the injury, was more or less favoured either by abnormal patency of the inguinal canal, and arrested closure of the peritoneo-vaginal canal, or by structural weakness of the anterior abdominal wall. To these difficulties another has been added in recent years, as in cases in which an operation for radical cure has been performed, the expert, whether such operation has or has not been successful, may be called upon to decide on the spontaneous or accidental origin of a hernia which no longer exists or which at least no longer presents its original form. The accidental origin of the hernia having been established, the medical expert has further to pronounce on the prognosis of the protrusion, the degree of incapacity caused by it in regard to the calling or special work of the patient, and the duration of such treatment as would enable him to resume his work. Direct injury is, the author states, a possible but very rare cause of hernia, and in most cases in which the protrusion follows a severe blow over the groin it is held to be due rather to violent defensive contraction of the abdominal muscles than to direct action of the traumatic agent. The accident to which the subjects of hernia attribute the production of their swelling is almost always characterized by a brusque and instantaneous mechanical action, which affects but indirectly the seat of the protrusion. This action, which consists in a more or less violent muscular effort or straining, is associated with a sudden increase of the intra-abdominal pressure which overcomes the resistance of the abdominal wall, and determines one or other of the varieties of hernia. The author makes what he considers a very important distinction between *professional* and *accidental* causes of hernia produced by muscular efforts, the former consisting in such efforts as are not distinguishable except by a greater development of force, from those which are habitually made by the workman in pursuit of his special occupation, whilst the latter are extraordinary efforts excited by some accidental cause, such as a fall, a blow, a slip, or the sudden and unexpected impact of a very heavy weight. The medical expert, in determining the share taken by accident, or by a cause considered as accidental by a labourer, in the formation of a hernia of which the man is affected, should make a very careful and close inquiry into a host of details relating to the conditions of the man's occupation, the nature of the accident, the previous history of the man and also of his parents, and especially of the circumstances and phenomena in regard to the hernia which it is alleged immediately followed the accident, and also the more or less remote consequences. The author points out the importance of a history of severe pain and of temporary incapacity in a case of alleged hernia from accident, and insists on the necessity of inquiries into the man's family antecedents in regard to hernia, and whether he had at any time been rejected as a military or naval recruit; and also of close personal examination, with the object of finding a second hernia or certain conditions, such as testicular ectopy and atrophy, and other signs of local weakness and malformation that would indicate a long existence or a congenital origin of the hernia under review. Elaborate directions are given for the guidance of the medical expert in examination of the hernia, of the corresponding and other abdominal openings, and of the abdominal wall. By the results of his large experience in cases of this kind, the author has been led to the conclusion that genuine herniae *de force*, such as are produced in a normally-constituted subject by an accident, a traumatism of any kind, or a muscular effort, form a very rare exception. In a large majority of instances, herniae alleged to be due to accident find their original cause in a predisposition created by weakness of the abdominal wall or by some congenital default. The only share taken by the accident or injury has been to hasten the appearance or, as is more frequently the case, to manifest the existence of a hernia that had previously escaped notice. In a section on the relations of congenital hernia and of hernia due mainly to weakness of the abdominal wall, and on the origin of acquired inguinal hernia, the author points out that none of the authoritative writers on the etiology of hernia have described the malformation of the musculo-aponeurotic planes of the inguinal region observed in the subjects of congenital hernia. In the course of a very long experience of operations for radical cure he has been fully convinced that, though herniae developed in adult life are often due to the pre-existence of a peritoneo-vaginal sac, they have their origin much more frequently in an arrest of development and a congenital malformation of the muscular planes and the fibrous bands of the inguinal region. In the examination of a hernia several months or, it may be, more than a year from the date of the accident alleged to have been its cause, the following conditions, it is stated, would indicate the pre-existence of the hernia: (1) A large scrotal or pubic hernia, the size of which exceeds that of a hen's egg; (2) an inguinal hernia with the external inguinal ring so dilated as to be capable of admitting the introduction of the thumb or of two fingers; (3) a hernial sac containing irreducible omentum or omentum modified in its consistence. On the other hand, an inguinal hernia *de force*, such as may be caused by pure traumatism, is small, protrudes through a narrow external ring, and when it is reduced cannot be followed by the surgeon's finger into the inguinal canal. There is good clinical evidence, the author states, of crural hernia having been caused by injury, but such instances are regarded as very exceptional. Umbilical hernia is never the result of traumatism, and is not likely, it is believed, to be attributed to any injury of labour. Epigastric hernia, or hernia of the linea alba—which, it is pointed out, occurs much more frequently than is generally supposed — is usually the result of faulty development of the fibrous bands between the recti muscles, and, if purely the result of injury, would at the time of its origin be associated with intense pain and shock, and other signs of severe abdominal contusion. The author, however, rejects the possibility of an epigastric hernia being caused by force alone, and to the exclusion of a decided anatomical predisposition constituting already a primary stage of the affection. After a discussion of the points to be considered in dealing with an alleged accidental hernia after operation for radical cure, the author concludes with very elaborate instructions for the guidance of the expert in collecting and arranging materials for a full report.

OBSTETRICS.

55. Haematoma of the Vulva following Normal Delivery.

Davis reports (*Bull. of the Lying-in Hosp., City of New York*, March, 1906) the case of a primipara, aged 19, whom he saw twenty-four hours after her delivery by a midwife. The labour had been normal, and the child full-term: the patient had sustained a slight laceration of the perineum. Evidences of acute anaemia were present, and a tumour the size of a full-term fetal head was found in the left labium and surrounding region. It was tense, dark in colour, and the tissues round it were oedematous. It measured 19 cm. by 9 cm., and extended up alongside the vaginal wall, partially closing the vaginal opening. About

six hours after delivery a moderate but continuous haemorrhage and a small swelling of the left labium was noticed; this was arrested by packing the vagina, but recurred profusely some hours later, and it became necessary to pack the vagina tightly: bleeding was finally arrested after a considerable loss of blood. The swelling in the labium progressed until it reached the size indicated above. She was admitted to hospital with a temperature of 100° F. and a pulse of 80. Under a general anaesthetic the tumour was incised, and 1½ litres of black clot was turned out; the cavity was irrigated and packed. An opening 1½ cm. long was found in the vaginal wall leading into the cavity. Recovery was uninterrupted, the cavity closing by granulation, and the blood count showing an improvement the patient was soon able to leave the hospital.

GYNAECOLOGY.

56. The Menstrual Function and Mental Diseases.

A. SALERNI (*Il Policlin.*, April, 1906) discusses the facts, observed as long ago as the time of Hippocrates, connecting menstruation and menstrual disorders with the onset and course of mental diseases. The frequency of mental disorder in patients of unsound mind is recorded by numerous authors, and considerable discussion as to the relation in point of time between the onset of one disorder and that of the other shows that the usual course is for both to begin at about the same time. The menstrual irregularity usually persists at least as long as the accompanying psychopathy, and when menstruation becomes regular and normal before the mental functions are restored the prognosis as to restitution of mental health is bad. The author's own observations tend to show that psychopathic disorders of menstruation very seldom take the form of pain, and seldom that of amenorrhoea, but consist usually of some kind of irregularity, especially in the time of onset. On the other hand, menstruation usually determines an exacerbation of symptoms in the mentally unsound. These exacerbations are usually pre-menstrual or post-menstrual, but in the periodic insanities and in mental disease connected with arrested development the exacerbations are coincident with the onset of menstruation. Aggravation of mental symptoms at the beginning of the period usually lasts throughout it, or even into the next interval, but pre-menstrual exacerbations usually reach their height the day before menstruation begins, and cease when the flow is established. Taking the different forms of mental disease in order, Salerni states that in the periodic psychoses a connexion between mental and menstrual conditions is common but not invariable, and numerous authorities are quoted. He himself considers menstrual psychoses, properly so-called, include only those recurring rhythmically with the monthly period. In such cases hereditary predisposition is almost constant. The diagnosis rests on the following points: Neuropathic constitution of the patient, onset of the disease at the time of puberty, variable duration of the paroxysms, and either perfectly lucid intervals, or intervals marked only by slight psychical depression. The prognosis is doubtful; the result usually favourable. The clinical manifestations of hysteria are under the influence of functional dynamic disturbances of the nervous system, of which menstruation is a consequence only. In chronic psychoses the author suggests that some prognostic use may be made of the fact that periodic oscillations of temperature, pulse, and respiration occur in primary chronic amenorrhoea, showing that the menstrual flow is only one part of menstruation. The relation between psychopathy and menstrual disorder is especially well seen in the psychoses of intoxication, infection, and exhaustion, because both are effects of the same cause, as, for example, anaemia, alcoholism, or pellagra. By some authors a function of elimination has been ascribed to metrorrhagia, because the free loss of blood may appear to cause a lucid interval. Chronic psychoses are only slightly influenced by menstruation, and have little apparent effect on it. In conditions of arrested development the regularity of menstruation is in relation to the extent of development.

57. Pregnancy after Conservative Operation for Acute Gonorrhoeal Salpingitis.

STONE (*Amer. Journ. Obstet.*, May, 1906) writes of a single woman, aged 20, admitted into hospital with acute abdominal pains, high pulse and temperature. All the symptoms of peritonitis from appendicitis or salpingitis were present. Her intended husband admitted that he was suffering from gonorrhoea and was responsible for the patient's condition. Abdominal section was performed, extensive peritoneal inflammation discovered; it was traced to the right appendages, which were removed. The uterus and left tube were irrigated with mercuric bichloride, as some pus issued from the ostium of the tube when it was brought up out of the wound for inspection. The vermiform appendix was removed, the lower end of the abdominal wound drained, and the patient recovered. Ten months after the operation she was married, and at a date not clearly indicated in the report, but apparently about eight years later, she bore a female child.

THERAPEUTICS.

58. Marmorek's Tuberculosis Serum.

F. ROEVER, writing in the *Beiträge zur Klinik der Tuberculose*, vol. v, No. 3, records his experience of Marmorek's antituberculous serum, which extends over 25 clinical cases. After briefly reviewing the method of preparation, the dosage and methods of application, he states that the cases were all subjected to a thorough and excellent open air, dietetic treatment, but with the exception of morphine and the acetate of ammonium, no other medicament was given. He treated 16 cases of pulmonary tuberculosis—11 by subcutaneous injection and 5 with rectal injection. Of the former 4, and of the latter 1, did well, while 3 cases in each class were unaffected, and 4 cases in the subcutaneous injection class, and 1 in the rectal class did badly. The histories of these cases are given in some detail, and a particular point is made of the immediate effect of the injections; 4 cases of glandular tuberculosis, 1 of cutaneous, 2 of bone tuberculosis, and 1 each of tuberculosis of the bladder and of the bladder and kidney were also treated. Temperature curves and weight curves are further appended. In general, the injections were well tolerated, and the local reaction varied considerably in the different cases. He gave 452 injections in all, and did not experience a single abscess. He prefers the subcutaneous method, but it has been proposed to apply the serum by the bowel every day, so that a larger quantity of the material may be introduced, it being found that rectal injections do not cause a general reaction. The author states that from the clinical histories it is by no means clear whether the serum is responsible for the improvements, but he is inclined to regard the improvement in cases of surgical tuberculosis as being produced by the serum. However, from the clinical side alone, he would have been guarded in expressing an opinion were it not for a control which he carried out on the condition of the blood of each patient. He points out that Arneth has demonstrated that if one stains the neutrophile leucocytes, and notes the number of cells with one, two, three, four and more nuclei, one can form a valuable opinion as to the condition of the patient. One should count 100 such cells, and tabulate them according to the number of nuclei. Damaging processes always first attack the cells with four or five nuclei, and only later are those with three nuclei attacked, so that in the much-damaged blood of a severely infected patient one will find a high percentage of cells with one and two nuclei, while in the healthy condition the first class is represented by 5 per cent., and the second class by 35 per cent. The cases were subjected to such a blood control, and he finds that the results tally with the clinical course. Next he considers how the blood cells were directly affected by the individual injections. The impressions which he received were in favour of the serum having assisted in the improvement and cure, especially in the cases of surgical tuberculosis, but he thinks it necessary to reserve a final opinion until a large series of cases has been subjected to a minute blood count. He thinks that it will be necessary to give the serum in larger quantities, and to continue it for a longer time, if one is to obtain the maximum effect.

59. Ions in Therapeutics.

STÉPHANE LEDUC (*La Prov. Méd.*, May 26th, 1906), in a short paper on the above subject, defines an ion as a physical unity formed of one or more atoms and carrying an electric charge, either positive or negative. The chemical, toxic, antiseptic, and therapeutical properties of various medicamentous substances depend much more on the ionic groupings than on the molecular groupings, and the researches of Paul and Krönig show that in the majority of cases the toxic, bactericidal, or antiseptic action of solutions are proportional to the concentration of the active ion. The author then proceeds to show how the theory of ions may assist us in the treatment of both

general and local diseases. In the treatment of tabes dorsalis by the intramuscular injections of sublimate of mercury (which method of treatment the author strongly advocates), great pain is liable to be produced at the seat of injection, and this he considers due solely to the irritating effect of the Hg ion. If complex salts of mercury in which the mercury forms part of a complex ion be used, or if salts of mercury with organic acids be employed (in solutions of these very little of the active ion mercury exists), no pain is produced, but this treatment is inefficacious. To overcome these difficulties, 4 per cent. of sodium chloride is added to the solution of sublimate of mercury (1 per cent.) before injection, and injection carried out slowly, but this means the mercury ions are found in less number at the seat of injection, but in the blood occur in the same proportion, as they would have done had no sodium chloride been added, and by this method mercurial treatment is rendered efficacious. The author then proceeds to consider the treatment of local affections by causing drugs applied directly to the skin over the affected part to pass into the body by connecting the drug so applied to one of the poles of an electric battery. By this method it is found that metals, metallic radicles, and alkaloids can be introduced into the body when connected with the positive electrode; all acid radicles, the halogens, etc., when connected with the negative electrode. By these means the concentration of the drug at the seat of introduction is infinitely greater than in the other parts of the body, and consequently for local affections this method is far more rational than the administration of the drug by mouth. Rebellious neuralgia, especially trigeminal, when not due to a gross lesion, the author has found yield to such local treatment when all other methods of treatment had failed. He carries out the treatment in the following manner: A cloth soaked in a 1 per cent. NaCl solution is wrapped round a limb, and connected with the positive pole; the whole region supplied by the affected nerve is covered with a thick compress saturated with a warm 1 to 2 per cent. solution of sodium salicylate and connected with the negative pole. The strength of the current is gradually increased, and 40 milliampères may be safely reached; after from half an hour to an hour the current is gradually decreased in strength and then stopped. After a few such applications great improvement occurs. Very good results have also been obtained in cases of contraction of the fingers following a phlegmon of the hand by soaking the hand in a solution of NaCl connected with the negative pole, the contraction completely disappearing after two séances. The author mentions several other affections in which the introduction of metallic ions into the diseased parts by means of an electric current is efficacious, and refers especially to the marked benefit to be obtained in cases of cutaneous epithelioma by covering the diseased part with a tampon soaked in a solution of a zinc salt and connected with one of the poles of a battery.

60. **The Treatment of Pneumonia.**

Pulvirenti (*Rif. Med.*, April 21st, 1906) writes strongly in favour of the treatment of lobar pneumonia by means of antipyretics, associated in certain cases with bleeding and blistering. The danger of antipyretics depressing the heart is, he believes, much exaggerated, and practically he has found this method of treatment most satisfactory. Out of 106 cases so treated 41 aborted and 12 died, but of the deaths 5 could be attributed to secondary causes, which brings the mortality to 6.7 per cent. The three drugs used were antipyrin, antifebrin, and aspirin, with a preference for antifebrin. In some cases a mixture of antipyrin and antifebrin answered better than the single drug; antipyrin occasionally gave rise to vomiting. Cyanosis was more common after antifebrin, but need not cause undue anxiety. The *rationale* of the treatment is based on the hypothesis that the first stage of pneumonia consists in hyperaemia, and that antipyrin is a drug which causes arterial contraction (the dilatation of the cutaneous capillaries which seems an exception is explained away), and hence may be looked on as a true remedy. The fact that some cases of pneumonia with much exudation and well-marked signs do better than those with small exudation is supposed by the author to be explained by the pulmonary capillary ischaemia caused by the pressure of the large exudation. So far from antipyrin being a cardiac depressant, the author asserts strongly that it is a stimulant almost as much as digitalis. The cyanosis and oedema which not infrequently followed the use of antifebrin are not necessarily signs of cardiac failure, but due to capillary stasis from vasal constriction acting, in fact, very much like cold. In addition to the ordinary well-known antipyretic effects, the author found that this mode of treatment caused slowing and probable strengthening of the pulse and respiration, speedy improvement in appetite, especially in children, lessened thirst (this not constant), stoppage of restlessness and delirium, induced sleep, diminution of albuminuria (if present), relief of pain, and rapid clearing up of the physical signs. In cases which do not respond quickly to the antipyretic treatment the author recommends bleeding by leeches (five to ten removing 75 to 250 grams of blood), or blistering. If the pulse is weak he uses digitalis. He avoids opium, strychnine, alcohol, and quinine; prescribes milk diet; no cold drinks or enemata and no solid food until a week after the crisis. At first he gives 7½ gr. of antifebrin every two or three hours, and gradually increases the interval between the doses. Children and old people bear this treatment very well.

61. **Intravenous Injections of Prostatic Extract.**

G. Jappelli and G. Mattozza Scafa (*Arch. Ital. de Biologie*, May, 1906) discuss the physiological functions of the prostate gland. It has been shown to undergo atrophy after castration; and Walker observed (1901) that after the prostate had been removed the semen of white rats lost its power of fecundation, while the structure and function of the testes remained unimpaired. The authors, removing the prostates of dogs per perineum under aseptic precautions, have observed the effects upon other dogs of injections of the extracts made by macerating the glands in sterile normal saline. They find that this prostatic extract is very toxic when injected into the veins, paralysing the respiratory centre and causing a rapid rise in the blood pressure. The effect on the blood pressure tends to pass off, and the animal grows accustomed to the extract; the respiration, however, may be inhibited, death occurring rapidly. The extract also deprives the dog's blood of its power to coagulate; this power is probably due to a nucleo-proteid it contains.

PATHOLOGY.

62. **Soluble Endotoxins.**

Besredka (*Ann. de Inst. Pasteur*, April 25th, 1906) has devised some improvements in his method of obtaining soluble endotoxins from typhoid, plague, and dysentery bacilli. He uses young agar cultures, which are diluted with normal saline solution, heated at 60° for an hour, and then dried *in vacuo*. The dry organisms are mixed with dry sodium chloride, and triturated to a fine powder by rubbing up for an hour in an agate mortar. From 1 to 2 c.cm. of distilled water are then added drop by drop; the emulsion is poured into a test tube, and more water is added until the concentration of the salt is reduced to that of the normal saline solution. The contents of the tube are shaken several times, and are then allowed to stand until next day. The subsequent procedure varies according to the organism which has been emulsified. In the case of the typhoid bacillus the tube is heated on a water bath at 60° to 62° for two hours. The bacilli have then become strongly agglutinated, and after a lapse of from ten to twelve hours there is formed above the deposit of bacteria a layer of liquid which no longer contains any bacilli in suspension; this is the liquid which contains the typhoid endotoxin in solution. In dealing with the bacilli of plague or dysentery it is necessary to avoid agglutination by prolonged heating, since their endotoxins are affected by a high temperature. The liquid layer is therefore separated from the deposit at the bottom of the tube, and then centrifugalized until it no longer contains any bacilli in suspension. It is in this liquid that the endotoxins in question are present. The three endotoxins are all found to possess active properties. They are all toxic, particularly when injected intraperitoneally. For white mice the least toxic of the three is the typhoid extract, the average fatal dose being 0.05 c.cm., whereas the fatal dose of the plague endotoxin is 0.006 c.cm., and that of the dysentery endotoxin, the most active of the three, is from 0.0006 to 0.0003 c.cm. All three endotoxins are neutralized by their corresponding serums, obtained by intravenous injection of living organisms. Each endotoxin has its own temperature at which it suffers destruction; for the plague endotoxin this is 70°; it is 80° for the dysentery endotoxin; and for the corresponding toxin of typhoid it is above 127°. The author regards it as characteristic of the endotoxins to possess these differences of capacity for resisting heat, and thinks that this feature may be utilized as an aid to their identification, like the determination of the boiling point or melting point in chemistry.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

63. Hepatoptosis or Floating Liver.

Binnie (*Amer. Journ. of Med. Sciences*, April, 1906) records 2 cases of complete hepatoptosis, and calls attention to the frequency of its occurrence, the ease of its early diagnosis, and the serious results when the condition becomes exaggerated. The milder degrees consist in an anterior rotation of the liver, its anterior edge descending and allowing an abnormal amount of the superior surface to come in contact with the abdominal wall. Of the advanced cases the first was that of a female, aged 47, who complained of pain in the right side of the abdomen. There was a history of a fall some years previously, followed by suffering in the hepatic organ, and during the past four years she had been dyspeptic. For three years she had noticed a movable tumour in the right abdomen, gradually extending lower. Constipation was persistent, and there had been temporary jaundice six months previously. Abdominal section showed the normally transverse edge of the liver to be vertical and the upper surface directed to the right. The falciform ligament was elongated, and there was a carcinomatous nodule on the right lobe. The second case was one of extraordinary degree. A thin, nervous female, aged 34, had borne three children in rapid succession. She had recently lost 10 lb. in weight and suffered from constipation, tympanitis, prolapsus uteri, and pendulous abdomen. For the last four months she had noticed a movable abdominal tumour, causing indefinite pain. The left margin of the liver was found in the pelvis with the superior surface facing anteriorly and to the left. The hepatic notch was situated below the left anterior superior spine, and the normal site of the liver was resonant on percussion. The condition is generally associated with ptosis of the abdominal viscera, and the two conditions are largely dependent upon the same causes—for example, increased weight of the liver from various diseases, general malnutrition, cholelithiasis, lax and elongated ligaments, trauma, failure of support from intestines and abdominal wall, and neurasthenia. Tight lacing has been wrongly cited as a cause, and a properly-fitting corset may afford an effectual means of treatment. Of the above causes, the two most important are relaxation of the anterior abdominal wall and malnutrition. Treatment must aim at improving nutrition and the condition of the abdominal muscles by dieting, massage, etc.; and, in order to prevent an increase in the ptosis, a well-fitting abdominal belt must be worn to support the abdomen. Operation by a combined hepatopexy and laparectomy is indicated when the condition is severe.

64. The Sero-Diagnostic Reaction in Syphilis.

Wassermann, Neisser, and Bruck report (*Deut. med. Woch.*, May 10th, 1906) on their experiments, which have led to the introduction of a sero-diagnostic reaction in syphilis, which they regard as specific. The reaction depends on the deflection of complements in the series of albumin precipitins, and on the detection of dissolved substances from micro-organisms and of specific antibodies against these substances. The idea of applying this to the diagnosis of syphilis led to a definite research, and as a result the following method was followed: A monkey is treated with organic extracts, serum, etc., from syphilitic human beings. The inactive serum of this monkey is added to the normal complement (of the normal guinea-pig), and allowed to combine for a time. One then tries if the complement is wholly or partly bound by allowing the serum-complement mixture to act on an inactive specific haemolytic serum and the corresponding red-blood corpuscles. The partial or complete absence of solution of the red cells indicates an inhibition of the haemolysis. Testing this fully in a number of controls, the authors found that in infected monkeys the serum contains an antibody which is specific against syphilitic material and that extracts of organs, etc., of infected beings and animals contain the syphilitic substances. They were able to demonstrate the specificity of the antibodies. Following the matter up, they found that the immune serum of the monkey acts equally in monkeys and man, no matter whether the infecting material was derived from the one or the other. The immune serum only acts on syphilitic material, and never on non-syphilitic material. Normal monkey serum does not act on the syphilitic material under any circumstances. A further control was employed to demonstrate that the action does not depend on an albumin precipitin. They therefore state that by the immune serum of the monkey prepared in the manner described one is capable of determining whether any organ contains syphilitic material, and that they can demonstrate whether a human or other immune serum contains these specific antibodies. The great importance of the find would be met with if they could show that the circulating blood of syphilities contained either syphilitic material or these antibodies; but up to the present they have not been able to demonstrate this regularly, although in a few cases they did so. The hope to render the reaction more delicate by a higher degree of activity of the immune serum.

65. Pellagra in Madrid.

Huertas (*Rerist. de Med. y Cir. Pract.*, May 14th) showed recently before the Real Academia de Medicina de Madrid two cases of pellagra of considerable interest. The patients were both old women, one born in a village of the Toledo province, the other in that of Logroño, but the feature of interest lay in the fact that both came to Madrid as very young children. It was stated that they had suffered for some years from eruptions in the hands, commencing with erythema, followed by eczema and pemphigus. Diarrhoea and loss of sense of taste were also features of the case in both instances, and when presented for examination they were suffering from giddiness, hallucinations, and hebetude, and one of them showed signs of dementia. The cases were typical of pellagra, a disease described for the first time, it may be remembered, by Don Gaspar Casal, more than a century ago, and afterwards recognized in France and Italy. Pellagra is usually regarded as being allied to ergotism in its causation, being due to the use of diseased maize as food, but Dr. Huertas points out that this current explanation is unsatisfactory, as it has occurred in individuals who have never even tasted this corn. He regards want and misery as indirectly connected with it, and stated that the two poor wretches exhibited were accustomed to eat what they found as *chiffonniers*, the sweepings yielding scraps of meat, fragments of bread, etc. Hergueta's experience of the disease was that it was a very well-defined malady of chronic form with acute exacerbations, commencing with erythema in the hands, with concurrent diarrhoea and sickness, and later hallucinations, the symptoms being always most marked in spring and autumn. Suicidal mania was not at all uncommon, or the sufferers die of bronchopneumonia, which has a tendency to become suppurative. Treatment seems to be of small avail, though warm sulphur baths have occasionally done some good.

66. Rhythmic Lateral Displacement of Heart a Sign of Unilateral Pleuritic Exudate.

Greene (*Amer. Journ. of Med. Sciences*, March, 1906) calls attention to a rhythmic lateral displacement of the heart, synchronous with respiration, as a sign of unilateral liquid exudate in a pleural cavity, and he points out its value in the differential diagnosis of thoracic diseases. The movement is most marked in medium-sized effusions, and it was present in all the cases of simple effusion in a varying degree, the least movement being in a case of considerable right-sided effusion in which the heart became freely movable after 2 pints of fluid had been withdrawn. In empyema the excursion is similar to that seen in simple effusion. The heart appears to move upwards and outwards, approaching the affected side in inspiration and moving outwards in expiration. This change in the position of the heart may be observed by means of the fluoroscope, or by auscultatory or ordinary percussion, while in some instances of right-sided effusion the lateral movement of the apex beat is evident, and but little difficulty is experienced in outlining the left border of the heart. The writer has never seen any case of liquid pleural effusion in which there was no lateral movement, and he contends that in nearly every instance ordinary percussion is sufficient to detect it without the aid of the fluoroscope. Deep breathing and forced expiration are essential to its detection, and for this purpose morphine

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may have to be given. In pneumonia, tuberculous lung infiltrations, malignant disease of the pleura or lung, and in subdiaphragmatic abscess such marked rhythmic lateral movement does not exist.

SURGERY.

67. **Regeneration of Peripheral Nerves.**

Münzer and Fischer (*Neurologisches Centralbl.*, March 16th, 1906) have carried out numerous experiments to investigate the question as to the possibility of peripheral nerve fibres becoming regenerated after portions of their trunks have been excised. The experiments were carried out on eleven puppies, and were as follows: The sciatic nerve was exposed, and about 10 millimetres of its trunk excised; the peripheral end of the nerve stump was then turned up and fixed in this position by stitches; the central end of the divided trunk was transferred to the biceps, and fixed to it. Asepsis was carried out when performing all operations, and in every case the wound healed by first intention. After varying lengths of time, the seat of operation was again opened up, and special attention directed to that part of the scar between the ends of the divided nerve, in order to detect any signs of union between the divided ends. In order to carry this out satisfactorily the scar of the first operation was separated superficially from the underlying nerve ends; electrical reactions of both the central and peripheral nerve stumps were examined, and electrical stimulation of the scar itself was carried out; in a few of the cases, one week after the first operation, a small portion of the peripheral part of the nerve stump was examined to ascertain whether any recent degeneration had occurred. In 2 cases, after the second operation had been carried out and the electrical reactions noticed, the central nerve stump was once again cut through, and the animal killed one week later; this was done to prove that any nerve fibres which had been recently formed were dependent for their existence on parts above the seat of division. After the animals were killed the whole scar, together with the nerve stumps and the neighbouring muscles, was fixed, and sections of the whole cut in series and examined microscopically. The results of these investigations were found to be as follows:—In 4 cases the complete motor and sensory paralysis of the parts below persisted and the muscles became atrophied, the peripheral nerve stumps were found to be soft, and no reaction followed electrical irritation of either the scar or the peripheral nerve stumps. Microscopically, there were found radiating from a neuroma on the end of the central nerve stump a number of nerve fibres which extended for a distance of about 10 mm.; the peripheral ends of the divided nerve were completely degenerated. In 3 cases, from the neuroma on the central end of the divided stump ran in all directions, but especially peripherally, a number of nerve fibres; nerve fibres were also found in the scar tissue. The peripheral nerve stumps contained a few newly-formed nerve fibres, as did also the tissues surrounding these nerves, and, as a general rule, the longer the animal was allowed to live after the operation, the larger the number of regenerative nerve fibres. In the remaining 4 cases, there was evidence of complete regeneration of the divided nerve. Microscopically, it was found that the peripheral nerve stumps had a normal appearance, and electrical stimulation of these and of the stem of the sciatic nerve caused contractions in the muscles of the foot and of the lower part of the leg. Thus, in these 11 cases, in 4 only was there evidence of complete regeneration of the divided sciatic nerve. The authors are unable to explain why in some of the cases regeneration was present and in others absent. The duration of life of the animal after operation seems, however, to play a certain rôle, as it was found that the longer after the operation the animal was allowed to live, the more evidence there was of nerve regeneration.

68. **Technique of Lumbar Puncture.**

Hackenbruch (*Zentralbl. für Chir.*, No. 14, 1906), in practising lumbar puncture for spinal analgesia, makes a preliminary skin incision before introducing the needle between the spinous processes of the second and third lumbar vertebræ. The operation is thus rendered easier, especially in subjects with hard and thick skin, and the risk of passing the needle too deeply into the spinal canal is much reduced. Moreover, there is much less danger of infection from germs that may be present in the deeper portions of the epidermis and the cutaneous glands, as such germs will very probably be removed from the wound by the flow of blood. The following are the successive steps of the procedure recommended by the author: (1) Careful cleansing and shaving of the skin over the seat of operation; (2) infiltration of the subcutaneous structures in the middle line and below the second lumbar spine with an anæsthetic solution; (3) vertical incision of the skin over an extent of from a third to half a centimetre; (4) introduction into the wound of the puncture needle furnished with a mandrel; (5) removal of the mandrel and deeper insertion of the needle until a flow of spinal fluid is noticed; (6) injection of the anæsthetic solution; (7) removal of the needle, together with the injecting syringe, and careful dressing of the small wound.

69. **First Dressing on the Battlefield.**

Von Oettingen (*Zentralbl. für Chir.*, No. 13, 1906) points out that surgical aid in the field, and particularly at the front, must meet the double requirement of efficiency and promptitude. In military surgery, it is held, aseptic methods are to be preferred to antiseptic methods, and the chief aim in applying a first dressing should be not to destroy the bacteria in the wound, but to favour the discharge of such organisms by absorbent dressings, and to prevent their subsequent approach to the wounded surface. These views are supported by the published views of von Bergmann, and by the results of the large personal experience of the author in the Russo-Japanese war. The method described in this paper consists in the application to the region of the recent wound, without any preliminary cleansing, shaving, or disinfection, of a resinous solution, and over this of a large pad of sterilized wadding. In a dressing of this kind, the wound is protected against external organisms by the close and fixed contact of the absorbent wadding, which is kept in place by the sticky solution. This solution, the composition of which has been much simplified, is now made up in the proportions of one heaped tablespoonful of mastic, three tablespoonfuls of chloroform, and twenty drops of linseed oil. Chloroform is used as a substitute for spirits, as it produces less irritation of the skin, and is much less likely to be wanting on the field. If linseed oil be not at hand, castor oil, it is suggested, would be found a good, though not equally efficient, substitute.

70. **Fractures of the Metacarpal Bones.**

Russ (*Ann. of Surg.*, No. 2, 1906) states that the *x* ray has added much to our knowledge of fractures of the metacarpal bones, which injuries are held to be far more common than the older writers would lead us to believe. In the majority of cases, the fractured bone being well splinted by its fellow bones, there is often but slight deformity. In a certain number of old cases, however, observed in patients presenting themselves for some other disorder, marked shortening results with loss of the knuckle and excessive callus formation. The author has collected from his own practice 27 cases of simple fracture of a metacarpal bone. That of the thumb was fractured in 29 per cent. of these cases, the second in 15 per cent., the third in 11 per cent., the fourth in 15 per cent., the fifth in 26 per cent., and the fourth together with the fifth in 4 per cent. Fracture occurred in these cases most frequently in the first and fifth metacarpal bones, which is contrary to the statement of Stimson, that the third and fourth are most frequently broken, the first and fifth least. The diagnosis, it is asserted, presents but few difficulties. All the bones are easily palpable, and in fresh cases crepitus can generally be ascertained. The fragments unite very rapidly, and for this reason early movement of the hand is advisable. The author describes and illustrates his treatment, which consists in the use of slate pencils as lateral coaptation splints, two being placed on each side of the broken metacarpal bone, in the palm, and two on the back of the hand, the four being retained in position by means of narrow strips of adhesive plaster passed round the hand.

OBSTETRICS.

71. **Pregnancy in Uterus Didelphys: Decidua Expelled from Non-Gravid Cornu: Pregnancy Uninterrupted.**

Bouffe de Saint Blaise and Couvelaire (*Comptes Rendus de la Soc. d'Obstét. de Gyn. et de Pédiat. de Paris*, June, 1906) describe this case as exceptional. The expulsion of a decidua from the non-gravid cornu when the opposite cornu bears a fetus is usually associated with the death of the fetus or the arrest of the pregnancy within a very short time. This phenomenon is well known in tubal gestation,

the uterus expelling its decidua when tubal abortion or rupture of the sac takes place. The patient in this case was 26 years of age, a primipara. At the fifth month symptoms of abortion appeared; the patient was then examined for the first time. Two vaginal canals were discovered, almost equal in calibre, but the right was somewhat dilated as the result of coitus. A softened cervix, continuous with a gravid uterus, was detected at the upper extremity of the right vagina, and there was no discharge of blood or mucus. But the left vagina was full of blood, the cervix, quite distinct from its fellow, was soft and the os patulous. Ten days later, after temporary remission of the symptoms, a membranous sac of the size of a pigeon's egg was expelled after distinct labour pains. Four months later the patient was delivered of a well-developed child; the septum between the vaginal canals was ruptured during labour. Pinard, in a discussion on this case, observed that as a rule the decidua is expelled from the non-gravid cornu within a fortnight after the delivery of the child. In this instance it was otherwise, and he believed that the case explained others misinterpreted as expulsion of one cornu in an otherwise normal twin gestation. It is easy to overlook a double uterus. Couvelaire reports carefully the appearances seen in the expelled decidua when examined under the microscope.

72. Retention of Urine in Newborn Female Child.

Rudaux (*Comptes Rendus de la Soc. d'Obst. de Gyn. et de Pédiat. de Paris*, May, 1906) delivered a female child born nearly at term, weighing close upon 7½ lb. Some meconium was expelled as it was born, and it showed no signs of deformity. Twenty-four hours later he was informed that the child had not passed any urine, but had been troubled with spasmodic attacks, evidently representing dysuria. Rudaux discovered a certain amount of œdema above the pubes, with hypogastric distension. The vulva bulged greatly outwards, the hymen forming a convex septum. On pressing the hymen some almost solid mucus escaped. A stout piece of silkworm gut was bent on itself, and the loop pushed into the minute orifice of the hymen. This served to break up the solid mucus, a considerable quantity being emptied out of the dilated vagina. Another loop of silkworm gut was introduced into the urinary meatus; at once a strong jet of urine issued from the urethra. There was no further trouble, the infant began to pass water voluntarily within a few hours, and the œdema and distension had vanished by the next morning. The infant was alive, 5 months of age, when the case was reported.

73. Pregnancy in Double Uterus.

Bouffe (*La Clinique*, June 15th, 1906), at a meeting of the Société d'Obstétrique, de Gynécologie et de Pédiatrie, reported a case of pregnancy in the right horn of a double uterus. The left side participated in the increase of growth, and about the fourth month of gestation it expelled a mole in the form of a small egg, acting like the uterus itself in an ectopic pregnancy.

GYNAECOLOGY.

74. False Perforations of the Uterus.

Bovis (*La Semaine Médicale*, May 30th, 1906) has discussed in detail the various reasons which have been given to explain how it is that in intrauterine operations where the sound or curette is employed these instruments sometimes penetrate into the cavity of the uterus to an abnormal depth, giving one the impression that the uterus has been perforated by the use of such instruments, this, however, not being the case. For example, during a curettage one may suddenly find the instrument enter to an unexpected depth without meeting with the least sensation of resistance; on withdrawing the instrument and again introducing it one is somewhat surprised to find that the uterus is quite intact and there is no perforation. Again, during a curettage one may feel that suddenly the uterine wall seems to be wanting beneath the curette; re-examination, however, shows that there is no perforation of the uterus. Of the various explanations given to account for these misleading sensations the most recent is that which supposes that the uterine muscle is relaxed. Courant and Odebrecht, however, consider that there are no anatomical or physiological grounds for this theory, and Odebrecht considers such relaxation of a non-puerperal uterus impossible. According to the author, however, dilatation of the uterine neck of a puerperal or non-puerperal uterus may cause a kind of ballooning of the body of the uterus and so allow a sound to penetrate to an apparently abnormal depth. Other factors which may help in bringing about relaxation of the uterine muscle and "ballooning" of the uterine cavity are narcosis and the production of an intra-abdominal negative pressure when the patients are in the genu-pectoral or Trendelenburg position. Another explanation which has been given to explain these pseudo-perforations of the uterus is that the sound really enters the orifice of one of the Fallopian tubes when it appears to enter to an abnormal depth, and to the author's knowledge this has in six cases almost certainly occurred. He mentions the case of a woman with a myoma of the uterus: on passage of the sound it was thought that the instrument entered one of the Fallopian tubes; in a subsequent laparotomy on this woman when the abdomen was opened and the uterus exposed, on passing the sound it was found to enter one of the Fallopian tubes with ease, and the author thinks that this explanation is certainly one which cannot be denied in accounting for some pseudo-uterine perforations. Of rare conditions giving rise to the sensation of uterine perforation may be mentioned the stopping of the point of the sound by its impinging against a submucous fibroid—if the sound be withdrawn slightly and again directed further it will enter the cavity of the enlarged uterus and lead one to suppose that the uterus has been perforated; the existence of a bipartite uterus; the rupture of the fetal bag of membranes; and the penetration of the sound into a small cavity developed in the interior of a myoma. The author then considers the means of arriving at a diagnosis as to the actual explanation of these pseudo-uterine perforations. If the sound pass into a tube, it takes a lateral direction, very little or no bleeding occurs, the point of the sound can sometimes be felt per abdomen slightly lateral to the median line, and the sound can be passed into the same place several times in succession. If the uterine cavity has been thought to be ballooned, one must leave the sound in and watch for a uterine contraction; the diagnosis of such a condition, however, appears to be very difficult, and the signs very uncertain.

75. Gonococcal Infection in Women.

Egbert H. Grandin (*Med. Record*, May 26th, 1906) speaks emphatically on the danger of the gonococcus to society. He declares that fully 60 per cent. of his operative work among women would not exist if it were not for this germ. About 45 per cent. of sterile marriages are due to the gonococcus. It is said that about 75 per cent. of males have had gonorrhœa at least once, while fully 30 per cent. carry the latent germ to the nuptial couch. It has been estimated that about 30 per cent. of blindness is traceable to this disease. The disease is tolerated on account of ignorance on the part of the laity. The code of morals should be the same for both man and woman. The writer believes that in time public opinion will make itself heard and that boards of health will be obliged to place gonorrhœa in the class of acute infectious diseases.

76. Post-partum Anal Rhagades.

Pellizzari (*La Rif. Med.*, April 7th, 1906) during the last twenty-four months has seen five cases of anal fissure, each directly due to labour. As he has been unable to find any record of this (with one exception) as a cause of anal fissure he thinks the five cases worth publishing. In each case the fissure was situated posteriorly, and was clearly due to the distension of the anus caused by the pressure of the child's head. As far as these five cases go it does not seem to make much difference whether the woman is a primipara or a multipara, or whether the expulsive period is short or long. No perineal lacerations occurred, at least not enough to require any attention, and the puerperium was normal. The symptoms were those of typical anal fissure, and required operation for relief in two of the cases—the other three refused operation.

THERAPEUTICS.

77. Antithyreoidin in Graves's Disease.

Since Moebius elaborated his theory of the thyroid genesis of exophthalmic goitre the treatment of this disease by the serum of sheep deprived of their thyroid glands has attracted much attention, and the various accounts of this treatment fail to agree as to the value. Heinze (*Deut. med. Woch.*, May 10th, 1906) has studied the subject practically in a sanatorium, and gives his results. He briefly sums up the results obtained by others, and then

complains that one is faced with the difficulty that the most active dosage is not known. Moebius advised subcutaneous application at first, but soon realized that there are many objections to it, and therefore now is in favour of giving it by the mouth. Some clinicians have given it per rectum, but little advantage appears to accrue from this mode. It may be given either pure or mixed with well water, or with some sweet wine or fruit juice to cover the taste of the carbolic acid used for the preservation. The danger of high doses has been observed, and even 70 drops daily must be regarded as being not free from danger. Heinze began with either 10 or 20 drops three times a day, and increased the dose up to 30 drops three, or even four, times a day. Extracts of the clinical histories of 6 of his cases are appended, and in summing up the results he finds that in three of these no benefit at all was derived, in two others the subjective condition improved, but the objective side of the disease was unaltered, while in the remaining case a slight objective improvement was noted. This consisted in the diminution of the size of the neck in spite of increase of the body weight. In discussing the results he is inclined to ascribe the subjective improvement rather to the sanatorium treatment, which includes rest, hydrotherapy, etc., than to the serum. He therefore is forced to give up the treatment of Graves's disease by antithyreoidin, since the results are not promising and the serum is expensive.

78. The Role of Calcium in the Tissues.

In the *Arch. Ital. de Biol.* (February, 1906) Sabbatani reviews this question, and publishes a series of experiments. A certain proportion of calcium ions is necessary for the healthy life of protoplasm as well as for the maintenance of the normal coagulability of the blood. An increase in the concentration of these ions is always accompanied by a depression of function and a diminution by excitation. For instance, if a salt which precipitates calcium, such as sodium metaphosphate, be directly applied to the brain or to the medulla, a general and local excitation is produced, which disappears on the application of a suitable quantity of a soluble calcium salt. The researches of Loeb as well as those of the author have shown that such salts as sodium citrate, tartrate, and metaphosphate also provoke muscular contraction, and this again is diminished by the action of soluble calcium salts. MacCallum, in his investigation into the mechanism of the action of saline purgatives (reported in the Epitome, 83, vol. i, 1904), showed that these drugs owe a good part of their effect to an increased irritability of the neuromuscular apparatus of the intestine, due to deprivation of calcium ions. The presence of an excess of calcium, besides lessening nervous and muscular activity, also diminishes the secretion of urine, and the permeability of the renal epithelium to sugar. As a result of such observations, Loeb came to the conclusion that the irritability of the nerves and muscles and the rhythmical activity of different organs is dependent, amongst other things, upon the relation of the calcium to the sodium ions. The toxic dose for animals of sodium tartrate, citrate, and metaphosphate is proportional to the decalcification which they produce. From the point of view of transfusion for clinical purposes, it is important to notice that sodium carbonate, applied directly to the brain, has a depressing action, attributable to the alkaline or hydroxyl ion. If, however, it is injected into the circulation, sodium bicarbonate is formed, which does not exert this effect to the same degree. This appears to support the practice of preferring the bicarbonate to the carbonate for injection into the blood whenever an alkaline infusion may be desirable, as in those diseases which are accompanied by an acid poisoning.

79. Treatment of Fly Disease.

J. A. Rodda Smit (*Deut. med. Woch.*, May 10th, 1906) speaks of human infection by flies and their larvae. The usual flies which infect man or animals are the oestresian form and Lucilia hominivora. They lay their eggs in the body, mostly on ulcerating surfaces or surfaces changed by conditions such as eczema, acne, erythema, on the suppurating auditory meatus or on the nasal mucosa, when affected with ozaena. After the eggs are laid the larvae develop, and the flies leave the host as nymphes. Another form of fly which has been known to cause the disease is the *Calliphora anthropophaga* (Cornil). The symptoms depend to a great extent on the position in which the flies have deposited, and may include local inflammatory reactions and general malaise, with fever, headache, etc. There is often unbearable itching, and when the patient is young uneasiness is very marked. The diagnosis is usually easy when the parts are examined, and one is frequently told by the relatives of the patient or by the patient himself that the part is infected with worms. In certain situations, such as the auditory meatus, the disease may be dangerous, since the larvae may burrow through the tympanum, and may lead to changes in the internal ear or labyrinth, or even to cerebral abscess. The prognosis, therefore, varies considerably, and in some instances is doubtful, or even unalterably bad. Turning to the treatment of myiasis, or fly disease, the author finds that a large number of remedies have been advised, including mercuric oxide, carbolic acid, ocymum (a popular remedy in Holland), iodine, etc. Mechanical extraction of the larvae is also praised by some observers. Smit has only succeeded in extracting larvae in two cases, and states that these generally bore into the floor of the ulcers or into the mucous membrane, and only come to the surface for air very rapidly, and are thus extremely difficult to seize. He instances some cases in which he tried several remedies, and then, having failed to relieve with the usual means, applied calomel as a dusting powder, and plugged the cavity affected, by which means he obtained rapid and complete relief and cure. The larvae are found dead on the surface or dressings, and one can detect HgS in the dead worms. It is wise to continue the treatment for a few days after the last larvae have been removed.

PATHOLOGY.

80. Experimental Variola and Vaccinia.

Brinkerhoff and Tyzzer (*The Philippine Journal of Science*, April, 1906) have inoculated the viruses of variola and vaccinia upon monkeys and orang-outangs, with the object of observing the presence and distribution of the *Cytorrhyctes variolae* (Guarnieri). They find that the cytoplasmic forms of *Cytorrhyctes* constantly occur in all specific lesions produced by both viruses. In the primary lesions they make their appearance soon after inoculation, and persist for about eight days. In variola inoculata the exanthem as well as the primary lesions contain cytoplasmic forms. Intracellular forms are found within the epithelial nuclei in lesions resulting from the inoculation of the monkey with variola virus, but do not occur in vaccine lesions. These structures are specific for variola. Other non-specific, nuclear inclusions occur in vaccinia, in variola, and in other non-related processes. The nuclear forms of *Cytorrhyctes*, which are found only in small numbers in the primary skin lesion of variola inoculata in monkeys, are present in far greater numbers in the corresponding lesions of the orang-outang. Nuclear forms were only occasionally found in lesions of the general eruption following the inoculation of the skin of the monkey with variola virus, but were very numerous in the eruption which followed the intravenous injection of this virus into the tail vein. The cytoplasmic forms of *Cytorrhyctes* are constantly associated with variola and vaccinia in whatever portion of the body the lesions may develop including such situations as the epithelium lining the alveoli of the lung, endothelial cells, and connective-tissue cells. The occurrence and distribution of these specific inclusions is regarded by the investigators as best explained by the hypothesis that they are the parasites to which the disease is attributable.

81. Osteomalacia and Rickets in White Rats.

B. Morpurgo (*Giorn. d. R. Accad. d. Med d. Torino*, January 1906) has made experiments upon 300 white rats during the last seven years, infecting them with material from other white rats showing the signs of rickets or osteomalacia: 200 of the rats were adult, 100 were not fully grown. He finds that healthy young rats, infected with the material derived from a white rat with osteomalacia of apparently spontaneous origin, develop rickets very frequently indeed; while adult healthy white rats, infected in the same way, very frequently develop osteomalacia. Healthy young rats also acquire rickets by mere contact with rickety or osteomalacic white rats. Morpurgo has not yet succeeded in infecting the healthy adult rat with osteomalacia by means of contact with rickety young rats. The infecting agent is bacterial, of variable virulence, and capable of cultivation outside the body of the rat. If the processes of growth are going on actively in the bones, the organism produces changes in the epiphysial cartilage similar to those seen in human rickets; when the bones have ceased to grow, the organism causes softening and rarefaction of the osseous tissue.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

82. **Pyuria caused by Leucocytosis.**

Talma (*Berl. klin. Woch.*, May 28th, 1906) brings forward evidence which he considers sufficient to prove that in pyaemia not only the pyogenic micro-organisms are to be found in the blood, but that the pus itself is included in this fluid. Thus the term pyaemia would be literally correct. Cases of true pyaemia in this sense are very rare. He has hoped that he would have come across other cases, but so far his hopes have not been realized. The case which he describes is one of a man aged 34 years who had suffered from rheumatism five years previously. He had been ill six weeks before admission. Fever and rigors, sweating and dry heat occurred at irregular intervals. Diarrhoea set in late. On admission his condition was found to be bad. His heart was large, the pulse frequent, small, and soft. The liver was large and soft, and the abdomen was tender to the touch. The spleen was also enlarged. The faeces were thin and contained numerous leucocytes. The lymphatic glands in the axillae and above the clavicles were large. In the urine a layer separated out at the bottom of the vessel which had all the characters of ordinary pus, and which consisted of polynuclear leucocytes. Besides there were a few pale red cells, no methaemoglobin, and no haematin. After filtration the urine contained much albumen. The blood examination revealed 48 per cent. haemoglobin, 2,250,000 red corpuscles, and 43,200 leucocytes. Of the latter, 94.4 per cent. were polynuclear neutrophiles, while 5.6 per cent. were lymphocytes and transition forms. The temperature did not rise very high, and tended to sink in the course of the next three days, and after a profuse epistaxis the patient died. *Post mortem* the pleurae were found to be covered by a thin layer of pus. A little pus was also free in the pleural cavity. The kidneys were soft and large, but did not reveal any purulent foci, while the bladder was also free from distinct suppurative changes. There was not a single abscess in the whole body, and therefore the clinical diagnosis of cryptogenous pyaemia could be confirmed. Microscopical examination of the kidneys showed that the glomeruli were packed with polynuclear leucocytes. From this find he regards the pyuria as being caused by the leucocytosis, and as nearly all the organs were bathed in an oedema containing pus cells he concludes that there was, in all probability, an increased permeability of the blood vessels. He gives details of another case in which there was pyuria due to leucocytosis occurring in an acute exacerbation of a chronic pulmonary tuberculosis. In discussing these cases he finds that it is extremely difficult not to use the term "pyaemia" in place of the term "leucocytosis," for the cells in the kidneys and urine were indistinguishable from those in the blood. Although the leucocytes in the blood are not ordinarily identical with pus cells, he claims that in his two cases the increase of these cells indicated something more than a pure increase; he believed that there was actual pyaemia —pus in the blood.

83. **Malarial Immunity.**

A. Plehn (*Archiv für Schiffs und Trop. Hyg.*, Bd. x, No. 2) says it is agreed that one attack of malaria predisposes to others, which may be for the most part relapses. The relapses which occur tend, if they are suitably treated and no fresh infection takes place, to become less severe, until finally a certain tolerance is established. Such a tolerance is not a true immunity; thus even although European colonists who at first had repeated attacks of fever later on may have few and slight attacks only, yet sooner or later they either fall victims to malaria or its complications, especially haemoglobinuria, or they suffer from cachexia. The tolerance obtained after repeated attacks of malaria is not absolute; it is operative usually only in the neighbourhood in which it has been acquired, and attacks of fever are still liable to occur if the person concerned suffers from influences which lower his resistance, as, for instance, chills, acute illnesses, sudden changes of climate, etc., or if from some telluric or climatic condition the virulence of the parasite becomes suddenly increased. The hypothetical endotoxins, which arise from the dead protoplasm at the time of sporulation and from the parasites degenerated before sporulation, and which on the one hand cause fever, but on the other destroy a proportion of the immature parasites, and so hinder their unlimited increase, seem to disappear quickly from the human organism, and allow the parasites which have escaped to continue to develop until the next sporulation; there is no reactive formation of antibodies, and no permanent active immunity. Among the natives a certain type of malarial immunity seems sometimes to be inborn, and the blood of native children who may be in good health and who have never suffered from malarial fever, often contains active parasites. In Cameroon, about half the adult natives who show no signs of fever have malarial parasites in the blood and a still greater proportion have considerable enlargement of the spleen and some anaemia without fever. The immunity in such cases is not absolute—for example, natives who go as prisoners from a malarial district to another in which no more severe type of the disease prevails, sicken with fever under the depressing effect of unfavourable modes of life, home sickness and loss of freedom. Such attacks may be due to a destruction of red blood corpuscles followed by the death of the parasites in the plasma with liberation of endotoxins and a consequent death of more parasites; the parasites may not be detected in the blood, but the clinical course of the illness is typical of a malarial attack. If the development of the parasites and the production of endotoxins be long intermitted the relative immunity above described seems to quickly disappear, and it is at any rate certain that if a native possessed of this inborn immunity is absent from the malarial area for a long period he is liable to have fever more or less severely several times before he regains his old immunity. The immunity may be spoken of as inborn, because it probably begins during fetal life when the endotoxins circulating in the maternal blood pass into the placental circulation, with the result that the child is at birth to some extent protected from the parasitic poison although the parasites can develop freely in the child's blood when it is once infected. The author is of opinion that Europeans may acquire a relative immunity similar to that possessed by natives if quinine be prophylactically employed. The first attack of malarial fever is postponed by the use of quinine, the fever is comparatively slight, the relapses become fewer in number and less severe, the anaemia disappears, the swelling of the spleen goes back, and finally a condition of relative immunity is obtained, which tends to become always more secure as quinine continues to be taken. As in the natives the immunity is never absolute, there being always a danger that depressing influences may give rise to a fresh slight attack, and as, moreover, in the natives active parasites may be present in the blood between the times of taking quinine without giving rise to symptoms, the condition is one of latency. The author holds that the parasites at some stage of their development are accessible to the action of quinine, and that the latency of the disease is produced when parasites are destroyed by quinine, and endotoxins are liberated. He strongly recommends that the quinine should be taken at short intervals—for instance, every fifth day, rather than at intervals of eight to ten days. The dose, if given at long intervals only, must be large, and this is not always practicable, and in addition there is a danger that the larger doses will tend to the production of haemoglobinuria. For constant use he would advise ½-gram doses of quinine every fourth or fifth day, but during the early part of an exposure to infection, or where the condition is such that the danger of infection is especially great, a gram should be given, preferably in divided doses, on each of two consecutive days, either the fourth and fifth days or the fifth and sixth days. With this method an almost unbroken fitness for work may be acquired when once the first attack of fever—the "immunization fever"—is over; and, if colonists continue to take quinine when on leave, they may escape from fever altogether on their return, or have only one slight attack. The ½-gram doses of quinine have the same effect upon the occurrence of attacks of haemoglobinuria as of fever, and after prophylaxis has been continued for a long time the disposition to haemoglobinuria almost entirely disappears. The use of quinine must be continued in every case during the whole time of residence in a malarial neighbourhood, and for six months after arrival in a healthy district or after the last relapse, if relapses should

occur away from the infected area. In a few cases it is found that even gram doses of quinine every fifth day will not protect from fever, and, if this be so, the patient is probably unfit for residence in a malarial district, and should be sent home with instructions to continue to take quinine for six months after leaving.

84. **Apyretic Pneumonia.**

BINDI (*Clin. Mod.*, An. xii, N. 17) reports a case of typical lobar pneumonia occurring in a healthy young fellow, aged 24, where the temperature never reached 99° F. The patient sickened on February 16th in the usual way, with shivering, punctorial pains in the side, and cough. As the illness progressed he developed well-marked signs of pneumonia—crepitation followed by dullness, vocal fremitus, rusty expectoration and delirium. The illness terminated by crisis on the eighth day. Throughout the whole period the patient never developed a temperature above 37° C., and that only for a few hours at the onset of the illness. He was not debilitated nor alcoholic. The author discusses some of the modern bacteriological theories as to the causation of fever, and tentatively suggests that the absence of fever in his case might be due to failure of the proteolytic action of the bacteria on the blood and consequent absence of albumosuria, which is a known cause of fever. But in this complex region of biological chemistry, the author realizes that such a suggestion is little better than more or less instructive guesswork.

SURGERY.

85. **Treatment of Inoperable Sarcoma.**

COLEY (*Amer. Journ. of Med. Sciences*, March, 1906) records the late results of his investigations upon the treatment of inoperable sarcoma by the mixed toxins of erysipelas and *Bacillus prodigiosus*. From past experience of ten cases treated with the living cultures of erysipelas streptococcus it was found to be most difficult to produce erysipelas at will, and also that the curative properties of erysipelas originate in some measure from the toxic principles of the streptococcus that might therefore be utilized without an actual attack. The danger of artificially-produced erysipelas was shown by two fatal cases, and led to the use of the toxins instead of the living germ, and in order to intensify the action of the toxin of streptococcus of erysipelas this was combined with the toxin of *Bacillus prodigiosus*. The method of preparation of the mixed toxins is described, and though the value of the *Bacillus prodigiosus* in causing the disappearance of sarcoma rests upon experimental data the fact remains that all the successes have been obtained by the use of the combined toxins, whereas no permanently successful result has followed the use of the erysipelas toxins only. There is, therefore, no doubt that the distinctive effects of the erysipelas toxins are greatly increased by the *prodigiosus* toxins. Their action is not merely a local one, since tumours have disappeared when the injection has been made in some remote part of the body, thus pointing to a systemic action. The best and quickest results appear to follow local injections, thus obtaining the combined local and systemic action. This is thought to be of the nature of a coagulation necrosis with local leucocytosis. The tumour tissue becomes paler, less vascular, and undergoes fatty degeneration with subsequent absorption or breaking down. As a rule the spindle-celled sarcomata with predominating fibrous tissue are more likely to disappear by slow absorption without breaking down, while more highly vascular growths of the round-celled type generally degenerate rapidly with the formation of sloughs. The more highly vascular the tumour the more severe the reaction, and the injections should commence with a minimum dose, ¼ to ½ minim for local injections into the tumour, and 1 minim remote from the tumour. The dose can be gradually increased until a chill occurs followed by a rise of temperature. Daily injections give better chances of success, and should be tried unless there is much subsequent depression or the patient's general condition is not very good. Systemic injections into the thighs, buttocks, or abdominal wall are advised when the tumour by its position renders direct injection dangerous. Incision and drainage are indicated when the tumour becomes soft and fluctuating. If no improvement occurs at the end of a month's vigorous treatment none may be expected, but if there is any the injections should be continued until the tumour has disappeared. Eleven cases are quoted in which the toxins were used as a prophylactic after primary operation for sarcoma or carcinoma, and they are shown to have a marked inhibitory action even in carcinoma. As to final results 26 inoperable cases were all alive and well from three to thirteen years after treatment. Experience of other cases points to the fact that primary toxin treatment should be tried in nearly all cases of sarcoma of the extremities before resorting to amputation. The preparations of the mixed toxins used by the author were made by Professor B. H. Buxton of Cornell Medical School, and Messrs. Parke, Davis and Company make a similar and also a stronger preparation.

86 **Splenoclcisis.**

B. SCHIASSI (*Riv. Crit. di Clin. Med.*, 1906) describes a case of splenic anaemia cured by operation. The patient, a woman of 36, had never enjoyed good health, and had lived a hard life. On admission to the hospital, she was fairly well nourished, but very anaemic; the spleen measured 32 by 18 cm.; the blood count showed red cells 3¼ millions, haemoglobin 27 per cent., white cells 1,300. After spending two months in the hospital, the patient felt worse and weaker; the haemoglobin had fallen to 24 per cent., the white cell count stood at 1900. The operation of splenocleisis was then performed under morphine and $CHCl_3$. An oblique incision was made into the abdominal cavity two fingerbreadths below the left costal margin, and the spleen was exposed; it was then enveloped in five folds of gauze, the ends of which were brought out at the upper and lower extremities of the wound, and the exposed surfaces of the spleen were all scraped over with a sharp spoon so as to remove the endothelial covering. The incision was closed with silk and catgut stitches. A strip of gauze was removed on each day, from the fifth to the ninth after the operation. The patient's general condition improved steadily after this. Six months later the blood count showed 5¼ million red cells, 6,200 white cells, and haemoglobin 92 per cent. The spleen was smaller, half its previous size. Schiassi understands splenic anaemia to be a disease characterized by a slowly progressive anaemia preceded and accompanied by increase in the size of the spleen: there is no leucocytosis and no enlargement of the lymphatic glands. He holds that Banti's disease begins by enlargement of the spleen, which is followed by an intermittent but progressive anaemia, and ends with hepatic cirrhosis and ascites; the lymphatic glands are not usually enlarged. He gives clinical details of two cases of Banti's disease, both with marked anaemia and leucopenia.

87. **Aseptic Catgut.**

KEREWSKI reports (*Berl. klin. Woch.*, May 21st, 1906) the results of investigations which he has carried out on the subject of aseptic catgut. He finds that all the methods adopted up to the present fail to give completely satisfactory results, and therefore he has attempted to find a new method which will lead to the introduction of a permanently sterile, aseptic catgut, which is ready for use. He considered that such a catgut should be sterilized without the use of antiseptics, should not contain any chemical substances which might transude into the tissues and harm them, should be firm and elastic, and should be put up in such a way that its fitness for use does not deteriorate with time. In order to insure the last-named point, he found it necessary to make a special glass tube. The tube, which he describes in detail, allows of the introduction and twisting of the gut, without it being touched by hand. The tube narrows above to a thin neck, above which it has a small bulb, and again constricts. The end of the gut is knotted several times, and the knots are allowed to drop back as far as the bulb. The sterilization cost him much more difficulty than the tube did. At last he found that the vapour of water-containing alcohol was capable of absolutely sterilizing the catgut after about eight minutes. He therefore places the tubes containing the rolled-up catgut in a wire basket, which is of the same circumference as the alcohol vessel. The latter is made of copper and contains sufficient 70 per cent. alcohol to supply all the tubes, and the whole apparatus is then covered hermetically in with a hood, containing the tube for the cooler and a thermometer. The alcohol is then heated up to about 79° C. and kept at this temperature for twenty-five minutes. The tubes are then sealed up below, and then from 1 to 3 per cent. of glycerine and absolute alcohol is filled into a cup from above. The upper end is then sealed up and lastly the sealed tubes are again heated for one hour to 103° C. Catgut prepared in this way is absolutely sterile and reliable. He has tried the method with infected material and has subjected it to a number of severe tests and finds that the process is satisfactory. He details his test experiments. Lastly he describes a

special apparatus which he has devised to keep opened tubes in without risking an infection. He claims that catgut prepared in this way is about half the price of ordinary sterilized catgut in the market. He has entrusted the details of his procedure to a certain firm and Dr. L. Michaelis has consented to control the bacteriological aspect of the gut permanently.

OBSTETRICS.

88. **Embryotomy in the Living Fetus.**

Budin (*Progrès Médical*, June 16th, 1906) lecturing at the Clinique Tarnier, deals with the subject of embryotomy in the case of a living fetus. Taking for his text a case treated in the clinic in January last, in which repeated applications of forceps failed to deliver, and the patient's condition was such as to contraindicate Caesarean section or symphysiotomy: he cites various authorities as justification of his having had recourse to cephalotripsy, although the fetal heart sounds were still audible. It is true that Professor Pinard denounced the practice in unmeasured terms. Moureau and Lavrand supported the teaching of Pinard, but Thoyer-Rozat, of Toulouse, joined issue with them in the pages of the *Presse Médicale*, in 1902. Professor Charles, of Liége, during a discussion at a meeting of the French Obstetrical Society in 1899, openly defied the theological decree against the practice, and justified himself by pointing out how frequently a waiting policy resulted in the death of both mother and child. He characterized as jesuitical the conduct of those obstetricians who make a pretence of auscultating and hearing nothing, while congratulating them upon acting on the same lines as himself. On the same occasion, Fochier of Lyons described himself as holding a brief for the mother as against the unconscious child to whom those holding the opposite view would sacrifice her; he protested against operating on the mother without laying the full risks before her and obtaining her willing consent; and he explained his procedure on the ground of doing to others as he would that others should do to him. An overwhelming majority of obstetricians held the same view, Porak pointing out the rarity of the conditions requiring such a painful decision—only once in more than 15,000 deliveries. The dangers of laparotomy in cases where sepsis might be feared was dwelt upon by Budin; and also the frequency with which in such cases the child succumbed either at once or within a few days. He pointed out the advantage of diagnosing pelvic contraction in time to induce premature labour; and finished by exhorting his students to ask their own consciences what they would do if the patient were their own wife, sister, or daughter.

89. **Fatalities in Pregnancy and Puerperium associated with Pyelonephritis.**

Kamaun (*Monats. f. Geb. u. Gyn.*, June, 1906) considers that Opitz's mortality tables of cases of pyelonephritis in pregnancy and childbed make out the complication to be less grave than the experience of others would prove. Opitz's mortality was 1 in 69, the fatal case dying after nephrotomy. Kamaun has observed 4 cases in a Breslau hospital, where suppurating kidneys were the cause of death. (1) A woman, aged 24, fell ill in the fourth month of her sixth pregnancy and died after uraemic symptoms within nine days. There was parenchymatous nephritis with pyelitis of both kidneys and cystitis. (2) A primipara, aged 18, was seized, in the sixth month, with pyaemic symptoms, dying within seven weeks. The bladder and ureters were inflamed, pyelonephritis of both kidneys and dilation of the right ureter and pelvis existed. (3) A woman, aged 31, suffered from retroflexion of the uterus in the twelfth week of her fifth pregnancy. In this case pyelitis was a result of the complication. Gangrenous cystitis, right ureteritis, pyelitis, abscess in the kidneys and peritonitis developed, with a fatal ending. (4) A girl, aged 18, was delivered of her first child spontaneously, the peritoneum was ruptured and the injury at once repaired. Symptoms resembling puerperal sepsis developed and proved fatal within eight weeks. As in the other cases there was cystitis, with pyelitis. Both ureters were inflamed, the kidneys were suppurating and patches of bronchopneumonia were detected in the lower lobes of both lungs.

90. **Measles in Puerperium: Uterus Didelphys: Death.**

Rudaux (*Comptes Rendus de la Soc. d'Obstét. de Gyn. et de Pédiat. de Paris*, May, 1906) relates that a sempstress, aged 29, suffering from measles, was sent into the Maternité of the Beaujon Hospital, being in labour at term. It was her first pregnancy. The temperature was above 104°, the uterus firmly contracted, and the os fully dilated. Labour seems to have been in progress for several days, and the membranes had ruptured early. There was very fetid discharge. The occiput presented in the first position. Basiotripsy was performed, and a slightly macerated fetus, weighing 5½ lb., delivered without trouble. Then a body was detected in the left flank, smaller than the empty uterus, and separated from it by a deep notch. On further examination it was seen that two vaginae existed: that on the left was connected with the body in the left flank, which was a distinct uterus with a fully-developed cervix. This left uterus was of the size of a normal uterus in the middle of the second month. The placenta followed the child at an interval of an hour, and weighed over 12 oz.; it came away entire. The patient died two days later, and then it was found that the uterus didelphys existed. As usual, there was a deep fold of peritoneum between the uteri.

GYNAECOLOGY.

91. **Operative Treatment of Puerperal Pyaemia.**

A. Cuff (*Journ. Obstet. and Gyn. of the Brit. Emp.*, May, 1906) discusses the operative treatment of puerperal pyaemia, and records a successful case. Acute puerperal pyaemia is almost always fatal, and the process advances so rapidly that the time for operation is often passed before the true nature of the condition has become evident. Although subacute pyaemia is not so fatal, yet the mortality is considerable, as is shown by a series of cases described by Bumm, in which 19 out of 23 ended fatally. The success met with in cases of septic venous thrombosis occurring in other parts of the body when the septic foci had been cut off from the general circulation led to a trial of similar methods in puerperal cases. In 1894 Freund twice carried out extirpation of the uterus with a simultaneous excision of as much of the affected veins as possible, but in both cases the patient died. Trendelenburg and Bumm also tried this method unsuccessfully. Trendelenburg then modified the operation, and in a first successful case tied and cut the right internal iliac vein by an extraperitoneal operation and tied the right ovarian vein. Four other cases treated successfully on similar lines have been recorded, and the author adds a sixth to the number. In his case the patient was attended at her confinement on November 6th, 1905, by a midwife; the child was large, but the perineum was not torn, and the placenta came away with ease, and was apparently entire. On November 8th a rigor occurred: on the 10th a doctor was called in, and found the temperature 104.8° F., pulse 126, but there was no uterine tenderness nor foul discharge; a binoidide of mercury douche was given. On the following day the uterus was curretted, and a few small shreds of placenta removed. Antistreptococcic serum was given on five days, but without appreciable result. On November 21st the temperature was 105.6° F., and on this day a mass about the size of a fist became apparent in the right iliac region, and the mass was found on vaginal examination to be situated in the upper part of the broad ligament. On the 22nd the patient was removed to the Sheffield Infirmary under the care of Cuff. The patient became worse rapidly, until on December 3rd it was decided to operate. At the operation there was found in the right broad ligament a mass moderately firm in consistence, three fingerbreadths in thickness, and extending from the uterine to the pelvic wall. An incision over the mass revealed only a thick bundle of thrombosed veins. The incision was then extended, the peritoneum was reflected, and one ligature placed on the uterine side of the mass, a second further out towards the pelvic wall. The thrombosed ovarian vein was next seen rising out of the pelvis, and was ligatured about half an inch from its junction with the vena cava, the peritoneum having been previously incised and reflected; round this vein there was a considerable thickness of indurated oedematous tissue. After the operation the patient's temperature was subnormal until December 5th, when it rose to 100.2°, and afterwards varied for some days, but finally became normal on December 17th. The patient had been having frequent rigors before the operation, but none after it, although she seemed to have slight sweats for several days. She left the ward well and fairly strong, and reported herself in February, 1906, as being quite well. Her life was apparently saved by the operation.

92 **Hydrometra in an Aged Subject.**

MOND (*Zentralbl. f. Gynäk.*, No. 22, 1906) applied the name "hydrometra" to a cystic papilloma of the uterine wall in a robust woman 71 years of age. She declared that she was free from any swelling or discomfort till eight weeks before she consulted Mond. Then attacks of dysuria occurred. Mond found that the bladder was extremely distended. After he had emptied it a tense tumour could be defined reaching from the pelvis to the umbilicus. It closely resembled an ovarian cyst. When the abdomen was opened the tumour was seen to be the uterus enlarged to the size of a man's head. Supravaginal hysterectomy was performed, and as the knife passed through the cervix a great quantity of gelatinous fluid escaped. The uterus was examined; a cystic tumour bearing papillomatous growths was discovered. It apparently had developed in the uterine cavity, but as it had attained large proportions its original seat was not clearly definable. Lomer, in discussing Mond's case, noted two cases where "ischuria paradoxa"—unaccountable distension of the bladder—occurred in association with uterine fibroid, but it is more frequent after operations, when it usually develops insidiously.

THERAPEUTICS.

93. **Iodine in Tuberculosis.**

A. BROWN (*Montreal Medical Journal*, April, 1906) recommends iodine injections in the treatment of tuberculosis. He has employed the injection of a fluid in which iodine is held in suspension for some twelve years, the formula being precipitated iodoform, which contains 96.7 per cent. of iodine, 100 gr.; acacia powder, 25 gr.; glycerine, 100 minims; carbolic acid, 5 minims; boiled distilled water, 300 minims. The injection is carried out under antiseptic precautions. The vessels holding the emulsion are sterilized by heat, and a syringe with a metal piston is employed, so that it too can be made surgically clean. The site chosen for the injection is the space between the left acromion process and the capsule of the shoulder-joint. The skin is frozen with ethyl chloride, and the injection slowly made. The site of the injection is dressed with sterilized gauze and a bandage, and the arm is fixed to the side for two days. The pain of the injection is not long continued, but if severe a little morphine may be employed. Absorption is slow, and the chance of acute poisoning is small. The amount advised for each injection is, for non-pulmonary cases, 12 to 24 gr., and in pulmonary cases from 8 to 12 gr., according to the amount of disease and the condition of the patient, and the injections may be repeated every two or three weeks. Where the drug has been used for a long time, anaemia is apt to occur, and it is prudent to use a preparation of iron between injections. There are certain other accessories to the injection which it is wise to employ. After the first day dilute phosphoric acid ♏x and strychnine phosphide gr. $\frac{1}{30}$ may be used till the end of the reaction. If the stomach will tolerate it Easton's formula may be employed, also iodine gr. $\frac{1}{2}$, potassium iodide gr. $\frac{1}{2}$, and rectified spirits of wine ♏xv, every four hours, in half a tumbler of water, between meals. There is a rise of temperature in the first twelve hours after the injection, and it sometimes lasts from four to seven days. Leucocytosis occurs proportionate to the dose used and the severity of the reaction; the pulse becomes slower and stronger, and blood pressure is lowered. About the second week after the injection the appetite improves and the general vigour is gradually increased. Several cases are detailed in which marked improvement or cure have followed this treatment. These cases include joint tuberculosis, tuberculous glands, tuberculosis of the skin, of the lungs, and of the bowels.

94. **Gonosan in Gonorrhoea.**

SCHINDLER AND SIEBERT (*Deut. med. Woch.*, July 5th, 1906) are of opinion that internal remedies in gonorrhoea are almost superfluous, since the local treatment yields such good results. Very many internal remedies, however, are freely advertised, and their actions are highly praised by numerous observers. Among these one finds gonosan. In order to determine whether the action of this preparation is what is claimed of it, they subjected it to several tests. First, they tested the bactericidal power of gonosan and of the urine of patients who had been taking it. The urine was added to a sparse suspension of gonococci in ascites fluid, and subcultures were made from this on ascites agar after from one to sixty minutes. Control cultures were prepared. They found that no inhibitory action of the urine could be noted. The same result was obtained with urine and ascites agar as the culture medium, or with other variations of the experiment. The urine of patients taking gonosan, therefore, cannot be regarded as being bactericidal or even inhibitory. Next they experimented with gonosan itself. In this case $\frac{1}{4}$ per cent. of gonosan emulsion acted inhibitorily on cultures after one minute. However, 1 in 1,000 did not possess any bactericidal power. Applying this to a clinical test, they found that neither a 2, 3 nor a 5 per cent. emulsion produced the least effect on the gonococci when applied to cases of gonorrhoea clinically. From their experiments they found that gonosan, whether given internally or applied locally, does not act on the cocci in the very slightest degree. They next inquired into the reason why so many observers report favourably on the so-called bactericidal action. That it might relieve pain and lessen discharge they admit, but while the former may be only a symptomatic gain, the latter is a disadvantage as long as the cocci are not influenced, since it will prevent a patient from becoming completely cured. They quote the reports from several observers, and criticize their statements openly if not very kindly. In conclusion they find that the local therapy remains the only satisfactory and scientific treatment of gonorrhoea, and that there is no justification for the supposition that gonosan or any other balsam has the least curative action in this disease.

95 **Antidysenteric Serum.**

VAILLARD AND DOPTER (*Ann. de l'Inst. Pasteur*, May, 1906) have immunized horses against the dysentery bacillus, and find that the serum from these animals possesses antibacterial and antitoxic properties, and is capable of application in human medicine. This serum produces no injurious effects on man, even when large and repeated doses are employed, but ought to be accepted, in the authors' opinion, as the specific agent for the treatment of bacillary dysentery; on other forms of dysentery it produces no effect. When injected in doses which must be graduated according to the severity of the case it checks the process of infection and intoxication, produces almost immediately a sedative effect upon the intestinal disturbance, and accomplishes a speedy cure. Its effects are more prompt and decisive when it is administered soon after the onset of the disease, and then the development of the malady may be completely arrested. The serum has also been found very valuable in acute dysentery treated as late as the sixteenth day; it always gives relief, arrests the progress of infection, and, if not too late, accelerates recovery. The protracted and chronic forms of dysentery are also amenable to its action.

PATHOLOGY.

96. **The Blood in Lead Poisoning.**

CADWALADER (*Bulletin of the Ayr Clinical Laboratory of the Pennsylvania Hospital*, June, 1906) has made examinations of the blood of thirty-seven patients suffering from the well-known symptoms of lead poisoning, and his results are as follows: The haemoglobin percentage and the number of red cells were reduced by about one-fourth of their normal numbers, the former averaging 65 per cent. and the latter 3,850,000 per c.mm. In every case there was a marked increase in the number of granular red corpuscles; macrocytes and microcytes were occasionally met with, whilst poikilocytosis was as a rule not marked. One or more normoblasts were found in all but 4 cases and megaloblasts in 2 cases. The leucocytes showed no morphological changes, the average number per cubic millimetre was 4,788. In most of the cases the large mononuclear cells were relatively increased, and the polynuclears or the small lymphocytes relatively diminished. After convalescence was established, the nucleated red cells disappeared from the circulating blood before the granular erythrocytes. In the marrow of the femur, in a case of lead poisoning which died with cerebral symptoms, there were found large numbers of nucleated red cells, most of which were normoblasts. There was also found an increase in the number of granular myelocytes. The author remarks that lead appears to exert its greatest influence upon the cells of the bone marrow. Slight injury of the latter is followed by the production of many immature red cells, represented by normoblasts and megaloblasts, and these are thrown into the circulating blood.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

97. Serum Diagnosis and Serumtherapy in Cerebro-spinal Meningitis.

G. Jochmann (*Deut. med. Woch.*, May 17th, 1906) has carried out a series of experiments with Weichselbaum's meningococcus, which he regards as the sole causal micro-organism of epidemic cerebro-spinal meningitis, and has attempted to found a rational diagnostic and therapeutic method. He employed as many cultures of the cocci as he could obtain from various patients, always cultivating from the cerebro-spinal fluid, and with these he obtained a polyvalent serum. He began with injections of dead cultures (mostly grown on ascites serum), and doubled the doses each week. At first the cocci were introduced subcutaneously, and later he applied the injections intravenously. The horse stood the immunizing well, while sheep and goats reacted violently to the injections, and three of the latter died of them. In the case of the horse they found that the agglutination value of the serum rose to 1 in 200, then sank to 1 in 80, but as soon as they commenced injecting living cultures, it soon rose rapidly to 1 in 1,500. The serum rendered it easy to distinguish between true Weichselbaum cocci and similar micro-organisms, among which they mention a Gram negative coccus. He proceeded to give many details as to the preparation of the agglutinating serum, and as to the methods of employing it. He then turned his attention to the specific immune bodies contained in the serum, and found that 0.5 gram of the serum protected mice from the fatal result of twice, four, or even six times the lethal dose of meningococci. Further, he found that if the serum was applied two hours after the infection, the mouse was still saved; 0.2 gram protected prophylactically against a quadruple lethal dose. He had difficulty in determining the actual degree of antitoxic action of the serum, but by means of experiments with killed cultures he found that the antitoxic action, as far as the toxin included in the dead cocci is concerned, is but small. On the other hand, the bactericidal action of the serum could be readily demonstrated. Gathering from the results of experiments on guinea-pigs with small protective doses and with cultures of low virulence that the advent of a leucocytosis materially assisted the protective power, he tried the effect of injecting nucleate of sodium as well as the serum, and found that the action is greatly strengthened. The results of his animal experiments were so satisfactory that he seized the opportunity of attempting to apply the serum to man. He soon came to the conclusion that the dose must be at least 20 c.cm. of the serum with which he was working. This he applied by injecting into the spinal canal. In all, 17 cases of epidemic cerebro-spinal meningitis were treated by the serum. Of these 5 died, and among these 5 were 3 cases with marked hydrocephalus who had only been subjected to the treatment late in the course of the disease. The result on the remaining cases was a remarkable fall of temperature in 9, while in 3 the temperature only fell for a short space of time and they are still under treatment. The headache and orthotonos improved in response to the injections, and the sensorium became clearer. One can say with certainty that the subcutaneous and intralumbar injections do not do any harm, and in no case was there the least trace of local irritation such as albuminuria or rashes. The author is not disposed to express a definite opinion as to the curative value of the serum after such a very limited test, but he has received the impression as if it does good. He is inclined to advise prophylactic injection of at least 20 c.cm. of the serum under certain conditions.

98. Disease Tendencies in Athletes.

Robert E. Coughlin presents the following conclusions (*Med. Record*, June 2nd, 1906): Athletes are prone to cardiac lesions, whether a physiological hypertrophy, a hypertrophy with dilatation and endocarditis, a white spot on the heart, myocarditis, or the different valvular conditions. Pneumonia ranks high as a cause of death in athletes because of the cardiac embarrassment in connexion with this disease. Athletes appear to be susceptible to infectious diseases, and when affected with these diseases succumb to them as readily as do others. Pulmonary tuberculosis is a cause of death in a large percentage of athletes. The average age at death of athletes is far below that of the average person in the ordinary walks of life.

99. Gastro-intestinal Gout.

Although visceral gout, such as gout in the stomach, gouty liver, etc., is well recognized as a real form of uric acid disease in England, H. Richartz states that only the renal form is fully recognized in Germany (*Deut. med. Woch.*, May 31st, 1906). He attempts to determine the reason of this. The difficulty appears to lie in the fact that pathological anatomical characteristics for the changes in the digestive organs due to gout, as compared with those due to other causes, are not known. Again, one has sought uric acid in the vomit in hyperemesis of gout in vain; but the author says that a positive find in this case would be much more surprising. He then proceeds to relate the clinical histories of two cases which exemplify the true gouty nature of the gastro-intestinal disorders. The first patient was a lady aged 31 years. Her mother had suffered from severe typical gout. She herself began to notice changes in her joints from her 18th year. She was suddenly seized with epigastric pain, nausea, and vomiting, which recurred in bouts. The vomiting was repeated in each attack several times, and the whole lasted from three to five hours. After the course of at most two days she again felt quite well. At times she was seized with intestinal crises, in the form of diarrhoea, which lasted from three to four hours, and which was accompanied by colic and severe sweating. The joint affection gradually got worse, chiefly in subacute attacks, but the intelligent patient noticed that the gastro-intestinal attacks brought with them a marked temporary relief to the joints. At first he treated the condition as if it might be a chronic rheumatic affection, but as this treatment failed to relieve, and as the index finger was freshly attacked and the gastric symptoms returned in spite of an absolutely bland diet, she was placed on a meat free diet. This consisted chiefly of milk, bread, small quantities of egg, and much vegetables and fruit. She did not get any more gastro-intestinal attacks and the joints became progressively smaller and more flexible. The second case was one of sudden cramp-like pains in the upper part of the abdomen, which was regarded as a crisis belonging to tabes. The patient denied ever having had syphilis, and no other signs or symptoms of tabes were present. Vomiting and pain recurred and the attacks lasted several hours. No objective signs could be found which could assist the diagnosis, and the guess that the attacks might be due to hyperacidity was disproved by finding the vomit only slightly acid. On remembering the first case, he examined the patient minutely and found a small tophus under the skin at the right elbow. On examining the blood, he found that he was able to separate crystals from it, which gave a typical murexide reaction. The urine contained 1.5 grams of uric acid, an unusually large quantity. On placing the patient on a purin-free diet, the attacks ceased, and did not recur till the time of writing (that is, nine months). He makes some interesting remarks on the cases and on the general difficulties of diagnosis, and speaks of the method of examining the blood.

SURGERY.

100. Treatment of Wounds of the Lung.

Tuffier (*Bull. et Mém. de la Soc. de Chir. de Paris*, No. 20, 1906) has been convinced by a large experience of gunshot wounds of the lung that in an immense majority of cases of this kind cure can be effected without operative intervention, by aseptic occlusion of the external opening and complete rest of the patient. In a certain number of cases the intrapleural effusion of blood becomes infected, and then, he acknowledges, it is found necessary to enlarge the wound in the chest. There are also exceptional cases in which the condition of the wounded patient is so grave as to cause much perplexity as to the proper course to pursue. A case is referred to in which this surgeon thought it advisable, on account of intense anaemia and asphyxia, to expose and suture a large wound in the left lung caused

by a revolver ball. The operation was followed after an in interval of a fortnight by death from septicaemia. In the course of the discussion Delorme advocated a less passive plan of treatment, and advised that in several cases, those, for instance, of profuse primary haemorrhage, or of moderate but uncontrollable haemorrhage, thoracotomy, with the aim of arresting the flow of blood by suturing or direct pressure, should be practised without delay. The general opinion of the Société de Chirurgie on this question seems to have been suitably expressed by Michaux in the conclusion that surgical intervention in cases of wounded lung should be very exceptional, and be reserved almost exclusively for a wound in the region of the pulmonary hilum, and also when there is reason to suspect a complicating wound of the heart or of the internal mammary artery. In nearly every other case of pulmonary wound, abstention, it is held, should be regarded as the proper rule of treatment.

101. Prostatic Ischuria.

Andrews (*Ann. Surg.*, December, 1905) describes an operation for destroying the urogenital diaphragm or pelvic floor as a means of relieving prostatic ischuria. Prostatectomy, he holds, causes too many deaths, and consequently is advisable only in selected cases. In his opinion the great majority of prostatic patients get on so well under other measures that the risk of prostatectomy is far greater than the risk of palliative non-operative treatment. The operation practised by the author, which leaves the urinary tract unopened, and so considerably reduces the risk to life, aims at displacement of the prostate from between the jaws of the pubic rami to a looser position behind and below. This involves the practical destruction of the urogenital diaphragm to such an extent that it no longer forms a transverse musculo-ligamentous septum or floor holding and compressing against the bone, the neck of the bladder, and the prostatic portion of the urethra. The author's views are summed up in the following conclusions: (1) The male pelvic outlet is a narrow bony ligamentous triangle, often too small for the senile prostate; (2) the overgrown prostate would not obstruct the bladder were it not compressed between the jaws of the pubic rami; (3) the triangular ligament and urogenital diaphragm hold the bladder, neck, and the prostate immovably between these bones; (4) on cutting away these bands the constricted overgrown mass falls back into a wider space and ceases to be obstructed; (5) incidentally, great relief of rectal reflexes and spasm results; (6) the retroprostatic pouch is abolished, and the *bas fond* becomes a true funnel with its outlet at the lowest point. Full details are given of the author's operation, to which he gives the name of "prostatolysis."

102. Avulsion of the Penis.

Biondi (*La Clin. Mod.*, An. 12, N. 18) reports the case of a man, aged 64, whose penis was pulled off by an energetic young woman with whom he had attempted sexual intercourse. The case was brought into court, and different versions were given by each party as to how the thing actually occurred, and as the possibility of avulsion of the penis by manual traction is of considerable forensic importance certain experiments were made with a view to elucidate the question. In the first place it was found that the nature of the injuries sustained in the case were exactly similar to those which were brought about when the penis was forcibly avulsed. In the second place it was found that the amount of force required to tear off the penis in a state of flaccidity was far in excess of that which any ordinary person would be likely to possess. But when the penis was erect (in the cadaver this was accomplished by injecting sodium chloride solution direct into one corpus cavernosum) the resistance (which was chiefly due to the tunica albuginea) was very much reduced, so that a comparatively moderate amount of force, quite within the possibility of a woman of average strength, was quite sufficient to completely avulse the penis. The woman's story was that the man tried to seduce her, and that in self-defence she pulled forcibly at the penis, which came off in the struggle.

103. Multiple Juxta-articular Tumours.

M. M. Jeanselme (*Archiv. für Schiffs und Tropen Hyg.*, Bd. 8, Heft 1) describes a condition observed among the natives of Cambodge, Laos, and Siam characterized by the presence of multiple juxta-articular tumours. The tumours are found in the subcutaneous cellular tissue. Some are mobile, and can be rolled beneath the fingers like ganglions; others seem to be adherent to the periosteum, from which they perhaps take origin. Later the nodules become more superficial; finally, they emerge to the surface, the skin covering them being stretched and sometimes discoloured, but not being otherwise altered. The nodules are symmetrical in their distribution, and are most commonly seen over the external malleoli, the head of the fibula, the anterior tuberosity of the tibia, the knee, the trochanteric, and sacro-coccygeal regions, the olecranon, and the acromion processes, and the dorsal aspect of the fingers. In shape they are rounded or lobular, sometimes collected in masses of the size of a fist. Any pressure or friction seems to favour the formation of the tumours. Thus they are frequently seen over the external malleoli, which are in contact with the ground when the native is sitting in his favourite attitude. The nodules may persist indefinitely, or may be spontaneously eliminated by a process of ulceration. The author has observed one case in which an indolent ulcer about the size of a franc was left after the disappearance of one of these nodules. Sections of the tumours examined microscopically showed three zones—an internal one of degeneration, a middle one of transition, and an external inflammatory zone. Bacteriological examination has given negative results. The nature of the tumours is not clear. They are not tuberculous nor syphilitic, nor are they xanthomata, fibromata, nor periarticular bursae which have become sclerosed. They are suggestive of tophi, but against this are their position, multiplicity, indolence, structure, the absence of tophi in the ears, the rarity of pain and of articular deformities, as also the manner of life of the natives. The author inclines to the idea that the tumours are of parasitic origin. The cases may be divided into slight cases, cases of medium severity, generalized cases, and cases complicated by "khi huan," a form of dermatitis. In a typical slight case there were two tumours only, each of the size of a nut, one situated over the external malleolus on the right side, the other over the right elbow. In one of the generalized cases the following tumours were seen: (1) Masses of tumours adherent to the deeper side of the skin over the elbows; (2) a hemispherical tumour over the right acromion, and a corresponding scar on the left shoulder; (3) hard nodules on both sides of the chest wall; (4) small collection of nodules over both the anterior superior iliac spines; (5) large masses of nodules over the great trochanters; (6) coalescing nodules over the sacrum and coccyx; (7) tumours over the patellae and a single tumour over the head of each fibula; (8) a large tumour on the external malleolus of each side, and one on each side above the calcaneum. The fingers of both hands were deformed as in rheumatism deformans, but there had never been joint pains nor attacks of gout. After the author had sent his paper for publication his attention was called to an article published in the British Medical Journal in 1904. The article was by R. Steiner on "Nodosités multiples, sous cutanées, dures et fibreuses chez les Malais," and Jeanselme after reading it came to the decision that the tumours he here describes are identical with those described by Steiner.

OBSTETRICS.

104. Abdominal Pregnancy with Discharge of Fetus per Rectum.

J. Marsh (*Journ. of Obst. and Gyn. of Brit. Emp.*, June, 1906) describes a case of abdominal pregnancy which continued to term, and terminated twenty-seven months later on the discharge of the fetus per rectum. The patient was a Hindu woman 40 years old, who was brought to the Jaswant Hospital with a history of having been delivered about a month before of a putrid fetus minus an arm by a native midwife, and that since then "dysentery," from which she had suffered for three months before her confinement, had been increasing. On further inquiry, it appeared that three years before, after a long interval from the birth of her youngest child, she had become pregnant: the pregnancy had apparently run a normal course, but labour did not follow at term, and she began to become smaller until finally the abdominal swelling disappeared. Menstruation returned eighteen months after it had stopped. About six months before she came to the hospital, she began to suffer from abdominal pain, and three months later from so-called dysentery, a painful, continuous, foul-smelling, purulent discharge. Two months later, when at stool, she noticed that something seemed to come down and protrude from the anus, but did not pass. A native midwife was sent for, and a fetus was delivered piecemeal per rectum, an arm being said to be missing. After the delivery the patient's condition continued to grow worse until she was brought to

the hospital. On admission the patient looked very ill, was apparently unable to speak or move, was very much emaciated, and was constantly vomiting; the temperature was 100.8° F., the pulse 125. The abdomen was distended and tender to the touch, and there was a profuse, fetid, sanguino-purulent discharge from the rectum, with excoriations round the anus. An examination under chloroform was conducted after the patient had to some extent recovered from the shock of the journey. The uterus was found to be normal in size and to be somewhat to the front; high up in the rectum a hard round substance could be felt, the size of a fetal head. In order to remove the hard mass the rectum was dilated with Fergusson's specula, and the mass, which was composed of the parietal bones and the occipital bone of a fetal skull, was removed piecemeal. The patient, after a somewhat protracted convalescence, made a good recovery. The case is a rare one, and it is of interest that the fetal bones should have lain for at least a month in the rectum without causing obstruction of the bowel.

105. **Ectopic Pregnancy.**

Hiram N. Vineberg contributes a paper based on 53 operative cases (*Med. Rec.*, June 23rd, 1906). The ages of these patients varied from 22 to 41 years. Six had never been pregnant before. The writer gives the three cardinal symptoms of ectopic pregnancy as amenorrhoea of longer or shorter duration, irregular uterine bleeding, and abdominal pain. Although the diagnosis of ectopic pregnancy is in some cases extremely difficult, in the vast majority of the cases the condition can be detected by the medical attendant if he will keep his mind alert. The writer does not approve of the practice of purposely leaving a large quantity of blood within the peritoneal cavity. He believes that some of these patients are lost on account of undue haste on the part of the operator. All bleeding should be arrested before the abdomen is closed.

GYNAECOLOGY.

106. **Perineal Hernia Simulated by Pelvic Tumour.**

Prochownik (*Zentralbl. f. Gynäk*, No. 27, 1906) recently exhibited before a German society a woman, aged 37, from whom, one month previously, he had removed a tumour of the size of a man's head, developed between the left labium and the skin of the thigh adjacent to it. Before its extirpation it could be reduced on gentle pressure, going up entirely into the pelvis, without pushing down the rectal wall. After reduction a kind of neck of a hernial sac could be felt, admitting four fingers. On withdrawing the fingers the whole mass came down again; it was absolutely dull on percussion, and this fact contraindicated perineal hernia. On opening the abdominal cavity, the upper limits of a tumour were found to lie between the uterus and the bladder; it was punctured, and a clear, serous, highly albuminous fluid came away. The abdominal incision was closed, and then the tumour was removed through a perineal wound; the contents proved that it was not a diverticulum of the bladder. It was made up of numerous small cysts, and reached high up in the pararectal tissue. The bowel was opened in two places during the enucleation, and the injuries necessitated two secondary operations for closure of the wounds. The tumour was an extraperitoneal fibro-cystic growth developed in the submucous tissue of the rectum. Lomer asked Prochownik when the patient's last pregnancy had occurred and if a vesicular mole had been passed, as the tumour resembled lutein-cyst growths such as are known to develop in association with vesicular moles and syncytioma. Prochownik replied that the last pregnancy, two years before the operation, was normal.

107. **Angiomatous Fibromyoma.**

W. B. Bell and H. H. Clarke (*Journ. of Obst. and Gyn. of the Brit. Emp.*, May, 1906) record a case of angiomatous fibromyoma of the uterus occurring in an unmarried woman, aged 41. The symptoms were of twelve months' duration; the patient complained of having suffered from menorrhagia and premenstrual pain during this time, and in addition from attacks of severe abdominal pain accompanied by vomiting in the intermenstrual periods. Sometimes there was slight dysuria. On examining the abdomen a tumour could be felt in the left iliac fossa reaching nearly as high as the umbilicus; per vaginam this tumour could be moved independently of the uterus. At the operation the fibroid in the left fossa was easily delivered, and was found to be attached to the fundus uteri. To the right and behind the uterus consisted of a large, soft, cystic-feeling mass, not unlike an early pregnancy. The broad ligaments contained very large tortuous veins. Supravaginal hysterectomy was performed, and at the same time, because of the doubtful nature of the growth, both ovaries and tubes were removed. The patient made an uninterrupted recovery. When the specimen was examined the fibromyoma had the usual structure. In the posterior wall of the uterus a large cystic mass could be felt, and when cut into a grey-blue semigelatinous mass, in which hard white nodules were interspersed, extruded itself through the incision in the uterine covering, which formed, as it were, the cyst wall. Microscopically the great bulk of the tumour consisted of unstriped muscle fibres. In parts it was very vascular, the vessels having thick walls which had undergone hyaline degeneration. There was also in some places myxomatous tissue. The authors are of opinion that the case is one of a new growth rather than a degeneration; they have not been able to trace the record of any similar case.

THERAPEUTICS.

108. **Treatment of Hyperacidity.**

I. Boas (*Therap. Monats.*, May, 1906) recognizes that hyperchlorhydria is often associated with textural changes in the secretory apparatus of the stomach, and that one form of hyperchlorhydria is in reality the initial stage of a chronic glandular gastritis, and can be often diagnosed by the presence of an increased amount of mucus. Clinical observation shows the intimate connexion which may exist between hyperchlorhydria and gastritis, and it appears that a marked irritability of the mucous membrane of the stomach may determine the onset of the symptoms of hyperacidity. The presence of a nervous form of hyperacidity is still more obvious. A good example of this form is the hyperacidity, or, more correctly, the hypersecretion, seen in the gastric crises of tabetic patients; but there are also cases which have their origin in functional disturbance merely of the stomach, and Cloetta's experiments on dogs, if the results can be carried over to human pathology, show that abnormalities of secretion can exist without the presence of any histological change. In practice it is not always easy to decide whether the case is one of organic or only functional change. The presence of motor disturbances of the stomach is in favour of organic change, as is a history of abuse of alcohol, tobacco, etc. In a few cases the nature of the process is made clear by excessive secretion of mucus. From his own experience, the author would put down three-fourths of all cases of hyperacidity as early stages of catarrh. Perhaps the most important part of the treatment is the prophylactic treatment. Regular meals, regulation of the temperature, of the food and drink, avoidance of excess in eating, drinking and smoking, are cardinal points, but they are, unfortunately, points which are almost always neglected. In treating the symptoms also the dietetic measures are those of most importance. Physiology shows the marked effect of the different foods upon the amount of hydrochloric acid secreted; when milk, bread, or other starchy substances are taken, this amount is small: when meat or meat extracts are taken, it is large, and fats have a tendency to check secretion. Clinical observations support, to a certain extent at least, these physiological investigations, although a fat diet has not given as good results as might have been hoped, because of the strong distaste felt for it by the patients. Carbohydrates are the food best tolerated, but only when given in suitable form suitably prepared. The general line of treatment would therefore be to limit the amount of animal food, to increase the amount of carbohydrates, and to give fats freely as they can be borne, the carbohydrates chosen being easily assimilable and the fat free from fatty acids and with a low melting point. Milk is the food which more than all spares the stomach, and a week's absolute milk diet is good in cases in which there is any possibility of ulceration of the stomach being present. The liking of these patients for pungent foods is to be met by the most detailed instruction against spices, vinegar, etc. Salads are to be carefully prepared, as, for example, with olive oil. Lactic acid and butyric acid are well borne; curdled milk or cream, buttermilk, and kefir often give rise to no symptoms. It is customary to forbid sweet substances, but while the cooked sweet foods often give rise to severe symptoms, pure sugar in solution can be well taken; as far as fluid is concerned white wines, and especially Moselle wine, are harmful, but good Bordeaux

wine and the better varieties of red Rhine wines can often be taken. Coffee is almost always harmful; tea almost always and cocoa often harmless. The question of tobacco needs to be considered for each individual case. Mineral waters, especially those with weak carbonic acid contents, as the Fachinger, Vichy water, etc., are almost an essential part of the treatment. The author prescribes for his patients 200 to 300 grams of an alkaline water to be taken at each mealtime and first thing in the morning. By such dietetic measures a speedy subjective improvement can usually be obtained, but no permanent objective changes of any importance. These measures are often also very difficult to carry out. The next point is the treatment by drugs, and first of all by alkalies. It may be taken as certain, first, that alkalies used moderately do not have the injurious effect often ascribed to them by doctors and still more by laymen; and, secondly, that alkalies in the treatment of symptoms far surpass all other agencies; but, on the other hand, it is not certain that the immoderate use of alkalies does not increase the symptoms, and experience shows that alkalies properly used, while mitigating the symptoms, are not able fully to remove them. Sodium bicarbonate has the disadvantage of giving rise to the development in the stomach of large quantities of CO_2, which may lead in time to distension of the stomach. Some form of alkali is therefore to be preferred without this disadvantage, and the author has used for many years sodium citrate in preference to the bicarbonate. Where constipation is present the use of magnesia can be combined with that of sodium citrate, and the author has found the triple phosphate or the magnesium citrate useful. He observes the following rules in the administration of alkalies: (1) The smaller the meal the smaller the dose of the alkali needed. (2) The alkali is to be given at the height of digestion, and, as a rule, only one dose, or if two heavy meals are taken, two doses per day are required. Other drugs to be considered are: atropine, scopolamine and eurydine. By the use of atropine the amount of the gastric secretions can be temporarily diminished, and it has one advantage over the alkalies in that it never causes an initial rise in the amount of the secretion. On the other hand, there is always a danger of the development of toxic symptoms when atropine is used, and its long administration is therefore contraindicated. Scopolamine is still on its trial and the author has not any personal experience of it; eurydine he has tried and found useful. In conclusion the author emphasizes the importance of not driving drug treatment too far and of avoiding irritation of the stomach. A dietetic treatment carefully planned to suit the individual case remains always the most important consideration.

109. **Treatmen. of Diabetes Mellitus.**

In two reprints, one from the *Practitioner* for April and the other from the *Medical Chronicle* for May, R. T. Williamson gives some valuable notes upon the treatment, dietetic and otherwise, of diabetes mellitus. He points out that whilst treatment by diet is often the most important, there are many cases in which this may be usefully combined with drugs, a decided reduction of the sugar excretion following a course of aspirin or salicylate of soda, even without placing the patient on a very rigid diet. Besides quantitative estimation of the sugar and the total amount of urine passed in twenty-four hours, he insists upon the importance of testing for Gerhardt's (diacetic acid) reaction—namely, claret coloration on addition of a solution of perchloride of iron—as this is a sign of the most severe form of diabetes. In mild cases a strict diet will often be sufficient alone, but when the reduction of sugar reaches a standstill, a "fast day," during which no food except tea and bouillon, or vegetables, tea, coffee, cream and bouillon, is taken, may bring about the disappearance of the sugar. When Gerhardt's reaction is present, a rigid dietary should not be commenced too suddenly. It is of advantage to know the total value of food estimated in calories. Notes of several cases are given showing the relative values of treatment by aspirin and various articles of diet in diminishing the sugar elimination, and there are many useful and detailed recipes for the preparation of diabetic substitutes for bread, the importance of testing for sugar and starch in some of the substitutes offered to the public being insisted upon because so many of them are untrustworthy in this respect. The relative values of various fruits and vegetables, and methods for utilizing milk in order to obtain the fat and albumen without the milk sugar, are stated.

110. **Hypertension and Carbogaseous Baths.**

J. Heitz (*Rev. de Méd.*, June 10th, 1906) summarizes the mode of action of these baths and the diseased states in which they may be used with advantage. The coldness of the fluid and the deposit of very fine gaseous bullae on the surface of the skin, by exciting the terminations of the cutaneous nerves, cause a dilatation of the cutaneous vessels and a lowering of the blood pressure; the abdominal vessels undergo constriction, and the beat of the heart is slowed. Frequent repetition of the baths may gradually overcome the tendency which the peripheral arteries have to contract, and this effect may be maintained for weeks or months after cessation of the baths. After a course of these baths it is found that the urine increases in quantity and that free elimination of uric acid likewise occurs; the blood contains an excess of leucocytes, both the mononuclear forms and the eosinophiles being increased in number. The author finds a course of these baths of great use in those cases of increased arterial tension in which the vascular symptoms are marked, such as attacks of pallor of the face, dead fingers, numbness of the arms and legs. In women the attacks of profuse sweats, flushings of the face, ears and temples, etc., so common at the menopause, are markedly ameliorated by a course of these baths. Cardiac signs of increased arterial tension, such as palpitation, cardiac erythism, etc., the author finds, are also relieved by these baths, and in some cases where cardiac hypertrophy existed and the second sound over the aorta was markedly accentuated, this latter the author has found subside to a more normal tone when the bath treatment has been carried out. In cases of hypertension, associated with renal troubles, the author has found that a course of these baths has been followed by a remarkable diminution of the albuminuria, and in four cases the albumin disappeared as the arterial tension returned to normal. In those cases where the high arterial pressure was not modified, the albuminuria persisted. Prurigos, eczemas, urticarias have been found to vanish, and a relief of joint pains and excretion of uric acid gravel, and even small calculi, have been found to result from a course of these baths.

PATHOLOGY.

111. **Researches on Syphilis.**

E. Metchnikoff and E. Roux (*Bull. de l'Acad. de Méd.*, May 8th, 1906) have shown that inoculation of man or of anthropoid apes with virulent examples of the virus of syphilis can be rendered abortive with certainty by the adoption of preventive measures locally. They have made a number of attempts to procure an antisyphilitic serum, but without success. They have succeeded in attenuating the virulence of the bacterium of syphilis, by the method of passing it on from one catarrhine ape to another; after the eighth passage the virus could no longer produce syphilis in *Macacus rhesus*, though it could do so after being reinforced again by a single inoculation into the chimpanzee. They think it possible that something in the way of preventive inoculation might be done by the use of a syphilitic virus attenuated in this way. Their latest work goes to show that the virus of syphilis after local inoculation can be neutralized with certainty by the local inunction of mercurial ointment within twenty hours of infection. Of 13 apes thus treated, not one contracted syphilis; while the control animals, inoculated with the same virus but not treated within twenty hours by mercurial inunction, all developed syphilis. They have also proved the effectiveness of the preventive inunction upon a medical student. The student was free from inherited and acquired syphilis. On February 1st, 1906, he was inoculated with syphilitic virus from the hard chancres of two patients, after scarification of the balano-preputial fold. One hour later the infected scarified areas were treated for five minutes by the rubbing in of an ointment (calomel 1 part, lanoline 3 parts). Four favan macaques (*Macacus cynomolgus*) were inoculated with the same virus at the same time; one was treated by local inunction one hour later, a second twenty hours later; the other two received no inunction. The medical student presented no local lesions of moment at the site of the two inoculations and practically no enlargement of the inguinal glands, and up to May 8th he showed no signs of syphilitic infection at all. The macaque treated one hour after infection did not have syphilis; the second, treated twenty hours after inoculation, developed a primary chancre after thirty-nine days of incubation. The two untreated macaques showed marked primary lesions seventeen days after the inoculation. Hence the authors conclude that the prophylaxis of syphilis is possible.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

112. Diastolic Cardio-pulmonary Murmur.

Gallavardin and Bentter (*Lyon Méd.*, June 3rd, 1906) have recently had an opportunity of making an autopsy in a case in which a diastolic murmur had been heard at the base of the heart, which they judged to be of cardio-pulmonary, not of intra-cardiac, origin. Their patient, aged 22, was admitted into hospital on account of severe facial erysipelas. The apex beat was in the fifth space; the cardiac dullness was of normal size. To the right of and over the middle of the sternum a diastolic murmur was to be heard, faint during expiration, much louder and distincter during inspiration. The murmur was occasionally absent for a day or two together. At the autopsy, the lungs were found almost to cover the front of the heart. The anterior border of the right lung was adherent to the mediastinal parietal pleura in front and to the pericardium behind. There was also a pericardiac symphysis, the two larger being matted together by old adhesions. There was no sign of recent pleurisy or pericarditis. There was no lesion of the valvular orifices to be seen. The aortic valves were soft, healthy, and absolutely competent. The heart was not hypertrophied. The left lung was free, but the right was adherent to the diaphragm and to a great extent to the costal wall. At the anterior border of the left lung a patch of cretaceous tubercle was found. The murmur had characteristic differences from the ordinary aortic diastolic. It was localized to the base of the heart, not propagated down the sternum; it was harsh and rasping in quality; it varied greatly in intensity from day to day, and its dependence on inspiration was characteristic. The explanation of the mechanism of this murmur appears to be plain. The adhesions between the border of the right lung and the aorta caused this portion of the lung to share the aortic movements, and the local inspirations caused by the collapse of the aorta during the heart's diastole were the origin of the murmur.

113. Visceral Arterio-sclerosis.

Brooks (*Amer. Journ. of Med. Sciences*, May, 1906) divides cases of arterio-sclerosis into three classes in order to ascertain their relationship to clinical manifestations or etiological data, particularly in regard to the vessels of the viscera. Arterial disease may thus be either confined to the larger trunks while the peripheral and visceral vessels remain free, or the smaller and medium-sized trunks may be chiefly involved, or the changes may be microscopic and only affect the smaller visceral branches. From a *post-mortem* study of 400 consecutive cases, disease of the coronary arteries predominated, due probably to the secondary effects of increased demand for cardiac work. In the production of coronary disease, alcohol is the most frequent, and nephritis the second most frequent, factor, while syphilis, tuberculosis, senility, and tobacco are causative factors in a few cases. The cerebral vessels were affected next in frequency to the coronary, and the renal vessels appear third in the rate of occurrence. Then follow in order of frequency the pancreatic, hepatic, splenic, pulmonary, visceral, and spinal vessels. From a study of these cases, the arterio-sclerotic changes are likely to occur first and in greater degree in those arterial distributions which have to functionate most actively under the special stimulus at work. Experimentally, arterio-sclerotic changes in various viscera appear to follow artificially-induced prolonged vaso-dilatation. The first effect of the arterial disease is manifested in the parenchymatous tissues supplied by the vessels, and the changes are such as are met with in most conditions of general or local malnutrition, consisting mainly of atrophic or degenerative changes to be followed by interstitial sclerosis. Most prominent among symptoms is depressed function of the organ involved, but all portions of any organ may not be equally affected, as is seen in the arterio-sclerotic brain, where certain areas may continue to functionate normally. Pain is more or less a constant symptom, the most familiar example being that of angina pectoris. Increased blood pressure has been long known to follow arterio-sclerosis of the kidneys; and in other organs, particularly the brain pancreas, liver, and spleen, a definite relationship exists between this sign and arterio-sclerosis. Diagnosis must not depend entirely upon the condition of the peripheral arteries, which are often diseased in only a small number of cases in which even marked visceral arterio-sclerosis exists, though it is probable that such peripheral disease eventually follows marked arterial disease of the internal organs. In cerebral arterial disease, however, the ophthalmoscope may be a help in diagnosis. Diminished visceral function with occasional elevations in blood pressure, and associated with possible etiological factors, points to some localized or general area of arterial disease, and pain may indicate the location of the mischief. From careful observation of cases of obscure paroxysmal abdominal pain, associated with elevations of blood pressure, it may eventually become possible to diagnose these types of arterial disease in a stage when alleviation and prevention of further progress may be feasible, but at present the usual methods of diagnosis are only of use when the time for successful treatment or prevention is past.

114. Desmoid Reaction.

In 1905 Sahli described a method of examining the functional activity of the stomach without employing the stomach tube, and claimed that this method was reliable, as far as it went, in determining the secretion conditions of the organ. The method consisted in giving the patient a small gutta-percha bag containing methylene-blue, iodoform or salol, and tied up firmly by a fine catgut ligature. The bag has to be swallowed at the midday meal, and Sahli believed that catgut is only digested in the stomach, so that the appearance of methylene-blue, iodine, or salicylic acid in the excretions may indicate the function of the organ. If the urine excreted after from seven to twelve hours is coloured deep blue, he concludes that the stomach contains the normal amount of acid, while if the colour appears within from four to seven hours he accepts that hyperacidity is present, or, if the coloration is delayed until the following day, it indicates subacidity. Max Einhorn, writing in the *Deut. med. Woch.* of May 17th, 1906, first inquired whether the assumption that connective tissue (such as catgut) is only digested in the stomach is tenable. He tested the matter by making a catgut pearl, and covering it with fat, which would be untouched by the stomach juices, and, after this had been swallowed, he regained the pearl in the faeces. Then he subjected the reaction to a clinical test, controlling each result with that of an Ewald's trial breakfast. In 4 cases of total gastric achylia he obtained a positive desmoid reaction in all, although in one case, on repeating the test several times, he found that at times it was positive and at times it was negative. He employed both methylene-blue and iodoform without coming any nearer to satisfactory results. He therefore concludes that Sahli's desmoid reaction is unsuited for determining the functional activity of the stomach, especially because he is of opinion that catgut is digested in the intestine as well as in the stomach. Alexander and Schlesinger report in the *Deut. med. Woch.* of May 31st, 1906, on the same subject. They subjected the reaction to the following tests: (1) They gave the bag to the same patients on several occasions; (2) they gave bags filled with different quantities of substance to the patient; (3) they gave bags filled with varying quantities at different times; (4) they tested the results in patients with gastric fistulae; and (5) they employed control experiments with picro-carmine. Apart from this, they tried certain experiments with the catgut and with the bag *in vitro*. In the first place they found that in certain patients the desmoid reaction gave varying results, while the acidity of the gastric secretion remained unchanged. In two cases, in which the acidity was approximately normal, they found that the carmine test showed coloration after one and a half and one and a quarter hours, while the chemical substances failed to appear either in the urine or in the saliva. In one case methylene-blue appeared after two and a half hours, while iodine only appeared after eighteen to twenty hours. Even in some cases of hyperacidity the blue was excreted while the iodine or salicylic acid was not found. With regard to cases of subacidity and anacidity, they found at times that, while there was no attempt at digestion to the trial breakfast, methylene-blue appeared in the urine after a few hours (for example, three hours). Watching the change in the stomach of patients with gastric fistula, they found that in the absence of all free hydrochloric acid both fibrin and catgut could be digested, and thus a pill containing methylene-blue, tied

up with catgut, given in such a case stained the stomach contents blue after one and a half hours, in spite of the complete absence of free HCl. The attempt to explain this by experiment *in vitro* failed, since it was found that artificially lactic acid was incapable of replacing HCl. But HCl with trypsin was able to digest the catgut. The irregularities of the reaction led to difficulties which rendered the test of no importance. They conclude that at all events one is not justified in trusting to the desmoid reaction alone in determining the functional activity of the gastric glands.

SURGERY.

115. Appendicitis and Typhlo-colitis.

DIEULAFOY (*Rev. de Chir.*, No. 6, 1906), in a recent communication to the Académie de Médecine, expresses his opinion that many people suffering merely from attacks of simple muco-membranous typhlo-colitis are improperly subjected to an operation for appendicitis which does not exist, and that such mistaken practice is on the increase. The patients in question continue to suffer, and all they have to show as the result of the operation is a cicatrix. Such errors, it is held, would not happen if the practitioner, instead of being guided by a "tendency" diagnosis, took some care, before assuming the presence of appendicitis, in making himself acquainted with the proper symptoms of this terrible affection. A long experience has convinced the author that the predominance of pain in the right iliac fossa in the course of an attack of typhlo-colitis is almost always due to typhlitis and not to appendicitis. A genuine attack of the latter affection should, it is held, conform to quite a special clinical picture. The patient is suddenly attacked when in good health, and usually without any premonitory symptoms. The subject of entero-colitis, on the other hand, has been troubled for months, it may be for years, by intestinal disturbances. In this affection there is certainly pain in the right iliac fossa, but this pain is not so localized as in appendicitis, and, moreover, protective muscular contraction and cutaneous hyperaesthesia accompanied by nausea, vomiting, and fever, are not well marked and constant symptoms. Each of the two affections, Dieulafoy holds, has its own distinguishing symptoms, a careful study of which will, we are told, enable the practitioner in a large majority of cases to make a precise diagnosis. Reference is made to eleven instances in his personal knowledge of muco-membranous entero-colitis simulating appendicitis, in which, at the operation, the appendix was found to be sound. In conclusion, the author asserts that he remains a keen partisan of immediate surgical intervention in the treatment of genuine appendicitis.

116. Surgical Intervention in Cerebral Tuberculosis.

ALESSANDRI (*Ann. of Surg.*, No. 2, 1906), in a suggestive paper read at the International Congress of Tuberculosis in Paris, deals with the scope and prospects of operative surgery in the treatment of tuberculosis of the brain and its membranes. Careful study of a large number of recorded cases has led this pathologist to the conclusion that by reason of the ordinary situation of tubercles in the brain, their frequent complication with meningitis, their multiplicity, and the presence of other serious tuberculous lesions in other parts of the body, surgical intervention can be considered in but a small proportion of cases, even when tuberculous disease is limited in extent. The possibility of spontaneous healing should not be considered a bar to surgical intervention in cases of intracranial tuberculosis in which such treatment might be thought practicable. Indeed, the author states, if in some inaccessible regions and in cases of multiplicity of tubercles the possibility of healing has to be thought of in medical treatment, surgical intervention cannot be excluded for regions where it is possible, since a tuberculous conglomerate may occasion very serious functional derangements even if this conglomerate be capsulated and passive. In any case the essential condition of intervention is a precise diagnosis of the seat of the lesion, it being granted, of course, that this is surgically accessible. Possibility of establishing exactly the seat of the lesion will present itself when the disease is seated in the Rolandic region; secondly, and in a few cases, in the tubercles of the cerebrum, in the frontal lobes, and, it may be, in the occipital and spheno-temporal lobes, the visual and auditory centres. The surgeon, when he has determined the seat of an organic lesion and the accessibility of this seat in regard to intervention, has further to consider the possibility of diagnosing the nature of the disease, and, if this be diagnosed as tuberculous, whether this fact should lead him to refrain from active interference. The author believes that it is very difficult if not impossible to determine with accuracy the nature of the disease. Such uncertainty, however, ought not to stop the surgeon, as operative intervention is not only useful in the treatment of other morbid processes, but in the opinion of the majority tubercle also is susceptible of extirpation and cure. The success of operations for the removal of tubercle from the cerebrum is, it is stated, fairly good. In 19 of 22 cases collected and carefully analysed by the author the results of surgical intervention were, he states, favourable, but he goes on to acknowledge that in some of these cases the amelioration was very slight or none at all. In several cases treated by operation death followed more or less closely, either through multiple tubercles or through meningitic diffusion. The statistics of the operative treatment of tuberculosis of the cerebellum are most discouraging, and fully confirm the opinion of Bergmann, who advises abstention under such conditions.

117. Lipomatosis.

FIORAVANTI (*La Clin. Med.*, An. xii. No. 12) discusses the pathogenesis of the various forms of lipomatosis. Speaking generally, he believes they are all ultimately due to changes in the vasomotor and trophic nerves or nerve centres—that they are, in other words, tropho-neuroses. And it is well known clinically that some cases of lipoma start as angio-neurotic oedema. Amongst the various exciting causes, traumata, especially if slight and repeated, must be reckoned as effectual. Chronic rheumatism, again, is a predisposing cause. Then there is a class of lipomata in association with definite nerve lesions (whether central or peripheral, bilateral in the first case). Of the generalized symmetrical lipomatosis, there are two chief groups: (1) Where there is little or no pain, and (2) where pain is a prominent symptom (adiposa dolorosa, or Dercum's disease). It is sometimes difficult to differentiate between these two groups: the most useful guides in classifying a case in group 2 is the presence of pain and marked asthenia. Adiposa dolorosa is more common in women, especially if alcoholic, arthritic, or neuropathic. What relation the thyroid, hypophysis, or other internal secretion glands have to the disease is uncertain, and treatment on these lines has not been generally successful. What influence they may have is excited by way of the vasomotor and trophic nerve centres.

118. Traumatism as an Etiological Factor in Appendicitis.

W. J. MCDONALD asks (*Med. Record*, June 2nd, 1906) if it is not possible or even probable that in some given cases the inflammatory condition in the appendix resulting in perforation may be propagated thereto by continuity of tissue. He presents a series of clinical histories in which he endeavours to show how appendicitis was due directly to a previous bodily injury. He believes that this affection may be more frequently the direct result of a so-called accident than we are aware. The first patient when a child had fallen heavily, suffering a severe blow on the lower part of the abdomen. After this she suffered from vague right-sided abdominal pain. At the age of 24 she "overreached" herself, severely straining the right side. The old symptoms at once appeared. McDonald, in operating, found the appendix totally gangrenous. The second patient jumped heavily to the ground from a carriage and began to complain of wandering pains in the abdomen. McDonald discovered at operation gangrenous perforation of the intestine and peritonitis, which proved fatal. The third patient, too, gave the history of traumatism.

OBSTETRICS.

119. Puerperal Eclampsia.

JOHN W. WINSTON (*Med. Record*, August 4th, 1906) declares that it seems reasonable to say that eclampsia with its pathological conditions is due to the presence of leucomains and globulins in the mother's blood, or, if the parasitic theory be true, to toxins: to the formation of fetal toxic materials, both of which act slightly by direct action on the body parenchyma, but chiefly on the overcharged nervous system. Treatment consists in prevention of the cause, treatment of the underlying causes when existing before the attack, treatment of the pathological

conditions, and treatment to meet the symptoms when they arise. Winston believes that the kidneys will do their work if they are furnished with the material to work on even though they be diseased.

120. **Avoidance of Ruptured Perineum.**

Rudaux (*La Clinique*, May 11th, 1906) emphasizes the wisdom of disengaging one parietal protuberance after the other from the orifice of the vulva, and of making sure that the occiput is completely free from the pubic arch before allowing the head to extend so as to deliver the face. The necessity of suitable pauses during the expulsive process, so as to profit by the elasticity of the maternal tissues, is insisted on; and, in the case of instrumental delivery, restraining rather than making traction when the sub-occipital region has passed under the pubes.

121. **Puerperal Types of Sepsis.**

William S. Stone (*Med. Record*, August 11th, 1906) in speaking of the puerperal types of sepsis divides them into the toxaemias and general infections. Under toxaemias are grouped those cases that are the results of absorption of the putrefactive products of saprophytic bacteria, and those which are the result of absorption of the products of pathogenic bacteria. Toxaemia from putrefactive changes represents the largest number of cases of fever in the puerperium. The toxaemias resulting from the products of pathogenic bacteria are very frequent. Under the head of general infections there are three general varieties: phlegmasia alba dolens; the types generally known as septicaemia, pyaemia, or septicopyaemia; and the peritoneal type which is generally fatal under the present treatment. Stone is especially interested in this type because he thinks that a close study of the pathological findings would show that surgical measures might be of help.

GYNAECOLOGY.

122. **Indications for Curetting.**

Platon of Marseilles (*La Clinique*, April 27th, 1906) gives a very full summary of the conditions under which curetting may be employed, and of the mode of procedure which is most to be commended. Reminding his readers that the success of the operation depends upon the peculiar property of rapid regeneration possessed by the uterine mucous membrane, thanks to the presence of the chorion, and of the glandular *cul de sacs* left untouched by the instrument, he enumerates the various modes of action of the curette as being at times modifying and evacuant, at other times explorative or destructive. The choice of instruments is a matter of some importance. Platon prefers, as a rule, blunt rather than sharp curettes, forcible scraping being sufficient, and cutting unnecessary, even when the tissue is fairly resistant. The operating case ought to contain two curettes, two pairs of vulsellum forceps, one pair of long dressing forceps, a sound furnished with a flushing apparatus, and a vaginal speculum; with the addition of a dilator and a set of Hegar's bougies if tents have not been previously employed. In puerperal cases very large blunt curettes on long handles are used, and Pinard's instrument gives successful results. Platon lays stress upon the importance of cleansing and disinfecting before curetting as thoroughly as in preparing for a more serious operation, and he prefers general to local anaesthesia. Reserving bougies and dilators for urgent cases, he recommends the insertion of laminaria tents for some days before, beginning with a small size and introducing larger sizes daily until, on the fifth day, the operation takes place. Pain and nausea he combats by means of injections of antipyrine and frequent hot compresses to the epigastrium. After describing the details of the curetting, he advocates the introduction of a metal drainage tube in septic cases, and of a gauze drainage when a tampon is desired, either to be removed after forty-eight hours, and the patient in slight cases to be allowed to leave her bed on the eighth day. Douches of sterilized water, six on the first day, four on the second, and afterwards two, are prescribed. Special caution is necessary in *post-partum* cases, where the uterine tissue is softened and attenuated, and in such circumstances the finger is to be preferred to the curette. Haemorrhage is rare, is generally caused by the insufficient removal of diseased tissue, and is cured by a further application of the curette or the exploring finger. Adhesions leading to obliteration of the cervical canal and consequent sterility can only be caused by the scraping having penetrated too deeply into the submucous tissue. After abortions Platon recommends curetting as a routine practice whenever the medical attendant has been unable to see personally that all the uterine contents have been expelled. Curetting is useful in chronic metritis, mucous polypi, and intrauterine fibroids; even salpingitis and other inflammatory affections of the adnexa will be helped by its employment, and Platon finally recommends it as a prelude to every vaginal hysterectomy.

123. **Fibroid Tumours of the Uterus.**

LeRoy Broun (*Med. Record*, July 28th, 1906), after reviewing the history of the surgical treatment of uterine fibroids, expresses the conviction that we conserve the interests of our patients in advising them not to consider palliative measures. He believes in the removal of fibroid tumours, whether they give rise to distressing symptoms or not. He bases his belief on the knowledge that the death-rate from removal is now less than 1 per cent. in individual statistics, to 4 per cent. in combined statistics, while in patients who have fibroid tumours which are not operated upon the mortality is at least 10 per cent. There is less risk to the patient and a greater possibility of saving the uterus also in removing the intrapelvic smaller tumours. This does not include the small fibrous nodules recognized only by one with trained touch, and which occur in women near the menopause. Unless these tend to increase in size there is no need for interference.

THERAPEUTICS.

124. **The Action of Antistreptococcus Serum.**

The real results of the therapeutic action of antistreptococcus serum are still so much shrouded in doubt that it appears to W. Zangemeister to be desirable to put the matter clearly in a scientific light, and decide definitely whether the serum is of clinical value or not (*Deut. med. Woch.*, July 5th, 1906). Since animal experiment only settles the value as far as the animals themselves are concerned, and does not admit of definite conclusions with regard to man, he finds it wise to judge it from a clinical standpoint. This, however, is fraught with very many difficulties, and it seemed to him better to attack the matter by testing its prophylactic value. If the serum is not capable of acting beneficially when applied just before or immediately after an infection, then one can no longer hope for an action when the infection has already manifested itself. This applies to all animals, and can be readily demonstrated in immunizing experiments. After discussing some theoretical points he proceeds to report on his investigations. First he states that the serum acts specifically, but is not antitoxic. The leucocytes, under the influence of the serum, greedily take up the streptococci, that is, it leads to an active phagocytosis. Experience shows that the action of the immune bodies may be destroyed when the dose is considerably over a minimum lethal one, when the leucocytic apparatus of the body is damaged, when the streptococci develop in a situation where the leucocytes cannot obtain an easy access, and when the virulence of the cocci is markedly increased. First of all, he applied the serum in 30 cases of normal labours, when the patients were not infected, and showed no fever at the time of injecting. Comparing these cases with a series before and another after these patients were treated, he found that 19 per cent. showed a temperature of over 100° F., and 10 per cent. over 101.3° F., while in the untreated cases 24 per cent. showed a temperature of over 100° and 6 per cent. over 101.3° F. There was therefore nothing in favour of the serum (1 c.cm. of which was given) in this series. When 2 c.cm. was injected before artificial interference in labour, no advantage could also be noticed. Next he applied 2 c.cm. prophylactically of Aronson's serum in cases of gynaecological operations. In comparing these cases (the number of which was 26) with an equal number of operations preceding and a third series following, he found that the temperature was on an average higher, that the infection of the abdominal walls or peritoneal irritation was about equal, and that there were 3 deaths among the immunized, while in the two series of the not-injected patients, the first gave 1 death, and the second none. In his vaginal operations, which he immunized with injections of 5 c.cm. of serum, all did well. Among 16 laparotomies, 1 patient died of collapse immediately after the operation, while in 3 others (carcinoma, myotomy, etc.) suppuration in the suture canals or around the stump took place. Lastly, he injected larger doses (from 10 to 30 c.cm. of Aronson's serum) in 17 cases of

total extirpation of the uterus. Most of the patients were suffering from very advanced carcinoma. In 5 of 7 fatal cases streptococci were found *post mortem*. He discusses these cases minutely. He is therefore forced to the conclusion that Aronson's antistreptococcus serum is not active prophylactically, and therefore in its present form cannot be expected to act therapeutically.

125. Chloride of Sodium Baths.

André Claisse (*La Clinique*, April 27th, 1906) advocates baths of chloride of sodium in certain gynaecological affections, with special reference to the springs and the sea water of Biarritz. The waters of Briscous are very strong, containing 295 grams of chloride of sodium to the litre, the total salts being 307 grams. He finds that cases of metritis and salpingitis, coming under observation, as they generally do at Biarritz, in a subacute or chronic stage, characterized either by profuse menorrhagia inducing anaemia, or by a certain degree of enlargement and adhesion of the pelvic contents, are greatly benefited by sodium-chloride baths. The infection is weakened, inflammatory manifestations improve, pain and tenderness diminish, the periodical haemorrhage becomes normal, the adhesions relax, and conception is again rendered possible. In uterine fibromata he recommends the baths either by themselves, in cases approaching the menopause, or as an "ante-cure" or a "post-cure" if operation is found necessary. Their influence on the vascular system has been utilized in the treatment of varicose veins, either at the close of the acute stage of phlebitis, or as a disinfectant and stimulant in varicose ulcers.

126. Treatment of Angina Pectoris by Carbo-gaseous Baths.

Heitz (*Arch. Gén. de Méd.*, April 24th, 1906) gives detailed accounts of four cases of true angina pectoris which were markedly benefited by this method of treatment. He points out that this method is of especial value in those cases of angina dependent upon cardiac weakness produced by a long-continued struggle of the heart against excessive peripheral resistance, as not only is the arterial pressure lowered by these baths, but the heart is made to beat more slowly, more regularly, and with increased force. All the author's cases presented well-marked signs of increased arterial tension, and in three of the cases cardiac dilatation was found to exist; in two of these the cardiac dilatation considerably diminished after a course of baths had been instituted. The author finds that the cases of true angina which are most benefited by the bath treatment are those in which vaso-constrictive phenomena are well marked. Those cases in which symptoms of profound myocardial degeneration show themselves, or in which there are signs of renal impermeability, as shown by urine containing abundant albumen, granular casts, defective elimination of chlorides, etc., should not be treated by these baths.

127. Neuronal.

G. Dreyfus (*Therap. Monat.*, May, 1906), during the year 1905, used neuronal in 17 cases of psychosis, either as a sedative or as a narcotic. When used as a narcotic, the time before the patient fell asleep varied with the amount of excitement present and with the severity of the case. For patients who were quiet but sleepless the time varied generally from a quarter to half an hour; the sleep obtained was usually deep and unbroken. For excited patients the time needed was longer—from one to three hours or even more—but the sedative effect was obvious after one hour. The dose varied; 0.5 gram was found adequate in simple cases; 1.0 gram was needed in obstinate sleeplessness; and when excitement was present 1.5 grams was the minimum and 2.5 grams the maximum dose. In two cases unpleasant side-effects were observed—severe headache in both cases, and in one, on the fifth day on which the drug was discontinued, slight delirium and a quick and dicrotic pulse. In no other case were side-effects observed, and in no case was there either a cumulative action or a diminishing action on continuous use. Control observations were made for purposes of comparison with other narcotics, and neuronal was surpassed only by veronal. Chloral is not so safe as neuronal; trional is weaker in its action, and larger doses are needed; paraldehyde, even in large doses, was quite without effect in one case in which 1.5 grams of neuronal was effective. The different cases in which neuronal was used are briefly described. In a case of severe hysteria of a year's duration in which suggestive treatment had been found absolutely useless, the administration of 1.5 grams of neuronal gave eight hours' sleep. In this case 1 gram of neuronal had not much effect, while 2.5 grams caused the patient to be somnolent for twenty-four hours; paraldehyde was without effect. In one case of melancholia 0.5 gram of neuronal gave nine hours' sleep; the same dose of isopral had comparatively only a fair result. Neuronal gave differing results in two cases of arteriosclerosis; one of these was one of the cases mentioned above, in which the use of neuronal was discontinued because of headache; the other case was treated with good success by means of neuronal. In maniacal cases, as tested in three instances, the effect of the drug appeared to vary with the amount of excitement present; where the patient was depressed, nine hours' sleep was obtained after the administration of 1 gram of the drug; where the patient was acutely excited, only from two to three hours' sleep. In cases of general paralysis also and of dementia praecox, the result obtained from the drug appeared to depend on the amount of excitement present. The author had no suitable cases on which to test the action of neuronal in epilepsy.

PATHOLOGY.

128. Amoeba Dysenteriae.

Thomas (*Amer. Journ. Med. Sci.*, January, 1906) reports his investigations into the action of several substances upon pure cultures of the *Amoeba dysenteriae*. Forty-eight-hour cultures were used, since preliminary experiments showed that at this time the amoebae had reached their maximum activity and had not begun to encyst. The solutions to be tested were poured over the surface of slant cultures, and at the end of ten, twenty, thirty, or sixty minutes the solution was poured off, and the surface washed lightly with sterile water and transplants made to fresh media. Control transplants were made in every instance before adding the solution to be tested. It was found that quinine, 1 in 500, had but a moderate effect upon the amoebae in thirty minutes, and 1 in 250 a decided effect in twenty minutes. Nitrate of silver, thymol, and succinic peroxide acid in moderate strength had a marked effect, while sulphate of copper, permanganate of potassium, tannic acid, infusion of quassia, ichthyol, and oil of cassia acted only slightly. A further series of experiments was conducted upon amoebae suspended in fluid in order to determine more accurately the effect of certain substances on unprotected amoebae, and, in order to ascertain whether such effect was due to a specific action on the amoeba or to the destruction or attenuation of its symbiotic bacteria, synchronous transplants were made from the treated culture to sterile agar plates and to plates innoculated with the cholera spirillum, the symbiotic bacterium of the amoeba culture employed. It was found that boric acid, eucalyptol, ichthyol, oil of cassia, and infusion of quassia had only a slight effect upon the amoebae. Tannic acid, 1 in 100; sulphate of copper, 1 in 2,000; permanganate of potassium, 1 in 4,000; and sulphate of quinine, 1 in 1,000, had a moderate deterrent effect upon the growth of the amoebae and cholera spirilla within thirty minutes. Succinic peroxide acid, 1 in 1,000; permanganate of potassium, 1 in 2,000; sulphate of quinine, 1 in 500; nitrate of silver, 1 in 2,000; argyrol and protargol, 1 in 500, had very marked deterrent effect upon the growth of the cultures within thirty minutes; and in the case of the silver salts and the succinic peroxide acid the action was clearly due to the inhibition of the growth of the symbiotic cholera spirillum. Thymol, 1 in 2,500, destroyed the amoebae in fifteen minutes, but only had a moderate effect upon the cholera spirilla. From experiments undertaken to determine the value of sulphate of copper in high dilutions as a purifier of water reservoirs, it was found that such dilutions had no effect in ninety-six hours upon concentrated emulsions of the amoebae, and also that copper solutions as dilute as 1 in 100,000 had little if any effect on the amoebae, though they appreciably inhibited the growth of the cholera spirillum. It is doubtful whether this inhibiting action on the spirilla is of sufficient potency in dilutions of 1 in 100,000 to practically affect the development of amoebae in large bodies of water. Emulsions of amoebae and cholera spirilla poured into copper crucibles were covered and allowed to stand for five days at room temperature in Manila, and transplants from these proved that it would be unsafe to rely upon copper containers to purify water infected with amoebae or cholera, as has been suggested.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE

129. **Intestinal Haemorrhage in Malta Fever.**

Edgar Axisa (*Zentralbl. f. inn. Med.*, April 14th, 1906) describes a new complication of Malta or Mediterranean fever—namely, intestinal haemorrhage. Anorexia, nausea, epigastric oppression, vomiting, meteorism, and gurgling in the right iliac fossa are not uncommon. There may be constipation or diarrhoea, the stools in the latter case being dark and offensive, or resembling those of typhoid fever. Slight admixtures of mucus or blood are common, but profuse intestinal haemorrhage as in the following case has hitherto not been described. A man, aged 50, was admitted to hospital in Alexandria on October 18th. On October 10th he had been seized with headache, pains in the limbs, slight rigors, and pyrexia. There were malaise, nausea, vomiting, and diarrhoea, the stools being offensive, and of a dark brown colour. The tongue was coated. The pulse was 120. The spleen was enlarged and hard. The abdomen was tender, especially in the right iliac fossa. There was diffuse bronchitis with tenacious mucous sputum. The urine contained a trace of albumen, indican, and much skatol. The diazo reaction was well marked. In the sputum were neither influenza nor tubercle bacilli. There were no rose spots. There were 7,200 leucocytes and 4,120,000 erythrocytes in the c.mm. Widal's test was negative in a dilution of 1 in 100, but agglutination was obtained with the *Micrococcus melitensis* in a dilution of 1 in 250. The temperature was irregular, that in the morning often exceeding the evening readings. There was no sweating. In the early morning of October 23rd two attacks of profuse intestinal haemorrhage occurred, the first stool consisting of a liquid dark, almost black, mass, and the second of dark red clots in liquid faeces. There were no haemorrhoids, and the rectal mucosa was normal. In the evening the temperature rose to 105.1° F. In the night of October 24th and 25th profuse haemorrhage recurred. On October 27th the faeces were mixed with blood, but on October 29th, though diarrhoea continued, no blood was visible. Widal's reaction was not obtained in a dilution of 1 in 20. On October 31st the morning temperature was 97.1° F., the headache had disappeared, and the patient felt well. But at 4 p.m. a severe rigor occurred, and the temperature rose to 105° F. During the rigor the blood was examined for the malarial parasite with a negative result. On November 3rd the leucocytes were 4,200 in a c.mm. With intervals of comparative apyrexia the illness continued till January 1st, when the temperature became permanently normal. The spleen was then palpable below the costal arch, but slowly receded, and on January 20th, when the patient was discharged, could not be felt. But agglutination of the *Micrococcus melitensis* in a dilution of 1 in 1,000 still persisted. The occurrence of intestinal haemorrhage in Malta fever increases the difficulty of distinguishing it from typhoid fever. Probably it is due to ulceration, which was found by Hughes in 3 of 62 cases examined *post mortem*. The ulcers were situated in the caecum and colon in one case, in another the ileum, three ulcers corresponding to Peyer's patches, and in the third in the rectum. Whether, as Hughes supposed, ulceration is an accidental complication cannot now be decided. Probably intestinal haemorrhage in Malta fever is commoner than is usually supposed, but its occurrence has decided the diagnosis in favour of typhoid fever. The diagnosis is rendered more difficult by the fact that the diazo reaction, leucopenia, and splenic enlargement may occur in both diseases. In Malta fever the diazo reaction is obtainable only in the early stages. In the treatment of Malta fever a strictly liquid diet is essential, and should be continued well into convalescence.

130. **Infantile Splenomegalic Paludism.**

D. Pace and G. Breccia (*Giorn. Internat. d. Sci. Med.*, Nos. 6 and 7, 1906) detail the conditions found in a girl of 16 and a man of 23, both suffering from the malarial infantile splenomegaly described by Cardarelli in 1886. Both patients had suffered much from malaria; they presented marked signs of infantilism (the girl particularly so), great enlargement of the spleen, which reached over well into the right iliac fossa and showed deep fissuring, enlargement of the liver, malarial cachexia, and anaemia. Pyrexia was absent, and malaria parasites were not found in the blood. The patients were admitted to the hospital for splenectomy. Before the operation they were placed on strict diets of definite and known composition, and balance-sheets were worked out for their consumptions of nitrogen, fats, carbohydrates, and water. The urine and faeces were collected carefully and analysed over periods of four or five days. It was found that they both retained nitrogen, and put on weight; from 1 per cent. to 10 per cent. of the fat taken reappeared in the faeces, and from 6 per cent. to 9 per cent. of the carbohydrate. The heat value of the food taken by the girl was at the rate of 49-67 cal. per kg.; by the man 41 cal. per kg. In each case the blood showed poverty in red cells, haemoglobin, and white cells (= Bignami's leucopenia malarica). The large uninuclear lymphocytes were much increased. The authors promise a second paper describing the state of the patients after the operation of splenectomy has been performed.

131. **Tuberculous Articular Rheumatism.**

Patel and Leriche (*Rev. d'Orthopéd.*, May 1st, 1906) report a typical example of tuberculous articular rheumatism. The patient was a woman, aged 41, with a doubtful history of chest disease in the family. At 13 she had typhoid, and in early life suffered slightly from cervical adenitis and otorrhoea. At 24 she was suddenly seized with symptoms of pulmonary phthisis—cough, haemoptysis, night sweats, wasting—followed by rheumatic pains—with redness, severe pain, and functional impotence—in most of the joints, beginning with the lower extremities, and finally attacking the spinal column. The patient was bedridden for four months, and got no relief from salicylates. Gradually all the symptoms disappeared, the cough being the last to go, and in six months later she was completely well, and, except for slight attacks in the fingers, remained well up to ten years ago, when a similar cycle of events took place, only lasting longer, and the cough persisted. Two years ago another attack set in, all the symptoms being more marked this time—several sharp attacks of haemoptysis, signs of breaking down at both apices, marked synovitis, with effusion of the knee-joints, more or less cyanosis, and general ill health. The attack lasted four months and slowly passed off, leaving certain pulmonary signs and symptoms. In the summer of 1902 and in January, 1903, fresh attacks came on, and again in December, 1904, and finally death in November, 1905, from copious haemoptysis. At the autopsy the upper lobes of both lungs were found riddled with cavities, and there were numerous caseating glands in the mediastinum. All the articulations were examined. The most obvious change was a rarefaction of the cartilage, so that in some places one could almost see the bone underneath. The medulla was a bright carmine-red colour, such as one sees in infective conditions. There was no osseous deformity and no ankylosis. Microscopically there was no evidence of osteitis, nor any trace of characteristic tuberculous lesions. The disease must be diagnosed clinically and not pathologically. Of the two types of joint tuberculosis, plastic and hyperostosing or atrophic and medullary, this case is a good example of the second group.

SURGERY.

132. **Operative Treatment of Goitre.**

Kocher (*Zentralbl. für Chir.*, No. 28, 1906) reported to the last congress of the German Surgical Society the results of a third series of 1,000 operations for the removal of goitre practised between November, 1900, and August, 1905. Of these operations 7 only were fatal. The highest rate of mortality naturally occurs, it is stated, in cases of malignant goitre, and of the 36 subjects of this disease 3 died, the fatal result, however, being due not directly to the operation itself, but to circulatory disturbances in the brain caused by ligature of the carotid, and to the results of extensive resection of the trachea and the oesophagus. A single fatal result from secondary hemorrhage occurred in a group of 52 cases in which the operation was performed for the treatment of exophthalmic goitre. Death followed the operation in 3 of 904 cases of ordinary goitre: in 1 from secondary bleeding in a subject of congenital myxoedema; in another from pneumonia when the wound in the neck was quite healed; and in the third as the result of advanced myocarditis. These results, Kocher

states, prove that the actual operation for the removal of goître may, provided the heart be quite sound, be practised without danger to life, even when the swelling is very large and extends into the thorax, and when the patient is of advanced age. These striking results of the operative treatment of so grave an affection as goitre is attributed to the great improvement that has of late years been effected in surgical therapeutics by the adoption of aseptic methods. Kocher asserts that in not one of this series of cases did he note any symptoms of really serious infection, and that of 295 cases which were treated in a private hospital there were 7 only in which signs of local wound infection were observed, and that the average duration of the stay in the building was ten days. A description is given of the author's methods of preparation and of dressing, which seem very simple and are as far as possible aseptic, no antiseptic solution being allowed to come into contact with a fresh and clean wound. Much attention is paid to careful and complete haemostasis at the end of the operation. Temporary drainage of the wound has been found advisable for the removal of effused blood and serum, but the drainage tubes are removed after the cessation of discharge, usually about twenty-four hours after the operation. The operative prognosis in the removal of goitre depends very much on the condition of the important organs, especially the heart. Cardiac insufficiency and lowered blood tension are regarded as important contraindications to operative treatment. These complications, it is pointed out, are often absent in early stages of goitre, and the practitioner is earnestly warned against procrastination in considering surgical intervention, and against wasting time in internal treatment by iodine and thyroid extract, which latter preparation, in Kocher's opinion, does much more harm than good. The cardiac complication—the so-called goitre heart—plays a prominent part in Basedow's disease; consequently, if this could be excluded by an early operation, the surgeon would be able to improve the prognosis of his treatment of the general affection. It is, Kocher holds, a fatal error with both medical and surgical practitioners to regard operative intervention in Basedow's disease as a last refuge. It is hardly necessary. Kocher states, to insist on the importance of an early operation in cases of malignant goitre. An early diagnosis of the nature of the disease is certainly not free from difficulty; but the surgeon should bear in mind that operative intervention is unconditionally indicated in every instance of rapidly-growing goitre, and also whenever a slowly-growing and apparently passive thyroid tumour suddenly takes on rapid and excessive growth. In concluding his paper, Kocher points out that notwithstanding the favourable auspices of radial surgery of the thyroid, there is always a possibility of the development of slight hypothyreosis, even after partial strumectomy. In order to prevent this, the surgeon should endeavour to leave a sufficient amount of sound thyroid tissue, and, with this object in view, modify if necessary the usual plan of operation, and in cases of extensive excision to supplement his operative treatment by the internal use of thyroid extract.

133. The "Peripatetic" Treatment of Broken Legs.

RECLUS (*Journ. des Praticiens*, No. 24, 1906) describes the method he has adopted for the last twelve years in the treatment of simple fractures of the leg. It has the advantage that the patient so treated is able to walk about within a week of breaking his leg. Cestan (of Toulouse) has treated over 500 cases with the apparatus of Reclus described below, and finds that bony consolidation of the fragments is apt to occur ten days or three weeks sooner with it than when the ordinary methods of immobilization are employed. The apparatus of Reclus is applied at once to the broken leg if there is no oedema, or, if there is, a few days later when it has disappeared. The fracture is reduced and the back and sides of the leg and the edges and sole of the foot are enveloped in a light gauze and plaster-of-paris mould (seven thicknesses); the mould reaches up to within about an inch of the popliteal space, and holds the foot at right angles to the leg. The mould is applied while damp and fixed in the right position with bandages. Next day the rest of the apparatus is fitted on. This consists of two pads of gauze and plaster (ten to twelve thicknesses) 8 in. long and 3 in. wide, and a stout stirrup of round iron (shaped much like a modern croquet hoop) with the two ends beaten out flat. While they are moist, the two pads are placed longitudinally against the inner and outer sides of the knee, so that the lower 4 in. or so of each is in contact with the upper end of the mould. Then the stirrup is put in position, the two flattened ends embracing the pads and reaching as high as the top of the mould, and these ends fixed in position by a few turns of gauze bandage filled in with dry plaster and then wetted. Then the upstanding ends of the two pads are turned down over the ends of the stirrup and the few turns of bandage, and a few more turns of the plastered bandage are wound round the whole to consolidate it. The lower end of the stirrup projects about 2 in. below the sole of the foot. As soon as the apparatus thus applied has dried on, the patient may begin to walk about. Eight cuts are given illustrating the method of employing and applying the apparatus.

OBSTETRICS.

134. The Use of Forceps.

DEMELIN (*Jour. des Prat.*, August, 1906) discusses under what circumstances the application of forceps, being apparently indicated, may be deferred or avoided. He deprecates the present teaching that the forceps are to be used very exceptionally; he considers a good pair of forceps, handled with care, slowly and gently, is an invaluable instrument. Many cases are met with in practice in which it is possible to temporize or even to abstain from their use; there are others in which it is absolutely indicated to save the life of the fetus or mother. Presentations of the shoulder or breech call for extraction by the feet, but when the head is fixed or engaged and the uterine muscle is retracted instrumentation is needed. The question whether to wait or to assist is often difficult to decide when there is no danger and the labour is normal, only tardy; this occurs usually in primiparae who have been exhausted by the long period necessary for the dilatation of the os. After twenty to twenty-four hours of labour the pains become few and feeble, and the patient inclines to sleep; if then the fetal heart sounds are normal and there is no sign of meconium in the amniotic fluid it is wise to allow her to sleep for an hour or two. On awakening give an alcoholic drink, hot, with plenty of sugar in it, since sugar is a good muscular stimulant; follow this with a hot bath and a large dose of sulphate of quinine, and generally expulsive efforts will be re-established and terminate favourably. Hot douches do not reach the uterine muscle when the head is engaged and low down. When there is complete dilatation and the membranes are still intact they must be ruptured in an interval between the pains. Some women, although vigorous, are nervous and cowardly when they feel the head on the perineum, cease from expulsive effort, and make no progress. A few whiffs of chloroform are sufficient to encourage the patient and produce the desired result. In primiparae, in spite of strong effort, the firm perineum prevents progress, it is permissible to add abdominal expression to the efforts of Nature. Mounting upon a chair beside the bed the palms of the hands are placed on the fundus, and when the contractions occur steady pressure is made upon the fetus in the direction of the pelvic outlet, the perineal resistance is thus overcome, and the application of forceps is avoided. In a case where there is full dilatation of the os and no advance is being made, examination may show the head lying in the transverse or oblique diameter, and not fully flexed. It is possible to assist the head to flex and turn; this is best done during the pains by introducing the first finger into the vagina, and during the contraction pressing upon the head near the anterior fontanelle in such a manner as to promote flexion, or it may be possible to get under the convexity of the occiput and draw it downwards. By pressing behind the ear in the direction required rotation is assisted; should the contraction cease before complete rotation is complete, the hand should be retained in position ready for the next pain. Rotation and flexion having been procured delivery will not be long delayed. There should be a limit to the time of waiting after the full dilatation has occurred. In uterine inertia often one may safely wait for five or six hours, but it is unwise to allow the maternal soft parts to be bruised too long between the head and the bony pelvis; there is a risk of oedema, lacerations, and possibly of fistula resulting. When the pains are vigorous and no progress is being made two hours after full dilatation, interference is necessary. Such cases used to be left for ten or twelve hours until the fetal head was increased in size by a haematoma, and the difficulty of delivering resulted in a torn perineum, a vesico-vaginal fistula, and infection by lacerations. These fistulae are now very rarely seen. In deciding whether to wait or to intervene, the position of the head in the cavity is an important point. As long as conditions are favourable it is well to temporize, but when symptoms of urgency arise there should be no hesitation in applying the forceps.

GYNAECOLOGY.

135. **Fever after Abortion: Suppuration of a Fibroid.**

MAUCLAIRE (*Comptes rendus de la Soc. d'Obst. de Gyn. et de Péd. de Paris*, May, 1906) recently operated on a woman, aged 32, who came under his care with symptoms of threatened abortion. She had miscarried five years previously, and since then had been regular and free from menorrhagia or intermenstrual haemorrhages. The period had ceased for about six weeks, when much clot and fluid blood came away; criminal abortion was suspected. A week later she was examined by Mauclaire, who defined a tumour of the size of a fist in the hypogastrium; it felt as tough as wood, and the fundus uteri seemed to lie distinct from it to the left. The cervix was short and the os patulous. There was no rise of temperature. Three days later a fetus of the second month was expelled. The temperature rose at the same time, and five days after the expulsion of the fetus the curette was used. Some placental tissue was removed; the uterine cavity lay entirely to the left of the tumour, which had not diminished in size. Soon pus began to escape from the uterus, and it was clear that the tumour was a new growth, not an irregular involution of the uterus. The uterus was removed, two months after the abortion, by supravaginal hysterectomy. The ovaries and tubes were healthy. The patient, notwithstanding the suppuration, made a good recovery. There was an interstitial fibromyoma which had suppurated; no decomposing retained placental relics could be found. Routier, in discussing this case, noted that free suppuration was specially frequent in fibroids of small size undergoing spontaneous enucleation. In Mauclaire's care, however, this process was not observed. Diagnosis about the time of the abortion was not easy, and the free discharge of pus afterwards suggested that the swelling might have been a pyosalpinx emptying its contents into the uterine cavity.

136. **Round Worms and Abdominal Section.**

BROWN (*Amer. Journ. Med. Sci.*, June, 1906) recently spoke, at a meeting of an American society, about his experiences in the course of an operation for retroverted adherent uterus. When the abdomen was first opened a portion of the small intestine appeared ribbon-like, the gut above and below it being normally distended. There were no intestinal adhesions. Three lumbrici could be felt and their movements seen through the wall of the intestine. The round ligaments were shortened, the ovary and tubes left alone and the abdomen closed. The patient had a "normal pulse" when returned to bed, but a few hours later it had risen to 130 and was very weak. The patient showed every sign of deep collapse, unattended by fever. In the course of the second day all signs of collapse had vanished. On the fifth day the worms were expelled, after the usual remedies had been given. Recovery was not further complicated. The patient was 35 years of age, well-nourished and without heart disease. Brown ascribed the collapse to toxins thrown out by the round worms when handled at the operation. In the discussion which followed, it was argued that there was no evidence that worms produced toxins, and it was suggested that the collapse was possibly due to shock from handling the intestine. Brown referred to Osler's observation of the depression caused by intestinal worms in old subjects. Rawls related a case where a reverse condition was noted. He attended a woman, aged 59, for diarrhoea, which proved obstinate. At length she expelled a round worm, then she became very much depressed.

THERAPEUTICS.

137. **Treatment of Epilepsy.**

W. RUNGE (*Zentralbl. f. die gesamte Therapie*, May and June, 1906) says: The present unsatisfactory state of treatment is shown up by the statistics of Habermaas for the year 1901, dealing with 937 cases of epilepsy under treatment at the Stettin Institute. Out of 937 cases, 166 died, 60 per cent. of them as a result of epilepsy; the average length of life of the epileptic was found to be 25 years, and only 17 per cent. of the whole number remained free from intellectual injury. The first part of the article here described deals with genuine epilepsy. As far as diet is concerned, all authors are agreed that the diet should be unirritating, and that indigestion and overloading of the stomach is to be avoided. Many would reduce the amount of meat eaten and some prescribe a purely vegetarian and milk diet; on the other hand, Schloss has found that neither a vegetarian nor a meat diet affects the number of fits. Exercise in the open air, without over-exertion, is recommended. For place of residence a well-wooded neighbourhood, 500 to 600 metres above the sea, is said to be especially suitable, although Oppenheim denies that any good results from the high altitude. A mild cold-water cure and electrical treatment are both recommended. Among the drugs mentioned as being once used, but having fallen now more or less into the background, are such a variety as cannabis indica, cocculus indicus, pilocarpin fructus similo, curare, opium (which is still used in combination with the bromides), chloral hydrate, amyl hydrate, amyl nitrite, belladonna, digitalis, antipyrin, antifebrin, zinc oxide, borax, nitro-glycerine. Newer treatments have been tried based upon various theories. Krainsky has given lithium carbonate in cases where he could show abnormality in the output of uric acid, and ascribed the good result he obtained to the fact that he neutralized a poisonous body which was constantly being formed from the urine. Donath believed the fits to be due to the presence of choline in the blood and cerebro-spinal fluid of epileptics. Ceni decided that a specific autocytotoxin circulates in the blood of epileptics, and also an antiautocytotoxin, and therefore treated cases apparently with good result with a serum obtained from epileptics. Cabitto found the sweat of epileptics to be poisonous and recommended such means as hot-air baths, aperient medicines, intestinal antiseptics, washing out of the stomach, diuretics, etc. The whole theory of toxins in epilepsy and the methods described as being based upon it are still in a very early stage and have not as yet gained much recognition. Organotherapy has also been tried during recent years. Babes seemed to do good by injections of sterile emulsions of the brain and spinal cord substance of sheep and guinea-pigs, but his cases were not reported for long enough periods to give weight to his results; Lion and others have used cerebrine, a substance prepared by Poehl; ovarian substance and tauriceine has been used by Toulaux and Marchand, but the two last are probably of no value in epilepsy. More than any of the above-mentioned agents the administration of bromides is prominent in the present day. The methods of administration and the preparation used are very numerous. Most authors consider potassium bromide to be the most effective preparation, or, where this cannot be given, sodium bromide, ammonium bromide, or lithium bromatum. Strontium bromide has been much praised of late, on the ground that the organism is more tolerant of it than of potassium bromide, and that the effect is equally great. The great point in the administration of bromide is that it should be continued over a long enough period. The bromide treatment still has its opponents, the opposition being based either on scepticism as to the results obtained, or on the fear of bromism. Fürstner and Binswanger believe that the fear of bromism is exaggerated, and that careful administration of the drug will, as a rule, prevent its appearance. To counteract ill-effects on the state of nutrition tonics, combined with hydrotherapy and careful diet, are recommended: for the indigestion mineral waters and much milk; to increase the excretion of urine, diuretics: where the heart is affected the avoidance of potassium bromide; and in severe cases a very cautious administration of bromides, or even relinquishing the treatment; for the salivation, tannin and herba hyoscyami; for acne, arsenic; and in addition baths, washing the body with fluid and potash soaps, and much muscular work. Binswanger answers the objection that bromides are in danger of doing psychical injury by the statement that such injury as a result of bromides is temporary, but that frequent fits lead to a permanent defect of intelligence. In order to avoid bromism new combinations of bromium have been introduced—as, for example, bromipin, an organic compound of bromium with oil of sesame; bromalin, a compound of bromine and formaldehyde derivatives; bromokoll, of bromine with gelatine and tannin. Lorenz treated 34 epileptics with bromipin, and found that there was no injury to the general condition, no loss of appetite, and the patients usually increased in weight; in 5 an acne, which had appeared during a previous treatment with bromides, disappeared; and in 16 there was considerable improvement. It is also stated that such advantages as these are not the main advantage, which is that when the bromipin is used more bromine is absorbed into the organism and a better effect therefore produced. Toulouse and Richet introduced in 1899 the use of a diet poor in sodium chloride as a means of rendering the bromine given more effective; the treatment is based upon the fact that bromine in the organism takes the place of the chlorine, and a diet which

contains as little sodium chloride as possible will render the patient more sensitive to bromine. A disadvantage of this method is that the patient quickly tires of the diet without salt, and to remedy this defect Balint introduced a new method, namely, of using sodium bromide in bread instead of common salt, and of thus retaining the ordinary salty taste. His diet was as follows: ½ to 1 litre of milk, 40 to 50 gr. of butter, 3 eggs, 300 to 400 grams of bread and fruit; this diet contained 2 grams of common salt and 3 grams of bromine salt. He treated on these lines 28 patients for from thirty-five to forty days; in 9 recent cases and in 15 out of 19 inveterate cases the fits ceased; in the remaining 4 cases there was improvement, and in no case was bromine observed. The fits soon returned at the end of the cure, but the effect lasted longer the longer the diet was continued. To meet opponents who believed the result to be merely due to the unirritating diet, Balint tried the same diet without the substitution of sodium bromide for sodium chloride, and found that it had no effect on the frequency of the fits. Other combinations of bromine have been recommended. Gowers advised the combination of bromine with belladonna, digitalis, and iron. Breach gives strychnine with bromine, etc. Bechterew's method is much followed—that of giving the bromides in combination with infusum adonis vernalis. In some of his cases Bechterew gave codeina with bromides, and found that the combination was sometimes effective where bromides alone had failed. Flechsig's combined use of opium and bromium is widely used. It is only suitable for patients in an institution where its effect can be carefully watched, but in spite of the danger of severe bromism it is warmly recommended by many people. The next division of the article is devoted to the surgical treatment of genuine epilepsy—trephining, trephining together with the formation of a permanent defect in the bones in order to diminish intracranial tension, and resection of the sympathetic in the neck and of its three ganglions, etc. Resection of the sympathetic is grounded on a very uncertain basis, for it is not proved that brain anaemia is always the cause of epileptic attacks, and, at any rate, a trial of the effect of amyl nitrite should be made before the operation can be considered justifiable. The author's conclusions as to genuine epilepsy are that treatment by bromides is indicated, and should be begun early. The smallest dose of the bromides which is sufficient to stop the fits should be the dose used; the treatment should be continued for several years after the cessation of the fits, and should never be suddenly broken off. If the treatment by bromides is not effectual trial should be made of Touloux and Richet's method, of Flechsig's method, and of Bechterew's combination, and finally, if bromine and its new combination, such as bromipin, cannot be borne, of the other drugs suggested. Trephining and resection of the sympathetic are not to be recommended except in desperate cases, where psychic degeneration is inevitable, and where other methods have failed. In general, the epileptic should order his whole life with reference to his disease; suitable diet and a peaceful life is of importance, as is the choice of occupation, and no treatment gives much hope of success unless it is combined with such measures. As to the present-day treatment of other forms of epilepsy, the following are the author's conclusions: (1) In a general traumatic epilepsy a bromide treatment is to be advised, especially if after injury general convulsions with loss of consciousness ensue. On the other hand trephining is perhaps to be preferred if at first there is only a partial epilepsy, and if the convulsion begins in a particular muscle group, or if there is a localizing aura, especially if this aura can be produced by pressure on a scar. (2) Typical Jacksonian epilepsy, whether traumatic or not traumatic, should always be treated as early as possible by trephining, and Horsley's method of cortex excision is here most to be recommended. A long course of the bromide treatment should follow the operation. (3) In reflex epilepsy the lesion (scars, etc.) giving rise to the fits should receive early operative treatment, if it is certain that no other cause of the epilepsy exists. (4) In all these forms of epilepsy, as in genuine epilepsy, suitable diet and mode of life must be adopted.

138. **Intraneural Injection of Cocaine.**

Nogué (*Sem. Méd.*, July 18th, 1906) injects cocaine into the trunk of the inferior dental nerve, for the extraction of teeth from the lower maxilla. The operation is carried out by means of an ordinary Pravaz syringe, at the level of the buccal sinus, and he has found it completely successful in two-thirds of his cases. Anaesthesia has lasted about twenty minutes, and no ill effects have been observed.

139. **The Treatment of Functional Enuresis.**

Zangger (*Zeitschr. f. Physikal. u. diaet. Therap.*, April, 1906) lays stress upon the difficulty of treating cases of this disorder which have been allowed to become established in the habit. Nevertheless a cure may be looked for if suitable treatment be adopted. The parents and teachers should be instructed not to treat the child in a peculiar way, as though it were different to other children, as this only tends to increase the neurosis by constantly drawing the child's attention to the malady. Great attention must be paid to the opening of the bowels daily; no fluid should be given after 4 o'clock in the afternoon; the diet should be free from spices and condiments of all kinds, and the mattress a hard one. During the night the child should be taken up and made to empty the bladder, and should be rubbed down with cold water every morning. In specially resistant cases he has found massage of the neck of the bladder from the rectum efficacious. This may be carried out by the finger once or twice a week, for four or five minutes at a time. Faradization of the bladder for five to ten minutes, with gradually increasing current, has also been found useful in such cases, the two electrodes being placed over the bladder, or one on the bladder and the other on the spine or the perineum.

PATHOLOGY.

140. **Spirochaetes in Congenital Syphilis.**

Beitzke records (*Berl. klin. Woch.* of June 11th, 1906) the results of his investigations in congenital syphilis. Although the number of researches after the *Spirochaeta pallida* in acquired syphilis in all its forms is great, but few of the authors have dealt with inherited disease. The detection of the micro-organisms in sections of the tissues by means of Bertarelli's, Volpino and Boyero's and Levaditi's methods, has rendered this work much more valuable. The author dealt with 16 non-macerated congenital syphilitic infants; he also attempted to deal with macerated fetus, but his first 5 cases led to no results. Later, however, he again attempted to obtain sections from macerated fetus, and thus gained two more for his series of his own and one of Davidsohn's, to bring the total up to 19 cases in all. Smear preparations from the organs were examined fresh in saline solution, but only in one case was he able to find numerous spirochaetes; the fact that they were immobile rendered the detection more difficult. The results with stained preparations were better. Here, after trying several methods, he found that Giemsa's original method gave the most satisfactory preparations. In staining cut sections he adhered rigidly to Levaditi's instructions, and dispensed with all nuclear staining, as the nuclei were easily visible without it. No spirochaetes were found in 4 out of the 19 cases, while in one, a case of osteochondritis syphilitica, one doubtful example alone was found. In a few cases the spirochaetes were found in small numbers, chiefly in the liver, while numerous examples were met with in two or three other cases, and also in two of the macerated cases. He points out that in the four cases in which he failed to find any of the micro-organisms, he only employed the smear method, and thinks that these negative results are therefore not of great importance. With regard to the question whether *Spirochaete pallida* are ever found in cases other than syphilis is impossible to answer definitely at present, but up to now one can say that he has not come across a single instance of it in the tissues of a non-syphilitic subject. He discusses the question of the site of the spirochaetes fully. P. Hollaender writes in the same number on the detection of Schaudinn's *Spirochaete pallida* in a case of congenital syphilis. This case presents some interesting points. The preparations were stained by Levaditi's method, without any nuclear staining. The child had been born in the Maternity Hospital in Geneva, and had died a few hours later, and was examined three hours after death. The diagnosis of congenital syphilis was confirmed by the changes in the spleen, in the bones, by interstitial pancreatitis and by thyroiditis. No spirochaetes were found in the lungs or spleen, while larger or smaller numbers of them were found in the kidneys, adrenals, liver, placenta, and umbilical cord. Enormous numbers were found in the pancreas and thyroid, which were the most freely attacked organs of the body. The spirochaetes were seen chiefly in the connective tissue, in the walls of vessels, and especially of the capillaries. The fact that they were present in the placenta appears to him to have considerable importance with regard to the question of the etiology of syphilis.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE

141. **Persistent High Arterial Pressure.**

Janeway (*Amer. Journ. Med. Sci.*, May, 1906) discusses the diagnostic significance of persistent high arterial pressure. Under conditions of mental and physical rest the upper limit of normal systolic pressure—that is, the pressure necessary to obliterate the brachial pulse wave—may be regarded as 145 mm. with a 12 cm. armlet. Since, however, the pressure may in some individuals be 160 mm. without representing more than a physiological rise, it is best to consider no pressure below 160 mm. as pathological without other evidence. Diastolic pressure varies less than systolic, being usually between 75 and 100 mm., and nearly all physiological and pathological elevations of blood pressure affect the systolic more than the diastolic. Chronic arterial hypertension or persistent elevation of the general level of blood pressure is evidence of pre-existing cardiovascular disease, and in itself will sooner or later produce secondary changes in the heart and blood vessels. Real hypertension is more common in chronic nephritis than in any other disease. Cardiac hypertrophy is, however, occasionally found without evidence of either chronic nephritis or valvular lesion. From a study of 150 cases in which systolic pressure reached 200 mm., the value of hypertension as evidence of chronic nephritis was clearly seen. In only 10 to 15 per cent. did cardiac hypertrophy and arterial changes exist independently of nephritis. Whether nephritis be present or absent, this hypertension is prognostic of possible dangers—for example, cerebral haemorrhage or gradually developing ventricular asystole. The importance of relying upon the sphygmomanometer rather than upon tactile impressions for an accurate record of hypertension is insisted upon, since even pressures over 200 mm. may fail to be appreciated by touch when the pulse is small or the vessel deeply situated. Ventricular hypertrophy and accentuation of the aortic second sound are in some patients difficult of detection. In 10 per cent. of the cases examined there was no evidence of cardiovascular disease other than the blood-pressure reading, obesity in a number of these cases obscuring the cardiac examination, and in 25 per cent. recognition was extremely difficult without the sphygmomanometer. The accurate measurement of blood pressure must prove a valuable addition to our methods of physical examination.

142. **Ankylostomiasis.**

P. D. Siccardi (*Atti d. Reale Ist Veneto d. Sci. Vet. ed Arti*, vol. 65, ii, 1905-6) reviews the history of ankylostomiasis from the discovery of *A. duodenale* by Dubini in 1838 to that of *A. americanum* (= *Uncinaria americana*) by C. W. Stiles in 1902, with particular reference to the latter species. He gives the clinical histories of four persons returning to Venice infected with *A. americanum* from Brazil, tabulating the results of the microscopical examinations of the faeces made while the patients were under treatment; thymol was given three or four times, 45 gr. to 90 gr. in the day, at intervals of about ten days, after ext. filicis maris (℥j to ℥ij) had proved ineffective, and was found to rid the faeces of the ova of ankylostomum. Siccardi finds that the cycle of development of *A. americanum* is identical with that of *A. duodenale*; that the development of the ova and larvae of *A. americanum* is retarded by even the weakest aqueous solutions of thymol; that these larvae are incapable of infecting the dog (whereas *A. duodenale* can infect dogs); that the haemolytic powers of the serums of human beings infected with *A. americanum* may be increased in consequence of the infection; that the severity of an infection with ankylostomum depends upon the organic resistance of the patient; that the resulting anaemia is characterized by a pale, waxy opacity of the skin, while the nutrition is usually well maintained; that urticaria, first associated with ankylostomiasis by Boycott and Haldane (1903), is more often seen in patients infected with *A. americanum*. Siccardi thinks that there is no constant enlargement of the spleen in ankylostomiasis, but that asthenopia and a moderate degree of optic neuritis are frequent. The ova of *A. americanum* are very similar to, but a little larger than, those of *A. duodenale*, and may be confused with ova of *Ascaris lumbricoides* that have lost their external envelope. The urine of the four patients noted above always contained a trace of albumen; the anaemia was of the chlorotic type, but in severe cases imitates that of pernicious anaemia. Extract of male fern has little power against *A. duodenale*, and none at all against *A. americanum*. Siccardi believes, with Stiles, that thymol is the best remedy for ankylostomiasis. The intestine should first be cleared out; the patient should remain in bed for a day, taking three doses of 15 to 30 gr. each of thymol at intervals of two hours during the morning; coffee, but no alcoholic stimulant, may be given, and must be followed later by a purgative (castor oil) to prevent the absorption of the thymol from the intestine. The treatment rarely needs to be repeated more than thrice.

143. **Urobilinuria after Chloroform Narcosis**

Gianasso (*Rif. Med.*, May 19th, 1906) has examined the urine of twenty-five children before and after anaesthetization with chloroform (for periods varying from ten minutes to three quarters of an hour) with the object of detecting the presence of urobilin. The urine was acidified with nitric acid and then shaken up with chloroform, filtered, the chloroform dissolved by absolute alcohol and the whole alkalinized by ammonia, again filtered, and the filtrate treated with a saturated alcoholic solution of chloride of zinc. If urobilin is present, a greenish fluorescence appears, which varies in intensity with the amount of urobilin. The author found urobilin in all his cases after chloroform narcosis. The amount and duration of the urobilin reaction varied directly with the amount of chloroform administered. Urobilin was never detected for a longer period than eighteen hours after the chloroform had been given. Its presence is due to the destruction of red corpuscles caused by the chloroform, and may be some index as to the amount of that destruction.

SURGERY.

144. **Surgical Treatment of Subclavian Aneurysm.**

Savariaud (*Rev. de Chir.*, No. 7, 1906) publishes an analytical review of 64 recently-recorded cases of subclavian aneurysm, made with the object of showing the results of late modifications and of aseptic methods in the surgical treatment of this affection. Such treatment, it is held, has of late made great progress, and been attended by very satisfactory results; and, consequently, subclavian aneurysm, which is an affection that is almost certainly fatal if left to itself, should, after the failure of proper medical treatment, be subjected to operative intervention. The author includes under the title of subclavian aneurysm instances of aneurysmal tumours of the axillary artery extending above the clavicle. In dealing, in the first place, with direct methods of operative treatment, the author refers to his collective cases, which indicate that in cases of traumatic aneurysm of the subclavian incision of the sac, followed by ligature of the two ends of the vessel, is the method of choice. In discussing the value of extirpation of the sac he considers the question whether this, which at the present day may be regarded as the most suitable method in aneurysms of the limbs, is equally applicable in the case of the subclavian aneurysm. He quotes 7 cases, in most of which this method of direct treatment was applied after fruitless ligature or on faulty diagnosis, and after regretting that this has not more frequently been practised as a primary and premeditated operation, arrives at the conclusion that it is not much more difficult than ligature, and, as it certainly excludes the risk of recurrence, is decidedly superior to that method. In considering indirect methods of surgical treatment, and of these, in the first place, proximal ligature, the author states that the classical operation of tying the subclavian in its third part outside the scalenus muscle, though, it is held, rarely practicable, is a good operation, as it affords successful and durable results and freedom from relapse, and is not likely to be followed by gangrene. Ligature of the second part of the artery has given equally good results, as the author's statistics show in 4 cases 3 of distinct recovery, and one in which considerable relief was, after a time, disturbed by the development of an aortic aneurysm. Ligature of the third part is regarded by the author as a difficult and dangerous operation, which is liable to be followed by haemorrhage and by recurrence. In regard to ligature of the innominate, the

author concludes from a study of reported cases that, notwithstanding the diminished risk of haemorrhage afforded by asepsis, this operation ought to be avoided if possible, as in the class of cases in which it was formerly thought to be indicated peripheral ligature may now be regarded as not only less formidable but as almost equally efficacious. In cases of large fusiform aneurysm occupying the whole of the depression above the clavicle, and sometimes extending on the one hand, into the axillary space, and, on the other, to the sterno-clavicular joint, proximal ligature becomes very difficult or absolutely impossible, and then it is thought necessary to apply a ligature either to the axillary or to the extreme distal portion of the subclavian, or a double ligature to either of these vessels, together with the common carotid. The author's tables show that single distal ligature either of the axillary or the subclavian gives results that are just as good as simultaneous ligature of one of these vessels and of the common carotid. Hence, except in cases in which the innominate is involved in the aneurysmal swelling, it is better, the author holds, to abstain from ligature of the carotid, which cannot be regarded as a safe operation. In concluding his paper the author arranges aneurysms of the subclavian artery in two groups: one in which the aneurysmal tumour is situated outside the scalenus anticus, the other in which it extends to the inner side of this muscle. Aneurysms of the first group are essentially surgical affections, and should be treated either by extirpation or central ligature. The two methods are of equal value; but after a ligature has been applied extirpation may also be practised if this operation be found to be free from difficulty. In the second group —that of combined extrascalenic and intrascalenic aneurysms—it is advisable to reject the central operation and to have recourse to the peripheral or Brasdor's method of ligature, the immediate mortality of which is almost *nil*, and the remote results are often very striking. In cases of large subclavian aneurysm in which a cutting operation is contraindicated, injection of gelatine may, if properly practised, be resorted to with a fair prospect of giving much relief, if not a complete cure.

145. Surgical Treatment of Hepatic Ascites.

O'Malley (*Amer. Journ. of Med. Sci.*, May, 1906) calls attention to the treatment of hepatic ascites by operation, whereby a collateral circulation is established diverting the venous blood through the veins of the abdominal wall instead of through the portal system. Reference is made to recorded cases in which fixation of the omentum or the spleen, or both, to the abdominal wall has established such a collateral circulation and consequent removal of the ascites. When the ascites is connected with peritonitis care must be taken in selecting the time for operation, as acute peritonitis, high temperature, pleuritic effusion, abdominal pain, or the association of a turbid, highly albuminous, ascitic fluid are contraindications for interference. Where there is no peritonitis, fixation of the omentum, or spleen and omentum, according to the nature of the cirrhosis, should be performed. Splenopexy is to be preferred to splenectomy. The operation as recommended by Schiassi is as follows:—On the left side a vertical incision, 6 or 8 in. in length, is made extending downwards from the costal arch in a line with the centre of the clavicle, and from its upper end a horizontal incision is carried to a point a little to the right of the median line. These extend down to, but not through, the peritoneum, through which a small opening is made near the middle line to evacuate the ascitic fluid, the triangular flap composed of skin and muscles being dissected up and held back to the right. The incision in the peritoneum is enlarged horizontally sufficiently to admit two fingers, and the omentum is brought through until its border touches the base of the everted musculo-cutaneous flap. The omentum is sutured to the peritoneum at the edge of the wound, serosa to serosa, taking care not to wound vessels with the stitches. The peritoneal incision is further extended towards the costal arch and the omentum stitched as before. In order to excite adhesion, the exposed omentum is then rubbed with gauze dipped in 1 in 1,000 bichloride, spread along the bared peritoneum, and fixed with stitches along the free border. If splenopexy is required the peritoneum is opened parallel to the perpendicular musculo-cutaneous incision in its whole length, and the exposed surface of the spleen is rubbed with sublimate gauze to excite adhesion. One large piece of iodoform gauze is pushed into the space between the spleen and diaphragm above, and a second piece is inserted into the lower end of the wound, enveloping the lower pole of the spleen, and pushed back to the bottom of the hypochondriac space. The object of these pieces is to drain any oozing from the needle punctures, and to aid in promoting union of the spleen and abdominal wall. The free ends are left projecting from the wound. The spleen is fixed to the abdominal wall by sutures, including the muscles and peritoneum, and then passing through the substance of the spleen from the left border of the vertical incision to the muscles of the original flap, so that finally the muscles of the left border of the vertical incision join those of the flap and cover the spleen. The sutures near the gauze at the ends of the wound are left untied for a few days until the gauze has been removed.

146. Combined Appendectomy and Cure of Right Inguinal Hernia.

Torek (*Ann. of Surg.*, May, 1906), having often found it necessary to operate on the same patient for chronic appendicitis and right inguinal hernia at different times, conceived the idea that it would be in the patient's interest to combine the two operations in one if possible. After an unsuccessful attempt in an operation on a large hernia to bring down the appendix into the wide hernial opening, he devised the following operation, the results of which, however, are not given in this paper. The proposed method consists simply in extending the skin incision somewhat higher up than usual for hernia operations, in dividing the fascia of the external oblique at the seat of the gridiron operation for appendicitis, but extending it downward into the external inguinal ring, and then completing the operations for hernia and for appendectomy in the usual way. The combined operation, the author holds, has decided advantages over the performance of the two operations at separate sittings. It saves the patient one operation, and it takes but little more time than the operation for hernia alone would require, for after the aponeurosis of the external oblique has been laid open so widely the operation on the appendix is performed more easily and more rapidly than in the usual method in which a short incision through the aponeurosis is made. Furthermore the combined operation is conducive to greater firmness of the abdominal wall, as it is certainly better to have one incision in the aponeurosis than two.

OBSTETRICS.

147. Malignant Endocarditis during Pregnancy.

J. Halliday Croom (*Journ. Obstet. and Gyn. Brit. Emp.*, July, 1906) describes a case of malignant endocarditis during pregnancy. Although infection at childbirth is a well-recognized cause of malignant endocarditis, cases of the disease occurring during pregnancy are rare. Osler, in his Goulstonian Lectures, mentions four, and Croom has been able to find mention of only two others in the literature. In the case which came under the author's own notice the patient was a primigravida aged 23, admitted to the Royal Maternity Hospital, Edinburgh, on November 16th, 1905, suffering from albuminuria and dropsy: she was five weeks from term. The history given was that the patient had had a severe attack of pneumonia six years before, since when she had suffered almost constantly from dropsy of the legs, with palpitation and shortness of breath. She was fairly well at the time when she became pregnant in March, 1905. In October she had a shivering fit, with pains in the back and abdomen and vomiting, and her face and hands became swollen. The attack only lasted two days, but after it the amount of urine passed became less in quantity. The patient had no disturbances of vision or hearing, no fainting. She occasionally had attacks of headache and vomiting. On admission the patient was found to be well developed, and of ruddy complexion. Her breathing was easy when at rest, but became embarrassed on exertion. The temperature was normal; the pulse was 78, regular, of good volume and moderate tension, and the arterial wall just palpable. There was slight dropsy of the lower limbs, but none of the rest of the body. The urine contained 2.2 gr. of albumen, and 7 gr. of urea per oz.; the specific gravity was 1017: no casts were found. There was a blowing systolic murmur at the base of the heart, which was well heard also in the tricuspid area. The abdomen presented the appearance of an eight months pregnancy, the fetal heart being distinctly audible. The patient was comfortable and free from pain. On the next day, November 17th, the patient's condition changed for the worse. The temperature rose to 103° F., the pulse was 126, the oedema became very marked, there was fluid in the abdomen, and only 28 fl. oz. of urine was passed in the twenty-four hours. There was scarcely any sweat. During the next day the dropsy gradually diminished; the

night temperature did not rise above 102.5° F. About 30 fl. oz. of urine was passed during the day, the urine containing 24 gr. of albumen and 8 gr. of urea per oz., besides a little blood and a few epithelial casts. There was a painful, tender, erythematous patch on the upper part of the right thigh. Labour pains began in the afternoon and gradually increased in severity. The patient vomited twice on the next morning, the vomit for the first time containing blood. On this day 30 fl. oz. of urine was passed, containing 10½ gr. of urea per oz.; on being boiled the urine became solid with albumen. On the whole the patient did well during the morning; the temperature fell to 101° F., the pulse to 106, and the dropsy practically disappeared. At about mid-day a small stillborn child was delivered by forceps under chloroform; the placenta showed infarcts. After labour the pulse was good. Temperature 100.4° F. During the rest of the day the patient vomited frequently, but the vomit contained no blood. The temperature rose to 102° F. at night and the pulse (130) became irregular, especially in amplitude. During the night the temperature continued to rise, the pulse became more irregular, and the dropsy became very marked. At 9 a.m. the pulse became almost imperceptible at the wrist, and at 10 a.m. the patient died in a state of extreme cyanosis. The treatment was directed mainly to obtaining free diaphoresis, diuresis, and movements of the bowels, to allaying the sickness, hastening labour, and, in the later stages, stimulating the heart. The summary of the *post-mortem* report was, "Septic endocarditis of aortic and mitral valves, which were the seat of a chronic endocarditis. Acute myocarditis, chronic adherent pericarditis. Acute toxic changes in all the organs. No evidence of septic infection of the uterus." The body presented a degree of universal anasarca rarely seen in the *post-mortem* room. The peritoneal cavity contained about 300 fl. oz. of a clear serous fluid, and the compression due to this fluid had caused collapse of the small intestine along its whole length; the stomach was enormously distended and in a state of acute dilatation. The course of the disease was excessively short. It was of the "cardiac type," which usually, when unconnected with pregnancy, lasts for weeks or months. The attack in October, when the patient was six months pregnant, may have been only nephritic, but may possibly have marked the first onset of the acute endocarditis. As far as could be determined, however, the disease only lasted four days. Three reasons especially can be given for the speedy termination: (1) The strain upon the heart, as a result of repeated vomiting; (2) malnutrition, due to the state of the stomach and intestines; (3) the strain upon the heart due to labour. It is noticeable that the typical symptoms of the disease were not present, and, for purposes of diagnosis, the cardiac murmurs were, as usual, not of the first importance. The infection was staphylococcal. The mode of entrance of the organism may have been through a small ulcer on the inner side of the right thigh, or the case may have been one of those rare cases of primary idiopathic endocarditis. The other recorded cases are briefly reviewed in the article.

148. The Diagnosis of Extrauterine Pregnancy.

Rudaux (*La Clin.*, April, 1906), in discussing the diagnosis of ectopic gestation, points out that patients generally come for advice, not because they are pregnant, but because they experience symptoms and sensations dissimilar to those of previous pregnancies. The patient will say that her periods have ceased for some months (little importance need be attached to this point, unless menstruation has always been regular); she will describe the usual symptoms of nausea, vomiting, and enlargement of the mammae and abdomen, and possibly the fetal movements have been observed. In addition she complains of abdominal pain, either constant or intermittent, and of haemorrhages which seem to indicate a threatened abortion. In some cases the loss of blood is accompanied by the expulsion of a thick uterine membrane. On examination the abdomen is found to be enlarged, and a regular and resistant mass is felt either in the median line or to the side of the abdominal cavity; the fetal heart sounds and the maternal *souffle* are often audible. This mass is immovable, and behind or close to it another tumour is evident, smaller and firmer than the first. By the vagina it is easy to differentiate between the large cystic swelling, situated partly or entirely in the pelvic cavity, and the enlarged uterus continuous with the cervix, which is softened, as is usual, in pregnancy. During the early months, although two tumours are palpable and the symptoms of pregnancy are certain, it is not possible to assert that the gestation is ectopic, for the uterus may be gravid, and the adjacent mass may be an ovarian cyst, or a subperitoneal uterine fibroid. Also in some cases of extrauterine gestation the signs of pregnancy are not definite in the early months, and a decided diagnosis is not possible. In any case, whether it is ectopic or an ovarian cyst, or a fibroid, surgical intervention is necessary. Cases have been erroneously diagnosed as ectopic when the uterus was bifid or bicornuate. It is essential to make several examinations and to have recourse to chloroform should the examination be difficult.

THERAPEUTICS.

149. Therapeutics of Radium.

Lehmann (*Arch. Gén. de Méd.*, May, 1906), in a paper on the uses of radium in treatment, first describes the methods by which it may be employed and the effect of its emanations on the healthy tissues and on bacteria, toxins, etc. The emanations of radium, like the *x* rays, may produce on the normal skin an intense erythema or even ulceration, which latter heals with difficulty. Schultz concludes that radium has a greater action on the vessels and exercises a deeper effect than the *x* rays, and, further, that it is more effective in the treatment of malignant tumours of the skin. The growth of bacterial cultures has been arrested by exposure to radium emanations, and anthrax bacilli have been killed by an exposure of seventy-one hours to these. Wounds caused by radium cannot be infected, but an infected wound cannot be disinfected, by exposure to radium. After considering somewhat in detail the action of radium on the various organs and tissues, the author proceeds to the uses of this method of treatment in diseased conditions. In lupus good results have been obtained, the resulting cicatrix being white, pearly, and smooth. In psoriasis the applications should be of short duration, and cases have been cured after one *séance*. About the eighth day after the application the diseased patch becomes of a vermilion colour, and towards the third week the lesion begins to disappear. This treatment is only suitable for multiple small patches. In acne and molluscum contagiosum good results have been obtained. The pains of tabetics and gastric crises have been ameliorated, and sensation has returned to previously anaesthetic areas of skin in cases of leprosy. Darier has cured a case of facial paralysis in a few days by the application of radium. In the treatment of malignant tumours by radium the author finds that for two weeks after the commencement of treatment the tumour remains stationary; it then progressively diminishes in size without necrosis taking place. The author refers to several cases of epithelial cancer which were cured by this method, and mentions cases of cancer of the larynx, œsophagus, and stomach which were benefited. In trachoma the granulations have rapidly disappeared after being touched every day for from ten to fifteen days with a salt of radium. The author finally urges that this method of therapeutics should be extensively employed, especially as its employment is devoid of many of the difficulties which have to be considered when the *x* rays are used.

150. Toxicity of Cocaine and Stovaine.

Baylac (*Prov. Méd.*, June 16th, 1906) has carried out a series of experiments on dogs with a view of determining the relative toxicity of cocaine and stovaine. Solutions of these drugs were injected intravenously, intraserously, hypodermically, and into the spinal canal. He finds that in the intravenous injections the minimum lethal dose of a 1 per cent. solution of stovaine is about three times as large as that of a similar solution of cocaine. Such a solution of cocaine kills a dog when 0.01 gram per kg. of the dog's weight is injected, whilst from 0.025 to 0.03 gram of stovaine are required to bring about the same result. In intraserous injections the minimum lethal dose of cocaine is from 0.015 to 0.02 gram and 0.03 for stovaine. In hypodermic injections less difference is manifested between the two drugs, but stovaine still shows itself less toxic than cocaine. In intraarachidian injections the paralytic and anaesthetic results are as rapid and lasting with stovaine as with cocaine, 3 mg. of either being sufficient to obtain anaesthesia of the legs in a dog. Stovaine when given by this method possesses certain advantages over cocaine, inasmuch as general symptoms of intoxication are absent. The author then describes the effects produced by injection of solutions in animals which, as might be expected, vary according to the dose and to the method of administration. He has been unable to detect any notable lowering of the rectal temperature after minimum lethal doses of stovaine have been injected subcutaneously, and he is unable to confirm the results of certain investigators as regards the antiseptic and bactericidal properties of this drug.

151. Roentgen Rays in Psoriasis and Eczema.

H. E. SCHMIDT (*Zeit. für Phys. und Diat. Therap.*, June, 1906) discusses the Roentgen-ray treatment of psoriasis and eczema. In estimating the strength of the application required, individual attention is needed rather than a routine method, and in no case should the full "erythema dose" be given at first in order to allow for individual susceptibility. For cases of psoriasis the rays should never cause erythema lest a fresh psoriasis eruption result, and for cases of eczema the erythema dose is usually superfluous. In cases of psoriasis the effect of an application of Roentgen rays declares itself after a few days, the formation of scales ceases, the infiltration diminishes and finally disappears, so that at the end of about ten days the affected area should be completely recovered, except for the presence of pigmentation; the pigmentation is especially noticeable in brunettes; it disappears in most cases in from eight to fourteen days. The strength of the application in most cases of psoriasis is not enough to have any effect on normal skin nor to cause a falling out of the hair; but it is better, by way of precaution, not to use the treatment for the head. Another form of psoriasis for which the method is not to be advised is one in which there are many isolated areas scattered over the whole body. Roentgen-ray treatment is especially indicated in (1) inveterate single plaques which often resist all other methods of treatment, (2) psoriasis of the hands, (3) diffuse infiltration affecting large areas. The technique is simplest for the isolated plaques which can be treated as a whole, more difficult for surfaces in more than one plane, as, for instance, at the bend of the elbow, and most difficult for psoriasis of the hands and the diffuse infiltrations. Special care is needed in cases complicated by diabetes. This was exemplified in a case of psoriasis in a diabetic patient where plaques were present in different parts of the body; here after quite weak applications a somewhat severe erythema with peeling of the cuticle declared itself. The Roentgen-ray treatment is only applicable for chronic forms of eczema, and is not suited to acute cases. The author has never found it do good for eczema of the lower limbs due to circulatory disturbances, and except in obstinate cases it is contraindicated for eczema of the scalp, because of the danger of leading to falling out of the hair. It is especially indicated in (1) anal and genital eczema with much irritation; (2) hyperkeratitic rhagadiform dry or moist eczema of the hands; (3) chronic lichen. The action upon the irritation is especially certain, but it does not show itself until after eight days, and the patient should be warned that the irritation may become temporarily more severe. Clear objective improvement usually becomes obvious after eight days. The result obtained appears to be most permanent in cases of eczema of the hands with marked hyperkeratosis. In other forms of eczema relapses are more frequent, but they usually yield readily to renewed treatment. The advantages claimed for the treatment as compared with other methods are that (1) the treatment is convenient for the patient; thus in eczema of the hands it makes the treatment by ointments superfluous, and the patient's occupation is uninterrupted; (2) recovery ensues in a shorter time; (3) the treatment is effective in old, obstinate cases which do not respond to other methods. The method has no drawbacks if it be carried out by some one who has the necessary experience. Of the author's 83 cases, 45 recovered, 14 were improved, and in only 7 did little or no benefit ensue; 17 left before the completion of the treatment; in 22 cases there was relapse.

PATHOLOGY.

152. Yellow Fever.

MARCHOUX AND SIMOND (*Ann. de l'Inst. Pasteur*, March, 1906), at the conclusion of their fourth article on this subject, summarize the general results at which they have arrived. Yellow fever is transmitted by the *Stegomyia fasciata*. This insect contracts the infection by biting patients on the first, second, or third days of their disease, and then, after an intervening incubation period of at least twelve days, is capable of inoculating the disease into other human subjects whom it bites. This power of transmitting the infection may, under certain conditions, be inherited by the *Stegomyia* from its female parent. From their experimental observations the authors think it probable that hereditary transmission only takes place in ova laid more than twelve days after the ingestion of infective human blood. The mosquitos hatched out from these eggs do not acquire the power of conveying infection until after the fourteenth day of their existence in the perfect state. The authors have made numerous attempts to infect the *Stegomyia* by causing it to bite patients who were in the incubation period of the disease. All these experiments gave negative results; it therefore seems probable that during the incubation period the human subject is not a source of infection. It is during the night that the danger of being bitten by the *Stegomyia* arises; in the daytime, from the hours of 7 in the morning to 5.30 in the evening, men may safely pursue their ordinary affairs without fear of attack. Yellow fever appears to be confined to the localities where the *Stegomyia fasciata* abounds. The authors have investigated other mosquitos (*Culex fatigans, Culex confirmatus, Culex taeniorhynchus*) found in these infected neighbourhoods, and have satisfied themselves that none of these insects play any part in the transmission of the disease. The *Stegomyia fasciata* differs in an important respect from other mosquitos. It is the general rule for female mosquitos to lay their eggs on the eight consecutive days after they have obtained their first bite; and shortly after the eggs are laid the insects die. But DRS. Marchoux and Simond find that the female *Stegomyia* does not die after its first batch of eggs has been laid; on the contrary, it continues to live until it has deposited seven successive batches, the average period of its survival in the mature state being from twenty to thirty days. It is, therefore, capable of transmitting the infection to a large number of individuals, after the twelve days' incubation period of the virus within the insect's body is over. These peculiarities enable the *Stegomyia* to act as the intermediate agent in the transmission of yellow fever; if like other mosquitos, it perished after laying its first batch of eggs, "yellow fever would be unknown to the human race." The virus of yellow fever is due to a living organism which undergoes multiplication when introduced into the human body. This fact is demonstrated by the inoculation of blood or fresh serum into a healthy individual who is not immune against the disease. This inoculation, if the blood has been collected on the first, second, or third day of the disease, will reproduce the infection without fail. In the experience of the authors, the virus is not present in the blood of patients after the fourth day. The microbe of yellow fever is extremely minute. In undiluted serum it passes through the Chamberland filter F, but not through the filter B; but according to the second Commission of the Yellow Fever Institute, when an equal volume of water is added to the serum, it passes even through the latter filter. It must, therefore, be so small as to be on the borderland between the visible and the invisible. The microbe readily loses its vitality. It is killed in five minutes by exposure to a temperature of 55° C. Serum in which it is present loses its virulence in forty-eight hours when kept at a temperature between 24° and 30°. In defibrinated blood, preserved at the same temperature and protected from the air under oil, the virus remains alive for five days, but has lost all its virulence at the end of eight days. The authors suggest that the microbe probably belongs to the family of spirilla. The ordinary period of incubation of yellow fever is from four to six days, but it may, in exceptional cases, be as long as thirteen days. Prophylactic injections of serum heated for five minutes at 55°, or of defibrinated blood preserved for eight days under oil, confer a relative immunity against a subsequent inoculation with virulent material. The serum of an infected person commences to exhibit preventive properties on the eighth day, and the serum of convalescents possesses not only a preventive but also, to a certain extent, a curative efficacy. Yellow fever is a disease to which every race of mankind is susceptible. Persons of every age are liable to it, but with young children the type of the disease is, as a rule, so mild that it general passes unnoticed. One attack confers a degree of immunity which is generally, but not always, complete.

153. Free Bodies in the Testicular Serosa.

COLETTI (*Rif. Med.*, May 26th, 1906) discusses the presence of free bodies in the serous cavity surrounding the testicle. As a rule these bodies are small, spherical, or discoid in shape, with a smooth surface and cartilaginous appearance; they may occasionally become calcareous, or fluctuate from the presence of a small quantity of fluid in the centre. The number present varies, but seldom surpasses five. They may be quite free, pedunculated, or adherent to the visceral serosa. Usually a certain amount of hydrocele is present, but free bodies may exist without fluid in the vaginal cavity. In structure they are made up of fibrous lamellae, with a calcified central nucleus. The author reports 6 cases in detail, and, from observations of these and others, concludes that these free bodies arise as inflammatory products, sessile at first, then becoming pecundulated, and finally cast off as free.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE

154. Forms and Causes of Infantilism.

By infantilism is meant a condition resulting from the sum of various diseases acquired in childhood and in puberty. G. Anton objects to extending this definition further, as others have done, to limit infantilism to a debility, a frailty and an abnormal smallness of the whole body, and therefore a disturbance of development which affects the whole mass of the body more than it does the individual organs (*Münch. med. Woch.*, July 24th, 1906). The author considers that we are justified in speaking of a local partial infantilism. General infantilism is a developmental disturbance, in which the whole organism retains its childish type, and the propagation of the race is prevented. The chief characteristics of this form are smallness of the bone skeleton, proportional smallness of the organs, badly developed or undeveloped genital organs, and the persistence of the childish mental capabilities. True dwarfs are included in this category. But the degree and complications of this form vary greatly, and so alter the type. Intrauterine and extrauterine disease of the thyroid gland plays an important part in the genesis of general infantilism. Some authors maintain that all cases of infantilism are due to disturbances of the thyroid, and that inherited syphilis, malaria, alcoholism, tuberculosis, etc., only take a part in the etiology of the condition when the thyroid gland is primarily diseased. But others have found that both in severe and mild forms the thyroid gland may be intact, and Anton agrees with this view. The elimination of other glandular functions may inhibit and interrupt the bodily and psychical development, as has been shown by veterinary surgeons, in the removal of the sexual glands in young animals. A connexion between disturbance of the adrenals and the development of the brain has also been proved. Persistence of the thymus is also relatively common in infantilism. After briefly discussing the action of the internal secretions of the glands and the general action of this secretion on the organism, he sums up that the developmental disturbance of infantilism may be produced by disturbances of the metabolism of very varying origin. Besides this, one has to add local and organic causes of the condition. First, he speaks of trauma as a local cause in the arrest of development. Severe shock in young people has a very marked effect in this direction. Next he mentions that the determining cause may be a primary disturbance of functions of the brain. The connexion between the glands and the brain is a mutual one, and one can make the assertion that the influence of the brain on the glands may be as great as the influence on the muscular system. In conclusion, he appends an excellent table showing the forms of general and of partial infantilism.

155. The Early Diagnosis of Gastric Carcinoma.

D. MARAGLIANO (*Rif. Med.*, August 18th) returns once more to the early diagnosis of gastric carcinoma by means of the method of precipitins. In view of further experiments and greater experience the method is becoming more clearly defined. One of the difficulties has been the variety of precipitates which may be obtained, and hence the necessity of fractional precipitation by which the non-specific and non-essential precipitins are excluded. In the first place, it is essential that the gastric juice should be rendered neutral; if it is acid, precipitation occurs readily. Broadly speaking, the various precipitates likely to occur when an immunized serum is added to the gastric fluid may be divided into four chief groups: (*a*) Albuminoids common to the organism as a whole, and corresponding to those contained in the blood; (*b*) albuminoids coming from the secretion of a wound, no matter of what nature; (*c*) albuminoids peculiar to the stomach, and due to epithelial desquamation or to inflammation; (*d*) the specific albuminoids of cancerous tissue. Obviously, therefore, the aim is to get rid of the groups (*a*), (*b*), and (*c*) by means of fractional precipitation and deal with group (*d*), which alone is of value in the diagnosis of cancer. The author then goes into details as to the exact method of preparing the immunized serum (goats are better for his purpose than rabbits), and the precautions to be observed in applying it for diagnostic purposes. Clinically the test has proved useful, and only requires wider application and further experience to estimate its proper value. The author believes that it is as likely to be useful as the Widal reaction in typhoid, and will give positive results long before the cancer could be certainly detected by the means at present at our disposal.

156. Intermittent Pentosuria.

KAPLAN (*New York Med. Journ.*, August 4th, 1906) divides pentosuria into the following four varieties:—(1) Chronic pentosuria: In this class of case pentose is excreted in the urine constantly, and a glycosuria cannot be induced after the intake of 100 grams of glucose. (2) Alimentary pentosuria: This occurs in individuals who cannot oxidize large amounts of pentosans when introduced with the food, a portion of the pentosan being excreted as pentose; when the articles containing these pentosans are excluded from the diet the pentose disappears from the urine. It is comparable to alimentary glycosuria. (3) Intermittent pentosuria: In this class the excretion of pentose takes place at more or less regular intervals uninfluenced by external conditions. One hundred grams of glucose will not give rise to glycosuria. (4) Intermittent pentosuria and glycosuria: This occurs when pentose is present in appreciable quantities, and glucose appears in the urine either independently or after the administration of 100 grams of glucose.

SURGERY.

157. Exposure of the Wounded Heart.

WILMS (*Zentralbl. für Chirurg.*, No. 30, 1906) has, he believes, good grounds for asserting that, though the much-modified flap method of exposing a wound of the heart will suffice in the large majority of cases in which the anterior wall of this organ is solely involved, this will prove quite inadequate when the surgeon finds it necessary to expose and suture a wound of the posterior surface. A case is referred to of bullet wound of the left ventricle involving both the posterior and the anterior walls of this cavity, in which the author, finding it necessary to enlarge the field of his operation, instead of resecting a portion of the sternum, made a long intercostal incision, such as was practised by Mikulicz in his later intrathoracic operations. The author has been led by the successful results of his case to recommend for the exposure of a supposed wound in the heart a long incision in the fourth or fifth intercostal space, instead of a plastic flap made in the thoracic wall. This incision, which can be supplemented, if necessary, by division of the two costal cartilages near the external margin, gives free access to both surfaces of the heart, and can be performed more promptly and with less haemorrhage. Pneumothorax must, of course, follow, but, the author points out, this complication cannot be avoided in the "flap" operation.

158. Angio-neurotic Oedema.

HARRINGTON (*Clin. Contrib. Massachusetts Gen. Hosp.*, February, 1906) reports a case of angio-neurotic oedema which was operated upon during an abdominal crisis. A girl, aged 26, complained originally of symptoms pointing strongly to gallstones, but the subsequent history proved that the condition was due to an abdominal crisis in angio-neurotic oedema. The family history was negative. Fifteen years previously swellings developed in the hands and feet, and occasional attacks affected the face, which became deeply oedematous from the eyes downwards as far as the clavicle. Other swellings were noted over the scapulae, buttocks, and in the breasts. The abdominal pain extended across the lower half of the abdomen and lasted for twenty-four hours, accompanied by nausea, vomiting, and headaches. The vomit and stools were free from blood. At the operation the lesion was found to be entirely confined to the intestines, which were engorged with blood, and so red that a mild peritonitis was feared. A considerable amount of clear fluid was present in the peritoneal cavity. There were no haemorrhages. Within a short distance of the ileo-caecal valve there was a cylindrical enlargement of the ileum 2½ in. long, entirely surrounding the gut and increasing the circumference of

the bowel to twice its normal size. This was in the bowel wall, was elastic to touch, and did not pit on pressure. The engorgement of the intestines and the free fluid were explained by the upset to peristaltic action which such an infiltration would cause, and by the violent peristalsis set up in an endeavour to dislodge a lesion which was actually within the intestinal wall. There was no distension above the lesion. Convalescence was uneventful except for an attack of skin swelling.

159. Movements of Stomach and Intestines in some Surgical Conditions.

Cannon and Murphy (*Ann. of Surg.*, April, 1906) point out that surgical experimentation on the alimentary canal has hitherto been largely restricted to such questions as the healing of sutured intestines and the limitations of the removal of portions of the large and small intestine without causing death, relatively little attention having been paid to the behaviour of the gastro-intestinal tract after abdominal operations or in conditions demanding surgical interference. In this paper are described the methods and results of researches made on cats with the object of determining how the stomach and intestines move, and how the food is treated by the movements of these organs under various surgical conditions in comparison with normal states. To watch the movements of the stomach and intestines in these experiments, subnitrate of bismuth in small amount was added to the food, and the changes of the shadows of the food, cast upon a fluorescent screen by the Roentgen ray, indicated the activities of the walls of the alimentary canal. The authors conclude with the following summary: (1) After high intestinal section and suture, gastric peristalsis is not interfered with, but for almost six hours after recovery from the effects of ether, which was used as an anaesthetic in all the experiments, the pylorus remains tightly closed against the peristaltic pressure, and prevents the food from passing into the injured gut; (2) after end-to-end suture of severed intestine no inefficiency of the gut in the region of suture was observed, but after lateral anastomosis there was always an accumulation of food in the chamber formed by the apposed loops; (3) in intestinal obstruction food leaves the stomach without delay, but, as it accumulates above the obstruction, violent peristalsis repeatedly occurs, tending to force the food past the obstacles; (4) after thrombosis and embolism there is usually no movement of the stomach or intestines, the food remaining in the stomach until discharged by emesis. In studying the conditions attending surgical operations as possible causes of post-operative paralysis of the alimentary canal, the authors found that etherization maintained from half an hour to an hour and a half does not delay to any marked degree the discharge of food from the stomach; and exposure to the air and unusual cooling of the gut likewise caused no noteworthy delay. By far the most striking effects were seen after manipulation of the digestive organs. Even with the most gentle handling, within the peritoneal cavity and under warm solt solution, no gastric peristalsis was seen and no food left the stomach for three hours. Gentle fingering of intestine withdrawn from the peritoneal cavity caused still greater retardation of the movement of the food, and with rough handling no food passed from the stomach for four hours.

OBSTETRICS.

160. Chorea Gravidarum.

Chorea during pregnancy is regarded as a very dangerous complication, and A. Martin has had an extensive experience of it, which justifies his position in writing on this subject in the Festchrift of the *Deut. med. Woch.*, No. 31, 1906. In the very large majority of cases he has been able to preserve the pregnancy even in the severer attacks, and only on three occasions was he forced to interrupt the pregnancy on account of danger to the mother. None of the mothers died. Since he has been in Greifswald he has seen two cases of chorea, which recurred in successive pregnancies. This is a rare occurrence. The first case was that of a woman who had passed through her first pregnancy normally at the age of 25. Two years later, four weeks before the termination of the second pregnancy, she was attacked by disturbances of speech, twitchings in the arms and legs, and disturbance of the general condition. These symptoms disappeared four days after the delivery, which proceeded spontaneously. She remained well for the following two years, when the same disturbances made their appearance during the early months of the third pregnancy. The symptoms were rather more severe this time, but passed off spontaneously after the delivery. In the fourth pregnancy the difficulty in speaking appeared during the eighth month, and then twitchings of the right arm. She wasted considerably, and found it impossible to keep her eyes still. When admitted into the clinic the heart was found to be normal save for some roughness of the first aortic and pulmonary sounds. She was put on arsenic, iron, and bromides. After twelve days 68 grams of bromide of sodium, ammonium, and magnesium had been used, and the condition had improved materially. The following day pains set in, and a normal labour followed. The chorea disappeared after four days, and she has remained well since. The second patient had suffered from rheumatic fever at the age of 17, which was followed by chorea. She was discharged much improved, but did not completely lose the atactic movements. Six years later she married, and during the first pregnancy the choreic movements diminished. She passed through her confinement naturally, and was quite well later save for the movements. The second pregnancy followed soon after. During the second half the movements increased considerably, and were very intense when the birth took place at term. Soon after the commencement of the third pregnancy the chorea became very intense, and the patient had to be admitted in the twenty-fifth week into the clinic. Chloral and morphine did not improve matters, and the pregnancy was therefore brought to an artificial termination. This was done because the endocarditis was increasing and becoming threatening. The fourth pregnancy began in August, 1905. From the seventh month the chorea became much worse. She soon became extremely ill. She could not walk, could not feed herself, and her heart was threatening. Placed in bed and artificially fed, she was treated with increasing doses of bromides (2 to 8 grams). The chorea was materially influenced for the better, and no signs of intoxication were seen. As soon as she became quieter the dose was lessened, and the patient was able to get up after a treatment of fifty-two days. The partus began five weeks later, and the choreic movements increased rapidly. Forceps were applied as soon as the os uteri was sufficiently dilated, and a healthy girl was delivered. The mother improved, nursed her baby, and was discharged with scarcely any movements three weeks later. The heart was *in statu quo*. Martin realizes that when the symptoms threaten the life of the mother one should induce premature labour, and in this way one will certainly control the chorea; but he thinks that when the pregnancy is far advanced one should try medical treatment first, and not be in a hurry to end the pregnancy, in the interests of the fetus. His experiences with bromide treatment are such that he urges an attempt to deal with the chorea in this way. The older reports on the dangers of interrupting the pregnancy scarcely apply to-day, since these bad results were due to the frequency of septic infection. If the uterus has to be emptied immediately, he advises colpohysterotomy anterior as the best method. Turning to the bromide treatment, he advises giving bromide of sodium and bromide of ammonium āā 2 grams (30 gr.) and bromide of magnesium 4 grams (60 gr.) Iron and arsenic do well for mild cases, but he does not think that morphine and chloral do any good.

GYNAECOLOGY.

161. Abdominal Hysterectomy for Cancer of the Cervix Uteri.

Lapointe (*La Clin.*, August 24th, 1906) finds that results from vaginal hysterectomy for cancer leave much to be desired; he attributes this to an operation which does not remove, with the tumour, all the lymphatics and tissues involved. He recommends Wertheim's operation, which aims at the removal of the uterus, the adjacent cellular tissues and broad ligaments, coupled with systematic extirpation of the lumbar and pelvic glands. Discussing Wertheim's operation, he advises that the cervix should be prepared before the operation is begun, by destroying the surface of the cancer with the thermo-cautery. The Trendelenburg position is adopted, and the incision is made in the umbilical-pubic line. The uterus is seized and drawn up, either by forceps or by passing two strong ligatures through it, the appendages and round ligaments are ligatured and divided, the vesico-uterine peritoneum is incised and peeled off as far down as possible with the aid of curved scissors. At this point the operation of hysterectomy for cancer begins to differ from hysterectomy for fibroma, for the fundamental principle in

abdominal hysterectomy is to divide at a distance from the cervix, and to remove the uterus and parametrium when possible in one single mass. To do this it is necessary to isolate and preserve the ureter. It lies behind the broad ligament of the postero-lateral margin of the pelvic brim; in the process of dissecting it out the finger hooks round the uterine vessels where they cross it. They should be ligatured and divided as near their origin as possible, and the dissection of the ureter is then carried down to the bladder. In advanced cases the ureter is so involved in the cancerous mass that it is not possible to set it free, and it must either be resected and a uretero-cysto-neostomy be performed or the kidney must be removed or the operation abandoned; this is, however, rarely necessary. The next step is to draw the uterus upwards and forwards and to sever the sacro-uterine ligament and the peritoneum of Douglas's pouch. With the fingers all the adjacent cellular tissue behind and round the mass is detached down to the pelvic floor, the uterus is then only attached to the vagina, which it is required to divide some distance below the cervix; this is done with great care to prevent cancerous débris or secretions from infecting the peritoneum and exposed cellular spaces. To avoid this danger two methods have been employed, in one the uterus is pushed down into the vagina, the peritoneum is sewn together above it, and the final removal is made through the vagina. The other is practised by Wertheim: the vagina is cleaned and dried from below, the wall is then seized between clamps placed on either side and as low as possible of the cervix, and divided; finally, if any hypertrophied glands are felt, they are removed. A vaginal drain is inserted and the abdomen is closed. It is particularly necessary to stop all haemorrhage and oozing before closing, as a precaution against sepsis.

162. Garrulitas Vulvae.

W. SCHUELEIN believes that perhaps comparatively few medical men have heard of the condition which was described by Loehlein in 1879 as garrulitas vulvae (*Deut. med. Woch.*, July 26th, 1906). The term was introduced to differentiate the condition from that of a recto-vaginal fistula. Air is pressed out of the vagina with a more or less audible noise. The first question which the author sets himself to answer is whether the gas expressed is atmospheric air or whether the gas is developed in the vagina from micro-organisms. The latter theory has been suggested for some cases, but no explanation has been forthcoming as to how the micro-organisms can develop sufficient gas to produce a loud noise. Schuelein has seen several cases, and describes two which permit of the decision of this question, and further throw light on the development of the garrulity. In one case the vaginal noises started after the first confinement, and increased during the course of three years. The patient complained of irregular haemorrhages, white discharge, and nervousness as well. On examination, the introitus was found to be large and lax, and there was a moderate degree of prolapse of both anterior and posterior walls of the vagina. The perineum was intact. In addition, he found endometritis and an erosion on the cervix. The haemorrhages, etc., were easily controlled by baths, diet, and astringent douches, and the general condition of the patient was greatly improved, but the air still made a noisy exit from the vagina. Later she again became pregnant, and during the latter months of the pregnancy the garrulity ceased, to return again after the delivery. He was able to convince the patient that the condition was not serious, and in this way quieted her mind to a certain extent. Getting the patient to lie on her back with her knees drawn up and her arms placed above her head, he found, by introducing the finger into the vagina, that the vagina filled with air on taking a deep inspiration. The same result was noted when she was placed in the knee-elbow position. This could be repeated as often as he liked, and, on expiration, a loud noise was produced by the air passing through the vulva. Had it been due to gases developed in the vagina, the repetitions within a short time would have been impossible. In a second case the same signs were made out. The noises were so loud that the patient found it impossible to enjoy the society of anybody, and she became so much affected by it that she threatened to commit suicide. All ordinary treatment (irrigation with astringent solutions, etc.) failed to relieve, and it was therefore decided to perform colpoperineorrhaphy. This had the desired result; and although a little air entered and left the vagina still, it did so without an audible sound. The vulva was so narrow after the operation that it only just admitted two fingers. Schuelein considers that garrulitas vulvae is produced by a laxness of the vaginal walls, and especially of the posterior wall, and also of the abdominal walls. The perineum may be intact, but often it has been ruptured at a previous confinement, and only the superficial tissues have been repaired. The condition is much more common in multiparae that in nulliparae. It is not so uncommon as one usually believes, only the majority do not like to complain of the symptom to their doctor. It is more common among the poorer classes than among the more wealthy. The apparent increase in the number of cases may be in part due to the new-fashioned reform dress, which admits of slackness of the abdominal walls.

THERAPEUTICS.

163. The Bivalent Antidiphtherial Serum.

I. BANDI (*Il Policlin.*, July, 1906) urges the necessity for an antidiphtherial preparation which shall destroy the diphtheria bacilli, and not merely antagonize their toxins. He considers that something more than Behring's serum can accomplish is particularly desirable in cases of laryngeal and tracheal diphtheria. He quotes also Concetti's opinion that general invasion of the organism by the diphtheria bacillus is much more common than has been supposed. The researches of Wassermann and Rist show that diphtheria bacilli contain an endotoxin producing different symptoms from those of the well-known soluble toxin derived from Loeffler's bacillus. To this endotoxin the author attributes diphtherial paralysis. Bandi and Gagnoni have published an account of their method of obtaining a part of this endotoxin by a simple process of autolysis in normal saline solution, and they find that the endotoxin is neutralized *in vivo* and *in vitro* by Bandi's bivalent antidiphtherial serum. It is called bivalent because it both acts as an antidote to the endotoxin and exerts a hostile influence on the bacteria themselves, preparing them for phagocytosis. It is not claimed that there is any true bacteriolysis apart from the action of the phagocytes. The bivalent antidiphtherial serum, therefore, contains substances comparable to the opsonins described by Wright. Martin has proposed and practised the administration of pastilles containing Bandi's antibacterial (or bivalent antidiphtherial) serum. They are allowed to dissolve slowly in the mouth, and it is found that the diphtherial membrane is soon disintegrated and bacilli disappear from the pharynx at an early date. The pastilles are willingly taken by children. Another method of application is by rubbing the affected area with a combination of the bivalent serum and ordinary disinfectants. Gagnoni and others have made preparations showing the process of phagocytosis proceeding vigorously after these applications. Bandi and Concetti consider the serum well suited for use in the prevention of diphtheria. Great importance is attached to the nasal mucous membrane as a frequent site of implantation of Loeffler's bacillus, and the method of prevention recommended is the instillation into the nostrils three or four times in the twenty-four hours of several drops of the serum. In this way it is hoped that the disease may be prevented, and also that the subject treated may be prevented from carrying about the bacilli and transferring them to other persons, as is frequently done by those who do not themselves suffer from diphtheria. Similar treatment of the nostrils is recommended in purely pharyngeal cases of diphtheria as an addition to appropriate local treatment. In diphtherial conjunctivitis the instillation of five or six drops of the serum into the conjunctiva is found to be efficacious. The prompt destruction of the bacilli is especially necessary in diphtheria of the respiratory system. For this it is recommended that from 2 to 5 c.cm. of the serum should be introduced every three or four hours with Bayeux's syringe through the tracheotomy tube, and its introduction can even be performed by the same means in patients who have not undergone tracheotomy. Throughout the paper numerous references are made to authors who speak highly of the serum.

164. The Salt-Free Diet.

IN the *Zentralblatt für die Gesamte Therapie* for April, Kaufmann reviews papers on this subject published by Widal, Zambelli, and Carducci. Ordinary bread contains 5 to 7 grams of salt to the pound, and as only 1 to 1½ grams a day are to be allowed the bread must be specially baked without salt. Milk contains about a gram to the pint (1.6 gram per litre). Meat must be given without salt, and only the fresh-water varieties of fish allowed. The diet may further include eggs, butter,

cream, unsalted cheese, potatoes, rice, peas, carrots, beans, celery, artichokes, and salad. Meat jelly, thyme, bay leaves, and parsley are recommended as condiments. Soup is forbidden, but sugar, blanc-manges, and sweetmeats allowed. For liquids, mineral waters containing little salt, lemonade, tea, coffee, beer, and wine in small quantities are advised. The diet must, of course, be modified according to the disease from which the patient is suffering. A diet given by Carducci consisted of 1½ litres of milk, 300 grams of salt-free bread, and 300 of meat. This will furnish 2,280 calories. In nephritis and oedema the best guide to the effect of the treatment is the body-weight, a fall being favourable. The patient should rest in bed. When the oedema is completely gone the intake of salt should be cautiously raised to 3 grams, and if this is properly eliminated in the urine, still higher. In many cases it is advisable to give diuretics, such as theobromine, during the treatment, and occasionally digitalis. Carducci did not notice any effect of the diet upon albuminuria or uraemic symptoms. In oedema due to heart disease Carducci does not recommend the salt-free diet, and says that the patients object to it. Widal, however, reports favourable results in this condition. Both observers agree as to its uselessness in inflammatory exudations when fever is present, but in the later stages of pleuritic effusion and in cirrhotic ascites of not too-long standing this treatment is recommended.

165. Thephorin.

T. A. Mass (*Therap. Monats.*, April, 1906) has made experimental investigations as to the value of the new diuretic agent thephorin. Thephorin is a double salt of theobromine and formic acid, and has a composition analogous to that of diuretin, but that in thephorin formic acid takes the place of the salicylic acid in diuretin. The drug was supplied to the author in the form of tablets, each containing 0.5 gram of thephorin, and also as a powder. It is easily soluble in water, especially in warm water, and forms a clear weakly alkaline solution, which becomes turbid with long keeping. The author has not tried the effect of thephorin upon human subjects, but he has injected it into rabbits and guinea-pigs, both when the animals were apparently healthy and also when nephritis with oedema had been artificially produced, in order to determine its general action, its toxic effects, the fatal dose as compared with that of diuretin, and its effect upon diuresis. The following are the conclusions arrived at: (1) Thephorin is relatively only slightly poisonous; the fatal dose lies between 0.8 gram and 0.9 gram per kilogram for the guinea-pig; the theobromine would seem to be the poisonous element, because the amount of it contained in the above dose is almost the same as that contained in the fatal dose of diuretin; (2) given in small doses, the action is a slightly irritant one, in larger and fatal doses there is general paralysis ending in death; (3) thephorin lowers the blood pressure, and at the same time increases the frequency of the pulse; (4) in sound animals diuresis is temporarily greatly increased, but the effect so quickly disappears that the whole quantity of urine passed in twenty-four hours is not increased; (5) in animals suffering from dropsy, the result of toxic nephritis, thephorin is extraordinarily effective in combating the symptom; for example, in one of the animals treated by thephorin the free fluid in the pleural and peritoneal cavities after death was only 48 c.cm., as compared with 90 c.cm. in the control animal; in another case the amount for the animal treated was 4 c.cm., as compared with 60 c.cm. in the control animal; (6) the dose of thephorin which is effective clinically is far smaller than the toxic dose; over-dosing is to be avoided because it leads to inhibition of the action of the drug; the dose for clinical purposes should be the same as that of diuretin; (7) the coagulability of the blood is diminished by thephorin. It is thus seen that in thephorin we have a new preparation which, from its composition and from the result of experiments on animals, would appear to be well suited for clinical purposes, but how far it will replace older diuretics can only be judged from clinical observation.

166. Candol.

E. J. Lesser (*Therap. Monats.*, June, 1906) has had some success in feeding atrophic children on a new malt preparation called candol. Analysis shows that this preparation contains 2.05 per cent. of water, 2.18 per cent. of salts, 9.49 per cent. of albumen, and 86.28 per cent. of carbohydrates, of which 63 per cent. consist of pure maltose. Candol is supplied in two forms, dry or as a syrup; the syrup contains a ferment with a strong solvent action on fibrin. The author has made use of candol in 4 cases, the ages of the patients varying from 4 to 8 months respectively; the dose given was a teaspoonful three to six times a day. In one case in which the syrup was employed, gastro-intestinal disturbance appeared and the use of the syrup was discontinued. The three other children did well; in one case, that of a rickety child 8 months of age, the weight went up from 10 lb. 250 grams to 11 lb. 330 grams during twelve days; in another, a child of 4 months, from 7 lb. 400 grams to 9 lb. 120 grams during eighteen days; in another, from 9 lb. 350 grams to 11 lb. during twenty days. In the third case the weight had begun to rise steadily before candol was given, but in the first and second cases the good results could be put down with a considerable degree of certainty to the use of candol. The author proposes to continue his investigations.

PATHOLOGY.

167. Cystic Degeneration of the Lung.

A. Pepere (*Lo Sperimentale*, March-April, 1906) describes and gives coloured plates representing the microscopical appearances of portions of a lung showing cystic degeneration, the "cystic pulmonary cirrhosis" of Rindfleisch, discussing its pathogenesis and giving the literature of the subject. The patient, a girl of 16, was ill-developed, epileptic, the subject of mitral disease and chronic bronchitis, and died suddenly from heart failure, with the signs of bronchopneumonia. Examined *post mortem*, the left lung showed extensive recent fibrinous pleurisy; on section, the cut surface displayed numerous small roundish cavities from 1.5 c.cm. downwards in diameter. The cavities were either discrete or irregularly grouped, and were separated by small strands of congested lung tissue. There were also numerous small greyish consolidated areas scattered or grouped in the carnified lung tissue, and little normal lung tissue could be seen. The right lung, but for the absence of pleurisy, resembled the left; it seemed transformed into spongy tissue interspersed with grey nodules. The bronchi contained much secretion, and the peribronchial glands were enlarged. Some of these cavities were lined with cylindrical or ciliated epithelium, and were dilated bronchioles or infundibuli; others were dilated and confluent alveoli, lined with flat epithelial cells. Between the cysts were strands of embryonic lung tissue, much congested, with rudimentary bronchi and alveoli. The parts of the lung free from cysts were partly emphysematous, partly atelectatic. The solid areas were foci of desquamative pneumonia. Pepere argues at length that the condition here is not one of adenomatous new growth (= adenoma bronchiale cysticofetale) or of congenital malformation. He believes it is due to a congenital want of resistance on the part of the lung tissue in general and of its stroma in particular; the lung containing persistent areas of pulmonary agenesis which become separated, as the body and lungs grow up, by areas of progressive distension of the bronchioles and alveoli, till the acini become cysts and the lobules become series of intercommunicating vesicles. Thus cystic degeneration of the lung becomes a special form of chronic emphysema superposed upon a congenital weakness of the lung tissue.

168. The Formation of True Bone in Sclerotic Blood Vessels.

Bunting (*Journ. of Exper. Med.*, May, 1906) records a rare case of the presence of true bone in the sclerotic aorta of a subject 72 years old, and reviews the literature bearing on the subject of bone formation in the walls of blood vessels. He finds that metaplastic formation of bone in sclerotic vessels is not a rare phenomenon. The factors which lead to its production are extensive sclerosis with the presence of calcium deposits, traumatic or inflammatory disturbance in the calcified area, with penetration of the same by granulation tissue, and the formation of bone adjacent to the calcified areas. The bone may be deposited in two ways: either by the conversion of connective tissue into a callus or osteoid tissue, with subsequent conversion into bone and at times with the formation of cartilage; or by the resorption of calcified material by vessels and osteoclasts, the formation of a marrow space, and the deposit of bone in its periphery by an osteoblastic membrane derived by metaplasia from the connective tissue cells accompanying the vessel. In Bunting's own case, in which all the elements of true cellular marrow were found, it was impossible to decide whether these elements were produced by a further metaplasia of connective tissue cells, or by the metaplasia of cells which had emigrated from the blood stream.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

169. Automatic Ambulatory Disorders in Infantile Epilepsy and Hysteria.

R. Simonini (*Il Morgagni*, August, 1906) discusses the different forms of disordered locomotion carried out on impulse and automatically in a state of mental confusion. He states that the subject has been hitherto considered almost exclusively as concerning adults, and he supplies numerous references to the authors who have so treated it. He implies also that it has hitherto been looked at too much from the point of view of specialists in alienism. He classifies the cases as: (1) Simple ambulatory automatism, in which, though the movements may be impulsive, automatic, and entirely or almost unconscious, they are not abnormal in their form and rapidity; (2) automatic ambulatory disorder, impulsive, more or less unconscious, abnormal in form and direction (procursive, circumcursive, rotatory, saltatory, etc.), and in the violence and rapidity with which the movements are performed. It is especially the cases of the second class which are connected with epilepsy and hysteria. The epileptic fit may be replaced by ambulatory disorder which then constitutes the whole fit, or the ambulatory disorder may precede or follow a more or less well-defined epileptical or hysterical fit. The ambulatory disorder of hysteria, like the other manifestations of that disease, is rather ill-defined, and it is best studied in two divisions: (1) Cases with distinct hysterical crisis; (2) cases with mixed hysterical and epileptic crisis. The distinction between the epileptic and the hysterical forms of ambulatory automatism rests rather on the recognition of hysteria in the one case and epilepsy in the other, than on any differences in the ambulatory symptoms themselves. Ambulatory automatism must be distinguished from simple vagabondage, but the latter is not uncommonly an early symptom of some more definite psychical disease; this is especially to be suspected when there is a family history of nervous disease. Loss of memory of the automatic actions is not always complete even in the epileptic cases. Diminished sensibility to tactile, thermic, and painful sensations is constantly noted after the attack. Albuminuria and peptonuria are also slight but constant symptoms. The author's "procursive epilepsy," the form in which the epileptic fit is entirely replaced by ambulatory automatism, may sometimes be observed to undergo a gradual change, ambulatory automatism becoming more and more slight, until at last it is simply the aura preceding an epileptic fit. Sometimes the same patient may suffer alternately or irregularly from pre-accessual and post-accessual ambulatory automatism. The disease may remain unchanged for long periods, or may be replaced by ordinary epilepsy, or may gradually lead to dementia or mania. Not uncommonly life is cut short by some accident. A neurotic heredity is the rule. Alcoholism is very frequent. A connexion with different infectious diseases has been traced—for example, scarlatina, measles, whooping-cough, enteric, and pellagra. In one reported case helminthiasis seemed to exercise an important influence on the course as well as the causation of the disease. The treatment of epilepsy and hysteria may be carried out as usual, but in the cases under consideration special attention must be devoted to the mental feebleness and loss of association of ideas which form part of every case. The author, therefore, recommends tonic treatment, hydrotherapy, phosphates, iron, arsenic, etc., and mental exercises without fatigue of the brain. Treatment by suggestion and hypnotism are also recommended.

170. Sunstroke.

Jardini (*Clin. Modern.* N. 22-24, an. xii) discusses his experience during 1905 in regard to cases of sunstroke in Florence. During that year, which was marked by a sudden access of great heat, with high aqueous vapour tension and marked electric state of the atmosphere, the number of cases of sunstroke was considerably above the average. Most of the cases occurred in July, and had a mortality of 10 per cent. (9 per cent. men, 1 per cent women), the greater male mortality being due to the fact that they worked more laboriously than the women and were more exposed to the heat. The deaths nearly all occurred at the beginning of the heat wave, before people had had time to get acclimatized or to take proper precautions. Bad hygiene, bad ventilation, laborious work, exhausting conditions of any kind acted as predisposing causes. As a rule, the attack was sudden and frequently soon after a full meal, when the production of CO_2 was increased. Cyanosis during the attack was not uncommon. At the height of an attack the urea in the urine was lessened. The Babinsky and Kernig phenomena were never observed. The coma of sunstroke resembles in many respects that of uraemia, but, unlike the latter, is usually associated with hyperpyrexia. The various types of sunstroke in order of frequency were: (1) Mixed forms, (2) asphyxial, (3) syncopal, (4) cerebro-spinal. Convalescence was often seen, and relapses on exposure not uncommon. If death occurred, putrefaction set in very rapidly. Of the various theories put forward to explain the pathogeny of sunstroke the author attaches most value to that which associates it with hyperpyrexia and auto-intoxication. In every case prognosis should be reserved, as cases beginning very slightly may rapidly get worse. Treatment should aim at prevention by suitable hygienic measures, and if an attack supervenes one should use means to remove the accumulated toxic products and procure their rapid elimination, and use all general means of aiding the resisting powers of the organism.

171. The Biological Significance of the Plasteins.

F. Micheli (*Arch. per le Sci. Med.*, vol. xxx, No. 7) summarizes the literature dealing with the plasteins. They are the bodies precipitated from solutions of the peptic digestion of the most varied proteids by the addition of rennet (= the "anti-albumid coagulum" of Kühne and Chittenden, 1883). They have been examined by Danilewski (1886) and his pupils in an exhaustive manner, and are described as albumose-like substances; Volhard (1903) and others believe that they have been built up again from simpler decomposition products by the continued action of pepsin or of other proteolytic ferments. Nürnberg (1903) and others have found that the aqueous extracts of various organs which had undergone auto-digestion for some hours possess the power of precipitating plastein from milk. Micheli, using four plasteins derived from the peptic digestion of egg albumin, fractionated according to Bayer's method, comes to the following conclusions: He holds that they are built up from proteoses, peptones, and even simpler decomposition products of peptic digestion, by ferments diffused throughout the tissues of the body; the primary plasteins giving all the reactions of albuminoid bodies (biuret, Millon, xanthoproteic, Molisch, lead sulphide), the secondary plasteins giving none of these reactions—or at best giving them very weakly. They are all built up on an abiuretic nucleus (= peptids); injected into animals they are not eliminated by the urine, do not cause albuminuria, and are probably assimilated. Micheli believes that they play an important part in the intestinal synthesis made from the products of digestion.

SURGERY.

172. Surgical Treatment of Vesical Tumours.

Treplin discusses the surgical treatment of tumours of the bladder, comparing the present day results with the results of less recent times (*Deut. med. Woch.*, May 10th, 1906). In the olden days, tumours of the bladder were regarded as entirely untreatable, and even when the organ was opened to remove a suspected stone, and it was found that the disease was due to a vesical tumour, no attempt was made to remove the same. At first, these tumours were removed by means of the lithotrite, and in 1874 Billroth performed the first "high operation" for the removal of a myo-sarcoma. The introduction of modern renal surgery opened up a new era for the treatment of bladder tumours. In the early days one distinguished between fungus and cancer of the bladder. Then a further variety was recognized—namely, villous cancer. But it was soon shown that these villous growths were benign, or at all events that many of them were. The modern classification allows of benign villous tumours and carcinomatous villous tumours. The author states that in Kuemmel's clinic six cases of villous cancer were operated on,

in which there was evidence that these were originally benign tumours and had undergone malignant degeneration. In 3 of them the primary tumours were removed and proved to be papillomata; but recurrences took place, and the character of the secondary growths was undoubtedly malignant. The other 3 cases presented such long histories—fourteen, eight, and two years respectively—that he thinks that he is justified in being highly suspicious of their having been benign to start with. Sarcoma of the bladder is very uncommon, while large cystic tumours are still more rare. Turning to the diagnosis, he finds that this can be controlled with a degree of certainty by the cystoscope; but even if a tumour is definitely seen in the bladder, it is not always possible to determine whether it is benign or malignant. The best method of operating for vesical tumours is the high operation, the suprapubic cystotomy. With regard to benign tumours, the prognosis after operation is very favourable, but with carcinoma it is not good. However, he finds that the chances for the patient are scarcely worse in cancerous tumour of the bladder than in cancer of any other organ. Of 30 patients operated on in the above-mentioned clinic, 6 may be regarded as being cured after the course of from five to sixteen years. In 5 cases the tumour was a carcinomatous villous tumour, while in the sixth it was a spindle-celled sarcoma. But even when one fails to cure the patient one is certainly capable of alleviating his unfortunate condition. He mentions that the anaesthesia which he employs for the operation is lumbar anaesthesia.

173. Primary Cavernous Sinus Thrombosis.

Zentmayer and Weisenburg (*Amer. Journ. of Med. Sci.*, February, 1906) report a case of primary marasmic thrombosis which probably originated in the cavernous sinus, and which early in the disease may have implicated the sinus only. In addition to the usual symptoms there were peculiar menstrual disturbances and unilateral involvement of all the cranial nerves, except the auditory. The patient was a woman, aged 34, whose father died of "softening of the brain," and who lost one brother from cerebro-spinal meningitis, and the remainder of whose family were recorded as nervous. A short time before menstruation began the right eye became much inflamed and painful, with slight ptosis and exophthalmos. At each menstrual period there was always a sense of discomfort and fullness in the right eye, which later became the case with the left. The protrusion of the right eyeball gradually increased and the ptosis became more marked, especially at each menstruation. She married at 24, and four years later, during a period, the right eye became much more painful and inflamed, with marked right ptosis and exophthalmos. These symptoms, instead of subsiding with the cessation of menstruation, became more pronounced, and were evidently the first signs of the pregnancy discovered two months later, when the menses ceased. During pregnancy all the eye symptoms became more pronounced. Labour was instrumental and resulted in twins, and after childbirth the exophthalmos increased and the ptosis became complete. This was the only pregnancy, but at each menstrual period the ocular symptoms became more intense, and an impairment of sensation of the right side of the face developed. At the time of examination there were marked exophthalmos and almost complete ptosis of the right eye, with pronounced venous congestion of the eyelid. The ophthalmoscope showed atrophy of the right optic nerve and pallor of the left. In addition to a complete internal and external ophthalmoplegia of the right eye, there was total motor and sensory paralysis of the right fifth nerve, paresis of the right seventh, ninth, tenth, eleventh, and twelfth nerves, and partial paralysis of the left third nerve. Thus all the right cranial nerves, except the eighth, were involved as well as the second and third nerves on the left side. This condition of things is explained as being due to pressure from a thrombus in each cavernous sinus, with, on the right side, an extension backwards into the superior and inferior petrosal sinuses, and it is probable from the gradual increase in the symptoms that originally the thrombus involved only one cavernous sinus. Of peculiar interest is the intensification of the ocular symptoms at each menstrual period, more especially before the first one and before pregnancy, and this may be explained by the circulatory disturbances accompanying these functions increasing venous congestion. While the above affords a satisfactory explanation, the fact that there must have been pressure upon the pituitary body, not only from the cavernous sinuses on each side, but also from the circular sinus in front, is of interest from the possible association of this body with the menstrual function.

174. Operative Treatment of Dupuytren's Contraction of the Palmar Fascia.

Keen (*Amer. Journ. of Med. Sci.*, January, 1906) describes a new operation for the treatment of Dupuytren's contraction of the palmar fascia. The patient, a woman aged 64, had been operated upon two years previously for the condition in the left hand, the method then adopted being incision in the line of the pronounced bands and removal by dissection. This operation was followed by recurrence, and consequently when the disease developed in the right hand the following operation was carried out: The skin just above the wrist over the median and ulnar nerves having been infiltrated with a solution of beta-eucaine and adrenalin, the nerves were exposed and a few drops were injected into them. Since scarcely any loss of sensation resulted, four or five drops of a 4 per cent. solution of cocaine was injected into each nerve. After three minutes the operation, lasting over half an hour, was conducted quite painlessly. An incision commencing at the ball of the thumb in a line with the interspace between the fore and middle fingers was carried almost to the web between these fingers and thence transversely across the palm to a corresponding point between the third and little fingers. From this point it was carried up to the ball of the little finger parallel with the first portion of the incision on the opposite side of the palm. The entire flap so outlined was dissected back, commencing at the transverse incision, and it included on its under surface the entire palmar fascia, which was then dissected away, an assistant's fingers on the palmar surface of the flap giving warning of too near an approach to the skin. The fibres going to the index and little fingers (which were not included in the larger flap) were dissected out after the overlying skin had been undermined. Bleeding was free, and a few small vessels had to be ligatured with catgut. Union took place by first intention. By thus lifting a flap consisting of all the tissues down to the sheath of the tendons the removal of the fascia was easy, and fear of sloughing was removed owing to the flap receiving sufficient nourishment. Had it been needed, an incision could have been carried along the axis of any of the fingers, and a more extensive dissection carried out.

OBSTETRICS.

175. Hyperemesis Gravidarum.

O. Tuszkai (*Berl. Klin.*, August, 1906) differentiates between true hyperemesis gravidarum and vomiting during pregnancy, however severe the vomiting may be, dependent upon any organic disease such as kidney disease, stomach affections, tumours, irritable conditions of the brain, etc., or upon hysteria. True hyperemesis gravidarum is a direct result of pregnancy dependent upon peritoneal irritation caused by defective nutrition of the peritoneum as it becomes stretched by the increasing uterus. It is true that in some cases in which the peritoneum is stretched to an unusual extent, as with hydramnios or multiple pregnancy, vomiting may not occur, but facts such as these are explicable on the theory of individual peculiarities in the elasticity of the peritoneum. Tuszkai allows that his theory does not admit of rigid proof, but it is nevertheless worthy of credence on empirical and rational grounds. Further proof of an empirical nature might be obtained by an inquiry into cases in which before pregnancy there had been metritis or perimetritis; in such cases there should be during pregnancy a greater sensitiveness of the peritoneum and a greater tendency to vomiting. In specific hyperemesis there is marked tenderness on bimanual examination. The fact of such tenderness being also present in the case of many hysterical women, whether pregnant or not, is only another instance of the simulation in hysteria of organic disease. The fact that vomiting often ceases during the second half of pregnancy is explained by the relative increase in size of the uterus during the two periods. In the first half of pregnancy the uterus increases tenfold, but in the second half it only doubles itself; moreover, the blood supply of the uterus is more abundant during the second half than the first half of pregnancy. The author is opposed to the toxaemic theory of true hyperemesis gravidarum. He gives two cases in which William's ammonia coefficient was estimated. In one case the coefficient was as low as 4.1 per cent., which on William's theory would exclude the possibility of toxaemia; in the other the coefficient was high, but remained high after vomiting had ceased. On anatomical grounds, vomiting as a result of peritoneal irritation is

easily understood, the reflex paths being simple and direct. Even so eager an advocate of the toxaemic theory of hyperemesis as Dirmoser says that any increase in the volume of the uterus increases vomiting, and a diminution often at once relieves it. For purposes of treatment when dilatation of the os is needed the author uses an instrument of his own construction. This is a modification of a Fritsch-Bozemann's uterine catheter made in metal, when anterior part, as in Hegar's dilators, can be supplied in different sizes; a smaller tube lies within the larger one, and through it fluid at the desired temperature can circulate. When a warm local application is needed the author uses a long double-channelled metal catheter, to the end of which a hollow indiarubber bladder is fastened; lukewarm water at first and later warm water is passed through the instrument. The author describes two of his cases, with the treatment adopted. The following are his conclusions on the subject: (1) Hyperemesis caused by pregnancy is one of the rarest complications of the condition. (2) A clear distinction must be drawn between vomiting occurring during pregnancy and specific hyperemesis gravidarum—all diseases which cause vomiting in pregnant women, such as enterogenous toxaemia, stomach affections, meningitis, peritonitis, etc., must be excluded. (3) The diagnosis of specific hyperemesis gravidarum can be made if (*a*) all the above-mentioned diseases can be excluded; (*b*) if the characteristic clinical symptoms are present—the great local sensitiveness of the peritoneum of the uterus, which is not only increased by bimanual examination, but on such examination gives rise to strong vomiting; and (*c*) if the pregnant and violent vomiting is independent of the intake of food, and leads in a comparatively short time to symptoms of inanition. The signs of inanition are described. (4) The symptoms of hyperemesis gravidarum depend on the condition of irritation of the peritoneum which, probably as a result of individual peculiarity, causes local atrophy, and therefore is in direct connexion with the pregnancy. (5) The prognosis depends on the grade of inanition, and this can be judged as a result of biochemical investigations such as are described in the article. (6) Etiological treatment can be given, and is at first conservative, consisting in local cold, warmth, complete rest, and large doses of opium; and next, if these are of no use, in interruption of the pregnancy.

176. Pyelonephritis Complicating Pregnancy.

Rudaux (*La Clin.*, August, 1906) finds that pyelonephritis is a frequent complication of pregnancy. It occurs usually in young women, especially in primiparae. It is nearly always localized on the right side but is also sometimes double. It appears in the fifth or six month of pregnancy. The onset is insidious, and may not be noticed, where no regular examination of the urine is made, until either local or constitutional symptoms make their appearance. The diagnosis is difficult when the general symptoms mask the local signs, as pyelonephritis may not be suggested. The patient has a rigor, high fever, vomiting, and either diarrhoea or constipation, and diagnosis can only be made after a careful examination of the abdomen and the urine. The right lumbar region is the seat of pain, which may be either acute or subacute, and which is increased by pressure, and extends to the groin and down the thigh. Bimanual palpation is not easy in the later months of pregnancy, but it enables one to determine the painful area, the resistance of the muscles and abdominal tissues, and any increase in the size of the kidney. Per vaginam pressure on the ureter causes acute pain, thus differentiating the condition from appendicitis or salpingitis. The urine contains blood and pus, as well as casts, epithelium, and granular débris. The reaction is usually acid, and the amount passed is decreased; the specimen is best obtained by catheterization. When pyuria is the only symptom the origin of the pus must be discovered. It is necessary to distinguish between cystitis and pyelonephritis; in the former there is frequent and painful micturition, in the latter pressure over the lumbar region nearly always elicits pain or tenderness. If the diagnosis is not clear, it is necessary to resort to catheterization of both ureters, and separation of the urine from the two kidneys.

GYNAECOLOGY.

177. Cancer of Cervix after Hysterectomy for Fibroids.

Newman (*Amer. Journ. Obstet.*, July, 1906), in a discussion on the subject, showed a cancerous cervix which had developed seven years after supravaginal hysterectomy for multiple fibroids. Its removal was easy as the malignant degeneration had not advanced beyond the area of the stump. Noble of Philadelphia had observed 2 cases of cancer of the cervix following vaginal operation. According to his experience in one case, he suspected that in these instances of cancerous degeneration of a stump the primary uterine growth was adenomyoma, not fibromyoma. Manton removed a large bleeding fibroid, shelling out the greater portion of the cervix which seemed perfectly normal. Three months later haemorrhages set in and he detected a friable bleeding cauliflower mass projecting from the os externum. He removed the stump of the cervix, and the mass proved to be a spindle-celled sarcoma. Polk doubted if the removal of a fibroid uterus could cause or promote cancer of the stump. Arguing from analogy, the curtailment of the nerve and blood supply to the cervix would diminish rather than increase the disposition towards malignant degeneration. Henrotin removed a cervix two years after amputation of the body of the uterus and removal of suppurating appendages. There had been haemorrhage and the cervix showed a deep excavation with granulation tissue. The growth, however, though it looked very malignant, was simply a mass of granulations protruding from the os externum. The patient was quite well three years after the operation. Thus, before basing the diagnosis of cancer of the stump on haemorrhages and granulation tissue, the operator should insist on pathological proof of malignancy.

178. Calcified Uterine Fibroid: Obstruction: Paraplegia: Bedsore.

Rieffel and Ricou (*Annales de Gyn. et d'Obstet.*, August, 1906) attended a lady, aged 60, once pregnant forty years earlier. The menopause occurred at 48. The patient had been subject for a year to slight haemorrhages and leucorrhoea, with lumbar pains radiating to the sacrum and thighs. The abdomen became distended. Just a fortnight before she came under observation paraplegia occurred, suddenly, without cerebral symptoms; intestinal obstruction slowly developed. Purgatives being given profuse diarrhoea set in. The bladder was paralysed, so that the catheter was necessary; there was no difficulty in introducing the instrument. A bad bedsore formed within a few days. When examined the temperature was 100.5° F., the pulse weak but slow; there was free fetid leucorrhoea. An intensely hard tuberous mass was fixed in the pelvis. The patient was kept at rest for a few days, and ice was applied to the belly; the pains and diarrhoea diminished; then the abdomen was opened. The hard mass proved to be a calcified pedunculated fibroid, the pedicle as thick as a finger. It was divided, and then subtotal hysterectomy was performed. Gauze was passed into Douglas's pouch. On the evening after the operation the patient passed urine voluntarily, and the paraplegia (which had been motor, not sensory) diminished. On the fourth day the gauze was removed, and there were no signs of sepsis or peritonitis. The bedsore, however, did not heal, but began to extend, and the patient died on the tenth day.

THERAPEUTICS.

179. Culture of Bacillus Lacticus in Diarrhoea.

Lematte (*Le Progrès Médical*, July 21st, 1906) has, after many attempts, at last been able to cultivate in a specially-prepared bouillon *Bacillus lacticus B.* which Cohendy isolated in 1903 from a sample of curdled milk, and has urged the use of this liquid culture in the treatment of cases of diarrhoea, etc., the result of excessive intestinal putrefaction. After discussing the various theories as to the origin of intestinal infection and the important part the large intestine plays in harbouring an enormous number of micro-organisms of various kinds, the author passes on to consider in detail the subject of his paper. The *Bacillus lacticus B* Cohendy describes as a large bacillus, which sometimes stains well and sometimes badly in Gram's solution below temperatures of 35°, and above 65° its growth ceases. It possesses four times as great a power in the fermentation of hydrocarbons as any other known lactic ferment; with the different sugars it gives rise to the formation of lactic acid. Bienstock's experiments show that the bacillus of putrefaction of the intestinal contents cannot develop in the presence of a vigorous *Bacillus lacticus*. From this consideration the author has conceived the idea that by giving cultures of the *Bacillus lacticus B.* to patients suffering from diarrhoea the result of intestinal putrefaction, the putrefaction will be checked and the diarrhoea stopped. The author has grown this organism in bouillon

of lactosed and mineralized malt, and the resulting product is a brownish-coloured liquid, smelling of malt and with a slightly acid taste. To obtain the best results, the author advises that the patient drinks one hour before mealtime a Madeira glassful of this bouillon. The diet should be poor in nitrogenous foodstuffs and rich in sugars and faeculents, such a diet diminishing the toxicity of the intestinal contents, and favouring the multiplication of the *Bacillus lacticus*. Milk curdled by a culture of this *Bacillus lacticus* appears to have many advantages over that curdled by the addition of rennet or an acid. If rennet or an acid be employed, the curdled milk possesses a disagreeable taste—the curd is not easily acted upon by the digestive juices, and its assimilation is, therefore, imperfect. Further, milk curdled in this way possesses no curative properties; such milk contains only ferments which have a transitory action, the fermentation ceasing as soon as the curd is formed. On the other hand, milk curdled by the bouillon of *Bacillus lacticus B*, although similar in appearance to that curdled by rennet or acid, possesses curative properties, is easily digested, and contains a visible ferment (the bacilli). In all cases of dyspepsia with excessive intestinal fermentation and in cases of enteritis, the author advises that butter and cream should be replaced by milk curdled with his special bouillon of *Bacillus lacticus B*, and that such milk may be added to vermicelli, rice, macaroni, and green legumes cooked in slightly salted water. Cases of hyperchlorhydria do not stand well purées of legumes to which butter or cream have been added, but if for these latter the "milk" be substituted, intolerance of these articles of diet is done away with. At the end of the author's paper there are recorded by Dr. Brésard the clinical histories of several patients who were markedly benefited by the use of Lematte's special bouillon. The first case was that of a man who had been subject to attacks of severe diarrhoea accompanied by colicky abdominal pains; the number of stools per diem was from ten to twelve, and no lasting benefit had been obtained by the usual methods of treatment. He was ordered half a glassful of the bouillon culture three times a day, three-quarters of an hour before meals; the milk diet which he had formerly been placed on was stopped, and he was given soups made from legumes, rice, purées of legumes, dry biscuits, and water. At the end of three days the diarrhoea had completely disappeared. On the fifth day a little "lactic milk" was given, on the eighth ordinary milk, and by the fifteenth day he had resumed ordinary diet. Contrary to advice, the patient then ceased taking the bouillon, with the result that the diarrhoea returned. A return to the bouillon, and its continuance for another ten days, was followed by a complete cure, which has been maintained. The other cases which Brésard mentions as having been cured by the use of this bouillon culture are: Enterocolitis in a young lady, associated with severe nervous manifestations; enteritis, complicated by an attack of jaundice and recurrent urticaria, in a child. In the treatment of intestinal affections, the author concludes that use of his bouillon should be made, since its employment is entirely devoid of any danger, and it may render useful service in cases where ordinary treatment fails.

180. **Sajodin.**

LUBLINSKI (*Therap. Monats.*, June, 1906) has made use of sajodin, a new iodide preparation. In spite of the fact that it contains a third less iodine than potassium iodide, he has found that given in the same doses as potassium iodide it is clinically effective, and has not the unpleasant effect upon the digestive system which often makes the administration of the potassium salt a matter of extreme difficulty. Sajodin is insoluble in water; it can be obtained in the form of tablets, each containing ½ gr., and taken in this form is free from taste or smell. Lublinski has employed the drug in 2 cases of arterio-sclerosis, 3 of dry catarrh of the lungs with asthmatic symptoms, and in 7 of secondary and tertiary syphilis. In the cases of arterio-sclerosis the patients were aged 58 and 63 years respectively, and complained of a sense of oppression in the region of the heart, which became more noticeable during digestion. One of the patients had already taken potassium iodide with benefit, but had suffered from rhinitis and conjunctivitis in consequence of it. In both cases regulation of the diet was of some service, but substantial relief was only obtained when sajodin began to be administered; the medicament gave rise in neither patient to unpleasant side-effects, except that one of them seemed to taste iodine slightly in the mornings. The patients suffering from bronchial catarrh and asthmatic attacks took sajodin in large doses up to even 4 grams per day, without any consequent digestive disturbance; but one patient who had previously shown himself sensitive to the smallest doses of potassium iodide suffered from a certain degree of nasal catarrh. For syphilis sajodin was found to be effective when given to the amount of 3 to 5 grams per day. In one case of gummatous glossitis in which 100 grams altogether were administered, the gummata did not break down and recovery was obtained. In another successful case 120 grams of sajodin were given without causing any unpleasant side-effect. In one case of angina specifica slight catarrh occurred as a result of using sajoda. From his own trial the author finds that sajodin is as effective as the ordinary iodides, is well borne, is not injurious to the stomach, and is free from unpleasant side-effects.

181. **The Constitution of Rhubarb.**

GILSON (*Arch. Internat. de Pharmacodym. et de Thérapie*, vol. xiv, p. 455), as the result of a long research into the chemical constituents of China rhubarb, concludes that the purgative action of this drug is due to the presence of four glucosides—chrysophaneine, rheochrysine, emodine, and rheine. These four act together as one substance, which the author calls rheopurgarine, and when they are separated their properties are lost to a greater or less degree. Rheopurgarine is not itself soluble in water, but is rendered so by the presence in rhubarb of gallic acid and similar compounds, and it is its combination with these substances which has been described as cathartic acid.

PATHOLOGY.

182. **Primary Intestinal Tuberculosis.**

FIBIGER published the results of his investigations on the frequency of primary intestinal tuberculosis, on the experience of 213 *post-mortem* examinations, and as he regarded these figures as being too small to allow of definite statistic deductions, J. Ipsen has continued the research in Copenhagen and reports on his series of cases (*Berl. klin. Woch.*, June 11th, 1906). Dividing his cases in two parts, he sums up his first series of 285 cases with Fibiger's 213 cases, making a series of 498 cases in all. He regarded tuberculous lesions in the intestines or glands or both and none elsewhere as evidence of primary intestinal infection, and also included cases of extensive or undoubted old-standing tuberculous lesions in the intestinal track, when there were fresh foci in other organs. Of the first series, in 283 cases, that is, in circa 58 per cent., tuberculosis was the principal disease or was a marked complication. In 25 cases primary intestinal tuberculosis was found. This corresponds in round figures to 5 per cent. of all the post-mortem cases and 9 per cent. of all those affected with tuberculosis. Thirteen of the 25 cases were studied by Fibiger, and 12 by the author. In 9 cases the mesenteric glands alone were affected, in 2 cases the retrocaecal glands were attacked, and in one case there was extensive tuberculous processes in the intestine and marked tuberculous peritonitis. The second series dealt exclusively with children, the number of which was 102. The children had died of various diseases, mostly of acute infective diseases. The examination of the material was very carefully carried out. The whole intestinal track was minutely examined inch for inch, the method of Heller of cutting along the mesenteric border without separating the organ from the mesentery being carried out. Each gland was carefully handled, and also the lungs and other organs. All even slightly suspicious material was subjected to microscopic examination. In this way the control of this series was much more critical than in the former. Twenty-eight of the 102 children revealed signs of tuberculosis, and of these 6 had primary intestinal tuberculosis. In one case a mesenteric gland contained tubercle bacilli, as evidenced by guinea-pig inoculation, but no pathological microscopical or macroscopical changes were found. This case was not included among the 6 of primary intestinal tuberculosis. The 7 cases are briefly described. Taking the whole number of cases, and choosing only cases of children from 0 to 15 years, he counts 187 in all, and of these 58 were tuberculous and 10 had primary intestinal tuberculosis. Thus about 17 per cent. of the tuberculous children were affected with primary intestinal tuberculosis. He concludes by stating that these figures do not indicate the frequency of infection by bovine tubercle bacilli, since only in a few cases was he able to determine with certainty the source of the infection. In some cases the source of the primary intestinal infection was from cow's milk, while in others the probable source was contact with tuberculous people.

AN EPITOME OF CURRENT MEDICAL LITERATURE

MEDICINE.

183. Paroxysmal Tachycardias.

F. Pedrazzini (*Gazz. Med. Ital.*, June 8th, 1906) urges the importance of not remaining content with a diagnosis of tachycardia. In every case the cause should be discovered and the disease thus classified as exactly as possible. Passing lightly over the most common causes of tachycardia, such as hypertension, autointoxication, the abuse of tea, coffee, and tobacco, Pedrazzini considers more fully several of the less understood causes—chorea, traumatism, neurasthenia, hysteria, and epilepsy. Choreic tachycardia is due either to a participation of the heart in the general motor disorder or, in some cases, to an anatomical lesion of the heart. Post-traumatic tachycardia may be in some rare cases a reflex action originating in the implication of nerve fibres in a scar, but is usually bulbar in origin, depending on disturbance amongst the nerve cells of the pneumogastric nucleus. Cardiac neurasthenia, manifested in frequent, unequal heartbeats with precordial distress, but without true angina, is brought on by emotion or by slight exertion in neurasthenic subjects. Similar attacks in hysterical subjects are produced by mental conditions and less often by physical exertion. Epileptic tachycardia or cardiac epilepsy has been altogether denied by Huchard and other authors. Pedrazzini discusses briefly two cases taken from recent literature, and gives a long account of a case of his own. The patient was born in 1859, had a strong family history of nerve and mind diseases, was in hospital for twenty days suffering from hysterical vomiting, and soon afterwards had a first attack of epilepsy. Similar attacks afterwards constantly recurred. From 1898 onwards a new feature was added to these attacks, a tachycardia following immediately on the loss of consciousness and lasting for twenty-four hours. On recovery she felt faint and as if she had been bruised all over. In the intervals the pulse was regular—68 to the minute. The Riva-Rocci sphygmometer recorded a pressure of 115 mm. of mercury. The heart's apex was in the fifth space in the hemiclavicular line. The sounds audible there were a presystolic murmur, a first sound, and a reduplicated second sound. The author diagnosed a well-compensated mitral stenosis, on the ground that the heart was of normal size, the beats of normal frequency, and the patient well able between her attacks to undergo slight extra exertion. During attacks no benefit was derived from digitalis, convallaria, strychnine, or caffeine, but some benefit from valerian, with or without strophanthus. The tachycardia was therefore connected with epilepsy and not with the obvious cardiac lesion.

184. Surface Tension of Urine in Disease.

Billard (*La Prov. Méd.*, June 2nd, 1906) summarizes the results of his investigations during the last four years. Both the author and Perrin have shown that the surface tension of urine diminishes as the toxicity increases, but a precise urotoxic value of a urine cannot be predicted from a knowledge of the surface tension. Variations of surface tension of urine depend almost entirely upon the concentration of, and the quality of, the organic substances dissolved in it. The author and Perrin have fixed the surface tension of normal urine at 7 mg. During the course of some diseases it appears that a lowering of the surface tension of the patient's urine coincides with an increase of its toxicity, and in most of the acute infectious diseases this increased toxicity of the urine occurs during the height of the disease; in pneumonia, however, it occurs chiefly when the temperature falls, and observations on the surface tension of the urine in this disease shows that this falls at the precise moment the temperature falls. The author's attention has been especially directed to the variations of the surface tension of the urine in cases of typhoid fever, and as a result of his observations he concludes that the surface tension remains low throughout the course of the disease, rising to normal as the temperature falls, and, further, that the greater the surface tension of the urine is during the course of this disease the graver the prognosis. If, in a case of this disease, the urinary surface tension approaches the normal height, bath treatment should be commenced, however good the general condition of the patient may appear to be, since baths cause an increased elimination of urotoxic substances, and simultaneously a lowering of the surface tension. The author concludes by describing in brief the technique employed in these investigations.

185. The Acetone Bodies in Diabetes.

Hart (*Amer. Journ. of Med. Sciences*, August, 1906) reviews our knowledge of this subject. The amount of these bodies excreted reaches a greater total in diabetes than in any other known conditions. The relative amounts of acetone, diacetic, and oxybutyric acids may vary extremely in various stages of the disease. In the early stages acetone is the first to be excreted. Later, diacetic acid appears, followed by the excretion of β-oxybutyric acid. In the advanced stages, when oxybutyric acid is excreted in enormous amounts, the acetone may appear in comparatively small quantities. This change is due to a gradual decreasing power of oxidation of the body cells or their products. When it is possible to improve the metabolism, the acetone bodies disappear in the inverse order in which they were discovered. The ratio between the acetone of the urine and that of the breath in diabetes is not constant. As a rule, in mild diabetes the acetone of the breath is relatively greater, in severe cases the acetonuria usually predominates. This may be explained by the fact that in the severe cases β-oxybutyric and diacetic acids are manufactured and can only be excreted by the kidneys, and in the urine the diacetic acid is estimated as acetone, while in the cases in which acetone alone is made this is readily excreted by both lungs and kidneys. Moreover, in the very severe cases of diabetes the body is unable to oxidize its diacetic and oxybutyric acids to acetone, and comparatively little of the latter is manufactured. In diabetes there is no parallelism between the amounts of sugar and acetone bodies. The main source of acetone in diabetes is the imperfect metabolism of fat, which may be the fat of the food or the body fat. As a rule, the addition of carbohydrates to the diet results in the diminution of the acetone output, its withdrawal increases the acetone excretion. Fever in the diabetic usually reduces the output of sugar and increases the excretion of the acetone bodies, but the usual custom of a change in diet in febrile conditions may possibly account for some observations made in such cases. In coma, oxybutyric acid is always present, acetone and diacetic acid may be relatively diminished, and sugar absent; this is probably due to the inability to take food or to utilize that which is taken; the powers of oxidation have fallen to such a degree that oxybutyric acid is no longer converted into diacetic acid or acetone. With our present knowledge the author thinks that we should include in our definition of diabetes a failure of the organism to utilize fats. Nervous irritation, excitement, hunger, and fever favour the production of these poisons. All these should be avoided. If operative procedure is necessary in a patient with acetonuria, local anaesthesia should be used, if feasible; if a general anaesthetic must be employed, starving before and after the operation should be reduced to a minimum; if vomiting follows, bicarbonate of sodium and hot lemonade made with sugar should be given by the mouth or rectum. Similar rules should apply to confinement cases. In febrile conditions the diet should include a certain amount of easily absorbed carbohydrates, and every effort should be made by baths and other simple measures to reduce the temperature. In the diabetic if the withdrawal of carbohydrates is indicated one should do so gradually, allowing the patient time to accustom himself to the change, at the same time watching the amount of fat that can be used with impunity. In a mild diabetic one need not fear the increase of acetone which appears immediately after the withdrawal of carbohydrate food; this occurs in a healthy individual, but one should beware if a large amount of acetone is persistently excreted when the patient has had time to get used to the new diet. There is much difference of opinion as to the effect of various kinds of fat on the excretion of acetone. We should select those containing the higher fatty acids. If in spite of our efforts the production of diacetic and oxybutyric acids is unchecked, we must resort to the administration of alkalies with the hope of neutralizing them and rendering them less harmful. At the same time we should attempt to aid their more complete oxidation by giving easily oxidizable carbohydrates, for which purpose cane

sugar in solution seems to act best. It should be given by the mouth; if coma makes swallowing impossible, a stomach tube or nasal catheter may be used. Large amounts of water by the mouth, hypodermoclysis, and continuous irrigation of the colon may serve to dilute the poisons and stimulate the kidneys to assist in their rapid removal from the circulating blood. In coma bleeding may be found of service.

SURGERY.

186. Operative Indications in Cancer of the Rectum.

Martin du Parr (*Rev. de Chir.*, No. 7, 1906), in the course of a paper on cancer of the rectum and the results of the treatment of this affection in Kocher's clinic at Berne, discusses several points relating to the indications for operation. It is pointed out, in the first place, that the subject of this disease, if left without operative treatment, must die from it in a very woful condition and after cruel suffering. The average period of survival after the first appearance of the symptoms is, it is here stated, about twelve months. Patients who are subjected to a palliative operation—such, for instance, as the establishing of a false anus—survive this operation for an average period of two months and a half, and the beginning of the disease for about ten months and a half. On the other hand, according to the Berne statistics of 67 radical operations, the average survival after the date of the operation was forty-eight months, and after the earliest symptoms of the malignant disease fifty-six months. The number of contra-indications has of late been much reduced. Extension of the growth far up the rectum, formerly regarded as one of the chief obstacles to extirpation, no longer deters most operators. A posterior incision with resection of the coccyx permits the exposure and removal of from 8 in. to 10 in. of intestine, and disease extending still further upwards may be dealt with by abdominal surgery. The presence of enlarged lymph glands need not invariably lead to the rejection of operative treatment, as the largest glands and those most in evidence before the operation can usually be removed together with the central growth. The most dangerous glandular swellings in connexion with cancer are those that are still very small and hardly, if at all, to be made out. Moreover, decided glandular enlargement in advanced and especially in ulcerative forms of cancer, may be simply of microbic and septic origin, and disappear after the removal of the source of infection. Secondary growths in the liver contra-indicate extirpation, as this operation can only accelerate their evolution and hasten the fatal issue. The liver, however, is rarely the seat of metastases at such period of the disease when it is thought advisable to operate on the rectum. Even in the presence of hepatic growths Kraske would prefer removal of the rectal growth as a palliative measure to colostomy. Advanced age is not regarded by Kocher as a contraindication, and reference is made in this paper to four patients, varying in age from 73 to 77 years, who, though very cachectic at the operation, made good recoveries. The only absolute contraindication of a radical operation is, the author holds, immobility of the tumour. If the cancerous growth be adherent to the walls of the pelvis an attempt to remove it would be found very difficult, be attended with free and uncontrollable haemorrhage, and leave a large raw surface forming an open portal for inevitable infection. Though surgical intervention with a more or less involved bladder-wall in cases of rectal cancer would, the author holds, expose the patient to urinary infection and consequently be found an unsafe procedure, adhesion of the rectal tumour to the vagina is not considered as a contraindication to radical removal and to resection of the recto-vaginal wall. There is, however, we are told, a great tendency to recurrence in such cases. Although in the opinion of most surgeons adhesion of the prostate is not regarded as an obstacle to radical extirpation, this, the author points out, is a serious complication with regard to the operative prognosis, as it often necessitates opening of the urethral canal.

187. Prostatectomy.

Misset (*Travail de la Clinique Necker*, 1906), in a monograph on hypertrophy of the prostate and prostatectomy, written under the influence of Guyon's teaching at the Necker Hospital, discusses the relative claims of the different methods of removing the enlarged gland. Suprapubic prostatectomy he regards as a simple and easy but dangerous operation, which while failing in the advantages possessed by the simple perineal procedure or the combined perineal and suprapubic method of Cathelin, unites in itself all the risks to which the surgeon is exposed in operating in the prostatic region. This method, he holds, is always incomplete, as the plane of cleavage presented to the surgeon's finger in the bladder is opened between the tumour and the true prostate. It favours haemorrhage, which is always produced by inevitable laceration of the anterior perineal mediastinum, and sometimes is due to wounding of the periprostatic plexus. These haemorrhages cannot be controlled by compression after the operation except by renewed intervention. To these objections may be added the difficulties in the post-operative treatment, and in the defective drainage. The suprapubic operation ought, the author holds, to be reserved for cases of simple fibro-adenomatous hypertrophy in spare and vigorous subjects of a relatively early age, with urinary secretion of sufficing purity, and with still retained genital functions. In all other forms of prostatic hypertrophy, the only justifiable operations are, in the author's opinion, the simple perineal method or the combined perineal and suprapubic method, both of which are less frequently followed by serious haemorrhage, and permit of free drainage and facilitate packing and direct compression for the arrest of secondary bleeding. The combined prostatectomy devised and practised by Cathelin, of which a detailed description is given in this contribution, is held to be especially applicable to that form of prostatic disease in which there is a large middle lobe.

188. Congenital Luxation of the Arytenoid Cartilages.

P. Tetens Hald, after describing (*Med. Rec.*, June 2nd, 1906) a case in which a diagnosis of congenital luxation of the arytenoid cartilage was made, gives a brief summary of the characteristic picture of this lesion. The etiology is most often an inflammatory or ulcerative process in, or in the vicinity of, the crico-arytenoid articulation. It is rarely a trauma. Congenital luxations are less frequent still. Dyspnoea may increase to suffocation. The voice may be hoarse, but is generally well preserved. Pain during swallowing is noted only during the acute stage of the inflammatory process. The only pathognomonic symptom—the dislocation of the arytenoid cartilage with the contiguous aryepiglottic fold—is revealed by laryngoscopic examination. The vocal cord on the same side during respiration remains immovable in the middle line. The cartilage may be replaced, but only when it is easily moved or when the adhesions are easily destroyed may a satisfactory result be hoped for. In the presence of dyspnoea, dilatation of the rima glottidis ought to be attempted. Tracheotomy should be practised eventually.

OBSTETRICS.

189. Arthropathic Conditions of Pregnancy.

Rudaux (*La Clinique*, July, 1906) says that the articulations of the pelvis itself are sometimes so relaxed during pregnancy that they interfere with or even inhibit movement, or they may be the seat of acute pain upon movement, thus condemning the woman to rest absolutely. These two troubles of pregnancy may be associated, but are frequently independent. The articulations are sometimes stretched without being painful, at others they are exceedingly painful without any abnormal mobility. These joint changes ought to be better known, as they are relatively frequent. The onset is gradual, generally in the seventh or eighth month, the patient complaining of an increasing difficulty in walking and in standing upright, and being unable to rise from her chair without holding on to something or without assistance. Other cases complain of pain in the lower part of the abdomen, in the hips, or the loins; they seldom refer the pain to its real seat, a fact which will lead to many errors of diagnosis unless a thorough examination is made. When confronted by one or both of these symptoms, it is necessary to examine the three principal articulations of the pelvic basin. The relaxation of stretching is only appreciable clinically at the junction of the symphysis pubis, but abnormal stretching of the ligaments of this articulation alone is not sufficient to cause incompetence; if this is the case, then, there is also a want of solidity in the sacro-iliac joints. The patient walks slowly, swaying from side to side, and will often steady the pelvis by placing her hands in the external iliac fossae. When she is standing, the first finger may be introduced into the vagina and placed behind the pubis; if she then "marks time," the two sides can be felt alternately rubbing against each other. The amount

of separation is best estimated per vaginam with the patient on her back and the legs slightly flexed. When there is pain excited by walking or changing position, pressure with the finger over the mount of Venus shows that it is localized in the middle line, and is most acute at the upper border of the articulation. To examine the sacro-iliac joints two fingers should be introduced as far as possible in the direction of the great sciatic notch; the end of the articular junction is found at the upper border of the notch. This exploration is only possible if the presentation is not deeply engaged. The only remedy for the painful condition is absolute rest in bed, which gives prompt and effectual relief; in addition, a sedative liniment over the pubes and injections containing small doses of chloral are advisable. In the case of a patient with incompetence due to relaxation of the ligaments and with no pain, one is often obliged to advise rest in bed or on a couch, as the distension of the abdomen by the gravid uterus prevents the application of external support. It is essential to try to keep the bones of the pelvis in contact or to prevent a further separation by bandaging the pelvis with wide rubber or flannel bandages about 10 centimetres wide and 5 metres long. The bandages must pass over the iliac crests above and the great trochanters below, and should be so directed that they cross in front in the middle line. A circular elastic belt can be used; it should reach from the umbilicus to below the great trochanters, and will help to keep the gravid uterus in its place.

190. Interstitial Tubal Gestation: Previous Lithopaedion (?).

Maiss (*Monatsschr. f. Geb. u. Gyn.*, August, 1906) exhibited before the Gynaecological Society of Breslau an interstitial fetal sac, not of recent development, removed from the right side by excision of the uterine cornu. The patient was 40 years of age; ten years before the removal of the sac the patient underwent laparotomy, and it appeared that a lithopaedion was removed. Maiss, however, found the appendages normal on both sides, and there were no adhesions except between the omentum and the back of the sac. The interior of the sac was filled with inspissated blood. Villi were detected by aid of the microscope.

GYNAECOLOGY.

191. Enuresis Ureterica.

Under the term "enuresis ureterica," C. Posner describes some peculiar cases of congenital deformity, in which the ureter opens on the outer surface of the body instead of in the bladder (*Berl. klin. Woch.*, August 6th, 1906). The enuresis accompanying this deformity has the character of urine trickling away drop by drop. The diagnosis of the condition from its clinical appearance is very easy to any one who has learned of its existence. As a rule, the history of the case is that the parents notice that the child is constantly wet from the first weeks of life. This wetting does not improve as the child gets older, and the mothers usually notice that the child wets itself immediately after having passed urine. After all domestic means have been tried in vain a doctor is consulted, and massage, electricity, baths, and internal remedies are tried by him without result. He generally then comes to the conclusion that the case is an obstinate one of ordinary enuresis, but promises that the condition will cure itself after a time, and, at all events, in girls when menstruation sets in. The constant trickling away of urine renders the school and social life of the child impossible, and, added to the mental discomfort, severe intertrigo appears with its intolerable itching. If such a patient is then examined (Posner only deals with female patients), one will see that urine is issuing from the vulva or urethra, although the passage of a catheter proves that the bladder is empty. It is difficult in most cases to detect the opening of the ureter, but the injection of methylene blue into the bladder and placing a plug of cotton-wool into the vulvar opening convinces the surgeon that the fluid does not come from the bladder. If the opening of the ureter is near the orifice of the urethra, it may be very difficult to find it. The search may be made easier by giving some indigo-carmine beforehand. Having found out where the orifice of the ureter is, one has to decide whether one is dealing with a supernumerary ureter or whether one of the normal ureters end on the surface instead of in the bladder, or, perhaps, whether one of the ureters branch into two and end both in the bladder and on the surface. The first thing to settle is whether two ureters can be seen in the bladder, and the cystoscope can determine this point. Next, one must notice whether both the ureters opening in the bladder conduct urine into it. Ureter catheterization should therefore be carried out. A metal sound might be passed up both the bladder ureters and the one opening on the surface and a Roentgogram taken. This would help to clear up the anatomical diagnosis. The majority of the cases reported were cases of supernumerary ureters. As far as the treatment is concerned, the former method of dealing with ureter fistulae—that is, nephrectomy—can only be considered nowadays in very exceptional cases. Next, one may simply tie the ureter. This is not always safe, since the ureter may perforate at the ligature and a fistula may form. Implantation of the ureter into the bladder is a more scientific method. Technical difficulties are met with in carrying out a sort of anastomosis, according to Woelfler, and it is also not easy to perform an operation on the ureter in a child on account of the small size of the field of operation. However, the matter must be decided by the surgeon as each case arises.

192. Torsion and Laceration of Uterus by a Pedunculated Fibroid.

Reeb (*Monatsschr. f. Geb. u. Gyn.*, July, 1906) recently exhibited before a medical society a uterus which had undergone axial rotation to 360 degrees, caused by a big pedunculated subserous myoma. The bladder was not involved. The anterior wall of the uterus was completely torn through, so that the uterine and peritoneal cavities communicated. The posterior wall was greatly thinned, the fundus and left appendages were swollen and infiltrated with blood. The patient was a thin woman, 62 years of age; the torsion occurred a few days before the operation, as she was gathering firewood. The symptoms indicated torsion of a tumour, but the true condition was not diagnosed. The uterus was amputated above the cervix, and the elderly patient recovered.

THERAPEUTICS.

193. Vestosol.

E. Saalfeld (*Therap. Monat.*, June, 1906) discusses the treatment of hyperidrosis, and recommends the use of vestosol, an ointment with a neutral fatty basis containing 2 per cent. of formaldehyde. The treatment by salicylic acid and talc is unsatisfactory, because it does not affect the sweat secretion, but only diminishes the effect of the sweat on the skin; moreover, the bathing of the feet twice a day, and the daily supply of a pair of clean stockings is inconvenient, and may be impossible, as, for instance, in the case of soldiers on the march. The introduction of formalin and its preparations for the treatment of the condition was a distinct advance. It is found, however, that the strong solutions of formalin needed causes an unpleasant burning sensation when, as often happens, there are cracks of the epidermis, and the treatment cannot be begun until the cracks are healed, which is not always in these cases an easy matter. Other difficulties also arise—the smell of the formalin often causes headache, formalin as it evaporates tends to cause inflammation of the conjunctivae and of the mucous membrane of the nose and upper air passages, and the complete suppression of the sweat secretion due to the use of pure formalin or strong solutions cannot be without effect upon the skin. The author has used vestosol in 50 cases of hyperidrosis, usually of the feet, but in some cases also of the hands and axillae. It is applied without any preliminary bathing of the parts once a day for each of three or four consecutive days. The hyperidrosis and bromidrosis both disappear, and the sweat secretion is brought back to normal, but not entirely suppressed; the effect lasts for from four to six weeks. In one case relief had previously only been obtained by local applications of pure formalin, and the patient had suffered most unpleasantly from the side-effects of the treatment; the three days' use of vestosol removed the symptoms. The advantages of vestosol consist in its simplicity of application, in the absence of any injury to the epithelium of the sweat glands, to the absence of any unpleasant side-effects, and to its cheapness, only 5 to 10 gr. of the ointment being needed for each application.

194. Cereals and Legumes in the Gastro-enteritis of Sucklings.

Netter (*Prog. Méd.*, June 30th, 1906) points out the dangers run in returning too soon to a milk diet in the gastro-enteritis of infancy, and advises that as a temporary food during subsidence of the intestinal trouble one of the

following should be used: (1) Butter-milk; (2) broth of legumes (Méry); (3) vegetable decoction (Comby); (4) soup of malt. Jacobson's method of preparing butter-milk is as follows: Fresh milk is kept in a properly covered vessel for twenty-four hours at a temperature of from 18° to 20°, shaking it well once or twice; it is then churned for thirty to forty minutes to separate the butter. To the milk remaining add one teaspoonful of a farinaceous soup to every litre, boil slowly stirring the while and after five to six minutes add 80 grams of sugar and cease boiling. This mixture is rich in albumin, sugar and starch, but contains very little fat. It should be given in the same quantities as milk would be given were the child well, and the results obtained have been very good in the treatment of subacute or chronic gastro-enteritis of children, in the dyspepsia of weaning, and especially in that form of dyspepsia arising from an excess of fatty food. The use of this food should not be prolonged, but a gradual return to a milk diet should be made. Méry's bouillon is made as follows: 60 grams each of carrots and potatoes and 25 grams each of turnips and peas or kidney beans are boiled in 1 litre of water, 5 grams of salt being added; this must be prepared fresh every day. Rapid increase in weight follows the use of this preparation, which may be used for a fortnight or more. The change from this form of alimentation to a milk diet should be made gradually, and some form of humanized milk or butter-milk should be used before commencing with ordinary milk. Comby's vegetable decoction consists of a mixture of equal parts of soups of three cereals and three legumes. It differs from Méry's bouillon in containing more phosphates and sulphates and being richer in hydrocarbonaceous matters and vegetable albumins. The best results in cases of infantile dyspepsias are obtained by the use of hydrocarbonaceous bodies in which the starch has been rendered soluble by diastase, but in which the stage of the formation of sugar from the starch has not been reached. For this purpose one may employ broths diastased with crude malt. Terrien's preparation of "soup of malt" is made as follows: Make a broth of ½ litre of milk, ½ litre of water, 70 to 80 grams of rice cream; boil for a quarter of an hour, and then allow an infusion of malt to act on this mixture at a temperature of 80°. This may be given for several weeks in the same quantities as milk, and is of special value as a food after vegetable decoctions have been employed.

195. Salimenthol.

K. Reicher (*Therap. Monats.*, June, 1906) has made use of salimenthol, a combination in about equal parts of salicylic acid and menthol, in 15 cases, and has found it to have an antiseptic and pain-relieving action. Salimenthol is fluid, clear, yellow in colour, almost tasteless, and with a pleasant weak odour. It can be administered internally in the form of capsules, each containing 0.25 gram, and externally in the form of a 25 per cent. ointment called samol; the dose for internal administration is from three to six of the capsules, or a corresponding amount of the preparation can be given in drop form. The author's cases included several cases of acute and chronic arthritis, muscular rheumatism, and in these the preparation given, both externally and internally, diminished the pain considerably, and often altogether relieved it; swellings if present disappeared. The use of salimenthol never caused the appearance of a rash, and in one case of rheumatic purpura and another of urticaria the parts treated with salimenthol remained noticeably free from spots, even in repeated eruptions; the preparation had no injurious effect on the digestive tract. In two cases of toothache with carious teeth the application of cotton-wool soaked in 0.25 gram of the preparation gave prompt relief. Two cases of obstinate vomiting were quite uninfluenced by salimenthol; one case of meteorism of high grade and long duration, which had resisted other treatment, disappeared in a few days. The author strongly recommends salimenthol as a sedative and an antiseptic.

196. Hypodermic Injection of Vaccine.

G. Nobl (*Wien. klin. Woch.*, August 9th, 1906) has experimented extensively as to the effect of hypodermic injections of vaccine. In 74 children who had previously not been vaccinated, 0.1 to 0.2 c.cm. of calf lymph diluted with sterile normal saline solution in proportions varying between 1 in 166 and 1 in 16 was injected deeply beneath the skin of the arm, a sterile needle, 4 cm. in length, being inserted as far as the mount. Until the tenth day after the injection there were no local changes, and the skin and subcutaneous tissue remained normal. After this period, often on the twelfth or fourteenth day, a circumscribed or diffuse swelling of the size of a hazel nut or cherry appeared at the site of the injected lymph. If, as was the rule, the needle had been inserted at two places about 1 in. apart, the two swellings become confluent. Usually, the overlying skin became adherent and reddened. A few days later the hard swellings became more circumscribed, and the skin could be freely moved over them: but weeks elapsed before all traces of the infiltrated parts had disappeared. In no case did suppuration or necrosis occur, and the general symptoms were not more severe than in ordinary vaccination. In two cases post-vaccinal papular urticaria occurred. In a few cases typical vaccine pustules appeared over the site of the injection, evidently owing to infection of the puncture. With practice this is avoidable. The degree of dilution of the vaccine had no appreciable influence. In three cases, in which a subcutaneous reaction was absent, subsequent vaccination by scarification also failed. Possibly there was congenital immunity. As regards the power of subcutaneous injection of vaccine to produce immunity, subsequent vaccination by the usual scarification in cases injected with vaccine invariably succeeded up to the ninth day, and ran a perfectly normal course. But from the tenth day onwards it invariably failed. Cutaneous vaccination, if performed before the appearance of the subcutaneous nodules, shortened the incubation period of the latter, though the presence of the subcutaneous nodules had no effect on the course of cutaneous vaccination if performed before the tenth day. If ordinary vaccination and hypodermic injection of vaccine were performed simultaneously the superficial pustulation ran a perfectly normal course, but the subcutaneous changes failed to appear. Thus, cutaneous vaccination usually produces immunity on the seventh or eighth day, and subcutaneous injection of lymph never prevents cutaneous pustulation before the tenth day. Evidently, therefore, the absence of local changes in the subcutaneous tissue depends on the modifying influence of the cutaneous vaccination. The writer concludes that the smallest traces of lymph injected hypodermically produce immunity. The hypodermic method has the following advantages: (1) The dose is more easily regulated; (2) the local reaction is much milder; (3) if performed aseptically, secondary infection is impossible; (4) autoinoculation (for example, by scratching) is excluded; and (5) no cicatrices are produced. But before the hypodermic method is generally adopted it must be certain that immunity is invariably produced, and that the duration of immunity is at least equal to that which follows cutaneous vaccination.

PATHOLOGY.

197. The Dissemination of Tubercle after Tonsillar Injection.

Pierini (*Gazz. degli Osped.*, July 29th, 1906) has carried out a series of experiments on monkeys with a view to ascertaining the route which tubercular infection takes after injection into the tonsil, etc. In the first series an active emulsion of tubercle was injected into the substance of the tonsils and the subsequent course of the infection followed. At the autopsy fifty days later numerous tubercles in various stages of development were found in the tonsils, palatine arches, and adjoining mucosa, in the nearest lymphatics, also in the subclavicular, peribronchial and mediastinal lymphatics and corresponding lymphatic glands. Tubercles were also found in the lungs, liver, kidneys, and spleen. It was quite clear that the disease had spread chiefly through the lymphatic channels. Similar results followed after injection of tubercle into the palatine arches, gums, and dental alveoli. Two other series of experiments were made on the same lines; in the one case injections were made into the testicle and in the other into the joints. In these cases, too, it was found that the main lines of dissemination were along the lymphatics. In the case of the testicle the author did not find the disease spread along the spermatic ducts and vesiculæ with the constancy that other observers have noticed; in his experiments this mode of dissemination was only observed once in seven cases. As a practical corollary the author favours castration in tuberculous testes, as against expectant treatment; and for a similar reason, namely, fear of spreading, he is in favour of radical treatment of tuberculous joint lesions as far as this is practicable.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

198. **Vascular Tension in Chronic Illness.**

Hare (*Amer. Journ. of Med. Sci.*, August, 1906) emphasizes the importance of studying the vascular state and the blood pressure in respect to the diagnosis, prognosis, and treatment in several diseases. He believes that one of the grave mistakes in modern treatment is the idea that a tired heart should be stimulated to greater effort instead of being given rest by diminishing its burden. In the grave infectious diseases characterized by toxaemia, the heart fails, if it fails at all, as a result of poisoning of its muscle or disorder of its nerve supply arising from the same cause, and against this poison stimulants are not true antagonists. The vascular system shows in these cases that it is much more responsible for the circulatory depression than is the heart, and an examination of the vessels reveals that they are widely dilated while the heart is working more actively than in health in an endeavour to fill the relaxed arterioles. The patient's death is doubtless imminent because of circulatory failure, but the heart in most cases fails only when it is tired out in the vain attempt alluded to. Like a locomotive on a slippery track it fails to push its load not because it is weak, but because it finds no resistance. A very low tension means an increased but worthless expenditure of energy and a decreased nutritive supply to the overworked muscle fibres. For overcoming this vascular relaxation the author uses three drugs, atropine, adrenalin, and digitalis, placed in order of usefulness; for atropine, by contracting the great vascular areas of the abdomen, raises arterial pressure everywhere, and, according to Hedborn, dilates the coronary arteries, and so increases the cardiac blood supply, without directly stimulating the heart muscle to increased endeavour. Two states of deleterious high tension are also overlooked, namely, the high tension of acute illness and the high tension of prolonged nervous and mental stress. The former rarely approaches the high tension characteristic of arterio-capillary fibrosis, and so is not so readily recognized. Whether the high tension occurs early in the illness or at a later stage, vascular relaxants which are not cardiac depressants will save the heart from much unnecessary effort. Of high arterial tension in subjects of arterial spasm or fibrosis subjected to mental strain we find three classes: (1) Those in which persistently high tension is a result of spasm due to prolonged nervous stress combined with certain abuses as to food and drink; (2) those in which tension is high because in addition to spasm there is gradually developing fibroid changes in the vessels; (3) cases in which after a prolonged period of high tension there more or less suddenly develops persistent low tension. In the first and second classes rest in bed, with massage and the nitrites, is essential. In the third class the rest in bed is needed also, but vascular stimulants are required. In all these cases iodides are valuable. If the high tension is due chiefly to spasm, nitroglycerine will do good for obvious reasons, but it will fail if the condition is due to fibrosis. The author sums up his points as follows: (1) Cardio-vascular stimulants are often given when vascular relaxants are really needed; (2) more attention to the protection of the heart from unnecessary labour is advisable: (3) if the physician will direct his treatment to the vessels the heart will often be able to care for itself; (4) Do not stimulate a heart to increased effort when the real object is to decrease its burden and to diminish the toxaemia which is destroying its function.

199. **Regeneration of the Blood after Haemorrhage.**

Haldane and Lorrain Smith brought forward in 1900 a method by which the volume of blood in the body and its capacity for oxygen could be ascertained during life. The procedure depends on the fact that if after a known small volume of carbon monoxide has been breathed the percentage of carboxyhaemoglobin be determined in a drawn sample of blood, a calculation can then be made as to the amount of blood amongst which the inhaled carbon monoxide has been distributed, and the amount of blood and of haemoglobin in the whole body thus estimated. C. Gordon Douglas has lately shown that this method can be readily applied to animals during life (*Journ. of Physiol.*, vol. 33, p. 493, 1906), and in a second paper (vol. 34, p. 210, May, 1906) describes the results obtained in an investigation upon the regeneration of blood after severe loss. An amount of blood corresponding to a diminution of the total quantity of haemoglobin in the body by 25 to 30 per cent. was withdrawn from the jugular vein of two rabbits under ether. Repeated estimates were made at intervals, and showed that recuperation took place rapidly and that the total quantity of haemoglobin in the body had reached its original figure in about a fortnight in each case. The actual volume of the blood was increased immediately after the operation from the usual transudation of lymph into the blood vessels.

200. **Delirium in Pneumonia.**

Bracchi (*Gaz. deg. Osped.*, July 29th, 1906) has attended 140 cases of pneumonia in the last few years; by excluding all those which were complicated with disease of other organs or secondary to previous disease, he reduces the cases to 15 where the pneumonia was pure and uncomplicated. After a review of various theories as to the pathogenesis of delirium in pneumonia, the author records his 15 cases and discusses certain considerations arising therefrom. The height of the temperature does not seem to bear any direct relation to the delirium—indeed, when delirium set in the fever was usually a little less. Disturbances in the cerebral circulation do not seem a sufficient cause of the delirium; one gets considerable disturbance in cerebral tumours without any delirium. The supposed greater frequency of delirium, when the apical lobes are attacked, has been attributed to pressure on the subclavian veins and secondary passive congestion of the brain; but this would only apply to the left apex, and the delirium of pneumonia is not like that of a passive cerebral congestion. The author agrees with Gowers in thinking it more probable that the cerebral disturbance depends on some toxaemia, and that any congestion which may be present is secondary. Of the 15 cases, 5 were attacked in the upper lobes, and 50 per cent. of the cases were alcoholic. It is often difficult to distinguish between a delirium due to meningitis and one due to pneumonia; some help may be gained by observing the pulse and temperature; in meningitis, when the delirium arises the pulse falls in frequency whilst the temperature remains the same or is higher; in pneumonia the reverse of this occurs. König's sign is a valuable indication, and if present usually means meningitis. Simon's sign—dissociation of the movements of the diaphragm from those of the thorax—is a warning (in children) of the likely onset of meningitis. Myosis of the pupils, especially if asymmetrical, should also arouse suspicion of meningitis.

201. **Absorption from the Diseased Intestine.**

Roehl (*Zeitschr. f. physik. u. diät. Therap.*, 1906), as a result of his own experiments and of the consideration of the literature of the subject, concludes that in acute enteritis, chronic intestinal catarrh and dysentery, the absorption of the nitrogenous foods is strikingly near to the normal, and that a loss of more than 25 per cent. does not occur even in severe cases. The prostration and loss of weight which occur in these diseases is not due to an inability to utilize the food taken into the alimentary canal, but must be ascribed to the enormous loss of water, the vomiting, and the effect of bacterial poisons.

SURGERY.

202. **Transvesical Prostatectomy.**

Rochet (*Rev. de Chir.*, No. 6, 1906), in a communication to the Société de Chirurgie of Lyons, considers the indications of suprapubic cystotomy, which he regards as being at the present time the most approved method of attacking the enlarged prostate. This surgeon has removed fifty-eight enlarged prostates by the perineum and six only by the bladder. The objections to the low operation are, he believes (1) the difficulty in setting free a very large prostate, and the impossibility of removing the whole of the middle lobe, whence the retention of small submucous fibromata, which may lead to recurrence of the malady, or undergo degeneration; (2) the danger of injuring the rectum, especially when there has been any periprostatitis, an accident which may give rise to ascending infection,

and, moreover, be followed by a serious and very obstinate infirmity. The high operation, on the other hand, has the following advantages: (1) It is a much easier operation, and the plane of cleavage having been found after median incision of the bladder, enucleation may be rapidly effected; the bladder being supported and kept under control by an assistant's finger ought not to be wounded, and the enlarged prostate traversed by a urethral sound falls in a single mass into the bladder, just as a ring slips off the finger; (2) the membranous urethra remains intact, and is not wounded at its posterior part as in low prostatectomy, and also the inferior portion of the prostatic urethra may be respected and the veru montanum retained. High prostatectomy, therefore, may be regarded as the easier and more brilliant method, and interferes to a less extent in the function of the sphincteric region, and consequently its benefits, if not more perfect, are at least more marked and more rapidly produced than those of the perineal operation. It is pointed out, however, that these advantages are discounted to a considerable extent by the much greater gravity of the transvesical operation in regard to the danger of secondary infection. The actual mortality, according to the author, is 4 per cent. after the perineal operation, against 9 or 10 per cent. after the transvesical operation. After the latter operation there is left in the basal region of the bladder an uneven and badly-drained cavity, which can hardly fail to become a source of infection. The author in his summary states that, in his opinion, the high operation is indicated in cases of very large prostate projecting into the bladder, and the perineal operation in cases in which most of the degenerated gland ensheaths the urethra. Old and infected subjects, in whom speedy and free drainage of the bladder is needed, should be subjected to perineal prostatectomy. In the *Bulletins et Mémoires de la Société de Chirurgie*, No. 25, there is a record of a case of transvesical prostatectomy in which Duval successfully prevented infection by suturing the cut margins of the urethral and vesical mucous membranes. Legueu, in criticizing this method, whilst recognizing its theoretical value and the importance of avoiding sepsis in cases of prostatectomy, points out the extreme difficulty, and in many instances the impossibility, of such a procedure, the necessity of very free incision of the bladder, and the frequent existence of infection at the time of the operation.

203. Appendicular Femoral Hernia.

WOOD (*Ann. of Surg.*, May, 1906) has been able to collect 100 cases, including 2 observed by himself, in which the appendix alone occupied the sac of a femoral hernia. A study of these cases—abstracts of which are appended to the paper will, it is stated, show that: (1) Appendicular hernia is more frequent than has been supposed; (2) when occurring in conjunction with the caecum no special considerations may be involved, but when occupying the sac alone new problems of treatment are introduced; (3) the appendix is more apt to be found in femoral than inguinal hernias; it has occasionally been observed on the left side; (4) a herniated appendix is apt to become adherent and inflamed, and, as is proved by clinical experience, this danger appears to be greater when it occupies the sac alone than when it is accompanied by other portions of the intestine; (5) the diagnosis of appendicular hernia has not been made as a rule before operation; (6) in all cases in which the appendix is exposed in an operation it is desirable to remove the process, unless this course is contraindicated by the general condition of the patient. In cases in which the appendix is normal or but slightly congested from gentle constriction removal of the process is to be preferred if the attending conditions are favourable—that is, if it in its entirety and its attachment to the caecum can be exposed in the wound. In exhausted patients and in old subjects, in whom the danger of appendicitis is much less than it is before middle life, the appendix, if in a normal condition, should be returned. In cases in which the appendix is firmly adherent to the sac or is the seat of distinct inflammation the organ must be removed, as the danger of returning it would be greater than the risk attending its removal. When the appendix has perforated and faecal matter has escaped into the sac, or when an abscess has formed, the greatest nicety of judgement and precision of operative technique will be required to deal effectively with the mischief without infecting the peritoneum. When the distal part only is involved, it may be possible to ligate the appendix at its base and to remove the affected part. In very bad cases the sac should be laid widely open and sponged out carefully, the appendix being afterwards drawn down and kept in this position by sutures. If the peritoneum has already become infected the external wound should be left open and be allowed to close by granulation.

204. Surgical Treatment of Epilepsy.

DEJARDIN (*Arch. Prov. de Chir.*, No. 6. 1906) discusses the results that have hitherto been obtained in the surgical treatment of non-traumatic forms of this affection, and also the prospects of operative measures that have been recently devised. Simple trephining, first proposed by Lucas-Championnière, is not a serious operation if performed under the usual aseptic conditions, but has, the author states, given but very slight and transient relief. Any operation directed exclusively to the epileptic condition, like operations performed on epileptics for other affections—cancer and joint disease, for example—is usually followed by a temporary cessation of the attacks. In 1903 Lambotte, impressed by the clinical fact that in trephining operations on epileptics the cranial contents are always found subjected to a high degree of tension, which, after decided relief on exposure, is removed in course of time, came to the conclusion that epilepsy is purely a mechanical malady due to the accumulation of serous fluid in the arachnoid cavity, which he regards as the result of a chronic serous arachnitis. This secretion forms a large and closed cyst between the dura mater and the pia mater, the fluid contents of which as it accumulates excludes the cerebro-spinal fluid from the cranial cavity and exerts a firm and constant pressure on the surface of the brain. With the view of affording to this collected fluid, which when removed is always renewed, persistent means of escape Lambotte conceived the idea of establishing a chronic fistulous communication between the arachnoid cavity and the subcutaneous tissues. He proposed, after exposure of the arachnoid cavity by trephining and incision, to leave in the wound a sterilized seton of non-absorbable material, one end being retained within the cavity, the other being left free in the adjacent subcutaneous tissues. This method he applied with decided success to an epileptic patient who had previously received but slight and very transient benefit from a succession of simple punctures. It is regarded by the author of this paper as a promising operation and one analogous in its mechanism to recently-devised procedures that have been found successful in the treatment of cirrhotic ascites, serous pleurisy, and serous cysts of tendon sheaths. Attention is next directed to the views and practice of Delagénière, who believes that epilepsy is due to congestion of the veins of the encephalon and its meninges, and has tried double ligature of the longitudinal sinus after trephining in the middle line in the posterior half of the interval between the bregma and the inion. This operation has been performed twice in one case in which the ligature was applied after accidental wounding of the sinus with decided success, in the other with poor results. In criticizing Delagénière's views, Dejardin asserts that compression of the cranial contents, though certainly a constant condition in epilepsy, is not the result of venous congestion, and that ligature of the longitudinal sinus, whilst perfectly realizing the principal conditions of Lambotte's operation, cannot be regarded as more than a dangerous substitute for the latter procedure.

OBSTETRICS.

205. Extrauterine Pregnancy.

TH. LANDAU reports a case of advanced extrauterine pregnancy, with a living fetus, which he was able to treat with satisfactory results for both mother and child. The continued life of the fetus after rupture of the sac is certainly not common, but a number of such cases have already been reported. Each case, however, is instructive, since the diagnostic difficulties are well exemplified and the general practitioner will learn much from the study (*Berl. klin. Woch.*, August 6th, 1906). The history of the case is as follows: The patient was 39 years of age, had menstruated from her 15th year always regularly. She had been pregnant four times and had had easy and normal births at full time on each occasion. Six years previously her left ovary had been removed by a surgeon on account of a tumour, but unfortunately a pad had been left in the abdomen. An abscess had been formed in the wound, and in spite of treatment, this did not heal but led to a faecal fistula. The abdomen had to be reopened eighteen weeks after the first operation, the pad was found and removed and after much trouble, the wound healed finally after five months. She felt fairly well after this,

save for occasional dragging pains in the pelvic region and feeling of tension. On September 17th, the period set in and was accompanied by a brown discharge which lasted for three weeks. There were pains during this time, and as no physical signs could be made out the diagnosis arrived at was straining of muscles. As she did not get relief, she consulted other medical men, and in October she was attacked by a sudden violent pain, during which she fell down unconscious. She was picked up and taken home, and as no flatus or motion was passed, the diagnosis of intestinal obstruction due to volvulus was arrived at. An operation was prevented by a motion following a high injection of oil. There was no fever. In November a uterine bleeding occurred, which the patient regarded as a period. Toward the end of this month she was again seized with pain, vomiting, etc., and as a tumour was felt in the left side of the pelvis, and the general condition of the patient was bad, and the anaemia was progressive, the diagnosis now arrived at was intestinal cancer. No period took place in December, and vomiting in spite of careful dieting continued. An obstetrician now made the alternative diagnosis of either pregnancy or myoma of the uterus. After this the condition improved until the patient could spend some hours daily out of bed. In January she felt the fetal movements, and from this time onward the pregnancy proceeded with a large number of painful and discomforting symptoms for the mother. She vomited a great deal, had much pain, took but little food and so on, so that her condition was extremely bad. A discharge from the vulva had been noticed since October, but a decidua had not been passed. The patient came into Landau's clinic on April 18th. The abdomen was extremely difficult to examine, on account of the irregular scar and the adhesions of the intestines. In the left hypochondrium a tumour was felt which could could not be distinguished from the uterus. The back of the fetus was felt in the left side, and the extremities on the right side. An interruption of the pregnancy was determined on, and after careful disinfection a dilator was introduced into the os. Pains set in for two hours and then left off. A finger passed into the uterus determined that this organ was empty, and one then felt that the tumour containing the fetus was situated above and to the right of the body of the uterus. As the fetal heart-sound could be heard, the correct diagnosis of extra-uterine pregnancy with living fetus could now be made for the first time. The operation, which was performed without loss of time, confirmed the diagnosis. The incision was made at the side of the old scar, and the first part of the operation was taken up with the breaking down of adhesions. At last the tumour was freed from these bands—at all events, on the anterior surface. It was then found advisable to enlarge the field by making a second incision at right angles to the first one, parallel to the symphysis pubis. The tumour was then mobilized as far as possible, and an attempt to bring it out of the wound led to the bursting of it. The amniotic fluid and the fetus having escaped, two clamps were attached to the umbilical cord, between which this was divided. The child was then handed to an assistant, and soon gave evidence of life by crying lustily. The sac was then brought forward into the wound, and an assistant was told off to compress the aorta. Adhesions of some magnitude were found at the left upper part; these were ligatured and divided. It was then found that the uterus was lying to the left, and that the pedicle of the sac was formed by the broad ligament on the right side. The tube and ovary could not be distinguished. The ureter was then separated from the sac, and the base of the ligament was ligatured. The sac was then removed, and after the toilette of the peritoneum had been carried out a pack of xeroform gauze was adjusted, and a strip was led along the anterior surface of the uterus. Lastly, before the wound was closed, many adhesions matting the intestines together were divided. The patient and the child did well, and both are now in excellent health. Landau discusses the diagnosis of the condition. The multiplicity of the diagnoses made were no doubt due to the difficulty in palpating the abdomen, but he points out that the attack of pain, with unconsciousness and no fever, had all the signs of an acute apyretic peritonitis, and this should have suggested the occurrence of extra-uterine gestation. It would certainly have been safer for the patient had the abdomen been opened at this period, for the danger of continued pregnancy under these conditions is very great. The mother would not have had her baby, but would have been spared months of great suffering. He points out, in conclusion, that the transverse incision, including, if necessary, the muscular coats, offers a great assistance in such operations, and that the compression of the aorta during the extirpation of the sac is also a very valuable procedure.

GYNAECOLOGY.

206. Uterine Cancer and the Lymphatic Glands.

Cigneri (*Monatschr. f. Geb. u. Gyn.*, August, 1906) has published an important treatise on this subject, and concludes that (1) metastases in the neighbouring glands do not, as a rule, develop until the parametrium has become infiltrated. (2) The original site of the primary disease is of importance in respect to glandular metastases, as they occur earlier in cancer of the cervical canal than in cancer of the body of the uterus, or of the portio vaginalis. (3) The hypogastric glands tend to become infected before the iliac and lumbar, whilst, it is important for operators to remember, the inguinal glands are usually the latest to become the seat of metastases. (4) The size of the glands bears no direct relation to the degree of their infection; big, hard glands have been found free from cancer, whilst small and apparently normal glands may prove to be distinctly infected. (5) Just as the naked eye cannot distinguish hypertrophy and degeneration from cancer of the gland, so true cancerous changes do not give rise to the same appearances. Cigheri is not in favour of what he terms a dangerous and useless dissection of all the pelvic glands when we know how often they prove to be sound, and how Winter and Mangiagalli have demonstrated from statistics that recurrence is in most cases local, and not in the glands.

207. Absorption of Fibroid Tumour in Broad Ligament during Pregnancy.

McArthur (*Intercolonial Med. Journ. of Austral.*, July 20th, 1906) believes that in a case under his close observation a true fibromyoma of the uterus was absorbed during pregnancy. A woman, aged 30, pregnant four months, consulted him on account of a violent attack of pain in the left iliac region a fortnight previously; it was followed by rigors and constipation. She had been married nine years and had borne three children; the youngest was 3 years of age, and the patient had never felt quite well since its birth. McArthur detected a large elastic mass occupying the left broad ligament and Douglas's pouch. He diagnosed abscess in the broad ligament. An incision was made into the mass through the vagina, but no pus came away, and its substance felt like the tissue of a common fibroid. Three weeks later McArthur made an exploratory incision. He discovered a tumour of the size of the head of a seven-months fetus lying between the layers of the left broad ligament and intimately incorporated with the cervix and lower segment of the uterus. The operator decided to allow the pregnancy to go on to term, and then to perform Caesarean section; the tumour was next removed. The patient was kept in hospital. Three weeks before term the pelvis was explored. The cervix was in normal position, the os patulous, the fetal head presented. No trace of the tumour could be found. Close on term haemorrhage set in; the cervix was dilated by means of the bag, and a live child weighing 7 lb. delivered. The tumour had completely disappeared.

THERAPEUTICS.

208. The Influence of Roentgen Rays on the Blood and Blood-forming Organs.

Barjon (*Lyon Méd.*, August 5th, 1906) has collected about 200 published cases of the treatment of leucocythaemia by the *x* rays. The rays have been variously directed upon the spleen, the lymphatic glands, and the ends of long bones. After each irradiation it has been found that there is a transitory increase in the number of white corpuscles in the blood, followed by a steadily-progressive decrease. There has also been found to be a qualitative change, the number of polynuclear leucocytes increasing in proportion and the myelocytes gradually disappearing. The red blood corpuscles and haemoglobin seem to be little if at all influenced by even a prolonged series of irradiations. The spleen especially and the enlarged glands also have often been found to shrink rapidly as a result of the influence of the rays. In a case published by Barjon himself, the temperature, which had before been constantly raised, remained normal on the rays immediately following the irradiations. Rénon V. Tixier applied the *x*-ray treatment to two cases of progressive pernicious anaemia. In one case they found an increase of nucleated red corpuscles and of myelocytes after each sitting; in the other a marked increase in the number of red corpuscles resulted, as well as an increase of body

weight and an improvement of the general condition. In all the cases recorded the improvement has been noticed where the disease was slow and chronic in course, never in acute or subacute forms. The treatment was only tried for the first time about three years ago, so that it remains to be seen whether the improvement is lasting or not. Already remissions have been recorded after apparent cures. In many cases the improvement has been limited to one symptom. Often the spleen has diminished rapidly in size, while the blood count has been little affected. The most favourable cases are those in which the number of the red corpuscles and the amount of haemoglobin are near the normal, and in which there is no pyrexia. The treatment is not without drawbacks. In several cases pleurisy with effusion has resulted. But it is claimed that, carefully applied, the Roentgen rays are the most hopeful therapeutic agent in the treatment of chronic blood disorders.

209. Regulin in Chronic Constipation.

W. VOIT (*Münch. med. Woch.*, July 24th, 1906) quotes Schmid, who stated that in chronic habitual constipation the food is used up more completely than in normal conditions, so that too little faecal material is formed and this little is too hard, and further that in this small quantity of intestinal residue too few bacteria are developed and in consequence the large intestine is not stimulated sufficiently. In order to overcome the two defects, that is the small quantity and dry quality of the faeces, Schmid suggested giving agar-agar, and if a small quantity of cascara be added to this, one has a mixture which renders the faeces more voluminous, richer in water, while at the same time a mechanical stimulus is given to the intestinal wall. This mixture has received the name of "regulin." The cascara used is freed from its bitter constituent and is a 20 per cent. watery extract. Voit has tested the action of this new preparation, and has found it a good one. The majority of his patients received one tablespoonful each day, and when no result followed in a few days the dose was increased to two. The clinical histories of patients who were given this preparation show that the action is slow and at times requires some assistance to begin with. This can be achieved by giving either a suppository or an infusion of senna until the action is complete. As a rule the regulin appears in the stool on the third or fourth day. If one shakes up the motion with cold water one finds small pieces of agar in a very swollen up condition. After the desired effect has been attained by the regulin Voit found that a continued action was maintained if one reduced the dose gradually to a small teaspoonful. He states that no bad effects were noticed or complained of by the patients, and in the majority of cases the regulin worked well. Regulin is not a purgative which can be given in single doses to obtain a single evacuation like castor-oil and the like, but in the continued treatment of chronic constipation it leads to satisfactory results.

210. The Action of Ergot.

AN account of an investigation upon the physiological effects of ergot by H. H. Dale appears in the *Journ. of Phys.*, vol. xxxiv, May, 1906. The terms hitherto applied to the active principles of ergot, such as chrysotoxin—formerly used by the author—cornutine, sphacelotoxin, and ergotinine, are all rejected on the ground that they do not correspond to definite chemical substances. The work of Kobert, and of Jakobj, which has been widely accepted, taught that the effects of ergot were due to two different principles, and this Dale confirms, though further purification has led to considerable modification of the original views as to their action. He wisely refrains from introduction of new names in default of the chemical isolation of the principles. The preparations used were free from the depressing impurities of the galenical preparations, such as ergotinic acid and choline, and were administered intravenously to cats, and in a few cases to other animals, an anaesthetic being used in every instance. The two groups of actions observed may be summarized as follows: (1) A stimulant constrictor effect upon certain organs composed of plain or unstriated muscle fibres, among which are the arteries, the uterus, and the sphincter of the iris. The constriction of the pupil is not affected by large doses of atropine, and therefore acts peripherally to the nerve endings—that is, upon the muscle fibres themselves. But it is doubtful whether a similar direct action takes place upon the arterial muscle, for the rise of blood pressure produced by ergot is abolished by nicotine, and this suggests that the cells of the sympathetic ganglia may be concerned. It is also uncertain whether the increase of tone and exaggeration of rhythm caused in the uterus is due to a direct muscular effect. (2) A paralysis of motor sympathetic nerve endings which are stimulated by adrenalin, such as those in the heart, the dilator of the iris, and the pilomotor muscles. Inhibitory sympathetic nerve endings, such as supply the stomach and the intestines, are left unaffected by this substance. An interesting point observed was that stimulation of the sympathetic causes inhibition of the non-pregnant uterus, but in the pregnant animal the effect becomes motor; the inhibition can then be brought out by paralysing the motor sympathetic endings by the action of substance (2) contained in ergot. The experiments were carried out in the Wellcome Research Laboratories, and a further paper is promised upon the therapeutical application of the results.

PATHOLOGY.

211. Growth of Carcinoma Cells in Muscle Fibres.

G. HOWARD WHITE (*Bull. of the Ayr Clinical Laboratory of the Pennsylvania Hospital*, June, 1906) has carefully studied the frequency and method by which in cases of carcinoma of the breast with metastatic deposits in the voluntary muscles the cells entered the muscle fibres and gradually replaced them. In carrying out this investigation the author examined all the metastatic deposits in the voluntary muscles which could be obtained. Sections through an area of advanced tumour growth show nests of cancer cells with much fibrous tissue between, and no trace of the original muscle fibres. In a less advanced stage the arrangement of the muscle fibres is found to be remarkably persistent. In sections cut transversely to the muscle fibres under the low power one finds rounded masses of cells corresponding to the muscle bundles, and in longitudinal sections elongated cellular masses are seen stretching across the field. Under a high power one sees in a cross section small masses of cancer cells lying among the muscle fibres, especially at the margins of the metastases; some of these are round and surrounded by a delicate membrane, which can often be shown to be the sarcolemma of a muscle fibre; within this may occasionally be seen remains of the sarcolemma. In serial sections starting from the part where the growth is most developed and following the sections towards the advancing edge of the metastasis it is found that the masses of cells grow smaller and more discrete. Following up a muscle bundle the epithelial cells will be found to show first a thin border of sarcoplasma at one side of or around them, then the area of epithelial cells gradually decreases with a corresponding increase in the amount of sarcoplasma. Still further one finds only one or two epithelial cells lying either centrally or peripherally in the sarcolemma, and, lastly, the epithelial cells disappear entirely, a perfect muscle bundle remaining. As a result of his investigations the author concludes that the cancer cells reach the muscle by means of the lymph vessels supplying the muscle. Multiplying in the lymph vessels the cancer cells involve the fasciculi of the neighbouring muscle bundles, destroying these as they grow. The sarcoplasm seems to offer only a slight resistance to the cancer and allows it to advance rapidly in a longitudinal direction, whilst the more resistant sarcolemma prevents the lateral spreading of the cancer. The author concludes by stating that in the course of his investigations he found no evidence to support the view that cancer cells are carried directly to the sarcoplasma through openings normally present in the sarcolemma.

212. Experimental Leprosy.

NICOLLE, Director of the Pasteur Institute at Tunis, has met with some success in his efforts to transmit leprosy from human beings to monkeys (*Ann de l'Inst. Pasteur*, May, 1906). He finds that some of these animals, particularly *Macacus sinicus*, exhibit a definite susceptibility. Whilst admitting that the lesions produced are transitory and are not comparable to the evolution of human leprosy, he insists that they are real lesions, and he has been able to demonstrate in histological sections the presence of young leprosy bacilli within the interior of the large mononuclear leucocytes. Experimental leprosy has a remarkably long period of incubation. It was about 60 days in two cases, 94 days in another, and 22 days in a fourth. The subcutaneous method of inoculation is the only one which the author has found productive of successful results. He has made the interesting observation that better results are obtained after successive inoculations. The susceptibility of the animals appears to increase as the inoculations are repeated, whilst the period of incubation diminishes and the lesions persist for a longer period.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

213. Insanity and Tuberculosis.

Marie (*Revue de Médecine*, July 10th, 1906) discusses the intimate relationship between mental disorders and tuberculosis, the chief causes leading to the excessive mortality of asylum patients from tuberculous disease, and the means which may be adopted to prevent spreading of contagion, and to lower the incidence of the disease in asylum patients. Numerous observations have shown the close association existing between mental disease and tuberculosis; thus, of the children of one family some become insane, others die from convulsions or meningitis, others become phthisical. The great causes of the dissemination of tuberculosis in asylums are the unclean habits of the patients, and the neglect to properly dispose of the sputum and other excretions of those suffering from tuberculosis. Infected sputum may be expectorated on to the floor, bedding, linen, etc., and when dried affords facility for the wide dissemination of tubercle bacilli. Owing to the fact that the insane usually swallow their expectoration, in those affected with pulmonary phthisis a great liability to the development of tuberculous disease of the intestines exists; the dejections of these patients being frequently deposited wherever the patient thinks fit, another source for the dissemination of tubercle bacilli is provided. As a result of inquiries made by scientific societies in England and America it appears that the following are the chief causes for the special frequency of phthisis in asylums: (1) Overcrowding, with resulting insufficient air for the patients, especially at night; (2) insufficient time of patients in open air; (3) defective ventilation and firing; (4) improper habits of the patients, and insufficient disinfection of the linen; (5) vices of alimentary régime. In Germany, whilst the death-rate of the whole population from tuberculosis is 0.39 per cent., in an asylum for idiots Dr. Wulff found it to be 1.3 per cent. In the asylum of Hofheim Dr. Oswald found it to be 25.12 per cent. From Dr. Clouston's statistics the death-rate from tuberculosis of lunatics in Scotland is 27 per cent., whilst according to Harrington 60 per cent. of the asylum patients in America die of tubercle. With a view of reducing this great mortality of insane patients from tuberculous disease the following remedies have been advised: (1) Early diagnosis; (2) isolation of all infected patients; (3) construction of smaller asylums; (4) prevention of overcrowding, and an increase of the air space for each patient; (5) diminution of the number of beds in each dormitory; (6) a more complete system of ventilation; (7) suitable measures to prevent the spreading of the disease by the sputum; (8) inspection of alimentary régime: (9) construction of special hospitals and sanatoriums.

214. Relapsing Aphthous Stomatitis.

F. Schilling (*Zentralbl. f. inn. Med.*, May 19th, 1906) describes a form of relapsing aphthous stomatitis which occurs in adults with defective teeth. Aphthous stomatitis in infants consists in circumscribed patches of fibrinous exudation in the mucous membrane of the tongue, cheeks, and gums, and is usually accompanied by malaise, pyrexia, and enlargement of the submaxillary lymphatic glands. It occasionally occurs in small epidemics, and is communicable by the common use of spoons or teats of feeding bottles. Various diplococci, streptococci, and ovoid bacteria have been described as the cause. In adults aphthous stomatitis may accompany diseases of the stomach, the acute exanthemata, and phthisis. But a relapsing form has not been described. This occurs at irregular intervals, usually every four or five weeks, and produces great pain and difficulty in swallowing, masticating, and talking. Patches are frequently situated beneath the tip of the tongue, in which position they are exceedingly irksome. The writer was at first at a loss to explain the origin of this complaint, but eventually found that it was due to oral sepsis from periodontitis and neglected stumps. A lesion of the mucosa, which is usually due to an ill-fitting plate or the sharp edge of a carious tooth, is the exciting cause of a relapse. Possibly this explains also the frequency of aphthous stomatitis in infants during dentition. These aphthae are often ascribed to a disordered stomach, but they are curable by the dentist, and not by the gastric specialist. In addition to frequent brushing of the teeth, and the use of a disinfectant mouth wash (3 per cent. solution of peroxide of hydrogen), the plate should be nightly placed in a 4 per cent. formaldehyde solution.

215. Action of Influenza on the Course of other Infections.

Livierato (*Gaz. degli Osped.*, August 5th, 1906) has carried out a series of experiments on animals which show that influenza exerts a deleterious effect on the course of other infections. The author found that when the influenza toxin was injected into animals in conjunction with some microbe only slightly pathogenic for that animal—for example, Friedländer's bacillus in the rabbit—the virulence of the bacillus was increased. Again, by adding the influenza toxin to cultures of a bacillus to which the animal was, as a rule, little receptive—for example, Eberth's bacillus for the rabbit—successful inoculation took place. If an animal had been already inoculated with cultures producing an infection of long and slow course, the addition of the influenza toxin quickened the rate of progress. The general caution to be derived from these results is to be more careful in isolating and separating influenza patients.

216. The Glycosuria Caused by Saline Solution.

Underhill and Closson (*Amer. Journ. of Physiol.*, vol. xv, p. 321, 1906), as a result of experiments upon this question, conclude that the polyuria and glycosuria which follow the injection of sodium chloride into the venous circulation of the rabbit are, like phloridzin glycosuria, due to an increased permeability of the kidney, the amount of sugar in the blood being diminished. This permeability may be counteracted by the injection of calcium chloride together with the salt; the excretion of sugar is then diminished or arrested, the sugar content of the blood rises up to or above its normal figure, and the quantity of urine is lessened. If sodium chloride be injected into the cerebral arterial circulation, glycosuria is produced with a rise in the sugar in the blood and without polyuria. This phenomenon is referred to a poisoning effect on the brain, causing disturbance of respiratory processes, dyspnoea, etc., such as follow the injection of magnesium sulphate under the skin and the administration of anaesthetics and various drugs.

SURGERY.

217. Surgical Treatment of Oesophageal Diverticula.

Zesas (*Deutsche Zeitschr. f. Chir.*, Bd. 82, Hefte 4 to 6, 1906) publishes a collection, which he believes to be complete, of 42 cases of oesophageal diverticulum treated by free exposure and excision of the sac. In 8 of these cases the operation had a fatal result. Primary healing of the oesophageal wound was attained in only 6 cases, a fistula having formed in the other surviving patients, which, however, closed after an interval varying in the different records from four days to sixteen weeks. This frequent failure of primary healing is due, as a rule, to the impossibility of keeping the sutured wound at rest. In some few instances the sutures may be torn away in consequence of vomiting or retching due to the anaesthetic; but in most cases the disturbance of the oesophageal wound is the result of frequent movements of deglutition which, even if oral feeding be withheld, are likely to result from the passage of saliva and pharyngeal secretion. The question of feeding the patient during the after-treatment is, the author points out, a difficult one, especially in those cases in which the strength of the patient was much reduced before the operation. Feeding by the mouth or nostrils is unsatisfactory, as the tube, if used intermittently, is likely to cause spasm of the oesophagus, and if allowed to remain, will cause more or less irritation. Rectal feeding in exhausted patients will probably be found quite inadequate. In discussing the merits of preliminary gastrostomy as a measure of supplying sufficient nourishment to the exhausted patient, and of avoiding irritation of the wounded oesophagus, the author states that this operation has been

performed successfully in four cases, but that in one of those it failed to prevent the formation of a cervical fistula. While acknowledging the risk of complicating the surgical treatment of oesophageal diverticulum by practising two operations, he is of opinion that it will in some cases be found very difficult to dispense with gastrostomy. The chief indication of this operation is, it is held, the necessity of an early and abundant supply of nourishing food. As a means of ensuring early and complete healing of the oesophageal wound, direct gastric feeding cannot be relied upon. The most promising way of overcoming the difficulty is, it is suggested, a careful attention to the suturing of the divided oesophageal coats.

218. Metastatic Cellulitis in Gonorrhoea.

J. Schwetz (*Rev. med. de la Suisse romande*, January 20th, 1906) divides the complications of gonorrhoea into local and general. The latter may be subdivided into those in which the gonococcus is found in the lesions, and those in which the diagnosis is merely clinical. The latter group includes most cutaneous and nervous manifestations. Of the metastatic complications of gonorrhoea those which affect the serous membranes and especially the synovial membranes are the best known. They include gonorrheal synovitis, teno-synovitis, tenositis, pericarditis, endocarditis, pleurisy, and cerebrospinal meningitis. Espagnac has collected 8 cases of gonorrhoeal phlebitis. Gonorrhoeal peritonitis has only been observed in the vulvo-vaginitis of children or during the puerperium, and is evidently due to direct extension and not to metastasis. Apart from inflammation of serous membranes, a few cases of gonorrhoeal cellulitis of the subcutaneous or intermuscular tissue have been reported. These are of special importance, as it has been claimed that the gonococcus is incapable of penetrating beneath the epithelium or endothelium. An unmarried girl, aged 18, was admitted to hospital on November 1st. She stated that on October 30th she went a long walk on a rough road. Immediately afterwards the right foot was painful. On October 31st she attended a policlinic, where a sprain was diagnosed. The next day the pain was intense and the foot began to swell. Walking was almost impossible. On admission the temperature was 101.3° F. On the external surface of the dorsum of the right foot immediately below the ankle was diffuse redness. The entire dorsum of the foot was oedematous and tender. There was well-marked fluctuation above and below the tibio-tarsal articulation. Flexion and extension of the foot were painless. No solution of continuity was discoverable, and haematogenous cellulitis was diagnosed. There was slight swelling of the inguinal glands but no lymphangitis. Fomentations were applied, and later in the day an incision was made. A quantity of thick yellow pus escaped. Under the anaesthetic a vaginal discharge was found, with inflammation of the appendages on the right side and salpingitis on the left. She was discharged on November 19th, cured as to the cellulitis but with the vaginal discharge persisting. The pus contained the gonococcus exclusively. Such cases are rare. The writer has collected 11 cases in which no external lesion existed at the site of the abscess through which the gonococcus could enter, and which were evidently of a pyaemic nature. That the gonococcus may be found in the blood in severe cases of gonorrhoea with complications has been proved by Krause, Unger, and Prochaska. In gonorrhoeal pyaemia the joints are affected more often than other organs, just as is the case in pyaemia due to the common pyogenic organisms. Gonorrhoeal affections of the connective tissue have usually been preceded by an injury which has rendered the part a *locus resistentiæ minoris*. In this case the abscess was preceded by a sprain.

219. Hydatids of the Lung.

Tuffier (*Bull. et Mém. de la Soc. de Chir. de Paris*, No. 22, 1906), in a report on three cases of pulmonary hydatids communicated by Launay, points out that in instances of this kind the diagnosis usually remains uncertain for a long time, during which the patient is supposed to be affected with pulmonary tuberculosis. Frequently-repeated attacks of slight haemoptysis, extending over a period of several months, and an obstinate, persistent and progressive cough give rise to this error of diagnosis, and the tumour often grows so slowly that it cannot be made out by auscultation and percussion. Apart from this so-called haemoptoic form of hydatid development, which it is thought is observed only in cases of slowly-growing cyst, there is a second clinical variety which presents the form of subacute pleurisy, and is characterized by a sharp stitch in the side, oppressed breathing, shivering, elevation of temperature, and cough with frothy expectoration. Here also a mistake in diagnosis may be readily made, and in both the pleuritic and the haemoptoic forms the true nature of the case be revealed for the first time by exploratory puncture. In some recorded instances the expectoration of hydatid membrane was the first sure sign of the malady. Radioscopy, it is stated, may in some instances give help, and the picture on the screen of a round and transparent tumour may not only confirm but also suggest for the first time the diagnosis of a hydatid cyst. Tuffier, in discussing the treatment of hydatids of the lung, states that both simple puncture and puncture followed by the injection of a hydaticide solution are likely to be followed by grave symptoms of pulmonary oedema. In one of the cases reported in Launay's communication a mercurial injection was rapidly followed by violent symptoms of pulmonary congestion and intense asphyxia, which could be relieved by nothing short of bleeding. Thoracotomy, with incision of the cyst and extraction of the mother membrane, followed by prolonged drainage of the cystic cavity, constitute, he holds, the method of choice in the treatment of pulmonary hydatids. Closure of the cyst without drainage is regarded as being objectionable in most cases, as the cavity is so often infected at the time of the operation. It is pointed out that opening of the cyst is frequently followed by bronchial fistula. Such a result, which occurred in all of the three cases recorded in this paper, ought, Tuffier states, to be anticipated as a very probable event after pneumotomy for hydatid disease. An analogous accident is occasionally met with in incision of a hepatic cyst of the liver, as such operation may be followed by a biliary fistula. The post-operative bronchial fistula may be temporary or persistent, but such complication, we are assured, gives but very little trouble to the patient.

OBSTETRICS.

220. Subcutaneous Emphysema during Labour.

Gilles (*Prov. Méd.*, August 25th, 1906) reported a case of the above to the Clinical Anatomical Society of Toulouse. A primipara, 30 years of age, after about three hours of the second stage of labour, felt suddenly, during a strong expulsive effort, a sensation of tearing in the thorax, which was followed immediately by an enormous distension of the skin of the neck and face. Aphonia and some slight embarrassment in swallowing accompanied this manifestation, and the doctor on his arrival was able to diagnose at once what had occurred, aided by the characteristic crepitation. Labour was terminated by instrumental interference, and the emphysema soon disappeared, although the crepitation could be perceived for some time afterwards on careful palpation.

221. Death during Pregnancy: Undetected Cancer of Kidney.

Gaultier (*Ann. de Gyn. et d'Obstét.*, August, 1906) reports that a needlewoman, aged 35, in the seventh month of her third pregnancy, gained admission into a hospital on account of distressing fits of coughing which had lasted for two or three months. The symptoms simulated whooping-cough. The sputum was tenacious and frothy, and was sometimes streaked with blood, and at others contained gelatinous masses of blood pigment. Tuberculous disease of the bronchial glands was diagnosed. The urine was absolutely normal, and Gaultier notes that the patient never said a word about lumbar pains so frequent in pregnant women. There was no abdominal tumour. The patient died during a very violent fit of coughing. The right lung and pleura were infected with cancerous deposit; the tracheo-bronchial glands were infected, and the largest compressed the right bronchus and pneumogastric. The primary seat of cancer was found to be the right kidney, enlarged to the size of a hen's egg, the pelvis and renal vein were invaded. The fetus in that case showed high congestion of the kidney and suprarenal capsule, with numerous haemorrhagic foci.

222. Rupture of Gravid Bicornuate Uterus.

Watkins (*Amer. Journ. of Obstet.*, July, 1906) operated in March, 1906, on a woman, aged 36, who had married at 27, and bore a child to term a year later. Labour was followed by severe flooding. At the end of the pregnancy the abdominal enlargement was more marked on the right side than on the left, and after convalescence the patient was told that she had a tumour on the left side of the uterus. The second pregnancy did not begin till November, 1905.

In the early morning, March 29th, 1906, she was awakened by severe pains localized in the left iliac region. Twelve hours later Watkins examined her; there were signs of internal haemorrhage, the cervix was moderately enlarged and somewhat softened, and the os slightly patulous. There was no definable tumour in the left side of the abdomen, but the patient's condition did not allow of accurate palpation, and abdominal section was at once undertaken. The peritoneal cavity was full of blood, and the fetus lay free in it. The uterus was bicornuate, the left cornu was ruptured close to the attachment of the Fallopian tube. The chief haemorrhage was from the placental attachment. Supravaginal hysterectomy was performed, and the patient recovered. The cleft between the right and left fundus was about 3 in. deep: at the level of the amputation of the cervix there were two distinct cervical canals. The patient's first pregnancy was, according to Watkins's opinion, in the right cornu, and that cornu, unlike its fellow, was capable of carrying the fetus to term.

GYNAECOLOGY.

223. Anterior Colpo-hysterotomy.

Of the methods of opening up unprepared genital passages for the purpose of rapid delivery, next to the employment of the dilator, anterior colpo-hysterotomy is probably the best one at the present time. P. Jung (*Dëut. med. Woch.*, August 2nd, 1906) describes this operation and its results. The operations which he deals with were undertaken in the interest of the mother's life, and include 5 cases of eclampsia, 1 of severe nephritis with total amaurosis, 1 of severe non-compensated heart disease, and 1 of complete impaction of the fetus, which was lying in the transverse position. In the last-named case there was tetanus of the uterus. The os in this case was partly dilated. Unsuccessful attempts had been made outside by the general practitioner to turn the fetus. On admission large doses of morphine and deep anaesthesia failed to relieve the tetanic condition of the uterus, and it was therefore impossible to proceed to perform embryotomy. The mother's condition was extremely bad, and for this reason anterior colpo-hysterotomy was immediately performed. The dead fetus was removed after embryotomy. Of the 8 cases, 3 mothers died; 2 of eclamptic coma and 1 with the heart disease, which was complicated by nephritis, of collapse. In all 3 cases the sutures had held and there was no haemorrhage, as was proved *post mortem*. Of the fetus, 3 were delivered alive and well, 1 was dead and macerated, 1 was dead and had to be delivered by embryotomy, 2 were not viable, and only 1 was lost as a direct result of the birth. The last-mentioned case was one of the eclampsia cases. The fetus had its head impacted in a flattened, rickety pelvis, with a conjunctiva vera of 8 c.cm. (3 in.). Delivery was conducted with forceps, and a deep depression was produced on the temporal bone. It died quarter of an hour *post partum*. The operation was carried out as follows: When the vulvar orifice was too small a wide vagino-perineum incision was made. After division of the anterior vaginal wall by means of a longitudinal incision, the bladder was easily peeled off in the loose tissue. The anterior uterine wall never offered any difficulty, as long as one remembered not to pull too much on the Collin's forceps which held the edges of the wound apart. On two occasions the vesico-uterine fold was opened, but this did not matter. The child was delivered four times by forceps, three times by version, and once by embryotomy. The author thinks that it is better to turn the fetus, save when the head is too tightly impacted, and believes that he might have been able to save the one fetus had he done this instead of delivering with forceps. Any way, he regards version as the easier and more elegant proceeding. The placenta was expressed or removed manually immediately after the delivery of the fetus. The suture of the uterus was carried out with continuous catgut sutures, and when the peritoneum had been opened the upper stitches closed this as well. The bladder was sutured in its place and the anterior vaginal wall was closed with continuous catgut sutures, including the perineum, when this had been incised. The wounds healed smoothly in all cases. He considers that this operation should only be undertaken in a clinic or hospital, and not at home by the general practitioner, who will not have had sufficient practice in these kinds of operations. The safer method for the practitioner is to use the dilator. For any one who has had experience in vaginal operations the procedure is quite easy.

THERAPEUTICS.

224. The Action of Stovaine.

E. Varvaro (*Il Policlin.*, June, July, and August, 1906) discusses the course of 176 cases in which stovaine was injected into the subarachnoid space to produce anaesthesia. Amongst the cases were 24 radical cures of inguinal herniae, 11 appendicectomies, 16 abdominal hysterectomies, 44 cases in which the uterus was curetted, 1 splenectomy, and numerous other major operations. In general terms it may be said that the author highly recommends stovaine. The ordinary inconveniences noted after its use are slight headache or pain in the legs in some cases, and very frequently some pain in the loins lasting for a day after the operation. On some patients repeated operations were performed. Occasionally 1 centigram of morphine was injected either hypodermically or into the subarachnoid space, and sometimes it was noted that after about an hour from its injection the stovaine ceased to act and the operation was finished under Schleich's anaesthesia. The plan first attempted in each case was to introduce the needle in the line of the border of the spine with the patient in a crouching position lying on one side. When this did not at once succeed, the patient was made to sit up and bend forward. Antiseptic treatment of the skin and asepsis of the needle and syringe are noted as essential conditions of success. Stovaine is decomposed in alkaline solutions, and after a needle and syringe have been boiled in soda solution they must be washed in sterile water. Paraesthesia, paralysis, myelitis, and other bad results after injection are due to damage by violence—as after several unsuccessful attempts at injection—or to sepsis. In the principal operations Varvaro used a 4 per cent. solution of stovaine in sterilized distilled water, but in other cases 2 per cent., 1 per cent., and occasionally 5, 6, and 8 per cent. solutions were employed. Sometimes he used a physiological solution of sodium chloride or dissolved the stovaine in the syringe in the cerebro-spinal fluid which first escaped; but no better results were obtained in these ways. The ages of the patients varied from 1 to 80, but no difference in the amount of stovaine used was necessitated by the differences of the patients in age and weight. Anaesthesia was usually complete in from one to five minutes from injection. Often in hysterical subjects it was delayed for ten minutes, and rarely for thirty minutes. The author suggests that these variations in the time necessary for anaesthesia are due to individual variations in the rate of movement of the cerebro-spinal fluid, and supports the theory by the record of observations on the different results of adding to a fixed quantity of stovaine solution a varying quantity of cerebro-spinal fluid. He injected 4 cg. of stovaine in almost every case, and considers that the proper dose. On theoretical grounds he approves of the more dilute solutions, such as 1 per cent., rather than a 4 per cent. solution. Four cases are mentioned in which anaesthesia failed, 1 a case of gastro-enterostomy and 3 consecutive cases possibly due to a bad specimen of the drug. In 3 cases anaesthesia extended from the feet to the head, in 7 cases from the feet to the arms, in 19 cases from the feet to the manubrium, in 67 cases from the feet to the umbilical region, in 89 cases to the iliac spines, and in 130 cases it extended at least as high as to the perineum. The duration of anaesthesia was usually about an hour, sometimes longer; in one case two hours and forty-five minutes. Anaesthesia lasted longer in the case of the slighter operations. A greater intensity of surgical traumatism appeared to exhaust more quickly the action of the drug. Some authors recommend the addition of adrenalin to stovaine, but Varvaro thinks that stovaine is better given alone, and that the mixture of stovaine and adrenalin has no advantage over cocaine. Usually paralysis of motion appears 40 sec. to 50 sec. later than anaesthesia. When there is no paralysis, anaesthesia is usually imperfect and of short duration. Anaesthesia is always preceded by paraesthesia. Symptoms of intoxication, as pallor, sweating, vomiting, retching, occurred rarely, and never after so small a dose as 4 cg. of stovaine. When severe lumbar pains, headache, and fever showed themselves a few hours after injection it was found that the cerebro-spinal fluid was turbid with leucocytes, chiefly polynuclears. Symptoms always disappeared a few hours after treatment by rachiocentesis. Vavaro suggests the use of the drug before making painful abdominal examinations.

225. Mercury in Tabes.

Babinski (*Journ. de Praticiens*, June 30th, 1906) refers to some of the peculiarities of the signs in tabes, and the

present position of the treatment of this disease by mercury. He refers to the habitual asymmetry of many tabetic symptoms; thus, pupillary changes, laryngeal and trophic disturbances are frequently unilateral; the lightning pains are very often most marked on one side, and the knee-jerks are frequently unequally affected. This asymmetrical distribution of tabetic symptoms is explained by the pathological anatomy of the disease—namely, a specific chronic meningitis, revealing itself by a thickening of the meninges at the posterior parts of the spinal cord: the nerve rootlets are first affected, then the posterior roots, and, finally, secondary degeneration of the posterior columns of the cord ensues. The author considers that in all cases of this disease there has been a previous syphilitic infection. He further considers that the administration of mercury is the most efficacious way of treating the disease. Under this treatment the lightning pains diminish in intensity, and optic atrophy may have its progress moderated. He advises the subcutaneous injection of 5 cg. of calomel every 8 days, and continued for two to three years, carefully observing its effects, and, if necessary, suspending it from time to time.

226. The Roentgen Rays in Leukaemia.

PIRONE (*Rif. Med.*, August 4th, 1906) reports a case of leukaemia treated successfully by the *x* rays. The fact that cases of leukaemia improve and may even be cured by this mode of treatment is fairly well known now, hence the author's chief aim in recording the case is to notice the changes in the blood and get some idea as to the *modus operandi* of the treatment. Briefly, these changes were as follows: A notable diminution in the total number of leucocytes, a reduction in the neutrophile myelocytes from 70 per cent. to 39 per cent., an increase in the polynuclear cells from 20 per cent. to 42 per cent., and an increase in the transitory forms (the red corpuscles and the haemoglobin); certain morphological changes in the nuclei and in the chromatin in the direction of normality were also observed. The blood generally became healthier and approached more closely to the normal both in function and in morphology. The *x* rays do not simply destroy the leucocytes. They seem most beneficial in myelogenous types of leukaemia, whilst the lymphatic cases may even be made worse instead of better. Probably the *x* rays act by a general improvement and quickening of the processes of sanguinification. The diminution in the leucocytes is partly real, partly apparent, for some of it is due to the transformation of myelocytes into polynuclear cells and to the increase in the number of red corpuscles, and some of it is due to the increase in the leucocytic action of the spleen.

227. Khosam, a New Antidysenteric Remedy.

LAFAY (*La Clinique*, August 3rd, 1906) writes that khosam is a small fruit the kernel of which has long been in use in China for various maladies and as a haemostatic. The plant is found in China, the Straits Settlements, Java, and Australia. It is identical with the *Brucea Sumatrana* of Borneo and the *Brucea antidysenterica* of Abyssinia. The seed contains a white kernel, from which an extremely bitter oil is readily expressed. The active principle appears to be a glucoside which has been isolated from the kernel and designated khosamine. A small dose acts as a cathartic and a cholagogue; it is also slightly antimicrobic. In Java doctors have used the fruit of the *Brucea Sumatrana* regularly for its antidysenteric properties, and Dr. Mougeot has used it for dysentery for five years with excellent results. The seed is dried and powdered either with or without the skin; it may be administered in 10-gr. doses on the first day, and 12-gr. doses on the second and subsequent days. It is prepared in tablets which are conveniently portable, and which do not lose their virtue in different latitudes and climates. Dr. Barrios has found that when the stomach will not tolerate the drug, equally good results are obtained if it is administered by the rectum in the same doses.

228. The Absorption of Phosphorus.

THE work of Keller has shown that phosphorus is absorbed from such inorganic compounds as sodium phosphate. Organic forms of phosphorus, derived from lecithin, are also known to be taken up from the intestine. Tunnicliffe (*Archiv. Internat. de Pharmacodyn. et de Thérap.*, vol. 16, p. 207) reports a research communicated to the International Congress at Lisbon, in which the absorption of organic phosphorus from sanatogen, or glycero-phosphate of casein, is compared with that of calcium phosphate. The author concludes that in the healthy child the addition of an organic phosphorus compound to the diet is followed by an increase in the amount of phosphorus absorbed and retained in the body, whilst this was not found to be the case when calcium phosphate was given.

229. Lupulin in Gastro-Intestinal Diseases.

HEINRICH STERN (*Med. Record*, September 22nd, 1906) has found lupulin of special value in the functional disturbances of the stomach, in sensory as well as motor and secretory neuroses, and in neurasthenia gastrica. Lupulin may also be employed with advantage in diseases of the stomach with an anatomical basis. As in gastric diseases so in relation to the intestines, lupulin is particularly useful in the treatment of neuroses and functional disorders. In intestinal diseases with an anatomical basis, lupulin is often a symptomatic and sometimes a curative remedy. The writer declares that the use of this drug for protracted periods is never followed by undesirable after-effects, which are so common with many remedies employed for similar purposes. He thinks that it is probable that enteric fever as well as dysentery will be favourably influenced by it.

PATHOLOGY.

230. The Microbe of Whooping-cough.

BORDET AND GENGOU (*Le Scalpel*, September 2nd, 1906), working together at the Pasteur Institute at Brussels, have obtained a pure culture of the specific organism of whooping-cough. The organism is a very small bacterium having the same characters in culture as in the expectoration: ovoid in form and staining very feebly, especially in its central parts, with carbolized methylene-blue or toluidin. It forms no spores, and is killed by heat at 55°. The organism can be isolated by employing as a culture medium equal parts of defibrinated human blood and gelatine containing a little glycerine and some decoction of potato. If such a medium in a test tube be inoculated with some of the expectoration containing the bacilli, only a slight multiplication of the bacilli occurs, and the resulting culture is hardly visible to the naked eye. To obtain an abundant growth a primary culture should be made from expectoration containing abundant bacilli, and after being incubated for two days a subculture from this should be made; the subculture thus obtained forms a thick opaque white layer. A similar growth can be obtained by employing liquid media such as broth to which the serum of a dog has been added; haemoglobin is not necessary for the growth of the organism. On ordinary culture media (gelatine, broth, etc.,) no growth occurs. This organism is found most abundantly in the white secretion rich in leucocytes which is expectorated and is present in greatest numbers at the fifth day of the disease. In the later stages the expectoration contains far fewer numbers of the specific bacterium, but large numbers of other micro-organisms are present, amongst which may be mentioned a bacterium which is either identical with or very similar to Pfeiffer's bacillus found in cases of influenza, but which is also frequently to be found in the bronchial secretions in cases of bronchopneumonia and coryza. The specific bacteria of whooping-cough as described by the authors differs from Pfeiffer's bacillus in the following respects: (1) It produces an abundant growth in media deprived of haemoglobin; (2) its colonies are whiter, more creamy, and thicker; (3) it is larger, and its shape is more ovoid and more regular. The only points in common between these two organisms are their small dimensions and their feeble staining properties. From the organisms described by Afanassieff, Czaplewski, Manicatide, Vincenzi, etc., the specific microbe differs by being unable to grow on ordinary culture media. Injected into the eye of a dog it causes the cornea to become white and opaque, showing that the organism probably secretes necrotising toxins. The proofs of this organism described by the authors being the cause of whooping-cough are: (1) In undoubted cases of whooping-cough in children who have never suffered from any previous respiratory affection the organisms can be found in considerable numbers and in an almost pure state in the leucocytic secretion expelled on the fifth day; (2) the serum of children recently recovered from whooping-cough possesses a marked agglutinating power as regards this organism. The serum of healthy persons, or of those who have had whooping-cough some years previously, does not possess this power of agglutination. The results of the treatment of pertussis by vaccination or serotherapy will be communicated later.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

231. **Heredity and Gastro-intestinal Affections.**

N. Kabanov (*Arch. Gén. de Méd.*, May 22nd and 29th, 1906) has carefully analysed the ancestral histories of 101 cases of well-marked gastro-intestinal affections. Cases of gastric ulcer and malignant disease were excluded from the series of cases. Of these 101 cases, in 66 gastro-intestinal troubles existed in the parents, in 56 cases in a well-marked form. If those cases be considered in which the gastro-intestinal troubles of the patients appear before the 30th year of age (in which cases any congenital weakness of the digestive tract is most likely to show itself), the author finds that of 84 such cases, in 56 there was a history of gastro-intestinal affections in the parents. In 21 cases of gastro-intestinal troubles, in 18 there were marked hereditary tendencies, and in 13 cases in which the digestive troubles appeared before the age of 20, the parents of all had suffered from similar affections. From these results it appears that the more marked these gastro-intestinal troubles in patients are, and the earlier they appear, the more marked appear to be the rôles played by congenital weakness of the alimentary tract and hereditary tendency to these affections. In examining the histories of the parents of patients affected with gastro-intestinal affections, the author finds that in a majority neuropsychic troubles are present; arthritic processes and tuberculosis are the next most frequently found, and then "nutritive decay" and marked gastro-intestinal affections; cardio-vascular and renal affections are comparatively rarely observed. From further observations the author finds that the patients themselves comparatively rarely suffer from arthritic troubles; the relatively great frequency of arthritic manifestations in the fathers and mothers of the patients is to be explained by the fact that in the crossing of "arthritic" families with "non-arthritic," it is especially on the non-arthritic side that the tendency to gastro-intestinal affections shows itself. The author passes on to consider the results of the crossing of families subject to different morbid states, and the manner in which this crossing influences the occurrence of gastro-intestinal affections in the descendants. He finds that the more marked the congenital weakness of the digestive tract is in the patients the more marked is "decay of nutrition" found in their parents. Feebleness of the digestive tract he finds rarely occurs in purely arthritic families. A neurotic soil combined with a "decay of nutrition" in the parents appears to bring to the descendants a weakness of the digestive tract, and from the frequency with which feebleness of the respiratory apparatus occurs in these patients the author concludes that the weakness of both owe their origin to the same causes.

232. **Antitoxin Rash.**

Wilbur (*Amer. Journ. Med. Sci.*, August, 1906) describes an unusual case of antitoxin rash occurring in a woman aged 35 whose maternal grandmother was of Spanish blood. Asthmatic as a child, she developed frequent attacks of hay fever since maturity, and suffered from occasional urticarias after eating strawberries or shellfish. Following a prophylactic injection of 1,000 units of antitoxin, total hyperaemia of the skin developed with intense itching and the presence of large weals. The lips, tongue, and eyelids began to swell, and she complained of difficulty of breathing. The pulse, at first rapid, became imperceptible, and the apex beat, from being very vigorous, became irregular, the colour fading from the neck and chest, while the limbs and abdomen continued hyperaemic with the itching and weals. A typical severe asthmatic attack followed this partial collapse and the pulse improved, but a second sudden flushing of the face occurred and was succeeded by another collapse. The administration of hot black coffee improved matters, and the sense of impending death was beginning to pass off when she complained again of the tongue and lips swelling, and air was drawn into the chest with great difficulty. Oedema of the larynx was diagnosed, and tracheotomy seemed inevitable when improvement set in, and within an hour from the injection she was able to be moved to bed. The rash appeared on the face and the itching and burning of the skin continued for thirty-six hours, after which the symptoms rapidly subsided, and with the exception of a few weals and some joint stiffness she regained normal health. There was no rise of temperature. Three other relatives were given the same kind of antitoxin and developed rashes within a few days, and all these had a Spanish ancestry, while in a number of other relatives by marriage without this ancestry the injections produced no rashes. The suddenness of onset and severity of the symptoms point to an action upon the central nervous system producing probably a peripheral vasomotor paralysis. There was no history of angioneurotic oedema. A fortnight previously ether had been administered for an operation, and a hypodermic injection of morphine and atropine raised a weal at the site of injection. Treatment consisted in $\frac{1}{30}$ gr. of strychnine by the mouth and frequent sips of hot black coffee. Six drachms of Epsom salts in hot water and a large simple enema were administered, and an hour and a half after the antitoxin injection vomiting occurred, with considerable relief. Alkaline sponge baths were constantly given, and a tablespoonful of milk of magnesia was administered internally every three hours. The greatest relief was obtained from a spray containing menthol, ether, chloroform and camphor, followed by the use of a powder consisting of camphor, oxide of zinc and starch. On the second day veronal and heroin were given as sedatives, and magnesium sulphate and calcium chloride every four hours in a mixture.

233. **Obesity in Tuberculosis.**

Guilhaud (*La Clinique*, April 27th, 1906) describes a form of tuberculosis characterized by obesity. He considers this variation of the tuberculous manifestation to be due to two factors: the soil on which the infection is implanted, which he calls, with apologies, by the antiquated name of scrofulous; and the attenuated quality of the pathogenic agent, namely, Koch's bacillus. Local tuberculous lesions are generally associated with an excessive deposit of adipose tissue, and his observations lead him to the conclusion that there is a form of tuberculosis which may become the starting point of contagion all the more easily because the danger is not suspected. He regards phthisis in the obese as a curable variety of tuberculosis, remaining as it does in the condition of a local lesion, and therefore compatible with a prolongation of life. In short, paradoxical as it may appear, he has come to the conclusion that a patient infested with tuberculous bacilli may still live and grow fat.

234. **The Blood Pressure in Dementia Praecox.**

L. Lugiato and B. Ohannessian (*Riv. sperim. di Freniatria*, vol. 32, fasc. 1-2, 1906), using Riva-Rocci's sphygmomanometer according to the inventor's original directions (given in the *Gazz. med. di Torino*, 1897), have measured the arterial blood pressure in 13 patients with hebephrenic dementia praecox. The blood pressure recorded in each case was that at which the radial pulse ceased to be palpable to the observer. The measurements were taken twice a day, at 10 a.m. and 4 p.m., and were made upon each upper arm in turn under identical conditions. Each measurement was taken three to five times on each occasion, to minimize error, the mean being used as the final result. Riva-Rocci gives the normal arterial blood pressure as equal to that of a column of mercury 125 to 135 mm. in height. Lugiato and Ohannessian find that in the early stages of dementia praecox the blood pressure is generally well below the normal; they attribute this to deficient development of the cardio-vascular system and to hypotony of the cardiac muscle. The pressure was in general 2 to 6 mm. higher in the afternoon than in the morning, and was also from 1 to 6 mm. higher in the right arm than in the left. The pressure might vary from 20 to 25 mm. in the same individual from one day to another; the variations in the blood pressure did not run parallel to those in the rate of the pulse.

SURGERY.

235. **Abdominal Pain.**

Lennander (*Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie*, Bd. xvi, Heft 1, in abstract *Zentralbl. für Chir.*, No. 31, 1906) has in earlier researches endeavoured

to prove that all organs receiving nerves from the sympathetic or from the vagi below the origin of the recurrent branches possess none of the four tactile senses of pain, contact, and of heat and cold. Affections of the abdominal organs begin to cause pain when the parietal peritoneum becomes irritated. Movements of the stomach and intestine give rise to painful sensations by stretching the parietal peritoneum either indirectly through the attachments of the mesentery, or directly through inflammatory adhesions. In cases of chronic appendicitis the peritoneum on the posterior wall of the abdomen is rendered sensitive by lymphangitis, so that slight pressure over McBurney's point or even the passage of intestinal gas causes pain. Pain is due in flatulence and ascites to stretching of the parietal serous membrane, and in cases of large and hard liver or spleen either to stretching of the suspensory membranes or to the friction of the indurated margins of the affected organ against the inner surface of the abdominal wall. The pain of volvulus is due also to stretching of the parietal peritoneum. The "griping" pain in diarrhoea is attributed to the compression of the membrane between the firm and distended sigmoid flexure and the muscular and aponeurotic structures of the anterior wall of the abdomen. The pain caused by distension of the urinary bladder is regarded as being due to stretching both of the parietal peritoneum and of the prevesical connective tissue. The author explains the sharp pain occurring in cases of sudden perforation of the stomach, gall bladder, and appendix, by the supposition that the extravasated fluid acting like a chemical irritant corrodes the endothelium of the parietal serous membrane and comes into direct contact with its sentient nerves. The pain of gastric ulcer is due, it is held, either to adhesions or to subperitoneal lymphangitis about the coeliac axis. In the same way may be explained the tenderness on pressure at certain parts of the back in cases of gastric ulcer and cholelithiasis. This lymphangitis disturbs the nerves of the posterior abdominal wall to such a degree that pressure on their anterior terminal branches will cause pain. The rectum, the author asserts, is in itself insensitive. In proctitis, pain is not felt until the perirectal connective tissue is involved. The gall bladder also, he holds, is insensitive, and biliary colic is attributed to stretching of the retroperitoneal portion of the common bile duct or to lymphangitis around the adjacent nerves. Infection, moreover, may spread to the anterior wall and render this sensitive. The kidney, the fatty capsule of which has no structural connexion with the fibrous capsule, is also regarded as insensitive. Renal colic in cases of lithiasis is held to be the result of disturbance of the surrounding connective tissue with its sensitive nerves, caused by contractions of the renal pelvis and ureter.

236. **Gastro-cutaneous Fistulae.**

Patel and Leriche (*Rev. de Chir.*, No. 7, 1906) have been led by recent investigation of a case of gastro-cutaneous fistula, under the care of Jaboulay, to make up a complete history of this rare complication of gastric ulcer. Instances of this pathological lesion are, it is stated, very rare, as an ulcer is met with much less frequently on the anterior wall than at other parts of the stomach, and, moreover, when it is situated in this portion of the viscus, seldom gives rise to perigastritis and consecutive adhesions between the gastric and the external abdominal walls. The small number of cases that have been recorded may be arranged in two groups: one in which the fistula is the result of the spontaneous or the surgical opening of a purulent deposit developed in a mass of perigastric adhesions, the other in which it is formed in the absence of any clinically appreciable abscess. In the latter case there has been a slowly progressive invasion of the tissues by a succession of mild infections. The seat of election of fistulae of the second group is the upper part of the stomach, which is not very movable, and, consequently, may readily contract adhesions with the abdominal wall. When established, the gastro-cutaneous fistulae presents characters which vary considerably according to the situation of the lesion. If it be seated high up and near the cardia, the discharge of gastric fluid will be intermittent; if it be low and near the pylorus, this discharge will be continuous. In the former case the patient's general condition will not be disturbed for a long interval; in the second case, on the contrary, it rapidly becomes impaired. The treatment is essentially based on the distinction of the seat of the fistula. If the fistula be highly placed and juxtacardiac, it would be advisable, the authors hold, not to operate at once, but to await the results of medical treatment, having recourse, after failure of such treatment, not to any palliative operation such as gastro-enterostomy, but to resection of the ulcer and suture of the stomach. In cases of low and juxtapyloric fistula the prospects of surgical treatment are far from good. Extirpation of the ulcer is usually contra-indicated by the condition of the patient, who has been exhausted by the profuse and constant discharge of the gastric contents. The same objection applies to duodenostomy and gastro-enterostomy, which in cases of this kind are useless as well as dangerous operations. The authors advise an attempt at direct closure of the fistulous canal by excision of its margin and of surrounding cicatricial tissue, and by subsequent suture. This treatment, however, has not, it is acknowledged, been always followed by success.

237. **Laminectomy in Gunshot Wound of Spinal Cord.**

Braun (*Zentralbl. für Chir.*, No. 28, 1906), in the Transactions of the last Congress of the German Surgical Society, reports a case of gunshot wound of the spinal cord, in which laminectomy was performed with good results; and at the end of his communication formulates the indications for surgical intervention in instances in which it is clear that the bullet, or fragments of bone or of foreign body, have entered the spinal cord. Those cases being excluded in which comminuted fracture or imminent infection demand prompt operation, the indication for laminectomy will depend, it is pointed out, on the severity of the medullary lesion. In mild cases, with slight or rapidly improving symptoms, there are, as a rule, no indications for operative measures, as a small missile that has penetrated into the spinal canal will often find sufficient room there without encroaching on the cord; its discovery may be difficult in spite of good methods of skiagraphy; and, again, faulty localization of the foreign body may cause a fruitless search. In cases in which gravity of the medullary symptoms and tardy or arrested improvement point to compression or irritation of the cord excited by a foreign body situated either within or without the dura, an operation, the author holds, is indicated. This operation, however, should not be undertaken unless the general conditions are favourable, or without the aid of efficient skiagraphic research and careful segmental diagnosis, as it is only by such assistance that the certain inherent dangers of such treatment can be successfully met.

238. **Abscess of the Liver.**

Gabbi (*Rif. Med.*, April 28th, 1906) records six cases of abscess of the liver, and offers certain considerations based on a careful clinical and operative experience of these and other cases. First with regard to the pain. It is usually absent in the early stages, may vary in character, and be constant or paroxysmal. It is often due to the associated perihepatitis, but in one of the author's cases it appeared to be due to rapidity of the abscess formation and consequent sudden distension of the hepatic capsule, for no adhesions were found. It is said that the seat of the pain is a rough guide to the site of the abscess—here, again, the author's cases failed to corroborate his statement as a general rule (in one case lumbar pain was found to be due to adhesions between the inferior surface of the liver and the posterior wall of the abdomen). In one case there was a large hepatic abscess in a liver which was freely movable. The detection of inspiratory movement of the liver (whether by percussion of the upper level or palpation of the lower) may lead one into difficulties—for example, one case where at the operation the liver was found solidly adherent, it had appeared to move as estimated by percussion. The fallacy might have been due to forcible pulmonary inspiration causing the lung to descend, or the liver might have rotated somewhat on its transverse axis.

OBSTETRICS.

239. **Antistreptococcic Serum in Puerperal Fever.**

E. Martin states that two new methods of treating puerperal fever have been offered during the last few years; the surgical interference and the employment of antistreptococcic serum. Since the former is only applicable in clinics and hospitals, it is a matter of great importance to investigate the value of the latter, in order to be able to advise the general practitioner whether he can place reliance on the method or not (*Berl. klin. Woch.*, July 16th, 1906). Those observers who have employed the serum in large numbers of cases of puerperal infection have come to the conclusion that a beneficial action is probable, and have expressed the opinion that the serum is useful in assisting the organism in resisting the infection. Single cases have been reported in numbers which are supposed to prove the efficacy of the serum, but a closer study of

these cases leads one to be careful not to draw too certain conclusions from them. Martin thinks that the matter can be placed on a more scientific footing if one compares the fever curves of patients treated with the serum with those not so treated. In testing the serum (Menzer's, Aronson's and Paltauf-Pelham's were used) only those women who were delivered in the Greifswald clinic and in whom the elevation of the temperature took place entirely in the clinic, were included. A bacteriological control of all the treated cases was kept in order to exclude all cases of gonococcic infection. Negative bacteriological results were taken as being in all probability streptococcic in nature and were therefore included. No case further was included in which the temperature did not remain raised above 100° for more than one day. During the treatment energetic feeding-up was undertaken. The points which attracted particular attention were the highest degree of fever and the duration of the elevation of the temperature. Twenty-five cases were treated with Menzer's serum, and 39 cases not treated with serum served as controls. The highest temperature recorded in each case is given as follows :

	Not Treated.	Serum Cases.
	Per cent.	Per cent.
101.3° to 102.1°	25.6	28
102.2° ,, 103.0°	23.04	32
103.1° ,, 103.9°	20.48	24
104.0° ,, 104.8°	23.04	8
104.9° ,, 105.8°	7.68	8

The two cases of the serum-treated patients in the last category were the only fatal ending ones. Martin gives a second table showing the duration of the fever. This shows that of the serum-treated patients 16 per cent. had fever for three days, 28 per cent. for four days, and 12 per cent. for seven days. Above seven days are only single cases, save for two who had fever for eleven days. Among the non-treated cases, from 10.24 per cent. to 15.36 per cent. had fever for three, four, five, six, and seven days, while fever of a longer duration was seen more frequently than in the serum cases. A third table analyses the cases more minutely. With regard to the most severe cases, he admits that the serum was incapable of preventing the fatal termination, but points out that both patients were much weakened by loss of blood. On the whole, he is inclined to consider that the serum has proved itself of use in the Greifswald clinic, and is certainly not injurious. It is desirable to have a larger number of cases analysed in this manner.

GYNAECOLOGY.

240. **Non-Ovarian Pelvic Dermoid.**

Reinecke (*Zentralbl. f. Gynäk.*, No. 32, 1906) publishes an instructive summary of dermoids of the pelvic connective tissue with references (see also Martin, *Die Krankheiten des Beckenbrindegewebes*, 1906, p. 333). They may develop between the rectum and sacrum, in the subperitoneal tissue, in the right or left half of the pelvic cavity, in the broad ligament, or in the connective tissue beneath Douglas's pouch, and above the recto-vaginal septum. Emmet and Bröse have each described an instance of the last variety. Reinecke adds a third. The patient was a married woman, aged 50, subject for some time to irregular and free menstruation. For over a year a mass projected from the vulva when she strained. There was also bearing down pain in the rectal region, distension of the stomach and dyspnoea, with no physical signs of cardiac or pulmonary disease. On examination two tumours were detected ; the smaller, as large as a plum, lay in the anterior wall of the vagina behind the meatus, the larger lay behind the posterior wall ; it was fixed, as big as a fist, and prominent under the vaginal wall. It pushed the uterus upwards and forwards. On pressure distinct fluctuation could not be made out. Reinecke operated, enucleating the anterior tumour, the characters of which he does not describe ; posterior colpotomy was then performed, the posterior lip of the cervix drawn forwards and upwards and a vertical incision made down the posterior vaginal wall. Many vessels had to be ligatured. The upper surface of the tumour pushed up Douglas's fold. The wall of the tumour was opened, and much grease and hair mixed with pus came away, a flat-crowned tooth was seen projecting from the inner lining membrane. Enucleation of the entire cyst proved difficult at several points, the scissors and ligature had to be freely used. Reinecke explored the uterus and appendages through a peritoneal incision ; the ovaries were normal and quite unconnected with the dermoid. The cavity left by the extensive enucleation of the tumour was firmly packed with iodoform gauze brought out of an unsutured space in the upper part of the vaginal incision. The patient made a good recovery. The inner wall of the cyst consisted of epidermis smooth and bald at some points, and covered with hair at others, the essentially dermoid portion forming a big protrusion from the wall. About an ounce of free hair lay in the cyst cavity.

241. **Ascites and Ovarian Dermoid.**

Guibal (*Annales de Gyn. et d'Obstét.*, August, 1906) reported at a meeting of the Société Anatomique de Paris an example of ascites associated with dermoid tumour of the ovary, an unusual complication. A patient, aged 56, consulted him for enormous ascitic distension of the abdomen. She was married and her youngest child was 26. The distension developed rather suddenly without any constitutional or local disturbance ; about a month after it was first noticed the abdomen was tapped and over 25 pints of lemon-coloured fluid came away. Within a week the peritoneal cavity filled up rapidly, so that a second tapping was necessary, 34 pints being removed. Yet no less than 37 pints were evacuated a fortnight later. A movable smooth tumour of the size of a fist could then be felt on each side of the uterus. There was no evidence of cardiac, hepatic, or renal disease. Proliferating tumour of the cavity was diagnosed, but the patient declined operation. By the next day, however, the abdomen began to fill again, and a few days later ovariotomy was performed. Two unilocular ovarian tumours filled with long brown hairs and grease were removed without the least difficulty. When the patient was last under observation, fourteen months after the operation, she was in perfect health and the ascites had not recurred.

THERAPEUTICS.

242. **Hypodermic Injection of Oxygen in Sciatica.**

R. Massalongo and G. Danio (*Il Policlin.*, September, 1906) describe the successful treatment of obstinate cases of sciatica by the hypodermic injection of oxygen. They do not attach much value to the theories by which such treatment is supposed to act by stretching the terminal nerve filaments or by forming a protective cushion of gas over the nerve endings. They explain sciatica and other neuralgias as a result of disordered metabolism, the by-products of which poison the nerves. The absence or presence of neuritis is thus simply a question of degree. They state that the frequent injection of oxygen under the skin and deeply amongst the muscles influences the local and also the general metabolism, stimulating the circulation in the nerve trunks and the nerve sheaths, and thus facilitating the elimination of morbid products. By experiments on the cadaver and on animals they have satisfied themselves that oxygen injected by their methods spreads deeply and comes in contact with the nerve trunk near the place of injection. The result of treatment is twofold—the immediate relief of the pain and the improvement of the anatomical condition of the nerve. All the cases treated were severe either in the intensity of the pains or from their long duration. Twenty cases are recorded. Nine were completely cured in less than a month after ten or twelve injections, the quantity of each being from 250 to 400 c.cm. of gas. The other 11 cases were completely cured in less than two months. Each injection was made deeply with the long needle of a Pravaz syringe, inserted usually into the most painful point of the skin. The needle communicated by means of an indiarubber tube with a gasogene. Antiseptic precautions were employed, and no ill effects, local or general, followed in any case. A sample case is that of a man aged 43 who entered the hospital after suffering for six years from right sciatica. For two months he was treated without benefit by blisters and frictions. Pressure along the sciatic nerve was very painful, especially between the trochanter and the tuberosity of the ischium, at the outer side of the hip, and over the external malleolus. Six injections of oxygen were made at the most painful spots, and three deeply over the course of the sciatic between the muscles. Cure followed, and was complete in twenty-two days.

243. **Viferral.**

C. Macku (*Muench. med. Woch.*, July 31st) wishes to find a hypnotic which acts promptly, which produces a healthy refreshing sleep, which is harmless for the human body,

which does not interfere with bodily or mental freshness on awakening, and which is cheap. But he recognizes that this ideal has hitherto not been attained, and is accordingly interested in testing a new preparation, which Gaertner claims to nearly fulfil these conditions. This is viferral. It is a polymer modification of chloral, but does not possess the caustic action of this drug. Mackh has tested its hypnotic capabilities and found the action is in nearly all cases an excellent one. It acted well in nervous conditions, in sleeplessness attending retroflexion of the uterus and the like, but when severe pain was present, and when the temperature was raised over 100°, it failed. As a rule, he found 1 gram (about 15 gr.) a satisfactory dose, but at times 1½ grams had to be given. He has not met with any disagreeable side-effects, and especially states that he has not seen any deleterious effects on the stomach, intestines, heart, or kidneys. On awakening, the patients did not complain of headache or drowsiness. They always took it willingly, and an accustoming to the drug seems not to exist.

244. **Osmic Acid.**

ARTHUR E. HERTZLER (*Med. Record*, September 8th, 1906) states that osmic acid, in common with several other minerals used in microtechnique, acts differently from true stains, in that a definite chemical reaction takes place, producing a precipitate of a more stable compound of the metal. This result takes place in recent tissues only. Definite substances in the tissues are acted upon by these chemicals. The only one of this group of substances that has been definitely worked out is silver nitrate. It combines with the chlorides of the tissues, forming the silver chloride. This compound is quickly fatal when injected into the blood vessels or abdominal cavity. When a dilute solution of osmic acid is injected into the free peritoneal cavity, particles are carried to the kidney, as in the case of silver chloride, with the small accompanying haemorrhages. Although the small amount of osmic acid used in the treatment of neuralgia is probably not great enough to jeopardize life, still there is a limit to the amount of the chemical which can be safely used in therapeutics.

245. **Antitetanic Serum in Lockjaw.**

ROSA ENGELMANN (*Med. Rec.*, September 22nd, 1906) believes that the ineffectiveness of antitetanic serum in cases of tetanus is due to insufficient doses. In the case the history of which she reports, the writer administered the serum by both intraspinal and subcutaneous injections to the amount of from 60 c.cm. to 80 c.cm. daily to begin with, a total amount being 650 c.cm., of which 520 c.cm. was given subcutaneously, 85 c.cm. subdurally, and 45 c.cm. directly into the wound. After five days of this treatment, the man was comfortable, with flaccid muscles and less rigid jaw. Recovery took place in four weeks, and at the end of six weeks the patient was back at work.

PATHOLOGY.

246. **Haemorrhagic Infarct of the Liver.**

G. SOTTI (*Arch. per le Sci. Med.*, vol. 30, No. 10) remarks the great rarity of observations upon haemorrhagic infarcts in the human liver, and the diversity of the results given by experiments designed to produce them in animals. Ligature of the hepatic artery has only occasionally produced red hepatic infarct. The same is true of ligature or thrombosis of the portal vein, which often appear not to injure the liver at all. Birch-Hirschfeld denied that haemorrhagic infarcts occurred in the liver at all. Labadie-Lagrave stated that they only occurred when the hepatic artery and portal vein were occluded simultaneously. The author discusses a number of the cases in which haemorrhagic infarcts have been seen in the liver, and gives a new case. At the obduction the patient, a woman of 67, showed arterio-sclerosis, recent fibrinous pericarditis and pericardial adhesions; recent ulcerative endocarditis, mainly affecting the aortic valves; bilateral fibrinous pleurisy with exudation; some bronchopneumonia and a haemorrhagic infarct at the base of the right lung; thrombosis of small branches of the pulmonary artery; considerable turbid ascites, distended intestine, granular kidneys showing the cicatrices of infarcts of various dates, complete thrombosis of the splenic artery, a spleen not enlarged in size but blotched on section. Sotti describes the microscopical and macroscopical appearances of the liver at length. The liver was not increased in size. Part of the right lobe and the whole of the left were brick-red in colour (the rest of the organ being lighter than the normal), and had a wrinkled surface, like that of shagreen or an atrophic spleen, which was also a little depressed. The cut surface of this area, which occupied the whole of the left lobe and the upper and median portions of the right lobe, was smooth and showed no excess of fibrous tissue on inspection, while the acinous structure could be recognized, and the veins and arteries were obviously thrombosed. The lesion was clearly an atrophic haemorrhagic infarct. Under the microscope different portions of the infarct showed different conditions of affairs. There was no increase in the fibrous tissue of the organ: much of the hepatic tissue had atrophied completely: other parts (in which the circulation had been incompletely arrested or else had been re-established) only partially: there was much extravasation of red cells, and the capillaries were distended with blood. Some branches of the hepatic artery were completely thrombosed: many smaller ones were partially so, and these arterial thrombi appeared to be of quite recent date. Many of the branches of the portal vein were thrombosed, and the thrombus in some of them had become canalized; hence, Sotti argues, the portal thrombosis was of some standing. The liver cells themselves showed all grades of compression, atrophy, ischaemic necrosis, fatty degeneration, destruction, necrosis, or necrobiosis, in different sections that were studied. No new formation of connective tissue, bile ducts, or hepatic cells could be found. The occlusion of the portal vein was incomplete; that of the hepatic artery was quite recent, and was due to the grave cardiac and pulmonary disease of the patient and also to the diffuse obliterative endarteritis seen in its branches.

247. **Tuberculosis of Thoracic Duct.**

LONGCOPE (*Bulletin of the Ayr Clinical Laboratory of the Pennsylvania Hospital*) has collected 30 cases of generalized tuberculosis, and has investigated the frequency with which the thoracic duct in such cases is involved, and as forming a possible seat of origin for the generalized tuberculosis. Nineteen of these were cases of generalized acute miliary tuberculosis, in 14 of which the thoracic duct showed evidence of more or less extensive tuberculous disease, and usually with the presence of caseous nodules. Of 8 cases in which the general tuberculosis was subacute or chronic, in only 2 was the thoracic duct affected with tubercle, and in 3 cases of chronic tuberculosis the duct was normal. (In these last 3 cases the disease was limited to the lungs and peritoneum.) From these results it is seen that of 27 cases in which the tuberculous disease was more or less generalized, in 17—or nearly 63 per cent.—there was tuberculosis of the thoracic duct, or the exudation from the duct contained tubercle bacilli. Of the acute cases, over 79 per cent. showed either tubercle of the duct or tubercle bacilli were found in its exudation. Sometimes a single large caseous nodule was present near the receptaculum or about the arch of the aorta, with small tubercles over the intima of the vessel above and below it; sometimes there were several caseous nodules scattered through the duct and occasionally its wall was simply seeded with small tubercles. The duct lesion often appeared to be almost as old as that in the neighbouring lymphatic glands and often was in close association with the latter; direct extension of the disease from the gland to the duct was, however, never seen. This intimate association between the lesions of the lymph glands and those of the duct suggests that in a certain number of cases tubercle bacilli are carried from the tuberculous glands to the duct, where they lodge and produce a tuberculous nodule; this ultimately breaks down and numbers of bacilli are discharged into the general circulation, producing an acute and rapidly fatal general tuberculosis. To explain those cases of subacute generalized tuberculosis in which there are tuberculous nodules in the lymphatic glands adjacent to the duct and small foci of tuberculous disease in the duct itself, the author suggests that a few bacilli may from time to time be carried by the lymph into the general circulation, and scattered to different regions of the body, producing a more chronic general infection. From the results of his observations and an analysis of the cases he has collected, the author draws the following conclusions: (1) Tuberculosis of the thoracic duct is of great frequency in cases of acute generalized tuberculosis; (2) the lesions in the duct from which the tubercle bacilli arise form the starting point for the generalized acute process; (3) in some cases of acute generalized tuberculosis tubercle bacilli may be found in the lymph from the duct without the duct itself being diseased; (4) in a small number of cases of subacute generalized tuberculosis the thoracic duct may also be affected.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

248. **Sleeplessness in Children.**

CASSEL says that conditions which rob children of their natural healthy sleep are fortunately not common, but still temporary or permanent disturbances of sleep in children at times compels mothers to bring their children to the doctor (*Deut. med. Woch.*, September 6th, 1906). In order to be able to deal with sleeplessness in children, it is necessary to understand the physiological peculiarities of their sleep. After the new-born infant has been bathed, if this is properly carried out and the baby is not allowed to cool too much, it falls into a sound sleep, from which it only awakens during the first few weeks of life when unpleasant sensations make themselves felt. These are feeling cold, getting wet, hunger, thirst, and the like. As soon as the sensations are removed, the infant falls again to sleep. For the first quarter of a year the infant sleeps away most of its time, and during the second and third quarters the development allows of longer periods of waking, until in the fourth quarter of the year, the growing intelligence of the child permits of a period of waking extending over a few hours, without any signs of over-exertion showing themselves. Still, the greater part of the twenty-four hours must be spent in sleep at this age. Towards the end of the second year the child should sleep twelve hours at night and besides from one and a half to two hours during the day. In the fourth year, the night sleep of from twelve to thirteen hours, if good, may justify doing without a day sleep, but this must depend on several factors. Until puberty has been reached, a child should have from nine to eleven hours' sleep at night-time. Disturbances of sleep in children may be due to various causes. Cassel first deals with affections attended with pain. Trauma, inflammatory affections of the skin, especially when attended with itching, cough, dyspnoea, diarrhoea, and colic, are mentioned as examples. Obstruction to breathing through the nose is also a cause of disturbed sleep. The most important cause of this is adenoid vegetations. Next he mentions acute and chronic infective illnesses, and especially fever. However, some children become very drowsy during fever. But the most common cause of sleeplessness in children is due to disturbances of the nervous system. He dismisses those cases in which the cause is a definite brain disease with macroscopic changes in a few words and then turns his attention to the functional disturbances. In early childhood disturbed sleep is often met with in rickets. Laryngismus stridulus also disturbs sleep. Tetany also belongs to the same category. Nocturnal pavor or screaming is a condition in which the symptom of disturbed sleep is the one complained of, while the same may be said of the night wandering. Somnambulism, hysteria, and epilepsy naturally may interfere with sleep. Nervous children, psychopathic or neurasthenic children at times sleep very badly. The little ones complain of headache, are fidgety, show slight mental defects, such as lying, irritability, etc., and often masturbate at an early age. These children often suffer from the faults of their parents. The latter being mostly nervous as well, are frequently irritable, and even passionate with their children, or else lack all energy and let things go, without attempting to influence the characters of their children. Regularity in meals, sleep, and other daily procedures are wanting. Cassel counts up a number of bad influences to which these children are subjected. If neglected the condition becomes a very serious one. The children lose their bodily and mental freshness, become weakly and tired, lose their appetite, and then anaemia sets in. The whole constitution is so undermined that their bodies have no longer any power of resistance, and they fall a prey easily to any serious illness. The doctor must step in before things have come to such a pass. First of all, it is necessary to investigate the anamnesis carefully, and every little detail must be inquired into. One should not be satisfied with the statements of the parents, but should make a most searching examination of the whole organisms. The ears, the eyes, the urine, all must be looked into. If the cause can be removed, the insomnia soon yields. But one must not forget to take the moral and intellectual aspect into account, and even in the question of the methods at school the doctor has a right to have his say. Then the daily life of the little patient must be regulated. Diet must be bland and wholesome, and regularity in going to bed, etc., must be insisted on. Suggestive means are of great use. By this Cassel means that absolute quiet, darkness, and the presence of a trusted person often works wonders. The person need only hold the child's hand, or say a few soothing words or sing the child to sleep, especially if this is done in rather a monotonous tone. But it is not permissible to rock a baby to sleep in the arms, or to take the baby into bed with its mother. The latter habit is dangerous, since large numbers of overlying occur unintentionally in this way. Darkness is advisable in most cases, but in night screaming and the like it is wise to allow a well-shaded lamp, so that the little patients have a feeling of additional safety. Baths often work well. One may employ a warm bath for from five to six minutes, or wet cool compresses to the loins may be used or cold sponging. For masturbating children the best form of treatment is to order prolonged exercise in the open air. The children should be made to run, jump, swim, play games, etc., until they are so dead tired at night-time that they fall to sleep spontaneously as soon as their heads are on the pillow. Drugs are rarely needed. At times a little bromide may be given to a nervous child. When cough or laryngismus is present chloral may be given, and Cassel says that it would be unpardonable if one refused to give a little one opium or morphine for painful condition, unless some contraindication existed.

249. **Tuberculous Appendicitis.**

V. GAUDIANI (*Il Policlinico*, September, 1906) relates a case of tuberculous appendicitis, and discusses several questions in connexion with the disease. The patient was a woman of 20, with a doubtful family history of tuberculosis. Two years before admission to hospital she began to lose colour and strength, and to suffer from abdominal pains, with diarrhoea and hectic fever. During the last three months the symptoms were intensified. On admission there was tenderness over the whole abdomen, but especially the lower right quadrant. Deep palpation showed a lump over which resonance was diminished. At first there was a regular evening temperature of 38.6°. Under medical treatment this disappeared, the abdominal tension diminished, and it was possible to make out very distinctly an oblong swelling in the caecal region lying parallel with the crural arch. During the patient's stay in hospital she had several attacks of pain starting from the ileo-caecal region and radiating over the whole abdomen. She declined to be operated on, and the diagnosis between chronic appendicitis and ileo-caecal tuberculosis remained doubtful. A few days after discharge she was again admitted on account of severe abdominal pains. The abdomen was opened. The peritoneum was apparently unaltered and free from adhesions. The appendix was thickened so as to be the size of a thumb. The mesentery was very much thickened and contained several enlarged glands. The caecum and the lower part of the ileum were much thickened, as if by a new growth. In correspondence with the appendix and part of the caecum the peritoneum showed some patches of tubercle. An ileo-caecal resection with latero-lateral anastomosis was performed, and the wound healed in the course of a month. Inside the appendix was a calculus the size of an olive, adhering to it at one point where the mucosa was destroyed close to the valve of Gerlach. Further down the lumen of the appendix was almost obliterated at one point. Below this, again, the mucosa was normal. There was also some loss of substance at two points in the thickened mucous membrane of the ileum and caecum, each opening leading to a small cavity in the submucosa filled with haemorrhagic detritus. The glands removed showed greyish-white areas without softening. Microscopic examination showed in the thickened part small-celled infiltration with many giant cells and areas of necrosis, much enlargement of the lymphoid follicles, and considerable necrosis in the lymphatic glands, making altogether clear evidence of tuberculous infiltration. Gaudiani states that as a clinical entity tuberculous appendicitis is a rare disease, and the appendix is very rarely or never the primary site of tuberculosis. The lymphoid tissue in which the appendix is rich, so as to encourage comparison between the appendix and the tonsil, furnishes a ready explanation of any tuberculous infection which may be found. The author inclines to the opinion that his case was one of tuberculous

appendicitis coexisting with ordinary chronic appendicitis. Where ileo-caecal tuberculosis and tuberculosis of the appendix coexist it is difficult to determine the original lesion. The usual opinion has been that the appendix was attacked last. Palermo, in 7 cases of ileo-caecal tuberculosis, found the appendix only three times. In the remaining cases he considers that it had been attacked first and completely destroyed. Gaudiani thinks his a similar case, which, if examined earlier, would have shown simply a tuberculous appendix, or, if surgical intervention had been longer delayed, would have been a tuberculous typhlitis with no distinct remains of the appendix.

SURGERY.

250. Treatment of Aneurysm by Subcutaneous Injection of Gelatine Serum.

Lancereaux (*Rev. de Chir.*, No. 8, 1906), in a paper communicated to the Académie de Médecine in July, discusses the preventive and curative treament of aneurysm of large arteries, particularly the aorta. The curative treatment advocated by the author consists in the subcutaneous injection of 200 grams of gelatine serum into the gluteal region, repeated every fifth or sixth day. No accident, it is asserted, has occurred at the author's hands beyond a transient rise of temperature, which, owing to improved methods of preparing this serum, is now relatively rare. About 1,200 injections have been made by Lancereaux and his assistants without a single instance of resultant tetanus. The serum used in this treatment often contained from 2.50 to 3.50 grams of gelatine per cent., and the proportion, it is stated, may be raised even to 5 per cent. without interfering with absorption of the injected fluid. The absorption is usually completed by the end of twenty-four hours, and, it has been found, is never followed by the slighest suppuration. Lancereaux believes that the subcutaneous injection of gelatine serum, provided care be taken to use only gelatine that has been properly sterilized, is quite free from any risk. The efficacy of this method of treating aneurysms of large vessels is held to be indisputable, as it is supported by many facts, and its effects are always identical. With regard to the relief, pain, which is an almost constant symptom of aneurysm of the first portion of the aorta, it is stated, ceases after from four to five injections. In every case he has treated of aortic aneurysm perforating the sternum and covered only by thin and stretched skin, the author has noted commencing contraction of the tumour after ten injections, and total induration after from thirty to forty injections. These results, observed in 3 cases, taken together with those reported by Le Dentu and many others, afford good evidence, it is urged, of the efficacy of injections of gelatine serum in the treatment of aortic and other large aneurysms, not in mild cases only, but even in the most hopeless forms of perforating and thin-walled aneurysmal sac. These good results cannot be attributed solely to rest in bed. The author states that he has watched cases in which patients kept for long periods in bed obtained no benefit from treatment before the injection of gelatine serum, and other cases in which, after the injections, the aneurysmal tumours contracted, notwithstanding the absence of complete rest. The author has drawn the following conclusions from his study of the pathology and therapeutics of large aneurysms: (1) Generalized arteriosclerosis or endarteritis is seldom followed by aneurysm of any of the large blood vessels, the pathogenic conditions of which are forms of progressive periarteritis, finally causing perforation of the elastic membrane of the affected vessel. Aneurysms of this kind—those due to traumatism being excluded—have an infective origin, and are the result of tuberculosis, syphilis, or malaria. (2) Failing the very rare occurrence of the spontaneous coagulation of blood in the sac, rupture is the inevitable termination of an aneurysm of a large vessel. The only effectual treatment in cases of aneurysm has until recently been ligature of the affected vessel. Such treatment, it is pointed out, is not only dangerous but impossible in cases of aneurysm of a large trunk, particularly the aorta, and some method of effecting coagulation of blood within the sac remains the sole therapeutic resource. (3) The results obtained by the author and Paulesco from injections of gelatine serum prove, it is stated, that in this method we have an effectual and safe means of dealing with otherwise incurable aneurysms.

251. Wounds of the Pancreas.

Borszéky (*Beiträge zur klin. Chir.*, Bd. 48, Heft 3, 1906), in concluding a paper on injuries of the diaphragm, stomach, and pancreas, discusses the diagnosis and treatment of wounds of the last-mentioned organ. Records of wounded pancreas are, it is stated, very scanty. The injury was due in a large proportion of these instances to gunshot wound, and in one case only to stabbing. The diagnosis of a wound of the pancreas cannot be made with any certainty until laparotomy has been performed, and even then is difficult unless in a gunshot injury the track of the missile directs attention to this organ. The concealed position of the pancreas and the relatively slight bleeding associated with the wound render the injury liable to be overlooked. Sharp pain in the epigastrium, and later a sensation of a foreign body in the neck and chemical changes in the urine—such as the presence of sugar and diminished quantity of sulphates—are by no means characteristic symptoms, and it is only by exposure and direct inspection that the presence or absence of a pancreatic wound can as a rule be determined. The prognosis of such injury is very grave, the mortality being almost 70 per cent. This high rate may be attributed, on the one hand, to the digestive action of the pancreatic secretion, and, on the other, to the situation of a wounded organ, which favours the probability of a complicating injury of the stomach, intestine, or liver, or of one of the large blood vessels behind the gland. The specific danger of a wound of the pancreas consists in the persistent trickling of pancreatic secretion into the abdominal cavity. Whether such fluid be capable or not of exciting peritonitis has not yet been made out; but there can be no doubt that the exuded fluid may cause maceration of adjacent organs and so favour to a considerable extent the risk of infection. Necrosis may also be set up in the gland, which, when extensive and not restricted to a few small and scattered foci, is invariably fatal. The surgical treatment of a wound in the pancreas is rendered very difficult by the anatomical position of this gland. It is often found impossible to apply an exact and adequate suture, and then in order to control the bleeding it is necessary to have recourse to acupressure, which demands great care in its practice in order to avoid wounding the superior mesenteric artery or compressing a branch of this vessel and thus arresting the supply of blood to a portion of intestine. The author, recognizing the difficulty of suppressing the discharge of pancreatic secretion even by close suturing of the wound, recommends packing of the seat of operation so that the discharge may be directed to the surface, and that in case of any subsequent localized necrosis of the pancreas the necrosed patch may be shut out from the peritoneal cavity by adhesions. It is not safe, however, to trust to packing and to make no attempt to suture the wound.

252. Bloodless Reduction of Congenital Hip Dislocation.

Walter G. Stern reports (*Medical Record*, September 15th, 1906) statistics gathered from operators scattered all over the world, which very nearly agree with those as first given out by Lorenz as his own experience. The number of hips reported as successfully operated upon since 1900 is 2,593. Ideal results, restitutiones completae, 48.98 per cent.; anatomical restitutions, 41.76 per cent., 1,084; excellent functional results, 7.22 per cent., 187. Good function from transpositions, 39.98 per cent., 1.036. Failure, redislocation, bad function, 12.10 per cent., 314. The discrepancy between failures and good results (about 1 per cent.) is due to inaccuracy of many of the reports. Individual operators have had far better results. These latter results will and must be attained through careful and painstaking work, combined with increasing experience and advanced methods.

OBSTETRICS.

253. Toxaemic Vomiting of Pregnancy.

Whitridge Williams (*Amer. Journ. of Med. Sci.*, September, 1906) recognizes three varieties of pernicious vomiting in pregnancy—reflex, neurotic, and toxaemic. In the reflex variety the vomiting is apparently directly due to the existence of some abnormality of the generative tract—such as a retroflexion of the uterus or an ovarian tumour—and it ceases promptly upon its correction. In the neurotic variety the vomiting is apparently dependent upon the existence of a neurosis allied to hysteria. There is no physical condition to explain the vomiting, and no serious metabolic disturbance. These cases yield to suggestion or the rest cure. Toxaemic vomiting, on the other hand, is a very serious disease, and is a manifestation of a profound disturbance of metabolism of the exact origin

of which we are ignorant. It usually ends in death, sometimes within a few days of the appearance of serious symptoms. The urine, while scanty in amount, does not contain albumen or casts until shortly before death, and may apparently contain a normal amount of urea. There is a decided decrease in the amount of nitrogen excreted as urea, and a marked increase in the amount excreted as ammonia. This so-called ammonia coefficient, instead of being 4 or 5 per cent. as in normal pregnancy, may rise to 20, 30, or 40 per cent., or even as high as 47 per cent. The proportion of amido-acids is increased, but no leucin or tyrosin was found by the author. In some cases the acetone content is abnormally large. At autopsy there are pronounced lesions in the liver and kidneys. The former are closely allied to those in acute yellow atrophy, and consist in the almost total destruction of the central portion of the liver lobules, the cells of which eventually become necrotic, while the cells in the mid-zonal and peripheral regions undergo fatty degeneration. In the kidneys marked degenerative changes, sometimes amounting to necrosis, are likewise observed, especially in the convoluted tubules. It is most essential in every case of serious vomiting in pregnancy to make a complete urinary examination and determine the total nitrogen and the ammonia coefficient. If the latter exceeds 10 per cent. the diagnosis of toxaemic vomiting should be made and the pregnancy immediately terminated. If the ammonia coefficient is approximately normal, the probability of a serious toxaemic condition can be eliminated, and the diagnosis will lie between the reflex and neurotic varieties. The author holds that toxaemic vomiting and acute yellow atrophy are closely allied, but that pre-eclamptic toxaemia and eclampsia are distinct conditions from these.

254. **Criminal Abortion: Suppurating Haematoma above Pelvis.**

Karczewski (*Monats. f. Geb. u. Gyn.*, September, 1906) observed a patient who was suffering from subperitoneal effusion of blood above the anterior vaginal fornix. It had been caused by perforation of the anterior part of the cervix, a blunt instrument having been passed into the cervical canal in order to produce abortion. The effused blood suppurated, and an incision was made above Poupart's ligament, the vagina was also drained, and another incision for drainage, under the twelfth rib, was found necessary. After long and free washing out of the suppurating area the patient recovered.

GYNAECOLOGY.

255. **Backward Displacements of the Uterus.**

G. Richelot (*La Gynécologie*, June, 1906), in discussing backward displacements of the uterus, does not for practical purposes distinguish between version and flexion of the uterus, but divides displacements into two great classes—the symptomatic and primary. A symptomatic displacement is a minor incident of a pelvic infection, and the treatment is directed to the more important pelvic lesions. Primary retroversion occurs at all ages, and is often met with in young girls where the ordinary causes of infection can be excluded. The perineum is normal. The uterus is freely movable, but is in young girls globular, and somewhat larger than normal, while in older women it has become congested, hypertrophied, and indurated; the neck of the uterus in the early stage is of normal size and colour, but has an abundant secretion; later it is voluminous, indurated, violet in colour, the secretion is clear, but becomes milky when mixed with the vaginal mucus. The ovaries are always sclerosed, and are usually polycystic, but sometimes are of great size and indurated throughout. On opening the abdominal cavity no adhesions are found, nor any sign of a previous infection; the tubes are not enlarged and are free, the ligaments supple and slender. Such cases have often been confounded with cases of symptomatic retroversion and metritis due to an infection; or, where infection could be excluded, "virginal metritis" said to be present. The question of how metritis could lead to the malposition has not, however, been satisfactorily answered, and a very large proportion of cases in which metritis due to a microbic infection exists do not show retroversion of the uterus. Moreover, the author does not believe that infection has been present in those cases in which no sign of it can be detected. Other causes given for uterine diplacements in combination with infection are mechanical causes, such as prolonged decubitus, too full a bladder, constipation, stretching of the ligaments as a result of pregnancy. Mechanical causes such as these can only be effective where there is predisposition to the condition, and thus we arrive at the idea of a *tempérament morbide*. The idea of predisposition is strengthened by the fact that other abnormalities—such as mobility of the kidney, enteroptosis, hernias—are commonly met with in combination with retroversion. The connecting link amongst these different lesions is the tendency to relaxation of the fibrous tissues, which is one of the most characteristic points of neuro-arthritism, and the women belong to the class described as nervous arthritics. This is clearly shown also by the presence in nearly every case of other of the customary signs of neuro-arthritism: migraines, articular pains, dyspepsia, constipation, haemorrhoids, eczema, varices, and hysterical disorders. The retroversion of the uterus in these cases is accompanied by congestion and later by hypertrophy of the uterus, as well as by changes in the ovaries already described and pelvic symptoms, as, for instance, disorders of menstruation, especially dysmenorrhoea and menorrhagia, periodical intermenstrual discharges, and in addition between the periods a sense of fatigue and weight, pains, either dull or shooting, to the perineum, the thighs, and the lumbar region—general malaise. It may be acknowledged that these symptoms are not necessarily due to the retroversion, but may all be met with in neuro-arthritics in whom there is no uterine displacement, while they may be absent even when displacement is present—as, for instance, when a patient is keenly conscious of a movable kidney, but not conscious of a retroverted uterus. On the other hand, in many cases where the pelvic symptoms form a very prominent part of the clinical picture and where displacement exists, the uterine lesion, slight though it is, appears to sustain and exaggerate the other symptoms, and recovery follows on the reposition of the uterus. The author's method of reposition is to do a median laparotomy, to grasp each round ligament at some distance from the corner of the uterus at that part which is always resistant and fasten it by two or three catgut stitches to the lower end of the wound. Pessaries for backward displacements are necessary palliatives on a level with trusses for the treatment of hernias. Alexander's operation is one in which the work is done, so to speak, in the dark; Wylie's operation has the radical defect of leaving untouched the weak point of the ligament, its inguinal attachment. During six years Richelot has operated in the manner described on 80 cases of primary displacement; 25 of the cases were treated in hospital with apparent success, and none of the patients reappeared for further treatment; 16 of them were sought out later, and these all declared themselves well and satisfied with the operation; 15 of the cases were operated upon during the year in which the present article was written, and it is as yet too early to be able to assert that the results, which are at present satisfactory, will be permanent, although from analogy with the other cases there seems to be no doubt that they will. In 1 only of the remaining 40 cases did symptomatic recovery fail to follow the operation, and in none did the uterus fall back into its abnormal position after reposition. It is of course possible to say that nervous patients are not cured by such an operation, and the author does not pretend that all nervous symptoms disappeared, but the patients were all agreed as to the relief given by the operation. One stated that she no longer had pain even during the period; another that whereas before she had been constantly losing blood, she now suffered neither from losses of blood nor pain, and that she could once more do her work and live an ordinary life; another that intermenstrual discharge had disappeared, and that transformation was complete, although she still had from time to time a slight sense of weight; another that the change was one from day to night, and so on. The author describes at length four of his cases which are typical of the others. In one the symptoms had been for the most part definitely pelvic; in another these had developed in addition to pelvic symptoms, insomnia, nightmares, great weakness, and a constantly-felt need for rest; the third had been operated upon in Richelot's absence, and a small parovarian cyst removed without reposition of the uterus; the symptoms had persisted, and recovery only occurred when reposition of the uterus was effected at a later operation. Three of the author's patients became pregnant after having undergone operation, and in each case labour was normal.

THERAPEUTICS.

256. **Artificial Feeding of Infants.**

A. Keller describes the dangers of starch food for babies, and points out that an error in feeding of this kind is

extremely common (*Berl. klin. Woch.*, September 3rd, 1906). As a rule, starch foods are given to infants on account of acute intestinal disorders. The starch is supposed to constipate, and the mothers therefore leave off milk and substitute one of the foods, or a home-made infusion of barley or rice, or even starch water. When the stools improve in consistence under this diet, the mother is unaware that the want of milk will damage the infant, and so continues the starch feeding. At times the mother attempts to return to a diluted milk diet a few days after the starch diet has begun, and, finding that the stools are becoming frequent and watery again, she gives up the milk altogether. The laity is always pleased if a diet can be found which will allow the infant to pass through the hot summer months without being attacked by summer diarrhoea. The doctor may order a starch diet for an acute intestinal attack and forget to warn the mother that this may only be continued for a short time, and that the proper diet without doubt is milk. The inclination of the mothers is further supported by the reckless advertisements of babies' foods, which may be quite useful for special emergencies but do endless harm when used without knowledge. The signs of the damage done by starch diet often only appear after a fairly long period of apparently good health, but when the symptoms do break out they are very stormy. Dryness of the skin, muscular rigidity, difficulty in carrying out free movements, weakness of the heart, anorexia, among other signs, tend to give these cases a bad prognosis. Death not infrequently follows after signs of severe auto-poisoning, or in response to an infection. It must be remembered that children fed in this improper way often have no power of resistance—that is, their immunity is much lowered. The practitioner should always be on the look-out that he is not deceived by a child looking well, with a rosy colour, and no intestinal disturbances. Such children may be advancing in the disease caused by starch feeding. The condition of the skin and muscular system will, however, put him on the right tack. In turning for a moment to the treatment, Keller says that repair goes on very slowly indeed, and only too often while the child is really showing some signs of getting better, an acute infection cuts everything short. One must therefore attempt to get hold of the patients as early as possible, prevent the occurrence of symptoms, and be careful when once the dangerous signs are found.

257. **Carbon Bisulphide in Pneumonia.**

MASCIANGIOLI (*Rif. Med.*, September 15th, 1906) has had such success in a small number of cases in the treatment of pneumonia with carbon bisulphide that he wishes to bring this therapeutic method before the notice of the profession. The author was led to the use of this drug by an experience of its benefit in a case of pneumonia complicated by severe enteritis, where an aqueous solution (5 per cent.) of carbon bisulphide was given for the relief of the intestinal symptoms, and produced so good an effect that it suggested some influence on the pneumonic process in addition to its effect on the bowels. The author only reports four cases, but in these the results were satisfactory. The fever disappeared on the third and fourth day, and the expectoration was conspicuously small in amount. Two of the cases were from a family where the fathers had in the previous week died from pneumonia. Carbon bisulphide is easily absorbed into the blood, and probably acts directly on the pneumococci, paralysing their vitality and neutralizing the toxins. The drug was administered hourly in a 5 per cent. aqueous solution diluted with an equal quantity of water.

258. **Traumatic Tetanus treated with Serum.**

J. KENTZLER (*Berl. klin. Woch.*, September 17th, 1906) discusses the question of the treatment of tetanus antitoxin, using the occasion of publishing three cases of traumatic cases which were successfully steered through. The first case might be considered to belong to the category of severe cases, while the two others were milder. The bacilli were found in the pus of the wounds in each case. The incubation in the three cases was ten, seven, and fourteen days respectively. In the first case he gave 19.95 grams of dry Tizzoni serum, and in the second and third cases he gave 1,000 and 1,400 antitoxin units of Behring's serum. No improvement was noted after the first injection in any of the cases, but rapid disappearance of symptoms followed the continuation of the injections. While he does not feel inclined to draw any conclusions from these three cases, he points out that the improvement and recovery, which took place rapidly after the employment of the serum, suggests that the serum had something to do with this recovery. In looking over the literature of tetanus, he finds that the earlier observers gave very varying accounts of the mortality of the disease. The lowest given was 44.6 per cent. and the highest 96.7 per cent. All that can be gathered from these figures is that the mortality in the pre-antitoxin days was very high. Various authors have published statistics dealing with the mortality of the disease when treated with antitoxin. These vary between 28 per cent. and 50 per cent. The author himself has found details of 564 cases, of which 203 cases, that is, 36.88 per cent., died. This compares favourably with a similar collection of cases in 1882, in which the mortality among 184 cases was 67.39 per cent. These cases are compared in some detail. In the first place, the question of the length of the incubation period is closely followed, and the tables show that the mortality is highest when the incubation lies between one and ten days. The tables further show that the mortality is lower in each of the groups of cases arranged according to the incubation length in the serum-treated cases than in the cases not so treated. The time when the serum is first injected after the outbreak of symptoms is also of importance, but one must remember that the statistics will show a high mortality even in cases treated early, if the incubation period is short. The serum appears to be quite harmless. One must further not forget that the publications on which the statistics are based are more likely to contain results of successful treatment than failures, and therefore the mortality of the serum-treated cases may appear to be lower than it really is. He is inclined to regard the serum treatment of tetanus as a means which influences the course of the disease for the better, and thinks that it should be used more freely than it is at the present day.

259. **Stovain Anaesthesia.**

GAMBRINI-BOTTO (*La Clin. Mod.*, September 16th, 1906) has used stovain as a local anaesthetic in about 200 cases of general surgery (79 hernia, 24 for radical cure of hydrocele, 18 varicocele, 6 varicose veins, 4 anal fissure, etc.). The usual strength of the solution was ½ per cent., and in one case of varicose veins as many as thirty-two injections were given in the course of the operation. As compared with cocaine, stovain is three times less toxic, and although the degree and duration of the anaesthesia is somewhat less than that of cocaine, there is so little difference that it is comparatively of little moment. Stovain further possesses the advantage in acting as a cardiac tonic and as an antiseptic. It does not constrict the blood vessels like cocaine, and so has no haemostatic action; but this is not a disadvantage, for the haemostatic action of cocaine sometimes gives rise to a secondary slight oozing, which may give unexpected trouble, whereas with stovain all probable haemorrhage is seen, and can be dealt with at the time of operation.

PATHOLOGY.

260. **Human and Animal Tuberculosis.**

LYDIA RABINOWITSCH (*Arbeiten aus dem path. Inst. zu Berlin*, 1906, p. 365) finds that the only marked difference in the cultural characters of human and bovine tubercle bacilli is that the latter are more troublesome to raise and grow more slowly, particularly in the earlier generations. But to this rule she has found some exceptions. Guinea-pigs are highly susceptible to both kinds of bacilli, and when one considers the pathological changes brought about in these animals and the time taken to produce them, no constant differential feature can be found between the virulence of human and bovine strains for these animals. For the rabbit, however, bovine strains are of decidedly higher virulence than human strains. In this respect the rabbit corresponds with the bovine. The writer has investigated twenty strains of human origin, including five obtained from sputum, and finds that two out of this number are identical as regards cultural characters or virulence with bovine strains. These two were cases of alimentary tract tuberculosis in children. Eleven strains were found to be typical of the human type of bacillus. Six of the remaining human strains were found to be "atypical," that is, they were not characteristic either of the human or of the bovine type; two of these exceptional viruses were from cases of primary intestinal tuberculosis, one was from a case of doubtful alimentary tuberculosis, and three were derived from cases of miliary tuberculosis. Finally, the remaining one out of the twenty human strains investigated exhibited the characteristics of the avian tubercle bacillus.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

261. **Cerebral Manifestations of Chronic Rheumatism.**

Jean Lépine (*Lyon Médical*, October 7th, 1906) recalls the intimate connexion between chronic rheumatism and paralysis agitans. He has recently made an autopsy in an abnormal case of paralysis agitans in a woman of 72 years of age, whose father had been a sufferer from chronic rheumatism. He found a great dilatation of the cerebral ventricles, which were distended with fluid; and he suggests a diffuse inflammation of the structures containing the cerebro-spinal fluid as an etiological factor in both diseases. The resemblance between rheumatism and Parkinson's disease is clinical as well as anatomical. Both are diseases of overwork. The place of onset of the tremor, no less than of arthritis, is in certain cases determined by injury, while in non-traumatic cases the tremor comes on first in the limb most subject to fatigue, the right side in right-handed people, the left in left-handed. But the true clinical analogy lies in the rigidity, the relative immobility, and the apathy, both physical and mental. The mental state in both maladies strongly resembles that of neurasthenia, a disease whose relationship to rheumatism is now recognized as intimate. There is the peculiar disinclination to effort, the morning lassitude, and the tendency to apathy, which is influenced by atmospheric and barometric conditions. The neurasthenic condition of the arthritic often goes on to actual melancholia. Occasionally more complicated mental states result. Lépine has recently had under observation a man, aged 45, who had grave mental obsessions. The man's father died in the asylum, with a delusion that he had been bitten by a rabid dog. His mother, brother, and sister had all suffered, both from rheumatism and from nervous ailments. Ten years before the man had been bitten by a dog which was known to be healthy. Nevertheless, he had a crisis similar to his father's, and was obliged to give up work for two months before the obsession disappeared. No further mental symptoms were observed for ten years, but for two years the patient was overworked, mentally and physically. He then scratched his hand upon a nail in a room which no dog had entered. The obsession of hydrophobia appeared almost at once and was persistent. Under treatment by bromide, and a meat and wine diet, he became suicidal. After he had been recognized as an arthritic he was put upon a milk and vegetarian diet. Small doses of Fowler's solution were substituted for the bromide at the same time, and improvement was at once noticed. Two months later the patient seemed completely cured, and was able to resume work.

262. **Certain Sequelae of Typhoid.**

Patella (*Rif. Med.*, June 30th, 1906), in a clinical lecture on a case of typhoid occurring in a young man, aged 23, discusses three sequelae illustrated in that case, namely, peripheral neuritis, endarteritis, and nephritis. The neuritis affected both hands and feet. In the hand there was wasting of the interossei and lumbrical muscles and partial reaction of degeneration in the thenar muscles (and in the peronei of the legs). The foot was similarly affected with the peroneal type of muscular atrophy. The neuritis which follows typhoid is perhaps more usually limited to one nerve, but may affect several, as in the author's case. With regard to the endarteritis the evidence was derived from repeated examination of the blood. In the second and third weeks there was a marked increase in large mononucleated cells, which was due to exfoliation of the endothelium from the inflamed arteries. As the fever lessened and towards the later stages of the disease this mononucleosis decreased and gave place to the so-called lymphocytosis. In severe cases this endarteritis may even affect the elastic coat, and by breaking the vessel walls may predispose to subsequent aneurysm. The fact that endarteritis may be caused by typhoid has an important bearing on the ultimate prognosis of enteries, for it is not easy to believe that in bad cases the arteries can ever quite recover their original state. The evidence for endarteritis during an attack is to be found in careful blood examination. Further, the author shows that in some cases typhoid may set up a renal sclerosis, either generalized or in small foci. These things being so, it becomes more difficult to say when one is cured of typhoid.

263. **Gastroptosis.**

Worden, Sailer, Pancoast, and Davis (*Univ. Pennsylvania Med. Bull.*, August, 1906), from a study of 40 cases presenting symptoms of gastroptosis, call attention to the value of the bismuth skiagraph shadow in determining the topography of the gastro-intestinal tract. Bismuth subnitrate in suspension in mucilage of acacia, ℥ij to Oj, was either poured into the stomach through a tube or swallowed, and immediately after the bismuth had reached the stomach *x*-ray exposures not exceeding 15 seconds were made, the breath being held in full but not forced inspiration, and the patient standing. The plate was in contact with the anterior abdominal wall, and the rays were thrown posteriorly. It was found advisable to siphon out the bismuth mixture after exposure, as in a few cases where 4 oz. of bismuth had been left in the stomach toxic symptoms were noted, probably due to some disintegrating effect of the rays upon the subnitrate, since the symptoms were analogous to those caused by excessive doses of nitrites. The bulk of the bismuth-acacia mixture varied from 6 oz. to 32 oz., but care must be taken not to leave more than ½ oz. of the bismuth subnitrate in the stomach unless the patient can be watched for several hours after, and even then not more than 1 oz. should be allowed to remain. The information derived from such skiagraphs is more accurate and exhaustive than that obtained from any other method, and not only can the shape and size of the stomach be clearly demonstrated, but the condition of the oesophagus and position of the pylorus can also be studied. Of the 40 cases examined, 31 showed the presence of gastroptosis. The condition of the colon can also be examined by a similar method, 2 oz. of bismuth in 8 oz. of milk or acacia being injected rectally, and by combining the two methods accurate evidence can be obtained of the relative position, size, and shape of the stomach and colon. In examination of the colon the patient should remain in the recumbent position for from half to three-quarters of an hour before the *x*-ray exposure is made. The chief points noted in the study of the intestines were the low position of the hepatic flexure and the high position of the splenic flexure, the acute angle at these flexures, and the fact that contents appear to remain longer in the caecum than elsewhere. Following such an examination of the colon a cleansing enema and a mild purge are advisable.

SURGERY.

264. **Vaselinoma and Paraffinoma.**

Broeckaert (*Journ. de Chir. et Annales de la Société Belge de Chirurgie*, No. 7, 1906) describes certain small growths which, he asserts, are occasionally found in the neighbourhood of masses of vaseline and paraffin injected subcutaneously for prothetic purposes. These growths, for which he suggests the titles of vaselinoma and paraffinoma, are, it is held, the results of exuberant reactive proliferation around minute detached portions of the injected mass. They are in most cases met with after the injection of vaseline and soft paraffin, but seldom, if ever, occur after the use of hard paraffin. Their characters vary with the region in which they are formed. The most frequent seats are the nose, the forehead, the eyelids, and the cheeks. They are in some cases smooth and even; in others sinuous and mammillated. The skin covering them is sometimes quite normal; at other times very vascular and of a violet colour. It is usually fixed to the surface of the tumour, the limits of which are diffused and indistinct. These growths, which may be isolated, scattered, or confluent, form distinct tumours of very firm consistence and free from tenderness. In conspicuous regions they produce more or less marked disfigurement, and, when seated in the upper eyelid, may interfere with vision by hindering the action of the lid, which hangs down like a thick veil over the surface of the globe. The only effectual treatment in cases of this kind is extirpation, which is simple and usually successful if the growth be a firm paraffinoma, but is very apt to be followed by recurrence if the centre of the growth consists of soft and diffusible vaseline.

265. **The Surgical Treatment of Nephritis.**

G. Zironi (*Il Policlin.*, May, 1906), before describing his own experiments, traces the history of surgical operations

for nephritis, and comments on the published accounts of experiments previously performed. He pays special attention to the work of Fabris, who decided that capsulotomy, nephrotomy, and nephrocapsulectomy all hastened the cure of nephritis if they were combined with nephropexy. These results Zironi sets aside on the ground that the animals not operated upon also did well, and he attributes the good results obtained by Fabris to the natural tendency of animals to recover from nephritis. The author found after repeated trials that the best method of producing nephritis was by the subcutaneous injection of either neutral potassium chromate or diphtheria toxin. All but one of the dogs treated with repeated doses of potassium chromate died of uraemia. One survived with chronic albuminuria and cylindruria. With diphtheria toxin it was necessary to administer a single large dose, because repeated doses simply established immunity. With doses just short of the fatal dose he succeeded in obtaining in 4 out of 23 cases a nephritis which, after a period of from seventy to ninety days, was steadily growing worse. These four and the one previously mentioned were the subjects of experiment. All of them were kept throughout on an abundant meat diet. The first dog was killed six weeks after the capsule of one kidney had been removed, the other kidney serving as a control. At the autopsy both kidneys were found affected with nephritis of a mixed type, the parenchymatous changes being alike in the two organs, while the kidney operated on was more profoundly affected by small-celled infiltration and new formation of connective tissue than the other. The second dog was killed five weeks after removal of the capsule of one kidney, and in it also it was found that interstitial nephritis was more extensive in the kidney operated on. In the third dog the nephritis was almost exclusively interstitial, and the kidney operated on was a little, but not much, more severely affected than the other. In the fourth dog the process was purely parenchymatous, the symptoms during life and the appearances after death both pointing in the same direction. The symptoms (scanty urine with much albumen and many tube casts) were all aggravated for the first ten days after the operation. At the autopsy, six weeks after operation, there was no appreciable difference between the appearance of the two kidneys. In the fifth dog there was nephritis of mixed type without appreciable differences between the two kidneys, and without anything to suggest that operation had done any good. The author therefore concludes that decapsulation of the kidney is useless in parenchymatous nephritis and injurious in interstitial nephritis.

266. High-seated Haemorrhoids as a Cause of Occult Intestinal Bleeding.

Goldmann (*Zentralbl. für Chir.*, No. 26, 1906) reports 2 cases in support of the statements of Ewald and Nothnagel with regard to the importance of hidden haemorrhoids as causes of serious anaemic conditions. In cases of this kind there is, the author asserts, a slight but almost continuous discharge of blood, which produces insidiously all the symptoms of grave anaemia. The effused blood is so intimately mixed with the stools, that it is not recognized until the medical attendant is led by the progressive debility of his patient to make a careful examination of these excretions. According to Schreiber, both solitary and multiple venous tumours may be developed in the living subject at a distance of from 6 to 8 in. above the anus without any signs being apparent of haemorrhoidal or other morbid affections of the mucous membrane in the terminal portion of the rectum. This surgeon found hidden vascular anomalies involving the small veins in not less than 10 per cent. of the patients on whom he made examinations with the rectoscope. The author holds that in the face of these records, it is advisable in every case of ordinary internal or external haemorrhoids to ascertain by rectoscopic examination the presence or absence of vascular swellings in the upper part of the rectum. Such swellings should, it is urged, be treated by operation. With the aid of the rectoscope the varices can be exposed to view, and then be readily destroyed or removed by the galvano-cautery.

267. Radical Cure of Femoral Hernia.

Victor Pauchet (*La Clin.*, June 1st, 1906) has devised and carried out a method for the radical cure of femoral hernia, which he has found very successful and which is quite simple in comparison with the various operations generally carried out for the cure of this kind of hernia. His method is as follows: After having exposed the crural ring, the sac of the hernia is freed from the neighbouring parts, opened, and its contents reduced into the abdomen; if there be any adherent omentum within the sac this is resected. The wall of the sac is drawn down as far as possible and its pedicle ligatured. If the stump of the sac is not withdrawn into the abdomen, it is fixed a little way below the crural arch and behind the aponeurosis of the oblique muscle. A piece of steel with sharp ends and bent into the form of a U is then seized with pressure forceps, made to pass through the crural arch, and the two points are driven into the horizontal ramus of the pubis, and stretching between the pubic ramus and the crural arch, this metallic support effectually prevents any return of the hernia. The wound is then closed. The advantages of this method are that the operation need occupy only a few minutes, no deep sutures are needed and only one ligature is required, namely, that for the neck of the sac.

OBSTETRICS.

268. Mitral Stenosis and Pregnancy.

H. French and H. T. Hicks (*Journ. of Obstet. and Gyn. of the Brit. Emp.*, September, 1906) agree in the following four points with the general opinion on the subject of the relation of mitral stenosis of pregnancy: (1) Mitral stenosis is that variety of chronic valvular heart disease which is most commonly accompanied by heart failure during pregnancy: (2) aortic lesions without mitral are rare in women, and cases in pregnant women are therefore seldom seen; (3) when symptoms of heart failure have preceded pregnancy they are made worse by pregnancy; (4) repeated pregnancies at short intervals cause greater risk of heart failure than do few pregnancies at longer intervals. The authors disagree with authorities such as Jellett, Brouardel, and Porak on the question of whether a woman with mitral stenosis should be allowed to marry, and they believe that the danger of marriage in these cases has been overestimated. The number of cases upon which statistics have been made out has usually been small and the cases have been virtually selected ones, inasmuch as they have been cases in which the cardiac symptoms have led the patients to seek medical advice, whereas cases in which no heart failure occurred have not been noted. To avoid this error the authors have analysed the obstetric histories of 300 consecutive cases of mitral stenosis in women over 20 admitted into Guy's Hospital. In this analysis cases in which it seemed probable that the stenosis might have arisen after the period of child-bearing have been excluded, and only those included in which there was a strong probability that the heart lesion dated from before the age of 20 years. Errors may have occurred in the statistics owing to mistakes as to the time of onset of the heart lesion, but in 17 cases in which there was clear evidence that the mitral stenosis preceded pregnancy the percentage number of heart failures in connexion with pregnancy was so nearly the same as in the others as to strengthen the supposition that mistakes of this kind had not been made. Of the 300 consecutive cases, 205 were married. Of these, 135, or 66 per cent., did not attribute their ultimate heart failure to pregnancy, nor could the authors find any direct relation between the pregnancy and heart failure. In one case as many as 17 children had been born alive, and the average number of children was 4.5 per mother. In 57 women, or 28 per cent., a direct relation was found between child-bearing and heart failure, although in many of these cases previous children had been born without trouble; in one case, for instance, as many as 12 children had been born without the onset of cardiac symptoms. Among these 57 patients, in 7 it was not certain whether symptoms of heart failure developed before, during, or after the birth of the child, in 25 they developed during pregnancy, and in 25 during the puerperium. The authors have notes of 36 cases in which patients with mitral stenosis were admitted into hospital during pregnancy. Of these, if two be excluded who refused to stay in hospital, and whose fate is not known, none died during pregnancy or labour: 9 had no heart failure, but came in for other things; 24 went out with restored cardiac compensation; only 5 died within three months after labour, and of these 1 died not of mitral stenosis but of chorea gravis and malignant endocarditis. The total maternal mortality within three months is 13.9 per cent., which differs greatly from the mortality of 64.4 per cent. found by Macdonald in 14 cases. The following are among the conclusions arrived at: (1) Comparatively few married women with mitral stenosis are sterile; (2) they are not specially likely to abort; (3) the majority bear children well; (4) when heart failure

develops in connexion with pregnancy it is very often not with the first pregnancy, but after several pregnancies; (5) the treatment should be the same as for a non-pregnant patient with mitral stenosis: (6) it is not just absolutely to negative marriage in all women with mitral stenosis: while it is right that the physician should make clear to the contracting couple or to their near relatives the risk run, he should use his discretion and distinguish between one case and another. If the woman has survived the age of 20 with good cardiac compensation; the likelihood that pregnancy will accelerate the time of heart failure does not seem so great as has been declared in the textbooks.

269. **Pregnancy and Pelvic Dermoid.**

Lesiniowski (*Monats. f. Geb. u. Gyn.*, September, 1906) was consulted by a woman in the fourth month of pregnancy on account of a tumour which completely filled the pelvic cavity, and appeared to him to be an anterior sacral meningocele. The cervix was displaced so far upwards that it could hardly be reached by the finger. Two alternatives were offered, Caesarean section at term, or immediate emptying of the tumour from below, and induction of abortion if necessary. The patient chose the second alternative. The tumour was tapped between the coccyx and the anus; instead of clear fluid masses of thick grease came away. A semicircular incision was made from one tuber ischii to the other next day, and the pelvic dermoid set free. The cavity was packed with iodoform gauze. Pain after operation was checked with opium, and the patient left hospital with the wound nearly healed, and pregnancy uninterrupted.

GYNAECOLOGY.

270. **Cancer of the Uterus.**

Thirty years having elapsed since the introduction of radical operations for the attempted cure of cancer of the womb, Doederlein considers that one should now consider what the value of the methods hitherto in use is (*Deut. med. Woch.*, September 20th, 1906). He regrets that he has a very sad story to tell, especially if one analyses the statistics thoroughly. First of all, reliable statistics on the vaginal total extirpation of the cancerous uterus appear to show that between 30 and 40 per cent. of all patients are cured—that is, are well after having been controlled for at least five years. But it can be shown that these figures only apply to operable cases, and it is, therefore, necessary to take the frequency of operability into consideration. From 8 to 20 per cent. of all the patients have been cured by the operation—that is, roughly, between one-fifth and one-tenth. But this does not quite place the matter on an actual basis. It appears that cervical cancer is about three times as common as cancer of the body, and if one exclusively regards the cases of cervical disease, the percentage of cures by vaginal total extirpation varies between 2.5 and 9.2 per cent., taking all cases in. Thus, under the best conditions, not one-tenth of all cases of cervical cancer is cured, while one may rely on about three-quarters of the cases of uterine body cancer to be cured. These bad results have led to a fresh endeavour on the part of some to attempt to improve matters, while others have practically given in, acknowledging that the struggle against uterine cancer has been lost. The first class, therefore, turned over to the abdominal methods, and the immediate result was that the operability percentage was raised to between 70 per cent. and 80 per cent. A few operators managed to raise it even higher. Although the end results of the complete operation per abdomen cannot be gained yet, the available statistics promise well. One operator reports 20.4 per cent. of cures after a period of five years for cervical cases, while after three years' observation the absolute cures amounted to 29.3 per cent. Doederlein finds that he has been able to cure 16.2 per cent. if one includes cases watched for from three and a half to four and a half years, while 22 per cent. of the cases were well after observation of from two and a half to three and a half years. Cases in which lymphatic glands have been removed high up in the hypogastric region have already been seen to keep well for several years. With regard to the mortality of the operation itself, he can report that while this was relatively high at first (between 20 and 30 per cent.), it has now been reduced to not more than 10 per cent. Further advantages of the abdominal operation as against the vaginal operation are to be found in the fact that accidental damage to the bladder, ureter, and intestine are less common, and when a purposeful injury has to be done to any of these organs—that is, in implanting the ureter, suturing the bladder, etc.—this can be carried out more readily and easily than in the latter operation. He does not agree with those authors who attempt to retain the vaginal operation for certain cases, and gives strong reasons for relying solely on the complete abdominal operation now.

271. **Chorion-Epithelioma Tissue Secondary to Ovarian Endothelioma.**

Schmaus (*Monats. f. Geb. u. Gyn.*, August, 1906) exhibited before a medical society a specimen which led to a discussion on the real significance of morbid growths resembling chorion-epithelioma. A woman underwent ovariotomy, a cystic tumour containing a solid mass as big as a goose's egg being removed. She died not quite one year later with metastatic deposits widely diffused over the peritoneum, especially the great omentum. It appeared clear that she had never been pregnant. The solid mass in the ovary bore the characters of an adeno-carcinoma, but giant cells and tissue resembling syncytium were detected in abundance. They prevailed still more in the secondary deposits in the omentum. The interpretation of the case was obscure. In discussing it Hörman considered that the growths resembled atypical but not typical chorion-epithelioma. It was very doubtful if a true carcinoma which happens to complicate pregnancy ever develops the typical cells and syncytium. It is only when local changes in the uterus, chorion-epithelioma itself, or something not less definite than vesicular mole, are to be detected, that growths diffused beyond the limits of the uterus should be included under chorion-epithelioma, even when their tissue is somewhat atypical. Amann was a little doubtful about the primary seat of Schmaus's tumour, as there were masses on the intestines cancerous in nature. He had come across cases where it was not at all clear whether the ovarian tumours were primary or secondary. The new growth in this instance did not seem to him to be a chorion-epithelioma, but Schlangenhaufer had described two tumours which he claimed as of that type, though not arising from the uterus or ovaries. Whether the cells in Schmaus's tumour represented an unusual change in a true cancer or were of the dermoid or teratoma type remained uncertain.

THERAPEUTICS.

272. **Diet in Gastric Ulcer.**

C. A. Ewald (*Zentralbl. für die gesammt. Therap.*, September, 1906) discusses the dietetic treatment of gastric ulcer. Lenhartz and his pupils were the first to suggest that an early and energetic treatment of conditions, such as hyperchlorhydria, chlorosis, and anaemia, so often present in cases of gastric ulcer, would lead both to a more rapid recovery and to a better general condition at the end of treatment. The following is Lenhartz's diet: For the first twenty-four hours 20 c.cm. of milk hourly, together with two raw beaten-up eggs during the day; on each succeeding day an additional 100 c.cm. of milk and one egg until a total of 1 litre of milk and eight eggs for the twenty-four hours is reached; sugar is added from the third day onwards: from the seventh day minced meat in quantities of about 35 grams, once or twice daily; from the eighth day gradually-increasing quantities of rice, milk, biscuit, raw ham, and butter. Bismuth is given internally, and when anaemia is present the administration of iron and arsenic is begun early. Even in cases of recent haemorrhage the same diet is adhered to, but in such cases the food is cooled on ice before being given, an ice-bladder is applied over the stomach, and the patient is kept in bed for from two to six weeks. The result of this treatment as tested on 60 patients has been very satisfactory: the pain was found to cease almost immediately, the patients recovered more quickly than under the older methods, and when an inquiry was made later among 25 of the patients 72 per cent. of them declared themselves absolutely free from symptoms. One death occurred in the 60 cases, and in 7 cases haemorrhage recurred during treatment. Wirsing tried the same diet in 42 cases, 14 of them being cases of recent haemorrhage. In 50 per cent. of them permanent recovery was obtained; the 1 case of recurrence of haemorrhage during treatment gives a proportion of 2.4 per cent. of the whole number, or 7.1 per cent. of the cases of recent haemorrhage. More recently Senator has recommended that gelatine should be given in cases of gastric ulcer, together with small quantities of butter and cream at frequent intervals. On his system, even during the first twenty-four hours after a haemorrhage, food is given containing from 900 to 1,000 calories. Ewald is in agreement with Senator, inasmuch as he has for some years given gelatine in combination with fat in all cases of recent

haemorrhage, but he differs from both Lenhartz and Senator in that in these cases he gives no food by the mouth for the first one or two days. He takes into account both open and latent bleeding, and finds that the haemorrhage may recur if food be given by the mouth, however bland and unirritating the diet may be. In 1 case given as an example haemorrhage recurred on the second day, when the patient was being fed by the mouth on small quantities of milk and gruel; feeding by nutrient enemata was then started, and no more bleeding occurred either by the mouth or per rectum: mouth feeding was successfully again carried out on the fifth day. The statistics given by Ewald as to recurrence of haemorrhage during treatment are better than those of either Lenhartz with 8 per cent. of recurrences, or of Wirsing with 7.5 per cent. Ewald has treated 34 cases of gastric ulcer immediately after a haemorrhage; in 5 cases there was a return of haemorrhage directly after the first bleeding had been checked, and these cases were, therefore, not true relapses: in 10 cases (2 per cent.) there was relapse during treatment and in 14 cases death occurred either as a result of operation or almost immediately after haemorrhage. Taking all the cases together, however, recurrence took place in only 7 per cent. Ewald holds that the advantages of Lenhartz's diet are not worth the risk involved. On theoretical grounds the giving of food directly after a haemorrhage cannot be justified—the stomach is roused to movements which are in danger of displacing the thrombus formed at the site of the ulcer, and the drawing together of the stomach walls which is the best aid to healing cannot be satisfactorily accomplished when the stomach is loaded with fluids. When recent haemorrhage has occurred the author's diet is as follows: On the fourth day 50 grams of milk and 15 grams of butter hourly (380 calories in the day), from the sixth day 70 grams of milk and 20 of butter (532 calories per day), from the ninth day 120 grams of milk and 30 of butter every two hours with three eggs (972 calories); from the eleventh day onwards biscuit and gruel are added and the number of calories is thus brought to 1537. The patients are found to gain weight satisfactorily on this system. In one case in which the weight was first taken on the sixth day and later at intervals of eight days, the weight increased from 72 kilograms to 73, 73½, 74½, and finally 77 kilograms. The more speedy gain which is claimed to result when a more substantial diet is at once tried is not of the first importance either in private or in hospital practice, and wherever there is a history of recent bleeding, either open or occult, the author would prescribe at first rest for the stomach, as he would prescribe rest for a broken bone. Cases of chronic ulcer without recent haemorrhage are treated on altogether different lines, and demand careful individualization. In some even of these cases where small quantities of bland fluid given by the mouth are found to cause irritation, nutrient enemata may be required. In other cases it is best to begin with small quantities of milk, preferably penguin milk, milk gruel, broth in which an egg has been mixed, beaten up white of egg or goose's egg. Since the secretion of hydrochloric acid and pepsin is not as a rule diminished, these foods are to be preferred to gruels when carbohydrates are not as well borne. In cases of hyperchlorhydria the amount of fat given is increased. If by such means it is not possible to remove the symptoms of ulcer in the course of a few weeks, then either some complication needing surgical intervention must be present, or there is a neurosis which will require quite different treatment.

273. **Pollantin in Hay Fever.**

C. Zarnicko (*Berl. klin. Woch.*, September 10th, 1906) states that for some time past pollantin has been put up in glass bottles, to which a series of questions are attached, dealing with the type of hay fever, etc., and with the results of the treatment. At Dunbar's request, he has undertaken the critical survey of the replies dealing with cases treated in 1905. Following the procedure introduced in 1904, he divides the results into three groups. The first includes excellent results which followed a correct application of the medicament; the second includes partially-successful results, and the third deals with negative results. Many of the answers might be regarded as belonging to a borderland between these groups, and he gives examples of some of these; 287 reports were received from Europe, and 205 from America. The latter reports, which were largely sent in by the doctors, contained, on the whole, very insufficient details. Of the European cases, 66 per cent. were placed in the first group, 27 per cent. in the second, and 7 per cent. in the third. In the American cases, 55.1 per cent. are placed in the first, 17 per cent. in the second, and 27.8 per cent. in the third group. Taking the two classes together, the first group has 61.3 per cent., the second group has 23.1 per cent., and 15.6 per cent. were not improved by the treatment. He deals in detail with some of the replies, and points out that in Groups 2 and 3 a confession of faulty application is given in many cases. Idiosyncrasy against pollantin appears to have been met with in a few cases, but this can be overcome to a certain extent. In all cases this idiosyncrasy depends on the application of horse serum and not on the antitoxic element. The results are therefore satisfactory, and compare favourably with those of the previous years. This is due to a better understanding on the part of the patients. He is unable to explain the differences expressed in the statistics of the Hay Fever Association, which only record 26.5 per cent. excellent results, and as many as 31.0 per cent. of negative results. He concludes by giving a few details as to disposition, sex, calling, climate, etc.

274. **Strychnine in Diabetes Insipidus.**

Ketly (*Therapie der Gegenwart*, xlvii, No. 3) found injections of strychnine nitrate efficacious in three cases of idiopathic diabetes insipidus. He commenced with 0.5 mg., increasing every second day by 0.1 mg. to a maximum of 0.01 gram. The patients were men from 31 to 36 years old. The subcutaneous injections were given daily for about a month in one case, and then the strychnine was given by mouth for three days. The amount of urine dropped from 8,000 to 1,500 c.cm., and all the symptoms permanently disappeared. In another case the diabetes persisted after the cure of a syphilitic brain lesion with mercury; under the influence of strychnine injections the amount of urine declined from 11,500 to 3,000 c.cm. in thirteen days, and the polydipsia disappeared with the polyuria. This improvement was only temporary, however, as the symptoms recurred in two or three months. They subsided again when strychnine was administered by the mouth. One female patient did not show any improvement under the treatment.

PATHOLOGY.

275. **Toleration of Arsenic.**

L. Saint-Ange (*La Province Médicale*, June 2nd, 1906) has in a short paper discussed whether there is evidence that animals can be accustomed to the use of arsenic. For this purpose he quotes some of the results of experiments on animals which have been carried out by investigators. Brouardel, in a series of experiments on dogs, injected subcutaneously progressively increasing doses of arsenious acid, and as a result of these experiments he concluded that there is no evidence that the animals became accustomed to the drug; sometimes they become more susceptible to the drug, and die from doses smaller or equal to the minimum mortal dose. On the other hand, Gies, experimenting with the hen (which dies after 0.14 gram per kilogram of weight have been given), found that by administering graduated doses to the fowl it could receive with impunity this dose of arsenious acid. According to Tschudi, the arsenic eaters of Styria begin with doses of from 0.02 to 0.03 gram of arsenious acid, which they take two or three times a week; the maximum dose appears to be 0.42 gram, and no injurious effects or symptoms of intoxication occur, even when they take it several times a week, excepting on rare occasions, when imprudence or a peculiar susceptibility to the drug is shown. Hausmann considers it proved that arsenic eaters can support with impunity the smallest dose of arsenious acid causing death. Cloetta found that dogs could receive by the mouth gradually-increasing doses of arsenious acid until very large quantities were taken, without any symptom of poisoning arising: he found, also, that if the administration of arsenic by the mouth be stopped, and a dose of the drug, much smaller than the dose given by the mouth, be injected subcutaneously, grave symptoms of poisoning set in, and the animal dies: this he explains as being due to the fact that when injected subcutaneously the drug can be readily taken up into the general circulation, whilst when administered by the mouth, even in very large doses, only a comparatively small amount is absorbed from the intestines, the greater part of it passing out in the faeces. As a result of Cloetta's experiments, the author concludes, amongst other things, that one cannot say that a patient has been really accustomed to arsenic because he has been able to support gradually increasing doses of the drug administered by the mouth, since the greater part of the drug is never absorbed, but passes out with the faeces, and that the only satisfactory way of carrying out an intensive treatment by arsenic is by subcutaneous administration.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

276. **Pneumonic Paralyses in Adults.**

Dairbaux (*Arch. Gén. de Méd.*, September 4th, 1906) divides the forms of paralysis occurring during or after an attack of pneumonia into: (1) Transitory hemiplegias, (2) localized neuritis. The first appear usually a few days after the onset of the lung trouble, sometimes, however, being delayed until after defervescence. The onset of the paralysis is always abrupt, and it lasts from a few hours to several days, terminating generally in a rapid cure. Right hemiplegia is the more common form, and is then, as a rule, associated with motor aphasia. The paralysis has, with the exception of two cases, been flaccid. Hemianaesthesia has been present with the hemiplegia in 50 per cent. of the cases. As a typical example of this first form of pneumonic paralysis, the author quotes the case of a young soldier of a nervous and emotional nature who, on February 15th, 1906, developed bronchopneumonia. On the 23rd he had an apoplectiform attack with incomplete unconsciousness and followed by right hemiplegia. The right arm was bent at the elbow and the hand closed; the face was not affected; the right leg was powerless but was kept straight. On the patient recovering from the seizure, which lasted only a few minutes, the contracture of the right upper extremity was still present, but towards noon of the same day subsided, and the patient was then able to move the limb, the right leg still remaining flaccid and useless. At this time some motor aphasia was noticed, and there was incontinence of urine and faeces. Kernig's sign was present, and persisted for four days. On February 24th both legs were found contracted, and continued in this condition for eight days. At the end of this period the contractures disappeared, and the patient began to move his limbs. On the 26th the movements of the right arm were normal; some agraphia now appeared, but passed off with the aphasia six days later. The reflexes throughout the period of disease were normal, and fluid obtained by lumbar puncture revealed nothing abnormal. On April 2nd the patient was apparently well, except for a slight spasm of the facial muscles of the left side. Were these nervous phenomena the result of hysteria, or did they depend upon some meningeal irritation? From the presence of Kernig's sign, the sphincter affection, and the contracted state of the lower limbs, the author considers the best explanation is that of a transitory irritation of the meninges covering the Rolandic area of the left side of the brain, and affecting also the right paracentral lobule. Although most of the cases of hemiplegia occurring in an adult suffering from or recently recovered from pneumonia are to be explained as being either of a hysterical nature or as being due to some meningeal irritation, in some cases occurring in old people who exhibited no hysterical stigmata, and in whom no lesions of the meninges and nerve centres have been found after death, one must assume that there has been some toxic affection of the cells of the motor cortex. Pneumonic paralyses due to localized neuritis are rarely observed; when present they usually implicate the arm of the side of the pneumonic process in the lung. Their course is the same as that of localized neuritis due to other toxic agents. A third form of pneumonic paralysis is that which appears usually several weeks after recovery from the primary disease. It begins insidiously by a feebleness of the lower limbs; after a time the arms become similarly affected. The extensor muscles bear the brunt of the attack. In a few cases the cranial nerves have been affected. As a rule there are no sensory disturbances, and the sphincters are never affected. The reflexes, generally abolished, are sometimes normal. Complete recovery is the rule. These cases present similar characters to generalized diphtherial paralyses, and, like them, probably depend upon a polyneuritis caused by the toxin of the organism producing the primary disease. Lastly, in some forms of paralysis following pneumonia, the symptoms and signs appear to indicate that there is a lesion involving the cells in the anterior horns of the spinal cord—a poliomyelitis. In cases such as these, and one example of which the author describes, the muscles become paretic and undergo atrophy. The muscular weakness and atrophy begins first, and is most marked at the roots of the limbs, and spreads to the extremities of the limbs. Beginning first in the legs, it soon invades the upper extremities; the face remains unaffected. Neither the muscles nor the main nerve trunks are tender, as in neuritis, and, except for occasional twinges of pain in the course of the large nerve trunks, there are no sensory disturbances. In the case described by the author the muscles regained their bulk and power under treatment, and complete recovery apparently took place. The author concludes that the pneumotoxin very probably acts on the whole of the nervous system, and that, whilst its seat of elective action is generally the peripheral nerve, in certain cases other parts, such as the anterior horns of the spinal cord, bear the chief brunt of its action; and, further, that the curability of most of these pneumonic paralyses is due to the fact that the pneumotoxin, being produced for a very short length of time, its action on the nerve centres or nerves is not sufficiently prolonged to cause their destruction.

277. **Delirium after Relief of Intestinal Obstruction.**

Capasso (*Rif. Med.*, July 21st, 1906) draws attention to the occurrence of severe and fatal nervous symptoms in patients who have been relieved of intestinal obstruction. He publishes 3 cases of his own and refers to 3 others known to him. The sequence of events is briefly as follows:—First, the signs and symptoms of intestinal obstruction, then relief either by medical or surgical means (mostly surgical), subsequent free faecal discharge and apparent convalescence, and then the sudden appearance, four or five days after, of severe nervous symptoms, especially delirium, suppression of urine, and death. In 2 of the author's cases a *post-mortem* examination was made, and everything appeared quite satisfactory from the surgical point of view—no peritonitis and the wound healing normally (one was a case of volvulus and the other a strangulated hernia)—no question of septic infection arose. The most probable explanation of these cases (which are, perhaps, more common than is realized) is that they are due to toxic absorption from the dammed-up faecal matter. What the exact toxin is, whether from *B. coli* or H_2S, is uncertain, and further researches are required to clear up this point. Meantime, the treatment is to try and eliminate this poison as quickly as possible by oily purgatives, and purify the blood by hypodermolysis.

278. **Sigmoiditis and Perisigmoiditis.**

According to Saillant (*Journ. des Praticiens*, July 7th, 1906) the commonest cause of sigmoiditis is constipation, the accumulation of retained faecal matter causing irritation of the mucous membrane of the sigmoid, leading to inflammation and ulceration of the mucous coats, and sometimes to an extension of the inflammatory process through the coats of the bowel to neighbouring parts (perisigmoiditis). The disease begins insidiously, and may for some time be indicated merely by transitory pains occurring from time to time in the left iliac fossa. The motions are irregularly voided, but contain nothing characteristic. As the disease progresses a local tumour appears in the left iliac fossa; in shape it is elongated and cylindrical, smooth on the surface, and freely movable. A most important point in the diagnosis of this affection is that the administration and action of a purgative, or the irrigation of the lower bowel, causes no notable change in the size or shape of the tumour mass. Constipation is constant, and it may from time to time become more marked for a few days and then return to its previous condition. The general health is profoundly affected. There is loss of appetite, coated tongue, and rapid wasting; in acute cases there may be fever. The onset of perisigmoiditis is heralded by the occurrence of severe pain localized to the region of the sigmoid, and often aroused by the slightest touch or contact of this part with the bedclothes of the patient. Vomiting and rapid pulse may also be found. The localized tumour mass now increases in size and becomes less defined if suppuration occurs. The temperature becomes irregular and vomiting sets in. Unless opened the collection of pus burrows into the rectum or through the anterior abdominal wall. In the treatment of sigmoiditis the patient should be confined to bed and an icebag placed over the affected part. Saillant gives from 1 to 2 drachms of ricin oil every morning until the bowels act; he then makes use of oil or

glycerine lavages of the rectum. The food should consist of milk or vegetable soups. When the acute stage has subsided the patient should undergo the usual treatment for chronic constipation—for example, the diet should be rich in vegetables: an action of the bowels should be attempted every day: exercises, hydrotherapy, and abdominal massage may be carried out; and light purgation should be employed every one or two months. In perisigmoiditis adhesiva complete rest of the intestines should be aimed at, no laxatives or lavages should be given, ice may be employed locally, and the diet should be liquid. If pus forms, free incision and drainage should be carried out.

SURGERY.

279. **Wound of the Heart.**

Momburg (*Deutsche Zeitsch. f. Chir.*, S. 2, Band 4. 6 Hft.) states that since 1897, when Rehn published the first case of successful suturing of a wounded heart, 80 cases in all of a like treatment of this injury have been recorded, showing 40 per cent. of recoveries. By his study of this subject the author has been led to the conclusion that the surgeon in every case of percutaneous wound of the heart not immediately fatal should not trust to expectant treatment, but, if possible, promptly expose the injured organ and close the cardiac wound by suture. It is pointed out, however, that in many cases, and especially in those which seem most suitable for operative treatment, the diagnosis of the true nature of the injury is not free from difficulty, as there is no pathognomonic sign which could permit an absolutely certain conclusion as to the existence of a cardiac wound. There are, however, many points in connexion with such injury, a careful consideration of which may enable the surgeon to form a proper decision. In the large proportion of cases in which death is not the immediate result of wound of the heart the patient usually becomes intensely collapsed, this state of shock, which, as a rule, lasts for some time, being associated with extreme restlessness and insomnia, and occasionally with delirium and paralysis. In a case of penetrating wound in the cardiac region in which there is severe and persisting shock, a feeling of deep distress and alarm and extreme dyspnoea are to be regarded, according to Wolff, as distinctly characteristic signs of implication of the heart. Dyspnoea is frequently observed in cases of wound of the heart, but is due in most of these instances to coincident perforation of lung or merely pleura. The author points out that in many undoubted cases of cardiac wound there was a total absence of symptoms, or only symptoms that were slight and did not disturb the general condition could be observed, the patient having been able to move about without either he or his medical attendant having had any suspicion of the grave nature of the injury, until after a time it was suddenly revealed by severe and fatal signs. Attention is directed to the relative importance of certain objective points in the diagnosis of a case of suspected cardiac wound. In regard to the instrument by which a penetrating wound in the precordial region has been produced, it is stated that the presence or absence of the blood on the blade has no importance, and that the blade, in order to reach the most superficial part of the pericardium, must be at least 2 cm. in length. Suspicion of a cardiac lesion will naturally be excited by the presence of a penetrating wound in the precordial region, but the heart, the author points out, may be wounded by a long blade introduced at any part of the thoracic wall or passed through the abdomen. In gunshot wounds of the thorax there is usually some uncertainty as to the direction taken by the bullet, and even if the line between the openings of entrance and exit passes through the heart, this organ, though very probably wounded, may have escaped. The direction of a wound over the heart has much diagnostic importance. This should be made out, if possible, by examination of the external opening, or, if the wound be a wide one, by careful introduction of a thoroughly cleansed finger. The use of a probe is strongly opposed by the author, as such practice is likely to displace occluding blood clots and to cause infection of the wound. The results of skiagraphy in supposed gunshot wound of the heart are not thoroughly reliable, as a bullet, after it has penetrated into the organ, may be displaced and driven out by the stream of effused blood. Haemorrhage from the external wound is one of the most frequent symptoms, but in some cases is altogether absent. When present it varies much in amount in different cases. The stream is continuous in some cases, in others interrupted, being synchronous with either the cardiac or the respiratory movements. The blood may be bright or dark red, and in some cases is venous in appearance, though discharged copiously. A large collection of blood in the pericardial sac increases in most cases the extent of the cardiac dullness, but this might fail in cases of wounded lung with effusion of air. Disturbances of the heart's action and of the normal character of the pulse occur in almost every case of cardiac wound, but these do not afford any characteristic signs, as they are to be observed in other injuries causing shock and loss of blood. Of the long list of symptoms considered by the author, there is not one, he points out, on which reliance can be placed as a sure indication of wound of the heart. That a wound in the precordial region has penetrated the pericardium may be regarded as very probable if there be clear symptoms of wounding of lung and pleura. The close contact of the pleura with the pericardium, and the thinness of the portion of lung in front of the heart, favour the probability that the penetrating wound is also a cardiac one. When there is haemorrhage from the external wound, the effused blood is not necessarily derived from the heart. A jet of blood synchronous with the cardiac systole may come from arteries of the lung or of the thoracic wall. Forcible bleeding, pulsation, and a bright red colour of the streaming blood, all favour the diagnosis of wound of the heart. A large accumulation of blood in the pleural cavity is also a decided indication, as such can hardly have been derived from a wound of any small vessel. The only point that can be determined with certainty in cases of precordial wound is that the coats of the pericardium must have been perforated when there are clear indications of the presence of blood and air in this sac. Although there is not a single symptom which can assure a positive diagnosis of wound of the heart, a careful examination of the external wound combined with a recognition of some if not all of the most suggestive signs discussed by the author should, it is suggested, enable the surgeon to determine with a fair degree of certainty the existence of this lesion. In most cases there is enough to arouse suspicion, and when such suspicion has been aroused, the gravity of the suspected lesion should lead to a prompt exploratory dissection of the injured region. If a wound be found in the wall of the heart, this, the author insists, should be closed by suture in order to ensure complete arrest of the bleeding and firm and close reunion of the divided cardiac muscle.

280. **Gonorrhoeal Arteritis.**

Secchi (*Rif. Med.*, May 12th and 19th, 1906) gives a summary of recent work on the above subject, and then reports 17 cases, 6 of which were treated by Bier's method, which consists in the production of venous stasis in and about the affected parts, by means of elastic bandages applied for a certain number of hours each day. As regards the frequency of gonorrhoeal arteritis, the author's figures showed 1.9 per cent. in men and 2.8 per cent. in women. In endeavouring to find out why the articulations should be affected one must apply the general laws of pathology; for example, those things which lessen local or general resistance—traumata, previous rheumatism, pregnancy, occupation, alcoholism, etc.—all assist as predisposing causes. The The extent and virulence of the gonorrhoeal infection may also assist. The anatomical distribution of the vessels in the posterior urethra and prostatic glands is held by some to be an anatomical predisposing cause. The arteritis usually appears about the third week after infection, but may be earlier or later—in women it is nearly always later. In the author's cases 41 joints were affected (feet 16, knee 13, hands 7, elbow 2, vertebrae 2, shoulder 1). The sterno-clavicular, maxillary, and vertebral articulations are relatively more commonly attacked in gonorrhoeal arteritis than in ordinary rheumatism. Most of the author's cases were mild. He divides them into three classes (i) short duration cases, 7, lasting from 12 to 31 days; (ii) cases of subacute arteritis lasting 37 to 64 days, 7, 5 of these were completely cured; (iii) severe cases. Of the author's 17 cases 11 were treated by tepid carbolic compresses (1 per cent.) in the acute period, followed by ichthyol painting and bandages, and finally iodine and massage; one was treated unsuccessfully by endovenous injections of sublimate; 7 of the 11 were cured in 12 to 31 days; of these 6 were completely cured, and one had semi-ankylosis; the other 4 were cured (except one which only partially recovered) in 37 to 64 days. Of the 6 cases treated by Bier's method 3 were completely cured, and 3 only partially relieved. Bier's method is a useful adjunct to other methods, and seems to relieve pain, possibly by compression on the nerve trunks, but it cannot be said to be a specific.

OBSTETRICS.

281. Methods of Accelerating the Course of Parturition.

E. Runge gives some practical hints as to the management of cases of labour in which it appears desirable to expedite matters either in the interest of the mother or on account of danger to the child (*Berl. klin. Woch.*, September 3rd, 1906. Up to recent years all the methods in use were bloodless ones, since one was alarmed at the thought of a surgical operation during labour on account of the great likelihood of infection. But nowadays matters are different, and one can calmly choose between bloodless and operative methods, according to which meets the individual case best. First he deals with bloodless methods. These may be found of value, especially if it is wished only to accelerate the labour and not to end it at once. The dilators (colpeurynter and metreurynter) are the most important instruments for this purpose. Barnes's bag and Braun's balloon belong to the former, and Champetier de Ribes's bag is perhaps the best metreurynter. The first two are made of elastic rubber, and are therefore little suitable for cases in which one wishes to apply traction to the dilator to accelerate matters. For the induction of artificial premature labour or abortion, to shorten labour when there is a fear that a protraction may be accompanied by dangerous signs, such as heart failure, respiratory embarrassment, or kidney trouble, or when symptoms are already present which point to a threatening eclampsia, and also when the pains are insufficient, the dilators may be of much use. Combined with traction on the bag, the method will often work rapidly. Bougies, puncturing the membranes, and plugging the cervical canal with gauze are practically only used for inducing early labour. Metal dilators, especially the instrument described by Bossi, which consists of from four to eight arms, which are introduced into the cervix in contact, and which can be separated out by means of a screw, allow of a complete dilatation of the os in from half an hour to an hour. The indications for this instrument are eclampsia, premature detachment of the placenta, signs of danger to the mother's heart, lungs, etc., and also in placenta praevia. But the method has many opponents, and one cannot say that any consensus of opinion as to the advisability of employing it exists. The author says that in skilled hands the instrument can yield good results, but that very few practitioners should use it. Under no circumstances should Bossi's instrument be employed when the cervical canal still exists. He then passes rapidly by the more usual methods of forceps, turning, perforation, etc., as being less important to his purpose. He then turns to the operative methods, and first of all he considers incision of the cervix. The objections to this consist in the frequency of tears occurring during the extraction of the fetus, and of subsequent scars in the cervix which may produce unpleasant disturbances at a later date. On the whole, he considers the method as bad, and strongly disapproves of a general practitioner who has not had a large experience using it. Vaginal Caesarean section is next dealt with. Dührssen's original method of performing this operation was to incise the anterior and posterior walls of the vagina, but recent modifications allow of only the anterior wall being incised. This is termed anterior hysterotomy. The advantages of this method lie in the fact that one can terminate a pregnancy at any time rapidly, even when the cervix is completely contracted. The fear of infection is very small, the loss of blood is scarcely greater than that of a normal labour, and no after-disturbances need be feared. Brilliant results are obtained in eclampsia, premature detachment of the placenta, threatening rupture of the uterus, and all threatening signs involving the life of the mother. It can also be employed for placenta praevia and prolapse of the cord. It could also be employed in the interest of the child's life. This operation, therefore, is an alternative procedure to Bossi's dilatation. While he says that it need not be considered to be a hospital operation only, he can only advise a general practitioner who has acquired considerable skill in vaginal operations to undertake it. He then comes to the two operations which help to widen the inlet of the bony pelvis. When the inlet was too small for the fetal head to pass through in former times the choice lay between forceps, prophylactic turning, perforation, Caesarean section (or Porro's operation) and induction of premature labour. To-day one can almost avoid the three last-named, by dividing the symphysis pubis in the middle line (symphysiotomy) or laterally (pubiotomy). The former is carried out by means of a fair-sized incision through the soft parts and subsequent division of the symphysis, which allows of a considerable widening of the pelvis. The symphysis is sutured after the birth. Pubiotomy is really a less dangerous operation, as it is conducted subcutaneously. A curved needle is passed between the labia majora and minora close to the pubic arch and brought out to the side of the symphysis. A wire saw is then attached to the point of the needle, and this is then withdrawn. The bone is then divided subcutaneously. Any bleeding can be controlled easily by pressure. Modern obstetricians seem to favour waiting as long as possible in a case of contracted pelvis, but when one of these operations has to be carried out, opinions differ as to which is the better. In all cases forceps are preferred to turning for the subsequent extraction of the child. The author prefers pubiotomy.

GYNAECOLOGY.

282. Uterus Bicornis: Ruptured Tube; Ruptured Gravid Cornu.

Karczewski (*Monatsschr. f. Geb. u. Gyn.*, September, 1906) records an instance of rupture of a gravid tubal sac associated with uterus bicornis unicollis. The sac was removed. The patient had been already twice pregnant and it appeared evident that each cornu had been the seat of one pregnancy. West (*Amer. Journ. Obstet.*, September, 1906) attended a patient who suspected the presence of a small uterine fibroid, and recommended operation. She became pregnant, and in the fifth month suffered from symptoms of acute internal haemorrhage which began when she was engaged in washing her face before going to bed. There was some hours' delay before abdominal section was undertaken, three pints of water being first transfused. On opening the abdomen, the blood gushed out and the fetus presented at the incision. "The uterus was bicornuate, the tube (*sic*) apparently normal." The patient died shortly after the operation, although she recovered consciousness for a while.

283. Cancer of the Cervix Uteri.

Auguste Pollosson (*Prov. Méd.*, July 7th, 1906) gives an admirable dissertation on the necessity of an early diagnosis of cervical cancer. He points out that it may be looked for at an earlier age than other forms of malignant growth, although the largest percentage of cases occur between 40 and 50. He has not found that repeated pregnancies have much influence on its frequency; but, on the other hand, he has seen no case in a virgin. Cancer may be suspected, after the menopause, if bleeding should recur some time after the regular periods have ceased; and, during the child-bearing age, if haemorrhages occur between the monthly periods. The absence of pain must not be taken as evidence against cancer, which may exist even with the appearance and the subjective symptoms of perfect health. Local examination should be insisted upon, and its importance explained, and any exuberance of tissue should have a piece snipped off for investigation in a physiological laboratory. If it should be pronounced to be malignant, operation must not be delayed longer than a week.

284. Radium in Gynaecology.

Oudin and Verchère (*Sem. Méd.*, July 18th, 1906) have treated uterine fibromata by introducing into the uterus a closed glass tube containing 0.027 mg. of a 75 per cent. salt of bromide of radium enclosed in aluminium, each application lasting from ten to fifteen minutes. They have obtained good results, especially in haemorrhagic cases, and also in long-standing gonococcal infection of the cervix and urethra.

THERAPEUTICS.

285. The Treatment of Aneurysm by Subcutaneous Injection of Gelatine.

Kingston Fowler (*Archives of the Middlesex Hospital*, vol. viii) puts on record the cases, 12 in number, of aneurysm treated by subcutaneous injection of gelatine in the Middlesex Hospital since 1901. This account is given mainly with the view of throwing some light on the question whether the use of gelatine as advocated by Lancereaux and Paulesco shows any advance on a combination of the Bellingham-Tuffnell method of rest and restricted diet, with the administration of iodide of potassium, which combined treatment, though capable of

affording great relief from suffering and prolongation of life, has not, in the author's clinical experience, resulted in any single case in undoubted cure. Provided that proper care is exercised in sterilizing the gelatine, there is, the author states, no risk of infection with the tetanus bacillus, and each injection, it is urged, should be given with all the aseptic precautions now commonly taken at a surgical operation. Although a large quantity—as much, for instance, as 250 c.cm. of a 2 per cent. solution—may be used at first without unfavourable symptoms, the author prefers to begin with 50 c.cm., and gradually to increase the quantity and the strength of the solution to 100 c.cm. and 4 per cent. respectively. It is held to be necessary to continue the treatment over a prolonged period, possibly three, or even six months, an injection being given, as a rule, twice in a week. The author does not consider that the series of cases collected and fully reported in this paper, establish the superiority of the gelatine method over the treatment by rest and low diet combined with the administration of iodide of potassium, although it is acknowledged that in one of the 12 cases a strikingly superior result was obtained, and that there was no doubt as to the complete cure of an innominate aneurysm in a man aged 38. The certainty of the results of treatment in this case was favoured by the anatomical condition of the affected vessel, as in innominate aneurysm it is possible to determine the changes in progress in the whole sac, and not, as in a thoracic aneurysm, in a part only. In this, as in many of the recorded cases, the gelatine treatment was associated with the administration of iodide of potassium. Further experience, it is suggested, is necessary in order to attain to a certain conviction that the favourable changes observed in this case were the direct result of the gelatine treatment. Such conviction cannot, in the author's opinion, be attained by continuing to apply this treatment in cases of thoracic aneurysm, in which there must always be a large margin of doubt in the interpretation of results. Should a like result to that in the satisfactory case here recorded be obtained in a sufficient number of cases of innominate aneurysm or of aneurysm elsewhere equally accessible to observation, the author would be disposed to credit the gelatine with the cure, even though iodide of potassium had been simultaneously administered.

286. **Hyoscine.**

ON account of the untoward symptoms which have been reported from time to time after the administration of hyoscine (scopolamine), Kessel (*Arch. Intern. de Pharmacodynamie et de Therap.*, vol. xvi, p. 1, 1906) has investigated the action of specimens of different physical condition and of varying age upon frogs, rabbits, and dogs. The physiological effect was the same whatever the optical activity of the specimen, as had been previously found by E. Schmidt in 1893. Also a solution over a year old was found to have retained its powers. The drug was tested by observing the dilatation of the pupil, the narcosis, the blood pressure, and the respiration. The individual reaction of the animal was productive of far greater variations in the results than any peculiarity of the sample of hyoscine used, especially with the more highly-developed creatures such as dogs. In reference to the use of this drug for operations, Kessel points out that though an animal in hyoscine narcosis may fail to notice the prick of a needle, yet the corneal reflex always remained. He quotes Voigt as saying that even when combined with morphine in the proportions of ½ mg. of hyoscine to 10 mg. of morphine, it is only suitable for using as a preliminary to ether anaesthesia. The great excitement and convulsions which have been observed occasionally are due to an impurity called "apoatropin," which may be detected as follows: A drop of potassium permanganate solution added to a dilute solution of hyoscine or of atropine suffers no change. But if apoatropine be present, even in the proportion of 1 in 20,000, reduction takes place to oxide of manganese, as is shown by a brown-yellow colour.

287. **Massive Doses of the Salicylates in Acute Articular Rheumatism.**

CLARKE (*Amer. Journ. of Med. Sci.*, September, 1906) reviews the results obtained in 74 adult cases of acute rheumatism by the use of large doses of sodium salicylate. The routine method of treatment consisted in giving sodium salicylate every hour, in doses varying from 10 to 20 gr., until the toxic symptoms appeared, the attendants being alert to recognize the appearance of deafness and tinnitus; the drug was then stopped, to be resumed when the symptoms disappeared, and then given in doses of 10 to 20 gr. every two to four hours, stopping again with each recurrence of toxic symptoms. The amount of salicylate required to produce its full effect varied from 75 to 360 gr., the average being 200 gr. These massive doses are borne well, as a rule, without nausea, vomiting, or depression, and the coincident relief of pain makes what discomforts there are seem trivial. The effect of this sudden saturation with the drug was a very rapid fall of temperature to the normal. The average number of days of fever after admission was 3.8, the shortest period being one day and the longest eleven days. The relief from pain was most striking, in some patients it was absent on the second day and never returned. On an average the patient was free from discomfort by the fourth day. The swelling rapidly subsided, sometimes before the pain, and sometimes persisting in a mild degree for a day or two longer. Owing to the general belief in the danger to the heart of using large doses of salicylates, this organ was watched with especial care, and the fear was not justified. Cardiac complications were lessened in frequency. Of the 74 patients only 6 developed an endocarditis, and of these in only 4 it persisted at the discharge. There was 1 case of pericarditis. The pulse usually dropped within three days to 70 or 80 and remained at that level, strong and regular during convalescence. There is a certain element of danger in using large doses of salicylates. With proper care and attention it is not great. The toxic symptoms must be carefully watched for, and their appearance indicates the immediate withdrawal of the drug. The author thinks that the rapid cessation of symptoms and the patient's tolerance to the drug form valuable tests for the diagnosis of acute articular rheumatism. The patient with true rheumatism can tolerate from 150 to 300 gr. before symptoms appear, while patients with other forms of arthritis become toxic on much smaller doses. In true rheumatism, the fever, pain, and swelling, are gone in two to three days. In the other forms of arthritis, while the fever may disappear, the swelling does not go down. Any patient having fever and pain at the end of forty-eight hours is considered as a doubtful case of rheumatism and careful search is made for another cause.

PATHOLOGY.

288. **The Blood in the Insane.**

DIDE (*La Clinique*, August 24th, 1906) gives the result of an extensive study of the blood in various cases of insanity. The specific gravity is slightly increased in dementia, and also in epilepsy immediately before the crisis, after which it returns to normal. The alkalinity is slightly diminished at the moment of an epileptic seizure, and also in toxic infections, such as mental confusion, dementia praecox, and pellagra. The variations in the inorganic elements have been little studied. Potash salts are increased at the time of an epileptic attack, and urea is increased during the intervals, and still more during an attack. The number of red cells is greatly diminished in the insane, as in other patients, during toxic infections (acute delirium, katatonia, etc.). Increase in number is seen in mania and in general paralysis with grandiose delusions. Globular resistance is increased in the excited periods of dementia praecox and diminished in the periods of depression, it is lowered in an epileptic attack, and is normal in other mental diseases. The decrease in globular resistance, as a rule, coincides with a diminution of alkalinity. An increase of the polymorphonuclear leucocytes is especially seen at the beginning of toxic psychoses and in states of exaltation. In general paralysis leucocytosis is slight except during febrile periods and convulsive attacks, when it is marked. In epilepsy a hypoleucocytosis precedes an attack, and a fleeting leucocytosis succeeds an attack. The author has frequently found microorganisms in the blood, none of which are specific. The enterococcus of Thiercelin was frequently found, especially in dementia praecox. It is a saprophytic organism, which does not produce any symptoms as a rule, but may at times increase in virulence and become pathogenic. Many other organisms were found, including staphylococci, *Micrococcus tetragenes*, and more rarely streptococci, *B. coli*, *typhosi*, and *paratyphosi*, *B. fluorescens putridus*, etc. In toxic insanities, especially in dementia praecox and general paralysis, the quantity of alexine in the blood is diminished; in epilepsy it varies from time to time and in different individuals, which is in accordance with the cyclic nature of epilepsy.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

289. **Diagnosis of Typhoid Fever.**

W. Poeppelmann (*Deut. med. Woch.*, June 14th, 1906) discusses the diagnosis of enteric fever, and offers suggestions for the improvement of diagnostic means. Hitherto great hope was placed in the agglutination test; but since the paratyphus bacillus has been recognized, the actual value of this method has suffered greatly. The agglutination test often does not assist the physician in making a very early diagnosis, and he is therefore driven to fall back again on the clinical symptoms and signs. The necessity of an early diagnosis is clear, not only for the purpose of isolation, disinfection, and prophylactic precautions, but also because the patient's friends mostly require of the doctor to tell them what is the matter with the patient almost at once, and it is extremely risky for the reputation of the latter to have to correct a spoken diagnosis during the course of the illness. The questions of prognosis and infectivity are justifiable, and should, if possible, be answered as quickly as possible. Poeppelmann states that the conception that enteric fever is a local infection of the intestine has been corrected during recent years, and one now recognizes that the bacilli attack distant organs (lung, spleen, etc.), and that the illness must be regarded as a septicaemia, which has its point of origin in the intestinal mucosa. It therefore would seem that the bacilli pass into the blood at an early date, and he thought that it would be worth while investigating the matter to see if the bacilli could not be found in blood smear preparations. After much trouble, he has discovered a simple and handy method, by the means of which he believes that the diagnosis can be made by the direct discovery of the causal micro-organism in the blood. He hopes that this will serve as a useful means of distinguishing enteric fever from acute miliary tuberculosis and other forms of blood infections. The method is carried out as follows: The patient's finger is cleaned with ether and alcohol, and pricked with a sterilized needle (heated in the flame). A large drop of blood is squeezed out and placed on the microscope slide. This is then partly transferred to three or four other slides, and spread on each to form a thin film. The slides must be carefully cleaned before use with alcohol and ether, and sterilized. After the blood has dried, the slides are placed in a cylindrical bottle or other vessel containing R. May-Gruenwald solution. This obviates the necessity of fixing the blood separately, and gives excellent specimens. In from two to six minutes the staining is complete, and the slides are then transferred to distilled water for about one minute, after which they are to be rapidly dried, either before a fire or between blotting paper. The examination is undertaken without a coverglass under a high power (1,000 diameters). The red blood corpuscles are seen tinted a pale orange-red colour; the polynuclear cells, the lymphocytes, and nuclei of the eosinophile cells are coloured blue; and the granules of the eosinophile cells are bright red. The typhoid bacilli are seen coloured blue, but one notices at once that the intensity of the staining varies greatly in the different bacilli. He regards the failure of staining in some of the bacilli to disintegration of the same, and the very indifferently stained examples as probably being in the early stages of disintegration. In many specimens one is astonished to find extraordinarily large numbers of typhoid bacilli. He has gained the impression that blood taken before the temperature rises (that is, in the morning) offers a better chance for the detection than specimens taken at the height of temperature. He says that he has found the bacilli in every case at an early stage, and considers that if the eye of the examiner is well trained the negative result of the examination speaks strongly against the diagnosis of typhoid fever. He gives six examples. The sources of error of the method are discussed. First, there is the contamination of the blood from the skin of the finger. This is rarely of importance, since rod bacteria are rare, and the contamination with streptococcoci and staphylococci does not matter. Next, it is possible to mistake precipitated stain for stained bacilli; but filtration of the stain and practice will guard against this error. Lastly, the preparations must not be decolorized for more than one minute in water, and must be dried rapidly, since the bacilli may become decolorized by longer contact with water and thus overlooked. He points out that the method is intended as a practical one for the practitioner, and does not require the preparation of pure cultures. The simple detection of the bacillus suffices to clinch the diagnosis.

290. **Pressure Symptoms due to Enlarged Tuberculous Bronchial Glands.**

Westcott (*Univ. Pennsylvania Med. Bulletin*, August, 1906) records the case of a child, aged 3 months, who breathed with effort. Auscultation revealed weakened respiratory murmur over the upper part of the left lung, but no râles or evidence of consolidation. Venous enlargements were noted on the cheeks, temples, and front of chest. Three days later the child appeared to be uncomfortable when held up in the mother's arms, and the hands were slightly cyanosed, but when lying down on its back these symptoms passed off. Six days later symptoms of intrathoracic pressure were more marked, and, when held in a somewhat flexed position in the mother's arms, the whole head, neck, and arms became distinctly cyanosed, the condition passing rapidly off when the child was laid flat on its back again. Feeding was carried out in the recumbent posture from a spoon, the mother's milk being drawn off and given with a concentrated food. Death occurred twelve days later, there having been some bronchopneumonia with a rise of temperature. Latterly cyanosis of the fingers and hands, though variable in amount, was constant to some extent, and in certain positions in which the vertebral column was curved forward this was increased, subsiding when the vertebral column was straightened out again. Both lungs were studded with miliary tubercles. At the root of the lungs there was a mass of tuberculous glands the size of a pigeon's egg, the centre of one of which had become purulent. From the position of this mass pressure to some degree was exerted upon the trachea, but more particularly upon the descending cava, and when the upper part of the chest was bent forward this was sufficient to interfere with the return of the blood from the head and upper extremities; while in the supine position free circulation was less interfered with. Considering that the mother's and family history was negative, and that the child was entirely breast-fed, the development of tuberculous glands and miliary tubercles is only explained on the assumption of a possible infection from a phthisical patient who was dying in a ward a few feet away.

291. **Congenital Measles.**

Rocaz (*La Clinique*, May 11th, 1906) relates a case of this comparatively rare occurrence, in which the mother caught an infection when eight and a half months pregnant, and was delivered at the height of the eruptive and febrile manifestations. The infant, as is usually the case, took the disease very slightly and without fever; the eruption was confined to the upper half of the body, the coryza was slight, and all symptoms disappeared in four days.

SURGERY.

292. **The Dangers of Anaesthesia.**

W. Wendel discusses the modern endeavours to diminish the dangers of anaesthesia (*Muench. med. Woch.*, August 14th, 1906). Modern surgery has been able to make wonderful strides during the second half of the last century thanks to the introduction of anaesthesia. Lister's treatment of wounds, and Esmarch's bloodless operations. The two latter discoveries have led to definite and satisfactory results, and it can be said of the student of to-day that he can scarcely understand how surgery could be practised without antisepsis or asepsis. But with regard to anaesthesia, matters are very different. While the value of the anaesthesia is undoubted, the dangers introduced by the anaesthetics themselves cannot be denied. Some surgeons are by no means satisfied with the safety of general inhalation narcosis. It is very difficult to estimate the actual dangers of anaesthetics, partly because one has not only to deal with acute dangers, such as shock, syncope, asphyxia, but also with secondary dangers such as bronchitis, pneumonia, changes in the kidneys, liver, and heart, central and peripheral paralyses. The danger of any

anaesthetic partly depends on the technique of the anaesthetist, and if is certain that schooling and habit will render one anaesthetic much safer in one man's hands, while another is safer in a second man's hands. Statistics have been compiled of the mortality of ether and chloroform. Gurlt has gathered details of over 330,000 anaesthesias, and gives the mortality of ether as 1 in 5,112 and that of chloroform as 1 in 2,075, while Poppert gives ether at 1 in 1,167 and chloroform at 1 in 2,647: Billroth gives chloroform at 1 in 12,500, while all the other statistics put it between 1 in 3,000 and 1 in 1,685. White gives the lowest for ether at 1 in 16,000. In Lyon, 40,000 ether anaesthesias were administered without a death, while von Nussbaum gave chloroform 15,000 times also without a death. However, chloroform still holds its own in spite of these statistics, and this is in part due to the fact that the figures only deal with deaths occurring directly during the anaesthesia, and do not include post-anaesthetic deaths. It is generally believed that ether offers greater dangers after the anaesthesia has passed over. Wendel only just touches on nitrous oxide, chlorethyl, bromethyl, bromoform, pental, etc. The mixture of chloroform, alcohol, and ether, first introduced by Billroth, and afterwards modified by the English under the name of A C E mixture, has been shown to be more dangerous than pure ether or pure chloroform. Schleich's chloroform, ether, and ethyl chloride vapour mixture has also not found much to recommend it. Oxygen and chloroform is also to be placed in the category of disappointments. The bad effect of chloroform on the heart and liver is not exercised by ether, but the kidneys and the respiratory organs suffer from the latter. The first-named organ, however, does not become permanently damaged, as has been shown by recent careful investigation, and experience with Schleich's infiltration method with cocaine shows that pneumonia after laparotomy and after the removal of goitre is not due to the anaesthetic, but to the operation. Wendel believes that with care, and especially by improved technique, pure ether anaesthesia can be considered safe. The importance of reducing the quantity of the ether used is particularly emphasized. Witzel's drop method is a great improvement over the old suffocation method. An attempt to overcome some of the dangers of inhalation anaesthesia was made by Schneiderlin, who gave injections of scopolamine and morphine. While the author is prepared to believe that the *rationale* of this attempt is sound, he finds that scopolamine is obviously not the drug to replace anaesthesia by inhalation. We shall have to wait for other means to be found out. Next he turns to local anaesthesia. He dismisses ice, ether spray, and chlorethyl spray in a few words. Reclus first introduced an infiltration method, and Schleich improved on it. Braun added adrenalin to the cocaine solutions, and thus introduced the "conductivity" anaesthesia. Regionary anaesthesia (Oberst), and the circular anaesthesia of Hackenbruch are also conductivity anaesthesias. Bier has opened up a new phase by his lumbar anaesthesia. Starting with cocaine, some bad results were experienced, and in the course of time eucaine, tropococaine, stovaine, and novococaine have been employed. The two last mentioned have proved themselves to be extremely satisfactory. Wendel is satisfied with his experience made with novococaine. He has not used more than 2½ c.cm. of a 4 per cent. solution, has never met with a threatening toxic effect, and has not experienced a single absolute failure. Nearly all his injections succeeded. In a few cases the anaesthesia did not last for the whole operation, but minimal doses of ether sufficed to keep the patient free from pain. There are many points in Bier's method which still need experience. The method is not suitable for all people, and exact indications and contraindications can only be learned if surgeons will publish unpleasant experiences which they may make with it. Improvement in the technique will certainly follow. In conclusion Wendel says that the means of performing an operation without pain are numerous, but only he who has mastered all the means and methods will know how to choose the best.

293. **Tumours of the Breast in the Male.**

Cornil and Campenon (*Bull. et. Mém. de la Soc. Anat.*, No. 2, 1906) report two cases of mammary tumour in the male, one of epithelioma, the other of cystic adenoma. It is pointed out that tumours of the male breast, though not common, cannot be regarded as exceptional. In 1883, Poirier collected from different sources 100 of such cases. Most of these were recorded as instances of malignant growth, and no recognition was made of fibroma or of cystic adenoma. In these cases, however, histological examinations were rare or incomplete, and a more recent collection of cases by the Société de Chirurgie of Paris shows that adeno-fibroma of the male breast is not so rare as had previously been supposed. In Cornil's opinion, these tumours are quite as frequent as cancer of the breast in males. The case of cancerous growth which was removed from a man aged 57 was interesting as an instance, frequently observed in connexion with cancer of the breast in the male, of the absence of any affection of the axillary glands and of any other secondary growths, notwithstanding a long duration and an advanced development of the primary tumour. The cystic fibroma or fibro-adenoma removed in the second case from a man aged 48, presented from both an anatomical and a clinical point of view all the characters of a benign neoplasm.

294. **Median Incision in Oesophagotomy.**

Hans (*Zentralbl. f. Chir.*, No. 34, 1906) points out the difficulties that are occasionally met with in performing oesophagotomy for extraction of a foreign body by the usual lateral incision, and advocates a long median incision over the trachea which after careful separation from the recurrent nerve and the large blood vessels on the left, is displaced to the right side, the front of the oesophagus being thus exposed. A case is reported in which an impacted coin was successfully removed by this method from the oesophagus of a child, aged 3 years, but as some difficulty occurred in closing the incision in the oesophageal wall, and the author was anxious to prevent the risk of suppuration in the posterior mediastinum, the median wound was packed and left to heal by granulation. Notwithstanding this result the author is of opinion that in the removal of a foreign body by oesophagotomy, especially in cases in which the lower portion of the oesophagus is obstructed, a median incision is to be preferred to that usually made on the left side. This median operation may, he suggests, be found useful for simple exposure of the oesophagus, so that in attempts at extraction by the mouth, a loose foreign body may be prevented by finger pressure from slipping into a deeper and less accessible portion of the canal. It might also enable the surgeon to detach a firmly fixed foreign body, such as a piece of bone or a tooth-plate, and thus indirectly favour its extraction, without incision of the inflamed and probably ulcerated oesophageal mucous membrane.

295. **A New Indication for Gastrostomy.**

Morestin (*Bull. et Mém. de la Soc. Anat. de Paris*, No. 2, 1906), in a communication on constriction of the jaws and indications for gastrostomy in cases of cancer of the tongue, points out that the above complication, which is usually met with in advanced and inoperable conditions of the lingual disease, though, as a rule, it does not cause very serious trouble, may in some few cases acquire predominant importance by reason of the absolute obstacle it presents to alimentation. Two cases are recorded of insurmountable constriction of the buccal cavity by fixity of the lower jaw caused by advanced lingual cancer, in which gastrostomy practised simply as a palliative measure afforded excellent results. This operation, it is held, being really a very simple one, free from risk, and permitting of local anaesthesia, should be regarded as a justifiable means of affording relief, precarious as such may be, to those wretched subjects of malignant disease of the tongue who cannot receive food in any other way. Constriction of the jaws occurring in the course of the evolution of lingual cancer always indicates that the neoplasm started in the base of the tongue has acquired a considerable extent, and has involved the palatine arch and the pterygoid muscles. Under such circumstances an attempt at extirpation would be futile, and palliative operations on the mouth and jaws ought, in the author's opinion, to be rejected in favour of gastrostomy.

OBSTETRICS.

296. **Actinomycosis and Pregnancy.**

Thévenot (*Rev. de Chir.*, No. 9, 1906) submits further clinical evidence in favour of the view held by Poncet in regard to the influence of pregnancy on actinomycosis. It has been clearly proved by such clinical material as has already been collected that actinomycosis does not exercise any marked influence on the evolution of pregnancy. There is in the pregnant subjects of this infection no tendency to premature delivery, parturition takes a normal course, and the infant, though usually thin and weak, shows no signs of arrest of development. On the other hand, the condition of pregnancy has a decided influence on the development of the actinomycotic lesions. In the first

place it predisposes to the infection, as is indicated by the fact that in most of the cases collected by the author the disease was contracted in the course of pregnancy. Notwithstanding this predisposition the evolution of the infection is held in check, and its intensity remains much attenuated until after the birth of the child. This alleviation of the symptoms of actinomycosis during pregnancy which, the author points out, is to be attributed to the circulatory modifications, especially the increased blood tension, associated with this physiological condition, is followed immediately after parturition by a sudden and well-marked recrudescence, the local lesions not only breaking down and ulcerating, but rapidly increasing in extent. The author insists on the importance of these clinical facts in their bearing on the prognosis and treatment of actinomycosis in pregnancy. They indicate, it is held, that the practitioner should not be influenced by the indolence of the infective lesions in this condition, and be led to regard the disease as mild and free from virulence. Advantage should be taken of this torpor, and the lesions though apparently slight and at a standstill, should be submitted to prompt and energetic treatment, soft foci being curetted and iodine and its compounds being given internally.

297. **Neuritis of Pregnancy.**

Rudaux (*Arch. Gén. de Méd.*, July 21st, 1906) includes under the above heading those cases of neuritis occurring during pregnancy and apparently dependent upon the same; those cases occurring as a result of some infection from without he excludes. The neuritis of pregnancy is relatively rare, and is most often preceded by albuminuria, headache, vomiting, etc., other symptoms of auto-intoxication occurring during this state. The most common type is that of a generalized polyneuritis, which, as a rule, first affects the legs and then the arms; in severe cases there is foot-drop and inability to stand, or even to raise the feet from the bed; the leg muscles (generally the antero-external group below the knee, but sometimes the calf and extensor muscles of the thigh) rapidly waste—in the upper extremity the muscles of the hand and the flexor muscles of the forearm are the ones mostly involved. Reaction of degeneration is rarely observed, but a diminution of excitability of the muscles to galvanism is frequently found. These motor disturbances are generally preceded by sensory phenomena, such as lancinating pains, tingling, numbness, etc. Sometimes the facial muscles may be involved, the nerves of the pharynx, or tongue, the phrenic, or the vagus. In some cases there are mental disturbances—such as a loss of memory for recent events, weakness of intelligence, irritability, delirium, hallucinations, mania, etc.—which indicate that the nerve centres themselves, besides the peripheral nerves, may be affected by the poisonous products arising from auto-intoxication. In some cases the neuritis is limited to the arms or legs; in other cases a single nerve may be involved; thus optic neuritis may occur without there being albuminous urine; disturbances of hearing and of taste and smell may also arise. If suitable treatment be adopted, recovery of function generally follows, unless marked and irreparable damage has already occurred. In the generalized forms of neuritis, the sensory disturbances disappear before the motor, and the arm recovers before the leg. As regards the treatment of these conditions, the author advises that if signs of neuritis are gradually appearing, or if marked signs already exist, the patient should be placed on a milk diet, purgatives and irritation of the large intestine should be employed, the functions of the skin should be promoted by warm baths, and the general health should be attended to. If success does not follow this plan of treatment, and there be serious changes also present—for example, optic neuritis—pregnancy should be brought to an end. For muscular atrophy massage and electricity should be employed.

GYNAECOLOGY.

298. **Morphine-Scopolamine Injections Combined with Lumbar Anaesthesia for Gynaecological Operations.**

W. Busse has performed 175 gynaecological and 5 obstetric operations under a combined morphine-scopolamine and lumbar anaesthesia. Of these 180 cases he reports on the first 150. Dealing with the method of procedure (*Muench. med. Woch.*, September 18th, 1906), first he speaks of the morphine-scopolamine. In 4 cases he only gave one injection: in 14 he gave 2; in 128 three; and in 7 four injections. No harm accrued from the multiplicity of the injections. As far as the doses are concerned, he only used half of the usual dose of morphine—namely, $\frac{1}{3}$ gr. per injection—as the damaging effect on the peristalsis could thus be avoided, and the narcotic action was uninfluenced. The scopolamine was given in doses of $\frac{1}{150}$ gr. The first injection was given two and a half hours before the operation, the second one and a half hours before it, and the third from half to one hour before the operation. He lays considerable stress on the source of the scopolamine, and believes that only optically inactive preparations should be employed. Boehringer's scopolamine gave better results than Merck's. The unpleasant side-effects are due to the impurity of the drug, and this can be avoided by using a good preparation. About thirty minutes after the third injection the patient is brought into the operation room, and the back is then disinfected. The lumbar injection, according to Bier, is then carried out while the patient lies on her side. The site chosen was between the second and third lumbar vertebrae, and the needle was inserted directly in the middle line. In 19 cases he used stovaine, and in all the rest he employed novococaine. The dose of the latter injected was $2\frac{1}{2}$ gr., with 0.0048 gr. of suprarenalin. The patient was then placed on her back, and the vagina, etc., disinfected. He has only recently introduced the method of raising the pelvis to increase the area of anaesthesia, and this he has found to be accompanied with one disadvantage—namely, that retching and vomiting is apt to occur. He divides the actions of the scopolamine-morphine and the lumbar injections. The former is recognized by sleepiness, redness of the face, and acceleration of the pulse. At times it causes restlessness and wandering. The restlessness occurred in 28 per cent. of his cases, and hallucinations appeared in 12 per cent. The latter was mostly in the cases in which Merck's preparation was used. The patients mostly retained their memory when one or two injections were given, while when three were given the memory was lost, as a rule. Sleep was not produced in highly nervous women. Turning to the lumbar anaesthesia, he finds that in 7 cases it failed completely. Partial success was attained in 13 cases, while in 6 the injection could not be carried out at all. In all the others the anaesthesia was good. The longest anaesthesia lasted for two hours and twenty minutes. The anaesthesia set in from four to twenty minutes after injection. Of the unpleasant effects, he mentions bad pulse, vomiting, headache, backache, thirst, and stiffness of the neck. The after-effects of the anaesthesia appear to be less disagreeable to the patients than those accompanying the ordinary narcosis. The method is well adapted for patients with heart disease, as long as the pulse is good, for those with pulmonary disease, arterio-sclerosis, and for old people.

299. **Ovarian Cyst Communicating with Peritoneum.**

Montprofit (*Prov. Méd.*, July 7th, 1906) reports a case of rupture of an ovarian cyst without any immediate results. The patient had refused operation, and presently the cyst, which had attained the size of two fists, disappeared suddenly. Four months afterwards it had reached the same dimensions, with the additional symptom of ascites. Montprofit operated and found a permanent communication between the peritoneum and one of the loculi.

THERAPEUTICS.

300. **The Testing of Medicaments on Healthy Subjects.**

In the Festschrift of the *Deut. med. Woch.* (No. 31, 1906), dedicated to the 450th anniversary of the opening of the Greifswald University, H. Schulz is entrusted with the subject of pharmacology. He chooses the subject of the testing of medicaments on healthy subjects for his theme. Opinions as to the value of this form of experiment vary very much, but Schulz believes that if every pharmacist who brings out a new drug were first of all to try the effect in full doses on his own body the number of more or less useless preparations would be materially lessened. He says that naturally he does not suggest that the experiment on the sick person can ever be done away with or dispensed with, for obvious reasons, nor would he regard animal experiment as unnecessary. But he supposes that one has studied all the sides of the new drug on animals, even up to those animals which stand closest to human beings, and has collected as much information as possible on the action. The difference between a healthy animal and a sick man is very great, and one is therefore not justified in leaving the healthy man out of the series of experimental tests. It has been argued that experiments on healthy persons are rendered useless because of the

subjective fancy of the person. This is no doubt true to a certain extent, but the subjective side can be limited to a very great extent. There are two methods of testing a drug on a healthy man. First, one can give a dose which one has reason to suppose will not endanger life or produce lasting damage to the tissues of the body. Such experiments require some courage to carry out, but one must not forget the debt that medicine owes to such experiments with chloroform, cocaine, when injected into the spinal canal, etc. The second method is to give the drug in small doses and allow time for the action to develop. The details of the pharmacological action will appear quite different when applied in this way, and one will learn a great deal of the action of medicaments which otherwise would only be brought to notice as hazy, ill-defined side actions. And besides, one learns in this way what the effects of the long-continued exhibition of a drug will be, which is of great importance in many cases of illness. Schulz says that whoever wishes to introduce a new remedy into medical practice owes it to his colleagues, and above all to his suffering contemporaries, first, to take a large dose of it himself, and later, to test the action of smaller doses repeated over a long period of time. A man who introduces a new drug for the purpose of making a name, or for notoriety, will no doubt regard this self-experiment as a ridiculous condition and will not carry it out. Subjective fancy is not very likely to play much of a part in the trial with big doses, and a repetition of the experiment will practically exclude a suggestive action. For smaller doses he obtains as many persons for the trial as possible. These other persons are not told what the nature of the drug is until the trial is ended. By means of these and similar precautions, a fairly exact idea of the pharmacology of the drug can be obtained. He regards the trial on the healthy subject as indispensable for pharmacological research.

301. Lysol Poisoning.

In recent times over 100 cases of lysol poisoning have taken place each year in Berlin. The poisoning has awakened considerable interest, partly because the toxicology opens up the study of a whole group of substances, which are chemically related to carbolic acid. Lysol is a solution of cresol in soap; it is produced by mixing oil of tar with linseed oil or with a fat and saponifying the mixture with caustic potash and alcohol. F. Blumenthal deals with this subject in the *Deut. med. Woch.*, August 9th, 1906. Lysol contains about 50 per cent. cresol, and the latter represents a methylated phenol, having the composition $C_6H_4CH_3OH$. The principal toxicological action of carbolic acid is accepted to be caustic, and the second action is that of a nerve poison. The caustic action of lysol is also seen in lysol poisoning, and Blumenthal reports a case in which extensive ulcerative destruction was seen in the oesophagus, stomach, and intestines. As a rule, however, the pathological changes after poisoning with lysol are slight, as evidenced especially in experimental poisoning in dogs; here the mucous membranes generally only show some hyperaemia. The amount of destructive damage is usually too slight to account for death, and one has therefore to regard lysol chiefly as a nerve and heart poison. With regard to the lethal dose for man, the author says that the statements in the literature on the subject are not to be relied upon. One author believes that 60 grams can be withstood, and another gives the maximum dose as 25 grams. The reason why these figures are of no importance is that it is not the amount which has been swallowed, but the amount which has been absorbed, which decides. In one case a woman drank about 50 c.cm. of a concentrated solution of lysol, but he was able to show that only about 7 grams were absorbed. The patient recovered after her stomach was washed out, some two to three hours after taking the poison. In three other cases he was able to determine that from 24 to 30 grams of lysol were absorbed. All the patients recovered in response to the washing out of the stomach. Phenol is eliminated by the kidneys as phenol, sulphuric acid, and glycuronic acid. Both of these substances are greatly increased in the excretion stage of lysol poisoning. Free cresol is never excreted. Glycuronic acid is derived from the albuminous bodies, and may be regarded as a protection product. It is relatively harmless. In forty-eight hours the toxic agent has been transformed into this comparatively safe substance. The symptoms pass off even more rapidly, and it may be said that if consciousness does not return in from three to twelve hours the prognosis is very bad. Blumenthal shows, on the strength of some animal experiments, that the lysol acts toxically on the cells of the organs and not on the blood, and that the protective products are formed in the liver and in the brain. He has inquired whether the glycuronic acid, which he regards as an antitoxin, is produced in excess of the lysol, and finds that this is so. The lysol enters the cell by passing into the lipoid substance: the cell then forms sulphuric acid and glycuronic acid out of its carbohydrate and albumen store in excess. The action of the lysol depends on the amount of cells attacked. In turning to the treatment, he places washing out the stomach first. This should be carried out within two or three hours of the swallowing, and must be continued until the washings no longer smell of lysol. He then pours in about 1½ pints of milk. Since cresol has an affinity for fats, it would be better to wash the stomach out with milk. For the heart, stimulants should be given, but neither ether nor camphor should be used. Digalen answers extremely well for this purpose. In conclusion he points out that lysol poisoning has an advantage over the majority of poisons taken for suicidal purposes; if it does not end fatally, it rarely leaves any of those terrible effects behind which one meets with after caustic or acid poisoning.

PATHOLOGY.

302. Human and Bovine Tuberculosis.

The actual frequency of primary intestinal tuberculosis in the various countries appears to differ considerably, and even the percentages worked out in different hospitals in the same town show much divergence. L. Rabinowitsch shows that in Berlin various percentages—one of which was as high as 16 per cent., while another was as low as 1.5 per cent.—have been published (*Berl. klin. Woch*, June 11th, 1906); but she points out that the actual frequency of primary intestinal tuberculosis is not to be taken as an index of the infectivity of bovine bacilli for the human race. In order to determine how often human beings are infected by bacilli derived from bovine sources, she investigated 15 cases closely, including 3 cases of certain primary intestinal tuberculosis, 8 cases of miliary tuberculosis, and 1 each of certain feeding tuberculosis, of doubtful feeding infection, of cervical and mesenteric gland disease, and of lung and intestinal tuberculosis. Apart from those cases, she investigated 5 cultures derived from the sputum of human phthisis cases, and 5 derived from oxen, antelope, stag, jackal, and cow's milk. The morphological differences between human and bovine bacilli are not so definite and constant that one could divide the cultures or preparations into two groups by this method. Cultural methods, on the other hand, show much greater differences, as the bovine bacilli grow more slowly and with more difficulty than the human micro-organisms. The inoculation experiments show that rabbits are more susceptible to infection by organ extract or pure cultures of bovine origin than of human origin. Of the 20 cultures (including the 5 sputum cultures), 2 were classified as being of bovine origin. One of these was a case of primary intestinal tuberculosis, and the other the case of undoubted feeding tuberculosis. Six cases showed characteristics which varied from those of human bacilli, but which did not quite tally with those of bovine origin. In one case the bacilli were of the type of typical avian bacilli. All the other cases showed cultures which were identified as being human bacilli. After discussing the question very fully, she comes to the following conclusions: (1) The possibility of infection of human beings by bovine tuberculosis bacilli is proved, but we are not in a position to determine how great the danger of such an infection is; (2) the struggle against bovine tuberculosis is necessary not only in the interests of agricultural endeavours, but also because of the threatening danger of an infection by bovine bacilli in man; (3) in struggling against tuberculosis as a disease of the masses, generalized tuberculosis, and especially pulmonary consumption, must be regarded as the most important, and one must turn one's attention to the destruction of the bacilli given out by human beings, no matter whether the origin of these is from human or bovine sources.

303. Infantile Tetanus a Calcium Intoxication.

Stölzner (*La Semaine Médicale*, August 29th, 1906) has discovered that the serum of cow's milk, which he considers the only nutritive part, contains more calcium in its ash than human milk serum; and as he has also found that the administration of calcium gives rise to excitability of various nerves, not caused by other salts, he considers cow's milk to be the cause of some cases of infantile convulsions.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

304. The Marriage of Syphilitic Persons.

Emery (*La Clin.*, October 5th, 1906) discusses the risks which may follow a too premature permission to marry, when given to a person who has suffered from venereal disease. Among the consequences he includes infection of the other party, repeated abortions, premature births, stillbirths, and malformations or hereditary disease involving the child. He considers that marriage is not permissible while there are any actual manifestations of the disease present, or the very smallest lesion which might be a source of transmission. Great stress is to be laid upon the length of time which has elapsed since infection, and upon the amount and thoroughness of the treatment undergone. The best advice is that such persons should not marry until three or four years of treatment has been undergone, this being the shortest period which will ensure safety for the wife and child. It is wiser to wait even another six months, and to continue the treatment during that time. Such a marriage should not be authorized until at least eighteen months or two years have elapsed since any lesions were observed, and should be even longer when the lesions and general constitutional disturbance have been of a malignant character. The benign or mild form of the disease carries the same risks with it, and requires an equally vigorous treatment. A prolonged course of mercurial treatment is necessary to fit persons for marriage, and to ensure them if possible against tertiary manifestations. The absorption of mercury either by the mouth, the skin, or hypodermically, should be continued for six months of the first two years, and for four months of the second two years. If the treatment has been insufficient, or carried out fitfully or without medical advice and supervision, it is not possible to countenance marriage. Patients may be assured that syphilis is far from being alone responsible for constitutional weaknesses and infantile malformations; that many other conditions, such as constitutional diseases and nervous troubles, produce the same misfortunes. Such persons exercise no prudence when they wish to marry, but the syphilitic sufferer is advised to submit himself to treatment and to a careful examination, after which he may be duly authorized to marry, subsequent risks being considered negligible.

305. Hysterical Cough.

A. Nassano (*Gaz. Méd. Ital.*, September 27th, 1906) describes hysteria as consisting of two parts—the permanent stigmata of the disease, often so slight as to elude observation, and the intermittent or transitory but often very obvious accidental circumstances. One of these accidental circumstances in some cases is cough. Cough may originate in any one of numerous ways, but usually it is caused by irritation of the termination of one of the sensory branches of the vagus. In hysterical cough the explosion is caused by a special mechanism which consists in the provocation of phenomena of dissociation by which some centres are inhibited and others stimulated. Hysterical cough may exactly simulate ordinary cough or it may have special characters, either a remarkable monotony or a resemblance to the sound made by some animal. In some cases it may be accompanied by loss of consciousness, by vertigo, or by contractions of the facial muscles—Schrötter's chorea laryngis. It may be permanent or paroxysmal. The paroxysms in the same patient are always identical. They are often preceded by an aura. The fit of coughing may be the complete equivalent of the most severe type of convulsive attack. One may then distinguish a preconvulsive period, with sensory or abdominal aura; a convulsive period, with tonic contraction of the thoracic muscles in forced inspiration; and a clonic phase, with long and convulsive expirations and explosive cough; finally, a post-convulsive period, in which the patient returns to a normal condition. Hysterical cough is exaggerated by emotion, ceases at night, and does not disturb sleep. It is not accompanied by pain or expectoration, nor followed by weakness. Distraction of any sort arrests it. It is curable by psychical treatment, and not curable by treatment directed to the respiratory organs. Cure is usually sudden, resembling the onset of the disease, but sometimes gradual. Relapses are frequent; they are the result of auto-suggestion, the brain retaining the psychic image of the phenomenon and reproducing it as the result of subconscious impression. Cure may be brought about by quinine, valerian, bromides or hydrotherapeutic means, by suggestion in some form or other—for example, by the use of the laryngoscope or the faradic battery. Prognosis is good. In the last resort the author recommends hypnotic treatment. He describes a case of hysterical cough affecting a girl of 14 years. It came on suddenly during a great storm. At first the attacks were rare, sudden, irregular, but they gradually became more frequent until the cough was permanent, not intermitting during meals nor during any ordinary occupation, but mitigated a little by any extraordinary mental distraction, and ceasing during sleep. There was diminution of the fields of vision, analgesia, exaggeration of the tendon reflexes, and abolition of the pharyngeal reflex. There was no family history of nervous disease. The patient's organs were healthy, but she was of a melancholy disposition and suffered from headaches and gastric disturbances. A year earlier she suffered from vertigo, but never from paralysis or loss of consciousness. At first treatment was by painting the larynx with a 1 per cent. solution of cocaine, and the effect was to intensify the disease. Tonic treatment with change of habits and environment led to speedy cure.

306. Toxic Nystagmus.

Nystagmus, according to T. Weyl (*Berl. klin. Woch.*, September 17th, 1906), is a rare affection, and occurs in certain cerebral diseases, such as meningitis, isolated cerebral sclerosis, Friedreich's disease, cerebral tumours, and brain injuries. Besides these diseases, the affection is met with in coal miners and in some printers. In experimenting on the toxicology of chinosol, lysol, and cresol, the writer came across a toxic form of nystagmus. In watching the effects of the smallest toxic and lethal doses in animals, he noticed a marked nystagmus after giving cresol; and later, out of seventy-five animals poisoned with these substances, he met with the symptom six times—that is, in 8 per cent. of the animals. Chinosol given subcutaneously in doses of 0.7 and 0.8 gram per kilo body weight and intra-abdominally in doses of 0.5 gram produced it; lysol given subcutaneously in doses of 2 grams per kilo body weight and intra-abdominally in doses of 0.13 gram, and cresol and carbolic acid given subcutaneously in doses of 1 gram per kilo body weight, also produced it. The nystagmus did not appear regularly; it was seen 7, 8, 19, 26, 30, 32, 35, and 40 minutes after the injections. The duration varied between a few minutes and half an hour. It was synchronous and symmetrical in both eyes. The movements were horizontal or rotatory; but in one case it began as a vertical nystagmus and later changed into a horizontal one. Lysol contains a mixture of orthocresol and paracresol, and cresol is a methyl-carbolic acid. These bodies, therefore, contain a free phenol-hydroxyl group. Chinosol is a sulphuric ether of an oxychinolin. It is quite possible that the phenol-hydroxyl group may account for the symptom. This is supported by the fact that coal miners suffer from nystagmus, and that coal yields considerable quantities of phenol and cresol.

SURGERY.

307. Gastrostomy in Certain Forms of Peritonitis.

Gauthier and Pinatelle (*Prov. Méd.*, June 16th, 1906) have brought forward reasons for the performance of gastrostomy in certain forms of peritonitis in which there is associated an acute dilatation of the stomach. The authors first discuss the conditions giving rise to acute dilatation of the stomach, and for this purpose they consider these dilatations under three headings. First, so-called acute essential dilatation. The actual cause of this form is undecided. Some consider that it may occur as a result of traumatism of the large nerve plexuses in the abdomen, independently of any infection; others consider that it is always the result of infection, attenuated it may be, and often localized in the upper part of the abdomen. This form of gastric dilatation the authors consider the most favourable for the operation of gastrostomy, since infection is either altogether absent or very mild. Secondly,

gastric dilatation the result of obstruction. As the authors point out, dilatation of the stomach is rare when the obstruction is acute and high up; and exceptional when the obstruction is low down in the alimentary tract. When, however, in addition to a mechanical obstruction there is added an infection of the peritoneal coat by spreading of germs through the intestinal coats, paralysis of the walls of the stomach occurs and dilatation ensues. From these considerations the authors conclude that the great cause of acute dilatation of the stomach is peritonitis; and whatever the cause of this be, the mode of action is the same in the production of the gastric dilatation—for example, a progressive embarrassment of the stomach from within and a toxic paralysis of the muscular coat from without. The embarrassment of the stomach is caused by antiperistaltic waves of the intestines discharging the contents of the latter into the stomach, by the accumulation within the organ of its secretions, and by the ingestion of liquids which remain unabsorbed, and, lastly, by gaseous products, the result of fermentation products accumulating in the organ. The paralysis of the stomach usually succeeds on paralysis of the intestines, or occurs at the same time; it may, however, exist by itself. The two principal symptoms or signs of dilatation of the stomach occurring in peritonitis are vomiting and ballooning of the epigastrium. The vomiting, at first bilious and inodorous, soon changes in character; large quantities become ejected at a time, but the stomach is never completely evacuated. When the stomach only is dilated, its prominence in the epigastric region is easily recognized; if the intestines are also distended, the outline of the dilated stomach becomes lost in the general ballooning of the abdomen. These continued acts of vomiting are not free from danger; they stir up the whole intestinal mass, and so contribute to the extension of the peritonitis; they depress the general state of the patient by the pain they cause, and they increase shock or collapse. The dilated stomach pressing on the thoracic viscera interferes with the functions of the heart and lungs; it further squeezes the transverse colon between itself and the rest of the intestines, and, pushing it forward, hinders the circulation of this part of the colon. Another danger of a dilated stomach is that a seat of septic absorption is present, which may give rise to symptoms of intoxication and inanition. These theoretical considerations, the insufficiency of the operation of enterostomy and the dangers attendant on repeated lavages of the stomach, have led M. Jaboulay to carry out the operation of gastrostomy in certain cases of peritonitis with the view of obtaining free evacuation of the gastro-intestinal contents. The indications for the operation are epigastric ballooning, the occurrence of large vomitings, of retention, or the detection of gastric dilatation by the sound before the preceding signs have appeared. In performing the operation M. Jaboulay makes a small button-hole opening in the middle line of the abdomen, a cone of stomach is caught up, its serous surface fixed to the peritoneal edges of the abdominal wound; a narrow opening is then made through the stomach wall, a small catheter placed in and fixed by sutures, its end being connected to a tube—the tube is allowed to remain open, excepting when nourishment is taken by the mouth, when it is kept closed for from a half to one hour after. After a few days and under local anaesthesia, the adhesions between the stomach and the edges of the parietal wound are gradually removed alternately with the closing of the opening in the stomach; finally the abdominal opening is closed. The indications for the closure of the gastrostomy wound are amelioration of patient's general condition, fall of temperature and slowing of the pulse, and an absence of bile appearing when the catheter is withdrawn from the stomach. Of the three cases described by the authors in which gastrostomy was performed, two recovered. One of these suffered from peritonitis following on an operation for entero-anastomosis; in the other, the peritonitis was the result of a diffuse suppurative appendicitis. The first was treated exclusively by gastrostomy; in the other the gastrostomy was assisted by rectal drainage and by the formation of a spontaneous caecal fistula. Both cases rapidly improved. Immediately after the operation epigastric ballooning disappeared, vomiting ceased, pains became less severe, the temperature became lower, the pulse slowed, and a great improvement in the general state soon showed itself. The amount discharged from the gastric fistulae diminished, and the fistula was closed, in the one on the sixth and in the other on the ninth day. In the remaining case, a woman suffering from subacute post-operative septicaemia, although death ensued, the operation appeared to have considerably ameliorated her condition to a certain point—vomiting ceased, pains diminished, the pulse slowed, and the dyspnoea and cyanosis disappeared. The authors conclude that the simplicity of this operation and its manifold advantages indicate that it is likely to render great service in cases such as have been described, not only as a symptomatic method of treatment, but as an effective agent in the cure of these cases.

308. **Calculous Anuria: Nephrotomy.**

C. Bruni (*Giorn. Internaz. d. Sci. Med.*, No. 16, 1906) records the case of a patient upon whom he operated for anuria due to renal stone. The patient, a man of 38, had had attacks of gout for ten years, and had suffered from gravel for a year, with repeated bouts of renal colic. His last attack of renal colic, which was mostly on the left side, lasted with intermissions for fourteen days, and no urine was passed during this period, nor could any urine be drawn off by the catheter. At the end of this time the man exhibited anasarca, had a persistent headache and a thready pulse, and persistent vomiting. $CHCl_3$ was given, and the left kidney was explored through a Guyon's incision in the loin. The kidney was purple, tense, much swollen, and discharged much blood-stained fluid when opened; the parenchyma was friable; a rounded calculus the size of a cherry was found at the top of the ureter, and was removed. The kidney was rapidly sewn up, and the wound was plugged with gauze and sewn up in the usual way. The patient was much better for some days after the operation; large amounts of blood-stained albuminous urine were passed, both naturally and by the wound; the vomiting ceased. Then the temperature rose, though the wound began to heal; anuria and uraemia reappeared, and the coma deepened into death a fortnight after the operation. No autopsy could be made. Bruni gives numerous references to the literature of calculous anuria.

309. **Appendicitis in the Infant.**

Kermisson and Guimbellot (*Rev. de Chir.*, No. 10, 1906), having been led to study the literature of infantile appendicitis, were surprised to find so many recorded instances of the affection in children under the age of 2 years. That appendicitis at this early period of life is not so rare as is generally supposed is proved by the fact that these authors have been able to collect 26 authenticated cases, including one observed by themselves. The patient in 9 of these cases was in the first year, and in 17 cases in the second year, of life. The attack caused death in all the cases of the first group; of the infants over 12 months 7 recovered and 10 died. In every instance of recovery the age was above 18 months. Operative treatment was applied in 19 cases—in 7 of the first group; and with 5 deaths and 7 recoveries in the second group. The evolution of appendicitis in infants, especially in those below the age of 12 months, is rapid, and the prognosis extremely grave. At this early age the chief part in the etiology of appendicitis is taken by some antecedent intestinal lesion, usually gastro-enteritis, which occurs so often in children at the breast. The diagnosis is rendered very difficult by the impossibility of interrogation; by the resistance of the infant to palpation; and by the failure, in consequence of continuous crying, of locating a point of maximum pain. As a result of the complete and obstinate constipation, which, according to the authors, is a very marked feature in the appendicitis of infants, the true nature of the disease is often overlooked and the case diagnosed as one of intestinal obstruction, of strangulated hernia, or of enteritis. The difficulties in diagnosis render uncertain the indications for proper surgical intervention, and for this reason much importance should be attached to the publication and collection, for purposes of clinical study, of all available cases of appendicitis in the infant.

OBSTETRICS.

310. **Artificial Induction of Labour.**

O. Polano (*Munch. med. Woch.*, September 18th, 1906) discusses the question of the induction of premature labour, setting himself the question—How shall the general practitioner proceed technically when he comes to the conclusion that premature labour ought to be induced? From purely theoretical considerations the method must be the best available, and it must imitate the process of a normal labour without actually causing a contact with the interior of the uterus. Practically, all the suggested methods, which attempt to excite the uterus to contract without direct action on the interior, have been found to be too uncertain to admit of regular use. Polano, therefore, comes to the conclusion that induction of labour must be carried out either by (1) the introduction

of a bougie, or (2) puncturing the membranes, or (3) introducing the metreurysor. The first method has the disadvantages that it is very uncertain: that infection and haemorrhage from the placental site may occur. The second method is a very old one, which had dropped completely out of use until recently, when it was reintroduced. Polano has had little experience of the method himself, and is therefore careful not to express too sanguine an opinion; but it may be said that it is the most harmless and simple method, and the results are said to be satisfactory. It may, however, take a long time to induce the pains. He then comes to a consideration of the dilator method. Metreurysis consists of placing an elastic bag between the wall of the uterus and membranes, and distending this bag. Passing over those technical details such as the choice of the bag, the way it is to be introduced and filled, and the like, he comes to a practical question as to whether one should introduce it and adopt an expective attitude, or turn the fetus regularly after the bag has been passed and deliver. He has tried both methods side by side at Wuerzburg, and discusses this experience. He induced premature labour in 18 cases out of 1,952 cases. He says that he only induced premature labour in those cases in which the continuation of pregnancy was considered to be dangerous for the mother's life on account of some constitutional disease, or when there was reason to believe that a gross misproportion existed between the size of the fetal head and the pelvis. The obstetrician who induces labour for small causes will certainly obtain better results than the one who is very loth to adopt this procedure. The bag was introduced and the membranes ruptured as soon as the cervix was dilated in 8 cases of contracted pelvis and 1 of carcinoma ventriculi. The labours lasted from seven and a half to forty-eight hours, and all ended satisfactorily for both mother and child, save in one case, where a fracture of the child's humerus could not be avoided. In 9 cases he placed the bag in position and awaited events. Six of these patients were multiparae, and of these interference had to be undertaken in 4 in the interest of the mother or child, and 3 living children were delivered. In 2 cases the child was born spontaneously, but in one of these it was a macerated fetus and in the other it died during the birth. The other 3 patients were primiparae. In one of these active interference had to be undertaken, which took the form of an attempt to deliver with forceps, which failed, and thereupon perforation of the living child and delivery by craniotlast. The other two children were delivered spontaneously, one macerated and one living, which, however died soon after. He therefore comes to the conclusion that it is wiser to rupture the membranes and terminate the labour as soon as the bag has been cast out and the os uteri is sufficiently dilated. The induction of premature labour is not an easy operation, and often taxes the competence of the practitioner to the utmost. It is a procedure which must be undertaken by the practitioner at times on the spur of the moment, and it is often fraught with technical difficulties. In skilled hands the method is capable of yielding excellent results.

GYNAECOLOGY.

311. **Pessaries.**

M. Hofmeier delivered a lecture on Pessary Treatment of Uterine Conditions, because he has experienced a large number of evil results from improper use of these instruments, and he thinks that a discussion of the indications, etc., may lead to some good (*Muench. med. Woch.*, August 21st, 1906). He does not deal with the operative treatment of pathological positions of the uterus, but contents himself by saying that all extreme cases of prolapse must be treated in this way. But there are numbers of cases which should be treated with pessaries. Retroflexion is not regarded as an important misplacement of the uterus to-day, but it is certainly an indication of a general enteroptosis or of some pelvic trouble. First of all, he speaks of the choice of pessaries. Soft rubber pessaries and those with a thin curved portion are to be avoided entirely. Ring pessaries made of soft rubber, or of copper wire covered with rubber, are very easily introduced and are not likely to produce damage to the vagina in introduction, but they have many disadvantages. They irritate greatly and give rise to ill-smelling discharge, and not infrequently the wire breaks after they have been used for a time, and they may then lead to a perforating wound in the vagina, etc. Vulcanite and celluloid rings can be softened in hot water, so that the correct shape can be given to them, which they retain on cooling. Thin pessaries are apt to cut their way into the vaginal wall after having been worn for a long time, and then become imbedded in the tissues. The connective tissue is damaged in this way, and perforation of the bladder is not unknown. He quotes such a case. Apart from the damage done in such a case, the difficulty of removing an imbedded ring is very considerable. He has seen damage proceed from a Schultze's 8-shaped pessary, which is probably made of copper wire with a covering of rubber. Another pessary which is not to be used is the Zwank-Schilling's hysterophor. He cannot understand how such a murderous instrument could ever have been tolerated, and says that the wearers are supposed to screw the wings of the instrument together to take it out at night, but rarely do so, so that after a time the screws rust and will not work when one wants them to. The pessaries which he advises one to use are the following: For simple retroflexion Hodge's pessary is still the best. In some cases Thomas's pessary is valuable. When the anterior wall of the vagina is very slack, and the anterior curve of the Hodge pessary slips down to the introitus, he uses a modification (Wiegen pessary) which has a greater bend on the anterior curve. The retroflexion pessaries only do their work as long as the pelvic floor functionates fairly well. When the pelvic floor is not functionating, or when the vaginal walls are extremely slack and the uterus descends and becomes retroverted, one needs a more massive pessary. The so-called excentric pessaries, which have a thin posterior curve and a massive anterior curve, are very useful. Heavy vulcanite rings do not answer so well in the long run, and are easily displaced during defaecation. At times the so-called sieve pessaries do very well; but one has to be careful that the mucous membrane is not pressed too strongly into the sieve-like openings, so as to produce small lesions. In cases of extreme prolapse and marked slackness of the vagina it may be that an operation cannot be carried out, and then one must rely on some instrument. Loehlein's modification of the old Martin pessary answers well, but has one great disadvantage—that it is difficult to introduce and withdraw, on account of the stiff lower curve. Menge has introduced a similar instrument which is said to overcome this. Having determined that only hard pessaries with absolutely smooth surfaces should be used, he has to admit that the introduction and taking out is rendered more difficult. However, practice gets over this difficulty. After the pessary has been introduced and placed satisfactorily, one should examine daily for a time to see that it retains its position. It will then not be necessary to either control its position or to remove it frequently. He finds that a control carried out once in four to six months is ample. He concludes by giving examples of ill effects resulting from the failing to control the position and condition of the pessary. He considers it necessary to irrigate the vagina with saline water or some weak disinfectant, but this need not be a regular daily occurrence. The wearer should always be warned that pessaries may do harm if they get out of place, and that they may only wear the instrument if they submit to a proper control.

312. **Fatal Haemorrhage from Vulvar Varices.**

Guerdikoff (*Sem. Méd.*, August 15th, 1906) relates three cases of haemorrhage from varicose veins of the vulva, two of which terminated fatally. The first was a multipara, eight months pregnant, in whom the haemorrhage occurred through the breaking of a chamber utensil under her weight, death resulting in four hours and a half. In the second case the haemorrhage came from a tear in the anterior commissure of the vulva, involving the urethra, consequent on the rapid expulsion of the child in her second confinement. In this case death took place in fifteen minutes, in spite of all efforts at resuscitation, the bleeding being arrested. The third rupture took place between the labium minus and the meatus, on the sudden expulsion of the child; it was controlled by tampons until the removal of the placenta, when two deep stitches and a mattress suture arrested it completely.

THERAPEUTICS.

313. **The Pneumothorax Treatment of Phthisis.**

The idea of treating phthisis by the artificial production of pneumothorax was first made by C. Forlanini in 1882, and, with the exception of three communications on methods and temporary results, this observer has waited until the present time before publishing his results, so that he could judge competently whether his treatment led to cure or not. He now deals with the method and the results (*Deut. med. Woch.*, August 30th, 1906). The reason

which led him to adopt this procedure was that he believed that when the disease affects one lung, this organ can be kept at complete rest and thereby be given a favourable chance of becoming repaired if one puts it out of action for the time being by pressure exercised from the pleural cavity. The pneumothorax must be sufficiently voluminous to ensure an absolute immobility. This can be judged by the absence of all breath sounds on auscultation. It should be produced gradually, and one should have complete control over the amount of pressure exerted on the lung at each stage. This pressure, once it has been obtained, should be kept constant as long as there is disease, or, in other words, for the whole period during which repair can go on in the lung. In order to carry out this, it is necessary to keep on renewing the air or gas which has been absorbed. The author describes the apparatus with which he produces the pneumothorax. He uses air freed from oxygen by passing it through pyrogallic acid, since he finds that nitrogen is absorbed most slowly and is indifferent. The apparatus consists of two graduated cylinders joined together below; the one contains about 500 c.cm. of a 1 per cent. solution of perchloride of mercury, and the other contains the nitrogen. By blowing on the tube connected to the upper end of the first cylinder, one can drive the nitrogen out of the second cylinder through a tube and needle into the pleural cavity. Arrangements for the regulation of pressure, etc., are attached. It does not matter where one injects the nitrogen; only one must be very careful not to wound the lung at the first injection. From 200 to 300 c.cm. of gas are injected at each sitting. The number of injections necessary to produce the required size of the pneumothorax depends on various factors, and especially on the presence of pleural adhesions or bands. At times it is necessary to inject from several points, and in some cases it may take months to obtain a satisfactory pressure on the lung. He has treated 25 cases of phthisis and 1 case of pulmonary abscess following croupous pneumonia. The results were in accordance with his expectations. When the tuberculosis is limited to one lung and the pneumothorax is complete, repair takes place. At first the temperature is heightened (this is not constant) and the sputum is increased. Gradually the fever disappears, and the sputum decreases and ultimately disappears. Before this has taken place, tubercle bacilli and elastic fibres can no longer be found. He says that a slight affection of the second lung does not contraindicate the treatment; and, indeed, he shows in a case that the second lung can heal up during the treatment. When the pleura is adherent to a great extent or completely the treatment cannot be carried out from mechanical reasons, and even when the adhesions are not so extensive it may be impossible to produce a satisfactory pneumothorax. In some cases which he details the Roentgographic pictures of the chest show the extent of the pneumothorax. In 4 cases he was forced to give up the treatment on account of symptoms which were absolutely like those seen after paracentesis thoracis, and in one case he lost his patient of tuberculous meningitis, after the treatment had led to a cessation of fever and sputum. The treatment is contraindicated in pneumonic forms of tuberculosis of the lung, with an acute course; but haemoptysis neither forms a bar to the treatment, nor does pulmonary haemorrhage arise during the treatment. He does not think that one can yet decide when the pneumothorax may be allowed to be absorbed, but his cases show that the patients lead active, useful lives with voluminous pneumothoraces. He wishes to stimulate others to interest themselves in the treatment.

314. Iron in Neurasthenia.

Lamoine (*Progrès Médical*, September 8th, 1906) advocates the employment of iron in certain cases of neurasthenia, on account of its action in changing haemoglobin into oxyhaemoglobin, and thus oxygenating the most remote cells of the organism. The nervous system, being the most functionally active, has need of most oxygen, and its cells are the first to suffer from an impoverishment of the same. Premising that his first cases were treated quite empirically, he goes on to say that he has found so much benefit, both in hospital and private practice, from iron used in neurasthenia that his opinion on the subject is now quite decided. While some cases have been markedly anaemic, others have shown either no signs of anaemia or only slight indications, insufficient to account for the severity of the illness, and yet all have been cured by iron. He combines its administration with that of hydrochloric acid, to improve digestion, and, in following up the course of treatment with natural mineral waters, he selects preferably those of Saint-Parèze, which contain salts of lime and manganese, to prevent constipation.

315. Treatment by Antisyphilitic Serum.

Risso and Cipollina (*Gazz. degli Osped.*, October 21st, 1906) speak very favourably as to the results of their treatment of some 50 cases of syphilis by means of injections of an antisyphilitic serum prepared by them. The serum was obtained from animals which had been repeatedly injected with syphilitic material, and to the serum was added later a small dose of the blood corpuscles of the animal from which the serum was taken, dissolved haemolytically. As it was found that in some cases this serum was badly tolerated (causing pain, fever, adenitis), a weaker serum was made for use in such cases. As a general rule, 1 to 2 c.cm. daily or every other day was found sufficient. Details of some of the cases are given. In one case of old standing—syphilitic necrosis of the skull—the results were particularly satisfactory. Another—an obstinate ulcerative dermatitis of the penis and scrotum, which had been treated in hospital by mercury and iodide without benefit—completely healed after six weeks' serum treatment. Equally satisfactory results were obtained in a case of syphilitic palmar psoriasis, cured by thirty injections of 1 c.cm. of the weaker serum.

316. Administration of Castor Oil.

Foch (*Sem. Méd.*, June 27th, 1906) recommends a pungent liqueur, such as anisette, a mouthful of which should be taken alone after the oil has been swallowed in the vehicle.

PATHOLOGY.

317. A Toxic Serum for Peripheral Nerves.

Schmidt (*Ann. de l'Inst. Pasteur*, July, 1906) has endeavoured to obtain a serum possessing a specifically toxic action upon the myelin sheaths of nerve fibres. He used emulsions of the sciatic nerves of frogs, and obtained his serum from guinea-pigs inoculated with this substance. After guinea-pigs had been treated with repeated intraperitoneal inoculations their serum was found to have a destructive action upon the peripheral nerves of the frog. The functions of the frog's motor nerves were impaired, and marked histological changes were found in the myelin sheaths, whilst there was a multiplication of the nuclei in the sheath of Schwann, and fragmentation of the axis cylinders. In addition to these effects the serum gave an agglutination reaction when mixed with an emulsion of the frog's peripheral nerves. It also possessed feeble haemolytic properties. Haemolytic serum, however, of the same strength, or even stronger, produced no pathological phenomena when inoculated subcutaneously in the same dose as the neurotoxic serum. It was observed that after the injection of the nerve emulsion into the peritoneal cavities of the guinea-pigs the particles of free myelin disappeared in course of time, being all absorbed by the leucocytes.

318. The Oxidizing Power of the Blood.

Kastle and Amoss (Bulletin No. 31, Hygienic Laboratory, Washington, U.S.A., 1906) have compared the oxidizing power of the blood in normal and diseased conditions. The experimental tests which they have employed are based on the fact that phenolphthalin, which is the leuco compound of phenolphthalein, passes on oxidation into the latter. When allowed to stand alone an alkaline solution of phenolphthalin and hydrogen peroxide gives only a faint pink coloration. If, however, a very small quantity of blood be added to such a solution, it soon acquires the deep purplish-red coloration characteristic of phenolphthalein in alkali, indicating that under the influence of blood as an oxygen carrier hydrogen peroxide is able to effect the oxidation of phenolphthalin with far greater rapidity than when allowed to react alone. It was found possible to render this reaction available for quantitative estimations of oxidizing power. The blood of 47 different persons has been investigated, and it has been shown that in diseased conditions the blood shows a considerable falling off in peroxidase activity, or oxygen-carrying power, as compared with that in normal conditions of health. It was also found that in the majority of instances the peroxidase activity of blood was proportional to the percentage of haemoglobin. One set of experiments may be quoted as illustrative of them all. Taking the oxidizing power of normal blood as 100, this power was found in a case of general tuberculosis to be 61.6; in a case of tuberculosis of the hip-joint it was 27; in a typhoid convalescent it was 64.4; in a case of haemorrhoids and abdominal cyst, 42.2; and in a child 10 days old, 82.2.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

319. **Peptic Ulcer of Oesophagus.**

Tileston (*Amer. Journ. of Med. Sciences*, August, 1906) records three cases of peptic ulcer of the oesophagus, with a table of forty-one previously recorded cases. Though rare, the condition is probably more frequent than supposed; and, while it may occur at all ages, the majority of cases are in middle life, males suffering more frequently than females. Among diseases which may precede the condition are nephritis, chlorosis, mercurial poisoning, traumatism, and any condition which may cause relative insufficiency of the cardiac orifice, thus allowing regurgitation of the gastric juice. Pathologically the lesion resembles very closely that of simple gastric ulcer, and it is usually situated in the lowest part of the oesophagus, close to the cardiac orifice. The ulcers vary in size, and generally only one is present. There is a strong tendency to perforation. The most prominent symptoms are pain at the xiphoid cartilage, or beneath the sternum, radiating to the back between the shoulders; dysphagia, due to reflex spasm; vomiting; haematemesis; and perforation. The onset, though usually commencing gradually with pain and dysphagia, may be latent up to the occurrence of haemorrhage or perforation. Tenderness over the lower part of the sternum and near the ninth dorsal vertebra should be looked for. The condition is serious, not only from the danger of haemorrhage or perforation, but also from the tendency to stricture; and, though this latter may yield to dilatation, its recurrence is probable. Treatment is the same as for gastric ulcer, and irritation of the surface by the passage of food should be reduced to a minimum. Of drugs, silver nitrate, ¼ to ½ gr., well diluted, three times a day, or bismuth subnitrate, 15 gr. in suspension once a day, may be tried, as it is possible that they may remain in contact with the ulcer long enough to exert a beneficial effect. Stenosis requires dilatation with bougies, but, if impassable, gastrotomy may be necessary.

320. **Hydroa Vacciniforme.**

Constantin (*Prov. Méd.*, May 19th, 1906) refers to the cases of this disease described by various dermatologists since its characters were first fully described by Bazin in 1861. The eruption appears in infancy, is liable to recur, appears in the summer months and is especially liable to appear after exposure to the sun or wind; it is seated on uncovered parts of the skin and characterized by umbilicated vesicles which on healing leave a vacciniform scar. From a consideration of the cases of this disease hitherto published the author concludes that it is not such an extremely rare disease, 38 cases having been described between the years 1861 and 1906; all authors are not in accord as to what is understood by the term hydroa vacciniforme; hydroa vacciniforme as sharply defined by Bazin and the "summer eruption" as described by Hutchinson are not necessarily the same, the former being only one of the forms of the latter. In hydroa the dominant character is a vesicular eruption leaving cicatrices; in "summer eruption" there may or may not be cicatrices—it further differs from the "recurring summer eruptions" as described by Crocker by reason of the fact that the vesicles giving rise to scars are generally umbilicated and undergo neurotic changes. The author refers to the effect of light on the skin of healthy people and on the skin of persons subject to this disease: on healthy skin light causes only an erythema, coming on after some hours and leaving behind it a pigmentation; on the skin of patients subject to hydroa it causes a vesicular or bullous eruption which in certain cases assumes a necrotic character, leaving permanent scarring—these facts clearly showing the important part sunlight plays in the etiology of this form of skin disease.

321. **A New Urinary Pigment.**

Finipaldi (*Rif. Med.*, August 11th, 1906) draws attention to a new urinary pigment discovered by him in icteric urine. It appears as a cochineal colour when boiled in a strong alkaline solution. If the urine is freed from biliary pigments and carbonic anhydride passed through the filtrate, the second filtrate will contain urobilin, urobilinogen, urochrome, and the new chromogen, which can be recognized by the cochineal colour given on boiling in a strong alkaline solution—for example, caustic potash. This new pigment will give its characteristic reaction in the presence of urobilin, urobilinogen, etc.; but the author gradually filtered off these ingredients until his chromogen was alone left, giving the peculiar reaction. It can be extracted from the urine by animal charcoal; is precipitated by a saturated solution of ammonium sulphate, but not by lime, caustic soda, or lead and ammonia. It is not dissolved in amylic alcohol, ether, or chloroform, and is very stable in acid solutions containing acetic, hydrochloric, and nitric acids. Boiling with trichloracetic acid changes it; it is less stable in alkaline solutions, and is only slowly destroyed by ammoniacal fermentation. H_2S weakens but does not abolish the specific reaction. The author so far has only been able to obtain the chromogen in solution in the presence of urochrome. At present he has only been able to find it in icteric urine. It differs from all other pigments in giving a red colour in the presence of strong alkalies. By a process of exclusion the author arrives at the conclusion that he is dealing with a hitherto unknown pigment.

322. **Multiple Cavernous Haemangiomata of the Intestine.**

MacCallum (*Johns Hopkins Hosp. Bull.*, August, 1906) describes a case which showed many small cavernous venous tumours throughout the small intestine, a condition which seems to have been rarely observed, only five similar cases being found in the literature. The patient was a man, aged 54, who complained only of digestive disturbances which had lasted for months. He vomited before breakfast, and once, two years ago, had vomited a large quantity of blood. In the present illness he had headache, dizziness, and frequent micturition. He had always been an excessive whisky drinker, and on entering the hospital was in a condition of acute alcoholism. On *post-mortem* examination there were found—arterio-sclerosis; atrophy of cerebral convolutions; chronic diffuse pancreatitis; beginning cirrhosis of liver; oedema of the brain; broncho-pneumonia; and multiple cavernous angiomata of the intestine. There was nothing in the other lesions which seemed to bear directly upon the appearance of the angiomata. The mucosa of the small intestine seemed normal, but throughout its length, and especially in the upper portions, there could be felt from either side small, fairly firm areas which shone through the mucosa as blackish-purple patches, the largest of which reached a diameter of not more than 7 or 8 mm. They were thought at first to be haemorrhages, but on cutting through them it was possible to squeeze out liquid blood, leaving behind a spongy tissue mass. The mucosa was unaltered over them, and there did not appear to have been any haemorrhages from them at any time. The patches were about forty in number, and were irregular in outline and in density. They were situated chiefly in the submucosa, not invading the mucosa itself, nor extending to any degree into the musculature, although in places portions of these dilated channels were found among the muscle bundles. The veins in the neighbourhood were very numerous, large, and tortuous, and at the margins of the nodule suddenly passed over into widely anastomosing blood channels, the walls of which consisted of little more than the endothelium and one or two layers of fibrous tissue.

SURGERY.

323. **Treatment of Ectopia Vesicae.**

Trendelenburg (*Ann. of Surg.*, August, 1906), in a paper read before the American Surgical Association on May 30th, alludes in the first place to the fact that for more than twenty years he has endeavoured to aid the direct union of the freshened edges in cases of ectopia by producing a separation of the pelvic bones at the sacro-iliac synchondroses in order to provide for a closer approximation of the two halves of the pelvis anteriorly at the symphysis, and consequently of the edges of the defect. While acknowledging that this method of operative treatment, though not dangerous if applied before the seventh or eighth year, has not been uniformly successful, the author is convinced that more recent procedures—especially that of Maydl for implantation of the ureters

into the sigmoid flexure have in no way arrested the further development of plastic surgery in this field, and that recourse will again be taken to direct suture of the edges of the deformity as the only means by which the normal relations can be restored. The author, referring to cases of bladder ectopy on which he operated years ago, states that, although much improvement has been effected in his patients, retention of the urine is not complete. The physiological factors necessary both for retention and voluntary micturition are, it is asserted, present, but they are prevented from functionating in a normal manner by certain mechanical conditions. This failure is accounted for by the fact that the two sections of the pelvis which have been separated at the sacro-iliac synchondroses have a tendency to gradually resume their former positions, so that the neck of the bladder and the prostatic portions of the urethra, which are closely connected with the pubic bones, are pulled upon to such an extent that the muscular ring can no longer be brought into play. Attempts to overcome this difficulty by mobilizing the pubic bones with the help of the chisel, or by dissecting widely the osseous attachments of the urethra and the neck of the bladder, have failed. The author, who has had much success in his operative treatment of epispadias and partial ectopy of the bladder, considers why equally good results have not been obtained by him in cases of complete vesical ectopy. The explanation may be found, he suggests, in the fact that it is impossible in these latter cases to bring together the pelvic bones in front and to keep them permanently in position. The opinion is expressed that it would be wise to go back to old ideas, and to make an attempt to bring about the desired changes in the bony structures of the pelvis by orthopaedic measures. Even slight pressure, if constantly applied to the rapidly-growing osseous tissue of the young, may effect marked alterations in form and contour, and there seems to be no good reason why with the exercise of time and patience the infantile pelvis may not be considerably moulded in cases of vesical ectopia. Thus the mother may be directed to apply a closely-fitting rubber band around the pelvis and hips of the gowned patient for some definite period during the day and night. If this be supplemented by operative division of the pelvic bones at the synchondroses it may be possible, the author thinks, to bring together permanently the two halves of the pelvis, and thus to convert the transverse oval defect of the abdominal wall into a narrow vertical slit. This would produce practically the same conditions which are present in epispadias associated with partial ectopia of the bladder, and the surgeon might then anticipate a similar operative result as in the less severe types of the deformity.

324. Suprahyoid Pharyngotomy.

Spisharny (*Zentralb. für Chir.*, No. 29, 1906) points out the difficulties attending the various recognized methods of attacking a pharyngeal growth, all of which, he holds, fail to afford adequate access to the deeper portion and the posterior wall of the cavity. A case is reported in which an operation devised by Jeremitsch in 1895 was recently practised by the author for the removal of a tumour in the pharynx which caused, amongst other disturbances, much difficulty in deglutition. The skin incision was made parallel to and above the hyoid bone from a point above the middle of the right cornu to the sterno-mastoid muscle on the left side. After removal of the submaxillary gland and ligature and section of the lingual artery, the mucous membrane of the pharynx was divided, and the whole of the cavity and the root of the tongue were thus freely exposed. The tumour, which extended far downwards, could then be readily removed through a slit in the mucous membrane. An attempt to effect primary closure of the wound was frustrated by chloroform vomiting, and a fistula resulted, which, however, did not persist for more than three weeks after the operation. The author expresses much satisfaction with this operation, which, he asserts, affords free access to every part of the pharyngeal cavity and to the root of the tongue. In this suprahyoid method it is not necessary to practise tracheotomy. The bleeding is trivial, no organ of importance is wounded, the wound heals readily, and the function of the pharynx is completely restored.

325. Cysts of the Urachus.

W. R. Weiser (*Annals of Surgery*, October, 1906) has collected and tabulated 89 cases of this condition, including 3 of his own. Urachal cysts are more common in middle life (from 20 to 40 years), and, in adult life, women are more frequently affected than men. Thus, in 72 cases where the age was given 34 were between 20 and 40 years of age, and, out of these 34, 29 were females and 5 males. In 14 cases under 15 years of age the males and females were equal in number, and of the remaining 15 who were past 40 10 were females and 5 males. It was stated in 5 cases that the woman was pregnant at the time she presented herself for treatment. Probably the most constant factor in the history of this condition is a mass felt between the umbilicus and symphysis pubis, varying in size from something barely palpable to a very large tumour. The symptoms usually present are a feeling of illness, loss of flesh, pain, often fever, gastric disturbance, and, indeed, the appearance of a tuberculous subject. In addition to these symptoms, there was, in 15 per cent. of the cases, a discharging sinus through the umbilicus. In making the differential diagnosis there is often a danger of mistaking the case for one of tuberculous peritonitis, and there is also the possibility that a large cyst of the urachus may be thought to be parovarian, or an ectopic gestation. Incision and drainage are the first essentials in treatment. For a large proportion of the cysts extirpation is impossible.

OBSTETRICS.

326. Premature Separation of the Placenta from its Normal Position.

Nicholson (*Univ. Pennsylvania Med. Bulletin*, September, 1906) reports 3 cases of the above condition, which is defined as a separation of the placenta, wholly or in part and before the birth of the fetus, from its usual place of attachment above the contraction ring of Barbour or the retraction ring of Schroeder. While traumatism, shortened umbilical cord, emotion, coitus, etc., may have a very secondary causal relationship to its occurrence, the real underlying etiological factor must be attributed to changes in the decidual layers of the ovum. The part played by nephritis in the causation of low grade inflammatory processes in the endometrium, resulting in extravasations of blood, is also worthy of consideration in this connexion. Of symptoms, the two most important are pain and bleeding. Collapse is frequently severe, but should not be relied upon for diagnosis, as this should have been made before the development of so alarming a condition. The pain varies from slight discomfort to the acutest agony with a sensation of bursting. Among other symptoms may be noted absence or feebleness of labour pains, rapid distension of the uterus with marked tenseness of the wall, and a serous discharge from the vagina, which may be mistaken for liquor amnii, but is the expressed serum from the intrauterine clots. In cases of complete concealment where external haemorrhage is absent the diagnosis is most difficult, but any patient presenting an aberrant form of pain during pregnancy, and more especially near term, should be regarded with suspicion. The treatment of a marked case of premature placental separation consists in emptying the uterus as rapidly as may be consonant with the safety of the woman, and of the woman alone, for the child need not be considered. In those cases where there is considerable bleeding and the cervix is already dilated by labour or is easy of dilatation, this dilatation should be completed either manually or by using a rubber bag, and the delivery of the child brought about by forceps, version, or craniotomy. This latter may be undertaken upon relatively slight indications, since the life of the child is practically always destroyed by the occurrence of the condition. In cases where the bleeding is considerable but the cervix is rigid and its dilatation would take time, Bossi's dilator should be used until a diameter of 6 cm. is obtained, followed by the so-called vaginal Caesarean section, version, craniotomy, or forceps being used to complete delivery. If, however, circumstances are unfavourable for the performance of this relatively more complicated operation, it might be better to deliver at once by abdominal Caesarean section, followed by hysterectomy when possible, as in many cases there is a marked degeneration of the uterine wall with associated endometrial change.

327. Pregnancy and Tuberculosis.

Von Rosthorn (*Sem. Méd.*, August 29th, 1906) enumerates the conditions under which pregnancy may have an evil influence on a tuberculous patient. Its effect may be disregarded in the case of patients in whom the tuberculous affection is stationary, or for the moment cured, fever and haemoptysis being absent, and the symptoms recent and limited to the apex. On the other hand, pregnancy is dangerous if the tuberculous manifestations are more pronounced, with rapid breaking-down of lung tissue and

continued fever, or if fresh air and sanatorium treatment are without much result, and the disease invades the middle and lower lobes. In hereditary tuberculosis, especially with symptoms of laryngitis, however slight, pregnancy and marriage should be strictly forbidden.

GYNAECOLOGY.

328. Uterine Fibroids Complicated with Cancer of the Body of the Uterus.

J. Bland-Sutton (*Journ. of Obstet. and Gyn. of the Brit. Emp.*, July, 1906) has attempted to estimate the frequency with which cancer of the body of the uterus coexists with fibroids of the uterus. Piquand has previously collected notes of 179 cases of the kind under discussion, and found that out of 1,000 cases of fibroids, 15 were complicated by cancer of the body of the uterus, a proportion which is, according to him, eight or nine times higher than in other women; he also found the combination to be most frequent in nulliparous women between the 50th and 60th years. Piquand thought that the presence of fibroids favoured the development of cancer by giving rise to chronic metritis. Bland-Sutton finds that in a consecutive series of 500 cases of fibroids submitted to operation, 63 of the patients were more than 50 years old, 13 were more than 60. Among the 63 women there were 8 cases of cancer of the body of the uterus. The result of this examination of the author's own cases thus supports Piquand's calculation of 15 cases of cancer out of 1,000 of fibroids, and also supports his statement that the combination is most frequent between the 50th and 60th years. It is interesting that when cancer of the body of the uterus occurs unassociated with fibroids, it has a wider age-range, and it is possible that the presence of fibroids may influence the age-incidence of cancer of the endometrium. The author thinks that more observation and more statistical inquiry is needed before it can be asserted that fibroids predispose women to cancer.

329. Primary Epithelioma of the Vulva.

Serafini (*Gazz. degli Osped.*, September 30th, 1906) has collected 22 cases (15 of which are reported in detail) of this comparatively rare condition. The most usual age at which the disease is seen is 50 to 60 (8 out of 22), but there is one case at the early age of 4; unfortunately no histological examination was made, but after excision of the growth the child died a few months later from cachexia (the growth may have been a sarcoma). Two cases were over 70 years of age; 19 were married and had borne children. There was no history of cancer or syphilis in any of the cases. In one case some leucoplasic patches were present, and may have predisposed to the growth of the epithelioma. In the author's cases the disease varied in duration from a few months up to four years. Enlarged glands were seen in 9 out of 15 cases. The prognosis is bad, much worse than that of cancer of the labia majora: indeed, the author is only able to record one case as cured (operated upon nine years ago): 10 of those operated upon died within a year from metastasis or cachexia.

330. Dermoid Cyst in Broad Ligament.

Jaboulay (*Prov. Méd.*, September 8th, 1906) gave a clinical lecture in the Hôtel-Dieu at Lyons on a case of cyst embodied in the broad ligament. The patient, aged 32, had noticed enlargement of the abdomen twelve years before, when laparotomy was performed without result. Marrying subsequently, she gave birth to a stillborn child at full term, a fluid tumour in the pelvis having to be moved aside by the officiating obstetrician. For two years before her admission to the clinic she had suffered from pain and vomiting, but was unwilling to submit to operation until compelled by suffering. The cyst was found embedded in the right broad ligament, and to a lesser extent in the left also, the uterus lying in front. Its contents were a fatty substance, like melted butter, several tufts of hair, and a bone answering to the appearance of half an inferior maxilla of a fetus at term, with one small tooth in a depression. A raw surface, three handbreadths in size, was left, and was covered in by fixing the pelvic portion of the colon over the centre where the edges could not be brought together.

331. Malignant Degeneration of Abdominal Cicatrix after Ovariotomy for Non-malignant Tumours.

Schumann (*Amer. Journ. Obstet.*, August, 1906) writes on adeno-carcinoma of the abdominal wall developing subsequently to the removal of benign ovarian growths. A multilocular ovarian cyst was removed from a woman aged 20; the wound was closed without drainage. The patient remained in good health until five years later, when she began to feel sharp stabbing pains in the lower abdomen. Three or four months later a small lump appeared in the centre of the incision, and rapidly increased in size, but it was not till seven years after the ovariotomy that an operation was performed. Beyea removed from the subperitoneal tissue behind the recti a tumour of the size of a large cocoa-nut. The growth, an adeno-carcinoma, was excised, the peritoneal cavity being opened during the course of the operation. At the time the patient was free from vomiting, nausea, cough, dyspnoea, oedema, chill, or fever, and after the excision of the growth convalescence was uneventful. Six months later she was readmitted to the hospital, and several recurrent nodules were removed. The patient then rapidly failed in health, and was in the last stage of cachexia about a year after the operation. Schumann has collected 8 reported cases of these malignant degenerations after removal of an innocent ovarian tumour; 6 of these new growths were typical pseudo-mucinous multilocular cystic adenomata, 1 a papillomatous pseudo-mucinous, and 1 a unilocular papillomatous cyst. The space of time between the ovariotomy and the development of the malignant growth ranged from four months to seven and a half years.

THERAPEUTICS.

332. Arhovin in the Treatment of Gonorrhoea.

K. Ganz (*Berl. klin. Woch.*, September 17th, 1906) believes that it is best to treat gonorrhoea internally at first and only to apply local remedies when all the acute signs have disappeared and the discharge is watery, whitish, and milky. The internal medicaments are supposed to act diuretically and to lessen the discharge and ease the pain. The external or local remedies are supposed to kill the gonococcus. His experience with arhovin a new anti-gonorrhoeal drug—impels him to describe it as an ideal preparation. Its local action has been but little described, and he now deals with this after having had an experience of it extending over several months. Arhovin is an addition product of diphenylamin and an ester of thymol-benzoic acid. It is a fluid, possessing an aromatic odour and a slightly burning taste. It is soluble in alcohol, chloroform, and ether, and insoluble in water. Solutions (1 to 5 per cent.) in olive oil keep well. It has been shown to be strongly bactericidal. At first he uses a 1 or 2 per cent. solution, and rapidly increases the strength to from 3 to 5 per cent. In four patients he was able to obtain a perfect cure in about four weeks, while in a fifth patient he used bougies made up with cacao butter, and cured the patient also in four weeks. In posterior urethritis he was also able to get good results, the gonococci disappearing after from two to three weeks, and the affection being completely cured after from four to six weeks (5 cases). In 2 cases of chronic urethral gonorrhoea he was able to cure the disease in from three to four weeks after various drugs had been used for several months without result. In 2 further cases affecting women the arhovin worked equally well. Although he owns that his cases are not numerous, he believes that the smooth way in which all were satisfactorily cured proves that arhovin is a distinct gain for the treatment of gonorrhoea, and advises others to test its action. In cases where injections could not be carried out from other causes he obtained excellent results from the internal use of the preparation.

333. The Treatment of Graves's Disease.

Francesco (*Gazz. degli Osped.*, August 6th, 1906) has treated 2 cases of Graves's disease with marked success by means of parenchymatous injections of iodine and ergotin. A saturated alcoholic solution of iodine diluted with 30 per cent. of water was injected in doses of ½ to 2½ c.cm. into the tissue of the thyroid, and similarly 1 c.cm. of 10 per cent. solution of ergotin. That the result was due to some direct action on the thyroid gland, some process of thyreolysis, was shown by the fact that when the injections were made into other parts of the body no beneficial results followed. In one of the cases, of four months' duration, the treatment was begun on January 28th, 1901. Iodine injections, starting with ¾ c.cm. and going up to 2½ c.cm., were given daily for twenty-five days and then suspended for a month, after which ergotin was given 1 c.cm. every five or six days for twenty injections. After the first iodine treatment a marked improvement in the circulatory and psychical symptoms was noticed. The ergotin injec-

tions had to be discontinued owing to the pain and occasional rigor and fever caused by them, although by this time the patient was nearly well. A month's rest was given, and then seven or eight injections of the iodine were given. No other treatment was used. The patient has remained well since. The other case was very similar.

334. **The Treatment of Hyperchlorhydria.**

BEBIZZI (*Gazz. degli Osped.*, August 19th, 1906) has treated a small number of cases of hyperchlorhydria by means of glucose and atropine respectively. The cases were only few in number and as far as they went did not support the claims of glucose (which was given as a syrup—1 pint water 2 glucose) to remedy the condition, only one case was at all benefited. But with atropine decided relief was obtained in 4 out of 7, 2 were considerably improved, and 1 (a case of hyperchlorhydria and neurasthenia) remained *in statu quo* as far as the objective signs were concerned, although subjectively he was better. Atropine alone was only given in one case as it was found that better results were obtained with a mixture of solanaceous plants, namely, equal parts of tincture of stramonium, tincture of belladonna, and tincture of hyoscyamus, of which 20 minims were given night and morning.

335. **Treatment of Haemoptysis.**

BROWN (*Amer. Journ. of Med. Sciences*, August, 1906), in considering the treatment of haemoptysis, regards all drugs (for example, ergot, adrenalin, etc.) which contract the blood vessels as injurious, since by causing contraction of the healthy vessels the diseased vessels become subjected to increased instead of lessened tension. As it is probable that lessened tension from dilatation of the other pulmonary vessels does not take place, an endeavour must be made to lower tension by reducing the volume of the blood in the circulation, and a severe haemoptysis acts in this way. Since the nitrites, by producing peripheral and splanchnic dilatation, cause a marked fall in blood pressure, their use in treatment is adopted, and in order to know exactly when to repeat the dose the systolic blood pressure is carefully watched with the sphygmomanometer. Amyl nitrite should be administered at once, followed by ½ gr. of morphine hypodermically if the patient is nervous, along with nitroglycerine or sodium nitrite. A constant blood pressure of between 100 to 120 mm. of mercury is to be aimed at, and this may be done fairly easily with the aid of sodium nitrite. If the patient cannot inhale amyl nitrite the sodium nitrite or nitroglycerine may be given hypodermically immediately, and repeated as often as necessary.

PATHOLOGY.

336. **Nystagmus-Myoclonus.**

UNDER this title, Lenoble and Aubineau (*Rev. de Méd.*, June 16th, 1906) have described a series of cases presenting nystagmoid movements of the eyes, associated generally with clonic movements of the muscles of the face or other parts of the body. This affection is generally either congenital or begins in early infancy; in some cases several members of a family are affected. It appears to continue throughout the life of the patient, and is rebellious to any method of treatment at present known. The nystagmus, which is generally lateral, in some cases is not at all easily detected; it is essential (there being no pathological changes in the eyes and no acquired nervous affection). Accompanying these movements of the eyeballs one commonly finds a series of jerking movements of various muscles or muscle groups which appear spontaneously, can be controlled by an effort of the will, and are especially excited by cold and tapping the muscles. In the head these movements may be rhythmic and regular, causing oscillation of the head on the neck. Similar muscular jerkings may occur in the muscles of the upper extremity or in other muscles of the body. In the upper limbs these movements resemble very much those seen in cases of disseminated sclerosis. Slight trembling movements may occur in the upper limbs, and even in the tongue, without there being any evidence or suspicion of alcoholism. In some patients inco-ordinated movements appearing without cause have been noticed by the friends. The authors have never seen convulsions in these patients. The patellar reflexes are generally exaggerated, and this exaggeration may be found in some cases to involve the other tendon reflexes; the cutaneous reflexes may also be exaggerated. Sensibility (cutaneous) is always normal. Various vasomotor troubles may occur—for example, simple redness of the skin, local sweats, and circumscribed oedema. In some cases the skin covering the knees and feet is bluish in colour. All these alterations are less liable to manifest themselves when the patients are kept warm in bed. In many of the cases described by the authors anomalies of development or trophic disturbances were found; two were infantile in type, one was badly developed, and in one a supernumerary finger was present on each hand; natiform skull, badly-formed ears with adherent lobules, striated or notched teeth, facial asymmetry or asymmetry of the two sides of the body, congenital ptosis, inequality of the pupils with preservation of normal reactions, hypospadias, malformation of foot, flat foot, genu valgum, lumbar lordosis, and highly-arched palates are some of the physical imperfections which have been found in patients suffering from this disease. The cerebral functions may be normal, or there may be feebleness of intellect, hysterical manifestations, and phobias. In some of the cases investigated by the authors the writing is peculiar; the letters are well formed but jerky, and the downstrokes are very trembling. In two cases in which the electrical reactions were tested the nerves and muscles were over-excitable to both forms of current. In one case there existed incontinence of both faeces and urine, which dated from birth, and the authors think these troubles were produced by clonic jerking movements of the rectal and vesical musculatures. The commonest type of the disease is that in which with the essential nystagmus are associated trembling of the head, facial asymmetry or other symptoms—those cases in which nystagmus is the only symptom are rare. This disease is to be distinguished from paramyoclonus multiplex by the following means: the constancy of the nystagmus, often accompanied by trembling of the head; the reflexes are frequently exaggerated; the presence and variability of trophic troubles and of anomalies of development (in a majority of the cases), and by being detected at the earliest periods of life. As to the etiology of the disease, the majority of the cases occur in males, and the only cause which appears to have much influence in the production of the disease is racial; the authors find the inhabitants of Brittany are very prone to this affection. In a few cases alcoholism in the parents has apparently been a factor in the causation of this disease. In some the parents have been insane; in only one case has syphilis in the parents been noticed. The pathology of this disease is at present quite obscure; the authors, however, consider it as a disease evolving itself out of a degenerate soil, and representing the great modifications which the cerebro-spinal centres may exhibit, without the higher faculties being notably affected.

337. **Calcium in relation to Eclampsia and Tetany.**

SILVESTRE (*Gazz. degli Osped.*, August 12th, 1906) propounds a theory that eclampsia, tetany, and similar convulsive affections are due to a deficiency of calcium in the blood. He says that just in those periods (namely, early infancy, sixth month to 3 years, the puerperal period, rickets) when a spasmophilic tendency is most marked, there is a corresponding deficiency of calcium. He further bases his hypothesis on the following considerations: (1) The increased elimination of calcium in various psychopathies associated with much mental work; (2) excess of calcium causes cerebral depression; (3) the brains of children suffering from tetany contain less calcium than normal; (4) the therapeutic benefit derived from salts of calcium in the nervous manifestations of rickets; (5) phosphorus and lecithin stimulate the nervous system, possibly by favouring the assimilation of calcium; (6) in pregnancy and lactation the mother probably loses a perceptible amount of calcium.

338. **The Functions of Degenerated Muscle.**

G. GUERRINI (*Lo Sperimentale*, July-August, 1906) has investigated some of the physical properties of healthy muscle, and compared them with those of muscle that has undergone fatty degeneration. He finds that the total extensibility of the two is equal; but that the immediate extensibility (that is, the lengthening produced as soon as a given weight is suspended from the muscle) is increased in fattily degenerated muscle, while its complementary extensibility (that is, the slow subsequent elongation of the weighted muscle) is correspondingly diminished. He also finds that the retractility of the degenerated muscle—in other words, its tendency to return to its original length when the weight is removed—is lessened considerably as compared with that of healthy muscle. Thus Guerrini claims to have proved that muscle in a state of fatty degeneration is less capable of doing work, and is more easily exhausted than normal muscle.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

339. **Dural Fibrosarcoma Pressing on Rolandic Area.**

G. Ravà (*Bull. d. Sci. Med.*, Bologna, June, 1906) records the case of a woman of 50, who had always been fairly healthy and of regular habits of life, who was admitted to the hospital on account of headache, disturbances of vision, transient losses of memory, and transient attacks of impairment of the movements of the tongue. The headache had been occipital and worse at night for eighteen months before admission; for the last three months it had extended to the temporal and frontal regions also. The appetite and the actions of the sphincters had continued to be normal. On admission little abnormality was found about the patient, excepting in the examination of her nervous system. The left temporal region was tender on palpation; the tongue was steady and did not deviate on protrusion; the movements of the face, neck, limbs, and trunk were normal with few exceptions—these being that the eyes were not always converged equally, that a slight nystagmus sometimes appeared, that the hands trembled a little when extended, and that the patient turned unsteadily and tended to fall down backwards. Romberg's sign was absent; the right pupil was a little larger than the left, both reacted to light, to pain, and to accommodation. The reflexes of the two upper limbs were equal and a little weak, those of the lower limbs were brisk; Babinski's sign was absent. The movements were well co-ordinated; tactile, thermal, and muscular sensation were all normal. Optic neuritis was well marked in each eye; more so in the left than the right. The patient was in the hospital for fifteen months, when she died from general decay. Her temperature was practically normal throughout. The headache was frequently complained of, at one time involving the whole head, at another worst on the left side. The patient had several short attacks of loss of consciousness during her first few months in the hospital; during these attacks the urinary sphincter was relaxed involuntarily. In general, the nervous symptoms showed but slow changes, though the right side of the body, and particularly the right arm, appeared to be more affected than the left. Twelve months after her admission the patient could not stand alone, and exhibited retropulsion; she had lost control over her sphincters; the optic neuritis had progressed to optic atrophy; the patient was much less intelligent and weaker, the right arm being more affected than the left, and bilateral ankle-clonus could be obtained. At the *post-mortem* examination a rounded fibrosarcoma arising from the dura mater was found pressing into the bottom of the left Rolandic area. The tumour was 2 in. long and 1¼ in. high, and occupied a deepish cavity in the substance of the lower parts of the ascending frontal and ascending parietal convolutions, and also compressed the middle of the first left temporal convolution. The vessels at the base of the brain were normal. The tumour, speaking histologically, was a vascular fibrosarcoma with large polymorphic cells, and showed cavities due to old haemorrhages. The bulb was examined by Pal's method, and showed no degenerated nerve fibres. The compressed parts of the cortex, stained by Nissl's method, showed only a slight increase in the pigment and neuroglia. The author quotes several other recorded cases in which a focal lesion of the brain has failed to produce the localizing signs and symptoms that might have been anticipated.

340. **Pentosuria.**

Janeway (*Amer. Journ. of Med. Sciences*, September, 1906) observed two cases of pentosuria, a condition of importance from its easy confusion with diabetes. At present it can only be regarded as an anomaly in the intermediary metabolism, rather analogous to cystinuria and alkaptonuria than to diabetes. The recognition of its presence is of importance clinically, and any urine which reduces Fehling's solution atypically, the colour remaining unchanged for a minute or so after boiling and then suddenly turning a greenish-yellow or muddy orange, should be subjected to further tests. If it yields good crystals with the ordinary phenylhydrazin test, does not ferment with yeast, and is optically inactive, pentose is probably present. Whenever there is suspicion a knife-point full of orcin should be added to 3 c.cm. of urine to which 5 c.cm. of concentrated HCl, specific gravity 1.19, has been added. Heating on a water-bath at 90° C. for two or three minutes will, if pentose is present, produce a green precipitate, which, taken up with amyl alcohol and examined spectroscopically, gives an absorption band in the orange and contiguous red. Experience of this condition has not been sufficient in point of time to warrant any absolute opinion as to its course and prognosis. Although no bad effects have been noted, it is possible that it may conduce to arterio-sclerosis; but the prognosis is certainly better than in the mildest form of diabetes. In life insurance this should be borne in mind, as it is unfair for this purpose to class such cases with diabetics. The difference between this condition and diabetes should be explained to the patient, and there is no need to enforce any dietetic treatment, as in the latter disease.

341. **Gastric Ulcer in Advanced Age.**

Triboulet (*La Clinique*, June 15th, 1906) points out the possibility of the occurrence of gastric ulcer even after the age of 50. Two cases have recently come under his observation, neither of which was diagnosed without a considerable amount of delay. In one, the nature of the affection was shown by the occurrence of haematemesis, eliciting, tardily, the history of gastric treatment thirty years previously. The other puzzled her numerous medical attendants for a still longer time, having no record of a previous attack; and the diagnosis was finally made by observing the effect of complete rest and milk diet. Both patients were women, and in both the symptoms were supposed to indicate some obscure new growths in the gastric or hepatic region. Advancing years modify the symptoms of gastric ulcer, but its possibility should not be forgotten in the consideration of doubtful cases, and the treatment is the same as for a younger patient.

342. **Mitral Stenosis.**

Cipolletta (*Gazz. degli Osped.*, September 30th, 1906), discussing the pathogenesis of pure and uncomplicated mitral stenosis, believes it to be very often congenital, and the reason that it is not in many cases discovered until the advent of puberty is because at that period more work is thrown on the heart than it ever has had to do before, and it breaks down under the extra strain. It used to be thought that congenital heart disease was almost confined to the right side of the heart, but it is now generally admitted that the left side may be affected; and in the author's opinion a theory of congenital origin is better fitted to explain the pathogenesis of these cases of pure mitral stenosis than one of post-natal inflammation. He believes that they are largely due to arrest of development before the sixth month of intrauterine life, which arrest is due to a toxic state of the blood. The chief causes of this toxaemia are tuberculosis and syphilis. In a small number of cases consanguinity in the parents seems to have some influence. In illustration of these theories the author reports very briefly some 28 cases.

343. **Psoriasis after Subcutaneous Injection of Antidiphtheria Serum.**

Brodier (*Arch. Gén. de Méd.*, July 31st, 1906) found that, after giving an injection of antitoxic serum to a boy suffering from diphtheria, on the fifteenth day following the injection a small papule appeared at the seat of puncture. It increased in size, gradually to form a circinate plaque of typical psoriasis; similar papules developed on other parts of the body, chiefly on the trunk and the arms and legs; a few formed on the prepuce. All these plaques exhibited the characteristic appearances of psoriasis. The author quotes this case as a good example of psoriasis following traumatism.

SURGERY.

344. **Subperitoneal Haematoma.**

Tuffier (*Bull. et Mém. de la Soc. de Chir.*, No. 26, 1906) reports a case of diffused subperitoneal haematoma, caused by spontaneous rupture of a sarcomatous growth of the right kidney. The patient, a man aged 40, came under the

author's charge with acute and spasmodic abdominal pain localized on the right side, and with repeated vomiting. These symptoms, taken together with distinct dullness in the right iliac fossa, seemed to indicate appendicitis; but after an incision had been made along the outer margin of the right rectus, no signs could be found of peritonitis. The whole of the ascending and part of the transverse colon were quite black, as if this portion of the intestine had been strangulated and was on the verge of gangrene. This condition, on further exploration, was found to be due to a retroperitoneal haematoma, as it was associated with an enormous collection of bright red blood at the back of the ascending colon, supposed at first to have been derived from a ruptured aortic aneurysm, but which, as was subsequently revealed, was the result of rupture of the right kidney converted into a firm and irregular mass of sarcoma. Nephrectomy was at once practised and further haemorrhage thus arrested, but the patient speedily succumbed from acute anaemia. At a subsequent meeting of the Société de Chirurgie, Michaux brought under notice a case of subperitoneal haematoma from spontaneous rupture of the epigastric artery. The subject of this case was a lady aged 67, who had been suddenly attacked by sharp pains on the right side below a transverse line over the umbilicus. These pains were associated with abdominal distension, vomiting, and obstinate constipation. The presence of a large and firm swelling in the right iliac fossa led the author to suspect an appendicular collection, but the character of the symptoms tended also to favour the possibility either of an ileo-caecal invagination or of some abnormal form of intestinal strangulation. He was surprised on performing median laparotomy to find no signs either of appendicitis or any other intestinal lesion, and that the swelling on the right side was extraperitoneal and formed by a large accumulation of blood in the sheath of the right rectus muscle. The median wound having been closed, an incision was made over the outer margin of the muscle and exit given to a large accumulation of blood, which extended almost as high as the level of the umbilicus. The epigastric artery, which was distinctly sclero-atheromatous, was completely divided at a point between 6 and 8 cm. above its origin. The vessel was secured by two ligatures, and the cavity, after having been cleared of effused blood, was packed and drained. In this, as in the preceding case, the issue was fatal.

345. Mignon's Operation for Misplaced Testicle.

G. SERVETTI (*Gazz. Med. Ital.*, September 20th, 1906) describes Mignon's operation for the replacement of an undescended testicle, and records 4 cases. The method is founded on two anatomical facts—namely, that the vas deferens is usually or always sufficiently long, but coiled up, the real hindrance to the descent of the testicle lying in the short and straight arteries; and that the integrity of these arteries is not essential to the vitality and function of the testicles. The operation consists in exposing and cutting the vessels, and replacing the testicle after sufficient unfolding of the vas deferens. If there is then any apparent tendency for the testicle to be dragged upwards again, it is fixed in the scrotum with a stitch. This was necessary only in one of Servetti's cases. The ages of the patients were 11, 10, 14, and 13 years respectively. All suffered also from hernia, and were successfully treated by Bassini's operation at the same time that the testicle was replaced. All healed satisfactorily and left the hospital cured, with testicles in the scrotum of a normal hardness and preserving their special sensibility. These operations, therefore, as well as those performed by Mignon, disprove the opinion held by many surgeons here quoted, that the testicle is dependent for its vitality on the vessels of the spermatic cord, and must quickly atrophy or become gangrenous if supplied only by the deferential artery.

346. Intussusception in Cases of Abdominal Injury.

STEWART (*Annals of Surgery*, August, 1906), in a communication to the Philadelphia Academy of Surgery, reported a case of severe and fatal abdominal injury in which, on exploration of the peritoneal cavity during life, he found that the small intestine was tightly contracted in numerous places, the areas involved varying greatly in extent, so that in certain regions the gut seemed to be ligatured, while in others it resembled a piece of tape. In one place the contracted intestine had passed into the relaxed segment below for a distance of 2 in. In the discussion of this paper Le Conte briefly described a somewhat similar instance, and pointed out that in his own case, as in that reported by Stewart, the intussusceptions present resembled in every particular the so-called moribund invagination, and not the obstructive form of intussusception. Three theories, Le Conte thought, presented themselves as possible explanations: (1) Mechanical injury to the abdomen; (2) haemorrhage, which may produce local changes in the circulation of the intestine, or irregular stimulation of the nerves controlling peristalsis; (3) exposure of the abdominal cavity and handling of the intestines whilst searching for the seat of injury. The last, it is held, would seem the most probable cause.

347. Fatal Haemorrhage after Paracentesis.

ESTACHY (*Prov. Méd.*, August 25th, 1906) relates a case under his care in which paracentesis was followed by haemorrhage, which proved fatal. The patient was a confirmed drunkard, suffering from cirrhotic liver, and no loss of blood had previously been noticed. About eight litres of a straw-coloured fluid, with no sign of haemorrhage, were withdrawn under ordinary precautions, and three hours later the doctor was hastily summoned, only to see him draw his last breath under a very profuse gastro-intestinal haemorrhage. Dr. Estachy attributed the fatality to the sudden diminution of pressure outside the abdominal blood vessels, which, no doubt considerably degenerated, could not stand the re-establishment of the normal circulation.

OBSTETRICS.

348. The Obstetric Binder.

THE English and American habit of applying a binder after parturition appears to be still exceptional in Germany. P. Broese considers it a necessity (*Berl. klin. Woch.*, October 8th, 1906). The binder, when properly applied, prevents atony of the abdominal muscles, and in consequence avoids the sequelae—enteroptosis, floating kidney, and the like. Atony of the muscles generally dates from the first confinement, and only rarely from a subsequent one. Great distension favours the production of atony, and when once this has been produced it is extremely difficult to make the muscles tense again. It is therefore necessary to bind every woman immediately after the delivery, but this must be done in a proper manner. Atony of the abdominal muscles occurs in one of two forms. Either all the muscles, including the three layers which run somewhat transversely and the vertical recti, become slack, and as a result especially the obliques atrophy, so that a sort of hernial protrusion occurs at each side of the recti when the patient sits up, or the diastasis is limited to the recti and a hernia occurs between the inner borders of these muscles. This means that the linea alba is much stretched and loses its elasticity. It is not necessary for a hernia to be formed, and in some cases the recti muscles alone show loss of tone, and the abdomen protrudes in the part covered by them. When a hernia is formed, the symptoms may be so severe that it becomes an urgent necessity to perform an operation to remedy it. This is done by suturing the edges of the atrophied recti, from the symphysis pubis to the umbilicus, together. For a working woman it is of vital importance that such a hernia is not produced, for its existence will render her capacity of working much less, or even *nil*. The technique of the bandaging is minutely dealt with. The old fashion of using a linen bandage and of fastening it with a buckle is highly unsatisfactory. Broese also objects to the use of a jack towel fastened with safety pins. Flannel bandages are to be preferred to this, but they have a trick of slipping up and thus failing to be of service. He has, however, found a material which he considers admirably adapted for this purpose. A bandage exists for varicose veins, etc., which is known as the Ideal bandage. This is, of course, too narrow for a belly binder, but a broad bandage (varying between 8 and 12 in.) of the same material may be employed. It is made of a sort of crape, of a cotton variety, is very elastic and can be stretched to nearly twice its original length, is porous and airy, and can be washed. It loses its elasticity if ironed or if hung up to dry, so that it is necessary to lay it flat after washing. One can apply considerable pressure with such a binder, and it adapts itself so well to the body that it will not be found necessary to change it more often than once in twenty-four or forty-eight hours. When once a ventral hernia has been formed, it is necessary to keep the patient in bed for from three to six weeks, and to apply the bandage carefully all the time; while after she gets up she should wear a properly constructed body bandage for from eight weeks to six months. He believes that it is necessary to keep all women who suffer from any form of atony of the abdominal muscles much longer in bed than is usually done.

349. **Treatment of Placenta Praevia by Caesarean Section.**

CONDON (*Surg., Gyn., and Obstet*, September, 1906) has followed Beaver's principle that since Caesarean section is an operation which can now be performed with relative safety and ease, it is the best procedure in cases of placenta praevia, giving mother and child a fair chance. Condon believes that the average doctor is just as capable of doing a Caesarean section in an emergency as he is of passing two fingers through an undilated os in a case of a centrally attached placenta and doing a podalic version. He describes two cases where the patient was in each instance already reduced by flooding. A free abdominal incision was made, beginning 2 in. above the umbilicus and prolonged downwards for about 4 in.; the elevation of the bladder in pregnancy was taken into account. The anterior wall of the uterus was incised to the same extent, the organ being left *in situ*, not drawn out of the wound. The latter manœuvre is not desirable, save where there is any suspicion of sepsis. In one of Condon's cases the application of a Doyen's intestinal clamp was necessary in order to check haemorrhage. The cord was in both cases cut between two clamps, the child delivered and given to an assistant, and then a few minutes' time allowed for the uterus to contract and for the placenta to loosen naturally. If it does not separate it can be removed by the hand. The uterus was then packed with hot compresses to check the bleeding. The uterine cavity was closed with a continuous suture of No. 4 plain catgut, reinforced with a few interrupted sutures. The peritoneum, where not closely approximated, was brought together with fine catgut Lembert sutures. Several pints of saline fluid were poured into the peritoneal cavity before the wound was closed. The mother and child were saved in both of Condon's cases.

GYNAECOLOGY.

350. **Chronic Infective Metritis.**

A. W. ADDINSELL (*Journ. of Obstet. and Gyn. of the Brit. Emp.*, July, 1906) describes a series of cases of uterine haemorrhage which he would class together under the name of chronic infective metritis. In these cases the haemorrhage increases in amount steadily, the menstrual periods become more frequent and last longer, intermenstrual haemorrhages often occur, and finally the bleeding may be almost continuous. Examination reveals nothing abnormal; the ovaries and tubes are felt to be free from any gross lesion, the uterus is mobile and may be slightly enlarged, but is not markedly so; the sound does not pass further than 3 to 3½ in. In each of the author's cases there was a history of infection at the beginning of the illness. In one the patient had not been well since her first confinement, which had been followed by an illness of three months' duration; in another there had been septic inflammation following curettage for what was probably an early miscarriage; in another there was tuberculous disease, but the patient also suffered from complete prolapse, and the uterus had become the seat of a mixed infection; in another case there had been a gonococcal infection. In three of the cases, in spite of palliative treatment of every description, the severity of the haemorrhages made hysterectomy a necessity; and in the case of tubercle also hysterectomy was performed. When sections were examined under the microscope three distinct stages of the disease could be demonstrated. In the first case, which illustrated an early stage, the chief feature was perivascular and periglandular proliferation of round cells, entering the muscle wall through the endometrium, tracking along the vessels, and gradually invading the muscle wall itself. In the second case, a later stage, the most noticeable feature was the extraordinary growth of fibrous tissue which had separated the bundles of muscle fibres and replaced the muscle tissue. The third case illustrated the third or final stage, and in it there had been an immense overgrowth of intermuscular connective tissue, which had undergone degeneration. The author does not claim to be describing a new disease, but claims that such cases as he describes deserve to be placed in a class of their own, and the title chronic infective metritis appears to be the most inclusive term and one which is consistent with general pathology. He differentiates these cases from cases of haemorrhage occurring in multiparous women at about the time of the climacteric, which are associated with arterio-sclerosis. In the series described above the ages of the patients varied from 29 to 34 years; none of them were multiparae, and the history of infection was clear.

351. **Ossified Ovarian Cyst.**

SCHRÖDER (*Sem. Méd.*, September 5th, 1906) relates a case of a very rare occurrence—namely, ossification in an ovarian cyst. In a patient 31 years of age a small carcinomatous tumour was found on the posterior lip of the cervix uteri, and a hard swelling in the left cul-de-sac. Vaginal hysterectomy was performed on account of the cervical tumour, during the course of which a suppurating salpingitis was found on the right side, and on the left a swelling so hard as to require a saw for its removal; hollow, but with a shell composed of osteoblasts and typical canaliculi. It possessed none of the features of a dermoid cyst.

THERAPEUTICS.

352. **Prophylaxis of Tetanus.**

LUCKETT (*Amer. Journ. of Surgery*, July, 1906), in a paper on Fourth of July Injuries, with Especial Reference to the Prophylaxis and Management of Tetanus, states that for a week or two before and one after Independence Day wounds of the hand by blank cartridges from toy pistols are much in evidence in all the clinics of New York. While acknowledging that a very small percentage of such wounds become infected with tetanus, the author is evidently of opinion that this affection is unusually prevalent on and about the fourth of July, and he is disposed to attribute the infection to the blank cartridges rather than to the filth and dirt of the streets. The wound, he states, should be freely incised and curetted, the cavity washed out with pure carbolic acid or tincture of iodine, and afterwards packed with moist iodoformized gauze. He advises also a prophylactic injection of antitetanic serum, 10 c.cm. to be forced intramuscularly into a buttock or thigh. The earliest symptom, the author states, is a local contraction at the seat of the wound, but this lasts for so short a time that it is usually overlooked. The most regular symptom that has appeared in cases under his own observation has been some respiratory trouble, such as sighing, yawning, and other signs of dyspnoea in all degrees up to profound cyanosis and spasm of the glottis. These symptoms, according to his experience, precede stiffness of the neck, back, and jaw by from one day to a week. At the first sign or symptom of constitutional tetanus heroic steps, it is stated, must be taken to shut the toxins off from further irritation of the motor ganglia. The so-called "blocking" of the nerve by injecting its sheath with antitoxin is not in favour with the author, nor, in his opinion, do bromides and chloral in any way tend to cure tetanus. He approves of the intraspinal injection of antitetanic serum in very large and frequently repeated doses. The rapidly developed and marked wasting and exhaustion observed in cases of acute tetanus present, the author believes, a very strong and positive indication for prompt and forced nutrition and stimulation. In an editorial article in the same number of the *Journal of Surgery* on Some Surgical Aspects of Independence Day, reference is made to this paper, and also to one on Tetanus by Cooley. The latter objects to the use of carbolic acid in disinfecting the original wound, and favours amputation in very extensive or multiple wounds.

353. **Treatment of Nocturnal Enuresis.**

PERRIN (*Rev. med. de la Suisse Romande*, August 20th, 1906 combats the view that nocturnal enuresis in young persons is due to organic weakness of the sphincter vesicae. If this explanation were correct, enuresis would not occur only during sleep. An experience of 36 cases has convinced him that nine times out of ten the chief factor is abnormally profound sleep. It is difficult to awaken these children for the purpose of micturating, and in the morning they have forgotten completely that they have been out of bed. The cerebral centres, which normally regulate the vesical function, are thus eliminated, and micturition is governed entirely by a spinal reflex. The stimulus which evokes the reflex act appears to be carbonic acid intoxication, which arises from the deficient respiration inseparable from adenoid vegetations, nasal polypi, goître, etc. Adenoid vegetations were present in 11 of the writer's cases. If this explanation is correct, the uselessness of suggestion, punishment, and correction, in spite of the good intentions of the patient, is evident. Sex plays no part in the etiology of enuresis, and puberty has no direct influence. Some have asserted that nocturnal enuresis is due to a disproportion between the development of the sphincter and detrusor muscles, the action of the latter predominating. In support of this

they urge that enuresis usually ceases at puberty, when the prostate gland and the sphincter vesicae have finally developed. But enuresis frequently persists for some years after puberty in males, and is equally common in females. Cold is a predisposing cause of enuresis. Warmth has a beneficial effect, apart from the fact that in hot weather a great part of the liquids of the body is excreted by the skin. Both stimulants (strychnine) and sedatives have been employed with some success. The former act by stimulating the cerebral centres and preventing complete abolition of their function; the latter by increasing the tolerance of the bladder and diminishing the spinal reflexes. Local treatment of enuresis is indicated only after the patient has been examined and most often operated on by a laryngologist. If enuresis persists it is due to loss of the habit of making use of the controlling cerebral centres, owing to which the fact that the bladder is full and micturition imperative is during sleep perceived sluggishly, if at all. The nervous centres, which during sleep have long been disused, undergo a kind of atrophy. Treatment should be directed to establishing relations between the cerebral centres and the bladder, so that the child regains sensation and desire to micturate. This may be effected by developing the sensibility of the bladder, either by instillation of solutions of nitrate of silver in the neck or by the application of the faradic current. The latter is preferable, and, unlike the former, quite without danger. It should be applied to the whole length of the posterior urethra from the neck of the bladder to the external sphincter. The instrument used by the writer is a gum-elastic catheter containing a metal conducting rod. The gum-elastic covering is, $\frac{1}{2}$ in. from the end, absent for a distance of 2 in. The metal rod is connected with one of the wires of a Ruhmkorff coil, the indifferent pole being placed on the abdomen or over the lumbar spine. The patient becomes accustomed to the sensation of activity of the sphincter, which is made to contract rapidly. Improvement is usually manifest after five or six applications, and a complete cure is obtained after about twenty. The current should not be interrupted more than forty times in the minute, so that a special coil is required. This gives time for the muscle to contract and relax between each interruption. A rapidly interrupted current acts as a sedative rather than as a tonic. The usual method of placing the active pole in the vicinity of the sphincter above the pubes or in the rectum gives inferior results. The method of placing the electrode on the sphincter itself has in the writer's hands never failed.

354. The X-Ray Treatment of Mediastinal Tumours.

X RAYS have been largely used in the treatment of leukaemia and pseudoleukaemia, and the results of this treatment have been freely published. J. von Elischer and K. Engel (*Deut. med. Woch.* October 4th, 1906) have applied the rays to another form of disease—namely, mediastinal tumours—and detail the results gained in 4 cases. In the first case the diagnosis was clear. The symptoms, especially the dyspnoea, cyanosis, and protrusion of the sternum, had reached a considerable degree, in spite of drug treatment, when the rays were first applied. After sixteen sittings (150 minutes' exposure in all) he was so much improved that he felt able to return to work, and accordingly left the hospital. Eleven months later the tumour had increased a little in size, but he had not found any difficulty in doing his work. He was *in statu quo* after a further four months. The diagnosis in this case lay between lymphosarcoma and lymphoma malignum. In the second case, too, the distressing symptoms disappeared entirely under the treatment, but the tumour did not show such a marked decrease in size as in the first case. The symptoms, unfortunately, returned to some extent after nine months, and the disease had undoubtedly progressed during this time. They are attempting again to reduce the size of the tumour with *x* rays. The third case was materially improved by the treatment, which extended over 250 minutes in all. He also relapsed after a time, but refused to undergo a second course of systematic treatment. The fourth case was probably one of true lymphosarcoma, and did not yield at all to the treatment. They, therefore, feel justified in stating that mediastinal tumours can be very markedly improved by *x* rays, and an apparent cure even may be attained. At all events, one should try the effect of the rays in every case of mediastinal tumour.

355. Antipyrin in Puerperal Fever and Erysipelas.

SILVESTRE (*Gazz. degli Osped.*, October 28th, 1906) writes strongly in favour of antipyrin as a remedy in the above-mentioned diseases. For adults he gives from 60 to 70 gr. per diem, in doses of 50 gr. every two or three hours. He says he has seen no ill results, and that, in the 6 cases of puerperal fever, the results were "marvellous" in the first 5, where the disease was treated within the first three days. The sixth case was more severe and not treated with antipyrin until the seventeenth day, having previously been freely douched and treated with intestinal antiseptics; under antipyrin she soon began to improve, and left the hospital on the seventeenth day. Similar good results are reported in regard to erysipelas; and the author also believes, from the experience of one family, that antipyrin may act as a prophylactic against erysipelas, for the only members of a certain family which escaped erysipelas were those who had taken antipyrin.

PATHOLOGY.

356. Acromegaly without Hypertrophy of the Pituitary Body.

WIDAL, ROY, AND FROIN (*Rev. de Méd.*, April, 1906) describe a case in which the pituitary body showed cystic changes, but no hypertrophy. The patient was a man, aged 66, with marked signs of acromegaly. At the *post-mortem* examination the thyroid was much enlarged, the walls of the cranium were thin, and the frontal sinuses dilated. The dura mater was thickened and adherent. There was very slight enlargement of the pituitary body, and upon its upper surface was a small cyst the size of a millet-seed. This cyst was embedded in the anterior lobe immediately beneath the capsule, and was lined with stratified ciliated epithelium. There were a few other cysts lined with cubical epithelium. Certain changes in the epithelium of the gland generally were observed; notably, a great increase in the number of the cyanophile cells. The authors conclude that (1) the existence of a tumour of the pituitary body is not absolutely constant in acromegaly; (2) in certain cases the pituitary body presents no macroscopical but only microscopical changes, which require to be carefully investigated; (3) instead of the formula, "acromegaly is always associated with a tumour of the hypophysis," it is better to substitute the more general formula, "acromegaly and gigantism are pituitary syndromes."

357. Etiology of Hepatic Abscess.

LEES (*Journ. Assoc. Military Surgeons U.S.*, No. xix, 298) publishes 6 cases of liver abscess, with special reference to the etiological importance of *Ascaris lumbricoides*. While acknowledging that the opinion that dysentery is a precurser or an accompaniment of liver abscess in a very large proportion of cases—in the majority of cases in some localities—is too well established to be disputed by any one, the author argues that any of the larger animal parasites entering the bile duct and its branches in the liver may well be the direct or indirect cause of this hepatic affection. Such biliary migration, however, is not regarded as indispensable, as any parasite present in the intestine and causing inflammation or ulcerative lesion of the mucosa may, it is held, be responsible. Tapeworms, hookworms, and whipworms would all, the author thinks, deserve consideration in this connexion. This view is supported by the facts that in certain tropical districts in which the different forms of *Ascaris* are very prevalent these parasites not only set up a diffuse inflammation in the intestinal mucosa, but sometimes produce ulceration; and also that many instances have been recorded of the presence of lumbricoid worms in the abscess cavity. The *Ascaris lumbricoides*, the author concludes, is probably not a mere unusual and casual cause of liver abscess, but really an important and frequent cause—possibly after dysentery the most frequent one.

358. Neurotoxic Serum.

ARMAND-DELILLE (*Ann. de l'Inst. Pasteur*, October, 1906) has investigated serum obtained after the injection of dog's brain into various species of animals, with the object of observing its neurotoxic properties. With geese, ducks, sheep, and rabbits his results were unsatisfactory, but he found that the guinea-pig was an excellent animal for his purpose. His experiments have enabled him to affirm that neurotoxic serums do not only determine an intoxication of the nerve centres, as shown by the convulsions, excitation, coma, or depression to which they give rise, and which generally terminate in death; they also produce anatomical lesions which are characteristic of the intoxication. The protoplasma of the nerve cells is altered, and there is a definite neurolysis, which shows that the cytotoxin is specific for nerve tissue.

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REPORTS OF STANDING COMMITTEES

MEETINGS OF BRANCHES AND DIVISIONS

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THE SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association,

TORONTO, CANADA, AUGUST 21st to 25th, 1906.

President:

GEORGE COOPER FRANKLIN, F.R.C.S.Eng., Surgeon, Leicester Infirmary, Leicester.

President-elect:

RICHARD ANDREWS REEVE, B.A., M.D., LL.D., Dean of the Faculty of Medicine, University of Toronto.

Chairman of Representative Meetings:

Sir VICTOR HORSLEY, F.R.C.S., F.R.S., Surgeon, University College Hospital; and Surgeon, National Hospital for Paralysed and Epileptic.

Chairman of Council:

HENRY WM. LANGLEY BROWNE, M.D., Ch.B., F.R.C.S.E., Consulting Surgeon, West Bromwich District Hospital.

Treasurer:

HY. RADCLIFFE CROCKER, M.D., F.R.C.P., Physician Skin Department, University College Hospital, London.

PROGRAMME OF BUSINESS.

An Address in Medicine will be delivered by Sir JAMES BARR, M.D., F.R.C.P., F.R.S.E.

An Address in Surgery will be delivered by Sir VICTOR HORSLEY, M.B., F.R.C.S., F.R.S.

An Address in Obstetrics will be delivered by WALTER SPENCER ANDERSON GRIFFITH, M.D., F.R.C.P.

THE SECTIONS.

There will be 13 Sections as shown in the subjoined list; they will meet on Tuesday, Wednesday, Thursday and Friday, August 21st, 22nd, 23rd and 24th, from 9.30 a.m. to 12.30 p.m.

The President, Vice-Presidents, and Secretaries of each Section constitute a Committee of Reference for that Section.

Papers read are the property of the British Medical Association, and cannot be published elsewhere than in the BRITISH MEDICAL JOURNAL *without special permission.*

No paper must exceed 15 minutes in reading, and no subsequent speech 10 minutes.

It is requested that copies of any papers offered in any

of the Sections should be supplied to one of the Honorary Secretaries of the Section, accompanied by a short abstract, in order that such abstract may be printed and circulated before the meeting.

Anatomy.

President: Professor Arthur Robinson, M.D., Birmingham.

Vice-Presidents: Professor Alexander Primrose, M.B., C.M., Toronto; David Edward Mundell, B.A., M.D., C.M., Kingston; David Waterston, M.D., F.R.C.S., F.R.S.E., Edinburgh.

Honorary Secretaries: Charles Buckingham Shuttleworth, M.D., C.M., F.R.C.S., 45, Bloor Street E., Toronto; Gawn Shaw Cleland, M.B., M.D., C.M., 730, Queen Street E., Toronto; J. Herbert Sanders, M.D., 1a, Palace Gardens Mansions, W.

This Section will meet on three and possibly four days for the reading and discussion of the following papers:

Paterson, Professor A. M. The Mechanical Supports of the Pelvic Viscera.

Huber, Professor G. C. (1) The Arteriae Rectae of the Mammalian Kidney. (2) The Form of the Uriniferous Tubules in Certain of the Lower Vertebrates.

Bardeen, Professor C. R. The Development and Variation of the Nerves of the Posterior Limb of Man.

MacMurrich, Professor J. Playfair. Preliminary Note on the Valves of the Iliac Veins.

Waterston, Dr. David. A Preliminary Note on the Brain and Skull in Mongolianism.

Jenkins, Dr. G. J. (1) The Morphology of the Human Hip-joint. (2) The Marginal Sinus.

Gladstone, Dr. R. A. A Symelian Monster.

Bensley, Dr. R. R. (1) The Structure of the Cardiac Glands of Mammals and their Phylogenetic Significance. (2) Reports from the Hull Laboratory of Anatomy on (*a*) the Cytological Characters of the Cellular Components of the Islets of Langerhans (M. A. Lane). (*b*) The Structure of the Lachrymal and Haversian Glands of Mammals (J. Sandwall).

Wilson, Dr. J. G. (1) The Anatomical Relations and the Blood Supply of the Palatine Tonsils. (2) An Unusual Peritoneal Anomaly simulating Retroperitoneal Hernia.

Harvey, Dr. B. C. (1) On the Chromatin Characters of Certain Parietal Cells. (2) On a Case of Polydactylism in the Foot. (3) A Case of Innervation of the M. rectus lateralis oculi by the N. oculi motorius, with absence of the N. abducens.

Shambaugh, Dr. C. E. The Development of the Stria Vascularis.

Dermatology.

President: Norman Walker, M.D., Edinburgh.

Vice-Presidents: Graham Chambers, M.B., Toronto; Harry B. Anderson, M.D., C.M., Toronto; Ernest Solly, M.B., Harrogate.

Honorary Secretaries: David King Smith, M.B., 311, Jarvis Street, Toronto; Donald Macgillivray, M.B., 12, Carlton Street, Toronto; John Campbell Rankin, M.B., 38, University Road, Belfast.

Laryngology and Otology.

President: J. Dundas Grant, M.D., London.

Vice-Presidents: George R. McDonagh, M.B., L.R.C.P., Toronto; Herbert Stanley Birkett, M.D., C.M., Montreal; John Macintyre, M.B., Glasgow; Hugh Edward Jones, M.R.C.S., Liverpool.

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A joint discussion has been arranged with the Section of Paediatrics on Congenital Stridor (Laryngeal and Tracheal), to be opened by Dr. Logan Turner (Edinburgh) and Dr. Henry Ashby (Manchester).

A paper on Skiagraphy as an aid in the Diagnosis and Treatment of Diseases of the Accessory Sinuses of the Nose will be read by Dr. C. G. Coakley (New York).

Medicine.

President: Sir Thomas Barlow, Bart., K.C.V.O., M.D., London.

Vice-Presidents: Professor Alexander McPhedran, M.B., Toronto; Professor James Stewart, M.D., C.M., Montreal; Alexander Napier, M.D., Glasgow; William Calwell, M.D., Belfast.

Honorary Secretaries: Robert Dawson Rudolph, M.D., M.R.C.P., 396, Bloor Street W., Toronto; John Taylor Fotheringham, B.A., M.B., M.D., C.M., 36, Carlton Street, Toronto; Robert Hutchison, M.D., 22, Queen Anne Street, London, W.

The following subjects have been selected for discussion:

Tuesday, August 21st.—On Blood Pressure in Relation to Disease. The subject will be treated under the following headings: (*a*) Physiological Introduction, by Dr. Percy M. Dawson (Baltimore). (*b*) Clinical Methods of Investigating Blood Pressure, by Dr. G. A. Gibson (Edinburgh). (*c*) The Clinical Significance and Therapeutical Indications of Variations in Blood Pressure, by Sir Wm. Broadbent. (*d*) The Relation of Blood Pressure to Arterial Sclerosis, by Professor Clifford Allbutt. The following will also take part: Dr. Mackenzie (Burnley), Sir James Barr, Dr. Rose Bradford, and others.

Wednesday, August 22nd.—A joint discussion with the Physiology Section on Over-nutrition and Under-nutrition, with special reference to Proteid Metabolism, to be opened by Professor Chittenden (Yale).

Thursday, August 23rd.—Papers on Heart Block, by Dr. Mackenzie (Burnley), Dr. G. A. Gibson, Dr. Erlanger, Professor Osler, and others.

Friday, August 24th.—Papers.

The following papers have been received:

Bradford, Dr. Rose (London). The Classification of the Various Forms of Bright's Disease.

Smith, Dr. F. J. (London). Some Observations on the Treatment of Typhoid Fever.

Dock, Dr. G. Paracentesis of the Pericardium: Indications and Methods.

Spiller, Dr. W. E. Syringomyelia, with a Cavity traced from the Sacral Region to the Internal Capsule.

Rudolf, Dr. R. D. (Toronto). The Effect of Posture upon the Position of the Heart.

McCallum, Dr. Hugh A. The Action of Diphtheritic Serum on Diseases other than Diphtheria.

Mackenzie, Dr. Ridley (Montreal). Four Cases of Gangrene of the Lung, with Recovery after Operation.

Barker, Dr. L. F. (Canada). Amido-acids and Metabolism.

Stengel, Dr. Alfred (Canada). Some Clinical Manifestations, Visceral and General, of Arterio-sclerosis.

Morrow, Dr. W. S. (Montreal). Some Cases of Arrhythmia Studied by the Venous Method.

Fotheringham, Dr. J. T. (Toronto). The Present Status of Military Medical Arrangements in Canada.

Meyers, Dr. C. (Ontario). The Treatment of Neurasthenia in General Hospitals.

Thistle, Dr. W. B. (Toronto). Typhoid Fever.

Blackader, Dr. A. D. (Montreal). A Case of Enlarged Spleen: Operation: Recovery.

Turner, Dr. Aldren (London). Diet in the Treatment of Epilepsy.

Obstetrics and Gynaecology.

President: A. H. Freeland Barbour, M.D., Edinburgh.

Vice-Presidents: Professor James Algernon Temple, M.D., C.M., Toronto; Professor Adam H. Wright, B.A., M.B., Toronto; Professor William Gardner, M.D., Montreal; T. Arthur Helme, M.D., Manchester.

Honorary Secretaries: Frederick Fenton, M.D., C.M., 75, Bloor Street E., Toronto; Kennedy Crawford McIlwraith, M.B., 54, Avenue Road, Toronto; Cuthbert Lockyer, M.D., 117a, Harley Street, London, W.

It has been arranged that on August 21st, 22nd, and 23rd the first part of the meeting be devoted to a discussion on the following subjects:

Tuesday, August 21st.—Hyperemesis Gravidarum.

Wednesday, August 22nd.—The Changes in Uterine Fibroids after the Menopause, with Special Reference to Operation.

Thursday, August 23rd.—The Appendix Vermiformis in Relation to Pelvic Inflammation.

Friday, August 24th.—Papers, etc.

Dr. J. C. Cameron, of Montreal, will introduce the discussion on August 21st; Dr. Charles A. L. Reid will introduce that on August 22nd; and Dr. T. Arthur Helme will introduce that on August 23rd.

Dr. J. Murdoch Cameron (Glasgow) will read papers on (*a*) Ectopic Pregnancy, (*b*) Antistreptococcus Serum in Puerperal Septicaemia.

Ophthalmology.

President: Robert Marcus Gunn, F.R.C.S., London.

Vice-Presidents: George Herbert Burnham, M.D., F.R.C.S.E., Toronto; John W. Stirling, M.D., Montreal; Joseph Nelson, M.D., Belfast; Arnold Lawson, F.R.C.S., London.

Honorary Secretaries: JAMES METCALF MACCALLUM, B.A., M.D., C.M., Toronto; DUNCAN NEIL MCLENNAN, M.D., C.M., 126, Bloor Street W., Toronto; FRANK P. S. CRESSWELL, F.R.C.S., B.Sc., 24, Windsor Place, Cardiff.

The subjects which have been chosen for discussion are:

Tuesday, August 21st.—Rare Forms of Choroiditis. To be opened by Mr. J. B. Lawford (London). The following will also take part: Dr. Hill Griffith (Manchester), Dr. H. Knapp (New York), and Dr. C. Bull (New York).

Wednesday, August 22nd.—Sympathetic Ophthalmia. To be opened by Dr. G. H. Burnham (Toronto). The following will also take part: Mr. Arnold Lawson (London) and Dr. J. W. Stirling (Montreal).

Thursday, August 23rd.—Affections of the Lachrymal Passages. To be opened by Dr. Desjardines (Montreal). The following will take part in the discussion: Dr. Risley (Philadelphia) and Dr. Theobald (Baltimore).

Friday, August 24th.—Visual Tests for Public Services. (*a*) Marine and Railroad Services. To be opened by Dr. T. H. Bickerton (Liverpool). Dr. Williams, jun. (Boston), Dr. Thompson, sen. (Philadelphia), and Dr. Allport (Chicago) will also take part. (*b*) Military Services. To be opened by Mr. Arnold Lawson (London).

The following papers have been accepted:

BRAILEY, Mr. (London). On Treatment of Lachrymal Stricture.

FERGUS, Mr. Freeland (Glasgow). (1) On Sympathetic Degeneration. (2) On the Work which can be performed by a One-eyed Man. (3) Blastographic Tests for Binocular Vision.

PAEDIATRICS.

President: GEORGE ALEXANDER SUTHERLAND, M.D., London.

Vice-Presidents: HENRY T. MACHELL, M.D., L.R.C.P., Toronto; ALLAN M. BAINES, M.B., Toronto; OTTO JACKSON KAUFFMANN, M.D., Birmingham; H. BETHAM ROBINSON, M.S., London.

Honorary Secretaries: EDWARD STANLEY RYERSON, M.D., C.M., 261, College Street, Toronto; JOSEPH S. A. GRAHAM, M.B., 102, College Street, Toronto; RALPH VINCENT, M.D., 1, Harley Street, London, W.

The Section will meet on Tuesday, Wednesday, Thursday, and Friday (August 21st, 22nd, 23rd, and 24th), at 9.30 a.m., adjourning at 12.30 p.m. each day.

The following discussions have been arranged:

1. On Congenital Pyloric Stenosis. The medical aspects of the subject will be introduced by Dr. Edmund Cautley (London), and the surgical aspects will be introduced by Mr. Harold J. Stiles (Edinburgh).

2. On Pneumococcal Infection. The medical aspects of the subject will be introduced by Dr. Henry Ashby (Manchester) and Dr. Stuart Macdonald (Edinburgh).

3. On Entero-colitis, to be introduced by Dr. T. L. Morse (Boston).

4. On Rheumatism in Children, to be introduced by Dr. A. D. Blackader (Montreal).

5. A joint discussion with the Section of Laryngology and Otology on Congenital Stridor (Laryngeal and Tracheal) to be opened by Dr. Logan Turner (Edinburgh) and Dr. Henry Ashby (Manchester).

It is hoped that a Clinical Demonstration of interesting cases in one of the Toronto hospitals may be arranged.

The following papers have been received:

SHAW, Dr. (Montreal). Some Phases of Rickets.

SHAW, Dr. (Albany, N.Y.). The Chemistry of Milk.

STARR, Dr. C. L. (Toronto). Orthopaedics.

EWART, Dr. William (London). The Abdominal Atony of Rickets.

VINCENT, Dr. Ralph (London). The Milk Laboratory and its Relation to Medicine.

PATHOLOGY AND BACTERIOLOGY.

President: Professor J. G. ADAMI, M.D., F.R.S., Montreal.

Vice-Presidents: Professor JOHN J. MACKENZIE, B.A., M.B., Toronto; Professor WALTER THOMAS CONNELL, M.D., C.M., Kingston; INGERSOLL OLMSTED, M.D., Hamilton; Professor ROBERT FRASER CALDER LEITH, M.B., Birmingham.

Honorary Secretaries: GIDEON SILVERTHORN, M.B., M.D., C.M., 266, College Street, Toronto; HAROLD C. PARSONS, B.A., M.D., C.M., 72, Bloor Street W., Toronto; FRANK GEORGE BUSHNELL, M.D., Sussex County Hospital, Brighton.

The following preliminary arrangements have been made:

Tuesday.—On Nuclear Pathology and Physiology, to be opened by Professor Adami and Dr. McCallum, and followed by Dr. Gustav Mann (Oxford), Professor E. Wace Carlier (Birmingham), Professor A. S. F. Grünbaum (Leeds), and Dr. H. E. Roaf (Liverpool).

Papers by:

PEARCE, Dr. Richard M., M.D., and JACKSON, Holmes C., Ph.D.M. (Bender Hygienic Laboratory, Albany, N.Y.). Concerning the Production of Somatogenic Cytotoxins by the Injection Nucleo-proteids.

FORD, Dr. W. W. (Johns Hopkins University). An Antitoxin for Poisonous Mushrooms.

MAINWARING, Professor W. H. (Indiana University). The Application of Physical Chemistry to Serum Pathology.

SMITH, Dr. F. J., and Dr. MILLER (London Hospital). Gastric Erosions.

Wednesday.—Etiology and Life-history of Malignant New Growths. To be opened by Professor H. R. Gaylord (Buffalo); Professor Clowes (Buffalo) and Dr. Beebie (New York). Professor G. Sims Woodhead (Cambridge), Professor A. S. F. Grünbaum (Leeds), Dr. Robert Muir (Glasgow) and others are expected to take part in the discussion.

Papers by:

LOEB, Dr. Leo (Pennsylvania University). Some Results of the Experimental Investigation of Tumours.

BASHFORD, Dr. E. F. (London). Investigations under the Imperial Cancer Research Fund, and their Results, with lantern demonstrations.

WARTHIN, Professor A. S. (Ann Arbor). The Leucoblastomata.

Thursday.—The Forms of Arterio-sclerosis, their Classification and Experimental Production. To be opened by Professor W. H. Welch (Johns Hopkins University, Baltimore), Dr. Klotz (Montreal), and Professor J. J. MacKenzie (Toronto); and followed by Professor L. Aschoff (Freiburg), Professor Leith (Birmingham), Professor Clifford Allbutt (Cambridge), Professor W. Osler (Oxford), Professor Adami (Montreal), Dr. Pearce (Albany), Dr. Beattie (Edinburgh), and Dr. Robert Muir (Glasgow).

ADAMI, Professor (Montreal), will read a paper on Fluid Crystals and their Relationship to Arterio-sclerosis and other Pathological Conditions.

Friday.—Papers upon Pathogenic Protozoa: by Dr. F. W. Mott (London), Acute and Chronic Changes in the Nervous System produced by Trypanosoma Infections; Professor F. E. Novy (Ann Arbor), On the Nature of Spirochaetes and the Prevention and Cure of Relapsing Fever, with lantern demonstrations; Dr. J. Ballah (Montreal), On the Life-History and Cultivations of Certain Pathogenic Protozoa; Dr. J. W. W. Stephens (the Johnston Laboratory School of Tropical Medicine, Liverpool), On Spirochaetes and Trypanosomes; Dr. Armand Ruffer (Ramleh, Egypt), The Diagnosis of Cholera Asiatica; Professor R. T. Hewlett (with Dr. De Korté), A Beri-beri-like Disease of the Monkey, and the Pathological Histology of Beriberi; Professor W. St. C. Symmers (Belfast), Demonstration of Bilharzia Preparations; Dr. De Korté, The Virus of Small-pox and Vaccinia (communicated by Professor Hewlett).

The following papers on other subjects have been accepted:

MILLER, Dr. (Birmingham) (communicated by Professor Leith). On the Elastic Tissue of Arteries.

PEARCE, Dr. (Albany). Immunity against Nucleo-proteids.

KAUFMANN, Dr. O. J. (Birmingham). The Urinary Excretion of Potassium Iodide in Various Morbid Conditions.

Arrangements will be made for the exhibition in the Pathological Museum of specimens illustrating the work of the section. Members wishing to exhibit material or photographs should communicate with Dr. N. E. Abbott, McGill Medical College, Montreal.

Those who propose taking part in the discussions are requested to send in their papers, accompanied by a short abstract, to the Honorary Secretaries, in order that the abstracts may be printed and circulated before the meeting. Papers from members in the United Kingdom and Europe should be sent to Dr. Bushnell, and those from members in the Dominion of Canada or the United States of America, etc., to Dr. Silverthorn or Dr. Parsons.

Physiology.

President: Professor Wm. Dobinson Halliburton, M.D., F.R.S., London.

Vice-Presidents: Professor Archibald B. Macallum, M.A., M.B., F.R.S., Toronto; Professor Wesley Mills, M.A., M.D., Montreal; Professor Charles Scott Sherrington, M.D., F.R.S., Liverpool.

Honorary Secretaries: Herbert E. Roaf, M.D., The Bio-Chemical Department, The University, Liverpool; Gustav Mann, M.D., 25, Beechcroft Road, Oxford.

A large number of prominent American physiologists have accepted invitations to attend, and British physiologists will thus have the opportunity of making the personal acquaintance of their American colleagues. Several French physiologists have also signified their intention to be present, and it is hoped that other foreigners may also accept the invitations sent to them.

A joint discussion on the Rôle of the Nucleus in Nutrition with the Section of Pathology has been arranged, and another joint discussion with the Section of Medicine will also take place, the subject being Over-nutrition and Under-nutrition, with special relation to Proteid Metabolism in Health and Disease. This will be opened by Professor Chittenden.

The following papers will be read and discussed:

Folin, Dr. Otto (Waverley, Mass.). The Metabolism of Kreatin and Kreatinin.

Kemp, Professor G. T. (University of Illinois). The Blood Plates in Physiology and in Pathology and their Value as a Factor in Diagnosis and in Prognosis.

Mills, Professor Wesley (Montreal). The Preservation of Frogs for Physiological Purposes.

Meltzer, Dr. S. J. (New York). Stimulation of the Central End of the Vagus causes in Dogs a Marked Simultaneous Contraction of the Entire Oesophagus.

Lee, Professor S. F. (New York). The Causes of Fatigue in Certain Pathological States.

Morrow, Dr. W. S. (Montreal). The Various Forms of the Negative or Physiological Venous Pulse.

Mendel, Dr. Lafayette B. (New Haven, Conn.). Chemical Studies on Growth.

Howell, Professor W. H. (Johns Hopkins University, Baltimore). The Absorption of Proteids from the Intestines.

Beebe, Dr. S. P. (New York). Nucleo-Proteid Immunity.

Psychology.

President: Wm. Julius Mickle, M.D., London.

Vice-Presidents: Nelson Henry Beemer, M.D., Toronto; Charles Kirk Clarke, M.D., Toronto; Reginald Langdon-Down, M.B., London.

Honorary Secretaries: Alfred Thomas Hobbs, M.D., Guelph, Ontario; Goldwin Howland, B.A., M.B., 540, Spadina Avenue, Toronto; John Turner, M.B., Essex County Asylum, Brentwood.

The following subjects have been selected for special discussion in the Section of Psychology:

1. General Paralysis, to be introduced by Dr. W. J. Mickle.

2. Epilepsy, to be introduced by Dr. W. Aldren Turner.

3. Dementia Praecox, to be opened by Dr. C. K. Clarke (Toronto) and Dr. A. Meyer (New York).

4. Mind and Medicine, to be introduced by Dr. A. T. Schofield.

The following papers and demonstrations have been arranged for:

Clam, Dr. A. (Toronto). Reflexes among the Insane.

Clam, Dr. C. K. (Toronto). Goitre among the Insane.

Crothers, Dr. (Hartford). Insanity of Inebriety.

Dubois, Professor Paul (Berne). Rational Psycho-therapeutics.

Farran, Dr. (Baltimore). Types of Devolutional Psychoses.

Rentoul, Dr. R. R. (Liverpool). Sterilization of certain Mental Degenerates.

Shibris, Professor (McGill University, Montreal). Diagnosis and Treatment of Peripheral Nerve Lesions.

Shuttleworth, Dr. G. E. (London). Treatment of the Mentally Defective in English-speaking Countries.

Spratling and Chase, Drs. (New York). Epilepsy in Moving Pictures.

Turner, Dr. J. (Essex). Relation of Epilepsy to Changes in the Blood and Central Nervous Systems.

State Medicine.

President: Frederick Montizambert, I.S.O., F.R.C.S.E., D.C.L., M.D., Ottawa.

Vice-Presidents: E. P. Lachapelle, M.D., Laval University, Montreal; Charles Sheard, M.D., Toronto; Peter Henderson Bryce, B.A., M.B., Ottawa; Joseph Groves, M.B., Isle of Wight.

Honorary Secretaries: Joseph D. Page, M.D., Quebec; F. G. E. Pearson, M.D., Brantford, Ontario; Edward Sergeant, L.R.C.P., County Offices, Preston; Arthur A. Mussen, M.D., Municipal Offices, Liverpool.

The following special subjects have been suggested for discussion:

1. Protection and Control of Milk Supply, in which Professor Delépine (Manchester), Dr. Cooper Pattin (M.O.H. Norwich), and Dr. Chalmers (M.O.H. Glasgow) will take part.

2. Prevention of Tuberculosis. Professor Delépine (Manchester) will take part in this discussion.

3. Training and Supervision of Midwives. Dr. Cooper Pattin (M.O.H. Norwich) will contribute a paper to this discussion.

4. Notification of Phthisis.

5. Provision and Administration of Isolation Hospitals.

6. Isolation Hospitals and "Return" Cases.

7. Medical Inspection of Children attending Elementary Schools. Dr. Chalmers (M.O.H. Glasgow) will contribute a paper to this discussion.

8. Quarantine and Inspection of Shipping.

9. Medical Examination of Immigrants.

10. Supply of "Water Gas" and Dangers of Carbon Monoxide Poisoning.

Dr. A. W. Gilchrist (Nice) will read a paper on Some General Analogies between Tuberculosis and Influenza.

Surgery.

President: Sir Hector Clare Cameron, M.D., Professor of Clinical Surgery, Glasgow.

Vice-Presidents: Fred. Le M. Grasett, M.B., C.M., F.R.C.S.E., Toronto; Francis J. Shepherd, M.D., C.M., LL.D., F.R.C.S.E., Montreal; Alfred B. Atherton, B.A., M.D., LL.D., Fredericton, N.B.; Tecumseth Kingsley Holmes, M.D., Chatham, Ontario.

Honorary Secretaries: Harry A. Beatty, M.B., 207, Simcoe Street, Toronto; Frederick William Marlow, M.D., C.M., F.R.C.S., 699, Spadina Avenue, Toronto; Sinclair White, F.R.C.S., Ranmoor, Sheffield.

Arrangements have been made for special discussions on the following subjects:

The Surgical Treatment of Ascites Secondary to Chronic Hepatitis.

Prostatectomy.

Duodenal Ulcer.

Peritonitis.

Therapeutics.

President: Donald MacAlister, M.D., Cambridge.

Vice-Presidents: John Lorenzo Davison, B.A., M.D., C.M., Toronto; Alexander D. Blackader, B.A., M.D., Montreal; Sir Alan Reeve Manby, M.V.O., M.D., East Rudham; Professor J. Rose Bradford, M.D., F.R.S., London.

Hon. Secretaries: Velyien E. Henderson, M.A., M.B., University of Toronto; Charles Potter Lusk, M.D., C.M., 99, Bloor Street W., Toronto; E. R. Morton, M.D., 22, Queen Anne Street, London, W.

The following subjects have been selected for discussion:

Tuesday, August 21st.—The Kidney, its Pharmacology and Therapeutics.

Wednesday, August 22nd.—Serumtherapy and Vaccine-therapy.

Thursday, August 23rd.—Joint Session with the Section of Medicine on the subject of Heart-block.

Friday, August 24th.—The Place of Materia Medica and Therapeutics in the Medical Curriculum. The Therapeutic Value of Alcohol.

The following gentlemen intend to take part in the discussions or to contribute papers: Dr. A. D. Blackader (Montreal), Dr. J. B. Bradbury (Cambridge), Dr. J. Rose Bradford (London), Dr. T. G. Brodie (London), Dr. W. E. Dixon (Cambridge), Dr. J. T. Halsey (New Orleans), Dr. H. A. Hare (Philadelphia), Dr. A. O. J. Kelly (Philadelphia), Dr. T. McCrae (Baltimore), Dr. J. Mackenzie (Burnley), Dr. C. R. Marshall (St. Andrews), Dr. A. J. Meltzer (New York), Dr. J. H. Musser (Philadelphia), Dr. G. W. Ross (Toronto), Dr. G. S. Woodhead (Cambridge), Dr. R. B. Wild (Manchester).

The Secretaries will be glad to receive specimens, drawings, tracings, or preparations for exhibition during the session.

HONORARY LOCAL SECRETARIES.

FREDERIC NEWTON GISBORNE STARR, M.B., Medical Building, Toronto.
Professor JOHN JOSEPH MACKENZIE, B.A., M.B., Medical Building, Toronto.
DAVID JAMES GIBB WISHART, B.A., M.D., L.R.C.P., Medical Building, Toronto.

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Professor JOHN JOSEPH MACKENZIE, B.A., M.B., Toronto, *Chairman.*
MAUDE ABBOTT, B.A., M.D., Montreal, *Secretary.*
Professor GORDON BELL, M.D., Winnipeg.
Professor W. T. CONNELL, M.D., Kingston.
ANDREW ROBERTSON GORDON, M.B., Toronto.
J. A. MCGREGOR, M.D., London, Ontario.
WM. HERBERT PEPLER, M.D., C.M., L.R.C.P.Lond., Toronto.
SAMUEL CUMMINGS, M.B., Toronto.
EDWARD STANLEY RYERSON, M.D., C.M., Toronto.
HENRY SEATON HUTCHISON, M.B., Toronto.

EXHIBITION COMMITTEE.

Chairman: Dr. ARTHUR JUKES JOHNSON, Toronto.
Secretaries: Dr. T. D. ARCHIBALD, Toronto; Dr. W. A. YOUNG, Toronto.

HONORARY LOCAL TREASURER.

Professor J. W. ROSS, Toronto.

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Dr. R. A. REEVE, *President-elect*, 48, Bloor Street E., Toronto.
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Dr. J. ALGERNON TEMPLE, 333, Bloor Street W., Toronto.
Dr. D. J. GIBB WISHART, 47, Grosvenor Street, Toronto.

PROGRAMME OF PROCEEDINGS.

TUESDAY, AUGUST 21ST, 1906.

9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address of Welcome; Introduction of Guests, Delegates, etc.; and President's Address.
4.30 p.m.—In the University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve.
8.30 p.m.—Address in Obstetrics. Dr. W. S. A. Griffith.
9.30 p.m.—Reception by the Lieutenant-Governor.

WEDNESDAY, AUGUST 22ND.

9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address in Medicine, Sir James Barr, M.D.
4.30 p.m.—Garden Parties.
8.30 p.m.—Address in Surgery, Sir Victor Horsley, F.R.S.
9.30 p.m.—Reception.

THURSDAY, AUGUST 23RD.

9.30—12.30 a.m.—Sectional Meetings.
4.30 p.m.—Garden Parties.
7.30 p.m.—Annual Dinner.

FRIDAY, AUGUST 24TH.

9.30—12.30 a.m.—Sectional Meetings.
2.30 p.m.—General Meetings.
4.30 p.m.—Garden Parties.
Excursions.
8.30 p.m.—Soirée.

SATURDAY, AUGUST 25TH.

Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt.
Excursion to Muskoka.
Excursion to Lambton, through the courtesy of the President, Mr. Austin.

THE SCIENCE COMMITTEE
OF THE
British Medical Association.

REPORTS ON PROGRESS OF RESEARCHES.

THE Science Committee has received the following reports from the Research Scholars and the recipients of grants upon the investigations carried out by them:

REPORTS FROM THE RESEARCH SCHOLARS.

HERBERT E. ROAF, M.D.(Toronto), M.R.C.S., L.R.C.P.,

Relation of Inorganic Constituents of Cells to their Growth and Activities.

During the year he has conducted several different researches, one of which has already been published and several others are almost ready for publication.

The one which has been published is The Action of Acids and Alkalies, and of Acid, Alkaline, and Neutral Salts upon the Tadpole of *Rana temporaria*, by Herbert E. Roaf and Edward Whitley,[2] from which they conclude that:

1. Hydrogen and hydroxyl ions are very toxic, and the degree of toxicity is relatively of the same magnitude for these two ions. With acid and alkaline salts the degree of toxicity is relatively proportional to the concentration in hydrogen or hydroxyl ions.

2. Neutral salts, when present along with traces of other salts, do not kill until the osmotic pressure rises above that of the body fluids of the organism. When the isotonic point is reached there is a short range at which the various salts become toxic, but the length of this range varies with the ions of the salt used.

3. The volume of the organism does not remain constant until the surrounding medium has become isotonic with the internal medium, but volume diminishes constantly with increase of concentration of the neutral salt.

4. Certain ions have a specific toxic effect, and when present in neutral salts cause death long before the isotonic point is reached. Such salts are those of the heavy metals, barium and ammonium.

5. At much lower concentrations certain ions possess a favouring action upon growth.

The stomach contents of a number of cases of cancer have been examined, and these will shortly be published to amplify the previous paper on the same subject,[3] of which the main conclusions are as follows:

1. In addition to the well-known fact that hydrochloric acid is diminished or absent in cases of cancer of the stomach, it is shown that the same decrease of free acid accompanies cancer no matter where the growth is situated, and is therefore not due to local causes.

2. The diminution of acid might be due to (*a*) loss of oxyntic cells; (*b*) toxins causing arrest of function of oxyntic cells; (*c*) diminished acidity or increased alkalinity of blood plasma in these cases.

The effects of various inorganic salts on growth and cell division has been studied, using hyacinths, onions, and other organisms. The results point to similar conclusions to those given in a previous paper.[4] The conclusions reached are as follows:

1. The addition of small amounts of alkalies or alkaline salts to the medium in which sea-urchin eggs are growing causes first an increase of growth, but as the amount is increased there is irregularity in size and shape of cells. Nuclear division becomes in advance of cytoplasmic division and hence the cells become multinucleated. As the alkali is further increased all cell division is stopped.

[1] See also joint report with Professor Sherrington, p. 9.
[2] *Biochemical Journal*, vol. i, pp. 81-110.
[3] On the Absence or Marked Diminution of Free Hydrochloric Acid in the Gastric Contents in Malignant Diseases of Organs other than the Stomach, by Benjamin Moore, W. Alexander, R. F. Kelly, and H. E. Roaf, *Proceedings Royal Society*, B., vol. lxxvi, pp. 138-139.
[4] On the Effects of Alkalies and Acids and of Alkaline and Acid Salts upon Growth and Cell Division in the Fertilized Eggs of *Echinus Esculentus*; a Study in Relationship to the Causation of Malignant Disease. By Benjamin Moore, Herbert E. Roaf, and Edward Whitley—*Proceedings Royal Society*, B., vol. lxxvii, pp. 102-136.

2. Accompanying the increase of nuclear division caused by the dilute alkali there are seen many of the atypical mitoses described in malignant disease:—(*a*) Multiple nuclei dividing in the same cell; (*b*) multipolar mitosis; (*c*) asymmetrical mitosis; (*d*) reduction of the chromosomes in length and number; (*e*) vesicular chromosomes.

3. No such increased growth is caused by the addition of minute traces of acid to medium in which the eggs are growing.

4. The extreme limits of reaction at which life and cell division are possible lie very close together, indicating that the cell is very sensitive to even slight changes in hydrogen-ion and hydroxyl-ion concentration.

In addition there are several researches in progress bearing on the relation of cells to the inorganic constituents about them, and contained in their own protoplasm, but the results have not advanced far enough to enable one to form any definite conclusions. The scope of these additional researches is roughly covered by the following titles:

1. An investigation into some aspects of experimental diabetes.

2. The physical conditions under which the inorganic salts are contained in serum and blood corpuscles.

3. On lockjaw.

4. An investigation into the digestive glands of certain invertebrates.

Diabetic Lipaemia.

A case of lipaemia terminating diabetes mellitus has been investigated, and is at present being got ready for publication. The main conclusions are:

1. In certain cases of lipaemia a large amount of ethereal extractives may be present (over 10 per cent. in the present case) in the blood.

2. That in certain cases this ethereal extract does not consist entirely of glycerine combined with fatty acids, but there may be cholesterin or a cholesterin-like body combined with the fatty acids.

Osmotic Pressure.

A series of experiments have been performed studying the osmotic pressure of various colloidal solutions.

J. Anderson Craw.

Physical Chemistry of the Toxin-Antitoxin Reaction and of Agglutination.

From July 1st, 1905, up to the present, he has been engaged in research work in immunity, embraced in the following papers, in part already published and in part now in preparation for publication in the British Medical Journal.

1. On the Filtration of Crystalloids and Colloids through Gelatine: with special reference to the behaviour of haemolysins. By J. A. Craw, *Roy. Soc. Proc.*, B., vol. lxxvii, p. 311. Communicated to the Royal Society on December 1st, 1905, and read on February 1st, 1906.

2. Experiments on a New Porcelain Filter. By Dr. W. Bulloch, London Hospital Medical College, and J. A. Craw. Communicated to the Medical Research Club on May 16th, 1906.

3. On the Standardization of Diphtheria Toxin and Antitoxin. By J. A. Craw and Dr. G. Dean, Lister Institute of Preventive Medicine.

4. On Normal Variations in the Weight of Guinea-pigs: with special reference to the Estimation of Diphtheria Toxin. By J. A. Craw.

5. On the Preparation of Colloidal Solutions. By J. A. Craw.

6. On Maximal and Minimal Agglutination and Haemolysis by Inorganic Agents and Bacterial Haemotoxins. By J. A. Craw.

7. On the Preparation of Haemin. By J. A. Craw.

Further, he gave a course of ten lectures to the University of London at the London Hospital Medical College on the physical chemistry of colloidal solutions, with special reference to immunity, pointing out the lines along which research was advancing, and its bearing on current views regarding the toxin-antitoxin reaction and agglutination. He is at present engaged on a work to be published in book form, and based on these lectures, entitled the physical chemistry of immunity.

The experimental work now in hand promises to throw light on the formation of toxoids from toxins, and an endeavour is being made to obtain suitable units for the further examination of the physical chemistry of the toxins and agglutinins.

The research on gelatine filtration was undertaken to elucidate the mechanism of the Martin filters which had been used in a previous investigation—on the physical chemistry of the toxin-antitoxin reaction[1]—and to determine the value of the filter as an instrument for the examination of physiological fluids, especially those met with in problems in immunity. The redistribution of the saline contents of the haemotoxic fluids investigated in the earlier paper, during filtration was determined and evidence educed which showed definitely that the haemotoxic effects obtained from the filtrates and residues were not due to changes in the concentration of the salts contained but were entirely caused by free bacterial haemotoxin. It follows, then, that Ehrlich's views on the toxin-antitoxin reaction, as well as on the constitution of toxins in general, require considerable modification, and it is clear that the counter-hypotheses of Arrhenius and Madson fail to meet the experimental facts and the theoretical conditions applicable to the subject. The chief conclusions arrived at from the investigation of gelatine filtration are as follows:

Wet gelatine filters are to be preferred to those which have been partially dried, as the former have more uniform rates of filtration, and dilution of the filtrate from a physiological fluid by the water contained in the gelatine can be largely eliminated. During filtration at constant pressure the gelatine absorbs water and its porosity gradually decreases; on decompression this water is expressed and the original porosity is rapidly regained. Gelatine of a definite concentration apparently has a specific permeability for different crystalloids and colloids: the value is high, but not complete, for the crystalloids, sodium chloride, potassium iodide, and butyric acid: and it is low, but not zero, for the colloids, ferric hydrate, serum, and soluble starch. As filtration proceeds the crystalloids pass through in increasing concentration, whereas the colloids rapidly decrease to zero. The simultaneous filtration of two substances may influence their specific permeabilities; thus, butyric acid alters the permeability to sodium chloride, and iodine that of potassium iodide.

Variations in the gelatine influence the permeability, for example, formalized gelatine is less permeable to sodium chloride than ordinary gelatine, and 15 per cent. gelatine is less permeable to megatherium lysin than 7.5 per cent. Variation in the pressure causes remarkable changes in permeability. A sudden diminution of pressure—for example, from 100 atmospheres to 10 atmospheres—gives highly concentrated filtrates of both crystalloids and colloids, whereas a gradual diminution in pressure has practically no effect on the concentration of the filtrate. Substances which stain gelatine, such as neutral red and iodine, give filtrates with lower concentrations on diminishing the pressure either suddenly or gradually. The rate of filtration is accelerated by amylic alcohol and butyric acid, which accelerate the rate of sedimentation of silts and precipitates in a similar way. Part of these phenomena may be explicable on the mechanical view of a blocking of the gelatine pores, but chemical relations between the gelatine and the substances filtered must be taken into consideration, and probably the most satisfactory view is that the action on the solutions tested consists in the formation of "absorption" or "adsorption" compounds of variable constitution.

Considering the large number of Pasteur-Chamberland candles which were used in the above investigations it was with considerable interest that he investigated in conjunction with Dr. W. Bulloch a much cheaper candle designed by Messrs. Doulton, of Lambeth, which seems admirably to meet the requirements of a good basis for gelatine filters. Further, much of the above work on gelatine filtration must apply to the filtration of water through sand filters and on a small scale through porcelain filters. They found the Doulton porcelain filter to retain micro-organisms for a longer time than the Pasteur-Chamberland candles when tested in an apparatus designed to give comparative results. The filter mass is exceptionally homogeneous and enabled them to gain a much greater volume of germ-free filtrate in a given time than did the Pasteur-Chamberland. He proposes to use this thoroughly-tested material in his future investigations of the filtration phenomena of toxins and agglutinins.

[1] *Roy. Soc. Proc.*, B., vol. lxxvi, p. 179, 1905.

The work on the estimation and standardization of diphtheria toxin and antitoxin is a study of data collected during the past six years at the Lister Institute and its bearing on the work of Ehrlich, Arrhenius, and Madsen.

He has succeeded in greatly increasing the yield of pure haemin from blood by modifying Schilfejew's method; also in preparing new colloidal solutions by the use of glycerin and gelatine; and in tracing a theoretical and experimental connexion between agglutination of erythrocytes and haemolysis. Further particulars of these researches will be forwarded if desired.

MAJOR GREENWOOD, Jun., M.R.C.S., L.R.C.P.

Influence of Increased Barometric Pressure.

The main object of the researches undertaken during this period has been the investigation of the effects produced in man by the employment of increased atmospheric pressure.

In the summer of 1905, he carried out, in conjunction with Mr. Leonard Hill, F.R.S., a series of experiments on animals, the result of which was to confirm them in the belief that similar researches might reasonably be performed on themselves. They were unable to detect any constant alteration in the vital functions when using air pressures less in degree than those at which the increased oxygen tension exerts its well-known toxic effects (Bert, v. Schroetter, Hill and Macleod, etc.). They could not satisfy themselves, from these experiments, that the respiratory exchange undergoes any marked variation, but further research is necessary as to this point.

They next commenced a series of experiments on themselves. The results obtained up to the end of January, 1906, were described at length in a memoir published in the *Proceedings of the Royal Society*, B., vol. lxxvii, pp. 442, etc., and have been epitomized in the BRITISH MEDICAL JOURNAL for April 21st of this year.

By this research they have proved that the working limit of pressure may be extended to + 6 atmospheres, without danger or inconvenience, provided certain definite precautions be taken, namely, a slow and regular rate of decompression; (2) massage and muscular movement during this process. They also proved that variations in the alveolar percentage of carbon dioxide are explicable on a physical basis.

The next step in the investigation has been to inquire more closely into the phenomena of decompression, and to attempt fixing the decompression period by a knowledge of the amount of gas dissolved in the body fluids.

If the pathogeny of caisson disease advanced by Paul Bert be accepted—and in the present state of knowledge such an acceptance is imperative—then the danger of high pressures must depend, other things being equal, on the rapidity and completeness with which the tissue fluids are saturated with nitrogen.

It is, therefore, important to ascertain what length of exposure to a given pressure results in the saturation of the blood and other tissue fluids. In animals it is possible to analyse the blood gases at different periods, but this process cannot conveniently be applied to man. Supposing, however, one drinks a large quantity of water before entering the pressure chamber and during the course of the experiment, the profuse secretion of watery urine induced will yield quantities of fluid whose amount of dissolved gas furnishes an approximate measure of the saturation of the blood plasma.

A considerable number of experiments have been performed, and they hope to publish a memoir dealing with this question at an early date. They are satisfied that the tissue fluids are saturated with nitrogen after an absolutely short exposure to increased pressure. That this increased quantity of dissolved gas is yielded up slowly is proved by the fact that, even with slow decompression, the urine still contains an increased quantity of dissolved nitrogen on leaving the pressure chamber. The exact time relations of this process are of great importance, and they hope to furnish details in their next paper. They expect to be able to control the results obtained in their personal experiments by observations made on caisson workers in a tunnel now being constructed under the Thames.

Another line of research upon which Mr. Greenwood has been engaged in connexion with these problems is the question of caisson and diving-dress ventilation.

If the volume of a caisson be V c.cm. and $\frac{1}{q}$ V be ventilated in time t, then, if the pressure be doubled and the same ventilation-rate maintained, only $\frac{1}{2q}$ V is passed out; or the ventilation is halved. Thus one would expect the accumulation of carbon dioxide to be increased very rapidly.

For reasons which will be considered in detail when the experimental work has been finished, it seems probable that this is not so, but that if p c.cm. of carbon dioxide are added to the chamber in time t, then the amount present after nt intervals of time will be given by the formula:

$$pq\left(1-\frac{1}{q}\right)\left\{1-\left(1-\frac{1}{q}\right)^n\right\}$$

From this formula, knowing the actual volume of air space, we can easily calculate the percentage of CO_2.

He has experimented on a cat, and finds that this formula gives, if anything, rather too high values. Thus, in an experiment at +2 atmospheres, the *observed* percentage of CO_2 was 0.39, and the *calculated* value 0.41. In experiments at +3 atmospheres, calculated values were 0.54, 0.65, 0.72, 0.72, after 30, 45, 56, and 65 minutes respectively, as against 0.54, 0.65, 0.63, and 0.58, which were the observed percentages. Other experiments gave similar results. Further work is necessary before one can draw conclusions, but it seems as if the above formula gives an upper limiting value, and that a rate of ventilation based on it would be at least sufficient. He hopes to be in a position to report more fully on this matter later.

Mr. Leonard Hill and Mr. Greenwood have also studied the respiratory exchange in man, under increased barometric pressure, using the method of Zuntz and Loewy; their results, however, are not yet sufficiently exhaustive to permit of any definite statement; they intend to carry out further researches as soon as the above-mentioned investigations are completed.

H. DE R. MORGAN, M.A., M.R.C.S., L.R.C.P., D.P.H.,
ERNEST HART MEMORIAL SCHOLAR.

Bacteriology of the Summer Diarrhoea of Infants.

Mr. Morgan has carried out a research upon the bacteriology of the summer diarrhoea of infants. The object of this research, which was undertaken last summer, was to differentiate bacteriologically between the intestinal contents of infants suffering from summer diarrhoea and of those of normal infants, so that by that means a clue to the possible cause of the disease might be found. To this end the diarrhoeic stools and the scrapings from the mucous surfaces of the intestines of children dying of this disease were plated on bile-salt-neutral-red-lactose agar plates (MacConkey), and all the colourless colonies—that is, the non-lactose fermenting bacteria—picked off. Such of these as were subsequently found not to liquefy gelatine were then grown on broths containing glucose, mannite, dulcite, lactose, and cane sugar, also on litmus milk, and were tested for indol on peptone beef-broth.

The stools or intestinal scrapings, or both, were thus examined from 58 cases of infantile summer diarrhoea. The stools of 20 healthy infants were also examined in the same way.

Of the 58 cases, 28 were found to yield an unknown motile bacillus (No. 1), which gave acid and gas on glucose only of the above-mentioned sugars, produced an alkaline reaction on litmus milk, and a large amount of indol on peptone beef broth. No dysentery bacilli were found exactly corresponding to those described by Flexner and other workers at the Rockefeller Institute. Two bacilli of the dysentery (Flexner) type were isolated, one (No. 3) from 5, and the other (No. 4) from 2 cases. The first of these differed from the dysentery (Flexner) bacillus in that it produced acid and gas when grown on sorbite broth; the second (No. 4) in that it failed to produce indol on peptone beef broth. The remaining bacteria isolated seemed unimportant.

The blood of each patient was next tested for agglutination reaction, both with the bacteria isolated from the same case and against the known bacilli of typhoid, dysentery (Flexner), dysentery (Shiga), Gaertner, paratyphoid A and paratyphoid B. In only 3 cases out of over 400 bacilli tested were any reactions obtained, the most

important of which was a reaction of the blood of a patient from whom No. 3 bacillus was isolated, which reacted both with this bacillus and with the *Bacillus typhosus*.

From the twenty stools of healthy infants no bacilli were found corresponding to the above.

The pathogenicity of bacillus No. 1 was next investigated. Half an agar tube of the culture mixed with the food of a young rat was found to produce violent diarrhoea and death within twenty-four hours. The same effect was produced on young rabbits by an agar tube of the culture. The bacilli were in each case isolated from the spleen in pure culture, and, in a few instances, from the blood of the experimental animals after death.

Bacilli Nos. 3 and 4 were found to kill young rats which were fed on them, but they produced no diarrhoea.

Conclusions.—Bacillus No. 1 is not an organism normally present in human stools, sewage, or drinking water. From its prevalence in the stools and intestines of cases of infantile diarrhoea—being found in 28 cases out of 58, or in nearly 50 per cent.—also from the fact that it causes death preceded by diarrhoea in young animals, in the spleens of which it is invariably found in pure culture, and also from the fact that it was isolated from the stools of a nurse who had contracted the disease from the patients in a ward set apart for that disease, one is led to conclude that this bacillus may possibly be a factor, or one of the factors, in the disease.

REPORTS OF GRANTEES.

PHYSIOLOGY.

J. M. Hamill, M.B., B.C.Cantab.,
Sharpey Physiological Scholar, University College, London.

Intestinal Digestion.

Mr. Hamill has published a paper on the mechanism of protection of intestinal worms and its bearing on the relation of enterokinase to tripsin, in the *Journal of Physiology*, xxxiii, p. 479. The antibody in the tissue juices of intestinal worms is antitryptic in its action, as stated by Wienland, and is not antikinasic, as Dastre and Stassano assert. The antibody, in neutral or acid extracts of intestinal worms, is uninjured by boiling; if, however, the extracts be made even faintly alkaline, their anti-action is immediately destroyed on boiling. The antibody is soluble in weak alcohol, but is precipitated when the concentration is increased to 85 per cent. The precipitate dissolves easily in water, and the resulting solution strongly inhibits the proteolytic activities of the pancreatic juice. The antibody diffuses through colloid membranes.

He has also published in the same journal a paper on the identity of enterokinase and trypsinogen respectively throughout the vertebrates. Enterokinase and trypsinogen obtained from widely differing vertebrates were tested one upon the other, and the resulting mixtures were in all cases found to be active—that is, the substances must have been identical in all the animals chosen.

E. E. Henderson, M.B., F.R.C.S.

Secretion of Intraocular Fluid.

Mr. Henderson has published the results of his research in the *Proceedings of the Royal Society*, B., vol. lxxvii, 1906, on the factors which determine the production of intraocular fluid, by E. E. Henderson and E. H. Starling, F.R.S., and a fuller report in the British Medical Journal of August 26th, 1905.

S. G. Shattock, F.R.C.S., and C. G. Seligmann, M.B.Lond., M.R.C.P.

Effects of Spaying on the Growth of the Pelvis.

The object of the investigation was to discover whether spaying in young animals was followed by a want of the proper growth of the pelvis. The authors had previously made observations in this direction upon the pig and rabbit. The pelvis in such animals, however, differed so little in the sexes that no conclusions could be arrived at. With a portion of the grant a calf has been purchased after spaying and is now being allowed to grow until adult, after which the animal will be slaughtered and the skeleton accurately examined.

T. G. Brodie, M.D., F.R.S.,
Professor Superintendent, Brown Institution.

The grant of money has been expended in paying part of the expenses of two pieces of work.

Respiratory Exchange.

(*a*) A number of experiments have been made with the object of estimating the rate at which oxygen is absorbed and carbonic acid eliminated by man during short intervals of time. The aim has been to obtain a continuous record of the gaseous exchanges. The principle has already been successfully applied for carbonic acid by Professor Lombard. In attempting to record the rate of oxygen absorption many difficulties have been encountered, and it is only quite recently that most of these have been surmounted. Hence it is not possible to enter into the results so far obtained in any detail. A report will be submitted at a later date.

Cardiac Nutrition.

(*b*) A large number of experiments upon the isolated mammalian heart have been performed. The object of these was twofold. In the first place, attempts have been made to study the nutritional value of proteids to the mammalian heart under the conditions of a survival experiment; and in the second place it has been shown that, in the majority of cases, the addition of serum in small doses to the circulating fluid leads to a very injurious effect upon the heart. Many experiments have been made with the object of ascertaining to what constituent this toxic action is to be ascribed. It has been found that the animal's own unclotted blood does not produce the effect when added to the perfusing saline to the amount of 1 in 250. When the same solution clots, however, the toxic action at once develops. The experiments are not yet complete, but many subsidiary points have been made out and will be reported upon shortly.

NEUROLOGY.

Gustav Mann, M.D.,
Physiological Laboratory, Oxford.

Structure of the Optic Thalamus.

The work done has been partially experimental and partly purely histological. He had hoped by unipolar stimulation to localize the effects which one gets on stimulating the thalamus to definite senses, but has had only partial success. The plan he adopted was either to expose the cerebrum, ligaturing the longitudinal sinus; to ablate one hemisphere, leaving the corpus striatum and the thalamus; to make the exposed thalamus his guide as to the exact position of the centres in the thalamic half still covered by the hemisphere and by an electrode shielded in tubing to stimulate the surface of the thalamus covered by the hemisphere. The idea was to study whether the thalamus would react more readily if its own hemisphere is intact, and it does, because painting of the exposed hemisphere with 10 per cent. cocaine necessitates the use of much stronger currents to get any effect from stimulation of the thalamus. After soaking the occipital lobe, upper and under surfaces, for seven minutes in cocaine, shielding the pulvinar with mica, by which the occipital lobe is held up, eye movements which previously were obtained along with neck movements, with one doubtful case, gave negative results with medium strength currents. In the middle, between the middle and posterior subventricular regions, on two occasions distinct ear-movements (both ears simultaneously) were obtained. The reticular nuclei on stimulation seemed to give motor effects more readily in the non-cocainized brain, although the proximity of the internal capsule makes it difficult to be quite certain. The antero-ventricular and subventricular regions gave rise to sniffing movements, and with the current giving the effect *ad maximum*, the cocainizing of the cornu ammonis seemed to produce no effect.

The other method adopted was to ablate the hemispheres completely and to stimulate the thalamus. Medium strength currents produce no effect, and strong currents cause tonic convulsions, especially by spread of current to the internal capsule. Division of the pyramids above the olivary bodies (division was not quite complete) seemed to make no difference if very strong currents were applied to the surface, or medium strength currents

in the region of the red nucleus. The surmise that the thalamus acts through the red nucleus seems to be confirmed.

The histological portion of the research has consisted in mounting and photographing further series of cat and rabbit brains. Two models were made, but the discrepancies between the models was so great as to require further work. The brains of animals without eyes and cochlea are being examined. Thalami of the domestic animals for purpose of surface anatomy have been taken through the paraffin process, and will be exhibited at the Toronto meeting.

C. S. Sherrington, M.D., F.R.S.,
Holt Professor of Physiology, University of Liverpool,
and
Herbert E. Roaf, M.D.

Production of Lock-jaw in Tetanus.

Professor Sherrington and Dr. Roaf have engaged in an inquiry into the manner of production of that which may be in some respects termed the cardinal symptoms of tetanus, namely, the "locked jaw." They have started from the position, lately reached by one of them, that the tetanus toxin alters the reaction of the bulbo-spinal centres so that inhibition is converted into excitation, and hence the movements elicited from various cortical centres become of reversed direction from the normal.

In the case of the movements of the jaw the area wherein the jaw movements are represented is small in the ordinary smaller monkeys, and for that reason unsuited to detailed differentiation. By aid of the grant kindly allowed them by the Science Committee of the Association they have been allowed to examine the condition under tetanus in a large baboon and in an orang-outang. They first made some preliminary observations in the smaller monkeys, especially *Cercopithecus callithrix*. In these they ascertained that:

1. The cortical area of representation of the jaw is divisible into an extensive lower area which yields opening of the jaw, and a much less extensive upper area, which yields closure of the jaw. From this upper area the movement of the jaw obtainable, namely closure, is less readily excitable than is opening from the lower, so that occasionally in an experiment closure may not result at all from the cortical excitation.

2. In the opening movement produced by cortical excitation the action of the muscles of the crossed half of the jaw is much greater than that of the muscles of the uncrossed side of the jaw, so also with the closure movement. If the stimulation of the cortex is weak, only the muscles of the crossed side of the jaw contract. These points they ascertained by splitting the jaw at the symphysis, and freeing each half from the muscles of the tongue and mucosa of the mouth. On stimulating the left cortex the right half of the jaw only opens, the left remaining motionless, and vice versa on stimulating the right hemisphere.

3. After inoculation of tetanus toxin (0.5 mg.) in the right facial nerve, the "locked jaw" affects first the nervous mechanism of the right half of the jaw, and may be confined to that half for a couple of days or so before affecting the left half.

4. After the lock-jaw has set in the stimulation of the cortex of the hemisphere of the crossed side from the incipient lock-jaw causes, instead of opening of the jaw, closure of the jaw; the cortical movement is reversed.

After confirming these results in the case of a large baboon we finally succeeded in testing them on one of the man-like apes—namely, the orang-outang. Although the present is but a preliminary report, we may give some details in regard to this latter experiment because of the approximation to human tetanus.

The orang was a large one, weighing 45 lb. Its brain was developed, weighing no less than 305 grams. The observation was carried out by three successive operative stages. The Rolandic region of the cortex of the right side was first laid bare under anaesthesia and full aseptic precautions. A map was drawn of it, and it was carefully stimulated in the face and arm areas respectively. The former area was minutely tested from joint to joint by unipolar faradization, and the extent and topographical arrangements of the points yielding jaw opening and jaw closing respectively were noted on the scale map as exactly as possible. The area for jaw closure was found to be above and in front of that for jaw opening, and to be much less extensive than the latter, not more than about one-tenth of the extent of the latter. These observations having been made, the dura was stitched together and the wound closed under full aseptic precautions. Later a branch of the right facial nerve was carefully exposed, and into its sheath rather less than 1 mg. of dry tetanus toxin was inserted. Two days later initial lock-jaw appeared. The condition was allowed to become evident, though not marked, the animal still taking food. It was impossible to say by inspection that it was not bilateral, but it proved under experimental analysis to be still in the unilateral stage. The left cortex was then exposed, and a scale map drawn, and the whole area examined by unipolar faradization. It was then found that all that part of the area which corresponded in position with the area which on the previously examined (right) side had yielded opening of the jaw, now on this left side yielded closure of the jaw except at its extreme lowest points, whence opening of the jaw was still usually obtainable. The previously examined right cortex was then laid bare once more and tested with the electrodes. In respect to the jaw movements, the reactions obtained from it were hardly different from those got prior to the inoculation.

The lower jaw was then carefully divided at the symphysis and each half freed from the muscles of the tongue and from the mucous membrane of the mouth. Each half was thus made capable of movement freely independent of the opposite half. The left cortex was then again stimulated and it was found that stimulation with fairly strong stimuli gave opening of the left half of the jaw simultaneously with strong closure of the right half. Similar stimulation of the corresponding area of the right cortex gave, on the other hand, bilateral opening more marked on the crossed side. The stimulation of other areas of the cortex agreed with the results previously obtained by one of us in conjunction with Professor Grünbaum.

In the course of the observations they saw the occurrence of epileptic seizure, following on cortical stimulation, confined completely to one half of the lower jaw, and that half the half on the same side as the seat of inoculation with tetanus toxin.

It appears therefore clear that:

1. An area of cortical representation for closure of the jaw exists in the orang-outang, but is very much less extensive than that for opening of the jaw.

2. That the extensive area for opening of the jaw in the orang has its reaction altered into closure of the jaw in the lock-jaw produced by tetanus toxin.

3. That the movement of opening of the jaw, as produced by cortical excitation of one hemisphere in the orang, is chiefly an action of the muscles of half the jaw on the crossed side to the stimulation, and that sometimes the action is entirely confined to the muscles of the crossed side.

4. That the condition of the "locked jaw" begins unilaterally on the same side as the nerve trunk inoculated, and that the condition is for a time confined to the nervous mechanism of that side, although later it involves also that of the opposite side as well.

5. It appears possible that by splitting the symphysis the condition of lock-jaw may be at least temporarily relieved.

Professor Sherrington and Dr. Roaf propose to shortly publish the results with all necessary detail.

N. Bishop Harman, M.B., B.C.Cantab., F.R.C.S.,
Assistant Demonstrator of Pathology, Middlesex Hospital,

Nuclei of Origin of Nerves of Facial Musculature.

Operations have been performed under anaesthetics at University College Physiological Laboratory upon six cats; in three section of parts of the facial nerve on the face, and in three section of the whole nerve at the stylomastoid foramen was performed. The animals recovered, and the paralyses produced were typical of the lesions. After fourteen days the animals were killed and the heads "fixed" and preserved. The medullae of these heads are now being prepared by Mann's modification of Nissl's method to permit of microscopic examination of the bulbar nuclei whence the cut

nerves arise. This work is very long and laborious, and the result cannot be completed for some time yet. This part of the work is being done at Middlesex Hospital.

W. E. Dixon, M.D.,
Assistant to the Downing Professor of Medicine, University of Cambridge.

Innervation of the Cutaneous Vessels.

During the past year Dr. Dixon has performed a considerable number of experiments with a view to determining the innervation of the vessels of the skin and the relative effect of drugs. He has employed two methods in these experiments: (1) The plethysmographic and (2) the method of perfusion. For the latter purpose, isolated portions of the skin were used. The nerve supply to the cutaneous vessels exhibits certain important differences from that of other tissues, but as the experiments are still in progress he desires that his full report may be deferred until the experiments have more nearly reached completion.

Arthur Edmunds, M.S., F.R.C.S.,
Demonstrator of Physiology, King's College.

Nerve Degeneration and Regeneration.

Mr. Edmunds reports that during the past year he has been engaged, in conjunction with Drs. Mott and Halliburton, in the study of the phenomena of degeneration in transplanted nerve. Some experiments have also been performed to study the rate of myelination in regenerating nerve. The whole work is now concluded and will very shortly be published in full.

Basil Kilvington, M.D.,
Melbourne University.

Regeneration of Nerves.

The results of his research were embodied in a paper on regeneration of nerves with regard to the treatment of certain paralyses, and published in the British Medical Journal of April 29th and September 16th, 1905.

W. B. Warrington, M.D.,
Lecturer on Neuropathology, University of Liverpool.

Morbid Histology of the Nervous System.

Two papers are now in the press, and will shortly be published in the *Review of Neurology and Psychiatry*, on Acute Disseminated Myelitis and on Obliterative Arteritis in the Brain and Spinal Cord.

The histology of some 10 cases has been investigated altogether, and the material is also used for teaching purposes.

F. C. Eve, M.D.,
Assistant Physician, Victoria Hospital for Children, Hull.

Pressure of Cerebro-spinal Fluid.

A simple clinical instrument has been devised for performing lumbar puncture and thereby measuring the pressure of the human cerebro-spinal fluid. In consists of a connecting Y-piece, to which are adapted the hollow needles, the exit tube, the manometer, and a detachable handle.

In over 100 clinical cases the instrument has shown itself convenient, and has yielded useful information in the therapeutic relief of intracranial tension, which was frequently found to be twofold to sixfold its normal value.

In several cases striking improvement followed the puncture,[1] while in none did harm appear to result. In one case interesting rhythmical variations of cerebro-spinal pressure were observed with the help of this instrument.[2] It is made by Messrs. Allen and Hanbury, under the name of Cerebro-spinal Manometer.

David Orr, M.D.,
County Asylum, Prestwich, Manchester,
and
R. G. Rows, M.D.,
County Asylum, Lancaster.

Action of Toxins in Nervous System.

Dr. Orr has performed forty operations. At first these consisted in performing laminectomy upon rabbits with a view to division of the posterior roots. It was found after repeated trials that the rabbit was an unsuitable animal for the purpose, and he now holds a licence to perform the experiment upon dogs, and hopes next year to extend the research in this and other directions to monkeys.

The primary object of the work was to prove that toxins spread upwards in the lymph chambers of peripheral nerves and attacked the central nervous system at the point where the spinal roots lose their neurilemma sheath—the point from which Dr. Rows and Dr. Orr had already shown the initial degeneration in tabes dorsalis proceeds.[1] The method employed was as follows: Dr. Orr selected various organisms, for example, *Staphylococcus pyogenes aureus, Bacillus pyocyaneus, Bacillus coli* (both mild and virulent), and Gaertner's bacillus, and having made of each a broth culture, this medium with the growing organism was enclosed in a celloidin capsule and placed with antiseptic precautions underneath the sciatic nerve of a rabbit. These experiments proved successful, and the method was utilized to produce degeneration of the cranial nerves by placing a capsule charged with organisms under a rabbit's cheek.

When the capsules were placed under the sciatic nerve a lesion of the lumbo-sacral enlargement followed. This, traced by Marchi's osmic acid method, showed conclusively that degeneration of the intramedullary portion of the sensory roots always begins where their fibres, in plunging into the posterior columns, lose the neurilemma sheath; and that from this point the degeneration process extends into the root-entry zone and thence along the collaterals and terminals into the grey matter of the cord.

Such a lesion, the result of toxic action alone, is indistinguishable from that found in early tabes dorsalis in man, and has been sufficiently marked to enable one to obtain photographs of it.

The degree of lesion produced seems to vary (1) with the virulence of the organism employed, (2) with the time the organisms live in the capsules.

In his later experiments he has introduced a fresh capsule every fourteen days, and in some cases he has placed two instead of one by the side of the nerve.

After the introduction of a capsule under the rabbit's cheek degeneration of the cranial nerves has resulted from the upward passing of toxins to the brain. This observation has extended the research from tabes dorsalis to the subject of cranial nerve palsies, and the experimental results will first be carefully compared with the degenerations affecting the cranial nerves in 12 cases of general paralysis of the insane.

He finds that the degeneration of cranial nerves, as in the case of the spinal roots, commences at the margin of the pons and medulla where neurilemma sheath is lost.

The above experiments have been controlled by placing a capsule containing sterile broth in the above-mentioned situations. The controls have borne out the statement that intramedullary degeneration of the spinal roots can be caused by the ascent of toxic lymph from the periphery, by giving a negative result.

During the past year Dr. Rows has operated on 24 rabbits and 5 dogs. Most of these operations have consisted in placing celloidin capsules which contained bouillon cultures of various micro-organisms—*Bacillus pyocyaneus, Bacillus coli, Bacillus gaertneri*—in different parts of the body of the animal. The capsules have been put under the gluteus maximus, under the erector spinae, under the skin of the cheek, and under the skin of the thorax and abdomen. By using these capsules, which allow the toxins formed by the organisms to diffuse through their walls while the organisms themselves have been retained within, he has been able to provide a constant supply of toxins in the neighbourhood of various nerves and at the same time to avoid setting up any inflammatory process whatever.

The spinal cords which have been examined have been treated with the Marchi method, which enables one to observe any degeneration of the nerve fibres.

As a result of the examination of the peripheral nerves and of the spinal cord, he has found that the fibres in the nerves outside the cord have been practically unaffected, but a marked degeneration was observed in them after they had passed through the pia mater and had lost their sheath of Schwann.

This degeneration commenced at the point where the fibres entered the cord and spread along them as they ascended the cord in the posterior columns and as they

[1] *Lancet*, April, 1905.
British Medical Journal, February, 1906.

[1] *Brain*, Winter, 1904.

passed into the grey matter of the posterior cornua. Similar changes were present also in the anterior root fibres between the edge of the cord and the cells from which they had sprung.

These changes in the nerve fibres were found to be limited almost entirely to those segments of the cord which supplied nerves to the area in which the capsule had been placed. At the same time, neither the cells of the corresponding posterior root ganglia nor of the anterior cornua showed any morbid change which could possibly have produced the degeneration in the fibres. These degenerations must have been caused by the toxins which diffused out of the capsules and ascended in the perineural sheath of the nerves and attacked the fibres immediately they had passed through the pia mater and had lost their sheath of Schwann.

Moreover, they correspond absolutely with the degenerations which are seen in early cases of tabes dorsalis, which, with Dr. Orr, he has described in papers published in *Brain* and in the *Review of Neurology and Psychiatry*.

The results which he has obtained by putting a capsule containing an active culture into the cheeks of rabbits and dogs have been exactly similar in character. In both animals the toxin has ascended by the fifth nerves, and has produced a degeneration in the fibres of the motor and sensory cranial nerves which commenced at the edge of the pons and medulla and spread along the fibres into the central nervous system.

These observations open up the whole question of the various palsies of the cranial nerves, and it is to this part of the subject that he will direct his attention during the next year, applying the methods mentioned above to dogs and monkeys.

S. H. BOWN, M.D.,
UNIVERSITY COLLEGE HOSPITAL.

Dr. Bown has been engaged during the past year (in conjunction with Dr. CHARLES BOLTON) on the following research:

Action of Diphtheria Toxin on the Central Nervous System.

Three monkeys (*Macacus rhesus*) were injected with toxin derived from a virulent culture of *B. diphtheriae*, and were killed after a few days, when they were showing well-marked symptoms of toxaemia. The cords and brains were hardened in formalin, followed by alcohol, and then embedded in paraffin. Sections are being cut and stained by Nissl's method; the results so far obtained have confirmed those which they obtained last year by the same method in the case of rabbits—namely, degeneration of the motor cells of the spinal cord and medulla, the degeneration consisting of the following changes:

1. Swelling in various degrees.
2. Chromatolysis.
3. Eccentricity of the nucleus, with indistinctness of the nuclear membrane in many cases. In some cases also the nucleus was swollen.

The work is not yet quite complete, but Dr. Bown hopes to have it ready for publication shortly.

PATHOLOGY.

F. H. THIELE, M.D.,
PATHOLOGIST, UNIVERSITY COLLEGE HOSPITAL, LONDON.

Blood Pressure.

The research upon which he is engaged is not yet completed. He has been able to obtain definite results from stimulation of the optic thalamus, corpus striatum, corpora quadrigemina, the cerebellum, and its peduncles in the blood pressure and respiration. From these it appears that the cerebellar cortex has no influence upon either. The optic thalamus influences these only through a localized area.

Stimulation of the corpus striatum constantly gives rise to a fall of blood pressure. The corpora quadrigemina give most marked results; usually a large rise of pressure with marked vagus effects in the case of the anterior. He is at present engaged in further localizing these results, and endeavouring to trace the tracts of conduction.

As regards the research on arterial disease with which he is engaged, in conjunction with Dr. Charles Bolton, the investigation is incomplete. Their plan has been to inject substances which have: (1) A marked effect in raising blood pressure; (2) a purely toxic effect; (3) influence in causing the disease in man, but whose mode of action is uncertain; (4) a depressor effect on the blood pressure; (5) further, they are investigating the effect of sections of the vagi and the peripheral nerves on the vessels and heart. They have confirmed the results of Josué as regards the suprarenal extract and have produced arterial disease by diphtheria toxin and ergot.

They have made further experiments to test the effect of the substances used on the blood pressure, and provisionally come to the conclusion that the substances cause arterial change by their toxic properties and not by the effect on the blood pressure.

The investigation is, of course, very incomplete. Numerous sections of the heart and vessels of these cases have been cut.

F. A. BAINBRIDGE, M.D.,
FROM THE GORDON LABORATORY GUY'S HOSPITAL.

1. *The Post-mortem Lymph Flow.*

It was shown by Asher that when an animal was killed shortly after the production of hydraemic plethora, a large and prolonged *post-mortem* flow of lymph occurred; a similar result was obtained by Mendel and Hooker after the injection of peptone and similar bodies. All these observers considered that the lymph was not formed by filtration, owing to the fall of blood pressure after death; Asher suggested that it was the result of increased tissue-metabolism, associated with glandular secretion.

In his experiments the venous pressure was recorded after death in the portal vein and the vena cava; it became equal in the two veins almost immediately after death. When hydraemic plethora was produced by the injection of strong sugar solutions or large quantities of normal saline, and the animal killed a few minutes later, the venous (and capillary) pressure in the liver was very much higher just after death than in the normal animal during life, and did not fall to the normal level until an hour or more after death. The lymph flow from the thoracic duct continued for an hour or longer after death. It was derived mainly from the liver, since ligature of the portal lymphatics almost abolished the *post-mortem* flow.

There was, in fact, a direct correspondence between the *post-mortem* venous (and capillary) pressure in the liver and the flow of lymph from that gland. Since the liver is the only organ in the body in which the capillary pressure after death is above the normal, the lymph flowing from it is no doubt formed by filtration. That the lymph is not formed by increased tissue metabolism is shown by two observations: in the first place, there is no *post-mortem* secretion of bile or pancreatic juice; secondly, the injection of dextrose—after previously bleeding the animal—does not raise the capillary pressure in the liver or increase the *post-mortem* lymph flow. If dextrose acted on the tissues it ought to increase the lymph flow. The small residual flow from the thoracic duct, after ligature of the portal lymphatics, represents the squeezing out from the intestines by peristaltic movements of lymph formed during life; it does not occur if the animal is killed immediately after the injection of sugar, so that there is no time for lymph formation in the intestines.

Although much stress has been laid on Asher's experiments as telling against Starling's view that lymph is formed by filtration, these observations appear directly to support the filtration hypothesis.

The *post-mortem* lymph flow following the injection of peptone is not accompanied by an increased venous pressure in the liver. It is due either to increased capillary permeability, or to changes produced in the liver by peptone—as shown by Kustnine—or to both these factors.

All the experiments were carried out on dogs, anaesthetized with the A.C.E mixture.

2. *Effects of Ligature of Hepatic Artery or Portal Vein.*

Conflicting results have been obtained by different observers after ligature of the hepatic artery; most of them obtained necrosis of the liver followed by death, whereas others found but little change. These divergences depend upon the fact that the liver receives arterial blood, not only from the hepatic artery, but also from numerous small collateral branches running in the gastro-hepatic omentum; these collaterals vary in number in different animal species, and even in different individuals of the same species. In his experiments ligature of the main trunk and all visible collaterals (in cats) caused death in twenty-four hours. Microscopically, the liver

cells were severely damaged, but necrosis was never observed. In all probability the liver cells still received a small amount of arterial blood.

Simple ligature of the main hepatic artery deprives the liver of most of its arterial blood, and greatly lessens the supply of oxygen to the cells. After this operation there was a marked increase in the fat in the liver cells; the fat was most abundant in the inner part of the lobule, in which the liver cells were atrophied. The fat gradually disappeared after two or three weeks, as the collateral circulation developed.

A deficiency of arterial blood naturally tells most severely on the inner part of the lobule; and the presence of fat is no doubt a result of the lack of oxygen. In order to ascertain whether the fat arises by a proteid breakdown or is an infiltration, chemical analyses of the liver are in progress, but are not yet completed.

Ligature of a branch of the portal vein is followed by rapid atrophy of a large portion of the affected lobe; the inner portion of the lobules is especially affected. After a few weeks considerable fibrosis of the interlobular connective tissue takes place, as was observed by Solowieff.

The experiments were carried out on cats. Soudan III was used as the stain for fat in the histological examinations.

T. Gillman Moorhead, M.D.,

Demonstrator of Pathology and Anatomy, Trinity College, Dublin.

The Action of Lymphatic Extracts.

The work carried out in connexion with the grant for this purpose was in continuation of that which was reported last year, and in particular was devoted to an attempt to produce thymotoxic serums.

In the last paragraph of last year's report it was stated (1) that attempts were being made to "immunize" a goose against guinea-pig's thymus; and (2) that similar attempts were being made to immunize guinea-pigs against rabbit's thymus. These attempts were persisted in for over nine months. One goose received altogether the emulsified thymus gland of sixty-five guinea-pigs. The injections were given intraperitoneally, and on an average about two injections were given per week. During this process blood was taken on four occasions from the jugular veins, and was investigated with a view to determine whether it had acquired any specific properties. The serum was not found to have any specific agglutinating powers in connexion with emulsified thymus glands obtained from guinea-pigs, nor was it found to have any leucotoxic properties when tested with leucocytes on the warm stage. Injections of serum were also made intraperitoneally into guinea-pigs. The protocols of these experiments show that no special change was noticed. It is unnecessary to quote all the details, but one or two may be recorded as illustrations:

G. P. W. received two injections of goose serum (8 c.cm. and 4 c.cm.): killed a day after second injection. Spleen, thymus, and lymph glands normal. No blood changes during life.

G. P. M. received eight injections of goose serum, each 2 c.cm. in amount. The injections were given every second day. Death four days after last injection. During life there was a marked fall in the number of white cells from 11,000 per c.cm. to under 3,000 per c.cm., and they remained at this low level during the last week of life. There was also a gradual increase in the number of basophiles present in the blood from 0 per cent. up to 27 per cent. *Post mortem:* Spleen normal in size, Malpighian corpuscles prominent; thymus gland normal in every way; lymph glands universally enlarged and congested; bone marrow showed unusual number of basophile cells; peritoneum thickened.

This was the only experiment in which any striking blood changes were found, and repetition on exactly similar lines did not give similar results. The records of other experiments, when the serum was given either in single large doses or in small repeated doses, show results as negative as that shown in G. P. W.

Several guinea-pigs were subjected to inoculations of emulsified rabbit thymi, and the serum of the former was collected after from ten to twenty injections. This serum was examined along lines similar to those mentioned above in connexion with the goose serum, but no thymotoxic or leucotoxic properties could be proved to exist. In all experiments the thymi of young animals were employed, and the serum injections also were made into young animals.

The general conclusion to be arrived at is that not only is it impossible to immunize rabbits against guinea-pig's thymi, but it is also impossible to immunize guinea-pigs against rabbits or geese against guinea-pigs.

Leonard S. Dudgeon, M.R.C.P., M.R.C.S.,

Louis Jenner Research Scholar; Director of the Clinical Laboratory and Bacteriologist, St Thomas's Hospital, London.

Phagocytosis in Peritoneal Infection.

An investigation has been carried out into the nature of the phagocytes which appear within the first twenty-four hours subsequent to the injection of certain micro-organisms, toxins, and non-bacterial substances. These investigations were made on the blood, bone-marrow, peritoneal exudate, and great omentum, subsequent to intraperitoneal injections of the following micro-organisms, toxins, and certain other substances—namely: *Staphylococcus pyogenes aureus, Staphylococcus albus, Streptococcus pyogenes, pneumococcus, Bacillus pyocyaneus, B. typhosus, B. coli, B. coli* killed by exposure to heat at 60° C. for twenty minutes, *B. aërogenes capsulatus, B. coli* after previous injection of morphine, filtered cultures of the *B. pyocyaneus*, a 2 per cent. sterile solution of neucleic acid, a sterile solution of normal saline, and a sterile suspension of finely-divided chalk in normal saline.

The inoculations were made into the peritoneal cavity of rabbits and guinea-pigs, which were killed at the end of the following intervals: fifteen minutes, one hour, two hours, four hours, six hours, and twenty-four hours. The blood was examined in every instance before and immediately after each injection of the above substances. The total count of leucocytes per cubic millimetre of blood, differential counts of 500 leucocytes, a differential count of 1,000 marrow cells, and a similar examination of the cells of the peritoneal exudate were made in every instance. In addition, the peritoneal fluid was examined in the fresh state and in the warm stage, and stained film preparations were also made from the great omentum.

The Great Omentum.—Three guinea-pigs received intraperitoneal injections, with strict bacteriological precautions, of sterile normal saline, and were killed at the end of two, four, and eight hours respectively. In every instance the peritoneal fluid was sterile, but the *Staphylococcus albus* was grown from the omentum. Seven guinea-pigs received intraperitoneal injections of a sterile suspension of chalk in normal saline, and were killed at the end of two, four, eight, and twenty-four hours respectively. In every instance the peritoneal exudate was sterile, but in six out of seven cases the white staphlococcus was cultivated from the great omentum.

The Blood.—The leucocytes were counted by means of the Strong-Seligmann method, and the film preparations were stained by our modification of Leishman's method. In addition to the enumeration of the leucocytes, as already mentioned, careful examination was made for englobing of the erythrocytes and ingestion of bacilli by the leucocytes.

The Peritoneal Exudate.—Fluid was present in a large number of all the early experiments and diminished in the twenty-four-hour cases, with the exception of those examples in which the peritonitis was due to the colon bacillus and the *Bacillus pyocyaneus*. In most instances the chief cell in the peritoneal fluid in the fifteen-minute experiments was either the small lymphocyte or the coarsely granular eosinophile, while in all other experiments the finely granular polynuclear cell predominated. Macrophages were frequently found in both the earlier and later instances. One of the most important phagocytes in the fifteen-minute, one-hour, and two-hour cases was the coarsely-granular eosinophile, which was very often found to be phagocytic, and in some examples a large number of these cells were phagocytic.

The Bone Marrow.—The bone marrow was examined in every experiment over a period of fifteen minutes up to and including twenty-four hours from the onset of infection, and the non-granular lymphoid type of cell was almost invariably found to be the most important leucocyte in these cases. Film preparations were made in each instance as soon as the animal died, and were stained by Mr. Dudgeon's modification of Leishman's method.

JOHN EYRE, M.D.,
BACTERIOLOGIST, GUY'S HOSPITAL.

Bacteriology of Pneumonia.

Dr. Eyre reports that he has (in association with Mr. A. N. Leathem) collected the results of some of the experiments carried out under his grant into a paper, on a study of different strains of pneumococci, with special reference to the lesions they produce, now in proof, and which will appear in the *Journal of Pathology and Bacteriology*. Further work in this connexion is in active progress, but is not yet sufficiently advanced for communication.

Malta Fever.

A paper embodying observations on the life-history of *Micrococcus melitensis* is in preparation and will shortly be ready. In the course of this work an operation table for animals which should be readily sterilizable was found indispensable, and as there was nothing suitable to be obtained at the time, one was designed and built which fulfilled all the requirements. This was shown at the November, 1905, meeting of the Physiological Society and described in its *Proceedings*.

DAVID NABARRO, M.D.,
ASSISTANT PROFESSOR OF PATHOLOGY AND BACTERIOLOGY, UNIVERSITY COLLEGE, LONDON.

Acid-fast Organisms in Butter.

Many Continental observers have examined butter for the presence of the *B. tuberculosis* and other acid-fast bacilli, but, so far as he is aware, there are no records of similar observations in this country. The earliest investigators, Brusaferro, Roth, Schuchardt, Gröning, and Obermüller, all found acid-fast organisms in butter, which they regarded as the true *B. tuberculosis*, relying solely, as they all appear to have done, upon the pathological lesions produced in injected guinea-pigs and without making cultures from those lesions or inoculation experiments from the infected into healthy animals. Rabinowitch[1] examined 30 butters in Berlin—inoculating 2 guinea-pigs with each sample—and 50 in Philadelphia, and in 23 out of the 80 cases, that is, in 28.7 per cent., she found in the inoculated guinea-pigs "lesions which macroscopically and microscopically resembled true tuberculosis, but could be easily distinguished from it on closer investigation." In none of the 80 cases was the true *B. tuberculosis* found.

Petri[2] about the same time examined 102 samples of butter, and found acid-fast bacilli in 71 = 69.6 per cent., but, unlike Rabinowitch, he found the true *B. tuberculosis* in 33 = 32.3 per cent.; in 17 cases the *B. tuberculosis* was present alone, and in 16 associated with the new acid-fast tubercle-like bacillus. This new acid-fast bacillus, now known as the Petri-Rabinowitch bacillus, was present in rather more than half the butters examined (54 out of 102 = 53 per cent.).

This number is very much higher than that obtained by Rabinowitch (28.7 per cent.), so that great variations in this respect seem to occur in different localities. His own results, which are at present founded upon a relatively small number of observations (twelve), show that the percentage of butters in London containing acid-fast organisms may be greater even than that obtained by Petri (11 times out of 12 = 91.7 per cent).

Method Adopted.—The butter was melted in a glass capsule at as low a temperature as possible, and 2 c.cm. injected with antiseptic precautions into the peritoneal cavity of a guinea-pig. As a rule two guinea-pigs were injected with each sample. The animals were then kept under observation and their weights taken at intervals. Those animals that had not previously died as a result of the pathogenic action of the butter were killed at varying periods (four to twelve weeks) after injection. Most of the guinea-pigs lost weight during the experiment, one animal falling from 750 grams to 500 grams in twenty-seven days. *Post mortem* one finds signs of peritonitis of a chronic plastic or caseating type, the kidneys being usually adherent to the liver and spleen, and the latter itself sometimes adherent to the diaphragm. The abdominal glands (lumbar, retro-peritoneal, gastric, retrohepatic, mesenteric) are often considerably enlarged, and nearly always caseous. Injection of this caseous material into a guinea-pig in two cases failed to show any evidence of true tuberculosis. Occasionally there were small nodules in the liver and spleen, but so far he has been unable to find any true giant cells or acid-fast organisms in sections of organs and tissues examined. No lesions were found in any other part of the body.

Summary of Results.—Twelve butters were examined, and acid-fast bacilli found in 11 (91.7 per cent.), either in films of the caseous matter or on cultivation. In all the 11 cases the typical abdominal lesions were found more or less marked, sometimes very closely resembling the lesions produced in the guinea-pig by the true *B. tuberculosis*, but in no case did he obtain unequivocal evidence of the presence of the true tubercle bacillus in any butter examined. In 6 out of the 12 cases acid-fast bacilli were found in both films and cultures. Five of the butters were sufficiently pathogenic to kill guinea-pigs in from seven to twenty-seven days.

The acid-fast bacilli isolated were not all alike. Some of them were the typical Petri-Rabinowitch bacillus, which may be distinguished from the true *B. tuberculosis* as follows (Rabinowitch):

B. tuberculosis.	*Tubercle-like Acid-fast Butter Bacillus*
1. Grows with difficulty and only at the body temperature.	Grows readily in two or three days and on all media. Growth is more profuse than tubercle, and takes place even at room temperature.
2. No colour.	Yellow to copper colour.
3. Pleasant fruity smell in broth.	Unpleasant ammoniacal odour.
4. No indol in glycerine broth.	Traces of indol, and the broth becomes very cloudy on the addition of acid.

One of his organisms was somewhat like a streptothrix and although acid-fast in smears and on cultivation, lost its acid-fast property on subculturing. It was red in colour and in several respects resembled a bacillus isolated by Markl from butter in Vienna.

He has not yet completed the investigation of the various acid-fast organisms isolated, but may refer to the fact that Tobler described five varieties of acid-fast bacilli as occurring in Zurich butter.

Although pathogenic for the guinea pig on intraperitoneal injection, it does not follow that such butters are harmful to human beings, for, as Rabinowitch and others have shown, these acid-fast bacilli which are pathogenic for the guinea-pig are not pathogenic for rabbits and white mice. These experiments show, however, that it is not sufficient to rely upon the lesions produced in animals in order to diagnose the presence of the *B. tuberculosis* in butter, milk, cheese, etc., but that in all cases in which lesions are found in the inoculated guinea-pigs, cultivations should be made and also if possible injections of emulsions of the diseased tissues into healthy animals.

In conclusion, Dr. Nabarro states that four samples of margarine bought at the same shops as some of the butters, were examined in a similar manner, with the result that no acid-fast organisms were found and the inoculated animals showed no lesions of any kind *post mortem*.

[1] Rabinowitch, *Zeitschrift für Hygiene*, 1897, vol. xxvi, p. 90.
[2] Petri, *Arbeiten aus der Kaiserlichen Gesundheitsamte*, 1898, p. 1.

PHARMACOLOGY.

G. S. HAYNES, M.B., B.C.Cantab.,
PHARMACOLOGICAL LABORATORY, UNIVERSITY OF CAMBRIDGE.

The Pharmacological Action of Digitalis, Strophanthus, and Squill.

The object of his research was to compare the actions of the three official cardiac tonics. In the first place it was necessary to obtain reliable preparations, and fresh tinctures were carefully prepared by a competent chemist. These were then standardized physiologically,[1] and it was found that whereas the tinctures of digitalis and squill were equally toxic, that of strophanthus was about nine times as toxic as either. The method adopted was the hypodermic injection of small doses of the drugs diluted with saline solution into the dorsal lymph sacs of male frogs. It appears that 2½ minims of the tincture of digitalis or squill diluted one-half should kill a male frog of 20 grams weight by arresting the heart in systole within two hours, but that to produce a like result only ¼ minim of the tincture of strophanthus is required. Equal quantities of the respective tinctures were introduced into the stomachs of pithed cats, and it was found that strophanthus arrested the heart in less than two hours, while digitalis and squill had no effect on the

[1] Dixon and Haynes, *Medical Magazine*, January, 1906.

blood pressure in more than that time. Digitalis caused considerable corrosion of the gastric mucous membrane, squill rather less, and strophanthus had hardly any irritant action at all. Experiments were also conducted on isolated mammalian hearts. The hearts of young rabbits were perfused with a Ringer-Locke solution, the drugs, in varying doses, added to the perfusing fluid, and their actions noted. It was found that squill has the most powerful action in increasing the output per minute from the heart, in that it induces a more vigorous and complete systole, which more than counterbalances the increased slowing. Strophanthus causes more slowing than the other two drugs, but does not increase the force of contraction to the same extent. Digitalis is inferior to squill in both respects.

Perfusion experiments were also conducted on hearts which had been previously subjected to the action of atropine, and it was found that these drugs acting on the atropinized heart cause very much less slowing than they do when acting on the normal heart.

By measuring the amount of fluid passing through the coronary arteries before and after perfusion by the drugs, the amount of constriction of the vessels was relatively determined. It appears that squill has most action in this respect, digitalis rather less, and strophanthus very little.

Summary of Results.

1. When standard tinctures of the three drugs, digitalis, squill, and strophanthus, are freshly prepared strictly according to the *British Pharmacopoeia*, then, supposing the toxicity of digitalis to be represented by one, squill will also be one, but strophanthus nine or ten.

2. These drugs all have a specific action on the heart, which can be divided into two stages: a first stage characterized by stimulation of the cardiac muscle and of the vagal nerve endings; and a second in which the tonus is much increased and the rate accelerated by the extension of the action on the muscle to the excito-motor area of the heart.

3. Tincture of squill differs in its action from the other drugs in the following ways:

(*a*) In therapeutical doses it increases the force of contraction to a considerably greater extent than either digitalis or strophanthus. Not only is systole more complete and prolonged, but diastole also.

(*b*) It slows the heart-beat more than digitalis, and, considering its relative toxicity, more than strophanthus. This, however, is its effect only so far as the peripheral vagal mechanism is concerned.

(*c*) It produces more vaso-constriction of the coronary vessels than either digitalis or strophanthus.

4. Tincture of digitalis is less efficient as a cardiac stimulant than squill, in that it has not the same effect in increasing the energy of contraction of the heart. Moreover, it is not possible by altering the relative dosage of digitalis to produce a stimulant effect in any way comparable to that of squill. Digitalis has less peripheral effect on the vagal mechanism than squill.

5. Tincture of strophanthus, being eight to ten times more toxic than the other two drugs, it is hardly fair to compare it with equal quantities of them. Such comparisons, however, serve to confirm the experiments made on frogs, showing the greater activity of this drug. With regard to its effect on the force of the heart-beat, strophanthus occupies a position considerably below squill, and rather less than digitalis. It slows the heart more than either of the two other tinctures in equal doses. In contradistinction to digitalis and squill, strophanthus has practically no action on the coronary vessels. At first it slightly increases the outflow from the coronary veins, the result of metabolites set free by the increased work of the heart. This drug is very apt to cause sudden death of the heart without previous excitation of the excito-motor area.

6. After previously atropinizing the excised heart, perfusion of these drugs causes very little decrease in the heart-rate. Their local action on the peripheral vagal mechanism is a large factor in the production of the usual slowing seen during their exhibition to patients.

7. To mucous membranes digitalis is the most irritant, then comes squill, while strophanthus has very little irritant action.

8. In any case in which it is desirable to raise the blood pressure and stimulate the heart, squill should be used in preference to the other two drugs.

Dr. Haynes wishes to take this opportunity of expressing his great indebtedness to Professor W. E. Dixon for much valuable advice and assistance, and to the Science Committee of the British Medical Association for their grant towards the expenses of this research.

Walter Malden, M.D.,
pharmacological laboratory, cambridge.

Pharmacology of Arsenic.

Experiments have been carried out as to the effect of arsenic in medicinal doses on composition of the blood and lymph: on the establishment of immunity to arsenic by gradually-increasing doses to dogs, with a view to proving how that immunity is produced.

A. R. Cushny, M.D.,
professor of pharmacology, university college, london.

Action of Drugs on the Uterus.

A considerable number of experiments have been performed on rabbits, cats, and dogs, to elucidate the action of drugs on the uterus. In some of these the movements were observed directly, but in the majority this was supplemented by graphic registration by means of a system of levers resembling a myocardiograph. The chief drugs examined were adrenalin, nicotine, pilocarpine, atropine, quinine, ergot, barium, and aloin. In the course of the analysis of their action it was found necessary to examine the effects of stimulation of the hypogastric nerves, anaesthesia, anaemia, and local mechanical and electrical stimulation. The action of several of these drugs—adrenalin, nicotine, and ergot—varied with the condition of the uterine nerves, and this proved to be different in different species, and also in different stages of gestation. A demonstration of some of these effects was given before the Physiological Society. He is continuing these researches, and hopes to publish the results in the near future.

W. H. Thompson, M.D.,
professor of physiology, trinity college, dublin.

Anaesthetics and Renal Activity.

The first part of his investigation was completed during the year, and the result published in full in the British Medical Journal, March 17th and 24th, 1906.

A continuation of the inquiry is in progress.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

CAMBRIDGE AND HUNTINGDON BRANCH.

The annual meeting was held at Peterborough on Thursday, June 14th. Dr. Kirkwood occupied the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Balance Sheet.—The balance sheet was adopted.

Next Annual Meeting.—It was decided to hold the next annual meeting at Cambridge.

Election of Office-bearers.—Mr. Deighton was elected President-elect. Mr. Morris, of Bishop's Stortford, was elected Representative of the Branch at the Representative Meeting. Mr. Apthorpe Webb was declared a member of the Central Council to represent this Branch and the East Yorkshire Branch. The following were elected members of the Branch Council: Dr. Giles, Dr. Fordyce, Dr. Griffiths.

Luncheon.—Following the business meeting members and friends to the number of 36 lunched together at the invitation of the President. The President gave the toast of "The King," after which he proposed the health of the out-going President, Dr. Humphry. Dr. Humphry suitably replied, and proposed "The President," thanking him for his hospitality.

Papers.—The following papers were then read at the Infirmary, after which those present partook of tea at the kind invitation of Dr. T. Walker, of Peterborough:

Dr. T. WALKER: After-history of cases shown before the Association at Peterborough in 1893. Dr. KIRKWOOD: (1) Cases of hereditary aniridia; (2) Photograph with short notes of a case of congenital anophthalmos; (3) Case of malformation of both external ears with absence of bony meatus; (4) Cases of talipes equino-varus treated by astragalectomy. Mr. ARTHUR COOKE, F.R.C.S.: The treatment of migraine by optical methods. Dr. LAURENCE HUMPHRY: A severe case of lead encephaly in a woman caused by taking "pills." Dr. T. WALKER: A case of strangulation of the intestine by true knotting of Meckel's diverticulum.

DORSET AND WEST HANTS BRANCH:
WEST DORSET DIVISION.

A MEETING was held at the County Hospital, Dorchester, on Wednesday, June 13th, at 3 p.m.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Election of Officers.—The following officers were elected: *Chairman*, P. W. MacDonald, M.D. (Dorchester); *Vice-Chairman*, J. F. L. Whittingdale, M.B. (Sherborne); *Honorary Secretary*, J. Comyns Leach, M.D. (Sturminster Newton); *Representative for Representative Meeting*, J. Comyns Leach, M.D. (Sturminster Newton); *Representatives on Branch Council*, D. Curme, W. E. Good, J. Comyns Leach, M.D., J. F. L. Whittingdale, M.B., P. W. MacDonald, M.D.; *Executive Committee*, W. G. Alexander, M.B., T. W. W. Bovey, D. Curme, G. J. W. Flower, W. E. Good, P. J. Kingston, J. Comyns Leach, M.D., W. Rendall, J. F. L. Whittingdale, M.B., T. H. E. Watts-Silvester.

Annual Meeting.—It was decided to hold the annual meeting of the Division in future in May instead of June, and at least a week before the annual meeting of the Branch.

Proposed Royal Charter.—The proposal to apply for a Royal Charter was discussed, and it was unanimously resolved to support that application.

EDINBURGH BRANCH:
SOUTH-EASTERN COUNTIES DIVISION.

THE annual meeting of this Division was held in the King's Arms Hotel, Melrose, on the afternoon of Friday, June 22nd, at 3 o'clock, Dr. CULLEN, Chairman, presiding.

Confirmation of Minutes.—The minutes of the spring meeting were read, approved, and signed by the Chairman.

Election of Officers.—The office-bearers for next year were elected as follows:—*Chairman:* Dr. Young (Earlston). *Vice-Chairman:* Dr. Bannerman (Hawick). *Honorary Secretary and Treasurer:* Dr. Calvert. *Representative at Representative Meetings:* Dr. Blair (Jedburgh). *Representative on the Branch Council:* Dr. Carlyle Johnstone. *Executive Committee:* Drs. Barrie, Dixon, Henderson (re-elected); Drs. Jeffrey, Cullen, Fleming (elected).

Annual Representative Meeting.—The agenda of the Annual Representative Meeting, to be held on July 24th and the following days, were read, and the members present instructed the Representative as to how he was to vote on the various matters coming up for discussion. He was specially instructed to vote against the appointment of all committees which would necessitate the services of a salaried officer, and in every way to curtail the expenditure of the Association.

The Expenditure of the Association.—Dr. HAMILTON then moved:

> That some measures should be adopted in order to curtail the increasing expenditure of the Association, and unanimously approve of the memorandum issued by the Lancashire and Cheshire Branch, and of Dr. T. Arthur Helme's endeavours to put the Association on a sound financial basis.

This was unanimously agreed to.

Autumn Meeting.—It was decided to hold the autumn meeting in Galashiels in September and to consider then the arrangements for the annual dinner in October.

GLASGOW AND WEST OF SCOTLAND BRANCH:
GLASGOW NORTH-WESTERN DIVISION.

THE annual meeting of this Division was held in the Hillhead Burgh Hall, 348, Byres Road, Glasgow, on May 30th. Dr. W. A. CASKIE (Chairman) presided.

Confirmation of Minutes.—The minutes of the last meeting were read and approved.

Drs. Carswell and Gilchrist.—Dr. MCGREGOR ROBERTSON read the statement of Committee appointed to consider the circumstances under which the action for damages was raised against Drs. Carswell and Gilchrist.—Dr. J. S. MUIR moved that the statement be adopted.—This was agreed to unanimously.—A discussion took place as to what further action should be taken.—After a division the amendment of Dr. McGregor Robertson was carried, and became the finding of the Division:

> That the statement be sent to the Glasgow and West of Scotland Branch, with the request that they advise the Division as to further steps in the direction suggested in the statement.

Election of Officers.—The following were elected office-bearers and members of the Executive Committee:—*Chairman:* Dr. Donald J. Mackintosh; *Vice-Chairman:* Dr. J. Galbraith Connal; *Secretary:* Dr. Henry Whitehouse: *Representatives to Branch Council:* Drs. Mackintosh and Whitehouse; *Representative for Annual Representative Meeting:* Dr. W. A. Caskie; *Members of the Executive Committee:* Drs. J. Baird, G. Burnside Buchanan, J. Donald, J. C. Edmiston, A. G. Hay, John Morton, and J. S. Muir.

Reports from Secretary.—Reports from the Secretary as to two meetings of the Executive; the first dealt with the questions submitted to members of Parliament, and he reported that no reply had been given by Mr. Robert Balfour, the returned member. There were four ordinary meetings, and three meetings of the Subcommittee on Drs. Carswell and Gilchrist's case.

Provisional Agenda.—The agenda was briefly considered. It was agreed to give a free hand to the Representative.

LANCASHIRE AND CHESHIRE BRANCH:
LIVERPOOL WESTERN DIVISION.

THE annual meeting of this Division was held on May 22nd at the Medical Institution, Mr. F. C. LARKIN in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Report of Executive Committee.—The annual report of the Executive Committee was then read and confirmed, giving the following account of the work of the Division in 1905, namely:—During the year 1905 various Bills and memoranda sent from the Central Council were considered, namely—the Draft Public Health Bill; the Death Registration and Coroner's Law; the Public Health Bill; the Revaccination Bill; the Reorganization of the Local Government Board in the Interest of Public Health; the Midwives Act; Incipient Insanity; Habitual Inebriety and Drug Habits; Poor-law Medical Officers in Scotland and Ireland; Medical Inspection of School Children; Pension for Asylum Workers; Security of Tenure for Public Vaccinators. At the forthcoming Parliamentary election a joint committee consisting of the secretaries of the five Divisions, under the chairmanship of Sir James Barr, decided at the suggestion of the Central Council to send various questions to the candidates for the divisional areas, and to register their answers. Owing to the scanty attendance at the meetings of all the Liverpool Divisions, it was resolved to hold a joint meeting in the form of a dinner. The Medical Secretary, Mr. Smith Whitaker, was invited to deliver an address on medical organization. This meeting was held on March 22nd, and was attended by fifty members.

Financial Report.—The financial report for the year was read and adopted.

Election of Officers.—The following were elected officers for the ensuing year:—*Chairman*, Mr. F. C. Larkin; *Secretary*, Dr. Karl Grossmann; *Other Members of the Executive Committee*, Sir James Barr, Drs. Allen, Hay, and Howard; *Representatives on Branch Council*, Mr. F. C. Larkin and Dr. Grossmann; *Representative for Representative Meeting*, Dr. Grossmann.

Annual Representative Meeting.—The provisional agenda for the Representative Meeting were then considered to No. 43, and the Representative instructed how to vote.

Adjournment.—The meeting then adjourned till May 29th.

Adjourned Meeting.—At the adjourned meeting held at the Medical Institution on May 29th at 4.30 p.m., Mr. LARKIN in the chair, the remaining portion of the provisional

agenda for the Representative Meeting was considered and the Representative instructed how to vote.

Stockport, Macclesfield and East Cheshire Division.

The annual meeting was held at the Macclesfield Infirmary on June 29th, Dr. A. Godson, President, in the chair.

Minutes.—The minutes of the last annual meeting were taken as read.

Report of Committee.—The annual report of the Executive Committee was presented, adopted, and ordered to be entered on the minutes. It contained the following expression of opinion on the financial condition of the Association: (1) That if all unnecessary expenditure is curtailed, and especially the publication of the *Year Book*, the financial position of the Association need occasion no alarm. (2) That the expenditure on organization, and especially in the department of the Medical Secretary is necessary and essential, and will be fully repaid by the material benefits resulting therefrom in the future to the profession generally. (3) That the chief source of financial anxiety arises from the policy of certain Divisions and of the Representative Meeting of instituting schemes and innovations entailing expenditure. This Committee therefore advocates the appointment of some finance committee to specially report on the probable cost of all new proposals before any action is taken.

Election of Officers.—The following were elected as officers for the ensuing year:—*President*, Dr. A. Godson: *Vice-President*, Dr. J. Somerville; *Representatives on Branch Council*, Drs. James B. Hughes and E. Rayner; *Honorary Secretary*, Mr. B. W. Housman: *Committee*, Drs. C. Averill, R. Proudfoot, E. J. Carruthers, and E. A. Goulding; *Representative at Annual Meeting*, Mr. B. W. Housman.

MIDLAND BRANCH.

The annual meeting of the Midland Branch was held at the County Hospital, Lincoln, on June 7th, the President, E. Mansell Sympson, M.D., in the chair.

Election of Officers.—The following were elected officers of the Branch for the ensuing year: *President-elect*, G. Lorrimer, M.D. (Buxton); *Vice-Presidents of the Branch*, Dr. Farrer, Dr. G. W. Shipman, Dr. Tibbles; *Members of Branch Council*, Drs. Wilson, Cassidi, Chawner, Moxon, St. John, Burkitt, Blakesley, Clarke, Gibbons, Lewitt, Broadbent, Harrison; *Representatives on Council of the Association*, W. A. Carline, M.D. (Lincoln), F. M. Pope, M.D. (Leicester); *Honorary Secretary of the Branch*, Dr. Sevestre, 119, London Road, Leicester.

Vote of Thanks.—A vote of thanks to the officers of the Branch for the past year was carried. Dr. Pope replied.

Proposed Merging of Divisions.—It was proposed and carried:

> That a recommendation be sent to the Organization Committee that the Boston and Spalding Division be merged into that of Lincoln, and that the Stamford Division, including Rutlandshire, should be merged into that of Leicester.

President's Address.—The President, Dr. E. Mansell Sympson, delivered the Presidential address, giving an interesting account of the life and accomplishments of Dr. Caius.—After a cordial vote of thanks to the President the meeting terminated.

SOUTH-EASTERN BRANCH:

Chichester and Worthing Division.

The annual meeting of this Division was held at the Infirmary, Chichester, on June 20th, Dr. Hinds presiding.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Next Meeting.—It was decided to hold the autumn meeting at Worthing.

Election of Officers.—The following officers were elected for the year:—*Chairman*, Mr. W. S. Simpson (Worthing); *Vice-Chairman*, Mr. E. H. Buckell (Chichester); *Honorary Secretary*, Dr. H. C. L. Morris (Bognor); *Representative*, Dr. Hinds (Worthing); *Representative on Branch Council*, Mr. Elliot Blake (Bognor); *Executive Committee*, Dr. Cameron (Worthing), Dr. Hinds (Worthing), Dr. Eustace (Arundel), Dr. Ewart (Chichester), Mr. Elliot Blake (Bognor).

Proposed Royal Charter.—The proposed application for a Royal Charter was discussed, and a resolution approving of the same was passed.

Proposed Medico-Political Committee.—A resolution was passed in favour of the formation of a Committee for the purpose of dealing with medico-political matters, subject to the consent of the Branch Council.

Cases.—After the meeting Dr. Ewart showed some interesting cases in the wards.

Eastbourne Division.

The annual general meeting for 1906 was held at the Grand Hotel, Eastbourne, on Thursday, May 24th, at 6.30 p.m., Dr. Adams presiding.

Confirmation of Minutes.—The minutes of the last annual general meeting were read and confirmed.

Election of Officers.—The following officers were elected for the ensuing year: *Chairman*, Dr. J. Adams; *Vice-Chairman*, Mr. C. O'Brien Harding; *Honorary Secretary*, Dr. William Muir Smith; *Representative on Branch Council*, Mr. J. H. Ewart; *Representative at Representative Meeting*, Dr. William Muir Smith (jointly with Hastings Division); *Executive Committee*, Mr. J. H. Ewart, Dr. H. S. Gabbett, Dr. C. H. Hayman, Dr. W. J. C. Merry, and Dr. A. P. Sherwood.

Vote of Thanks.—On the proposition of Mr. J. H. Ewart, seconded by Mr. C. O'Brien Harding, a hearty vote of thanks was unanimously passed to the retiring Honorary Secretary for his untiring services during the past six years. Dr. Merry suitably replied.

Dinner.—At 7.15 eighteen members sat down to dinner. After dinner the Chairman proposed the toast of "The King," which was loyally honoured. Dr. Marsden proposed the health of the Chairman, who responded in suitable terms. Mr. J. H. Ewart having alluded in eulogistic terms to the valuable services of the retiring Secretary, and Dr. Merry having gracefully acknowledged the compliment, the members thereafter retired to the library for tobacco and conversation.

Guildford Division.

The annual meeting of this Division was held at the Royal Surrey County Hospital, Guildford, on Wednesday, June 20th, at 4.30 p.m., Dr. A. Hope Walker, Vice-Chairman of the Division, being in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Election of Officers.—The following gentlemen were elected for the ensuing year: *Chairman*, Dr. George Fisher; *Vice-Chairman*, Dr. A. Hope Walker (re-elected); *Honorary Secretary and Treasurer*, Dr. E. J. Smyth (re-elected); *Representative for Representative Meetings*, Mr. G. Sichel; *Representative on Branch Council*, Dr. E. J. Smyth (re-elected); *Executive Committee*, Drs. Hudson, Kendall, Kingsford, Levick, Minchin, Morshead, Napper, Pearse, Sloman, Weaver, and Winstanley.

Annual Report.—The annual report and financial statement were submitted and adopted.

Annual Representative Meeting.—The agenda paper of the Annual Representative Meeting was laid before the meeting, but no discussion took place in regard to its contents.

Paper.—Mr. G. Sichel, F.R.C.S., read a paper entitled, Some Remarks on Radiotherapy, reviewing the present condition of our knowledge and the scope of the various forms of light treatment, namely, *x* rays, Finsen light, and radium, and made some reference also to the use of high-frequency currents. A discussion followed, and questions were asked by several members.

Cases, Specimens, etc.—Sections (macroscopic and microscopic) of an eye removed for sarcoma of the choroid were shown by Dr. E. J. Smyth, and short notes of the case were read.—Dr. Pearse gave a short account of the case of a young woman who had been under his care with obscure abdominal symptoms, from whose stomach a large hair-cast was removed in St. Thomas's Hospital.

Next Meeting.—It was agreed that the next meeting should be held in October, should be mainly clinical in its character, and should be followed by a dinner.

Votes of Thanks.—The meeting closed with votes of thanks to Mr. Sichel for his paper; to the Vice-Chairman

for acting as chairman during the past year: and to the Committee of the hospital for the use of the Board-room, and for kindly providing tea.

NORWOOD DIVISION.

THE annual meeting of the Division was held at the Art Club, Blackheath, on June 14th, at 4 p.m., Dr. GOODING, of Blackheath, in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Next Meeting.—It was proposed by Dr. BURGESS, and seconded by Dr. HOWARD, that the next meeting be held at Streatham in October or November, and that Dr. Steedman be invited to take the chair. This was carried *nem. con.*

Election of Officers.—The officers of the Division were then elected as follows: *Chairman*, Mr. H. C. Burton; *Vice-Chairman*, Mr. H. J. Prangley; *Representative at Representative Meetings*, Mr. J. Rand; *Representatives on Branch Council*, Dr. Hetley, Mr. Prangley; *Honorary Secretary*, Mr. A. W. Soper; *Executive Committee*, Dr. Annis, Dr. Bailey, Dr. Stewart, Dr. Burgess.

Report of Executive Committee.—The following report was then read: Your Executive Committee beg to report that during the year scientific meetings have been held at Blackheath, Streatham, and Norwood, each being followed by a dinner; clinical meetings at the Home and Infirmary for Sick Children, Sydenham, Norwood Cottage Hospital, Seamen's Hospital, and St. John's Hospital, and a special meeting at Norwood to discuss the Royal Charter. The attendances have only been fair, and the Committee would like to hear from members their wishes as to the number of meetings to be held during the ensuing year.

Papers.—The following papers were then read: Dr. C. R. BOX, Bronchiectasis in Children; Mr. W. ARBUTHNOT LANE, Defective Intestinal Drainage; Dr. WALTER W. H. TATE, Indications for the Surgical Treatment of Uterine Fibroids.

Dinner.—After the meeting eighteen members dined together.

SOUTHERN BRANCH:

PORTSMOUTH DIVISION.

THE adjourned annual meeting of this Division was held at 130, Commercial Road, Portsmouth, on June 13th.

Election of Officers.—The following officers were elected for the ensuing year: *Chairman*, Dr. B. H. Mumby; *Vice-Chairman*, Dr. C. P. Ruel; *Executive Committee*, Drs. J. Kyffin, S. Norman, J. A. Dove, J. Blackwood, C. Routh, W. Carling, J. L. Wright, M. Way, R. Emmett, and L. Maybury; *Representatives of the Division on the Branch Council*, Drs. C. C. Claremont, J. Green, and S. G. Blackman; *Representative in Representative Meetings of the Association*, Dr. J. Ward Cousins; *Secretary (pro tem.)*, Mr. C. P. Childe.

SOUTH-WESTERN BRANCH.

THE sixty-seventh annual meeting was held at the Royal Devon and Exeter Hospital on June 14th. Mr. GEORGE JACKSON, President of the Branch, occupied the chair.

Letters.—Letters of apology for non-attendance from Dr. Gordon and Dr. Thom were reported.

Confirmation of Minutes.—The minutes of the last annual meeting were read and confirmed.

Installation of New President.—The PRESIDENT then resigned the chair to the new President, Mr. E. J. DOMVILLE.

Vote of Thanks to Retiring President.—A vote of thanks to the outgoing President for his services during his year of office was carried by acclamation.

President's Address.—The PRESIDENT then delivered his inaugural address on reminiscences of surgery during the past thirty-six years, and a vote of thanks to him for the same was carried unanimously.

Report of Council and Financial Statement.—The report of the Branch Council and the annual financial statement were then read and adopted.

Election of Office-bearers.—The election of Mr. E. J. Domville and Dr. E. L. Fox as representatives of the Division on the Central Council was reported and confirmed. Mr. Russell Coombe was elected Honorary Secretary and Treasurer.

Vote of Thanks to Retiring Honorary Secretary.—A cordial vote of thanks to Mr. G. Young Eales (who did not seek re-election) for his services to the Branch as Honorary Secretary and Treasurer for the past five years was carried by acclamation and he was unanimously elected, as a past secretary, an *ex-officio* member of the Branch Council.

Luncheon.—Prior to the meeting the President-elect entertained the members of the Branch at luncheon.

Garden Party.—In the afternoon the members of the Exeter Division gave a garden party in the Palace Garden (kindly lent by the Bishop of Exeter) and croquet and golf were arranged for those wishing to play.

Annual Dinner.—The annual dinner of the Branch was held in the evening and was well attended.

WEST SOMERSET BRANCH.

THE sixty-fourth annual meeting of this Branch was held at the London Hotel, Taunton, on Friday, June 22nd. The chair was taken by the new PRESIDENT, Dr. R. Liddon Meade-King.

Confirmation of Minutes.—The minutes of the last meeting were read and signed.

Report and Balance Sheet.—The HONORARY SECRETARY read the sixty-third annual report and presented the balance sheet, which showed a balance in hand of £34 10s. 2d. These, on the proposition of Mr. RIGDEN, seconded by Mr. C. RANDOLPH, were adopted.

Election of Officers.—The following officers were elected: *President-elect*, Dr. G. W. H. Bird, of Bridgwater; *Representative*, Dr. J. A. Macdonald; *Honorary Secretary and Treasurer*, Mr. W. B. Winckworth. *Council:* This was re-elected, with the addition of Mr. R. W. H. Meredith in place of Mr. A. W. Sinclair, whose term of office had expired.

Ethical Committee.—The Council of the Branch was elected the Ethical Committee of the Branch.

President's Address.—The PRESIDENT read a paper on Notes from a Seventeenth Century Textbook of Medicine, after which, on the proposal of Dr. MACDONALD, seconded by Mr. J. BRICE BUNNY, a hearty vote of thanks was accorded to Dr. MEADE-KING for his exceptionally interesting and entertaining address.

Annual Representative Meeting.—The meeting proceeded to consider the agenda for the Annual Representative Meeting, but before much progress had been made it was proposed by Dr. H. T. RUTHERFOORD, and seconded by Mr. RIGDEN that as Dr. Macdonald possessed the confidence of the Branch he should be left free to vote according to his convictions. This, having the approval of the meeting, terminated the business before the Branch.

Luncheon and Golf Match.—Lunch was served at the London Hotel, and after lunch those present were driven to the Pickeridge golf links, where a match was played between the medical members of the Pickeridge Club and the rest of the Branch; they were also entertained to tea by the President, and spent a most enjoyable afternoon.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH:

WORCESTER DIVISION.

THE annual meeting was held at the Worcester Infirmary, on Monday, June 18th.

Confirmation of Minutes.—The minutes of the last annual meeting were read and passed.

Election of Officers.—Dr. East was elected *Chairman* for the ensuing year (proposed by Dr. CROWE, seconded by Mr. HOLBECHE.) Dr. Shirley Jones was elected *Vice-Chairman* (Mr. HOLBECHE proposed, Dr. DIXEY seconded). *Honorary Secretary*: Dr. CHARSLEY proposed and Mr. GOSTLING seconded that Dr. Watson be invited to act as Honorary Secretary of the Division. Carried. *Executive Committee*: Dr. READ proposed, and Mr. HOLBECHE seconded that the Executive Committee be re-elected with the addition of the name of Dr. Crowe. Carried. *Representative:* At the Representative Meeting of the Association Dr. CROWE proposed, and Mr. GOSTLING seconded, that Dr. Dixey be re-elected. Carried.

Report of Representative at last Annual Representative Meeting.—Dr. DIXEY accepted, and gave an account of his experience at the last Annual Representative Meeting.

Hospitals Out-patient Department.—This was discussed, and it was proposed by Mr. Cowan and seconded by Colonel Baird:

That this meeting approves of the question submitted to the Divisions for their consideration—namely, that there should be no out-patient departments in hospitals except for consultations and casualties, and that this opinion specially applies to hospitals whose staff are general practitioners.

Whereupon the following amendment was proposed by Dr. Crowe and seconded by Mr. Gostling and carried (11 for, 2 against):

That the question submitted is not practicable at the present time.

Proposed Royal Charter.—Dr. Crowe proposed and Dr. Horton seconded:

That this Division approves of the application of the Association for a Royal Charter.

This was carried unanimously.

Ethical Rules.—Dr. Read proposed and Dr. Charsley seconded:

That this matter be deferred until the next meeting, and that a copy of the draft Model Rules for Divisions be sent with the notices summoning the meeting.

Carried unanimously.

Vote of Thanks to Dr. Crowe.—Dr. Diney proposed and Dr. East seconded the following resolution:

That this meeting accepts with much regret the decision of Dr. Crowe not to seek re-election as Honorary Secretary, and desires to place on record its appreciation of the invaluable services he has rendered to the Association, and to accord to him on behalf of the Division its sincere thanks for the work he has so well done for so many years.

The motion was carried unanimously.

YORKSHIRE BRANCH.

The annual meeting was held at the Bradford Eye and Ear Hospital on Wednesday, June 13th; Dr. Black, President, in the chair. The minutes of the last meeting were read and adopted.

Election of Officers.—Dr. Mossop, President-elect, was elected President, and took the chair. It was decided to hold the next annual meeting at Dewsbury, and Dr. Lee was made President-elect. Dr. Goyder (Bradford) and Dr. Sinclair White (Sheffield) were elected Representatives on the Central Council. Dr. Bronner was re-elected Secretary and Treasurer.

Annual Report.—The following report of the Council for 1905 was read: During the year three meetings have been held, at Bradford, Harrogate, and Scarborough (a meeting of the Council only was held at Leeds in March), at which there has been an average attendance of about 40 members. At the annual meeting held at Harrogate, Dr. Black was elected President, and Dr. Mossop (Bradford) President-elect. Twenty-eight new members have been elected, and 11 added through change of address; 27 have been lost through death and resignation, and 18 through change of address, so that there has been a net loss of 6 members. The membership on December 31st, 1905, was 770. Capitation grants of 3s. per head have been made to the Bradford, York, and Scarborough Divisions. The expenses of the Leeds, Sheffield, Huddersfield, and Harrogate Divisions have been paid according to accounts sent in by the Secretaries. No expenses have been incurred by the Wakefield and Doncaster and Halifax Divisions. We began the year with a balance in hand of £149 4s. 3d., received from London £147 18s., bank interest £2 9s. 3d. The expenses of the various Divisions have been £58 8s. 6d., and of the Branch £19 7s., leaving a balance in hand of £211 16s. At the request of a number of medical men in the Richmond Division they have left the Yorkshire Branch, and have joined the Darlington Division of the North of England Branch. The Committee of the Wakefield and Doncaster Division decided, at their annual meeting last June, not to elect officers or to call any more meetings, owing to the apathy of the members of the Division. This was represented to the Medical Secretary of the Association, and arrangements were made for him to address a meeting of the Division and also to visit the Huddersfield, Halifax, and Sheffield Divisions. At the June meeting of the Council the following alteration of Rule 5 was proposed:

That no Division shall be entitled to more than one representative on the Central Council, and that no cumulative voting be allowed.

The Central Council, on receiving notice of this alteration, have taken legal opinion on the matter, and have sent to the Branch Council the following resolution:

That the Council do not approve the proposed new rule of the Yorkshire Branch with reference to the election of Representatives of the Branch on the Central Council.

The reason given being that it is not in the power of any Division to alter or modify the existing rules of the organization.

Grant to Division.—It was proposed and carried that a grant of £150 from the funds of the Branch be given to the Bradford Division should the annual meeting of the Association be held in Bradford in 1907.

Vote of Thanks to Dr. Black.—On the proposition of Dr. Major, seconded by Dr. Dolan, a vote of thanks was passed to Dr. Black, and he was elected a permanent Vice-President of the Branch.

President's Address.—Dr. Mossop read a most interesting address on "The Out-Patient Departments of Hospitals and their Abuse."

Papers and Cases.—Mr. Basil Hall showed a case of excision of the Gasserian ganglion, carcinoma of caecum removed by operation, carcinoma of transverse colon removed by operation, carcinoma of sigmoid removed by operation, intussusception removed by operation. Mr. Solly read a note on a case of rupture of the liver, operation, recovery. Dr. Bain read a paper on "A Further Experimental Contribution to the Treatment of Cholecystitis." Dr. Bronner showed cases of extradural abscess, cerebellar abscess, thrombosis of cavernous sinus, Moure's operation for deviation of the nasal septum, and Killian's operation for frontal sinus disease; also a number of recent mastoid cases, showing how quickly most cases heal without skin grafting. Dr. Little read a paper on Parinaud's conjunctivitis, with notes on a case; Dr. Tregelles Fox on "Plea for the Habitual Performance of Necropsies in General Practice"; and Dr. Ray on a case of obstructed labour due to pelvic neoplasm (with specimen).

Annual Dinner.—After the meeting about twenty-five members dined at the Midland Hotel.

Bradford Division.

The annual meeting of this Division was held at the Eye and Ear Hospital, Bradford, on Tuesday, June 12th, at 8.30 p.m. Dr. Mitchell (Chairman) presided.

Confirmation of Minutes.—The minutes of the last meeting were read and adopted.

Election of Officers.—The following officers were elected for the ensuing year: *Chairman*, Mr. Basil Hall; *Vice-Chairman*, Dr. H. J. Campbell; *Honorary Secretaries*, Drs. J. Metcalfe and A. Little (*Treasurer*); *Representatives on the Branch Council*, Drs. Bampton, Campbell, Hall, and Little; *Executive Committee*, Drs. and Messrs. Althorp, Berry (Keighley), Bronner, Clow, Craig (Bingley), Crowley, Eames, Goyder, Hunter (Pudsey), Mercer, Mitchell, Mossop, Oliver, Peck (Queensbury), Shaw (Liversedge), Sykes (Cleckheaton), Tunstall, Waugh (Skipton). *Ethical Committee*, the President and Secretaries and Drs. and Messrs. Althorp, Horrocks, Manknell, H. E. Taylor, Shackleton, J. W. Willson. Mr. Horrocks was re-elected as the *Representative of the Division in Representative Meetings of the Association.*

Report of Executive Committee.—Dr. Metcalfe then read the following report of the Executive Committee, which was unanimously adopted: Your Committee has much pleasure in submitting its third annual report on the work of the Bradford Division. A great deal has been done, a large number of questions have been considered, and it is a source of much satisfaction that a considerable amount of work has been accomplished in promoting scientific effort and the interests and honour of the medical profession. And it may be emphasized that it is no euphemism to characterize the interests and honour of the medical profession as identical with those of the general public. Sometimes a gentleman suggests at a meeting with trepidation that we ought to consider our own interests in approaching a subject, and occasionally he dissembles, on the attack of a fellow member apparently more austere and disinterested than himself; but let us have

no hypocrisy! We cannot forget that although we are all actuated by altruistic motives, incidentally it is necessary that we should live and keep our families in material comfort; and of this we should not be ashamed. Self-preservation is the first law of Nature, and no body of men can afford to forget it. But details are required. What has the Bradford Division done during this its third year of effort to justify its existence? Your Committee desires to admit its shortcomings, but to emphasize its good intentions. It must not be forgotten that the local body is an integral part of a great organization having its ramifications in almost every part of the habitable globe. Questions of policy apply to the whole Association; local requirements are limited to only a small area. But the Division has to consider questions from all quarters; and this in itself accounts for a great deal of the vast amount of work which the members have to discuss and give their decisions on. Altogether during the past year five meetings of the Division have been held at the Eye and Ear Hospital. Two more meetings have been held conjointly with the Medico-Chirurgical Society at the Bradford Royal Infirmary, and the Division has twice called the whole of the profession together at meetings held at the Victoria Hotel. It will thus be seen that the Division has inaugurated no less than nine general meetings during the past year. The Executive Committee has met nine times during the year, the Ethical Committee once. In addition to these meetings one subcommittee interviewed the Health Committee of the Bradford Corporation, and another interviewed the Mayor and Town Clerk in reference to the proposed meeting of the Association in Bradford in 1907. Two meetings of a special committee in connexion with contract club practice have taken place, and one subcommittee meeting was held to arrange the annual social event. The whist drive, supper and dance was another meeting which brought nearly eighty members of our profession and their wives together. It can be readily understood that the organization and recording of twenty-five meetings of one sort or another has been no light task, and this your Committee feels sure the members of the Division will appreciate. But the work will not be in vain if the dignity and emoluments of our profession and the interests of the public are commensurately advanced. Your Committee would like to specially draw attention to the invaluable work done by the subcommittees in connexion with the late Parliamentary elections. Nearly every candidate in the Bradford Division was interviewed by members of the subcommittees in connexion with numerous questions affecting the medical profession forwarded from the Central Body. The value of this educative force on Parliamentary candidates was enormous; and your Committee has no doubt that the efforts made will bear fruit at some not very remote date. During the past year a nucleus of a library for the Division has been obtained from the central library of the Association. Most of the books are old, but some are valuable, and as time goes on no doubt additions will be made to their numbers. As a temporary measure, the books have been lodged at the chambers of Mr. Basil Hall, Vice-President, where they may be seen at any time by members, but it is hoped that before long they may find a resting place in rooms belonging to the Division. Your Committee would wish to impress on every member of the Division the necessity for increasing its membership. Unity is strength, and we can act much more energetically if we have behind us a united profession. Every member should make an endeavour during the coming year to bring a new member into the Association. The present membership is 155, but it ought to be quite 100 greater than this number. The deputation appointed by the Division at its last meeting to interview the Council and invite the Association to hold its annual general meeting in Bradford in 1907 will go to London in July, and hopes to be successful. If it is, your Committee trusts that every member of the Bradford Division will make an especial effort to make that meeting a success. There is no doubt that a meeting of the Association in this city would be a means of stimulating the activity of our members generally to their own and the Association's advantage; and it ought to be a means of inducing a great influx of new members. Your Committee is glad to be able to state that the financial position of the Division is in a sound condition. The Yorkshire Branch has again allocated a grant of 3s. per member for the Divisional expenses. Your Treasurer will shortly lay a detailed account of the assets and expenditure of the Division before you. Your Committee cannot conclude its report without referring to the great courtesy and ability which the Chairman (Dr. Mitchell) has always shown in presiding over the Divisional meetings.

Balance Sheet of the Treasurer for the Year ending 1905-6.

CR.	£ s. d.	DR.	£ s. d.
Balance from 1904	6 9 4	January 2nd, postages ...	0 6 0
Cheque from the Branch	25 4 0	January 27th, Field and Sons	5 4 6
May 22nd, 1906, cheque from Dr. Parkinson ...	15 1 0	May 17th, Field and Sons	3 14 0
		May 17th, stamps	1 0 0
		July 15th, Field and Sons	4 0 0
		July 14th, Great Northern H. ... ... 1906.	0 3 6
		January 17th, books (B. H.)	1 1 0
		March 2nd, Field and Sons	12 13 6
		April 30th, Victoria H. ...	0 7 0
		June 1st, Dr. Metcalfe (Secretary's expenses) ...	1 0 0
			29 9 6
		Balance	17 4 10
	46 14 4		46 14 4

Nomination for Annual Meeting of Association, 1907.—The nomination and election of a proposed President-elect of the Association, if the invitation to the Council to hold the Annual General Meeting in Bradford in 1907 were accepted, then took place. Dr. HIME proposed Dr. J. H. Bell, but Dr. Bell did not see his way to accept the nomination. Dr. METCALFE proposed and Dr. EURICH seconded that Dr. H. J. Campbell should be nominated as President-elect. Dr. GOYDER proposed and Dr. HODGINS BROWN seconded the nomination of Dr. A. Bronner. The names were then balloted for, Dr. Campbell receiving the greatest number of votes. Dr. Campbell's name was then submitted to the meeting and received a unanimous vote. Dr. CAMPBELL returned thanks for the confidence reposed in him and promised if he were elected to do everything in his power to make the meeting in Bradford a great success.

Bradford Baths.—Dr. METCALFE then moved the following resolution:

> That the Bradford Division of the British Medical Association, whilst noting with satisfaction the decision of the Baths Committee of the Bradford Corporation that the various forms of medicinal bath treatment should only be carried out from medical prescription, trusts that it will be an order to the bath attendants to carefully fulfil the instructions given; and respectfully suggests to the Committee the desirability of limiting the electrical appliances for the treatment of disease strictly to the methods at present undertaken at the Central Baths.

Dr. Metcalfe drew attention to certain therapeutic measures adopted at the Bradford Baths which were to be deprecated. It was probable that the Baths Committee might before long be asked to add treatment by high-frequency currents to the other methods used. It had even been suggested that *x* rays and Finsen light treatment were legitimately within the scope of the work as carried on at the Central Baths. All these electrical therapeutic measures should remain absolutely in the hands of the medical profession. They had nothing whatever in common with water-bath treatment, and should never be used by bath attendants. He hoped that the Division would make a strong stand against these infringements of the prerogatives of the profession. It was suggested because these methods were only to be carried on through medical prescription that they might be legitimately adopted at the baths. This was no argument whatever. Bath attendants were not the class of people to carry out medical prescriptions. It was just as reasonable to ask medical men to write prescriptions for any other forms of medical treatment to be carried out by bath attendants as for these electrical methods, which were very dangerous in the hands of any other than qualified medical practitioners with the special knowledge required. Dr. EURICH seconded the resolution. Dr. HIME moved the following amendment:

> That in the opinion of this meeting it is highly undesirable that the City Council should carry on the treatment of disease for profit through officials at the Corporation Baths who are not legally qualified medical practitioners, who treat diseases which are not of an epidemic character;

that such practice is illegal, the Council having no powers authorising them to carry out such treatment; and that a copy of this resolution be forwarded to the Mayor, to the medical journals (*Lancet*, British Medical Journal, and *Medical Press and Circular*), and to the General Medical Council.

Dr. Mercer seconded. Dr. Hime quite sympathized with the tenor of the resolution, but he did not consider that it went far enough. He was strongly antagonistic to all forms of medical treatment carried on by bath attendants at the Central Baths. These forms of treatment were also illegal, as, without special powers, no corporation had the right to adopt them. Dr. Walker proposed another amendment, suggesting that the consideration of the matter should be adjourned On being put to the vote, Dr. Hime's amendment was carried. Dr. Goyder proposed:

That a deputation, consisting of Drs. Hime, Hall, Little, Goyder, and Metcalfe, should interview the Baths Committee in connexion with the matter.

This was carried.

Proposed Royal Charter.—Dr. Goyder then proposed, and Dr. Metcalfe seconded:

That the Division approved of the application for a Charter for the Association.

This was carried *nem. con.* The meeting then terminated.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

1906 ANNUAL GENERAL MEETING.

The Annual General Meeting of the British Medical Association will be held in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday July 24th at 10 o'clock in the forenoon.

ANNUAL REPRESENTATIVE MEETING.

The Annual Representative Meeting will take place in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday, July 24th, immediately after the Annual General Meeting, which will be held at 10 o'clock in the forenoon; on Wednesday, July 25th, at 10 a.m.; on Thursday, July 26th, at 10 a.m. if required; also on Friday, July 27th, at 10 a.m. if required.

BY ORDER OF THE COUNCIL,
GUY ELLISTON, *General Secretary.*

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

North Wales Branch.—The fifty-seventh annual meeting will be held at the Grand Hotel, Llandudno, on Wednesday, July 11th, at 2 p.m. Annual dinner at 5.30 p.m. prompt; tickets, 5s. each. The Branch Council will meet at 1.45 p.m. Agenda: (1) To read the minutes of the last meeting; (2) to read correspondence; (3) to introduce the President-elect; (4) to receive the report of the Branch Council; (5) to receive the report of "The Jones Morris Memorial Fund" and the recommendations of the Branch Council thereon; (6) to elect President for 1907-8; (7) to elect Honorary Secretary; (8) to report the election of Representative of the Branch on the Central Council; (9) to select places for the intermediate and annual meetings for 1907. The President will deliver his address. The following papers will be read:—R. H. Mills-Roberts, C.M.G., F.R.C.S.Edin. (Llanberis): Injuries of the Foot. W. Duncan Lawrie, M.D., F.R.C.S.Edin. (Llandudno): Some Deformities. J. E. Gemmell, M.B. (Liverpool): Tubal Abortion. J. Elliott, M.D., M.R.C.P. (Chester): Cases of Pneumothorax, with remarks on the treatment of the affection. W. Thelwall Thomas, F.R.C.S. (Liverpool): Acute Pancreatitis, with description of two cases. Hugh E. Jones, M.R.C.S. (Liverpool): Three Tumours of the Nose and Accessory Spaces. J. Lloyd Roberts, M.D., M.R.C.P. (Liverpool): The Treatment of Obesity.—H. Jones Roberts, Honorary Secretary, Penygroes, Carnarvon.

Oxford and Reading Branch.—The annual meeting of this Branch will take place at the library of the Royal Berkshire Hospital, at 5 p.m., on Saturday, July 7th. Dr. W. Osler, F.R.S., Regius Professor of Medicine at Oxford, will give a lantern demonstration of the General Morphology of Abdominal Tumours. Dr. E. L. Bevers, Dr. Malliam, Mr. Arthur Roberts, the President (Mr. H. G. Armstrong), and probably others, will exhibit patients or specimens. The dinner will be held at the Queen's Hotel, Reading, at 7 p.m., when members have the privilege of bringing guests.—W. T. Freeman, 30, Portland Place, London Road, Reading, Honorary Secretary.

CENTRAL MIDWIVES BOARD.

A meeting of the Central Midwives Board was held on June 28th at Caxton House, Westminster, with Dr. F. H. Champneys in the chair.

Disinfection of the Clothing of Midwives.

A letter was read from the Local Government Board forwarding a copy of a communication from Dr. Park, M.O.H. Dukinfield, as to the disinfection of the clothing of midwives who have been in attendance on cases of puerperal fever. After some discussion the matter was referred to the Standing Committee.

Examining in Welsh.

A letter from Dr. Walford, M.O.H. Cardiff, as to examining in Welsh was considered, and it was decided that Dr. Walford be asked to state whether, in his opinion, the difficulty experienced by certain Welsh candidates in taking their examination in English would be met by the presence of an interpreter at the oral examination.

Midwives sending for Medical Help.

A letter from Dr. Gordon, Honorary Secretary, Salisbury Division, British Medical Association, enclosing copy of a resolution passed by the Division as to the form of the record of sending for medical help, prescribed by Rule E 19 (*b*), was considered. The Board decided that Dr. Gordon be informed that the Board has already forwarded to the Privy Council for its approval a draft revision of the rules, which in part met the objections raised to Rule E 19 (*b*).

Proposed Examinations in Dublin.

The Board decided in regard to the question of holding examinations in Dublin that the Privy Council be informed that the Board has carefully considered the Memorandum handed to the Lord President during a recent visit to Dublin urging the holding of the Board's examinations in Dublin. The Board are of opinion that it is not within the contemplation of the Act that any action should be taken by them outside the area defined by the Act, and that therefore they would be acting *ultra vires* in holding any examination except at centres in England and Wales. The Board would point out that the proposal to increase the examination fee above the present fee of 1 guinea if the examination were held in Ireland is contrary to Section V of the Midwives Act. The Board suggests that as it is now proposed to defray the expenses of an examination in Dublin by a special contribution, the difficulty might be met by those interested in the matter paying the travelling expenses of candidates to a centre in England.

June Examination.

The following report of the Secretary of the Board on the June examination was received:

Analysis of Training Schools.

Training School.	Total.	Passed.	Failed.	Percentage of Failures.
LONDON.				
British Lying-in Hospital	6	6	0	0.0
City of London Lying-in Hospital	6	6	0	0.0
Clapham Maternity Hospital	7	3	4	57.0
East End Mothers' Home	11	8	3	27.2
General Lying-in Hospital	22	21	1	5.0
Greenwich Union Infirmary	4	3	1	25.0
Guy's Trained Nurses' Institution	5	4	1	20.0
Kensington Union Infirmary	2	2	0	0.0
London Hospital	3	3	0	0.0
New Hospital for Women	1	1	0	0.0
Plaistow Maternity Charity	35	26	9	26.0
Poplar, "Regions Beyond"	3	3	0	0.0
Queen Charlotte's Lying-in Hospital	18	15	3	16.6
Salvation Army Maternity Hospital	3	2	1	33.3
ENGLAND.				
Aldershot Louise Margaret Hospital	3	3	0	0.0
Birkenhead Ladies' Charitable Institution and Maternity Hospital	2	2	0	0.0
Brighton and Hove Hospital for Women	10	8	2	20.0
Bristol General Hospital	3	3	0	0.0
Bristol Royal Infirmary	6	6	0	0.0
Chatham Military Families' Hospital	1	1	0	0.0
Cheltenham District Nursing Association	4	4	0	0.0
Chester Benevolent Institution	4	2	2	50.0
Croydon Union Infirmary	1	1	0	0.0
Derby Nursing Association	5	4	1	20.0
Essex County Cottage Nursing Society	5	3	2	40.0
Gloucester District Nursing Society	6	6	0	0.0
Hull Lying-in Charity	2	2	0	0.0
Ipswich Nurses' Home	3	2	1	33.3
Kingswood Cottage Nurses' Home	5	2	3	60.0
Liverpool Ladies' Charity and Lying-in Hospital	9	7	2	22.2
Liverpool Workhouse Hospital	7	7	0	0.0
Liverpool Walton Workhouse	4	2	2	50.0
Manchester Chorlton Union	1	0	1	100.0
Manchester St. Mary's Hospitals	20	17	3	15.0
Newcastle Lying-in Hospitals	6	5	1	16.6
Portsmouth Military Families' Hospitals	1	1	0	0.0
Sheffield Jessop Hospital	5	3	2	40.0
Sheffield Union Hospital	2	1	1	50.0
West Ham Union Infirmary	3	3	0	0.0
WALES.				
Cardiff Q. V. J. N. Institute	4	1	3	75.0
Cardiff Union Infirmary	1	1	0	0.0
Newport and Monmouthshire Hospital	6	4	2	33.3
SCOTLAND.				
Dundee Maternity Hospital	3	3	0	0.0
Edinburgh Royal Maternity Hospital	6	5	1	16.6
Glasgow Eastern District Hospital	1	1	0	0.0
Glasgow Western District Hospital	2	2	0	0.0
Glasgow Maternity Hospital	7	7	0	0.0
IRELAND.				
Belfast Union Maternity Hospital	10	7	3	30.0
Dublin Rotunda Hospital	5	3	2	40.0
	289	232	57	19.7
Private Tuition.				
Baker, A. E.	1	1	0	0.0
Brice, H. D.	4	3	1	25.0
Calder, A. B.	14	11	3	21.4
Christie, W. L.	4	4	0	0.0
Daniels, E. G.	2	2	0	0.0
Evans, Evan	1	0	1	100.0
Fairbairn, J. S.	9	8	1	11.0
Fraser, H. P.	1	1	0	0.0
Griffith, G. de G.	2	2	0	0.0
Harcourt, G. R.	2	2	0	0.0
Howard, H.	2	2	0	0.0
Maclean, E. L.	5	2	3	60.0
Macphee, Angus	1	1	0	0.0
Miles, C. H.	1	0	1	100.0
Norton, E. C.	1	1	0	0.0
Pinsky, T.	2	1	1	50.0
Price, G. B.	1	1	0	0.0
Skeen, F.	5	2	3	60.0
Robinson, F. and L. Lilley	2	2	0	0.0
St. Aubyn-Farrer, C.	13	10	3	23.0
Slater, B. H.	5	4	1	20.0
Smith, A. Lionel	3	3	0	0.0
Thatcher, C. H.	1	1	0	0.0
Winterhouse, W. H.	2	2	0	0.0
Whittle, H. W.	1	1	0	0.0
Wingfield, H. E.	1	1	0	0.0
Worthington, R. T.	1	0	1	100.0
	87	68	19	21.8
Total	373	300	76	20.2

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: JAMES P. B. WILLIAMS, M.D., Deputy Inspector-General, to Chatham Hospital, temporary, June 28th; EVELYN R. TOWNSEND, Surgeon, to the *Sapphire*, July 3rd.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL W. T. JOHNSTON, M.D., retires on retired pay, July 4th. He was appointed Surgeon, August 5th, 1877; Surgeon-Major, August 5th, 1899; granted the rank of Lieutenant-Colonel, August 5th, 1897; and selected for increased pay, November 15th, 1899. According to *Hart's Army List*, he served in the Egyptian war in 1882 in medical charge of the 1st Battalion South Staffordshire Regiment and was present in the reconnaissance in force from Alexandria on August 5th (medal, and Khedive's bronze star); with the Bechuanaland Expedition in 1884-5; and with the Chin-Lushai Expedition in 1889-90 (medal with clasp).

ARMY MEDICAL RESERVE.

SURGEON-CAPTAIN J. S. MACKAY, M.D., to be Surgeon-Major, June 23rd. Surgeon-Lieutenant L. A. AVERY to be Surgeon-Captain, June 24th.

INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL G. H. BULL, M.D., Bombay Establishment, has been appointed to officiate as Principal Medical Officer, 4th (Quetta) Division, *vice* Colonel J. M'Cloghry, on leave.

Colonel F. H. BENSON, M.B., Madras Establishment, Principal Medical Officer, Bangalore and Southern Brigades, is granted the temporary rank of Surgeon-General while officiating as Surgeon-General with the Government of Madras, from April 30th.

MILITIA INFANTRY.

THE retirement of Surgeon-Lieutenant-Colonel T. CARTER, 4th Battalion, Alexandra, Princess of Wales's Own (Yorkshire Regiment), bears date May 14th, 1906, and not May 5th, as announced in the *London Gazette* of May 4th.

ROYAL GARRISON ARTILLERY (VOLUNTEERS).

SURGEON-MAJOR A. M. ARCHER, M.D., 1st Cheshire, is granted the honorary rank of Surgeon-Lieutenant-Colonel, June 29th. He resigns his commission from June 30th, retaining his rank and uniform.

VOLUNTEER RIFLES.

WILLIAM F. M'ALLISTER-HEWLINGS (formerly Captain) to be Surgeon-Lieutenant in the 1st Volunteer Battalion the Leicestershire Regiment, June 30th.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

CAPTAIN A. W. DALBY, Gloucester and Somerset Bearer Company, to be Major, June 30th.

CHANGES OF STATIONS.

THE following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during May, 1906:

	FROM	TO
Colonel G. D. N. Leake	Lucknow	Naini Tal.
,, H. J. W. Barrow	Mian Mir	Dalhousie.
,, O. E. P. Lloyd, V.C.	Dover	Jubbulpore.
Lieut.-Col. W. Babtie, C.M.G., M.B.	London Dist.	Woolwich.
,, H. K. Allport, M.D.	Bulford	Egypt.
,, J. M. Irwin, M.B.	London	War Office.
,, W. A. Morris	Sialkot	Murree.
,, C. R. Bartlett	—	W. Africa.
,, R. J. Geddes, D.S.O., M.B.	Maryhill	Aldershot.
,, J. Meek, M.D.	Kirkee	Poona.
,, T. Daly	Eastern Command.	Warley.
,, J. J. O'Donnell	Leeds	N'castl-on-Tyne
Major J. S. Davidson, M.B.	Parkhurst	Woolwich.
,, A. K. Aldridge, M.B.	London Dist.	India.
,, J. J. Russell, M.B.	Rawal Pindi	Sialkot.
,, R. Holyoake	Mian Mir	Solon.
,, B. H. Scott	Rawal Pindi	Murree.
,, W. C. Poole, M.B.	Waterford	Cork.
,, C. R. Elliott, M.D.	Poona	Dublin.
,, J. C. Weir, M.B.	London Dist.	Malta.
,, A. L. Borrodaile, M.B.	Brecon	Trawsfynydd.
,, W. T. Mould	Delhi	Kailana.
,, L. Way	Caerwent	Cawnpore.
,, G. A. T. Bray	Aldershot	Ranikhet.
,, J. C. O'Connor, M.B.	Portsmouth	Winchester.
,, J. C. Jameson, M.B.	Woolwich	Egypt.
,, N. Tyacke	Jutogh	Mian Mir.
,, H. A. Hinge	Indore	Kirkee.
Captain R. S. H. Fuir, D.S.O.	Rawal Pindi	Murree.
,, R. Selby, M.B.	Woolwich	Meerut.
,, A. E. Thorp	Taunton	Devonport.
,, H. B. G. Walton	Devonport	Exeter.
,, J. E. Hodgson	Calcutta	Ranikhet.
,, L. Wood	Eastern Command	Woolwich.
,, H. S. Roch	Ballincollig	Fermoy.
,, A. F. Carlyon	Devonport	Okehampton.
,, J. Powell, M.B.	Eastern Command	Woolwich.
,, J. G. Foster, M.B.	Dublin	Belfast.
,, H. B. Fawcus, M.B.	Scarborough	York.
,, C. H. Straton	Brighton	Dover.
,, G. Carroll	Cahir	Limerick.
,, G. J. Houghton	Calcutta	Barrackpore.
,, A. D. Waring, M.B.	Belfast	Ballykinder Camp.
,, A. F. Weston	Woolwich	Colchester.

		FROM		TO.
Captain	A. C. Adderley	...	York ...	Scarborough.
,,	W. B. Fry... ...	...	Eastern Comd.	Dover.
,,	C. R. L. Rouayne, M.B.	...	Barrackpore ...	York.
,,	R. F. Ellery	...	Allahabad ...	Southern Com.
,,	W. J. Waters	...	Meerut ...	Kailana.
,,	W. R. P. Goodwin ...	...	Rawal Pindi ...	Murree.
,,	A. R. C. Parsons ...	...	Southern Com.	Tidworth.
,,	M. W. Falkner	...	Lucknow ...	Fatehgarh.
,,	R. N. Woodley	...	Kilworth ...	Queenstown.
,,	J. H. Barbour, M.B. ...	...	Londonderry .	Ballynarry Cp.
,,	F. E. Rowan-Robinson, M.B.		Belgaum ...	Bombay.
,,	J. B. Clarke, M.B. ...	...	Agra	Chaubuttia.
,,	E. G. Ffrench, M.B. ...	...	Jamaica ...	Eastern Comd.
,,	A. McMunn	...	Ambala ...	Jutogh.
,,	E. V. Aylen	...	Southern Com.	Portsmouth.
,,	S. M. Adye-Curran ...	...	Dublin	Kilbride.
,,	B. A. Craig	...	Curragh ...	Glen Imaal.
,,	W. F. Tyndale, C.M.G., M.B.		Lucknow ...	Naini Tal.
Lieutenant	C. W. Holden	...	—	Bulford.
,,	B. G. Patch... ...	...	Ambala ...	Kasauli.
,,	F. M. M. Ommanney ...		Somaliland ...	Woolwich.
,,	F. J. Turner		Deolalee ...	Aden.
,,	L. Bousfield, M.B. ...		Malta	Egypt. Army.
,,	G. H. Turner		Sialkot	Rawal Pindi.
,,	W. Byam		Netley	Egypt.
,,	H. St. M. Carter, M.D. ...		Dublin	Malta.
,,	G. H. Richard		Lebong... ...	Calcutta.
,,	J. P. Lynch...		Barrackpore ...	Lucknow.
,,	C. P. Thomson, M.D. ...		Aldershot ...	Egypt.
,,	G. W. Heron		Millbank ...	,,
,,	T. H. Gibbon, M.D. ...		R. A. M. Coll. .	,,
,,	G. Ormrod, M.B. ...		Meerut... ...	Delhi.
,,	J. A. Anderson, M.B. ...		Millbank ...	Lark Hill Cmp.
,,	H. G. Sherren		,,	Bulford.
,,	R. A. Bryden		Aldershot ...	Longmoor.
,,	A. E. F. Hastings ...		Curragh ...	Dublin.
,,	F. C. Sampson, M.B. ...		Belfast	Finner Camp.

Major J. W. F. Long, retired pay, has been placed in medical charge at Dover Military Prison.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,441 births and 3,762 deaths were registered during the week ending Saturday last, June 30th. The annual rate of mortality in these towns, which had been 12·9, 12·9, and 13·2 per 1,000 in the three preceding weeks, declined again last week to 12·4 per 1,000. The rates in the several towns ranged from 5·2 in Tottenham, 6·4 in East Ham, 6·6 in Hornsey and in Reading, 6·8 in Grimsby, 7·6 in Southampton, and 7·8 in Wolverhampton, to 16·1 in Gateshead, 16·2 in Halifax, 16·3 in Manchester, 16·7 in Ipswich, 18·2 in Middlesbrough, 19·2 in Oldham, and 21·5 in South Shields. In London the rate of mortality was 11·7 per 1,000, while it averaged 12·6 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1·2 per 1,000 in the seventy-six towns; in London, also, this death-rate was equal to 1·2 per 1,000, while among the seventy-five large provincial towns the rates ranged upwards to 2·4 in Bootle and in Wigan, 2·6 in Liverpool, 2·6 in Leyton, 2·8 in Manchester, 2·8 in Salford, 3·3 in Halifax, and 3·6 in Burnley. Measles caused a death-rate of 1·7 in Manchester, 2·9 in Halifax, and 3·0 in Burnley; scarlet fever of 1·1 in St. Helen's; diphtheria of 1·3 in Salford and 1·6 in Hull; whooping-cough of 1·6 in Bootle; and diarrhœa of 1·6 in Handsworth (Staffs.) and 1·8 in Wigan. The mortality from enteric fever showed no marked excess in any of the large towns, and no deaths from small-pox were registered during the week. The number of small-pox patients under treatment in the Metropolitan Asylum Hospitals, which had been 6, 7, and 13 at the end of the three preceding weeks, had declined again to 11 at the end of last week; no new cases were admitted during the week, the numbers being 1, 1, and 7 in the three preceding weeks. There were 2,752 scarlet fever patients in these hospitals and in the London Fever Hospital at the end of last week, against 2,603, 2,677, and 2,692 at the end of the three preceding weeks; 356 new cases were admitted during the week, against 344, 355, and 380 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, June 30th, 1,022 births and 497 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 15·6, 15·8, and 16·0 per 1,000 in the three preceding weeks, declined again to 14·5 per 1,000 last week, but was 2·1 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 11·9 in Aberdeen and 12·0 in Leith to 15·2 in Dundee and 21·1 in Perth. The death-rate from the principal infectious diseases averaged 1·7 per 1,000 in these towns, the highest rates being recorded in Glasgow, Edinburgh, and Aberdeen. The 238 deaths registered in Glasgow included 7 which were referred to measles, 2 to scarlet fever, 4 to diphtheria, 4 to whooping-cough, and 9 to diarrhœa; there were also 8 fatal cases of cerebro-spinal meningitis. Three deaths from measles, 2 from diphtheria, and 7 from diarrhœa occurred in Edinburgh; and 3 from whooping-cough and 3 from diarrhœa in Aberdeen.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, June 30th, 579 births and 289 deaths were registered in six of the principal Irish towns, as against 611 births and 328 deaths in the preceding period. The annual death-rate in these towns, which had been 17·8, 19·9, and 15·1 per 1,000 in the three preceding weeks, rose to 15·4 per 1,000 in the week under notice, this figure being 3·2 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 10·9 in Limerick and 11·7 in Waterford to 18·5 in Cork and 19·8 in Londonderry. The zymotic death-rate during the same period and in the same six Irish towns averaged 2·0 per 1,000, or 1·1 per 1,000 higher than during the preceding period, the highest figure, 7·4, being recorded in Londonderry, while Cork and Limerick registered no deaths under this heading at all. The high rate in Londonderry was due to measles.

BRITISH MEDICAL ASSOCIATION LIBRARY.

Books Needed to Complete Series:

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

American Climatological Transactions. Vols. 1, 4, 5, 6.
——— Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
——— Journal of the Medical Sciences. New series, vols. 4, 5, 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 33, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
——— Journal of Ophthalmology. Vols. 1-9.
——— Laryngological Association. Transactions. Vols. 1-6, 8-9.
——— Medical Association. Transactions, 1-28, 30, 31.
——— Otological Society. Transactions. Vol. 3, part 2, 1883.
——— Public Health Association. Transactions. Any vols.
Analyst. Vols. 1-24.
Archiv für Dermatologie und Syphilis. Prior to 1874, 1892, and 1893.
Annals of Surgery. Vols. 1, 11, 13-16, and 26, 27.
Archives Générales de Médecine. 1831-9 inclusive; 1846-55 inclusive; 1857-64 inclusive; 1871.
——— of Ophthalmology. Vols. 1-3, 6, 7, 14, 15, 16 and 20.
——— of Otology. Vols. 1-7, and 20-22.
——— de Parasitologie. Vols. 1-8.
——— of Pediatrics. Vols. 1-11.
Asylum Journal of Mental Science. Vol. 1, 1854.
Bentley and Trimen. Atlas of Medicinal Plants.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BANBURY: HORTON INFIRMARY.—House-Surgeon. Salary, £80 per annum.

BURNLEY: VICTORIA HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynæcology. Salary, £400 per annum.

CANCER HOSPITAL, Fulham Road, S.W.—Honorary Medical Officer in charge of the Electrical Department.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Male House-Physician. Salary at the rate of £50 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Assistant House-Surgeon. Salary, £30 for six months.

GLOUCESTER: GENERAL INFIRMARY.—Assistant House-Surgeon. Salary at the rate of £30 per annum.

GREAT NORTHERN CENTRAL HOSPITAL.—Ophthalmic Surgeon to Out-patient Department.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House Physician; (2) Assistant Casualty Medical Officer; (3) Radiographer. Salary for (1) and (2), £20 each for six months.

HULL: ROYAL INFIRMARY.—Casualty House-Surgeon. Salary, £50 per annum.

LEEDS UNIVERSITY.—Lecturers in (1) Dental Surgery; (2) Operative Dental Surgery; (3) Dental Anatomy and Physiology; (4) Dental Mechanics.

LITTLEMORE PAUPER LUNATIC ASYLUM, near Oxford.—Second Assistant Medical Officer. Salary, £150.

LIVERPOOL STANLEY HOSPITAL.—Lady Honorary Medical Officer for Women's Diseases.

METROPOLITAN WATER BOARD.—(1) Junior Chemical Assistant. (2) Junior Bacteriological Assistant. Salary, £150, rising to £200 per annum each.

NEWHAVEN UNION.—(1) District Medical Officer and Public Vaccinator; (2) Medical Officer to the Workhouse. Salary for (1), £90 per annum and fees; for (2), £70 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House-Surgeon. Salary at the rate of £50 per annum.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester Square, W.C.—Demonstrator in Mechanical Pupils' Department. Stipend, £120, rising to £150.

SHEFFIELD ROYAL HOSPITAL.—Male Assistant House-Surgeon. Salary, £50 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary, £70 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeon at Staindrop, co. Durham; Whaley Bridge, co. Chester.

APPOINTMENTS.

CRITCHLEY, Harry G., M.A., M.D., Electro-Therapeutist to the Miller Hospital, Greenwich.

DUNNO, Miss M. W., M.B., B.Ch.Aberd., Resident House-Surgeon to the East End Children's Hospital, Sheffield.

GORNALL, T. B., M.B., Ch.B.Edin., District Medical Officer of the Kingston Union.

GRAY, A. M. H., M.D., B.S.Lond., Resident Medical Officer to University College Hospital.

HEWER, H. McD., M.B., C.M.Edin., District Medical Officer of the Spalding Union.

HUSTLER, G. H., M.B., Ch.B.Leeds, Assistant House-Surgeon at the Royal Devon and Exeter Hospital, Exeter.

McKANE, G. O., L.R.C.P.Edin., L.F.P.S.Glas., District Medical Officer of the Grimsby Union.

ROSE, Frank A., F.R.C.S., Surgeon to the Ear and Throat Department, with charge of out-patients, at the Great Northern Central Hospital, Holloway.

SALMON, A. G., M.D., B.S.Lond., Medical Officer of Health to the Bodmin Rural District.

SHEPHERD, John, M.A., M.B., Physician to the Ayrshire County Sanatorium at Glenayton, New Cumnock.

SMITH, S. Maynard, M.B., B.S.Lond., F.R.C.S.Eng., Surgeon in charge of out-patients to St. Mary's Hospital.

SUTHERLAND, J. R., M.B., Ch.B.Glas., Junior House-Surgeon at the Blackburn and East Lancashire Infirmary.

TRIBE, R. H., M.R.C.S., L.R.C.P., Anaesthetist to the Victoria Hospital for Children, Chelsea.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

EYRE.—On June 7th, at Holmesdale, Waudsworth Common, to Dr. and Mrs. Eyre, a son.

MASSON.—At Bankipore, Patna, Bengal, on June 3rd, the wife of Captain James Masson, M.B.Edin., M.A., B.Sc., I.M.S., of a son.

MARRIAGES.

WHARTON-ORME.—June 28th, at the Baptist Church, King Street, Oldham, by the Rev. J. T. Marshall, D.D., Principal of the Baptist College, Manchester, assisted by the Rev. Stuart Caldwell, Pastor of the church, Alwyn Wharton, M.B., Ch.B., eldest son of Dr. Wharton of Oldham, to Katie, only daughter of Daniel Orme, Wellington House, Oldham. (At home, 102, King Street, Oldham, August 14th, 15th, 16th.)

WILLETT-SERRIDGE.—June 26th, at St. Bride's Church, Catharine Street, Liverpool, by the Rev. James J. Addenbrooke, M.A., Vicar of Whixall, Salop, assisted by the Rev. Henry Moody, M.A., Vicar of Welshampton, Salop, the Rev. G. H. Lunn, Vicar of St. Mary Magdalene's, Liverpool, and the Rev. S. E. Dymott, of St. Bridget's, Wavertree, James Hayward Willett, M.B., Ch.B., to Gertrude Eileen Serridge, youngest daughter of George H. Serridge, Esq., The Ridge, Durban, South Africa. (At home, at 25, Catharine Street, July 31st to August 4th. South African papers please copy.)

DIARY FOR THE WEEK.

TUESDAY.

SOCIETY FOR THE STUDY OF INEBRIETY, 11, Chandos Street, Cavendish Square, W., 4 p.m.—The Rev. Canon J. W. Horsley, M.A. (late and last Chaplain of H.M. Prison, Clerkenwell), will open a discussion on The Relations of Inebriety and Crime.

THURSDAY.

BRITISH GYNAECOLOGICAL SOCIETY, 20, Hanover Square, W., at 8 p.m.—Specimens by Dr. Macnaughton Jones, Dr. Jervois Aarons, Dr. Maunsell. Paper, Dr. James Oliver: A Study of Hydatidiform Mole, with records of three typical cases. Dr. Macnaughton Jones: Remarks on Closure of Small Recto-Vaginal Fistula involving the Sphincter.

FRIDAY.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos Street, W., 8 p.m. Card specimens; 8.30 p.m., Papers—Mr. W. F. Holmes Spicer: Intraocular Infectives. Mr. A. R. Brailey: Congenital Distichiasis. Mr. C. H. Usher (Aberdeen): A Note on the Choroid at the Macular Region.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Nose.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinical Demonstrations in Medicine and Surgery 2.30 and 3.15 p.m. respectively on Monday, Tuesday, Wednesday, Thursday, and Friday: Throat and Ear, 4 p.m., Monday; Skin, 4 p.m., Tuesday; Ophthalmology, 4 p.m. Wednesday; Radiography, 4 p.m. Thursdays. Out patient Demonstrations, Medical and Surgical, 10 a.m. daily. Throat and Ear, noon Monday and Thursday; Eye, 11 a.m. Wednesday. Skin, noon Friday. Operations, 2.30 p.m. daily.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin: Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Eye. Lectures at 5.15 each day will be given as follows: Monday, Blepharitis. Tuesday, Some Points in the Treatment of Epilepsy. Wednesday, Pulse Tracings and their Clinical Significance. Thursday, Peritonitis in Children.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Speech Defects. Friday, 3.30 p.m., Surgery of the Nervous System.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.—Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X-rays; 2.30 p.m., Operations. Mondays and Thursdays, Eyes. Tuesdays and Fridays, 2 p.m., Skin. Tuesdays and Fridays, 2 p.m., and Wednesdays and Saturdays, 10 a.m., Throat, Nose, and Ear. Wednesday, 10 a.m., Diseases of Children. Lectures at 5 p.m. Monday, Ocular Diseases of Childhood, and their Treatment. Tuesday, Retrolexion: Symptoms and Treatment. Wednesday, Practical Medicine. Thursday, Practical Surgery. Friday, Anaesthetics and their Administration.

BOOKS, ETC., RECEIVED.

Aus der Universitäts-Massageanstalt an der Kgl. Charité. Unter Leitung des Prof. Dr. J. Zabludowski. Zur physikalischen Therapie der habituellen Obstipation und der sexuellen Neurasthenie. Von Prof. Dr. J. Zabludowski. Berlin: A. Hirschwald. 1906. M. 1.

Consumption, Its Relation to Man and His Civilization, Its Prevention and Cure. By J. B. Huber, A.M., M.D. Philadelphia and London: J. B. Lippincott and Co. 15s.

Physical Efficiency. By J. Cantlie, M.A., M.B., D.P.H. London and New York: G. P. Putnam's Sons. 1906. 3s. 6d.

The London Manual for 1906. Edited by R. Donald. London: E. Lloyd, Ltd. 1906. 1s. 6d.

Klinik für psychische und nervöse Krankheiten. Herausgegeben von R. Sommer. I. Band. 2 Heft. Halle a.S.: C. Marhold. 1906. M. 3.

The Care of Children. By R. J. Blackham, D.P.H. Revised edition. London: The Scientific Press, Ltd. 1s. 6d.

Health Talks About Children (An Appeal for the Child). By J. Grimshaw, M.D., B.S., D.P.H., M.R.C.S. Birkenhead: Brimmell's Printing Works. 1906. 1s.

London: Baillière, Tindall and Cox. 1906:
Manual of Anatomy, Systematic and Practical, including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S. Vol. i. Osteology; Upper Limb; Lower Limb. 12s. 6d.
Lectures on Midwifery for Midwives. By A. B. Calder, M.B., M.R.C.S. 5s.
Phlebitis and Thrombosis. The Hunterian Lectures. 1906. By W. Haward, F.R.C.S. 5s.

The Birds of the British Islands. By C. Stonham, C.M.G., F.R.C.S., F.Z.S. Vol. i, part i. London: E. Grant Richards. 1906. 7s. 6d.

Handbuch der Gerichtlichen Medizin. Herausgegeben von Dr. A. Schmidtmann. Unter mitwirkung von Drs. A. Haberda, Kockel, Wachholz, Puppe, Zeimke, Unger und Siemerling. Neunte Auflage. Des Casper-Liman'schen Handbuches. Dritte Band. Berlin: A. Hirschwald. 1906. M.16.

Notable Scottish Trials Series. Trial of Eugène Marie Chantrelle. Edited by A. D. Smith, F.S.A. London: Sweet and Maxwell, Ltd. 5s.

Student's Handbook of Operative Surgery. By W. I. de C. Wheeler, B.A., M.D., F.R.C.S. London: Baillière, Tindall and Cox. 1906. 5s.

Introduction to a New Method of Respiratory Vocal Re-education. By F. M. Alexander. London: Baillière, Tindall and Cox. 1906. 1s.

McDougall's Health Reader. London: McDougall's Educational Co., Ltd. 6d.

Trachomtherapie in der verseuchtesten Gegend Ungarns. Von Dr. M. Falta. Berlin: S. Karger; and London: Williams and Norgate. 1906. M. 2.

Paris: F. Alcan. 1906:
La Mélancolie. Étude Médicale et Psychologique. Par R. Masselon. 1906. Fr. 4.
Les Embolies Bronchiques Tuberculeuses. Par le Dr. Ch. Sabourin. Fr. 4.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. (New series.) No. 23. The Anatomy and Histology of Ticks. By Captain S. R. Christophers, M.B., I.M.S. Calcutta: Office of Superintendent of Government Printing. 1906. 4s. 6d.

Diet and Dietetics. By A. Gautier. Edited and translated by A. J. Rice-Oxley, M.A., M.D. London: A. Constable and Co. 1906. 18s.

German Grammar for Science Students. By W. A. Osborne, M.B., D.Sc., and E. E. Osborne, M.Sc. London: Whittaker and Co. 1906. 2s. 6d.

A Manual of Veterinary Therapeutics and Pharmacology. By E. W. Hoare, F.R.C.V.S. 2nd edition. London: Baillière, Tindall and Cox. 1906. 15s.

Thirty-Second Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year ending June 30th, 1904. Lansing, Mich.: Wynkoop Hallenbeck Crawford Co. 1905.

Strathpeffer Spa Medical Guide. W. Bruce, M.A., M.D., LL.D., E. H. Duncan, M.A., M.B., C.M., H. W. Kaye, B.A., M.B., and J. P. Smith, M.B., C.M. Strathpeffer and Dingwall: G. Souter.

The Revival of Aristocracy. By O. Levy. Translated by L. A. Magnus. London: Probsthain and Co. 1906. 3s. 6d.

Medical and Pharmaceutical Latin. By R. R. Bennett. London: J. and A. Churchill. 1906. 6s.

Précis de Coprologie Clinique. Par le Dr. R. Gaultier. Paris: J. B. Baillière et Fils. 1907. Fr. 7.

A Laboratory Guide in Practical Bacteriology. By W. T. Connell, M.D., M.R.C.S. Second Edition. Kingston, Ont.: R. Uglow and Co. 1906.

Science Progress in the Twentieth Century. A Quarterly Journal of Scientific Thought. No. I. July, 1906. Edited by N. H. Alcock, M.D., and W. G. Freeman, B.Sc., F.L.S. London: John Murray. 1906. 5s.

The Subconscious. By J. Jastrow. London: A. Constable and Co., Ltd. 1906. 10s.

⁂ In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
JULY.	
7 SATURDAY...	Oxford and Reading Branch, Annual Meeting, Library of the Royal Berkshire Hospital, 5 p.m.; Dinner, Queen's Hotel, Reading, 7 p.m.
8 **Sunday**	
9 MONDAY	
10 TUESDAY.....	
11 WEDNESDAY	Dorset and West Hants Branch, Abbotsbury. North Wales Branch, Annual Meeting, Grand Hotel, Llandudno, 2 p.m.; Branch Council, 1.45 p.m.; Dinner, 5.30 p.m.
12 THURSDAY...	
13 FRIDAY.....	London: Central Ethical Committee, 2 p.m. Hampstead Division, *Metropolitan Counties Branch.*
14 SATURDAY...	
15 **Sunday**.....	
16 MONDAY	London: Election Returns Committee, 2.30 p.m.
17 TUESDAY.....	
18 WEDNESDAY	
19 THURSDAY...	
20 FRIDAY	
21 SATURDAY...	
22 **Sunday**	
23 MONDAY	
24 TUESDAY ...	Annual General Meeting, Caxton Hall, Caxton Street, Victoria Street, S.W., 10 a.m. Annual Representative Meeting, Caxton Hall, Caxton Street, Victoria Street, S.W., immediately after Annual General Meeting.
25 WEDNESDAY	Annual Representative Meeting, Caxton Hall, 10 a.m.
26 THURSDAY...	Annual Representative Meeting, Caxton Hall, 10 a.m.
27 FRIDAY	Annual Representative Meeting, Caxton Hall, 10 a.m. *(If required.)*
28 SATURDAY...	
29 **Sunday**	
30 MONDAY	
31 TUESDAY.....	
AUGUST	
1 WEDNESDAY	
2 THURSDAY...	
3 FRIDAY	
4 SATURDAY...	
5 **Sunday**	
6 MONDAY	*Bank Holiday.*
7 TUESDAY.....	
8 WEDNESDAY	
9 THURSDAY...	
10 FRIDAY.....	
11 SATURDAY...	
12 **Sunday**.....	
13 MONDAY	
14 TUESDAY.....	
15 WEDNESDAY	
16 THURSDAY...	
17 FRIDAY	
18 SATURDAY...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong, and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election for the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 14TH, 1906.

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1906 ANNUAL GENERAL MEETING.

The Annual General Meeting of the British Medical Association will be held in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday, July 24th at 10 o'clock in the forenoon.

ANNUAL REPRESENTATIVE MEETING.

The Annual Representative Meeting will take place in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday, July 24th, immediately after the Annual General Meeting, which will be held at 10 o'clock in the forenoon; on Wednesday, July 25th, at 10 a.m.; on Thursday, July 26th, at 10 a.m. if required; also on Friday, July 27th, at 10 a.m. if required.

BY ORDER OF THE COUNCIL,
GUY ELLISTON, *General Secretary.*

[The Annual Report of the Medico-Political Committee will be found at page 41.]

ANNUAL REPRESENTATIVE MEETING, LONDON.

JULY 24TH AND FOLLOWING DAYS.

ENTERTAINMENT OF REPRESENTATIVES AND MEMBERS OF COUNCIL.

DR. FRED. J. SMITH (138, Harley Street, W.), one of the Honorary Secretaries of the Metropolitan Counties Branch, gives notice as follows:

1. A *conversazione* in the Natural History Museum South Kensington, at 8.30 p.m. on Tuesday, July 24th, to which all the Council and Representatives have been invited.

Visitors are asked to note that, by permission of the District Railway, the subway from South Kensington Station direct into the Museum grounds will be opened for their convenience on that evening.

Members of the Metropolitan Counties Branch desiring cards of admission to the *conversazione* are asked to apply early.

2. Through the courteous trouble taken by Dr. Donald Baynes, all the Representatives and members of Council have been made temporary honorary members of the United Empire Club, 84, Piccadilly.

3. By similar courtesy on the part of Dr. P. S. Abraham they have been made temporary honorary members of the Savage Club, 6 and 7, Adelphi Terrace, W.C.

4. The Irish Medical Schools' and Graduates' Association have arranged to give a *soirée* and dance to which Representatives and members of Council and ladies by whom they are accompanied are invited on the evening of Thursday, July 26th, at the Great Central Hotel.

5. I hope to be in a position next week to announce further forms of entertainment.

ASSOCIATION INTELLIGENCE.

PROCEEDINGS OF COUNCIL.

At a special meeting of the Council held, by kind permission of the Metropolitan Asylums Board, London, in their Board Room, on Wednesday, July 4th, 1906, at 2 o'clock in the afternoon.

Present:

Dr. H. W. Langley Browne, Chairman of Council, in the Chair.
G. C. Franklin, F.R.C.S., Leicester, President.
Dr. William Collier, Past-President.
Sir Victor Horsley, F.R.S., Chairman of Representative Meetings.
Dr. H. Radcliffe Crocker, Treasurer.

Dr. John Ford Anderson, London.
Dr. Edgar G. Barnes, Eye.
Dr. T. R. Bradshaw, Liverpool.
Dr. J. Brassey Brierley, Old Trafford.
Dr. R. Cochrane Buist, Dundee.
Dr. W. A. Carline, Lincoln.
Mr. Andrew Clark, London.
Dr. James Craig, Dublin.
Mr. E. J. Domville, Exeter.
Mr. George Eastes, M.B., London.
Dr. E. Lawrence Fox, Plymouth.
Dr. John H. Galton, Upper Norwood.
Dr. Joseph J. Giusani, Cork.
Dr. Bruce Goff, Bothwell.
Dr. David Goyder, Bradford.
Dr. T. D. Griffiths, Swansea.
Dr. J. Groves, Carisbrooke.
Dr. James Hamilton, Glasgow.
Dr. T. Arthur Helme, Manchester.
Dr. J. H. Hunter, South Shields.
Dr. R. McKenzie Johnston, Edinburgh.
Mr. R. H. Kinsey, Bedford.
Dr. C. W. Marriott, Reading.
Dr. C. H. Milburn, Hull.
Dr. C. G. Drummond Morier (South Australian Branch), London.
Professor J. T. J. Morrison, M.B., Birmingham.
Mr. Edmund Owen, London.
Mr. C. H. W. Parkinson, Wimborne Minster.
Dr. Frank M. Pope, Leicester.
Dr. Edwin Rayner, Stockport.
Mr. H. Jones Roberts, Penygroes.
Professor Robert Saundby, M.D., Birmingham.
Dr. Cecil E. Shaw, Belfast.
Dr. E. Markham Skerritt, Clifton, Bristol.
Mr. W. D. Spanton, Hanley.
Mr. C. R. Straton, Salisbury.
Mr. J. Lynn Thomas, C.B., Cardiff.
Mr. T. Jenner Verrall, Brighton.
Dr. Norman Walker, Edinburgh.
Lieutenant-Colonel E. M. Wilson, C.B., Farnborough.

Minutes.

The minutes of the last quarterly meeting (April 18th, 1906) and the special meeting of June 20th, 1906, having been printed and circulated and no objections received, were taken as read and signed as correct.

In regard to minute 1519 of the meeting of June 20th, 1906, the Chairman of Council undertook to insert the names of Dr. Helme as the mover and Dr. Pope as the seconder of the resolution.

Apologies.

Read letter of apology for non-attendance from Colonel Bruce, F.R.S., Professor Finlay, Dr. J. Murray, Professor Osler, F.R.S., Mr. H. Betham Robinson, Dr. J. Maxwell Ross, Professor W. R. Smith, and Dr. A. T. Wear.

Death of Sir Willoughby Wade.

Moved by the Chairman of Council, seconded by Professor Saundby, and

Resolved: That this Council has learned with regret of the death of Sir Willoughby Wade, who filled with distinction the offices of President of the Association in 1890, and Treasurer from 1882 to 1884, and desires to place on record its appreciation of the valuable services rendered to the Association by Sir Willoughby over a great number of years, and its sympathy with Lady Wade in her bereavement.

Resignation of Member.

Read acknowledgement of the resolution of Council regarding the resignation of Dr. Beverley, which was ordered to be entered on the minutes.

Communications.

The Chairman reported receipt of a communication from the Irish Medical Schools' and Graduates' Association stating that it is their intention to invite the members of the Representative Meeting to a Conversazione and Dance at the Great Central Hotel, on Thursday, July 26th, at 9 p.m.

Resolved: That permission be granted to the National Temperance League to hold a breakfast at Toronto during the Annual Meeting.

Royal Charter.

Moved by Dr. T. Arthur Helme, seconded by Dr. Pope.

That while not expressing any opinion unfavourable to the application for a Royal Charter, this Council is of opinion that further and fuller consideration is required of the whole question, and strongly recommends the Representative Meeting to delay the application so as to give the Association as a whole longer time to appreciate and consider the many important matters involved in drafting a thoroughly comprehensive and permanent form of Charter.

The motion having been put from the Chair was declared to be carried, 28—15.

Upon the demand of five members the names of those voting For and Against were taken as follows:

For (28).

The President	Dr. R. McKenzie Johnston
Past-President	Dr. C. W. Marriott
Dr. T. R. Bradshaw	Dr. C. H. Milburn
Dr. J. Brassey Brierley	Mr. Edmund Owen
Dr. W. A. Carline	Mr. C. H. W. Parkinson
Dr. James Craig	Dr. F. M. Pope
Dr. E. L. Fox	Dr. Edwin Rayner
Dr. J. H. Galton	Professor Saundby
Dr. J. J. Giusani	Dr. Cecil E. Shaw
Dr. Bruce Goff	Mr. W. A. Spanton
Dr. D. Goyder	Mr. C. R. Straton
Dr. T. D. Griffiths	Dr. Norman Walker
Dr. J. Groves	Lt.-Col. E. M. Wilson, C.B., C.M.G.
Dr. James Hamilton	
Dr. T. Arthur Helme	

Against (15).

Chairman of Representative Meetings	Mr. E. J. Domville
The Chairman of Council	Mr. George Eastes
The Treasurer	Dr. J. H. Hunter
Dr. J. Ford Anderson	Mr. R. H. Kinsey
Dr. Edgar G. Barnes	Mr. H. Jones Roberts
Dr. R. C. Buist	Dr. E. Markham Skerritt
Mr. Andrew Clark	Mr. John Lynn Thomas, C.B.
	Mr. T. Jenner Verrall

Journal and Finance Committee Minutes.

Resolved: That the minutes of the Journal and Finance Committee of June 27th, 1906, be received.

Resolved: That the best thanks of the Council be tendered to Dr. John C. McVail in recognition of his valuable work in revising the Association's pamphlet "Facts about Small-pox and Vaccination."

Resolved: That the Association is willing to co-operate with the learned Societies interested in biological research with reference to the proceedings of the Royal Commission on Vivisection and sanctions an expenditure by the Science Committee of a sum not exceeding £100.

Resolved: That £25 be granted to the Irish Committee in aid of clerical assistance in connexion with the Poor-law Inquiry.

Resolved: That the Council do agree with the following minute of the Journal and Finance Committee, and order the same to be transmitted to the Representative Meeting:

> Resolved: That the attention of the Journal and Finance Committee having been drawn to the fact that it has been suggested that this Committee should be divided into and formed into two Committees—*i.e.*, a Journal Committee and a Finance Committee—it be a recommendation to the Council for transmission to the Representative Meeting that, in future, in altering any By-laws it is essential that the Journal and Finance Committee should not be divided into two Committees.

Resolved: That the accounts for the quarter ending June 16th last, amounting to £9.857 17s. 8d., be received and approved, and the Treasurer be empowered to pay those remaining unpaid, amounting to £2.676 14s. 9d.

Premises and Library Committee Minutes.

Resolved: That the minutes of the Premises and Library Committee of May 8th and 18th, 1906, be received.

Volunteer Medical Service Committee Minutes.

Resolved: That the minutes of the Volunteer Medical Service Committee of June 19th, 1906, be received.

Resolved: That His Majesty's Secretary of State for War be asked to receive a deputation from the British Medical Association to lay before him the views of the Association in regard to the Reorganisation of the Volunteer Medical Service.

Resolved: That it be represented to His Majesty's Secretary of State for War that the Council of the British Medical Association regrets to learn that there is no Volunteer Medical Officer appointed to serve on the Army Territorial Committee.

Ethical Committee Minutes.

Resolved: That the minutes of the Ethical Committee of May 4th and June 22nd, 1906, be received.

Resolved: That in the case of members of the profession who are suggested as fit and proper persons for election to the General Medical Council, no pledge whatever should be exacted from these on behalf of the Association.

In regard to the following recommendations of the Central Ethical Committee.

(i) That it is absolutely necessary in the interests of the medical profession that the Association should take up cases of a penal nature before the General Medical Council as complainants.

(ii) That in order to effect this, members of the said Council who are also members of the British Medical Association should at once on election, or immediately after election, cease to be members of the British Medical Association during such time as their appointment lasts,

an amendment was moved by Dr. FORD ANDERSON, seconded by Professor SAUNDBY:

That Recommendations A (i) and (ii) be postponed until the October meeting of Council.

The amendment having been put from the Chair, the same was declared to be carried.

Resolved: (i) That the holders of non-registrable degrees should indicate the source of such degrees whenever appended by them to their names.

(ii) That it should not be regarded as obligatory for the registered diplomas to be stated in all cases.

(iii) That it is not desirable that the Officials of the Association should be responsible for the correct use of medical titles in papers received by them for insertion in the JOURNAL or other official publications.

Resolved: That the Council approve the adoption of the Model Rules of Ethical Procedure by the South Wales and Monmouth Branch, and of the Model Ethical Rules relating to appointments ("Bradford") by the Chelsea and North Carnarvon and Anglesea Divisions, and (with slight modifications) by the Dundee Branch.

Resolved: That the Council approve the proposed alteration of Rule "B" of the Coventry Division Rules, namely, that only 7 days', instead of 14 days', notice should be given of any resolution defining the terms upon which appointments should be held.

Resolved: That it is undesirable that medical men should have a proprietary interest in preparations which it may be their duty to recommend medicinally.

Hospitals Committee Minutes.

Resolved: That the minutes of the Hospital Committee of May 10th, 1906, be received.

Medico-Political Committee Minutes.

Resolved: That the minutes of the Medico-Political Committee of May 16th and June 13th, 1906, be received.

Moved by Dr. BUIST, seconded by Mr. DOMVILLE, and

Resolved: That the President of the Board of Education be requested to receive a deputation from the Association in support of the following amendment, proposed by Mr. Tennant, M.P., to Clause 35 of the Education Bill.

"It shall be the duty of every local education authority to make arrangements, in accordance with a scheme to be made by the Board of Education, for attending to the health and physical condition of the children educated in public elementary schools."

Organization Committee Minutes.

Resolved: That the minutes of the Organization Committee of June 12th, 1906, be received.

Moved by Mr. VERRALL, seconded by Dr. RAYNER, and

Resolved: That the Council approve the Rules submitted by the North-East Edinburgh, North Manchester, Southport, Altrincham, Tunbridge Wells, Guernsey and Alderney, Winchester, and Chester Divisions.

In reference to the following recommendation of the Organization Commitee:—

That the Alphabetical List of Members be not bound with the *Year Book*, but be published annually as a Supplement to the JOURNAL, and that the Division and Branch Membership List at present published as a supplement to the JOURNAL be in future supplied only to persons holding official positions in the Association,

an amendment was moved by Dr. NORMAN WALKER, seconded by Dr. CRAIG,

That the Alphabetical List of Members be kept in the office but not printed.

The amendment having been put from the Chair, the same was declared to be carried, and ordered to be transmitted to the Representative Meeting.

Resolved: That the Colonial Branches be granted in the Regulations of the Association greater freedom as regards:—

(1) Election of Members;

(2) Alteration of their Rules on matters of purely local concern, without reference to the Central Council;

(3) The formation by groups of Colonial Branches, when they desire it, of Councils or Committees representative of such groups.

Resolved: That the Rules of the Cape of Good Hope, Western Province Branch, be approved.

Naval and Military Committee Minutes.

Resolved: That the minutes of the Naval and Military Committee of June 14th, 1906, be received.

Resolved: That the Council authorize the Naval and Military Committee to take such action as may be desirable with reference to the case of the member of the Association, late Surgeon-Captain in the British South Africa Police, who complains of dismissal contrary to the regulations of that service, and to report to the Council in due course.

Resolved: That application be made to the War Office to give the substantive rank of Major-General to Surgeon-Generals at present ranking as Major-Generals, and the substantive rank of Lieutenant-General to Surgeon-Generals at present ranking as Lieutenant-Generals.

Resolved: That representations be made to the India Office praying that passages for families be granted to officers of the R.A.M.C. to and from India as for other stations.

Resolved: That the recommendations of the Naval and Military Committee be amended to read as follows:

That representations again be made to the Secretary of State for War, recommending that the Director-General A.M.S. should be himself placed on the Army Council, and so be in direct touch with the Secretary of State for War, and not as now through the Adjutant-General of the Army, who is fully occupied with his own special duties.

Resolved: That on any reorganization of the Militia, each battalion should have at least one medical officer, recommended by the C.O., or resident in the county of the battalion.

Resolved: That it is a matter for regret that on the Committee *re* "Territorial Army," presided over by Lord Esher, no place is given to a Medical Officer of the Auxiliary Forces, who could enforce or draw attention to medical organization questions.

Resolved: That the question of electing a Representative of the Indian Medical Service on the Central Council, in accordance with By-law 22, be considered at the next meeting of the Council.

Science Committee Minutes.

Resolved: That the minutes of the Science Committee of June 18th, 1906, be received.

Resolved: That the Memorandum of the Chairman relating to the Middlemore Prize be adopted, and its depending sections (*a*), (*b*), (*c*), (*d*), (*e*) as printed on the minutes.

Resolved: That the date of the expiration of Grants and Scholarships be altered from May 31st to May 15th in each year.

Resolved: That the proposal to co-operate and assist financially the Physiological and other learned Societies in the preparation of evidence for submission to the Vivisection Commission be approved.

Resolved: That the following amounts be voted: Renewed Grants, £176; New Grants, £165; total, £341.

Resolved: That Mr. H. de Riemer Morgan be appointed "Ernest Hart Memorial Scholar" for a further period of one year.

Resolved: That Mr. Major Greenwood, jun., be appointed one of the "Research Scholars" for a further period of one year.

Resolved: That Dr. Herbert E. Roaf be appointed one of the "Research Scholars" for a further period of one year.

Resolved: That Dr. W. H. Harvey be appointed one of the "Research Scholars" for a period of one year.

Public Health Minutes.

Resolved: That the minutes of the Public Health Committee of June 19th, 1906, be received.

Resolved: That in the interests of Public Health it is undesirable that the Jury and Coroner should be compelled to view the body in every case.

1907 Annual Meeting.

In reference to the fixing of the hour at which the Council would be willing to receive deputations from Exeter and Bradford conveying an invitation to the Association for its annual meeting in 1907,

It was moved by the Chairman of Council, seconded by Mr. Domville, and

Resolved: That this Council learns with pleasure that the Bradford Division and South-Western Branch respectively are desirous of extending invitations to the Council by deputation for the Association's Annual Meeting in 1907; but having regard to the little time available during the Representative Meeting, the Council considers that when an invitation is given to hold the Annual Meeting of the Association in any given place, unnecessary trouble is given to busy and hospitable people by the practice of having the invitation presented by deputation instead of by letter.

Candidates.

Resolved: That the sixteen candidates whose names appeared on the circular convening the meeting be and they are hereby elected members of the British Medical Association.

Nomination of a Vice-President.

Moved by the Chairman of Council, seconded by the Treasurer, and

Resolved: That it be recommended to the Annual General Meeting that Mr. George Cooper Franklin, F.R.C.S., be elected a Vice-President of the Association for his distinguished services as President of the Association during the past year.

Toronto Meeting.

The General Secretary reported that he had received, through one of the Honorary Local Secretaries of the Toronto Meeting, an invitation from the Tourist Association inviting the members of the British Medical Association to visit Vancouver, B.C., at the close of the Toronto Meeting.

American Communications.

The General Secretary reported receipt of communication from Messrs. Armour and Co., inviting the Association to appoint five members to proceed to Chicago to inspect their meat-packing works, either before, during, or after the Toronto Meeting.

Resolved: That the Council cannot see its way to appoint a Committee to inspect the meat-packing works of Messrs. Armour and Co.

Representative of Royal Navy.

Moved by the Chairman of Council and

Resolved: That Fleet Surgeon E. J. Biden, R.N., be elected a Representative of the Royal Navy Medical Service on the Council in accordance with By-law 22.

Division Attendances.

Moved by Dr. Collier, seconded by Dr. Edgar Barnes: That in future the number of members present at meetings of Divisions be reported.

Whereupon an amendment was moved by Dr. Ford Anderson,

That when questions dealing with the policy or management of the Association generally are discussed in Divisions the numbers present at such meetings and the numbers voting in favour of and against resolutions be reported.

The amendment having been accepted by Dr. Collier then became the original motion, to which an amendment was moved by Dr. Buist, seconded by Sir Victor Horsley,

That the following words be added: "to the Council and Representative Meeting."

The amendment of Dr. Buist having been put from the Chair, the same was declared to be lost (9—10).

Dr. Collier's resolution was then put and declared to be lost (9—10).

Congress on Hygiene.

Resolved: That Mr. Herbert Jones of Hereford and Mr. C. H. W. Parkinson of Wimborne be appointed Delegates to attend the Second International Congress of the Association for the Promotion of Hygiene and Salubrity in Dwellings, to be held at Geneva, September 4th to 10th, 1906.

Branch Communications.

Read resolution from the South Wales and Monmouthshire Branch, which was ordered to be entered on the minutes.

Read communication from the Honorary Secretary of the Metropolitan Counties Branch, which was referred to the Organization Committee.

Vote of Thanks to Metropolitan Asylums Board.

Moved by the Chairman of Council, seconded by the Treasurer, and

Resolved: That the best thanks of the Association be transmitted to the Chairman and members of the Metropolitan Asylums Board for their courtesy in placing their Board Room at the disposal of the Council for its meetings during the past year.

The Council having completed its Agenda adjourned at 6.30 o'clock.

Proceedings of Committees.

MEDICO-POLITICAL COMMITTEE.

A meeting of the Medico-Political Committee was held at the office of the Association on May 16th, when Dr. R. C. Buist took the chair, the other members present being: Sir Victor Horsley, F.R.S. (Chairman of Representative Meetings), Mr. H. W. Armit, Dr. J. H. Hunter, Mr. George Jackson, Dr. J. A. Macdonald, Dr. L. S. McManus, Dr. H. F. Oldham, Mr. C. H. Watts Parkinson, Dr. Cecil E. Shaw, Mr. C. R. Straton.

Royal Commission on Vivisection.

Representations having been made on behalf of the Association to the Home Secretary with reference to the composition of the proposed Royal Commission on Vivisection, with the view of securing adequate representation of biological, including medical, science thereon, the action of the Chairman in making such representation as a matter of urgency was approved. The Committee resolved to make suggestions to the Science Committee in order that the Association might take part in the preparation of evidence to be laid before the Commission.

Rules of the Central Midwives Board.

The Committee directed that the proposals for the amend-

ment of the rules of the Central Midwives Board, which had been prepared by the Subcommittee, after consideration of the replies of Divisions on the subject, should be forwarded for the information of the Privy Council, the General Medical Council, and the Central Midwives Board.

MEDICO-POLITICAL COMMITTEE'S REPORT.

Suggested Amendments of the Rules of the Central Midwives Board.

Book of Present Rules.		Amendments Suggested.
Page.	Paragraph.	
8	1	"No person shall be admitted to an examination unless she produces certificate that she has," etc. *Alteration suggested.* "No person . . . unless she produces evidence satisfactory to the Central Midwives Board that she has attended during not less than three months a course of instruction in a lying-in hospital or other public institution recognized by the Central Midwives Board. The course of instruction shall be given in accordance with the conditions prescribed by the Central Midwives Board, and must include personal attendance on not less than twenty cases of labour and the care of mother and child during the ten days following labour. "The certificate shall be in the form prescribed by the Central Midwives Board, and must be signed by a registered medical practitioner or by a registered midwife."
10	4 (*f*)	*Remove* brackets in last line and *read* thus :— "mode of their administration in accordance with Rule E 16."
13	1	*Before* "1" *insert* new clause as follows :— "N.B.—The midwife, when engaging to attend a woman at her confinement, must clearly inform the patient that in the event of finding any irregularity she is debarred from attending alone, and it will be necessary for a registered medical practitioner to be called in."
13	2	*Insert* in line 2, *after* the words "with her," the following :— "in a suitable bag with a washable lining."
13	2 (*a*)	*Read* as follows :— "(*a*) (i) An appliance for giving vaginal injections, and a catheter. (These must only be used under the instructions of a registered medical practitioner.) "(*a*) (ii) An appliance for giving rectal injections, a pair of scissors, a clinical thermometer, and a nailbrush which must be freshly boiled before each attendance."
13	2 (*b*)	*Read* as follows :— "Efficient antiseptics for disinfecting the midwife's hands, the skin of the patient, and the instruments."
14	2 (*d*)	"An antiseptic . . . . patient." *Delete the whole of* (*d*).
14	4	"All instruments . . . . disinfected." *Insert* at end of clause the following words : "by boiling or otherwise."
14	5	*Read* "considered" for "supposed" in 3rd line.
14	5	In last line but two of clause *remove* bracket before "by" and after "authority," and *delete* the remaining eleven words of the clause.
14	6	In line 3 of clause, after the word "stage" for "and" *read* "but," and in the next line after the word "afterbirth" *delete* the remainder of the sentence and *read* as follows: "and for an hour afterwards, or as much longer as may be necessary."
15	8	Let the clause *read* as follows :— "Vaginal examinations should be avoided unless absolutely necessary."
15	10	For linen *read* "articles" (in 1st line).
16	14	*Delete* all words after "cleansed."
16	16	*Delete* the whole rule, and instead *read* as follows (in two clauses) :— "(*a*) A midwife must not administer any stimulant or drug, except aperient medicine, or—when necessary after the woman is delivered—Ergot. "(*b*) She must enter the time and reason for each such administration in a book with other notes of the case."
16	17	From the word "lying-in" (line 3) *delete* the remainder of the rule as far as the word "circumstances," and instead, *read* as follows (in three clauses) :— "A midwife must explain that the case is one in which she must advise that a registered medical practitioner be sent for, and she shall hand to the husband, or nearest relative, or friend present, the form of sending for medical help, properly filled up and signed by her, in order that this may be immediately forwarded to a medical practitioner, who should if possible, be the patient's usual medical attendant. "After having complied with the rule as to the summoning of medical assistance, the midwife will not incur any censure by remaining on duty and doing her best for her patient. "Under the following circumstances the midwife must always send for a registered medical practitioner :" (*a*) In the case, etc.
16	17 (*a*) 3	In line 4, for "face and hands," *read* "face or hands"; also *insert* after "hands" these words : —"marked swellings of legs or genitals."
16	17 (*b*) 1	*Delete* all words after "vertex" down to "primiparae."
17	17 (*c*) I (3)	*For* secondary post-partum haemorrhage, *read* :—"excessive bleeding."
17	17 (*c*) I (4)	*For* "rigor" *read* "shivering."
17	17 (*c*) I (5)	*For* "rise of temperature above 100.4 (F.)," *read*:—"temperature 100." Also for "24 hours," *read*:—"12 hours."
18	17 (*c*) II (3)	*Add* at end of paragraph the words :—"or no urine or meconium having been passed within twelve hours of birth."
18	17 (*c*) II (5)	*For* "syphilitic" *read* "abnormal."
18	17 (*c*) II (6)	*Add* at end of paragraph the words "or otherwise."
18	17 (*c*) II (7)	*Delete* "malignant."
18	17	*After* the word "practitioner" let the remainder of paragraph *read* as follows :—"is sent for in any of the foregoing circumstances the midwife must forward a Report in accordance with Clause 19 (*b*)."
18	18 (1)	*After* the word "occurs" in line 2, *delete* :—"before the attendance of a registered medical practitioner," and instead *read* as follows :—"during her attendance."
18	18 (2)	*Omit* from "where" down to "attendance."
18	18 (3)	*Delete* the whole paragraph, and *read* for it the following :— "The midwife must as soon as possible notify to the Local Supervising Authority the occurrence in any of her patients of puerperal fever or any other infectious disease."
19	19 (*a*)	For "duration of 1st, 2nd, 3rd stage of labour," *read* :— "Time of escape of waters : time of birth of child ; time of expulsion of after-birth."
19	19 (*a*)	*For* "If doctor called..... ....Name of doctor." *read* :— "Name of doctor called (if any)."
20	19 (*b*)	*Delete* present heading, and *read* in its place the following : "Report of patient's condition, as sent to the doctor, in the following form :—"
20	19 (*b*)	Let "No." have a line to itself, and let the next *read* as follows : "Date..... Hour..... "
20	19 (*b*)	In line commencing "requires" *delete* the words "at once," and let there be two blank lines following instead of only one.
20	19 (*b*)	Let the position of the lines commencing "Sent to (Doctor)" and "at (address)" be *altered* so as to make them run *above* the line "Signed..... (Certified midwife)."
20	19 (*b*)	*Insert* under the last line the following :— "Medical Diagnosis..... ..... Remarks..... Signed.....(Regd. Med. Practitioner)."
20	19 (*b*)	Last clause, *For* "two" *read* "three" in first line.

Book of Present Rules.		Amendments Suggested.
Page.	Paragraph.	
20	19 (*b*)	*After* the word "shall" in second line of last clause *read* as follows: "send one to the doctor." *After* the word "one" in the next line *delete* the words "of these copies."
25	Form V	*Delete* the words "by myself" in third line of certificate.

May 16th, 1906.

Report on Parliamentary Election.

The Committee adopted its report to the Annual Representative Meeting on action taken during the Parliamentary election.

Matters before Parliament Affecting the Profession.

The Committee received from the Parliamentary Subcommittee a report of the action which had been taken with respect to matters before Parliament affecting the medical profession; these included the Sight-testing Opticians Bill now before the House of Lords, which the British Medical Association, in co-operation with the Ophthalmological Society of the United Kingdom, is taking active measures to oppose, and the Workmen's Compensation Bill, with reference to which it was decided that members of Parliament who had indicated their willingness to do so should be requested to bring before the Grand Committee certain amendments.

It was decided that steps should be taken to obtain an amendment of the Education Bill which should give effect to the already declared policy of the Association as to the compulsory Medical Inspection of School Children. It was also resolved that steps should be taken to secure a modification of the Trades Disputes Bill as possibly affecting the medical profession. The Committee resolved to support the Inebriates (Scotland) Amendment Bill prepared by the Glasgow Corporation, and to take steps with a view to the introduction of an amending clause providing that no proceedings should be taken against a medical practitioner for any act done under the Bill in good faith.

Coroner for South-West London.

The Committee received a report on the statement by the Local Government Board auditor of the accounts of the London County Council of the reasons for his judgement in the case brought before him by the Association concerning the payment of fees to pathologists called in by the Coroner for South-West London.

With reference to the same matter, the Chairman of Representative Meetings was requested to communicate with the Lord Chancellor, praying that judgement be pronounced in the case which the Association brought before Lord Halsbury in 1904, but in which so far no decision had been given.

Income Tax.

In view of the appointment of a Select Committee of the House of Commons to consider the Income Tax it was decided as a matter of urgency to appoint a Subcommittee to consider and report upon the collection and presentation of evidence on behalf of the medical profession.

Other Business.

The other business included the reception of the report of the Contract Practice Subcommittee on pending disputes and other matters, authorization of assistance to a Division in respect to a question of unqualified practice, and also the consideration of a draft report on the regulations affecting the sale of proprietary articles and secret remedies.

A further meeting of the Committee was held at the office of the Association, 429, Strand, W.C., on Wednesday, June 13th, 1906, when there were present: Dr. R. C. Buist in the chair; Mr. H. W. Armit, Dr. J. H. Hunter, Mr. George Jackson, Dr. H. A. Latimer, Mr. C. H. Watts Parkinson, Dr. L. S. McManus, Dr. H. F. Oldham, Mr. C. R. Straton.

Income Tax.

On the reception of the report of the Income-tax Subcommittee appointed at the previous meeting, it was resolved that representations should be made on behalf of the Association to the following effect: That there should be differentiation between incomes derived from earnings and incomes derived from inheritable property. The Subcommittee reported also on the question of graduation of income tax and on particulars of assessment as affecting the medical profession, particularly with respect to deduction allowed from incomes for practice purposes. It was not considered necessary to make any representations on these aspects of the subject. It was decided that the Incorporated Law Society and other bodies representative of professions should be invited to co-operate with the British Medical Association in the matter.

Medical Acts Amendment Bill.

A report was received from the Joint Committee of the Association and the British Dental Association on the proposal that a consolidating Bill should be prepared, and it was decided to reply to an inquiry from the representatives of the British Dental Association that "in the opinion of the Medico-Political Committee any Bill for the amendment or the consolidation of the Medical Acts promoted by the two Associations should be withdrawn if the amendments introduced into either House of Parliament should prejudice in any way the present position of medical and dental practitioners as regards title or otherwise."

The Committee received a report from the Medical Secretary that, pursuant to instructions with respect to an amendment of the Education Bill in order to provide for compulsory inspection of school children, he had been in communication with Mr. H. J. Tennant, M.P., who had put down the following amendment to the Bill:

It shall be the duty of every local education authority to make arrangements, in accordance with a scheme to be made by the Board of Education, for attending to the health and physical condition of the children educated in public elementary schools.

It was resolved to recommend to the Council that the President of the Board of Education should be requested to receive a deputation from the Association in support of this amendment.

Other Parliamentary Business.

Other Parliamentary matters considered included a report that the Public Health Officers Bill had been introduced by Sir Francis Powell and supported by Sir Walter Foster and Sir John Batty Tuke, and reports of action taken pursuant to the instructions of the Committee with respect to the Workmen's Compensation Bill and the Sight Testing Opticians Bill.

Patent Medicines.

A draft report on the sale of proprietary articles and secret remedies was carefully considered, and the Committee had the advantage of the attendance of Mr. Octavius C. Beale, Commissioner of the Commonwealth of Australia appointed to investigate the law of different countries as to this subject, who attended and reported the result of his inquiries in the United States, Canada, Germany, and France; also as to the result of recent legislation in New Zealand, and as to the difficulties attending legislation in Australia owing to the defective position of the law in the United Kingdom, which was quoted as a precedent. Mr. Beale further stated that, as the result of his inquiries, he considered it to be of great importance that a clear pronouncement should be made on this subject by the British Medical Association for the guidance of public opinion.

The report was adopted with the following recommendations to the Annual Representative Meeting:

(*a*) That for medicines which are supplied otherwise than upon medical, dental, or veterinarian prescriptions, no condition of sale short of the publication on each packet of medicine of the name and quantity of each of its constituents should be permitted.
(*b*) That the label should be made to constitute a warranty, and that false description, whether on the label or in an advertisement, should be made an offence.
(*c*) That the provisions of the Foods and Drugs Acts should be applied to proprietary medicines.

CONTRACT MEDICAL PRACTICE.

The report of the Contract Practice Subcommittee included particulars of action taken with respect to disputes at Aberystwith, Bangor, Ebbw Vale and other districts.

The disputes at Aberystwith and Bangor having now, owing to the efforts of the local Divisions, been terminated with entire success, it was decided that full reports should be published in the BRITISH MEDICAL JOURNAL.

A report was also received of the arrangements which the proprietors of the *Lancet* had consented to make for co-operation between that journal and the British Medical Association in the matter of warning notices concerning appointments vacant, and the Committee expressed its appreciation of the action of the proprietors of the *Lancet*.

CENSURE BY A CORONER ON A MEDICAL MAN.

The Committee approved of the action which had been taken to assist the North-East Essex Division in the matter of an undeserved censure by a coroner of a medical practitioner, and to bring to the notice of the Liverpool and Birkenhead Division of the Association an application from a medical practitioner in that district for some action by the Association in the matter of a proposed new medical aid organization.

THE IRISH COMMITTEE.

WHEN the Government decided last December to appoint a Royal Commission to investigate the working of the Poor Laws, the Irish Committee after due consideration decided to appoint a special subcommittee to deal with all business arising in connexion with this Commission, and authorized it to take whatever steps might seem most likely to result in the collection of suitable evidence. This Subcommittee being duly named decided in its turn that the best course would be to get into touch with several other bodies likely to be interested in the question, and accordingly entered into negotiation with the Irish Medical Association, the Workhouse Reform Association, and the Poor-law Association of Ireland. The result was that a joint committee of these bodies came into existence, the several representatives being, of the *Irish Committee of the British Medical Association*, Drs. Darling, Carey, Kenny, Shaw, and Professor White; of the *Irish Medical Association*, Drs. Donnelly, Strahan, F. W. Kidd, and MacSweeney; of the *Workhouse Reform Association*, Lord Monteagle, Miss Buchanan, Poor-law Guardian; Walter Kavanagh, Deputy Lieutenant; and N. J. Synnott, J.P., Barrister-at-Law; *the Poor-law Association of Ireland*, Drs. Agnew, Donnellan, and Moorhead, Messrs. M. Connolly, Relieving Officer; J. Dooley, and N. O'Carroll, Workhouse Masters; and D. J. Purcell and J. R. Dagg, Clerks of Unions. Of this Joint Committee, Dr. Darling became Chairman, and Professor White, of Dublin, Honorary Secretary.

It was soon found that the work to be done practically fell into three divisions, and accordingly the Joint Committee subdivided itself into three bodies, one being the Medical Relief Section, of which Dr. Moorhead of Cootehill is Honorary Secretary; another the Poor Relief Section, of which Mr. J. Ralph Dagg, of Baltinglass Union, is Honorary Secretary; and the third, the Public Health Section, with Dr. S. Agnew, of Lurgan, as Honorary Secretary. These subsections of the Joint Committee have now all got to work, and from one of them, the Medical Relief Section, the following communication has been received:

To the Editor of the BRITISH MEDICAL JOURNAL.

SIR,—On the initiative of the Irish Committee of the British Medical Association, a Committee, with representatives from the British Medical Association, the Irish Medical Association, the Poor Law Association of Ireland, and the Irish Workhouse Association, has been formed to collect evidence upon the condition and working of the Irish Poor Law, to be laid before the Poor Law Commission when it visits Ireland, probably about a year hence.

This Committee was divided into three Subcommittees, and to us was given the section of Poor-law medical relief.

We have sent to each dispensary doctor in Ireland a circular asking him to keep a careful record of all the Poor-law work done by him during the next twelve months, and we trust the Poor-law doctors will aid us by following our suggestions.

But this is only one part of the work which the Subcommittee have undertaken. There is much more to be done.

Most of us who have considered the matter recognize the fact that the English Poor-law system, introduced into Ireland in 1838 to deal with the disease of widespread pauperism due to economic conditions by treating poverty as if it was a crime, was, from the first, alien to the genius of the Irish people, and equally obnoxious to the paupers and the ratepayers, and that this dislike was then and still is frequently extended to the officers of the Poor-law service.

Lapse of time has not blunted this feeling, as we all know. Since 1895, when the BRITISH MEDICAL JOURNAL and the Irish Workhouse Association threw light upon the horrors of the Irish workhouse system, more humane treatment of the poor in these institutions has prevailed, but it is still far from what is due to the worn-out workers of a civilized community, and it is evident that the ratepayers of the country, now that they have the control in their own hands, prefer the system of outdoor relief. It must be remembered, however, that the workhouse as a test of destitution was introduced into England in the early part of the last century to remedy the excessive taxation imposed upon the people by the abuse of parochial outdoor relief which had been till then the only recognized system of poor relief dating from the first Poor-law enactments of the sixteenth century.

Destructive criticism of our Poor-law system is easy enough, but it seems to us that what we need, and what we must place before the Commissioners if we want to serve our common country, is *constructive* criticism.

No persons in Ireland are better fitted to deal with Poor-law problems than the members of the Poor-law Service, medical and lay, though till recently they have never been consulted by the bureaucracy, and it is with the object of getting Poor-law officers to apply their minds to the subject and eliciting their opinions that we address this communication to them.

We have stated below, as briefly as possible, the points upon which we think opinions are needed, and we will be glad to receive and collect the suggestions furnished to us upon any or all of the subjects suggested. Upon certain questions opinion in Ireland seems to be so fully made up that further discussion seems needless. Such are: The removal of children from workhouse contamination; the unsuitability of the workhouse for the treatment of persons of weak intellect and epileptics; the need for separating the respectable poor in these institutions from the vicious, and the treatment of chronic vagrancy.

There being no need for haste, we would ask those who favour us with replies to our queries to weigh thoroughly the pros and cons before committing their views to paper. These matters have to be considered most carefully, not alone from the official point of view but also from that of the poor and the ratepayers, if we wish to evolve a satisfactory scheme of reform suitable to the economic conditions of the country, and we trust that with the aid of those whose assistance we seek before the Commissioners visit Ireland we shall have succeeded in preparing a well-thought-out scheme of poor relief, and be able to give sound reasons for whatever reforms we advocate, for we are convinced that we have in the ranks of the Poor-law service and among Poor-law guardians past and present many men of great ability who have never hitherto had an opportunity of giving public expression to their opinions upon this most burning question.—We are, etc.,

J. SINGLETON DARLING, M.B., Lurgan,
R. B. CAREY, M.R.C.P.Ire., Borris,
PATRICK DONNELLAN, L.R.C.P.Ire., Castlerea,
J. M. S. KENNY, M.B., Granard,
MICHAEL STRAHAN, L.R.C.S.Ire., Dublin,
T. H. MOORHEAD, M.D., Cootehill, Hon. Sec.,
} Members of the Medical Relief Subcommittee of Joint Irish Poor-Law Committee.

In replying correspondents are requested to write on one side of the paper only, and to keep each heading distinct.

1.—Should Poor Relief be a State Charge or a Local Charge?

Do you consider it just, as distinguished from politically expedient, that the inhabitants of poor districts in Ireland should be more heavily taxed for the relief of their poor than the richer districts?

Would you be in favour of a general tax for poor relief? Please give your reasons for or against.

2.—Should the Workhouse be Entirely Abolished?

The workhouse was designed for the coercion of able-bodied paupers. It is now a home for the worn-out workers and the mentally and physically unfit.

(*a*) Would such be happier and more comfortable boarded out among their fellows?

(*b*) Would boarding-out increase or diminish the cost of maintenance to the ratepayers?

(*c*) If workhouses are not entirely abolished what alterations in the workhouse system would you suggest to make them suitable for existing conditions, especially as to structure and management?

(*d*) If boarding-out of the aged, unfit and feeble-minded were adopted, can you suggest effective means of supervision without undue expense?

3.—Should Poor Relief be Administered by Local Bodies (Boards of Guardians), by Semi-Local Bodies (County Councils), or by a State Department?

It is suggested that administration by local bodies is not satisfactory. The maladministration of the Poor Laws in England by such bodies has given rise to the word "Parochial" as a synonym for wastefulness and inefficiency. We regard this as the most important subject we have to consider, for upon it depends the whole question of efficiency or inefficiency, and we commend it to your most careful consideration.

4.—Should Local Hospital Accommodation be Provided by the State for all Classes Requiring it, or only for Paupers?

The superiority of the hospital for the repair of broken-down human machinery is now so well recognized by all classes of the community that there is no need to discuss it.

If the rich and well-to-do need and avail themselves more and more of such institutions, how much more are they needed by the Irish poor, whose wretched accommodation affords no facilities for the correct treatment of their ailments!

Would you state your views as to how such hospital accommodation could be best and most economically provided, and what system of management would be most efficient?

5.—Would You Approve of a State Medical Service?

If so, should it be controlled by (*a*) Boards of Guardians, (*b*) county councils, (*c*) a department of State?

Please give your views as to how the medical service of the country should be conducted under (*a*), (*b*), or (*c*)?

(*d*) Should the medical officers devote their whole time to the service? Please give your reason for or against.

(*e*) How would you propose to provide for the treatment of the non-pauper class who, while too poor to pay remunerative fees, are not entitled to that free medical relief which they receive at the expense of the ratepayers under existing conditions? Could any form of contract medical relief such as exists in England and Scotland for a similar class be extended to Ireland with advantage to the peasantry and the doctors?

(*f*) If you think this could be done, please suggest how contributions to the medical aid fund could be collected.

6.—Should Weak-minded Persons, so many of whom are now Inmates of Asylums and Workhouses, be Boarded-out, as they are in many Parts of the Continent?

If this is your opinion, please say how it could be best and most economically accomplished.

7.—Do you approve of District Nursing for the Sick Poor?

District nursing is now carried out by private beneficence in various parts of Ireland. Should it in your opinion be extended to all parts, and made a charge upon the rates, local or general?

If so, please give any suggestions that may occur to you how it should be worked.

(8) Would you advocate the law of settlement being extended to Ireland?

(9) The Irish bastardy law requires the evidence of the mother against the putative father to be corroborated.

Should the Irish law be assimilated to the English in this respect?

(10) Do you consider that bastardy would be checked if women pregnant of their illegitimate children were prohibited from entering a workhouse, experience having shown that the demoralizing influence of these institutions generally destroys any chance of reformation. If so, can you suggest how such cases should be dealt with?

11. If you consider that the absence of promotion or adequate reward for long and diligent discharge of duty militates against the efficiency of the Poor-law service, can you suggest any practicable remedy?

The Poor Relief Section has also prepared a document of an analogous character for dispatch to the chairmen of Boards of Guardians, workhouse medical officers, workhouse masters, relieving officers, and the clerks of all unions in Ireland. This contains an exhaustive series of queries upon various points falling into the division of the work undertaken by this section.

Similarly the Public Health Section has addressed to each sanitary officer a circular showing in what way he can help in the general work, and begging him to keep during the year certain records of the work he does.

The Medical Relief Section has also addressed a circular to medical officers of dispensary districts of similar purport.

SCIENCE COMMITTEE.

A meeting of the Science Committee was held at the office of the Association, 429, Strand, W.C., on June 18th, 1906, when there were present: Dr. Norman Walker (Chairman) in the chair, Dr. H. W. Langley Browne (Chairman of Council), Dr. H. Radcliffe Crocker (Treasurer), Mr. Andrew Clark, Dr. Wm. Collier, Professor J. T. J. Morrison, Professor G. H. F. Nuttall, M.D., F.R.S., Dr. F. M. Pope, Dr. Cecil E. Shaw, Professor Ernest H. Starling, M.D., F.R.S., Professor Ralph Stockman, M.D., F.R.S.E., Professor Arthur H. White.

Puerperal Morbidity.

The Chairman reported that in accordance with the instructions of the Science Committee a copy of the report of the Committee on puerperal morbidity, published in the Supplement to the British Medical Journal of May 19th, 1906, p. 261, had been forwarded to all the officers of the Section of Obstetrics and Gynaecology for presentation to that Section.

Hereditary Disease.

The Committee further considered the resolution of the Section of Psychological Medicine at the annual meeting of 1905, suggesting that the Council should appoint a Committee for the investigation of hereditary forms of disease. The Chairman reported that he had conferred with Professor Karl Pearson, F.R.S., and Dr. John Macpherson of Edinburgh, who were associated in an inquiry now in progress, and with Dr. Bashford, General Superintendent and Director of the Laboratory of the Imperial Cancer Research Fund, and read a letter from Dr. John Macpherson, expressing the opinion that the British Medical Association could best render assistance by facilitating the work of collecting the data required. After discussion the Committee adopted the following resolution:

> That the officers of the Psychological Section of the Leicester Meeting be informed that the Committee are of opinion that, as an inquiry almost similar to the one proposed is already in progress under the direction of Professor Karl Pearson, F.R.S., no good would arise by the Science Committee appointing another Committee to consider or confer upon the matter.

The Middlemore Trust.

The Committee having considered a memorandum on the Middlemore Trust prepared by the Chairman, resolved to recommend the Council to invite essays on the subject of ophthalmia neonatorum with special reference to its causation and prevention, and to advertise the subject in the British Medical Journal, the *Ophthalmic Review*, and the *Ophthalmoscope*, and to circulate reprints of the advertisements to all the universities and medical schools, both English and Continental.

It was further recommended that adjudicators should be appointed at the January meeting of the Science Committee, that the essays should be received not later than April 30th, 1907, that the adjudicators should make their award to the Committee not later than June 30th, 1907, and that the prize be presented at the annual meeting of the British Medical Association in 1907.

Science Grants and Scholarships.

In the consideration of the allocation of the money grants for scientific research, and the appointment of research scholars, the Committee had the advantage of the

assistance of Professors Nuttall, Starling, Stockman and White.

The Council was recommended to reappoint Mr. Major Greenwood, Mr. J. Anderson Craw, Dr. Herbert E. Roaf, research scholars and Mr. H. de Riemer Morgan, Ernest Hart Memorial Scholar, for a further period of one year in each case.

[In presenting the minutes of the Committee to the Council the CHAIRMAN reported that Mr. Craw had resigned, having been appointed a Research Student of the Grocers' Company. The Chairman recommended the Council to appoint in his place Mr. Willoughby Henwood Harvey, M.B. (Toronto), working in the Pharmacological Laboratory, Cambridge, in the investigation of atheroma and glycogen formation. This recommendation was accepted.]

The Committee recommended that the following renewed grants be made:

	£
Cushny, Professor A. R., M.D.	20
Dixon, Professor W. E., M.D.	4
Dudgeon, Mr. L. S.	10
Harman, Mr. N. Bishop	2
Kilvington, Dr. Basil	20
Nabarro, Dr. David	15
Orr, Dr. D.	30
Price-Jones, Dr. Cecil	5
Shattock, Mr. S. G.	10
Sherrington, Professor C. S., F.R.S.	30
Thiele, Dr. F. H.	20
Warrington, Dr. W. B.	10
Total ...	£176

It was recommended that the following new grants be made:

	£
Annett, Dr. H. E.	10
Bayon, Dr. Harry	25
Cullis, Miss Winifred C.	5
Findlay, Dr. Leonard	10
Forsyth, Dr. David	10
French, Dr. H. S.	5
Goadby, Mr. Kenneth	10
Graham, Mr J. C. W.	5
Halliburton, Professor W. D., F.R.S.	15
McIlroy, Dr. Annie Louise	5
Pembrey, Dr. M. S.	5
Reid, Professor E. Waymouth, F.R.S.	10
Slade, Dr. J. G.	5
Spriggs, Dr. E. I.	20
Webster, Dr. W.	20
Wishart, Dr. John	5
Total	£165

The total amount recommended for renewed grants was £176, and in new grants £165, making a total in grants of £341; the total amount voted to the research scholars is £650, so that the sum distributed through the Science Committee for the advancement of medicine by research this year is £991.

ORGANIZATION COMMITTEE.

A MEETING of the Organization Committee was held at the office of the Association on June 12th, when there were present: Mr. T. JENNER VERRALL (in the chair), Mr. Andrew Clark, Dr. Alfred Cox, Dr. E. Rayner, Professor A. H. White.

The Committee transacted routine business with respect to the grouping of Divisions and Branches for electoral purposes, modifications of the rules of Divisions or Branches submitted for the approval of the Central Council, and the receipt of the report of the Medical Secretary as to his visits to Divisions and Branches, and considered the special matters stated in the following paragraphs.

PUBLICATION OF LISTS OF MEMBERS.

On the question, referred by the Chairman of Council to the Committee, as to the advisability of the publication of two lists of members each year, namely, the list in order of Divisions and Branches published in the SUPPLEMENT in May and the alphabetical list published in the *Year Book*, it was decided to report as follows;

(1) That in the opinion of this Committee there must be an alphabetical list of members.
(2) That it is highly advisable that the alphabetical list should be in a printed form.
(3) That the Committee recommends that the Alphabetical List be not bound with the *Year Book*, but be published annually as a SUPPLEMENT to the BRITISH MEDICAL JOURNAL, and that the Division and Branch Membership List, at present published as a SUPPLEMENT to the JOURNAL, be in future supplied only to persons holding official positions in the Association.

MEMORANDA FOR HONORARY SECRETARIES.

On consideration of an application from the Honorary Secretary of a Division, the Committee approved the suggestion that a short list of memoranda as to the regulations and working of the Association useful for the assistance of Honorary Secretaries of Divisions and Branches should be prepared and issued.

REGULATIONS AFFECTING COLONIAL BRANCHES.

Representations from South African and other Branches.

The Committee considered representations made on behalf of the South African Branches by Dr. Jane Waterston, who had been authorized to represent the Cape of Good Hope (Western Province) Branch in England for this purpose. The Committee had also before it communications from other Branches, both in South Africa and other parts of the Empire outside the United Kingdom, drawing attention to their special difficulties under the present regulations. These difficulties were found to arise chiefly under two heads, (1) insufficiency of funds at present available for Branch expenditure; and (2) insufficient freedom of local action.

Finances of Colonial Branches.

With respect to the question of funds, it was decided to point out that the proportion of the subscription of members assigned as a capitation grant to the Branches outside the United Kingdom could not be increased having regard to the fact that the cost of supplying the JOURNAL to the members outside the United Kingdom was greatly in excess of the cost of supplying it to members within the United Kingdom, and that, therefore, the proportion of the subscription of a Colonial member available for certain administrative expenses was very small indeed; that the Organization Committee had already suggested one method by which the present difficulty might be overcome—namely, that the exceptional power should be given under the Charter to Colonial Branches to levy a compulsory local subscription.

Increased Elasticity of Regulations affecting Colonial Branches.

As regards greater freedom of action, the Committee decided to recommend the Council to approve that the following modifications should be made in the requirements of Colonial Branches if desired by them, namely, (1) that they should have greater freedom as regards the mode of election of new members; (2) that they should have greater freedom as regards alteration of rules on matters of purely local concern without reference to the Central Council; (3) that provision should be made for the constitution when desired of some recognized council or committee representative of the Branches in South Africa. With regard to the question of medical defence which the South African Branches desired to be able to take up, it was resolved to point out that if the proposed charter were adopted medical defence would become one of the recognized objects of the Association, and it might be possible for Colonial Branches which desired to be authorized to take it up, even though the powers should not be exercised in the United Kingdom.

NAVAL AND MILITARY COMMITTEE.

A MEETING of the Naval and Military Committee was held at the office of the Association on June 14th, when there were present: Lieutenant-Colonel E. M. WILSON, C.B., C.M.G., in the chair; Surgeon-Lieutenant-Colonel Decimus Curme; Surgeon-General G. J. H. Evatt, C.B.

The matters considered were certain general questions affecting the position of medical officers of His Majesty's forces and questions of army administration. The recommendations made, having all been approved by the Council, are stated in the report of the proceedings of that body.

VOLUNTEER MEDICAL SERVICE COMMITTEE.

A meeting of the Volunteer Medical Service Committee was held at the office of the Association on June 19th, when there were present: Surgeon-Colonel Andrew Clark, V.D., in the chair, Colonel G. T. Beatson, C.B., V.D., Surgeon-Colonel W. H. Bull, V.D., Surgeon-Colonel G. S. Elliston, V.D., Surgeon-Colonel P. B. Giles, V.D., Lieutenant-Colonel Valentine Matthews, Major C. P. Oliver, Captain W. Pemberton Peake, Captain William Sheen, Surgeon-Lieutenant-Colonel R. R. Sleman, V.D., Surgeon-Colonel W. R. Smith, V.D., Surgeon-Captain J. B. Stevens, Surgeon-Lieutenant-Colonel Atwood Thorne, V.D., Lieutenant-Colonel E. M. Wilson, C.B., C.M.G.

The Chairman reported that in accordance with the instructions of the last meeting, the Subcommittee had met twice, and drafted a scheme for the reorganization of the Volunteer Medical Service.

The Committee then proceeded to consider the scheme, clause by clause, and after amendment adopted the following, which it believed to be a practical working scheme for the reorganization of the Volunteer Medical Service.

Report on the Reorganization of the Volunteer Medical Service.

Officers.

(*a*) After a certain date all commissions to medical men in the volunteers to be to the R.A.M.C.(Vols.). Promotion to be granted as now after fixed periods of service and on the necessary qualifications being obtained.

(*b*) All officers so appointed to wear the uniform of the R.A.M.C.(Vols.) however employed.

(*c*) The names of all officers of this corps to be shown in one seniority roll in the Monthly Army List as is now the case with the R.A.M.C.

(*d*) All existing regimental medical officers to have the option of remaining as they are or of being transferred to the R.A.M.C.(Vols.), retaining their present seniority.

(*e*) Regimental officers transferring must adopt the R.A.M.C.(Vols.) uniform, subject to the usual regulations governing the changes of uniform, and simple military titles. If they remain, they must retain their regimental uniform and compound titles.

(*f*) All medical men accepting medical commissions in the R.A.M.C.(Vols.) may at their option be attached to an individual regiment, corps, or medical unit, provided there be a vacancy therein, and take their promotion accordingly, and may transfer, subject to the approval of the officers commanding and the general officer commanding.

(*g*) All officers of the R.A.M.C.(Vols.) to be eligible for temporary duty with other units, if they so desire, under the instructions of the necessary authority, provided vacancies exist.

Volunteer Medical Reserve.

Volunteer medical officers desirous of joining the new civil reserve, and fulfilling the requirements, to have preference over medical men not holding a commission in the Volunteer forces. They shall be supernumerary in their corps while holding the appointment. Commissions may be given to any other medical men to complete the establishment, but supernumerary officers to be still entitled to earn capitation grants for their corps.

Regimental Bearers.

An ambulance detachment to be specially enrolled for each unit, of a strength to consist of one sergeant, one corporal and privates equivalent to 2 per cent. of the establishment. This detachment to be in addition to the establishment of the regiment or corps, and to earn capitation grants solely for ambulance duties. Members of the detachment to wear the uniform of the regiment, or corps, and the Geneva Cross instead of the letters S.B. as a distinguishing badge.

First Ambulance.

(*a*) In place of the existing bearer companies and field hospitals the R.A.M.C.(Vols.) to be organised on the lines of the R.A.M.C. field ambulance.

(*b*) The establishment of each company of the R.A.M.C. (Vols.) to be the same as that of a skeleton field ambulance, that is, to consist of 102 officers and men.

(*c*) The establishment of the existing bearer companies to be augmented to 102 for this purpose.

(*d*) Specially enrolled men, to the number of 90, to be added whenever mobilization is ordered.

(*e*) Men of the R.A.M.C. enlisted under Army Order 137, 1906, for one year with the colours to be permitted to enroll in the R.A.M.C.(Vols.) on termination of their service with the colours, and to be granted a bonus of £1 per annum so long as they are certified to be efficient. Such men to be supernumerary to the establishment of the unit they join, but capitation grants to be drawn by such unit on their behalf.

(*f*) In the case of men who have obtained the army qualifying certificate as cooks, an additional capitation grant to be given.

Instruction for Officers and Men.

(*a*) In addition to the existing school of instruction, the formation of classes of instruction for officers and non-commissioned officers in district commands is urged. These classes not necessarily to be held on consecutive days. For those attending such instruction the usual travelling allowances to be authorized.

(*b*) The Volunteer Ambulance School of Instruction in London to be recognized as an authorized institution for the purposes of teaching for the pass certificate.

(*c*) The necessity of training men of the R.A.M.C. (Vols.) as hospital nurses as well as bearers to be met by arranging for training in military or civil hospitals. The cost of such special training to be met by a special capitation grant.

(*d*) Volunteer medical officers to be paid on a fixed scale for examining recruits of their corps, as is done in the case of the militia and yeomanry.

(*e*) It is desirable to increase the camp allowance of medical officers from 8s. to £1 per day.

Army Medical Reserve.

(*a*) The Army Medical Reserve shall consist of two classes:

(i) Those willing to serve abroad in time of war. (A beginning has already been made in this direction as regards the rank and file.)

(ii) Those willing to serve at home.

(*b*) Those enrolled for service abroad to be supernumerary in their corps, but entitled to earn capitation grant.

(*c*) Both classes to receive the same preference as is now extended to the existing Army Medical Reserve for employment at home in times of peace, and that this preference be more strictly exercised than is the case at present.

(*d*) Volunteer medical officers resigning their commissions to be recorded in a special list of reserve of officers with a view to employment at home in time of emergency, if they so desire.

Further, it is the opinion of the Committee that a volunteer medical officer be appointed to the staff of the Director-General of the Army Medical Department.

Andrew Clark, *Chairman.*

June 19th, 1906.

The Committee adopted the two following resolutions:

That it be a recommendation to the Council that His Majesty's Secretary of State for War be asked to receive a deputation from the British Medical Association (consisting of the members of the Volunteer Medical Service Committee) in order that it may lay before the Secretary of State for War the views of the Association as to the reorganization of the Volunteer Medical Service.

The Committee having had its attention called to the composition of the Army Territorial Committee as described in the speech of the Secretary of State for War on Army Estimates in the House of Commons, on March 8th, 1906, decided to request the Council to represent to His Majesty's Secretary of State for War its regret that there should be no Volunteer Medical Officer on that Committee.

HOSPITALS COMMITTEE.

A MEETING of the Hospitals Committee was held at the office of the Association on May 10th, when there were present: Dr. F. M. POPE (in the chair), Dr. J. Ford Anderson, Dr. Wm. Collier, Dr. John R. Hamilton, Mr. Edmund Owen, Dr. Lauriston E. Shaw.

ADVICE TO DIVISIONS.

The Committee received and approved reports on advice given since the last meeting of the Committee, in response to inquiries from Divisions, concerning questions of hospital management.

INQUIRY AS TO OUT-PATIENT DEPARTMENTS.

The Committee received the report of the replies of Divisions to the inquiry as to out-patient departments of hospitals, which the Annual Representative Meeting of Leicester instructed the Committee to make. It was decided to report to the Representative Meeting that the Committee, having considered the replies of Divisions, recommended the Representative Meeting not to adopt the proposal referred for the consideration of Divisions.

CIRCULATION OF CONCLUSIONS OF JOINT HOSPITALS COMMITTEE.

Instructions were given as to the mode in which the conclusions of the Joint Hospitals Committee, as to the principles of hospital management, should be brought to the notice of the hospital boards.

PUBLIC HEALTH COMMITTEE.

A MEETING of the Public Health Committee was held at the office of the Association on June 19th, Mr. C. H. WATTS PARKINSON in the chair, the other members present being Dr. J. Groves, Mr. Herbert Jones, Dr. Herbert Manley, Dr. F. C. Martley, Dr. T. G. Nasmyth, Dr. J. Maxwell Ross.

Scottish Poor-law Officers.

The Committee approved the action of the Chairman in supporting a deputation from the Scottish Poor-law Medical Officers' Association to the Secretary for Scotland with regard to the position of Poor-law medical officers in Scotland.

Inspection of Food at Ports.

The Committee considered correspondence with the Medical Officer of the Manchester Port Sanitary Authority concerning a Bill introduced by the Local Government Board to provide for the better inspection of food in the port of Manchester by transference to the Port Sanitary Authority of powers at present distributed among the sixteen urban and rural authorities bordering on the port. The action of the Chairman in giving support was approved.

Overlaying of Infants.

The Chairman, Dr. Maxwell Ross, and Dr. Martley were appointed representatives to confer with representatives of the Coroners' Society and of the Society for the Prevention of Cruelty to Children with a view to legislation to prevent the overlaying of infants.

Viewing the Body at Inquest.

Having regard to the introduction into Parliament by Mr. Luke White, M.P., of a Bill to remove the present obligation upon coroners and their juries to view the bodies of all persons upon whom inquests are held, it was decided to recommend the Council to express the opinion that in the interests of public health it was undesirable that the jury and coroner should be compelled to view the body in every case.

Public Health Bill.

The present position of the Public Health Bill received consideration upon reception of the report that the Bill had been introduced by Sir Francis Sharpe Powell, supported by Sir Walter Foster and Sir J. Batty Tuke, and of a report from the Solicitor as to drafting certain amendments of Clause 2 (1) which had been suggested. It was decided to proceed no further with the drafting of amendments for the present, pending an opportunity of waiting upon the President of the Local Government Board.

Disputes as to Poor-Law Appointments.

The Committee received with satisfaction the reports of the results of the Aberystwyth and Bangor disputes, and congratulated the South-West Wales and North Carnarvon and Anglesea Divisions respectively upon the success which had attended their efforts.

Meetings of Branches & Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.*]*

BIRMINGHAM BRANCH:

TAMWORTH AND NUNEATON DIVISION AND COVENTRY DIVISION.

A JOINT meeting of these Divisions was held at the Coventry and Warwickshire Hospital on June 19th. Mr. FAULDER WHITE was elected to the chair.

Representative at Annual Representative Meeting.—Dr. DAVIDSON proposed that Dr. Milner Moore should be elected Representative for the two Divisions for Representative Meetings during the year. This was seconded by Dr. PICKUP and carried unanimously.

Annual Representative Meeting.—The agenda paper of the Annual Representative Meeting was gone through. Instructions regarding certain matters were given to the Representative, and on the other matters he was requested to vote according to his own judgement.

BORDER COUNTIES BRANCH:

NORTH CUMBERLAND DIVISION.

THE third annual general meeting was held at the County Hotel, Carlisle, on May 25th, at 4 p.m. The Committee met at 3.45 p.m., Dr. BOWSER (Penrith) occupying the chair.

Committee's Report.—The minutes of the last meeting having been read, approved, and signed by the Chairman, the Executive Committee's report for the past year was then submitted to the meeting and received with approval. It read as follows:

Your Executive Committee have much pleasure in presenting their third annual report. During the past year the work of the Division has been successfully carried on and the standard of previous years fully maintained. Four meetings, including the last annual general meeting, have been held during the year. The annual general meeting was held in Carlisle on May 26th, 1905, when an interesting discussion took place on the relations of medical men to public bodies, and on some points in the work of a medical officer to the Educational Board. A meeting was held at the Blencathra Sanatorium on August 31st, 1905, when Dr. Galbraith, of Edinburgh, read a paper on the effects of raw meat on the nitrogen metabolism in pulmonary tuberculosis, and members were shown round the institution. The autumn meeting was held in Carlisle on December 8th, 1905, when Dr. Gibson, of Edinburgh, read a paper on the Borderland of Medicine and Surgery in Gastric Affections. The spring meeting was held at Penrith on April 6th, 1906, when four most interesting papers were read by members of the Division. Rule 6 has been altered in order to allow your Executive Committee to fill up any vacancy among the officers of the Division should such occur before the annual general meeting. A subcommittee appointed to consider and report to the Medico-Political Committee of the Association any modification in the rules of the Central Midwives Board which they might deem necessary resolved unanimously that no change was necessary. It is three years since the Divisions were formed, and your Committee are of opinion that the time has now arrived to consider any alteration in the Divisional areas which may be advisable. In order that this matter may be fully discussed before any action is taken, they have referred it to the Branch Council. A Subcommittee of two members from each Division and the Branch Secretary have been appointed to report on this matter. The membership of the Division is 51, compared with 56 last year. The total number of medical men in the Divisional area is 89. The expenses of the Division have been defrayed by the Branch Council as in former years.

Registration of Nurses.—The following proposed resolution *re* the State supervision of nurses, referred from a meeting of the Branch to the Division for their opinion:

> The members of the Border Counties Branch of the British Medical Association hereby record their opinion that on any Central Board formed by legislative enactment to superintend the education, registration, and discipline of nurses, there should be medical representatives at least equal in number to the Representatives of the Nursing Body,

was unanimously approved.

Reports.—The annual report of the Central Council of the Association, printed in the Supplement, April 28th, 1906, and the provisional agenda for the Representatives' Meeting to be held in London on July 24th, 1906, printed in the Supplement of the British Medical Journal, May 5th, 1906, were laid before the meeting.

Election of Officers.—The meeting then elected the following officers for the ensuing year: *Chairman*, Dr. Bird; *Vice-Chairman*, Dr. Graham; *Members of Committee*, Dr. Doughty, Dr. Edington, Dr. Ogilvy Ramsay, Dr. Powers; *Honorary Secretary*, Mr. Norman Maclaren; *Representatives on the Branch Council*, Dr. Graham and Dr. Donald; *Members of the Ethical Committee*, Dr. Graham and Dr. R. Maclaren.

Vote of Thanks.—Dr. Bird then took the chair, and at his proposal a most hearty vote of thanks was given to Dr. Bowser for the able manner in which he had discharged the duties of chairman during the past year.

Paper.—Dr. R. Maclaren then read a paper on the Relations of Medical Men to their Patients, which was followed by an interesting discussion.

At a joint meeting of the North and West Cumberland Divisions held at the County Hotel, Carlisle, on Friday, June 29th, before the annual meeting of the Border Counties Branch, Dr. Harrison Mitchell was elected their Representative to the Representative Meeting for 1906.

CAVAN AND MONAGHAN, THE NORTH, MID, AND SOUTH CONNAUGHT, THE FERMANAGH, AND TYRONE DIVISIONS.

A conjoint meeting of the Cavan and Monaghan, the North, Mid, and South Connaught, the Fermanagh, and Tyrone Divisions was held at Cootehill on June 28th.

Election of Officers.—Dr. Mills was elected Representative of the combined Divisions, Dr. Hurry re-elected Chairman of the Cavan and Monaghan Division, and Dr. E. W. McQuaid of Cootehill, Honorary Secretary in room of Dr. Moorhead.

CONNAUGHT BRANCH:
North Connaught Division.

At a duly summoned meeting of all the members of the North Connaught Division of the Connaught Branch of the British Medical Association, held in the Imperial Hotel, Sligo, on Saturday, June 16th, Dr. Laird proposed, and Dr. Martyn seconded, that a North Connaught Division of Connaught Branch be formed, and that the following constitute its officers:—*Chairman:* Dr. Martyn; *Vice-Chairman:* Dr. Carroll; *Honorary Secretary:* Dr. J. Laird; *Representative on Branch Council:* Dr. Flanagan.

GLASGOW AND WEST OF SCOTLAND BRANCH:
Ayrshire Division.

The annual meeting was held in the Infirmary, Kilmarnock, on June 27th, Dr. Frew, Chairman, presiding.

Election of Office-bearers.—The following were appointed officers for the year: *Chairman*, Dr. Frew (Kilmarnock); *Vice-Chairman*, Dr. Prentice (Kilmarnock); *Secretary and Treasurer*, Dr. Gairdner (Ayr); *Representative to Representative Meeting*, Dr. Brown (Ayr); *Representatives on Branch Council*, Drs. Frew and Gairdner.

Paper.—Dr. Frew read notes of several cases of cerebro-spinal meningitis which had occurred recently in the district, and showed portions of the brain and spinal cord from one, and microscopic slides showing the presence of the diplococcus from another.

A visit was also made to the wards of the institution, where cases were demonstrated and specimens shown by Drs. Frew and R. C. Robertson.

LANCASHIRE AND CHESHIRE BRANCH:
St. Helen's Division.

The annual meeting was held in the Young Men's Christian Association Buildings, North Road, St. Helen's, on June 27th.

Financial Statement.—The Treasurer submitted the financial statement for the year 1905-6, which showed a balance of £1 8s. 10½d. The account was audited by Dr. Bassett, and adopted.

Election of Office-Bearers.—The following office-bearers were elected for the year 1906-7: *Chairman*, Dr. Reid; *Vice-Chairman*, Dr. Mouncey; *Honorary Secretary and Treasurer*, Dr. Buchan, Grosvenor Road, St. Helen's; *Representative on the Branch Council*, Dr. F. P. Bassett; *Representative for the Representative Meeting*, Dr. Bowden. The first four gentlemen were appointed the Executive Committee of the Division.

Meeting with Warrington Division.—The Secretary reported the result of this meeting, which was approved.

The late Dr. Hayward.—The Chairman moved a resolution expressing the sorrow of the Division at the death of Dr. Hayward, their late Representative on the Branch Council, and instructing the Secretary to convey to Mrs. Hayward their deep sympathy with her in her bereavement.—The resolution was ordered to be inserted in the minutes.—This was all the business.

MUNSTER BRANCH.

The annual general meeting of this Branch was held on Wednesday, June 20th, Dr. J. Giusani in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and signed.

Representative on Central Council.—Dr. J. Giusani was appointed Representative on the Council of the British Medical Association in accordance with By-law xxvii.

New Member.—Dr. J. N. Mangan (Ennis) was elected a member of the Association.

Representative at Annual Representative Meeting.—Dr. J. J. Curran (Mount Bells, Killeagh, co. Cork) was unanimously elected Representative to Representative Meeting.

Proposed Royal Charter.—The details of the Royal Charter to be applied for were read.

Matters Referred to Divisions.—The recommendations from the Medico-Political Committee on Contract Practice, Public Medical Services, and Provident Dispensaries were read.

Darnell Fund.—£5 5s. to the Darnell Expenses Fund was passed, subject to opinion as to legality from the Medical Secretary of the British Medical Association.

Election of Officers.—The following officers and Committee were elected for 1906-7:—*President*, Dr. P. T. O'Sullivan; *Vice-President*, Dr. J. Cotter, F.R.C.S.I.; *Honorary Secretary*, Dr. Philip G. Lee, 26, Patrick's Hill, Cork; *Representative on Council*, Dr. J. Giusani; *Representative to Representative Meeting*, Dr. J. J. Curran (Killeagh); *Council:* Professor H. Corby, M.D., Professor W. Ashley Cummins, M.D., H. R. Townsend, M.D., P. J. Cremen, M.D., J. T. O'Connor, M.D., O. T. Woods, M.D., T. B. Moriarty, M.D., E. J. Coffey, M.D., P. J. Macnamara, F.R.C.S.I., N. H. Hobart, M.B., and T. J. O'Meara, M.B.

SOUTH-EASTERN BRANCH:
Hastings Division.

The annual meeting was held at the East Sussex Hospital on June 13th, the chair being taken by Dr. Batterham. The minutes of the last meeting having been read and confirmed, the following members were elected as officers for the ensuing year: *Chairman*, E. W. Skinner, M.D. (Rye); *Vice-Chairman*, Mr. E. R. Mansell; *Representative for Representative Meeting (with Eastbourne)*, W. Muir-Smith, M.D. (Rosebank, Eastbourne); *Representative on Branch Council*, Mr. E. Kaye-Smith (St. Leonards-on-Sea); *Secretary*, Dr. G. Vickerman Hewland (4, Eversfield Place, St. Leonards-on-Sea); *Executive Committee*, Messrs. G. A. Ballingall, T. Redmayne, F. W. S. Culhane, Peter Paget, and J. P. Wills.

SOUTH-EASTERN OF IRELAND BRANCH.

A meeting of this Branch was held in the Town Hall, Clonmel, on June 13th, at 1 p.m., Dr. William J. Shee in the chair.

Confirmation of Minutes.—The minutes of the annual meeting were read, approved, and signed by the Chairman.

Letters.—Letters of apology were read from Drs. Edward Stephenson and Thomas Laffan.

Vote of Thanks.—A vote of thanks, proposed by Dr. CREAN, and seconded by Dr. MORRIS, to the Mayor and Corporation for kind permission to use the Council Chamber, brought the proceedings to a close.

Dinner.—Covers were laid for 20, including guests, at Hearne's Hotel.

SOUTH MIDLAND BRANCH.

THE jubilee annual meeting of the Branch was held on June 21st, at Northampton General Hospital, at 2.30 p.m., the members having been regaled at luncheon at the Masonic Hall by the President-elect, Mr. H. Cropley, F.R.C.S. (Northampton).

Confirmation of Minutes.—The minutes of the last meeting were read and signed.

Resolution.—It was resolved that Honorary Secretaries and Representatives of Divisions in the Branch be *ex-officio* members of the Branch Council.

New Members.—The PRESIDENT announced the election of seven new members by the Branch Council.

ULSTER BRANCH.

THE twenty-eighth annual meeting of this Branch was held in the Medical Institute, Belfast, on Thursday afternoon, June 21st, Professor LINDSAY, ex-President, in the chair in the absence of the President, Dr. Leonard Kidd.

Confirmation of Minutes.—The minutes of the last annual meeting were read and confirmed.

Letter.—The HONORARY SECRETARY announced that he had received an apology for absence from the President.

Report of Council.—The report of Council was read by the HONORARY SECRETARY. It stated that a memorandum *re* early infant management had been received from Dr. Bernard (Derry) and transmitted to Dr. Kidd for presentation to the General Medical Council. The Council had arranged to share with the Ulster Medical Society the expenses of printing and postage in connexion with the Darnell Fund. The Council recommended that the British Medical Association be invited to meet in Belfast in 1909 or 1910. The report was moved by the HONORARY SECRETARY, Dr. Cecil Shaw, seconded by Mr. FULLERTON, and, after some discussion on the last point, it was passed unanimously.

Annual Report.—The annual report was read by the HONORARY SECRETARY. It showed a slight falling off in membership, which numbered in April 355. Details of the attendance of members at the Branch Council, of the Representatives of the Branch on the Central Council, and of the members of the Irish Committee were given, and a summary of the scientific work done during the year.

Financial Statement.—The HONORARY TREASURER (Dr. J. S. Darling, Lurgan) read the statement of accounts, which showed an expenditure just equal to the income, and a balance in hand of £72. The two reports were adopted.

Election of Officers.—The following office-bearers for 1906-7 were elected:—*President*, Professor Symington, F.R.S. (Belfast); *Treasurer*, Dr. J. S. Darling (Lurgan); *Secretary*, Dr. Cecil Shaw (Belfast); *Representatives of the Ulster and Connaught Branches on the Central Council*, Professor Byers and Dr. Cecil Shaw; *Members of the Irish Committee in addition to the Two Members of the Central Council*, Dr. J. G. Cooke (Derry) and Dr. J. S. Darling (Lurgan).

President's Address.—In the unavoidable absence of the President, Dr. Leonard Kidd, his address was read by Dr. J. S. DARLING (Lurgan). He took as the subject of his discourse a Public Medical and Sanitary Service for Ireland. He said: Addressing an audience composed of Irish medical men, it is unnecessary to occupy time in arguing the case that the Irish Poor-law Service is a most unsatisfactory one alike to those it serves and to those engaged in its service. I am, however, chiefly concerned with its medical and sanitary departments, and assume you will accept the three folllowing propositions as proved:

1. That sanitary administration in provincial Ireland is very defective, and especially so with regard to the prevention of disease.

2. That the sick poor of rural districts are deserving of and entitled to the same comforts, skilled nursing, the same advantages of the progress of science, and to be placed under the same favourable conditions for recovery in the rate-supported institutions they are obliged to use as their more fortunate brethren in affliction enjoy in the charitably supported institutions of cities.

3. That the rate-supported hospitals and dispensaries, with few exceptions, by reason of their faulty construction and administration do not satisfy the public requirements, are hopelessly "archaic" in their arrangements, and therefore need reform.

Starting from these premisses, I propose to briefly outline a scheme whereby the needed reforms may be obtained. The following is an epitome of the principal suggestions made:

1. The separation of medical relief and sanitary administration from pauper relief.

2. The establishment of a Public Health Board as a separate department of the Local Government Board, and responsible to Parliament through a Minister of Public Health; said Board of Public Health to be composed chiefly of medical men and assisted by legal and engineering experts.

3. All asylums, hospitals, dispensaries, and sanitary administration to be under the direction and control of this Board of Public Health.

4. The county to be the administrative unit.

5. The appointment of a county medical officer of health and the establishment of county public health laboratories. For this purpose the smaller counties to be grouped.

6. The asylums, hospitals, and dispensaries to be under the management of the county council or committees of it.

7. In small counties the establishment of *one* county hospital, in large counties of two or more district hospitals, constructed, equipped, furnished, and served as a modern hospital for acute medical and surgical cases should be. These hospitals to be placed in the more important towns of the county or district, so that each might have a staff of all the practitioners, or at least four, living in the town. In addition, a certain number of less expensively-equipped cottage hospitals.

8. Wherever a hospital, large or small, existed, the dispensary of the district to be transferred to it and worked from it as its "extern department."

9. The establishment under the Public Health Board of a department for the purchase, analysis, and distribution as required of all drugs.

10. A register to be kept in each district of those entitled to free medical attendance by the district dispensary medical officer. This register to be frequently revised. Requisitions for medical attendance to be issued only by a paid official residing close to the medical officer.

11. Tuberculosis to be included in compulsory notification for the purpose of instruction and disinfection.

12. Counties to combine for the erection on selected sites of sanatoriums for (1) treatment of hopeful cases of tuberculosis, surgical as well as pulmonary; (2) segregation of hopeless cases.

13. Instruction by trained and suitably qualified "visitors" in the better housing and proper feeding of the people.

14. This service in its several branches to be entered by competitive examination directed and controlled by the Public Health Board.

PORTADOWN AND WEST DOWN DIVISION.

AT a meeting at Newry on June 29th, Dr. LAWLESS was in the chair.

Election of Officers.—The following gentlemen were elected officers for the year:—*Chairman*, Dr. S. Fergus, J.P.; *Vice-Chairmen*, Professor Anderson and Dr. Beamish; *Honorary Secretary and Representative*, Dr. J. Singleton Darling; *Representatives on Branch Council*, Drs. Agnew, Jas. Taylor, and H. Sinclair; *Executive Committee*, Drs. Lawless, Deane, Graves, Sugars, Smartt, and Martin.

Accounts.—The Secretary's statement of accounts, showing a balance in hand of £3 0s. 9d., was adopted.

The Darnell Fund.—A resolution, affirming the sympathy of the meeting with Dr. Darnell, and pledging the members to support the fund, was passed.

Papers.—Dr. BEAMISH read notes of a case of tetanus, Dr. LIDDLE of two cases, all successfully treated. Drs. FERGUS, SMARTT, and the SECRETARY took part in the discussion; and DRS. BEAMISH and LIDDLE replied.—Dr. BEAMISH and Dr. LIDDLE each gave notes of cases

of cocaine poisoning. The CHAIRMAN and other members spoke.—Professor ANDERSON made communications on (1) some points in heredity and (2) the tendency to osseous deposits in some animals.—Dr. O'HARE gave notes of a confinement in which an enormous spina bifida presented, and showed photographs of the malformed fetus.

Entertainment.—Dr. S. E. Martin entertained the members, and to him and his family the hearty thanks of the meeting were returned for their hospitality.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH OF ENGLAND BRANCH.—The annual meeting of the Branch will be held in the College of Medicine, Newcastle-on-Tyne, on Thursday, July 19th, at 2.30, when Dr. Thomas Beattie will give an address.—R. P. RANKEN LYLE, Honorary Secretary, Newcastle Division.

NORTH OF ENGLAND BRANCH: NEWCASTLE-ON-TYNE DIVISION.—An all-day scientific meeting of the Division will be held in Newcastle-on-Tyne on Thursday, July 19th, when all medical practitioners in Northumberland, Durham, and Cleveland Division of Yorkshire will be cordially welcome.—R. P. RANKEN LYLE, Honorary Secretary, Newcastle Division.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: THOMAS F. O'KEEFE, Surgeon, to the *President*, additional, for three months' study at St. Vincent Hospital, Dublin, July 2nd; JOHN W. SLAUGHTER, M.B., Fleet Surgeon, and MAURICE W. HAYDON, Surgeon, to the *Swiftsure*, on recommissioning, July 17th: JAMES BRADLEY, M.D., Fleet Surgeon, to the *Royal Oak*, on recommissioning, July 17th; ERNEST A. SHAW, M.B., Staff Surgeon, and JAMES G. WALLIS, M.B., Surgeon, to the *Hecla*, on recommissioning, July 10th; EWEN CAMERON, PERCY F. MINETT, and HUBERT A. BROWNING, Surgeons, to the *Vivid*, additional for disposal, to be lent to Plymouth Hospital; FREDERICK G. GOBLE and JOHN BOURDAS, Surgeons, to the *Pembroke*, additional for disposal, to be lent to Chatham Hospital, July 3rd.

Mr. EDWARD BARNES, M.B., has been appointed Surgeon and Agent for Whitby, Sands End, Robin Hood's Bay, Peak, and Hawkser, July 25th.

ARMY MEDICAL STAFF.

SURGEON-GENERAL (ranking as Major-General) W. H. MCNAMARA, M.D., C.B., C.M.G., F.R.C.S.I., lately Principal Medical Officer at Aldershot, is placed on retired pay, June 29th. He entered the Army Medical Service as Assistant-Surgeon, October 1st, 1867; became Surgeon March 1st, 1873; Surgeon-Major, October 1st, 1879; was granted the rank of Lieutenant-Colonel October 1st, 1897; was made Brigade-Surgeon-Lieutenant-Colonel, July 6th, 1893; Colonel, September 7th, 1898, and Surgeon-General, October 4th, 1901. His war services include the Egyptian War in 1882, when he was attached to the 1st Battalion Royal Irish Fusiliers, and was present at the battle of Tel-el-Kebir (medal with clasp and Khedive's bronze star); the Nile Expedition (1898) as Principal Medical Officer of the British Brigade, and afterwards as Principal Medical Officer British Division, including the battles of Atbara and Khartoum (twice mentioned in dispatches, made C.B. and granted the British medaland the Khedive's medal with two clasps); and the South African War in 1899-1902, first as Assistant Principal Medical Officer, and afterwards as a Principal Medical Officer on the lines of communication, being present in operations in Cape Colony (twice mentioned in dispatches, Queen's medal with clasp, King's medal with two clasps and nominated C.M.G.). He is succeeded as Principal Medical Officer at Aldershot by Surgeon-General Sir T. J. Gallwey, M.D., K.C.M.G., C.B.

Colonel F. W. TREVOR, M.B., from the Royal Army Medical Corps, is promoted to be Surgeon-General, vice W. H. McNamara, C.B., C.M.G., M.D., F.R.C.S.I., June 29th. Surgeon-General Trevor was appointed Surgeon, September 30th, 1874; Surgeon-Major, September 30th, 1886; granted the rank of Lieutenant-Colonel, September 30th, 1894; made Brigade-Surgeon-Lieutenant-Colonel, August 22nd, 1897; and promoted to be Colonel, January 14th, 1903. His war record includes the Afghan war of 1878-80 with the Kandahar field force, when he was present at the action of Ahmed Khel, in the march from Kabul to the relief of Kandahar, and in the battle of September 1st (medal with two clasps, and bronze decoration); the Nile expedition in 1884-5 (medal with clasp, and Khedive's bronze star); and the South African war, 1901-2, as Principal Medical Officer of a Division, including operations in the Transvaal, the Orange River Colony, on the Zululand Frontier, and in Cape Colony (mentioned in dispatches, Queen's medal with five clasps).

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL J. G. HARWOOD is promoted to be Colonel, vice F. W. Trevor, June 29th. Colonel Harwood's previous commissions are thus dated: Surgeon, March 6th, 1880; Surgeon-Major, March 6th, 1892; and Lieutenant-Colonel, March 6th, 1900. He has no war record in the Army Lists.

Lieutenant A. S. MILLARD, M.B., resigns his commission, July 7th. Lieutenant Millard joined the department on probation January 30th, 1906.

EXCHANGE.

The charge for inserting notices respecting Exchanges in the Army Medical Department is 8s. 6d., which should be forwarded in stamps or post office order with the notice, not later than Wednesday morning, in order to ensure insertion in the current issue.

Lieutenant-Colonel R.A.M.C., now at home on leave from the Punjab and due to return in October, wishes to exchange to remain at home for a few months longer. Apply to Punjab, care of Holt and Co., 3, Whitehall Place.

INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL A. M. CROFTS, C.I.E., Bengal Agency, Surgeon, 1st Class, and Administrative Medical Officer, North West Provinces, is granted the temporary rank of Colonel while officiating as Inspector-General of Civil Hospitals, Bengal, from May 15th.

Lieutenant-Colonel W. O'HARA, Madras, is promoted to be Colonel from May 28th. He was appointed Assistant-Surgeon, September 30th, 1874; made Lieutenant-Colonel September 30th, 1894; and selected for increased pay February 12th, 1900.

One officer of the Indian Medical Service in military employ, in addition to three officers of the Indian Army already authorized, will be permitted to proceed annually to Japan for a two years' course of study.

IMPERIAL YEOMANRY.

SURGEON-LIEUTENANT A. H. L. STEWART, 2nd County of London (Westminster Dragoons), resigns his commission, June 16th.

VOLUNTEER RIFLES.

ARTHUR A. FALKNER to be Surgeon-Lieutenant in the 2nd Volunteer Battalion the King's Own (Royal Lancaster Regiment), June 30th.

ROBERT NELSON, M.B., to be Surgeon-Lieutenant in the 2nd Volunteer Battalion the Royal Scots Fusiliers, June 30th.

The name of Surgeon-Lieutenant ANDREW BROWN MURRAY, 6th Volunteer Battalion the Gordon Highlanders, is as now described, and not as stated in the *London Gazette* of June 1st.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 8,708 births and 3,721 deaths were registered during the week ending Saturday last, July 7th. The annual rate of mortality in these towns, which had been 12.9, 13.2 and 12.4 per 1,000 in the three preceding weeks, further declined to 12.3 per 1,000 last week. The rates in the several towns ranged from 6.0 in Walthamstow, 7.0 in Leicester, 7.2 in East Ham, 7.8 in Hastings, 7.9 in Leyton, in Burton-on-Trent, and in King's Norton, and 8.0 in Devonport, to 16.3 in Oldham, 16.4 in Manchester and in Tynemouth, 17.0 in Barrow-in-Furness, 17.2 in Swansea, 17.4 in Merthyr Tydfil, 19.1 in Rochdale, 19.6 in Wigan, and 20.2 in Wallasey. In London the rate of mortality was 12.3 per 1,000, and it averaged 12.3 per 1,000 in the seventy-five other large towns also. The death-rate from the principal infectious diseases averaged 1.3 per 1,000 in the seventy-six towns; in London this death-rate was equal to 1.4 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 2.9 in Manchester, 3.0 in West Bromwich and in Wigan, 3.3 in Salford and in Halifax, 4.0 in Wallasey and in Bootle, and 4.6 in Burnley. Measles caused a death-rate of 1.6 in Wallasey and in Manchester, 1.8 in Salford, 2.9 in Halifax, and 4.6 in Burnley; whooping-cough of 1.4 in Sunderland, 1.6 in Smethwick, 1.7 in Walsall, 2.0 in Coventry, 2.4 in Wallasey and in Bootle, and 3.0 in West Bromwich; "fever" of 1.2 in Wigan; and diarrhoea of 1.3 in Devonport and 1.4 in Cardiff. The mortality from scarlet fever and from diphtheria showed no marked excess in any of the large towns. One fatal case of small-pox was registered in Hull, but none in any other of the large towns: 7 small-pox patients remained under treatment in the Metropolitan Asylums Hospitals on Saturday last, the 7th inst., against 7, 13, and 11 on the three preceding Saturdays. The number of scarlet-fever patients in these hospitals and in the London Fever Hospital, which had been 2,677, 2,682, and 2,752 at the end of the three preceding weeks, had further risen to 2,767 at the end of last week; 376 new cases were admitted during the week, against 355, 380, and 366 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, July 7th, 915 births and 524 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 15.8, 16.0, and 14.5 per 1,000 in the three preceding weeks, rose again to 15.3 per 1,000 last week, and was 3.0 per 1,000 above the mean rate during the same period in the seventy-six large English towns. The rates in the eight Scotch towns ranged from 10.6 in Perth and 11.0 in Aberdeen to 16.7 in Glasgow and 18.0 in Dundee. The death-rate from the principal infectious diseases averaged 1.5 per 1,000 in these towns, the highest rates being recorded in Glasgow, Dundee, and Leith. The 268 deaths registered in Glasgow included 5 which were referred to measles, 4 to diphtheria, 4 to whooping-cough, 3 to "fever," and 8 to diarrhoea; in addition to these deaths from the principal infectious diseases, there were 6 that resulted from cerebro-spinal fever. Four deaths from diarrhoea occurred in Dundee and 2 in Paisley, 2 from measles in Edinburgh, and 2 from whooping-cough in Aberdeen.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, July 7th, 498 births and 268 deaths were registered in six of the principal Irish towns as against 579 births and 289 deaths in the preceding period. The annual death-rate in these towns, which had been 19.9, 15.1, and 15.4 per 1,000 in the three preceding weeks, fell to 12.6 per 1,000 in the week under notice, this figure being 0.3 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 8.7 in Londonderry and 9.6 in Limerick, to 15.0 in Belfast and 16.9 in Dublin. The zymotic death-rate during the same period and in the same six Irish towns averaged 1.4 per 1,000, or 0.6 per 1,000

lower than during the preceding period, the highest figure, 3.7, being recorded in Londonderry, while no deaths under this heading were recorded in Waterford.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BEVERLEY: EAST RIDING LUNATIC ASYLUM.—Second Assistant Medical Officer. Salary, £150 per annum.

BIRMINGHAM: GENERAL HOSPITAL.—(1) House-Surgeon; (2) House-Surgeon for special departments; (3) Resident Pathologist; (4) Visiting Pathologist. Salary for (1) and (2), £50 for six months, and (3) and (4) at the rate of £50 per annum.

BRADFORD POOR-LAW UNION.—Resident Assistant Medical Officer for the Hospital and Workhouse. Salary, £100 per annum.

BRADFORD ROYAL INFIRMARY.—Dispensary Surgeon. Salary, £100 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—House Physician. Salary, £70 per annum.

BURNLEY: VICTORIA HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CANCER HOSPITAL, Fulham Road, S.W.—Honorary Medical Officer in charge of the Electrical Department.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Junior House-Surgeon. Salary at the rate of £50 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Male House-Physician. Salary at the rate of £50 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Assistant House-Surgeon. Salary, £30 for six months.

DEVONPORT: ROYAL ALBERT HOSPITAL.—Assistant to the Resident Medical Officer. Salary at the rate of £50 per annum.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—Pathologist and Registrar. Honorarium, £100 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Physician to Out-patients.

FULBOURN: CAMBRIDGESHIRE, ETC., ASYLUM.—Second Assistant Medical Officer. Salary, £120 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Anaesthetist. Honorarium, 10 guineas per annum.

HEREFORDSHIRE GENERAL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House Physician; (2) Assistant Casualty Medical Officer; (3) Radiographer. Salary for (1) and (2), £20 each for six months.

HOSPITAL FOR WOMEN, Soho Square, W.—Medical Registrar. Honorarium, 25 guineas.

HULL: ROYAL INFIRMARY.—Casualty House-Surgeon. Salary, £50 per annum.

LEEDS UNIVERSITY.—Lecturers in (1) Dental Surgery; (2) Operative Dental Surgery; (3) Dental Anatomy and Physiology; (4) Dental Mechanics.

LEITH HOSPITAL.—(1) Assistant House-Surgeon; (2) Assistant House Physician. Appointments for six months.

LINCOLN LUNATIC ASYLUM.—Assistant Medical Officer. Salary, £100 per annum.

LIVERPOOL EYE AND EAR INFIRMARY.—House-Surgeon. Salary, £80 per annum.

MANCHESTER: CHORLTON-UPON-MEDLOCK DISPENSARY.—Resident House-Surgeon. Salary, £120 per annum.

MANCHESTER CORPORATION.—Fourth Medical Assistant at the Monsall Fever Hospital. Salary, £100 per annum.

MANCHESTER HOSPITAL FOR CONSUMPTION.—Assistant Medical Officer for the new Crossley Sanatorium, Delamere Forest. Salary, £50 per annum.

MANCHESTER UNIVERSITY.—Lecturer in Dental Surgery and Lecturer in Dental Prothetics.

NEWCASTLE, CO. WICKLOW: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION IN IRELAND.—(1) Resident Medical Officer; (2) Assistant Resident Medical Officer. Salary, £100 and £50 per annum respectively.

NEWCASTLE-ON-TYNE: HOSPITAL FOR SICK CHILDREN.—Male Resident Medical Officer. Salary, £100 per annum.

NORWICH: NORFOLK AND NORWICH HOSPITAL.—(1) Surgeon; (2) Assistant Surgeon.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House-Surgeon. Salary at the rate of £50 per annum.

PRESTON ROYAL INFIRMARY.—Senior House-Surgeon. Salary, £100 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary at the rate of £50 per annum.

SHEFFIELD ROYAL HOSPITAL.—Male Assistant House-Surgeon. Salary, £50 per annum.

SHEFFIELD UNION HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

WEST DERBY UNION.—Assistant Resident Medical Officer of the Mill Road Infirmary. Salary, £125 per annum.

WEST RIDING ASYLUM, Wadsley.—Fifth Assistant Medical Officer. Salary, £140, rising to £160 per annum.

WINDSOR AND ETON ROYAL DISPENSARY AND INFIRMARY.—House-Surgeon. Salary, £120 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary, £70 per annum.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary, £20 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeons at Sligo, co. Sligo, and Ely, co. Cambridge.

APPOINTMENTS.

COOPER, R. Higham, L.S.A., Radiographer to the Evelina Hospital for Sick Children.

EDINGTON, G. H., M.D., F.F.P.S.G., Assistant Surgeon, Western Infirmary, Glasgow.

FINLAYSON, G. A., M.B., Ch.B.Aberd., Pathologist to the Government of the Straits Settlements at Singapore.

GAINER, J. W., M.B., C.M.Edin., District and Workhouse Medical Officer of the Thrapston Union.

GRAHAM, J., M.B., Ch.B., Clinical Assistant, Chelsea Hospital for Women.

GROSS, Sidney S., M.B., M.R.C.S., L.R.C.P., Clinical Assistant to the Chelsea Hospital for Women.

MATURIN, F. H., M.B., B.C.Cantab., Medical Officer of Health for the Lymington Rural District.

ODGERS, N. B., M.A., M.B., M.Ch.Oxon., F.R.C.S., Assistant Surgeon to the General Hospital, Northampton.

PADDOCK, T. D., M.R.C.S.Eng., L.R.C.P.Lond., D.P.H.Camb., Medical Officer of Health for the Litherland Urban District Council.

RAMSAY, A., M.B., C.M.Glas., Certifying Factory Surgeon for the Leadhills and Wanlockhead District, cos. Lanark and Dumfries.

RING, C. A. E., L.R.C.P. and S.Edin., L.F.P.S.Glas., Certifying Factory Surgeon for the Hatherleigh District, co. Devon.

ROSE, Frank A., M.B., B.C.Cantab., F.R.C.S., Assistant Surgeon to the Hospital for Diseases of the Throat, Nose, and Ear, Golden Square.

SAWYER, James E. H., M.A., M.D.Oxon., M.R.C.P., Casualty Assistant Physician to the General Hospital, Birmingham.

WILSON, A. Garrick, B.A., M.B., M.C.Camb., F.R.C.S.Eng., Surgeon to the Sheffield Children's Hospital.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

COOPER.—At Pendeen, St. Just, Cornwall, on June 30th, the wife of W. Herbert Cooper, M.R.C.S., L.R.C.P., of a son.

CUNNINGHAM.—On July 7th, at Firenze, Malone Park, Belfast, the wife of H. H. B. Cunningham, M.D., F.R.C.S.I., M.R.C.S.Eng., of a daughter.

MARRIAGES.

SCOTT—GIBSON.—On the 4th inst., at the Parish Church, Hampton-in-Arden, Warwickshire, by the Rev. T. J. Morris (Vicar), assisted by the Rev. A. B. Stevenson (Vicar of Fillougley), William Sibbald Scott, M.B., Ch.B.Edin., to Kathleen Musgrave, daughter of the late H. P. Gibson and of Mrs. Gibson, Cateswell, Hampton-in-Arden.

DEATH.

ALLAN.—On June 25th, suddenly, at Whaley Bridge, Cheshire, Hector Allan, M.B., C.M. (Aberdeen University), aged 59 years.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Nasal Accessory Sinuses.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Ear. Lectures at 5.15 each day will be given as follows: Monday, The Treatment of Psoriasis. Tuesday, Pulse Tracings and their Clinical Significance. Wednesday, Recurrent and Transient Palsies. Thursday, On the Methods of Estimating the Function of the Kidneys.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m.—Congenital Cerebellar Ataxy.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.15 p.m., X Rays; 2.30 p.m., Operations. Monday and Thursday, at 2.30 p.m., Diseases of the Eye. Tuesday and Friday, at 2 p.m., and Wednesday and Saturday, at 10 a.m., Diseases of the Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Tuesday and Friday, at 10.30 a.m., and Wednesday and Saturday, at 2.30 p.m., Gynaecological Department.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
JULY.	
15 **Sunday**.....	
16 MONDAY	LONDON: Election Returns Committee, 2.30 p.m.
17 TUESDAY.....	
18 WEDNESDAY	
19 THURSDAY...	NEWCASTLE-ON-TYNE DIVISION, *North of England Branch*, All-day Scientific Meeting, Newcastle on-Tyne. NORTH OF ENGLAND BRANCH, Annual Meeting, College of Medicine, Newcastle-on-Tyne, 2.30. p.m.
20 FRIDAY	
21 SATURDAY...	
22 **Sunday**	
23 MONDAY.....	
24 TUESDAY ...	CENTRAL COUNCIL, 9 a.m. ANNUAL GENERAL MEETING, Caxton Hall, Caxton Street, Victoria Street, S.W., 10 a m. ANNUAL REPRESENTATIVE MEETING, Caxton Hall. Caxton Street. Victoria Street, S.W., immediately after Annual General Meeting.
25 WEDNESDAY	CENTRAL COUNCIL, 9 a.m. ANNUAL REPRESENTATIVE MEETING, Caxton Hall, 10 a.m.
26 THURSDAY...	CENTRAL COUNCIL, 9 a.m. ANNUAL REPRESENTATIVE MEETING, Caxton Hall, 10 a.m.
27 FRIDAY	CENTRAL COUNCIL, 9 a.m. ANNUAL REPRESENTATIVE MEETING, Caxton Hall, 10 a.m. *(If required.)*
28 SATURDAY...	
29 **Sunday**	
30 MONDAY	
31 TUESDAY.....	

Date.	Meetings to be Held.
AUGUST.	
1 WEDNESDAY	
2 THURSDAY...	
3 FRIDAY	
4 SATURDAY...	
5 **Sunday**	
6 MONDAY	*Bank Holiday.*
7 TUESDAY.....	
8 WEDNESDAY	
9 THURSDAY...	
10 FRIDAY.....	
11 SATURDAY...	
12 **Sunday**.....	
13 MONDAY	
14 TUESDAY.....	
15 WEDNESDAY	
16 THURSDAY...	
17 FRIDAY	
18 SATURDAY...	
19 **Sunday**	
20 MONDAY ...	
21 TUESDAY ...	ANNUAL MEETING OF THE ASSOCIATION, TORONTO, CANADA.
22 WEDNESDAY	,, ,, ,,
23 THURSDAY...	,, ,, ,,
24 FRIDAY	,, ,, ,,
25 SATURDAY...	,, ,, ,,
26 **Sunday**	
27 MONDAY	
28 TUESDAY.....	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong, and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

ANNUAL REPORT

OF

THE MEDICO-POLITICAL COMMITTEE

To the Annual Representative Meeting, 1906.

THE Medico-Political Committee, in reporting to the Annual Representative Meeting of 1906 upon the results of its deliberations and action taken during the year, pursuant to instructions of the Annual Representative Meeting at Leicester, or instructions of the Council, or with respect to matters which have been brought to the notice of the Committee, presents as in former years, in tabular form, a succinct account of the matters dealt with, as follows :

(A.)—MATTERS ARISING OUT OF INSTRUCTIONS OF THE ANNUAL REPRESENTATIVE MEETING OF 1905.

I.—Instructions that Matters be referred to the Divisions for their Opinion or for their Information.

Subject.	*Origin.*	*Action Taken and Result.*
(1) Contract Practice Report.	Instruction that Report be referred to Divisions for consideration (Leicester Minutes 59 and 62).	Report circulated accordingly.
(2) Report on Public Medical Services.	Ditto (Leicester Minute 65).	Ditto.
(3) Report on Provident Dispensaries.	Ditto (Leicester Minute 64).	Ditto.
4) Security of Tenure for Public Vaccinators.	Instruction that matter be referred to Divisions for consideration (Leicester Minute 110).	Report appended.
5) Insurance Fees.	Instruction that matter be referred to Divisions embodying principles contained in report of Norwich Division (Leicester Minutes 115-6).	Renewal of instruction is requested.
(6) State Registration of Nurses.	That matter be referred to Divisions for further consideration (Leicester Minutes 220-1).	Referred accordingly.
(7) Medical Men and Ambulance Work.	Continued Minute. Instruction that Report be finally communicated to Divisions for their information (Leicester Minute 107).	Report communicated accordingly.

II.—Instructions of the Representative Meeting to the Council referred by the Council to the Medico-Political Committee.

(8) Issue of Recommendations and Resolutions on Contract Practice.	Instruction that Recommendations and Resolutions on Contract Practice be sent to all members of the profession.	Sent accordingly.
(9) Election of Association Representatives on Outside Bodies.	Instruction to prepare a scheme. (Leicester Minutes 182-3).	Scheme prepared.
(10) Public Health Bill.	Action by Public Health Committee.	Effort made to secure place in ballot. Bill introduced. Deputation to President of Local Government Board.

III.—Instructions of the Representative Meeting to the Medico-Political Committee.

(11) Action by the Association in connexion with the General Election, 1906.	Instruction (1) to draft questions for submission to Parliamentary Candidates; (2) to send these to Divisions, asking them to submit them to local Candidates; and (3) to issue a Circular to every practitioner in the United Kingdom. (Leicester Minute 78).	Special Report presented.
(12) Medical Acts Amendment Bill.	Instructions (1) to provide in the Bill that Crown contribute to finances of General Medical Council; (2) take steps to introduce Bill into Parliament. (Leicester Minutes 97 and 99).	Bill redrafted. Effort made to obtain place in the ballot. By Counsel's advice Bill is being converted into a Bill for consolidating the Medical Acts.
(13) Midwives Act.	Instruction to take certain steps for the improvement of the Midwives Act (Leicester Minutes 206-212, 238).	Action accordingly. Rules of Midwives Board also submitted to Divisions for consideration. Suggested amendments submitted to Privy Council, General Medical Council, and Central Midwives Board.
(14) Lunacy Law Amendment.	Instruction to appoint special Subcommittee to deal with questions of Lunacy Legislation.	Subcommittee appointed accordingly. Special Report by the Committee presented herewith.
(15) Inebriates Law Amendment.	Continued Minute.	Consideration of this matter added to the work of the Lunacy Subcommittee (Leicester Minutes 124-5). Report forwarded to Home Secretary.
(16) Law relating to Coroners.	Instructions for continued action.	(*a*) Conference with Pathologists on London County Council list. (*b*) Application to Local Government Auditor of London County Council Accounts. (*c*) Representations to present Lord Chancellor.
(17) Lead poisoning.	Communications to JOURNAL. Committee's proposal approved by Representative Meeting.	Special Subcommittee appointed. Report appended.
(18) Medical Register.	Instruction to remedy unsatisfactory state of Medical Register (Leicester Minute 227).	Matter under consideration.

(B.)—OTHER MATTERS.

Subject.	Origin.	Action Taken and Result.
(19) Consultation of Medical Witnesses.	Continued Minute. (Leicester Minutes 68 and 70).	Finding of Association included in circular letter to non-members.
(20) Drug Abuse ...	Continued Minute. (Leicester Minutes 83 and 104).	Ditto.
(21 and 22) Fees of Medical Witnesses, and Fees in Police Emergency Cases.	Continued Minute. (Leicester Minutes 109-1).	Watching Sub-Committee re-appointed.
(23) Amendment of Indecent Advertisements Act.	Continued Minute. (Leicester Minute 108).	Joint action taken with London Council for Promotion of Public Morality. Bill in preparation.
(24) Royal Commission on Poor-Law.	Action by Public Health Committee.	Special Poor-Law Committee appointed. Inquiries proceeding.
(25) Death Certification and Registration.	Continued Minute.	Amendments made at Leicester being incorporated in Coroners Bill.
(26) Reorganization of the Local Government Board.	Do. do.	Representations made to present Administration.
(27) Questions of Contract Practice.	Various.	Special Report.
(28) Sight-testing Opticians Bill.	Promotion by Spectacle Makers' Company of a Bill to create a specially privileged class of "sight-testing" Opticians.	Action taken in conjunction with Ophthalmological Society to oppose.
(29) Nomination by the Association of Candidates for General Medical Council.	Instruction of Representative Meeting at Oxford.	List of candidates nominated by Divisions presented.
(30) Patent Medicines.	Continued Minute.	Special Report.
(31) Medical Inspection of School Children.	Action by Chairman of Committee.	Steps taken to secure the insertion of a Clause in Education Bill.
(32) Income Tax.	Action by a Division.	Recommendation submitted.
(33) Vivisection.	Introduction of Antivivisection Bills. Proposed appointment of Royal Commission.	Bills opposed. Arrangements made for preparation of evidence for Commission.
(34) Certifying Factory Surgeons.	Continued Minute.	Government ("Notice of Accidents") Bill found to accord with Recommendations of Association.
(35) Medical Referees under the Workmen's Compensation Act.	Continued Minute.	Action taken with respect to Workmen's Compensation Bill now before Parliament.

The Committee presents the following more detailed statement as to their deliberations and the action they have taken upon each of the matters contained in the foregoing table, as follows:

(A) MATTERS ARISING OUT OF INSTRUCTIONS OF THE ANNUAL REPRESENTATIVE MEETING OF 1905.

(I) *Instructions that Matters be Referred to the Divisions.*

(1) (2) AND (3) CONTRACT MEDICAL PRACTICE.

In pursuance of the instructions of the Annual Representative Meeting at Leicester, the Divisions of the Association have been asked to consider the Recommendations contained in the Report of the Medico-Political Committee on Contract Practice (as published in a special SUPPLEMENT to the BRITISH MEDICAL JOURNAL of July 22nd. 1905), including the Recommendations upon Public Medical Services and Provident Dispensaries respectively (see Appendix, pages 47-49).

The Recommendations were reprinted in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL immediately after the Annual Representative Meeting.

Twenty-seven Divisions have at various dates during the year reported for the information of the Medico-Political Committee the conclusions at which they have arrived in reference to the matter.

In view of the comparatively small number of replies, it has not been thought necessary to present an analysis.

The Recommendations, having now been for twelve months before the Association, are submitted by the Committee for the judgement of the Representative Meeting.

(4) PUBLIC VACCINATORS.

The question of security of tenure for public vaccinators, which the Representative Meeting directed should be submitted to the Divisions, received further consideration from the Medico-Political and Public Health Committees in connexion with a report on the Recommendations of the "Departmental Committee" of the Local Government Board on Vaccination Expenses," which the Council requested the Committees again to consider. The Report and Recommendations of the Joint Committee, including the Recommendation on this special subject, are appended (see Appendix, page 50).

(5) INSURANCE EXAMINATION FEES.

Having regard to the number of important matters which it has been necessary for the Committee to consider since the Representative Meeting, the Committee has been unable to carry out the preparation of materials for the consideration by the Divisions of the question of insurance fees. The Committee therefore reports this fact, and requests the Representative Meeting to renew the instruction.

(6) STATE REGISTRATION OF NURSES.

Pursuant to the instruction of the Representative Meeting at Leicester, the subject of State Registration of Nurses has again been referred to the Divisions (SUPPLEMENT of March 3rd, 1906).

The questions submitted were as follows:

(1) Does the Division approve in general of the method of Registration of Nurses proposed by the Select Committee of the House of Commons?

(2) Does the Division approve of the separate Registration of Midwifery Nurses?

Twenty-six Divisions have reported to the Committee their resolutions upon Question (1), and sixteen upon Question (2).

Upon Question (1) twenty express unqualified approval, two approve conditionally upon a minimum of three years' training being required for admission to the Register, three express disapproval of State registration, and one deems any system of registration unnecessary.

(7) MEDICAL MEN AND AMBULANCE WORK.

The opinion of the Representative Meeting at Leicester, that the time had arrived when ambulance work should be treated as a matter of business and not of philanthropy, having been circulated, pursuant to instruction, several Divisions have reported action taken by them to give effect to this principle in their own districts.

(II) *Instructions of the Representative Meeting to the Council referred by the Council to the Medico-Political Committee.*

(8) ISSUE TO THE PROFESSION OF RECOMMENDATIONS AND RESOLUTIONS ON CONTRACT PRACTICE.

The Annual Representative Meeting at Leicester gave instruction that copies of the Medico-Political Com-

mittee's Recommendations upon Contract Practice, along with the Association's Resolutions on the subject (see Appendix, p. 47) should be sent to all members of the profession.

Copies of the above were accordingly sent by the Committee to all practitioners in the United Kingdom who were non-members (15,770 in number), the members having already received them in the special SUPPLEMENT to the JOURNAL (of July 22nd, 1905).

During the course of preparation of the prints, communications which had been received from Divisions of the Association showed that the Recommendations as to Contract Practice had been misunderstood as implying that the Medico-Political Committee recommended Contract Practice as desirable.

The Committee therefore resolved:

"That it be pointed out, for the information of the Divisions, that the Contract Practice Report does *not* include any recommendation to carry on Contract Practice; that, in the view of the Committee, the question as to the necessity of Contract Practice in any given district is a matter for local determination; and that the Recommendations in the Contract Practice Report were simply intended as suggestions as to how Contract Practice could be conducted in the interests of the profession and the public in those districts where it was believed to be for the present unavoidable."

The Council of the Association subsequently directed that this explanation should also be included in the information forwarded to non-members. This was accordingly done.

In sending the Recommendations and Resolutions, the Committee took the opportunity to bring to the notice of non-members the Association's opinions as to the *Consultation of Medical Witnesses, Drug Abuse arising through the Unduly Repeated Dispensing of Prescriptions, and through Self-administration*, and as to the *Relation of the Profession to Ambulance Work*.

The Committee also took the opportunity to draw the attention of non-members to the nature, aims, and work of the Association, and to the advantages of membership, and to express the hope that non-members would apply for membership.

The response to this circular has been approximately 400 applications for membership, affording evidence to the Committee that knowledge of the work which the Association is now doing for the benefit of the medical profession is an important inducement to medical practitioners to become members.

(9) ELECTION OF ASSOCIATION REPRESENTATIVES ON OUTSIDE BODIES.

The Central Council having remitted to the Medico-Political Committee to prepare, pursuant to an instruction of the Representative Meeting at Leicester, a scheme for the selection of representatives whom the Association may be empowered or invited to appoint as members of outside bodies, a scheme for this purpose is submitted herewith (see Appendix, page 51).

(10) PUBLIC HEALTH BILL.

Having regard to the instructions of the Representative Meeting to the Council to press forward the Public Health Bill, the Medico-Political and Public Health Committees, to whom this matter was referred, have given it most careful attention.

The Public Health Committee appointed a deputation, who were received by Mr. Gerald Balfour when President of the Local Government Board in November, 1905, when the official objections of the Board to the proposals of the Association were in some degree ascertained.

In consideration of the change of Government which immediately followed, the Council, on the recommendation of the Committees named, approved that the new President of the Local Government Board should be approached as soon as it should appear opportune to do so.

At the commencement of the Parliamentary session the Medico-Political Committee decided that the Public Health Bill should be given precedence over all other Parliamentary matters in which the Association was interested, and several Members of Parliament were induced to ballot for places for the Bill, but were unsuccessful.

Information being received which appeared to indicate that Clause 2 of the Bill was misunderstood as indicating a desire on the part of the profession to obtain absolute permanence of tenure for medical officers of health, the Public Health Committee has now under consideration the advisability of redrafting this clause so as to remove any ambiguity.

Clause 2 of the Bill as it stands at present is as follows:

"2. *Tenure of Office.*—(1) A medical officer of health or sanitary inspector shall not hold office nor be appointed for a limited period only and shall be removable only subject to an appeal to the Local Government Board.

"(2) This section shall apply to every medical officer of health or sanitary inspector whether appointed before or after the commencement of this Act and notwithstanding any contract to the contrary."

In the meantime the Bill has been introduced into Parliament by Sir Francis Powell, supported by Sir Walter Foster and Sir John Batty Tuke.

(11) ACTION BY THE ASSOCIATION IN CONNEXION WITH THE GENERAL PARLIAMENTARY ELECTION OF JANUARY, 1906.

The Representative Meeting at Leicester instructed the Medico-Political Committee:

1. To draft questions on medical subjects for submission to Parliamentary candidates;
2. To issue these to the Divisions for submission to the candidates; and
3. To circularize every practitioner in the United Kingdom and inform him of the Association's action, at the same time requesting his support and influence for the local candidate whose attitude appeared to be the most favourable; also to form a Subcommittee "to organize and promote medical interests, especially during Parliamentary elections, and to carry out the necessary propaganda at all times." (*See Leicester Minute 78.*)

Having regard to the importance of the action taken under these instructions as furnishing possible precedents for the future guidance of the Committee, or as enabling the Representative Meeting to judge from the experience of the present occasion to what extent the action then taken should be modified, the Committee presents a special detailed Report and Recommendations upon the subject (for which *see* Appendix, p. 51).

(12) MEDICAL ACTS AMENDMENT BILL.

Pursuant to the instructions of the Annual Representative Meeting at Leicester, the Medical Acts Amendment Bill was referred to Counsel for final revision, and incorporation of the amendment approved by that Meeting as to provision for a State contribution to the funds of the General Medical Council.

At the instance of the Association, as well as of the British Dental Association, Members of Parliament balloted for places in the interests of this Bill, but without success.

Counsel, on finally revising the Bill and preparing the schedule of repeals, reported that the result confirmed him in the opinion that, having regard to the very extensive changes which it would effect in the law, it would be better for the Bill to be framed as one to consolidate, rather than as one merely to amend, the Medical and Dental Acts.

Counsel also inquired as to the form in which it was proposed that the Crown should be asked to contribute to the funds of the General Medical Council.

The Committee upon consideration of Counsel's opinion came to the conclusion that a consolidating Bill would be more likely to meet the views of Parliament, and instructed Counsel accordingly. Conferences were held upon the matter with representatives of the British Dental Association, a joint Committee being formed for the purpose of watching the matter.

With regard to the proposed contribution from the Crown to the funds of the General Medical Council, the Committee replied to Counsel's inquiry that such contribution, if provided for in the Bill, should take the form of a fixed annual charge upon the Consolidated Funds.

The Committee, however, having thus carried out the instruction received from the Annual Representative Meeting, has now to report that on the whole it is not

expedient that the profession should seek for a contribution from the Crown to the funds of the Council, and recommends that this instruction be rescinded.

(13) Midwives Act, 1902.

(*a*) *Amendment.*

The question of amendment of the Midwives Act was referred back by the Representative Meeting at Leicester to the Committee for further consideration of the subject of the fees paid to medical practitioners called in by midwives.

Having very carefully, with the help of a special Subcommittee, considered the subject, the Committee reports as follows:

(*a*) That any legislation promoted or recommended by the Association with respect to the payment out of the public funds of medical practitioners called to assist midwives, should be in the form of conferring power upon local authorities to pay or guarantee fees, and should not include any provision by schedule or otherwise specifying the fees to be paid.

(*b*) That the schedule of fees should be prescribed by the Local Government Board.

(*c*) That the scale adopted by the Metropolitan Counties Branch (see Appendix, p. 55) be recommended to the Divisions as a basis for adoption, subject to such modifications as may be necessary to meet local requirements.

(*d*) That Inspectors of Midwives should be registered medical practitioners.

(*e*) That the fees suitable to be paid to Inspectors of Midwives must depend upon local circumstances.

(*f*) That the Divisions should therefore be prepared to advise any of their members by whom they may be consulted on the matter.

(*b*) *Rules of Central Midwives Board.*

In view of the fact that the Rules framed by the Central Midwives Board under Section 3 of the Midwives Act, 1902, remain in force only until August 12th, 1906, the Committee forwarded copies of these Rules to the Divisions, in England and Wales, with the request that they should consider them and report to the Committee any alterations or additions considered desirable. Upon consideration of the Replies received from the Divisions, the Midwives Subcommittee drew up, and the Committee approved, a Report of Suggested Amendments of the Rules in question and forwarded the Report for the information of—

(1) The Privy Council.
(2) The General Medical Council.
(3) The Central Midwives Board.

(14) and (15). Lunacy Law and Inebriates Law Amendment.

Pursuant to the instruction of the Representative Meeting, the Medico-Political Committee appointed a Subcommittee for the consideration of amendments required in the Lunacy Law, specially with reference to provision for detention of cases of unconfirmed mental disease, and remitted to the same Subcommittee the duty of investigating and reporting upon the amendments required in the law affecting the detention and care of those suffering from inebriety, morphinism, and drug habits generally.

The Subcommittee was composed of the following members of the Committee: H. W. Armit, Esq., Dr. R. C. Buist (Chairman), Dr. J. A. Macdonald, Dr. L. S. McManus, C. R. Straton, Esq., together with J. Carswell, Esq., Andrew Clark, Esq., Dr. W. R. Dawson (Representative from Irish Committee), Dr. W. Douglas, Dr. R. Gunyngham Brown, Dr. T. B. Hyslop, Dr. R. L. Langdon-Down, Dr. P. W. Macdonald, Charles Mercier, Esq., H. F. Hayes Newington, Esq., Dr. Lionel Weatherly.

The Subcommittee presented careful reports upon each of the subjects of reference. These having been revised and slightly modified by the Committee, are now presented to the Representative Meeting. (For Lunacy Report *see* Appendix, page 55. The Inebriates Act Report will be published in the Supplement of July 21st.)

The Committee recommends the Representative Meeting to approve the recommendations contained in these reports as a basis for future action by the Association.

(16) Law Relating to Coroners.

(*A*) *Pathologists to London Coroners.*

As instructed by the Representative Meeting at Leicester, the Committee requested the pathologists who are named in the Report of the Public Control Committee of the London County Council as having indicated their willingness to make *post-mortem* examinations and give evidence at inquests in cases requiring special skill for the original fee of 2 guineas, to meet in conference representatives of the Association, including members of the Central Council, Medico-Political and Ethical Committees, and representatives of the Metropolitan Counties Branch and of the Divisions more directly concerned in the matter.

The following conclusions were arrived at by the Conference:

(*a*) That the employment of expert pathologists to assist in the *post-mortem* examination in medico-legal cases of special difficulty is highly desirable and indeed necessary.

(*b*) That such an expert cannot replace the medical practitioner.

(*c*) That the medical practitioner, through his attendance during life or presence at or about the time of death, is in possession of first-hand knowledge which should be available both in evidence at the inquest and also at the *post-mortem* examination.

(*d*) That the employment of expert pathologists should be in addition to, and not in substitution for, the employment of the practitioner who has previous knowledge of the case.

(*e*) That experts should be remunerated at expert rates, with a minimum fee of five guineas for *post-mortem* examination and evidence. Any separate investigation to be paid for at special rates.

(*f*) That expert pathologists should decline to act in any case in which they have not an assurance that the principles of the clauses will be observed.

The above conclusions have been forwarded to the gentlemen whose names still appear in the latest list of pathologists issued by the London County Council, and they have been requested to consider their position in reference thereto.

(*B*) *Application to Local Government Board Auditor as to Payments made by Coroner for South-West London.*

In its report to the Annual Representative Meeting at Leicester the Medico-Political Committee reported, and that Meeting approved, a proposal that sums paid by the Coroner for South-West London to an individual practitioner, in contravention, as it was believed, of the Coroners Act, should be challenged at the annual audit of the London County Council's Accounts.

The Committee took action accordingly. The facts in connexion with inquests held in the South-West District of London during the year under audit were carefully studied in consultation with the Solicitor and Counsel, and these inquests were classified as follows:

(A) Cases where a local medical man had been in attendance on the deceased at or immediately prior to death, and was called as a witness at the inquest, an outside practitioner being, however, called in to make a *post-mortem* examination and also to give evidence.

(B) Cases where a local medical man had attended the deceased at or immediately prior to death, but was *not* called as a witness at the inquest, the same outside practitioner as above referred to being called in both to make a *post-mortem* examination and to give evidence.

(C) Cases where no medical man had been in attendance on the deceased at or immediately prior to death. No local medical man was asked to make a *post-mortem* examination, or to give evidence at the inquest, the outside practitioner above referred to doing both.

(D) Cases where a local medical man had been in attendance on deceased at or immediately prior to death and was summoned both to make a *post-mortem* examination and to give evidence, the same outside practitioner as above referred to being *also* called upon to do both.

Twenty-two cases typical of the above four classes were selected and all available evidence thereon obtained.

The Association's challenge of the payments made to the practitioner in question was heard by the Local

Government Board Auditor at two special sittings, the Association being represented by Counsel, and the County Council being similarly represented.

The Auditor proffered, and later by request furnished, his reasons for his decision.

(C) Application to Lord Chancellor as to Procedure of Coroner for South-West London.

With reference to the inactivity of the late Chancellor and late Prime Minister with regard to a decision upon the facts submitted to them as to the action of the Coroner for South-West London by the Conference of Medical Societies, representations have been made by the Chairman of Representative Meetings to the present Lord Chancellor asking him to pronounce judgement upon the case.

(17) LEAD POISONING.

In accordance with the proposal of the Committee, approved by the Representative Meeting at Leicester, a Subcommittee has been appointed to consider the subject of poisoning through the use of diachylon as an abortifacient.

The Subcommittee had before it, in addition to the original papers of Drs. Hall, Pope and Ransom, which gave rise to the consideration of the matter, special reports by Drs. Hall and Ransom.

The final conclusions arrived at with the approval of the Committee and Council were as follows:

(i) That the attention of members of the medical profession throughout the country be drawn to the increasing prevalence in certain districts of lead poisoning from the cause stated, and to the fact that the use of lead for the purpose named appears to be extending from district to district.

That with this object a letter be drafted for communication to the Medical Journals, and that the draft be circulated to the Subcommittee and considered at a future meeting.

That it be suggested to the Divisions of the Association that they take steps to draw the attention of the profession locally to the matter, and also perhaps public officials, such as the medical officers of health and town clerks.

(ii) That the attention of the Home Office be drawn to the matter, and that an effort be made to ascertain what action, if any, can, in the opinion of the Home Office, be taken; also, that the attention of the Board of Inland Revenue be drawn to the fact that preparations of the kind in question are being sold without the Government stamp.

(iii) That the Pharmaceutical Society and the Coroners' Society be requested to appoint representatives to confer with the Subcommittee on the subject.

(iv) That representations be made to the Privy Council as to the necessity of scheduling diachylon as a poison under the Pharmacy Acts.

(v) That a communication be sent to non-medical periodicals embodying the following:

"That the attention of the British Medical Association has been drawn to the dangers incurred through the use of diachylon in pills or otherwise, and the Council feels that the public should be made aware that it has resulted frequently in paralysis, blindness, insanity, and death."

The Committee regrets to report that up to the present the Lord President has not carried out the suggestion that diachylon should be scheduled as a poison under the Pharmacy Act.

(18) THE MEDICAL REGISTER.

The Annual Representative Meeting at Leicester, considering the present state of the official *Medical Register* to be unsatisfactory, as being open to considerable error, instructed the Committee to take such steps as would lead to this defect being remedied (*Leicester Minute 227*).

The Medico-Political Committee has under consideration the collection of information upon which to base action in the matter.

(B) OTHER MATTERS.

(19) CONSULTATION OF MEDICAL WITNESSES, AND (20) DRUG ABUSE.

In order to make more widely known the findings of the Representative Meeting at Leicester, on behalf of the Association, with respect to the *Consultation of Medical Witnesses*, the *Unduly Repeated Dispensing of Drugs*, and the *Evils resulting from Prescribing Special Preparations by Name to Patients*, the Committee included the resolutions on these subjects in the circular letter issued to non-members in connexion with the issue of the Recommendations on Contract Practice.

(21 and 22) FEES OF MEDICAL WITNESSES, AND FEES IN POLICE EMERGENCY CASES.

The Committee reappointed a special Subcommittee to deal with the question of fees paid to medical witnesses, and of fees of medical practitioners attending in police emergency cases.

Evidence is being collected as to the effect of the Home Secretary's Order of June, 1904, but on consideration of a report from the Subcommittee the Committee deemed the facts as yet ascertained insufficient to warrant further action by the Association.

(23) AMENDMENT OF INDECENT ADVERTISEMENTS ACT.

The Medico-Political Committee reported to the Annual Representative Meeting at Leicester that the attention of the Committee had been drawn to defects in the present Indecent Advertisements Act. Advertisements of an objectionable nature may be inserted in the newspapers which it would be an offence under the Act to advertise in a public place; also, under the Act, the restrictions on the public exposure for sale of certain articles are inadequate.

The Leicester Meeting approving the Committee's proposal that a memorial on the subject should be addressed to the Home Office, a memorial was accordingly drawn up and forwarded on November 29th, 1905, to the late Home Secretary, who, however, did not see his way to take action.

The London Council for the Promotion of Public Morality, which has acted in co-operation with the Association, is now preparing a Bill "to amend the Indecent Advertisements Act," and the support of the Association should, it is recommended, be given to that Bill.

(24) ROYAL COMMISSION ON THE POOR LAW.

Immediately upon the announcement of the prospective appointment of a Royal Commission on the Poor Law being made in August, 1905, a communication was addressed to Mr. Balfour, on behalf of the Association, suggesting that, having regard to the importance of the medical aspects of Poor-law administration, not only as affecting the conditions of employment of Poor-law medical officers, but also as affecting the health of the community, representatives of the medical profession should be placed upon the Commission, and should include at least one medical practitioner with special experience of Poor-law administration and one representative of the general body of the profession.

Your Committee regrets to report that the only medical practitioner included in the Commission is one of the Local Government Board Inspectors.

After the present Government took office, renewed representations upon this point were made to Sir H. Campbell-Bannerman, but he replied that it was not possible to add to the Commission.

Upon the definite appointment of the Commission, inquiries were made as to whether the Commission would be prepared to receive evidence from the British Medical Association, and, if so, when they would be ready to take such evidence.

A favourable reply being received, the Council, at the instance of the Public Health Committee, appointed a Special Committee to undertake the collection and preparation of evidence to be placed before the Commission on behalf of the Association.

The Special Committee included representatives of the Medico-Political, Public Health, Hospitals, Scottish, and Irish Committees, and has decided to carry out its work through three Subcommittees, for England and Wales, Scotland, and Ireland respectively.

Schedules of questions have been prepared and are about to be issued to Poor-law medical officers and others likely to be able to afford information.

It is understood that the evidence of the Association as regards England will probably be taken by the Commission about November next.

(25) Death Certification and Registration and Coroners' Law.

The action taken during the year with reference to reform in the law as to Death Registration and in Coroners' Law has been confined to giving effect to the instruction of the Representative Meeting as to the amendment of the (draft) Coroners Bill, and the extension of its provisions to Ireland. These matters are still incomplete, and the Committee seeks the continuance of its instruction regarding them.

(26) Reorganization of the Local Government Board.

Representations have been made to the present Government in accordance with the reports approved by the Representative Meeting at Leicester, and the Prime Minister has been requested to receive a deputation upon the subject, but has expressed his inability to do so at present.

(27) Questions of Contract Practice.

Special Subcommittee.

At the commencement of the session the Committee, having regard to the number and importance of the questions affecting Contract Medical Practice in which members of the profession applied to the Association for assistance, deemed it well to appoint a Special Subcommittee to consider such subjects and report upon them to the Committee, the Subcommittee being composed of representatives of the Medico-Political and Ethical Committees, and certain other members of the Association who had given special attention to the subject of Contract Practice.

Assistance in Disputes.

The Subcommittee has supervised details of the help given to individual practitioners or to Divisions or Branches in connexion with Contract Practice disputes, work of great importance in the interests both of the Association and the profession.

Warning Notice.

The Committee has also effected various improvements in the machinery of the Association for dealing with certain matters, particularly the effort made through the warning notice to protect medical practitioners against being induced through ignorance of the actual facts to accept appointments objected to by the local profession.

The proprietors of the *Lancet* have, in response to communications from the Association, entered into arrangements for co-operation in this matter, both by printing in their advertisement columns a warning notice similar to that in the British Medical Journal, and by carrying out an exchange of information. The Committee desires to place on record its appreciation of the cordial participation of the *Lancet* in this effort for the assistance of the profession.

With the same object of making known as widely as possible among members of the profession, who may be desiring appointments, the information at the disposal of the Association, copies of the warning notice are now systematically forwarded to hospitals throughout the country, and the information in the possession of the Association is communicated to medical agents.

Model Forms of Agreement, and of Rules for Public Medical Services.

Cases having come to the knowledge of the Committee in which medical practitioners have been placed in serious difficulties through the want of a proper agreement with organizations by which they are employed, a model form of agreement for such purposes is now being prepared under the advice of the Solicitor. A model set of rules for a public medical service is also in course of preparation for the assistance of those Divisions which may deem it desirable to introduce such services.

Emergency Fund.

The formation by the North of England and South Wales Branches of Emergency Funds created by voluntary subscriptions, to enable them to deal more successfully with disputes as to contract practice, suggested to the Committee the desirability of creating a Central Fund of a similar kind, to which all members of the profession could contribute, and which would be available for those requiring assistance in any part of the country, both in respect of contract practice disputes and in other cases in which the restrictions imposed by the present Memorandum of the Association forbid the use of the funds of the Association.

The Contract Practice Subcommittee drew up a scheme for the purpose which, having been approved by the Central Council, was published in the Supplement to the British Medical Journal, and a copy of which is appended to this Report (see Appendix, page 56).

The Committee regrets to report that up to the present a very small number of contributions has been received, but this is believed to be due to the fact that the nature and objects of the fund have not yet become sufficiently widely known.

(28) Sight-Testing Opticians Bill.

Information having been received that the Spectaclemakers' Company and other bodies had prepared Bills for introduction into Parliament at an early date, and it being ascertained that the Ophthalmological Society had the matter also under consideration, representatives of the Council of that Society conferred with the Medico-Political Committee, and a Joint Committee of the two bodies, with the Medical Secretary as Secretary, was formed to watch the matter and take such action as might be found expedient to secure that the objections in the public interest to the proposed legislation were placed before Parliament.

A memorandum was accordingly prepared by the Joint Committee with a view to its circulation to members of Parliament when occasion should arise, and in the meantime other steps are being taken to carry out the object above stated.

(29) Nomination by the Association of Candidates for the General Medical Council.

Pursuant to instructions by the Annual Representative Meeting at Oxford the Medico-Political Committee, in October, 1905, caused a notice to be circulated to all the Divisions inviting them to make nominations before March 31st, 1906, in accordance with the Scheme approved by the Representative Meeting, which was at the same time reprinted in the Supplement to the Journal.

The Committee at the same time drew attention to the fact that, owing to the announcement by Sir Victor Horsley that he would resign at the time when Mr. George Brown and Mr. George Jackson's period of office expired, there would be three vacancies in the autumn of 1906, instead of the two anticipated at the time when the Scheme was prepared. The Committee, however, had no authority to modify the terms of the Scheme, and simply presents the list of candidates nominated by the Divisions.

(30) Patent Medicines.

At the instance of Mr. Garrett Horder, a former member of the Committee, the question of the regulations affecting the sale of so-called "patent medicines" and other secret remedies and proprietary articles was under the consideration of the Committee in 1905, and the consideration of the matter was again resumed during the last session. Dr. Edwardes was engaged to complete the collection of information as to the laws affecting patent medicines in other countries; and the Committee also received very valuable assistance from Mr. Octavius Beale, President of the Associated Society of Manufacturers of Australia, who had received a commission from the Commonwealth of Australia to investigate the subject, and has accordingly done so not only in this country, but also in Canada, the United States, and Germany.

The Committee now presents to the Representative Meeting a special report on the subject and makes the following recommendations:

(*a*) That for medicines which are supplied otherwise than upon medical, dental, or veterinarian prescriptions, no condition of sale, short of the publication on each packet of medicine of the name and quantity of each of its constituents, should be permitted;

(*b*) That the label should be made to constitute a warranty, and that false description, whether on the label or in an advertisement, should be made an offence;

(*c*) That the provisions of the Food and Drugs Acts should be applied to proprietary medicines.

(31) Medical Inspection of School Children.

In conformity with the already declared policy of the Association in favour of universal and compulsory medical

inspection of school children, the Committee included a question on this subject among those placed before candidates for Parliament at the last General Election. A number of satisfactory replies were received.

On the introduction of the Education Bill of the present Government, the Committee took action with a view to the incorporation of a suitable provision in the Bill. The Council, on the recommendation of the Committee, has decided to request the President of the Board of Education to receive a deputation in support of the following amendment which has been put down by Mr. H. J. Tennant, M.P.:

> It shall be the duty of every local education authority to make arrangement, in accordance with a scheme to be made by the Board of Education, for attending to the health and physical condition of the children educated in public elementary schools.

(32) INCOME TAX.

An application from the Exeter Division, forwarding a Memorandum on the subject of the substitution of a property tax for the income tax, brought to the notice of the Committee the general question of the incidence of the income tax as affecting the medical profession.

The Committee recommended the Division to bring the matter before the Divisions generally, so that it might come before the Representative Meeting.

On the appointment of the Select Committee of the House of Commons on the Income Tax, the Committee considered that representations should at least be made in favour of differentiation of the Income Tax as between incomes the result of personal exertion and incomes derived from heritable property.

The Committee has also communicated with the Incorporated Law Society, and other societies representative of various professions, seeking their co-operation in the matter.

(33) VIVISECTION.

The Committee has found it necessary during the Parliamentary session to take action with regard to certain Bills for the prohibition or greatly increased restriction of Vivisection, as also with regard to the contemplated appointment, announced by the Home Secretary, of a Royal Commission to consider the subject.

Representations were made to the Home Secretary and members of Parliament to the effect that, in view of the proposed appointment of a Royal Commission, Bills altering the present position of the law should be deferred.

Representations have also been made to the Home Secretary with a view to securing that representatives of biological, including medical, science, should be included among the members of the Commission, and steps have been taken through the Science Committee to co-operate with certain learned Societies in the collection of evidence to be placed before the Commission.

(34) CERTIFYING FACTORY SURGEONS.

The Committee reported to the Annual Representative Meeting at Leicester the action which it took, along with the Association of Certifying Surgeons, to oppose in Parliament the Bill of the late Government, whereby the duty of primary investigation of accidents would have been largely transferred from the Certifying Factory Surgeons to the non-medical inspectors.

Your Committee is gratified in being able to report that the action then taken has borne fruit, inasmuch as the "Notice of Accidents" Bill of the present Government, which has passed through the House of Commons and will probably shortly become law, includes provisions which meet the objections placed by the Association and the Certifying Factory Surgeons' Association before the Home Office by deputation in July, 1905.

(35) MEDICAL REFEREES UNDER THE WORKMEN'S COMPENSATION ACT.

The Workmen's Compensation Bill of the present Government, your Committee is glad to be able to report, contains many of the recommendations which the British Medical Association, as the result of the investigation carried out by your Committee in the spring of 1903, was able to place before the Departmental Committee of the Home Office on the subject in June, 1904, and which the Departmental Committee approved in its report.

The Committee considered, however, certain further modifications desirable, in order more fully to achieve the object of preventing litigation through making greater use of the State referees, and these were brought before the Grand Committee on Law by Mr. G. N. Barnes, M.P., and Mr. H. J. Tennant, M.P., but without success.

APPENDICES.

Item 1 in Report.]

RECOMMENDATIONS REGARDING CONTRACT PRACTICE.

(*Contained in the Medico-Political Committee's special Contract Practice Report, published as an extra* SUPPLEMENT *to the* BRITISH MEDICAL JOURNAL *of July 22nd*, 1905, *page* 29.)

1. That the conditions upon which the medical practitioners in any district undertake contract practice should be prescribed by arrangement among themselves.

2. That the control of the profession over the conditions of contract practice can only be effectually exercised under the conditions of a Public Medical Service, namely:

(*a*) That the general control be in the hands of some organized local body representative of the profession, such as a Division of the British Medical Association.

(*b*) That it be open to every practitioner in the district to take part in the work, should he desire to do so, and conform to the regulations of the profession.

(*c*) That the details of administration be under the direct control of a purely medical committee representing both those who do and those who do not take part in contract work.

3. That whenever, in the opinion of the local medical profession, the immediate institution of a Public Medical Service is for any reason impracticable, the three main principles above stated should be carried into effect as far as possible. That is to say:

(*a*) That, with regard to the condition upon which they will accept contract practice, the medical practitioners of each district should collectively and individually enter into an agreement, in which the following matters are specifically prescribed:

(i) Rates of remuneration.

(ii) Conditions of admission to attendance under contracts, including provisions with respect to the economic position, age, and health of candidates.

(iii) Definitions of the services to be rendered under the contract.

(iv) Where appointments are made by non-medical bodies—the forms of contract, tenure of office, and representation of the medical profession in the management of the medical service.

(*b*) That practitioners should cease to hold separate appointments or to carry on private clubs, and the principle of distribution of contract practice among all practitioners in the district who desire to participate should be carried into effect.

(*c*) That organized forms of contract practice at present under the control of non-medical committees should gradually be brought under direct medical control.

4. That agreements among local members of the profession with respect to Contract Practice should be effected through the agency of organized local bodies representative of the profession, the rules of which should make the agreements binding upon the members.

5. That the professional organizations referred to should in each case be a Division of the British Medical Association.

6. That to render professional co-operation as complete as possible, the Divisions should endeavour to secure the inclusion of every practitioner in their membership, and should make their decisions binding by adopting rules such as have been suggested by the Ethical Committee.

7. That the Divisions be urged to establish a Public Medical Service in every area in which Contract Practice is believed by them to be necessary.

Upon consideration of the special Contract Practice report, including the above recommendations, the Annual Representative Meeting of the Association (Leicester, July, 1905) passed the following Resolutions:

That on the subject of Contract Practice the policy of the Association shall be to improve the existing state

of Contract Practice by means of wage and class limits, adequate remuneration of Medical Officers and their representation on the governing bodies, the choice of medical attendants by the beneficiaries, and ultimately the introduction of a system of payment for work actually done. (*Minute* 60.)

That each Division be recommended to hold a meeting at an early date to consider the report of the Medico-Political Committee on Contract Practice, and that provision should be made that each of the recommendations of the Committee be discussed separately, and the opinions thereupon reported to the Medical Secretary. (*Minute* 62.)

That it be an instruction to the Council that a copy of the recommendations of the Medico-Political Committee and Resolutions of the Association on Contract Practice be sent to all members of the profession. (*Minute* 63).

Item 2 in Report.]

RECOMMENDATIONS AS TO PUBLIC MEDICAL SERVICES.

(A) Fundamental Principles Affecting the Relation of Public Medical Services to the Medical Profession.

(1) *Object of Public Medical Services.*

The recognized object of Public Medical Services is to enable certain sections of the community to make provision by a system of weekly or monthly payments for part or all of the cost of medical attendance upon themselves and their families by means of an organization under the sole control of the medical profession.

(2) *Benefits Included.*

The medical benefits of Public Medical Services may include medical attendance at any surgery provided for the Service or by the medical officer, attendance at the patients' homes when necessary, supply of medicines, and medical and surgical appliances, as defined by the local rules.

(3) *Persons Suitable for Admission.*

The medical benefits of each Public Medical Service should be confined to those who are deemed suitable by the local profession for admission.

(4) *Staff.*

It should be a fundamental principle of the constitution that every medical practitioner in the district for which the Service provides, who wishes so to act, should be a medical officer of the Service, provided that he conforms to the rules thereof, and provided that, if not introduced as the successor or partner of a practitioner in the district, he shall have been resident at least six months in the district.

Inasmuch as the constitution and management of Public Medical Services are a matter of concern not only to the active staffs of such institutions, but to the general body of the Profession in the district, the Rules should be made subject to the approval of some organized local body representative of the profession, such as a Division of the British Medical Association.

(B) Scheme of Rules of Public Medical Services suggested for Adoption by Divisions of the Association, or by other Organized Local Bodies representative of the Medical Profession.

(1) *Admission to Benefits.—Ordinary.*

(*a*) That provision be made in the rules, by wage limit or otherwise, for the admission to the benefits of the Service of such persons only as are suitable, in respect of means, for admission.

(*b*) That, if such provision be by wage limit, provision be made for suitable modification in respect of number in a family, and other special circumstances of individual cases.

(*c*) That members of Friendly Societies be admitted under the same rules as other members.

(2) *Management.*

That the Committee of Management should include:

(*a*) Representatives elected annually by and from the Medical Staff.

(*b*) Representatives of the local medical profession elected annually by some organized local body, such as a Division of the British Medical Association.

(*c*) Medical Representatives of local allied hospitals.

(3) *Medical Staff: Appointment.*

That all registered medical practitioners resident within the area of operation of the Service shall be eligible for appointment to the staff in accordance with Clause (5) of the Fundamental Principles.

(4) *Medical Staff: Distribution of Work.*

That it be open to each patient entitled to benefit to select the member of the staff by whom he or she desires to be attended, provided:

(*a*) That change of Medical Attendant shall take place only at such fixed periods, or upon such conditions, as may be prescribed by Rules approved by the staff.

(*b*) That it shall be open to each medical officer to limit the number of patients of the Service whom he will consent to attend or to decline to attend any individual patient.

(5) *Duties of Medical Staff.*

That the duties of the staff in respect of medical attendance be defined in the Rules of the Service.

(6) *Payments of Patients.*

(*a*) That the payments of patients, including special payments, if any, for cards, medicines, fines, or other matters, be fixed by the Rules of the Service.

(*b*) That no lower rate be charged for children than for adults, subject to a special provision for families above a certain number.

(*c*) That patients admitted when over 50 years of age be subject to an extra charge.

(7) *Payments—Special Services.*

That such provisions as local circumstances render necessary be made with respect to payment for midwifery and other special services.

(8) *Payments—Distribution among Medical Officers.*

That the entire surplus of the payments of patients after payment of necessary working expenses, if the Service supplies medicines, shall be divided periodically among the medical staff, in proportion to the number of members on their respective lists.

(9) *Canvassing and Advertising.*

That the rules should contain provisions against personal canvassing for members and against advertising of individual medical practitioners.

(10) *Relation of Public Medical Services to one another.*

That provision be made in the rules for transference of patients from one Public Medical Service to another.

(11) *Approval of Rules by the Local Medical Profession.*

That the Rules affecting—

(*a*) The amount of payments of patients;

(*b*) The eligibility of medical practitioners for appointment to the staff;

(*c*) The conditions of dismissal of members of the staff;

(*d*) The definition of persons entitled to become patients; and

(*e*) The representation of the Medical Staff and local Profession in the management—be not altered except with the approval of some organized body locally representative of the Profession, such as a Division of the British Medical Association.

Item 3 in Report.]

RECOMMENDATIONS AS TO PROVIDENT DISPENSARIES.

(A) Fundamental Principles affecting the Relation of such Dispensaries to the Medical Profession.

(1) *Object of Provident Dispensaries.*

The recognized object of Provident Dispensaries is to enable certain sections of the community to make provision for part or all of the cost of medical attendance upon themselves and their families by a system of weekly or monthly payments.

(2) *Benefits Included.*

The medical benefits of Provident Dispensaries may include medical attendance at any surgery provided by the Dispensary or by the medical officer, attendance at the patients' homes when necessary, supply of medicines, and medical and surgical appliances, as defined by the local rules.

(3) *Persons Suitable for Admission.*

The medical benefits of Provident Dispensaries should be confined to those whose means are such that they are unable to pay the full cost of ordinary medical attendance.

(4) *Staff.*

Inasmuch as the system of Provident Dispensaries is a form of Contract Practice, it should be a fundamental principle of their constitution that every medical practitioner in the district for which the Dispensary provides, who wishes so to act, should be a medical officer of the Dispensary, provided that he conforms to the rules thereof.

(5) *Local Medical Control.*

(A) The local practitioners should in all cases prescribe the conditions upon which they will render services through the Provident Dispensary, as regards :

(i) Representation of the Profession in the management ;

(ii) Definition by wage limit or otherwise of the class to be admitted ;

(iii) The amount to be paid by each member to the medical officer attending him, as determined by—

(*a*) The contributions of members to the funds ; and

(*b*) The proportion of such contributions paid to the medical staff ;

(iv) The system of the distribution of the work among members of the Profession ;

(v) The duties of the Medical Staff.

(B) Inasmuch as the constitution and management of Provident Dispensaries are a matter of concern not only to the medical staffs of such institutions but to the general body of the Profession in the district, the Profession as a whole in each district has a right to be consulted, and this should be done through organized local bodies, such as the Divisions of the British Medical Association.

(B) SCHEME OF RULES OF PROVIDENT DISPENSARIES SUGGESTED FOR ADOPTION BY DIVISIONS OF THE ASSOCIATION, OR BY OTHER ORGANIZED LOCAL BODIES REPRESENTATIVE OF THE MEDICAL PROFESSION.

(1) *Admission of Provident Members—Ordinary.*

(*a*) That provision be made in the Rules, by wage limit or otherwise, for the admission to the benefits of the Dispensary of such persons only as are suitable, in respect of means, for admission.

(*b*) That if such provision be by wage limit, provision be made for suitable modification in respect of number in a family, and other special circumstances of individual cases.

(2) *Admission of Provident Members—Friendly Societies.*

That members of Friendly Societies be admitted under the same Rules as other members.

(3) *Subscriptions to the Funds from other than Beneficiaries.*

That, where local circumstances render it desirable, provision may be made for subscription to the Funds by persons who do not share the benefits.

(4) *Committee of Management.*

That the Committee of Management, upon which the members of the medical profession should be a clear majority, should include :

(*a*) Representatives—

(i) Elected annually by and from the medical staff;

(ii) Of the local medical profession elected by some organized body, such as a Division of the British Medical Association ; and

(iii) Of the managing body of any allied hospital.

(*b*) Representatives annually elected by and from the provident members.

(*c*) Representatives annually elected by subscribers who do not participate in the benefits.

(*d*) The honorary secretary, treasurer, and other officers elected in such manner as the rules of the dispensary may prescribe.

(5) *Medical Staff: Appointment.*

That all registered medical practitioners resident within the area of operation of a Provident Dispensary shall be eligible for appointment to the staff in accordance with Clause (6) of the Fundamental Principles.

(6) *Medical Staff: Distribution of Work.*

That it be open to each Provident Member to select the member of the staff by whom he or she desires to be attended, provided—

(*a*) That a change of medical attendant shall take place only at such fixed periods, or upon such conditions, as may be prescribed by Rules approved by the staff.

(*b*) That it shall be open to each medical officer to limit the number of members of the Dispensary whom he will consent to attend, or to decline to attend any individual member.

(7) *Duties of Medical Staff.*

That the duties of the medical staff in respect of attendance on the Provident members be defined in the Rules of the Dispensary.

(8) *Payment of Provident Members.*

That the payment of Provident Members, including special payments, if any, for cards, medicines, fines, or other matters, be fixed by the Rules of the Dispensary.

(9) *Contributions—Special Services.*

(*a*) That obstetric services be paid for separately and in advance in all cases, in accordance with provisions defined in the Rules.

(*b*) That such provision as local circumstances render necessary be made with respect to other special services.

(10) *Division of Payments among Medical Officers.*

That the entire surplus of the payments of the Provident Members, after payment of necessary working expenses, including drugs and dispensing—if the dispensary supplies medicines—shall be divided periodically among the medical staff, in proportion to the number of members on their respective lists.

(11) *Capital Charges.*

That no payment be made from Provident Members' ordinary contributions in respect of buildings or other capital charges of a like nature.

(12) *Canvassing and Advertising.*

That the rules should contain provisions against personal canvassing for members and against advertising of individual medical practitioners.

(13) *Collections of Payments.*

All payments of Provident Members shall be made at an office provided for the purpose, and visiting collectors shall not be employed.

(14) *Relation of Provident Dispensaries to One Another.*

(*a*) That the area in which each Provident Dispensary operates shall be defined.

(*b*) That provision be made for transference of members from one Provident Dispensary to another.

(15) *Approval of Rules of Dispensaries by Medical Staff.*

That the Rules defining the conditions of service of the medical staff be not altered, except with the approval of a two-thirds majority in a meeting of the medical staff, after fourteen days' notice of the proposed alteration shall have been given to every member thereof.

(16) *Approval of Rules by Local Medical Profession.*

That the rules affecting—

(*a*) The amount of payments of Provident Members (other than those, if any, for capital charges);

(*b*) The eligibility of medical practitioners for appointment to the staff ;

(*c*) The conditions of dismissal of members of the staff ;

(*d*) The definition of persons entitled to become Provident Members ; and

(*e*) The representation of the medical staff and medical profession in the management,

be not altered except with the approval of some organized body locally representative of the profession, such as a Division of the British Medical Association.

Item 4 in Report.]

REPORT OF THE JOINT SUBCOMMITTEE OF THE MEDICO-POLITICAL AND PUBLIC HEALTH COMMITTEES ON VACCINATION EXPENSES.

THE Subcommittee having carefully considered the Report of the Departmental Committee of the Local Government Board on Vaccination Expenses, reports thereon as follows:

1. In the opinion of the Subcommittee the Report of the Departmental Committee is on the whole fair to the medical profession consistently with regard for the public interest, and if given effect to will tend to maintain or even increase the protection afforded to the community by the existing Vaccination laws. The proposals of the Report should therefore as a whole receive the approval and support of the Association.

The following paragraphs appear to the Subcommittee to call for special consideration :

91. Upon a careful consideration of the evidence which has

been placed before us, and having regard to the several recommendations contained in this Report, we are of opinion that the minimum fees payable to public vaccinators may be fairly and reasonably fixed at the following amounts:

2s. 6d. for every case of successful primary vaccination performed elsewhere than at the home of the child or person vaccinated;

3s. for every case of successful primary vaccination performed at the home of the child within one mile from the public vaccinator's residence;

4s. for every case of successful primary vaccination performed at the home of the child over one mile and under two miles from the public vaccinator's residence; and

5s. for every case of successful primary vaccination performed at the home of the child over two miles from such residence.

Where journeys of over three miles have to be made, a special fee should be arranged between the parties.

In each case we suggest that the distance should be measured by the nearest public carriage road.

We do not propose any alteration in the fee payable under Article 3 (1) (*a*) of the Vaccination Order, 1898.

95. We suggest that the law should be amended so that every public vaccinator may become an "officer" within the meaning of Article 187 of the General Consolidated Order and Section 19 of the Poor-law Officers' Superannuation Act, 1896, and that, so long as he strictly complies with the terms of his appointment and with the Instructions to Public Vaccinators for the time being in force, he should have a fixity of tenure, with the same rights, privileges, and liabilities as a District Medical Officer.

We believe that public vaccinators generally would welcome such an alteration in their status, and would regard the change as some compensation for the reduction which we propose should be made in their fees.

96. We are further of opinion that where a public vaccinator is under contract for vaccination at the time when any new Act, or Order, affecting the amount of the fee or fees payable to him comes into force, he should have the option of remaining a contractor, instead of becoming an "officer"; in which case no reduction below the minimum fee payable under Article 3 (1) (*b*) of the Vaccination Order, 1898, so far as it applies to the primary vaccination of infants under 12 months of age, should be made, and such contract should only be determinable with the consent of the Local Government Board, or upon the acceptance by the public vaccinator of the revised terms and conditions prescribed by any new Act or Order.

97. We do not favour the suggestion that every medical man should be paid by the vaccination authority for vaccinations performed by him, but we think there would be an advantage if successful vaccination were defined by statute, and every medical man were required to conform to the statutory standard.

2. With regard to paragraph 91, the Subcommittee recognizes that the proposals of the Departmental Committee which reduce the minimum fees paid to public vaccinators are explicitly connected by that Committee with proposals for the reduction of the work at present required from public vaccinators, and for the improvement of their status as regards security of tenure and superannuation.

It is to be observed that the improvement of status, and to some extent also the diminution of work, are dependent upon proposed amendments of the law, and the Subcommittee considers that at all events no order should be made by the Local Government Board to reduce the existing minimum fees until the proposed alteration of the law have been effected.

The Subcommittee does not express any opinion as to the adequacy of the proposed scale of minimum fees to the amount of work done under the altered conditions contemplated by the Departmental Committee.

With regard, however, to the proposal of the Departmental Committee that all fees for journeys over three miles should be fixed by local arrangements between the parties, the Subcommittee considers that these fees should be determined by the Local Government Board.

3. With respect to paragraphs 95 and 96, relative to placing Public Vaccinators in the same position as Poor-law Medical Officers as regards security of tenure and superannuation, the Subcommittee is of opinion that the suggestions in these paragraphs are of great value, and should receive special support from the Association.

4. The Subcommittee has also given special consideration to the position of private practitioners in vaccination, to which allusion is made in paragraph 97 of the Departmental Committee's Report.

The questions which appear to require consideration in this connexion are:—

(*a*) The protection afforded to the whole of the community by the efficient vaccination of each individual, which is thus a matter of State concern.

(*b*) The desire of individuals, which the law at present recognizes, to select for themselves the medical practitioner who is to perform the operation, on the condition that the private patient pays the fee of the vaccinator.

It must be recognized that many members of the community will consent to vaccination when performed by a practitioner of their own selection in whom they have confidence, who might resist vaccination if compelled to submit to its performance by a public vaccinator. Thus the present right of employment of a private practitioner probably facilitates the smooth working of the Vaccination Acts.

On the other hand, the suggestion that every private practitioner should be recognized as a public vaccinator, and that each patient should be free to choose his own vaccinator at the State expense, has been objected to on the ground of the difficulty of effective inspection, and it appears to the Subcommittee that this objection must, on the evidence at present available, be held to prevail.

In the opinion of the Subcommittee the difficulty is best met by the compromise which, as shown by the historical memorandum appended, has already received the emphatic approval of the Association, namely, that the distinction between public and private vaccinators should be maintained, but that the interest of the community in efficiency of private vaccinations should be recognized by the payment of a fee for every certificate by a private practitioner of successful vaccination satisfying a standard laid down by the Local Government Board.

The fee should be regarded as a recognition of the efficiency of the vaccination and of the fact of certification, but not as a payment for the operation itself, which should be paid for by the patient.

Under such a system the Subcommittee considers that the risk of punishment for false certification, under a system of surprise visitation, by the Inspectors of the Local Government Board, would furnish a safeguard for efficient vaccination, such as the community does not at present possess in the case of private vaccination.

RECOMMENDATIONS.

(Approved by the Medico-Political and Public Health Committees and Central Council.)

1. That the Report of the Departmental Committee on Vaccination Expenses should receive the general approval of the Association.

2. That no reduction should be made in the existing minimum fees to Public Vaccinators until such changes have been made in the law as are necessary to carry out the propasals of the Departmental Committee as regards diminution of work of Public Vaccinators and improvement of their status.

That no opinion need at present be expressed as to whether, when such changes are carried out, the minimum fees proposed by the Departmental Committee would or would not be adequate to the work then done by Public Vaccinators, regard being had also to the improvement of status.

3. That the proposals of the Departmental Committee as regards placing Public Vaccinators in the some position as Poor-law Medical Officers in respect of tenure and superannuation, being of great value, should receive special support from the Association.

4. That every private practitioner furnishing the vaccination authority with certificates of successful and efficient vaccination, satisfying a standard fixed by the Local Government Board, should receive a suitable fee for each certificate.

Item 9 in Report.]

REPORT ON THE SELECTION BY THE ASSOCIATION OF REPRESENTATIVES ON PUBLIC OR OTHER BODIES OF WHICH THE ASSOCIATION MAY HAVE THE LEGAL RIGHT, OR MAY BE REQUESTED, TO APPOINT MEMBERS.

In making provision for the election of representatives it is apparent that a distinction must be made between those cases in which appointments have to be made at fixed periodic intervals affording sufficient opportunity for consideration by the Divisions and the Representative Meeting, and cases in which time does not permit of the adoption of this procedure.

(*a*) Where practicable the Committee recommends the following course, based upon that for Selection of Candidates for the General Medical Council:

(1) That the Medico-Political Committee, or the Committee of the Association, if any, specially interested in the duties of the appointment, be instructed to circulate to every Division not less than five months before the Annual Representative Meeting a notice that part of the business of the ensuing Annual Representative Meeting will be to select a Representative or Representatives for the purpose stated, and that the Division, if it desire to suggest any person or persons as suitable, should inform the Committee not later than March 31st of the names of such persons, not exceeding in number the Representatives to be appointed.

(2) That the Committee prepare a list of those who have been duly nominated by Divisions in the manner provided, and cause the same to be published in the BRITISH MEDICAL JOURNAL with the Notices of Motion for the Annual Representative Meeting.

(3) That each Division be invited to instruct its Representative in the Representative Meeting as to the candidates named in the list for whom the Division desires him to vote.

(4) That in the Annual Representative Meeting a vote be taken by voting paper for the selection of Representatives, further ballots being taken if necessary to arrive at a selection approved by the majority of those present and voting.

(*b*) In cases in which the foregoing procedure is impracticable the Committee concerned shall, if time permits, request the Divisions to make nominations, and shall prepare a list of those so nominated, for presentation to the Council, which shall be authorized to appoint a Representative from among those so nominated.

Item 11 in Report.]

REPORT BY THE MEDICO-POLITICAL COMMITTEE ON THE ACTION TAKEN BY THE ASSOCIATION IN CONNEXION WITH THE GENERAL PARLIAMENTARY ELECTION, 1906.

THE action taken by the Association in connexion with the recent General Election may be considered under the four following heads:

I. ACTION TAKEN IN PURSUANCE OF THE INSTRUCTIONS OF THE REPRESENTATIVE MEETING AT LEICESTER.
II. ACTION TAKEN BY THE CENTRAL COUNCIL.
III. ACTION TAKEN TO BRING THE FACTS AS TO THE VALUE OF VACCINATION UNDER THE NOTICE OF PARLIAMENTARY CANDIDATES.
IV. RECOMMENDATIONS BY THE MEDICO-POLITICAL COMMITTEE AS TO FUTURE ACTION IN CONNEXION WITH PARLIAMENTARY ELECTIONS.

I. ACTION TAKEN IN PURSUANCE OF THE INSTRUCTIONS OF THE REPRESENTATIVE MEETING AT LEICESTER.

The Annual Representative Meeting at Leicester resolved as follows (Minutes 78, 79, and 80):

"That, in view of a probably early General Election, it is desirable that steps be taken for advancing the interests of the medical profession and obtaining a proper recognition of the reforms it advocates; that this may be best accomplished by an effort to secure uniformity of action on the part of the British Medical Association and to enlist the sympathy and co-operation of the entire profession, and that for this purpose it be an instruction to the Medico-Political Committee:

"(1) To draft a series of questions dealing with matters of special interest to the medical profession, to be submitted to Parliamentary candidates, the matters dealt with to include the Medical Acts Amendment Bill, the amendment of the law as to Death Registration and Coroners' Act Amendment Bill, the Public Health Bill, and the Revaccination Bill.

"(2) To issue copies of these questions to the Divisions with the request to submit them to the local candidates, to obtain a personal interview with the candidates, and to report immediately the result.

"(3) To issue on receipt of the reports a circular to each registered medical practitioner in the United Kingdom, setting forth the steps that have been taken by the British Medical Association, asking him for his support and influence for the candidate in his Parliamentary division whose attitude is most favourable to the reforms desired, and giving the reasons why the Association supports his candidature.

"That a Subcommittee of the Medico-Political Committee be formed to organize and promote medical interests, especially during Parliamentary elections, and to carry out the necessary propaganda at all times.

"That Reform of the Lunacy Laws be added to the subjects mentioned in the Resolution."

In pursuance of the above instructions of the Representative Meeting, the Medico-Political Committee appointed in October, 1905, a Parliamentary Subcommittee, who were empowered to take action as directed.

The Subcommittee consisted of Dr. R. C. Buist (Chairman of the Medico-Political Committee) Chairman, Sir Victor Horsley, F.R.S. (Chairman of Representative Meetings), Mr. H. W. Armit, Dr. T. Arthur Helme,* Dr. J. A. Macdonald,* Dr. L. S. McManus, Dr. H. F. Oldham, Mr. C. H. Watts Parkinson, and Mr. C. R. Straton. The late Mr. W. Jones Morris had also been nominated by the Medico-Political Committee as a member of the Subcommittee, but died before the first meeting of the Subcommittee.

Though the prospective date of the General Election was very doubtful, the Subcommittee at once undertook the preparation of a series of questions suitable for use by Divisions of the Association in approaching Parliamentary Candidates with reference to those subjects upon which the opinion of the Association had been pronounced. These, in preliminary form, were published in the JOURNAL of November 18th for the information of the Divisions and for use in any by-elections that might arise. At the same time, the Medico-Political Committee, by a circular letter, drew the attention of the Divisions and Branches to the instructions of the Representative Meeting, and indicated the arrangements which were being made for carrying these out. Each Division was advised at once to take the preliminary step of appointing a special Committee to deal with Parliamentary matters.

Mr. Balfour resigned office on December 4th, 1905, and shortly afterwards it became known that Parliament would be dissolved, and that a General Election would take place in January. The Parliamentary Subcommittee accordingly met on December 13th, finally adjusted the questions for submission to Parliamentary Candidates, and ordered that they be circulated to the Divisions.

These, 21 in all, dealt with the following subjects:

I. The Medical Acts Amendment Bill.
II. Death Registration and Coroners Law.
III. The Public Health Bill.
IV. The Revaccination Bill.
V. Reorganization of the Local Government Board in the interests of Public Health.
VI. The Midwives Act.
VII. Incipient Insanity.
VIII. Habitual Inebriety and Drug Habits.
IX. Poor-law Medical Officers in Scotland and Ireland respectively.
X. Medical Inspection of School Children.

Prefatory Memoranda, explanatory of each set of questions, were at the same time prepared. (*For the Memoranda and Questions, see Appendix I below.*)

Similar Questions and Memoranda upon two subjects with regard to which the policy of the Association has not yet been defined, namely, *Security of Tenure for Public Vaccinators*, and *Pensions for Asylum Workers*, were also drawn up and separately printed for the use of such Divisions as might deem it advisable to bring these matters to the notice of Candidates. (*See Appendix II below.*)

Each Honorary Secretary of a Division was supplied with two copies of the Memoranda and Questions for each of the Candidates in every constituency in which the Division was interested. Each Honorary Secretary was also supplied with a statement showing the Parliamentary constituencies which fall wholly or partially within the area of the Division, and a list of the other Divisions, if any, interested in each constituency.

The want of correspondence of the areas of Divisions of the Association with those of the Parliamentary constituencies made the preparation of these statements a matter of considerable difficulty.

Information was also given of the names of Candidates standing for the several constituencies as soon as these could be ascertained, and with regard to certain more important questions submitted to Candidates fuller

* Members appointed subsequent to October, 1905.

Memoranda than those printed with the questions were supplied.

The first issue of the Memoranda and Questions was completed by December 22nd, and the final issue of the lists of Candidates by January 3rd.

In accordance with the terms of the resolutions of the Representative Meeting, the next step should have been for the Medico-Political Committee to consider the replies obtained by the Divisions from the Parliamentary Candidates throughout the country, and issue recommendations to medical practitioners in the several constituencies stating which Candidates in the opinion of the Medico-Political Committee were most deserving of support in respect of their attitude towards questions of Public Health.

The Committee on January 3rd, on considering the report of the Parliamentary Subcommittee with respect to this matter, found that it would be impossible in the time available to carry out this instruction specifically. The Committee accordingly informed the Honorary Secretaries of Divisions that in the view of the Committee the only practicable course was for each Division to have the replies of Candidates printed locally for circulation to practitioners in the Division area, but that, for their assistance, envelopes addressed to all medical practitioners in any constituency or constituencies would be supplied from the Medical Secretary's Office to any Division which applied, together with a sufficient number of reprints of the Memoranda and Questions.

This instruction of the Committee was duly carried out. The preparation of the lists of medical constituents, however, was often, in the time and with the information available, and especially in the case of the more densely-populated constituencies, a matter of difficulty, and in several cases proved to be impracticable in the Central Office.

The Honorary Secretaries of Divisions were asked to forward, after the Election, for the help of the Committee in its future work, the original replies received from the successful Candidates.

Result of the Action taken by the Representative Meeting.

The following facts can now (May 14th, 1906) be reported:

(*a*) Ninety-six Divisions reported that they were bringing, or had brought, the Memoranda and Questions to the notice of Parliamentary Candidates.

(*b*) Five Divisions intimated that, in place of approaching Candidates for Parliament in reference to the Questions, they would approach the new members of Parliament after the Election.

(*c*) Of the 96 Divisions, 53 reported that they had appointed, for the purposes of the General Election, special Committees or Deputations to Candidates, or that their Executive Committees or Branch Councils were acting as such.

(*d*) Forty-five Divisions issued, or intimated their intention of issuing, circulars to the local medical profession informing them as to the attitude of Candidates (for about 139 constituencies).

(*e*) Sets of envelopes addressed to the medical constituents of about 105 Parliamentary constituencies (38 Divisions) were prepared and supplied from the Central Office, with similar numbers of reprints of the Memoranda and Questions.

(*f*) In the case of 7 constituencies (4 Divisions) the preparation and issue of the circulars and other papers to the medical constituents was, by request of the Division Officers concerned, carried out entirely from the Central Office.

(*g*) In all, throughout the United Kingdom, about 7,040 medical voters were notified of the attitude of Parliamentary Candidates on some or all of the Questions submitted to them.

(*h*) Up to the date of preparation of this report (May 14th, 1906), there have been forwarded to the Committee by the Honorary Secretaries and other Division and Branch Officers the original replies, to the Association's Questions, given (mainly as Candidates) by 163 Members of the new Parliament, besides a number of replies of unsuccessful Candidates.

II. Action Taken by the Central Council.

The Central Council of the Association on December 13th, 1905, resolved:

That in the constituency of each Member of Parliament who has conspicuously supported or opposed the policy of the Association in matters affecting the profession, the Medical Secretary be instructed to inform the medical profession of the action taken by the Member of Parliament.

In pursuance of this instruction, circular letters relative to the past action of those members of the late Parliament seeking re-election whose names were indicated by the Parliamentary Subcommittee, were, under the superintendence of that Subcommittee, drawn up and issued to the medical constituents of 34 constituencies for which these candidates were respectively standing.

In the case of Sir Michael Foster and Sir John Batty Tuke, special letters as to their services were published in the British Medical Journal by the Chairmen of the Medico-Political and Public Health Committees, it being found impracticable to notify the voters in the university constituencies by circular.

The circular letters in question, about 1,570 in all, were in the following form:

> In connexion with the candidature for the ..... constituency of ....., member of the late Parliament, I am instructed by the Central Council of the Association to communicate for your information the following particulars of that gentleman's action in Parliament on medical questions:
>
> (Here were inserted particulars.)

The action taken by the Association in this matter led to strong protests from members in the areas of two Divisions, on the ground that it constituted a propaganda on behalf of individual candidates, but it is to be noted that the candidates in these two cases belonged to opposite political parties. The objectors did not appear to have realized that the action of the Association was confined strictly to the circulation of facts, and that no recommendation was made.

III. Action Taken to Bring the Facts as to the Value of Vaccination under the Notice of Parliamentary Candidates.

In the beginning of January, 1906, a copy of the Association's pamphlet, "Facts about Small-pox and Vaccination," was sent to each of the 1,250 candidates for Parliament.

IV. Recommendations by the Medico-Political Committee as to Future Action in Connexion with Parliamentary Elections.

(1) That in all elections a series of questions for candidates analogous to that used this year should be prepared for the use of the Division Committees.

(2) That a statement of all the available information as to the past action of candidates on medical matters be supplied to the Committee of the Division concerned.

(3) That envelopes addressed to the medical practitioners should be supplied from the Central Office when desired by the Division Committees.

(4) That the Divisions should be ready to take prompt action in any election in their areas through Special Committees or the Division Committees.

(5) That it is not desirable that either the Association or the Divisions should make definite recommendations for the support of individual candidates.

May 16th, 1906.

APPENDIX I.

MEMORANDA AND QUESTIONS ON PARLIAMENTARY SUBJECTS AFFECTING THE MEDICAL PROFESSION, SUBMITTED FOR THE CONSIDERATION OF PARLIAMENTARY CANDIDATES.

I. Medical Acts Amendment Bill.

MEMORANDUM.—

At present, the statutory control of the medical profession is vested in the General Council of Medical Education and Registration (General Medical Council), which, under the reservation of certain privileges of the various licensing corporations, is also charged with the regulation of medical education. It has proved a source of serious dissatisfaction that the body of those actually practising medicine is so inadequately represented in the

Council, and that the universities and corporations, whose individual interests are not always identical with those of the best medical education, appoint the large majority of this governing body. The historic privileges of some of the licensing bodies have also been invoked to impair the control of the Council over the education of the student. The difficulties which have been experienced in controlling the standard of the various qualifying examinations, conducted by the different bodies, have shown that it is desirable that there should be a State examination on the practical subjects of Medicine, Surgery, and Midwifery.

Under the present Acts, the only restrictions on those who are not properly qualified to practise medicine or dentistry is that they shall not assume a title which implies that they are registered, and experience has shown that this is not sufficient to secure the purpose of the Acts, which is to provide means whereby the public is able to distinguish those who are qualified to practise. It has thus been proved necessary, in the public interest, to make the provisions more stringent.

QUESTIONS—

Would you support in Parliament a Bill for the amendment of the Medical Acts based upon the following general principles?

1. That at least half the Members of the General Medical Council should be directly elected by the general body of medical and dental practitioners in the country, instead of the large majority, as at present, being appointed by the universities or corporations, bodies financially interested in the examining and licensing of students and practitioners.
2. That the General Medical Council should have complete control over the registration and education of medical and dental students, including fixing the standard of preliminary general education requisite for admission to medical study.
3. That there be a "one-portal" system for admission to medical and dental practice—namely, through a State Examination, conducted by the General Medical Council under the supervision of the Privy Council.
4. That the practice of medicine or dentistry by unregistered persons, or by companies, and the signing of medical certificates by unregistered persons be more completely prevented.

II. DEATH REGISTRATION AND CORONERS LAW.

MEMORANDUM—

The present Acts have proved an insufficient protection to the public against the risks of murder on the one hand, and against the possibility of premature burial on the other. For these reasons it is proposed that it should be illegal to dispose of a body until the death has been registered, and to base the registration on a certificate that the fact of the death has been verified by actual inspection by a medical practitioner.

The present Acts do not afford a trustworthy basis for the vital statistics necessary for sanitary legislation, and from the lack of the registration of Stillbirths give no protection against the wilful destruction of infant life—a matter of serious national anxiety.

QUESTIONS—

Would you support Parliamentary amendments of the law as to Death Registration based on the following principles?

1. That no body should be buried except upon production of a Registrar's Certificate or a Coroner's Order, and that no death should be registered except upon production of medical certificates in statutory form of the fact that death has actually occurred and of its cause, or upon a Coroner's Order.
2. That the medical certificate of the cause of death be given by a medical practitioner who has been actually in attendance within a specified period, and the certificate of the fact of death be given by a medical practitioner who has satisfied himself of the fact after inspection of the body, and that a statutory fee be paid for each certificate.
3. That where medical certificates in compliance with the statute are not received by the Registrar, he shall report the death to the Coroner, and the Coroner shall instruct the practitioner who has been in attendance, if any, or the special district medical officer, in conjunction with the medical practitioner in attendance, if any, to investigate, and if so directed to make a *post-mortem* examination, and that medical practitioners be paid a statutory fee for preliminary information furnished to a Coroner for his assistance in deciding as to the necessity of an inquest.
4. That Stillbirths be certified and registered in a manner similar to deaths.

III. PUBLIC HEALTH BILL.

MEMORANDUM—

Experience has proved that for all medical officers whose duties may from time to time bring them into conflict with the interests or opinions of members of the local governing bodies, it is essential, if the duties are to be performed in the interests of the community and not of the individual governor, that the medical officer should be afforded such security of tenure as is provided by requiring the consent of a Central Department, usually the Local Government Board, to his dismissal. In England this security is at present not given to Medical Officers of Health nor to Public Vaccinators, and in Scotland it is not given to Poor-law Medical Officers.

In the Public Health Bill dealing with England advantage has been taken of the opportunity to provide a standard of qualification for Medical Officers of Health and for Sanitary Inspectors.

To afford a means by which officers of advancing years may be removed without hardship to the individual, a scheme of superannuation is necessary.

QUESTIONS—

Would you support in Parliament the following alterations of the law?—namely:

1. That Medical Officers of Health and Sanitary Inspectors in England and Wales should have the same security of tenure as is at present enjoyed by Medical Officers of Health in Scotland and London, and by Poor-law Medical Officers in England and Wales—that is, that they should not be appointed for a limited period only, and that they should not be removable except with the consent of the Local Government Board.
2. That the qualification for Medical Officers of Health in England and Wales be raised to a standard analogous to that prescribed for Scotland, and that a qualification satisfactory to the Local Government Board be required for Sanitary Inspectors.
3. That Medical Officers of Health and Sanitary Inspectors be placed on the same footing as Poor-law Medical Officers as regards superannuation.

IV. REVACCINATION BILL.

MEMORANDUM—

The provisional promise made after the Report of the Royal Commission on Vaccination, to the effect that the relief of the conscientious objector would be followed by provision for the increased public protection afforded by compulsory revaccination, has never been implemented, and the increasing experience of this and of foreign countries shows that such a measure is still urgently necessary.

QUESTION—

Would you support in Parliament the Revaccination Bill, of which the main provision is as follows?

That, subject to the same conditions of exemption as primary vaccination, all children should be revaccinated before the statutory age for leaving public elementary schools.

V.—REORGANIZATION OF THE LOCAL GOVERNMENT BOARD IN THE INTERESTS OF PUBLIC HEALTH.

MEMORANDUM—

In England the care of Public Health has been undertaken piecemeal by various departments as they happened to be interested in the particular question under which each item arose. Hence, the administration of public health is in a condition of greater disorder than that of much less important matters, and is distinctly less efficient than in Scotland. The subject was reported on by an Inter-Departmental Committee, but from the public health side the report was most inadequate, and the

British Medical Association is convinced that the subject is of sufficient importance to justify an inquiry by Royal Commission.

QUESTIONS—

Would you support in Parliament the appointment of a Royal Commission to investigate the present central administration dealing with public health, having regard particularly to the following proposals?

1. That the central administration in matters affecting public health should be vested in a single Department of State which, in view of the necessarily important part played by local authorities, should be organized from the Local Government Board.
2. That the Department should be administered by a Board, meeting for the transaction of business, which should include amongst its Members medical, engineering, legal, and Poor-law experts, and that the President of the Local Government Board should be placed on equality as regards status and emoluments with the Principal Secretaries of State.
3. That matters relating to public health, at present administered through the Privy Council Office, the Home Office, and the Foreign Office, should be transferred to the reorganized Local Government Board.

VI.—Midwives Act.

MEMORANDUM—

The Midwives Act has imposed on midwives a statutory obligation to call in registered medical practitioners in certain emergencies, the patient having no power of veto. The urgency of such calls allows the practitioner no time to satisfy himself as to payment, or to put into action the ordinary Poor-law machinery for medical relief to the very poor. Nevertheless, the employment of a medical practitioner is practically imposed by the State upon the patient, and it is submitted that the State should at least guarantee the payment of the practitioner's fee.

QUESTION—

Would you support in Parliament legislation to enable local authorities to make provision for the payment of medical practitioners called under the requirements of the Midwives Act to assist midwives in emergencies?

VII.—Incipient Insanity.

MEMORANDUM—

Alienists are agreed, and public opinion also recognizes, that patients suffering from early or unconfirmed mental disease are often gravely injured by association with lunatics, or by being to their own knowledge regarded or treated as insane. They require special care and treatment for which the Scottish law affords facilities not at present possessed in England or Ireland.

QUESTION—

Would you support a Bill to give in England the same power of dealing with cases of unconfirmed mental disease as has existed in Scotland since 1857?

VIII.—Habitual Inebriety and Drug Habits.

MEMORANDUM—

Inebriety is increasingly recognized both by experts and by the community as a vice which, to be successfully combated, must be treated by methods applicable to disease rather than to crime.

At present, however, the requisite restraint can only be obtained through criminal procedure.

QUESTION—

Would you support a Bill to give power to deal with non-criminal inebriates, and the subjects of other drug habits, under a procedure analogous to that of the Lunacy Acts?

IX.—Poor-law Medical Officers.

In Scotland.

MEMORANDUM—

In England and Wales Poor-law Medical Officers, and in Scotland Medical Officers of Health, enjoy security of tenure in that they cannot be appointed for limited periods only, and are not removable without the consent of the Local Government Board.

It is desired to extend this necessary protection to Scottish Poor-law Medical Officers, and a Departmental Committee of the Scottish Local Government Board has already reported in favour of this reform.

QUESTION—

Would you support a Bill to give these officers such a security of tenure as is afforded by making them removable only with the consent of the Local Government Board?

In Ireland.

MEMORANDUM—

The Irish Poor-law Medical Service is at present seriously injured from the following causes:

(1) The recent enactment whereby the Imperial contribution to the salaries of the Medical Officers have been made invariable, and, therefore, the expense of any increase falls upon the local poor rate.

(2) The poverty of many parts of Ireland which cannot afford even a quota of the cost of an adequate medical service.

(3) Lack of appreciation both centrally and locally of the medical needs of the country, and consequent errors of administration.

The first steps in reform must be legislative:

(*a*) To remove the recent restriction on Imperial grants.

(*b*) To make provision for special assistance to necessitous districts.

QUESTION—

Would you support necessary legislative and administrative changes to provide adequate salaries and superannuation for Poor-law Medical Officers?

X.—Medical Inspection of School Children.

MEMORANDUM—

Opinion is now practically unanimous as to the necessity for the systematic inspection of school children, both for the prevention of epidemic disease and for the health of the children individually. In Scotland the school authorities have no power at present to make provision for this, and in some other cases the authorities have not yet made provision.

QUESTION—

Would you support legislation giving the Central Education Authorities power to order, and the local authorities power to provide for, the medical inspection of school children?

Signature.....

Candidate for.....

Date....., 190 .

APPENDIX II.

MEMORANDUM AND QUESTION WITH REGARD TO SECURITY OF TENURE FOR PUBLIC VACCINATORS, SUBMITTED FOR THE CONSIDERATION OF PARLIAMENTARY CANDIDATES.

XI.—Public Vaccinators.

MEMORANDUM—

The Departmental Committee of the Local Government Board on Vaccination Expenses reported in favour of placing Public Vaccinators in the same position as English Poor-law Medical Officers in respect of security of tenure; that is to say, that they should not be appointed for limited periods only, and that they should not be removable without the consent of the Local Government Board.

QUESTION—

Would you support a Bill to give Public Vaccinators the same security of tenure as Poor-law Medical Officers?

Signature.....

Candidate for.....

Date....., 190 .

MEMORANDUM AND QUESTION WITH REGARD TO PENSIONS FOR ASYLUM WORKERS, SUBMITTED FOR THE CONSIDERATION OF PARLIAMENTARY CANDIDATES.

XII.—Pensions for Asylum Workers.

MEMORANDUM—

The Asylum Workers' Association, which comprises between three and four thousand members engaged in the care of the Insane, including Medical and other Officers, and Nurses and Attendants, is desirous of bringing under the notice of candidates at the ensuing Parliamentary Election the claims of the employés of all ranks in the

service of Public Asylums to assured and adequate pensions on superannuation after a sufficient length of service. At present, under Section 280 of the Lunacy Act, 1890, such pensions are *optional* at the discretion of the Visiting Committee of each Asylum; it is desired that it be enacted (as proposed in 1898 by Lord Chancellor Halsbury) that "it *shall be the duty* of the Visiting Committee of every Asylum to grant Superannuation Allowances."

QUESTION—

Would you support in Parliament statutory provision (such as that proposed by Lord Halsbury, as above stated) for pensioning Asylum Workers?

Signature.....

Candidate for.....

Date....., 190 .

Item 13 in Report.]

MIDWIVES ACT.

FEES PAYABLE TO MEDICAL PRACTITIONERS CALLED IN UNDER THE ACT.

Scale of Fees Proposed by the Metropolitan Counties Branch.

	£	s.	d.
Visit (including any necessary prescription):			
Day (7 a.m. to 7 p.m.)	0	3	6
Night (7 p.m. to 7 a.m.)...	0	7	6
Attendance at cases of operative interference	2	0	0
Administration of an anaesthetic	1	1	0

Notes by the Branch.—The above are minimum fees. Powers should be obtained to pay special fees in special cases, with the consent of the Local Government Board.

Item 14 in Report.]

REPORT ON THE AMENDMENT OF THE LUNACY LAWS,

WITH SPECIAL REFERENCE TO THE CARE AND TREATMENT OF CASES OF UNCONFIRMED MENTAL DISEASE.

THE importance of being able to treat early and unconfirmed cases of mental disease without bringing the patient into personal contact with the ordinary Lunacy administration has long been recognized by the medical profession, and the difficulties placed in the way of such treatment in England and Wales by the present Lunacy Acts have occupied the attention of the British Medical Association for the last ten years.

In Scotland, on the other hand, the requisite legal sanction for the special treatment of unconfirmed cases has been afforded through a saving Clause inserted in Section XIII of the Lunatics (Scotland) Act, 1886. That Section prohibits the reception of a lunatic into an unlicensed house, and the saving clause is as follows:

> Provided that the Enactments of this Section shall not apply to any Case where the Person so received and kept has been sent to such House for the Purpose of temporary Residence only not exceeding Six Months, and under the Certificate of a Medical Person, which Certificate shall be in the Form of Schedule G to the first-recited Act annexed.
>
> *Schedule (G).*
>
> I, L.M., a Medical Person duly qualified in Terms of the Act (specify this Act), certify on Soul and Conscience, that C.D. (name and designate the Patient) is afflicted (state the Nature of the Disease), but that the malady is not confirmed, and that I consider it expedient, with a view to his recovery, that he should be placed (specify the House in which the Patient is to be kept) for a temporary Residence of (specify a Time, not exceeding Six Months).

In considering the advisability of the insertion of such a provision in the English law, the Legislature has therefore available almost fifty years' experience of the working of the system in Scotland, and the evidence as to the results of that experience, collected from time to time by the British Medical Association, has been uniformly favourable.

A Committee of the Association in the years 1897-8, with the valuable co-operation of the Medico-Psychological Association, collated evidence as to the Scottish experience, and laid it before the Lord Chancellor (Lord Halsbury) with a joint recommendation from the two Associations that the English law should be modified in the same way.

The introduction into the last session of Parliament of the Attorney-General's (Sir Robert Finlay) Lunacy Acts Amendment Bill and of the Bill of the London County Council, introduced in their behalf by Sir John B. Tuke, indicated the acceptance by public authorities of those principles for which the medical profession has so long been striving. The Attorney-General's Bill (see Appendix A*) incorporated, with other detailed improvements of the present Lunacy Law, the method of the Scottish Act for the treatment of cases of unconfirmed mental disease. Sir John B. Tuke's Bill was to enable the London County Council to provide for the early treatment of cases of unconfirmed mental disease in special "receiving houses," a provision which has, with the knowledge and approval of the Scottish Lunacy Commissioners, for several years been made by the Glasgow Parish Council.

Though, owing to the exigencies of public business, these Bills were not passed, their introduction showed that the time was opportune for the definite formulation of the views of the medical profession on this subject, and for an attempt to make these views effective in the preparation of future Bills to amend the Lunacy Acts.

A small Subcommittee was therefore appointed by the Medico-Political Committee in May, 1905, and a report on the subject was laid before the Representative Meeting. The Representative Meeting directed the Medico-Political Committee to continue the consideration of the subject through a Subcommittee containing a sufficient number of members experienced in the administration of the Lunacy Acts, and a Subcommittee was appointed accordingly.

Recognizing with the late Attorney-General that some adjustments of detail in the present lunacy laws were necessary, not only as to the treatment of unconfirmed cases, but also in other respects, the Committee has taken into consideration several propositions relative to these Acts that have been brought before it, and it now presents its conclusions in the following recommendations:

(A) The Treatment of Unconfirmed Cases of Mental Disease.

Under this head the Committee, while in the main approving the principles underlying the clauses on this subject in the Attorney-General's Bill of 1905, considers that, in order to bring them into harmony with the views of the medical profession, and with the needs of the public, modifications in certain particulars are urgently needed.

The Committee therefore recommends:

That the support of the Association should be given to Clause 3 of the late Attorney-General's Bill, in the following modified form:

"*Temporary Care of Cases of Unconfirmed Mental Disease.*

"**3.**—(1) If a medical practitioner certifies that a person is suffering from mental disease, but that the disease is not confirmed, and that it is expedient, with a view to his recovery, that he be placed under the care of a person whose name and address are stated in the certificate for a period therein stated, not exceeding *six months*, then during that period the provisions of Section three hundred and fifteen of the Lunacy Act, 1890, shall not apply.

"(2) The certificate must not be signed by the person under whose care the patient is to be placed.

"(3) Where a medical practitioner signs any such certificate he shall, within one clear day after signing it, send a copy of it to the Commissioners.

"(4) The person who receives a patient under any such certificate shall, within one clear day after receiving the patient, give notice to the Commissioners of his reception, and of the name and address of a medical practitioner who undertakes the treatment of the patient, who may be the person under whose care the patient is placed. If the patient dies, or the residence of the person receiving him is changed, within the period mentioned in the certificate, the person receiving the patient shall within two clear days give notice of the death or change of residence to the Commissioners.

"(5) He shall also, within two clear days after the expiration of the period mentioned in the certificate, or, if he ceases to have the care of the patient at an earlier date, then within two clear days after that earlier date, send a report to the Commissioners stating whether the patient

* To the Subcommittee's Minutes of October 27th, 1905.

recovered, and, if not, in what manner he was dealt with when the person making the report ceased to have the care of him under the certificate.

"(6) If default is made in sending any notice or report required by this section, the person in default shall be guilty of a misdemeanour and be liable to a penalty not exceeding *twenty pounds*.

"(7) If before the expiration of the period mentioned in the said certificate it shall appear to the person in whose charge the patient is, if a medical practitioner or the ordinary medical attendant of the patient, that an extension of the said period as hereinafter provided is desirable in the interests of the patient, then such medical practitioner shall, not less than one week before the end of the period, send to the Commissioners in Lunacy a report on the mental and physical condition of the patient.

"Subject to the transmission to the Commissioners of such report as aforesaid, another certificate may, before the expiration of the period mentioned in the original certificate, be given for a further period not exceeding three months, provided that no patient shall in respect of the same attack of illness be detained under this form of certificate for more than nine months in all, and provided that after the expiry of these certificates no further certificates under this section shall be given in respect of the same patient within six months from the date of the expiration."

The Committee further recommends:

That clauses should be added providing for the treatment of cases of unconfirmed mental disease in special institutions or special wards, or in houses or homes, and that as far as possible the patients be placed under the charge of medical practitioners who have special experience in the treatment of mental disease.

(B) Other Amendments of the Lunacy Laws.

Under this head the Committee recommends that in any Bill amending the Lunacy Acts, clauses dealing with the following matters should be included:—

(1) Applying the principles of the Superannuation Act and the Workmen's Compensation Acts, as regards injuries received in performance of duties, to members of the staffs of asylums supported out of public funds.

(2) Removing the disqualification imposed by Sections 158 and 165 of the Lunacy Act (1890) on certain medical practitioners from time to time.

(3) Permitting the Lord Chancellor to appoint from time to time such additional persons qualified for appointment by being medical practitioners, and such additional persons qualified for appointment by being barristers, to be paid Commissioners in Lunacy, as may be necessary for the performance of the duties of the Commissioners under the Lunacy Acts, 1890 and 1891, instead of limiting the power to the appointment of one additional medical man and one additional barrister, as provided by Clause 2 of the Attorney-General's Bill, 1905.

(4) Permitting the reception of voluntary boarders in public asylums.

(5) Deleting from the forms of medical certificate required by the Lunacy Acts the words "separately from any other medical practitioner."

(6) Removing the restrictions whereby the validity of a licence is limited to the locality for which it was originally granted.

(C) Lunacy Act (1890), Section 202.

That provision be made for the supervision under the Commissioners in Lunacy of all persons of unsound mind who are in receipt of parochial relief.

(D) Lunacy (Scotland) Acts.

(1) That the protection which the English law at present affords to medical practitioners who certify in cases of lunacy should be extended to Scotland, and that the Association should at the first opportunity take steps to obtain the inclusion in the Scottish law of Section 330 of the Lunacy Act (1890).

(2) That the provisions of the Lunacy Act (1890), Sections xiii to xv, charging the constable with the duty of arresting an alleged lunatic not under proper care, should be introduced into the Scottish law, and the duties of the Procurator Fiscal (Lunacy Act (Scotland) 1862, Clause 15) should be defined to show that he only takes action when the Inspector of Poor neglects to do so.

(E) Action to be Taken.

The Committee recommends:

(1) That action be taken by approaching the Lunacy Commissioners and the Lord Chancellor on the subjects of this report at an early date, and that the co-operation of the Medico-Psychological Association be invited.

(2) That the recommendation (C) as to pauper lunatics be brought to the notice of the Royal Commission on the Feeble-minded.

(3) That the Asylums Committee of the London County Council be informed of the concurrence of the Medico-Political Committee of the British Medical Association as to the boarding-out of pauper lunatics.

(4) That the whole report be referred to the Irish Committee for consideration in order that they may make recommendations with respect to such provisions as in their view should be extended to Ireland.

Item 27 in Report.]

PROPOSED CENTRAL EMERGENCY FUND.

At the meeting of the Central Council of the British Medical Association on December 13th, 1905, the following resolution was adopted:

> That a central emergency fund for dealing with disputes in cases of contract practice, and otherwise, under the management of the Medico-Political Committee, be created by voluntary subscription.

The Medico-Political Committee, on the recommendation of the Contract Practice Subcommittee, has prepared the following scheme for the purpose.

SCHEME OF CENTRAL EMERGENCY FUND.

1. The fund is created by voluntary subscription to assist members of the profession in various parts of the country in maintaining the interests of the profession against organized bodies of the community.

2. All members of the profession are invited to contribute. Any contribution may be earmarked for use in specified disputes or for application to special methods of carrying out the objects of the fund, and when not so earmarked shall be deemed to be given for disposal at the discretion of the Medico-Political Committee in carrying out the general objects defined in Clause 1. At the termination of any special dispute for which funds may have been earmarked, the balance (if any) shall be merged in the General Fund.

3. Subject to the conditions defined in this scheme, the fund shall be under the entire control of the Medico-Political Committee of the British Medical Association, and shall be vested in the names of the Chairman of the Committee and the Treasurer of the Association, as representing the Committee. Payments shall only be made on the authority of a resolution of the Medico-Political Committee, or of a Subcommittee of the Medico-Political Committee acting under powers specifically delegated by the Committee.

4. The fund may be applied for the promotion of the general objects stated in paragraph 1 in any of the following ways:

(*a*) By a grant or grants to any individual practitioner to assist him in maintaining any position in which the Association shall have decided to support him, or to compensate him for losses which he shall have incurred through taking action approved by the Association.

(*b*) By a grant or grants to any Division or Branch in the British Medical Association for its assistance in defraying expenses incident to the conduct of local disputes falling within the scope of the objects of the fund.

(*c*) By expenditure under direct supervision of the Medico-Political Committee or of a Subcommittee for the purpose of any action which the Medico-Political Committee may deem necessary or advisable for the promotion of the general objects of the fund.

The Emergency Fund is now opened, and contributions will be received on behalf of the Medico-Political Committee by the Medical Secretary of such sums and at such periods—yearly, quarterly, monthly, or weekly—as may be convenient to the donors.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

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Association Notices.

1906 ANNUAL GENERAL MEETING.

The Annual General Meeting of the British Medical Association will be held in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday, July 24th at 10 o'clock in the forenoon.

ANNUAL REPRESENTATIVE MEETING.

The Annual Representative Meeting will take place in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday, July 24th, immediately after the Annual General Meeting, which will be held at 10 o'clock in the forenoon; on Wednesday, July 25th, at 10 a.m.; on Thursday, July 26th, at 10 a.m. if required; also on Friday, July 27th, at 10 a.m. if required.

BY ORDER OF THE COUNCIL,

GUY ELLISTON, *General Secretary.*

REPORTS.

CERTAIN Reports of the Medico-Political and Ethical Committees which are being issued to Representatives with the Agenda of the Annual Representative Meeting will be published in a future issue.

ANNUAL REPRESENTATIVE MEETING, LONDON.

JULY 24TH AND FOLLOWING DAYS.

ENTERTAINMENT OF REPRESENTATIVES AND MEMBERS OF COUNCIL.

DR. FRED. J. SMITH (138, Harley Street, W.), one of the Honorary Secretaries of the Metropolitan Counties Branch, gives notice as follows:

1. A *conversazione* in the Natural History Museum, South Kensington, at 8.30 p.m. on Tuesday, July 24th, to which all the Council and Representatives have been invited.

Visitors are asked to note that, by permission of the District Railway, the subway from South Kensington Station direct into the Museum grounds will be opened for their convenience on that evening.

Members of the Metropolitan Counties Branch desiring cards of admission to the *conversazione* are asked to apply early.

2. Through the courteous trouble taken by Dr. Donald Baynes, all the Representatives and members of Council have been made temporary honorary members of the United Empire Club, 34, Piccadilly.

3. By similar courtesy on the part of Dr. P. S. Abraham they have been made temporary honorary members of the Savage Club, 6 and 7, Adelphi Terrace, W.C.

4. A *conversazione* and dance will be given by the Irish Medical Schools' and Graduates' Association at the Hotel Great Central on Thursday, July 26th, at 9 p.m., to meet the Council and Representatives of the British Medical Association. (Members of the Irish Medical Schools' and Graduates' Association can obtain tickets from Mr. Canny Ryall, 85, Harley Street, W.)

THE SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association,

TORONTO, CANADA, AUGUST 21st to 25th, 1906.

President:
George Cooper Franklin, F.R.C.S.Eng., Surgeon, Leicester Infirmary, Leicester.

President-elect:
Richard Andrews Reeve, B.A., M.D., LL.D., Dean of the Faculty of Medicine, University of Toronto.

Chairman of Representative Meetings:
Sir Victor Horsley, F.R.C.S., F.R.S., Surgeon, University College Hospital; and Surgeon, National Hospital of Paralysed and Epileptic.

Chairman of Council:
Henry Wm. Langley Browne, M.D., Ch.B., F.R.C.S.E., Consulting Surgeon, West Bromwich District Hospital.

Treasurer:
Hy. Radcliffe Crocker, M.D., F.R.C.P., Physician Skin Department, University College Hospital, London.

PROGRAMME OF BUSINESS.

An Address in Medicine will be delivered by Sir James Barr, M.D., F.R.C.P., F.R.S.E.

An Address in Surgery will be delivered by Sir Victor Horsley, M.B., F.R.C.S., F.R.S.

An Address in Obstetrics will be delivered by Walter Spencer Anderson Griffith, M.D., F.R.C.P.

THE SECTIONS.

There will be 13 Sections as shown in the subjoined list; they will meet on Tuesday, Wednesday, Thursday and Friday, August 21st, 22nd, 23rd and 24th, from 9.30 a.m. to 12.30 p.m.

The President, Vice-Presidents, and Secretaries of each Section constitute a Committee of Reference for that Section.

Papers read are the property of the British Medical Association, and cannot be published elsewhere than in the British Medical Journal *without special permission.*

No paper must exceed 15 minutes in reading, and no subsequent speech 10 minutes.

It is requested that copies of any papers offered in any of the Sections should be supplied to one of the Honorary Secretaries of the Section, accompanied by a short abstract, in order that such abstract may be printed and circulated before the meeting.

Anatomy.

President: Professor Arthur Robinson, M.D., Birmingham.

Vice-Presidents: Professor Alexander Primrose, M.B., C.M., Toronto; David Edward Mundell, B.A., M.D., C.M., Kingston; David Waterston, M.D., F.R.C.S., F.R.S.E., Edinburgh.

Honorary Secretaries: Charles Buckingham Shuttleworth, M.D., C.M., F.R.C.S., 45, Bloor Street E., Toronto; Gawn Shaw Cleland, M.B., M.D., C.M., 730, Queen Street E., Toronto; J. Herbert Sanders, M.D., 1A, Palace Gardens Mansions, W.

This Section will meet on three and possibly four days for the reading and discussion of the following papers:

Paterson, Professor A. M. The Mechanical Supports of the Pelvic Viscera.

Huber, Professor G. C. (1) The Arteriae Rectae of the Mammalian Kidney. (2) The Form of the Uriniferous Tubules in Certain of the Lower Vertebrates.

Bardeen, Professor C. R. The Development and Variation of the Nerves of the Posterior Limb of Man.

MacMurrich, Professor J. Playfair. Preliminary Note on the Valves of the Iliac Veins.

Waterston, Dr. David. A Preliminary Note on the Brain and Skull in Mongolianism.

Jenkins, Dr. G. J. (1) The Morphology of the Human Hip-joint. (2) The Marginal Sinus.

Gladstone, Dr. R. A. A Symelian Monster.

Bensley, Dr. R. R. (1) The Structure of the Cardiac Glands of Mammals and their Phylogenetic Significance. (2) Reports from the Hull Laboratory of Anatomy on (*a*) the Cytological Characters of the Cellular Components of the Islets of Langerhans (M. A. Lane). (*b*) The Structure of the Lachrymal and Haversian Glands of Mammals (J. Sandwall).

Wilson, Dr. J. G. (1) The Anatomical Relations and the Blood Supply of the Palatine Tonsils. (2) An Unusual Peritoneal Anomaly simulating Retroperitoneal Hernia.

Harvey, Dr. B. C. (1) On the Chromatin Characters of Certain Parietal Cells. (2) On a Case of Polydactylism in the Foot. (3) A Case of Innervation of the M. rectus lateralis oculi by the N. oculi motorius, with absence of the N. abducens.

Shambaugh, Dr. C. E. The Development of the Stria Vascularis.

Dermatology.

President: Norman Walker, M.D., Edinburgh.

Vice-Presidents: Graham Chambers, M.B., Toronto; Harry B. Anderson, M.D., C.M., Toronto; Ernest Solly, M.B., Harrogate.

Honorary Secretaries: David King Smith, M.B., 311, Jarvis Street, Toronto; Donald Macgillivray, M.B., 12, Carlton Street, Toronto; John Campbell Rankin, M.B., 38, University Road, Belfast.

Laryngology and Otology.

President: J. Dundas Grant, M.D., London.

Vice-Presidents: George R. McDonagh, M.B., L.R.C.P., Toronto; Herbert Stanley Birkett, M.D., C.M., Montreal; John Macintyre, M.B., Glasgow; Hugh Edward Jones, M.R.C.S., Liverpool.

Honorary Secretaries: David James Gibb Wishart, B.A., M.D., C.M., L.R.C.P., 47, Grosvenor Street, Toronto; Geoffrey Boyd, B.A., M.B., 167, Bloor Street, Toronto; Adam Brown Kelly, M.D., 26, Blythswood Square, Glasgow.

The following subjects have been selected for discussion:

Operations for the Correction of Deviations of the Nasal Septum, to be opened by Dr. StClair Thomson (London), followed by Dr. Roe (Rochester), Dr. McDonagh (Toronto), Dr. Freer (Chicago), and others.

On the Laryngeal Disturbances produced by Voice Use, to be opened by Dr. Middlemass Hunt (Liverpool), followed

by Dr. Chappell (New York), Dr. Birkett (Montreal), Dr. Casselberry (Chicago), and others.

On the Indications for the Ligation of the Jugular Vein in Otitic Pyaemia, to be opened by Dr. Hugh Jones (Liverpool), followed by Dr. McKernon (New York), and others.

A joint discussion has been arranged with the Section of Paediatrics on Congenital Stridor (Laryngeal and Tracheal), to be opened by Dr. Logan Turner (Edinburgh), followed by Dr. Henry Ashby (Manchester), and others.

The following papers have been accepted:

SMITH, Dr. MacCuen (Philadelphia). The Pathogenic Influence of Aural Lesions on Systemic Disease.
BACON, Dr. (New York). To What Extent is it Advisable to Adopt Conservative Methods in the Treatment of Aural Diseases?
BLAKE, Dr. Clarence (Boston). The Value of the Blood Clot as a Primary Dressing in Mastoid Operations.
COAKLEY, Dr. (New York). Skiagraphy as an Aid in the Diagnosis and Treatment in the Diseases of Accessory Sinuses of the Nose, with lantern exhibition of negatives.
GOLDSMITH, Dr. Perry (Belleville). Frontal Sinus and Operations.
SMURTHWAITE, Dr. Henry (Newcastle-on-Tyne). Headaches: Pathological Conditions of the Middle Turbinal a Causal Factor.
TILLEY, Dr. Herbert (London). Some Considerations upon the Diagnosis and Treatment of Suppurative Lesions in the Nasal Accessory Cavities.

The following gentlemen, in addition to those above mentioned, have notified their intention of taking part in the work of the Section: Mr. Atwood Thorne (London), Mr. Richard Lake (London), Dr. Watson Williams (Bristol).

MEDICINE.

President: Sir THOMAS BARLOW, Bart., K.C.V.O., M.D., London.

Vice-Presidents: Professor ALEXANDER MCPHEDRAN, M.B., Toronto; Professor JAMES STEWART, M.D., C.M., Montreal; ALEXANDER NAPIER, M.D., Glasgow; WILLIAM CALWELL, M.D., Belfast.

Honorary Secretaries: ROBERT DAWSON RUDOLPH, M.D., M.R.C.P., 396, Bloor Street W., Toronto; JOHN TAYLOR FOTHERINGHAM, B.A., M.B., M.D., C.M., 36, Carlton Street, Toronto; ROBERT HUTCHISON, M.D., 22, Queen Anne Street, London, W.

The following subjects have been selected for discussion:

Tuesday, August 21st.—On Blood Pressure in Relation to Disease. The subject will be treated under the following headings: (*a*) Physiological Introduction, by Dr. Percy M. Dawson (Baltimore). (*b*) Clinical Methods of Investigating Blood Pressure, by Dr. G. A. Gibson (Edinburgh). (*c*) The Clinical Significance and Therapeutical Indications of Variations in Blood Pressure, by Sir Wm. Broadbent. (*d*) The Relation of Blood Pressure to Arterial Sclerosis, by Professor Clifford Allbutt. The following will also take part: Dr. Mackenzie (Burnley), Sir James Barr, Dr. Rose Bradford, Dr. Lindsay Steven (Glasgow), and others.

Wednesday, August 22nd.—A joint discussion with the Physiology Section on Over-nutrition and Under-nutrition, with special reference to Proteid Metabolism, to be opened by Professor Chittenden (Yale).

Thursday, August 23rd.—Papers on Heart Block, by Dr. Mackenzie (Burnley), Dr. G. A. Gibson, Dr. Erlanger, Professor Osler, and others.

Friday, August 24th.—Papers.

The following papers have been received:

BRADFORD, Dr. Rose (London). The Classification of the Various Forms of Bright's Disease.
SMITH, Dr. F. J. (London). Some Observations on the Treatment of Typhoid Fever.
DOCK, Dr. G. Paracentesis of the Pericardium: Indications and Methods.
SPILLER, Dr. W. E. Syringomyelia, with a Cavity traced from the Sacral Region to the Internal Capsule.
RUDOLF, Dr. R. D. (Toronto). The Effect of Posture upon the Position of the Heart.
MCCALLUM, Dr. Hugh A. Gastric Neurasthenia.
MACKENZIE, Dr. Ridley (Montreal). Four Cases of Gangrene of the Lung, with Recovery after Operation.
BARKER, Dr. L. F. (Canada). Amido-acids and Metabolism.
STENGEL, Dr. Alfred (Canada). Some Clinical Manifestations, Visceral and General, of Arterio-sclerosis.
MORROW, Dr. W. S. (Montreal). Some Cases of Arrhythmia Studied by the Venous Method.
FOTHERINGHAM, Dr. J. T. (Toronto). The Present Status of Military Medical Arrangements in Canada.
MEYERS, Dr. C. (Ontario). The Treatment of Neurasthenia in General Hospitals.
THISTLE, Dr. W. B. (Toronto). Typhoid Fever.
BLACKADER, Dr. A. D. (Montreal). A Case of Enlarged Spleen: Operation: Recovery.
TURNER, Dr. Aldren (London). Diet in the Treatment of Epilepsy.
MCPHEDRAN, Professor. The Relation of Gastric Motility to the Process of Digestion.
GORDON, Dr. A. R. Neurotic Affections of the Respiratory System.
PUTNAM, Dr. J. J. (Boston). A Comparison of certain Modern Philosophic Doctrines with reference to their bearing on the Therapeutics of Psychasthenia.

OBSTETRICS AND GYNAECOLOGY.

President: A. H. FREELAND BARBOUR, M.D., Edinburgh.

Vice-Presidents: Professor JAMES ALGERNON TEMPLE, M.D., C.M., Toronto; Professor ADAM H. WRIGHT, B.A., M.B., Toronto; Professor WILLIAM GARDNER, M.D., Montreal; T. ARTHUR HELME, M.D., Manchester.

Honorary Secretaries: FREDERICK FENTON, M.D., C.M., 75, Bloor Street E., Toronto; KENNEDY CRAWFORD MCILWRAITH, M.B., 54, Avenue Road, Toronto; CUTHBERT LOCKYER, M.D., 117A, Harley Street, London, W.

It has been arranged that on August 21st, 22nd, and 23rd the first part of the meeting be devoted to a discussion on the following subjects:

Tuesday, August 21st.—Hyperemesis Gravidarum.

Wednesday, August 22nd.—The Changes in Uterine Fibroids after the Menopause, with Special Reference to Operation.

Thursday, August 23rd.—The Appendix Vermiformis in Relation to Pelvic Inflammation.

Friday, August 24th.—Papers, etc.

Dr. J. C. Cameron, of Montreal, will introduce the discussion on August 21st; Dr. Charles A. L. Reid will introduce that on August 22nd; and Dr. T. Arthur Helme will introduce that on August 23rd.

The following papers have been arranged for:

PRICE, Dr. Joseph (Philadelphia, U.S.A.). The Value of Conservative Treatment of the Ovaries in view of the After-history of many Patients.
MCMURTRY, Dr. L. S. (Louisville, Ky., U.S.A.). The Surgical and Serum Treatment of Puerperal Sepsis.
EVANS, Dr. D. J. (Montreal). The Treatment of Eclampsia.
REDDY, Dr. (Montreal). Indications for Caesarean Section.
ROSS, Dr. J. F. W. (Toronto). Ectopic Gestation.
GARDNER, Dr. (Montreal). Menorrhagia from Causes other than Definite Neoplastic Formations in the Uterus.
GILES, Dr. A. E. (London). A Study of a Consecutive Series of Cases of Ventrifixation of the Uterus.
CAMERON, Dr. Murdoch (Glasgow). (1) On Ectopic Pregnancy. (2) On Antistreptococcus Serum in Puerperal Septicaemia.
CULLEN, Dr. F. S. Uterine Myomata and their Degenerative Changes.
WALTON, Dr. Jas. W. A Case of Uterine Abscess: Metritis desiccans (recovery); three months later Pyosalpinx and Hydrosalpinx: Aspiration (recovery, pregnancy).
BARBOUR, Dr A. H. Freeland (Edinburgh), will give a lantern demonstration on the Sectional Anatomy of Labour.

OPHTHALMOLOGY.

President: ROBERT MARCUS GUNN, F.R.C.S., London.

Vice-Presidents: GEORGE HERBERT BURNHAM, M.D., F.R.C.S.E., Toronto; JOHN W. STIRLING, M.D., Montreal; JOSEPH NELSON, M.D., Belfast; ARNOLD LAWSON, F.R.C.S., London.

Honorary Secretaries: JAMES METCALF MACCALLUM, B.A., M.D., C.M., Toronto; DUNCAN NEIL MCLENNAN, M.D., C.M., 126, Bloor Street W., Toronto; FRANK P. S. CRESSWELL, F.R.C.S., B.Sc., 24, Windsor Place, Cardiff.

The subjects which have been chosen for discussion are:

Tuesday, August 21st.—Rare Forms of Choroiditis. To be opened by Mr. J. B. Lawford (London). The following will also take part: Dr. Hill Griffith (Manchester), Dr. H. Knapp (New York), and Dr. C. Bull (New York).

Wednesday, August 22nd.—Sympathetic Ophthalmia. To be opened by Dr. G. H. Burnham (Toronto). The following will also take part: Mr. Arnold Lawson (London) and Dr. J. W. Stirling (Montreal).

Thursday, August 23rd.—Affections of the Lachrymal Passages. To be opened by Dr. Desjardines (Montreal). The following will take part in the discussion: Dr. Risley (Philadelphia) and Dr. Theobald (Baltimore).

Friday, August 24th.—Visual Tests for Public Services. (*a*) Marine and Railroad Services. To be opened by Dr.

T. H. Bickerton (Liverpool). Dr. Williams, jun. (Boston), Dr. Thompson, sen. (Philadelphia), and Dr. Allport (Chicago) will also take part. (*b*) Military Services. To be opened by Mr. Arnold Lawson (London).

The following papers have been accepted:

Brailey, Mr. (London). On Treatment of Lachrymal Stricture.

Fergus, Mr. Freeland (Glasgow). (1) On Sympathetic Degeneration. (2) On the Work which can be performed by a One-eyed Man. (3) Plastographic Tests for Binocular Vision.

Knapp, Dr. Herman (New York). The Dependence of Accommodation and Motility on the Refraction of the Eye.

Paediatrics.

President: George Alexander Sutherland, M.D., London.

Vice-Presidents: Henry T. Machell, M.D., L.R.C.P., Toronto; Allan M. Baines, M.B., Toronto; Otto Jackson Kauffmann, M.D., Birmingham; H. Betham Robinson, M.S., London.

Honorary Secretaries: Edward Stanley Ryerson, M.D., C.M., 261, College Street, Toronto; Joseph S. A. Graham, M.B., 102, College Street, Toronto; Ralph Vincent, M.D., 1, Harley Street, London, W.

The Section will meet on Tuesday, Wednesday, Thursday, and Friday (August 21st, 22nd, 23rd, and 24th), at 9.30 a.m., adjourning at 12.30 p.m. each day.

The following discussions have been arranged:

1. On Congenital Pyloric Stenosis. The medical aspects of the subject will be introduced by Dr. Edmund Cautley (London), and the surgical aspects will be introduced by Mr. Harold J. Stiles (Edinburgh).

2. On Pneumococcal Infection. The medical aspects of the subject will be introduced by Dr. Henry Ashby (Manchester) and Dr. Stuart MacDonald (Edinburgh).

3. On Entero-colitis, to be introduced by Dr. T. L. Morse (Boston).

4. On Rheumatism in Children, to be introduced by Dr. A. D. Blackader (Montreal).

5. A joint discussion with the Section of Laryngology and Otology on Congenital Stridor (Laryngeal and Tracheal) to be opened by Dr. Logan Turner (Edinburgh) and Dr. Henry Ashby (Manchester).

The following papers have been received:

Shaw, Dr. (Montreal). Some Phases of Rickets.
Shaw, Dr. (Albany, N.Y.). The Chemistry of Milk.
Starr, Dr. C. L. (Toronto). Orthopaedics.
Ewart, Dr. William (London). The Abdominal Atony of Rickets.
Vincent, Dr. Ralph (London). The Milk Laboratory and its Relation to Medicine.

Pathology and Bacteriology.

President: Professor J. G. Adami, M.D., F.R.S., Montreal.

Vice-Presidents: Professor John J. Mackenzie, B.A., M.B., Toronto; Professor Walter Thomas Connell, M.D., C.M., Kingston; Ingersoll Olmsted, M.D., Hamilton; Professor Robert Fraser Calder Leith, M.B., Birmingham.

Honorary Secretaries: Gideon Silverthorn, M.B., M.D., C.M., 266, College Street, Toronto; Harold C. Parsons, B.A., M.D., C.M., 72, Bloor Street W., Toronto; Frank George Bushnell, M.D., Stephen Ralli Memorial, Sussex County Hospital, Brighton.

The following preliminary arrangements have been made:

Tuesday.—On Nuclear Pathology and Physiology, to be opened by Professor Adami and Dr. McCallum, and followed by Dr. Gustav Mann (Oxford), Professor E. Wace Carlier (Birmingham), Professor A. S. F. Grünbaum (Leeds), and Dr. H. E. Roaf (Liverpool).

Papers by:

Pearce, Dr. Richard M., M.D., and Jackson, Holmes C., Ph.D.M. (Bender Hygienic Laboratory, Albany, N.Y.). Concerning the Production of Somatogenic Cytotoxins by the Injection Nucleo-proteids.

Ford, Dr. W. W. (Johns Hopkins University). An Antitoxin for Poisonous Mushrooms.

Manwaring, Professor W. H. (Indiana University). The Application of Physical Chemistry to Serum Pathology.

Smith, Dr. F. J., and Dr. Miller (London Hospital). Gastric Erosions.

Wednesday.—Etiology and Life-history of Malignant New Growths. To be opened by Professor H. R. Gaylord (Buffalo); Professor Clowes (Buffalo) and Dr. Beebie (New York). Professor G. Sims Woodhead (Cambridge), Professor A. S. F. Grünbaum (Leeds), Dr. Robert Muir (Glasgow), Dr. F. G. Bushnell (Brighton), and others are expected to take part in the discussion.

Papers by:

Loeb, Dr. Leo (Pennsylvania University). Some Results of the Experimental Investigation of Tumours.

Bashford, Dr. E. F. (London). Investigations under the Imperial Cancer Research Fund, and their Results, with lantern demonstrations.

Warthin, Professor A. S. (Ann Arbor). The Leucoblastomata.

Thursday.—The Forms of Arterio-sclerosis, their Classification and Experimental Production. To be opened by Professor W. H. Welch (Johns Hopkins University, Baltimore), Dr. Klotz (Montreal), and Professor J. J. MacKenzie (Toronto); and followed by Professor L. Aschoff (Freiburg), Professor Leith (Birmingham), Professor Clifford Allbutt (Cambridge), Professor W. Osler (Oxford), Professor Adami (Montreal), Dr. Pearce (Albany), and Dr. Robert Muir Glasgow).

The following is a synopsis of the contribution of Mr. Oskar Klotz, Resident Pathologist Royal Victoria Hospital, to the discussion on the Forms of Arterio-sclerosis, their Classification and Experimental Production:—Experimental arterial lesions which can be produced in animals are of two kinds: either a degenerative one, affecting mainly the media, or a regenerative one, in which the intima proliferates, while little or no degenerative change is seen. It is found, too, that the substances which are used to produce the former belong to the class of high pressure drugs, but at the same time it is likely that the high pressure does not in itself lead to the medial lesions noted; there is a direct degenerative action of the drug on the muscle fibres of the media. Elastic fibres become affected later. The latter once giving way leads to aneurysmal dilatation. The degeneration is of a fatty nature. The intimal regeneration is consequent to bacterial toxins, the proliferation being confined to the endothelial and subendothelial cells. When only intimal lesions are present aneurysms are not formed. The character of these lesions can be compared to those in man to a certain extent. Here lesions entirely of a degenerative nature are met with in the Moenckeberg type of peripheral arterio-sclerosis, and with the form of this disease as it is found in the aorta, both of which processes are confined to the media. The experimental bacterial lesions of vessels simulate the endarteritis chronica deformans which develop the pearly intimal plaques.

Adami, Professor (Montreal), will read a paper on Fluid Crystals and their Relationship to Arterio-sclerosis and other Pathological Conditions.

Friday.—Papers upon Pathogenic Protozoa: by Dr. F. W. Mott (London), Acute and Chronic Changes in the Nervous System produced by Trypanosoma Infections; Professor F. E. Novy (Ann Arbor), On the Nature of Spirochaetes and the Prevention and Cure of Relapsing Fever, with lantern demonstrations; Dr. J. Ballah (Montreal), On the Life-History and Cultivations of Certain Pathogenic Protozoa: Dr. J. W. W. Stephens (the Johnston Laboratory School of Tropical Medicine, Liverpool), On Spirochaetes and Trypanosomes; Dr. Armand Ruffer (Ramleh, Egypt), The Diagnosis of Cholera Asiatica; Professor R. T. Hewlett (with Dr. De Korté), A Beri-beri-like Disease of the Monkey, and the Pathological Histology of Beriberi; Professor W. St. C. Symmers (Belfast), Demonstration of Bilharzia Preparations; Dr. Beattie (Edinburgh), (1) The *Rhinosporidium kinealzi*, a Sporozoon in the Nasal Mucous Membrane; (2) A Contribution to the Bacteriology of Acute Rheumatism; Dr. Hamilton Wright (with Dr. L. Dudgeon), On Beri-beri: Dr. De Korté, The Virus of Small-pox and Vaccinia (communicated by Professor Hewlett).

The following papers on other subjects have been accepted:

Miller, Dr. (Birmingham) (communicated by Professor Leith). On the Elastic Tissue of Arteries.

Pearce, Dr. (Albany). Immunity against Nucleo-proteids.

Kaufmann, Dr. O. J. (Birmingham). The Urinary Excretion of Potassium Iodide in Various Morbid Conditions.

Arrangements will be made for the exhibition in the Pathological Museum of specimens illustrating the work of the section. Members wishing to exhibit material or

photographs should communicate with Dr. Maude Abbott, McGill Medical College, Montreal.

Those who propose taking part in the discussions are requested to send in their papers, accompanied by a short abstract, to the Honorary Secretaries, in order that the abstracts may be printed and circulated before the meeting. Papers from members in the United Kingdom and Europe should be sent to Dr. Bushnell, and those from members in the Dominion of Canada or the United States of America, etc., to Dr. Silverthorn or Dr. Parsons.

PHYSIOLOGY.

President: Professor WM. DOBINSON HALLIBURTON, M.D., F.R.S., London.

Vice-Presidents: Professor ARCHIBALD B. MACALLUM, M.A., M.B., F.R.S., Toronto; Professor WESLEY MILLS, M.A., M.D., Montreal; Professor CHARLES SCOTT SHERRINGTON, M.D., F.R.S., Liverpool.

Honorary Secretaries: HERBERT E. ROAF, M.D., The Bio-Chemical Department, The University, Liverpool; GUSTAV MANN, M.D., 25, Beechcroft Road, Oxford.

A large number of prominent American physiologists have accepted invitations to attend, and British physiologists will thus have the opportunity of making the personal acquaintance of their American colleagues. Several French physiologists have also signified their intention to be present, and it is hoped that other foreigners may also accept the invitations sent to them.

A joint discussion on the Rôle of the Nucleus in Nutrition with the Section of Pathology has been arranged, and another joint discussion with the Section of Medicine will also take place, the subject being Over-nutrition and Under-nutrition, with special relation to Proteid Metabolism in Health and Disease. This will be opened by Professor Chittenden.

The following preliminary arrangements have been made:

Tuesday, August 21st.—Joint discussion with the Section of Pathology on the Rôle of the Nucleus in Nutrition, to be opened by Professor Adami and Professor Macallum, to be followed by Dr. Gustav Mann (Oxford), Professor E. Wace Carlier (Birmingham), Professor A. S. Grünbaum (Leeds), and Dr. H. E. Roaf (Liverpool).

Papers by:

HALLIBURTON, Professor W. D., F.R.S. (London). Proteid Nomenclature.
BEEBE, Dr. S. P. (New York). Nucleo-Proteid Immunity.
KEMP, Professor G. T. (University of Illinois). The Blood Plates in Physiology and in Pathology and their Value as a Factor in Diagnosis and in Prognosis.

Wednesday, August 22nd.—Joint discussion with the Section of Medicine on Overnutrition and Undernutrition, with special reference to Proteid Metabolism, to be opened by Professor Chittenden (Yale).

Papers by:

DELEZENNE, Professor E. (Paris). Tryptic Digestion, Action of Different Salts on the Inactive Pancreatic Juice.
FOLIN, Dr. Otto (Waverley, Mass.). The Metabolism of Kreatin and Kreatinin.
HOWELL, Professor W. H. (Johns Hopkins University, Baltimore). The Absorption of Proteids from the Intestines.
MENDEL, Dr. Lafayette B. (New Haven, Conn.). Chemical Studies on Growth.
MOORE, Professor B., Dr. H. E. ROAF (Liverpool), and E. WHITLEY. Effect of Ions on Growth and Cell Division.
HODGE, Professor C. F. (United States). Structures and Physiological Functions of *Amoeba proteus*.
HODGE, Professor C. F., and Professor M. F. DUNCAN (United States). Differentiation of Contractile Protoplasm.

Thursday, August 23rd.—Papers by:

BRODIE, Professor T. G., F.R.S. (London). The Functions of the Renal Tubules.
HÜBER, Professor G. C. (United States). Physiology of Renal Tubules.
MACLEOD, Professor J. J. R. (United States). Experimental Glycosuria.
NICLOUX, Dr. Maurice (Paris). Chloroform Anaesthesia and a Simple Method of Estimating Chloroform.
SOWTON, Miss S. C. M., and Professor C. S. SHERRINGTON (Liverpool). Dosage of Chloroform. (Report to Chloroform Committee.)
HALL, Professor W. B. (United States). New Apparatus.
MILLS, Professor Wesley (Montreal). The Preservation of Frogs for Physiological Purposes.
MORROW, Dr. W. S. (Montreal). The Various Forms of the Negative or Physiological Venous Pulse.
HERRING, Dr. Percy T., and Dr. Sutherland SIMPSON (Edinburgh). The Origin of the Lymphatics of the Liver.

Friday, August 24th (mostly nervous system).

Papers by:

LAPICQUE, Dr. Louis (Paris). Electrical Excitation of Nerves and Muscles.
DIXON, Professor W. E. (London and Cambridge). Vagus Inhibition.
MELTZER, Dr. S. J. (New York). Stimulation of the Central End of the Vagus causes in Dogs a Marked Simultaneous Contraction of the Entire Oesophagus.
MACDONALD, Professor J. S. (Sheffield). Structure and Functions of Nerve Fibres.
MOTT, Dr. F. W., F.R.S. (London). The Functional Significance of the Convolutional Pattern in the Primates.
ROAF, Dr. H. E. (Liverpool) and Professor C. S. SHERRINGTON, F.R.S. The "Locked Jaw" produced by Tetanus Toxin.
SIMPSON Dr. Sutherland, and Dr. Percy T. HERRING (Edinburgh). Sensory Conduction in the Spinal Cord.
LEE, Professor S. F. (New York). The Causes of Fatigue in Certain Pathological States.
HENDERSON, Dr. Yandell (New Haven, Conn.). Acapnia as a Factor in Stock.

PSYCHOLOGY.

President: WM. JULIUS MICKLE, M.D., London.

Vice-Presidents: NELSON HENRY BEEMER, M.D., Toronto; CHARLES KIRK CLARKE, M.D., Toronto; REGINALD LANGDON-DOWN, M.B., London.

Honorary Secretaries: ALFRED THOMAS HOBBS, M.D., Guelph, Ontario; GOLDWIN HOWLAND, B.A., M.B., 540, Spadina Avenue, Toronto; JOHN TURNER, M.B., Essex County Asylum, Brentwood.

The following subjects have been selected for special discussion in the Section of Psychology:

1. General Paralysis, to be introduced by Dr. W. J. Mickle.
2. Epilepsy, to be introduced by Dr. W. Aldren Turner.
3. Dementia Praecox, to be opened by Dr. C. K. Clarke (Toronto) and Dr. A. Meyer (New York).

The following is a brief synopsis of the line of argument which will be followed in the discussion of dementia praecox in the Psychological Section by Dr. C. R. CLARKE, of Toronto Asylum. He will show the advisability of limiting the use of the term to cases which, in the experience of the alienist, are beyond all doubt, and in accord with what Kraepelin describes under this term. These should be the standard with which to compare the more doubtful cases. The use of the term in modern classification will be dwelt upon, etc.

4. Mind and Medicine, to be introduced by Dr. A. T. Schofield.

The following papers and demonstrations have been arranged for:

CLAM, Dr. A. (Toronto). Reflexes among the Insane.
CLAM, Dr. C. K. (Toronto). Goitre among the Insane.
CROTHERS, Dr. (Hartford). Insanity of Inebriety.
DUBOIS, Professor Paul (Berne). Rational Psycho-therapeutics.
FARRAN, Dr. (Baltimore). Types of Devolutional Psychoses.
RENTOUL, Dr. R. R. (Liverpool). Proposed Sterilization of Certain Mental Degenerates.
SHIRRIS, Professor (McGill University, Montreal). Diagnosis and Treatment of Peripheral Nerve Lesions.
SHUTTLEWORTH, Dr. G. E. (London). Treatment of the Mentally Defective in English-speaking Countries.
SPRATLING and CHASE, Drs. (New York). Epilepsy in Moving Pictures.
TURNER, Dr. J. (Essex). (1) Relation of Epilepsy to Changes in the Blood and Central Nervous Systems. (2) A Microscopical Demonstration of the Methylene Blue and Peroxide of Hydrogen (pseudo-vital) Method of Staining the Central Nervous System.

STATE MEDICINE.

President: FREDERICK MONTIZAMBERT, I.S.O., F.R.C.S.E., D.C.L., M.D., Ottawa.

Vice-Presidents: E. P. LACHAPELLE, M.D., Laval University, Montreal; CHARLES SHEARD, M.D., Toronto; PETER HENDERSON BRYCE, B.A., M.B., Ottawa; JOSEPH GROVES, M.B., Isle of Wight.

Honorary Secretaries: JOSEPH D. PAGE, M.D., Quebec; F. G. E. PEARSON, M.D., Brantford, Ontario; EDWARD SERGEANT, L.R.C.P., County Offices, Preston; ARTHUR A. MUSSEN, M.D., Municipal Offices, Liverpool.

The following special subjects have been suggested for discussion:

1. Protection and Control of Milk Supply, in which Professor Delépine (Manchester), Dr. Cooper Pattin (M.O.H. Norwich), Dr. Chalmers (M.O.H. Glasgow), and Professor Harcourt (Guelph), will take part.

2. Prevention of Tuberculosis, in which Professor Delépine (Manchester), and Dr. Jas. Roberts (Hamilton) will take part.

3. Training and Supervision of Midwives. Dr. C. E. Paget (M.O.H. Northamptonshire) will contribute a paper to this discussion.

4. Notification of Phthisis.

5. Provision and Administration of Isolation Hospitals.

6. Isolation Hospitals and "Return" Cases.

7. Medical Inspection of Children attending Elementary Schools. Dr. Chalmers (M.O.H. Glasgow), Principal W. Scott (Normal School, Toronto), and Dr. Helen MacMurchy (Toronto) will contribute papers to this discussion.

8. Quarantine and Inspection of Shipping.

9. Medical Examination of Immigrants.

10. Supply of "Water Gas" and Dangers of Carbon Monoxide Poisoning.

Dr. A. W. Gilchrist (Nice) will read a paper on Some General Analogies between Tuberculosis and Influenza.

Surgery.

President: Sir Hector Clare Cameron, M.D., Professor of Clinical Surgery, Glasgow.

Vice-Presidents: Fred. Le M. Grasett, M.B., C.M., F.R.C.S.E., Toronto; Francis J. Shepherd, M.D., C.M., LL.D., F.R.C.S.E., Montreal; Alfred B. Atherton, B.A., M.D., LL.D., Fredericton, N.B.; Tecumseth Kingsley Holmes, M.D., Chatham, Ontario.

Honorary Secretaries: Harry A. Beatty, M.B., 207, Simcoe Street, Toronto; Frederick William Marlow, M.D., C.M., F.R.C.S., 699, Spadina Avenue, Toronto; Sinclair White, F.R.C.S., Ranmoor, Sheffield.

Arrangements have been made for special discussions on the following subjects:

The Surgical Treatment of Ascites Secondary to Chronic Hepatitis.

Prostatectomy.

A brief review of the anatomy of the prostate, and also the paper in which Mr. G. A. Bingham, Associate Professor of Clinical Surgery, Toronto, introduces the discussion on Prostatectomy, gives a description of its microscopical structure. It shows the gland to lack a true capsule, and definite lobes to be absent. Embryologically, the prostate is shown to be purely sexual in origin. The pathological changes in hypertrophy are taken up to show the relationship of the newly-formed tissue to the remainder of the gland. It is contended that in the modern operation of prostatectomy enucleation is performed through the outer part of the gland, and that a portion of the prostate is always left behind. The question of a "middle lobe" is also considered. As regards treatment three classes of cases are discussed: (1) The early cases, where the only symptom is obstruction; here enucleation is advised, with catheter life as the alternative; (2) the very late cases; permanent drainage or Bottini's operation is advised; (3) the intermediate cases; here enucleation is the treatment. Note.—The writer holds that neither perineal nor suprapubic meets all indications. The paper closes with statistics.

Duodenal Ulcer.

The following is a syllabus of the paper by which Mr. W. J. Mayo, Surgeon to St. Mary's Hospital, Rochester, Minnesota, will introduce the discussion on *Duodenal Ulcer*: 40 per cent of all chronic ulcers of the stomach and duodenum are situated in the duodenum alone, or in connexion with the stomach; 50 per cent. of all chronic indurated ulcers are also so situated. Acute ulcer of the duodenum: surgical complications; perforation, acute and subacute; haemorrhage, acute and chronic; acute obstructions. Chronic ulcer: relation to gastric ulcer; differential diagnosis; liability to confuse with gall-stone disease. Gastro-jejunostomy has the largest field of usefulness. Excision can sometimes be resorted to.

Peritonitis.

Therapeutics.

President: Donald MacAlister, M.D., Cambridge.

Vice-Presidents: John Lorenzo Davison, B.A., M.D., C.M., Toronto; Alexander D. Blackader, B.A., M.D., Montreal; Sir Alan Reeve Manby, M.V.O., M.D., East Rudham; Professor J. Rose Bradford, M.D., F.R.S., London.

Hon. Secretaries: Velyien E. Henderson, M.A., M.B., University of Toronto; Charles Potter Lusk, M.D., C.M., 99, Bloor Street W., Toronto; E. R. Morton, M.D., 22, Queen Anne Street, London, W.

The following subjects have been selected for discussion:

Tuesday, August 21st.—The Kidney, its Pharmacology and Therapeutics.

Wednesday, August 22nd.—Serumtherapy and Vaccine-therapy.

Thursday, August 23rd.—Joint Session with the Section of Medicine on the subject of Heart-block.

Friday, August 24th.—The Place of Materia Medica and Therapeutics in the Medical Curriculum. The Therapeutic Value of Alcohol.

The following gentlemen intend to take part in the discussions or to contribute papers: Dr. A. D. Blackader (Montreal), Dr. J. B. Bradbury (Cambridge), Dr. J. Rose Bradford (London), Dr. T. G. Brodie (London), Dr. W. E. Dixon (Cambridge), Dr. J. T. Halsey (New Orleans), Dr. H. A. Hare (Philadelphia), Dr. A. O. J. Kelly (Philadelphia), Dr. T. McCrae (Baltimore), Dr. J. Mackenzie. (Burnley), Dr. C. R. Marshall (St. Andrews), Dr. A. J. Meltzer (New York), Dr. J. H. Musser (Philadelphia), Dr. G. W. Ross (Toronto), Dr. G. S. Woodhead (Cambridge), Dr. R. B. Wild (Manchester).

The Secretaries will be glad to receive specimens, drawings, tracings, or preparations for exhibition during the session.

Honorary Local Secretaries.

Frederic Newton Gisborne Starr, M.B., Medical Building, Toronto.

Professor John Joseph Mackenzie, B.A., M.B., Medical Building, Toronto.

David James Gibb Wishart, B.A., M.D., L.R.C.P., Medical Building, Toronto.

Committee Pathological Museum.

Professor John Joseph Mackenzie, B.A., M.B., Toronto, *Chairman.*

Maude Abbott, B.A., M.D., Montreal, *Secretary.*

Professor Gordon Bell, M.D., Winnipeg.

Professor W. T. Connell, M.D., Kingston.

Andrew Robertson Gordon, M.B., Toronto.

J. A. McGregor, M.D., London, Ontario.

Wm. Herbert Pepler, M.D., C.M., L.R.C.P.Lond., Toronto.

Samuel Cummings, M.B., Toronto.

Edward Stanley Ryerson, M.D., C.M., Toronto.

Henry Seaton Hutchison, M.B., Toronto.

Exhibition Committee.

Chairman: Dr. Arthur Jukes Johnson, Toronto.

Secretaries: Dr. T. D. Archibald, Toronto; Dr. W. A. Young, Toronto.

Honorary Local Treasurer.

Professor J. W. Ross, Toronto.

Toronto Arrangements Committee.

Dr. Geo. A. Bingham, 68, Isabella Street, Toronto.
Dr. C. J. C. O. Hastings, 258, Wellesley Street, Toronto.
Dr. A. A. Macdonald, 341, Bloor Street West, Toronto.
Professor J. J. Mackenzie, Medical Laboratories, Toronto.
Dr. Alex. McPhedran, 151, Bloor Street West, Toronto.
Dr. R. B. Nevitt, 46, Bloor Street West, Toronto.
Dr. R. A. Reeve, *President-elect*, 48, Bloor Street E., Toronto.
Dr. F. N. G. Starr, 112, College Street, Toronto.
Dr. J. Algernon Temple, 333, Bloor Street W., Toronto.
Dr. D. J. Gibb Wishart, 47, Grosvenor Street, Toronto.

PROGRAMME OF PROCEEDINGS.

TUESDAY, AUGUST 21ST, 1906.

9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address of Welcome; Introduction of Guests, Delegates, etc.; and President's Address.
4.30 p.m.—In the University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve.
8.30 p.m.—Address in Obstetrics, Dr. W. S. A. Griffith.
9.30 p.m.—Reception by the Lieutenant-Governor.

WEDNESDAY, AUGUST 22ND.

8 0 a.m.—National Temperance League Breakfast.
9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address in Medicine, Sir James Barr, M.D.
4.30 p.m.—Garden Parties.
8.30 p.m.—Address in Surgery, Sir Victor Horsley, F.R.S.
9.30 p.m.—Reception.

THURSDAY, AUGUST 23RD.

9.30—12.30 a.m.—Sectional Meetings.
4.30 p.m.—Garden Parties.
7.30 p.m.—Annual Dinner.

FRIDAY, AUGUST 24TH.

9.30—12.30 a.m.—Sectional Meetings.
2.30 p.m.—General Meetings.
4.30 p.m.—Garden Parties.
Excursions.
8.30 p.m.—Soirée.

SATURDAY, AUGUST 25TH.

Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt.
Excursion to Muskoka.
Excursion to Lambton, through the courtesy of the President, Mr. Austin.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

EAST ANGLIAN BRANCH.

THE annual meeting was held at Southend on Tuesday, June 26th.

Council Meeting.—A Council Meeting was held at 12.30 p.m. The minutes of the last meeting were read and confirmed, and Messrs. N. J. H. Gavin (Norwich), Hamish Nicol (Harleston), H. M. Speirs (Diss), J. H. K. Sykes (Reedham), and B. H. Tripp (Southwold) elected members. It was resolved to hold the autumn meeting at Felixstow in September.

General Meeting.

The general meeting was held in the Palace Hotel at 12.45, Dr. BARTON presiding.

Report of Council.—The minutes of the last meeting having been read and confirmed, the report of the Council was read and adopted. It ran as follows: The Council have the pleasure to report a prosperous condition of the Branch. The annual meeting was held at Norwich on June 29th, 1905, under the presidency of Dr. Barton. The meeting was largely attended and was most successful, there being about 100 members present. Dr. Barton gave his presidential address on the Relationship of the Public to the Medical Profession. Mr. Jonathan Hutchinson gave an able address on Pathological Museums at the request of Dr. Barnes. Professor T. Clifford Allbutt read a paper on Some Reflections on the Treatment of Cardio-arterial Diseases, which was much appreciated. At this meeting the Pathological Museum of the Norfolk and Norwich Hospital was opened by Mr. Jonathan Hutchinson, in the absence of Dr. Barnes, the donor. The Council desire to express their warm thanks to Mr. and Mrs. James Stuart, of Carrow Abbey, for their kind hospitality to every one present on this occasion. The autumn meeting was held at Colchester in September. Interesting papers were read by Mr. J. D. Malcolm, surgeon to the Samaritan Free Hospital on shock, and by Dr. Curl, physician to the Essex and Colchester Hospital. The spring meeting was held at King's Lynn in April, Sir Alan Reeve Manby and Dr. Curl reading interesting papers. The Council desire to express their thanks to Dr. Plowright for his kindness in taking the members an interesting tour round the town, and to the members of the West Norfolk Division for their kind hospitality on that occasion. It was resolved that the annual meeting in 1907 should be held at Ipswich, and that Dr. R. W. Brogden should be invited to become President. Dr. Brogden has replied in a kind letter, accepting the honour. One special Council meeting was held for the election of new members, and for the consideration of the reports of the Divisions of the Branch. The work of the Divisions on the whole has been satisfactory. The Council regret the retirement of Dr. Michael Beverley, who has acted for many years as one of the members of the Central Council of the Association, and they wish to record the great interest he has taken in the Branch. It is the sincere wish of all that he will continue to show the same interest in the future as he has done in the past in all that concerns the welfare of the Association. Mr. H. A. Ballance has been elected to succeed him.

Elections.—The following gentlemen were reported as elected officers for 1906-7: *President*, A. Clough Waters, M.B., B.S. (Southend); *President-elect*, R. Brogden, M.B., B.S. (Ipswich); *Vice-Presidents*, J. C. Thresh, M.D. (Chelmsford), Mr. H. B. Walker (Lowestoft), S. J. Barton, M.D. (Norwich); *Honorary Secretaries*, B. H. Nicholson, M.B. (Colchester), H. A. Ballance, M.S. (Norwich), J. Gutch, M.D. (Ipswich); *General Secretary and Treasurer of Branch*, B. H. Nicholson, M.B. (Colchester); *Representatives on Central Council*, Edgar G. Barnes, M.D. (Eye); H. A. Ballance, M.S. (Norwich). Members of Council as on last list of members of Branch.

Adjournment.—The meeting then adjourned. Members and their friends to the number of 100 were entertained by the President-elect at the Palace Hotel. The PRESIDENT gave the toast of "The King." The British Medical Association was toasted by the MAYOR OF SOUTHEND, and replied to by Dr. O. WOOD, President of the Medico-Psychological Association. Sir FREDERICK TREVES submitted the health of the Chairman (Dr. Waters), and Dr. WATERS replied.

Resumed Meeting.—After luncheon the general meeting was resumed. The PRESIDENT, Dr. Barton, then introduced Dr. WATERS as President of the Branch, who thereupon took the chair and thanked Dr. Barton in the name of the members for the very efficient and pleasant way in which he had carried out his duties as President.

Addresses.—Dr. CLOUGH WATERS then gave his presidential address on Notes of Cases in Practice.—Sir FREDERICK TREVES gave his Experiences on the Causes of Success or Failure in the Medical Profession. A vote of thanks, proposed by Dr. WATERS and seconded by Dr. NICHOLSON, was accorded Sir F. Treves.

Garden Party.—At 4 o'clock a garden party was held in the Shrubbery by the kind invitation of the members of the South Essex Division, to which 300 guests were invited.

The meeting was most successful and enjoyable, and all the arrangements complete in every respect.

WEST NORFOLK DIVISION.

THE annual meeting was held at the Swaffham Cottage Hospital on July 4th, at 3 o'clock.

Luncheon.—Previous to the meeting the members lunched with Dr. Thomas, the retiring Chairman, at his house.

Election of Officers.—The following gentlemen were elected officers for the ensuing year: *Chairman*, Dr. Chadwick; *Vice-Chairman*, Dr. Thomas; *Representative on the Branch Council*, Dr. Thomas; *Honorary Secretary*, Dr. Gardiner; *Executive Committee*, Drs. Draper, Lister, Sir Alan R. Manby, Dr. Wales, and the Honorary Secretary of the Scientific Committee.

Alteration of Rules.—Rule 11 was altered so as to read: "That ordinary meetings of the Division shall be held quarterly as near the quarter day as may be found convenient." Rule 9 was added to as follows: "That the Honorary Secretary of the Scientific Committee be *ipso facto* a member of the Executive Committee."

EDINBURGH BRANCH.

The annual meeting of the Branch was held in the hall of the Royal College of Physicians on June 29th, at 4.15 p.m., Dr. W. Allan Jamieson, the President, occupying the chair.

Minutes.—The minutes of the last meeting were read and approved, and apologies for non-attendance read from Drs. G. A. Gibson, McKenzie Johnston, and Andrew Balfour.

Election of Officers.—The following office-bearers were elected for the ensuing year:—*President-elect*, Dr. Byrom Bramwell; *Vice-President*, Dr. J. R. Hamilton; *Treasurer*, Dr. James Ritchie; *Honorary Secretaries*, Dr. A. Logan Turner and Dr. F. W. Boyd, C.M.G.

Vote of Thanks.—Professor John Chiene, C.B., having taken the chair, a cordial vote of thanks to Dr. Allan Jamieson, the retiring president, was moved by Dr. James Carmichael and carried.

Report of Council.—The annual report of the Branch Council was then read.

During the year the Edinburgh Branch has held two meetings. The summer meeting in Hawick was very largely attended, and, thanks to the energy of the local members, was a great success. The usual clinical meeting was held in February, a special feature of which was the museum. The Branch has to deplore the death of Dr. Duddingston Wilson (President of the Southern Division), Dr. Alexander Black, and Dr. Mowat. The Council has met on four occasions. Seventeen new members have been elected to the Branch. Dr. McKenzie Johnston and Dr. Nasmyth were unanimously elected Representatives of the Branch (in conjunction with the Fife Branch) on the Central Council of the Association.

Financial Statement.—Dr. James Ritchie having submitted his financial statement, which showed a balance of £75 9s. 8d., the report was adopted on the motion of Professor Harvey Littlejohn.

The Royal Charter.—Dr. Norman Walker moved and Dr. James Carmichael seconded the following motion:

> That the Edinburgh Branch recommends that their Representatives be instructed to strongly advise the Central Council to postpone the consideration of the Royal Charter.

This was unanimously agreed to.

The Year Book.—Dr. Keppie Paterson drew attention to the present position of the finances of the Association, and pointed out the necessity of studying greater economy. Dr. Paterson moved and Dr. Hamilton seconded the following motion:

> That in the opinion of the Edinburgh Branch the *Year Book* should be discontinued.

This was unanimously agreed to.

The Secretary.—On the motion of Dr. J. B. Ronaldson, a very hearty vote of thanks was passed to Dr. Norman Walker for his great services as Secretary of the Branch.

GLASGOW AND WEST OF SCOTLAND BRANCH.

The annual meeting of this Branch was held, through the courtesy of the Glasgow Parish Council, in the Board-room of the Eastern District Hospital, on Friday, June 22nd, at 3 p.m., the President, Dr. John Macintyre, presiding.

Confirmation of Minutes.—The minutes of the last meeting were read, approved, and signed.

Reports.—The annual statements of the Secretary and Treasurer were read and adopted, as also the Medico-Ethical report.

Election of Officers.—The following officers were elected for the ensuing year—namely, *President*, John Lindsay, M.D. (Kirkmuirhill); *President-elect*, James H. Nicoll, M.B.; *Vice-Presidents*, John C. McVail, M.D., and John Macintyre, MB.; *Secretaries*, James Hamilton, M.B., and J. Grant Andrew, M.B.

Installation of New President.—The new President, Dr. Lindsay, being called to the chair, thanked the members, in a few well-chosen words, for the honour conferred upon him. He had intended addressing them on the subject of midwifery as practised in the country, but as the time was too short he would send his paper for publication in the British Medical Journal.

Votes of Thanks to Retiring President and Secretary.—Special votes of thanks were accorded to Dr. Macintyre for his services in the chair throughout the past year, and to Dr. Jas. H. Nicoll, who had resigned the duties of Secretary, after so many years' untiring and assiduous service.

Visit to Hospital.—Afternoon tea was served, and thereafter Dr. John McCubbin Johnston, the Superintendent of the hospital, kindly took the members through the wards and Dr. John Carswell gave a unique and very profitable demonstration of the mental cases under his care in the new observation wards.

Votes of Thanks to Parish Council and Drs. Johnston and Carswell.—Votes of thanks to the City Parish Council and to Drs. Johnston and Carswell brought a most successful and enjoyable meeting to a close.

LANCASHIRE AND CHESHIRE BRANCH:

Bolton Division.

The annual meeting was held at the Infirmary on July 2nd, Dr. Macfie in the chair.

Confirmation of Minutes.—The minutes of the last general meeting were read and approved.

Election of Officers.—The following gentlemen were elected officers for the ensuing year: *President*, Dr. Macfie; *Vice-President*, Dr. Mothersole; *Honorary Secretary and Treasurer*, Dr. James Wood (141, Derby Street); *Representative at Annual Representative Meeting*, Dr. Young; *Representative on Branch Council*, Dr. Macfie; *Members of Executive Committee*, Drs. Brazil, Jefferies, Kershaw, Mallett, Pattinson, and Rose.

Report of Executive Committee.—The annual report of the Executive Committee was read and approved.

Annual Representative Meeting.—The meeting then proceeded to discuss the business of the Annual Representative Meeting, and to consider what instructions should be given to the Representative.

Resolutions.—The following resolutions were passed:

1. That this meeting views with extreme concern the unsatisfactory financial position of the Association, and is of opinion that the discontinuance of the *Year Book* is advisable.
2. That it be an instruction to the Representative that in any discussion as to the advisability of obtaining a Royal Charter the interests of the general body of the profession should be held supreme.

Vaccination Officers.—It was the unanimous opinion of the meeting that all medical men should be public vaccinators and paid by the Government, and consequently under Government inspection.

Circular.—The Committee was instructed to draw up a circular showing the advantages of joining the Association, and to send a copy to such medical men in the Division area as are not already members.

Southport Division.

A meeting was held at the Temperance Institute, London Street, Southport, on July 6th, Dr. Ashworth in the chair.

Finance.—At the request of the Branch Council, the Memorandum of the Branch Council on the General Finances of the Association was considered. Dr. Baildon proposed and Dr. Schofield seconded:

> That this Division does not view with alarm the state of the finances of the Association, but thinks it desirable that the strictest possible economy should be observed.

Dr. Colin Campbell moved as an amendment:

> That this Division supports the action of the Lancashire and Cheshire Branch Council.

This amendment did not meet with a seconder, and the original resolution was carried *nem. con.*

Matters referred to Divisions.—The matters referred to Divisions in the Supplements of April 28th and May 5th were then brought under consideration. The chief of these having been considered on previous occasions, the only question on which formal action was taken was the "Election to the General Medical Council of Direct Representatives for England and Wales," and it was unanimously decided that the Representative of the Division be requested to support at the Representative Meeting the candidatures of Dr. Helme, Mr. George Jackson, and Dr. Rhodes.

LEINSTER BRANCH:

East Leinster Division.

The annual meeting was held in the Royal College of Physicians, Dublin, on Wednesday, June 27th, at 5 p.m., the Chairman, Dr. H. C. Earl, presiding.

Election of Officers.—The following gentlemen were appointed officers for the ensuing year: *Chairman*, J. D. Hillis; *Vice-Chairman*, J. M. Neale; *Representative*, J. Wallace Boyce; *Honorary Secretary and Treasurer*, R. C.

Peacock (Blackrock); *Executive Committee*, W. R. Dawson, H. C. Earl, W. V. Furlong, R. L. Heard, R. N. Lyon, J. Mason, J. F. Pollock, I. W. Ussher, and Professor A. H. White; *Representatives to Branch Council*, J. D. Hillis, H. C. Earl, J. Mason, R. C. Peacock, Isaac W. Ussher.

METROPOLITAN COUNTIES BRANCH.

AT meetings of the Council on June 26th and July 13th, 1906, the following officers and members of Committees were duly elected for the year 1906-7:

Election of Officers.—*President*, Dr. Hugh Ker; *President-elect*, Dr. Frederick Taylor; *Vice-Presidents*, Mr. Andrew Clark, Dr. Crawford Thomson, Dr. Major Greenwood, Dr. F. R. Humphreys; *Treasurer*, Mr. H. B. Robinson; *Secretaries*, Dr. F. J. Smith and Mr. D'Arcy Power.

Ethical Committee.—Sir V. Horsley and Messrs. Humphreys, Bateman, Woods, Hawthorne, Wallace, and Fuller.

Medico-Political Committee.—Sir V. Horsley and Messrs. Walter Smith, Biggs, Wallace, Thorne, Buttar, and George Walker.

Financial Committee.—Messrs. Buckell, Hawthorne, and Andrew Clark.

Medical Charities Committee.—Messrs. Fuller, Sibley, Walter Smith, Ford Anderson, Wise, Biggs, Thomson, Crookshank, Thorne, Shaw, Powell, O'Sullivan, and Capes.

KENSINGTON DIVISION.

THE annual meeting was held at the Kensington Town Hall on June 27th at 5 p.m., Mr. W. H. LAMB in the chair.

Annual Report.—The annual report of the Executive Committee was read and adopted.

Representative Meeting.—Dr. C. Buttar was elected Representative of the Division for the Annual Representative meeting. Dr. Crawford Thomson was appointed to act as substitute if necessary. The provisional agenda for the Representative Meeting having been discussed, certain instructions were given to the Representative.

Election of Officers.—The following Officers were elected for the coming year: *Chairman*, Dr. G. Crawford Thomson; *Vice-Chairman*, Dr. G. C. Crichton; *Honorary Secretary and Treasurer*, Dr. C. Buttar; *Elected Members on the Branch Council*, Dr. Crawford Thomson, Dr. Crichton, Dr. Lamb, and Dr. Buttar. *Members of the Executive Committee*, Mr. E. C. Barnes, Mr. George Eastes, Mr. Brindley James, Dr. J. Moorhead, Dr. G. R. Morton, Dr. Rice Oxley, and Dr. W. Rigden.

Vote of Thanks.—Dr. CRAWFORD THOMSON proposed and Mr. T. R. ATKINSON seconded a vote of thanks to the retiring Chairman, which was carried by acclamation.

NORTHERN COUNTIES OF SCOTLAND BRANCH.

THE annual meeting of the Branch was held at Tain on June 21st, Dr. KENNEDY (Tain), President, in the chair.

Confirmation of Minutes.—The minutes of last meeting were read and approved.

Election of Office-bearers.—The following were elected: *President*, Dr. Kennedy (Tain); *President-elect*, Dr. Miller (Fort Willam); *Vice-Presidents*, Dr. Allan (Evanton), Dr. Selanders (Nairn); *Representative in the Representative Meeting*, Dr. James Munro Moir; *Representative in the Central Council:* Dr. James Murray (Inverness); *Members of Council*, Dr. Adam (Dingwall), Dr. Forsyth (Inverness), Dr. Asher (Thurso), Dr. Gillies (Tain), Dr. Wilson (Nairn), Dr. Johnston (Fort Augustus); *Honorary Secretary and Treasurer*, Dr. J. Munro Moir.

Clinical Meetings.—It was resolved to hold clinical meetings in Inverness in October, and in Elgin in March or April next.

Next Annual Meeting.—The next annual meeting to be held at Fort Augustus in July, 1907.

The late Dr. Grant.—It was resolved to send a minute of condolence and sympathy to Mrs. Grant, Grantown-on-Spey, on the death of her husband. Dr. Grant became a member of the Branch in 1874, and was President in 1889, and always took a great interest in the affairs of the Association, attending the meetings of the Branch with great regularity.

Direct Representatives for Scotland.—Mr. BRUCE (Dingwall) moved, and Dr. MURRAY (Inverness) seconded, that Scotland should have two Direct Representatives on the General Medical Council.

Luncheon.—The members lunched in the Railway Hotel, Tain, Sheriff Mackenzie and Baillie MacLeay being present as guests.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH.

THE annual meeting was held in Lancaster on June 27th, the PRESIDENT (J. Mason, M.D.) in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Report of Branch Council.—The report of the Branch Council which had been printed was taken as read. The new President, Dr. Hall, was introduced by his predecessor, who then vacated the chair.

Secret Remedies.—At the conclusion of the scientific proceedings, Dr. OLDHAM gave the members an account of the action being taken by the Association to check the sale of secret remedies.

The Education Bill.—It was also resolved that the members endorse the amendment to the Education Bill, to be moved by Mr. H. J. Tennant, which lays upon the local education authority the duty of attending to the health and physical condition of the children. The Secretary was instructed to write to the several members of Parliament whose constituencies lie within the Branch area.

OXFORD AND READING BRANCH.

THE annual meeting was held in the Library of the Royal Berks Hospital at 5.30 p.m. on July 7th, the PRESIDENT, Mr. H. G. Armstrong, in the chair.

Accounts.—The minutes of the last meeting having been confirmed, and the officers for the year 1906-7 duly elected, the TREASURER stated his balance, and it was agreed that grants be given to Epsom College and the British Medical Benevolent Fund.

Address.—The PRESIDENT gave a short introductory retrospective address, dealing with the advances and changes in medicine and surgery since he commenced professional work.

Demonstration.—Professor OSLER gave a lantern demonstration of the morphology of abdominal tumours. He demonstrated the difficulty of diagnosis in connexion with dilated stomachs. The maps and patterns of the coils of the distended large or small intestines were thoroughly illustrated and commented upon. Particular attention was called to one case of colossal distension of the colon in a man. The tumid abdomen of children with the distension, practically all of it, above the navel, was frequently pointed out and referred to. Pictures of dilated bladders were shown, and it was proved how easy it was to fall into errors regarding them. John Hunter was stated to have tapped a distended bladder in error no fewer than thirteen times. Another charming story was told about an old-standing case of prostatic distension. Every case commented upon was profusely illustrated on the screen. Cases or specimens were exhibited by Dr. E. L. BEVERS, Dr. ERNEST MALLAM, Mr. ARTHUR ROBERTS, Dr. G. S. ABRAM, Dr. W. T. FREEMAN, Dr. W. J. MAURICE, Dr. PRICE, Mr. GILFORD, and Dr. W. B. SECRETAN, and, as far as time permitted, were discussed and criticized.

Dinner.—Thirty members subsequently dined together at the Queen's Hotel.

OXFORD DIVISION.

THE annual meeting of this Division was held on Friday, June 22nd, at the Randolph Hotel, Oxford, at 2.45 p.m.

Installation of New Chairman.—After the luncheon, attended by twenty members, Dr. COLLIER was inducted into the chair by Mr. INNES GRIFFIN, acting as Chairman in place of Dr. Bloxsome, who was unable to attend.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Report of Council.—The SECRETARY read the Council's report, which contained a favourable account of the work of the Division during the past session. The meetings had been well attended, and the interest in clinical material and discussions had been well maintained. Reference was made to the heavy losses to the Division by the deaths of Sir J. Burdon-Sanderson, Dr. Tuckwell, Dr. Mallam, Dr. Stark, and Dr. Elsmore. The report was accepted and adopted unanimously.

Balance Sheet.—The balance sheet was then read and unanimously adopted.

Election of Officers.—*Chairman-elect*, Dr. R. C. B. Yelf; *Honorary Secretary and Treasurer*, Dr. Duigan, 66, Woodstock Road, Oxford; *Divisional Representative*, Dr. Duigan; *Two Members of Divisional Council*, Dr. Good and Dr. Turrell.

Vote of Thanks to Council.—A vote of thanks to the Council for their labours in carrying on the work of the Division was proposed by Mr. Winkfield and seconded by Dr. Caudwell, and carried *nem. con.*

Financial Position of Association.—On the motion of Dr. Collier, a resolution was passed instructing the Divisional Representative to support any efforts made by the Lancashire and Cheshire Branch to inquire into the financial position of the Association.

Proposed Royal Charter.—It was further resolved that support be given to the Council in their proceedings undertaken to procure a Royal Charter.

Picnic on the Isis.—The proceedings then terminated. Several members availed themselves of Dr. Collier's invitation to a river picnic down the Isis.

SOUTH-EASTERN BRANCH.

The sixty-second annual meeting of the South-Eastern Branch was held at the Crystal Palace on June 27th, Dr. Hetley, President, in the chair.

Election of Officers.—The following were appointed officers of the Branch for the ensuing year:—*President-elect*, Mr. T. Jenner Verrall (Brighton); *Vice-Presidents 1906-7*, Dr. Reid (Canterbury) and Dr. Swayne (Norwood); *Vice-Presidents 1907-8*, Dr. Hetley (Norwood) and Dr. Hollis (Hove); *Honorary Secretary and Treasurer*, Dr. H. M. Stewart. Dr. Galton, Dr. Tyson, and Mr. T. Jenner Verrall were re-elected as Representatives of the Branch on the Central Council.

Paper.—Dr. Hetley read a paper in which he traced the rise of the general practitioner, and indicated the changes which are taking place and which tend to limit and alter the character of his work.

Expeditions.—After the meeting expeditions were arranged to the Norwood Cottage Hospital, the Norwood Sanatorium for the treatment of alcohol and drug inebriety, and the various entertainments of the Crystal Palace. The proceedings terminated with a dinner, at which fifty eight were present.

Dover Division.

The annual meeting was held at the Grand Hotel, Dover, on June 29th, at 8.30 p.m., Dr. Parsons in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Election of Officers.—The following were elected officers for the year 1906-7: *Chairman*, C. Parsons, M.D.; *Vice-Chairman*, M. K. Robinson, M.D., M.O.H.; *Executive Committee*, Chairman, Vice-Chairman, and Drs. Wood, Ord, Roberts (for Sandwich, Deal, and Ash), and the Secretary; *Representative for Representative Meeting*, Mr. R. W. Ord; *Honorary Secretary and Treasurer*, Mr. F. A. Osborn; *Representative on Branch Council*, Mr. F. A. Osborn.

Instructions to Representative.—The Chairman commented on the application for the Royal Charter, pointing out the increase in the expenditure of the Association, which needed to be watched by the Representatives; and also drew attention to the various advantages of having a Royal Charter.—Dr. Howden then proposed that:

> Our Representative support the application on behalf of the Association to be made to the Privy Council praying His Majesty to grant a Royal Charter of Incorporation to the Association.

—Mr. Osborn seconded, and the proposal was carried.

General Medical Council.—The Division decided to instruct the Representative to support the candidatures of Dr. Henry Langley Browne, Chairman of Council of the Association; and Mr. J. Rutherford Morison, of Newcastle-on-Tyne.

Notification of Phthisis.—Dr. Robinson brought forward this matter, and urged the importance of the sanitary authorities having a knowledge of the number and locality of the various cases in their area. He was sure it would aid its elimination from the town of Dover and the district of East Kent if medical men would voluntarily notify every case. Dr. Howden supported Dr. Robinson, and the Division resolved:

> That support should be given our Medical Officer of Health in his efforts to get all medical men residing in East Kent to voluntarily notify cases of pulmonary tuberculosis.

Register of Nurses for Private Circulation.—Mr. Ord proposed that a register of nurses working in the district be kept, and a Subcommittee of four members was formed to deal with the matter immediately—namely, Drs. Ord, Wood, Osborn, and Roberts.

Cases of Tetanus and Anthrax.—The question was raised as to which hospitals, infectious or general, these cases should be sent.

Abuse of Out-patient Departments.—A discussion took place on the best methods to adopt locally to check the present abuse of out-patient departments at hospitals, supported by voluntary contributions, and intended for the poorer classes.

Vote of Thanks.—A vote of thanks to the Chairman terminated the proceedings.

SOUTH-EASTERN OF IRELAND BRANCH.

A meeting was held at the Club House, Carlow, on July 4th, at 5.30 p.m., Dr. J. V. Ryan, President-elect, in the chair. Other members present were Drs. R. B. Carey, Charles James, and J. Quirke, Honorary Secretary.

Minutes.—The minutes of the last meeting were read and signed by the Chairman.

A telegram of apology for non-attendance from the President, Dr. William J. Shee, and a letter to similar effect from Dr. Hewetson, were received.

Notice of Motion.—A notice of motion by Dr. Hewetson *re* contract practice was postponed for further consideration and fuller attendance to next meeting.

Resolution.—It was proposed by Dr. Carey, and seconded by Dr. James:

> That Mr. John Holpin, Grattan Place, Clonmel, be paid 5 guineas for his services as shorthand writer in connexion with the investigation of ethical case recently held by the Branch Council in the Town Hall, Clonmel.

The meeting then dissolved.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.

The annual meeting was held on July 2nd at the Worcester Infirmary, Mr. Gostling presiding, and subsequently Mr. Wood.

Minutes.—The minutes of the last annual meeting were read and confirmed.

Election.—The following were elected officers for the ensuing year: *President*, Mr. Miles A. Wood (Ledbury); *President-elect*, Dr. East (Malvern); *Honorary Secretary and Treasurer*, Dr. Mabyn Read (Worcester). The election of Dr. Read was proposed by Dr. Crowe, who stated that he himself did not seek re-election to an office which he had held since the formation of the Branch in 1880.

Vote of Thanks.—Mr. Coombs proposed:

> That the heartiest thanks of this Branch be given to Dr. Crowe for his very able, prolonged, and satisfactory services to the Branch and the Association generally as Honorary Secretary of the Worcestershire and Herefordshire Branch, and an expression of its regret that he is unwilling to continue in the office.

Dr. Pollard seconded, and the motion was carried unanimously.

Paper.—Mr. Gostling showed three cases of gall stones upon which he had operated with satisfactory results; also cases of teno-synovitis of the wrist and ankle.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

MEMBERS ELECTED DURING THE JUNE QUARTER.

UNDER BY-LAWS 2 AND 3.

BY THE COUNCIL ON JULY 4th, 1906.

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CENTRAL MIDWIVES BOARD.

A SPECIAL meeting of the Central Midwives Board, under the provisions of Rule 4 of the Rules of Procedure, was held at Caxton House, Westminster, on July 12th, with Dr. F. H. CHAMPNEYS in the chair.

Disciplinary Cases.

Charges against certain midwives as set out below were investigated, and in each case the Board directed that the name of the midwife should be removed from the Roll.

The following charges amongst others were alleged against a certified midwife, Ellen Buck: (1) That having been duly suspended from practice as a midwife by a local supervising authority, she nevertheless continued to practise. (2) That being in attendance as a midwife at a confinement she was guilty of negligence.

The following charges were alleged against a certified midwife, Elizabeth Campbell: (1) That she did not wear a dress of washable material. (2) That she did not carry or possess the appliances or antiseptics required by Rule E 2. (3) That she did not keep a register of cases as required by Rule E 19 (*a*). (4) That on the occurrence of a stillbirth in her practice, no registered medical practitioner being in attendance, she neglected to notify the same to the local supervising authority.

The following charges amongst others were alleged against a certified midwife, Ita Feldmann: (1) That having been engaged as a midwife to attend in an approaching confinement, she employed as her substitute an uncertified person, not being a legally qualified medical practitioner. (2) That while in attendance as a midwife at a confinement, the patient being ill, she did not decline to attend alone or advise that a registered medical practitioner be sent for as required by Rule E 17, but fetched an unqualified person to attend the patient.

The following charges were alleged against a certified midwife, Susan Hasler: (1) That she was not scrupulously clean in every way as required by Rule E 1. (2) That she did not carry or possess the appliances or antiseptics required by Rule E 2. (3) That she did not keep a register of cases as required by Rule E 19 (*a*).

The following charges amongst others were alleged against a certified midwife, Alice Hilton: (1) That being in attendance as a midwife at a confinement, and subsequently during the lying-in period, on the occurrence of puerperal fever in the patient she neglected to decline to attend alone or to advise that a registered medical practitioner be sent for, as required by Rule E 17. (2) That having been warned not to attend other cases, she nevertheless continued to attend a case without having disinfected herself, her clothing, or her appliances, as required by Rule E 5.

The following charges were alleged against a certified midwife, Nanny Lord: (1) That she did not wear a dress of washable material when in attendance on a confinement, as required by Rule E 1, and that she persistently refused to do so. (2) That when called to a confinement she did not take with her the appliances or antiseptics required by Rule E 2, and that she persistently refused to do so.

The following charges were alleged against a certified midwife, Mary Ann McGrath: (1) That she was not scrupulously clean in every way, and did not wear a dress of washable material, as required by Rule E 1. (2) That she did not carry or possess the appliances or antiseptics required by Rule E 2. (3) That she did not keep a register of cases as required by Rule E 19 (*a*).

The following charges, amongst others, were alleged against a certified midwife, Margaret Ellen Manns: (1) That, being in attendance as a midwife at a confinement, and subsequently during the lying-in period, she was guilty of negligence in the following respects: On the occurrence of foul-smelling discharges, rigor, and a rise of temperature above 100·4° F., with quickening of the pulse for more than twenty-four hours, she did not decline to attend alone, and advise that a registered medical practitioner be sent for, as required by Rule E 17 (*c*). (2) That the patient having died of puerperal fever, she proceeded on the same day to attend another confinement, and then examined the patient without having disinfected herself, her clothing, or her appliances, as required by Rule E 5. (3) That, subsequently, on the same day, she laid out a dead body in contravention of Rule E 15. (4) That, subsequently, on the same day, she returned to continue her attendance at the confinement. (5) That while in attendance, as aforesaid, she was guilty of negligence in the following respect: On the retention of the placenta for more than an hour after the birth of the child, she did not decline to attend alone, and advise that a registered medical practitioner be sent for, as required by Rule E 17 (*b*).

The following charges, amongst others, were alleged against a certified midwife, Sarah Patrick: That, being in attendance as a midwife at a confinement, and subsequently during the lying-in period, she was guilty of negligence and misconduct in the following respects: (*a*) She neglected to use any antiseptics or disinfectants; (*b*) she neglected to wash the patient; (*c*) after the day of the confinement she visited the patient three times only, namely, on the third, seventh, and ninth days; (*d*) on the occasion of her visit on the third day she was drunk and incapable of performing her duties as a midwife.

The following charges, amongst others, were alleged against a certified midwife, Hannah Porter: (1) That on March 1st, 1906, she laid out the dead body of a woman who had died from blood poisoning (Rule E 15); (2) that on March 2nd, 1906, without having adequately disinfected herself or her clothing, she acted as a midwife at the confinement of a woman; (3) that on March 9th, 1906, and following days, the progress of the patient not being satisfactory, her face being swollen and symptoms of fever having set in, she neglected to decline to attend alone and to advise that a registered medical practitioner be sent for (Rule E 17).

The following charges, amongst others, were alleged against a certified midwife, Caroline Spiers: (1) That when called to a confinement she did not take with her the appliances or antiseptics required by Rule E 2, and that she declined to undertake to provide herself with them. (2) That she did not previously disinfect her hands and forearms on each occasion of touching the genital organs or their neighbourhood, as required by Rule E 3. (3) That before making the first internal examination she neglected to wash the patient's external parts with soap and water and to swab them with an antiseptic solution, as required by Rule E 7.

The following, amongst other charges, was alleged against a certified midwife, Sarah Uren: That, having been suspended by the local supervising authority in order to prevent the spread of infection, she nevertheless disregarded the notice and attended a confinement as a midwife.

The Board also considered certain other cases in which midwives were charged with infractions of the rules, and warned the parties as to their conduct in the future.

The Board sat from 9.30 a.m. to 6.15 p.m. with a short interval for lunch.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

SURGEON G. E. GLYNN, M.B., has been placed on the retired list, July 5th. He joined the department as Surgeon, May 2nd, 1898.

Surgeon F. F. MASON is promoted to be Staff Surgeon, July 11th. He was appointed Surgeon, July 11th, 1898.

The following appointments have been made at the Admiralty: JOHN MOORE, M.D., Fleet Surgeon, and RICHARD R. HORLEY, Surgeon, to the *President*, additional, for three months' course at the West London Hospital; JOHN H. READ, M.B., Staff Surgeon, and ARTHUR S. SHELDON, Surgeon, to the *Astræa*, July 21st, and on recommissioning, undated; JAMES H. FERGUSSON, Staff Surgeon, to the *Prometheus*, July 21st, and on recommissioning, undated; ALBERT X. LAVERTINE, Staff Surgeon, to the *Cambridge*, additional, for the *Theseus*, July 12th; WALTER S. H. SEQUEIRA, M.B., Staff Surgeon, to the *Charybdis*, on recommissioning, July 21st; PERCY G. WILLIAMS, Surgeon, to the *Alacrity*, July 21st, and on recommissioning, undated; WALTER G. ANDERSON, M.B., to the *Impregnable*, additional, for the *Inconstant*, July 12th; THOMAS B. SHAW, M.B., Surgeon, to the Royal Naval Rendezvous, July 12th; BRYAN PICK, lent to Portland Hospital, July 12th; JOHN J. H. ROONEY, Surgeon, to the *Blake*, July 16th; GEORGE H. S. MILLN, M.B., to the *Aeolus*, on recommissioning, July 24th; JOHN L. THOMAS, Fleet Surgeon, to the *Pembroke*, July 30th; ELYSTAN G. E. O'LEARY, Staff Surgeon, to the *Thetis*, on recommissioning, July 14th; WILLIAM HACKETT, M.D., Fleet Surgeon, to the *President*, additional, for three months' course at West London Hospital, August 7th; MICHAEL J. SMITH, M.D., Staff Surgeon, to the *President*, additional, for three months' course at West London Hospital, July 16th; HERBERT W. B. SHEWELL, M.B., Staff Surgeon, to the *President*, additional, for three months' course at West London Hospital, July 20th; JAMES G. WATT, Surgeon, to the *Sirius*, July 19th; JOHN H. L. PAGE, Surgeon, to the *Vivid*, July 19th; PIERCE L. CROSBIE, Surgeon, to the *Vivid*, July 16th; WILLIAM BASTIAN, Surgeon, to the *President*, additional, for three months' course at West London Hospital, July 23rd.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL J. M. NICOLLS, M.B., retires on retired pay, July 14th. He was appointed Surgeon, May 30th, 1885; Surgeon-Major, May 30th, 1897; and Lieutenant-Colonel, May 30th, 1905. He served in the South African war in 1901-2, was present in operations in the Transvaal, Orange River Colony, and Cape Colony, and received the Queen's medal with five clasps.

Major R. J. C. COTTELL has been appointed Deputy-Surgeon at Chelsea Hospital.

Lieutenant-Colonel W. J. MACNAMARA, M.D., retires on retired pay, July 11th. His commissions are dated: Surgeon, March 6th, 1880; Surgeon-Major, March 6th, 1892; Lieutenant-Colonel, March 6th, 1900. He served in the South African war in 1901-2 as Principal Medical Officer, No. 7 General Hospital, and was present at operations in the Transvaal, receiving the Queen's medal with five clasps. He was formerly Deputy-Surgeon at Chelsea, but at the time of his retirement he was Administrative Medical Officer at Bloemfontein.

Captain A. E. MILNER to be Major, April 28th. He was appointed Surgeon-Lieutenant, July 28th, 1894, and Surgeon-Captain, July 28th, 1897. He served in the campaign on the North-West Frontier of India in 1897-8 with the Tirah expeditionary force (medal with two clasps); and in the South African war in 1899-1900, including the action at Talana and the defence of Ladysmith (Queen's medal with three clasps).

EXCHANGE.

The charge for inserting notices respecting Exchanges in the Army Medical Department is 8s. 6d., which should be forwarded in stamps or post office order with the notice, not later than Wednesday morning, in order to ensure insertion in the current issue.

Lieutenant-Colonel R.A.M.C., now at home on leave from the Punjab and due to return in October, wishes to exchange to remain at home for a few months longer. Apply to Punjab, care of Holt and Co., 3, Whitehall Place.

INDIAN MEDICAL SERVICE.

MAJOR C. F. FEARNSIDE, M.B., Madras, is appointed Senior Medical Officer, Port Blair, from May 5th, and Assistant Superintendent in Port Blair Settlement.

Lieutenant-Colonel W. B. BROWNING, C.I.E., Madras, is appointed Principal, Madras Medical College.

The retirement from the service of Lieutenant-Colonel J. W. T. ANDERSON, F.R.C.S.E., Bombay Establishment, and which has been already announced in the BRITISH MEDICAL JOURNAL, has received the approval of the King, dated April 15th.

ROYAL GARRISON ARTILLERY (VOLUNTEERS).

SURGEON-LIEUTENANT A. OGILVY, M.D., to be Surgeon-Captain, July 18th.

ROYAL ENGINEERS (VOLUNTEERS).

SURGEON-LIEUTENANT-COLONEL G. B. FRASER, 1st Devonshire and Somersetshire, is granted the honorary rank of Surgeon-Colonel, July 17th: he resigns his commission from July 18th, retaining his rank and uniform.

VOLUNTEER CORPS.

SURGEON-MAJOR A. D. WEBSTER, M.D., the Queen's Rifle Volunteer Brigade the Royal Scots (Lothian Regiment), is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, 1st Lothian Volunteer Infantry Brigade, July 18th.

Surgeon-Lieutenant A. S. GREEN, M.B., 1st Volunteer Battalion the Lincolnshire Regiment, to be Surgeon-Captain, July 18th.

ROBERT OLLERENSHAW (late Second Lieutenant), to be Surgeon-Lieutenant in the 4th Volunteer Battalion the Cheshire Regiment, July 18th.

WILLIAM L. PRITCHARD to be Surgeon-Lieutenant in the 1st (Brecknockshire) Volunteer Battalion the South Wales Borderers, July 18th.

Surgeon-Lieutenant J. BUCKLEY, 2nd Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment), resigns his commission, July 18th.

Surgeon-Lieutenant R. P. SHEARER, 1st Nottinghamshire (Robin Hood) Volunteer Rifle Corps, is removed from the Volunteer Force on failing to fulfil the prescribed conditions for efficiency, July 20th.

ARMY MEDICAL RESERVE.

SURGEON-MAJOR D. LENNOX to be Surgeon-Lieutenant-Colonel, June 15th.

Surgeon-Majors W. NETTLE and J. TURTON to be Surgeon-Lieutenant-Colonels, July 3rd.

Vital Statistics.

VITAL STATISTICS OF LONDON DURING THE SECOND QUARTER OF 1906.

[SPECIALLY REPORTED FOR THE BRITISH MEDICAL JOURNAL.]

IN the accompanying table will be found summarized the vital statistics of the metropolitan boroughs and of the City of London, based upon the Registrar-General's returns for the second, or spring, quarter of the year. The mortality figures in the table relate to the deaths of persons actually belonging to the various boroughs, and are the result of a complete system of distribution of the deaths in public institutions among the several boroughs in which the deceased persons had previously resided.

The 31,760 births registered in London during the three months under notice were equal to an annual rate of 27.1 per 1,000 of the population, estimated at 4,721,217 persons in the middle of the year; in the corresponding quarters of the three preceding years the rates had been 29.0, 28.1, and 27.0 per 1,000 respectively, the average

Analysis of the Vital Statistics of the Metropolitan Boroughs and of the City of London after Distribution of Deaths occurring in Public Institutions during the Second Quarter of 1906.

Boroughs.	Estimated Population middle of 1906.	Births.	Deaths.	Annual Rate per 1,000 Living. Births.	Deaths.	Principal Infectious Diseases.	Deaths from Principal Infectious Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-Cough.	Typhus.	Enteric Fever.	Ill-defined Pyrexia.	Diarrhoea.	Phthisis.	Deaths of Children Under 1 Year of Age to 1,000 Births.
COUNTY OF LONDON	4,721,217	31,760	16,733	27.1	14.2	1.44	1,690	—	761	144	138	403	—	44	1	199	1,671	97
Paddington	148,913	805	432	21.7	11.6	0.78	29	—	8	8	2	4	—	2	—	5	47	80
Kensington	180,952	842	628	18.7	13.9	1.08	49	—	32	5	3	5	—	2	—	2	62	107
Hammersmith ...	120,679	717	440	23.8	14.6	1.32	40	—	19	10	1	4	—	2	—	4	42	113
Fulham	161,965	1,216	477	30.1	11.8	1.26	51	—	15	6	6	7	—	2	—	15	49	93
Chelsea	74,672	378	355	20.3	19.1	3.59	67	—	41	5	6	11	—	—	—	4	30	138
City of Westminster	173,905	670	578	15.5	13.3	0.66	29	—	4	4	2	10	—	1	1	7	69	99
St. Marylebone ...	128,580	1,040	472	32.4	14.7	0.68	22	—	13	1	4	2	—	—	—	2	47	59
Hampstead	89,633	363	225	16.2	10.1	0.58	13	—	7	—	3	1	—	—	—	2	19	72
St. Pancras	236,455	1,451	918	24.3	15.6	1.77	105	—	62	9	6	16	—	3	—	9	123	101
Islington	344,987	2,212	1,163	25.7	13.5	1.51	129	—	78	10	11	19	—	4	—	7	98	93
Stoke Newington ...	53,217	250	165	18.8	12.4	0.98	13	—	5	—	—	6	—	—	—	2	13	103
Hackney	230,721	1,427	707	24.8	12.3	1.33	76	—	43	5	8	9	—	4	—	7	66	95
Holborn	55,805	403	252	29.0	18.1	2.30	32	—	19	2	1	5	—	1	—	4	26	84
Finsbury	97,498	885	501	36.4	20.6	4.93	120	—	82	4	5	22	—	4	—	3	42	110
City of London ...	21,367	91	93	17.1	17.5	0.76	4	—	1	2	—	1	—	—	—	—	10	77
Shoreditch	116,108	984	544	34.0	18.8	2.96	88	—	52	1	3	20	—	1	—	9	59	136
Bethnal Green ...	130,609	1,130	561	34.7	17.2	1.65	54	—	17	5	3	23	—	2	—	4	69	100
Stepney	307,176	2,808	1,197	35.7	15.6	1.27	98	—	31	11	13	21	—	2	—	20	128	98
Poplar	170,673	1,321	658	31.0	15.5	1.53	65	—	35	2	3	16	—	1	—	8	75	92
Southwark	209,143	1,431	902	27.4	17.3	1.60	83	—	42	7	4	16	—	2	—	12	114	115
Bermondsey	128,629	1,028	604	32.1	18.8	3.06	98	—	50	10	7	21	—	1	—	9	69	118
Lambeth	315,774	2,288	1,027	29.1	13.0	0.90	71	—	16	3	10	20	—	2	—	10	86	81
Battersea	179,622	1,158	545	25.9	12.2	1.27	57	—	6	3	4	30	—	2	—	12	60	92
Wandsworth	273,381	1,884	827	27.6	12.1	0.96	66	—	21	5	9	22	—	3	—	6	68	82
Camberwell	274,132	1,775	952	26.0	13.9	1.18	81	—	28	7	5	25	—	1	—	15	80	101
Deptford	115,495	819	488	28.4	14.9	2.03	60	—	11	5	2	29	—	1	—	12	42	114
Greenwich	105,360	684	334	28.0	12.7	1.64	43	—	11	2	5	21	—	1	—	3	23	88
Lewisham	148,463	879	389	23.7	10.5	0.79	29	—	7	5	4	9	—	—	—	4	20	77
Woolwich	127,345	842	359	26.5	11.3	0.62	20	—	5	2	3	8	—	—	—	2	44	93

rate for the second quarters of the ten years, 1896-1905, being 28.8 per 1,000. The birth-rates last quarter ranged from 15.5 in the City of Westminster, 16.2 in Hampstead, 17.1 in the City of London, 18.7 in Kensington, and 18.8 in Stoke Newington, to 32.4 in St. Marylebone, 34.0 in Shoreditch, 34.7 in Bethnal Green, 36.4 in Finsbury, and 36.7 in Stepney.

The 16,733 deaths of persons belonging to London registered during the quarter under notice were equal to an annual rate of 14.2 per 1,000, against 14.2, 14.3, and 13.3 per 1,000 in the second quarters of the three preceding years; the mean rate in the corresponding periods of the ten years 1896-1905 was 15.6 per 1,000. The death-rates last quarter in the various boroughs ranged from 10.1 in Hampstead, 10.5 in Lewisham, 11.3 in Woolwich, 11.6 in Paddington and 11.8 in Fulham, to 17.5 in the City of London, 18.1 in Holborn, 18.8 in Shoreditch and in Bermondsey, 19.1 in Chelsea and 20.6 in Finsbury.

During last quarter 1,690 deaths were referred to the principal infectious diseases; of these, 761 resulted from measles, 144 from scarlet fever, 138 from diphtheria, 403 from whooping-cough, 44 from enteric fever, one from ill-defined pyrexia, and 199 from diarrhœa, but not any from small-pox or from typhus. These 1,690 deaths were equal to an annual rate of 1.44 per 1,000, against an average rate of 1.90 per 1,000 in the corresponding periods of the ten preceding years. The lowest death-rates last quarter from these infectious diseases were 0.58 in Hampstead, 0.62 in Woolwich, 0.66 in the City of Westminster, 0.68 in St. Marylebone and 0.76 in the City of London; the highest rates were 2.08 in Deptford, 2.30 in Holborn, 2.96 in Shoreditch, 3.06 in Bermondsey, 3.59 in Chelsea and 4.93 in Finsbury. Measles showed the greatest proportional mortality in Chelsea, St. Pancras, Holborn, Finsbury, Shoreditch and Bermondsey; scarlet fever in Paddington, Hammersmith, Chelsea, the City of London and Bermondsey; diphtheria in Chelsea, Finsbury, Stepney, Bermondsey, Lambeth and Greenwich; whooping-cough in Finsbury, Shoreditch, Bethnal Green, Bermondsey, Battersea, Deptford, and Greenwich; enteric fever in Hammersmith, Hackney, Holborn, Finsbury and Bethnal Green; and diarrhœa in Fulham, Holborn, Shoreditch, Stepney, Bermondsey, Battersea and Deptford.

During the three months under notice 1,671 deaths from phthisis were registered, equal to an annual rate of 1.42 per 1,000, the rates in the corresponding quarters of the three preceding years being 1.47, 1.57, and 1.33 per 1,000. Among the various boroughs the lowest death-rates from phthisis were recorded last quarter in Hampstead, Stoke Newington, Lambeth, Battersea, Wandsworth, Greenwich, and Lewisham; and the highest rates in St. Pancras, Shoreditch, Bethnal Green, Southwark, and Bermondsey.

Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 97 per 1,000 last quarter, against 102, 107, and 103 in the corresponding quarters of the three preceding years; the mean rate in the second quarters of the ten years 1896-1905 was 115 per 1,000. The lowest rates of infant mortality last quarter were recorded in Paddington, St. Marylebone, Hampstead, Holborn, the City of London, Lambeth, Wandsworth, and Lewisham; and the highest rates in Hammersmith, Chelsea, Shoreditch, Southwark, Bermondsey, and Deptford.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,722 births and 3,556 deaths were registered during the week ending Saturday last, July 14th. The annual rate of mortality in these towns, which had been 13.2, 12.4, and 12.3 per 1,000 in the three preceding weeks, further declined last week to 11.7 per 1,000. The rates in the several towns ranged from 4.9 in Newport (Mon.), 5.6 in East Ham, 6.2 in Hastings, 6.8 in Grimsby, 6.9 in Bournemouth, 7.2 in Northampton, and 7.5 in Coventry and in York to 16.0 in Manchester, 16.2 in Huddersfield, 16.5 in Sunderland, 18.7 in Newcastle-on-Tyne, 16.8 in Norwich, 17.2 in St. Helen's and in Burnley, 19.8 in Huddersfield, and 20.3 in Rochdale. In London the rate of mortality was 11.8 per 1,000, while it averaged 11.6 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.2 per 1,000 in the seventy-six towns; in London it was equal to 1.0 per 1,000, while among the seventy-five large provincial towns it ranged upwards to 2.6 in Middlesbrough, 2.9 in Manchester, 3.1 in West Ham and in Preston, 3.4 in Rotherham, and 5.6 in Burnley. Measles caused a death-rate of 1.1 in Huddersfield, 1.4 in Halifax, 1.6 in Manchester and 3.6 in Burnley; scarlet fever of 1.7 in Rotherham; whooping-cough of 1.0 in Middlesbrough and in Sunderland, and 1.7 in Rotherham; and diarrhœa of 1.2 in West Ham, 1.3 in Preston, 1.6 in Bootle and 1.8 in Norwich. The mortality from diphtheria and from enteric fever showed no marked excess in any of the large towns. One fatal case of small-pox was registered in Hull, but none in any other of the large towns. The Metropolitan Asylums Hospitals contained 4 small-pox patients on Saturday last, the 14th inst., against 13, 11, and 7 on the three preceding Saturdays; no new cases were admitted during the last three weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 2,892, 2,762 and 2,767 at the end of the three preceding weeks, had further risen to 2,840 at the end of last week; 406 new cases were admitted during the week, against 380, 366, and 377 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, July 14th, 949 births and 491 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 16.0, 14.5, and 15.3 per 1,000 in the three preceding weeks, declined again to 14.3 per 1,000 last week, but was 2.6 per 1,000 above the rate during the same period in the seventy-six large English towns. Among these Scotch towns the rates ranged from 10.2 in Paisley and 10.7 in Leith to 15.5 in Glasgow and in Edinburgh and 17.0 in Greenock. The death-rate from the principal infectious diseases averaged 1.8 per 1,000, the highest rates being recorded in Glasgow and Aberdeen. The 248 deaths registered in Glasgow included 5 which were referred to measles, 2 to diphtheria, 9 to whooping-cough, 3 to "fever," and 14 to diarrhœa; there were also 4 deaths from cerebro-spinal meningitis during the week. Seven fatal cases of measles were recorded in Edinburgh; 4 of diarrhœa in Dundee; 5 of whooping-cough and 3 of diarrhœa in Aberdeen; and 2 of whooping-cough in Leith.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, July 14th, 479 births and 309 deaths were registered in six of the principal Irish towns, as against 498 births and 268 deaths in the preceding period. The annual death-rate in these towns, which had been 15.1, 15.4, and 12.6 per 1,000 in the three preceding weeks, rose to 15.7 per 1,000 in the week under notice, this figure being 4.0 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 7.8 in Waterford and 15.8 in Cork to 17.8 in Limerick and 18.7 in Dublin. The zymotic death-rate during the same period and in the same six Irish towns averaged 2.0 per 1,000, or 0.6 per 1,000 higher than during the preceding period, the highest figure—5.0—being recorded in Londonderry, while no deaths under this heading were recorded in Limerick.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR CHILDREN.—Resident Surgical Officer. Salary at the rate of £60, rising to £80 per annum.

BRADFORD POOR-LAW UNION.—Resident Assistant Medical Officer for the Hospital and Workhouse. Salary, £100 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—House-Physician. Salary, £70 per annum.

BURNLEY: VICTORIA HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—**Medical Tutor and Registrar.** Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CANCER HOSPITAL, Fulham Road, S.W.—Honorary Medical Officer in charge of the Electrical Department.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Junior House-Surgeon. Salary at the rate of £50 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Male House-Physician. Salary at the rate of £50 per annum.

COLCHESTER: ESSEX AND COLCHESTER HOSPITAL.—House-Surgeon. Salary, £80 per annum.

DEVONPORT: ROYAL ALBERT HOSPITAL.—Assistant to the Resident Medical Officer. Salary at the rate of £50 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Physician to Out-patients.

FULBOURN: CAMBRIDGESHIRE, ETC., ASYLUM.—Second Assistant Medical Officer. Salary, £120 per annum.

HEREFORDSHIRE GENERAL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

HUDDERSFIELD: STORTHES HALL ASYLUM. Kirkburton.—Locum Tenens for September and October. Salary, £3 3s. per week.

LIVERPOOL EYE AND EAR INFIRMARY.—House-Surgeon. Salary, £80 per annum.

LONDON COUNTY COUNCIL.—Medical Officer for staff engaged on the construction of Rotherhithe Tunnel. Salary, £400 per annum.

MANCHESTER ROYAL INFIRMARY.—General Superintendent and Secretary. Salary commencing at £600.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Stipend, £100, rising to £150 per annum.

MIDDLESEX HOSPITAL.—Research Scholarship, value £105, in the Cancer Research Laboratories.

NEWCASTLE-ON-TYNE: HOSPITAL FOR SICK CHILDREN.—Male Resident Medical Officer. Salary, £100 per annum.

NORTHAMPTON: BERRY WOOD ASYLUM.—Locum Tenens for three months. Terms, 4 guineas weekly.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House-Surgeon. Salary at the rate of £50 per annum.

PRESTON ROYAL INFIRMARY.—(1) Senior House-Surgeon. Salary, £100 per annum. (2) Assistant House-Surgeon. Salary, £60 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary at the rate of £50 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road.—Clinical Assistants.

SHEFFIELD UNION HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

SHOREDITCH, PARISH OF ST. LEONARD.—Second Assistant Medical Officer for the Infirmary. Salary, £100 per annum.

STOCKPORT INFIRMARY.—**Junior Assistant House-Surgeon.** Salary at the rate of £40 per annum.

SUNDERLAND INFIRMARY.—Two House Surgeons. Salaries, £80 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House Physician. Honorarium, £25 for six months.

WEST BROMWICH HOSPITAL.—House Surgeon. Salary, £100 per annum.

WISBECH: NORTH CAMBRIDGESHIRE HOSPITAL.—Male Resident Medical Officer. Salary, £125 per annum.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary, £80 per annum.

CERTIFYING FACTORY SURGEONS.—**The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeons in the following districts:** Blakeney, co. Gloucester, and Blaydon-on-Tyne, co. Durham.

APPOINTMENTS.

ARCHDALE, MERVYN A., M.B.Durh., Medical Superintendent, East Riding Asylum, Beverley, vice M. D. Macleod, M.B.Edin., retired.

FERGUSON, Robert J., M.D., M.Ch., M.A.O., R.U.I., F.R.C.S.Eng., Gynaecological Registrar to the Kensington General Hospital.

GOYDER, F. W., B.A., M.B., B.C.Cantab., Honorary Assistant Surgeon to the Royal Infirmary, Bradford.

HODGE, R. F. Vere, M.B., B.C.Cantab., M.R.C.S., L.R.C.P., Resident Medical Officer for the Out-patient Department of Queen Charlotte's Lying-in Hospital, Marylebone Road, N.W.

KILVERT, John Ellis, M.R.C.S., L.R.C.P., Honorary Surgeon to the Derbyshire Royal Infirmary, vice C. H. Taylor, M.B.

LAING, E. A. R., L.R.C.P. and S.Edin., L.F.P.S.Glas., Certifying Factory Surgeon for the Rochford District, co. Essex.

MACKINTOSH, F. I., M.B., C.M.Aberd., Certifying Factory Surgeon for the Strathmiglo District, co. Fife.

MORTON, A. Stanford, M.B., C.M.Edin., F.R.C.S.Eng., Ophthalmic Surgeon to the Italian Hospital, Queen Square, W.C.

RITCHIE, A. L., M.B.Aberd., District Medical Officer of the Sudbury Union.

SHEPPARD, Amy, M.B.Lond., D.P.H.Camb., Ophthalmic Surgeon to the New Hospital for Women and Children, Euston Road, vice Miss Ellaby, M.D., L.S.A., resigned.

STANLEY-JONES, H., M.B., M.R.C.S., Clinical Assistant to the Chelsea Hospital for Women.

STEVENS, W. Mitchell, M.D.Lond., M.R.C.P.Lond., Lecturer in Materia Medica and Pharmacology to the University College of South Wales and Monmouthshire, Cardiff.

TURNER, W. E., M.R.C.S., L.R.C.P., Medical Officer of the Willesden Parish Workhouse.

WALKER, T. W., M.B., Ch.B.Vict., Medical Officer of the Workhouse of the Tetbury Union.

WEIR, J. J., M.B., C.M.Glas., District Medical Officer of the South Shields Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

KING.—On July 10th, at St. Leonards, Osmaston Road, Derby, to Dr. and Mrs. J. W. King, a son.

MULCAHY.—On the 22nd ult., at Copnor, Portsmouth, the wife of T. A. Mulcahy, L.R.C.P. and S.I., of a son.

STRONG.—At Buluwayo, Rhodesia, South Africa, July 14th, 1906, the wife of Edgar H. Strong, Esq., M.R.C.S.Eng., L.R.C.P.Lond., of a son. (By cable.)

MARRIAGES.

ARCHDALE—MACALISTER.—On the 27th June, 1906, at the parish church, Ballinasloe, by the Rev. T. Hewan Archdale, M.A., Vicar of Tanfield, co. Durham, father of the bridegroom, assisted by the Venble. the Archdeacon of Clonfert, Mervyn Alexander Archdale, M.B., B.S., of the East Riding Asylum, Beverley, to Frances, daughter of the late James MacAlister and Mrs. MacAlister, of Ballinasloe, co. Galway, Ireland.

BRIGGS—ATYEO.—July 12th, at St. Mark's, Southampton, by the Rev. P. Gaisford Bourne, D.D., Rector of North Baddesley, assisted by the Rev. E. L. Franklin, M.A., Vicar of the Parish, John Arthur Oswald Briggs, M.D.Lond., F.R.C.S.Eng., of Nottingham, son of John Briggs, Esq., of Sutton-in-Ashfield, to Florence Emily, only daughter of Thomas Atyeo, Esq., Southampton.

DUNDAS—GIFFEN.—At Thurso, on July 4th, by the Rev. J. S. Miller, James Dundas, M.B., Ch.B.Edin., D.T.M., eldest son of the late James Dundas, F.E.I.S., Edinburgh, to Grace Haxton Giffen, F.R.C.S.I., D.P.H.Camb., daughter of the Rev. Mungo Giffen, Edinburgh. (No cards.)

NEWBOLT—ELLIOT.—July 11th, at St. Bride's Church, Liverpool, by the Rev. Bernard C. Jackson, M.A., George Palmerston Newbolt, M.B., F.R.C.S., of 42, Catherine Street, to Lila, only daughter of the late John Elliot, Esq., Canonbie, Dumfriesshire.

DEATH.

BLACKBURN.—July 7th, at Ivy House, Barnsley, John Blackburn, M.R.C.S., aged 72. Interred at Bradfield, near Sheffield, Tuesday, July 10th.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Pharynx.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m.: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, College closes.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following arrangements have been made for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.15 p.m., X Rays; 2.30 p.m., Operations. Monday and Thursday, at 2.30 p.m., Diseases of the Eye. Tuesday and Friday, at 2.15 p.m., and Wednesday and Saturday, at 10 a.m., Diseases of the Throat, Nose, and Ear. Tuesday and Friday, at 2.30 p.m., Diseases of the Skin. Tuesday and Friday, at 10.30 a.m., Gynaecological Operations. Wednesday, at 10 a.m., Diseases of Children. Wednesday and Saturday, at 2.30 p.m., Diseases of Women.

BOOKS, ETC., RECEIVED.

London: Swan Sonnenschein:
Thought and Things. A Study of the Development and Meaning of Thought, or Genetic Logic. By J. M. Baldwin. Vol. I. Functional Logic, or Genetic Theory of Knowledge. 1906. 10s. 6d.

The Girls' School Year Book (Public Schools). 1906. 2s. 6d.

Matriculation Directory. No. xliii. June, 1906. Cambridge: Burlington House. 1s.

Gale and Polden's Military Series. Guide to Promotion for Non-Commissioned Officers and Men of the Royal Army Medical Corps. Compiled by Captain S. T. Beggs, M.B., R.A.M.C. London: Gale and Polden, Ltd. 3s. 6d.

Das Problem der Syphilis und kritische Betrachtungen über ihre Behandlung. Von Professor Dr. O. Rosenbach. Zweite Auflage. Berlin: A. Hirschwald. 1906. M. 3.60.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
JULY.	
22 **Sunday**	
23 MONDAY	
24 TUESDAY ...	Central Council, 9 a.m. Annual General Meeting, Caxton Hall, Caxton Street, Victoria Street, S.W., 10 a.m. Annual Representative Meeting, Caxton Hall, Caxton Street, Victoria Street, S.W., immediately after Annual General Meeting.
25 WEDNESDAY	Central Council, 9 a.m. Annual Representative Meeting, Caxton Hall, 10 a.m.
26 THURSDAY...	Central Council, 9 a.m. Annual Representative Meeting, Caxton Hall, 10 a.m.
27 FRIDAY	Central Council, 9 a.m. Annual Representative Meeting, Caxton Hall, 10 a.m. *(If required.)*
28 SATURDAY...	
29 **Sunday**	
30 MONDAY	
31 TUESDAY.....	
AUGUST.	
1 WEDNESDAY	
2 THURSDAY...	
3 FRIDAY	
4 SATURDAY...	
5 **Sunday**	
6 MONDAY	*Bank Holiday.*
7 TUESDAY.....	
8 WEDNESDAY	

Date.	Meetings to be Held.
AUGUST *(continued).*	
9 THURSDAY...	
10 FRIDAY.....	
11 SATURDAY...	
12 **Sunday**.....	
13 MONDAY	
14 TUESDAY.....	
15 WEDNESDAY	
16 THURSDAY...	
17 FRIDAY	
18 SATURDAY...	
19 **Sunday**	
20 MONDAY ...	
21 TUESDAY ...	Annual Meeting of the Association, Toronto, Canada.
22 WEDNESDAY	,, ,, ,,
23 THURSDAY...	,, ,, ,,
24 FRIDAY	,, ,, ,,
25 SATURDAY...	,, ,, ,,
26 **Sunday**	
27 MONDAY	
28 TUESDAY.....	
29 WEDNESDAY	
30 THURSDAY...	
31 FRIDAY	
SEPTEMBER.	
1 SATURDAY...	
2 **Sunday**.....	
3 MONDAY	
4 TUESDAY.....	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong, and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 28TH, 1906.

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SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

HELD AT

Caxton Hall, Caxton Street, Westminster, S.W.

ANNUAL GENERAL MEETING.

FIRST GENERAL MEETING, TUESDAY, JULY 24TH.

THE seventy-fourth annual general meeting of the British Medical Association was held at Caxton Hall, Caxton Street, Victoria Street, Westminster, S.W., on Tuesday, July 24th, 1906, the President, Mr. G. C. FRANKLIN, F.R.C.S., in the chair.

The PRESIDENT reserved any remarks he had to make in regard to the past year until the meeting in Toronto.

The minutes of the last annual meeting having been published were taken as read and approved.

The CHAIRMAN of COUNCIL reported the receipt of an invitation to hold the annual meeting for 1907 at Exeter, which the Council recommended to the meeting for its adoption. He therefore moved:

That the invitation from Exeter be accepted, and that Dr. Henry Davy, the senior physician to the Royal Devonshire Infirmary, be the President-elect.

The PRESIDENT seconded the resolution, which was agreed to unanimously.

The President then vacated the chair, which was taken by Dr. LANGLEY BROWNE, the Chairman of Council

FINANCIAL STATEMENT.

The CHAIRMAN welcomed the members to what he hoped would be a very satisfactory meeting in every way; and he called on the Treasurer to present the financial statement for the year.

The TREASURER said the balance sheet presented a condition of affairs which commended itself to the consideration of all those who took an interest in the welfare of the Association. The small balance on the right side this year had awakened the attention of many who had given very little thought to such matters before, and this would, he was sure, be productive of good in the future. In order to show how the expenses of the Association had been increasing within the last few years it was instructive to compare the finances of 1901, the year before the new Constitution, with those of 1905. Even in 1901 the increased work and expenses were foreshadowed, for the Constitution Committee involved an outlay of £744 odd. To take the larger figures first—salaries and wages showed an increase of £1,086 on 1901, for there was no Medical Secretary's department then, while in 1905 it cost in salaries alone £1,224. The cost of the Representative Meeting and the numerous Committees was £1,400 more, largely made up of the railway fares. The general Association expenses increased by £3,500. Of this, £1,000 was spent on the *Year Book*, and the rest was made up of such items as increases in the legal

expenses, miscellaneous printing, postage, reporting Council meetings, stationery, travelling, and other sundry items. In the editorial department there was an increase of £753. A new officer, the Sub-Editor, accounted for a third of this, and the rest was due to general expansion of work. On the other hand, in the cost of printing the Journal the increase was only £146 over 1901, in spite of the introduction of a weekly Supplement and the increased circulation. This heading of expenditure would have been much higher were it not that £1,300 had been saved as compared with 1902 on the cost of paper, a saving which was due to the General Secretary.

In the comparison of 1904 and 1905 the increases were £450 for office salaries, £800 committee expenses, and £1,000 general Association expenses. In salaries the Medical Secretary's staff accounted for £400, and the General Secretary's £50. In the general expenses the chief item was the *Year Book*, £500, chiefly due to the introduction of the alphabetical list of members; painting building, £200; legal expenses, £130; miscellaneous printing, £100; postage, petty cash, and travelling, £145. To this must be added the £800 written off investments, making a total increase of £3,050.

It was obvious that this great increase in expenditure, which threatened to exceed the normal growth of revenue, was due to the new Constitution and the creation of a new department altogether, with a separate head and the necessary staff to work it. Like all new institutions, its initial cost had been heavy. When, however, it had been longer established, its expenditure, he trusted, would only increase at the same rate as the older departments in what might be regarded as a healthy ratio. The number of committees had also enormously increased, and their meetings had been frequent, owing to the zeal and activity of the members in some cases and the work thrust upon them in others by either the Representative Meeting or the Council. The railway fares of the Representatives and members of Committees and the cost of the new department were items amounting to £2,624. Thirdly, there was the *Year Book*, which cost £1,000. The problem was how to check these increases in the future. The one big item where money might be saved was over the *Year Book*. The introduction of the alphabetical list cost nearly £500; and the Council at its last meeting recommended that this be kept in the office for reference, and not printed in the *Year Book*. There were many small expenditures very difficult to control, which in the aggregate amounted to a large sum, and the Chairmen of Committees would, it was hoped, curb all expenditure, whether in printing or otherwise, which would not yield an adequate return.

With regard to the receipts last year, owing to bad trade generally and the fact that there were only 52 issues as against 53 in 1904, there was a falling-off of £1,000 in advertisements, but, when the new tariff for advertisements has been sufficiently long in force, the Association should reap considerable advantage. Moreover, while the total receipts for advertisements in 1905 was somewhat more than in 1901, the cost of production was less owing to the smaller number of advertisement pages. The increase of £4,740 for subscriptions was not so good as it seemed, as the Branch subscriptions, amounting to £3 500, had since 1902 been included as a contra, both under expenditure and receipts, these sums having been previously collected by the Branches themselves. The sales of the Journal across the counter had increased by £450 since 1901: there was an increase of £500 on rents and investments; but the rents would for the present diminish until the new building was ready.

With regard to the Journal, he would not repeat what he wrote a couple of weeks ago. The subject of contributions exercised the minds of some members, and he hoped that some figures which had been got out in the office would remove any misapprehension; they had only been got out for the June quarter this year, which was practically typical of all the rest. The number of contributors in that quarter was 150, who received sums varying from 3s. upwards. The total amount was £760. The classes of matter on which money was expended were: Reports of meetings, medical societies and others, £37; special correspondence, home, colonial, and foreign, £77; leaders and comments, £130; reviews, £59; analytical and new appliances, £5 5s.; answers, £35; other editorial articles, mainly on English and foreign medical reports, and on the history and literature of medicine, £71; Epitome, £66; public health, £30; naval and military, £20; parliamentary news and reports, £50; obituaries, £20; universities and colleges and General Medical Council, £62; and Congress, £44. He begged to move that the report be received and adopted.

The President seconded the motion for the adoption of the report.

Dr. Brassey Brierley said the Treasurer had made out, with regard to expenditure which some had called extravagant, a fairly good case. He would not enter into details, but would merely observe that the figures indicated a very serious depreciation in the surplus funds of the Association from year to year during the last three or four years. This year the surplus had come down like an avalanche from £5 000 to £800. The new Constitution had had three years' trial, and its working could be fairly judged. He agreed that it was probably premature to speak in terms of alarm, but he would ask—Could the Association in view of so large a decline in the surplus in so short a time go on at the same ratio of advance very much longer? An endeavour should be made to economize in the various departments. It had been said that the expenditure would lessen automatically. He did not believe that. He protested against advancing with such rapid strides. He had been again asked to indicate the direction in which economy should be exercised, but it was no part of his duty to do that. There were plenty more men there who were a great deal more indulgent in figures than he was, and they had the balance sheet before them, so they should look out how they could economize. The new Constitution was unwieldy, and under dual control. Two annual meetings yearly could never succeed. There were 140 Representatives present, and there was an Executive Council of over sixty. He would like to move an amendment to the effect that, in view of the large decrease in the surplus of the Association since its reorganization, the meeting resolve to curb in every possible way the working expenses in each and every department, and that no addition should be made to the clerical or other staff unless and until there was again a substantial balance of receipts over expenditure.

Mr. Wolstenholme seconded, and said he was instructed to ask on the editorial Abstract A whether the salaries of the Editor, Assistant Editor, and Sub-editor were inclusive, or whether payments for articles written by them were made to these gentlemen. If the answer was in the affirmative, he was instructed to raise a protest against it, especially in the case of the Editor. His Division also thought that the difference in the amount of salary between the Editor and Assistant Editor was not sufficient, either one was paid too much or the other was paid not enough. He was instructed to inquire with regard to the postages of the Journal; in Abstract B the total amount of the postage was £3,900: he understood that at the end of 1905 there were about 16,000 British members of the Association and about 3,000 Colonial members; he would like to know what the cost of posting the Journal to the Colonial members was: from the abstract it appeared that two-thirds of the annual subscriptions was given back in postage alone; he was instructed to ask that figures for the postage of the Journal to the Colonies should be taken out separately, and, if it should be found that the cost of postage to the Colonies is so very great, then his Division suggested that some distinction ought to be made in the amount of subscription between British and Colonial members. He understood the sundry sales for the Journal for the year amounted to £2 200. There were, he thought, somewhere between 3,000 and 4,000 copies of the Journal issued per week over and above the total number of members. It was possible that some of these copies might be given gratis, but he was instructed to ask for information.

Dr. Broadbent said there had been some change with regard to the charge for advertisements, and he would like to know something about that. He would also like to ask as to the vast sums which were expended on the central office. £80,000 was invested in the buildings, but the income from that source was only about £1,200.

Dr. Fothergill said that at Leicester it was practically

settled to apply for a Royal Charter, and if it were obtained the annual general meeting of the Association would become defunct. The meeting might pass a resolution and instruct the Council to do this, that, and the other, but the Representative Meeting might pass an entirely dissimilar resolution, or one not exactly similar. The Council, it seemed to him, was answerable to two bodies. Why did not Dr. Brassey Brierley suggest that the Association should close 429, Strand, and wait until it had a large balance in the bank, and meanwhile the members might confine themselves to viewing Hogarth's pictures "On the Road to Ruin." He moved the following amendment:

> That this meeting of the Association is of opinion that the Representative body is a competent body to deal with any subject affecting the Association, and leaves the question of general organization to it.

After a discussion as to whether the amendment was in order, Dr. DOUGLAS said the Association, through its Representatives, had demanded that certain things should be done, and that necessarily entailed great expense and labour; it was now sought to refuse payment for what had been done. He thought the increase of expenditure was largely due to this. He regretted to see any reflection on the Medical Secretary's department. He thought there was no harder working department in the Association, and there was no more hardworking man than the Medical Secretary. He thought it only right to say that in justice not merely to him (the Medical Secretary), but in justice to themselves. He had seen the pamphlet issued by the Lancashire and Cheshire Branch. He had no objection to the pamphlet because it had drawn much-needed attention to the finances of the Association; and since Dr. Helme had confessed his sins and acknowledged that it was for that purpose, he thought he might be forgiven. Continuing, Dr. Douglas said he neither agreed with the way in which the facts were stated, nor the deductions from those facts, and least of all did he agree with the title-page of the pamphlet. It reminded him of the man who saw a very attractive newspaper placard and bought the paper in consequence; he returned the paper and said he preferred the placard because there was more in it. A cause of complaint in the past had been the inadequate balance sheets put forward, but Dr. Markham Skerritt had made a start in a new direction, and that now presented was most complete, and enabled members to judge the present state of the Association, and all would feel indebted to the Treasurer.

Dr. NASH said he was a member of the Lancashire and Cheshire Branch, but was a strenuous opponent of the policy which had been put forward in its name. He disagreed with the panic-stricken document sent out by his Branch. It was a discredit to the Branch, and Dr. Brassey Brierley's amendment seemed to him nothing more or less than an attempt to catch a vote at the General Meeting in opposition to the Representatives. If that were not so, why was it not put on the agenda at the Representative Meeting?

Dr. BRASSEY BRIERLEY protested against the statement, saying the matter came equally before the Representative Meeting.

Dr. NASH said the panic which seemed to have laid hold of the Council of the Lancashire and Cheshire Branch was out of place. It was true the matter called for consideration, but not alarm. As long as the expenditure of the Association was within its income, it was acting rightly; it was not a co-operative society which had to pay a dividend of 3s. 6d. in the pound. He hoped the meeting would vote dead against the retrograde resolution of Dr. Brassey Brierley.

Dr. COX said it was a new experience to find the Council accused of spending too much. The Association had been reorganized in order to do certain work which involved the expenditure of money, and on the first occasion when there was an opportunity of attempting to meet the demand made on the Association a grumble arose, and it was said that the Association was on the verge of bankruptcy. He seconded the amendment.

On Dr. Fothergill's amendment being put, the Chairman declared it carried.

Dr. BRASSEY BRIERLEY said in view of the last vote he would not ask the meeting to spend further time on a resolution of which he had given notice. But in reply to a question which had been asked as to why he had moved his resolution he said that it was simply a matter of courtesy to the meeting. It was essential that identical resolutions should appear on the agenda papers both of the General and Representative Meetings. At the present moment he withdrew the amendment.

The CHAIRMAN asked the meeting's assent to the withdrawal of the amendment, which was given.

Dr. BRINDLEY JAMES thought the salaries paid to the various secretaries should be reduced.

Dr. COLLINS thought that the work of the Association had been done in a very admirable manner, and to cut down the salaries of the various officers of the Association would be a grave mistake. He should like to know what was the average amount which the Editor obtained for his special contributions to the JOURNAL in addition to his fixed salary.

Dr. FELLOWES asked why it was that in the BRITISH MEDICAL JOURNAL there were twenty pages less of advertising matter than a very short time ago.

The GENERAL SECRETARY said it was very difficult to make figures attractive, but he thought after they had listened to what he was about to say relative to the change in the JOURNAL they would realize that they were worthy of serious consideration. For a long time both the Editor and himself had felt that so long as the JOURNAL had competitors in the field its make-up and general appearance were not as good as they ought to be; they had felt that the column was too wide, that the page was too short, and that the space between the lines was not sufficient to make it a journal easily read. The Editor and he had discussed the matter very carefully, but they had been faced with the difficulty that, owing to the large circulation of the JOURNAL, to make the slightest improvement would involve very considerable outlay. However, last October they went to the Journal and Finance Committee, which accepted their suggestions, while viewing with some anxiety the cost of the proposed improvements. He thought everybody in that room would admit that subsequent to January 1st of this year the general appearance of the JOURNAL had been enormously improved. To obtain that improvement if they continued to publish an equal number of pages the serious extra outlay of £3,000 a year had to be faced. Having regard to the prospect of a reduced surplus for the year 1905, the Journal and Finance Committee was naturally chary about incurring so large an increased expenditure. The question therefore arose as to how the increase should be met. While it was true that advertisements were a source of revenue, at the same time they were a source of considerable expense. Formerly there were on an average ninety-six pages of advertisements every week, and the question was, whether this number might not be reduced by one-third. To do so without some corresponding increase in rates would have involved the sacrifice of a considerable amount of income. He therefore suggested to the Committee that the charges for the advertisements should be raised. He advised this as from his experience of the large and influential circulation of the JOURNAL he felt that the Association was not getting sufficient for its advertisements, and he suggested to the Committee that they should raise their prices from 5 guineas to £8 a page, an increase roughly of 50 per cent. This course was adopted, and members would be glad to hear that the result showed that the decision come to was fully justified. The Committee were quite entitled to fear that a very considerable shrinkage must follow, and that anticipation had been borne out in fact. Down to June 30th of the present year, the decrease in the number of pages of advertisements when compared with the corresponding period of the previous year had been no less than 554 pages. That was a very serious decrease, and members might imagine that following on such a decrease they would see a marked shrinkage in the revenue. The Association, however, had just cause for congratulation; in spite of the decrease of 554 pages between January 1st and June 30th, the receipts had increased by at least £200. The saving effected of about £1,500 for the half-year by this decrease in the number of pages, for paper, printing, etc., had entirely paid for the improved JOURNAL. But what was perhaps even more satisfactory from a manager's point of view was, that although there had been a decrease in the number of pages

they had not lost half a dozen advertisers, the old firms had not deserted the British Medical Journal, but had in some cases slightly reduced the amount of space occupied. He should like to say in this connexion, that in regard to the revenue derived from advertisements in the Journal, he did not think the Association or advertisers had ever been in such a satisfactory position. The interests advertised were so varied, primarily made up of small advertisements, and comparatively few pharmaceutical preparations, so that they could count on drawing a regular revenue from their advertisement sheets, however bad trade might be. He thought, from a manager's point of view, that that was a matter of which the Association ought to be proud, for if they had to pay a dividend it would be exceedingly satisfactory that this should be forthcoming with unerring regularity. In conclusion, the general appearance of the Journal had been much enhanced, and although rather early to speak positively, this great improvement had so far involved the Association in little or no increased expenditure, owing to the marked economies effected by the fewer number of advertisement pages. At the same time, the revenue was being fully maintained, if not actually expanding.

The Treasurer said he noticed a tendency amongst a few—he thought only a very few—to imagine that he was at the meeting to defend the expenditure of the Association; he was not. The expenditure was the expenditure of the Association, and the Association was responsible for it, and he only recorded it, and endeavoured to present it in the fullest possible manner in order that the members might know what money they were spending, and why they were spending it. It was for the members to decide whether they got their money's worth or not, and if they did not get their money's worth, then they must state where it was that they did not get it. He had endeavoured to indicate where there might be some retrenchment, and it was for the members to say whether this or that should be cut off. For instance, the alphabetical list of the *Year Book* was a special item. He had endeavoured to let the meeting have as much detail as he could, and he had further details with him in order to answer any question as far as might be in his power. With regard to Mr. Wolstenholme's question as to whether extra payments for contributions were made to the editorial staff beyond their salary, he would answer that they were. It was thought when the Editor's salary was fixed that it would be somewhat of a stimulus to his zeal if he had some little extra to work for, and if he was paid extra if he did the work. At the same time, they did not want him to do a great deal of that extra work—only to keep a little vitality in him. But the Editor was now so thoroughly versed, and they knew him so thoroughly, that if the members liked to make the increase a permanent one, he (the speaker) for one would certainly not oppose it. The amount the Editor got extra was about £160 a year. With regard to the rest of the staff, before the members altered the amount they received, he thought they should hear what the Editor had to say on that subject. There would be much greater difficulties in the matter if the Editor had not full power of rejecting any contribution that was offered if he did not think it was up to the mark. There was sometimes a tendency in human nature for people to get a little careless if they were paid a fixed salary. If a contribution was rejected, it would be only so much loss of time, and they would not care; but if a contribution was rejected, and the writers lost some of the extra money, then there was a stimulus to do better next time. The Editor received £1,000 a year and about £160 extra for special contribution work.

Mr. Wolstenholme asked whether he was to understand that the salary of the Editor, with the extras, was £1,160, and of the Assistant Editor £950; or whether they received the £160 between them.

The Treasurer said that to the Assistant Editor the salary was £750 and £200 extra. With regard to the postage, there were about 15,500 home members and 4,000 Colonial members. The postage of the Journal to the 15,500 home members was a halfpenny each; and the postage to the 4,000 Colonial members was from 2½d. to 3d. each. In general terms, the home postage cost £2,100, and the Colonial £1,800 per annum. Up to 1898 the Colonial members used to pay an extra subscription, but it was thought more in consonance with the Imperial idea and with the general unity of the Association that any extra Colonial subscription should be done away with.

In reply to Mr. Wolstenholme's question as to the sales, the Treasurer said that there were no copies given away, except to advertisers and a certain number of exchange copies with other journals. The remainder were actual sales.

Dr. Latimer inquired as to the amount paid to the Sub-editor for contributions.

The Treasurer replied about £150 a year. As he had said in his opening address, the Editorial Department had £130 extra out of £750 to contributors. He was glad Dr. Brindley James had raised the question of the salaries of the Secretaries, because it gave him an opportunity of letting them see what was done. It was a very big business, and it required a man of very considerable financial ability to work it. Since 1903 the General Secretary had saved £1,300 a year on the cost of the paper of the Journal. Therefore they would see that he had more than earned his salary in that matter alone. With regard to the change in the cost of advertisements the General Secretary had the boldness of his opinions, and he had convinced the Committee that his opinions were right. The Committee took the risk, and did not think it was a very big risk. Of course, in the first year the effect was not felt very much. There were old contracts to run out, and the full effect of the new tariff could not be felt at once, but would probably add a very large sum to the income of the Association, and that was due to their General Secretary. He might say that he had been very much struck since he had been Treasurer with the very complete grasp of figures that the General Secretary had, and the way in which the office accounts were kept. He had never asked a question without getting an almost immediate answer. The accounts were kept in a most minute and accurate way, so that almost any item could be found and reckoned up in a very short time. So far, therefore, from talking about diminishing salaries, it would be simply folly to throw away a good servant in order to get a cheaper man. With regard to the Medical Secretary, there again they must decide whether they thought that kind of work worth paying for or not. He was not there to advocate one or the other, but what he said was that if they valued that work they could not get it better done than it was now. While the buildings had cost £80,000 the income derived from these at present was about £1,200 a year. The building at present might be called a haphazard collection of houses except so far as the general office was concerned. It did not return so much in the way of revenue for shops and offices as it might if it were better arranged. That was one of the reasons for rebuilding. The income would be increased to something like £3,000 a year instead of £1,200, and that would be a pretty fair return for the outlay—about 6 per cent. Also it would, of course, provide the Association with better accommodation, and allow for the expansion of its work.

The resolutions for the adoption of the report and the appointment of auditors were agreed to.

The Chairman moved that the annual general meeting stand adjourned until 2.30 p.m. on Tuesday, August 21st, 1906, at Toronto.

The resolution was carried.

ANNUAL REPRESENTATIVE MEETING.

First Representative Meeting. Tuesday, July 24th.

Sir Victor Horsley in the Chair.

The Chairman said that the list of elected Representatives was printed in the Appendix to the Agenda, and moved that the returns be accepted, and this was carried. The Chairman announced that the following Deputies were serving: for Cardiff, Dr. MacLean; for Monmouth, Dr. Green; for Folkestone, Ashford and Dover, Dr. Dodd; for Bath and Trowbridge, Dr. Thomas; for Bradford, Dr. A. Little; for Bournemouth, Mr. Watts Parkinson; for Kensington, Dr. Crawford Thomson; for Harrogate, Dr. Arthur Drury. He had

also received apologies for absence from Mr. Bowden, Mr. St.John, Dr. Hunter, Dr. J. E. Morris, and Dr. Laing.

Number of Members Voting for Representatives.

The next business on the agenda was the motion of which Dr. Brassey Brierley had given notice, calling for a return of the members present and voting at every Division meeting at which the Representative was elected to represent such Division, and the total number of members of the Division.

In calling on Dr. Brassey Brierley to move the resolution, the Chairman said that the figures were not available for this year, because many Divisions had not returned them. If Dr. Brassey Brierley wished the return to be obtained for the next election perhaps he would move his resolution, and then the meeting, if it thought fit, would instruct the Medical Secretary to ask the Divisions to furnish the facts.

Dr. Brassey Brierley (Manchester, West) understood that he could not obtain the return at this meeting, and would withdraw his motion in accordance with the Chairman's suggestion.

The Chairman said he had made no suggestion. He (Dr. Brierley) could move his resolution, but he was sure that the meeting would give Dr. Brassey Brierley leave to alter the wording of his motion if he wished it to apply to the next election.

Dr. Brassey Brierley said that was what he desired, and moved:

> That he would call for a return of the members present and voting at every Division meeting at which the Representative was elected to represent such Division, and the total number of members of each such Division.

Mr. Wolstenholme (Manchester, Salford) said that his Division absolutely refused to give the figures of those present at the annual meeting, because they were afraid they were going to be used in discouragement of it. The resolution having been seconded,

Dr. Oldham (Lancaster) pointed out that the resolution opened a very difficult question. The only use that could be made of these returns would be to quote the strength of the Division, and also quote the numbers of gentlemen attending the annual meeting of the Division, and then make an attempt to draw the inference that the Representatives present did not represent the Division at all, but only represented a small portion. He thought that was a very dangerous instrument to put into the hands of any member of the meeting or any enemy of the meeting. Every member of a Division had an opportunity of attending the annual meeting, and knew the purposes for which the annual meeting was called. He knew that one of those purposes was to elect a Representative, and if he absented himself, then it was because he had not taken sufficient interest in the work of the Association to attend and record his vote. He was quite willing to accept the benefits the Association offered him, but he would not take the trouble to attend and let his voice influence the Association. The Representatives elected were men who had been selected by those who took an interest in the work of the Association, and they were the people best fitted to express their opinions at this meeting. He opposed the resolution.

Dr. E. T. Davies (Liverpool, Northern) supported the resolution. He could not understand the fear of this so-called Representative Meeting in having the facts put before them. As Representative of the Northern Division of Liverpool, he was sorry to say that the attendance was very unsatisfactory. It was hardly ever possible to get a quorum. He thought it was a misnomer to call the meeting a Representative Meeting: the present system of Divisions was practically killing all interest in the British Medical Association so far as Lancashire was concerned. The motion would bring out some facts which would be of great service to the Executive in the future conduct of the Association. He did not know why there should be a fear of divulging the number attending the Division meetings.

Dr. Broadbent (Manchester, North) opposed the motion.

Dr. Ward Cousins (Portsmouth) said that at Oxford the following resolution was brought forward by him at the request of his Division and carried *nem. con.*:

> That the Secretaries of Divisions be requested when sending any return to the Council to make it in the following form: That the numbers of the Division be stated together with the number present at the meeting, and the number voting in the affirmative and the number voting in the negative.

The Chairman said he had already explained that point.

Dr. Caverhill (North-West Edinburgh) asked how Dr. Brierley proposed to deal with deputies.

The Chairman said he did not think it was necessary to introduce the question of deputies.

Dr. Helme said that the Association had conferred upon him certain duties and privileges as a member of Council, and one was the power of speaking at that meeting, although he did not possess the power of voting. He could not in his conscience allow the opinions expressed by Dr. Oldham to go unchallenged. He was quite prepared for the meeting at once to veto the resolution almost without discussion, for human nature was very strong; and he thought they would have to search history very thoroughly to find any of the rare occasions on which an assembly had voted for the suppression of its own existence. His own experience was that not 10 per cent. of the members of the Association turned up at the meetings of the Divisions. He had in his possession a large number of letters from persons in various parts of the country showing that there were very grave dissatisfaction and disappointment with the present conditions of the Divisions and the Representative Meeting. It was only fair that the members of the Representative Meeting should know. Dr. Oldham had definitely said that he was strongly opposed to figures being made known. He would ask why. If they were not agreed about a thing why should not the facts be published? It was only those who thought things were being done in an underhand way who were afraid of open frankness. He feared there were members of the Association who would be only too thankful to follow a school of politicians which would put the power into the hands of a clique and say that then the opinion of the country at large was being expressed. He would oppose any such system, and would ask the meeting to recommend that the figures should, in fairness to the Association, as a rule be made known.

Mr. Verrall asked those who had known the Association long enough to contrast the present Representative Meeting with the old General Meeting. He did not think the present arrangements were perfect, but they provided a better expression of opinion than the old General Meeting.

Dr. Helme said he did not contrast the present meeting with the past annual meeting at all. He had asked the meeting to recognize the present state of the election of Representatives. He was strongly of opinion that the present meeting was infinitely better than the old-fashioned annual meeting.

Dr. Muir Smith (Hastings and Eastbourne) said he wished to draw attention to a difficulty that might arise in the case of a constituency whose Representative was appointed by one secretary of a Division, or by secretaries of Divisions.

Dr. Ewart (Westminster) considered that the resolution ought not to be compulsory on the Divisions, but that the policy of the Association should be to have a very full statement of things as they were. He moved to substitute for the words in the resolution "he would call for a return" the words "that a return be invited from the Divisions."

Dr. Ward Cousins seconded the amendment.

Dr. Brassey Brierley asked whether the meeting would allow him to accept the amendment in place of the original resolution.

The question was then put, and the Chairman declared that the meeting refused leave to Dr. Brassey Brierley.

Dr. George Brown (Devonport) supported the amendment, because nothing could be worse than the present arrangement with regard to the Divisions.

The Chairman put the amendment, and, on a show of hands, declared it lost.

Dr. Brassey Brierley having briefly replied, the resolution was put and lost.

Delegates to Toronto.

The Chairman said the next business was not on the agenda. He had received a telegram from Dr. Reeve, the

President-elect of the Association, saying: "Kindly request on our behalf nomination of delegates to Toronto Meeting, assuring warm welcome." A list of members of the Association who intended to go to Toronto was on the table. The delegate might be nominated by the Representative Meeting in the course of the session.

Address by Sir Victor Horsley.

Loud and prolonged applause then greeted Sir Victor Horsley's request for a few minutes in which to make his retiring speech.

It was, he said, his duty to retire from the chair, but, if they would allow him to delay them for five minutes, he would be very glad of the opportunity. They were very much in the same position as their forefathers were when they used to talk about Waterloo. They dated everything from Waterloo—things that occurred before Waterloo and things that occurred after Waterloo. Well, Cheltenham was their Waterloo, and in those debates they often noticed that they dated from Cheltenham what happened before Cheltenham and what had happened since. As he had been in that chair in the period which they might call since Cheltenham, he desired to detain them for a moment with a very brief survey of their present position. He spoke as though the British Medical Association represented the medical profession because he was confident it did. [Hear, hear.] What they had to think of at the present juncture, with their experience of the new Constitution, was what was their position now in the State as a profession. That position was twofold. They had a technical—that is, medical—position, and they had a socio-political position. Before Cheltenham the idea was always to present to the State their technical side. Since Cheltenham they had shown to the State and proved, as he would subsequently demonstrate, that they had the right to take a part in the socio-political life of the Empire. Now what happened before Cheltenham if even a technical point occurred to the Government as a matter of difficulty or as a matter of grave import to the health of the nation? The Government invariably turned to what he must now call the effete and archaic corporations. The Government had no body to turn to then which represented the medical profession, and it naturally therefore turned to the corporate bodies. But what opinion did it receive? It simply received an opinion expressed by thirty, forty, or fifty gentlemen who were in no sense representatives of the profession. [Hear, hear.] What had happened since Cheltenham? Why, that the profession was now recognized to be organized throughout the whole country in their Divisions—Divisions which he ventured to think would not be stimulated into action by any publication of their numbers but which would duly wake up as soon as they realized what power they had in their hands. [Applause.] He was going to tell the meeting what power they had in their hands. What had happened during these three years that he had had the very great and inestimable honour of serving them in that chair? What had happened was that they had educated the Government. Within the last few months no less than three main Government departments had acknowledged officially that they, the Divisions of the British Medical Association, managed the medical affairs of the country by their influence. That had now been acknowledged. Three years ago if they went to a Government department they were received courteously, but, speaking in a socio-political sense, they were practically received with contumely. Now, the Government departments were ready to acknowledge that the profession was organized, and they were ready to listen to the British Medical Association. Indeed, at the very last deputation at which he (the speaker) had the honour of attending, the Minister invited them (the speaker was on that occasion representing the British Medical Association), the Divisions of the Association, to help the Government by carrying on the work which its members were advocating. That was an enormous step forward. They were listened to now because it was known that they represented the profession and that they did not merely represent the opinions of a small autocratic Council. Now reactionary ideas were necessarily present in every concourse of human beings, but he had even heard it in their own Council said that the hands of the clock ought to be put back. But ideas of that sort would simply be swept away, as they always must be swept away, by a concourse of feeling of the 19 000 minds of their members. Their members were now determined that their Association should be a real Association. In their social organism as a medical community they felt and intended that the strong could help the weak and the rich could help the poor, and each would be for all. That was the feeling which actuated the members of this Representative Meeting, which represented the whole of the Association. How had that feeling been converted into action during the past three years? By their Council—the Council of the Association, which, if not as strictly speaking their Executive as he could wish it were, at any rate carried out their resolutions—and by their Committees and by their officers. Their offices had been entirely reorganized since Cheltenham. They were not now merely a publishing department and a business department, but they had also created at Cheltenham a third department—a technical department, a medical department. All their wishes were carried out by these three great departments of the Association, which were all of equal importance, and all, as he knew from personal experience, did their very utmost for the profession. [Hear, hear.] He would not leave this chair, and he could not congratulate this meeting and Association on their progress without expressing his deep sense of gratitude to the Medical Secretary and the medical technical department, which had really constructed the organization, and carried out the new work which they had decided to do at Cheltenham. [Applause.] He knew perfectly well the real effect of all their work must be felt in greater and greater intensity as the years went on, and it was really with a very happy view into the future that he once more thanked them for having placed him in this most honourable position, from which he now retired in favour of his successor. [Loud applause.]

Sir Victor Horsley vacated the chair, which was taken by Dr. Langley Browne, Chairman of Council, who said that all would share his regret that the business he was called upon to put to the meeting was necessitated by the resignation of their late Chairman. He was sure it would not be the wish of the meeting to allow Sir Victor Horsley to leave the chair without expressing to him in some small way their sense of the great value of the work which he had been doing. No one could have given more time to the welfare of this Association, not only since he had been Chairman of Representative Meeting, but also for many years before, and no one could have given time that was more valuable to himself. All must be grateful to Sir Victor Horsley for having stirred up the whole profession, for having made them take an interest in their own affairs, and for having drawn them together and made even the Government pay some attention to them. Sir Victor Horsley had not only given up an immense amount of time, but during the last few months he had done so under particularly hard conditions, because he had been passing through a period of considerable anxiety and a great deal of pain. Sir Victor Horsley was entitled to a hearty expression of their gratitude. He moved

> That the most hearty congratulations of the meeting be given to Sir Victor Horsley upon his recovery from his recent illness; that the warmest thanks also be given to him for the great services he had rendered to the Association as Chairman of the Representative Meeting and in every other way.

The President said it was his privilege, being still President of the British Medical Association, to second the resolution which had been moved by the Chairman of the Council. He associated himself in every particular with the words that the Chairman of Council had used. All those present had a most lively recollection of Sir Victor Horsley's goodness and kindness in the management of the meeting at Leicester last year.

The resolution was carried with acclamation, and

Sir Victor Horsley briefly expressed his thanks.

Election of Chairman.

Dr. Latimer (Swansea) said it would be a very difficult task for any one to fill the chair in succession to Sir Victor Horsley, but there had been in training for this high office a gentleman who by their suffrages last year was elected Deputy Chairman, and he would ask them to place him in the chair as successor to Sir Victor

Horsley. All knew the great tact with which Sir Victor Horsley had carried on the proceedings of the Representative Meetings, and the consummate skill with which he dealt with certain members and the courtesy which he had shown to every one. To have those qualities and to possess those powers it was necessary to have taken a share in the proceedings of public bodies. Dr. Macdonald in his own town had filled offices where those qualities had to be displayed, and as a member of the Medico-Political Committee Dr. Macdonald had shown himself eminently fitted for the post. He moved the election of Dr. Macdonald, who was last year appointed Deputy Chairman, to the chair of the Representative Meeting.

Mr. JACKSON (Plymouth and Truro) seconded.

Dr. BROADBENT said that whilst not opposing the election he would like to have an expression of opinion from the proposer or seconder of this resolution as to the views that Dr. Macdonald had on Contract Practice. [Laughter.]

The CHAIRMAN declared the motion carried unanimously.

Dr. MACDONALD (West Somerset) then took the chair, and said it was very difficult for him to express his sense of the honour done him. As Dr. Langley Browne had said, it was a most difficult thing for any man to follow Sir Victor Horsley in ruling a meeting such as that. He approached it with a great deal of diffidence, but he thought there would be no difficulty in handling a meeting which was composed of reasonable gentlemen, and he was sure that with their assistance the end of this meeting of the Representatives of the British Medical Association would be reached without any dire disaster in the way of disorder.

(Dr. J. A. MACDONALD in the Chair.)

STANDING ORDERS.

The CHAIRMAN said that it was impossible for a man elected haphazard to take hold of such an agenda as was before the meeting and deal with it unless he had had some opportunity of studying it. Therefore he asked leave to propose that the election of Chairman should take place at the end of the Representative Meeting instead of at the beginning of it, and that the Chairman should hold the position from that date during the year, so that he would be constantly in touch with the work which was going on. There was one objection to the plan, and that was that the person chosen might not be a Representative in the following year, but he proposed that the Chairman should be *ex officio* a member of the Representative Meeting, and that the Division should have the power to send another Representative in his place. The Chairman would not have a vote in the meeting, but a casting vote as Chairman, and the Division would still be represented. This was a matter which would have to be submitted to the Council, to propose an alteration of the By-laws in connexion with it.

ELECTION OF DEPUTY CHAIRMAN.

The CHAIRMAN said that at the last Representative Meeting he was appointed Deputy Chairman, but that precedent did not govern that meeting; it was necessary to have an intimation from that meeting that it desired to elect a Deputy Chairman. He moved that a Deputy Chairman be elected, and this was agreed to.

Dr. WALTER SMITH (St. Pancras and Islington) said that he had very great pleasure in proposing that Dr. Latimer of Swansea be Deputy Chairman for the ensuing year. When the question came up last year he proposed Dr. Latimer, but he was not then elected.

Dr. OLDHAM (Lancaster) seconded, and remarked that he did not think it possible to have a better Deputy Chairman.

No other nomination was made, and Dr. Latimer was elected.

AMENDMENT OF STANDING ORDERS.

Dr. MACKEITH (Southampton, Guernsey and Alderney and Jersey) moved:

1. That for the present Standing Orders 1 (a) 8 and 9, there be substituted the following Standing Order: Elect at such time before the conclusion of the third day's proceedings as the Chairman may, pursuant to Standing Order III (10), prescribe: (*a*) Six members of the Association to serve on the Medico-Political Committee for the ensuing year; (*b*) five members of the Association to serve on the Ethical Committee for the ensuing year.
2. That the proposed new Standing Order be inserted after the present Standing Order (11).

This was agreed to.

The CHAIRMAN said that Standing Order 16 contained a reference to notices appearing in the *Daily Journal*. There was no *Daily Journal* this year because the General Meeting would be at Toronto. He proposed that in Standing Order 16 the words in lines 2 and 3 from "General Secretary" to "*Daily Journal*" should be deleted, and that the following should be substituted: "Secretary of the meeting in time for them to be circulated with the minutes of the previous day's proceedings."

This was agreed to.

Dr. A. P. LOW (Dundee) moved as an addition to the Standing Orders:

(*a*) The Annual Representative Meeting shall at its first meeting appoint a Committee of five members who shall report upon the financial aspects of any proposal involving special expenditure which has not already been reported on by the Finance Committee. (*b*) The meeting shall not consider any proposal involving special expenditure until it has been reported upon by the Finance Committee or by the Committee appointed as above.

The Committee would do no harm, and would, he hoped, do a great deal of good.

Dr. WOLSTENHOLME (Manchester, Salford) said that his Division wanted the Representative Meeting to have a committee to consider the financial aspect of any great change before the Association was pledged to it. He instanced the rebuilding of the premises in the Strand.

Dr. C. E. ROBERTSON (Glasgow Southern) said he failed to discover any expenditure over which the Finance Committee had not absolute control.

Dr. T. F. S. CAVERHILL (North-West Edinburgh) moved as an amendment:

The meeting shall not consider any proposal involving special expenditure until it has been reported on by the Finance Committee.

The CHAIRMAN declined to accept the amendment, it being a direct negative to the proposition, and appealed to the Representatives not to occupy time by merely saying what their Divisions instructed them, unless they had some further facts or arguments to adduce. They could carry out their instructions by voting.

Dr. E. O. PRICE asked the meeting whether they were not satisfied with the control of the Association. Did they want a Committee appointed as if they were a joint-stock company, the shareholders of which were not satisfied with the directorate, and wanted a committee of investigation? If not, why was the resolution proposed?

It was then proposed, seconded, and carried that the question be put.

Dr. A. P. LOW (Dundee), replying to the previous speakers, said there seemed to be a misunderstanding about the motion. It was intended to afford the Representative Meeting some guide as to the resolution which should be adopted. At last year's meeting resolutions were carried, and the members did not know how much it would cost to carry them out. It was never put before a committee officially. The suggested Committee was intended, by conference with the officers and by examination of the books of the Association or otherwise, to get some idea of the cost.

On a show of hands the resolution was lost.

The CHAIRMAN then ruled that item B fell with the resolution.

TIMES OF MEETING.

After some discussion it was agreed that the morning session should take place from 10 to 1, and that the afternoon sitting should be from 2 to 6 p.m, with an interval of a quarter of an hour for tea.

The meeting then adjourned for lunch.

ELECTION OF MEMBERS OF COUNCIL BY REPRESENTATIVE MEETING.

On resuming, Mr. VERRALL moved:

That the Representative Meeting shall have power to elect annually not more than six members of the Central Council.

Dr. MCMANUS (Wandsworth) proposed as an amendment that the words "annually not more than" should

be deleted. The feeling of his Division was very strongly that if a man was only elected for one year he was of little use during that year.

Dr. R. Esler (Lambeth) seconded Dr. McManus's amendment.

The Chairman said, in reply to Dr. Langley Browne, that he would definitely rule that the proposition meant that six members should be elected from the Representative Meeting.

Dr. McManus, on the suggestion of the Chairman, added the words "from their number" after the word "elect."

Sir Victor Horsley asked where the Representative Meeting would stand if the amendment were carried. He took it that if the amendment were carried that would settle for the present session altogether the question whether the Representative Meeting should elect the whole Council or not. If the Chairman thought that carrying the amendment or the original resolution would settle the question for the session, they would probably be in a false position with regard to the delaying resolution which the Council had come to on the Charter. If the question of delaying the Charter was to be discussed at that session he would suggest that the question of how many Representatives were to be elected on the Council might stand over till the general question was settled.

The Chairman said that he should certainly rule that the carrying of the resolution of Dr. McManus would preclude the possibility of discussing the matter of the whole Council being elected entirely from the Representative Meeting.

A Representative thought it would be a great pity to preclude the possibility of discussing this question later when the proposal to elect the whole Council by the Representative Meeting came on.

The Chairman thought there was rather a misunderstanding. The proposition would refer to the present year alone. The discussion of the Charter would refer to future events more particularly.

Dr. McManus said that he was entirely in the hands of the meeting, and the discussion was adjourned.

Mr. Verrall said that naturally adjourned the proposal to which Dr. McManus's proposition was an amendment.

The Chairman said that that would be so.

Report of Council.

Dr. Langley Browne moved that the report of the Council be received. Speaking generally and broadly, he would say that in his opinion it was not at all an unsatisfactory report. It was true that the Association had almost expended its income, but that was with a view to extending its business. The money had been expended almost entirely in accordance with the instructions of the Representative Meeting, and in carrying out the policy which that meeting intended to be carried out. He could not see that there was anything grave in the condition of the Association. He did not think that the Representative Meeting or the Council wished to run into insolvency or to push expenditure beyond the means of the Association. Their predecessors had been referred to as having shown a splendid surplus of £5,000 a year, and it had been said, "Why do not you do the like?" But if the Association saved £5,000 for twenty years, and accumulated a balance in the bank of £100,000, what would be the good of it? What was the use of hoarding up money? The Association was perfectly justified in spending the money. The expenditure had been very carefully considered, and there had been no expenditure undertaken which had not been considered by the Finance Committee. There was one other thing which the meeting ought to consider, and that was that it was impossible to do everything at once; in arranging a programme the two or three most important measures should be selected and carried through first, and then the minor measures might follow as there was time to deal with them. The Council had never denied any information to any member of the Council who wanted it. The amount paid to contributors to the Journal was £3,000 a year. He had been able to see how that amount was divided, and he would have given the information to any member of the Council. For himself he was extremely glad to think that such a sum as £3,000 a year went back to the pockets of the doctors.

Dr. Macan (Croydon) asked whether the Standing Orders for the meeting had been formally adopted.

The Chairman said that he must plead guilty to the indictment. The Standing Orders had not been adopted formally, and he begged to move the adoption of the Standing Orders, which was agreed to.

Dr. Langley Browne then dealt with the Report of the Council, 1905-6,* paragraph by paragraph. On the adoption of Paragraph 8 being moved,

Dr. McManus (Wandsworth) moved:

> That it be an instruction to the Central Council when requiring any permanent lay clerical assistants, in every case to consult with the British Medical Benevolent Society and other similar societies, with a view to engaging some one recommended to them if otherwise found suitable.

It should be the duty of the Association, not only indirectly but directly in a larger or smaller degree, to help where widows or orphans of medical men were seeking situations, and other things being equal, to give them the preference.

Professor Saundby thought the resolution was too widely worded. He considered that the societies should be defined; and, on the suggestion of the Chairman, the resolution was altered so as to read "The Benevolent Society and other societies approved by the Council."

Dr. McManus and Professor Saundby having accepted the suggestion the resolution was agreed to.

The Journal.

On paragraph 11, which referred to the Journal, Dr. Langley Browne expressed the opinion that the alterations in the Journal had been very well carried out. They had entailed an enormous amount of work on the staff. He thought every one would admit the Journal had been greatly improved, not only in type and style, but in the way in which the contents had been arranged. A series of clinical lectures upon almost every subject, which must be useful to every general practitioner, had been published, and he thought that everyone must have read them with interest, and they were still going on.

Dr. Renshaw inquired how many medical men there were on the staff of the Journal, whether the Assistant Editor or the Subeditor or either was a medical man, and whether there was any reason for that.

Dr. Ward Cousins expressed great pleasure in the way in which the Journal had been improved. Whatever they felt about finances of their institution, they certainly had a first-class Journal, and he was quite sure it was a very great ornament to the profession.

Dr. Langley Browne said there were two medical men on the staff of the Journal.

Dr. Helme, in order to remove any misunderstanding, said that there were three officers—an editor, assistant editor, and subeditor.

Dr. Broadbent asked if there was any special reason as to the assistant editor not being a medical man?

Dr. Langley Browne replied that the assistant editor did not happen to be qualified, but he had been on the staff long, and was a most useful and competent officer. The paragraph was agreed to.

Finance.

The Chairman then announced with regard to the Financial Statement (No. 5 of the Council's Report) that he proposed to take any remarks or questions in the following way: Questions might be asked, and motions disapproving any particular item of expenditure, or any general items, might be afterwards put with regard to the Report.

The Treasurer moved that the financial statement be adopted.

Dr. Langley Browne seconded.

Mr. Wolstenholme read from the Report as follows: "V. Financial Statement. 12. Owing to heavy expenditure consequent upon the increased activity throughout the Association, your Council cannot submit so favourable a financial statement as for the year 1904." He desired the Treasurer to tell them what the cost had been of the Contract Practice Report, and what good result had accrued from it.

The Chairman ruled the second part of the question out

* The report of the Council was published in the Supplement to the British Medical Journal of April 28th, 1906.

of order, as it was impossible for the Treasurer to say anything with regard to the good results which had ensued.

In reply to Dr. BROADBENT, who asked a question with regard to the Central Offices in the Strand,

The CHAIRMAN suggested that the question would come up more properly on the Premises Report.

Dr. BRASSEY BRIERLEY asked, with reference to a sum of £300 voted towards the Clerical Superannuation Fund, whether it was competent for the Association to vote that sum for benevolent purposes. It had been told him that they had no legal right to use any of their funds for benevolent purposes.

Dr. LATIMER asked how it could be said that a sum of money voted to the Superannuation Fund of their clerical staff could be for a benevolent purpose? It was for the just claims of the men and as a provision for their old age. He took it that they contributed something towards their own Superannuation Fund in accordance with the common custom in offices?

The CHAIRMAN called on the Solicitor (Mr. Hempson), who said that he did not see anything illegal in it.

Dr. DOUGLAS asked if it would be legal and right to defray the cost of the Charter, as voted for, out of the Capital Fund instead of the Annual Fund? Was it of such a nature that it might come out of the Capital Fund?

The TREASURER, in reply, said first of all with regard to Dr. Wolstenholme's question about the Contract Practice Report, the amount was probably about £250, but he had not got the actual figures. With regard to the Superannuation Fund, 2½ per cent. of their employés' salaries was deducted towards that fund; and the £300 was a sort of deferred pay and was reckoned in that way. With regard to the cost of the Charter, that would be spread over two or three years. The legal expenses of this year would be paid in this year's accounts, so that it would not all fall upon one year.

Mr. WOLSTENHOLME inquired whether he correctly understood that the £250 included the publishing of the Report on the Contract Practice as well as getting the information. He wanted the total sum which had been spent on the Contract Practice, which he had been informed was nearly £1,000.

The TREASURER promised to obtain the information.

In further reply to Dr. DOUGLAS, the TREASURER said he believed that, unless there was opposition to the Charter, the cost would be only about £600, and that £200 of that had already been incurred, and would be paid this year. Therefore, it scarcely seemed to be worth while to take it out of the Capital Account.

Dr. WALTER SMITH asked whether in every case of any special expenditure the matter was referred to the Finance Committee before it was undertaken?

The TREASURER said that the Standing Orders directed that this should be done, and it was rigidly carried out.

Dr. JOHN BROWN (Rochdale Division, Lancashire and Cheshire Branch) moved:

> That this Division views with alarm the expenditure of the British Medical Association as revealed in the balance-sheet, and requests the Annual Representative Meeting to appoint a committee of inquiry into the financial position of the Association with a view to a considerable reduction in the expenditure.

Dr. W. GOSSE (Isle of Thanet, Canterbury and Faversham) moved as an amendment that after the words "with a view," the resolution should read:

> To such economies of administration as are consistent with maintaining and developing the valuable work now being done for the profession.

Mr. BALLANCE seconded the amendment. He was quite in accord with the view that the Committee might do a very valuable piece of work.

Dr. JOHN BROWN withdrew his motion in favour of the amendment.

Dr. COX said that he personally should have preferred that the words:

> Views with alarm the expenditure of the British Medical Association as revealed in the balance-sheet, and requests the Annual Representative Meeting to appoint a committee of inquiry into the financial position of the Association

should be omitted also because he did not view the experiment with alarm. He and a good many members in his own Division were very pleased to see that the Association had awakened to a sense of its responsibilities and of the general profession, although they quite agreed that there were some items in the financial statement which might perhaps be deleted. So far from the expenditure being extraordinary, or to be viewed with alarm, the Association ought to look forward to the time when the expenditure would be very much bigger. The increased expenditure would draw in many men.

The CHAIRMAN said the proposition before the meeting read:

> That the Annual Representative Meeting appoint a committee of inquiry into the financial position of the Association with a view to such economies of administration as are consistent with maintaining and developing the valuable work now being done for the profession.

Dr. BRASSEY BRIERLEY trusted the Committee would be a comprehensive one, representing the Council, the Representative Meeting, and members of the Association other than those two bodies.

Mr. J. WARD COUSINS (Portsmouth) supported.

Dr. MACLEAN (Cardiff) approved the proposition that the Association's finances should be a matter of investigation, but thought it should be made clear that it was not undertaken in a fit of panic. Many were thoroughly assured that the finances of the Association would bear the minutest investigation. He deprecated the views of the Lancashire and Cheshire Branch, and pointed out that, though that Branch's membership had decreased by 19 between 1904 to 1906, yet other Branches had increased by 25 and 35 per cent.

Dr. HELME said personally he was sure that the Lancashire and Cheshire Branch would give the resolution, as then worded, its whole-hearted support. He agreed that there was no uncertain opinion as to the work of the Medical Secretary's Department, and the same obtained in Lancashire and Cheshire. The Lancashire and Cheshire Branch initiated that movement, and would be the last to wish the end of it. It was ridiculous to see gentlemen building up a bogey in order to be able to knock it down, as if there was a deliberate attempt on the part of the Lancashire and Cheshire Branch to belittle the work done in the Medical Secretary's department. What they had said was that if the income was to remain at its present point, they must so rearrange the work step by step as to keep within that income. He would be the last to argue that they should build up a huge reserve. If the money could be effectively and properly and efficiently spent, he should spend every penny of the annual income. He had been asked to specify certain definite points in which improvement could take place. Some had already been specified, but he thought he might appeal to every Representative with regard to the packets of printed papers received at intervals. He knew what occurred in the majority of instances; after receiving these packets of printed documents he had to write to head quarters for an analysis that could be given to their Divisions, because men had not the time to read all this printed matter. If that were so, could not something be done to lessen that expense? The cost of the *Year Book* required consideration. There were many channels through which economy might be effected.

Mr. PARKINSON sympathized with the wish of the meeting to appoint a Committee to inquire into the finances, but would point out that there was already a Journal and Finance Committee. His suggestion was that this Committee should act in co-operation with the Journal and Finance Committee, of which the Treasurer was a member. He moved that as an amendment.

Dr. W. J. SMYTH seconded.

Dr. C. E. ROBERTSON wished to know if the Representative Meeting was dissatisfied with the conduct of the present Journal and Finance Committee, and was this proposal intended to be an inquiry into its conduct?

Dr. WALTER SMITH thought they should not set up a second Finance Committee, and that the proper course was to refer these questions to the Finance Committee, strengthened, if necessary, by members elected by the Representatives.

Professor SAUNDBY did not think that the appointment of this Committee would be regarded by the Council and Journal and Finance Committee as a slight. It was suggested that the Committee should co-operate with the Journal and Finance Committee. He thought that would be a great mistake and that the members would be better

satisfied if there was a Committee of the Representative Meeting.

The Chairman said that he wished to clear the air in regard to Mr. Parkinson's proposed resolution, which he suggested as an amendment, but he was willing to propose it afterwards as an instruction to this Committee. He would put the motion that the Committee be appointed.

The motion was carried.

Mr. Ballance said that the appointment of the Committee having been decided, they must consider its composition. He did not think it should be a very small one, and he should suggest that its membership should be fifteen. It should be entirely composed of elected Representatives. He moved that the Committee be formed of the following: The Chairman of the Representative Meeting, the Chairman of Council, the Treasurer *ex officio*, and twelve other members elected by and from the Representative Meeting. As it was such an important Committee, he thought it should be appointed in the same manner as the other Committees—namely, that nominations should come in from the Representatives by a certain hour, and voting should be taken on the nominations received.

This proposal having been seconded,

Dr. Brassey Brierley expressed the opinion that outside members should be represented on the Committee, and moved as an amendment that the Committee should consist of fifteen members, including three outside members.

The Chairman asked if any one seconded Dr. Brierley's amendment, which was that the Committee should consist of the three *ex officio* members suggested by Mr. Ballance, nine members of the Representative Meeting, and three non-members of the Representative Meeting.

Dr. Wallace Boyce seconded.

Dr. John Miller asked how the outside members were to be chosen.

Dr. Ewart asked Dr. Brierley to withdraw his amendment because of the difficulty of working. The members of the Representative Meeting were known to the meeting.

After some further discussion a motion that the question be now put was moved and carried.

The Chairman said there were some Representatives of Divisions who were in the Council as well, and the amendment would exclude those. Dealing with a suggestion by Dr. Rose, the Chairman asked whether he proposed to exclude such Representatives as might be members of the Council?

Dr. Rose said he wished that the Committee should consist of Representatives of Divisions.

The amendment was put to the meeting and declared to be lost.

Dr. Latimer said he thought the Committee was too large, and moved that it should consist of 10 members, of whom 7 should form a quorum—he meant 10 members altogether; the smaller the Committee the better its working would be.

Mr. Straton seconded Dr. Latimer's proposal.

A Representative said he thought the expenditure of the Association had been chiefly due to the initiative and instructions of the Representative Meeting. He took it that the meeting itself was a committee of inquiry into the expenses; and he thought the meeting had gone very fully into the matter of finance, and had cross-examined the Council very severely. The proposed Committee would cost £200

The Treasurer said with regard to Dr. Latimer's amendment that seven should form a quorum out of ten, that in practice that was a great deal too large a quorum.

Dr. Latimer said that he should be ready to make five the quorum.

The Treasurer said that it was not the size of a Committee but the *personnel* that was important. He welcomed the Committee because the more the Association knew how the money was spent the better, but he thought that it was really rather more a question of policy, and that the finance came in somewhat indirectly. The Committee no doubt would do good because it would clear the minds of the members, and it would show them that they had their money's worth.

Dr Caverhill moved that the question be now put.

The motion was seconded.

Mr. Ballance said he would withdraw his proposition. He would take three and seven instead of twelve if that was the sense of the meeting. He thought that it must be considered that this was a temporary committee only.

Dr. Latimer said that he was quite content with seven and three or six and four.

Professor Saundby said he was anxious that the Committee should represent the Representatives and not the Council. The number had been cut down to ten, and two of those ten were Representatives of the Council. They must be careful to get a preponderating representation of the Representative Meeting among the seven members whom they had to elect. He would like to propose that at least five of those should be Representatives of the Representative Meeting

Dr. Latimer: Or the whole seven.

Professor Saundby said that that would be so much the better.

The motion was put to the meeting and carried, and it was agreed that the Committee should be elected in the manner in which the Medico-Political and other Committees were elected.

Mr. Parkinson proposed that the Committee should act in unison with the Journal and Finance Committee.

The proposal was seconded.

Dr. Cox asked what was meant by working "in unison with."

Dr. Douglas suggested that Mr. Parkinson should withdraw his resolution. No doubt the Finance Committee would give all the help it could, but they should not be compelled to act with the Committee.

Dr. Groves thought it was very important indeed that the Representative Meeting should realize its responsibilities in connexion with finance. He had never known one association or society to succeed in the end unless the finances were absolutely sound. He had been troubled in his own mind and conscience, because he felt that the financial position of the British Medical Association was beginning to get unstable.

The motion was then withdrawn.

Dr. Pope said it was important to remember that if the Committee was going to delay its report till this time next year, their report would have, to a certain extent, lost its effect. He moved that the Committee should present its report to the Council at their January meeting. Then the Council's action might be in some way influenced by the report of that Committee.

Dr. Morrison seconded. At the meeting at Leicester it was resolved by the Representative Meeting to postpone a particular motion then on the agenda paper, in order to give time for a report on the finances of the Branches and Divisions—which report had been ordered by the Council—to be duly prepared. Since last year the Committee which was appointed for that purpose had met and a report had actually been prepared. He had been somewhat surprised that during the course of the present discussion no reference had been made to the fact that a Committee of Inquiry was appointed a year ago, and he was particularly desirous that the Committee of Inquiry should take into consideration the propriety of reviewing the present Regulations with regard to the Capitation Grant. While much had been said as to the decreasing balance, it was well to remember that during the last three years a sum of about £5,000 had been steadily accumulated. If the Association were to be wound up, the whole of those moneys must come into the central funds of the Association.

The Chairman said there was an item in the agenda later on upon which the matter to which Dr. Morrison was referring would come up much more pertinently.

Dr. Morrison suggested that the report already prepared might be furnished to the members of the Committee of Inquiry, as it might help them to come to their conclusions somewhat more rapidly.

Mr. Ward Cousins supported the resolution.

Sir Victor Horsley said the question before the meeting was perfectly simple, and therefore he hoped it would not accept Dr. Pope's resolution. It came to this: they appointed a Committee to make an inquiry. When and how was that report to be used? It was obvious action would not be taken on any such report until the Divisions had considered it and could come to the next Representative Meeting. It was equally obvious that the report should be made as soon as possible. What was the difficulty? Let the Committee formulate its report and publish it in the Journal, sending it as well to all the

Divisions. There was no reason why it should go to the Council. It was purely a matter of business. If it were published in the JOURNAL as soon as the Committee had done its work that was enough, for all Divisions could take what steps they wished.

Dr. BROADBENT thought that it would be going beyond the resolution to publish the report in the JOURNAL to the whole of the members. The resolution was not that the Committee should report to the whole of the Association, but to the Representatives.

Dr. HELME said it seemed to him it would be a very important matter that the findings of the Committee should be reported to the Council in order that the Council might transmit the findings at once to the Divisions in order that the Divisions might be fully alive as to what was going on rather than wait for the annual meeting.

Dr. CAVERHILL asked permission to propose an amendment that the Council attach their remarks on the finding.

No seconder was forthcoming for this amendment.

Dr. HELME moved as an amendment:

That the report be transmitted by the Council immediately to the Divisions.

Dr. JOHN BROWN seconded.

Sir VICTOR HORSLEY said he could not agree with Dr. Helme's amendment, because the Committee was appointed by the Representative body, and in his opinion it ought to report to the body appointing it. It could do so by sending its report direct to the Divisions. He suggested it should also publish it in the JOURNAL, but as Dr. Helme's amendment had priority over anything he could suggest, he would content himself by voting against the amendment.

Dr. HELME said he would be most happy to withdraw his amendment if any one could suggest a more direct method of getting the Report to the Divisions.

On the seconder allowing the amendment to be withdrawn,

Sir VICTOR HORSLEY proposed:

That this Committee of Inquiry send its report to the Divisions as soon as it is completed.

Dr. OLDHAM seconded the amendment, which was carried.

On the amendment being put as a substantive motion, Dr. H. W. GARDNER moved that the report be sent to the Representatives themselves instead of to the Divisions.

Dr. BROADBENT seconded the amendment.

Dr. LATIMER inquired whether such a resolution was necessary. He thought a Representative had a copy of all resolutions that went to the Divisions.

Dr. ALFRED COX inquired whether the Report would go into the hands of the Divisions.

Professor SAUNDBY said it was not a question of reporting to the Divisions, but that copies would be sent to the Divisions for their consideration. The actual report would be to the Representative Meeting next year.

Dr. MACKEITH understood that this meeting had decided that the Divisions should be subsidiary to the Council.

The CHAIRMAN said there had been no such proposition.

Dr. WALTER SMITH moved that a copy of this report be sent to the Representatives and to the Divisions, because he thought that the Representatives took a very great interest in the matter, and it would be only a question of 100 copies.

The CHAIRMAN said that every resolution that was sent to the Representatives was sent to the Divisions.

Dr. HELME said he was under the impression that he withdrew his amendment, and that Sir Victor Horsley then moved another amendment; but that the original proposition, that this matter should be reported to the Council, was never put to the meeting. Therefore, his amendment was an addition.

The CHAIRMAN replied that Sir Victor Horsley's addition took the place of Dr. Helme's, was carried and became the substantive proposition.

Mr. KINSEY suggested that the simplest and least expensive way of making this known would be to put it in the SUPPLEMENT.

Dr. EWART said he did not understand that Sir Victor Horsley's addition, which had been carried, meant that the report was to be made direct to the Divisions. It seemed to him strange that the Divisions should receive the report, when this body was a different body from the Divisions, though in a sense it was true that it was derived from the Divisions.

Dr. BROWN seconded.

Dr. BRASSEY BRIERLEY asked if the Chairman had ruled that the Report need not be put into the JOURNAL.

The CHAIRMAN replied that he had not; that Dr. Walter Smith's amendment was at present before the meeting, and that it was that the Report be sent to the Representatives and to the Divisions.

Sir VICTOR HORSLEY accepted that, because it had always been the case.

The CHAIRMAN remarked that Mr. Kinsey's motion was not then before the meeting. The proposition before the meeting was the amendment of Dr. Walter Smith to Sir Victor Horsley's resolution, which Sir Victor Horsley had accepted. The proposition was that this report should be made to the Divisions and to the Representatives.

Dr. BRASSEY BRIERLEY suggested that it should be published in the JOURNAL.

A REPRESENTATIVE said this was a Committee instructed by the Representative Committee to make its own investigation, and to report to the Representatives. That was not at present a matter for the general Association; it was a Departmental Committee of the Representative body, and it was quite right that it should come before the Representatives and the Divisions, who were the people who had instructed those Representatives; and those Divisions would debate upon it, and would report to the next Representative Meeting.

The CHAIRMAN put the amendment to the meeting, and it was lost.

The CHAIRMAN said that Dr. Brassey Brierley's amendment was before the meeting, namely, that the report be published in the JOURNAL; and that amendment was lost. He would then put the original resolution, which was "that this report of the Committee be presented to the Divisions and to the Representatives." This was agreed to.

The CHAIRMAN ruled that the resolution standing in the name of the Glasgow Eastern Division was out of order, on the ground that it was contrary to their Articles of Association.

LIFE MEMBERSHIP.

Dr. DOUGLAS moved the following resolution from the Maidstone Division:

That the Council of the Association be requested to consider and submit to the next Representative Meeting a scheme whereby members of the Association may, without injury to the finances of the Association, become life members by making one payment.

It was customary in many Associations to make one payment in order to become a life member. There were some who would be glad to pay a lump sum, feeling that perhaps when they retired on a comparatively small income they would not be burdened with further subscriptions, but would still be able to continue their membership of the Association.

The CHAIRMAN OF COUNCIL pointed out that there might be very great difficulties in the way of expulsion if this motion were accepted.

Dr. LATIMER said there was a further objection. The subscription to the Association with the objects in view could hardly remain what it was.

The resolution was lost.

GRANTS TO BRANCH COUNCIL.

The next business was the following resolution from the Maidstone Division:

That, seeing the large present expenditure of the Association necessitated by the Charter, and other expenditures, the Branch Councils be asked to forego a proportion of the amounts which would ordinarily be allotted to them for the year 1906, seeing that they now have an unexpended balance of over £4,000.

Dr. DOUGLAS asked the Solicitor to the Association what was the legal position in which the Association stood with regard to sums apportioned to the Branch Councils, and what was the position with regard to the unexpended balances.

Mr. HEMPSON (the Solicitor) said this was a question on which he had frequently spoken before. These sums were

apportioned out of funds belonging to the Association, and could only be expended by the Branches upon such objects as were permissible under the regulations; such balance as remained in the hands of the Branch was an asset of the Association, and could be called up if and when required for the purposes of the Association.

Dr. Douglas said the opinion was no doubt correct, but he thought it was not practical. Formerly the Branches sustained themselves by surplus subscriptions as arranged and with those subscriptions they did whatever they liked. His resolution was that the Council should call up the unexpended balances. Last year they amounted to over £4,000, according to the figures given in the Supplement, and when large expenditures were cast upon the Association on account of the Royal Charter and other causes, it seemed a pity that some of that balance could not be utilized. He would not propose that all the unexpended balances should be returned, but only a certain proportion should be—that Branches having over £50 would return a certain proportion.

That seeing the large present expenditure of the Association necessitated by the Charter and other expenditures, the Branch Councils be asked to return a proportion of the amounts which would ordinarily be allotted to them for the year 1906, seeing that they now have an unexpected balance of over £4,000.

The Chairman asked whether that was his resolution or whether his resolution was as it appeared in the agenda.

Dr. Douglas said he was not aware that the money had been paid out, and therefore could not ask that the Branches should forego those sums, so that his resolution would have to be modified in accordance with that. He suggested that his resolution should read that the Branches be asked to forego a proportion of the amount which would be allotted at the end of the year 1906, and that the proportion could be arranged afterwards assuming that the meeting passed it as a request to the Branches, not a demand. The Council could demand, but he would prefer the Branches to give what could be taken from them.

The Chairman said that he did not think that the motion of Dr. Douglas was very definite. Did he leave it entirely to the Branches to determine the amount they should return?

Dr. Douglas said that if the motion was carried there would be no difficulty in adding a rider stating the proportions.

Dr. Darling said that the unexpended balances were by no means surplus funds. They had been accumulated in years when the activities of the Association were much less.

Dr. Walter Smith thought that the matter ought to be left in the hands of the Council. If the Council thought that the Branches were not making good use of the money they could ask them to account for it.

Dr. W. J. Smyth opposed the proposal. It was the fault of the local men if their meetings were sparsely attended.

Dr. Douglas's motion was then put to the meeting and declared to be lost.

Financial Estimate.

Dr. Langley Browne moved, on behalf of the Treasurer, that the Financial Estimate be approved.

Dr. Percy Rose thought it was absurd to ask a meeting in July to consider the estimates for that year. If he were in order, he should like to suggest that the financial year should be made to end on April 30th in each year.

The Chairman said he was afraid he must rule that out of order.

Dr. Robertson asked whether the estimates included the amount of money which would be spent on the *Year Book*?

The Chairman said that there were several resolutions with regard to that subject later on.

Dr. Robertson said that it might be too late then to raise the question. A resolution ought to be passed to do away with the *Year Book*, and so save £500. He did not think that the *Year Book* was of the slightest value.

Dr. Brassey Brierley asked what proportion of the £22,000 was the expense of printing the advertisement matter in the Journal. His contention was that they were so well off that they could send the whole of the advertisements to the four winds.

Dr. Langley Browne could not answer the question. He did not agree with him that it was unimportant to throw away the income of the Journal. As to the *Year Book*, the Council recommended that a good deal of the expense in connexion with it should be discontinued.

Mr. Wolstenholme asked whether the appointment of another Medical Secretary was contemplated.

Dr. Langley Browne said he did not think that he need answer that question at the present time.

The Chairman said he should rule that question out of order. The figures were only estimates of possible expenditure for the next year.

Mr. Latimer moved, and it was agreed, that the question be now put.

The motion was then put to the meeting and carried.

Chairmen of Committees.

Mr. Ballance commented on the very large amount of work done by the Chairmen of Committees of the Association. He was a member of two of the Committees, and the amount of time given by the Chairmen to the work of these Committees had been simply enormous; he moved a sincere vote of thanks to the Chairmen of Committees. This was seconded and adopted.

Mr. Andrew Clark, in thanking the meeting for passing the vote of thanks, assured them the Chairmen of all the Committees felt the responsibility of their position, and they endeavoured to do what was best for the working and prosperity of the Association. Such a vote as they had passed would encourage them.

Mr. Kinsey, joining in thanks for the vote, said the work involved no self-sacrifice on his part, because he was in the fortunate position of being one whose time was worth nothing; but in his thanks he should like to join others of the Journal and Finance Committee which had worked very hard during the year; on their part it did involve to many of them a great personal sacrifice of time and strength and energy. Therefore, excluding himself, they would allow him to say he thought their gratitude was richly earned. The question of cutting down expenditure was always before them. A large amount of voluntary work was done for the Association, but if they could not have official help in sufficient amount and of good enough quality they would find the voluntary work in most cases must of necessity cease.

Chloroform Committee.

Dr. Langley Browne moved that the report of the Chloroform Committee be approved, and this was assented to without discussion.

Premises Committee.

Mr. Andrew Clark, dealing with the paragraph about the Premises Committee, said the Committee had been at work for the last four or five years inquiring as to the best way of improving the premises and getting more out of them. Of late it had become painfully evident that they had not room for carrying on their work properly and to provide for future expansion. The Premises Committee, after numerous meetings, and considering various schemes, and making various reports to the Council, had come to a conclusion approved by the Council. Arrangements had been made for rebuilding 429, Strand, and the houses in Agar Street in such a way that they would be useful to the Association for many years to come. In the new building the ground floor would be let, increasing the income, it was hoped, to £3,000. He hoped by the time the next Representative Meeting took place the building would be a long way towards completion.

Dr. Wolstenholme asked if the printing works were to be situate at the top of the new building; and, if so, had the Committee considered whether it would not be more profitable to have the works on a less costly site, making use of the upper rooms for offices.

Dr. Cox asked whether the new building would have a room big enough for the Council to meet in.

Dr. McManus moved:

That it be an instruction to the Central Council before arranging for any alteration of the present premises of the Association involving an outlay of over £200, or the obtaining at any time of premises elsewhere in London or the provinces, to first consult the members through the Divisions and obtain their wishes on the main principles involved

He was prepared to accept an amendment that the words "consult the members through the Divisions" be deleted, and the words "Take the opinion of a Representative Meeting" be substituted.

The meeting agreed that the motion should be altered as suggested.

Dr. McMANUS said that the resolution was not hostile or antagonistic to the Council, but the principle involved was that those who found the money should call the tune. They ought to know what was being done, and would like the whole thing brought up in a definite form. It was only right the meeting should see the plans, and consider and, if necessary, criticize them. He inquired where the money was coming from. While he had no doubt it would be forthcoming, still they would like to know how it was going to be obtained, upon what terms and how it was going to be repaid.

The CHAIRMAN OF COUNCIL said that he sympathized with Dr. McManus; in ordinary circumstances the men who found the money should be consulted as to how it was to be spent, but in that particular matter it was most difficult. There was, for instance, one offer which he could not disclose, because it would settle the matter at once, and it was an offer which might be of the greatest possible advantage to the Association. Any such arrangement might be at once spoilt if it became public. They must leave things to the Council, and trust them to do the best they could for the Association.

Dr. WALTER SMITH seconded the resolution. The Council was undoubtedly the proper body to carry the matter through, but it ought to have the authority of the Representative body or the Divisions.

Dr. MUIR (Glasgow Eastern) moved that the whole matter be left in the hands of the Council, and this was seconded.

Dr. WARD COUSINS made some observations which were inaudible at the reporter's table.

The CHAIRMAN said that Dr. Muir's amendment was that the Representative Meeting, in the matter of the premises, had complete confidence in the Council of the Association, and left the matter entirely in its hands.

Mr. BROWN asked whether the Building Committee had considered the question of selling the site out and out.

Dr. LANGLEY BROWNE said that the work of the Association could not be properly carried on because there was not sufficient room. He had no room in which he could interview anybody, nor had the officials sufficient room. Their work was crowded into rooms which were not fit for the purpose. Therefore, the Council had had to commit themselves. They had committed themselves by advertising a competition and by selecting, under the advice of an assessor, the best plans. If the Representative Meeting were to determine not to build, the architect's commission would have to be paid, and the whole of the work that had been done would be lost. Every site to be disposed of had been examined, the highest expert advice had been taken, and every effort had been made to find a site which would not be so expensive. They had failed entirely to get a freehold site, and had refused to build on a leasehold one.

In response to inquiries, Dr. LANGLEY BROWNE said that the plans would be on exhibition on the following day.

Dr. MACKEITH suggested that, having heard the explanation of the Chairman of Council and that the plans had been approved, the question be now put.

This was seconded and carried.

The amendment before the meeting was that proposed by Dr. Muir: that the Representative Meeting in the matter of premises has complete confidence in the Association, and leaves the matter entirely in their hands: and this was put and carried as a substantive resolution.

Mr. ANDREW CLARK said that the desirability of moving the printing to another site had been considered, but the conclusion was that it would be undesirable. The most economical plan was to put the printing room in the roof of the building. The Committee had considered the possibility of getting a less costly site. That point had been before the Association for the last three or four years, and Representatives had helped the Council a good deal, and sites innumerable had been inspected, but a less costly freehold site could not be obtained, and it had been decided not to give up the freehold and take a leasehold. With regard to the money, nearly half the amount required was in hand already, and he did not expect that there would be any difficulty in paying off the amount in a few years. Questions had been asked about a restaurant and a club and a room for members. All this had been fully considered and the conclusion had been come to that it would not be possible to run a restaurant or a club.

Dr. BROADBENT asked to be allowed to say that he had not made any suggestion that they should run a restaurant, but that they should let part of the building for this purpose.

Mr. ANDREW CLARK thought it might be possible to let the ground floor for a restaurant. That was a matter for consideration, but as to running a club he did not think that would be possible. What they did hope to do was to provide convenient rooms for the use of members, and also a reading and smoking room independent of the Library. The building would be two floors higher than the present, and it had practically one floor unappropriated, so that he believed provision was being made for the extension of the Association for some time to come.

Dr. RAYNER observed that the setting up of the type was done at 429, but the printing was done elsewhere.

The motion that the report of the Premises Committee be approved was carried.

THERAPEUTIC COMMITTEE.

Dr. LANGLEY BROWNE moved that reference to the report of the Therapeutic Committee be approved, and this was agreed to.

COLONIAL COMMITTEE.

Dr. LANGLEY BROWNE then moved that the reference to the report of the Colonial Committee be approved, and this was agreed to.

ORGANIZATION COMMITTEE.

Dr. LANGLEY BROWNE informed Dr. Broadbent that organization work was going on not only in connexion with the organization of Branches, for meetings had been held and addresses given as to the conditions of joining the Association.

Dr. MORRISON said that in the body of the report there was information as to the altering of rules and the alterations of boundaries. Points of that kind were coming up at every meeting of the Organization Committee, and involved a good deal of consideration. Two new Branches had been created within the last year, one in Egypt and the other in Canada.

The report of the Organization Committee was then approved.

PUBLIC HEALTH COMMITTEE.

Mr. PARKINSON moved that the report of the Public Health Committee be approved. Since the report had been issued several most important matters had been taken in hand by the Public Health Committee. At the beginning of the session the Public Health Bill was introduced by Sir Francis Powell, backed by that good friend of the profession Sir Walter Foster, and by Sir John Batty Tuke. The Committee felt that it would be desirable, as the Government had changed, to have an interview with the President of the Local Government Board. He was glad to say that Mr. Burns consented to allow two or three of the Committee to meet him and talk matters over, and he thought that they got a good deal of good from the interview, and that it might be clear to Mr. Burns that in asking for security of tenure for medical officers of health they did not ask that they should be retained in the event of there being any evidence of their not doing their duty, but that they should be protected from dismissal simply because they did their work. The Committee hoped that it might be possible so to modify the clause in the Bill as to make it more clear than it appeared to be at present. A Bill had been promoted by the Manchester Port Sanitary Authority, consisting of some fifteen or sixteen different authorities, in view of the disclosures in America with regard to tinned meat and the importance of the inspection of meat, the Manchester Port authorities providing that the duty of inspection should come under one authority only. This was opposed by the Manchester Ship Canal. The Public Health Committee, being appealed to, inquired whether there were any medical or sanitary reasons why the Bill should not be carried through. It found that the grounds of the opposition were pecuniary rather than sanitary, and therefore passed a resolution which was

forwarded to the promoters of the Bill. He was glad to say that the Bill not only passed the House of Commons but also had passed the second reading in the House of Lords. Mr. Luke White had brought in a Bill giving a coroner discretion as to viewing the body which might be undesirable in the case of a death from an infectious disease. The Committee would therefore support the Bill. With regard to the overlying of children and the large number of children burnt to death because fires were not protected, the question was, What could be done? On the previous day a joint meeting of the Coroners' Society and the Public Health Committee at the offices of the Society for the Prevention of Cruelty to Children had talked the matter over thoroughly with the directors of that Society, and it was hoped that powers would be obtained authorizing the coroner to take notice of any case of overlying where, in the opinion of the coroner and the jury, there had been neglect and want of care on the part of the parents. He thought that the Committee really had done some good work, and that, as Sir Victor Horsley had said, authorities of all sorts and kinds were beginning to appreciate the work and the power of the Association.

Dr. Muir asked why no full report had been published of the interview Mr. Parkinson, the Medical Secretary, himself (Dr. Muir), and some ten of the Scottish members had with the Scottish Secretary?

Mr. Parkinson said that he had been very pleased to be able to attend the deputation with Dr. Muir, and they had certainly hoped to furnish a further report of the interview; but the work had been so very onerous lately, and, as Dr. Muir knew, there was no authorised report of the proceedings, and it had been rather difficult for the Medical Secretary to get a report. He quite acknowledged that some one was in fault.

Dr. Muir asked whether the Medical Secretary would follow the matter up.

Mr. Parkinson would ask for that to be done.

Dr. Laffan asked what position the Committee took up with regard to the question of allowing medical officers of health to practise their profession.

Mr. Parkinson said that the Committee hoped to be able to get the clause modified, so that every appointment of a medical officer of health should be subject to the approval of the Local Government Board, and determinable at any time for sufficient reason with their consent.

Dr. Muir asked whether what was meant was that the officers should be dismissible only by and with the assent of the Local Government Board.

Mr. Parkinson said that they did not want to put it quite so baldly as that.

Dr. Herbert Jones moved that the Committee be instructed to press forward this matter as rapidly as possible.

The motion was seconded and agreed to.

Clerical Staff.

Dr. Langley Browne said that the paragraph about the clerical staff in the report of Council would, he was quite sure, be endorsed by the meeting.

Apportionment of Members' Subscriptions.

Dr. Douglas asked for a little more detail with regard to the apportionment of subscriptions.

The Chairman said that the Chairman of the Council would take note of that.

Dr. Alfred Cox said that there was no place where the exact membership of the Association was shown. He thought that it ought to be shown every year, and he moved that it be an instruction to the Committee that it should be shown.

Dr. Broadbent seconded the motion.

The motion was accepted by Dr. Langley Browne. He then moved that the whole report be approved.

The motion was agreed to.

The meeting adjourned at 6 p.m.

Wednesday, July 25th.

Confirmation of Minutes.

On the Chairman moving that the minutes be approved,

Dr. Ward Cousins (Portsmouth) asked whether the Council had considered the resolution passed at the Oxford meeting.

This was subsequently read by the Chairman as follows:

> That in recording the votes of members of Divisions on matters to be referred to Representative Meetings the following plan should be adopted, namely, the number voting affirmative present; the number voting negative present; the number absent.

Dr. Ward Cousins said that Dr. Brassey Brierley's resolution had been negatived on the previous day, but the resolution of the Oxford Meeting still stood. Sir Victor Horsley had said that the Divisions had refused to carry out the resolution.

Sir Victor Horsley rose to correct this statement. He had said that the Divisions had not carried out the direction; and if, in the exercise of their autonomy, they did not do what the Representative Meeting asked them to do, there was an end of the matter.

Mr. Parkinson said that some Divisions did send returns, which were not published. He would like to know why the returns of those Divisions who chose to send them were not published in accordance with that resolution.

Dr. Ward Cousins pressed for a definite reply.

The Chairman declined to allow further discussion on the matter, it not being relevant to the motion to approve the previous day's minutes. He then formally put the motion, which was agreed to without further discussion.

Election of Direct Representatives, General Medical Council.

In the absence of the Chairman of the Medico-Political Committee, the Chairman called on Mr. Armit (Hampstead), a member of the Committee, to bring up its report. The first point dealt with was the scheme for the nomination by the Association of candidates for election as Direct Representatives on the General Medical Council, and Mr. Armit called attention to the recommendation of the Central Ethical Committee (see p. 98) on the matter.

Dr. Muir (Glasgow Eastern) inquired as to the position of the Scottish and Irish Representatives in regard to this matter. Would they be freed from attendance, or could they take part in the debate and in the division?

The Chairman replied that the consideration of the scheme for the election of members was before the whole meeting. When it came to a matter of voting for the election of those members the meeting would decide whether the Scottish and Irish Representatives were to withdraw or not.

Dr. Robertson (Glasgow Southern) said it was not the desire of the Scottish Representatives to take any part in the matter.

Mr. George Brown (Devonport) felt there was very great difficulty in going on with this business, because if the whole of the Representatives could not take part in it he could not admit that it was the voice of the Association.

The Chairman inquired whether Mr. Brown was questioning his ruling.

Mr. George Brown desired to move that they should proceed to the next business.

The Chairman replied that they would proceed to the next business of the meeting, which was to consider the report of the Medico-Political Committee.

Mr. George Brown said he would move his motion after the report had been put before the meeting.

Mr. Armit (Hampstead Division) said that it would be observed that the Committee had no authority to modify the terms of the scheme adopted at Oxford. Owing to the resolve of Sir Victor Horsley to resign his seat on the General Medical Council there were three vacancies to be filled, and it was for the meeting to consider what modifications should be made.

Dr. Langley Browne moved the following amendment:

> That this meeting should select a certain number of candidates whom they should recommend to the medical profession as suitable members to serve on the General Medical Council.

It would have been observed that some little time ago the attention of the General Medical Council was called to the fact that the British Medical Association intended to take some part in the next election of the direct representatives and a considerable amount of opposition was

disclosed; but why a body with 20,000 members should not take part in a matter in which it was so very much interested he could not make out. On the other hand, there were some reasonable objections raised to the action of the British Medical Association. One was that if the Association sent candidates to sit in a judicial capacity who were pledged to obey instructions given to them beforehand very likely objections would be raised to them and probably objections of very great strength. Anyhow, they might be put in the position of being asked to leave the room. He also thought that if the Association should proceed to elect three candidates for the General Medical Council, when any business affecting the members of the British Medical Association came before that Council it might be open to any member to ask the members elected by the British Medical Association to leave the room.

The CHAIRMAN said that he would ask the Chairman of Council to reserve his amendment till the meeting had considered the matter of the declarations.

Dr. COX (Gateshead and Consett) moved:

> That the second paragraph in the "Declaration by Candidates" in the scheme for selection of candidates for the General Medical Council by the British Medical Association be omitted as unnecessary.

Any gentlemen nominated by the Association would be of such a character that it would be quite unnecessary to bind them down in the way proposed. As loyal members of the Association they would be ready to carry out the policy advocated by the Association.

The CHAIRMAN announced that, to save discussion, the Medico-Political Committee was willing to accept it, if that were the opinion of the meeting.

Mr. GEORGE BROWN (Devonport) said his name had been mentioned in connexion with this matter. He was a member of the General Medical Council, and it was his intention to offer himself for re-election. The fact of his name not appearing in the list as a candidate had given rise to the impression that he did not intend to stand at the next election. He wished to state that it was the imposition of the pledge which decided him not to allow his name to be put before the Divisions as a candidate. He felt that the pledge would reduce the direct representation to a nullity. There were some 8,000 or 10,000 English and Welsh members of the profession in England and Wales who were not members of the Association.

Dr. THOMAS (North Glamorgan and Brecknock) inquired amid laughter whether Mr. Brown was making an election speech.

Mr. GEORGE BROWN said all he wanted to show was that the pledge had had the effect of keeping back himself and other candidates, and he asked whether resolutions were not received from important Divisions who declined to consider the nomination of members because the pledge was calculated to keep the best men out?

The CHAIRMAN regretted that he must call the speaker to order. He had given him time for a personal explanation, and he was not now speaking to the motion, which was that the pledge be withdrawn.

In reply to Dr. Pope, the CHAIRMAN said that it was competent for that meeting to alter any part of the scheme or to negative it altogether.

Mr. WOLSTENHOLME (Manchester, Salford) asked whether, if the resolution were passed, the meeting had power to nominate as candidates gentlemen whose names would have appeared if the pledge had not been imposed.

Mr. STRATON (Salisbury) suggested that the word "cancel" be substituted for "withdrawn," urging that if the declaration were cancelled before the selection, it would be much more useful than if it were simply withdrawn.

Dr. ALFRED COX accepted the alteration.

The CHAIRMAN, answering Mr. Wolstenholme's question, ruled that the only names before the meeting were those on the list, and in reply to a further question from Dr. W. E. Thomas, said that if the pledge were withdrawn, those who had signed it were no longer bound by it.

Dr. DOUGLAS (Dartford, Maidstone, and Rochester and Chatham) pressed for a fuller answer to Mr. Wolstenholme's question.

The CHAIRMAN said his ruling was that no other candidates could come before the meeting for nomination beyond those who were in the list; they were nominated by the Divisions.

Mr. WOLSTENHOLME thought that if the Chairman's ruling was accepted a very distinct injustice would be inflicted on many men who would have been nominated but for the requirement of this pledge. This was true in the case of Mr. George Brown, who would certainly have been nominated had the pledge not been imposed.

The CHAIRMAN ruled out of order any speeches with regard to candidates.

Mr. WOLSTENHOLME said that if that was ruled out of order he would sit down.

Dr. BROADBENT asked whether, if the pledge was cancelled, those not selected by the meeting would be at liberty to be nominated by others.

The CHAIRMAN replied that the meeting at present was dealing only with the second clause.

In reply to Mr. Parkinson, the CHAIRMAN said that it would not be in order to propose that the whole scheme be suspended. The matter at present before the meeting was the discussion of Dr. Cox's amendment.

Sir VICTOR HORSLEY (Marylebone) said he would not have intervened except that it was quite clear that in the meeting a very considerable misapprehension was growing upon this subject. When the Representative Meeting at Oxford passed this scheme they all looked upon the terms of this so-called pledge as merely an expression of loyalty on the part of the members to the Association; it was nothing else. The speech of the President of the General Medical Council was entirely beside the mark, as would be perceived if the discussions in the General Medical Council were carefully read. To say that the direct representatives would do wrong to sign a mere statement of that kind, when they knew perfectly well that the representatives of the corporate bodies had again and again in the Council acknowledged that they were pledged to support the interests of their corporation, was sheer hypocrisy, in his opinion. There was, however, this difference, that at Oxford the Association had put its wishes into writing, and had thus to some extent compromised itself; and he, therefore, thought that it was necessary to accept the proposal made by Dr. Cox on behalf of the Gateshead Division. What the Association would do afterwards with the matter was another question; but, to his mind, the selection was not a whit prejudiced by the fact of the Association having acted in an open manner when they knew that other bodies were not so frank.

Dr. LATIMER (Swansea) was very glad that Sir Victor Horsley had intervened in this debate to put the matter so clearly before the members. He felt, as one of the candidates, that it was only right to say that in signing the pledge he signed it with a free hand, and feeling that he ought to be loyal to the Association which was sending him. He pointed out that the President of the General Medical Council said that giving a pledge not only of that kind would incapacitate a member from taking part in penal work, but that any member of the Association would be incapacitated from taking part in penal work, because, he went on to say, "Having regard, however, to the observations of the Lords Justices in Allinson's appeal, I think it proper to state that in my opinion a member of the Council pledged to follow the directions of the Association, or belonging to an association giving such directions, would be precluded from taking any part in judicial inquiries." He thought that Sir Victor Horsley was right in saying that they must read that declaration of the President of the General Medical Council with their eyes open. It was very plain to him that the General Medical Council itself had acted wrongly in the past.

Dr. LANGDON-DOWN (Richmond), speaking as a member of the Ethical Committee, pointed out that the ethical work of the Association would be most seriously handicapped if the pledge were allowed to be enforced on candidates for the General Medical Council. The Association as a last resort could deal with persistent offenders only by and through the General Medical Council. He believed that the Association would not go before the Council as a complainant if it were also represented directly in any way on the body which would judge the case. Therefore, he thought that it was most important if the Association was to go forward in suppressing malpractices in the profession that it should carefully abstain from exacting any pledge from their candidates for the General Medical Council.

Mr. JACKSON said that when he was first elected to the

General Medical Council, the then president, Sir William Turner, had advised that he ought to cease to be a member of any defence association. He was not asked whether he was a member of the British Medical Association; and he never thought for a moment that had any bearing on the question whatever. It seemed to him that unless the British Medical Association distinctly brought cases before the Council, it would not affect the matter. Even if it did, he thought that it would be quite competent for one to remain as a member, but withdraw in any case that might be brought.

Dr. Caverhill said it seemed to him that in this matter the British Medical Association wished to occupy the position of the Election Committee in the case of the election of a member of Parliament, and they found it was their duty to lay down certain pledges, and demand that the candidates should conform to those pledges before they got their support. That was quite right and proper. The Association had demanded certain pledges of its candidates, but, having made up its mind what those pledges should be, it had now on the eve of the election withdrawn those pledges, and he thought that was calculated to cause serious injury to the whole cause.

Dr. E. T. Davies (Liverpool Northern) said that his Division was strongly opposed to pledges from prospective members of the General Medical Council on the ground that the Representatives on the General Medical Council were not delegates but representatives, and that it would be undesirable to send a man to a judicial body like the General Medical Council tied to carry out the behests of the British Medical Association or any such body, especially when they found that if he did so he would be positively ruled out of order as regards taking part in business which touched the interests of the British Medical Association.

It was moved, seconded, and agreed that the question be now put.

The motion moved by Dr. Cox was then put to the meeting and agreed to.

Mr. Ballance (Norwich and West Norfolk) thought that the second sentence of Paragraph I of the declaration

> I agree that, if not selected for nomination by the Association, I will not allow myself to be nominated as a candidate in opposition to any candidate so selected

should be omitted.

Mr. Wolstenholme did not think that the pledge ought ever to have been exacted, but, having been exacted, it ought not to be withdrawn at the last moment. Certain candidates had had the benefit of a canvass for the last four or five months under the conditions of the pledge.

Dr. Brassey Brierley said he had been asked to allow himself to be nominated, and he had replied he would never sign that pledge. Each candidate was nominated conditionally, and the condition was that he signed that pledge. The condition was now removed and the candidates, therefore, had no position whatsoever.

Dr. Alfred Cox thought that the last sentence of the paragraph was a perfectly harmless pledge. A candidate was put forward by a Division on the understanding that he was willing to put his likelihood of election to a preliminary test in a meeting of Representatives of the whole Association. The candidate did that on the clear understanding that if not selected he would not go on further with the election; that was only a very reasonable and convenient plan.

Mr. George Brown (Devonport) said he could not now, on the eve of election, allow the wholesale alteration of the scheme, which would enable those candidates who had been three months in the field with their election contest a good start. He considered it a breach of faith to prospective candidates to alter the scheme in such a way. The Scotch and Irish members would not have anything to do with the scheme, and not more than twenty-nine Divisions—and those the smallest as a rule—had taken part in the nominations. He asked why the meeting had not been informed that the large majority of the Divisions of the Association would have nothing to do with the election.

It was moved and seconded that the question be put, to which the meeting agreed.

Dr. Walter Smith said he had sent in a resolution, which the Chairman then announced to the meeting. It was:

> That the candidates selected by the Representative Meeting be absolved from the pledge contained in the first paragraph of the declaration in the scheme for selection of candidates for the General Medical Council.

To this the meeting at once agreed.

Mr. Parkinson proposed:

> That in view of the difficulties that had arisen in connexion with the declarations by candidates, that the meeting declines to nominate candidates for election.

Dr. MacKeith seconded the resolution.

Dr. Douglas thought it inadvisable to adopt the resolution proposed, and he hoped Sir Victor Horsley would see his way not to retire.

Sir Victor Horsley felt that after the very kind way in which Dr. Douglas had referred to him he must interpose. If any mistake of principle had been made in any procedure, and the meeting corrected that mistake, it might drop the matter for the time being. Personally, he was going to vote for Mr. Parkinson's motion, but he must make one statement, because, owing to some misunderstanding Mr. Brown, he believed, felt aggrieved; namely, that he stated plainly at Oxford that he intended to resign at the end of this year in order to bring himself into line with his colleagues, because, having been elected at a by-election, there would otherwise have been the cost of a second election. He had intended to resign, and resign permanently, this year, but the meeting at Oxford would not accept that, and decided to recognize two vacancies only. As a matter of fact there were three, and he had been prepared to move that the meeting should declare three vacancies. It was absolutely impossible for him to stand again for the General Medical Council. Every man had only a certain time to live, and during his life he only had a certain amount of time to give to medico-political work. Any man who joined the General Medical Council would find himself in an administrative body which, in the words of the poet Lowell, "Don't vally princerple mor'n old cud" ("cud" is American for donkey). It would pass one principle one year and rescind it the next. He was referring not to matters of detail, but to vital matters of principle. Questions of medical education, matters which had been debated for ten years and passed, had been rejected at one meeting. He did not intend to waste his time in the General Medical Council any more, but to devote all the time he had to give to medico-political work to the British Medical Association.

Dr. Caverhill moved as an amendment that the alterations should not apply to the present election.

Dr. Langley Browne said that if the alterations in the conditions under which the candidates went to the poll affected the candidates who might have entered he quite agreed with Sir Victor Horsley that it would be better to withdraw, though it meant withdrawing for five years.

The motion was put to the meeting and carried.

Draft Charter.

Dr. Langley Browne, as Chairman of Council, brought up the following resolution of the Council, with which, however, he said he was not in sympathy:

> That while not expressing any opinion unfavourable to the application for a Royal Charter, this Council is of opinion that further and fuller consideration is required of the whole question, and strongly recommends the Representative Meeting to delay the application so as to give the Association as a whole longer time to appreciate and consider the many important matters involved in drafting a thoroughly comprehensive and permanent form of Charter.

Sir Victor Horsley asked whether the Chairman would accept the following as a valid amendment:

> That the Charter be referred to the Organization Committee in order that the instructions of the Representative Meeting might be embodied therein, together with such amendments desired by the Colonial Branches as are consistent therewith.

The Chairman said that he would accept it.

Dr. MacKeith seconded the amendment.

Dr. Langley Browne said that the amendment was a most serious proposal. The Organization Committee had with the help of their solicitor and with the help of very able counsel, had drawn up a Charter which was not only a good, but the only possible, Charter for the time being; the draft had been sent to all Divisions, and the Committee had considered the amendments the Divisions had suggested. The amendment would hang the matter up for a year.

Mr. VERRALL, as Chairman of the Organization Committee, which was responsible for the document now before the meeting, very much hoped that the meeting would not simply send the draft back to the Committee. The Committee had given the very best attention for a very considerable time to this matter, and he could not promise the meeting that the Committee would materially improve or alter the document if it were sent back. If any very large question of principle arose which made the meeting doubt the wisdom or advisability of applying for a Charter at all, it was very much better to repent, even at the eleventh hour, but he asked the meeting not simply to send the draft back to the Committee.

Sir VICTOR HORSLEY said that the Chairman had asked him to read the amendment as altered slightly by the Chairman. It was:

> That the Charter be referred to the Organization Committee in order that the instructions of the Representative Meeting, after consideration of the amendments before the meeting, may be embodied therein, together with such amendments desired by the Colonial Branches as are consistent therewith.

The amendment was plainer in that form, and he felt sure that it would satisfy Mr. Verrall. There were really three courses before the meeting originally—to adopt the Charter as it stood, to adopt the resolution of the Council, or to adopt the Charter with such alterations as had been proposed by the Divisions. What the meeting had to do was to go through the proposed amendments, adopt what they liked, and reject what they disliked, and, above all, introduce the principle of bringing the new Constitution to its proper logical conclusion, the position which the original Constitution Committee at Cheltenham were prevented from reaching by what was called sympathy for the Branches. The resolution of the Council, he believed, was passed under a misapprehension, under an entirely mistaken appreciation of the feelings of the Branches. His amendment proposed that the meeting should proceed to discuss the Charter and embody in it certain amendments. The only amendment to which he would at present refer was that proposing that the Representative Meetings should elect the Council. Logically that proposal was, he thought, irrefutable. The only question was whether it was expedient in the present condition of the Association. Personally he thought that it was. What were the objections to it? One was that the feelings of the Branches would be hurt because the power of electing the members of the Council would be taken away from them. Sir Victor Horsley thought that it would take away from the Branches something which was of great harm to the Association—a power which they ought not to have, because it only gave rise to the view that there were two electoral bodies in the Association instead of one. It was not to be supposed that he desired to operate upon the Branches in a cold-blooded way. Personally he had great sympathy with the Branches. In the original Constitution Committee he endeavoured to get the Branches altered, but he found immediately that it then was an impossibility. They wanted to improve the scientific work of the Association and to facilitate its scientific development, and at the same time to promote its medico-political work. He contended that the present constitution of the Branches did not facilitate the scientific work of the Association. There were parts of the country where Divisions had associated themselves together for scientific meetings, and that example, he thought, ought to be followed, but that would mean the rearrangement of the Branches. He believed that if Branches were not under their present county system or an approach to a county system, but had their local points in the big towns that had medical societies, there would then be a Branch system carrying on the scientific work of the Association and the Division system carrying on the political work. That was the basis of his proposal.

Dr. LANGLEY BROWNE saw no reason why Sir Victor Horsley's amendment should not be passed; it was what would have to be done if the meeting discussed the Charter, but at the same time he could not accept it in place of the Council's resolution.

Dr. MACKEITH supported the amendment, because there was safety in a middle course—to proceed with it right away; Sir Victor Horsley's proposal would only postpone the Charter for one year, since it would come up at the next Representative Meeting.

Sir VICTOR HORSLEY explained that if his amendment were carried he should follow it by another: to have a special meeting of the Representatives in January.

Dr. GROVES thought it right for the meeting to take into consideration the fact that a great alteration in the Association had been enunciated in principle by Sir Victor Horsley. There was great advantage in the Branches of the Association, the different Divisions were brought together in consultation for the good of the whole of the Branch, and the interests of the individual, so to speak, were sunk in the common interest; that was his experience. This was not the only point which weighed with the Council. The great expense of the Charter and the probable expense in future had been considered, and the Council had arrived at the conclusion that there was great financial uncertainty with reference to the matter. The Council, as was right, suggested that the whole thing should be held in suspension for a time until the Representative Meeting and until the Divisions had considered the whole question in conjunction with the information they now had, and which they had not when they began to reorganize. He urged moderation and care for the good of the whole body of the British Medical Association. If the principle were approved, it would bring about a great agitation in the Association, which would not be for its good or for the good of the medical profession. That was his opinion from the information he had.

Dr. POPE asked the meeting not to accept Sir Victor Horsley's amendment. He suggested a postponement and letting the matter go back to the Divisions; he thought there would be a better prospect of obtaining a Charter without opposition next year.

Dr. OLDHAM, in supporting the amendment, said that Sir Victor Horsley, with his usual urbanity, did not want to give a direct negative to the Council's resolution. By passing the amendment the Charter would be immediately before them that day. There was a large number of amendments on the paper, but the majority were with reference to the ordinances and by-laws; and there were not any vital amendments, except two or three proposed by the Council. He knew there were many members present who had attended at very considerable personal inconvenience because they believed the question of the Charter was to be considered; and they did not suppose for a moment that the resolution adopted by a small majority of the Council—[A Voice: "Two-thirds."]—Well, two-thirds, would be adopted. Sir Victor Horsley's way out of the difficulty was pleasant and businesslike, and one which ought to commend itself to the meeting.

A motion that the question be now put was lost.

Dr. BRASSEY BRIERLEY said that the Council's change of opinion took place after due consideration of the proposals sent in from all the Divisions; it was not a catch vote. By supporting Sir Victor Horsley's amendment the meeting would commit itself to a very grave principle. As he understood Sir Victor Horsley, he intended to propose that the Council should be elected by the meeting. Was he right?

Sir VICTOR HORSLEY replied in the affirmative. He would bring that proposal forward at the proper time. He did not wish the meeting to go to a vote without knowing what he was going to do later.

In reply to Dr. Douglas, the CHAIRMAN said that the meeting would be able to discuss the details of the Charter if the resolution was passed.

Dr. DOUGLAS supported the amendment.

It was moved and seconded that the question now be put.

Dr. WOLSTENHOLME inquired whether, if he voted for Sir Victor Horsley's amendment, it would imply that he accepted the Charter.

The CHAIRMAN declined to express an opinion. The question before the meeting was that the question be now put. This was carried, as was also Sir Victor Horsley's amendment.

Dr. WALTER SMITH (St. Pancras and Islington) asked whether they should insert "shall" in the place of "may."

The CHAIRMAN said that he would put the amendment as a substantive resolution, and would accept any amendment.

Dr. CAVERHILL inquired whether the Council as a whole in favour of the Charter.

Dr. LANGLEY BROWNE replied that the members voting on the question of the Charter were 28 to 15.

Dr. COX seconded Dr. Walter Smith's motion to insert "shall" for "may."

Sir VICTOR HORSLEY accepted the suggestion at once, because the Committee would naturally exercise its discretion.

Dr. WALTER SMITH said that was not sufficient; he wanted it to be an instruction.

Mr. WOLSTENHOLME contended that there should be a vote by card.

Dr. GROVES remarked that the Chairman of Council had rather minimized the vote on the Charter. In the Council the vote was given by men who had the true interests of the British Medical Association at heart, after much discussion and much seriousness of thought.

The CHAIRMAN accepted Mr. Wolstenholme's motion that the vote should be by card.

A MEMBER moved that details should be left to the Organization Committee.

The CHAIRMAN refused to accept the amendment.

Dr. ROBERTSON (Glasgow Southern) asked if the motion were accepted that meant that the meeting bound itself to accept the Charter?

The CHAIRMAN ruled that if the motion were accepted, the meeting bound itself to accept the Charter. An amendment had been handed up by Dr. Laffan that the opinions of the Divisions be invited on the matter after it had been referred to the Organization Committee.

Mr. STRATON (Salisbury) seconded.

Dr. LAFFAN (Carlow, Kilkenny and Waterford) thought that the Colonial Branches should be given an opportunity of expressing their opinion.

Mr. VERRALL hoped the amendment would not be pressed.

Mr. STRATON said that the Council was by no means opposed to the Charter, and did not wish to hang it up indefinitely; the question was one simply of ways and means.

Mr. VERRALL said with reference to the suggestion that the draft should go to the Divisions again, that he had no wish to thrust it unduly and too rapidly on the Association, but he hoped that if the meeting sent it again to the Divisions it would decide that it should go in a limited way, and not that the Divisions should have the opportunity of raking up the whole question again. For good or ill the Divisions had had sufficient time already to deal with the matter.

Dr. GOSSE (Isle of Thanet, Canterbury, and Faversham) supported the amendment.

Dr. BRADSHAW asked what would be the position if the motion was negatived; would the meeting then have before it the recommendation of the Council?

The CHAIRMAN said that the recommendation of the Council had been definitely rejected.

Mr. HEMPSON (the Solicitor) then replied to a large number of questions as to the cost of obtaining the Charter, and the possible effect of extending the objects of the Association.

Mr. BALLANCE (Norwich and West Norfolk) asked if it was the fact that the Association through the Representative Meeting accepted last year a proposal to apply for a Royal Charter. He called on the Medical Secretary to read the minute.

The MEDICAL SECRETARY read the minute, which was as follows:

> Moved by the Chairman of Council as an instruction:
>
> That the Representative Meeting issue the necessary authority for application on behalf of the Association to be made to the Privy Council praying His Majesty to grant a Royal Charter of Incorporation to the Association.

Whereupon an amendment was moved by Dr. Armit (Hampstead, seconded by Dr. Miller (Exeter, Barnstaple):

> That in the opinion of this meeting it is not certain that an advantage would be gained by the acquisition of a Royal Charter, and the subject is therefore referred back to the Central Council and to the Divisions for further consideration, with the recommendation that further legal advice be taken on the subject.

The amendment was lost by 61 votes to 49.

Then Minute 53:

Resolved: That the voting on the original motion be taken by card. On a vote by card being accordingly taken, the votes were declared to be Aye 9,453, No 2,526, the number of constituencies voting being Ayes 87, Noes 25.

The CHAIRMAN ruled that the decision of the last General Meeting could not bind this meeting, and if a motion was made to postpone the question of the Charter altogether that must be considered.

Dr. CAVERHILL asked certain questions as to the legal effect of alterations by the Divisions, to which the SOLICITOR replied.

Mr. WOLSTENHOLME moved as an amendment to Sir Victor Horsley's resolution that this meeting, considering the application for a Charter inadvisable, proceeds no further with the matter.

Sir VICTOR HORSLEY submitted on a point of order that that was not an amendment to his resolution, which had nothing to do with the application for a Charter. His resolution was simply that the meeting should consider the amendments proposed to the Charter, the existing document, and should then refer the amended Charter later on to another meeting.

The CHAIRMAN ruled that the amendment of Mr. Wolstenholme was in order.

Dr. CASKIE (Glasgow North-West) seconded.

Mr. WOLSTENHOLME said that the Division he represented was opposed to the application for a Charter, at all events at present, being of opinion that sufficient time had not yet elapsed to see whether or not reorganization had been a failure. Therefore, in order to bring this matter to a direct issue, he would take the sense of the meeting whether they should—at all events, at present—apply for a Royal Charter. He moved a resolution to that effect, and at the same time demanded a vote by card.

Dr. BRADSHAW said that if the consideration of the Charter was postponed for a time, it would always be open to the Association, when it saw an opportunity, to bring the matter up again. A Charter was far more difficult to alter than the present constitution. Under a Charter the constitution would be stereotyped.

Mr. PARKINSON said that if the Charter was to go through without costing an enormous amount of money it must be so drawn up as to ensure the support of the great mass of the Association. His Division was quite in favour of the application for a Charter, but thought that the matter ought to be fully considered.

Dr. COX (Gateshead and Consett) said that the meeting had heard a good deal about the objections to a Charter, and was entitled to have a word or two on the advantages of a Charter. He appealed more particularly to those who had not before been members of the Representative Meeting. Those who had been members would know how frequently the Association had been pulled up, as it were by a stone wall, through not being able to do this, that, or the other. According to the best legal advice that could be got, the Association should either go to the High Court for an alteration of the Articles of Association or apply for a Charter; and that the expense would be much the same. The legal advisers had also said that the Association would have a much freer hand by applying for and getting a Charter. He did not think that was denied. If the Association was to go on expanding, and to go on making itself more and more indispensable to the whole profession, it had to face the question whether it was prepared to take the risk and apply for a Charter. Personally he was prepared to take all the risks; and he thought the Association ought to be prepared to do so. He entreated those present in the interests of the Association, which they all had at heart, to take their courage in both hands, and apply for a Charter.

Dr. OLDHAM (Lancaster) protested against the suggestion Mr. Wostenholme had put before the meeting that the proposal for a Charter was made because the present organization of the Association had failed. That had not been the idea of anyone who had suggested a Charter; they were perfectly satisfied with the present organization so far as it went. It was not because the organization had failed, but because, with that organization, the law would not allow the Association to do certain things which it was believed when the present organization was introduced it would be able to do. Had it been known then that the Association would be pulled up in the way in which it had, the

organization would have been made a little different. The Association had now really come to a point where it knew very fairly what it wanted to do and how it could best do it. The expense would be the same whether it was proposed to alter the Articles of Association or to have a Charter.

[The meeting adjourned for the luncheon interval.]

Dr. McMANUS (Wandsworth) said that his Division was very keenly in favour of applying for the Charter as soon as possible, and the keenness to some extent was represented by the number of verbal amendments which it would be his honour to propose later on. There had been ample time for members to make up their minds. If a man could not make up his mind in twelve months, he either did not want to make it up at all, or he did not mean to make it up, or his mind was in such a state of unstable mental equilibrium that he had better consult a medical man. Hitherto the medical profession had lacked all power of combination, with the deplorable result that it had no influence whatever in the councils of the nation. Sir Victor Horsley had said he had noticed an improvement in that respect, but Dr. McManus was more inclined to think that that improvement in the reception given by Cabinet Ministers and Statesmen was much more largely due to the personality of Sir Victor Horsley than to any respect felt for the profession. He came from a working man's district (Battersea), where the organization of working men had been reduced to a fine art. Much as he disliked trade-unionism in some respects, yet he could not help admiring the wonderful way in which the working men had solved most of the problems which concerned them. They had solved their rates of pay, their hours of labour, and their holidays, and they were solving the question of old age, and provision for their wives and families. Yet the members of the Association were only now taking any step in that direction. They had a great deal to learn from working men, and he was not too proud to do so. When a deputation of medical men went to a Cabinet Minister on a question of vaccination or vivisection, or any question concerning the community, it had to go cap in hand; but when a deputation of working men went before a Cabinet Minister he stood cap in hand before the deputation, for the reason that he knew perfectly well when dealing with medical men that they would put their politics before their profession, but when dealing with working men he knew that they would sink their party politics in the interests of their trade. He asked all the members interested in the Charter not to be drawn away by specious arguments, but to give their whole support to the resolution.

Mr. BALLANCE wished to be clear on the legal aspect of the question. The objects for which increased activity of the Association was desired, so far as he understood them, might be reckoned as three: (1) The provision of benevolent funds for medical men and their dependents, which he understood it was impossible to obtain under the present Memorandum of Association; (2) medical defence, which he understood was more easily to be obtained under a Royal Charter than under an extended Memorandum of Association; and the same consideration applied to (3) extended activity of the Association with regard to medical agency. He desired to know whether he was right in those three respects.

The SOLICITOR acquiesced in Mr. Ballance's views.

Dr. E. W. MACLEAN (Cardiff) said it would appear from the discussion, as far as it had gone, that the development of the Association was absolutely inevitable; the objects for which the Association worked and existed must be obtained. As Mr. Ballance had said, the question of expense would arise in an extension of the present system as well as in development under a Charter. Objection had been taken to going forward with this measure because the Association was financially unstable. He thought that if any Association could show, as the British Medical Association could show, that it had undertaken great responsibilities during the past year, for which it had paid, and at the end of that year could show a credit balance of £800 odd, and, moreover, had a balance of assets over liabilities of £102,000, the question of pressing financial difficulties did not arise. He urged that the meeting should go forward wisely and properly with the matter. That was his message from his Division.

Mr. YOUNG (Bolton) said that after so much time and consideration had been given to the matter, and after so much money had been spent, it seemed to him folly to drop the Charter or hang it up indefinitely. As he understood, in voting for Sir Victor Horsley's motion, they did not pledge themselves to the Charter. Speaking for himself, in voting for Sir Victor Horsley's motion, he did not pledge himself to vote for the Charter. In twelve months it would be before the Representative Meeting, after it had been considered; and then the meeting would have to decide whether they should have a Charter or whether they should not. Whether they had one or not depended on whether the benefits were going to outweigh the objections.

Dr. JANE E. WATERSTON (Cape of Good Hope, Western Province) said she was not somebody in London speaking for the Cape of Good Hope, but an ordinary practitioner from the Cape who had been at the birth of the British Medical Association there, and hoped she would not be there at the death. She desired cordially to support Sir Victor Horsley's amendment because it would lead to all amendments which had been put in by her Branch and many other Branches being thoroughly debated, and it would also lead to a thorough consideration of the Charter. More elasticity was wanted in this large British Medical Association. The Colonies could not be ruled with a curb. It was like taking an up-country horse which you could ride with a snaffle, but if you attempted to curb him he would execute dances on his hind legs. There was good reason to believe that the granting of a Charter to the British Medical Association would lead to a better understanding with the Colonies. The Association had nearly ruled the Colonies out of existence two years ago when she happened to be President. They were put off with a money grant of 2s. It was 4s. here, which meant 2s. out there. They wanted this great Association to get as elastic as possible when it was dealing with the Colonies, and therefore she would cordially support Sir Victor Horsley's motion.

Dr. JOHN BROWN (Rochdale and Bury) could not see that anything would be lost by the matter being deferred.

Mr. WESTBY (Liverpool) moved that the question be now put; this was seconded by Dr. LAFFAN, and carried.

Upon the motion of Mr. WOLSTENHOLME "That this meeting, considering the application for a Charter is undesirable, proceed no further in the matter," being put to the meeting, Mr. Wolstenholme claimed a card vote, and, this being supported by more than the requisite twenty Representatives, it was immediately taken.

The result was announced a little later as follows:

For the amendment	25 cards representing	2,404 members.
Against ,,	89 cards representing	9,253 members.
Majority against	64	6,849

DELEGATES FOR THE TORONTO MEETING.

The MEDICAL SECRETARY read out a list of names of members of the Representative Meeting who intended to go to Toronto.

Sir VICTOR HORSLEY, responding to the Chairman's invitation to explain the position, said he could add nothing to that which he read yesterday, namely, that the President-elect, Professor Reeve, invited delegates from that meeting. He moved:

That all the members of the Representative Meeting who were going to Toronto be designated Delegates of the Representative Meeting.

Dr. LANGLEY BROWNE seconded, and the motion was agreed to without discussion.

REPORT OF MEDICO-POLITICAL COMMITTEE.

The meeting then proceeded with the consideration of the report of the Medico-Political Committee.

Mr. ARMIT (Hampstead) who was in charge in the absence of the Chairman, Dr. Buist, said that the work done by the Medico-Political Committee during the past year had been not only very voluminous but of an intensely important and interesting character. There was a considerable quantity of detail with regard to the recommendations regarding contract practice, the public medical services, and the provident dispensaries. These

matters had been before the Association for a full year, and the recommendations of the Medico-Political Committee on each point were as follows: The Medico-Political Committee did not by any means recommend contract practice, but considered that in certain local conditions it was unavoidable, and must be provided in some form or other. These recommendations of the Committee might form a basis for the conduct of local contract practice in each Division. No hard and fast rules would or could be laid down, and he wished it to be understood that these recommendations were merely ideal suggestions to be worked out in each Division. The same remark applied to suggestions as to public medical services. Where it was necessary to have contract practice at all, and where it was possible, the Medico-Political Committee considered it was wiser to aim at a public medical service. There were conditions under which a public medical service could not be carried out, but the recommendations of the Medico-Political Committee were merely ideals suggested as a basis in those districts in which such a service was deemed desirable. The same remark might be applied to the recommendations as to provident dispensaries. He would move the acceptance of the recommendations *seriatim*.

Contract Practice.

Dr. C. J. Morton (Walthamstow) moved as to 2 that the words "of a public medical service" be omitted. It would then read: "That the control of the profession over the conditions of contract practice can only be effectually exercised under the following conditions, namely." At the last meeting at Leicester a resolution was passed that the aim of the Association should be to improve the existing state of contract practice. That was a sufficient reason for omitting all reference to the public medical service.

The Chairman said it was suggested that the words "of a public medical service" should be left out after the word "conditions," and that the word "following" should be inserted before the word "conditions," so that it would read "under the following conditions, namely:" and this was agreed to.

Dr. Wynne (Leigh and Wigan) said in regard to the following recommendation:

> That practitioners should cease to hold separate appointments or to carry on private clubs, and the principle of distribution of contract practice among all practitioners in the district who desire to participate should be carried into effect,

he had an amendment to move:

> That no existing appointment be interfered with except with the full consent of the present incumbent.

The recommendations dealt with contract practice of the kind which all agreed was derogatory to the profession and unremunerative to those who engaged in it, but he must call attention to the fact that certainly in Lancashire there were certain appointments, especially in connexion with collieries, which were neither unremunerative nor in any way derogatory to the person who held them. They were appointments which were concerned only with accidents occurring at a particular colliery.

Dr. W. E. Thomas (North Glamorgan and Brecknock) seconded.

Mr. Wolstenholme trusted that Dr. Wynne would withdraw his amendment, because the clause was not a penal clause. No practitioner who thought the matter over would oppose the suggestion that separate appointments or private clubs were inimical to the true interests of the profession.

Dr. Robertson (Glasgow) said that every member of a Friendly Society should have the right to choose his own medical attendant. That was the crux of the whole of this question as to contract practice.

Mr. William Odell (Torquay) supported Dr. Wynne's amendment.

Dr. Latimer (Swansea) said that the recommendations were not mandates but were the expression of an ideal which he believed would by-and-by be brought about. He believed it would be most unwise for the meeting to carry the amendment.

Dr. Brassey Brierley thought it was a monstrous proposition that a man having an honourable practice should be asked to give it up or divide it amongst others.

On the meeting resolving that the question should be put,

The Chairman said Dr. Wynne's proposition was that no existing appointment be interfered with except with the full consent of the present incumbent. It was put to the meeting and rejected.

The Chairman then read an amendment by Dr. Morton to the effect that paragraph 3 (the governing clause) should be divided as far as "that is to say": and that in subparagraph "a" for the word "they" at the end of the line "the profession" should be substituted. He pointed out that that depended on getting rid of the first paragraph.

Mr. Wolstenholme (Manchester, Salford) seconded, and the resolution was carried.

The Chairman said the question was asked of the Treasurer on Tuesday with regard to the cost of contract practice, and the Treasurer was now prepared to answer that question.

The Treasurer said the cost, as closely as it could be made out, was £311.

Mr. Wolstenholme (Manchester, Salford) asked whether that included legal expenses.

The Treasurer replied in the negative.

Dr. Brassey Brierley moved:

> That this meeting disapproves of practitioners holding private clubs.

A distinction had been drawn between a private club and a club governed by a body of working men, which was necessary in country districts.

The Chairman thought that the point was already included in the paragraph that practitioners should cease to carry on private clubs.

Dr. Brassey Brierley said he desired that the other words in the paragraph should be deleted.

Dr. Wynne (Leigh and Wigan), in seconding Dr. Brassey Brierley's amendment, said he thought its effect if carried would be just the same as his—it would leave a man entitled to carry on a profession of a kind which from pecuniary and other aspects was unobjectionable.

A Representative stated that in the present condition of country villages it was necessary sometimes to manage a private club. In his district there was a club in which a member paid 1s. 3d. on the first day of every quarter, and he could not see that there was anything derogatory in that.

Dr. Broadbent said there was a great difference between a Friendly Society and a private club. Medical men might contract at the rate of 10s., £1, £5, or £10 a year, and so compete with other men. He did not approve of private clubs.

Mr. George Brown (Devonport) thought the meeting should be very careful in passing any resolution which might be taken to reflect upon the mode of conduct of their brother practitioners in the country where private clubs necessarily existed.

Mr. Muir (Glasgow Eastern) moved the adoption of the whole of the recommendations on the club questions *en bloc*.

The Chairman declined to accept the proposition.

Mr. Frederick E. Daniel (Furness and Kendal) said in his town, which was about 6,000, they had an agreement concerning contract practice in which among other things it was provided that all private clubs cease.

Dr. Thomas Wilson (Birmingham Central) objected to the time of the meeting being wasted by being told what had happened in different parts of the country: contract practice was to be managed by each Division in its own district, and when each Division took the matter up it would consider the recommendations of the Medico-Political Committee. It was then moved, seconded, and agreed to that the question be now put.

Dr. Brassey Brierley's proposal was then put to the meeting and declared to be lost.

Dr. Muir proposed that the remaining clauses be accepted *en bloc*.

Mr. Wolstenholme moved that the 7th Recommendation—namely:

> That the Divisions be urged to establish a public medical service in every area in which contract practice is believed by them to be necessary

be deleted. He believed that the wording of the Recommendation might be misunderstood; it read like an invitation to all the Divisions to set up a public medical service.

Dr. BROADBENT (Manchester North) seconded.

Mr. ARMIT said the Committee did not mean to suggest the establishment of a public medical service where contract practice could be dispensed with.

Dr. POPE moved that the question be now put.

The motion was seconded, put to the meeting, and carried.

Mr. Wolstenholme's motion was then put to the meeting, and declared to be lost.

Dr. MUIR's proposal that the remaining clauses be accepted *en bloc* was then put to the meeting and agreed to.

Dr. Laffan's rider was by consent withdrawn.

Dr. WALTER SMITH (St. Pancras and Islington) moved that each paragraph should be put without discussion, because he believed that that was the most business-like way; it would save time and the Representatives could vote either for or against any particular item.

This motion was not seconded.

Dr. ROBERTSON (Glasgow Southern) moved, as an amendment, that an age limit be fixed for every member of a Friendly Society.

The CHAIRMAN said the amendment was not in order.

It was then moved, seconded, and agreed that the question be now put.

THE DRAFT CHARTER.

Sir VICTOR HORSLEY proposed:

That the amended Charter be considered at a Special Representative Meeting after publication in the SUPPLEMENT.

There could be no objection to publishing the Draft Charter after it had been amended by the Organizing Committee immediately that Committee had completed its work; that would save some time. Every member of the Association would have the Draft Charter in his hands, and if he chose he could bring the matter before his Division. As to the date of the Representative Meeting, he would suggest that it should be summoned in January next. That would save six months.

The CHAIRMAN said he would put Sir Victor Horsley's proposition in the following way:

That the Charter be referred to the Organization Committee, then published in the SUPPLEMENT, and referred to a special Representative Meeting to be held at some time for the consideration of the matter after consideration of the amendments which will be submitted to this meeting to-day are embodied in it, and those which are submitted from the Colonial Branches.

Dr. GOSSE moved that the matter should be postponed, not to a special meeting, but to the next annual meeting.

Sir VICTOR HORSLEY said he was in the hands of the meeting. He would withdraw his suggestion as to a special meeting if it was desired.

The CHAIRMAN did not think that necessary.

Dr. Gosse's motion was seconded, but on a show of hands the Chairman declared it lost.

The CHAIRMAN then put Sir Victor Horsley's motion, which was carried.

The CHAIRMAN said that with regard to the proposed amendments to the Charter, he must rule those standing in the name of the Bath and Westminster Divisions out of order, as having been disposed of by the decision on Mr. Wolstenholme's amendment. Those standing in the name of the Aberdeen, Birkenhead, and Torquay Divisions must be ruled out of order, as having been disposed of by the vote on the Council's proposition. The meeting would now proceed to the consideration of the Charter proper, and he called on the Chairman of the Organization Committee.

Mr. VERRALL thought that the best course would be to move the respective clauses, and to give an opportunity for amendments to be moved each in its proper place.

He moved Clause 1 of the Charter. On that there was an amendment from the Council of the Association and the Wandsworth Division.

Dr. LANGLEY BROWNE moved, and it was agreed, that in Clause 1, the nineteenth line, insert after the word "Ireland" the words "or in any part of our dominions."

Clause 2 Part I, on which there were no amendments, was agreed to.

On Clause 2 Part II,

Dr. WALTER SMITH moved for the St. Pancras and Islington Division an amendment as to holding meetings and conferences in any part of the United Kingdom or in any part of the King's dominions. It was simply to insert the words "or elsewhere."

Dr. MUIR (Glasgow Eastern) suggested that the British Medical Association should keep within the British dominions.

Dr. MCMANUS (Wandsworth) supported the amendment.

The amendment was carried.

Dr. MITCHELL (North and West Cumberland) moved:

That a clause be inserted in Clause 2 allowing the Association to form a circulating medical library and also a club house in London in the first place and in other large centres if occasion arise.

Sir VICTOR HORSLEY asked the Solicitor whether the proposal was covered by the Charter?

The SOLICITOR said it certainly was not directly covered; it might be argued that it was brought in under the general clauses. If the sense of the meeting was that the Charter should be extended to cover what was proposed it would be a matter for consideration by counsel.

Dr. BAILDON (Southport) believed it would be a mistake to start anything like a club house or a circulating library.

The CHAIRMAN pointed out that the clauses were not clauses compelling the Association to introduce such things, but that they were clauses giving it power to do so if it wished; they were only permissive clauses.

Dr. ROBERTSON (Glasgow Southern) objected to the words "in London in the first place," and he proposed that they should be left out. This proposal was put to the meeting and lost.

Dr. WALTER SMITH (St. Pancras and Islington) was instructed to oppose the formation of a circulating medical library, and to support the formation of a club house.

It was agreed that a clause to give effect to the sense of the motion moved by Dr. Harrison Mitchell should be inserted in the Charter.

Dr. LANGLEY BROWNE proposed that in Clause 2 (2) (V) of the Charter the following words should be deleted: (*a*) "and may promote the candidature of any member of the Association for Parliament or for any British Legislative Assembly."

Dr. JOHNSON SMYTH (Bournemouth) and Dr. MUIR (Glasgow Eastern) supported the amendment.

Dr. LAFFAN deprecated the mingling of politics with the profession, which owed a great deal of its influence to being independent of politics.

Sir VICTOR HORSLEY said this was an extremely serious matter which had repeatedly been misunderstood and was again being misunderstood. On a previous occasion the example of the Teachers' Association, which was similar to their own, was put forward. The Teachers' Association supported the candidature of two members of Parliament, one Liberal and one Conservative, so as to be represented on both sides of the House and by those means secured the return of members who would support the interests of their profession. If the Labour party could return members in favour of labour interests the medical profession ought to be able to return members in favour of medical interests.

Mr. VERRALL thought the difficulty arose from a somewhat unfortunate selection of words—"may promote the candidature" was the rock upon which the splits had taken place. The action taken during the General Election appeared to have been approved in the North but had caused much indignation. If it was intended by those words to provide that there should be Conservative candidates and Liberal candidates who possessed a considerable knowledge of medical matters he did not know that any objections could be raised, but if a candidate were selected and voted for in a particular constituency simply on his views of medical politics, and placing them above Imperial matters, that would raise considerable resentment.

After some further discussion a motion that the question be now put was carried.

The CHAIRMAN then put the Council's amendment, which was lost.

Dr. EWART (Westminster) moved to insert the words "to promote by all legal means the interests of the medical

profession in the State," and asked for the opinion of the legal adviser.

Mr. Hempson questioned whether the motion would extend to and included the promotion of the candidature of any member of the Association unless it was specifically mentioned, and

Dr. Ewart withdrew his amendment.

Dr. Douglas moved that the clause should terminate as follows: "Whatever political party the candidate may belong to."

The Chairman said that the Solicitor informed him that as the clause was framed it was deliberately meant to carry out the idea of Dr. Douglas.

Dr. Morton (Walthamstow) moved that instead of the words "member of the Association" the word "person" should be used.

Dr. Saundby said that one objection to that proposal would be that they would always be receiving applications that they should help all sorts of candidates.

The Chairman said that the Solicitor informed him that the proposal would involve the Association in difficulties with the Privy Council.

Dr. Morton thereupon withdrew his proposal.

Dr. Langley Browne moved to add the words "by any means not involving a large expenditure of the funds of the Association."

Dr. Johnson Smyth (Bournemouth) asked whether the selection of a candidate lay with the Council or with the Representative body.

The Chairman said he did not think that that question would affect the Charter as a charter. The meeting was discussing the form in which the Charter should be applied for.

Dr. Cox (Gateshead and Consett) asked what Dr. Langley Browne meant by "a large expenditure"; it was a very elastic term.

Dr. Langley Browne said that as the proposal stood the Association might spend £1,000 or £2,000. He would insert "not involving an expenditure of over £50," if the meeting liked.

Dr. Latimer (Swansea) said that as the matter stood the Association was simply given power to act if they chose to act.

A motion having been carried that the question be now put, the proposal for the addition of the words "by any means not involving a larger expenditure of the funds of the Association" was put to the meeting and lost,

Dr. W. E. Thomas (North Glamorgan and Brecknock) said that while he had every confidence in the members of the profession, he had very little confidence in politicians. Could not words be inserted to provide that the majority should promote candidates belonging to their own political side, and not promote candidates belonging to the other side.

The Chairman said many of the members seemed to be labouring under the delusion that the articles of the Charter were for the purpose of defining every little detail. That was not so; the object of the Charter itself was to leave everything as broad as possible. Afterwards any details would be defined by means of ordinances and by-laws.

Dr. Brassey Brierley moved that the paragraph as drafted stand part of the Charter, and this was seconded, put to the meeting, and agreed to.

The Chairman said there was an amendment by the Reading and Maidenhead Branch, but as the Representative was not there he would call on the Representative of the Southport Branch, which had given notice of an amendment to the same effect.

Dr. Baildon (Southport) said he was instructed to vote against the paragraph authorizing the Association to undertake medical defence, on the ground that the work was already covered by other societies and other institutions.

Dr. McManus (Wandsworth) drew attention to the fact that there was an amendment from the Wandsworth Division:

> Insert at the beginning of the first line the words "may establish, contribute to, organize, and manage funds for assisting or defending, or——"

The words made the clause clearer and more elastic; also in Paragraph 7—facilities for sale or transfer of practices—the Wandsworth Division proposed to insert the words "establish, contribute to, organize, and manage funds, or——," and this was agreed to.

Mr. Hempson (the Solicitor), answering a question as to whether the resolutions from Wandsworth were necessary, said he doubted it very much. He thought their counsel (Mr. Dill) would say what was in the paragraphs would include what was specifically provided for by the Wandsworth Division.

Dr. McManus said that so long as the position was understood he did not mind withdrawing the amendments.

Dr. C. J. Morton (Walthamstow) thought that the amendments might bind the Association to things which were not at present understood.

Mr. Hempson (the Solicitor) said it was very often the case, when a general power was sought to be extended, that the power was really limited.

Mr. Parkinson inquired whether the existing clause enabled the Association to provide special funds for the purpose beyond the ordinary funds of the Association.

Mr. Hempson (the Solicitor) thought it would be ancillary. There was a power in their Charter to do a certain thing, and flowing from that there would be power to get the money with which to do it. He thought the meeting did not quite appreciate the position. The clauses were only to define the extreme limits. Powers could be increased under ordinances and by-laws at any time.

Dr. McManus withdrew the amendment, and the paragraph was agreed to.

Dr. Brassey Brierley, on Clause 7, moved that everything after "partnerships" be deleted.

Dr. Robertson (Glasgow Southern) proposed that the whole clause should be deleted.

The Chairman declined to accept the proposition, it being a direct negative.

Dr. Robertson, speaking on the clause, said he should vote against it because he thought it was beneath the dignity of the British Medical Association to enter into any such commercial transactions.

Dr. Walter Smith inquired whether if the Association had not power to afford facilities for transfer of partnerships or assistants it could even insert advertisements in the Journal.

Mr. Hempson (the Solicitor) said it certainly could. That was part of the Journal, and was being done now.

Dr. Walter Smith assented, but suggested the Association was now going under a new constitution, but Mr. Hempson pointed out that the Association was not going under a constitution which would limit it in that respect.

Paragraph VII of 2 (2) was then adopted.

Mr. Verrall moved Clause 2 (2) VIII:

> May establish, endow, contribute to, organize and manage provident or benevolent funds for the benefit or assistance of members of the Association or of the medical profession, and their families or dependents.

Dr. Langley Browne said there was a motion by the Council:

> That with regard to Clause 2 (2) VIII, the Solicitor be instructed to extend its verbiage to include families of deceased members of the Association and the Office Staff Superannuation Fund.

Dr. Saundby thought this opened a serious question; it meant the Association would have to divide part of its funds amongst their necessitous members and those who were left behind them.

Dr. Brassey Brierley said they had been voting for ten years for the principle which was the very pith and marrow of the matter, an opinion which was loudly applauded.

Dr. Rayner asked if the carrying of any of these clauses would bring the Association under the ban of the Charity Commissioners.

Mr. Hempson (the Solicitor) did not think there was any risk of that. He did not think if the Association was incorporated under Royal Charter and it proposed to do these things for the benefit of a certain class that the Charity Commissioners could step in and take hold of that. Under the Companies Acts power could not be got for this benevolent purpose which could be got under the Charter. That constituted one of the principal reasons for obtaining a Charter.

Mr. Parkinson asked whether the benefits were to be

open to the medical profession generally or to be confined to the members of the Association.

Dr. DAVIDSON said the intention of an amendment proposed by the Liverpool Northern Division was to delete the words "or of the medical profession," so as to confine the benefits to the members of the Association. It would be a stimulus to those not members already to join the Association.

Mr. BALLANCE (Norwich and West Norfolk) thought the powers of the Association in the future should not be limited.

Dr. JOHN BROWN (Rochdale and Bury) regretted that such a narrow view of benevolence should be taken.

Mr. VERRALL pointed out that such a limitation would prevent a gift being made to Epsom College. The paragraph might run the Association into expense, but it would be ridiculous to impose the limit proposed. Speaking for himself, rather than drop this out he would be prepared to expend a great deal of extra money, and he thought that ninety-nine members out of a hundred would agree with him.

The CHAIRMAN put the amendment, which was lost. He then put the paragraph, which was agreed to.

On Paragraph IX:

> May undertake to carry out the execution of any trusts which the Association may deem to be directly or indirectly conducive to the interests of the medical profession or any branch thereof.

Dr. LANGLEY BROWNE, for the Council, moved that it should read "interests of the Association or of the medical profession." Agreed.

Mr. VERRALL said there was what was called an "omnibus" clause.

Mr. HEMPSON (the Solicitor) said that he did not think that a special power was needed. The paragraph as it stood was about as wide an omnibus clause as could be got.

Dr. COX (Gateshead and Consett) stated that he would not proceed with the motion which stood in the name of his Division.

Dr. WALTER SMITH (St. Pancras and Islington) put forward the following proposal: "That power be taken to provide on the Association premises a club-room for medical social life and a large hall for meetings."

The CHAIRMAN asked whether Dr. Walter Smith thought that that ought to come into the Charter itself.

Dr. WALTER SMITH said he did not think it ought, but there had been no opportunity to consider the premises, and therefore that was the only opportunity of making a protest. He did not press the motion.

The CHAIRMAN said the Association had power to house itself properly and for the convenience of its members.

Mr. VERRALL moved Clause 3, which was as follows:

> The Association shall not carry on any trade or business (except so far as the same may be involved in the publication, conduct, and sale of the JOURNAL of the Association and of the other documents and records hereinbefore mentioned and in the provision of facilities for the matters mentioned in paragraph (vii) of the last preceding clause) nor engage in any transaction with a view to the pecuniary profit or gain of the individual Members thereof, provided that this shall not preclude the Association from applying its funds in any manner within the contemplation and intention of the last preceding clause of these Presents, or in the remuneration of Members of the Association for services actually rendered.

Dr. MCMANUS (Wandsworth) moved that the words "paragraph (vii) of" should be deleted, but did not press.

The CHAIRMAN suggested that Dr. McManus should leave the drafting to the legal advisers, and Clause 3 was then agreed to.

Mr. VERRALL then moved the adoption of Clause 4, which was agreed to.

Mr. VERRALL then moved the adoption of Clause 5, which was as follows:

> 5.—(1) The Association shall have power to elect as Honorary Members such persons, and in such manner as the By-laws of the Association may provide, and to admit members so elected to such privileges other than that of voting as Members of the Association, as may from time to time be conferred on them by or under the By-laws.
>
> (2) Each Division or Branch hereinafter mentioned of the Association shall have power to admit to certain of the privileges of membership of such Division or Branch, other than that of voting, Members of the Association, who are not entitled to be Ordinary Members of such Division or Branch, and each Division or Branch of the Association not in the United Kingdom shall have power to admit to certain of the privileges of membership of such Division or Branch, other than that of voting, Members of the Medical Profession who are not eligible for election as Ordinary Members of the Association. The By-laws of the Association may prescribe the designation under which persons shall be admitted to such privileges, the nature of the privileges to be conferred upon them, and the conditions of admission thereto.

Dr. MCMANUS (Wandsworth) moved that in Clause 5 (2) the words "each Division or Branch of the Association not in the United Kingdom" should be deleted.

The CHAIRMAN said that the Charter had been three times drafted under the best legal advisers; and, so far as possible, they had put into the Charter everything that was essential, and nothing more: they had left out of the Charter everything that could be dealt with by by-laws and ordinances.

The amendment was withdrawn.

Dr. JANE E. WATERSTON (Cape of Good Hope, Western Province) moved that in Clause 5 (2), line 8, after the word "profession," the words "or other distinguished scientific man" should be inserted. She said that her Branch wanted to have leave by a local by-law to be able to confer the privilege of honorary membership on distinguished scientific men. The reason was that it was hoped to establish a medical school at the Cape, and they wanted to get into touch with scientific men and have them at some of their meetings.

The proposal was then agreed to.

Mr. VERRALL moved Clause 6 (Divisions and Branches).

Dr. PERCY ROSE (Stratford) moved:

> The time has now come for the abolition of Branches and Branch Councils.

The Association should have the simplest machinery possible. There should be divisional units, an annual conference of the Representatives from those units, and an executive committee of that representative body. Anything that added to those three items was a hindrance.

Dr. WALTER SMITH inquired whether the clause should not be in the ordinances and by-laws so that it could be altered at any time.

Mr. HEMPSON (Solicitor) explained that under the advice of counsel only that which was absolutely necessary to go into the Charter and which could not be left to ordinances and by-laws had been inserted. If anything was taken out of the proposed Charter there was a chance of having it thrown back by the Privy Council.

Dr. WALTER SMITH inquired whether it would meet the case to leave out "styled Divisions and Branches" so that the members could be formed into separate local bodies.

Mr. HEMPSON said that would not do, because the matter must be defined.

Dr. E. T. DAVIES thought if there was any deletion it should be "Divisions" and not "Branches," but he considered the clause had better stand as proposed.

The amendment of Stratford was put and declared lost, and the paragraph passed.

Dr. MCMANUS, on Clause 6 (3), which provided that each Division shall have a local area, moved that the words "and Branch" be inserted after the word "Division" in the first line.

The CHAIRMAN observed that as a Branch was supposed to be a congeries of Divisions that would define its limits.

Sir VICTOR HORSLEY pointed out that the Charter was not providing for the matter. It provided for it with relation to a Division, but it left the old Branches just where they were. He wanted them to be reorganized *in toto*.

Dr. WYNNE (Leigh and Wigan) asked, if the local area of the Divisions be fixed from time to time, would not the local area of the Branch be automatically fixed?

Mr. VERRALL pointed out that Dr. McManus's contention was settled by the fact that so-and-so should be a Division; and a Branch should be a congeries of Divisions.

Sir VICTOR HORSLEY did not want the Branch to be a

collection of Divisions, but to be quite irrespective of a collection of Divisions.

The paragraph was adopted unaltered, as was paragraph (4) and paragraph (5).

On Clause 7, which provided "that the general control and direction of the policy and affairs of the Association shall be vested in a body of Representatives,"

Dr. Langley Browne said that the Council wished the words "and affairs" deleted from the first line.

Several voices: "Why?"

Dr. Helme, answering the question, said the Draft Charter was supposed to be based on the present Constitution, and the lawyers were instructed to draw up a charter as far as possible identical with the existing Constitution. When the Council came to consider the Draft Charter it was found that the wording had been inadvertently altered, and that those words had been inserted. The Council had to meet at frequent intervals during the year, when the Representative Meeting did not meet, as the executive body of the Representative Meeting, and also to carry out other business which might arise at any moment during the year when it might not be necessary to call a Representative Meeting together. That came under the term "and affairs of the Association." It was simply to make the Charter as far as might be identical with the existing articles.

Mr. Verrall explained that the words were put in because counsel whom they consulted told them distinctly that to introduce the words "and affairs" was not giving the Representative Body any greater powers than the present Constitution gave them.

The amendment was lost.

Dr. Langley Browne said the Council suggested that the term "Representative Body" should be changed to "Representative Meeting," which was the expression used before.

Mr. Verrall said that counsel informed them that for a legal document the words "Representative Meeting" was not a good term. It was not a representative meeting. The meeting was what they did, but it was the body which met. The use of the words "Representative Body" certainly commended itself to him.

The amendment was lost.

Dr. Douglas thought the word "body" very indefinite, and the Maidstone Division wished the Representative Body to be called the Representative Council, and the Council of the Association should be called the Central Council. He moved accordingly, but the motion was rejected.

Dr. Johnson Smyth (Bournemouth) suggested that the word "assembly" be substituted for the word "body."

Dr. Douglas seconded, but this was also lost.

Mr. Fullerton (Belfast) moved that the resolution of the Leicester Division should be read:

> That this Division is of opinion that if, under the proposed Charter, the Representative Meeting is to be the governing body of the Association, its meetings must be either more frequent, or, as an alternative, the Council must be given more discretion in dealing with the decisions of the Representative Meeting.

One meeting was insufficient to carry on the work of the Association; the Council should have more power to carry out the orders of the Representative Body, so that there should not be confusion or any chance of dual control.

Dr. McManus moved to leave out the provision that the Representatives should meet annually, as he wanted to have as comprehensive an arrangement as possible. If that word were left out it would give a free hand.

This was agreed to.

Clause 7, which was as follows, "The general control and direction of the policy and affairs of the Association shall be vested in a body of Representatives (hereinafter called the Representative Body) annually elected by the Divisions in accordance with the provisions of the Ordinances and the By-laws. The Representative Body shall hold an annual meeting (hereinafter called the 'Annual Representative Meeting'), and may hold other meetings (hereinafter called 'Special Representative Meetings')," was put to the meeting and agreed to.

The meeting was then adjourned till the following day.

ANNUAL REPORT
OF THE
CENTRAL ETHICAL COMMITTEE

To the Annual Representative Meeting, for the Year 1905-6.

The Central Ethical Committee has met eight times during the year 1905-6. The increase in the number of meetings corresponds to the increase in the work of the Committee as measured by the number and gravity of the cases submitted for its judgement, and in reporting to the Representative Meeting, the Committee must confirm the statement made in the Annual Report of the Council as to the evidence which the experience of the Committee affords of the appreciation, not only by members of the Association but by other members of the profession, of the benefit which results to the profession from the existence of a central body constituted upon representative principles, and placed under representative control, for the decision of questions of professional ethics.

When referring to the amount of work which has required attention during the year, it is, however, the duty of the Committee also to state that it has been called upon to consider many matters which could have been disposed of equally well or even better by Divisions or Branches of the Association.

It must be pointed out that through the reference to the Committee of cases of a comparatively trivial character, an increased number of meetings has been required, much additional work has been put on the Medical Secretary's Office, and in both these ways the expenditure of the central funds is unnecessarily increased.

Ethics of Medical Consultation.

The Central Ethical Committee received from the Annual Representative Meeting at Leicester the following instruction:

> "That the Ethical Committee be requested to consider the relative ethical position of consultants and the medical practitioners in attendance, to each other, and to the patients, and report."

A special report is presented upon this subject, containing recommendations which, if approved by the Representative Meeting, will, it is hoped, be useful for the guidance of members of the Association and perhaps also of the profession generally.

The reference has received from the Committee that most careful consideration which its importance demands, and the need for such consideration amidst the amount of other work which demanded the attention of the Committee has precluded the Committee from presenting its report at an earlier date. The Committee therefore recommends that the report, after such discussion as the Representative Meeting may deem desirable, should be referred to the Divisions, in order that it may receive their mature consideration before the Representative Meeting definitely pronounces upon it.

Ethical Rules of Divisions and Branches: Procedure.

Rules.

The Council, upon the recommendation of the Committee, has approved Rules as to procedure in ethical matters submitted by three Divisions and Branches, and has also approved the adoption by ten Divisions of the Model Rules as to appointments, which were included in the Memorandum on the Ethical Aspects of Contract Practice, presented in the special Contract Practice Report to the Annual Representative Meeting at Leicester, and by one Division of the Model Rule "Z" as to "Circulation of Notices."

Questions which have come before the Committee from time to time show the importance of the adoption by all Divisions and Branches of suitable Rules relative to ethical matters.

Local Investigation.

It is inevitable that difficulties should from time to time arise among medical practitioners upon questions of ethics. The Committee is strongly impressed by the importance of the investigation of such matters in the first instance by fellow practitioners in the district of those concerned, through some organized body representative of the profession, and believes that the Divisions of the Association can in this way render great services,

not only to their own members but to the profession generally. Properly to deal with such matters, however, it is necessary that the Divisions should have previously adopted Rules, both to define so far as practicable the ethical relations of their members to one another and to non-members, in respect of those matters which most frequently cause difficulty, and also to regulate the procedure in dealing with such cases. In the absence of such Rules, Divisions may find themselves greatly embarrassed, and those concerned may even incur legal risks, in carrying out action which they believe to be necessary for the maintenance of the honour of the profession.

The attention of Representatives, and through them the attention of Divisions, is specially drawn to the importance of minute attention to points of procedure in dealing with cases affecting non-members, as any carelessness or impropriety may lay those concerned open to imputations of malice which may remove the legal protection of privilege otherwise existing.

The Committee is always prepared to advise Divisions as to the form of rules adapted to local requirements for the purpose of carrying out the foregoing objects.

Order of Inquiry through Divisions, Branches and Centrally.

In connexion with the subject of Rules of Divisions and Branches it appears proper, having regard to difficulties which have come under the notice of the Committee during the year, again to direct the attention of Representatives, and through them of the Divisions, to the report upon procedure for the investigation of ethical matters which was placed before the Annual Representative Meeting at Leicester, and especially to the section dealing with the subject of appeals. The Committee remains of opinion that the most convenient procedure for the investigation of ethical cases is that the first inquiry should be held by the Division, which should report on the facts and express its opinion upon the merits of the case, obtaining advice in connexion therewith from the Central Ethical Committee, if desired, upon any question of general principle involved. If any party affected by the decision of such a case by a Division is not satisfied, the next step should be an appeal to the Branch Council or Branch Ethical Committee (except, of course, in the case of Divisions which are themselves Branches), with a right of further appeal by either party to the Central Ethical Committee if desired.

It is desirable that the Rules of Divisions and Branches should be so framed as distinctly to provide for this procedure.

Witnesses in Ethical Cases.

As affecting the efficiency of ethical investigations, two questions relating to the attendance of witnesses have presented themselves for consideration—namely, first, as to the power of calling upon witnesses to attend; and, secondly, as to the payment of travelling expenses of witnesses.

On the first of these points the Committee submits the following recommendation for the consideration of the Representative Meeting:

> "That the Representative Meeting be recommended to declare it to be the duty of members of the Association to give evidence for the assistance of the Central Council and Central Ethical Committee, and of Branches, Divisions, and their respective Councils and Committees, when engaged in the investigation of ethical cases."

With repect to expenses of witnesses the Central Council has sanctioned the payment from Central Funds of expenses of witnesses attending, at the request of the Central Ethical Committee, inquiries held by it.

Procedure of the Central Ethical Committee.

In connexion with cases which have come before it the Committee has found it necessary to declare that it cannot take into consideration (*a*) complaints received anonymously, (*b*) purely hypothetical cases.

The names of practitioners concerned must be supplied in order that a statement from them may be invited.

Cases of Proposed Expulsion.

Two cases of proposed expulsion of members have been brought before the Committee by Councils of Branches during the year. One of these has been very carefully investigated by the Committee, but its report has not yet come before the Council.

In the second case all information necessary to enable the Committee to deal with the matter has not yet been furnished by the Branch concerned.

Questions of Professional Conduct Requiring the Consideration of the General Medical Council.

Warning Notices as to Canvassing and Advertising.

Your Committee reported to the Annual Representative Meeting at Leicester the action which it had taken in bringing under the notice of the General Medical Council, by a communication dated May 22nd, 1905, the difficulties arising from the apparent ignorance of many medical practitioners as to the professional objections to canvassing and advertising, which communication concluded with the following recommendations for the consideration of the General Medical Council:

(1) That advertising, including canvassing, by medical practitioners for the purpose of procuring patients is injurious to the interests of the public as well as of the medical profession, and that the disciplinary powers conferred upon the General Medical Council for the public protection, under Section XXIX of the Medical Act, 1858, would be exercised to the advantage of the community by the Council declaring its disapproval of systematic canvassing and advertising for the purpose of procuring patients, by cards, handbills, newspaper notices, or other means.

(2) That although, as the Association recognizes, the General Medical Council possesses no statutory authority to formulate By-laws for the regulation of the medical profession, but can only deal with each case brought before the Council on its merits, nevertheless the action of the Council in formulating from time to time declaratory resolutions (such as those adopted on November 27th, 1897, and June 6th, 1899, relating respectively to the employment of unqualified assistants, and association with Medical Aid Societies which canvass and advertise) has been of great benefit to the profession, and the present case appears to the Council of the British Medical Association to be one in which those precedents might with advantage be followed;

(3) That the issue of such a notice would not only be helpful to those medical practitioners who, under present conditions, are actually ignorant of the past decisions of the General Medical Council in cases of canvassing and advertising, and thus inadvertently offend, but would deprive those who deliberately offend of an excuse which they at present put forward.

The Committee has now much pleasure in reporting the result of this action, namely, that the General Medical Council in its session of December, 1905, resolved to issue the following warning notice:

> "Whereas it has from time to time been made to appear to the General Medical Council that some registered medical practitioners have, with a view to their own gain and to the detriment of other practitioners, been in the habit of issuing or sanctioning the issue of advertisements of an objectionable character, or of employing or sanctioning the employment of agents or canvassers for the purpose of procuring persons to become their patients; and whereas in the opinion of the Council such practices are contrary to the public interest and discreditable to the profession of medicine: The Council hereby give notice that any registered medical practitioner resorting to such practices thereby renders himself liable to be charged under the 29th Section of the Medical Act, 1858, with 'infamous conduct in a professional respect,' and if, after due inquiry, he is judged by the Council to have been guilty of such conduct, the Council may, if they see fit, direct his name to be erased from the *Medical Register*."

The Committee believes that this action of the General Medical Council has already had a salutary result, and that still greater benefits to the profession would accrue were it possible to give the notice a wider and more frequent circulation.

Reporting of Individual Cases.

Pursuant to authority given to the Committee by the Central Council, the Committee reports to the General Medical Council particulars of cases brought under its notice which appear to require the consideration of that Council. The Committee has adopted the following rules with reference to such cases:

(1) That the necessary information must be supplied to the Committee by those locally concerned.

(2) That the Association should not be placed in the position of complainant or prosecutor before the Council, but simply report the facts in its possession.

The rule (2) is rendered necessary by the fact that the majority of members of the General Medical Council are members of the British Medical Association, and thus would be debarred from considering a case of complaint by the Association.

It appears to the Committee, however, that the restriction thus imposed is not in the interests of the medical profession, and, upon consideration of this and other difficulties to which attention has been drawn, the Committee recommends to the Representative Meeting as follows:

(i) That it is absolutely necessary, in the interests of the medical profession, that the Association should take up cases of a penal nature before the General Medical Council as complainants.

(ii) That, in order to effect this, members of the said Council, who are also members of the British Medical Association, should at once on election, or immediately after election, cease to be members of the British Medical Association during such time as their appointment lasts.

(iii) That, in the case of members of the profession who are suggested as fit and proper persons for election to the General Medical Council, no pledge whatever should be exacted from these on behalf of the Association.

Cases for Adjudication.

Many cases have been brought before the Committee by individual members for adjudication. In the majority of these the decision rested upon principles previously laid down by the Committee. The following matters raise issues of sufficient importance for separate statement:

Relations of Private Practitioners to Insurance Companies.

The Committee was called upon to consider a case affecting the relations of medical officers of insurance companies, and private practitioners in attendance upon persons insured, to their respective employers and to one another.

Without referring to the merits of the individual case, the Committee deems it proper to report the principles by which its decision was governed, namely, that the duty of a medical practitioner is to his patient and the patient's family or other representatives, and he is guilty of a gross breach of professional confidence if he makes any communication to the company, or to the medical officer for the company, with respect to such a case without the knowledge and explicit sanction of the patient or his relatives.

Bribes offered to Medical Practitioners.

The attention of the Committee has been drawn during the year to three aspects of the methods of corruption by which some persons commercially interested in medicinal preparations and other remedial agents seek to obtain recommendations from medical practitioners, namely:

(*a*) By the offer of secret commissions.

(*b*) By inducing them to become interested in companies formed for the manufacture and sale of such preparations or agents.

(*c*) By procuring "puffs" in articles upon the treatment of disease.

As regards the first of these methods, the Committee, in a case brought before it, received such information as enabled it to communicate with the manufacturer in question, who apologized for his improper act and undertook not to repeat it.

As regards the second, the Committee, upon consideration of a circular issued by a manufacturer, decided to make the following recommendation—namely:—That the Representative Meeting pronounce that it is undesirable that medical men should have a proprietary interest in preparations which it may be their duty to recommend medicinally.

As regards "puffing," the Committee in the case brought to its notice was unable to obtain evidence upon which action could be based, and is unable at present to make any specific recommendation for dealing with what it recognizes to be a serious abuse.

Misdescription of themselves by Medical Practitioners.

Several questions as to alleged incorrect description of medical practitioners by themselves or others, and the use of professional titles, have come before the Committee, and the following opinions have been expressed:

(*a*) That medical practitioners must be held responsible for preventing repeated misdescription of their qualifications or previous experience in works such as the *Medical Directory*.

(*b*) That initials indicating degrees or diplomas, and abbreviations indicating the place of origin of such degrees or diplomas, must be so used as not to create false impressions.

(*c*) That the place of origin of non-registrable degrees should always be indicated.

(*d*) That it is undesirable that members of the Association should append the initials "M.B.M.A." to their names merely as indicating membership of the Association.

Members of Public Bodies giving Expert Advice.

The attention of the Committee was drawn by the Public Health Committee to the practice in some districts of medical members of public bodies giving expert advice in order to avoid the necessity for appointing expert officials.

The Central Ethical Committee considers the practice in question undesirable, and recommends that the matter be taken into the consideration of the Divisions.

Ethical Relations of Assistants to Principals.

The Committee has had the duty of considering a case of great difficulty affecting the ethical position of an assistant who sets up in practice in opposition to his former principal.

The Committee considers that, even when no legal bond has been entered into, there are exceptional cases in which an assistant, either by explicit statement or by acceptance of what he knows to be the understanding of his principal, places himself under a moral obligation not to practise in opposition to his principal. No condemnation could be pronounced in such a case, however, without clear proof of the existence of such an obligation, and the evidence, from the nature of the case, must be difficult to establish. The Committee, therefore, strongly urges all principals and assistants to have the terms of engagement stated in writing, and must point out that in the absence of a written agreement to the contrary, a *prima facie* presumption is created that the principal is prepared for his assistant to commence practice in opposition to him.

CENTRAL ETHICAL COMMITTEE.

Special Report to Annual Representative Meeting at London, 1906.

THE ETHICAL ASPECTS OF MEDICAL CONSULTATION.

The Annual Representative Meeting of the Association at Leicester in July, 1905, adopted the following instruction to the Central Ethical Committee:

"That the Ethical Committee be requested to consider the relative ethical position of consultants and the medical practitioner in attendance to each other, and to the patients, and report." (*Minute* 230).

The Central Ethical Committee, having very carefully considered this reference, reports thereon as follows:

Form of Report.

In order that the deliberations of the Association upon this subject may have a practical issue, the Committee has deemed it expedient to frame as Recommendations for adoption by the Representative Meeting, after a reference to the Divisions if thought necessary, a series

of propositions which, being approved by the Association, would serve as a short code of rules for the guidance of members of the Association, and of the profession generally, when concerned in the circumstances to which these rules relate.

These Recommendations form the conclusion of the report and are preceded by a Memorandum in which the general principles underlying the subject are examined and considerations stated upon which the Recommendations are based.

MEMORANDUM.

Meaning of the term "Consultant."

The Committee has considered carefully the meaning to be attached to the term "consultant" as contained in the reference, particularly whether this term is to be understood as signifying a special class of medical practitioners. The context appears to the Committee to indicate that such a restriction of the inquiry was not intended by the Representative Meeting. It has, however, been represented to the Committee that the formal recognition of a distinctive class of practitioners who avowedly confine their practice to treating patients in co-operation with the ordinary medical attendant, would be advantageous to the profession and to the community, and the Committee has deemed it to be a part of its duty under the reference to devote a special section of the report to an examination of the advisability and practicability of such recognition.

Throughout the report, except in this special section, the term "consultant" is used as the designation of any practitioner, who in any given case is called in to advise thereon, but is not in general or continuous attendance.

Consultation in General.

Accepting the reference as applying to consultation in general, that is to say, to all cases in which medical practitioners are called upon in special circumstances to advise upon the condition and treatment of patients not under their care, the Committee has considered what are the obligations of the practitioners thus called in and of the ordinary attendants to one another and to the patients concerned.

"Ethics and Etiquette."

The questions arising for discussion in this report, particularly as affecting the relationship of the practitioners concerned to one another, fall naturally into two groups, which are conveniently distinguished as questions (*a*) of ethics and (*b*) of etiquette. It appears to the Committee important that in this, as in all questions of professional conduct, the distinction thus indicated should be recognized between those rules, the transgression of which would constitute an offence against ethical principles, and those which rest rather upon considerations of manners and good taste. For example, the ethical questions raised by the attempt of a practitioner to utilize his introduction as a consultant in order to supersede the regular attendant must be placed in an entirely different category from such a question as the etiquette of precedence in entering the sick room.

Circumstances Leading to Consultation.

Concerning the circumstances which lead to consultation, the Committee considers that prominence must be given to the obligation of the practitioner in attendance to his patient. It is impossible to define and classify all the circumstances in which it may become the duty of a practitioner in attendance to advise that a second opinion be taken. But it appears to the Committee that it will be helpful, particularly to the junior members of the profession, to enumerate concisely those conditions which would be generally recognized by the profession as imposing that duty upon him. Cases in which medical practitioners have shown undue reluctance to take a second opinion make it important to emphasize the duty to the patient, as well as the fact that this course does not necessarily involve any suggestion of professional incompetence or of want of confidence of the patient in his usual adviser.

The Duty of Consultation.

The Committee considers that a second opinion should be obtained whenever practicable in each of the following cases:

(*a*) When a question arises of the propriety of performing an operation or adopting some course of treatment which may be dangerous to life or permanently injure the condition of the patient, especially if the condition which it is sought to relieve by this treatment is not in itself dangerous to life.

(*b*) When a question arises of destruction of a fetus or unborn child in the interest of the mother.

(*c*) When the practitioner in attendance is definitely in doubt, either as to the diagnosis or as to the treatment to be followed, and when delay in arriving at a decision might be fraught with serious consequences to the patient.

(*d*) When there is evidence of serious doubt in the mind of the patient or his friends as to the correctness of a diagnosis, or of the treatment pursued.

(*e*) When there is any suspicion of—

(1) Performance of an illegal operation.

(2) Administration of poison.

(3) Commission of any other criminal offence.

The foregoing statement of circumstances in which it is the duty of a practitioner to obtain a second opinion is not to be understood as implying the exclusion of other possible circumstances in which this duty may also arise.

Choice of Consultant.

The professional knowledge of the practitioner in attendance makes it highly expedient, in the interest of the patient, that he should as a rule be asked to select the consultant; but if the patient or his friends insist upon making the choice this should not be resisted by the practitioner unless the difficulty for which the consultation is required is of a kind calling for special skill which the proposed consultant does not possess or the proposed consultant is one whom the practitioner is obliged to refuse to meet upon any of the ethical grounds mentioned in the next paragraph.

Objections to Proposed Consultants on Ethical Grounds.

No registered medical practitioner can meet in consultation an unregistered practitioner without risk of removal from the *Medical Register*. The interest of the patient must forbid a practitioner to meet in medical consultation, except as to diagnosis, any practitioner who pursues any peculiar system of treatment which renders consultation futile. The obligations of professional honour preclude a practitioner from meeting in consultation one whose conduct has been pronounced by some organized body representative of the profession to be detrimental to the honour and interest of the profession or calculated to bring the profession into disrepute.

Difficulties in Refusing to Meet in Consultation.

Two difficulties from time to time present themselves for the consideration of practitioners when requested to meet in consultation those whom they are precluded by ethical reasons from meeting—namely, as to the reasons to be assigned for refusing to consult, and as to the course to be taken when the condition of the patient makes further assistance urgent.

With respect to the first of these points, there need be no hesitation in stating explicitly the reasons for refusing to meet an unqualified practitioner, or one whose peculiar methods of treatment render consultation futile. In the case of refusal to meet a practitioner whose conduct has been held to be unethical, the practitioner should confine himself to a simple statement that for reasons personal to himself he cannot consent to meet the practitioner in question. No statement reflecting on the character or professional status of the proposed consultant must be made. The same rule should apply to the case of a practitioner who is asked to see as consultant a case under the care of an attendant whose conduct has been declared to be unethical.

Practitioners are at times placed in difficulty by being called in consultation to cases of urgency which are already under the care of those who, for any of the reasons above stated, cannot be met. In many such cases the interests of the patient do not make consultation necessary, and the difficulty may be overcome by consenting to attend on the withdrawal of the practitioner who cannot be met. In the rare cases in which the condition of the patient makes it indispensable that the practitioner previously in attendance should be met, the practitioner called in must be prepared to submit a report of his action to any professional body which may have authority to investigate his conduct.

Arrangements for Consultations.

The arrangements for consultation should be made by the ordinary medical attendant.

If a practitioner receives an application to him to act as consultant from other than the ordinary medical attendant of the patient, it is his duty to satisfy himself that the ordinary attendant has been consulted, and is party to the request.

Procedure in Consultations.

The experience of the profession has led to the general acceptance of certain rules of etiquette as to the procedure in consultations. These are set forth in a separate section of the Recommendations, and should be observed unless there is good reason for departure in an individual case from any particular rule.

The general rule of ethics affecting the procedure in consultations is that it is the duty of the consultant in every respect to recognize and safeguard the position of the medical attendant, and it is to be observed that this rule rests not only upon the duty of practitioners to one another, but also upon the interests of the patient who can only be injured by having his confidence undermined. When the interests of the patient demand that a difference of opinion between the consultant and the ordinary medical attendant shall be revealed to him, this must be done in conformity with the rule laid down. It is further to be recognized that the interests of the patient demand that no discussion as to the diagnosis, prognosis, or treatment take place in his presence.

Arrangements for Subsequent Care of Patients.

The arrangements for subsequent care of the patient are based upon the principles that the practitioner in ordinary attendance is to be made responsible for carrying out those methods of treatment or procedures for elucidation of diagnosis which are agreed upon as the result of consultation, and that the consultant has no further concern in the matter, except by special arrangement to which the ordinary attendant is a consenting party. One important group of cases falling under the exception is that in which the result of the consultation is the performance of an operation by the consultant called in.

If it is thought desirable that the consultant should see the patient again, either definitely or in the event of certain specified contingencies occurring, this must be arranged during the conference between the practitioners, and the consultant must not make any suggestion of the kind in the presence of the patient.

Cases Seen at Consultant's House.

Cases in which the patient for whom a second opinion is desired calls upon the consultant require separate consideration. If this arrangement is made with the knowledge and consent of the ordinary attendant it is the duty of the latter to make the necessary appointment and to forward to the consultant such notes on the history of the case as will facilitate the formation of a sound opinion. If a patient seeks an opinion from a practitioner other than his ordinary attendant, and without any introduction, it is in general the duty of the practitioner consulted to ascertain the facts as to previous attendance, and if he finds that the patient is already under medical treatment he should refuse to see the case until he has communicated with the ordinary attendant. If for any reason he should think it necessary to see the case without waiting to communicate with the ordinary attendant, he should do so immediately afterwards, explaining the circumstances and stating the opinion which he has formed. It is a serious breach of professional etiquette, and may be a serious ethical offence, for the practitioner in attendance to fail to acknowledge courteously such a communication, but such neglect on the part of one practitioner cannot, as is sometimes suggested, excuse the consultant from the duty of following this procedure in other cases.

The Committee thinks it well to formulate the following general principle as a guide for the conduct of those called to see cases in consultation—namely: That the medical practitioner who accepts the responsibility of seeing in consultation, or giving a special opinion upon, a case under the care of another practitioner, thereby places himself in a position of trust which it is unethical for him to seek in any way to convert to his own advantage and to the detriment of the other practitioner concerned.

The Recognition of a Special Class Designated "Consultants."

It naturally arises that certain practitioners, on account of their exceptional skill or experience, are called in consultation by their colleagues more frequently than others, and from time to time some of these have definitely declined to treat patients.

Such a method of practice, in the first place, affords greater leisure for special study, and thus for acquiring exceptional qualification for advising in special cases: while, secondly, it removes what experience has shown to be important obstacles to consultation, namely, the consideration that a general practitioner who is called in consultation by another general practitioner acquires thereby a prestige which may operate to the disadvantage of his colleagues, and the danger that the patient may at some time, as the result of the consultation, seek to employ the consultant as his ordinary attendant. Experience shows that on all these grounds, practitioners who have made it known that they did not attend as general practitioners, and have adhered steadfastly to this rule, have been more readily called in consultation by the general practitioners of the district.

It thus appears that there may be advantage both to the profession and the public in the formal recognition of a distinct class who might be specially designated "Consultants," the term being defined as meaning those practitioners who have adopted the rule of seeing those patients only who are referred to them by other practitioners already in attendance, and who do not themselves act as the regular attendants in any cases.

If such formal recognition of a special class should after due consideration be approved by the profession generally, their relation to other practitioners would be governed by such rules as are formulated in the recommendations contained in this report, as applying to consultants generally, and also by special rules arising from their peculiar position. These special rules would be readily formulated, as they would follow immediately from the definition of the class to which they are related.

RECOMMENDATIONS.

1. *Duty of Consultation.*

On grounds alike of public interest and of the interests of the medical profession, it is the duty of medical practitioners to welcome the opportunity of consultation, especially upon obscure and difficult cases, with colleagues especially qualified to advise.

2. *Cases in which Consultation is Specially Required.*

In the following cases it is specially the duty of the practitioner in attendance to endeavour if practicable to obtain the assistance of another opinion:

(*a*) When a question arises of the propriety of performing an operation or adopting some course of treatment which may be dangerous to life or permanently injure the condition of the patient, especially if the condition which it is sought to relieve by this treatment be not itself dangerous to life.

(*b*) When a question arises of destruction of a fetus or unborn child in the interest of the mother.

(*c*) When the practitioner in attendance is definitely in doubt either as to the diagnosis or as to the treatment to be followed, and when delay in arriving at a decision might be fraught with serious consequences to the patient.

(*d*) When there is evidence of serious doubt in the mind of the patient or his friends as to the correctness of a diagnosis or of the treatment pursued.

(*e*) When the attendant has reason to suspect:

(i) Performance of any illegal operation.

(ii) Administration of poison.

(iii) Commission of any other criminal offence.

3. *Choice of Consultant.*

The expediency, in the interests of the patient, of the choice of consultant being usually left to the practitioner in attendance, does not justify refusal to meet a consultant selected by the patient, or the patient's friends, unless the medical attendant is satisfied that the proposed consultant is not qualified by knowledge or experience to advise upon the special case, or is one whom he is debarred from meeting on the grounds stated in Recommendation 4.

4. *Refusal to Meet.*

It is the duty of practitioners to refuse to meet in consultation any of those included in the following classes:

(*a*) Unregistered persons, whom to meet professionally involves risk of removal of the name of the offending practitioner from the *Medical Register*.

(*b*) Practitioners who profess peculiar systems of treatment which make consultation futile.

(*c*) Practitioners whose conduct has, after due inquiry, been pronounced, by some organized body representative of the profession, to be detrimental to the honour and interests of the profession.

5. *Procedure in Arranging and Conducting Consultations.*

Rules of medical etiquette, generally recognized by the profession, with respect to arranging and conducting consultations, are formulated in Recommendation 6. These Rules should be observed, unless there is substantial reason in any particular case for departing therefrom. Such departure without sufficient reason may, in some circumstances, constitute a breach, not merely of etiquette, but of ethics.

6. *Etiquette of Consultation.*

(*a*) If the consultation is not held at the patient's house, it generally takes place at the house of the practitioner consulted, who also fixes the hour of meeting unless otherwise amicably arranged.

(*b*) All parties to a consultation should be punctual. If the medical attendant does not keep the appointment, the other or others may, after a reasonable time, see the patient, and leave his, or their, conclusions in writing, in a closed envelope addressed to the attendant.

(*c*) Before seeing the patient, the medical attendant should, as a rule, give the consultant a brief history of the case.

(*d*) On entering the room of the patient, the medical attendant should precede the consultant, and should, if necessary, introduce him to the patient, and the medical attendant should be the last to leave the room. The diagnosis, prognosis, and treatment should be discussed in another room, privately.

(*e*) The opinion on a case, and the treatment, should be communicated by the medical man consulted to the patient or the patient's friends, with the consent and in the presence of the attending practitioner.

(*f*) If it is found necessary that the patient or his friends should be made aware of a difference of opinion among the practitioners taking part in a consultation, it is the duty of the consultant, jointly with the medical attendant, to communicate this information.

(*g*) The practitioner in attendance should ascertain previously, and inform the patient, or his friends, as to the amount of the fee, which should be paid to the consultant at the time.

(*h*) If for some reason a personal consultation should be impossible, the medical attendant should write a letter, introducing the case, and should courteously and punctually reply to any communication from the consultant throughout the duration of the case, and the latter should write and forward his opinion, along with any prescription he may advise, in a closed letter addressed to the medical attendant.

(*i*) Arrangements for a future consultation should, as a rule, be left to the initiative of the practitioner in attendance.

(*j*) The consultant, if he wishes to make any communication, or to obtain any information about the case after the consultation, should only do so through the medical attendant, and, on the other hand, if the patient's friends call upon him he should not, as a rule, discuss the case with them in the absence, or without the consent, of the medical attendant.

7. *Communications to Patients in the Course of Consultation.*

Great care should be exercised in making any observations in the presence of the patient on the nature of the malady, its probable issue, or treatment pursued, and all criticisms or reflections on the practitioner in attendance must be avoided. Differences of opinion, so long as there is final agreement among the parties to the consultation, are not to be revealed, but if agreement as to diagnosis and treatment should not be possible, and the consultant is convinced that the future well-being of the patient will otherwise be jeopardized, the patient must be informed in the manner prescribed in Recommendation 6 (*f*).

8. *After-care of Patients.*

It is the duty of the practitioner in attendance loyally to carry out the measures agreed upon at the consultation, and he should refrain from making any radical alteration except upon urgent grounds or after adequate trial.

9. *Consultant not to Injure Position of Attendant.*

In recognition of the position of trust in which he is placed towards the medical attendant, the consultant must not, by unduly ingratiating himself or otherwise, attempt to secure a patient, or the relatives of a patient, whom he has seen in consultation, and must exercise scrupulous care to avoid disturbing the confidence of the patient in his medical attendant.

10. *Consultant not to Supersede Attendant.*

A medical man who has obtained his introduction to a patient through a consultation should not supersede the attending practitioner during that illness, and, if he be asked to attend in any future illness, should only do so after explanation with the medical attendant, unless the circumstances are exceptional.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

BATH AND BRISTOL BRANCH.

THE annual meeting was held at University College, Bristol, on May 24th.

Address.—The minutes of the last annual meeting having been confirmed, Dr. J. MICHELL CLARKE resigned the chair to Dr. D. S. DAVIES, who then delivered his Presidential address. Dr. E. J. CAVE proposed a vote of thanks to Dr. Davies for his able and interesting address. This was seconded by Dr. A. J. HARRISON and carried unanimously.

Report of Council.—The annual report was then read, and ran as follows: The meetings of the Branch have been well attended, and the papers read at these meetings have fully maintained the high standard set in previous years. The experiment is being tried of holding the annual meeting and dinner in May instead of June, but as yet it is too early to judge of the success. Professor Howard Marsh opened a debate at Bath upon Certain Forms of Chronic Disease of the Joints. The meeting was largely attended and a good discussion followed. One scientific meeting was devoted to the exhibition of clinical cases, and members availed themselves of the opportunity to bring together a very large number of rare and interesting cases. Another meeting was devoted principally to pathology, when numerous pathological preparations of interest were shown, and papers on certain exhibits were communicated. There has been a slight loss in the membership of the Branch as a whole, chiefly due to the excess of emigrants over immigrants, but it is hoped that members will make an effort to increase the number of members by the 14 required to bring the membership up to the number required to allow of our having two representatives upon the Central Council. The Council regret to have to report the death of three members of the Branch. In the Bath district Dr. Ernest Field, a man of much refinement and cultivated taste; he was of quiet and unassuming disposition, and somewhat reserved in manner. He held the diploma of the Royal Colleges and the degree of M.D. of Aberdeen. First coming to Bath as the Medical Officer to the Royal United Hospital, a post which he held for three years, he began practice in this city in 1879, at the same time becoming a member of our Branch of the Association. The following year he was appointed Medical Officer to the Statutory Hospital, and this appointment he held until within a few days of his death. From 1882 until 1890 Dr. Field was Hon. Assistant Physician to the Royal United Hospital, and also held the post of Hon. Physician to Bellolt's Mineral Water Hospital. At the May meeting

of the Branch at Bath in 1883 he opened a discussion on pneumonia in a most able manner. A member of the Branch Council from 1890 to 1893, he was offered the Presidency in the latter year, but felt himself unable to accept owing to the serious illness of his wife. In the Weston-super-Mare district, Dr. Leech, who had only recently removed into our area from Birmingham, where he was held in very high esteem. In the Bristol district we have to record the death of Mr. J. H. Parry. Mr. Parry was educated at the Llanrwst Grammar School and the Bristol Medical School. As a student he distinguished himself by obtaining the Clarke Surgical Scholarship at the Bristol General Hospital. For seventeen years he held the post of Medical Officer of Health to the Horfield Urban Council, and was also Surgeon-Accoucheur to the Bristol Lying-in Institution. For nearly thirty years he had a large practice in this city. The finances of the Branch are in a thoroughly sound condition, as is shown in the following balance sheet:

Bath Division.

Cr.	£ s. d.	Dr.	£ s. d.
Received, 1905:		Paid, 1905:	
Balance from 1904 ...	27 13 1	Grant to Bath Division	3 3 6
Capitation Grant ...	31 2 0	... Trowbridge Division ...	2 14 1
Late subscriptions, 1904 ...	1 7 0	Printing ... £1 16 3	
		Stationery ... 0 11 6	
		Postage ... 3 3 1	
		Clerical ... 2 7 6	
		Rooms ... 3 9 0	
		...	17 4 11
		Balance	38 13 5
	56 3 4		56 3 4

Bristol Division.

Cr.	£ s. d.	Dr.	£ s. d.
Received, 1905:		Paid 1905:	
Balance, 1904	37 2 11	Division ...	£5 12 11
Capitation and late subscriptions	44 18 0	Rooms ...	4 4 0
		Porter ...	0 19 6
		Printing ...	5 3 11
		Postage ...	4 9 2
		Clerical ...	1 5 6
		Lantern ...	0 15 6
		...	22 15 6
		Balance	59 5 5
	82 0 11		82 0 11
Total balance in hand		... £98 3 1	
Total expenditure		... 40 0 5	

The following officers have been elected by the various Divisions of the Branch:—Bath Division: *Chairman*, Mr. W. M. Beaumont; *Vice-Chairman*, Mr. C. Curd; *Honorary Secretary*, Mr. D. L. Beath. On the Executive Committee and Representatives on the Branch Council there has been no change, the present members being Mr. G. E. Bloxham, Mr. H. G. Terry, Mr. D. L. Beath, Mr. G. C. Helps, Mr. R. A. Bayliss, Dr. W. T. Wigmore, Dr. W. T. Briscoe, Dr. W. H. Symons, and Mr. F. Lace. *Representative of Bath and Trowbridge Divisions to the Annual Representative Meeting*, Dr. J. Pearce. In the Trowbridge Division: *Chairman*, Mr. J. I. Bowes; *Vice-Chairman*, Mr. W. I. Keir: *Honorary Secretary*, Mr. J. Tubb Thomas; on the *Executive Committee*, Mr. G. S. A. Waylen, of Devizes, Dr. Herbert P. Taylor, of Bradford-on-Avon, Dr. T. W. Locket, of Melksham. *Representatives on the Branch Council*, Mr. C. E. S. Flemming, Mr. J. Tubb Thomas, and Dr. J. Pearce. Bristol Division: *Chairman*, Dr. R. Shingleton Smith; *Vice-Chairman*, Dr. D. S. Davies; *Honorary Secretary*, Dr. Newman Neild; *On the Executive Committee and Representatives on the Branch Council*, Dr. Hedley Hill, Dr. E. Markham Skerritt, Dr. J. E. Shaw, Mr. R. H. Brew, Mr. C. K. C. Herapath, Dr. E. F. Martin and Mr. James Swain continue to serve, Mr. H. W. Windsor-Aubrey, Mr. Charles Morton, Dr. John Wallace (Weston-super-Mare), Dr. W. C. Swayne, Dr. C. A. Wigan (Portishead); *Representative at Representative Meeting*, Dr. George Parker.

Adoption of Report.—The adoption of the report was unanimously approved on the motion of Mr. G. Munro Smith, seconded by Mr. F. H. Rose. *President-elect:* Dr. Shingleton Smith proposed, and Dr. E. Markham Skerritt seconded, and it was carried unanimously, that Dr. E. J. Cave be appointed President-elect for the ensuing session. *Representative on Central Committee:* The Secretary reported that Dr. E. Markham Skerritt had been duly elected the Representative of the Branch on the Central Council.

Votes of Thanks.—Dr. Barclay Baron proposed, and Mr. N. C. Dobson seconded, a vote of thanks to Dr. J. Michell Clarke for his able and courteous conduct in the chair during the past session; and Dr. Waldo proposed and Mr. Goss seconded a vote of thanks to the Secretaries, Mr. W. M. Beaumont and Dr. Newman Neild, for their services during the past year, coupled with a request that they continue in office for the next session. The motions were unanimously accepted.

EAST ANGLIAN BRANCH:

North Suffolk Division.

The annual meeting was held in the Board Room of the Lowestoft Hospital on Thursday, July 12th, at 4.30 p.m., Dr. Shann presiding.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Election of Officers.—The following were elected officers for the year 1906-1907:—*Chairman*, Dr. Baylie; *Vice-Chairman*, Dr. Shann; *Executive Committee*, Drs. Bell, Ransome, Helsham and Marshall; *Representative on Branch Council*, Dr. H. B. Walker was re-elected; *Secretary and Treasurer*, Dr. W. Tyson was re-elected.

Proposed Lowestoft Section of the Division.—Dr. Berry proposed:

> That a Lowestoft Section of the North Suffolk Division, to include the borough of Lowestoft and the parishes of Oulton, Carlton, and Kessingland, be formed to deal with ethical questions, and that the draft rules suggested by the Medical Secretary be adopted.

Dr. Worthington moved as an amendment:

> That after the word "Lowestoft" the following words be substituted: "And an area of seven miles around, be formed to deal with ethical questions arising in the aforesaid district."

This was seconded by Dr. Marshall. Dr. Berry approved of this amendment, which was then put and carried. It was agreed that it would be necessary to print and circulate the rules of the Lowestoft and District Medical Practitioners' Association amongst the members of the Division, so that they could be brought up for consideration at the next meeting of the Division.

Cases and Specimens.—The following cases and specimens were then shown:—By Dr. Berry: Case of compound fracture of lower end of elbow-joint, with radiograph. By Dr. Evans: (1) Case of fracture of elbow treated by acute flexion and without splints; (2) case of cerebral syphilis. By Dr. Bell: (1) Case of renal calculus, with radiograph; (2) case of disease of knee-joint.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,717 births and 3,650 deaths were registered during the week ending Saturday last, July 21st. The annual rate of mortality in these towns, which had been 12·4, 12·3, and 11·7 per 1,000 in the three preceding weeks, rose again last week to 12·0 per 1000. The rates in the several towns ranged from 4·7 in Hanley, 4·9 in Handsworth (Staffs.), 5·4 in Rochdale, 5·7 in Leyton, 5·9 in Reading, 6·2 in Cardiff, 6·5 in Wimbledon and in Wallasey, and 7·2 in King's Norton, to 16·1 in Wigan, 16·2 in Middlesbrough, 16·5 in Liverpool, 17·0 in Huddersfield, 17·4 in Merthyr Tydfil, and 17·8 in Stockport and in Burnley. In London the rate of mortality was 11·6 per 1,000, while it averaged 12·1 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1·4 per 1,000 in the seventy-six large towns; in London this death-rate was equal to 1·5 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 2·5 in Liverpool and in Salford, 3·1 in Norwich, 3·4 in Rotherham, 3·6 in Birkenhead, in Wigan, and in Burnley, and 3·8 in Huddersfield. Measles caused a death-rate of 1·1 in Salford, 2·0 in Burnley, and 3·8 in Huddersfield; scarlet fever of 1·2 in Hornsey; diphtheria of 1·5 in Grimsby; whooping-cough of 1·1 in Swansea, 1·2 in York, and 1·3 in Birkenhead; fever of 1·2 in Wigan; and diarrhœa of 1·1 in Liverpool and in Salford, 1·3 in Birkenhead, 1·5 in Willesden and in Burnley, 1·6 in Rhondda, 2·2 in Norwich, 2·3 in St. Helen's, and 2·4 in Wigan. No fatal cases of small-pox were registered last week in any of the seventy-six towns. Two small-pox patients remained under treatment in the Metropolitan Asylums Hospitals on Saturday last, July 21st, against 11, 7, and 5 on the three preceding Saturdays; no new cases have been admitted during the past four weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 2,752, 2,767, and 2,842 at the end of the three preceding weeks, had further risen to 2,942 at the end of last week: 413 new cases were admitted during the week, against 386, 378, and 406 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, July 21st, 930 births and 470 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 14·5, 15·3, and 14·3 per 1,000 in the three preceding weeks, further declined to 13·7 per 1,000 last week, but was 1·7 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 10·2 in Paisley and 10·7 in Edinburgh to 15·3 in Glasgow and 24·2 in Perth. The death-rate from the principal infectious diseases averaged 1·2 per 1,000, the

highest rates being recorded in Glasgow and Dundee. The 245 deaths registered in Glasgow included 3 which were referred to measles, 3 to diphtheria, 8 to whooping-cough, 6 to diarrhœa, and 4 to cerebro-spinal meningitis. Two fatal cases of measles occurred in Edinburgh, 3 of diarrhœa in Dundee, and 3 of whooping-cough in Dundee.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, July 21st, 562 births and 326 deaths were registered in six of the principal Irish towns, as against 479 births and 309 deaths in the preceding period. The annual death-rate in these towns, which had been 15.4, 12.6, and 15.7 per 1,000 in the three preceding weeks, rose to 19.1 per 1,000 in the week under notice, this figure being 7.1 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 5.5 in Limerick and 15.8 in Cork, to 26.0 in Londonderry and 29.2 in Waterford. The zymotic death-rate during the same period and in the same six Irish towns averaged 2.6 per 1,000, or 0.6 per 1,000 higher than during the preceding period, the highest figure—8.7—being recorded in Londonderry, where there were 6 deaths from measles.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: WILLIAM L. MARTIN, Surgeon, to the *President*, additional, for three months' course at Baggot Street Hospital, Dublin, June 23rd; JOHN M'ELWEE, M.D., Fleet Surgeon, to the *President*, additional, temporary, August 2nd; ALEXANDER MACLEAN, M.B., Fleet Surgeon, to the *Renown*, July 23th; FRANK R. FEATHERSTONE, Surgeon, to the *Victory*, additional, for disposal, July 28th.

CHANGES OF STATIONS.

THE following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during June, 1906:

	FROM	TO
Surg.-Gen. Sir T. J. Gallwey, K.C.M.G., C.B., M.D.	India ...	Aldershot.
Surg.-Gen. W. L. Gubbins, C.B., M.V.O., M.B.	Eastern Comd.	India.
Surg.-Gen. W. B. Slaughter	Colchester ...	Westrn. Comd.
Lieut.-Col. C. G. D. Mosse	Winchester ...	Dunkirk.
,, R. I. D. Hackett, M.D.	Southn. Comd.	Bulford.
,, R. J. Geddes, D.S.O., M.B.	Aldershot ...	Longmoor.
Major C. J. MacDouald, M.D.	Fermoy ...	Kilworth.
,, R. H. Penton, D.S.O.	York ...	Strensall.
,, C. R. Elliott, M.D.	Dublin ...	Fermoy.
,, C. A. Young	Belfast ...	Fipnor Camp.
,, G. S. M'Loughlin, D.S.O., M.B.	—	Brighton.
,, J. B. Anderson	Meerut ...	Chakrata.
Captain G. E. F. Stammers	Chester ...	Pembroke D'k.
,, M. P. Corkery	Portsmouth ...	Portland.
,, F. F. Carroll, M.B.	Devonport ...	Woolwich.
,, S. de C. O'Grady, M.B.	Tipperary ...	Limerick.
,, B. R. Dennis, M.B.	Gosport ...	Wool Camp.
,, W. J. P. Adye Curran	Kilworth ...	Queenstown.
,, J. G. Foster, M.B.	Belfast ...	Dunree Camp.
,, W. Bennett, M.B.	Butterant ...	Kilkenny.
,, G. Carroll	Limerick ...	Clonmel.
,, C. H. Furnivall	Eastern Comd.	Shoeburyness.
,, J. Tobin	Cloumel ...	Cork.
,, R. T. Brown, M.D.	Lucknow ...	Ranikhet.
,, F. H. Hardy	Warley ...	Colchester.
,, R. F. Ellery	Southern Com.	Devonport.
,, R. L. Popham	Victoria, B.C.	Dublin.
,, C. E. Fleming, M.B.	Dublin ...	Donard Camp.
,, P. S. Leleau	Portsmouth ...	Parkhurst.
,, F. A. Stephens	Gleucorse ...	Stobs Camp.
,, H. E. J. A. Howley	Dublin ...	Belfast.
,, T. White	Southern Com.	Perham Dn. Cp.
,, A. R. C. Parsons	Tidworth ...	Ferm Camp.
,, R. McK. Skinner	York ...	Strensall.
,, M. W. Falkner	Fatehgarh ...	Lucknow.
,, R. N. Woodley	Queenstown ...	Cork.
,, J. S. Bostock, M.B.	Crete ...	Egypt.
,, E. G. Freuch, M.B.	Eastern Comd.	Chatham.
,, W. Davis	Bareilly ...	Laudour.
,, D. S. Skelton	Bulford ...	W. Down Camp.
Lieutenant H. G. Sherren	...	Parkhouse Cp.
,, H. H. A. Emerson, M.B.	Millbank ...	R. A. M. Coll.
,, G. W. W. Ware, M.B.	Belfast ...	Mosney Camp.
,, T. S. Blackwell	Curragh ...	Maryborough Camp.

Lieutenant-Colonel T. H. Corkery, retired pay, has been placed in medical charge of troops at Exeter.

Lieut.-Colonel J. Ambrose, M.D., and A. de C. Scanlan, retired pay, have relinquished the medical charge of troops at Devizes and Dorchester respectively.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BIRMINGHAM ROYAL ORTHOPAEDIC AND SPINAL HOSPITAL.—Two qualified Clinical Assistants.

BRADFORD ROYAL INFIRMARY.—Fully qualified Practitioner. Salary, £100 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—House-Physician. Salary, £70 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynæcology. Salary, £400 per annum.

CHORLTON AND MANCHESTER JOINT ASYLUM COMMITTEE.—Resident Medical Officer for the Epileptic Colony at Langho. Salary, £120 per annum.

COLCHESTER: ESSEX AND COLCHESTER HOSPITAL.—(1) House-Surgeon. Salary, £80 per annum. (2) House-Physician. Salary, £80 per annum.

DEVONPORT: ROYAL ALBERT HOSPITAL.—Assistant to the Resident Medical Officer. Salary at the rate of £50 per annum.

DURHAM: SHERBURN HOSPITAL.—Resident Medical Officer. Salary, £300 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Physician to Out-patients.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W. Anæsthetist.

LINCOLNSHIRE: BRACEBRIDGE ASYLUM.—Senior Assistant Medical Officer. Salary, £150 per annum.

MALDON UNION.—Two District Medical Officers and Public Vaccinators. Salary, £85 per annum and fees.

MANCHESTER CORPORATION.—Fourth Medical Assistant at the Monsall Fever Hospital. Salary at the rate of £160 per annum.

MANCHESTER ROYAL INFIRMARY.—General Superintendent and Secretary. Salary commencing at £600.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead.—Resident Medical Officer. Honorarium, £50 per annum.

NORTH-EASTERN HOSPITAL, Hackney Road, N.E.—Medical Officer in Charge of the Electrical Department. Salary, £50 per annum.

PRESTON ROYAL INFIRMARY.—Senior House-Surgeon. Salary, £100 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Physician to Out-patients.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City Road, E.C.—House-Physician for holiday work.

SHEFFIELD UNION HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

SUNDERLAND INFIRMARY.—Two House-Surgeons. Salaries, £80 per annum.

WEST BROMWICH HOSPITAL.—House-Surgeon. Salary, £100 per annum.

WESTON-SUPER-MARE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

WISBECH: NORTH CAMBRIDGESHIRE HOSPITAL.—Male Resident Medical Officer. Salary, £125 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House-Surgeon. Honorarium at the rate of £75 per annum.

APPOINTMENTS.

CURTIS, W., L.R.C.P. and S.Edin., L.F.P.S.Glasg., District Medical Officer of the Liskeard Union.

DOWLING, A., L.R.C.P. and S.Edin., L.F.P.S.Glasg., Medical Officer of Health for the Haydock Urban District.

ELLIS, W. McDonogh, M.D., M.R.C.S., L.R.C.P., Clinical Assistant to the Chelsea Hospital for Women.

GAINER, I. W., M.B., C.M.Edin., Certifying Factory Surgeon for the Thrapston District, co. Northampton.

HARRISON, J. McKeau, M.B., B.Ch., R.U.I., Medical Officer of the Workhouse of the Ledbury Union.

MACLAGAN, P. A., M.B., Ch.B.Edin., Certifying Factory Surgeon for the Ayton District, co. Berwick.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

EYRES.—On July 23rd, at Millgate House, Richmond, Yorkshire, to Dr. and Mrs. Eyres, a son.

LEWIS.—On the 21st inst., at Nantlle, Bickley, Kent, the wife of C. E. M. Lewis, M.D.Cantab., of a son.

MARRIAGES.

COOK—WARD.—On the 18th inst., at the Parish Church, Moseley, by the Rev. Canon Colmore, M.A., Vicar, William Cook, M.B., Ch.B., Birmingham, to Edith Harriet, daughter of James William Ward, Annadale, Wake Green Road, Moseley. At home the Laurels, Water Orton, August 29th, 30th, and 31st, afterwards first Friday.

HUFF-HEWITT—HANNAH.—On July 18th, by licence, at the Parish Church, Ashton-in-Makerfield, by the Rev. W. Williams, Rector of Holy Trinity, assisted by the Rev. F. Kennen, Curate-in-Charge, St. Lukes, William E. Huff-Hewitt, M.B., Ch.B., youngest son of the late Rev. W. J. Hewitt, to Maud Elizabeth, second daughter of Nathan Hannah, L.R.C.P.Edin., M.O.H., of Rock House, Ashton-in-Makerfield. "At Home" September 12th and 13th.

MILLAR—GRAHAM.—At Durban, South Africa, on the 16th June, James Grant Millar, M.B., Ch.B., youngest son of the Rev. David Millar, D.D., of St. Johns, Glasgow, to Mary Lang, second daughter of the late Andrew Laug Graham and Mrs. Graham, 12, Park Circus, Glasgow.

DEATHS.

LANGDON.—On the 15th inst., at York, Mr. John Winkley Langdon, M.R.C.S., of 4, Winckley Square, Preston. Interred at Preston Cemetery, July 18th, 1906.

NOBLE SMITH.—On the 20th of July, Noble Smith, F.R.C.S.Edin., at 24, Queen Anne Street, Cavendish Square, in his 60th year.

STOTHARD.—On the 21st instant at his residence Thorncliffe, Palatine Road, Didsbury, Manchester, William Jebson Stothard, L.R.C.P., M.R.C.S., aged 62 years.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Ear.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following arrangements have been made for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays; 2.30 p.m., Operations. Monday and Thursday, at 2.30 p.m., Diseases of the Eye. Tuesday and Friday, at 10.30 a.m., Gynæcology; 2.30 p.m., Diseases of the Skin. Tuesday and Friday, at 2 p.m., and Wednesday and Saturday, at 10 a.m., Throat, Nose, and Ear. Wednesday 10 a.m., Diseases of Children.

BOOKS, ETC., RECEIVED.

The Medical Diseases of Egypt. By F. M. Sandwith, M.D., F.R.C.P. Part I. London: Henry Kimpton. 1905. 7s. 6d.

Traité Pratique de Technique Orthopédique (3e Fascicule). Technique du Traitement des Tumeurs Blanches. Par le Dr. F. Calot. Paris: Masson et Cie. 1906. Fr. 7.

Etude Clinique et Traitement de la Lithiase du Cholédoque. Par le Dr. R. Français. Paris: G. Steinheil. 1906.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. On a Parasite found in the White Corpuscles of the Blood of Palm Squirrels. (New Series.) No. 24. By Captain W. S. Patton, M.B., I.M.S. Calcutta: Office of Superintendent of Government Printing. 1906. 1s. 2d.

The Science of Common Life. By J. B. Coppock, B.Sc., F.I.C., F.C.S. London: Swan Sonnenschein. 1906. 3s. 6d.

Archives of the Middlesex Hospital. Volume vii. Fifth Report from the Cancer Research Laboratories. Edited, for the Cancer Investigation Committee, by W. S. Lazarus-Barlow, M.D., F.R.C.P. London: Macmillan and Co., Ltd. 1906.

The History of the Newcastle Infirmary. By G. H. Hume, D.C.L., M.D., F.R.C.S. Newcastle-upon-Tyne: A. Reid and Co. 1906. 10s. 6d.

The Elements of the Practice of Comparative Medicine, together with Records of Some Cases. By F. T. Barton, M.R.C.V.S., and G. Gresswell, M.A., L.R.C.P., L.R.C.S., L.F.P.S. London: Everett and Co. 5s.

Guide to Anæsthetics. By T. D. Luke, M.B., F.R.C.S. Third edition. Edinburgh and London: W. Green and Sons. 1906. 5s.

Some Facts About the Weather. By W. Marriott, F.R.Met. Soc. London: E. Stanford. 1906. 6d.

Secrets of Lawn Tennis. By F. W. Payn. London: L. Upcott Gill. 1906. 2s. 6d.

Philadelphia and London: W. B. Saunders and Co. 1906:—
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*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
JULY.	
29 **Sunday**	
30 MONDAY	
31 TUESDAY.....	
AUGUST.	
1 WEDNESDAY	
2 THURSDAY...	
3 FRIDAY	
4 SATURDAY...	
Sunday	
6 MONDAY	*Bank Holiday*
7 TUESDAY.....	
8 WEDNESDAY	
9 THURSDAY...	
10 FRIDAY.....	
11 SATURDAY...	
12 **Sunday**.....	
13 MONDAY	
14 TUESDAY.....	
15 WEDNESDAY	
16 THURSDAY...	
17 FRIDAY	
18 SATURDAY...	
19 **Sunday**	
20 MONDAY ...	

Date.	Meetings to be Held.
AUGUST *(continued).*	
ANNUAL MEETING OF THE ASSOCIATION, TORONTO, CANADA.	
21 TUESDAY ...	9.30—12.30 a.m.—Meetings of Sections. 2.30 p.m. Address of Welcome; Introduction of Guests, Delegates, etc.; President's Address. 4.30 p.m. In University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve. 8.30 p.m. Address in Obstetrics, Dr. W. S. A. Griffith. 9.30 p.m. Reception by the Lieutenant-Governor.
22 WEDNESDAY	8 a.m. National Temperance League Breakfast. 9.30—12.30 a.m. Meetings of Sections. 2.30 p.m. Address in Medicine, Sir James Barr, M.D. 4.30 p.m. Garden Parties. 8.30 p.m. Address in Surgery, Sir Victor Horsley, F.R.S. 9.30 p.m. Reception.
23 THURSDAY...	9.30—12.30 a.m. Sectional Meetings. 4.30 p.m. Garden Parties. 7.30 p.m. Annual Dinner.
24 FRIDAY	9.30—12.30 a.m. Sectional Meetings. 2.30 p.m. General Meetings. 4.30 p.m. Garden Parties. Excursions. 8.30 p.m. Soirée.
25 SATURDAY...	Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt. Excursion to Muskoka. Excursion to Lambton, through the courtesy of the President, Mr. Austin.
26 **Sunday**	
27 MONDAY	
28 TUESDAY.....	
29 WEDNESDAY	
30 THURSDAY...	
31 FRIDAY	

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 4TH, 1906.

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SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association.

HELD AT

Caxton Hall, Caxton Street, Westminster, S.W.

ANNUAL REPRESENTATIVE MEETING.

ADJOURNED REPRESENTATIVE MEETING, THURSDAY, JULY 26TH.

Dr. J. A. MACDONALD in the Chair.

THE minutes of Wednesday's proceedings were read and confirmed, and signed as correct.

The nominations for the various Committees were read.

DRAFT CHARTER.

Mr. VERRALL moved Clause 8, which was as follows:

8. There shall be a Central Council (hereinafter called "the Council") which shall, save as otherwise provided by the Ordinances, carry into execution resolutions passed by the Representative Body, and administer the affairs of the Association in accordance with this Our Charter and the Ordinances and the By-laws, and shall exercise such powers and do such acts and things as may be exercised or done by the Association, and are not by the Provisions of this Our Charter or the Ordinances or By-laws directed to be exercised or done by the Representative Body.

The CHAIRMAN OF COUNCIL moved the following amendment, which was proposed by the Council of the Association — namely, that after the words "which shall" there should be inserted the words "at their discretion."

A REPRESENTATIVE asked whether it would be possible to have the reasons of the Council for proposing the amendment.

Mr. PARKINSON said that at present the Council was compelled to carry out any recommendation of the Representative Meeting regardless of expense, and it was thought that the Council ought to have a certain amount of discretion. The Council considered that when any proposal came up which involved a large expense it ought to have some little restraining influence. Very often the Representatives did not know the cost of proposals which they recommended.

Dr. DANIEL (Furness) asked whether the proposal would not put the Representative Body too much into a subordinate position.

Dr. WOLSTENHOLME thought that the clause ought to be left as it was.

Dr. MORTON (Walthamstow) said that the difficulty was met by the Referendum.

Mr. VERRALL said that even though the words "at their discretion" were not inserted, a certain discretionary power must inevitably be left to the Executive, and the words were unnecessary.

Dr. LANGLEY BROWNE said that the words "at their discretion" had a good deal of relation to the time in which the thing was done. It was impossible to do everything all at once. The words "at their discretion" meant that the Council should have reasonable discretion

as to how they carried out the recommendations of the Representative Meeting.

The amendment was put to the meeting and lost.

An amendment in the name of the Maidstone Division on Clause 8, to the effect that the Council of the Association be called the Central Council, was withdrawn.

The Representative of the St. Pancras and Islington Division not being in attendance to move an amendment of which notice had been given, the Chairman took the opinion of the meeting as to whether the amendment should be inserted in the Charter, and declared the meeting unanimously against it.

Dr. McManus moved, for the Wandsworth Division, to delete in Clause 8 the words from "and are not" to the end of the clause, and substitute the words "with the consent of the Representative Body." The change would make the meaning of the clause clearer.

Mr. Hempson (the Solicitor), in reply to an inquiry as to whether the amendment would make any difference, said that it was a distinction without a difference; he suggested that the clause should stand as it was.

Dr. McManus withdrew the amendment, and the clause was then adopted.

Mr. Verrall moved the first part of Clause 9:

9.—(1) The Ordinances of the Association may (subject to the provisions of this Our Charter)

(*a*) Prescribe the qualifications for membership of the Association and the other terms of such membership and prescribe or limit the amount of the subscriptions to be paid by members.

(*b*) Provide for the resignation of membership and for the removal from or other modes of termination of membership of the Association.

(*c*) Provide for the formation of the Divisions and Branches.

(*d*) Provide for and prescribe the constitution and powers of the Representative Body and the Council and the mode of election of the members thereof respectively.

(*e*) Provide for the holding of meetings of the Association and of the Representative Body and of the Council.

(*f*) Provide for the appointment of Officers of the Association.

(*g*) Provide for the payment of the personal expenses incurred by members in connexion with their attendance at meetings of the Representative Body or of the Council or of any Committee of either of the said bodies or at any Conference authorized by the Representative Body or by the Council.

(*h*) Provide for the audit of the accounts of the Association.

(*i*) Empower the Representative Body (subject or not subject to the consent of the Council or other restrictions) to make and from time to time to add to, amend, alter, or repeal By-laws for regulating (subject to this Our Charter and the Ordinances of the Association) the proceedings of the Representative Body and the Council and any committee thereof respectively and the conduct of the business and affairs of the Association and any other matters which require to be so regulated.

(*j*) Provide for the government of the Association in all respects not otherwise provided for by this Our Charter.

Dr. Davies (Liverpool Northern) moved that Paragraph 9 (1) (*g*), in the third line, should read "the Representative Body or of the Council or of any Branch Council."

The amendment was negatived.

Dr. Percy Rose (Stratford) moved that the words "or other local body" be added to the end of Paragraph (*e*).

Dr. Ewart (Westminster) seconded.

It was moved that the word "the" be deleted, and the words "or other local bodies" be added, and this was agreed to.

Dr. Wolstenholme (Manchester, Salford) inquired whether the expression in (*g*) as to the payment of personal expenses was not too vague.

Mr. Hempson (the Solicitor) replied that they came back to the point that the Charter was only permissive. The Charter provided that personal expenses should be paid, and the amount of payment could be limited by the Ordinances or by the By-laws.

Dr. Percy Rose (Stratford) moved to replace (*g*) by

"Provide the payment of expenses incurred by a member at any meeting or conference authorized by the Representative Body or the Council, and which is in accordance with the By-laws.

Mr. Verrall having read the paragraph,

Mr. Percy Rose said he would withdraw his suggestion, and paragraph (*g*) was then agreed to.

Dr. McManus (Wandsworth) moved that in Clause 9 (1) (*i*) the words in brackets in the first and second lines be deleted.

The Solicitor said he thought the words within the brackets should be retained.

Dr. McManus said he was always prepared to accept the advice of his Solicitor, and he would withdraw his proposal.

Mr. Verrall then moved Par. (2) of Clause 9, as follows, and it was agreed to:

9.—(2) The first Ordinances of the Association shall be those set forth in the 1st Schedule hereto and the same are hereby declared to be valid and effectual to all intents and purposes whatsoever. The Ordinances (including the first Ordinances) may be added to, amended, altered, or repealed, and new Ordinances made from time to time by the Representative Body subject to such restrictions (if any) as may be prescribed by the Ordinances. Provided that no such addition, amendment, alteration, repeal, or new Ordinance shall come into operation unless and until it shall have been allowed by our Privy Council. Such allowance shall be conclusive evidence that the addition, amendment, alteration, repeal, or new Ordinance has been in all respects duly made and is valid and effectual for all purposes.

Mr. Verrall then moved Clause 10, which was as follows:

10. The first By-laws shall be those set forth in the 2nd Schedule hereto, and the same are hereby declared to be valid and effectual to all intents and purposes whatsoever until the same shall be amended, altered, or repealed in pursuance of the powers conferred by the Ordinances.

Dr. McManus (Wandsworth) moved that after the word "repealed" there should be inserted the words "by the Representative Body."

The Solicitor advised that the proposal should not be pressed; Dr. McManus withdrew the amendment and the Clause was agreed to.

Mr. Verrall then moved Clause 11, as follows, and it was agreed to:

11. The Representatives of Divisions of the existing Association, who shall be holding office as such at the date when this Our Charter comes into operation, shall be deemed to be the first Representatives of the Divisions of the Association, and shall continue to hold office as such until their successors are appointed in pursuance of this Our Charter and Members of the Council of the existing Association holding office at the date when this Our Charter comes into operation shall be deemed to be the Members of and to form the first Council of the Association, and shall continue to act as such until the new Council is elected in pursuance of this Our Charter and the several Officers and Committees of the existing Association shall continue to hold their respective offices and discharge their respective duties and receive such emoluments, if any, as pertain to the offices which they fill, until it shall be otherwise determined in pursuance of this Our Charter, and the Divisions and Branches of the existing Association, with their Officers, Councils, and Committees existing and holding office respectively at the date of the grant of this Charter shall be deemed to be Divisions and Branches, Officers, Councils, and Committees constituted or appointed in pursuance of this Our Charter, and shall continue until otherwise determined in pursuance of this Our Charter.

Mr. Verrall then moved Clause 12, which was as follows:

12. It shall be lawful for Us, Our Heirs and Successors by supplemental Charter to add to, amend or repeal the provisions of this Our Charter or any of them provided that a resolution to accept and approve such supplemental Charter shall have been passed by a majority of not less than two-thirds of the members present and voting at a Representative Meeting specially summoned for the purpose. Any such resolution shall have effect subject to such approval or confirmation (if any) as may from time to time be required by the Ordinances with respect to the amendment of an Ordinance.

Dr. Langley Browne proposed on behalf of the Council that the words "three-fourths" should be substituted for the words "two-thirds."

Sir Victor Horsley hoped the amendment would not be accepted. He had had experience of what getting a two-thirds majority meant.

The proposal was put to the meeting and declared to be lost.

Dr. Johnson Smyth (Bournemouth) moved that the words "and voting" be deleted.

Mr. Ballance (Norwich) hoped the amendment would not be accepted, because it backed up the silent member who did not vote.

After a short discussion it was agreed that the motion be now put, whereupon the motion was put and declared to be lost.

Dr. Langdon-Down (Richmond) moved that the words "votes given" be substituted for the word "voting."

Mr. Verrall, in seconding, said he did so because it protected the card votes given in the manner prescribed by the Regulations.

Mr. Hempson (the Solicitor) suggested that more words would have to be cut out.

Mr. Verrall agreed, and said the words cut out would be "the members present and voting," substituting "votes given in the manner prescribed by the Regulations."

Dr. Langdon-Down (Richmond) asked whether the amendment could be put subject to the revision of the Solicitor.

The Chairman replied that that would be understood. He asked the meeting whether it was its opinion that the amendment proposed by Dr. Langdon Down be accepted and the wording of it be left to the Solicitor, and this was agreed to.

Dr. Caverhill (North-West Edinburgh) moved that in Clause 13, after the word "specially," the words "elected and" be inserted. He asked the Solicitor whether the motion was in order before he moved it.

Mr. Hempson inquired whether it was proposed that there should be a special election of Representatives for the specific purpose of considering that particular thing.

Dr. Caverhill replied that his suggestion was that there should be a special election in each Division if thought necessary by the Division.

Mr. Hempson pointed out that in that case there would be two conflicting parties. There would be the elected Representatives, who would continue Representatives for the whole year, and if they entrusted these Representatives with their confidences in other matters they might give their confidence in this matter.

Dr. Caverhill then withdrew his amendment:

Mr. Verrall moved Clause 13, which was agreed to as follows:

> 13. It shall be lawful for the Association by a resolution of the Representative Body passed at a Representative Meeting specially summoned for the purpose by such majority as mentioned in the last preceding clause hereof and subject to such approval or confirmation as therein mentioned to surrender this Our Charter, and to wind up the affairs of the Association, but if on the winding-up or dissolution of the Association there shall remain after the satisfaction of all its debts and liabilities any property whatsoever, the same shall not be paid to or distributed among the Members of the Association or any of them, but shall, subject to any special trusts affecting the same, be given and transferred to some other institution or institutions having objects similar to the objects of the Association to be determined by the Representative Body at or before the time of dissolution or in default thereof by a judge of the Chancery Division of Our High Court of Justice.

Clause 14 was also agreed to:

> 14. Lastly, We do hereby for Us, Our Heirs and Successors grant that these Our Letters Patent shall be in and by all things good, firm, valid, sufficient and effectual in law notwithstanding any omission, imperfection, defect, matter, cause, or thing whatsoever to the contrary thereof in these Our Letters Patent contained and shall be taken, construed and adjudged in the most favourable and beneficial sense and to the best advantage of and for the Association as well in Our Courts of Record as elsewhere notwithstanding any recital, mis-recital, uncertainty, or imperfection in these Our Letters Patent.

Ordinances.

Mr. Verrall said that finished the Charter, and the ordinances must now be considered. Whereas the clauses of the Charter embodied principles only, the ordinances were machinery, and must not be confused with principles. Only such matters were put into the ordinances as counsel (Mr. Dill) said were proper. He moved Ordinance I, which was agreed to.

> 1.—(1) In these Ordinances (where not repugnant to the Context)
> (*a*) "The Charter" means and includes the Royal Charter granted in the year 1906, and incorporating the British Medical Association and any amendment thereof, and any supplemental Charter for the time being held by that Association.
> (*b*) "The Ordinances" means the ordinances for the time being of the Association.
> (*c*) "The By-laws" means the By-laws for the time being of the Association.
> (*d*) "The Journal" means the British Medical Journal or other the professional journal for the time being published by the Association.
> (2) Words occurring in these Ordinances and also occurring in the Charter shall bear the same respective meanings in these Ordinances as they bear in the Charter.

No amendments being offered on Ordinances 2 and 3, they were agreed to without discussion:

> 2. The Interpretation Act, 1889, shall apply for the purpose of the interpretation of these Ordinances as it applies for the interpretation of an Act of Parliament.
> 3. These Ordinances shall be construed so as not to conflict with the Charter.
> 4. Any Medical Practitioner registered in the United Kingdom under the Medical Acts, and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the By-laws, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. Subject as aforesaid the mode and conditions of election to membership shall from time to time be determined by or in accordance with the By-laws.

Dr. Wolstenholme (Salford) inquired whether, if Ordnance 4 were passed as it was, it would affect the question of the Journal. His Division wished to know whether Colonial members ought not to pay at least the difference in cost of postage on the Journal. Under the present circumstances, of the subscription 4s. was given back to the Branch, and 10s. was spent on posting the Journal.

Mr. Verrall observed that while it was true that more was paid for postage in respect of Colonial members, yet they could not share in all the advantages received by home members, and the one balanced the other.

Professor Morrison asked the Solicitor whether under Ordinance 4, in the event of a medical practitioner residing outside the area of a Branch, he would be eligible to be elected a member. It seemed to him that this clause would exclude certain persons who had hitherto been included in their membership. According to the present articles of Association, persons could be elected members of the Association who did not reside within the area of a Branch.

Mr. Hempson (Solicitor) said his recollection was that there was no machinery for that. He understood Professor Morrison's point was that any one not within the area of a Branch or resident in any part of the British Empire could not be made a member according to that particular clause.

Professor Morrison said that such persons would be excluded, whereas in the Articles of Association there was a provision for the election of such members by the Council of the Association. Words ought to be included to render it possible to continue to do this.

Mr. Hempson (the Solicitor) said that if Ordinance 4 were read more critically it would be found that any medical practitioner registered in the United Kingdom could be elected a member of the Association.

Professor Morrison replied that that was not what he meant. There were certain diplomas in India which enabled the holders of those diplomas to practise in India, and such persons at the present time were eligible for membership. He wished to see words added to continue the powers hitherto possessed.

Dr. Broadbent (Manchester North) thought the difficulty would be met by making each Branch more comprehensive.

The Chairman understood that Professor Morrison was suggesting that no provision was made for members who possessed outside qualifications becoming members of the Association.

Professor Morrison replied that the Ordinances provided for such persons if they resided within the area of a Branch, but had not provided for them if they resided outside.

The Chairman inquired whether it would satisfy Professor Morrison's objection if an undertaking was given to introduce a note to carry out his suggestion.

Professor Morrison accepted this proposition, and Ordinance 4 was agreed to.

Mr. Verrall moved Ordinance 5:

Subscriptions.

5. Every Member shall pay to the Association a subscription of such amount not exceeding sixty shillings per annum, as may for the time being be prescribed by the By-laws. The said subscription shall be considered due in advance on the first of January of each year, or in the case of Members elected during the year at the time of election.

Dr. McManus (Wandsworth) moved that the words "not exceeding 60s. per annum," in the second line, should be deleted, and that, if it was legally necessary to state a sum, 100s. be inserted. He also proposed that at the end of the ordinance there should be added the words, "but can be paid in such instalments and at such periods during each year as may be provided for by the By-laws."

Dr. Cox (Gateshead) supported the amendment. He said that if a larger subscription was fixed it would be much more easy to induce members of the profession to join if they were able to pay their subscriptions by instalments, especially if the Association wanted to get members when young.

The Chairman said the two suggested amendments should be taken separately, and that the amount of the subscription should be considered first.

Dr. McManus then proposed the deletion of the words "not exceeding 60s. per annum" and the insertion of "100s.," if it was legally necessary that the amount should be stated.

Mr. Ward Cousins supported the proposal.

The Solicitor thought there might possibly be a legal difficulty raised by the Privy Council if the Association did not insert some limit as to what was to be the maximum subscription.

Dr. McManus said he would withdraw the proposal for the deletion of the words "not exceeding 60s. per annum"; and would ask the meeting to accept the proposal that if it was legally necessary to state a sum the sum should be 100s.

Mr. Verrall said if the meeting wished to fix a sum he would advise them not to frighten people, if it were possible to avoid it, and to insert "60s."

Dr. Wolstenholme asked if he was in order in proposing that the subscription of 60s. should be reduced to 42s.

The Chairman replied that that would be another amendment.

Dr. Latimer said that people who came into the Association would not see the Charter and would not know anything about its contents, and the £5 would not be flaunted in their faces.

Dr. Douglas suggested the addition of the words "if necessary."

The Chairman explained that if the Privy Council made no difficulty about having no limit, no limit would be inserted; but, if the Privy Council insisted on a limit, or if counsel thought the Privy Council would make a difficulty about it, Dr. McManus's proposal was that the limit should be 100s. instead of 60s.

The motion was put to the meeting and carried.

Dr. Wolstenholme proposed that the subscription should be 42s. instead of 100s. He said that his Division felt there was a difficulty in getting young members of the profession to join the Association just at the age when the Association wanted to have them.

Dr. E. T. Davies (Liverpool Northern) seconded the motion.

It was then put to the meeting and declared to be lost.

Dr. McManus (Wandsworth) then moved the second part of his amendment, which was "To add at the end of the Ordinance the words 'but can be paid in such instalments and at such periods during each year as may be provided for by the by-laws.'" He moved that for the benefit of the younger members.

Dr. Alfred Cox (Gateshead) seconded.

Mr. Hempson (the Solicitor), answering a question, said Ordinance 5 provided that the "subscription should be considered due in advance on the 1st January in each year," and if the amendment of the Wandsworth Branch were added it would come in conflict with the ordinance; "but can be paid in such instalments" hardly concurred with "due in advance."

Dr. Latimer (Swansea) thought that if the principle of payment by instalment was acknowledged and allowed, the wording could be left to the discretion of the Solicitor and the Council.

The Chairman inquired whether Dr. McManus was willing to accept the proposition that his idea of payment by instalments should be carried by the meeting, and that the Clause should then be drafted.

Dr. McManus assented, saying he had no personal feeling, but he wanted as many young members in the Association as possible, and he would make the path easy for them. Collectors had been suggested, but the benefits of membership were such that no one would have to be canvassed.

Dr. Langdon-Down (Richmond) suggested that the words might be "shall be considered due on the 1st January."

Mr. Hempson (the Solicitor) pointed out that there must not be an Ordinance which made the subscription payable in advance, and then provide that it should be paid by instalments over the whole year. The matter must be made clear. If subscriptions were to be payable by instalments, that would do away with the right of the Association to demand a subscription before a person was entitled to the benefit of membership.

Dr. Baildon (Southport) asked if Dr. McManus would accept the alteration of the word "may" to the word "can."

The Chairman said that, as a matter of fact, the Solicitor had decided that Dr. McManus's proposition could not be put as an amendment at all. Would the meeting accept the principle of the matter and leave it to be dealt with in drafting?

The meeting declared itself against the principle.

In reply to Dr. E. Owen Price, the Chairman ruled that the two following amendments were out of order, the principle having been settled in connexion with previous amendments:

Torquay.—That under no circumstances should the subscription ever exceed thirty shillings.

Cape of Good Hope, Western Province Branch.—Is opposed to any increase of subscription by the Home Association.

Mr. Verrall moved Ordinance 6, which he said was purely formal:

6. Each year's subscription shall entitle the member to all privileges of membership of the Association, including that of receiving the Journal for the current year, and to the ordinary privileges of membership of that Division and of that Branch of which he is an ordinary Member.

Dr. McManus (Wandsworth) moved to insert after the word "year," "and any other publication of the Association." As the Ordinance stood they would be confined to the British Medical Journal.

Mr. Verrall protested against such wide words being inserted. In a sense any confidential document under discussion would be a publication of the Association.

A Member asked for the Solicitor's opinion.

Mr. Hempson (the Solicitor) said that every member was entitled to have a copy of the British Medical Journal, but the words proposed were very wide.

Dr. Walter Smith (St. Pancras and Islington) suggested the addition of the words, "with the sanction of the Council."

Dr. McManus (Wandsworth) said that the motion referred to all publications. At present they were confined absolutely to the receiving of the Journal. There might be other publications.

The Chairman pointed out that the Solicitor had ruled that publication might mean anything; if these words were inserted every member would be entitled to whatever was published.

Professor Morrison pointed out that no such publication or journal could be established except by the will of the Representative Meeting, and if the Representative Meeting at some future time decreed that other publications should be produced, surely that would be the time to frame a regulation of that kind.

Dr. Wolstenholme supported the suggestion.

Dr. Greer asked whether the word publication applied

to private ethical matters which would come before the Ethical Committee.

Dr. McManus said that they would not be published.

The Solicitor said that Professor Morrison's point was governed by the definition clause D. "The Journal" means the British Medical Journal, or other the professional journal for the time being published by the Association. If it were under any other name it would be still the "Journal" within the meaning of Ordinance 6.

Professor Morrison said what he had in his mind was the possibility of there being in addition other publications not forming part of the Journal.

The Solicitor remarked that that would still come within Ordinance 6, because 6 read with Subclause D of Ordinance 1.

Dr. Walter Smith (St. Pancras and Islington) asked whether the amendment was not met by the latter part of the clause "and to the ordinary privileges of membership." He took it that it was one of the ordinary privileges of membership.

Dr. Johnson Smyth (Bournemouth) wished to know whether this proposal would lead to every member being entitled to demand in addition to the Journal, every copy of any leaflet which might be published.

Dr. Westby (Liverpool Southern) suggested deleting the words "of receiving the Journal for the current year," so that that should be included as one of the ordinary privileges of membership.

Dr. McManus (Wandsworth) said that after what the Solicitor had said he would withdraw the amendment.

Mr. Verrall moved Ordinance 6, which was agreed to:

6. Each year's subscription shall entitle the Member to all privileges of membership of the Association, including that of receiving the Journal for the current year, and to the ordinary privileges of membership of that Division and of that Branch of which he is an ordinary Member.

Mr. Verrall moved Ordinance 7, which was as to re-eligibility:

7. No person who shall have been a member of the Association and ceased to be such shall be eligible for re-election until he shall have paid all arrears of subscription (if any) due from him to the Association at the date when his former membership ceased, and no person whose former membership shall have been terminated by reason of his conviction or expulson as hereinafter provided shall be eligible for re-election by any Branch Council without the sanction previously obtained of the Central Council.

Dr. McManus (Wandsworth) moved to insert after the word "such" the words "after the date of the Charter." The Charter should start with a clean slate.

Dr. Cox (Gateshead and Consett) seconded the amendment, which after some discussion was put to the meeting and lost, and the clause was agreed to.

Mr. Verrall then moved Ordinance No. 8, which was agreed to as follows:

8. Every Member, whether one of the first Members or a subsequently elected Member, shall remain a Member until his membership is terminated in accordance with the provisions hereinafter contained.

This was agreed to.

Mr. Verrall then moved No. 9, as follows:

Termination of Membership.

9. Membership of the Association may be terminated in any of the following ways, namely:
   (*a*) By resignation subject to such notice as may be provided for by the By-laws and subject to the provisions of the next succeeding Ordinance.
   (*b*) *Ipso facto* by default in the payment of subscriptions to the Association for such period as may be stated in the By-laws.
   (*c*) *Ipso facto* upon sentence (after conviction in a Court of Justice of any crime) to imprisonment with hard labour without the option of a fine or to any greater punishment, or upon erasure from the *Medical Register* under Section 29 of the Medical Act of 1858, or upon forfeiture through misconduct of the medical qualification by virtue of which the Member shall have been eligible for membership.
   (*d*) *Ipso facto* by expulsion (after the inquiry and in the manner prescribed in the next succeeding Ordinance) on the ground that the conduct of the Member is detrimental to the honour and interests of the Medical Profession or Association or calculated to bring the Profession into disrepute, or on the ground that the member has wilfully and persistently refused to comply with the regulations of the Association or the rules of any Division or Branch of which he may be a member.

Dr. McManus (Wandsworth) proposed the addition to (*c*) of the words—

It is desirable to limit this penalty to act as a consequence of a conviction *only* in a Court of British Jurisdiction.

The amendment after a short discussion was negatived.

The Chairman read a further amendment to the same clause from Dr. Laffan—

That parties convicted of political offences may not be expelled.

Dr. Laffan (Carlow), in replying to an inquiry, said that there was still on the Statute Book hard labour for certain offences that were purely political. He was personally aware of a member of the County Council for Tipperary who was sentenced to hard labour for a political offence. He protested against the Association converting itself into a court of political jurisdiction.

Dr. McManus (Wandsworth) said that, as an Irishman and a Loyalist, he had much pleasure in seconding the amendment.

Dr. Muir (Glasgow) objected to the amendment, and pointed out that it might cover any political offence from a political murder downwards.

Mr. Young (Bolton) suggested that the Association could judge of each case on its merits.

After some further debate, Dr. Latimer (Swansea) suggested that the whole discussion was unnecessary, and moved that the question be put.

On the motion being seconded,

The Chairman put the amendment, which was declared to be lost.

Dr. Bradshaw moved to insert after the word "crime" the words "recognized as such in courts under British jurisdiction."

The amendment being seconded, it was, without discussion, put to the meeting and declared to be lost.

Dr. Caverhill (North-West Edinburgh) thought a great deal of difficulty had arisen through the retention of the words "ipso facto," and he moved that those words be deleted from Subsection (*c*). That would give the Association some latitude in deciding whether an offender should be expelled.

The amendment having been seconded,

Dr. Latimer (Swansea) inquired from the Solicitor whether "*ipso facto*" was a legal term.

Mr. Hempson (the Solicitor) replied that he could not see that there would be any advantage in deleting the words.

Dr. Latimer further inquired whether the clause was governed by the word "may."

Mr. Hempson said everything in the clause was absolutely permissive.

Dr. Pope said that if the words were retained, an offender would be expelled directly he had been sentenced, before the matter had been considered by the Association.

The Chairman said that the Solicitor had advised that the leaving in or the taking out of the words made no material difference to the clause.

Dr. Caverhill thereupon withdrew his amendment, but the seconder refused to assent to that course, and asked for a vote.

Mr. Fullerton (Belfast) suggested it was absurd to say "*ipso facto* may."

The Chairman said the amendment was that "*ipso facto*" be omitted from Subclause (*c*).

Dr. Ewart asked the opinion of the Solicitor on the point raised by Dr. Pope.

Mr. Hempson (the Solicitor) said there must be an inquiry, and as a result of the inquiry when sentence was pronounced the person ceased to be a member.

Dr. Latimer remarked that the word "may" in those circumstances did not govern it. He thought the objection was a valid objection, because in that case "*ipso facto*" did govern the clause, and the word "may" was not permissive but compulsory, and would read as "shall." Therefore he would support the amendment that the words "*ipso facto*" should be left out, because they contradicted the word "may."

Professor Morrison thought the exact connexion of the words was not understood: they were not connected with resignation but with the particular point which followed them; in each of Subclauses (*b*), (*c*), and (*d*) *ipso facto* was connected with the words which followed.

Dr. Langdon-Down (Richmond) pointed out that if "*ipso facto*" were left out something would have to be inserted in their place to give an explanation of the course to be followed in such cases. "*Ipso facto*" meant, "by the very fact," and therefore, without any further inquiry, the consequence followed; if that were not to be so, some words must be put in to take the place of the words deleted.

Mr. Verrall thought the meeting was a little afraid of making the words "*ipso facto*" too strict. The Association would like under certain circumstances to hold the power of revision between the offence and the expulsion of the offender. Obviously, whether the word "may" or "shall" or any other word were used, if "*ipso facto*" were retained, out the offender went, and, in making that statement, he was confirmed by the Solicitor. He thought the words "*ipso facto*" turned a man out if he fell within one of these categories, and the Solicitor agreed with him. He considered they were pinning their faith on a "may." The Solicitor agreed with him that there were two questions: in one case it was a question of crimes, and in the other case it was a question of subscription. They could classify them all together and cut "*ipso facto*" out in all cases, but then a man would not go out by reason of non-payment of his subscription, which seemed to him absurd. In that case the words "*ipso facto*" should be retained. He suggested that the meeting should give an opinion on the general principle, whether under the four corners of this Ordinance they desired that the provisions of this clause should come into action directly, or whether, supposing there were valid grounds for turning a man out, in each particular case it must be decided whether the grounds were sufficient to act on or not. If so, the words "*ipso facto*" might be omitted and the word "may" retained. On the other hand, in any particular case in which it was thought the person should cease to be a member without revision of his case, as in the case of a person who had not paid, the words "*ipso facto*" ought to be retained.

Professor Morrison called attention to the present condition of things under Article XLII:

> Any Member of the Association who (*a*) shall have been convicted in a Court of Justice of any felony or misdemeanour, or (*b*) whose name shall have been erased from the *Medical Register* under Section 29 of the Medical Act, 1858, or (*c*) who shall have forfeited by misconduct the Medical Qualification by virtue of which he became eligible for membership in pursuance of the provisions of Articles II and III shall, *ipso facto*, cease to be a Member of the Association.

He thought that was clearer than the Charter.

Dr. Caverhill (North-West Edinburgh), on a point of order, said his amendment was simply with regard to (*c*).

Dr. Gardner (Shropshire and Mid-Wales) thought that the question was whether the Association would land itself in legal difficulties if it turned people out who had been members, and who had contributed to various funds. He thought difficulties would arise if members were compelled to terminate their membership by any of these clauses when they had interests in the Association which they had paid for.

It was moved, seconded, and carried that the question be now put.

The Chairman said that the question was that the words "*ipso facto*" be deleted in Subclause (*c*) of Paragraph 9. The motion to delete the words was carried.

Dr. Percy Rose (Stratford) moved that "*ipso facto*" be deleted in Subclause (*b*). If this were not done a serious grievance would arise if the Association undertook to establish benevolent funds for the benefit of members of the Association. If a member became eligible for assistance from a charitable fund it might be assumed that he was hard up and could not pay £5 a year as a subscription, yet if the words "*ipso facto*" were retained he would cease to be a member, and the Association would not be able to give him assistance. He suggested that the words "*ipso facto*" be struck out, and the matter of default in payment of subscriptions be left in the hands of the Council.

Professor Morrison seconded the amendment. The words "*ipso facto*" were totally unnecessary.

Mr. Verrall said that the idea which ruled the Committee when constructing the clause was that they should follow, as far as they could, the existing regulations.

The Chairman suggested that the best course would be to leave the clause to be drafted again, to come up at another meeting of Representatives.

This suggestion was agreed to.

Mr. Verrall then moved Ordinance 10, which was as follows:

> 10. (*a*) The Council shall have power, on the representation of any Branch and after due inquiry, of which not less than fourteen days' notice specifying a time and place at which he may be heard in his defence shall have been served on the Member in the manner prescribed by the By-laws, finally to expel from membership of the Association any Member of such Branch whose conduct shall be held by the Council to be such as renders him liable to expulsion under paragraph (*d*) of the last preceding Ordinance.
>
> (*b*) The Council of each Branch out of the United Kingdom having a membership of not less than thirty shall have power, on the representation of any two Members of such Branch and at a Special Meeting convened at not less than one month's notice, and after due inquiry of which not less than fourteen days' notice in writing specifying a time and place at which he may be heard in his defence shall have been given to the Member, to expel from membership of the Association any Member of such Branch whose conduct shall be held by the Council of the Branch to be such as renders him liable to expulsion under paragraph (*d*) of the last preceding Ordinance.
>
> (*c*) A majority of two-thirds of those present and voting at a meeting whether of the Council or of a Branch Council) shall be required for the purpose of exercising the powers conferred by the last two preceding clauses.
>
> (*d*) When a member is expelled he shall notwithstanding that he has ceased to be a member be liable to pay all sums due from him to the Association, or any Division or Branch thereof, at the time of his expulsion.
>
> (*e*) No member in regard to whom a representation as aforesaid has been made or whose conduct is under investigation, or is the subject of inquiry by the Council, or by a Branch Council, or by any Council or Committee of a Division, or by any Committee authorized in that behalf by any such Council as aforesaid, shall be capable of effectively resigning his membership of the Association until the investigation or inquiry is completed and the decision thereunder is made known. An inquiry or investigation shall, for the purpose of this clause, be deemed to commence at the time when the matter of such investigation or inquiry is first brought officially under the notice of the body authorized by or in pursuance of this Ordinance to make such investigation or inquiry.

Dr. Langley Browne moved on behalf of the Council of the Association that in (*b*) the word "twenty-eight" should be inserted instead of the word "fourteen." This proposal, which was also made by the Bournemouth Division, was agreed to.

Dr. McManus (Wandsworth) moved that the words "or Divisions" should be inserted after the word "Branch" where it occurred in (*a*).

Dr. Parker (Bristol) seconded the amendment.

Professor Morrison objected.

In reply to Dr. Wolstenholme, the Chairman said that he certainly thought that it would be better not to put in the words "or Divisions." It was a matter of opinion as to whether the Branches should be retained, but while they had both Branches and Divisions, it would not be desirable to have both Branches and Divisions sending straight to the Council.

Dr. Muir (Glasgow Eastern) also opposed the amendment.

Dr. McManus said that as the meeting was against him, he would save time by withdrawing his amendment, that it was desirable that an appeal should be possible to the Central Council within six months of any such meeting. He moved the adoption of his previous suggestion.

Mr. Verrall hoped the suggestion would not be pressed, and Dr. McManus withdrew.

Ordinance 10 as amended was then passed.

Mr. Verrall then moved Ordinances 11, 12, and 13, which were as follows:

SECTION III.

Divisions and Branches.

Formation.

> 11. It shall rest with the Council from time to time to determine, recognize, and declare by resolution published in the Journal, what bodies of Members shall be

Divisions, and what Divisions and groups of Divisions shall be Branches of the Association, and what shall be the local area of each Division, and accordingly the Council shall have full power from time to time to amalgamate, subdivide and modify Divisions and Branches and the local areas thereof. Nevertheless, not less than one calendar month's notice in all cases shall be given (in the manner prescribed by the By-laws) to any existing Division or Branch in whose boundaries or area any change is proposed.

Boundaries.

12. In determining the boundaries or area of Divisions and Branches, the Council shall have regard to the expressed wishes of the existing local bodies concerned, and to the facilities of communication in each district by railway and otherwise, and the opportunities thus afforded to Members of local bodies for meeting to transact the business thereof, and to the expediency of making the boundaries of such bodies coincide with those of Parliamentary constituencies, counties, or other public administrative divisions of the country.

Autonomy.

13. (*a*) Subject to the Charter and the Ordinances and By-laws each Division and each Branch shall be free to govern itself in such manner as it shall think fit, and for that purpose to make from time to time such Rules as it may think fit, and to repeal or alter the same as and when it shall consider it expedient.

(*b*) The Rules so made, and for the time being in force, shall be binding on the Members constituting the Division or Branch in reference to which they are made. Provided that such Rules shall be submitted for approval to the Council and shall not come into operation unless and until they are approved by the Council.

Sir Victor Horsley asked and obtained leave in connexion with this clause to move:

That the Organization Committee be requested to consider the complete reorganization of the Branches and the definition of their duties with a view to promoting the scientific work of the Association and facilitating the amalgamation of other medical societies with the Association.

Clauses 11 and 12 dealt with the formation of the Branches of the Association and with their boundaries and areas. After what he had already said it was hardly necessary for him to enlarge on the obvious advantages which would accrue to the Association if the Branches were the foci of scientific work. One advantage would be to facilitate amalgamation of existing medical societies in the various towns throughout the kingdom with the Association. If the Branches were reorganized altogether, there would be constructed a scheme and a constitution which would greatly advance the scientific work of the Association.

Dr. C. J. Renshaw (Altrincham) seconded the motion, and drew attention to an amendment from his Division on the agenda. His Division considered that it would be infinitely better that the Divisions should take the business work and the Branches the scientific work. The proposal of the Altrincham Division was:

The Central Council should retain full power over Branches, Branch Councils, and Divisions, so as to provide for the possible case of a dispute, or even an open rupture, between a Branch Council and a Division.

Mr. Verrall said that on the understanding that Sir Victor Horsley's proposal bound the meeting to nothing definite, he hoped that it would be accepted without further debate, and perhaps Sir Victor Horsley would give the Committee his help when they came to think the matter over.

Dr. Walter Smith (St. Pancras and Islington) hoped the Committee would consider the matter of the premises of the Association, so that instead of going into a building speculation it might bring in the London medical societies, and so devote the funds really to medical science.

The Chairman said that one of the objects of the Organization Committee was to facilitate the amalgamation of other medical societies with the Association.

The proposal from the Altrincham Division was then withdrawn, and Sir Victor Horsley's motion was carried.

Clauses 11, 12, and 13 were then agreed to.

Mr. Verrall moved Ordinance 14:

Composition.

14. The Representative Body shall be composed of the Representatives annually elected by the Divisions in the manner prescribed by the Ordinances and the By-laws and of the members of the Council in office for the time being. No Member of the Association who is not a Representative of a Division or group of Divisions, or a Member of the Council, shall be entitled to take part in any Representative Meeting.

Dr. Langley Browne moved on behalf of the Council to insert the words "and vote" after the words "to take part" in the last line of the Ordinance.

Dr. Langdon-Down (Richmond) said that to give members of the Council the right to vote would stultify the system of vote by card.

Mr. Parkinson thought the proposal did not refer to a card vote, but to a show of hands.

Mr. Verrall hoped the meeting would not accept the amendment. For the better dispatch of business it was important not to provoke a card vote too often, but if members of the Council had a vote on a show of hands there would be a tendency frequently to appeal for a card vote to get the full weight of the Divisions.

The amendment of the Council was lost.

Dr. Robertson (Glasgow) objected to annual elections; they should be biennial or triennial.

Dr. McManus (Wandsworth) pointed out that on the previous day "annually" in Clause 7 of the Charter had been omitted.

The Chairman thought it was a perfectly fair matter for discussion; the word "annually" had been deleted in the clause mentioned because it was felt to be undesirable to tie themselves in the articles of the Charter itself. But as regards the voting suggested in the amendment to the Ordinance, it was open to discussion whether they would, or not, retain "annually"; it was not inconsistent with either. He inquired if Dr. Robertson moved to delete the word "annually" in Ordinance 14.

Dr. Robertson said he did.

Dr. McManus seconded Dr. Robertson's motion.

Mr. Ballance (Norwich) considered it very important to elect the Representatives annually; but he did not think that the omission of the word "annually" from Ordinance 14 would make very much difference, because provision was made in Ordinance 16, subclause 6, for the election of Representatives not more than three months nor less than three weeks before the Annual Representative Meeting. That was to say, Representatives could be elected for one year, and therefore could not be elected for a Representative Meeting in a succeeding year. He should vote, however, against "annually" being deleted.

Dr. Robertson said the main point in his mind all through that meeting had been that the annual election was a bad thing for the constitution of that assembly. He would propose at the first opportunity that the term of office of a Representative should be at least three years. Representatives who came up for the first time were in the hands of those who had been there for two or three years before. They sat, listened, and voted. Election for three years would give a much stronger Representative Body than was possible if fresh men were elected every year.

Dr. Maclean (Cardiff) concurred.

Dr. Jane E. Waterston (Cape of Good Hope) said, with regard to her Branch, the same Representative could not come for three years, the cost being very considerable, and the expenses of their Representative not being paid by the Branch.

Dr. Douglas (Dartford, etc.) said that almost one-third of those present had not been present at a previous meeting. He proposed that the matter be referred to the Organization Committee for consideration.

The Chairman ruled the proposal out of order.

Dr. Broadbent (Manchester) inquired whether it would be possible to insert the words, "may elect them for three years."

The Chairman said that such an amendment would be out of order.

Dr. Thomas Wilson (Birmingham) proposed that the matter should be deferred until the By-laws were under consideration.

Dr. Odell (Torquay) sincerely hoped the word "annually" would not be taken out, because it was in the power of each Division to make its own by-laws. In his Division they had a rule that no man should be a Representative for more than five years.

The Chairman then put the amendment to the meeting and declared it lost by 49 votes to 41.

He then put Ordinance 14 as a whole, and it was agreed to.

Duties of General and Medical Secretaries.

At the suggestion of Dr. Maclean (Cardiff) a resolution of which the North Manchester Division had given notice was taken at that stage in view of the fact that other Committees were to be elected that afternoon.

Dr. Broadbent moved:

That a Committee be appointed to inquire into the duties of the General and Medical Secretaries with a view to their better regulation and co-ordination.

The new constitution had not been in existence very long and the work had to shape itself: he thought the Medical Secretary was overworked. He considered that they should have an investigation, so that the work should be properly apportioned.

Dr. Bagley (Manchester South) seconded. It was an invidious thing that there should be dual control in the central office.

Dr. Maclean moved as an amendment:

That it be an instruction to the Finance Committee of Inquiry in their deliberations upon the expenditure required for the maintenance and development of the present work of the Association, to consider what should be the duties of the General and Medical Secretaries in relation to that work and the staff required in each department, and report to a special Representative Meeting or at the earliest opportunity.

The Cardiff Division had considerable interest in this matter, as its Representative last year brought forward a resolution which was accepted, but the Division had been disappointed that nothing had been done. There was undoubtedly an overlapping at head quarters in all directions; he thought it would be a wise thing if an arrangement could be come to whereby it could be said that this was the work for the Medical Secretary and that the work for the Business Manager of the Association.

Dr. Latimer (Swansea) seconded; he believed that Dr. Broadbent and his seconder would probably agree that it was undesirable to form a new Committee because they were about to constitute a Financial Inquiry Committee, which was to be a committee of general inspection and investigation.

Dr. Broadbent accepted the amendment, which after a short discussion was carried, and the Committee was instructed to report to the next Representative Meeting whenever held.

The Chairman said that he had to propose a formal alteration in the title of the Committee. He proposed that it should be called "A Committee of Inquiry into the Finances of the Association and the Duties of the General and Medical Secretaries," and this was agreed to.

Draft Ordinances.

Mr. Verrall said that there was a suggestion from Ashton-under-Lyne that a new ordinance should be inserted between Ordinance 14 and Ordinance 15:

The annual Representative Meeting shall always be held in London in the third week in July, at such place as the Council may direct.

Dr. McCarthy said that the Ashton-under-Lyne Division considered that the place of meeting of the Representative Meeting should not be contingent on that of the Annual Meeting, which might be held in any part of the country or of the British Empire. The Representative Meeting, being the business meeting of the Association, should be held, as far as possible, at a fixed time and in a fixed place—that was to say, in London in the third week in July. The Representatives should not be called upon to travel up and down the world to attend a business meeting which was essential to the working of the Association.

Dr. Rowland H. Coombs (Beds and Herts) supported the amendment.

Mr. Ballance said that he very much sympathized with the proposal, but would vote against it for the reason that he thought that it would prevent many members attending both meetings.

Mr. Verrall thought it would be difficult to get members to attend two meetings if the places of meeting were different.

Dr. W. S. Dickie (Cleveland) supported the proposal. In the past Representatives had found it impossible to attend both the Representative Meeting and the scientific proceedings of the annual meeting.

Dr. Latimer (Swansea) said that to hold a special meeting of Representatives would increase the expenses of the Association. Both meetings should be held at the same place, the Representative Meeting beginning a day or two before the scientific meeting.

Dr. Macan called attention to By-law 28, which provided that the Annual Representative Meeting was to be held after the Annual General Meeting; under the present constitution, wherever they had their Representative Meeting the General Meeting must be held before it. He supported Dr. Latimer's suggestion.

The Chairman pointed out that the by-law would have no effect so soon as the new Charter was granted, and the matter under consideration was an amendment to the Charter.

After a little further discussion, the proposed Ordinance was put to the meeting and lost.

Voting at the Representative Meeting.

Mr. Verrall then moved Ordinance 15, which was agreed to as follows:

Voting Power.

15. Members of the Representative Body elected by the Divisions shall alone be entitled to vote at a Representative Meeting.

Election of Representatives.

Mr. Verrall then moved Ordnance 16, as follows:

Election of Representatives.

16.—(1) Representatives of Divisions shall be elected by Constituencies formed as follows, each such Constituency being entitled to elect one Representative.

(2) Any Division having not less than fifty members may form one constituency, and except as hereinafter provided every Division having less than fifty members shall be grouped by the Council with another Division, or with other Divisions, to form a Constituency having not less than fifty members.

(3) Provided that the Council shall have power to give separate representation to Divisions having fewer than fifty members in those cases in which it appears to the Council that special difficulties exist as to the holding of joint meetings with neighbouring Divisions.

(4) In no case shall the total number of constituencies formed throughout the Association exceed 300.

(5) Subject as aforesaid the Constituencies shall be formed, and may be from time to time altered by the Council, and the Council shall publish lists of the constituencies as and when they may think expedient.

(6) In the case of a constituency formed within the United Kingdom, the Representative shall be elected by a General Meeting of the members of the Constituency, held not more than three months, nor less than three weeks, before the Annual Representative Meeting, and in the case of a Constituency not formed within the United Kingdom, the Representative shall be elected either in manner aforesaid, or by voting papers sent to each member of the Constituency, as the said Constituency may decide.

Dr. Langley Browne moved, on behalf of the Council:

That Ordinance 16 (6) do read as follows: "In the case of a Constituency formed within the United Kingdom, the Representative shall be elected by a General Meeting of the Members of the Constituency, held not more than three months, nor less than three weeks, before the Annual Representative Meeting, or by voting papers sent to each Member of the Constituency, as the said Constituency may decide."

He thought the amendment met a great want. The attendance at Division meetings was often small, and it was then said that the Representative elected by three or four present did not represent the Division. Members of Council were elected by voting papers sent to every resident in the Branch area.

Mr. Ballance would be sorry to see the Representatives elected by voting papers instead of by a general meeting of the Division, and therefore opposed the amendment, as did Dr. Broadbent.

Dr. John Mills (Connaught) supported the motion to elect by voting papers.

Dr. Herbert Bramwell (Gloucestershire) said that his Division had always elected the Representative by voting papers.

Dr. MacKeith pointed out that it would not be compulsory to do either one thing or the other if the amendment was carried.

Dr. J. Munro Moir (Northern Counties of Scotland) strongly supported the motion of the Council that the voting should be by paper.

A motion that the question be now put was agreed to.

The amendment was carried.

Mr. Verrall pointed out that the first words of the Council's amendment "In the case of a constituency formed within the United Kingdom" should be deleted, and this was agreed to.

Dr. McManus moved for the Wandsworth Division that in Ordinance 16 (6), in the first line for "a" should be substituted "each," and "nine" for "three." The change would increase the efficiency of members.

Dr. Douglas (Dartford, etc.) asked if the effect of this would be that a new Representative was to be elected to take the place of the other.

The Chairman replied that the provision was permissive.

Dr. McManus said the object of the amendment was that a Representative might be elected at the beginning of the winter session, and so instructed in his duties.

The Chairman asked Dr. McManus if he would accept the addition of the words—

Within three weeks before the Annual General Meeting at which he takes office.

The Representative would take office at the General Meeting, and before that he would be in training.

Dr. McManus accepted the Chairman's suggestion, and the amendment, as amended by the Chairman, was put to the meeting and carried.

Dr. Douglas proposed that "three weeks" should be altered to "four weeks."

The proposal was accepted by Mr. Verrall and by Dr. McManus and agreed to.

Dr. Alfred Cox (Gateshead) said that there was no provision in the clause for the instruction of the delegates. If the delegates were not instructed it would mean that a good many appointed by post would attend the Representative Meetings and never be instructed at all. The meeting certainly should not miss an opportunity of making some provision for the instruction of the delegates.

Dr. Muir (Glasgow Eastern) said that the delegates did not come to the meeting bound hand and foot; he himself came with a free hand.

Dr. Macan (Croydon) said that the question whether a Division instructed its Representatives or not was a question for the Division and not for the Representative Meeting. If the Division wished to instruct its Representative it did so. If it had confidence in its Representative, and relied on him to exercise his judgement, the Division was perfectly justified.

Mr. Verrall said that the whole object of the resolution was to give as free a hand as possible to every Division. Why should it not be left to the Divisions to instruct or not to instruct, and have voting papers or not have voting papers, and so on?

Dr. Alfred Cox (Gateshead) was appalled at the idea that Representatives were actually proud of attending the meeting without any instructions. It was the duty of a Representative to meet his constituents and ask their opinion. He had been told by his Division on different occasions before he came to the meeting that he knew best about these things and that he could vote just as he liked, but he had said, "If you decline to take the trouble to go through this agenda paper I decline to take the trouble to go to the meeting." He would move the following as a seventh Clause:

In the event of a Representative being elected by voting papers a meeting of the Division must be held to consider the instructions that are to be given to the said Representative.

The motion was seconded by Dr. Walter Smith.

In reply to the Chairman, Mr. Hempson (the Solicitor) said that one reason for adopting the voting-paper plan would be give a wide constituency a chance of voting. If in a Division it was not found possible to induce members to come together, and the voting-paper plan was adopted, how could the members be got to meet to discuss the various resolutions?

Mr. Parkinson, speaking as a member of the Council, said that under the old constitution the great objection to giving power to the Representative Meeting was that the members of the old Council refused to be delegates, and went with a free hand to do the best they could for the Association. That was objected to, and the body of Representatives substituted, who attended not as individuals, but as Representatives of the Divisions, coming with authority which the members of the Council did not come with. Unless the Representatives were instructed, he maintained that they were in no better position than the old members of the Council. The importance of the Representative Meeting would be lessened unless each Representative was instructed by his Division.

Sir Victor Horsley could not understand Dr. Muir's position. He was there instructed and ordered to vote on certain points, and he was very proud to be so instructed, because he considered that the collective wisdom of 500 men in Marylebone was a good deal better than his own personal wisdom. To carry out the idea of a really representative association, it was necessary that each Division should, if possible—of course only if possible—hold a meeting for the purpose that Dr. Cox had stated. It was that which really gave character to the Representative Meeting. After all, when and where that should be done seemed to him to be a matter for the By-laws; he did not see that it came up now under the Ordinance. He should vote for the resolution, but he thought it ought to be among the By-laws.

Dr. Alfred Cox (Gateshead) said so long as this principle was maintained he did not mind where it was asserted.

Resolutions of Representative Body and Referendum.

Mr. Verrall then moved Ordinance 17 as follows:

Resolutions.

17.—(1) Subject as hereinafter provided a Resolution of the Representative Body (not being inconsistant with any provision of the Charter, Ordinances or By-laws) which affects the funds of the Association, or relates to the Ordinances or By-laws or to the policy of the Association in matters affecting the honour or interests of the medical profession, and is carried by a majority of not less than two-thirds of the members present and voting thereon, or which relates to any other business within the powers of the Representative Body, and is carried by a simple majority, shall be deemed to be a decision of the Association.

Proviso as to Notice.

(2) Provided that no resolution to make any addition to or any amendment, alteration or repeal of any Ordinances or By-laws, or to make any new Ordinance or By-law, shall have any operation unless a proposal to make the same shall have been previously approved and submitted to the Representative Body either by the Council, or by a Division, and shall have been published in the Journal, not less than three months before the Annual Representative Meeting or one month before the Special Representative Meeting at which such resolution is passed.

Proviso as to Referendum.

(3) Provided also that in respect of every resolution of the Representative Body the following provisions shall have effect:—

(*a*) Within twenty-eight days after the date on which the resolution was passed the Council shall hold a meeting for the purpose of considering the resolution. Such meeting may be convened by a notice given either before or after or during the progress of the Representative Meeting at which the resolution was passed.

(*b*) The Council at their said meeting may either approve the resolution or determine on a Referendum and they shall determine on a Referendum if in their opinion the resolution does not truly represent the wishes of the Association.

(*c*) If the Council at their said meeting determine on a Referendum then the Secretary of the Association shall as soon as may be after the said meeting send by post to the Secretary of each Division of the Association a requisition requiring him to convene a meeting of the members of his Division (hereinafter called "the Division Meeting") for the purpose of considering the resolution and shall with such requisition transmit such observations (if any) on the subject of the resolution as the Council may direct, and the Secretary of each Division shall immediately after the holding of the Division meeting (if any) certify in writing to the Council the number of the votes given at the Division meeting for and against the resolution.

(*d*) If the aggregate number of votes given for the resolution at all the Division meetings shall exceed the aggregate number of votes given against the resolution at all the Division meetings or if no vote shall be given at any Division meeting against the resolution the same shall be deemed to have been approved on a

Referendum, provided that for the purpose of this provision no votes shall be reckoned unless the same shall be included in such certificate as aforesaid and such certificate shall have been received by the Secretary of the Association within four months after the date of the said meeting of the Council.

(*e*) If the said meeting of the Council shall not be held within the said period of twenty-eight days then the resolution shall come into operation immediately upon the expiration of that period. But save as aforesaid the resolution shall have no operation unless and until it shall have been approved either by the Council or on a referendum as hereinbefore provided and if and when so approved the same shall come into operation as a valid and effectual decision of the Association.

(*f*) The fact of the resolution having been so approved shall be forthwith published in the Journal.

Dr. Langley Browne moved the following amendment on behalf of the Council:

In Ordinance 17 (1) *delete* the words "affects the funds of the Association or." Also *add*, at the end of Ordinance 17 (1), the words "but no resolution involving the expenditure of money shall be binding on the Council unless it has been presented by the Council or by the Finance Committee."

Sir Victor Horsley desired some little explanation.

Dr. Langley Browne said the explanation was that the amendment referred to resolutions passed by the Representative Body involving the expenditure of money. It recommended that those resolutions would not be binding unless they had been presented by the Council or the Finance Committee.

Sir Victor Horsley thought the explanation perfectly clear; it meant that the Representative Meeting had no influence or authority on matters involving the expenditure of money. If so, it was a farce altogether, and he should vote against the proposal of the Council.

The Chairman then put the amendment to the meeting, when it was lost.

Dr. Langley Browne then moved the following amendment on behalf of the Council:

In Ordinance 17 (2), after the word "Council," insert the words "by a Branch."

Mr. Verrall thought the meeting might accept the amendment. It simply meant that the Branches were not to be deprived of the power to bring a resolution before the Representative Meeting.

The amendment was agreed to.

Dr. McManus moved, on behalf of the Wandsworth Division, to reduce the period to two months, and this was agreed to.

Dr. Langley Browne then moved, on behalf of the Council, an amendment, also proposed by the Bournemouth Division, as follows:

In Ordinance 17 (3) (*a*) and (*e*) for "twenty-eight days" read "calendar month."

The amendment was agreed to.

Dr. McManus moved an amendment from the Wandsworth Division:

In Ordinance 17 (3) (*b*), 1st line, for "may" *substitute* "shall"; in 2nd line *insert* the word "shall" before "determine"; and in 2nd and 3rd lines *delete* the words "and they shall determine on a Referendum."

The object was to make the clause more emphatic.

Answering the Chairman, Mr. Hempson (the Solicitor) thought it would be better to retain "may."

Dr. McManus was willing to accept the word "may," and moved:

In Ordinance 17 (3) (*c*) 3rd line, after the word "meeting" *insert* the words "and not more than eight weeks after"; in 6th line, after the second bracket *insert* the words "within four weeks"; and in 11th line *delete* "(if any)."

The object was to permit prompt action in reference to the Referendum.

The Chairman said Mr. Verrall was willing to accept the amendment, and the meeting agreed to it.

Annual Scientific Meeting.

Mr. Verrall in moving Ordinance 18, said that it raised the question of collision or coincidence of the Scientific Meeting with the Annual Representative Meeting.

18. The Council shall annually arrange meetings which it shall be open to every member of the Association to attend, for the purpose of receiving addresses or other communications relating to the medical or allied sciences, and discussing such subjects pertaining thereto as the Council may think proper, and the Council may arrange to hold such meetings in the United Kingdom or abroad. When held in the United Kingdom, such meetings shall be convened at the same place as the Annual Representative Meeting, and in connexion, but so as not to conflict, therewith. For the more convenient consideration of the matters to be discussed, the Council may provide that they shall be considered in Sectional Meetings, and the Council shall appoint a President and other officers of such Sections as well as readers of any addresses that may be given.

Dr. McCarthy moved an amendment on behalf of the Ashton-under-Lyne Division as follows:

To strike out the words after "Meetings" (in line 7) to the end of the sentence and *insert* the words "At any place in the British Empire," and to *omit* entirely the next sentence commencing with "When" and ending with "therewith."

Dr. Walter Smith (St. Pancras and Islington) pointed out that that had already been adopted, and Dr. McCarthy withdrew the amendment.

Dr. McManus moved on behalf of the Wandsworth Division:

In Ordinance 18, for "annually" *substitute* "at least once a year," and *insert* after "Meetings" the words "or Conferences alone, or in conjunction with other Bodies"; in 4th line, after "sciences," *insert* "or for the discussion of the affairs, interests, and duties of the medical profession"; in 6th line, after "Meetings," *insert* "or Conferences"; in 7th line *substitute* "one such Meeting" for "such Meetings"; in 10th line *insert*, after the word "provide," the words "or agree"; and in 11th line, after the word "appoint," *insert* the words "or approve the appointment of."

These were purely verbal alterations.

Mr. Verrall asked that they should be taken one by one.

Dr. McManus (Wandsworth) moved, in the first line to read, for "annually," "at least once a year."

Mr. Verrall accepted the amendment, and it was agreed to.

Dr. McManus moved to insert in the same line, after "meetings," the words "or conferences alone or in conjunction with other bodies." He also suggested the insertion of the word "scientific."

Mr. Verrall saw no objection.

The Chairman said the clause would then read "meetings or Conferences alone or with other scientific bodies."

Dr. Philip Turner (Isle of Wight) said the insertion of the word "scientific" would preclude such matters as "medical defence."

The Chairman said that Mr. Verrall raised no objection to the introduction of these words, and they were agreeed to.

Dr. McManus moved to insert in the fourth line after "sciences" the words "or for the discussion of the affairs, interests, and duties of the medical profession."

Dr. Langley Browne pointed out that that would change it from the scientific meeting into the business meeting.

The amendment was withdrawn.

Dr. McManus moved to insert in the sixth line, after the word "meetings," "or conferences," and it was agreed to; and he then moved, in the seventh line, to substitute "one such meeting" for "such meetings," and this also was agreed to. He moved in the tenth line to insert after the word "provide" the words "or agree."

Mr. Verrall said that raised a direct question, namely, who should appoint the President? This part of the Ordinance read: "and the Council shall appoint a President and other officers of such Sections, as well as readers of any addresses that may be given." He thought that was a matter which should be left to the Executive. Personally, he did not approve of the amendment.

Dr. McManus obtained leave to withdraw the amendment. He moved, in the eleventh line, after the word "appoint," to insert "or approve the appointment of."

Mr. Verrall said that that was the same thing, and this view was accepted. Clause 18 as amended was adopted.

Dr. R. H. Coombs (Bedford and Herts) pointed out that the words "and in connexion, but so as not to conflict, therewith," entirely contravened the resolution which had been passed. He maintained that the annual scientific meetings did conflict with the Annual Representative Meeting. He contended that the words "and in con-

nexion, but so as not to conflict therewith," were contradictions in practice. The Representative Meeting would in future conflict with the Scientific Meeting.

Mr. Verrall replied that Dr. Coombs's observation gave substance to what Dr. Latimer had proposed—namely, that extra time should be obtained by meeting two days before. Dr. Latimer's proposal aimed at preventing that conflict; and the words "so as not to conflict" would also tend to prevent a conflict.

Dr. Coombs submitted that if he liked to point out to the Privy Council that Ordinance 18 of the Charter was not carried out, he would have the support of the Privy Council. He could complain to them that as it stood he was debarred as a Representative from attending the scientific side of the Association.

Dr. Latimer said that there would be no conflict if the Representative Meeting were held two or three days earlier.

Ordinance 18 as amended was agreed to.

Council.

Mr. Verrall moved Ordinance 19 as follows:

SECTION VI.
Council.

19. The Council shall come into office at the commencement of the Annual Representative Meeting of each year, and shall be composed of the President of the Association, the President-Elect, the Past-President, the Chairman of Representative Meetings, the Chairman of Council and Treasurer *ex-officio* and of Members duly elected by the following bodies, namely *(a)* by the Branches of the Association which shall be grouped for the purpose in such manner as the By-laws may prescribe *(b)* by the Representative Body, which shall have power to elect annually not less than four, nor more than six members of the Council, and *(c)* by the Council itself, which shall have power to add to its numbers by the co-optation of not more than one member for every ten members elected by the Branches and further by the election, if it think fit, at any of its Meetings of all or any one of the following, namely: One Medical Officer on the active or retired list of each of the following services:—The Royal Navy Medical Service, the Army Medical Service, and the Indian Medical Service, provided that in each case such Medical Officer shall not have retired from the active list more than three years previously.

Dr. Percy Rose (Stratford) moved

That the Central Council of the Association shall be elected by the Representatives of the Divisions at the Annual Representative Meeting.

The motion was designed to improve the machinery of the constitution. The present form of dual control led to a lack of co-ordination. Further, if it were possible to make the Council smaller it would be a still more effective body.

Sir Victor Horsley said that he had very great pleasure in seconding the resolution because he thought that it was really the last step required to put the constitution of the Association on a logical and irrefutable basis. A Branch was only a means to an end, but if a thing had existed for some time it seemed to become a fetish. The question was: If the Branches were reorganized how was the conduct of the business of the Association to be arranged? It was well recognized by every business association that the Representatives should elect the executive. Dr. Rose had touched on a point the carrying out of which would be the greatest boon to the Association and a great saving of money, Dr. Rose's point being that it was not necessary for the Association to have an executive composed of 64 or more members. That was an unwieldy executive. The Association not only lost monetarily but it lost very greatly in efficiency by having a large Council.

Dr. Langley Browne opposed the motion, because it involved an alteration in the constitution of the Association so vital that he believed it would lead to a great deal of ill-feeling and strife. His own opinion was that the Branches had had more than anything else to do with the building up of the Association, and he thought that it would be a great misfortune to take away the interest from the Branches in the way in which it would be taken away if the motion was carried. It would, he believed, lead to the Charter being opposed before the Privy Council. There was no real cause to grumble at the Council. As far as he knew, it had loyally tried to carry out every wish and resolution of the Representative Meeting, and he believed that it would continue to do so. He could not see any reason for altering the constitution of the Council. The Council was elected on a wider basis even than the Representatives.

Dr. Robertson (Glasgow Southern) opposed the motion, because he desired to see that due regard should be had to geographical distribution.

Sir Victor Horsley, on a point of order, said he had not touched on the question of the due representation of the different parts of the United Kingdom and the subdivisions of those parts of the United Kingdom, because he intended to include that matter in a second resolution. He intended later on to move:

That it be an instruction to the Organization Committee in framing the by-laws relative to the election of members of Council to make provision for due and proportionate representation of the several parts and districts of the Empire.

Dr. Robertson said that if due regard were not given to geographical distribution of members of the Council it would sound the knell of the British Medical Association because the Scottish and Irish would at once set up a medical association of their own.

Dr. Goyder said that it would be a great mistake if the Representative Meeting attempted to elect the members of the Council from its own body. The election of Representatives must take place on the spot because members coming from other places than the place they were to represent know little or nothing about the constituency they represented.

Mr. Parkinson said that the meeting ought to consider very carefully before voting in favour of the proposal, and especially should those who lived in the remoter districts of Ireland and Scotland and in the country districts generally do so. Under the existing arrangements members of the Council were elected throughout the Empire to represent their own constituencies, and came to the Council meeting knowing the requirements of the districts which they represented. In every committee appointed by the Council care was taken that the different parts of the country should be represented. If the amendment were carried the provincial members would be putting into the hands of the metropolitan members a weapon that would enable them to swamp the Representatives of Ireland and Scotland and the country districts generally, and the old condition of things would return, and instead of the Association being the British Medical Association it would be a London and District Association.

Dr. John Brown (Rochdale and Bury) hoped the meeting thoroughly understood Mr. Parkinson's remark. If the resolution were carried the provinces would be swamped by London and surrounding districts. If Sir Victor Horsley in his resolution safeguarded Ireland, Scotland, Wales, and the Northern and Western districts of the Association, then he would vote for the amendment.

Dr. Johnson Smyth (Bournemouth) said the motion in its practical working would swamp his Division, and the same statement applied to scores of others. He hoped they would look at the practical operation of the proposal, and not be led away by the charm of the theory underlying it.

Dr. Baildon (Southport) spoke against the proposition, on the ground principally that it was impossible for Representatives at the Annual Meeting to have any idea of the capability of the men proposed to serve on the Council. It was impossible, for example, for him to know the merits of Representatives from London, the South Coast, Ireland, or Wales. He had difficulty in settling in his mind for whom to vote in the long lists of nominations to committees. That was bad enough, but it would be infinitely worse if he had to decide on the personal merits of candidates for the Council.

Dr. Martley (Dublin) intended, as an Irish Representative, to vote against the proposal. Sir Victor Horsley said that he had a second resolution to guard the representation of Ireland, but how was that to be done? He would point out to the Representatives of all the more distant members that they were buying a pig in a poke. He did not know whether it would be proposed that the Irish members only were to elect the Irish members, or whether the whole of the meeting was to do it. He utterly declined to have anything to do with the whole of the meeting electing Irish members. It would have a very bad effect upon the profession in Ireland.

Dr. E. Owen Price (North Carnarvon and Anglesea) thought there was a logic about the proposal which made it fascinating, but it was a kind of suggestion which ought to be most carefully considered, and should not be accepted without careful scrutiny. Under the present arrangement the British Medical Association had in the Representative Assembly and in the Council a double representation which had its advantages and its disadvantages, but it was a double link connecting it with the medical profession in the country generally. That double connexion was very valuable, and he hoped the meeting would hesitate long before it changed the present arrangement. He admitted that what had been proposed was very logical and very symmetrical, but like many such proposals it was not practicable.

Mr. Andrew Fullerton (Belfast), speaking as an Irishman and representing a large Division, said he would be very sorry if they had to come to the Representative Meeting to have the members of the Council selected, because he could not see how a body of men, mostly living in England, could tell who would best represent the Irish members. The practical difficulties were so great that he felt bound to vote against the proposal.

Dr. Latimer (Swansea) thought that if the proposal were carried the sensibilities of a large number of Divisions and Branches would be offended. He took it that the proposal had its origin in a feeling that much went on in the Council which the Representative Body knew nothing about. He suggested a compromise on the whole question; compromises were not as a rule acceptable, but he thought that one would be. He would be very sorry to see the Branches lose their representation on the Council. He would suggest that the Council consist of half from the Branches and half from the Representative Meeting, and, in reply to the Chairman, said that he was prepared to move that as an amendment.

Dr. MacKeith (Southampton, Guernsey and Alderney, and Jersey) thought that the proposal to at once delegate to so very small an assembly as the Representative Meeting the powers which had been enjoyed by the Branches all over the three kingdoms and beyond would be almost a revolution. To imagine that the Representative Meeting represented the Branches of the country was an assumption there was no right to make. They were not in touch with the Branches in every respect. He thought probably the salt of the Council had been derived from the Branches; and, until the Representative Meeting should be entirely representative of the Branches as well as of the Divisions, he thought it would be a terrible weapon to put into the hands of the meeting of the representatives of Divisions only the power to elect the Council. He unhesitatingly opposed the proposal.

Dr. Caverhill (North-West Edinburgh) thought that a Council elected with some reference to geographical distribution was essential.

Dr. Maclean had some sympathy with the remark which had been made with regard to the suddenness with which this matter had been brought before the meeting. A difficulty seemed to be that a number of those present seemed to regard the Branches and the Divisions as being composed of different men. That was not the case. The same men sent the members to the Council as elected the Representative Meeting. He was convinced that if the principle of this resolution or the resolution itself was carried out, the working as between the Representative Meeting and the Council would be much more effective and much more harmonious. The proposal would not have the effect of abolishing the Council. It would simply mean that the mode of electing the Council would be altered. The Council would remain, but on a much better footing with regard to the Representative Body.

Dr. Sevestre pointed out that if the Council was elected by the Representative Body that would not bar the views of the various Branches.

Dr. E. T. Davies (Liverpool Northern) said that he had come to the meeting with an open mind, but must confess that after what he had heard he was inclined to think that the old régime was better than the system proposed. The new organization was only two or three years old, and it had scarcely felt the ground. The representation of the Divisions might be increased on the Council, and it might be seen how it would work for a period.

Dr. Odell (Torquay) said that he would like to ask whether the carrying of the present proposal would really imperil the passing of the Charter, as Dr. Langley Browne had stated.

Dr. Langley Browne said that he had simply stated that it might provoke opposition which might prevent the Association getting the Charter.

Dr. Jas. Hamilton said that the members of the Council were elected by each member of the Association, and the Branch was simply the machinery through which the election was worked. It was not a question of the Divisions as against the Branches. Till something was known as to how the territorial or geographical distribution was to be carried out he could not support the proposal.

Dr. Langdon-Down (Richmond) thought that some practical and definite demonstration of the evils at present existing was required before taking the serious step of changing the basis of the Constitution.

Dr. Thomas asked how it was proposed to retain the connexion that existed at present between the Branches and the Central Council.

Dr. Douglas (Dartford, etc.) could not vote for the proposal, as it was one which had not come before the Divisions and as to which there was no practical experience.

A motion that the question be now put was carried.

Dr. Percy Rose (Stratford), as the matter was so important, asked for a card vote.

Sir Victor Horsley appealed to Mr. Rose not to press for a card vote. It would take a long time, and the vote would be merely a preliminary vote. Dr. Rose withdrew his request.

The motion was then put, and declared by the Chairman to be lost by a large majority.

Dr. Latimer moved the following amendment:

> That the members of the Central Council shall be elected, two-thirds by the Branches and one-third by the Representative Body at its annual meeting.

It was not necessary to go over the whole ground again for the matter did not come before them for the first time it had been simmering in the minds of all the Representatives for some time past that it was desirable to make a change, and that the Representative Meeting should be represented on the Council. He believed, however, if the present method of election of the Council were swept away and a Council wholly elected by the Representative Meeting substituted, there would be a great risk of disruption of the Association. He believed the suggestion which had been thrown out that the Charter would be opposed was not an empty threat.

The amendment having been seconded, Dr. Gosse said that the Representatives had not received any instructions from their Divisions.

Dr. Alfred Cox intimated he would vote against the amendment if it led to any increase in the size of the Council.

Dr. Ewart (Westminster) said his Division did not consider that the representatives of the Representative Meeting on the Council should exceed six in number, provided that number be an addition to the existing number.

Mr. Andrew Clark inquired whether it was intended that there should be any *ex-officio* members or co-opted members, and that the Services should be represented.

Dr. Latimer replied that he had not formulated in his own mind any scheme, but he thought the feeling of the Representative Body was that it would be better to do away with the co-opted members. He was strongly in favour of representation, and it was hardly representation to have co-option. As to the *ex-officio* members, he presumed they ought to be on the Council; they were the Treasurer, President, and so on.

The Chairman said that meant leaving the *ex-officio* members on the Council, doing away with co-opted members and leaving the Service Representatives, the remainder of the Council being elected by the Branches as to two-thirds, and as to one-third by the Representative Meeting.

Professor Morrison suggested that Dr. Latimer's proposal might be put into Ordinance 19 instead of Subclause (*b*), allowing the other parts of the draft Ordinance to stand, modifying the draft only in respect to the representation of the Council and the Representative Body.

The Chairman pointed out that if the resolution was carried the matter of drafting would be one for the Organization Committee.

Dr. Broadbent (Manchester North) asked how, if the Representative Meeting elected some members from its own body, their places in the Representative Meeting would be filled.

Dr. Latimer did not see why they should be replaced. They would still be members of the Representative Meeting.

The Chairman pointed out that there were at present members of Council who were also members of the Representative Meeting.

A Representative said it had already been decided that the Representative Body should not elect the whole Council, and he did not think that it should elect any part of the Council. A similar proposition had been brought forward at Leicester, and the only difference between the two was that last year's proposal would have annihilated the whole Council, while this year's proposal would annihilate a third.

Dr. Johnson Smyth (Bournemouth) asked whether the election would be conducted out on an electoral or a geographical basis.

Dr. Latimer (Swansea) said that no details had been elaborated, but he took it that it would be for the Organization Committee to see whether there should be an electoral or a geographical distribution.

Dr. Robertson agreed with Dr. Latimer that the co-opted members should not exist. He thought the members to be elected by the Representative Meeting should be geographically arranged, so that they should represent all parts of the Empire.

Mr. Parkinson thought that the co-opted members were of great service to the Council. If they were done away with the Council would be unable to co-opt such a man as Mr. Andrew Clark, who had a minute acquaintance with the question of rebuilding the house of the Association. He suggested that Dr. Latimer's amendment would be as useful if he left out that proportion, and merely provided that the Council should be elected by the Branches on the one part and by the Representative Body on the other.

Dr. Hamilton said that the words in the Charter were that the Council should be elected by the Branches, but he contended that the word "by" was a mistake. The proper expression was "through the Branches." The Council was not elected by the Branches but, through the Branches, by the members, who were the same people who voted for the Representatives in the Divisions.

Sir Victor Horsley hoped the meeting would accept Dr. Latimer's proposal, because it embodied a certain part of the principle upon which he had endeavoured to obtain a vote. He could not agree that co-option was necessary. He quite agreed that it had been the means of putting on the Council men who had been of great service to the Association, but the services of those men could have been obtained just as well by giving power to the Council to add to its number.

Dr. Latimer (Swansea) obtained leave to add to his proposition the words:

Due regard being had to geographical distribution.

A Representative said that he would like to point out that the effect of adopting Dr. Latimer's proposal would be to deprive about one-third of the Branches of representation.

The Chairman observed, in reply to Dr. Jane Waterston, that she might be perfectly sure that the Colonies would be taken care of.

Dr. Latimer's amendment was then put to the meeting and carried.

Sir Victor Horsley then moved the following rider:

That it be an instruction to the Organization Committee to provide in respect of the constitution of the Council that members elected by the Branches and the Representative Meeting together shall not exceed 21 in number.

The rider went on the principle of treating the Council as the executive body of the Association, and that it should be smaller than at present. There were six *ex-officio* members, and there were three representing the Services, making nine, and twenty-one others, making thirty altogether; quite enough to carry on the executive business of the Representative Meeting.

An amendment by Mr. Parkinson to delete everything after the words "Representative Body" in Clause B, Sec. 19, was ruled out of order.

In reply to Professor Morrison, the Chairman said it was well understood when the reference was made to co-opted members, that it was the members co-opted by the Council itself, and not the Service members. He did not think there was any difficulty about the matter. By Dr. Latimer's amendment the Council would consist of *ex-officio* members, the Service members elected as before, and members elected as to two-thirds by the Branches and as to one-third by the Representative Body, due regard being had to geographical distribution.

Amendments by Dr. MacKeith and Dr. Broadbent were ruled out of order.

Sir Victor Horsley said his rider amounted to this: that the number of members elected by the Branches and by the Representative Meeting together should not exceed 21.

Dr. Odell seconded.

The Chairman said that that meant that there would be fourteen members elected by the Branches, and seven by the Representative Body; in addition, there would be the nine *ex-officio* members. It should be remembered that if the amendment were adopted, there would necessarily have to be a regrouping of the Branches.

Mr. Parkinson protested strongly against the rider. He remembered the time when there was a small Committee of Council, and that Committee of Council was ruled by three men. If this rider were accepted the whole affairs of the Association would be put into the hands of a narrow clique, and there would be no representation.

Dr. Groves contended that the Branches did exceedingly good work; and, if the Branches were materially altered it would be impossible for them to do the scientific work which Sir Victor Horsley had spoken about.

Sir Victor Horsley, on a point of order, reminded Dr. Groves that the meeting had already passed his resolution providing for a total reorganization of the Branches, and making the number of Branches smaller than before, in order to provide for the scientific work of the Association.

Dr. Odell said his reason for seconding the proposition was that a Council of sixty-four members was an unwieldy body.

Dr. Johnson Smyth asked the meeting to realize that there were eight or ten Standing Committees already. He thought the Association should not put itself into the hands of a very limited number of men.

Dr. Caverhill suggested a grouping of the Branches for electoral purposes only, and a grouping of Branches for scientific purposes only, exactly as was done in Parliamentary procedure.

Dr. Douglas would support the resolution of Sir Victor Horsley if he would increase the numbers from 21 to 30.

Dr. Latimer took it that the Council would have an added strength from a reduction of numbers. He would like to see the Council act as a Cabinet. And a Cabinet or Board of Directors never consisted of a large body of men, such as had been carrying on the affairs of the Association hitherto. It was also an expensive body.

Dr. Price (North Carnarvon, etc.) said that North Wales would be almost wiped out altogether if the rider were carried; it might be that the objection was based on sentiment, but he believed that sentiment went for a great deal in this matter, and he hoped that the meeting would have some regard to it in voting. It was a cant phrase that the smaller the committee the better, and there was the saying that a committee of one was the best committee of all, but he could assure the meeting that in this instance the cost would be infinitely more than the gain that there might be in efficiency.

The rider was then put to the meeting and lost, but

Mr. Ballance said that he believed that it was the opinion of all present that the numbers of the Council should be reduced. Sir Victor Horsley had tried to reduce it by two-thirds; he would propose to reduce it by one-third. The proposal would be that there should be thirty members of the Council elected by the Branches and by the Representative Meeting—twenty by the Branches and ten by the Representative Meeting—and in addition to that there would be six *ex-officio* members and

three members from the Services, that gave a total of 39 members of the Council.

Dr. Douglas seconded.

The motion was put and carried.

Dr. McCarthy moved on behalf of the Ashton-under-Lyne Division to modify Ordinance 19 by striking out in (*c*) all the words after "numbers" up to and including the word "further."

The motion was seconded and put to the meeting and carried.

Dr. Langley Browne moved on behalf of the Council to insert in Ordinance 19, at the end, after the words "Medical Officer" the words "shall be a Member of the Association and," and this was agreed to.

Dr. McManus (Wandsworth) moved:

"That Ordinance 19 be a by-law.

Sir Victor Horsley said that he could not support the proposition unless the legal adviser told the meeting that its adoption would not imperil the grant of the Charter.

Dr. Langley Browne thought the Ordinance should remain an ordinance, otherwise there could be no finality; the Branches might be rearranged, and the new arrangement might be upset in the very next year.

The Solicitor did not think that it would imperil the Charter to transfer the provision from the Ordinance to the By-laws, but he would point out that to be consistent, if the meeting transferred matters relating to the Council it ought also to transfer some minor details still in the Ordinance, such as those which followed as to the committees.

Mr. Parkinson supported the proposal.

The motion was then put and carried.

Ordinance 19 as amended was then agreed to.

Committees.

Mr. Ballance (Norwich and West Norfolk) moved Ordinance 20:

> 20. Committees may be appointed in such manner and having such powers as may be prescribed by the By-laws, or as the Representative Body or the Council, subject to the provisions of the By-laws, may think proper. The President of the Association, the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer shall be *ex officio* Members of all Committees of the Association.

Dr. McManus (Wandsworth) moved:

> In Ordinance 20 (in the second paragraph) for the words "the Chairman of Representative Meetings," *substitute* the words "such number of Members of the Council elected by the Representative Body as may be specified in the By-laws;" and *add* at the end of the Ordinance, the words "excepting the Scottish and Irish Standing Committees. The determination of which Members of the Council elected by the Representative Body shall be *ex-officio* Members of any Committee shall rest with the said members of the Council, and be decided by them in a meeting of themselves convened by the Chairman of the Representative Body not later than September in the year of Election."

It was rather involved, but he asked them to adopt so much of it as they understood.

Mr. Greer seconded.

Mr. Parkinson having expressed the opinion that the meeting did not understand the amendment, the Chairman asked Dr. McManus to explain it, but he said that if the meeting did not understand it he did not wish to press it. The amendment was accordingly withdrawn.

Dr. MacKeith (Southampton, etc.) asked the opinion of the Solicitor as to whether Ordinance 20 should become a By-law in the same way as 19.

Mr. Hempson (the Solicitor) thought the Ordinance might perhaps remain where it was, because in the By-laws was provided subsidiary machinery.

The Chairman said that as it was the opinion of the Solicitor, he moved that Ordinance 20 stand part of the Charter, and this was agreed to.

Officers.

Mr. Ballance moved Ordinance 21, which was as follows:

> 21. There shall be the following executive officers of the Association, namely, a President, a President-Elect, a Past-President, a Chairman of Representative Meetings, a Chairman of Council, and a Treasurer. The Officers aforesaid for the time being, other than the Chairman of Council, shall hold office for such period, and shall have and enjoy such duties, powers, and privileges as shall be determined from time to time by the By-laws. The Chairman of Council shall be elected by the Council from its own number, and shall hold office for such period and discharge such duties as shall be determined by the Council. During his period of office, and for one year thereafter he shall be an *ex-officio* member of the Council, and any Branch of which at the time of his election he was a Representative shall be entitled to elect another in his stead.

Dr. Langley Browne moved on behalf of the Council to insert before the words "any Branch" (in the last line but two) the words "for that period." He said that it was a necessary verbal amendment, and it was agreed to.

Dr. Langley Browne proposed the following new Ordinance:

> There shall be an Editor, a General Secretary and Manager, a Medical Secretary, and such other officers as the Council may from time to time appoint.

In the Articles of Association it was specially mentioned that there should be the offices of Editor and General Secretary, but that had been taken out of the Charter; his proposal was that it should be put back into the Ordinances, for the reason that it would give a very much greater feeling of security to any man applying for one of the offices if he knew there was a certain security of tenure in the office.

Dr. Maclean moved

> That the provision, if any, as to the principal paid officials be not in the Ordinances but in the By-laws, in order that it may be modified by the Representative Body when required, without reference to the Privy Council; and that no decision as to the designation of those officers in the Regulations be arrived at until the Committee of Inquiry has reported.

The motion was seconded by Mr. Ballance, who thought it important that the Finance Inquiry Committee should have a free hand as regards the designations of the officials; their duties and the separation of the work were referred to the Finance Inquiry Committee, and he could not understand why the matter should be put into an Ordinance, rather than into a By-law.

Dr. Langley Browne said the reason for making it an Ordinance was to give that security to any one applying for an appointment that an Ordinance would give. It had nothing to do with the duties or the designation. It made a difference to those who applied for appointments if they found that by the Ordinance they had a certain security of tenure; they would otherwise be liable to be removed for personal reasons.

Mr. Parkinson supported Dr. Langley Browne's proposal.

Mr. Geo. Brown (Devonport) supported the amendment. The Association would have a much freer hand in dealing with the matter in case of any alteration being required if the provision was in the By-laws.

It was then moved, seconded, and agreed to that the question be now put.

Dr. Maclean's amendment was then put to the meeting and carried.

The Chairman said Dr. Maclean's proposition came before the meeting as a substantive motion.

Dr. Langley Browne moved that the motion cease at the words "Privy Council," because he maintained that the inquiry the Committee was going to make as to the duties of the different secretaries had nothing to do with the offices named.

The amendment was seconded.

The amendment was put to the meeting and lost.

Dr. Maclean's motion was then put as a substantive motion and carried.

The Chairman said it then became an instruction to the Committee.

Mr. Verrall moved Ordinance 22:

> 22. The Council may from time to time appoint and dismiss such salaried and other officers and servants as it may think fit.

Travelling Expenses.

Mr. Verrall then moved Ordinance 23:

> 23. The first-class travelling expenses within the United Kingdom of Members of Council and Representatives of Divisions attending any Representative Meeting shall be defrayed out of the general funds of the Association. Attendance of Representatives of Divisions for this pur-

pose shall be construed to mean attendance at each Session of the Representative Meeting, unless the Council shall be satisfied that good cause existed for absence from any particular Session or Sessions. The first-class travelling expenses within the United Kingdom of all Members attending Meetings of Council or of Committees and of all Members authorized by the Representative Body or by the Council to attend and attending any Conference shall be defrayed in like manner. The Council shall (subject as hereinbefore provided) determine what shall be considered an attendance for the purpose of this clause.

Dr. McCarthy moved an amendment on behalf of the Ashton-under-Lyne Division as follows:

That Ordinance 23 be modified to read as follows:

"Members of Council and Representatives of Divisions attending any Representative Meeting shall be paid out of the general funds of the Association their first-class railway fares and an allowance of one guinea for each day of 24 hours, or part thereof, that they may be compelled to be absent from home by such attendance. Attendance of Representatives of Divisions for this purpose shall be construed to mean attendance at each Session of the Representative Meeting, unless the Council shall be satisfied that good cause existed for absence from any particular Session or Sessions. Similar payments shall be made to all Members attending meetings of Council or of Committees, and to all Members authorized by the Representative Body or by the Council to attend any Conference.

"The Council shall (subject as hereinbefore provided) determine what shall be considered an attendance for the purpose of this clause."

Dr. Broadbent supported the proposition.

Dr. Low (Dundee) asked whether the regulation could not be transferred to the By-laws.

Dr. Latimer and Dr. Odell opposed the amendment on the ground of expense, and after some observations from Dr. Douglas it was withdrawn.

Mr. Jackson suggested that the Ordinance should be transferred to the By-laws.

Mr. Hempson (the Solicitor) thought that some provision as to payment of expenses must be inserted in an Ordinance over which the Privy Council had control, though the power might be expressed in more general terms. The detail could be elaborated in the By-laws. The power itself must be defined by the Ordinance.

Dr. Robertson, on a point of order, called attention to the fact that the meeting had already passed a clause providing for the payment of the personal expenses incurred by members in connexion with their attendance at meetings of the Representative Body.

The Chairman said it was necessary to put in the Ordinance the means by which it could be done. The Charter merely gave the power.

Mr. Hempson (the Solicitor) said if it were the opinion and desire of the meeting that this should form the subject of a by-law, he would ask them to give an expression of that opinion, and to leave it to counsel to say whether or not he would consider the application for a Charter would be prejudiced by so doing.

Mr. Parkinson proposed that the Clause should read—

The first-class travelling expenses within the United Kingdom of members of Council and Representatives of Divisions attending any Representative Meeting may be defrayed out of the general funds of the Association.

He suggested a general power should be taken there, and defined in the By-laws.

The Chairman suggested that the principle of the Ordinance should be admitted and that the Solicitor should redraft it in the form of a By-law.

Dr. E. T. Davies (Liverpool Northern) moved that "third-class travelling expenses should be allowed, and that the same be allowed also to members attending meetings of any Branch Council." His Division thought that third-class fare was good enough for anybody, as travelling expenses. He was instructed to make the suggestion that there should be allowed third-class railway fare and 10s. 6d. a day.

Dr. Langley Browne said he hoped that the meeting would not consent to the proposal.

Dr. Latimer said that he was not coming up to London on third-class fares. As it was, he was absolutely out of pocket by any visits he paid to London.

The amendment was put to the meeting and lost, and an amendment, of which the Wandsworth Division had given notice, was withdrawn.

Financial Reports: Audit: By-laws.

Mr. Ballance moved Ordinances 24, 25, and 26, and these were agreed to.

Dr. McManus moved, Dr. Maclean seconded, and it was agreed:

That the draft By-laws, with all amendments proposed thereto, be referred to the Organization Committee, with authority to redraft the same in such manner as the Committee deem expedient.

[The meeting then adjourned until the following morning.]

Friday, July 27th.

Dr. J. A. Macdonald in the Chair.

The minutes of the previous day's proceedings were read corrected, and approved.

Election of Members of Committees.

The Chairman read the return of the previous day's election:

Finance Inquiry Committee.—Mr. Armit (Hampstead), Mr. H. A. Ballance (Norwich and West Norfolk), Dr. Alfred Cox (Gateshead and Consett), Sir Victor Horsley (Marylebone), Dr. Langdon-Down (Richmond), Dr. McManus (Wandsworth), Mr. Wolstenholme (Salford).

Medico-Political Committee.—Mr. Armit (Hampstead), Mr. Jackson (Plymouth and Truro), Dr. Latimer (Swansea), Dr. McManus (Wandsworth), Dr. Oldham (Lancaster), Dr. C. E. Robertson (Glasgow Southern).

Ethical Committee.—Mr. Armit (Hampstead), Dr. Bateman, Dr. Broadbent (Manchester North), Dr. Langdon-Down (Richmond), Dr. Maclean (Cardiff).

(See also page 136.)

Alterations of Articles and By-Laws.

Dr. McManus moved on the part of the Wandsworth Division:

That pending the application for, and the obtaining of the proposed Royal Charter, it be an instruction to the Central Council to make the necessary arrangements forthwith to confirm and make effective the various alterations and additions in the Articles and By-laws approved of by the Representative Meeting.

The Chairman pointed out that the insertion of "By-laws" in the amendment was an error, because alterations of By-laws took effect at once. The resolution referred to some alterations in the articles proposed last year which had not been made effective. The proposition was that the Council be instructed to take steps to render the alterations effective.

Dr. Walter Smith (St. Pancras and Islington) inquired whether it would be in order at a special Representative Meeting, which he understood was to be held in January, to move any amendment to the Ordinances which had been passed by the meeting, because if so, the motion ought to be adjourned until that meeting.

The Chairman explained that the motion had nothing to do with the proposed Charter but with some amendments to the Articles carried last year. The effect of the motion was, that pending the Royal Charter being granted these resolutions should be made effective.

Mr. George Brown said that the proposal involved calling two general meetings of the Association. He thought it would be better to postpone the matter.

Mr. Ballance said that at the meeting at Leicester certain important alterations in the Articles of Association were approved by the Representative Meeting. One very important one had reference to grouping the Divisions for the purpose of electing a Representative; it was to the effect that power should be given to the Council to allow independent representation of a Division below 50 members. Certain Divisions had a grievance with regard to the way they were grouped. In order to remove that grievance, he hoped the Articles would be changed as approved last year. It was true that it meant two general meetings of the Association; but he did not think the cost would be great.

The Chairman of Council said the only cost would be the printing.

Dr. F. C. Martley (Dublin) suggested the addition after the words "approved of by the Representative Meeting" of the words "at Leicester," so as to avoid confusion.

Dr. McManus accepted the suggestion, and added that certain definite resolutions having been adopted at the Leicester meeting, he could not see them thrown into the waste-paper basket without a protest.

Dr. Rose (Stratford) proposed as an amendment that the Annual General Meeting should be held after the Representative Meeting.

The Chairman said that he could not accept the proposal as an amendment.

Dr. Caverhill (North-West Edinburgh) asked what steps had been taken after the meeting of last year to make the resolutions operative.

The Chairman said that it would have been necessary to hold a special general meeting of the Association at which a two-thirds majority must have been obtained, and a second general meeting to confirm the resolutions by a simple majority. The reason why the matter was postponed, and why no action had been taken by the Council, was the proposal to apply for a Charter.

The motion of the Wandsworth Division was then put and carried.

Public Medical Services.

Mr. Armit (Hampstead) moved that the recommendations of the Medico-Political Committee as to public medical services (published in the Supplement, July 14th, 1906, p. 48) be approved, and stated, in reply to Dr. Broadbent, that their adoption would simply imply a general approval of the principle.

Dr. Cox (Gateshead and Consett) moved that the recommendations be taken *en bloc*. This was agreed to. The recommendations were adopted.

Provident Dispensaries.

Mr. Armit moved that the recommendations of the Medico-Political Committee as to Provident Dispensaries be approved (Supplement, July 14th, p. 48), and this was agreed to.

Vaccination Expenses.

Mr. Armit moved that the Report of the Joint Sub-Committee of the Medico-Political Committee and the Public Health Committee on Vaccination Expenses be approved, and this was agreed to.

Mr. Armit then moved the following recommendation approved by the Medico-Political and Public Health Committees and Central Council:

1. That the Report of the Departmental Committee on Vaccination expenses should receive the general approval of the Association.

This was agreed to. He then moved the further recommendation:

2. That no reduction should be made in the existing minimum fees to Public Vaccinators until such changes have been made in the law as are necessary to carry out the proposals of the Departmental Committee as regards diminution of work of Public Vaccinators and improvement of their status.

Dr. Walter Smith moved:

That every registered medical practitioner shall have the privileges of a Public Vaccinator, and that the Council be instructed to take the necessary steps to carry this into effect.

A few weeks ago he was a delegate to a large conference of guardians from all parts of England and Wales on the subject of vaccination, and a great many of those present expressed the opinion that it would be an advantage that all registered medical practitioners should be public vaccinators—that was to say, should receive fees for vaccination from the State. Some of the guardians present said that they were quite prepared to pay larger fees in their particular districts, but considered that it was almost impossible to fix a fee for all parts of the kingdom.

Mr. Jackson asked that a notice of motion by the Hampstead Division:

That the office of public vaccinator should either be abolished or made a whole-time appointment,

might be taken in two parts. He would agree that it be made a whole-time appointment, but not that it be abolished.

Dr. Walter Smith said they did not want public vaccinator appointments abolished, but that every registered practitioner should have the privilege of a public vaccinator, so that he could vaccinate his patients and charge the same as a public vaccinator.

Sir Victor Horsley inquired whether Dr. Walter Smith would not stop at the word "vaccinator," because the Council had no power to do what he asked.

Dr. Walter Smith assented.

Sir Victor Horsley reminded the meeting that they had discussed the matter before, and the feeling of the meeting was very strong that every registered medical practitioner should have the privileges of a public vaccinator. He submitted that time was being wasted.

Dr. Hinds (Chichester, etc.) pointed out that the privileges of a public vaccinator carried responsibility; they had to conform to Government regulations. Was Dr. Smith's resolution meant to be compulsory or permissive?

The Chairman suggested that the substitution of the word "should" for "shall" would meet the difficulty; and Dr. Walter Smith assented to the alteration.

Mr. Parkinson observed that the public vaccinator was obliged to conform to certain conditions, and was inspected by a Government official to see that he conformed to those conditions. How would it be possible for a Government official to inspect the work of all medical men? It was utterly unlikely the Government would ever agree to such a proposition, on the ground of expense. There were a number of medical men who did not vaccinate properly. ["No, no," "Yes, yes."] There were men who vaccinated in one place and to the extent of a pin's head.

The resolution moved by Dr. W. Smith was approved.

Mr. Armit (Hampstead) moved:

3. That the proposals of the Departmental Committee as regards placing Public Vaccinators in the same position as Poor-law Medical Officers in respect of tenure and superannuation, being of great value, should receive special support from the Association.

Dr. Langley Browne said that the meeting had just expressed the opinion that every medical practitioner should have the privileges of a public vaccinator, but now it was proposed that all public vaccinators should have security of tenure.

Sir Victor Horsley said that the meeting had surely the right to express a pious opinion, and it had expressed its opinion most piously.

Dr. Robertson objected to any portion of the profession being hampered by superannuation. If a man received a sufficient income, he should superannuate himself. If his income was not sufficient to do that, it should be increased so that he could.

Dr. Alfred Cox (Gateshead) said it was suggested that there was some inconsistency in the two positions taken up; that there should be superannuation for public vaccinators, and at the same time that the office should be abolished; but even if every practitioner had the privileges of a public vaccinator, there would still remain a number of cases which would require to be hunted up for those purposes; public vaccinators would still be required, and they ought to be treated as other public officers were.

Dr. Walter Smith (St. Pancras) supported the Committee. He hoped superannuation would be pushed.

Dr. Mantle (Halifax and Huddersfield), speaking as a public vaccinator himself, said that his object in attending was to get this done. He thought most were agreed to it in principle.

A motion that the question be now put having been carried, the recommendation was put and agreed to.

Dr. Armit then moved Sec. 4:

4. That every private practitioner furnishing the vaccination authority with certificates of successful and efficient vaccination, satisfying a standard fixed by the Local Government Board, should receive a suitable fee for each certificate.

Dr. Wynne (Leigh and Wigan) asked whether the adoption of this section would involve inspection by the local authority.

Dr. Walter Smith asked whether he would be in order in moving as a rider:

That the standard for a private practitioner's certificate should be equal to that of a public vaccinator.

After a short discussion, it was proposed, seconded, and carried that the question be now put, and Recommendation 4 was then agreed to.

Dr. Laffan (Carlow) moved the following as a rider: "That this meeting condemns the slight put upon public vaccinators and on registered medical practitioners in Ireland by their exclusion from teaching the small surgical operation known as vaccination."

This was seconded by Dr. McManus.

Dr. Macan said that he was under the impression that

the number of teachers in Great Britain licensed to instruct in vaccination was very limited.

Dr. Laffan said that two wrongs did not make a right. He would leave out the words "in Ireland."

The motion was seconded by Dr. McManus.

Professor Morrison said that he had sympathy with the idea underlying the rider, but it had to do really with the issuing of certain qualifying certificates. There was nothing to prevent any practitioner teaching vaccination to anybody. It was only a question of altering the phraseology. It might read, "granting a qualifying certificate for," instead of the word "teaching."

Mr. Straton (Salisbury) moved as an amendment:

That registration by the General Medical Council be considered sufficient guarantee that the holder is fit to perform vaccination.

The Chairman thought there was no question in the mind of the meeting about the advisability of the rider, but it did not convey exactly what was wanted. Everyone had power to teach, but not power to grant a certificate.

The amendment to the main rider—

That registration by the General Medical Council be sufficient guarantee that the holder has been taught vaccination,

was seconded by Dr. Macan in that form and carried. It was then put as a substantive motion and approved.

Insurance Examination Fees.

Mr. Armit (Hampstead) said the next matter in the report of the Medico-Political Committee was—

Having regard to the number of important matters which it has been necessary for the Committee to consider since the Representative Meeting, the Committee has been unable to carry out the preparation of materials for the consideration by the Divisions of the question of insurance fees. The Committee therefore reports this fact, and requests the Representative Meeting to renew the instruction.

The Committee reported the fact with regret, and asked that the instruction be continued.

Sir Victor Horsley moved that the meeting agree to that request.

Mr. Ballance, in seconding, said he wanted it to be understood by the meeting what the position was. He quite recognized that there was a mass of work during the past year thrown on the Medico-Political Committee, but he did not want the matter hung up beyond another year. He understood that the reports on insurance fees would be sent to the Divisions for their opinions and views as regarded future concerted action; and then, after the reports had come back to the central office, the Medico-Political Committee would communicate with the insurance companies throughout the kingdom to endeavour to get them to accept the principles enunciated. If that were the position of affairs, he would be very glad to second the resolution.

At the instance of Mr. Straton, the following motion standing in the name of the Salisbury Division was referred to the Medico-Political Committee: "That the fee for examination in cases of ordinary life assurance should be at least 10s. 6d. for policies up to and including £100 and 21s. for policies over £100."

The motion to continue the instruction was carried.

State Registration of Nurses.

Mr. Armit then moved the next item as follows:

Pursuant to the instruction of the Representative Meeting at Leicester, the subject of State Registration of Nurses has again been referred to the Divisions.

The questions submitted were as follows:

(1) Does the Division approve in general of the method of Registration of Nurses proposed by the Select Committee of the House of Commons?

(2) Does the Division approve of the separate Registration of Midwifery Nurses?

Twenty-six Divisions have reported to the Committee their resolutions upon Question (1), and sixteen upon Question (2).

Upon Question (1) twenty express unqualified approval, two approve conditionally upon a minimum of three years' training being required for admission to the Register, three express disapproval of State registration, and one deems any system of registration unnecessary.

To this was appended the report on the Nurses' Registration issued by the Committee earlier in the year (Supplement, March 3rd, p. 78) in accordance with the instruction of the Annual Representative Meeting at Leicester (Minute 220).

The Chairman said that he understood the Representative of the Wandsworth Division was willing to withdraw the amendment standing in the name of that Division in favour of a resolution, of which notice had been given, by the Chairman of the Council, and Dr. McManus (Wandsworth) assented.

Dr. Langley Browne said that the registration of nurses excited much interest in the country. Thousands of self-denying able women had gone through a strenuous course of three years' training in hospitals, and they wanted some means of distinguishing themselves from the persons who merely put on a nursing uniform and then professed to be thoroughly trained nurses. The only way in which that could be done seemed to be through State registration of nurses. The Association had, at a previous meeting, supported the movement; but it had met with most strenuous opposition from certain quarters. A few very well-meaning bankers had tried to get a licence approved by the Board of Trade to establish a corner in nurses; these gentlemen did not propose to consult the medical profession, except that they proposed to put one medical man on their Board of management, and he would have been removable at pleasure. The nurses were not considered at all; they were mere chattels. Another way in which the opposition to the proposal for State registration had been shown had been the deputation to Lord Crewe, President of the Privy Council, on June 14th, when the establishment of a directory of nurses was suggested, and it was maintained that that would do as well as State registration. That deputation was attended by Mr. Sydney Holland, Sir Thomas Barlow, and Sir Frederick Treves. Mr. Holland asserted that the Lord President had stated that the Government would not support State registration because there was no consensus of opinion among medical men or the public. Lord Crewe merely informed the deputation that it was impossible for the Government to take up the question this session. Mr. Holland had objected to the registration of nurses on the further ground that it meant certificates given by medical men, and that it was difficult to get medical men to report honestly. Dr. Langley Browne protested against that statement, and asserted further that the registration of nurses was supported by thousands of nurses and by the British Medical Association. He moved:

That this meeting approves of the recommendation of the Parliamentary Select Committee that there should be State registration of nurses, and is of opinion that on any central Council or Board appointed the medical profession and the nursing profession should be adequately and directly represented.

By "direct" representation he meant representatives of the profession elected in the same way as were the direct representatives of the General Medical Council, or in some other way which would really mean direct representation, and not merely two or three men in London who wanted to get the whole system into their own hands.

Sir Victor Horsley seconded the motion. As Dr. Langley Browne had explained, the situation was one of critical importance. There was no doubt that the House of Commons was prepared to proceed to deal with State registration of nurses. It was for the medical profession to safeguard not only its own interests, but also those of the nurses, and by safeguarding the interests of the nursing calling they would safeguard the interests of the public. But this little hole-in-the-corner proposal of a directory had been evolved in the City of London; its promoters were endeavouring to put the control of the nursing calling into the hands of a few gentlemen, and the British Medical Association had been represented at the Board of Trade inquiry into the proposal; it was the opposition of the Association which was the chief element in leading the Board of Trade to refuse its sanction. He mentioned that because there were really persons who were endeavouring to establish a corner in nursing, and to do that under the specious form of a private directory. That was positively put forward as a compromise. He objected to compromise in any case, but this compromise, of all others, was an

outrage upon the medical profession and the nursing calling, and, as Dr. Langley Browne had shown, the supporters had made most improper allegations against the medical profession. He hoped the resolution would be accepted.

Dr. Jane Waterston said that at the Cape of Good Hope this difficulty had been solved long ago. The Government had taken it in hand, and every nurse was required to pass a medical examination conducted by medical men belonging to the Medical Council before her name was put on the Government register. If she was not on the Government register she could not recover her fees, and no member of the medical profession would employ her. For people who could not afford to pay for a fully-registered nurse there were women who knew a little nursing, but these women were not on the Government register and could not recover fees. To obtain admission to the Government register a nurse must have gone through three years' definite training in a hospital and pass the Government examination. If she came from England she could not be registered at the Cape unless she had a certificate from England. At the Cape there were two Government examinations, one for midwives and one for nurses; any woman who wished to get on as a midwife and to recover her fees could only do so if she passed the Government examination after proper training. She had been a nurse herself and had very much sympathy with them, but an improperly trained nurse was no use at all. She had been asked what changes she had seen in this country during the eighteen years she had been away. One change she noted was the enormous number of nurses in the streets. Of all evils the existence of an undisciplined mob of nurses was almost the worst. Nurses must be properly trained, properly examined and properly registered and she did not believe anything but a proper register would solve the difficulty. Her country had solved the difficulty and she hoped theirs would soon do so.

Dr. E. White (Sevenoaks, etc.) said he gave evidence before the Select Committee of the House of Commons in reference especially to the nursing of the insane, and was subjected to a considerable amount of cross-examination. He heartily approved of the proposal of the Chairman of Council, and hoped the Association would do all it could to oppose the proposal which had emanated from the City of London. There must be a uniform minimum standard of training and examination. It was the only way to test efficiency.

Dr. Rose wished to move as an amendment:

That the representation of the medical profession on the Central Nursing Body should be at least one-half of the number of the members of that body.

Sir Victor Horsley pointed out that it was not an amendment but a rider, and seconded it as such.

The Chairman considered the motion was an amendment. The original resolution stated that the medical profession should be "adequately represented." The question was what "adequately represented" meant.

Sir Victor Horsley said he was extremely anxious to vote for Dr. Rose's motion, and for that reason hoped that it would be taken as a rider.

The Chairman having accepted the suggestion put Dr. Langley Browne's proposition, and it was carried.

Sir Victor Horsley hoped the vote would be unanimous, and

The Chairman pointed out that there was a difference between carrying a motion without opposition and carrying it unanimously. He would ask them to vote again on the motion, when it was carried with three dissentients, ninety-three Representatives being present, and it was agreed to record the vote on the minutes.

Dr. Percy Rose's rider was seconded by Sir Victor Horsley, put to the meeting, and carried with one dissentient.

Ambulance Work.

The paragraph in the report of the Medico-Political Committee on medical men and ambulance was received.

Recommendations and Resolutions on Contract Practice.

Mr. Armit asked the meeting to approve the paragraph of the report which stated that in accordance with the instructions of the Leicester meeting the recommendations on this subject had been sent to non-members. He wished to point out in answer to those who said that the Association did nothing, that in response to this circular about 400 non-members considered that the Association was doing enough to justify them joining it at once. In other words, the Association gained by the circular an increased yearly subscription of about £500.

The report on the action taken was approved.

Election of Representatives on Outside Bodies.

Mr. Armit presented the scheme of the Medico-Political Committee for the election of Representatives of the Association on outside bodies.

Sir Victor Horsley moved that the scheme be approved. It merely provided the machinery whereby Representatives of the Association should be elected on to other bodies if the necessity arose, but he supposed that such occasions would be extremely rare.

Mr. Armit pointed out that there was no pledge in the scheme.

The scheme was approved, as was the paragraph in the report in regard to the Public Health Bill.

Action in Connexion with the General Parliamentary Election.

Dr. Walter Smith asked whether any action had been taken since the general election with regard to by-elections. He thought that the interviewing of candidates had done a great deal of good, and that it should be continued. There was a great deal of ignorance on the part of candidates, and also on the part of members of Parliament, with regard to medical matters.

Dr. Muir (Glasgow Eastern) could corroborate what had been said as to the absolute ignorance of candidates at the last election.

Mr. Armit said that the instructions given at Leicester only referred to general elections. The Committee asked for instructions to take action during by-elections. The action taken by the Asssociation had brought the Association very much more closely into touch with members of Parliament, and it was much more easy to approach them on all subjects because they had been approached at the beginning of their candidature.

This part of the report was then approved.

Mr. Armit submitted the following recommendations to the meeting, which were agreed to seriatim.

(1) That in all elections a series of questions for candidates analogous to that used this year should be prepared for the use of the Division Committees.
(2) That a statement of all the available information as to the past action of candidates on medical matters be supplied to the Committee of the Division concerned.
(3) That envelopes addressed to the medical practitioners should be supplied from the Central Office when desired by the Division Committees.
(4) That the Divisions should be ready to take prompt action in any election in their areas through Special Committees or the Division Committees.
(5) That it is not desirable that either the Association or the Divisions should make definite recommendations for the support of individual candidates.

Dr. McManus (Wandsworth) emphasized the importance of the last recommendation moved.

Dr. Langdon-Down moved:

That it be an instruction to the Medico-Political Committee that in any future action taken in relation to Parliamentary elections the candidate be invited to consult and co-operate with the Division of the British Medical Association in any matter that may come up in Parliament affecting the medical profession or public health.

In that way a connexion would be maintained between the Divisions and Parliament which would be very useful.

Dr. Cox, in seconding, said that one of the candidates heckled in the North of England said it was a real advantage to him to be able to call upon the Division to give him information at any time.

The instruction was agreed to.

Medical Acts Amendment Bill.

Mr. Armit then asked that the paragraph of the report as to this Bill be approved, and the matter referred again to the Committee to continue its action, and this was agreed to.

Midwives Bill.

The narrative of the matter having been agreed to, Mr. Armit moved the first recommendation:

(*a*) That any legislation promoted or recommended by the Association with respect to the payment out of the public funds of medical practitioners called to assist midwives, should be in the form of conferring power upon local authorities to pay or guarantee fees, and should not include any provision by schedule or otherwise specifying the fees to be paid.

Dr. Maclean said that he believed that Cardiff and Liverpool were the only places that had so far taken action in the matter under Section 133 of the Public Health Act, which provided "That any local authority may with the sanction of the Local Government Board themselves provide a temporary supply of medicine and medical assistance for the poorer inhabitants of their districts." The Cardiff Division had approached the local authority, and induced it to agree that if a patient could not pay a fee, and if it could not be recovered by the Guardians the authority would pay a fee of one guinea in cases of hemorrhage, rupture of the uterus, and convulsions. It was not an ideal arrangement, but it was a move in the right direction.

Dr. Westby said that in Liverpool the plan had been adopted of taking a fee of one guinea without going into the particulars of each case.

A Representative said the first recommendation did not seem to take matters any further. It proposed to confer on the local authority a power to pay which they already had the power to do. It would be better to add words which would make it the duty of the local authority to pay.

Mr. Armit (Hampstead) suggested the words, "to make it the duty," and this was agreed to.

The following further recommendations were then taken seriatim and agreed to:

(*b*) That the schedule of fees should be prescribed by the Local Government Board.
(*c*) That the scale adopted by the Metropolitan Counties Branch be recommended to the Divisions as a basis for adoption, subject to such modifications as may be necessary to meet local requirements.
(*d*) That Inspectors of Midwives should be registered medical practitioners.
(*e*) That the fees suitable to be paid to Inspectors of Midwives must depend upon local circumstances.
(*f*) That the Divisions should therefore be prepared to advise any of their members by whom they may be consulted on the matter.

Mr. Armit said that the next paragraph, which was merely a narrative, stated that copies of the rules of the Central Midwives Board had been forwarded to the Divisions in England and Wales. Upon the replies received the Midwives Subcommittee drew up, and the Committee approved, a report on suggested amendments which had been forwarded to the Privy Council, the General Medical Council, and the Central Midwives Board.

Dr. Price thought it important that the meeting should ascertain to what extent the local supervising authorities throughout the country had taken steps in order to inspect the various midwives in their districts. It was only lately in his own neighbourhood the county of Carnarvon had appointed as inspector the medical officer of health for the county of Carnarvon.

The Chairman invited him to make a recommendation to the meeting that it be an instruction to the Medico-Political Committee to take steps.

Dr. E. O. Price (North Carnarvon and Anglesea) accepted that suggestion. A medical officer of health's work was so great that midwives were not inspected. He moved:

That it be an instruction to the Medico-Political Committee to send inquiries to the Divisions to ascertain to what extent (if any) the rules of the Central Midwives Board are observed, especially as to what means are taken by the local supervising authority as regards inspection of the midwives in their district.

Mr. Ballance seconded.

Dr. Groves suggested the addition of the words—

And to s cure that such inspection shall be under the complete control of the medical officer of health.

The addition was accepted, and a motion that the question be now put having been carried, the Chairman put the motion as amended, and it was agreed to.

The following recommendation of the Hampstead Division was also agreed to:

That the recommendations of the Medico-Political Committee relative to the payment of medical men called in to attend the patients of midwives be endorsed, and the Council of the Association urged to take immediate steps to ensure the introduction of clauses dealing with this matter into any suitable Bill at the earliest possible moment.

Lunacy Law and Inebriates Law Amendment.

Mr. Armit said that the Medico-Political Committee recommended that action be taken by approaching the Lunacy Commissioners and the Lord Chancellor on these subjects at an early date, and that the co-operation of the Medico-Psychological Association be invited.

Dr. E. W. White (Sevenoaks), as Chairman of the Parliamentary Committee of the Medico-Psychological Association of Great Britain and Ireland, referred to the fact that the deputation in reference to the restrictive clauses affecting medical officers had been most graciously received by the Lord Chancellor, who had promised to do his best.

Mr. Armit thought that it would be agreed that that statement was satisfactory. The Medico-Political Committee would certainly reappoint the Subcommittee. He then moved:

(2) That the recommendation (C) as to pauper lunatics be brought to the notice of the Royal Commission on the Feeble-minded.

(C) Lunacy Act (1890), Section 202.

That provision be made for the supervision under the Commissioners in Lunacy of all persons of unsound mind who are in receipt of parochial relief.

This was agreed to. The following recommendations were also agreed to:

(3) That the Asylums Committee of the London County Council be informed of the concurrence of the Medico-Political Committee of the British Medical Association as to the boarding-out of pauper lunatics.
(4) That the whole report be referred to the Irish Committee for consideration in order that they may make recommendations with respect to such provisions as in their view should be extended to Ireland.

The recommendations with regard to amendment of the law relating to the detention and care of inebriates and persons suffering from the habitual use of drugs (Supplement, July 14th, p. 41) were adopted.

Law Relating to Coroners.

Mr. Armit moved the acceptance of the narrative part of the paragraphs in the report of the Medico-Political Committee dealing with this subject (Supplement, July 14th, p. 44), observing that there were certain letters to be read, and several Representatives wished to speak.

Dr. Caverhill (North-West Edinburgh) objected to Paragraph C of the narrative, which was as follows:

(C) Application to Lord Chancellor as to Procedure of Coroner for South-West London.

With reference to the inactivity of the late Lord Chancellor and late Prime Minister with regard to a decision upon the facts submitted to them as to the action of the Coroner for South-West London by the Conference of Medical Societies, representations have been made by the Chairman of Representative Meetings to the present Lord Chancellor asking him to pronounce judgement upon the case.

He moved the deletion of the words "the inactivity of the late Prime Minister."

The motion was seconded by Dr. Odell (Torquay).

Sir Victor Horsley said that he hoped that the meeting would not agree to the motion. The facts as stated were correct.

Dr. Caverhill's amendment was then put to the meeting and lost.

Dr. Walter Smith moved that the whole paragraph be deleted. The less the Association had to do with politics the better.

Dr. Broadbent seconded the motion.

Mr. Armit said that the paragraph was merely a narrative of facts. It would not be fair to pick and choose the facts to be published in the report.

Dr. Wynne (Leigh and Wigan) protested against it being thought that any criticism of any public man in his administration was a matter of politics.

Dr. Broadbent said it was a matter of opinion whether there had been inactivity or not.

The motion for the deletion of the paragraph was negatived.

Dr. Walter Smith then moved that the meeting proceed to the next business, but upon the suggestion of Mr. Armit he withdrew the motion.

Mr. Armit then proposed that the narrative be approved, and called on Sir Victor Horsley to read a letter.

Sir Victor Horsley then read the following letter from the Lord Chancellor, first giving a short history of the matter previously to the letter being received on Wednesday morning.

Sir,—I am directed by the Lord Chancellor to say with reference to your letter of the 20th ultimo and the enclosed papers that the real point is whether there has been misconduct which would justify his Lordship's interposition. From what the Lord Chancellor can see there is merely obstinacy in holding an opinion on a subject on which the coroner is entitled to form opinions for himself. If there has been a breach of the law, those who complain can take their remedy in courts of law. The Lord Chancellor cannot treat as misconduct either obstinacy of opinion, though he may differ from it, or an erroneous interpretation of the law, provided it is in good faith. The coroner is not bound to take his law from the Lord Chancellor.—I am, Sir, your obedient servant, K. Muir Mackenzie.

Sir Victor Horsley explained that the question whether the medical profession should go to law on the subject had been fully considered by the Committee and by the committees of the other medical bodies the Association was acting with, and they found that the point would have been a very nice one for the lawyers to hammer over, and would certainly have gone through three courts, and finally to the House of Lords; the medical profession would thus have been put to very great expense to do what was a public duty, namely, looking after the preservation of the health of the nation; the medical profession very naturally declined to pay money out of their own pockets for a matter which was a public question. The judgement of the Lord Chancellor was a very serious judgement. His (the speaker's) term of office having expired, it was simply his duty to hand the letter in to the present Chairman. He took it that the meeting would refer the letter to the Medico-Political Committee for their further consideration, and he would move that that should be done.

Dr. Walter Smith moved that the letter be inserted on the minutes.

This being seconded was agreed to, and the matter was referred to the Medico-Political Committee with instructions to report.

Dr. Caverhill proposed that the opinion of the late Lord Chancellor, as given in his letter, be printed in the minutes, together with the letter from the present Lord Chancellor. This being seconded was agreed to. The letter was as follows:

House of Lords, S.W.
July 29th, 1904.

Sir,—With reference to the letter of the 1st inst. signed by yourself and Mr. Smith Whitaker, and previous communications, the Lord Chancellor has not found it possible to give time for a minute examination of all the facts and arguments which have been placed before him in the controversy. Though his Lordship's present impression is not in favour of the coroner's practice, his Lordship does not as yet see that there is such a case as would found the exercise of the only jurisdiction which he possesses, namely, to remove a coroner for misconduct in his office.

I am, Sir,
Your obedient servant,
(Signed) K. Muir Mackenzie.

Andrew Clark, Esq., F.R.C.S.

Dr. McManus (Wandsworth) moved:

That steps be taken as soon as possible by deputation to the Medical Boards of the Teaching Hospitals of London, or otherwise, to obtain their assistance in withdrawing members of their staff from the list of Special Pathologists of the London County Council.

It concerned not only Wandsworth but the whole of the United Kingdom. It would be recollected that a conference with those pathologists who, if he might say so, had been entrapped into a position of antagonism to the medical men of the particular district had been held with Sir Victor Horsley in the chair. A large number of pathologists attended, some, but not all, being members of the Association. There was no hostility to the special pathologists, and the position of the local profession was stated in a clear and dignified manner. It was pointed out that under the arrangement proposed on behalf of the London County Council a special pathologist on the list connected with a large teaching school would go to Wandsworth or Lambeth, and would accept a fee of 2 guineas for a *post-mortem* examination, the same fee as a local practitioner. That was a degraded position for a specialist; it was proposed that the fee of a special pathologist should be at least five guineas. They were asked, as honourable members of the profession, not to supplant local medical men in their legitimate work, any more than the local medical men would go to Harley Street and supplant them. He regretted that even after that conference a pathologist from a teaching school had gone down and made a *post-mortem* examination without the attending practitioner being present. Mr. Troutbeck, through the medium of the halfpenny press, had published a sort of justification of his position and quoted a number of extraordinary certificates which local practitioners had given. There was one case in Wandsworth of a *post-mortem* examination on a child where there was a suspicion of poisoning. The pathologist was a pathologist from a teaching hospital, and a good man who knew his work. He had never received any instructions that there was a suspicion of poisoning, and in the presence of another medical man he opened the stomach and poured the contents down a sink; he admitted afterwards, so far as the value of his *post-mortem* examination was concerned, it was not worth the money paid for it.

Sir Victor Horsley, in seconding, said on behalf of his pathological colleagues who lived in the black and dark neighbourhood of Harley Street, that before the conference more than half of them had voluntarily withdrawn their names from the list, and since then other names had been withdrawn, so that it was really narrowed down to very few names. There was no doubt that if the resolution were carried public pathologists would be placed on a proper basis.

The Chairman having put the resolution it was carried *nem. con.*

Diachylon as an Abortifacient.

The meeting approved the recommendations of the Subcommittee on poisoning through the use of diachylon as an abortifacient embodied in the report of the Medico-Political Committee (Supplement, July 14th, p. 45).

The "Medical Register."

Mr. Armit drew attention to the paragraph in the report of the Medico-Political Committee (Supplement, July 14th, p. 45) stating that it had under consideration the collection of information upon which to base action in removing the errors to which the *Medical Register* was at present liable, and asked that the instruction should be continued; this was agreed to.

Fees to Medical Witnesses and in Police Emergency Cases.

The paragraph in the report of the Medico-Political Committee (Supplement, July 14th, p. 45) stated that evidence was being collected as to the effect of the Home Secretary's order of June, 1904, but that the facts as yet ascertained were insufficient to warrant further action by the Association. The paragraph was adopted.

Indecent Advertisements Act.

The paragraph in the report on this matter (Supplement, July 14th, p. 45) was also agreed to. It stated that a memorial had been drawn up in accordance with the instructions of the Leicester meeting and forwarded to the late Home Secretary on November 29th, 1905, and that the London Council for the Promotion of Public Morality, which was acting in co-operation with the Association, was now promoting a Bill to amend the Indecent Advertisements Act. The Committee recommended that the support of the Association should be given to that Bill, and this was agreed to.

Royal Commission on the Poor Law.

On the paragraphs of the report as to the Royal Commission on the Poor Law,

Dr. Walter Smith (St. Pancras and Islington) inquired

whether any members had been asked to tender evidence before the Royal Commission.

Mr. Armit replied that, as stated in the report, the Association had asked to be allowed to tender evidence, and a favourable reply had been received.

The paragraphs were approved and the instructions continued.

Death Certificates and Registration and Coroners Law.

The paragraph on this subject was approved.

Reorganization of the Local Government Board.

The paragraph on this subject was approved.

Questions of Contract Practice.

Mr. Armit said that the Warning Notices in the British Medical Journal had served to inform its readers as to the objection to certain appointments, but it was realized that it was important to extend the circulation of the warning, so the Committee had approached the *Lancet*, and he was glad to say that the *Lancet* had shown itself perfectly aware of the importance of the action taken by the Association and had undertaken to print warning notices in its advertisement columns and to exchange information. It was now practically impossible for anybody to apply for a post that was undesirable without being aware of the fact.

Dr. Alfred Cox moved:

That the best thanks of the Representative Meeting of the British Medical Association be tendered to the proprietors of the *Lancet* for the help given in our efforts to maintain the honour and interests of the profession by publication of the warning notices and exchange of information.

[Hear, hear.]

The Chairman thought this would be unanimously agreed to, because the *Lancet* had behaved very well.

Carried by acclamation.

Dr. E. O. Price (North Carnarvon and Anglesea) asked whether the warning notices could not be made a little more prominent.

Mr. Armit said the matter of the prominence of these notices was constantly before the Committee, which would bear the matter in mind and see whether some improvement could not be effected.

Dr. Robertson dissented from the whole principle of warning notices. He protested against all endeavours to raise the price paid by societies; it would be far better to reduce it down to 1s.

Sir Victor Horsley suggested that Dr. Robertson ought to give notice to rescind the resolutions dealing with the subject, because the meeting had passed definite resolutions on the point.

Dr. Robertson contended that there should be no warning notices.

Central Emergency Fund.

Mr. Armit then moved the scheme published in the Supplement, July 14th, p. 56, and made a few remarks on the importance of forming a Central Emergency Fund for assistance in case of distress and other matters. The scheme was approved.

Sight-Testing Opticians Bill.

Mr. Armit said that on this point the position of the British Medical Association was an increasingly strong one, as evidenced by the action taken. The Committee had interviewed several members of the House of Lords interested in the matter, and had always found that the British Medical Association was a name which carried much weight. He asked the meeting to approve the paragraphs in the report and continue the instructions, and this was agreed to.

Patent Medicines.

Mr. Armit asked the meeting to approve and continue the instructions to the Medico-Political Committee, as there was a large amount of material still to be dealt with.

Dr. MacKeith inquired whether it was the intention to have the Recommendations of the Medico-Political Committee on this matter discussed.

The Chairman requested Dr. MacKeith to read what he referred to.

Dr. MacKeith said the Recommendations he referred to were:

(*a*) That for medicines which are supplied otherwise than upon medical, dental, or veterinarian prescriptions, no condition of sale, short of the publication on each packet of medicine of the name and quantity of each of its constituents, should be permitted:

(*b*) That the label should be made to constitute a warranty, and that false description, whether on the label or in an advertisement, should be made an offence;

(*c*) That the provisions of the Food and Drugs Act should be applied to proprietary medicines.

Dr. Muir feared the opposition from the large quack medicine and drug companies would be a difficulty, but

Mr. Armit said the Association would have sufficient support even to overcome that opposition.

The recommendations were adopted.

Medical Inspection of School Children.

Mr. Armit referred members to a leading article in the Journal of the previous week which gave a very ample statement of the importance of the matter. The fact that the British Medical Association had induced Mr. Birrell to see its views in a proper light was most important.

Sir Victor Horsley said that he desired to move one resolution, and he believed that Dr. McManus would move two more resolutions. The question was one of most vital importance. The first thing that the Association had to do was to express its gratification at the fact that the Government of the country had at last taken this great step towards the prevention of the physical deterioration of the people. He moved:

That this Representative Meeting of the British Medical Association expresses its sense of the great benefits that will accrue to the nation by the adoption by Mr. Birrell, in the Education Bill at present before Parliament, of the compulsory medical inspection of school children and the establishment in the Education Department of a medical bureau.

Dr. McManus seconded the motion.

Dr. Nasmyth (Fife) thought that the British Medical Association should endeavour to get medical inspection of school children established in Scotland as well.

Mr. Muir (Glasgow East) said that in Scotland they did not want the Education Bill but they did want medical inspection.

Sir Victor Horsley to meet the point suggested by Dr. Nasmyth substituted the words "to England and Wales" for the words "the nation."

Mr. Armit said that the Medico-Political Committee had already expressed the opinion that the inspection of school children should be extended to Scotland and Ireland and took action in that direction during the Parliamentary election.

The motion was put to the meeting and carried.

Dr. McManus moved:

That it be an instruction to the Medico-Political Committee to take all steps possible to secure that local educational authorities shall provide that children in public elementary schools found to be ill should be referred to their usual medical attendant and not, irrespective of their social status, to hospitals, as is at present the custom in many districts.

Dr. McCarthy (Ashton-under-Lyne) seconded the motion.

Sir Victor Horsley said that all the points under the resolution would be threshed out by the Medico-Political Committee in detail and then sent down to the Divisions for their consideration.

Dr. Walter Smith hoped that the Medico-Political Committee would not recommend having the inspection under the medical officer of health. If it was put under him it would not be properly done simply because he was already overworked in other directions. He hoped that there would be a special officer appointed for that purpose.

Dr. Groves said that the medical officer of health must necessarily be on the very best possible terms with the practitioners in his district, because he was so dependent on them with reference to the notification of diseases and so on. So far as he knew, the medical officer of health regarded very religiously the interests of the ordinary practitioner.

Dr. Caverhill said the conditions in Scotland were entirely different in that matter from the conditions in England. In Scotland generally, with the exception of Royal and parliamentary and police boroughs, medical officers of health were a specialized body of men who had been holding office for fifteen years, accumulating statistics of a most valuable kind. In England, where private practitioners were also medical officers of health, it was quite possible they would not see the benefit of placing the matter under the Local Government Board and would prefer the Education Department, and he hoped the Medico-Political Committee would keep those different powers separate. As the care of the public health was now handed over to the local authorities under the Local Government Board, and as the examination of school children revealed anthropometric and other data of great scientific value, it seemed the most reasonable plan that the school medical inspector should be connected with the Public Health Department in each district. In this way the returns would be uniform, complete, and readily available in the annual reports, both to the statistician and to the practical sanitarian interested in the housing of the children.

The Chairman then put Dr. McManus's second amendment, which was agreed to, and the reference to the matter in the report was approved.

Income Tax.

Mr. Armit submitted the paragraph of the report on the memorandum from the Exeter Division. The Committee reported that on the appointment of the Select Committee of the House of Commons on the Income Tax, it considered that representations should at least be made in favour of differentiation of the Income Tax as between incomes the result of personal exertion and incomes derived from heritable property. It had also communicated with the Incorporated Law Society, and other societies representative of various professions, seeking their co-operation in the matter.

Dr. J. Miller (Exeter and Barnstaple) thought the recommendations of the Committee practically covered the motion of the Exeter Division, and therefore he begged to withdraw it.

The meeting assented, and the paragraph was approved.

Vivisection.

Mr. Armit then presented the paragraph of the report dealing with certain Bills for the prohibition or greatly increased restriction of vivisection, and with the contemplated appointment, announced by the Home Secretary, of a Royal Commission to consider the subject. Representations had been made to the Home Secretary and members of Parliament to the effect that, in view of the proposed appointment of a Royal Commission, Bills altering the present position of the law should be deferred. Representations had also been made to the Home Secretary with a view to securing that Representatives of biological, including medical science, should be included among the members of the Commission, and that steps had been taken through the Science Committee, to co-operate with certain learned Societies in the collection of evidence to be placed before the Commission.

The action taken was approved.

Certifying Factory Surgeons.

Mr. Armit said that the Medico-Political Committee was gratified to be able to report that the action taken in accordance with the instructions of the Leicester meeting had borne fruit, inasmuch as the "Notice of Accidents" Bill of the present Government, which had passed the Commons and would probably shortly become law, included provisions which met the objections placed by the Association and the Certifying Factory Surgeons' Association before the Home Office by deputation in July, 1905.

The action taken was approved.

Sir Victor Horsley pointed out that by the action of the Association very considerable influence was brought to bear upon the Home Office, and he thought when the Association did do a good bit of political work and proved its influence they ought to congratulate themselves.

Medical Referees.

Mr. Armit pointed out that the Workmen's Compensation Bill of this year contained many of the recommendations which the British Medical Association had placed before the Departmental Committee of the Home Office in June, 1904, and which the Departmental Committee approved. In moving the adoption of the report as a whole Mr. Armit said it contained many evidences of the success of the medico-political work of the Association, and referred particularly to the action taken with regard to medical referees, certifying factory surgeons, the medical inspection of school children, and added that the action of the *Lancet* with regard to the insertion of warning notices was a further evidence of the importance attached to the work done, and importance of the Medico-Political Committee. There was one point that might be considered more seriously. Why should the Representative Meeting hide its light under a bushel, and not publish abroad what it had done? It was true that at a previous meeting the Representative Body had determined not to admit public Press reporters.

The meeting approved the report.

Ethical Committee.

Mr. Kinsey moved the report of the Ethical Committee. He had to invite the Representatives, after their discussions—lively or matter of fact—on the Charter and on medico-political matters, to the Elysian fields of ethics, which, he hoped, they would cross very smoothly without any anxiety, without any dissension, and without any heart-burning. The Committee had endeavoured to carry out in its own sphere the work of consolidating and welding the profession together. He thought that up to a certain point the Association had secured its object of inducing members to act on the same principles and in the same spirit. The Ethical Committee had held eight meetings during the year. There had been an addition to the clerical staff, and an Emergency Subcommittee had been appointed. He hoped in consequence of those two alterations that the Committee would be enabled to carry on its work with fewer meetings in the year to come. He went through the report, taking each subject *seriatim*. The report was published in the Supplement to the Journal for July 28th. Mr. Kinsey drew special attention to the paragraphs on the Ethics of Medical Consultation (page 96) and to that on the need for local investigation in ethical cases. When a case was brought forward it should be thoroughly investigated as regards the facts by the Division. If any member of the Division was dissatisfied with the finding of a Division he had a right of appeal to the Branch, and then there was a final right of appeal to the Central Ethical Committee. With regard to the procedure in local inquiries, it was highly desirable that every Branch and every Division should adopt ethical rules; if the rule which led to the unhappy condition of ostracism was not adopted before the case came on for investigation, the Branch or Division was hampered and embarrassed, and subject to imputations of malice which would involve legal risks. He begged the secretaries of all Divisions and Branches to see that they were furnished with the proper ethical rules.

With regard to the report of the Ethical Committee on questions of professional conduct requiring the consideration of the General Medical Council, Mr. Kinsey called special attention to the following paragraphs:

Reporting of Individual Cases.

Pursuant to authority given to the Committee by the Central Council, the Committee reports to the General Medical Council particulars of cases brought under its notice which appear to require the consideration of that Council. The Committee has adopted the following rules with reference to such cases:

(1) That the necessary information must be supplied to the Committee by those locally concerned.

(2) That the Association should not be placed in the position of complainant or prosecutor before the Council, but simply report the facts in its possession.

He said that the Central Council had determined to postpone the consideration of those clauses to October, thinking that the matter was a very serious one. The meeting would exercise its discretion, but the Ethical Committee had instructed him to suggest that it was absolutely necessary in the interests of the medical profession that the Association should take cases of a penal nature before the General Medical Council with counsel as complainants.

Dr. Percy Rose (Stratford) asked whether the Association might not take up cases of a penal nature as informants instead of as complainants.

Sir Victor Horsley, as a member of the General Medical Council, explained that if no complainant appeared before the Council the case had to be laid before the Council by the Solicitor of the Council, and it was open to any one to say, "Here is the General Medical Council sitting as the judge on the case though its own solicitor is the prosecutor." If a complainant did not appear it undoubtedly placed the General Medical Council in a somewhat false position, and therefore the Council had always endeavoured to insist on the person laying the information coming forward as prosecutor.

Paragraph (1) was then agreed to.

Dr. Latimer asked whether it was beyond the genius of the legal mind to make some proposal by which a member of the General Medical Council might retain his membership of the British Medical Association.

Sir Victor Horsley said that he was a member both of the General Medical Council and of the Association, and at present no exception had been taken to his position on the General Medical Council; whether exception would be taken at the next session or not he did not know. If it were he should, of course, retire from the Council. It seemed to him that if a man was chosen by the profession to represent it on the General Medical Council he ought to resign for the time being his membership of the British Medical Association or take no part in penal cases when objection was taken to his presence. If, owing to the legal position, the corporate bodies had what he might call a pull over the Association, the Association must submit to it.

After some further discussion, it was agreed to refer the matter again to the Ethical Committee for further consideration.

With regard to the paragraph in the report on the relations of private practitioners to insurance companies,

Mr. Kinsey said that the case referred to was of rather a peculiar nature. All he wanted the meeting to do was to emphasize the fact that professional secrets must be inviolate; that no medical officer of a company had any right to demand from a private medical practitioner any information as regards a private patient for the good of a company or any one else.

The section was approved.

The paragraphs in the report on bribes offered to medical practitioners were considered, and the recommendation of the Ethical Committee—

That the Representative Meeting pronounce that it is undesirable that medical men should have a proprietary interest in preparations which it may be their duty to recommend medicinally—

was approved.

The paragraphs on misdescription of themselves by medical practitioners and members of public bodies giving expert advice were approved, and Mr. Kinsey then pointed out that in the paragraphs on the ethical relations of assistants to principals the Committee had adhered to the principle which it had always advocated, that if there was no bond prohibiting an assistant from practising he was at liberty to practise under ordinary conditions, which was equivalent to saying that it was the duty of every practitioner taking an assistant to have a bond if he wished to object to his assistant practising in the same place.

Dr. Caverhill proposed that the Ethical Committee be instructed to print and issue from the central office a classified index of illustrative cases relating to ethical matters decided by the Ethical Committee up to that date. He thought medical students should be fully instructed in ethical matters. When they went into practice they were apt, perfectly innocently, to get into trouble with local practitioners, and by making some initial mistake a man was in danger of becoming a pariah *ab initio* in the district in which he was. He asked that the Ethical Committee would issue a small book at a small price. He did not suggest its immediate issue, because he knew the department was overworked.

The Chairman said that the Chairman of the Ethical Committee was willing to accept the suggestion.

Dr. Alfred Cox (Gateshead) suggested a rider to the effect that a copy of the pamphlet be sent to the Secretary of each Division for reference.

The Chairman did not think that a matter for a rider.

Dr. McCarthy inquired whether the proposition applied to members of the British Medical Association or to members of the profession generally.

The Chairman said it would be open for every one to buy the book.

Mr. Kinsey said that ethics were embodied in a sentence which had been used that morning: "Do to others as they would do to you." There were a small number of people in the profession who preferred the American version, which was, "Do to other people as you expect them to do to you and be the first to do it." The way of transgressors was hard. His forty-five years' experience of medical matters had led him to see that though a man might make a considerable income, yet he failed in real success if he departed from the true line of medical ethics embodied, because he failed to secure the confidence and respect of his brother practitioners, without which life was not worth living. [Hear, hear.]

Dr. Langley Browne said there was one set of circumstances under which, even although there was no bond, an assistant ought never to be allowed to practise. That was when the principal died during the term the assistant was helping him. The worst case he knew of was where there was no bond and a widow had suffered through the assistant seeking to practise.

The meeting then agreed to Dr. Caverhill's proposal.

Ethical Aspects of Medical Consultation.

Mr. Kinsey said that at the Leicester meeting the Ethical Committee was requested to consider the relative ethical position of consultants and the medical practitioner in attendance to each other, and to the patients. A special report had been prepared (Supplement, July 28th, p. 98, et seq.) and he proposed that it should be referred to the Divisions for their opinion.

Professor Morrison said that at the request of Professor Saundby he desired to make a modification in the paragraph headed "arrangements for consultations."

Arrangements for Consultations.

The arrangements for consultation should be made by the ordinary medical attendant.

If a practitioner receives an application to him to act as consultant from other than the ordinary medical attendant of the patient, it is his duty to satisfy himself that the ordinary attendant has been consulted, and is party to the request.

After the word "patient" in the fifth line he desired to delete the remaining words, and substitute the words "he ought not to see the patient except in the presence of the ordinary medical attendant or with his consent." The point was that occasions might arise in which a consultant would find it impossible to know the circumstances which would enable him to satisfy himself as required by the words as they stood, and the proposed words would make the rule much easier and more practicable.

The amendment was seconded by Sir Victor Horsley and carried, and the report adopted.

Mr. Armit, by leave, withdrew the motion of which the Hampstead Division had given notice.

The annual report of the Central Ethical Committee was then agreed to.

Hospital Out-Patient Departments.

The Chairman, in the absence of the Chairman of the Hospitals Committee, moved the adoption of the Special Report of the Hospitals Committee with reference to the question of out-patient departments. The motion of the Annual Representative Meeting at Leicester was:

That in the opinion of this meeting there should be no out-patient departments in hospitals, except for consultations and casualties, and that this opinion specially applies to hospitals whose staff are general practitioners.

Resolved:

That it is inadvisable that this meeting should pass a resolution on the general principle of hospital out-patient departments before that principle has been submitted to the Divisions, and this meeting hereby decides that the question be remitted through the Hospitals Committee to the Divisions.

That was done and the Hospitals Committee reported—

That, having carefully considered the question referred through it, and the replies of the Divisions thereon, the Committee recommends the Representative Meeting not to adopt the motion referred to the Divisions.

In reply to Dr. Robertson, the Chairman said that the question could be reopened at any time. The Hospitals Committee was still in existence.

Dr. Walter Smith asked whether the adoption of this would prevent the discussion of various amendments and resolutions sent up by the Divisions with regard to hospitals.

The Chairman said he understood there were a number of resolutions which were expressions of opinions, more than anything else, with regard to the hospitals. The whole matter was still under consideration, and the Committee deprecated any further discussion of the matter until they had further considered it. The Hospitals Committee considered that the present was not quite the right time for dealing with the subject.

After some discussion Mr. Armit, by consent, withdrew certain resolutions of which the Hampstead Division had given notice, and obtained leave to move a resolution on a matter of urgency.

Mr. Armit (Hampstead) brought before the meeting the question of the struggle between the Committee of the Hampstead Hospital and the Hampstead Division. The state of affairs had been exceedingly unsatisfactory for some time. The Division objected to the out-patient department of the hospital and to certain of the regulations, and objected to the hospital, which had been started as a home or cottage hospital, being changed into a general hospital. A conference had been held with the medical staff of the hospital, and a deputation had had an interview with the Committee of the hospital. The Committee received the deputation in the most courteous way, but gave them to understand that it would not be forced by the consensus of opinion of the local profession. It had been suggested that the hospital staff of general practitioners should be replaced by a staff of consultants, but it was agreed by the legal profession that this would be exceedingly undesirable. The Committee of the hospital pointed out that the King Edward Hospital Fund had said that it was time that the hospital was staffed by a staff of consultants, and as they held the purse the Committee had no alternative but to agree. Mr. Armit concluded by moving:

That this meeting requests the King Edward's Hospital Fund for London to add to their Committee of Distribution and Council an adequate number of medical practitioners, among which one or more should be nominated by this Association.

Dr. Esler (Lambeth) seconded the motion.

Sir Victor Horsley said that the meeting would remember that the Association had desired the establishment of a Central Hospital Board for London: it had been indirectly in the King Edward Hospital Fund. That Fund, by holding the purse, was acting as the Central Board, and the profession must be represented upon it.

After some further discussion, a motion that the question be now put was carried.

Mr. Armit's motion was then adopted.

The Leigh Hospital.

On the matter of the Leigh Hospital, on the suggestion of Sir Victor Horsley, Dr. Wynne made a statement. He was privileged to make to the meeting the pleasing announcement that the fight waged for several years, and during which the medical profession in Leigh had been menaced with the importation of a salaried staff, had been brought to a successful issue. At the last Representative Meeting at Leicester they had had the unanimous support of the Association, and the result of the resolution then passed was an immediate weakening in the attitude of the Infirmary Committee. The upshot had been a conference in which the medical proposals had been accepted. Dr. Wynne detailed the arrangements which had been come to, and thought nothing could be more satisfactory to the Association. He was instructed to thank the meeting for the support given.

The Chairman thought it a most admirable testimony to the influence of the Representative Meeting, and to the increased power of the British Medical Association.

The Hampstead Hospital.

Dr. McManus suggested that the meeting should extend the same support to Hampstead, and moved:

That this Representative Meeting gives its hearty support to the efforts of the Hampstead Division to come to a satisfactory decision with the Hampstead Hospital Authority.

Mr. Armit seconded, and the motion was carried.

Branch Representatives on Central Council.

Mr. Armit said the resolution of which the Hampstead Division had given notice, to the effect that a Branch should have an additional member on the Central Council for each complete 300 members in excess of 400 was a little superfluous by reason of the possibility of getting a Charter within a short time, but he was instructed by his Division to go on with the matter in spite of the Charter looming in the future.

Sir Victor Horsley pointed out that the amendment was incompatible with the resolution to reduce the number of the members of the Council. If it were passed the Council would number about 100 members.

Mr. Armit said the point of the motion was not so much the numerical increase but the redistribution and the method of distribution. The question was whether there should be a more adequate representation according to the number of votes.

The Chairman ruled that the contention of Mr. Armit was not correct.

Mr. Armit said he placed himself in the hands of the meeting, and would withdraw the amendment.

Committees.

Dr. Langley Browne pointed out that there was no By-law at present to regulate the Science Committee, and moved a draft rule.

The Chairman thought the better way would be to defer the proposition until after the consideration of the proposal of the Dundee Division, and drew attention to the amendment of which the North Manchester Division had given notice, to the effect "that the Annual Representative Meeting be empowered to elect half the members of each Standing Committee." These notices of motion dominated the whole of the suggestions with regard to Committees, and he proposed that they be taken first.

Dr. Broadbent proposed the amendment of the North Manchester Division. He did not know that there was much to be said about it, because it was so inherently good.

Dr. Low suggested that the word "ordinary" be inserted before "members," which Dr. Broadbent accepted.

Dr. Robertson moved to insert the words "due regard being had to geographical representation."

Dr. Broadbent accepted the amendment.

Dr. Walter Smith moved that the words "at least half" should be inserted after the word "elect."

Dr. J. M. Jameson supported that suggestion, as in the case of a Committee consisting of an uneven number of members no difficulty would arise as to the exact number the Representative Meeting might elect.

Mr. Parkinson said if the Committee were cut up in the way suggested the representation would be one-sided.

Sir Victor Horsley said this was a most important constitutional question of principle. At Cheltenham it had been resolved that two most important Committees, the Medico-Political Committee and the Ethical Committee, should be constructed on that basis; and he thought the records of work brought before that meeting showed how successful those Committees were in working. Of course they must be successful, because they really represented the whole Association. He understood that some one had made a statement that apparently only one provincial member had been put on the Committees by the recent elections. As a matter of fact, on the Finance Committee of Inquiry there were four, on the Ethical Committee three, and on the Medico-Political Committee four; so it was obviously absurd to say that that meeting was less capable than the Council of putting provincial men on to the Council. He supported the resolution of the North Manchester Division, and hoped that the meeting would determine that each standing committee should be composed as to at least half of members of that meeting, the remainder being appointed by the Council.

A Representative said he resented the motion, as it seemed to him that the smaller Divisions of the kingdom would be disfranchised.

It was moved, seconded, and agreed that the question be put. The resolution was then agreed to as follows:

That the Annual Representative Meeting be empowered to elect at least half the ordinary members of each Standing Committee, due regard being had to the geographical representation.

The Chairman moved:

That it be an instruction to the Organization Committee to make provision whereby means may be afforded for ensuring topographical representation.

Dr. Domville contended that there must be a Selection Committee for the purpose of selecting those who were suitable. While sitting a silent member at this meeting he noticed that the result of the elections had been chiefly that the talkers had been elected, whereas he had before noticed that the most valuable men on Committees were those who said nothing at public meetings. He suggested that a Selection Committee should be appointed.

The motion of the Chairman was agreed to.

On the motion of Dr. Low (Dundee), it was agreed that the Hospitals Committee should be a Standing Committee. He then moved:

(1) That there be a Finance Committee.
(2) That there be a Journal Committee.

Dr. Low said that the motion was proposed because it was thought that the Finance Committee would be more efficient and that a Journal Committee would be a great aid to the Editor in the carrying on of the Journal. The Finance Committee as at present constituted did not seem to deal sufficiently with the accounts. The Editor and the General Secretary had received congratulations on the improvement of the Journal, and he thought rightly so, but he thought that it should be remembered that the change in the Journal took place after a discussion in the Representative Meeting on the Journal. He thought that they ought to congratulate themselves on having officials who were not hide-bound, but who, when a matter was laid before them, seriously considered it; but ought not the improvement to have been brought about long ago by the Journal and Finance Committee? There were ways of improving the Journal which simply meant spending money differently. The fact that the Journal had been going on for practically thirty years without any alteration of form showed that the Journal and Finance Committee had been a very dormant body so far as regarded the Journal.

Sir Victor Horsley seconded the motion. He said that he and others had made the proposal before, but it had always been defeated in the Council. It had been recommended to the Council by a singularly strong Committee composed of the Chairmen of all the Committees of the Association, but that report was, he regretted to say, thrown out by the Council. He had been a member of the Journal and Finance Committee for several years, and from his own experience he unhesitatingly affirmed that they never had done justice to the finance of the Association, and that was for two reasons: First, because they had the Journal business before them, and, secondly, they were not summoned often enough. Strings of accounts were passed *en bloc*, which was not his notion of a Finance Committee at all. The two things should therefore be separated, but the separation must not be made without consideration. The conduct of the Journal naturally hung on the finance of the Association. In old days there used to be a most disastrous Committee in the Association called the Reference Committee, and that small Committee of three men led the Editor of the Journal a most unhappy life. The Association some years ago decided that for the maintenance of the Journal and for its progress it was essential that the autonomy of the Editor should be preserved. That was exactly what the present proposal was meant to bring about. The proposed Journal Committee would be nothing more than an advisory Committee. There were plenty of men ready to form a Committee who had thought over the questions of publications, illustrations, and so on to make the Journal a greater advantage to the Association. The Committee was not intended to diminish the Editor's personal responsibility. If the finances of the Association were properly supervised, and if the editorial had its own proper Committee, the Association would be better served than in the past.

Dr. Langley Browne said that he was sorry that the Treasurer was not present to report the following resolution of Council:

That the Council do agree with the following minute of the Journal and Finance Committee, and order the same to be transmitted to the Representative Meeting:
Resolved: That the attention of the Journal and Finance Committee having been drawn to the fact that it has been suggested that this Committee should be divided into and formed into two Committees, *i.e.*, a Journal Committee and a Finance Committee, it be a recommendation to the Council for transmission to the Representative Meeting, that, in future, in altering any by-laws it is essential that the Journal and Finance Committee should not be divided into two Committees.

He believed that the recommendation of the Council was a wise one. The expenditure of one penny on the Journal meant £500 a year, and it would be seen from that fact how very difficult and almost impossible it was to separate the Journal from the finance of the Association. An editorial committee had never yet been a success in any instance. The success of any paper must depend upon the editor himself. He thought that the Council were well advised in recommending the meeting not to separate the Committees.

Mr. Parkinson thought that the meeting had better wait till it had the report on the question of finance before attempting to interfere with the present arrangement.

Mr. James Young (Bolton) supported the proposal to have two separate Committees.

Mr. Parkinson said that it was not a pleasant thing to stand up before the meeting and say anything pleasant for the Council, but he wished to state that the resolution of the Council was passed at a full meeting, and that only one hand was held up against it. The Representative Meetings had appointed a Committee of seven to investigate the finance of the Association, and it would be better to wait till the report of the Committee was received.

Dr. Johnson Smyth thought the present arrangement should continue.

Dr. Davies (Liverpool) was in favour of the division of the Committee. It would be absolutely futile to maintain a Finance Committee which would clash with the efficiency of the Journal, but he agreed that a Specialist Journal Committee who had literary attainments and so forth would be the very people to make the Journal hum more than it did, and he trusted the meeting would fall in with the suggestion.

The Chairman then put the proposition, and on a division 41 voted for the division of the Committee into two and 40 against.

Dr. A. P. Low (Dundee) moved:

That the Arrangements (Annual Meeting) Committee be a Standing Committee of the Association.

Mr. Ballance (Norwich) said that the Arrangements Committee had as ordinary members six members appointed by the Council from its own number and six members appointed by the Local Executive Committee or the annual meeting. He did not think that that arrangement could be bettered, and considered that the Committee should not be a Standing Committee.

The Chairman said that Dr. Low accepted Mr. Ballance's suggestion that the Arrangements Committee should not be a Standing Committee, and this was agreed to.

Dr. Low then moved that the Premises and Library Committee be removed from the list. He thought that the care of the library should rest with the Science Committee. There was at one time a suggestion that there should be a Branch library and that the books and periodicals could be sent to them; he thought that was business which the Science Committee could do.

Dr. Caverill (North-West Edinburgh) suggested that the Premises Committee be retained.

Dr. Walter Smith (St. Pancras) contended that the Premises Committee was very necessary until the rebuilding scheme was finished.

The Chairman moved, as a logical amendment, that the care of the Library be transferred to the Science Committee. That would leave the Premises Committee in existence.

Sir Victor Horsley seconded, and it was agreed to.

Dr. Walter Smith (St. Pancras) thought all were

agreed that there should be a Premises Committee, but not that it should be a Standing Committee.

The Chairman put the amendment—that the care of the Library be transferred to the Science Committee—as a substantive resolution, and it was agreed to (see below). That, he observed, retained the Premises Committee as it was.

Dr. Walter Smith (St. Pancras) then moved that the Premises Committee be not a Standing Committee.

This proposal was seconded by Dr. Low, but after a short discussion was negatived.

Membership of Committees.

It was agreed—

That the Chairman of Representative Meetings and the Treasurer be *ex officio* members of all Committees.

That the Chairmen of the Organization Committee, of the Journal Committee, of the Science Committee, of the Medico-Political Committee, and of the Premises Committee for the time being be *ex-officio* members of the Finance Committee, and that, in addition to the *ex-officio* members, the Finance Committee have eight ordinary members.

That the Journal Committee have six ordinary members, that the Hospitals Committee have eight ordinary members, and that the Premises Committee have five ordinary members.

It was decided that each Committee should settle what number should form a quorum.

Functions of Committees.

Dr. Low moved and it was agreed:

That it be the duty of the Finance Committee (1) to certify the accounts prior to their presentation to the Council. (2) To advise the Council on the administration of any funds held in trust by the Association and of the Superannuation Fund, and, when necessary, the appointment of administrators for any such funds. (3) To report to the Council on the financial bearings of any proposals involving special expenditure. (4) To supervise and report to the Council on the general working and organization of the central office. (5) To consider and report to the Council upon the management of the property of the Association.

In reply to a question, the Chairman said the duties of the Finance Committee had nothing to do with those of the Special Financial Inquiry Committee, which had received special instructions.

Dr. Robertson proposed that the determination of the duties of the Finance Committee be left over until the special report of the Financial Inquiry Committee had been presented.

This was seconded by Dr. Domville, but negatived.

It was resolved:

That it shall be the duty of the Journal Committee to consider and report to the Council upon any matters connected with the Journal or other publications of the Association.

That it shall be the duty of the Hospitals Committee to consider and report to the Council upon all questions concerning hospitals and other medical charities.

That it be an instruction to the Chairman, the Secretaries, and the Solicitor to adjust By-law 40 in accordance with these and any non-conflicting resolutions adopted at the Annual Representative Meeting, and until this be done these resolutions shall take the place of any corresponding parts of the present By-law 40.

Dr. Langley Browne said the recommendation as to the Science Committee had been deferred. He begged to move it as it stood on the paper, with the addition to its duties of the business of the Library.

Dr. Low suggested that instead of "adjustment of the Sections at the Annual Meeting," there should be inserted "the assistance of the officers of Sections at the Annual Meeting."

This amendment was agreed to and the regulation adopted as follows:

Science Committee.

That a Science Committee, consisting of 14 members, shall be appointed by the Council, who shall advise, and where so directed act for, the Council in all matters not specially referred to other Committees which concern the work of the Association for the promotion of the Medical and allied Sciences, including the conditions of award of Scholarships, Grants, or Medals given by the Association, or under trusts undertaken by the Association, the assistance of the officers of the Sections at the Annual Meeting, the arrangement of Committees for special scientific work, the encouragement and assistance of the scientific work of the Branches and Divisions, and all matters connected with the library and its management. The Committee shall have power to co-opt, for the consideration of the award of Scholarships, Grants, and Medals, members, not exceeding four in number, specially qualified to assist in its work.

On the motion of Mr. Ballance the following was approved:

That the Arrangements Committee have as ordinary members six members appointed by the Council from its own number, and six members appointed by the Local Executive Committee for the annual meeting.

Dr. Broadbent moved:

That any member of a Standing Committee of the Association absenting himself from two successive meetings without satisfactory explanation shall be deemed to have resigned, and the Committee shall forthwith fill the vacancy.

Dr. Robertson said the words "satisfactory explanation" did not seem to him to be at all satisfactory in themselves. Who was to judge of the satisfaction? Was it to be the Chairman?

The Chairman took it that the Council would be the judge.

Dr. Walter Smith moved to substitute the words "without the consent of the Council" for the words "without satisfactory explanation."

The amendment was seconded.

Dr. Douglas moved that the word "three" be substituted for the word "two," which was seconded.

The amendments were put to the meeting and approved, and the resolution was adopted as follows:

That any member of a Standing Committee of the Association failing to attend three successive meetings without satisfactory explanation to the Council shall be deemed to have resigned, and the Committee shall forthwith fill the vacancy.

The Chairman of Council, in view of decisions already come to by the meeting, obtained leave to withdraw by-laws as to the representation of the Representative Meeting on the Council, and as to the tenure of office of members of Council elected by the Representative Meeting drafted in consequence of the instructions of the Representative Meeting at Leicester.

Supplementary Grants to Divisions and Branches.

The Chairman of Council then moved the following resolution, drafted according to the instructions of the Representative Meeting at Leicester, and it was agreed to.

Supplementary Grants to Divisions and Branches.

In addition to the grants made in pursuance of By-law 16, the Council, on the application of any Division or Branch, shall have power to make a supplementary grant of such amount as the Council may deem proper. Every application by a Division, not itself a Branch, shall be forwarded through the Branch Council, whose duty it shall be to transmit the same to the Central Council, with such comment, if any, as the Branch Council may deem expedient.

All applications for supplementary grants shall be referred by the Council to the Organization Committee for report thereon, and, in considering the same, the said Committee and Council shall have regard to the evidence of work done by or through the agency of such Division or Branch for the Association or the medical profession, and also to the amount which may have been voluntarily subscribed locally for any purpose for which such a grant may be desired.

Election of Representatives.

On the motion of the Wandsworth Division, it was resolved to amend Article XXVII so as to provide that a Representative might be elected "not more than nine months" for the Annual Representative Meeting instead of "three months," as in the present Article of Association.

The Chairman pointed out that alterations in the Articles could not take effect until two special general meetings had been held for that purpose.

Mr. Armit moved:

That in view of the fact that the remainder of the Agenda depends on the settlement of the Charter question, the discussion on all the items be postponed.

The Chairman put the motion, which was lost.

Expenses of Representatives.

Dr. Stephen E. Baxter (Aylesbury) suggested that

the Representatives of Divisions be paid all out-of-pocket expenses incurred in attending Representative Meetings, etc. For a four days' meeting the expense would only be £600. Dr. McManus moved:

That the Representatives of Divisions be paid out-of-pocket expenses incurred to the extent of not more than 15s. a day.

The Chairman pointed out that if that were accepted a Representative could not receive more than 15s. a day; it would do away with the railway fare, which might be a serious matter to Representatives coming a long distance.

Dr. Westry (Liverpool Southern) said that as the Representatives attended to do the business of the Association they should certainly be paid.

Dr. Johnson Smyth (Bournemouth) protested against any fresh liabilities being undertaken in the present financial position.

Dr. Latimer (Swansea) hoped that the Representatives would not carry any resolution of the kind; if they did, they would not go with clean hands before their constituents on the question of expense.

Dr. W. J. Greer (Monmouthshire) moved that the question be now put, and this was agreed to.

The Chairman put the motion of the Wandsworth Division that Representatives of Divisions be paid their out-of-pocket expenses to the extent of 15s. a day.

The motion was lost.

Dr. Davies said in view of this decision of the meeting he would withdraw the resolution of which the Liverpool Northern Division had given notice, to the effect that Representatives should receive out-of-pocket expenses not to exceed half-a-guinea a day *plus* third-class travelling expenses.

Discretion to Council.

Dr. Macan (Croydon) moved:

That if owing to special information in the possession of the Council the Council think it unwise or undesirable to carry out any direct instruction of the Representative Meeting they, the Council, should without delay report the fact and the reasons therefor to the Divisions.

Dr. Douglas suggested to Dr. Macan that the words "or for other causes" should be inserted after the words "possession of the Council."

Dr. Macan declined to accept the proposal because he thought that the contingencies in the mind of Dr. Douglas were fully covered by the words of the motion.

Dr. Langley Browne seconded the motion, which was agreed to.

Mr. Armit proposed that the notices of motion as to Officers of Divisions (Wandsworth), as to the Constitution of the Central Council of the Association (Hampstead), as to Capitation Grants (Wandsworth and Bournemouth), be referred to the Organization Committee. This was seconded by Dr. McManus and agreed to.

The resolution standing in the name of the City Division as to the management of the Library and the two resolutions standing in the name of the Gateshead Division as to the establishment of a circulating library, and as to the use of the title of "Dr." in official reports published in the Journal, were by leave withdrawn.

Dr. Walter Smith moved on behalf of the City Division (Metropolital Counties Branch):

That the Council be requested to consider the desirability of providing facilities at the premises of the Association in London for the better social intercourse of members, especially country members visiting London.

He thought that it would perhaps be better to refer the matter to the Premises Committee.

Mr. Andrew Clark said that as Chairman of the Premises Committee he ought to say that the plans exhibited on a previous day showed two rooms where members could meet and talk and read. It was hoped also to supply baths, but whether this could be done he could not say. Dr. Broadbent expressed his dissatisfaction with the plans. The motion was accepted.

The "Year Book."

Dr. Latimer moved that the following motions be referred to the Finance Committee:

By the North Manchester Division (Lancashire and Cheshire Branch):

That the *Year Book* be issued not later than October 1st in each year.

By the Liverpool (Northern) Division (Lancashire and Cheshire Branch):

(*Amendment* to the Foregoing Motion of the North Manchester Division.*)

That the *Year Book* be abolished on the ground of unnecessary expense.

By the Liverpool (Central) Division (Lancashire and Cheshire Branch):

(*Amendment to the Foregoing Motion of the North Manchester Division.*)

That the publication of the *Year Book* should be recommended to be discontinued, and that, as the Supplements contained a full record of the proceedings of the Representative Meeting, the volume of the Minutes published separately was unnecessary and therefore a needless expense.

By the Rochdale Division (Lancashire and Cheshire Branch):

(*Amendments to the Foregoing Motion of the North Manchester Division.*)

That this Division is of the opinion that the *Year Book* is absolutely useless, and suggests that it be discontinued.

As the *Year Book* costs about £1,000 a year, the Division is of the opinion that if it is discontinued this sum should be set apart as the nucleus of a fund to be devoted to the purposes of the following resolution, passed on May 31st, 1905, by the Division, namely:

That this Division is strongly of opinion that the British Medical Association should devote a portion of its income to benevolent and charitable purposes, the first claim being that of needy past and present members of the Association, their widows and orphans.

He knew there was a strong feeling about the £1,000 which the *Year Book* cost. But there was another point to consider, whether with the advertisements the *Year Book* could be made to pay. If it could not it was an absolute waste of money, and therefore he would refer the whole matter to the Finance Inquiry Committee.

Dr. Langley Browne hoped, if that were done, power would be given to the Committee to act, because it was an instruction of the meeting that the *Year Book* should be published.

Dr. Douglas seconded the resolution, although he had found the *Year Book* a most useful and convenient book of reference.

A Representative objected to the publication of the *Year Book* on the ground of expense and on account of its very small type.

Dr. Maclean said from a secretary's point of view the *Year Book* was very useful. It might be true that to the general member the *Year Book* was not of much use, but as a secretary he found it of the utmost possible use. He agreed that the full list of members as published seemed unnecessary, but it enabled the secretary to see how the Branches were constituted and to have at hand for ready reference the Articles of Association and By-laws. If the *Year Book* was to be discontinued, he thought the secretaries of the various Divisions should have at hand a book of reference.

Dr. Langdon-Down inquired whether the expense this year would be anything like that of last year.

Dr. Walter Smith inquired if the General Secretary could give any estimate of what the *Year Book* would cost if the names of members were left out.

The General Secretary stated that provided the *Year Book* were published without the list of members, he thought it would entail an outlay of about £500; but if the names of members were included it would be about £850. In the first year the amount received from advertisements was about £300; in the second year less. He did not think an increased revenue could be looked for from advertisements in the *Year Book*, because advertisers were of opinion that it had only exactly the same circulation as the Journal, and there was a risk that the advertisments in the *Year Book* were published at the expense of advertisments in the Journal.

Dr. Percy Rose, speaking of the *Year Book* as a book of reference, said no doubt it was very useful to secretaries, but an energetic secretary or Representative could find almost all the information in the British Medical Journal, and he

* Notified since the publication of the provisional Agenda.

therefore thought there was no real necessity for the *Year Book*.

Dr. Latimer withdrew his resolution in view of the fact that the matter would still go on if it was referred to the Finance Inquiry Committee. Personally he did not believe in the *Year Book*; he could get all the information he wanted from the Journal.

Dr. Young moved:

That the *Year Book* be discontinued.

The Chairman ruled the motion out of order, and said he would take the first resolution with regard to the *Year Book* standing in the name of the Manchester (North) Division.

Dr. Broadbent withdrew the motion.

Dr. Davies (Liverpool Northern) moved

That the *Year Book* be abolished on the ground of unnecessary expense.

He said that his Division considered that the *Year Book* was no use to any one except to a secretary who had not energy enough to look elsewhere for the information he required. To the rank and file it was useless, and usually went straight into the waste-paper basket.

Dr. Muir seconded the motion, which was carried.

The Chairman said the next motion was by the Liverpool Central Division:

That as the Supplement contained a full record of the proceedings of the Representative Meeting, the volume of the Minutes published separately was unnecessary, and therefore a needless expense.

It was an expression of opinion simply; there was no resolution in it.

Sir Victor Horsley suggested that the matter did not come before the meeting.

The Chairman agreed, but asked whether the meeting desired to express its opinion. ["No, no."]

Agenda of Representative Meeting.

Dr. Douglas said he had a proposition which he considered of very great importance in the practical working of the meetings, and it was that so far as possible a complete agenda of the meeting should be in the hands of Representatives at least two weeks before the meeting. A great deal of the difficulty at that meeting had arisen from the fact that many of the Representatives had not had time to master the intricacies of the agenda paper and the appendix before the meeting.

The Medical Secretary reminded the Representatives that they always received the substantive motions which came before them three months before the Representative Meeting, when the Provisional Agenda was published which contained all the notices of motion which had been received up to that time. They could not be considered if they were not included in that agenda. The remainder of the agenda, which partly consisted of the reports of committees, must either be issued in two portions—a portion some time before the meeting and the remaining portion shortly before the meeting, which would multiply the documents—or else they must have the reports published only shortly before the meeting. For example, the Ethical Committee had met only a fortnight ago because it had special business. If the whole of the agenda were issued very long before the meeting, it meant that a considerable portion of the important work of the Committees would not be reported to the meeting at all. The remaining point was as to the reception of the returns of Representatives. Under the regulations, the names of representatives were not all received until two weeks before the meeting. Thus an instruction to issue the agenda to all Representatives two weeks before the meeting could not be carried out, because the names of some were not then known.

Mr. Ballance could not see the disadvantage that the Representatives were put to by receiving their agenda one week before the meeting. They had all the notices of motion given in the Supplement, and if the members had read the Supplement they should have understood it.

Dr. Bagley inquired whether it was not possible to print an agenda and stick to the agenda at the meeting.

The Chairman replied that that rested with him, and he did the best he could. He would put Dr. Douglas's motion to the meeting.

Dr. Douglas asked leave to reply, and, speaking amid interruptions, contended that the matter was of great importance. He suggested that the words "as far as possible" should be inserted.

The Chairman put Dr. Douglas's motion that the agenda be placed in the hands of the Representatives one fortnight before the meeting, as far as possible.

On a show of hands the motion was lost.

District Organizing Medical Secretaries.

Dr. McManus (Wandsworth) withdrew the following motion (of which he had given notice) on the assurance of the Chairman that the matter would be brought before the Organization Committee:

That in order to accelerate the consideration of, and dealing with, matters of local interest that do not affect the principles or policy of the Associatian, and so relieve the routine work of the Central Office, it is desirable that there be gradually introduced the principle of District Organizing Medical Secretaries. That it be an instruction to the Central Council to consider the matter, and to report with a scheme to the Divisions by March 31st, 1907.

Coroners' Law: Medical Witnesses.

Mr. Armit then moved on behalf of the Hampstead Division:

That the medical witness at a coroner's inquest should be the medical man last in attendance upon the deceased, or the first to see the dead body, as has been the practice until recently pursued;

and it was agreed to.

Compulsory Revaccination.

The following further motion, moved on behalf of the same Division by Mr. Armit, was also agreed to:

That revaccination prior to the statutory age for leaving elementary schools be made compulsory.

Supply of Government Lymph to all Practitioners.

Mr. Armit, on behalf of the same Division, moved:

That Government lymph should be supplied to all practitioners who desire it.

Dr. Walter Smith proposed as an amendment the addition of the word "free" at the end.

Mr. Armit accepted the addition, and the motion was agreed to.

Local Contract Practice Committees.

Mr. Armit proposed:

That for the purpose of deciding upon the local conditions under which contract practice should be carried on, an organized body, such as a Division or Section of the British Medical Association, in conjunction with all the local profession, should be formed in each affected district.

It was very necessary that every Division should inquire into the local conditions with regard to contract practice, and it would be advisable if the Divisions had a small Committee such as the Hampstead Division had appointed.

Dr. Westby said the plan had been carried out in Liverpool.

Dr. Goyder said the proposal had been carried out by the Bradford Division in conjunction with all the medical men of the town, and had had most satisfactory results; he strongly supported the motion.

Dr. Broadbent advised the meeting, from the experience of minutes, to be very cautious on this matter.

The motion was put to the meeting and carried.

Collection of Medical Fees in Montreal.

Dr. Caverhill moved:

That a Committee of delegates to Toronto be appointed to inquire into the system of collecting medical fees in Toronto.

Sir Victor Horsley seconded the motion, which was put and carried.

Dr. Low (Dundee) asked to whom the delegates would report.

The Chairman presumed to the Representative Meeting next year.

Dr. Low (Dundee) asked whether they might put their report in the Journal.

The Chairman said that he thought that would be a satisfactory course.

Motions Withdrawn.

Dr. Laffan (Waterford, etc.) said that as the meeting had now been debating for four days it would be very unkind to propose the large number of amendments which had been sent up by the Waterford Division (South-East of Ireland Branch), and he would agree that the consideration of them be deferred until the next meeting.

Financial Control.

Dr. Caverhill moved as an amendment to Standing Orders:

That every resolution involving special expenditure, before final adoption by the Representative Meeting, shall be remitted to the Finance Committee for report to a later session.

Mr. Ballance seconded.

Dr. Low said if the meeting had no power to say when the Finance Committee of the Council was to meet, and referred a motion to that Committee, the meeting would not know when it would receive the report.

The Chairman suggested that it might save time if the meeting realized that the proposal could not take effect until next year; the best course would be to refer the resolution to the Finance Committee, and the motion was agreed to.

Vote of Thanks to Chairman.

Dr. Latimer said that the meeting could not separate from that Session without returning a very cordial and warm vote of thanks to the Chairman for the work he had done. (Hear, hear.) He had had a very difficult session, and had had a great deal of speech to control. He had shown an urbanity and a patience which were really remarkable. They had placed him (Dr. Latimer) in the proud position of being Deputy-Chairman, and he had said to himself: "I wonder when I shall be able to bear with the members of this assembly in the way that Dr. Macdonald has." The Chairman had acted to the satisfaction of everyone present, and had earned their warm approbation. [Applause.] Without further words he would propose a warm and cordial vote of thanks to the Chairman for his conduct in the chair.

Mr. Armit, in seconding the motion, said he thought it ought to be done quite formally, so that there was no doubt whatever as to the meaning of the meeting. He thought the best way in which to show their appreciation was to give their acclamation by cheers.

The meeting gave the Chairman three cheers.

The Chairman responding assured them it was a very proud thing for him, after having gone through those four days, to feel he had their approbation of his conduct in the chair. He was quite conscious of the difficult position he was taking up in following Sir Victor Horsley in that position, because he was the best chairman of a meeting he ever saw. If he had satisfied them that his intentions were, so far as they went, carried out to the best of his ability to be fair to everyone, he felt quite satisfied, and he thanked them very much for the approbation they had shown of his conduct. [Loud applause.]

Confirmation of Minutes.

On the question of confirming the minutes,

Dr. Robertson (Glasgow Southern) inquired whether a quorum was present. It appeared that only 67 members were present, the quorum being 73.

The business was suspended for a quarter of an hour after which the minutes were read by the Medical Secretary, and, certain emendations being made, were confirmed, and the Chairman was authorized to sign them as correct.

The session then terminated.

Delegates to the Toronto Meeting.

Dr. Ernest White (Sevenoaks) writes to point out that he seconded Sir Victor Horsley's motion that all members of the Representative Meeting who were going to Toronto should be designated delegates of the Representative Meeting.

Annual General Meeting.

Dr. J. Brindley James (London) writes: In the Supplement of the British Medical Journal for July 28th, p. 75, I am reported as having stated at the above, "That the salaries paid to the various Secretaries should be reduced." What I really did say was: "The general scale of all officials' salaries should be reduced," but I never expressed or implied any suggestion invidious or hostile against any individual or any special class of employés. I had no thought whatever of finding fault, either, with the really useful and efficient work of the Secretaries in particular.

ASSOCIATION INTELLIGENCE.

PROCEEDINGS OF COUNCIL.

At a meeting of the Council held at Caxton Hall, Westminster, on Tuesday, July 24th, 1906, at 9 o'clock in the forenoon.

Present:

Dr. H. W. Langley Browne, Chairman of Council, in the Chair.

Sir Victor Horsley, F.R.S., Chairman of Representative Meetings.

Dr. H. Radcliffe Crocker, Treasurer.

Dr. John Ford Anderson, London.
Mr. H. A. Ballance, M.S., Norwich.
Fleet Surgeon E. J. Biden, R.N., Southsea, Representative of the Royal Navy Medical Service.
Dr. T. R. Bradshaw, Liverpool.
Dr. J. Brassey Brierley, Old Trafford.
Professor J. W. Byers, M.D.
Dr. W. A. Carline, Lincoln.
Dr. James Craig, Dublin.
Lieutenant-Colonel E. F. Drake-Brockman, I.M.S. (ret.), London, Colombo, and South Indian and Madras Branches.
Dr. E. Lawrence Fox, Plymouth.
Dr. H. A. Francis.
Dr. John H. Galton, Upper Norwood.
Dr. Joseph J. Giusani, Cork.
Dr. Bruce Goff, Bothwell.
Dr. David Goyder, Bradford.
Dr. J. Groves, Carisbrooke.
Dr. James Hamilton, Glasgow.
Dr. G. E. Haslip, London.
Dr. T. Arthur Helme, Manchester.
Dr. R. McKenzie Johnston, Edinburgh.
Mr. R. H. Kinsey, Bedford.
Professor J. T. J. Morrison, M.B., Birmingham.
Dr. J. Murray, Inverness.
Dr. T. G. Nasmyth, Cupar, Fife.
Mr. C. H. W. Parkinson, Wimborne Minster.
Dr. Frank M. Pope, Leicester.
Dr. Edwin Rayner, Stockport.
Mr. H. Jones Roberts, Penygroes.
Dr. St. Clair B. Shadwell, Walthamstow.
Dr. Cecil E. Shaw, Belfast.
Dr. E. Markham Skerritt, Clifton, Bristol.
Professor W. R. Smith, M.D., London, Malta, and Mediterranean Branch.
Mr. W. D. Spanton, Hanley.
Mr. C. R. Straton, Salisbury.
Mr. J. Lynn Thomas, C.B., Cardiff.
Dr. Denis Walshe, Graigue.
Dr. Sinclair White, Sheffield.
Mr. D. J. Williams, Llanelly.

The Chairman of Council reported receipt of the following returns from the Branches:

Aberdeen Branch.—Professor David W. Finlay, M.D., LL.D., 2, Queen's Terrace, Aberdeen. *Bath and Bristol Branch.*—Dr. E. Markham Skerritt, Ivor House, Durdham Park, Clifton, Bristol. *Birmingham Branch.*—Dr. H. W. Langley Browne, West Bromwich; Professor J. T. J. Morrison, 3, Great Charles Street, Birmingham. *Border Counties Branch and North Lancashire and Westmorland Branch (United).*—Dr. J. Maxwell Ross, County Buildings, Dumfries (see also North Lancashire and South Westmorland). *Brisbane and Queensland Branch.*—Dr. H. A. Francis, 2, Henrietta Street, Cavendish Square, W. *Cambridge and Huntingdon Branch and East York and North Lincoln Branch (United).*—Mr. F. E. A. Webb, Grafton House, Maid's Causeway, Cambridge (see also East York and North Lincoln). *Cape of Good Hope Eastern Provinces Branch and Cape of Good Hope Western Provinces Branch (United).*—Colonel David Bruce, C.B., F.R.S., 68, Victoria Street, S.W. *Colombo, Ceylon, Branch and South Indian and Madras (United).*—Lieutenant-Colonel E. F. Drake-Brockman, I.M.S. (ret.), F.R.C.S., 281, Willesden Lane, N.W. *Connaught Branch and Ulster Branch (United).*—Professor J. W. Byers, M.D., Lower Crescent, Belfast (see also Ulster); Dr. Cecil E. Shaw, College Square East, Belfast. *Dorset and West Hants Branch and West Somerset Branch (United).*—Mr. C. H. Watts Parkinson, Wimborne Minster (see also West Somerset). *Dundee Branch, Perth Branch, and Stirling Branch (United).*—Dr. R. Cochrane Buist, 166, Nethergate, Dundee (see also Perth and Stirling). *East Anglian Branch.*—Mr. H. A. Ballance, M.S., 46, Prince of Wales Road, Norwich; Dr. Edgar George Barnes, Eye, Suffolk. *East York and North Lincoln Branch and Cambridge and Huntingdon Branch (United).*—Mr. F. E. A. Webb, Grafton House, Maid's Causeway, Cambridge (see also Cambridge and Huntingdon). *Edinburgh Branch and Fife Branch (United).*—Dr. Robert McKenzie Johnston, 2, Drumsheugh Gardens, Edinburgh (see also Fife); Dr. Thomas Goodall Nasmyth, Cupar, Fife (see also Fife). *Fife Branch and Edinburgh Branch (United).*—Dr. Robert McKenzie Johnston, 2, Drumsheugh Gardens, Edinburgh (see also Edinburgh); Dr. Thomas Goodall Nasmyth, Cupar, Fife (see also Edinburgh). *Glasgow and West of Scotland Branch.*—Dr. Bruce Goff, The Lindens, Bothwell, Lanarkshire; Dr. James Hamilton, 1, Royal Crescent, Crosshill, Glasgow. *Halifax, Nova Scotia, Branch.*—Lieutenant-Colonel G. Carleton Jones, A.M.S., Government House, Halifax, N.S. *Hong Kong and China Branch.*—Dr. Alex. Rennie, Kintore, Aberdeen. *Lancashire and Cheshire*

Branch.—Dr. T. R. Bradshaw, 51, Rodney Street, Liverpool; Dr. J. Brassey Brierley, Alma House, Old Trafford, Manchester; Dr. T. Arthur Helme, "Mayfield," Victoria Park, Manchester; Dr. Edwin Rayner, 19, Teviot Dale, Stockport. *Leinster Branch and South-Eastern of Ireland Branch (United).*—Dr. James Craig, 18, Merrion Square, Dublin (see also South-Eastern of Ireland); Dr. Denis Walshe, Bellevue, Graigue, co. Kilkenny (see also South-Eastern of Ireland). *Malta and Mediterranean Branch.*—Professor W. R. Smith, M.D., 74, Great Russell Street, W.C. *Metropolitan Counties Branch.*—Dr. John Ford Anderson, 41, Belsize Park, N.W.; Mr. George Eastes, M.B., 35, Gloucester Terrace, Hyde Park, W.; Dr. G. E. Haslip, 8, Suffolk Place, Pall Mall, S.W.; Sir Victor Horsley, F.R.C.S., F.R.S., 25, Cavendish Square, W.; Dr. St. Clair B. Shadwell, Lynhurst, Orford Road, Walthamstow, N.E. *Midland Branch.*—Dr. W. A. Carline, Lincoln; Dr. F. M. Pope, 4, Prebend Street, Leicester. *Munster Branch.*—Dr. Joseph Giusani, Patrick's Hill, Cork. *North of England Branch.*—Dr. J. H. Hunter, Havelock Street, South Shields; Dr. Arthur T. Wear, 1, Wentworth Place, Newcastle-on-Tyne; *Northern Counties of Scotland Branch.*—Dr. James Murray, 6, Ardross Terrace, Inverness. *North Lancashire and South Westmorland Branch and Border Counties Branch (United).*—Dr. J. Maxwell Ross, County Buildings, Dumfries (see also Border Counties). *North Wales Branch.*—Mr. H. Jones Roberts, Llywenarth, Penygroes. *Oxford and Reading Branch.*—Dr. C. W. Marriott, Aubrey House, Bath Road, Reading. *Perth Branch, Dundee Branch, and Stirling Branch (United).*—Dr. R. Cochrane Buist, 166, Nethergate, Dundee (see also Dundee and Stirling). *Shropshire and Mid-Wales Branch and Staffordshire Branch (United).*—Mr. W. D. Spanton, Chatterley House, Hanley. *South-Eastern Branch.*—Dr. J. H. Galton, Chunam, Sylvan Road, Upper Norwood, S.E.; Dr. W. J. Tyson, 10, Langhorne Gardens, Folkestone; Mr. T. Jenner Verrall, 97, Montpellier Road, Brighton. *South-Eastern of Ireland Branch and Leinster Branch (United).*—Dr. James Craig, 18, Merrion Square, Dublin (see also Leinster); Dr. Denis Walshe, Bellevue, Graigue, co. Kilkenny (see also Leinster). *Southern Branch.*—Dr. J. Groves, Carisbrooke, Isle of Wight; Mr. Charles Robert Straton, F.R.C.S., West Lodge, Wilton, Salisbury. *South Indian and Madras Branch and Colombo, Ceylon, Branch (United).*—Lieutenant-Colonel E. F. Drake-Brockman, I.M.S. (ret.), F.R.C.S., 281, Willesden Lane, N.W. *South Mid and Branch.*—Mr. R. H. Kinsey, 10, Rothsay Gardens, Bedford. *South Wales and Monmouthshire Branch.*—Mr. John Lynn Thomas, C.B., F.R.C.S., 21, Windsor Place, Cardiff; David James Williams, F.R.C.S., Greenfield House, Llanelly. *South-Western Branch.*—Mr. E. J. Domville, Northernbay House, Exeter; Dr. Edward Lawrence Fox, 9, Osborne Place, Plymouth. *Staffordshire Branch and Shropshire and Mid-Wales (United).*—Mr. W. D. Spanton, Chatterley House, Hanley. *Stirling Branch, Dundee Branch, and Perth Branch (United).*—Dr. R. Cochrane Buist, 166, Nethergate, Dundee (see also Dundee and Perth). *Sydney and New South Wales Branch.*—Dr. C. J. Martin, F.R.S., Lister Institute of Preventive Medicine, Chelsea, S.W.; Dr. G. E. Twynam, 51, Gledhow Gardens, South Kensington, S.W. *Ulster Branch and Connaught Branch (United).*—Professor J. W. Byers, M.D., Lower Crescent, Belfast (see also Connaught); Dr. Cecil E. Shaw, College Square East, Belfast. *West Somerset Branch and Dorset and West Hants Branch (United).*—Mr. C. H. Watts Parkinson, Wimborne Minster (see also Dorset and West Hants). *Yorkshire Branch.*—Dr. D. Goyder, 88, Great Horton Road, Bradford; Dr. Sinclair White, Ranmoor, Sheffield.

The Chairman of Council reported that certain of the Colonial Branches had not conformed to the By-laws, and until they pass rules governing the elegibility of their representatives for election to the Council, the confirmation of such returns must be held over.

The Chairman of Council reported that the number of Representative Members returned to the Council was 57, and therefore, under By-law 31, the Council was entitled to co-opt five members: on a ballot being taken the following were declared elected: Mr. Andrew Clark, Dr. Wm. Collier, Mr. Edmund Owen, Professor Saundby, and Dr. Norman Walker.

The minutes of the last meeting (July 4th, 1906) having been printed and circulated, were taken as read, and ordered to be signed as correct, subject to a verbal modification.

Read letters of apology or non-attendance from Dr. Edgar Barnes, Dr. R. C. Buist, Mr. George Eastes, Professor Finlay, Dr. Maxwell Ross, and Mr. F. E. A. Webb.

Resolved: That the Standing Orders relative to presentation of Minutes of Committees to the Council be referred to the Organization Committee for consideration and report, and that in the meantime they apply as at present.

Moved by the Chairman of Council, seconded by the Treasurer, and

Resolved: That it be recommended to the Annual General Meeting that Sir Victor Horsley, F.R.S., be elected a Vice-President of the Association for his very distinguished services to the Association.

Resolved: That the quarterly meetings of Council be held on the following dates: 1906, October 24th; 1907, January 23rd, April 17th, July 3rd; and that the Chairman of Council be empowered to summon additional meetings when necessity arises.

Read communications from the Bradford Division and South-Western Branch inviting the Association to hold its Annual Meeting in 1907 in Bradford and Exeter respectively.

Resolved: That it be recommended to the General Meeting of Members that the invitation of the South-Western Branch to hold the Annual Meeting for 1907 at Exeter be accepted, and that Dr. Henry Davy, Senior Physician to the Devon and Exeter Hospital, be nominated President-elect.

Resolved: That the Annual Meeting at Exeter be held on July 30th, 31st, August 1st and 2nd, 1907.

Moved by the Chairman of Council, seconded by the Treasurer, and

Resolved: That Fleet Surgeon J. E. Biden, R.N., be elected a Representative of the Royal Navy Medical Service. That Colonel E. M. Wilson, C.B., C.M.G., be elected a Representative of the Army Medical Service. That Colonel Joubert, I.M.S., be elected a Representative of the Indian Medical Service in accordance with By-law 22.

Resolved; That the minutes of the Irish Committee of June 30th, 1906, be received.

The minutes of the Ethical Committee of July 13th, 1906, were deferred for consideration at the October meeting of the Council.

Read communication from the Honorary Secretary of the Cape of Good Hope Branch.

Communication from the Cape of Good Hope Western Branch:

Rhodes Building, Cape Town,
June 19th, 1906.

Dear Sir,—This Branch of the British Medical Association having received promise of co-operation from the other Colonial Branches of this Colony, and in view of the fact that the Natal Branch has framed a similar resolution, wishes to extend to the Central Association a cordial invitation to this country, for the holding of its annual meeting at some future date. If this be feasible to the Central Council, we feel assured that medically and in other respects members will find this country not uninteresting.

I remain, dear Sir, on behalf of this Branch,
Yours very truly,
J. Luckhoff, Honorary Secretary.

Secretary, British Medical Association.

Resolved: That the Cape of Good Hope Branch be thanked for its communication and that the same be entered on the minutes.

At a meeting of the Council held at Caxton Hall, Westminster, on Wednesday, July 25th, 1906, at 9 o'clock in the forenoon.

Present:

Dr. H. W. Langley Browne, Chairman of Council, in the Chair.

Dr. J. A. Macdonald, Chairman of Representative Meetings.
Dr. H. Radcliffe Crocker, Treasurer.

Mr. H. A. Ballance, M.S., Norwich.
Fleet Surgeon E. J. Biden, R.N., Southsea, Representative of the Royal Navy Medical Service.
Dr. T. R. Bradshaw, Liverpool.
Dr. J. Brassey Brierley, Old Trafford.
Professor J. W. Byers, M.D., Belfast.
Dr. W. A. Carline, Lincoln.
Mr. Andrew Clark, London.
Dr. James Craig, Dublin
Mr. E. J. Domville, Exeter.
Lieut.-Colonel E. F. Drake-Brockman, I.M.S. (ret.), London (Colombo, and South Indian and Madras Branches.
Dr. E. Lawrence Fox, Plymouth.
Dr. H. A. Francis, Brisbane and Queensland Branch.
Dr. John H. Galton, Upper Norwood.
Dr. Joseph J. Guisani, Cork.
Dr. Bruce Goff, Bothwell.
Dr. David Goyder, Bradford.
Dr. J. Groves, Carisbrooke.
Dr. James Hamilton, Glasgow.
Dr. G. E. Haslip, London.
Sir Victor Horsley, F.R.S., London
Dr. J. H. Hunter, South Shields.
Dr. R. McKenzie Johnston, Edinburgh.
Mr. R. H. Kinsey, Bedford.
Professor J. T. J. Morrison, M.B., Birmingham.
Dr. J. Murray, Inverness.
Dr. T. G. Nasmyth, Cupar, Fife.
Mr. C. H. W. Parkinson, Wimborne Minster.
Dr. Frank M. Pope, Leicester.

Dr. H. Jones Roberts, Penygroes.
Dr. St. Clair B. Shadwell, Walthamstow.
Dr. Cecil E. Shaw, Belfast.
Dr. E. Markham Skerritt, Clifton, Bristol.
Professor W. R. Smith, M.D., London (Malta and Mediterranean Branch).
Mr. W. D. Spanton, Hanley.
Mr. C. Straton, Salisbury.
Mr. J. Lynn Thomas, C.B., Cardiff.
Dr. J. W. Tyson, Folkestone.
Dr. Denis Walshe, Graigue.
Dr. A. T. Wear, Newcastle-on-Tyne.
Dr. Sinclair White, Sheffield.
Mr. D. J. Williams, Llanelly.

The minutes of the last meeting (July 24th, 1906) having been printed and circulated, were taken as read and signed as correct.

Read letters of apology for non-attendance from Dr. Edgar Barnes, Dr. R. C. Buist, Mr. George Eastes, Professor Finlay, Dr. Maxwell Ross, and Mr. F. E. A. Webb.

The Council then proceeded to consider certain resolutions passed by the Representative Meeting on July 24th. (Vide Minutes of Representative Meeting of July 24th, 1906.)

Moved by the Chairman of the Representative Meeting, seconded by the Chairman of Council, and

Resolved: That Resolutions Nos. 9 and 10 of the Representative Meeting be referred to the Organization Committee.

Resolved: That the Standing Orders be suspended in order to permit of the consideration of a matter of urgency, namely, a petition of the Association of Medical Herbalists for a Royal Charter.

That a petition be presented to the Privy Council on behalf of the Association, praying that His Majesty do not grant a Royal Charter to the National Association of Medical Herbalists.

That the Chairman of Council, the Chairman of Representative Meetings, and Sir Victor Horsley be appointed a Subcommittee to prepare a suitable petition.

Resolved: That the present Chairmen of Committees be authorized to act in regard to any matters of urgency prior to the appointment of new Chairmen of Committees.

At a meeting of the Council held at Caxton Hall, Westminster, on Thursday, July 26th, 1906, at 9 o'clock in the forenoon.

Present:

Dr. H. W. Langley Browne, Chairman of Council, in the Chair.

Dr. J. A. Macdonald, Chairman of Representative Meetings.

Dr. H. Radcliffe Crocker, Treasurer.

Dr. J. Ford Anderson, London.
Mr. H. A. Ballance, M.S., Norwich.
Fleet Surg. E. J. Biden, R.N., Southsea, Representative of the Royal Navy Medical Service.
Dr. T. R. Bradshaw, Liverpool.
Dr. J. Brassey Brierley, Old Trafford.
Professor J. W. Byers, M.D.
Dr. W. A. Carline, Lincoln.
Mr. Andrew Clark, London.
Dr. James Craig, Dublin.
Mr. E. J. Domville, Exeter.
Lieut.-Colonel E. F. Drake-Brockman, I.M.S., (retired), London (Colombo and South Indian and Madras Branches).
Mr. George Eastes, M.B., London.
Dr. E. Lawrence Fox, Plymouth.
Dr. H. A. Francis, Brisbane and Queensland Branch.
Dr. John H. Galton, Upper Norwood.
Dr. Joseph J. Giusani, Cork.
Dr. Bruce Goff, Bothwell.
Dr. David Goyder, Bradford.
Dr. J. Groves, Carisbrooke.
Dr. James Hamilton, Glasgow.
Dr. G. E. Haslip, London.
Sir Victor Horsley, F.R.S., London.
Dr. J. H. Hunter, South Shields.
Dr. R. McKenzie Johnston, Edinburgh.
Mr. R. H. Kinsey, Bedford.
Professor J. T. J. Morrison, M.B., Birmingham.
Dr. J. Murray, Inverness.
Dr. T. G. Nasmyth, Cupar, Fife.
Mr. C. H. W. Parkinson, Wimborne Minster.
Dr. Frank M. Pope, Leicester.
Dr. Edwin Rayner, Stockport.
Mr. H. Jones Roberts, Penygroes.
Dr. St. Clair B. Shadwell, Walthamstow.
Dr. Cecil E. Shaw, Belfast.
Dr. E. Markham Skerritt, Clifton, Bristol.
Professor W. R. Smith, M.D., London (Malta and Mediterranean Branch).
Mr. W. D. Spanton, Hanley.
Mr. C. R. Straton, Salisbury.
Mr. J. Lynn Thomas, C.B., Cardiff.
Dr. W. J. Tyson, Folkestone.
Dr. Denis Walshe, Graigue.
Dr. A. T. Wear, Newcastle-on-Tyne.
Dr. Sinclair White, Sheffield.
Mr. D. J. Williams, Llanelly.

Read letters of apology for non-attendance from Dr. Edgar Barnes, Dr. R. C. Buist, Professor Finlay, Dr. Maxwell Ross, Mr. F. E. A. Webb, and Colonel E. M. Wilson, C.B., C.M.G.

The minutes of the last meeting having been printed and circulated, were taken as read and signed as correct.

Resolved: That the question of amending the Standing Orders relative to the nomination of Members for election to the various Committees by the Council be referred to the Election Returns Committee for reconsideration.

Moved by Dr. Helme, seconded by Mr. Verrall, and

Resolved: That it be an instruction to the Election Returns Committee that the attendances of Members on Subcommittees be counted as attendances at the meetings of the full Committee.

The Voting Papers for the election of Members on to Committees were then issued to each Member, and Mr. George Eastes, Mr. Jones Roberts, Dr. Carline and Dr. Shadwell were appointed scrutineers.

The Chairman of the Representative Meeting reported resolutions passed in the Representative Meeting on the previous day, when certain motions were proposed requesting the Council to exercise its power of Referendum under Article XXII.

Moved by Dr. Helme, seconded by Dr. Brassey Brierley:

That this Council do exercise its power of Referendum under Article XXII, in connexion with Resolution No. 72, passed in the Representative Meeting, Wednesday, July 25th.

Moved by Dr. Pope, seconded by Dr. Galton:

That this Council do exercise its power of Referendum under Article XXII, in regard to Minute of Representative Meeting 103.

Whereupon, upon the advice of the Solicitor, the Chairman ruled the motions could not be dealt with until the completion of the Representative Meeting then in session.

At a meeting of the Council held at Caxton Hall, Westminster, on Friday, July 27th, 1906, at 9 o'clock in the forenoon.

Present:

Dr. H. W. Langley Browne, Chairman of Council, in the Chair.

Dr. J. A. Macdonald, Chairman of Representative Meetings.

Dr. John Ford Anderson, London.
Mr. H. A. Ballance, M.S., Norwich.
Dr. W. A. Carline, Lincoln.
Dr. James Craig, Dublin.
Mr. E. J. Domville, Exeter.
Lieutenant-Colonel E. F. Drake-Brockman, I.M.S. (ret.), London (Colombo and South Indian and Madras Branches).
Dr. John H. Galton, Upper Norwood.
Dr. Bruce Goff, Bothwell.
Dr. J. Groves, Carisbrooke.
Dr. David Goyder, Bradford.
Dr. James Hamilton, Glasgow.
Dr. G. E. Haslip, London.
Sir Victor Horsley, F.R.S., London.
Mr. R. H. Kinsey, Bedford.
Dr. T. G. Nasmyth, Cupar, Fife.
Professor J. T. J. Morrison, M.B., Birmingham.
Dr. J. Murray, Inverness.
Mr. C. H. W. Parkinson, Wimborne Minster.
Dr. H. Jones Roberts, Penygroes.
Mr. C. R. Straton, Salisbury.
Mr. J. Lynn Thomas, C.B., Cardiff.
Dr. Denis Walshe, Graigue.
Dr. A. T. Wear, Newcastle-on-Tyne.
Mr. D. J. Williams, Llanelly.

The Chairman reported the results of the voting for the election of members to the Committees as certified by the Scrutineers—Dr. Carline, Mr. Eastes, Mr. Jones Roberts, and Dr. Shadwell—as follows:

ARRANGEMENTS COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Craig, Dr. James, Dublin
Eastes, Mr. George, M.B., London
Galton, Dr. J. H., Upper Norwood
Johnston, Dr. R. McKenzie, Edinburgh
Parkinson, Mr. C. H. W., Wimborne
Thomas, Mr. J. Lynn, C.B., F.R.C.S., Cardiff

And six other members to be Nominated by the Exeter Executive.

CHLOROFORM COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Barr, Sir James, M.D., Liverpool
Brodie, Dr. T. G., F.R.S., London
Buxton, Dr. Dudley, London
Crocker, Dr. H. Radcliffe, London
Dunstan, Professor, F.R.S., London
Harcourt, Professor Vernon, F.R.S., Ryde
Horsley, Sir Victor, F.R.S. London
McCardie, Dr. W. J., Birmingham
Martin, Dr. C. J., F.R.S., London
Rowell, Mr. George, F.R.C.S., London
Sherrington, Professor C. S., F.R.S., Liverpool

COLONIAL COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Armour, Mr. Donald, F.R.C.S., London
Straton, Mr. C. R., F.R.C.S., Salisbury

and five members to be appointed by the Representatives of the Colonial Branches on the Council.

ETHICAL COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Anderson, Dr. J. Ford, London
Goff, Dr. Bruce, Bothwell
Kinsey, Mr. R. H., Bedford
Messiter, Mr. M. A. Dudley
Spanton, Mr. W. D., Hanley

Together with the following elected by the Representative Meeting:

Armit, Mr., Hampstead
Bateman, Dr., London
Broadbent, Dr., Manchester
Langdon-Down, Dr., Richmond
Maclean, Dr., Cardiff North

HOSPITALS COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Anderson, Dr. J. Ford, London
Beverley, Dr. M., Norwich
Carline, Dr. W. A., Lincoln
Collier, Dr. W., Oxford
Fox, Dr. E. L., Plymouth
Giusani, Dr. J. J., Cork
Hamilton, Dr. Jas., Glasgow
Hamilton, Dr. J. R., Hawick
Hastings, Dr. E. B., London
Pope, Dr. F. M., Leicester
White, Mr. E. F., F.R.C.S., Putney

JOURNAL AND FINANCE COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Chairman of Representative Meetings
The Treasurer
Clark, Mr. Andrew, F.R.C.S., London
Eastes, Mr. George, M.B., London
Galton, Dr. J. H., Upper Norwood
Groves, Dr. J., Carisbrooke
Horsley, Sir Victor, F.R.S., London
Johnston, Dr. R. McKenzie, Edinburgh
Kinsey, Mr. R. H., Bedford
Parkinson, Mr. C. H. W., Wimborne
Rayner, Dr. Edwin, Stockport
Skerritt, Dr. E. Markham, Bristol
Thomas, Mr. J. Lynn, C.B., F.R.C.S., Cardiff

MEDICO-POLITICAL COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Representative Meetings
Chairman of Council ... ...
The Treasurer ... ...

Haslip, Dr. G. E., London
Helme, Dr. T. Arthur, Manchester
Hunter, Dr. J. H., South Shields
Parkinson, Mr. C. H. W., Wimborne
Shaw, Dr. Cecil E., Belfast
Straton, Mr. C. R., F.R.C.S., Salisbury

Together with the following elected by the Representative Meeting:

Armit, Mr., Hampstead
Jackson, Mr., Plymouth and Truro
Latimer, Dr., Swansea
McManus, Dr., Wandsworth
Oldham, Dr., Lancaster
Robertson, Dr. C. E., Glasgow Southern

NAVAL AND MILITARY COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Bruce, Colonel D., F.R.S., London
Curme, Surgeon Lieutenant-Colonel Decimus, Blandford
Elliston, Colonel G. S., V.D., Ipswich
Evatt, Surgeon-General G. J. H., C.B., London

Together with Fleet Surgeon Biden, R.N., Colonel E. M. Wilson, C.B., C.M.G., and Colonel Joubert, I.M.S., the representatives of the Services on the Council.

ORGANIZATION COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Ballance, Mr. H. A., M.S., Norwich
Clark, Mr. Andrew, F.R.C.S., London
Cox, Dr. Alfred, Gateshead
Kirby, Dr. E. D., Edgbaston
Rayner, Dr. Edwin, Stockport
Verrall, Mr. T. Jenner, Brighton
Webb, Mr. F. E. Apthorpe, Cambridge

A mistake having occurred in deciding upon the names of those ineligible for re-election, the Council resolved that the names of Professor Morrison and Professor White should be added to the Committee.

POOR-LAW SPECIAL COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

ELECTED MEMBERS (5).

Buist, Dr. R. C., Dundee
Macdonald, Dr. J. A., Taunton
Oldham, Dr. H. F., Morecambe
Shaw, Dr. Cecil E., Belfast
Straton, Mr. C. R., F.R.C.S., Salisbury

Representatives from Hospitals Committee.

Anderson, Dr. J. Ford, London
Brierley, Dr. J. Brassey, Oldon Trafford

Representatives from Public Health Committee.

Jones, Mr. Herbert, Hereford
Manley, Dr. Herbert, West Bromwich
Parkinson, Mr. C. H. W., Wimborne

Representatives from Irish Committee.

Darling, Dr. J. S., Lurgan
White, Professor A. H., Dublin

Representatives from Scottish Committee.

Moorhouse, Dr. J. E., Stirling
Muir, Dr. W. L., Glasgow

PREMISES AND LIBRARY COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

The Treasurer
Clark, Mr. Andrew, F.R.C.S., London
Galton, Dr. J. H., Upper Norwood
Johnston, Dr. R. McKenzie, Edinburgh
Pope, Dr. F. M., Leicester
Rayner, Dr. Edwin, Stockport
Skerritt, Dr. E. Markham, Bristol

PUBLIC HEALTH COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Barnes, Dr. Edgar, Eye
Goyder, Dr. David, Bradford
Groves, Dr. J., Carisbrooke
Jones, Mr. Herbert, Hereford
Martley, Dr. F. C., Dublin
Nasmyth, Dr. T. G., Cupar
Parkinson, Mr. C. H. W., Wimborne

SCIENCE COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Barr, Sir James, M.D., Liverpool
Bruce, Colonel D., F.R.S., London
Buist, Dr. R. C., Dundee
Clark, Mr. Andrew, F.R.C.S., London
Helme, Dr. T. Arthur, Manchester
Martin, Dr. C. J., F.R.S., London
Morrison, Professor J. T. J., Birmingham
Pope, Dr. Frank M., Leicester
Robinson, Mr. H. Betham, M.S., London
Shaw, Dr. Cecil E., Belfast
Walker, Dr. Norman, Edinburgh
White, Mr. Sinclair, Sheffield

THERAPEUTIC COMMITTEE.

President ... ... } *Ex officio.*
Chairman of Council }

Bradbury, Dr. J. B., Cambridge
Brown, Dr. T. E. Burton, London
Crawfurd, Dr. Raymond, London
Cushny, Professor, London
Dixon, Professor W. E., London
Marshall, Professor C. R., Dundee
Stockman, Professor Ralph, Glasgow
Tirard, Dr. Nestor, London
White, Dr. W. Hale, London
Wild, Professor Robert B., Manchester

Resolved: That the thanks of the Council be accorded to Dr. W. A. Carline, Mr. George Eastes, Mr. Jones Roberts, and Dr. St. Clair B. Shadwell, for having acted as Scrutineers of the Voting Papers.

At a meeting of the Council held at the offices of the Association, 429, Strand, London, W.C., on Saturday, July 28th, 1906, at 10 o'clock in the forenoon.

Present:

Dr. H. W. Langley Browne, Chairman of Council, in the Chair.

Dr. J. A. Macdonald, Chairman of Representative Meetings.
Dr. J. Ford Anderson, London.
Mr. H. A. Ballance, M.S., Norwich.
Dr. T. R. Bradshaw, Liverpool.
Mr. Andrew Clark, London.
Dr. James Craig, Dublin.
Mr. E. J. Domville, Exeter.
Lieut.-Colonel E. F. Drake-Brockman, I.M.S. (retd.), London (Colombo and South Indian and Madras Branches)
Mr. George Eastes, London.
Dr. H. A. Francis, Brisbane and Queensland Branch.
Dr. John H. Galton, Upper Norwood.
Dr. Bruce Goff, Bothwell.
Dr. David Goyder, Bradford.
Dr. J. Groves, Carisbrooke.
Dr. James Hamilton, Glasgow.
Dr. G. E. Haslip, London.
Sir Victor Horsley, F.R.S., London.
Mr. R. H. Kinsey, Bedford.
Dr. T. G. Nasmyth, Cupar, Fife.
Mr. C. H. W. Parkinson, Wimborne Minster.
Dr. Edwin Rayner, Stockport.
Mr. H. Jones Roberts, Penygroes.
Dr. J. Maxwell Ross, Dumfries.
Dr. St. Clair B. Shadwell, Walthamstow.
Dr. E. Markham Skerritt, Clifton, Bristol.
Professor W. R. Smith, M.D., London (Malta and Mediterranean Branch).
Mr. C. R. Straton, Salisbury.
Dr. Norman Walker, Edinburgh.
Dr. A. T. Wear, Newcastle-on-Tyne.

Read letters of apology for non-attendance from the President, the Treasurer, Fleet Surgeon Biden, R.N., Dr. Hunter, Dr. Murray, Dr. Pope, Dr. Tyson, Mr. Jenner Verrall, and Dr. Sinclair White.

The minutes of the last meeting (July 27th, 1906), were read and confirmed, and ordered to be signed as correct.

Resolved: That in reference to the instruction of the Council to the Election Returns Committee of the previous day, that the attendances of members on Subcommittees should be counted as attendances at the meetings of the full Committee, it should be understood that the attendance at Subcommittee meetings held on the same day as the full Committee should not be counted.

The minutes of the Annual Representative Meeting having relation to the Charter were then considered.

Moved by Sir Victor Horsley, seconded by Dr. Markham Skerritt, and

Resolved: That inasmuch as the Referendum can be exercised by the Council on the whole matter of the Charter after the next meeting of Representatives, the Council does not at this meeting exercise its powers under Article XXII.

The motion, having been put from the Chair, was declared to be carried—17 to 4.

The Council in coming to its decision *not* to exercise its power of Referendum with regard to the Charter had the assurance of the Chairman of the Representative Meeting that he would when presenting the amended draft Charter to the Special Representative Meeting put such draft Charter clause by clause in the form of separate resolutions.

The following rider was moved by Mr. Parkinson, seconded by the Chairman of the Representative Meetings:

"That the Organization Committee be instructed to report to this Council the draft of the Charter when completed as amended by them."

The rider having been put to the meeting was declared to be carried.

Resolved: That the Council proceed to consider the resolutions of the Representative Meeting, other than those applying to the Articles, Ordinances, and By-laws of the proposed Charter, which had been referred to the Organization Committee for consideration and report to a special meeting of the Representatives.

The Chairman of the Representative Meetings then submitted the minutes of the Representative Meeting, and the Council proceeded to consider the resolutions other than those relating to the Charter.

On consideration of resolutions of the Representative Meeting, Nos. 330, 331, and 332,

"That the Annual Representative Meeting be empowered to elect at least half the members of each Standing Committee, due regard being had to geographical distribution,"

Resolved: That this Council determine upon a Referendum under Article XXII and XXXV in connexion with resolutions of the Representative Meeting, Nos. 330, 331, and 332, on the ground that the resolutions in question do not properly represent the wishes of the Association.

The motion having been put from the Chair was declared to be carried, 23—3.

Resolved: That this Council determine upon a Referendum under Articles XXII and XXXV in connexion with the Resolution of the Representative Meeting No. 334, on the ground that the resolution in question does not properly represent the wishes of the Association.

The motion having been put from the Chair was declared to be carried—17 to 4.

Resolved: That Resolution of the Representative Meeting No. 342 be also included with Minute No. 334 mentioned in the preceding resolution, on the ground that this resolution of the Representative Meeting does not properly represent the wishes of the Association.

Resolved: That this Council determine upon a Referendum under Articles XXII and XXXV in connexion with resolutions of the Representative Meeting Nos. 342, 343, 344, 345, 346, 347, 348, 349, and 350 on the ground that the resolutions in question, in each case, do not properly represent the wishes of the Association.

Resolved: That this Council refer to the Journal and Finance Committee the decisions arrived at at its meeting to-day to prepare such observations as may be thought desirable for transmission to special meetings of the Divisions to be convened at the instance of the Council on the various resolutions passed by the Representative Meeting in July, 1906, and on which the Council has decided to exercise its power of Referendum under Articles XXII and XXXV, and to report to the October meeting of the Council.

The Chairman of the Representative Meetings pointed out a correction to Minute 365 of the Representative Meeting, which should read as follows:

Resolved: That the Council be requested to consider the desirability of providing facilities at the premises of the Association in London for the better social intercourse of members, especially country members visiting London.

THE SEVENTY-FOURTH ANNUAL MEETING
OF THE
British Medical Association,
TORONTO, CANADA, AUGUST 21st to 25th, 1906.

President:
George Cooper Franklin, F.R.C.S.Eng., Surgeon, Leicester Infirmary, Leicester.

President-elect:
Richard Andrews Reeve, B.A., M.D., LL.D., Dean of the Faculty of Medicine, University of Toronto.

Chairman of Representative Meetings:
James Alexander Macdonald, M.D., M.S., R.U.I., Honorary Physician, Taunton and Somerset Hospital.

Chairman of Council:
Henry Wm. Langley Browne, M.D., Ch.B., F.R.C.S.E., Consulting Surgeon, West Bromwich District Hospital.

Treasurer:
Hy. Radcliffe Crocker, M.D., F.R.C.P., Physician Skin Department, University College Hospital, London.

PROGRAMME OF BUSINESS.

An Address in Medicine will be delivered by Sir James Barr, M.D., F.R.C.P., F.R.S.E.

An Address in Surgery will be delivered by Sir Victor Horsley, M.B., F.R.C.S., F.R.S.

An Address in Obstetrics will be delivered by Walter Spencer Anderson Griffith, M.D., F.R.C.P.

THE SECTIONS.

There will be 13 Sections as shown in the subjoined list; they will meet on Tuesday, Wednesday, Thursday and Friday, August 21st, 22nd, 23rd and 24th, from 9.30 a.m. to 12.30 p.m.

The President, Vice-Presidents, and Secretaries of each Section constitute a Committee of Reference for that Section.

Papers read are the property of the British Medical Association, and cannot be published elsewhere than in the British Medical Journal *without special permission.*

No paper must exceed 15 minutes in reading, and no subsequent speech 10 minutes.

It is requested that copies of any papers offered in any of the Sections should be supplied to one of the Honorary Secretaries of the Section, accompanied by a short abstract, in order that such abstract may be printed and circulated before the meeting.

Anatomy.

President: Professor Arthur Robinson, M.D., Birmingham.

Vice-Presidents: Professor Alexander Primrose, M.B., C.M., Toronto; David Edward Mundell, B.A., M.D., C.M., Kingston; David Waterston, M.D., F.R.C.S., F.R.S.E., Edinburgh.

Honorary Secretaries: Charles Buckingham Shuttleworth, M.D., C.M., F.R.C.S., 45, Bloor Street E., Toronto; Gawn Shaw Cleland, M.B., M.D., C.M., 730, Queen Street E., Toronto; J. Herbert Sanders, M.D., 1a, Palace Gardens Mansions, W.

This Section will meet on three and possibly four days for the reading and discussion of the following papers:

Paterson, Professor A. M. The Mechanical Supports of the Pelvic Viscera.

Huber, Professor G. C. (Michigan). (1) The Arteriae Rectae of the Mammalian Kidney. (2) The Form of the Uriniferous Tubules in Certain of the Lower Vertebrates.

Bardeen, Professor C. R. (Wisconsin). The Development and Variation of the Nerves of the Posterior Limb in Man.

MacMurrich, Professor J. Playfair. Preliminary Note on the Valves of the Iliac Veins.

Waterston, Dr. David. A Preliminary Note on the Brain and Skull in Mongolianism.

Jenkins, Dr. G. J. (1) The Morphology of the Human Hip-joint. (2) The Marginal Sinus.

Gladstone, Dr. R. A. (London). A Symelian Monster.

Bensley, Dr. R. R. (Chicago). (1) The Structure of the Cardiac Glands of Mammals and their Phylogenetic Significance. (2) Reports from the Hull Laboratory of Anatomy, Chicago University, on (*a*) the Cytological Characters of the Cellular Components of the Islets of Langerhans (M. A. Lane). (*b*) The Structure of the Lachrymal and Harderian Glands of Mammals (J. Sundwall). (3) Mucous Stains of the Cardiac Glands of the Pig. (4) Preparations in the Islets of Langerhans to Illustrate the Characters of the Different Kinds of Cells composing them. (5) Sections of the Lachrymal Gland.

Wilson, Dr. J. C. (1) The Anatomical Relations and the Blood Supply of the Palatine Tonsil. (2) An Unusual Peritoneal Anomaly simulating Retroperitoneal Hernia. (3) A Heart in which the Right Pulmonary Vein opens opposite the Septum Artorium, which is incomplete posteriorly.

Harvey, Dr. B. C. (1) On the Chromatin Characters of Certain Parietal Cells. (2) On a Case of Polydactylism in the Foot. (3) A Case of Innervation of the M. rectus lateralis oculi by the N. oculi motorius, with absence of the N. abducens.

Shambaugh, Dr. C. E. (1) The Development of the Stria Vascularis. (2) The Circulation in the Labyrinth of the Ear in the Pig.

Revell, Dr. D. G. (Chicago). Preparations of the Human Stomach to Illustrate the Methods of Differentiating the Cellular Components.

Dermatology.

President: Norman Walker, M.D., Edinburgh.

Vice-Presidents: Graham Chambers, M.B., Toronto; Harry B. Anderson, M.D., C.M., Toronto; Ernest Solly, M.B., Harrogate.

Honorary Secretaries: David King Smith, M.B., 311, Jarvis Street, Toronto; Donald Macgillivray, M.B., 12, Carlton Street, Toronto; John Campbell Rankin, M.B., 38, University Road, Belfast.

The following papers have been arranged for:

The President. The Teaching of Dermatology.

Buckley, L. D. (New York). On the Wrong and Right Uses of Milk in Certain Diseases of the Skin.

Hyde, James Nevin (Chicago). Psoriasis and Light.

Robinson, A. R. (New York). Errors in the Treatment of Cutaneous Cancer. To show also microscopical sections and drawings.

Fordyce, J. A. (New York). Demonstration by lantern slides.

Hall, Dr. A. J. (Sheffield). Eczema.

Corbett, Dr. William Thomas (Cleveland). Dermatitis Vegetans.
Taylor, Dr. R. W. (New York). Multiple and Successive Chancres and Pathology of Syphilitic Infection.
Dr. T. Casper Gilchrist (Baltimore), Mr. J. C. Johnston (New York), and Dr. S. Pollitzer will also read papers.
Dr. F. J. Shepherd (Montreal) will show a collection of photographs.

Laryngology and Otology.

President: J. Dundas Grant, M.D., London.

Vice-Presidents: George R. McDonagh, M.B., L.R.C.P., Toronto; Herbert Stanley Birkett, M.D., C.M., Montreal; John Macintyre, M.B., Glasgow; Hugh Edward Jones, M.R.C.S., Liverpool.

Honorary Secretaries: David James Gibb Wishart, B.A., M.D., C.M., L.R.C.P., 47, Grosvenor Street, Toronto; Geoffrey Boyd, B.A., M.B., 167, Bloor Street, Toronto; Adam Brown Kelly, M.D., 26, Blythswood Square, Glasgow.

The following subjects have been selected for discussion:

Operations for the Correction of Deviations of the Nasal Septum, to be opened by Dr. StClair Thomson (London), followed by Dr. Roe (Rochester), Dr. McDonagh (Toronto), Dr. Freer (Chicago), and others.

On the Laryngeal Disturbances produced by Voice Use, to be opened by Dr. Middlemass Hunt (Liverpool), followed by Dr. Chappell (New York), Dr. Birkett (Montreal), Dr. Casselberry (Chicago), and others.

On the Indications for the Ligation of the Jugular Vein in Otitic Pyaemia, to be opened by Dr. Hugh Jones (Liverpool), followed by Dr. McKernon (New York), and others.

A joint discussion has been arranged with the Section of Paediatrics on Laryngeal Stenosis in Infants, to be opened by Dr. Logan Turner (Edinburgh), followed by Dr. Henry Ashby (Manchester), and others.

The following papers have been accepted:

Smith, Dr. MacCuen (Philadelphia). The Pathogenic Influence of Aural Lesions on Systemic Disease.
Bacon, Dr. (New York). To What Extent is it Advisable to Adopt Conservative Methods in the Treatment of Aural Diseases?
Blake, Dr. Clarence (Boston). The Value of the Blood Clot as a Primary Dressing in Mastoid Operations.
Coakley, Dr. (New York). Skiagraphy as an Aid in the Diagnosis and Treatment in the Diseases of Accessory Sinuses of the Nose, with lantern exhibition of negatives.
Goldsmith, Dr. Perry (Belleville). Some Cases of Suppurative Frontal Sinus presenting Unusual Features.
Smurthwaite, Dr. Henry (Newcastle-on-Tyne). Headaches: Pathological Conditions of the Middle Turbinal a Causal Factor.
Tilley, Dr. Herbert (London). Some Considerations upon the Diagnosis and Treatment of Suppurative Lesions in the Nasal Accessory Cavities.
Yonge, Dr. Eugene (Manchester). Polypus.
Richards, Dr. George L. (Fall River, Mass.). Abductor Paralysis, with a report of two cases.
Ballenger, Dr. W. L. (Chicago). Exhibition of specimens, drawings, and instruments in connexion with the Submucous Resection of the Deviated Nasal Septum.
Bryant, Dr. Alice G. (Boston). The Use of the Cold Wire Snare in removing Hypertrophied Tonsils.
Jackson, Dr. Chevalier (Pittsburg). Thyrotomy and Laryngectomy for Malignant Disease of the Larynx.
Loeb, Dr. H. W. (St. Louis). A Study of the Anatomy of the Accessory Sinuses of the Nose from Reconstructions; exhibitions of drawings and preparations.
Porcher, Dr. W. Peyre (Charleston). The Origin of Sputa.

The undernoted exhibits will also be demonstrated or on view:

Smurthwaite, Dr. Henry. Paintings of Various Diseases of the Larynx and Pharynx.
Ziem, Dr. C. (Dantzic). Photographs of Sections of Heads of Various Animals, with Special Reference to the Upper Air Tract.
Jones, Mr. Hugh E., and Holland, Mr. Thurstan (Liverpool). Radiogram of Specimen of Exostosis of the Frontal Sinus.
Ballenger, Dr. W. L. (Chicago). Specimens, Drawings, and Instruments in connexion with resection of the deviated nasal septum.

Medicine.

President: Sir Thomas Barlow, Bart., K.C.V.O., M.D., London.

Vice-Presidents: Professor Alexander McPhedran, M.B., Toronto; Professor James Stewart, M.D., C.M., Montreal; Alexander Napier, M.D., Glasgow; William Calwell, M.D., Belfast.

Honorary Secretaries: Robert Dawson Rudolph, M.D., M.R.C.P., 396, Bloor Street W., Toronto; John Taylor Fotheringham, B.A., M.B., M.D., C.M., 36, Carlton Street, Toronto; Robert Hutchison, M.D., 22, Queen Anne Street, London, W.

The following subjects have been selected for discussion:

Tuesday, August 21st.—On Blood Pressure in Relation to Disease. The subject will be treated under the following headings: (*a*) Physiological Introduction, by Dr. Percy M. Dawson (Baltimore). (*b*) Clinical Methods of Investigating Blood Pressure, by Dr. G. A. Gibson (Edinburgh). (*c*) The Clinical Significance and Therapeutical Indications of Variations in Blood Pressure, by Sir Wm. Broadbent. (*d*) The Relation of Blood Pressure to Arterial Sclerosis, by Professor Clifford Allbutt. The following will also take part: Dr. Mackenzie (Burnley), Sir James Barr (Liverpool), Dr. Rose Bradford (London), Dr. Lindsay Steven (Glasgow), and others.

Wednesday, August 22nd.—A joint discussion with the Physiology Section on Over-nutrition and Under-nutrition, with special reference to Proteid Metabolism, to be opened by Professor Chittenden (Yale), Professor Halliburton (London), Professor Wm. Osler (Oxford), Dr. Otto Folin (Waverley, Mass.), Dr. R. Hutchison (London).

Thursday, August 23rd.—Discussion on Heart-block, in which Professor Osler, Dr. Mackenzie (Burnley), Dr. G. A. Gibson, Dr. Erlanger (Baltimore), Dr. Aschoff (Freiburg), Dr. W. S. Morrow, Dr. G. A. Gibson (Edinburgh), and others will take part.

The following is a summary of Dr. Erlanger's paper: A review of the Physiology of Heart-block in Animals. Anatomy of the Auriculo-ventricular Bundle. Effect on the Heart-beat of gradually and of suddenly compressing the Auriculo-ventricular Bundle. Permanent Heart-block due to the Destruction of the Auriculo-ventricular Bundle. Bearing of the Results on the Theory of the Heart-beat. Theory of Heart-block from Compression of the Auriculo-ventricular Bundle. The Effect on the Degree of the Block of Varying the Auricular Beat. The Effects of Extra Systoles of the Auricles and Ventricles in the different Stages of Block. Physiological Properties of the Auriculo-ventricular Bundle. Action of Extrinsic Cardiac Nerves on Auricles and Ventricles. Changes in Heart-beat associated with Cheyne-Stokes Respiration in Heart-block. The Various Causes of Stoppage of the Ventricles: (1) Sudden Block; (2) Sudden Increase of the Auricular Rate; (3) Through Action of the Cardiac Centres Other possible Forms of Heart-block: (1) Weak Excitation Wave; (2) Low Irritability of Ventricular Muscle.

Dr. W. Morrow's paper will be made up of three sections: (1) Tracings from a case of auricular extra systole, illustrating the possibility of the contraction being conducted backward from auricle to venous ostia. (2) Tracings from two cases in which, while the auricles were beating about 200 times per minute, the ventricles only responded to every second or third beat of the auricles. This case presents some interesting features for discussion. (3) Remarks on the nature of the wave called by Mackenzie the ventricular wave of the venous pulse. He will endeavour to show that a wrong interpretation of this wave and its significance has led Mackenzie and other writers to class certain cases of heart-block under other heads.

Friday, August 24th.—Papers.

The following papers have been received:

Bradford, Dr. Rose (London). The Classification of the Various Forms of Bright's Disease.
Smith, Dr. F. J. (London). Some Observations on the Treatment of Typhoid Fever.
Dock, Dr. G. Paracentesis of the Pericardium: Indications and Methods.
Spiller, Dr. W. E. Syringomyelia, with a Cavity traced from the Sacral Region to the Internal Capsule.
Rudolf, Dr. R. D. (Toronto) and Cummings, Dr. S. (Toronto). The Effect of Posture upon the Position of the Heart.
McCallum, Dr. Hugh A. Gastric Neurasthenia.
Mackenzie, Dr. Ridley (Montreal). Four Cases of Gangrene of the Lung, with Recovery after Operation.
Barker, Dr. L. F. (Canada). Amido-acids and Metabolism.
Stengel, Dr. Alfred (Canada). Some Clinical Manifestations, Visceral and General, of Arterio-sclerosis.
Morrow, Dr. W. S. (Montreal). Some Cases of Arrhythmia Studied by the Venous Method.
Fotheringham, Dr. J. T. (Toronto). The Present Status of Military Medical Arrangements in Canada.
Meyers, Dr. C. (Ontario). The Treatment of Neurasthenia in General Hospitals.

Thistle, Dr. W. B. (Toronto). Typhoid Fever.
Blackader, Dr. A. D. (Montreal). A Case of Enlarged Spleen: Operation: Recovery.
Turner, Dr. Aldren (London). Diet in the Treatment of Epilepsy.
McPhedran, Professor. The Relation of Gastric Motility to the Process of Digestion.
Gordon, Dr. A. R. Neurotic Affections of the Respiratory System.
Putnam, Dr. J. J. (Boston). A Comparison of certain Modern Philosophic Doctrines with reference to their bearing on the Therapeutics of Psychasthenia.
Savill, Dr. T. D. (London). Pathology of Neurasthenia.

Obstetrics and Gynaecology.

President: A. H. Freeland Barbour, M.D., Edinburgh.
Vice-Presidents: Professor James Algernon Temple, M.D., C.M., Toronto; Professor Adam H. Wright, B.A., M.B., Toronto; Professor William Gardner, M.D., Montreal; T. Arthur Helme, M.D., Manchester.
Honorary Secretaries: Frederick Fenton, M.D., C.M., 75, Bloor Street E., Toronto; Kennedy Crawford McIlwraith, M.B., 54, Avenue Road, Toronto; Cuthbert Lockyer, M.D., 117A, Harley Street, London, W.

It has been arranged that on August 21st, 22nd, and 23rd the first part of the meeting be devoted to a discussion on the following subjects:

Tuesday, August 21st.—Hyperemesis Gravidarum.

Wednesday, August 22nd.—The Changes in Uterine Fibroids after the Menopause, with Special Reference to Operation.

Thursday, August 23rd.—The Appendix Vermiformis in Relation to Pelvic Inflammation.

Friday, August 24th.—Papers, etc.

Dr. J. C. Cameron, of Montreal, will introduce the discussion on August 21st; Dr. Charles A. L. Reid will introduce that on August 22nd; and Dr. T. Arthur Helme will introduce that on August 23rd.

The following papers have been arranged for:

Price, Dr. Joseph (Philadelphia, U.S.A.). The Value of Conservative Treatment of the Ovaries in view of the After-history of many Patients.
McMurtry, Dr. L. S. (Louisville, Ky., U.S.A.). The Surgical and Serum Treatment of Puerperal Sepsis.
Evans, Dr. D. J. (Montreal). The Treatment of Eclampsia.
Reddy, Dr. (Montreal). Indications for Caesarean Section.
Ross, Dr. J. F. W. (Toronto). Ectopic Gestation.
Gardner, Dr. (Montreal), and Goodall, Dr. J. R. (Montreal). Menorrhagia from Causes other than Definite Neoplastic Formations in the Uterus.
Giles, Dr. A. E. (London). A Study of a Consecutive Series of Cases of Ventrifixation of the Uterus.
Cameron, Professor Murdoch (Glasgow). (1) On Ectopic Pregnancy. (2) On Antistreptococcus Serum in Puerperal Septicaemia.
Cullen, Dr. F. S. Uterine Myomata and their Degenerative Changes.
Wallace, Dr. Jas. W. A Case of Uterine Abscess: Metritis desiccans (recovery): three months later Pyosalpinx and Hydrosalpinx: Aspiration (recovery, pregnancy).
Kirkness, Dr. J. M. (Edinburgh), in conjunction with Dr. F. H. A. Marshall. (1) The Origin of Lactose and the Relation of Glycosuria in the Puerperium to the Mammary Secretion. (2) The Influence of Extracts of the Corpus Luteum on the Uterine Movements.
Barbour, Dr A. H. Freeland (Edinburgh), will give a lantern demonstration on the Sectional Anatomy of Labour.
Wright, Dr. A. H. (Toronto). Concealed Accidental Haemorrhage.

Ophthalmology.

President: Robert Marcus Gunn, F.R.C.S., London.
Vice-Presidents: George Herbert Burnham, M.D., F.R.C.S.E., Toronto; John W. Stirling, M.D., Montreal; Joseph Nelson, M.D., Belfast; Arnold Lawson, F.R.C.S., London.
Honorary Secretaries: James Metcalf MacCallum, B.A., M.D., C.M., Toronto; Duncan Neil McLennan, M.D., C.M., 126. Bloor Street W., Toronto; Frank P. S. Cresswell, F.R.C.S., B.Sc., 24, Windsor Place, Cardiff.

The subjects which have been chosen for discussion are:

Tuesday, August 21st.—Rare Forms of Choroiditis. To be opened by Mr. J. B. Lawford (London). The following will also take part: Dr. Hill Griffith (Manchester), Dr. H. Knapp (New York), and Dr. C. Bull (New York).

Wednesday, August 22nd.—Sympathetic Ophthalmia. To be opened by Dr. G. H. Burnham (Toronto). The following will also take part: Dr. Charles A. Oliver (Philadelphia), Mr. Arnold Lawson (London), and Dr. J. W Stirling (Montreal).

Dr. G. Herbert Burnham will treat the subject on the following lines: Sympathetic ophthalmia, meaning of term; irritation and inflammation, though may seem two affections, are the same as to origin; the medium of transmission is through the ciliary and optic nerves; the ciliary region must be affected if sympathetic symptoms are present. Treatment: This is to have reference to the sympathetically inflamed eye, and the results are good, and, as a rule, assured.

Thursday, August 23rd.—Affections of the Lachrymal Passages. To be opened by Dr. A. B. Osborne (Hamilton). The following will take part in the discussion: Dr. Risley (Philadelphia) and Dr. Theobald (Baltimore).

Friday, August 24th.—Visual Tests for Public Services. (*a*) Marine and Railroad Services. To be opened by Dr. T. H. Bickerton (Liverpool). Dr. Williams, jun. (Boston), Dr. Thompson, sen. (Philadelphia), and Dr. Allport (Chicago) will also take part. (*b*) Military Services. To be opened by Mr. Arnold Lawson (London).

The following is an abstract of Dr. Williams's paper:

Necessity for Careful Examination of Vision and Colour Sense.

On the Burlington lines from 1891 to 1901 there were rejected from among the men applying for work in positions where they would have to use signals 1,888 men on account of defective acuteness of vision, and 441 men on account of defective colour sense. Many defective men, knowing that they would have to pass a physical examination, sought other employments or applied to roads where no physical examination was required. In 1861 the Pennsylvania Railway adopted a test for vision and colour perception. In 1891 the Burlington Line adopted an improved form of these tests, which was followed by still further improvement on the lines of the N.Y.N.H. and H. R.R. in 1899, on the Great Northern in 1901, on the Boston and Maine in 1902, on the Northern Pacific in 1903, the Australian railways in 1904, the Erie in 1905, and the Canadian-Pacific in 1906. The "Instructions" of most of these roads are printed as an appendix to this paper for purpose of reference.

Comparison of the Methods and Standards adopted by these Lines.

All the roads use the Snellen test letters, or the same letters on separate cards as prepared by the writer, but the standards and classification of employés vary on different lines. For the colour-sense test the Pennsylvania Line uses the Thomson stick with forty-tagged worsteds. All the other roads use the full Holmgren set of worsteds (125 colours), with tags attached for purpose of making a record of the examinations.

All the other roads also use the writer's lantern as an additional test for the colour-sense, in order to examine carefully the colour-perception of the central part of the retina where the image of a distant signal light is focussed, it being found that some men can pass the worsted test who fail with the lantern, and also are very uncertain about the recognition of distant signal lights.

If a person selects confusion colours with the green and the rose test skeins of the Holmgren test, or, if he calls a red light green, or vice versa, with the lantern test, it shows that his colour-sense is too defective to allow him to pass.

Advantage of the full sets of Holmgren worsteds over the smaller sets. Necessity of more careful selection of the green and the rose test skeins, and a comparison of these test colours in the imported sets obtained from Holmgren's laboratory with the test skins of other sets. Possibility of educating the eyes of those defective in colour-perception, so that they can be made to recognize the differences in the skeins sufficiently to pass an examination. The so-called "service tests" and their weak points.

Standard tests for vision and colour-sense can be safely entrusted to non-professional men acting under the supervision of a competent ophthalmic surgeon, who will instruct the examiners, see that the proper materials are furnished them for making these tests and that these materials are kept in proper condition, and who will be the authority to whom doubtful cases will be referred for

further examination; he will also decide what standards and methods are to be used for each road.

Effects of the light of the fire on the eyes of firemen is not injurious.

The examination of pilots and others at the Port of Boston, as made by the surgeon of the United States Public Health and Marine Hospital Service, has, for the past three years, followed the methods used by the above railroads—namely, the Snellen letters on separate cards for the vision test, and the full sets of tagged Holmgren worsteds and the writer's lantern, for the colour-sense test.

Necessity of requiring the same tests before licensing drivers of automobiles to run their engines on the highway, where speeds are often made equalling that of an ordinary passenger railway train.

Reference to the recommendations of the Committee on Colour Vision of the Royal Society, and of the House of Delegates of the American Medical Association in 1902, as showing the professional opinion regarding these examinations for vision and colour-sense.

The following papers have been accepted:

Brailey, Mr. (London). On Treatment of Lachrymal Stricture.
Fergus, Mr. Freeland (Glasgow). (1) On Sympathetic Degeneration. (2) On the Work which can be performed by a One-eyed Man. (3) Plastographic Tests for Binocular Vision.
Knapp, Dr. Herman (New York). The Dependence of Accommodation and Motility on the Refraction of the Eye.
Byers, Dr. W. Gordon. Case of Sympathetic Ophthalmia which followed a Mules Operation and ended in recovery.
Duane, Dr. Alex. (New York). Tenotomy of the Inferior Oblique as a Remedy for some forms of Ocular Deviation.
Verhoeff, Dr. F. H. (Boston). Obstruction of the Central Retinal Vein (with lantern slide demonstration).
Howe, Dr. Lucien (Buffalo). On the Relation between Muscular In-balance and Gastric Symptoms.
Jackson, Dr. Edward (Denver). Accommodation after Middle Life and its Practical Importance.
Roy, Dr. Dunbar (Atlanta). Two Cases of Orbital Phlegmon simulating a Malignant Growth, due to Disease of the Ethmoid Cells.
Wurdemann, Dr. H. V. (Milwaukee). Ocular Trans-illumination, with exhibition of new instrument.
Morton, Dr. John P. (Hamilton). Fundus Examination before Cataract Extraction.
Ball, Dr. J. M. (St. Louis). Case of Traumatic Dislocation of the Eyeball.
Woodruff, Dr. Thomas A. (Chicago). Influence of Defective Eyesight on the Mental Development of Children.
Wood, Mr. Casey (Chicago). Recent Cases of Wood Alcohol Poisoning.
Ryerson, Dr. G. S. (Toronto). Trachoma.
Fox, Dr. L. Webster (Philadelphia). Peridectomy.

Paediatrics.

President: George Alexander Sutherland, M.D., London.

Vice-Presidents: Henry T. Machell, M.D., L.R.C.P., Toronto; Allan M. Baines, M.B., Toronto; Otto Jackson Kauffmann, M.D., Birmingham; H. Betham Robinson, M.S., London.

Honorary Secretaries: Edward Stanley Ryerson, M.D., C.M., 261, College Street, Toronto; Joseph S. A. Graham, M.B., 102, College Street, Toronto; Ralph Vincent, M.D., 1, Harley Street, London, W.

The Section will meet on Tuesday, Wednesday, Thursday, and Friday (August 21st, 22nd, 23rd, and 24th), at 9.30 a.m., adjourning at 12.30 p.m. each day.

The following discussions have been arranged:

1. On Congenital Pyloric Stenosis. The medical aspects of the subject will be introduced by Dr. Edmund Cautley (London), and the surgical aspects will be introduced by Mr. Harold J. Stiles (Edinburgh).

2. On Pneumococcal Infection. The medical aspects of the subject will be introduced by Dr. Henry Ashby (Manchester) and Dr. Stuart MacDonald (Edinburgh).

3. On Entero-colitis. Dr. T. L. Morse (Boston) will deal with dietetic treatment, and Dr. Lafetra (New York) with medical treatment.

4. On Rheumatism in Children, to be introduced by Dr. A. D. Blackader (Montreal). Dr. E. W. Saunders (St. Louis) will take part in this discussion.

5. A joint discussion with the Section of Laryngology and Otology on Laryngeal Stenosis in Infants, to be opened by Dr. Logan Turner (Edinburgh) and Dr. Henry Ashby (Manchester), and others.

The following papers have been received:

Shaw, Dr. (Montreal). Some Phases of Rickets.
Shaw, Dr. (Albany, N.Y.). The Chemistry of Milk.
Starr, Dr. C. L. (Toronto). The Treatment of Tuberculous Abscess.
Ewart, Dr. William (London). The Abdominal Atony of Rickets.
Vincent, Dr. Ralph (London). The Milk Laboratory and its Relation to Medicine.
Kerley, Dr. C. G. (New York). Prevention of the Acute Intestinal Diseases of Infants during the Summer.
Shaw, T. P., and Guilday, Dr. L. (Montreal). A Study of the Absorption of Fats and Carbo-hydrates in Infants.
Lovett, Dr. Robert W., and Nichols, Dr. Edward H. (Boston). Osteogenesis Imperfecta and Allied Conditions.
Baines, Dr. Allen, and Machell, Dr. H. T. (Toronto). Spontaneous Haemorrhages in the New Born.

Pathology and Bacteriology.

President: Professor J. G. Adami, M.D., F.R.S., Montreal.

Vice-Presidents: Professor John J. Mackenzie, B.A., M.B., Toronto; Professor Walter Thomas Connell, M.D., C.M., Kingston; Ingersoll Olmsted, M.D., Hamilton; Professor Robert Fraser Calder Leith, M.B., Birmingham.

Honorary Secretaries: Gideon Silverthorn, M.B., M.D., C.M., 266, College Street, Toronto; Harold C. Parsons, B.A., M.D., C.M., 72, Bloor Street W., Toronto; Frank George Bushnell, M.D., Stephen Ralli Memorial, Sussex County Hospital, Brighton.

The following preliminary arrangements have been made:

Tuesday.—On Pathology and Physiology of the Nucleus, to be opened by Professor Adami (Montreal) and Dr. McCallum (Toronto), and followed by Dr. Gustav Mann (Oxford), Professor E. Wace Carlier (Birmingham), Professor A. S. F. Grünbaum (Leeds), and Dr. H. E. Roaf (Liverpool).

Papers by:

Pearce, Dr. Richard M., M.D., and Jackson, Holmes C., Ph.D.M. (Bender Hygienic Laboratory, Albany, N.Y.). Concerning the Production of Somatogenic Cytotoxins by the Injection Nucleo-proteids.
Ford, Dr. W. W. (Johns Hopkins University). An Antitoxin for Poisonous Mushrooms.
Mainwaring, Professor W. H. (Indiana University). The Application of Physical Chemistry to Serum Pathology.
Smith, Dr. F. J., and Dr. Miller (London Hospital). Gastric Erosions.
Kauffmann, Dr. O. J. (Birmingham). The Urinary Excretion of Potassium Iodide in Various Morbid Conditions.
Muir, Professor R., M.D., and W. B. M. Martin, M.B. On the Combining Relationships of Opsonins of Normal Serum.

Wednesday.—Etiology and Life-history of Malignant New Growths. To be opened by Professor H. R. Gaylord (Buffalo); Professor Clowes (Buffalo); Professor Cary Calkins (New York); Dr. Ewing (New York), and Dr. Beebie (New York). Professor G. Sims Woodhead (Cambridge), Professor A. S. F. Grünbaum (Leeds), Professor Robert Muir (Glasgow), Dr. F. G. Bushnell (Brighton), and others are expected to take part in the discussion.

Papers by:

Loeb, Dr. Leo (Pennsylvania University). Some Results of the Experimental Investigation of Tumours.
Bashford, Dr. E. F. (London). Investigations under the Imperial Cancer Research Fund, and their Results, with lantern demonstrations.
Bushnell, Dr. F. G. (Brighton). Structural Continuity in New Growths.
Warthin, Professor A. S. (Ann Arbor). The Leucoblastomata.
Hearsey, Dr. H. (P.M.O., British Central Africa). On the Rarity of Cancer among the Aborigines of British Central Africa.

Thursday.—The Forms of Arterio-sclerosis, their Classification and Experimental Production. To be opened by Professor W. H. Welch (Johns Hopkins University, Baltimore), Dr. Klotz (Montreal), and Professor J. J. MacKenzie (Toronto); and followed by Professor L. Aschoff (Freiburg), Professor Leith (Birmingham), Professor Clifford Allbutt (Cambridge), Professor W. Osler (Oxford), Professor Adami (Montreal), Dr. Pearce (Albany), and Professor Robert Muir Glasgow).

The following is a synopsis of the contribution of Mr. Oskar Klotz, Resident Pathologist Royal Victoria Hospital, to the discussion on the Forms of Arterio-sclerosis, their Classification and Experimental Production:—Experimental arterial lesions which can be produced in animals are of two kinds: either a degenerative one, affecting mainly the media, or a regenerative one, in which the intima proliferates, while little or no degenerative change

is seen. It is found, too, that the substances which are used to produce the former belong to the class of high pressure drugs, but at the same time it is likely that the high pressure does not in itself lead to the medial lesions noted; there is a direct degenerative action of the drug on the muscle fibres of the media. Elastic fibres become affected later. The latter once giving way leads to aneurysmal dilatation. The degeneration is of a fatty nature. The intimal regeneration is consequent to bacterial toxins, the proliferation being confined to the endothelial and subendothelial cells. When only intimal lesions are present aneurysms are not formed. The character of these lesions can be compared to those in man to a certain extent. Here lesions entirely of a degenerative nature are met with in the Moenckeberg type of peripheral arterio-sclerosis, and with the form of this disease as it is found in the aorta, both of which processes are confined to the media. The experimental bacterial lesions of vessels simulate the endarteritis chronica deformans which develop the pearly intimal plaques.

Papers:

Adami, Professor (Montreal). Fluid Crystals and their Relationship to Arterio-sclerosis and other Pathological Conditions.
Miller, Dr. (Birmingham) (communicated by Professor Leith). On the Elastic Tissue of Arteries.

Friday.—Papers upon Pathogenic Protozoa: by Dr. F. W. Mott (London), Acute and Chronic Changes in the Nervous System produced by Trypanosoma Infections; Professor F. E. Novy (Ann Arbor), On the Nature of Spirochaetes and the Prevention and Cure of Relapsing Fever, with lantern demonstrations; Dr. J. Ballah (Montreal), On the Life-History and Cultivations of Certain Pathogenic Protozoa; Dr. J. W. W. Stephens (the Johnston Laboratory School of Tropical Medicine, Liverpool), On Spirochaetes and Trypanosomes; Dr. Armand Ruffer (Ramleh, Egypt), The Diagnosis of Cholera Asiatica; Professor R. T. Hewlett (with Dr. De Korté), A Beri-beri-like Disease of the Monkey, and the Pathological Histology of Beriberi; Professor W. St. C. Symmers (Belfast), Demonstration of Bilharzia Preparations; Dr. Beattie (Edinburgh), (1) The *Rhinosporidium kinealzi*, a Sporozoon in the Nasal Mucous Membrane; (2) A Contribution to the Bacteriology of Acute Rheumatism; Dr. Hamilton Wright (with Dr. L. Dudgeon), On Beri-beri: Dr. De Korté, The Virus of Small-pox and Vaccinia (communicated by Professor Hewlett).

The following papers on other subjects have been accepted:

Pearce, Dr. (Albany). Immunity against Nucleo-proteids.
Nicolle, Professor M., with Professor F. Mesnil (Paris). Traitement des Trypanosomiases par les "couleurs de Benzidine."
Nicolle, Professor M. (Paris). (1) Infection et Intoxication dans le Morve Expérimentale. (2) Hypersensibilité et Immunité dans le Morve Expérimentale.
(Professor M. Nicolle's papers will be given in English.)

Arrangements will be made for the exhibition in the Pathological Museum of specimens illustrating the work of the section. Members wishing to exhibit material or photographs should communicate with Dr. Maude Abbott, McGill Medical College, Montreal.

Those who propose taking part in the discussions are requested to send in their papers, accompanied by a short abstract, to the Honorary Secretaries, in order that the abstracts may be printed and circulated before the meeting. Papers from members in the United Kingdom and Europe should be sent to Dr. Bushnell, and those from members in the Dominion of Canada or the United States of America, etc., to Dr. Silverthorn or Dr. Parsons.

Physiology.

President: Professor Wm. Dobinson Halliburton, M.D., F.R.S., London.

Vice-Presidents: Professor Archibald B. Macallum, M.A., M.B., F.R.S., Toronto; Professor Wesley Mills, M.A., M.D., Montreal; Professor Charles Scott Sherrington, M.D., F.R.S., Liverpool.

Honorary Secretaries: Herbert E. Roaf, M.D., The Bio-Chemical Department, The University, Liverpool; Gustav Mann, M.D., 25, Beechcroft Road, Oxford.

A large number of prominent American physiologists have accepted invitations to attend, and British physiologists will thus have the opportunity of making the personal acquaintance of their American colleagues. Several French physiologists have also signified their intention to be present, and it is hoped that other foreigners may also accept the invitations sent to them.

A joint discussion on the Rôle of the Nucleus in Nutrition with the Section of Pathology has been arranged, and another joint discussion with the Section of Medicine will also take place, the subject being Over-nutrition and Under-nutrition, with special relation to Proteid Metabolism in Health and Disease. This will be opened by Professor Chittenden.

The following preliminary arrangements have been made:

Tuesday, August 21st.—Joint discussion with the Section of Pathology on the Rôle of the Nucleus in Nutrition, to be opened by Professor Adami and Professor Macallum, to be followed by Dr. Gustav Mann (Oxford), Professor E. Wace Carlier (Birmingham), Professor A. S. Grünbaum (Leeds), and Dr. H. E. Roaf (Liverpool).

Papers by:

Halliburton, Professor W. D., F.R.S. (London). Proteid Nomenclature.
Beebe, Dr. S. P. (New York). Nucleo-Proteid Immunity.
Kemp, Professor G. T. (University of Illinois). The Blood Plates in Physiology and in Pathology and their Value as a Factor in Diagnosis and in Prognosis.

Wednesday, August 22nd.—Joint discussion with the Section of Medicine on Overnutrition and Undernutrition, with special reference to Proteid Metabolism, to be opened by Professor Chittenden (Yale).

Papers by:

Delezenne, Professor E. (Paris). Tryptic Digestion, Action of Different Salts on the Inactive Pancreatic Juice.
Folin, Dr. Otto (Waverley, Mass.). The Metabolism of Kreatin and Kreatinin.
Howell, Professor W. H. (Johns Hopkins University, Baltimore). The Absorption of Proteids from the Intestines.
Mendel, Dr. Lafayette B. (New Haven, Conn.). Chemical Studies on Growth.
Moore, Professor B., Dr. H. E. Roaf (Liverpool), and E. Whitley. Effect of Ions on Growth and Cell Division.
Hodge, Professor C. F. (Worcester, Mass.). Structures and Physiological Functions of *Amoeba proteus*.
Hodge, Professor C. F., and Professor M. F. Duncan (United States). Differentiation of Contractile Protoplasm.

Thursday, August 23rd.—Papers by:

Brodie, Professor T. G., F.R.S. (London). The Functions of the Renal Tubules and Glomeruli.
Huber, Professor G. C. (Ann Arbor). Physiology of Renal Tubules.
Macleod, Professor J. J. R. (Cleveland, Ohio). Experimental Glycosuria.
Nicloux, Dr. Maurice (Paris). Chloroform Anaesthesia and a Simple Method of Estimating Chloroform.
Sowton, Miss S. C. M., and Professor C. S. Sherrington (Liverpool). Dosage of Chloroform. (Report to Chloroform Committee.)
Hall, Professor W. B. (United States). New Apparatus.
Mills, Professor Wesley (Montreal). The Preservation of Frogs for Physiological Purposes.
Morrow, Dr. W. S. (Montreal). The Various Forms of the Negative or Physiological Venous Pulse.
Herring, Dr. Percy T., and Dr. Sutherland Simpson (Edinburgh). The Origin of the Lymphatics of the Liver.

Friday, August 24th (mostly nervous system).

Papers by:

Gotch, Professor F. Demonstration of Sphinthariscope.
Lapicque, Dr. Louis (Paris). Electrical Excitation of Nerves and Muscles.
Dixon, Professor W. E. (London and Cambridge). Vagus Inhibition.
Meltzer, Dr. S. J. (New York). A Vago-Oesophageal Reflex.
Macdonald, Professor J. S. (Sheffield). Structure and Functions of Nerve Fibres.
Mott, Dr. F. W., F.R.S. (London). The Functional Significance of the Convolutional Pattern in the Primates.
Roaf, Dr. H. E. (Liverpool) and Professor C. S. Sherrington, F.R.S. The "Locked Jaw" produced by Tetanus Toxin.
Simpson Dr. Sutherland, and Dr. Percy T. Herring (Edinburgh). Sensory Conduction in the Spinal Cord.
Lee, Professor S. F. (New York). The Causes of Fatigue in Certain Pathological States.
Henderson, Dr. Yandell (New Haven, Conn.). Acapnia as a Factor in Stock.
Clarke, R. H., M.B., and Sir Victor Horsley, F.R.S., F.R.C.S. A Method of Anatomical and Physiological Investigation of the Deep Structures of the Central Nervous System, with

a Summary of the Results thereby Obtained with the Cerebellum.

Mann, Dr. Gustav (Oxford). A Plea for Microphysiology.

Moore, Dr. P., Eadie, Dr. M., Spence, Dr., and Roaf, Dr. H. E. Experimental Glycosuria.

Hunt, Dr. Reid, and Teveau, Dr. R. de M. (Washington). The Physiological Action of Certain Choline Derivatives.

Carlson, Dr. A. J. (Chicago). On the Point of Action of Drugs on the Heart.

Psychology.

President: Wm. Julius Mickle, M.D., London.

Vice-Presidents: Nelson Henry Beemer, M.D., Toronto; Charles Kirk Clarke, M.D., Toronto; Reginald Langdon-Down, M.B., London.

Honorary Secretaries: Alfred Thomas Hobbs, M.D., Guelph, Ontario; Goldwin Howland, B.A., M.B., 540, Spadina Avenue, Toronto; John Turner, M.B., Essex County Asylum, Brentwood.

The following papers have been selected for discussion:

Tuesday, August 21st.

Clark, Dr. Daniel (Toronto). Reflexes among the Insane.

Schofield, Dr. (London). The New Psychology.

Mills, Dr. C. K. (Philadelphia). Cerebral Localization in the Study of Psychiatry.

Diefendorf, Dr. A. R. (Connecticut). Etiology of General Paresis.

Mickle, Dr. Julius (London). General Paresis. Introduced by the President, followed by Dr. Joseph Collins (New York), Dr. Cowles (Boston), Dr. B. Sachs (New York).

Wednesday, August 22nd.

Turner, Dr. (Brentwood). (1) Methods of Staining the Central Nervous System. (2) Relation of Epilepsy to the Blood and Central Nervous System.

Shirres, Dr. (Montreal). Diagnosis and Treatment of Peripheral Nerve Lesions.

Shuttleworth, Dr. (London). Feeble-minded Children.

Spratling, Dr. (Sonyea). Epilepsy Exhibited by Kinetoscope.

Turner, Dr. Aldren (London). Epilepsy—Psychic Fits. Followed by Dr. Shuttleworth (London), Dr. Spratling (New York), Dr. W. G. Spiller (Philadelphia), Dr. Angell (Rochester).

Thursday, August 23rd.

Crothers, Dr. (Hartford). Insanity of Inebriety.

Rentoul, Dr. (Liverpool). Sterilization of Undesirable Degenerates.

Farrar, Dr. (Baltimore). Types of the Devolutional Psychoses.

Southard, Dr. E. E. (Harvard University). A Comparison of the Cells of the Human Cerebellum in Point of Resistance to Disease.

Clarke, Dr. C. K. Dementia Præcox. Followed by Dr. Adolph Meyer (New York), Dr. F. X. Dercum (Philadelphia), and Dr. Shuttleworth (London).

Friday, August 24th.

Ryan, Dr. (Kingston). Application of Modern Hospital Methods to the Treatment of Insanity.

Mohr, Dr. (Brockville). Occupation as a Factor in the Treatment of the Insane.

Dewey, Dr. (Wauwitosa). After-Treatment of Discharged and Convalescent Cases.

Savill, Dr. (London). Mental Processes Produced by Bodily Diseases.

Dubois, Professor (Berne). Rational Psycho-Therapeutics.

Schofield, Dr. (London). Mind in Medicine. Followed by President Hall (Clark University), Dr. Cowie (Bournemouth), and Dr. A. E. Macdonald (New York).

The following is a brief synopsis of the line of argument which will be followed in the discussion of dementia præcox in the Psychological Section by Dr. C. R. Clarke, of Toronto Asylum. He will show the advisability of limiting the use of the term to cases which, in the experience of the alienist, are beyond all doubt, and in accord with what Kraepelin describes under this term. These should be the standard with which to compare the more doubtful cases. The use of the term in modern classification will be dwelt upon, etc.

State Medicine.

President: Frederick Montizambert, I.S.O., F.R.C.S.E., D.C.L., M.D., Ottawa.

Vice-Presidents: E. P. Lachapelle, M.D., Laval University, Montreal; Charles Sheard, M.D., Toronto; Peter Henderson Bryce, B.A., M.B., Ottawa; Joseph Groves, M.B., Isle of Wight.

Honorary Secretaries: Joseph D. Page, M.D., Quebec; F. G. E. Pearson, M.D., Brantford, Ontario; Edward Sergeant, L.R.C.P., County Offices, Preston; Arthur A. Mussen, M.D., Municipal Offices, Liverpool.

The following special subjects have been suggested for discussion:

1. Protection and Control of Milk Supply, in which Dr. Cooper Pattin (M.O.H. Norwich), Dr. Chalmers (M.O.H. Glasgow), Professor Harcourt (Guelph), Professor John Glaister (Glasgow), and Dr. Chas. Harrington (Secretary, State Board of Health, Boston) will take part.

Of Professor Harcourt's contribution the following is an abstract: Good, clean, pure milk is one of the most wholesome of our food materials. It is cheap, palatable, easily digested, and highly nutritious. It is, however, very easily adulterated; absorbs odours readily, and is a good medium for the growth of bacteria. As ordinarily handled, milk is particularly subject to bacterial infection and contamination with dirt; consequently, there is great need for the exercising of the utmost care and cleanliness in the production and the handling of it, by both the dealer and consumer. Because of the liability of milk to "sour," and because of the demand for milk that will keep sweet for a long time, there is a tendency for dealers to use chemical preservatives, a practice which should be prohibited by law.

2. Prevention of Tuberculosis, in which Dr. Jas. Roberts (Hamilton), and Dr. J. H. Elliott (Gravenhurst, Ontario) will take part.

Dr. Roberts will treat the subject under the following headings:

1. Responsibility of Federal Authorities.
2. Responsibility of Provincial Legislatures.
3. Responsibility of Municipalities.
4. The Individual's Responsibility.

3. Training and Supervision of Midwives. Dr. C. E. Paget (M.O.H. Northamptonshire) will contribute a paper to this discussion.

4. Notification of Phthisis.

5. Provision and Administration of Isolation Hospitals.

6. Isolation Hospitals and "Return" Cases.

7. Medical Inspection of Children attending Elementary Schools. Dr. Chalmers (M.O.H. Glasgow), Principal W. Scott (Normal School, Toronto), and Dr. Helen MacMurchy (Toronto) will contribute papers to this discussion.

Of Dr. Helen MacMurchy's paper the following is a syllabus:

1. General statement of the case. Why medical inspection is necessary. Effects of school life on children's health. Awakening of public interest.

2. History of the movement in different countries. Appointment and payment of school medical officers. Their relation to the Government, to education authorities, boards of health, teachers, parents, and the general public. Securing the good will and co-operation of parents and teachers essential to success. Objections and difficulties.

3. What the medical inspector should inspect:

A. The school building. Condition, ventilation, heating, seats, etc. Site and plan approved by central authority.

B. The instruction of candidates for teachers' professional certificates in the principles of preventive medicine and school hygiene. Diffusion of knowledge among the general public.

C. Physical and mental condition of child:

i. Simple anthropometry. Height, weight, chest capacity. Question of development as affected by upbringing, underfeeding, malnutrition, housing, environment, etc.

ii. Eyes, ears, teeth. If necessary, private notification to parent, with advice to consult family physician.

iii. Signs of over-pressure or fatigue. Mental condition. Studies, school hours, sleep, school gardens.

iv. Infectious and other diseases. Regulations of the Board of Health.

4. What has been accomplished:

The school nurse.

Permanent results and records.

Mr. W. Scott, Principal of the Normal School, Toronto, will discuss the following points: (1) The necessity for such in large centres of population, noting the following benefits: (*a*) As preventing the spread of contagious diseases; (*b*) the aid to the teacher in his work by enabling him to detect the cause of apparent stupidity, restlessness, etc.; (*c*) suggesting to teachers the way to make the best use of their surroundings to bring about, as nearly as possible, a perfectly sanitary condition of

things. (2) Suggestions for successfully carrying on the work of medical inspection.

8. Quarantine and Inspection of Shipping.

9. Medical Examination of Immigrants.

10. Supply of "Water Gas" and Dangers of Carbon Monoxide Poisoning. Professor John Glaister (Glasgow) will take part in this discussion.

The following papers have been accepted:

Cassidy, Dr. J. J. (Toronto). Hygiene of the Home.
Drennan, Dr. Jennie G. (St. Thomas, Ont.). State Control of Health.
Fisher, Dr. E. Bayard (Fredericton, N.B.) Hygiene of the Home.
Gilchrist, Dr. A. W. (Nice). Some General Analogies between Tuberculosis and Influenza.
Glaister, Professor John (Glasgow). Water-Gas Poisoning.
Hill, Dr. H. W. The Factors in Water Supply Sanitary Problems.
McGill, Mr. A. (Assistant Analyst Inland Revenue Department, Ottawa). Gas Supplies, Dangers, etc.
Robinson, Dr. W. J. (Guelph). Artificial Purification of Water.

Surgery.

President: Sir Hector Clare Cameron, M.D., Professor of Clinical Surgery, Glasgow.

Vice-Presidents: Fred. Le M. Grasett, M.B., C.M., F.R.C.S.E., Toronto; Francis J. Shepherd, M.D., C.M., LL.D., F.R.C.S.E., Montreal; Alfred B. Atherton, B.A., M.D., LL.D., Fredericton, N.B.; Tecumseth Kingsley Holmes, M.D., Chatham, Ontario.

Honorary Secretaries: Harry A. Beatty, M.B, 207, Simcoe Street, Toronto; Frederick William Marlow, M.D., C.M., F.R.C.S., 699, Spadina Avenue, Toronto; Sinclair White, F.R.C.S., Ranmoor, Sheffield.

The following is the programme of the arrangements in this Section:

Tuesday, August 21st.—Discussion on the Enucleation of the Prostate Gland, in which Dr. Bingham (Toronto), Mr. J. Lynn Thomas, C.B., F.R.C.S. (Cardiff), and Dr. Chown (Winnipeg) will take part.

The paper in which Mr. G. A. Bingham will introduce the discussion on *Prostatectomy*, gives a description of the microscopical structure of the gland. It shows it to lack a true capsule, and definite lobes to be absent. Embryologically, the prostate is shown to be purely sexual in origin. The pathological changes in hypertrophy are taken up to show the relationship of the newly-formed tissue to the remainder of the gland. It is contended that in the modern operation of prostatectomy enucleation is performed through the outer part of the gland, and that a portion of the prostate is always left behind. The question of a "middle lobe" is also considered. As regards treatment three classes of cases are discussed: (1) The early cases, where the only symptom is obstruction; here enucleation is advised, with catheter life as the alternative; (2) the very late cases; permanent drainage or Bottini's operation is advised; (3) the intermediate cases; here enucleation is the treatment. The writer holds that neither perineal nor suprapubic meets all indications. The paper closes with statistics.

Wednesday, August 22nd.—Discussion on the Treatment of Ascites Secondary to Cirrhosis of the Liver, in which Mr. Sinclair White, M.Ch., F.R.C.S. (Sheffield), Dr. Stewart (Halifax), and Geo. Gray Turner, B.S., F.R.C.S. (Newcastle-on-Tyne) will take part.

Mr. Sinclar White will introduce the discussion on ascites in a paper of which the following is a summary: Ascitic effusion is largely passive, and directly due to interference with the passage of blood through the hepatic terminals of the portal vein. Proliferation, with subsequent contraction of the tissues forming the framework of the liver, is the principal cause of obstruction; it may be supplemented by thrombosis of the portal vein and by defects in the general circulation. Fifty per cent. of cases of cirrhosis of the liver run their course to a fatal issue without the appearance of ascites. Its absence is explained by (*a*) the enlargement of the normal anastomotic vessels connecting the systemic and portal veins, (*b*) the development of new anastomoses in adhesions formed between the viscera drained by the portal vein and the abdominal walls. The value of drainage as an adjunct to operation is beyond dispute. Epiplopexy is contraindicated where any of the important viscera of the body are defective. It should in all cases be preceded by one or more tappings. Details of the operation vary, but omental fixation is the most important step. The pathological changes in the liver are permanent and therefore incurable, but the ascitic phenomenon is capable of being arrested and the life of the patient prolonged by the operation.

Thursday, August 23rd.—Discussion on Surgical Treatment of Duodenal Ulcers, in which the following gentlemen will take part: Dr. W. J. Mayo (President American Medical Association), Mr. Geo. C. Franklin, F.R.C.S. (President British Medical Association), Dr. Bell (Montreal).

The following is a syllabus of the paper by which Dr. W. J. Mayo, Minnesota, will introduce the discussion on *Duodenal Ulcer*: Of all chronic ulcers of the stomach and duodenum 40 per cent. are situated in the duodenum alone, or in connexion with the stomach; 50 per cent. of all chronic indurated ulcers are also so situated. Acute ulcer of the duodenum: surgical complications; perforation, acute and subacute; haemorrhage, acute and chronic; acute obstructions. Chronic ulcer: relation to gastric ulcer; differential diagnosis; liability to confuse with gall-stone disease. Gastro-jejunostomy has the largest field of usefulness. Excision can sometimes be resorted to.

Peritonitis.

Friday, August 24th.—Discussion on the Treatment of Acute Septic Peritonitis, in which Mr. C. J. Bond, F.R.C.S. (Leicester), Dr. William Howitt (Guelph, Ontario), and Dr. O. M. Jones (Victoria, B.C.) will take part.

The following is a syllabus of the paper in which Mr. Bond will introduce the discussion on acute septic peritonitis:

Physiology of the Peritoneum.—The great importance of the diaphragmatic portion and the peculiar sensitiveness of that covering the small intestines.

Its Pathology.—The way in which the peritoneum reacts to infection and the protection of the endothelial layer by the formation of a fibrinous deposit.

The Bacteriology of Peritonitis.—Chemical peritonitis not seen clinically. Peritonitis accompanying the intraperitoneal extravasation of blood generally due to the *Staphylococcus albus.*

Gonococcal Peritonitis not of a very high degree of virulence.

In ruptured gastric and duodenal ulcer the infection not highly virulent, but the necessity for immediate operation most urgent. The infection can be frequently arrested by irrigation, with or without drainage. Septic peritonitis due to infection from the alimentary canal below the duodenum. The frequent and early migration into the peritoneum of the *Staphylococcus albus* in many cases of septic peritonitis acts beneficially by stimulating phagocytosis and has an important bearing on treatment and the question of irrigation.

Streptococcal Peritonitis is highly virulent and generally fatal in spite of treatment.

Pneumococcal Peritonitis.—Its frequency in female children. Its primary and secondary varieties. The importance of the observation of the naked-eye characters of the exudate and the appearance of the inflamed membrane especially in this variety of peritonitis.

Septic Peritonitis. Its Treatment.

By drugs, morphine, and purgatives.

By serum.

Wanted a polyvalent anti-*Bacillus coli* serum.

The surgical treatment.

Importance of respecting the diaphragmatic area.

The risk of removing phagocytes by indiscriminate irrigation.

The prime object is to attack the primary focus of invasion and arrest further infection.

The next point is to treat the infected general peritoneal cavity.

In cases of moderate severity the safest course is the efficient treatment of the primary focus by dry sponging or local irrigation and drainage, combined with the least amount of interference with the general cavity, unless collections of fluid exudate in pelvis or loins require drainage.

Highly virulent streptococcal infections may require free irrigation with even partial evisceration.

Cases of slight virulence are best treated by free irrigation, either with or without subsequent drainage.

General Conclusions.—Irrigation beneficial where the peritoneum contains foreign material capable of removal by flushing, such as blood, gastric or duodenal contents, faecal matter, pus, infected urine or bile. Harmful in cases of fibrinous sticky exudate, and when used to wash away a turbid exudate containing active phagocytes, or when instrumental in spreading infection.

Drainage.—Free drainage or tamponage essential in the treatment of local abscesses, necrosis of bowel, or where the treatment of the primary focus of invasion must be necessarily incomplete. It is generally harmful when used in the upper peritoneal area unless this is primarily infected. It is generally of very little use in the small intestine area. Most frequently useful in the lateral areas and in the pelvic basin. The efficiency of peritoneal drainage depends on the integrity of the endothelium in the area drained.

The following papers have been accepted:

Peters, Dr. Geo. A. (Toronto). Transplantation of the Ureters in Ectopia Vesicae.
Armstrong, Dr. G. S. (Montreal). The Surgical Treatment of Banti's Disease.
Kelly, Dr. Howard (Baltimore). Movable Kidney.
MacLaren, Dr. Murray (St. John's, N.B.) Posture as an Aid in Surgery.
Turner, Geo. Gray (Newcastle-on-Tyne). Intestinal Obstruction in Association with the Vermiform Appendix.
Bell, Dr. James (Montreal). Injuries to the Semilunar Cartilages.
Bruce, Dr. H. A. (Toronto). Appendicitis.
Olmstead, Dr. Ingersoll (Hamilton). Surgical Treatment of Ulcerative Colitis.
Dr. F. J. Shepherd (Montreal) will also read a paper.

Arrangements are in progress for holding a surgical clinic at which a number of interesting cases will be presented.

Therapeutics.

President: Donald MacAlister, M.D., Cambridge.

Vice-Presidents: John Lorenzo Davison, B.A., M.D., C.M., Toronto; Alexander D. Blackader, B.A., M.D., Montreal; Sir Alan Reeve Manby, M.V.O., M.D., East Rudham; Professor J. Rose Bradford, M.D., F.R.S., London.

Hon. Secretaries: Velyien E. Henderson, M.A., M.B., University of Toronto; Charles Potter Lusk, M.D., C.M., 99, Bloor Street W., Toronto; E. R. Morton, M.D., 22, Queen Anne Street, London, W.

The following papers have been selected for discussion:

Tuesday, August 21st:

Brodie, Professor T. G. (London). The Kidney, its Pharmacology and its Therapeutics.
Kelly, Dr. A. O. J. (Philadelphia), followed by Dr. C. G. Stockton (Buffalo). The Treatment of Acute Nephritis.
Lefevre, Dr. E. (New York), followed by Dr. J. Caven (Toronto). The Treatment of Uraemia.
Hare, Dr. H. A. (Philadelphia), followed by Dr. George Hodge (London). The Treatment of Chronic Nephritis.

Wednesday, August 22nd:

Ross, Dr. G. W. (London). Opsonins and Animal Vaccines.
Coley, Dr. T. L. (Philadelphia). The Action of Drugs in Vascular Hypertension.
Brower, Dr. D. R. (Chicago). The Therapeutics of Acute Acquired Insanities.
Cohen, Dr. S. S. (Philadelphia). The Respective Spheres of Hygienic and Medicinal Measures in the Treatment of Pulmonary Tuberculosis.
Stewart, Dr. F. E. (West Orange). The Working Bulletin System for the Collective Investigation of the Newer Materia Medica.

Thursday, August 23rd.—Joint Session with the Section of Medicine on the subject of Heart-Block.

Friday, August 24th:

Blackader, Dr. A. D. (Montreal). The Value of Alcohol in Treatment, followed by Dr. S. J. Meltzer (New York), Dr. R. C. Cabot (Boston), Professor G. S. Woodhead (Cambridge, England), Dr. W. H. Moorehouse (London, Ontario).
Halsey, Professor J. T. (Tulane University, New Orleans). The Teaching of Materia Medica and Pharmacology.
McCrae, Professor T. (Johns Hopkins University, Baltimore). The Teaching of Therapeutics.
Marshall, Professor C. R. (University of St. Andrews). The Place of Materia Medica and Therapeutics in the Medical Curriculum, followed by Professor R. B. Wild (University of Manchester), Professor Osborne (Yale), Professor Hatcher (Cornell), and Dr. J. M. Anders (Philadelphia).
Cabot, Dr. R. C. (Boston. The Need and the Place of Psychic Therapeutics in the Medical Curriculum.

HONORARY LOCAL SECRETARIES.

Frederic Newton Gisborne Starr, M.B., Medical Building, Toronto.
Professor John Joseph Mackenzie, B.A., M.B., Medical Building, Toronto.
David James Gibb Wishart, B.A., M.D., L.R.C.P., Medical Building, Toronto.

COMMITTEE PATHOLOGICAL MUSEUM.

Professor John Joseph Mackenzie, B.A., M.B., Toronto, *Chairman.*
Maude Abbott, B.A., M.D., Montreal, *Secretary.*
Professor Gordon Bell, M.D., Winnipeg.
Professor W. T. Connell, M.D., Kingston.
Andrew Robertson Gordon, M.B., Toronto.
J. A. McGregor, M.D., London, Ontario.
Wm. Herbert Pepler, M.D., C.M., L.R.C.P.Lond., Toronto.
Samuel Cummings, M.B., Toronto.
Edward Stanley Ryerson, M.D., C.M., Toronto.
Henry Seaton Hutchison, M.B., Toronto.

EXHIBITION COMMITTEE.

Chairman: Dr. Arthur Jukes Johnson, Toronto.
Secretaries: Dr. T. D. Archibald, Toronto; Dr. W. A. Young, Toronto.

HONORARY LOCAL TREASURER.

Professor J. W. Ross, Toronto.

TORONTO ARRANGEMENTS COMMITTEE.

Dr. Geo. A. Bingham, 68, Isabella Street, Toronto.
Dr. C. J. C. O. Hastings, 258, Wellesley Street, Toronto.
Dr. A. A. Macdonald, 341, Bloor Street West, Toronto.
Professor J. J. Mackenzie, Medical Laboratories, Toronto.
Dr. Alex. McPhedran, 151, Bloor Street West, Toronto.
Dr. R. B. Nevitt, 46, Bloor Street West, Toronto.
Dr. R. A. Reeve, *President-elect*, 48, Bloor Street E., Toronto.
Dr. F. N. G. Starr, 112, College Street, Toronto.
Dr. J. Algernon Temple, 333, Bloor Street W., Toronto.
Dr. D. J. Gibb Wishart, 47, Grosvenor Street, Toronto.

PROGRAMME OF PROCEEDINGS.

Tuesday, August 21st, 1906.

9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address of Welcome; Introduction of Guests, Delegates, etc.; and President's Address.
4.30 p.m.—In the University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve.
8.30 p.m.—Address in Obstetrics, Dr. W. S. A. Griffith.
9.30 p.m.—Reception by the Lieutenant-Governor.

Wednesday, August 22nd.

8.0 a.m.—National Temperance League Breakfast.
9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address in Medicine, Sir James Barr, M.D.
4.30 p.m.—Garden Parties.
8.30 p.m.—Address in Surgery, Sir Victor Horsley, F.R.S.
9.30 p.m.—Reception.

Thursday, August 23rd.

9.30—12.30 a.m.—Sectional Meetings.
4.30 p.m.—Garden Parties.
7.30 p.m.—Annual Dinner.

Friday, August 24th.

9.30—12.30 a.m.—Sectional Meetings.
2.30 p.m.—General Meetings.
4.30 p.m.—Garden Parties.
Excursions.
8.30 p.m.—Soirée.

Saturday, August 25th.

Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt.
Excursion to Muskoka.
Excursion to Lambton, through the courtesy of the President, Mr. Austin.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

BIRMINGHAM BRANCH:
West Bromwich Division.

The annual meeting was held in the Medical Institute, Birmingham, on July 2nd, at 4.30 p.m.

Letters.—Apologies for absence having been read, and the minutes of the last annual meeting having been confirmed, the following officers were elected for the coming year:

Election of Officers.—*Chairman*, Mr. T. Sansome; *Vice-Chairman*, Dr. A. Croll; *Honorary Secretary*, Dr. H. B. W. Plummer; *Representative for Representative Meeting*, Dr. A. Croll (elected at the immediately preceding conjoint meeting); *Representatives on Branch Council*, Drs. H. Manley and H. B. W. Plummer; *Executive Committee*, W. H. Stephen, M.D., Mr. C. B. Buttery, W. C. Garman, M.D., W. D. Urquhart, M.B., Mr. T. Sansome, jun., Mr. S. T. D. Weston.

Report.—The report of the Executive Committee was received, approved, and entered in the minutes.

Votes of Thanks.—A hearty vote of thanks was passed to the Board of Management of the district hospital for its kindness in granting the use of the Board-room for the meetings of the Division.

FIFE BRANCH.

The fourth annual meeting was held at the Ochil Hills Sanatorium, Milnathort, Kinross-shire, on June 15th, Dr. Hay, President, in the chair. A number of apologies for absence were intimated, and there was a large attendance of members, Mr. Patrick, Clerk to the County Council of Fifeshire, being also present.

Election.—The minutes of the last annual meeting having been read and approved, Dr. Aitken (Buckhaven), President-elect, was elected President of the Branch for the ensuing year, in succession to Dr. Hay, whose period of office now expires, and who becomes a Past-President and Member of Branch Council.

Votes of Thanks.—Dr. Aitken then took the chair, and on his motion a hearty vote of thanks was passed to Dr. Hay, the retiring President, for his services during the past year. On the motion of Dr. Craig, a hearty vote of thanks was also passed to Dr. Spence, whose period of office as a Past-President and Member of Branch Council has now expired.

Officers.—On the motion of the President, Dr. Laing (Kirkcaldy) was elected President-elect for the ensuing year, and Drs. Craig, Dickson, Douglas, Dow (Dunfermline), Orr (Tayport), and Richardson were re-elected members of Branch Council, and Dr. Mackenzie was elected a member of Branch Council in place of Dr. Laing. Dr. R. Balfour Graham was re-elected Honorary Secretary and Treasurer.

Representative's Report.—Dr. Aitken, the Representative of the Division at the Representative Meetings, then submitted a report of his attendances at these meetings at Leicester last year, and on the motion of Dr. Spence was accorded a hearty vote of thanks for his services and report. Dr. Aitken was reappointed Representative of the Division at the forthcoming Representative Meeting to be held in London on July 24th.

Report of Council.—The Honorary Secretary then read the report of the Branch Council for the past year, which showed that the Council had met twice and had elected three new members, and that the membership now stood at 80, with one "Associate" member. The ordinary funds of the Branch at the end of the financial year stood at £26 2s. 5d. on the credit side, while the private fund had a credit balance of £7 18s. 11d. The Branch Council had agreed to continue for another year out of its private fund the subscription to Epsom College and the British Medical Benevolent Fund, and a sum of one guinea was voted to each. In connexion with the subscription to Epsom College, which entitled the Branch to vote for pensioners and foundation scholarships, the Council recommended that the Branch's support should be given to Cunningham Brodie, an applicant for a scholarship, and to Dr. Phillips, Fairley, Ayrshire, an applicant for a pension. The Branch Council had also agreed to vote out of its private fund a sum of two guineas to the fund being raised for the benefit of the family of the late Dr. Laidlaw, Ladybank. The Central Council had again grouped Fife with the Edinburgh Branch for the purpose of electing two members to the Central Council, and the election had now taken place. As only two candidates were nominated no poll was necessary, and it was gratifying to be able to report that Dr. Nasmyth, Medical Officer of Health for the county of Fife, had been returned, along with Dr. McKenzie Johnston, Edinburgh, to represent the Edinburgh and Fife Branches on the Central Council. The Honorary Secretary had issued a circular to every member of the Branch, asking his opinion regarding the proposed application for a Royal Charter. Forty-six members had returned the reply-slip attached to the circular expressing unqualified approval. This result the Honorary Secretary had communicated, according to request, to the Organizing Secretary. The Honorary Secretary had, at the request of the Secretary of the Medico-Political Committee, issued circulars on various subjects, accompanied by an explanatory covering-letter of his own, to all the parliamentary candidates at the recent general election within the area of the Fife Branch, with a view to ascertain the opinion of these gentlemen on the said subjects and the position they would take up regarding them in the event of their having an opportunity of deliberating upon them in the House of Commons. The replies that had been received were in the main favourable, and had been sent to the Secretary of the Medico-Political Committee at his request. The subjects embraced: Revaccination, Public Health, Medical Acts (Amendment) Bill, Death Registration, Medical Inspection of School Children, Poor Law, Medical Officers, etc. The report of the Branch Council was adopted.

Representative Meeting.—The business of the Representative Meeting was then considered, but, being of such magnitude, it was found impossible to go over *seriatim* every proposal or motion therein contained, and the Representative was granted discretionary power regarding the manner in which he should vote upon the various subjects.

Vote of Thanks.—A vote of thanks was passed to the Manager of the North British Railway Company for kindly stopping the afternoon fast train at Milnathort, for the convenience of members attending this meeting.

Discussion.—After the business was over, a discussion took place upon the Local Government Board's circular anent the notification of pulmonary phthisis and its isolation and treatment by local authorities. Dr. J. G. Nasmyth, M.O.H. for the County of Fife, who introduced the subject, stated at the outset that the Convener's Committee of the County Council desired their views on this circular anent the notification of phthisis. There could be no difference of opinion regarding the advantages of sanatorium treatment, but he deprecated the view that every separate local authority should endeavour to provide the necessary sanitorium treatment, on the ground of expense, but he favoured the grouping together of these bodies for the purpose. Dr. Hay then moved the following resolution:

> That in the opinion of the Fifeshire Medical Association, and the Fifeshire Branch of the British Medical Association, it is desirable, in the interest of public health, that local authorities should add pulmonary phthisis to the list of diseases notifiable under the "Infectious Diseases (Notification) Act, 1889," and make the necessary provision for the treatment of persons suffering from that disease; and, further, that local authorities, in the interests of economy and efficiency, should conjoin for the purpose of establishing sanatoriums; that copies of this resolution should be sent to the local authorities of Fife, Kinross, and Clackmannan, with the view of endeavouring to obtain a combination of the three counties on the lines indicated.

This was seconded by Dr. Douglas, who hoped they would be successful in impressing local authorities with the urgency and importance of the question.—Dr. Dow (Dunfermline) moved a direct negative, thinking that they must first find out the cause of the disease, and what produced it, and was of the opinion that they should not tax the people to maintain a weak race.—Dr. Laing (Kirk-

caldy) thought the sooner the disease was made notifiable the better; and Dr. Balfour Graham thought that if the two points, notification and sanatoriums, were separated, the motion would probably receive the unanimous support of the meeting, but meantime he thought it was going too far to suggest the establishment of sanatoriums all over the country for the treatment of the disease, and the proposal, besides involving great expense, was rather a Socialistic one. He thought a good deal could be done by educating the people upon the prevention of the disease, and local authorities could help in that way when they became acquainted with its presence in their midst. The motion was carried by a large majority, only two voting against, while some half-dozen did not vote at all.

Luncheon.—Previous to the above general meeting the members had an opportunity, conjointly with the Fifeshire Medical Association, of visiting and inspecting the well-equipped sanatorium, by kind invitation of the directors of that institution, and were thereafter entertained to luncheon. Dr. Fraser (Paisley), one of the Medical Directors, occupied the chair, and he proposed the toast of "The Two Associations, the Fife Medical and the British Medical Branch," coupling this with the names of Dr. Balfour Graham, Vice-President of the former, and Dr. Hay, President of the latter. Dr. Hay suitably replied, wished success to the institution, and thanked the Directors for their hospitality.

Address.—After luncheon a most interesting address was given by Dr. Galbraith, Medical Superintendent, upon Some aspects of temperature control and metabolism in the tuberculous patient, illustrated with numerous diagrams. At the close a hearty vote of thanks was passed to him.

GIBRALTAR BRANCH.

An ordinary meeting of this Branch was held on Thursday, May 31st, at 5 p.m., in the Board Room of the Colonial Hospital.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Model Rules.—A letter from the General Secretary of the Association was read, and it was agreed that the Branch Council should consider the model rules, etc., sent, and report thereon.

Proposed Royal Charter.—The application for a Royal Charter was unanimously approved.

Communications.—Major Robinson demonstrated the *Spirochaeta pallida* and *S. refringens*, stained by the Donovan-Leishman method.—Dr. L. D. Parsons read notes on a case of tuberculous meningitis, with the *post-mortem* record, in a boy aged 9 years.—Major Longhurst made some very interesting remarks on radio-active bodies, and had specimens to demonstrate, but unfortunately there was no dark room.—Dr. L. D. Parsons showed a case of suppurative cellulitis treated after incision with a watery solution of 1 per cent. iodine.

METROPOLITAN COUNTIES BRANCH:

Hampstead Division.

An extra meeting was held on July 10th, at St. Mary's Schools, Church End, Finchley, at 5 p.m., Dr. Macevoy in the chair.

Minutes.—The minutes of the meeting at Finchley on April 27th were read and confirmed.

Letters.—A letter was received from Dr. F. J. Smith, asking for nominations for Standing Committees of the Branch. Dr. Ford Anderson was accordingly nominated for the Medical Charities Committee of the Branch. Letters of regret were received from Mr. Humphreys and Dr. Ford Anderson for inability to be present. A letter was read from Dr. Glover regretting inability to be present, and setting forth the objections to subscribers' letters of recommendation for hospitals as not being real charity, since the subscriber was given a *quid pro quo*.

Finchley Cottage Hospital.—Mr. Nelson Hardy explained how a deadlock had arisen between the local medical profession and the General Purposes Committee of this hospital on the subject of subscribers' letters, to which the Medical Committee were unanimously opposed, while the laity held that it was the only way to get subscriptions. As the rule on the subject was not actually passed, he thought a strong official protest might be of service, and proposed:

> That the proposal of the General Purposes Committee of the Finchley Cottage Hospital that subscribers' letters of recommendation be required from applicants for admission is radically unsound, opposed to the best principles of hospital administration, and likely, if adopted, to give rise to considerable friction in the working of the hospital.

Seconded by Dr. Dill Russell, supported by Mr. Moxey, and after discussion, carried unanimously.—Mr. Hardy then proposed:

> That this resolution be sent to the General Purposes Committee.

—Seconded by Mr. Vincent Moxey. This was carried.—Dr. Dill Russell stated that with regard to the question of medical representation on the Hospital Board there were to be 6 medical men out of a total of 31 members. The local profession would nominate the medical representatives.

A special and ordinary meeting was held on July 12th, at 8.45 p.m., at 9, College Crescent, Swiss Cottage, N.W., Dr. Macevoy in the chair.

Special Meeting.—Mr. Armit pointed out that only the first two items on the agenda could be legally dealt with at the special meeting. The Chairman ruled that the last three items on the agenda could be dealt with if the words "and ordinary meeting" were added to the agenda paper. The Honorary Secretary then read the names of nineteen members who had convened the special meeting: (1) to consider a proposal to increase the number of the members of the Committee (involving an alteration in Divisional Rule 9); (2) to consider a proposal to form a Subcommittee at Finchley.

Increase of Committee.—Mr. Armit proposed and Dr. Oppenheimer seconded a resolution passed by the Committee on May 17th, 1906:

> That the number of ordinary members of Committee be raised from seven to twelve, and that the Chairmen for the past five years be *ex-officio* members.

The number of the whole Committee would thus be raised from thirteen to eighteen, of whom six were officers. The object of the resolution was to bring in members from outlying parts of the Division who could not be expected to attend very regularly, owing to their distance away. Mr. Cunnington and Dr. Clark Wilson opposed, and Dr. Scrase proposed:

> That this resolution be taken in two parts.

Seconded by Mr. Cunnington, and carried. Mr. Cunnington then proposed as an amendment to the first part of the resolution ("That the number of ordinary members of Committees be raised to twelve"):

> That the number of ordinary members of Committee be raised to nine.

Seconded by Dr. Clark Wilson. Opposed by Mr. Armit on the ground that two new members would not be enough to represent outlying districts. The amendment being put to the vote was carried by the casting vote of the Chairman. The amendment having become the substantive motion, Mr. Nelson Hardy moved that the number be raised to 10, seconded by Dr. T. Godfrey, and lost. Dr. Oppenheimer then moved as another amendment to the substantive motion:

> That the number of ordinary members of Committee be raised to 11.

Seconded by Mr. H. W. Armit, and carried. The second part of the resolution of the Committee passed on May 17th was then put:—

> That the Chairmen for the past five years be *ex-officio* members.

Dr. Oppenheimer, the mover, asked to be allowed to alter five to four years, and the motion in this form being seconded by Mr. Armit, was put to the vote and lost. Those who opposed it were of opinion that past Chairmen should be elected in the same way as the other ordinary members of Committee. Dr. Yeld suggested that the four additional members of the Committee should now be elected, and Mr. Armit put forward four names (Messrs. Godfrey, Moxey, Gaster, and Jessop), which were seconded by Dr. Oppenheimer. Dr. Yeld explained that no nominations had been issued on the agenda, because the result of the proposal to add

more members could not be foretold. The Chairman held that the meeting could elect four new members if it wished. Messrs. Cunnington and Scrase opposed election now, and the former moved:

That the election of the four new members be postponed.

Seconded by Dr. Scrase. This was put to the vote and carried (Drs. Oppenheimer, Yeld, and Armit opposing). Dr. Oppenheimer then proposed:

That the election of the new members be adjourned to the next annual meeting.

Seconded by Mr. Armit, and carried *nem. con.*

Proposed Subcommittee at Finchley.—Dr. Oppenheimer explained that the President of the Branch Council (Mr. Andrew Clark) had ruled, in answer to an inquiry, that subdivisions were not recognized by the Association, and the Division would not be justified in paying the expenses of Committees in outlying parts of the Division. Mr. Armit proposed "That a Subcommittee be formed at Finchley subject to its paying its own expenses." This motion was withdrawn at the request of Mr. Nelson Hardy.

Instruction to Representative.—The resolution of the Committee passed on May 17th, 1906, "That it be an instruction to our Representative to the Representative Meeting to move for a complete return, as far as possible, from all the Divisions on the subject of contract and gratuitous practice within their respective areas," was then passed by the meeting.

Election of Co-Secretary.—Mr. Armit was nominated by the committee for re-election, and Mr. Cunnington was nominated in addition by two members at the meeting. Mr. Armit was eventually re-elected.

Letters of regret for inability to be present were received from Dr. Heath Strange, Dr. Glover, and Mr. Humphreys.

CENTRAL MIDWIVES BOARD.

A meeting of the Central Midwives Board was held on July 26th at Caxton House, Westminster, with Dr. F. H. Champneys in the chair.

Payment to Medical Men Called in by Midwives in Difficult Cases.

A letter was received from Mr. J. Ward Cousins regretting his inability to attend the meeting of the Board and reporting the following resolution passed by the Council of the Royal College of Surgeons of England on July 12th, 1906:

That in the opinion of the Council of the Royal College of Surgeons of England it is essential for the efficient working of the Midwives Act that adequate provision be made to secure just remuneration for professional services rendered by medical men when called into attendance by midwives practising under the Act.

The Privy Council on the Revised Rules Submitted by the Central Midwives Board.

A letter from the Privy Council, dated July 24th, 1906, as to the new rules, was read. The Chairman observed that the amendments proposed by the Privy Council would place the Poor-law institutions out of the sphere of the Central Midwives Board and put them under the Local Government Board. Mr. E. Parker Young expressed his surprise at the letter of the Privy Council, and said it seemed to him a retrograde movement. The Board decided to refer the letter to the Standing Committee for consideration and report. The following is a copy of the letter from the Privy Council:

[Copy.]

Privy Council Office, London, S.W., 24th July, 1906.

Sir,—

Referring to your letter of the 9th May last, I am directed by the Lords of the Council to state that Their Lordships have given Their careful consideration to the revised Rules made by the Central Midwives Board and to request that you will lay before the Board the following amendments that are deemed necessary therein:

As to Rule D 1, which takes the place of the existing Rule C 1, Their Lordships observe that the principal alteration is the omission of the special provision relating to the case of candidates from Poor-Law Institutions. This provision was inserted at the instance of the Local Government Board and they are still of opinion that some such provision is necessary.

Their Lordships' attention has been called to a Resolution passed by the Central Midwives Board on the 16th February, 1905, "that no Poor-Law Institution be approved as a Training School for Midwives unless the average number of deliveries reaches 75 per annum"; and also to a discussion which took place at a recent Meeting of the Central Midwives Board on a Memorandum which suggested that "in future as a rule a number of not less than 60 cases of labour annually be essential for an application to be approved from a doctor desiring to teach pupils in an Infirmary or Workhouse which is too small to be a recognized School"; and I am to point out that in Their Lordships' opinion Resolutions which have the effect of "regulating the course of training" come within the purview of Section 3, 1 (c) of the Act, and consequently should be embodied in Rules to be submitted to the Privy Council for approval.

The alterations which their Lordships consider expedient are shown in the enclosed copy of the new Rule D 1.

Further, as to Rule E 24, which takes the place of the existing Rule E 21, their Lordships think it is desirable that the Rule should be maintained in its present form—so far as Poor-law institutions are concerned.

Their Lordships are moreover advised that it would be desirable, in the interests of public health, and in connexion with the problem of infant mortality, that a Rule should be added to Section E, making it the duty of midwives—where the supervising authority requires it—to notify within 48 hours to such authority every birth occurring in their practice, together with the name and address of the parent.

I am to add that with a view to ensuring sufficient consideration of the amendments to the Draft Rules their Lordships propose to extend the existing Rules for another six months from the date of their expiry on the 12th August next.

I am, Sir,
Your obedient servant,
(Signed) A. W. FitzRoy.

Copy of Proposed Rule D 1, with Suggested Additions in Italics.

1. No person shall be admitted to an examination unless she produces certificates that she has undergone the following course of training—namely:
   (1) She must, under supervision satisfactory to the Central Midwives Board, *or, where the course of training has been undergone in a Poor-law institution, to the Local Government Board*, have attended and watched the progress of not fewer than twenty labours, making abdominal and vaginal examinations during the course of labour and personally delivering the patient. (Schedule, Form III.)
   (2) She must, under supervision satisfactory to the Central Midwives Board, *or, where the course of training has been undergone in a Poor-law institution, to the Local Government Board*, have nursed twenty lying-in women during the ten days following labour, except in special cases in which a shorter period has been sanctioned by the *Central Midwives Board*. (Schedule, Form IV.)

The certificates as to (1) and (2) must be in the form prescribed by the Central Midwives Board, and must be signed by one or more of the following:

   (*a*) A registered medical practitioner.
   (*b*) The matron, being a certified midwife, or the chief midwife, being a certified midwife, of an institution recognized by the Board as a training school under the conditions provided in the Act.
   (*c*) A certified midwife approved by the Board for the purpose.
   (*d*) *Where the course of training has been undergone in a Poor-law institution, a certified midwife attached to such institution and holding a qualification in midwifery satisfactory to the Local Government Board.*

   (3) She must have attended a course of instruction in the subjects enumerated in Rule D 4, extending over a period of not less than three months, and consisting of not fewer than fifteen lectures.

The Certificate as to (3) must be in the form prescribed by the Central Midwives Board, and must be signed by one or more registered medical practitioners recognized by the Board as teachers, *or where the course of instruction has been undergone in a Poor-law institution by the duly appointed chief medical officer of the institution, or other medical practitioner authorized by the Guardians with the approval of the Local Government Board to give such instruction* (Schedule, Form V).

[The Secretary of the Central Midwives Board informs us, under date July 31st, that he had that day received the order of the Privy Council continuing the present rules of the Central Midwives Board until February 12th, 1907.]

Examining in Welsh.

A letter was read from Dr. E. Walford, M.O.H. Cardiff, stating that the difficulty experienced by certain Welsh candidates in taking their examination in English would be entirely met by the presence of an interpreter at the oral examination.

Disinfection of the Clothing of Midwives.

A letter was considered from the Local Government Board forwarding a copy of a letter from Dr. J. R. S. Park, M.O.H. Dukinfield, as to the disinfection of the clothing of midwives who have been in attendance on cases of puerperal fever. The Board decided that it be pointed out to the Local Government Board that the new rules, as submitted to the Privy Council for approval, provide for disinfection being carried out to the satisfaction of the local supervising authority.

Definition of "Practising as a Midwife."

A letter was read from Dr. J. Wheatley, County Medical Officer, Salop, as to the definition of "practising as a midwife." The Board decided that Dr. Wheatley be informed that the question as to whether a woman is practising as a midwife when in attendance at a confinement depends upon whether a qualified medical practitioner has been engaged to attend the case.

Naval and Military Appointments.

ROYAL VICTORIAN ORDER.

THE King has been pleased to appoint CHARLES ALFRED BALLANCE, Esq., M.S., F.R.C.S., and Lieutenant-Colonel BRUCE MORLAND SKINNER, Royal Army Medical Corps, Secretary Advisory and Nursing Board, War Office, to be Members of the Fourth Class of the Royal Victorian Order. Dated July 24th, 1906.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: HUGH CLIFT, Staff Surgeon, to the *Hawke*, July 30th; PERCY H. BANNISTER, M.B., Surgeon, to the *President*, additional, for three months' course at West London Hospital, July 30th; KENELM D. BELL, Surgeon, additional, for service with the Superintendent of Physical Training, July 28th; FRANK R. FEATHERSTONE, Surgeon, to the *Isis*, July 28th.

Staff Surgeon H. W. FINLAYSON, M.B., F. FEDARB, R. C. MUNDAY, E. C. CRIDLAND, M.B., F. BRADSHAW, and R. F. BATE are promoted to be Fleet Surgeons, July 28th. Their previous commissions, which were simultaneous, are dated: Surgeon, July 28th, 1890; Staff Surgeon, July 28th, 1898.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL P. H. JOHNSTON, C.M.G., M.D., is placed on retired pay, July 13th. He was appointed Surgeon, February 4th, 1877; Surgeon-Major, February 4th, 1889; granted the rank of Lieutenant-Colonel, February 4th, 1897; and selected for increased pay, January 8th, 1899. He served in the Afghan war in 1879-80, and took part in the Zaimusht Expedition, being present at the capture of Zawa (medal); with the Hazara Expedition in 1888 (medal with clasp); and in the South African war in 1899-1902 in charge of a General Hospital; he was present at the relief of Ladysmith, and in operations in Orange River and Cape Colony; was several times mentioned in dispatches, made C.M.G., and granted the Queen's medal with four clasps and the King's medal with two clasps.

Lieutenant V. G. JOHNSON, from the Seconded List, to be Lieutenant, July 1st. He was appointed on probation, January 30th, 1906.

The undermentioned Lieutenants are confirmed in that rank: R. J. C. THOMPSON, C. J. WYATT, M.B., R. S. SMYTH, M.D., C. M. DREW, M.B., A. A. SUTCLIFF, M.B., A. G. CUMMINS, M.B., A. S. LITTLEJOHNS, W. R. GALWEY, M.B., R. G. ARCHIBALD, M.B., F. A. MCCAMMON, M.B., W. EGAN, M.B., R. G. H. TAFE, M.B., A. DAWSON, M.B., F. FORBES, V. C. HONEYBURNE, C. T. EDMUNDS, C. R. M. MORRIS, M.B., R. E. U. NEWMAN, M.B., E. W. M. PAINE, F. D. G. HOWELL, W. H. GILLATT, M.B., P. SAMPSON, M. G. DILL, M.B., J. B. G. MULLIGAN, E. M. O'NEILL, M.B., G. B. EDWARDS, W. C. SMALES, A. H. BOND, T. C. C. LESLIE, T. T. H. ROBINSON, M.B., D. DE C. O'GRADY, L. G. GIBSON, P. S. STEWART, M.B. Lieutenant THOMPSON was appointed on probation, January 31st, 1905. Lieutenants WYATT and SMYTH were so appointed, July 31st, 1905; all the other officers cited on January 30th, 1906.

Colonel O. TODD, M.B., at present in Egypt, has been appointed to officiate as Principal Medical Officer, Western Command, India, vice Colonel F. W. Trevor, M.B., on leave.

Surgeon-General W. L. GUBBINS, C.B., M.V.O., M.B., has been gazetted Principal Medical Officer in India, vice Sir T. J. Gallwey, appointed Principal Medical Officer, Aldershot.

INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL D. FRENCH-MULLEN, M.D., Bengal Establishment, has been appointed to officiate as Principal Medical Officer, Sirhind and Jullundur Brigades, vice Colonel H. Hamilton, C.B., M.D., on leave.

Colonel T. J. H. WILKINS, Madras Establishment, Principal Medical Officer, Burmah, is transferred in the same capacity to the Secunderabad Division.

ROYAL ENGINEERS (VOLUNTEERS).

JAMES H. RHODES to be Surgeon-Lieutenant in the 1st Middlesex, July 2nd.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

CAPTAIN A. H. MINTON, Woolwich Companies, Eastern Command, resigns his commission, July 28th.

VOLUNTEER RIFLES.

SURGEON-LIEUTENANTS G. H. E. BEKENN and C. Y. FLEWITT, 1st Volunteer Battalion the Royal Warwickshire Regiment, to be Surgeon-Captains, July 28th.

Surgeon-Lieutenant W. RICHARDSON, M.D., 7th (Isle of Man) Volunteer Battalion the King's (Liverpool Regiment), to be Surgeon-Captain, July 28th.

Supernumerary Surgeon-Major D. LENNOX, M.D., 1st (City of Dundee) Volunteer Battalion the Black Watch (Royal Highlanders), (Brigade Surgeon-Lieutenant-Colonel, Senior Medical Officer 34th Field Army Brigade) to be Surgeon-Lieutenant Colonel, remaining supernumerary, July 28th.

Surgeon-Captain R. A. FEGAN, 2nd Volunteer Battalion the Queen's Own (Royal West Kent Regiment), resigns his commission, June 25th. He is appointed Captain in the same regiment with the same date.

DAVID WESTWOOD, M.B., to be Surgeon-Lieutenant in the 2nd Volunteer Battalion the Highland Light Infantry, July 28th.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 8,348 births and 3,813 deaths were registered during the week ending Saturday last, July 28th. The annual rate of mortality in these towns, which had been 12.3, 11.7, and 12.0 per 1,000 in the three preceding weeks, further rose to 12.6 per 1,000 last week. The rates in the several towns ranged from 4.8 in Hornsey, 4.9 in Handsworth (Staffs.), 5.6 in Northampton, 5.9 in Stockton-on-Tees, 6.2 in Hastings and in York, and 6.9 in Bournemouth to 17.3 in Warrington, 18.5 in Wigan, 18.7 in Huddersfield, 19.1 in Manchester, 19.5 in Bury, and 21.6 in Merthyr Tydfil. In London the rate of mortality was 11.7 per 1,000, while it averaged 12.9 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.6 per 1,000 in the seventy-six towns; in London this death-rate was equal to 1.5 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 2.8 in Leeds, 2.9 in West Ham, 3.0 in Burton-on-Trent, 3.1 in Manchester, 3.8 in Halifax, 4.0 in Devonport, and 6.6 in Huddersfield. Measles caused a death-rate of 1.3 in Salford, 1.4 in Manchester, 1.7 in Rotherham, 2.9 in Halifax, and 5.5 in Huddersfield; diarrhœa of 2.1 in West Hartlepool, whooping-cough of 1.3 in Birkenhead; and diarrhœa of 1.4 in West Ham, 1.6 in East Ham and in Handsworth (Staffs.), 1.8 in Norwich, and 2.3 in Warrington. The mortality from scarlet fever and from enteric fever showed no marked excess in any of the large towns, and no fatal cases of small-pox were registered during the week. One small-pox patient remained under treatment in the Metropolitan Asylums Hospitals on Saturday last, July 28th, against 7, 4, and 2 on the three preceding Saturdays; no new cases had been admitted during the past five weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 2,769, 2,842, and 2,943 at the end of the three preceding weeks, had further risen to 3,042 at the end of last week; 408 new cases were admitted during the week, against 378, 406, and 413 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, July 28th, 946 births and 489 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns had been 15.3, 14.3, and 13.7 per 1,000 in the three preceding weeks, rose again to 14.3 per 1,000 last week, and was 1.7 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 6.0 in Perth and 12.0 in Leith to 14.8 in Edinburgh and 15.0 in Paisley. The death-rate from the principal infectious diseases averaged 1.6 per 1,000 in these towns, the highest rates being recorded in Glasgow and Greenock. The 233 deaths registered in Glasgow included 2 which were referred to measles, 7 to whooping-cough, 2 to "fever," 13 to diarrhœa, and 7 to cerebro-spinal meningitis. Four fatal cases of measles and 4 of diarrhœa occurred in Edinburgh, 2 of diarrhœa in Dundee; and 2 of whooping-cough and 3 of diarrhœa in Aberdeen.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, July 28th, 528 births and 319 deaths were registered in six of the principal Irish towns, as against 562 births and 336 deaths in the preceding period. The annual death-rate in these towns, which had been 12.6, 15.7, and 19.1 per 1,000 in the three preceding weeks, fell to 15.5 per 1,000 in the week under notice, this figure being 2.9 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 10.3 in Cork and 13.6 in Londonderry and Waterford, to 18.1 in Belfast and 20.1 in Dublin. The zymotic death-rate during the same period and in the same six Irish towns averaged 1.8 per 1,000, or 0.8 per 1,000 higher than during the preceding period, the highest figure, 6.2, being recorded in Londonderry, while no deaths under this heading were recorded in Limerick and Waterford. The high rate at Londonderry was due to measles.

ENGLISH URBAN MORTALITY IN THE SECOND QUARTER OF 1906.

THE vital statistics of the seventy-six large towns dealt with in the Registrar-General's weekly returns are summarized in the accompanying table. During the three months ending June last, 111,698 births were registered in these towns, equal to an annual rate of 28.3 per 1,000 of the population, estimated at 15,818,360 persons in the middle of the year; in the corresponding period of the three preceding years the rates were 30.2, 29.5, and 28.5 per 1,000 respectively. In London the birth-rate last quarter was 27.0 per 1,000, while it averaged 28.9 in the seventy-five other large towns, and ranged from 17.6 in Hastings, 18.6 in Halifax, 19.0 in Bournemouth, 19.3 in Hornsey, 20.6 in Bury, and 21.8 in Northampton and in Bradford, to 34.0 in Bootle and in Walton, 34.1 in St. Helen's and in Warrington, 35.3 in Sunderland, 37.3 in Middlesbrough, and 37.4 in Rhondda and in Merthyr Tydfil.

During the quarter under notice 58,875 deaths were registered in these towns, equal to an annual rate of 14.9 per 1,000; in the three preceding second quarters the rates were 15.3, 15.3, and 14.7 per 1,000. In London the rate of mortality last quarter was 14.8 per 1,000, while it averaged 14.9 in the seventy-five other large towns, among which the rates ranged from 7.6 in Hornsey, 8.5 in East Ham, 8.7 in Willesden, 9.1 in Handsworth (Staffs.), 9.8 in Leyton and in Walthamstow, and 9.9 in Tottenham and in King's Norton, to 17.6 in Warrington, 18.0 in Hanley, 18.4 in Salford, 18.5 in Burnley, 19.0 in Manchester, 20.2 in Middlesbrough, and 20.5 in Liverpool.

The 58,875 deaths from all causes in the seventy-six towns last quarter included 5,718 which were referred to the principal infectious diseases: of these, 1 resulted from small-pox, 2,226 from measles, 607 from scarlet fever, 578 from diphtheria, 1,482 from whooping-cough, 239 from "fever" (principally enteric), and 685 from diarrhœa. The death-

Analysis of the Vital Statistics of Seventy-six of the Largest English Towns during the Second Quarter of 1906.

Towns.	Estimated Population middle of 1906.	Births.	Deaths.	Annual Rate per 1,000 Living. Births.	Deaths.	Principal Infectious Diseases.	Deaths from Principal Infectious Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-Cough.	Fever.	Diarrhoea.	Deaths of Children under one year of age to 1,000 Births.	Rate per cent. of Uncertified Deaths.
76 Towns	15,818,300	111,698	68,675	28.3	14.9	1.45	5,718	1	2,226	597	578	1,482	239	685	108	1.1
75 Provincial Towns	11,097,143	79,953	41,401	28.9	14.9	1.45	4,068	1	1,461	363	439	1,076	139	480	111	1.6
London	4,721,217	31,760	17,474	27.0	14.8	1.45	1,709	—	765	144	139	406	50	205	99	0.2
Croydon	151,011	1,010	424	26.8	11.3	0.94	35	—	13	—	5	10	1	4	86	—
Willesden	143,622	1,045	511	29.2	8.7	0.56	20	—	10	3	2	3	—	2	78	0.6
Hornsey	86,955	418	164	19.3	7.6	0.88	19	—	3	4	6	3	—	1	69	—
Tottenham	119,503	946	295	31.8	9.9	1.28	38	—	10	11	2	6	1	8	98	—
West Ham	301,617	2,280	912	30.3	12.1	1.07	80	—	17	9	17	22	3	12	93	0.4
East Ham	129,886	963	374	29.7	8.5	0.64	21	—	4	2	4	5	—	6	73	0.7
Leyton	118,287	834	290	28.3	9.8	1.42	42	—	13	5	2	14	2	6	77	0.5
Walthamstow	121,334	906	287	29.9	9.8	1.82	55	—	23	4	15	3	1	6	76	0.5
Hastings	67,144	224	223	17.6	17.3	0.24	4	—	1	3	—	—	—	—	51	0.4
Brighton	128,095	730	413	22.9	12.9	0.53	17	—	9	—	1	5	—	2	81	—
Portsmouth	205,118	1,472	680	28.8	13.5	0.81	41	—	5	1	3	18	5	4	73	0.7
Bournemouth	67,702	521	221	19.0	13.1	0.83	14	—	4	—	3	7	—	—	69	—
Southampton	117,512	784	386	26.1	12.5	0.66	18	—	—	—	4	9	2	4	85	—
Reading	76,937	479	253	24.3	12.9	0.91	18	—	—	—	4	13	—	1	113	3.9
Northampton	93,749	604	265	21.6	11.3	0.39	9	—	—	—	3	3	2	1	99	3.4
Ipswich	71,509	477	263	26.6	14.7	0.45	8	—	2	—	3	2	1	1	105	0.3
Great Yarmouth	52,613	365	219	26.9	16.7	2.97	59	—	27	2	—	2	3	5	116	—
Norwich	117,958	803	468	27.3	15.9	0.47	14	—	1	1	3	—	2	7	142	1.5
Plymouth	118,014	741	445	25.2	15.1	1.08	32	1	3	4	6	15	—	3	111	—
Devonport	78,405	524	226	26.8	11.7	0.35	7	—	—	1	—	4	1	1	80	—
Bristol	363,223	2,343	1,225	23.9	13.5	1.71	155	—	71	9	17	45	3	10	92	0.4
Hanley	66,360	553	297	33.5	18.0	1.02	17	—	—	7	4	—	2	5	127	0.7
Burton-on-Trent	52,922	355	168	26.8	12.7	0.99	13	—	1	—	5	7	2	—	83	3.6
Wolverhamptou	100,729	713	312	28.4	12.4	1.12	28	—	3	4	6	6	2	3	102	1.9
Walsall	94,577	725	235	30.7	12.0	1.31	31	—	—	1	4	17	1	2	110	—
Handsworth	63,619	360	145	22.6	9.1	0.69	11	—	—	—	1	8	—	2	92	1.4
West Bromwich	68,469	546	255	32.0	14.9	1.24	21	—	1	—	2	15	1	2	139	1.6
Birmingham	548,022	4,039	2,193	29.6	16.1	1.73	238	—	70	14	22	97	7	28	139	3.0
King's Norton	72,608	487	179	26.9	9.9	0.84	25	—	2	2	3	5	—	3	84	3.4
Smethwick	64,531	490	217	30.5	13.5	0.99	16	—	—	—	1	3	2	4	116	0.9
Aston Manor	62,238	608	223	29.6	10.9	1.04	21	—	3	2	1	10	2	3	92	0.4
Coventry	76,374	638	285	33.5	14.8	1.53	29	—	1	1	2	20	2	3	84	2.5
Leicester	232,111	1,506	725	32.0	12.5	1.06	61	—	4	19	5	24	5	4	101	1.1
Grimsby	69,359	538	202	31.1	11.7	0.23	4	—	—	—	3	—	1	—	103	1.0
Nottingham	254,565	1,749	821	27.6	12.9	0.52	33	—	1	4	7	12	2	7	101	0.1
Derby	123,981	811	436	26.2	14.1	0.99	28	—	—	2	14	8	—	4	99	—
Stockport	99,646	672	405	27.0	16.3	0.64	16	—	5	1	—	8	1	1	116	0.5
Birkenhead	117,292	995	474	33.5	16.2	1.37	40	—	—	10	6	21	1	2	104	0.2
Wallasey	64,578	464	207	28.8	12.9	0.92	15	—	4	1	1	7	2	—	78	—
Liverpool	739,180	6,205	3,784	33.7	20.5	3.22	593	—	285	45	25	163	14	62	140	3.2
Bootle	65,989	560	281	34.0	17.1	1.51	30	—	6	3	4	15	—	3	138	2.8
St. Helen's	91,153	776	356	34.1	15.7	0.62	14	—	2	2	2	—	3	5	107	3.9
Wigan	87,083	743	336	34.0	15.4	0.77	17	—	4	1	2	—	4	6	98	0.9
Warrington	69,280	589	304	34.1	17.6	1.63	28	—	—	1	2	18	—	7	132	3.6
Bolton	180,502	1,214	664	27.0	14.8	0.85	38	—	1	3	6	12	9	6	106	0.2
Bury	58,744	392	236	20.6	16.1	1.51	22	—	14	1	3	2	1	1	146	0.8
Manchester	637,126	4,730	3,010	29.8	19.0	2.71	431	—	262	17	19	30	10	32	133	0.7
Salford	234,077	1,844	1,072	31.6	18.4	2.30	134	—	71	10	21	15	6	11	130	0.3
Oldham	140,969	941	607	26.8	17.3	1.38	46	—	6	7	6	6	1	10	98	—
Rochdale	87,139	574	502	23.6	16.2	0.92	20	—	—	4	3	5	1	2	93	3.4
Burnley	102,893	777	473	22.0	18.5	3.72	96	—	69	6	5	9	3	4	108	1.5
Blackburn	134,015	987	499	25.6	14.9	1.26	42	—	20	9	1	4	3	5	122	4.0
Preston	116,599	919	455	31.7	15.7	1.44	42	—	25	3	5	—	4	5	112	4.0
Barrow-in-Furness	60,967	510	214	33.9	14.1	0.61	9	—	—	1	3	1	1	3	87	7.0
Huddersfield	94,851	553	391	23.4	16.5	1.01	24	—	7	2	1	10	1	3	110	1.3
Halifax	109,272	598	415	18.6	15.2	1.76	48	—	27	5	12	3	—	3	102	1.4
Bradford	288,544	1,582	1,254	21.6	17.4	2.16	155	—	94	15	16	14	7	9	144	1.0
Leeds	463,495	2,992	1,764	25.9	15.3	1.74	302	—	192	6	14	62	5	14	115	0.5
Sheffield	447,951	3,243	1,628	29.0	14.6	1.37	185	—	9	64	15	47	5	15	113	2.5
Rotherham	61,098	422	207	31.6	13.6	1.98	30	—	3	10	2	5	5	7	112	2.4
York	83,467	614	252	29.6	12.1	1.01	21	—	3	2	6	2	—	3	84	—
Hull	292,425	1,975	986	27.1	14.8	1.07	93	—	1	2	20	21	6	11	130	1.4
Middlesbrough	100,089	930	504	37.3	20.2	2.04	71	—	14	6	7	3	2	14	127	1.4
Stockton-on-Tees	52,684	432	195	33.4	14.9	0.84	11	—	—	—	3	3	3	2	80	0.5
West Hartlepool	73,387	568	231	31.0	12.6	0.54	10	—	1	2	1	4	2	—	100	0.4
Sunderland	154,385	1,360	648	35.3	16.8	0.88	34	—	6	—	4	17	3	5	97	3.2
South Shields	111,402	863	437	31.1	15.7	0.75	21	—	3	2	7	4	3	2	121	5.7
Gateshead	123,191	938	435	30.9	14.2	1.08	33	—	11	2	5	8	1	1	109	5.3
Newcastle-on-Tyne	268,721	2,090	1,121	31.2	16.7	1.78	120	—	71	2	14	15	6	9	122	0.4
Tynemouth	54,138	417	227	30.9	16.8	1.25	17	—	11	1	2	1	—	3	103	2.2
Newport (Mon.)	74,227	615	282	33.2	13.6	0.53	10	—	—	—	2	6	1	1	89	1.2
Cardiff	183,823	1,258	638	27.4	13.9	0.87	80	—	1	—	8	27	3	7	99	0.2
Rhondda	127,684	1,192	447	37.4	14.0	0.85	27	—	7	3	2	4	4	7	123	0.2
Merthyr Tydfil	74,961	699	292	37.4	15.6	1.22	23	—	—	1	4	12	2	4	127	—
Swansea	96,848	805	384	33.3	15.9	0.95	23	—	6	—	1	9	4	3	104	0.3

rate from these diseases in the aggregate, which had been 1.55, 1.73, and 1.41 per 1,000 in the second quarters of the three preceding years, was 1.45 per 1,000 last quarter. In London the death-rate from these principal infectious diseases was 1.45 per 1,000, while in the seventy-five other large towns it ranged from 0.23 in Grimsby, 0.24 in Hastings, 0.35 in Devonport, 0.39 in Northampton, 0.45 in Ipswich, and 0.47 in Norwich, to 2.04 in Middlesbrough, 2.16 in Bradford, 2.30 in Salford, 2.71 in Manchester, 2.97 in Great Yarmouth, 3.22 in Liverpool, and 3.72 in Burnley. The 2,228 deaths from measles were equal to an annual rate of 0.56 per 1,000; in London the death-rate from this disease was 0.65 per 1,000, while it averaged 0.53 in the seventy-five other large towns, and was highest in Great Yarmouth, Liverpool, Manchester, Salford, Burnley, Bradford, and Newcastle-on-Tyne. The 507 fatal cases of scarlet fever corresponded to an annual rate of 0.13 per 1,000; in London the rate of mortality from scarlet fever was 0.12 per 1,000, while it averaged 0.13 in the seventy-five other large towns, among which this disease was proportionally most fatal in Tottenham, Hanley, Leicester, Birkenhead, Blackburn, Sheffield, and Rotherham. The 578 deaths from diphtheria were equal to an annual rate of 0.15 per 1,000; in London this disease caused a death-rate of 0.12 per 1,000, while in the seventy-five other large towns the rate averaged 0.16, and was highest in Hornsey, Walthamstow, Derby, Salford, Halifax, York, Hull, and Middlesbrough. The 1,462 fatal cases of whooping-cough corresponded to an annual rate of 0.38 per 1,000; in London the mortality from this disease was 0.35 per 1,000, while it averaged 0.39 in the seventy-five other large towns, among which the highest rates were recorded in Walsall, West Bromwich, Birmingham, Coventry, Birkenhead, Liverpool, Bootle, and Warrington. The 239 deaths referred to different forms of "fever" were equal to an annual rate of 0.06 per 1,000; in London the "fever" death-rate was 0.04 per 1,000, while among the seventy-five other large towns it averaged 0.07, and was highest in Great Yarmouth, Wigan, Bolton, Rotherham, Stockton-on-Tees, and Swansea. The 685 fatal cases of diarrhoea corresponded to an annual rate of 0.17 per 1,000; in London also the rate was 0.17 per 1,000, while among the seventy-five other large towns diarrhoea was proportionally most fatal in Great Yarmouth, Wolverhampton, Walsall, Liverpool, Warrington, Oldham, Rochdale, Rotherham, and Middlesbrough. One fatal case of small-pox was registered in Plymouth, but none in any other of the large towns.

Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 108 per 1,000 last quarter, against 115, 120, and 112 in the corresponding quarters of the three preceding years; in London the rate last quarter was 99 per 1,000, while it averaged 111 in the seventy-five other large towns, and ranged from 60 in Hornsey, 61 in Hastings, 68 in Tottenham, 69 in Bournemouth, 73 in East Ham, 76 in Walthamstow, and 77 in Leyton to 139 in West Bromwich and in Birmingham, 140 in Liverpool, 142 in Norwich, 144 in Bradford, 146 in Bury, and 165 in Burnley.

The causes of 630, or 1.1 per cent., of the deaths registered in the seventy-six large towns were not certified either by a registered medical practitioner or by a coroner. All the cases of death were duly certified in Croydon, Hornsey, Tottenham, Brighton, Bournemouth, Southampton, Great Yarmouth, Plymouth, Devonport, Walsall, Derby, Wallasey, Oldham, York, and Merthyr Tydfil; the greatest proportions of uncertified deaths were registered in Reading, Burton-on-Trent, St. Helen's, Warrington, Blackburn, Preston, Barrow-in-Furness, South Shields, and Gateshead.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BOURNEMOUTH: ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary, £10 per month.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—House-Physician. Salary, £70 per annum. Third House-Surgeon. Salary, £50 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CAMBRIDGE UNIVERSITY.—R. C. Brown Research Scholarship in Special Pathology. Annual value, £150.

CHELTENHAM GENERAL HOSPITAL.—Junior House-Surgeon. Salary, £60 per annum.

COLCHESTER: ESSEX AND COLCHESTER HOSPITAL.—House-Physician. Salary, £80 per annum.

DEVONPORT: ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer. Salary at the rate of £50 per annum.

DURHAM: SHERBURN HOSPITAL.—Resident Medical Officer. Salary, £300 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Physician to Out-patients.

LINCOLNSHIRE: BRACEBRIDGE ASYLUM.—Senior Assistant Medical Officer. Salary, £150 per annum.

LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer. Salary, £120 per annum.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer for the new Crossley Sanatorium, Delamere Forest. Salary, £50 per annum.

MANCHESTER: ST. MARY'S HOSPITAL.—District Obstetric Officers.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary, £160, rising to £180, per annum.

NEWCASTLE-ON-TYNE: UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Joint Lecturer in the Principles and Practice of Surgery.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary, £70 per annum.

NORTH-EASTERN HOSPITAL, Hackney Road, N.E.—Medical Officer in Charge of the Electrical Department. Salary, £50 per annum.

NORWICH CITY ASYLUM, Hellesdon-next-Norwich.—Resident Medical Superintendent. Salary, £400, rising to £600, per annum.

OXFORD: RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—(1) House-Physician. (2) House-Surgeon. (3) Junior House-Surgeon. Appointments for six months. Salaries, (1) and (2), £80 per annum; and (3), £40 per annum.

ST. HELEN'S COUNTY BOROUGH.—Lady Assistant Medical Officer. Salary, £160, rising to £200, per annum.

SHEFFIELD ROYAL HOSPITAL.—Male Assistant House-Surgeon. Salary, £50 per annum.

SOUTHWARK UNION.—Second Assistant Male Medical Officer at the Infirmary. Salary, £100 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

STROUD GENERAL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

TRURO: ROYAL CORNWALL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House-Surgeon. Salary, £50 per annum.

WESTON-SUPER-MARE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House-Surgeon. Honorarium at the rate of £75 per annum.

WORCESTER COUNTY AND CITY ASYLUM.—Third Assistant Medical Officer (male). Salary, £130 per annum.

APPOINTMENTS.

COATS, George, M.D.Glasg., F.R.C.S.Eng., Additional Ophthalmic Surgeon to Out-patients, Great Northern Central Hospital, Holloway.

CROWE, J. T., L.S.A.Lond., Resident Assistant Anaesthetist to St. Mary's Hospital, Paddington.

GOODALL, Edwin, M.D.Lond., B.S., F.R.C.P.Lond., M.R.C.S., Medical Superintendent, Cardiff City Asylum.

GOODE, Christina L., M.B., B.S.Melb., Assistant Medical Superintendent to the West Ham Union Infirmary, Leytonstone.

GRAHAM, A., M.B., Resident Assistant Medical Officer of the Walton Workhouse of the West Derby Union.

HARRISON, J. McKeau, M.B., B.Ch., R.U.I., Medical Officer of the Ledbury Union Workhouse.

HODGSON, H., M.B., B.S.Lond., District and Workhouse Medical Officer of the Alresford Union.

JOHNSTON, T. L., L.R.C.P. and S.Edin., L.F.P.S.Glasg., Medical Superintendent of the Bracebridge Lunatic Asylum, Lincoln, vice G. P. Torney, L.R.C.P. and S.Irel., deceased.

LEEDHAM-GREEN, Charles, M.B., F.R.C.S., Honorary Surgeon to the Queen's Hospital, Birmingham, vice Bennett May, F.R.C.S.

LORIMER, Duncan, M.B., Ch.B., B.Sc., House-Surgeon to the Edinburgh Royal Maternity and Simpson Memorial Hospital.

MITCHELL, C. R. Paterson, M.B., Ch.B., House-Surgeon, Edinburgh Royal Maternity and Simpson Memorial Hospital.

MOULD, G. T., Major, I.M.S. (retired), Refraction Assistant at the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

NALL, Joseph, M.R.C.S.Eng., D.P.H., Medical Officer of Health, Yeardsley-cum-Whaley Urban District.

NOALL, W. Paynter, M.S., F.R.C.S., Clinical Assistant to the Chelsea Hospital for Women.

NUTT, W. H., M.D.Edin., Medical Officer of the Sheffield Union Workhouse.

READ, W. W., M.R.C.S., L.R.C.P., Resident Assistant Medical Officer, Shoreditch Parish Infirmary and Workhouse.

WALKER, T. W., M.B., Ch.B.Vict., Medical Officer of the Tetbury Union Workhouse.

WILSON, A. G., M.B., F.R.C.S.Eng., Certifying Factory Surgeon for the West Sheffield District, co. York.

WILSON, R. McN., M.B., Ch.B.Glasg., District Medical Officer of the Alnwick Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 2s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

GARSTANG.—On July 31st, at Hucknall Torkard, Notts, the wife of Walter Garstang, M.B., Ch.B.Vict., of a daughter.

KELLY.—At 3, Chamberlain Street, Wells, Somerset, the wife of Bruce C. Kelly, M.B., C.M.Edin., M.R.C.S.Eng., L.R.C.P.Lond., of a daughter.

MOYNIHAN.—July 29th, at St. Mary's Mount, Clarendon Road, Leeds, to Mr. and Mrs. B. G. A. Moynihan, a son.

MARRIAGES.

GOULD—PEARSE.—On July 24th, at St. Ninian's, Moffat, N.B., by the Rev. F. Wingate Pearse, B.A. (brother of the bride), Harold Utterton Gould, M.A., M.B.Trin. Coll. Camb., of Shaftesbury, Dorset, second son of Charles Gould, Esq., K.C., to Mabel Charlotte, youngest daughter of the late Rev. J. Wingate Pearse, Rector of Wilton, Bucks, and R.D.

HUNT—MILLARD.—On June 12th, at the Pro-Cathedral, Salisbury, by the Right Rev. the Bishop of Mashonaland, assisted by the Rev. C. G. B. Turner, Harry Rochfort Hunt, District Surgeon, Inyanga, eldest son of Captain R. S. Hunt, R.N., to Edith Mary, widow of the late Stanton G. Millard, and daughter of the late James Reading, of Leamington.

WEST—PARROTT.—On July 25th, at St. Marylebone Parish Church, by the Rev. C. O. Phipps, Vicar of Aylesbury, Waldemar Shipley West, M.A., M.D., of Aylesbury, younger son of the late Edward Henry West and of the late Mrs. West, of Glenrock, Brough, East Yorks, to Beatrice Emily Parrott, youngest daughter of the late Joseph Parrott, solicitor, and of the late Mrs. Parrott, of The Chesnuts, Aylesbury.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following arrangements have been made for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays; 2.30 p.m., Operations, Monday and Thursday, at 2.30 p.m., Diseases of the Eye. Tuesday and Friday, at 10.30 a.m., Gynaecology; 2.30 p.m., Diseases of the Skin. Tuesday and Friday, at 2 p.m., and Wednesday and Saturday, at 10 a.m., Diseases of Throat, Nose, and Ear. Wednesday, 10 a.m., Diseases of Children.

BOOKS, ETC., RECEIVED.

Muscles and Nerves: An Atlas of the Superficial Muscles and the Principal Motor Nerves of the Human Body. By L. B. Rawling, F.R.C.S. London: The Scientific Press, Limited. 1906. 3s. 6d.

Hygiene of the Nursery. By L. Starr, M.D. Seventh edition. London: H. K. Lewis. 1906. 3s. 6d.

Mercers Company Lectures on Recent Advances in the Physiology of Digestion. By E. H. Starling, M.D., F.R.S. London: A. Constable and Co., Limited. 1906. 6s.

London: H. Kimpton. 1906:—
A Treatise on Pharmacy. By C. Caspari, jun. Third edition. 21s.
The Practitioner's Library: The Practice of Gynaecology. Edited by J. W. Bovée, M.D. 31s. 6d.

"Continental" Handbook for Automobilists. 1906 edition. London Continental Tyre and Rubber Co.

Orthodiagraphische Praxis-Kurzer Leitfaden der Theorie, Technik u. Methodik der Orthodiagraphie. Von Dr. P. C. Franze. Leipzig: O. Nemnich. 1906. M.1.80.

Arbeiten aus dem Königlichen Institut für experimentelle Therapie zu Frankfurt a.M. Herausgegeben von Geh. Med.-Rat. Prof. Dr. P. Ehrlich. Heft I. Jena: G. Fischer. 1906. M.9.

Catalogue of Lewis's Medical and Scientific Circulating Library. Second Supplement, 1902-1905. London: H. K. Lewis. 1906. 6d.

Klinik der Brustkrankheiten. Von Dr. med. A. v. Sokolowski. Erster und zweiter Band. Berlin: A. Hirschwald. 1906. Bd. I and II. M.32.

Aneurysm of the Abdominal Aorta. By F. P. Nunneley, D.M., M.A. London: Baillière, Tindall, and Cox. 3s. 6d.

Vorlesungen für Schiffsärzte der Handelsmarine über Schiffshygiene, Schiffs- und Tropenkrankheiten. Von Dr. B. Nocht. Leipzig: G. Theime. 1906. M.8.40.

Surgical Suggestions: Practical Brevities in Diagnosis and Treatment. By W. M. Brickner, M.D., and E. Moschcowitz, M.D. New York: Surgery Publishing Co. 1906. 50 cents.

London: The Health Resorts Association. 1906:—
Harwich and Dovercourt, Kingston-on-Thames, Malvern, Southend and Westcliff-on-Sea, and Falmouth. Edited by G. W. May. Free on application to Town Clerk.

Ecole de Médecine Tropicale de Liverpool. Mémoire XX. Rapport sur l'Expédition au Congo, 1903-5. Par J. E. Dutton, M.B Vict., et J. L. Todd, B.A., M.D. McGill. Juin. 1906. London: Williams and Norgate. 5s.

Short Holidays in Small Open Boats. By W. H. Macpherson. London: H. Cox. 1906. 1s. 6d.

Abbott's Alkaloidal Digest. By W. C. Abbott, M.D. Chicago: The Clinic Publishing Company. 1906.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
AUGUST.	
Sunday	
6 MONDAY	*Bank Holiday.*
7 TUESDAY.....	
8 WEDNESDAY	
9 THURSDAY...	
10 FRIDAY.....	
11 SATURDAY...	
12 **Sunday**.....	
13 MONDAY	
14 TUESDAY.....	
15 WEDNESDAY	
16 THURSDAY...	
17 FRIDAY	
18 SATURDAY...	
19 **Sunday**	
20 MONDAY ...	
ANNUAL MEETING OF THE ASSOCIATION, TORONTO, CANADA.	
21 TUESDAY ...	9.30—12.30 a.m.—Meetings of Sections. 2.30 p.m. Address of Welcome; Introduction of Guests, Delegates, etc.; President's Address. 4.30 p.m. In University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve. 8.30 p.m. Address in Obstetrics, Dr. W. S. A. Griffith. 9.30 p.m. Reception by the Lieutenant-Governor.

Date.	Meetings to be Held.
AUGUST *(continued).*	
22 WEDNESDAY	8 a.m. National Temperance League Breakfast. 9.30—12.30 a.m. Meetings of Sections. 2.30 p.m. Address in Medicine, Sir James Barr, M.D. 4.30 p.m. Garden Parties. 8.30 p.m. Address in Surgery, Sir Victor Horsley, F.R.S. 9.30 p.m. Reception.
23 THURSDAY...	9.30—12.30 a.m. Sectional Meetings. 4.30 p.m. Garden Parties. 7.30 p.m. Annual Dinner.
24 FRIDAY	9.30—12.30 a.m. Sectional Meetings. 2.30 p.m. General Meetings. 4.30 p.m. Garden Parties. Excursions. 8.30 p.m. Soirée.
25 SATURDAY...	Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt. Excursion to Muskoka. Excursion to Lambton, through the courtesy of the President, Mr. Austin.
26 **Sunday**	
27 MONDAY	
28 TUESDAY.....	
29 WEDNESDAY	
30 THURSDAY...	
31 FRIDAY	
SEPTEMBER.	
1 SATURDAY...	
2 **Sunday**	
3 MONDAY	
4 TUESDAY.....	
5 WEDNESDAY	
6 THURSDAY...	
7 **FRIDAY**	
8 SATURDAY...	

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 11TH, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

CAPE OF GOOD HOPE (EASTERN PROVINCE) BRANCH.

A SPECIAL meeting was held at Steinman's Hotel, Grahamstown, on Friday, May 11th, at 8 p.m., Dr. C. E. JONES-PHILLIPSON in the chair.

Confirmation of Minutes.—The minutes of the meeting held on March 16th were read and confirmed.

Proposed Amendment of Rule.—Pursuant to notice the SECRETARY moved to amend Rule 5 by deleting the last paragraph and substituting the words: "It shall not be necessary for the member of Central Council to be a member of the Branch, but any member of the Association who may be in touch with the needs of the Colonial Branches shall be eligible for election."—The resolution was duly seconded and carried.

Native Practice on the Basutoland Border.—Arising out of the minutes the SECRETARY made a statement of the facts concerning native practice on the Basutoland border of the Cape Colony, and was directed to continue his inquiries.

The meeting was then closed.

EAST LONDON DIVISION.

THE first ordinary meeting was held on May 11th, at East London. The meeting was more a business than a medical meeting. It was announced that the Central Council had approved of the rules.

Election of Officers.—The following office-bearers were elected: *Chairman*, Dr. Paley; *Vice-Chairman*, Dr. Nangle; *Honorary Secretary and Treasurer*, Dr. Hill Aitken; *Committee*, Drs. Egan, Batchelor, Alexander, Skinner, Tannock, and Worsley. Office-bearers, by the rules of the Branch, will be elected again in November for the year 1907.

It was unanimously agreed that Dr. Mast, of Umzimkulu, should be thanked for his public spirit in prosecuting a chemist who practised medicine without a licence. A subscription of 5s. each was collected, and was sent to Dr. Darley Hartley, asking him to forward the amount to Dr. Mast, along with other moneys which, it was hoped, could easily be raised in Cape Colony by a request for the same in the *South African Medical Record*. Dr. Mast's expenses, were, it is believed, not inconsiderable.

Proposed Invitation of Association to South Africa.—The Division expressed approval of the idea that the British Medical Association should hold its Annual Representative Meeting in South Africa on some future occasion.

Bacteriological Case.—A "soloid" bacteriological case was kindly sent for inspection by Messrs. Burroughs, Wellcome and Co. on request of the Honorary Secretary.

Medical Fees.—The question of medical fees was brought up, and it was decided to discuss this matter at the July meeting. It seemed to be the impression of the meeting that by union much could be done to improve the present very unsatisfactory state of affairs in that respect.

Dr. Paley very kindly entertained the members in hospitable fashion.

Next Meeting.—The next ordinary meeting will be held in July, and it is expected that then things purely medical will occupy more time.

GRAHAMSTOWN DIVISION.

THE first meeting of the diminished Grahamstown Division under the new rules then took place, simultaneously with the first meeting of the East London Division.

Letter.—A letter from Dr. J. Bruce-Bays was read, regretting his absence from the meeting.

Proposed Invitation of Association to South Africa.—A letter from Dr. J. Luckhoff was read, covering a resolution of the Western Branch. It was resolved:

That the Grahamstown Division of the British Medical Association cordially approves of the resolution to invite the British Medical Association to South Africa at a future date.

Letters.—Letters were read: (1) From the Medical Secretary of the British Medical Association, covering the draft of the Royal Charter for which it is proposed to apply; (2) from the Joint Secretaries of the proposed Eighth South African Medical Congress at Bloemfontein in 1906, covering the draft of the scheme for the proposed South African Medical Association; (3) from Dr. J. Luckhoff, covering the report and recommendations of the Committee formed to consider the advisability of the formation of a South African Medical Organization. The consideration of these documents was postponed until after the discussion of the evening. Read the notice convening the first meeting of the East London Division at 8 p.m. on May 11th, 1906, at Cohen's Restaurant.

Confirmation of Branch Rules.—A letter from the Medical Secretary of the British Medical Association, dated March 15th, 1906, was read, announcing the confirmation of the rules of the Cape of Good Hope (Eastern Province) Branch, and also of the Grahamstown Division of the British Medical Association at the meeting of the Central Council on March 14th, 1906. It was resolved:

That the present officers of the Division to remain as office-bearers of the Division until the close of the year, and that the Secretary be instructed to obtain the necessary minute and account books, and to open a banking account for the Division at a separate bank to avoid confusion.

Enteric Fever.—A resolution from the Public Health Section of the 1905 Congress on enteric fever was referred to the Committee for report.

The Association in South Africa.—After discussion the following resolutions were passed:

1. That the Grahamstown Division is convinced of the necessity of maintaining unbroken the connexion between the South African Branches of the British Medical Association and the parent Association.
2. That the Division affirms its belief that the proposed Royal Charter is able, if granted, to render the British Medical Association sufficient for the needs of South Africa, more especially if supplemented by the formation of a "South African Committee."
3. That with this view the Division deprecates the formation of a rival organization, whether known as the South African Medical Association, or as the South African Medical Guild.
4. That with regard to the South African medical congresses, the Division is of opinion that these should be arranged, as at present, by the local bodies, and that they will be found to supply a sufficient means of union amongst the medical societies of South Africa at the present time.
5. That these resolutions be sent to the British Medical Association, the British Medical Association Branches and other medical societies of South Africa, and to the secretaries of the proposed medical congress at Bloemfontein in 1906.

DORSET AND WEST HANTS BRANCH.

The summer meeting was held in Abbotsbury, Dorset, on Wednesday, July 11th, the President, Mr. William Hawkins, in the chair.

Luncheon.—There was a large attendance. Previous to the meeting the members and their friends lunched together in the Ilchester Arms Hotel.

Minutes.—The minutes of the last meeting were read and confirmed, and several letters of apology for non-attendance were read.

Autumn Meeting.—It was decided to hold the autumn meeting at Sherborne.

Papers.—Dr. G. G. Morrice read an erudite and valuable paper on Spina Bifida Occulta.—The President related a case of Placenta Praevia. He also read notes of a case of Distortion of the Elbow-joints and exhibited the patient.—Subsequently Mr. Thomas W. W. Bovey, Vice-President, opened a discussion on Sprains. In this many members took part.—After the scientific business a most enjoyable visit was paid, by the kind permission of the Dowager Countess of Ilchester, to her beautiful gardens and famous swannery in the immediate vicinity of Abbotsbury.

Tea.—Before leaving Abbotsbury the party were hospitably entertained at tea by Mr. and Mrs. Bovey.

LANCASHIRE AND CHESHIRE BRANCH:

Liverpool and Birkenhead Divisions.

A special combined meeting of the Liverpool and Birkenhead Divisions (Sir James Barr in the chair) was held at the Liverpool Medical Institution on July 20th. Business: To discuss the following report from a Subcommittee on the Guild Medical Insurance Society formed by local members of the Municipal Officers' Guild:

"The Subcommittee recognizes the growing tendency that exists on the part of the public to insure against all possible risks, and they feel that as a matter of prudence this principle must be approved.

"They further see that this principle is sure to be applied to safeguard the public against the expenses of medical attendance, probably to a much greater extent than it is now.

"The question of the premium to be paid for this form of insurance is a very important and rather a difficult one, but, whatever it may be, the Subcommittee is convinced that it should be based on a sliding scale, strictly proportionate to the risk covered, and as the risk is the account of the medical attendant, which varies with the financial circumstances of the patient, so the premium or subscriptions of the members of such a Society should also vary with the circumstances of the member.

"They are strongly of opinion that all contract medical work done by members of the British Medical Association should be submitted to and be approved by the Divisions to which the members belong; in this way the Association will have a record of the rates generally in use, a more or less uniform scale can be adopted, and undercutting may be avoided.

"Thus the machinery of the British Medical Association, which is exactly adapted to this purpose, will be of great benefit and support to all its members.

"The Subcommittee does not think that limiting the number of medical officers of such a society to a few is the best principle. It is of opinion that members of the society should be allowed to select their own medical attendant from among all the medical men in the district who may be willing to accept the terms of the Society. This is the system pointed out as being the most desirable in the report issued by the British Medical Association in July, 1905, on the Economic Condition of Contract Medical Practice in the United Kingdom. See Report, page 5 (c).

"In accordance with these principles the Subcommittee makes the following suggestions:

"That the formation of the Guild Medical Insurance Society be approved, if the following rules be adopted.

"1. That members of the Society shall be at liberty to choose their own medical attendant if he is willing to accept the recognized terms of the Society; that he shall receive a list of those insured with him, and shall receive their premiums.

"2. The premiums shall be: Males, 6s. per year for those not earning more than £120 a year, 8s. 6d. per year for those earning between £120 and £150. (Similar terms on a higher scale for those drawing a higher salary could be arranged if thought necessary.) Females, 7s. per annum for those not earning more than £120 per annum. (Terms could be arranged for higher salaries if necessary.) Note.—These terms do not entitle the female members to the services of the medical man for any condition directly connected with child-bearing.

"3. The services of the medical officers cannot be demanded by members suffering from venereal disease or alcoholism. Nor shall vaccination be included.

"4. The tenure of office of the medical officers (especially where, as in the proposed Society, they are limited in number) should be exactly defined, and an agreement in writing drawn up."

Dr. German expressed the regret of Dr. Given, Acting Honorary Secretary to the Subcommittee, that he was unable to be present, and on his behalf gave an account of what had been done by the British Medical Association with reference to the Liverpool Municipal Officers' Guild Medical Insurance Society. Two letters on the subject from Dr. Smith Whitaker, the Medical Secretary, were read. Dr. Blackledge explained the position of himself and the other medical officers of the Guild Medical Insurance Society and expressed his willingness to fall in with the decision of the Divisions.

Dr. Westby made a similar statement on behalf of Dr. Halton, who was unable to be present. Mr. Larkin explained what had been done by the Subcommittee and their reasons for the suggestion in the report. It was proposed and carried that the first part of the report up to the commencement of the suggested rules be approved and accepted.

The rules were then considered. It was proposed and carried that Rule I should be altered so as to read:

> That members of the Society shall be at liberty to choose any registered practitioner as their own medical attendant if he is willing to accept the recognized terms as agreed to by the Divisions; that he shall receive a list of those insured with him, and shall receive their premiums.

It was proposed and carried that the other rules be referred back to the Subcommittee for further consideration, and that the Subcommittee should add to its numbers.

NORTH OF ENGLAND BRANCH.

Annual Meeting.

The annual meeting of the Branch was held in the Anatomy Theatre of the College of Medicine, Newcastle-on-Tyne, and was attended by over eighty members. The President, Dr. G. C. H. Fulton, took the chair.

Annual Report, Branch Council.—The report showed a steady growth in membership; in 1900 there were 459 members; in 1901, 473; in 1903, 547; in 1904, 604; in 1905, 629; and this year, 675. The total number of new members added during the year was 71, but owing to death, removal, or non-payment of subscriptions the net increase was 46. It was estimated that the membership now included nearly 75 per cent. of the practitioners resident within the area of the Branch. The Council appealed to all members, but especially to secretaries of Divisions, to increase this proportion, experience proving that a really united profession would be able to obtain from the public everything that could reasonably be asked. Four meetings of the Council had been held during the year, and three of the Branch; the Council had given much attention to the question of increasing the interest of the scientific meetings, which, it was felt, owing to the wealth of material at the disposal of members, should be at least equal in merit and interest to anything of the kind in the North of England. In future, responsibility for the various meetings would be thrown on the Division in whose area they were held, with the assistance of the newly-formed Scientific Committee, to which each Division was invited to appoint one member; last year the all-day scientific meeting arranged by the Newcastle Division had been a great success. The Branch had been the first to institute a branch defence committee and to form a fund, an example already followed in Wales. The Council regretted that the fund had not been more generously and generally supported by the colliery surgeons, for whose benefit so much had been done and so many liabilities incurred. The Northumberland committee had brought a long struggle with the miners of that county to a successful termination, and the secretary, Mr. Drury, was able to report that:

> At no period of our organization, since the formation in 1900 of the Northumberland and Newcastle Medical Association, have we felt so safe as regards relying on the practitioners themselves to stand firm. It was this attitude which undoubtedly carried us through. The occasion was more serious than our first fight for the 9d., as a set-back would make our position worse than if we had never sought an advance. Much work had been done during the year, and most of it is unseen work. The Branch can rest assured that its policy of absorbing those outside agencies which were overlapping its work has been abundantly justified.

The Durham Committee, comprising practically the same members as before the recent amalgamation, had received valuable assistance from the Secretaries, Messrs. Graham, Shepherd, and Son. Steps were now being taken to raise the rates in the Coxhoe and Tow Law districts to the county rate. In the Hartlepools Division the Friendly Society question had caused considerable anxiety on account of the indecision shown by members there. An ultimatum issued recently by the Friendly Societies, however, was likely considerably to clear up the situation, and make the members of the Division more determined than ever to bring themselves into line with the rest of the Branch. The report, which was signed by Dr. G. C. H. Fulton and Dr. J. H. Hunter (Joint Honorary Secretary), expressed extreme regret at the retirement of Dr. Alfred Cox from the post of Branch Secretary; Dr. Cox's long and intimate association with the Branch, the share which he took in the work of reorganizing the Association, and the subsequent reorganization of the Branch, and the great progress in membership which had taken place during his years of office, made this regret the more acute. The Branch had, however, the consolation of knowing that his services in the way of advice were still available, and the belief was expressed that members would readily embrace the opportunity shortly to be afforded to them of showing their tangible appreciation of his services. The report having been circulated previously was taken as read, and the President made some remarks on it, alluding particularly to the Branch Defence Fund. He said he had been particularly interested in this Fund, which had been inaugurated during his year of office, but he was by no means proud of the response made by the colliery practitioners who were the members for whose benefit the Fund had primarily been started. He also alluded to the resignation of Dr. Cox as Secretary, saying that he could hardly imagine the Branch without Dr. Cox in that position.—Dr. Wear moved the adoption of the report, which was seconded by Dr. Middlemass and carried.

Representatives of the Branch on the Central Council.—The Secretaries reported the re-election of Drs. Hunter and Wear.—Dr. Wear thanked the Branch for his election, and proceeded to give a short account of the work of the Council during the year. The three main items touched on were the rebuilding scheme, the financial report, and the proposed Charter. As regards the financial report, he thought members need not be frightened by the small balance, which was largely due to temporary causes, and he hoped the resolution of Council asking for the postponement of the Charter would be rejected by the Representative Meeting.—Dr. Hunter agreed with what his colleague had said, and indicated that in his opinion the exaggerated outcry which had been made about the small balance came from a section of the Council which had never been favourable to the great extension of the Medical Secretary's department. In his opinion this department must be extended, and members must be prepared to see it cost more. [Applause.]—Drs. Hunter and Wear were thanked for their services.

Election of Officers.—President, 1906-7: Thomas Beattie, M.D., M.R.C.P., Newcastle-on-Tyne. *President-elect:* Dr. Mackay moved that Dr. Alfred Cox be the President-elect. His services as Secretary of the Branch and in innumerable ways to the profession of the North entitled him to the highest honours the Branch could give. Dr. A. E. Morison seconded, and Dr. D. Todd supported the proposition, which was carried with applause. Dr. Cox thanked the meeting for the honour conferred on him, and for the kind way in which his name had been received. *Honorary Secretaries:* Dr. Beattie proposed, and Dr. Cox seconded the re-election of Dr. Hunter, both paying tribute to the good work done by Dr. Hunter for the Branch. Carried unanimously. Dr. Smurthwaite (Newcastle, was proposed as co-Secretary by Dr. Hunter, and seconded by Dr. D. Todd. This nomination was also carried unanimously. *Branch Council:* Drs. A. E. Morison, Peart, and J. W. Smith were elected as extra members of the Council.

President's Address.—Dr. Beattie then took the chair and delivered his presidential address on the treatment of infective pulmonary processes. The address was listened to with great attention, and at the close Dr. Peart moved a hearty vote of thanks to the President for the address, and also moved that it be printed and circulated to all members of the Branch. This was seconded by Dr. D. Todd, and carried with enthusiasm. The President briefly replied.

Vote of Thanks to the Retiring President.—This was moved by the President and seconded by Dr. Cox, who said that as Secretary he was glad to bear testimony to the great interest taken by Dr. Fulton in the work of the Branch during his year of office. Dr. Fulton came from a remote corner of the Branch, and it was a real sacrifice to him to attend the meetings—a sacrifice rendered the greater owing to the fact that he had suffered a good deal

from ill-health during the year; nevertheless, his interest in the work had never flagged. Dr. Fulton replied, excusing his absences from some of the Branch Council meetings on the grounds mentioned by Dr. Cox, and said that his year of office had given him a new interest in the work of the Association.

Excursions, etc.—After the meeting afternoon tea was given to all present and a large number of ladies by Mr. A. M. Martin, the Chairman of the Newcastle Division. Some members went on to golf at Gosforth Park, while others stayed to a lecture in the Medicine Theatre on the sanatorium treatment of phthisis, given by Dr. E. W. Diver. The greater number, however, went on, accompanied by the ladies, to visit the new wing of the Armstrong College and the new Royal Victoria Infirmary. Mr. F. H. Pruen, Secretary of the College, kindly showed the party over the former place, while the President of the Branch made a most efficient guide over the Infirmary.

Dinner.—A dinner was held at 7.30, to which twenty-two members sat down, under the presidency of Dr. Beattie, and a most enjoyable evening was spent. The healths were drunk of the President, of Mr. A. M. Martin, and of Dr. Lyle (Secretary of the Newcastle Division), Dr. Simpson and Mr. Grey Turner, who had been responsible for the arrangement of the splendid clinical programme which had occupied the whole of the morning, and were received with great heartiness.

Scientific Meeting.—The success of the whole meeting, which was undoubted, was very largely due to the fact that the Newcastle Division had arranged in connexion with it a repetition of the all-day scientific meeting which was so successful last year. Clinical demonstrations were given and many interesting cases shown at the Royal Infirmary, and also at the Eye Infirmary from 9.30 a.m. to 1 p.m.; a special museum of specimens had been formed in the Infirmary library, which was open until 5 p.m. It is hoped to publish some account of this scientific meeting in an early issue. The thanks of the Branch are due to those who arranged the meeting, and to all who contributed to its agenda.

NORTH WALES BRANCH.

The annual meeting of this Branch was held at the Grand Hotel, Llandudno, on July 11th, at 2 p.m.; in the absence of the President (Dr. Emyr O. Price), Dr. R. Arthur Prichard (Conway) was voted to the chair.

Confirmation of Minutes.—The minutes of the last meeting were read, confirmed, and signed.

Apologies for non-attendance.—Letters regretting inability to attend were read from Professor Osler, F.R.S., Sir John Williams, Bart., K.C.V.O., Drs. R. Hughes, Samuel Griffith, Crace-Calvert, J. E. Gemmell, W. R. Williams, John Roberts (Menai Bridge), E. D. Evans, and H. Grey Edwards.

Representation on Central Council.—A letter from the Medical Secretary was read, notifying that the Branch had been granted independent representation on the Central Council.

Introduction of President-elect.—Dr. Richard Jones, of Blaenau Festiniog, the President-elect, was introduced and took the chair. After thanking the Branch for the honour they had done him by electing him to the office, the President proposed a hearty vote of thanks to the retiring President, Dr. Emyr O. Price, for the able manner in which he had performed the duties of President during the past year. Dr. R. Arthur Prichard seconded, and it was unanimously carried. Dr. Price, who had just arrived, suitably replied.

The Annual Report of Branch Council.—The Honorary Secretary read the report of the Branch Council, which showed that the Branch is in a very flourishing condition, and had a nett gain of twenty-four new members during the past year. It was resolved that the report be received and adopted.

The Jones-Morris Memorial Fund.—It was reported that the total amount subscribed to this fund was £126, and that the Branch Council recommended "that an annual prize, together with a bronze medal, be established and awarded in the subjects of the medical curriculum taught at the University College of North Wales, Bangor. The details regarding the subjects and the award to be left to a committee consisting of Principal Reichel, Dr. Emyr O. Price, and the Honorary Secretary." It was resolved: "That the recommendation of the Council be adopted."

Election of Officers.—Dr. E. D. Evans (Wrexham) was elected President for next year, and Mr. H. Jones Roberts re-elected Honorary Secretary.

Representative on Central Council.—It was reported that Mr. H. Jones Roberts had been re-elected Representative of the Branch on the Central Council for the ensuing year.

Places of Meeting for 1907.—It was resolved that the spring intermediate meeting be a joint meeting with the Lancashire and Cheshire Branch, to be held at Chester, and that the annual meeting be held at Machynlleth.

Presidential Address.—The President delivered his address, taking as his subject, Food and Food Preservatives, and their influence on the increased prevalence of certain diseases. A hearty vote of thanks was given to the President for his able and instructive address.

Papers, etc.—Mr. R. H. Mills-Roberts, C.M.G. (Llanberis) read a paper on injuries of the foot, and showed several interesting cases. In the discussion which followed, the President, Mr. Thelwall Thomas, Dr. Hugh Jones, and the Honorary Secretary took part. —Mr. H. E. Jones (Liverpool) showed three specimens of tumours of the nose and accessory spaces.—Dr. W. Duncan Lawrie (Llandudno) read a paper on some deformities, illustrated by plaster casts and impressions. —Dr. J. Elliott (Chester) read a paper on a case of pneumothorax, with remarks on treatment. Drs. Carruthers, Permewan, Warrington, and Mr. Thelwall Thomas joined in the discussion.—Mr. W. Thelwall Thomas (Liverpool) read a paper on acute pancreatitis, with description of two cases. Further remarks were made by Mr. R. H. Mills-Roberts, Drs. John Evans, Price Morris, Warrington, and Permewan.—A hearty vote of thanks was accorded to the readers of papers.

Annual Dinner.—The members subsequently dined together at the Grand Hotel.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

As was reported last week, a petition from the Council of the Metropolitan Hospital Sunday Fund, praying for a charter of incorporation, was submitted to the King at the Council held by His Majesty on July 28th, and was referred by His Majesty to a Committee, notice being given that petitions for or against the grant of a charter should be lodged at the Privy Council Office before September 3rd. The following letter has been addressed to the Clerk of the Privy Council on behalf of the British Medical Association:

[Copy.]
Offices of the British Medical Association,
429, Strand, W.C.,
August 7th, 1906.

Sir,

With respect to the petition which the British Medical Association is informed has been presented to His Majesty by the Hospital Sunday Fund of London, praying for the grant of a Royal Charter of Incorporation, I beg most respectfully to represent that the British Medical Association, as a body of 20,000 medical practitioners, is deeply interested in a proposal which may have such important effects upon hospital management in the metropolis, that owing to the holiday season and the absence of many members of the Association at the Annual Meeting at Toronto, in Canada, it is quite impossible to obtain any representative pronouncement of the opinion of the Association upon the subject before the date fixed as the last for giving notice of objection to the said petition—namely, September 3rd—and I have therefore, on behalf of the Association, to crave that further time be allowed for the presentation of objections in reference to this matter, and trust that such extension may be granted until, at the earliest, November 3rd.

I am, Sir,
Your obedient servant,
(Signed) H. Langley Browne,
Chairman of Council of the British Medical Association.

The Clerk to the
Privy Council.

THE "NATIONAL ASSOCIATION OF MEDICAL HERBALISTS OF GREAT BRITAIN."

A body calling itself by this high-sounding name having presented to the Privy Council a petition for a grant of a draft Charter of Incorporation, the following memorandum has been submitted on behalf of the British Medical Association to the Lord President of the Privy Council:

[Copy]

Memorandum on the Petition and Draft Charter of the "National Association of Medical Herbalists of Great Britain, Limited."

The British Medical Association, having a membership of 20,000 registered medical practitioners and acting on behalf of the general body of the members of the medical profession in the United Kingdom, desires most respectfully to bring to the notice of the Lord President of His Majesty's most Honourable Privy Council the following considerations regarding the petition which has been submitted to His Majesty praying for the grant of a Royal Charter of incorporation to the "National Association of Medical Herbalists of Great Britain, Limited."

1. By the Medical Acts Parliament has marked its sense of the necessity for the protection of the community at large that means should be afforded by which the public may distinguish between those who are qualified and those who are not qualified for the practice of medicine, surgery, and midwifery. It is also required that those registered as so qualified to practise should have satisfied certain tests, including a period of at least five years' study of professional subjects, and that they should in addition have passed certain examinations.

2. The petition of the National Association of Medical Herbalists of Great Britain, Limited, constitutes an attempt to evade the law as laid down under the Medical Acts and to obtain for a bogus institution, which affords the public no guarantee of the competence of those composing it, an appearance of authority from His Majesty in reference to the qualification of its members for medical and surgical practice.

3. The draft of the Charter which His Majesty is desired by the National Association of Medical Herbalists of Great Britain, Limited, to grant would also, the British Medical Association submits, have the effect of enabling those to whom it was granted to evade not only the provisions of the Medical Acts but also those of the Apothecaries Act and of the Pharmacy Acts, and would thus deprive the public of the protection obtained through the precautions and restrictions which those Acts impose upon the prescribing, compounding, and dispensing of medicines and poisons.

4. The abuses which might thus arise have already been exemplified by the records of proceedings in courts of justice and of coroners' inquiries, showing how the public have been misled by persons who call themselves "medical herbalists" or adopt similar designations, as in the case of the "General Council of Safe Medicine, Limited," and showing also the injuries resulting therefrom.

The British Medical Association, therefore, most respectfully submits on all these grounds that the granting of the Charter in question would be gravely injurious to the public interest and safety, and prays that His Majesty do not grant the application.

Signed on behalf of the British Medical Association,

(Signed) H. Langley Browne,
Chairman of Council.

(Signed) J. Smith Whitaker,
Medical Secretary.

429, Strand, London, W.C., August 4th, 1906.

ANNUAL REPRESENTATIVE MEETING.

A Correction.

In the report of the remarks made by Mr. Kinsey, the Chairman of the Ethical Committee, in presenting the recommendations of the Committee with regard to the reporting of individual cases to the General Medical Council (Supplement, August 4th, 1906, page 126), there is an error due to confusion between paragraphs (1) and (2) and paragraphs (i) and (ii) in this part of the report of the Committee. The recommendations of the Committee to which Mr. Kinsey was referring were as follows:

(i) That it is absolutely necessary, in the interests of the medical profession, that the Association should take up cases of a penal nature before the General Medical Council as complainants.

(ii) That, in order to effect this, members of the said Council, who are also members of the British Medical Association, should at once on election, or immediately after election, cease to be members of the British Medical Association during such time as their appointment lasts.

Mr. Kinsey added that, fully recognizing the importance of the question thus raised, the Central Council of the Association had determined to postpone the consideration of these clauses to October, and, after a short discussion, as reported in the Supplement of August 4th, p. 127, the clauses were referred back to the Ethical Committee to afford an opportunity for further consideration.

The maxim quoted by Mr. Kinsey subsequently (p. 127, lines 11 and 12), "Do to others as you would they should do to you," was incorrectly printed.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

Surgeon P. W. MacVean, M.B., is promoted to be Staff Surgeon from May 15th, 1903. He was appointed Surgeon, May 15th, 1895.

Surgeon M. L. M. Vaughin, M.B., and Surgeon W. H. Thomson to be Staff Surgeons, May 13th, 1904; date of commission as Surgeon, May 13th, 1896.

Surgeon E. S. Reid, M.B., to be Staff Surgeon, November 10th, 1904; Surgeon, November 10th, 1896.

Surgeon F. F. Lobb, to be Staff Surgeon, May 23rd, 1906; Surgeon, May 23rd, 1898. In March, 1900, Surgeon Lobb volunteered to go in a heavy sea to assist in the rescue of thirteen French Malagasy subjects who had been wrecked on the uninhabited island of Europa; for this he received the thanks of the French Government. He served in South Nigeria and on the Lower Niger in 1902, receiving a medal with clasp, and in 1901-2 with the Gambia Expedition.

Surgeon C. C. Macmillan, M.B., D.S.O., to be Staff Surgeon, May 23rd, 1906; Surgeon, May 23rd, 1898. He served with the Naval Brigade in Natal in 1900, was mentioned in dispatches, and made D.S.O.

Surgeon J. G. Watt to be Staff Surgeon, May 23rd, 1906; date as Surgeon, May 23rd, 1898.

The following appointments have been made at the Admiralty: Arthur R. H. Skey, M.B., Staff Surgeon, to the *Powerful*, additional, for Sydney Medical Depôt, August 15th; Arthur Gaskell, Staff Surgeon, to the *President*, additional, for special service, to represent the Admiralty at the meeting of the Association of Military Surgeons of the United States of America at Buffalo, August 25th; James A. Forrest, M.B., Surgeon, to the Royal Marine Depôt at Deal, August 15th; Joseph A. Moon, Fleet Surgeon, to the *President*, additional, for three months' study at West London Hospital, August 7th; Reginald T. A. Levinge, Fleet Surgeon, to the *President*, additional, for three months' course at the Royal City of Dublin Hospital, August 13th; Hugh Clift, Staff Surgeon, to the *Hawke*, on recommissioning, August 8th.

ARMY MEDICAL STAFF.

The appointment of Surgeon-General W. L. Gubbins, M.B., C.B., M.V.O., to be Principal Medical Officer, H.M.'s Forces in India, is gazetted, to date from July 1st.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel E. North is promoted to be Colonel, July 18th. He was appointed Surgeon, March 6th, 1880, Surgeon-Major, March 6th, 1892, and Lieutenant-Colonel, March 6th, 1900. He was in the South African war in 1899-1901, in charge of a general hospital, and was at the relief of Kimberley, and in operations in the Orange Free State, the Transvaal, the Orange River Colony, and Cape Colony, including numerous engagements; he was mentioned in dispatches and received the Queen's medal with seven clasps.

Major H. A. Bray has received permission to accept the Imperial Ottoman Order of the Osmanieh, 4th class, conferred upon him by the Khedive of Egypt, in recognition of valuable services rendered by him to His Highness.

The undermentioned majors to be lieutenant-colonels, dated July 28th:—C. H. Burtchaell, M.B., J. J. Gerrard, M.B., J. S. Davidson, M.B., J. Will, M.B., J. Fallon, J. V. Salvage, M.D., A. R. Aldridge, M.B., J. Fayrer, M.D., F.R.C.S.Edin., C. J. Macdonald, M.B., C. J. W. Tatham, T. H. F. Clarkson, C. Garner, M.B., R. W. Wright, E. Eckersley, M.B., R. J. C. Cottell, D. Hennessy, M.D., D. H. Rogers, M.D., D. M. O'Callaghan, J. J. Whitty, M.D., J. F. Donegan, J. Donaldson, H. B. Mathias, D.S.O., G. H. Barefoot, F. R. Newland, M.B., R. J. Windle, M.B., J. J. Russell, M.B., G. Scott, M.B., A. Hosie, M.B., G. F. H. Marks, M.D., R. Holyoake, T. Du B. Whaite, M.B., H. T. Knaggs, M.D., F. S. Le Quesne, V.C., R. H. Penton, D.S.O., W. S. Dowman, A. L. F. Bate.

The undermentioned officers are placed on retired pay, July 28th: J. Moir, M.B., H. A. Cummins, C.M.G., M.D., G. Bent, E. S. Maurdei, C. W. Allport, T. Browning, R. N. Buist, M.B., W. J. Trotter.

The undermentioned captains to be majors: J. P. Silver, M.B., and S. W. Sweetnam, July 28th; W. S. Harrison, M.B., and H. A. L. Howell, July 29th.

ARMY MEDICAL RESERVE.

Surgeon-Captain E. M. Callender to be Surgeon-Major, July 25th.

Surgeon-Lieutenant M. S. W. Gunning to be Surgeon-Captain, July 24th.

Surgeon-Captain A. H. L. STEWART, having resigned his commission in the Imperial Yeomanry, ceases to belong to the Army Medical Reserve.

ROYAL ENGINEERS (VOLUNTEERS).

SURGEON-CAPTAIN H. H. GOURLEY, M.B., 1st Newcastle-on-Tyne, resigns his commission, August 4th.

Surgeon-Lieutenant-Colonel J. B. RONALDSON, 7th Volunteer Battalion the Royal Scots (Lothian Regiment), is borne as supernumerary while holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, 2nd Lothian Volunteer Infantry Brigade, July 1st.

Supernumerary Surgeon-Captain H. G. FALKNER, 1st Volunteer Battalion the East Yorkshire Regiment, to be Surgeon-Major, remaining supernumerary, August 4th.

ERIC D GAIRDNER to be Surgeon-Lieutenant in the 2nd Volunteer Battalion the Royal Scots Fusiliers, July 15th.

Surgeon-Lieutenant G. P. CRAVER, M.B., 2nd Volunteer Battalion the Gordon Highlanders, resigns his commission, August 4th.

Vital Statistics.

EPIDEMIC MORTALITY IN LONDON.

THE accompanying diagram shows the prevalence of the principal epidemic diseases during the second, or spring, quarter of the year. The fluctuations of each disease and its relative fatality compared with that in the corresponding periods of recent years can thus be readily seen.

Small-pox.—No fatal case of small-pox was registered in London last quarter. Fifteen small-pox patients were admitted into the Metropolitan Asylums Hospitals during last quarter, against 4, 0, and 13 in the three preceding quarters; 11 cases remained under treatment at the end of June last.

Measles.—The deaths from measles, which had been 257, 552, and 684 in the three preceding quarters, further increased last quarter to 765, and were slightly in excess of the corrected average number in the corresponding periods of the four preceding years. Among the various metropolitan boroughs this disease was proportionally most fatal in Chelsea, St. Pancras, Holborn, Finsbury, Shoreditch, and Bermondsey.

Scarlet Fever.—The fatal cases of this disease, which had been 126, 170, and 129 in the three preceding quarters, rose again to 144 last quarter, and were 37 above the corrected average number. This disease showed the highest proportional mortality last quarter in Paddington, Hammersmith, Chelsea, the City of London, and Bermondsey. The number of scarlet fever cases in the Metropolitan Asylums Hospitals, which had been 3,567, 3,410, and 2,353 at the end of the three preceding quarters, had risen again to 2,705 at the end of last quarter; 4,148 new cases were admitted during the quarter, against 5,139, 5,553, and 3,515 in the three preceding quarters.

Diphtheria.—The deaths referred to diphtheria in London, which had been 111, 159, and 197 in the three preceding quarters, declined again last quarter to 140, and were 43 below the average number in the corresponding periods of the four preceding years. Among the various metropolitan boroughs this disease was proportionally most fatal in Chelsea, Finsbury, Stepney, Bermondsey, Lambeth, and Greenwich. The number of diphtheria patients in the Metropolitan Asylums Hospitals, which had been 730, 701, and 924 at the end of the three preceding quarters, had declined again to 782 at the end of last quarter; 1,756 new cases were admitted during the quarter, against 1,341, 1,295, and 1,515 in the three preceding quarters.

Whooping-cough.—The fatal cases of this disease, which had been 260, 281, and 468 in the three preceding quarters, declined again last quarter to 406, and were 54 below the corrected average number in the second quarters of the four preceding years. The greatest proportional mortality from this disease occurred in Finsbury, Shoreditch, Bethnal Green, Bermondsey, Battersea, Deptford, and Greenwich.

"Fever."—Under this heading are included deaths from typhus, from enteric fever, and from ill-defined pyrexia. The deaths referred to these different forms of "fever," which had been 78, 66, and 45 in the three preceding quarters, rose again to 60 last quarter, but were 5 below the corrected average. One death was attributed to ill-defined pyrexia, but not any to typhus. Among the various metropolitan boroughs "fever" was proportionately most fatal in Hammersmith, Hackney, Holborn, Finsbury, and Bethnal Green. The Metropolitan Asylums Hospitals contained 93 enteric fever patients at the end of last quarter, against 143, 78, and 65 at the end of the three preceding quarters; 184 new cases were admitted during the quarter, against 264, 238, and 166 in the three preceding quarters.

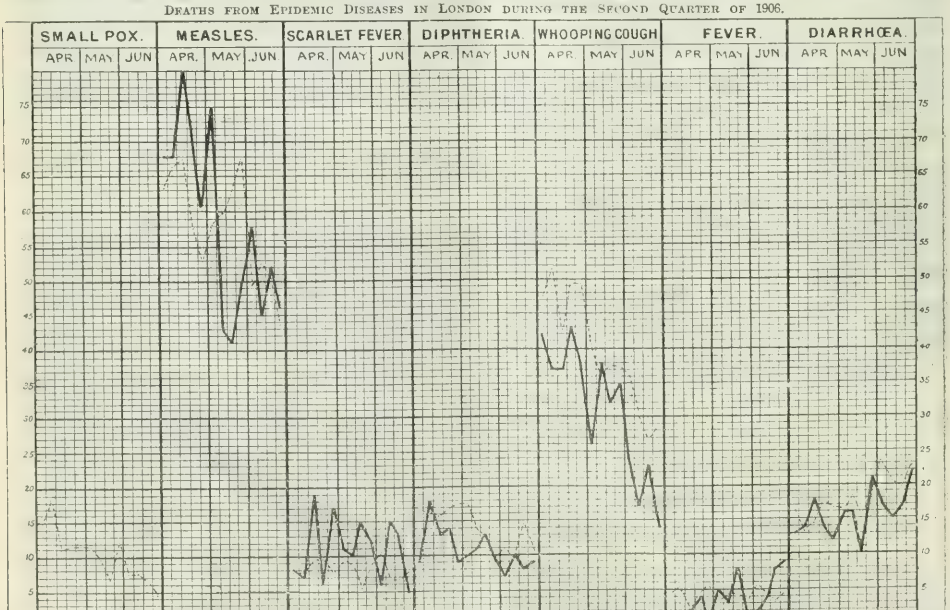
Diarrhœa.—The 205 deaths from diarrhœa in London last quarter were 28 below the corrected average number for the corresponding periods of the four preceding years. This disease showed the highest proportional fatality in Fulham, Holborn, Shoreditch, Stepney, Bermondsey, Battersea, and Deptford.

In conclusion it may be stated that the 1,707 deaths in London attributed to these principal epidemic diseases during the quarter ending June last were nearly 8 per cent. below the corrected average number in the corresponding periods of the four preceding years. The lowest death-rates last quarter from these diseases were recorded in Paddington, the City of Westminster, St. Marylebone, Hampstead, the City of London, Lewisham, and Woolwich; and the highest rates in Chelsea, Holborn, Finsbury, Shoreditch, Bermondsey, and Deptford.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 8,988 births and 4,188 deaths were registered during the week ending Saturday last, August 4th. The annual rate of mortality in these towns, which had been 11.7, 12.0, and 12.6 per 1,000 during the three preceding weeks, further rose to 13.8 per 1,000 last week. The rates in the several towns ranged from 3.0 in West Bromwich, 4.2 in Hornsey, 7.6 in East Ham, 7.9 in Burton-on-Trent, 8.0 in Willesden, 8.1 in Wallasey, and 8.3 in Tottenham, to 19.0 in Newport (Mon.), 19.7 in South Shields, 19.1 in Stockton-on-Tees, 20.3 in Rochdale, 20.5 in Wigan, 21.2 in Coventry, 21.4 in Huddersfield, and 26.9 in Bootle. In London the rate of mortality was 14.0 per 1,000, while it averaged 13.7 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 2.5 per 1,000 in the seventy-six towns; in London this death-rate was equal to 2.6 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 4.7 in West Ham, 4.8 in Wigan, 4.9 in Birkenhead and in Merthyr Tydfil, 5.2 in Leyton, 5.5 in Huddersfield, 6.3 in Bootle, and 7.6 in Aston Manor. Measles caused a death-rate of 2.0 in Salford, 2.5 in Burnley, and 3.8 in Huddersfield; scarlet fever of 1.3 in Aston Manor, and 1.6 in Hanley (Staffs.); whooping cough of 1.3 in Portsmouth and in Birkenhead, and 1.4 in Newport (Mon.); and diarrhœa of 3.0 in Leeds, 3.1 in Birkenhead, 3.3 in Walsall, 3.5 in West Ham and in Merthyr Tydfil, 4.2 in Wigan, 4.4 in Leyton and in Aston Manor, and 5.5 in Bootle. The mortality from diphtheria and from enteric fever showed no marked

DEATHS FROM EPIDEMIC DISEASES IN LONDON DURING THE SECOND QUARTER OF 1906.



NOTE.—The black lines show the *recorded* number of deaths from each disease during each week of the quarter. The dotted lines show the *average* number of deaths in the corresponding weeks of the four preceding years, 1902-5.

excess in any of the large towns, and no fatal case of small-pox was registered during the week. One small-pox patient remained under treatment in the Metropolitan Asylums Hospitals on Saturday last, August 4th, against 5, 2, and 1 on the three preceding Saturdays; no new cases had been admitted during the past six weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 2,842, 2,943, and 3,048, had further risen to 3,120 at the end of last week; 415 new cases were admitted during the week, against 406, 413, and 408 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, August 4th, 870 births and 405 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality, which had been 14.3, 13.7, and 14.3 per 1,000 in the three preceding weeks, fell to 11.8 per 1,000 last week, and was 2.0 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 7.2 in Paisley and 8.2 in Leith to 15.1 in Perth and 15.5 in Dundee. The death-rate from the principal infectious diseases averaged 1.5 per 1,000 in these towns, the highest rates being recorded in Edinburgh and Glasgow. The 196 deaths in Glasgow included 3 which were referred to measles, 7 to whooping-cough, 1 to "fever," 18 to diarrhoea, and 2 to cerebro-spinal meningitis. Five fatal cases of measles and 4 of diarrhoea occurred in Edinburgh, 2 of diarrhoea in Dundee, and 2 of whooping-cough in Aberdeen.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BELFAST UNION.—Temporary Resident Medical Officer for the Infirmary Department. Salary at the rate of £100 per annum.

BIRMINGHAM: GENERAL HOSPITAL.—(1) House-Physician; (2) Resident Pathologist. Salary at the rate of £50 per annum each.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—Third House-Surgeon. Salary, £50 per annum.

BUXTON: DEVONSHIRE HOSPITAL.—Assistant House-Surgeon. Salary, £70 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Registrar (Honorary).

CHELTENHAM GENERAL HOSPITAL.—Junior House-Surgeon. Salary, £50 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House-Surgeon. Salary, £120 per annum.

CROWBOROUGH COLONY FOR EPILEPTIC CHILDREN.—Qualified Medical Women. Salary, £50 per annum.

DEVONPORT: ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer. Salary at the rate of £50 per annum.

DORCHESTER: COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £140, rising to £180, per annum.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—Medical Officer for the Casualty Department. Salary at the rate of £100 per annum.

ECCLES AND PATRICROFT HOSPITAL.—House-Surgeon. Salary, £70 per annum.

GORDON HOSPITAL FOR FISTULA, Vauxhall Bridge Road, S.W.—Resident House-Surgeon.

INVERNESS: NORTHERN INFIRMARY.—House-Surgeon. Salary, £100 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—(1) Two House-Surgeons; (2) One House-Physician. Salary, £60 per annum each.

LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer. Salary, £120 per annum.

LONDONDERRY AND NORTH-WEST OF IRELAND EYE, EAR, AND THROAT HOSPITAL.—Honorary Surgeon.

MACCLESFIELD GENERAL INFIRMARY.—Junior House-Surgeon. Salary, £60 per annum.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer for the new Crossley Sanatorium, Delamere Forest. Salary, £50 per annum.

MANCHESTER: ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—House-Surgeon for the Clifford Street Hospital. Salary, £70 per annum.

MIDDLESEX HOSPITAL, W.—Second Assistant to the Director of the Bacteriological and Clinical Laboratories. Salary, £100 per annum.

NEWCASTLE-ON-TYNE HOSPITAL FOR SICK CHILDREN.—Assistant Honorary Surgeon.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary, £160, rising to £180, per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary, £70 per annum.

NORTHAMPTON GENERAL HOSPITAL.—House-Physician. Salary £90, increasing to £100 per annum.

NORWICH CITY ASYLUM, Hellesdon-next-Norwich.—Resident Medical Superintendent. Salary, £400, rising to £600, per annum.

OXFORD: RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—(1) House-Physician. (2) House-Surgeon. (3) Junior House Surgeon. Appointments for six months. Salaries, (1) and (2), £80 per annum; and (3), £40 per annum.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer, male. Salary, £130 per annum.

ST. HELEN'S COUNTY BOROUGH.—Lady Assistant Medical Officer. Salary, £160, rising to £200, per annum.

ST. PETER'S HOSPITAL FOR STONE, Henrietta Street, W.C.—Junior House-Surgeon. Salary at the rate of £50 per annum.

SHEFFIELD ROYAL HOSPITAL.—Male Assistant House-Surgeon. Salary, £50 per annum.

SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, male. Salary £140, increasing to £160, per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

STROUD GENERAL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House-Surgeon. Salary, £50 per annum.

WORCESTER COUNTY AND CITY ASYLUM.—Third Assistant Medical Officer (male). Salary, £130 per annum.

YORK DISPENSARY.—Resident Medical Officer, male. Salary, £120 per annum.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces a vacancy in the office of Certifying Factory Surgeon at Stanford-le-Hope, co. Essex.

APPOINTMENTS.

AMSLER, A. M., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Eton Union.

ANDERSON, James, M.A., M.B., C.M.Edin., B.Hy.Dunelm, Public Vaccinator, Cramlington District of Tynemouth Union, vice J. D. Dodd, M.B., B.S., deceased.

BOTHAM, Richard H., M.R.C.S Eng., Certifying Factory Surgeon for the Staindrop District, co. Durham.

DENNING, F. A. V., L.R.C.P.and S.Irel., Certifying Factory Surgeon for the Sligo District.

FINN, Charles N., M.B., Ch.B.Edin., Resident Medical Officer to the Royal Victoria Hospital for Consumption, Edinburgh.

HUGHES, Percy T., M.B., C.M., D.P.H., Medical Superintendent, Worcester County Asylum, Barnsley Hall, Bromsgrove

LYALL, W. Leslie, M.B., C.M.Edin., Non-resident Clinical Assistant to the Out-patient Department of the Royal Victoria Hospital for Consumption, Edinburgh.

MACLEAN, Alice W., M.B., Ch.B.Glasg., House-Surgeon at the Chorlton-upon-Medlock Dispensary, Manchester.

MORTON, John, M.B., C.M., Assistant Surgeon, Western Infirmary, Glasgow.

MURDOCH, W., M.D.Edin., Certifying Factory Surgeon for the Annan District, co. Dumfries.

PHILLIPS, H. J., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer to the London Open-air Sanatorium, Wokingham, Berks.

SALT, A. P., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Upton-on-Severn Union.

ROYAL EDINBURGH HOSPITAL FOR SICK CHILDREN.—The following have been appointed Resident Medical Officers for a period of six months from October 15th next: Louis Fourie, M.B., Ch.B.; Marie Hamilton, M.B., Ch.B.; Harley P. Milligan, M.B., Ch.B.; W. L. Robertson, M.B., Ch.B.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

FLEMING.—At 10, Chester Street, Edinburgh, on 7th August, the wife of Robert A. Fleming, M.D., F.R.C.P.E., of a son.

OSBORN.—On the 7th instant, at Ennismore House, Dover, the wife of Francis Arthur Osborn of a son.

SEATON.—August 4th, 1906, at 22, Blenheim Terrace, Leeds, the wife of Douglas Seaton of a son.

MARRIAGE.

FOWLER—GAMBLE.—Aug. 8th, at St. Peter's, Streatham, S.W., Edwin Samuel George Fowler, M.R.C.S.Eng., L.R.C.P.Lond., of Beechwood Crescent, Burley, Leeds, eldest son of Edwin Fowler, M.P.S., of Hull, to Mabel Gompertz, second daughter of the late Alderman Richard Gamble (sometime Mayor of Grantham), and Mrs. Gamble, of "Remsburg," 30, Knollys Road, Streatham, S.W.

DEATH.

HINTON.—July 26th, at Norden House, Winslow, Bucks, Joseph Hinton, M.R.C.S., L.R.C.P., L.S.A., aged 82. Interred at the Minster, Warminster, Wilts.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following arrangements have been made for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays; 2.30 p.m., Operations. Monday and Thursday, at 2.30 p.m., Diseases of the Eye. Tuesday and Friday, at 2 p.m., and Wednesday and Saturday, at 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Lectures: Monday, at 12 noon, Pathological Demonstration. Thursday, at 4 p.m., Demonstration on selected Eye Cases. Friday, Some Points in Middlecar Suppuration.

BOOKS, ETC., RECEIVED.

Reports from the Pathological Laboratory of the Lunacy Department, New South Wales Government. Vol. I, Part II. Sydney: W. A. Gullick. 1906. 4s. 6d.

The Rise and Progress of Hydropathy in England and Scotland. By R. Metcalfe. London: Simpkin, Marshall, Hamilton, Kent and Company, Limited. 1906. 3s. 6d.

Military Surgery in its Relation to the Science and Art of War. By "Miles." London: H. J. Drane. 6d.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
AUGUST.	
12 Sunday.....	
13 MONDAY	
14 TUESDAY.....	
15 WEDNESDAY	
16 THURSDAY...	
17 FRIDAY	
18 SATURDAY...	
19 Sunday	
20 MONDAY ...	
ANNUAL MEETING OF THE ASSOCIATION, TORONTO, CANADA.	
21 TUESDAY ...	9.30—12.30 a.m.—Meetings of Sections. 2.30 p.m. Address of Welcome; Introduction of Guests, Delegates, etc.; President's Address. 4.30 p.m. In University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve. 8.30 p.m. Address in Obstetrics, Dr. W. S. A. Griffith. 9.30 p.m. Reception by the Lieutenant-Governor.
22 WEDNESDAY	8 a.m. National Temperance League Breakfast. 9.30—12.30 a.m. Meetings of Sections. 2.30 p.m. Address in Medicine, Sir James Barr, M.D. 4.30 p.m. Garden Parties. 8.30 p.m. Address in Surgery, Sir Victor Horsley, F.R.S. 9.30 p.m. Reception.
23 THURSDAY...	9.30—12.30 a.m. Sectional Meetings. 4.30 p.m. Garden Parties. 7.30 p.m. Annual Dinner.

Date.	Meetings to be Held.
AUGUST *(continued).*	
24 FRIDAY	9.30—12.30 a.m. Sectional Meetings. 2.30 p.m. General Meetings. 4.30 p.m. Garden Parties. Excursions. 8.30 p.m. Soirée.
25 SATURDAY...	Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt. Excursion to Muskoka. Excursion to Lambton, through the courtesy of the President, Mr. Austin.
26 Sunday	
27 MONDAY	
28 TUESDAY.....	
29 WEDNESDAY	
30 THURSDAY...	
31 FRIDAY	
SEPTEMBER.	
1 SATURDAY...	
2 Sunday	
3 MONDAY	
4 TUESDAY.....	
5 WEDNESDAY	
6 THURSDAY...	
7 FRIDAY	
8 SATURDAY...	
9 Sunday	
10 MONDAY	
11 TUESDAY.....	
12 WEDNESDAY	
13 THURSDAY...	
14 FRIDAY.....	
15 SATURDAY...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 18TH, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

CAPE OF GOOD HOPE—EASTERN PROVINCE BRANCH:

GRAHAMSTOWN DIVISION.

AN ordinary meeting of this Division was held at Dr. FitzGerald's residence at 8 p.m. on July 13th. Dr. FITZGERALD was voted to the chair in the absence of the Chairman.

Confirmation of Minutes.—The minutes of the meeting of May 11th were read and confirmed.

Reports of Executive Committee.—The reports of the Executive Committee on (1) inter-colonial association for the study of enteric fever; (2) on the formation of a medico-political committee, and (3) of an ethical committee, were read and adopted, the necessary election being postponed.

Correspondence.—Correspondence with Government dealing with the question of clinical pathological research for the Eastern Districts was laid on the table, the Secretary to continue the correspondence.

Proposed South African Medical Association.—A circular letter was read *re* the formation of a proposed South African Medical Association. It was resolved:

That the Division appoints Dr. J. Bruce-Bays as its delegate at Bloemfontein, and empowers him to agree to the formation of a South African Medical Association, which shall provide for continuity in annual medical congresses *only*, but shall not undertake at present medical defence or benevolent schemes, nor exercise any authoritative control over existing medical associations nor claim to speak as representing medical opinion in the subcontinent of South Africa, unless instructed specifically on a given point by an annual congress. That in the event of Dr. Bruce-Bays being prevented from acting, any other member of the Division approved by him shall act as delegate, and shall be bound by this resolution.

Motor Cars for Medical Men.—DR. G. E. FITZGERALD read a paper on motor cars for medical men, describing in useful detail his experiences with various types of car in the last four years, contrasting the car with a buggy, to the disparagement of the latter, and finally specifying the requisites in a car for use in this district.—In the discussion that followed, in which most of those present joined, it was shown that the cost of keeping a cart and three horses worked out at an average for seven years of £136 per annum, as contrasted with Dr. FitzGerald's £154 per annum as estimated from a six months' record, in each case exclusive of wages to groom or boy. In each case the capital cost was included, that of the motor car being spread over a period of five years, the probable life of a car.

Vote of Thanks.—A vote of thanks to the author closed the proceedings.

SYDNEY AND NEW SOUTH WALES BRANCH.

THE regular monthly meeting was held at the Royal Society's Room, Sydney, on April 27th, Dr. F. A. POCKLEY, President, in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Letter.—An apology was received from the Honorary Secretary for non-attendance.

New Members.—The PRESIDENT announced the election of the following new members: Dr. R. Lamb (Wentworth Falls), Dr. G. Buchanan (Nyngan), Dr. T. E. Walton Smith (Royal Prince Alfred Hospital), Dr. Stuart Kay (Glebe Point), Dr. S. H. Harris (Sydney Hospital).

Communications.—Dr. C. H. LAWES exhibited a patient—a case of transposed viscera. Drs. POCKLEY and HERSCHELL HARRIS made some remarks upon the case.—Dr. L. HERSCHELL HARRIS read a paper on the use of the

diaphragm in Roentgenography. Drs. W. H. Read and C. E. Edwards made some remarks upon the paper.

Canvassing for the Position of Councillor.—Dr. L. J. Lamrock moved:

> That it is undesirable that any circulars should in future be sent to the members of the profession, soliciting in any way whatever their support of any particular men for the position of Councillors of the New South Wales Branch of the British Medical Association.

Seconded by Dr. Macdonald Gill. A discussion ensued, in which Drs. Gordon Craig, Sheldon, Abbott, Charles MacLaurin, Taylor Young, Clarence Read, George Armstrong, Pockley, Lipscomb, Thane, Perkins, and Crago took part. Dr. Lamrock then withdrew the resolution.

Notes of Cases.—Dr. Perkins read some notes on two cases of calculi, ureteric and renal.

The regular monthly meeting of the Branch was held on Friday, May 25th, at the Royal Society's Room, Sydney. Dr. Pockley (President) was in the chair. There were eighty-two members present.

Minutes.—The minutes of the previous meeting were read and confirmed.

Elections.—The President announced the election of the following gentlemen: Dr. Claude Browne, travelling; Dr. H. S. Marsh, Sydney Hospital; Dr. Basil Foulds, Camden; Dr. Edwin Doudney, Port Macquarie; Dr. Ludwig Bernstein, Lismore; Dr. J. B. St. Vincent Welch, Royal Prince Alfred Hospital; Dr. E. S. Harrison, Beecroft. The following were nominated for election: Dr. Charles Palmer, Sydney Hospital; Dr. A. T. Corfe, Peak Hill; Dr. Lincoln Jones, St. Vincent Hospital; Dr. R. A. Waugh, Paramatta; Dr. F. Goldsmith, Chatswood.

Resignation.—The President announced that Dr. Hankins had resigned his position as Councillor and Honorary Secretary owing to his departure from the State.

Motions.—Dr. Wilkinson gave notice of the following motions, which he intended to submit at the next meeting of the Branch:

1. That in the interests of medical ethics, of medical science, and of the New South Wales Branch of the British Medical Association, it is desirable that the editorship of the *Australian Medical Gazette* be declared vacant.
2. That the Council should forthwith proceed to elect a new editor or editors.

Cases.—Dr. W. J. Munro explained a microphotographic exhibit—hair affected with leptothrix.—Dr. Crago read notes on some cases of extrauterine pregnancy.—Dr. Newmarch exhibited a specimen—a Fallopian tube containing an ectopic pregnancy. Dr. McKay made some remarks on the paper.—Dr. Sinclair Gillies read some notes on the clinical value of the correct estimation of blood pressure.—Dr. Pockley read notes on a case of foreign body retained in the orbit for four years, and exhibited the specimen.

Election of Councillor.—The President stated that the next business was the election of a Councillor. Dr. Crago proposed that Dr. Todd should be elected to fill the vacancy on the Council caused by the resignation of Dr. Hankins. This was seconded by Dr. Quaife. Dr. Sandes proposed:

> That Dr. Mills be elected to fill the vacancy on the Council caused by the resignation of Dr. Hankins.

This was seconded by Dr. Nolan. Dr. Fiaschi proposed:

> That Dr. Binney be elected to fill the vacancy on the Council.

Dr. Gleeson seconded. A discussion ensued, in which Drs. MacLaurin, Chisholm, Brady, Sinclair Gillies, Newmarch, Worrall, George Armstrong, and Taylor Young took part. A ballot being demanded by the necessary number, the President announced that ballot papers would be issued, to be returnable not later than noon on Tuesday, June 5th.

The regular monthly meeting of the Branch was held on Friday, June 29th, at the Royal Society's Room, Sydney, Dr. F. A. Pockley, President, in the chair.

Confirmation of Minutes.—The minutes of the regular and special meetings were read and confirmed.

New Members.—The President announced the election of the following gentlemen as members: Dr. Charles Palmer, Sydney Hospital; Dr. A. T. Corfe, Peak Hill; Dr. Lincoln Jones, St. Vincent Hospital; Dr. R. A. Waugh, Paramatta; Dr. F. Goldsmith, Chatswood; Dr. A. L. Meares, Canowindra.

Communications.—Drs. Macdonald Gill and Sinclair Gillies exhibited a patient suffering from syncopal bradycardia. Notes on the case were read. Drs. Mills and Sinclair Gillies made remarks upon the case.—Dr. MacCormick and Professor Welsh read a paper on sarcomata of the stomach. Drs. Hinder, Fiaschi, and Crago made some remarks on the cases. Dr. MacCormick replied.—Dr. A. E. Mills read a paper on the general principles of therapeutic inoculation with special reference to tuberculin. A discussion ensued, in which Professor Welsh, Drs. Gill, Stokes, Sinclair Gillies, and Litchfield took part. Dr. Mills replied.—Dr. Stacy exhibited bilharzia haematobia, and read some clinical notes.

CENTRAL EMERGENCY FUND.

Approved by the Central Council and Annual Representative Meeting.

At the Meeting of the Central Council of the British Medical Association, on December 13th, 1905, the following resolution was adopted:

> That a Central Emergency Fund for dealing with disputes in cases of contract practice, and otherwise, under the management of the Medico-Political Committee, be created by voluntary subscription.

The Medico-Political Committee, on the recommendation of the Contract Practice Subcommittee, has prepared the following Scheme for the purpose:

SCHEME OF THE FUND.

1. The Fund is created by voluntary subscription, to assist members of the profession in various parts of the country in maintaining the interests of the profession against organized bodies of the community.

2. All members of the profession are invited to contribute. Any contribution may be earmarked for use in specified disputes, or for application to special methods of carrying out the objects of the Fund, and when not so earmarked shall be deemed to be given for disposal at the discretion of the Medico-Political Committee in carrying out the general objects defined in Clause 1. At the termination of any special dispute for which funds may have been earmarked, the balance (if any) shall be merged in the General Fund.

3. Subject to the conditions defined in this Scheme, the Fund shall be under the entire control of the Medico-Political Committee of the British Medical Association, and shall be vested in the names of the Chairman of the Committee and the Treasurer of the Association, as representing the Committee. Payments shall only be made on the authority of a resolution of the Medico-Political Committee, or of a Subcommittee of the Medico-Political Committee acting under powers specifically delegated by the Committee.

4. The Fund may be applied for the promotion of the general objects stated in paragraph 1 in any of the following ways:

(*a*) By a grant or grants to any individual practitioner to assist him in maintaining any position in which the Association shall have decided to support him, or to compensate him for losses which he shall have incurred through taking action approved by the Association.

(*b*) By a grant or grants to any Division or Branch in the British Medical Association, for its assistance in defraying expenses incident to the conduct of local disputes falling within the scope of the objects of the Fund.

(*c*) By expenditure under direct supervision of the Medico-Political Committee, or of a Subcommittee of that Committee, for the purpose of any action which the Medico-Political Committee may deem necessary or advisable for the promotion of the general objects of the Fund.

The Annual Representative Meeting of the Association, on July 27th, 1906, considered and approved the foregoing Report of the Medico-Political Committee.

The Emergency Fund is now opened, and contributions will be received, on behalf of the Medico-Political Committee of the Association, by the Medical Secretary, 429, Strand, London, W.C., of such sums, and at such periods—yearly, quarterly, monthly, or weekly—or as separate donations, as may be convenient to the Donors.

Donors are kindly requested to make cheques or postal orders—which should be crossed "London and Westminster Bank, Bloomsbury Branch"—payable to the order of the Medical Secretary, British Medical Association.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

In the Supplement to the British Medical Journal of August 11th (page 156) there was published a letter addressed by the Chairman of Council of the British Medical Association to the Clerk of the Privy Council, asking that further time be allowed for the presentation of objections in regard to the prayer of the Hospital Sunday Fund of London for the grant of a Royal Charter of Incorporation. The following reply has been received by the Chairman of Council:

Privy Council Office,
London, S.W.,
9th August, 1906.

Sir,

Referring to your letter of the 7th instant, I have to state that no formal extension of the time within which petitions should be lodged for or against the proposed grant of a Charter to the Metropolitan Hospital Sunday Fund can be made, but any representations received later than the date named (September 3rd) will be duly considered by the Committee of Council, subject to the importance of dealing with the application without unnecessary delay.

I am, Sir,
Your obedient Servant,
(Signed) A. W. FitzRoy.

The Chairman of Council,
British Medical Association.

MEDICAL ATTENDANCE ON THE WORKING CLASSES.*

By J. H. KEAY, M.A., M.D.,
GREENWICH.

[Abstract.]

After some introductory remarks on the importance of due provision being made for the well-being of the working classes, the backbone of the country, and the difficulties attendant thereon, Dr. Keay said: It is not, however, to the provinces or outlying districts I ask your attention to-night, but to the million and a half or more in London who are not earning a living wage and who certainly are not in a position to pay a doctor's bill. Now, in trying to solve this problem there are two principles I would lay down which I trust will not meet with much opposition: (1) That if any conclusion is to be arrived at as to the best means of attending the labouring classes, it must be by those best acquainted with the subject, namely, by medical men themselves; (2) that if we wish the public to be guided by any conclusion we arrive at, we must first convince them that we had not considered the question from a merely narrow-minded or selfish point of view. It seems quite time that we had made up our minds whether we desire the public to regard us as a trade or a profession. If, on the one hand, our main end in life is to extract money from our patients and the public, then assuredly we are a trade. If, on the other hand, we are prepared at some sacrifice to follow the traditions of the past and to regard our patients' welfare and the public health as the first consideration, we may claim to be a profession.

Proceeding, the speaker said: In discussing the question of medical attendance on the working classes I do not intend to refer to foremen, skilled artisans, and others earning £2 or more a week. These men can quite afford to pay a doctor's bill. Take even the case of the man earning, say, 30s. to 35s. week. He may find it a difficult matter to pay a doctor's bill, but it would probably be to his advantage if he contrived to do so. It is the position of the million or more in London who, according to Booth and others, are living in households where the earnings are not more than 25s. a week, that I wish you specially to consider. These men are not earning a living wage, and, after paying high rents, they are certainly not in a position to pay a medical man half a crown or even one and sixpence a visit when there is a prolonged attendance. How, then, are they to be medically attended? The reply is at once forthcoming, that in our poorer districts there are any number of medical men willing to attend them for less, and whose fee for advice and medicine is sixpence or even fourpence. But can this attendance be regarded as satisfactory? Far be it from me, in the present disorganized state of the profession, to blame the sixpenny doctor. I detest the cheap sneers of prosperous medical and business men at those who are compelled by the force of circumstances to do cheap practice. Can a medical man living in a poor neighbourhood do otherwise, when he has to compete with hospitals giving medicine and advice free of charge, or, worse still, for the few coppers that sooner or later come to be regarded by the labouring classes as the correct value of the attendance? Among those doing cheap practice one finds here and there a medical man who is not doing so by compulsion, but because he believes it better to accept small sums than that the poor should be utterly demoralized by charity. To this there is the obvious objection that a medical man charging small fees cannot always carefully inquire into a patient's circumstances, and so has always on his list a number who are quite able to pay an adequate fee. It must be admitted, however, that the greater number who adopt cheap practice do so because they regard it as remunerative, and, doubtless, it can be made remunerative, if no time be given for diagnosis and the patient receives for any symptom or disease of which he chooses to complain medicine doled out from cheap stock mixtures in such doses that he must return day after day for a fresh supply. This treatment may please the ignorant patient, but it is a great loss to the wage-earning power of the community. It has now, I fear, however, become so prevalent that cheap practice cannot be regarded as an ideal solution of the vexed question of medical attendance.

But why, say some medical men with whom I have spoken, trouble about these people? Let them apply to the parish. The medical men who speak thus are not, I may say, those who practise in the poorest districts and depend to a large extent on the small but welcome fees of the working classes, nor are they the men who are best acquainted with the subject. It is quite true that a person not receiving parish relief may readily get an order for medical attendance from the parish, and that often with little or no difficulty, as a relieving officer well knows that the consequence of his refusal may be a censure from the coroner or a Local Government Board inquiry. By this means the burden of medical attendance on the poorer labouring classes is thrown on the rates. To this many would probably offer no objection, provided they were assured that medical orders would be given only to those who are really deserving. To medical orders there is, however, the strong objection that they are a prolific source of pauperism. The medical order is often asked for, not on account of illness, but because by this means an order may possibly be obtained for food or stimulants, and when this order is once got, no long time generally elapses before the family are in receipt of relief in the regular form. In connexion with this matter one cannot fail to note the new departure at Lambeth. The Lambeth Guardians, with consent of the Local Government Board, have appointed as parish doctors men who give their whole time to attending paupers and those who

* A paper read before the West Kent Medico-Chirurgical Society.

obtain medical orders. What the result of this new departure may be it is as yet too soon to say, but no one can fail to perceive that it may have far-reaching consequences and entirely alter our mode of practice by placing on the rates the burden of medical attendance not only of paupers but of the more poorly paid of the working classes.

A wider scope is also being given in some districts to Poor-law infirmaries where not only the destitute are admitted, but workmen suffering from accident, and others who recognize that as good medical attendance and as much comfort are to be obtained in some of our infirmaries as in the regular hospitals. In the borough of Lewisham, for example, there happens at the present time to be at the head of the infirmary an extremely popular and able medical officer, and the consequence is that many enter that infirmary who would otherwise go to a regular hospital. There is much to be said in favour of this system, and, as rates are largely paid by the working classes, the logical issue is that a working man who enters an infirmary does more to preserve his independence than when he enters a hospital. At the same time it must be said that it is extremely doubtful whether it is well that respectable working men should enter infirmaries with their traditional associations and occupy the same wards as the actually destitute, or whether the time has yet arrived when medical attendance on artisans and small shopkeepers should be thrown on the rates.

As medical men, we must, then, admit that the problem of attendance on the labouring classes has not yet been solved either by the Poor Law or the cheap doctor. Do we, then, agree with that large section of the charitable public who evidently believe that it can be solved by hospitals? Burdett tells us that considerably over two million, or about half the population of London, are attended by hospitals or Poor-law institutions. Have we not, then, in hospitals ample provision for the wants of the labouring poor? Unfortunately not. Medical men well know, and the charitable public are beginning to recognize the fact, that the two millions who frequent the hospitals are not all poor, that many of them are well-to-do and some of them in affluent circumstances, and that the overcrowding of hospitals by this class is putting the poor in the background and preventing them from receiving the attention they ought from the overworked medical staff. Hospital physicians and surgeons may be wroth with me, but I cannot help expressing my honest conviction that those suffering from trivial and sometimes even from serious illnesses are as well attended by the sixpenny doctor as in the out-patient departments of some of our hospitals, and, according to the figures of the Hospital Sunday Fund, at one-third or one-fourth the cost.

[After some further consideration of the hospital question, the speaker continued:]

Without referring further to these objections we may take it for granted that hospitals, when properly conducted, serve a most beneficent and necessary purpose. The difficulty lies in the fact that so many interests are involved in the perpetuation of their overcrowding and abuse, that it will be by no means easy to get rid of it without revolutionizing the whole system. Some already go so far as to say that the abuse is so chronic that the only remedy is municipalization. The conclusion is natural in the present position, and not a few of the members of the London County Council, I understand, strongly favour it. I cannot trespass on your patience by discussing its merits and demerits, but this much I must say, that if medical men on the staff of hospitals are paid by the State and those in general practice are not, the result must sooner or later necessarily be the almost complete exit of the family practitioner, and a further severance of those family ties on the maintenance of which the material prosperity and character of a nation so largely depend.

Is it, then, too late in the day for us as medical men to find a remedy? I believe the remedy is in our power and it only needs a little self-abandonment and enthusiasm on our part to obtain it. Our thanks are due to those members of the British Medical Association who have toiled hard in this matter, and to the proposals put forward by them I can see no reasonable objection. The system is already in full working order at the Bolingbroke Hospital, which provides not only for Wandsworth and Clapham but for the poor of Battersea, and I understand the President of the Local Government Board is justly proud of the share he took in bringing it about. The *modus operandi* has been well described by Dr. Hughes, the Medical Superintendent, who kindly gave me these cards, which explain his words which I now quote: "In the casualty department all cases are seen once and attended to by the casualty officer. If further treatment is required the patient is given a card which has to be brought signed by a medical practitioner. In the out-patient department the surgeons and physicians do not see patients unless they are accompanied by their own medical attendant or bring a card or letter from such medical attendant. No medicinal treatment is given either in the casualty or the special out-patient departments. If medicine is required it is given by the patient's own medical man." It is easy to perceive how great a gain this must be in the long run to the consultant, practitioner, and the public in general. If this be the remedy—and I certainly think it the best—then by all means let us work for it, and see to it that institutions so noble and beneficent in character be freed from abuse and conserve the purpose for which they were designed.

This brings us to the consideration of contract practice, as without contract practice radical reform in hospital management seems impossible. The report on this subject made by the Medico-Political Committee of the British Medical Association, and published in July last year, ought to be read by every medical man. The salient points in it are: (1) That contract practice is often badly paid; (2) that there are many paying small contract sums that could well afford to pay a doctor's bill; (3) that the contract patient often expects more attendance than is reasonable—an amount of attendance, in fact, that would be resented by a private patient; (4) that there is a possible tendency for men largely engaged in contract practice to become slipshod and superficial in their work. While we readily admit that there is much force in all these objections, there are, I should think, but few medical men at all acquainted with the subject who will deny that in some districts at least contract practice has become in some form or other an absolute necessity. Some of us may heartily dislike it, and, while readily admitting that medical attendance is more satisfactory where no contract practice is required, yet I hold that to a verdict like this we must unhesitatingly submit if we are to be loyal to the best interests of our profession. Further, it has become evident that the charitable public, many of whom take an intelligent interest in the welfare of the working classes, will never abandon the open door of hospital management till we can plainly show them that we are fully prepared in all possible circumstances to provide without hardship for the wants of the labouring poor. If any escape is ever to be found from our present most unsatisfactory position it will not be gained by our wasting time in considering whether contract practice is desirable or not, but in a strenuous and united effort to remedy its abuses and so to regulate its details that it may meet the requirements not only of medical men but of the working classes themselves.

We need not discuss the various forms of contract practice, such as clubs, provident dispensaries, and public medical services. The main difficulty lies in the fact that the drunkard, the loafer, and the improvident of the working classes, many of whom are in receipt of good wages, will not join a provident dispensary or pay a contract fee for medical attendance so long as they find they can readily get a medical order from the parish or free attendance at a hospital.

Now one word as to the prognosis. That of course must depend largely on political and social developments which it is difficult to forecast, but you will forgive me for repeating that what the mode of attendance will be in the future may and ought to be decided by medical men themselves. [After allusion to recent educational developments, Dr. Keay said:] There is not one of these arguments that could not be urged with as much or even greater force in favour of free medical attendance. Education was made compulsory. Medical attendance is also compulsory. If a child dies in London who has not been attended by a medical man, there follows the inquest, in many cases the coroner's censure, and sometimes the imprisonment of the parent. The cost for medical attendance would be vastly less than the cost of free education. The London County Council is expending at the present time about £7 per

annum on the education of each child, while the ordinary fee of medical men doing contract practice is 2s. 2d. per annum. I have been credibly informed of one rural district in England where the medical man attends children within a radius of six miles for 8d. per annum. Further, even as regards medical attendance, the trend, as we have seen, is in a socialistic direction. We have seen how at Lambeth and elsewhere the attendance not only on paupers but on the poor of the labouring classes is thrown on the rates. We see it in the hospitals for infectious diseases, where the cost not only of medical attendance but of board and lodging for rich and poor is also thrown on the rates. We see it in the proposal to municipalize hospitals. A bad day, you say, it will be for medical men when a Bill for free medical attendance is passed. A bad day it may be for the country in general, just as some of us may possibly think it was a bad day for the country when free education was granted, and there now follows in its wake the demand for free breakfasts and much else. I am not at all sure that it would be a bad day for medical men.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: GEORGE A. S. BELL, Fleet Surgeon, to the *President*, additional, for examination of Royal Marine candidates, August 13th; D'ARCY HARVEY, Fleet Surgeon, additional, for three months' course at West London Hospital, August 20th; EDWARD A. G. WILKINSON, Surgeon, to the *Pembroke*, additional, for disposal (lent to Yarmouth Hospital, temporary), September 1st.

SIDNEY E. BARRETT, M.B., civil practitioner, has been appointed Surgeon and Agent at Tillingham, Bradwell, and Stangate.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL C. J. W. TATHAM retires on retired pay, August 11th. He was appointed Surgeon, July 28th, 1886; Major, July 28th, 1898; and Lieutenant-Colonel, July 28th, 1906. He was in the South African war in 1899-1902, being present in operations in Cape Colony south of the Orange River; he has received the Queen's medal with clasp and the King's medal with two clasps.

Lieutenant-Colonel R. CALDWELL has been appointed Specialist Sanitary Officer of the Western area of the Southern Command.

Captain C. S. CATO resigns his commission, August 15th. He was appointed Lieutenant, December 4th, 1899, and Capt.-in, December 4th, 1902. He served in the South African war in 1899-1902, and was present in operations in the Orange Free State, the Transvaal, Orange River Colony, and Cape Colony, and in numerous engagements with the enemy. He has received the Queen's medal with six clasps and the King's medal with two clasps.

RECENT PROMOTIONS.

As briefly announced in the BRITISH MEDICAL JOURNAL of last week, the undermentioned majors are promoted to be lieutenant-colonels, dated July 28th: C. H. BURTCHAELL, M.B., J. J. GERRARD, M.B., J. S. DAVIDSON-WILL, M.B., J. FALLON, J. V. SAUNDERS, M.D., A. R. ALDRIDGE, M.B., J. FAYRER, M.D., F.R.C.S.Edin., C. J. MACDONALD, M.B., C. J. W. TATHAM, T. H. F. CLARKSON, C. GARNER, M.B., R. W. WRIGHT, E. ECKERSLEY, M.B., R. J. C. COTTELL, D. HENNESSY, M.D., D. M. SAUNDERS, M.D., D. M. O'CALLAGHAN, M. J. WHITTY, M.D., J. F. DONEGAN, J. DONALDSON, H. B. MATHIAS, D.S.O., G. H. BAREFOOT, F. R. NEWLAND, M.B., R. J. WINDLE, M.B., J. J. RUSSELL, M.B., A. G. SCOPE, M.B., H. G. FALLON, M.B., and R. HOLYOAKE, T. DU B. WHAITE, M.B., H. T. KNAGGS, M.D., F. S. LE QUESNE, V.C., R. H. PENTON, D.S.O., W. S. DOWMAN, A. L. F. BATE. Lieutenant-Colonels Burtchaell and Gerrard entered the service as Surgeon-Captains, July 28th, 1891; all the other officers cited on July 28th, 1886. They were made Majors: Lieutenant-Colonel Penton, November 16th, 1898; Lieutenant-Colonel Dowman, November 23rd, 1898; Lieutenant-Colonel Bate, April 25th, 1899. The others mentioned, July 28th, 1898. Their war records are as follow:—Lieutenant-Colonel Burtchaell—Campaign on the North-West Frontier of India, 1897-8 (medal with clasp); Tirah expedition, 1897-8, including actions of Chagcu Kotal and Dargai, capture of the Sampagha and Arhanga Passes, and various operations (mentioned in dispatches, promoted to be Surgeon-Major, clasp); South African war, 1899-1902, including advance on Kimberley, actions of Belmont, Enslin, Modder River, and Magersfontein, and operations in the Orange Free State, the Transvaal, and Orange River Colony (mentioned in dispatches, Queen's medal with four clasps, King's medal with two clasps). Lieutenant-Colonel Gerrard—Campaign on the North-West Frontier of India, 1897-8 with the Tirah Expeditionary Force (mentioned in dispatches, promoted to be Surgeon-Major, medal with two clasps); South African war, 1899-1902, including operations in the Transvaal and Orange River Colony (Queen's medal with three clasps, King's medal with two clasps). Lieutenant-Colonel Fallon—South African war, 1899-1902, including operations in the Orange Free State, the Transvaal, the Orange River Colony, and Cape Colony, and various actions (mentioned in dispatches, Queen's medal with three clasps, King's medal with two clasps). Lieutenant-Colonel Aldridge—Tibet, 1903-4 (mentioned in dispatches). Lieutenant-Colonel Macdonald—South African war, 1899-1902, including operations in Orange Free State, the Transvaal, Orange River Colony, and Cape Colony south of Orange River, and various actions (Queen's medal with four clasps, King's medal with two clasps). Lieutenant-Colonel Tatham—South African war, 1899-1902, including operations in Cape Colony south of Orange River (Queen's medal with clasp, King's medal with two clasps). Lieutenant-Colonel Clarkson—Nile expedition, 1898, including the battle of Khartoum (British medal, and Egyptian medal with clasp). Lieutenant-Colonel Eckersley—Ashanti expedition, 1895-6 (star); South African war, 1899-1902, including relief of Ladysmith, actions of Colenso, Spion Kop, and Vaal Kranz, and Pieter's Hill, and operations in Natal, the Transvaal, and on the Zululand Frontier (Queen's medal with five clasps, King's medal with two clasps). Lieutenant-Colonel Cottell—South African war, 1899-1902, including operations in the Orange Free State, the Transvaal, Orange River Colony, and Cape Colony south of Orange River, and several actions (Queen's medal with three clasps, King's medal with two clasps). Lieutenant-Colonel Hennessy—Operations in Zululand, 1888. Lieutenant-Colonel Saunders—South African war, 1899-1901 (Queen's medal with clasp). Lieutenant-Colonel O'Callaghan—Ashanti expedition, 1895-6 (star); Nile expedition, 1898, including the battle of Khartoum (mentioned in dispatches, British medal, and Egyptian medal with clasp). Lieutenant-Colonel Donegan—Burmah, 1887-9 (medal with clasp) and in 1889 with the Poukhan and Tonhon expeditions (clasp); North-West Frontier of India campaign, 1897-8 (medal with clasp); South African war, 1899-1902, including the defence of Ladysmith, operations in Natal, the Transvaal, Orange River Colony, and on the Zululand Frontier, and various actions (Queen's medal with five clasps, King's medal with two clasps). Lieutenant-Colonel Donaldson—Burmese expedition 1888-9 (medal with clasp); South African war, 1902, including operations in Orange River and Cape Colonies (Queen's medal with two clasps). Lieutenant-Colonel Mathias—Nile expedition, 1898, including the battles of the Atbara and Khartoum (mentioned in dispatches, appointed D.S.O., British medal, and Egyptian medal with two clasps); South African war, 1899-1902, with Princess Christian's Hospital (mentioned in dispatches, Queen's medals with two clasps, King's medal with two clasps). Lieutenant-Colonel Barefoot—Hazara expedition, 1888 (mentioned in dispatches, medal with clasp). Lieutenant-Colonel Newland—South African war, 1901-2, including operations in the Transvaal, Orange River Colony, and Cape Colony (Queen's medal with five clasps). Lieutenant-Colonel Russell—South African war, 1899-1902, in Cape Colony (Queen's medal with clasp, King's medal with two clasps). Lieutenant-Colonel Scott-Burmese expedition, 1887-9 (medal with clasp). Lieutenant-Colonel Hosie—Operations in Sierra Leone, 1898-9, as Senior Medical Officer, Falaba Columns (medal with clasp); South African war, 1899-1902 (Queen's medal with two clasps, King's medal with two clasps). Lieutenant-Colonel Holyoake—Operations of the Zaila Field Force in 1890; South African war, 1899-1901, including the defence of Ladysmith, operations in Natal, the Transvaal, and Orange River Colony, and various actions (Queen's medal with six clasps). Lieutenant-Colonel Whaite—South African war, 1899-1902, including the relief of Kimberley, and operations in Orange Free State (at Paardeberg, and severely wounded at Dreifontein), and the Transvaal (Queen's medal with four clasps, King's medal with two clasps). Lieutenant-Colonel Knaggs—South African war, 1899-1902, including operations in the Transvaal, Orange River Colony, and Cape Colony south of Orange River (Queen's medal with three clasps, King's medal with two clasps). Lieutenant-Colonel Le Quesne—Burmese expedition, 1889 (severely wounded in operations against the Chins, medal with clasp and Victoria Cross); Chin-Lushai expedition, 1890 (clasp); Burmah, 1891, with Wuntho Field Force and Kaukwee expedition (clasp); South African war, 1901-2, in Cape Colony (Queen's medal with three clasps). Lieutenant-Colonel Penton—Bogula expedition, 1896 (mentioned in dispatches, appointed D.S.O., Egyptian medal with two clasps); Nile expedition, 1898, including the battles of the Atbara and Khartoum, at the latter being the Senior Medical Officer of the Infantry Division of the Egyptian Army (mentioned in dispatches, promoted to be Major, granted the Fourth Class of the Order of the Osmanieh, British medal, and two clasps to Egyptian medal); Nile expedition, 1899, as Principal Medical Officer of the Egyptian Army during its first advance against the Khalifa (clasp to Egyptian medal, Third Class of Medjidieh). Lieutenant-Colonel Dowman—South African war, 1899-1892, including the relief of Ladysmith and operations in Cape Colony, the Transvaal, and Orange River Colony (mentioned in dispatches, Queen's medal with four clasps, King's medal with two clasps). Lieutenant-Colonel Bate—Sikkim expedition, 1888; South African war, 1899-1902, including the relief of Ladysmith and operations in Natal and the Transvaal (Queen's medal with four clasps, King's medal with two clasps).

We also last week noted that Captains J. P. SILVER, S. W. SWEETNAM, W. S. HARRISON, M.B., and H. A. L. HOWELL had been promoted to be Majors, the first two from July 28th, the two latter from July 29th. Majors Silver and Sweetnam joined as Surgeon-Lieutenants, July 28th, 1894, and were made Surgeon-Captains, July 28th, 1897. Majors Harrison and Howell were appointed Surgeon-Lieutenants, July 29th, 1895, and Surgeon-Majors, January 29th, 1898. Majors Silver and Harrison were in the North-West Frontier of India campaign in 1897-8 with the Tirah Expeditionary Force, receiving a medal with two clasps. Majors Sweetnam and Howell have no war record.

RECENT RETIREMENTS.

Last week we briefly announced the retirement from the service, from July 28th, of the following Majors, namely: J. MOIR, M.B., H. A. CUMMINS, C.M.G., M.D., G. BENT, E. S. MARSHALL, C. ALLCOCK, T. BROWNING, R. N. BUIST, M.B., and W. I. TROTTER. The last-named officer was appointed Surgeon, July 28th, 1886, and Major, February 5th, 1899; all the others were appointed Surgeon, July 28th, 1886, and Major, July 28th, 1898. Their war records are as follow:—Major Moir: South African war, 1900, including operations in Cape Colony north of Orange River (Queen's medal with three clasps). Major Cummins: Sikkim expedition, 1888 (medal with clasp); Ashanti expedition, 1895-6 (star); South African war, 1899-1901 (mentioned in dispatches, appointed C.M.G., and granted Queen's medal with three clasps). Major Bent: Hazara expedition, 1888 (medal with clasp). Major Marder: Burmese expedition, 1888-90 (medal with two clasps); Nile expedition, 1898, including the battle of the Atbara (British medal and Egyptian medal with clasp). Major Allport: Burmese expedition, 1888-9 (medal with clasp); South African war, 1899-1902, including operations in the Transvaal, Orange River Colony, and Cape Colony south of Orange River (Queen's medal with three clasps, King's medal with two clasps). Major Browning: South African war, 1899-1902, including the relief of Ladysmith and operations in Natal and on the Zululand frontier (mentioned in dispatches, Queen's medal with clasp, King's medal with two clasps). Major Trotter: Isazai expedition, 1892; campaign on the North-West Frontier of India, 1897-8 (medal with two clasps).

INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL W. O'HARA, Madras Establishment, is appointed Principal Medical Officer, Burmah Division.

Lieutenant-Colonel J. SHEARER, M.B., D.S.O., Bengal Establishment, is confirmed in the appointment of Principal Medical Officer, Derajat and Bannu Brigades.

ROYAL MILITIA OF THE ISLAND OF JERSEY.

SURGEON-MAJOR F. N. GAUDIN, 2nd or East Battalion (Light Infantry), resigns his commission, July 24th.

IMPERIAL YEOMANRY.

FREDERIC W. LONGHURST to be Surgeon-Lieutenant in the 2nd County of London (Westminster Dragoons), July 16th.

JOHN McWATT, M.B., formerly Surgeon-Lieutenant, 2nd (Berwickshire) Volunteer Battalion the King's Own Scottish Borderers, to be Surgeon-Lieutenant in the Lothians and Berwickshire Regiment, July 7th.

Surgeon-Lieutenant L. A. AVERY, Suffolk Regiment (the Duke of York's Own Loyal Suffolk Hussars), to be Surgeon-Captain, August 15th.

Surgeon-Lieutenant J. H. DAUBER, M.B., Sussex Regiment, to be Surgeon-Captain, August 15th.

CHANGES OF STATIONS.

THE following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during July, 1906:

	FROM	TO
Surg.-Gen. W. B. Slaughter	Western Comd.	Eastern Comd.
,, F. W. Trevor, M.B.	Poona	Western Comd.
Colonel G. W. Robinson	London	Colchester.
,, O. Todd, M.B.	Egypt	India.
Lieut.-Col. J. R. Dodd, M.B.	Borelly	Ramkhet.
Major L. E. A. Salmon	Horfield	Devonport.
,, G. A. Wade, M.D.	Portland	Horfield.
,, L. Way	Allahabad	Calcutta.
,, G. S. McLoughlin, D.S.O., M.B.	Brighton	Colchester.
,, H. J. Parry, D.S.O., M.B.	Bloemfontein	Maritzburg.
,, J. E. Carter, M.B.	—	Middelburg, Cape Colony.
Captain H. W. Grattan	—	R. A. M. Coll.
,, J. C. B Statham	—	Pretoria.
,, W. A. Ward	Millbank	R. A. M. Coll.
,, E. T. F. Birrell, M.B.	R. A. M. Coll.	Aldershot.
,, S. A. Archer	,,	Dublin.
,, G. E. F. Stammers	Pembroke Dck.	R. A. M. Coll.
,, M. P. Corkery	Portland	,,
,, R. E. G. Phillips	Dublin	London.
,, P. MacKessack, M.B.	R. A. M. Coll.	Edinburgh.
,, J. Poe, M.B.	,,	Aldershot.
,, H. L. W. Norrington	Gosport	R. A. M. Coll.
,, M. M. Lowsley	R. A. M. Coll.	Aldershot.
,, N. H. Ross, M.B.	,,	Eastern Comd.
,, G. J. S. Archer, M.B.	Armagh	R. A. M. Coll.
,, C. W. Mainprise	R. A. M. Coll.	Aldershot.
,, H. B. G. Walton	Exeter	R. A. M. Coll.
,, A. L. Scott	Aldershot	,,
,, M. H. G. Fell	R. A. M. Coll.	Southern Cmd.
,, T. C. Lauder, M.B.	,,	Edinburgh.
,, G. M. Goldsmith, M.B.	,,	York.
,, D. Harvey, M.B.	,,	London Dist.
,, N. J. C. Rutherford, M.B.	London Dist.	R. A. M. Coll.
,, L. Humphry	R. A. M. Coll.	Eastern Comd.
,, F. Ashe	Dover	R. A. M. Coll.
,, R. A. Cunningham, M.B.	R. A. M. Coll.	Western Comd.
,, V. J. Crawford	,,	Edinburgh.
,, G. G. Delap, D.S.O.	Millbank	R. A. M. Coll.
,, J. J. W. Prescott, D.S.O.	R. A. M. Coll.	York.
,, P. H. Falkner	,,	Western Comd.
,, E. Ellery	Gosport	R. A. M. Coll.
,, J. W. Langstaff	R. A. M. Coll.	Western Comd.
,, J. I. W. Morris	,,	Edinburgh.
,, J. H. R. Bond	Bulford	R. A. M. Coll.
,, H. M. Morton	Edinburgh	,,
,, F. G. Richards	Aldershot	,,
,, H. S. Roch	Fermoy	Cork.
,, F. Harvey	Deepcut	Aldershot.
,, E. W. Siberry	Cork	R. A. M. Coll.
,, A. M. MacLaghlin, M.B.	R. A. M. Coll.	London Dist.
,, E. McDonnell, M.B.	Cork	R. A. M. Coll.
,, A. F. Carlyon	Okehampton	,,
,, James M. Buist, M.B.	Colchester	,,
,, B. R. Dennis, M.B.	Wool Camp	Gosport.
,, W. J. P. Adye-Curran	Queenstown	R. A. M. Coll.
,, E. G. Ford, M.B.	Manchester	,,
,, H. B. Fawcus, M.B.	York	Newcastle-on-Tyne.
,, J. M. Cuthbert, M.B.	Edinburgh	Stirling.
,, F. McLennan, M.B.	,,	Fort George.
,, A. F. Weston	Colchester	Bedford.
,, F. G. FitzGerald	Shorncliffe	West Africa.
,, E. Bennett	Devonport	R. A. M. Coll.
,, J. Tobin	Cork	Limerick.
,, H. F. Sise, M.B.	R. A. M. Coll.	London Dist.
,, P. J. Bodington, M.B.	London Dist.	R. A. M. Coll.
,, F. A. Stephens	Stobs Camp	,,
,, E. F. Q. L'Estrange	R. A. M. Coll.	Western Comd.
,, R. F. M. Fawcett	Woolwich	Hounslow.
,, J. W. West, M.B.	Newry	Belfast.
,, A. R. C. Parsons	Fargo Camp	Rolleston Camp.
,, J. B. Cautley	Northn. Comd.	Aldershot.
,, R. N. Woodley	Cork	Kinsale.
,, F. W. Lambelle	Edinburgh	Leith Fort.
,, D. S. Skelton	West Down Camp	Devizes.
Lieutenant O. Ievers, M.B.	Middelburg, Cape Colony	Wynberg, Cape Colony.
,, E. J. H. Luxmoore	Meerut	Simla.
,, H. G. Sherren	Parkhouse Camp	Bulford.
,, C. E. W. S. Fawcett, M.B.	Cork	Bere Island.
,, A. M. Rose, M.B.	Netley	Bustard Camp.
,, R. A. Bryden	Longmoor	Bordon.
,, E. L. Moss	Netley	Dorchester.
,, A. F. S. Irvine	Dublin	Curragh.
,, M. B. H. Ritchie, M.B.	Netley	West Down Camp.
,, M. J. Cromie	Aldershot	Edinburgh.
,, G. W. W. Ware, M.B.	Mosney Camp	Belfast.
,, C. F. White, M.B.	Curragh	Kilcullen Camp.
,, F. C. Sampson, M.B.	Finner Camp	Londonderry.
,, H. Stewart, M.B.	Dublin	Kilbride.

Lieutenant R. J. C. Thompson, who was appointed on probation, January 31st, 1905, is posted to the London District.

Lieutenants C. J. Wyatt, M.B., and R. S. Smyth, M.D., appointed on probation, July 31st, 1905, are stationed at Dublin.

The undermentioned Lieutenants, appointed on probation January 30th, 1906, are appointed to the stations specified: C. M. Drew, M.B., London District; A. A. Sutcliff, M.B., Netley; A. G. Cummins, M.B., Dublin; A. S. Littlejohns, Woolwich; W. R. Galwey, M.B., Dublin; R. G. Archibald, M.B., R.A.M. College; F. A. M'Cammon, M.B., Dublin; W. Egan, M.B., Netley; R. G. H. Tate, M.D., Dublin; A. Dawson, M.B., London District; F. Forrest, Colchester; V. C. Honeybourne, Dover; C. T. Edmunds, Aldershot; C. R. M. Morris, M.B., and R. E. U. Newman, M.B., Cork; E. W. M. Paine and F. D. G. Howell, Netley; W. H. Gillatt, M.B., and P. Sampson, Aldershot; M. G. Dill, M.B., Dover; J. B. G. Mulligan, Dublin; E. M. O'Neill, M.B., G. B. Edwards, W. C. Smales, and A. H. Bond, Netley; T. C. C. Leslie and T. T. H. Robinson, M.B., Aldershot; D. De C. O'Grady, Dublin; L. G. Gibson, Aldershot; P. S. Stewart, M.D., Cork.

COLONIAL CONTINGENTS.

THE name of Lieutenant FRANCIS JOHN DOUGLAS, Medical Officer, 3rd Contingent South Australian Bushmen, is as now described, and not as stated in the *Gazette* of September 5th, 1905.

Vital Statistics.

THE REGISTRAR-GENERAL'S QUARTERLY RETURN.

THE Registrar-General has just issued his return relating to the births and deaths in the second quarter of the year, and to the marriages during the three months ending March last. The marriage-rate during that period was equal to 10.7 per 1,000 of the population, being rather less than the average rate in the corresponding periods of the ten preceding years.

The births registered in England and Wales during the quarter ending June last numbered 237,187, and were equal to an annual rate of 27.5 per 1,000 of the population, estimated by the Registrar-General to be 34,547,016 persons in the middle of the year. In the second quarters of the ten preceding years the birth-rate averaged 29.1 per 1,000, the rate in the quarter under notice being the lowest recorded in the corresponding period of any year since civil registration was established. The birth-rates in the several counties last quarter ranged from 21.3 in Sussex, 21.5 in Cornwall, 21.7 in Herefordshire, 22.5 in Somersetshire, and 22.7 in Devonshire, to 31.3 in Nottinghamshire, 31.6 in Staffordshire, 32.1 in the North Riding of Yorkshire, 33.8 in Glamorganshire, 34.8 in Durham, and 35.5 in Monmouthshire. In seventy-six of the largest English towns, including London, the birth-rate averaged 28.3 per 1,000; in London the rate was 27.0 per 1,000, while it averaged 28.9 in the seventy-five other large towns, ranged from 17.6 in Hastings, 18.6 in Halifax, 19.0 in Bournemouth, and 19.3 in Hornsey, to 35.3 in Sunderland, 37.3 in Middlesbrough, and 37.4 in Rhondda and in Merthyr Tydfil.

The births registered in England and Wales during the three months under notice exceeded the deaths by 111,800; this represents the natural increase of the population during that period. From returns issued by the Board of Trade it appears that 176,546 passengers left the United Kingdom for places out of Europe; of these passengers, 67,925 were English 18,519 Scottish, and 21,167 Irish, while 67,655 others were of foreign, and 1,280 of unspecified nationality. Compared with the numbers in the corresponding period of the previous year, the English passengers showed an increase of 34.4 per cent., the Scottish of 37.9 per cent., and the Irish of 25.1 per cent.

During the second quarter of the year the deaths of 125,387 persons were registered, equal to an annual rate of 14.6 per 1,000 living, the average rate in the ten preceding second quarters having been 16.9 per 1,000. The lowest county death-rates last quarter were 11.2 in Middlesex, 11.5 in Essex, 11.7 in Kent, and 11.8 in Northamptonshire; the highest were 16.0 in Durham, in Northumberland, and in Cumberland, 16.9 in Lancashire, 17.3 in the North Riding of Yorkshire, 17.8 in Carnarvonshire, and 19.0 in Denbighshire. In seventy-six of the largest English towns, with an aggregate population of nearly sixteen millions, the mean rate of mortality was 14.9 per 1,000, in 142 smaller towns, containing a population of nearly five millions, the death-rate was 13.4 per 1,000, while in the remaining and chiefly rural parts of England and Wales the rate was 14.6 per 1,000. The death-rate in London was 14.8 per 1,000, while among the seventy-five large provincial towns it ranged from 7.6 in Hornsey, 8.5 in East Ham, 8.7 in Willesden, and 9.1 in Handsworth (Staffs), to 18.4 in Salford, 18.5 in Burnley, 19.0 in Manchester, 20.2 in Middlesbrough, and 20.5 in Liverpool.

The 125,387 deaths from all causes in England and Wales last quarter included 9,322 which were referred to the principal infectious diseases; of these, 2,915 were attributed to measles, 2,616 to whooping-cough, 1,224 to diarrhœa, 1,156 to diphtheria, 903 to scarlet fever, 507 to "fever" (principally enteric), and 1 to small-pox. The death-rate last quarter from these diseases in the aggregate was 1.08 per 1,000, against an average of 1.43 per 1,000 in the corresponding quarters of the ten preceding years; the rates of mortality from all these infectious diseases were below the respective averages.

The rate of infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 102 per 1,000, against an average rate of 119 in the second quarters of the ten preceding years. In the several counties the rates of infant mortality ranged from 65 in Oxfordshire and in Bedfordshire, 72 in Hampshire and 74 in Wiltshire, to 120 in Glamorganshire, 121 in Lancashire, 122 in Warwickshire, 158 in Denbighshire, and 160 in Carnarvonshire. In the seventy-six large towns the mean rate was 108 per 1,000; in London the proportion was equal to 99 per 1,000, while it averaged 111 in the seventy-five other large towns, and ranged from 60 in Hornsey, 61 in Hastings, 68 in Tottenham, 69 in Bournemouth, and 73 in East Ham, to 149 in Liverpool, 142 in Norwich, 146 in Bradford, 146 in Barry, and 166 in Burnley.

The mortality among persons aged between 1 to 60 years during the three months under notice was equal to an annual rate of 7.5 per 1,000 of the estimated population at this group of ages, and was 0.9 per 1,000 below the average. In the seventy-six large towns the death-rate at this age-group was 8.3 per 1,000; in London also the rate was 8.3 per 1,000, while among the seventy-five other large towns it ranged from 3.4 in Hornsey, 4.0 in Handsworth (Staffs), 4.4 in East Ham, 4.7 in Willesden, and 4.8 in King's Norton, to 10.7 in Burnley, 10.9 in Salford, 11.3 in Manchester, 12.1 in Middlesbrough, and 12.2 in Liverpool.

Among persons aged 60 years and upwards the death-rate last quarter was equal to 67.4 per 1,000, against an average rate of 65.3 in the corresponding periods of the ten preceding years. In the seventy-six towns the death-rate at this age-group averaged 70.2 per

1,000; in London the rate was 68.5 per 1,000; while among the seventy-five large provincial towns the rates ranged from 41.8 in Willesden, 48.1 in Croydon, 48.6 in Leicester, 50.4 in Leyton, and 52.9 in King's Norton, to 90.7 in Oldham, 93.6 in Barrow-in Furness, 93.7 in Stockport, and 121.5 in Hanley.

The mean temperature of the air during last quarter was exactly equal to the average in London, but slightly below it in other parts of the country; the rainfall in London amounted to 4.8 in., or about 16 per cent. less than the average, while the duration of bright sunshine during the quarter was 683 hours in the aggregate, or about 96 hours in excess of the average.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 7,361 births and 4,424 deaths were registered during the week ending Saturday last, August 11th. The annual rate of mortality in these towns, which had been 12.0, 12.6, and 13.8 per 1,000 during the three preceding weeks, further rose to 14.6 per 1,000 last week. The rates in the several towns ranged from 5.6 per 1,000 in Newport (Mon.), 5.7 in King's Norton, 5.9 in Reading, 6.5 in Handsworth (Staffs) and in Wallasey, and 6.6 in Hornsey, to 20.3 in Middlesbrough, 20.4 in Birkenhead, 20.6 in St. Helens, 21.2 in Salford, 22.0 in Hanley, and 23.0 in West Ham. In London the rate of mortality was 14.9 per 1,000, while it averaged 14.4 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 3.6 per 1,000 in the seventy-six towns; in London this death-rate was equal to 3.9 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 6.2 in Salford, 6.5 in Wigan, 6.6 in Norwich, 7.0 in Nottingham, 8.9 in Aston Manor and in Birkenhead, and 11.1 in West Ham. Measles caused a death-rate of 1.3 in Norwich, 1.6 in Huddersfield, 1.9 in South Shields, 2.5 in Burnley, and 3.6 in Salford; scarlet fever of 1.6 in Hanley (Staffs); diphtheria of 1.0 in Halifax; whooping-cough of 1.6 in Middlesbrough and 1.8 in Birkenhead; and diarrhœa of 5.1 in St. Helens, 6.0 in Wigan, 6.2 in Birkenhead, 6.6 in Nottingham, 7.6 in Aston Manor, and 10.2 in West Ham. The mortality from enteric fever showed no marked excess in any of the large towns. One fatal case of small-pox was registered in Liverpool during the week, but not one in any other of the large towns. The Metropolitan Asylums Hospitals contained no case of small-pox on Saturday last. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 2,943, 3,048, and 3,120 at the end of the three preceding weeks, declined to 3,051 at the end of last week; 308 new cases were admitted during the week, against 413, 408, and 415 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, August 11th, 963 births and 481 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality, which had been 13.7, 14.3, and 11.8 per 1,000 in the three preceding weeks, rose to 14.0 per 1,000 last week, and was 0.6 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the rates ranged from 10.2 in Paisley and 11.4 in Leith, to 15.2 in Glasgow and in Dundee, and 18.1 in Perth. The death-rate from the principal infectious diseases averaged 1.9 per 1,000 in these towns, the highest rates being recorded in Greenock and Glasgow. The 243 deaths in Glasgow included 5 which were referred to measles, 1 to scarlet fever, 2 to diphtheria, 6 to whooping-cough, 18 to diarrhœa, and 5 to cerebro-spinal meningitis. Five fatal cases of measles and 3 of diarrhœa occurred in Edinburgh, 4 of Diarrhœa in Dundee, and 3 of diarrhœa in Greenock.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, August 4th, 595 births and 304 deaths were registered in six of the principal Irish towns as against 638 births and 319 deaths in the preceding period. The annual death-rate in these towns, which had been 15.7, 19.1, and 15.5 per 1,000 in the three preceding weeks, rose to 15.9 per 1,000 in the week under notice, this figure being 3.2 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 8.2 in Limerick and 16.8 in Dublin to 19.5 in Waterford and 21.1 in Londonderry. The zymotic death-rate during the same period and in the same six Irish towns averaged 0.9 per 1,000, or 0.9 per 1,000 lower than during the preceding period, the highest figure—2.1—being recorded in Belfast, while no deaths under this heading were recorded in Limerick and Waterford.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—Third House-Surgeon. Salary, £50 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynæcology. Salary, £400 per annum

CHESTER GENERAL INFIRMARY.—House-Physician. Salary, £90 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House-Surgeon. Salary, £120 per annum.

COLCHESTER: ESSEX AND COLCHESTER GENERAL HOSPITAL.—House-Surgeon. Salary, £80 per annum.

DORCHESTER: COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £140, rising to £180, per annum.

IPSWICH: EAST SUFFOLK AND IPSWICH HOSPITAL.—Third House-Surgeon. Salary, £50 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—(1) Two House-Surgeons; (2) One House-Physician. Salary, £60 per annum each.

LIVERPOOL: ROYAL SOUTHERN HOSPITAL.—(1) Three House-Physicians. (2) House-Surgeon. Salary, £60 per annum.

LONDONDERRY AND NORTH-WEST OF IRELAND EYE, EAR, AND THROAT HOSPITAL.—Honorary Surgeon.

MACCLESFIELD GENERAL INFIRMARY.—Junior House-Surgeon. Salary, £60 per annum.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—Resident Medical Officer. Salary, £80 per annum.

MIDDLESEX HOSPITAL, W.—Second Assistant to the Director of the Bacteriological and Clinical Laboratories. Salary, £100 per annum.

NORTHAMPTON GENERAL HOSPITAL.—House-Physician. Salary, £90, increasing to £100 per annum.

PORTSMOUTH BOROUGH ASYLUM.—Assistant Medical Officer. Salary, £120 per annum.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer, male. Salary, £130 per annum.

ST. HELEN'S COUNTY BOROUGH.—Lady Assistant Medical Officer. Salary, £160, rising to £200, per annum.

ST. PETER'S HOSPITAL FOR STONE, Henrietta Street, W.C.—Junior House-Surgeon. Salary at the rate of £50 per annum.

SALISBURY: FISHERTON ASYLUM.—Second Assistant Medical Officer. Salary, £120 per annum.

SHIPSTON-ON-STOUR UNION, MICKLETON DISTRICT.—Medical Officer. Salary, £90 per annum.

SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, male. Salary £140, increasing to £160, per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary, £60 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

WARRINGTON UNION WORKHOUSE.—Resident Medical Officer. Salary, £130 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House-Surgeon. Salary, £50 per annum.

YORK COUNTY HOSPITAL.—House-Physician. Salary, £100 per annum.

YORK DISPENSARY.—Resident Medical Officer, male. Salary, £120 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeon at Blaydon-on-Tyne, co. Durham, and Alyth, co. Perth.

APPOINTMENTS.

BOOTH, Lionel Hethorn, M.R.C.S.Eng., L.R.C.P.Lond., House-Surgeon to Sunderland Infirmary.

HOLLAND, Eardley L., M.B., B.S.Lond., F.R.C.S.Eng., Assistant Resident Medical Officer to Queen Charlotte's Lying-in Hospital, London.

LYSTER, Robert Arthur, M.B., Ch.B., B.Sc.Lond., D.P.H., B.Sc.(Pub. Health), Medical Officer of Health to the Urban District of Handsworth (Staffs), vice J. Richmond, M.A., M.D., D.P.H., resigned.

MORGAN, W. H., M.R.C.P., District Medical Officer of the Dore Union.

STEEL, R., L.R.C.P. and S.Edin., District Medical Officer of the Auckland Union.

TAGGART, William John, M.B., Ch.B.Edin., Resident Medical Officer to the Victoria Hospital, Burnley.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

HEDLEY.—On August 14th, at 56, Hans Place, S.W., to Dr. and Mrs. Edward Hedley, a son.

HOLMES.—On August 6th, at Barton Abbey, Oxfordshire, the wife of A. Hewston Holmes, M.D., of Down Hall, Rippingale, Lincs., of a son.

KENDALL.—On 10th instant, at Chiddingfold, Surrey, the wife of Nicholas Fletcher Kendall, M.R.C.S., L.R.C.P., of a daughter.

WALES.—On August 14th, at Mevell Hall, Gargrave-in-Craven, the wife of Herbert Wales, M.A., M.B., B.C., of a son.

WICKHAM.—On the 9th inst., at Elmlea, Willesborough, Kent, the wife of Charles A. Wickham, of a daughter.

MARRIAGES.

FRASER—JOHNSON.—At Hexham, on the 14th inst., Lachlan Fraser, M.D., of North Shields, to Annie, younger daughter of the late John Johnson, Cote House, Blanchland.

SCOTT—SECHERAU.—On the 8th inst., at St. Mary Abbot's, Kensington, by the Very Rev. Vincent Rorison, D.D., Dean of St. Andrews, assisted by the Rev. Canon Pennefather, Vicar of the Parish, Lindley Scott, M.A., M.D., M.R.C.P., elder son of G. J. Scott, Esq., of Bayview House, Aberdeen, to the Baroness Gertrude von Schmidt Secherau, youngest daughter of Mrs. George Meakin, of Cresswell Hall, Stafford.

DEATHS.

BREDIN.—John Noble Bredin, L.R.C.P.I., L.R.C.S.I., L.S.A., of The Vines, Sutton Valence, Maidstone, passed away at Martins Boughton, Monchelsea, August 8th.

KALAPESI.—On July 16th, at Frere Road Fort, Bombay, Dr. R. M. Kalapesi, M.B.Lond., D.T.M.Camb., M.R.C.S., etc., in his 37th year, of tuberculosis.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays and Operations. Monday and Thursday, 2.30 p.m., Eye Diseases. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Wednesday, 10 a.m., Diseases of Children. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Lectures: Monday, 12, Pathological Demonstration. Wednesday, 5 p.m., Practical Demonstration in Cystoscopy.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
AUGUST.	
19 **Sunday**	
20 MONDAY ...	
	ANNUAL MEETING OF THE ASSOCIATION, TORONTO, CANADA.
21 TUESDAY ...	9.30—12.30 a.m.—Meetings of Sections. 2.30 p.m. Address of Welcome; Introduction of Guests, Delegates, etc.; President's Address. 4.30 p.m. In University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve. 8.30 p.m. Address in Obstetrics, Dr. W. S. A. Griffith. 9.30 p.m. Reception by the Lieutenant-Governor.
22 WEDNESDAY	8 a.m. National Temperance League Breakfast. 9.30—12.30 a.m. Meetings of Sections. 2.30 p.m. Address in Medicine, Sir James Barr, M.D. 4.30 p.m. Garden Parties. 8.30 p.m. Address in Surgery, Sir Victor Horsley, F.R.S. 9.30 p.m. Reception.
23 THURSDAY...	9.30—12.30 a.m. Sectional Meetings. 4.30 p.m. Garden Parties. 7.30 p.m. Annual Dinner.
24 FRIDAY	9.30—12.30 a.m. Sectional Meetings. 2.30 p.m. General Meetings. 4.30 p.m. Garden Parties. Excursions. 8.30 p.m. Soirée.
25 SATURDAY...	Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt. Excursion to Muskoka. Excursion to Lambton, through the courtesy of the President, Mr. Austin.

Date.	Meetings to be Held.
AUGUST *(continued).*	
26 **Sunday**	
27 MONDAY	
28 TUESDAY.....	
29 WEDNESDAY	
30 THURSDAY...	
31 FRIDAY	
SEPTEMBER.	
1 SATURDAY...	
2 **Sunday**	
3 MONDAY	
4 TUESDAY.....	
5 WEDNESDAY	
6 THURSDAY...	Altrincham Division, *Lancashire and Cheshire Branch*, Executive Committee Meeting.
7 FRIDAY	
8 SATURDAY...	
9 **Sunday**	
10 MONDAY	
11 TUESDAY.....	
12 WEDNESDAY	
13 THURSDAY...	
14 FRIDAY.....	
15 SATURDAY...	
16 **Sunday**.....	
17 MONDAY	
18 TUESDAY.....	
19 WEDNESDAY	Altrincham Division, *Lancashire and Cheshire Branch*, Division Meeting at Knutsford, 4.30 p.m. Dinner, 7 p.m.
20 THURSDAY...	
21 FRIDAY	
22 SATURDAY...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Member-ship shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

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CENTRAL EMERGENCY FUND.

APPROVED BY THE CENTRAL COUNCIL AND ANNUAL REPRESENTATIVE MEETING.

AT the Meeting of the Central Council of the British Medical Association, on December 13th, 1905, the following resolution was adopted:

> That a Central Emergency Fund for dealing with disputes in cases of contract practice, and otherwise, under the management of the Medico-Political Committee, be created by voluntary subscription.

The Medico-Political Committee, on the recommendation of the Contract Practice Subcommittee, has prepared the following Scheme for the purpose:

SCHEME OF THE FUND.

1. The Fund is created by voluntary subscription, to assist members of the profession in various parts of the country in maintaining the interests of the profession against organized bodies of the community.

2. All members of the profession are invited to contribute. Any contribution may be earmarked for use in specified disputes, or for application to special methods of carrying out the objects of the Fund, and when not so earmarked shall be deemed to be given for disposal at the discretion of the Medico-Political Committee in carrying out the general objects defined in Clause 1. At the termination of any special dispute for which funds may have been earmarked, the balance (if any) shall be merged in the General Fund.

3. Subject to the conditions defined in this Scheme, the Fund shall be under the entire control of the Medico-Political Committee of the British Medical Association, and shall be vested in the names of the Chairman of the Committee and the Treasurer of the Association, as representing the Committee. Payments shall only be made on the authority of a resolution of the Medico-Political Committee, or of a Subcommittee of the Medico-Political Committee acting under powers specifically delegated by the Committee.

4. The Fund may be applied for the promotion of the general objects stated in paragraph 1 in any of the following ways:

(*a*) By a grant or grants to any individual practitioner to assist him in maintaining any position in which the Association shall have decided to support him, or to compensate him for losses which he shall have incurred through taking action approved by the Association.

(*b*) By a grant or grants to any Division or Branch in the British Medical Association, for its assistance in defraying expenses incident to the conduct of local disputes falling within the scope of the objects of the Fund.

(*c*) By expenditure under direct supervision of the Medico-Political Committee, or of a Subcommittee of that Committee, for the purpose of any action which the Medico-Political Committee may deem necessary or advisable for the promotion of the general objects of the Fund.

The Annual Representative Meeting of the Association, on July 27th, 1906, considered and approved the foregoing Report of the Medico-Political Committee.

The Emergency Fund is now opened, and contributions will be received, on behalf of the Medico-Political Committee of the Association, by the Medical Secretary, 429, Strand, London, W.C., of such sums, and at such periods—yearly, quarterly, monthly, or weekly—or as separate donations, as may be convenient to the Donors.

Donors are kindly requested to make cheques or postal orders—which should be crossed "London and Westminster Bank, Bloomsbury Branch"—payable to the order of the Medical Secretary, British Medical Association.

MEDICO-POLITICAL COMMITTEE.

REPORT ON AMENDMENT OF THE LAW RELATING TO THE DETENTION AND CARE OF INEBRIATES, AND PERSONS SUFFERING FROM THE HABITUAL USE OF DRUGS.

(This Report was approved by the Annual Representative Meeting on July 27th, 1906.)

The Committee has considered various proposals which have been put forward with reference to this matter, and has deemed it most convenient to draw up:

(A) A formal statement of the reasons for which further legislation appears to be necessary, and

(B) Recommendations as to such legislation.

(A) Considerations as to the Necessity for ... Legislation.

1. From the considerations placed before the Committee, it appears to be clearly established that there are in all classes of society persons who are, by indulgence to excess in intoxicating liquor, or in the use of stimulant, sedative, or narcotic drugs or substances—

(*a*) at times incapacitated from performing their duties to themselves, their families, or the State; and

(*b*) by the same cause, at times rendered dangerous or offensive to themselves, their families, or the public.

2. The number of such persons is sufficiently great, and their conduct, in consequence of excessive indulgence in alcohol, etc., as aforesaid, is sufficiently noxious to render it desirable that there should be means of restraining them from such excessive indulgence;

3. It is found by long and frequent experience that no means, except compulsory deprivation of the alcohol, or drug, is efficient in restraining such persons from their excessive indulgence;

4. There is at present no legal power by which such persons can be subjected to compulsory deprivation of alcohol unless they themselves so desire, or unless they have been repeatedly convicted of offences, and no legal power by which the takers of drugs in excess can under any circumstances be subjected to compulsory deprivation of such drug;

5. In the opinion of the Committee, there is urgent need that legislation should be provided, by which such persons could be placed under suitable control and restrained from excessive indulgence in alcohol, or drugs, as the case may be, whether they are willing to be so controlled or no, and whether or no they have been convicted of an offence;

6. The Committee recognizes the gravity of a recommendation which, if carried into effect, will authorize the deprivation of some of the liberty of persons who may have committed no crime or offence recognized by the law; and would include in its recommendation safeguards against the improper application of the powers that they desire to be created. It is of opinion that efficient safeguards may be constituted in two ways, namely, first, by requiring the consent of a judicial authority before any person can be restrained for such cause as is herein indicated; and second, by giving power to such judicial authority to give costs against any applicant for a detention order, whose application ought not, in the opinion of the judicial authority, to have been made.

(B) Recommendations.

Persons to be Placed under Restraint.

1. Subject to the safeguards stated in paragraph 6 of part (A) of this report, the Committee is of opinion that powers should be given to a judicial authority to place under restraint, in spite of his own objection thereto, any person who is so addicted to the habitual use of alcohol or opium, or any stimulant, sedative, or narcotic drug or substance as

(*a*) to render him at times dangerous to himself or others;

(*b*) to render him at times incapable of managing himself or his affairs.

Form of Restraint.

2. If, in the opinion of a judicial authority, any person comes within the description of the last paragraph, then the judicial authority should have power to order that such person be committed for any period not exceeding three years to the custody of (*a*) any person named in the order willing to act as guardian; or (*b*) the managers of any licensed Retreat or Inebriate Reformatory who are willing to receive him. When any person is admitted to a Retreat or Reformatory under these circumstances, all conditions shall apply as if he had been admitted to a Retreat or Reformatory under the Inebriates Acts, 1879-1900. Power should be given to the Secretary of State to transfer the inebriate from the control of any guardian in whose charge he may be placed under order of Court—

(1) If the person in whose charge he was so placed declines to continue his responsibility or becomes incapable of properly exercising it,

(2) If the inebriate cannot be restrained from the use of alcohol or other substance as aforesaid.

Such power of transfer should include power to transfer the inebriate from the charge of the guardian to a licensed retreat or inebriate reformatory, or from a retreat to a reformatory, or from one retreat or reformatory to another.

Power to Deal with Estates.

3. Power should also be provided to deal with the estates of persons who are, by indulgence to excess in alcohol or drugs, at times incapable of administering their estates with ordinary prudence.

Procedure.

4. In the opinion of the Committee the following matters should be provided for in any measure that deals with the persons under consideration:

(A) The judicial authority should be set in motion by petition.

(B) The provision as to the person by whom the petition is to be presented should be analogous to that contained in Section 5, subsection (1), of the Lunacy Act, 1890.

(C) The petition should be supported by affidavits or by documents having the force of documents made on oath.

(d) The judicial authority should have power:

(*a*) To visit or cause to be brought before him the person whose conduct is in question.

(*b*) To make such further inquiries and summon such witnesses, including the husband or wife of the person complained of, as he may think necessary.

(*c*) To adjourn the inquiry.

(*d*) To make an order for the immediate committal of the person as hereinbefore suggested.

(*e*) To make an order for the committal of the patient at any time within months of the date of the order, contingent on the behaviour of the patient and at the discretion of the petitioner.

(*f*) To dismiss the petition without or with costs against the petitioner, according as, in the opinion of the judicial authority, the petitioner has, or has not, acted in good faith, and without malice.

(*g*) To make a maintenance order on the estate of the inebriate, or to require guarantee that maintenance expenses shall be met.

(e) Protection should be afforded to all persons who have in good faith, and with reasonable care, done anything purporting to be done under the legislation proposed.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

CAPE OF GOOD HOPE—EASTERN PROVINCE BRANCH:

East London Division.

The ordinary meeting was held on July 13th, 1906, Dr. Paley, Chairman, presiding.

Inaugural Address.—The Chairman read his inaugural address, and was accorded a vote of thanks.

Medical Fees.—The question of medical fees was brought up by Dr. Grey, who said that some scale of charges should be agreed on. After some discussion a tariff was drawn up which should be binding on the members living in East London itself. Dr. Hill Aitken wrote regretting his absence, and saying he considered the present low rate of fees a distinct menace to the progress of scientific medicine in the district.

The Division and Unqualified Practice.—A letter from Dr. Mast (Umzinkulu) was read, in which he thanked the Division for its moral and financial support in his recent action against a chemist who was doing medical work.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

CONTRACT MEDICAL PRACTICE.

The following is the full text of the Manifesto issued by the Doctors on the Staff of the Ebbw Vale Workmen's Doctors' Fund, to which reference was made in the British Medical Journal of August 18th, p. 382:

Ebbw Vale,
August 16th, 1906.

To the Employees of the Ebbw Vale, etc., Company, Subscribers to the Ebbw Vale Workmen's Doctors' Fund.

Gentlemen,

We, the undersigned members of your Medical Staff, have received notice from the Committee of your Fund to terminate our appointments on September 30th next. Before the time comes for thus leaving your service we think it right to give you a plain statement of the position from our point of view, for we do not think that it has been put fairly before you in the statements that have been made by the Committee.

In April last the negotiations between your Committee on the one part, and the British Medical Association acting on our behalf on the other part, finally broke down, and the arbitration, which it was hoped would arrange for the settlement of the dispute, by Mr. Richards, M.P., and Mr. J. Smith Whitaker, as Arbitrators for the two sides, fell through.

Your Committee have tried to throw the blame for this on the British Medical Association, and say that it was because the Association made arbitrary demands and were unreasonable as to the terms of reference.

The demands of the Association were simply these two: First, that your Committee should not go on importing into your employment what in Trade Union language would be called "blacklegs" while the negotiations and the arbitration were proceeding; and, Secondly, that the Arbitrators should not be tied down, as your Committee wished to tie them, but should have a free hand to settle the dispute to the best of their ability. As to the first of these points, we cannot understand how trade unionists like yourselves can justify your action, as employers of labour, in taking advantage of friendly negotiations to drive out one employé after another and fill their places with "blacklegs," and we do not see how the British Medical Association could be expected to go on negotiating without a guarantee that this would not be done.

As to the terms of reference, seeing that Mr. Richards, M.P., was one of the two arbitrators agreed upon, we cannot understand why your Committee could not show the same confidence in him that we were prepared to place in our arbitrator, and leave the whole thing freely to them to settle.

At all events, those are the simple reasons, as we are prepared to prove, why the attempt at arbitration broke down.

At that time the notices of dismissal which were given to us in December, and extended in March, had nearly expired, and your Committee approached us individually with an offer that if we would consent to remain in your service, we could do so on existing terms. This we were quite prepared to do, on the understanding that existing terms should mean the terms of our original appointments. This was agreed to verbally, and a promise was given that the terms should be drawn up in writing to be signed by both sides. After some delay your Committee put written agreements before us to sign. We found, however, that instead of being offered, as promised, the terms on which we first entered your service, we were being asked to sign upon much worse terms, worse also than those which your Committee themselves offered in their negotiations with the British Medical Association in September last.

We not only could not sign anything so different from what had been promised, but having before our eyes this breach of faith to prove how your present Committee considered they could deal with us when treating direct, we resolved to act as members of any Trade Union would do under such circumstances, and stated that we felt we

could only deal safely with that Committee through the British Medical Association: and for acting as Trade Unionists your Committee—a Trade Unionist body—sent us notice of dismissal, and are now advertising for men to fill our positions.

These are the facts, and we feel that they justify us in appealing from your Committee to yourselves, our real employers and theirs.

We ask you to consider whether we have done our duty by you as medical men, and if so whether you are determined to part with us on no other ground than because we are loyal unionists and remain faithful to our Association. This is the real truth of the matter. Your Committee's desire is to deal with us separately, so that we may be at their mercy. Their objections to dealing with the Association on our behalf are exactly those which some employers have to dealing with unions instead of with individual workmen.

Your Committee has told us that the Association's proposals meant giving the Association the control of your Fund (the old cry of the employer against labour demands). This is not so, as can be proved by referring to the actual documents. All that the Association has ever asked is that in all matters affecting the terms of our employment we should have a right to be heard through a Committee of our own, or through our Association, instead of being dealt with in all disputes as individuals.

We are obliged to say something as to another matter which has been made use of against us, though it has nothing to do with the case.

A letter to the *Lancet* by a medical man practising in the Valley has given some offence, and attempts have been made to hold the British Medical Association responsible. This is ridiculously unfair. Dr. Elworthy has himself said in public that he wrote the letter in question without consulting either us or the Association, and, therefore, as we have said, it has nothing to do with us or with the case.

We have only to add that if you desire to retain our services, the way is still open, and we for our part can see no reason why the negotiations broken off in March should not be resumed, and the whole matter referred for final settlement to the arbitrators then named, in whom both sides could have confidence.

We are, Gentlemen,

Yours faithfully,

Signed { J. F. Dwyer. / B. Isaac. / J. O'Sullivan. / T. Donovan. / A. B. Hood.

BRITISH MEDICAL ASSOCIATION LIBRARY.

List of Books, etc., Presented.

Presented by the Authors:

Gamble, M. On the Clinical Estimation of the Alkalinity of the Blood. 1906
Hamer, W. H. The Milroy Lectures on Epidemic Disease in England. 1906.
Macnaughton Jones. The Diseases of Women. 9th Ed. 1904.
Monro, T. K. Manual of Medicine. 2nd Ed. 1906.
Shaw-Mackenzie. Nature and Treatment of Cancer. 3rd Ed. 1906.
Tilley, H. Purulent Nasal Discharges.

Presented anonymously:

Burt. Illustrations of Surgical Anatomy. 1830.

Presented by Sir T. L. Brunton, F.R.S.:

Bristowe. Practice of Medicine. 1880.
Edinburgh Medico-Chirurgical Transactions. Vol. 24. 1905.
Edwards, F. S. Carcinoma of the Rectum. 1905.
Leftwich. Index of Symptoms. 1888.
Medical Officer's Report to Local Government Board. 1905.
Medical Society of London Transactions. Vols. 21-26, 27, 28.
Renton, J. C. Contributions to Clinical Surgery. 1905.
St. Bartholomew's Hospital Reports vol. xli. 1905.
Smee, A. H. Scientific Papers and Letters. 1901.
Walsham, H. Channels of Infection in Tuberculosis. 1904
White, W. H. Materia Medica, etc. 1892.

Presented by Fleet Surgeon A. T. Corrie, R.N:

St. Bartholomew's Hospital Reports. 1905.

Presented by S. R. F. Evershed, Esq., M.R.C.S.:

Guy's Hospital Gazette. N.S. 1887-1904.
Guy's Hospital Reports. 1901-4.
Hooper, R. Morbid Anatomy of the Human Brain. 1828.
——— Morbid Anatomy of Human Uterus. 1832.
The Medical Annual. 1882-1903 (except 1891.)

Presented by the India Office:

Hardy, G. F. Memorandum on Age Tables and Rates of Mortality of the Indian Census. 1901.

Presented by Edward Jepson, Esq., M.D. (Durham):

Heister, L. A General System of Surgery. Illustrated. 1757.

Presented by the Medical Officer to the Local Government Board:

Reports by:

Dr. Copeman. On Enteric at Fulbourn Asylum, near Cambridge. 1906
Dr. Copeman. On General Sanitary Circumstances of the Langport Rural District. 1906.
Dr. Low. On General Sanitary Circumstances of Merthyr Tydfil. 1906.
Dr. Mivart. On General Sanitary Circumstances of Royston, Yorks. 1906.
Dr. Wade. On Experiments on Sulphur Dioxide as Applied in the Destruction of Rats, and in Disinfection on Shipboard. 1906.
Dr. Wheaton. On the Sanitary Circumstances and Administration of the Narberth Rural District. 1906.

Presented by the Secretary of State for India:

Report of the Sanitary Commissioner with the Government of India. 1904.

Presented by the Superintendent of Government Printing, Calcutta:

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India.
No. 23. S. R. Christophers. The Anatomy and Histology of Ticks. 1906.

Presented by the Editor, British Medical Journal:

Allen, C. W. Radiotherapy and Phototherapy. 1905.
Beatson, G. T. Ambulance Handbook. 1905.
Bohn u. Oppel. Taschenbuch der Mikroskopischen Technik. 5 aufl. 1904.
Braun. Animal Parasites of Man. 3rd Ed. 1906.
Brouardel, P. Les Blessures et les Accidents du Travail. 1906.
Brouardel-Mosney. Le Sol et l'Eau. 1906.
Coates, J. Human Magnetism. 1906.
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Cullen, W. Ambulance Illustrated. N.d.
Dodd, F. L. The Problem of the Milk Supply. 1904.
Dreyfus, A. B. Hospital Formulary 6th Ed. 1903.
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Jardine, Robert. Clinical Obstetrics. 2nd Edition. 1905.
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Lipowski. Therapie der Inneren Krankheiten. 1904.
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Mann, G. Chemistry of the Proteids. 1906.
Meyer, G. Das Rettungs und Krankenbeforderungs wesen im Deutsche Reiche. 1906.
Moynihan, B. G. A. Gall Stones and their Surgical Treatment. 1905.
Nancrede, C. B. Lectures on the Principles of Surgery. 2nd Edition. 1905.
Nissen. Practical Massage in Twenty Lessons. 1905.
Noc, F. Technique de Microbiologie Tropicale.
Ostrom. Massage and the Swedish Movements. 6th Edition. 1906.
Rockefeller Institute for Medical Research. Reprints. Vol. 4. 1905.
Scharleib, Mrs. A Mother's Guide. 1905.
——— A Woman's Words to Women. 1905.
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Schryner. Chemistry of the Albumens. 1906.
Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 22.
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American Gynæcological Society. Transactions. Vol. 30. 1905.
American Medico-Psychological Association. Transactions. Vol. 12. 1905.
American Ophthalmological Society. Vol. 10. 1905.
American Surgical Association. Vol. 23. 1905.
Army Medical Department. Report for 1904.
British Guiana Medical Annual. 1905.
British Pharmaceutical Conference Year Books. 1902-5.
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Columbia College of Physicians. Pathological Studies. Vol. 10. 1904-5.
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University College Hospital, London. Registrar's Report. 1902.

Books Needed to Complete Series:

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

American Climatological Transactions. Vols. 1, 4, 5, 6.
——— Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
——— Journal of the Medical Sciences. New series, vols. 4, 5. 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 33, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
——— Journal of Ophthalmology. Vols. 1-9.
——— Laryngological Association. Transactions. Vols. 1-6, 8-9.
——— Medical Association. Transactions, 1-28, 30, 31.
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Annals of Surgery. Vols. 1, 11, 13-16, and 26, 27.
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——— of Ophthalmology. Vols. 1-3, 6, 7, 14, 15, 16 and 20.
——— of Otology. Vols. 1-7, and 20-22.
——— de Parasitologie. Vols. 1-8.
——— of Pediatrics. Vols. 1-11.
Asylum Journal of Mental Science. Vol. 1, 1854.
Bentley and Trimen. Atlas of Medicinal Plants.
British Journal of Dermatology. Vol. 3, part 3.
British Laryngological and Rhinological Association. 1900-1-2.
British Medical Journal, June 14th, 1884, with plate.
Caledonian Medical Journal. Vol. 1 prior to 1894.
Carmichael Essays. Rivington, 1879.
Centralblatt für Augenheilkunde. Hirschberg. All prior to 1891, Index to 1891.
Centralblatt für Bakteriologie. Bound volumes prior to 1899.
——— für medicinischen Wissenschaften. Vols. 1-19.
Congrès Français de Chirurgie. Transactions 1, 2, 3, 6, and 10, and all since 11th.
——— Internat. d'Obstétrique et de Gynécologie. 3. Amsterdam, 1899.
Connecticut State Board of Health Report. Vol. 11. 1887-8.
Dermatological Congress. Vienna, 1892.
Dublin Quarterly Journal of the Medical Sciences. Vols. 1, 10, 17, 20, 28, and 35-40.
Edinburgh Obstetrical Society. Transactions. Vol. 5.
Glasgow Medical Journal. 1833-68.
——— Pathological Society. Transactions. Vols. 1 and 2.
Guy's Hospital Gazette. Nos. 1 and 5, 1872.
Hunterian Transactions containing 76th Report.
Indian Medical Gazette. 1866-84.
International Congress of Hygiene. Congresses 1 to 6 and 10 to 12.
——— Medical Congress. 14th sess. Madrid. 15th sess. Lisbon.
——— Ophthalmological Congress. Transactions of 5th, New York, 1876.
Johns Hopkins Hospital Bulletin. Vols. 1-10.
Journal of Laryngology. Vols. 1-9.
Neurologisches Centralblatt. No. 23, 1904.
Ophthalmic Review, January, 1882.
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Pollatschek. Therapeutische Leistungen des Jahres. 1894, 1895, 1900, 1905.
Provincial Medical and Surgical Journal. March to September, 1841.
Recueil d'Ophtalmologie. 1891, January-June; 1892, December.
Registrar-General's Decennial Report, 1871-80.
Revue Générale d'Ophtalmologie. Prior to 1888, and 1891-2.
St. Bartholomew's Hospital Gazette. Vols. 1-6.
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Sei-i-Kwai Medical Journal. Vols. 1-11.
Semaine Médicale. Prior to 1890, and title and index to year 1892.
South African Medical Journal. February, April, 1895. And titles for vols. 3 and 4.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

The following appointments have been made at the Admiralty: Herbert W. G. Doyen, Fleet Surgeon, to the *Bulwark*, August 15th; George T. Collingwood, Fleet Surgeon, to the *President*, additional, for London Recruiting Head Quarters, August 15th; Charles C. Woodwright, Fleet Surgeon, to Portland Hospital, September 3rd; George A. S. Bell, Fleet Surgeon, to the *Irresistible*, September 3rd; James D. S. Milln, Staff Surgeon, to the *Proserpine*, August 28th, and on recommissioning, undated; Ernest S. Tuck, Staff Surgeon, to the *Scylla*, August 28th; Richard S. Osborne, Surgeon, to the *Merlin*, on commissioning, September 4th; William L. Hawkins, to the *Leda*, on recommissioning, September 4th; Surgeons J. R. Muir, to the *President*, additional, for three months' study at Dreadnought Hospital, Greenwich, and G. S. Davidge, to the *President*, additional, for three months' study at West London Hospital, both to date August 21st.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel C. G. D. Mosse has been appointed Senior Medical Officer, Jamaica.

IMPERIAL YEOMANRY.

Surgeon-Lieutenant H. Thorp, Duke of Lancaster's Own, resigns his commission, August 18th.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Lieutenant D. Waterston, M.D., Edinburgh Company, Scottish Command, to be Captain, August 11th.

Joseph Ward to be Lieutenant in the Maidstone Companies, Eastern Command, August 1st.

Lieutenant C. H. Perram, M.D., Bedford Bearer Company, to be Captain, August 18th.

Major J. Turton, Sussex and Kent Bearer Company (Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Sussex and Kent Volunteer Infantry Brigade), to be Lieutenant-Colonel, August 18th.

ROYAL ENGINEERS (VOLUNTEERS).

Alexander B. S. Stewart to be Surgeon-Lieutenant in the 2nd (Leeds) Yorkshire (West Riding) Regiment, August 15th.

VOLUNTEER RIFLES.

Surgeon-Major F. V. Adams, 1st Lanarkshire Volunteer Rifle Corps, is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Scottish Rifle Volunteer Infantry Brigade, July 3rd.

Hubert De B. Dwyer to be Surgeon-Lieutenant in the 2nd Volunteer Battalion the Oxfordshire Light Infantry, August 3rd.

Surgeon-Captain and Honorary Surgeon-Major J. H. Maclean, 2nd Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment), resigns his commission, retaining his rank and uniform, August 11th.

Surgeon-Captain R. H. Cordeux, M.B., 1st Nottinghamshire (Robin Hood) Volunteer Rifle Corps, resigns his commission, August 11th.

Surgeon-Captain E. Farr, 2nd Volunteer Battalion the Duke of Cambridge's Own (Middlesex Regiment), resigns his commission, August 11th.

David R. Taylor (formerly Lieutenant) to be Surgeon-Lieutenant in the 2nd (Berwickshire) Volunteer Battalion the King's Own Scottish Borderers, August 18th.

Surgeon-Lieutenant R. Brodie, 1st (Ross Highland) Volunteer Battalion the Seaforth Highlanders (Ross-shire Buffs, Duke of Albany's), to be Surgeon-Captain, August 18th.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,877 births and 5,157 deaths were registered during the week ending Saturday last, August 18th. The annual rate of mortality in these towns, which had been 12.6, 13.8, and 14.6 per 1,000 in the three preceding weeks, further rose last week to 17.0 per 1,000. The rates in the several towns ranged from 6.5 in Handsworth (Staffs.), 6.6 in Hornsey, 7.2 in King's Norton, 7.3 in Devonport, 7.6 in Preston, 8.0 in Willesden, 8.1 in Halifax, and 8.6 in Reading, to 22.9 in Liverpool and in Salford, 23.4 in Norwich, 23.5 in West Ham, 23.6 in Tynemouth, 26.1 in Middlesbrough, 26.5 in Wigan, and 28.9 in Birkenhead. In London the death-rate was 17.5 per 1,000, while it averaged 16.8 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 5.3 per 1,000 in the seventy-six towns; in London this death-rate was equal to 5.4 per 1,000, while among the seventy-five other large towns, the rates ranged upwards to 8.2 in Huddersfield, 8.3 in Manchester, 8.4 in Stockport, 8.6 in Walthamstow, 8.7 in Liverpool, 9.1 in Birmingham, 11.9 in Leyton and in Norwich, 15.0 in West Ham, and 16.0 in Birkenhead. Measles caused a death-rate of 1.0 in Manchester, in Burnley, and in Sunderland, 1.7 in Rotherham, 1.9 in Tynemouth, 2.1 in Stockport, 4.0 in Norwich, and 4.4 in Huddersfield; diphtheria of 1.1 in Salford; whooping-cough of 1.1 in Walsall and in Swansea; and diarrhoea of 7.0 in Aston Manor and in Hull, 7.1 in Wigan, 7.3 in Walthamstow, 7.5 in Norwich and in Coventry, 7.8 in Liverpool, 9.0 in East Ham, 9.2 in Birmingham, 11.5 in Leyton, 14.0 in West Ham, and 14.2 in Birkenhead. The mortality from scarlet fever and from enteric fever showed no marked excess in any of these towns, and no fatal case of small-pox was registered during the week. No small-pox patients were admitted to the Metropolitan Asylums Hospitals last week, and none remained under treatment at the end of the week. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 3,048, 3,120, and 3,051 at the end of the three preceding weeks, had further declined to 3,046 at the end of last week; 317 new cases were admitted during the week, against 408, 415, and 308 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, August 18th, 947 births and 492 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 14.3, 11.8, and 14.0 per 1,000 in the three preceding weeks, further rose to 14.4 per 1,000 last week, but was 2.6 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 10.7 in Leith and 11.8 in Greenock, to 19.2 in Paisley and 19.6 in Perth. The death-rate from the principal infectious diseases averaged 1.8 per 1,000 in these Scotch towns, the highest rates being recorded in Paisley and Perth. The 239 deaths registered in Glasgow included 7 which were referred to whooping-cough, 18 to diarrhoea, and 2 to cerebro-spinal meningitis. Three fatal cases of diarrhoea were recorded in Edinburgh, 7 in Dundee, and 5 in Paisley; and 2 deaths from whooping-cough, 2 from measles, and 3 from diarrhoea occurred in Aberdeen.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, August 11th, 503 births and 301 deaths were registered in six of the principal Irish towns as against 595 births and 304 deaths in the preceding period. The annual death-rate in these towns, which had been 19.1, 15.5, and 17.0 per 1,000 in the three preceding weeks, fell to 16.4 per 1,000 in the week under notice, this figure being 1.8 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 7.8 in Waterford and 15.4 in Cork to 19.1 in Limerick and 19.8 in Londonderry. The zymotic death-rate during the same period and in the same six Irish towns averaged 1.2 per 1,000, or 0.3 per 1,000 higher than during the preceding period, the highest figure—2.6—being recorded in Dublin, while no deaths under this heading were recorded in Limerick and Waterford.

During the week ending Saturday, August 18th, 523 births and 319 deaths were registered in six of the principal Irish towns, as against 503 births and 301 deaths in the preceding period. The annual death-rate in these towns, which had been 15.5, 17.0, and 16.4 per 1,000 in the three preceding weeks, fell to 15.9 per 1,000 in the week under notice, this figure being 1.1 per 1,000 lower than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 11.7 in Waterford and 13.7 in Cork to 17.8 in Belfast and Limerick and 19.7 in Dublin. The zymotic death-rate during the same period and in the same six Irish towns averaged 2.1 per 1,000, or 0.9 per 1,000 higher than during the preceding period, the highest figure—5.3—being recorded in Dublin, while no deaths under this heading were recorded in Limerick and Waterford. The high rate in Dublin appears to be due to whooping-cough, which is now prevailing in this town and also in Belfast.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

ABERDEEN CITY DISTRICT LUNACY BOARD.—Medical Superintendent. Salary, £500 per annum.

BATH ROYAL UNITED HOSPITAL.—House-Surgeon. Salary, £80 per annum.

BIRMINGHAM CITY ASYLUM.—Assistant Medical Officer. Salary, £150 per annum.

BOWDON HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

BUXTON: DEVONSHIRE HOSPITAL.—Assistant House-Surgeon. Salary, £70 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—Second House-Surgeon. Salary, £60 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CARLISLE: CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at the rate of £80 and £100 per annum.

CHESTER GENERAL INFIRMARY.—House-Physician. Salary, £90 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House-Surgeon. Salary, £120 per annum.

CROSSLEY SANATORIUM.—Assistant Medical Officer. Salary, £100 per annum.

DORCHESTER: COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £140 per annum.

ECCLES AND PATRICROFT HOSPITAL.—House-Surgeon. Salary, £70 per annum.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House-Surgeon. Salary, £120 per annum.

KING WILLIAMSTOWN, CAPE OF GOOD HOPE: GREY HOSPITAL.—Resident House-Surgeon. Salary, £300 per annum.

LIVERPOOL: ROYAL SOUTHERN HOSPITAL.—(1) Three House-Physicians. (2) House-Surgeon. (3) Resident Pathologist and Registrar. Salary (1) and (2) £60 per annum, (3) £100 per annum.

LIVERPOOL STANLEY HOSPITAL.—(1) Second House-Surgeon; (2) Third House-Surgeon. Salary (1) £70, (2) £60, per annum.

LONDONDERRY AND NORTH-WEST OF IRELAND EYE, EAR, AND THROAT HOSPITAL.—Honorary Surgeon.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Junior Resident Medical Officer. Salary at the rate of £80 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary, £70 per annum.

PETERBOROUGH INFIRMARY AND DISPENSARY.—(1) Physician. (2) Assistant Physician.

SOUTHWARK UNION INFIRMARY, East Dulwich Grove, S.E.—Assistant Medical Officer. Salary, £100 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

WARRINGTON UNION WORKHOUSE.—Resident Medical Officer. Salary, £130 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House-Surgeon. Salary, £50 per annum.

WEST LONDON HOSPITAL, Hammersmith Road, W.—(1) Two House-Physicians. (2) Three House-Surgeons.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House-Physician. Salary, £75 per annum.

YORK COUNTY HOSPITAL.—House-Physician. Salary, £100 per annum.

YORK DISPENSARY.—Resident Medical Officer. Salary, £120 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeon at Stepney, Corris (Merionethshire), Ely (Cambridgeshire), and Dawlish (Devonshire).

APPOINTMENTS.

Munro, William J., B.A., M.D., A.M.Edin., M.R.C.S.Eng., Honorary Dermatologist to the Sydney Hospital, and Honorary Medical Officer to the Lock Ward at the Royal Prince Alfred Hospital, Sydney, N.S.W.

Smyth, Richard, M.D., M.Ch., M.A., T.C.D., Honorary Surgeon to the Ramsgate and St. Lawrence Dispensary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

CONDER.—On August 20th, at 3, Park Place, Cheltenham, the wife of A. F. R. Conder, M.D.Edin., of a daughter.

COWES.—On the 11th inst., at Rusholme, St. Paul's Crescent, Shanklin, I.W., the wife of Adam Cowes, M.R.C.S.Eng., L.R.C.P.Lond., of a daughter.

PEARSON.—At 17, Alva Street, Edinburgh, on the 18th inst., the wife of Charles Mowbray Pearson, M.B., F.R.C.P.E., of a daughter.

STRAIN.—On August 20th, at Crowndale, Belvedere Drive, Wimbledon, the wife of W. Loudon Strain, M.B., C.M. (late of São Paulo, Brazil), of a son.

DEATHS.

ADKINS.—On the 19th inst., at Mansfield, Hastings, Edward James Adkins, M.R.C.S., aged 53.

CURTIS.—On August 11th, Albert Edward Curtis, M.B., C.M.Edin., eldest surviving son of the Rev. B. Curtis, of Alvingham Vicarage, Louth, Lincs., for 18 years in practice at Don House, Shalesmoor, Sheffield.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays and Operations. Monday and Thursday, 2.30 p.m., Eye Diseases. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Wednesday, 10 a.m., Diseases of Children. Tuesday and Friday, 2.30 p.m., Diseases of the Skin.

BOOKS, ETC., RECEIVED

An Eastern Cruise on the ss. "Ophir" to Lisbon and the Peninsula, April 12th to 29th, 1906. By P. H. Hadfield, M.A., Ross, Herefordshire. Published by the Author.

Report on Epidemic Cerebro-spinal Meningitis in India. By Captain C. J. Robertson-Milne, M.B., I.M.S. Calcutta: Office of Superintendent of Government Printing. 1906. 1s. 6d.

Traité des Variations des Os de la Face de l'Homme et de leur Signification au point de vue de l'Anthropologie Zoologique. Par M. le Dr. A. F. le Double. Paris: Vigot Frères. 1906. Fr.25.

Compagnie Universelle du Canal Maritime de Suez. Suppression du Paludisme a Ismailia. Paris: Imprimerie de la Société anonyme de Publications périodiques. 1905.

The Origin and Nature of Man. By S. B. G. McKinney, M.A., L.R.C.P.Edin. Part VI. The Formal Cause. Edinburgh and London: Oliphant, Anderson and Ferrier. 1906. 6d.

A Preliminary Report Concerning the Construction of Hospitals for Children. By C. P. Ewerson, A.B., M.D., Baltimore. 1905.

Professional Opinion Adverse to Vaccination: British. Stone, Staffordshire: W. J. Furnival. 1906. 6d.

Die Nervosität: ihre Ursachen, Erscheinungen und Behandlung. Von Dr. A. Cramer. Jena: Gustav Fischer. 1906. M.9.20.

Walter Reed and Yellow Fever. By H. A. Kelly, M.D. New York: McClure, Phillips and Co. 1906.

Les Auto-Mutilateurs. Par Dr. C. Blondel. Paris: J. Rousset. 1906. Fr.5.

A Handbook of Legal Medicine. By W. Sellers, M.D. Manchester: University Press. 1906. 7s. 6d.

Handbuch der Sauerstofftherapie. Herausgegeben von Dr. med M. Michaelis. Berlin: A. Hirschwald. 1906. M.12.

Applied Bacteriology. Revised and edited by G. E. Moor, M.A., F.I.C., and R. T. Hewlett, M.D., F.R.C.P. D.P.H. Third edition. London: Baillière, Tindall and Cox. 1906. 12s. 6d.

A Handbook of Diseases of the Nose and Pharynx. By J. B. Ball, M.D. Fifth edition. London: Baillière, Tindall and Cox. 1906. 7s. 6d.

Lippincott's New Medical Series. Edited by T. R. Packard, M.D. The Medical Diseases of Infancy and Childhood. By A. C. Cotton, A.M., M.D. Philadelphia and London: J. B. Lippincott Co. 1906. 15s.

From Her to Him. By G. H. R. Dabbs, M.D. London: C. W. Deacon and Co. 1906. 2s. 6d.

Glimpses into the Abyss. By M. Higgs. London: P. S. King and Son. 1906. 3s. 6d.

London: Sidney Appleton. 1906:

A Textbook of Botany for Secondary Schools. By J. M. Coulter, A.M., Ph.D. 5s.

Modern Clinical Medicine. Diseases of Metabolism and of the Blood; Animal Parasites: Toxicology. Edited by R. C. Cabot, M.D. Authorized Translation from "Die Deutsche Klinik." Edited by J. L. Salinger, M.D. 21s.

Diseases of the Nervous System Resulting from Accident and Injury. By P. Bailey, A.M., M.D. 21s.

Studies in Clinical Psychiatry. By L. C. Bruce, M.D., F.R.C.P.E. London: Macmillan and Co., Limited. 1906. 10s. 6d.

Handbuch der Kinderheilkunde. Herausgegeben von Prof. Dr. M. Pfaundler und Prof. Dr. A. Schlossmann. II Band, 1 and 11 Hälfte. Leipzig: F. C. W. Vogel. 1906. M. 30.

A Manual of Midwifery. By T. W. Eden, M.D., C.M., F.R.C.P. London: J. and A. Churchill. 1906. 10s. 6d.

L'Incombustibilité de l'Ame: Thèse de Doctorat en Théologie soutenue par le candidat apocryphe, A. B. le Pty et Dr. Liptay. Paris: A. B. de Liptay et Cie. 30 centimes.

A System of Dental Surgery. By the late Sir J. Tomes, F.R.S. Fifth edition. Revised and enlarged by C. S. Tomes, M.A., F.R.S., and W. S. Nowell, M.A. London: J. and A. Churchill. 1906. 15s.

The Climate of Lisbon, Mont' Estoril, and Cintra. By Dr. D. G. Dalgado. A Paper read before the Section of Hygiene of the Fifteenth International Congress of Medicine at Lisbon, April, 1906. London: H. K. Lewis. 1906. 2s. 6d.

The Plague in India, its Causes, Prevention, and Cure. By Rai Bahadur Lala Baijnath, B.A., F.A.U., and Surgeon-Major V. D. Vasu, I.M.S. Second edition. Meerut: The Vaishya Hit-Kari Office. 1906. 4 annas.

Illustrations of British Blood-sucking Flies, with Notes by E. E. Austen. London: Longmans and Co. 1906. 25s.

The Use of Shower Baths in Schools in England and on the Continent. By F. Rose, Ph.D. A Paper read before the Medical Officers of Schools Association. London: J. and A. Churchill. 1906. 1s.

Paton's List of Schools and Tutors. Ninth Annual Edition. London: J. and J. Paton. 1s. 6d.

Selected Essays on Syphilis and Small-pox. Edited by A. E. Russell M.D., M.R.C.P. London: The New Sydenham Society. 1906.

Poems by J. W. Harbinson, L.R.C.P.and S.E. Second Edition. Melbourne: Atlas Press.

Paris: A. Maloine. 1906:

Bibliothèque de la Nutrition:

Physiologie Urosémeiologique. Par E. Gautrelet. Fr.4.

La Neurasthénie Génitale Féminine. Par le Dr. J. Batuaud. Fr.4.

La Chimie Alimentaire. Par le Dr. P. H. Roeser. Fr.4.

L'Oeuil Diathésique. Par le Dr. F. Giraud. Fr.4.

Guide Pratique de Thérapeutique Hydro-Minérale. Par le Dr. H. Pelon. Fr.3.

Guide Clinique des Praticiens pour les Principales Maladies des Voies Urinaires. Par E. Pillet. Fr.4.

La Prothèse par les Injections de Paraffine. Par le Dr. Lagarde. 1907.

Le Signe de la Mort Reelle en l'Absence du Médecin. Par le Dr. Icard. 1907. Fr.4.

Studies in Blood Pressure, Physiological and Clinical. By G. Oliver, M.D., F.R.C.P. London: H. K. Lewis. 1906. 2s. 6d.

London: C. Griffin and Co., Limited. 1906:

The Treatment of Diseases of the Digestive System. By R. Saundby, M.D., M.Sc., LL.D., F.R.C.P. 3s.

Toxines and Antitoxines. By C. Oppenheimer, M.D., Ph.D. Translated from the German by C. A. Mitchell, B.A., F.I.C. 7s. 6d.

The Schott Methods of the Treatment of Chronic Diseases of the Heart. By W. B. Thorne, M.D., M.R.C.P. Fifth Edition. London: J. and A. Churchill. 1906. 5s.

Diet in Health and Disease. By J. Friedenwald, M.D., and J. Ruhräh, M.D. Second Edition. Philadelphia and London: W. B. Saunders and Co. 1906. 18s.

A Textbook of Pharmacology and Some Allied Sciences. By T. Sollmann, M.D. Second Edition. Philadelphia and London: W. B. Saunders and Co. 1906. 18s.

London and New York: Rebman, Limited. 1906:

Handbook of Electricity in Medicine. By Dr. W. H. Guillemnot. Translated by W. D. Butcher, M.R.C.S. 17s.

The Treatment of Syphilis. By A. Fournier. English translation of the second edition, by C. F. Marshall, M.D., F.R.C.S. 21s.

Elementary Manual of Topographical Dermatology. By R. Sabouraud. English translation, by C. F. Marshall. 21s.

Portfolio of Dermochromes. By Professor Jacobi. English adaptation of text by J. J. Pringle, M.D., F.R.C.P. Supplement; Loose plates, 25s.; half roan, 28s. 6d.; full roan, 31s. 6d.

Sunday Observance: its Origin and Meaning. By W. W. Hardwicke, M.D., M.R.C.P., etc. London: Watts and Co. 1906. 6d.

National Conference on Infantile Mortality. Report of the Proceedings at the Conference in Caxton Hall, June 13th and 14th, 1906. President: Right Hon. J. Burns, M.P. Chairman: E. Spicer, J.P. Westminster: P. S. King and Son. 1s. 6d.

Atlas of Cutaneous Morbid Histology. By Dr. M. Joseph and J. B. van Deventer. London: A. Constable and Co., Limited. 1906. 18s.

First-aid Tablets of Fractures. By S. O. Eades, L.R.C.P., L.R.C.S.Ed. Ipswich: The Ancient House Press.

Effects of Alcohol on the Human System. By Rev. N. H. Louwyck. Adelaide: Miss A. Doyle, Gawler Place. 1906. 2d.

Die Infektionskrankheiten rücksichtlich ihrer Verbreitung, Verhütung und Bekämpfung. Von Oberstabsarzt Dr. L. Kamen. Wien: J. Safár. 1906. M.4.

Die Neubauten des allgemeinen Krankenhauses St. Georg, Hamburg. Herausgegeben von Dr. Deneke. Jena: Gustav Fischer. 1906. M.8

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
AUGUST.	
26 **Sunday**	
27 MONDAY	
28 TUESDAY.....	
29 WEDNESDAY	
30 THURSDAY...	
31 FRIDAY	
SEPTEMBER.	
1 SATURDAY...	
2 **Sunday**	
3 MONDAY	
4 TUESDAY.....	
5 WEDNESDAY	
6 THURSDAY...	ALTRINCHAM DIVISION, *Lancashire and Cheshire Branch*, Executive Committee Meeting.
7 FRIDAY	
8 SATURDAY...	
9 **Sunday**	
10 MONDAY	
11 TUESDAY.....	
12 WEDNESDAY	
13 THURSDAY...	
14 FRIDAY.....	
15 SATURDAY...	
16 **Sunday**.....	
17 MONDAY	
18 TUESDAY.....	
19 WEDNESDAY	ALTRINCHAM DIVISION, *Lancashire and Cheshire Branch*, Division Meeting at Knutsford, 4.30 p.m. Dinner, 7 p.m.
20 THURSDAY...	
21 FRIDAY	
22 SATURDAY...	

Date.	Meetings to be Held.
SEPTEMBER *(continued).*	
23 **Sunday**.....	
24 MONDAY	
25 TUESDAY.....	
26 WEDNESDAY	LONDON: South-Eastern Branch Council, at 3.15 p.m.
27 THURSDAY...	
28 FRIDAY.....	
29 SATURDAY...	
30 **Sunday**	
OCTOBER.	
1 MONDAY	
2 TUESDAY ...	
3 WEDNESDAY	
4 THURSDAY...	
5 FRIDAY	
6 SATURDAY...	
7 **Sunday**	
8 MONDAY	
9 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Finance Inquiry Committee, 2.30 p.m.
10 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m.
11 THURSDAY...	LONDON: Hospitals Committee, 2.30 p.m.
12 FRIDAY	LONDON: Central Ethical Committee, 2 p.m.
13 SATURDAY...	
14 **Sunday**	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	
18 THURSDAY...	
19 FRIDAY.....	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Member-ship shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 1ST, 1906.

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CENTRAL EMERGENCY FUND.

APPROVED BY THE CENTRAL COUNCIL AND ANNUAL REPRESENTATIVE MEETING.

AT the Meeting of the Central Council of the British Medical Association, on December 13th, 1905, the following resolution was adopted:

> That a Central Emergency Fund for dealing with disputes in cases of contract practice, and otherwise, under the management of the Medico-Political Committee, be created by voluntary subscription.

The Medico-Political Committee, on the recommendation of the Contract Practice Subcommittee, has prepared the following Scheme for the purpose:

SCHEME OF THE FUND.

1. The Fund is created by voluntary subscription, to assist members of the profession in various parts of the country in maintaining the interests of the profession against organized bodies of the community.

2. All members of the profession are invited to contribute. Any contribution may be earmarked for use in specified disputes, or for application to special methods of carrying out the objects of the Fund, and when not so earmarked shall be deemed to be given for disposal at the discretion of the Medico-Political Committee in carrying out the general objects defined in Clause 1. At the termination of any special dispute for which funds may have been earmarked, the balance (if any) shall be merged in the General Fund.

3. Subject to the conditions defined in this Scheme, the Fund shall be under the entire control of the Medico-Political Committee of the British Medical Association, and shall be vested in the names of the Chairman of the Committee and the Treasurer of the Association, as representing the Committee. Payments shall only be made on the authority of a resolution of the Medico-Political Committee, or of a Subcommittee of the Medico-Political Committee acting under powers specifically delegated by the Committee.

4. The Fund may be applied for the promotion of the general objects stated in paragraph 1 in any of the following ways:

(*a*) By a grant or grants to any individual practitioner to assist him in maintaining any position in which the Association shall have decided to support him, or to compensate him for losses which he shall have incurred through taking action approved by the Association.

(*b*) By a grant or grants to any Division or Branch in the British Medical Association, for its assistance in defraying expenses incident to the conduct of local disputes falling within the scope of the objects of the Fund.

(*c*) By expenditure under direct supervision of the Medico-Political Committee, or of a Subcommittee of that Committee, for the purpose of any action which the Medico-Political Committee may deem necessary or advisable for the promotion of the general objects of the Fund.

The Annual Representative Meeting of the Association, on July 27th, 1906, considered and approved the foregoing Report of the Medico-Political Committee.

The Emergency Fund is now opened, and contributions will be received, on behalf of the Medico-Political Committee of the Association, by the Medical Secretary, 429, Strand, London, W.C., of such sums, and at such periods—yearly, quarterly, monthly, or weekly—or as separate donations, as may be convenient to the Donors.

Donors are kindly requested to make cheques or postal orders—which should be crossed "London and Westminster Bank, Bloomsbury Branch"—payable to the order of the Medical Secretary, British Medical Association.

BRITISH MEDICAL ASSOCIATION LIBRARY.

Books Needed to Complete Series:

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

American Climatological Transactions. Vols. 1, 4, 5, 6.
——— Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
——— Journal of the Medical Sciences. New series, vols. 4, 5, 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 33, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
——— Journal of Ophthalmology. Vols. 1-9.
——— Laryngological Association. Transactions. Vols. 1-6, 8-9.
——— Medical Association. Transactions, 1-28, 30, 31.
——— Otological Society. Transactions. Vol. 3, part 2, 1883.
——— Public Health Association. Transactions. Any vols.
Analyst. Vols. 1-24.
Archiv für Dermatologie und Syphilis. Prior to 1874, 1892, and 1893.
Annals of Surgery. Vols. 1, 11, 13-16, and 26, 27.
Archives Générales de Médecine. 1831-9 inclusive; 1846-55 inclusive; 1857-64 inclusive; 1871.
——— of Ophthalmology. Vols. 1-3, 6, 7, 14, 15, 16 and 20.
——— of Otology. Vols. 1-7, and 20-22.
——— de Parasitologie. Vols. 1-8.
——— of Pediatrics. Vols. 1-11.
Asylum Journal of Mental Science. Vol. 1, 1854.
Bentley and Trimen. Atlas of Medicinal Plants.
British Journal of Dermatology. Vol. 2, part 3.
British Laryngological and Rhinological Association, 1900-1-2.
British Medical Journal, June 14th, 1884, with plate.
Caledonian Medical Journal. Vol. 1 prior to 1894.
Carmichael Essays. Rivington, 1879.
Centralblatt für Augenheilkunde. Hirschberg. All prior to 1891, Index to 1891.
Centralblatt für Bakteriologie. Bound volumes prior to 1899.
——— für medicinischen Wissenschaften. Vols. 1-19.
Congrès Français de Chirurgie. Transactions 1, 2, 3, 6, and 10, and all since 11th.
——— Internat. d'Obstétrique et de Gynécologie. 3. Amsterdam, 1899.
Connecticut State Board of Health Report. Vol. 11. 1887-8.
Dermatological Congress. Vienna, 1892.
Dublin Quarterly Journal of the Medical Sciences. Vols 1, 10, 17, 20, 28, and 35-40.
Edinburgh Obstetrical Society. Transactions. Vols. 5.
Glasgow Medical Journal. 1853-68.
——— Pathological Society. Transactions. Vols. 1 and 2.
Guy's Hospital Gazette. Nos. 1 and 5, 1872.
Hunterian Transactions containing 76th Report.
Indian Medical Gazette. 1866-84.
International Congress of Hygiene. Congresses 1 to 6 and 10 to 12.
——— Medical Congress, 14th sess. Madrid. 15th sess. Lisbon.
——— Ophthalmological Congress. Transactions of 5th, New York, 1876.
Johns Hopkins Hospital Bulletin. Vols. 1-10.
Journal of Laryngology. Vols. 1-9.
Neurologisches Centralblatt. No. 23, 1904.
Ophthalmic Review, January, 1882.
Pediatrics, prior to 1902.
Pollatschek. Therapeutische Leistungen des Jahres. 1894, 1895, 1900, 1905.
Provincial Medical and Surgical Journal. March to September, 1841.
Recueil d'Ophtalmologie. 1891, January-June; 1892, December.
Registrar-General's Decennial Report, 1871-80.
Revue Générale d'Ophtalmologie. Prior to 1888, and 1891-2.
St. Bartholomew's Hospital Gazette. Vols. 1-6.
St. George's Hospital Gazette, 1-7.
St. Mary's Hospital Gazette, 1-5.
Sei-i-Kwai Medical Journal. Vols. 1-11.
Semaine Médicale. Prior to 1890, and title and index to year 1892.
South African Medical Journal. February, April, 1895. And titles for vols. 3 and 4.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

The following appointments have been made at the Admiralty: William H. Thomson, Staff Surgeon, to the *President*, additional, for three months' course at West London Hospital, September 1st; John Bourdas, Surgeon, to the *Impregnable*, additional, for dental duties, etc., August 23rd; Frederick A. Brice, Fleet Surgeon, and Reginald Waterfield, Staff Surgeon, to the *Excellent*, additional, for the *Recruit*, on recommissioning, September 8th; John M'Elwee, M.D., Fleet Surgeon, to the *Britannia*, on commissioning, September 8th; Frederick Fedarb, M.B., Fleet Surgeon, to the *Dreadnought*, on commissioning, September 1st; Lidbrooke F. Cope, Surgeon, to the *Prince of Wales*, September 8th.

ROYAL HOSPITAL, CHELSEA.

The following notification is substituted for that which appeared in the *Gazette* of August 24th: Lieutenant-Colonel R. J. C. Cottell, R.A.M.C., to be Deputy Surgeon, vice Lieutenant-Colonel R. W. Ford, D.S.O., R.A.M.C., whose tenure of that appointment has expired, August 17th.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. A. Pinches retires on retired pay, August 25th. He joined as Surgeon, August 1st, 1885; was made Surgeon-Major, August 1st, 1897; and Lieutenant-Colonel, August 1st, 1905. He was in the Hazara expedition, 1891 (medal with clasp); with the Dongola expedition in 1896 (4th class of the Medjidic, Khedive's medal with clasp); in the Nile campaign in 1898, including the battle of Khartoum (mentioned in dispatches, British medal, and clasp to Khedive's medal); and in the South African war in 1899-1902, including operations in the Orange Free State, the Transvaal, and Cape Colony south of Orange River (Queen's medal with three clasps, King's medal with two clasps).

Lieutenant-Colonel M. J. Whitty, M.D., also retires on retired pay, August 25th. He was appointed Surgeon, July 28th, 1886; Surgeon-Major, July 28th, 1898; and Lieutenant-Colonel, July 28th, 1906. He has no war record in the Army Lists.

The retirement on retired pay of Lieutenant-Colonel W. S. Dowman from August 25th is also announced. His commissions bear date: Surgeon, July 28th, 1886; Surgeon-Major, November 23rd, 1898; and Lieutenant-Colonel, July 28th, 1906. He served in the South African war, 1899-1902, and was present at the relief of Ladysmith and in operations in Cape Colony, the Transvaal, and Orange River Colony. He was mentioned in dispatches, and has the Queen's medal with four clasps and the King's medal with two clasps.

Lieutenant G. De la Cour, from the Seconded List, to be Lieutenant, August 1st. He was appointed on probation, January 30th, 1906.

Major G. B. Stanistreet, M.B., has been appointed Staff Officer to the Principal Medical Officer, Southern Command, in succession to Lieutenant-Colonel G. Coutts, M.B., who has vacated that appointment.

Lieutenant-Colonel E. North, Administrative Medical Officer, Belfast, has been transferred in the same capacity to Dublin, vice Colonel P. M. Ellis.

Major C. R. Elliott, M.D., has been approved for appointment as a Sanitary Officer in the Irish Command, with specialist pay, in succession to Lieutenant-Colonel R. L. R. Macleod, M.B., who leaves for India in October.

The undermentioned officers are permitted to continue in the appointments of specialists in the subjects specified: Fevers—Major E. S. Clark, M.B., 1st (Peshawur) Division; Captain W. E. Hudleston, 5th (Mhow) Division; Captain C. H. Hopkins, 6th (Poona) Division. Skiagraphy—Major M. Boyle, M.B., Burmah Division; Captain J. Grech, 7th (Meerut) Division. Dentistry—Lieutenant S. C. Bowle, M.B., 5th (Mhow) Division. Ophthalmology—Major T. McDermott, M.B., Eastern Command; Captain F. Kiddle, M.B., Western Command.

The following are appointed specialists in the subjects noted: Operative Surgery—Major K. M. Cameron, M.B., 3rd (Lahore) Division. Midwifery and Diseases of Women and Children—Captain G. T. K. Maurice, Eastern Command, India. Laryngology—Captain C. W. Profeit, M.B., Northern Command, India. Otology—Captain J. G. Berne, Western Command, India.

INDIAN MEDICAL SERVICE.

The promotion to be Colonel of Lieutenant-Colonel W. O'Hara, which has been already announced in the British Medical Journal, has received the approval of the King.

Lieutenant-Colonel D. Prain, M.B., C.I.E., has retired from the service, from July 31st. He was appointed Surgeon, October 1st, 1884, and became Lieutenant-Colonel, October 1st, 1904.

Lieutenant-Colonel H. N. V. Harington, Madras Establishment, Agency, Surgeon 1st class, is appointed to officiate as Residency Surgeon and Chief Medical Officer in Rajpootana.

Lieutenant-Colonel G. H. Bull, M.D., Bombay Establishment, is appointed to officiate as Principal Medical Officer, 4th (Quetta) Division.

Surgeon-General A. Scott Reid, C.B., M.B., Bengal Establishment, Principal Medical Officer, Northern Command, India, is granted ninety days' accumulated privilege leave, on private affairs.

Lieutenant-Colonel H. W. B. Boyd, Bombay Establishment (since deceased), is permitted to retire from the service, from June 30th. He joined the department as Assistant-Surgeon, March 31st, 1876, and was made Brigade-Surgeon-Lieutenant-Colonel, March 31st, 1886.

The undermentioned officers are appointed specialists in the subjects noted: Fevers—Major C. N. C. WIMBERLEY, M.B., 3rd (Lahore) Division. Prevention of Disease—Lieutenant A. H. PROCTOR, M.D., Ambala; Lieutenant A. C. INGRAM, M.B., Aden. Midwifery and Diseases of Children, in Western Command—Captain W. D. A. KEYS, M.D.

VOLUNTEER RIFLES.

WALTER G. PAGET to be Surgeon-Lieutenant in the 1st Volunteer Battalion the Queen's Royal West Surrey Regiment, August 25th.

Surgeon-Lieutenant W. P. MILES, 4th Volunteer Battalion the South Wales Borderers, resigns his commission, August 25th.

Surgeon-Lieutenant R. H. HENDERSON, M.D., 1st Lanarkshire, to be Surgeon-Captain, August 25th.

Surgeon-Lieutenant P. M. DEWAR, 3rd (the Blythswood) Volunteer Battalion the Highland Light Infantry, to be Surgeon-Captain, August 25th.

WYNDHAM A. MILLIGAN to be Surgeon-Lieutenant in the 24th Middlesex, August 4th.

JOHN K. BROWNLEES to be Surgeon-Lieutenant in the 4th Volunteer Battalion the Royal Fusiliers (City of London Regiment), August 29th

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 8,784 births and 5,592 deaths were registered during the week ending Saturday last, August 25th. The annual rate of mortality in these towns, which had been 13.8, 14.6, and 17.0 per 1,000 in the three preceding weeks, further rose last week to 18.4 per 1,000. The rates in the several towns ranged from 8.1 in Smethwick, 8.4 in Southampton, 8.6 in King's Norton, 9.2 in Reading, 9.8 in Handsworth (Staffs.), 9.9 in Burton-on-Trent, and 10.8 in Hornsey to 23.4 in Aston Manor and in Nottingham, 23.6 in Portsmouth, 24.2 in Liverpool, 24.9 in Birkenhead, 25.9 in Coventry, 26.3 in Stockport, 29.2 in Wigan, and 29.7 in Great Yarmouth. In London the rate of mortality was 18.3 per 1,000, while it averaged 18.5 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 6.2 per 1,000 in the seventy-six towns; in London this death-rate was equal to 5.6 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 10.0 in East Ham, 11.1 in Nottingham and in Bootle, 11.4 in Aston Manor, 11.5 in Birmingham, 13.3 in Birkenhead, 13.8 in West Ham, and 15.7 in Stockport. Measles caused a death-rate of 1.1 in Oldham and in Huddersfield, 1.2 in Wigan, 1.3 in Devonport, 1.4 in South Shields, 2.1 in Stockport, 2.2 in Norwich, and 2.6 in Rotherham; scarlet fever of 1.0 in Middlesbrough; diphtheria of 1.0 in Halifax and in Middlesbrough; whooping-cough of 1.1 in Walsall, 1.7 in Rotherham, and 2.0 in Burton-on-Trent; and diarrhoea of 10.1 in Aston Manor, 10.3 in Bootle, 10.8 in Birmingham, 10.9 in Nottingham, 11.4 in West Ham, 12.4 in Birkenhead, and 13.6 in Stockport. The mortality from enteric fever showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The number of scarlet-fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,120, 3,051, and 3,046 at the end of the three preceding weeks, had risen again to 3,078 at the end of last week; 350 new cases were admitted during the week, against 415, 308, and 317 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, August 25th, 884 births and 472 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 11.8, 14.0, and 14.4 per 1,000 in the three preceding weeks, declined again last week to 13.8, and was 4.6 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 10.6 in Perth and 11.4 in Leith to 16.2 in Greenock and 16.5 in Aberdeen. The death-rate from the principal infectious diseases averaged 2.3 per 1,000 in these eight towns, the highest rates being recorded in Glasgow and Greenock. The 231 deaths in Glasgow included 2 which were referred to measles, 3 to diphtheria, 9 to whooping-cough, 30 to diarrhoea, and 4 to cerebro-spinal meningitis. Six deaths from diarrhoea were recorded in Edinburgh, 6 in Aberdeen, 5 in Greenock, 3 in Dundee, and 2 each in Paisley and Leith.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, August 25th, 519 births and 355 deaths were registered in six of the principal Irish towns, as against 523 births and 319 deaths in the preceding period. The annual death-rate in these towns, which had been 17.0, 16.4, and 15.9 per 1,000 in the three preceding weeks, rose to 17.8 per 1,000 in the week under notice, this figure being 0.6 per 1,000 lower than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 11.2 in Londonderry and 13.7 in Limerick to 21.2 in Cork and 21.5 in Dublin. The zymotic death-rate during the same period and in the same Irish towns averaged 1.8 per 1,000, or 0.3 per 1,000 lower than during the preceding period, the highest figure—4.0—being recorded in Belfast, while no deaths under this heading were recorded in Londonderry and Limerick.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BATH ROYAL UNITED HOSPITAL.—House-Surgeon. Salary, £80 per annum.

BIRMINGHAM CITY ASYLUM.—Assistant Medical Officer. Salary, £150 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—(1) House-Surgeon. Salary, £100 per annum. (2) Second House-Surgeon. Salary, £60 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CARLISLE: CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at the rate of £80 and £100 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House-Surgeon. Salary, £120 per annum.

CROSSLEY SANATORIUM.—Assistant Medical Officer. Salary, £100 per annum.

GLASGOW EYE INFIRMARY.—Resident Assistant House-Surgeon. Salary, £75 per annum.

KING WILLIAMSTOWN, CAPE OF GOOD HOPE: GREY HOSPITAL.—Resident House-Surgeon. Salary, £300 per annum.

LIVERPOOL INFIRMARY FOR CHILDREN.—Assistant House-Surgeon. Salary at the rate of £60 per annum.

LIVERPOOL: ROYAL SOUTHERN HOSPITAL.—(1) Three House-Physicians. (2) House-Surgeon. (3) Resident Pathologist and Registrar. Salary (1) and (2) £80 per annum, (3) £100 per annum.

LIVERPOOL STANLEY HOSPITAL.—(1) Second House-Surgeon; (2) Third House-Surgeon. Salary (1) £70, (2) £60, per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Junior Resident Medical Officer. Salary at the rate of £80 per annum.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary, £100 per annum.

METROPOLITAN HOSPITAL, Kingsland Road, N.E.—(1) Casualty Officer, (2) House-Physician, (3) House-Surgeon, (4) Assistant House-Physician, (5) Assistant House-Surgeon. Salary per annum, (1) £150, (2) and (3) £80, (4) and (5) £30.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester Square, W.C.—Demonstrator of Practical Dental Surgery. Salary, £100 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Senior House-Surgeon. Salary, £100 per annum.

SOUTHWARK UNION INFIRMARY, East Dulwich Grove, S.E.—Assistant Medical Officer. Salary, £100 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House-Surgeon. Salary, £50 per annum.

WEST LONDON HOSPITAL, Hammersmith Road, W.—(1) Two House-Physicians. (2) Three House-Surgeons

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House-Physician. Salary, £75 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeon at West Drayton (Middlesex), Hunstanton (Norfolk), and Stamford-le-Hope (Essex).

APPOINTMENTS.

BROMLEY, J., M.R.C.S.Eng., L.R.C.P.Lond., L.S.A., District Medical Officer of the Sudbury Union.

CROFTON, W. M., M.B., B.Ch., B.A.O., R.U.I., Medical Officer of Health to the Wisbech Port Sanitary Authority.

FARQUHARSON, D. P. M., M.B., C.M.Edin., Medical Officer of Health of Radcliffe Urban District.

FOSS, F. V., M.R.C.S.Eng., L.R.C.P.Lond., District Medical Officer of Bristol Parish.

HARPER, Frances M., M.B., Ch.B.Edin., D.P.H.Camb., Assistant Medical Officer of Health to the County Borough of St. Helen's, Lancashire.

JORDAN, Alfred C., M.D.Cantab., Medical Officer to the Electrical Department of the North-Eastern Hospital for Children, Hackney Road.

NELIGAN, J. C., L.R.C.S.Edin., L.S.A., Medical Officer of Health of the Barnard Castle Rural District.

NEWTON, F. M., M.R.C.S.Eng., L.R.C.P.Lond., Resident Assistant Medical Officer of Nottingham Parish.

ROUTLEY, Edwin Walter, M.D.Brux., M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer to the Aldershot Education Committee.

WILLIAMS, D. L., M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer of Health of the Borough of Wrexham.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays and Operations. Monday and Thursday, 2.30 p.m., Eye Diseases. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children.

BOOKS, ETC., RECEIVED.

Chronic Metritis: its Pathology and its Relation to Chronic Endometritis. By W. F. Shaw, M.D., Ch.B. London and Manchester: Sherratt and Hughes. 1906.

Statistical Tables of the Patients under Treatment in the Wards of St. Bartholomew's Hospital during 1905. By the Medical Registrars and the Surgical Registrar. London: C. Skipper and East. 1906.

Nature's Doorstep Series. The Green Gateway. By F. G. Heath. London: The Country Press. 3s.

Ueber Blinddarmentzündung. Wann soll operiert werden? Von Med.-Rat. Dr. J. Baumgärtner. München: O. Gmelin. 1906.

The Eye and Nervous System, their Diagnostic Relations. Edited by Wm. C. Posey, A.B., M.D., and Wm. G. Spiller, M.D. Philadelphia and London: J. B. Lippincott and Co. 25s.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
SEPTEMBER.	
1 SATURDAY...	London: Medical Charities Committee, Metropolitan Counties Branch, 429, Strand, W.C., 4 p.m.
2 Sunday	
3 MONDAY	
4 TUESDAY.....	
5 WEDNESDAY	
6 THURSDAY...	Altrincham Division, *Lancashire and Cheshire Branch*, Executive Committee Meeting.
7 FRIDAY	
8 SATURDAY...	
9 Sunday	
10 MONDAY	
11 TUESDAY.....	
12 WEDNESDAY	
13 THURSDAY...	
14 FRIDAY.....	
15 SATURDAY...	
16 Sunday.....	
17 MONDAY	
18 TUESDAY.....	
19 WEDNESDAY	Altrincham Division, *Lancashire and Cheshire Branch*, Division Meeting at Knutsford, 4.30 p.m. Dinner, 7 p.m.
20 THURSDAY...	
21 FRIDAY	
22 SATURDAY...	
23 Sunday.....	
24 MONDAY	
25 TUESDAY.....	
26 WEDNESDAY	London: South-Eastern Branch Council, at 3.15 p.m.
27 THURSDAY...	Wandsworth Division, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.45 p.m.
28 FRIDAY.....	
29 SATURDAY...	
30 Sunday	

Date.	Meetings to be Held.
OCTOBER.	
1 MONDAY	
2 TUESDAY ...	
3 WEDNESDAY	
4 THURSDAY...	
5 FRIDAY	
6 SATURDAY...	
7 Sunday	
8 MONDAY	London: Journal and Finance (Referendum) Committee, 4 p.m.
9 TUESDAY.....	London: Organization Committee, 10.30 a.m. London: Finance Inquiry Committee, 2.30 p.m.
10 WEDNESDAY	London: Medico-Political Committee, 2.30 p.m.
11 THURSDAY...	London: Hospitals Committee, 2.30 p.m.
12 FRIDAY	London: Central Ethical Committee, 2 p.m.
13 SATURDAY...	
14 Sunday	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	London: Journal and Finance Committee. 2 p.m.
18 THURSDAY...	
19 FRIDAY.....	
20 SATURDAY...	
21 Sunday	
22 MONDAY	
23 TUESDAY.....	
24 WEDNESDAY	Central Council.
25 THURSDAY...	Wandsworth Division, *Metropolitan Counties Branch*, Battersea Town Hall, 8.45 p.m.
26 FRIDAY	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 8TH, 1906.

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OUT-PATIENT DEPARTMENTS.

HAMPSTEAD HOSPITAL.

THE following is a summary of the statements made on the occasion, to which reference was made in these columns some little time ago, when the Council of the Hampstead General Hospital received a deputation from medical practitioners resident in Hampstead and its neighbourhood. The deputation, which took place on June 21st, and was introduced by Dr. F. R. Humphreys, consisted of Drs. Ford Anderson, E. Claude Taylor, G. D. Pidcock, H. W. Armit, W. B. Parsons, and R. A. Yeld, its Honorary Secretary.

In his opening remarks Dr. HUMPHREYS said the deputation represented a general meeting of the medical practitioners in Hampstead and its neighbourhood, attended indifferently by practitioners who were and were not members of the British Medical Association; the opinions expressed by the delegates might therefore be taken as those of the local profession as a whole. They had exceptional and accurate knowledge of the medical needs of the neighbourhood and of the condition of the people who applied for hospital relief. There were very few poor people in the locality, and for those in poor circumstances who did not need Poor-law relief there were ample and very accessible means of obtaining immediate attendance at charitable medical institutions just outside its borders. Besides seven general hospitals there were at least fifteen special hospitals within a radius of three miles, while in Hampstead itself there were eight institutions which had arrangements for receiving the sick poor. The possible needs of Hampstead were therefore well supplied. The desire of the deputation was to point out certain defects in the management of the hospital, in the hope that these might be remedied in an early stage, and the harm which had been brought about elsewhere thus avoided.

Dr. FORD ANDERSON then submitted the first of five resolutions passed at a meeting of the medical profession in Hampstead on May 5th:

> That an out-patient department is unnecessary.

In dealing with this, Dr. Ford Anderson said that as the Hampstead Hospital was in its infancy as a general hospital, they must consider the question of an out-patient department in the light of what had taken place elsewhere. He then described in detail the enormous increase in out-patient work which has been witnessed in the last twenty years, and especially in the last ten years. The excuse for out-patient departments put forward by the medical staffs of some hospitals—namely, that they afforded a good opportunity for clinical study and for the selection of cases for the wards—was a very cynical way of looking at things, as there was little account taken from the patient's standpoint. Besides, if these medical staffs trusted to the co-operation of a loyal and friendly profession, plenty of cases would be supplied; no hospital would succeed unless the profession gave its support, and this would certainly be withheld from Hampstead Hospital if its out-patient department remained open. It was a demoralizing influence, as patients who visited it learnt to trust to others for what they could do quite well for themselves; and economically it was unsound, because it helped employers to pay their workers their wages. Nor would it really afford opportunity for studying cases; just as elsewhere the attendance would become so great that the patients would not receive the individual attention they required. The treatment supplied would be one of mere physicking, to the neglect of full inquiry into the cause of the disease, and well-considered advice for restoration to health. The treatment, moreover, had the defect that it was given in ignorance of the patient's habits and environment; similarly, if a patient under treatment at a hospital grew worse and was unable to attend, he had to call a stranger who did not know the antecedents of his case, and was thus unable to give as prompt relief as might otherwise have been the case. In spite of the enormous sums contributed by the public, the hospitals were always crying out for more aid owing to the expense entailed by bloated out-patient departments, or at least the numbers in out-patient departments are the pretext. As for Hampstead itself, what the hospital was now engaged in doing was lessening the work of two excellent provident dispensaries in its neighbourhood, and the calls for Poor-law medical relief for which they had nevertheless to pay the rates. It also attended servants and others who formerly went to private practitioners. The whole question was not a doctor's question, but one in which public interest was involved. All emergency cases, and often even cases that were neither very urgent nor very serious, went to the hospital, and practitioners were thus thrown out of touch with the progress of practical treatment. This was an injury to their education which rebounded on the public. If the out-patient department were continued the members of the Hospital Committee would find it a creation of Frankenstein, which, as elsewhere, neither they nor their successors would be able to control.

Dr. CLAUDE TAYLOR then brought forward the second resolution:

> That the casualty department be kept distinct from any other department, and that casualty patients, if not suitable for admission, be seen once and thereon referred to private practitioners, provident dispensaries, or Poor-law authorities.

This recommendation, he said, logically followed the first resolution. Every one recognized that in cases of emergency, such as serious accidents, there was only one right course—namely, that the patient should be relieved as soon as possible by means of the nearest help; but they asked that such patients when relieved, if not retained in the hospital as in-patients for subsequent treatment, should not be allowed to continue as out-patients, but be referred for further treatment to one or other of the agencies mentioned. This would meet every case; private practitioners would be able to attend to such

patients as might be able to pay the ordinary fees, which varied according to the requirements and conditions of the patients, or the patient would be suitably attended to by the provident dispensaries to which they belonged; and others would come under the Poor-law authorities. He then related some instances showing that existing arrangements demoralized patients and led them to think they were under no responsibility to make a return for the medical benefits they received either from the hospital or from private practitioners. Such losses as were thus incurred were perhaps of no importance either to him or to any other medical practitioner, but the engendering of a feeling among the people that medical benefits were such that there was no need to contribute anything in return was a real loss to the community.

Dr. Pidcock submitted the next resolution:

That there be greater facilities for general practitioners of the neighbourhood to attend in-patients.

He said he believed the original purpose of the founders of the hospital was to provide a means by which any local practitioner could follow up a case in hospital, instead of handing it over to some one else to treat. The popularity and usefulness of the institution would certainly be increased if a certain number of free beds were allotted to local men not on the honorary staff for their use, and if the number of beds for which a small payment was made were increased. If this were done, a local practitioner who took special interest in any case could continue to attend that case in the hospital, while at the same time securing for his patient the benefits of hospital treatment, such as skilled nursing and so on, and, if need be, a consultation with some specialist in one or other department of medicine and surgery; at present there were none at the hospital, but there should be. These advantages of the hospital were now practically confined to the half-dozen local practitioners on its staff; this was hardly an equitable arrangement, as these gentlemen were thus privileged over and above their professional brethren in the neighbourhood. When a patient was admitted to the hospital, he or she was simply transferred from one local practitioner to another, and there should be, therefore, a complete reversion to the original intention of the hospital. At Ramsgate General Hospital and Seamen's Infirmary the plan of setting aside a number of free beds for practitioners not on the staff was in practice, and worked well and harmoniously, while in the cottage hospitals of many provincial towns almost any medical man could attend his patient therein if he wished to do so. A local hospital, such as the one at Hampstead, should be for the benefit of the local medical men and their patients.

Dr. Armit dealt with the next resolution:

That there should be a service limit as well as an age limit to appointments on the medical staff.

He said that the point was one which particularly affected the well-being of local medical practitioners. The present position was that a gentleman was appointed to the staff position and re-elected year after year, thus serving for an indefinite number of years, and that the age of retirement was a comparatively late one. In any district where every member of the profession was of equal status, all being general practitioners, it was not fair that any should be deprived of an opportunity of serving on the medical staff of the hospital, either because the election was confined to half a dozen of them, or because without any particular reason the same men were re-elected year after year. To make matters a little more equal, the term of possible service should be limited, and all thus given a real chance of election. This would be no hardship to any member of the existing or future staff. A general practitioner would have the advantage of hospital work for a few years, and then would retire in favour of colleagues in the neighbourhood who had as much right to serve on the hospital staff as he had. As regards the age limit, this should be put rather low to provide for the younger generation, who were of course very keen on getting their experience, coming on and filling the places. If there were an "early closing time," as it were, the younger man would have a better chance. Of course the whole thing centred round a service limit. An age limit already existed, and rightly so, but he would ask in addition for the imposition of a service limit of short duration, and for a lowering of the age limit as well.

Dr. Yeld submitted the last resolution, namely:

That the outside medical profession should be adequately represented on the Board.

This, he said, required a little explanation. Importance was attached to it because it was felt that no recommendation contained in the resolutions submitted would be more conducive to harmony between the hospital and the local profession than that of having on the Council some local medical men who were still in practice but were not members of the honorary staff. This principle was carried out at the Bolingbroke Hospital, which had six medical men on its Board, one of them being a direct representative appointed by a local medical society. It was not wished, of course, to define the number of medical men on the Board, but simply to emphasize the fact that it should contain medical men in active practice in the neighbourhood who were not members of its staff, for such a principle would secure representation for the whole profession. It was one which might with great advantage be adopted at Hampstead, the electing body being either the local branch of the British Medical Association or the Hampstead Medical Society. In any case some large number of the medical profession should elect a representative on the Board. The Council would find that such a plan would make things work harmoniously, as the medical men in the locality would have the advantage of being able to speak, when need be, directly to the medical representative, and he would be able to deal with many points. Had the plan been in existence, the matters under discussion would have been explained before and the necessity for a deputation would not have existed.

Dr. Walter Smith, who accompanied the deputation, said he was living not in Hampstead but in the parish of St. Pancras. Having, however, taken great interest in the hospital question for some considerable number of years, he knew the difficulties which must attend the work in Hampstead as well as elsewhere. He spoke, too, with some authority, perhaps, because for over thirty years he had been a Poor-law medical officer, and was now one of the Poor-law guardians of St. Pancras, who met every Monday to dispense outdoor relief. They found Hampstead Hospital was taking their patients away, or, in other words, the hospital was treating them, and taking the first step towards making them paupers. He had been informed that 75 per cent. of the patients really came from St. Pancras. When medical officer he used to attend at one of the Poor-law dispensaries in St. Pancras day after day, knowing that he would see no patients. They went to the out-patient department of the nearest general hospital, and only two or three came in a day. They went to the hospital for preference, because they knew no inquiry would be made as to their circumstances or means to pay for medical treatment, and the only reason many of them attended the Poor-law dispensary was in order to obtain certificates of exemption from school, or to qualify themselves to obtain medical relief, or something of that sort. He was convinced that what Hampstead Hospital was doing tended to pauperize the people. They went to it that they might get attendance for nothing, and that led to their becoming paupers. He had always understood that Hampstead was purely a home hospital, and if the authorities could see their way to make it a kind of superior cottage hospital, in a larger way, it would be a very great improvement.

Dr. Humphreys suggested that if this hospital were, as formerly, purely a home hospital and nursing institute, sick persons would be able to obtain the attendance they were unable to get in their homes, and would be benefited by the hospital.

After the resolutions had been thus submitted, Mr. Collins, of the Hospital Council, made a certain number of observations, one being that whereas the number of out-patients reckoned against each occupied bed in fifteen large general hospitals was 212, and in eight other small general hospitals 338, in the Hampstead General Hospital there were at present only 91. He did not think that out-patient departments could fairly be blamed for the piteous appeals for further support launched by hospital committees.

In answer to a question, Dr. Anderson said there was at least one large hospital which had closed its out-patient department, and that around London about nine hospitals of the cottage variety did not allow them at all.

Dr. WALTER SMITH said that purely medical relief did not disfranchise.

Dr. HUMPHREY said that any almoner employed by the hospital should be a trained almoner.

Mr. COLLINS having asked whether, if the principle of setting aside free beds for the patients of outside practitioners were adopted, the Council would be responsible for the character of the practitioner and the nature of his treatment,

Dr. HUMPHREYS replied that the British Medical Association did not realize that any of its members were indifferent practitioners, and a medical man not a member of that Association must be regarded as a desirable person until he was found to be the contrary.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—The autumn meeting will be held in the house of Dr. Henderson, 9, Church Street, Galashiels, on the afternoon of Thursday, September 13th, at 3.30 o'clock. Agenda: (1) Report of the Representative (Dr. Blair) of the Annual Meeting of the Association; (2) discussion of the Hospitals Committee's report, and other medico-political matters referred to Divisions; (3) clinical papers by members.—W. HALL CALVERT, Honorary Secretary.

METROPOLITAN COUNTIES BRANCH: WANDSWORTH DIVISION.—An ordinary meeting will be held on Thursday, September 27th, at the Wandsworth Town Hall at 8.45 p.m. Tea and coffee provided. Agenda: (1) Minutes; (2) correspondence; (3) questions; (4) consideration of the Wandsworth circular respecting the General Medical Council election in November next, with subsequent selection of three of the candidates; (5) Dr. L. S. McManus will report on the Representative Meeting in July last, when various resolutions will be moved; (6) other business. It is hoped to organize a small smoking concert for this meeting. Every medical practitioner resident in the area will be invited to attend.—E. ROWLAND FOTHERGILL, M.B., Honorary Secretary, Southfields, S.W.

NORTH WALES BRANCH: SOUTH CARNARVON AND MERIONETH DIVISION.—A meeting of the Division will be held at the Queen's Hotel, Blaenau Festiniog, on Friday, September 21st, in the afternoon. Members having papers to read or cases to show are requested to communicate with the Honorary Secretary before September 12th.—HENRY GLADSTONE JONES, Honorary Secretary, Plas Gwilym, Criccieth.

Naval and Military Appointments.

ROYAL ARMY MEDICAL CORPS.

EXCHANGE.

The charge for inserting notices respecting Exchanges in the Army Medical Department is 3s. 6d., which should be forwarded in stamps or post office order with the notice, not later than Wednesday morning, in order to ensure insertion in the current issue.

CAPTAIN R.A.M.C., serving in one of the best stations in India—in country eighteen months—is willing to exchange to South Africa. Address—Jpore, c.o. BRITISH MEDICAL JOURNAL Office.

Lieutenant-Colonel G. G. ADAMS has taken up the post of Medical Inspector of Recruits in the Southern Command, in place of Lieutenant-Colonel J. M. Reid, M.D.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 8,663 births and 5,556 deaths were registered during the week ending Saturday last, September 1st. The annual rate of mortality in these towns, which had been 14.6, 17.0, and 18.4 per 1,000 in the three preceding weeks, declined again last week to 15.3 per 1,000. The rates in the several towns ranged from 7.2 in Northampton, 9.2 in Bournemouth, 10.1 in Hastings, 10.2 in Hornsey, and 10.6 in Reading and in Handsworth (Staffs.) to 23.6 in Birkenhead, 23.7 in Swansea, 24.1 in Grimsby, 25.3 in Bootle, 25.6 in Liverpool, 25.8 in Hull, 25.9 in Coventry, 28.7 in Great Yarmouth, 29.7 in Middlesbrough, and 30.4 in Stockport. In London the rate of mortality was 17.3 per 1,000, while it averaged 18.7 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases in the seventy-six towns averaged 6.5 per 1,000; in London this death-rate was equal to 5.6 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 10.5 in West Ham and in Grimsby, 10.6 in Sheffield, 12.0 in Aston Manor and in Stockport, 12.3 in Coventry, and 12.7 in Salford. Measles caused a death-rate of 1.2 in Wigan, 1.7 in Rotherham and 3.7 in Stockport; scarlet fever of 1.1 in Swansea; diphtheria of 1.1 in St. Helen's and 1.2 in Wigan and in Rochdale; whooping-cough of 1.0 in Middlesbrough, 1.1 in Huddersfield, 1.3 in Birkenhead, and 1.4 in Merthyr Tydfil; and diarrhoea of 9.2 in Sheffield, 9.3 in Norwich, in Liverpool, and in Hull, 9.5 in Bootle, 9.6 in Nottingham, 9.8 in Grimsby, 9.9 in West Ham, 11.4 in Aston Manor and in Salford, and 12.3 in Coventry. No death from small-pox was registered during the week, and no small-pox cases were under treatment in the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 3,051, 3,046, and 3,078 at the end of the three preceding weeks, had declined again to 3,042 at the end of last week; 317 new cases were admitted during the week, against 308, 317, and 350 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, September 1st, 858 births and 467 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 14.0, 14.4, and 13.8 per 1,000 in the three preceding weeks, rose again to 14.2 per 1,000 last week, but was 4.1 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 11.4 in Paisley and 11.5 in Edinburgh to 19.6 in Perth and 22.9 in Greenock. The death-rate from the principal infectious diseases averaged 2.3 per 1,000, the highest rates being recorded in Glasgow and Dundee. The 223 deaths in Glasgow included 2 which were referred to measles, 2 to diphtheria, 8 to whooping-cough, 5 to "fever," 28 to diarrhoea, and 4 to cerebro-spinal meningitis. Three fatal cases of diphtheria and 4 of diarrhoea were recorded in Edinburgh; 6 of diarrhoea in Dundee; 2 of whooping-cough and 2 of diarrhoea in Aberdeen; and 3 of diarrhoea in Paisley, 3 in Greenock, and 2 in Leith.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

ARCHDALL.—On August 25th, at 42, Ashburnham Road, Bedford, the wife of Mervyn T. Archdall, L.R.C.P., L.R.C.S., of a daughter.

GORDON-GREEN.—September 1st, at Westerton, 46, Beach Road, Southsea, the wife of Staff Surgeon H. W. Gordon-Green, R.N., of a son.

MCDONALD.—On July 25th, at Mill's, St. Kitts, West Indies, the wife of W. M. McDonald, M.R.C.S., L.R.C.P., of a son.

POTTS.—On August 31st, at Bagley Lodge, Edgbaston, the wife of W. A. Potts, M.D., of a son.

WOODHEAD.—On August 29th, at Chisholme, Sale, Cheshire, the wife of H. Miall Woodhead, M.B., C.M.Edin., of a son.

MARRIAGES.

ANNAND—RANNIE.—At Marlborough Place Church, N.W., on August 29th, William Fraser Annand, M.D., son of R. C. Annand, of Harton Lea, South Shields, to Jessie, daughter of the Rev. J. Rannie, late of Berbice, British Guiana. At home, 9, Lichfield Road, Stafford, after October 15th.

COLLIER—SUMMERHAYES.—On September 1st, at All Souls, Langham Place, James Staunfield Collier, M.D., F.R.C.P., second son of Alfred Henry Collier, Esq., of Cranford, Middlesex, to Minna Maud, only daughter of William Summerhayes, M.D., of Loyterton, Beckenham.

RUSSELL—BOSTON.—August 29th, at St. Mary's, Donnybrook, by the Rev. W. Wilson Mercer, Incumbent of Killymard, Donegal, assisted by the Rev. C. Byrne, Curate of St. Mary's, William Russell, L.R.C.S.I., L.R.C.P.I., of North Lakimpur, Assam, to Anita Maude, daughter of the late Warham Durdin Boston, Barrister-at-Law.

SPRIGGS—GIMSON.—At Leicester, on August 30th, N. I. Spriggs, M.D., B.S.Lond., F.R.C.S.Eng., of 12, Wennington Road, Southport, to Emily, daughter of W. Gimson, Esq., Rothesay, Leicester.

DEATHS.

DOBIE.—On August 29th, at 143, Oaklands, Keighley, Laura Alberta Jane, aged 35, wife of Dr. J. Nicholson Dobie.

SIMPSON.—On August 28th, at Diyatalawa, Ceylon (Naval Camp), of enteric, Herbert Bartlett Simpson, M.R.C.S., L.R.C.P., Surgeon R.N., H.M.S. *Sealark*, dearly loved, eldest son of George Bartlett and Ellen Simpson, of 2, Chepstow Mansions, W., in his 29th year. (By cable.)

WHITAKER—On August 29th, at White Lodge, Shrewsbury, Edmund Thomas Whitaker, M.B., B.Sc., D.P.H., Barrister-at-Law, M.O.H. for the County of Montgomery and other Districts, elder son of the late Dr. Edmund Whitaker, J.P., Bacup, Lancashire.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Senior House-Surgeon. Salary, £85 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—(1) House-Surgeon. Salary, £100 per annum. (2) Second House-Surgeon. Salary, £60 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CAMBRIDGE: ADDENBROOKE'S HOSPITAL.—Assistant House-Surgeon. Salary at the rate of £50 per annum.

CANCER HOSPITAL, Fulham Road, S.W.—House-Surgeon. Salary, £80 per annum.

CARDIFF UNION.—Assistant Medical Officer for the Workhouse. Salary, £130 per annum.

DUBLIN: WESTMORLAND LOCK GOVERNMENT HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E. House-Surgeon. Honorarium, £25 for six months.

ECCLES AND PATRICROFT HOSPITAL.—House-Surgeon. Salary, £70 per annum.

EDINBURGH: HOSPITAL FOR WOMEN AND CHILDREN.—(1) Assistant Medical Officer. (2) Resident Medical Officer. Candidates must be registered medical women.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—(1) Pathologist and Curator, (2) Senior House-Physician, (3) Senior House-Surgeon, (4) Junior House-Physician, (5) two Junior House-Surgeons. Salary at the rate of £100 per annum for (1), £60 for (2 and 3), and £30 for (4 and 5)

KING WILLIAMSTOWN, CAPE OF GOOD HOPE: GREY HOSPITAL.—Resident House-Surgeon. Salary, £300 per annum.

LEICESTER INFIRMARY.—(1) House-Physician, (2) Assistant House-Physician. Salaries at the rate of £100 and £50 per annum respectively.

LEICESTER PARISH.—Second Assistant Medical Officer for the Poor-Law Infirmary. Salary, £120 per annum.

LIVERPOOL INFIRMARY FOR CHILDREN.—Assistant House-Surgeon. Salary at the rate of £60 per annum.

LIVERPOOL: ROYAL SOUTHERN HOSPITAL.—Resident Pathologist and Registrar. Salary, £100 per annum.

MACCLESFIELD GENERAL INFIRMARY.—Junior House-Surgeon. Salary, £60 per annum.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—Resident Medical Officer. Salary at the rate of £80 per annum.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary, £100 per annum.

METROPOLITAN HOSPITAL, Kingsland Road, N.E.—(1) Casualty Officer, (2) House-Physician, (3) House-Surgeon, (4) Assistant House-Physician, (5) Assistant House-Surgeon. Salary per annum, (1) £150, (2) and (3) £40, (4) and (5) £20.

NORTHAMPTON GENERAL HOSPITAL.—Assistant House-Surgeon. Salary, £50 per annum.

READING: ROYAL BERKSHIRE HOSPITAL.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary at the rate of £80 and £60 per annum respectively.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Senior House-Surgeon. Salary, £100 per annum.

SHEFFIELD ROYAL HOSPITAL.—Sixth Resident Medical Officer. Salary, £50 per annum.

SHEFFIELD UNION HOSPITAL.—Resident Medical Officer. Salary, £100 per annum, and £20 for such services performed in connexion with Workhouse.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £150 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Surgeon. Honorarium, £25 for six months.

WEST LONDON HOSPITAL, Hammersmith Road, W.—(1) Two House-Physicians. (2) Three House-Surgeons

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeon at Leyburn (co. Yorks), and Belper (co. Derby).

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Eyes.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following arrangements have been made for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays and Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
SEPTEMBER.	
Sunday	
10 MONDAY	
11 TUESDAY.....	
12 WEDNESDAY	
13 THURSDAY...	SOUTH-EASTERN COUNTIES DIVISION, *Edinburgh Branch*, 9, Church Street, Galashiels, 3.30 p.m.
14 FRIDAY.....	
15 SATURDAY...	
16 Sunday.....	
17 MONDAY	
18 TUESDAY.....	
19 WEDNESDAY	ALTRINCHAM DIVISION, *Lancashire and Cheshire Branch*, Division Meeting at Knutsford, 4.30 p.m. Dinner, 7 p.m.
20 THURSDAY...	
21 FRIDAY	SOUTH CARNARVON AND MERIONETH DIVISION, *North Wales Branch*, Queen's Hotel, Blaenau, Festiniog.
22 SATURDAY...	
23 Sunday.....	
24 MONDAY	
25 TUESDAY.....	
26 WEDNESDAY	LONDON: South-Eastern Branch Council, at 3.15 p.m.
27 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.45 p.m.
28 FRIDAY.....	
29 SATURDAY...	
30 **Sunday**	
OCTOBER.	
1 MONDAY	
2 TUESDAY ...	LONDON: Public Health Committee, 3.15 p.m.
3 WEDNESDAY	
4 THURSDAY...	
5 FRIDAY	
6 SATURDAY...	

Date.	Meetings to be Held.
OCTOBER *(continued)*.	
7 **Sunday**	
8 MONDAY	LONDON: Journal and Finance (Referendum) Committee, 4 p.m.
9 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Finance Inquiry Committee, 2.30 p.m.
10 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m.
11 THURSDAY...	LONDON: Hospitals Committee, 2.30 p.m. LONDON: Premises and Library Committee, 3.15 p.m.
12 FRIDAY	LONDON: Central Ethical Committee, 2 p.m.
13 SATURDAY...	
14 **Sunday**	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	LONDON: Journal and Finance Committee, 2 p.m.
18 THURSDAY...	
19 FRIDAY.....	
20 SATURDAY...	
21 **Sunday**	
22 MONDAY	
23 TUESDAY.....	
24 WEDNESDAY	CENTRAL COUNCIL.
25 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Battersea Town Hall, 8.45 p.m.
26 FRIDAY	
27 SATURDAY...	
28 **Sunday**	
29 MONDAY	
30 TUESDAY.....	
31 WEDNESDAY	

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 15TH, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

SOUTH AUSTRALIAN BRANCH.

THE twenty seventh annual meeting of the South Australian Branch was held at the University of Adelaide on Thursday, June 28th, 1906. The retiring President (Dr. A. A. Lendon) took the chair at 4 p.m.

Confirmation of Minutes.—The minutes of the previous annual meeting were read and confirmed.

Annual Report of Branch Council for 1905.—At the beginning of the year there were 126 members on the roll; during the year 31 new members were elected. This great increase in numbers was due partly to the fact of the Medical Congress meeting in Adelaide, but also to the efforts of Dr. Lendon, who inaugurated his second term of office in the Presidential chair by an appeal to the profession throughout the State to join the Association. One member (Dr. A. E. Russell) had died; six had taken up their residence outside the State; and three members were in arrears with their subscriptions and therefore suspended from membership. This left a net gain of 21 members for 1905, the present total being 147. The monthly meetings continued to be well attended, and the finances were in a satisfactory condition.

Report of Council.—The report of the Council and the balance-sheet for 1905 were both adopted.

Election of Officers.—The following were all duly elected to their respective positions:—*Vice-President*, Dr. J. H. Evans; *Honorary Treasurer*, Dr. W. T. Hayward; *Honorary Secretary*, Dr. J. B. Gunson; *Ordinary Members*, Drs. H. Swift, A. M. Morgan, and C. H. Souter, and the retiring president (Dr. Lendon). The Parliamentary Bills Committee was re-elected; also Dr. Newland as local editor of the *Australasian Medical Gazette*, and Dr. A. E. Wigg as *Honorary Auditor*.

President's Address.—Dr. LENDON then delivered his Presidential address on the desirability of amending the Medical Acts. It was listened to with great interest, and called forth frequent applause. He then introduced the Vice-President (Dr. E. W. MORRIS) as the incoming President, who briefly thanked the members for their greeting.

Votes of Thanks.—Votes of thanks were then passed to the retiring officers, and to the Council of the University for the use of the lecture room for all Branch meetings.

Annual Dinner.—In the evening the annual medical dinner was attended by 41 doctors, and was a most enjoyable and successful gathering, the diners being afterwards entertained as the guests of the new President.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

METROPOLITAN COUNTIES BRANCH.—A meeting of Council will be held on Tuesday, September 25th, at 5 p.m., at the Library of the British Medical Association, 429, Strand, W.C.—D'ARCY POWER, Honorary Secretary.

METROPOLITAN COUNTIES BRANCH: WANDSWORTH DIVISION.—An ordinary meeting will be held on Thursday, September 27th, at the Wandsworth Town Hall at 8.45 p.m. Tea and coffee provided. Agenda: (1) Minutes; (2) correspondence; (3) questions; (4) consideration of the Wandsworth circular respecting the General Medical Council election in November next, with subsequent selection of three of the candidates; (5) Dr. L. S. McManus will report on the Representative Meeting in July last, when various resolutions will be moved; (6) other business. It is hoped to organize a small smoking concert for this meeting. Every medical practitioner resident in the area will be invited to attend.—E. ROWLAND FOTHERGILL, M.B., Honorary Secretary, Southfields, S.W.

NORTH WALES BRANCH: SOUTH CARNARVON AND MERIONETH DIVISION.—A meeting of the Division will be held at the Queen's Hotel, Blaenau-Festiniog, on Friday, September 21st, in the afternoon. Members having papers to read or cases to show are requested to communicate with the Honorary Secretary before September 12th.—HENRY GLADSTONE JONES, Honorary Secretary, Plas Gwilym, Criccieth.

SHROPSHIRE AND MID-WALES BRANCH.—The next meeting will be held at the Salop Infirmary, Shrewsbury, on October 2nd, at 3 p.m. The President of the Branch (Dr. Alan Rigden) will read a paper on an Analysis of 73 Cases of Puerperal Insanity. Dr. Wheatley, M.O.H. for the County of Salop, will open a discussion on the Desirability of making Phthisis a Notifiable Disease. The annual dinner will be held in the Music Hall in the evening.—C. G. RUSS WOOD, Honorary Secretary.

ELECTION OF DIRECT REPRESENTATIVES ON THE GENERAL MEDICAL COUNCIL.

The following circular, addressed to the Chairmen of the Divisions of the British Medical Association in England and Wales by the Chairman of the Wandsworth Division, has been handed to us for publication:

27, Wimbledon Park Road, Wandsworth, S.W.,
1st September, 1906.

Dear Sir,

Election of Direct Representatives for England and Wales to the General Medical Council, 1906.

As you are probably aware, the scheme prepared for the nomination through the British Medical Association of Candidates for Election to the G. M. C. this year has been abandoned.

There seems, however, to be no reason why there should not be an organized attempt to return three Medical Practitioners, who would prove acceptable to the majority of the profession, as their Representatives on the G. M. C.

In order to do this it becomes necessary for some one to take the initiative. I would therefore submit for the consideration of the Members of the Profession within the area of your Division the following broad suggestions, and would ask you (as the time is short) to be good enough to consult them by means of a Meeting to be held before the 15th October under the auspices of your Division.

The suggestions are these:

1. That as the time is short and only three are to be elected, no territorial arrangements be attempted.
2. That the whole of the local profession be asked to attend your Division Meeting. This could be done by inviting them to a Scientific paper and discussion, and the question appearing as an item on the Agenda. A copy of this circular could be sent if it were thought desirable.*
3. That each Agenda do contain the names of all Candidates known of up to date (see list at end of letter).
4. That this list of Candidates is not to be limited to those who were nominated by the Divisions of the Association.
5. That at each such Meeting those present do vote. Each to have three votes. No plumping allowed. The Chairman, who shall be Scrutineer, with one other to be elected at the meeting, shall place against each candidate the total number of votes he has obtained; and post this list as provided in clause 6.
6. That these lists be sent on or before Saturday, 20th October to Dr. Hugh Ker, President of the Metropolitan Counties Branch and late resident in Birmingham district, who has kindly consented to act as Scrutineer with Dr. Bateman (Medical Defence Union) and Dr. Hugh Woods (Ldn. and C. M. P. Society). The address is Tintern, Balham Hill, London, S.W. The envelope to be marked "General Medical Council."
7. That those three candidates who have the highest aggregate total of votes be considered the candidates preferred and to be recommended to the profession. Each area participating shall at the meeting held to consider the list, also pass a resolution to support in all ways possible these three whoever they may be (*e.g.*, by addresses, by Notices on all agendas, post cards, etc., issued; etc., etc.).
8. These three names with their addresses will be published in the British Medical Journal and the *Lancet* on October 27th. The Agenda calling the meeting could give this information in advance; and thus save subsequent circulars.

I append a list of those who are known to be candidates, and have placed them in alphabetical order. I would explain that the Divisions of the British Medical Association seem to offer the necessary local machinery for the above object, and this is the sole reason for availing ourselves of their aid. The union of the profession is our great object.

I feel sure I need hardly add that I hope this communication will be considered by no means a dictation, but rather an attempt to co-ordinate the profession in the consideration of a matter of vital importance to itself; and trust you will cordially approve and support it.

A similar attempt has lately been made in London to obtain the wishes of the profession as to certain candidates. No steps were taken to withdraw any candidate who was standing. A selection was made: every member was duly advised of the choice; and the result was eminently satisfactory. No pledges whatever were asked or given.

After the publication of the three names heading the list, those candidates would be justified through their own Committees, or alone, to take any advantage of the voting they considered desirable.

There can be no expectation of a unanimous response to the scheme this year. I would only suggest that, as I am informed it will meet with the ready acceptance of a large number of the profession, we can hope that at future elections they will look to something similar as best suited to voice their wishes, and as a ready means by which to influence the indifferent members of our Profession to vote for candidates generally recommended.

Believe me,
Yours faithfully,
LLEWELLYN WILLIAMS,
Chairman.
Wandsworth Division,
British Medical Association.

P.S.—If you decide to do what you can in the matter, during the short time at our disposal, would you kindly send me a post card, so that some idea may be formed of the progress being made?

List of Candidates known:

G. H. Broadbent (Manchester), Geo. Brown (Cornwall), Langley Browne (West Bromwich), J. F. Bullar (Southampton), Andrew Clark (London), A. Godson (Cheadle), Geo. Jackson (Plymouth), H. A. Latimer (Swansea), L. S. McManus (London), J. Rutherford Morison (Newcastle-on-Tyne), C. J. Renshaw (Ashton-on-Mersey), J. M. Rhodes (Manchester), F. J. Smith (London), J. Smith (Chiswick), and C. R. Straton (Salisbury).

* Copies of this Circular can be obtained if ordered of me before September 15th at the rate of 2s. for every 50, or part of 50. If a large number were ordered, the benefit of the printer's reduction could be obtained and money returned.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

The following appointments have been made at the Admiralty: Ernest C. Lomas, M.B., D.S.O., Fleet Surgeon, to the *Fleetwing*, additional, for three months' study at Edinburgh University, September 5th; Hugh F. Morris, Surgeon, to the *Sappho*, on recommissioning, September 1st; Ernest S. Tuck, Surgeon, to the *Scylla*, on recommissioning, September 1st; Herbert H. Pearce, Staff Surgeon, and Henry Woods, M.B., Surgeon, to the *Minerva*, on recommissioning, September 11th; Robert T. Gilmour, Staff Surgeon, to the *Talbot*, on recommissioning, September 11th; James G. Watt, Staff Surgeon, to the *Pelorus*, on recommissioning, undated; Edgar F. Mortimer, Staff Surgeon, to the *Sirius*, on recommissioning, undated; William W. Keir, M.B., Surgeon to the *Vernon*, additional, for the *Furious*, September 11th; Patrick D. Macl. Campbell, Surgeon, to the *Scillarl*, September 4th; Fairman R. Mann, Surgeon, to the *President*, additional, for three months' course at Middlesex Hospital, September 10th; Edward T. Burton, Surgeon, to the *Victory*, September 10th; Walter Bowden, D.S.O., Fleet Surgeon, and Alexander K. Shand Smith, M.B., Surgeon, to the *Formidable*, on recommissioning, October 2nd; Alexander Maclean, M.B., Fleet Surgeon, to the *Ganges*, additional, for the *Ganges II.*, October 2nd; Edgar R. Dibsey, D.S.O., Fleet Surgeon, to Cape Hospital, September 6th; Joseph H. Whelan, Fleet Surgeon, to the *Vernon* September 6th; George Hewlett, M.B., Fleet Surgeon, to the *Barfleur*, September 6th, and on recommissioning, September 20th; Harold J. Chaloner, Staff Surgeon, to the *President*, additional, for three months' course at West London Hospital, September 10th; John Thornhill, M.B., Surgeon, to the Royal Marines at Portsmouth, September 10th; James H. Bramble, Fleet Surgeon, to the *Druid*, additional, for the Navigating School, September 7th; George T. Broatch, M.B., Fleet Surgeon, to the *President*, additional, for three months' course at West London Hospital, September 27th.

Surgeon M. Breton is placed on the retired list, August 27th. He was appointed Surgeon, May 2nd, 1897.

Fleet-Surgeon F. W. Strickler, M.B., has been placed on the retired list, at his own request, September 7th. He entered the service as Surgeon, February 12th, 1886, and was made Fleet-Surgeon, February 18th, 1902.

COLONIAL MEDICAL SERVICE.

THE following appointments have been made to the West African Medical staff:

Name.	Colony.	Date.
A. N. de Gruchy, M.B., Ch.B. ..	Southern Nigeria	June 7th
H. E. Arbuckle, M.B., Ch.B., D.P.H.	Sierra Leone ...	August 4th
E. J. Tynan, F.R.C.S.Ire., D.P.H. ..	Southern Nigeria	August 18th
J. Cross, M.B., Ch.B.	Southern Nigeria	August 18th
H. T. Palmer, M.R.C.S., L.R.C.P. ..	Gold Coast	August 18th
W. M. Wade, M.B., Ch.B	Gold Coast... ..	September 1st
A. B. Tighe, M.B., Ch.B., B.A.O. ..	Gold Coast... ..	September 1st

PROMOTIONS.

A. H. HANLEY, C.M.G., F.R.C.S., Deputy Principal Medical Officer in Southern Nigeria, to be Principal Medical Officer in Sierra Leone, vice W. T. Prout, C.M.G., retired.

F. G. HOPKINS, M.B., B.Ch., Senior Medical Officer in Southern Nigeria, to be Deputy Principal Medical Officer, vice A. H. Hanley, C.M.G.

R. J. D'ARCY IRVINE, M.B., M.S., Senior Medical Officer, Gold Coast, retires on pension.

G. J. RUTHERFORD, M.R.C.S., L.R.C.P., Senior Medical Officer, Southern Nigeria, is transferred to the Gold Coast, vice R. J. D'Arcy Irvine.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTH.

SODEN.—On August 23rd, at "Louisville," Coventry, the wife of Thomas A. B. Soden, M.R.C.S., L.S.A.Lond., of a son.

MARRIAGE.

WALKER—BROOKS.—On September 5th, at St. Mary's Church, Rochdale, by the Rev. A. R. Lawford Brown, assisted by the Rev. F. Powell, Ernest, youngest son of Robert Walker, J.P., Fairlight Villa Rochdale, to Bessie Muriel, younger daughter of Dr. and Mrs. Herbert Brooks, of St. Edmund's Terrace, Rochdale.

DEATHS.

BURNS.—At 2, Thorburn Road, Colinton, Midlothian, on September 2nd, John Newton Burns, M.B., C.M., D.P.H.

GAYLOR.—On August 31st, at his residence, Morden Villa, Belper, in his 75th year, Edward Gaylor, retired Physician and Surgeon, Medical Officer of Health for Belper Rural District, Alfreton and Ripley Urban Districts, etc. Cremated at Manchester Crematorium, September 3rd, and urn deposited in family vault at Belper Cemetery, September 4th. No cards.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

AYR DISTRICT ASYLUM.—Senior and Junior Assistant Physicians. Salary, £150 and £120 per annum respectively.

BEDFORD COUNTY HOSPITAL.—(1) House-Surgeon, (2) House-Physician. Salary, £100 and £60 per annum respectively.

BIRMINGHAM CITY ASYLUM, Rubery Hill.—Male Assistant Medical Officer. Salary, £150 per annum.

BIRMINGHAM GENERAL HOSPITAL.—(1) Resident Pathologist; salary at the rate of £50 per annum. (2) Visiting Clinical Pathologists. Honorarium at the rate of £20 per annum each.

BRADFORD ROYAL INFIRMARY.—Fully-qualified Practitioner. Salary, £100 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—(1) House-Surgeon. Salary, £100 per annum. (2) Second House-Surgeon. Salary, £60 per annum.

BROMYARD UNION.—Medical Officer for No. 1 District.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CANCER HOSPITAL, Fulham Road, S.W.—House-Surgeon. Salary, £80 per annum.

CARDIFF UNION.—Assistant Medical Officer for the Workhouse. Salary, £130 per annum.

CLAPHAM MATERNITY HOSPITAL, S.W.—Junior Resident Medical Officer, female.

DERWENT VALLEY WATER BOARD.—Medical Officer for Workmen's Village.

DUMFRIES: CRICHTON ROYAL INSTITUTION.—Second Assistant Medical Officer. Salary £150, rising to £200 per annum.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E. House-Surgeon. Honorarium, £25 for six months.

ECCLES AND PATRICROFT HOSPITAL.—House-Surgeon. Salary, £70 per annum.

ENNISKILLEN: FERMANAGH COUNTY INFIRMARY.—House-Surgeon. Salary, £52 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Eight Clinical Assistants.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—Male Assistant House-Physician. Salary, £60 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—(1) Pathologist and Curator, (2) Senior House-Physician, (3) Senior House-Surgeon, (4) Junior House-Physician, (5) two Junior House-Surgeons. Salary at the rate of £100 per annum for (1), £60 for (2) and (3), and £30 for (4) and (5).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—(1) Physician. (2) Resident House-Physicians; honorarium, £25 for six months.

KILBURN PROVIDENT MEDICAL INSTITUTE.—Vacancy on the Medical Staff.

LIVERPOOL INFIRMARY FOR CHILDREN.—House-Surgeon. Salary, £100 per annum.

LLANBERIS: DINORWIC QUARRY HOSPITAL.—Assistant Surgeon.

LOWESTOFT HOSPITAL.—House-Surgeon. Salary at the rate of £80 per annum.

MANCHESTER: CHORLTON AND MANCHESTER JOINT ASYLUM COMMITTEE.—Resident Medical Officer for the new Epileptic Colony at Langho. Salary, £150 per annum.

MANCHESTER EDUCATION COMMITTEE.—Assistant Medical Officer. Salary, £200 per annum.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary, £100 per annum.

MIDDLESBROUGH: NORTH RIDING INFIRMARY.—House-Surgeon. Salary, £100 per annum.

NORTHAMPTON GENERAL HOSPITAL.—Assistant House-Surgeon. Salary, £50 per annum.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeon for six months. Salary at the rate of £50 per annum.

NORTH-WEST LONDON HOSPITAL, Kentish Town Road.—Second Honorary Anaesthetist.

OLDHAM INFIRMARY.—Senior House-Surgeon. Salary, £100 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Senior House-Surgeon. Salary, £100 per annum.

ST. PANCRAS AND NORTHERN DISPENSARY, Euston Road, N.W.—Resident Medical Officer. Salary, £105 per annum.

SHEFFIELD ROYAL HOSPITAL.—Sixth Resident Medical Officer. Salary, £50 per annum.

SHEFFIELD UNION HOSPITAL.—Resident Medical Officer. Salary, £100 per annum, and £20 for such services performed in connexion with Workhouse.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Surgeon. Honorarium, £25 for six months.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House-Surgeon. Salary, £50 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies at Enfield (Middlesex), Lucan (Dublin), and New Quay (Cardigan).

APPOINTMENTS.

BARRETT, S. E., M.B., District Medical Officer of the Maldon Union.

BARRINGTON, Fourness, M.B., M.S., Honorary Assistant Gynaecological Surgeon, Royal Prince Alfred Hospital, Sydney, N.S.W.

BECKETT, F. H., M.B., B.C.Cantab., Certifying Factory Surgeon for the Ely District, co. Cambridge.

BOWMAN, A. W., M.B., B.S.Melb., Resident Surgeon, Kyneton Hospital, Victoria.

BROWNE, Dodwell, M.B., B.Ch.Dub., District Medical Officer and Public Vaccinator at Kookynie, West Australia.

BUTTERFIELD, N. A., M.R.C.S., L.R.C.P., District Surgeon and Health Officer of the Ngutu District, Natal.

CLOVER, M., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Truro Union.

CORNER, S. G., M.A., M.B., Ch.B., of Edinburgh University, House-Surgeon to Essex and Colchester Hospital, Colchester.

COSH, J. L. C., M.B., Ch.M., Honorary Assistant Physician, Royal Prince Alfred Hospital, Sydney, N.S.W.

CRAIG, John, L.R.C.P. and S.Irel., Health Officer for the Shire of Whitianga, New Zealand, vice Dr. H. S. Lindsay, deceased.

DE GARIS, Mary, M.B.Melb., Junior Resident Medical Officer, Midwifery Department, Women's Hospital, Melbourne.

DODGSON, G. Stanley, M.B., B.C.Cantab., Medical Officer to the Sherburn Hospital, Durham, vice Lionel Booth, M.D.St. And., resigned.

DRYLAND, J. W., M.R.C.S., L.R.C.P.Lond., Medical Officer of Health, Kettering Rural District.

EVERETT, Ernest W., M.R.C.S., Hon. Assistant Surgeon to the Norfolk and Norwich Hospital.

FLETCHER, L., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Boston Union.

FLITCROFT, Thomas E., L.R.C.P.E., L.R.C.S.E., L.F.P. and S.G., Resident Medical Officer to the Warrington Union Infirmary.

FRASER, J. McCalman, M.B., Ch.B., District Medical Officer and Public Vaccinator at Pingelly, West Australia.

GEBATY, L., M.R.C.S., L.R.C.P., Medical Officer for the No. 9 District of the Lincoln Union.

HALLIDAY, J. C., M.B., Ch.M., Honorary Assistant Ophthalmic Surgeon, Royal Prince Alfred Hospital, Sydney, N.S.W.

HARRIS, John Richards, M.D., Health Officer for the Shire of Ruthergien, vice Augustus Daniel Kearney, L.R.C.P., resigned.

HOLMES, C. T., M.B., B.S.Durh., District Surgeon of Adelaide, Cape Colony.

JEFFREY, G. Rutherford, M.B., Ch.B., Senior Assistant Physician, Crichton Royal Institution, Dumfries.

MACDONALD, J. G., M.R.C.S., L.R.C.P., Sub-Inspector in connexion with the Ophthalmic Hospital in Egypt.

MCKANE, G. O., L.R.C.P.Edin., L.F.P.S.Glasg., Medical Officer of Health, Grimsby Rural District.

MCLAREN, George H., M.R.C.S., L.R.C.P., Sub-Inspector in connexion with the Ophthalmic Hospital in Egypt.

MACLAURIN, Charles, M.B., C.M., Honorary Surgeon, Royal Prince Alfred Hospital, Sydney, N.S.W.

Macswiney, T. S., M.B., B.Ch.R.U.I., Medical Officer of Health, Monk Bretton Urban District.

Morrison, J. W. H., M.B., B.S.Durh., Certifying Factory Surgeon for the Blaydon-on-Tyne District, co. Durham.

Morton, J., M.B., Ch.M., Honorary Assistant Surgeon, Royal Prince Alfred Hospital, sydney, N.S.W.

Price, Thomas A., M.B., Ch.B.Edin., Fourth Honorary Surgeon to the Toowomba Hospital, Queensland.

Rennie, G. E., M.D., M.R.C.P., Honorary Physician, Royal Prince Alfred Hospital, Sydney, N.S.W.

Thomson, Charles Samson, M.B., Ch.B.Glasg., House-Surgeon to the Sunderland Infirmary.

Tomlinson, W. R., L.R.C.P. and S.Irel., Government Medical Officer to the Narromine District, New South Wales.

White, G. F., M.D., B.Ch.Dub., Certifying Factory Surgeon for the Stanford-le-Hope District, co. Essex.

Winterbotham, R., M.R.C.S., L.R.C.P.Lond., Medical Officer of the Brixworth Union Workhouse.

St. Thomas's Hospital.—The following gentlemen have been selected as House-Officers:

Casualty Officers (from October 1st, 1906): (Senior) L. E. C. Norbury, M.S., B.S.Lond., M.R.C.S., L.R.C.P.; (Junior) A. W. Hooker, M.B., B.S.Lond., M.R.C.S., L.R.C.P.

Resident House-Physicians: H. C. Squires, M.A., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P.; A. N. Dickson, M.R.C.S., L.R.C.P.

House-Physicians to Out-Patients: E. V. Dunkley, M.B., B.S.Lond., M.R.C.S., L.R.C.P.; H. A. Philpot, B.A.Oxon., M.R.C.S., L.R.C.P.

Resident House-Surgeons: R. J. H. Cox, M.B., B.S.Lond., M.R.C.S., L.R.C.P.; F. S. Hewett, B.A.Cantab., M.R.C.S., L.R.C.P.; A. S. Howitt, M.A., M.B., B.C.Cantab., M.R.C.S., L.R.C.P.; W. G. Howarth, M.A., M.B., B.C.Cantab., M.R.C.S., L.R.C.P.

House-Surgeons to Out-Patients: C. M. Page, M.B., B.S.Lond., M.R.C.S., L.R.C.P.; S. G. MacDonald, B.A., M.B., B.C.Cantab., M.R.C.S., L.R.C.P.; H. B. Whitehouse, M.B., B.S.Lond., M.R.C.S., L.R.C.P.; R. L. Gamlen, B.A.Cantab., M.R.C.S., L.R.C.P.

Obstetric House-Physicians: (Senior) E. L. Atkinson, M.R.C.S., L.R.C.P.; (Junior) C. R. B. Eyre, M.R.C.S., L.R.C.P.

Ophthalmic House-Surgeons: (Senior) H. E. Gotelee, M.R.C.S., L.R.C.P.; (Junior) W. C. A. Ward, M.R.C.S., L.R.C.P.

Special Departments: Throat—H. T. Gray, M.A., B.C.Cantab., M.R.C.S., L.R.C.P.; F. B. Treves, B.A.Cantab., M.R.C.S., L.R.C.P. Ear—F. Clarkson, M.B., B.S.Durh.

Children's Surgical: I. C. Maclean, M.R.C.S., L.R.C.P.; K. E. Eckenstein, M.R.C.S., L.R.C.P.

Electrical Department (X-ray Department): I. C. Maclean, M.R.C.S., L.R.C.P.

Several other gentlemen have received extension of their appointments.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

Medical Graduates' College and Polyclinic, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Ear.

Post-Graduate College, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X-Rays and Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 10.30 a.m., Gynaecological Operations; 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
SEPTEMBER.	
18 **Sunday**.....	
17 MONDAY	
18 TUESDAY.....	
19 WEDNESDAY	Altrincham Division, *Lancashire and Cheshire Branch*, Division Meeting at Knutsford, 4.30 p.m. Dinner, 7 p.m.
20 THURSDAY...	
21 FRIDAY	South Carnarvon and Merioneth Division, *North Wales Branch*, Queen's Hotel, Blaenau-Festiniog.
22 SATURDAY...	
23 **Sunday**.....	
24 MONDAY	
25 TUESDAY.....	London: Metropolitan Counties Branch, Meeting of Council, in the Library, 429, Strand, at 5 p.m.
26 WEDNESDAY	London: South-Eastern Branch Council, at 3.15 p.m.
27 THURSDAY...	Wandsworth Division, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.45 p.m.
23 FRIDAY.....	
29 SATURDAY...	
30 **Sunday**	
OCTOBER.	
1 MONDAY	
2 TUESDAY ...	London: Public Health Committee, 3.15 p.m. Shropshire and Mid-Wales Branch, Salop Infirmary, Shrewsbury, 3 p.m.
3 WEDNESDAY	
4 THURSDAY...	
5 FRIDAY	
6 SATURDAY...	
7 **Sunday**	
8 MONDAY	London: Journal and Finance (Referendum) Committee, 2.30 p.m.

Date.	Meetings to be Held.
OCTOBER *(continued).*	
9 TUESDAY.....	London: Organization Committee, 10.30 a.m. London: Finance Inquiry Committee, 2.30 p.m.
10 WEDNESDAY	London: Medico-Political Committee, 2.30 p.m.
11 THURSDAY...	London: Hospitals Committee, 2.30 p.m. London: Premises and Library Committee, 3.15 p.m.
12 FRIDAY	London: Central Ethical Committee, 2 p.m.
13 SATURDAY...	
14 **Sunday**	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	London: Journal and Finance Committee, 2 p.m.
18 THURSDAY...	
19 FRIDAY.....	
20 SATURDAY...	
21 **Sunday**	
22 MONDAY	
23 TUESDAY.....	
24 WEDNESDAY	Central Council.
25 THURSDAY...	Wandsworth Division, *Metropolitan Counties Branch*, Battersea Town Hall, 8.45 p.m.
26 FRIDAY	
27 SATURDAY...	
28 **Sunday**	
29 MONDAY	
30 TUESDAY.....	
31 WEDNESDAY	
NOVEMBER	
1 THURSDAY...	
2 FRIDAY.....	
3 SATURDAY..	

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 22ND, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

EDINBURGH BRANCH:
SOUTH-EASTERN COUNTIES DIVISION.

THE autumn meeting was held in the house of Dr. Henderson, 9, Church Street, Galashiels, on the afternoon of Thursday, September 13th, at 3.30 p.m., Dr. YOUNG, Chairman, presiding.

Confirmation of Minutes.—The minutes of the annual meeting were read, approved, and signed by the Chairman.

Annual Representative Meeting.—Dr. BLAIR gave his report of the Annual Representative Meeting in the Caxton Hall, London. He held that notwithstanding the increasing expenses of the new administration the Association was financially sound. He explained that the question of the Charter was still under consideration, and would be referred to Divisions in due course. Many other matters of importance were referred to.—Dr. YOUNG proposed a hearty vote of thanks to Dr. Blair as Representative for his elaborate and painstaking report.—Dr. HAMILTON seconded, and the motion was unanimously carried.

Hospital Committee's Report.—Dr. HAMILTON discussed the Hospital Committee's Report. The desire of the Committee was to place no hindrance upon the treatment of the real poor. Cases were mentioned of robbery, pure and simple, on the part of people living in luxury seeking advice, sending servants to hospitals, having operations performed, whilst keeping hunters, horses, and carriages. One case was mentioned of a millionaire who subscribed one guinea annually to the London Hospital Fund, but recovered much more than that sum through board received by servants, whom he always sent to hospital when ill.

Vote of Thanks.—All the members, on the motion of the CHAIRMAN, united in thanking Dr. Henderson for his kind hospitality so generously accorded and so much enjoyed.

Annual Dinner.—It was agreed to hold the annual dinner in October, and the Secretary was instructed to carry out the arrangements.

LANCASHIRE AND CHESHIRE BRANCH:
BLACKBURN DIVISION.

A MEETING of the Blackburn Division was held at the Old Bull Hotel, Blackburn, on Friday, August 31st, Dr. WALLERS in the chair.

Confirmation of Minutes.—The minutes of the last meeting were confirmed.

Hospital Management.—The proposals as to the model principles of hospital management drawn up by a Joint Committee of the British Medical Association and of non-medical representatives of Boards of Management of hospitals were then considered. All the suggestions except No. 2 were approved of. In regard to No. 2 the meeting decided that it was not practicable to dispense with subscribers' recommendations in this district at present. Dr. Bannister promised to report the views of this meeting at the next meeting of the Board of the Blackburn and East Lancashire Infirmary.

OXFORD AND READING BRANCH:
OXFORD DIVISION.

AN extraordinary meeting of this Division was held on Friday, September 14th, at the Radcliffe Infirmary, under the chairmanship of Dr. COLLIER, in order to discuss the advisability of supporting the suggestions of the Hospitals Committee in the matter of hospital reform.

Hospital Reform.—The following resolution, proposed by Dr. COLLIER and seconded by Mr. PARKER, was carried *nem. con.*:

> That the medical men practising in Oxford and the neighbourhood heartily approve the suggested principles of hospital management, and earnestly hope that the Committee of Management of the Radcliffe Infirmary will give them their most serious consideration with a view to their adoption.

It was further resolved that a copy of this resolution should be posted to all members of the Division not present at the meeting, asking for their support.

SYDNEY AND NEW SOUTH WALES BRANCH.

THE regular general meeting of this Branch was held at the Royal Society's Room on Friday, July 27th, Dr. POCKLEY, President, in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

New Members.—The PRESIDENT announced the election of Drs. Segol, J. J. Holland, Connolly, and A. G. Cooley.

Paper.—Professor WELSH, on behalf of Dr. Barling and himself, read a paper on the leucocytosis of hydatid disease. Remarks were made by Drs. CHAPMAN and GRIFFITHS. Professor WELSH replied.

Medical Staffs of Hospitals.—Dr. GORDON CRAIG proposed:

> That, in the interests of the profession and public hospitals, junior members of the honorary staff should not oppose

their senior colleagues for a vacancy occurring in the senior staff.

Seconded by Dr. LAWS. Drs. FLASHMAN and CHENHALL, Professor WELSH, Drs. CRAGO, BINNEY, and THOMAS discussed the question. Dr. THOMAS moved, as an amendment:

That the resolution be referred to the Council for consideration and subsequent report to the Branch.

Dr. BINNEY seconded, but eventually the amendment was withdrawn. Dr. FLASHMAN then moved:

That the motion be postponed *sine die*.

Dr. CHAPMAN seconded, but this amendment was also withdrawn. Dr. CRAIG asked permission to withdraw his resolution. Permission was granted, and the resolution withdrawn accordingly.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

ABERDEEN BRANCH.—The annual meeting of this Branch will be held in the Grand Hotel, Aberdeen, on Saturday, October 20th, at 1.15 p.m.—J. F. CHRISTIE and THOMAS FRASER, Honorary Secretaries.

BIRMINGHAM BRANCH: COVENTRY DIVISION.—The annual dinner of this Division will be held at the Masonic Buildings, Little Park Street, Coventry, on Wednesday, October 3rd, at 7.30 p.m. (for 7.45). The Chairman of the Council of the Association (Dr. Langley Browne) and the President of the Branch (Dr. Otho Wyer) have accepted invitations to be present. It is open to members to introduce either medical men or dentists as guests. Tickets (including wine), 12s. 6d. each. Members should communicate with the undersigned their intention to be present or to introduce guests on or before September 27th. Members willing to read papers, show specimens or cases, or open discussions during the coming session are invited to communicate with E. H. SNELL, Honorary Secretary.

DORSET AND WEST HANTS BRANCH.—The autumn meeting will be held in Sherborne on Wednesday, October 24th. Members having papers to read, cases to exhibit, or specimens to show are requested to communicate with the Honorary Secretary before October 12th.—JAMES DAVISON, Honorary Secretary, "Streateplace," Bath Road, Bournemouth.

METROPOLITAN COUNTIES BRANCH.—A meeting of Council will be held on Tuesday, September 25th, at 5 p.m., at the Library of the British Medical Association, 429, Strand, W.C.—D'ARCY POWER, Honorary Secretary.

METROPOLITAN COUNTIES BRANCH: WANDSWORTH DIVISION.—An ordinary meeting will be held on Thursday, September 27th, at the Wandsworth Town Hall at 8.45 p.m. Tea and coffee provided. Agenda: (1) Minutes; (2) correspondence; (3) questions; (4) consideration of the Wandsworth circular respecting the General Medical Council election in November next, with subsequent selection of three of the candidates; (5) Dr. L. S. McManus will report on the Representative Meeting in July last, when various resolutions will be moved; (6) other business. It is hoped to organize a small smoking concert for this meeting. Every medical practitioner resident in the area will be invited to attend.—E. ROWLAND FOTHERGILL, M.B., Honorary Secretary, Southfields, S.W.

SHROPSHIRE AND MID-WALES BRANCH.—The next meeting will be held at the Salop Infirmary, Shrewsbury, on October 2nd, at 3 p.m. The President of the Branch (Dr. Alan Rigden) will read a paper on an Analysis of 73 Cases of Puerperal Insanity. Dr. Wheatley, M.O.H. for the County of Salop, will open a discussion on the Desirability of making Phthisis a Notifiable Disease. The annual dinner will be held in the Music Hall in the evening.—C. G. RUSS WOOD, Honorary Secretary.

SOUTH-EASTERN BRANCH: CANTERBURY AND FAVERSHAM DIVISION.—The next meeting of this Division, to which all medical practitioners residing in the South-Eastern Branch are invited, will be held at Dr. Hayward's house, Whitstable, on Thursday, October 4th, at 3 p.m. Agenda: (1) Minutes of previous meeting; (2) time, place, and chairman of next meeting; (3) Dr. Whitehead Reid will open a discussion on Hospital Reform. Drs. Alexander and Fenhoulet will also speak as regards the arrangements at the Faversham and Herne Bay hospitals respectively; (4) any other business.—A. R. HENCHLEY, Honorary Secretary, Canterbury.

SOUTH-EASTERN BRANCH: DOVER DIVISION.—The quarterly meeting of this Division will be held at the Grand Hotel, Dover, on Thursday, September 27th, at 8.30 p.m. Agenda: (1) Reading of minutes; (2) reading of letter from town clerk *re* local hospitals; (3) memorandum from Association *re* hospital management; (4) other business, if any.—F. A. OSBORN, Honorary Secretary.

SOUTHERN BRANCH.—The Council will shortly proceed to nominate two members to be submitted to the electors as Representatives of the Branch on the General Council of the Association. Candidates should send their names to me, each nominated by three electors, on or before October 5th.—H. J. MANNING, Honorary Secretary, Laverstock House, Salisbury.

A SIDELIGHT ON MEDICAL EDUCATION.

SOME three years ago we began to publish analyses of the results of the examinations for admission to the Public Services, the Navy, the Indian Medical Services, and the Royal Army Medical Corps. These examinations present more than one point of interest, since apart from the fact that they reveal the extent to which these services attract young medical men, as proved by the number of candidates to vacancies, they are the only competitive medical examinations which exist. If, therefore, returns in respect of them covering a sufficient number of examinations are studied, they cannot fail to throw a light, obtainable in no other way, on at least two points. The examinations are both qualifying and competitive; the results, therefore, afford at least a clue to the question of how far the standards set by the authorities of these services correspond to the standards of the various licensing bodies as a whole, and as to how the different licensing bodies compare with one another when tested, through their licenses, by a common standard totally independent of all or any of them. Undoubtedly, therefore, these analyses are useful, so we have continued to have them prepared, and now publish a series of tables identical in arrangement with their predecessors but differing from them in that they cover not a part but the whole of the examinations which have been held since the spring of 1902.

THE EXTENT OF COMPETITION.

Of the eight tables given the first shows the extent of the competition, and it will be noted that altogether 693 men contested for 434 commissions, or an average of 5 competitors to every 3.1 vacancies. This seems to be fairly satisfactory, especially when it is remembered that the competing candidates are to a certain extent selected men, others who have sent in their names being refused permission to compete from considerations into which professional knowledge does not enter. Between the three services the competition, as might be expected, is keenest for the Indian Medical Service, and least keen for the Navy, the Royal Army Medical Service occupying the middle place. The differences, moreover, are not inconsiderable, there being more than two candidates for every vacancy in the Indian Medical Service against ten for seven in the navy.

From Table II it will be seen that the English candidates greatly preponderate, though to a less extent than was the case a year or so ago. Of the total number nearly 43 per cent. have come from English colleges and universities: while Ireland, which has recently much increased its entry, comes next with close on 30 per cent., not overtopping Scotland, however, to any extent. The small balance is made up of Colonial and Indian qualifications, or of those who, as holding qualifications derived from more than one country, are classified as "Mixed."

From Table III will be gathered the manner in which the commissions were finally awarded; it would appear that rather more than half the junior naval and military officers of to-day must be from English schools, the remainder being Irish and Scotch in nearly equal number.

RESULTS OF EXAMINATIONS.

The following tables represent an analysis of all examinations for the Services since June, 1902—namely, four for the Indian Medical Service, four for the Royal Navy, and eight for the Royal Army Medical Corps:

TABLE I.

Showing the Extent of the Competition for each Service.

Services.	No. of Candidates.	No. of Vacancies.	Proportion of Candidates to Vacancies.
Royal Navy Medical Service.	109	74	5 to 3·6
Royal Army Medical Corps...	410	271	5 to 3·3
Indian Medical Service ...	174	84	5 to 2·4
Total or average ...	693	434	5 to 3·1

TABLE II.

Showing whence the Candidates received their Qualifications.

Licensing Body.	Number of Candidates.	Proportion of Entire Number.
English Colleges and Universities ...	296	42·7 per cent.
Scottish ,, ,, ,,	181	26·1 ,,
Irish ,, ,, ,,	205	29·5 ,,
Colonial ,, ,, ,,	6	0·8 ,,
Mixed	5	0·7 ,,
Total or average	693	19·9 per cent.

TABLE III.

Showing the Proportion of Commissions Gained by the Candidates of each Country.

Country.	Number of Commissions Won.	Proportion of all Commissions Offered.
England	228	52·5 per cent.
Scotland	97	22·3 ,,
Ireland	104	23·9 ,,
Colonies	3	0·6 ,,
Mixed	2	0·4 ,,
	434	19·9 per cent.

TABLE IV.

Showing the Relative Success of the Candidates of each Country in Proportion to their Respective Numbers.

Country.	Number of Candidates.	Number who Gained Commissions.	Proportion of Success to Candidates.
England	296	228	77·0 per cent.
Scotland	181	97	53·5 ,,
Ireland	205	104	50·7 ,,
Colonies	6	3	50·0 ,,
Mixed	5	2	40·0 ,,
Total or average...	693	434	62·6 per cent.

TABLE V.

Showing the Percentage of Candidates who Passed the Qualifying Standard, including those who Gained Commissions.

Countries.	Number who Entered.	Number who Passed the Standard.	Proportion to the Total.
English candidates ...	296	273	93·9 per cent.
Scottish ,, ...	181	135	74·5 ,,
Irish ,, ...	205	160	78·0 ,,
Colonial ,, ...	6	5	83·0 ,,
Mixed ,, ...	5	4	80·0 ,,
Total or average ...	693	582	83·9 per cent.

TABLE VI.

Showing the Proportion of those who Failed Totally among the Candidates of Each Country.

Country.	Number of Candidates.	Number Rejected.	Proportion of Total Failures.
English candidates...	296	18	6·0 per cent.
Scottish ,, ...	181	46	25·4 ,,
Irish ,, ...	205	45	21·9 ,,
Colonial ,, ...	6	1	16·6 ,,
Mixed ,, ...	5	1	20·0 ,,
Total or average ...	693	111	16·0 per cent.

TABLE VII.

Showing Details of the Performance of each Class of Candidate.

Qualifications.	Number of Candidates.	Commissions Gained.	Qualified but Unsuccessful.	Rejected.	Percentage Rejected.
English Conjoint Board alone	209	163	38	8	3·8
,, ,, and Oxford degree	3	3	0	0	—
,, ,, and Cambridge ,,	5	3	2	0	—
,, ,, and London ,,	19	16	2	1	5·2
,, ,, and Durham ,,	2	2	0	0	—
,, ,, and Manchester ,,	1	1	0	0	—
,, ,, and L.S.A. ,,	1	1	0	0	—
English Apothecaries' Society alone ,,	14	10	1	3	21·4
,, ,, and London degree	1	1	0	0	—
London degree alone	5	4	1	0	—
,, ,, and Manchester ...	1	1	0	0	—
Cambridge degree alone	4	3	1	0	—
Durham ,, ...	17	12	1	4	23·5
Birmingham ,, ...	2	1	1	0	—
Manchester ,, ...	12	7	3	2	16·6
Scottish Conjoint Board alone	55	21	10	24	43·6
,, ,, ,, and Edinburgh degree	2	1	0	1	—
Aberdeen degree alone	20	14	4	2	10·0
Edinburgh ,, ...	88	49	21	18	20·6
Glasgow ,, ...	16	12	3	1	6·1
Irish Conjoint Board alone	89	33	28	28	31·4
Dublin University alone	73	43	19	11	15·0
Royal University of Ireland	43	28	9	6	13·9
Colonial universities	8	3	2	1	16·6
Mixed	5	2	2	1	20·0
Total or average	693	434	148	111	16·0

TABLE VIII.

Percentage Comparison of the Work of certain Classes of Candidates.

Qualifications.	Number of Candidates.	Gained Commissions.	Qualified but unsuccessful.	Total Qualified.	Number rejected.	Percentage of Winners.	Percentage qualified.	Percentage rejected.	Order.
English Conjoint diploma alone	209	163	38	201	8	77·9	96·1	3·8	1
English diplomas and English degree	45	36	5	41	4	80·0	91·1	8·8	2
English degrees alone	41	28	7	35	6	68·2	85·3	14·6	3
Irish degrees alone	116	71	28	99	17	61·2	85·3	14·6	4
Scottish degrees alone	124	75	28	103	21	60·4	83·0	16·4	5
Irish Conjoint diploma alone	89	33	28	61	28	37·0	68·5	31·4	6
Scottish Conjoint diploma alone	55	21	10	31	24	38·1	56·3	43·6	7
Other classes together	—	—	—	—	—	—	—	—	—
Total or average	693	434	148	582	111	62·6	83·9	16·0	—

SUCCESS AND FAILURE.

The next three tables (IV, V, and VI) fall into a different category; they show the performances of the candidates of each country in respect of the following points: (1) The success of man against man as revealed by the number of commissions carried off by what may be called the teams of each country in proportion to their respective numbers; (2) the extent to which the candidates, although unsuccessful in competition, yet acquitted themselves creditably by passing the qualifying standard; (3) the proportion of men of each country who failed totally, by not obtaining the lowest qualifying number of marks and thus being rejected altogether.

It will be observed that of what we have called the three teams, that of England comes out markedly the best, winning proportionately over 20 per cent. more commissions, and including about a quarter as many total failures among its men. As regards Scotland and Ireland, on the other hand, there is practically nothing to choose between the two teams in point of success in competition, but the Irish team figures better as regards the proportion of men who reached the qualifying standard.

DIFFERENT QUALIFYING BODIES.

Perhaps, however, the greatest and most living interest attaches to the two final tables, numbered (VII) and (VIII), and undoubtedly the former of these should afford much food for reflection to some of the bodies which figure in it. Besides being able to gather from it a pretty shrewd notion as to how those who hold their qualifications fare when they compete in a professional examination with representatives of other similar bodies, they can see the proportion in which they fail to reach the qualifying standard. Naturally all competitors cannot win commissions, but it is open to all to pass the qualifying standard, so it is somewhat remarkable that when the results obtained by various bodies, all of whom have sent up a fairly large number of candidates, are examined, the differences revealed should be so great.

The final table calls, perhaps, for some little explanation. In this the various degrees and diplomas which have figured at the examinations are thrown into certain natural classes, and the latter placed in the order of their success. The latter is judged not by the proportional number of commissions won, but by the height of the percentage of men who passed the qualifying standard (including those who gained commissions), and by the consequent lowness of the percentage of total failures. It will be observed, however, that except in two quite minor instances, the result or order of merit would have been the same if the percentage of commissions won had been taken as the test.

The most striking point about the return is the position occupied by candidates who held nothing but the diploma of the English Conjoint Board, for this class is an easy first with the highest percentage of men who passed the qualifying standard, and the lowest percentage of men rejected. The curious point is that they come out better than either those who held English degrees alone or those who held English degrees in addition to English College or Hall diplomas. Explanations of the former circumstance, perhaps, present themselves, but how the latter comes about is more difficult to understand.

As regards the University degree classes, it will be seen that the performance of the English and Irish respectively precisely correspond as regards the percentages qualified and rejected, but that the English degree team comes to the front in respect of the percentage of winners, and that Scotland is not far behind either. As regards rejections in all three classes of University candidates it will be noted on reference back to the preceding table that Durham and Manchester are responsible for the English rejections, while in respect of the Scottish failures Edinburgh was somewhat less successful than her sister universities, Glasgow and Aberdeen. In regard to Ireland there is some difference in favour of the Royal University both in point of commissions won and of the proportion of candidates qualified.

When we come to the Irish and Scottish Conjoint classes, the differences as compared with those which precede them are marked, the percentages of winners falling heavily and that of rejections rising notably. As between the two the palm must be given to the Irish class, for though the winning percentage is slightly higher in the case of the Scottish candidates, there is a considerable difference in favour of Ireland in respect of the percentage of men who totally failed and of those who reached the qualifying standard but did not gain appointments.

GENERAL CONCLUSIONS.

The figures supplied by the tables are fairly large; they would not justify any very detailed deductions, but they certainly afford a sound basis for some general conclusions, which each body concerned can best work out for itself. In connexion with previous returns relating to a few examinations only, it has been suggested that the best sidelight would be obtained by taking the examinations for the Indian Medical Service alone, because these are reputed to be the most difficult and they are certainly those in which competition is keenest and in which the number of total failures, or of men who fail to reach the qualifying standard, is highest. From a certain number of trials which have been made, however, it does not appear that any broad conclusions which may justly be founded on the examinations as a whole would be vitiated by taking the Indian Medical Service examinations separately. The one result would simply be to raise the percentage of total failures all round without greatly altering the general position the classes occupy in relation to one another.

THE GENERAL MEDICAL COUNCIL ELECTION.

DR. JOHN CHARLES SMITH (Northwood, Middlesex) writes: In the SUPPLEMENT of the BRITISH MEDICAL JOURNAL for September 15th I notice a circular signed by the Chairman of the Wandsworth Division. This has been, or is to be, sent to all the Divisions of the British Medical Association. It purports to institute an organized attempt to return three medical practitioners who would prove acceptable to the majority of the profession as their Representatives on the General Medical Council. The utterly unwarrantable assumption underlying this statement is that without the assistance of the Wandsworth Division the profession will choose three practitioners who are not acceptable to it. But, Sir, my main objection to this circular lies in the fact that it is a gross act of insubordination. The Representative Meeting which met in July last, consisting as it did of nominees of all the Divisions, unanimously agreed that NO candidates were to be recommended by the Association, and here we have one Division trying to induce the others to rebel against and defy this resolution. The whole proceeding is stultification of our new Constitution and an attempt to establish a "caucus" in its worst form. Three strong candidates are now before us—namely, Messrs. George Brown and George Jackson, the present Representatives, and Joseph Smith of Chiswick, President of the Society of Members of the Royal College of Surgeons, an ardent reformer for twenty years, and who contested the seat on the Council against Sir Victor Horsley, and polled between 3,000 and 4,000 votes on that occasion. I hope the three named will be returned with large majorities.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: EDMUND CORCORAN, Fleet Surgeon, and THOMAS F. O'KEEFE, M.B., Surgeon, to the *President*, additional, for annual survey of medical stores at Deptford Yard, October 1st; PERCY V. JACKSON, Fleet Surgeon, to the *Majestic*, on recommissioning, October 2nd; HENRY M. BRAITHWAITE, M.B., Surgeon, to the *Britannia*, on completing, October 2nd; EDWARD A. G. WILKINSON, Surgeon to the *Victory*, additional, to be lent to the Royal Naval College, Osborne, October 2nd.

ROYAL ARMY MEDICAL CORPS.

THE undermentioned gentlemen to be Lieutenants on probation, dated July 30th, 1906:—G. H. STEVENSON, M.B., J. H. SPENCER, M.B., W. H. FORSYTH, M.B., A. H. HESLOP, M.B., A. C. AMY, M.B., W. MITCHELL, M.B., J. A. B. SIM, M.B., E. J. ELLIOT, M.B., F. B. LATHBURY, E. GIBSON, M.B., C. SCAIFE, M.D., R. W. D. LESLIE, E. D. CADDELL, M.B., M. J. LOCHRIN, D. M. CORBETT, M.B., B. JOHNSON, W. E. C. LUNN, M.B., J. R. FOSTER, A. H. JACOB, A. M. BENNETT, F. L. BRADISH, G. P. A. BRACKEN, O. C. P. COOKE, W. W. BOYCE, C. KELLY, M.B., C. H. DENYER, W. J. E. BELL, M.B., D. COUTTS, M.B., W. F. M. LOUGHNAN, D. T. MACCARTHY, M.B., H. L. HOWELL, C. W. BOWLE, J. J. O'KEEFFE, M.B., J. A. BENNETT, M.B., T. W. BROWNE, W. I. THOMPSON, M.B., R. C. GALGEY, E. J. KAVANAGH, M.B., and E. C. PHELAN, M.B.

The undermentioned Lieutenants, appointed such January 31st, 1903, are promoted to be Captains, July 31st, 1906: J. G. BELL, M.B., M. G. WINDER, F. W. W. DAWSON, M.B., J. E. H. GATT, M.D., R. M. RANKING, M.B., T. S. COATES, M.B., A. E. B. WOOD, M.B., J. C. G. CARMICHAEL, M.B., R. H. BRIDGES, J. A. W. WEBSTER, F. C. LAMBERT, J. B. MELDON, R. C. WILMOT, C. W. HOLDEN, H. B. KELLY, M.B., E. M. PENNEFATHER, G. H. J. BROWN, M.B., B. H. V. DUNBAR, M.D., D. AHERN, D. G. CARMICHAEL, M.B., J. M. M. CRAWFORD, C. BRAMHALL, T. E. HARTY, H. H. SWANZY, J. H. DUGUID, M.B., H. T. STACK, M.B., B. G. PATCH, and G. W. G. HUGHES. The war records of those having anyare as follow: Captain Bell—South African war, 1900-2 as a Civil Surgeon, including operations in Orange River Colony, Cape Colony, and the Transvaal (King's medal with two clasps). Captains Winder, Lawson, and Wood—South African war, 1901-2, as Civil Surgeons. Captains Holden and Pennefather—South African war, 1901-2, as Civil Surgeons (Queen's medal with three clasps).

The undermentioned Lieutenants are seconded under the provisions of Article 349, Royal Warrant, March 19th, 1906: J. JOHNSON and W. E. C. LUNN, M.B., July 30th; J. H. SPENCER, M.B., July 31st.

Lieutenant-Colonel R. W. FORD, D.S.O., from the Seconded List, to be Lieutenant-Colonel, August 17th. As already announced in the BRITISH MEDICAL JOURNAL, Lieutenant-Colonel Ford from the same date has vacated the appointment of Deputy-Surgeon at Chelsea Hospital.

Lieutenant-Colonel R. J. C. COTTELL is seconded whilst holding the appointment of Deputy-Surgeon, Royal Hospital, Chelsea, August 17th.

Captain T. J. CREAN, V.C., retires, receiving a gratuity, September 8th. He joined the department as Captain, September 3rd, 1902. He served in the South African war in 1899-1902 with the Imperial Light Horse, and took part in the defence of Ladysmith, in the actions at Elandslaagte, Rietfontein, and Lombard's Kop, the relief of Mafeking, and in operations in the Transvaal and Orange River Colony; he was twice wounded, and has been granted the Queen's medal with five clasps, the King's medal with two clasps, and the Victoria Cross.

Colonel J. F. WILLIAMSON, M.B., C.B., C.M.G., at present serving at Mhow, has been appointed by the Viceroy of India as Honorary Surgeon on his staff, vice Colonel Sanderson.

Lieutenant-Colonel R. F. O'BRIEN retires on retired pay, September 12th. He entered the service as Surgeon, July 30th, 1881; became Surgeon-Major July 30th, 1893, and Lieutenant-Colonel July 30th, 1901. He served with the Burmese Expedition in 1885-6, receiving a medal with clasp, and in 1901-2 in operations in the Orange River Colony during the war in South Africa.

Lieutenant-Colonel A. V. LANE retires on retired pay, September 15th. His commissions are thus dated: Surgeon, July 30th, 1881; Surgeon-Major, July 30th, 1893; Lieutenant-Colonel, July 30th, 1901. He served in the Egyptian war in 1882-4, receiving a medal and the Khedive's bronze star, and in the Soudan campaign in 1884, including the battles of El Teb and Tamai, for which he had two clasps.

Lieutenant J. W. L. SCOTT, from the Seconded List, to be Lieutenant, September 1st. He was appointed on probation, January 30th, 1906.

The name of Lieutenant-Colonel RICHARD H. PENTON, D.S.O., is as now described, and not as stated in the *Gazette* of August 7th.

ARMY MEDICAL RESERVE.

SURGEON-LIEUTENANT J. N. MACMULLAN to be Surgeon-Captain, August 14th.

Surgeon Lieutenant-Colonel J. H. MACLEAN, having resigned his commission in the Volunteers, ceases to belong to the Army Medical Reserve.

INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL D. FRENCH-MULLEN, M.D., Bengal, is appointed to officiate as Principal Medical Officer, Sirhind and Jullundur Brigades.

Lieutenant-Colonel W. A. MAWSON, Bengal Establishment, is permitted to retire from the service from July 14th. He was appointed Assistant Surgeon, March 31st, 1876, and became Surgeon-Lieutenant-Colonel, March 31st, 1896. He was in the Afghan war in 1878-80, being present at the capture of Ali Musjid, the battle of Charasia, and at the operations at and around Kabul in December, 1879 (mentioned in dispatches, medal with three clasps); in the campaign on the North-West Frontier of India in 1897-8 with the Tochi Force (medal with clasp); and with the Waziristan expedition in 1901-2 (mentioned in dispatches, clasp).

The retirement from the service of Lieutenant-Colonel L. A. WADDELL, C.B., C.I.E., M.B., Bengal Establishment, is gazetted; but we understand that since the announcement appeared Lieutenant-Colonel Waddell has been permitted to cancel his application to retire.

ROYAL GARRISON ARTILLERY (VOLUNTEERS).

SURGEON-CAPTAIN A. B. LYON, M.D., 2nd Middlesex, to be Surgeon-Major, August 20th.

Surgeon-Lieutenant-Colonel (Honorary Captain in the Army) A. THORNE, M.B., 2nd Middlesex, is granted the honorary rank of Surgeon-Colonel, August 27th.

VOLUNTEER OFFICERS' DECORATION.

THE Volunteer Officers' Decoration has been conferred upon the following officers:—Surgeon-Major and Honorary Lieutenant-Colonel DUNCAN STEWART, 1st Volunteer Battalion the Northumberland Fusiliers; Surgeon-Major J. W. T. GILBERT, 1st Cinque Ports Royal Garrison Artillery (Volunteers).

VOLUNTEER RIFLES.

SURGEON-CAPTAIN J. M. HARPER, 1st Volunteer Battalion the Prince Albert's (Somersetshire Light Infantry), to be Surgeon-Major, August 1st.

Surgeon-Lieutenant-Colonel E. WILLIAMS, 2nd Volunteer Battalion the Royal Welsh Fusiliers, is granted the honorary rank of Surgeon-Colonel, September 15th.

Surgeon-Captain W. M. GABRIEL, 3rd Volunteer Battalion the Duke of Wellington's (West Riding Regiment), to be Surgeon-Major, September 15th.

Surgeon-Captain J. HAMILTON, 2nd Volunteer Battalion the Queen's Own (Royal West Kent Regiment), resigns his commission, August 28th. He is appointed Captain in the same regiment from the same date.

Surgeon-Lieutenant-Colonel T. PHILIP, M.B., 1st (Renfrewshire) Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders), is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Clyde Volunteer Infantry Brigade, August 20th.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).—BEARER COMPANIES.

CAPTAIN W. THOMPSON, Gloucester and Somerset, resigns his commission, September 15th.

Lieutenant M. S. W. GUNNING, Leicester and Lincoln, to be Captain, September 15th.

CHANGES OF STATIONS.

The following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during August, 1906:

	FROM	TO
Colonel O. Todd, M.B.	Egypt	Poona.
Lieut.-Col. H. G. Hathaway	Bombay	,,
,, R. W. Ford, D.S.O.	Chelsea Hosp.	London Dist.
,, G. Coutts, M.B.	Salisbury	Colchester.
,, J. M. Reid, M.D.	,,	Hong Kong.
,, G. G. Adams	Maryhill	Salisbury.
,, R. J. C. Cottell	Woolwich	Chelsea Hosp.
Major G. A. T. Bray	Ranikhet	Calcutta.
,, E. McK. Williams	Dover	Brighton.
,, R. C. Lewis	Bareilly	Meerut.
Captain N. H. Ross, M.B.	Eastern Comd.	Colchester.
,, P. H. Collingwood	York	Hong Kong.
,, M. H. G. Fell	South'n Comd.	Rhayader.
,, G. M. Goldsmith, M.B.	York	Lichfield
,, L. Humphry	Eastern Comd.	Shorncliffe.
,, J. J. W. Prescott, D.S.O.	York	Leeds.
,, H. E. M. Douglas, V.C., I.S.O.	Simla	Meerut.
,, J. I. W. Morris	Edinburgh	Perth.
,, B. F. Wingate	Canterbury	Kingston.
,, A. E. Hamerton, D.S.O.	Ferozepore	London Dist.
,, J. M. Cuthbert, M.B.	Stirling	Edinburgh.
,, F. H. Hardy	Colchester	Mill Hill.
,, W. L. Bennett, M.B.	Edinburgh	Aberdeen.
,, W. B. Frv	Dover	Canterbury.
,, E. F. Q. L'Estrange	Westrn Comd.	Manchester.
,, H. G. Pinches	Lucknow	Allahabad.
,, R. M'K. Skinner	Strensall	West Africa.
,, F. E. Rowan-Robinson, M.B.	Bombay	Colaba.
,, G. A. K. H. Reed	Jhansi	Nowgong.
Lieutenant A. E. B. Wood, M.B.	Allahabad	Fyzabad.
,, J. A. W. Webster	Secunderabad.	Poona.
,, J. B. Meldon	Malapuram	Bangalore.
,, A. C. Osburn	Agra	Calcutta.
,, J. Fairbairn, M.B.	Khandalla	Colaba.
,, J. H. Douglass, M.D.	Madras	Bangalore.
,, R. R. Lewis	Ramandroog	Bellary.
,, R. B. Hole, M.B.	Khandalla	Colaba.
,, E. J. H. Luxmoore	Simla	Meerut.
,, G. H. Kidd	Calcutta	Barrackpore.
,, G. B. F. Churchill	Lucknow	Cawnpore.
,, T. H. Gibbon, M.D.	Egypt	Crete.
,, W. G. Maydon, M.B.	Lebong	Calcutta.
,, G. E. Ferguson	Aldershot	Devonport.
,, G. H. Rees, M.B.	,,	Portsmouth.
,, R. A. Bryden	Bordon	Tidworth.
,, H. E. Priestley	Aldershot	Preston.
,, A. C. Vidal	Ewshott	Aldershot.
,, A. S. Littlejohns	Woolwich	Ewshott.
,, C. T. Edmunds	Aldershot	Bordon.
,, P. Sampson	,,	,,

Lieutenant-Colonels R. W. Barnes and M. J. Whitty, M.D., retired pay, have been placed in medical charge of troops at Dorchester and Liverpool respectively.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 8,350 births and 6,754 deaths were registered during the week ending Saturday, September 8th. The annual rate of mortality in these towns, which had been 17.0, 18.4, and 18.3 per 1,000 in the three preceding weeks, rose again to 22.3 per 1,000 in the week under notice. The rates in the several towns ranged from 8.4 in Hornsey, 10.8 in King's Norton, 12.8 in West Hartlepool, 13.1 in South Shields, 14.3 in Halifax, 14.5 in Barrow-in-Furness, and 14.6 in Bournemouth and in Devonport, to 29.8 in Hull, 30.7 in Croydon, 31.1 in Bury, 31.4 in Hanley and in Stockport, 31.5 in St. Helen's, 32.0 in Merthyr Tydfil, 32.8 in Coventry, and 33.8 in Grimsby. In London the rate of mortality was 20.9 per 1,000, while it averaged 22.8 per 1,000 in the seventy-five other large towns. The death-rate from principal infectious diseases averaged 3.5 per 1,000 in the seventy-six towns; in London this death-rate was equal to 6.4 per 1,000, while among the seventy-five large provincial towns the rates ranged upwards to 13.0 in Liverpool, 14.6 in Sheffield, 15.8 in Grimsby, 16.1 in Preston, 16.5 in Aston Manor, 16.7 in Stockport, 17.4 in Bootle, 18.1 in Hanley, and 23.2 in Coventry. Measles caused a death-rate of 1.2 in West Ham, in East Ham, and in Wigan, 1.6 in Huddersfield, 1.8 in Bury, 2.1 in Stockport, and 2.6 in Rotherham; diphtheria of 1.3 in Aston Manor and 1.6 in Smethwick; whooping-cough of 1.6 in Swansea and 2.1 in Middlesbrough; "fever" of 1.2 in Hull and 1.3 in Aston Manor; and diarrhoea of 12.3 in Liverpool and in Rhondda, 13.9 in Aston Manor and in Sheffield, 14.7 in Stockport, 15.0 in Bootle, 15.8 in Grimsby, 16.1 in Preston, 17.3 in Hanley, and 22.6 in Coventry. The mortality from scarlet fever showed a marked excess in any of the large towns. One fatal case of small-pox was registered in Devonport, but none in any other of the seventy-six towns; and no small-pox patients were under treatment during the week in any of the Metropolitan Asylums Hospitals. The number of scarlet fever cases remaining in these hospitals and the London Fever Hospital at the end of the week was 3,067, against 3,046, 3,078, and 3,042 at the end of the three preceding weeks; 415 new cases were admitted during the week, against 317, 350, and 317 in the three preceding weeks.

In seventy-six of the largest English towns, including London, 8,349 births and 6,398 deaths were registered during the week ending Saturday last, September 15th. The annual rate of mortality in these towns, which had been 18.4, 18.3, and 22.3 per 1,000 in the three preceding weeks, declined again to 21.1 per 1,000 last week. The rates in the several towns ranged from 4.8 in Hornsey, 8.6 in Halifax, 9.3 in Leyton, 11.0 in Plymouth, 13.6 in King's Norton, 13.9 in Derby, and 14.9 in Willesden, in East Ham, and in Stockton-on-Tees, to 32.6 in Gateshead, 32.7 in Great Yarmouth, 33.7 in Tynemouth, 34.9 in Preston, 35.4,

in Hanley and in Warrington, 36.0 in Burnley, 36.1 in Grimsby, and 39.6 in Merthyr Tydfil. In London the rate of mortality was 17.6 per 1,000, while it averaged 22.6 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 8.3 per 1,000 in the seventy-six large towns; in London this death-rate was equal to 5.5 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 15.0 in Norwich, 15.2 in Burnley and in Gateshead, 15.3 in Rhondda, 16.4 in Coventry, and 19.7 in Tynemouth. 17.0 in Preston, 20.3 in Grimsby and in Warrington, and 20.4 in Hanley. Measles caused a death-rate of 1.5 in Oldham and 1.6 in Stockport; scarlet fever of 1.2 in Rochdale; diphtheria of 1.2 in Rhondda and 2.6 in Reading; whooping-cough of 1.3 in Birkenhead, 1.4 in Merthyr Tydfil, and 2.2 in Swansea; "fever" of 1.0 in Middlesbrough and 2.3 in Grimsby; and diarrhœa of 13.6 in Wolverhampton and in West Hartlepool, 13.7 in Norwich and in Smethwick, 13.9 in Rhondda, 14.2 in Burnley, 14.8 in Gateshead, 15.4 in Tynemouth, 15.7 in Preston, 18.0 in Grimsby, 19.6 in Warrington, and 20.4 in Hanley. One death from small-pox was registered in Devonport, but none in any other of the seventy-six towns, and no small-pox patients were under treatment last week in the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 3,078, 3,042, and 3,067 at the end of the three preceding weeks, had further risen to 3,075 at the end of last week; 440 new cases were admitted during the week, against 350, 317, and 415 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday, September 8th, 904 births and 533 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 14.4, 13.8, and 14.2 per 1,000 in the three preceding weeks, further rose to 15.6 per 1,000, but was 6.7 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the rates ranged from 9.0 in Paisley and 12.6 in Leith to 17.1 in Dundee and in Aberdeen, and 19.2 in Greenock. The death-rate from the principal infectious diseases averaged 2.5 per 1,000, the highest rates being recorded in Dundee and Greenock. The 255 deaths registered in Glasgow included 2 which were referred to measles, 3 to scarlet fever, 5 to whooping-cough, 4 to "fever," 31 to diarrhœa, and 3 to cerebro-spinal meningitis. Two deaths from whooping-cough and 9 from diarrhœa occurred in Edinburgh. Ten deaths from diarrhœa were recorded in Dundee, 6 in Greenock, 4 in Aberdeen, and 2 in Leith.

During the week ending Saturday last, September 15th, 835 births and 576 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 13.8, 14.2, and 15.6 per 1,000 in the three preceding weeks, further rose last week to 16.8 per 1,000, but was 3.3 per 1,000 below the rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 12.8 in Aberdeen and 13.8 in Edinburgh to 17.9 in Glasgow and 23.1 in Dundee. The death-rate from the principal infectious diseases averaged 4.0 per 1,000 in these towns, the highest rates being recorded in Glasgow, Paisley, and Greenock. The 287 deaths registered in Glasgow included two which were referred to measles, 4 to scarlet fever, 6 to whooping-cough, 3 to "fever," and 67 to diarrhœa. Six fatal cases of diarrhœa were recorded in Edinburgh; 3 of whooping-cough and 10 of diarrhœa in Dundee; 2 of diarrhœa in Aberdeen, 8 in Paisley, and 5 in Leith; and 2 of whooping-cough and 5 of diarrhœa in Greenock. There were also 2 fatal cases of cerebro-spinal meningitis in Glasgow and 1 in Paisley.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, September 1st, 514 births and 348 deaths were registered in six of the principal Irish towns, as against 519 births and 355 deaths in the preceding period. The annual death-rate in these towns, which had been 16.4, 15.9, and 17.8 per 1,000 in the three preceding weeks, fell to 16.8 per 1,000 in the week under notice, this figure being 1.5 per 1,000 lower than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 14.8 in Waterford and 15.1 in Limerick to 19.1 in Belfast and 21.9 in Dublin. The zymotic death-rate during the same period and in the same six Irish towns averaged 2.0 per 1,000, or 0.2 per 1,000 higher than during the preceding period, the highest figure—4.8—being recorded in Dublin, while Limerick and Waterford registered no deaths under this heading at all. In Belfast there were 7 deaths from whooping-cough.

During the week ending Saturday, September 8th, 611 births and 403 deaths were registered in six of the principal Irish towns, as against 514 births and 348 deaths in the preceding period. The annual death-rate in these towns, which had been 15.9, 17.8, and 16.8 per 1,000 in the three preceding weeks, rose to 22.3 per 1,000 in the week under notice, this figure being identical with the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 19.8 in Londonderry and 20.6 in Limerick to 24.1 in Dublin and 25.3 in Waterford. The zymotic death-rate during the same period and in the same six Irish towns averaged 5.3 per 1,000, or 3.3 per 1,000 higher than during the preceding period, the highest figure—7.4—being recorded in Londonderry. The principal contributions to the general high rate seem to have been whooping-cough and diarrhœa.

During the week ending Saturday, September 15th, 525 births and 417 deaths were registered in six of the principal Irish towns, as against 611 births and 403 deaths in the preceding period. The annual death-rate in these towns, which had been 17.8, 16.8 and 22.3 per 1,000 in the three preceding weeks, fell to 19.4 per 1,000 in the week under notice, this figure being 1.7 per 1,000 lower than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 11.7 in Waterford and 17.8 in Cork and Limerick to 20.2 in Belfast and 29.4 in Dublin. The zymotic death-rate during the same period, and in the same six Irish towns, averaged 4.4 per 1,000, or 0.9 per 1,000 lower than during the preceding period, the highest figure—7.4—being recorded in Londonderry, while no deaths under this heading were recorded in Waterford.

BRITISH MEDICAL ASSOCIATION LIBRARY.

BOOKS NEEDED TO COMPLETE SERIES:

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

American Climatological Transactions. Vols. 1, 4, 5, 6.
——— Dermatological Association Transactions. Vols 5, 7, 8, 11, and 29.
American Journal of the Medical Sciences. New series, vols. 4, 5, 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 33, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
——— Journal of Ophthalmology. Vols. 1-9.
——— Laryngological Association. Transactions. Vols. 1-6, 8-9.
——— Medical Association. Transactions, 1-28, 30, 31.
——— Otological Society. Transactions. Vol. 3, part 2, 1883.
——— Public Health Association. Transactions. Any vols.
Analyst. Vols. 1-24.
Archiv für Dermatologie und Syphilis. Prior to 1874, 1892, and 1893.
Annals of Surgery. Vols. 1, 11, 13-16, and 26, 27.
Archives Générales de Médecine. 1831-9 inclusive; 1846-55 inclusive; 1857-64 inclusive; 1871.
——— of Ophthalmology. Vols. 1-3, 6, 7, 14, 15, 16 and 20.
——— of Otology. Vols. 1-7, and 20-22.
——— de Parasitologie. Vols. 1-8.
——— of Pediatrics. Vols. 1-11.
Asylum Journal of Mental Science. Vol. 1, 1854.
Bentley and Trimen. Atlas of Medicinal Plants.
British Journal of Dermatology. Vol. 2, part 3.
British Laryngological and Rhinological Association, 1900-1-2.
Caledonian Medical Journal. Vol. 1 prior to 1894.
Carmichael Essays. Rivington, 1879.
Centralblatt für Augenheilkunde. Hirschberg. All prior to 1891, Index to 1891.
Centralblatt für Bakteriologie. Bound volumes prior to 1899.
——— für medicinischen Wissenschaften. Vols. 1-19.
Congrès Français de Chirurgie. Transactions 1, 2, 3, 6, and 10, and all since 11th.
——— Internat. d'Obstétrique et de Gynécologie. 3. Amsterdam, 1899.
Dermatological Congress. Vienna, 1892.
Dublin Quarterly Journal of the Medical Sciences. Vols. 1, 10, 17, 20, 28, and 35-40.
Edinburgh Obstetrical Society. Transactions. Vol. 5.
Glasgow Medical Journal. 1833-68.
——— Pathological Society. Transactions. Vols. 1 and 2.
Guy's Hospital Gazette. Nos. 1 and 5, 1872.
Hunterian Transactions containing 76th Report.
Indian Medical Gazette. 1866-84.
International Congress of Hygiene. Congresses 1 to 6 and 10 to 12.
——— Medical Congress, 14th sess. Madrid. 15th sess. Lisbon.
——— Ophthalmological Congress. Transactions of 5th, New York, 1876.
Johns Hopkins Hospital Bulletin. Vols. 1-10.
Journal of Laryngology. Vols. 1-9.
Neurologisches Centralblatt. No. 23, 1904.
Ophthalmic Review, January, 1882.
Pediatrics, prior to 1902.
Provincial Medical and Surgical Journal. March to September, 1841.
Recueil d'Ophtalmologie. 1891, January-June; 1892, December.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

ABERDEEN ROYAL ASYLUM.—Senior Resident Assistant Physician. Salary, £200 per annum.

AYR DISTRICT ASYLUM.—Senior and Junior Assistant Physicians (male). Salary, £150 and £120 per annum respectively.

BRADFORD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

BRIGHTON AND HOVE LYING-IN INSTITUTION AND HOSPITAL FOR WOMEN.—Honorary Anæsthetist.

CAIRO: KASR-EL-AINY HOSPITAL.—**Medical Tutor and Registrar.** Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—**Professor of Midwifery and Gynæcology.** Salary, £400 per annum.

CHORLEY: ROWCLIFFE HOSPITAL.—House Surgeon. Salary, £100 per annum.

DERWENT VALLEY WATER BOARD.—Medical Officer for Workmen's Village.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—Medical Officer for Casualty Department for six months. Salary at the rate of £100 per annum.

ENNISKILLEN: FERMANAGH COUNTY INFIRMARY.—House-Surgeon. Salary, £52 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Eight Clinical Assistants.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—Male Assistant House-Physician. Salary, £60 per annum.

HASTINGS AND ST. LEONARDS AND EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, commencing £75 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—(1) Physician. (2) Resident House-Physicians; honorarium, £25 for six months.

LEICESTER INFIRMARY.—Resident Surgical Dresser. Honorarium, £10 10s. at the end of six months.

MACCLESFIELD: CHESHIRE COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £140, rising to £160 per annum.

MACCLESFIELD GENERAL HOSPITAL.—Junior House-Surgeon. Salary, £60 per annum.

MANCHESTER: CHORLTON AND MANCHESTER JOINT ASYLUM COMMITTEE.—Resident Medical Officer for the new Epileptic Colony at Langho. Salary, £150 per annum.

MIDDLESBROUGH: NORTH RIDING INFIRMARY.—House-Surgeon. Salary, £100 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION, Hampstead.—Resident Medical Officer. Honorarium, £50 per annum.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeon for six months. Salary at the rate of £50 per annum.

NORTH-WEST LONDON HOSPITAL, Kentish Town Road.—Second Honorary Anaesthetist.

OLDHAM INFIRMARY.—Senior House-Surgeon. Salary, £100 per annum.

ROBERT BROWNING SETTLEMENT, Walworth, S.E.—Registered medical practitioner (male or female) to take honorary charge of medical work among the poor.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.—Senior House-Surgeon. Salary, at the rate of £100 per annum.

ST. PANCRAS AND NORTHERN DISPENSARY, Euston Road, N.W.—Resident Medical Officer. Salary, £105 per annum.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Clinical Assistants.

SEAMEN'S HOSPITAL SOCIETY.—Two House Physicians and two House Surgeons at the Dreadnought Hospital, Greenwich. Salary, £50 per annum each. Senior House Surgeon and House Surgeon at the Branch Hospital, Royal Albert Docks. Salary, £75 and £50 per annum respectively.

SHREWSBURY: SALOP INFIRMARY.—(1) House Surgeon. (2) House Physician. Salary at the rate of £100 and £50 per annum respectively.

TOXTETH PARK TOWNSHIP.—Assistant Resident Medical Officer of the Workhouse and Infirmary. Salary, £100 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary, £100 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies at Newhaven (Sussex), Tullamore (King's County), Lees (Lancashire), Perranporth (Cornwall).

APPOINTMENTS.

ALEXANDER, H. de Maine, M.D.Edin., Medical Superintendent to the Kingseat Asylum, Aberdeen.

BROWNRIDGE, J. L., L.R.C.P. and S.Edin., District Medical Officer of the Hoxne Union.

CANN, F. J. H., M.B.Lond., M.R.C.S.Eng., Certifying Factory Surgeon for the Dawlish District, co. Devon.

CROFTON, W. M., M.B., B.S.R.U.I., District Medical Officer of the Holbeach Union.

DUIGAN, V. J., M.R.C.S., L.R.C.P., Medical Officer of the Workhouse of the Mitford and Launditch Union.

GLENNY, Elliott T., B.S.Lond., House Physician to the Essex and Colchester Hospital, Colchester.

IVENS, Frances, M.B., M.S.Lond., Honorary Medical Officer for the Diseases of Women, Stanley Hospital, Liverpool.

JONES, B. E., L.R.C.P. and S.Edin., Medical Officer of Health, Kirkham Urban District.

MCILROY, A. Louise, M.D., L.M.Rotunda, Extra-Dispensary Gynaecologist, Glasgow Royal Infirmary.

MOORE, C. A., M.B., B.S.Lond., M.R.C.S., L.R.C.P., House-Surgeon at the Stanley Hospital, Liverpool.

PARKHURST, R., M.B., C.M.Edin., District Medical Officer of the Newhaven Union.

PARRY, T. Wilfred, M.B., Ch.B.Liv., House Physician, Royal Southern Hospital, Liverpool.

PARSON, Miss A. A., M.B., B.S.Lond., Resident Assistant Medical Officer at the Bradford Union Workhouse.

PHILLIPS, D., M.R.C.S., L.R.C.P.Lond., Medical Officer of Health for the Llandilo Urban District.

ROBERTS, R. J., L.R.C.P. and S.Edin., Certifying Factory Surgeon for the Corris District, cos. Merioneth and Montgomery.

SPITAL, R. H., M.B., B.S.Aber., District Medical Officer of the Macclesfield Union.

THOMAS, A. H., L.S.A.Lond., Certifying Factory Surgeon for the West Drayton District, co. Middlesex.

WHITE, G. F., M.D., B.Ch.Dub., District Medical Officer of the Orsett Union.

WYLLIE, R. G., M.B., C.M.Aber., District Medical Officer of the Newbury Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

CRABBE.—On September 15th, at Gravelly Hill, Birmingham, the wife of J. Sandison Crabbe, L.R.C.P. and S., of twin boys.

NICOL.—On September 16th, at Harleston, Norfolk, the wife of Hamish Nicol, M.R.C.S.Eng., L.R.C.P.Lond., of a daughter.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Eye.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays and Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children.

BOOKS, ETC., RECEIVED.

Kimpton's Public Health Series. Food and Digestion in Health and Disease during Infant, Child, and Adult Life. By M. A. Dutch, M.D. London: H. Kimpton. 1906. 2s. 6d.

Indications for Operation in Disease of the Internal Organs. By Professor H. Schlesinger, M.D. English translation by K. W. Monsarrat, M.B., F.R.C.S.Ed. Bristol: J. Wright and Co. 1906. 9s. 6d.

London: A Guide for the Visitor, Sportsman, and Naturalist. By J. W. Cundall. London: Greening and Co. 1906. 6d.

A Primer of Psychology and Mental Disease. By C. B. Burr, M.D. Third Edition. Philadelphia: F. A. Davis Co. 1906. s1.25.

The Ear and its Diseases. By S. S. Bishop, B.S., M.D., LL.D. Philadelphia: F. A. Davis Co. 1906. s4.

Disease of the Urethra. By P. Clennell Fenwick, M.B.Lond., F.R.C.S.Ed. Melbourne: James Little. 1906.

The Extra-Pharmacopoeia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B.Lond., D.P.H. Twelfth Edition. London: H. K. Lewis. 1906. 10s.

Hand Atlas of Human Anatomy. By Werner Spalteholz. Edited and translated from the fourth German edition by Lewellys F. Barker. In three volumes. Second Edition. London: J. B. Lippincott Co. 42s.

The Other Side of the Lantern. By Sir Frederick Treves, Bart., G.C.V.O., C.B., LL.D. London: Cassell and Co. 1906. 6s.

Mitteilungen aus der Augenklinik des Carolinischen Medico-Chirurgischen Instituts zu Stockholm. Von Dr. J. Widmark. Achtes Heft. Jena: Gustav Fischer. 1906. M.6.

Die heutige Lehre von den pathologisch-anatomischen Grundlagen der Herzschwäche. Von L. Aschoff und S. Tawara. Jena: Gustav Fischer. 1906. M.2.

Practical Prescribing and Dispensing for Medical Students. By William Kirkby. Second Edition. Manchester: University Press. 1906. 5s.

A Short Practice of Medicine. By Robert A. Fleming, M.A., M.D., F.R.C.P.E., F.R.S.E. London: J. and A. Churchill. 1906. 10s. 6d.

Arbeiten aus dem königlichen institut für experimentelle Therapie zu Frankfurt a.M. Herausgegeben von Geh. Med.-Rat. Professor Dr. P. Ehrlich. Heft II (Aus der Prüfungstechnischen Abteilung): R. Otto, Die staatliche Prüfung der Heilsera. Mit 8 Figuren. Jena: Gustav Fischer. 1906. M.3.00.

L'Ame et le Système Nerveux: Hygiène et Pathologie. Par Auguste Forel. Paris: G. Steinheil. 1906. Fr. 5.

Tuberculosis; its Origin and Extinction. By W. Pickett Turner, M.D. London: Adam and Charles Black. 1906. 2s. 6d.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Vol. VI, January, 1904. Edited by Andrew J. McCosh, M.D., and W. Gilman Thompson, M.D. New York: Trow Directory Printing and Bookbinding Co.

Manual of Aseptic Surgery. By E. A. R. Newman, M.D., M.R.C.S.E., Major I.M.S. Calcutta: Thacker, Spink, and Co. 1906. 5s.

Anatomische, physiologische und physikalische Daten und Tabellen zum Gebrauche für Mediziner. Von Dr. Hermann. Vierordt. Dritte neu Bearbeitete Auflage. Jena: Gustav Fischer. 1906. M.17.50.

Charlotte Corday in Prison. By George H. R. Dabbs, M.D. London: Charles William Deacon and Co. 1906. 2s. 6d.

Clinical Diagnosis. A Textbook of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers, and Practitioners of Medicine. By Charles Phillips Emerson, A.B., M.D. Philadelphia and London: J. B. Lippincott Co. 1906. 21s.

Expérimentation sur la Prophylaxie de la Syphilis. Par le Docteur Paul Maisonneuve. Paris: G. Steinheil. 1906. Fr. 2.50.

L'Auto-Intoxication Intestinale par le Dr. A. Combe. Paris: J. B. Baillière et Fils. 1907. Frs. 12.

Clinical Studies in the Treatment of the Nutritional Disorders of Infancy. By Ralph Vincent, M.D., M.R.C.P. London: Baillière, Tindall, and Cox. 1906. 3s. 6d.

Why Vaccinate? By H. W. Whiston. Second edition. Macclesfield: Claye, Brown, and Claye. 1906. 6d.

A Guide to Diseases of the Nose and Throat, and their Treatment. By C. A. Parker, F.R.C.S.Ed. London: E. Arnold. 1905. 18s.

Practical Methods of Inorganic Chemistry. By E. M. Perkin, Ph.D. London: A. Constable and Co., Limited. 1906. 2s. 6d.

The Birds of the British Islands. By C. Stonham, C.M.G., F.R.C.S., F.Z.S. Part II. London: E. Grant Richards. 1906. 7s. 6d.

Archives of the Middlesex Hospital. Volume VIII. London: Macmillan and Co., Limited. 1905.

Prostatectomie Périnéale et Prostatectomie Transvésicale, Méthode de Freyer, Etude comparée des deux Méthodes. Par A. Castaño. Buenos Aires: A. Etchepare Jorda. 1906.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
SEPTEMBER.	
23 **Sunday**.....	
24 MONDAY	
25 TUESDAY.....	LONDON: Metropolitan Counties Branch, Meeting of Council, in the Library, 429, Strand, at 5 p.m.
26 WEDNESDAY	LONDON: South-Eastern Branch Council, at 3.15 p.m.
27 THURSDAY...	DOVER DIVISION. *South-Eastern Branch*, Grand Hotel, Dover, 8.30 p.m. WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.45 p.m.
28 FRIDAY.....	
29 SATURDAY...	
30 **Sunday**	
OCTOBER.	
1 MONDAY.....	
2 TUESDAY ...	LONDON: Public Health Committee, 3.15 p.m. SHROPSHIRE AND MID-WALES BRANCH, Salop Infirmary, Shrewsbury, 3 p.m.
3 WEDNESDAY	COVENTRY DIVISION. *Birmingham Branch*, Annual Dinner, Masonic Buildings, Little Park Street, Coventry, 7.30 p.m. (for 7.45). EDINBURGH: Scottish Committee, North British Station Hotel, 2.10 p.m.
4 THURSDAY...	CANTERBURY AND FAVERSHAM DIVISION, *South-Eastern Branch*, Dr. Hayward's House, Whitstable, 3 p.m.
5 FRIDAY	
6 SATURDAY...	
7 **Sunday**	
8 MONDAY	LONDON: Journal and Finance (Referendum) Committee, 2.30 p.m.
9 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Finance Inquiry Committee, 2.30 p.m.
10 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m.
11 THURSDAY...	LONDON: Hospitals Committee, 2.30 p.m. LONDON: Premises and Library Committee, 3.15 p.m.
12 FRIDAY	LONDON: Central Ethical Committee, 2 p.m.
13 SATURDAY...	
14 **Sunday**	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	LONDON: Journal and Finance Committee, 2 p.m.
18 THURSDAY...	
19 FRIDAY.....	
20 SATURDAY..	ABERDEEN BRANCH, Annual Meeting, Grand Hotel, Aberdeen, 1.15 p.m.
21 **Sunday**	
22 MONDAY	
23 TUESDAY.....	
24 WEDNESDAY	CENTRAL COUNCIL. DORSET AND WEST HANTS BRANCH, Sherborne.
25 THURSDAY..	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Battersea Town Hall, 8.45 p.m.
26 FRIDAY	
27 SATURDAY...	
28 **Sunday**	
29 MONDAY	
30 TUESDAY.....	
31 WEDNESDAY	
NOVEMBER.	
1 THURSDAY...	
2 FRIDAY.....	
3 SATURDAY...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 29TH, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

SOUTH-EASTERN OF IRELAND BRANCH.

A MEETING of this Branch was held at Waterford on September 5th, at 2 p.m., Dr. WILLIAM SHEE in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read, approved, and signed.

Correspondence.—Letters touching on the investigation of ethical cases recently before the Branch Council were read and dealt with.

Insurance Fees.—It was proposed by Dr. CAREY, and seconded by Dr. STEPHENSON:

That circulars dealing with this subject be reissued to each member of the Branch.

Contract Practice.—In the absence of Dr. Hewetson, his resolution *re* Contract Practice was proposed by Dr. MORRIS and seconded by Dr. CAREY, *pro forma*. The subject was discussed by Drs. MACKESY, JELLETT, MORRIS, QUIRKE, LEE, STEPHENSON, and MORRISSEY. Dr. JELLETT moved, and Dr. STEPHENSON seconded, an amendment that the proposition was inapplicable. On a division the proposition was negatived.

Luncheon.—This ended the business and the members lunched together at the Adelphi.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

ABERDEEN BRANCH.—The annual meeting of this Branch will be held in the Grand Hotel, Aberdeen, on Saturday, October 20th, at 1.15 p.m.—J. F. CHRISTIE and THOMAS FRASER, Honorary Secretaries.

BIRMINGHAM BRANCH: COVENTRY DIVISION.—The annual dinner of this Division will be held at the Masonic Buildings, Little Park Street, Coventry, on Wednesday, October 3rd, at 7.30 p.m (for 7.45). The Chairman of the Council of the Association (Dr. Langley Browne) and the President of the Branch (Dr. Otho Wyer) have accepted invitations to be present. It is open to members to introduce either medical men or dentists as guests. Tickets (including wine), 12s 6d. each. Members should communicate with the undersigned their intention to be present or to introduce guests on or before September 27th Members willing to read papers, show specimens or cases, or open discussions during the coming session are invited to communicate with E. H. SNELL, Honorary Secretary.

DORSET AND WEST HANTS BRANCH.—The autumn meeting will be held in Sherborne on Wednesday, October 24th. Members having papers to read, cases to exhibit, or specimens to show are requested to communicate with the Honorary Secretary before October 12th.—JAMES DAVISON, Honorary Secretary, "Streateplace," Bath Road, Bournemouth.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.—A general meeting of the Division will be held at the rooms of the Medical Society of London, Chandos Street, W., on Friday, October 12th, at 5 o'clock precisely. Agenda: 1. Minutes of last meeting. 2. Correspondence. 3. Consideration of letter received from Dr. Llewellyn Williams, Chairman of the Wandsworth Division, British Medical Association, concerning the election of Direct Representatives for England and Wales to the General Medical Council, 1906 (published in the SUPPLEMENT of September 15th, p. 186). 4. To consider other business if necessary.—COMYNS BERKELEY, M.B., B.C.Cantab., M.R.C.P.Lond., Honorary Secretary and Treasurer, 53, Wimpole Street, W.

METROPOLITAN COUNTIES BRANCH: WANDSWORTH DIVISION.—An ordinary meeting will be held at the Wandsworth Town Hall on Friday, October 26th, at 8.15 p.m., when a popular lecture will be given by Ebenezer Howard, Esq., the founder of the Garden City Association, on its aims and objects. Limelight views will be shown. A discussion will follow. Tea and coffee will be provided at 7.30 p.m. The chair will be supported by Sir Henry Kimber, Bart., M.P., the Mayors of Wandsworth, Battersea, and Wimbledon, Reginald Harrison, F.R.C.S., R. O. Moon, M.D., and others. Ladies will be invited, as well as prominent members of the laity.—E. ROWLAND FOTHERGILL, Honorary Secretary, Torquay House, Southfields, S.W.

MIDLAND BRANCH: BOSTON AND SPALDING DIVISION.—A meeting of this Division will be held at the Red Lion Hotel, Boston, on Tuesday, October 9th, at 3.30 p.m. Agenda: (1) Dr. T. J. Walker, M.D., of Peterborough, will read a paper on a case of Acute Intestinal Obstruction due to Meckel's Diverticulum. (2) Discussion of the question, "Shall the Boston Division be united with the Lincoln and Stamford Divisions to form one Division?" (3) Any other business.—A. E. WILSON, Honorary Secretary, Boston.

SHROPSHIRE AND MID-WALES BRANCH.—The next meeting will be held at the Salop Infirmary, Shrewsbury, on October 2nd, at 3 p.m. The President of the Branch (Dr. Alan Rigden) will read a paper on an Analysis of 73 Cases of Puerperal Insanity. Dr. Wheatley, M.O.H. for the County of Salop, will open a discussion on the Desirability of making Phthisis a Notifiable Disease. The annual dinner will be held in the Music Hall in the evening.—C. G. RUSS WOOD, Honorary Secretary.

SOUTH-EASTERN BRANCH: CANTERBURY AND FAVERSHAM DIVISION.—The next meeting of this Division, to which all medical practitioners residing in the South-Eastern Branch are invited, will be held at Dr. Hayward's house, Whitstable, on Thursday, October 4th, at 3 p.m. Agenda: (1) Minutes of previous meeting; (2) time, place, and chairman of next meeting; (3) Dr. Whitehead Reid will open a discussion on Hospital Reform. Drs. Alexander and Fenhoulet will also

speak as regards the arrangements at the Faversham and Herne Bay hospitals respectively; (4) any other business.—A. R. HENCHLEY, Honorary Secretary, Canterbury.

SOUTH-EASTERN OF IRELAND BRANCH.—An ordinary meeting will be held at the Victoria Hotel, Kilkenny, on October 3rd, at 5 p.m. Agenda: (1) Minutes. (2) Correspondence. (3) Empyema cases; dissertations on referred. (4) Any other business. (5) Dinner at 6 o'clock.—J. QUIRKE, Honorary Secretary, Piltown.

SOUTHERN BRANCH.—The Council will shortly proceed to nominate two members to be submitted to the electors as Representatives of the Branch on the General Council of the Association. Candidates should send their names to me, each nominated by three electors, on or before October 5th.—H. J. MANNING, Honorary Secretary, Laverstock House, Salisbury.

GENERAL MEDICAL COUNCIL ELECTION.

WE have received the following intimation from the General Council of Medical Education and Registration of the United Kingdom: "The Registrar is directed to state for information that Sir Victor Horsley has written to the President resigning his seat on the Council in order that the inconvenience of a separate election next year may be avoided."

DR. HENRY LANGLEY BROWNE'S CANDIDATURE.

At the annual meeting of the Birmingham and District General Medical Practitioners' Union on Tuesday the following resolution was proposed by the Council:

> That this meeting of the Birmingham and District General Medical Practitioners' Union cordially approves of the candidature of Dr. Henry Langley Browne for election as a Direct Representative on the General Medical Council, and pledges itself to use every endeavour to secure his return.

Prior to the resolution being put, Dr. LANGLEY BROWNE, at the invitation of the Chairman, Dr. MILLIGAN, delivered a brief address.

Dr. LANGLEY BROWNE said he was glad that the meeting had kindly given him an opportunity of saying a few words in regard to his candidature. The present election was one of vital importance, because the time had come when a new Medical Act was within the range of practical politics. Men of action had been at work, and a new Bill had been drawn up and had been carefully discussed. They had some hopes that within the next session or two they would be able to get the Bill through Parliament, and it would become law. The new Medical Act was by far the most important thing they had before them, because he was of the opinion that they would never do much for their profession or advance their financial interests, or make things easier for themselves and the general body of practitioners until they did get a new Medical Act. And they would never get a new Medical Act until they had got the State interested in the profession. If the Government could be prevailed upon to adopt a State examination, and call upon medical men to pay to the State an annual licence, then the State would have a direct interest in the medical profession, and they might expect them to do something for the profession. What they wanted them to do was to put a stop to the enormous amount of unqualified practice that was going on. The extent to which that unqualified practice existed limited the remuneration of the medical practitioner, and made him work much harder to obtain a reasonable living than he ought to be called upon to work. If the new Act were enforced, and this unqualified practice were stopped, the general practitioner must be greatly benefited. There were a great many members of the General Medical Council who did not agree with the passing of such an Act; he referred to the representatives of the Universities, who were always opposed to change of any character. It was important that they should obtain the ear of representative men, and they wanted on the Council men who knew what was going on. He ventured to think, in all humility, that he knew what was going on in connexion with medical politics, and he thought that he had the ear of people of influence in London. His only idea in becoming a candidate was to do something, and he thought that the experience he had had fitted him for the office. He trusted they would try to return him, and he promised to do all that he could to forward the welfare of the general practitioner, whose aims and aspirations he thoroughly understood.

The CHAIRMAN said he was sure they had been pleased to hear Dr. Langley Browne, who was so highly-respected and valuable a member of the Union. He had held honourable positions in connexion with the Union, and he was certain that the candidature of Dr. Langley Browne would meet with their warm approbation. Their candidate was thoroughly acquainted with the trend of medical politics. They had not many direct representatives; they had a representative of the Birmingham University on the Council, but whenever the interests of the general body of practitioners clashed with the interests of Birmingham University they would not have much doubt as to how that representative would act. The members sent by the corporations were naturally interested mainly from the point of view of the corporations they represented. They wanted as a representative a medical man who understood their wants. They had only five direct representatives, and if they searched the whole country they would not find any one better fitted to represent the General Medical Practitioners' Union than Dr. Langley Browne. He accordingly proposed the resolution given above, and coupled with it a vote of thanks to Dr. Langley Browne for his address

Mr. HALLWRIGHT seconded the resolution. He had known Dr. Langley Browne for forty-five years, and he had known him as a diligent and enthusiastic student, as a good practitioner, and as a good representative of the profession. He had filled many honourable posts, and no one deserved the position better. They could not do better than give him their hearty support.

Dr. KIRBY desired to make a suggestion. He thought it would be a desirable thing if those present formed themselves into a committee, with power to add to their number, to promote Dr. Langley Browne's candidature.

The resolution was carried, and Dr. Kirby's suggestion was also adopted.

Dr. LANGLEY BROWNE thanked those present for passing the resolution and also for listening to him.

Dr. LLEWELLYN WILLIAMS (Chairman Wandsworth Division) writes: Had Dr. J. C. Smith of the Watford Division placed the *last* paragraph of his letter *first*, the reason of his apparent anger at the scheme suggested in my circular letter would have been more apparent. He seems to suggest that any attempt whatever to call our profession together in order to discuss the claims of the various candidates is "stultification of our new Constitution and an attempt to establish a caucus in its worst form." Will Dr. Smith kindly explain why? I am perfectly aware that the Association, as such, has decided not to select candidates. Does it therefore become binding on all who may happen to be members of the Association to do nothing, as Dr. Smith seems to suggest? If so, how does he explain the fact that he advocates the selection of three candidates who are being run by a special Committee and the *Medical Times and Hospital Gazette?* The personal connexion between these people is perhaps more intimate than many members of the profession are aware of. I should not have thought that my circular letter would have been so much misunderstood, as it has apparently been, by Dr. Smith and the *Medical Times*, had they not had a reason for endeavouring to mislead the profession with regard to it. It is now acknowledged that the Divisions do, where active, represent the local profession: but of course it is different in the case of Divisions like Watford, which has not elected a chairman, secretary, or committee, nor held one meeting during the three years' existence of the new Constitution which Dr. Smith so proudly boasts of. Consequently, I felt that as I was the Chairman for the time being of a Division, I was entitled to use my position to call the profession together to consider the election to be held next November, and thus to give men the opportunity to discuss the claims of all the candidates. Can Dr. Smith object to that action? If not, he cannot in fairness object to any Chairman acting in the same way. Many Chairmen might wish to do so if it occurred to them, so I decided to place my suggestion before them by means of a letter, printed for convenience. The Wandsworth Division as such had nothing to do with my letter. The matter will be considered at a meeting of the local profession

here, and those present will act as they think best. It will necessarily follow that in various districts the claims of the candidates will be estimated at different values. I have suggested, therefore, that by voting and the counting of votes we might really get a consensus of opinion, and I have urged that personal feeling should be sunk, and that all should combine to further the interests of those candidates more generally favoured. It might turn out that Dr. Smith's three candidates are those thus placed. Would he then disapprove of this action? Those gentlemen who have agreed to count the votes have no interest whatever in the matter; they have simply agreed to act as scrutineers. The *Lancet* and the BRITISH MEDICAL JOURNAL are not either taking any part in the scheme. They have published my letter without comment, and will also under similar conditions publish the return of the three scrutineers. If Dr. Smith or any one else thinks that any clique is running any candidates he is probably mistaken. I am not doing so, nor is any one else to my knowledge—except Dr. Smith and his friends. The Wandsworth Division has not met since last June, and has not issued any circular nor offered any assistance to any one, and no meeting of its Executive Committee was held for some months before the circulation of my letter. I have good cause to know that in very many districts the suggestions conveyed in this letter have been cordially accepted and are being acted upon. I am afraid that this reply is rather a long one, and should have thought such an explanation unnecessary; but in view of the attempts to suppress and misstate facts by Dr. Smith and the Editor of the *Medical Times*, I trust you will in fairness allow this letter to appear.

P.S. (September 25th).—I learn from Dr. Fothergill, the Secretary of the Wandsworth Division, that he has been informed by the Secretary of the Gateshead Division that Mr. Morison, one of the candidates for the General Medical Council election, has retired from the contest and withdrawn his name as he has been elected Lecturer on Surgery at Newcastle.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,358 births and 5,865 deaths were registered during the week ending Saturday last, September 22nd. The annual rate of mortality in these towns, which had been 18.3 22.3, and 21.1 per 1,000 in the three preceding weeks, further declined last week to 19.3 per 1,000. The rates in the several towns ranged from 4.8 in Hornsey, 10.7 in Bury, 11.4 in Handsworth (staffs), 11.5 in King's Norton, 11.6 in Walthamstow, 11.7 in Northampton, and 11.9 in Leyton, to 27.8 in Grimsby, 28.3 in Salford, 29.0 in South Shields, 29.9 in Hanley, 30.7 in Sunderland, 30.8 in Tynemouth, 32.0 in Burnley, and 33.9 in Warrington. In London the rate of mortality was 17.1 per 1,000, while it averaged 20.3 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 6.6 per 1,000; in London this death-rate was equal to 4.5 per 1,000, while among the seventy-five large provincial towns the rates ranged upwards to 12.3 in Sunderland, 12.5 in Preston, 12.9 in Great Yarmouth, 13.0 in Burnley, 14.0 in Gateshead, 14.3 in Warrington, 15.8 in Grimsby, and 16.5 in Hanley. Measles caused a death-rate of 1.5 in Oldham and in Burnley, 2.4 in Wigan, and 3.5 in Norwich; scarlet fever of 1.3 in Leyton and 1.7 in Rotherham; diphtheria of 1.3 in Southampton and in Salford; whooping-cough of 1.4 in Sunderland and 1.6 in Hanley; and diarrhœa of 10.3 in Barrow-in-Furness, 10.5 in Sunderland, 11.9 in Great Yarmouth, 12.1 in Preston, 12.2 in Burnley, 13.1 in Gateshead, 14.1 in Hanley, 14.3 in Warrington, and 15.8 in Grimsby. The mortality from fever showed no marked excess in any of the large towns, and no death from small-pox was registered during the week. The number of scarlet fever patients remaining under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,042, 3,067, and 3,075 at the end of the three preceding weeks, had further risen to 3,164 at the end of last week; 473 new cases were admitted during the week, against 317, 415, and 440 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, September 22nd, 931 births and 552 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 14.2, 15.6, and 16.8 per 1,000 in the three preceding weeks, declined again to 16.1 per 1,000 last week, and was 3.2 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 10.6 in Perth and 12.2 in Aberdeen, to 18.3 in Leith and 21.6 in Paisley. The death rate from the principal infectious diseases in these towns averaged 3.6 per 1,000, the highest rates being recorded in Glasgow and Paisley. The 277 deaths registered in Glasgow included 3 which were referred to measles, 3 to diphtheria, 7 to whooping-cough, 3 to "fever," and 51 to diarrhœa. Two fatal cases of diphtheria and 12 of diarrhœa were recorded in Edinburgh. Two deaths from diphtheria, 2 from whooping-cough, and 2 from diarrhœa occurred in Aberdeen; 8 deaths from diarrhœa were registered in Paisley, 6 in Leith, 4 in Dundee, and 3 in Greenock. There were also 6 fatal cases of cerebro-spinal meningitis registered last week; of these 4 belonged to Glasgow and 1 each to Edinburgh and Dundee.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 8s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

DENYER.—On September 20th, at 75, Gordon Mansions, Gordon Square, W.C., the wife of Stanley Edward Denyer, C.M.G., M.D., M.A.Cantab., of a daughter.

FLETCHER.—At Tighanduin, Tarbert, Harris, on September 7th, the wife of Duncan Fletcher, L.R.C.P.and S.Edin., D.P.H., etc., of a son.

MARRIAGE.

MARTIN—EDWARDS.—On September 19th, at Bingley, Edward Lister Martin, youngest son of the late Alexander Maughan Martin, of Singapore and Blackheath, to Ethel, third daughter of the late Canon Edwards, and of Mrs. Edwards, Lea Bank, Bingley.

DEATH.

BIRT.—On September 19th, at Reading, from abdominal injury caused by a bicycle accident, Thomas Birt, Major R.A.M.C., youngest son of the late Thomas Birt, M.D., of Leamington, aged 44.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

ABERDEEN ROYAL ASYLUM.—Senior Resident Assistant Physician. Salary, £200 per annum.

ASTON UNION.—Resident Assistant Medical Officer for the Workhouse and Cottage Homes. Combined salary £120 per annum.

BIRMINGHAM: QUEEN'S HOSPITAL.—Pathologist. Honorarium, £100 per annum.

BRADFORD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynæcology. Salary, £400 per annum.

CANTERBURY: KENT AND CANTERBURY HOSPITAL.—House-Surgeon. Salary, £90 per annum.

CHELSEA HOSPITAL FOR WOMEN, Fulham Road, S.W.—Clinical Assistant.

CHORLEY: ROWCLIFFE HOSPITAL.—House Surgeon. Salary, £100 per annum.

CHORLTON UNION.—Senior and Junior Resident Medical Officers at the Workhouse Hospitals, Withington. Salary, £100 per annum.

FINSBURY DISPENSARY, Brewer Street, E.C.—Resident Medical Officer. Salary, £140 per annum.

HAMMERSMITH PARISH.—Assistant Infirmary Medical Superintendent and Assistant Medical Officer to the Workhouse. Combined salary, £120, rising to £150 per annum.

HOSPITAL FOR WOMEN, Soho Square, W.—Clinical Assistants to the Gynæcologists in the Out-patient Department.

HULL ROYAL INFIRMARY.—Honorary Physician.

LEEDS PUBLIC DISPENSARY.—Honorary Medical Officer.

LEICESTER INFIRMARY.—Resident Surgical Dresser. Honorarium, £10 10s. for six months.

LIVERPOOL CITY.—(1) Assistant to Medical Officer of Health. Salary, £250 per annum. (2) Assistant Resident Medical Officer to the Infectious Diseases Hospital. Salary, £120 per annum.

MACCLESFIELD: CHESHIRE COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £140, rising to £160 per annum.

MACCLESFIELD GENERAL HOSPITAL.—Junior House-Surgeon. Salary, £60 per annum.

MANCHESTER: CHORLTON AND MANCHESTER JOINT ASYLUM COMMITTEE.—Resident Medical Officer for the new Epileptic Colony at Langho. Salary, £100 per annum.

MANCHESTER ROYAL INFIRMARY.—Honorary Assistant Physician.

METROPOLITAN HOSPITAL, Kingsland Road, N.E.—(1) Surgeon. (2) Assistant Surgeon.

PADDINGTON PARISH.—(1) First Assistant Medical Officer of the Infirmary and Assistant Medical Officer of the Workhouse. Salary, £100, rising to £120 per annum. (2) Second Assistant to the Medical Superintendent of the Infirmary. Honorarium, £36 for six months.

PEEBLES: MANOR VALLEY SANATORIUM.—Resident Physician.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £100 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) Resident House-Physician. (2) Resident House-Surgeon. (3) House-Physician. (4) Casualty House-Surgeon.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer. Salary, £20 per annum.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Clinical Assistants.

SEAMEN'S HOSPITAL SOCIETY.—(1) Two House Physicians. (2) two House Surgeons, (3) Dental Surgeon, (4) Medical officer in charge of Electrical Department at the Dreadnought Hospital, Greenwich, (5) Senior House Surgeon. (6) House Surgeon, and (7) Anæsthetists at the Branch Hospital, Royal Albert Docks. Salary, £60 each for (1), (2), and (6), and £75, with an addition of £25 for acting as Registrar, for (5).

SHEFFIELD CITY.—Visiting Medical Officer for the Schools under the Education Committee. Salary, £400 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—(1) House-Physician. Salary, £100 per annum. (2) House-Surgeon. Salary, £100 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces a vacancy in the office of Certifying Factory Surgeon at Fulham and Hammersmith.

APPOINTMENTS.

BALL, C. R. H., M.R.C.S., L.R.C.P.Lond., Certifying Factory Surgeon for the Hun-tanton District, Norfolk.

BURFIELD, J., M.B., B.S.Lond., F.R.C.S.Eng., Assistant Medical Officer to the Bolingbroke Hospital, Wandsworth Common, vice D. Macrae Aitkin, M.B., resigned.

DAWNAY, A. H. Payan, M.R.C.S., L.R.C.P.Lond., Honorary Ophthalmic Surgeon at the Hounslow Hospital.

FLINT, T. B., M.R.C.S., L.R.C.P.Lond., Medical Officer of Health, Buxton Urban District.

LAWSON, T. C., M.R.C.S.Eng., District Medical Officer of the Bideford Union.

DIARY FOR THE WEEK.

MONDAY.

NEW SYDENHAM SOCIETY, 15, Cavendish Square, 4.30 p.m.—Annual meeting.

FRIDAY.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith Road, W., 8.30 p.m.—Dr. Leonard Mark, Presidential address: Art and Medicine; illustrated by lantern slides.

POST-GRADUATE COURSES AND LECTURES.

CHARING CROSS HOSPITAL, Thursday, 4 p.m.—Medical.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Ear. Lectures at 5.15 p.m. each day will be given as follows: Monday, The Practice of Forensic Medicine; Tuesday, Misleading Symptoms in Urinary Disease; Wednesday, Lucid Intervals in Cases of Insanity; Thursday, Head-nodding and other Curious Movements in Children.

OBSTETRICAL SOCIETY OF LONDON, Wednesday, October 3rd, at 8 p.m. Short communications: Dr Eden and Mr. F. Lionel Provis—A Case of Intraligamentous Fibro-cystic Tumour of the Uterus, weighing about 30 lb successfully removed by Enucleation and Subtotal Hysterectomy. Specimens: Dr. Eden—A specimen of Tubal Pregnancy, with Extensive Interstitial Salpingitis; Dr R. D. Maxwell—Fetal Volvulus of Small Intestine, leading to Perforation of Gut and Abdominal Distension, causing difficult labour; Dr H. Russell Andrews—(1) Endothelioma of the Cervix, (2) Complete Prolapse of an Inverted Uterus. Paper: Mr. E. E. Young—Primary tuberculosis of the cervix uteri.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays and Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2.15 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
OCTOBER.	
1 MONDAY.....	
2 TUESDAY ...	LONDON: Public Health Committee, 3.15 p.m. SHROPSHIRE AND MID-WALES BRANCH, Salop Infirmary, Shrewsbury, 3 p.m.
3 WEDNESDAY	COVENTRY DIVISION. *Birmingham Branch*, Annual Dinner, Masonic Buildings, Little Park Street, Coventry, 7.30 p.m. (for 7.45). EDINBURGH: Scottish Committee, North British Station Hotel, 2.10 p.m. SOUTH-EASTERN OF IRELAND BRANCH, Victoria Hotel, Kilkenny, 5 p.m.; Dinner 6 p.m.
4 THURSDAY...	CANTERBURY AND FAVERSHAM DIVISION, *South-Eastern Branch*, Dr. Hayward's House, Whitstable, 3 p.m.
5 FRIDAY	
6 SATURDAY...	
7 Sunday	
8 MONDAY	LONDON: Journal and Finance (Referendum) Committee, 2.30 p.m.
9 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Finance Inquiry Committee, 2.30 p.m. BOSTON AND SPALDING DIVISION. *Midland Branch*, Red Lion Hotel, Boston, 3.30 p.m.
10 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m.
11 THURSDAY...	LONDON: Hospitals Committee, 2.30 p.m. LONDON: Premises and Library Committee, 3.15 p.m.
12 FRIDAY	LONDON: Central Ethical Committee, 2 p.m. HAMPSTEAD DIVISION, *Metropolitan Counties Branch*, 5 p.m. MARYLEBONE DIVISION, *Metropolitan Counties Branch*. Rooms of the Medical Society of London, Chandos Street, W., 5 p.m.

Date.	Meetings to be Held.
OCTOBER *(continued).*	
13 SATURDAY...	
14 Sunday	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	LONDON: Journal and Finance Committee, 2 p.m.
18 THURSDAY...	
19 FRIDAY.....	
20 SATURDAY...	ABERDEEN BRANCH, Annual Meeting, Grand Hotel, Aberdeen, 1.15 p.m.
21 Sunday	
22 MONDAY	
23 TUESDAY.....	
24 WEDNESDAY	CENTRAL COUNCIL. DORSET AND WEST HANTS BRANCH, Sherborne.
25 THURSDAY...	
26 FRIDAY	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.15 p.m.
27 SATURDAY...	
28 Sunday	
29 MONDAY	
30 TUESDAY.....	
31 WEDNESDAY	
NOVEMBER.	
1 THURSDAY...	
2 FRIDAY.....	
3 SATURDAY...	
4 Sunday.....	
5 MONDAY	
6 TUESDAY.....	
7 WEDNESDAY	

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

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Meetings of Branches & Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.*]*

BORDER COUNTIES BRANCH.

THE thirty-ninth annual meeting of this Branch was held in the County Hotel, Carlisle, on June 29th, Dr. HENRY BARNES, Vice-President, in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read, approved, and signed by the Chairman.

Letters.—The following apologies for unavoidable absence were intimated: Drs. Edington, Sedgwick, Burnett, and the President, Sir James Crichton-Browne, who wrote as follows:

Conservative Club,
St. James's Street, W.,
June 26th, 1906.

Dear Dr. Hill,

To my sincere regret I find that it will not be possible for me to attend the annual general meeting of the Border Counties Branch on Friday.

Two night journeys would not prevent me from being with you, but unfortunately official engagements have been made for me in London for that day, which I cannot postpone.

I am particularly sorry not to be able to take part in the inauguration of Dr. Bowser in the chair, but I shall read his address, and hope to be able to support him at some of the meetings during his term of office.

Pray convey to the members of the Branch my apologies for absence and an expression of my sense of the honour they did me in placing me in the chair and of the generous indulgence they have shown me during my very partial incumbency of it.

Believe me,
Yours most faithfully,
JAMES CRICHTON-BROWNE.

Dr. Francis R. Hill, Honorary Secretary.

This letter the Secretary was instructed to have inscribed on the minutes.

Registration of Nurses.—Arising from the minutes of the previous meeting, the SECRETARY intimated that the suggested form of resolution which had been submitted to the various Divisions for their consideration on the subject of the composition of the proposed Board of Control to superintend the registration of nurses, had now been approved by all of them as it stood, and the meeting instructed him to forward a copy of that resolution to the Secretary of the Association, informing him that it had been very carefully considered by the Divisions, and requesting him to have it brought to the notice of the Central Council as soon as possible. The following is a copy of the resolution referred to:

> The members of the Border Counties Branch of the British Medical Association beg to record their opinion that on any Central Board formed by legislative enactment to supervise the education, registration, and discipline of nurses there should be medical representatives, at least equal in number to the representatives of the nursing body.

Report of Council.—The following report was submitted: During the year 1905 meetings of the Branch were held at Whitehaven, Carlisle, and Dumfries, in the months of March, June, and October respectively, and since then the Branch has had a meeting at Keswick. At all of these meetings the attendance has been satisfactory, and the papers and discussions have evoked a more active interest than at one time used to be the case. Six new members have been elected, and there are now four gentlemen awaiting election. The Council suggests that during the coming year general meetings should be held in the autumn and in the spring of 1907. With reference to one of these your Council has acceded to a request from the Scottish Division that owing to the great and growing importance of the question of Contract Practice it is desirable that there should be a meeting of the Branch to discuss the subject, and the Medical Secretary of the Association has been approached in order to find out if he could arrange to be present. Your Council has to report that, owing to the reduction in the period for which Branch Representatives on the Central Council may continue to hold office, arrangements are pending whereby the terms of the agreement existing between this Branch and the North Lancashire and South Westmorland Branch on this subject may be made to coincide with the full period of office, instead of four years only. On the motion of the President, Sir James Crichton-Browne, the attention of the Branch was called to the proposed composition of the suggested Central Board of Control over the Registration and Superintendence of Nurses, and it is hoped that the opinion of the various Divisions on the subject may be communicable to you by the day of the Annual Meeting. A Subcommittee of the Council has been appointed to consider the advisability of altering the existing Divisional boundaries in order to the better working of the Branch, and their report will be laid before you at the Penrith meeting. The Branch's votes for a Foundation Scholarship and a Pensionership at Epsom College have been allotted respectively to Peter M. Braidwood and William F. Phillips. The Financial Report is appended, and shows a credit balance on the year's working of £10 9s. 10d. In accordance with Rule No. 4, your Council nominated Dr. F. H. Clarke (Dumfries) for the post of President-elect in the ensuing year, and Dr. F. R. Hill (Carlisle) to be Secretary and Treasurer. As no further nominations have been received, these gentlemen are hereby declared duly elected. Dr. Maxwell Ross has again, on the nomination of your Council, been returned unopposed as the Representative of this Branch and the North Lancashire and South Westmorland Branch on the Central Council of the Association.

The annual meeting of the Branch has to elect six members to serve on the Branch Council, and, in order to save time as far as possible, the following names are suggested: D. S. Doughty (Dalston), J. S. Bell (Lockerbie), W. Lockerbie (Annan), M. Ogilvy-Ramsay (Carlisle), G. J. Muriel (Whitehaven), C. H. Powers (Southwaite).

FINANCIAL STATEMENT.

Income.	£ s. d.	Expenditure.	£ s. d.
May 30th, 1905, Balance in Bank	11 0 8	Branch A/c— Rooms	1 1 0
Capitation Grants:—		C. Thurnam and Sons	13 14 7
June, 1905	13 12 0	Secretary's Expenses...	1 0 0
September, 1905	7 14 0	Scottish Division ...	2 19 6
December, 1905	4 13 0	North Cumberland Division ...	9 0 11
February, 1906	1 4 0	West Cumberland Division	2 1 11
Interest	0 2 0	*Balance	10 13 7
	40 10 8		40 10 8

* The sum of 3s. 9d. included in this Balance is the property of the Branch under the old regulations, having been carried from the previous year.

Francis R. Hill.
Hon. Secretary and Treasurer.

We hereby certify that we have examined the above accounts and find them correct.

James Macdonald. } *Auditors.*
Chas. W. Donald. }

Places of Meetings during Ensuing Year.—The report of the Council, a copy of which has been supplied to each member, was next considered, and on the question as to the places of meeting during the ensuing year, it was decided to adhere to tradition and hold the autumn meeting in the town in which the President resided—that is to say, in Penrith, this year, and the meeting to which the Medical Secretary of the Association was to be invited should be held as near the beginning of the year as possible, and should take place in Carlisle.

Disposal of Funds under Old Regulations.—The Chairman then moved that the small sums shown from time to time in the balance-sheet as belonging to the Branch under the old regulations should be devoted to the British Medical Benevolent Fund, along with any other sums that might come in from the same source. This was unanimously agreed to.

Election of Officers and Council.—The gentlemen nominated by the Branch Council for election to that body were then duly elected by the meeting, which therefore consists of the following: *President*, Dr. J. E. Bowser (Penrith); *President-elect*, Dr. F. H. Clarke (Dumfries); *Vice-President*, Sir James Crichton-Browne (Dumfries); *Councillors*, J. S. Bell (Lockerbie), Dr. D. S. Doughty (Dalston), Dr. Lockerbie (Annan), Dr. G. J. Muriel (Whitehaven), Dr. M. Ogilvy-Ramsay (Carlisle); Dr. C. H. Powers (Southwaite), elected by the General Meeting; Drs. W. Murdoch and G. D. Logan, from the Scottish Division; Drs. C. W. Donald and C. W. Graham, from the North Cumberland Division; Dr. J. W. Crerar, from the West Cumberland Division; *Divisional Secretaries*, G. R. Livingston (Dumfries), Norman Maclaren (Carlisle), J. Penny (Cockermouth); *Representative on the Central Council*, Dr. J. Maxwell Ross; *Branch Secretary*, Dr. F. R. Hill (Carlisle).

Auditors.—The following gentlemen were elected auditors for the ensuing year: Drs. C. W. Donald and R. E. Sedgwick (Carlisle).

Installation of New President.—The Chairman then intimated that this was all the business, and he called upon Dr. Bowser to take the chair, and he inaugurated him as the President of the Branch. Dr. Bowser, who had a very hearty reception, thanked the meeting for the honour that they had done him, and proceeded to read a most interesting presidential address entitled, Some Principles of the Treatment of Fractures. On its conclusion, the President-elect (Dr. Clarke) congratulated him upon the very interesting character and useful and instructive nature of the subject that he had chosen for his address, and, seconded by Dr. Ogilvy-Ramsay, who also thanked the President for the many hints that he had given to the meeting in his address, he moved:

> That Dr. Bowser be asked to print and publish the address, and that the very hearty thanks of the meeting be accorded to him for it.

This was unanimously agreed to, and the meeting adjourned to partake of afternoon tea on the invitation of the President.

SOUTH AUSTRALIAN BRANCH.

The twenty-seventh annual meeting of the South Australian Branch was held at the University of Adelaide on Thursday, June 28th. The retiring President (Dr. A. A. Lendon) took the chair at 4 p.m.

Confirmation of Minutes.—The minutes of the previous annual meeting were read and confirmed.

Report of Council.—The report of the Council was to the following effect: At the beginning of the year there were 126 members on the roll; during the year 31 new members were elected. This great increase in numbers was due partly to the fact of the Medical Congress meeting in Adelaide, but also to the efforts of Dr. Lendon, who inaugurated his second term of office in the presidential chair by an appeal to the profession throughout the State to join the Association. One member (Dr. A. E. Russell) died; 6 have taken up their residence outside the State; and 3 members are in arrears with their subscriptions, and therefore suspended from membership. This leaves a net gain of 21 members for 1905 the present total being 147. Our monthly meetings continue to be well attended, and our finances are in a satisfactory condition. Two representatives of the Branch (Drs. Brummitt and Cudmore) were elected to the newly-formed Dental Board of South Australia. The most important event of the year was the holding of the seventh session of the Australasian Medical Congress in Adelaide; and since its close the Branch has formally thanked the President of Congress (Professor E. C. Stirling, C.M.G., F.R.S.), and congratulated him on the success of the meeting.

Balance-sheet.—The following balance-sheet for the year ending December 31st, 1905, was presented:

Cr.	£ s. d.	Dr.	£ s. d.
Balance in Bank, December 31st, 1904	169 0 10	Paid to Parent Association	148 5 0
122 subscriptions	256 7 0	Subscriptions, *Australasian Medical Gazette* ...	93 16 0
24 half-subscriptions ...	25 4 0	Exchange	1 3
Arrears to British Medical Association received	5 9 0	Printing	16 17 1
Interest	7 1 10	Gas account	1 1 0
		Gratuity to porters ...	1 10 0
		Clerical assistance and postage	10 5 6
		Balance in Bank, December 31st, 1905	188 19 4
	£462 2 8		£462 2 8

Audited and found correct.
January 24th, 1906. A. E. Wigg.
W. T. Hayward, Honorary Treasurer.

Both the report and balance-sheet were adopted.

Election of Officers.—The following were duly elected to their respective positions: *Vice-President*, Dr. J. H. Evans; *Honorary Treasurer*, Dr. W. T. Hayward; *Honorary Secretary*, Dr. J. B. Gunson; *Ordinary Members*, Drs. H. Swift, A. M. Morgan, and C. H. Souter, and the retiring President (Dr. Lendon). The Parliamentary Bills Committee was re-elected, also Dr. Newland as local editor of the *Australasian Medical Gazette*, and Dr. A. E. Wigg as *Honorary Auditor*.

Presidential Address.—Dr. Lendon delivered his presidential address on the Desirability of Amending the Medical Acts (see page 203). He then introduced the Vice-President (Dr. E. W. Morris) as the incoming President, who briefly thanked the members for their greeting.

Votes of Thanks.—Votes of thanks were then passed to the retiring officers, and to the Council of the University for the use of the lecture room for all Branch meetings.

Medical Dinner.—In the evening the annual medical dinner was attended by 41 doctors, and was a most enjoyable and successful gathering, the diners being afterwards entertained as the guests of the new President.

SOUTH WALES AND MONMOUTHSHIRE BRANCH: NORTH GLAMORGAN AND BRECKNOCK DIVISION.

A general meeting of this Division was held at the New Inn, Pontypridd, on September 27th, at 4.30 p.m. Dr. J. Shaw Lyttle was in the chair.

Confirmation of Minutes.—The minutes of the annual meeting were read, approved, and signed by the Chairman.

General Medical Council Election.—It was resolved that the scheme suggested by the Wandsworth Division be supported.

Report of Hospitals Committee.—This was fully discussed, and while the general feeling was one of sympathy,

it was felt that the hospitals within the area of the Division were not affected by the report.

Next General Meeting.—It was decided to hold the general meeting in April, 1907, at Brecon.

Dates of General Meetings.—The question of fixing the dates of general meetings was relegated to the Executive Committee.

Annual Representative Meeting.—Dr. W. E. Thomas gave a report on the work done at the Annual Representative Meeting.

Vote of Thanks.—A hearty vote of thanks was passed.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Aberdeen Branch.—The annual meeting of this Branch will be held in the Grand Hotel, Aberdeen, on Saturday, October 20th, at 1.15 p.m.—J. F. Christie and Thomas Fraser, Honorary Secretaries.

Border Counties Branch.—The next meeting will be held at Penrith, on October 19th, when Sir James Crichton-Browne will open a discussion on a matter of general interest.—Francis R. Hill, Honorary Secretary, 62, Warwick Road, Carlisle.

Dorset and West Hants Branch.—The autumn meeting will be held in Sherborne on Wednesday, October 24th. Members having papers to read, cases to exhibit, or specimens to show are requested to communicate with the Honorary Secretary before October 12th.—James Davison, Honorary Secretary, "Streateplace," Bath Road, Bournemouth.

Metropolitan Counties Branch: Marylebone Division.—A general meeting of the Division will be held at the rooms of the Medical Society of London, Chandos Street, W., on Friday, October 12th, at 5 o'clock precisely. Agenda: 1. Minutes of last meeting. 2. Correspondence. 3. Consideration of letter received from Dr. Llewellyn Williams, Chairman of the Wandsworth Division, British Medical Association, concerning the election of Direct Representatives for England and Wales to the General Medical Council, 1906 (published in the Supplement of September 15th, p. 186). 4. To consider other business if necessary.—Comyns Berkeley, M.B., B.C.Cantab., M.R.C.P.Lond., Honorary Secretary and Treasurer, 53, Wimpole Street, W.

Metropolitan Counties Branch: Wandsworth Division.—An ordinary meeting will be held at the Wandsworth Town Hall on Friday, October 26th, at 8.15 p.m., when a popular lecture will be given by Ebenezer Howard, Esq., the founder of the Garden City Association, on its aims and objects. Limelight views will be shown. A discussion will follow. Tea and coffee will be provided at 7.30 p.m. The chair will be supported by Sir Henry Kimber, Bart., M.P., the Mayors of Wandsworth, Battersea, and Wimbledon, Reginald Harrison, F.R.C.S., R. O. Moon, M.D., and others. Ladies will be invited, as well as prominent members of the laity.—E. Rowland Fothergill, Honorary Secretary, Torquay House, Southfields, S.W.

Midland Branch: Boston and Spalding Division.—A meeting of this Division will be held at the Red Lion Hotel, Boston, on Tuesday, October 9th, at 3.30 p.m. Agenda: (1) Dr. T. J. Walker, M.D., of Peterborough, will read a paper on a case of Acute Intestinal Obstruction due to Meckel's Diverticulum. (2) Discussion of the question, "Shall the Boston Division be united with the Lincoln and Stamford Divisions to form one Division?" (3) Any other business.—A. E. Wilson, Honorary Secretary, Boston.

THE DESIRABILITY OF AMENDING THE MEDICAL ACTS.

In the presidential address delivered at the annual meeting of the South Australian Branch on June 28th, Dr. Alfred Austin Lendon, of Adelaide, dealt chiefly with a matter which had lately been referred to a conjoint committee of the Branch and of the sister Society, the Medical Defence Association, namely, the feasibility of obtaining an amended Medical Act, and the direction in which improvements upon the existing statutes might be suggested.

He proceeded: The desirability of an adequate Medical Act has been apparent for a long time to the successive Councils of this Branch. Naturally, when matters were progressing smoothly in the medical world, the need for any amendment was not quite so apparent, but certain recent occurrences have greatly emphasized the necessity for seeking some modification of the law at present in force in South Australia. Need I say that I refer to the recent abortion cases, and to the still more recent victimizing of one of our old members over a partnership transaction by false statements and pretences? It is principally on account of these incidents that we have lately been urged, both directly and indirectly, to take some action in the matter, and not only by members of our Branch who reside in Adelaide, but also by some who live in distant parts of the State. Indirectly, too, through the Secretary of State for the Colonies, the South Australian Government, amongst others, has been approached at the instance of the Central Council with a request for it to adopt some measures of uniform prohibition of practice by foreigners, in retaliation for the protective measures in force in certain countries; the Government, we gather from the Council's last report, has expressed a formal approval of the principle involved. Again, when discussing in leading articles the Sheridan trials, the Adelaide press intimated that we ought to deal with some of our erring brethren in a manner that we have at present no power to do, and to adopt measures which we have no means of enforcing. We may therefore say that not only from within our ranks, but from our brethren beyond the seas as well, and above all from the lay press of this State, there have come those intimations which point to the present as being the favourable and psychological moment for opening up this subject afresh.

I think that most of the members will agree with me that the only ideal Act would be a federal Act, and that there ought to be uniformity throughout the States in the matter of the requirements for registration. But if this be at present impossible, as it seems, there is no reason why we should not aim at getting passed through the State Legislature such a model Act that all the other five States of the Commonwealth will exhibit the sincerest form of flattery by immediately imitating us; at the present time, however, we are bound to confess that we are wofully behind most of the other States in the matter of medical legislation, though no individual State has as yet attained to our ideal.

The chief matters for consideration in the drawing up of such a model Act are: (1) The Medical Council—its constitution and its powers; (2) compulsory registration; (3) prohibition of practice by unregistered persons, or by *unregistrable* persons, with a clear definition of what is meant by the word "practice"; and (4) the most effectual way of dealing with the charlatans and impostors, and, above all, the professed abortionists. There are also some minor matters (5) such as fees payable to medical practitioners for various services rendered to the State or to the municipality, and the unsatisfactory wording of the death certificate.

1. In the first place, as regards the Medical Board, I should be inclined to rename it the Medical Council of South Australia, in order to bring it into line with the General Medical Council of Great Britain and Ireland. As to its numerical strength, I think it might remain as at present, and that the five members should be allowed to choose one of their own number as their president. Of these five members I would suggest that two should be nominated by the Government, two by the medical profession as represented by the British Medical Association, and the remaining one by the Council of the University. The Council should consist solely of registered medical

practitioners of a certain standing in practice in South Australia, women being equally eligible. A paid registrar would be required, who might well be a junior member of the profession, or, if thought to be more desirable, a Government officer; in addition, it should be arranged that the Council could have the advice of some legal officer of the Government, such as the Crown Solicitor, whenever his services were required. A member of the Council should hold office *quamdiu se bene gesserit*, unless the nominating body saw fit to replace him, which might be done without assigning any particular reason. As regards its duties this Council should possess wider powers than the Board has at present. It should possess discretionary power as to the registration of all applicants in future, being guided by the adequacy of their training. It should have the power to revise the roll by the removal of the names of those who have died; it should also have the power to remove the names of those who have ceased to reside in this State, provision being made for the restoration of their names to the list of registered practitioners, in case they should return to the State and desire to re-enter into practice. But, most important of all, the Council should have the power to refuse to register, or to strike off the roll, the name of any one who has been found guilty of a criminal offence, or who shall be judged by the Council itself to have been guilty of infamous conduct in a professional respect, the well-defined lines of the General Medical Council being followed in this matter. For years the local register of medical practitioners was published containing the names of all who had ever been registered, including many who had long joined the great majority, for we were informed by no less an authority than the then Attorney-General that we had no right to omit from the list the names of deceased practitioners. Then again, the list included the name of a man who had many years previously been deprived of his diplomas by the corporations that originally granted them, and who had been struck off the roll of medical practitioners in Great Britain with ignominy. We ought not to be compelled to register a person, at present in practice in an adjacent State, who has no immediate intention of residing in South Australia; but at the last meeting of our Board such an instance occurred, the applicant holding an American diploma, and not being able to adduce any valid reason for desiring to be so registered. Nor ought we to be compelled, as we may at any moment be, to register a person who, nominally leaving the old country on account of rheumatism, is subsequently found to have recently figured as the co-respondent in the Divorce Court in a singularly disgraceful manner. For the present it will not be necessary to burden the Council with the supervision of medical education, but this power would rightly be an attribute of any federal medical council which might in the future supersede the State Council. For its services the Council ought to be paid; work like this, involving occasionally some serious responsibility, should not be performed gratis. There is here no question of charity or philanthropy; the fees of the candidates should be raised in order to meet this expense, nor would they grumble at this if they felt that there was a certain *quid pro quo*, which is at present lacking, in the shape of protection of their interests. The Council would not require to sit frequently, as a provisional permit could be easily issued, signed, say, by the registrar and one of the members, in all straightforward cases, subject to confirmation at the Council's next meeting. Appeals from the Council's decision might be referred to the Supreme Court, it being provided that no financial responsibility rested on the shoulders of the members of the Council.

2. With respect to compulsory registration, I do not think that any one present will dispute my proposition that it is desirable that no one should be allowed to practise any of the branches of our art, whether medical, surgical, obstetric, or special, without being registrable, nor prior to being registered, nor after having been struck off the roll. If registration before being allowed to practise be considered advisable in other countries, surely it is equally necessary here; if it be considered advisable in the case of dentists and of chemists, surely it also ought to apply to the medical profession. Let the public know that every one professing medicine is entitled by examination, after due training, to practise his art.

3. If the foregoing premiss be conceded then it is an obvious deduction that measures must be devised to prohibit irregular practice in any form whatsoever. And here I know that I am treading upon dangerous ground, and that I am likely to offend the susceptibilities of the members of an otherwise excellent fraternity. For the most frequent offenders in this direction are undoubtedly the retail chemists as a body. Now, if the old reproach about putting medicines of which we know little into bodies of which we know less has any foundation, however slender, with how much greater force does it apply to those whose training includes no knowledge of the human body derived from dissection, no acquaintance with the physiological processes by which that body "lives and moves and has its being," and probably but the scantiest and most misleading ideas about the pathological disturbances of that body, to which we give the name of "disease." The chemist's sphere of operation should be limited to the manipulation of drugs and the dispensing of prescriptions. To my mind it is absurd to raise the mere business of pharmacy to the level of a profession; it must be clearly differentiated from the scientific work of pure chemistry, whether theoretical or applied. I will allow that the pharmacist's opinion may often be of value as to whether certain drugs are compatible with one another in a bottle of medicine, but it can scarcely be of much value as to their suitability for introduction into the human stomach. Two circumstances have combined to place the "consulting" or "prescribing" or "family" chemist, as he variously styles himself, in his present false position. In the first place, there is on the one hand the gradual disappearance of the old-fashioned apothecary, who dispensed his own medicine, and on the other the growing feeling on the part of graduates in medicine that it is somewhat *infra dig.* for them to make up their own prescriptions, quite apart from the fact that those most likely to wish to do so have so little spare time, and are nowadays deprived of the help they formerly received from unqualified assistants or apprentices. In the second place, the layman lures the chemist on; he consults him about his trifling ailments; he asks for something to do his cough good, or to relieve his headache. It is immaterial whether the cough be an indication of a slight cold or of some serious chest affection; it is a matter of indifference whether the headache be due to defective vision or to kidney disease, the druggist cheerfully steps into the breach and prescribes not for the disease, but for the symptom; he knows that if he were to be candid and refuse on the score of ignorance, he would lose both reputation and customer too. I have known in this way a case of rheumatic fever fooled with till irreparable mischief had been done; doubtless others could quote similar cases. The customer is perhaps of a thrifty turn of mind; he assumes that the chemist must know all about the therapeutic properties of the drugs he sells, and therefore argues that it is unnecessary for him to duplicate expense by consulting a doctor. And here one may remark that this peculiar trait of trusting to the druggist's advice is not confined to the gentle "lumper" or the childlike bushman—one is just as likely to meet with it in the learned King's counsel or the University graduate, though less often in the merchant prince. I do not wish to be misunderstood; there is no objection to the chemist exposing for sale and offering his client the choice of Jones's infallible cough linctus or of Robinson's bronchial syrup, at the same time inviting him to peruse the veracious and convincing testimonials which grace the labels; the customer could then "back his fancy"; at the same time I would imitate the New Zealand Act, which stipulates that no patent medicine should be exposed for sale unless the constituent drugs are plainly indicated on the label. But, you will ask me, what is to be the solution of this difficulty? In England the chemist is liable to prosecution and fine. We do not want, of course, to take such extreme measures here, but the prescribing chemist must be suppressed—not oppressed—or he must in some way be uplifted. I am inclined to advocate a compromise in the establishment of an inferior class of practitioner, as in France, where, I believe, there is an officer of health licensed to practise who is not a graduate. I should, in fact, revive the apothecary of two centuries ago allow him to deal with minor cases, but not to

visit patients or perform operations; his main duties would then be the legitimate work of the dispensing chemist. I fancy that it would not be so difficult to arrange a course of study so that the apothecary might proceed further and become in time a graduate in one of the higher branches of our calling, for as time goes on it is quite evident to me that we shall be still further differentiated in our spheres of work. I am quite aware that this suggestion is opposed to modern views, but still it seems to me practicable, and a compromise would be better than hostility. In view of the difficulty there appears to be in so drawing up a Bill that the meaning of the Act can afterwards be construed in a court of law, it would behove us to be very definite in stating what we mean by the words "practice," etc., or the same failures of justice will occur again as have occurred since the last amending Act was passed which prohibited irregular practice. But chemists are not the only sinners in this respect with whom the sympathy of the public would be expressed as soon as we began to restrict their work. There are many absolutely unqualified women attending to their sex in confinements—nay, I have even heard of their using instruments in labour. This ought to be expressly forbidden. One difficulty that immediately occurs is to decide how they are to be replaced in cases where the patients are unable to afford the comparatively high fees charged by trained midwifery nurses. Apart from the assistance of such charitable agencies as the Queen's Home and the District Trained Nursing Society, there is no doubt but that with the competition amongst the shoals of nurses who are nowadays being trained there will be found some who will see their way to make a fair living by nursing several patients of the poorer classes at the same time, only devoting an hour or so to each patient daily; in fact, a kind of private district nursing work.

4. Now, whilst I should be prepared to deal leniently, though firmly, with the irregular practitioners such as I have described, I should advocate taking the most stringent measures to suppress all those charlatans, impostors, and abortionists who infest this country, and who so unblushingly advertise their wares in the public press. And it would be to the lay press that we should have to look for assistance, and I am convinced that we should not look to them in vain. If the press would combine to exclude from their columns all those objectionable advertisements, in which we learn of cures for ailments which we should not like to mention above a whisper in our own homes, then the reign of the professor who preys upon the neurotic youth and of the madam who so often destroys the young woman seeking relief from the result of her indiscretion, then, I say, their reign would be of short duration; such harpies would cease to flourish, perhaps even to exist. As to "herbalists," "palmists," and "specialists," their name is legion, and to the eternal disgrace of the profession some of the latter are duly qualified to practise. We all know with regard to abortion that there is reason to fear that even medical practitioners have condescended to this crime; the motive in some cases may have been sympathy with a young woman in distress, at other times a heavy bribe may have overcome scruples, or it may have been, as with the apothecary in *Romeo and Juliet*, that "my poverty, but not my will, consents." However that may be, were a case ever proved we should not be slow to purge our ranks of such a member. But with regard to the professed abortionists, we know how often the evidence against the suspected persons fails to come up to legal requirements, though there may be vehement suspicion. Of course we do not want to introduce lynch law, but we do seem to want some application of common sense in respect to what is a moral certainty. At all events, the suggestion which has been made to reduce the crime, in the event of the death of the woman, to a something less than murder in order to obtain a conviction, is absolutely puerile, because it is obvious that the same standard of proof will still be required by the judge.

5. The matter of fees is, I am sure you will all agree, one of importance. The payment of a guinea, for instance, for hanging about a court all day would be a totally inadequate recompense for a doctor's loss of time and the inconvenience to his patients, were it not that we find both the lawyer and the police very considerate in letting us know when we are likely to be wanted; the paltry 1s. a mile for travelling beyond ten miles is also preposterous payment. There are various other small fees payable to us, some of which I for one never receive, simply because their collection is attended with such a considerable amount of red tape; they ought to be paid to us just in the same way as we have to pay our rates and taxes without collection. There is also that irritating death certificate, with its standing insult to the members of the profession, a matter which might be easily remedied.

GENERAL MEDICAL COUNCIL ELECTION.

ADDRESSES OF CANDIDATES.

Mr. George Jackson, F.R.C.S.Eng.(Exam.), etc. (Plymouth), writes: Nearly five years ago I was elected as one of the Direct Representatives on the General Medical Council by the vote of the registered practitioners of England and Wales. I now have to ask for a renewal of the confidence which was then reposed in me, which I trust I have not forfeited. The burning question at the time of the last election was the Midwives Bill. As it is well known, that Bill has been placed on the Statute Book, but it does not appear to have answered the expectations of its supporters. It is very desirable that in any future legislation on this subject the necessity of providing for the payment of medical men called to the assistance of midwives should not be lost sight of. By its recommendations to the Privy Council the General Medical Council has helped this matter forward. In conjunction with the other Direct Representatives, I have urged on the Council the fairness of adding to the number of Direct Representatives, which might be done by representation to the Privy Council. This is becoming more and more desirable, as almost every session there is an additional Representative added for some new university, and so diminishing the relative voting power of the Direct Representatives, which has always been absurdly inadequate, although the Direct Representatives are outvoted on every occasion when the interests of the universities and corporations are in danger; yet there is no doubt their influence has been felt, especially in those cases in which medical men have been brought before the Council who have sought to obtain unfair advantages over others by canvassing and advertising themselves. The Council cannot be made truly representative of the profession, unless a new Medical Act is obtained, which should, *inter alia*, very considerably increase the number of the Direct Representatives. This can be done without increasing the aggregate number of the members of the Council, namely, by grouping some of the universities and corporations and giving them alternative representation. It would only be fair, in any fresh arrangement of the Council, that the dentists, who contribute largely to its funds, should have adequate representation. More stringent clauses should be introduced to check illegal practices. Personally, I think if the legal phraseology was adopted—namely, that no one should use any colorable pretence that he was qualified to practise medicine or surgery—it would cover a great deal. The finances of the Council are now on a more stable foundation, owing to several small modifications as to fees for registration, also to an increased revenue from the property of the Council, and lastly, to the somewhat lessened time taken by the Council in doing its work. More and more work is done by the committees, whose work does not loom so much in the eyes of the public. I may claim to have assisted in the work of the Committee of the Diploma of Public Health, and also of another important Committee, which was appointed at the instance of Sir John Williams, to consider what improvements could be made in the training of medical students for their duties in connexion with midwifery. This Committee has made important recommendations to the various medical schools, which it is to be hoped will be carried out in the near future. If I am re-elected to the Council, I hope to merit the confidence which the profession has hitherto reposed in me.

Mr. George Brown (Mount Lodge, Callington, Cornwall) writes under date October 1st: The time is rapidly approaching when the registered practitioners of England

and Wales will again be called upon to exercise the privilege of electing three of their number to represent them in the General Medical Council. I shall esteem it a favour if you will permit me to state through your columns that it is my intention to again offer myself as a candidate for re-election. During the ten years I have had the honour of a seat in the Council Chamber as a Direct Representative I have done my utmost to promote the cause of medical reform, and to advance the best interests of the profession as a whole. I am led to believe that I have discharged the duties to the satisfaction of the profession generally from the fact that in addition to receiving during the last few months numerous renewed promises of support from medical men in all parts of the country, I have received official intimation that resolutions in favour of my candidature have been passed by the following among other important organizations, namely: The Society of Members of the Royal College of Surgeons of England, the Association of Physicians and Surgeons of the Society of Apothecaries of London, the Midland General Practitioners' Union, and the Incorporated Medical Practitioners' Association. In conclusion, permit me to express my best thanks to those who have assisted me by their support at former elections, and to say that if re-elected I shall, as hitherto, endeavour to improve the conditions of medical practice, and to uphold the honour and dignity of the profession, giving special attention to furthering the interests of those engaged in general practice. Thanking you for your courtesy in permitting me to address your readers through your valuable columns.

Joseph Smith, J.P., M.R.C.S.Eng., L.M., L.S.A.Lond., D.P.H.Camb. (18, Wellesley Road, Gunnersbury, W.), writes: The election of three Direct Representatives for England and Wales to the General Medical Council takes place in November next. It is my intention, in conjunction with Messrs. George Brown and George Jackson, our present Representatives, to offer myself for election. Four years ago I contested a seat on the General Medical Council against Sir Victor Horsley, and although I entered into the contest at the last moment and with no organized committee, between three and four thousand votes were recorded in my favour. This large poll encourages me to hope that I may be one of the successful candidates at the forthcoming contest. I am a general practitioner of thirty-five years' standing, and I have taken an active part for many years in endeavouring to reform the Royal College of Surgeons, and obtain for the Members some voice in the management of the College. For fourteen years I have been President of the Society of Members of the Royal College of Surgeons of England, and am also an ex-President of the Incorporated Medical Practitioners' Association. With regard to my views on medical politics generally, I am in entire agreement with Messrs. Brown and Jackson. I may, however, state that I am strongly in favour of suppressing all clubs and medical aid societies which permit canvassing for members. I would also support an Act of Parliament for increasing the number of Direct Representatives, and giving direct representation to the dental profession. As regards the medical curriculum, at present too much time is given to studying subjects of a theoretical character to the neglect of clinical and practical work.

THE WANDSWORTH CIRCULAR.

John Charles Smith, M.R.C.S. (Northwood), writes: In reply to Dr. Llewellyn Williams, I beg to say that it would not in the least affect my contention if the three candidates mentioned happened to be nominated for the General Medical Council by his self-appointed scheme. Two of them (Messrs. Brown and Smith) refused to be nominated by the Association, and it was largely owing to their action that the whole proposal to nominate candidates fell through, and was recognized by the Representative Meeting as a mistake. I freely grant the right of Dr. Williams and his friends to support any candidates they please, but I submit that in view of the resolution passed by the Representative Meeting of July 25th, they cannot do so in the name of the Association.

This meeting is, as Dr. Williams is aware, representative of all the Divisions, and to attempt to go behind it and to nominate candidates in spite of it is, I contend, a stultification of our new constitution and an attempt to establish a caucus in its worst, because unauthorized, form. It now appears that Dr. Williams actually issued his circular without consulting the Division in whose name he acted. He says, "the Wandsworth Division, as such, had nothing to do with my letter," "the Wandsworth Division has not met since last June, and no meeting of the Executive Committee was held for some months before the circulation of my letter." By signing his letter "Chairman of the Wandsworth Division," Dr. Williams created an opposite impression, and is hardly in a position to accuse me of suppressing and misstating facts. If Dr. Williams had stated in his circular that it was issued on his personal responsibility only, neither I nor any one else would have taken any notice of it. Now that he has, somewhat tardily, made this point clear the best thing he can do is to withdraw his unauthorized communication.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

Fleet Surgeon J. H. Whelan, M.D., M.S.R.U.I., has been placed on the Retired List at his own request, October 1st. He served with the Royal Marines at Suakin in 1885, and was Principal Medical Officer on a small expedition on the East Coast of Africa, and in H.M.S. *Monarch* during the South African war. He has received the Egyptian medal with clasp, the Khedive's bronze star, and the medal for the South African war.

Nicholas P. Kirby, civil practitioner, has been appointed Surgeon and Agent at Balbriggan and Laytown, September 28th.

Surgeon James McA. Holmes has been appointed to the *Sandpiper*, September 21st.

ROYAL NAVAL VOLUNTEER RESERVE.

James K. Murphy, F.R.C.S., has been appointed Surgeon, September 24th.

ROYAL ARMY MEDICAL CORPS.

Colonel F. W. Trevor, M.B., who is serving in India, has been appointed to officiate as Principal Medical Officer, Western Command, from April 18th, and on promotion to be Surgeon-General, is confirmed in that appointment from July 15th.

Surgeon-General W. B. Slaughter, who is also serving in India, is appointed Principal Medical Officer, Eastern Command, from August 1st.

INDIAN MEDICAL SERVICE.

The retirement from the service of Lieutenant-Colonel L. A. Waddell, C.B., C.I.E., M.B., which was mentioned in the British Medical Journal of September 22nd, was cancelled, it is understood, in order that he may qualify for the extra pension of £100 a year, for which he requires a short period of further service to render him eligible.

Captain V. B. Bennett, M.B., Bombay Establishment, is promoted to be Major, from January 29th. He was appointed Surgeon-Lieutenant, July 28th, 1894, and Surgeon-Captain, July 28th, 1897.

ROYAL GARRISON ARTILLERY (VOLUNTEERS).

John Nightingale, M.B. (late Captain), to be Surgeon-Captain, 1st West Riding of Yorkshire, January 20th.

VOLUNTEER RIFLES.

William H. Broad to be Surgeon-Lieutenant in the 2nd Volunteer Battalion the Liverpool Regiment, September 22nd.

Wilfred Bentinck, late Captain, Northern Command, Manchester Companies, R.A.M.C. (Volunteers), to be Surgeon-Captain, 3rd Volunteer Battalion the Lancashire Fusiliers, September 22nd.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Captain W. B. Cockill, M.D., Lancaster and Border Bearer Company, to be Major, September 22nd.

ARMY MEDICAL RESERVE.

Surgeon-Major Henry G. Thompson, M.D., F.R.C.S.I., to be Surgeon-Lieutenant-Colonel, September 4th. Surgeon-Lieutenant-Colonel Henry G. Thompson, M.D., F.R.C.S.I., having attained the prescribed limit of age, is removed from the Army Medical Reserve of Officers, September 25th.

Surgeon-Lieutenant R. A. Draper is promoted to be Surgeon-Captain, September 14th.

Surgeon-Lieutenant R. C Gayer to be Surgeon-Captain, September 17th.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,386 births and 5,290 deaths were registered during the week ending Saturday last, September 28th. The annual rate of mortality in these towns, which had been 22.3, 21.1, and 19.3 per 1,000 in the three preceding weeks, further declined last week to 17.4 per 1000. The rates in the several towns ranged from 4.8 in Hornsey, 7.2 in King's Norton, 8.9 in Burton-on-Trent, 9.3 in Leyton, 9.4 in Willesden, 9.8 in Bury, and 10.9 in Tottenham, to 22.8 in Hanley, 22.9 in Oldham, 24.2 in Hull, 24.7 in Liverpool, 24.8 in South Shields, 25.4 in Newcastle-on-Tyne, 26.1 in Middlesbrough, 26.2 in Stockport, 28.5 in Merthyr Tydfil, and 30.5 in Preston. In London the rate of mortality was equal to 15.7 per 1,000, while it averaged 18.6 per 1,000 in the seventy-five other large

towns. The death-rate from the principal infectious diseases averaged 4·5 per 1,000 in the seventy-six towns; in London this death-rate was equal to 2·9 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 8·4 in Stockport, 8·5 in Gateshead, 8·7 in Bootle and in Newcastle-on-Tyne, 9·8 in Grimsby, 9·9 in Middlesbrough, 11·0 in Hanley, and 13·4 in Preston. Measles caused a death-rate of 1·2 in Rochdale, 1·8 in Norwich, and 2·2 in Oldham; diphtheria of 1·2 in Rochdale; whooping-cough of 1·4 in South Shields; and diarrhœa of 6·9 in West Bromwich and in Stockton-on-Tees, 7·3 in Stockport, 7·4 in Rhondda, 7·6 in Gateshead, 7·8 in Middlesbrough, 8·0 in St. Helens and Newcastle-on-Tyne, 9·8 in Grimsby, 11·0 in Hanley, and 13·0 in Preston. The mortality from scarlet fever and from enteric fever showed no marked excess in any of the large towns, and no deaths from small-pox were registered in any of these towns during the week. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,067, 3,075, and 3,164 at the end of the three preceding weeks, had further risen to 3,388 at the end of last week; 533 new cases were admitted during the week, against 415, 440 and 473 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, September 29th, 888 births and 562 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 15·6, 16·8, and 16·1 per 1,000 in the three preceding weeks, was again 16·1 per 1,000 last week, and was 1·3 per 1,000 below the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 11·0 in Aberdeen and 13·6 in Perth to 17·7 in Glasgow and 19·6 in Leith. The death-rate from the principal infectious diseases averaged 3·0 per 1,000 in these eight towns, the highest rates being recorded in Glasgow and Dundee. The 283 deaths registered in Glasgow included 2 which were referred to diphtheria, 8 to whooping-cough, 4 to "fever," and 57 to diarrhœa. Nine deaths from diarrhœa were recorded in Dundee, 7 in Edinburgh, 4 in Leith, 3 in Greenock, and 2 in Aberdeen. There were also 2 deaths from cerebro-spinal meningitis in Glasgow, but none in any other of the large towns.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, September 22nd, 521 births and 411 deaths were registered in six of the principal Irish towns, as against 525 births and 417 deaths in the preceding period. The annual death-rate in these towns, which had been 18·8, 22·3 and 19·4 per 1,000 in the three preceding weeks, rose to 19·5 per 1,000 in the week under notice, this figure being 0·2 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 8·7 in Londonderry and 9·7 in Waterford, to 26·8 in Dublin and 34·2 in Cork. The zymotic death-rate during the same period, and in the same six Irish towns, averaged 5·2 per 1,000, or 0·8 per 1,000 higher than during the preceding period, the highest figure—11·0—being recorded in Cork. The high rate in Cork and elsewhere seems to have been due to diarrhœa, 91 deaths from this disease being recorded in the return.

During the week ending Saturday, September 29th, 681 births and 384 deaths were registered in six of the principal Irish towns, as against 521 births and 411 deaths in the preceding period. The annual death-rate in these towns, which had been 22·3, 19·4, and 19·5 per 1,000 in the three preceding weeks, fell to 18·8 per 1,000 in the week under notice, this figure being 1·4 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 9·7 in Waterford and 12·3 in Limerick to 24·5 in Dublin and 27·4 in Cork. The zymotic death-rate in the same six Irish towns averaged 3·9 per 1,000, or 1·3 per 1,000 lower than during the preceding period, the highest figure—6·2—being recorded in Cork, while Limerick registered no deaths under this heading at all. The principal zymotic causes of death were whooping-cough and diarrhœa.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—Senior House-Surgeon. Salary, £100 per annum.

BURY ST. EDMUNDS: WEST SUFFOLK GENERAL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

CANTERBURY: KENT AND CANTERBURY HOSPITAL.—House Surgeon. Salary, £90 per annum.

CAPETOWN: SOMERSET HOSPITAL.—Assistant Resident Medical Officer. Salary, £200 per annum.

FINSBURY DISPENSARY, Brewer Street, E.C.—Resident Medical Officer. Salary, £140 per annum.

HAMMERSMITH PARISH.—Assistant Infirmary Medical Superintendent and Assistant Medical Officer to the Workhouse. Combined salary, £120, rising to £150 per annum.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer. Salary at the rate of £80 per annum.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House-Surgeon. Salary, £120 per annum without board, or £90 with board, and £20 extra for dispensing.

LEICESTER INFIRMARY.—Resident Surgical Dresser. Honorarium, £10 10s. for six months.

LINCOLN COUNTY HOSPITAL.—Junior Male House-Surgeon. Honorarium, £25 for six months.

LONDON SCHOOL OF MEDICINE FOR WOMEN, Hunter Street, W.C.—Mabel Webb Research Scholarship. Value £30 a year.

MARGATE: ROYAL SEA-BATHING HOSPITAL.—Resident Surgeon to act as Junior and Senior for six months each. Salary at the rate of £80 and £120 per annum respectively.

METROPOLITAN HOSPITAL, Kingsland Road, N.E.—(1) Surgeon. (2) Assistant Surgeon.

NOTTINGHAM: CITY ASYLUM.—Junior Assistant Medical Officer (male). Salary, £160 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—(1) House-Physician, (2) House-Surgeon. Salary at the rate of 50 guineas a year each.

PEEBLES: MANOR VALLEY SANATORIUM.—Resident Physician.

ROYAL DENTAL HOSPITAL, Leicester Square, W.—Demonstrator of Practical Dental Surgery. Stipend, £40.

SHEFFIELD CITY.—Visiting Medical Officer for the Schools under the Education Committee. Salary, £300 per annum.

STAFFORDSHIRE COUNTY ASYLUM, Cheddleton.—Assistant Medical Officer. Salary, £150 per annum, rising to £200.

STAMFORD HILL AND STOKE NEWINGTON DISPENSARY.—Junior Resident Medical Officer. Salary, £100 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories notifies vacancies in the office of Certifying Factory Surgeons at Cumnock (Ayr), and Southall (Middlesex).

APPOINTMENTS

FULLER, L. O., M.R.C.S., L.R.C.P., Resident Assistant Medical Officer, Hammersmith Parish Infirmary.

HAEGERT, J. F., M.B., Ch.B.Edin., District Medical Officer of the Parish of Bristol.

HOLLIDAY, W. H., M.B.Lond., District Medical Officer of the Bramley Union.

NIXON, J. H., M.B., Second Assistant Medical Officer at the Infirmary of the Lewisham Union.

ORLEBAR, J. A. A., M.R.C.S., L.R.C.P., Medical Officer of Health, Brixworth Rural District.

PINDER, A. H., M.R.C.S., L.R.C.P.Lond., Resident Assistant Medical Officer at Walton Workhouse of the West Derby Union.

PRICE, D. T., M.B.Lond., District Medical Officer, Shepton Mallet Union.

RAYNER, H. H., M.B., B.S.Vict., Second Resident Assistant Medical Officer, Southwark Union Infirmary.

READE, A. G. L., M.R.C.S.Eng., L.R.C.P.Lond., Senior House Surgeon to the Radcliffe Infirmary and County Hospital, Oxford.

RENDALL, Percy, M.D., M.R.C.S.Eng., Divisional Surgeon to the V Division of Metropolitan Police at Epsom.

REYNOLDS, Ernest S., M.D., F.R.C.P.Lond., Physician to the Manchester Royal Infirmary.

ROBERTS, R. J., L.R.C.P. and S.Edin., District Medical Officer of the Dolgelly Union.

STOREY, James Alexander, L.R.C.P.Edin., L.R.C.S.I., Medical Officer to the Dunsmuir and District Joint Isolation Hospital.

SYKES, Arthur, L.R.C.P.Lond., M.R.C.S.Eng., Resident Medical Superintendent, Norwich City Asylum.

TALLENT, J. H., M.B., B.C., Medical Officer of Health, Ashton Town Council.

TIVY, Cecil B. F., M.B., B.Ch., B.A.O., House-Surgeon, Cork Eye, Ear, and Throat Hospital.

WADE, H., M.R.C.S., L.R.C.P.Lond., Certifying Factory Surgeon for the Enfield District, Middlesex.

WOOD, J. H., M.B., B.S.Durh., Certifying Factory Surgeon for the Leyburn District, Yorkshire.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made for six months from October 1st:

Resident Physicians: D. M'F. Barker, M.B., Ch.B., to Professor Sir T. R. Fraser; G. D. Matthewson, M.B., Ch.B., B.Sc., to Professor Wyllie; H. M. Brown, M.B., Ch.B., to Dr. Bramwell; J. M. Dickson, M.B., Ch.B., to Dr. Bruce; T. Addis, M.B., Ch.B., to Dr. Philip.

Resident Surgeons: G. Gunn, M.B., Ch.B., to Professor Annandale; A. C. T. Woodward, M.B., Ch.B., to Dr. MacGillivray; N. S. Carmichael, M.B., Ch.B., to Mr. Cotterill; J. Mathewson, M.B., Ch.B., to Mr. Cathcart; J. P. S. Jamieson, M.B., Ch.B., to Mr. Caird; E. A. Elder, M.A., B.Sc., M.B., Ch.B., to Dr. A. H. F. Barbour; E. W. Dyer, M.B., Ch.B., to Mr. Brewis; G. W. Melville, M.B., Ch.B., and G. F. C. Wallis, M.B., Ch.B., to surgical out-patient department.

Non-Resident House-Surgeons: W. L. Gordon, M.B., Ch.B., to Dr. George Mackay; A. M. M'Intosh, M.B., Ch.B., F.R.C.S.E., to Mr. Alexis Thomson.

Clinical Assistants: A. G. K. Ledger, M.B., Ch.B., and W. O. Sclater, B.Sc., M.B., Ch.B., to Professor Sir T. R. Fraser; H. D. Robb, M.B., Ch.B., to Professor Wyllie; G. R. Gibson, M.B., Ch.B., to Dr. Bramwell; H. C. Wilson, M.B., Ch.B., to Dr. Bruce; J. L. Green, M.B., and H. Jamieson, M.D., M.R.C.P.E., to Dr. Russell; W. S. M. Brown, M.B., Ch.B., and A. M. Malcolmson, M.B., Ch.B., to Dr. J. Murdoch Brown; J. M. Bowie, M.D., F.R.C.S.E., M.R.C.P.E., to Dr. Lovell Gulland; K. Melville, M.D., M.B., Ch.B., to Dr. Graham Brown; D. H. Croom, M.D., to Dr. Boyd; J. S. Mitchell, M.B., Ch.B., to Mr. Cotterill; G. A. Davies, B.A., M.D., Ch.B., to Dr. Sym; L. C. P. Ritchie, Ch.M., F.R.C.S.E., to surgical out-patient department.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 8s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

DAVISON.—At 50, Marine Avenue, Whiteley Bay, Northumberland, on September 23rd, to Dr. and Mrs. H. E. Davison, a son.

MARTIN.—On October 1st, at The Chestnuts, Stroud, Gloucestershire, the wife of J. Middleton Martin, M.D., of a daughter.

NASH.—On September 20th, at Oulton House, Accrington, Mary Monica, wife of Elwin H. T. Nash, M.R.C.S., L.R.C.P., of a son.

MARRIAGE.

BIGG—HEWETT.—At St. Stephen's Church, Westbourne Park Road, W., on October 2nd, by the Rev. Charles Bigg, D.D., Canon of Christ Church and Regius Professor of Ecclesiastical History, Oxford, uncle of the bridegroom, assisted by the Venerable C. F. H. Johnston, M.A., late Archdeacon of Bombay, Edward Bigg, M.A., B.C.Cantab., L.R.C.P., M.R.C.S., of Cranleigh, Surrey, only son of the late Edward Bigg, of Liverpool and Bombay, to Agatha Gertrude, second daughter of Edward Hewett, of 22, Prince's Square, W., formerly of Bombay.

DEATH.

STEWART.—On September 28th, at Angelton, Bridgend, Robert S. Stewart, M.D., D.P.H., Medical Superintendent, Glamorgan County Asylum. Funeral strictly private.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—Annual meeting, and Introductory Address by the President. Paper by Mr. T. H. Kellock: Actinomycosis of the Vermiform Appendix.

WEDNESDAY.

DERMATOLOGICAL SOCIETY OF LONDON, 11, Chandos Street, 5.15 p.m.

HUNTERIAN SOCIETY, London Institution, Finsbury Circus, E.C., 8.30 p.m.—First Hunterian Lecture, by Dr. J. Kingston Fowler: The Diagnosis and Treatment of Thoracic Aneurysm.

THURSDAY.

BRITISH GYNAECOLOGICAL SOCIETY, 20, Hanover Square, W., 8 p.m.—Specimens by Mr. F. Bowreman Jessett (President), Dr. H. Macnaughton-Jones, and Dr. Harvey Overy.

HARVEIAN SOCIETY, Stafford Rooms, Titchborne Street, Edgware Road, 8.30 p.m.—Papers:—Dr. Alexander Morison: The Cardio-vascular State in Asphyxia Neonatorum and its Management. Mr. Herbert T. Herring: Easy Methods of Sterilizing Urethral Instruments.

NORTH-EAST LONDON CLINICAL SOCIETY, Tottenham Hospital, N., 4 p.m.—Address by Sir Halliday Croom on the Obstetrical and Gynaecological Relations of Exophthalmic Goitre.

FRIDAY.

CLINICAL SOCIETY OF LONDON, 20, Hanover Square, W., 8.30 p.m.—The President (Mr. H. H. Clutton) will give an address on Adolescent (Late) Rickets, which will be illustrated by lantern slides and cases, and will be followed by a discussion.

POST-GRADUATE COURSES AND LECTURES.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Surgical. Thursday, 4 p.m., Dermatological.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Throat. Lectures at 5.15 p.m. each day will be given as follows: Monday, Hepatic Abscesses met with in Britain; Tuesday, The Indications for Instrumental Interference in Labour; Wednesday, Rodent Ulcer and its Treatment by Zinc Ions; Thursday, Some Aspects of Drunkenness.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday and Friday, 3.30 p.m., Cerebral Anatomy and Localization.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., X Rays and Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Lectures: Wednesday, 4.30 p.m., Opening address by Mr. Keetley; Thursday, 5 p.m., Practical Surgery; Friday, 5 p.m., Surgical Cases.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Thursday, 3 p.m., Backward Displacements of the Uterus.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
OCTOBER.	
7 **Sunday**	
8 MONDAY	LONDON: Journal and Finance (Referendum) Committee, 2.30 p.m.
9 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Finance Inquiry Committee, 4 p.m. BOSTON AND SPALDING DIVISION, *Midland Branch*, Red Lion Hotel, Boston, 3.30 p.m.
10 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m.
11 THURSDAY...	LONDON: Hospitals Committee, 2.30 p.m. LONDON: Premises and Library Committee, 3.15 p.m.
12 FRIDAY	LONDON: Central Ethical Committee, 2 p.m. HAMPSTEAD DIVISION, *Metropolitan Counties Branch*, 5 p.m. MARYLEBONE DIVISION, *Metropolitan Counties Branch*, Rooms of the Medical Society of London, Chandos Street, W., 5 p.m.
13 SATURDAY...	
14 **Sunday**	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	LONDON: Journal and Finance Committee, 2.30 p.m
18 THURSDAY...	LEIGH DIVISION, *Lancashire and Cheshire Branch*, Co-operative Offices, Ellesmere Street, 8.30 p.m.
19 FRIDAY.....	BORDER COUNTIES BRANCH, Penrith.
SATURDAY...	ABERDEEN BRANCH, Annual Meeting, Grand Hotel, Aberdeen, 1.15 p.m.

Date.	Meetings to be Held.
OCTOBER *(continued)*.	
21 **Sunday**	
22 MONDAY	
23 TUESDAY.....	
24 WEDNESDAY	CENTRAL COUNCIL. DORSET AND WEST HANTS BRANCH, Sherborne.
25 THURSDAY...	
26 FRIDAY	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.15 p.m.
27 SATURDAY...	
28 **Sunday**	
29 MONDAY	
30 TUESDAY.....	
31 WEDNESDAY	
NOVEMBER.	
1 THURSDAY...	
2 FRIDAY.....	
3 SATURDAY...	
4 **Sunday**.....	
5 MONDAY	
6 TUESDAY.....	
7 WEDNESDAY	
8 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Bolingbroke Hospital, 4 p.m.
9 FRIDAY	
10 SATURDAY...	
11 **Sunday**	
12 MONDAY	
13 TUESDAY.....	
14 WEDNESDAY	
15 THURSDAY...	

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

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Meetings of Branches & Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.*]*

BIRMINGHAM BRANCH:

BROMSGROVE DIVISION.

A MEETING of this Division was held on September 28th.

Medical School Certificates.—A letter was read from a local Education Committee informing medical men in the district that certificate forms were being issued for them to fill up in the event of a scholar being suspected by a teacher of suffering from certain infectious and contagious diseases named; that the fee for such certificate would be 1s., to be obtained from the parents, excepting when their earnings were less than a sum named, when it would be paid by the Committee. It was resolved:

1. That on and after November 1st, 1906, all medical certificates in reference to school attendance required by the Worcestershire Education Committee must be paid for by the Committee.
2. That the fee for each certificate be 2s. 6d. In cases where a visit is necessary for the purpose of granting a certificate a further fee, not exceeding 2s. 6d., be charged.

EAST ANGLIAN BRANCH.

THE autumn meeting of the Branch was held at the Felix Hotel, Felixstowe, on Thursday, October 4th.

COUNCIL MEETING.

New Members.—The following gentlemen were elected members: S. S. McFarlane, L.R.C.P.and S. (Westcliff), J. E. C. Allott, M.R.C.S. (Southend), E. T. Glenny, M.R.C.S. (Colchester), A. L. Ritchie, M.B. (Cavendish), E. F. Syrett, M.D. (Nayland), J. A. Watson, L.R.C.P.and S. (Westcliff).

Spring Meeting.—It was decided to hold the Spring meeting at Witham in April.

Proposed Royal Charter.—It was proposed by Dr. WATERS, and seconded by Mr. BALLANCE, and carried:

That the Council approve of the application for a Royal Charter by the British Medical Association.

Ethical Committee.—The following members were elected to form the Ethical Committee of the Branch: The President of the Branch, Dr. Barnes, Mr. Ballance, Dr. Beverley, Dr. Cardy Black, Dr. Cleveland, Dr. George Elliston, Dr. Hinnell, Sir A. R. Manby, Dr. Mayo, Dr. Skrimshire, and Dr. Nicholson.

GENERAL MEETING.

Luncheon was partaken of at the Felix Hotel, and thereafter the general meeting was held.

Papers.—The following papers were read:—Dr. SINCLAIR HOLDIN: On the recent changes inthe Constitution of the British Medical Association and the benefits of having a Royal Charter. The PRESIDENT (Dr. Barnes) and Mr. BALLANCE discussed the paper.—Dr. HAVILL (Felixstowe): Opsonic methods, with demonstration.—Dr. A. M. N. PRINGLE (Ipswich): The prevalence of tuberculosis in Ipswich.

Tea.—Afternoon tea was kindly provided by the Felixstowe members.

Exhibits.—Instruments were shown by Messrs. Down Brothers, and drugs, etc., by Messrs. Burroughs, Wellcome and Co.

GLASGOW AND WEST OF SCOTLAND BRANCH:

CENTRAL DIVISION.

AN ordinary meeting of this Division was held in the Faculty Hall, 242, St. Vincent Street, Glasgow, on September 27th, Dr. J. W. ALLEN, President, in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read, approved, and signed by the Chairman.

Apologies for Absence.—Apologies for absence were intimated from Drs. W. L. Reid, P. N. Grant, Erskine, and Alex. Robertson.

Annual Representative Meeting.—Mr. GRANT ANDREW, as Representative to the Annual Representative Meeting, presented no formal report. He stated that he had attended the meetings which were held in the Caxton Hall, London, from July 24th to the 27th, and made reference to the principal subjects which were under discussion.

Hospital Abuse.—A letter was read from the Medical Secretary in reference to a communication from the Hospitals Committee on the question of hospital abuse. Certain suggested model principles of hospital management were read over, but as no opinion was asked on the practicability or otherwise of these "principles," the meeting expressed none. Mr. HENRY E. CLARK stated that a conference composed of representatives from the Managing Boards of the three general infirmaries on this subject would take place on an early date.

Appointment of Secretary and Representative on Branch Council.—The SECRETARY asked to be relieved of his duties as Secretary and Treasurer of the Division, as he had been appointed Junior Secretary and Treasurer of the Glasgow and West of Scotland Branch. This was agreed to. Dr. W. D. Macfarlane, jun. (17, Woodside Crescent), was nominated and unanimously elected Secretary and Representative on Branch Council.—This was all the business.

LANCASHIRE AND CHESHIRE BRANCH:
Liverpool Central Division.

A meeting of the Division was held at the Liverpool Medical Institution on Friday, September 23th. Mr. George P. Newbolt, Chairman of the Division, presided.

Annual Representative Meeting.—Dr. Fingland proposed, and Dr. T. Drake Leigh seconded, a vote of thanks to Dr. Francis W. Bailey for his instructive report on the proceedings of the Representative Meeting.

Payment of Representatives.—Dr. Barendt proposed, and Dr. T. Drake Leigh seconded, a resolution that Representatives of Divisions should be paid when attending Representative Meetings at the same rate as members of Council attending Council meetings. This resolution was adopted unanimously.

Hospital Management.—The suggested model principles of hospital management were carefully considered clause by clause. Clauses 9 and 13 were not approved of; Clause 17 could not apply to the Central Divisional area, as there was nothing of the nature of a public medical service or provident dispensary in Liverpool. The remaining clauses received the unanimous approval of the Division.

General Medical Council Election.—With regard to the impending election of Direct Representatives to the General Medical Council, the Division felt that it must be left to the members to decide upon the most suitable men for these posts. On the other hand, the Division would be quite ready to unite with other Divisions of the Liverpool area for the purpose of hearing the views of candidates.

METROPOLITAN COUNTIES BRANCH.
Wandsworth Division.

An ordinary meeting was held on September 27th at the Wandsworth Town Hall, Dr. Llewellyn Williams in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Apologies for Non-Attendance.—Letters of apology were read from Mr. Ryall and Dr. Ormerod for non-attendance.

Annual Representative Meeting.—Dr. McManus presented his report of the Annual Representative Meeting in July last. It was resolved to refer the minutes to the Executive Committee for consideration and report. A hearty vote of thanks was passed to Dr. McManus for his valuable services given in the interests of the Division and the profession generally.

General Medical Council Election.—The meeting was then formed into a general meeting of the profession of the district called to consider the election to the General Medical Council and Dr. Williams's circular letter. It was resolved to act on the suggestion therein contained, and after a general discussion on the merits of the numerous candidates, voting took place. The result will be reported to the scrutineers in due course by Dr. Williams and Dr. Biggs, who were elected to count the votes.

Smoking Concert.—Subsequently a smoking concert was held which was much appreciated by all present, and considered a great success.

SOUTH-EASTERN BRANCH:
Dover Division.

A meeting was held at the Grand Hotel on September 27th at 8.30 p.m.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

A letter was read from the Town Clerk (Sir E. Wollaston Knocker, C.B.) stating:

"That this borough has two hospitals—the Fever Hospital at Tower Hamlets, where cases of diphtheria, scarlatina, and enteric fever are received; and also the Small-pox Hospital at Poulton for cases of small-pox, choiera, plague, beri-beri, and yellow fever."

It was advised that, following the example of many of the London hospitals, cases of anthrax and surgical tetanus should be admitted into the general hospital. Dr. Wood proposed that a letter to this effect be sent to the Committee of the Royal Victoria Hospital; Dr. Osborn seconded the proposition, which was carried.

List of Midwives.—The Division expressed its thanks to the Town Clerk for supplying a list of all the midwives allowed to work in this district.

Hospital Reform.—The proposals suggested by the Central Hospitals Committee were discussed seriatim, and the Secretary was asked to forward to the Board of Management of the local hospital a copy of the various decisions arrived at as follows:

Comments on the "I. Suggested Model Principles of Hospital Management."

(1) Approved.
(2) Admitted that it is not possible to abolish the system locally.
(3) Suggested that the word "*all*" be added before "applicants."
(4) Approved.
(5) (*b*) Suggested that the word "*local*" be added before "treatment."
(6) Approved.
(7) Approved.
(8) Decided that this is not practicable in small local hospitals where only one resident medical officer is engaged.
(9) Decided that this is not practicable.
(10) Approved.
(12) Approved.
(13) The Division strongly objected to a publicly-endowed institution competing with private local enterprise.
(14) Disapproved *nem. con.*
(15) (16) (17) Considered not applicable locally.
(18) Decided that this is not applicable where the staff of the general hospital consists of general practitioners.
(19) The Division strongly objected to Poor-law patients being referred to hospitals at all, and were of the opinion that where Poor-law Guardians wanted special skilled advice they should pay the consultants their usual fees.

II. Cottage Hospitals.

These clauses were held not to apply locally.

III. and IV.

These clauses were held not to apply locally.

A vote of thanks to the Chairman (Dr. Parsons) terminated the proceedings.

☞ ***To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.***

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Aberdeen Branch.—The annual meeting of this Branch will be held in the Grand Hotel, Aberdeen, on Saturday, October 20th, at 1.15 p.m.—J. F. Christie and Thomas Fraser, Honorary Secretaries.

Border Counties Branch.—The next meeting will be held at Penrith, on October 19th, when Sir James Crichton-Browne will open a discussion on a matter of general interest.—Francis R. Hill, Honorary Secretary, 62, Warwick Road, Carlisle.

Dorset and West Hants Branch.—The autumn meeting will be held in Sherborne on Wednesday, October 24th. Members having papers to read, cases to exhibit, or specimens to show are requested to communicate with the Honorary Secretary before October 12th.—James Davison, Honorary Secretary, "Streateplace," Bath Road, Bournemouth.

Lancashire and Cheshire Branch: Leigh Division.—The first meeting of the winter session will be held at 8.30 p.m. on Thursday, October 18th, at the Co-operative Offices, Ellesmere Street, Leigh. Agenda: 1. Minutes. 2. Fixing date of annual dinner and appointing Dinner Committee. 3. Selecting honorary staff of Leigh Infirmary for appointment by Governors. 4. Some cases of mastoid disease will be shown and notes thereon read. 5. Any other business.—Michael J. Halton, Honorary Secretary.

Metropolitan Counties Branch: Hampstead Division.—The next meeting of the Division will be held on Friday, October 12th, at 5 p.m., at St. Peter's Hall, Belsize Square, N.W. Dr. Macevoy in the chair. Agenda: (1) Minutes.

(2) Correspondence. (3) Questions. (4) The Chairman's address. (5) The Representative's report. (6) Discussion on the action of the Association with regard to the Hospital Sunday Fund. (7) Report of the Library Subcommittee. (8) To fix the date of the annual dinner. (9) Other business.—R. A. Yeld, Honorary Secretary, Hampstead, N.W.

Metropolitan Counties Branch: Kensington Division.—A meeting of this Division will be held on Thursday, October 18th, at 5 p.m., at the Paddington Green Children's Hospital, Paddington Green, W. Agenda: Minutes of the last meeting. Letter from the Hospitals Committee of the Association. Clinical cases to be shown by members of the hospital staff.—Charles Buttar, Honorary Secretary, Kensington Gardens Square, W.

Metropolitan Counties Branch: Marylebone Division.—A general meeting of the Division will be held at the rooms of the Medical Society of London, Chandos Street, W., on Friday, October 12th, at 5 o'clock precisely. Agenda: 1. Minutes of last meeting. 2. Correspondence. 3. Consideration of letter received from Dr. Llewellyn Williams, Chairman of the Wandsworth Division, British Medical Association, concerning the election of Direct Representatives for England and Wales to the General Medical Council, 1906 (published in the Supplement of September 15th, p. 186). 4. To consider other business if necessary.—Comyns Berkeley, M.B., B.C.Cantab., M.R.C.P.Lond., Honorary Secretary and Treasurer, 53, Wimpole Street, W.

Metropolitan Counties Branch: Wandsworth Division.—An ordinary meeting will be held at the Wandsworth Town Hall on Friday, October 26th, at 8.15 p.m., when a popular lecture will be given by Ebenezer Howard, Esq., the founder of the Garden City Association, on its aims and objects. Limelight views will be shown. A discussion will follow. Tea and coffee will be provided at 7.30 p.m. The chair will be supported by Sir Henry Kimber, Bart., M.P., the Mayors of Wandsworth, Battersea, and Wimbledon, Reginald Harrison, F.R.C.S., R. O. Moon, M.D., and others. Ladies will be invited, as well as prominent members of the laity.—E. Rowland Fothergill, Honorary Secretary, Torquay House, Southfields, S.W.

South Midland Branch.—The autumnal meeting of this Branch will be held on Thursday, October 25th, at 2.30, at Bedford County Hospital. The following paper is promised: Dr. Hichens, On Haemoptysis and its Treatment. Members desirous of reading papers and showing cases are requested to communicate at once with E. Haines Jones, Honorary Secretary.

Yorkshire Branch.—The next meeting of the Branch will be held at the Grand Hotel, Scarborough, on Saturday, October 27th. Members intending to read papers, to propose new members, or to make any communication, are requested to write to the Secretary at once. Special week-end terms will be arranged for. Members will dine together at 6.30. A number of members will golf at Ganton on Saturday morning.—Adolph Bronner, Honorary Secretary, Bradford.

METROPOLITAN COUNTIES BRANCH.

MEMORANDUM on the Petition and Draft Charter of the Metropolitan Hospital Sunday Fund, adopted by the Council of the Metropolitan Counties Branch of the British Medical Association at a meeting held on September 25th, 1906, and submitted on behalf of the Metropolitan Counties Branch of the British Medical Association to the Lord President of His Majesty's Privy Council on September 29th, 1906.

With reference to the Petition of the Council of the Metropolitan Hospital Sunday Fund, praying His Majesty for the Grant of a Royal Charter of Incorporation, we, the undersigned, in the name of and for, and on behalf of the Metropolitan Counties Branch of the British Medical Association, comprising 2,700 medical practitioners resident in London, believing that we represent the views of the great majority of the medical profession within the metropolitan area, beg most humbly to submit the following points in relation to the Charter in question, namely:—

I. That the Metropolitan Hospital Sunday Fund, by its power of determining the conditions upon which contributions to Hospitals should be granted, exercises a controlling influence upon the administration of London hospitals, and the petition for a Charter by that Fund is therefore a matter of deep concern to the whole of the medical profession, not only to those practitioners who staff the various hospitals, but also to those who are not so attached.

II. That it has not been sufficiently recognized that hospitals depend for their existence probably as much upon the gratuitous services of members of the medical profession as upon the monetary gifts of the charitable public, and that all medical practitioners, even those not on the staff of any hospital, are therefore deeply interested in the administration of hospitals.

III. That the constitution of the Metropolitan Hospital Sunday Fund fails to provide for any representation, in its Council and in its Committee of Distribution, of medical practitioners, who could best guide it in dealing with the medical requirements of hospitals, and that the public interest thereby suffers.

IV. That while admitting cordially the beneficent work carried out by the Metropolitan Hospital Sunday Fund in many respects, we are constrained to recognize that this Fund, as almoners of money collected by public subscriptions, has failed to exercise as much influence as might have been expected in removing such serious defects in our hospital system as are submitted below, namely:—

1. That the out-patient departments of London hospitals, as at present conducted, have a pauperizing effect on the patients, through the indiscriminate treatment of applicants whose cases are more suited for reference either to provident dispensaries or to private practitioners or to the Poor Law, and that the treatment in out-patient departments of cases that present themselves is frequently ineffective owing to the large number of such patients and the absence of that home supervision which many of the cases require.
2. That the small payments exacted from patients in several hospitals in London which are subsidized by the Metropolitan Hospital Sunday Fund undoubtedly augment the moral injury to patients by creating a false idea that sufficient payment is being made, and are more unfair to private practitioners and provident dispensaries in the neighbourhood of such hospitals than absolutely gratuitous attendance. It must be understood, however, that this does not apply to cottage hospitals where payments for maintenance are made and patients treated by their own medical attendants.
3. That in our opinion the out-patient departments should only be used for important and selected cases referred for consultation by private practitioners or provident dispensaries, and thus centres of clinical interest would be created to the great advantage of scientific medicine and surgery and the improvement of material for clinical teaching.
4. That the casualty departments of general hospitals are especially abused by the admission of trivial cases of accident and sudden illness which might quite well be treated elsewhere, and, while we perfectly recognize the necessity of supplying first-aid without question to really urgent cases, there is, in our opinion, no justification for the very large numbers who obtain gratuitous treatment in the casualty departments of such hospitals.
5. That while regarding the employment of trained almoners in all departments of hospitals as indispensable, we are of opinion that subscribers' letters should be abolished and, so far at least as clinical suitability for hospital treatment is concerned, medical practitioners should alone recommend.
6. That the existing efforts to promote forethought, thrift, and independence among the working classes by means of provident dispensaries would in our opinion be more successful if the competition of out-patient departments and free dispensaries were removed.
7. That many of the out-patients of hospitals belong to the destitute class, who are fit subjects for treatment under the Poor Law, apart from economical considerations, as it is not so

much the mere administration of physic as food and other comforts which they require.

8. That the hospitals to a great extent compete with and encroach on the field of work, and limit the experience of medical practitioners by undertaking cases which are neither clinically nor financially suited for hospital treatment, to the ultimate detriment of public interests.

V. That the co-ordination and co-operation of hospitals and other medical charities, and of members of the medical profession practising in the Metropolis, are especially necessary in the metropolitan area for the removal of the abuses which we have noted, and in our opinion an important step towards this would be attained by securing the adequate representation of the medical profession upon the Council of the Hospital Sunday Fund, as constituted in the proposed Charter.

We would, therefore, humbly pray that all the matters set forth in this Memorandum may receive favourable consideration, and to this end we crave that His Majesty may be pleased to withhold his sanction to the grant of the proposed Royal Charter of Incorporation to the Metropolitan Hospital Sunday Fund in its present form.

Signed, on behalf of the Metropolitan Counties Branch of the British Medical Association, and by order of the Council of the said Branch, by—

Hugh R. Ker, F.R.C.S.Edin.,
President of the Metropolitan Counties Branch, British Medical Association.

J. Ford Anderson, M.D.,
Chairman of the Medical Charities Committee of the Metropolitan Counties Branch, British Medical Association.

September 20th, 1906.

GENERAL MEDICAL COUNCIL ELECTION.

DR. LANGLEY'S BROWNE'S CANDIDATURE.

We have been asked to publish the appended circular, which is being sent out in favour of Dr. Langley Browne's candidature. Any medical practitioner who has not received one and wishes to join the Committee is requested to communicate with Dr. Kirby, 106, Hagley Road, Birmingham:

106, Hagley Road,
Birmingham,
October 9th, 1906.

Dear Sir,—We shall be glad to know if we may add your name to a General Committee which is being formed to promote Dr. Langley Browne's candidature for the position of Direct Representative on the General Medical Council.

In the scheme of the British Medical Association, which was dropped at the Representative Meeting, Dr. Langley Browne had been nominated by the following important Divisions: Central (Birmingham), City (London), Kensington, Marylebone, Swansea, and West Bromwich.

Dr. Langley Browne has also been adopted as the candidate of the Birmingham and District General Medical Practitioners' Union.

The position he occupies as Chairman of Council of the Association is sufficient to show the respect and esteem of his professional colleagues, and, if elected, will naturally be of great assistance to him in securing from the representatives of the Crown, the universities and colleges, due recognition of the views of the general practitioners.

Will you kindly intimate your willingness to join the Committee on the enclosed postcard?

We are, dear Sir,
Yours faithfully,
E. D Kirby,
James Neal,
Honorary Secretaries.

ADDRESSES OF CANDIDATES.

Dr. H. A. Latimer (202, St. Helen's Road, Swansea) writes: I shall be obliged by your allowing me to inform the members of our Association and the general body of practitioners that I am a candidate for one of the three seats allotted to Direct Representatives of our profession, which will become vacant in November next, at the General Medical Council. This is the first occasion at these elections at which I shall have figured as a candidate for one of these seats, and I must necessarily be unknown to many of my professional brethren in the large constituency of England and Wales which comprises the electorate in this instance. But I am thankful to say that I am well known in Wales, where I have been in general practice since 1871, and as I have been honoured by the confidence of the Swansea Division, who have appointed me to voice them at every Representative Meeting of the British Medical Association since that new departure in the government of the Association was initiated at Swansea, I may fairly say that I am well known to the many gentlemen who have, at its different meetings, formed the *personnel* there. As a proof of this fact I may say that at the last and at the preceding Representative Meetings I was elected a member of the Medico-Political Committee of the Association, and, as a result, I have given much time and attention to the important matters which we discuss there on the subjects embraced by its title, and I have also worked on the Contract Subcommittee of the same parent committee. For this work I consider I have had a long and fitting training, for, in addition to the fact that I have always been a general practitioner, holding in my time large contract appointments, I have been the Chairman of the Medical Practitioners' Association of Swansea, which has had much work to do in the control of club and dispensary practice in my town. Other offices I have held in the British Medical Association have been those of President of its South Wales and Monmouthshire Branch, and Chairman of its Swansea Division, and at the Representative Meeting held in London in July last, I received what I regard as an extremely high honour, the appointment, at the hands of my fellow members, of the Deputy Chairmanship of the meeting. I therefore consider that I am warranted in soliciting the support of the general body of practitioners at this election on the score of past and present work. I have emphasized my position as a general practitioner as I consider, in common with other candidates at the coming election, that a Direct Representative should be chosen from this class of medical men. Direct representation was obviously granted to us with a view to our sending to the Council men who are in touch with general practice. The consultant class are already, to my mind, too fully represented there, for the great bulk of the Council consists of representatives of the universities and qualifying corporations in the kingdom. I am in favour of an equalization of representation of the two classes, to be obtained by some measure like that which is formulated in the Medical Acts Amendment Bill now being promoted by the British Medical Association. I am in favour of the one-portal system of final professional examinations. If I am returned at this election, my votes at the Council will always be given in the direction of the suppression of quackery and towards securing to all registered medical practitioners the full rewards due to them for their work. One main reason for the existence of this body is the controlling of examination for fitness to practise, and the supervision of the same. I am in favour of raising the standard of the preliminary examinations before entering upon student life. In these days of specializing, we ought to see that those who enter an intellectual profession like that of medicine have had more than a mere smattering of arts to fit them for the severe and prolonged course of study which they are called upon to undergo after they have entered the medical schools. Finally, I hope that a very great majority of the voters entitled to the suffrage at this election will exercise that privilege when November comes. Too long it has been the custom to ignore this duty, and, as one who desires to see every means of advance in our calling seized, when an opportunity occurs, I deplore the apathy shown in previous elections. At the last one I learn that only about half the number of voters on the list exercised their right to secure the return of candidates. Let me venture to express a hope that in November next at least 90 per cent. will vote, and that, as a result of that vote, I may secure the great honour of being one of the three Direct Representatives for England and Wales.

Dr. Leonard Strong MacManus (Mayo House, Spencer Park, Wandsworth Common, S.W.) writes: For the election of three Direct Representatives to the General Medical

Council, to take place in November, I have been urged to offer myself as one of the candidates. A strong feeling has been expressed that there should be additional general practitioners on the Council, in order to bring that body more into touch with the needs of the medical profession throughout the country than it is at present. I have, therefore, consented to stand. I am a graduate of the Royal University of Ireland and have been for twenty-one years a general practitioner, and for the last seventeen years have been a member of the Health Committee of the Battersea Borough Council. I was elected a delegate for that borough to the Health Congress at Exeter, and also to the International Congress on Tuberculosis, held in London. I am familiar with club, contract, and dispensary work, and knowing only too well how we are sweated in these directions, I have, and would again, support any duly-considered scheme which would enable us to obtain fair payment for our services. I am in favour of adequate remuneration for medical men called in under the Midwives Act, and will persistently urge the General Medical Council, if elected by you, to petition the Privy Council for a prompt amendment of the Midwives Act in that direction. Also in the revision of the Rules of the Midwives Board, will see that due regulations are prepared to prevent registered midwives persistently canvassing, advertising, and covering, as is at present done in many districts, to the detriment of the general practitioner. I will support alteration in the Lunacy Laws, which are at present antiquated, reactionary, and in many cases injurious to the patient. I will strongly support alterations in the Coroner's Act, so as to obtain proper remuneration for services rendered by general practitioners and pathologists, and to prevent any interpretation making it possible for the local profession to be ignored in favour of the latter. I will support an Inebriates Act, by which those suffering from alcoholism and drug habit can be saved from themselves. I am in favour of nurses' registration, so as to prevent, to the detriment of the public, certain persons masquerading in nurse's dress: but would see that the general practitioner is adequately represented on the central and all local Boards formed for their control. I would urge revaccination with a proper supply of free Government lymph. I would support security of tenure for medical officers of health, public vaccinators, and holders of all similar public medical appointments. I would be in favour of registration with regard to all patent and secret remedies, so as to compel the vendor to state the ingredients and quantities on the label. I am in favour of Hospital Reform, and will support adequate representation of the general practitioner on charitable funds for the same, feeling that in this way many of the present difficulties will be disposed of. I have been twice a Representative at the Representative Meeting of the British Medical Association, and have been elected for two years on the Medico-Political Committee. I am strongly of the opinion that the interests of the public and the general prac itioner are identical, and that by further extension of the powers already possessed by the General Medical Council in the above directions they will be in reality carrying out the spirit of the Medical Acts. If elected, I will faithfully endeavour to work for the interests of the general practitioners, and should at all times be pleased to keep in touch with their wishes.

Dr. Charles J. Renshaw, M.D., F.F.P.S.Glasg., M.and L.S.A. (Ashton-on-Mersey), has issued the following address: Gentlemen, the selection of Direct Representatives for the General Medical Council will shortly take place, and as a candidate may I ask for your support and that of your Division? There are more than twenty thousand General Practitioners in England and Wales, and they ought to make their influence felt in the General Medical Council by electing representatives from their own ranks. The Council at present is composed almost entirely of gentlemen who are Consultants or Professors representing the various Universities, Corporations, or Schools, no doubt of great excellence, but who *ipso facto* can have but little sympathy with the trials and difficulties of the rank and file of the profession. I have been throughout my medical career a General Practitioner, and in addition to the varied experiences as such have held the appointments of District Medical Officer, Public Vaccinator, Club Surgeon, and am at present Medical Officer of Health and a Certificated Factory Surgeon. I have been Chairman of the Altrincham Division, and for many years a member of the Council of the Lancashire and Cheshire Branch, and I am a member of Committee of the International Medical Congress, having represented various bodies at the Congresses of Moscow, Paris, Madrid, and Lisbon. I think I may justly claim that there is nothing influencing the life of a General Practitioner that I am not practically and personally conversant with. There is no doubt that the legislation of the past twenty years has decreased by at least one-third the earning power of the General Practitioner, and in this direction I was strongly opposed to the recent Midwives Act and am equally so as regards the State Registration of Nurses, considering that both these measures place in the field unqualified practitioners who directly compete with and undersell the Medical Men. I consider drastic treatment is required in regard to prescribing by Chemists, Sale of Patent Medicines, Bonesetters, and other Quacks, in which respects this country is so far behind Continental nations. Finally, as one of the first who received his education at Epsom College, as the son of a Medical Man and the father of two, I feel that I have strong claims on the regard and support of my profession, which I now ask for, but more especially do I appeal to the General Practitioners of England and Wales, to elect one from among their own number.

THE WANDSWORTH CIRCULAR.

Dr. J. R. Fuller (Representative Tottenham Division, British Medical Association) writes: Dr. Charles Smith is not correct in saying that Dr. Llewellyn Williams is attempting to go behind the resolution of the Representative Meeting with regard to the nomination of candidates. It was recognized at that meeting that the Association had made a mistake in insisting upon the candidates binding themselves not to be nominated by any one else; that being so, there was no alternative but to abandon the original scheme. Shortly, the resolution means that binding of the candidates not to be nominated by others is wrong. It does not mean that those candidates are to abandon the contest, and the resolution in no way binds Branches, Divisions, or individual members.

In my opinion Dr. Williams is acting not only entirely within his rights, but is doing a very patriotic thing in taking this matter up, in order that the Direct Representatives may truly represent the profession. It was certainly a brilliant idea on the part of some members at the Representative Meeting that, the Association candidates being scotched, opposition to the candidature of others faded away. All credit must be given to a fine piece of strategy, but the contest is not yet over. My Division will cordially support Dr. Williams in this matter, and we at least are not afraid of horrid words, like "caucus," and I have no doubt whatever that the vast majority of the Divisions will think and act with us.

CENTRAL MIDWIVES BOARD.

A meeting of the Central Midwives Board was held on October 4th at Caxton House, Westminster, with Dr. F. H. Champneys in the chair.

The Privy Council on the Revised Rules Submitted by the Central Midwives Board.

At the meeting of the Board on July 26th a letter from the Privy Council, dated July 24th, 1906, as to the new rules, was read and considered (see Supplement to the British Medical Journal, August 4th, 1906, p. 148). The report of the Standing Committee of the Board was received, and the Board unanimously agreed that the Privy Council be informed:

1. That the Board do not see their way to acquiescing in the amendments suggested by the Privy Council with respect to Poor-law institutions.

2. That the resolutions referring to the number of cases qualifying institutions or teachers for approval by the Board were framed merely for their own guidance, and were of a tentative nature only. The Board did not wish them to be stereotyped in any way

and do not consider that they are "rules" within the meaning of the Act requiring formal approval by the Privy Council.

3. That the suggestion that a new rule should be made imposing upon midwives the duty of notifying to the local supervising authority every birth occurring in their practice has already been considered by the Board, who thereupon resolved that in their opinion the matter was one for legislation and not for a rule of the Board.

Midwife Advertising as a Herbalist.

A letter was read from Dr. Hope (M.O.H. Liverpool), calling attention to a circular issued by a certified midwife advertising herself as a herbalist. The Board decided that Dr. Hope be informed that the Board possesses no power to interfere under the circumstances stated.

Appeal from Decision of the Board.

The Secretary reported that Ita Feldmann had appealed to the High Court of Justice against the decision of the Board ordering the removal of her name from the *Roll*, and the cancelling of her certificate.

Midwives Cautioned.

A letter was considered from the Clerk of the Cheshire County Council reporting the finding by the local supervising authority of a prima-facie case of negligence and misconduct against Hannah Hibbert.

The Board directed that Hannah Hibbert be cautioned as to the necessity of strictly observing the rules in future.

A letter was considered from the Deputy Clerk of the London County Council reporting the finding by the local supervising authority of a prima-facie case of negligence against Adelaide Flora Zeifert.

The Board directed that Adelaide Flora Zeifert be cautioned as to the necessity of strictly observing the rules in future.

A letter was considered from the Deputy Clerk of the London County Council reporting the finding by the local supervising authority of a prima-facie case of malpractice, negligence, and misconduct against Deborah Mabel Goddard.

The Board directed that the attention of Deborah Mabel Goddard be called to the fact that she appears to have neglected her duty under Rule E 11, and that she be cautioned as to its strict observance in future.

A letter was considered from the Medical Officer of Health for Southport reporting that Jane Baker Rimmer had been charged at the Southport Police Court with being drunk and incapable, and had been discharged on payment of costs.

The Board directed that Jane Baker Rimmer be cautioned as to her future conduct.

A letter was considered from the County Medical Officer for Staffordshire reporting that Alice Luty had been convicted at Smethwick Police Court of procuring drink for a drunken person and of assault, and had been fined.

The Board directed that Alice Luty be cautioned as to her future conduct.

August Examination.

From a statistical report furnished to the Board it appears that there were 245 candidates; the number rejected was 53, or 21.6 per cent.

Analysis of Statistical Report.

	Total.	Passed.	Failed.
Hospitals	81	70	11
Workhouse hospitals and infirmaries	8	7	1
Maternity charities	65	51	14
Trained nurses' institutes	9	7	2
District nurses' societies and associations	6	5	1
Nurses' homes	2	1	1
Mothers' homes	8	6	2
Missionary homes	2	2	0
Benevolent institutions	2	2	0
Private tuition	49	30	19
	245	192	53

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: PERCY E. MAITLAND, Fleet Surgeon, lent, for three months' study at West London Hospital, October 10th; HERBERT W. B. SHEWELL, M.B., Fleet Surgeon to Bermuda Hospital, October 18th; ERNEST S. REID, M.B., Fleet Surgeon, to the *Egmont*, additional, for the *Maine*, October 5th; WILLIAM W. KEIR, M.B., Surgeon, to the Royal Marines Division at Portsmouth, October 10th; RICHARD R. HORLEY, Surgeon, to the *Vernon*, additional, for the *Furious*, October 10th; CHARLES R. NICHOLSON, Surgeon, to the *Egmont*, October 10th; ERNEST D. RUTHERFORD, M.B., Surgeon, to the *Duncan*, October 5th.

TIMOTHY T. TEAHAN, civil practitioner, has been appointed Surgeon and Agent at Brandon Quay, October 6th.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL J. V. SALVAGE, M.D., has been appointed Sanitary Officer, Eastern Command.

Colonel O. TODD, M.B., who is serving in India, is appointed to officiate as Principal Medical Officer, 6th (Poona) Division.

INDIAN MEDICAL SERVICE.

CAPTAIN L. RUNDALL, M.B., has been transferred to the temporary half-pay list, September 17th. He joined the department as Lieutenant, July 26th, 1902, and was made Captain, July 26th, 1905.

The following Captains of the Bengal Establishment are promoted to be Majors from July 23th:—F. A. GRANGER, M.B., H. J. K. BAMFIELD, J. W. GRANT, M.B., A. H. MOORHEAD, M.B., W. D. HAYWARD, M.B., W. E. SCOTT-MONCRIEFF, M.D. Their previous commissions are dated:—Surgeon-Lieutenant, July 28th, 1894: Surgeon-Captain, July 28th, 1897. Their war records are as follows:—Major Granger—operations in Mekran, 1898; campaign on the North-West Frontier of India, 1898-9. Major Bamfield—North-West Frontier of India campaign, 1897-8, including the action of the Ublan Pass (mentioned in despatches) and operations on the Sarana and in the Kurram Valley (medal with two clasps); with the Tirah Expedition, 1897-8 (clasp), and against the Darwesh Khels, on the North-West Frontier of India, in 1902. Majors Hayward and Scott-Moncrieff, with the Chitral Relief Force in 1895 (medal with clasp), and in the North-West Frontier of India campaign in 1897-8 (clasp). Majors Grant and Moorhead have no war records in the Army Lists.

The undermentioned gentlemen have been appointed Lieutenants, dated February 1st, 1906: HARRY W. PIERPOINT, F.R.C.S., KHANDJI GANPATRAO GHARPUREY, WILLIAM D. H. STEVENSON, M.B., HENRY P. COOK, M.B., PERCY S. MILES, M.B., WILLIAM J. FRASER, M.B., DESMOND C. V. FITZGERALD, CHARLES R. O'BRIEN, M.B., ROBERT S. KENNEDY, M.B., BERNARD HIGHAM, CHARLES A. GODSON, REGINALD H. LEE, M.B., NORMAN H. HUME, M.B., GREER E. MALCOMSON, M.D., PATRICK HEFFERNAN, M.B., WILLIAM A. MEARNS, M.B., HENRY S. HUTCHINSON, M.B., DUNCAN M. C. CHURCH, M.B., ROBERT G. G. CROLY, M.B., STANLEY T. ORUMP, WILLIAM B. A. K. CULLEN, M.B., JAMES MACG. SKINNER, M.B.

IMPERIAL YEOMANRY.

SURGEON-LIEUTENANT H. W. CHEETHAM, M.D., Yorkshire Hussars (Alexandra, Princess of Wales's Own), to be Surgeon-Captain, October 6th.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

MAJOR F. H. THOMPSON, officer commanding Welsh Border Bearer Company, R.A.M.C. (Volunteers), has been appointed Medical Officer in Charge of Troops (4th K.S.L.I. Militia) at Hereford, vice Colonel R. Thomason, deceased.

ROYAL GARRISON ARTILLERY (VOLUNTEERS).

FRANK HAWTHORN, M.D., to be Surgeon-Lieutenant in the 1st Newcastle-on-Tyne, October 6th.

VOLUNTEER RIFLES.

SURGEON-MAJOR F. SHANN, 1st Volunteer Battalion the Prince of Wales's Own (West Yorkshire Regiment), to be Surgeon-Lieutenant-Colonel, October 6th.

The surname of Surgeon-Lieutenant W. J. COLLINS, 1st Volunteer Battalion the Prince of Wales's Volunteers (South Lancashire Regiment), is as now described, and not as stated in the *London Gazette* of December 12th, 1905.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 7,809 births and 5,192 deaths were registered during the week ending Saturday last, October 6th. The annual rate of mortality in these towns, which had been 21.1, 19.3, and 17.4 per 1,000 in the three preceding weeks, further declined last week to 17.1 per 1,000. The rates in the several towns ranged from 5.4 in Hornsey, 7.0 in Reading, 9.3 in Kingʼs Norton, 10.0 in Croydon, 10.5 in Smethwick, 10.6 in Handsworth (Staffs), and 10.8 in East Ham, to 22.5 in Huddersfield, 22.8 in Burnley, 23.8 in Great Yarmouth, 24.2 in Wallasey, 25.0 in Tynemouth, 25.6 in Wigan, 27.1 in Merthyr Tydfil, and 30.4 in Stockport. In London the rate of mortality was 16.8 per 1,000, while it averaged 17.8 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 3.4 per 1,000 in the seventy-six towns; from this death-rate was equal to 2.1 per 1,000, while among the other large towns the rates ranged upward, to 6.1 in Burnley, 6.3 in Stockport, 6.6 in Bolton, 6.7 in Preston, 7.1 in Birkenhead and in Wigan, 8.6 in West Hartlepool, 9.7 in Wallasey, and 9.8 in Warrington. Measles caused a death-rate of 1.2 in Newcastle-on-Tyne, 1.5 in Oldham, and 2.2 in Norwich; diphtheria of 1.7 in Walthamstow; whooping-cough of 1.6 in Swansea; "fever" of 1.2 in Wigan and 1.3 in Birkenhead; and diarrhœa of 5.3 in Rhondda, 5.4 in Wigan, 5.5 in Coventry, 6.1 in Bolton and in Burnley, 6.7 in Preston, 7.1 in Hartlepool, 8.9 in Wallasey, and 9.8 in Warrington. The mortality from scarlet fever showed no marked excess in any of the towns, and no deaths from small-pox were registered during the week. The Metropolitan Asylums Hospitals and the London Fever Hospital contained 3,603 scarlet fever patients on

Saturday last, the 6th instant, against 3,075, 3,164, and 3,388 on the three preceding Saturdays; 621 new cases were admitted during the week, against 440, 473, and 533 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, October 6th, 953 births and 588 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 16·1 per 1,000 in each of the two preceding weeks, increased last week to 17·2 per 1,000, and was 0·1 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 13·6 in Perth and 13·9 in Leith to 18·4 in Glasgow and 20·6 in Dundee. The death-rate from the principal infectious diseases averaged 2·2 per 1,000, the highest rates being recorded in Dundee and Leith. The 294 deaths registered in Glasgow included 3 which were referred to diphtheria, 7 to whooping-cough, 4 to "fever," 26 to diarrhœa, and 4 to cerebro-spinal meningitis. Two fatal cases of scarlet fever and 9 of diarrhœa were recorded in Dundee. Four deaths from diarrhœa occurred in Edinburgh, 4 in Leith, 3 in Paisley, and 2 in Greenock.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, October 6th, 425 births and 389 deaths were registered in six of the principal Irish towns, as against 681 births and 384 deaths in the preceding period. The annual death-rate in these towns, which had been 19·4, 19·5, and 18·8 per 1,000 in the three preceding weeks, fell to 17·3 per 1,000 in the week under notice, this figure being 0·2 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 11·7 in Waterford and 13·7 in Limerick to 20·5 in Belfast and 26·0 in Dublin. The zymotic death-rate in the same six Irish towns averaged 2·5 per 1,000, or 1·4 per 1,000 lower than during the preceding period, the highest figure—5·0—being recorded in Londonderry, while Waterford recorded no deaths under this heading at all.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham Road, S.W.—Assistant Physician.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL.—House-Surgeon. Salary, £70 per annum.

BODMIN: CORNWALL COUNTY ASYLUM.—Second Assistant Medical Officer: male. Salary, £150, rising to £180 per annum.

BRADFORD ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £100 per annum each.

CANTERBURY: KENT AND CANTERBURY HOSPITAL.—House-Surgeon. Salary, £90 per annum.

CAPETOWN: SOMERSET HOSPITAL.—Assistant Resident Medical Officer. Salary, £200 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—(1) Pathologist. Salary, 100 guineas per annum. (2) House-Physician (male). Salary at the rate of £50 per annum.

DURHAM COUNTY ASYLUM.—House-Surgeon. Salary, £120 per annum.

EDINBURGH: ROYAL COLLEGE OF PHYSICIANS.—Superintendent of the Laboratories.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—(1) House-Physician: (2) House-Surgeon; (3) Assistant House-Surgeon. Salaries, (1) and (2) £80 per annum, and (3) £70 per annum.

GORDON HOSPITAL FOR FISTULA, etc., Vauxhall Bridge Road, S.W.—(1) Resident House-Surgeon. (2) Surgeon to Out-patients.

HOSPITAL FOR WOMEN, Soho Square, W.—House-Physician. Salary, £30 for six months.

KENSINGTON UNION.—District Medical Officer. Salary, £100 per annum and fees.

LEEDS: HOSPITAL FOR WOMEN AND CHILDREN.—(1) House-Surgeon. Salary at the rate of £80 per annum. (2) Resident Clinical Assistant.

LINCOLN COUNTY HOSPITAL.—Junior Male House-Surgeon. Honorarium, £25 for six months.

MARGATE: ROYAL SEA-BATHING HOSPITAL.—Resident Surgeon to act as Junior and Senior for six months each. Salary at the rate of £80 and £120 per annum respectively.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich Road, S.E.—Honorary Anæsthetist.

NORWICH CITY ASYLUM.—Male Assistant Medical Officer. Salary, £125 per annum.

NOTTINGHAM: CITY ASYLUM.—Junior Assistant Medical Officer (male). Salary, £150 per annum.

POPLAR HOSPITAL FOR ACCIDENTS, E.—Assistant House-Surgeon. Salary at the rate of £80 per annum.

SALFORD ROYAL HOSPITAL.—(1) Accident House-Surgeon. (2) Junior House-Surgeon. Salaries, £60 and £50 per annum respectively.

SHOREDITCH, PARISH OF ST. LEONARD.—Second Assistant Medical Officer at the Infirmary. Salary, £100 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician. Salary, £100 per annum.

STAMFORD HILL AND STOKE NEWINGTON DISPENSARY.—Junior Resident Medical Officer. Salary, £100 per annum.

TOTTENHAM HOSPITAL, N.—(1) House-Surgeon: (2) House-Physician; (3) Casualties. Salaries at the rate of £90, £60, and £40 per annum respectively.

WINDSOR AND ETON ROYAL DISPENSARY AND INFIRMARY.—House-Surgeon. Salary, £120 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL. (1) House-Surgeon; (2) House-Physician. Salary, £100 per annum each.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeons at Woburn Sands (Buckingham), and Arnesby (Leicester).

APPOINTMENTS.

ATTWOOD, R. D., M.R.C.S., L.R.C.P.Lond., District Medical Officer of Health of the Royston Union.

BARKER, L. E. H. R., M.B., B.C.Cantab., District Medical Officer of the Petersfield Union.

BINGHAM, S. O., M.R.C.S., L.R.C.P.Lond., Medical Officer of Health, Alfreton Urban District, vice Edward Gaylor, L.R.C.P.Edin., L.F.P.S.Glas.

BOLGER, P. T., F.R.C.S.I., D.P.H., Physician to the Lewisham Hospital for Women and Children, Sydney, N.S.W.

BONA, Percy A., M.B., Officer of Health for the Central and East Ridings of Maffra, Victoria.

BOOTH, O. M., L.R.C.P.Lond., M.R.C.S.Eng., Medical Officer of Health, Cleethorpes Urban District, vice Thomas Newby, M.D.St.And.

CAVENAGH-MAINWARING, W. R., F.R.C.S., Honorary Assistant Surgeon, Adelaide Hospital.

DEANE, J. E. J., L.K.Q.C.P., Health Officer for Eaglehawk, Victoria, vice R. Jones, L.R.Q.C.P., resigned.

DRINKWATER, R., L.R.C.P. and S.Edin., L.F.P.S.Glas., Medical Officer of Health, Llangollen Urban District.

GRIERSON, E. R., M.A.Oxon., M.B., Ch.B.Edin., House-Physician, Royal Southern Hospital, Liverpool.

HILLS, William E., M.R.C.S.Eng., L.R.C.P.Lond., Second Honorary Anæsthetist, North-West London Hospital.

HULME, E., M.B., Ch.B.Vict., Junior Resident Assistant Medical Officer at the Crumpsall Workhouse, Manchester.

LEGGE, F. R., M.B., B.S., Senior Resident Physician to the Alfred Hospital, Melbourne.

MACDIARMID, R. C., M.B., M.S.Glas., Certifying Factory Surgeon for the Alyth District Counties of Perth and Forfar.

MCVEAN, J. D., M.B., C.M.Glas., District Medical Officer of the Ashton-under-Lyne Union.

MANSON, J. S., M.B., Ch.B.Edin., Senior House-Surgeon to the Oldham Infirmary, Oldham.

MUSPRATT, P. K., M.B., B.S.Camb., District Medical Officer of the Uxbridge Union.

PARKHURST, R., M.B., C.M.Edin., Medical Officer of Health, Newhaven Urban and Newhaven Port Districts.

PARSONS, J. E. H., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Chipping Norton Union.

PEARSE, Cuthbert, M.B., M.C.Durh., Second Assistant Medical Officer at the St. Marylebone Infirmary, vice Davis-Colley, F.R.C.S.E., resigned.

PICKETT, Jacob, M.D.St.And., Consulting Surgeon to the Metropolitan Ear, Nose, and Throat Hospital.

RIDDELL, James, M.R.C.S., Medical Officer at the Port Augusta Hospital and Port Augusta Gaol, South Australia, vice Dr. Chenery, resigned.

STATHAM, H., M.B.Camb., Medical Officer, Lymington Union Workhouse.

STOCKER, E. G., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Long Ashton Union.

SYMONS, M. J., M.D., Honorary Ophthalmic Surgeon to the Adelaide Hospital.

SWEET, Wm. S., M.B., B.S., Health Officer for the West Riding of Maffra, Victoria, vice R. N. F. Rockett, M.B., resigned.

WALLIS, J. G., M.D.Dub., Ch.B., B.A.O., House-Surgeon, Royal Southern Hospital, Liverpool.

WATSON, Archibald, M.D., Honorary Pathologist to the Adelaide Hospital.

WILLIAMS, O'Herbert, M.B., Ch.B.Edin., House-Physician, Royal Southern Hospital, Liverpool.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

ORMEROD.—On the 7th inst., at Beauchamp Lodge, Wimborne, the wife of Ernest W. Ormerod, M.D.Camb., of a son.

WALKER.—On October 3rd, at 8, Oakfield Road, Clifton, Bristol, the wife of Cyril H. Walker, M.B., F.R.C.S., of a son.

MARRIAGE.

MOWLL—FINCH-WHITE.—On October 4th, at St. James, Kidbrook, Blackheath, by the Rev. B. Newton, M.A., Vicar of Christ Church, Surbiton, assisted by the Rev. J. W. Morris, M.A., Vicar of St. James, Kidbrook, Richard Rothwell Mowll, M.D., B.S.Lond., of Beresford, Surbiton, only son of Fleet Surgeon R. A. Mowll, M.D., R.N., and Mrs. Mowll, Surbiton, to Violet Ruth, youngest daughter of Colonel Finch-White, Blackheath.

BOOKS, ETC., RECEIVED

Midwifery for Nurses. By H. R. Andrews, M.D., B.S., M.R.C.P. London: E. Arnold. 1906. 4s. 6d.

American Practice of Surgery. Edited by J. D. Bryant, M.D., and A. H. Buck, M.D. In eight volumes. Vol. i. New York: W. Wood and Co. 1906. $7.

Second Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. Director, A. Balfour, M.D., B.Sc., F.R.C.P., D.P.H. Khartoum: Department of Education, Sudan Government. 1906.

De l'Apepsie. Par le Dr. H. Français. Paris: G. Steinheil. 1906.

University of Aberdeen. Proceedings of the Anatomical and Anthropological Society, 1904-6. Aberdeen: The University Press, 7s. 6d.

Medical Electricity. By H. Lewis Jones, M.A., M.D. Fifth edition. London: H. K. Lewis. 1906. 12s. 6d.

How to Buy a Business. By A. W. Bromley. London: T. Fisher Unwin. 1906. 2s. 6d.

Studies in Pathology written by Alumni to celebrate the Quatercentenary of the University of Aberdeen and the Quatercentenary of the Chair of Pathology Therein. Edited by W. Bulloch, M.D. Aberdeen. 1906.

*** In forwarding books the publishers are requested to state the selling price.

DIARY FOR THE WEEK.

TUESDAY.

CHELSEA CLINICAL SOCIETY, Chelsea Dispensary, Manor Street, King's Road, 8.30 p.m.—Opening meeting: Address by the President, Mr. J. D. E. Mortimer.

THURSDAY.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos Street, Cavendish Square, W., 8 p.m.—Card Specimens: 8.30 p.m., Papers: Mr. Holmes Spicer, Intraocular Infections; Mr. G. Coats, Posterior Scleritis; Dr. Edridge-Green, Observations on Hue Perception.

FRIDAY.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN, 33, Nottingham Place, W., 5 p.m.—Clinical Cases and Papers.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Case Taking.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Medical. Thursday, 4 p.m., Surgical.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Medical and Surgical daily, except Saturday and Sunday, at 2.30 p.m. and 3.15 p.m. respectively: Throat and Ear, 4 p.m., Monday; Skin Diseases, 4 p.m., Tuesday: Eye Diseases, 4 p.m., Wednesday: Radiography, 4 p.m., Thursday. Operations, daily, 2.30 p.m. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday: Skin, noon, Tuesday and Friday.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Central Out-patient Department, 7, Fitzroy Square, W.—Thursday, 5 p.m., Bronchiectasis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Anterior Poliomyelitis. Friday, 3.30 p.m., Tumours of Spinal Cord.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Tottenham Hospital, N., 4.30 p.m.—Tuesday, Lecture on Methods of Diagnosis in Skin Diseases. Thursday, Lecture on Rectal Feeding.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics; 2.30 p.m., Operations; X Rays. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Lectures, 5 p.m.: Monday, Clinical Cases: Tuesday, Insects as Carriers of Disease; Wednesday, Unusual Cases of Appendicitis; Thursday, Anæsthetics; Friday, Surgical Cases.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
OCTOBER.	
12 FRIDAY	LONDON: Central Ethical Committee, 2 p.m. HAMPSTEAD DIVISION, *Metropolitan Counties Branch*, St. Peter's Hall, Belsize Square, N.W., 5 p.m. MARYLEBONE DIVISION, *Metropolitan Counties Branch*, Rooms of the Medical Society of London, Chandos Street, W., 5 p.m.
13 SATURDAY...	
14 Sunday	
15 MONDAY ...	
16 TUESDAY ...	
17 WEDNESDAY	LONDON: Journal and Finance Committee, 2.30 p.m.
18 THURSDAY...	KENSINGTON DIVISION, *Metropolitan Counties Branch*, Paddington Green Children's Hospital, Paddington Green, W., 5 p.m. LEIGH DIVISION, *Lancashire and Cheshire Branch*, Co-operative Offices, Ellesmere Street, Leigh, 8.30 p.m.
19 FRIDAY.....	BORDER COUNTIES BRANCH, Penrith.
20 SATURDAY...	ABERDEEN BRANCH, Annual Meeting, Grand Hotel, Aberdeen, 1.15 p.m.
21 Sunday	
22 MONDAY	
23 TUESDAY.....	
24 WEDNESDAY	CENTRAL COUNCIL at Metropolitan Asylums Board at 2 p.m. DORSET AND WEST HANTS BRANCH, Sherborne.
25 THURSDAY...	SOUTH MIDLAND BRANCH, Bedford County Hospital, 2.30 p.m.
26 FRIDAY	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.15 p.m.
27 SATURDAY...	YORKSHIRE BRANCH, Grand Hotel, Scarborough; Dinner, 6.30 p.m.

Date.	Meetings to be Held.
OCTOBER *(continued).*	
28 Sunday	
29 MONDAY	
30 TUESDAY.....	
31 WEDNESDAY	
NOVEMBER.	
1 THURSDAY...	CITY DIVISION, *Metropolitan Counties Branch*, Clinical Meeting, St. Bartholomew's Hospital, E.C., 5 p.m.
2 FRIDAY.....	
3 SATURDAY...	
4 Sunday.....	
5 MONDAY	
6 TUESDAY.....	LONDON: Organization Committee, 11 a.m. LONDON: Special Finance Inquiry Committee, 4.30 p.m.
7 WEDNESDAY	
8 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Bolingbroke Hospital, 4 p.m.
9 FRIDAY	
10 SATURDAY...	
11 Sunday	
12 MONDAY	
13 TUESDAY.....	
14 WEDNESDAY	
15 THURSDAY...	SOUTHERN BRANCH, South-Western Hotel, Southampton, 3.45; Dinner, 6 p.m.
16 FRIDAY.....	
17 SATURDAY...	
18 Sunday.....	
19 MONDAY	
20 TUESDAY ...	

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 20TH, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

BIRMINGHAM BRANCH:

COVENTRY DIVISION.

THE annual dinner of this Division was held at the Masonic Buildings, Coventry, on October 3rd, Mr. FAULDER WHITE, F.R.C.S., being in the chair. Thirty-two members and friends were present.

Chairman's Address.—After the loyal toast, the CHAIRMAN delivered the following address:

I am afraid our position has not improved during the last quarter of a century. Although it must be admitted that our art and science has advanced during that period, it cannot be said that we are better paid, or that we hold a higher place in public esteem than that attained by former generations of medical men. It may possibly be of some service to us to consider for a moment some of the reasons for this unfortunate state of affairs. It is certainly unreasonable, for at no time has the public been more indebted to the medical profession. I think that our interests are suffering for want of organization. Let me give you one or two instances of what I mean. Hitherto, if a hospital appointment has been advertised, there has been a somewhat indecent rush of medical men canvassing city magnate or working man for the all-important votes. Such a condition of things cannot be without its influence on the minds of lay committee men, and we see every day its results in the attitude of hospital committees towards many matters affecting the profession. In Coventry to-day the Hospital Committee pays more attention to the opinions of the working men's committee than it does to those of its medical staff. And the reason is plain. The working man knows what he wants and sees that he gets it. *We* are not quite agreed as to the reforms necessary and do not know at all how to get them.

Another great evil may be attributed to our want of organization. I refer to our unbusiness-like methods, I might say unprofessional methods, of carrying on contract work. It may be necessary for some men to engage in contract work, but I confess I have wondered sometimes that any one can, without misgivings, make himself responsible for the medical care of several thousand individuals—

> Above all price of wealth, the body's jewel
> To be approached and touched with serious fear.

These lines were addressed to Hahnemann. They are worthy the consideration of every medical man.

It is, I hope, possible that the contract work of the profession will be undertaken on more equitable terms before long, and that something may be done to prevent medical fees from disappearing altogether. I am told that a practice is now for sale applicants for which are informed that the fees range from 1s. upwards. I am told also that this is not at all extraordinary. Yet, at the same time, when medical men work for this miserable pittance, the Medical Council is insisting upon higher and more strenuous tests before qualification. There is, I think, no doubt that medical men are better qualified for the struggle against disease than they ever were before, but I do not think that the public holds this opinion. I see Miss Corelli has her favourite slap at the doctors in the *Treasure of Heaven*, and many novelists are fond of expressing their contempt for any doctor who has not taken rooms in Harley Street. It would be wrong to suppose that people are not influenced by this sort of thing. There is also no doubt that thousands of people are influenced by quack advertisements. More than one person has said to me, "They must be true or they wouldn't dare print them." There is still a good deal of faith in the abstract virtue of mankind, and even in that of governments and of newspaper proprietors. Great is the power of advertisement and the money that pays for advertisements. I notice the advertisement of bile beans is still accepted by many papers, though it was denounced by a judge of the High Court as an impudent fraud on the public.

Two and a half millions were spent last year in this country upon patent medicines. I cannot guess at the amount netted by the great army of quacks; judging from the amount they spend in advertising it must be a very large one. The Medical Council has not done much to help the profession in suppressing quackery. It is to be hoped that the Association will take up this difficult business in real earnest. What the profession needs most of all is assistance in these practical matters which so seriously affect our means of livelihood. It is curious to contemplate the fact that in a town where there are several Fellows of a College of Surgeons a considerable section of the public prefer in cases of accident to rely upon the skill of a local bonesetter. I have known several hospital patients who have been treated gratuitously and who have gone straightway with a fee to the local bonesetter for his opinion. The reputation of the hospital doctors has not been increased by the bonesetter's criticism. The question has often occurred to me, Can the profession afford to carry on the present system of gratuitous work in the hospitals? The answer must be doubtful. The hospital is not now a purely charitable institution; every one who gives a penny a week considers he has a right to treatment there; indeed, he is often sent there by his club doctor. The prosperous working man of the city can insure himself against doctors' and chemists' charges, and secure hospital treatment for a few shillings per annum, of which the amount paid to the profession is half a crown. This state of things affects the profession far more than it does the hospitals, which actually receives

4s. 4d. The abuse of the profession is greater than that of the hospital.

Fifteen years ago I read a paper before the medical society here, in which I pointed out that the local profession were losing a large amount every year—several thousand pounds—for want of a little organization in contract work. With the management of medical contracts in our own hands, without the intrusion of any lay committees, it would be possible and reasonable to demand adequate remuneration from the working classes. For a moment there appeared to be some chance of an agreement being arrived at, and a meeting of the profession took place. Unfortunately, the chairman talked too much, and the dispensary men did not take this opportunity of improving their position. But about half the local doctors joined together and formed a medical service, the chief object being to get rid of competing private clubs and medical aid associations. The Public Medical Service was, I think, a step in the right direction, if contract work must exist, and many men say it is a necessity; but our position has never been what it would undoubtedly have been had all the profession in Coventry joined forces. Trades unions have done much for the working classes. We are working men, too, and have a right to fair treatment; a professional union under the control of the British Medical Association would doubtless improve our position. I have always held that 2s. per annum per patient is inadequate payment for any contract doctor. I do not think that 10s. is too much to ask from the man who is in work. But we can never hope for reasonable terms until we put a stop to this reckless competition of underselling.

The question of hospital abuse is always with us. One thing the hospital does do for the medical profession, it relieves the contract doctor of many of his most troublesome cases. Existing contracts in this town would have been intolerably irksome to the medical men concerned, had not the hospital been available for their more serious cases. I think, however, it is hardly wise of outside medical men to encourage their patients to lean too much on the hospital; and some of these patients, if they want a second opinion, would more suitably be seen at our private houses. I have seen several people lately for a fee who had been advised by their doctor to seek my advice at the hospital, but who preferred to come as private patients. A notorious grumbler about hospital abuses recently sent two well-to-do people to the hospital because he could not find time to attend to them himself. Is not this fostering hospital abuse? Another cause of hospital abuse is the widespread belief that operations are attended with less risk if performed at a hospital; and as a fee is evaded by going to hospital, the inducement is great. But I am sure the idea is not in accordance with facts. The risk of infection is considerably greater in a hospital ward than in a private house where no septic cases have been. I have lost several cases from infection who would have probably recovered in a private house. Two, I remember, contracted diphtheria, one at least whooping-cough, and others died of pneumonia. In most hospitals dressings have to be left to students or nurses, and amongst numbers some careless persons will probably be found. So considerable do I believe the danger of infection to be that I have given up the performance in hospital of one operation, otectomy for catarrhal deafness, the risk of infection being so considerable in wards where there are generally a number of suppurating ears.

The hospitals nowadays deprive the profession of a great deal of lucrative work. The victims of an accident are carried to hospital as a matter of course; few broken bones fall into the hands of the general practitioner. If an operation is advised it often happens that as soon as the fee is named the patient disappears, and you hear afterwards that an operation has been performed at a hospital in another town. Of course this hits hospital surgeons as hard as any one else, and we are as interested as any one else can be in putting down abuse. The prosperous working men of Coventry look upon hospital treatment as a right. Some years ago some leading spirits induced the majority of working men to subscribe a penny a week to the hospital. This contribution they have used to obtain a large measure of control, and they have actually induced a subservient committee to expunge the word charity from the hospital tickets. There is indeed need for a radical change. Of course the working men now look upon hospital treatment as having been paid for in advance; many of them believe that the honorary staff are paid, while they all think that doctors would not apply for those posts if it was not worth their while. This is the crucial point. There is no doubt that a hospital appintment does enlarge the scope of the keen man, does afford opportunities to the philanthropic man, and in large towns at all events does increase the chances of success for the ambitious man. The best men of the schools find it impossible to stand aside while men with less special training or experience compete for these appointments. It is for various reasons that men accept these honorary positions, but let us not forget that we are supporting a system that impoverishes the profession to a very great extent. This fact is beyond all question, and I think medical men should now unite in some concerted action to lessen these undoubted abuses. Our only hope is in general co operation and organization. I believe we are practically unanimous in recognizing the abuse. Personally, I hope the Association will show us the way out.

Gentlemen, as Shakespeare said:

> The end crowns all,
> And that old common arbitrator, Time,
> Will one day end it.

Toasts.—The toast of "The Chairman" was proposed by Dr. LYNES; that of the "Coventry Division" by Dr. PURSLOW, who spoke of the activity of the Division and of hospital reform; this was responded to Dr. MILNER MOORE, who gave a short account of the Annual Representative Meeting and of the medico-political work done by the Association. Dr. DAVIDSON proposed the toast of "The Chairman of the Branch," to which Dr. OTHO WYER responded. "The Visitors" was proposed by Dr. CALLAGHAN, and responded to by Drs. MCVEAGH and DENNIS HIRD. Songs were contributed by Messrs. W. E. Bennett and Jepson, and Dr. McVeagh.

SHROPSHIRE AND MID-WALES BRANCH.

THE thirty-first annual general meeting of this Branch was held at the Salop Infirmary on October 2nd.

Presidential Address.—Dr. ALAN RIGDEN (the President) delivered his presidential address, entitled "Concerning the Insanity of Childbirth," which will be published.

Vote of Thanks.—Dr. PACKER proposed, Mr. JACKSON seconded, and Dr. WHITE (King's College, London) supported a hearty vote of thanks to the President for his address, which was carried with acclamation.

Notification of Phthisis.—Dr. WHEATLEY (Medical Officer of Health for the County of Salop) then introduced a discussion "On the Desirability of Making Phthisis a Notifiable Disease." Its history was traced and the methods employed at present at Manchester and other towns was lucidly described. The following members took part in the ensuing discussion: Drs. GEPP, DALLEWY, GARDNER, SPANTON, and MCCARTHY. Eventually the following resolution was carried *nem. con.*:

> That in the opinion of the Shropshire and Mid-Wales Branch of the British Medical Association voluntary notification of phthisis is desirable, and that wherever adopted it should be followed up by efficient preventive measures also.
>
> That this resolution be forwarded to the sanitary authorities, county councils, and medical practitioners in the area covered by this Branch.

Annual Dinner.—The meeting then adjourned, and the annual dinner was held in the Music Hall, when eighty members and guests sat down, this being the largest dinner which has ever been held in the history of the Branch. After dinner Mr. Percy French gave several interludes and Mr. F. K. Pigott a topical song, which were all much appreciated.

STIRLING BRANCH.

THE autumn general meeting was held in the Falkirk Infirmary on Wednesday, October 10th; the PRESIDENT, Dr. Alexander (Denny), was in the chair.

Confirmation of Minutes.—The minutes of the annual meeting, held in May, having appeared in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL, on the motion of the CHAIRMAN, seconded by Dr. MOORHOUSE, it was agreed to take them as having been read.

Lecture.—A lecture was given by Dr. J. Lindsay Steven (Glasgow) on Arterio-sclerosis. The lecture was illustrated by some lantern slides of a series of beautiful microphotographs prepared by Dr. John M. Cowan (Glasgow), which showed the degenerative changes in the vessels in various morbid conditions. The pathology of the different forms of arterial lesion was very fully described by the lecturer, and a short account of the symptomatology and treatment concluded a lecture which was listened to with marked interest.

Vote of Thanks.—On the motion of Dr. Clarkson the cordial thanks of the members were awarded to Dr. Lindsay Steven.

NOTICE OF CHANGES OF BOUNDARIES OF DIVISIONS AND BRANCHES.

The following change has been made in accordance with the regulations of the Association, and takes effect from the date of publication of this notice:

That the boundary of the Barnstaple Division be extended to include Black Torrington, formerly included in the Devonport Division.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Aberdeen Branch.—The annual meeting of this Branch will be held in the Grand Hotel, Aberdeen, on Saturday, October 20th, at 1.15 p.m.—J. F. Christie and Thomas Fraser, Honorary Secretaries.

Birmingham Branch: Central Division.—A general meeting of the Division will be held at the Medical Institute, Edmund Street, on Thursday, October 25th, at 4 p.m. Business: (1) To consider a report of the Executive Committee concerning the Birmingham Branch of the Friendly Societies' Medical Alliance, and a resolution thereon: "That the Central Division expresses the opinion that the Friendly Societies' Medical Alliance as at present constituted is not in accordance with the principles of medical ethics, and that the formation of additional branches is most inadvisable, and should be opposed." (2) To consider the following resolution proposed by the Committee: "That this meeting of the Central Division cordially approves of the candidature of Dr. Langley Browne for the office of Direct Representative of the medical profession on the General Medical Council, and trusts that all members of the Division will give him their support." (3) Any other business.—E. D. Kirby, Honorary Secretary.

Border Counties Branch.—The meeting of the Branch which was announced to be held at Penrith on October 19th has been further postponed till November 2nd. Further details will be issued to each member later.—Francis R. Hill, Honorary Secretary, 62, Warwick Road, Carlisle.

Dorset and West Hants Branch.—The autumn meeting will be held in the Yeatman Hospital, Sherborne, on Wednesday, October 24th, at 3.30 p.m., the President, Mr. William Hawkins, in the chair. Agenda: (1) The minutes of the last meeting. (2) The election of officers for 1907: (*a*) President, (*b*) two Vice-Presidents, (*c*) Honorary Secretary. (3) The President will deliver his address. (4) Dr. T. Davys Manning will give "a demonstration of a new method of putting up fractured clavicles." (5) Mr. Charles J. Marsh will give "a short account of a case of obscure septic condition after parturition." (6) Dr. Whittingdale will show a few interesting clinical cases; and, will read notes of (*a*) a case of cutaneous anthrax; (*b*) a case of primary carcinoma of the liver. A dinner will be held at the Digby Hotel at 6 p.m. Tickets 6s. each, not including wine. Members intending to be present will much oblige by communicating with Dr. Whittingdale not later than Monday, October 22nd.—James Davison, Honorary Secretary, "Streateplace," Bath Road, Bournemouth.

Metropolitan Counties Branch: City Division.—The first meeting of the session, a clinical meeting, will be held on Thursday, November 1st, at 5 p.m., at St. Bartholomew's Hospital, E.C., when cases will be exhibited and discussed by members of the hospital staff.—E. W. Goodall, Honorary Secretary, Eastern Hospital, Homerton, N.E.

Metropolitan Counties Branch: Lambeth Division.—The next meeting of the Lambeth Division will be held at the Camberwell Infirmary, Brunswick Square, Peckham Road, S.E., on Friday, October 26th, at 3.30 p.m. Agenda: (1) Minutes of the last meeting. (2) Dr. Robert Esler will present his report of the Representative Meeting held in London in July last. (3) Dr. Herbert French, of Guy's Hospital, will give a demonstration on pathological microscopical specimens. (4) Dr. Keats has kindly consented to conduct members round the wards of the infirmary. It is hoped that as many members as possible (with their medical friends) will attend, this being the first meeting of the Session 1906-7.—W. Alexander Atkinson, M.D., Honorary Secretary, Lambeth Division, 216, Camberwell New Road, S.E.

Metropolitan Counties Branch: Wandsworth Division.—An ordinary meeting will be held at the Wandsworth Town Hall on Friday, October 26th, at 8.15 p.m., when a popular lecture will be given by Ebenezer Howard, Esq., the founder of the Garden City Association, on its aims and objects. Limelight views will be shown. A discussion will follow. Tea and coffee will be provided at 7.30 p.m. The chair will be supported by Sir Henry Kimber, Bart., M.P., the Mayors of Wandsworth, Battersea, and Wimbledon, Reginald Harrison, F.R.C.S., R. O. Moon, M.D., and others. Ladies will be invited, as well as prominent members of the laity.—E. Rowland Fothergill, Honorary Secretary, Torquay House, Southfields, S.W.

North Lancashire and South Westmoriand Branch.—A meeting of this Branch will be held at the Railway Hotel, Kendal, on Wednesday, October 31st, at 4.45 p.m., when a paper will be read by Dr. Hough (Ambleside) on Peritonitis, to be followed by a discussion. Dr. Leeming (Kendal) will read short notes on the radical cure of hernia, and show cases.—A. S. Barling, Honorary Secretary, Lancaster.

South-Eastern Branch: Guildford Division.—The autumn meeting of this Division will be held at the Royal Surrey County Hospital on Wednesday, October 31st, at 4.30 p.m. Dr. George Fisher (Shere) will preside. Agenda: (1) Minutes of the Annual Meeting. (2) To consider the proposals of the Hospitals Committee for hospital reform. (3) Dr. D. M. Mitchell will read notes on (*a*) Two Cases of Haematocele; (*b*) a Case of Multiple Intussusceptions. (4) Dr. F. K. Weaver will read notes on Some Cases of Appendicitis of Unusual Interest, and will show a case of disseminated sclerosis, with atypical symptoms. (5) Cases and specimens will be shown by other members. (6) Any other business. Dinner at 6.30 p.m., Lion Hotel, Guildford. Charge 6s., exclusive of wine. The Honorary Secretary will be glad to hear from members who intend to be present, and who are likely to remain to dinner, also from any wishing to show cases or specimens.—E. J. Smyth, Honorary Secretary, "Maythorne," Epsom Road, Guildford.

South-Eastern Branch: Norwood Division.—The next meeting of this Division will take place at the Streatham Hall (close to Streatham Station), on Thursday, October 25th, at 4 p.m.; Mr. J. F. Steedman, F.R.C.S., of Streatham, in the chair. Dinner at 6 p.m.; charge 7s., exclusive of wine. Agenda: (1) Minutes of last meeting. (2) To decide where the next meeting shall be held, and to nominate a member of the Division to take the chair thereat. (3) Report of Representative. The following papers will be read: Dr. Lewis Jones, the Electric Treatment of Rodent Ulcers. Dr. Drysdale, the Importance of Pathology in Relation to Clinical Medicine. Mr. Bowlby, Some Cases of Acute Myelitis due to *Bacillus coli*. Members desirous of exhibiting specimens or reading notes of cases are invited to communicate at once with the Hon. Sec. All members of the South-Eastern Branch are invited to attend and to introduce professional friends, but will be unable to vote on Divisional questions. N.B.—The Honorary Secretary would be much obliged if members would kindly inform him by postcard, to reach him by the first post on Tuesday before the meeting, whether they intend, if possible, to be present at the meeting, and if likely to remain to dinner. By doing so they will very materially facilitate arrangements, and promote the success of the meeting.—Arthur W. Soper, Honorary Secretary, 2, Hamlet Road, Upper Norwood.

South-Eastern Branch: Reigate Division.—The annual meeting of the Division will be held at the White Hart Hotel, Reigate, on Tuesday, October 30th, at 4.30 p.m., when the members are particularly requested to meet and welcome the Chairman, Dr. John Walters, J.P., on his return from Canada. Agenda: To elect the officers of the Division for the ensuing year. Dr. John Walters: The Annual Meeting of the Association at Toronto. Dr. E. Bromet: The Meeting of Representatives in London. A discussion on Some Points of Interest to the General Practitioner in Public Health will be opened by Dr. R. Deane Sweeting, of the Local Government Board, Whitehall. Mr. James Berry, Surgeon to the Royal Free Hospital, on Haematuria, from a Practical and Clinical Point of View. Members from Dorking and Horley are particularly asked to attend this important meeting. All members of the South-Eastern Branch are invited to attend and to introduce professional friends. Dinner at 6.30 p.m. Charge 7s. (exclusive of wine). The Honorary Secretary will be glad if members will inform him if they are able to stay to dinner.—W. A. Berridge, Honorary Secretary and Treasurer, 158, Station Road, Redhill.

South Milland Branch.—The autumnal meeting of this Branch will be held on Thursday, October 25th, at 2.30, at Bedford County Hospital. The following paper is promised:

Dr. Hichens, On Haemoptysis and its Treatment. Members desirous of reading papers and showing cases are requested to communicate at once with E. Haines Jones, Honorary Secretary.

Southern Branch.—The autumn general meeting will be held at the South-Western Hotel, Southampton, on November 15th, at 3.45, to be followed by a dinner at 6 o'clock. Members who have cases to exhibit, or specimens to show, or papers to read, are requested to communicate with the undersigned as soon as possible.—H. J. Manning, Honorary Secretary, Laverstock House, Salisbury.

Ulster Branch.—A meeting of this Branch will be held at Ballymena on Saturday, November 3rd.—Cecil Shaw, Honorary Secretary.

West Somerset Branch.—The autumn meeting of this Branch will be held at the Taunton and Somerset Hospital, on Friday, October 26th, at 4 p.m., when the chair will be taken by the President, Dr. R. Liddon Meade-King. Address: Dr. W. P. Herringham, Assistant-Physician at St. Bartholomew's Hospital, London, has kindly consented to read a paper on arterial sclerosis. As Dr. Herringham is a West Somerset man, it is hoped the members will make a special effort to attend, and so secure a satisfactory audience for him. Resolution.—Mr. Winckworth will propose: (i) That a Committee from the Branch be appointed to ascertain the means whereby practitioners in other districts are able to obtain fees for information given to coroners in cases where no inquest is considered necessary, and to interview the coroner for West Somerset on the subject with a view to obtaining a similar concession in this district; (ii) That such Committee consist of the President, the President-elect, the Representative of the Branch, and the Honorary Secretary. The annual dinner will be held the same evening at the London Hotel, Taunton, at 6.30 for 7 p.m. Guests may be invited to the dinner, the charge for which will be 6s. a head. Intention of a wish to be present should reach the Honorary Secretary by Monday, October 22nd. —W. B. Winckworth, Honorary Secretary, Taunton.

Yorkshire Branch.—The next meeting of the Branch will be held at the Grand Hotel, Scarborough, on Saturday, October 27th. Members intending to read papers, to propose new members, or to make any communication, are requested to write to the Secretary at once. Special week-end terms will be arranged for. Members will dine together at 6.30. A number of members will golf at Ganton on Saturday morning.—Adolph Bronner, Honorary Secretary, Bradford.

GENERAL MEDICAL COUNCIL ELECTION.

ADDRESSES OF CANDIDATES.

Dr. Langley Browne.

Dr. Henry Langley Browne, M.D., LL.D., F.R.C.S.E. (Moor House, West Bromwich), has issued an address to all members of the medical profession in England and Wales, of which the following is a summary:

I am offering myself as a candidate for the General Medical Council at the request of a large number of members of the medical profession. I am in general practice at the present time, and have been so for thirty-five years. I have worked on the Councils and Committees of the British Medical Association, the Medical Defence Union, the General Practitioners' Union (Birmingham and District), and the Association of Certifying Surgeons. In doing so I have had every opportunity of learning what are the pressing needs of the medical profession. I am Chairman of the Central Council of the British Medical Association, and have been President of the Birmingham Branch of the British Medical Association, and also of its Pathological Section; of the Midland Medical Society, of the Association of Certifying Surgeons, and of the Birmingham and District Union of the General Medical Practitioners. (1) Security of tenure (combined with old-age pensions) for those who give all or most of their time to the work of the Poor-law or public health appointments. (2) The recognition of the medical profession by the State by the establishment of State examinations for a qualification to practise—compulsory upon all entering the medical profession. (3) The prohibition of all forms of unlicensed practice—in return for which the State should be entitled to charge an annual fee to men during the years they are in practice. (4) Increased representation of the general practitioners on the General Medical Council. These four requirements seem to me to be urgently needed by the profession, and every effort should be made to obtain them during the coming year.

Dr. Joseph Smith.

Dr. Joseph Smith, J.P., M.R.C.S.Eng., L.M., L.S.A.Lond., D.P.H.Camb. (18, Wellesley Road, Gunnersbury, W.), writes: Will you please allow me to add (which I omitted in my address) that I have been adopted by the following societies as their candidate for election to the General Medical Council: Association of Members of the Royal College of Surgeons of England; Incorporated Medical Practitioners' Association; and the Association of Physicians and Surgeons of the Society of Apothecaries of London?

Mr. Rutherford Morison.

Drs. Edward Jepson (Durham) and Alfred Cox (Gateshead), Hon. Secs., *pro tem.*, write: In forwarding a copy of Mr. Rutherford Morison's address we should like at the same time to invite those cognisant of his magnificent work for the general practitioner and for the British Medical Association in this part of the country, and who are wishful to see his abilities placed at the disposal of the whole profession, to send us their names as supporters to be placed on a general committee. We already have promises of very influential support from various parts of the country, but would take as a favour an early reply to this general invitation.

Mr. Rutherford Morison, M.B., F.R.C.S. (Saville Row, Newcastle-on-Tyne) writes: I had decided to withdraw my name from the list of applicants for the election of three direct representatives on the General Medical Council, and this decision has been mentioned in the British Medical Journal for October 6th. The advice of professional friends, in whose judgement on this matter I rely more than on my own, has induced me to reconsider the question, and I now beg to offer myself as a representative of the profession on the General Medical Council. For thirteen years previous to 1888 I was a general practitioner at Hartlepool, and as medical officer to large clubs and friendly societies, and medical officer of health to the borough and in private practice also, I obtained an extended experience of the requirements of ordinary everyday practice and practitioner. For the last five years I have been President of the Northumberland Medical Association, now merged with the North of England Branch of the British Medical Association, and known as the Northumberland Committee. Its functions are limited to the advancement of the interests of its members directly, and indirectly of the medical profession in Northumberland. The work that has been done by us here, especially in increasing the fees for contract practice, has satisfied me that if we know what we want, and the whole profession co-operates in any reasonable demand, it will not, because it cannot, be refused. There is one point on which I must offer a strong opinion. It has been urged that only those in practice as general practitioners should be appointed to fill the vacancies on the General Medical Council. It seems difficult to believe that this view can be held by any but a minority of the 20,000 voters on whom the result depends unless the invaluable services rendered by Sir Victor Horsley can be left out of consideration. In this part of the country we derived very great advantage from the help and co-operation of consultants, and I feel strongly that to divide the profession into independent sections can only end in disaster. The co-operation of all is needful if any real and permanent improvement in the conditions of medical practice is to be obtained. I am acquainted with the work that has been done by the General Medical Council of late years and am fully in sympathy with the efforts that have been made to suppress disreputable forms of practice. Without, however, a new Medical Act passed on the lines adopted by the British Medical Association I am of opinion that the chief evils from which the profession now undoubtedly suffers cannot be satisfactorily dealt with.

WIMBLEDON AND DISTRICT MEDICAL SOCIETY.

At the first meeting of the Session 1906-7, on Friday last, October 12th, Dr. MacManus attended and addressed the members. A resolution expressing confidence in Dr. MacManus and promising him the support of the members was unanimously passed.

Vital Statistics.

VITAL STATISTICS OF LONDON DURING THE THIRD QUARTER OF 1906.

In the accompanying table will be found summarized the vital statistics of the metropolitan boroughs and of the City of London based upon the Registrar-General's returns for the third, or summer, quarter of the year. The mortality figures in the table relate to the deaths of persons actually belonging to the various boroughs, and are the result of a complete system of distribution of the deaths among the several boroughs in which the deceased persons had previously resided.

The 31,233 births registered in London during the three months ending September last were equal to an annual rate of 26.5 per 1,000 of the population, estimated at 4,721,217 persons in the middle of the year; in the corresponding periods of the three preceding years the rates had been 28.4, 27.6, and 26.8 per 1,000 respectively, the average rate for the third quarters of the ten years 1896-1905 being 28.8 per 1,000. The birth-rates last quarter ranged from 15.8 in the City of London, 16.4 in the City of Westminster, 17.4 in Hampstead, 18.5 in Kensington, 21.9 in Paddington, 22.0 in Chelsea, and 22.1 in Stoke Newington, to 30.4 in Bermondsey, 30.8 in St. Marylebone, 31.5 in Shoreditch, 34.0 in Finsbury, 34.5 in Bethnal Green, and 35.0 in Stepney.

The 17,443 deaths of persons belonging to London registered during the quarter under notice were equal to an annual rate of 14.8 per 1,000, against 13.5, 15.8, and 14.1 per 1,000 in the third quarters of the three preceding years; the mean rate in the corresponding periods of the ten years 1896-1905 was 16.9 per 1,000. The death-rates last quarter in the various boroughs ranged from 7.8 in Hampstead, 10.7 in Stoke Newington, 11.5 in the City of Westminster, 12.1 in Paddington and in Lewisham, and 12.3 in Greenwich and in Woolwich, to 18.1 in Southwark, 18.2 in Stepney, 18.8 in Poplar, 19.0 in Bethnal Green, 19.9 in Shoreditch, and 20.0 in Finsbury and in Bermondsey.

During last quarter 4,259 deaths were referred to the principal infectious diseases; of these, 256 resulted from measles, 108 from scarlet fever, 151 from diphtheria, 191 from whooping-cough, 71 from enteric fever, 2 from ill-defined pyrexia, and 3,480 from diarrhœa, but not any from small-pox or from typhus. These 4,259 deaths were equal to an annual rate of 3.62 per 1,000, against an average rate of 3.74 per 1,000 in the corresponding periods of the ten preceding years. The lowest death-rates last quarter from these infectious diseases were 1.26 in Hampstead, 1.65 in the City of Westminster, 1.74 in Stoke Newington, 1.79 in Holborn, and 1.89 in the City of London; the highest rates were 4.61 in Finsbury, 4.86 in Bethnal Green, 5.07 in Fulham, 5.11 in Stepney, 5.18 in Bermondsey, 5.63 in Shoreditch, and 6.81 in Poplar. Measles showed the greatest proportional mortality in Kensington, Chelsea, St. Marylebone, the City of London, and Poplar; scarlet fever in Hampstead, the City of London, Shoreditch, Southwark, Bermondsey, and Greenwich; diphtheria in Hammersmith, Finsbury, Poplar, Bermondsey, Deptford, and Greenwich; whooping-cough in Fulham, Hackney, Finsbury, Bethnal Green, Southwark, Bermondsey, and Battersea; "fever" in Fulham, Bethnal Green, Stepney, Southwark, and Lambeth; and diarrhœa in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford.

During the three months under notice 1,445 deaths from phthisis were registered, equal to an annual rate of 1.23 per 1,000, the rates in the corresponding quarters of the three preceding years being 1.42, 1.36, and 1.22 per 1,000. Among the various boroughs the lowest death-rates from phthisis last quarter were recorded in Paddington, Hampstead, Stoke Newington, Wandsworth, and Lewisham; and the highest rates in Holborn, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey.

Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 187 per 1,000 last quarter, against 153, 208, and 171 per 1,000 in the corresponding periods of the three preceding years, the mean rate in the third quarters of the ten years 1896-1905 being 210 per 1,000. The lowest rates of infant mortality last quarter were recorded in St. Marylebone, Hampstead, Stoke Newington, Holborn, the City of London, and Woolwich; and the highest rates in Hammersmith, Shoreditch, Poplar, Bethnal Green, Southwark, and Bermondsey.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,203 births and 4,695 deaths were registered during the week ending Saturday last, October 13th. The annual rate of mortality in these towns, which had been 19.5, 17.4 and 17.1 per 1,000 in the three preceding weeks, further declined last week to 15.5 per 1,000. The rates in the several towns ranged from 6.6 in Reading, 7.2 in Hornsey, 7.6 in Aston Manor, 8.8 in East Ham, 9.4 in York, 9.5 in Northampton, and 9.7 in Smethwick, to 22.7 in Rochdale, 23.3 in Warrington, 23.7 in Preston and in Gateshead, 24.8 in Swansea, 25.6 in Stockport, and 25.9 in Hanley. In London the rate of mortality was 14.3 per 1,000, while it averaged 16.0 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 2.7 per 1,000 in the seventy-six towns; in London this death-rate was equal to 1.7 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 6.0 in Warrington and in Rotherham, 6.5 in Wallasey, 6.8 in Gateshead, 7.1 in Norwich, 7.3 in Stockport, 8.1 in Preston, 10.1 in Burnley, and 10.2 in Hanley. Measles caused a death-rate of 1.1 in Oldham, 1.2 in Rochdale, 1.6 in Bootle, 2.1 in Stockport, and 3.5 in Norwich; diphtheria of 1.1 in Salford, and 1.3 in Norwich; whooping-cough of 1.4 in South Shields; "fever" of 1.2 in York, 1.4 in Hull, 1.6 in Stockport, and 1.7 in St. Helen's; and diarrhœa of 5.7 in Wallasey, 5.9 in Gateshead, 6.0 in Warrington, 7.2 in Preston, 7.9 in Hanley, and 9.1 in Burnley. The mortality from scarlet fever showed no marked excess, and no fatal case of small-pox was registered during the week in the seventy-six towns. The number of scarlet-fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,164, 3,388, and 3,603 at the end of the three preceding weeks, had further risen to 3,803 at the end of last week: 566 new cases were admitted during the week, against 473, 533, and 621 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, October 13th, 891 births and 609 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 16.1, 16.1, and 17.2 per 1,000 in the three preceding weeks, further rose last week to 17.8 per 1,000, and was 2.3 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 11.1 in Greenock and 12.6 in Leith to 19.2 in Glasgow and 19.9 in Dundee. The death-rate from the principal infectious diseases averaged 2.8 per 1,000 in these towns, the highest rates being recorded in Glasgow and Dundee. The 307 deaths registered in Glasgow included 2 which were referred to measles, 2 to scarlet fever, 2 to diphtheria, 15 to whooping-cough, 2 to "fever," 32 to diarrhœa, and 3 to cerebro-spinal meningitis. Two fatal cases of whooping-cough, 3 of "fever," and 9 of diarrhœa were recorded in Dundee. Six deaths from diarrhœa occurred in Edinburgh, and 2 each in Aberdeen, Paisley, Leith, and Greenock.

Analysis of the Vital Statistics of the Metropolitan Boroughs and of the City of London after Distribution of Deaths occurring in Public Institutions during the Third Quarter of 1906.

Boroughs.	Estimated Population middle of 1906.	Births.	Deaths.	Annual Rate per 1,000 Living. Births.	Deaths.	Principal Infectious Diseases.	Deaths from Principal Infectious Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-Cough.	Typhus.	Enteric Fever.	Ill-defined Pyrexia.	Diarrhœa.	Phthisis.	Deaths of Children Under 1 Year of Age to 1,000 Births.
COUNTY OF LONDON	4,721,217	31,233	17,443	26.5	14.8	3.62	4,259	—	256	108	151	191	—	71	2	3,480	1,445	187
Paddington	148,913	814	448	21.9	12.1	2.92	108	—	4	1	4	3	—	1	—	95	25	168
Kensington	180,952	833	624	18.5	13.8	3.53	159	—	27	3	5	5	—	—	—	119	45	211
Hammersmith	120,679	763	456	25.0	15.2	4.26	128	—	3	1	8	9	—	—	—	111	28	236
Fulham	161,365	1,196	563	29.6	14.1	5.07	205	—	9	3	2	10	—	4	—	177	37	199
Chelsea	74,672	409	243	22.0	13.1	2.47	46	—	7	1	—	2	—	—	—	38	21	174
City of Westminster	173,905	712	498	16.4	11.5	1.65	71	—	9	2	4	3	—	2	—	51	45	153
St. Marylebone ...	128,580	987	454	30.8	14.2	2.77	89	—	23	3	3	2	—	1	—	57	44	107
Hampstead	89,633	389	174	17.4	7.8	1.26	28	—	2	4	2	—	—	2	—	18	7	85
St. Pancras	238,455	1,445	842	24.5	14.3	2.59	153	—	11	5	6	5	—	3	—	123	83	172
Islington	344,987	2,061	1,163	24.0	13.5	2.42	208	—	11	9	4	14	—	7	—	163	94	167
Stoke Newington ...	53,217	293	142	22.1	10.7	1.74	23	—	2	1	—	1	—	—	—	19	10	147
Hackney	230,721	1,434	766	24.9	13.3	3.20	184	—	6	4	4	13	—	1	—	156	62	169
Holborn	55,805	393	228	28.2	16.4	1.79	25	—	5	—	2	1	—	—	—	17	35	99
Finsbury	97,496	827	487	34.0	20.0	4.61	112	—	9	2	7	8	—	1	—	85	36	213
City of London ...	21,367	84	90	15.8	16.9	1.83	10	—	2	1	1	—	—	—	—	6	8	119
Shoreditch	116,108	913	575	31.5	19.9	5.83	169	—	5	7	3	5	—	2	—	147	59	257
Bethnal Green ...	130,699	1,123	620	34.5	19.0	4.86	158	—	10	3	7	7	—	4	—	127	71	214
Stepney	307,176	2,680	1,394	35.0	18.2	5.11	392	—	22	9	8	10	—	8	—	335	122	193
Poplar	170,673	1,236	798	29.0	18.8	6.81	290	—	40	—	11	4	—	4	—	231	53	255
Southwark	209,143	1,511	946	29.0	18.1	4.42	230	—	6	16	9	14	—	5	—	180	90	216
Bermondsey	128,629	976	642	30.4	20.0	5.18	166	—	11	5	8	7	—	2	—	133	63	214
Lambeth	315,774	2,284	1,175	29.0	14.9	3.56	280	—	6	3	16	13	—	10	1	231	90	173
Battersea	179,622	1,121	603	25.0	13.5	3.66	164	—	13	4	7	21	—	2	—	117	49	178
Wandsworth	273,381	1,762	917	25.9	13.5	3.35	228	—	8	4	4	13	—	3	—	196	59	208
Camberwell	274,132	1,759	987	25.7	14.4	3.28	224	—	1	4	6	10	—	6	—	197	80	200
Deptford	115,495	776	438	27.6	15.2	4.37	126	—	2	1	8	3	—	2	—	110	27	200
Greenwich	105,350	673	323	23.6	12.3	2.82	74	—	1	7	6	3	—	—	—	57	28	1·5
Lewisham	148,463	893	450	24.1	12.2	3.16	117	—	—	3	3	6	—	1	—	101	32	171
Woolwich	127,345	873	391	27.5	12.3	2.88	92	—	1	2	3	3	—	1	—	82	42	136

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, October 13th, 483 births and 430 deaths were registered in six of the principal Irish towns, as against 681 births and 384 deaths in the preceding period. The annual death-rate in these towns, which had been 19.4, 19.5, and 18.8 per 1,000 in the three preceding weeks, fell to 17.5 per 1,000 in the week under notice, this figure being 2.0 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 9.7 in Waterford and 12.3 in Limerick to 23.7 in Dublin and 30.1 in Belfast. The zymotic death-rate in the same six Irish towns averaged 3.6 per 1,000, or 0.3 per 1,000 lower than during the preceding period, the highest figure—11.0—being recorded in Cork, while Waterford registered no deaths under this heading at all. The high rate in Cork seems to have been due to diarrhoea.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty:—WILSON EAMES, Fleet Surgeon, to the *Vernon*, October 10th; VIDAL G. THORPE, Fleet Surgeon, to Plymouth Hospital, October 10th; ARTHUR GASKELL, F.R.C.S., Staff Surgeon, to the *Victorious*, October 10th; PERCIVAL M. MAY, Staff Surgeon, to the *Hannibal*, on commissioning, October 20th; ALASTAIR F. MACKAY, Surgeon, to the *Pembroke*, additional, October 7th; MICHAEL J. SMITH, M.D., Staff Surgeon, to the *Fisgard*, October 14th; CECIL R. RICKARD, Surgeon, to the *Shearwater*, additional, October 14th, and on recommissioning, undated; HAROLD HUSKINSON, M.B., Staff Surgeon, to the *Calypso*, October 8th; GEORGE GIBSON, Staff Surgeon, to the *Vivid*, additional, for Pembroke Dockyard, October 8th; PATRICK W. MACVEAN, M.B., Staff Surgeon, to the *Topaze*, October 8th; THOMAS D. LIDDLE, M.B., Surgeon, to the *Sapphire*, additional, for the *Sapphire II*, October 8th.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL J. MACONACHIE, F.R.C.S. Edin., from temporary half-pay, retires on retired pay, October 10th. He entered the service as Surgeon, February 5th, 1881; became Surgeon-Major, February 5th, 1893; and Lieutenant-Colonel, February 5th, 1901. He was placed on half-pay on account of ill-health, October 11th, 1904. He was in the Egyptian war in 1882 (medal and Khedive's bronze star); and with the Soudan expedition in 1884-5, including the action of Abu Klea and the affairs during the return to Korti (two clasps).

Lieutenant-Colonel H. C. KIRKPATRICK, M.D., is placed on retired pay, October 8th. He was appointed Surgeon, August 5th, 1877; Surgeon-Major, August 5th, 1889; granted the rank of Lieutenant-Colonel, August 5th, 1897; and selected for increased pay, July 14th, 1900. He served with the Kabul Field Force during the Afghan war in 1879-80, receiving the medal, and with the Bechuanaland expedition in 1884-5.

Lieutenant-Colonel A. HOSIE, M.D., retires on retired pay, October 13th. His commissions are dated: Surgeon, July 28th, 1886; Surgeon-Major, July 28th, 1898; and Lieutenant-Colonel, July 28th, 1906. He was Senior Medical Officer of the Falaba Columns during the operations in Sierra Leone in 1898-9, for which he received the medal with clasp. He also served in the South African war in 1899-1902, receiving the Queen's medal with two clasps and the King's medal with two clasps.

Captain E. T. F. BIRRELL, M.B., has been appointed Adjutant, Dépôt and Training School, Royal Army Medical Corps, Aldershot, vice Major G. St. C. Thom, M.B., who has been ordered to India.

Lieutenant-Colonel E. L. MAUNSELL has been appointed Administrative Medical Officer at Bloemfontein.

Colonel H. E. WHITEHEAD is confirmed as Principal Medical Officer, 2nd (Rawal Pindi) Division, India.

Colonel P. M. ELLIS, on arrival from England, is appointed Principal Medical Officer, 4th (Quetta) Division, vice Colonel J. M'Cloghry, Indian Medical Service, who is transferred to the Sialkot and Abbottabad Brigades.

Colonel J. G. HARWOOD, on arrival from England, is appointed Principal Medical Officer, Presidency and Assam Brigades, vice Colonel H. K. McKay, C.B., C.I.E., Indian Medical Service.

INDIAN MEDICAL SERVICE.

COLONEL H. K. MCKAY, C.B., C.I.E., Bengal Establishment, Principal Medical Officer, Presidency and Assam Brigades, is transferred in the same capacity to the 7th (Meerut) Division, *vice* Colonel W. E. Saunders, C.B., R.A.M.C., deceased.

Lieutenant-Colonel R. COBB, M.D., Bengal Establishment, is permitted to retire from the service from October 10th. He was appointed Assistant Surgeon, March 31st, 1876, and became Surgeon-Lieutenant-Colonel, March 31st, 1896.

VOLUNTEER RIFLES.

SURGEON-MAJOR H. G. THOMPSON, M.D., 1st Volunteer Battalion the Royal Fusiliers (City of London Regiment), to be Surgeon-Lieutenant-Colonel, September 14th.

Surgeon-Major J. M. HARPER, 1st Volunteer Battalion the Prince Albert's (Somersetshire Light Infantry), is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Cornwall and Somerset Volunteer Infantry Brigade, October 10th.

ARTHUR INNES to be Surgeon-Lieutenant in the 1st Lanarkshire Volunteer Rifle Corps, October 10th.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES

BELGRAVE HOSPITAL FOR CHILDREN, Clapham Road, S.W.—(1) Assistant Physician. (2) Senior and Junior Resident Medical Officers; honorarium at the rate of £20 and £10 per annum respectively.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL.—House-Surgeon. Salary, £70 per annum.

BIRMINGHAM GENERAL HOSPITAL.—(1) Resident Surgical Officer. (2) House Surgeon. (3) Two Assistant House Surgeons. Salaries at the rate of £100, £50, and £40 per annum respectively.

BODMIN: CORNWALL COUNTY ASYLUM.—Second Assistant Medical Officer; male. Salary, £150, rising to £180 per annum.

BRADFORD ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £100 per annum each.

BURY ST. EDMUNDS: WEST SUFFOLK GENERAL HOSPITAL. House-Surgeon. Salary, £100 per annum.

CANCER HOSPITAL, FULHAM ROAD, S.W.—Surgical Registrar. Honorarium, £26 5s. per annum.

CHELSEA HOSPITAL FOR WOMEN, Fulham Road, S.W.—Clinical Assistant.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Pathologist. Salary, 100 guineas per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—(1) Senior House Surgeon. (2) Junior House Surgeon. Salary, £100 and £60 per annum respectively.

DURHAM COUNTY ASYLUM.—House-Surgeon. Salary, £120 per annum.

EDINBURGH: ROYAL COLLEGE OF PHYSICIANS.—Superintendent of the Laboratories.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—(1) House-Physician; (2) House-Surgeon; (3) Assistant House-Surgeon. Salaries, (1) and (2) £80 per annum, and (3) £70 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—House Surgeon. Salary, £20 for six months, and £2 10s. washing allowance.

HOSPITAL FOR WOMEN, Soho Square, W.—House-Physician. Salary, £30 for six months.

MACCLESFIELD: PARKSIDE ASYLUM.—Junior Assistant Medical Officer. Salary, £140, rising to £160 per annum.

MAIDSTONE: WEST KENT GENERAL HOSPITAL.—Assistant House-Surgeon and Anæsthetist. Salary, £60 per annum, and £5 washing allowance.

MANCHESTER ROYAL INFIRMARY.—Assistant Medical Officer for Out-Patients. Salary, £50 per annum.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich Road, S.E.—Honorary Anæsthetist.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary, £160, rising to £180 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—(1) House-Surgeon. (2) House-Physician. Salary, £110 per annum each.

ROYAL EAR HOSPITAL, Dean Street, Soho, W.—Two Clinical Assistants.

ST. GEORGE'S HOSPITAL, S.W.—Assistant Surgeon.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester Square, W.C.—Honorary Anæsthetist.

SALFORD ROYAL HOSPITAL.—(1) Accident House-Surgeon. (2) Junior House-Surgeon. Salaries, £60 and £50 per annum respectively.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician. Salary, £100 per annum.

STAMFORD HILL AND STOKE NEWINGTON DISPENSARY.—Junior Resident Medical Officer. Salary, £100 per annum.

SUNDERLAND INFIRMARY.—Male House Physician and Pathologist. Salary, £80 per annum.

WAKEFIELD: CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Senior House Surgeon. Salary, £120 per annum.

WESTERN GENERAL DISPENSARY, Marylebone Road, N.W.—Honorary Surgeon.

WINDSOR AND ETON ROYAL DISPENSARY AND INFIRMARY.—House-Surgeon. Salary, £120 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeons at Sutton Bridge (Lincoln) and Cullen (Banff).

APPOINTMENTS.

BRIDE, T. M., M.B., Ch.B., Assistant Medical Officer for Out-Patients, Manchester Children's Hospital, Pendlebury.

BURNET, E., M.B., Ch.B., House Surgeon to the Edinburgh Royal Maternity and Simpson Memorial Hospital.

COLE, T. E. Cecil, M.A., M.D.Oxon., M.R.C.P.Lond., Honorary Physician to the Warneford Hospital, Leamington.

DICK, A. M., M.B., Ch.B., House Surgeon to the Edinburgh Royal Maternity and Simpson Memorial Hospital.

EDWARDS, A. D., L.R.C.P. and S.Edin., L.F.P.S.Glas., Resident Assistant Medical Officer to the Cardiff Union Infirmary.

FISCHER, G. A., M.B., B.S., Honorary Surgeon to the Ear and Throat Department of the Adelaide Hospital.

HOLDEN, Arthur S., M.B., Ch.B.Edin., Assistant Resident Medical Officer to the Sheffield Union Hospital.

HOLT, Thomas, M.B., C.M.Aberd., D.P.H. Medical Officer of Health for the Borough of Burnley.

HOSKYNS, E. J. H., L.R.C.P. and S.Edin., Medical Officer of Health for the Belper Rural District.

JAMES, W. T., M.B., Ch.B.Edin., Certifying Factory Surgeon for the New Quay District, co. Cardigan.

KLUMPP, E. G., M.B., B.S.Durh., Medical Officer of Health for Cricklade and Wootton Bassett Rural District.

MACKENZIE, T. C., M.B., M.R.C.P.Edin., Senior Assistant Physician to the Aberdeen Royal Asylum.

POULTON, B., M.D., Honorary Surgeon to the Adelaide Hospital.

RUTHERFORD, John V. W., M.B., C.M.Edin., M.R.C.S.Eng., Surgeon to the Royal Victoria Infirmary, Newcastle-on-Tyne.

ST. JOHNSTON, T. R., M.R.C.S., L.R.C.P., L.S.A., Assistant Resident Medical Officer, Lewisham Infirmary, S.E.

SELKIRK, J. Burns, M.A., M.B., Ch.B., Resident Physician to the Chalmers Hospital, Edinburgh.

SMITH, Hoyland, M.R.C.S.Eng., L.R.C.P.Lond., Senior Resident Medical Officer to the Sheffield Union Hospital.

SMITH, W. B. A., M.D., B.Ch.Dub., Certifying Factory Surgeon for the Belper District, co. Derby.

SWIFT, Harry, M.D., Honorary Assistant Physician to the Adelaide Hospital.

Thompson, A. G., M.B., B.Ch.Oxon., Clinical Assistant to the Chelsea Hospital for Women.

Wilkie, P. D., M.B., Ch.B., Resident Surgeon to the Chalmers Hospital, Edinburgh.

Wilson, T. G., F.R.C.S., Honorary Gynaecologist to the Adelaide Hospital.

Edinburgh Royal Infirmary.—The following appointments have been made:

Clinical Tutors: E. Bramwell, M.D., J. S. Eason, M.D., F.R.C.P.E., and L. S. Milne, M.B., Ch.B., to University Medical Wards; D. H. Croom, M.D., to Dr. Gibson; J. H. Piric, B.Sc., M.B., Ch.B. to Dr. Bruce; I. Stewart, L.R.C.P. and S.E., to Dr. Philip; W. J. Stuart, M.A., M.B., Ch.B., F.R.C.S.E., to Professor Annandale; C. H. Watson, M.B., F.R.C.S.E., to Dr. MacGillivray; A. C. Geddes, M.B., Ch.B., to Mr. Cotterill; J. Struthers, F.R.C.S.E., to Mr. Cathcart; L. T. Price, M.B., F.R.C.S.E., to Mr. Caird; M. Campbell, M.B., F.R.C.S.E., to Mr. Brewis; D. C. A. M'Allum, M.B., Instructor in Anaesthesia to Mr. Brewis; J. D. Comrie, M.A., M.B., Ch.B., F.R.C.S.E., to Dr. Byrom Bramwell; and B. P. Watson, M.D., F.R.C.S.E., to Dr. A. H. Freeland Barbour.

Resident Physicians: R. S. Frew, M.B., Ch.B., to Professor Greenfield; T. G. Brown, B.Sc., M.B., Ch.B., to Dr. James; R. St. C. Steuart, M.B., Ch.B., to Dr. Gibson.

Resident Surgeon: A. G. V. van Someren, M.B., Ch.B., to Professor Chiene, C.B.

Non-Resident House-Surgeon: J. H. Yearsley, M.R.C.P.E., to Dr. Logan Turner.

Clinical Assistants: A. M. Drennan, M.B., Ch.B., to Professor Greenfield; J. B. M'Morland, M.B., Ch.B., to Dr. James; G. A. Gordon, M.B., Ch.B., to Dr. Gibson; W. D. Osler, M.B., C.M., to Dr. Fleming; J. Gilmour, M.B., Ch.B., to Professor Chiene, C.B.; T. S. M'Intosh, M.B., Ch.B., to Mr. Cathcart; A. Todrick, M.B., Ch.B., to Dr. R. W. Philip; W. F. Godfrey, M.B., C.M., to Dr. W. G. Sym; and R. P. McMorland, M.B., Ch.B., to Dr. Logan Turner.

Great Northern Central Hospital, Holloway Road, N.—The following appointments have been made:

Pathologist: George Lyon, M.B., Ch.B., F.R.C.S.Edin., M.R.C.P.Edin.

Senior House Surgeon: James Clark, M.B., Ch.B.

Senior House Physician: A. Carnarvon Brown, M.R.C.S.Eng., L.R.C.P.Lond.

Two Junior House Surgeons: Robert Brown, M.B., Ch.B.; Alec Barber, M.R.C.S., L.R.C.P.Lond., B.S.

Junior House Physician:—Roderick M. Gunn, M.B., Ch.B., B.S.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

Madden.—On October 4th, the wife of Dr. Madden, Cairo, of a son.

Turner.—To Dr. and Mrs. H. Stanley Turner, at "Balgowrie," Bridge Road, S.W., on Thursday, October 11th, a daughter (Sheila Mary Isabella).

MARRIAGES.

Gladstone—Curry.—On Saturday, October 13th, at Aston Tirrold, Berks, by the father of the bride, Howard Beauchamp Gladstone, M.D., of Sydenham, S.E., youngest son of the late James Nairn Gladstone, of Forest Hill, S.E., to Margaret, fourth daughter of the Rev. Thomas Curry.

Watson—Mackenzie.—At St. John's Church, Bilton, Harrogate, on the 9th inst., by the Rev. David M. Alexander, M.A., assisted by the Rev. S. T. Dawson (Vicar of St. Luke's) and the Rev. G. A. Elson, M.A., William Muir Crawford Watson, M.D., youngest son of the late Robert Watson, of Edinburgh, to Nora, youngest daughter of the late James Mackenzie, of Edinburgh.

Williams—Price.—At the Welsh Presbyterian Church, Rhyl, on October 5th, by the Rev. S. T. Jones, Rhyl, assisted by the Rev. T. M. Jones, Colwyn Bay, D. Llewelyn Williams, F.R.C.S., D.P.H.Edin., Medical Officer of Health, Wrexham and District, to Margaret, only daughter of the late Mr. Robert Price, Rhyl.

DEATHS.

Austin Robinson.—On Sunday, October 14th, suddenly, at Nottingham Road, Natal, Frederic Austin, youngest son of the late Rev. G. Robinson, of S. Augustine's, Liverpool, and of Mrs. Robinson, 40, Upperton Gardens, Eastbourne, District Medical Officer, Nottingham Road, Natal, and Surgeon-Captain Natal Medical Corps, aged 36. (By cable.)

Lamprey.—On 13th inst., Richard Orford Lamprey, L.R.C.S., M.R.C.P.Edin., aged 62 years.

Lawton.—At Dunraven, Wallasey, Cheshire, on October 11th, Florence Purdon, dearly beloved wife of William Lawton, M.B. No flowers by request.

Wathen.—October 5th, at his residence, "Sea Walls," Stoke Bishop, Bristol, John Hancocke Wathen, M.R.C.S., L.R.C.P., in his 62nd year.

DIARY FOR THE WEEK.

MONDAY.

Medical Society of London, 11, Chandos Street, W., 8.30 a.m.—Papers: Carcinoma of the Stomach, by Dr. J. J. Perkins. The Bacteriology of Aseptic Wounds, by Dr. Dudgeon and Mr. Percy Sargent.

Odontological Society of Great Britain, 20, Hanover Square, W., 8 p.m.—Inaugural address by the President, Mr. E. Lloyd-Williams. Discussion on Mr. F. Lawson Dodd's paper, Some Notes on the Relation of Dental Conditions to Pulmonary Tuberculosis postponed from the June meeting; opened by Mr. J. F. Colyer.

TUESDAY.

Royal Medical and Chirurgical Society, 20, Hanover Square, W.—Dr. Alfred M. Gossage: On Some Aspects of Dilatation of the Heart. With Epidiascope Demonstration.

WEDNESDAY.

Hunterian Society, 4 p.m.—Clinical afternoon at the Metropolitan Hospital, Kingsland Road.

THURSDAY.

Harveian Society.—Clinical meeting at St. Mary's Hospital, 8 p.m. Dr. Sidney Phillips: Case of Dextro-cardia and others. Dr. H. P. Luff: Medical Cases. Dr. Wilfrid Harris: (1) Tumour of Right Optic Thalamus; (2) Pseudo-bulbar disease(?). Dr. John Broadbent: Aneurysm of the Aorta with Paralysis of Left Vocal Cord and Pressure on Superior Vena Cava. Dr. Scanes Spicer: (1) Case of Inoperable Cancer of Throat Treated by Injections of a Vaccine of *Micrococcus neoformans*; (2) Direct Examination of the Interior of the Trachea and Bronchi. Mr. Jackson Clarke: Cases of Congenital Dislocation of the Hip.

FRIDAY.

Clinical Society of London, 20, Hanover Square, W., 8 p.m.—Clinical evening for the Exhibition of Clinical Cases, followed by Discussion. Patients in attendance at 8 p.m.

POST-GRADUATE COURSES AND LECTURES.

Central London Throat and Ear Hospital, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Clinical Pathology.

Charing Cross Hospital.—Tuesday, 4 p.m., Medical. Thursday, 4 p.m., Medical.

Hospital for Sick Children, Great Ormond Street, W.C.—Thursday, 4 p.m., Infantile Diarrhoea, with Especial Reference to its Treatment by Lactated Milk.

London School of Clinical Medicine, Dreadnought Hospital, Greenwich.—Clinics: Medical and Surgical daily, except Saturday and Sunday, at 2.30 p.m. and 3.15 p.m. respectively: Throat and Ear, 4 p.m., Monday; Skin Diseases, 4 p.m., Tuesday; Eye Diseases, 4 p.m., Wednesday: Radiography, 4 p.m., Thursday. Operations, daily, 2.30 p.m. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

Medical Graduates College and Polyclinic, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Ear. Lectures at 5.15 p.m. each day will be given as follows: Monday, Recurrent and Transient Palsies; Tuesday, On Menière's Disease and Allied Conditions; Wednesday, The Insanities of Visceral Diseases; Thursday, The Field of Vision in Health and Disease.

Mount Vernon Hospital for Consumption and Diseases of the Chest, Hampstead.—Thursday, 5 p.m., Demonstration of Cardiac Cases.

National Hospital for the Paralysed and Epileptic, Queen Square, W.C.—Tuesday, 3.30 p.m., Cases in the Wards. Friday, 3.30 p.m., Surgery of the Nervous System.

Post-Graduate College, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Lectures: Monday, 12 noon, Pathological Demonstration; 5 p.m., Monday, Clinical Lecture; Tuesday, Ankylostomiasis; Wednesday, Practical Medicine; Thursday, Practical Surgery; Friday, On the Diagnosis of Surgical Diseases of the Kidneys and Ureters.

Royal Ear Hospital, 43, Dean Street, Soho.—Demonstration on Thursday, 5 p.m. Operations, Wednesday and Thursday, 2 p.m.

BOOKS, Etc., RECEIVED.

London: H. Kimpton:

Kimpton's Pocket Medical Formulary. By E. Q. Thornton, M.D. Seventh Edition. 7s. 6d.

The Practitioner's Library. The Practice of Pediatrics, in Original Contributions by American and English Authors. Edited by W. L. Carr, A.M., M.D. 1906. 31s. 6d.

On the Principles and Exact Conditions to be observed in the Artificial Feeding of Infants; the Properties of Artificial Foods; and the Diseases which Arise from Faults of Diet in Early Life. By W. B. Cheadle, M.A., M.D., F.R.C.P. Sixth Edition. Edited by F. J. Poynton, M.D., F.R.C.P. London: Smith, Elder, and Co. 1906. 5s.

The History of Chemistry. By F. P. Armitage, M.A., F.C.S. London: Longmans, Green, and Co. 1906. 6s.

Hygiene in School. A Manual for Teachers. By H. G. Critchley M.A., M.D. London: Allman and Son, Ltd.

Davos as Health Resort. By A. F. Bill, M.D.; A. Brecke, M.D.; The Very Rev. Dean J. Hauri, D.D.; F. Jessen, M.D.; W. G. Lockett; P. K. Mühle; Dr. Phil. E. Nienhaus, M.D.; H. Philippi, M.D.; W. Schibler, M.D.; Dr. Phil.; Hofrat K. Turban, M.D.; H. J. A. van Voornveld, M.D.; and W. R. Huggard, M.A., M.D., F.R.C.P. Davos: Davos Printing Co., Ltd. 1906.

Commentarii di Clinica Medica desunti dalla Morfologia del Corpo Umano. Parte speciale. Volume Primo. Par Professor A. De-Giovanni. Milano: M. Hoepli. 1907. L.8.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
OCTOBER.	
20 SATURDAY..	Aberdeen Branch, Annual Meeting, Grand Hotel, Aberdeen, 1.15 p.m.
21 Sunday	
22 MONDAY	
23 TUESDAY.....	St. Pancras and Islington Division, *Metropolitan Counties Branch*, Great Northern Central Hospital, Holloway Road, 4 p.m.
24 WEDNESDAY	Central Council at Metropolitan Asylums Board at 2 p.m. Dorset and West Hants Branch, Yeatman Hospital, Sherborne, 3.30 p.m.: Dinner, Digby Hotel, 6 p.m.
25 THURSDAY...	Central Division, *Birmingham Branch*, Medical Institute, Edmund Street, 4 p.m. Norwood Division, *South-Eastern Branch*, Streatham Hall, 4 p.m.; Dinner, 6 p.m. South Midland Branch, Bedford County Hospital, 2.30 p.m.
26 FRIDAY	Lambeth Division. *Metropolitan Counties Branch*, Camberwell Infirmary, Brunswick Square, Peckham Road, S.E., 3.30 p.m. Wandsworth Division, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.15 p.m. West Somerset Branch, Taunton and Somerset Hospital, 4 p.m.; Dinner, London Hotel, Taunton, 6.30 for 7 p.m.
27 SATURDAY..	Yorkshire Branch, Grand Hotel, Scarborough; Dinner, 6.30 p.m.
28 Sunday	
29 MONDAY	
30 TUESDAY.....	Reigate Division, *South-Eastern Branch*, Annual Meeting, White Hart Hotel, 4.30 p.m.; Dinner, 6.30 p.m.
31 WEDNESDAY	Bath and Bristol Branch, Bristol. Guildford Division, *South-Eastern Branch*, Royal Surrey County Hospital, 4.30 p.m.; Dinner, Lion Hotel, Guildford, 6.30 p.m. North Lancashire and South Westmorland Branch, Railway Hotel, Kendal, 4.45 p.m.

Date.	Meetings to be Held.
NOVEMBER.	
1 THURSDAY..	City Division, *Metropolitan Counties Branch*, Clinical Meeting, St. Bartholomew's Hospital, E.C., 5 p.m.
2 FRIDAY.....	Border Counties Branch, Penrith.
3 SATURDAY..	Ulster Branch, Ballymena.
4 Sunday.....	
5 MONDAY	
6 TUESDAY.....	London: Organization Committee, 11 a.m. London: Special Finance Inquiry Committee, 4.30 p.m.
7 WEDNESDAY	
8 THURSDAY	Wandsworth Division, *Metropolitan Counties Branch*, Bolingbroke Hospital, 4 p.m.
9 FRIDAY	
10 SATURDAY...	
11 Sunday	
12 MONDAY	
13 TUESDAY.....	
14 WEDNESDAY	
15 THURSDAY...	London: Hospitals Committee. London: Joint Hospitals Committee. Southern Branch, South-Western Hotel, Southampton, 3.45; Dinner, 6 p.m.
16 FRIDAY.....	
17 SATURDAY...	
18 Sunday.....	
19 MONDAY	
20 TUESDAY ...	
21 WEDNESDAY	
22 THURSDAY..	Wandsworth Division, *Metropolitan Counties Branch*, Conjoint Meeting with Richmond and Chelsea Divisions, Chelverton Road Hall, Putney, 8.45 p.m.

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 27TH, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

METROPOLITAN COUNTIES BRANCH:
MARYLEBONE DIVISION.

A MEETING was held in the Rooms of the Medical Society of London (Chandos Street, Cavendish Square, W.) on Friday, October 12th, Dr. LAURISTON SHAW in the chair.

Confirmation of Minutes.—The SECRETARY having read the minutes of the annual meeting, these were signed as correct.

Chairman's Address.

The CHAIRMAN said: Before proceeding to the strict business of the day, I should like to thank you for having elected me to be your Chairman, and to assure you I shall do my best faithfully to fulfil the duties of the post. Just after my election I was congratulated by a prominent member of the Division on having been appointed to a sinecure, inasmuch as this Division, though one of the largest in the British Medical Association, holds very few meetings and transacts very little business. Since then I have twice had the opportunity of meeting the Executive Committee, and we have discussed together this apparently anomalous position, and perhaps on the first day I take the chair I may say a few words to you upon the question as to whether this position is one that is desirable or inevitable. There are certain peculiarities of the district in which the Marylebone Division finds itself. In this Division, or within a stone's throw of its boundaries, are the head quarters of many of the most learned and important societies dealing with the science of medicine in the world. They have their membership not only in London but throughout the kingdom, and they have their honorary memberships and fellowships throughout all the countries of Europe and America. Moreover, this Division contains a good deal of that small portion of London which fashion says a man must live in if he desires to practise as a consultant or specialist. The number of medical men living in this small area is therefore exceedingly large, and of these men a very large proportion are engaged in hospital work and a large proportion in the work of medical education. It is, therefore, not surprising that our members are, many of them, too busy to devote much time to the work of this Association. This, however, we should not mind if it only meant that in this Division we were to be deprived of the scientific sessions which are so valued a feature of other Divisions, for our members have so many opportunities of doing admirable scientific work in the learned societies already referred to that it is hardly necessary for us to make further provision. But there are other methods of medical activity besides the making and the diffusion of knowledge, and one of the most important is the application of medical knowledge to those who need its help. It is undoubtedly true that in the last twenty or thirty years a great extension of medical knowledge has taken place, and during the same period many changes have taken place in the social and economic condition of the inhabitants of our great towns. As a result the amount of time that we should all wish to give to the investigation of each of our cases increases daily, and at the same time, owing to the economic conditions to which we have given too little attention, the amount of remuneration which is paid to the majority of medical men grows gradually less. As an indication of the greatly increasing amount of work which is entailed upon each of us in the examination of our cases, I would remind you that when I was first a medical student so unused were patients to thorough medical examination that it was no uncommon thing for a woman to be discharged from the out-patient department because she objected to her child's chest being uncovered for auscultation, or refused to allow the temperature of the child to be taken. I suppose it is now not altogether impossible that a hospital scandal might be aroused because in the casualty department liniment was applied to a sprained ankle which had not been subjected to the *x* rays, or because an out-patient physician prescribed for a patient's cough without first estimating his tuberculo-opsonic index. The problem which is before is, How are

we to find the necessary time to employ all the advances of medical science for the benefit of our patients under conditions which shall be economically remunerative to the medical profession? I think few will doubt that the problem cannot be solved by leaving things to take care of themselves. At the present moment in our great cities, and in our own great city particularly, the dire confusion and want of co-operation between various agencies for providing the poor and the sick with medical attendance is a by-word. I hope we shall all admit that there is room for careful investigation of the problem which I have suggested to you, and that it is one well worthy of the consideration of this Division. This is a problem which is not our own alone, it is exercising the minds of the workers in every other great city of Europe. In Paris and in Berlin they have dealt with it in a measure by means of the Assistance Publique and by compulsory medical assurance, and I should like you to consider whether it might not be wise for a commission to be sent from this country to bring to us an accurate report of these two very different systems, not with any intention of slavishly copying them, but with the view to seeing how far they might be suitable to our needs and of avoiding the difficulties which are no doubt found in carrying them out. The British Medical Association is, of course, already at work in many of these directions, but I think it may be admitted that this Division has taken a somewhat apathetic attitude in the matter. This is not well, for surely we may claim that this Division is peculiarly well fitted to take part in solving such a problem. We have, owing to the large percentage of our members who are engaged in hospital work, a thorough knowledge of the difficulties from the hospital point of view.

As a result of the deliberations of the Executive Committee on these questions we have decided to bring before the Division certain economic problems for the purposes of discussion. We have already arranged during this winter for two discussions, one on a subject which perhaps may be called the general ethics of medical charity, in which I am glad to be able to tell you the three following members of the profession have promised to take a prominent part: Sir Douglas Powell, Mr. John Tweedy, and Dr. Kingston Fowler. The position of these three gentlemen in the Royal College of Physicians, the Royal College of Surgeons, and the University of London ensures at least that the matter will receive consideration from the highest possible standpoint of public interest and of the necessities of medical education. Later on, after Christmas, it is hoped that a discussion will take place on some problem of hospital administration, and I am pleased to be able to tell you that Dr. Schorstein of the London Hospital and Mr. Clutton of St. Thomas's Hospital have promised to take an active part in it. I think, then, we may agree that there is a work for this Division to take up, and I hope that in the coming winter we may perhaps have somewhat larger attendances than we have here to-night to discuss these problems.

Annual Representative Meeting.

Sir Victor Horsley gave his report on the Representative Meeting, 1906:

Mr. President and Gentlemen,—After what has fallen from our Chairman, I feel that I cannot communicate the terms of this brief report without first thanking you very much for electing me as Representative, or at the same time without pointing out that you have conferred upon me this signal honour for no less than four times, and that under those circumstances of course next year I must hand over the duty and the pleasure to some other member of the Division. I hold very strongly indeed that a highly important representation of this sort should be held by one man for a short period only, and in that way only can we create throughout the Division the interest and activity and the work which the Association requires. At the last meeting of Representatives, which was held in London, a great deal of interesting work was done, and work which must very materially affect the future of the Association. Many questions were discussed which are of vital importance to the Association, although at the meeting in London final conclusions were not arrived at. The first of these questions is that of finance. During the past year, previous to the meeting of Representatives, there was a great deal of correspondence in the British Medical Journal, and a great deal of desultory talk perhaps as to the financial stability of the Association. The Association has a turnover of £50,000 a year. It seems absurd to question for a moment the financial stability of an Association with a turnover of that magnitude. And of course it required but a very little discussion in public meeting to show that the financial stability of the Association is absolutely unimpaired. But at the same time, now that each member of the Association has his right in his Divisional Meeting to take an active share in the work of the Association and of its administration, it is not surprising to find that during the last year there has been a great deal of questioning as to whether the present administration of the Association is the most economical that can be contrived; and, secondly, whether the available funds of the Association—I say available advisedly, because our expenses are enormous—whether the available funds of the Association can be adjusted to the carrying out of the new work which the constitution demands shall be performed by the Association. The Representative Meeting discussed the question of the finance of the Association from this point of view, and they thereupon appointed a Committee of inquiry, consisting of the officers of the Association and a certain number of Representatives, to first investigate the present mode of administration of the Association, the present cost of that administration, and then, as I said just now, the adjustment of the available funds towards the carrying out of the work of the Association throughout its Divisions and Branches. After having made such an inquiry, the same Committee was entrusted with the further duty of reporting in what direction organization could be carried out in order to render the working of the Association as economical as possible. The appointment of a Committee of inquiry of that kind shows that the Representative Meeting has commenced to set our house in order in a thoroughly workmanlike and businesslike way.

The next general question upon which I must report is one which will come up again this evening, and therefore I need only say a few words upon it. It is in regard to the action of the Representative Meeting in respect of the election of candidates to the General Medical Council. It was felt—and nowhere more strongly than in this Division—that for a long time the direct representation of the profession on the General Medical Council has not been satisfactory, and that the voices of the present Representatives failed to make themselves adequately felt in the Council. At the meeting of Representatives at Leicester last year a very distinct programme was adopted for putting before the profession a list of chosen candidates. That programme included a frank statement that candidates would be expected to support such measures as had been declared in public debate by the Association to be useful for the profession. At the Representative Meeting exception was taken to the exacting of what was called a pledge from the candidates. To those of us who have had the experience of the last decade of the internal working of the General Medical Council and who know what the actual position of the Representatives of the Corporate Bodies is in that Council itself, as I have said in public before, it is nothing less than hypocrisy to suggest that what was called a pledge among the provisions of the Leicester meeting, is anything more than what is understood directly or indirectly by the Representatives of the Corporate Bodies. However, they are not asked to subscribe to anything in writing, and it is the old story that what is written remains. On that ground objection was taken to the whole scheme, and, therefore, the Representative Meeting decided by vote not to take part as such in this election. The field, therefore, at the present moment is regarded as entirely open as regards the British Medical Association officially.

The next great question of domestic interest in the Association is the Charter. One or two Divisions expressed surprise, in resolutions of a general kind, that the Association was moving to obtain a Charter. I think those Divisions have forgotten what has transpired during the last three years, namely, that a new constitution having aroused throughout the whole profession a fresh interest in the internal economy of the profession, the Association has found that, existing as it did under the Companies Act, its constitution was not adequate for the purposes of the Association, and that therefore some change had to be effected. Without going into any detail, it is of course

well understood now that that could only be arrived at by means of a Charter. The need for such a Charter is urgent if we are to not only develop our work, but to carry it on as we are now instructed under the new constitution. Because on two points alone, namely, the question of helping each other by benevolence and by what is called defence work, on those two points alone a Charter is absolutely necessary; and let me repeat that not only do we need a Charter in order to develop the work, but also to carry on legally and satisfactorily what we are actually doing. May I say that we are doing and have done in the Association a great deal of defence work of a general kind for which we have had no really strictly legal position, no legal authorization to spend the money of the Association; and we have been advised that unless someone took formal objection in the courts to oppose our doing that work, we might go on without fear of interruption, although not legally entitled to such liberty of action. That, of course, is not a satisfactory state of things for an Association like this. Thus the necessity for a Charter is obvious. Next, the Representative Meeting had before it this position—that the Executive Council of the Association had earlier in the year passed a resolution suggesting that there should be more delay in the application for a Charter. Now undoubtedly that resolution was brought forward at the Central Council by those who thought we were going too fast—those who thought it was advisable to put the brake on, or, as one of them actually said, to put the hands of the clock back. Whatever may have been the object of bringing forward that resolution, it was accepted by the Council and so reported to the Representative Meeting. The Representative Meeting, however, took it in rather a different sense, and though agreeing that there should be further delay in proceeding with the application for a Charter, they ordered the Organization Committee to redraft the Charter and to bring it before the Divisions early in next year, and at a special meeting of Representatives. They also at the same time furnished the Organization Committee with instructions which carry the changes in the constitution of the Association somewhat further than had existed in the draft Charter. Thus, for instance, I should point out to the Division that the draft Charter will come before them early in the year, when they will note that changes are proposed to be made in the Central Council so that the Central Council can be made more truly an executive body and will be a more workable body. Instead of being a body of sixty-four members, costing something like a thousand a year, its numbers will be reduced, that is to say, to about two-thirds, and thereby not only a more economical administration of the work of the Association will be obtained, but at the same time a much easier administration. I particularly mention that point, namely, the proposed alteration in the Central Executive Council, because it seems to me the most important amongst those suggested alterations which the Representatives passed in their meeting in July relative to the Charter. Thus, the draft Charter, as revised, corrected, and brought into order by the Organization Committee, will be referred to us early in 1907, and also later to a special meeting of the Representatives. So much for the Charter, and so much, I think, for special reference to the business of the Representative Meeting as far as it bears on the domestic affairs of the Association.

Now we come to the work of the Representative Meeting in relation to public affairs. You have referred, Sir, to the economical questions which affect this Division, most particularly in regard to the administration of public medical charity. This Division is, probably, in its *personnel*, not specially interested in the great economic question which affects a large part of the Association, namely, the details of contract practice, and the all-important bearing which contract practice has upon the wage-earning power of the general practitioner. But it will hear with interest that at the Representative Meeting reports were received from Branches as well as from our Central Medico-Political Committee, to show that the Association during the past year by means of its organization has been extraordinarily successful in supporting the profession against the (very natural) attempts on the part of the public to encroach on its wage-earning capacity. In other words, the Association now, by its new constitution, is for the first time really supporting the general practitioner to obtain an adequate wage for his services through public appointments. And as regards the first question of contract practice, may I point out that in the Minutes of the Representative Meeting you will find that the meeting, speaking now in the name of the whole Association, has been able to formulate ideal rules and constitutions for public medical services and for provident dispensaries, which have received the support of the whole Association, and therefore we may practically say of the profession. These rules embody this great principle, that the medical profession is to have a paramount representation in the administration of contract service. May I point out to this Division that the time is now immediately at hand when, as you say, Sir, we, representing chiefly the consultant branch of the profession, shall have to speak to the public on this subject in behalf of the general practitioner throughout the whole kingdom? There are two great disputes going on at the present time between the profession and the public on commercial lines. I need only refer to one of them, the well-known Ebbw Vale dispute, which affects a population of something like 20,000 persons. During this winter the members of the Association will have to assist more particularly five of our colleagues who are having their livelihood taken away from them, and we shall have to support them, I think, in this Division, materially as well as morally. And may I add, for the information of those who perhaps are not familiar with the facts of the Ebbw Vale dispute, that it amounts to this: that the difference of opinion between the miners and the medical men whom they have employed so far ought last summer to have been submitted to arbitration? The Association was willing to enter into the arbitration, and everything had been so settled, but the Miners' Committee, who are now rather losing credit themselves as not representing the miners' views, withdrew from this arbitration at the last moment, and thus our colleagues are thrown on the world this week, and it will be for the Association to support them. This, I suppose, means a struggle of five or six months, when it may be hoped that the ordinary adjustment of the matter by arbitration will be effected. But this shows you that we are now at once, by reason of the reorganization of the Association, brought face to face with responsibilities which I think the profession did not feel ten years ago. It would not have occurred to many of us in London to take an active interest in what was happening to the wage-earning capacity of our friends in South Wales. And, just to give you an example also of what the new constitution has done on this one point, there is also a small dispute going on now in Durham. The Association had issued warning notices so as to localize the dispute to the very spot and to prevent blacklegs being brought in to counteract the position of our colleagues who held the appointments before. The medical management of this dispute is entirely in the hands of the Association, and the local Secretary informed me that the miners' agents had issued advertisements in a Manchester paper and in a Nottingham paper, upon which members of the profession in Manchester and Nottingham had, of their own motion, immediately paid for and issued counter advertisements in these particular papers. They had no relationship with or responsibility towards Durham, but they saw that their colleagues in Durham were being attacked, and they, of their own motion, without the least suggestion, came forward to help them. [Applause.] That is a thing which no one would have dreamt of ten years ago. These disputes which so seriously affect the lives and well-being of our colleagues may not immediately concern the *personnel* of this Division, but this Division will have, this winter, to take the question up in order to support our brethren in the country at a distance.

May I also point out that on this question of contract practice, the Representative Meeting have taken what I must characterize as a statesmanlike attitude, namely, that the terms of practice being so entirely different in different parts of the country, even in different parts of this city, no one Division can dictate to another precisely what should be the organization or terms of organization, and therefore the Representative Meeting decided by special resolution that each Division was to have autonomic action in the application of the ideal rules regulating contract practice.

With that we can pass on to the next public question—

namely, the action of the Association in regard to the Education Department. The Association, of course, three years ago, supported a petition in regard to the teaching of hygiene and temperance, and that was the first direct occasion on which the reconstituted Association came into contact with the Education Department. As is well known, the Education Department has paid, from that moment, a great deal of attention to what the Association asks for. It is, therefore, not surprising that, under the present Government, the Educational Department on the recent occasion of a deputation from the Association in co-operation with other bodies consented to the formation of a medical bureau, that is to say, the Department is to have its own medical officer and medical organization, so that the Education Minister shall no longer be advised indirectly or in a haphazard way, but by a proper medical department. Moreover, the further request of the deputation, that the medical inspection of the children in elementary schools should be compulsorily instituted, was ultimately accepted. Thus the Association on these two important points—namely, medical organization and the Education Department and the medical inspection of school children—has secured a great step forward in national health, which will be a great source of congratulation to the members of the Association who wish to see it take its proper place in the conduct of public business.

And may I say, Sir, that this Division here again, although it may not be immediately interested in its membership on the question, Who is to carry out this medical inspection of school children? it will have to take its share in determining the principles and the detail of such working during the current winter, because Mr. Birrell, in his reply to our deputation, recognized that the Association now, under its new constitution, represents the medical profession all over the kingdom, and he specifically asked the deputation to see that the Divisions should help the Education Department to draw up the rules and principles by which such inspection is to be guided.

The next public matter that the Representative Meeting decided upon in the name of the Association was the amendment of the Lunacy Laws. As is well known, for a great many years the Association has approached the Lord Chancellor and other departments of the Government in respect to amendments to Lunacy Laws, but without much success. It seems now that better times are coming in this respect, and that its views on the better treatment of borderland cases, and the proper attitude of responsibility of the profession towards such cases, which were finally settled by the Representative Meeting, and contained in their Minutes, are now favoured by those in authority. And in relation to the same subject also the details of proposed legislation for the restraint of persons who are the victims of drug habits and the inebriate states have been agreed upon. Those two subjects, therefore, I think may be regarded as settled as far as the minds of the members of the Association are concerned, and, as I said before, the attitude of Government departments now is becoming much more favourable to the wishes of the Association.

I must now point out that during the past year, acting on the instruction of the last meeting of Representatives, the Association took a new step in public affairs altogether. It had been felt that whenever we approached a Government department we were never listened to with interest, and found that it was because no Government department thought for a moment that the medical profession had any political influence in the country. People may have very different ideas as to what they mean by political influence, but what the Medico-Political Committee thought was this, that political influence, as far as we were concerned, meant that we had not sufficiently instructed the members of Parliament as to the reforms which the medical profession desire to be carried out—for instance, on Public Health, security of tenure of office, and so forth. The profession not being organized, had never been to the individual members of Parliament. A new policy, therefore, was entered upon: the Medico-Political Committee, in obedience to the instructions of the Representative Meeting in Leicester, drafted a series of questions which it propounded through the Divisions to something like 150 of the candidates for Parliament at the election. The effect of these questions really has been most interesting, because the members so interviewed or catechized have reported to their party agents, and these, in return, doubtless to the heads of offices. The result is that, on three separate occasions during this year, we have been informed by Government Departments that the Association is a power in the State. They have recognized it, and they are quite ready to listen to what we have to say as representing an important profession. It is quite curious to hear these things acknowledged officially when one remembers the coldness and the hostility of only three or four years ago. It is obvious that if the Government recognizes the position of the medical profession now in a truer light than before, it is by virtue of the work of the Association under its new constitution and through the instructions given by the Representative Meeting, and I need hardly say that when I resign at the end of my term of office this year it will be with great pain at leaving the discussions of a body which conducts business in a more practical way than any I have had the honour to serve on before. [Much applause.]

Dr. Lauriston Shaw proposed a hearty vote of thanks to Sir Victor Horsley for his interesting report, and also for the very able manner in which he had represented the Marylebone Division at the meeting. This was carried unanimously, and Sir Victor Horsley briefly acknowledged the compliment.

The Wandsworth Circular.—Dr. Llewellyn Williams's letter concerning the candidates for the General Medical Council was considered.—Mr. Armour proposed, Sir Victor Horsley seconded, and it was carried:

That no scheme of representation not based on territorial arrangement be considered by this meeting.

General Medical Council Election.—Mr. Andrew Clark expressed his willingness to withdraw from the candidature for the General Medical Council in view of the fact that there seemed such a widespread feeling in the profession that more general practitioners should be members of that Council, and under the circumstances he should be most happy to support the candidature of Dr. McManus.—Mr. Ryall proposed, Sir Victor Horsley seconded, and it was carried:

That Dr. McManus be supported by this Division.

—Sir Victor Horsley proposed, Mr. Armour seconded, and it was carried:

That Dr. Langley Browne and Mr. Rutherford Morison be supported by the Division.

Candidates to be Supported by the Division.—Sir Victor Horsley proposed, the Medical Honorary Secretary seconded, and it was carried:

That at the proper time the resolutions supporting Dr. McManus, Dr. Langley Browne, and Mr. Rutherford Morison should be communicated to every member of the Division.

Hampstead Division.

A meeting of this Division was held on Friday, October 12th, at 5 p.m., at St. Peter's Hall, Belsize Square, N.W., Dr. Macevoy in the chair.

Minutes.—The minutes of the previous meeting were taken as read.

Letters.—A letter was received from Mr. Humphreys, presenting to the Division Palgrave's *Chairman's Handbook*, which was accepted with thanks. Letters were also received from Dr. Anderson, Dr. Pidcock, and Mr. Armit, regretting inability to be present. A suggestion of Dr. Anderson that steps should be taken to prevent Divisional meetings clashing with meetings of Central Council and Ethical Committee was referred to the Committee to deal with.

Questions.—Mr. Humphreys asked whether any appreciable effect on the number of members of the Division had resulted from the general professional meeting on May 5th. The Hon. Secretary stated that he had sent a printed form of appeal and an application form to the twenty medical men present on May 5th who were not members of the Association. Of these four had since become members. Mr. Stewart suggested that membership might be increased by dividing the area of the Division into half a dozen sections, and getting some member to canvass in each section. The Honorary Secretary said that such a scheme had been drawn up by Mr. Armit, but the men asked to canvass had declined to

do so. Mr. Nelson Hardy thought that if literature of local interest (such as the reports in the Supplement on the Hampstead Hospital) were sent round to non-members more men would join. Eventually Mr. Humphreys proposed:

> That the Committee be directed to consider what steps should be taken to increase the membership of the Division, and to enlist the interest and sympathy of local medical men.

This was seconded by Mr. Nelson Hardy, and carried.

Chairman's Address.—Dr. Macevoy then read his address for the opening session (1906-7). It was essentially a plea for tolerance and for respect of the liberty of the individual practitioner. There was in these days in the Association a tendency towards coercion which was most undesirable. He gave examples of resolutions passed by this Division and by others in which he thought an intolerant spirit was shown—for example, with regard to contract practice, consultants, provident dispensaries, fees, etc. It was unjustifiable to dictate to medical men provident dispensary rules with which they might not agree and to attempt to force their views on others. He thought the work of the Association should be limited mainly to social and ethical work. He protested against the suggestion that all doctors were equal, and considered that they had no right to dictate to any medical man what fees he should or should not take, or what operations he might or might not perform. With regard to contract practice, it was essential that all resolutions should be criticized by men familiar with the subject in all its practical workings. The scanty attendances at Divisional meetings often resulted in the passing of unpractical resolutions. The interests of those medical men who were absent, whether members or non-members, should be carefully considered. What they wanted was a general representation, and they must beware of intolerant minorities. They must beware lest they sap the independence and crush the individuality of their members.

Vote of Thanks.—Dr. Glover, in moving a vote of thanks to Dr. Macevoy for his most admirable and salutary address, entirely agreed with what he had said. He deplored a tendency in the Association towards the worst kind of trades unionism.—The vote of thanks having been seconded by Dr. Macdonald Brown, Mr. Humphreys said that while approving of much that the Chairman had said, he thought that there must be a limit to liberty which might, if carried too far, become anarchy. No man could be allowed liberty to cut his neighbour's throat.—Mr. Nelson Hardy drew attention to the collective point of view. They joined the Association because they recognized that they could do collectively what they could not do as individuals. The vote of thanks to Dr. Macevoy was then carried unanimously.

Annual Representative Meeting.—In the absence of Mr. Armit on the Central Ethical Committee, his report was read by Dr. Yeld.—Mr. Humphreys then proposed:

> That the report be accepted, and that a vote of thanks be conveyed to Mr. Armit, with congratulations on the way in which he has carried out his work.

This was seconded by Mr. Nelson Hardy, and carried unanimously.

Hospital Sunday Fund.—Mr. Nelson Hardy explained the action taken by the Branch up to date in this matter.—Mr. Stewart proposed:

> That this Division approves of the action taken by the Metropolitan Counties Branch with regard to the Hospital Sunday Fund.

This was seconded by Dr. Yeld, and carried.

Divisional Library.—Mr. Cunnington explained that the Central Library had agreed to accept on loan the nucleus of a medical library. This, though nominally open to the general public, would be under separate catalogue, and practically only available for medical men. The books could be stamped on the cover as the property of the Association. He invited members to help by sending volumes of interest to the Honorary Secretary.—Mr. Stewart suggested that notice of the library should be given in the agenda with an appeal to members for help.

Annual Dinner.—The date was left to the Chairman and Secretary to fix, and notice to be inserted in the agenda of the next meeting.

Tottenham Division.

A well attended meeting was held at the rooms of the Hornsey Conservative Association, Finsbury Park, on Wednesday, October 17th; Dr. Leonard Grant presided.

Lecture.—A most interesting lecture was given by Mr. Lowe on Recent Developments in Treatment of Surgical Tuberculosis. A vote of thanks was passed to the lecturer for his most instructive paper.

General Medical Committee Election.

The meeting then dissolved and another consisting of practitioners of the Division held, Dr. Cambridge in the chair, when three gentlemen from the list of candidates for the General Medical Council were selected as the best representatives of the profession.

BIRMINGHAM BRANCH.

The first ordinary meeting of the session was held on Thursday, October 18th, the President (Dr. Wyer) being in the chair.

Election of Direct Representative on General Medical Council.—The following resolution was carried *nem. con.*:

> That this meeting of the Birmingham Branch cordially approves of the candidature of Dr. Langley Browne for the position of Direct Representative of the profession on the General Medical Council, and trusts that all the members will give him their support.

EDINBURGH BRANCH:

South-Eastern Counties Division.

Annual Dinner.—The annual dinner was held in the King's Arms Hotel, Melrose, on the evening of Tuesday, October 16th, at 7.30 o'clock, Dr. Young (Earlston), Chairman, and Dr. Bannerman (Hawick), Croupier. Of the ordinary members there were present: Dr. Carlyle Johnstone, Dr. Fleming, Dr. Muir, Dr. Macdonald, Lieutenant-Colonel I.M.S. (ret.), Dr. Hamilton, Dr. Cullen, and Dr. Calvert. There were present as guests: The Rev. R. J. Thompson, Minister of the Parish of Melrose; Mr. J. E. Hamilton, Head Master of St. Mary's School, Melrose; and Sheriff Smith, Selkirk. The Chairman gave "The King," which was loyally pledged. The Croupier proposed "The Imperial Forces," to which Lieutenant-Colonel Macdonald, I.M.S. (ret.), replied. Dr. Carlyle Johnstone gave the toast of "The British Medical Association" in eloquent terms, and Dr. Hamilton, in his speech in reply, dealt specially with hospital reform, having served for some years on the Committee dealing with the subject. Sheriff Smith in an able speech proposed "The Clergy," aptly and wittily replied to by the Rev. Mr. Thompson. Dr. Muir gave the toast of "*Floreat Res Medica*," in a way which roused enthusiasm. Dr. Fleming's remarks in proposing "The Borderland" were much enjoyed, and Dr. Cullen was most racy in proposing "The Division," to which the Chairman replied. "The Guests" was given from the Chair in a few felicitous remarks, and Mr. Hamilton made a very neat reply. The evening concluded when Dr. Johnstone had given the Chairman's health, which was enthusiastically pledged. Several songs were sung, and Dr. Muir gave much enjoyment by three recitations, all rendered in a charming manner. All agreed that the dinner was in every way successful, and expressed the desire that it be continued annually.

SOUTH-EASTERN BRANCH:

Canterbury and Faversham Division.

One of the most unique and interesting meetings of this Division was held at Whitstable on Thursday, October 4th.

Oyster Luncheon.—Dr. Hayward kindly entertained the members, amongst whom were some from the Dover, Thanet, and Ashford Divisions, to an oyster lunch at the Bear and Key Hotel. At its conclusion, the Honorary Secretary, in proposing the health of "The Chairman," drew attention to the increasing interest taken by the members of the Division in the work of the Association, as shown by the continued good attendances at the meetings, which was partly due to the varied attractions offered—clinical, medico-political, and social—and to a large extent to the hospitality and energy of the Chairmen of the meetings.

Visit to Whitstable Oyster Beds.—Through the kind offices of Dr. Hayward (Chairman of the meeting) the Whitstable Oyster Fishery Company placed one of their trawlers at the disposal of the members, and the directors accompanied them out over the oyster beds and demonstrated the process of oyster-dredging. Ample opportunity was given all on board to sample the different varieties as they were brought up from the beds—the customary stout and brown bread and butter was also kindly supplied. On the return to the Whitstable Company's premises the process of sorting and packing the different sizes of Whitstable oysters was shown. It appears that, all being of the same quality, size regulates the price. The experts explained that the oyster is more prolific on the Essex coast but improves on being transferred to the Whitstable beds. The oyster on attaining a separate existence goes through several stages, and between the sixth and seventh year has reached perfection for the epicure.

Annual Representative Meeting.—The meeting was commenced on the way out—Dr. Hayward presiding—by Dr. Gosse reading his report of the proceedings at the Annual Representative Meeting in London last July. The meeting was resumed at Dr. Hayward's house.

Confirmation of Minutes.—The minutes of the previous meeting were confirmed.

Next Meeting.—It was agreed that the next meeting be held in December at Faversham, and that Dr. Evers be the chairman.

General Medical Council Election.—A letter was read from Dr. Fothergill of Wandsworth with reference to the candidature of Drs. Langley Browne, MacManus, and Jackson as Direct Representatives on the General Medical Council. A resolution was passed that they were suitable candidates.

Hospital Management.—The proposals of the Hospitals Committee of the British Medical Association were gone into and discussed fully (excepting nursing homes and dispensaries). Dr. Whitehead Reid gave a full explanation of the methods adopted at the Kent and Canterbury Hospital, and reported that a subcommittee had been appointed (of which he was a member) to consider these and other proposals, and to report as soon as possible to the Board of Governors. Dr. Alexander explained in detail the principles of hospital management at the Faversham Cottage Hospital, and, so far as that institution was concerned, it was generally agreed that there was little if any abuse of this charity. As regards the suggested model principles of hospital management, all of them were agreed to, and Nos. II and XIII were specially approved. Dr. M. T. Williams spoke with reference to the out-patient department of the Canterbury Hospital. The Honorary Secretary was directed to write to the Secretary of the Kent and Canterbury Hospital to forward the following resolution, which was unanimously passed:

> That the medical men practising in the Canterbury and Faversham Division of the South-Eastern Branch of the British Medical Association heartily approve the suggested model principles of hospital management, and earnestly hope the Board of Management of the Kent and Canterbury Hospital will give them their serious consideration with a view to their adoption.

Votes of Thanks.—Votes of thanks were passed to the Chairman and Drs. Reid and Alexander for their addresses, to the Whitstable Oyster Fishery Company, and to Dr. Gosse for his report.

Apologies for Non-attendance.—Letters of regret were read from Drs. Noble, Street, and B. Rigden.

Tea.—Tea was provided by Dr. Hayward at his house.

SOUTH WALES AND MONMOUTHSHIRE BRANCH:

Cardiff Division.

An ordinary general meeting of the Cardiff Division was held in the rooms of the Cardiff Medical Society on Thursday, October 18th, Dr. D. R. Paterson in the chair.

Confirmation of Minutes.—The minutes of the last general meeting were read and confirmed.

Chairman's Address.—Dr. Paterson, the Chairman, briefly addressed the meeting on the subject of hospital reform in connexion with medical charities. Dr. Paterson also made reference to the great loss the Division had sustained by the lamented death of Dr. Stewart of Bridgend, and it was unanimously resolved that a vote of condolence be accorded to the widow and relatives.

Appointment of Police Surgeons in Cardiff.—A letter from the Medico-Political Committee in reference to these appointments was read, and it was finally resolved:

> That in the opinion of the Cardiff Division of the British Medical Association the conditions of tenure of office for one year attached to the advertised vacancies for police surgeons by the Cardiff Watch Committee are detrimental to the interests of the police force, the medical profession, and the public.

Election of Direct Representatives to the General Medical Council.—Dr. H. A. Latimer of Swansea, one of the candidates at the forthcoming election, addressed the meeting on this subject, and made reference to the scheme proposed by the Chairman of the Wandsworth Division. —Dr. Latimer was cordially thanked for attending and giving his address, and it was unanimously resolved:

> That this meeting of medical practitioners of the Cardiff district heartily approves of the candidature of Dr. H. A. Latimer for election as one of the Direct Representatives to the General Medical Council, and promises to support him by all the means in its power.

Lantern Demonstration.—Mr. Evelyn J. Evatt gave a lantern demonstration on the development of the epidermic ridges and the evolution of the "patterns." This was received with marked interest, and a hearty vote of thanks was accorded to Mr. Evatt.

Annual Representative Meeting.—Dr. Ewen J. Maclean presented his report on the Annual Representative Meeting, and dealt with several important items on the agenda of that meeting, making special reference to the discussions on the proposed draft application for a Royal Charter, and also on contract practice work, illustrating this by the present dispute at Ebbw Vale.

YORKSHIRE BRANCH:

Bradford Division.

The opening meeting of the Division for the session was held at the Eye and Ear Hospital, Bradford, on Tuesday, October 9th, at 8.30 p.m. Mr. J. Basil Hall (Chairman) presided.

Confirmation of Minutes.—Dr. Metcalfe read the minutes of the last meeting of the Division, which were adopted.

The late Dr. J. H. Bell.—Dr. Rabagliati in a few touching words reminded the meeting of some of Dr. Bell's characteristics. He said that they must all feel that Dr. Bell never did anything unkindly or ungentlemanly. He was a man of many parts, but his name would always live in medicine through his investigations into the origin of woolsorters' disease and its connexion with the *Bacillus anthracis*. Dr. Bell always kept abreast of the times in scientific knowledge, and only recently he had been discussing the opsonic theory and the possible influence of opsonic methods on the future of medicine. Dr. Rabagliati concluded by moving that a vote of condolence and sympathy should be sent to Mrs. Bell and family. Dr. Goyder seconded, and it was adopted by the members standing in their places.

Chairman's Address.—The Chairman then gave an address on Self-restraint in Surgery, which will be published. Mr. Horrocks moved a vote of thanks to Mr. Hall for his excellent address. He agreed with Mr. Hall that there was too much eagerness on the part of the public for operations. They appeared to lack patience for the slower methods of treatment. In this way the better judgement of the surgeon was sometimes overborne. Mr. Mossop seconded, and hoped they would have similar addresses in the future. The vote was carried unanimously.

Dinner.—The question as to the advisability of having a dinner on the occasion of a visit of the Editor of the British Medical Journal to Bradford was considered. Dr. Goyder proposed, and Dr. Mitchell seconded, that this should take place. This was carried *nem. con.* It was agreed that the address should take place at seven and the dinner at eight, and that the Dinner Committee should consist of the Chairman and Secretaries and Dr. Bronner.

LANCASHIRE AND CHESHIRE BRANCH:

Liverpool Southern Division.

An ordinary meeting of the Division was held on October 22nd at the Medical Institution, Dr. Westby in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Annual Representative Meeting.—Dr. Westby then read his report of the work done at the Annual Representative Meeting, at which he represented this Division. A vote of thanks to Dr. Westby was passed unanimously for the great amount of time and trouble he has expended at the meeting, and also in drawing up his report.

Proposed Combination of Divisions.—Dr. Logan said that in his opinion the Association should pass a law allowing Divisions which were closely associated geographically to be combined, and that a representative of such combined Divisions should have proportionately increased voting power. This would tend to reduce the present unwieldy proportions of the Representative Meetings and increase the size of the Divisional meetings.

Payment of Representatives.—It was proposed and carried:

> That this Division is of opinion that the expenses of the Representatives at the Representative Meeting, to the amount of £1 1s. per day, reckoning from the day before the meeting and inclusive of the last day, should be defrayed out of the funds of the Branch.

It was also proposed and carried:

> That a copy of the above resolution be sent to the Secretary of the Lancashire and Cheshire Branch, with a request to bring the matter up at the next meeting of the Branch Council, and also that the Representative of the Division on the Branch Council be instructed to support the same.

Bradford Ethical Rules.—The adoption of the Bradford Ethical Rules was considered, but it was decided to postpone the matter.

General Medical Council.—A communication from the Wandsworth Division regarding the election of Direct Representatives on the General Medical Council was read.

Hospital Reform.—A communication from the Medical Secretary regarding the work of the Hospital Reform Inquiry by the Association was read.

MIDLAND BRANCH:

Boston and Spalding Division.

An ordinary meeting was held on October 9th at the Red Lion Hotel, Boston, at 3.30 p.m., Dr. Miller in the chair.

Paper.—Dr. T. J. Walker, of Peterborough, read a paper on a case of acute intestinal obstruction by Meckel's diverticulum, in which the diverticulum had tied a true knot round the small intestine. An animated discussion followed the conclusion of the paper, in which most of the members present took part.

Proposed Union of Divisions.—The question "Shall the Boston and Spalding Division be united with the Stamford and Lincoln Divisions to form one Division?" was answered with a unanimous and emphatic *No.*

(Dr. Walker had tea with the members in the hotel afterwards.)

CAPE OF GOOD HOPE (EASTERN PROVINCE) BRANCH:

Grahamstown Division.

Clinical Evening.

A clinical meeting of this Division was held on September 21st at the Albany General Hospital at Grahamstown, Dr. J. Bruce-Bays in the chair.

Confirmation of Minutes.—The minutes of the meeting of July 13th were read and confirmed.

Ethical Committee.—Arising out of the minutes, it was resolved:

> That the Executive Committee of the Division be the Ethical Committee of the Division.

Also:

> That Drs. J. B. Greathead, G. E. FitzGerald, and E. G. Dru Drury be appointed as a Medico-Political Committee.

Cases and Specimens.—The following cases and specimens were then shown:—Dr. Jones Phillipson: A boy with xerodermia of four months' duration improving under arsenical treatment.—Dr. Bruce-Bays: A Dutchman with obstinate epigastric pain—for diagnosis.—Dr. Jones-Phillipson read notes of 3 cases of local anaesthesia produced by Barker's method, 2 for circumcision, and 1 for removal of growth.—Dr. Greathead showed two specimens of large ovarian multilocular cysts removed by operation, one weighing 12½ lb. apart from 13 pints of fluid, and the other 5 lb. apart from 10½ pints of fluid; also a section of a fibro adenoma of the breast cut by Mr. Robertson.—Dr. Purvis showed the following sections: (*a*) Encephaloid cancer of the pancreas; (*b*) epithelioma invading muscle; (*c*) cholesterin crystals from a cyst of the antrum of Highmore; (*d*) a blood clot from the bladder containing amyloid bodies, which gave a blue reaction with iodine.

Bloemfontein Congress.—The business of the Bloemfontein Congress was then briefly dealt with in two short resolutions.

SYDNEY AND NEW SOUTH WALES BRANCH.

The regular monthly meeting of the Branch was held on Friday, August 31st, Dr. Newmarch (Vice-President) in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Apologies for Non-attendance.—Apologies were received from Drs. Pockley, Clarence Read, and Hinder.

New Members.—The Chairman announced the election of the following gentlemen as members: Dr. J. S. Le Fevre, Burrowa; Dr. J. Solomon Harris, Darlinghurst; Dr. Lionel Robertson; and the nomination of Dr. E. A. Bligh, R.A.M.C.; Dr. E. W. Moncrieff, Wagga Wagga; Dr. Murray M. Vernon, Tingha; Dr. A. G. V. Elder, Strathfield; Dr. H. H. Bullmore, Woollahra; Dr. N. R. Howse, Orange.

Postponement of Communications.—The Chairman stated that Drs. Hinder, Maitland, and W. J. Munro desired to postpone their cases.

Demonstration.—Dr. Alfred W. Campbell gave a demonstration, illustrated by a series of lantern slides, drawings, photographs, and casts, of his histological studies on the localization of cerebral functions. Drs. Flashman and Camac Wilkinson made remarks on the demonstration. Dr. Campbell replied.

Proposed Alteration of Articles.—Dr. Crago proposed and Dr. Quaife seconded the following resolution:

> That Article 39 be altered as follows:
>
> After the words (line 14) "the above offices and of" insert the words "the first two of."
>
> Omit (line 18) "at or before the Annual Meeting, who shall deliver the same to the Chairman at the Annual Meeting."
>
> Insert after "Honorary Secretary" (line 13) "not less than twenty-four hours before the time fixed for the Annual Meeting."
>
> Article 41.
>
> Omit the whole of Article 41 and insert:
>
> "At a convenient time before the date fixed for the Annual Meeting the President, or at his request the Council, shall appoint two or more members of the Association to be scrutineers, who shall, not more than twenty-four hours before the time fixed for the Annual Meeting, receive from the Honorary Secretary the ballot papers returned to him and shall compute the votes given therein, and after the commencement of the Annual Meeting (in writing, signed by each one of them) report to the Chairman the number of votes given in favour of each candidate, and the Chairman shall declare to the meeting the result of the election.
>
> Article 33.
>
> Omit all the words after "members thereof" in line 2.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.

Contract Practice Committee.

The following circular was issued to all members of the Branch on October 20th:

Dear Sir,—In March last we had the honour to address to you, as to other members of the South Wales Branch, an appeal for subscriptions to the Fund which the Branch Council has inaugurated for the purpose of maintaining the interests of the profession in the Branch area in respect of colliery appointments and other forms of contract practice.

Since the issue of that appeal, events have occurred in connexion with the Ebbw Vale dispute which have at the same time demonstrated the necessity for the existence of such a Fund, and have made it necessary to appeal for fuller support than has up to the present been accorded.

The stages of the Ebbw Vale dispute have been reported from time to time with some fullness in the columns of the British Medical Journal, but at this juncture it appears desirable to place before the members of the Branch a statement of the issues involved and of the principle events which have culminated in the present position.

Briefly, the system of provision for medical assistance which has prevailed among the employés of the Ebbw Vale Coal, Steel, and Iron Company since July, 1902, has been that of management by a Committee of the employés, to whom the entire poundage deducted at the works is paid, and who employ a staff of medical officers at fixed salaries, the balance of the members' payments being expended at the discretion of the Committee.

Your Council has repeatedly expressed its opinion that schemes of this character are not, in the long run, conducive to the interests either of workers or of their medical officers, and as regards the workers, there is reason to believe that this opinion is shared by some of the leaders of the miners of South Wales.

For these reasons your Council has determined to oppose the formation of any new schemes of the kind. For the present, however, it has not been thought well for the Branch Council to interfere with schemes which are already in existence, except in those cases in which there should be an application from those directly concerned for support in the institution of reform.

In the early part of 1905 the attention of your Council and of the British Medical Association was directed to the oppressive treatment of the medical officers by the Committee of Management of the Ebbw Vale Fund, the rights of private practice originally granted to the medical officers were being interfered with by the Committee without offer of compensation, the staff was gradually being reduced and additional work thereby thrown upon the remaining members without any corresponding increase of remuneration, and in matters of detail also the treatment of the medical staff by the Committee showed the unfitness of that body to manage a medical service.

As a result of the intervention of the British Medical Association, negotiations were opened by the Managing Committee. These were of a protracted character, but resulted in January last in the acceptance by both sides of the principle of arbitration, and Mr. T. Richards, M.P., was accepted as arbitrator on behalf of the Committee, and the Medical Secretary of the British Medical Association as arbitrator on behalf of the Medical Staff. In stating the terms of reference to these gentlemen, however, a difficulty arose, inasmuch as the British Medical Association considered that the terms of reference should be made as wide as possible, whilst the Workmen's Committee desired that they should be restricted to the consideration of certain proposals laid down in writing between the two parties in August and September last. Further, it was found that the Committee of the Fund, while the negotiations were in progress, were filling casual vacancies in their staff with medical men who were not in co-operation with their professional colleagues in South Wales.

After an attempt by the staff to obtain a satisfactory adjustment of the dispute by direct communication with the Committee of the Fund, these members of the staff (five in number) who, having remained loyal to the British Medical Association, have been dismissed, and their employment terminated on September 30th.

As the action which has resulted in this dismissal was taken under the direction of the Executive Committee of the Monmouthshire Division and the Council of the South Wales Branch acting through its Contract Practice Committee, your Council, when matters reached a critical stage, considered that it was their duty to promise financial support to the staff in the event of their dismissal on account of their loyalty to their professional brethren. This contingency having now occurred, it becomes the duty of your Council to appeal to all members of the Branch for support in the discharge of this obligation.

Such support, however, we are instructed to point out, must not be regarded merely as a matter of assistance to the individual practitioners who have lost their employment. The interests of all colliery surgeons in South Wales and, though less directly yet not less surely, of most private general practitioners and consultants, are involved in securing a successful issue of the struggle with the Ebbw Vale Committee, for if that Committee should succeed in its attempt to carry on its medical service in Ebbw Vale on a system which is entirely disapproved of by the profession throughout the Branch area, and with the help of medical practitioners who have proved themselves entirely disloyal to their professional brethren, it must be expected that in other districts endeavours will be made to take advantage of the weakness of medical organization thus demonstrated. Further, experience proves that any systematic depreciation of a particular class of the profession, spreads to other classes, and colliery surgeons will not be the only class whose incomes will be diminished and the conditions of their work made more onerous in the event of a defeat at Ebbw Vale.

Your Council is convinced that the only way of carrying the contest to a successful issue is by the continuance in the district of the discharged staff who have the confidence and regard of a large number of their patients. There is every reason to believe that the action taken in the name of the miners has been the action of a Committee not truly representative of them. Experience has already shown the difficulty which such a Committee, in the face of the profession, must find in obtaining medical officers who can be trusted for long to give satisfaction to their patients and ultimate employers, namely, the workmen themselves and their families. But time is necessary to bring home to the workmen and their families the truth that their real interests in this matter are bound up in the success not of their Committee, but of their medical officers; and, to secure this time, it is necessary for the dismissed staff to receive all requisite assistance to enable them to hold their position in the district.

For this purpose your Council finds that it must be in a position to meet monthly liabilities, which at present may be estimated at a sum of approximately £170.

There is every reason to believe that the struggle, if backed up in this way, will not last twelve months, but your Council is of opinion that they should have at their command resources which would carry them through for this period if necessary. The sum now in hand will meet the contemplated liabilities for at least three months, and this amount has been subscribed by only one-fifth of those to whom our appeal in March was addressed. Further, experience shows that medical practitioners are more willing to subscribe to meet a known emergency than to meet a mere contingency, and, therefore, your Council has every confidence that the members of the Branch will demonstrate by their support in this matter both their enlightened appreciation of their own interests and their sense of loyalty to the profession.

The membership subscription has been fixed for the present at 5s. per annum, but in addition foundation donations are solicited from members specially interested in contract practice. A contribution of five guineas is suggested as the amount of such donations, which may be paid, if so desired, in instalments over a number of years. Some donations of ten guineas have been received.

To further strengthen the Fund, and to provide against any extraordinary drain on its resources from exceptional circumstances—for example, a protracted dispute in a colliery practice or with the Friendly Societies—members are invited to state how much per week they would be willing to contribute to a "Guarantee Fund," which would be available to meet the contingency. These weekly pay-

ments would be called for only under such exceptional circumstances and *pro rata* as the case might demand.

In conclusion, the Committee appeals to all the members of the Branch to give to the recent developments of contract practice in the Branch area their earnest consideration, and to contribute as liberally as possible to the fund.

Members are asked to fill in the appropriate forms on the accompanying perforated slip, and forward them, with their subscriptions, in the enclosed envelope, to the Hon. Secretary, who will, for the time being, act also as Treasurer to the fund.

We are, yours faithfully,

D. J. Williams, *President*.
Frank G. Thomas, *Hon. Branch Secretary*.
Ewen J. MacLean, *Hon. Secretary and Treasurer*.

12, Park Place, Cardiff.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Bath and Bristol Branch.—The first ordinary meeting of the session will be held at the Medical Library, University College, Bristol, on Wednesday evening, October 31st, at eight o'clock, Dr. D. S. Davies, President. The following communications are expected:—J. Michell Clarke, M.D., and I. Walker Hall, M.D., will show microscopical slides of halteridia (pigeon's blood), *Spirochaeta pallida*, Leishman-Donovan bodies (kala-azar), spirillum of relapsing fever (man and monkey), and trypanosomes (surra), from specimens kindly sent by Mr. F. P. Mackie. J. Michell Clarke, M.D.: Notes on a case of kala-azar. C. A. Morton: The treatment of cases after abdominal operations. T. Carwardine, M.B.: Recent observations bearing upon the position of the motor area in man, and their confirmation by a clinical case (illustrated by lantern slides). P. Watson Williams, M.D.: The operative treatment of dissection of the nasal septum, with special reference to submucous resection.—Newman Neild and W. H. Beaumont, Honorary Secretaries, Clifton.

Border Counties Branch.—A general meeting of the Branch will be held at Penrith on November 2nd. The agenda will include a paper on The Hygiene of Mind by Dr. T. S. Clouston of Edinburgh. Dr. Crerar of Maryport will read some notes on his trip to the Toronto meeting of the Association; and Mr. Norman Maclaren will show some interesting cases of vesical calculi. Details as to time and place will be issued later to each member.—Francis R. Hill, Honorary Secretary, 62, Warwick Road, Carlisle.

Lancashire and Cheshire Branch: Liverpool (Northern) Division.—A meeting of the members of the above Division will be held at the Medical Institution, 114, Mount Pleasant, on Monday, October 29th, at 4 p.m. Agenda: Ethical matters. Report of Annual Representative Meeting by Divisional Representative. Proposed payment of expenses of Representatives at annual meeting. Proposed conference of hospital authorities. *Re* Central Emergency Fund: See Supplement British Medical Journal, August 25th, 1906. Notice of motion by this Division for next Representative Meeting.—A. W. German, Honorary Secretary of the Division.

Metropolitan Counties Branch: City Division.—The first meeting of the session, a clinical meeting, will be held on Thursday, November 1st, at 5 p.m., at St. Bartholomew's Hospital, E.C., when cases will be exhibited and discussed by members of the hospital staff.—E. W. Goodall, Honorary Secretary, Eastern Hospital, Homerton, N.E.

Metropolitan Counties Branch: Lambeth Division.—The next meeting of the Lambeth Division will be held at the Camberwell Infirmary, Brunswick Square, Peckham Road, S.E., on Friday, October 26th, at 3.30 p.m. Agenda: (1) Minutes of the last meeting. (2) Dr. Robert Esler will present his report of the Representative Meeting held in London in July last. (3) Dr. Herbert French, of Guy's Hospital, will give a demonstration on pathological microscopical specimens. (4) Dr. Keats has kindly consented to conduct members round the wards of the infirmary. It is hoped that as many members as possible (with their medical friends) will attend, this being the first meeting of the Session 1906-7.—W. Alexander Atkinson, M.D., Honorary Secretary, Lambeth Division, 216, Camberwell New Road, S.E.

Metropolitan Counties Branch: Tottenham Division.—A meeting will be held at the Hornsey Conservative Association Rooms at 9.15 p.m. on Friday, November 2nd. Subject: Discussion on Hornsey Cottage Hospital, to be opened by Dr. J. R. Fuller.

Metropolitan Counties Branch: Wandsworth Division.—An ordinary meeting will be held at the Wandsworth Town Hall on Friday, October 26th, at 8.15 p.m., when a popular lecture will be given by Ebenezer Howard, Esq., the founder of the Garden City Association, on its aims and objects. Limelight views will be shown. A discussion will follow. Tea and coffee will be provided at 7.30 p.m. The chair will be supported by Sir Henry Kimber, Bart., M.P., the Mayors of Wandsworth, Battersea, and Wimbledon, Reginald Harrison, F.R.C.S., R. O. Moon, M.D., and others. Ladies will be invited, as well as prominent members of the laity.—E. Rowland Fothergill, Honorary Secretary, Torquay House, Southfields, S.W.

North of England Branch: North Northumberland Division.—The next meeting of this Division will be held at the Plough Hotel, Alnwick, on Wednesday, October 31st, at 3.30 p.m. Business: Confirmation of minutes. A general discussion on influenza will be opened by the Chairman, Dr. Alexander James Main. Any other business.—Scott Purves, Honorary Secretary, Alnwick.

North Lancashire and South Westmorland Branch.—A meeting of this Branch will be held at the Railway Hotel, Kendal, on Wednesday, October 31st, at 4.45 p.m., when a paper will be read by Dr. Hough (Ambleside) on Peritonitis, to be followed by a discussion. Dr. Leeming (Kendal) will read short notes on the radical cure of hernia, and show cases.—A. S. Barling, Honorary Secretary, Lancaster.

South-Eastern Branch: Guildford Division.—The autumn meeting of this Division will be held at the Royal Surrey County Hospital on Wednesday, October 31st, at 4.30 p.m. Dr. George Fisher (Shere) will preside. Agenda: (1) Minutes of the Annual Meeting. (2) To consider the proposals of the Hospitals Committee for hospital reform. (3) Dr. D. M. Mitchell will read notes on (*a*) Two Cases of Haematocele: (*b*) a Case of Multiple Intussusceptions. (4) Dr. F. K. Weaver will read notes on Some Cases of Appendicitis of Unusual Interest, and will show a case of disseminated sclerosis, with atypical symptoms. (5) Cases and specimens will be shown by other members. (6) Any other business. Dinner at 6.30 p.m., Lion Hotel, Guildford. Charge 6s., exclusive of wine. The Honorary Secretary will be glad to hear from members who intend to be present, and who are likely to remain to dinner, also from any wishing to show cases or specimens.—E. J. Smyth, Honorary Secretary, "Maythorne," Epsom Road, Guildford.

South-Eastern Branch: Reigate Division.—The annual meeting of the Division will be held at the White Hart Hotel, Reigate, on Tuesday, October 30th, at 4.30 p.m., when the members are particularly requested to meet and welcome the Chairman, Dr. John Walters, J.P., on his return from Canada. Agenda: To elect the officers of the Division for the ensuing year. Dr. John Walters: The Annual Meeting of the Association at Toronto. Dr. E. Bromet: The Meeting of Representatives in London. A discussion on Some Points of Interest to the General Practitioner in Public Health will be opened by Dr. R. Deane Sweeting, of the Local Government Board, Whitehall. Mr. James Berry, Surgeon to the Royal Free Hospital, on Haematuria, from a Practical and Clinical Point of View. Members from Dorking and Horley are particularly asked to attend this important meeting. All members of the South-Eastern Branch are invited to attend and to introduce professional friends. Dinner at 6.30 p.m. Charge 7s. (exclusive of wine). The Honorary Secretary will be glad if members will inform him if they are able to stay to dinner.—W. A. Berridge, Honorary Secretary and Treasurer, 158, Station Road, Redhill.

Southern Branch.—The autumn general meeting will be held at the South-Western Hotel, Southampton, on November 15th, at 3.45, to be followed by a dinner at 6 o'clock. Members who have cases to exhibit, or specimens to show, or papers to read, are requested to communicate with the undersigned as soon as possible.—H. J. Manning, Honorary Secretary, Laverstock House, Salisbury.

Ulster Branch.—A meeting of this Branch will be held at Ballymena on Saturday, November 3rd.—Cecil Shaw, Honorary Secretary.

Yorkshire Branch.—The next meeting of the Branch will be held at the Grand Hotel, Scarborough, on Saturday, October 27th, at 4.15 p.m., when the following business will be transacted and papers read:—Papers and cases—(1) Dr. Churton (Leeds): A Case of Sudden Recovery from Aphasia of Twenty-three Years' Duration in a Man aged 50; with remarks. (2) Mr. W. H. Brown (Leeds): On Some Phases of Hospital Abuse. (3) Mr. Whitehead (Leeds): Traumatic Corneal Ulcers and their Treatment. (4) Dr. Solly (Harrogate), with Dr. Douglas Wilson: A Case for Diagnosis; Myomectomy for Multiple Uterine Myomata. (5) Dr. Trevelyan (Leeds): The Classification of Phthisis in Respect to Prognosis. The Council

will meet at 4 10 p.m. Members and friends will dine at the Grand Hotel at 6.30. As a number of members will be accompanied by their wives, it has been decided to invite ladies to the dinner. Members who intend staying for the dinner or the week-end are requested to communicate with Dr. Salter, 34, Prince of Wales Terrace, Scarborough, or the Manager of the Grand Hotel, as soon as possible, so that the necessary arrangements may be made. Special terms, at the rate of 10s. 6d. per day, including the dinner, have been arranged for. Cheap return tickets can be obtained at Leeds. A number of members will go to Scarborough on Friday evening. There will be golf at Ganton on Saturday morning.—Adolph Bronner, Honorary Secretary, 33, Manor Row, Bradford.

GENERAL MEDICAL COUNCIL ELECTION.

THE POSITION OF THE BRITISH MEDICAL ASSOCIATION.

Offices of the British Medical Association,
429, Strand, W.C.,
October, 1906.

Sir,—My attention has been drawn, as Chairman of Representative Meetings, to a misapprehension which appears to exist as to the proceedings of the Annual Representative Meeting with respect to the selection of candidates for the General Medical Council. I am informed that many Divisions and individual members of the Association are under the impression that the meeting decided that the Association should take no part whatever in the election, and that the finding of the meeting constitutionally debars Divisions from dealing in any way with the matter. It seems well, therefore, to state what was the exact finding of the meeting, which I quote from the minutes:

Minute 70.—Resolved: That in view of the difficulties that have arisen in connexion with the Declaration by Candidates, this meeting declines to nominate candidates for election.

It will be observed that this resolution has to do with nothing but the part which the Representative Meeting itself, pursuant to the scheme adopted by the Oxford Meeting, should have taken in the selection of candidates, and in no way affects the action of Divisions or other parts of the Association. It is merely a declaration that the Meeting itself, having regard to certain conditions, thought it well not to proceed to carry out its own part as previously intended.

I cannot understand how this can be supposed in any way to restrain the action of the Divisions or other bodies of the Association apart from the Representative Meeting, nor as Chairman of that meeting do I consider that such action would be in conflict with the spirit of the resolution.

I am,
Yours faithfully,
J. A. Macdonald,
Chairman of Representative Meetings.

The Editor,
British Medical Journal,
429, Strand, W.C.

ADDRESSES OF CANDIDATES.

Dr. G. H. Broadbent.

G. H. Broadbent, M.R.C.S.Eng., L.R.C.P.I., and L.M. (8, Ardwick Green, Manchester), has issued the following address to the registered medical practitioners of England and Wales:

Ladies and Gentlemen,—In placing my services at the disposal of the profession in the ensuing election for Direct Representatives on the General Medical Council, I may be allowed to say that, in order to show that my efforts in the past have not been confined to a narrow groove, I have been for many years a member of the British Medical Association, and since the Cheltenham meeting a member of its Central Ethical Committee and its Representative on the Contract Practice Subcommittee, 1905-6, that I have attended all the Representative Meetings of the Association on behalf of the North Manchester Division, that I am a member of the Council of the Lancashire and Cheshire Branch, a vice-President and ex-President of the Incorporated Medical Practitioners' Association, and have been a member of the Council of the Medical Guild practically since its foundation some fourteen years ago. All this has given me considerable insight and experience as to the difficulties and trials as well as shortcomings of everyday practice which might prove useful in the General Council of Education and Registration in London.

I have recently expressed my views in the British Medical Journal as to the necessity of lectures being given to senior students on ethics, to supply the deficiency caused by abolishing the apprenticeship system, and of raising the standard of preliminary education before registration, both in arts and science, which I need not repeat now.

I am also in favour of stringent action on the part of the Council in any proved cases of touting for vaccination on the part of Poor-law medical officers or their agents—even in those employed by the Guardians—and I would go so far as to consider whether proved cases of gross underselling should not be considered "infamous conduct in a professional respect," not only as an injustice to their fellow-practitioners, but as lowering the dignity of the profession in the eyes of the public.

The craze for registration now that midwives have secured it is certain to be attempted not only for nurses, but spectacle-makers, herbalists, etc., and will require careful watching during the next five years, and the General Council will require keeping on the alert, not only for the protection of the public, but, if it were possible, that of the profession as well, inasmuch as the President has stated that the Council's resources are not yet exhausted. Abolishing unqualified assistants not only benefited the public but the profession.

It has always been my endeavour, in season and out of season, to secure as far as possible the union and the interests of the profession, and especially by promoting new as well as old combinations of various kinds.

My personal experience of provident dispensaries, and another large provident association, when on the staff of which for a few years I fought for the honour and dignity of the profession in the face of strong opponents, and for many years since leaving them, for a wage limit, is well known in my immediate neighbourhood. All this practical experience, in addition to that gained as a general practitioner for upwards of a quarter of a century, would surely be of use in a council composed mostly of professors and consultants who know nothing of it personally, and would be of assistance in cross-examination of delinquents when brought before it.

If it is possible in a new Medical Act to protect the public from the barefaced assumption of medical titles, especially by companies, and from other means of deceiving it, I need not say that it will have my hearty support.

The experience gained during the three years I have sat on the Central Ethical Committee of the British Medical Association, not one meeting of which have I been absent from, ought to be of some service to me if elected to the General Medical Council.

The reckless distribution of medical services without any regard to wage limit, to the injury of respectable qualified practitioners, should surely be adjudged "infamous conduct in a professional respect" as in any other.

MR. RUTHERFORD MORISON'S CANDIDATURE.

Dr. J. Cromie (Blyth, Northumberland) writes under date October 22nd: If ever man deserved well of his professional brethren that man is Rutherford Morison. He found the profession in Northumberland disorganized, disunited, and underpaid. He put his hand to the plough, and never looked back until he organized us, united us, fought for us, and led us to victory, securing for us—in face of our own apathy, our mutual jealousy, and the bitter hostility of a section of the miners—a reasonable remuneration for our work.

He is a consulting surgeon, and, like the Levites of old, might have passed the whole matter by on the other side. But no! Like the brick he is, being the son of a general practitioner, and no doubt remembering the days spent as such himself, he came over and helped us. And such help! He gave unsparingly of time, though he is a busy man; he gave of his money, though he is not a millionaire; he gave of his counsel and advice, which we always found right; and he gave us his great weight and influence as a consultant, which we found a potent factor, as no one could say he was an interested party.

I am not a little tickled to hear the cry that general practitioners can only be represented by a general practitioner. It is, no doubt, a pretty theory; but, Sir, I prefer an ounce of practice to a pound of theory, and though myself a general practitioner I honestly believe that had it not been for Mr. Morison's tact, courage, and, above all, his commanding position as a consultant, the fight in Northumberland would have ended differently.

When we find a consultant who is willing, and has proved that he is able, to fight our battles as general practitioners for us with those outside the profession, who can gainsay my logic when I argue that he is the man to fight our battles with those inside the profession?

On these grounds I confidently appeal to general practitioners all over England to vote for Rutherford Morison.

DR. McMANUS'S CANDIDATURE.

At a largely attended meeting of the South-West London Medical Society, held on October 10th, 1906, the following resolution was unanimously carried:

That this meeting warmly supports Dr. L. S. McManus's candidature at the forthcoming election of the General Medical Council, and trusts that members of this Society will do all in their power to secure Dr. McManus being elected.

THE WANDSWORTH CIRCULAR.

We have received the following for publication:—

Return General Medical Council Election.

1. Dr. McManus.
2. Dr. Langley Browne.
3. Dr. Latimer.

In issuing the above return the scrutineers desire to point out that the candidature of Dr. Morison was not before the electorate in full.

Hugh R. Ker,
A. G. Bateman,
Hugh Woods,
Scrutineers.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,444 births and 4,419 deaths were registered during the week ending Saturday last, October 20th. The annual rate of mortality in these towns, which had been 17.4, 17.1 and 15.5 per 1,000 in the three preceding weeks, further declined last week to 14.6 per 1,000. The rates in the several towns ranged from 6.5 in King's Norton, 6.6 in Hornsey, 7.1 in Leyton, 7.3 in Wallasey, 8.1 in Smethwick, 8.6 in Reading, 8.7 in Ipswich, 9.0 in Handsworth (Staffs), and 9.1 in Willesden to 19.6 in Birkenhead, 20.3 in Rochdale, 20.5 in Liverpool, 20.6 in Blackburn, 21.7 in St. Helen's, 21.8 in Stockton-on-Tees, 24.0 in Middlesbrough, and 24.8 in Warrington. In London the rate of mortality was 13.6 per 1,000, while it averaged 15.0 per 1,000 in the seventy-five other large towns. The death-rate from the principal epidemic diseases averaged 1.9 per 1,000 in the seventy-six towns; in London this death-rate was equal to 1.4 per 1,000, while among the other seventy-five towns the rates ranged upwards to 4.3 in Swansea, 4.4 in Norwich, 4.5 in Warrington, 4.7 in Bootle and in Middlesbrough, 5.1 in Burnley, and 7.0 in Blackburn. Measles caused a death-rate of 1.2 in West Ham, 1.6 in Bootle, 2.1 in Stockport, 2.2 in Oldham, 2.7 in Norwich, and 3.0 in Warrington: scarlet fever of 1.3 in Walthamstow; whooping-cough of 1.3 in Birkenhead; "fever" of 1.4 in Bolton; and diarrhœa of 2.6 in Wolverhampton and in Barrow-in-Furness, 2.7 in Preston and in Swansea, 2.8 in Merthyr Tydfil, 3.1 in Middlesbrough, 4.1 in Burnley, and 5.8 in Blackburn. The mortality from diphtheria showed no marked excess in any of the large towns, and no deaths from small-pox were registered during the week. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 3,388, 3,603, and 3,803 at the end of the three preceding weeks, had further risen to 3,923 at the end of last week; 548 new cases were admitted during the week, against 635, 621, and 566 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, October 20th, 922 births and 540 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 16.1, 17.2, and 17.8 per 1,000 in the three preceding weeks, declined to 15.8 per 1,000 last week, but was 1.2 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 11.4 in Leith and 12.9 in Edinburgh to 17.1 in Glasgow and 22.1 in Greenock. The death-rates from the principal infectious diseases averaged 2.3 per 1,000, the highest rates being recorded in Dundee and Greenock. The 274 deaths registered in Glasgow included 2 which were referred to scarlet fever, 6 to whooping-cough, and 23 to diarrhœa. Two fatal cases of scarlet fever, 2 of diphtheria, and 10 of diarrhœa were recorded in Edinburgh; 4 of diphtheria and 5 of diarrhœa in Dundee; 5 of measles and 2 of whooping-cough in Aberdeen; and 4 of diarrhœa in Greenock, 3 in Leith, and 2 in Paisley.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, October 20th, 519 births and 341 deaths were registered in six of the principal Irish towns, as against 483 births and 430 deaths in the preceding period. The annual death-rate in these towns, which had been 19.5, 18.8, and 17.5 per 1,000 in the three preceding weeks, fell to 17.1 per 1,000 in the week under notice, this figure being 2.5 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 11.2 in the Londonderry and 13.7 in Limerick to 21.7 in Dublin and 23.3 in Cork. The zymotic death-rate in the same six Irish towns averaged 2.6 per 1,000, or 1.0 per 1,000 lower than during the preceding period, the highest figure (3.9) being recorded in Waterford. In Clonmel there was a death from typhus and in the city of Dublin 2 from scarlet fever.

ENGLISH URBAN MORTALITY IN THE THIRD QUARTER OF 1906.

The vital statistics of the seventy-six large towns dealt with in the Registrar-General's weekly returns are summarized in the accompanying table. During the three months ending September last 110,208 births were registered in these towns, equal to an annual rate of 27.9 per 1,000 of the population, estimated at 15,818,360 persons in the middle of the year: in the corresponding periods of the three preceding years the rates were 29.6, 29.0, and 28.2 per 1,000 respectively. In London the birth-rate last quarter was 26.5 per 1,000, while it averaged 28.5 in the seventy-five other large towns, and ranged from 15.5 in Hastings, 17.4 in Bournemouth, 19.1 in Hornsey, 19.7 in Halifax, 21.3 in Bradford, and 21.4 in Northampton to 34.1 in Wigan, 35.2 in Hanley, 36.0 in Middlesbrough, 37.1 in Sunderland, 37.7 in Rhondda, and 37.9 in Merthyr Tydfil.

During the quarter under notice 63,968 deaths were registered in these towns, equal to an annual rate of 16.2 per 1,000; in the three preceding third quarters the rates were 15.1, 17.5, and 15.2 per 1,000. In London the rate of mortality last quarter was 15.4 per 1,000; while it averaged 16.6 in the seventy-five other large towns, among which the death-rates ranged from 7.2 in Hornsey, 9.2 in King's Norton, 10.2 in Handsworth (Staffs.), 11.3 in Willesden and in Bournemouth, 11.5 in Burton-on-Trent, and 11.8 in Leyton to 20.2 in Manchester, 20.3 in Tynemouth, 20.5 in Wigan, 20.6 in Middlesbrough, 20.7 in Burnley, 21.0 in Liverpool, 21.1 in Merthyr Tydfil, and 21.9 in Stockport.

The 63,968 deaths from all causes in the seventy-six towns last quarter included 17,483 which were referred to the principal infectious diseases; of these, 5 resulted from small-pox, 1,067 from measles, 393 from scarlet fever, 619 from diphtheria, 729 from whooping-cough, 355 from "fever" (principally enteric), and 14,312 from diarrhœa. The death-rate from these principal infectious diseases, which had been 2.66, 5.02, and 3.45 in the third quarters of the three preceding years, was 4.43 per 1,000 last quarter. In London the rate was 3.67 per 1,000, while in the seventy-five other large towns it ranged from 0.77 in Bournemouth, 1.20 in Hornsey and in King's Norton, 1.65 in Halifax, 1.73 in Hastings, and 2.11 in Bristol to 6.32 in Aston Manor, 6.89 in Burnley, 7.00 in Grimsby, 7.05 in Stockport, 7.09 in Coventry, 7.20 in Norwich, 7.34 in West Ham, 7.43 in Hanley, and 7.86 in Birkenhead.

The 1,067 deaths from measles were equal to an annual rate of 0.27 per 1,000; in London the death-rate from this disease was 0.22 per 1,000, while it averaged 0.23 in the seventy-five other large towns, and was highest in Norwich, Stockport, Manchester, Salford, Oldham, Burnley, Huddersfield, and Rotherham. The 393 fatal cases of scarlet fever corresponded to an annual rate of 0.10 per 1,000; in London the rate of mortality from this disease was 0.09 per 1,000, while it averaged 0.10 in the seventy-five large provincial towns; among which scarlet fever was proportionally most fatal in Walthamstow, Hanley, Birkenhead, Salford, Rochdale, Sheffield, Rotherham, and Tynemouth.

The 619 deaths from diphtheria were equal to an annual rate of 0.16 per 1,000; in the diphtheria death-rate was 0.15 per 1,000, while it averaged 0.17 in the seventy-five other large towns, and was highest in Reading, Aston Manor, Derby, Birkenhead, Salford, Halifax, Hull, and Merthyr Tydfil. The 729 fatal cases of whooping-cough corresponded to an annual rate of 0.18 per 1,000; in London the mortality from this disease was 0.17 per 1,000, while it averaged 0.19 per 1,000 in the seventy-five other large towns, amongst which the highest rates were recorded in Walsall, Birkenhead, Wallasey, Rotherham, Middlesbrough, Sunderland, South Shields, and Swansea. The 355 deaths referred to different forms of "fever" were equal to an annual rate of 0.09 per 1,000; in London the "fever" death-rate was 0.03 per 1,000, while it averaged 0.10 in the seventy-five other large towns, and was highest in West Ham, Grimsby, Bootle, Wigan, Preston, Hull, and Tynemouth. The 14,312 fatal cases of diarrhœa corresponded to an annual rate of 3.63 per 1,000; in London the rate of mortality from this disease was 3.00 per 1,000, while it averaged 3.90 in the seventy-five other large towns, among which diarrhœa was proportionally most fatal in West Ham, Hanley, Aston Manor, Coventry, Grimsby, Stockport, Birkenhead, and Sheffield. Of the five fatal cases of small-pox registered in the seventy-six towns last quarter one belonged to Liverpool and two each to Hull and Devonport.

Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 209 per 1,000 last quarter, against 159, 229, and 186 per 1,000 in the third quarters of the three preceding years; in London the rate last quarter was 191 per 1,000, while it averaged 216 per 1,000 in the seventy-five other large towns, and ranged from 94 in Hornsey, 110 in Halifax, 135 in Derby, 137 in Bournemouth and in Devonport, and 140 in Brighton, to 284 in Wigan, 285 in Norwich, 287 in Great Yarmouth, 289 in Preston, 295 in Hull, 297 in Aston Manor, 301 in Stockport, 306 in Burnley, and 315 in Grimsby.

The causes of 540, or 0.8 per cent., of the deaths registered in the seventy-six towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were certified in Croydon, Hornsey, Tottenham, West Ham, Walthamstow, Southampton, Great Yarmouth, Plymouth, Devonport, Wolverhampton, Walsall, Derby, Stockport, Oldham, and York; while the highest proportions of uncertified deaths were 3.2 per cent. in St. Helen's and in Preston, 3.3 in Barrow-in-Furness, 3.7 in Rotherham and in South Shields, and 5.3 in Gateshead.

Analysis of the Vital Statistics of Seventy-six of the Largest English Towns during the Third Quarter of 1906.

Towns.	Estimated Population middle of 1906.	Births.	Deaths.	Annual Rate per 1,000 Living. Births.	Deaths.	Principal Infectious Diseases.	Deaths from Principal Infectious Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-Cough.	Fever.	Diarrhœa.	Deaths of Children under one year of age to 1,000 Births.	Rate per cent. of Uncertified Deaths.
76 Towns	15,818,360	110,208	63,968	27.9	16.2	4.43	17,480	5	1,067	333	619	729	355	14,312	209	0.8
75 Provincial Towns	11,097,143	78,975	45,790	28.5	16.6	4.75	13,186	5	811	285	466	534	280	10,776	216	1.1
London	4,721,217	31,233	18,178	26.5	15.4	3.67	4,324	—	256	108	154	195	75	3,536	191	0.2
Croydon	151,011	1,017	534	27.0	14.2	3.75	141	—	4	3	9	7	2	116	202	—
Willesden	143,622	1,055	466	29.5	13.3	3.47	124	—	2	4	4	7	1	106	167	1.2
Hornsey	86,935	414	155	19.1	7.2	1.29	28	—	—	2	—	—	1	25	94	—
Tottenham	119,503	940	403	31.5	13.5	4.02	120	—	1	1	—	2	1	115	206	—
West Ham	301,617	2,247	1,234	29.9	16.4	7.34	552	—	37	8	16	10	26	460	240	—
East Ham	129,886	877	396	27.1	12.2	5.05	164	—	8	3	5	4	3	141	222	0.3
Leyton	118,287	820	347	27.8	11.8	4.74	140	—	5	6	7	8	3	111	182	0.3
Walthamstow	121,334	893	411	29.5	13.6	4.86	147	—	1	7	9	3	1	126	207	—
Hastings	67,144	259	216	15.5	12.9	1.73	29	—	3	1	2	—	1	22	195	1.8
Brighton	128,095	706	439	22.1	13.7	2.16	69	—	7	—	1	5	1	55	140	0.2
Portsmouth	205,118	1,472	828	28.8	16.2	4.73	242	—	2	—	13	22	5	200	198	1.0
Bournemouth	67,702	283	190	17.4	11.3	0.77	13	—	1	—	1	2	1	6	137	1.1
Southampton	117,312	732	385	25.0	13.2	2.97	87	—	—	—	3	—	3	81	149	—
Reading	78,987	449	234	22.8	11.9	3.20	63	—	—	—	10	1	—	52	180	2.1
Northampton	93,749	500	279	21.4	11.9	3.13	73	—	—	2	1	—	2	63	186	0.7
Ipswich	71,809	472	266	26.4	14.9	2.63	47	—	—	—	1	—	1	45	197	0.8
Great Yarmouth	52,613	360	235	27.4	18.0	4.57	60	—	1	—	2	—	2	55	267	—
Norwich	117,958	777	558	28.4	19.0	7.20	212	—	41	2	3	6	3	157	265	0.5
Plymouth	118,014	691	426	23.5	14.5	2.94	87	—	5	1	6	3	1	71	208	—
Devonport	78,405	504	233	25.8	11.9	2.60	51	2	5	1	2	2	4	35	137	—
Bristol	363,223	2,368	1,174	26.1	13.0	2.11	191	—	17	8	14	13	6	133	146	0.3
Hanley	66,360	582	316	35.2	19.1	7.43	123	—	1	7	4	3	2	107	227	0.9
Burton-on-Trent	52,922	339	152	25.6	11.5	2.23	30	—	—	2	—	5	1	22	141	2.6
Wolverhampton	100,729	684	385	27.2	15.3	4.18	105	—	1	2	2	3	2	87	200	—
Walsall	94,577	702	379	29.8	16.1	4.75	112	—	—	—	1	11	3	97	215	—
Handsworth	63,819	389	163	22.6	10.2	2.39	35	—	—	2	—	—	—	26	159	1.2
West Bromwich	68,469	504	257	29.5	15.1	3.75	64	—	3	1	—	7	—	53	186	0.8
Birmingham	548,022	4,129	2,374	30.2	17.4	6.00	818	—	44	11	20	15	5	723	213	1.7
King's Norton	72,608	475	166	26.2	9.2	1.29	25	—	1	1	2	1	1	17	141	1.8
Smethwick	64,551	469	232	30.4	14.4	4.10	66	—	—	1	5	3	2	57	166	1.7
Aston Manor	82,228	536	333	26.1	16.2	6.82	189	—	5	3	7	4	3	112	227	0.6
Coventry	76,374	513	343	32.2	15.0	7.09	135	—	—	—	3	7	1	124	230	1.2
Leicester	232,111	1,436	854	24.8	14.4	4.31	250	—	18	7	8	2	1	216	241	1.1
Grimsby	69,359	523	335	30.2	19.4	7.00	121	—	1	1	5	—	4	110	315	0.3
Nottingham	254,563	1,702	1,092	26.8	17.2	5.63	358	—	2	4	8	6	13	325	283	0.4
Derby	123,981	755	387	24.4	12.5	2.18	67	—	—	—	11	8	3	45	135	—
Stockport	99,646	697	544	33.1	21.9	7.05	175	—	29	1	2	4	—	139	301	—
Birkenhead	117,292	928	582	31.7	19.9	7.86	230	—	1	7	10	29	3	180	259	0.3
Wallasey	64,578	450	213	28.0	13.2	3.73	60	—	6	—	1	8	3	42	147	0.9
Liverpool	739,180	6,017	3,879	32.6	21.0	6.49	1,195	1	66	29	28	53	15	1,005	241	2.7
Bootle	65,989	520	320	31.6	19.5	6.79	112	—	6	3	3	5	4	91	204	0.8
St. Helen's	91,153	737	433	33.9	19.1	4.84	110	—	—	—	5	1	2	102	234	3.2
Wigan	87,588	744	446	34.1	20.4	6.29	137	—	14	—	3	1	9	110	263	1.6
Warrington	69,280	581	300	33.6	17.4	5.27	91	—	—	—	2	1	—	88	186	1.7
Bolton	180,502	1,145	693	25.4	15.4	3.67	165	—	—	5	5	3	4	148	193	0.6
Bury	58,744	351	226	24.0	15.4	3.15	46	—	2	—	1	—	1	42	234	2.2
Manchester	637,126	4,657	3,207	29.3	20.2	6.16	578	—	121	28	25	31	11	754	245	0.6
Salford	234,077	1,691	1,123	29.0	19.2	6.45	378	—	65	12	28	4	7	230	238	0.5
Oldham	140,969	938	636	27.5	18.1	4.17	146	—	29	4	2	9	3	90	182	—
Rochdale	87,189	586	377	25.1	17.3	2.49	64	—	3	5	11	4	3	28	183	2.7
Burnley	102,808	728	530	28.4	20.7	6.99	179	—	38	2	3	1	2	133	306	1.1
Blackburn	134,015	868	499	26.0	14.9	2.99	98	—	7	6	6	5	1	73	184	1.8
Preston	116,399	802	526	27.6	18.1	5.96	173	—	3	3	4	4	6	153	269	3.4
Barrow-in-Furness	60,967	479	212	31.5	13.9	3.23	49	—	—	—	2	1	—	46	132	3.3
Huddersfield	94,851	673	439	24.2	18.6	5.12	121	—	44	1	4	8	3	61	220	0.7
Halifax	109,272	538	325	19.7	11.9	1.65	45	—	19	2	9	—	1	14	110	0.6
Bradford	288,544	1,529	1,139	21.3	15.8	3.75	270	—	14	6	10	7	13	220	201	1.1
Leeds	463,495	3,106	1,778	26.9	15.4	3.98	480	—	22	13	8	21	10	332	216	0.3
Sheffield	447,951	3,400	2,112	30.4	18.9	6.66	744	—	11	44	20	16	17	635	246	1.2
Rotherham	61,098	468	271	30.7	17.8	5.72	87	—	18	5	1	10	2	51	256	3.7
York	83,467	531	280	25.5	13.5	3.51	73	—	—	1	1	5	3	63	186	—
Hull	262,426	2,011	1,284	30.7	19.6	6.19	405	2	—	2	25	17	18	341	275	0.9
Middlesbrough	100,089	897	514	36.0	20.6	5.85	146	—	3	2	7	20	5	109	229	0.8
Stockton-on-Tees	52,664	439	209	33.4	15.9	3.82	50	—	—	—	—	1	1	48	162	1.9
West Hartlepool	73,387	542	257	29.6	14.0	3.05	56	—	—	—	5	1	1	49	180	0.4
Sunderland	154,385	1,427	695	37.1	18.1	4.23	163	—	6	2	5	24	5	121	170	2.4
South Shields	111,402	880	454	31.7	16.3	3.35	93	—	17	1	5	15	—	55	163	3.7
Gateshead	123,191	949	525	30.8	17.1	5.83	171	—	9	2	8	3	2	147	233	5.3
Newcastle-on-Tyne	268,721	2,018	1,161	30.1	17.3	5.44	231	—	18	1	12	2	1	197	207	0.5
Tynemouth	54,138	428	274	31.7	20.3	5.03	68	—	8	3	1	2	3	51	189	1.8
Newport (Mon.)	74,227	619	286	33.4	14.4	2.97	55	—	—	1	4	7	—	43	158	1.5
Cardiff	183,823	1,286	775	28.1	12.5	2.68	123	—	—	1	2	11	4	105	167	0.3
Rhondda	127,684	1,200	572	37.7	18.0	5.74	183	—	8	1	10	1	4	159	250	0.7
Merthyr Tydfil	74,961	703	394	37.9	21.1	3.80	71	—	—	1	6	8	2	54	234	0.5
Swansea	96,348	832	420	34.5	17.4	3.15	76	—	5	4	1	21	2	43	203	0.2

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

SURGEON A. WOOLLCOMBE is promoted to be Staff Surgeon from November 29th. He was appointed surgeon, November 29th, 1897.

The following appointments have been made at the Admiralty: GERARD J. IRVINE, Inspector-General to Chatham Hospital, October 31st; CHARLES H. DAWE, Surgeon, to the *Vernon*, October 16th; EDWARD O. B. CARBERY, M.B., Surgeon, to the *President*, additional, for three months' study at West London Hospital, October 22nd; EDWARD COLCORAN, Fleet Surgeon, and GEORGE O. M. DICKINSON, M.B., Surgeon, to the *Africa*, on commissioning, November 6th; GEORGE A. WATERS, M.D., Fleet Surgeon, to the *Ramillies*, on recommissioning, November 6th; RICHARD A. ROSS, M.D., Staff Surgeon, and DUNCAN G. ADDISON-SCOTT, Surgeon, to the *Highflyer*, on completing, November 6th; SAMUEL H. FACEY, Staff Surgeon, to Portland Hospital, November 6th; MURRAY P. JONES, Staff Surgeon, to the *Waldeck*, November 2nd; WILLIAM B. MACLEOD, M.B., Staff Surgeon, and HENRY COUPER, Surgeon, to the *Digby*, on recommissioning, November 6th; REGINALD ST. G. S. BOND, M.B., Staff Surgeon, to the *Hermione*, November 6th; WILLIAM BASTIAN, Surgeon, to the Royal Marine Division, Plymouth, November 6th; PATRICK D. MACF. CAMPBELL, Surgeon, to the *Sealark*, on re-commissioning, undated; ARTHUR K. THOMAS and GERALD M. EASTMENT, Surgeons, to the *Hogue*, additional, for three months' course at West London Hospital, October 22nd; HERBERT H. GILL, M.B., Staff Surgeon, to the *Emerald*, November 6th.

WILLIAM B. BATEMAN, civil practitioner, has been appointed Surgeon and Agent at Newhaven and Portobello, October 18th.

MARTIN GLOVER, civil practitioner, to be Surgeon and Agent at Portloe and Portscatho, October 20th.

ROYAL ARMY MEDICAL CORPS.

CAPTAIN J. T. CLAPHAM, from temporary half-pay, is placed on retired pay, October 21st. He entered the service as Surgeon Captain January 31st, 1891, and was placed on half-pay October 21st, 1901. He was with the Nile Expedition in 1898, receiving the British and Egyptian medals.

INDIAN MEDICAL SERVICE.

CAPTAINS A. GWYTHER, M.B., and J. A. HAMILTON, M.B., Bengal Establishment, are promoted to be Majors from July 29th. They were appointed Surgeon-Lieutenants January 29th, 1895, and Surgeon-Captains January 29th, 1898. Major Hamilton was in the China campaign in 1900, receiving a medal with clasp.

The following officers, having satisfactorily completed their probationary courses of instruction at the Royal Army Medical College and at Aldershot, are finally admitted to the Indian Medical Service from February 1st:—H. W. PIERSONNE, W. D. H. STEVENSON, H. P. COOK, P. S. MILLS, W. J. FRASER, D. C. V. FITZGERALD, C. R. O'BRIEN, R. S. KENNEDY, B. HIGHAM, C. A. GODSON, R. H. LEE, W. H. HUME, G. E. MALCOLMSON, P. HEFFERMAN, W. A. MEARNS, H. S. HUTCHISON, D. M. CHRISTIE, R. G. G. CLOLY, S. T. CRUMP, W. B. A. K. CULLEN, J. MACG. SKINNER.

HONOURABLE ARTILLERY COMPANY OF LONDON.

SURGEON LIEUTENANT-COLONEL W. C. JAMES, M.D., is granted the honorary rank of Surgeon Colonel, October 8th.

ROYAL ARMY MEDICAL CORPS (MILITIA).

SUPERNUMERARY CAPTAIN H. FOX, M.B., is absorbed into the establishment, October 5th.

IMPERIAL YEOMANRY.

STANLEY P. GIBBS to be Surgeon-Lieutenant (extra) in the Royal North Devon (Hussars), under the conditions of paragraph 28, Imperial Yeomanry Regulations, October 13th.

Surgeon-Lieutenant R. C. GAYER, The Surrey (the Princess of Wales's) Regiment, is promoted to be Surgeon-Captain, September 17th.

VOLUNTEER RIFLES.

SURGEON-CAPTAIN F. A. WAGSTAFF, 3rd (Cambridgeshire) Volunteer Battalion the Suffolk Regiment, resigns his commission, October 6th.

Surgeon-Lieutenant-Colonel C. W. THORP, 2nd Volunteer Battalion the Lancashire Fusiliers, is granted the honorary rank of Surgeon-Colonel, September 20th.

Surgeon Major W. POOLEY, 2nd Volunteer Battalion the Lancashire Fusiliers, is granted the honorary rank of Surgeon-Lieutenant-Colonel, September 22nd.

Surgeon-Lieutenant A. ROBINSON, M.D., 2nd Volunteer Battalion the York and Lancaster Regiment, to be Surgeon-Captain, October 24th.

CHANGES OF STATION.

THE following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during September, 1906:

		FROM	TO
Colonel	W. L. Chester, M.B.	Peshawar	Cherat.
,,	H. R. Whitehead	Rawal Pindi	Murree.
,,	J. G. Harwood	Portsmouth	India.
Lieut.-Col.	D. O'Sullivan	Sialkot	Nathia Gali.
,,	E. L. Maunsell	Gosport	Bloemfontein.
,,	R. W. Ford, D.S.O.	London Dist.	Gibraltar.
,,	R. Caldwell	Sheffield	Devonport.
,,	R. G. Hadley, M.B.	Rawal Pindi	Kaldana.
,,	S. G. Allen	Ambala	Kalabagh.
,,	W. H. Starr	Secunderabad	Bangalore.
,,	G. H. Barefoot	,,	Winchester.
,,	G. Scott, M.B.	Multan	Ghatial.
,,	R. H. Penton, D.S.O.	Strensall	York.
Major	O. R. A. Julian, C.M.G.	Peshawar	Cherat.
,,	H. S. S. Hore	Birr	Naas.
,,	J. Thomson, M.B.	Edinburgh	Woolwich.
,,	J. C. Connor, M.B.	Winchester	Parkhurst.
,,	T. W. Gibbard, M.B.	Rawal Pindi	Murree.
,,	G. B. Stanistreet, M.B.	Egypt	Salisbury.
,,	J. E. Brogden	Hong Kong	North China.
,,	A. C. Fox	Tidworth	Egypt.
,,	G. St. C. Thom, M.B.	Aldershot	N. Command, India.
Captain	A. H. Waring	Mian Mir	Dalhousie.
,,	W. E. Winkfield	Portsmouth	Gosport.
,,	R. A. Cunningham, M.B.	W. Command	,,
,,	J. J. W. Prescott, D.S.O.	Leeds	Devonport.
,,	P. H. Falkner	W. Command	Cardiff.
,,	J. W. Langstaff	,,	Brecon.
,,	F. Harvey	Aldershot	Deepcut.
,,	B. F. Wingate	Kingston	Canterbury.
,,	R. L. Argles	Newcastle-on-Tyne	N. Command, India.
,,	F. S. Walker	Ferozepore	Murree.
,,	T. E. Fielding, M.B.	Gosport	Portland.
,,	A. F. Weston	Bedford	Colchester.
,,	J. Tobin	Limerick	Cork.
,,	J. F. Whelan, M.B.	Peshawar	Cherat.
,,	P. S. Lelean	Parkhurst	E. Command, India.
,,	A. W. Gibson	Aden	Dhala.
,,	T. White	Perham Down Camp	Tidworth.
,,	A. R. C. Parsons	RollestonCmp.	,,
,,	W. M. B. Sparkes	Amritsar	S. Command.
,,	S. B. Smith, M.B.	Rawal Pindi	Kasauli.
,,	A. H. Hayes	Ambala	Subathu.
,,	J. M. H. Conway	,,	Dagshai.
,,	S. M. W. Meadows	Mian Mir	Murree.
,,	D. S. Skelton	Devizes	W. Africa.
Lieutenant	F. M. M. Ommanney	Woolwich	Shoeburyfife.
,,	C. A. Kempthorne	Mian Mir	Dalhousie.
,,	M. C. Wetherell, M.D.	Attock	Campbellpore.
,,	D. Le Bas	Bloemfontein	Maritzburg.
,,	E. C. Whitehead, M.B.	Maritzburg	Pretoria.
,,	J. A. Turnbull	Rawal Pindi	Murree.
,,	M. D. Ahern	Ferozepore	Dalhousie.
,,	H. T. Wilson	Rawal Pindi	Murree.
,,	A. N. Fraser, M.B.	N. China	Hong Kong.
,,	R. H. L. Cordner	Rawal Pindi	Murree.
,,	A. W. Gaisford	,,	,,
,,	J. A. Anderson, M.B.	Lark Hill Cmp.	Bulford.
,,	H. G. Sherren	Bulford	W. Command, India.
,,	R. P. Lewis	Netley	Fort Tregantle
,,	J. H. Graham, M.B.	,,	Egypt.
,,	C. E. W. S. Fawcett, M.B.	Bere Island	Secunderabad.
,,	G. H. Seess, M.B.	Portsmouth	Gosport.
,,	E. L. Moss	Dorchester	Portsmouth.
,,	M. B. H. Ritchie, M.B.	West Down Cp.	Bulford.
,,	E. T. Potts, M.D.	Aldershot	South Africa.
,,	W. M'Conaghy, M.B.	Netley	,,
,,	M. Keane	Curragh	E.Comd, India
,,	C. F. White	Kilcullan Cmp.	Ballincollig.
,,	P. S. S. Stewart, M.B.	Cork	Ballincollig.

Lieutenant-Colonel C. J. W. Tatham, retired pay, has been placed in medical charge of troops at Scarborough; and Captain E. Chandler, retired pay, has relinquished the medical charge at the Detention Barracks, Gosport.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

ASTON UNION.—Resident Assistant Medical Officer for the Workhouse and Cottage Homes. Salary, combined, £140 per annum.

BARNSLEY: BECKET HOSPITAL.—House-Surgeon. Salary, £100 per annum.

BARNSTAPLE: NORTH DEVON INFIRMARY.—House-Surgeon. Salary, £100 per annum.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham Road, S.W.—(1) Assistant Physician. (2) Senior and Junior Resident Medical Officers; honorarium at the rate of £20 and £10 per annum respectively.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House-Surgeon, male. Salary, £80 per annum.

BODMIN: CORNWALL COUNTY ASYLUM.—Second Assistant Medical Officer; male. Salary, £150, rising to £180 per annum.

BRADFORD ROYAL INFIRMARY.—(1) House-Physician, (2) House-Surgeon. Salary, £100 per annum each.

BUXTON: DEVONSHIRE HOSPITAL.—Assistant House-Surgeon. Salary at the rate of £70 per annum.

CANCER HOSPITAL, FULHAM ROAD, S.W.—Surgical Registrar. Honorarium, £26 5s. per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—(1) Senior House Surgeon. (2) Junior House Surgeon. Salary, £100 and £60 per annum respectively.

COVENTRY AND WARWICKSHIRE INFIRMARY.—Honorary Ophthalmic Surgeon.

DUNDEE: UNIVERSITY COLLEGE.—Demonstrator of Anatomy. Salary, £200 per annum.

EDINBURGH: ROYAL COLLEGE OF PHYSICIANS.—Superintendent of the Laboratory.

ENNISKILLEN: FERMANAGH COUNTY HOSPITAL.—House-Surgeon. Salary, £52 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—(1) House-Physician; (2) House Surgeon; (3) Assistant House-Surgeon. Salaries, (1) and (2) £80 per annum, and (3) £70 per annum.

GRIMSBY COUNTY BOROUGH.—Medical Officer of Health. Salary, £500 per annum.

HALIFAX: ROYAL INFIRMARY.—Third House-Surgeon. Salary, £80 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—Assistant Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—House Surgeon. Salary, £20 for six months, and £2 10s. washing allowance.

HULL: ROYAL INFIRMARY.—Casualty House-Surgeon. Salary, £50 per annum.

KING'S COLLEGE, London.—Demonstrator of Physiology. Salary, £75.

LANARK: MIDDLE WARD ISOLATION HOSPITAL.—Resident Physician. Salary commencing at £123 per annum.

LEEDS PUBLIC DISPENSARY.—(1) Honorary Pathologist, (2) Honorary Dentist.

LEICESTER INFIRMARY.—Resident Surgical Dresser. Honorarium, £10 10s. for six months.

LONDON SCHOOL OF CLINICAL MEDICINE, Seamen's Hospital, Greenwich, S.E.—Assistant to the Pathologist. Salary, £5 per month.

MACCLESFIELD: PARKSIDE ASYLUM.—Junior Assistant Medical Officer. Salary, £140, rising to £160 per annum.

MAIDSTONE: WEST KENT GENERAL HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £60 per annum, and £5 washing allowance.

MANCHESTER: ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN.—Medical Officer to attend home and out-patients. Salary, £80 per annum.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary, £160, rising to £180 per annum.

NOTTINGHAM: CITY ASYLUM.—Junior Assistant Medical Officer, male. Salary, £150 per annum.

NOTTINGHAM GENERAL DISPENSARY.—Senior Resident Surgeon for the new branch at Hyson Green. Salary, £180 per annum.

PARTICK BURGH.—Resident Medical Officer at the Knightswood Hospital. Salary, £100 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Resident Medical Officer for Out-patient Department. Salary at the rate of £50 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—(1) House Surgeon. (2) House Physician. Salary, £110 per annum each.

STOCKPORT UNION.—Resident Assistant Medical Officer at the Stepping Hill Hospital. Salary £130, rising to £150 per annum.

SUNDERLAND INFIRMARY.—Male House Physician and Pathologist. Salary, £80 per annum.

THROAT HOSPITAL, Golden Square, W.—(1) Anaesthetist, (2) Senior Clinical Assistant.

WAKEFIELD: CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Senior House Surgeon. Salary, £120 per annum.

WATERFORD COUNTY AND CITY INFIRMARY.—House-Surgeon. Salary, £100 per annum.

WESTERN GENERAL DISPENSARY, Marylebone Road, N.W.—Honorary Surgeon.

WESTMINSTER HOSPITAL MEDICAL SCHOOL, S.W.—Midwifery Tutor.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—(1) House-Physician, (2) Assistant House-Surgeon. Salaries at the rate of £100 and £75 per annum respectively.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeons at Gateshead (Durham), Histon (Cambridge), Balbriggan (Dublin).

APPOINTMENTS.

BECK, E. A. A., M.B.Camb., District Medical Officer of the Martley Union.

BRODRIBB, F. A., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Bradfield Union.

CUNNINGHAM, H. H. B., M.D., F.R.C.S.I., M.R.C.S.Eng., Ophthalmic Surgeon to the Ulster Hospital for Women and Children, Belfast.

CURTIS, Henry, B.S. and M.D.Lond., F.R.C.S.Eng., Assistant Surgeon to the Metropolitan Hospital, Kingsland Road, N.E., and Clinical Assistant, Throat and Ear Departments, the London Hospital.

EMTAGE, E. W., M.R.C.S.Eng., L.S.A., Medical Officer of Health, Bideford Rural District.

GILES, W. A., M.B., Honorary Surgeon to the Adelaide Hospital.

HAMILTON, A. A., M.B., Honorary Assistant Physician to the Adelaide Hospital.

HOWE, George H., M.B., Ch.B.Edin., Junior House-Surgeon to the Macclesfield General Infirmary.

HULBERT, Henry L. P., M.B., B.C.Camb., D.P.H., Assistant Medical Officer under the Manchester Education Committee.

LATHAM, Henry, M.B.Edin., C.M., B.Sc. (Public Health), Physician to the Peterborough Infirmary.

LEA, Charles Edgar, M.B., Ch.B.Vict., Junior Resident Medical Officer at the Withington Workhouse of the Chorlton Union.

LEDINGHAM, Alex., M.A., M.D., D.P.H.Aberd., Medical Officer of Health of the County of Banff.

MCCASKIE, H. B., M.B., M.R.C.S., L.R.C.P., Clinical Assistant to the Chelsea Hospital for Women.

MCGLASHAN, J., M.D.Glasg., D.P.H.Camb., Certifying Factory Surgeon for the Newhaven District, Sussex.

M'QUEEN, J., M.B., B.Ch.Glasg., Certifying Factory Surgeon for the Cumnock District, Ayrshire.

MORGAN, J. N., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Pontypridd Union.

PATRICK, J. King, M.B., Ch.B., Examiner to the St. Andrew's Ambulance Association.

PEARSE, P. S., L.R.C.P., L.R.C.S.Edin., L.F.P. and S.E., House-Surgeon, Royal Victoria Eye and Ear Hospital, Dublin.

RHIND, T., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Chipping Sodbury Union.

ROSS, D. Murray, M.B., B.S., Clinical Assistant to the Chelsea Hospital for Women.

SCOTT, Graham, M.R.C.S., L.R.C.P.Lond., reappointed Anaesthetist to Great Ormond Street Children's, the Royal Dental, and Central London Throat Hospitals.

TOMS, W. J., L.R.C.P. and S.Irel., District Medical Officer of the Goole Union.

TURTLE, W. R., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the West Ham Union.

WEAR, Algernon, M.D., B.S.Durh., of Leeds, Honorary Medical Officer in charge of medical cases at the Southern Branch of the Leeds Public Dispensary.

WILKINSON, P. W., M.B., C.M.Edin., District Medical Officer of the Tavistock Union.

WOODS, J. R. L., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Forden Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTH.

PARSONS.—On October 16th, at 32, Park Hill Road, Hampstead, N.W., the wife of L. D. Parsons, B.A., M.B., Ch.B.Edin., of a son.

MARRIAGE.

GRIFFITH—PROSSER.—On October 18th, at the Parish Church, Merthyr Tydvil, John Griffith, M.R.C.S., L.R.C.P.Lond., son of R. C. Griffith, Brynsiencyn, Anglesey, late of Port Dinorwic, to Annie Prosser, daughter of David Prosser, Thornwood, Treharris.

DIARY FOR THE WEEK.

TUESDAY.

THERAPEUTICAL SOCIETY, Apothecaries' Hall, Blackfriars, E.C., at 4.30 p.m.—Election of officers. Papers:—H. Wippell Gadd, F.C.S.: Some Further Researches upon the Active Principles of Viola Odorata; Dr. W. A. Potts: The Therapeutical Uses of Preparations of Viola Odorata.

WEDNESDAY.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY, 20, Hanover Square, W., at 5.30 p.m.—General Meeting and Address by the President, Dr. H. Shirley-Jones, J.P. (Droitwich): The Art of Medicine in Ancient Egypt.

THURSDAY.

NORTH-EAST LONDON CLINICAL SOCIETY, Tottenham Hospital, N., 4 p.m.—Clinical cases.

NEUROLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos Street, Cavendish Square, 9 p.m.—Sir Thomas Barlow, Bart., M.D.: Presidential Address, Remarks on Some of the Nervous Complications of Specific Fevers.

FRIDAY.

SOCIETY OF ANAESTHETISTS, 20, Hanover Square, London, W., at 8.30 p.m.—Paper:—Dr. Silk: Anaesthesia in Abnormal and Constrained Positions.

WEST KENT MEDICO-CHIRURGICAL SOCIETY, Royal Kent Dispensary, Greenwich Road, S.E., at 8.45 p.m.—Paper:—Dr. A. E. Giles: Some Observations on Uterine Fibroids.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith.—Clinical meeting.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Laryux.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Surgical. Thursday, 4 p.m., Electrical.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Medical and Surgical daily, except Saturday and Sunday, at 2.30 p.m. and 3.15 p.m. respectively; Throat and Ear, 4 p.m., Monday; Skin Diseases, 4 p.m., Tuesday; Eye Diseases, 4 p.m., Wednesday; Radiography, 4 p.m., Thursday. Operations, daily, 2.30 p.m. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

MEDICAL GRADUATES COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin: Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Throat. Lectures at 5.15 p.m. each day will be given as follows: Monday, The Diagnosis of Pregnancy; Tuesday, Certifiability; Wednesday, The Treatment of Rickets; Thursday, The Field of Vision in Health and Disease.

MOUNT VERNON HOSPITAL FOR CONSUMPTION, Central Out-Patients Department, 7, Fitzroy Square, W.—Thursday, 5 p.m., Some Prognostic Factors in Pulmonary Phthisis as Indications for Treatment.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Clinical Lecture; Friday, 3.30 p.m., Ophthalmoplegia in Nervous Diseases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Tottenham Hospital, N.—Tuesday, 4.30 p.m. Lecture-Demonstration on the Administration of Anaesthetics.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics. 2.30 p.m., X rays; 2.30 p.m. Operations. Monday, 12 noon, Pathological Demonstration. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2.30 p.m., Diseases of Skin. Tuesday and Friday, 2.0 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Wednesday, 10 a.m., Diseases of Children. Lectures at 5 p.m.: Monday, Clinical Cases; Tuesday, Bilharzial Disease; Wednesday, Practical Medicine; Thursday, Practical Surgery; Friday, Some Aspects of the Treatment of Insanity.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Thursday, 3 p.m.: Diagnosis and Treatment of Ectopic Gestation.

BOOKS, Etc., RECEIVED.

London: Baillière, Tindall and Cox, 1906:

Heart Disease and Aneurysm of the Aorta. By Sir W. H. Broadbent, Bart., K.C.V.O., M.D., F.R.S., D.Sc., LL.D., F.R.C.P., and J. F. H. Broadbent, M.A., M.D., F.R.C.P. Fourth edition. 12s. 6d.

Clinical Lectures on Enlargement of the Prostate. By P. J. Freyer, M.A., M.D., M.Ch. Third edition. 6s.

On Retro-Peritoneal Hernia. Being the "Arris and Gale" Lectures, 1897. By B. G. A. Moynihan, M.S., F.R.C.S. Second edition, Revised and partly rewritten by the Author and J. F. Dobson, M.S., F.R.C.S. 7s. 6d.

Manual of Chemistry. By W. Simon, Ph.D., M.D. Eighth edition. 15s.

Lectures on Diseases of the Lungs. By J. A. Lindsay, M.D., F.R.C.P., M.A. Second edition. 1906. 10s. 6d.

The Miracle Worker. By G. Maxwell. London: E. Grant Richards. 1906. 6s.

Schmerzlose Operationen. Ortliche Betäubung mit indifferenten Flüssigkeiten. Psychophysik des natürlichen und künstlichen Schlafes. Von Professor Dr. C. L. Schleich. Fünfte Auflage. Berlin: J. Springer. 1906. M.6.

Artificial Limbs for Use After Amputations and Congenital Deficiencies. By F. G. Ernst. Leicester: F. W. S. Clarke and Co., Ltd.

Die forensische Bedeutung der sexuellen Perversität. Von Privatdozent D. J. Salgo. Halle a. S.: C. Marhold. 1907. M.1.20.

The Puerperium, or the Management of the Lying-in Woman and Newborn Infant. By C. N. Longridge, M.D., Ch.B., F.R.C.S., M.R.C.P. London: Adlard and Son. 1906. 5s.

Nursing at Home. By J. D. E. Mortimer, M.B., F.R.C.S., and R. J. Collie, M.D. London: G. Gill and Sons. 8d.

The Cambridge Natural History. Edited by S. F. Harmer, Sc.D., F.R.S., and A. E. Shipley, M.A., F.R.S. Vol. I.: Protozoa, by M. Hartog, M.A., D.Sc.: Porifera (Sponges), by I. B. J. Sollas, B.Sc.; Coelenterata and Ctenophora, by S. J. Hickson, M.A., F.R.S.; Echinodermata, by E. W. MacBride, M.A., F.R.S. London: Macmillan and Co. 1906. 17s.

Collected Papers on Circulation and Respiration. First Series, chiefly containing Laboratory Researches. By Sir L. Brunton, M.D., D.Sc., LL.D., F.R.S., F.R.C.P. London: Macmillan and Co., Ltd. 1906. 7s. 6d.

The $CHCl_3$ Problem. By R. Gill, B.Sc., M.B., B.S., F.R.C.S. Vol. I. Analysis. Vol. II. The Physiological Action of $CHCl_3$. Edinburgh and London: W. Blackwood and Sons. 1906. Two vols. 10s.

Textbook on Diseases of the Heart. By G. Steell, M.D., F.R.C.P. Appendix on The Volume of Blood in Relation to Heart Disease. By J. L. Smith, M.A., M.D. Manchester: The University Press. 1906. 7s. 6d.

The Nature and Treatment of Cancer. By J. A. Shaw-Mackenzie, M.D. Fourth edition. London: Baillière, Tindall and Cox. 1906. 2s. 6d.

Paris: J. B. Baillière et Fils, 1907:

Nouveau Traité de Médecine et de Thérapeutique. Publié en Fascicules sous la direction de MM. P. Brouardel et A. Gilbert. XI. Intoxications. Par P. Carnot, E. Lancereaux, Letulle et Wurtz. Fr. 6.

Traité d'Hygiène. Publié en Fascicules sous la direction de MM. P. Brouardel et E. Mosny. IX. Hygiène Militaire. Par J. Rouget et Ch. Dopter. Fr. 7.50.

First Report of the Clinic for the Treatment of Communicable Pulmonary Diseases. Department of Health, City of New York. 1906. Director: Dr. J. S. Billings, jun.

The Diseases of Women. By J. Bland-Sutton, F.R.C.S. Eng., and A. E. Giles, M.D., B.Sc., F.R.C.S. Edin. Fifth edition. London and New York: Rebman, Ltd. 1905. 11s.

Five-figure Mathematical Tables for School and Laboratory Purposes. By A. du Pre Deanning, M.Sc., B.Sc., Ph.D. London: Longmans, Green and Co. 1906. 2s.

Matriculation Directory. No. XLIV. September, 1906. London: University Tutorial Press, Ltd. 1906. 1s.

The Practical Medicine Series. Ten volumes on the Year's Progress in Medicine and Surgery. Edited by G. P. Head, M.D. Chicago: The Year Book Publishers; and Glasgow: G. Gillies and Co. 1906. Ten vols., 42s. Or singly.

Vol. I. General Medicine. Edited by F. Billings, M.A., M.D., and J. H. Salisbury, A.M., M.D. 5s.

Vol. II. General Surgery. Edited by J. B. Murphy, A.M., M.D., LL.D. 8s.

Vol. III. The Eye, Ear, Nose, and Throat. Edited by C. A. Wood, C.M., M.D., D.C.L., A. H. Andrews, M.D., and G. P. Head, M.D. 6s.

Vol. V. Obstetrics. Edited by J. B. de Lee, A.M., M.D., D. Roehler, M.D., and H. M. Stowe, M.D. 5s.

Vol. VI. General Medicine. Edited by F. Billings, M.A., M.D., and J. H. Salisbury, M.D. 5s.

Golden Rules of Medical Evidence. By S. B. Atkinson, M.A., M.B., B.Sc. "Golden Rules" Series. No. XVI. Bristol: J. Wright and Co. 1s.

Travaux de Chirurgie Anatomo-Clinique. Par H. Hartmann. P. Lecène et J. Obstoczyc. Troisième série. Chirurgie de l'Intestin. Paris: G. Steinheil. 1907. Fr. 16.

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The Röntgen Rays in the Diagnosis of Diseases of the Chest. By H. Walsham, M.A., M.D., and G. H. Oxton, M.A., M.D. London: H. K. Lewis. 1906. 6s.

Submucous Excision of Deviations and Spurs of the Nasal Septum. By StClair Thomson, M.D., F.R.C.P., F.R.C.S. London: Cassell and Co. 1905. 1s.

Jasper; A Story for Children. By Mrs. Molesworth. London: Macmillan and Co. 1906. 4s. 6d.

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The Health Care of the Baby. By L. Fischer, M.D. 3s.

The Influence of the Mind on the Body. By Dr. P. Dubois. Translated from fifth French edition by L. B. Gallatin. 2s.

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The Art of the Greeks. By H. B. Walters. London: Methuen and Co. 12s. 6d.

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Traité des Maladies du Nez. Par le Dr. A. Ménier. 1906. Fr. 12.

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London: H. K. Lewis. 1906:

Refraction of the Eye: its Diagnosis and the Correction of its Errors. By A. S. Morton, M.B., F.R.C.S. Seventh edition. 3s. 6d.

Acquanimitas. With other addresses. By W. Osler, M.D., F.R.S. Second edition. 8s.

Caracas: Tipografia Guttenburg:

Sobre Fiebre Amarilla. Relación sobre el Tratamiento de la Fiebre Amarilla por el Metodo de Defensa y sobre sus formas clinicas observadas en Maracaibo y Caracas. Por el Dr. M. A. Dagnino. 1905.

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International Catalogue of Scientific Literature. Fourth Annual Issue. L. General Biology. London: Harrison and Sons. 1906. (August.) 10s. 6d.

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Berlin: S. Karger; and London: Williams and Norgate. 1906:

Aus der psychiatrischen Klinik in Berlin. Analyse von 200 Selbstmordfällen nebst Beitrag zur Prognostik der mit Selbstmordgedanken verknüpften Psychosen. Von Dr. H. Stelzner. M. 4.

Die Röntgenstrahlen im Dienste der Neurologie. Von Dr. W. Fürnrohr. M. 10.

Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Neurologie und Psychiatrie. Herausgegeben von Dr. Ed. Flatau und Dr. S. Bendix. Redigiert von Professor Dr. E. Mendel und Privatdozent Dr. L. Jacobsohn. IX. Jahrgang. Bericht ueber das Jahr. 1905. M. 35.

London: Rebman Limited, 1906:

Atlas of Applied (Topographical) Human Anatomy. By Dr. K. von Bardeleben, and Professor Dr. H. Haeckel, Dr. F. Frohse, and Professor Dr. T. Ziehen. English adaptation 3rd German edition by J. H. Evans, M.A., M.B. 32s.

Atlas of Typical Operations in Surgery. By Dr. Ph. Bockenheimer and Dr. F. Frohse. Adapted English version by J. H. Evans, M.A., M.B. £3 5s.

Dissections Illustrated. By C. G. Brodie, F.R.C.S. Second edition. London: Whittaker and Co. 2s.

Essays in Pastoral Medicine. By A. O'Malley, M.D., Ph.D., LL.D., and J. J. Walsh, M.D., Ph.D., LL.D. London: Longmans, Green and Co. 1905. 10s. 6d.

Country Cottages and Week-end Homes. By J. H. Elder-Duncan. London: Cassell and Co. 1906. 5s.

Experiments on Animals. By S. Paget. Third edition. London: J. Nisbet and Co., Ltd. 1906. 4s. 6d.

Über ein sehr junges menschliches Ei in Situ. Von Professor Dr. G. Leopold. IV. Band. Leipzig: S. Hirzel. M. 10.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
OCTOBER.	
26 FRIDAY	Lambeth Division, *Metropolitan Counties Branch*, Camberwell Infirmary, Brunswick Square, Peckham Road, S.E., 3.30 p.m. Wandsworth Division, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.15 p.m.
27 SATURDAY..	Yorkshire Branch, Grand Hotel, Scarborough, 4.15 p.m. ; Council, 4.10 p.m. : Dinner, 6.30 p.m.
28 Sunday	
29 MONDAY	Liverpool (Northern) Division, *Lancashire and Cheshire Branch*, Medical Institution, 114, Mount Pleasant, 4 p.m.
30 TUESDAY.....	London : Metropolitan Counties Branch Committee, 4.30 p.m. Reigate Division, *South-Eastern Branch*, Annual Meeting, White Hart Hotel, 4.30 p.m. ; Dinner, 6.30 p.m.
31 WEDNESDAY	Bath and Bristol Branch, University College, Bristol, 8 p.m. Guildford Division, *South-Eastern Branch*, Royal Surrey County Hospital, 4.30 p.m. : Dinner, Lion Hotel, Guildford, 6.30 p.m. North Lancashire and South Westmorland Branch, Railway Hotel, Kendal, 4.45 p.m. North Northumberland Division, *North of England Branch*, Plough Hotel, Alnwick, 3.30 p.m.
NOVEMBER.	
1 THURSDAY...	City Division, *Metropolitan Counties Branch*, Clinical Meeting, St. Bartholomew's Hospital, E.C., 5 p.m.
2 FRIDAY.....	Border Counties Branch. Penrith. Tottenham Division, *Metropolitan Counties Branch*, Hornsey Conservative Association Rooms, 9.15 p.m.
3 SATURDAY...	Ulster Branch, Ballymena.

Date.	Meetings to be Held.
NOVEMBER *(Continued).*	
4 Sunday.....	
5 MONDAY	
6 TUESDAY.....	London : Organization Committee, 11 a.m. London : Special Finance Inquiry Committee, 4.30 p.m.
7 WEDNESDAY	
8 THURSDAY...	Wandsworth Division, *Metropolitan Counties Branch*, Bolingbroke Hospital, 4 p.m.
9 FRIDAY	
10 SATURDAY...	
11 Sunday	
12 MONDAY	
13 TUESDAY.....	
14 WEDNESDAY	
15 THURSDAY...	London : Hospitals Committee. London : Joint Hospitals Committee. Southern Branch, South-Western Hotel, Southampton, 3.45 ; Dinner, 6 p.m.
16 FRIDAY.....	
17 SATURDAY...	
18 Sunday.....	
19 MONDAY	
20 TUESDAY ...	
21 WEDNESDAY	
22 THURSDAY..	Wandsworth Division, *Metropolitan Counties Branch*, Conjoint Meeting with Richmond and Chelsea Divisions, Chelverton Road Hall, Putney, 8.45 p.m.
23 FRIDAY	
24 SATURDAY...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow :

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 3RD, 1906.

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ASSOCIATION INTELLIGENCE.

PROCEEDINGS OF COUNCIL.

AT a meeting of the Council held (by kind permission of the Metropolitan Asylums Board, London, in their Board Room) on Wednesday, October 24th, 1906, at 2 o'clock in the afternoon.

Present:

Dr. H. W. LANGLEY BROWNE, LL.D., Chairman of Council, in the Chair.
Dr. HENRY DAVY, President-elect.
Mr. G. C. FRANKLIN, LL.D., F.R.C.S., Past-President.
Dr. J. A. MACDONALD, Chairman of Representative Meetings.
Dr. H. RADCLIFFE CROCKER, Treasurer.

Dr. JOHN FORD ANDERSON, London.
Mr. H. A. BALLANCE, M.S., Norwich.
Dr. EDGAR G. BARNES, Eye.
Fleet Surgeon E. J. BIDEN, R.N., Southsea (Representative of the Royal Navy Medical Service).
Dr. R. COCHRANE BUIST, Dundee.
Dr. W. A. CARLINE, Lincoln.
Mr. ANDREW CLARK, D.Sc., London
Dr. JAMES CRAIG, Dublin.
Mr. C. F. CUTHBERT, Gloucester.
Mr. E. J. DOMVILLE, Exeter.
Lieutenant-Colonel E. F. DRAKE-BROCKMAN, I.M.S. (ret.), London (Colombo and South Indian and Madras Branches).
Mr. GEORGE EASTES, M.B., London.
Professor DAVID W. FINLAY, M.D., Aberdeen.
Dr. F. LAWRENCE FOX, Plymouth.
Dr. JOHN H. GALTON, Upper Norwood.
Dr. BRUCE GOFF, Bothwell.
Dr. DAVID GOYDER, Bradford.
Dr. J. GROVES, Carisbrooke.
Dr. G. E. HASLIP, London.
Sir VICTOR HORSLEY, F.R.S., LL.D., London.
Dr. J. H. HUNTER, South Shields.
Dr. R. MCKENZIE JOHNSTON, Edinburgh.
Colonel C. H. JOUBERT DE LA FERTÉ, I.M.S., Weybridge (Representative of the Indian Medical Service).
Mr. R. H. KINSEY, Bedford.
Dr. C. W. MARRIOTT, Reading.
Dr. C. J. MARTIN, F.R.S., London (Sydney and New South Wales Branch).
Dr. C. G. DRUMMOND MORIER, London (South Australian and West Australian Branches).
Professor J. T. J. MORRISON, M.D., Birmingham.
Dr. J. MURRAY, Inverness.
Dr. T. G. NASMYTH, Cupar, Fife.
Mr. EDMUND OWEN, LL.D., London.
Mr. C. H. W. PARKINSON, Wimborne Minster.
Dr. P. H. PARSONS, London (Victorian Branch).
Dr. FRANK M. POPE, Leicester.
Dr. EDWIN RAYNER, Stockport.
Mr. H. JONES ROBERTS, Penygroes.
Dr. J. MAXWELL ROSS, Dumfries.
Professor ROBERT SAUNDBY, M.D., LL.D., Birmingham.
Dr. ST. CLAIR B. SHADWELL, Walthamstow.
Dr. CECIL E. SHAW, Belfast.
Dr. E. MARKHAM SKERRITT, Clifton, Bristol.
Professor W. R. SMITH, M.D., London (Malta and Mediterranean Branch).
Mr. W. D. SPANTON, Hanley.
Mr. C. R. STRATON, Salisbury.
Mr. J. LYNN THOMAS, C.B., Cardiff.
Dr. W. J. TYSON, Folkestone.
Dr. NORMAN WALKER, Edinburgh.
Dr. ARTHUR T. WEAR, Newcastle-on-Tyne.
Mr. F. E. A. WEEB, Cambridge.
Dr. SINCLAIR WHITE, Sheffield.
Mr. D. J. WILLIAMS, Llanelly.
Lieutenant-Colonel E. M. WILSON, C.B., C.M.G., S. Farnborough (Representative of the Army Medical Service).

Minutes.

The minutes of the last meeting (July 28th, 1906) were signed as correct after amending Minute 1642 by deleting the concluding words:

"on the ground that this resolution of the Representative Meeting does not properly represent the wishes of the Association."

Apologies.

Read letters of apology for non-attendance from Dr. T. R. Bradshaw, Dr. J. Brassey Brierley, Colonel David Bruce, C.B., F.R.S., Dr. E. H. Colbeck, Dr. James Hamilton, and Mr. T. Jenner Verrall.

New Members.

Dr. F. C. Cuthbert, Colonel Joubert de la Ferté, I.M.S., Dr. P. H. Parsons, and Mr. F. E. Apthorpe Webb were introduced to the Council.

Colonial Returns.

Moved by the CHAIRMAN OF COUNCIL, seconded by Mr. STRATON, and

Resolved: That the returns of all Colonial Branches to the Council for 1906-7 be accepted, but that in future returns it is essential that the By-law as to qualification of a member of Council should be adhered to, and that notice of this By-law should again be sent to all Branches affected.

Irish Committee.

A communication from the Representative of the Belfast Division asking for power to co-opt additional members to the Irish Committee was referred to the Organization Committee.

Registration of Nurses.

A communication from the Border Counties Branch as to representation on the Board of Control *re* registration of nurses was read.

Resolved: That the matter be postponed for the present, but in the meantime the resolution of the Border Counties Branch be taken into account in any future legislation.

Voting at Divisions.

Mr. C. H. W. PARKINSON asked how many Divisions replied giving the numbers present, absent, and voting at the elections of Representatives. Further, why these replies were not published according to the Oxford resolution.

The CHAIRMAN OF COUNCIL reported in reply that at the Representative Meeting held at Oxford in 1904, the following minute was passed:

105 That in recording the votes of members of Divisions on matters to be referred to Representative Meetings the following plan should be adopted—namely: the number of voting affirmative present; the number of voting negative present: the number absent.

This minute was embodied in a circular letter forwarded to

the Divisions on December 1st, 1904 (*vide* Appendix C of Medico-Political minutes, December 21st, 1904).

On February 15th, 1905, the Medico-Political Committee passed the following recommendation for the consideration of the Council:

That it be recommended that the names and numbers of members attending the meetings of Divisions be not included in the reports of Division meetings published in the JOURNAL.

This resolution was confirmed by the Council, and in consequence no details as to the numbers present at a Division meeting are published in the JOURNAL.

Whereupon Mr. PARKINSON intimated that he would give notice to raise the question at the January meeting.

Journal and Finance Committee.

Resolved: That the minutes of the Journal and Finance Committee of October 8th and 17th, 1906, be received.

Resolved: That the accounts for the quarter ending 30th September last, amounting to £12,306 11s. 4d., be received and approved, and the Treasurer be empowered to pay those remaining unpaid, amounting to £3,360 15s. 1d.

Moved by the TREASURER, seconded by the CHAIRMAN OF COUNCIL,

That the Scottish Committee be granted a sum of £35 towards the expenses of the Poor-law inquiry in Scotland.

Moved by the TREASURER, seconded by Mr. EASTES, and

Resolved: That it having been brought to the knowledge of the Council that there is no record of the numbers voting for those resolutions of the Representative Meeting which require a two-thirds majority according to Article XXXV and upon which the Council decided to take a referendum, this Council do take no further action.

Dr. POPE inquired what became of the resolutions of the Representative Meeting as to which the Council had decided not to take a referendum.

The CHAIRMAN OF COUNCIL replied that the Solicitor to the Association advised that such resolutions became law automatically.

Premises and Library Committee.

Resolved: That the minutes of the Premises and Library Committee of October 11th, 1906, be received.

Moved by Mr. ANDREW CLARK, seconded by Sir VICTOR HORSLEY, and

Resolved: That in the opinion of the Council it is undesirable at present to extend the hours during which the Library is open to members.

Resolved: That the accounts for the quarter be received and the Treasurer be empowered to pay them, amounting to £24 1s. 2d.

Ethical Committee.

Resolved: That the minutes of the Ethical Committee of July 13th and October 12th, 1906, be received.

Moved by Mr. KINSEY, seconded by Dr. E. L. FOX, and

Resolved: That the Council approve the adoption of the Bradford Rules by the Birmingham (Central) Division with slight modifications.

Resolved: That the Council approve the adoption of the Rules submitted by the Sheffield Division, with the exception of the proposed Rule D.

The Council then considered and dealt with the cases of two members of the Association recommended for expulsion.

Public Health Committee.

Resolved: That the minutes of the Public Health Committee of October 2nd, 1906, be received.

Moved by Mr. PARKINSON, seconded by Dr. BUIST, and

Resolved: That the support of the Association be given to the principles of the following resolutions adopted by the conference of representatives of the National Society for the Prevention of Cruelty to Children and the Coroners' Society with the British Medical Association:

1. That whenever upon an inquest taken upon the body of a child under three years of age it is found by the jury that death has been caused by suffocation while the child was in bed with its parents or other adults, and that the suffocation was not the result of natural causes or of the presence of any foreign body in the throat or air passages, such finding shall be evidence that such parents or other adults have neglected such child in a manner likely to cause unnecessary injury to its health within the provisions of Section 1 of the Prevention of Cruelty to Children Act, 1904.
2. That whenever upon an inquest taken upon the body of a child under ten years of age it is found by the jury that death had been caused through
   (*a*) burns sustained by the clothing of the deceased child taking fire at an open fire-grate, or
   (*b*) by scalds caused by the child having access to any vessel of hot liquid on the bars or hobs of an open fire-grate,

   the absence of an efficient fire-guard around such fire-grate shall be evidence of neglect on the part of the parents or other persons having the custody for the time being of such child under Section 1 of the Prevention of Cruelty to Children Act, 1904.

Scottish Committee.

Resolved: That the minutes of the Scottish Committee of October 3rd, 1906, be received.

Resolved: That the list of members of the Committee include all the Secretaries of Scottish Branches, but that in the case of a Branch having two Secretaries, neither of whom is a member of the Central Council, the Secretaries should be asked to arrange for the attendance of only one.

Resolved: That steps should be taken to include in the "Warning Notice" of the JOURNAL such Poor-law appointments as should be notified by the Secretary of the Scottish Poor-law Medical Officers' Association.

Organization Committee.

Resolved: That the minutes of the Organization Committee of October 9th, 1906, be received.

Resolved: That the Council approve the alterations of rules submitted by the West Norfolk Division.

Resolved: That the Council approve the following Rule submitted by the Sydney and New South Wales Branch:

Representatives of the Branch authorized by the By-laws of the British Medical Association to be elected or appointed by the New South Wales Branch to be elective members of the Council of the British Medical Association shall be elected from time to time. Such Representatives may be members of a Branch other than the New South Wales Branch.

Arising out of Minute 27 of the Organization Committee of October 9th, 1906, as to the Solicitor's report on the question referred to him by the Central Council as to the legality of the election of a candidate as a member of the Association, by the Council of a Branch, in whose area he was not permanently resident,

It was moved by Dr. MARKHAM SKERRITT, seconded by Professor SAUNDBY, and

Resolved: That the gentleman referred to be informed that the Council does not recognize his election.

Medico-Political Committee.

Resolved: That the minutes of the Medico-Political Committee of October 10th, 1906, be received.

Hospitals Committee.

Resolved: That the minutes of the Hospitals Committee of October 11th, 1906, be received.

Resolved: That the following be the standing reference to the Hospitals Committee:

It shall be the duty of the Hospitals Committee to consider and to report to the Council upon all questions concerning hospitals and other medical charities.

Metropolitan Hospital Sunday Fund.

Moved by Dr. POPE, seconded by Sir VICTOR HORSLEY:

That a communication be addressed to the Privy Council stating that the Council of the Association endorses the representations of its Metropolitan Counties Branch with respect to the application of the Metropolitan Hospital Sunday Fund for a Royal Charter.

Whereupon an amendment was moved by Dr. BUIST and seconded.

That the Chairman of the Council, the Chairman of the Hospitals Committee, Sir Victor Horsley, F.R.S., and Dr. J. Ford Anderson be asked to draw up a statement to the Privy Council in opposition to the application for a Royal Charter from the Metropolitan Hospital Sunday Fund.

The amendment having been put from the Chair was declared to be carried. Also as a substantive resolution.

Irish Committee.

Resolved: That the minutes of the Irish Committee of October 13th, 1906, be received.

Moved by Dr. Craig, seconded by Dr. Cecil Shaw, and

Resolved: That the County Councils should be made the sanitary authorities for the erection of sanatoriums for the treatment of tuberculosis.

Resolved: That the Irish Committee of the British Medical Association requests the Government to reintroduce the Bill for the Compulsory Notification of Infectious Diseases for all Ireland, which was dropped in last session of Parliament.

Arrangement Committee.

Resolved: That the minutes of the Arrangement Committee of October 19th, 1906, be received.

Resolved: That the Annual Meeting be conducted in thirteen sections:—Dental Surgery; Diseases of Children; Electrical Section; Laryngology, Otology, and Rhinology; Medicine; Naval and Military; Obstetrics and Gynaecology; Ophthalmology; Pathology; Psychological Medicine; State Medicine; Surgery; and Tropical Diseases.

The Provisional Programme containing the times of meeting for the Exeter Meeting was then considered, and upon the motion of Sir Victor Horsley, seconded by the Chairman of Representative Meetings, was postponed until the January meeting of the Council.

Resolved: That there be two Addresses at the Exeter Meeting, namely, Medicine and Surgery. That Dr. W. Hale White, London, and Mr. Henry Trentham Butlin, F.R.C.S., London, be invited to deliver the Addresses respectively.

Resolved: That there be a Popular Lecture, and that Sir John Wm. Moore, of Dublin, be asked to give this Lecture.

Candidates.

The election of candidates was then considered, when Colonel Joubert de la Ferté reported that he was not clear as to whether one of the candidates was qualified for membership of the Association.

Resolved: That the candidature referred to be postponed, and in the meantime the question of his eligibility be referred to the Naval and Military Committee.

Resolved: That the remaining 27 of the 28 candidates whose names appear on the circular convening the meeting be and they are hereby elected members of the British Medical Association.

Extraordinary General Meeting.

Moved by the Chairman of Council, and

Resolved: That an Extraordinary General Meeting for the consideration of the proposed alterations in the Articles as required by Statute be summoned in London for Wednesday, November 28th, 1906.

Vivisection Commission.

Moved by Sir Victor Horsley, seconded by Professor Saundby, and

Resolved: That a request be addressed to Lord Selby to ask that the Association may be heard by witnesses before the Royal Commission on Vivisection now sitting.

Resolved: That the question of nominating witnesses to give evidence before the Royal Commission on Vivisection be deferred until the January meeting of the Council.

Toronto Votes of Thanks.

The Chairman of Council undertook to transmit the following votes of thanks arising out of the annual meeting at Toronto:

That the best thanks of the Association be given to the Chancellor, President, and Board of Governors of the University of Toronto for so kindly placing their magnificent buildings at the disposal of the Association for the holding of its meetings.

To His Honour the Lieutenant-Governor of Ontario, (William Mortimer Clark, Esq., K.C., LL.D.), for the hospitality extended to members of the Association.

To the Dominion Government for its generous financial assistance.

To the Government of Ontario for its generous financial support.

To His Worship the Mayor and Corporation for their warm welcome and financial support.

To the President and Mrs. Reeve for their uniform kindness and hospitality during the Toronto Meeting.

To the President, Mr. I. H. Cameron, and members of the Toronto Branch, and to the medical profession of Toronto for their loyal assistance.

To the President, Dr. Alexander McPhedran, and members of the Canadian Medical Association, and to the President, Dr. G. A. Bingham, and the members of the Ontario Medical Association, for their warm welcome.

To the Chairmen and members of all Committees for their indefatigable labours in the making of the Toronto Meeting so pronounced a success.

To the members of the Ladies' Entertainment Committee who did so much to ensure the enjoyment of the visiting ladies.

To the Chairmen and members of the Membership Committee for their splendid efforts in so largely recruiting the Association.

To Dr. A. Jukes Johnson (Chairman), Dr. W. A. Young, and Dr. T. D. Archibald (Secretaries of the Exhibits Committee) for their arduous duties in connexion with the organization of so large an undertaking as the Annual Exhibition.

To Professor J. F. W. Ross, the Honorary Local Treasurer, for his valuable assistance.

To the Trustees of the Toronto General Hospital.

To the Trustees of the Hospital for Sick Children.

To J. Ross Robertson, Esq., for his unbounded hospitality and invaluable assistance.

To Dr. F. N. G. Starr, Dr. J. J. Mackenzie, and Dr. D. J. Gibb Wishart, the Honorary Local Secretaries, for their untiring efforts on behalf of the Association in the successful organization of the 1906 meeting. The Council also is glad to learn that Dr. Starr has recovered from the illness brought on by his unselfish labours.

Reports of Standing Committees.

ETHICAL COMMITTEE.

A meeting of the Ethical Committee was held at the office of the Association on July 13th, 1906, when there were present: Mr. R. H. Kinsey in the chair; Dr. J. Ford Anderson, Mr. H. A. Ballance, Dr. A. G. Bateman, Mr. G. H. Broadbent, Dr. G. W. Crowe, Dr. Bruce Goff, Dr. R. L. Langdon-Down. Mr. W. E. Hempson, Solicitor to the Association, attended to advise the Committee upon certain matters.

Proposed Expulsion of a Member.

The Committee carefully considered the recommendation from the Southern Branch that a member of the Association should be expelled, and decided to present its report on the matter to the Council in October.

Notices under Rule Z.

On the consideration of a communication from a member of the Association, inquiring as to the circulation outside the area of Divisions of notices under Rule Z, it was decided to consider at the next meeting the possibility of a modification of the rule permitting the extended circulation of notices.

Contract Practice.

The Committee considered a report by the Medical Secretary upon the result of the investigations which, at the request of the Division concerned, he had made into the conditions of Contract Practice in a provincial town with special reference to the position of two practitioners who had come into the town to take club appointments upon conditions disapproved by the majority of the local profession, but who, in the course of the inquiry, expressed their willingness, though not members of the Association, to abide by the decision of the Central Ethical Committee.

The Committee found that the action of the practitioners in question had been incorrect, and that it was their duty now to co-operate with the local practitioners for the improvement of local conditions of practice, resigning

their present appointments if required so to do for this purpose.

Rules of Divisions.

The Committee recommended the Council to approve the adoption of rules submitted by a Division with the exception of a modified form of Rule Z by which it was proposed that the Executive Committee before proceeding to circulate notices should refer the matter, not to the Central Ethical Committee, as provided in the original form of the rule, but to the Branch Council. The Committee considered it indispensable that all such cases should be submitted for their review, as previously laid down by the Central Council.

Ethical Cases.

In a case of complaint by a member against the action of a local practitioner which the Branch concerned had refused to investigate, it was decided to request the Scottish Committee to assist the Central Ethical Committee by investigating the matter.

Canvassing for Clubs.

The Committee considered and expressed its concurrence in the report of the South-East Ireland Branch Council as to the impropriety of the action of a member of the Branch who was found to have been a party to the employment of a paid collector for a private club.

The first meeting of the Committee for the year 1906-7 was held on October 12th, when there were present: Mr. R. H. Kinsey, Chairman (in the chair), Dr. J. Ford Anderson, Mr. H. W. Armit, Dr. A. G. Bateman, Mr. G. H. Broadbent, Dr. Bruce Goff, Dr. R. L. Langdon-Down, Dr. E. J. Maclean, Mr. W. D. Spanton.

Election of Chairman.

Mr. R. H. Kinsey was re-elected Chairman of the Committee for the year.

Quarterly Meetings.

Quarterly meetings were fixed for January 11th, April 5th, and June 21st, 1907.

Appointment of Subcommittee.

It was decided to appoint a Subcommittee, as last year, to deal in the interval between Committee meetings with such business as in the opinion of the Chairman would suffer by waiting for the quarterly meeting of the Committee, the Subcommittee being authorized to give expressions of opinion on cases submitted in conformity with principles and precedents already established, but not to decide any new questions of principle. The Chairman, and the members resident in London, were appointed as the Subcommittee.

Proposed Expulsion of Members.

The Committee approved, for presentation to the Council, its report on the case submitted by a Branch, and investigated at previous meetings, a recommendation being arrived at that the member concerned be expelled from the Association.

The Committee also investigated a case presented by another Branch, and recommended that the member concerned be expelled from the Association.

Proposed Modification of Rule Z.

The question of the proposed modification of Rule Z, deferred from the last meeting of the Committee, was referred to the Subcommittee for consideration and report.

The Title of "Doctor."

On the consideration of a communication from a medical practitioner respecting the use of the prefix "Dr.," it was decided to refer the correspondent to the previous consideration of this matter by the Committee and by the Annual Representative Meeting, and to state that the matter could not now be reopened by the Committee.

Advice Given.

The Committee approved of advice given as follows:

(*a*) That any medical practitioner accepting an appointment as medical officer to a medical aid branch of an industrial insurance company, which employed paid collectors, would, if new members were accepted, incur the risk of the patients of other practitioners being induced to join such branch, and therefore of being found guilty by the General Medical Council of complicity in canvassing, involving removal from the *Medical Register*.

(*b*) That the professional co-operation of registered medical practitioners with unregistered dentists, as by the administration of anaesthetics for their operations, is regarded by the General Medical Council as an offence against the public of a similar nature as professional co-operation with an unregistered medical practitioner, and therefore renders the medical practitioner concerned liable to removal from the *Register*.

(*c*) That the issue of handbills containing particulars of surgery hours and similar information is undesirable, even though, as stated by the practitioner concerned, they are given to patients only.

(*d*) That door plates giving the names of medical practitioners should not be placed upon premises of which there is no effective occupation by such practitioners.

Procedure of Committee.

As to the procedure of the Committee it was directed that correspondents be informed (i) That in cases in which the information before the Committee rests solely upon documentary evidence which is independent of the testimony of the complainant, the name of the complainant is not given to the respondent. (ii) That the Committee cannot express any opinion upon cases in which they have not before them statements of facts approved by all parties concerned.

Rules as to Appointments.

The Council was recommended to approve Rules submitted by a Division, except as regards a proposed Rule specifying rates for payment, and it was ordered that the Division be informed of the principle throughout adhered to by the Council—namely, that provisions as to rates should be determined locally without reference to the Central Council, by means of resolutions adopted pursuant to Rules, and not by the Rules themselves, for which the approval of the Central Council is necessary.

Resolutions at the Representative Meeting.

Upon consideration of the resolutions of the Annual Representative Meeting affecting the work of the Committee the following was noted as an instruction:

> *Minute 312.*—That it is absolutely necessary, in the interests of the medical profession, that the Association should take up cases of a penal nature before the General Medical Council, as complainants.

The Committee authorized the Subcommittee to decide, subject to the advice of the Solicitor, as to bringing cases before the General Medical Council which would be unduly delayed if deferred for the consideration of the Committee at its ordinary quarterly meetings.

With respect to the following recommendation of the Committee, referred back both by the Council and by the Representative Meeting:

> (II) That members of the said Council, who are also members of the British Medical Association, should at once on election, or immediately after election, cease to be members of the British Medical Association during such time as their appointment lasts,

the Committee decided that the matter should be left for the individual decision of those members of the Association who are members of the General Medical Council, and that the recommendation of the Committee referred back be withdrawn.

Report on Consultants.

In reference to the Report on Consultants, as amended by the Annual Representative Meeting, the Committee decided, when forwarding the report to the Divisions, to state in a covering letter the considerations which had led to the original statement of the Committee which was modified by the Annual Representative Meeting.

It was also decided to submit at the same time the following question for consideration:

> Whether doctors practising in spas and health resorts should be called upon to act under the same rules as consultants as regards communication with the original medical attendants of visitors to such resorts who may come under their care.

Of the following resolutions of the Representative Meeting, the first was noted as an instruction to the Committee, and with respect to the second, it was remitted to the Chairman and Medical Secretary to prepare

the index under the supervision of the Emergency Sub-committee.

That, in the event of a death vacancy occurring during the engagement of an assistant, the fact that there had been no bond or agreement between the principal and the assistant shall not entitle the latter to start practice in the same place.

That the Ethical Committee be instructed to print and issue from the central office, on payment, a classified index of illustrative cases relating to ethical matters decided by the Ethical Committee up to this date.

Signed Articles on Medical Subjects in Periodicals.

Upon consideration of a communication from a member, whose action in supplying signed articles on medical subjects to lay newspapers had been questioned, it was decided to remit to the Subcommittee the duty of preparing a report on the general principles involved.

PUBLIC HEALTH COMMITTEE.

The Public Health Committee held on October 2nd its first meeting for the session 1906-7. The following members were present: Mr. C. H. Watts Parkinson, Dr. Edgar Barnes, Dr. D. Goyder, Mr. Herbert Jones, Dr. F. C. Martley, Dr. T. G. Nasmyth.

Election of Chairman.

Mr. C. H. Watts Parkinson was unanimously re-elected Chairman of the Committee for the year 1906-7.

Meetings of Committee.

The Committee decided to fix the dates of its quarterly meetings for the session as follows: January 8th, March 26th, and June 18th, 1907.

Resolutions of the Annual Representative Meeting.

The Committee carefully considered the various resolutions of the Annual Representative Meeting which affected its work, and decided to prepare special reports on the subjects of conferring upon every registered medical practitioner the privilege of a public vaccinator, and of the competence of all registered medical practitioners for giving instruction in vaccination.

Having regard to the resolution of the Council approving the recommendation of the Committee that support should be given to the Bill of Mr. Luke White now before Parliament, making it no longer compulsory upon coroners' juries to view the body at all inquests, it was decided to approach the Home Secretary urging the Government to support the Bill.

Security of Tenure.

The Chairman reported that the President of the Local Government Board had very kindly met informally himself, Dr. Herbert Jones, the Editor, and the Medical Secretary to talk over the general question of security of tenure of medical officers of health. The proceedings were private, and no report could be published, but those present much appreciated the kindness with which they were received by Mr. Burns.

The Committee considered the present position of the Public Health Bill, with particular reference to the difficulties which it appeared possible might be created in some quarters by the present form of Clause 2, Section 1. It was decided for the present to keep the Bill before Parliament in its existing form. The question was also considered of the possibility of achieving, in part at least, the object of the Bill by a Local Government Board Order under Section 181 of the Public Health Act, and it was decided to inquire into the matter.

International Congress of Hygiene.

The Chairman and Mr. Herbert Jones reported upon their attendance as representatives of the British Medical Association at the International Congress of Hygiene at Geneva in September, and were thanked for their services in the matter.

The Overlying of Infants.

The Chairman formally reported to the Committee his action on its behalf in attending the Conference with representatives of the National Society for the Prevention of Cruelty to Children and of the Coroners' Society on the subject of overlying of infants. The proceedings of the Conference were reported in the British Medical Journal of September 8th, p. 585, and the Committee considered the recommendations made with a view to future action. It was decided to recommend the Council to support the principles of the following resolutions adopted at the Conference:

1. That whenever upon an inquest taken upon the body of a child under 3 years of age it is found by the jury that death has been caused by suffocation while the child was in bed with its parents or other adults, and that the suffocation was not the result of natural causes or of the presence of any foreign body in the throat or air passages, such finding shall be evidence that such parents or other adults have neglected such child in a manner likely to cause unnecessary injury to its health within the provisions of Section 1 of the Prevention of Cruelty to Children Act, 1904.
2. That whenever upon an inquest taken upon the body of a child under 10 years of age it is found by the jury that death had been caused through
   (*a*) burns sustained by the clothing of the deceased child taking fire at an open fire-grate, or
   (*b*) by scalds caused by the child having access to any vessel of hot liquid on the bars or hobs of an open fire-grate.

   the absence of an efficient fire-guard around such fire-grate shall be evidence of neglect on the part of the parents or other persons having the custody for the time being of such child under Section 1 of the Prevention of Cruelty to Children Act, 1904.

MEDICO-POLITICAL COMMITTEE.

A meeting of the Medico-Political Committee was held at the office of the Association on Wednesday, October 10th, 1906, when there were present: Dr. J. A. Macdonald, Dr. H. Radcliffe Crocker (Treasurer), Mr. H. W. Armit, Dr. G. E. Hastip, Mr. George Jackson, Dr. H. A. Latimer, Dr. L. S. McManus, Mr. C. H. Watts Parkinson, Dr. C. E. Robertson, Dr. Cecil E. Shaw, Mr. C. R. Straton.

Election of Chairman.

Dr. Macdonald, Chairman of the Representative Meeting, was unanimously elected Chairman of the Committee for the year.

Meetings of Committee.

It was decided that quarterly meetings should be held on January 9th, April 3rd, and June 19th, 1907.

Resolutions of the Representative Meeting.

The Committee carefully considered the resolutions of the Annual Representative Meeting affecting the work of the Committee. It was decided to reappoint the following Subcommittees: Parliamentary, Lunacy Legislation, Midwives, Public Morality, Medical Witnesses, Income Tax, Contract Practice, for the purpose of considering the various matters arising out of recommendations of the corresponding Subcommittees of last session, which were reported by the Medico-Political Committee to the Annual Representative Meeting, and on which the Representative Meeting ordered action to be continued.

The matters referred to these Subcommittees were respectively as follows:

To the Parliamentary Subcommittee:

To continue the Association's action in Parliamentary elections, to deal with the matters of Nurses' Registration, Death Registration and Coroner's Law, Reorganization of the Local Government Board, Amendment of the Law as to Secret and Proprietary Medicines, Workmen's Compensation Bill, and other Parliamentary business.

To the Lunacy Subcommittee:

To carry out the recommendations of the Representative Meeting with respect to the amendment of Lunacy Law and Inebriates Acts.

To the Midwives Subcommittee:

To consider action with a view to the amendment of the Midwives Act, and the rules of the Central Midwives Board.

To the Public Morality, Medical Witnesses, and Income Tax Subcommittees:

To continue the action already commenced in respect of these matters.

To the Contract Practice Subcommittee:

To give effect to the resolutions of the Representative meeting on this subject, and generally to deal with all questions of Contract Practice referred to the Medico-Political Committee.

The Committee also decided again to appoint representa-

tives of the Association on Joint Committees with the British Dental Association and with the Ophthalmological Society respectively; the former to deal with the drafting of the Medical Acts Consolidation Bill, and the latter to continue action already commenced with respect to the "Sight Testing" Opticians Bill promoted by the Spectacle Makers' Company.

Motor-car Tax.

A communication received through the Editor of the British Medical Journal relative to the possible effect upon members of the medical profession of the taxing of motor cars was referred to the Income Tax Subcommittee for consideration and report.

Model Agreement between Doctors and Clubs.

The Committee received the report of the Contract Practice Subcommittee of July 11th presenting, among other matters, a draft, prepared by instruction of the Committee, of a form of Model Agreement between a medical officer and a contract practice organization. The Committee approved the draft as a model for suggestion to medical practitioners who might desire to be advised in the matter.

Unqualified Practice.

The Committee carefully considered four cases of alleged unqualified practice reported from Liverpool, Manchester, Sheffield, and Wandsworth respectively. Instructions were given to the Medical Secretary and the Solicitor to take action with respect to the Liverpool and Sheffield cases; in the other two cases it was considered that the evidence was not at present sufficient to justify action.

Vote of Thanks to the late Chairman.

The Committee unanimously placed on record an expression of their regret that Dr. R. C. Buist had ceased to be a member of the Committee, and of their appreciation of the great services which he had rendered to the Association and the profession during the two years that he held office as Chairman.

ORGANIZATION COMMITTEE.

A meeting of the Organization Committee was held at the office of the Association on Tuesday, October 9th, when there were present: Mr. T. Jenner Verrall in the chair; Dr. J. A. Macdonald, Chairman of Representative Meetings; Mr. H. A. Ballance, Mr. Andrew Clark, Dr. Alfred Cox, Dr. E. D. Kirby, Dr. E. Rayner, Mr. F. E. A. Webb, Professor J. T. J. Morrison and Professor A. H. White (who attended by request of the Committee); also Mr. W. E. Hempson, Solicitor to the Association.

Election of Chairman.

Mr. Verrall stated that he had received requests from members of the Committee that he should consent to be re-elected as Chairman for the ensuing year, but he felt it to be his duty to state to the Committee that, in his view, it was not desirable in the interests of the Association that the chairmanship of a committee should be held for so many years by one member, and therefore he did not desire to be re-elected.

The Committee, however, resolved unanimously:

That Mr. Verrall be requested again to accept the office of Chairman for the ensuing year on the special grounds of the importance of the work before the Committee connected with the revision of the draft Charter, and of the special knowledge of the matter which he has already acquired.

Co-option.

Under the powers of the Committee, conferred by By-law 40, paragraph 8, to add to its numbers for special purposes a limited number of members specially qualified to assist in its work, Sir Victor Horsley, Professor J. T. J. Morrison, and Professor A. H. White were co-opted to assist in the redrafting of the Charter and the consideration of the questions of Branch organization arising out of Minute 181 of the Annual Representative Meeting, 1906.

Meetings of the Committee.

It was decided that ordinary meetings of the Committee should be held on December 11th, 1906, February 12th, April 9th, and June 11th, 1907.

Election of Members.

In response to an inquiry from a Colonial Branch as to whether the members of a local medical society might be elected *en bloc*, it was decided to reply that the mode of election rested in the discretion of the Branch Council, but that it was necessary that every applicant for membership should, prior to election, have signed the application form stating his undertaking to comply with the regulations of the Association.

Medical Secretary's Visits to Divisions.

The Medical Secretary's report of visits to Divisions was received and approved.

Rules Submitted by Divisions and Branches.

Certain alterations of rules submitted by Divisions and Branches were considered and reported upon to the Council.

Change of Boundaries.

The Committee approved the transfer of Black Torrington from the Plymouth Division to the Barnstaple Division of the South-Western Branch, there being complete local agreement to the proposal.

Other questions of boundaries were considered, but found not ready for decision.

Draft Charter.

The Committee considered the amendment of the draft Charter and draft Ordinances approved by the Annual Representative Meeting, and commenced the consideration of the draft By-laws.

The further consideration of the draft By-laws was deferred, with other business, until a special meeting of the Committee, to be held on Tuesday, November 6th.

Legality of an Election.

The Solicitor's report was received upon the case of an election of a member which had been challenged on the ground of alleged non-residence in the area of the Branch by which he was elected, and the report on the case was approved for submission to the Council.

SCOTTISH COMMITTEE.

A meeting of the Scottish Committee was held in the North British Station Hotel, Edinburgh, on Wednesday, October 3rd, 1906, when there were present: Dr. R. Cochrane Buist, Dr. Bruce Goff, Dr. J. Hamilton, Dr. R. McKenzie Johnston, Dr. A. P. Low, Dr. J. E. Moorhouse, Dr. J. Murray, Dr. J. Maxwell Ross, Dr. A. Logan Turner, Dr. Norman Walker.

Election of Officers.

Dr. Bruce Goff was appointed chairman and Dr. J. E. Moorhouse secretary of the Committee.

Constitution of Committee.

It was recommended that the list of members of the Committee include all the Secretaries of Scottish Branches, but that in the case of a Branch having two secretaries, neither of whom is a member of the Central Council, the secretaries should be asked to arrange for the attendance of only one.

The Committee expressed the opinion that the Border Counties Branch should appoint an additional secretary from the Scottish Division to act on the Committee.

Poor-Law Subcommittee.

The minutes of the Subcommittee were received and approved, and a recommendation to the Central Council was adopted to the effect that steps should be taken to include in the "Warning Notice" in the Journal such Poor-law appointments as should be notified by the Secretary of the Scottish Poor-law Medical Officers' Association. The Central Council was also requested to grant a sum of £35 for expenses in circulating among the Scottish Poor-law medical officers the series of questions drafted by the Poor-law Subcommittee and in analysing and collating the replies.

The Poor-law Subcommittee was reappointed as follows: Dr. And. Balfour, Dr. R. C. Buist, Dr. G. Campbell, Dr. W. Core, Dr. J. McC. Johnston, Dr. J. E. Moorhouse, Dr. W. L. Muir, Dr. A. T. Sloan, and Dr. A. Trotter.

Association House in Scotland.

The Secretary reported that this question had been submitted to the Councils of the Scottish Branches, and that three replies had been received, one favourable and two unfavourable. The Committee resolved to take no further action in the matter.

Ethical.

A remit from the Ethical Committee regarding the investigation of a case of alleged unethical procedure was considered; the Secretary was thanked for the trouble he had taken in obtaining the necessary information, and the correspondence was transmitted to the Central Ethical Committee.

IRISH COMMITTEE.

A meeting was held in the Royal College of Physicians, Dublin, on October 13th, when there were present: Professor Byers (Belfast), Dr. R. B. Carey (Borris), Dr. James Craig (Dublin), Dr. J. G. Cooke (Londonderry), Dr. J. Singleton Darling (Lurgan), Dr. Joseph Giusani (Cork), Dr. Joseph M. Kenny (Granard), Dr. P. G. Lee (Cork), Dr. D. J. O'Connor (Cork), Dr. J. Quirke (Piltown), Dr. Cecil Shaw (Belfast), Dr. Denis Walshe (Graigue), and Professor White (Dublin).

Election of Officers.

Dr. Craig was elected Chairman for the coming year, and a vote of thanks to Professor Byers for his services during the past year was carried by acclamation. Professor White was re-elected Honorary Secretary.

Poor-law Inquiry.

The Secretary reported the receipt of £25 voted by the Central Council to the Committee for Expenses in connexion with the Poor-law inquiry.

Sanatoriums for Consumption.

It was resolved that the County Councils should be the sanitary authorities for the erection of sanatoriums for the treatment of tuberculosis.

Compulsory Notification of Infectious Disease.

The Committee resolved to request the Government to reintroduce the Bill for the compulsory notification of infectious diseases for all Ireland, dropped in the last session of Parliament.

Next Meeting.

The next meeting of the Committee was fixed to be held in Dublin on Saturday, January 5th, 1907.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

LANCASHIRE AND CHESHIRE BRANCH

Manchester and Salford Divisions.

The Organization of Divisions.

A meeting, to discuss the present position of affairs in the Association, was held at Dr. Brassey Brierley's house, Old Trafford, on the evening of October 22nd.

The Executive Committee of the Manchester (West) Division having experienced considerable difficulty in carrying on the work of their section of the Association, in consequence of the very scanty attendance of members at the general meetings of the Division; and understanding that their experience has been shared, to a large extent, by the officials of the other local Divisions, determined to hold a conference to consider the best means of remedying this lamentable state of things. They therefore issued invitations to the Chairmen and Secretaries of the Manchester and Salford Divisions and other prominent members of the Lancashire and Cheshire Branch.

The Committee and their guests were courteously entertained at supper by Dr. and Mrs. Brassey Brierley before the meeting.

Representatives from all the Manchester and Salford Divisions were present and letters expressing regret at their inability to attend were received from Sir James Barr, Dr. Donald, Dr. Arthur Helme, Dr. David Owen, Dr. T. R. Bradshaw, Dr. Colin Campbell, Dr. Rayner, and other members of the Branch.

Dr. C. Stennett Redmond, Chairman of the Manchester (West) Division, presided.

A lengthy discussion took place, and many suggestions were made regarding the best methods of executing the work of the Association and of inducing members to take a lively interest in the proceedings.

Those present were unanimous in thinking that the arrangement of the Association into comparatively small Divisions has not, so far, worked well in the large towns; and that the failure to fulfil expectations formed at the time of reconstruction, is particularly evident in this district; while many considered that the usefulness of the Branch, especially for scientific work, has been much diminished; and that decentralization, instead of increasing the enthusiasm of members, is rapidly killing all interest in the doings of the Association. The opinion was strongly expressed that, by uniting the five small local Divisions into one body, the work would be greatly facilitated.

In discussing the attendance of members at Divisional meetings, it was agreed that seven is a liberal estimate of the average number present on each occasion; and it was pointed out that if, as seems probable from available evidence, the same average obtains all over the country, the Representatives of the great mass of educated and intelligent men in the Association are sent to the Annual Meeting by a grand total of, at most, 980 votes, in place of a possible 19,000. The following resolution was unanimously agreed to:

> That this meeting, in the hope of stimulating the interest of members in Association work, recommends the institution of combined meetings of all Manchester and Salford Divisions, to be held at frequent intervals, for the promotion of social intercourse among members and for the transaction of Association business.

METROPOLITAN COUNTIES BRANCH:

Lambeth Division.

A meeting of this Division was held at the Camberwell Infirmary, Brunswick Square, S.E., on Friday, October 26th, at 3.30 p.m., Dr. Robert Capes in the chair.

Confirmation of Minutes.—The Secretary read the minutes of the last meeting, which were confirmed.

General Medical Council Election.—A letter from Dr. Martin, of Clapham Junction, was read, asking on behalf of the McManus Committee the support of the Lambeth Division on behalf of the candidature of Dr. McManus, of Wandsworth Common, at the forthcoming election of the General Medical Council. Dr. Gibbons proposed and Dr. Sangster seconded:

> That the Lambeth Division support the candidature of Dr. McManus.

This was put to the meeting and carried unanimously.

The Work of the Division.—The Chairman then, in a short and eloquent speech, reviewed the work done in the Division during the past session, and welcomed those present at the first meeting of the session 1906-7.

Annual Representative Meeting.—Dr. Esler then delivered his address giving an account of his attendance at the Representative Meeting held in London during July last. A vote of thanks to Dr. Esler for his very able paper, and that his report be adopted, was proposed from the chair and carried unanimously.

Demonstrations.—Dr. Herbert French, of Guy's Hospital, then demonstrated upon a number of microscopical specimens kindly lent by the Clinical Research Association, which were much appreciated by the members present. The microscopes, as also a large number of the latest patterns of surgical instruments and appliances, were supplied for the afternoon by Messrs. Maw, Son, and Sons, of Aldersgate Street, E.C.

Votes of Thanks.—A vote of thanks to Dr. French was then proposed by Dr. Leftwich, and seconded by Dr. Norton, for his trouble in coming down and demonstrating. This was put to the meeting and carried unanimously. A vote of thanks to Dr. Keats and the Guardians of the Borough of Camberwell for allowing the use of the

infirmary for the meeting was proposed by Dr. Hickley and seconded by Dr. Atkinson, and carried unanimously.

Visit to Infirmary.—Dr. Keats afterwards took members round the very up-to date institution of which he is medical superintendent.

Wandsworth Division.

An ordinary meeting was held on Friday, October 26th, at the Wandsworth Town Hall, Dr. Llewellyn Williams (Chairman) being in the chair.

Popular Lecture.

Mr. Ebenezer Howard gave a lecture on the Garden City Association and its aims and objects. The subsequent discussion was entered into by Sir Henry Kimber, Bart., M.P., Dr. Moon, Mr. Reginald Harrison, Alderman the Rev. W. A. Anderson, Dr. J. Gay, Dr. Mark Robinson, Dr. Swallow, and others. Mr. Reginald Harrison said:

The Garden City Association is a form of co-operation under well thought-out conditions which permits of great development and profit in connexion with our daily life. The proposal to launch an enterprise of this kind is not entirely new.

It may be within the recollection of some present that a very distinguished medical man, the late Sir Benjamin Ward Richardson, F.R.S., who may for his many acts be justly called a public benefactor, introduced to notice over thirty years ago a visionary city to which the name Hygeia was applied. Though a dream, it was no less a reality. For though the city was never raised, its foundations are still with us.

As bearing directly upon the subject before us permit me to read you a short extract from Dr. Richardson's lecture delivered before the Social Science Congress at Brighton in 1875. Dr. Richardson said:

It is my object to put forward a theoretical outline of a community—so circumstanced and so maintained by the exercise of its own free will, guided by scientific knowledge, that in it the perfection of sanitary results will be approached if not actually realized in the co-existence of the lowest possible general mortality with the highest possible individual longevity.

After describing at length the details of his plan for a city of 100,000 inhabitants living in 20,000 houses built on 4,000 acres of land and averaging 25 persons per acre, he concludes with the following passage:

As my voice ceases to dwell on this theme of a yet unknown city of health do not, I pray you, wake as from a mere dream. The details of the city exist. They have been worked out by those pioneers of sanitary science who have suggested my design. I am therefore but as a draughtsman who, knowing somewhat your desires and aspirations, have drawn a plan which you in your wisdom can modify, improve, perfect. In this I know we are of one mind that though the ideal we all of us hold be never reached during our lives, we shall continue to work successfully for its realization. Utopia is but another word for Time; and some day the masses who now heed us not or smile incredulously at our proceedings will awake to our conceptions. Then our knowledge, like light rapidly conveyed from one torch to another, will bury us in its brightness.

Ladies and Gentlemen, these prophetic words are now about to be realized. The time of awakening has arrived under the auspices of the Garden City movement. The following extract is taken from a leading article in the *Times* of October 13th, 1875, which immediately followed this address:

If we surrender our minds to the spells of Dr. Richardson's eloquence, we imagine ourselves living in a city from which destitution, sickness and crime would be almost banished, and in which, therefore, the rates paid on account of these evils would not be required. Even in the most crowded parts of existing large cities it is well known that our occasional application of the elements of sanitary science, even in such matters as paving and drainage of courts and alleys, is always more than repaid by the diminished chargeability of the particular localities upon the poor rate. In other respects, Hygeiopolis would be the cheapest city in the world.

Notwithstanding these noble aspirations, Hygeia still finds no place in *Bradshaw's Railway Guide* of to-day, though it is well represented by our modern thriving Letchworth City, which for some time past has appeared in its pages. The conditions of living have materially altered. It must be remembered that when Dr. Richardson's proposals were made, now over thirty years ago, there were great difficulties in the way of providing rapid transit and communication between existing cities and new colonies in country districts. An isolated Hygeia or garden city would be almost as intolerable as a convict prison. Railways in all forms, electric trams and automobiles, in addition to the telephone, have altered all this. Distance was thus annihilated, whilst increased space for living and working at a greatly reduced cost with healthier surroundings is obtained. It will be a bad time for England when existing cities have wiped out the rural population. What the former are to commerce and material wealth, country life is to the physique and expansion of the nation. In the fuller development of the Garden City movement will be found a solution for many of the difficulties connected with housing and increasing our population with regard to its health, pleasure, and profit.

This, the second annual popular lecture, which was accompanied by limelight views of Bournville, Letchworth, and other places, was much appreciated by over 120 members of the medical profession and laity who were present.

CAPE OF GOOD HOPE (EASTERN PROVINCE) BRANCH:

East London Division.

The ordinary meeting held every two months was presided over on September 14th by Dr. Nangle, as Dr. Paley was not able to attend on account of his health. Matters concerning the interests of the profession locally occupied most of the time.

Bloemfontein Medical Congress.—Dr. Roulston was asked to represent the East London Division at the Bloemfontein Medical Congress, to be held in October, 1906.

Proposed South African Medical Association.—A resolution was passed asking that all the business at the Bloemfontein Congress in connexion with the proposed South African Medical Association be held on one day, that delegates from a distance might be able to see the matter through. This resolution was in accordance with one passed recently at Kimberley.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Birmingham Branch: Coventry Division.—A meeting of this Division will be held at the Coventry and Warwickshire Hospital on Tuesday, November 6th, at 8.30 p.m. Agenda: (1) To fill a vacancy on the Committee; (2) to receive invitation to appoint a representative on the Committee of the Public Medical Service, and to appoint representative: (3) Hospital Reform *v.* circular of Hospitals Committee; (4) Dr. J. Orton will open a discussion on Epidemic Diarrhœa.—E. H. Snell, Honorary Secretary.

Metropolitan Counties Branch: Tottenham Division.—A meeting will be held at the Hornsey Conservative Association Rooms at 9.15 p.m. on Friday, November 2nd. Subject: Discussion on Hornsey Cottage Hospital, to be opened by Dr. J. R. Fuller.

Southern Branch.—The autumn general meeting will be held at the South-Western Hotel, Southampton, on November 15th, at 3.45, to be followed by a dinner at 6 o'clock. Members who have cases to exhibit, or specimens to show, or papers to read, are requested to communicate with the undersigned as soon as possible.—H. J. Manning, Honorary Secretary, Laverstock House, Salisbury.

Ulster Branch.—A meeting of this Branch will be held at Ballymena on Saturday, November 3rd.—Cecil Shaw, Honorary Secretary.

GENERAL MEDICAL COUNCIL ELECTION.

THE RESOLUTION OF THE MARYLEBONE DIVISION.

Sir,—Reading the Supplement to the British Medical Journal of October 27th, I find in the report of the proceedings of the Marylebone Division of the Metropolitan Counties Branch the following items, amongst others:—

The Wandsworth Circular.—Dr. Llewellyn Williams's letter concerning the candidates for the General Medical Council was considered. Mr. Armour proposed, Sir Victor Horsley seconded, and it was carried:

That no scheme of representation not based on territorial arrangement be considered by this meeting.

And then, finally, this resolution appears:

Candidates to be supported by the Division.—Sir Victor Horsley proposed, the Medical Honorary Secretary seconded, and it was carried:

That at the proper time the resolutions supporting Dr. McManus, Dr. Langley Browne, and Mr. Rutherford Morison should be communicated to every member of the Division.

Now my object in writing this letter is to ask how the first and last resolutions carried at the Marylebone divisional meeting can be made to square with each other. The coming election of Direct Representatives is for three members of the General Medical Council to be chosen by the registered practitioners of England and Wales. With glorious inconsistency, the first resolution affirms that a territorial arrangement of representation is to be a *sine qua non* with the Division in its votes, and then, as a sequel to this resolution, the meeting gravely proceeds to choose three representatives from England, and to leave Wales absolutely out of its consideration. I venture to hope that this arrangement will not suit the wishes of the practitioners resident in the Principality. Under the abandoned scheme of the British Medical Association, I received a very warm adoption in the nominations from Divisions in North and South Wales, and I have no reason to believe that my candidature is regarded from a less friendly point of view now than it was at that time. Indeed, my reappearance on the scene is due to very warm requests from Welshmen that I will stand for the Council, and I hope and believe that, with no uncertain vote, Wales will show that she agrees with the first resolution I have quoted, and that she will decide that "no scheme of representation not based on territorial arrangement be considered" within her borders.—I am, etc.,

Swansea, Oct. 27th. H. A. Latimer, M.D.

MR. RUTHERFORD MORISON'S CANDIDATURE.

Dr. T. L. Bunting (Scotswood R.S.O., Northumberland) writes under date October 27th: I wish to endorse all that Dr. Cromie says of Mr. Rutherford Morison. He was for long a general practitioner, and he has never forgotten it. He has devoted himself without stint to improving the position of general practitioners in the North, and the efforts led by him have been, I believe, more successful than any similar efforts in other parts of the country. He has been persuaded to undertake his present candidature by the general practitioners of the North because they feel that he can represent their interests better than one of themselves. At a meeting held in the Royal Infirmary, Newcastle-on-Tyne, on October 24th, the feeling was general that one of the Representative members of the General Medical Council should come from the North, partly on geographical grounds, and more particularly because the Northern practitioners, led by Mr. Morison, have done so much to improve their organization and the status of the profession. It was felt also that due effort should be made to preserve the geographical balance of representation by supporting candidates chosen by the general practitioners of the Midlands and the South respectively. Largely for this reason it was decided to support Dr. Langley Browne and Dr. McManus in addition to Mr. Morison. No doubt whatever is felt by those who know him best and who have worked beside him in the field of medical politics that Mr. Morison is the best possible representative of the general practitioners of the North, and he is their unanimous choice.

SWANSEA MEDICAL SOCIETY.

At the general meeting of the Swansea Medical Society, held on October 23rd, the following resolution was unanimously adopted:

That this general meeting of the Swansea Medical Society cordially approves of the candidature of Dr. Latimer and Dr. McManus, and pledges itself to support their election to the General Medical Council.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

Staff Surgeon A. Gaskell has been promoted to be Fleet Surgeon, October 31st. He was appointed Surgeon, November 14th, 1893, and Staff Surgeon, October 31st, 1898.

The following appointments have been made at the Admiralty: Herbert L. Geoghegan, M.D., Surgeon, to the *President*, additional, for three months' course at West London Hospital, November 1st; Augustus J. Laurie, Surgeon, to the *Mars*, temporary, undated.

ROYAL ARMY MEDICAL CORPS.

Captain F. S. Irvine, M.B., is seconded for service under the Colonia Office, October 13th.

Major F. A. Symons, M.B., now serving at Mhow, Central India, has been appointed Registrar at the Queen Alexandra Royal Military Hospital, Millbank.

INDIAN MEDICAL SERVICE.

The following Majors are promoted to be Lieutenant-Colonels from September 30th: R. J. Macnamara, M.D., H. W. Pilgrim, M.B., F. Wyville-Thomson, M.B., E. H. Brown, M.D., C. N. Bensley, S. H. Henderson, M.B., B. B. Grayfoot, M.D., D. W. Scotland, M.B., C. R. M. Green, R. H. Castor, T. E. Dyson, M.B., G. C. Hare, F. C. Clarkson, J. G. Gordon, M.B., H. M. Morris, A. R. P. Russell, J. Morwood, M.D., F. G. Maitland, E. A. W. Hall, M.B. Their first commissions are dated September 30th, 1886: that of Major, September 30th, 1898. Such of these as have war records in the Army Lists are as follows: Lieutenant-Colonel Green—Hazara Expedition, 1888 (medal with clasp). Lieutenant-Colonel Castor—Wuntho Expedition, Burma, 1891 (mentioned in dispatches, medal with clasp). Lieutenant-Colonel Clarkson—With Lushai and Burma Columns, Chin Lushai Expedition, 1889-90 (medal with clasp); with Thetta Column, Burma, 1891 (clasp); and Manipur Expedition, 1891 (clasp). Lieutenant-Colonel Russell—Burmese Expedition, 1887-9 (medal with clasp). Lieutenant-Colonel Morwood—Hazara Expedition, 1888 (medal with clasp); and Tirah Expedition, 1897-8 (medal with clasp).

Major C. M. Moore, M.D., Bombay Establishment, is appointed specialist in the prevention of disease.

Vital Statistics.

EPIDEMIC MORTALITY IN LONDON.

The accompanying diagram shows the prevalence of the principal epidemic diseases during the third, or summer, quarter of the year. The fluctuations of each disease and its relative fatality compared with that in the corresponding periods of the four preceding years can thus be readily seen.

Small-pox.—No fatal case of small-pox was registered in London last quarter or in either of the two preceding quarters of this year. No small-pox patients were admitted into the Metropolitan Asylums Hospitals last quarter, against 13 and 15 in the two previous quarters.

Measles.—The deaths from measles, which had been 684 and 765 in the two preceding quarters, declined to 256 last quarter, and were 55 below the average number in the corresponding periods of the four preceding years. Among the various metropolitan boroughs this disease was proportionally most fatal in Kensington, Chelsea, St. Marylebone, the City of London, and Poplar.

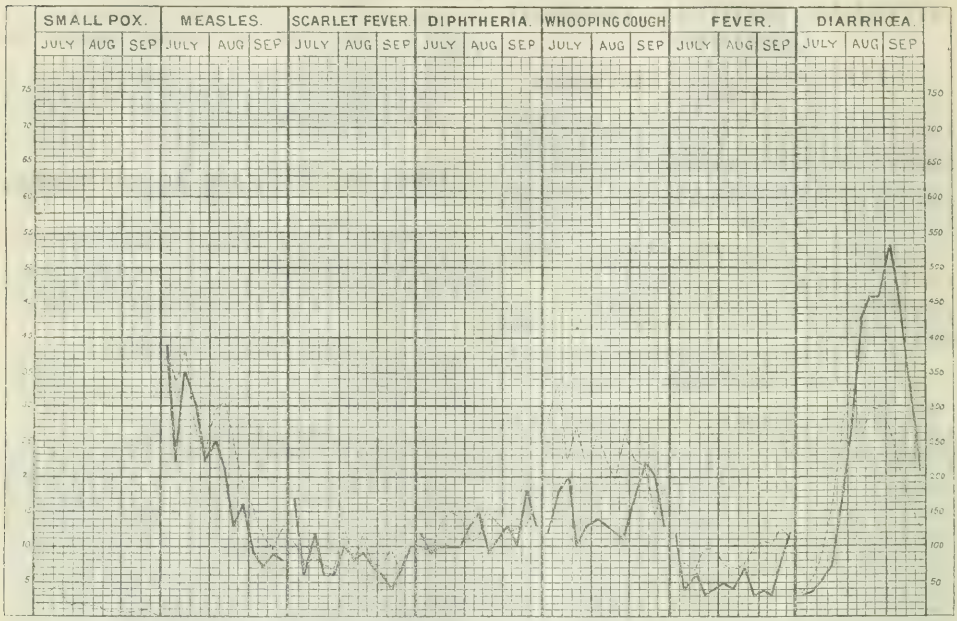
Scarlet Fever.—The fatal cases of scarlet fever, which had been 129 and 144 in the two preceding quarters, declined again last quarter to 108, and were 7 below the corrected average number. Scarlet fever sho wed the highest proportional mortality last quarter in Hampstead, the City of London, Shoreditch, Southwark, Bermondsey, and Greenwich. The number of scarlet fever cases in the Metropolitan Asylums Hospitals, which had been 2,353 and 2,705 at the end of the two preceding quarters, had further risen to 3,360 at the end of last quarter; 5,114 new cases were admitted during the quarter, against 3,515 and 4,148 in the two preceding quarters.

Diphtheria.—The deaths referred to diphtheria in London, which had been 197 and 140 in the two preceding quarters, rose again to 153 last quarter, but were slightly below the average number in the corresponding period of the four preceding years. Among the various metropolitan boroughs this disease was proportionally most fatal in Hammersmith, Finsbury, Poplar, Bermondsey, Deptford, and Greenwich. The number of diphtheria patients in the Metropolitan Asylums Hospital, which had been 824 and 782 at the end of the two preceding quarters, had risen again to 844 at the end of last quarter; 1,612 new cases were admitted during the quarter, against 1,515 and 1,356 in the two preceding quarters.

Whooping-cough.—The fatal cases of this disease, which had been 458 and 406 in the two preceding quarters, further declined to 195 last quarter, and were 107 below the corrected average number. The greatest proportional mortality from this disease occurred in Fulham, Hackney, Finsbury, Bethnal Green, Southwark, Bermondsey, and Battersea.

"Fever."—Under this heading are included deaths from typhus, from enteric fever, and from ill-defined pyrexia. The deaths referred to these different forms of "fever," which had been 45 and 50 in the two preceding quarters, further rose last quarter to 75, but were 41 fewer than the average number in the corresponding periods of the four preceding years. These 75 deaths included 2 from ill-defined pyrexia, but not any from typhus. Among the metropolitan boroughs the "fever" death-rates were highest in Fulham, Bethnal Green, Stepney, Southwark, and Lambeth. The Metropolitan Asylums Hospitals contained 139 enteric fever patients at the end of last quarter, against 65 and 93 at the end of the two preceding quarters

DEATHS FROM EPIDEMIC DISEASES IN LONDON DURING THE THIRD QUARTER OF 1906.



NOTE.—The black lines show the *recorded* number of deaths from each disease during each week of the quarter. The dotted lines show the *average* number of deaths in the corresponding weeks of the four preceding years, 1902-5.

251 new cases were admitted during the quarter, against 166 and 184 in the two preceding quarters.

Diarrhœa.—The 3,536 deaths from diarrhœa in London last quarter were 1,033 in excess of the corrected average number in the corresponding quarters of the four preceding years. Among the various metropolitan boroughs this disease was proportionally most fatal in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford.

In conclusion, it may be stated that the 4,323 deaths in London attributed to these principal infectious diseases during the quarter ending September last were more than 22 per cent. above the average number in the corresponding periods of the four preceding years. The lowest death-rates from these diseases last quarter were recorded in the City of Westminster, Hampstead, Stoke Newington, Holborn, and the City of London; and the highest rates in Fulham, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, and Bermondsey.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 8,665 births and 4,422 deaths were registered during the week ending Saturday last, October 27th. The annual rate of mortality in these towns, which had been 17.1, 15.5, and 14.6 per 1,000 in the three preceding weeks, was again 14.6 per 1,000 last week. The rates in the several towns ranged from 5.0 in Northampton, 6.0 in Hornsey, 7.3 in Croydon, 7.9 in King's Norton, 8.4 in Willesden, and 8.5 in Brighton, to 20.5 in Swansea, 20.7 in Oldham, 21.3 in Sunderland, 21.5 in South Shields, 22.8 in Great Yarmouth, 22.9 in Middlesbrough, 23.7 in Bootle, and 24.5 in Gateshead. In London the rate of mortality was 13.4 per 1,000, while it averaged 15.1 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.8 per 1,000 in the seventy-six large towns; in London this death-rate was equal to 1.2 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 4.7 in Bootle and in Gateshead, 5.1 in Blackburn, 5.2 in Middlesbrough, 5.5 in Oldham, 6.0 in Rotherham, and 6.1 in Burnley and in South Shields. Measles caused a death-rate of 1.2 in Wigan, 1.6 in Stockport and in Bootle, 1.7 in Rotherham, 1.8 in Norwich, 3.3 in South Shields, and 3.7 in Oldham; scarlet fever of 1.2 in Blackburn; diphtheria of 1.2 in Rochdale and 2.2 in Leyton; whooping-cough of 1.1 in Swansea and 1.2 in York; "fever" of 1.2 in Wigan and 1.4 in Bolton; and diarrhœa of 2.6 in Rotherham, 3.0 in Gateshead, 3.1 in Blackburn, 3.6 in Middlesbrough, and 5.1 in Burnley. No fatal case of small-pox was registered last week in any of the seventy-six towns. The number of scarlet fever patients under treatment in the London Fever Hospital and the Metropolitan Asylums Hospitals, which had been 3,603, 3,803, and 3,923 at the end of the three preceding weeks, had further risen to 4,068 at the end of last week; 542 new cases were admitted during the week, against 621, 566, and 548 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, October 27th, 901 births and 558 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 17.2, 17.8, and 15.8 per 1,000 in the three preceding weeks, increased again last week to 16.3 per 1,000, and was 1.7 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 12.6 in Leith and 12.8 in Aberdeen, to 17.4 in Dundee and 17.7 in Greenock. The death-rate from the principal infectious diseases averaged 2.2 per 1,000, the highest rates being recorded in Glasgow and Greenock. The 275 deaths registered in Glasgow included 3 which were referred to measles, 4 to diphtheria, 9 to whooping-cough, 2 to "fever," 22 to diarrhœa, and 6 to cerebro-spinal meningitis. Eight fatal cases of diarrhœa were recorded in Edinburgh, 3 in Dundee, and 3 in Greenock. Two deaths from measles and 2 from diarrhœa occurred in Aberdeen, and 2 from diphtheria in Paisley.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BARNSTAPLE: NORTH DEVON INFIRMARY.—House-Surgeon. Salary, £100 per annum.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House-Surgeon, male. Salary, £80 per annum

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL.—House-Surgeon. Salary at the rate of £70 per annum.

BRADFORD CHILDREN'S HOSPITAL.—House-Surgeon. Salary, £100 per annum.

BRADFORD ROYAL INFIRMARY.—(1) House-Physician, (2) House-Surgeon. Salary, £100 per annum each.

BROMSGROVE: BARNSLEY HALL ASYLUM.—Senior Assistant Medical Officer and Deputy Medical Superintendent. Salary commencing at £200 per annum.

CANCER HOSPITAL, FULHAM ROAD, S.W.—Surgical Registrar. Honorarium, £26 5s. per annum.

CANTERBURY: KENT AND CANTERBURY HOSPITAL.—House-Physician. Salary, £80 per annum.

CHELSEA HOSPITAL FOR WOMEN.—Clinical Assistant.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL. Junior House-Surgeon. Salary at the rate of £60 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Honorary Ophthalmic Surgeon.

DORCHESTER: COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £140 per annum, rising to £180.

ENNISKILLEN: FERMANAGH COUNTY HOSPITAL.—House-Surgeon. Salary, £52 per annum.

GLOUCESTER COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £150 per annum, rising to £180.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House-Surgeon. Remuneration at the rate of £30 per annum.

GUY'S HOSPITAL.—Gull Studentship in Pathology.

HALIFAX: ROYAL INFIRMARY.—Third House-Surgeon. Salary, £80 per annum.

HALIFAX UNION POOR-LAW HOSPITAL.—Female Resident Medical Officer. Salary £100 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—House Surgeon. Salary, £20 for six months, and £2 10s. washing allowance.

KING'S COLLEGE, London.—Demonstrator of Physiology. Salary, £75.

KING'S LYNN: WEST NORFOLK AND LYNN HOSPITAL. House-Surgeon. Salary, £100 per annum.

LINCOLN COUNTY HOSPITAL.—Senior Male House-Surgeon. Salary £125 per annum.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich Road, S.E. Junior House-Surgeon. Salary at the rate of £80 per annum.

NOTTINGHAM CITY ASYLUM.—Junior Assistant Medical Officer. Salary, £150 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Resident Medical Officer for Out-patient Department. Salary at the rate of £60 per annum.

ST. GEORGE'S UNION.—Assistant Medical Officer to the Infirmary, Fulham Road, S.W. Salary, £120 per annum.

ST. PETER'S HOSPITAL FOR STONE, Henrietta Street, W.C.—Junior House-Surgeon. Salary at the rate of £50 per annum.

STAFFORDSHIRE COUNTY ASYLUM, Cheddleton, Leek.—Junior Assistant Medical Officer. Salary, £150, rising to £200 per annum.

WATERFORD COUNTY AND CITY INFIRMARY.—House-Surgeon. Salary, £100 per annum.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Welbeck Street, W.—Second Anaesthetist.

WINCHESTER: ROYAL HANTS COUNTY HOSPITAL.—House-Physician. Salary, £65 per annum, rising to £75.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces a vacancy in the office of Certifying Factory Surgeon at Chulmleigh (Devon).

APPOINTMENTS.

ALLISON, J., M.D., F.R.C.S.Edin., D.P.H., Medical Officer of Health, Kettering Urban District.

CLAYE, Everard, L.R.C.P. and S.Edin., Senior Resident Medical Officer to the Chorlton Union Hospital, West Didsbury.

HAWKINS, Arthur, B.A Cantab., M.R.C.S., L.R.C.P., House-Physician to the Royal Devon and Exeter Hospital, Exeter.

JACOBSEN, G. O., M.R.C.S., L.R.C.P.Lond., Certifying Factory Surgeon for the Arnesby District, Leicestershire.

JOSEPH, G. H., M.B., Ch.B.Vict., Assistant Medical Officer of the Warrington Union Workhouse.

KENNEDY, J. M. P., L.R.C.P. and S.Irel., Certifying Factory Surgeon for the Tullamore District, King's County.

LEDINGHAM, Alexander, M.D., D.P.H.Aberd., Medical Officer of Health for the county of Banff.

MATHEWS, T. G., M.D.Edin., Medical Officer of Health, Kirkby Lonsdale Urban District and District Medical Officer of the Lunesdale Union.

MENCE, W. C., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Perranporth District, Cornwall.

RUSTON, James M., M.B., Ch.B.Glasg., House-Surgeon to the Tottenham Hospital, London, N.

SORAPINE, V. E., M.B., F.R.C.S.Edin., Lecturer on Pathology and Normal Histology, Fordham University, New York City.

TOBIN, W. J., L.R.C.P. and S.I., District Medical Officer of the Goole Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 8s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

BOWIE.—At 46, Grange Road, Edinburgh, on October 21st, the wife of John M. Bowie, M.D., F.R.C.S.E., M.R.C.P.E., of a daughter.

HICKEY.—On October 22nd, at Berkeley Lodge, Hale Road, Altrincham, to Dr. and Mrs. Hickey—a son.

POLLOCK.—On October 19th, at Valletta, Malta, the wife of Major C. E. Pollock, R.A.M.C., of a daughter.

MARRIAGES.

IRELAND—EILLS.—October 27th, at St. Bride's Church, Liverpool, by licence, by the Rev. Thomas Bishop, M.A., Vicar of Formby (uncle of the bride), assisted by the Rev. Francis Ireland, M.A., Vicar of Haydock (uncle of the bridegroom), and the Rev. Bernard C. Jackson, Vicar of the parish, James Aubrey Ireland, M.R.C.S., L.R.C.P., of Elmsyde, Allerton Road, Wavertree, to Netta, only daughter of John Lamport Eills, J.P., C.C., of this city.

LINDSAY—STEWART-WALKER.—On October 20th, at All Saints', W., by the Rev. F. E. Badstock, Lauder Lindsay, L.R.C.P., L.R.C.S., L.M., of Melbourne House, Aldershot, elder son of James Murray Lindsay, M.D., of Jersey, to Edythe Stewart-Walker, M.B., Ch.B., of 52, Huskisson Street, Liverpool, eldest daughter of Mr. Stewart Walker, 51, Elgin Crescent, London, W.

DEATH.

CAMPBELL.—At Gothic Villa, Jersey, on October 25th, John A. Campbell, M.D., C.M., formerly Superintendent, Cumberland and Westmorland Asylum, aged 62.

DIARY FOR THE WEEK.

TUESDAY.

PATHOLOGICAL SOCIETY OF LONDON, 20, Hanover Square, 8.30 p.m.—Papers:—Dr. H. Muir Evans: Weever Sting. Dr. Roger Williams: What is Jensen's Tumour? Dr. F. S. Dawe: Fetal Bone Disease. Mr. Edred M. Corner: A Contribution to the Pathology of the Sphincters in Vesical and Spinal Injuries.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W., at 5 p.m.—Bradshaw Lecture by Dr. S. J. Sharkey: On Rectal Alimentation.

WEDNESDAY.

OBSTETRICAL SOCIETY OF LONDON, 20, Hanover Square, W., November 7th, 8 p.m.—Short communication:—Mr. Alban Doran: Myomectomy During Pregnancy and Labour at Term in an Elderly Primipara, with notes on similar cases. Specimens: Dr. C. Hubert Roberts: (1) Corneal Pregnancy at Full Term Removed by Abdominal Section; (2) A Curious Case of Cancer of the Uterus. Dr. Handfield-Jones: Solid Fibroma of Ovary Undergoing Extreme Calcareous Degeneration. Dr. H. Russell Andrews: Necrobiotic Fibroid Removed after Caesarean Section at Full Term. Paper: Dr. W. Rivers Pollock: The Present Position of External Version in Obstetrics, with a Suggestion of a New Method of Performing it.

THURSDAY.

HARVEIAN SOCIETY, Stafford Rooms, Titchborne Street, Edgware Road, 8.30 p.m.—Papers: Dr. Herbert Spencer: The Treatment of Extrauterine Pregnancy. Dr. Wilfred Harris: The Causation and Treatment of Some Headaches.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos Street, Cavendish Square.—8 p.m., Specimen: 8.45 p.m., Special meeting will be held to consider the advisability of joining in the proposed union of the London medical societies.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, 5 p.m.—First FitzPatrick Lecture by Dr. Norman Moore: The History of the Study of Clinical Medicine in the British Isles.

FRIDAY.

CLINICAL SOCIETY OF LONDON, 20, Hanover Square, W., 8.30 p.m.—Papers:—Dr. E. Diver: A Principle of Treatment Suggested for Some Untoward Fractures, especially of the Femur. Mr. Charters Symonds: Multiple Strictures of the Ileum; Resection; Recovery. Mr. E. M. Corner: Rotatory Subluxation of the Atlas. Mr. Jackson Clarke: Case of Congenital Deformity of the Spine.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Nose and Accessory Sinuses.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Medical. Thursday, 4 p.m., Surgical.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W., Wednesday, 4 p.m.—Selected cases from the wards.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Medical and Surgical daily, except Saturday and Sunday, at 2.30 p.m. and 3.15 p.m. respectively; Throat and Ear, 4 p.m., Monday; Skin Diseases, 4 p.m., Tuesday; Eye Diseases, 4 p.m., Wednesday; Radiography, 4 p.m., Thursday. Operations, daily, 2.30 p.m. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Eye. Lectures at 5.15 p.m. each day will be given as follows: Monday, Some Common Eye Affections Caused by Sepsis of the Neighbouring Mucosa; Tuesday, Errors of Digestion in Relation to Disease; Wednesday, Vomiting in Children; Thursday, Aortic Regurgitation in Later Life.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Central Out-Patients Department, 7, Fitzroy Square, W.—Thursday, 5 p.m., The Present-day Treatment of Tuberculous Laryngitis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Paralysis in Children: Friday, 3.30 p.m., Neuritis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Tottenham Hospital, N.—Tuesday, 4.30 p.m., Pathological Demonstration: The Bacteriology of Lumbar Puncture. Friday, 4.30 p.m., Lecture on the Conjunctiva and its Diseases.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.—The following arrangements have been made for next week: Daily, 2 p.m., Medical and Surgical Clinics. 2.30 p.m., X Rays and Operations. Monday, 12 noon, Pathological Demonstration. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.0 p.m., Diseases of Skin. Wednesday, 10 a.m., Diseases of Children. Lectures: Monday, Clinical Lecture; Tuesday, Clinical Lecture; Wednesday, Gynaecology; Thursday, Practical Surgery; Friday, X Rays.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Thursday, 5 p.m.: Fibroid Polypus and Allied Diseases.

BOOKS, ETC., RECEIVED.

Die Therapie der Kehlkopftuberculose mit besonderer Rücksicht auf den galvanokaustischen Tiefenstich und äussere Eingriffe. Von Dr. L. Grünwald. München: J. F. Lehmann. 1907. M. 5.

Race Culture or Race Suicide? (A Plea for the Unborn). By R. R. Rentoul. London and Felling-on-Tyne; The Walter Scott Publishing Co., Ltd. 1906. 7s. 6d.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
NOVEMBER.	
2 FRIDAY	Border Counties Branch, Penrith. Tottenham Division, *Metropolitan Counties Branch*, Hornsey Conservative Association Rooms, 9.15 p.m.
3 SATURDAY	Ulster Branch, Ballymena.
4 Sunday	
5 MONDAY	
6 TUESDAY	London: Organization Committee, 11 a.m. London: Special Finance Inquiry Committee, 4 30 p.m. Coventry Division, *Birmingham Branch*, Coventry and Warwickshire Hospital, 8.30 p.m.
7 WEDNESDAY	
8 THURSDAY	Wandsworth Division, *Metropolitan Counties Branch*, Bolingbroke Hospital, 4 p.m.
9 FRIDAY	
10 SATURDAY	
11 Sunday	
12 MONDAY	
13 TUESDAY	
14 WEDNESDAY	
15 THURSDAY	London: Hospitals Committee. London: Joint Hospitals Committee. London: Metropolitan Counties Branch Council, 5 p.m. Southern Branch, South-Western Hotel, Southampton, 3.45; Dinner, 6 p.m.
16 FRIDAY	
17 SATURDAY	
18 Sunday	
19 MONDAY	
20 TUESDAY	
21 WEDNESDAY	
22 THURSDAY	Wandsworth Division, *Metropolitan Counties Branch*, Conjoint Meeting with Richmond and Chelsea Divisions, Chelverton Road Hall, Putney, 8.45 p.m.
23 FRIDAY	
24 SATURDAY	
25 Sunday	
26 MONDAY	London: Naval and Military Committee, 3.30 p.m.
27 TUESDAY	
28 WEDNESDAY	Bath and Bristol Branch, Bath.
29 THURSDAY	City Division, *Metropolitan Counties Branch*, Great Eastern Hotel, Liverpool Street E.C. (Lincolnshire Room), 4 p.m.
30 FRIDAY	
DECEMBER.	
1 SATURDAY	
2 Sunday	
3 MONDAY	
4 TUESDAY	
5 WEDNESDAY	
6 THURSDAY	
7 FRIDAY	
8 SATURDAY	
9 Sunday	
10 MONDAY	
11 TUESDAY	
12 WEDNESDAY	
13 THURSDAY	Wandsworth Division, *Metropolitan Counties Branch*, Alexandra Hotel, Clapham Common, 8.45 p.m.

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 10TH, 1906.

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Meetings of Branches & Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.*]*

DORSET AND WEST HANTS BRANCH.

THE autumn meeting was held in Sherborne on Wednesday, October 24th, the President, Mr. WILLIAM HAWKINS, in the chair. There was a large attendance. Previous to the meeting the members were hospitably entertained to luncheon by Mr. Williams and Dr. Whittingdale.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Apologies for Non-attendance.—Letters of apology for non-attendance were read from Mr. Hosker, Mr. Rendall, and Mr. Cosens.

New Member.—Mr. Charles J. Girling, M.B.Lond., M.R.C.S., and L.R.C.P., was elected by the Council a member of the Association.

Election of Officers.—J. Macpherson Lawrie, M.D., J.P., D.L., of Weymouth, was elected for the office of President for 1907, and Dr. W. H. L. Marriner of Bournemouth and Dr. W. G. Alexander of Stalbridge Vice-Presidents. Dr. James Davison of Bournemouth was re-elected Honorary Secretary and Treasurer.

President's Address.—The PRESIDENT read an address, in the course of which, after some introductory remarks relative to Sherborne and neighbourhood, he related an exceedingly interesting and, for this country, unique case of leprosy in a boy who lived and died at Upwey.

Demonstration.—Dr. T. DAVYS MANNING gave a demonstration of a new method of putting up fractured clavicles, which much interested the meeting.

Communications.—Mr. CHARLES J. MARSH read a paper entitled, A Short Account of a Case of Obscure Septic Condition after Parturition. This was discussed by Drs. RAMSAY, SIMMONS, and others; and Mr. MARSH replied.—Dr. WHITTINGDALE showed two typical cases of pseudo-hypertrophic paralysis, and read notes of (1) a case of cutaneous anthrax; (2) a case of primary carcinoma of the liver.

Dinner.—At 6 p.m. the members and their friends dined together in the Digby Hotel.

Next Meeting.—The next meeting will be held in Weymouth in May, 1907.

SOUTH-EASTERN BRANCH:

BRIGHTON DIVISION.

A MEETING of this Division was held at the Dispensary on October 24th, Dr. R. SANDERSON in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Conjoint Meeting with Tunbridge Wells Division.—It was resolved to accept an invitation from the Tunbridge Wells Division to attend a joint meeting there on November 21st.

Annual Representative Meeting.—Mr. A. J. MARTINEAU gave an interesting account of the Annual Representative Meeting. The meeting accorded Mr. Martineau a cordial vote of thanks for his attendance at the Annual Representative Meeting and for his report on the same.

Representative's Expenses.—Dr. MARSH proposed, and Dr. HOLLIS seconded, a resolution to the effect that some portion of the Representative's expenses ought to be paid by the Association, and it was decided to bring the matter before the next meeting of the Division.

GUILDFORD DIVISION.

A MEETING of this Division was held at the Royal Surrey County Hospital on Wednesday, October 31st, at 4.30 p.m., Dr. GEO. FISHER (Shere) being in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Next Meeting.—It was decided to hold the next meeting in March, and that it should be followed by a dinner.

Hospital Reform.—The following resolution was carried unanimously:

> That this meeting of the Guildford Division approves in general of the proposals of the Hospitals Committee for Hospital Reform, and will do all in its power to urge the Board of Management of this hospital and others in the district to consider them with a view to their adoption as far as practicable.

Cases and Specimens.—Dr. WALKER showed the following cases: (*a*) Thoracic aneurysm; (*b*) progressive muscular atrophy. Dr. WEAVER showed a case of disseminated sclerosis in a young woman, who had shown considerable improvement under treatment. Dr. SMYTH read notes of three cases of enucleation of the eyeball of unusual interest, and showed mounted specimens of two of them. Dr. MITCHELL read notes of two cases of haematocele. Dr. SHEAF related a case in which thirteen intussusceptions of the small intestine had been found at the time of operation. Several members took part in the discussions which followed.

Votes of Thanks.—The meeting terminated with votes of thanks to those who had contributed cases or papers, and to the hospital authorities for the use of the Board Room and for kindly providing tea.

Dinner.—Fifteen members and friends afterwards dined together.

SOUTH MIDLAND BRANCH.

THE autumnal meeting of the Branch was held at Bedford County Hospital on Thursday, October 25th, at 2.45 p.m., under the presidency of Mr. H. CROPLEY, Northampton.

Confirmation of Minutes.—The minutes of the annual meeting were read and signed.

New Members.—The PRESIDENT then announced the election of the following gentlemen by the Branch Council: R. Winterbotham, M.R.C.S. (Brixworth, Northants), Dr. C. H. W. Page, B.Ch. (Beirtonholme, Blakesley, Northants), James Arthur, M.B. (Wellingborough, 29, Upper Havelock Street).

WEST SOMERSET BRANCH.

THE autumn meeting of this Branch was held at the Taunton and Somerset Hospital on Friday, October 26th. The chair was taken by the PRESIDENT (Dr. R. Liddon Meade-King).

Confirmation of Minutes.—The minutes of the last meeting were read and signed.

Congratulations to Dr. Macdonald.—The PRESIDENT, on behalf of the members, offered the congratulations of the Branch to Dr. Macdonald on his being elected Chairman of the Representative Meeting, after which Dr. MACDONALD made an appropriate reply.

Address.—Dr. W. P. HERRINGHAM, Physician to St. Bartholomew's Hospital, London, kindly attended and delivered an address on arterial sclerosis. The address was of a very practical nature, and touched on many points of daily interest to general practitioners. At its close, and after Dr. Herringham had been asked many questions, a hearty vote of thanks was accorded him.

Practitioners and Coroners.—Mr. WINCKWORTH proposed and Dr. MACDONALD seconded the following resolutions:—

(1) That a committee from the Branch be appointed to ascertain the means whereby practitioners in other districts are able to obtain fees for information given to coroners in cases where no inquest is considered necessary, and to interview the Coroner for West Somerset on the subject with a view to obtaining a similar concession in this district.
(2) That such committee consist of the President, President-elect, the Representative of the Branch, and the Honorary Secretary.

These were carried *nem. con.*

West Somerset Medical Dinner.—The seventh annual West Somerset Medical Dinner was held at the London Hotel, Taunton, the same evening, when twenty-three members and their friends dined together.

YORKSHIRE BRANCH.

A MEETING of the Yorkshire Branch was held at Scarborough on Saturday, October 27th, Dr. MOSSOP in the chair.

New Members.—The following were elected members of the Association: Drs. and Messrs. Applegate, Booth, Clarke, Dodds, Fitton, Longley, McElligott, Mackenzie, Mathieson, de Mirimande, McCully, Newton, Percival, Pringle, Selkirk, Tansley, and Whitaker.

Proposed Barnsley Division.—A petition for the formation of a Barnsley Division, signed by 15 members of the Association and 28 medical men residing within the area of the proposed Division, was considered, and the following resolution was passed, on the motion of Dr. HORN, seconded by Dr. CHURTON:

That the Branch Council favours the proposed Barnsley Division, as per map submitted, subject to the approval of the Sheffield Division.

Motor Car Taxation.—Re motor car taxation the following resolution was passed:

That the attention of the Council of the British Medical Association be drawn to the proposed tax on motor cars, and that they be requested to take steps to try and secure the exemption of the cars of medical men in active practice from this tax.

General Medical Council Election.—The coming election for the Medical Council was discussed, and it was decided that this meeting should recommend the members of the Yorkshire Branch to support the candidature of Mr. Morison of Newcastle and Dr. Langley Browne of West Bromwich.

Communications.—Dr. CHURTON (Leeds) read notes of an interesting case of sudden recovery from aphasia of twenty-three years' duration in a man aged 50. Mr. WHITEHEAD (Leeds) read a short paper on Traumatic Corneal Ulcers and their treatment. Dr. SOLLY (Harrogate) with Dr. D. WILSON, a case for diagnosis and myomectomy for multiple uterine myomata. Dr. TREVELYAN (Leeds) read a paper on the classification of phthisis in regard to prognosis.

Dinner.—After the meeting twenty-two members and ladies dined at the Grand Hotel.

Reports of Standing Committees.

HOSPITALS COMMITTEE.

A MEETING of the Hospitals Committee was held at the office of the Association on October 11th, 1906, when there were present: Dr. F. M. Pope, Dr. H. Langley Browne (Chairman of Council), Dr. J. Ford Anderson, Dr. W. A. Carline, Dr. E. L. Fox, Dr. J. J. Giusani, Dr. James Hamilton, Dr. John R. Hamilton, Mr. E. F. White.

ELECTION OF CHAIRMAN.

Dr. F. A. Pope was unanimously re-elected Chairman for the year.

MEETINGS OF COMMITTEE.

Having regard to the alteration of By-laws approved by the Annual Representative Meeting, whereby the Hospitals Committee becomes a Standing Committee, it was decided to hold fixed quarterly meetings on Thursday, January 10th, April 4th, and June 20th, 1907, and to recommend to the Council that the reference to the Committee, which has up to the present been of a temporary character, should be extended to include the consideration of and report upon all questions concerning hospitals and other medical charities.

PROPOSED CHARTER OF THE METROPOLITAN HOSPITALS SUNDAY FUND.

The Committee received a report of the action taken by the Chairman of Council with respect to the proposed Charter of the Metropolitan Hospitals Sunday Fund (see SUPPLEMENT to the BRITISH MEDICAL JOURNAL, August 11th, 1906, p. 156, and August 18th, 1906, p. 163). The Committee also had before it the memorandum addressed by the Council of the Metropolitan Counties Branch to the Privy Council (see SUPPLEMENT to the BRITISH MEDICAL JOURNAL, October 13th, 1906, p. 211). It was decided to recommend the Council of the Association to endorse the action of the Metropolitan Counties Branch.

HOSPITAL REFORM.

The CHAIRMAN reported that the proposals as to hospital reform had been circulated to all hospitals throughout the country with a covering letter as follows:

DEAR SIR,

The British Medical Association has during the last three years given very careful consideration to the widespread abuses which are generally admitted to exist in the administration of Medical Charities.

Many sections of the community are affected by these abuses. The money of the subscribers to Hospitals and the time and energies of the medical staff, and of those who devote themselves to Hospital management, all freely given in the cause of charity, are in many cases being diverted to the relief of those for whom they are not intended. Through this diversion results, in some instances, an inadequacy of means for the relief of those whose condition and pecuniary circumstances make them suitable recipients of such assistance. The general body of medical practitioners suffer through the contraction of their legitimate field of practice by the gratuitous services of members of the profession being given to those who could, and should, pay for medical attendance.

The Association is convinced that the evils in question are fully realized by many of those engaged in Hospital management, outside, as well as within, the medical profession, who are nevertheless unable to devise or carry out the necessary reforms, and that such reforms can only be accomplished by the energetic co-operation of all concerned.

With a view to bringing about this co-operation, the Hospitals Committee of the British Medical Association has conferred with non-medical members of Hospital Boards who were appointed for the purpose by a representative conference of members of such Boards.

As a result, the proposals, of which a copy is enclosed, have been formulated as a suggested basis for the general consideration of the subject, and are being forwarded to Hospital Boards throughout the country.

Each Board is requested to consider these proposals, (*a*) with

a view to an expression of opinion thereon for the information and guidance of others interested; (*b*) with a view to the incorporation in the regulations of the Hospital of such of the suggestions as the governing body may approve.

It is particularly desired that each Hospital should appoint a delegate to take part in a conference to be held in London during the autumn of the present year.

Those individual members of the Joint Committee which drew up these proposals, who are members of Hospital Boards, desire it to be understood that they acted in their individual capacity, and not as committing their respective Boards to the several propositions, and, on behalf of the British Medical Association, it is likewise to be stated that, pending the discussion of these proposals by the future conference above suggested, it has been thought well that the Association should not be committed to any declaration of policy thereon.

At the present stage, all concerned should, it is considered, retain the fullest liberty of action.

After your Board has taken the matter into its consideration, I shall be glad to receive from you in due course, if possible not later than September 30th, or as soon after that date as may be convenient for your Board:

1. A full statement of the opinions of your Board on the several proposals submitted herewith.
2. A statement as to which, if any, of these proposals have already been incorporated in substance, or are now being incorporated, in the regulations of your Hospital.
3. The name of the delegate whom your Board appoints to represent it at the proposed conference in the autumn.

I am,
Yours faithfully,
J. Smith Whitaker,
Medical Secretary.

Medical Secretary's Office,
429, Strand, London, W.C.
August 22nd, 1906.

In every case a personal communication had been addressed by the Chairman to some member of the staff of the hospital, asking him to exercise his influence to secure the favourable consideration of the proposals, and copies of the prints, to the number of 1,427, had been supplied to the hospitals for circulation among the members of their boards, and, to the number of about 1,000, to the Honorary Secretaries of Divisions for circulation to their Committees or members. The Honorary Secretaries of Divisions had been requested to take steps to forward the consideration of the matter by hospitals within their respective areas. About 200 hospitals had already intimated their consideration of the matter, and it was known that many others were taking it into careful consideration.

Conference of Hospital Authorities.

It was decided to fix, provisionally, December 6th as the date for the Conference of representatives of hospital authorities which it was proposed to hold, and that the Joint Hospitals Committee should be invited to meet on November 15th to consider the analysis of the replies from hospitals, to fix definitely the date of the Conference, and to decide the composition of the Conference and the business to be laid before it.

NOTICE OF CHANGES OF BOUNDARIES OF DIVISIONS AND BRANCHES.

Notice of the Formation of a New Branch and a New Division of the Association.

The following changes have been made in accordance with the regulations of the Association, and take effect from the date of publication of this notice:

St. John, New Brunswick, Branch.

That the members of the Association resident in the Province of New Brunswick be constituted a Branch of the Association, having the name of the "St. John, New Brunswick, Branch."

Barnsley Division.

That a Barnsley Division be formed, composed of the members of the Association who reside in the area shown on the map approved by the Council of the Yorkshire Branch and by the Organization Committee of the Association, such Division to form part of the Yorkshire Branch. (The area of this Division will comprise the following places, among others: Barnsley, Chapeltown, Haigh, Hamsworth, Hooton Pagnell, Mexboro', Penistone, Ryhill, Silkstone, South Elmsell, Stairfoot, Swinton.)

THE CONTRACT PRACTICE FUND OF THE SOUTH WALES AND MONMOUTHSHIRE BRANCH.

The Ebbw Vale Dispute.

Intending subscribers to the Contract Practice Fund, founded by the Council of the South Wales and Monmouthshire Branch in order to carry on effectively the contest in the Ebbw Vale district, are asked to send their contributions without delay to Dr. Ewen J. Maclean, the Honorary Secretary and Treasurer, 12, Park Place, Cardiff. We are informed that the circular recently issued to members of the Branch, and printed in the Supplement to the British Medical Journal of October 27th, p. 232, has already met with encouraging response; letters of hearty sympathy have been received from members of various Branches of the Association, and contributions have been gratefully acknowledged from the following:

Mr. H. A. Ballance, Norwich	Dr. Alfred Godson, Cheadle
Dr. Bennett, Worcester	Dr. Sidney Mayne, Lydney
Dr. H. Langley Browne, West Bromwich	Dr. Uhthoff, Brighton
	"C. S. W.," London.
Dr. Wm. Collier, Oxford	

☛ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Dorset and West Hants Branch: Bournemouth Division.—A meeting will be held at the Medical Society's Rooms on Wednesday, November 21st, at 3.45 p.m. Dr. W. Johnson Smyth will give a brief report of the Representative Meeting and also read notes of a case. A discussion on Dysmenorrhoea will be opened by Dr. Eleanor Bond.—E. Kaye Le Fleming, Honorary Secretary, Wimborne, Dorset.

Lancashire and Cheshire Branch.—A meeting of the Council will be held at the Manchester Royal Infirmary on Wednesday, November 14th, at 4.30 p.m.—F. C. Larkin, Honorary Secretary.

Lancashire and Cheshire Branch: Leigh Division.—On Thursday, November 15th, the usual monthly meeting of the Division will be held at 8.30 p.m., in the Co-operative Offices, Ellesmere Street, Leigh. Agenda: (1) Minutes; (2) statement of accounts from the Dinner Committee; (3) Dr. Wynne will present his report on the Representative Meeting held in London; (4) to consider the report of meeting of Manchester and Salford Division held on October 22nd, and published in the Supplement to the British Medical Journal on November 3rd; (5) any other business.—Michael J. Halton, Honorary Secretary.

Lancashire and Cheshire Branch: South Manchester Division.—A meeting of the members of this Division will be held at Dr. Sawers Scott's, 57, Wilmslow Road, Withington, at 3.30 p.m., on Tuesday, November 20th. Agenda: Minutes, re-nomination of Dr. Rhodes as candidate for the General Medical Council; Dr. Bagley's report of Representative Meeting (See Sir Victor Horsley's Report, p. 226, Supplement to British Medical Journal, October 27th); Dr. Jordan's Report on existing medical benevolent institutions; report of Subcommittee *re* Rusholme Dispensary; the proposed combination of Divisions (See p. 231, Supplement to British Medical Journal, October 27th; also p. 247, ibid., November 3rd); Dr. J. Brassey Brierley has consented to give an address on The Working of the Association. Tea and coffee will be served during the meeting.—Milson R. Rhodes, Honorary Secretary of the Division

Metropolitan Counties Branch: Lambeth Division.—The next meeting of the Lambeth Division will be held in the Clinical Lecture Theatre of St. Thomas's Hospital on Thursday November 29th, at 3 p.m. Walter W. H. Tate, M.D., F.R.C.P.,

Obstetric Physician to St. Thomas's Hospital, will read a paper on Degenerative Changes in Uterine Fibroids, their Diagnosis and Treatment. Cases of interest will also be shown and demonstrated upon by members of the Staff of the Hospital. There will be a meeting of the Committee of the Lambeth Division on the same day and place at 3.30 p.m. sharp.—W. Alexander Atkinson, M.D., Honorary Secretary, Lambeth Division, 216, Camberwell New Road, S.E.

South-Eastern Branch: Chichester and Worthing Division.—A meeting of this Division will be held at the Infirmary, Worthing, on Tuesday, November 13th, at 3.30 p.m. Mr. W. S. Simpson, Chairman of the Division, will preside. Dinner at Warne's Hotel at 6.30. Agenda: (1) Minutes of the last meeting; (2) to appoint the place of next meeting; (3) report of the Annual Representative Meeting by the Divisional Representative; (4) to consider the proposals of the Hospitals Committee on hospital reform; (5) the General Medical Council election; (6) papers, etc.: (*a*) Dr. William Hill, Aural Surgeon to St. Mary's Hospital, London, will give a practical demonstration of the field of usefulness of the chief types of mechanical aids to hearing; (*b*) Dr. Eustace (Arundel), Hydramnios; (*c*) Dr. Frank Hinds (Worthing), Congenital Pyloric Obstruction, with notes of a case.—H. C. L. Morris, Honorary Secretary, Bognor.

Southern Branch.—The autumn general meeting will be held at the South-Western Hotel, Southampton, on November 15th, at 3.45, to be followed by a dinner at 6 o'clock. Members who have cases to exhibit, or specimens to show, or papers to read, are requested to communicate with the undersigned as soon as possible.—H. J. Manning, Honorary Secretary, Laverstock House, Salisbury.

Staffordshire Branch.—A meeting of the Council of this Branch will be held at the North Stafford Hotel, Stoke, on Thursday, November 29th, at 3.30 p.m. Business: (1) Minutes of the last ordinary Council Meeting; (2) correspondence; (3) election of members; (4) consideration of the question of joint representation with the Shropshire Branch on the Central Council.—The first General Meeting of the Session will be held at the North Stafford Hotel, Stoke-upon-Trent, on Thursday, November 29th, 1906. The President, Chas. Reid, Esq., will take the chair at 4 p.m. Business: (1) Minutes of the last General Meeting; (2) Correspondence; (3) Exhibition of living cases: (4) Paper: Primary Tuberculosis of the Cervix Uteri, Eric E. Young; (5) Paper: Cases Illustrative of Renal Surgery, W. Hind; (6) Exhibition of pathological specimens, etc. Dinner, 6.30 p.m., charge 5s.—G. Petgrave Johnson, Honorary General Secretary.

Yorkshire Branch: Bradford Division.—A meeting will be held at the Midland Hotel, Bradford, on Friday, November 23rd, at 7 p.m., at which Dr. Dawson Williams, Editor of the British Medical Journal, has kindly promised to give an address on Medical Journals. The address will be followed by a dinner at 8 p.m. The price of tickets for the dinner is 7s. 6d., exclusive of wines. The Executive Committee extends a cordial invitation to members of the Association outside the divisional area to be present. An early application for tickets to either of the undersigned is requested so that the necessary arrangements may be made.—James Metcalfe, Lynthorne Hey, Frizinghall, Bradford; Andrew Little, 114, Manninghan Lane, Bradford, Honorary Secretaries.

GENERAL MEDICAL COUNCIL ELECTION.

DATES OF NOMINATION AND VOTING.

England and Wales.

The last day for the receipt of nomination papers is Wednesday, November 21st. They must be received on or before that day by Mr. Henry E. Allen, LL.B., at the office of the General Medical Council, 299, Oxford Street, London, W., from whom forms of nomination papers may be obtained. The voting papers will be issued between November 24th and 29th, and the last day for the return of such papers is December 7th. The votes will be counted between December 8th and December 11th, and the result will be declared on December 12th.

The following is a list, arranged in alphabetical order, of the names of all those who, so far as we are able to ascertain, are still candidates. So far as we are aware, the gentlemen to whose names an asterisk is attached have not issued an address.

Dr. G. H. Broadbent (Manchester).
Mr. George Brown (Callington, Cornwall).
Dr. H. Langley Browne (West Bromwich).
*Dr. A. Godson (Cheadle).
Mr. George Jackson (Plymouth).
Dr. H. A. Latimer (Swansea).
Dr. L. S. McManus (London).
Mr. J. Rutherford Morison (Newcastle-on-Tyne).
Dr. C. J. Renshaw (Ashton-on-Mersey).
*Dr. J. Milson Rhodes (Didsbury, Manchester).
*Dr. F. J. Smith (London)
Mr. Joseph Smith (London).

Scotland.

In Scotland the dates for the receipt of nomination papers, the distribution of voting papers, and the receipt and counting of votes are the same as in England. Nominations must be addressed to Mr. James Robertson, 54, George Square, Edinburgh, from whom nomination papers can be obtained.

The candidates so far announced are:

Dr. W. Bruce (Dingwall).
Dr. Norman Walker (Edinburgh).

DR. LANGLEY BROWNE'S CANDIDATURE.

Mr. M. Arden Messiter, President of the General Practitioners' Union of Birmingham and District, writes: Those who know Dr. Langley Browne personally require no statement of his qualifications for sitting as a member of the General Medical Council. The General Practitioners' Union in Birmingham have enthusiastically taken up his candidature. They find amongst those practising in the Midlands that there is the strongest feeling in favour of him. I should like to point out for the consideration of those who do not know him personally elsewhere, that his whole professional life has been spent in general practice at West Bromwich, and in that capacity he has had conferred upon him the highest and most honourable positions that the profession can offer, such as President of the Birmingham Branch of the Association, President of the Midland Medical Society, President of the British Medical Benevolent Society, and President of the Midland Benevolent Society, Chairman of the Central Council of the Association, as well as other posts of honour. With all this his life is that of an active general practitioner, and he is in close touch all his life—for his father was a general practitioner before him—with the wants and aspirations of the great body of general practitioners. I cannot conceive of any one more fitted to represent them as one of the three.

DR. McMANUS'S CANDIDATURE.

Sir,—Through the medium of your paper we would desire to ask the medical practitioners of England and Wales to give their support at the coming election to Dr. Leonard Strong McManus.

Dr. McManus has, during his twenty years' residence in South-West London, been brought into touch with the profession in London, and is universally well spoken of as a general practitioner interested in all that affects the medical profession and keen to help on all occasions to ameliorate their condition when hardly dealt with.

Since the development of the new organization of the British Medical Association, he, realizing the possibilities of its aims and objects if taken full advantage of, has been untiring in attendance on Committees formed locally and at the head office, and has come prominently forward in the Representative Meetings as an advocate for legislative interference where found necessary to improve not only the status of the medical profession but also the health and happiness of the laity who look to them for guidance.

As is now well known, Mr. Andrew Clark, late chairman of the Central Council of the Association, has magnanimously decided to retire in favour of Dr. McManus, realizing that there was a great feeling that a general practitioner from London should be elected, and that Dr. McManus was worthy of support.

We can, therefore, with confidence ask for the unstinted support of every medical practitioner, and, through either of our Honorary Secretaries, shall be pleased to hear of those who will promise to do all they can to return him as one of their Representatives to the General Medical Council.—We are, etc.,

Drs. Anderson (Battersea), Allan (Leeds), Acres (Battersea), Archer (Wandsworth), Ford Anderson (Hampstead), Atkinson (Camberwell), Bluck (Southend), Bickford (Wimbledon), Biggs (Battersea), Bates (Wimbledon), Baxter (Wellingborough), Barkley (Southfields Ballance (Norwich), Bramwell (Chelten-

ham), Belilios (Wimbledon), Crooksbank (Barnes), Carey (Wandsworth), Cookson (Stafford), Capes (Denmark Hill), Collier (Wimbledon), Andrew Clark (London), Deas (Wimbledon), Dodwell (Battersea), Daniel (Barrow-in-Furness), Douglas (Goudhurst), Ehrhardt (Battersea), Esler (Peckham), Ewart (Curzon Street), Sir A. Fripp, C.B. (London), Findlay (Wimbledon), Franklin (Leicester), Fawcett (Wimpole Street), Fuller (Crouch End), Geoghegan (Wimbledon), Galton (Norwood), Groves (Carisbrooke), Goodall (E. Hospital), Goyder (Bradford), Harvey (Wimbledon), Hinds (Worthing), Howell, T. A., and J. B. (Wandsworth), Hancock (Harley Street), Sir Victor Horsley, Holt (Burnley), Holden (Sudbury), Haslip (Pall Mall), Housman (Stockport), Lowden Hill (Wimbledon), Kempster (Battersea), Kirkby (Wandsworth), Kingdon (Battersea), Ker (Balham), Kernohan (Earlsfield), Kinsey (Bedford), Laing (Blyth), Lyster (Wimpole Street), Lennane (Battersea), Macan (Cheam), McSheehy (Wimbledon), Macevoy (Battersea), McCleary (Hampstead), Martin (Dulwich), May Gould (Cadogan Place), McCarthy (Stalybridge), Milne (Merton Park), Makins (Charles Street, W.), Oram (Wandsworth), O'Sullivan (Wimbledon), Sir Cooper Perry (Guy's Hospital), Pritchard (Wandsworth), Pearson (Battersea), Peters (Wimpole Street), Parsons (Fulham), Robertson (Wimbledon), Ryan (Battersea), Randall (Wimbledon), Richards (Clapham), Richards (Wimbledon), L. Shaw (Harley Street), Smyth (Battersea), Soper (Clapham), Swallow (Clapham), Stocks (Wandsworth), Professor Saundby (Birmingham), Staunton (Wood Green), Targett (Guy's Hospital), Twigg (Balham), Tanner (Fulham), Todd (Sunderland), Voller (Battersea), Wallace (Clapton), Wheler (Battersea), Wallance (Battersea), Warburton (Liverpool), Wylie (Clapham), Westby (Liverpool), Walters (Reading), Wilson (Kew), Wear (Newcastle-on-Tyne), White (Sevenoaks), Mackintosh (Clapham), Walker (Wimbledon), Williams (Wandsworth), Powell Evans (Wimbledon), Ryall (Harley Street), Thomson (Queen Anne Street), Murray Leslie (Cadogan Place), Burgess (Upwell), Wareham (Upton Park).

E. Rowland Fothergill,
Chas. J. Martin,
Honorary Secretaries to the Election Committee.
111, Northcote Road, Wandsworth Common, S.W.,
Nov. 3rd, 1906.

P.S.—Copies of the address of Dr. McManus, which appeared in the British Medical Journal of October 13th, can be obtained of the Honorary Secretaries.

WITHDRAWAL OF MR. STRATON.

Mr. Charles R. Straton (West Lodge, Wilton, Salisbury) writes: I had the honour to be nominated by the Winchester, Wandsworth, and Salisbury Divisions as a candidate for the General Medical Council. From the candidates nominated by the Divisions, it was intended that the representatives at their annual meeting should select three, whom they considered likely to promote the policy of the Association in matters relating to representation, education, and the suppression of unqualified practice, and that they should recommend those candidates for election. As no selection has this year been made by the Representative Body, I respectfully ask those Districts who have nominated me to allow me to withdraw my name; but I shall esteem it a high honour to be once more nominated by them should the original scheme of selection by the Representative Body of the Association be revived.

CENTRAL MIDWIVES BOARD.

A meeting of the Central Midwives Board was held on November 1st at Caxton House, Westminster, with Dr. F. W. Champneys in the chair.

Revision of Rules.

The Metropolitan Counties Branch, British Medical Association.

A letter was considered from Dr. F. J. Smith, Honorary Secretary Metropolitan Counties Branch, British Medical Association, asking the Board to receive a deputation to discuss certain suggested amendments to the rules.

The Chairman explained that many of the suggested amendments had already been embodied in the revised rules of the Board. He thought that the gentlemen who had addressed the Board through Dr. F. J. Smith were not in full possession of all the facts of the case. In order to help forward the matter he moved that the Board should pass the following resolution, it being, of course, understood that the proposal did not in the least imply that the Board did not want to hear what these gentlemen wished to say. The Chairman then proposed:

> That a copy of the revised rules be sent to Dr. Smith, and that he be informed that if he will specify in writing any further amendments which the Metropolitan Counties Branch may deem necessary, they will receive the consideration of the Board.

Mr. Ward Cousins seconded the motion.

Mr. Parker Young observed that when an influential body of men like the Metropolitan Counties Branch of the British Medical Association asked the Board to receive a deputation, their request ought to be complied with. He therefore moved the following:

> That a copy of the revised rules be sent to Dr. Smith, and that he be informed that if after reading the revised rules a deputation is still desired, the Board would be glad to hear again from him.

As the motion of Mr. Parker Young was not seconded, the resolution proposed by the Chairman was put to the vote and passed.

Suggestions from County Medical Officers.

A letter was considered from Dr. J. R. Kaye, County Medical Officer of the West Riding, forwarding, on behalf of a meeting of county medical officers, certain suggestions for the amendment of the rules as revised by the Board. It was decided that Dr. Kaye be thanked for his letter, and informed that it would receive the consideration of the Board.

A Welsh Translation.

A letter was considered from the Clerk of the Denbighshire County Council forwarding copy of a resolution passed by the Local Supervising Authority for the county, urging the Board to issue a Welsh translation of the Rules and Forms. The Board decided that the letter be referred to the Standing Committee.

Rules for the Guidance of Inspectors of Midwives.

The Board discussed the following recommendations of the Standing Committee:

> That local supervising authorities having appointed inspectors of midwives be requested to furnish the Board with copies of the rules that have been drawn up for the inspector's guidance, and that where no rules have been compiled the local supervising authority be asked whether such rules, if drawn up by the Central Midwives Board, would be acceptable.

The Secretary of the Board stated that the subject involved the question as to whether the Central Midwives Board would be exceeding their powers by such action. It was understood that a member of the Board, Mr. Fordham, who was not present, would have reported whether the rules would be acceptable to the authorities concerned.

The Board therefore decided to adjourn the consideration of the recommendation.

Reopening of Penal Cases.

The Board decided that where an application is made, by or on behalf of a midwife whose case has been definitely dealt with after citation and hearing by the Board, for the reconsideration of such case, the Secretary do inform the applicant that the Board is not prepared to reopen cases in which it has given formal judgement, and refer the applicant to the Act and to the rules.

Vital Statistics.

Health of English Towns.

In seventy-six of the largest English towns, including London, 8,305 births and 4,418 deaths were registered during the week ending Saturday last, November 3rd. The annual rate of mortality in these towns, which had been 14.6 per 1,000 in each of the two preceding weeks, was again 14.6 per 1,000 last week. The rates in the several towns ranged from 6.2 in Leyton, 6.7 in Northampton, 7.2 in Hornsey, 8.3 in Tottenham and in Grimsby, 8.4 in Southampton, and 8.8 in East Ham to 20.0 in Birkenhead, 20.1 in South Shields, 20.2 in Preston, 20.3 in Warrington and in Sunderland, 20.8 in Liverpool, 21.9 in Middlesbrough, 22.0 in Hanley, and 23.7 in Oldham. In London the rate of mortality was 14.0 per 1,000, while it averaged 14.8 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.7 per 1,000 in the seventy-six towns; in London this death-rate was equal to 1.2 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 4.7 in South Shields, 4.9 in Preston, 5.5 in Oldham, 5.7 in Middlesbrough, 6.2 in Norwich, 6.3 in Bootle, 7.5 in Warrington, and 7.7 in Rotherham

Measles caused a death-rate of 1.3 in Plymouth and in Devonport, 2.2 in Oldham, 3.0 in Rochdale, 3.2 in Bootle, 3.3 in South Shields, 3.8 in Warrington, 4.3 in Rotherham, and 4.9 in Norwich; scarlet fever of 1.6 in Wolverhampton; diphtheria of 1.3 in Aston Manor and 1.5 in Ipswich; whooping-cough of 1.6 in Middlesbrough; "fever" of 1.5 in Warrington; and diarrhoea of 2.6 in Rotherham, 3.1 in Middlesbrough, 3.3 in Oldham, and 4.9 in Preston. No fatal case of small-pox was registered last week in any of the seventy-six towns, and no small-pox patients were under treatment during the week in the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 3,803, 3,923, and 4,068 at the end of the three preceding weeks, had further risen to 4,177 at the end of last week; 499 new cases were admitted during the week, against 566, 548, and 542 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, November 3rd, 886 births and 548 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 17.8, 15.8, and 16.3 per 1,000 in the three preceding weeks, declined again to 16.0 per 1,000 last week, but was 1.4 per 1,000 above the mean rate last week in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 13.4 in Aberdeen and 14.4 in Edinburgh to 18.1 in Perth and 19.0 in Dundee. The death-rate from the principal infectious diseases averaged 1.4 per 1,000 in these towns, the highest rates being recorded in Glasgow and Greenock. The 260 deaths registered in Glasgow included 2 which were referred to measles, 3 to scarlet fever, 6 to diphtheria, 3 to whooping-cough, 3 to "fever," 12 to diarrhoea, and 5 to cerebro-spinal meningitis. Three fatal cases of measles were recorded in Aberdeen; and 2 of diarrhoea in Edinburgh, in Dundee, and in Leith.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, October 27th, 493 births and 340 deaths were registered in six of the principal Irish towns, as against 519 births and 341 deaths in the preceding period. The annual death-rate in these towns, which had been 18.8, 17.5, and 17.1 per 1,000 in the three preceding weeks, rose to 19.3 per 1,000 in the week under notice, this figure being 4.7 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 14.9 in Londonderry and 15.8 in Cork, to 21.6 in Dublin and 27.3 in Waterford. The zymotic death-rate during the same period, and in the same six Irish towns, averaged 1.4 per 1,000, or 1.2 per 1,000 higher than during the preceding period, the highest figure (2.7) being recorded in Limerick, while Cork and Londonderry registered no deaths under this heading at all.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

DEPUTY INSPECTOR-GENERAL J. PORTER, M.D., C.B., has been promoted to be Inspector-General, from October 10th. His previous commissions are dated: Surgeon, September 29th, 1877: Staff Surgeon, September 29th, 1889; Fleet Surgeon, March 4th, 1898; and Deputy Inspector-General, October 21st, 1900. From the *Royal Navy List* we learn that he was Surgeon of the *Orontes* during the Egyptian war in 1882 (medal and Khedive's bronze star). Served on shore with the Royal Marine Battalion defending Suakin, from May, 1884, till the battalion was recalled in May, 1885, and was engaged in the operations in the Eastern Soudan, 1884-5; present at the actions at Hasheen, March 20th, 1885; attack on Sir J. McNeil's zareba, Tulufik, March 22nd; the attack on the square of guards and marines, March 24th; and at the taking and burning of Tamaai, April 3rd (two clasps). Landed from the *Doris* during the Boer war, 1899-1900, and was in medical charge between October 20th, 1899, and October 12th, 1900, of the naval forces employed (1) in defence of Stormberg; (2) in Lord Methuen's advance from Belmont to Magersfontein; (3) in Lord Roberts's advance from Enslin to Belfast via Klip Drift, Paardeberg, Pretoria, etc.; (4) with General French's column from Belfast to Barberton via Carolina (medal with eight clasps inscribed Belmont, Modder River, Relief of Kimberley, Paardeberg, Driefontein, Johannesburg, Diamond Hill, Belfast); was present at Graspan (with the assault), Magersfontein, Poplar Grove, capture of Pretoria (twice mentioned in dispatches, promoted to Deputy Inspector of Hospitals, November, 1900, for above services; C.B.).

Fleet Surgeon W. TAIT, M.D., is promoted to be Deputy Inspector-General, October 10th. He was appointed Surgeon, October 1st, 1879; Staff Surgeon, October 1st, 1891; and Fleet Surgeon, October 1st, 1895. He was Surgeon of the *Temeraire* during the Egyptian war in 1882, and has received the medal and Khedive's bronze star.

Staff Surgeon A. BASKELL is promoted to be Fleet Surgeon. His commission as Surgeon dates from November 14th, 1893; that of Staff Surgeon from October 31st, 1898. He was promoted to be Staff Surgeon for conspicuous professional merit at Wei-hai-wei.

The following appointments have been made at the Admiralty: GEORGE A. S. BELL, Fleet Surgeon, and THOMAS E. BLUNT, Surgeon, to the *Investable*, on recommissioning, November 27th; JOHN A. L. CAMPBELL, Staff Surgeon, to the *Repulse*, on recommissioning, November 27th; THOMAS C. MEIKLE, M.B., Staff Surgeon, to the *President*, additional, for three months' course at Edinburgh University, October 33th; LEONARD WARREN, M.B., Surgeon, to the *Mercury*, additional, for the *Hazard*, November 27th; JOHN WHELAN, Surgeon, to the *Orion*, on recommissioning, undated; WALTER T. HAYDON, Surgeon, to the *Bacchante*, November 15th; THOMAS F. O'KEEFE, Surgeon, to the *Acheron*, November 15th; CHARLES JAMES, Deputy Inspector-General, to Gibraltar Hospital, November 5th; WILLIAM E. BRETON, Deputy Inspector-General, to Plymouth Hospital, November 5th; JOSEPH A. MOON, Fleet Surgeon, to the *Magnificent* on recommissioning, November 6th; WILLIAM HACKETT, M.D., Fleet Surgeon, to the *Goliath*, November 6th; GEORGE WELCH, Fleet Surgeon, to Haslar Hospital, for instruction of Surgeons on entry, November 25th; WILLIAM W. PRYN, Fleet Surgeon, to the *President*, additional, for temporary service at the Admiralty, November 12th, and to the Medical Department, November 20th; FRANCIS F. LOBB, Staff Surgeon, to the *Pegasus*, additional, November 27th, and on recommissioning, undated; FREDERICK G. GOBLE, Surgeon, to the *Albemarle*, November 27th; GERALD C. CROSS, Surgeon, to the *Wildfire*, additional, for disposal, November 2nd.

JOHN J. ROBERTSON, civil practitioner, to be Surgeon and Agent at Portpatrick, November 1st.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT P. DWYER, M.B., who is serving in India, is appointed specialist in the prevention of disease.

INDIAN MEDICAL SERVICE.

CAPTAIN C. W. F. MELVILLE, M.B., is appointed to officiate as Professor of Materia Medica and Pathology at Lahore Medical College, vice Major H. G. Melville, M.B., granted leave for one year.

ARMY MEDICAL RESERVE.

SURGEON-MAJOR M. MACKENZIE to be Surgeon-Lieutenant-Colonel, October 23rd.

ROYAL ENGINEERS (VOLUNTEERS).

SURGEON-CAPTAIN W. H. BOURKE, M.D., 1st Middlesex, to be Surgeon-Major, October 8th.

Surgeon-Captain T. H. CHITTENDEN, 1st Middlesex, resigns his commission, November 1st.

VOLUNTEER RIFLES.

MAJOR C. T. GRIFFITHS, from the Staffordshire Bearer Company, Royal Army Medical Corps (Volunteers), to be Surgeon-Major, October 15th.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

ABERYSTWITH INFIRMARY AND CARDIGANSHIRE GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

BARNSTAPLE: NORTH DEVON INFIRMARY.—House-Surgeon. Salary, £100 per annum.

BIRMINGHAM GENERAL HOSPITAL.—(1) Resident Surgical Officer; (2) House-Surgeon; (3) House-Physician. Salary for (1) £100, and (2) and (3) at the rate of £80 per annum.

BRADFORD CHILDREN'S HOSPITAL.—House-Surgeon. Salary, £100 per annum.

BROMSGROVE: BARNSLEY HALL ASYLUM.—Senior Assistant Medical Officer and Deputy Medical Superintendent. Salary commencing at £200 per annum.

CANCER HOSPITAL, FULHAM ROAD, S.W.—Surgical Registrar. Honorarium, £26 5s. per annum.

CANTERBURY: KENT AND CANTERBURY HOSPITAL.—House-Physician. Salary, £90 per annum.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn Road, W.C.—House-Surgeon. Salary at the rate of £50 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL. Junior House-Surgeon. Salary at the rate of £60 per annum.

DORCHESTER: COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £140 per annum, rising to £180.

EDINBURGH ROYAL HOSPITAL FOR SICK CHILDREN.—Extra Physician.

GLOUCESTER COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £150 per annum, rising to £180.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House-Surgeon. Remuneration at the rate of £30 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway Road, N.—(1) Physician; (2) Obstetric Physician.

HALIFAX UNION POOR-LAW HOSPITAL.—Female Resident Medical Officer. Salary £100 per annum.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary at the rate of £60 per annum.

LIVERPOOL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Pathologist. Salary, £150 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City Road, E.C.—Clinical Assistants.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William Street, W.C.—Clinical Assistants.

ST. GEORGE'S UNION.—Assistant Medical Officer to the Infirmary, Fulham Road, S.W. Salary, £120 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House-Surgeon. Salary, £60 per annum.

SOCIETY OF APOTHECARIES OF LONDON.—Gillson Scholarship in Pathology, value £90.

TOTTENHAM HOSPITAL.—(1) Two Honorary Assistant-Physicians; (2) Honorary Assistant Surgeon; (3) Honorary Physician or Surgeon to X Ray and Electrical Department.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Physician. Honorarium, £25 for six months.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Welbeck Street, W.—Second Anaesthetist.

WESTMINSTER GENERAL DISPENSARY, Gerrard Street, Soho, W.—Resident Medical Officer. Salary, £120 per annum.

WINCHESTER: ROYAL HANTS COUNTY HOSPITAL.—House-Physician. Salary, £65 per annum, rising to £75.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces a vacancy in the office of Certifying Factory Surgeon at Wolverhampton.

APPOINTMENTS.

BEADLE, J., L.R.C.P.Edin., M.R.C.S.Eng., District Medical Officer of the Teesdale Union.

BOND, B.M., L.R.C.P., M.R.C.S.Eng., Certifying Factory Surgeon for the Fulham and Hammersmith District.

CURRIE, J., M.B., C.M.Edin., Certifying Factory Surgeon for the Lees District, co. Lancaster.

DRINKWATER, R., L.R.C.P. and S.E., L.F.P.S.Glasg., Medical Officer of Health, Llangollen Rural District.

GIBBS, N. E., L.R.C.S., L.R.C.P., Third House-Surgeon, Royal London Ophthalmic (Moorfields Eye) Hospital.

GOULDEN, Charles, M.A., M.B., M.C., F.R.C.S., Senior House-Surgeon, Royal London Ophthalmic (Moorfields Eye) Hospital.

HOUGHTON, C. H., M.B., B.S.Edin., District Medical Officer, of the Bradford Union.

HUDSON, A. C., M.A., M.D., B.C., F.R.C.S., Second House-Surgeon, Royal London Ophthalmic (Moorfields Eye) Hospital.

ILES, M., M.D., B.S., Medical Officer, Lerana Hospital, Bahawalpur State, N. India.

JOHNSTONE, J. W., M.B., C.M.Glasg., District Medical Officer of the Bolton Union.

SINIGAR, H., M.D., B.S.Lond., D.P.H., Certifying Factory Surgeon for the Southall District, co. Middlesex.

TURNER, George Grey, M.B., M.S.Durh., F.R.C.S.Eng., Honorary Assistant Surgeon to the Royal Victoria Infirmary, Newcastle-upon-Tyne.

WALTERS, H. B., M.R.C.S., L.R.C.P., District Medical Officer of the Newton Abbott Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 8s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

BOWKER.—On October 31st, at 11, North Parade, Bath, the wife of George E. Bowker, M.D.Edin., of a son.

CHEVES.—On October 28th, at 225, Sheffield Road, Barnsley, the wife of W. R. Cheves, M.B., C.M., Aberdeen University, of a daughter.

FERRIER.—At 12, Ogle Terrace, South Shields, on November 5th, the wife of David Ferrier, M.D., of a son.

DEATHS.

AIRD-JOLLY.—On October 31st, at Wingfield, Acacia Road, Acton, W., after four days' illness, Samuel Aird-Jolly, Physician and Surgeon. Funeral on Saturday, November 3rd, at Acton New Cemetery, at 2 p.m. Friends please accept this, the only, intimation.

BRITTEN.—On October 20th, at 90, Harley Street, London (suddenly), Agnes Winifred Britten, sometime Matron of the Maternity Hospital, Glasgow, late Army Nursing Service Reserve.

CLEMOW.—On October 27th, at 56, Edith Road, West Kensington, Arthur Henry Weiss Clemow, M.D.Edin., M.R.C.P.Lond., aged 45, late of 101, Earls Court Road, son of the late William Henry Clemow. Friends will kindly accept this, the only, intimation.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W., 8.30 p.m.—Clinical Evening. Cases will be exhibited by Drs. Graham Little, Parkes Weber, Poynton, J. F. H. Broadbent, R. A. Young, and Messrs. Gordon Watson, E. M. Corner, P. Sargent, and T. P. Legge.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W., 5 p.m.—Second FitzPatrick Lecture by Dr. Norman Moore: The History of the Study of Clinical Medicine in the British Isles.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY, 20, Hanover Square, W., at 8.30 p.m.: Special Discussion on the Operative Treatment of Non-malignant Ulcer of the Stomach and its Chief Complications, with Indications, Limitations, and Ultimate Results.

WEDNESDAY.

DERMATOLOGICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W., 5.15 p.m.—Cases and Specimens.

HUNTERIAN SOCIETY, London Institution, Finsbury Circus, E.C., 8.30 p.m.—Discussion on Gonorrhœa: Short papers will be read by Drs. Lewis Smith, Ernst Michels, and Russell Andrews.

THURSDAY.

MEDICO-PSYCHOLOGICAL ASSOCIATION, 11, Chandos Street, Cavendish Square, W., 3 p.m.—Papers will be read:—Dr. R. Percy Smith: International Congress on the Care of the Insane. Dr. R. Welsh Branthwaite: Drunk and Disorderly. Dr. Purves Stewart: Diagnostic Value of Examination of the Cerebro-spinal Fluid.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN, 20, Hanover Square, W., 5 p.m.—Special Meeting:—Demonstration by Professor W. D. Miller, M.D.: Some Observations and Experiments on the So-called Erosion of the Teeth.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W., 5 p.m.—Horace Dobell Lecture by Dr. F. W. Andrewes: The Evolution of the Streptococci.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C., 3 p.m.—Annual Meeting of Fellows and Members.

FRIDAY.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN, 11, Chandos Street, Cavendish Square, W., 5 p.m.—Paper:—Dr. James Burnet (Edinburgh): Psoriasis in Childhood. Cases: Drs. E. I. Spriggs, T. R. Whipham, E. Cautley, Carpenter, Hawthorne, J. Porter Parkinson, and others.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON EAR AND THROAT HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Middle Ear and Labyrinth.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Gynaecological. Thursday, 4 p.m., Medical.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W., Wednesday, 4 p.m.—The Serum Therapy of Pulmonary Tuberculosis.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Medical and Surgical daily, except Saturday and Sunday, at 2.30 p.m. and 3.15 p.m. respectively; Throat and Ear, 4 p.m., Monday; Skin Diseases, 4 p.m., Tuesday; Eye Diseases, 4 p.m., Wednesday; Radiography, 4 p.m., Thursday. Operations, daily, 2.30 p.m. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Ear. Lectures at 5.15 p.m. each day will be given as follows: Monday, Some Cardio-vascular Conditions; Tuesday, The Sanatorium Treatment of Pulmonary Tuberculosis; Wednesday, Surgical Diseases of Children; Thursday, The Diagnosis and Treatment of Duodenal Ulcer.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Central Out-Patient Department, 7, Fitzroy Square, W., Thursday, 5 p.m.—Pulmonary Tuberculosis: Results of Treatment.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Myopathies; Friday, 3.30 p.m., Gait in Nervous Diseases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Tottenham Hospital, N.—Tuesday, 4.30 p.m., Lecture-demonstration on X Rays. Thursday, 5 p.m.: Demonstration on Cases of Chest Disease (at the Mount Vernon Hospital, Hampstead).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., X Rays, Medical and Surgical Clinics. 2.30 p.m., Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Tuesday and Friday, 10 a.m., Gynaecology. Wednesday, 10 a.m., Diseases of Children. Lectures, 12 noon: Monday, Pathological Demonstration; 5 p.m., Monday, Clinical Lecture; Tuesday, Some Minor Abnormalities of the Urine; Wednesday, Practical Medicine; Thursday, Rectal Cases; Friday, Finsen, Ultra-violet, and other Methods of Phototherapy.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Thursday, 5 p.m.: Diagnosis in Gynaecology.

BOOKS, ETC., RECEIVED.

The History of the Wine Trade in England. By A. L. Simon, F.R.Hist.S. Vol. I., Earliest Times to Close of 14th Century. London: Wyman and Sons Ltd. 1906. 5s.

Rough Notes on Remedies. By W. Murray, M.D., F.R.C.P. Fifth edition. London: H. K. Lewis. 1906. 4s.

London: Baillière, Tindall, and Cox. 1906:

Syphilology and Venereal Disease. By C. F. Marshall, M.D., M.Sc., F.R.C.S. 10s. 6d.

Minor Maladies and their Treatment. By L. Williams, M.D., M.R.C.P. 5s.

The Uses of X Rays in General Practice. By R. H. Cooper, L.S.A. 2s. 6d.

High Frequency Currents. By H. E. Crook, M.D., B.S., F.R.C.S. 7s. 6d.

London: Hodder and Stoughton:

The Pathology of the Eye. By J. H. Parsons, B.S., D.Sc., F.R.C.S. Vol. IV. General Pathology. Part I. 15s.

Dental Materia Medica, Therapeutics, and Prescription Writing. By E. H. Long, M.D. Second edition. 1906. 15s.

Physical Diagnosis. By E. Le Fevre, M.D. Second edition. 10s.

Scenes of Clerical Life. By G. Eliot. London: Macmillan and Co. 1906. 6s.

A Treatise on the Motor Apparatus of the Eyes. By G. T. Stevens, M.D., Ph.D. Philadelphia: F. A. Davis Co. 1906. $4.50.

A Guide to Urine Testing for Nurses. By M. Robinson, L.R.C.P., L.R.C.S.Edin. Third edition. Bristol: J. Wright and Co. 1906. 1s.

Syphilis du Poumon chez l'Enfant et chez l'Adulte. Par le Dr. Bériel. Paris: G. Steinheil. 1906. Fr. 4.

A Complete Handbook for the Hospital Corps of the U.S. Army and Navy and State Military Forces. By C. F. Mason. New York: W. Wood and Co.; London: Baillière, Tindall, and Cox. 1906. 18s.

The Hygiene of Mind. By T. S. Clouston, M.D., F.R.S.E. London: Methuen and Co. 7s. 6d.

Humaniculture. By H. Higgins, M.A., M.R.C.S., L.R.C.P. New York: A. Stokes Co.: London: T. F. Stevens and Brown. 1906. 5s.

Recherches Expérimentales et Cliniques sur la Pathogénie de l'Urémie. Par M. de Levis. Lyon. 1905.

Principles of Microscopy, being a Handbook to the Microscope. By Sir A. E. Wright, M.D., F.R.S., D.Sc., F.R.C.S.I. London: A. Constable and Co., Ltd. 1906. 21s.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
NOVEMBER.	
11 **Sunday**	
12 MONDAY	
13 TUESDAY.....	CHICHESTER AND WORTHING DIVISION, *South-Eastern Branch*, Infirmary, Worthing, 3.30 p.m.; Dinner, Warne's Hotel, 6.30 p.m.
14 WEDNESDAY	Lancashire and Cheshire Branch Council, Manchester Royal Infirmary, 4.30 p.m.
15 THURSDAY...	LONDON: Hospitals Committee. LONDON: Joint Hospitals Committee. LONDON: Metropolitan Counties Branch Council, 5 p.m. LEIGH DIVISION, *Lancashire and Cheshire Branch*, Co-operative Offices, Ellesmere Street, 8.30 p.m. SOUTHERN BRANCH, South-Western Hotel, Southampton, 3.45; Dinner, 6 p.m.
16 FRIDAY.....	
17 SATURDAY...	
18 **Sunday**.....	
19 MONDAY	
20 TUESDAY ...	SOUTH MANCHESTER DIVISION, *Lancashire and Cheshire Branch*, Dr. Sawers Scott's, 57, Wilmslow Road, Withington, 3.30 p.m.
21 WEDNESDAY	BOURNEMOUTH DIVISION, *Dorset and West Hants Branch*, Medical Society's Rooms, 3.45 p.m.
22 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Conjoint Meeting with Richmond and Chelsea Divisions, Chelverton Road Hall, Putney, 8.45 p.m.
23 FRIDAY	BRADFORD DIVISION, *Yorkshire Branch*, Midland Hotel, Bradford, 7 p.m.; Dinner, 8 p.m.
24 SATURDAY...	
25 **Sunday**	

Date.	Meetings to be Held.
NOVEMBER *(Continued).*	
26 MONDAY	LONDON: Naval and Military Committee, 3.30 p.m.
27 TUESDAY.....	
28 WEDNESDAY	BATH AND BRISTOL BRANCH, Bath.
29 THURSDAY..	CITY DIVISION, *Metropolitan Counties Branch*, Great Eastern Hotel, Liverpool Street, E.C. (Lincolnshire Room), 4 p.m. LAMBETH DIVISION, *Metropolitan Counties Branch*, Clinical Lecture Theatre, St. Thomas's Hospital, 4 p.m.; Committee, 3.30 p.m. STAFFORDSHIRE BRANCH, North Stafford Hotel, Stoke-upon-Trent, 4 p.m.; Council, 3.30 p.m.; Dinner, 6.30 p.m.
30 FRIDAY	
DECEMBER.	
1 SATURDAY...	
2 **Sunday**	
3 MONDAY	LONDON: Premises and Library Committee, 3.30 p.m.
4 TUESDAY ...	
5 WEDNESDAY	
6 THURSDAY...	
7 FRIDAY.....	
8 SATURDAY...	
9 **Sunday**	
10 MONDAY	
11 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m.
12 WEDNESDAY	
13 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Alexandra Hotel, Clapham Common, 8.45 p.m.
14 FRIDAY	
15 SATURDAY...	
16 **Sunday**.....	
17 MONDAY	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 17TH, 1906.

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British Medical Association.

Notice is hereby given that an Extraordinary General Meeting of the British Medical Association will be held at the Examination Hall, Savoy Place, Victoria Embankment, London, on Wednesday, 28th November, at three o'clock in the afternoon, when the subjoined Resolutions will be proposed:

1. That the 5th Article of Association be altered by the insertion of the words "Divisions or" immediately before the word "Branches" where that word secondly occurs.

2. That the 27th Article be altered by the insertion immediately after the words "constituency having not less than fifty members" of the words "provided that the Council shall have a discretionary power to permit a Division having less than fifty members to form one constituency in any case in which it shall appear to the Council that the holding of joint meetings of members of that Division and of neighbouring Divisions would be attended by special difficulties."

3. That the said 27th Article be altered by the substitution of the words "nine months" for the words "three months."

4. That the 36th Article be altered by the insertion of the word "and" immediately before the words "a Treasurer" and by the omission of the words "an Editor of the JOURNAL and a General Secretary" and of the words "the Editor of the JOURNAL and the General Secretary."

5. That the following Article be substituted for the 37th Article, namely:

XXXVII.—OFFICERS *(continued)*.

The Chairman of Council shall be elected by the Council from its own number and shall hold office for such period and discharge such duties as shall be determined by the Council. During this period and for one year thereafter he shall *ex officio* be a member of the Council and any Branch of which at the time of his election he was a Representative shall be entitled to elect another in his stead.

6. That the 38th Article be altered by the substitution of the words "Chairman of Council and (during the year succeeding his period of office) the *Past Chairman* of Council" for the words "(if any)."

7. That the 41st Article be altered by the substitution of the words "the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer" for the words "and the Chairman of Council."

8. That the following clause be substituted for Clause (*e*) of the 44th Article, namely:

(*e*) No member in regard to whom a representation as aforesaid has been made or whose conduct is under investigation or is the subject of inquiry by the Council or by a Branch or Division shall be capable of effectively resigning his membership of the Association until the result of such investigation or inquiry has been officially and finally declared.

9. That the following Article be substituted for the 45th Article, namely:

XLV.—TRAVELLING EXPENSES.

The first-class travelling expenses within the United Kingdom of Members of Council and Representatives of Divisions attending the Annual or any Special Representative Meeting shall be defrayed out of the general funds of the Association. Attendance of Representatives of Divisions for this purpose at the Annual Representative Meeting shall be construed to mean attendance at each daily Session of that Meeting and also at each daily Session of the Annual General Meeting at which business described under the head (A) in Article XVIII is to be transacted unless the

Council shall be satisfied that good cause existed for absence from any particular Session or Sessions. The first-class travelling expenses within the United Kingdom of all Members attending any meeting of Council or of a Committee, and of all Officers of any Division or Branch attending any conference held under conditions approved by the Council, shall be defrayed in like manner. Save as in this clause expressly provided the Council shall determine what shall be considered an attendance for any purpose of this Clause.

Should the above resolutions or any of them be duly passed by the required majority, the same will be submitted for confirmation as Special Resolutions or a Special Resolution to a subsequent Extraordinary General Meeting of the Association which will be subsequently convened.

Dated the fifteenth day of November, 1906.

By Order of the Council,

GUY ELLISTON,

General Secretary,

British Medical Association.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

BIRMINGHAM BRANCH:

COVENTRY DIVISION.

A MEETING of this Division was held at the Coventry and Warwickshire Hospital on Tuesday, November 6th, Mr. FAULDER WHITE being in the chair.

Case. — Dr. LOWMAN showed a child with a large lymphangioma in the neck.

Resignation from Committee. — The resignation of Dr. McGlashan from the Committee on his removal from the district to Newhaven was received; Dr. Harman Brown was unanimously elected to fill the vacancy.

Coventry Public Medical Service.—An invitation was received from the Coventry Public Medical Service for the Division to appoint a Representative of the Division on the Committee of Management of that Service. Dr. J. Orton was elected as the Representative of the Division.

Hospital Reform.—The suggestions of the Hospitals Committee on the question of hospital reform were considered; with certain exceptions (which have been communicated to the Medical Secretary) these were approved. A further suggestion for discussion was ordered to be forwarded to the Medical Secretary.

Discussion.—Dr. J. ORTON opened a discussion on Epidemic Diarrhoea; this was joined in by the CHAIRMAN, Drs. RICE, WEBB FOWLER, PHILLIPS, CALLAGHAN, LOWMAN, HAWLEY, WEBSTER, H. BROWN, L. B. WARD, and the SECRETARY; and Dr. ORTON replied.

BORDER COUNTIES BRANCH.

THE autumn meeting of the Branch took place in Penrith on November 2nd, when there was a very large number of members present. The PRESIDENT, Dr. Bowser, took the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read, approved, and signed by the President.

Resolutions of Condolence. — Resolutions of condolence with the relatives of the late Dr. James Altham of Penrith, and of the late Dr. J. A. Campbell, both of whom were past Presidents of the Branch, were unanimously passed.

Report from the Branch Council.—It was then reported that (*a*) the Branch Council had decided to recommend to the Organization Committee of the Association that the following alterations should take place in the boundaries of the Divisions: (1) That the two existing Divisions on the English side of the Border should be amalgamated to form one larger and more convenient Division; (2) that the Division so formed be called the "English Division"; (3) that the Eskdale portion of Dumfriesshire be included in the "English Division." (*b*) The meeting of the Branch to discuss contract practice has been arranged to take place on either the second or third Friday in February, at the option of the Medical Secretary of the Association. (*c*) That the Council had viewed with some alarm the proposals of the Royal Commission on Motor Cars to increase the taxation of these vehicles, and had sent a letter to the Medico-Political Committee of the Association asking that body to take such steps as it considered advisable towards having medical men exempted from any such increase of taxation. The Secretary of the Branch had also been instructed to write to the local members of Parliament on the subject, and a copy of the letter he had sent was submitted to the meeting and approved. (*d*) A letter from the Secretary of the Scottish Committee of the Association was then read, which contained a resolution passed by that body requesting that the Border Counties Branch appoint an additional Secretary of the Branch, from the Scottish Division of the Branch, to sit upon that Committee. The Branch Council had decided that no action be taken in this matter before the annual meeting of the Branch.

New Members.—The PRESIDENT announced that since the last meeting of the Branch the following new members had been elected: S. G. V. Harris, Whitehaven; R. J. Irving, Carlisle; G. Y. Caldwell, Annan.

Address.—This terminated the "business" portion of the meeting, which then had the pleasure of listening to a most interesting and instructive address from the masterly pen of Dr. Clouston of Edinburgh, a former President of the Branch, on the subject of the Hygiene of Mind.

The Toronto Meeting.—This was followed by a most amusing and interesting account by Dr. CRERAR, of Maryport, of his adventures and those of his fellow-travellers to the Toronto Meeting of the Association.

Exhibition of Calculi.—The last but by no means the least interesting item on the agenda paper was the exhibition by Dr. MACLAREN and Mr. NORMAN MACLAREN of their very large and interesting collection of salivary, biliary, renal, vesical, and prostatic calculi.

Dinner.—After the meeting the members dined together in the George Hotel, and thus brought one of the best meetings of recent years to a happy close.

METROPOLITAN COUNTIES BRANCH:

STRATFORD DIVISION.

THE first meeting of the winter session of the Stratford Division was held on Thursday, October 18th, at the Alexandra Hotel, Stratford, E., Dr. HASTINGS in the chair.

Confirmation of Minutes.—The minutes of the preceding meeting were read and confirmed.

Address.—Dr. J. MACCOMBIE, of the Metropolitan Asylums Board, gave a most interesting and instructive address on the exanthem of scarlet fever and some of its counterfeits, and the clinical significance of skin haemorrhages in diphtheria. At the conclusion of the address several questions were put to the lecturer, who, on replying, was awarded a very hearty vote of thanks.

Communication from Wandsworth Division.—The Division then considered a communication from Wandsworth Division *re* election of Direct Representatives to the General Medical Council, and, after some discussion, the following resolution, proposed by Dr. ROSE and seconded by Dr. CORNER, was carried:

> That the Division supports the two candidates it has already nominated, provided they proceed with their candidature, but does not consider any further steps to secure their election practicable.

A vote of thanks to the Chairman terminated the proceedings.

TOTTENHAM DIVISION.

A MEETING of this Division was held at the Hornsey Conservative Association Rooms, on Friday, November 2nd, at 9.15 p.m., Dr. LEONARD GRANT in the chair.

Annual Representative Meeting. — The report on the Annual Representative Meeting was read.

Hornsey Cottage Hospital.—Dr. J. R. FULLER opened a discussion on the Hornsey Cottage Hospital by reading out the rules of that institution, and drawing attention to their most objectionable features. He objected to the present method of election of the twelve members of the

staff by laymen; he thought it should be in the hands of the local profession; also, that the four members retiring annually should not be eligible for re-election for several years. The proposed out-patient department was not required. At present, admission was only by a subscriber's letter: even a letter from the medical attendant must be endorsed by a subscriber; this was highly objectionable. He also objected to the proposal that the hospital should ask for grants from King Edward's and the Hospital Sunday Funds. He thought that patients should be attended by their own medical men, not by the staff, though the staff should have the option of refusing any patient. Another bad rule was that allowing any subscriber of £25 and upwards the use of a bed for twelve months; thus factories and clubs might easily subscribe and obtain free treatment for most of their workmen.—The Chairman mentioned that in the cottage hospital of whose staff he was a member, a vacancy was filled by the members of the staff submitting two or three names to the Council, which selected one of them. He thought subscribers' letters led to much friction, and that patients should only be admitted on the recommendation of their own medical men, or of a member of the staff.—Dr. Ford Anderson, of the Hampstead Division, said that he had had a great deal of experience with regard to such hospitals, and read out the scheme drawn up by the Hospitals Committee. If necessary, the Hornsey medical men would have the support of the Association, as in the case of the Leigh Hospital, which fought the Association for several years, but finally climbed down when a notice was issued warning medical men against joining the staff of that hospital. He could not altogether agree with Dr. Fuller's proposals. He considered that all medical men practising in a district should have free access to a cottage hospital; in such institutions there should be no such thing as a staff at all. The management of such hospitals was the concern of the local medical men, who should be fully represented on the managing committee; not that subscribers should be excluded, but they should confine themselves to administrative work, for which they were so well fitted, all purely medical work being left to the profession. Hitherto cottage hospitals had been dumped down everywhere without reference to the local profession, their acquiescence being taken for granted. It was an indignity to the profession that they should be so little considered, that every subscriber of a few shillings should have more power; but the day of the benevolent founder was over. Referring again to the scheme of the Hospitals Committee, there could be no objection to the rule that all patients if possible should contribute towards their maintenance according to their means, when every practitioner was on the staff, otherwise it would be objectionable. With regard to the Hornsey Hospital specially he thought: (1) That the profession was not adequately represented on the governing committee. (2) There should be no staff; all medical men practising in the district should *ipso facto* be attached to the hospital. Patients at present could not be attended by their own medical men, which was undesirable. (3) As to the rule requiring the counter-signature of a subscriber to the medical attendant's letter, it was most insulting to the profession. In short, his feeling towards the rules of the hospital was one of strong disapproval. Medical men in the district must unite, make up their minds, and let the governors clearly understand that unless these rules were reformed they would wreck the hospital. The following resolutions were then passed *nem. con.*:

Proposed by Dr. Fuller, seconded by Dr. Shoyer:

1. That there be no staff on the Hornsey Cottage Hospital, but that all medical men practising in Hornsey have the right of attending their own patients in the hospital.

Proposed by Dr. Hooper, seconded by Dr. Groves:

2. That medical men be elected on all committees in numbers not less than half.

Moved by Dr. A. Greenwood, seconded by Dr. Fuller:

3. That the election be made by a committee appointed by the local medical men.

Moved by Dr. Shoyer, seconded by Dr. Bryce:

4. That certificates signed by the medical men in attendance be, if possible, the only recommendation for admission; if otherwise, the reason to be stated.

Proposed by Dr. Chitty, seconded by Dr. Shoyer:

5. That all patients admitted contribute towards their maintenance, if possible, according to their means.

Proposed by Dr. Fuller, seconded by Dr. Bryce:

6. That, except in cases of emergency, cottage hospitals be open only to persons who, not being in receipt of parish relief, are unable to secure adequate treatment at home.

Proposed by Dr. Orton, seconded by Dr. Groves:

7. That out-patient department and subscribers' letters be barred.

A Subcommittee was then appointed, consisting of the under-mentioned medical men practising in the Hornsey District, to consider what further steps should be taken in the matter: Drs. Brackenbury, Bryce, Burnett-Harris, Fuller, Groves, and Harper. The meeting broke up after passing a hearty vote of thanks to Dr. Ford Anderson for his valuable advice and assistance in the matter.

SOUTH-EASTERN BRANCH.

Norwood Division.

A meeting of the Norwood Division was held at the Streatham Hall on October 25th, at 4 p.m., J. R. Steedman, F.R.C.S., of Streatham, in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Next Meeting.—It was resolved, on the proposition of Dr. Galton, seconded by Dr. Hodgson, that the next meeting of the Division should take place at Norwood Cottage Hospital, and that Dr. Beaumont be invited to take the chair thereat.

Annual Representative Meeting.—A letter was read from Mr. John Rand, resigning his position of Representative at Representative meetings. Mr. Rand's report of the meeting of Representatives at Caxton Hall, Westminster, was then read. Dr. Galton proposed, and Dr. Drysdale seconded, a proposition that the Honorary Secretary be instructed to write to Mr. Rand, thanking him for his lucid and exhaustive report of the proceedings at the Representative Meeting, and expressing the regret of the Division at his retirement from the position which he has held since the formation of the Norwood Division, four years ago. This was carried unanimously.

Papers.—The following papers were then read: Dr. Drysdale, the Importance of Pathology in Relation to Clinical Medicine; Mr. A. A. Bowlby, Some Cases of Acute Pyelitis due to *Bacillus coli*; Dr. Lewis Jones, the Electrical Treatment of Rodent Ulcer.

Dinner.—After the meeting nineteen members and visitors dined together.

Reigate Division.

The annual meeting of this Division was held on Tuesday, October 30th, at 4.30 p.m., at the White Hart Hotel, Reigate. After the election of officers for the ensuing year, Dr. Walters gave an interesting account of the Toronto Meeting, and Dr. Bromet of the meeting of Representatives in London. — Mr. James Berry, B.S. and M.B.Lond., F.R.C.S.Eng., Surgeon to the Royal Free Hospital, then read a practical and useful paper on Haematuria.

Dinner.—Twelve members stayed for the dinner.

ULSTER BRANCH.

The autumn meeting of this Branch was held in the Urban Council Chamber, Ballymena, on Saturday, November 3rd, Dr. Leonard Kidd, and subsequently Professor Symington, in the chair.

Installation of New President.—The President, Dr. Leonard Kidd (Enniskillen) took the chair, and after thanking the members for their support during the past year, introduced the President-elect, Professor Symington, F.R.S.

Vote of Thanks to Retiring President.—When the latter had taken the chair, a vote of thanks to Dr. Kidd was moved by Professor Lindsay, seconded by Dr. D'Evelyn (Ballymena), and passed by acclamation.

Apologies for Non-Attendance.—The honorary secretary, Dr. Cecil Shaw, announced that apologies had been received from Professor Anderson (Galway), Dr. Cooke (Derry), Dr. Thos. McLaughlin (Derry), and Dr. Beggs (Belfast).

Confirmation of Minutes.—The minutes of the previous meeting and of special meetings *re* the Darnell case were read and confirmed.

Report of Council.—The Council report was read by the Honorary Secretary, and stated that Drs. O'Hare

(Newry) and Steen (Carrigart, Donegal) had been elected members of the Association, and that the next meeting would be held in Belfast on January 16th.

Joint Committee on Poor Law.—Dr. DARLING (Lurgan) on behalf of the Council, made a statement concerning the work of the Joint Committee on Poor Law, and urged all Poor-law medical officers to keep most carefully the returns of their work, as requested by the Committee.

Luncheon.—Before the meeting the members lunched together in the Royal Hotel.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH: CENTRAL DIVISION.—A special and general meeting of the Central Division will be held at the Medical Institute on Thursday, November 22nd, at 3.30 p.m. Business: (1) Several candidates for election to the General Medical Council will attend and address the meeting; to this portion of the business the whole profession in the area of the Division is cordially invited. (2) Amendment of Ethical Rule Z. (3) A resolution concerning the Coventry Dispensary. —E. D. KIRBY, Honorary Secretary.

BORDER COUNTIES BRANCH: NORTH CUMBERLAND DIVISION.—A meeting of the Division will be held at the County Hotel, Carlisle, on Friday, December 7th, at 8 o'clock, when Dr. Norman Walker will give an address on a series of cases of so-called eczema traced eventually to definite causes. Dinner will be at 6.30 p.m.—NORMAN MACLAREN, Honorary Secretary, 23, Portland Square, Carlisle.

BORDER COUNTIES BRANCH: WEST CUMBERLAND DIVISION. —An ordinary meeting of this Division will be held at Maryport on Thursday, November 29th, at 3.45 p.m. Members wishing to read papers or show cases will oblige by giving notice to the Honorary Secretary before November 19th. An agenda will be sent in due course.—JOHN PENNY, Honorary Secretary, Cockermouth.

DORSET AND WEST HANTS BRANCH: BOURNEMOUTH DIVISION.—A meeting will be held at the Medical Society's Rooms on Wednesday, November 21st at 3.45 p.m. Dr. W. Johnson Smyth will give a brief report of the Representative Meeting and also read notes of a case. A discussion on Dysmenorrhœa will be opened by Dr. Eleanor Bond.—E. KAYE LE FLEMING, Honorary Secretary, Wimborne, Dorset.

LANCASHIRE AND CHESHIRE BRANCH: SOUTH MANCHESTER DIVISION.—A meeting of the members of this Division will be held at Dr. Sawers Scott's, 57, Wilmslow Road, Withington, at 3.30 p.m., on Tuesday, November 20th. Agenda: Minutes, re-nomination of Dr. Rhodes as candidate for the General Medical Council; Dr. Bagley's report of Representative Meeting (See Sir Victor Horsley's Report, p. 226, SUPPLEMENT to BRITISH MEDICAL JOURNAL, October 27th); Dr. Jordan's Report on existing medical benevolent institutions; report of Subcommittee *re* Rusholme Dispensary; the proposed combination of Divisions (See p. 231, SUPPLEMENT to BRITISH MEDICAL JOURNAL, October 27th; also p. 247, ibid., November 3rd); Dr. J. Brassey Brierley has consented to give an address on The Working of the Association. Tea and coffee will be served during the meeting.—MILSON R. RHODES, Honorary Secretary of the Division.

METROPOLITAN COUNTIES BRANCH: CITY DIVISION.—The next meeting will be held on Thursday, November 29th, at 4 p.m., at the Great Eastern Hotel (Lincolnshire Room), Liverpool Street, E.C. Dr. Arthur E. Giles will read a paper on Uterine Fibroids after the Menopause.—E. W. GOODALL, Honorary Secretary.

METROPOLITAN COUNTIES BRANCH: HAMPSTEAD DIVISION. —The annual dinner is provisionally fixed for Thursday, November 29th, at the Great Central Hotel, price 7s 6d. (exclusive of wine). Reply postcards will be sent shortly. A fund to be called the Premises Fund is being started, with the object of providing permanent premises for Divisional meetings. Annual subscriptions of not less than 1s. or not more than £1 1s., or donations to any amount, will be thankfully received by the Trustees, Dr. Ford Anderson, 41, Belsize Park, Hampstead, and Dr. Macevoy, 41, Buckley Road, Brondesbury.—R. A. YELD, 29, Platt's Lane, Hampstead, N.W.

METROPOLITAN COUNTIES BRANCH: LAMBETH DIVISION.— The next meeting of the Lambeth Division will be held in the Clinical Lecture Theatre of St. Thomas's Hospital on Thursday November 29th, at 4 p.m. Walter W. H. Tate, M.D., F.R.C.P., Obstetric Physician to St. Thomas's Hospital, will read a paper on Degenerative Changes in Uterine Fibroids, their Diagnosis and Treatment. Cases of interest will also be shown and demonstrated upon by members of the Staff of the Hospital. There will be a meeting of the Committee of the Lambeth Division on the same day and place at 3.30 p.m. sharp.— W. ALEXANDER ATKINSON, M.D., Honorary Secretary, Lambeth Division, 216, Camberwell New Road, S.E.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION. —A special meeting of the Division will be held, at the Rooms of the Royal Medical and Chirurgical Society, 20, Hanover Square, W., on Monday, December 3rd, at 8.30 precisely. The first of a series of discussions on Economic Problems in the Practice of Medicine will be held. The resolution submitted will be: "That it is desirable that concerted action should be taken to lessen the large amount of gratuitous medical attendance granted to many sections of the community, inasmuch as it tends to diminish the thrift and self-respect of the public, lessens the esteem in which medical science is held, and has a detrimental effect upon the position of many members of the profession." The debate will be opened by Sir Richard Douglas Powell, Bart., Sir John Tweedy, and Dr. J. Kingston Fowler. Special invitations will be sent to all medical practitioners resident in the Marylebone Division, whether they are members of the Association or not. Any member of the profession will be admitted on presentation of his card. The Honorary Secretary will be glad to receive as soon as possible the names of those willing to take part in the debate.—COMYNS BERKELEY, M.B., B.C.Cantab., M.R.C.P.Lond., Honorary Secretary and Treasurer, 55, Wimpole Street, W.

NORTH WALES BRANCH: NORTH CARNARVONSHIRE AND ANGLESEY DIVISION.—A meeting of this Division will be held at the British Hotel, Bangor, on Wednesday, December 5th, at 2.30 p.m. Any member having a paper to read or cases to report is requested to communicate with the Honorary Secretary before November 21st.—JOHN EVANS, Honorary Secretary, 2, Church Street, Carnarvon.

SOUTH-EASTERN BRANCH: CROYDON DIVISION.—A meeting will be held at the Greyhound Hotel, Croydon, on Friday, November 23rd, at 4 p.m. (Chairman, Dr. W. Rosser), to discuss suggestions for dealing with hospital abuse and reform. The Croydon Division has to deal with those hospitals situated in its own area—namely: Croydon General Hospital, Sutton and Carshalton Cottage Hospital, Epsom and Ewell Cottage Hospital, Boys' Surgical Home, Banstead.—E. H. WILLOCK, Honorary Secretary, Croydon.

SOUTH-EASTERN BRANCH: FOLKESTONE DIVISION.—A meeting of the Folkestone Division will be held on Thursday, December 6th. Agenda: A paper will be read by Dr. Samuel West.—P. VERNON DODD, M.D., Honorary Secretary.

SOUTH MIDLAND BRANCH: NORTHAMPTONSHIRE DIVISION.— The autumnal meeting will be held in the Board-room of the Northampton General Hospital on Tuesday, November 27th, at 3 p.m. Further discussion on the subject of the South Northamptonshire Nursing Club. Mr. G. H. Perceival will read a paper on Prostatectomy.—P. S. HICHENS, Honorary Secretary.

STAFFORDSHIRE BRANCH.—A meeting of the Council of this Branch will be held at the North Stafford Hotel, Stoke, on Thursday, November 29th, at 3.30 p.m. Business: (1) Minutes of the last ordinary Council Meeting; (2) correspondence; (3) election of members; (4) consideration of the question of joint representation with the Shropshire Branch on the Central Council.—The first General Meeting of the Session will be held at the North Stafford Hotel, Stoke-upon-Trent, on Thursday, November 29th, 1906. The President, Chas. Reid, Esq., will take the chair at 4 p.m. Business: (1) Minutes of the last General Meeting; (2) Correspondence; (3) Exhibition of living cases: (4) Paper: Primary Tuberculosis of the Cervix Uteri, Eric E. Young: (5) Paper: Cases Illustrative of Renal Surgery, W. Hind; (6) Exhibition of pathological specimens, etc. Dinner, 6.30 p.m., charge 5s.—G. PETGRAVE JOHNSON, Honorary General Secretary.

YORKSHIRE BRANCH: BRADFORD DIVISION.—A meeting will be held at the Midland Hotel, Bradford, on Friday, November 23rd, at 7 p.m., at which Dr. Dawson Williams, Editor of the BRITISH MEDICAL JOURNAL, has kindly promised to give an address on Medical Journals. The address will be followed by a dinner at 8 p.m. The price of tickets for the dinner is 7s. 6d., exclusive of wines. The Executive Committee extends a cordial invitation to members of the Association outside the divisional area to be present. An early application for tickets to either of the undersigned is requested so that the necessary arrangements may be made.—JAMES METCALFE, Lynthorne Hey, Frizinghall, Bradford; ANDREW LITTLE, 114, Manningham Lane, Bradford, Honorary Secretaries.

MEMBERS ELECTED DURING THE SEPTEMBER QUARTER.

Under By-laws 2 and 3.

BY THE COUNCIL ON OCTOBER 24th, 1906.

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Cooley, A. G., Esq., Botany, near Sydney
Cahill, Arthur J., M.B., Forbes, N.S.W.
Harris, J. S., M.B., Newcastle Hospital, Newcastle
Holland, J. J., M.B., Lewisham Hospital, Lewisham, N.S.W.
Howse, N. R., Esq., Orange, N.S.W.
Le Fevre, J. S., Esq., Burrowa, N.S.W.
Moncrieff, E. W., M.B., Wagga Wagga
Robertson, L. J., M.D.
Segol, Louis, Esq., Narrabri
Vernon, Murray E., M.B., Tinga, N.S.W.

Toronto Branch.

Anderson, R. W., M.D., Plattsville, Ontario
Backus, Annie A., M.D., Aylmer, Ontario
Barber, W. C., M.D., Rockwood Asylum, Kingston Ontario
Bowie, E. F., M.D., 191, Spadina Avenue, Toronto
Boyd, C. A., M.D., Bulkley, British Columbia
Emmerson, A. T., M.D., Goderich, Ontario
Fraleigh, A. J., M.D., 206, Broadview Avenue, Toronto
Hendrick, A. C., M.D., 323, College Street, Toronto
Hendry, W. B., M.D., 197, Carlton Str et, Toronto
Hodge, F. T., M.D., 306, Dundas Street, Toronto
Laird, W. S., M.D., New Germany, Ontario
Metcalfe, H. J., M.D., Thurso, Quebec
Mott, T. H., M.D., Mohawk, Ontario
Noble, R. T., M.D., 74, Gerrard Street East, Toronto
Peak r, J. W., M.D., 347, Bathurst Street, Toronto
Roberts, W., M.D., St. Johns, N.B.
Sifton, W. L., M.D., Aylmer, Ontario
Smuck, Wallace, M.D., 74, Dovercourt Road, Toronto
Sterling, F. F., M.B., Terrace Avenue, B.C., Canada
Wright, J. W., M.D., Preston, Ontario
Young, W. D., M.D., 196, Queen Street, Toronto

Worcestershire and Herefordshire Branch.

Campbell, A. J., Esq., Cheviat w House, Ross
Murray, W. B., Junr., Esq., The Square, Tenbury
Naish, W. V., M.B., Upton-on-Severn

Yorkshire Branch.

Applegate, J. W., Esq., Stonefield, Dewsbury
Booth, C. H., Esq., Thornbury, Bradford
Clarke, J. P., M.B., 213, Bardley Road, Leeds
Fe Mirimende, H., Esq., Malton
Dodds, Ernest, Esq., 401, Stanforth Road, Sheffield
Fitton, H., Esq., The Eiddis ds, Dewsbury
Longley, J. A., M.B., 2, Claremont Place, Sheffield
McCully, A. L., M.B., 51, New North Road, Huddersfield
McElligott, P. E., Esq., Andover House, Sheffield
Mackenzie, Marion E., M.B., 72, Westborough, Scarborough
Mathieson, Geo., M.B., 1, Bolsover Road, Sheffield
Newton, D. G., M.B., 11, Farvell Road, Sheffield
Percival, A. P., M.B., Knottingley
Prindle, G. L. K., M.D., 2, Springfield Avenue, Harrowate
Selkirk, J. F., M.D., 78, Church Lane, Shipley
Tansley, H. G., M.B., 23, Thornton Road, Huddersfield
Whitaker, F., Esq., Kent House, Halifax

GENERAL MEDICAL COUNCIL ELECTION.

ADDRESSES OF CANDIDATES.

Dr. J. Milson Rhodes.

John Milson Rhodes, M.D.Brux., L.R.C.P., L.R.C.S.Edin., J.P. (Ivy Lodge, Didsbury) has issued the following address to the registered medical practitioners of England and Wales:

Ladies and Gentlemen,—In accepting the invitation of the South Manchester Division of the British Medical Association to allow myself to be nominated as a candidate for election as a member of the General Medical Council, I was to a considerable extent influenced by the fact that the whole of the North of England appears to have only one representative actively engaged in practice on the Council, as the majority—a large majority of the English members of the Council—are from the southern counties; this is an important matter.

In regard to the present unsatisfactory state of affairs in which so many general practitioners find themselves, in my opinion it is largely due to the indiscriminate medical relief given by many of the medical charities and so-called provident dispensaries. Many of the recipients of medical charity are well able to pay for the advice; the result of the present system is not only disastrous to the profession, but also demoralizing to the recipients. I am strongly of opinion that all medical charities should be compelled to procure a licence before commencing, and that they should all be compelled to submit their accounts to official auditors. This is now the law in the State of New York, where the matter had, as here, become a scandal.

As Chairman of the Central Poor-law Conference Committee of England and Wales, I am thoroughly acquainted with the difficulties the union medical officers have to contend with, and I think I may claim that I have done as much as any one to make their lot more comfortable. At the present time, if the legislation proposed by the Irish Commission is a forerunner of the English Poor-law Reform Commission, it behoves the medical profession, who are personally concerned, to watch well their interests and take care that changes detrimental to the welfare of the profession are not made. As an alderman of the County palatine and member of the Asylums Board I have been of use to the medical authorities of the asylums as being able to put before the public the medical side of questions that have come up for discussion.

A quarter of a century of public life has made me only too well acquainted with the difficulties of obtaining even essential reforms, and I know something of the difficulties that are placed in the path of the General Medical Council when they wish to remedy grievances, and therefore all I can venture to promise if you do me the honour to elect me, is that I will do my best to promote the true interests of the medical profession.

DR. LANGLEY BROWNE'S CANDIDATURE.

Sir,—We notice that in last Saturday's issue you kindly inserted the names of Dr. McManus's Committee, and an excellent list it is. We enclose the names of Dr. Langley Browne's General Committee, and should be much obliged if you would give them equal prominence.

We have determined to recommend, on the principle of territorial representation, the joint candidature of Dr. Langley Browne, Dr. McManus, and Mr. Rutherford Morison.—We are, etc.,

E. D. Kirby,
James Neal,
Honorary Secretaries, Dr. Langley Browne's Election Committee.

Birmingham, Nov. 12th.

Committee.

Drs. Adams, Eastbourne; Adamson, Sutton Coldfield; Aldren, Edgbaston; Allan, Leeds; Ainscow, Edgbaston; Ambrose, Barnt Green; Anderson, Seaton Delaval; Armit, Wembley; Armour, Harley Street, London, W.; W. Aston, Birmingham; Atkins, Handsworth; A. Atkinson, Camberwell; Bailey, Bilston; Ballance, Edgbaston; Bankier, Wolverhampton; F. H. Barnet, Liverpool; Congreve Barber, Birmingham; Gilbert Barling, Birmingham; Bark, Handsworth; G. C. Belcher, Birmingham; E. F. Beards, Birmingham; Beattie, Newcastle-on-Tyne; Bensley, Rowley Regis; N. W. Best, Edgbaston; W. Billington, Birmingham; G. F. Blaker, Birmingham; W. C. Bluck, Southend; C. Bradfield, Acock's Green; G. J. Branson, Birmingham; Bradley, Coventry; J. F. Bridge, Stourbridge; J. J. Brian, Wolverhampton; F. H. L. Brown, Coventry; J. H. Brice, Birmingham; R. W. Briggs, Harborne; H. Bonell, Upper Clapton; T. A. Brown, Sutton Coldfield; B. S. Browne, Alcester; S. Browne, Warwick; Broughton, Langley Green; E. T. Burton, Birmingham; G. Bryce, Aston; Alex. Bottle, Birmingham; Bowden, Warrington; W. Bowater, Birmingham; R. Bullock, Warwick; C. Burd, Tamworth; C. F. Caddick, Walsall; A. Campbell, Newcastle-on-Tyne; J. J. Campbell, Newcastle-on-Tyne; P. Campbell, Aston; W. S. Campbell, Whitley Bay; Cassels, Handsworth; Cathles, Aston; C. S. Chadwick, Birmingham; Sir Thos. Chavasse, Birmingham; Andrew Clark, London; H. R. Clarke, Stourbridge; A. V. Clarke, Leicester; Annie E. Clarke, Birmingham; W. J. Clarke, Birmingham; Clendinnen, Coseley; Crocker, Bromsgrove; Codd, Wolverhampton; Cole, Leamington; A. Cox, Gateshead; Cromie, Blyth; Crowe, Worcester; Cockill, Kendal; F. H. Cooke, Wolverhampton; S. Cookson, Stafford; Mundy Cox, Birmingham; J. S. Crabbe, Birmingham; J. F. Craig, Birmingham; Crawshaw, Ashton-under-Lyne; Crew, Wednesbury; H. G. Dain, Birmingham; C. B. Dale, Birmingham; J. Davison, Bournemouth; L. G. Davies, Histon; C. Davidson, Coventry; Deanesly, Wolverhampton; Dearden, Manchester; Dennison, Walsall; F. L. Dickson, Birmingham; H. Denne, Birmingham; P. V. Dodd, Folkestone; Domville, Exeter; Don, Newcastle-on-Tyne; H. L. Donovan, Yardley; Dunckley, King's Heath; Dudley, Stourbridge; Dunlop, Newcastle-on-Tyne; Eastes, Hyde Park; Edge, Wolverhampton; R. W. Edginton, Birmingham; Hall Edwards, Birmingham; Ellerton, Leamington; H. D. Ellis, Stourbridge; Elliot, Stafford; Esler, Peckham; Evans, Sutton Coldfield; Evans, Birmingham; Ewart, Curzon Street, W.; Fairley, Birmingham; Farden, Birkenhead; Farncombe, Harborne; Fausset, Tamworth; Fenton, Coventry; Freer, Stourbridge; H. W. Freer, Stourbridge; Ferris, Uxbridge; W. Flewitt, Birmingham; Forge, Malling; T. Fort, Oldham; Foster, Knowle; W. Fowler, Coventry; W. P. Fooks, Birmingham; Fothergill, Wandsworth; G. M. Fox, Walsall; F. W. Foxcroft, Birmingham; A. Foxwell, Birmingham; Arthur Foy, Small Heath; Freeman, Reading; J. Frew, Small Heath; J. R. Fuller, Crouch End, N.; W. Garman, Wednesbury; J. B. Garman, Birmingham; J. Garner, Birmingham; Gallimore, Kingswood; Gayland, Truro; Galloway, Low Fell; Gardner, King's Lynn; Gallon, Forest Hill; F. G. Gardner, Warwick; F. J. Geoghegan, Brewood; Gettings, Walsall; Glegg, Birmingham; Gilson, Harrogate; Gutch, Ipswich; J. P. Good, Harborne; Godsell, Homerton, N.E.; Gordon, Sparkhill; Granger, Chester; Greer, Newport, Mon.; Greenwood, Hackney, N; R. L. Greene, Stratford-on-Avon; R. Griffiths, Dudley; Greenwood, Northfield; Greenway, Belvedere; C. Hadley, Coventry; E. Hadley, Birmingham; G. P. Hadley, Aston; F. J. V. Hall, Yardley; J. B. Hall, Bradford; Hallwright, Edgbaston; Hamilton, Saltley; Hancock, Saltley; Haslam, Birmingham; Hartley, Stone; Haslip, Pall Mall; Hasluck, Sutton Coldfield; Hawkins, Perry Barr; Hawley, Walsall; F. H. Haynes, Leamington; S. W. Haynes, Birmingham; Heaton, Birmingham; Heath, Birmingham; Heggs, West Bromwich; Hewetson, Birmingham; Higgs, Dudley; H Hill, Bristol; G. L. Hill, Acock's Green; Hirst, Mosely; Hines, Stafford; Hingston, Leamington; Hind, Coventry; Hinchley, Canterbury; Hetley, Norwood; Hodgetts, Strichley; Holden, Sudbury; Holland, Erdington; Hollinshead, Selly Oak; Holvoake, Stourbridge; Homan, Lichfield; Hora, Selly Oak; Sir Victor Horsley, London; Housman, Stockport; Howell, Middlesbrough; Howkins, Yardley; Huband, Birmingham; Hubbersty, Sunderland; Hughes, Handsworth; A. Hunt, Wolverhampton; E. G. Hunt, Stafford; Hunter, South Shields; Hudson, Newcastle-on-Tyne; Huxley, Edgbaston; Irvine, Selly Oak; W. M. Jackson, Smethwick; E. Jepson, Durham; Joberns, Wolverhampton; Johnson, King's Heath; G. St Johnston, Edgbaston; Joll, Ealing; F. S Jones, Westcliff-on-Sea; J W. Jones, Coleshill; B. Jordan, King's Norton; W. R. Jordan, Birmingham; Joy, Tamworth; Kerr, Birmingham; R. L. M. King, Taunton; Layton, Walsall; Leeds, Birmingham; Leith, Edgbaston; Lermitte, Stamford Hill; Lewis, Perry Barr; Loxton, Birmingham; Lowe, Burton-on-Trent; Lowman, Coventry; Little, Bradford; Jordan Lloyd, Birmingham; Lunn, Olton; Lucas, Birmingham; Lydall, Birmingham; Lyster, Handsworth; Macaulay, Halifax; McCracken, Newcastle; Magrane, Darlaston; Malet, Wolverhampton; Manley, West Bromwich; A. Macdonald, Handsworth; J. A. Macdonald, Taunton; Macevoy, Brondesbury; Machin, Erdington; Mackenzie, Birmingham; Malins, Birmingham; McQueen, Birmingham; McCall, Birmingham; Mactier, Wolverhampton; Mann, Edgbaston; F. Marsh, Northfield; E. Marsh, Wolverhampton; A. J. Martin, Walsall; C. Martin, Birmingham; Mathews, Redditch; Mason, Birmingham; Messiter, Dudley; Metcalfe, Bradford; Middleton, Harborne; Milward, Birmingham; Milburn, Hull; J. M. Moore, Coventry; R. W. Moore, Northfield; Morgan, Lichfield; Mounsey, Edgbaston; Mouncey, Earlestown; A. E. Morison, West Hartlepool; Professor Morrison, Birmingham; Morris, Great Bridge; Mossop, Bradford; Motteram, Smethwick; Mumby, Portsmouth; Murray, Edgbaston; Nason, Nuneaton; Newton, Birmingham; Nicholls, Edgbaston; Nicholson, Colchester; W. J. Notley, Birmingham; J. Notley, Birmingham;

Oakes, Birmingham; Oldham, Morecambe; Oliver, Hackney; Orrock, Birmingham; Osborne, Birmingham; O'Sullivan, West Kensington; Orton, Coventry; Lloyd Owen, Birmingham; Palmer, Mansfield Woodhouse; Parsey, King's Norton; Partridge, Darlaston; Peacock, Nuneaton; Pearson, Bideford; Pendred, Coventry; Phillips, Coventry; Pickup, Coventry; Plummer, West Bromwich; Pritchard, Redditch; Pooler, Birmingham; Potts, Birmingham; Powell, Birmingham; Pratt, Leicester; J. Price, Dudley; E. Price, Tipton; T. H. Price, West Bromwich; Prior, Birmingham; Purslow, Birmingham; Quirke, Handsworth; C. Robertson, Handsworth; J. Robertson, Harborne; Russell, Birmingham; Rust, Birmingham; Rayner, Stockport; Reid, Stafford; Renton, Dartford; Rice, Coventry; Rickards, Edgbaston; Richards, Birmingham; Richardson, Tamworth; Riordan, Walsall; Roberts, Saltley; Professor Saundby, Birmingham; Savage, Birmingham; Sir Jas. Sawyer, Birmingham; Sevestre, Leicester; J. W. Scott, Wolverhampton; W. S. Scott, Hampton-in-Arden; Strathy, Harborne; Shaw, Moseley; Shiels, Birmingham; Sharpe, Langley Green; Shaw, Lichfield; Sidebottom, Glossop; Simon, Birmingham; Snell, Coventry; T. H. Smith, Middlesboro'; J. B. Smith, Ashton-under-Lyne; H. C. Smith, Southend-on-Sea; E. G. Smith, Birmingham; Priestley Smith, Birmingham; Soden, Coventry; Southcombe, South Hackney; Southall, Birmingham; Somerset, Wolverhampton; Spackman, Wolverhampton; Sproat, Erdington; Starkie, Birmingham; Stark, Burton-on-Trent; Steed, Hereford; Stephen, Smethwick; Sturge, Maida Vale; Sturge, Edgbaston; Sydenham, Walsall; Taylor, Chester-le-Street; L. A. Taylor, Brierley Hill; G. A. Taylor, Birmingham; Tighe, Birmingham; Terry, Bath; Thompson, Halesowen; Thomson, Norwich; W. Thomas, Birmingham; F. G. Thomas, Swansea; Thursfield, Leamington; Thomson, West Kensington; A. Thomson, Stratford-on-Avon; Tibbles, Melton Mowbray; Tibbets, Old Hill; Todd, Sunderland; J. W. Taylor, Birmingham; Trout, Birmingham; Tylecote, Stone; A. S. Underhill, West Bromwich; T. E. Underhill, Barnt Green; T. Underhill, West Bromwich; F. Underhill, Winchfield; Underwood, Saltley; Vinrace, Birmingham; Walker, Birmingham; Wakefield, Birmingham; Wallace, Upper Clapton; T. Ward, Warwick; H. K. Ward, Northampton; L. B. Ward, Coventry; Webb, Birmingham; West, Leamington; Welchman, Lichfield; S. T. D. Weston, Handsworth; Whickham, Middlesbro'; Whittingdale, Sherborne; Whichello, Birmingham; E. B. Whitcombe, Birmingham; W. P. Whitcombe, Wylde Green; E. S. Whitehouse, Solihull; W. H. Whitehouse, Birmingham; Whittom, Birmingham; G. A. Wilkes, Aston; M. Wilks, Birmingham; Winckworth, Taunton; A. H. Wilson, Stechford; T. Wilson, Birmingham; T. S. Wilson, Birmingham; H. B. Wilson, Birmingham; Wills, Brewood; J. A. Williams, Birmingham; T. K Williams, Pensnett; Wilkinson, Dudley; F. Wolverson, Walsall Wood; T. Wolverson, Wolverhampton; A. A. Wood, Nuneaton; H. Wood, Balsall Heath; Wyer, Leamington; Wynn, Birmingham; Wyse, Walsall; Uttergood, Walsall; Young, Birmingham.

Sir James Sawyer (Birmingham) writes: I find myself the senior of the consulting physicians of the Birmingham district, and I ought to bear testimony to the very high fitness of Dr. Langley Browne for a seat in the General Medical Council. Every inch of him a general practitioner, and the son of a general practitioner, without a shadow of coquetting with any other "line" of practice, he has held, with the fullest support of us all, in whatever branch of the profession we may be engaged, the chief posts of distinction and honour in our district which are in the gift of his professional brethren. His successful return is certain; his majority should be made as large as possible, and we all should share in it to emphasize the especial claims of our brethren in general practice, and to mark the confidence which is such a man's due.

Mr. F. J. Vincent Hall, M.B., Ch.B., etc., Secretary of Council, B.D.G.M.P.U., writes: May I urge the claims of Dr. Langley Browne, of West Bromwich, to be one of our Representatives on the General Medical Council shortly to be elected? A general practitioner himself, he has the interests of his colleagues at heart. One great reason why we, the members of the Birmingham and District General Medical Practitioners' Union, intend to give him practically our solid support is the energy with which he has worked for the betterment of the position of general practitioners in the past. He is at present Chairman of Council of the Association, a sufficient proof of the esteem and respect in which he is held by his colleagues. Having been a general practitioner for thirty-five years, he is obviously not lacking in his knowledge of our needs. He has been Chairman of the Birmingham Branch of the British Medical Association, President of our Union, and Chairman of its Council. He is also a member of the Councils of the Medical Defence Union and of the Midland Medical Society, of which also he has been the President; and he is a member of the British Medical Benevolent and the Midland Medical Benevolent Societies. I mention these matters for the benefit of those who have not the great pleasure of knowing him personally, and who have not seen his indomitable energy in working for those whose interests he has so much at heart. Whoever may be elected with him, we beg of those who elect them that they will give one of their three votes to Dr. Langley Browne.

DR. G. H. BROADBENT'S CANDIDATURE.

The following appeal has been issued to the registered medical practitioners of England and Wales:

Ladies and Gentlemen,—At the quarterly meeting of the Medical Guild, Manchester, the following resolution was unanimously carried:

> That this meeting warmly supports the candidature of Dr. G. H. Broadbent at the forthcoming election to the General Medical Council, and trusts that practitioners will do all in their power to secure his election. This meeting also entirely endorses the sentiments expressed and claims put forward by Dr. Broadbent in his address (copy of which is enclosed), and is confident that the interests of the profession may be well entrusted to his care.

Dr. Broadbent was nominated originally by the North Manchester Division of the British Medical Association, and his Committee appeals for your support on the following among other grounds:

1. That he has been engaged in general practice for upwards of twenty-five years, and his knowledge of medico-political subjects is such as to make him a desirable representative.
2. That he has had special experience in medical politics as a member of the Central Ethical Committee, a Representative at the annual Representative Meetings since their inception, a member of the Lancashire and Cheshire Branch Council, ex-President of the Incorporated Medical Practitioners' Association, and a member of the Council of the Medical Guild since it began fourteen years ago
3. That he is opposed to provident dispensaries and disapproves of the profession undertaking any new contract work, and has always insisted on a wage-limit in all contract work.

On these grounds his Committee confidently appeal to general practitioners all over England for their support and vote for Dr. Broadbent at the ensuing election. If you can see your way to allow your name to be added to his Committee, will you kindly notify,

Yours faithfully,

J. H. Taylor, M.A., M.B.,
Holly House, 299, Eccles New Road, Salford. — Honorary Secretary, Medical Guild and Salford Division, B.M.A.

R. G. McGowan, M.D.,
1, Thomas Street, Cheetham Hill, Manchester. — Honorary Secretary, North Manchester Division, B.M.A.

November, 1906.

MR. RUTHERFORD MORISON'S CANDIDATURE.

Havelock Street,
South Shields,
November 12th, 1906.

Sir,—Last week the Northumberland and Durham Committees of the North of England Branch of the Association (which manage all affairs locally connected with contract practice) met to consider the forthcoming election, and decided unanimously to nominate and support Mr. Rutherford Morison, and for the following reasons:

1. This Branch is under a deep debt of gratitude to Mr. Morison. Although he has never taken part in the general affairs of the Association he has given a great deal of time, energy, and money to the local work in connexion with contract work and general protection of our members. It is fairly well known that for the last six years we have been going through a stern fight with the miners for better remuneration and terms of employment, and it is very largely due to Mr. Morison's energy and personality that we are to-day in a very favourable position, having won nearly all along the line. We desire to put this energy and strong personality to a wider use, and we believe that in inducing Mr. Morison to become a candidate we are doing our profession a good service. To the foolish theory that none but a general practitioner can represent an electorate which comprises all kinds of practitioners, we are content to reply that, although we have some good general practitioners hereabouts who would have made excellent candidates, Mr. Morison, consultant as he is, is

the deliberate choice of the general practitioners of this district, and we think we know our own business pretty well.

2. We believe the General Medical Council would be strengthened by the election of a man thoroughly conversant with the difficulties of those connected with contract work, which is such an important factor in medical practice. Mr. Morison is a specialist in this department. Not only did he for a good many years personally engage in contract work, but as Chairman of our Northumberland Committee, and of the Northumberland and Newcastle Medical Union which preceded it, he has made it his business to understand it from top to bottom. We believe there is no candidate before the profession who on this ground has so strong a claim on our votes.

3. His personality and professional position are such as will we believe impress the General Medical Council with the wisdom of our choice if he is elected. To those who do not know him, we may say that he is willing to address meetings at a few of the largest centres where his acquaintance may be made. We ask those of our colleagues who may be unable to hear him to take the word of this Branch as to his eminent suitability.

4. We are of opinion that for geographical reasons the North Country is entitled to furnish one of the representatives. Other things being equal, we are in hearty sympathy with the geographical distribution theory as laid down by the Marylebone Division. We notice that the supporters of the Wandsworth scheme for a preliminary ballot of the profession are asking for support for the selections under that scheme, and are claiming that these gentlemen, Messrs. McManus, Langley Browne and Latimer, should also be supported because of their geographical distribution. It should be obvious that no system of distribution which excludes all that part of the country north of Birmingham can be satisfactory.

Mr. Morison is working in co-operation with Dr. Langley Browne, whose claims on the profession are very great, and taking the claims of the other candidates along with their distribution, we of this Branch have decided to cordially support him and Dr. McManus. We commend this selection to our colleagues in other parts of the country.—We are, etc.,

J. H. Hunter,
Henry Smurthwaite,
Hon. Secretaries North of England Branch.

DR. RENSHAW'S CANDIDATURE.

Dr. W. F. Dearden (Manchester) writes: Your columns have contained so much in favour of different candidates that I quite feel I might be permitted to put in a word in favour of one of our northern nominations, Dr. Charles J. Renshaw. This gentleman is deservedly popular in his own district, has taken a great interest in medical politics, is no crank, and has plenty of time to devote to the interests of the profession. Dr. Renshaw's address appeared in the British Medical Journal on October 13th, and, though one of the shortest issued, a perusal will soon bring prominent its most salient feature. It is very much to the point. This particular candidate appears to have concisely gauged the position of the general practitioner of to-day and his exact relationship to the various influences affecting his career. To put it broadly, he quite grasps the predominant fact that the status and incomes of those engaged in general work is on the downward grade. What with too much specialization and hospital abuse on the one hand, and competition with clubs and charlatans on the other, his lot is not getting happier. I would appeal to general practitioners to realize their position properly. True, the General Medical Council has not power to do all that is required, but if properly constituted it will be able to do a great deal. There can be no question about the proper representatives for general practitioners being drawn from their own body, if good is to be forthcoming. A man with the requisite knowledge of our disabilities and the remedies to be applied, who is, at the same time, straightforward, business-like, and to the point, is the one to pick out as a fit and proper representative. Dr. Renshaw certainly fulfils these requirements to an eminent degree, and I join with his many friends in wishing his candidature every success.

CENTRAL MIDWIVES BOARD.

A special meeting of the Central Midwives Board, under the provisions of Rule 4 of the Rules of Procedure, was held on November 8th, at Caxton House, Westminster, with Dr. F. H. Champneys in the chair.

Midwives Severely Reprimanded.

The following charges, amongst others alleged against Cecily Dennett, certified midwife, were considered:

That, being in attendance as a midwife at a confinement on June 5th, 1906, and following days, she was guilty of negligence in the following respects: The placenta not having been expelled or expressed an hour after the birth, she failed to advise that a registered medical practitioner be sent for. On the occurrence of haemorrhage on June 6th she failed to advise that a registered medical practitioner be sent for. On the occurrence of a rigor, with a rise of temperature to 102° F. on June 8th she failed to advise that a registered medical practitioner be sent for.

The Board decided that this midwife be severely reprimanded.

The following charges alleged against Mary Ann Green, certified midwife, were considered:

That having on March 19th, 1906, delivered a stillborn child, a registered medical practitioner not being in attendance, she neglected to notify the local supervising authority thereof as soon as possible after the occurrence. That on April 9th, 1906, she sent to the local supervising authority a false notification of the above stillbirth, stating that it had taken place on April 7th, whereas in fact it occurred on March 19th. That she kept the corpse in a cupboard in her house from March 19th until April 9th, thereby contravening Rule E 15.

The Board decided that this midwife, who attended to answer the charges, be severely reprimanded. The Chairman, in carrying out the decision, warned the midwife as to her future conduct.

The following charges alleged against Mary Jane Wilson, certified midwife, were heard:

That she did not use or possess the appliances or antiseptics required by Rule E 2, and that she persistently neglected to provide herself with them. That she did not keep a register of cases as required by Rule E 19.

The Board decided that the midwife be severely reprimanded.

Midwives Struck off the Roll.

The charges alleged against Elizabeth Prior, certified midwife, and Fanny Simmonds, certified midwife, were heard: that being in attendance as midwives at a confinement they were guilty of negligence. The Board directed that the names of these two midwives be removed from the Roll.

The charges alleged against Betsy Simkin, certified midwife, were heard; that she had been convicted for making a certain false certificate that a child which had been born alive was stillborn. The Board directed that the name of this midwife be removed from the Roll.

The charge alleged against Ann Taylor, certified midwife, was heard: that she had been convicted of manslaughter. The Board directed that the name of this midwife be removed from the Roll.

The charge alleged against Annie Twynam, certified midwife was heard: that she had been sentenced to three years' penal servitude for larceny. The Board directed that the name of this midwife be removed from the Roll.

The charges alleged against Phoebe Ann Weaver, certified midwife, were heard: that she had been convicted of altering a certificate of death, and that she had been convicted on two separate charges of forging and uttering burial receipts. The Board directed that the name of this midwife be removed from the Roll.

Charges of disobedience to the rules of the Board alleged against Esther Skeels, certified midwife, and Matilda Tee, certified midwife, were heard, and the Board directed that the names of these midwives be removed from the Roll.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

Fleet Surgeon J. M. France is placed on the retired list, at his own request, November 6th. He was appointed Surgeon, August 20th, 1886, and Staff Surgeon, August 20th, 1902.

Surgeons J. Soyan, W. H. Daw, C. Shepherd, H. L. Norris, A. A. Forrester, M.B., J. Stoddart, M.B., W. G. Westcott, F. J. L. P. M'Kenna, M.B., F. R. Mann, E. C. Sawdy, P. H. Bannister, M.B., R. S. Osborne, E. O. B. Carbery, M.B., J. K. Raymond, M.B., and H. R. Gardner, M.B., are promoted to be Staff Surgeons, November 8th. Their first commissions, which were simultaneous, are dated November 8th, 1898. Staff Surgeon Westcott was Surgeon of the *Dwarf* during the South African war, 1899-1900, receiving the medal; at the base, Cape Coast Castle, during the Ashanti war in 1900; in the River Gambia during the military operations in 1901; and in the Niger during the Aro expedition in 1902. The other officers cited have no war record.

The following appointments have been made at the Admiralty: John A. L. Campbell, Staff Surgeon, to the *Duke of Edinburgh*, November 6th; Hugh S. Burniston, M.B., Staff Surgeon, to the *President*, additional, for three months' study at West London Hospital, November 12th; Percy S. Robson, Surgeon, to the *Suffolk*, November 12th; Ewen Cameron, M.B., Surgeon, to the *Skipjack*, November 12th; Percy H. Bannister, Surgeon, to the *Vernon*, November 12th; John Fullarton, Surgeon, to the *Iphigenia*, November 6th; Llewellyn A. Baiss, Surgeon, to the Hong Kong Hospital, November 8th; Arthur Davidson, M.B., Surgeon, to the *Tamar*, November 8th; Warren G. Westcott, Surgeon, lent to the *Cambridge*, November 8th; John Morris, M.D., Fleet Surgeon, to the *Cambridge*, November 7th; Thomas W. Philip, M.B., Fleet Surgeon, to the *President*, additional, for three months' course at West London Hospital, November 12th.

ROYAL ARMY MEDICAL CORPS.

Lieutenant W. E. C. Lunn, M.B., from the Seconded List, to be Lieutenant, November 1st.

Lieutenant D. Le Bas resigns his commission, November 14th. He was appointed January 30th, 1904.

Lieutenant-Colonel T. P. Woodhouse, who is serving in the Punjab, has been appointed to officiate as Principal Medical Officer, 3rd (Lahore) Division.

Lieutenant-Colonel J. R. Dodd, M.B., who is serving in Bengal, is appointed to continue to officiate as Principal Medical Officer, Bareilly and Garhwal Brigades.

ROYAL ARMY MEDICAL CORPS SCHOOL OF INSTRUCTION.

To be Commandant and Officer Commanding Depot, Royal Army Medical Corps: Lieutenant-Colonel T. J. R. Lucas, C.B., M.B., Royal Army Medical Corps, January 29th, 1906.

To be Instructors: Lieutenant-Colonel R. H. Firth, Royal Army Medical Corps, February 28th, 1906, and Major J. D. Ferguson, D.S.O., Royal Army Medical Corps, June 13th, 1905.

To be Assistant Instructor: Captain H. C. R. Hime, M.B., Royal Army Medical Corps, February 5th, 1906.

INDIAN MEDICAL SERVICE.

Colonel G. J. Kellie, Bengal, is appointed to continue to officiate as Principal Medical Officer, 7th (Meerut) Division.

The retirement from the service of the undermentioned Lieutenant-Colonels, which has already appeared in the British Medical Journal, has received the approval of the King: W. A. Mawson, H. W. B. Boyd, F.R.C.S.I., and R. Cobb.

The promotion to the Majors of the undermentioned Captains, which has been already announced in the British Medical Journal, has received the approval of the King: V. B. Bennett, M.B., F.R.C.S., T. A. Granger, M.B., H. J. K. Bamfield, J. W. Grant, M.B., A. H. Moorhead, M.B., W. D. Hayward, M.B., W. E. Scott-Moncrieff, M.B.

Major C. R. Pearce, M.B., Madras, is promoted to be Major, from July 28th. He was appointed Surgeon-Lieutenant, July 28th, 1894, and Surgeon-Captain, July 28th, 1897.

The undermentioned Lieutenants, who were appointed such August 31st, 1903, are promoted to be Captains from July 28th, 1906: R. Kelsall, M.B., J. H. Burgess, M.B., F.R.C.S., C. H. Brodribb, M.B., J. McC. A. Macmillan, M.B., C. A. Gill, W. E. J. Tuohy, T. F. Owens, R. F. Steel, M.B., G. F. I. Harkness, A. C. Ingram, M.D., G. W. Macnachtie, M.B., E. W. C. Bradfield, M.B., A. W. M. Harvey, M.B., C. I. Brierley, J. B. D. Hunter, M.B., E. T. Harris.

VOLUNTEER OFFICERS' DECORATION.

The Volunteer Officers' Decoration has been conferred upon the following officers: Surgeon-Major C. L. Fraser, 1st Berwick-on-Tweed Royal Garrison Artillery (Volunteers); Surgeon-Major C. H. (Willey, M.D., 1st (Sheffield) (West Riding) Yorkshire Royal Engineers BVolunteers); Surgeon-Lieutenant-Colonel F. Shann, 1st Volunteer Battalion the Prince of Wales's Own (West Yorkshire Regiment); urgeon-Lieutenant-Colonel H. G. Thompson, M.D., 1st Volunteer Battalion the Royal Fusiliers (City of London Regiment); Surgeon-Major A. D. Webster, M.D. (Senior Medical Officer 1st Lothian Volunteer Infantry Brigade), the Queen's Rifle Volunteer Brigade, the Royal Scots (Lothian Regiment).

VOLUNTEER RIFLES.

Surgeon-Lieutenant-Colonel F. Shann, 1st Volunteer Battalion the Prince of Wales's Own (West Yorkshire Regiment), is seconded whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Yorkshire Volunteer Infantry Brigade, August 4th.

Supernumerary Surgeon-Lieutenant A. T. Sissons, M.B., 1st Volunteer Battalion the East Yorkshire Regiment, to be Surgeon-Captain, remaining Supernumerary, October 4th.

Edward M. Griffith (late Captain) to be Surgeon-Lieutenant in the 3rd Volunteer Battalion the South Wales Borderers, November 1st.

Surgeon-Captain (Honorary Captain in the Army) C. A. MacMunn, M.D., 3rd Volunteer Battalion the South Staffordshire Regiment (Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Staffordshire Volunteer Infantry Brigade), to be Surgeon-Major, May 28th, 1902.

Surgeon-Captain H. T. Challis, 4th Volunteer Battalion the Essex Regiment, is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Essex Volunteer Infantry Brigade), October 20th.

Surgeon-Lieutenants F. W. Johnson, M.B., and A. J. H. Montague, M.D., 4th (Nottinghamshire) Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment), to be Surgeon-Captains, the former dated August 4th, the latter September 7th.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Captain E. F. Bindloss, Bedford Bearer Company, is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Bedford Volunteer Infantry Brigade, October 20th.

Vital Statistics.

THE REGISTRAR-GENERAL'S QUARTERLY RETURN.

[Specially Reported for the British Medical Journal.]

The Registrar-General has just issued his return relating to the births and deaths in the third quarter of the year, and to the marriages during the second quarter. The marriages in that period were at the annual rate of 17.3 persons married per 1,000 living, which was also the average rate in the corresponding periods of the ten preceding years.

The births registered in England and Wales during the quarter ending September last numbered 234,624, and were equal to an annual rate of 28.9 per 1,000 of the population, estimated by the Registrar-General at 34,547,016 persons in the middle of the year. In the third quarters of the ten preceding years the birth-rate averaged 28.5 per 1,000 the rate last quarter being lower than that in the corresponding period of any previous year. The birth-rates in the several counties last quarter ranged from 20.8 in Sussex, 21.7 in Cornwall, 22.1 in Herefordshire, 22.2 in Devonshire, 22.5 in Somersetshire, and 22.6 in Oxfordshire and Dorsetshire, to 30.1 in Nottinghamshire, 30.3 in Staffordshire and in Northumberland, 30.7 in Carmarthenshire, 32.9 in Glamorganshire, 34.1 in Durham, and 34.8 in Monmouthshire. In seventy-six of the largest English towns, including London, the birth-rate averaged 27.9 per 1,000; in London the rate was 26.5 per 1,000, while it averaged 28.5 per 1,000 in the seventy-five other large towns, among which the rates ranged from 15.5 in Hastings, 17.4 in Bournemouth, 19.1 in Hornsey, 19.7 in Halifax, 21.3 in Bradford, and 21.4 in Northampton, to 35.2 in Hanley, 36.0 in Middlesbrough, 37.1 in Sunderland, 37.7 in Rhondda, and 37.9 in Merthyr Tydfil.

The excess of births over deaths in England and Wales during the three months under notice amounted to 105,241; this represents the natural increase of the population during that period. From returns issued by the Board of Trade it appears that 170,675 passengers left the United Kingdom for places out of Europe; of these passengers, 68,162 were English, 15,978 were Scottish, and 16,779 Irish, while 69,645 others were of foreign and 111 of unspecified nationality. Compared with the numbers in the corresponding period of the previous year, the English passengers showed an increase of 32.5 per cent., the Scottish of 7.3 per cent, and the Irish of 2.2 per cent.

During the third quarter of the year the deaths of 129,383 persons were registered, equal to an annual rate of 14.9 per 1,000 living, the average rate in the ten preceding third quarters having been 16.2 per 1,000. The lowest death-rates last quarter were 10.9 in Northamptonshire, 11.0 in Dorsetshire, 11.2 in Somersetshire, 11.4 in Berkshire, and 11.7 in Wiltshire; the highest rates were 16.7 in Warwickshire and in the North Riding of Yorkshire, 17.0 in the East Riding, 17.1 in Northumberland, 17.4 in Lancashire, and 17.7 in Durham. In seventy-six of the largest English towns, with an aggregate population of nearly 16 millions, the mean rate of mortality was 16.2 per 1,000; in 142 smaller towns containing a population of nearly 5 millions the death rate was 14.4 per 1,000, while in the remaining and chiefly rural parts of England and Wales the rate was 13.5 per 1,000. The death-rate in London was 15.4 per 1,000, while it averaged 16.6 per 1,000 in the seventy-five other large towns and ranged from 7.2 in Hornsey, 9.2 in King's Norton, 10.2 in Handsworth (Staffs.), and 11.3 in Willesden and in Bournemouth, to 20.5 in Wigan, 20.6 in Middlesbrough, 20.7 in Burnley, 21.0 in Liverpool, 21.1 in Merthyr Tydfil, and 21.9 in Stockport.

The 129,383 deaths from all causes in England and Wales last quarter included 28,336 which were referred to the principal infectious diseases; of these, 22,649 were attributed to diarrhœa, 1,639 to measles, 1,447 to whooping-cough, 1,176 to diphtheria, 770 to "fever" (principally enteric), 700 to scarlet fever, and 5 to small-pox. The death-rate last quarter from these diseases in the aggregate was 3.26 per 1,000, being slightly below the average rate for the corresponding quarters of the ten preceding years. In the several counties the rates of infant mortality ranged from 72 in Shropshire, 81 in Wiltshire and in Dorsetshire, 86 in Carmarthenshire, 88 in Somersetshire, and 99 in Herefordshire, to 202 in Essex, 203 in Middlesex, 212 in Lancashire, 221 in the East Riding of Yorkshire, and 223 in Warwickshire. In the seventy-six large towns the mean rate was 209 per 1,000; in London the proportion was equal to 191 per 1,000, while it averaged 216 in the seventy-five other large towns; and ranged from 94 in Hornsey, 110 in Halifax, 135 in Derby, and 137 in Bournemouth and in Devonport, to 275 in Hull, 297 in Aston Manor, 301 in Stockport, 306 in Burnley, and 315 in Grimsby.

The mortality among persons aged between 1 and 60 years during the three months under notice was equal to an annual rate of 6.9 per 1,000 of the estimated population at this group of ages, the average rate in the ten preceding third quarters, being 7.6 per 1,000. In the seventy-six large towns the death-rate at this age-group was 7.6 per 1,000, which was also the rate in London, while among the seventy-five other large towns the rates ranged from 3.0 in Hornsey, 3.8 in Handsworth (Staffs.), 3.9 in King's Norton, and 4.4 in Willesden and in Bournemouth, to 10.3 in Liverpool and in Middlesbrough, 10.4 in Manchester and in Bootle, and 11.0 in Tynemouth.

Among persons aged sixty years and upwards the death-rate

quarter was equal to 53.1 per 1,000, which was also the average rate in the corresponding periods of the ten preceding years. In the seventy-six towns the death-rate at this age-group averaged 55.0 per 1,000: in London the rate was 51·8 per 1,000, while among the seventy-five other large towns the rates ranged from 30.5 in King's Norton, 37.9 in Leyton, 42.7 in Hornsey and 42.9 in Plymouth, to 70.1 in Bootle, 70.4 in Stockport, 71.7 in Smethwick, 73.7 in Rochdale, and 74.5 in Oldham.

The mean temperature of the air during last quarter exceeded the average throughout the country, the excess amounting to 2½° in the London district. The amount of rain measured in London during the quarter was only 3.5 in., or little more than half the average. The duration of bright sunshine amounted to nearly 640 hours, being 147 hours more than the average in the corresponding periods of the previous 25 years.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,307 births and 4,553 deaths were registered during the week ending Saturday last, November 10th. The annual rate of mortality in these towns, which had been 14.6 per 1,000 in each of the three preceding weeks, increased to 14.9 per 1,000 last week. The rates in the several towns ranged from 5.9 in Burton-on-Trent, 6.5 in King's Norton and in Smethwick, 6·6 in Hornsey, 8·2 in Handsworth (Staffs), 8·8 in Leyton, 9·1 in Willesden, and 9.2 in Tottenham to 21.6 in Merthyr Tydfil, 22.2 in Rotherham, 22.8 in Hanley, 23·7 in Oldham, 23.8 in Burnley, 25.9 in Coventry, and 27.9 in Tynemouth. In London the rate of mortality was 14·7 per 1,000, while it averaged 15.1 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.5 per 1,000 in the seventy-six towns: in London this death-rate was equal to 1.1 per 1,000, while among the seventy-five large provincial towns the rates ranged upwards to 3.2 in Bootle, 3.5 in Norwich, 3.7 in Stockport and in South Shields, 4.2 in Merthyr Tydfil, 4.7 in Hanley, 4.9 in Preston, 5.2 in Oldham, and 8.5 in Rotherham. Measles caused a death-rate of 2.2 in Plymouth, 2.4 in Bootle and in Rochdale, 2.6 in Stockport and in Oldham, 2.8 in South Shields, and 6.0 in Rotherham; diphtheria of 1.0 in Portsmouth, 1.3 in Reading and in Derby, and 1.6 in Hanley; "fever" of 1.1 in St. Helen's; and diarrhœa of 2.0 in Burnley, 2.4 in Hanley, 3.1 in Preston, and 4.2 in Merthyr Tydfil. The mortality from scarlet fever and from whooping-cough showed no marked excess in any of the large towns. No fatal cases of small-pox were registered last week in any of the seventy-six towns, and no small-pox patients were under treatment during the week in the Metropolitan Asylums Hospitals. The number of scarlet fever cases in these hospitals and in the London Fever Hospital, which had been 3,923, 4,068, and 4,177 at the end of the three preceding weeks, had declined again to 4,135 at the end of last week; 417 new cases were admitted during the week, against 548, 542, and 499 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, November 10th, 830 births and 581 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 15.8, 16.5, and 15.0 per 1,000 in the three preceding weeks, rose again to 17.0 per 1,000 last week, and was 2·1 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 12.6 in Leith and 13.2 in Paisley to 18.9 in Glasgow and 20.6 in Dundee. The death-rate from the principal infectious diseases averaged 1.4 per 1,000 in these towns, the highest rates being recorded in Dundee and Aberdeen. The 303 deaths registered in Glasgow included 3 which were referred to whooping-cough, 7 to "fever, 9 to diarrhœa, and 4 to cerebro-spinal meningitis. Five fatal cases of measles were recorded in Aberdeen, 3 of diarrhœa and 2 of measles in Dundee, and 3 of diphtheria in Edinburgh.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, November 3rd, 592 births and 322 deaths were registered in six of the principal Irish towns, as against 493 births and 340 deaths in the preceding period. The annual death-rate in these towns, which had been 17.5, 17.1, and 19.3 per 1,000 in the three preceding weeks, fell to 18.8 per 1,000 in the week under notice, this figure being 4.2 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 7·9 in Waterford and 14·4 in Cork to 26.0 in Londonderry and 27.4 in Dublin. The zymotic death-rate during the same period and in the same six Irish towns averaged 3.5 per 1,000, or 2·1 per 1,000 higher than during the preceding period, the highest figure—8.7—being recorded in Londonderry, where it was due entirely to diarrhœal diseases.

During the week ending Saturday, November 10th, 466 births and 389 deaths were registered in six of the principal Irish towns, as against 592 births and 322 deaths in the preceding period. The annual death-rate in these towns, which had been 17.1, 19.3, and 18.8 per 1,000 in the three preceding weeks, rose to 21.2 per 1,000 in the week under notice, this figure being 6.2 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 17·4 in Londonderry and 17.8 in Limerick to 24.9 in Dublin and 25·7 in Cork. The zymotic death-rate in the same six Irish towns averaged 1·3 per 1,000, or 2.2 per 1,000 lower than during the preceding period, the highest figure—2.7—being recorded in Cork, while Londonderry and Waterford registered no deaths under this heading at all.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

ABERYSTWITH INFIRMARY AND CARDIGANSHIRE GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

BETHLEM HOSPITAL.—Two Resident House-Physicians. Honorariums, £25 per quarter each.

BETHNAL GREEN UNION.—Non-resident Medical Officer for the Leytonstone Schools. Salary, £100 per annum and fees.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant. Honorarium at the rate of 52 guineas per annum.

BRENTFORD UNION.—Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Workhouse and Schools at Isleworth. Salary commencing £120 per annum.

CANTERBURY: KENT AND CANTERBURY HOSPITAL.—House-Physician. Salary, £90 per annum.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn Road, W.C.—House-Surgeon. Salary at the rate of £50 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL. Junior House-Surgeon. Salary at the rate of £60 per annum.

EDINBURGH ROYAL HOSPITAL FOR SICK CHILDREN.—Extra Physician.

GLASGOW UNIVERSITY.—(1) Examiner in Zoology; (2) Examiner in Physiology. Salary, £50 per annum each.

GORDON HOSPITAL FOR FISTULA, ETC., Vauxhall Bridge Road, S.W.—Resident House-Surgeon.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £100 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary, £70 per annum.

NORTHAMPTON: ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES.—Third Assistant Medical Officer. Salary, £150 per annum, rising to £200.

NORTH-WEST LONDON HOSPITAL, Kentish Town Road, N.W.—(1) Resident Medical Officer; (2) Assistant Resident Medical Officer. Salary at the rate of £50 per annum each.

OLDHAM INFIRMARY.—Junior House-Surgeon. Salary, £75 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, Moorfields.—Clinical Assistants.

ROYAL WATERLOO HOSPITAL FOR WOMEN AND CHILDREN, Waterloo Bridge Road.—(1) Senior Resident Medical Officer; (2) Junior Resident Medical Officer. Salary, £70 and £40 per annum respectively.

SHEFFIELD; ROYAL INFIRMARY.—Junior Assistant House-Surgeon. Salary, £65 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician. Salary, £100 per annum.

TOTTENHAM HOSPITAL.—(1) Two Honorary Assistant-Physicians; (2) Honorary Assistant Surgeon; (3) Honorary Physician or Surgeon to X Ray and Electrical Department.

UNIVERSITY COLLEGE HOSPITAL.—Surgical Registrar.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Physician. Honorarium, £25 for six months.

WADSLEY: WEST RIDING ASYLUM.—Fifth Assistant Medical Officer. Salary, £140 per annum, rising to £160.

WAKEFIELD: CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Junior House-Surgeon. Salary, £80 per annum.

WESTMINSTER GENERAL DISPENSARY, Gerrard Street, Soho, W.—Resident Medical Officer. Salary, £120 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeons at Farnham (Surrey) and Cranborne (Dorset).

APPOINTMENTS.

ANDERSON, N., M.B., B.S., Clinical Assistant to the Chelsea Hospital for Women.

BEADLE, J., L.R.C.P.Edin., M.R.C.S.Eng., District Medical Officer of the Teesdale Union.

BERESFORD, C. W., M.R.C.S., L.S.A., Medical Officer of the Cottage Homes of the Leicester Union.

BRANDER, R. L., M.B., C.M.Aberd., Certifying Factory Surgeon for the Woburn Sands District.

CURRIE, JAMES, M.B., C.M.Edin., Medical Officer of Health, Lees Urban District.

FARRAR, W. W., M.B., Ch.B.Glasg., District Medical Officer of the Gainsborough Union.

FLEMING, R. J., M.B., B.S.Dub., District Medical Officer of the Devonport Union.

HARVEY, P. G., M.D., District Medical Officer of the Monmouth Union.

HOBBS, A. Holmested, M.D., B.S.Dunelm., to the Honorary Medical Staff of the Diseases of Women Hospital, Newcastle-on-Tyne.

HOFFMAN, A. H., M.D.St.And., Medical Officer of Health, Ellesmere Rural and Urban Joint Districts.

HUNTER, D. G., M.B., Ch.B.Glasg., House-Surgeon to Durham County Hospital.

MACHARDY, T., M.B., C.M.Aberd., Certifying Factory Surgeon for the Cullen District, co. Banff.

SCHOLEFIELD, E. H., M.B., B.Ch.Oxon., District Medical Officer of the Dewsbury Union.

SPAIGHT, Henry W., L.R.C.P., L.R.C.S.Irel., District Medical Officer and Public Vaccinator to Aithney District, Helston Union, *vice* T. J. Butler, resigned.

TAYLOR, J. George, M.A., M.D Cantab., M.R.C.P.Lond., Honorary Physician to the Chester General Infirmary.

TIMOTHY, J. H., M.R.C.S., L.R.C.P.Lond., Certifying Factory Surgeon for the Nantgaredig District, co. Carmarthen.

TURNER, S. Duke, M.D., B.S., D.P.H.Durham, M.R.C.S., L.R.C.P., Public Vaccinator for the South Croydon Division of the Croydon Union.

TURTLE, W. R. M., M.R.C.S.Eng., L.R.C.P.Lond., Resident Assistant Medical Officer of the West Ham Union Infirmary.

WARD, H. K., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Brixworth Union.

WILLIAMS, Ralph Paul, M.D., B.S.Lond., D.P.H.Oxon., Visiting Medical Officer to Schools and Assistant Medical Officer of Health to the City of Sheffield.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTH.

COOKE.—November 11th, at 1, Queen's Parade, Bath, to Dr. and Mrs. W. H. Cooke—a daughter.

MARRIAGE.

ROPER—DICK.—November 10th, at the Cathedral, Calcutta, by the Bishop of Calcutta, Charles Roper, M.B., of Digboi, Upper Assam, younger son of Charles Roper, of Upper Norwood, to Ethel Emily, second daughter of the late George Abercromby Dick, formerly of Ceylon.

DIARY FOR THE WEEK.

TUESDAY.

MEDICO-LEGAL SOCIETY, 22, Albemarle Street, W., 8.15 p.m.—(1) Exhibition of Medico-Legal Specimens. (2) Paper: Dr. W. Wynn Westcott, Twelve Years' Experiences of a London Coroner.

PATHOLOGICAL SOCIETY OF LONDON, 5 p.m.—Laboratory Meeting at St. Mary's Hospital.

THERAPEUTICAL SOCIETY, Apothecaries' Hall, Blackfriars, E.C.—4.30 p.m. Papers: The Value of Certain Drugs in the Treatment of Chorea, by Dr. Cecil Wall; the Importance of Salt-free Diet in the Treatment of Oedema and Serous Effusions, by Dr. A. F. Hertz.

FRIDAY.

CLINICAL SOCIETY OF LONDON, 20, Hanover Square, W., 8.30 p.m.—Special General Meeting *re* Amalgamation of Medical Societies, followed by papers:—Dr. J. Walter Carr: A Case of Haemorrhage into the Frontal Lobes of the Brain. Dr. John Fawcett: Acute Peritonitis with Fat Necrosis apart from Disease of the Pancreas. Mr. Walter G. Spencer: Cystic Dilatation of the Lower End of the Ureter, containing Calculi which became Engaged Intermittently in the Urethra.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON EAR AND THROAT HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Pharynx.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Surgical. Thursday, 4 p.m., Gynaecological.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W., Wednesday, 4 p.m.—Demonstration of Selected Cases.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Medical and Surgical daily, except Saturday and Sunday, at 2.30 p.m. and 3.15 p.m. respectively; Throat and Ear, 4 p.m., Monday; Skin Diseases, 4 p.m., Tuesday; Eye Diseases, 4 p.m., Wednesday; Radiography, 4 p.m., Thursday. Operations, daily, 2.30 p.m. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Throat. Lectures at 5.15 p.m. each day will be given as follows: Monday, Some Cardio-Vascular Conditions; Tuesday, Nasal Obstruction, its Causes, Consequences, and Remedies; Wednesday, Disorders of Cardiac Motion, their Nature and Treatment; Thursday, Disorders of Cardiac Motion, their Nature and Treatment.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Central Out-Patient Department, 7, Fitzroy Square, W., Thursday, 5 p.m.—Pulmonary Tuberculosis: Results of Treatment, with Demonstration of Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Locomotor Ataxy. Friday, 3.30 p.m., Surgery of the Nervous System.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Tottenham Hospital, N.—Tuesday, 4.30 p.m., Lecture on Fibroids in relation to Pregnancy, Labour, and the Puerperium. Thursday, 5 p.m., Demonstration on Cases of Chest Disease (at the Mount Vernon Hospital, Hampstead).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics, X Rays. 2.30 p.m., Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2.15 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Ear, Throat, and Nose. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Tuesday and Friday, 10 a.m., Gynaecology. Lectures, 5 p.m., Monday, Anaesthetics; Tuesday, Clinical Lecture; Wednesday, Practical Medicine; Thursday, Clinical Lecture; Friday, Cases of Skin Disease.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Thursday, 5 p.m., Cases from the Wards.

BOOKS, Etc., RECEIVED.

The Transactions of the Edinburgh Obstetrical Society. Vol. XXXI Session 1905-6. Edinburgh: Oliver and Boyd. 1906.

Die Tuberculose der menschlichen Gelenke sowie der Brustwand und des Schädels. Von Professor Dr. F. König. Berlin: A. Hirschwald. 1906. M. 5.

Elements of Practical Medicine. By A. H. Carter, M.D., M.Ch. Ninth edition. London: H. K. Lewis. 1906. 10s. 6d.

The Health Reader. By W. Hoskyns-Abrahall. London: Cassell and Co., Ltd. 1906. 1s. 9d.

Leçons de Thérapeutique Oculaire: Faites à la Faculté de Médecine de Paris. Par le Dr. A. Darier. Troisième édition. Paris: Bureaux de la Clinique Ophthaimologique. 1907. Fr. 12.50.

Norway as a Winter and Summer Health Resort. By A. Magelssen. Translated by J. Sorensen. Kristiania: N. Olsen. 1906.

Auscultation and Percussion. By S. Gee, M.D. Fifth edition. London: Smith, Elder, and Co. 1906. 6s.

1907. Spemann's Historischer Medicinal Kalendar. Bearbeitet von Professor Dr. J. Pagel and Professor Dr. J. Schwalbe. Berlin and Stuttgart: W. Spemann. M. 2.

Public Health Problems. By J. W. Byers, M.A., M.D., M.Ch., M.A.O. (Hon. Causa). Belfast: W. Mullan and Son. 1906.

Wiesbaden: J. F. Bergmann; and Glasgow: F. Bauermeister. 1906:
- Stimmbildung und Stimmpflege. Von Dr. med. H. Gutzmann. 2s. 9d.
- Uber die geographische Verbreitung und die Diagnose des Ulcus Ventriculi Rotundum. Von Dr. L. Rütimeyer. 3s. 9d.
- Diagnose der chirurgischen Nierenerkrankungen unter Verwertung der Chromocystoskopie. Von Dr. F. Voelcker. 4s. 9d.
- Sexualleben und Nervenleiden. Von Dr. L. Löwenfeld. Vierte Auflage. 7s.
- Die Natur und Behandlung der Gicht. Von Dr. W. Ebstein. Zweite Auflage. 10s. 9d.
- Lehrbuch der Ohrenheilkunde. Von Dr. F. Bezold. 9s.
- Handbuch der Geburtshülfe. In drei Bänden. Herausgegeben Von F. von Winckel. Dritte Band, I. Teil. £1 2s. 9d.

Bristol: J. Wright and Co. 1906:
- Lectures on Massage and Electricity in the Treatment of Disease. By T. S. Dowse, M.D., F.R.C.P.Edin. Sixth edition. 7s. 6d.
- Women's Health and How to Take Care of It. By F. Stacpoole. Second edition. 1s. 6d.

Pulmonary Phthisis. By H. H. Thomson, M.D. London: J. Bale, Sons, and Danielsson, Limited. 1906. 5s.

Paris: Vigot Frères. 1906:
- La Regénération des Familles et Races Tarés. Par Dr. E. Contet. Fr. 2.50.
- L'Évaluation des Incapacités Permanentes. Par le Dr. Ch. Remy. Fr. 4.

Outlines of the Diseases of Women. By J. Phillips, M.A., M.D., F.R.C.P. Fourth edition. London: C. Griffin and Co., Limited. 1906. 7s. 6d.

A Few Hints on the Care of Children at Sea. By S. Synge, M.A., M.D., M.A.O., B.Ch., L.M. London: J. Bale, Sons, and Danielsson, Limited. 1s.

Manuel d'Histologie Pathologique. Par V. Cornil, L. Ranvier, A. Brault, et M. Letulle. Troisième edition. Tome Troisième. Paris: F. Alcan. 1907. Fr. 35.

A Much-abused Letter. By G. Tyrrell. London: Longmans, Green, and Co. 1906. 2s. 6d.

Cancer of the Breast. By W. S. Handley. London: J. Murray. 1906. 12s. 6d.

A History of Haslar Hospital. By Fleet Surgeon W. Tait, M.B., R.N. Portsmouth: Griffin and Co.; London: Simpkin Marshall. 2s. 6d.

The Practical Medicine Series. Ten volumes on the Year's Progress in Medicine and Surgery. Edited by G. P. Head, M.D. Chicago: The Year Book Publishers; Glasgow: G. Gillies and Co. 1906. Ten vols., 42s.; or singly:
- Vol. IV. Gynaecology. Edited by E. C. Dudley, A.M., M.D., and C. von Bachelle, M.S., M.D. 5s.
- Vol. VII. Pediatrics. Edited by I. A. Abt, M.D. Orthopedic Surgery. Edited by J. Ridlon, A.M., M.D., and G. L. Bailey, M.D. 5s.

London and New York: Rebman, Limited. 1906:
- Hypnotism; or, Suggestion and Psychotherapy. By Dr. (med.) A. Forel. Translated from fifth German edition by H. W. Armit, M.R.C.S., L.R.C.P. 7s. 6d.
- A Textbook of Genito-urinary Diseases. By Dr. L. Casper. Translated and edited by C. W. Bonney, B.L., M.D. 26s.

Archives of the Pathological Institute of the London Hospital (Sir Andrew Clark Memorial). Vol. i. 1906. London: Adlard and Son. 2s. 6d.

Hypnotism and Suggestion. By E. Ash, M.B., B.S., M.R.C.S. London: J. Jacobs. 1906. 4s.

Untersuchungen über den Bau der menschlichen Tube. Von Dr. P. Kroemer. Leipzig: S. Herzel. Mk. 2.

The New Physics and Chemistry. By W. A. Shenstone. F.R.S. London: Smith, Elder, and Co. 1906. 7s. 6d.

London: The Garden City Association:
- The Garden City Movement. By G. Montagu Harris, M.A. 1906. 6d.
- Housing in Town and Country. A Report of a Conference of the Garden City Association on March 16th, 1906. Edited by T. Adams. 6d.

Manual of Surgery. By A. Thomson, F.R.C.S.Edin., and A. Miles, F.R.C.S.Edin. Vol. I. General Surgery. Second edition. Edinburgh and London: Young J. Pentland. 1906. 10s. 6d. net.

Garden Suburbs, Villages, and Homes. London: Co-partnership Tenant's Housing Council. 6d.

Eating to Live. By J. J. Janvier Black, M.D. Philadelphia and London: J. B. Lippincott Company. 1906. 6s.

Wien: A. Hölder:—
- Die Tuberkulose. Von Professor Dr. G. Cornet. Zweite Auflage I und II Hälte. 1907. Mk. 32.
- Spezielle Pathologie und Therapie. Herausgegeben von Hofrat Professor Dr. H. Nothnagel. VIII Band. I Teil. Die Anaemie. Von Professor Dr. P. Ehrlich und Dr. A. Lazarus. Zweite Auflage. I Abteilung. Die hämatopoetischen Organe. Von Dr. K. Helly. 1906. Mk. 5.20.

Alcoholism. By W. C. Sullivan, M.D. London: J. Nisbet and Co., Limited. 1906.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
NOVEMBER.	
18 **Sunday**.....	
19 MONDAY	
20 TUESDAY ...	SOUTH MANCHESTER DIVISION, *Lancashire and Cheshire Branch*, Dr. Sawers Scott's, 57, Wilmslow Road, Withington, 3.30 p.m.
21 WEDNESDAY	BOURNEMOUTH DIVISION, *Dorset and West Hants Branch*, Medical Society's Rooms, 3.45 p.m.
22 THURSDAY...	CENTRAL DIVISION, *Birmingham Branch*, Medical Institute, Edmund Street, 3.30 p.m. WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Conjoint Meeting with Richmond and Chelsea Divisions, Chelverton Road Hall, Putney, 8.45 p.m.
23 FRIDAY	BRADFORD DIVISION, *Yorkshire Branch*, Midland Hotel, Bradford, 7 p.m.; Dinner, 8 p.m. CROYDON DIVISION, *South-Eastern Branch*, Greyhound Hotel, Croydon, 4 p.m. ST. PANCRAS AND ISLINGTON DIVISION, *Metropolitan Counties Branch*, University College Hospital, 4 p.m.
24 SATURDAY...	
25 **Sunday**	
26 MONDAY	LONDON: Naval and Military Committee, 3.30 p.m.
27 TUESDAY.....	NORTHAMPTONSHIRE DIVISION, *South Midland Branch*, Board-room, Northampton General Hospital, 3 p.m.
28 WEDNESDAY	**Extraordinary General Meeting, at 3 p.m., in the Examination Hall, Victoria Embankment, W.C.** LONDON: Parliamentary Subcommittee, 10 a.m. LONDON: Poor-Law (English) Subcommittee, 11.30 a.m. BATH AND BRISTOL BRANCH, Bath.
29 THURSDAY...	CITY DIVISION, *Metropolitan Counties Branch*, Great Eastern Hotel, Liverpool Street, E.C. (Lincolnshire Room), 4 p.m. HAMPSTEAD DIVISION, *Metropolitan Counties Branch*, Annual Dinner, Great Central Hotel, LAMBETH DIVISION, *Metropolitan Counties Branch*, Clinical Lecture Theatre, St. Thomas's Hospital, 4 p.m.; Committee, 3.30 p.m. STAFFORDSHIRE BRANCH, North Stafford Hotel, Stoke-upon-Trent, 4 p.m.; Council, 3.30 p.m.; Dinner, 6.30 p.m. WEST CUMBERLAND DIVISION, *Border Counties Branch*, Maryport, 3.45 p.m.
30 FRIDAY	
DECEMBER.	
1 SATURDAY...	
2 **Sunday**	
3 MONDAY	LONDON: Premises and Library Committee, 3.30 p.m. MARYLEBONE DIVISION, *Metropolitan Counties Branch*, Rooms of the Royal Medical and Chirurgical Society, 20, Hanover Square, 8.30 p.m.
4 TUESDAY ...	
5 WEDNESDAY	NORTH CARNARVONSHIRE AND ANGLESEY DIVISION, *North Wales Branch*, British Hotel, Bangor, 2.30 p.m.
6 THURSDAY...	FOLKESTONE DIVISION, *South-Eastern Branch*.
7 FRIDAY.....	NORTH CUMBERLAND DIVISION, *Border Counties Branch*, County Hotel, Carlisle, 8 p.m.; Dinner, 6.30 p.m.
8 SATURDAY ...	
9 **Sunday**	
10 MONDAY	
11 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Special Finance Inquiry Committee, 5 p.m.
12 WEDNESDAY	LONDON: South-Eastern Branch Council, 3.15 p.m.

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 24TH, 1906.

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British Medical Association.

Notice is hereby given that an Extraordinary General Meeting of the British Medical Association will be held at the Examination Hall, Savoy Place, Victoria Embankment, London, on Wednesday, November 28th, at three o'clock in the afternoon, when the subjoined Resolutions will be proposed:

1. That the 5th Article of Association be altered by the insertion of the words "Divisions or" immediately before the word "Branches" where that word secondly occurs.

2. That the 27th Article be altered by the insertion immediately after the words "constituency having not less than fifty members" of the words "provided that the Council shall have a discretionary power to permit a Division having less than fifty members to form one constituency in any case in which it shall appear to the Council that the holding of joint meetings of members of that Division and of neighbouring Divisions would be attended by special difficulties."

3. That the said 27th Article be altered by the substitution of the words "nine months" for the words "three months."

4. That the 36th Article be altered by the insertion of the word "and" immediately before the words "a Treasurer" and by the omission of the words "an Editor of the JOURNAL and a General Secretary" and of the words "the Editor of the JOURNAL and the General Secretary."

5. That the following Article be substituted for the 37th Article, namely:

XXXVII.—OFFICERS *(continued)*.

The Chairman of Council shall be elected by the Council from its own number and shall hold office for such period and discharge such duties as shall be determined by the Council. During this period and for one year thereafter he shall *ex officio* be a member of the Council and any Branch of which at the time of his election he was a Representative shall be entitled to elect another in his stead.

6. That the 38th Article be altered by the substitution of the words "Chairman of Council and (during the year succeeding his period of office) the *Past Chairman* of Council" for the words "(if any)."

7. That the 41st Article be altered by the substitution of the words "the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer" for the words "and the Chairman of Council."

8. That the following clause be substituted for Clause (*e*) of the 44th Article, namely:

(*e*) No member in regard to whom a representation as aforesaid has been made or whose conduct is under investigation or is the subject of inquiry by the Council or by a Branch or Division shall be capable of effectively resigning his membership of the Association until the result of such investigation or inquiry has been officially and finally declared.

9. That the following Article be substituted for the 45th Article, namely:

XLV.—Travelling Expenses.

The first-class travelling expenses within the United Kingdom of Members of Council and Representatives of Divisions attending the Annual or any Special Representative Meeting shall be defrayed out of the general funds of the Association. Attendance of Representatives of Divisions for this purpose at the Annual Representative Meeting shall be construed to mean attendance at each daily Session of that Meeting and also at each daily Session of the Annual General Meeting at which business described under the head (A) in Article XVIII is to be transacted unless the Council shall be satisfied that good cause existed for absence from any particular Session or Sessions. The first-class travelling expenses within the United Kingdom of all Members attending any meeting of Council or of a Committee, and of all Officers of any Division or Branch attending any conference held under conditions approved by the Council, shall be defrayed in like manner. Save as in this clause expressly provided the Council shall determine what shall be considered an attendance for any purpose of this Clause.

Should the above resolutions or any of them be duly passed by the required majority, the same will be submitted for confirmation as Special Resolutions or a Special Resolution to a subsequent Extraordinary General Meeting of the Association which will be subsequently convened.

Dated the fifteenth day of November, 1906.

By Order of the Council,

Guy Elliston,
General Secretary,
British Medical Association.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

METROPOLITAN COUNTIES BRANCH:

Chelsea Division.

The Abuse of Hospitals.

A large and enthusiastic meeting was held on Tuesday, October 23rd, at the Fulham Town Hall; invitations had been issued to representatives of the various charitable funds connected with hospitals, to staffs and secretaries of local hospitals and public dispensaries, as well as to the practitioners in the Division, and to a few others interested and experienced in the matter debated; the number of hospital representatives who attended was small.

Mr. Herbert Tanner, F.R.C.S., Chairman of the Division, presided.

Dr. P. H. Parsons moved the following resolution:

That in the opinion of this meeting grave hospital abuse exists, in that patients who can afford to pay for treatment obtain advice and medicines free, thereby funds being wasted that have been subscribed for the deserving poor; that at this abuse is growing, and that it is desirable, both in the interests of the poor, of the subscribers, and of the medical profession, that it should cease.

Dr. Parsons wished only to say a few words in support of the resolution, so as to leave time for other speakers who were more experienced in the subject. Every practitioner met with instances of this abuse, and they knew also that it was increasing, and all agreed that it must be remedied. A high church dignitary had been reported to have said that all should go to hospital for treatment except millionaires, who should consult "specialists," but where and how these "specialists" were to get their education he did not state. Dr. Parsons referred to the work the British Medical Association was now doing towards a remedy for this serious disease, and to the attempt some hospitals had made to inquire into the financial condition of patients, but regretted that at many no effort whatever was made to exclude those who had no just claim on charitable service; he condemned the system of charging a small fee for treatment at any hospital, since this brought it in direct competition with public provident dispensaries and with many struggling general practitioners whose practice lay amongst the poorer section of the community; further, that this tended to the degradation of the whole profession, as these paying patients believed that they were paying the value of the services rendered. Another phase of the abuse was that patients (unable to pay the usual fee for private consultation) were sent to hospital for a further opinion there, and were retained afterwards as out-patients; many firms subscribed to hospital funds in order to send their employés as patients irrespective of their wage earnings. He supported the British Medical Association in its work of endeavouring to help to lessen the abuse by its proposals of establishing a public medical service, which would well do the work of the present out-patient departments of hospitals. The object of this meeting was to begin, as far as this Division was concerned, to ventilate this growing evil, and to support in every way in the future the Association in its endeavours to remove it.

Dr. Ford Anderson (Hampstead Division) agreed that there was a great evil to redress, but thought it well to bring into prominence that it was not only in the interests of the medical profession that they were fighting, but also in those of the poor themselves and the subscribers to hospitals, and that these ultimately suffered by the absence of opportunity among practitioners to keep in touch with the advances in medicine and surgery. He then called attention to the ethical immunity of hospital staffs, strongly maintaining the view that a member of a hospital staff was privileged and escaped the consequences of his lapses in fair dealing which were meted out to practitioners. To him the hospital was a sanctuary, and like the fugitives of old, who laid hold of the horns of the altar and were above the law, so in our day members of hospital staffs, secure in their occupancy, were immune. The Central Ethical Committee received practically no complaints against the behaviour of members of the staffs inside the hospitals—not because faults did not exist—they did exist. There were very few practitioners who could not tell of their patients, rich and poor, going to the hospital and being absorbed, and they only refrained from complaining because they recognized that hospital staffs were not amenable to ethical rules. It was impossible to condone the continuance of this privileged class, and it was to be hoped that practitioners would insist on the removal of such an unfair disability. Dr. Anderson then insisted that the time had fully come to settle the hospital question among themselves; and when they had found a *modus vivendi* on the ethical rules which should guide them, it would be time enough to take counsel with the benevolent public, who should be told, gently but firmly, that in all matters connected with the terms of their service, inside as well as outside the hospitals, the profession must decide. He next advised that, while trying to hasten the suppression of out-patient departments except for consultations, they ought to further in every way the establishment of provident dispensaries and local hospitals on the lines laid down by the British Medical Association, in which the conditions of service were acceptable to medical practitioners. He quoted figures showing that a good nucleus of both these institutions existed in London already, and there was good reason to believe that many of them could be induced to conform to the requirements of the profession, that the struggle against vested interests might not be easy, the chief difficulty probably coming from the teaching hospitals, where the programme might be modified in some respects,

although no provision would be allowed for out-patient departments as at present conducted, and that to attain their objects the profession must be convinced, united, and determined, and that this could be best attained through the greatest of their organized bodies, the British Medical Association.

Mr. Warren (Secretary of the Metropolitan Provident Medical Association) said he did not think there would be two opinions in a meeting like this as to the abuse in the hospital out-patient departments and the need of reform. It was, perhaps, easier to point out the abuse than to suggest a satisfactory means of dealing with it. The association which he represented had for nearly thirty years endeavoured to solve the question by establishing provident dispensaries throughout London, and had now twenty-one such dispensaries, with a membership of some 30,000 persons, who contributed in small payments nearly £5,500 towards their own medical treatment; he could not say, however, that the provident dispensary system had met with anything like the success that was anticipated for it. The competition of the hospitals was even greater now than formerly—hospitals were larger, out-patient departments more elaborate, and every inducement was held out to the working classes and others to seek free medical relief. The apathy of many medical men, and the hostility of not a few, must also be reckoned as factors in the qualified success of provident dispensaries. In a paper which he read in 1897 he said: "The difficulties surrounding medical practice have been created largely and have been perpetuated by the want of union and combination in the medical profession"; he hoped this meeting was an indication that the profession were united in the demand for hospital reform. He welcomed the scheme of the Medico-Political Committee of the British Medical Association for establishing provident dispensaries under rules approved by the medical profession, and could assure them of the hearty support of the Metropolitan Provident Medical Association in carrying the scheme into effect.

Mr. Smith Whitaker referred to the projected conference between Hospital Boards and the Hospitals Committee of the Association, the result of which would do much towards lessening the abuse of charity. To supplement this action he advised the united action of the whole profession. He contended that the gratuitous services of the staffs of hospitals should be recognized by the public as services of the profession at large. At the same time—in this matter of abuse of hospitals—the staffs should be responsible to the profession, who looked to them for the proper conduct of hospitals. Later, in defence of the Association, Mr. Whitaker referred to the action taken in the case of the proposed children's hospital at Wandsworth, and to the satisfactory arrangement arrived at in the matter of the Leigh Hospital.

Dr. Fothergill (Wandsworth Division) explained the present procedure at the Bolingbroke Hospital, where there was no out-patient department as generally understood, but only a consultation department, where those unable to pay a fee were seen on presentation of a letter from their doctor, the opinion being later communicated to the doctor. The casualty department there was conducted on the same lines after the primary attendance. He also referred to the steps being taken to get King's College Hospital, on removal to Camberwell, to follow this system, and incidentally mentioned that a proposal for a children's hospital in Wandsworth had fallen through because the temporary committee would not accept the proposals of the local profession. Dr. Fothergill reminded the meeting that every one had a right to contract against doctors' accounts, and the great cause of the present abuse of hospitals arose from the fact that while due arrangements were made for attending those only able to contract at 1d. a week, none whatever were made for others well able to afford any sum up to 1s. per week, and these necessarily drifted to a hospital. The same applied to firms and householders who sent their wounded employés and servants to hospitals, and felt, because of a small subscription, they were entitled to free services for them. He suggested that it was desirable for a Division to have all the honorary staffs of all hospitals within its area on their list of members as honorary associates, and so try to come to some satisfactory plan of action before approaching the laity Boards; and also the Division should obtain the right to elect direct representatives on all the local hospital committees, and in this way small but important complaints would be properly investigated and dealt with.

Dr. Boclet (Anaesthetist, Kensington General Hospital) gave striking instances of abuse of charity at St. Peter's and Charing Cross Hospitals—patients paid 5s. railway fare from the country to attend as out-patients. He had known owners of house property who were treated free, and one who paid 10s. 6d. for tapping of hydrocele, and 15 guineas for a throat operation. The payment of 2s. the first attendance and 1s. each time subsequently, as was done at St. Peter's and the Lock, was a very bad system. In Belgravia, ladies paid a small subscription and then sent their well-paid maids for free treatment; business firms contributed in order that they could demand the hospital services for their employés. He contended that very many subscribers were not actuated by charitable motives but purely commercial. Hospital secretaries were afraid to protest for fear they would lose the subscription, and spoil their annual record of total of patients. Dr. Boclet contended that the remedy was consolidation of the profession, and admission to hospital treatment only by card or letter from the usual medical attendant.

Dr. Butler gave several cases illustrating the abuse of hospital charity. He was convinced that this and other matters needed reform in the interests of the struggling general practitioner, of the charitable public and the poor, and he hoped that the British Medical Association would do more yet to this end.

Dr. Barber read a letter from the vicar of a large and mainly poor parish in which the writer spoke of his difficulty in obtaining letters for hospital for the real poor, and said that his clerical brothers complained of the same difficulty, and that from the writer's personal knowledge this was due to so many letters being used by those who had no just claim on the charity. The writer also stated that he had known hospital letters to have been sold in public-houses, and concluded by hoping that a remedy would be found for this misdirection of charitable funds. He would suggest that the circumstances of the applicant should be investigated by the local medical practitioner; he had never known refusal by the doctor when asked to do this. Dr. Barker gave instances of gross abuses: A landlord with an income of £1,500 a year "always sent his family to hospital"; a grocer with three shops and owning house property did likewise, so also did a baker owning his own house and shop, a postmaster with telegraph office and flourishing business besides, firms' travellers with salaries from £500 to £700 a year, and so on *ad nauseam*. Commercial people gave subscriptions with commercial motives; he felt that the charitable public, the hospitals, and hospital funds Boards, and the poor themselves must look to the medical profession as a body for the remedy.

Dr. Sachel seconded the resolution, and mentioned instances of the abuse. He hoped the profession would use its united influence to end this increasing grievance.

The resolution was put to the meeting, and carried *nem. con.*

The following resolution was proposed by Dr. Ayre and seconded by Dr. Williams:

> That the foregoing resolution and a report of these proceedings be sent to the King Edward VII Hospital Fund, the Hospital Sunday Fund, the Hospital Saturday Fund, the Hospitals Committee of the British Medical Association, and to any other body interested.

Both proposer and seconder spoke of the mass of evidence which could be produced as to the extent and increase of hospital abuse, and hoped for a speedy removal of the evil. This resolution was carried without a dissentient. A large number of practitioners present had asked permission to bring forward evidence of abuse—cases of recent occurrence, and of which they knew the details of the patients' circumstances, etc.—but time did not allow of this being done, as was intended.

City Division.

A very successful clinical meeting was held at St. Bartholomew's Hospital on Thursday, November 1st. Tea was served in the library at 5 o'clock, and afterwards several cases of interest were exhibited and commented

upon by members of the hospital staff. In the absence of the Chairman (Dr. Major Greenwood) through illness, the Vice-Chairman (Dr. A. G. Southcombe) presided. The meeting passed a resolution expressive of sympathy with Dr. Greenwood, and a vote of thanks to the staff of the hospital for their hospitality and kindness was carried by acclamation.

Hampstead Division.

A meeting of this Division took place on Friday, November 9th, at 8.30 p.m., at the Hampstead Conservatoire, Swiss Cottage, N.W., Dr. Macevoy in the chair.

Minutes.—The minutes of the previous meeting having been read, Mr. Stewart drew attention to the President's address which he thought should have been printed *in extenso*. Dr. Macevoy said that he would think it over.

General Medical Council Election.—The Honorary Secretary read a letter from Dr. Martin, Honorary Secretary of Dr. McManus's Committee, asking for the Division's consideration of Dr. McManus's election address. Copies of the circular were distributed to the members. Mr. Stewart proposed:

That in the opinion of this meeting it would be advantageous if opportunity were given for candidates for election to the General Medical Council to address members of the Branch at a meeting to be arranged for the purpose.

This was seconded by Mr. Armit and carried.

Address.—The Chairman then asked Mr. G. L. Cheatle to give his address on cancer of the tongue and lip. The lecture was to have been illustrated by lantern slides, but unfortunately the lantern was not forthcoming, so that the lecturer was somewhat handicapped. In spite of this, however, he raised many interesting points, and a good discussion followed.

Annual Dinner.—The question of the admission of ladies to the dinner was discussed and decided in the affirmative *nem. con.* A list of guests was agreed to.

Report of Subcommittee on Contract Practice.—Copies of the printed interim report having been handed to members, Mr. Armit gave a brief abstract of the chief points. He pointed out that even in the prosperous area of this Division contract practice was carried on at starvation rates. Dr. Anderson said that it would be interesting to get the returns of gratuitous vaccination within the area. He proposed a hearty vote of thanks to Mr. Armit for the great pains taken in the preparation of this report. Seconded by Mr. Humphreys, and carried. The report will be issued to all the medical men in the area.

Premises Fund.—Dr. Anderson said that the committee were anxious to raise money by private subscription and donations from members with a view to the establishment of permanent premises in some central position for meetings of the Division. Money received from the Branch was not sufficient for this purpose. Mr. Stewart asked if it would not be better to hold the meetings at different parts of the Division. The Honorary Secretary said that meetings in outlying parts—such as Finchley and Hendon—had been held last session, and would be again held if possible. For meetings held in Hampstead it was desirable to have a permanent and central room. Subscriptions from 1s. to £1 1s. were invited, and donations to any amount. Drs. Anderson and Macevoy were appointed trustees of the fund.

Letters, etc.—A message was received from Dr. Claude Taylor regretting inability to be present.

GLASGOW AND WEST OF SCOTLAND BRANCH:

Ayrshire Division.

A meeting of the Division was held at Heathfield Hospital, Ayr, on November 15th, Dr. Frew (the Chairman) in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and approved.

Annual Representative Meeting.—Dr. Brown (Ayr), the Division's Representative at the Representative Meeting in London, gave an account of the work done at that meeting, showing the importance to the Division of certain clauses in the proposed Royal Charter, and urged on the members the necessity of taking active interest in the affairs of the Association, so that full advantage of the Association's organization might be taken in furthering the interests of medical men in general and of members of the Division in particular.

Control of Pulmonary Tuberculosis.—Dr. Macdonald (M.O.H. for Ayrshire) then made a statement in connexion with the administrative control of pulmonary tuberculosis by local authorities. Dr. Macdonald pointed out the far-reaching powers conferred on local authorities by the declaration of the Local Government Board that pulmonary tuberculosis was an infectious disease within the meaning of the Public Health Act. Dr. Macdonald further indicated the steps about to be taken by his local authority in this connexion.

Visit to Heathfield Hospital.—Dr. Brown (M.O.H. for Ayr Burghs) then conducted members over Heathfield Hospital, recently opened by the Burgh of Ayr for infectious diseases.

Apologies for Absence.—Apologies for absence were received from Dr. Watt (Ayr) and Dr. Barron (Dailly).

LANCASHIRE AND CHESHIRE BRANCH:

Liverpool (Northern) Division.

An ordinary meeting of this Division was held at the Liverpool Medical Institution on October 29th, Dr. J. A. Cooke (Chairman), in the chair.

Confirmation of Minutes.—The minutes of the last annual meeting were read and confirmed.

Annual Representative Meeting.—Dr. Davies gave an interesting and detailed account of the meeting held in July last, and suggested the desirability of electing Representatives for a longer period than one year, who would consequently be more experienced in the conduct of the business. He also expressed his thanks for the confidence which the Division had shown in him by appointing him as their Representative.—On the motion of the Chairman, seconded by Dr. Tisdall, a hearty vote of thanks was accorded Dr. Davies, both for his services at the annual meeting and for his report.

Expenses of Representatives at Annual Meeting.—A letter dated August 1st last, and signed by the Representatives of the Liverpool Central, Southern, and Western Divisions, was read, asking the Division to pass a resolution advocating payment of £1 1s. per day out of the old fund of the Lancashire and Cheshire Branch to the Representatives from the Branch attending the last annual meeting, and also future meetings, so long as the fund is available. A discussion followed, during which it was pointed out that it would be somewhat invidious to pay Representatives this year whilst those in the preceding years had attended the Annual Meeting at their own expense, and also that it was very desirable to retain the old fund, and it was eventually decided not to support the application.

Hospital Reform.—It was resolved:

That the Honorary Secretary be requested to write to the local Divisions suggesting the formation of a joint committee to act in the matter.

Central Emergency Fund.—A letter from the Medical Secretary dated October 23rd, in reply to one from this Division, was read, and it was resolved:

That the matter stand over for further information.

General Medical Council Election.—It was resolved:

That the Executive Committee be authorized to select the names of three candidates, who shall be recommended to the Division for election.

Rochdale Division.

A joint meeting of this Division with the Bury Division was held in the Wellington Hotel, Rochdale, on Tuesday, November 6th, Dr. Thorp in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Annual Representative Meeting.—Dr. Brown, the Representative of the two Divisions, gave his report of the last Representative Meeting. Dr. Bateman moved, Dr. Menzies seconded, and it was carried unanimously:

That Dr. Brown's report be received, and that the best thanks of the meeting be given him for his able and lucid address.

Expenses of Representatives at Annual Meeting.—Dr. Hitchen moved, Dr. Brown seconded, and it was carried unanimously:

That, in our opinion, the Association ought to pay the Direct Representative at least 21s. per day besides travelling expenses.

General Medical Council Election.—The question of Direct Representatives on the General Medical Council, after discussion, was left over to next meeting.

LEINSTER BRANCH:

Dublin Division.

A general meeting was held on October 30th. Dr. Craig (and afterwards Dr. Delahoyde) occupied the chair.

Annual Representative Meeting.—The Division's Representative (Dr. Hartley) explained the manner in which a special committee supposed to represent the Association had been elected from candidates from England, Ireland, Scotland, and Wales by the Representative Meeting. The following resolutions were carried unanimously:

That the Dublin Division do protest against the constitution of the Special Finance Committee, as it contains no member representing an Irish, Scotch, or Welsh Division, and as four out of the seven elected members are from the London district.

That the Dublin Division should resist in every way in its power the proposal that the Council should be elected by the Representative Meeting, as they believe, if not safeguarded, amongst those elected the London area will be largely over-represented, and, in any case, no Representative Meeting would be able to elect a member for an Irish constituency better than those living in Ireland. Furthermore, that the constitution of the Council should be determined by ordinance and not by by-law.

That the Dublin Division instruct the Committee to arrange with the Irish and Scotch Divisions (and any others that are dissatisfied) a common line of action as regards the foregoing resolution.

The "Great Indian Medicine Chief" and the Rotunda Hospital.—The meeting then considered the doings of "The Great Indian Medicine Chief," who had been selling medicines in the Rotunda Gardens. The following resolution was passed unanimously:

That this meeting protests against the action of the Governors of the Rotunda Hospital in letting Rutland Square for the purposes of medical quackery, and that a copy of this resolution be sent to every member of the Hospital Board.

PERTHSHIRE BRANCH.

The winter meeting was held in the Station Hotel, Perth, on Friday, November 9th, at 3.20 p.m. Dr. McEwan (Vice-President) in the Chair.

Confirmation of Minutes.—The minutes of last meetings were read, approved, and signed by the Vice-President.

Treasurer's Report.—The Treasurer's report was as follows:

	£	s.	d.
To balance from 1905	4	15	8
Received from London	10	18	0
Net on two deposit receipts of £10 ...	0	9	7
	16	3	3
Expenditure—	£	s.	d.
Treasurer and Secretary ...	2	2	0
Printing, etc.	3	14	6
	5	16	6
	10	6	9
Placed on Deposit Receipt	10	0	0
At credit in bank	0	6	9

Dr. Urquhart, in moving the adoption of the report, said it was the most satisfactory statement ever in existence, and proposed a hearty vote of thanks to the Treasurer, Dr. Hume.

Annual Representative Meeting.—Dr. Trotter briefly reported on the work done at the annual meeting. Much of the time—two and a half days—he said, was taken up with the consideration of the Royal Charter. He referred to the attempt at the meeting to reduce the number of the Central Council; to the question of consultant and practitioner, and the Hospitals Committee's report. On the motion of the Chairman a hearty vote of thanks was accorded.

Medical Certificates and School Attendance.—Dr. Urquhart moved:

That as medical certificates of exemption from school attendance are demanded of the medical profession in the public interest, it is the opinion of the Branch that these should be paid for by the school boards on the same principle which underlies the notification of infectious diseases. Further, that until this duty is laid upon the profession by legal enactment, these certificates should not communicate to the school boards the nature of the disease observed. Further, that school boards should be empowered to appoint and remunerate medical officers to advise in their duty towards pupils and teachers.

In speaking to the motion Dr. Urquhart advocated that if the school board desired a certificate of exemption they should pay for it, and that they only want to know that a child is unable to attend school, no cause of illness needing to be assigned. He also advocated the necessity of appointment of a medical officer to advise the school board in their duty to pupils and teachers, because if children are forced to attend school, the school board should see that it is safe to life and limb, and that they should be perfectly well and in good health. Head masters have done all they could in this matter, and have even called in their own doctor and paid him. This is absurd. In the course of his inquiry, at the request of the School Board of Perth, in regard to medically deficient children, he saw a great deal among 4,000 children—for example, he saw one boy with both ears running; the head master told him he had written the parents to get it attended to, but they did nothing, etc. He advised that if a medical officer be appointed, he should be the medical officer of health for the town and debar him from private practice. In conclusion, he moved the first two items.—Dr. Borrowman (Crieff) seconded, and that became the finding of the meeting.

Notification of Consumption.—Dr. Liddell (Errol), having directed the attention of the Branch to a circular on tuberculosis received by him from Dr. Graham, Medical Officer of Health for the County of Perth, the Branch decided that it was impossible to discuss the question raised, as the circular had not reached all the members.

Pernicious Anaemia.—Dr. Gulland (Edinburgh) then addressed the meeting on anomalous cases of pernicious anaemia. He discussed a number of cases in which the nervous, gastric, intestinal, or other symptoms masked the anaemia, and rendered the diagnosis obscure without a blood examination. Other cases were cited to illustrate points in duration, prognosis, diagnosis, and treatment. Dr. Urquhart moved a hearty vote of thanks to Dr. Gulland for his very lucid address, and remarked how toxins were very much in vogue. He hoped Dr. Gulland would soon be able to demonstrate a culture from the earlier stages of pernicious anaemia. In conclusion, he said, they regarded his visit with very great pleasure, and appreciated it because it was of the greatest benefit to the Branch. Dr. McEwan corroborated Dr. Urquhart in his remarks, and regretted there was so little time for discussion, and thanked Dr. Gulland on behalf of the Branch for coming there that day. Dr. Gulland briefly replied.

New Branch Rules.—New Branch rules, as drawn up by the Council on the model rules suggested for adoption by a Branch composed of one Division, were next considered. After much discussion the Secretaries were instructed to have a copy of the model rules sent to each member of the Branch and to call a special meeting in December for their consideration.

Ambulance Wagon Service.—Dr. Urquhart described the origin of the wagon service in Perth, how a St. John wagon was secured by Dr. David Stirling, aided by the then Lord Mansfield and others, and how later a wagon of the St. Andrew's pattern was procured by subscription, and how, as years went by, they both got out of date, and a new St. Andrew's wagon was presented by Mr. Herbert Puller in memory of his comrades who fell in South Africa, and how they were now all under the control of the Perth Centre of St. Andrew's Ambulance Association. The subject had been brought up on account of a complaint from a member of the Branch. This member having ordered a wagon for a patient in the country by telephone was held liable by the horse-hirer for the fee, and threatened with court proceedings if the charge were not paid within three days. Much discussion took place, Dr. R. C. Buist (Dundee) suggesting that, like Dundee, the town of Perth should take over the wagon service. Dr. Taylor thought that ambulance work had always been a voluntary movement the same as the lifeboat service, and that, if properly managed, the support given to it should be equal to the demands not only of the holding of classes for the

teaching of first-aid work, but also for the services of the wagons. Finally, Dr. R. STIRLING moved that the matter be referred to the Council for consideration.

Vote of Thanks to the Chairman.—This was all the business, and a special vote of thanks, moved by Dr. GOVAN, was accorded Dr. McEwan for his conduct in the chair.

Dinner.—The members afterwards dined in the Station Hotel, Dr. Gulland and Dr. Buist as guests.

SOUTH-EASTERN BRANCH:
FOLKESTONE DIVISION.

A MEETING of the Folkestone Division was held at Hotel Wampach on November 16th at 8.30 p.m.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Hospital Management.—The proposals as to the administration of hospitals drawn up by a Joint Committee of the British Medical Association and of the non-medical representatives of Boards of Management of hospitals were considered. They were all approved, except No. 13, relating to pay wards, and on this no opinion was expressed. Those relating to cottage hospitals were all approved.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BATH AND BRISTOL BRANCH.—The second ordinary meeting of the Session will be held at the Museum, North Parade, Bath, on Wednesday evening, November 28th, at 8 o'clock, Dr. D. S. Davies, President. Cases to be shown: (*a*) Bitemporal Hemianopsia, (*b*) Parry's (Graves's) Disease, W. M. Beaumont. The following communications are expected: Vaccine-therapy and the Opsonic Index, J. M. H. Munro, D.Sc.; Notes of a Spinal Cord Case, J. Michell Clarke, M.D.; Liver Abscess, W. P. Kennedy, M.D.; Notes of a Case of Osteitis Deformans, R. Waterhouse, M.D.—W. M. BEAUMONT, NEWMAN NEILD, Honorary Secretaries, Bath.

BORDER COUNTIES BRANCH: NORTH CUMBERLAND DIVISION.—A meeting of the Division will be held at the County Hotel, Carlisle, on Friday, December 7th, at 8 o'clock, when Dr. Norman Walker will give an address on a series of cases of so-called eczema traced eventually to definite causes. Dinner will be at 6.30 p.m.—NORMAN MACLAREN, Honorary Secretary, 23, Portland Square, Carlisle.

BORDER COUNTIES BRANCH: WEST CUMBERLAND DIVISION.—An ordinary meeting of this Division will be held at Maryport on Thursday, November 29th, at 3.45 p.m. An agenda will be sent in due course.—JOHN PENNY, Honorary Secretary, Cockermouth

DORSET AND WEST HANTS BRANCH: WEST DORSET DIVISION.—A meeting of this Division will be held at the County Hospital, Dorchester, on Wednesday, December 12th, at 4.15 p.m. Agenda: (1) Minutes of the last meeting; (2) to appoint the place of next meeting: (3) report of the Annual Representative Meeting by the Divisional Representative; (4) other business: (5) cases of interest will be shown by members of the staff of the hospital (particulars in circular calling the meeting). The members of the staff invite members to tea at 4 p.m., before the meeting. Dinner at the King's Arms at 6 p.m.—J. COMYNS LEACH, Honorary Secretary, The Lindens, Sturminster Newton, Dorset.

METROPOLITAN COUNTIES BRANCH: CITY DIVISION.—The next meeting will be held on Thursday, November 29th, at 4 p.m., at the Great Eastern Hotel (Lincolnshire Room), Liverpool Street, E.C. Dr. Arthur E. Giles will read a paper on Uterine Fibroids after the Menopause.—E. W. GOODALL, Honorary Secretary.

METROPOLITAN COUNTIES BRANCH: HAMPSTEAD DIVISION.—The annual dinner is fixed for Tuesday, November 27th, at the Great Central Hotel, price 7s. 6d. (exclusive of wine). Reply postcards will be sent shortly. A fund to be called the Premises Fund is being started, with the object of providing permanent premises for Divisional meetings. Annual subscriptions of not less than 1s. or not more than £1 1s., or donations to any amount, will be thankfully received by the Trustees, Dr. Ford Anderson, 41, Belsize Park, Hampstead, and Dr. Macevoy, 41, Buckley Road, Brondesbury.—R. A. YELD, 29, Platt's Lane, Hampstead, N.W.

METROPOLITAN COUNTIES BRANCH: LAMBETH DIVISION.—The next meeting of the Lambeth Division will be held in the Clinical Lecture Theatre of St. Thomas's Hospital on Thursday November 29th, at 4 p.m. Walter W. H. Tate, M.D., F.R.C.P., Obstetric Physician to St. Thomas's Hospital, will read a paper on Degenerative Changes in Uterine Fibroids, their Diagnosis and Treatment. Cases of interest will also be shown and demonstrated upon by members of the Staff of the Hospital. There will be a meeting of the Committee of the Lambeth Division on the same day and place at 3.30 p.m. sharp.—W. ALEXANDER ATKINSON, M.D., Honorary Secretary, Lambeth Division, 216, Camberwell New Road, S.E.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.—A special meeting of the Division will be held, at the Rooms of the Royal Medical and Chirurgical Society, 20, Hanover Square, W., on Monday, December 3rd, at 8.30 precisely. The first of a series of discussions on Economic Problems in the Practice of Medicine will be held. The resolution submitted will be: "That it is desirable that concerted action should be taken to lessen the large amount of gratuitous medical attendance granted to many sections of the community, inasmuch as it tends to diminish the thrift and self-respect of the public, lessens the esteem in which medical science is held, and has a detrimental effect upon the position of many members of the profession." The debate will be opened by Sir Richard Douglas Powell, Bart., Sir John Tweedy, and Dr. J. Kingston Fowler. Special invitations will be sent to all medical practitioners resident in the Marylebone Division, whether they are members of the Association or not. Any member of the profession will be admitted on presentation of his card. The Honorary Secretary will be glad to receive as soon as possible the names of those willing to take part in the debate.—COMYNS BERKELEY, M.B., B.C.Cantab., M.R.C.P.Lond., Honorary Secretary and Treasurer, 53, Wimpole Street, W.

METROPOLITAN COUNTIES BRANCH: WESTMINSTER DIVISION.—A meeting of the Westminster Division will be held on Tuesday, November 27th, at 8.30 p.m., at 20, Hanover Square, W. Agenda: To consider the report of the Representative at the annual meeting, and other business.—F. J. M'CANN, M.D., F.R.C.S., 5, Curzon Street, W., Honorary Secretary.

NORTH WALES BRANCH: NORTH CARNARVONSHIRE AND ANGLESEY DIVISION.—A meeting of this Division will be held at the British Hotel, Bangor, on Wednesday, December 5th, at 2.30 p.m.—JOHN EVANS, Honorary Secretary, 2, Church Street, Carnarvon.

SOUTH-EASTERN BRANCH: FOLKESTONE DIVISION.—A meeting of the Folkestone Division will be held on Thursday, December 6th. Agenda: A paper will be read by Dr. Samuel West.—P. VERNON DODD, M.D., Honorary Secretary.

SOUTH MIDLAND BRANCH: NORTHAMPTONSHIRE DIVISION.—The autumnal meeting will be held in the Board-room of the Northampton General Hospital on Tuesday, November 27th, at 3 p.m. Further discussion on the subject of the South Northamptonshire Nursing Club. Mr. G. H. Percival will read a paper on Prostatectomy.—P. S. HICHENS, Honorary Secretary.

STAFFORDSHIRE BRANCH.—A meeting of the Council of this Branch will be held at the North Stafford Hotel, Stoke, on Thursday, November 29th, at 3.30 p.m. Business: (1) Minutes of the last ordinary Council Meeting; (2) correspondence; (3) election of members; (4) consideration of the question of joint representation with the Shropshire Branch on the Central Council.—The first General Meeting of the Session will be held at the North Stafford Hotel, Stoke-upon-Trent, on Thursday, November 29th, 1906. The President, Chas. Reid, Esq., will take the chair at 4 p.m. Business: (1) Minutes of the last General Meeting; (2) Correspondence; (3) Exhibition of living cases: (4) Paper: Primary Tuberculosis of the Cervix Uteri, Eric E. Young: (5) Paper: Cases Illustrative of Renal Surgery, W. Hind; (6) Exhibition of pathological specimens, etc. Dinner, 6.30 p.m., charge 5s.—G. PETGRAVE JOHNSON, Honorary General Secretary.

GENERAL MEDICAL COUNCIL ELECTION.

NORTH OF ENGLAND BRANCH.

On the afternoon of November 14th a meeting, under the auspices of the North of England Branch of the British Medical Association, was held in the Durham University College of Medicine, Newcastle-upon-Tyne, to hear addresses by various candidates for election as Direct Representatives on the General Medical Council. Dr. Thomas Beattie, Chairman of the Branch, presided, and there was a moderately good attendance.

The Chairman said he would first call upon the present Representatives upon the General Medical Council in order of seniority, and, after that, candidates in alphabetical order; but Mr. Morison had kindly consented to wait till the last in order to give those who had come long distances an opportunity of speaking before him. Several of those who were candidates had expressed their inability to be present.

Mr. George Brown (Cornwall) said that though it was a far cry from Cornwall to Northumberland, he felt he owed so much to his friends in Newcastle and neighbourhood in the past, who by their kind suffrages and exertions had twice placed him in the proud position of being their Representative on the Council, that it would ill become him not to make an effort to be present and give an account of his stewardship, and to state his views with regard to the present election and the future, as far as he could see it, of medical politics. He represented the general practitioner, and he felt it to be most important that general practitioners should be represented by general practitioners. He could not shut his eyes to the fact that some of their most ardent supporters of the principle that the Direct Representatives should themselves be general practitioners were now urging the electors to vote for consultants. He spoke now in the presence of a consultant who was a candidate, a worthy man, whose aims and views were of the very best, and yet he said of him, as he said of his late colleague Sir Victor Horsley, "able as he is, understanding what you want as he does, he is not the very best man to send to the Council. Why? Because he cannot speak as one of yourselves." During the speaker's ten years on the Council he had been handicapped—had had one hand tied to his side—because the colleague they sent with him was a consultant. He could not but regret that Mr. Morison had not followed the example of Mr. Andrew Clark, lately Chairman of Council of the British Medical Association and a very eminent surgeon, and retired, so as to give the contest over to general practitioners. Of course, should Mr. Morison be elected as his colleague, he would cordially welcome and congratulate him. At the same time, it was admitted that the consultants, corporations, and colleges were over-represented at the Council. Much as Mr. Morison might serve them, they could not shut their eyes to the fact that he was connected with the college, and must sit at the side of their excellent friend, Sir George Hare Philipson. At crucial points of education, curriculum, matters relating to practice, specially in regard to club and colliery contracts—all matters in which general practitioners were interested, and in which the college representatives did not back them up—he could not but feel that at times Mr. Morison might vote with Sir George Philipson, who very often was not in the same lobby with their representatives. That was a factor in the situation. The late Sir Andrew Clark, when direct representation was granted in 1886, said:[1]

> "And now that the interests of "consultants" and of teachers, of corporations and of universities, of the Crown and of the people are already more than adequately represented in the General Medical Council; now that the right of direct representation therein has been conceded to the repeatedly renewed claims of the general practitioners, it seems both natural and proper that they should themselves exercise the suffrage in their own behalf; that they should elect as their representatives genuine working members of their own body, men who, commanding the confidence of their brethren, are familiar with the history of their struggles for medical reform, who understand in education and politics the points which have yet to be won, who are zealous in adding to the value of the services which we render to society and State, and who, in spite of every kind of opposition, will remain loyal to the highest interests of the profession. If this principle of election is disregarded, and if all the Representatives are chosen from outside the body of general practitioners, it will seem, at least to me, that the fight has been fought and the battle won, in vain.

[1] British Medical Journal, September 25th, 1886.

It was in accordance with these principles that he came to fight their battles, and associated with him were Mr. George Jackson and his old friend Mr. Joseph Smith, who had fought the battles of the members of the Royal College of Surgeons for twenty years, and he (the speaker) said, if they could send a solid body of general practitioners as Direct Representatives that would add greatly to their force on the Council, because one of the planks in their platform was to ask for increased direct representation. Parliament, when the Bill was passed twenty years ago, granted three direct representatives for England, one for Scotland and one for Ireland, but added a clause providing that should it at any time be thought by the General Medical Council that the time had arrived when an increase should be made, on account of the increase of members, for instance—and there were now a third as many more as there were when that Act was passed—application might be made to the Privy Council for an extra member for England, Scotland, and Ireland, making three more. At present the general practitioners were in a miserable minority of three, four, or five to thirty-four. It was a hopeless position. It was the duty of every member of the profession to use his three votes, and he brought forward the motion for increased direct representation last May, but only six men voted for it, while eight had voted in its favour some eight or nine years ago. The only reason he could get from his colleagues was that general practitioners could not care about direct representation, since not half of them voted. When he was first elected to the General Medical Council he was told by other members that it was no business whatever of the Council to interfere with the club or contract work. But after general practitioners were really represented on the General Medical Council, a resolution that it should be regarded as infamous conduct, in the professional respect, to employ unqualified assistants to work branch practices, and also to be associated with clubs which canvassed for patients, was passed. That resolution had far-reaching consequences, and as a matter of fact if it were properly worked it would make medical men connected with clubs and contract work masters of the situation. In the first place they must set their faces against all club and contract work, except for those who were deserving of being treated at a less rate than the ordinary public could afford to pay. The principle he should look to see adopted for contract work was that a colliery, or any other institution employing a large number of workmen, should have a sick and medical fund, and that they should pay their doctors ordinary fees for attending members.

Mr. George Jackson (Plymouth), also one of the present Representatives, said that when five years previously he had had the honour of addressing them, the main question at that time before the profession was the Midwives Bill, but that was now ancient history. He trusted that by-and-by the old illiterate midwives would be eliminated, and that those who remained would do better work, and know better when to call in medical men. In any future legislation the payment of medical men called in by midwives should be dealt with. The best plan would be, as the midwives were under the control of the sanitary authorities, that that authority should pay the medical man, the sanitary authority of course being recouped when it was possible from the patient. The fees also should be fixed. This reform could only be carried out by another short Act of Parliament, and in that matter of course the General Medical Council would have to move. The powers of the General Medical Council were extremely limited. It was, however, an advisory committee, because the Privy Council submitted any alterations of the regulations and orders to the General Medical Council for their observation and comment, and he remembered that when the case of the Midwives Bill was submitted, the Council considered it extremely desirable that there should be some arrangement by which medical men should not be left at the mercy of the world, so to say, as to whether they should be paid or not. Mr. Jackson then referred to the

teaching of midwifery to medical students. In May, 1905, Sir John Williams, one of the Crown Representatives on the General Medical Council, moved for a Committee, which was appointed, and on which he (the speaker) had the honour to serve. That Committee sent out numerous inquiries with regard to the manner in which midwifery was taught in the various medical schools. Replies were received from thirty-two institutions, and were not satisfactory. Mr. Jackson read out the recommendations of the Committee forwarded to all licensing bodies, which, he thought, was really good work done by the Council. Education was a very important part of the Council's work, and recently the preliminary examination had occupied its attention. The standard preliminary examination should be very much raised. It should not be less than the standard of matriculation at London University. If the subjects of biology, chemistry, and physics were taken before registration as a medical student, that would relieve the student, and allow more time for work at practical subjects. The age of registration as a student should be raised, at any rate, to 17, so that if a boy left school at 16 and matriculated, he could then have a year at technical schools to study these subjects, and, having passed that preliminary examination, he could then go on for his purely medical subjects. The General Medical Council had not decided to raise the age, partly because it was found in 1903 that, of 1,422 students entered, only 75 had not reached the age of 17, but it would be better to make it a definite regulation. As the Council would not accede to any addition to the number of Direct Representatives, the only way it was possible to obtain it was by an additional Act of Parliament. The proposal would be opposed by the corporations and universities, because if the Direct Representatives were largely increased, the representation of the corporations and universities must be reduced. At present the Council had thirty-four members, of whom twenty-four represented bodies granting diplomas or degrees. Dr. MacAlister, in his recent address, pointed out that only fourteen of those bodies were obliged to appoint medical men, although as a matter of fact all did so. With regard to the reform of the Medical Acts, medical men should back up the British Medical Association, which had been pegging at it for years, but it wanted more backing. Every medical man should influence members of Parliament. The Acts should be amended so as to give the Council power to prevent quackery—a clause, such as lawyers had, to the effect that unqualified persons must not make any colourable pretence of belonging to the profession. He was glad to say the fifth point to which he referred in his address five years ago, that the Medical Council should make a definite pronouncement as to canvassing and advertising, had been carried through. In conclusion, he emphasized the opinion that general practitioners should be represented by general practitioners.

Dr. Langley Browne (West Bromwich), Chairman of the Council of the British Medical Association, said he took it that at election times they really did consider their condition, and asked themselves the question, Is it well with the medical profession or is it not? He did not think any one could say that it was well owing to contract work, unqualified practice, and to overcrowding in the profession itself. If it was not well with them, what could they do to make it better? There was (1) what they could do for themselves, (2) what other people could do for them. So far as what they might do for themselves was concerned, they wanted unity. He believed if the members of the profession could and would stick together, they could absolutely lay down their own terms. When he heard of large friendly societies having their annual meetings, and showing the best side of their balance-sheets and the wretched pay they gave to their club doctors, it seemed to him a great shame; because the medical profession had only to get together and say they would not attend under, say, a minimum of 5s., and they could absolutely ensure it. The general practitioners must be backed up by the consultants, and he believed that they would be now. It was not only the general practitioners who were interested in these questions. No man had done better work for the general good of the profession than Sir Victor Horsley; therefore, he could not say that they ought not to vote for a consultant; he was a general practitioner himself, but he recognized that in the North the general practitioner had really laid down the law on this question, and had had grand help from the consultants. The second reason why the profession was not so good as it ought to be was the question of unqualified practice. When any chemist in the land could supply any medicine he liked, when chemists did such an enormous amount of prescribing and when quack medicines were supplied he thought legislation was immediately necessary. If they could once win the General Medical Council over to go with them in demanding a new Medical Act extending the Council's own powers it would be obtained before long. He was in favour of State examinations and an annual registration fee of one guinea. This would yield an income of £37,000 a year, and would be of great interest to the Government and of great advantage to the profession. He hoped the General Medical Council might be induced to support these proposals. Why the Council should oppose increased representation of the general body of practitioners on the Council he could not understand, unless it were on that of pure conservatism. Wales, he thought, should have a representative of its own, not because of numbers, but because Wales was Wales and because of its own history. England, with its teeming population and the large number of doctors, ought to have more representation. Then he thought that if the General Medical Council sought for an increase in its own powers it would very likely be successful. It might, for instance, take powers to arbitrate in all disputes and would have the means of enforcing a settlement. In one matter the Council had, however, to act, but seldom did act, namely, the fraudulent sale of practices. How many men found out that they had bought a practice which was not what it had been represented to be! Surely that was a case in which the General Medical Council could interfere. In a case recently brought before it the General Medical Council had told the complainant: "No; we cannot hear you. You have the general law." He took it to law, and got £750. Then he went back to the General Medical Council and they said: "Yes, but there is not sufficient evidence." With regard to the mode of election of Direct Representatives, it had been proposed that England and Wales should be divided into districts, so that a Representative might be returned for the North and another for the South, and so on. The electors in the North ought to support that principle whoever they decided to vote for. The North, with its thousands of medical men, was entitled to representation, and so was the Midlands. The action of the North would have a great deal of influence in the coming election, and in Mr. Morison they had a candidate who, though a consultant, had rendered great services, not only to the North, but to the whole profession. It had been shown to the miners and other bodies that when the profession could stick together it could get fair play.

Mr. Rutherford Morison (Newcastle-on-Tyne) said that he had to thank Mr. Brown for the kind way in which he had mentioned him personally; but Mr. Brown's reference to the battle that had been fought with the College of Surgeons was an unfortunate one both for himself and his friend Mr. Joseph Smith. Mr. Brown said the battle had been going on for twenty years, yet they knew that matters were no different from what they were then. By the battle they had won nothing. He believed this battle could have been settled long ago. The General Medical Council had of late years been of very great assistance to the general body of the profession. The edict against canvassing and advertising had helped the men who were fighting against contract work and friendly societies more than anything else that had been done. In Northumberland they had experienced considerable benefit from it—they had frightened two or three gentlemen away by sending them the edict, and telling them there was distinct evidence of canvassing and advertising; but the edict should be made more elastic. Not long ago one of the blacklegs in the North was fined at the police-court for being drunk and incapable in charge of a horse and trap, but he was told that the General Medical Council could take no action, because the accused had not been imprisoned. Surely if the General Medical Council had been in earnest in a matter it could have taken action. If the man was not fit to be in charge of a horse and cart it could not be difficult to prove that he was not fit to be in charge of patients. One of the chief functions of the General Medical Council was to safeguard the public, and so it

seemed to him the General Medical Council must be taking an easier view of its position than was justifiable. In another instance the miners sent away their doctor having decided that they would not pay ninepence a fortnight. They advertised for a fresh man and one day he was found asleep in a train at the station—so sound asleep that he had to be carried into the waiting room. When he had slept three or four hours he wakened up sufficiently to be able to say that he was the doctor who had come to the Miners' Association. He lay for a week in a lodging with a whisky bottle. The Medical Council could do nothing with the case yet. If the Medical Council could not take action in that case, the sooner the Medical Act was amended the better for the Council and for the public. The Medical Council could only be moved by the profession becoming united. Things were now on a business line and all they had to do was to unite, formulate their demands, and bring them up reasonably. Then there would be no fight. The public would grant their demands without a fight as soon as they showed the public that it was to the latter's advantage. The meeting knew all about the Northumberland and Durham Union. They did good work as the Northumberland Committee, but they all felt that if they could make satisfactory terms with the British Medical Association and join that body it would strengthen their position very materially, and he believed it had. He believed the Association was the instrument to their hands for doing what they wished to do. It was impossible to say that it was a perfect instrument. But it was the best they had, and he rather regretted that the whole of the profession had not been loyal to it in this matter. It was on the British Medical Association eventually that they would have to rely. Only by it could they get at the Government and at the General Medical Council. There were grave abuses as well to be corrected in connexion with contract work. But he would not waste time upon that, because the subject had been so fully put before the meeting. There was another question which would come up immediately for serious discussion and that was hospital abuse. It had been taken up, to some extent, by the Hospitals Committee, but he thought the profession in the North must combine and fight out the battle locally for themselves and then tell the British Medical Association and the General Medical Council how they could help and what was wanted. The first opening had been made for the discussion of the question of hospital abuse by no less distinguished persons than the Bishop of Newcastle and Sir Riley Lord, Chairman of the Subscriptions Committee of the Royal Infirmary. The Bishop said he had heard numerous complaints of grave abuses in the hospitals, and that if these abuses went on the charitable public would withdraw their subscriptions. Sir Riley Lord stated at a meeting of the Infirmary Committee that he had been met by the objection, when he asked for subscriptions, that so much abuse existed. Persons asked to subscribe had replied that they were not going to give money to keep people who were just as well able to keep themselves as they were who were asked to subscribe. The Bishop was attacking the abuse and Sir Riley Lord was attacking it; but it would not have mattered to those gentlemen if a member of the medical profession had told them, "I am £100 out of pocket," or if all the doctors had said that the Infirmary Committee were robbing them of £2,000 or £5,000 a year. They would have replied: "We are very sorry, but we cannot help it." But when it had come to people objecting to give subscriptions because they found other people taking advantage of them, it was quite a different thing. They had an opening. He had suggested to Sir Riley Lord that he should refer the matter for consideration to the North of England Branch of the British Medical Association, and Sir Riley hoped he would be able to give it effect so far as the Subscriptions Committee was concerned. If so, the Branch would have an opening to make some recommendations. These recommendations were exceedingly clear. The result of the Leigh Hospital dispute was a magnificent example of organization. At Leigh, some such people founded a hospital, and said they would have a big out-patient department, and carry on everything just as they liked. But the doctors said: "You shall have nothing of the sort; you shall have a hospital, but no out-patient department excepting for urgencies and accidents. The out-patient department shall be for those, and possibly for consultations." Of course, the people who had the money went on their way and built a hospital; but the doctors prevented their getting an out-patient department, and they had to come to terms. That was the first thing that must be demanded: that no patient should be admitted to an infirmary unless he was sent from his medical adviser, not altogether in the interest of medical men, but to stop the abuse. Who so likely to know the circumstances of a case or whether the illness would be long and expensive or even permanent as the doctor? It would be greatly to the advantage of the hospital and the patients that that rule should be made—that nobody but persons sent by their own doctor should be admitted as in-patients excepting in the case of urgency or emergency. That was the first point. The second point was that they could not separate themselves from the consultant. The consultant and the general practitioner were mutually dependent upon each other. It was absolutely essential that they should work together if anything at all was to be achieved. Another point he wanted to make was this: a hundred years ago hospital appointments were invaluable assets. He had read the life of Sir Astley Cooper recently and had found that in his (Sir Astley's) hospital there were five pupils. They each paid him from £1,000 to £2,000 to take them as his pupils, and when he was done with the hospital appointment he had the right to nominate one of these gentlemen to be a surgeon. There was an uproar against that, and rightly. But what had come about? Lay committees of the hospital had the right to appoint a member of the medical profession to their staff against the wishes of the whole of the staff. They could do it and they did it and would go on increasingly doing it. The medical profession had, by its supineness, given into the hands of the lay committees the greatest professional prizes that existed, for the profession had let the appointments slide into the hands of the lay committees. He did not say there had been any great abuse as yet, but the position was one capable of the gravest abuse. Then these lay committees were the doctors' masters, and were able to say, "You will have to do so and so." That was not right, and it was not to the advantage of the public that it should be so. It was to the advantage of the public that the best men should receive those appointments. It was a degrading thing—it was a lowering of the position of the profession—to have to go grovelling round asking for votes. He had often heard of gentlemen standing champagne suppers and cigars to working-men governors to get votes. He said nothing against working-men governors. They were excellent men, and had done good work, but they were getting more and more power into their hands; and, as a matter of fact, could appoint hospital staffs, which was not right. In the matter of appointments the committees ought, to some extent at any rate, to be guided by the medical profession, first, locally; secondly, by the whole of the British Medical Association; and thirdly, probably by the General Medical Council, because the men in the hospital staffs were the people who educated. And what other body in the world would have a teacher without having some say as to who that teacher should be? Therefore he said the sooner the matter of hospital appointments was taken up by the medical profession the better. He asked them for their votes, not because he was a consultant but because he had been in general practice thirteen years and had done a great deal of contract work. He had had large clubs, and he knew the bitternesses, the disagreeablenesses of them. He had also had very considerable experience in discussing all problems connected with contract work. He had been President of the Northumberland and Durham Medical Association, and was still President of the Northumberland Committee which had taken its place. He was therefore constantly in touch with those things. He claimed that they ought to have a representative from the North of England.

The Chairman said he had received only one paper containing a question. It was from Dr. Todd, who asked, Do Mr. Jackson and Mr. Brown think it was equitable representation that the south-west corner of England should have two representatives while we in the North have none?

Mr. George Brown replied that perhaps the easiest way

to answer the question would be to ask another. Was it fair that England north of the Thames should have eight Representatives on the General Medical Council, while England south of the Thames (including the south-west corner) had only two? He thought it most unfair that the Direct Representatives should be drawn from the whole of England. There was a great mistake in the Act. It was an oversight on the part of those, including himself, who had had to do with drafting that Bill that they did not take powers to cut England up, and give a Representative to each division. He would strongly support the proposal that North, South, West, and gallant little Wales should each have a Representative. But their interests were well looked after by Sir George Hare Philipson in Newcastle and the numerous Representatives that they had in Leeds, Manchester, and other places in the North. The fact of his residence in the south-west of England was an accident. He was obliged four years ago to leave London on account of bronchitis and asthmatical attacks. Yet he spent more of his time in London now than he did in Cornwall. He was to be seen in London from Tuesday to Friday at any time.

Mr. Jackson said, when appointed, he was the only Representative in the South. It would be far better if the country were cut up into divisions.

Dr. Cox moved a hearty vote of thanks to the candidates for having come there at a considerable amount of expense in order to place their views before the meeting. It was not proposed to ask the meeting for any resolution as to the capabilities of the candidates. But they did not conceal for one moment that they owed a deep debt to Mr. Morison. They could not overlook his claims, and they hoped it would go forth to other parts of the country that the fact of Mr. Morison being a consultant was not in their eyes against him.

Dr. Wear seconded the resolution, which was carried with acclamation.

A vote of thanks to the Chairman concluded the proceedings.

CANDIDATURE OF DR. F. J. SMITH.

Dr. Fred. J. Smith (Harley Street, W.) writes: So long as the scheme of the British Medical Association for the election of Direct Representatives to the General Medical Council held the field, I felt that I had better hold my peace; but now that has been withdrawn, and a large number of metropolitan practitioners have done me the honour to nominate me for election to the General Medical Council, I feel that I am naturally called upon to state my views on some of the burning questions of the election. First, I may pledge myself, if elected, to do all in my power by voice and vote to help the General Medical Council to uphold or even to raise the present standards of general education for the profession, which, I think, have two excellent tendencies: first, to prevent undesirable crowding of the profession; and, secondly, to ensure that those who do enter its portals are well-educated gentlemen. Secondly, I pledge myself to support the General Medical Council in any steps it may think it right to take to endeavour to curb the hydra-headed monster of quackery now rampant in the land, and which to me seems equally potent with hospital abuse in tending to produce deterioration in private practice. I am not sure that it is not in even a greater degree responsible for the "hard times" of the profession. Thirdly, I pledge myself, so far as may fairly be done, to see that in any matters brought before the Council the interests of general practitioners shall receive fair and generous consideration. I may claim to have a good working knowledge of what these special interests are in a broad general sense, for I have for just twenty years been in almost daily contact with members of that class and listened with sympathy to their grievances. On the other hand, I will state fearlessly that I am not in favour of trying to urge upon the General Medical Council any ill-considered scheme of democratic legislation which may present a superficial appearance of satisfying the dissatisfied, but which upon closer scrutiny is found to contain clauses ultimately damaging to the honour of the profession to which I am proud to belong. Beyond these general statements I do not feel at liberty to pledge myself, but in conclusion I would like very emphatically to state that I have no private object to gain by election, and, were it not for the honour done me in my nomination, I would not have dreamt of standing as a candidate.

THE CANDIDATURE OF DR. McMANUS.

Sir,—We are desired to thank the supporters of Dr. Leonard Strong McManus for the energetic canvass that they have undertaken on his behalf, and to inform them through the medium of your paper that he has to-day sent in to the Registrar of the General Medical Council some fifteen nomination forms received by himself and filled in on his behalf in all parts of England and Wales.

The Committee hope that his supporters will not relax their efforts, but will continue to interview doctors right up to the end, that is, December 4th. They appreciate the kindly and valuable support given to Dr. McManus by the committees formed to further the interests of other candidates, and regret that the seats put at the disposal of the profession are at present so inadequate for their due representation. Otherwise they would be glad to see all those nominated by these committees returned to serve for the next five years. They are all good reliable men.

As it is, they would ask the electors to remember that there seems to be at present a sufficient number of trustworthy representatives of the consultants, such as Professor Saundby, on the Council; and therefore to consider, seeing only three can now be returned, and a selection has to be made, whether these should not be men who are at the present time general practitioners.

If this is reasonable, they would ask all to vote for

Browne, H. W. Langley,
Latimer, H. A. (the Welsh candidate),
McManus, L. S.

All of whom have at heart the interests of the profession, are strenuously working to make the British Medical Association of use to the profession, and are strongly supported in every district where they are known.

This combination acknowledges the principle of territorial representation so far as three candidates can be expected to.—We are, etc.,

E. Rowland Fothergill,
Chas. J. Martin,
Honorary Secretaries to Dr. McManus's Election Committee.

111, Northcote Road, S.W., Nov. 19th.

P.S.—We are desired to point out that although the letter in your last issue from the Committee of Dr. Langley Browne correctly states the names of *his* supporters, it should not be taken as in any way an expression of their individual opinions as to the three candidates they favour. Several are strongly opposed to Mr. Rutherford Morison as explained above, and favour, under those circumstances, Dr. H. A. Latimer.

We have received a communication, dated November 17th, 1906, of which the relevant portion is as follows:

With your permission, we would desire to let the profession know we also are heartily in sympathy with the candidature of Dr. McManus, and are willing, as requested in a largely signed letter in your issue of the 10th instant, to allow our names to appear among his supporters.

We are pleased to see the lengthy list of supporters in the Midlands, North, and Wales, who are also helping him; and feel sure, if we all do everything possible during these last few days, we shall return him at the top of the poll.

The following is a list of those who have signed the cards issued:

Drs. Armour, Harley Street; Aarons, Stratford Place; Buxton, Mortimer Street; Blumfield, Cavendish Square; Berkeley, Wimpole Street; Barton, Westbourne Park Road; Bruce, Courtfield Road; Bennett, Hammersmith; Bromet, Redhill; Brown, Old Kent Road; Bonney, Elm Park Gardens; Benson, Market Deeping; A. G. Bateman, Queen Anne Street; Bostock, Horsham; Bloxsome, Fairford; Bentlif, Jersey; Berry, Wigan; Balderston, Forest Hill; Badcock, Harley Street; Beddard, Seymour Street; Bishopp, Tunbridge Wells; Bishop, Manchester; Bird, Queen Anne Street; Buckell, Canonbury Square; Bell, Clapham; Butler, Penge; Barber, Derby; Buchanan, Liss; Corner, Harley Street; Creasy, New Cavendish Street; Coombs, Bedford; Carter, Bedford; McK. Clark, Dorking; Crampton, Myddleton Square; Curd, Bath; Carpmael, Herne Hill; Colenso, Emperor's Gate, S.W.; Cuthbert, Gloucester; Cameron, London; Craig, Bethlem Hospital; Dow, Edgware Road;

Donelan, Manchester Square; Daggett, Boroughbridge; Duffett, Sidcup; Dally, Hove; English, St. Margaret's; Eason, Guy's; Ellerton, Leamington; Emin, Southampton; Elder, Nottingham; Edge, Wolverhampton; Eyre, Guy's; Farrer, Westbourne Park Road; Fallwasser, Maidstone; Fogarty, Harringay; Fleetwood, Liverpool; Fremantle, Chester Street; Galloway, Harley Street; Goodman, Kingston; Gay, Putney; Gyton, Battersea; Gostling, Worthing; Griffiths, Pwllheli; Hawthorn, Harley Street; Hotop, Brunswick Square; Hodgson, Peckham Rye; Hogan, Clapham; Howard, Clapham; Hickley, Lambeth; Hubbersty, Sunderland; Habgood, Eastbourne; Hughes, Stockton; Holt, Upton Park; Hardley, Wimpole Street; Hope, Market Drayton; Jones, Hampstead; Furneaux Jordan, Birmingham; Jessett, Brook Street; Joseph, Warmington; Leslie, Cadogan Place; Lauchlan, Clapham; Lyle, Newcastle-on-Tyne; Leslie Murray, London; Morrison, Waddesdon; Miller, Stockton; Macdonald, Taunton; Martin, Clapham; Miller, Exeter; Needham, Clapham; Nash, Bedford; Overy, Portland Place; Parry, Hove; Pollard, Queen Anne Street; Parker, Harley Street; Prangley, Anerley; Park, Brockley; Price, Bangor; Rose, Stratford; Reynolds, Stamford Hill; Rand, Surbiton; Richardson, Putney; Ross, Bedford; Richmond, Wimbledon; Rose, Aylesbury; Mayo Robson, Portland Place; Robinson, Bedford; Smurthwaite, Newcastle-on-Tyne; Sleaman, Cambridge Street; Smyth, Battersea; Swanton, Harley Street; Stewart, Harley Street; Silk, Devonshire Street; Smith, Welbeck Street; Sass, Holland Park Avenue; Swan, Wimpole Street; Sichel, Guy's; Swallow, Bourne End; Stanton, Market Deeping; Smith, Ashton-under-Lyme; Sunderland, Cavendish Place; Sinclair, Burnley; Slimon, Cavendish Street; Heywood Smith, Welbeck Street; Stewart, Dulwich; Stiell, Clapham; Stanley Jones, Clapham; Williams, Eastbourne; Williams, Welbeck Street; Whitby, Collington Gardens; Williams, Llanelly; Wynn Westcott, Camden Road; Young, Stamford Hill.

SIR,—During the course of this election, I have, as one of the candidates, been repeatedly asked my opinion on various medico-political topics that are of interest to the profession, and which I do not seem in my address to have fully dealt with. May I ask to be allowed through the medium of your paper to amplify my circular?

I would at once wish to say that the General Medical Council is primarily formed to safeguard the public, but by using the money subscribed by the profession. This anomaly requires correcting.

In my opinion, I consider that if the General Medical Council will extend its dictum in other directions, as it has already done in the case of covering, advertising, and touting, we shall find that by protecting the public they are really helping the profession. The interests of the two are identical. I shall, therefore, constantly keep this in view in pressing on them, if elected, the extension of the use of those powers already possessed by them.

With regard to the preliminary education and subsequent medical examination of medical students, I am strongly in favour of one standard, and that a high one. In this way we can hope for *esprit de corps* being a natural instinct among the future profession.

The ethical education of students can be organized by associations or medical societies, but if there is an opportunity to get the General Medical Council to consider it, I shall heartily support it.

If the General Medical Council can be brought to see that by cutting of fees the health of the community is being risked, and therefore a dictum has become desirable, I shall be only too glad to help in the matter.

This also applies to quacks, medical and dental companies formed to evade the law, manufacturers and sellers of proprietary drugs, and counter prescribing by chemists.

The medical profession requires increased direct representation on the General Medical Council. If all will bestir themselves at this election and fill in their voting papers, then the accusation made by the Council of apathy with regard to this matter will be no longer true.

I shall, if elected, be only too glad to receive petitions by the hundred in favour of this last point, and will see they are duly attended to.—I am, etc.,

LEONARD STRONG MCMANUS.

23, Spencer Park, Wandsworth Common, Nov. 19th.

DR. LATIMER'S CANDIDATURE.

DR. FRANK G. THOMAS (63, Walter Road, Swansea), Honorary Secretary, South Wales and Monmouthshire Branch, and Joint Honorary Secretary of Dr. Latimer's Committee, writes: In writing this letter I wish to state that, although my name figures in the list of Dr. Langley Browne's Committee published in last week's issue, my vote and interest go in favour of Dr. Latimer, Dr. Langley Browne, and Dr. L. S. McManus. On behalf, too, of Dr. Latimer's Committee in Swansea, I think it only fair to point out that his candidature is being run in connexion with that of Dr. McManus. The Committee desires to have the opportunity of doing this, as the letters appearing in the last SUPPLEMENT emanating from the Committees of Dr. Langley Browne and Mr. Rutherford Morison show that they have adopted a joint candidature with Dr. McManus. Dr. Latimer is assured of a widespread support, and, knowing him well, his Committee feels that he is capable of voicing the wishes and wants of the general practitioners of medicine. We earnestly hope that he will be among the successful three returned. May I, as an old Guy's man, appeal to all old Guyites particularly, in support of Dr. Latimer, who is one of the old school?

DR. J. MILSON RHODES'S CANDIDATURE.

AT a meeting of the Manchester (South) Division held this afternoon (Tuesday, the 20th inst.) the following resolution was adopted:

> That this meeting of the South Manchester Division of the British Medical Association considers Dr. J. Milson Rhodes, J.P., well qualified to act as one of the Direct Representatives of the profession on the General Medical Council, and trusts that practitioners will do all in their power to secure his election.

This Division wishes to bring before the general practitioners the peculiar fitness of Dr. J. Milson Rhodes for the Council on account of the following qualifications:

Dr. Rhodes has a thorough knowledge of the difficulties with which the general practitioner has to contend from thirty years' experience of general practice, and last year he was Chairman of our Division. His long and wide experience in legislative and administrative work, especially in the promotion of, and opposition to, Bills in Parliament, fully qualify him for a seat in the Council, which should, and will, have not only to do with administrative but also the promotion of legislation.

Dr. Rhodes was one of those who opposed the establishment of the provident dispensaries twenty years ago, and he is of opinion that many of the hospitals and dispensaries are made use of by a class that has no claim to receive gratuitous medical relief.

Dr. Rhodes's quarter of a century's experience as County Alderman and Chairman of Central Poor-Law Committee of England and Wales has been of great service to the profession, as he has been frequently called by Royal Commissions and Parliamentary and Departmental Committees to give evidence, and has so been able to put the professional point of view before them. In the opinion of the Division it is very important that the profession should have at least one Representative on the Council who is well acquainted with the Government offices in London.

MR. RUTHERFORD MORISON'S CANDIDATURE.

SIR,—By this time the practitioners who take any interest in this election must be pretty well posted up in the merits of the respective candidates. We do not propose, therefore, to do more in this last word on Mr. Morison's behalf, than to answer the only objection, if indeed it can be dignified by that name, to his candidature. He is accused in some quarters of being a consultant, and he must plead guilty. To alter slightly the words used in the story you recently quoted of Poole, the tailor, "We cannot *all* be general practitioners." To the general practitioners of the North who know Mr. Morison best and have deliberately chosen him on this as on many other occasions to represent them, the fact of his being a consultant with his record of 15 years as a general practitioner, and his work for the latter class since he became a consultant, seems to give him a peculiar claim on the support of the profession, as he is thus enabled to look at all medical questions from both sides. We are fully assured that his sympathies are with the general body of the profession, and, after the record of Sir Victor Horsley, we are not to be made ashamed of our candidate because he does not now happen to be a general practitioner.

We would earnestly appeal to the profession to distribute their votes, other things being equal, on the grounds of geographical representation. The medical men of this

part of the country have pretty generally made up their minds to vote for Messrs. Morison, Langley Browne, and McManus, on the grounds that these gentlemen are thoroughly good candidates, and represent broadly the North, Midlands, and South. We appeal finally for such a vote, however distributed, as will once for all put an end to the cry that medical men take no interest in their own business.

We are, yours faithfully,
E. Jepson,
Chairman.
Alfred Cox,
J. H. Hunter.
Honorary Secretaries to Mr. Morison's Committee.

P.S.—We have too much respect for your space to ask you to publish the names of all the gentlemen who have intimated their intention to support Mr. Morison. To do so would be to print the names of nearly every practitioner in Northumberland and Durham, and a large number elsewhere. We may, however, say that Mr. Morison's candidature is endorsed by Sir Victor Horsley, Drs. J. Macdonald (Taunton), Kirby (Birmingham), Cave (Bath), Crawshaw (Ashton-under-Lyne), Housman (Stockport), Wear (Leeds), Daniel (Barrow), Barnes (Carlisle), North of England Branch B.M.A., Yorkshire Branch, Scarborough Division, Marylebone Division, etc.

CANDIDATURE OF MESSRS. BROWN, JACKSON AND SMITH.

Sir,—The keynote of this election ought to be "increased direct representation of the profession." In order to secure this, every man should in the first place take the trouble *to vote*, as it is just because half of our members do not do this that further representation cannot be obtained. In the second place, every man should vote for those candidates who are most likely to obtain for us this fundamental reform. Without any disparagement of the other excellent candidates before the profession, we submit that our *old* and *tried Representatives*, Messrs. Brown and Jackson, have worked harder than any to obtain increased representation, and, if re-elected, will continue to do so; they have also an intimate knowledge of the difficulties that beset practice, especially in club and contract work.

Dr. Joseph Smith has had lifelong experience in all kinds of practice, and has been an untiring advocate of corporate reform in the Royal College of Surgeons. All three are also members of the British Medical Association. —We are, etc.,

W. G. Dickinson,
Chairman.
Jno. Pollock Simpson,
Honorary Secretary.

Committee: Preliminary List.

G. Abbott, Southport; St. Armand Agate, London, W.C.; Robert Ambrose, M.P., Brondesbury, N.W.; A. P. S. Allan, South Croydon; A. Atkinson, Smethwick; A. Alexander, Highgate Road, N.W.; W. P. Ashe, London, S.W.; H. M. Adcock, Market Harboro'; T. N. Brushfield, Devon; O. Wakelin Barratt, Birmingham; A. E. Barrett, London, W.; H. E. Barrett, London, W.; R. T. Banning, Shoeburyness; James Bartlett; W. T. Blyth, East Ham; H. Brown, Sheffield; Sir Chas. Gage, London, S.W.; John Brown, Bacup; J. Percival Brown, Bacup; G. Burrows Burrows, Bacup; P. Ballard, Kent; J. G. Boyce, Gloucester; A. Benson, London, W.; H. Bennett, London, N.; H. J. Butler, Fulham, S.W.; William Henry J. Bathurst, Walthamstow; J. P. Beddoes, London, W.; W. A. Blackstone, London, N.W.; E. H. Bowen, Cardiff; J. Leslie Callaghan, Coventry; Wm. Campbell, Camberwell, S.E.; G. Chapman, Rougeby; H. P. Chandler, Portsmouth; T. Cox, Reading; W. G. C. Coulthard, Cumberland; J. Caldwell, Barnsley; S. A. Clarke, Surrey; N. P. Cadell, Surrey; F. W. E. Courtenay, Eccles; A. J. Carter, London, S.W.; J. S. Crabbe, Birmingham; M. Cutliffe, Devon; E. T. Collins, Cardiff; A. B. Chambers, Long Eaton; A. Cosgrove, Bolton-le-Moors; T. Stretch Dowse, Exmouth; Gerald Dalton, London, W.C.; F. M. D. Davidson, London, S.W.; J. Darbyshire, Birkenhead; J. H. Davies, Liverpool; J. Davies, Liverpool; C. E. Dawson, Leeds; J. Dunlop, North Liverpool; U. H. Dutt, Cambridge; R. S. Dickson, Wood Green, N.; A. S. Dawson, Homerton, N.E.; T. A. Dukes, Croydon; T. J. Evans, London, S.E.; T. J. Carey Evans, N. Wales; R. D. Evans, N. Wales; Arthur D. Evans, Camberwell, S.E.; R. L. Elliot, Devon; W. J. McCulloch Ettles, Minories, E.; J. Farebrother, Sheffield; T. H. Fox, Batley; D. A. Faris, Darlington; E. W. Farmer, London, S.E.; N. Farndon, Reading; Archer Farr, Putney, S.W.; C. Forsyth, Sutherd; C. Fenwick, Exeter; W. M. Gabriel, London, E.C.; T. Gurney, London, E.C.; J. Glover, Salop; G. G. Gidley, Devon; A. Graham, Southampton; M. R. Gooding, Devon; E. T. Gregory, Kensington; H. E. Giffard, Egham; G. A. Gunton, London, S.W.; A. Gittings, Hammersmith; A. Greenwood, London, N.E.; A. Gray, Bradford; A. S. Green, Leeds; E. J. W. Hicks, Shelton; W. A. Hewitson, Castle Eden; G. Hessenaur, London, N.; W. M. Hamilton, Eccles; M. K. Hargreaves, London, W.C.; C. A. Hill, Liverpool; A. J. Hubbard, Ealing, W.; A. P. Hills, London, S.W.; C. E. M. Hey, London, E.C.; E. L. Hughes, Liverpool; T. S. Hardwick, Kent; C. N. Iliffe, Coventry; W. R. Y. Ives, Southampton; H. Woodley Joyce, London, S.W.; D. Arthur Jones, Anglesey; Brindley J. James, Hammersmith; William Jones, Wales; W. Joberns, Wolverhampton; G. S. Jones, Surrey; G. M. Jones, Alton, Hants; B. F. F. Jackson, Brighton; Kirby, Chiswick; A. Kennedy, Southampton; J. O. B. Kough, Wolverhampton; C. M. Kempe, New Shorcham; Godfrey Lowe, Lincoln; John Laird, London, S.W.; J. Langston, Sandown; A. E. Larkin, Folkestone; A. J. Lowe, Boothstown; W. L. Loveday, Wantage; R. R. Llewellyn, Stamford Hill; W. Llewellyn, Stamford Hill; T. N. Leah, Plymouth; T. Leah, Plymouth; F. H. Lowe, London, S.E.; W. B. Gideon Marsh, London, S.W.; D. Mackintosh, East Sheen, S.W.; J. E. Moreton, Chester; S. Glanville Morris, Glam.; Wingfield Meadows, Bromley; T. S. Maguire, Stratford; W. R. Meyer, Sussex; R. Morrison, Derby; J. L. Martin, Chelmsford; F. S. Manisty, Wrexham; T. Marshall, London, N.W.; C. H. Mott, Bursiem; J. W. B. Mason, London, N.W.; H. E. Mortis, Oswestry; A. F. Miller, London, S.W.; W. I. Mason, Suffolk; B. E. Myers, Hampstead; T. H. Moore, Salop; J. T. McMahon, South Lambeth; G. Nesbit, Leeds; H. G. Nicholson, London, N.E.; S. Overton, Coventry; Wm. Price, Cardiff; G. S. Passmore, Norwich; C. W. Pridmore, London, S.E.; T. H. S. Pullin, Sidmouth; H. L. Porteous, Gloucester; James Marr Pringle, Carlisle; L. H. Pegler, London, W.; J. T. T. Ramsey, Blackburn; A. Rivers-Willson, Oxford; S. Ryan, Sheffield; R. P. Robey, Wandsworth; S. H. Robey, Wandsworth; P. B. Stoney, Cumberland; F. V. Shaw, Leicester; R. Steel, Finchley; S. Sugden, near Manchester; J. E. Smith, Northwood; C. G. Scudamore, Croydon; Oswald Smith, Croydon; H. J. Slene, Burnley; T. A. B. Soden, Coventry; F. J. Spranger, Southend; A. H. Sandiland, London, N.; F. Spicer, London, W.; S. E. L. Smith, Birmingham; J. Stuart, Batley; G. Tocher, London, S.W.; J. C. Thorowgood, Sussex; G. Metcalfe Thorpe, Leeds; W. G. Tacey, Bradford; Dennis Vinrace, London, S.W.; A. E. H. Watson, Northumberland; A. H. Watson, Northumberland; H. Whitney, Colchester; F. Wohrnetz, London, W.; D. Walsh, London, W.; G. D. Wilson, London, S.W.; R. Withers, Plymouth; C. F. Williamson, Surrey; W. Whitworth, Cornwall; H. H. Woods, Hants; J. J. Watson, London, N.W.; B. W. Walker, London; R. G. Wooger, Somerset; M. A. Wardle, Bishop Auckland.

Sir,—All registered medical practitioners will shortly be called upon to vote for three Direct Representatives for England and Wales on the General Medical Council. I trust that the profession will not be so apathetic as in former years.

We have in the field three candidates, namely, Messrs. George Brown, George Jackson, and Joseph Smith. They are all general practitioners, the first two the present Representatives on the General Medical Council, men well known and tried. The last one, Joseph Smith, is an ardent and sincere reformer. For over twenty years, in conjunction with George Brown, he has worked hard to reform the Royal College of Surgeons and obtain for the members some voice in the management of that institution. For that reason alone all members of the College should loyally support them. I hope to see the three candidates at the head of the poll.—I am, etc.,

Croydon. C. J. Scudamore.

DR. RENSHAW'S CANDIDATURE.

Sir,—We wish through the medium of your paper to urge the claims of Dr. Charles J. Renshaw to the support of the medical practitioners of England and Wales at the forthcoming election of Direct Representatives on the General Medical Council.

Sir Victor Horsley has supported the suggestion that in the election the territorial claims of the various candidates should be considered. The fairness of this course is generally admitted. We should like, however, to point out that not one of the three candidates whose election he advocates represents the very large group of medical men situated in the north-west of England. Dr. Renshaw has spent his life in general practice in the neighbourhood of Manchester. He is intimately acquainted with all the aspirations and difficulties of general practitioners. His opinions upon those questions of medical politics which are of interest to the profession at the present time were

expressed in his election address which appeared in your paper on October 13th. Since this date Dr. Renshaw has been appointed a member of the Council of the Association of Certifying Factory Surgeons.

We confidently appeal to all general practitioners to support one who will work steadily for the betterment of their position, and especially to those of Lancashire and Cheshire, to vote for a candidate who has always lived amongst them, and who is in the closest possible touch with all the local opinion on current medical politics.

Copies of Dr. Renshaw's election address and all particulars of his candidature, etc., may be obtained from the honorary secretaries.—We are etc.,

C. Adolphe K. Renshaw,
Lindenholme, Sale;

J. A. Knowles Renshaw,
11, St. John Street, Manchester;
Honorary Secretaries, Election Committee.

Committee.

First List.

Samuel Buckley (Chairman); J. Anderson, C.I.E., London; C. S. Ashe, Sale; H. Ashby, Manchester; E. Barclay-Smith, Cambridge; Sir J. Barr (Chairman, L. and C. Branch B.M.A.), Liverpool; A. Boutflower, Salford; R. C. Brown, Preston; R. J. Browne, Northwich; H. C. W. Clarke, Ashton-on-Mersey; W. Coates, C.B., Manchester; P. Cooper, Altrincham; F. J. W. Cox, Hale; G. H. Darwin, Manchester; W. F. Dearden, Manchester; M. Duggan, Altrincham; A. M. Edge, Manchester; S. English, Manchester; T. Fennell, Knutsford; C. E. Glascott, Manchester; A. Godson, Cheadle; A. Hodgkinson, Manchester; F. R. Hutton, Manchester; T. Johnson, Pendleton; O. Jones, Altrincham; G. F. Joynson, Northwich; G. H. Lancashire, Manchester; E. L. Luckman, Altrincham; J. Lyon (Deputy Inspector R.N.), Manchester; Professor Dixon Mann, Manchester; F. C. Mears, South Shields; G. W. Mould, Colwyn Bay; T. Openshaw, C.M.G., London; A. Ransome, F.R.S., Bournemouth; H. S. Renshaw, Sale; W. A. Renshaw, Altrincham; T. B. Rhodes, Baguley; D. Lloyd Roberts, Manchester; C. R. Schofield, Southport; W. Scott, Ashton-on-Mersey; Sir W. Sinclair, Manchester; C. E. Smith, Stretford; G. H. Smith, Knutsford; J. E. Smyth, Broadheath; G. Steell, Manchester; E. E. N. Surridge, Knutsford; W. H. Tattersall, Timperley; G. S. Taylor, Partington; C. W. Thorp, Todmorden; H. Tod, London; Sir J. Tyler, London; F. Vacher, Birkenhead; J. Watson, Manchester; W. Whitehead (ex-President, British Medical Association); O. Withers, Sale; M. A. Wood, Ledbury; F. E. Wynne, Leigh; F. J. H. Coutts, Blackpool; J. Dreschfeld, Manchester; F. A. Southam, Manchester; etc.

DR. LANGLEY BROWNE'S CANDIDATURE.

In the list of members of Dr. Langley Browne's General Committee published in the Supplement of November 17th, p. 266, the name of Dr. Gibson, of Harrogate, was misprinted "Gilson."

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8 295 births and 4,667 deaths were registered during the week ending Saturday last, November 17th. The annual rate of mortality in these towns, which had been 14·6, 14·6, and 14·9 per 1,000 in the three preceding weeks, further rose to 15·4 per 1,000 last week. The rates in the several towns ranged from 4·2 in Hornsey, 4·3 in King's Norton, 6·4 in East Ham, 6·9 in Burton-on-Trent, 7·9 in Leyton, 9·1 in West Bromwich, and 9·2 in Bournemouth and in Reading, to 20·5 in Bootle, 20·6 in Derby, 21·2 in Salford, 22·3 in Merthyr Tydfil, 22·6 in Warrington, 22·8 in Burnley, 23·9 in Rotherham, 24·3 in South Shields, and 25·8 in Great Yarmouth. In London the rate of mortality was 15·4 per 1,000, while it averaged 15·4 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases in these towns averaged 1·3 per 1,000; in London the rate was 0·9 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 3·0 in Rochdale, 3·5 in Norwich and in Merthyr Tydfil, 3·6 in Wigan, 3·7 in Stockport, 4·1 in Oldham, 4·3 in Swansea, 5·6 in South Shields, and 6·0 in Rotherham. Measles caused a death-rate of 1·6 in Salford, 1·8 in Norwich, 1·9 in Aston Manor, 2·4 in Bootle and in Rochdale, 3·0 in Wigan, 3·1 in Stockport, 3·3 in Oldham, 4·2 in South Shields, and 4·3 in Rotherham; scarlet fever of 2·1 in Merthyr Tydfil; diphtheria of 1·7 in Walthamstow and in Derby; and diarrhœa of 2·2 in Swansea. The mortality from whooping-cough and from "fever" showed no marked excess in any of the large towns. Two fatal cases of small-pox were registered in Hull, but none in any other of the seventy-six large towns, and no small-pox patients were under treatment last week in any of the Metropolitan Asylums Hospitals. The number of scarlet-fever cases in these hospitals and in the London Fever Hospital, which had been 4,058, 4,177, and 4,135 at the end of the three preceding weeks, had risen again to 4,150 at the end of last week: 462 new cases were admitted during the week, against 542, 493, and 417 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, November 17th, 882 births and 582 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 16·3, 16·0, and 17·0 per 1,000 in the three preceding weeks, was again 17·0 per 1,000 last week, and was 1·6 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 15·2 in Leith and 16·3 in Edinburgh to 19·3 in Dundee and 27·2 in Perth. The death-rate from the principal infectious diseases in these towns averaged 2·0 per 1,000, the highest rates being recorded in Glasgow and Aberdeen. The 266 deaths registered in Glasgow included 2 which were referred to diphtheria, 10 to whooping-cough, 14 to diarrhœa and 10 to cerebro-spinal meningitis. Three fatal cases of diphtheria and 3 of diarrhœa were recorded in Edinburgh. Eight deaths from measles and 3 from diarrhœa occurred in Aberdeen, and 2 from diarrhœa in Dundee and in Greenock.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, November 17th, 443 births and 398 deaths were registered in six of the principal Irish towns, as against 466 births and 389 deaths in the preceding period. The annual death-rate in these towns, which had been 19·3, 18·8, and 21·2 per 1,000 in the three preceding weeks, fell to 17·9 per 1,000 in the week under notice, this figure being 2·5 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 7·8 in Waterford and 17·4 in Londonderry, to 20·7 in Cork and 21·9 in Dublin. The zymotic death-rate in the same six Irish towns, averaged 1·1 per 1,000, or 0·2 per 1,000 lower than during the preceding period, the highest figure—2·7—being recorded in Cork, while Limerick and Waterford registered no deaths under this heading at all. In Dublin there were 9 deaths from measles.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

The following appointments have been made at the Admiralty: William H. Daw, Staff Surgeon, to the *Vindictive*, November 13th; Thomas B. Shaw, M.B., Surgeon, to the *Wildfire*, November 13th; Reginald T. A. Levinge, Fleet Surgeon, to the *Actæon*, November 23rd; Robert J. Gilmour, Staff Surgeon, to the *Tamar*, November 22nd; William E. Mathew, Staff Surgeon, to the *Cormorant*, additional, for the *Assistance*, November 23rd, and on recommissioning, undated; Reginald L. Jones, Surgeon, to the *Talbot*, November 22nd; Patrick W. MacVean, Staff Surgeon, to the *Topaze*, on recommissioning, December 4th.

Fleet-Surgeon J. D. Henwood is placed on the retired list, with the rank of Deputy Inspector-General, November 17th. His commissions are thus dated: Surgeon, September 30th, 1876; Staff Surgeon, September 30th, 1888; and Fleet Surgeon, May 7th, 1893.

ROYAL ARMY MEDICAL CORPS.

Major H. W. Austin is promoted to be Lieutenant-Colonel, October 26th. He was appointed Surgeon, July 28th, 1886, and made Major, July 28th, 1898. He served in St. Helena during the South African war in 1900-1.

Captain F. H. Hardy is seconded for service under the Colonial Office, October 26th.

Captain H. E. M. Douglas, V.C., D.S.O., who is serving in the Punjab, is appointed a specialist in the prevention of disease.

Lieutenant-Colonel H. A. Haines has been appointed to the officiating command of the station hospital, Ambala, vice Lieutenant-Colonel T. P. Woodhouse.

Captain D. O. Hyde has been appointed to the command of the station hospital, Kandalla.

Lieutenant A. W. Gater has been appointed to the command of the station hospital, Abbottabad.

Major G. St. C. Thoyts and Captain R. G. Argles have, on arrival in India for duty in the Northern Command, been posted to Lahore Cantonment.

Captain J. H. Robinson sailed for England four expired on October 5th.

Lieutenant-Colonel C. E. Nichol left for England on October 5th.

Captain D. J. O'Donoghue has been granted privilege leave sixty days from October 3rd.

An exchange of transports during ensuing trooping season is sanctioned between Captains F. S. Penny and A. H. McN. Mitchell.

Lieutenant-Colonel A. E. Tate is detailed for medical charge of 6th Transport *Dongola*, vice Lieutenant-Colonel J. B. W. Buchanan.

Major A. J. Luther, Eastern Command, has been selected to relieve Major D. Stiell in Burmah Division.

Major G. A. T. Bray, Eastern Command, has been selected to relieve Major M. Boyle in Burmah Division.

VOLUNTEER RIFLES.

Surgeon-Major A. W. Prichard, 1st (City of Bristol) Volunteer Battalion the Gloucestershire Regiment, is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Portland Volunteer Infantry Brigade, June 1st.

Surgeon-Lieutenant G. S. Mill, M.D., 1st Volunteer Battalion the King's Own (Yorkshire Light Infantry), to be Surgeon-Captain, September 7th.

CHANGES OF STATION.

The following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during October, 1905:

		FROM		TO
Colonel P. M. Ellis	... ...	Dublin ...	...	India.
Lieut.-Col. W. G. A. Bedford, C.M.G., M.B.	... ...	Gibraltar	...	Portsmouth.
,, S. C. B. Robinson	...	Colchester	...	India.
,, W. L. Reade ...	... ...	Bangalore	...	Madras.
,, F. H. Treherne	... ...	Rawal Pindi	...	Murree.
,, A. E. Tate	... ...	Calcutta	...	Simla.
,, C. E. Farmer	... ...	Colaba ...	...	Tidworth.
,, C. W. Johnson, M.B.	...	Woolwich	...	Sheerness.

		FROM	TO
Lieut.-Col.	R. L. R. Macleod, M.B. ...	Dublin ...	India.
,,	H. D. Rowan, M.B. ...	Mian Mir ...	Lahore.
,,	A. A. Sutton, D.S.O. ...	—	Woolwich.
,,	J. V. Salvage, M.D. ...	Tidworth ...	London.
,,	A. R. Aldridge, M.B. ...	Bengal	Simla.
,,	D. M. O'Callaghan... ...	Weedon ...	India.
Major	W. C. Poole, M.B.	Cork	Butterant.
,,	T. McCulloch, M.B. ...	Malta	London Dist.
,,	C. R. Elliott, M.D.	Fermoy ...	Cork.
,,	C. A. Young	Pinner Camp...	Belfast.
,,	J. C. Weir, M.B.	Malta	London Dist.
,,	A. L. Borradaile, M.B. ...	Trawsfynydd ...	Bury.
,,	R. W. H. Jackson, M.B. ...	Cork	Dublin.
,,	N. Tyacke	Mian Mir ...	Lahore.
Captain	E. W. W. Cochrane, M.B. ...	—	Aldershot.
,,	H. G. Martin	Fermoy ...	India.
,,	M. H. G. Fell	Rhayader ...	Seaforth.
,,	D. Harvey, M.B.	London Dist ...	India.
,,	L. Humphry	Shornclife ...	Dover.
,,	H. E. M. Douglas, V.C., D.S.O.	Meerut ...	Simla.
,,	F. S. Irvine, M.B.	R.A.M. Coll. ...	Pretoria.
,,	G. Carroll...	Clonmel ...	Cahir.
,,	A. D. Waring, M.B.	Ballykinder Camp	Belfast.
,,	A. C. Adderley	Scarborough...	Leeds.
,,	C. R. L. Ronayne, M.B. ...	York	Strensall.
,,	R. F. Ellery	Devonport ...	Bulford.
,,	R. L. Popham	Dublin	Curragh.
,,	C. E. Fleming, M.B. ...	Donard Camp.	Dublin.
,,	H. E. J. A. Howley	Belfast	Armagh.
,,	R. F. M. Fawcett	Hounslow ...	West Africa.
,,	W. Riach, M.D.	Egypt	York.
,,	R. N. Woodley	Kinsale ...	Cork
,,	J. B. Clarke, M.B.	Chaubuttia ...	Ranikhet.
,,	T. J. Potter	Poona	Aldershot.
,,	H. Rogers, M.B...	Mian Mir ...	Lahore.
,,	C. G. Thomson	... ...	...
,,	J. W. S. Seccombe	Fort Tregantle	Bulford.
,,	H. G. S. Webb	Mian Mir ...	Lahore.
,,	J. C. G. Carmichael, M.B. ...	St. Thomas's Mt	Poonamallee.
,,	J. M. M. Crawford	Mian Mir ...	Lahore.
,,	B. G. Patch	Kasauli ...	Simla.
Lieutenant	G. S. C. Hayes	Rawal Pindi ...	Campbellpore.
,,	G. H. Richard	Barrackpore ...	Dinapore.
,,	W. G. Maydon	Calcutta ...	Lebong.
,,	V. H. Symons	Bordon ...	Devonport.
,,	E. G. Anthonisz	Netley	India.
,,	M. J. Cromie	Edinburgh ...	Dover.
,,	G. W. W. Ware, M.B. ...	Belfast	India.
,,	W. C. Nimmo	Aldershot ...	,,
,,	C. J. Wyatt, M.B.	Dublin	Curragh.
,,	F. C. Sampson, M.B. ...	Londonderry...	Belfast.
,,	H. Steward, M.B.	Kilbride ...	Cork.
,,	A. G. Cummins, M.B. ...	Dublin	Curragh.
,,	A. S. Littlejohns	Ewshott ...	R.A.M. Coll.
,,	F. A. M'Cammon, M.B. ...	Dublin	Curragh.
,,	M. G. Dill, M.B.	Dover	Maryhill.
,,	J. B. G. Mulligan	Dublin	Curragh.

Lieutenant-Colonel J. R. Mallins, M.B., retired pay, has been placed in medical charge at the Detention Barracks, Gosport.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BETHLEM HOSPITAL.—Two Resident House-Physicians. Honorarium, £25 per quarter each.

BIRKENHEAD BOROUGH HOSPITAL.—Senior and Junior House-Surgeons. Salaries, £100 and £80 per annum respectively.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant. Honorarium at the rate of 52 guineas per annum.

BLACKBURN EDUCATION COMMITTEE.—Assistant to the Medical Officer of Health. Salary, £150 per annum.

BOURNEMOUTH: ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £100 per annum.

BRENTFORD UNION.—Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Workhouse and Schools at Isleworth. Salary commencing £120 per annum.

BRISTOL GENERAL HOSPITAL.—Senior House-Surgeon. Salary, £150 per annum.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn Road, W.C.—House-Surgeon. Salary at the rate of £50 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL. Junior House-Surgeon. Salary at the rate of £60 per annum.

CHURCH STRETTON: STRETTON HOUSE PRIVATE ASYLUM.—Assistant Medical Officer. Salary, £150 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—(1) Senior House-Surgeon. (2) Junior House-Surgeon. Salaries at the rate of £100 and £60 per annum respectively.

DUBLIN: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND.—Junior Resident Medical Officer. Salary, £75 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Junior Assistant Medical Officer. Salary, £150 per annum.

GRAVESEND HOSPITAL.—House-Surgeon. Salary, £100 per annum.

HULME DISPENSARY.—House-Surgeon. Salary, £150 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) Resident Medical Superintendent. Salary, 150 guineas per annum. (2) House-Surgeon. Salary, £20 for six months. (3) Medical Registrar. Honorarium, 50 guineas per annum.

LEEDS PUBLIC DISPENSARY.—(1) Honorary Pathologist. (2) Honorary Assistant Dental Surgeon.

LEEDS UNIVERSITY.—Demonstrator of Bacteriology. Salary, £200 per annum.

LONDON THROAT HOSPITAL, Great Portland Street, W.—Third Anaesthetist.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House-Surgeon. Salary, £80 per annum.

MANCHESTER COUNTY ASYLUM, Prestwich.—Junior Assistant Medical Officer. Salary, £150 per annum, rising to £250.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer. Salary, £150 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary, £70 per annum.

NORTH-WEST LONDON HOSPITAL, Kentish Town Road, N.W.—(1) Resident Medical Officer; (2) Assistant Resident Medical Officer. Salary at the rate of £100 per annum each.

OLDHAM INFIRMARY.—Junior House-Surgeon. Salary, £75 per annum.

ROYAL EAR HOSPITAL, Dean Street, Soho.—Two Clinical Assistants.

ROYAL WATERLOO HOSPITAL FOR WOMEN AND CHILDREN, Waterloo Bridge Road.—(1) Senior Resident Medical Officer; (2) Junior Resident Medical Officer. Salary, £70 and £40 per annum respectively.

SAMARITAN HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Physician to Out-patient Department.

SETTLEMENT OF WOMEN WORKERS (MEDICAL MISSION HOSPITAL), Canning Town, E.—Female Assistant Medical Officer for Dispensary.

SHEFFIELD: ROYAL INFIRMARY.—Junior Assistant House-Surgeon. Salary, £65 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician. Salary, £100 per annum.

UNIVERSITY COLLEGE HOSPITAL, Gower Street, W.C.—(1) Surgical Registrar. (2) Assistant Surgeon.

WADSLEY: WEST RIDING ASYLUM.—Fifth Assistant Medical Officer. Salary, £140 per annum, rising to £160.

APPOINTMENTS.

BENSON, A. H., M.R.C.S., L.R.C.P., District and Workhouse Medical Officer of the Cleobury Mortimer Union.

COX, A., M.B., B.S.Durh., Certifying Factory Surgeon for the Gateshead District, co. Durham.

CROFTON, W. M., M.B., B.S., R.U.I., Certifying Factory Surgeon for the Sutton Bridge District, co. Lincoln.

CROWE, H. N., M.R.C.S., L.R.C.P., Resident Pathologist, General Hospital, Birmingham.

FERNIE, A., L.R.C.P. and S.Edin., District Medical Officer of the Cricklade and Wootton Bassett Union.

FORSYTH, Charles E. P., M.B.Aberd., Assistant Pathologist in the London School of Clinical Medicine, Seamen's Hospital (Dreadnought), Greenwich, S.E.

HELM, W. A., M.B., Ch.B.Vict., District Medical Officer of the Ludlow Union.

LAING, A. W., M.B., Ch.B.Aberd., House-Surgeon to the Birmingham and Midland Ear and Throat Hospital.

MCGLASHAN, James, M.D.Glas., D.P.H.Camb., Medical Officer of the Newhaven Union Workhouse.

MACILRAITH, N. MacLaren, L.R.C.P., L.R.C.S., L.D.S., R.C.S.Edin., L.F.P.S.Glas., Assistant Medical Officer to the Norwich City Asylum, Hellesdon, near Norwich.

PATTERSON, Norman, M.B., B.Ch.Edin., F.R.C.S.Eng., Senior Clinical Assistant, Golden Square Throat Hospital.

PEACOCK, W. E., M.D., B.S., B.Hy.Durh., D.P.H., reappointed Medical Officer of Health to the Felling Urban District Council.

SUMPTER, B. G., L.S.A., Medical Officer of Health, New Hunstanton Urban District.

VALLANCE, H., M.R.C.S., L.R.C.P.Lond., Medical Officer of the Third District of the Newhaven Union.

WADIA, M. D., M.R.C.S.Eng., L.R.C.S.Lond., House-Surgeon to St. Peter's Hospital, London.

WEAR, Algernon, M.D., B.S.Durh., Honorary Medical Officer in charge of Medical Cases at the Southern Branch of the Leeds Public Dispensary.

WILLIAMS, P. Watson, M.D.Loud., Physician to the Throat and Nose Department of the Bristol Royal Infirmary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 8s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

MARRIAGES.

BURTON—LEAF.—On the 15th inst., at Immanuel Church, Streatham Common, by the Very Rev. the Master of Trinity, assisted by the Rev. William Leaf, brother of the bride, and the Rev. H. S. Adams, Vicar of the parish, Arthur Burton, M.D., of Cromer, the youngest son of the late Edward Frederick Burton, of 15, Cleveland Gardens, W., to Olive Clare Leaf, the youngest daughter of the late Frederick H. Leaf, of Streatham Common.

HARRY—CLAPHAM.—On the 17th November, at Debrughur, Assam, Warlow Athenry Harry to Lucy Beatrice Clapham, M.B. (By cable.)

DEATH.

NORTON.—Suddenly, on November 17th, at 63, Upper Gloucester Place, N.W., G. Everitt Norton, M.R.C.S.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W., 8.30 p.m.—Papers:—Mr. James Berry: A Case of Large Arterio-venous Aneurysm of the Neck Treated by Operation: Mr. W. G. Spencer: An Encapsuled Sarcoma in the Pterygoid Region.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN, 20, Hanover Square, W., 8 p.m.—Casual Communications:—Mr. Frank Colemore: A Follicular Odontome in a Boy aged 7. Mr. W. Francis Mellersh: A Method of Repairing Crown and Bridge Facings (illustrated with lantern slides). Paper:—Mr. J. B. Parfitt, Some Mechanical Principles of Everyday Practice.

TUESDAY.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY, 20, Hanover Square, W., at 8.30 p.m.—Adjourned Special Discussion on the Operative Treatment of Non-malignant Ulcer of the Stomach and its Chief Complications, with Indications, Limitations, and Ultimate Results (will be opened by Dr. Norman Moore).

THURSDAY.

NEUROLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos Street, Cavendish Square, W., 9 p.m.—the Hughlings Jackson Lecture:—Professor Sir Victor Horsley, F.R.S.: The Illustration by Recent Research of Dr. Hughlings Jackson's Views on the Functions of the Cerebellum.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., External Ear.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Medical. Thursday, 4 p.m., Surgical.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W., Wednesday, 4 p.m.—The Sphygmomanometer: its Practical Use.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Medical and Surgical daily, except Saturday and Sunday, at 2.30 p.m. and 3.15 p.m. respectively; Throat and Ear, 4 p.m., Monday; Skin Diseases, 4 p.m., Tuesday; Eye Diseases, 4 p.m. Wednesday: Radiography, 4 p.m., Thursday. Operations, daily, 2.30 p.m. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday: Skin, noon, Tuesday and Friday.

MEDICAL GRADUATES COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Eye. Lectures at 5.15 p.m. each day will be given as follows: Monday, Apoplexy and its Treatment; Tuesday, the Treatment of the various forms of Gout; Wednesday, Some Pathological Specimens with Interesting Clinical Histories; Thursday, Some Injuries about the Elbow Joint.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Central Out-Patient Department, 7, Fitzroy Square, W., Thursday, 5 p.m.—Dental Conditions in Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Tremors; Friday, 3.30 p.m., Optic Neuritis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Tottenham Hospital, N.—Tuesday, 4.30 p.m., Lecture on Constipation and its Treatment; Thursday, 5 p.m., Demonstration on Cases of Chest Disease (at the Mount Vernon Hospital, Hampstead).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics. 2.30 p.m., X Rays, Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 10 a.m., Gynaecology. 2.15 p.m., and Wednesday and Saturday, 10 a.m., Diseases of Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Lectures: Monday, 12 noon, Pathological Demonstration; Monday, 5 p.m., Practical Surgery; Tuesday, the Sequelae of Influenza; Wednesday, Gynaecology; Thursday, Clinical Lecture; Friday, Clinical Lecture.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Thursday, 5 p.m., Vaginismus.

BOOKS, ETC., RECEIVED.

Hermann von Helmholtz. By L. Koenigsberger. Translated by F. A. Welby. Oxford: Clarendon Press. 1906. 16s.

Untersuchungen über kunstliche Parthenogenese und das Wesen des Befruchtungsvorgangs. Von J. Loeb. Deutsche Ausgabe herausgegeben von E. Schwalbe. Leipzig: J. A. Barth. 1906. Mk. 7.80.

Die Schwachstromtechnik in Einzeldarstellungen. Herausgegeben Von J. Baumann und Dr. L. Reilstab. III Band Medizinische Anwendungen der Elektrizitat. Von M. U. Dr. S. Jellinek. München and Berlin: R. Oldenbourg. 1906. Mk. 10.

Thirty-Seventh Annual Report of the State Board of Health of Massachusetts. Boston: Wright and Potter Printing Company. 1906.

City of Edinburgh Charity Organization Society. Report on the Physical Condition of 1400 School Children in the City. London: P. S. King and Son. 1906. 5s.

Transactions of the Twenty-Eighth Annual Meeting of the American Laryngological Association, held at Niagara Falls, N.Y., May 31st, June 1st and 2nd, 1906. New York: American Laryngological Association. 1906.

London: S. Appleton. 1906:—

Operative Otology. By C. J. Blake, M.D., and H. O. Reik, M.D. 15s.

The Prophylaxis and Treatment of Internal Diseases. By F. Forchheimer, M.D. 21s.

A Textbook of Human Physiology. By Dr. R. Tigerstedt. Translated from Third German Edition and edited by J. R. Murlin, A.M., Ph.D. 21s.

Operative Gynaecology. By H. A. Kelly, A.B., M.D., LL.D., F.R.C.S. Second Edition. Vols. I and II. £3 3s.

The Principles of Qualitative Analysis. By W. Boltger. Translated and revised by W. G. Smeaton. London: Rebman, Limited. 1906. 9s.

A Series of Midwifery Diagrams for the Instruction of Students of Midwifery. By V. Bonney, M.S., M.D., B.Sc., F.R.C.S., M.R.C.P., Bristol: Wright and Co. 1906. 42s.

Nouveau Traité de Médecine et de Thérapeutique. Publié en fascicules sous la direction de MM. P. Brouardel et A. Gilbert. XXII. Maladies des Organes-Génito Urinaires. Par R. le Fur et A. Siredey. Paris: J. B. Baillière et Fils. 1907. Fr. 8.

Transactions of the Clinical Society of London. Vol. 39. London: Longmans, Green and Co. 1906.

An Introduction to Physiology. By W. T. Porter, M.D. Philadelphia and London: J. B. Lippincott Co. 1906. 12s. 6d.

Die Secreisen zu Heil- und Erholungszwecken, ihre Geschichte und Literatur. Von Sanitätstat Dr. E. Friedrich. Berlin: Vogel and Kreienbrink. 1906.

A History of the Boston City Hospital from its Foundation until 1904. Edited by a Committee of the Hospital Staff. Boston: Municipal Printing Office. 1906.

The Integrative Action of the Nervous System. By C. S. Sherrington, D.Sc., M.D., Hon. LL.D Tor., F.R.C.S., F.R.S. London: A. Constable and Co., Limited. 1906. 16s.

The Tragedy and Comedy of War Hospitals. By Sister X. London: J. Murray. 1906. 6s.

What are We [illegible] Joseph, A.M.I.E.E. London: Kegan, Paul, Trench, Trübner and Co., Limited. 1906. 1s.

Elementary Science Applied to Sanitary and Plumbers' Work. By A. Herring Shaw, R.P.C. Manchester: Artistic Printing Co. 1906. 2s. 9d.

Highways and Byways in Berkshire. By J. E. Vincent. London: Macmillan and Co. 1906. 6s.

La Santé des Européens entre les Tropiques. Par A. Layet. Première partie. Paris: F. Alcan. 1906. Fr. 7.

Polypus of the Nose. By E. S. Yonge, M.D.Edin. Manchester and London: Sherratt and Hughes. 1906. 2s. 6d.

Berlin and Wien: Urban and Schwarzenberg:

Lehrbuch der speziellen Chirurgie. Herausgegeben von Professor J. Hochenegg. Erster Band, I. Teil. 1906. M.20.

Die Trunksucht und ihre Abwehr. Von Dr. A. Baer and Dr. B. Laquer. Zweite Auflage. 1907. M.6.

Die Aetiologie der Syphilis. Von Professor Dr. E. Hoffmann. Berlin: J. Springer. 1906. M.2.

Traitement de la Syphilis. Par le Dr. G. Ranzier. Montpellier: Coulet et Fils. 1906. Fr.1.

Abdominal Pain, its Causes and Clinical Significance. By A. E. Maylard, M.B., B.S. Lond. Second edition. London: J. and A. Churchill. 1906. 7s. 6d.

Sir Nigel. By A. Conan Doyle. London: Smith, Elder, and Co. 1906. 6s.

Operationen am Ohr. Von Dr. B. Heine. Zweite Auflage. Berlin: S. Karger; and London: Williams and Norgate. 1906. M.6.60.

Stray Thoughts in Sickness and in Health. By L. H. M. Soulsby. London: Longmans, Green, and Co. 1906. 2s. 6d.

For the Quiet Hour. Selected by J. E. and H. S. London: Simpkin, Marshall. 1s.

Tennis Topics and Tactics. By F. W. Payn, B.A., LL.M. London: L. Upcott Gill; New York: C. Scribner's Sons. 1907. 7s.

University of Bombay: The Calendar, 1906-7. Vols. I and II. Bombay: Government Central Press. 1906. Vol. I, Rs.1.8. Vol. II, Rs.1.

Die Morphologie der Missbildungen des Menschen und der Tiere. II Teil. Die Doppelbildungen. Von D. E. Schwalbe. Jena: Gustav Fischer. 1907. M.11.

Nature's Carol Singers. By R. Kearton, F.Z.S. London: Cassell and Co. 1906. 6s.

The Saprophytic Theory of Cancer. By G. C. Murray, L.R.C.P., L.R.C.S.

Die experimentelle Syphilisforschung nach ihrem gegenwärtigen Stande. Von Dr. A. Neisser. Berlin: J. Springer. 1906. M.2.40

Traitement Rationnel du Mal de Pott. Par le Dr. F. Calot. Paris: O. Doin. 1906. Fr.3.

The History of Nursing in the British Empire. By S. A. Tooley. London: S. H. Bousfield and Co., Ltd. 1906. 7s. 6d.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
NOVEMBER.	
23 FRIDAY	LONDON: Medico-Political Committee of the Metropolitan Counties Branch, 4.30 p.m.
24 SATURDAY...	
25 Sunday	
26 MONDAY	LONDON: Naval and Military Committee, 3.30 p.m.
27 TUESDAY.....	HAMPSTEAD DIVISION, *Metropolitan Counties Branch*, Annual Dinner, Great Central Hotel. NORTHAMPTONSHIRE DIVISION, *South Midland Branch*, Board-room, Northampton General Hospital, 3 p.m. WESTMINSTER DIVISION, *Metropolitan Counties Branch*, 20, Hanover Square, W., 8.30 p.m.
28 WEDNESDAY	Extraordinary General Meeting, at 3 p.m., in the Examination Hall, Victoria Embankment, W.C. LONDON: Poor-Law (English) Subcommittee, 11.30 a.m. LONDON: Lunacy Subcommittee of Medico-Political Committee, 5 p.m. BATH AND BRISTOL BRANCH, Museum, North Parade, Bath, 8 p.m.
29 THURSDAY...	CITY DIVISION, *Metropolitan Counties Branch*, Great Eastern Hotel, Liverpool Street, E.C. (Lincolnshire Room), 4 p.m. LAMBETH DIVISION, *Metropolitan Counties Branch*, Clinical Lecture Theatre, St. Thomas's Hospital, 4 p.m.; Committee, 3.30 p.m. STAFFORDSHIRE BRANCH, North Stafford Hotel, Stoke-upon-Trent, 4 p.m.; Council, 3.30 p.m.; Dinner, 6.30 p.m. WEST CUMBERLAND DIVISION, *Border Counties Branch*, Maryport, 3.45 p.m.
30 FRIDAY	LONDON: Metropolitan Counties Branch, Medical Charities Committee, 3.30 p.m.

Date.	Meetings to be Held.
DECEMBER.	
1 SATURDAY...	
2 Sunday	
3 MONDAY	LONDON: Premises and Library Committee, 3.30 p.m. MARYLEBONE DIVISION, *Metropolitan Counties Branch*, Rooms of the Royal Medical and Chirurgical Society, 20, Hanover Square, 8.30 p.m.
4 TUESDAY ...	
5 WEDNESDAY	NORTH CARNARVONSHIRE AND ANGLESEY DIVISION, *North Wales Branch*, British Hotel, Bangor, 2.30 p.m.
6 THURSDAY..	FOLKESTONE DIVISION, *South-Eastern Branch*.
7 FRIDAY.....	NORTH CUMBERLAND DIVISION, *Border Counties Branch*, County Hotel, Carlisle, 8 p.m.; Dinner, 6.30 p.m.
8 SATURDAY...	
9 Sunday	
10 MONDAY	LONDON: Ethical Subcommittee, 2 p.m.
11 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Special Finance Inquiry Committee, 5 p.m.
12 WEDNESDAY	LONDON: South-Eastern Branch Council, 3.15 p.m. WEST DORSET DIVISION, *Dorset and West Hants Branch*, County Hospital, Dorchester, 4.15; Dinner, King's Arms, 6 p.m.
13 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Alexandra Hotel, Clapham Common, 8.45 p.m.
14 FRIDAY	HAMPSTEAD DIVISION, *Metropolitan Counties Branch*.
15 SATURDAY...	
16 Sunday.....	
17 MONDAY	
18 TUESDAY.....	
19 WEDNESDAY	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom, and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 1ST, 1906.

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British Medical Association.

Notice is hereby given that, in consequence of there not having been a quorum at the first-called meeting, an Extraordinary General Meeting of the British Medical Association will be held at the Examination Hall, Savoy Place, Victoria Embankment, London, on Wednesday, December 5th, at three o'clock in the afternoon, when the subjoined Resolutions will be proposed:

1. That the 5th Article of Association be altered by the insertion of the words "Divisions or" immediately before the word "Branches" where that word secondly occurs.

2. That the 27th Article be altered by the insertion immediately after the words "constituency having not less than fifty members" of the words "provided that the Council shall have a discretionary power to permit a Division having less than fifty members to form one constituency in any case in which it shall appear to the Council that the holding of joint meetings of members of that Division and of neighbouring Divisions would be attended by special difficulties."

3. That the said 27th Article be altered by the substitution of the words "nine months" for the words "three months."

4. That the 36th Article be altered by the insertion of the word "and" immediately before the words "a Treasurer" and by the omission of the words "an Editor of the JOURNAL and a General Secretary" and of the words "the Editor of the JOURNAL and the General Secretary."

5. That the following Article be substituted for the 37th Article, namely:

XXXVII.—OFFICERS *(continued)*.

The Chairman of Council shall be elected by the Council from its own number and shall hold office for such period and discharge such duties as shall be determined by the Council. During this period and for one year thereafter he shall *ex officio* be a member of the Council and any Branch of which at the time of his election he was a Representative shall be entitled to elect another in his stead.

6. That the 38th Article be altered by the substitution of the words "Chairman of Council and (during the year succeeding his period of office) the *Past Chairman* of Council" for the words "(if any)."

7. That the 41st Article be altered by the substitution of the words "the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer" for the words "and the Chairman of Council."

8. That the following clause be substituted for Clause (*e*) of the 44th Article, namely:

(*e*) No member in regard to whom a representation as aforesaid has been made or whose conduct is under investigation or is the subject of inquiry by the Council or by a Branch or Division shall be capable of effectively resigning his membership of the Association until the result of such investigation or inquiry has been officially and finally declared.

9. That the following Article be substituted for the 45th Article, namely:

XLV.—Travelling Expenses.

The first-class travelling expenses within the United Kingdom of Members of Council and Representatives of Divisions attending the Annual or any Special Representative Meeting shall be defrayed out of the general funds of the Association. Attendance of Representatives of Divisions for this purpose at the Annual Representative Meeting shall be construed to mean attendance at each daily Session of that Meeting and also at each daily Session of the Annual General Meeting at which business described under the head (A) in Article XVIII is to be transacted unless the Council shall be satisfied that good cause existed for absence from any particular Session or Sessions. The first-class travelling expenses within the United Kingdom of all Members attending any meeting of Council or of a Committee, and of all Officers of any Division or Branch attending any conference held under conditions approved by the Council, shall be defrayed in like manner. Save as in this clause expressly provided the Council shall determine what shall be considered an attendance for any purpose of this Clause.

Should the above resolutions or any of them be duly passed by the required majority, the same will be submitted for confirmation as Special Resolutions or a Special Resolution to a subsequent Extraordinary General Meeting of the Association which will be subsequently convened.

Dated the twenty-eighth day of November, 1906.

By Order of the Council,

Guy Elliston,
General Secretary,
British Medical Association.

An extraordinary general meeting of the British Medical Association was convened at the Examination Hall, Victoria Embankment, on Wednesday, November 28th, at 3 p.m. A quorum (100) was not present at this hour.

Sudden Death of Dr. Ferguson, ex-President of the Association.

After waiting thirty-five minutes, Dr. Langley Browne (Chairman of Council) took the chair and said: Notice has duly been given calling this meeting, but I am afraid that we are not going to have a quorum. Still it will be necessary for us to wait here till 4 o'clock, according to the articles of association, before we can adjourn; and whilst we are waiting I have a very melancholy duty to perform, namely, to announce the sudden death of one of our recent Presidents, Dr. George Bagot Ferguson of Cheltenham. While he was operating yesterday at the Cheltenham Infirmary he had a bad attack of angina and passed away. I am quite sure that all of you will join in a vote of condolence to his widow and family.

Sir Constantine Holman said: I will content myself with simply moving a resolution which I have in my hand which expresses in a very few words my own feeling of most sincere grief at the loss of our very good friend. Since he had been connected with the Association he has done very good work and he always gave us his best. He had a good calm-judging mind in all discussions. At Cheltenham he will be greatly missed.

That the members of the British Medical Association have heard with great regret of the sudden death of their colleague, Dr. Ferguson, of Cheltenham, Vice-President of the Association, who presided with such distinguished ability at the meeting at Cheltenham. They would offer to Mrs. Ferguson and her family the expression of their warmest sympathy. His loss will be sincerely mourned by all who knew him.

Dr. C. F. Cuthbert said it was with a deep sense of regret that he seconded the resolution, having known Dr. Ferguson well for twenty-two years in Cheltenham and Gloucester. Dr. Ferguson was a prominent man in connexion with the British Medical Association and in medical matters generally in Cheltenham and Gloucestershire, and was well known to the general public. If any one was getting up a meeting at any time for a good purpose Dr. Ferguson was always ready to help. At the meeting of the Gloucestershire Branch of the British Medical Association any judgement he formed, any criticism he made, was always sound. It appeared that Dr. Ferguson had been summoned hurriedly to the hospital to operate upon a case of strangulated hernia. The gut was gangrenous, and he had to resect the intestine; he was being assisted by the house-surgeons, when quite suddenly in the middle of the operation he fell down and very shortly expired. One of the other surgeons, Mr. Howell, was telephoned for and finished the operation. Dr. Ferguson had not been in good health for some time, and when only a fortnight ago he attended the meeting of the Gloucester Branch he looked thin, and wan, and ill, though he had the same dash about him he always had, and spoke during the discussions in his own quaint and good manner. He understood that Dr. Ferguson had recently had attacks of angina and other symptoms of heart trouble. Cheltenham and Gloucester, which were in such close proximity, would alike mourn his death. While expressing his own personal feelings of regret, he was sure all would join with him in the vote of condolence to Mrs. Ferguson.

The resolution was then adopted.

Adjournment of Meeting.

The Chairman waited until four o'clock, and, there being no quorum, the meeting was adjourned until December 5th.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

BIRMINGHAM BRANCH:

Central Division.

The Forthcoming General Medical Council Election.

A special and general meeting of the Birmingham Central Division was held at the Birmingham Medical Institute on Thursday, November 22nd. Dr. Milligan was in the chair.

The following candidates for the General Medical Council election were expected to be present by special invitation: Dr. Langley Browne, West Bromwich; Dr. L. S. McManus, Wandsworth Common; and Mr. Rutherford Morison, Newcastle-on-Tyne. Dr. Langley Browne and Mr. Morison attended, but the following letter of apology was received from Dr. McManus:

Mayo House, Spencer Park,
Wandsworth Common, S.W.

Dear Sir,—I have waited some time before answering your letter, in the hope that I could arrange to be present at your meeting, but I fear it will be impossible for me to do so. I appreciate very heartily the courtesy of your Division in asking me, and whether I get in or not I sincerely hope that Dr. Langley Browne will be successful, for you could not have selected a better man.

Yours truly,

Dr. Kirby. L. S. McManus.

The Chairman said that while they all regretted the absence of Dr. McManus, they were favoured with the presence of the other two, and they would be pleased to hear them.

Dr. Langley Browne, who was first called upon, was cordially received. He expressed the pleasure he felt at the presence of Mr. Morison, who had been unanimously selected as the candidate for the North. They had two very good candidates at least. [Cries of "Three."] He believed in the principle of territorial representation. At the present time any candidate who desired to have any chance of election had to appeal to 25,000 registered members of the profession. It would be much better to have the country divided up into North, South, and Midlands. He was of opinion that Wales ought to have a representative of its own. It was true that there were only 1,200 registered practitioners there; but, after all, Wales was entitled to direct representation. They had, at all events, decided to run on territorial lines. Unfortunately they had just heard that a most unfortunate thing had happened. By some means or other Mr. Rutherford Morison's nomination papers had not been sent in in time, so that the Registrar had telegraphed that practically no nomination has been received on behalf of Mr. Morison. That had upset the whole of the arrangements, and it also lost them the chance of returning to the General Medical Council a man who would have been a most valuable member; a man who had done an immense amount of valuable work for the profession in the North. Mr. Morison not only knew what general practice was, but he was known everywhere. In this matter they could not separate the general medical practitioners from the consultants. In the North of England, when the colliery surgeons made up their minds that they would not be content until they had obtained a better rate of pay, it happened, as usual, that there were a few blacklegs. Now, if they had not been able to get the help of the whole of the consultants in the North, the whole thing would have fallen through, but because the whole of the consultants, led by Mr. Morison, brought their influence to bear upon the mine owners, they fought a successful fight. They wanted the General Medical Council to deal with the whole question of unqualified practice. In other countries, and in other parts of the King's dominions, the restriction of the practice to the qualified man was enforced by law, and any unqualified man was liable to severe penalty. He thought it was one of the most important things possible in the interests of both the profession and the public that this unqualified medical practice should be put down. The General Medical Council, having the ear of the Privy Council, could put this down, and put it down in a short time, too. In the Medical Act drawn up by Sir Victor Horsley, measures were suggested for putting down unqualified medical men. It was suggested that the State should institute State examinations, and institute a licence to be paid yearly. If the State got £37,000 a year out of the medical profession it would undoubtedly have a keener interest in the profession than it now had. Then the overcrowded state of the medical profession should receive attention. Too many were coming in, and the standard should be raised. The entrance examination in particular should be made more severe. The General Medical Council should also deal more severely with cases of infamous conduct in a professional respect. They undoubtedly had the power, if they cared to use it. Something had been done in this direction. Only a few years ago it was not deemed infamous conduct for a medical man to employ an unqualified assistant. If a man persistently acted in a way which was against all the proper feelings of his neighbours in the profession, the Council were in a position to stop such conduct. The fact that there were only five Direct Representatives of the profession was all against them in such matters. They, as candidates, hoped to be successful, and if they were successful they would try to stir matters up somewhat.

Mr. Rutherford Morison thanked the Division for the interest they had so kindly manifested in him. He would take it as a personal favour if they would transfer the support they had intended to give him to Dr. Latimer of Wales. That would be carrying out the principle of territorial representation. He felt sure that the return of Dr. Langley Browne would cause attention to be given to many grievances. One of the first things that had to be done was to increase the number of Direct Representatives. There ought to be at the very least four such representatives for England and one for Wales. He thought the country should be divided up into four parts with a Direct Representative for each. He agreed that the General Medical Council might more closely watch over the interests of the profession. In one colliery in the North there was a blackleg doctor who was charged with being drunk while in charge of a horse and trap. He was fined in the police court. A man who was incapable of taking charge of a horse and trap was also incapable to taking charge of patients. The case was taken before the General Medical Council, but they decided that they could not take notice of it because the man had not been sent to prison; if he had been sent to gaol he would have been struck off the *Register*. Personally he thought that the man should have been adjudged guily of infamous conduct professionally. The profession was without doubt overcrowded. The entrance examination should be stricter. In all probability, however, the General Medical Council would oppose the Medical Amendment Act, and in that case it would be extremely difficult to get the measure through. They in the North had joined a union. It was something on the lines of a trades union; they contended that it had all the good qualities of a trade union with one of the bad qualities. But when the British Medical Association became regenerated it would constitute the best instrument they had. At present it was not at all a perfect instrument, but he held that it was the best they had. There would be no fights over contract working work if they were united. They had had a severe fight in the North; at first there seemed no prospect of success. They had the Miners' Federation against them; all the colliery interests were against them. The doctors asked for ninepence per fortnight where they had had sixpence per fortnight. For a time they were doubtful as to the result, but now every doctor in Northumberland was getting ninepence and there was not a single blackleg. Then there was the question of hospital abuse. He had asked that that question in Newcastle should be referred to the British Medical Association's local Branch, and he hoped that they would pass a resolution that no patient (except in an emergency) should be admitted to the hospital without a certificate from a doctor. Who was better likely to know the means of an individual than the doctor? People went to the hospital in rags and yet they were found to have eight hundred a year. This was a serious matter from the medical man's point of view. Then the working man element in hospital management was an important matter. In the case of their hospital, eight of the medical men had votes on the committee, but there were fourteen workingmen governors, so that in any important matter the medical men would be speedily outvoted. He had a great admiration for the working man, and appreciated what he had done for the hospital, but a dangerous element had been introduced. Through their factories the working men collected large sums of money for the hospital, and there was now a disposition on their part to regard what used to be a charity as something which they had a right to avail themselves of. Then there was the power of the working man in regard to the election of medical men to important appointments in connexion with the hospital. Such appointments should be made by the profession and not by a committee of laymen. In conclusion, he sought their support on behalf of Dr. Langley Browne, Dr. McManus, and Dr. Latimer.

The Chairman hoped and believed that the return of the candidates mentioned would mean that the Council might be induced to go forward with reforms which they all desired. In the past they had merely taken slow, tottering steps.

Mr. Jordan Lloyd proposed a vote of thanks to the speakers who had specially addressed them. He had known Dr. Langley Browne and Mr. Morison for many years, and they commanded their complete confidence. He greatly regretted the enforced retirement of the latter.

Mr. T. J. Morrison seconded the motion. He did not believe in the general abuse which was showered upon the General Medical Council; that body had done much valuable work during the last fifty years. Still, enlarged powers were wanted by that body; their failings were due

to the circumscribed powers which the old Act gave them.

The resolution was carried unanimously.

Coventry Provident Dispensary.

The Chairman then moved the following resolution:

That this Division expresses its disapproval of the present methods of conducting the Coventry Provident Dispensary.

The Chairman said that efforts had been made to improve the working of the Dispensary, but it still did not come up to what they would regard as a proper standard. First of all, the committee of the Dispensary consisted of 27 members, 20 of which were laymen, only 7 being members of the medical profession. What chance had the latter in any matter in which they happened to run counter to the 20 laymen? Then the staff was appointed by the committee; the general members of the profession in Coventry had no voice in the matter. The fees which were paid to the medical men were less than two-thirds of the income. Then the collectors were paid by commission, instead of by salary. The appointments were not transferable, and the committee had the right to dismiss the medical men under conditions which the medical profession as a body could not approve of.

Dr. Kirby seconded the resolution. It was six or seven years ago since a similar but more stringent resolution had been passed by the Branch of the British Medical Association. There was then a distinct excuse for any one failing to abide by that resolution, because medical men in Coventry were not unanimous. But now the Coventry men, 40 in number, were unanimously in accord with the action taken by the executive of their Division. When such an Association as that unanimously determined upon a certain course of action, it was the duty of every doctor to unite to support it in every possible way. He (Dr. Kirby) would have been prepared to second a much more drastic resolution, because of late he had heard some news that had astounded him. He had heard that this Dispensary in Coventry was so strong that it had brought influence to bear upon the City Council to get the Honorary Secretary of the Coventry Division dismissed from his position of medical officer of health to the city. It was a scandal that a medical man's private actions should be interfered with in such a way.

Dr. J. Neal supported the resolution, but desired to propose a rider relating to the action which the Coventry Dispensary had taken through the City Council. He could scarcely find words sufficiently strong to express what he felt in the matter. Their sympathy must be extended to Dr. Snell, whose work as Honorary Secretary of the Coventry Division they warmly appreciated. He moved as a rider:

That the present attack made on Dr. Snell as Honorary Secretary of the Coventry Division of the British Medical Association through the City Council is an unjustifiable interference with an officer of the British Medical Association.

Dr. Branson seconded. When he read of the matter in the newspaper it filled him with disgust. He thought a strong resolution from a large Division like theirs should have some weight. It was a matter upon which they could not fail to feel strongly.

Dr. Morrison thought that the Coventry Dispensary had for many years been working on lines such as they strongly disapproved of, and doubtless an expression of opinion from an important body of jurors such as their Association would have weight.

Dr. Simon stated that when this matter of the Coventry Dispensary arose years ago, he found himself in a somewhat unpopular minority, because while he felt that there were abuses in connexion with the Dispensary, their resolution included a condemnation of the Dispensary staff. Now, however, he had no hesitation in supporting the resolution.

Mr. Priestley Smith asked if both sides had been fully heard in regard to the matter. It was always dangerous to act on the evidence of one side only, however sound their story appeared to be.

The Chairman: There is really no other side.

Dr. Snell: There are no two sides. The Coventry Dispensary staff came to us (the Coventry Division) and said there must be some amendment in the arrangements. The Coventry Division gave the matter careful consideration, and were unanimously agreed that the demands of the staff were legitimate. The resolutions of the Coventry Division on the matter were perfectly unanimous. The staff of the Dispensary had themselves urged that the support of the Division should be obtained.

Dr. Burton thought that they should show a bold front now, and tell the Coventry Dispensary what they felt.

The Chairman decided that Dr. Neal's rider had better be taken as a separate resolution; the original motion was then carried unanimously.

Dr. Neal then moved his rider as a resolution, and it was carried unanimously.

DORSET AND WEST HANTS BRANCH:

Bournemouth Division.

A meeting was held in the Medical Society's Rooms, Bournemouth, on Wednesday, November 21st, Dr. James Davison in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Case.—Dr. Johnson Smyth showed an interesting case of nervous disease.

Annual Representative Meeting.—Dr. Johnson Smyth then gave an account of the Representative Meeting held in the summer.

Dublin Division.—A discussion ensued on the action of the Dublin Division with reference to the method of election of the Council proposed in the new Charter. The following resolution was carried unanimously:

That this Division approves the action of the Dublin Division with regard to the election of the Council, and instructs its Representative to support it.

Discussion.—Dr. Eleanor Bond opened a discussion on dysmenorrhoea, in which many of those present joined.

GLASGOW AND WEST OF SCOTLAND BRANCH:

Glasgow North-Western Division.

A meeting of the Executive Committee of this Division was held at the Western Infirmary, Glasgow, on November 22nd, at 8.45 p.m.; Dr. Donald Mackintosh presiding. Nine members present.

Programme of Meetings.—Dr. Mackintosh moved that there be a "clinical night" for opening meeting, combined with the usual business of the Division. This was seconded by Dr. John Morton, and approved. Tuesday, December 18th, was fixed for this meeting, which is to take place at the Western Infirmary Dispensary. Tea from 8.15 to 8.30 p.m. It was then agreed that the second meeting should take place in the Burgh Hall, Hillhead, when after the ordinary business "notes on cases" should be given by members. It was arranged that the third meeting should take place at the Western Infirmary Dispensary, when after the ordinary business it should be a "clinical night." The fourth meeting is to take place in the Burgh Hall, Hillhead, and after the usual business of the Division it should partake of "a general practitioners' night" of interesting cases.

LANCASHIRE AND CHESHIRE BRANCH:

Manchester (South) Division.

A meeting of this Division was held at Dr. Sawers Scott's, Withington, at 3.30 p.m., on Tuesday, November 20th, Dr. Sawers Scott in the chair. Chairmen and Secretaries of other Manchester Divisions were also present and took part.

Letters of Regret for Non-attendance.—Dr. Donald (Chairman, Central Division) and Dr. Owen (Chairman, Salford Division) sent letters of regret that they were unable to be present. Dr. Skardon Prowse (Secretary, West Division) also wrote, and was present later.

Confirmation of Minutes.—The minutes were read and confirmed.

Re-nomination of Dr. J. Milson Rhodes, J.P., as Candidate for the General Medical Council.—On the proposal of the Chairman, seconded by Dr. Collins (ex-Chairman), it was decided unanimously to re-nominate Dr. Rhodes as their candidate for the General Medical Council, and to recommend him to the profession. It was further decided to send the recommendation to the British Medical

JOURNAL and it appeared in last week's issue (see SUPPLEMENT, page 285).

Annual Representative Meeting.—Dr. BAGLEY read his report on the Annual Representative Meeting. One of the chief matters at the Representative Meeting under discussion was the question of the Charter. Its importance was urged in that if they were to help each other by benevolence or by medical defence a Charter was the only way. —Dr. Bagley was accorded a unanimous vote of thanks for his paper.

Rusholme Dispensary.—Dr. FEATHERSTONE read the report of the Subcommittee's work in regard to the Rusholme Dispensary. Notwithstanding the fact that several previous men in charge of this dispensary have been obliged to resign there was another medical man undertaking the duties of this dispensary at the present moment. In conclusion Dr. Featherstone reported that—

> You will see that while your Committee, owing to the scanty powers—unwillingly used—of the General Medical Council, have not been able to suppress the dispensary, they yet have forced its Committee to find their staff amongst the dregs of the profession, and so limit its power for evil.

Votes of Thanks.—A vote of thanks was passed to the Lancashire and Cheshire Branch Council and to the Medical Guild for assistance in providing funds for the investigation.

Medical Benevolent Institutions.

Dr. F. W. JORDAN gave a report on existing Medical Benevolent Institutions.

He said: I have obtained a copy of the rules and regulations of the Solicitors' Benevolent Association and of the Medical Benevolent Association, and I was referred by the Editor of the BRITISH MEDICAL JOURNAL to a series of articles in that journal for December 9th, 16th, and 23rd last, by Dr. Samuel West, from whom I have had a sympathetic letter. Both these charities are run on the same lines. I will therefore content myself with describing the objects of the British Medical Benevolent Fund.

[Dr. Jordan here read the parts of Dr. West's communication to the JOURNAL of December 9th, 1905, p. 1536, under the headings:

1. General objects of the fund.
2. The administration of the fund.]

Shortly put, the objects of the Fund are:

1. To make grants of money to distressed members of the profession, their widows, and orphans.

2. To provide annuities for such after they have reached the age of 60 years, or in case of blindness.

All bequests and donations are invested, and have reached a sum of £60,000, giving an income of £2,300 per annum, which is expended in providing 124 annuities. The average annuity is £20 per annum, and there is a desire to raise this to £26 when funds permit. Grants of money are provided out of the subscriptions, which in 1905 amounted to 1,341. This is an increase of £151 on the previous year. This in 1904 was equivalent to 1s. 6d. per head of the profession, or, if special donations are omitted, it is less than 6d. per head. This is a poor result from a profession which numbers many thousands. It follows that if every member of the profession would give a few shillings only to the Fund every year—and every one can afford something—the income would be very largely increased and its usefulness widely extended.

During 1905 there were grants to 21 medical men or their wives, 82 to widows, and 57 to children, daughters chiefly—160 in all. There were annuities to 20 medical men, 55 to widows, and 48 to daughters—123 in all.

The report does not say whether any cases were at the end of the year refused on account of want of funds. Most of the money was spent. Therefore it is impossible to say how much more money is required to put the Fund on a satisfactory footing. Some of the cases relieved appear to be certainly deserving of larger grants, and it is certainly desirable to raise the annuities to an average of £26 per annum, for which purpose about £800 additional per annum would be required, and this represents a capital of about £23,000 at 3½ per cent. According to the present practice of the Benevolent Fund, this amount would have to be raised in order to fully secure the annuities of £26 per annum. Under a new scheme the funds coming in regularly could be relied on to secure these annuities much more so than in the present organization. I am not in favour of accumulating a large invested capital. I would rather trust to annual subscriptions and donations. When I first took up this subject I thought that the British Medical Association should have a charity fund of its own to relieve distressed medical men only who had been members of the Association. I have changed my views, and I think that the relief should extend to their widows and families and also to medical men and their families who were not members of the Association. It would be a waste of energy to have two charitable organizations with identical objects in view; so, to avoid overlapping, I suggest that the Association should work in unison with the Benevolent Fund, that there should be one fund and one management. The Benevolent Fund, retaining control and possession of its own invested funds, merely handing over the interest to the united management.

The British Medical Association, with its widespread and excellent organization, affords a useful and ready means for carrying out a scheme of systematic benevolence.

I would suggest that each Division of the Association should appoint one of the Committee as Charity Representative, his duty being to obtain donations and subscriptions from members of his own Division, and also from non-members of the profession if possible. All moneys so obtained to be sent quarterly to a Charity Steward appointed by the Branch. This Charity Steward may be one of the Charity Representatives. The Charity Steward would then forward such donations and subscriptions to the Managing Committee in London, which I would call "The Committee of Benevolence of the British Medical Association." This Committee would be formed in the first instance partly of the present management of the Medical Benevolent Fund; but ultimately it would be formed entirely of members of the British Medical Association, certain members of the Committee being Special Representatives of the existing Medical Benevolent Fund, or if thought desirable the Trustees of that Fund or other persons, whether members of the British Medical Association" or not, might be the Special Representatives of that Fund. The new organization would be termed "the Benevolent Fund of the British Medical Association," and its scope should correspond with that of the existing institution. I think this plan affords a basis for organizing a scheme which would prove a regular feeder for a charity fund. Personal advocacy in soliciting subscriptions is so much better than circularizing people; small subscriptions only would be needed, and being spread over so large an area as is controlled by the British Medical Association would amount in the aggregate to a large sum, and coming in regularly would relieve the management of a considerable amount of anxiety.

As an addendum, I beg to make a few comments on other schemes which have been suggested in the JOURNAL lately. The writers contend that the funds of the Association *per se* should provide the wherewithal, and that this should be met by an addition to the annual subscription or by increasing the price of the JOURNAL, which amounts to the same thing. Such schemes claim as a matter of right on the part of members and their families, relief in case of need, and special reference is made to an annuity. This scheme would leave plenty of room for abuse and mismanagement, and would be turning the Association into a friendly society.

One writer says that the members of the Association would not object to each paying £2 to £3 yearly in order to secure a pension in case of need. This I question. Does he mean for the contributors only? If so, it would be a selfish scheme. What would he do with those persons or families in distress who had not contributed, or who had not been members of the Association?

These schemes are impracticable. A benevolent fund must have a distinct organization. Claim by right is not charity; the two cannot be combined. We must have pure benevolence or pure investment. The latter is met by the Medical Sickness and Assurance Society, and every person investing in it can claim by right the allowance or pension which he insures. Charity is not charity if contributions are enforced—they must be voluntary. The scheme I have propounded provides ample scope for the charitably disposed, and there are sufficient of them in our profession to put on a satisfactory footing the already existing and admirably managed organization.

The discussion on Dr. Jordan's important report was by unanimous consent adjourned for full consideration to a subsequent meeting.

The Working of the Association.

Dr. Brassey Brierley delivered an address on the working of the Association. The address was followed by a most comprehensive and careful review of the position of the Association by Dr. Collins—an ex-Chairman of the Division—and reforms were outlined by him by which the working of the Association could be improved. The discussion was taken up by Drs. Bagley and Percy McDougall, Representatives, by Dr. Redmond, Chairman of the Manchester (West) Division, and by Drs. Willis and Milson R. Rhodes.

A hearty vote of thanks was accorded Dr. Brassey Brierley for his address.

North Manchester Division.

A meeting of the Division was held at the Palatine Hotel, Manchester, on November 22nd.

Confirmation of Minutes.—The minutes were read and confirmed.

Alterations in Rules.—The Council's consent to certain alterations in the rules was communicated.

General Medical Council Election.—The election of Direct Representatives to the General Medical Council was considered and the following resolution unanimously agreed to:

> This Division cordially supports the candidature of Dr. G. H. Broadbent for the General Medical Council, and advises all medical men in this district to vote for him only at the approaching election.

Hospital Reform.—The question of hospital reform was adjourned for further information to be obtained.

Hospital Appointments.—Certain recent hospital appointments were discussed and the matter referred to a combined meeting of the local Divisions to be held as soon as possible.

Leigh Division.

On Thursday, November 15th, the usual monthly meeting was held at the Co-operative Offices, Ellesmere Street, Leigh, Dr. Jones, Chairman of the Division, in the chair.

Combination of Divisions.—The usual business of the Division having been transacted, the meeting considered the report of the meeting of the West Manchester Division, held on October 22nd, at which an unfavourable attitude to the present organization was adopted, and the following was passed unanimously:

> Resolved: That this Division of the British Medical Association, while recognizing the right of other Divisions to combine for social, scientific, or other purposes, deprecates the introduction of any system of combination which might tend to militate against the autonomy of the Divisions as secured by the present constitution of the Association.

NEW SOUTH WALES BRANCH.

The regular monthly meeting of the Branch was held on Friday, August 31st, Dr. Newmarch (Vice-President), in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Apologies for Non-attendance.—Apologies were received from Drs. Pockley, Clarence Read, and Hinder.

New Members.—The Chairman announced the election of the following gentlemen as members: Dr. J. S. Le Fevre, Burrowa; Dr. J. Solomon Harris, Darlinghurst; Dr. Lionel Robertson; and the nomination of: Dr. E. A. Bligh, R.A.H.C.; Dr. E. W. Moncrieff, Wagga Wagga; Dr. Murray M. Vernon, Tingha; Dr. A. G. V. Elder, Strathfield; Dr. H. H. Bullmore, Woollahra; Dr. N. R. Howse, Orange.

Postponement of Cases.—The Chairman stated that Drs. Hinder, Maitland, and W. J. Munro desire to postpone their cases.

Demonstration. — Dr. Alfred W. Campbell gave a demonstration, illustrated by a series of lantern slides, drawings, photographs, and casts, of his histological studies on the localization of cerebral functions. Drs. Flashman and Camac Wilkinson made remarks on the demonstration. Dr. Campbell replied.

Proposed Alteration of Articles.—Dr. Crago proposed and Dr. Quaife seconded that Article 39 be altered as follows:

> After the words (line 14) "the above offices and of" insert the words "the first two of."
>
> Omit (line 18) "at or before the Annual Meeting, who shall deliver the same to the Chairman of the Annual Meeting."
>
> Insert after "Hon. Secretary" (line 18) "not less than twenty-four hours before the time fixed for the Annual Meeting."

Article 41:

> Omit the whole Article 41 and insert:
>
> At a convenient time before the date fixed for the Annual Meeting, the President, or at his request the Council, shall appoint two or more members of the Association to be scrutineers, who shall, not more than twenty-four hours before the time fixed for the Annual Meeting, receive from the Hon. Secretary the ballot papers returned to him, and shall compute the votes given therein, and after the commencement of the Annual Meeting in writing signed by each one of them, report to the Chairman the number of votes given in favour of each candidate, and the Chairman shall declare to the meeting the result of the election.

Article 44:

> Omit all the words after "members thereof" in line 2.

Article 49:

Dr. Crago proposed and Dr. Todd seconded that the whole should be omitted, the following being inserted:

> Vacancies occurring in the Council may be filled up by the Council, provided that, should more than two vacancies occur simultaneously, such vacancies shall be filled at a General Meeting, and the procedure for nomination and election shall be the same as that prescribed in Article 39 for election at the Annual Meeting.

Carried.

By-law passed March 29th, 1906: That this be cancelled.

By-Law:

Election of Representative Members of Council of British Medical Association by the New South Wales Branch.

Representatives of the Branch authorized by the By-laws of the British Medical Association to be elected or appointed by the New South Wales Branch to be elective members of Council of the British Medical Association shall be elected from time to time. Such Representatives may be members of a Branch other than the New South Wales Branch. Persons willing to be nominated for election as such Representatives shall be nominated each in writing to the Honorary Secretary of the Branch by three members thereof. Not less than fourteen days' notice shall be given of a date on or before which such nominations are to be delivered to the Honorary Secretary. If the number of candidates nominated exceeds the number of Representatives to which the Branch is entitled, the Hon. Secretary shall send by post to each member of the Branch a voting paper containing the names of the candidates nominated, to be returned to the Hon. Secretary and delivered by him at the commencement of the next General Meeting to the President or Chairman presiding thereat, who shall appoint one or more scrutineers to compute the votes, and to report in writing, signed by such scrutineer or scrutineers, to him the number of votes given in favour of each candidate, and he shall at the same meeting declare the result of the election. If the number of candidates nominated shall not exceed the number of Representatives to which the Branch is entitled, the President or Chairman shall at the next General Meeting declare such candidates to be duly elected. Each Member of Council so elected by the New South Wales Branch shall be elected for three years.

By-law:—[illegible]

Representative of the New South Wales Branch at the Annual Representative Meeting of the British Medical Association.

A Representative of the New South Wales Branch at the Annual Representative Meeting shall be elected annually at a General Meeting held not more than four months nor less than eight weeks before the date fixed for the Annual Representative Meeting. In the event of such Representative being unable or unwilling to attend the Annual Representative Meeting he shall have power to select a Representative to act at the said meeting in his stead. Failing such selection of a substitute by him the General Secretary of the British Medical Association is hereby authorized to appoint one of the Representatives of the New South Wales Branch on the Council of the British Medical Association, able and willing to attend the Annual Representative Meeting, to be the substitute for the Representative so elected.

Carried.

SOUTH-EASTERN BRANCH:

Tunbridge Wells, Sevenoaks, Hastings, and Brighton Divisions.

A conjoint meeting of these Divisions was held on Wednesday, November 21st, at the General Hospital, Tunbridge Wells, Mr. B. Rix in the chair.

Opsonins.—Dr. HERBERT FRENCH, Assistant Physician, Guy's Hospital, read a paper entitled, About Opsonins, and their Utility in Practical Medicine. Dr. BUSHNELL, in giving his experience of eighteen months' work at the Ralli Pathological Department, Sussex County Hospital, Brighton, said that the opsonic index had been used as an aid to diagnosis and a guide to treatment. In the 30 cases dealt with they had had none of acne or lupus vulgaris. They had treated cases of tuberculous peritonitis, renal tuberculosis, tuberculous osteitis, epididymitis, hip-joint disease, and adenitis, with variable results. As an aid to diagnosis the results were confirmatory of clinical signs. He considered that treatment by vaccines was only supplemental to other measures. There was a distinct margin of error in all estimations of the opsonic index. The CHAIRMAN, Drs. CAMPBELL SMITH and MAYNARD joined in the discussion, and Dr. HERBERT FRENCH replied to the points raised. Dr. French was thanked for his most valuable and interesting paper.

Dinner.—Twenty-eight members and friends afterwards dined at the Calverley Hotel.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BORDER COUNTIES BRANCH: NORTH CUMBERLAND DIVISION.—A meeting of the Division will be held at the County Hotel, Carlisle, on Friday, December 7th, at 8 o'clock, when Dr. Norman Walker will give an address on a series of cases of so-called eczema traced eventually to definite causes. Dinner will be at 6.30 p.m.—NORMAN MACLAREN, Honorary Secretary, 23, Portland Square, Carlisle.

DORSET AND WEST HANTS BRANCH: WEST DORSET DIVISION.—A meeting of this Division will be held at the County Hospital, Dorchester, on Wednesday, December 12th, at 4.15 p.m. Agenda: (1) Minutes of the last meeting; (2) to appoint the place of next meeting; (3) report of the Annual Representative Meeting by the Divisional Representative; (4) other business; (5) cases of interest will be shown by members of the staff of the hospital (particulars in circular calling the meeting). The members of the staff invite members to tea at 4 p.m., before the meeting. Dinner at the King's Arms at 6 p.m.—J. COMYNS LEACH, Honorary Secretary, The Lindens, Sturminster Newton, Dorset.

LANCASHIRE AND CHESHIRE BRANCH: ALTRINCHAM DIVISION.—The next general meeting of this Division will be held at 4.50 p.m., on Thursday, December 6th, at the Board Room of the Altrincham Hospital.—T. W. H. GARSTANG, Altrincham, Honorary Secretary.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.—A special meeting of the Division will be held, at the Rooms of the Royal Medical and Chirurgical Society, 20, Hanover Square, W., on Monday, December 3rd, at 8.30 precisely. The first of a series of discussions on Economic Problems in the Practice of Medicine will be held. The resolution submitted will be: "That it is desirable that concerted action should be taken to lessen the large amount of gratuitous medical attendance granted to many sections of the community, inasmuch as it tends to diminish the thrift and self-respect of the public, lessens the esteem in which medical science is held, and has a detrimental effect upon the position of many members of the profession." The debate will be opened by Sir Richard Douglas Powell, Bart., Sir John Tweedy, and Dr. J. Kingston Fowler. Special invitations will be sent to all medical practitioners resident in the Marylebone Division, whether they are members of the Association or not. Any member of the profession will be admitted on presentation of his card. The Honorary Secretary will be glad to receive as soon as possible the names of those willing to take part in the debate.—COMYNS BERKELEY, M.B., B.C.Cantab., M.R.C.P.Lond., Honorary Secretary and Treasurer, 53, Wimpole Street, W.

METROPOLITAN COUNTIES BRANCH: TOTTENHAM DIVISION.—A meeting will be held at Tottenham Hospital on Wednesday, December 12th, at 4.30 p.m. A letter from the Dublin Division, Leinster Branch, will be considered. A discussion as to the best means of inducing every medical man to join the Association will be opened by Dr. Tresilian.—H. F. STAUNTON, 88, High Road, Wood Green, N.W., Honorary Secretary.

NORTH WALES BRANCH: NORTH CARNARVONSHIRE AND ANGLESEY DIVISION.—A meeting of this Division will be held at the British Hotel, Bangor, on Wednesday, December 5th, at 2.30 p.m.—JOHN EVANS, Honorary Secretary, 2, Church Street, Carnarvon.

SOUTH-EASTERN BRANCH: CANTERBURY AND FAVERSHAM DIVISION.—A meeting of the above Division will be held at Faversham on Thursday, December 13th, 1906. Agenda: (1) Minutes of last meeting; (2) time and place and Chairman of next meeting; (3) motor car legislation; (4) any other business. Excursion.—By special permission the members will be taken over the works of the Gun Cotton Powder Company at Uplees, and shown the interesting processes of manufacture carried on there. Carriages and motors will leave Dr. Evers's house at 2.15 for the works, and convey members back to the Cottage Hospital, where the business meeting will be held at 4.30. Dr. Evers invites members to lunch at his house at 1.15. Members accepting will please let him know by Wednesday, December 12th. There is plenty of accommodation for motors at his house. Tea will be served at the hospital and a few cases shown there.—A. R. HENCHLEY, 1, London Road, Canterbury, Honorary Secretary.

SOUTH-EASTERN BRANCH: FOLKESTONE DIVISION.—A meeting of this Division will be held at the house of Dr. Perry, 1, Castle Hill Avenue, on Thursday, December 6th, at 8.30 p.m. Agenda: A paper will be read by Dr. Samuel West on Some Clinical Aspects of Influenza. All members of the South-Eastern Branch are invited to attend and introduce professional friends.—P. VERNON DODD, Folkestone, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION LIBRARY.

BOOKS NEEDED TO COMPLETE SERIES:

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

American Climatological Transactions. Vols. 1, 4, 5, 6.
——— Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
American Journal of the Medical Sciences. New series, vols. 4, 5, 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 33, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
——— Journal of Ophthalmology. Vols. 1-9.
——— Laryngological Association. Transactions. Vols. 1-6, 8-9.
——— Medical Association. Transactions, 1-28, 30, 31.
——— Otological Society. Transactions. Vol. 3, part 2, 1883.
——— Public Health Association. Transactions. Any vols.
Analyst. Vols. 1-24.
Archiv für Dermatologie und Syphilis. Prior to 1874, 1892, and 1893.
Annals of Surgery. Vols. 1, 11, 13-16, and 26, 27.
Archives Générales de Médecine. 1831-9 inclusive; 1846-55 inclusive; 1857-64 inclusive; 1871.
——— of Ophthalmology. Vols. 1-3, 6, 7, 14, 15, 16 and 20.
——— of Otology. Vols. 1-7, and 20-22.
——— de Parasitologie. Vols. 1-3.
——— of Pediatrics. Vols. 1-11.
Asylum Journal of Mental Science. Vol. 1, 1854.
Bentley and Trimen. Atlas of Medicinal Plants.
British Journal of Dermatology. Vol. 2, part 3.
British Laryngological and Rhinological Association, 1900-1-2.
Caledonian Medical Journal. Vol. 1 prior to 1894.
Carmichael Essays. Rivington, 1879.
Centralblatt für Augenheilkunde. Hirschberg. All prior to 1891; Index to 1891.
Centralblatt für Bakteriologie. Bound volumes prior to 1899.
——— für medicinischen Wissenschaften. Vols. 1-19.
Congrès Français de Chirurgie. Transactions 1, 2, 3, 6, and 10, and all since 11th.
——— Internat. d'Obstétrique et de Gynécologie. 3. Amsterdam, 1899.
Dermatological Congress. Vienna, 1892.
Dublin Quarterly Journal of the Medical Sciences. Vols. 1, 10, 17, 20, 28, and 35-40.

GENERAL COUNCIL
OF
MEDICAL EDUCATION AND REGISTRATION.

WINTER SESSION 1906.

Tuesday, November 27th.

Dr. Donald MacAlister, President, in the Chair.

Members Absent.

The President announced that Dr. Barrs and Dr. Cocking would be unable to attend the Session owing to illness. He expressed the hope that they would both be speedily restored to health.

New Members.

Mr. James Wm. Beeman Hodsdon was introduced by Sir John Batty Tuke as the representative of the Royal College of Surgeons of Edinburgh in the place of Sir Heron Watson. Sir Charles Ball was introduced by Dr. Little as the representative of the University of Dublin in the place of Dr. Bennett.

President's Address.

Alterations in Meeting Room.

Gentlemen,—Let me begin by offering you my congratulations on the improved physical conditions under which you assemble to-day. The plans for the enlargement of this chamber, submitted by the Office Site Committee last May, have during the summer been carried out under its direction. Certain unforeseen obstacles, of a technical kind, made the task of your officers somewhat difficult; but by patience and goodwill these obstacles have been overcome, and there is reason to hope that the result will make not only for comfort but for salubrity. It is right that I should specially acknowledge in this connexion the service rendered by the Registrar and his assistants, whose arrangements made it possible, throughout the progress of the alterations, to carry on the work of the office without interruption or inconvenience to the public.

Changes in the Council.

Of the members who were accustomed to meet with us in the old chamber, three are missing from the new. You will allow me to say a few words about each.

Our senior member, Sir Patrick Heron Watson, *magnum et venerabile nomen*, who since 1882 has sat with us as the representative appointed by the Royal College of Surgeons of Edinburgh, retired at midsummer after twenty-four years of distinguished service. We are the poorer for the loss of a councillor whose grave wisdom and whose stately eloquence upon fit occasion were but the expression of his high conception of professional duty and of his sterling personal character. He has received many tokens of honour from the Sovereigns whom in peace and war he served, from the University and the College which he helped to govern, and from the profession which he still adorns. He will not, I feel sure, be other than gratified by the tribute of cordial regard which in your name I venture to offer him on his retirement.

After ten years of service, Dr. E. H. Bennett has ceased to represent the University of Dublin in this Council, where his sturdy common-sense and firmness of purpose were recognized by all. Those who remember his predecessor will agree that it was no easy task to follow Dr. Samuel Haughton, whose manifold experience and sprightly temper gave him a unique place in our counsels, but it will also be readily admitted that the influence and repute of his University have suffered no detriment at the hands of Dr. Bennett. He was always willing to take his share in the administrative and educational work of the Council, and he did well whatever he undertook.

Sir Victor Horsley, who was first returned as a directly-elected member in 1897, resigned his seat on October 29th in order that the Council and the medical practitioners of England might be saved the inconvenience by a bye-election next year. But for his forethought and consideration it would have been necessary, under the provisions of the Medical Act, 1886, to hold a bye-election not only in 1907, but in every fifth year thereafter. His resignation at the present time has rendered it possible so to arrange matters that, now and henceforth, a general election of three English members every five years may suffice. The Council and the electors will properly appreciate the fact that Sir Victor has had in mind their interests in thus choosing the date at which he lays down his office. The Council certainly will not soon forget a colleague who, after attaining high eminence as a physiologist and a surgeon, gave himself enthusiastically to the public service of his fellows, and strenuously laboured to overthrow whatever he deemed to be an obstruction to professional progress. Though we might not all share his opinions on all subjects, we could not fail to be impressed by the alertness of his mind, the acuteness of his criticism, and the zeal of his advocacy.

In place of Sir Patrick Heron Watson, the Royal College of Surgeons of Edinburgh has appointed Mr. Hodsdon, who, both as a surgeon and as a man of affairs, bears a high reputation among his professional brethren in Scotland. In place of Dr. Bennett, we welcome back to the Council an old friend in the person of Sir Charles Ball. His qualities as a colleague we already know and value.

Approaching Election of Direct Representatives.

As I have indicated, the place of Sir Victor Horsley will be filled on December 12th by means of the general election now proceeding. For the three English seats ten candidates have been duly nominated, and for the one Scottish seat two candidates. The present directly-elected members of the Council, Mr. Brown, Mr. Jackson, and Dr. Bruce, are nominated for re-election.

In fulfilment of the wish expressed by the Council in November last, the Executive Committee has obtained the consent of the Privy Council to a modification of the regulations which have hitherto governed the method of voting in such elections. By the use of signed envelopes enclosing unsigned voting papers, the elector is now enabled to record his vote without disclosing his identity to the enumerators, or to others who may be present during the process of counting. In other words, the method authorized by the new regulations is practically that of voting by ballot, which has long been current in Parliamentary and other elections elsewhere. The Executive Committee has to thank Dr. Leonard Kidd and Sir Victor Horsley for suggestions as to practical details, which have been embodied by the Privy Council in the amended schedules.

Sight-testing Opticians and Medical Herbalists.

In two other matters of importance His Majesty in Council has been pleased to give effect to the representations of the Executive Committee on your behalf.

The petition of the British Optical Association for the grant of a charter, concerning which resolutions were adopted by the Council on May 24th, and transmitted to the Lord President, has been refused. It is, moreover, understood that the Sight-testing Opticians Bill, introduced in the House of Lords with a purpose similar to that of the proposed charter, has been dropped.

Another petition for a Charter of Incorporation was presented by the "National Association of Medical Herbalists of Great Britain, Limited," and was advertised in the *London Gazette* at the beginning of July. As it was apparent that the grant of the powers and privileges sought for would be dangerous to the public, and would tend to defeat the purposes of the Medical Acts, a memorandum setting forth the objections to the grant was drafted, and approved by the members of the Executive Committee for transmission to the Lord President. We have now been officially informed that in this case also His Majesty in Council has been advised to refuse the prayer of the petitioners.

Reciprocity with Japan and Nova Scotia.

The Executive Committee has had before it some additional information respecting medical qualifications in Japan other than those conferred by the Imperial University. On this subject it will report in due course to the Council. The Committee has also under consideration applications from the Provincial Medical Board of Nova Scotia, and from the University and College there, by which medical degrees are granted in that province, requesting that in pursuance of the Order in Council of May 11th, 1906, these provincial diplomas may be recognized for registration in the Colonial List of the *Medical*

Register. A Memorandum setting forth the course of medical study and examinations enforced by law in Nova Scotia has been prepared for the information of the Committee, and will be printed with its minutes on the subject.

Reciprocity with Canada.

During the summer it was my privilege to revisit Canada, in connexion with the meeting of the British Medical Association at Toronto. By the kindness of the Lord President of the Privy Council and of the Governor-General, I was enabled to meet Ministers of the Crown at Ottawa, Toronto, and Quebec, and other influential persons interested in the subject of medical reciprocity between Canada and the Mother Country. I found that in some cases misconceptions existed as to the effect of recent Imperial legislation on the question, and as to the steps that are now necessary to procure the application of the Medical Act of 1886 to particular provinces. There is reason to believe that the explanations offered in answer to inquiries on these points have been serviceable in removing such misconceptions. Indeed, from an unofficial communication that has recently arrived, it would appear that in one important province, which at present does not accept British diplomas for registration, active steps are now being taken to bring about the mutual recognition of medical qualifications as between this country and the province. It gives me great pleasure to acknowledge the courtesy which, as your President, I received at the hands of the Dominion and provincial ministers, and of the university and medical authorities, in Canada. From what I was able by their kindness to see and hear of the conditions of medical and scientific education in the Dominion, I was strengthened in my conviction that nothing but good can result from a closer connexion and a freer interchange between the professional schools there and here.

Four Hundredth Anniversary of the University of Aberdeen.

The four hundredth anniversary of the University of Aberdeen was celebrated last September with unexampled magnificence on the part of the academic and municipal hosts, and with the utmost satisfaction on the part of the guests who had been invited from all parts of the world. As many members of the Council were privileged to be present, I need not enlarge on the intrinsic interest or the perfect organization of the ceremonies. These ceremonies culminated in the solemn opening by Their Majesties the King and Queen of the noble buildings added to Marischal College for the better accommodation of the University, and in particular of that School of Medicine which in the past has so greatly enhanced its fame. I should, however, report that the address of congratulation, which you instructed the President and Treasurers to present in your name, was very graciously received by the venerable Chancellor, Lord Strathcona and Mount Royal; and that assurances have reached us that the action of the Council herein was highly appreciated by the University of Aberdeen. The text of the address has, in accordance with precedent, been reported to the Executive Committee and entered in its minutes.

Convictions of Registered Persons.

During the hearing of certain cases in May the desire was expressed that the Council should be formally notified of all cases in which medical or dental practitioners are convicted on such charges as might bring them within the operation of the penal clauses of the Medical or Dentists Act. Communications were accordingly addressed by the Registrar to the Secretary of State for the Home Department, the Under-Secretary for Scotland, and to the Chief Secretary to the Lord Lieutenant of Ireland, asking that instructions might be given to this effect. From England and Ireland we have received replies stating that the desired instructions have been issued; from Scotland we have so far heard only that our request "will receive attention."

Penal Cases.

In certain cases that will come before you for inquiry, information received in consequence of the steps thus taken by the Government authorities will be placed at your disposal. The penal cases which you will have to consider do not, I think, raise any new point of principle; they have been carefully prepared for your inquiry by the reconstituted Penal Cases Committee and by your legal advisers. One of the dental cases illustrates afresh the unsatisfactory state of the law in relation to joint-stock companies which purport to carry on professional practice.

Parliamentary Bills.

The Bills prepared on the Council's behalf, by means of which it is proposed to remedy in some measure the existing abuses, have been communicated to the Lord President; but acting on advice which we could not disregard, we have not attempted to submit them for consideration by Parliament during the present autumn session. Next year we may hope to be more successful in urging them on the attention of Parliament.

Privileged Documents and Evidence.

An important opinion from eminent counsel, bearing on the "privilege" attaching to the documents and evidence submitted in connexion with the penal procedure of the Council, has been obtained, and will be submitted to you *in camerâ*. It may be necessary, in pursuance of the advice thus given, that you should sanction an addition to the Standing Orders relating to judicial inquiries under the Medical and Dentists Acts.

Inspection and Visitation.

The Standing Orders respecting the inspection and visitation of examinations have been so adjusted by the Executive Committee as to embody the important principles laid down by the Council at its last meeting. You will be asked to approve the form into which the rules have been cast by the Committee; and formally to sanction the issue of a revised edition of the Standing Orders, which, owing to the accumulation of a number of minor amendments made from time to time by the Council, it has been thought necessary to prepare.

Teaching of Midwifery.

The important report of the Practical Midwifery Committee has by your direction been forwarded to the several teaching and examining bodies for their observations. From a large number of these bodies replies have been received and have been arranged by the Registrar for the information of the Committee which met yesterday to consider them. The Committee will probably be able to report during the present session on the progress it has made.

The Fifth Year.

The Education Committee also will have something to say on the questions remitted to it on the motion of Dr. Bruce (Minutes, May 26th, 1906): namely, what effect has been given to the proviso concerning pupilage contained in one of the recommendations of the Council, and generally what steps are taken by the licensing bodies to ensure that the fifth year of the minimum curriculum shall be devoted to clinical study? From inquiries which have been made by the Registrar it would appear that little or no use is made of the permission to reckon a period of pupilage with an approved practitioner as part of the fifth year. It will be for the Council to consider whether a proviso that is practically inoperative is worth retaining. Its inclusion among our Recommendations has already given rise to misconceptions regarding the lawfulness of employing in medical practice the assistance of unqualified students who are described as pupils.

Duration of Session.

In conclusion, I would say that, so far as can be foreseen, the business of the programme will probably be compassed by the end of this week. As the General Registrar and his staff will soon be immersed in the laborious work of receiving, verifying, and counting ballot papers, under the direction of the Branch Council for England, the comparative lightness of our agenda is highly convenient on this occasion.

Vote of Thanks.

On the motion of Dr. Norman Moore a vote of thanks to the President was adopted, and he was requested to permit the address to be printed.

Results of Service Examinations.

The Registrar submitted tables showing the results of competitions held in July, 1906, for commissions in the Army and Indian Medical Services respectively.

From the table referring to the Army Medical Service

it appeared that 54 candidates competed, and that 40 qualified for a vacancy and 2 were "qualified but unsuccessful"; it appeared also that 14 gentlemen who had expressed their intention to become candidates did not compete.

On the table referring to the Indian Medical Service the Registrar presented the following report:

As appears from the usual statement sent by the Department there were 47 candidates, of whom 25 passed for vacancy, 9 qualified but were unsuccessful, while 13 were rejected.

In addition to the statement, however, a complete table of marks was sent, from which the following information has been extracted:

All the 13 candidates rejected failed to obtain qualifying marks, 7 of them are not stated to have failed in any particular subject, while 1 failed in chemistry only, 3 failed in medicine only, 1 failed in anatomy only, and 1 failed in each group of subjects, including midwifery.

The tables and report of the Registrar were received and entered on the minutes, and Dr. McVail moved:

That the thanks of the Council be conveyed to the Director-General of the Army Medical Service and the Under Secretary of State for India, respectively, for the returns which they have again furnished to the Council, with the request that these returns may in the future continue to be furnished to the General Medical Council.

Dr. Young seconded.

Professor Saundby hoped that the Council would not continue to publish these reports every year. In his opinion, they were absolutely worthless, and he moved as an amendment that the words, "with the request that these returns may in the future continue to be furnished to the General Medical Council" should be struck out.

Dr. Adye-Curran seconded.

Dr. McVail stated that the Examination Committee had always found the returns to be of very great use. By their means the Council had been able to give the profession at large, over a series of years, valuable information as to the various examinations.

Mr. Tomes said that he had found these tables of real assistance in trying to form an estimate of the way in which the different examining bodies performed their duties, and, although it was true that a single return was misleading, if they were collected together for a series of years it was remarkable that the same bodies showed the same merits and defects.

Dr. Lindsay Steven doubted whether it was within the legitimate province of the Council to consider these matters at all; the Council had absolutely no control over the Examining Boards and did not know what the conditions were; and they were in no sense qualifying examinations, inasmuch as those who went in for them were already qualified, as the Council had admitted them to its *Register*. For other reasons he held that the returns were of no value whatever in assisting the Council to arrive at a definite conclusion as to the value of the different schools.

Sir Thomas Myles joined issue with Dr. Lindsay Steven on the question of value of the tables. In his opinion they were of great value as they showed that the standard adopted by certain licensing bodies was materially below the standard of the Army Board.

Mr. George Brown said he was convinced of the value of the tables, and illustrated it by quoting from those before him, which showed, as he said, that a particular examining body had been responsible for 10 out of 12 of the candidates who had failed at the army medical examination. This, he thought, was information of great importance, and ought to indicate to the examining body in question the need for making a change in its methods.

Dr. Bruce, who followed, said he intended to support the amendment mainly because Mr. George Brown's speech so aptly illustrated the way in which these tables may be abused. It was true that if they were collected together, as Mr. Tomes had said, for twenty years, some less misleading deductions might be drawn; but to publish these half-yearly returns was useless and misleading.

After some further discussion the amendment was put and declared lost.

The motion was then put and agreed to *nem. con.*

Dental Business.

On the motion of Dr. Norman Moore, the following report from the Executive Committee on the dental business transacted since the last meeting of the Council was received and entered on the minutes.

REPORT.

(1) The prescribed conditions having been duly fulfilled in each case, the names of the undermentioned persons have been restored to the *Dentists' Register*, from which they have been erased in conformity with the provisions of Section 12 of the Dentists Act, 1878.

The section provides for the erasure of the name of a person who does not reply to a letter of inquiry as to his address from the Registrar.

Cameron, David J.	Hall, William H.
Campbell, George	Harris, Harold O. W.
Dallachy, James W.	Highfield, Henry
Davies, Bertrand S.	Hooper, Gordon
Donovan, Frederick	Mulliner, Thos. C. M.
Forewell, Henry	Philson, Matthew S.
Gartrell, John H.	Washbourne, Henry A.

(2) Information was received, through the Colonial Office, of the intention not to proceed with a proposed Bill to regulate dental practice in the Colony of Hong Kong.

(3) The Committee received from the authorities in England and Ireland promises to furnish to the Council records of all fines inflicted on dental practitioners, and an assurance from the Under-Secretary for Scotland that the matter would receive attention.

(4) The Committee received, through the Colonial Office, a copy of an Act to regulate the practice of dentistry in Newfoundland, and referred it to the Dental Education and Examination Committee for its information.

(5) A communication was received from the Royal College of Surgeons of England intimating that its licence in dental surgery had been withdrawn from three dental practitioners whose names had been erased by the General Council at its May session.

Donald MacAlister,
Chairman.

The Chairman said that erasure from the *Dental Register* meant the automatic withdrawal of the licence of the licensing body granted to any person whose name had been erased by the Council, and in the same way the restoration to the *Dentists' Register* would automatically restore the licence.

Inspection and Visitation of Examinations.

The Executive Committee reported as to the revision of the Standing Orders, that they had revised these in regard to the visitation and inspection of examinations, and had adjusted certain others so as to embody alterations adopted by the Council from time to time since the last revision in July, 1903.

The President stated that no change had been made except to embody the resolutions come to by the Council. The work had been entirely editorial.

Dr. Lindsay Steven said with reference to the Standing Order No. 2—

2. It shall be the duty of the Examination Committee to advise the Council as to the time and place of each inspection.

—that on general principles it was an error on the part of the Council to depute such important matter as the time and place of the inspection and visitation to any committee. It was the duty of every member of the Council, if he thought fit, to advise the Council as to the time and place of inspection and visitation. As he understood that it was not competent for him to move that the Standing Order be rescinded, he moved that it should be the duty of the Examination Committee and the Education Committee to advise the Council as to the time and place of the inspection.

Sir John Batty Tuke seconded.

Dr. McVail, as Chairman of the Education Committee, had no objection to the proposal, and Dr. Mackay associated himself entirely with what Dr. Lindsay Steven had said.

The amendment was then carried, and the regulations as amended were adopted.

Mr. Brown inquired whether the Committee should not recommend as to the Visitors.

The President replied that the Executive Committee thought that was a matter that should be left entirely in the hands of the Council, and, speaking as President, he was very glad the Committee came to that conclusion. He further stated in regard to the Standing Orders that, acting on legal advice, some further alteration would have to be made. He suggested that the Council should give the Executive Committee power to insert the necessary

alterations when approved by counsel, and to issue the volume of the Standing Orders when it was ready, otherwise the Council would have to wait until May. The suggestion was agreed to.

Election of Direct Representatives by Ballot.

With regard to the following resolution, passed by the General Medical Council on May 28th, 1906:

> That the Executive Committee be instructed to approach the Privy Council with the object of securing such alteration in the Regulations 8 and 10 of the Schedule of Instructions to Voters under Section 8 of the Medical Act, 1886, as will provide for the adoption of the principles of voting by ballot in lieu of the existing open system of election of Direct Representatives,

it was reported that in consequence of the representation which was thereupon made, the Privy Council had given its consent to the proposed change in the mode of election, and revised rules for the conduct of elections by means of the use of ballot papers had been received.

The report was received and entered on the minutes.

Restoration of Name to Dentists' Register.

The Council then went into *camera* to consider a report from the Executive Committee, and strangers were directed to withdraw. On readmission,

The President said: I have to announce that the Council has decided to restore to the *Dentists' Register* the name and qualification of Mr. William Jones.

The Council then adjourned until the following day.

Wednesday, November 28th, 1906.

Dr. MacAlister, President, in the Chair.

The minutes of the previous day's meeting were read, amended, and confirmed as amended.

Disciplinary Cases.

The Council then proceeded to the consideration of the case of James William Ayres, registered as of 111, Farnworth Street, Liverpool, Lic. R. Coll. Phys. Edin., 1874, who has been summoned to appear before the Council to answer the following charges, as formulated by the Council's Solicitor:

> That you were on the 5th day of October, 1905, convicted at the City Police Court, Liverpool, of being drunk in a certain public street in Liverpool, and guilty while drunk of riotous behaviour therein, and also that you were on the 7th day of December, 1905, convicted at the same Court of wilfully neglecting your four children, who were all under the age of 16 years, in a manner likely to cause them unnecessary suffering.

Mr. Lushington appeared as Legal Assessor and Mr Winterbotham as Solicitor to the Council.

The Solicitor, having stated the charge, put in the certificates by the Clerk to the Justices of the convictions.

Dr. Ayres, who appeared in person, denied *in toto* the charges of drunkenness and cruelty. In reply to the Solicitor he denied the evidence given by Inspector Lindsay, of the Society for the Prevention of Cruelty to Children, before the stipendiary magistrate, and said he had not had an opportunity of refuting it.

Strangers were directed to withdraw. On readmission,

The President said: I have to inform you that the Council have deliberated very carefully upon your case and has passed the following resolution:

> That James William Ayres having been proved to have been guilty of misdemeanour, the Registrar be directed to erase his name from the *Medical Register*.

The Council then proceeded to consider the case of Henry Cundell Juler, registered as of 141, Garfield Place, Cincinnati, Ohio, U.S.A., M. 1853; L.M. 1854; R.C.S.Eng.; M.D. Univ. K. Coll. Aberd. 1855; L.S.A.Lond. 1856, who had been summoned to appear before the Council to answer the following charge as formulated by the Council's Solicitor:

> That information and evidence have been laid before the Council that you were on the 10th day of July, 1905, convicted at Marlborough Street Police Court of committing an act in violation of public decency in Hyde Park.

Dr. Juler did not appear, and was not represented.

Mr. Winterbotham, the Solicitor, having stated the charge, strangers were directed to withdraw. On readmission,

The President said: I have to announce that the Council has come to the following resolution:

> That Henry Cundell Juler, having been proved to have been guilty of misdemeanour, the Registrar has been directed to erase the name from the *Medical Register*

The Council then proceeded to the hearing of the case of Edmund McDonnell, registered as of 25, Hereford Street, Sheffield, L.R.C.P.Edin. 1880, L.R.C.S.,Edin. 1880, who had been summoned to appear before the Council to answer the following charges, as formulated by the Council's solicitor:

(1) That you have acted as cover to an unqualified person, namely, Mr. William Williams Alnwick, and knowingly enabled him to attend and treat patients and otherwise to engage in medical practice as if the said William Williams Alnwick were a duly qualified and registered medical practitioner:

(2) That you knowingly allowed the said William Williams Alnwick to fill up and sign in your name a certain certificate of death, namely, that of Ellen Millward, which stated that you had attended the said Ellen Milward in her last illness, and that you had last seen her alive on September 20th, 1906, whereas in fact you had not attended her or seen her, but the said William Williams Alnwick had alone attended and seen her.

And that in relation thereto you have been guilty of infamous conduct in a professional respect.

And, further, I give you notice that information and evidence have been laid before the Council that you were on the 24th day of July, 1906, convicted at the Sheffield City Petty Sessions on three charges of drunkenness, and that you were on the 13th day of September, 1906, convicted at Belfast of drunkenness.

Mr. Lushington appeared as Legal Assessor, and Mr. Winterbotham as Solicitor. Mr. McDonnell did not appear, and was not represented.

The Solicitor stated the charge and put in the certificates of convictions.

Strangers were directed to withdraw. On readmission,

The President said:

> The Council have judged Edmund McDonnell to have been proved to have been convicted of various misdemeanours and to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase from the *Medical Register* the name of Edmund McDonnell.

Proceedings in Camera.

On the President's suggestion the Council went into *camera* to receive the opinion of its legal adviser referred to in his address; and strangers were directed to withdraw. On readmission no announcement was made to the public.

Examination in Midwifery and Gynaecology.

Mr. Young moved, Dr. McVail seconded, and it was resolved:

> That it be remitted to the Students' Practical Midwifery Committee to consider and report as to the inclusion of clinical and practical work in the qualifying examination in midwifery and gynaecology.

ROYAL COMMISSION ON THE POOR LAW.

Evidence by the British Medical Association.

The English section of the Special Poor-law Committee, appointed by the Central Council of the Association to collect evidence for submission, on behalf of the Association, to the Royal Commission on the Poor Law, has for some time been engaged in collecting information from Poor-law medical officers on the subject. It is anticipated that the evidence of the Association will be taken by the Commission early in February.

The Subcommittee, considering that the system of affording relief under the Poor Law is a matter affecting not only the Poor-law medical officers, but also the general interests of the profession and of public health, desire it to be made known that they will welcome communications from Divisions of the Association in England and Wales as to any matters which in their view should receive attention in the evidence given on behalf of the Association.

To facilitate the consideration of the matter by those Divisions which may desire to take it up, certain specific questions will be published in the Supplement for next week. Honorary Secretaries of Divisions may in the meantime find it convenient to consider possible arrangements for the local consideration of the subject. Communications which it is desired that the Committee should consider should reach the Medical Secretary not later than January 9th, 1907.

GENERAL MEDICAL COUNCIL ELECTION.

MR. RUTHERFORD MORISON'S CANDIDATURE.

Sir,—I owe a humble apology to the supporters of Mr. Rutherford Morison, which I trust you will allow me to offer through the columns of the British Medical Journal.

In some mysterious way I had got firmly fixed on my mind that the 25th was the last day on which nomination papers could be handed in, and in order to be on the safe side I had them all ready to send off on the morning of the 22nd, when in several ways I was made aware that I had made a serious error. I can only plead mental aberration, and must ask Mr. Morison's friends to believe that the mistake has been most mortifying to me. After all the work that had been put into the campaign, and the many influential promises of support, to feel that through my remissness our candidate will not "have a run for his money" is most humiliating to me. I must take the whole responsibility as the Chairman of the Committee, and my co-Secretary has left this detail entirely to me. I can only, in conclusion, ask our friends and supporters to take the matter as generously and philosophically as the candidate did on hearing of it.

Mr. Morison desires me to say that he hopes his supporters will now transfer the vote they intended to give to him to Dr. Latimer, who is now running in conjunction with Drs. Langley Browne and McManus. The return of this trio will, he thinks, be the best way of furthering the policy he was advocating. To this recommendation I would add the hearty support of my co-Secretary (Dr. Hunter) and self.—I am, etc.,

Alfred Cox.

CANDIDATURE OF DRS. LANGLEY BROWNE, LATIMER, AND McMANUS.

Sir,—We shall be grateful if you will allow us the use of your colums to inform the profession that, owing to the retirement of Mr. Rutherford Morison, the following candidates are running together for this election:

Browne, H. W. Langley
Latimer, H. A.
McManus, L. S.

We trust that the supporters of one or the other of these candidates will now join hands and forward their united interests in every possible way, and that every voter who has not already done so will fill in his paper at once and post it forthwith, as Tuesday, December 4th, is the last day that votes are receivable.—We are, etc.,

E. D. Kirby,
James Neal,
Hon. Secs. Dr. Langley Browne's Committee.
F. G. Thomas,
A. Hanson,
Hon. Secs. Dr. Latimer's Committee.
F. Rowland Fothergill,
Chas. J. Martin,
Hon. Secs. Dr. McManus's Committee.
Alfred Cox,
J. H. Hunter,
Hon. Secs. Mr. Rutherford Morison's Committee.

Birmingham, Nov. 26th.

Sir,—Being convinced that, had the Association scheme not fallen through, the Representative Meeting would have chosen the above as candidates, my Division unanimously decided to support them, and I may mention that the meeting was the largest held in the district for several years; I would therefore urge practitioners to vote for them, representing as they do a territorial distribution of seats.—I am, etc.,

J. R. Fuller,
Representative for Tottenham Division.

November 27th.

DR. LATIMER'S CANDIDATURE.

Sir,—Will you allow us, through the medium of your paper, to ask medical practitioners throughout England and Wales to support the candidature of Dr. H. A. Latimer of Swansea at the forthcoming election to the General Medical Council?

Dr. Latimer consented to become a candidate by the expressed wish of many medical men in Wales, and has been working with untiring energy and boundless enthusiasm; it is gratifying to know that the Branches and Divisions in Wales have promised him their support, and, if it was more generally known of the good work that Dr. Latimer has done in political, ethical, and educational matters relating to the medical profession, we are confident that he would receive the support of medical men throughout the country.

At a meeting of the Cardiff Division, held in October last, Dr. Latimer gave an address on the forthcoming election of Representatives to the General Medical Council; it was unanimously resolved at that meeting that the Cardiff Division should do all in its power to further his candidature. The substance of his remarks on that occasion are embodied in his election address, which appeared in the Supplement to the British Medical Journal for October 13th, which we cordially recommend to the serious contemplation of all who are interested.

In conclusion, we wish to point out that Dr. Latimer is the Representative of the Swansea Division at the Annual Representative Meeting, and in July last received the appointment of Deputy Chairmanship of that meeting. He is a general practitioner, and for many years past has enjoyed the fullest confidence of his professional brethren in South Wales. His acumen in debate, with forcible and lucid expression, make him eminently fitted to maintain and uphold the interests of the medical profession on such a body as the General Medical Council.

(Signed) D. R. Paterson,
Chairman, Cardiff Division.
W. B. Crawford Treasure,
Vice-Chairman, Cardiff Division.
J. Tatham Thomson,
President, Cardiff Medical Society.
Thos. Wallace,
W. Mitchell Stevens,
Alex. P. Fiddian,
William Sheen,
Ewen J. Maclean, Hon. Secs.,
R. Russell Thomas, Cardiff Division.

DR. C. J. RENSHAW'S CANDIDATURE.

Sir,—In this my last appeal to the medical profession of England and Wales, I wish to thank all those who have worked to make my candidature a success.

I have received letters from all parts of the country, chiefly supporting me on a matter of which a strong point was made in my original address—namely, my opposition to the registration of nurses. One correspondent writes:

> I have been in practice eleven years in a working-class practice, where nearly all the midwifery is done by women at low fees; and, if women become registered as nurses, the medical men would be handicapped very seriously—in fact, in some cases it might be the last straw.

Exactly; and this with other evidence, and an experience of forty years, convinces me that I am correct in my attitude in this matter, as I was years ago in my opposition to the registration of midwives. To quote again the passage in my address: "these measures place in the field unqualified practitioners who directly compete with and undersell the medical men."

One other point: The unfortunate misunderstanding which has resulted in Mr. Morison's absence from this election deprives the North of its strongest candidate. If, under these circumstances, the candidates from the North-West fail to gain the support they expect, it will mean that the general practitioners north of Birmingham will be entirely unrepresented on the General Medical Council for the next five years; I therefore look to the men of the North especially to help me to the best of their ability.—I am, etc.,

Charles J. Renshaw.

Sir,—Our attention has been called to a circular letter sent out by the Association of Physicians and Surgeons of

the Society of Apothecaries, urging all "L.S.A.'s" to vote for certain candidates.

We consider such a demand quite unwarranted in the circumstances. Dr. Renshaw is not only an L.S.A. of long standing, but he has had the Freedom of the Society conferred upon him and is a member of the Livery; he represented the Apothecaries' Society at the late Medical Congress at Lisbon; he is also a member of the Association of Physicians and Surgeons. We therefore consider his claim to support from "L.S.A.'s" equal, if not superior, to the individual or combined demand of the triumvirate recommended in the letter.—We are, etc.,

Samuel Buckley,
Chairman of Committee,
C. Adolphe R. Renshaw,
Lindenholme, Sale,
J. A. Knowles Renshaw,
11, St. John Street, Manchester,
Honorary Secretaries of Election Committee.

Committee: Supplementary List.

Drs. T. W. Arinson, Brighouse; J. Barr, Rishton; D. J. Bedford, Derby; T. T. Blease, Altrincham; J. C. Bowie, Cardiff; A. E. Brindley, Bury; S. W. Brook, Accrington; J. E. Brooks, Harrogate; C. F. Bryan, Leicester; W. T. Burns, Carlisle; S. Boyd, Harrogate; O. Coleman, Surbiton; J. Craig, Llandudno; J. M. Crocker, Bingley; A. O. Davies, Shaw; J. C. Eames, Farnworth; J. A. Eatock, Widnes; H. Edmondson, Burnley; C. E. Fish, Ruthin; T. Fort, Oldham; A. Golland, Altrincham; A. Greenwood, Blackburn; J. G. Griffiths, London; J. M. Hassall, Knutsford; J. Hepworth, Beaumaris; A. J. Hutchison, Hove, J. L. Jackson, Cheadle; E. Lloyd Jones, Cambridge; V. Ellis Jones, Chorley; H. C. Lamport, Lancaster; G. G. Lawson, Hebden Bridge; G. Lorimer, Buxton; F. J. McGlade, Blackley; J. A. MacLaren, Bowdon; E. Mallam, Oxford; F. Melland, Victoria Park; W. Milligan, Manchester; W. F. Moore, Preston; J. H. Mort, Patricroft; F. G. Mason, Stoke; E. H. T. Nash, Accrington; J. Niven, Town Hall, Manchester; P. H. Parsons, Kensington; F. W. Pogson, Leeds; H. F. Ransome, Altrincham; E. Rayner, Stockport; W. C. Rigby, Adlington; A. Riley, Sale; Graham Renshaw, Sale; F. L. Roe, Eccles; C. L. Serra, Eccles; A. Shipton, Buxton; E. J. Sidebotham, Bowdon; L. A. Smith, Queen Anne Street; J. Taylor, Chester; C. H. Thompson, Longsight; W. Thorburn, Manchester; F. Villy, Keighley; J. Walls, Flixton; A. P. Watkins, Newton-le-Willows; T. Watts, Hyde; R. Prosser White, Wigan; H. F. Bold Williams, Llandudno; P. F. Young, Blundellsands.

Sir,—With your permission I should like to add my testimony to that of Dr. Dearden and others as to the exceptional fitness of Dr. C. J. Renshaw to represent the general practitioner on the General Medical Council. He has, I believe, had upwards of forty years' experience of general practice in this country, and is fully conversant with all the difficulties and needs of the struggling practitioner. He could, I feel sure, be safely trusted to look after the interests of his brother practitioners in all questions affecting them which are likely to come before the consideration of the central governing body of the profession.

In these days of serious encroachment upon the general practitioner's province in almost every direction we have the direst need of such men as Dr. Renshaw to safeguard our interests. No stauncher supporter of the "cause of the general practitioner" could well be found. From personal knowledge I can vouch that Dr. Renshaw is a conscientious worker at medical politics, he is a clear and able speaker, and a consistent and courageous advocate of all projects which are calculated, in his opinion, to raise the dignity and value of the profession.

I sincerely trust he will receive the support of the majority of general practitioners in the North at least if not in the kingdom as a whole.—I am, etc.,

P. R. Cooper,
Chairman of the Altrincham Division,
British Medical Association.

November 26th.

DR. BROADBENT'S CANDIDATURE.

We are requested by the Honorary Secretaries of Dr. Broadbent's Election Committee to publish the following letter:

[Copy.]
8, Ardwick Green, Manchester,
November 26th, 1906.

Dr. T. Kilner Clarke,
Huddersfield.

Dear Sir,—In reply to your inquiry of the 25th instant, as to my reasons for opposing Provident Dispensaries and Contract work, I have pleasure in stating:

I. That both have been abused to so great an extent in Manchester, we have come to the conclusion that there is great danger in them in any form, and that the only real safe plan is to oppose them as much as we possibly can.

II. Even in the case where they are under the control of medical men themselves abuses are apt to creep in, for we have known of cases here where medical men themselves have paid secret commissions to collectors of Dispensaries for the patients they have obtained to go on their respective lists.

III. That even where medical men control the Dispensaries, they themselves are apt to become slack in discipline, for they are well known to be bad business men.

IV. Even if a certain number of medical men had a Dispensary in a given district, what about those who did not join them, for we have not all men yet members of the British Medical Association, but of course there is this possibility and hope that the General Medical Council may become sympathetic with the hardships decent men have to endure at the hands of blacklegs.

V. I have been sorry to see at the head quarters in committees and at Representative Meetings there is too much sympathy with Provident Dispensary and Contract work, and there is all the more necessity for a man to oppose them if elected to the General Medical Council.

VI. There are and there will be enough men to push Dispensary Contract work and medical aid societies without my support, therefore it is for me to act as the "candid friend" and criticize all that is done for the safety, defence, and benefit of normal practitioners who wish to maintain the honourable traditions of the profession.

VII. Certainly it would be interesting to watch Dispensaries under the control of medical men only, and I would be disposed to look favourably upon the effort, but I am not prepared to fully sanction it, but to watch and wait. What I want is to stem the tide of contract work, and, as I said above, protect normal practitioners.

This is the attitude I took up on the Contract Practice Subcommittee of the British Medical Association, to which I was elected by the Central Ethical Committee, and to which I have been re-elected.—Yours faithfully,

G. H. Broadbent.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

The following qualified candidates for the Naval Medical Service have been appointed Surgeons in His Majesty's Fleet, dated November 19th: William H. Hastings, M.B., Sheldon F. Dudley, James L. Barford, William W. D. Chilcott, John C. F. D. Vaughan, William F. Archibald, M.B., Cyril V. Griffiths.

The following appointments have been made at the Admiralty: Jeremiah Sugrue, M.D., Fleet Surgeon to the *Eagle*, November 20th; Robert Hickson, Fleet Surgeon, to the *Resolution*, November 20th; D'Arcy Harvey, Fleet Surgeon, to the *Argonaut*, November 20th; Lawrence Bidwell, Fleet Surgeon, to the *Leviathan*, undated; Herbert L. Penny, Staff Surgeon, to the *Cornwallis*, November 20th; Charles T. Baxter, Surgeon, to the *Pembroke*, additional, lent to Recruiting Head Quarters, November 24th; George S. Davidge, Surgeon, to the *Espiègle*, additional, for the Royal Naval College, Dartmouth, November 24th.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel E. Davis retires on retired pay, November 24th. His commissions are dated: Surgeon, May 30th, 1885; Surgeon-Major, May 30th, 1897; Lieutenant-Colonel, May 30th, 1905. He served in the South African war in 1899-1902 as medical officer of an infantry division, and was present at the relief of Ladysmith, and in the actions at Spion Kop, Vaal Kranz, and Pieter's Hill. He was also in subsequent operations in the Transvaal, and has the Queen's medal with three clasps and the King's medal with two clasps.

Captains D. Lawson, E. B. Steel, M.B., C. W. Profeit, M.B., F. Kiddle, M.B., H. E. Staddon, and S. J. C. P. Perry are promoted to be Majors, October 29th. Their previous commissions, which were simultaneous, are as follow: Surgeon-Lieutenant, January 29th, 1895; Surgeon-Captain, January 29th, 1898. Major Profeit was in the South African war in 1899-1902, including the advance on Kimberley and numerous actions in the Orange Free State and the Transvaal; he has the Queen's medal with six clasps and the King's medal with two clasps. Major Staddon was in the South African war in 1900, and has received the Queen's medal with two clasps. Major Perry was with

the Tirah Expeditionary Force on the North-west Frontier of India in 1897-8, receiving a medal with two clasps. The other officers cited have no war record in the Army Lists.

CHANNEL ISLANDS MILITIA.

Surgeon-Lieutenant-Colonel A. Dunlop, M.D., Principal Medical Officer, the Royal Militia of the Island of Jersey, resigns his commission, October 31st.

Surgeon-Major W. Falla, M.D., from the 1st or West Battalion (Light Infantry) is appointed Principal Medical Officer, the Royal Militia of the Island of Jersey, vice Surgeon-Lieutenant-Colonel A. Dunlop, M.D., resigned, October 31st.

IMPERIAL YEOMANRY.

Surgeon-Lieutenant A. Grant-Macdonald, M.B., Fifeshire and Forfarshire Regiment, resigns his commission, November 5th.

ROYAL GARRISON ARTILLERY (VOLUNTEERS).

Surgeon-Major J. W. F. Gilbert, 1st Cinque Ports, to be Surgeon-Lieutenant-Colonel, June 23rd.

VOLUNTEER RIFLES.

John M. Bowie, M.D., to be Surgeon-Lieutenant in the 9th Volunteer Battalion (Highlanders) the Royal Scots (Lothian Regiment), November 1st.

Surgeon-Captain S. Lodge, M.D., 2nd Volunteer Battalion the Prince of Wales's Own (West Yorkshire Regiment), to be Surgeon-Major, September 14th.

Surgeon-Lieutenant A. Mackenzie, M.B., 3rd Volunteer Battalion the Prince of Wales's Own (West Yorkshire Regiment), to be Surgeon-Captain, September 21st.

William A. T. Lloyd to be Surgeon-Lieutenant in the 1st (Pembrokeshire) Volunteer Battalion the Welsh Regiment, October 17th.

Surgeon-Lieutenant-Colonel J. K. Anderson, M.D., 2nd (Angus) Volunteer Battalion the Black Watch (Royal Highlanders), is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Black Watch Volunteer Infantry Brigade, November 9th.

Surgeon-Captain I. J. E. Rewshaw, 1st Cadet Battalion the Manchester Regiment, to be Surgeon-Major, October 31st.

Surgeon-Lieutenant-Colonel A. Mitchell, 3rd (the Buchan) Volunteer Battalion the Gordon Highlanders, is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Gordon Volunteer Infantry Brigade, November 9th.

Surgeon-Lieutenant-Colonel D. W. Currie, M.B., 7th (Clackmannan and Kinross) Volunteer Battalion, Princess Louise's (Argyll and Sutherland) Highlanders, is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Argyll and Sutherland Volunteer Infantry Brigade, November 9th.

Surgeon-Captain C. J. Beattie, M.D., 18th Middlesex Volunteer Rifle Corps, resigns his commission, November 1st.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Surgeon-Lieutenant P. C. Burgess, from the 1st Volunteer Battalion The Buffs (East Kent Regiment), to be Lieutenant in the Maidstone Companies, Eastern Command, October 31st.

Captain A. Phillips, Manchester Companies, Northern Command, resigns his commission, November 5th.

Vital Statistics.

HEALTH OF ENGLISH TOWNS

In seventy-six of the largest English towns, including London, 8,463 births and 4,945 deaths were registered during the week ending Saturday last, November 24th. The annual rate of mortality in these towns, which had been 14.6, 14.9, and 15.4 per 1,000 in the three preceding weeks, further rose last week to 16.3 per 1,000. The rates in the several towns ranged from 5.0 in King's Norton, 5.4 in Hornsey, 8.7 in Ipswich, 8.9 in Burton-on-Trent, 9.6 in East Ham, 10.0 in Northampton, 10.3 in Walthamstow, and 10.7 in Southampton, to 21.1 in Newport (Mon.), 22.9 in Bootle, 23.3 in Oldham, 23.6 in Derby, 24.3 in Burnley, 24.8 in Norwich, 25.6 in Wigan, and 26.7 in South Shields. In London the rate of mortality was 16.0 per 1,000, while it averaged 16.4 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.2 per 1,000 in the seventy-six towns; in London this death-rate was equal to 0.9 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 2.6 in Hull, 2.7 in Devonport and in Huddersfield, 3.2 in Bootle, 3.7 in Oldham, 4.5 in Warrington, 5.1 in Rotherham and 10.8 in South Shields. Measles caused a death-rate of 2.0 in Devonport, 2.4 in Bootle, 3.0 in Oldham, 3.4 in Rotherham, 4.5 in Warrington and 5.6 in South Shields; diphtheria of 1.2 in Hull, 1.3 in Leyton and 1.4 in South Shields; "fever" of 1.8 in South Shields; and diarrhœa of 1.2 in Merthyr Tydfil. The mortality from scarlet fever and from whooping-cough showed no marked excess in any of the large towns. No fatal case of small-pox was registered last week in any of these towns, and no small-pox patients were under treatment during the week in any of the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 4,178, 4,135 and 4,150 at the end of the three preceding weeks, had declined again to 4,144 at the end of last week: 467 new cases were admitted during the week, against 499, 417 and 462 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, November 24th, 931 births and 655 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 17.0 per 1,000 in each of the two preceding weeks, increased to 19.1 per 1,000 last week, and was 2.8 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 11.8 in Greenock and 15.1 in Perth to 19.6 in Leith and 21.0 in Edinburgh. The death-rate from the principal infectious diseases averaged 2.0 per 1,000 in these towns, the highest rates being recorded in Aberdeen and Greenock. The 309 deaths registered in Glasgow included 2 which were referred to scarlet fever, 7 to whooping-cough, 15 to diarrhœa, and 4 to cerebro-spinal meningitis. Two deaths from measles, 2 from diphtheria, and 3 from diarrhœa were recorded in Edinburgh; 3 from diarrhœa in Dundee; 11 from measles, 2 from whooping-cough, and 3 from diarrhœa in Aberdeen; and 2 from whooping-cough in Greenock.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BIRKENHEAD BOROUGH HOSPITAL.—Senior and Junior House-Surgeons. Salaries, £100 and £80 per annum respectively.

BLACKBURN EDUCATION COMMITTEE.—Assistant to the Medical Officer of Health. Salary, £150 per annum.

BRIGHTON: ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £80 per annum.

BRIGHTON: SUSSEX COUNTY HOSPITAL.—Second Honorary Anæsthetist.

BRISTOL GENERAL HOSPITAL.—Senior House-Surgeon. Salary, £150 per annum.

BRITISH LYING-IN HOSPITAL, Endell Street, W.C.—Physician to Out-patients.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY. Junior House-Surgeon.—Salary, £80 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Senior House-Surgeon. Salary at the rate of £100 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Junior Assistant Medical Officer. Salary, £150 per annum.

GRAVESEND HOSPITAL.—House-Surgeon. Salary, £100 per annum.

HULME DISPENSARY.—House-Surgeon. Salary, £150 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) Resident Medical Superintendent. Salary, 100 guineas per annum. (2) House-Surgeon. Salary, £20 for six months. (3) Medical Registrar. Honorarium, 50 guineas per annum.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House-Surgeon. Salary, £80 per annum.

MANCHESTER COUNTY ASYLUM, Prestwich.—Junior Assistant Medical Officer. Salary, £150 per annum, rising to £250.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer. Salary, £150 per annum.

MIDDLESEX HOSPITAL, W.—Medical Officer and Registrar to the Cancer Department. Salary, £100 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary, £70 per annum.

SALFORD ROYAL HOSPITAL.—(1) House-Surgeon: (2) House-Physician: (3) Accident House-Surgeon: (4) Junior House-Surgeon. Salaries at the rate of £100, £90, £60, and £50 per annum respectively.

SETTLEMENT OF WOMEN WORKERS, Canning Town.—Honorary Ophthalmic Surgeon to the Medical Mission Hospital.

WEST LONDON HOSPITAL, Hammersmith Road, W.—House-Physician for six months.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary, £70 per annum.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces a vacancy at Normanton (Yorks).

APPOINTMENTS.

Bayley, Harry, L.S.A., Assistant Medical Officer to the Warneford Hospital for Mental Diseases, Oxford.

Bond, C. Hubert, D.Sc., M.D., Medical Superintendent of the new London County Asylum, at Long Grove, Epsom.

Crawford, J. J., M.D., B.Ch.Dub., District Medical Officer of the Holbeck Union.

Cunliffe, S., L.R.C.P. and S.Edin., District Medical Officer of the Auckland Union.

Davies, L. G., M.D., Certifying Factory Surgeon for the Histon District, co. Cambridge.

D'Ewart, John, M.B.Lond., M.R.C.S., L.R.C.P., Assistant Medical Officer to Out-patients Royal Infirmary, Manchester.

Fedden, W. Fedde, M.S., M.B.Lond., F.R.C.S., Assistant Surgeon to St. George's Hospital.

Fullam, W. F., L.R.C.S.I., L.A.H.Dub., Certifying Factory Surgeon for the Balbriggan District, co. Dublin.

Grant, J. Dundas, M.D.Edin., F.R.C.S.Eng., Surgeon-in-Charge of the Throat Department at the Hospital for Consumption, Brompton.

Horton-Smith, Hartley, M.V.O., M.D.Camb., F.R.C.P.Lond., Physician to the Hospital for Consumption, Brompton, vice Percy Kidd, M.D.Oxon, F.R.C.P., appointed Consulting Surgeon.

Lawson, W. W. J., M.B., Ch.B.Aberd., District Medical Officer of the Worksop Union.

Lewis, F. B., L.R.C.P. and S.Edin., L.F.P.S.Glasg., Medical Officer of Health, Hastings Rural District.

Lithgow, John P., F.R.C.S.E., Assistant Surgeon in the Ear, Throat, and Nose Department of the Edinburgh Royal Infirmary.

Moxon, Frank H., M.B.Dunelm., Assistant House-Surgeon to the General Infirmary, Gloucester.

Robertson, W. G., M.A., M.B., Ch.B.Edin., House-Surgeon to the Hartlepools Hospital.

St. Johnston, T. R., L.S.A., Resident Assistant Medical Officer, Lewisham Union Infirmary.

Thomas, C. Nelson, B.A., M.B., B.C., a Medical Officer to the Education Committee of the Gloucestershire County Council; also Surgeon to the Midland Railway Company, and Medical Officer to the Post Office at Lydney, Gloucester.

Wall, Cecil, M.D Oxon., M.R.C.P.Lond., Assistant Physician to the Hospital for Consumption, Brompton.

Williams, E. K., M.R.C.S., L.R.C.P.Lond., District and Workhouse Medical Officer of the Billesdon Union.

Wood, W. T., L.R.C.P.and S.Edin., District Medical Officer of the Worksop Union.

Royal Dental Hospital of London.—The following have been appointed House-Surgeons: G. B. Geake, H. E. Jackson, A. T. Pitts, M. J. Maguire, W. D. Southern.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

Easterbrook.—At Ayr, on the 25th November, the wife of C. C. Easterbrook, M.D., F.R.C.P.Ed., of a daughter.

Price.—On November 23rd, at Uppermill, Saddleworth, Yorks, the wife of David Price, M.R.C.S. and L.R.C.P., of a daughter.

Rhys-Rees.—On the 17th ult., at Priory House, Queen's Crescent, Haverstock Hill, N.W., to Dr. and Mrs. Rhys-Rees, a daughter.

DEATHS.

Blatchford.—On the 25th November, at Bude, Cornwall, Frank Henry Blatchford, M.B., B.C., B.A.Cantab., of Pulborough, Sussex, aged 35.

McDowall.—At Menston, on the 21st ult., suddenly, of heart failure, John Greig McDowall, M.D., Medical Superintendent of the West Riding Asylum, Menston, aged 55.

Stevenson.—On the 15th November, at St. Thomas's Hospital, of appendicitis, Roland Arthur Stevenson, L.R.C.P., M.R.C.S., Medical Superintendent, London Open Air Sanatorium, Pinewood, Wokingham, Berks, second son of the Rev. E. J. W. and Mrs. Stevenson, of Stoke Rectory, Teignmouth, aged 38.

DIARY FOR THE WEEK.

MONDAY.

Medical Society of London, 11, Chandos Street, Cavendish Square, W., 9 p.m.—Special Meeting, when Dr. Hartmann, Professor in the Medical Faculty of the University of Paris, will deliver an address entitled, The Surgical Forms of Ileo-caecal Tuberculosis.

TUESDAY.

Pathological Society of London, 20, Hanover Square, W., 8.30 p.m. —Agenda:—Mr. E. M. Corner: Lateral Fracture of the Axis. Dr. N. Dalton: Lymphosarcoma of the Stomach and Abdominal Glands. Dr. J. J. Perkins and Dr. L. S. Dudgeon: Eosinophilic Pleurisy. Dr. Seligmann: Infective Tumours in Dogs from British New Guinea.

WEDNESDAY.

Obstetrical Society of London, 20, Hanover Square, W., 8 p.m.—The following specimens will be shown:—Dr. Handfield-Jones: Solid Fibroma of Ovary, undergoing Extreme Calcareous Degeneration. Dr. H. R. Spencer: Three Fibromyomatous Uteri with Haemorrhage after the Menopause. Mr. J. H. Targett: Lutein Cysts of the Ovaries. Dr. W. A. Potts (introduced by Dr. Stevens): Lithopaedion. Paper:—Dr. Victor Bonney: The Treatment of Ovarian Prolapse by Shortening the Ovarian Ligament.

THURSDAY.

Neurological Society of the United Kingdom, 11, Chandos Street, Cavendish Square, W., 8.30 p.m.—Exhibition of Clinical Cases. Patients in attendance at 8 p.m.

North East London Clinical Society, Tottenham Hospital, N., 4 p.m.—Agenda: Election of Members. Discussion opened by Dr. Reginald Brown. Notes from a Children's Clinic.

FRIDAY.

Laryngological Society of London, 20, Hanover Square, W., 5 p.m.—Exhibition of Specimens and Cases.

Society of Anaesthetists, 20, Hanover Square, W., 8.30 p.m.—Papers: Dr. G. A. H. Barton, Dr. Ll. Powell, Dr. Kirkby Thomas, Mr. A. de Prenderville.

West Kent Medico-Chirurgical Society, Miller Hospital, Greenwich Road, S.E., 8.45 p.m.—Mr. A. Mayo Robson, D.Sc., F.R.C.S., will deliver the Purvis Oration. Following this there will be a Conversazione.

POST-GRADUATE COURSES AND LECTURES.

Charing Cross Hospital.—Tuesday, 4 p.m., Orthopaedic; Thursday, 4 p.m., Medical.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W., Wednesday, 4 p.m.—Demonstration of Cases in the Wards.

London School of Clinical Medicine, Dreadnought Hospital, Greenwich.—Clinics: Monday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Throat and Ear, 4 p.m. Tuesday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Diseases of the Skin, 4 p.m. Wednesday, Medicine, 2.30 p.m.; Ophthalmology, 3.30 p.m. Thursday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Radiography, 4 p.m. Friday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m. Operations each day at 2.30. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

Medical Graduates College and Polyclinic, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Throat. Lectures at 5.15 p.m. each day will be given as follows: Monday, On the Methods of Estimating the Functions of the Kidneys: Tuesday, Some Points in the Pathology and Operative Treatment of Tumours of the Superior Maxillae and Nose; Wednesday, Syphilis of the Nervous System.

Mount Vernon Hospital for Consumption and Diseases of the Chest, Central Out-Patient Department, 7, Fitzroy Square, W., Thursday, 5 p.m.—The Early Diagnosis of Pulmonary Tuberculosis.

National Hospital for the Paralysed and Epileptic, Queen Square, W.C.—Tuesday, 3.30 p.m., Syringomyelia. Friday, 3.30 p.m., Subacute Degeneration of Cord.

North-East London Post-Graduate College, Tottenham Hospital, N.—Tuesday, 4.30 p.m., Lecture on Some Common Angioneuroses.

Post-Graduate College, West London Hospital, Hammersmith Road, W.—The following are the arrangements for next week: Daily, 2 p.m., Medical and Surgical Clinics. 2.30 p.m., X Rays, Operations. Monday and Thursday, 2 p.m., Diseases of the Eye. Tuesday and Friday, 10 a.m., Gynaecology. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of the Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Lectures: Monday, 12 noon, Pathological Demonstration; Monday and Tuesday, 5 p.m., Practical Points in the Anatomy of the Ear (with lantern slides). Wednesday, Clinical Lecture on the Treatment of Simple and Malignant Growths of the Prostate. Thursday, Urinary Cases. Friday, Cases of Skin Disease.

Samaritan Free Hospital for Women, Marylebone Road, N.W.—Thursday, 5 p.m., Pregnancy and Labour in relation to Ovarian and other Tumours.

BOOKS, Etc., RECEIVED.

Glimpses of American Surgery in 1906. By C. H. Whiteford, M.R.C.S., L.R.C.P. London: Harrison and Sons. 1906. 2s.

The Ruby Ring. By Mrs. Molesworth. London: Macmillan and Co. 1906. 2s. 6d.

Memoir XXI of the Liverpool School of Tropical Medicine. By A. Breinl, M.U.Dr., the late J. E. Dutton, M.B., A. Kinghorn, M.B., R. H. Mole, M.D., E. N. Tobey, A.B., A.M., M.D., J. L. Todd, B.A., M.D., C.M., L. A. Williams, M.D., D.P.H., and K. S. Williams, M.B., D.P.H. September, 1906. London: Williams and Norgate. 7s. 6d.

A System of Medicine. By Many Writers. Edited by T. C. Allbutt, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., etc., and H. D. Rolleston, M.A., M.D., F.R.C.P. Vol. II, Part I. London: Macmillan and Co., Limited. 1906. 25s.

The Health of the School Child. By W. L. Mackenzie, M.A., M.D., D.P.H., M.R.C.P., F.R.S.E. London: Methuen and Co. 2s. 6d.

Genito-urinary Diseases and Syphilis. By H. B. Morton, M.D. Second Edition. Philadelphia: F. A. Davis Co. 1906. 4 dols.

Berlin: S. Karger; and London: Williams and Norgate. 1906:

Gesammelte Beiträge aus dem Gebiete der Physiologie, Pathologie und Therapie der Verdauung. Von Dr. I. Boas und seinen Schülern, 1886-1906. Herausgegeben von Dr. I. Boas. Zwei Bände. Band I and Band II. M.30.

Las System der Skiaskopie und Ophthalmoskopie vom Standpunkt der physischen, physiologischen und geometrischen Optik. Von Dr. H. Wolff. M.12.

Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Erkrankungen des Urogenital-apparates. Redigiert Von Geh. Med.-Rat Professor Dr. M. Nitze. Dr. S. Jacoby, und Professor Dr. A. Kollmann. I Jahrgang. 1905. M.12.

Nervenkrankheit und Lektüre Nervenleiden und Erziehung die ersten Zeichen der Nervosität des Kindesalters. Drei Vorträge von Professor Dr. H. Oppenheim. Zweite Auflage. 1907. M.2.

School Hygiene and the Laws of Health. By C. Porter, M.D., B.Sc., M.R.C.P. London: Longmans, Green, and Co. 1906. 3s. 6d.

The Birds of the British Islands. By C. Stonham, C.M.G., F.R.C.S., F.Z.S. Part III. London: E. Grant-Richards. 1906. 7s. 6d.

Unseren Söhnen! Von Dr. Med. F. Siebert. Straubing: Cl. Attenkofer'sche Verlagsbuchhandlung. 1907. M.1.20.

Vagrancy: being a Review of the Report of the Departmental Committee on Vagrancy (1906), with Answers to certain Criticisms. By Sir W. Chance, Bart. London: P. S. King and Son. 1906. 6d.

Fortschritte auf dem Gebiete der Röntgenstrahlen. Herausgeber: Dr. Albers-Schönberg. Ergänzungsband 13. Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röngenbildern. Die Entwickelung der knöchernen Wirbelsäule. Von Dr. B. Alexander. Hamburg: L. Gräfe und Sillem. 1906. M.20.

The New Hygiene: Three Lectures on the Prevention of Infectious Diseases. By E. Metchnikoff. London: W. Heinemann. 1906. 2s. 6d.

The Borough of St. Marylebone Health Society's Lecture Series. No. I. Infant Education. By E. Pritchard, M.A., M.D., M.R.C.P. London: H. Kimpton. 1907. 2s.

The Growth of Truth, as illustrated in the Discovery of the Circulation of the Blood; being the Harveian Oration delivered October 18th, 1906. By W. Osler, M.D., F.R.S. London: H. Frowde. 1906. 1s.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
NOVEMBER.	
30 FRIDAY	LONDON: Metropolitan Counties Branch, Medical Charities Committee, 3.30 p.m.
DECEMBER.	
1 SATURDAY...	
2 Sunday	
3 MONDAY	LONDON: Premises and Library Committee, 3.30 p.m. MARYLEBONE DIVISION, *Metropolitan Counties Branch*, Rooms of the Royal Medical and Chirurgical Society, 20, Hanover Square, 8.30 p.m.
4 TUESDAY ...	
5 WEDNESDAY	**Extraordinary General Meeting, at 3 p.m., in the Examination Hall, Victoria Embankment, W.C.** NORTH CARNARVONSHIRE AND ANGLESEY DIVISION, *North Wales Branch*, British Hotel, Bangor, 2.30 p.m.
6 THURSDAY...	LONDON: **United Hospitals Conference**, Botanical Lecture Theatre, University College, Gower Street, W.C., 2.30 p.m. ALTRINCHAM DIVISION, *Lancashire and Cheshire Branch*, Board Room, Altrincham Hospital, 4.50 p.m. FOLKESTONE DIVISION, *South-Eastern Branch*, Dr. Perry's, 1, Castle Hill Avenue, 8.30 p.m.
7 FRIDAY.....	NORTH CUMBERLAND DIVISION, *Border Counties Branch*, County Hotel, Carlisle, 8 p.m.; Dinner, 6.30 p.m.
8 SATURDAY...	
9 Sunday	
10 MONDAY	LONDON: Ethical Subcommittee, 2 p.m.
11 TUESDAY.....	LONDON: Organization Committee, 10.30 a.m. LONDON: Special Finance Inquiry Committee, 5 p.m.
12 WEDNESDAY	LONDON: South-Eastern Branch Council, 3.15 p.m. TOTTENHAM DIVISION, *Metropolitan Counties Branch*, Tottenham Hospital, 4.30 p.m. WEST DORSET DIVISION, *Dorset and West Hants Branch*, County Hospital, Dorchester, 4.15; Dinner, King's Arms, 6 p.m.
13 THURSDAY...	CANTERBURY AND FAVERSHAM DIVISION, *South-Eastern Branch*, Business Meeting, Cottage Hospital, Faversham, 4.30 p.m. SOUTH WALES AND MONMOUTHSHIRE BRANCH, Pontypridd. WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Alexandra Hotel, Clapham Common, 8.45 p.m.
14 FRIDAY	HAMPSTEAD DIVISION, *Metropolitan Counties Branch.*
15 SATURDAY...	
16 Sunday.....	
17 MONDAY	
18 TUESDAY.....	
19 WEDNESDAY	
20 THURSDAY...	LEIGH DIVISION, *Lancashire and Cheshire Branch*, Co-operative Offices, Ellesmere Street, Leigh, 8.30 p.m.
21 FRIDAY.....	
22 SATURDAY...	
23 Sunday	
24 MONDAY	
25 TUESDAY.....	*Christmas Day.*
26 WEDNESDAY	*Bank Holiday.*
27 THURSDAY...	
28 FRIDAY	
29 SATURDAY...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom, and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 8TH, 1906.

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SPECIAL NOTICE TO MEMBERS.

Every member is requested to preserve this "Supplement," which contains matters specially referred to Divisions, until the subjects have been discussed by the Division to which he belongs. BY ORDER.

British Medical Association.

Notice is hereby given that an Extraordinary General Meeting of the British Medical Association will be held at the offices of the Association, 429, Strand, London, on Friday, December 21st, at three o'clock in the afternoon, when the subjoined Resolutions, which were passed at the adjourned Extraordinary General Meeting of the said Association, held on December 5th, 1906, will be submitted for confirmation as Special Resolutions:

1. That the 5th Article of Association be altered by the insertion of the words "Divisions or" immediately before the word "Branches" where that word secondly occurs.

2. That the 27th Article be altered by the insertion immediately after the words "constituency having not less than fifty members" of the words "provided that the Council shall have a discretionary power to permit a Division having less than fifty members to form one constituency in any case in which it shall appear to the Council that the holding of joint meetings of members of that Division and of neighbouring Divisions would be attended by special difficulties."

3. That the said 27th Article be altered by the substitution of the words "nine months" for the words "three months."

4. That the 36th Article be altered by the insertion of the word "and" immediately before the words "a Treasurer" and by the omission of the words "an Editor of the JOURNAL and a General Secretary" and of the words "the Editor of the JOURNAL and the General Secretary."

5. That the following Article be substituted for the 37th Article, namely:

XXXVII.—OFFICERS *(continued)*.

The Chairman of Council shall be elected by the Council from its own number and shall hold office for such period and discharge such duties as shall be determined by the Council. During this period and for one year thereafter he shall *ex officio* be a member of the Council and any Branch of which at the time of his election he was a Representative shall be entitled to elect another in his stead.

6. That the 38th Article be altered by the substitution of the words "Chairman of Council and (during the year succeeding his period of office) the *Past Chairman* of Council" for the words "(if any)."

7. That the 41st Article be altered by the substitution of the words "the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer" for the words "and the Chairman of Council."

8. That the following clause be substituted for Clause (*e*) of the 44th Article, namely:

(*e*) No member in regard to whom a representation as aforesaid has been made or whose conduct is under investigation or is the subject of inquiry by the Council or by a Branch or Division shall be capable of effectively resigning his membership of the Association until the result of such investigation or inquiry has been officially and finally declared.

9. That the following Article be substituted for the 45th Article, namely:

XLV.—Travelling Expenses.

The first-class travelling expenses within the United Kingdom of Members of Council and Representatives of Divisions attending the Annual or any Special Representative Meeting shall be defrayed out of the general funds of the Association. Attendance of Representatives of Divisions for this purpose at the Annual Representative Meeting shall be construed to mean attendance at each daily Session of that Meeting and also at each daily Session of the Annual General Meeting at which business described under the head (A) in Article XVIII is to be transacted unless the Council shall be satisfied that good cause existed for absence from any particular Session or Sessions. The first-class travelling expenses within the United Kingdom of all Members attending any meeting of Council or of a Committee, and of all Officers of any Division or Branch attending any conference held under conditions approved by the Council, shall be defrayed in like manner. Save as in this clause expressly provided the Council shall determine what shall be considered an attendance for any purpose of this Clause.

Dated the 6th day of December, 1906.

BY ORDER OF THE COUNCIL,
Guy Elliston,
General Secretary,
British Medical Association.

EXTRAORDINARY GENERAL MEETING.

An extraordinary general meeting of the British Medical Association was held at the Examination Hall, Victoria Embankment, on Wednesday, December 5th, when the chair was taken by Dr. Langley Browne (Chairman of Council).

The Chairman said that a quorum not having been present at the meeting called by due notice for November 28th, it was, under the Articles, adjourned until the same time and place this week. Any number present at this adjourned meeting formed a quorum.

The Chairman then moved Resolution 1. (See above in notice of meeting summoned for December 21st.)

The motion having been seconded was carried by 13 to 2.

The Chairman, in moving Resolutions 2 and 3, observed that 2 would give the Council power to sanction a Division containing less than 50 members being recognized as a constituency for representation at the Representative Meeting. There were cases in which, owing to the nature of the locality or for other reasons, it was desirable that this power should exist. With regard to Resolution 3, it was obviously desirable that a longer time should be given for Representatives to consider the work before the Representative Meetings.

Dr. Buckle asked whether, as these resolutions were separate, they should not be moved separately.

The Chairman said that it was not necessary, as they referred to the same article (27).

Dr. Fothergill considered that Resolution 2 should not be approved. The Representative Meetings at the present moment comprised about 125 members, but the Articles, he believed, would allow as many as 300 members, and there was a feeling that so large a Representative Meeting would become exceedingly unwieldy. If the proposed alteration were agreed to, islands such as Jersey, Guernsey, the Isle of Man, Orkney, and Shetland, would say it was impossible to get a meeting with neighbouring Divisions, and would therefore claim that they were *ipso facto* entitled to have separate members at the Representative Meeting. There was the case also of rural districts in remote parts of Ireland and England where it would again be said that it was impossible to have a joint meeting with the neighbouring Division, and such districts would ask to have a special Representative. Further, Representatives came from all over the world, and wherever there were isolated districts, up in the hills in North India and in Africa and elsewhere, they would ask that somebody should be appointed to attend the Representative Meeting, until at last the Representative Meeting would become a meeting of individuals only. Some two or three members of the last meeting had said that they only represented a few individuals. The inevitable result would be that London and the bigger constituencies would feel that they were being swamped by the undue proportion of representative power possessed by the small Divisions, and then the question would arise whether the larger Divisions would not have to be divided into smaller Divisions in order to get better representation. This would be a very harmful result. In medico-political matters, dealing with borough councils and the like, they wanted large and powerful Divisions and not small isolated clumps. It was found in Lancashire at present that the Divisions were too small, that there was no power of getting a number of men together at one time. If voting papers were allowed, a man would have power to vote whether he came to the meeting or not. Local meetings were not necessary for a man to become known. Without wishing to make any reflection on the Council, he thought it would be dangerous to give them the proposed power. If it should be a question of refusing a Representative to a small Division, the Council might perhaps refuse it, without giving any reason at all. The result would be that it would be said that an attempt was being made to pack the Representative Meeting.

Dr. Macdonald (Chairman of the Representative Meeting) said that the matter had been considered not only by the Representative Meeting but by the Organization Committee, not once but twice. It had been discussed and threshed out on the lines which Dr. Fothergill had suggested as well as others, and he thought that Dr. Fothergill had almost disposed of his own arguments. The Association could fairly leave this discretionary power to the Council. The question of voting papers was to some extent germane to the subject, but that matter had not been settled definitely.

Dr. Atkinson supported Dr. Fothergill. The Chairman, who moved the alteration, had not given his reasons, and they could only be guessed at. It was undesirable to increase the power of the small Representative body. He thought the argument with regard to outlying districts, such as the Shetlands, the Isle of Man, the Channel Islands, and so on, was irresistible.

Mr. Armit said that the island argument would never be accepted by the Council as a reason or ground for a separate Representative. As the Representative Meeting had fully considered the matter, and as the Council had carefully weighed it and argued it from every point of view, he thought it would be very absurd for half a dozen of them to resist the proposal. He hoped that all present would vote in favour of the alteration.

In answer to a question by Dr. Crichton, the Chairman said that the Representative of the grouped Divisions had the votes of the whole group in a card vote. The proposal, which only gave a discretionary power to the Council, did not originate with the Council, but with the Representative Meeting.

On a show of hands the motion was declared carried by 15 to 3.

The Chairman then moved that the 27th Article be altered by the substitution of the words "nine months" for the words "three months." The reason for the proposal was that the Representative should be able to make himself fully acquainted with the work which was going on. It was the general wish of the Divisions.

The motion was put to the meeting and carried by 14 to 2.

The Chairman then moved Resolution 4, which was put to the meeting, and carried by 14 to 3.

The Chairman then moved Resolution 5, which was put and carried, 18 voting in favour and none to the contrary.

The Chairman then moved Resolution 6, which he said was consequential. The motion was carried, 19 voting for it and none to the contrary.

The Chairman then moved Resolution 7.

Dr. Pope said that he could not see that the alteration was at all necessary. There were many committees on which it was not the least necessary that the officers mentioned should serve.

Dr. Crichton said that there was not the smallest

necessity for the proposal. How could these officers possibly attend?

The Chairman said that they would not be bound to attend, but would have the right to attend. He thought that it was extremely important that the man who held the position of Chairman of the Representative Meeting should be able to attend.

Dr. Crichton thought there was no objection to his being present and taking part in the discussion; but why should he be there *ex officio*?

Dr. Macdonald pointed out that an *ex-officio* member would receive the agenda of every meeting, and so could keep himself acquainted with everything that was going on.

Dr. Radcliffe Crocker (the Treasurer) said that the Treasurer was by no means anxious to attend every committee, but every now and then in every committee financial matters came up, and he could then attend and give his views on the financial aspect if necessary.

The motion was carried, there being 18 for it and 4 against.

The Chairman then moved Resolution 8. The object of the proposal was to prevent a member from resigning his membership when his conduct was under investigation by a Branch or by a Division.

The motion was carried by 19, there being no hands held up against it.

The Chairman then moved Resolution 9, pointing out that at present the Article provided for payment of the travelling expenses of members of Council and Representatives of Divisions attending the Annual Representative Meeting only. It was proposed to extend this to any special Representative Meeting. In reply to a question, he said that he could not accept any amendment.

Dr. Crichton asked whether the Treasurer had been consulted on the matter. Did not the proposal affect the finances; and was not a Committee sitting to consider how to reduce expenses; should not the Association wait for the result of that Committee before incurring further expenses? He moved the rejection of the resolution.

The Chairman said that it was not proposed to wait for the report of the Committee, because the matter would have to be considered when the Charter was under discussion.

The motion was carried by 15 to 3.

The Chairman stated that that concluded the business, and said that there would have to be a confirmatory meeting.

[See formal announcement above.]

MATTERS REFERRED TO DIVISIONS.

COLLECTION OF EVIDENCE FOR SUBMISSION TO THE ROYAL COMMISSION ON THE POOR LAW.

For the assistance of the Poor-law Committee in preparing evidence to be submitted to the Royal Commission on the Poor Law, Divisions are invited to forward, not later than January 9th, memoranda of any points to which they consider that attention should be drawn in the evidence given on behalf of the British Medical Association. Such memoranda may have relation to either of the two principal aspects of medical relief under the Poor Law which are engaging the attention of the Committee, namely:

A. The terms upon which Poor-law medical officers of all classes hold their appointments, and the effects of such terms upon the general interests of the profession.

B. The effect of the present system of Poor-law medical relief upon the health of those assisted thereby and upon the physical condition of the community in general.

The attention of Divisions is particularly invited to the following points:

A.—*Primarily Affecting the Profession.*

1. Whether the salaries and special fees of Poor-law medical officers, within the Division area, are so inadequate as to depreciate the standard of remuneration of medical practitioners generally.

2. Whether the system of requiring Poor-law medical officers to pay out of their salaries for drugs, including serums, and for surgical appliances, is satisfactory.

3. Whether the appointment of public vaccinator should be systematically associated with that of Poor-law medical officer, and whether there is any evidence that the salaries attached to the post of Poor-law medical officer have been reduced in consequence of this association.

4. Whether there is evidence that medical relief under the Poor Law is being granted to persons who can afford to pay for medical attendance.

5. Whether Boards of Guardians should be allowed to send Poor-law cases to general hospitals for gratuitous treatment by the staff.

B. *Primarily Affecting the Public.*

1. Whether the general principles of administration of Poor-law infirmaries

(*a*) could,
(*b*) should

be brought into conformity with those prevailing in well-conducted general hospitals.

2. Whether Poor-law infirmaries and general hospitals could be brought under a common management, municipal or otherwise.

3. Whether it is advisable that the indigent aged should be maintained in almshouses, or by outdoor relief, or pensions in their own homes, preferably to being maintained in workhouses.

4. (*a*) Whether feeble-minded unmarried mothers should be detained in workhouses.

(*b*) How relief under the Poor Law can best be given to

(i) women cohabiting;
(ii) deserted wives.

5. How provision can best be made for the isolation of cases of infectious disease receiving medical relief under the Poor Law—for example, by contribution from the guardians to the maintenance of municipal isolation hospitals, or payment of a capitation grant for pauper cases, or by the whole charges being defrayed by the local sanitary authority.

6. Whether it is necessary or advisable that district nurses should be provided throughout the country by, or with the assistance of, the Poor-law authorities.

7. Whether it is necessary or advisable that Poor-law unions should be so rearranged as to correspond with Local Government areas with a view to facilitate collection of statistics or for other reasons.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

LANCASHIRE AND CHESHIRE BRANCH:

Manchester South Division.

The Working of the Association.—Dr. Brassey Brierley, at the meeting of the Division held at Dr. Sawers Scott's on November 20th, gave an address on "The Working of the Association." It will be recollected that the chairmen and secretaries of all the Manchester Divisions were invited (see British Medical Journal of December 1st). Dr. Brierley spoke with regard to the position and method of administration of the Association, before and after the reconstitution. He said the complaint had always been under the Central Council's government that the members of the Association were not taken into their confidence. The charge was quite true—all proceedings of Council were branded strictly "private and confidential," and the barest summary—very often misleading—was published in the Journal. The late Dr. Woodcock was the first to urge the Central Council to be more frank, and he (Dr. Brierley) again and again proposed that the work of the

Council should be fully reported. We secured, continued Dr. Brierley, a little more information—not much—and Dr. Helme and myself have not ceased to ask for full reports. Now, seeing this want of knowledge on the part of the members was, perhaps, the greatest injury to the progress and welfare of the Association, it is rather startling to find the so-called Representative Meeting absolutely declining to give the numbers of those who elect them! Let us compare representation then and now. For years this Branch has elected its Representatives on the Central Council by the votes of the whole constituency, and now it is so popular that at the last election some candidates received between 600 and 700 votes. Now, it is estimated that the whole 117 Representatives received 800 to 900 votes in their electoral divisions; 10 is said to be the highest a Representative received, while some Representatives (?) were merely the nominees of the Secretaries of their Divisions. Thus the total does not represent many more votes than one of the Representatives of the Lancashire and Cheshire Branch received. To call a body so elected a representative one is an utter farce. The Central Council, on the other hand, is really representative. Now, what is to be done? The Council as it now is or the Representative Meeting must be abandoned, for the funds will not bear the present strain, and the members will never submit to an increased subscription for what they receive. The most workable method would be for the Representative Meeting to elect the Council. Can such a body—as we up to now have—be entrusted with the functions of the present Council and with the finances of the Association? Considering how few the Representatives do represent, such a proposal is ridiculous. I maintain that it is abundantly clear that the only true Representatives are the Central Council; but let it be compulsory that every member of that body submit to popular election. Further, every Councillor should be bound to give an account of his work to the annual meeting of his Branch. The absurdity of this dual control was manifest when the Representatives, without even discussion, swept aside the proposals which came down from the Council. But a word as to the welding together of the members of the Association—a result we were told would be sure to come with the advent of the Division scheme. The breach between the hospital men and general practitioners is wider than ever. Those of us who generally do the work never meet; we are entirely separated, and even the Representatives of the five Divisions of Manchester and Salford never met once before going to the annual meeting to discuss and vote upon matters which occupied a large volume of an agenda. In a word, there are too many Divisions, and in face of their failure to accomplish the work taken from the Branch Council, there is a great tendency to belittle the Branches. In conclusion, if we are to survive, the policy of the various Divisions—if the Divisions are to be continued at all—must be laid before the Branch Council, and after discussion there referred to the Central Council, and then to the annual meeting for ultimate approval or rejection.—A very useful and practical discussion, led by Dr. Collins, followed Dr. Brierley's address, and in reply Dr. Brassey Brierley asked the meeting to adopt the scheme of Drs. Collins and Milson R. Rhodes, admirably arranged by Dr. Collins in summary form as follows: That, to enable the Association effectually, easily, and with the united force of its whole membership, to carry out its policy, it is necessary—(1) To group the Divisions into workable areas (for example, the five Divisions of Manchester into one Manchester area); (2) to transmit the resolutions of such grouped Divisions or areas (as Manchester) to the Branches; (3) to transmit the resolutions of the Branches to Council (that is, to one Central Representative Council, not to two bodies as at present); (4) the resolutions of Council, when approved by general meeting of Association, to be the policy of the Association, and it then to be the duty of this Central Council to carry out this policy, which thus becomes the policy of the whole of the members of the Association. It was pointed out that the great advantage of the above scheme was that it provided a single definite line by which any given question may pass up from the unit—the member—through Divisions, Areas, and Branches to the Central Council, and thus, with the ever-increasing force of larger and larger representative bodies, it would gain power until, voiced by the whole profession *as one man*, it must gain the ear of Parliament, and be considered, and passed into law, to the advantage of the profession, and thus to the nation, which the profession lives to serve.

METROPOLITAN COUNTIES BRANCH: LAMBETH DIVISION.

A meeting of this Division was held in the Clinical Theatre of St. Thomas's Hospital on Thursday, November 29th, at 4 p.m. Dr. Robert Capes occupied the chair.

Confirmation of Minutes.—The Secretary read the minutes of the last meeting, which were then confirmed.

Election of Central Council.—A letter was read from the Dublin Division (Leinster Branch) of the British Medical Association, asking that the following resolution should be brought before the meeting of the Lambeth Division:

> That the Dublin Division should resist in every way in their power the proposal that the Council should be elected at the Representative Meeting, as they believe, if not safeguarded amongst those elected, the London area will be largely over-represented, and, in any case, no Representative Meeting would be able to elect a member for an Irish constituency better than those living in Ireland. Furthermore, that the constitution of the Council should be determined by ordinance, and not by by-law.

It was proposed by Dr. Denning and seconded by Dr. Esler that the above resolution be supported by the Lambeth Division. This was put to the meeting and carried.

Paper.—Dr. Walter W. H. Tate, of St. Thomas's Hospital, then read his paper on degenerative changes in uterine fibroids, their diagnosis and treatment. The lecturer mentioned the principal forms of degenerative changes as being (1) cystic, (2) calcareous, (3) necrotic, (4) malignant, (5) suppurative. He also reminded those present that he did not always recommend operative interference, but that each case should be judged on its own merits. Dr. Tate showed several specimens in illustration of his paper. The Chairman made a few remarks as to his experience in practice with uterine fibroids, and was followed up by Dr. Esler, who proposed a hearty vote of thanks to Dr. Tate. This was received with acclamation by those present.

Refreshments.—Under the guidance of Dr. Harwood-Yarred, the members were conducted to the staff room, where light refreshment was served in the shape of tea, cake, etc., and every one present was pleased by the kind, quiet hospitality which was shown to all.

Demonstration of Cases.—Mr. Nitch then had several cases of interest brought down from the wards, which he was good enough to demonstrate.

Votes of Thanks.—The Chairman then proposed that a hearty vote of thanks be accorded to the Treasurer for the use of the Clinical Theatre, and to Mr. Nitch and Dr. Harwood-Yarred for their hospitality and kindness in showing cases of interest and demonstrating thereon. This was put to the meeting, and carried with acclamation.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Dorset and West Hants Branch: West Dorset Division.—A meeting of this Division will be held at the County Hospital, Dorchester, on Wednesday, December 12th, at

4.15 p.m. Agenda: (1) Minutes of the last meeting; (2) to appoint the place of next meeting; (3) report of the Annual Representative Meeting by the Divisional Representative; (4) other business; (5) cases of interest will be shown by members of the staff of the hospital (particulars in circular calling the meeting). The members of the staff invite members to tea at 4 p.m., before the meeting. Dinner at the King's Arms at 6 p.m.—J. Comyns Leach, Honorary Secretary, The Lindens, Sturminster Newton, Dorset.

Metropolitan Counties Branch: Tottenham Division.—A meeting will be held at Tottenham Hospital on Wednesday, December 12th, at 4.30 p.m. A letter from the Dublin Division, Leinster Branch, will be considered. A discussion as to the best means of inducing every medical man to join the Association will be opened by Dr. Tresilian.—H. F. Staunton, 88, High Road, Wood Green, N.W., Honorary Secretary.

South-Eastern Branch: Canterbury and Faversham Division.—A meeting of this Division will be held at Faversham on Thursday, December 13th, 1906. Agenda: (1) Minutes of last meeting; (2) time and place and Chairman of next meeting; (3) motor car legislation; (4) any other business. Excursion.—By special permission the members will be taken over the works of the Gun-cotton Powder Company at Uplees, and shown the interesting processes of manufacture carried on there. Carriages and motors will leave Dr. Evers's house at 2.15 for the works, and convey members back to the Cottage Hospital, where the business meeting will be held at 4.30. Dr. Evers invites members to lunch at his house at 1.15. Members accepting will please let him know by Wednesday, December 12th. There is plenty of accommodation for motors at his house. Tea will be served at the hospital and a few cases shown there.—A. R. Henchley, 1, London Road, Canterbury, Honorary Secretary.

South-Eastern Branch: Norwood Division.—A clinical meeting of this Division will be held at the Norwood Cottage Hospital, on Thursday, December 13th, at 4 p.m., Dr. Beaumont, of Upper Norwood, in the chair. Agenda: (1) Minutes of last meeting. (2) Consideration of a letter received from the Dublin Division.—Arthur W. Soper, Honorary Secretary.

South Wales and Monmouthshire Branch.—The autumn meeting will be held at the New Inn Hotel, Pontypridd, on on Thursday, December 13th, at 3 p.m. Agenda: I. To receive report on present position of the Ebbw Vale dispute. II. Communications: (1) Mr. W. F. Brook (Swansea): Cases of uterine myoma interfering: (*a*) With pregnancy and treated by abdominal myomectomy; (*b*) with parturition and treated by enucleation. (2) Dr. G. A. Stephens (Swansea): A few observations on the opsonic index of frogs and pigeons. (3) Dr. W. Mitchell Stevens (Cardiff): Remarks on the modes of dissemination of intra-abdominal malignant disease. (4) Mr. William Sheen (Cardiff): Results of operation in over 200 cases of hernia.—Frank G. Thomas, W. Mitchell Stevens, Honorary Secretaries.

GENERAL MEDICAL COUNCIL ELECTION.

England and Wales.

Sir,—As considerable interest has been aroused at this election, and very many medical men are desirous to know the result as soon as possible, may we use your periodical to inform the profession that we are arranging to send the information on Wednesday next to any medical man who has previously communicated with any one of us?

The necessary conditions would be:

(*a*) A telegram form containing the name and address must have been received at latest Tuesday next.

(*b*) Sufficient postage to cover the address and *six* words besides should be affixed, if only the names and number of votes received by the three successful candidates are desired.

(*c*) If *all* the candidates' names and votes are required in order, then sufficient postage for the address and *twenty* words besides should be affixed.

These telegrams can be expected by noon on Wednesday. The Registrar has stated that this procedure is in order.—We are, etc.,

Alfred Cox, Benshaw Road, Gateshead.
E. Rowland Fothergill, Southfields, S.W.
E. D. Kirby, 107, Hagley Road, Edgbaston.
J. A. K. Renshaw, 11, St. John Street, Manchester.

December 5th.

GENERAL COUNCIL
OF
MEDICAL EDUCATION AND REGISTRATION.

WINTER SESSION 1906.

Wednesday, November 28th.

(Continued from p. 299.)

Dr. Donald MacAlister, President, in the Chair.

Systematic Lectures.

Sir Thos. Myles moved:

That it be remitted to the Education Committee to consider and report how far it may be possible to dispense with the compulsory attendances of students on the systematic courses of lectures in the theatres of medical schools, in order that the time so saved might be devoted to a more extensive study of the purely scientific portion of the curriculum, or utilized in any such manner as may be found hereafter to be demanded by modern requirements.

The motion was in continuation of the policy prescribed by the Council in 1888, and consequently there was nothing revolutionary in its nature. The Royal College of Surgeons in Ireland, which he represented, had been convinced for some time that the immense expansion in the collateral science made it necessary to give students a deeper training in scientific subjects; especially they desired to improve their instruction in chemistry and pathology, for which, under the present system, they had not either sufficient time or money. At the same time, it felt it could not add to the cost of the curriculum. This the Colleges in Ireland would strenuously resist, unless accompanied by the withdrawal or diminution of something in return. His College had come to the conclusion that the least sacrifice would be made by the cessation of the systematic lectures in medicine and surgery. The question was not whether the system was good for the student, but whether the best possible use was made of the time at his disposal. In order to produce the best medical man it was absolutely necessary that they should have a solid foundation upon which to build the superstructure, and they hoped, if the Council approved, to effect such alterations in the curriculum as would, without adding to the cost, give the student a greater opportunity to pursue his scientific studies.

Dr. Adye-Curran seconded. He looked on the attendance at the lecture theatre as so much loss of time, and it was always his endeavour to avoid as much as possible attendance at them; men learnt nothing from their lectures, and had to go to grinders.

Sir Christopher Nixon did not suppose that the Council had ever heard before a wilder suggestion than that embodied in the motion. To a profession consisting of three important branches—of medicine, surgery, and midwifery—all preliminary subjects were subjects which led to a study of those three branches of the profession, and yet it was coolly proposed to abolish all systematic teaching in medicine and surgery. The proposal had no precedent in any teaching body in the world, and to assert that the profession would incur no loss by the abolition of systematic lectures in medicine, surgery, and midwifery was, he thought, rather a large order.

Sir John Moore said that this proposition of the Royal College of Surgeons, Ireland, had been before the Royal College of Physicians, and had been scouted by that institution, and the Royal College of Physicians, Ireland, was perfectly unanimous in favour of the continuance of systematic lectures in the subjects of medicine, surgery, and midwifery.

Dr. Norman Moore thought the Council would be generally of the opinion that the motion was not a practical one. They were not there to debate the question whether teaching could be well done by lectures. Every man who attended a lecture acquired knowledge on the subject which no reading could give him, and the Council would never carry a resolution to abolish such an obvious method of teaching.

Dr. Mackay did not share Sir Thomas Myles's view with regard to lectures. In his opinion a lecture was one of the most valuable ways of imparting knowledge to the student; and the personality of the teacher was far and away the most important element in the process of

teaching. He strongly advised Sir Thomas Myles not to press his motion, because he did not think that any purpose could be served by the discussion of it in the Education Committee.

Sir CHARLES BALL said that when the matter was before the College of Surgeons in Ireland, it was not so much the abolition of certain lectures as the substitution of some other form of instruction. It was well to ventilate the subject and talk about it, so that it might be possible in the future that a more extended course of practical pathology, and, perhaps, a more extended course of systematic clinical instruction in the wards of the hospitals might take the place of the old systematic courses in surgery and medicine. Therefore, there was a great deal more in the question than perhaps members of the Council thought.

Mr. GEORGE BROWN was of opinion that a good case had been made for inquiry.

Mr. ARTHUR THOMSON thought that under the present regulations the College of Surgeons, Ireland, could do what it liked, and that it need not come for the consent of the Council.

Sir THOMAS FRASER considered it a waste of time, if he might say so without offence to any one, to occupy the time of the Education Committee with this matter. The mover of the resolution had complained of want of time for teaching chemistry and pathology, yet other schools found no difficulty in giving full and extended instruction, systematic and practical, in these subjects, so that he could not follow the argument that the change was a necessary reform, although the speeches of Sir T. Myles and Sir Charles Ball indicated that there were defects in the way the subjects were taught in certain schools.

DR. BRUCE supported the motion.

DR. LINDSAY STEVEN said his mind was confused by the suggestion of Mr. Thomson that there were no regulations making it obligatory on the part of the students to attend the systematic lectures on the subjects in question, and asked if it was correct.

The PRESIDENT, in reply, said the Council had to decide whether the course of study required by any particular body was sufficient, and the course of study was expressed by the Regulations of the body. The Council, in order to help bodies, had passed resolutions as to what the Regulations should contain and what they should not, and the resolutions referred to were resolutions of that kind, and one of them stated that a student need not attend the systematic lectures for more than three days a week.

Professor SAUNDBY said that several speakers had supported this resolution by talking of bad lecturers, and Dr. Adye-Curran had had to go to a grinder's class because he had learnt nothing from his lecturers; but if that was so, the proper conclusion was, not that lectures are bad things, but that the grinder should have occupied the lecturer's chair. Sir T. Fraser had dealt adequately with the argument of want of time, but a word might be said on the money question. It was notorious that the systematic Chairs in the strictly professional subjects were paid very little, while the Science Chairs cost in salaries and equipment a sum towards which the saving by the proposed suppression of the systematic Chairs would be trifling.

Sir THOMAS MYLES, in reply, expressed his thanks to the Council for the cordial reception his proposal had received. He was not attacking certain systematic courses, but was suggesting that they might possibly be replaced by better ones.

The motion was then put and lost.

At the request of Sir CHRISTOPHER NIXON, the names and numbers were taken down, when 15 voted against, 7 for, 5 did not vote, and 4 were absent.

Dr. ADYE-CURRAN moved:

> That, in consideration of the heavy expense entailed on the Apothecaries' Hall, Dublin, by the appointment of the Surgical Examiners from London and Edinburgh respectively, the Council resolve that at the next vacancy Surgical Examiners be appointed from amongst the profession practising in Dublin.

At the last session of the Council, by some misunderstanding, he withdrew the motion under the impression that Sir Henry G. Howse and Mr. Alexis Thomson, the present Examiners, were about to retire. Dr. Adye-Curran pointed out that Sir Henry Howse and Mr. Thomson were appointed to act in 1897 for two years, and as they had not been reappointed they had since acted and examined without any mandate from this Council, and without any authority whatsoever. If that were so, there was a very serious question involved, which he was not disposed to enter into at present. His Board was anxious for a change, and hoped the Council would act on its suggestion and appoint two resident Irishmen as Examiners in their place. They had no objection to them personally, but the expense was very considerable—£110 to £120 a year—and they could get Examiners in Ireland for very much less.

Sir THOMAS MYLES seconded.

Moved by Dr. NORMAN MOORE, seconded by Dr. LINDSAY STEVEN, and resolved:

> That the Standing Orders be suspended in order to conclude the business under discussion.

The PRESIDENT ruled, after looking into the matter, that the Examiners did not illegally hold office. They were appointed originally for two years, and then reappointed without any limit of time.

Sir CHRISTOPHER NIXON was of opinion that the present Examiners were legally appointed, but the time had come when the Council should accede to the request of the representative of the Apothecaries' Hall. He would strongly urge at the next vacancy that it should be filled by some Dublin surgeon.

Dr. NORMAN MOORE doubted if they could bind a future Council.

The PRESIDENT, in reply to Mr. GEO. BROWN, said it would not be in order to put on the agenda a motion that the resolution of June 9th, 1899, appointing the Examiners, be rescinded, but a motion terminating the services of the Examiners would be in order.

Sir JOHN MOORE hoped, whatever was done, the Council would not adopt the resolution, as it would prevent members of the medical profession in England and Scotland from holding a post of honour.

Mr. MORRIS thought the position of the appointment of Examiners for an unlimited term was very unsatisfactory, and suggested that Dr. Adye-Curran should withdraw the resolution and bring forward for the consideration of the Council whether there should not be a definite term fixed to them.

Dr. ADYE-CURRAN, with the permission of the Council, withdrew the resolution, stating that he would bring one forward for the termination of their services.

The Council then adjourned.

Thursday, November 29th, 1906.

Dr. DONALD MACALISTER, President, in the Chair.

The minutes of the previous day's proceedings were read, emended, and confirmed as emended.

DENTAL CASES.

The Council proceeded to consider the report of the Dental Committee on a charge against Samuel Foley, William Henry Moseley, and James Parkinson, all registered as having been in practice before July 22nd, 1878. Mr. Lushington appeared as legal assessor and Mr. Winterbotham as solicitor to the Council. Mr. Courthope-Munroe, instructed by Messrs. Baxter and Co., solicitors, appeared for Mr. Samuel Foley. Mr. Priest, of Messrs. W. M. Taylor and Sons, agents for Mr. J. H. Ryley, solicitor, represented Mr. W. H. Moseley; and Mr. Kerr, of Messrs. Kerr and Ramsden, represented Mr. James Parkinson. The complainants, the British Dental Association, were represented by Mr. R. W. Turner, instructed by Messrs. Bowman and Curtis-Hayward, solicitors to that association.

The PRESIDENT stated that the report was, by the Act, conclusive as to the facts. The REGISTRAR then read the report, which contained the following findings:

(*b*) On or about May 29th, 1899, the three dentists abovementioned signed the Memorandum and Articles of Association, and thereby became members of a limited company named Foley's, Limited, incorporated under the Companies Acts for the purpose (*inter alia*) of carrying on the "business of dentists and dental surgeons."

(*c*) The Company, immediately after its formation, entered into an agreement with an unregistered person named Edward Foley, a brother of the said Samuel Foley, for the acquisition from the former of five dental practices at the following addresses, namely: 75, Westbourne Grove, W.; 21, High Street, Kensington, W.; 95, North End, Croydon 32, Tavern Street, Ipswich; and 89, King's Road, Brighton. The said

unregistered person named Edward Foley was and is the sole and Managing Director, and also the principal shareholder of the Company.

(*d*) The Company now carries on practice at all the above-mentioned addresses except the last, and employs the said Edward Foley to attend patients and perform dental operations, and takes and uses the title of "Dentists" and "Surgeon Dentists."

(*e*) The Company advertises systematically and extensively by circulars of an objectionable character, and containing claims of superiority over other practitioners.

(*f*) Samuel Foley signed the Memorandum of Association of the Company for five founders' shares, and William Henry Moseley and James Parkinson for ten founders' shares each, but they have never paid anything in respect thereof or received any dividends thereon. The total issued capital of the Company is sixty-five founders' shares and two thousand ordinary shares, all of £1 each, of which the said Edward Foley owns five founders' shares and all the ordinary shares.

(*g*) Samuel Foley, at and previously to the formation of the Company, practised at the same address as his brother, the said Edward Foley, namely, at 89, King's Road, Brighton. He only resided there from Saturday till Monday in each week. He subsequently handed over the premises and the brass plate bearing the inscription "Mr. Foley, Dentist," and the furniture and appliances to his brother, and ceased to practise there himself. The said Samuel Foley took no part in the management of the business carried on by the Company, and was carrying on a practice himself elsewhere, but he was well aware of the object with which the Company was formed, and knew that it was to enable his brother as an unqualified person to advertise himself and carry on practice as a dentist and surgeon-dentist.

(*h*) The said William Henry Moseley, at and previously to the formation of the Company, and for about three years subsequently thereto, was in the employ of the said Edward Foley, and he signed the Memorandum of Association at the request of the said Edward Foley. He was at this time and for some time subsequently under the impression that Edward Foley was in fact Samuel Foley, the registered dentist of that name. His salary was for some years 2 guineas a week, but was subsequently raised to £3 a week. He had a large family, and was entirely dependent for his living upon the said Edward Foley. He was assured by the solicitor who acted for the Company, when he signed the Memorandum of Association, that he was incurring no liability by so doing. He received certain half-yearly reports from the Company, but put them in the fire as soon as received. He has recently transferred his shares.

(*i*) The said James Parkinson, previously to the formation of the Company, was intermittently in the employ of Samuel and of Edward Foley. He signed the Memorandum of Association at the request of the said Edward Foley, and subsequently received a share certificate, but has had no further communication with the Company. On receipt of the Registrar's request for an explanation he wrote to the Company with instructions to remove his name from the register of members, and on receipt of legal advice as to the necessary steps has undertaken to execute a proper transfer of his shares.

Mr. Courthope-Munroe, on behalf of Mr. Samuel Foley, said he had no fault to find generally with the facts as found in the report, but he asked the Council to bear in mind that, so far as his client was concerned, he had been drawn into this matter in the possibly unwise attempt to help his brother. The whole of Mr. Samuel Foley's wrong-doing consisted in the fact that seven years ago, at the instance of his brother, he signed a document or documents by which he purported to become one of the founders of the Company, and to take in his own name certain shares, which he never received, and from which he had never derived a penny. For seven years he had taken no part in the business of the Company. When this charge was brought against him in conjunction with the other respondents he went to his solicitors, and immediately took steps to get his name removed from the register of companies. He greatly regretted that he should have done anything which the Committee thought he ought not to have done. Before the Council could deal with a person on the *Register* it must be proved that *he* had been guilty of "infamous or disgraceful conduct in a professional respect." These words had been considered by the Court of Appeal in the case of Allinson *v.* the General Medical Council, and the Court had given a definition of the words of the Act. That definition was: "If it is shown that a medical man, in the pursuit of his profession, has done something with regard to it which would be reasonably regarded as disgraceful or dishonourable by his professional brethren of good repute and competency, then it is open to the Council to say that he had been guilty of infamous conduct in a professional respect." He relied on the words, "pursuit of his profession." If Mr. Samuel Foley had put his name on the prospectus of a gold company which the courts subsequently found was a fraudulent prospectus, the Council, he submitted, could not say that he had brought himself within words of the section. He submitted that the jurisdiction of the Council was limited to what a man did *quâ* his professional conduct.

Mr. Priest did not question the facts as found. He stated that his client Mr. Moseley had recently executed a transfer of his shares.

Mr. Kerr expressed on behalf of his client Mr. Parkinson his great regret for what he had done.

Mr. Turner, with reference to the argument of Mr. Courthope-Munroe, said in the case put of a fraudulent gold company that he was not prepared to say that it would be within the section. But the present was a different case. The facts found showed that a certain number of registered dentists, using their professional position as dentists signed a memorandum of association which enabled unregistered persons to pose before the public as dentists, and permitted the company, which owed its very existence to them, to indulge in a series of advertisements which were found to be of a disgraceful character. This was all done in consequence of their professional position.

The parties and strangers were directed to withdraw.

On readmission, the President, addressing Mr. Samuel Foley, said:

I have to announce to you that, on the facts found in the report of the Dental Committee in the case of Mr. Samuel Foley, it has been proved that you have been guilty of conduct which is infamous and disgraceful in a professional respect, and the Council directs the Registrar to erase from the *Dentists' Register* the name of Samuel Foley.

Addressing Mr. William Henry Moseley and Mr. James Parkinson, he said:

I have to announce that the further consideration of the charge against you has been postponed until the next session of the Council, when you will be expected to show to the satisfaction of the Council that you have done your best to sever all connexion with the company of Foley's, Limited, and that your professional conduct has been in all respects satisfactory in the interval.

The Council then proceeded to consider the report on the case of William Williams Alnwick, in regard to which the Dental Committee had found the following facts:

The case having been brought to the attention of the Council by the Registrar-General, the facts were laid before the Committee by the Solicitor.

The Committee find that the following facts were established by the evidence:

(*a*) The said William Williams Alnwick is on the *Dentists' Register* as in practice before July 22nd, 1878, and of the address 39, Highfield Place, Sheffield.

(*b*) The said William Williams Alnwick, being a registered dentist, but not being a registered medical practitioner, has attended and prescribed for patients as though he was a duly qualified and registered medical practitioner, and has in the name of one Edmund McDonnell, a duly registered medical practitioner, signed a death certificate in the case of Ellen Millward, whom the said William Williams Alnwick had so attended and prescribed for.

(*c*) The said William Williams Alnwick has been carrying on a general medical practice for over thirty years.

(*d*) The said Edmund McDonnell has resided for the last eight or nine years with the said William Williams Alnwick, and has been his "assistant partner" in medical practice.

The said William Williams Alnwick was authorized by the said Edmund McDonnell to sign his name to the certificate of death of the said Ellen Millward, although in fact, the said William Williams Alnwick alone had attended her, and the said Edmund McDonnell had not attended her.

(*e*) The said William Williams Alnwick was convicted on October 30th, 1906, at the Sheffield City Police Court, of forging the certificate of death of the said Ellen Millward for the purposes of the Births and Deaths Registration Act, 1874, and was fined £3 14s. and £1 6s. costs.

Mr. Wm. Williams Alnwick, who appeared in person, said, in reply to the President, that the only observation he wished to make in mitigation was that he was under the impression that Dr. McDonnell had seen the patient referred to. He, Mr. Alnwick, had been in medical practice for thirty years and had attended over 2,000 midwifery cases, but he had always had a registered practitioner resident in his house. He had been a pupil for twelve years of a well-known medical man, and had been in the profession ever since.

Strangers were directed to withdraw. On readmission,

The PRESIDENT announced the decision of the Council as follows:

That William Williams Alnwick having been proved to have been convicted of a misdemeanour, the Registrar has been directed to erase from the *Dentists' Register* the name of William Williams Alnwick.

RESTORATION OF NAMES TO DENTISTS' REGISTER.

The Council then went into *camerâ* to receive a report by the Dental Committee in regard to certain applications for the restoration of names after erasure under Sec. XIII of the Dentists Act. Strangers were directed to withdraw. On readmission no announcement was made to the public.

THE FIFTH YEAR.

The following report of the Education Committee on the operation of Recommendation V in regard to the fifth year of professional study was received and entered on the minutes.

Report of Education Committee.

On May 26th, 1906, it was moved by Dr. Bruce, seconded by Sir T. McCall Anderson, and agreed to:

That it be remitted to the Education Committee to consider how far Recommendation V of the General Medical Council, namely, "that the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries, British or foreign, recognized by any of the medical authorities mentioned in Schedule (A) of the Medical Act, 1858, provided that of this year six months may be passed as a pupil to a registered practitioner possessing such opportunities of imparting practical knowledge as shall be satisfactory to the medical authorities"—is at present being given effect to, and if the Committee sees fit to recommend to the Council such changes in the said Resolution as would be likely more effectually to secure the object aimed at by the Council in 1890.

An examination of the regulations of all the licensing bodies shows that in no case is it made compulsory on the student to devote the final year exclusively to clinical work. In the great majority of instances, however, the arrangements are such that the prescribed systematic courses can be completed by the end of the fourth session, and the student is thus left free to devote his later work entirely to clinical study if he so desires. In most of the schools surgery, materia medica and therapeutics, and medical jurisprudence with public health, along with a portion of the work in anatomy, occupy the third year. The subjects of systematic study allotted to the fourth year are usually pathology, medicine, and midwifery; they demand only about half the working day throughout the winter session, and they need hardly, if at all, encroach upon the summer term. The precise arrangement of the courses and the periods of attendance prescribed vary very considerably; but it may be said that, although there is of necessity some overlapping of the groups of studies as defined by the successive examinations, as a rule the third and fourth years taken together are ample for the completion of the systematic work demanded.

A large number of students take out second attendances on systematic courses of instruction bearing upon the subjects of the final examination, particularly in medicine and surgery. That an extended study of the principles which underlie the two great branches of professional practice should be frequently sought for is neither to be wondered at nor deprecated. In the few instances among the licensing bodies in which some systematic study in the fifth year is exacted from or recommended to the students the dominating influence is invariably the same, namely, enforced "second attendances." In two schools (the universities of Durham and Birmingham) a period of twelve months' systematic study is required both in medicine and surgery: in four others (the Universities of Manchester, Liverpool, Leeds, and Sheffield) a course of similar length is recommended in medicine. In all the six cases referred to, systematic work in the fifth year in medicine and allied subjects is either directly prescribed or rendered practically inevitable.

The Recommendations of the Council were not intended to discourage students from taking second attendances in medicine and surgery, even if the additional courses should fall within the final year. The Council's Recommendations were meant to emphasize the importance and to promote the application of clinical study, and to secure a due balance between practical and theoretical teaching.

Of the students at every centre a very considerable number do not follow the typical course owing to failure in the earlier examinations or to prolonged preparation in some of the subjects. It may be inferred that, in such cases, in the attempt to recover lost time, the later years of study will be encroached upon by systematic work primarily intended for an earlier period. The following statistics of the Conjoint Examining Board in England have a direct bearing on the question. They give an analysis of the curriculum as followed by 400 students (of whom 271 were Conjoint students and 129 University students) who qualified in the two years previous to 1906 under the Regulations then in force.

(1) Percentage table showing the duration of the curriculum:

5 Years.	5¼ Years.	5½ Years.	5¾ Years.	6 Years.	6½ Years.
8·5	4·75	10·5	4·75	13	11·5

7 Years.	Over 7 Years.
12·5	34·5

28·5 per cent. qualify in less than six years.
71·5 per cent take six years or more to qualify
37 per cent. take from six to seven years to qualify.

(2) Percentage table showing the interval between the date of passing in anatomy and physiology and the completion of Final Examination:

2 Years.	2¼ Years.	2½ Years.	2¾ Years.	3 Years.	3½ Years.
2·25	3	9	5·75	18·25	26·25

4 Years.	Over 4 Years.
15	20·5

20 per cent. complete the Final Examination in less than three years.
80 per cent. take three years or more to complete.

If the average for those who took more than seven years to qualify be set down approximately as amounting to seven and a half years, the figures show that under modern regulations as to study and examinations the average curriculum of the medical student extends to six and a half years, and that of this period three and a half years are exclusively devoted to the subjects of the Final Examination. It becomes evident that only the very best students, a proportion only of those who pass unchecked through the curriculum, complete the course in five years, and that it is not usual to find that early delays are compensated for by overcrowding in the later part of the curriculum. The amount of work required for the final, as compared with that demanded for the earlier examinations, is well illustrated in the foregoing tables.

The Resolutions of the Council in 1890 were re-issued, slightly altered in substance, in 1893 in the shape of Requirements and Recommendations; they have had a marked effect upon medical education in the country. As far as the Recommendations are concerned it may be said that they are adopted practically in their entirety by all the licensing authorities, and that the principles which they embody are being steadily extended in their practical application.

The Education Committee believe that to change the Recommendations into Requirements would be foreign to the whole policy of the Council, and likely to retard rather than advance the object aimed at in 1890. The requirements of the Council should be strictly limited to essentials, and no attempt should be made to enforce absolute uniformity of method among all the licensing bodies.

In certain points the Recommendations of the Council should be amended. The provision contained in Clause V, that six months of the final year may be employed in pupilage to a registered practitioner, has been but little taken advantage of, only two of the authorities embodying it in their regulations. Inquiries addressed to the bodies in question have elicited the fact that few or none of the students make use of the permission.

Many of the authorities include in their regulations a provision to the effect that students shall be trained in the administration of anaesthetics. The Committee believe that the Council would be justified in recommending to all the bodies a similar course.

The regulations of some of the licensing bodies are indefinite as to attendance at *post-mortem* examinations. The subject is alluded to in Section IV of the Recommendations, but the Committee are of opinion that a definite recommendation should be made.

In view of the great importance of the statistics relating to the average length of the curriculum quoted in their report, the Committee are of opinion that full information on the subject derived from all the sources should be placed

before the Council. They are willing to undertake the investigation should the Council desire it.

Recommendations.

The Committee beg to recommend as follows:

1. That the Recommendations of the Council in regard to professional education should stand as at present, with the following alterations, namely:

(*a*) That the reference to a period of pupilage should be erased from Section V;

(*b*) That special reference should be made (1) to instruction in "administration of anaesthetics," (2) to attendance at "*post-mortem* examinations."

2. That statistics relating to the average length of the curriculum under the present regulations should be procured and laid before the Council.

Dr. Mackay (Chairman of the Education Committee), in moving that the first recommendation be adopted, pointed out that the mandate of the Committee had been very restricted. The report dealt with that part of the curriculum which was specially alluded to in Clause 5 of the recommendations of the Council, and they had not felt justified in going into the whole question of the curriculum or dealing with anything which was embraced in the requirements of the Council. The object of the Council in putting forward these resolutions was to promote practical clinical teaching as far as possible. The rules of the various bodies had been carefully studied, and the Committee had come to the conclusion that all of them had loyally tried to carry out the wishes of the Council; and the recommendations, as far as the time allotted to the curriculum allowed, were being carried out. Therefore, considering their success, their general adoption, and the fact that the action of the Council in 1890 had had the most profound effect on medical education in the country, the Committee was of opinion that it would not be wise to make such a radical change as to suggest that the resolutions which were sent down as recommendations should become requirements. But it was of opinion that they were susceptible to one improvement, and suggested that the questions of pupilage should be erased from Section 5. The second recommendation, as to instruction in the administration of anaesthetics, was undoubtedly wise, and would be carried out by the various schools. With regard to the question of statistics, it was felt that they would be of very great interest, in view of the fact that the Education Committee must, sooner or later, take up the whole question of the curriculum, and that they should have the statistics from all the bodies in different parts of the country. Therefore he asked that the statistics should be procured and laid before the Council.

Dr. Norman Moore seconded.

Mr. George Brown could not understand why the period of pupilage had remained in the recommendations for some fifteen years, although had the six months' pupilage been permitted in the students' first year of study before entering into practice he could have understood that being of great use to him as an initial experience to studying in a hospital and preparing himself for his professional work.

Sir John Moore was of opinion, having regard to the number of cases of covering, that if this system of pupilage were approved those cases would enormously increase.

The recommendation "(*a*) That the reference to a period of pupilage should be erased from Section V" was then put and carried *nem. con.*

Dr. Mackay moved, Mr. Morris seconded, and it was approved: "(*b*) That special reference should be made to instruction in administration of anaesthetics."

Dr. Mackay moved:

That special reference should be made for attendance at *post-mortem* examinations.

Dr. Lindsay Steven seconded. In his opinion there was a clear indication from the medical schools that such a course was approved, and was being actually carried out in many of them; and, therefore, the time had come for putting those recommendations among the regulations of the Council.

Mr. Young did not think that attendance at a *post-mortem* examination was of much use, and he moved as an amendment to substitute for the words in No. 2:

That special reference should be made to giving attendance and taking part at *post-mortem* examinations.

Dr. Bruce seconded the amendment.

Dr. Mackay thought that was going farther than was at present advisable.

Dr. Lindsay Steven would be glad if the amendment could be carried, but he would rather take the motion than nothing.

Dr. Norman Moore said this proposal was considered by the Committee, and it came to the conclusion that it could not be carried out effectively in all schools.

Mr. Morris thought the amendment impracticable, although most of them entirely agreed with the spirit of it; it could be carried out in small schools, but was not possible in large ones.

Sir Christopher Nixon did not think there was any advantage to be gained by adopting the amendment.

Dr. Norman Moore, having made *post-mortem* examinations for eight years of his life, had naturally come to the conclusion that it was one of the most important ways of learning medicine. He believed that what was learned by looking on at a *post-mortem* examination, valuable as it was, was not all; and there could be no question that a student who had actually taken part in a *post-mortem* examination would learn more than one who simply looked on, but it was not possible for all students in large schools to be *post-mortem* room clerks. The recommendation as it stood would be a step in the promotion of the study of morbid anatomy, and as a member of the Committee, entirely as he sympathized with the amendment, he felt bound to vote against it.

Dr. McVail thought it extraordinary to confine the recommendation to attendance at the *post mortem* examinations where it was possible for a student to take part in them.

Dr. Little was of opinion that all *post-mortem* examinations should be made by specialists, and he hoped the day was not far distant when that would be the law of the land.

Professor Saundby expressed his regret that the Council in this year, 1906, should have to discuss this question. It seemed extraordinary that this should be put into the report of the Education Committee as something necessary to send down to the schools, that the students should attend *post mortem* examinations, and he was shocked to think there was any need for the Council to pass such a resolution.

Mr. George Brown observed that at least one coroner in London did not permit ordinary general practitioners to perform *post-mortem* examinations because, he said, they had not the necessary pathological knowledge.

On the motion of Mr. Tomes, seconded by Mr. Morris, the closure was moved and adopted.

The amendment was then put and lost.

At the request of Mr. Young the names and numbers were taken down, when 20 voted against, 3 for, 2 did not vote, and 3 were absent.

The recommendation as moved was then put and agreed to.

Dr. Mackay moved, Dr. Lindsay Steven seconded, and it was resolved:

That statistics relating to the length of the curriculum actually pursued by students under the present regulations should be procured and laid before the Council.

The Chairman stated that after the various matters touching this question had been dealt with the whole set of regulations would be referred to the Committee to be re-edited.

Committees.

The Council proceeded to the appointment of Scottish and Irish representatives to fill the vacancies existing on the Finance and Dental Committees. Sir John Tuke was appointed a member of the Finance and of the Dental Committee as representative of the Scottish Branch, and Dr. Little to the Finance Committee as representative of the Irish Branch.

The President announced the appointment of Sir Thomas Fraser to be a member of the Examination Committee, on the nomination of the Scottish Branch Council, in place of Sir Patrick Heron Watson.

Report of the Examination Committee.

Dr. McVail moved, and Mr. Young seconded:

That the reports of the Examination Committee now presented in regard to the results of the examinations for the public services be received and entered in the minutes.

Dr. NORMAN MOORE moved and Dr. LINDSAY STEVEN seconded:

That from these reports the passages referring to the order of merit be omitted.

The amendment on being put was adopted.

The motion that the reports with these omissions be received and entered on the minutes was then put and agreed to.

The Council then adjourned.

Friday, November 30th, 1906.

Dr. DONALD MACALISTER, President, in the Chair.

The minutes of the previous day's meeting were read and confirmed.

PROFESSIONAL EDUCATION.

Sir JOHN BATTY TUKE moved:

That the note to Requirement III in regard to Professional Education (*vide* Vol. XXX, p. 80) be deleted, and that in its place the following note should be adopted: "That the Council is of opinion that the required subjects should be divided into two groups: One group comprehending physics, chemistry, elementary biology, anatomy, and physiology, the other comprehending all the other subjects; and that the Council is of opinion that no licensing body should recognize instruction in any subject comprehended in the second group until candidates have passed in the subjects comprehended in the first group."

He said that the main object of his motion was to ascertain whether the Council was desirous of maintaining the position which it assumed in 1900 in regard to the curriculum. In the minutes for that year, following the subjects which must be studied and examined upon, there was a note:

It is to be understood, as regards the above-mentioned subjects, that the Council offers no opinion as to the manner in which the subjects shall be combined or distributed for the purposes of teaching or examination.

That was the official position to-day. That note was adopted because the Council desired to express generally that they had no intention or wish to interfere with the autonomy of the licensing bodies. But a great deal had happened since 1890. Two subjects had been added to the curriculum—namely, physics and bacteriology. At first, these subjects having been placed on the list did not weigh very heavily upon the student, but as time went on teaching became more elaborate and examinations more stringent. He would not argue as to whether this was a good thing or not; he simply adduced it as a fact to prove that pressure was put upon the student at the commencement of his career. Pressure also occurred at the end of his carreer. This was due to the criticism which the bodies were subjected to during the two cycles of inspection by the inspectors, the visitors, and the Examination Committee. He had no hesitation in saying that the result of that criticism was to raise the standard of examination in the year 1906 much higher than it was in 1890. Then, further, new methods of diagnosis were introduced, which also served to put more pressure upon the student at the end of his course. His attention had been more particularly drawn to this subject by studying the report which had been issued on the subject of midwifery. With a large portion of that report he was in perfect sympathy, but he was convinced that it was impossible to carry out many of the recommendations. It had been suggested that a six years' course should be instituted, but he did not approve of that. He thought that would aggravate the evil they were trying to overcome. He had heard it suggested that the best thing to do was to refer this matter to the Examination Committee for them to report, but that was for the Council to decide. He contented himself with moving the resolution.

Dr. MACKAY seconded.

Sir T. MCCALL ANDERSON wished to move an amendment, although he was quite in sympathy with Sir John Batty Tuke in wishing to put a stop to the shameful crowding out of the final subjects of the medical curriculum by the earlier subjects. His fear was, as the motion was framed, that there might be some members of the Council who were in favour of the principle conveyed in the second part of the motion, but might possibly object to the first part, and in consequence might vote against the motion altogether. There were various ways of getting over the difficulty. One of these was to extend the period of study beyond the term of five years. He was entirely opposed to that proposal, for the reason that many industrious and forward students are quite able to go over the whole curriculum and pass their examinations within that time, and the sooner they are rid of their examinations, and able to go on with their studies, the better it is for them. Another proposal was that the earlier science subjects should be passed before entry on the five years' course. The amendment he proposed was:

That a minimum of two years be devoted to the subjects of the final examination, and that no qualifying courses on these subjects be recognized until the previous examinations are passed.

Sir JOHN MOORE seconded.

The PRESIDENT inquired whether the amendment was to take the place of the whole of Sir J. B. Tuke's motion, or only part of it.

Sir T. MCCALL ANDERSON replied that he intended his amendment to take the place of the whole resolution.

Sir THOMAS FRASER said he did not agree with the original motion. He pointed out that in medical education there would necessarily be a good deal of overlapping, and he quoted figures which showed that in the University of Edinburgh 60 per cent. of the students graduated in five years.

Sir CHARLES BALL hoped the Council would not pass either the amendment or the original motion in their present form, as there appeared to him to be very grave defects in both. They did not in any way provide for a reference to the universities or licensing bodies, who had taken a great deal of trouble in arranging the curriculum, to inquire whether such a course was practicable. It was not even proposed that the matter should be referred to the Education Committee, although he understood such a course had been suggested. He thought for the Council to pass a hard and fast law straight off on a matter of such paramount importance was highly undesirable. No doubt many members would think that theoretically it was desirable to put on a block at some period of the course where the "chronic" student would be stopped. That subject had often been raised in the Council. But was it practicable, and if so, where was the block to be put on? By the suggestion made by Sir J. B. Tuke, and also by the amendment, the period selected was after the student had passed his examination in anatomy and physiology. Those examinations were differently conducted in different places. In the University of Dublin they found by experience that it was impossible to get into the courses the amount of education necessary to enable the student to pass in anatomy and physiology until the end of the third year, and the curriculum had been arranged on that line at present. At the end of the second year the student went up for an examination in elementary anatomy and a restricted course of physiology. After that he attended lectures in physiology, and at the end of the third year he would pass examinations in advanced anatomy and physiology. If the proposed resolution was carried it would mean that a student would not be allowed to attend hospitals till his fourth year. Sir John Tuke had stated that he did not desire to impose a sixth year's course. But how was he to get out of it if the whole of the first three years were to be occupied by the preliminary scientific subjects and they recognized three years' clinical instruction? For these reasons he thought it was very undesirable for the Council to come to any definite conclusion, although no doubt the subject was deserving of further consideration. As regards the question of blocking, they might block a man as far as his examination or his course of instruction was concerned. One form of blocking that could be possibly introduced was that a man might not go in for the next series of examinations until he had passed all the previous ones. That was a block that could easily be put; but to put a hard and fast block which would prevent any education being undertaken was quite a different matter.

Dr. CATON thought that many members would feel a keen interest in the motion of Sir J. B. Tuke, but he confessed the subject was a very difficult one, and he thought before they could accept such a motion certain important reforms, which many of them felt to be imminent, would have to be effected in the medical curriculum. When the

fifth year was added the intention was that it should be given chiefly to those practical and final subjects which constituted the main and most essential part of medical education. All of them knew that as a matter of fact the fifth year had not had such a destination as that, but it had been devoted to a large extent to the preliminary group of subjects. He felt that two years was quite insufficient for the great group of subjects included under medicine and surgery, and he wanted to see an earnest effort made to compress the preliminary subjects into two years or two years and a half. If each student was allowed to spend three years on the preliminary subjects he was absolutely debarred from the study of those great practical subjects which were to form the work of his life. He was very anxious to make a determined effort to obtain a reform in the direction he had indicated. He felt himself in an embarrassing position, because he could neither vote for the motion nor for the amendment, although he sympathized with both very much.

Sir Christopher Nixon said he intended to vote against the motion and also against the amendment. He thought the motion was objectionable, inasmuch as it implied, to his mind, an unwarrantable interference with the educational bodies, and with the universities especially. The principle on which the Council acted was that there was a minimum standard below which no man could be put on the *Register:* but to interfere with the special function of the universities, one of which he represented, in framing their regulations for the medical curriculum, was a course which he believed the universities generally would not accept, and which he thought they would be perfectly justified in resenting. He thought the matter might be referred to the Education Committee to consider.

Mr. Morris could conceive of no subject of greater importance to be brought before the Council. Their curriculum was like a box which was stuffed full—the bottom and sides were coming out, the lid would not fasten down, and the Council had to tie it down and hold it together by rules and regulations. It was a condition of things which should not continue. They could relieve the box either by enlarging it, or by removing some of the contents, and it certainly should be lightened by removing some of the things which were at the bottom as being the preliminary subjects. In his opinion it was incumbent upon the Council, and it ought to be incumbent upon the licensing bodies, to make the length of the curriculum suit the amount of study to be got into it. He could not for a moment support the amendment inasmuch as 80 per cent. of the students took three years after they had passed in anatomy and physiology to pass the other subjects.

Dr. Norman Moore, by the leave of the Council and with the consent of Sir John Tuke and Sir T. McCall Anderson, moved that the proposals be remitted to the Education Committee for consideration and report—namely, Sir John Tuke's motion and Sir T. McCall Anderson's amendment.

Dr. Caton seconded.

Sir John Williams moved the addition of the following rider:

> That it is desirable to divide the subjects of the medical curriculum into three groups—namely, (1) subjects of the preliminary scientific examination; (2) those of the Intermediate Examination; (3) the subjects of the Final Examination. And to provide that no instruction in any subject of the last two groups be recognized until the candidate has passed in the subjects of the previous groups.

He thought the Committee should make inquiries of the higher schools, in order to decide the exact division that should be made in the curriculum.

Dr. Bruce seconded.

Dr. Little, while he would have voted against both the motion and the amendment, said the matter now had his fullest sympathy. He thought that some such regulation as was sought to be introduced would be of the greatest possible assistance.

Dr. Lindsay Steven would support any proposition which would put the preliminary subjects such as biology, physics, and chemistry, into a preliminary examination outside the curriculum altogether. He did not know whether the time had yet come when the Council would favour such a proposal, but he supported the motion as tending in that direction.

Sir Thomas Myles, on behalf of the College of Surgeons of Ireland, strenuously opposed all the propositions.

Dr. McVail observed that, so far as the universities of Scotland were concerned, the resolution could in no way affect them.

On the motion of Sir Thomas Fraser, seconded by Sir Christopher Nixon, the closure was adopted.

The rider was then put and adopted.

Dr. Leonard Kidd moved, Dr. Saundby seconded, and it was resolved that it would be an additional instruction to the Education Committee to supply the age when students were qualified by the several qualifying bodies.

The four proposals were then put and agreed to.

The President ruled the following notice of motion by Mr. Geo. Brown out of order, inasmuch as it was the subject matter of inquiry and report by the Education Committee:

> That it be a recommendation to the various medical corporations in the United Kingdom to institute under their own special supervision a Science Examination, including biology, physics, and chemistry, to be passed by intending students of medicine previous to registration as medical students.

Dr. Mackay moved, Dr. Lindsay Steven seconded, and it was resolved:

> That the existing arrangements and recommendations of the Council regarding professional education be referred to the Education Committee, with instruction to prepare a revised statement of them, with such amendments as they may think fit to propose for the Council's consideration.

Apothecaries' Hall, Dublin.

Dr. McVail moved, Mr. Young seconded, and it was resolved:

> That the report for the Examination Committee on the Final Examination (July, 1906) of the Apothecaries' Hall, Dublin, be received and entered on the minutes.

REPORT.

Final Examination.

Four candidates presented themselves for this examination. Of these, one had already passed in Ophthalmology; the other three were exempt for various reasons under the Regulations. There was therefore no examination in this subject on the present occasion. In Surgery all four candidates presented themselves. One of these retired from the written examination, having only attempted to answer (badly) three questions out of six. He consequently did not present himself for the rest of the Surgical examination. The other three went through the whole of the Surgery, but failed to obtain the necessary 50 per cent to entitle them to pass. They were therefore all rejected. In Medicine one candidate was exempt, the other three presented themselves; two of these did not obtain the necessary 50 per cent. in the Clinical; they were therefore rejected and not allowed to present themselves for the rest of the examination. The other candidate just obtained 50 per cent.; he did not, however, obtain 50 per cent. in Midwifery; and as he had been rejected in Surgery, was rejected in all subjects. Of the other three candidates in Midwifery only one obtained 50 per cent.; but as he had already failed in Medicine and Surgery, he was rejected. The other two candidates were below the 50 per cent. standard, and were consequently rejected.

The net result of the examination, therefore, is that all the candidates were rejected.

We were satisfied with the methods by which the examination was conducted and that the standard of knowledge required was sufficient.

Henry G. Howse.
July, 1906. Alexis Thomson.

Dr. McVail moved, Mr. Young seconded, and it was resolved: That the report be approved.

The following resolution was moved by Sir John Moore and seconded by Sir Thomas Myles:

> That the Governor and Court of the Apothecaries' Hall, Dublin, be requested to furnish, for the information of the Council, a statement showing in reference to the Final or Qualifying Examination of that body: (1) The number of candidates who have presented themselves for the said examination since the appointment of Assistant Examiners in Surgery by the Council. (2) The number of candidates who have been successful at the said examination. (3) The subjects in which the respective candidates presented themselves at each Final Examination, and (4) The number of candidates rejected in each of the subjects of medicine, surgery, and midwifery.

Dr. Lindsay Steven thought there was no necessity for the motion, as all the information was already in the minutes of the Council.

Mr. George Brown suggested that the Registrar might supply the information; there could be no object in asking the Apothecaries' Hall for it.

The motion was put and declared carried. At the request of Dr. LINDSAY STEVEN the names and numbers were taken down, when 12 voted for, 9 against, and 7 did not vote.

At a later stage of the proceedings Mr. ARTHUR THOMSON called attention to the fact that by Section 9 of the Act of 1858 it was enacted that all acts of the Council shall be decided by the majority of the members present, not *present and voting:* and twelve was not a majority of those present.

Dr. NORMAN MOORE said, if that were so, a committee should be appointed to go into the minutes of the Council, as no doubt many resolutions which had been declared carried were invalid

The PRESIDENT ruled that if the vote was not challenged it stood, but if it was challenged it did not.

Dr. ADYE-CURRAN challenged it.

The PRESIDENT said if it was challenged it was not carried.

Dr. ADYE-CURRAN moved, Dr. SAUNDBY seconded, and it was resolved:

> That the appointments of the present Assistant Examiners in Surgery at the Apothecaries' Hall, Dublin, be terminated next May, and that it be intimated to them that this step is taken by the Council to enable it to institute a system of rotation in these appointments.

The PRESIDENT, at the request of the Council, undertook to inform the present assistant examiners of the Council's grateful appreciation of their past services.

Dr. ADYE-CURRAN, on behalf of the Governors and Court of the Apothecaries' Hall, desired to join cordially in the expression of appreciation.

STUDENTS' PRACTICAL MIDWIFERY COMMITTEE.

A report by the Students' Practical Midwifery Committee was presented by the Chairman, Sir JOHN WILLIAMS. The report stated that the previous report of the Committee had, in accordance with the resolution of the General Council on May 23th, 1906, been sent to all the licensing bodies and teaching institutions in the United Kingdom other than those recognized for the first year's subjects only. Replies had been received from most of the bodies addressed, and the Committee having carefully considered the observations received, modified the recommendations in their former report to meet, as far as seemed to them advisable, various comments and criticisms sent.

RECOMMENDATIONS (MAY 25TH, 1906).	RECOMMENDATIONS (NOVEMBER 28TH, 1906).
1. That the following be substituted for the existing Recommendations of the Council in regard to instruction in Midwifery:	1. That the following be substituted for the existing Recommendations of the Council in regard to instruction in Midwifery:
"That every student should be required to have conducted not less than twenty cases of labour, subject to the following conditions:	"(1) Every Student before commencing the study of Practical Midwifery shall be required to have held the offices of Clinical Medical Clerk and Surgical Dresser.
"(*a*) Before the student is allowed to conduct the above-mentioned twenty cases of labour he should be required to have held the office of Clinical Medical Clerk and of Surgical Dresser; to have attended a course of Lectures in Medicine, Surgery, and Midwifery; to have during one month given undivided attendance upon the indoor practice of a Lying-in Hospital or the lying-in wards of a General Hospital; and to have therein attended cases of labour under the direct supervision of a Medical Officer of the Hospital. He should further be required to produce a certificate from the authorities of the Hospital showing that he is competent to undertake the conduct of ordinary cases.	"(2) Every Student shall be required either
"(*b*) No certificate that the student has conducted the above-mentioned twenty cases of labour should be accepted unless it is given by a member of the staff of a Lying-in Hospital or of the Maternity Charity of a General Hospital."	"(*a*) To have regularly attended the indoor practice of a Lying-in Hospital for a period of three months; and to have received therein practical instruction in the conduct of Labour, under the personal supervision of a Medical Officer, and thereafter conducted twenty cases of Labour under official Medical supervision; or
	"(*b*) To have conducted not less than twenty cases of Labour, subject to the following conditions:
	"To have, during one month, given regular daily attendance upon the indoor practice of a Lying-in Hospital or the lying-in wards of a General Hospital; and to have therein conducted cases of Labour under the personal supervision of a Medical Officer of the Hospital, who shall, when satisfied of the Student's competence, authorize him to conduct outdoor cases under official Medical supervision.
	"(3) No certificate that the student has conducted the above-mentioned twenty cases of Labour should be accepted unless it is given by a member of the staff of a Lying-in Hospital or of the Maternity Charity of a General Hospital or of a Dispensary having an adequate obstetric staff."
2. That copies of this Report and of the Resolution of the Council thereupon be sent to all Licensing Bodies and Medical Schools in the United Kingdom.	2. That copies of this Report and of the Resolution of the Council thereupon be sent to all Licensing Bodies and Medical Schools in the United Kingdom.

The report was received and entered on the minutes, and its consideration postponed until next session, the Committee being empowered to consider and report on any further replies received as and when they came in.

RECIPROCITY WITH JAPAN.

With regard to the extension of Part II of the Medical Act, 1886, to Japan, the PRESIDENT, on behalf of the Executive Committee, stated that certain additional information had been received with regard to Japan on which the Committee were not able to come to a definite determination until some changes in the law should have come into operation. Their decision would be communicated to the authorities in Japan, and when the proper time came report would be made to the Council in due course.

RECIPROCITY WITH NOVA SCOTIA.

The PRESIDENT said that an application from Nova Scotia had been considered by the Committee, which had come to a decision of a temporary kind. It was proposed to communicate that decision to the authorities in Nova Scotia before reporting to the Council.

DENTAL EDUCATION AND EXAMINATION COMMITTEE.

The report of the Dental Education and Examination Committee was received and entered on the minutes and its recommendations adopted.

The Committee having fully considered the regulations of the University of New Zealand with regard to the degree of Bachelor in Dental Surgery, recommended the Council to accede to the request of the University for the recognition of that degree.

With regard to a similar application from the University of Sydney, the Committee reported that further information was required with regard to the curriculum and examinations, and also as to the reciprocal recognition of British qualifications, and therefore recommended that the further consideration of the application be postponed for further information

The Committee reported that the Education Committee had recommended that the preliminary examination in general knowledge of the College of Dental Surgery of the Province of Quebec should not be recognized by the Council.

The Committee reported the receipt of full reports of a disciplinary case heard before the Dental Board of New South Wales. The complaint was that a gentleman possessed of the degree of Bachelor of Dental Surgery had wrongfully assumed the title of "Dr.," and the defence offered was that a precedent had been established by Bachelors of Medicine assuming the title of "Dr.," though not possessing the Doctorate. Finally, no action was taken by the Board, who, however, expressed disapproval of the use of the title of "Dr." by Bachelors of Dental Surgery.

Having considered representations made from the Dental Board of the University of Liverpool, the Committee decided to recommend the Council to amend the recommendation relating to the period of study in mechanical dentistry by the substitution of the words "not less than two years" for the words "three years."

THE PHARMACOPOEIA COMMITTEE.

The report of the Pharmacopoeia Committee was received, entered on the minutes, and approved.

REPORT.

From May 20th, 1906, to November 17th, 1906, the number of copies of the *British Pharmacopoeia* (1898) sold by the publishers was 565. The total number of copies sold in the year beginning November 21st, 1905, was 1,081. Up to the present time 38,149 copies of the *Pharmacopoeia* and 4,421 of the *Indian and Colonial Addendum* have been sold. The stock of the *Pharmacopoeia* remaining on hand now consists of 1,878 copies, with 1,943 copies of the *Addendum*.

From the Committee of Reference in Pharmacy a valuable Report has been received, which contains a number of definite

recommendations for the revision of the *Pharmacopœia*, and suggests that certain questions raised by published criticisms on the work should be made the subject of further investigation. The Committee have resolved to publish the Report (a copy of which is hereto appended) for the information of Practitioners and Pharmacists, and propose to take into consideration its recommendations, and the published comments to which they may give rise, when the form and contents of the next *Pharmacopœia* are under discussion.

The thanks of the Council are due to the Committee of Reference for the time and skill which they have bestowed on this important work. It is hoped that they will continue their inquiries on the questions relating to pharmacopœial revision which are still outstanding, and that they will favour the Pharmacopœia Committee with further reports thereon.

INCREASE OF DIRECT REPRESENTATIVES.

Mr. GEORGE BROWN moved:

That representations be made to the Privy Council that it is expedient to confer on the registered practitioners resident in England and Wales the power of returning an additional member to the General Council.

He said that in 1885 there were about 20,000 practitioners in England and Wales, whereas at the present time there were 24 631, an increase of about 5,000, and nearly 3,000 practitioners in the public services—about 28,000 in all—represented by three Direct Representatives. He thought, therefore, that the time had arrived when an additional representative might be given.

Mr. JACKSON seconded.

The motion was put and declared lost.

At the request of Mr. GEORGE BROWN, the names and numbers were taken down, when 12 voted against, 10 for, 2 did not vote, and 9 were absent.

STUDENTS' REGISTRATION COMMITTEE.

Sir HUGH BEEVOR moved and Dr. NORMAN MOORE seconded, and it was resolved:

That the report from the Students' Registration Committee be received, entered on the minutes, and approved.*

VOTE OF THANKS TO PRESIDENT.

On the motion of Dr. BRUCE, seconded by Mr. GEORGE BROWN, a cordial vote of thanks was accorded to the President for his conduct in the chair.

The President in expressing his thanks, congratulated the Council on the expeditious manner in which the business of the session had been got through, and the proceedings terminated.

Vital Statistics.

HEALTH OF ENGLISH TOWNS

In seventy-six of the largest English towns, including London, 8,084 births and 4,799 deaths were registered during the week ending Saturday last, December 1st. The annual rate of mortality in these towns, which had been 14 8, 15 4, and 16 3 per 1,000 in the three preceding weeks, declined again to 15 8 per 1,000 last week. The rates in the several towns ranged from 5 0 in Northampton, 6 0 in Hornsey, 8.0 in Devonport, 8 2 in Coventry, 8.3 in Wolverhampton, 9.0 in Handsworth (Staffs.), 9.3 in Hastings and 10 4 in Portsmouth, to 20 4 in Newport (Mon.), 21.1 in Manchester and in South Shields, 22.1 in Bootle, 22 3 in Salford, 22.7 in Rochdale, 26.0 in Tynemouth, and 26.9 in Swansea. In London the rate of mortality was 15.5 per 1,000, while it averaged 16.0 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.4 per 1,000 in the seventy-six towns; in London the rate was 1.0 per 1,000, while among the seventy-five other towns the rates ranged upwards to 3.0 in Rochdale and in Gateshead, 3.1 in Middlesbrough, 3.3 in Oldham, 3.6 in Salford, 4.7 in Bootle, and 6.1 in South Shields. Measles caused a death-rate of 1.6 in Smethwick, in Leicester, in Stockport and in Salford; 3.0 in Rochdale, 4.0 in Bootle and 4.7 in South Shields; scarlet fever of 1.3 in Leyton; diphtheria of 1.0 in West Ham and 1.7 in Gateshead; and diarrhœa of 1.1 in Swansea and 2.1 in Middlesbrough. The mortality from whooping-cough and from "fever" showed no marked excess in any of the large towns. Two fatal cases of small-pox were registered in Hull, but none in any other of the seventy-six large towns; and no small-pox patients were under treatment last week in any of the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals, which had been 4,135, 4,150 and 4,144 at the end of the three preceding weeks, had further fallen to 4,053 at the end of last week; 401 new cases were admitted during the week, against 417, 562, and 467 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, December 1st, 882 births and 604 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 17.0, 17 0, and 19 1 per 1,000 in the three preceding weeks, declined again to 17.6 per 1,000 last week, but was 1.8 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 9.1 in Perth, and 12 6 in Paisley, to 22 5 in Dundee and 27.8 in Aberdeen. The death-rate from the principal infectious diseases averaged 1 8 per 1,000 in these towns, the highest rates being recorded in Aberdeen and Greenock. The 273 deaths registered in Glasgow included 14 which were referred to whooping-cough, 2 to "fever," 8 to diarrhœa, and 4 to cerebro-spinal meningitis. Two fatal cases of diarrhœa, and 1 of cerebro-spinal meningitis were recorded in Edinburgh; 4 of diarrhœa in Dundee; 7 of measles and 2 of whooping-cough in Aberdeen; 3 of diarrhœa in Paisley; 2 of measles in Leith; and 3 of diarrhœa in Greenock.

* This report has not yet been printed.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, November 24th, 526 births and 398 deaths were registered in six of the principal Irish towns, as against 445 births and 393 deaths in the preceding period. The annual death-rate in these towns, which had been 18.8, 21.2, and 17.9 per 1,000 in the three preceding weeks, rose to 23 5 per 1,000 in the week under notice, this figure being 7 3 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 13 6 in Londonderry and 17.3 in Belfast to 29.2 in Waterford and 30.3 in Cork. The zymotic death-rate in the same six Irish towns averaged 2 6 per 1,000, or 1.5 per 1,000 higher than during the preceding period, the highest figure, 7.8, being recorded in Waterford, while Londonderry and Waterford registered no deaths under this heading at all. The high rate in Waterford was due to scarlet fever.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

INSPECTOR-GENERAL H. T. COX has been appointed to the Royal Naval Hospital, Stonehouse, vice Inspector-General J. C. B. Maclean, M.B., to date from December 5th.

An Order in Council has been issued empowering the Admiralty to pay Greenwich Hospital pensions to persons residing in His Majesty's dominions abroad in the same way as if they resided in the United Kingdom.

The following appointments have been made at the Admiralty: FAIRMAN R. MANN, Staff Surgeon, to the *Dreadnought*, on completing, December 11th; WILLIAM R. HARRISON, Surgeon, to the *Victory*, November 27th; HENRY T. COX, Inspector-General, to the Royal Naval Hospital, Plymouth, December 5th.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL C. GARNER, M.B., retires on retired pay, December 5th. His commissions were dated: Surgeon, July 28th, 1886; Surgeon-Major, July 28th, 1898; Lieutenant-Colonel, July 28th, 1906. He has no war record in the Army Lists.

The undermentioned officers are permitted to continue in their appointments as specialists in the prevention of disease: Major O. R. A. JULIAN, C.M.G., Peshawur; Major W. J. TAYLOR, M.B., Kamptee; Major J. B. ANDERSON, Meerut; Captain W. M. H. SPILLER, M.B., Allahabad; Captain A. B. SMALLMAN, M.B., Secunderabad; Captain J. H. BRUNSKILL, M.B, Rangoon; Lieutenant D. P. WATSON, M.B., Karachi.

Major G. A. MOORE, M.D., from Warley, has been appointed Medical Officer to the Royal Military Academy, Woolwich.

INDIAN MEDICAL SERVICE.

MAJOR T. W. IRVINE, M.B., Bombay Establishment, is appointed to officiate as Senior Surgeon and *ex officio* Sanitary Commissioner with the Government of Mysore.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BRENTFORD UNION.—Medical Officer and Public Vaccinator for the Parish of Acton. Salary, as Medical Officer, £160 per annum.

BRIGHTON: ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £80 per annum.

CARDIFF INFIRMARY.—(1) Resident Medical Officer. (2) House-Physician. Salaries at the rate of £120 and £60 per annum, respectively.

GLOUCESTER: GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—House-Surgeon. Salary, £100 per annum.

LEAMINGTON: WARNEFORD HOSPITAL.—House-Physician. Salary, £80 per annum.

LIVERPOOL ROYAL INFIRMARY.—Assistant Honorary Physician.

LONDON HOSPITAL, Whitechapel, E.—Assistant Physician.

MANCHESTER: ST. MARY'S HOSPITAL FOR WOMEN.—House-Surgeon. Honorarium, £25 for six months.

MIDDLESEX HOSPITAL, W.—Medical Officer and Registrar to the Cancer Department. Salary, £100 per annum.

NEWCASTLE-UPON-TYNE UNION.—Assistant Medical Officer of the Workhouse. Salary at the rate of £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) Surgical Registrar; (2) Assistant Anæsthetist; (3) Clinical Assistants; (4) Junior Obstetric Assistant, Resident.

SALFORD ROYAL HOSPITAL.—(1) House-Surgeon; (2) House-Physician; (3) Accident House-Surgeon; (4) Junior House-Surgeon. Salaries at the rate of £100, £90, £60, and £50 per annum respectively.

SHEFFIELD ROYAL HOSPITAL.—Assistant House-Physician. Salary, £50 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary, £40 per annum.

TOTTENHAM HOSPITAL, N.—Honorary Assistant Physician.

WEST LONDON HOSPITAL, Hammersmith Road, W.—House-Physician for six months.

WEST RIDING COUNTY COUNCIL.—Male Assistant Medical Officer at Scalebor Park Private Asylum. Salary, £150 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary, £70 per annum.

YORKSHIRE: EAST AND WEST RIDING COUNTY COUNCILS, etc.—Bacteriologist to carry out investigation as to the conditions of milk supply for the district. Remuneration, £250 for 12 months.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces a vacancy at Milnthorpe (co. Westmorland).

APPOINTMENTS.

ADAMS, C. E., M.R.C.S.Eng., L.S.A., Medical Officer of the Home for Aged Poor of the Lambeth Union at Norwood.

BRANDER, R. L., M.B., C.M.Aberd., District Medical Officer of the Ampthill Union.

BRICE, H. D., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Parish of Chelsea.

CRISP, J., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Market Harborough Union.

CUNLIFFE, E. N., M.D., Ch.B.Vict., M.B., B.S.Lond., M.R.C.P.Lond., Honorary Assistant Physician of the Manchester Royal Infirmary, vice Dr. Ernest Reynolds, appointed Honorary Physician.

DIXON, W. J., M.B., M.S.Madras, M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer for the Temple Combe District of the Wincanton Union.

GIRLING, C. J., M.B., Certifying Factory Surgeon for the Cranborne District, co. Dorset.

GUNSON, C. H., M.B., Ch.B.Glasg., Medical Officer of Health, Wisbech Rural District.

JACKSON, W. F., M.B., Ch.B.Vict., District Medical Officer of the Chorlton Union.

JOHNSTONE, Jas. Wm., M.B.Glas., appointed Medical Officer to the Eastern Bolton District, Bolton Union, vice F. R. Mallett, M.D.Edin., resigned.

KEMBLE, A. C., L.R.C.P.and S.Edin., House-Surgeon to the Eccles and Patricroft Hospital.

KERSHAW, Hugh, M.R.C.S., L.R.C.P.Edin., Medical Officer and Public Vaccinator of the No. 3 District of the North Bierley Union.

MACCORMAC, Henry, M.B., Second Assistant in the Clinical and Bacteriological Laboratories of Middlesex Hospital, vice Louis Courtauld, M.B., B.C.Camb.

PRICE, Florence, M.B., Ch.B.Edin., reappointed House-Physician to the Swansea Hospital.

SCARGILL, Harold, M.B., B.S., Clinical Assistant to the Leeds Hospital for Women and Children.

TUCKER, Joseph, M.R.C.S.Eng., L.S.A., Certifying Factory Surgeon for the Chulmleigh District, co. Devon.

WHALLEY, Fredk., M.B., Ch.B., House-Surgeon to the Leeds Hospital for Women and Children.

WRANGHAM, William, M.D.Lond., M.R.C.S., L.R.C.P., Assistant Surgeon to the Eye and Ear Hospital, Bradford.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

BENNETT-JONES.—On November 30th, at 73, Sheil Road, Liverpool, the wife of W. J. Bennett-Jones, M.D., of a son.

MARSHALL.—On December 1st, at St. John's House, Lechlade, Gloucestershire, the wife of Thomas Bingham Marshall, M.R.C.S., L.R.C.P., of a son.

PEARSON.—On 4th December, at 55, High Street, Stoke Newington, to Dr. and Mrs. Geo. Kenneth Pearson, a daughter.

SELBY.—At The Rock, Frodsham, Cheshire, on November 27th, the wife of T. J. Selby, M.B., L.R.C.P., of a son.

MARRIAGE.

MORLEY—HARRIS.—On the 4th inst., at the West London Synagogue, Upper Berkeley Street, by the father of the bride and the Rev. Morris Joseph, Arthur S. Morley, F.R.C.S., of 29, Gower Street, third son of Alexander Morley, Esq., of 25, Craven Hill Gardens, to Phoebe, elder daughter of the Rev. Isidore Harris, M.A., of 50, Norfolk Square.

DEATHS.

GRIEVE.—At New Hall, Barton-on-Humber, Lincolnshire, on the 15th November, Robert Grieve, M.D., C.M.G., late Surgeon-General of British Guiana.

HUMPHRY.—On the 3rd instant, at his residence, Warren Gate, Crowborough Beacon, Sussex, Frederick Abell Humphry, F.R.C.S. (late of Marine Parade, Brighton), aged 76. Funeral at Hove Cemetery at 1 o'clock on Thursday. No flowers by request. Friends please accept this the only intimation.

MCDOWALL.—On November 21st, at the West Riding Asylum, Menston, Leeds, John Greig McDowall, M.D.Edin., aged 55.

ROBERTS.—On the 29th ult. at Broadstairs, after a short but painful illness, Dr. John Coryton Roberts, L.R.C.P., M.R.C.S., L.M., of Avenue House, Peckham Rye, S.E.

SPAIGHT.—On 22nd November, at Swiss Cottage, Dundrum, Alice Maude, widow of the late Robert Spaight, J.P., Affock, Tulla, co. Clare, and daughter of the late James Malone, F.R.C.S.I., Clonmore, Tulla. "Underneath are the everlasting arms." Deut. xxxiii, 27.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W., 8.30 p.m.—Papers: (1) Hepatic Inadequacy in Relation to Gout and Other Diseases, by Sir Lauder Brunton, M.D., F.R.S. (2) Functional Albuminuria in Athletes, by Dr. Wm. Collier (Oxford).

TUESDAY.

MEDICO-LEGAL SOCIETY, 22, Albemarle Street, W., 8.30 p.m.—Exhibition of Medico-Legal Specimens. Discussion to be opened by Dr. Stanley B. Atkinson on Some Limitations of Medical Evidence.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY, 20, Hanover Square, W., at 8.30 p.m.—Adjourned Special Discussion on the Operative Treatment of Non-malignant Ulcer of the Stomach and its Chief Complications, with Indications, Limitations, and Ultimate Results. Speakers: Mr. Gilbert Barling, Sir William Bennett, Dr. Herbert French, Mr. G. E. Gask, Mr. D'Arcy Power, and Dr. E. I. Spriggs.

WEDNESDAY.

DERMATOLOGICAL SOCIETY OF LONDON, 11, Chandos Street, W., 5.15 p.m.—Cases and Specimens.

HUNTERIAN SOCIETY, London Institution, Finsbury Circus, E.C., 8.30 p.m.—Discussion on Toxæmic Insanity, opened by Drs. Kennedy Will, William Rawes, and Bedford Pierce.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C., 5 p.m.—Bradshaw Lecture, by Mr. Edmund Owen, F.R.C.S.: Cancer; its Treatment by Modern Methods.

THURSDAY.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY, 20, Hanover Square, W., 5.30 p.m.—Paper: Dr. Leonard Williams: The Treatment of Gout by the Ingestion of Common-salt-containing Waters.

BRITISH GYNÆCOLOGICAL Society, 20, Hanover Square, W., 8 p.m.—Exhibition of Specimens by Drs. Aarons and Swanton and Mr. Charles Ryall. Papers: Dr. Hodgson: Cause of Fatal Collapse after Prolonged Abdominal Operations. Dr. Macnaughton Jones: Notes from the Clinics of Heidelberg and Freiburg. Mr. J. Furneaux Jordan: Further Report of Specimens shown at last meeting.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos Street, Cavendish Square, W., 8 p.m.—Card Specimens. 8.30 p.m., Papers: Mr. Treacher Collins: Adhesion of a Persistent Papillary Membrane to the Cornea in the Eye of a Cat. Messrs. L. V. Cargill and S. Mayou: A Flat Sarcoma of the Choroid. Mr. Cecil Shaw: Perforating Wound of the Globe, with Total Destruction of the Iris and Retention of Vision.

FRIDAY.

CLINICAL SOCIETY OF LONDON, 20, Hanover Square, W., 8.30 p.m.—The following papers will be read: (1) Mr. B. G. A. Moynihan: The Mimicry of Malignant Disease in the Large Intestine. (2) Mr. J. Paul Roughton: A Case of Rupture of the Diaphragm. (3) Mr. James Berry: A Case of Traumatic Hernia through the Diaphragm.

EPIDEMIOLOGICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—Paper by Dr. Carnegie Brown: The Distribution and Nature of Sprue, with Notes on the Pathology of Intestinal Dyscrasias.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m.—Case Taking.

CHARING CROSS HOSPITAL.—Tuesday, 4 p.m., Medical.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.: Wednesday, 4 p.m.—Demonstrations of Cases in the Wards.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Monday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Throat and Ear, 4 p.m. Tuesday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Diseases of the Skin, 4 p.m. Wednesday, Medicine, 2.30 p.m.; Ophthalmology, 3.30 p.m. Thursday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Radiography, 4 p.m. Friday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m. Operations each day at 2.30. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

MEDICAL GRADUATES COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical; Friday, Eye. Lectures at 5.15 p.m. each day will be given as follows: Monday, The Prophylaxis of Venereal Diseases; Tuesday, Ocular Symptoms in Nervous Diseases; Wednesday, Surgical Diseases of Children; Thursday, The Value of Local Treatment in the Initial Stages of Puerperal Infection.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Central Out-Patient Department, 7, Fitzroy Square, W., Thursday, 5 p.m.—Aortic Aneurysm, with a Demonstration of Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Neuritis: Friday, 3.30 p.m., Surgery of the Nervous System.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Tottenham Hospital, N.—Tuesday, 4.30 p.m., Lecture on the Serum Treatment of Disease: Thursday, Lecture on Opsonins.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.—Daily, 2 p.m., Medical and Surgical Clinics. 2.30 p.m., X Rays, Operations. Monday and Thursday, 2.30 p.m., Diseases of the Eye. Tuesday and Friday, 2 p.m., and Wednesday and Saturday, 10 a.m., Diseases of the Throat, Nose, and Ear. Tuesday and Friday, 2.30 p.m., Diseases of the Skin. Wednesday, 10 a.m., Diseases of Children. Tuesday and Friday, 10 a.m., Gynæcology. Lectures: Monday, 12 noon, Pathological Demonstration; at 5 p.m., Monday, Dental: Tuesday, Eye, Clinical Lecture: Wednesday, Practical Medicine: Thursday, Practical Surgery: Friday, Hydatids of the Liver.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—Thursday, 5 p.m., the Indications and Contraindications for Uterine Curettage.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
DECEMBER.	
Sunday	
10 MONDAY	
11 TUESDAY	London: Organization Committee, 10.30 a.m. London: Special Finance Inquiry Committee, 5 p.m.
12 WEDNESDAY	London: Parliamentary Subcommittee, 10.30 a.m. London: South-Eastern Branch Council, 3.15 p.m. Tottenham Division, *Metropolitan Counties Branch*, Tottenham Hospital, 4.30 p.m. West Dorset Division, *Dorset and West Hants Branch*, County Hospital, Dorchester, 4.15; Dinner, King's Arms, 6 p.m.
13 THURSDAY	Canterbury and Faversham Division, *South-Eastern Branch*, Business Meeting, Cottage Hospital, Faversham 4.30 p.m. Norwood Division, *South-Eastern Branch*, Norwood Cottage Hospital, 4 p.m. South Wales and Monmouthshire Branch, New Inn Hotel, Pontypridd, 3 p.m. Wandsworth Division, *Metropolitan Counties Branch*, Alexandra Hotel, Clapham Common, 8.45 p.m.
14 FRIDAY	Hampstead Division, *Metropolitan Counties Branch.*
15 SATURDAY	
16 Sunday	
17 MONDAY	London: Ethical Subcommittee, 2 p.m.
18 TUESDAY	
19 WEDNESDAY	London: Contract Practice Subcommittee, 3 p.m.
20 THURSDAY	Leigh Division, *Lancashire and Cheshire Branch*, Co-operative Offices, Ellesmere Street, Leigh, 8.30 p.m.
21 FRIDAY	Extraordinary General Meeting, at 3 p.m., at the offices of the Association, 429, Strand, W.C.
22 SATURDAY	
23 Sunday	
24 MONDAY	
25 TUESDAY	*Christmas Day.*
26 WEDNESDAY	*Bank Holiday.*
27 THURSDAY	
28 FRIDAY	
29 SATURDAY	
30 Sunday	
31 MONDAY	
JANUARY.	
1 TUESDAY	Subscriptions to the British Medical Association for 1907 become due.
2 WEDNESDAY	
3 THURSDAY	
4 FRIDAY	
5 SATURDAY	
6 Sunday	
7 MONDAY	
8 TUESDAY	London: Public Health Committee, 3.15 p.m.
9 WEDNESDAY	London: Medico Political Committee, 2.30 p.m. London: Medical Witnesses Subcommittee, 1.45 p.m.
10 THURSDAY	London: Hospitals Committee, 2.30 p.m.
11 FRIDAY	London: Central Ethical Committee, 2 p.m. Hampstead Division, *Metropolitan Counties Branch.*

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 8s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the British Medical Journal for non-members is £1 8s. 0d. for the United Kingdom, and £1 12s. 6d. for abroad.

British Medical Journal in 1907.

WITH the first number of 1906 important improvements were made in the type and get-up of the BRITISH MEDICAL JOURNAL; the type is larger and better spaced, the page longer, and the columns somewhat narrower. These changes have increased the ease with which the text may be read, and thereby contributed to the comfort of readers, and improved the appearance of the JOURNAL.

Arrangements have been made for the publication during 1907 of numerous Clinical Lectures and Addresses, among which the following may be mentioned:

The Hunterian Oration before the Royal College of Surgeons of England. By HENRY T. BUTLIN, D.C.L., F.R.C.S., Consulting Surgeon and Lecturer on Clinical Surgery, St. Bartholomew's Hospital.

A Clinical Lecture by WM. OSLER, M.D. Oxon., F.R.C.P.Lond., Regius Professor of Medicine, University of Oxford.

A Clinical Lecture by T. CLIFFORD ALLBUTT, M.D., F.R.C.P., F.R.S., Regius Professor of Physic, University of Cambridge; Physician to Addenbrooke's Hospital.

On the Interpretation of Certain Clinical Manifestations popularly ascribed to the Liver. By H. D. ROLLESTON, M.D., F.R.C.P., Physician to St. George's Hospital and the Victoria Hospital for Children.

On the Temperature in Malignant Disease of the Liver and Bile Passages. By JAMES W. RUSSELL, M.A., M.D.Cantab., F.R.C.P.Lond., Assistant Physician to the Birmingham General Hospital.

On the Results of Gastro-intestinal Stasis. By W. ARBUTHNOT LANE, M.S., F.R.C.S., Surgeon, Guy's Hospital; Senior Surgeon, Hospital for Sick Children, Great Ormond Street.

On Some Points in the Surgery of Oesophageal Pouches. By BILTON POLLARD, F.R.C.S., Surgeon, University College Hospital.

On the Rational Treatment of Dyspepsia. By ROBERT HUTCHISON, M.D., F.R.C.P., Assistant Physician, London Hospital and Hospital for Sick Children, Great Ormond Street.

On Some Clinical Observations in Connexion with Diseases of the Stomach. By LAURISTON E. SHAW, M.D., F.R.C.P., Physician to Guy's Hospital.

On Idiopathic Dilatation of the Colon. By H. P. HAWKINS, M.D.Oxon., F.R.C.P., Physician and Lecturer on Medicine, St. Thomas's Hospital.

Clinical Observations on Tropical Abscess of the Liver. By Sir RICHARD HAVELOCK CHARLES, K.C.V.O., Physician-in-Ordinary to the Prince of Wales.

On the Claim of the Surgeon to Conduct the After-treatment of Operation Cases. By CHARLES A. MORTON, F.R.C.S., Professor of Surgery in University College, Bristol.

On Anomalous Cases of Pernicious Anaemia. By G. LOVELL GULLAND, M.A., B.Sc., M.D., F.R.C.P.E., Physician to the Chalmers and Royal Victoria Hospitals; Assistant Physician to the Royal Infirmary, Edinburgh.

On the Vibrating Sensation in Diseases of the Nervous System. By K. T. WILLIAMSON, M.D., B.S., F.R.C.P.Lond., Assistant Physician, Manchester Royal Infirmary.

Varieties of Malignant Endocarditis. By FREDERICK TAYLOR, M.D., F.R.C.P., Senior Physician and Lecturer on Medicine, Guy's Hospital.

On Arterio-sclerosis. By W. P. HERRINGHAM, M.D., F.R.C.P., Physician to St. Bartholomew's Hospital.

On the Value of an Abnormal Rise in the Average Level of the Diaphragm as a Guide to the Volume of the Blood in Active Circulation. By T. STACEY WILSON, M.D.Edin., M.R.C.P.Lond., Physician, General Hospital, Birmingham.

On Heart Disease complicating Pregnancy and Labour. By G. F. BLACKER, M.D., F.R.C.P., F.R.C.S., Obstetric Physician, University College Hospital and Great Northern Central Hospital.

On the Symptoms, Diagnosis, and Treatment of Tubal Gestation in the Early Weeks. By WALTER W. H. TATE, M.D., F.R.C.P., Obstetric Physician and Lecturer on Midwifery and Diseases of Women, St. Thomas's Hospital.

On the Treatment of Myoma. By J. FURNEAUX JORDAN, M.B., F.R.C.S., Surgeon to the Birmingham and Midland Counties Hospital for Women.

On the Treatment of Abortion. By W. R. DAKIN, M.D., Obstetric Physician and Lecturer on Midwifery, St. George's Hospital.

On Some Common Errors in the Diet and Hygiene of Children. By A. F. VOELCKER, M.D., F.R.C.P., Physician to Out-patients, Middlesex Hospital; Physician to the Hospital for Sick Children, Great Ormond Street.

Some Clinical Observations on the Diseases of Children. By ARCHIBALD E. GARROD, M.D., F.R.C.P., Assistant Physician, St. Bartholomew's Hospital, and Senior Physician, Hospital for Sick Children.

On Pulmonary Tuberculosis in Infancy and Childhood. By R. A. YOUNG, M.D., F.R.C.P., Assistant Physician, Middlesex Hospital and Brompton Hospital for Consumption and Diseases of the Chest.

On Some Points in the Treatment of Surgical Tuberculosis. By F. J. STEWARD, Assistant Surgeon, Guy's Hospital and Hospital for Sick Children.

Some Observations on the Diseases of Bones and Joints after Typhoid Fever. By RICKMAN J. GODLEE, M.S., F.R.C.S., Surgeon-in-Ordinary to the King; Surgeon to University College Hospital.

On Cysts of the External Semilunar Cartilage of the Knee-joint. By P. FURNIVALL, F.R.C.S., Surgeon, London Hospital.

On Unreduced Dislocations of the Elbow. By C. R. B. KEETLEY, F.R.C.S., Senior Surgeon, West London Hospital.

The Hughlings Jackson Lecture. The Illustration by Recent Research of Dr. Hughlings Jackson's Views on the Functions of the Cerebellum, by Sir VICTOR HORSLEY, F.R.S., Surgeon to the National Hospital for the Paralysed and Epileptic.

On Fractures of the Base of the Skull. By ANTHONY A. BOWLBY, C.M.G., F.R.C.S., Lecturer on Surgery and Surgeon to St. Bartholomew's Hospital.

On the Treatment of Fractures. By W. WATSON CHEYNE, C.B., F.R.C.S., Surgeon, King's College Hospital and King Edward VII's Hospital.

A Clinical Lecture on a Thousand Consecutive Cases of Abdominal Surgery. By JAMES SWAIN, M.S., M.D.Lond., F.R.C.S.Eng., Professor of Surgery in University College, Bristol: Surgeon to the Bristol Royal Infirmary.

On the Use of Taxis for Hernia and on Some Complications that may Arise during and after its Employment. By H. BETHAM ROBINSON, M.S., F.R.C.S., Surgeon to Out-patients, St. Thomas's Hospital, London.

On Some Points in the Surgical Treatment of Cancer. By A. PEARCE GOULD, F.R.C.S., Surgeon, Middlesex Hospital.

On Lupus Erythematosus. By H. RADCLIFFE CROCKER, M.D., Physician to Skin Department, University College Hospital.

On Lachrymal Obstruction. By J. HERBERT PARSONS, D.Sc., F.R.C.S., Assistant Surgeon, Royal London Ophthalmic Hospital, etc.

ADDRESSES AT THE ANNUAL MEETING.

THE addresses to be delivered at the Annual Meeting will be published in the BRITISH MEDICAL JOURNAL.

THE PRESIDENTIAL ADDRESS,
By HENRY DAVY, M.D., F.R.C.P., Physician, Devon and Exeter Hospital.

THE ADDRESS IN MEDICINE,
By WILLIAM HALE WHITE, M.D., F.R.C.S., Physician and Lecturer on Medicine, Guy's Hospital.

THE ADDRESS IN SURGERY,
By HENRY TRENTHAM BUTLIN, D.C.L., F.R.C.S., Consulting Surgeon and Lecturer on Clinical Surgery, St. Bartholomew's Hospital.

THE POPULAR LECTURE,
By Sir JOHN WILLIAM MOORE, M.D., D.Sc., F.R.C.P.I., Senior Physician, Meath Hospital and County Dublin Infirmary.

These lectures and addresses and other original articles will be fully illustrated by reproductions of photographs, drawings, and microscopical preparations as occasion may require.

AN EPITOME

of current medical literature, mainly devoted to the analysis of foreign publications, is published weekly.

A SUPPLEMENT

is issued weekly containing reports of the proceedings of the Representative Meetings, of the meetings of the Council and Central Committees of the Association, of its Branches and Divisions, and information as to political matters affecting the honour and interests of the profession.

THE SEVENTY-FIFTH ANNUAL MEETING

of the British Medical Association will be held at Exeter on July 29th and four following days. It will comprise thirteen Sections, and the proceedings will be fully reported in the BRITISH MEDICAL JOURNAL.

REPRESENTATIVE MEETINGS

The proceedings of the Representative Body which directs the medico-political and ethical work of the British Medical Association, will be fully reported in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 15TH, 1906.

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British Medical Association.

Notice is hereby given that an Extraordinary General Meeting of the British Medical Association will be held at the offices of the Association, 429, Strand, London, on Friday, December 21st, at three o'clock in the afternoon, when the subjoined Resolutions, which were passed at the adjourned Extraordinary General Meeting of the said Association, held on December 5th, 1906, will be submitted for confirmation as Special Resolutions:

1. That the 5th Article of Association be altered by the insertion of the words "Divisions or" immediately before the word "Branches" where that word secondly occurs.

2. That the 27th Article be altered by the insertion immediately after the words "constituency having not less than fifty members" of the words "provided that the Council shall have a discretionary power to permit a Division having less than fifty members to form one constituency in any case in which it shall appear to the Council that the holding of joint meetings of members of that Division and of neighbouring Divisions would be attended by special difficulties."

3. That the said 27th Article be altered by the substitution of the words "nine months" for the words "three months."

4. That the 36th Article be altered by the insertion of the word "and" immediately before the words "a Treasurer" and by the omission of the words "an Editor of the JOURNAL and a General Secretary" and of the words "the Editor of the JOURNAL and the General Secretary."

5. That the following Article be substituted for the 37th Article, namely:

XXXVII.—OFFICERS *(continued)*.

The Chairman of Council shall be elected by the Council from its own number and shall hold office for such period and discharge such duties as shall be determined by the Council. During this period and for one year thereafter he shall *ex officio* be a member of the Council and any Branch of which at the time of his election he was a Representative shall be entitled to elect another in his stead.

6. That the 38th Article be altered by the substitution of the words "Chairman of Council and (during the year succeeding his period of office) the *Past Chairman* of Council" for the words "(if any)."

7. That the 41st Article be altered by the substitution of the words "the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer" for the words "and the Chairman of Council."

8. That the following clause be substituted for Clause (*e*) of the 44th Article, namely:

(*e*) No member in regard to whom a representation as aforesaid has been made or whose conduct is under investigation or is the subject of inquiry by the Council or by a Branch or Division shall be capable of effectively resigning his membership of the Association until the result of such investigation or inquiry has been officially and finally declared.

9. That the following Article be substituted for the 45th Article, namely:

XLV.—Travelling Expenses.

The first-class travelling expenses within the United Kingdom of Members of Council and Representatives of Divisions attending the Annual or any Special Representative Meeting shall be defrayed out of the general funds of the Association. Attendance of Representatives of Divisions for this purpose at the Annual Representative Meeting shall be construed to mean attendance at each daily Session of that Meeting and also at each daily Session of the Annual General Meeting at which business described under the head (A) in Article XVIII is to be transacted unless the Council shall be satisfied that good cause existed for absence from any particular Session or Sessions. The first-class travelling expenses within the United Kingdom of all Members attending any meeting of Council or of a Committee, and of all Officers of any Division or Branch attending any conference held under conditions approved by the Council, shall be defrayed in like manner. Save as in this clause expressly provided the Council shall determine what shall be considered an attendance for any purpose of this Clause.

Dated the 6th day of December, 1906.

BY ORDER OF THE COUNCIL,
Guy Elliston,
General Secretary,
British Medical Association.

UNITED HOSPITALS CONFERENCE.

A Conference arranged by the Joint Hospitals Committee appointed by the Conference held on March 5th, 1905, met on the invitation of the British Medical Association, acting through the Hospitals Committee, in University College, London, on Thursday, December 6th.

Dr. Frank Pope (Chairman of the Hospitals Committee of the British Medical Association) said that the Committee had hoped that Lord Cheylesmore would have taken the chair. He was unfortunately unable to do so, but Sir William Church had kindly consented to take that position.

Sir William Church, on taking the chair, said he thought it might assist the Conference if he were to very briefly recapitulate the steps which had been taken and which had led to the meeting. Three years ago the British Medical Association took up seriously the subject which during many years had interested not only the profession but also all those connected with the management of hospitals, the subject which, for the sake of brevity—although he did not himself like the term—was generally spoken of as "hospital abuse." The British Medical Association appointed a Committee, which was called the Hospitals Committee, which, after doing a great deal of work and getting together a large mass of information, called, in March, 1905, a conference of representatives of Hospital Committees and of the medical profession, and that conference appointed a Joint Hospitals Committee which was instructed to prepare for a larger and more general conference, to prepare revised and extended proposals, and to circulate them to the hospitals throughout the country. He thought all would agree that there were conditions in connexion with the great hospitals, both in the metropolis and throughout the country, which were unsatisfactory. On the one hand, there were hospitals appealing in all sorts of ways to the public for further funds for maintaining and extending the work which they were engaged in. On the other hand, there was a very general feeling in the medical profession, and especially among those who were generally known under the name of general practitioners, that there were many evils attending that extension of hospital practice. He could not say that he thought that widespread feeling was not founded upon very just causes. The feeling was especially acute in connexion with the out-patient departments of hospitals, and he would, for the sake of brevity, pass over altogether the question of in-patients. Like so many things British, the out-patient system was of very gradual growth, and it was now very different from what it was when it first began. Probably no prescience could have foretold the extent to which it had now spread; at all events, he was quite sure that it had now got beyond what was the anticipation or the wish of those connected with hospitals during comparatively speaking recent years—during the last sixty or eighty years. But the growth of out-patients was a question almost as old as hospitals themselves, and had always presented very much the same difficulties which it presented now. The first notice or mention with which he was acquainted of the difficulties attaching to out-patients was that which occurred in the records of the courts of St. Bartholomew's Hospital, where as early as 1682 a burning question arose with regard to the increase in the expenditure in the apothecary's shop. The staff at the hospital, when called upon by the governing body for an explanation, said that it was due to the growth of out-patients. The out-patients of that time were mainly those who had been under treatment in the wards of the hospital and returned to the hospital to be seen by the medical officers on their visits, and the numbers of those days were such as would at the present time be considered quite insignificant—about 300 to 400 per annum. From that date, 1682, if the records of hospitals were examined, it would, he believed, be found—certainly it was so in the hospital with which he had the honour of being connected, St. Bartholomew's—that the out-patient question was from time to time a very burning one. The difficulty had now become great owing to the extreme complexity of the matter. To begin with, hospitals appealed to the public in every way for increased funds not only to meet existing needs, but also for extensions to enable them to do more than they were doing; and he would say, though it was scarcely germane to the subject, that many of the advertisements from hospitals were anything but dignified in their appeals. What was wanted, it appeared to him, was co-operation amongst the hospitals themselves, not competition. The present question had interested him, and he had necessarily been obliged to interest himself in it, because, although it was said that nothing had been done by those great funds which were now established—the King's Fund, the Hospital Sunday Fund, and the Saturday Fund—concerning that question, he, who happened to have a connexion with two of them, knew a great deal had been done in the way of obtaining information and inquiring into the condition of affairs. It was quite true that nothing which those funds had done had had any apparent effect, but he desired the meeting to understand that the point had not been lost sight of by those who were engaged in the administration of either of those funds. He thought it could not be denied that the great body of the profession felt that there was a grievance in connexion with hospital relief. That, he thought, had arisen from the great changes which had come over Society during what he might term recent years, during the last fifty or sixty years. For one thing, as he had already stated, the whole matter was so complex and so interwoven, that it was very hard, in the short time during which he desired to detain the meeting, to give any idea of the complexity of it, but one thing which had always struck him was that the family doctor in former time had charge not only of the heads of the family, but also of the dependents of that family. If they became ill it was generally considered that the family ought to take steps to help them and to heal them, and the family doctor attended them. Now if a dependent became ill the first thing which occurred was, generally, to appeal to some one or other for a letter for a hospital, and generally—a point which had had a great influence on the question—for a special hospital. Frequently he was appealed to to send a person to a special hospital, when very often the patient was suffering from a disease which could just as well be treated at a general hospital, or perhaps better. He could not help feeling that the dissolution, if he might apply that term, of the intimate bonds which used formerly to exist between employer and employed in domestic life, and the change which had recently come about, and the reasons for that change, and also the craze—for he could call it nothing but a craze—for specialists and specialities had much to do with the present grievance. With regard to the conduct of the business

that day. All those present had copies of what had been called the suggested model principles for hospital management; it would be convenient to take that document as equivalent to a report from the Joint Hospitals Committee. It was quite clear that the meeting would not make any progress if it were to go through the document clause by clause, because discussion might arise on some, on many, or on all of them. He suggested rather that the document should be taken as a report and that any remarks upon that report should be made in speaking to the first resolution. He did not desire in the least to prevent discussion on the matters, but if the course he proposed were followed the result would either be that the meeting agreed with the resolution or, should there be a decided amount of dissentient opinion, then an amendment could be moved to the resolution, and the "report," as he wished to call it, should be referred back again to the Joint Hospitals Committee for amendment. Before asking Sir Henry Burdett to move the first resolution, he wished to intimate that a large number of letters of regret had been received from many interested in the subject. It had already been explained how it was that he occupied the chair and he thought the meeting would join him in regretting the fact that Lord Cheylesmore, who took such an active part in the management of one of the principal London hospitals, and who was so keenly interested in the whole question, had been prevented from presiding. Letters of regret had also been received from Mr. Bischoffsheim, the Right Hon. Sir E. Cassel, the Right Hon. Lord Clifford of Chudleigh, Dr. Collier of Oxford, the Right Hon. Sydney Holland, Mr. Timothy Holmes, the Right Hon. Lord Sandhurst, Baron Schroeder, the Right Hon. Lord Strathcona and Mount Royal, and the Right Hon. Lord Wolverton.

Sir Henry Burdett, K.C.B., said he had the honour to move:—

> That this Conference of Representatives and supporters of hospitals, medical practitioners, and others interested in hospital administration in Great Britain and Ireland, approves generally of the principles contained in the proposals drawn up by the Joint Hospitals Committee and circulated to hospitals in August, 1906.

Proposals as to the Administration and Management of Hospitals and Kindred Institutions, drawn up by a Joint Committee of the British Medical Association and of Non-Medical Representatives of Boards of Management of Hospitals.

I. *Suggested Model Principles of Hospital Management.*

1. *Suitability of Patients for Admission.*—That inability to pay for adequate treatment shall be the consideration for the admission of all patients for hospital treatment. This shall not apply to Poor-law cases.

2. *Subscribers' Letters.*—That the production of subscribers' letters shall cease to be compulsory, and that, where possible, the system shall be abolished.

3. *Investigations as to Suitability.*—That some means of investigation into the circumstances of the applicants for relief, by means of an almoner or other agent, shall be employed in all medical charities.

4. *Recommendations 1, 2, 3, to apply to all Patients.*—That the foregoing recommendations apply to both in-patients and out-patients.

5. *Evidence of Suitability.*—That, except in emergencies, sufficient evidence shall be obtained on two points: (*a*) That the patient is not in a position to pay for adequate treatment; (*b*) that the case is, from a hospital point of view, suitable for treatment.

6. *Urgent Cases.*—That all cases of serious accident and severe sudden illness shall be attended to on their first application, and, if deemed eligible for further treatment, shall be referred to the appropriate department of the hospital, but, if ineligible, shall then be referred for treatment elsewhere.

7. *Trivial Cases.*—That all cases of trivial accident or illness deemed ineligible for the casualty department shall, after having been seen, be referred for treatment elsewhere.

8. *Medical Inspection of all Cases.*—That, on the first visit, no patient be permitted to leave a hospital without having been seen by a registered medical practitioner.

9. *Limitation of Work of Medical Officers.*—That, where possible, the number of new cases to be seen on any one day by an honorary medical officer shall be limited.

10. *Scope of Special Hospitals.*—That special hospitals shall treat only those cases that come strictly within the scope of their work.

11. *Age Limit for Retirement.*—That in all hospitals there shall be an age limit for the retirement of the medical officers.

12. *Co-operation of Hospitals.*—That no scheme for the reform of out-patient departments can be successful without co-operation and co-ordination between hospitals themselves, especially those which operate in the same area.

13. *Pay Wards.*—That there is no objection to pay wards being connected with voluntary hospitals, provided that they are open to every member of the medical profession, who shall be paid any fee to be arranged by him and his patient.

14. *Scope of Out-patient Departments.*—That consultations shall, as far as possible, be encouraged in out-patient departments.

15. *Reference elsewhere of Unsuitable Cases.*—That all cases shall be seen by an almoner, and those not suitable for hospital treatment shall be referred in general terms to a medical practitioner, to a public medical service,* an approved provident dispensary, or to the relieving officer under the Poor Law.

16. *Co-ordination of Hospitals with Public Medical Services and Provident Dispensaries.*—That there shall be a system of co-ordination between hospitals on the one hand, and public medical services and provident dispensaries on the other, so that the hospitals shall refer to the public medical services and provident dispensaries cases unsuitable for hospital treatment (see paragraph 15 foregoing), and the public medical services and provident dispensaries shall refer to the hospitals cases for consultation, as well as those requiring hospital treatment and nursing, or specially suitable for purposes of clinical instruction.

17. *Notices to Facilitate Co-operation.*—That notices be posted in out-patient and casualty departments of hospitals calling attention to public medical services or approved provident dispensaries in the neighbourhood.

18. *Reference of Cases for Special Advice.*—That a member of a public medical service or provident dispensary, or other patient referred to a hospital for consultation, with a private note or personally, by a general practitioner in attendance, should be referred back to such medical attendant with a statement of the opinion of the hospital physician or surgeon on the condition of the patient.

19. *Relation of Hospitals to the Poor-law Medical Service.*—That cases of obvious destitution, or cases already in receipt of Poor-law relief, shall, after they have been once seen in the casualty or out-patient department, be referred to the Poor-law relieving officer, unless they should be retained for hospital treatment, and Poor-law patients may be referred to hospitals for consultation, as in the case of public medical service and provident dispensary patients. In these cases payment might be required from the Poor-law Guardians if deemed advisable.

II.—*Cottage Hospitals.*

1. *Medical Attendance.*—That, as far as possible, every patient in a cottage hospital have the right to be attended by his usual medical attendant.

2. *Scope of Cottage Hospitals.*—That, except in cases of emergency, cottage hospitals be only open to those who are unable to secure adequate treatment at home.

3. *Contributions by Patients.*—That all persons admitted to cottage hospitals contribute, where possible, towards their maintenance.

4. *Certificate of Suitability for Admission.*—That a certificate signed by a medical practitioner within the area be a sufficient recommendation for admission.

III. *Self-supporting Public Nursing Homes.*

1. *Definition and Desirability.*—That it is desirable that self-supporting public nursing homes should be established for patients who, being ineligible for the

* The term "public medical service" has been applied in certain districts to organizations for providing medical attendance and medicine for certain sections of the community in which the service is under the entire control of the medical profession. In other districts services of exactly the same general type have been established under the title of "provident medical associations"; but the generic designation of "public medical service" is preferable, as avoiding confusion with organizations under non-medical control.

voluntary hospitals, are yet unable to pay the customary professional fees as well as the charges usually made in private nursing homes.

2. *Management.*—That the management should be vested in a committee on which the medical profession is adequately represented.

3. *Certificates of Suitability for Admission.*—That no patient should be admitted without first producing a certificate of suitability for admission from a medical practitioner, who should whenever possible be the patient's usual medical attendant. If the signatory be not the patient's usual medical attendant, an explanation of the fact should be appended to the certificate.

4. *Choice of Medical Attendant.*—That it shall be open to a patient to select any registered medical practitioner as his attendant.

5. *Assistance to Patients unable to Pay Entire Cost.*—That when the payment made by a patient is insufficient to cover the entire cost of maintenance, or when any question arises as to reduction or remission of fees for professional services, a statement of the financial circumstances necessitating such consideration shall be signed by the patient or near relative, countersigned by the usual medical attendant or some other responsible householder, and submitted to the Committee.

Sir Henry Burdett said that the statistics he would quote were taken from the Registrar-General's returns and the reports of the returns of the hospitals and institutions for each year dealt with. The hospital figures were those upon which the hospital authorities had based their appeals to the public for support, and the responsibility for their accuracy, therefore, rested upon the hospital authorities. He was bound to say, from his knowledge of those who were responsible for the administration of those institutions at the present time, that he was deeply sensible of the conscientious care with which those figures were now prepared and sifted by responsible officers. In dealing with the numbers of patients attending the medical institutions in a great city, it was probable that some patients had occurred more than once in the returns, having attended the same hospital on more than one occasion, or more than one charity, in a single year. Some might have been counted twice in the same institution—first as out-patients and secondly as in-patients. Though those facts did not, in his judgement, appreciably affect the results shown, it was right that they should be kept in mind. It might be useful to recall the Conference of Metropolitan Hospital Relief, held on April 17th, 1877, at which Sir Charles Trevelyan read an exhaustive paper which had become a classic. At that conference, on the motion of Sir William Gull, it was unanimously resolved:

> That the improvement of the people in London in health and habits of thrift and independence demands that while on the one hand out-patient departments should be regulated so as to secure the prompt treatment of cases requiring the special resources of a hospital, on the other, free dispensaries should be converted into provident dispensaries and new provident dispensaries should be established in proportion to the wants of the population.

It would be his purpose to show that for practical purposes the wise principles laid down in that resolution had remained practically a dead-letter, for the volume of free medical hospital relief had gone on increasing during the whole of the thirty years which had elapsed at a rate out of all proportion to the just needs of those classes of the population alone who, in the day of illness, were entitled to receive free medical treatment. Fortunately, as he considered, the members of the medical profession, to whom all owed so much, had now aroused themselves, and had combined by means of an active organization to enforce adequate reforms by insisting upon a reduction in the present excessive amount of free medical relief at the hospitals. As a writer in the *Quarterly Review* had well said, it must not be forgotten that there was a limit to the liberality of the most liberal profession in the world. As now constituted, hospitals not only did the work which belonged to the parochial authorities, but usurped and intercepted much of that which rightly appertained to the expensively educated professional class. That article was published in 1876, and in the years which had since elapsed, the whole tendency of free medical relief had been, unfortunately, in the direction of immeasurably adding to the evils referred to. Could any one wonder that the greatest organization which the medical profession had ever possessed, the British Medical Association, constituted upon a widely representative basis, should seek to drive home the undoubted truth that to-day the limit of the liberality of the most liberal profession in the world had been passed, and that a prompt and effectual remedy must be applied to the existing evils attaching to the excessive free medical relief by the hospitals? The calling of that Conference was due to the British Medical Association, and those present owed it to the members of that great profession that everyone interested in hospitals—and who was not?—should bring his influence to bear as a matter of simple justice to introduce and enforce the necessary reform. What was the position with regard to the amount of free hospital relief given in this country at the present time? Dealing with the patients treated by the 94 voluntary hospitals in the County of London in the years 1894 and 1903, the following facts disclosed themselves: that the population of the administrative County of London had only increased 6 per cent. in the ten years, while the percentage of increase in the hospital population had been 23¼ per cent. That represented an increase of over 330,000, or 25 per cent. more than the whole number by which the total population had grown during the ten years under review. The out-patients amounted to 93 per cent. of the total number of the patients treated by the voluntary hospitals in the County of London in 1903. When he first published those figures it was stated that they were of no value, because the London hospitals drew so many of their patients from Greater London. If the figures for Greater London, an area of 700 square miles in which there were six administrative county authorities, were included, the evidence of excessive free relief by the London hospitals was not decreased in force. The population of the whole area of Greater London had increased in the ten years to 1903 from 5,964,000 to 6,806,000, an increase of 14 per cent. in the decade; whilst patients treated at all the hospitals in the whole area had increased by 25½ per cent. Those figures showed that the voluntary hospitals in greater London had actually undertaken 81 per cent. more work than the increase of the population of the district warranted. Figures were troublesome, and he would therefore try to bring out the facts in a very simple form, as they related to London and to the principal cities in the United Kingdom, but he wished it to be understood that he was prepared to show any one who cared to see them the details which made up the whole of the totals and the working of the calculations which he was about to give. When Sir Charles Trevelyan wrote his paper thirty years ago, it was stated on authority that 1 in 4 of the population of London received free medical relief. In 1894, 1 in 2½ of the population in the County of London received free medical relief; and in 1903 the amount of such relief had increased to 1 in 2.2, and in 1904 to practically 1 in 2 of the whole population, an increase of 100 per cent. since Sir Charles Trevelyan wrote his paper. It was interesting to note that the amount of free medical relief granted to in-patients in Greater London also increased in the decade 1894-1903 to almost exactly the same extent as in the County of London, where most of the great hospitals were situated. Dealing next with the United Kingdom, it might be of interest to point out that whereas there were nearly 7 free hospital beds per 1,000 inhabitants in Dublin, there were only 2.7 hospital beds per 1,000 in London, 3.7 in Edinburgh, 2 in Glasgow, 1.8 in Newcastle-on-Tyne, 1.6 in Manchester, 1.5 in Liverpool, and 1 per 1,000 in Birmingham. The proportion of free out-patients to population in the twelve large towns in the United Kingdom in 1903 was as follows:

In Portsmouth	1	out of	14	people	received	free	medical relief.
,, Cardiff	... 1	,,	7.1	,,	,,	,,	,,
,, Glasgow	... 1	,,	5.3	,,	,,	,,	,,
,, Manchester	1	,,	3.5	,,	,,	,,	,,
,, Liverpool	... 1	,,	3.4	,,	,,	,,	,,
,, Birmingham	1	,,	3.2	,,	,,	,,	,,
,, Brighton	... 1	,,	3.1	,,	,,	,,	,,
,, Bristol	... 1	,,	2.9	,,	,,	,,	,,
,, Edinburgh	.. 1	,,	2.8	,,	,,	,,	,,
,, London	... 1	,,	2.2	,,	,,	,,	,,
,, Newcastle	... 1	,,	1.9	,,	,,	,,	,,
,, Dublin	... 1	,,	1.3	,,	,,	,,	,,

The Dublin figures were most remarkable, both as to beds and as to out-patients, and he could not help thinking

that the condition of Dublin must be different from other cities: that the patients must come from a widely-extending district. He did not think they could all be residents in Dublin and district. It was further remarkable to notice that whereas in the decade 1894–1903 there had been a large increase in free medical relief in Newcastle, Dublin, London, Birmingham, and Manchester, and especially in Glasgow and Cardiff, there had been a decrease in Edinburgh and in Liverpool, whilst matters had remained stationary at Portsmouth. At Bristol, owing to the enlargement of the area, identical figures were not available. The figures which he had given proved to demonstration that the growth in the numbers of patients admitted to free medical relief must be far in excess of what it ought to be in the interests of all classes. Excessive free medical relief must be an injustice to four classes. First, to the hospital itself, its officers and supporters; secondly, to the honorary visiting medical officers of the hospital; thirdly, to the general practitioners; and fourthly, to the patients themselves. As to the first, no hospital, in his judgement, was justified in asking the public to give it generous pecuniary support unless it could show that every penny entrusted to it was wisely and economically expended in promoting the objects for which it was established and those objects alone. The public had nobly supported the ninety-four voluntary hospitals in the County of London, a fact which was proved by the circumstances that the total amount of money contributed to those institutions in 1903 was nearly £525,000 more than in 1894, being an increase of something like 65 per cent. He had had exceptional opportunities of learning the views of many of the most liberal supporters of the great hospitals, and he was confident that if steps were not taken to reduce the volume of free medical relief at present given, the contributions to the voluntary hospitals would most certainly tend to diminish rather than to increase. The management and officials must therefore welcome the reduction in the amount of the present free medical relief. Then with regard to the honorary visiting medical staff: The present excessive numbers at certain hospitals and the trivial nature of many of the cases was a cruel hardship to the visiting medical officers. As Sir William Ferguson pointed out long ago, a hospital staff consisted of consultants and not of general practitioners, and it was only consistent that their services should be asked chiefly in cases of peculiar difficulty. The seeing of an inordinate number of trivial cases wasted the time of the consultant, wearied the attention of the students, and fostered a habit of hasty diagnosis and careless observation which tended to erroneous and ineffective treatment; in fact, out-patient work as generally conducted neither conduced to the sound advance of professional knowledge nor to the advantage either of the students, the patients, or the public. Then with regard to the position of the general practitioner: The view taken by them and the supreme urgency with which they regarded it justified the Conference. The general practitioners were injured directly and indirectly by the fourfold character of the abuse and misuse attached to the present system of excessive free medical relief. But the public had not grasped as yet the fact that the abuse was fourfold. It existed, first of all, whenever a patient who could afford to pay something for his treatment, received it for nothing. Secondly, when a patient for whom the Poor Law provided adequate means of medical relief, obtained such relief at a voluntary hospital. Thirdly, when a patient who had no direct claim to receive free medical relief at a metropolitan hospital, still received it there. Fourthly, when tens of thousands of persons every year attended the casualty department of the medical charities, although the greater number of them suffered from trivial ailments for which people in other stations of life who paid for medical services probably would not seek medical aid at all. Then there came for consideration the position of the patients—the injustice to the patients. Nothing could make that clearer than the words of Sir William Gull:

> The poor have an idea that disease comes from Providence, and that it must be cured by drugs. Now, if there is any idea that ought to be rooted out it is this. Children are often brought to be drugged, when in reality they require to be washed and fed. Disease should be prevented by attending to hygienic laws, by eating good food which has been properly cooked, by regulating the quantity and guaranteeing the quality of that which is taken. The existence of gin palaces at one corner of the street, and free dispensaries at the other, are evidences by contrast of the monstrous anomalies existing in our Society.

Every out-patient medical officer realized the force of the truth of the points urged by Sir William Gull. One instance typical of many classes of case which were common in out-patient departments, was the woman who was suffering from excessive tea-drinking and irregular meals. If the physician told her to stop drinking tea, and gave her no medicine, she would not obey him, and the symptoms would grow worse. But if he gave her something in a bottle with directions to take it every three hours, and abstain from taking tea two hours before and two hours after each dose, she would knock off the tea and give herself a chance of restoration to health. It was no benefit to the patient, no benefit to the poor, to be afforded infinite facilities for taking physic, and it was a positive injury to their character and moral nature to provide those facilities without payment under conditions which rendered adequate treatment impossible. They were justly proud of their voluntary hospitals, but many people seemed to have forgotten that there were two kinds of charity—one beneficent, the other injurious; one which raised its objects and developed their resources and trained them to habits of health by calling forth the spirit of independence; the other blind, foolish, injurious, the charity which generated and fostered that spirit of dependence which was the chief cause of pauperism in this country. Those present were asked by the resolution which he had moved to approve generally of the principles contained in the proposals laid before the meeting. Those principles were broadly as follows: that the number of new cases should be limited, that no one able to pay for adequate treatment, no one provided for under Poor-law relief, no one unless really ill, should receive free medical relief, except they be sent to a hospital for purposes of consultation; that steps should be taken to secure as far as possible co-operation and co-ordination between various hospitals; that wherever possible, it was desirable that paying wards and public nursing homes should be open to every member of the profession; that provident dispensaries fully equipped and organized should gradually supersede the out-patient department: and that it was desirable to encourage and secure inter-communication and co-operation between all institutions affording medical relief. In brief, the true principle of admission to a voluntary hospital was that they should be all free, that each should be conducted on business principles under a system which would render it practically impossible for the funds to be wasted in providing free relief for any but those who could and did prove their claim to be entitled to receive it. He earnestly hoped that those principles would commend themselves to the adoption of that Conference. In conclusion, he desired to say a few words about the causes which had led to the present position of affairs. First of all, whereas thirty years ago the mortality in hospitals was very high, and the conditions left much to be desired from the patient's point of view, to-day the hospitals were so efficient and hygienically perfect as to make them highly desirable places of residence for persons suffering from serious illnesses. Formerly it was the poverty of the patient, not his will, which brought the majority to the hospitals, but to-day matters were reversed. Secondly, the increased cost of treatment in illness, owing to improved methods and the advances in surgery especially, forced many people to seek relief at a free hospital who would prefer to pay according to their relative means for such relief at nursing homes, which latter had become essential for many classes. Thirdly, the facilities for obtaining free hospital treatment were greater and easier to-day, he believed, than they had ever been before. Fourthly, the competition of hospitals, especially in London, in the past had caused a desire to show an increasing number of patients admitted each year for financial reasons, while the visiting medical staffs and teachers on the medical schools had not been actively wishful to reduce the numbers for educational reasons, which he confessed he was glad to hear did not prevail in regard to medical out-patients at any rate. Fifthly, the attitude of the great body of medical practitioners to provident dispensaries had not tended to make those institutions as successful as they might have been and ought to be. He would have liked to say much on

that point, but he would not detain the meeting by going into details on that occasion. Up to-date provident dispensaries should be provided in districts so that patients who could afford it, who had been in the habit of relying wholly on the out-patient departments of hospitals, should go to them. The remedy was to be found in organization, which would gradually knit together all the existing agencies. At present the hospitals in their out-patient departments gave too much or too little relief from the public point of view; too much, because many of the patients should be deemed to be ineligible for the reasons he had already indicated; too little, in the sense that very many of the patients required and should receive attention in their own homes through co-operation by a system of provident dispensaries and district nursing associations, including departments for the supply of dressings and appliances at co-operative prices. The present Conference he considered to be full of hope for the future, for it was, in his judgement, but the beginning of an organized effort on the part of all interests concerned, to find and enforce an improved system of medical relief which would minimize the misuse of hospitals, and to enable all classes of patients to obtain the assistance which their circumstances necessitated, upon a plan which would encourage thrift and self-reliance while it secured for them a guarantee that they should be able to obtain with readiness every requisite in the day of sickness. He looked forward to the time when the hospital out-patient department would be used mainly for consultative purposes, when we should have throughout our large towns, especially in London, an adequate system of up-to-date, efficiently-equipped provident dispensaries, combined, possibly, with a system of insurance by which all who cared to avail themselves of it might readily provide, at a cost within their means, against the day of sickness and accident.

Dr. Pope (Leicester Hospital), in seconding the resolution, said that Sir Henry Burdett, from the stores of his knowledge had presented a striking picture of the misuse of hospital relief, and the hardships and evils which resulted therefrom. He (Dr. Pope) proposed to address himself to another aspect of the question—namely, the effect of hospital abuse on the status and emoluments of the medical practitioner, and to express, as far as he could, the attitude of the British Medical Association on the subject. The unchecked distribution of free medical relief had had a twofold effect on the general practitioner. It actually took away his patient, and created an idea in the mind of the public that medical advice was not a thing to be paid for, or that it was necessary to pay for it only in such small sums as to indicate its comparative worthlessness. The cry was still going up from general practitioners that, though by universal consent better educated and better trained than formerly, they found themselves in many cases hard put to it to make a living. They saw their patients leaving the provident dispensaries and clubs to which they belonged, and which made for thrift among the working classes, and going off to the out-patient rooms of the hospitals. Patients would go to the hospital for the performance of an operation which the private doctor was quite well able to perform and did perform when he was a house-surgeon and much younger than when in practice. If an accident occurred the injured person went at once to the casualty department of the hospital. It never even occurred to the policeman to take a case of accident to the nearest doctor; he hurried the case off at once to the hospital. The deprivation of this surgical practice created a vicious circle, because by virtue of not having such cases brought to him the practitioner became somewhat rusty in his surgical work. A further argument was thus furnished to the astute working man, who knew a good job when he saw it, and he would again declare that the hospital was the only place where surgical treatment could be effectually carried out. No doubt in some instances the general practitioner contributed to that state of matters by himself sending cases to the hospital which might be treated at home, but in many cases that arose from the feeling of hopelessness and of the inevitableness of the existing state of things. He asked the meeting to consider the very important point that, after all, the general practitioner was the first line of defence which the public had against sickness and accident. Many institutions might be established, but, in the majority of cases, the general practitioner would be the first person called in, and perhaps at the time when the illness or accident could be best treated, and it was false policy to allow the general practitioner to get rusty. Of the lowering of the estimation in which medical advice and treatment were held, there were many evidences. An enormous number of free tickets were given to people for their subscriptions to the medical institutions, and naturally such people had doubts whether they should remunerate their own medical man, even in the moderate way which they did now. That could not fail to act injuriously on the quality of the work done by the backbone of the medical profession, the general practitioner; if it continued it would lead to a deterioration in the medical work of the country, and a slackening in the progress and advance of medical science. The British Medical Association had made an attempt to deal with those things, and he thought it could claim that it had not acted in any narrow or selfish spirit, but had tried to look at the matter as much from the public as from the professional side. The Association had peculiar advantages, both in knowing the state of things, and in being in a position to deal with anything in the way of a remedy in the future. It possessed a widespread organization; there was scarcely a part of the British dominions where it did not possess a local organization in very good working order, and that being so, the Association was in a position to be able to help the managers of hospitals with advice and information. The Association could obtain the fullest information from the medical side; and it was not too much to say that every secretary of a local Division of the Association would be only too pleased to put his work and services at the disposal of the hospital managers. The result of the deliberations of the Joint Committee of the first conference were before the meeting, and the present conference was asked to put its seal to the proposals submitted. They were very moderate, and the British Medical Association did not propose to stop at that point. There were several other propositions which the Joint Committee did not accept, though it was hoped it would do so at a future time, such matters as the creation of new, and the reorganization of present, provident dispensaries, as well as the total abolition of small payments to voluntary hospitals, which tended to make patients believe that when they paid their small contribution they were really paying fully for the treatment they received. The first model principle contained the essence of almost the whole of the proposals. It spoke of the suitability of patients for treatment, and he asked the attention of the meeting to its wording:

> That inability to pay for adequate treatment shall be the consideration for the admission of all patients for hospital treatment.

That contained the germ of the whole matter, and showed the lines upon which the hospitals should proceed in the future. Subscribers' letters were, from the point of view of the British Medical Association, pernicious. They gave the idea that the treatment was given as a right and not as a favour, and served other eleemosynary purposes, such as shop associations, churches, etc., and when a body of working men received in return for a subscription a certain stipulated number of subscribers' letters it was impossible to argue with them or convince them that they had not the right to exact so much medical attendance as a free gift. The doctor's time was regarded as of no importance. It was his firm opinion, supported by investigation, that the general practitioner's means of income were hampered by the existence of such letters. The Association had tried to define when relief should be given. Paragraph No. 9 was important. It was difficult to carry out, but in many hospitals' out-patient rooms there could be a limitation of the number of cases seen in any one day by any one doctor. Paragraphs 12 to 19 contained the germs of the remedy. Sir Henry Burdett had dealt with that fully. The Association believed that the out-patient department should be fed by private medical practitioners, and the various organizations which provided medical attendance on the principles of thrift. It might, and probably would, be found desirable, in large centres, that an honorary medical officer of the hospitals should attend the provident dispensaries and similar institutions so as to select patients suitable for hospital treatment. The provision of self-

supporting nursing homes was a pious aspiration rather than a certain hope; they would stand in the same relation to the in-patient departments of hospitals as provident dispensaries did to the out-patient departments. People with an income of from £200 to £400 a year said they could not afford treatment privately for surgical cases, and asked where they could go; such cases must be taken into consideration, especially where long-continued nursing was necessary. The constitution of the present Conference was unique, for it was made up of people representing hospitals in every part of the United Kingdom. He was pleased to say, from his experience of hospital managers, that they usually asked their hospital staff only one question, "What do you want to carry out? And we will do it as far as the public enable us by the funds with which they provide us." He thought there was reason for the greatest hope that when the request was made to them that they should so apply the funds in order to do good and cease to do harm they would meet the Association in the same spirit.

Mr. Harben, Chairman St. Mary's Hospital, Paddington, said that every one concerned with hospital management must be very fully alive to the abuses referred to by previous speakers, and if he might say so, it was quite unnecessary for any subsequent speaker to enlarge upon that topic. What the meeting was more immediately concerned with was the way in which that abuse should be remedied. The central hospital council for London, a body representing the twenty largest hospitals of London, some two years ago formed a committee at the instance of the Metropolitan Provident Institution, for the purpose of considering whether any better system of co-operation could be established between hospitals in London and provident dispensaries. That committee drew up a series of resolutions, which very largely corresponded with the recommendations made by the present Joint Committee in the first section. With the other matters they had no concern. Some little difficulty was experienced in getting the adhesion of the governing bodies of the various hospitals to those proposals, mainly owing to the want of sufficient provident dispensaries in London. But to those proposals of the Central Hospital Council, requiring careful investigation of the condition of the out-patients coming to the hospitals, public attention should be very much directed. Managers of hospitals were very much indebted to the British Medical Association for bringing the matter forward and for stimulating opinion in regard to it. They were placed in some little difficulty by the form which that resolution took. Those present were asked to express a general approval of the principles contained in the proposals set forth. But there was first of all a somewhat difficult task in extracting those principles from the proposals, and it was necessary to know to how much they would commit themselves by expressing a general approval. He felt so strongly the desirability of enforcing the necessity of some action in the matter that he was very loth to carp at any particular proposal which he did not exactly approve of, or one which had not been sufficiently considered; but he felt that several of those put forward required a little comment, and to them he would not be prepared at present to give his support. He mentioned Paragraph 13, which stated "that there is no objection to paying wards being connected with voluntary hospitals, provided that they are open to every member of the medical profession, who shall be paid any fee to be arranged by him and his patient." If that implied a principle, he was not clear what that principle was, and he was not sure whether it was one to which he could give his adhesion. It would have been better to have omitted it, not that it was not suitable for discussion, but as it was not open for separate discussion, it was one to which many would not agree. He would have been willing to accept it if it had been safeguarded, and worded, "There is no objection to pay wards in hospitals." The difficulty he felt in expressing his assent to those proposals, which were submitted *en bloc*, was that he might be thought to be giving his assent to a proposal of that sort which he had not had the opportunity of considering thoroughly. The same might be said of other proposals which concerned the aspect of the question immediately affecting the medical profession, upon which the lay members of Boards of Management of hospitals were incompetent to form an opinion. Roughly speaking, the proposals might be divided into two classes: (1) those which were concerned with hospital abuse so far as related to indiscriminate charity and the general question of the responsibility of the poor; and (2) those concerned with the relations between medical practitioners and their patients and the hospital. Upon the former of those questions every one connected with a hospital and who took an interest in charitable work must be more or less competent to give an opinion; but of the other questions, some of those present felt they were not competent to judge, and thought they should not be called upon to express views without having the subject threshed out by the meeting. He did not know whether those who were responsible for the resolutions submitted had the power to omit any of them. If so, he would vote for them very much more cheerfully if those could be withdrawn or modified which related more particularly to the aspect of the question to which he had referred. It was not his intention to move an amendment, because he did not think the present was the moment to do so, but he trusted his remarks might elicit some opinion from those who were responsible for the resolutions.

Mr. H. C. Gosnell (City of London Lying-in Hospital) said many of those present would like to know what course they were to pursue with regard to the twenty-eight proposals, which practically committed them to approval of the whole. It was possible there might be disagreement on twenty-three points and agreement on five only.

The Chairman said the resolution asked those present to agree or not to agree with the general principles.

Mr. Gosnell said he thought most of those present would feel that they had committed themselves if they agreed.

The Chairman reminded the meeting that he laid it down at the commencement, because it was considered it would be for the convenience of the meeting that points such as Mr. Harben had alluded to should be spoken to on this resolution. There was much force in what Mr. Harben had said, and he thought the way the matter should be treated was that the suggested principles should be looked upon as a report; and that if there were many of the suggestions which did not meet with the approval of the meeting, the right course would be, if it were agreed that a Standing Committee should be appointed, to refer the matter to it for further consideration.

Mr. Gosnell suggested, with all respect, that it would be putting the cart before the horse, for the reason that the British Medical Association could then go forward with the force which such resolution would give, and yet they might not represent the feelings of those present at the meeting. So far as he was concerned, the present resolutions were far from representing his feelings, or that of the institution he represented. If it would assist the matter and save time, he would be prepared to move an amendment, to the effect that each of those proposals should be submitted to the Conference separately.

Mr. Harben said he would be pleased to second that.

Sir Henry Burdett said that in order to get to business, because it was important that the Conference should not break up without definite result, he would like to say that when he was asked to move the resolution he foresaw the difficulties which had been raised, and they appealed to him very strongly. But he understood that Mr. Harben objected to the wording of No. 13; he did not object to the principle of it.

Mr. Harben: What is the principle?

Sir Henry Burdett said he understood that the principle was that there should be pay wards attached to hospitals. He was only dealing with the objection which had been raised by Mr. Harben, who represented an important hospital, and had given an immense amount of time and trouble to the subject. If the principles were accepted with the reservation as to details, and the carrying out of the proposals laid down, and if the speakers stated what they wished to have modified, then the meeting might perfectly well vote for the principles. When the Standing Committee was appointed those matters would be referred to it with all the information which would have been elicited on the present occasion. Having done that the Conference could be adjourned. That was the utmost which could be hoped for, and he earnestly trusted that the Conference would be able to see its way to adopt the principles of the resolutions submitted.

Dr. Morgan Dockrell referred to the conferences

which during the last fifteen years had been held, and said that by the present resolution the meeting was asked to give a sort of general assent to the principle of the propositions set before it. That was exactly what had been done before; and what had been the result? Matters had progressed no further. The Committee had over-weighted the proposals. He had noted paragraph 13, to which Mr. Harben had called attention, but paragraph 14, in regard to consultations, required very careful consideration. He thought the clauses should be taken one by one and passed by the meeting; the majority had been carried out for a number of years in hospitals without difficulty. Ten years ago he read a paper before the British Medical Association drawing attention to the fact that the matter lay between the general practitioner and the public in many cases. If the patients at hospital were not seen unless sent with a card from a general practitioner, then a great deal of abuse would be obviated. But there were patients who were not fit for hospitals, and if they were sent up to the hospital by the practitioner with a card, the practitioner sending them could be seen or written to by the man who was in attendance at the out-patient department. A large number of those attending hospitals had taken the trouble to wade through patients whom they thought were not fit to be treated, and had written to the practitioners, but in a large number of cases the practitioners had not replied. He had always put that down to the fact that they were so very busy. Then it would be madness to pass the general principles of those propositions without having an opportunity later on of dealing with the matters.

Dr. BOXALL said he represented the General Lying-in Hospital, and agreed with the remarks of the last speaker. He supported the amendment; the resolutions submitted could not be passed *en bloc*.

The CHAIRMAN said he was not in possession of any amendment.

Mr. GOSNELL said he had moved as an amendment that each proposition should be submitted separately and voted upon.

Dr. DOCKRELL said he had much pleasure in seconding that.

The CHAIRMAN pointed out that it was not really an amendment to the resolution. It was an entirely different course of proceeding, and he understood the meeting had accepted the previous suggestion. It seemed to him that the amendment of Mr. Gosnell would be in order if the resolution first mentioned was rejected. Then what was now the amendment could be moved as a separate resolution altogether.

Mr. GOSNELL suggested, with respect, that the resolution practically bound the Conference in its terms to an acceptance and approval of the general principles of all the twenty-eight proposals. When once a man had voted for that resolution he seemed to have placed himself in a very inconsistent position if he should differ from any of them. It would ill become that Conference, which was mainly medical, to obtain a resolution of that kind, dealing with such far-reaching principles, when it was evident that there were so many dissentients in the room in regard to some of the proposals.

Dr. J. A. MACDONALD (Chairman of Representative Meetings, British Medical Association) suggested that as the Chairman had ruled that the document referred to in the resolution should be taken as a report of the Committee, he would ask the Chairman whether it was not competent for any member of the Conference present to move as an amendment to the report that one of its paragraphs be left out, or more as the case might be.

The CHAIRMAN said he had ruled that that was in order, and it was the usual way in which reports were considered. Mr. Gosnell was at liberty to move that the report should be amended by certain clauses being left out, and it was open to any one in the Conference to move that other clauses be left out. But he did not think it was in order after what he stated at the commencement of the meeting, and which he understood was agreed to, that the meeting should take the report paragraph by paragraph.

Dr. H. G. LYS (Royal Victoria Hospital, Bournemouth) asked whether he might move an amendment of a different character. It was impossible to discuss those principles *seriatim*. He would be prepared, with a very slight amendment in the wording, to vote in a general sense of approval. If instead of saying "approves generally," the words "welcomes the consideration of these principles" were used, it would be a resolution which everybody present could probably support. If the resolution were passed in that form it did not bind anybody to carry out the principles; there must necessarily be a great deal of further consideration by all the bodies whom it was hoped to move. If the Chairman would accept that amendment he would move it as meeting the present difficulty.

Mr. GOSNELL said he would be willing to withdraw his amendment in favour of Dr. Lys's. It would quite meet his views.

Sir HENRY BURDETT asked for the exact words of the alteration, and, having read them, said that he understood them to mean that the Standing Committee to be appointed would take the whole of the proposals up as representing the Conference. He accepted the words, as did also his seconder, Dr. Pope.

The discussion on the amended resolution was continued by Dr. G. A. HERON (City of London Hospital for Diseases of the Chest) who said the modification of the first resolution which had been put before the meeting rather took the wind out of what he had intended to say, because his own hospital took objection to certain parts of the proposals as to the management of hospitals. If the matter was going to be referred to a committee, he thought it would be a great saving of time if as little as possible were said on the present occasion with regard to details, because the committee would go into each proposal separately and come to a definite decision on each separate occasion. With regard to the general question dealt with by the mover of the resolution, Sir Henry Burdett, everybody who had anything to do with hospitals was aware that the crowd at the out-patient departments was a sad sight, but one which those who wished to criticize hospitals ought to go and see; they ought to try to realize how much good they thought could be done by an out-patient physician who had been on duty from 2 o'clock in the afternoon to 5, 6, or 7 in the evening. All he would say was "God help those who went last to him!" It was impossible that a man could do in a thoroughly efficient manner such work as that for such long hours. There was no need to wait for the committee to alter this; those present could do it at once; it could be made an easy matter greatly to diminish the crowding in the out-patient departments by taking care that only cases which ought to be seen in an out-patient department were seen there. He would illustrate his remarks by taking the case of the chronic dyspeptic. There were probably very, very many chronic dyspeptics in the out-patient departments of the hospitals at that moment. Every medical man would agree that no chronic dyspeptic who was entitled to come to a hospital, a poverty-stricken man or woman, could possibly be treated with success in any out-patient department. Such cases must be treated either in their own homes or as in-patients at the hospital. If the physicians in charge of out-patients were encouraged to say that, and so get rid of many of the thousands of cases who came to crowd these departments, a great step would be taken towards diminishing the crowding at the hospitals, and the overwork thrown on the assistant physicians at those hospitals. He would take another class, and repeat, with a full sense of responsibilty, a statement he had made in public before: The treatment of consumption in all stages of the disease in out-patient departments was a farce; the attempt was unfair to the patient, to the doctor, and to the healthy community. It might be said that those cases resorted to a great extent to special hospitals, but his remarks referred also to general hospitals. He did not mean that such cases should never go to out-patient departments, but that they should not be treated there. They could be told what was the matter with them, the line of treatment to be followed could be indicated, but they must be told not to come back to that department again. If that attitude were taken up, and the assistant physician at out-patients were authorized to adopt it, a very material diminution in the overcrowding would be brought about within ten days from that meeting, and an immense deal of good would be, at the same time, done to the healthy community, by telling the people what they had to do if they wished to be treated on the best lines and with the best

advantage to themselves. Sir Henry Burdett had spoken in only a word or two of insurance against sickness. It would be a most desirable thing if the strongest possible pressure could be brought to bear upon those who were wage earners, to compel them to insure against sickness, which all knew must come to every one. That had been done in other countries, and its results were known. It did not cost much to insure, and it was within the reach of every man and woman who earned wages. The help of the Government should be sought to bring assurance against sickness, against accident, and against old age within the reach of the wage earners of the country. If that were done, a system could be brought into hospital management which would do more good and help more to get over the difficulty of free medical advice, which had something inherently wrong in it, than anything else. It should be the right of every man to be attended to when he was ill, and it should be the right of every doctor who attended him to be paid for it. He would not interfere with private charity, but the man who discharged a public duty ought to be paid adequately, so as to put giver and receiver on a fair basis and on equitable terms.

Dr. Lys said he represented a small provincial hospital, and his committee was unable to subscribe to the recommendation as to the abolition of subscribers' letters. They did not think that in a small hospital—and there must be many such in the same case—an almoner could always be present to examine each applicant. They had a system of letters which were certificates so worded as to lead the governors who signed them to inquire particularly into the circumstances of the applicants they recommended, and to certify in definite words that they were suitable patients for relief. The number of letters given to each subscriber was not limited, and the system was not thought to be open to abuse. The difficulties in provincial hospitals were different from those in large centres. He welcomed the paragraph as to the exclusion of trivial cases. In most provincial hospitals tradition was against such a change, but he thought it would be a very great gain to all classes who were interested in the matter, and would forward reform.

The Chairman thought the points to which the last speaker had referred were matters of detail which would receive consideration subsequently. There was nothing in the suggested principles which had not been discussed by the governing bodies of those hospitals, 150 in number, who had sent, or had had the opportunity of sending, representatives. The principles, therefore, had not been sprung upon the meeting; there had been plenty of opportunities of considering them, and it had been hoped that the hospitals would have most carefully considered the suggestions sent to them, and that there would be a certain amount of harmony with the views expressed.

Mr. G. S. S. Strode (South Devon and East Cornwall Hospital, Plymouth) said he did not think any reply was asked for in the circular addressed to the provincial hospitals.

The Chairman read the circular letter, showing that a reply was asked for. He then put the resolution, which was carried, as follows:

> That this Conference of representatives and supporters of hospitals, medical practitioners, and others interested in hospital administration in Great Britain and Ireland welcomes the further consideration of the principles contained in the proposals drawn up by the Joint Hospitals Committee and circulated to hospitals in August, 1906.

Mr. Harben moved the second resolution as follows:

> That it is advisable that an annual conference should be held.

Upon that subject he thought there should be no doubt; there was no question that such a conference could do a great deal of good.

Dr. Macdonald, who seconded the resolution, expressed regret that more definite opinions had not been obtained from country districts. He hoped that in the future definite resolutions would be adopted, and that members from the country could express their opinions clearly. He believed that the continuation of the work would result in doing away with much of the abuse of hospitals now existing.

The resolution was carried.

Mr. J. Reginald Long (Royal Victoria Hospital, Dover) asked whether the conference was to be held only once a year, and would the representatives have the opportunity of fully discussing details?

The Chairman replied that the conference would be annual.

Mr. C. Lupton (General Infirmary, Leeds) moved the third resolution, as follows:

> That a Committee be appointed not exceeding fifteen in number to act in conjunction with the Hospitals Committee of the British Medical Association, with instructions to communicate to all hospitals the resolutions of the present Conference, to arrange for the holding of a Conference in 1907, and in the interval to exhort hospitals and kindred institutions to carefully consider the suggestions read before this meeting.

The resolution exhorted hospitals to consider the proposals laid before the present meeting carefully, and declared that fifteen gentlemen should be appointed to carry on the work hitherto done by the Joint Hospitals Committee. He had sat on the Joint Committee during the past year, and had been present at all the meetings, and could therefore speak with some knowledge of the benefit which the country places were likely to derive from the proceedings. At Leeds there was one large hospital and two or three subsidiary hospitals, but there had always been a difficulty in coming to any sort of agreement as to what were the best rules by which a hospital could be governed. It would therefore be of inestimable value to country places could they learn what was the best line on which hospitals should be worked, and the latest ideas of those who lived in the centre of things, and to have the great advantage of intimate communication with the work which was being done in London. He therefore urged most strongly that the work which had been begun should be continued, and that the meeting would proceed to appoint fifteen persons to carry on the work in the future.

Dr. Lauriston Shaw (President Marylebone Division, British Medical Association) seconded the resolution. It was of the utmost importance that the work to which those present had put their hands should be successfully carried through, and that was only possible if the organization for doing it were continued.

A Speaker suggested that words should be added to the effect "in the interval to further consider the report of the Joint Hospitals Committee and report to this conference." He was under the impression that when the first resolution was carried the committee if appointed would consider in detail what had been said at the present Conference, and might see their way to modify some of the propositions, more particularly No. 13, which was not of itself a matter which necessarily meant there was hospital abuse. He desired to vote for a proper course being taken to prevent hospital abuse, but he honestly confessed he could not vote for the whole of the propositions in the Hospitals Committee's report.

Mr. Lupton (Leeds) said it had been a matter of some surprise to him to find that one gentleman came to the Conference unaware that he had been asked to consider those resolutions beforehand.

Mr. Strode did not think his hospital had any notification that they were to send their ideas to the Committee. He believed his own hospital did send them, but he thought there might be others which had not. He thought that likely because, although his hospital replied, the matters in the present agenda were exactly as originally set down.

Mr. Lupton apologized for misunderstanding Mr. Strode. He thought his resolution went no further than to ask the hospitals carefully to consider the suggestions which had been laid before the present meeting.

The Chairman asked whether there was any further alteration suggested.

Mr. Strode said he would like to add: "And the reports received from the hospitals." He did that because if the reports were to do any good in the way of hospital management the Committee should have the benefit of the opinions which the hospitals might send back.

Dr. Boxall seconded, but suggested that it should be "and the reports received or to be received from hospitals."

Mr. Lupton accepted the addition.

Dr. Macdonald asked what was requested. He had seen the replies, and it had taken a long time to tabulate

by skilled assistants, and if the Committee were to be asked to go into the additional work of examining all the replies and tabulating them it was asking a great deal.

A Speaker: One of the first things the Committee would do would be to ascertain what the replies were and they would be considered, and it should surely be left to the discretion of the Committee as to how they should be considered.

Dr. Dockrell asked whether any adequate provision had been made to see that the different varieties of special hospitals were being properly represented on the Committee. He did not say that every special hospital should be represented, but every group should be.

Mr. Cardross Grant (Beckenham Cottage Hospital) said that not one word had been heard about cottage hospitals, and he would be glad to know whether they would be represented. They were doing an immense amount of good.

Mr. W. J. Morton (Mount Vernon Hospital for Consumption) asked that consumption hospitals should be represented; and another speaker asked that provincial and small hospitals should be represented.

Mr. A. Herbert (Coventry and Warwickshire Hospital) desired to support the resolution. He was a working man who got his living at so much an hour. He represented his local Hospital Saturday Committee, and claimed to have an earnestness in regard to hospital administration second to none. He had served for twenty-five years on the management of his local hospital, but had learnt a great deal in that Conference; he had come to the conclusion that there was a wide difference in the administration of the great London hospitals and the provincial hospitals, and that it was impossible to bind London and small provincial hospitals to the same regulations. He asked that in the constitution of the Committee the Saturday funds should have a part. He regarded that as a vital point, because it depended largely on the working of the Saturday funds whether the hospitals were abused or not. The Committee to which he had the privilege to belong subscribed more than half the funds which came annually into the institution. The facts about hospital abuse would soon become known if they were taught to those who applied for tickets and those who gave them out. If London had endeavoured to check abuse as much as some of the provincial hospitals, London would be in a better position in that matter to-day than it was.

Dr. Boxall wished to suggest an amendment. The resolution commenced, "That a committee be appointed not exceeding fifteen in number." He suggested that instead of these words it should read, "That a committee be appointed, with power to add to their number," and that representatives of special hospitals and of the Saturday and Sunday Funds should be added. He would like to see on that committee Mr. Arthur Napper, son of the founder of cottage hospitals, who was present.

The Chairman then put the resolution moved by Mr. Lupton, and it was carried.

Dr. Pope moved that the Committee consist of the eleven members who sat on the Conference (as Mr. Collins did not wish to continue), with the addition of the names of the Earl of Kilmorey, Mr. H. Manfield, M.P., and Mr. Harben.

Dr. J. Hamilton suggested there should be one Scotch member on the Committee, and therefore moved the name of Mr. W. A. Dinwiddie, of the Dumfries and Galloway Royal Infirmary.

Mr. Grant seconded.

Mr. Harben asked to be allowed to withdraw his name, as he thought the representation of London was quite strong enough.

The Chairman said the Committee would be very sorry to lose Mr. Harben's valuable services.

Mr. Grant asked whether there was any one on the list of laymen who represented cottage hospitals.

Dr. Pope replied that the Honourable Sydney Holland was a member of the Cottage Hospitals Committee.

Mr. Grant said he represented the London Hospital.

Dr. Boxall pressed for the nomination of Mr. Napper.

In reply to Mr. Grant, who asked if Mr. Napper was a doctor, Dr. Pope said he was a general practitioner.

Mr. Grant objected.

Sir Henry Burdett said it was due to the memory of the man to whom the country owed so much in connexion with cottage hospitals that his son should represent those interests on such a committee as was being formed. He knew him to be a good man.

Finally, the following Committee was approved: Mr. Walter Baily (University College Hospital), Sir Henry Burdett, K.C.B., Mr. W. G. Carnt (Derbyshire Royal Infirmary), Mr. Neville Chamberlain (Birmingham General Hospital), Mr. A. W. Davis, Sir Charles Gilman (Norfolk and Norwich Hospital), the Hon. Sydney Holland (London Hospital), Sir Riley Lord (Royal Victoria Infirmary, Newcastle-on-Tyne), Mr. Charles Lupton (Leeds General Infirmary), Mr. Herbert W. Mason (East Suffolk and Ipswich Hospital), Colonel Montefiore (Metropolitan Hospital), Earl of Kilmorey (Charing Cross Hospital), Mr. H. Manfield, M.P. (Northampton General Hospital), Mr. A. Napper, and Mr. W. A. Dinwiddie (Dumfries and Galloway Royal Infirmary).

The Chairman called upon Dr. Heron to move the last resolution on the agenda:

That an appeal be made to hospitals to contribute towards the expenses of carrying on the work of these committees.

Dr. Heron said that in any serious condition the important point was to press the remedy. Hitherto, the British Medical Association had borne all the expenses connected with the matter, and he asked the meeting to support the request that the hospitals should contribute towards the expense of carrying on the work. It was evident that if what had been passed was to be carried out, the expenses of printing alone would be greater than they had been in the past year, and he believed there was no class of the community to which one could turn with more confidence for help than to the directors of hospitals.

Mr. T. Fielding Johnson, Jun. (Leicester Infirmary), in seconding the resolution said the meeting had been reminded that there was a point beyond which one could tax the liberality of the most liberal profession; if the work which the British Medical Association was doing was to be brought to a successful termination it would immensely help the hospitals, and therefore it was only fair that the Boards should be asked to contribute towards the necessary expenses.

Miss M. Breay (Honorary Secretary, Matron's Council of Great Britain and Ireland) suggested that it would be better to ask individuals rather than hospitals to contribute.

The resolution was put and carried.

The Chairman proposed a hearty vote of thanks to the Council of University College for kindly placing the lecture room at the disposal of the Conference. This was carried with acclamation, as also was a vote of thanks to the Chairman, and the proceedings terminated.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.

A meeting was held at the rooms of the Royal Medical and Chirurgical Society on November 30th, Dr. Lauriston Shaw, President of the Division, in the chair.

Economic Problems in the Practice of Medicine.

The President, after some introductory remarks, said the resolution which would be submitted to the meeting later on, and which required no formal proposing and seconding, was as follows:

That it is desirable that concerted action should be taken to check the large amount of gratuitous medical attendance granted to many sections of the community, inasmuch as it tends to diminish the thrift and self-respect of the public, lessens the esteem in which medical science is held, and has a detrimental effect upon the position of many members of the medical profession.

He called upon Sir Richard Douglas Powell to speak first.

Sir Richard Douglas Powell said the matter before them was one which required the most careful consideration from all its aspects, and most delicate handling, and handling in no narrow or commercial spirit. It seemed to him that whilst he would be in approval of the resolution in many aspects, it was his view that the first statement—"that it is desirable that concerted action should be taken to check the large amount of gratuitous medical attendance"—involved, as a further and a preliminary question, in what directions such concerted action should be taken. The more one looked into the question the more difficult it appeared to him, though the difficulties he thought were not insuperable. The greater difficulty seemed to him to be in the adjustment of the relationships between institutions such as hospitals, and the practitioners who worked especially amongst that class from whom at the present time a certain considerable consignment of hospital patients were drawn. He observed in a document on hospital reform sent round, he supposed, from that Association to the large hospitals a little while ago, there were suggested model principles of hospital management. The first principle laid down in this document was, "That inability to pay for adequate treatment shall be the consideration for the admission of all patients for hospital treatment. This shall not apply to Poor-law cases." Now, this proposition raised at once the questions, What was adequate treatment? And how far were the lower middle and artisan classes able to secure adequate treatment outside large institutions such as hospitals? The original idea of a hospital was that it was for the reception and treatment of the indigent poor. It would be observed that the definition by the Association very considerably enlarged the scope and *clientèle* of these benevolent institutions. It defined the proper person for hospital treatment to be one who was unable to pay for adequate treatment outside. And unless you could get round this statement—which he thought a true one—it seemed to him that their case was somewhat given away. The medical profession was almost unique in one respect, that it has to deal with a commodity—health—which, however important to the individual, could not be said to have any current value. A lawyer dealt with estates, with transfers, with disputes, with crimes, and the bottom fact in relation to all these things was a certain money value, in the adjustment of which a due and proper percentage necessarily accrued to the adjuster. Somewhere about the fifth century it was enacted that violence, such as murder, or injury to the person, instead of being retributed by the rough-and-ready methods of the time, by similar murder or similar assaults, was to be adjusted by money payments or their equivalents. And that practice held up to the present day, although it was further complicated by certain dues to the State for crimes committed. There had, however, been one very instructive and very important advance in the last century in the direction of attaching a current or money value to health and loss of life, namely, the establishment of life assurance societies, the establishment of accident assurance societies, and above all, the establishment of sick assurance societies. In his belief it was in the development of sick assurance societies that much was to be hoped for in the way of lessening gratuitous medical services. Still, it was true that, up till the present time, health had no money equivalent. Disease was above any mere money considerations, as they in their practice frequently had to recognize. The healing of the sick was never a business. It was in early times attached to religious rites, and more or less sanctified as a divine calling. Hippocrates, St. Luke, Christ Himself were examples. The monasteries in the Middle Ages were the great centres of medical treatment; to each, or to most of them, were attached infirmaries. The great hospitals—St. Bartholomew's, St. Thomas's, Bethlehem—were priories in the twelfth and thirteenth centuries, and were only secularized at the time of the Reformation. The practical result was that any money equivalent for medical services had, from all time, been more or less of the nature of an offering—an offering to the Gods at one time, an offering to the servants of the Gods at another—and still offerings, honoraria, voluntary offerings rather than exacted payments. The same principle prevailed even in these very days of ours. Lister, who established a system of treatment which had saved many thousands of lives a year and many millions of hours' suffering a year, did that at his own cost. No one in the profession finding a remedy for disease patented it, or withheld its composition from his fellow practitioners and from the public. Every medical man, by training and by conviction, was a sanitarian. By education, by research, by writings, by lectures—mostly free lectures—he did his best to prevent that disease which is his livelihood. He ventured to say they would not have it otherwise. Could they harmonize this fact or idea with a more practical recognition of medical services? From the eighteenth century, about the middle of which most of the big hospitals were founded, up to within the memory of many of those present, the mortality of great hospitals was so large, their administration so comparatively harsh, that they acted as a deterrent to those who might possibly seek hospital aid. Their poverty and not their will alone sent people to the hospital. With a new order of things, which began with the Nightingale nursing after the Crimean war, still more with the nursing sisters who came to town near to the time of the Franco-German war, and afterwards, and still later when the antiseptic methods of treatment and more thorough hospital hygiene were adopted, the mortality of such institutions became so low, cases were so well treated, and so humanely and gently handled, that patients' wills and not their poverty tended to lead them into hospitals. Such was the case at the present time. Then, so costly and complex was the treatment of many diseases, especially surgical, that it was difficult for persons of small means, who were yet perhaps above the indigent poor, to get adequate treatment for serious illnesses except in some institution. This must be altered in some way if the heading No. 1 which he had read, "that inability to pay for adequate treatment shall be the consideration for the admission of all patients for hospital treatment," is not to include a class, and a considerable class, above the indigent poor. At the present moment the so-called indigent poor were relegated—and that he did not himself approve—to workhouse infirmaries. How was the difficulty to be met? If very costly operating theatres and appliances were really necessary he saw no help for it but some large conglomerate institutions for the reception of the lower, middle, and artisan classes. They must either establish big provident hospitals or allow the present state of things to go on. But it seemed to him that if the principles of aseptic and antiseptic methods were thoroughly grasped by those who left our hospitals, principles, as distinguished from what might be called the ornaments of antiseptic and aseptic medicine and surgery—which, although valuable and most desirable, were counsels of perfection in large institutions that could afford them—then both in medicine and surgery an immense number of cases now sent to hospitals might be treated quite as well at home. But there were certain requisites necessary in order to bring that about. First of all, it seemed to him that for the adequate treatment of the lower middle and artisan classes a considerable staff of visiting or district nurses was necessary to prepare the rooms for any minor or other operation which might be required, for any sick case which might come to hand, to nurse the patients in cases that required continuous skilled nursing, to direct the nursing by their friends of those cases which could be so dealt with. (2) No one who had any experience of hospitals or nursing homes could fail to realize the enormous cost of dressings and various other appliances of one sort or another, which were enough to swamp the means of people really poor and yet not indigent. Some dépôts, then, should be established where these things could be obtained on requisition by the doctor. (3) Similarly, there should be stores of some kind where drugs of the best quality could be obtained at a reasonable rate. These three essentials he thought could be secured only by co-operation; by some combination between the provident dispensaries and sick assurance societies, and he thought that was a point which might very well be thought out. It was obvious that enterprise and organization and education were necessary before the profession could say that patients in the class under consideration could be adequately treated at home. For the out-patient class, properly-organized surgeries or provident dispensaries, where advice and remedies could be obtained at adequate fees which should secure for every patient thoroughness and care in treatment, would have to be established. If

these centres were established, the out-patient departments would be much more restricted than they were, and these dispensaries might in some way be associated in a consultative manner with the physicians and surgeons of the great hospital institutions. But the public must also be educated to the necessity and the duty of contributing a fraction of their earnings during health for adequate medical treatment during sickness. There were many benefit societies at the present time and very few sick assurance societies properly so-called. The vice of benefit societies was that the doctor was altogether left out of the calculation, or, if he was taken in, it was as a servant of a club. This was enough to be fatal to the success of any such treatment, and it was not the best form of associating medical aid with sick assurance. He was aware that there were very great difficulties of detail under each of the headings which he had dealt with, but he thought that these difficulties were not insuperable, and that if a strong Committee of this strong Association were to take the matter in hand and thoroughly deliberate upon it some scheme might yet be evolved. Such a scheme would seem to him to constitute the first and most important step in that "concerted action" that was so desirable "to lessen the large amount of gratuitous medical attendance granted to many sections of the community."

Sir John Tweedy, taking this resolution as it was submitted, assumed that the question of free medical attendance came within the category of charitable relief. Now, charitable relief euphemized the relief of poverty. There was very little difference, it seemed to him, between almsgiving and giving medical relief. There was, however, some difference. And here he rather differed from Sir Douglas Powell. Health was an economic factor; it was worth something. Sickness tended to social inefficiency, and so far it was economic wastage. It was therefore desirable, in the interests of the community, that the sick person should be healed as quickly as possible, and restored to his place in the social and economic organization. There was the difference between ordinary poverty and sickness; ordinary poverty, in a rightly constituted mind, stimulated to activity, whereas sickness was by itself incapacitating, and led to poverty. Our duty, therefore, was to relieve the sick person as quickly as possible, and to administer our charities in such a way that they should be for the maximum good of the sufferer, and free as far as practicable from those evils which attended indiscriminate charitable relief. All who had had experience in the practical administration of ordinary charity knew the great risk there was in not only relieving the evils for which the charity was intended but of removing the impulse to self-exertion, to self-reliance, and independence, and fostering a spirit of pauperism, and very often a habit and practice of deception. Dealing merely with the practical ethical side of this question, he submitted that what was in the minds of most of them was that the hospital system as at present administered did tend to foster many of the evils which were found to attend indiscriminate almsgiving. (Hear, hear.) The hospital system as at present conducted did accomplish a great work, but it also did no small amount of harm, both to patients themselves and to the profession. In the community there was a large proportion of persons living just about the level of poverty, and in that class sickness, if not more prevalent, was more incapacitating than in any other stratum of society. It was this class that the voluntary hospital was intended primarily to relieve. The pauper was already provided for by the State, and the consideration of the pauper did not, he submitted, come within the category of patients to be treated at the voluntary hospitals. His own belief was that in the common acceptation of the term there was very little hospital abuse. There was, however, a great deal of hospital misuse, and that, it seemed to him, was the evil they should attempt to adjust. Large numbers of patients were admitted to the hospitals and to the out-patient departments of London for gratuitous relief who ought not to be so admitted, though how the arrangement was to be made for meeting the requirements of these patients without pauperising them he was not prepared at present to say. He thought it ought to be possible in connexion with the great medical charities of this country, and of London in particular, to arrange a scheme by which the poorer classes should have the advantage without payment, or at a small rate of payment, which their more affluent fellows had in private practice. That was, there must be some system, probably of consultation at hospitals under the guarantee of members of the medical profession, and under the guarantee of the practitioners who would take charge of those cases away from the hospitals. He was satisfied of the truth of these propositions: that gratuitous medical attendance was harmful to the patients in large sections of the community, especially because it tended to diminish thrift and self-respect of the public. It was also harmful to those who had to administer the medical relief to these hospitals. Few persons who had been attached to the out-patient department but knew the weary drudgery of seeing crowds of patients two or three times a week, and those duties must necessarily be performed in a more or less perfunctory manner, no matter how conscientious and painstaking a man might be himself. This routine work had an injurious effect on the physician or surgeon. And it had the further harmful effect that it checked the growth of knowledge. Where patients had to be seen hurriedly and in large numbers it was utterly impossible to cultivate anything like a spirit of accuracy or clearness of thought and careful action. The objects they should have in view were, first, to do what could be done to check the evils of indiscriminate medical relief, and to encourage all sections of the community above the pauper classes to make provision for ordinary illnesses such as come upon all households. He believed it would be a surprise to many persons to know how few householders in London could be said to have a medical man. They relied upon the casual friendly help of the druggist in minor illnesses, or they at once went off to a hospital for the more serious illnesses. These classes ought to be encouraged to make complete provision for their minor ailments, and to make partial provision for more serious and prolonged illnesses. That provision was to be made by some system of partial payments to the hospitals, to the staffs probably, and probably payments to the maintenance of the hospital, always under the guarantee of the medical practitioner who had charge of the case in the first instance. The other great object which he thought desirable in all these endeavours was to stop as far as possible the unfair and unequal competition of the out-patient system of the hospital with the neighbouring practitioner.

Dr. J. Kingston Fowler said he would limit himself to the out-patient question at hospitals. The question they had met to discuss was not novel. He could remember it twenty-five years ago, and after all that time it had scarcely made any progress at all. Indeed, he thought the position was worse now than it was twenty years ago; there were more out-patients in attendance at the hospitals. It had been said that one-third of the population of London were in receipt of gratuitous medical relief. At any rate they might take it that there was an enormous proportion or number of persons in London in receipt of gratuitous medical relief, and he was completely in accord with the terms of the resolution. If they were to consider why no progress had been made in this matter, the first reason which would be given was that those who managed the hospitals were in competition one with another for patients. They had to show, in order to attract the charitable, that they had relieved an enormous amount of suffering. The next reason was that on a number of occasions when he had been present, when some feeble attempt had been made to stem the tide of out-patients at a hospital, it had been stopped by the action of the medical staff on the plea that a large number of patients was necessary for the purposes of medical education. It was supposed at one time that that plea was valid, but he did not think it was now. The numbers had increased so enormously, that the greater proportion of ordinary medical cases were not used for purposes of instruction. Another reason was that an endeavour had always been made to solve this question by promoting joint action amongst the hospitals. Any one who had had much experience in endeavouring to secure co-operation and joint action amongst existing institutions would not be very hopeful as to what would come of any such action as that. Another reason was that the only solution that had ever been offered for this state of things was the establishment of provident dispensaries. He ventured to say it was perfectly useless to attempt to establish provident

dispensaries on a large scale in London so long as the out-patient door was as widely open as it was at present. An entirely new situation had been created in recent years. The King Edward's Hospital, the Hospital Sunday and the Hospital Saturday Funds were now becoming recipients of large legacies which the charitable left for the prevention of disease and for the relief of suffering in hospitals. That created bodies with the power of the purse, the only power that was going to produce any effect in this matter. He ventured to suggest that if that question were to move forward, the concerted action to be taken was to approach the joint committees of the three funds and ask them to exert upon the hospitals a little gentle and equable pressure. He thought it likely that in this way something would happen. Hospitals would never act without some external force being applied. Supposing that the pressure had been exerted, what should be done then? He thought that as the out-patient door was closed the door of the provident dispensary must be opened. In the course of time the hospitals would be in association with the provident dispensaries. The membership of such provident dispensaries would have to be very carefully guarded; that was where many of them had broken down. But there were some places, one place certainly, where the system was in general operation. There was in Northampton the Royal Victoria Dispensary, which included a large number of the very same kind of people who attended the out-patient departments of hospitals here. The Secretary had kindly sent him the report. In 1906 the paying members and their families numbered 7,086, that was to say, 7,086 so to speak, dispensary units. A unit might be an individual, it might be a mother of two children, it might be a father and mother of five children. So there was no means of knowing how many individuals that figure 7,086 represented, but it must certainly represent a very large number, because the total of attendances at the homes of the patients or at the homes of the medical men and at the dispensaries was 68,541. There were five medical officers attached to that dispensary. The amount received in fees by them was £1,882 17s. 4d. last year, and one of them received the very respectable sum of £978 16s. 4d. It was clear, if that statement was correct, that provided such a system were established in London a great deal of the abuse or misuse of hospitals would disappear. He would like very much to see the practitioners in the neighbourhood brought into relation with hospitals for purposes of consultation. But those consultations must be equal, it must not be all on the side of the medical officer of the hospital. The practitioner must supply the facts of the duration of the illness and of what had been done. It was suggested that the medical men in the neighbourhood of the hospital should receive a number of cards, which they were to use as they liked. If that were so, it would be only establishing in another form the out-patient letter system.

Mr. EDER said he found himself in opposition to a certain number of his medical friends on this question. He objected to the terms of the resolution "that concerted action should be taken because it tends to diminish the thrift and self-respect of the public." Resolutions of that kind should be left to such organizations as the Charity Organization Society, or to the Self-Defence League, or the White Rose League, or any of the other societies which remind us that the eighteenth and nineteenth centuries have preceded the twentieth. Besides, the statement was not true. Some years ago he met with a serious accident, and he was kindly and skilfully attended to by a medical gentleman to whom he paid no fee whatever. And his self-respect was not lowered in the least. With regard to the second reason given—that it "lessens the esteem in which medical science is held, and has a detrimental effect upon the position of many members of the medical profession"—he believed that was in absolute and direct contradiction to the facts. He was practising for some time in the East End of London, and there three grades of medical men are recognized—the club doctor, the private doctor, and the physician doctor. When the club doctor and the private doctor had done their best—or worst—with the patients, they were very anxious to go to hospital to see the physician doctor. No class of medical men in this respect were received with greater respect by people than the scientific pathologist, for example, or the medical officers of health, the medical officers of the Local Government Board, men, of course, who were not paid directly at all by their patients, but who seemed to do a great deal of good. As to detrimental effect upon the position of many members of the profession, he quite acknowledged that, and he was himself an unfortunate sufferer on that account. But it must be remembered that diseased patients did not exist in order to afford living for medical men. It must be remembered, on the other hand, that the whole *raison d'être* of the medical profession was to administer medicine and to ameliorate as far as possible human suffering, and improve the condition of the patient, the community, and the individual patients. The present system of private medical fees made it a parasitic class upon diseased persons and upon the diseased community. There was a conflict of interest between themselves and the diseased patients. It was all very well for the surgeon to call out every day "Give me this day my daily tumour." It was quite natural for him to do so. He had his house in Harley Street, his motor car, his shooting box, and his sports. But it was not the medical aspect, but the purely commercial one, with which they were concerned here at all. He recognized that the health of the people was an important thing, and he was, on that account, absolutely in favour of the gratuitous treatment of the patient in every way possible. He wanted to increase in every way possible the out-patient department; but that did not mean that medical men were not to be paid. On the contrary, he was opposed to every form of gratuitous treatment on behalf of medical men. He thought they should every one of them be paid—the staffs at hospitals and every one else. To put briefly what he proposed as practical remedies, they were, for the present moment: (1) The nationalization of the whole medical profession. If they did not like that term, let it be called the extension of the contract system. It existed very largely among the Government departments, the army, the navy, the Local Government Board, medical officers of health, and, to a certain extent, of course, in hospitals. What they wanted to do was to increase in every possible way the out-patient departments of hospitals, and increase them in such a way that they should be more fully staffed. A previous speaker mentioned the inadequate way in which the out-patients were attended: that was quite true, and it was owing to the enormous amount of routine work which had to be done there and the very inferior staff there was to do it. What they wanted to do was to see that the medical men who were attending hospitals should be paid. The next thing, of course, was to press upon the Government in every way possible for an extension of medical services directly under the State. That had been done to some extent recently by pressure upon the Government for the appointment of medical officers of education, and it would probably come up again in connexion with the Workmen's Compensation Bill.

Dr. WILLIAM HUNTER said the more one studied this question the more difficult it was to find a solution that would satisfy all requirements. There were four classes of people who were concerned: First, the public who were giving the money; secondly, the consulting staffs of the hospitals who called the tune, and at whose requirements these hospitals were so well equipped; thirdly, the doctors and the large number of patients who were treated in these hospitals free of charge, while many were well able to pay; fourthly, the patients themselves. He would deal with the last class first of all—the patients themselves. He thought every one of them felt as the President of the College of Physicians had pointed out, that there was an enormous waste of time in out-patient departments caused by sheer drudgery. But when one came to examine the numbers attending, it was not so easy to reduce this number of patients as was often taken for granted. He had often tried—all hospitals had tried, through their inquiry office system—but the number of people who came was certainly in many cases very largely in excess of the actual indigence that brought them. It was extremely difficult to draw the line, and one speaker had drawn attention to a very weak point in the resolution—namely, the condition laid down as to adequate attention. This "adequate treatment" was at the bottom of the whole of this question, so far as the public were concerned. These people had had experience of such a high degree of

medical and surgical skill as the result of recent advances in medicine, that they felt—and one had to admit that it was so—that they could not get that adequate treatment in their own homes. He thought that one great solution, both for this out-patient question and for the in-patient question, would be to have a series of homes established, at small cost, so that treatment at them came within the means of patients who wanted these operations done, where they could be attended by their own doctors. This was a real and crying want, and it could be done as a business concern if some one would only, as he knew some people had tried to do already, form such hospitals. The other point was how to deal with the out-patient department. Payment on the attendances had been adopted by two large hospitals in London, where a charge was made for a bottle of medicine. That was not a satisfactory solution of the question, because it put those patients under the impression that the hospitals were there simply for their convenience, and that they were paying for all the services which they might have received. The other solution was the payment by in-patients. That was a matter deserving of consideration. If some concerted action could be taken amongst the various hospitals to charge a small amount, not as payment for treatment but as a small contribution towards the funds of the hospital, it would not only be a satisfaction to the public themselves, but a great pecuniary asset to the hospitals. He had advocated it for this reason: that the scale of medical and surgical attendance and comfort now supplied to these hospital patients was far in excess of anything which was contemplated when the original hospital system was founded. In former times the public medical institutions were dispensaries, and in course of time beds were added; historically, most of the hospitals were dispensaries plus beds. They were now in a transition stage, rebuilding all these great institutions, and they had given them such a standard of comfort that they appealed to a class of patients much beyond those who were just above the indigent class. Speaking surgically, there was no person in the whole of London who would not be better treated in one of these London hospitals than in any private home he could get, so far as appliances are concerned. He felt that the proposal that concerted action should be taken to check the large amount of this relief was one which should be taken. But the public were concerned as well as the doctors, and he deprecated strongly the proposal that the choice of the class of patient to be admitted should be at the disposal of the medical man. There was a great body of funds supplied by the charitable public, and they might not appreciate the points of view which appealed so strongly to the medical profession. And there was a great class of medical men who were suffering severely from the excessive competition which these hospitals created.

Mr. Herbert Tanner (Chairman, Chelsea Division) wished to put before them facts which had come before him, and which had made a profound impression on his mind in one matter directly related to this resolution. He happened to be Chairman of one of the Divisions of the Association, and his executive, in casting round for some subject of debate, thought it desirable for a change that they should have some medico-political topic. And at once—and he thought this was suggestive—the executive put down, "The Abuse of Hospitals." That meeting was held, and he, as Chairman, had a good deal to do with it. Not only did he hear the tales of woe that were told, but he interviewed many men who were not able to speak, simply because time did not permit them. He was astounded at the evidence, which was obviously bona fide, and was of recent occurrence in these matters, in connexion with the abuse—and abuse he contended was the right word—of hospitals by people who had no claim whatever on charity in any form. They moved some such resolution as that before the meeting and it was carried unanimously. He had been for twenty years, up to just recently, a general practitioner, and he had already heard mutterings, but now there were growlings and sonorous growlings among general practitioners. It seemed to them and to most others that this matter of hospital abuse was the chief grievance. What added bitterness to their irritation was that his constituents in his Division felt that the staffs of hospitals—up till now, at any rate—with very few exceptions, had been apathetic in the matter; that those staffs knew these grievances did exist, and yet they had taken no active part, and no steps towards assisting practitioners to right a matter which they regarded as a very serious one. He thought the British Medical Association had now found its medico-political feet, and was therefore a power which ought to be dealt with. On the 6th of that month there was to be a conference which, in point of numbers, would be one of the most important ever held, and he thought one might hope that some good would come out of it.

Dr. Heron believed that hospital abuse in London had grown to enormous dimensions. He believed that the best remedy must be one which could be tested by the good that it had done. Some years ago he had an opportunity of inquiring into the work done by insurance societies there, and he was immensely impressed by it. These societies were working on three lines: insurance for sickness, insurance for accident, insurance for old age pensions, and also along with the old age pensions payment for patients who were chronic invalids, and therefore incapable of working. The funds of the insurance against sickness came two-thirds from the workers and one-third from the employers of labour. The funds for insurance against accident came from the employers of labour only. The funds which met the claims for old age pensions and chronic invalids came in equal parts from the workers and the employers of labour. Each one of these lines of insurance was worked on this principle: that these expenses, including everything, should never equal the income, and that the surplus should be added year by year to the capital fund. Thus there was an accumulating capital, which by and by reached enormous dimensions. The last statistics showed the gross capital of these three insurances for 1903, the last available year, £72,150,000 sterling, not marks. Their expenditure during that year, according to the official statement, was £23,550,000. He believed that in that direction, and in that direction only, lay the solution of the question. Under that scheme people were not pauperized, because they paid for what they got. Like all insurances, the capital fund must be kept going, but the people who paid for these insurances got an adequate return for the money they paid, and the employers got their return in the improved health of the people with whom they had to deal. He could remember these discussions as far back as 1868, and it seemed to him they were now precisely where they were then. He did not think this reform would be carried through unless they went to the Government about it. But, at all events, if a strong committee was formed and determined a course of action and carried it through, he believed some good would be done.

Dr. Keay said he was one of the rank and file of general practitioners practising amongst the working-class poor and middle class in an East End district, and therefore he claimed to know something of the subject. He had been waiting anxiously to hear what the hospital physicians and consultants had to say. With regard to the very able paper from Sir Douglas Powell, he could scarcely accept one statement in it, even from the historical point of view. Sir Douglas Powell said there was a limit to the workhouse infirmaries, and that they should not go to hospitals. But as a matter of fact they did go to hospitals. The Board of Guardians in his district sent a considerable number to the hospitals for special treatment. And he thought it might be as well if they were in Poor-law infirmaries, because they made them or their relations pay when they could. Some of them had received large sums in compensation who had been for months in hospital and yet had never paid a copper. But when they came into the Poor-law infirmary they had to pay for it. He was against what had been said about there being no abuse. Was there any man in London, doing an average practice, who did not every day in the year see a patient outside or inside his surgery who would tell him that he or she had been treated at this or that hospital? Yet he would have been perfectly well able to pay. Sir Douglas Powell thought they were better treated in hospitals. He (the speaker) was not sure. He lived amongst fourpenny and sixpenny members of the profession, and had seen their mode of treatment; and he had seen the treatment which the patients get at out-patient departments of hospitals, and he held that the fourpenny and sixpenny treatment was as good or even better than they would receive in out-patient departments, where

he had seen them hurried over sometimes at the rate of one a minute, or even more than one a minute. The matter was evidently coming to a crisis. The hospitals were in a dead fix for money, and here was the demand coming now to get them supported by the rates. No doubt every one of them believed the County Council could arrange the superintendence of the hospitals and everything else, and they may get them on the rates by and by. But where did the general practitioners come in? At that date they might be united in a demand that they should be put upon the rates. He was glad references had been made to Government work. He was afraid to mention the subject, but looking at the trend of history he thought that by and by they would have a Government system, and have free medical attendance on very much the same lines as they had free education at present.

Dr. C. O. Hawthorne said that, supposing that all contentions with regard to hospital abuse were granted, supposing it was true that not only numbers but considerable numbers, of individuals who were perfectly competent to pay a medical fee for advice and treatment at the time, went to hospitals, it was still possible to hold, as it had been held to night by Mr. Eder, that it was a good system, and it was possible to hold that it was a bad system. Therefore, when the question of hospital abuse was introduced, it immediately led to contradiction on the one hand and upon the other. And the whole subject very often—and he was afraid there was the danger of doing it even now—resolved itself into recriminations between those who were responsible for conducting out patient departments on the one hand, and general practitioners on the other. He hoped they would not allow themselves, however much they had enjoyed the speech to which they had just listened, to be withdrawn from the propositions put before them by the Executive Committee of the Marylebone Division. There was one proposition in that resolution which he submitted was true, whether abuse existed or not: that was that the practice which had so long prevailed of distributing gratuitous medical relief almost for the asking could not possibly be conducted without prejudicing the self-respect of the individual and reflecting a certain amount of damage upon the character of the nation. He hoped the medical profession would be somewhat careful in putting in the forefront anything which might be regarded as narrow commercial business interests, and would consider the whole subject from a larger point of view. If there was one thing on which all economists were agreed it surely was the prejudicial effect produced upon members of the community by supplying their wants gratuitously. When he saw on all hands the readiness with which individuals could obtain gratuitous medical relief and treatment, he was bound to come to the conclusion that it was a system which was inflicting upon the moral sense of the community of London very considerable damage. It was upon that ground that he thought the medical profession should take a strong stand with the view of producing a reform in the existing conditions. It was the duty of every citizen, and especially of every head of a household, to make reasonable provision for contingencies in the shape of sickness and accident. The present system of medical relief announced to the community that there was little need to take any such step, and as a result they were doing something which was tending to lessen the self-respect of and the independence of large numbers of individuals. It was necessary to put something in place of the existing system. It had been suggested that all that had to be done was to close promptly and ruthlessly every out-patient department in London. To take such a step as that would be to inflict a large amount of suffering and hardship upon large numbers of poor people, and would seriously prejudice the reputation of the medical profession and of the hospitals. The medical profession and the community had to reap the fruit of what they had been sowing for many years past It had been suggested, and he thought the suggestion a practical one, that it would be necessary to introduce some system of insurance and of co-operation. But in order to get it done pressure must be applied, and in his judgement Dr. Kingston Fowler had put his finger upon the spot on which that pressure could judiciously be applied. Let the hospitals be made to feel that the out-patient door was too widely open; let patients be made to feel, even through instruction at hospitals, that there were opportunities when, by a system of assurance co-operation, they could get proper advice and treatment, and they should begin to see some degree of improvement. At the present the out-patients were going on because there were no provident dispensaries, and provident dispensaries were not established because the out-patient department was in full blast. It was perfectly certain that the present system could undergo no substantial modification until, as Dr. Fowler had told them, adequate pressure was brought to bear upon the hospitals, because then there would be the opportunity for the development of a proper system of treatment outside hospitals.

Dr. Scanes Spicer said he was in sympathy with the remarks of the East End doctor who had spoken. He thought the medical profession was itself to blame chiefly for hospital abuse. The worst cases of hospital abuse which had come under his notice had come from letters from general practitioners. Then so much more had been said than was really fair about their noble profession and how glad they were to work for nothing. Thus the public had got to believe it. This had to be lived down. The point he wished to put was that these people really must have hospital and specialistic treatment. They must come to hospitals, and therefore he thought there should be a further specialization in the profession. He did not mean that in any narrow sense, although in special departments in hospitals a very great number of assistants were wanted. These men certainly ought to be paid. No doubt by the time a man had reached sufficient seniority to have the charge of a department, he would prefer to remain an honorary officer. He was absolutely free from personal feeling, because his time was nearly over, but he thought that in all the practical work of a special department two, four, even six assistants were wanted to do the routine work. What did they think of a dozen children being packed off from the Board school, on the diagnosis of tonsillar adenoids, to be operated upon at the hospital, with no mother or any relative with them? That happened to him lately. It made it impossible to have proper teaching. Yet it did not require the senior specialist to deal with such cases. General practitioners were perfectly capable—or, at all events, they would be if there were a kind of system into which they could fit in connexion with the hospitals. This might possibly be done through the provident dispensaries. Many practitioners in the neighbourhood of the different hospitals should come on the working department of the hospitals as paid officers. Whether this should be done through the provident dispensaries or through a further development of public health services he was not sure, but certainly something of the sort would be fair, both to the public and to the practitioner, for there was a certain amount of special supervision.

Mr. H. W. Armit (Wembley) said the suggestion which Dr. Heron had made had been in his mind for a very long time, that the only true solution of this problem was compulsory insurance as carried out in Germany. Referring to the conditions in contract medical practice at Hampstead, he said that in Finchley, with a population of 50,000 people, one-fifth of the whole number of people were attended by medical practitioners and in hospitals and elsewhere either at very low rates or gratuitously, although the district was not a poor one. In the whole Hampstead district of the British Medical Association there were over 50,000 people who were receiving gratuitous or partly gratuitous treatment in clubs and provident dispensaries, maternity societies, and small hospitals, quite apart from the large number of people—and he could assure them there must be at least 40,000 or 50,000, possibly more—who attended out-patient departments of the big hospitals outside that area. A large number of people went out of the area of Hampstead—and all who had had anything to do with a contract practice in Hampstead must know it—to seek medical relief in the out-patient departments of the hospitals, although perfectly well able to pay the fees charged by the medical practitioners in the places concerned. In the inquiry at present conducted by "a Contract Practice Subcommittee," of which he had the honour to be a member, many facts had been elicited, and from the opening of that inquiry his sympathies had been very much on the side of the general practitioner.

The President put the resolution, which was carried with one dissentient.

Hampstead Division.

Second Annual Dinner.

The second dinner of this Division was held on Tuesday, November 27th, at 7.30 p.m., in the Oak Rooms, Great Central Hotel, Dr. Macevoy in the chair. The official guests were as follows: Mr. J. S. Fletcher, M.P., Mr. C. Hendrick (Mayor of Hampstead), Dr. J. A. Macdonald (Chairman of the Representative Meeting), Dr. Radcliffe Crocker (Treasurer of the Association), and Mr. J. Smith Whitaker (Medical Secretary). A telegram was received from Mr. Elliston (General Secretary) regretting inability to be present. The dinner, though poorly attended, was a very successful one, and the presence of ladies added considerably to the pleasure of the evening. By the kindness of Dr. Macevoy a most enjoyable programme of music was provided by Miss Beatrice Yorke, Miss Rutland, and Mr. Arthur Walenn.

Toasts.—The toasts were brief. (1) "The King," proposed by the Chairman. (2) "The Royal Family," proposed by the Chairman. (3) "The British Medical Association and the Hampstead Division," proposed by Dr. Macevoy. Dr. J. A. Macdonald, in responding for the Association, referred to the great possibilities for extension of the social work of the Association. (4) "The Guests and the Ladies," proposed by Mr. H. W. Armit. The Mayor of Hampstead, in response, paid a graceful tribute to the work of the medical profession in general and of the Hampstead profession in particular. The meeting broke up shortly after. The dinner was organized by Drs. Humphreys and Yeld.

Contract Practice.

The interim report of the subcommittee on Contract Practice is as follows:

In presenting this preliminary report, your committee wishes to point out that complete details of the existing conditions of contract and gratuitous practice in the area of the Hampstead Division cannot be furnished, since only a certain number of members have acceded to the wish of the committee to supply data. Circulars were sent to all the medical men in the area, both members of the British Medical Association and non-members. At a later date, a further circular postcard was addressed to those who had not replied. In all, 435 medical practitioners were approached, of whom 187 are members and 248 non-members. Of these, 209 live in Hampstead, including Haverstock Hill and Finchley Road. In reply, 124 communications were received; 69 contained no information at all. The majority of those replying stated that the writer was not engaged in any form of contract or gratuitous practice. Eighty-two of the replies were filled out on the forms sent for the purpose, while 41 answered in letters.

The details collected deal with about 50,000 persons receiving medical attendance at contract rates.

In a few cases, the communications give views on the subject generally, and are written in such a way that the letters might be used in their original form. The other communications must be regarded as privileged and private, and only the broad indications can be inserted in a report.

The inquiry is divided up into (1) contract practice proper, including clubs and societies, (2) provident institutions, (3) hospitals, and (4) Poor-law appointments.

1. *Contract Practice.*

Details of seventy clubs, societies, etc., have been received, and although in many cases the number of patients is not or cannot be given, the total number mentioned is 7,319. One must, of course, realize that if the details had been fuller, this number would be vastly greater. In approximate figures the subscriptions to each club, etc., are as follows:

About 7,000 members pay either 4s. per annum or 1d. per week.

Variations:

	£	s.	d.
Per week for families	0	0	3
„ „ man and wife	0	0	1½
„ per member	0	0	2
„ „ „ over 50 years of age	0	0	2
Per year per member (police)	0	6	0
„ „ „ „	0	8	0
„ „ family	0	12	0
„ „ „	1	1	0

Apart from these, two medical missions exist, the one being in Kentish Town but receiving a proportion of cases from Hampstead; and the other, called the Bunhill Mission, is situated in the city, but is looked after by one Hampstead practitioner. These two missions cater for 3,685 and 4,774 patients respectively. The fee paid is 1d. per attendance.

In a few instances, it is claimed that the amount of work in connexion with these clubs is small, but the general tone of the replies is that the actual remuneration is much too low for the work done. At the outlying parts of our area, club work appears to be extensive and very inefficiently paid. In a subsequent report, your committee proposes to point out how the encouragement and support which many clubs and societies of this kind receive from private individuals and outside bodies tends to make the practitioner's task still more difficult.

2. *Provident Dispensaries.*

The number of patients attending these institutions in Hampstead, Haverstock Hill,[1] Finchley, Kilburn, etc., is 23,532. In a number of cases it was possible to calculate the rate of remuneration per attendance or visit. In Haverstock Hill, taking home visits and consultations at the institute without distinction, the amount would be 4¼d. per visit. In Finchley it works out at 6d. In the Kilburn Provident Medical Institute each illness has returned a practitioner an average of 3s. 4d., and this being translated works out at 1s. per visit and 6¼d. per consultation.

Some difficulty exists in determining the real number of members on the Finchley Dispensary. This is due to the fact that family cards are issued. The card may, therefore, apply to one or many individuals. The number officially given of 3,367 represents the card value, but one of our members, who is in a position to judge, estimates the real figure at something between 7,000 and 10,000. This number is derived from a population of between 26,000 and 29,000. This gentleman paid nearly 5,000 visits, and dispensed about 3,500 bottles of medicine for £118. If the medicines cost him on an average 3d., he would have received 3¼d. per visit.

In the Kilburn Provident Medical Institute the females and children predominate, the number being 808 males, 1,967 females, and 1,525 children. In the West Hampstead Branch of the Hampstead Provident Dispensary it is stated that it is possible to make from £50 to £100 per annum, provided that a large number of midwifery cases are taken, but not otherwise. The remuneration in itself is inadequate. Some shortcomings in the arrangements of this Branch are pointed out, but these will be dealt with in the fuller report.

The Kilburn, Maida Vale, and St. John's Wood Dispensary is a free institution, where an honorary staff of six medical men, together with one resident officer, who receives £129 18s. per annum, attended to 2,548 patients in 1905.

3. *Hospitals.*

The hospitals in this Division are the Hampstead Hospital, Mount Vernon Hospital, Passmore Edwards Cottage Hospital in Willesden, St. Monica's Home, St. Peter's Home, Wembley Copland Cottage Hospital, Potter's Bar Hospital and Dispensary, and a Roman Catholic Hospital in Grove End Road. To these may be added the North-Western Fever Hospital. Mount Vernon Hospital only takes in-patients in Hampstead, who number 1,396 per annum, but it has a large out-patients' department in Fitzroy Square. The number of in-patients in the Passmore Edwards Hospital in Willesden in the year is 268. In the Hampstead Hospital one can only speak of the past, since the removal to larger premises and the extension of both in-patients' and out-patients' departments will necessarily alter the numbers. The in-patients in the last available report was given at 422. The out-patients number 2,538, of which 1,944 are entered as new out-patients and casualties. The total attendances in this department is given at 7,659. The North-Western Fever Hospital deals with 179 patients from Hampstead.

The practice of the other hospitals mentioned only deals with very small numbers, and may be taken scarcely to affect the general practitioner not on the staff.

In the Kentish Town (North-Western) Hospital, 24,251

[1] The Haverstock Hill and Malden Road Dispensary deals with a very large number of Hampstead patients.

out-patients are seen to. Many of these patients are derived from Hampstead. Lastly, mention may be made that Friedenheim is a home for the dying, and that the medical officer receives £100 per annum for attending to the patients.

4. *Poor-law Appointments.*

Owing to the difficulty of obtaining any information from the Clerks to the Guardians, the details of these posts have not yet been elicited. In one case, the medical officer himself reported that he received £60 per annum and that his visiting list is very light. Another medical officer receives £90 per year. An exact return of work done by these two gentleman is not obtainable at present. The Hampstead Workhouse pays its medical officer £150 per annum. Further data will be collected and included in the fuller report.

Summary.

Members of Clubs	7,819
Members of Provident Institutes ...	23,532
Out-Patients at Hampstead Hospital	2,538
Total	33,889

To this may be added 5,000 in respect to the Medical Missions and one or two of the Homes, so that the total would be increased to nearly 39,000. But it must again be pointed out that the returns of the club patients is obviously much too low, and it may be accepted that the persons receiving cheap or gratuitous treatment number over 50,000. Nor may one forget that the seven large general hospitals, with their enormous out-patients' departments, including especially University College Hospital and St. Mary's Hospital, attract a large number of persons of all grades living in our area. Besides these there are about fifteen special hospitals which receive their quota of Hampstead patients.

Abuse is admitted on all sides in each of the branches dealt with, and the rate of remuneration even for poor people is considered to be too low. At present your committee does not propose to suggest any action for the remedy of the conditions, but when the work has been supplemented and the conditions more closely inquired into, it hopes to be able to make certain recommendations.

City Division.

A general meeting was held on Thursday, November 29th, at 4 p.m., at the Great Eastern Hotel, Liverpool Street, E.C. The Chairman of the Division, Dr. Major Greenwood, presided. He was warmly congratulated by those present on his recovery from a long and painful illness.

Confirmation of Minutes.—The minutes of the previous meeting, having been read and confirmed, were signed by the Chairman.

Apologies for Non-Attendance were received from Mr. J. Scott Sequeira and Dr. Southcombe.

Paper.—Dr. Arthur E. Giles read a paper on uterine fibroids after the menopause. The paper will probably be published at no distant date. This author gave a summarized account of 150 cases in which he had performed operations (mostly abdominal hysterectomy) for the relief or removal of fibroids, and dealt particularly with 29 of these in which the patient had reached or passed the average age of the menopause, that is, 48. He reviewed the symptoms which led the patients to seek medical advice and had necessitated a major operation. He concluded that the menopause had not the beneficial effect commonly attributed to it, and called attention to certain special complications and dangers to which fibroids were liable at this time.

Discussion.—A discussion followed in which Messrs. Withers Green, Herbert E. Powell, Cursham Corner, J. Beddow, and Drs. Ogier Ward, J. W. Hunt, and the Chairman took part. In replying to questions Dr. Giles stated that it was very difficult to ascertain in what proportion of women uterine fibroids occurred. In a large union infirmary with which he had been connected some years ago, it was, he thought, less than 1 in 20. If a fibroid was giving rise to no symptoms, it should be left alone; but observation should be kept upon it with a view of ascertaining as early as possible if it was undergoing any changes. If there was evidence of degeneration, an operation should be performed at once, even though the fibroid was not actually giving rise at the time to any trouble. It was quite unnecessary, and, indeed, unwise, to inform patients of the existence of a fibroid (perhaps quite accidentally discovered) which was not causing or about to cause any harm. There was no relation between fibroid tumours of the uterus and of the breast; their concurrence was altogether fortuitous. It had been remarked by one member that nearly all his cases had been treated by abdominal hysterectomy; the reason was that he believed that if a fibroid was small enough to be removed per vaginam, it was usually small enough to be left alone. He deprecated the removal of fibroids piecemeal per vaginam, because of the risks of haemorrhage and septic trouble. The proportion of cases of fibroids in which pregnancy also was present was small. An intramural fibroid might disappear after pregnancy by sharing in the uterine involution, but such an occurrence was very rare with any other kind. In the large majority of cases in which he had operated permanent benefit had resulted. It was uncommon for haemorrhage, due to a fibroid, to cease at the usual age of the menopause.

Vote of Thanks.—A hearty vote of thanks to Dr. Giles was proposed by Mr. H. E. Powell, seconded by Mr. Frederick Wallace, and carried with acclamation.

Bath and Bristol Branch.

The second ordinary meeting was held at Bath on November 28th. Dr. D. S. Davies, President, was in the chair.

Case.—Mr. W. M. Beaumont showed a patient suffering from bitemporal hemianopsia, also a patient suffering from Parry's (Graves's) disease.

Lantern Demonstration.—Dr. J. H. Munro gave a lantern demonstration illustrating vaccine therapy and the opsonic index, and it was discussed by the President and Dr. Stack. Dr. Michell Clarke read notes of a spinal cord case.

Discussion at February Meeting.—It was announced that the February meeting in Bath would be given up to a discussion, the subject of which would be stated later, to be opened by Professor Osler.

Glasgow and West of Scotland Branch:

Glasgow Central Division.

A meeting of this Division was held in the Faculty Hall, 242, St. Vincent Street, Glasgow, on November 26th, Professor R. Stockman presiding.

Confirmation of Minutes.—The minutes of the last meeting were adopted.

Proposed Anderston Dispensary.—The business was the consideration of a memorial protesting against the new proposed Anderston Medical Dispensary. The memorial was submitted by the medical practitioners resident in Anderston district. Further consideration was referred to the next meeting of the Division, the Secretary being instructed to communicate with the Secretary of the proposed Anderston Dispensary.

Rules for Division.—The consideration of rules for the Division was left to the Executive Committee.

Lancashire and Cheshire Branch:

Liverpool Western Division.

A meeting was held at the Liverpool Medical Institution on November 26th, Mr. F. C. Larkin in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Annual Representative Meeting.—Dr. Grossmann made a report of the proceedings of the Annual Representative Meeting held in London in July. It was resolved to defer the consideration of the proposed Royal Charter until the publication in its amended form appears in the Supplement before the January meeting of the Representatives.

Election of Central Council.—A circular letter was received from the Dublin Division for the consideration of this Division, submitting the following resolution:

> That the Dublin Division should resist in every way in their power the proposal that the Council should be elected at the Representative Meeting, as they believe, if not safeguarded, amongst those elected the London area will be largely over-represented, and in any case no Representative Meeting would be able to elect a member for an Irish

constituency better than those living in Ireland. Furthermore, that the constitution of the Council should be determined by ordinance and not by by-law,

and asking for the support of this Division.

The Division agreed with the Dublin Division that it is inexpedient that the Council should be elected by the Representative Meeting, and further, that it should be a principle embodied in the ordinances of the Charter that members of Council should have a territorial qualification.

Advertising Opticians.—The attention of the Division was drawn to some advertising opticians utilizing the title of being opticians to certain well recognized hospitals in their advertisements soliciting clients for sight-testing. It was resolved to draw the attention of the Central Ethical Committee to this matter and suggested that the hospitals mentioned should be communicated with by the Central Ethical Committee.

The Amalgamation of Local Divisions.—A discussion followed on the amalgamation of the local Divisions and it was resolved that the following resolution should be communicated to the other local Divisions:

Resolved: That the Liverpool Western Division considers that the subdividing of the district into many small Divisions has tended to produce a want of co-operation between the members of the profession in the various parts of the city and suburbs and is of opinion that the interests of the profession and of the Association would be better served by the Divisions uniting for the discussion of all matters at present dealt with in the ordinary Divisional meetings.

Hospital Abuse.—It was resolved at the suggestion of the Liverpool Northern Division to co-operate in the formation of a joint committee of the Liverpool and Birkenhead Divisions on the proposals of the Hospitals Committee *re* hospital abuse.

NORTH WALES BRANCH:

North Carnarvonshire and Anglesey Division.

A meeting of this Division was held at the British Hotel, Bangor, on Wednesday, December 5th, 1906, under the presidency of Dr. J. Lloyd Roberts, J.P., Colwyn Bay.

Confirmation of Minutes.—The minutes of the annual meeting were read and confirmed.

Installation of New Chairman.—The Chairman-Elect, Dr. G. R. Griffith, J.P., was then introduced to the meeting and took the chair.

Vote of Thanks to the Retiring Chairman.—A vote of thanks was passed to the retiring Chairman for his services during his year of office.

Annual Representative Meeting.—Dr. Emyr O. Price, Bangor, gave an account of the Representative Meeting.

Hospitals Committee.—The proposals of the Hospitals Committee of the Association were considered by the meeting, but any further action was deferred until the Conference on Hospital Management had met.

Election of Central Council.—A letter from the Dublin Division was read with reference to the proposal that the Council should be elected at the Representative Meeting. It was unanimously resolved:

That this Division, believing that the present method of election to the Council by the Branches is the best in the interest of the Association, supports the Dublin Division in its resistance, and agrees to take combined action with the Dublin and other Divisions in this matter.

Proposed Royal Charter.—It was further resolved that, while approving generally of the Charter, the Division gives free discretion to its Representative to resist the introduction into the Charter of any proposals prejudicial to the interests of provincial or small Divisions.

Proposed Sanatorium in Anglesey.—A letter from Miss Davies, Treborth, was read, in which she requested the assistance and co-operation of the Division in the establishment, by herself, of a small sanatorium in Anglesey for the treatment of a few poor consumptive women. It was unanimously resolved:

That the Division thanks Miss Davies for her letter, appreciates her praiseworthy action, and is prepared to assist her in any way.

A small committee was named to confer with and to assist Miss Davies, if she so desire.

Fees for Examination of School Teachers.—Dr. Kendall, of Holyhead, read some correspondence with the Anglesey Education Committee with reference to payments for examination for pupil teachers as to their suitability for entering upon the teaching profession. The Division unanimously approved of Dr. Kendall's action and notice was given that at the next meeting a proposal would be made as to the minimum fee to be received for such an examination.

SOUTH-EASTERN BRANCH:

Chichester and Worthing Division.

A meeting was held at the Infirmary, Worthing, on Tuesday, November 13th: Mr. W. S. Simpson presided.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Next Meeting.—It was decided to hold the next meeting at Midhurst.

Annual Representative Meeting.—The report of the Divisional Representative was received.

Hospital Reform.—The proposals of the Hospitals Committee on Hospital Reform were approved of.

General Medical Council Election.—A resolution was passed approving of the candidatures of Drs. Langley Browne, H. A. Latimer, and L. S. McManus for the General Medical Council election.

Papers, etc.—Dr. William Hill, Aural Surgeon to St. Mary's Hospital, gave a practical demonstration of the field of usefulness of the chief types of mechanical aids to hearing.—Dr. Frank Hinds read a paper on congenital pyloric obstruction, with the notes of a case.

After the meeting, twelve members dined together at Warne's Hotel.

SOUTH WALES AND MONMOUTHSHIRE BRANCH:

Monmouthshire Division.

The quarterly meeting of the Division was held at the Newport and Monmouthshire Hospital on Friday, November 30th, after the conclusion of the special meeting. Dr. S. Butler Mason in the chair.

Confirmation of Minutes.—The minutes of the special meeting of September 27th were read and confirmed.

Election of Central Council.—A letter was read from the Dublin Division enclosing the following resolution, and asking the Division to support it:

That the Dublin Division should resist in every way in their power the proposal that the Council should be elected at the Representative Meeting, as they believe, if not safeguarded amongst those elected, the London area will be largely over-represented, and in any case no representative meeting would be able to elect a member for an Irish constituency better than those living in Ireland. Furthermore, that the constitution of the Council should be determined by ordinance and not by by-law.

It was proposed by Dr. Marsh, seconded by Dr. Paton:

That the resolution of the Dublin Division be supported.

An amendment was proposed by Dr. Mulligan, seconded by Dr. Hamilton:

That the proposal that half the Council be elected by the Representative Meeting be supported.

On a division the amendment was carried, and it was subsequently adopted as a substantive motion.

Contract Medical Practice.—Reports as to the progress of the disputes in Ebbw Vale, Abertysswg, Bargoed, and Blaenavon were submitted.

Cases.—Dr. Hamilton read notes on a case of peripheral neuritis following poisoning by a weed killer. Dr. G. A. Brown reported a case of poisoning from a similar cause which was rapidly fatal. Mr. R. J. Coulter showed cases of alternating squint in some of which restoration of perfect binocular vision had been obtained, and specimens of eyes removed for injury, mounted in Dr. Priestley Smith's new formalin method.

Photographs and Specimens.—Mr. R. J. Coulter and Mr. Greer showed photomicrographs of glioma retinae. Mr. Greer showed photographs of a brain from a case of cerebral abscess and photomicrographs and sections of brain, medulla, and spinal cord showing degeneration of the ganglion cells and myelin sheaths in the same case. Dr. Paton showed a prostate removed by suprapubic cystotomy.

YORKSHIRE BRANCH:

Bradford Division.

A meeting of this Division was held at the Midland Hotel, Bradford, on Friday, November 23rd, at 7 p.m. Mr. J. Basil Hall, Chairman of the Division, presided.

Medical Journals.—Dr. Dawson Williams, Editor of the British Medical Journal, gave an address on Medical Journals, in the course of which he sketched the early history of medical journals in Great Britain, and gave some account of the origin and present position of the British Medical Journal. He also referred to the difficulties created for writers on medical topics by the very large number of medical periodicals now in existence. Excluding the transactions and proceedings of societies, four hundred was a conservative estimate of the number of medical periodical publications in Europe alone, and though some consisted wholly or chiefly of abstracts, and others were often of little value, it was never safe for a writer to assume that the papers in a little-known journal of limited circulation might be disregarded in compiling a bibliography. At the conclusion of the address a vote of thanks to Dr. Williams was proposed by Dr. Mossop, seconded by Mr. Horrocks, and adopted unanimously.

Dinner.—At 8 o'clock a dinner took place, at which Dr. Dawson Williams was the guest of the evening. Mr. Basil Hall presided, and he was supported by the Mayor of Bradford (Alderman Godwin), Sir George Scott Robertson, K.C.S.I., M.P., and a large gathering of the medical profession of Bradford and the surrounding towns. The following was the toast list: "The King," proposed by the Chairman; "The Editor of the British Medical Journal," proposed by the Chairman and responded to by Dr. Dawson Williams; "The City of Bradford," proposed by Dr. Campbell and responded to by the Mayor of Bradford; "The Bradford Division of the British Medical Association," proposed by Sir George Scott Robertson, K.C.S.I., M.P., and responded to by the Honorary Secretaries, Dr. J. Metcalfe and Dr. A. Little; "The Chairman," proposed by Dr. Bronner and responded to by Mr. Basil Hall.

CAPE OF GOOD HOPE (EASTERN PROVINCE) BRANCH:

East London Division.

The first annual meeting of this Division was held on November 9th. Dr. Paley was in the chair. There were no country members present.

Contract Rates.—The subject of contract rates took up most of the time of the meeting. No decision was come to, but it seemed to be the opinion of members that higher terms should be insisted on. The matter was referred to a special meeting.

Demonstrations.—Dr. Hill Aitken, as requested, showed models of the eye, the ear, and the throat for the study of diseases of these organs. He also demonstrated Davidson's (London) "direct ophthalmic illuminator," an instrument by means of which the fundus can be seen by those not versed in the use of the ophthalmoscope.

Annual Report.

The following is the text of the report of the Honorary Secretary, Dr. Charles J. Hill Aitken. The report was taken as read, and approved of.

Although approval of our rules had not been received from London, it was suggested that a dinner should be held in January to inaugurate the East London Division. A dinner, confined to members of the Association, was held in the Continental Restaurant on January 12th. As it was a success, it was agreed to make the dinner an annual event.

Our Division rules having been approved of, and notice sent to that effect from London, the first meeting was held on May 11th. Office-bearers were elected to carry on the work of the Division until the annual election in November. Dr. Paley was the Chairman elected.

Meetings also were held on June 14th, July 13th, and September 14th.

Business transacted to Date.—Permission was granted to us to hold our meetings in the Frere Hospital. The Hospital Board was thanked for this kindness.

The subject of medical fees was discussed, and an arrangement come to in reference to minimum charges.

The usefulness of having the Division was shown by our united action getting concessions from the Town Council in reference to sick certificates and from the Chemists' Association in reference to Sunday hours.

A subscription was started to repay Dr. Mast of Umzimkulu for his expenses in prosecuting a chemist who was acting as a medical man, so showing that while anxious to benefit ourselves in East London we wished to hold out the hand of fellowship to men doing good work in the outlying districts. We took our part in the greater spheres of activity by voting for the Charter for the British Medical Association, by agreeing to the proposal that the British Medical Association be asked to come out to South Africa to hold an annual meeting, and by being represented at the Bloemfontein Medical Congress by Dr. Roulston who was asked to voice their sentiment about the proposed South African Medical Association.

Financial.—We received £2 from the Branch funds. This amount was sent us with the approval of the Branch Council. We received also 3s. out of every capitation grant from subscriptions paid in in 1906. The amount came to £5 7s. I spent £5 18s. 6d., as is shown in my balance-sheet, and we have in hand £1 7s. 6d.

Duty on Imported Pills.—The following resolutions were passed:

That the Honorary Secretary be requested to communicate to the Honourable the Treasurer-General the decision of the Controller of Customs, that pills imported by medical men (holding the licence to dispense medicine) are liable to the 20s. duty under item 31 of the new tariff, on the ground that dispensing or selling a dozen pills (more or less) does not constitute "a direct sale retail to the public."

To point out that the effect of this decision is to boycott the importation of all pills made according to the formulae of the *British Pharmacopoeia* or the other well-known recipes which medical men have long been accustomed to prescribe or dispense, and that this differentiation in favour of quack pills (which, it appears, come in free of this 20s. duty) is not only a great injustice to medical men but an injury to the general public; and pray the Honourable the Treasurer-General to give the matter consideration and relieve medical men of their present disabilities.

Election of Office-bearers.—Owing to some misreading of the rules it was found not possible to elect office-bearers. It was arranged that the elections would take place in time for the Branch Annual Meeting in January.

GIBRALTAR BRANCH.

A meeting of this Branch was held in the Board Room of the Colonial Hospital on Friday, November 2nd, at 5 p.m., Colonel J. McNamara, P.M.O., in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Cases.—Lieutenant R. G. Anderson, R.A.M.C., showed a case of fracture of the olecranon by direct muscular contraction.—Dr. L. D. Parsons showed a case of Addison's disease.

Paper.—Fleet Surgeon C. Beadnell, R.N., read a paper on the mechanism of the production of projectile injuries. The paper was profusely illustrated by excellent photographs, and was much appreciated by the many members present.

SYDNEY AND NEW SOUTH WALES BRANCH.

The regular monthly meeting of the Branch was held at the Royal Society's Room, Sydney, on Friday, October 26th; Dr. Pockley, President, in the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

New Member.—The President announced the election of Dr. Carlo Fiaschi (Sydney).

Cases.—Dr. Littlejohn exhibited a patient of a case of the facial type of Erb's juvenile form of progressive muscular atrophy.—Dr. Fiaschi exhibited a patient upon whom he had operated—reintegration of the absent middle third of the tibia in a child.

Specimens.—Dr. W. J. Munro exhibited a section of an inguinal gland containing *Spirochaeta pallida.*—Dr. Palmer exhibited an anatomical specimen.

Papers.—Dr. Littlejohn read a paper on progressive muscular atrophy. Dr. Scott Skirving made remarks, and Dr. Littlejohn replied.—Dr. W. T. Chenhall read a paper on spasmodic dysmenorrhoea. Drs. Barrington and Cragg discussed the paper, and Dr. Chenhall replied.—Dr. Fiaschi read a paper on reintegration of the absent middle third of the tibia in a child. Dr. Binney made remarks, and Dr. Fiaschi replied.

A Matter of Privilege.—The President stated that earlier in the evening Dr. Dick had stated that he desired

to move a resolution as a matter of privilege, but had postponed it until the end of the meeting, so that the business of the meeting would not be interfered with.—Dr. TODD raised a point of order as to whether Dr. Dick could bring forward any business which was not on the business paper.—The PRESIDENT stated that with the consent of the meeting Dr. Dick could proceed.—The question was then put to the meeting, and, Dr. TODD dissenting, the PRESIDENT declared that Dr. Dick could not proceed.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

MEMBERS are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

GLASGOW AND WEST OF SCOTLAND BRANCH.—At the requisition of the Glasgow (Central) Division a special meeting of the Branch will be held in the Faculty Hall, 242, St. Vincent Street, Glasgow, on the afternoon of Thursday, December 20th, at 4 o'clock. Business: Consideration of the proposed Anderston and District Health Association, with special reference to the medical dispensary in connexion therewith.—JAMES HAMILTON and J. GRANT ANDREW, Honorary Secretaries.

LANCASHIRE AND CHESHIRE BRANCH: LEIGH DIVISION.—The monthly meeting of this Division will be held on Thursday, December 20th, in the Co-operative Offices, Ellesmere Street, Leigh, at 8.30 p.m. Agenda: (1) Minutes. (2) Matters referred to Divisions appearing in the SUPPLEMENT of December 8th. (3) Paper by Dr. J. Jones on the Function in Labour of the Cervical Spine of the Fetus. (4) Any other business.—MICHAEL J. HALTON, Honorary Secretary, Leigh.

LANCASHIRE AND CHESHIRE BRANCH: MANCHESTER (SOUTH) DIVISION.—A meeting of the members of this Division will be held at Dr. Vipont Brown's, 2, Birch Lane, Longsight, at 3.30 p.m. on Tuesday, December 18th. Agenda: Minutes. (1) Dr. J. Milson Rhodes's recommendations *re* matters referred by the Poor-law Committee to the Divisions for the use of the Royal Commission on the Poor Law (see SUPPLEMENT, December 8th, p. 307). (2) Dr. Jordan's Report on Medical Benevolent Institutions (see full report and Dr. Jordan's recommendations, SUPPLEMENT, December 1st, p. 293). Adjourned discussion to be opened by Dr. Collins. (3) The reform of the income tax, from the professional standpoint. Tea will be provided during the meeting.—MILSON R. RHODES, Honorary Secretary, Didsbury, Manchester.

METROPOLITAN COUNTIES BRANCH: HAMPSTEAD DIVISION.—The next meeting of this Division will be held on Friday, December 14th, at 5 p.m., at St. Peter's Hall, Belsize Square, N.W. Agenda: (1) Minutes. (2) Correspondence (letter from the Dublin Division). (3) Questions. (4) Report of the annual dinner. (5) The Premises Fund. (6) Finance of the Division. (7) Discussion on the Relation between the Medical Practitioner and the Chemist, including the questions of (*a*) Dispensing by medical men and (*b*) Prescribing of proprietary articles in medical practice.—R. A. YELD, Honorary Secretary, Hampstead, N.W.

SOUTH-EASTERN BRANCH: DOVER DIVISION.—The quarterly meeting of this Division will be held at the Grand Hotel, Dover, on Tuesday, December 18th, at 8.30 p.m. Agenda: (1) Reading of minutes. (2) Dr. Bucknall, M.S.Lond., has kindly promised to read a paper on Appendicitis. (3) East Kent Hospitals: election of representative to attend a Conference of the members of the staffs. (4) Other business, if any. The Executive Committee extends a cordial invitation to members of the Association outside the Divisional area to be present. Tea and coffee will be provided.—F. A. OSBORN, Honorary Secretary, Ennismore House, Dover.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH: WORCESTER DIVISION.—A meeting will be held at the Worcester Infirmary on Wednesday, December 19th, at 3 p.m. Business: (1) To adopt Ethical Rules for the Division. (2) The question of fee for school certificates. (3) Letter from Medical Secretary as to proposed formation of a Kidderminster Division. (4) Letter from Dublin Division *re* the election of members of the Central Council. (5) Collection of evidence for submission to the Royal Commission on the Poor Law (see SUPPLEMENT, December 8th, 1906, p. 307). N.B.—Poor-law medical officers are requested to attend. (6) To elect Secretary for the Division.—GEO. W. CROWE, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION LIBRARY.

List of Books, etc., Presented.

Presented by the AUTHORS:
- Buchanan, A. Manual of Anatomy. Vol. 1. 1906.
- Carson, T. G. Man's Responsibility. 1906.
- Marshall, C. F. Translations of
  - Fournier: Treatment and Prophylaxis of Syphilis. 1906.
  - Sabouraud: Regional and Topographical Dermatology. 1906.
- Ricketts, B. M. Surgery of the Heart and Lungs. 1904.
- Woods, Hugh. Ether: a Theory of its Nature. 1906.

Presented by A. MACKEITH, Esq., M.B., Southampton:
- BRITISH MEDICAL JOURNAL. 1889-90.
- Dowse. Neuralgia. 1880.
- Garmany. Operative Surgery on the Cadaver. 1887.
- Green. Pathology. 1884.
- Pilcher. Diseases of the Ear. 1838.

Presented by the MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD:

Special Reports by:
- Drs. Blaxall and Fremlin. On Glycerinated Calf Lymph. 1906.
- Drs. Bulstrode and Farrar. On a Reinspection of the Durham Rural District. 1906.
- Dr. Farrar. On the Sanitary Circumstances of the Valley Rural District, Anglesey. 1906.
- Mr. Hancock. Sanitary Circumstances at Haverfordwest. 1906.
- Dr. Mair. Sanitary Circumstances of Pocklington. 1906.

Presented by the MEDICO-POLITICAL COMMITTEE:
- Bottger, H. Die reichsgesetzlichen Bestimmungen über den Verkehr mit Arzneimitteln. 1902.
- Karlsruhe. Gegen die Kurpfuscherei und den Heilmittelschwindel. 1905.
- Melichar, L. Arzneizubereitungen und pharmazeutische Spezialitaten. 1906.
- Preussische, Die. Apothekenbetriebsorduung. 1905.
- Scriba's Tabelle zu den Vorschriften betreffend die Abgabe Starkwirkender Arzneimittell. 1904.
- Urban, E. Die gesetzlichen Bestimmungen über die Ankundigung von Geheimmitteln. 1904.
- Sérieux, P. L'Assistance des Aliénés en France, en Allemagne, en Italie, et en Suisse. 1903.

Presented by the NEW SYDENHAM SOCIETY:
- Selected Essays on Syphilis and Small-pox. 1906.

Presented by Dr. J. FRANK PAYNE, London:
- Bennett, Sir William. The Ethics of Operations in Surgery. 1905.
- Charterius. R. Hippocratis et Galeni Opera. Thirteen volumes in nine. Lutetiae Parisiorum. 1679.
- Cheyne, W. The Objects and Limits of Operations for Cancer. 1896.
- Hardy. Lecons sur les Maladies de la Peau. 1860.
- Linacre Reports. Vol. 1. 1894.
- Monro, A. Three Treatises on the Brain, the Eye, the Ear. 1797.
- Morison. Historia Plantarum. 1680.
- Skoda. Abhandlung über Perkussion und Auskultation. 1864.

Presented by JOHN POLAND, Esq., F.R.C.S.:
- Hunterian Society. Transactions. 1894-5. 1902-5. To complete.

Presented by A. SKIPTON, Esq., L.R.C.P.Ed., Barrow-on-Soar:
- Missing parts of BRITISH MEDICAL JOURNAL, to complete.

Presented by E. T. WILSON, Esq., M.B., F.R.C.P., Cheltenham:
- Cheselden. Anatomy of the Human Body. 1740.
- Highmore, N. Corporis Humani Disquisitio Anatomica. 1651.
- Journal de l'Anatomie. Parts 1864-5.
- Journal de Physiologie. 1858-1863.
- Rankin. Half-yearly Abstract of the Medical Sciences. 1845-1870.

Presented by the EDITOR of the BRITISH MEDICAL JOURNAL:
- Bayou, G. E. Eziologia Diagnosi e Terapia del Cretinismo. 1904.
- Brouardel-Mosny. Traité d'Hygiène. X. Hygiène Navale. 1906.
- Burke, J. B. The Origin of Life. 1906.
- Chance-Poland. The Nature, Causes, Variety and Treatment of Bodily Deformities. 1905.
- Chassevant, A. Précis de Chimie Physiologique. 1905.
- Daniels, C. W. Observations on Beri-beri. 1906.
- Elder, A. V. The Ship Surgeon's Handbook. 1906.

Elkington, H. P. G. Notes on Military Sanitation.
Elliott, M. and G. The Public Health Acts, etc. 1906.
Golesceano, C. Les Aveugles a travers les Ages. 1902.
Hale, H. E. Anatomy (Med. Epit. Series). 1903.
Halliburton, W. D. Biochemistry of Muscle and Nerve. 1904.
Hecker-Trumpp. Atlas "Grundriss der Kinderheilkunde." 1905.
Helferich. Frakturen und Luxationen. 7 Aufl. 1906.
Hume, G. H. The History of the Newcastle Infirmary. 1906.
Ishigami and Macdonald. A Textbook on Plague. 1905.
Leathes, J. B. Problems on Animal Metabolism. 1906.
Lewin und Brenning. Die Fruchtabtreibung durch Gifte und Andere Mittel. 1899.
McCabe, F. F. War with Disease. 1906.
Mukerji. Nutrition and Dysentery. 1905.
Sandwith. The Medical Diseases of Egypt. I. 1905.
Sayers, A. Experiments with Hot Water Systems. 1906.
Scientific Memoirs by Officers of the Medical and Sanitary Staffs of the Government of India. No. 22. 1906.
Thomas. J. Ventilation, Heating, and Lighting of Dwellings. 1906.
Thompson, J. Ashburton. The Aetiology of Plague. 1900-4.
Tucker, E. F. G. The Management of a Plague Epidemic. 1906.
Waterston, D. Edinburgh Stereoscopic Atlas of Anatomy, Sections 4 and 5. 1906.
Wharton. Minor Surgery and Bandaging. 6th Ed. 1905.

Calendars, Reports, and Transactions have been received from the following bodies:

American Pediatric Society. Transactions. Vol. 17. 1906.
Anderson's College Medical School Calendar. 1906-7.
Archives of the Middlesex Hospital. Vol. vii. 1906.
Association of American Physicians. Trans. v. 20. 1905.
Belfast. Queen's College Calendar. 1906-7.
Bristol University Calendar. 1906-7.
Calcutta University Calendar. 1906-7.
Charing Cross Hospital Medical School Calendar. 1906-7.
Chief Inspector of Factories. Report. 1905.
Commissioners in Lunacy. Sixtieth Report. 1906.
Connecticut State Board of Health Report. 1905.
Deutschen Schutzgebiete Med. Berichte. 1903-4.
Dublin University Calendar. 1906-7.
Dundee University Calendar. 1906-7.
Durham University Medical School Calendar. 1906-7.
Epidemiological Society. Transactions. Vol. 24. 1904-5.
Glasgow Medico-Chirurgical Society. Transactions. Vol. 5. 1903-5.
Guy's Hospital Medical School. Prospectus. 1906-7.
Imperial Cancer Research Fund. Fourth Report. 1906.
Leeds University Calendar. 1906-7.
Liverpool University Calendar. 1906-7.
Louping Ill and Braxy, Report of Departmental Committee. 1896-1906.
Medical Officer to the Local Government Board. Thirty-fourth Report. 1904-5.
Metropolitan Asylums Board Report. 1905.
Michigan State Board of Health Report. 1904-5.
Presbyterian Hospital, New York. Medical and Surgical Report. Vol. 7. 1906.
Registrar-General of Births, Deaths, and Marriages. Supplement to forty-fifth Report. 1871-1880, to complete.
Rockefeller Institute Medical Reprints. Vol. 5. 1906.
Royal Academy of Medicine in Ireland. Transactions. Vol. 24. 1906.
Royal London Ophthalmic Hospital. Prospectus. 1906-7.
Royal Medical and Chirurgical Society. Transactions. Vol. 89. 1906.
St. Andrews University Calendar. 1906-7.
St. Bartholomew's Hospital Medical School Calendar. 1906-7.
St. George's Hospital Medical School Calendar. 1906-7.
St. Mary's Hospital Medical School. Prospectus. 1906-7.
Westminster Hospital Medical School. Prospectus. 1906-7.

Books Needed to Complete Series:

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

American Climatological Transactions. Vols. 1, 4, 5, 6.
———— Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
American Journal of the Medical Sciences. New series, vols. 4, 5, 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 33, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
———— Journal of Ophthalmology. Vols. 1-9.
———— Laryngological Association. Transactions. Vols. 1-6, 8-9.
———— Medical Association. Transactions, 1-28, 30, 31.
———— Otological Society. Transactions. Vol. 3, part 2, 1883.
———— Public Health Association. Transactions. Any vols.
Analyst. Vols. 1-24.
Sei-i-Kwai Medical Journal. Vols. 1-11.
Semaine Médicale. Prior to 1890, and title and index to year 1892.
South African Medical Journal. February, April, 1895. And titles for vols. 3 and 4.
Revue Générale d'Ophtalmologie. Prior to 1888, and 1891-2.

CENTRAL MIDWIVES BOARD.

A meeting of the Central Midwives Board was held on November 29th, at Caxton House, Westminster, with Dr. F. H. Champneys in the chair.

Rules for Inspectors of Midwives.

The adjourned discussion on the rules for inspectors of midwives was resumed, and it was finally decided that local supervising authorities which have appointed inspectors of midwives be requested to furnish the Board with copies of the rules drawn up for the inspectors' guidance, and that where no rules have been compiled the local supervising authority be asked whether such rules, if drawn up by the Central Midwives Board, would be acceptable.

Rules of the Board in Welsh.

A letter was considered from the Clerk of the Denbighshire County Council, forwarding copy of a resolution passed by the local supervising authority for the county, urging the Board to issue a Welsh translation of the rules and forms. The Board directed that the Denbighshire County Council be informed that the Board has no objection to the County Council making its own translation of the rules and forms for the information of midwives who are unable to understand English.

Payment of Doctors' Fees.

A letter was considered from a certified midwife as to the payment of a doctor's fees when called in on an emergency. The Board decided that the writer be informed that the Board regretted that it had no power to assist her.

Midwives and Cases of Puerperal Fever.

A letter was considered from Dr. Sergeant, County Medical Officer for Lancashire, as to cases of puerperal fever occurring in women attended in confinement by midwives. The Board directed that Dr. Sergeant be informed that where proof can be given of failure to carry out the rules referring to notification of illness, the local supervising authority can take action by reporting the midwife to the Board under Section 8 (2) of the Midwives Act, 1902.

Keeping of the Register of Cases.

A letter was considered from Dr. Middleton Martin, County Medical Officer for Gloucestershire, as to the keeping of the register of cases prescribed by Rule E 19 (*a*). The Board directed that Dr. Middleton Martin be informed that the Board is unable to dispense with the keeping of the register of cases as prescribed by Rule E 19 (*a*).

Uncertified Midwives.

A letter was considered from Dr. Armstrong, Medical Officer of Health Newcastle-upon-Tyne, as to teaching and supervision of uncertified midwives. The Board directed that Dr. Armstrong be informed that the Board, while approving of the suggestions for instructing and supervising uncertified women practising as midwives, and for securing notification by them of all births occurring in their practice, has no jurisdiction to deal with this class of woman.

Medical Treatment by a Midwife.

A letter was considered from a registered medical practitioner complaining of medical treatment by a certified midwife. The Board directed that the writer be referred to Section 8 (2) of the Midwives Act, and to the local supervising authority.

Use of the Term "Suspension."

A letter was considered from the Marchioness of Winchester, Vice-President, Hants County Nursing Association, as to the use of the term "suspension." The Board decided that the terms "suspend" and "suspension" having definite technical meanings laid down by the Midwives Act and the Rules, the Board is unable to deal with the matter.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,063 births and 4,779 deaths were registered during the week ending Saturday last, December 8th. The annual rate of mortality in these towns, which had been 15·4, 16·3, and 15·8 per 1,000 in the three preceding weeks, was again 15·8 per 1,000 last week. The rates in the several towns ranged from 7·2 in King's Norton, 7·7 in Walsall, 9·2 in Reading, 9·3 in Southampton, 9·4 in Ipswich, 9·6 in Hornsey, and 9·9 in Burton-on-Trent to 21·1 in Oldham, 21·6 in Sunderland, 21·7 in Norwich, 22·0 in South Shields, 22·1 in Bootle, 24·4 in Wigan, 25·6 in Rotherham, and 28·1 in Newport (Mon). In London the rate of mortality was 16·4 per 1,000, while it averaged 15·5 per 1,000 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1·3 per 1,000 in the seventy-six towns: in London this death-rate was equal to 1·0 per 1,000, while among the seventy-five other large towns the rates ranged upwards to 3·0 in West Bromwich and in Hull, 3·1 in Hanley, 4·3 in Rotherham, 4·5 in Warrington, 4·7 in Bootle, 5·6 in South Shields, and 6·3 in Oldham. Measles caused a death-rate of 1·3 in Preston, 1·6 in Hull, 2·1 in Newport (Mon.), 2·4 in Smethwick, 2·6 in Rotherham, 3·8 in Warrington, 4·0 in Bootle, 4·4 in Oldham, and 5·1 in South Shields; diphtheria of 1·0 in Croydon and in Sunderland, and 1·3 in Southampton and in Reading; whooping-cough of 1·2 in East Ham and 1·6 in Swansea; and "fever" of 2·3 in West Bromwich. The mortality from scarlet fever and from diarrhœa showed no marked excess in any of the large towns. Two fatal cases of small-pox were registered in Hull and 1 in Devonport, but none in any other of the seventy-six towns; and no small-pox patients were under treatment last week in any of the Metropolitan Asylums Hospitals. The number of scarlet fever patients under treatment in these hospitals and in the London Fever Hospital, which had been 4,190, 4,144, and 4,053 at the end of the three preceding weeks, had risen again to 4,062 at the end of last week; 419 new cases were admitted during the week, against 462, 467, and 401 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, December 8th, 843 births and 632 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 17·0, 19·1, and 17·6 per 1,000 in the three preceding weeks, increased again to 18·4 per 1,000 last week, and was 2·6 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rate ranged from 12·0 in Paisley and 15·5 in Greenock to 22·7 in Perth and 24·0 in Leith. The death-rate from the principal infectious diseases averaged 2·0 per 1,000 in these towns, the highest rates being recorded in Aberdeen and Leith. The 301 deaths registered in Glasgow included 2 which were referred to scarlet fever, 3 to diphtheria, 12 to whooping-cough, 2 to "fever," 12 to diarrhœa, and 5 to cerebro-spinal meningitis. Seven fatal cases of measles and 3 of whooping-cough were recorded in Aberdeen; 2 of measles, 2 of diphtheria, and 2 of diarrhœa in Leith; 3 of scarlet fever and 3 of diarrhœa in Dundee; and 2 of diarrhœa in Edinburgh.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, December 1st, 592 births and 367 deaths were registered in six of the principal Irish towns as against 523 births and 398 deaths in the preceding period. The annual death-rate in these towns, which had been 21·2, 17·9, and 23·5 per 1,000 in the three preceding weeks, fell to 19·7 per 1,000 in the week under notice, this figure being 5·9 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 13·6 in Londonderry, and 18·2 in Belfast, to 21·9 in Limerick and 23·8 in Dublin. The zymotic death-rate in the same six Irish towns averaged 1·2 per 1,000, or 1·4 per 1,000 lower than during the preceding period, the highest figure—2·2—being recorded in Dublin, while Cork and Londonderry registered no deaths under this heading at all.

During the week ending Saturday, December 8th, 453 births and 373 deaths were registered in six of the principal Irish towns, against 592 births and 367 deaths in the preceding period. The annual death-rate in these towns, which had been 17·9, 23·5, and 19·7 per 1,000 in the three preceding weeks, rose to 20·3 per 1,000 in the week under notice, this figure being 4·5 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 15·6 in Waterford, and 19·3 in Belfast and Londonderry to 22·4 in Dublin and 24·6 in Limerick. The zymotic death-rate in the same six Irish towns averaged 1·5 per 1,000, or 0·3 per 1,000 higher than during the preceding period, the highest figure—2·7—being recorded in Belfast, while Limerick registered no death under this heading at all. Throughout the country measles caused 6 deaths, whooping-cough 7, diphtheria 6, and enteric fever 6.

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

Surgeon A. F. Mackay, M.B., has been allowed to withdraw from the service, with a gratuity. He was appointed Surgeon, November 21st, 1902.

Fleet Surgeon C. E. Geoghegan is placed on the retired list, with the rank of Deputy Inspector-General, December 9th. His commissions were thus dated: Surgeon, March 31st, 1877; Staff Surgeon, March 31st, 1889; and Fleet Surgeon, September 23rd, 1893. He was Surgeon of the *Ready* during the Egyptian war in 1882, and has the medal and Khedive's bronze star granted for that campaign.

The following appointments have been made at the Admiralty: William E. Mathew, Staff Surgeon, to the *Assistance*, on recommissioning, December 18th; Reginald Thompson, Surgeon, to the *Cambridge* (dent), December 8th.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. H. Fenton, D.S.O., has been appointed Medical Inspector of Recruits, Northern Command, from December 4th, vice Lieutenant-Colonel S. Westcott, C.M.G., ordered abroad.

Major M. P. C. Holt, D.S.O., from Woolwich, has been appointed Assessor for the next examination in Military Surgery at the Senior Course.

The appointments of the undermentioned specialists in skiagraphy, serving in India, are cancelled, from November 1st: Captain A. H. Waring, 3rd (Lahore) Division; Major W. J. Taylor, M.B., 5th (Mhow) Division; Captain J. Grech, 7th (Meerut) Division; Major M. Boyle, M.B., Burmah Division.

Lieutenant W. Parsons resigns his commission, December 12th. His commission dated from January 31st, 1906.

INDIAN MEDICAL SERVICE.

Colonel R. D. Murray, M.B., Bengal, Inspector-General of Civil Hospitals, is nominated a member of the Council of the Lieutenant-Governor of Agra and Oude.

ROYAL GARRISON ARTILLERY (VOLUNTEERS)

Surgeon Lieutenant A. M. McIntosh, 1st Edinburgh (City) Regiment, to be Surgeon-Captain, September 21st.

HONOURABLE ARTILLERY COMPANY.

The King has approved the grant of the "Volunteer Long Service Medal" to the Honourable Artillery Company. Army Order 257 of 1906 specifies the conditions on which it will be issued.

VOLUNTEER RIFLES.

Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel A. Wilson, 2nd Volunteer Battalion the Northumberland Fusiliers, is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Tyne Volunteer Infantry Brigade, June 1st, 1906.

Surgeon-Captain J. G. Bain, M.B., 2nd Volunteer Battalion the (Prince Albert's) Somersetshire Light Infantry, resigns his commission, November 14th.

Supernumerary Surgeon-Major A. W. Prichard, 1st (City of Bristol) Volunteer Battalion the Gloucestershire Regiment (Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Portland Volunteer Infantry Brigade), to be Surgeon-Lieutenant-Colonel, November 9th.

Surgeon-Lieutenant A. Waugh, M.B., 3rd Volunteer Battalion (the Duke of Wellington's) West Riding Regiment, to be Surgeon-Captain, November 2nd.

Surgeon-Major C. A. MacMunn, M.D., 3rd Volunteer Battalion the South Staffordshire Regiment, is seconded whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Staffordshire Volunteer Infantry Brigade, June 1st, 1906.

Surgeon-Lieutenant W. M. Parham, M.D., 1st Volunteer Battalion Princess Charlotte of Wales's (Royal Berkshire Regiment), to be Surgeon-Captain, October 28th.

Surgeon-Major E. Lee, 1st Volunteer Battalion the King's Own (Yorkshire Light Infantry), is seconded whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer Humber Volunteer Infantry Brigade, June 1st, 1906.

Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel W. H. Packer, M.D., 1st Volunteer Battalion the King's (Shropshire Light Infantry), to be Surgeon-Lieutenant-Colonel, October 20th.

Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel J. W. Blandford, 1st Volunteer Battalion the Durham Light Infantry is borne as Supernumerary whilst holding the appointment of Brigade Surgeon-Lieutenant-Colonel, Senior Medical Officer, Tees Volunteer Infantry Brigade, June 1st, 1906.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BATH: ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer.

BIRMINGHAM GENERAL HOSPITAL.—House-Physician. Salary, £50 per annum.

BLACKBURN COUNTY BOROUGH.—Assistant Medical Officer of Health. Salary commencing at £50 per annum.

BRENTFORD UNION.—Medical Officer and Public Vaccinator for the Parish of Acton. Salary, as Medical Officer, £160 per annum.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Assistant House-Surgeon. Salary, £50 per annum.

DERBYSHIRE ROYAL INFIRMARY.—(1) Two House-Surgeons. (2) House-Physician. (3) Assistant House-Surgeon. Salaries for (1) and (2) £100 per annum, and (3) at the rate of £60 per annum.

EALING COTTAGE HOSPITAL AND PROVIDENT DISPENSARY.—Twelve Medical Officers of the Hospital, the Medical Staff of the Provident Dispensary, and Dental Surgeons.

EAST LONDON HOSPITAL FOR CHILDREN: Shadwell, E.—House-Physician. Honorarium, £25 for six months.

GLOUCESTER: GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—House-Surgeon. Salary, £100 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway Road, N.—Casualty Officer; male. Salary, £100 per annum.

GRESHAM COLLEGE.—Gresham Lectureship on Physics.

LEAMINGTON: WARNEFORD HOSPITAL.—House-Physician. Salary, £80 per annum.

LONDON HOSPITAL, Whitechapel, E.—Assistant Physician.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL.—Resident House-Surgeon. Salary, £100 per annum.

MANCHESTER: ANCOATS HOSPITAL.—Honorary Physician.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Senior House-Physician. Salary, £50 per annum.

NEW HOSPITAL FOR WOMEN, Euston Road.—Two Female Clinical Assistants for Out-patient Department.

NORFOLK COUNTY ASYLUM, Thorpe.—Junior Assistant Medical Officer; male. Commencing salary, £150 per annum.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House-Surgeon. Salary, £50 per annum.

NORWICH: NORFOLK AND NORWICH HOSPITAL.—Two Male Assistant House-Surgeons. Honorarium, £20 each for six months.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL. —House-Surgeon. Salary, £100 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Junior Resident Medical Officer. Salary at the rate of £40 per annum.

ST. PANCRAS PARISH.—Junior Assistant Medical Superintendent for the Infirmary, Dartmouth Park Hill. Salary, £75 per annum.

SALISBURY INFIRMARY.—Assistant House-Surgeon. Salary, £50 per annum.

SHEFFIELD CORPORATION FEVER HOSPITALS. — Junior Assistant Medical Officer. Salary, £120 per annum.

SHEFFIELD ROYAL HOSPITAL.—Fourth, Fifth, and Sixth Residents. Salary for Fourth, £60; the others, £30 per annum.

STOCKPORT INFIRMARY. — Junior Assistant House-Surgeon. Salary, £40 per annum.

TAUNTON: TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House-Surgeon Salary at the rate of £50 per annum.

TOTTENHAM HOSPITAL, N.—Honorary Assistant Physician.

WEST RIDING COUNTY COUNCIL.—Male Assistant Medical Officer at Scalebor Park Private Asylum. Salary, £150 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY. —House-Surgeon. Salary, £70 per annum.

WREXHAM INFIRMARY.—Resident House-Surgeon. Salary, £80 per annum.

YORKSHIRE: EAST AND WEST RIDING COUNTY COUNCILS, etc.—Bacteriologist to carry out investigation as to the conditions of milk supply for the district. Remuneration, £250 for 12 months.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces vacancies at Stony Stanton, Leicester; Ipswich, Suffolk; Bracmar, Aberdeen.

APPOINTMENTS.

BAMPTON, A. H., M.D., M.Ch.R.U.I., Medical Officer of Health, Ilkley Urban District.

BENNETT, B. M., M.B., Ch.B.Vict., Junior House-Surgeon to the Chesterfield and North Derbyshire Hospital and Dispensary.

CODD, J. A., M.D., B.Sc.Lond., Certifying Factory Surgeon for the Wolverhampton District, co. Stafford.

DAVIS, W. H., M.R.C.S., L.R.C.P., District Medical Officer of the Parish of Devonport.

FRANKLIN, C. Z., M.B., Ch.B.Vict., Junior House-Surgeon to the Oldham Infirmary.

GILKS, J. L., M.R.C.S., L.R.C.P., Resident Medical Officer of the Infirmary and Workhouse of the Parish of Hammersmith.

HOPEWELL-SMITH, A., L.R.C.P.Lond., M.R.C.S., L.D.S.Eng., External Examiner in Dental Surgery for the Third and Final Examinations for the Degrees in Dental Surgery of the University of Birmingham, vice J. Howard Mummery, M.R.C.S., L.D.S., resigned.

HUTCHINSON, J. R., M.B., Ch.B.Vict., D.P.H.Vict., Assistant to Medical Officer of Health for the County Borough of Blackburn.

JUBB, Archibald, M.D.Glas., Extra Assistant Physician, Glasgow Royal Infirmary.

NELIGAN, J. C., L.R.C.S.Edin., L.S.A., Medical Officer of Health, Starforth Rural District.

PATON, W. R., M.B., C.M.Glas., District Medical Officer of the Basford Union.

WILLIAMS, E. K., M.R.C.S., L.R.C.P., District and Workhouse Medical Officer of the Bellesdon Union.

WOOD, T. Outterson, M.D., F.R.C.P., F.R.C.S.Edin., M.R.C.P.Lond., Consulting Physician to the West End Hospital for Nervous Diseases, Welbeck Street, W.

WRIGHT, Harold Nairne, L.R.C.P.Lond., M.R.C.S.Eng., House-Physician to St. Bartholomew's Hospital, Rochester.

MANCHESTER ROYAL INFIRMARY.—The following appointments have been made:

House-Physicians: G. F. Porter, M.B., Ch.B.; E. F. S. Green, M.B., Ch.B.

House-Surgeons: W. H. Hey, M.B., Ch.B.; D. P. Sutherland, M.B., B.S.

Assistant Medical Officer in the Out-patient Department: John D'Ewart, M.B., M.R.C.S., L.R.C.P.

Accident Room House-Surgeon: H. M. Fort, M.B., Ch.B.

Assistant Medical Officer, Barnes Convalescent Home, Cheadle: A. W. Howlett, M.B., Ch.B.

ST. THOMAS'S HOSPITAL.—The following gentlemen have been selected as House Officers:

Casualty Officers: (Senior) A. W. Hooker, M.B., B.S.Lond., M.R.C.S., L.R.C.P.; (Junior) J. H. Drew, M.B., B.S.Lond., M.R.C.S., L.R.C.P.

Resident House-Physicians: M. A. Cassidy, M.A., M.B., B.C.Cantab., M.R.C.S., L.R.C.P.; W. O. Sankey, M.B., B.S.Lond., M.R.C.S., L.R.C.P.

House-Physicians to Out-patients: C. E. Whitehead, B.A.Cantab., M.R.C.S., L.R.C.P.; H. G. Bennett, M.R.C.S., L.R.C.P.

Obstetric House-Physicians: (Senior) C. R. B. Eyre, M.R.C.S., L.R.C.P.; (Junior) A. C. H. Suhr, B.A.Cantab., M.R.C.S., L.R.C.P.

Special Departments: (Throat) J. Wallace, B.A.Oxon., M.R.C.S., L.R.C.P.; (Skin) S. L. Walker, M.R.C.S., L.R.C.P.; (Ear) E. L. Atkinson, M.R.C.S., L.R.C.P.; G. G. Butler, M.R.C.S., L.R.C.P.; H. A. Kisch, M.B., B.S.Lond., M.R.C.S., L.R.C.P.

Dental: H. W. Read, M.R.C.S., L.R.C.P.

Children's Surgical: H. J. Nightingale, M.R.C.S., L.R.C.P.

Electrical Department (X-ray Department): H. A. Kisch, M.B., B.S.Lond., M.R.C.S., L.R.C.P.

Several other gentlemen received an extension of their appointments.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTH.

CRICHTON MILLER.—At Villa Mary, San Remo, on 7th December, the wife of H. Crichton Miller, M.D. (San Remo and Aviemore, Inverness-shire), of a son.

MARRIAGES.

DODGSON—GOOD.—On December 8th, at Lyndhurst Road Church, Hampstead, by the Rev. Dr. Horton, M.A., Henry Dodgson, eldest son of the late Dr. Henry Dodgson and of Mrs. Dodgson, Derwent House, Cockermouth, to Annie Florence, second daughter of Mr. and Mrs. Henry Good, of Alvaston, Arkwright Road, Hampstead.

MUIR—ANDREW.—On the 6th instant, at the Church of Saint Thomas, Stockport, by the Rev. H. P. stevens, M.A.Oxon., cousin of the bridegroom, David William Stevens Muir, M.R.C.S., L.R.C.P.Lond., of Wellington House, Bradford, Manchester, to Edith Maud, fourth daughter of the late George Edward Andrew, of Spring Villa, Lees, near Oldham, and granddaughter of the late Joseph Stone, M.D., of Manchester. No cards. At home 27th and 28th February, 1907.

DEATHS.

ACKERY.—On the 10th inst., at his residence, 11, Queen Anne Street, Cavendish Square, W., John Ackery, M.R.C.S., L.D.S., suddenly, in his 50th year.

FOWLER.—At 6, Belmont, Bath, on Sunday evening, December 9th, Richard Sumner Fowler, F.R.C.S., aged 76. No flowers, by special request.

MARTIN.—On November 30th, at 15, Victoria Place, Eastbourne, Lawrence, the dearly loved Boy of Dr. and Mrs. A. A. Martin, aged 2½ years.

RAW.—On the 6th inst., Dudley Moffatt, the dearly loved Boy of Dr. and Mrs. Nathan Raw, of 66, Rodney Street, Liverpool, aged 3½ years.

DIARY FOR THE WEEK.

TUESDAY.

THERAPEUTICAL SOCIETY, Apothecaries' Hall, Blackfriars, E.C., 4.30 p.m.—Papers: Dr. J. Porter Parkinson: Further Experiences of the Serum Treatment in Gonorrhoeal and other Infections. Dr. W. B. Hope: The Benefit of Antidiphtheritic Serum in Tuberculous Diseases.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m.—Clinical Pathology.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinics: Monday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Throat and Ear, 4 p.m. Tuesday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Diseases of the Skin, 4 p.m. Wednesday, Medicine, 2.30 p.m.; Ophthalmology, 3.30 p.m. Thursday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m.; Radiography, 4 p.m. Friday, Medicine, 2.30 p.m.; Surgery, 3.15 p.m. Operations each day at 2.30. Out-patient Demonstrations: Medical and Surgical, 10 a.m. daily; Ears and Throats, noon, Monday and Thursday; Eyes, 11 a.m., Wednesday and Saturday; Skin, noon, Tuesday and Friday.

MEDICAL GRADUATES COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following Clinical Demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin; Tuesday, Medical; Wednesday, Surgical; Thursday, Surgical. Lectures at 5.15 p.m. each day will be given as follows: Monday, Some Surgical Considerations. Tuesday, Optic Neuritis and Optic Atrophy in Nervous Diseases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Surgery of the Nervous System.

BOOKS, ETC., RECEIVED.

Transactions of the Ophthalmological Society of the United Kingdom, Vol. XXVI, Session 1905-6. London: J. and A. Churchill. 1906.

Hadden's Pocket Vocabulary of Medical Terms. By H. Payne, M.D., M.R.C.S., L.S.A. Fourth Edition. Revised and enlarged by P. Cowen, M.D., D.P.H., and H. Davey. London: Hadden, Best, and Co.

Notes on Blood Serum-Therapy, Preventive Inoculation, and Toxin and Serum Diagnosis. For Veterinary Practitioners. By W. Jowett, F.R.C.V.S., D.V.H. London: Baillière, Tindall, and Cox. 1907. 5s.

Catalogue of the Pathological Museum of the University of Manchester. By J. L. Smith, M.A., M.Sc., M.D. Manchester: University Press. 1906. 7s. 6d.

Rudolf Virchow, Briefe an seine Eltern, 1839 bis 1864. Herausgegeben von M. Rabl. Liepzig: W. Engelmann. 1906. M.5.

Outlines of Human Embryology. By G. R. Satterlee, M.A., M.D. New York: J. Wiley and Sons; and London: Chapman and Hall, Limited. 1906. 5s. 6d.

London: A. and C. Black, 1907:

Who's Who. 10s.

Who's Who Year Book. 1s.

Retinoscopy. By J. Thorington, A.M., M.D. Fifth Edition. London: Rebman, Limited. 1906. 4s. 6d.

Studies in the Bacteriology and Etiology of Oriental Plague. By E. Klein, M.D., F.R.S. London: Macmillan and Co., Limited. 1906. 12s.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
DECEMBER.	
14 FRIDAY	HAMPSTEAD DIVISION, *Metropolitan Counties Branch*, St. Peter's Hall, Belsize Square, N.W., 5 p.m.
15 SATURDAY...	
16 Sunday.....	
17 MONDAY	LONDON: Ethical Subcommittee, 2 p.m.
18 TUESDAY.....	DOVER DIVISION, *South-Eastern Branch*, Grand Hotel, Dover, 8.30 p.m. MANCHESTER (SOUTH) DIVISION, *Lancashire and Cheshire Branch*, Dr. Vipont Brown's, 2, Birch Lane, Longsight, 3.30 p.m.
19 WEDNESDAY	LONDON: Contract Practice Subcommittee, 3 p.m. WORCESTER DIVISION, *Worcestershire and Herefordshire Branch*, Worcester Infirmary, 3 p.m.
20 THURSDAY...	GLASGOW AND WEST OF SCOTLAND BRANCH, Faculty Hall, 242, St. Vincent Street, Glasgow, 4 p.m. LEIGH DIVISION, *Lancashire and Cheshire Branch*, Co-operative Offices, Ellesmere Street, Leigh, 8.30 p.m.
21 FRIDAY.....	**Extraordinary General Meeting, at 3 p.m., at the offices of the Association, 429, Strand, W.C.**
22 SATURDAY...	
23 Sunday	
24 MONDAY	
25 TUESDAY.....	*Christmas Day.*
26 WEDNESDAY	*Bank Holiday.*
27 THURSDAY...	
28 FRIDAY	
29 SATURDAY...	
30 Sunday	
31 MONDAY	

Date.	Meetings to be Held.
JANUARY.	
1 TUESDAY.....	Subscriptions to the British Medical Association for 1907 become due.
2 WEDNESDAY	
3 THURSDAY...	
4 FRIDAY	
5 SATURDAY...	
6 Sunday	
7 MONDAY	
8 TUESDAY ...	LONDON: Public Health Committee, 3.15 p.m.
9 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m. LONDON: Medical Witnesses Subcommittee, 1.45 p.m.
10 THURSDAY...	LONDON: Hospitals Committee, 2.30 p.m.
11 FRIDAY	LONDON: Central Ethical Committee, 2 p.m. HAMPSTEAD DIVISION, *Metropolitan Counties Branch*.
12 SATURDAY...	
13 Sunday	
14 MONDAY	
15 TUESDAY ...	LONDON: Poor-Law Committee (English Members), 1.30 p.m. CITY DIVISION, *Metropolitan Counties Branch*, Great Eastern Hotel, E.C., 4 p.m.
16 WEDNESDAY	
17 THURSDAY...	
18 FRIDAY	
19 SATURDAY...	
20 Sunday	
21 MONDAY	
22 TUESDAY ...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom, and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 22ND, 1906.

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Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* JOURNAL.]

METROPOLITAN COUNTIES BRANCH: WESTMINSTER DIVISION.

A MEETING of this Division was held at 20, Hanover Square, at 8.30 p.m., on Monday, December 17th, Mr. G. E. HASLIP, M.D., in the chair.

HOSPITAL ABUSE.

Dr. DAUBER introduced a discussion on hospital abuse, and submitted the following resolution:

> That the present system of hospital management is obsolete and not abreast of that in vogue in other countries, for the unrestricted admission of thousands of patients who are well able to contribute both towards their medical treatment and maintenance in hospital has become nothing less than a scandalous abuse of public benevolence and the charity of the medical profession.

He said: I do not propose to-night to deal with the past history of our hospitals. Some of them, as you know, had their origin in the monasteries and religious communities, and were under the control of the clergy; others of more recent date, in their embryonic condition were dispensaries, which gradually acquired the characteristics of the modern hospital in the process of growth and development. Nor need I remind you that the special hospitals were offshoots from the general hospitals, which in their turn introduced special departments to recover ground lost through their negligence to specialize in the first instance. Nor is there time to-night to trace the evolution of the modern operating theatre from its humble beginning to its present development. These points have been dealt with fully by others on former occasions. Nor will I discourse on our glorious mission in life and our lofty privilege of ministering to the sick and afflicted, and of alleviating pain and misery. Let us take all this for granted and allow, if you will, that altruism, self-abnegation and all the nobler virtues belong to ourselves more exclusively than to any other class in the community. Perhaps they do, perhaps not, but anyhow, be that as it may, I want you to be so kind as to descend with me for a few minutes from this lofty pedestal of moral superiority and consider the question of hospital management in its commercial aspect and how it affects the medical profession, because after all, altruism will not pay our rates and taxes, and unless we are soon to become like the mendicant friars some radical change in hospital management must be brought about. The resolution which you have before you is strongly worded, but no words of mine are too strong to depict the situation which exists to-day. I do not hesitate to say that the bulk of the medical profession is in a discontented mood. It may not be apparent on the surface, but deep down it is there nevertheless, as conversation with almost every medical man will disclose. Now, what are the causes of this almost universal dissatisfaction? The salient characteristic of an Englishman is his love of fair play. Others may be as clever, as brave, and as pertinacious, but he yields to none in his determination that fair play shall obtain wherever he can enforce it. I submit that the medical practitioner in and around London, whether attached to a hospital or not, feels that he is no longer getting fair play—no, nor anything like it, but the contrary. The hospital surgeon or physician is being farmed and exploited, while the general practitioner is subjected to conditions of most unequal and unfair competition. Let us look the facts straight in the face. The medical man of to-day has undergone an expensive, long, and arduous education, bristling with examination of no mean order from start to finish, and at the end of it all, when he starts in practice, he has to compete with quacks, vendors of patent medicines, advertisers of every nostrum under the sun, dispensing chemists, the light cure institutes, the Christian Scientists, and a whole host of other folk who are fettered by no rules, no regulations, no codes of etiquette as he is, who are free of all the trammels that limit his actions. These competitors all encroach upon his domain and are hard to beat; but when another—the hospital—joins issue against him, a competitor more formidable than all the others put together, and that one, too, from within his own camp, then he feels that the last straw has been put upon his long-suffering back. Gentlemen, this is no highly-coloured picture; it is the truth. As the most elementary facts are apt to be forgotten, may I for the moment draw your attention to this one? A medical practitioner gains

his livelihood by selling to the public his medical knowledge and medical services, just as a lawyer sells his legal services, or a soldier his military services. He cannot afford to give away his stock-in-trade. But how can he obtain a sale for his stock-in-trade when the hospital gives away the same commodities with a free hand to all applicants? Every medical man, together with every other professional man, is a merchant in the sense that he sells his technical knowledge for a price. Instead of technical knowledge and services, let us for a moment imagine the medical man to be selling, let us say, coals, food, clothing, or any other staple commodity of life. How do you suppose he could possibly sell such things if on every side of him he found the hospitals giving them away, and begging and worrying the public every day for more funds to enable them to give yet more and more away? The actual situation is worse than this, for the hospitals compete and vie with each other as to which of them shall give away, with the most lavish prodigality and to the largest number of recipients, those benefits which the medical practitioner can only afford to bestow in return for compensation. The undignified manner in which some hospitals solicit funds to carry on this prodigal liberality is well exemplified by the following extract from the *Times:*

Has this little recital touched your heart? If it has, you will be glad of the opportunity of assisting in this glorious work of lessening the sum of human misery. If it be the case that you are not a subscriber to any hospital, won't you become a subscriber to this one? Or, if you are already a subscriber, in view of the great need, won't you increase your subscription to this one? Surely there are among the sympathetic, generous-hearted British public many who are sufficiently imbued with philanthropic sentiments to come forward and offer some help, some practical assistance in this humane work.

To call the state of things I have depicted a competition is a hollow farce. It is a handicap, and a handicap which penalizes the medical practitioner so heavily that he is out of the race. Now, in spite of almoners, inspection officers, and the like, the fact remains that innumerable patients are admitted to hospitals, both as out-patients and in-patients, who are well able to pay for their treatment. This is common knowledge, but I will instance one or two cases that have come within my own experience during the past week or two. A gentleman residing in Italy came over, bringing his wife and two children with him, for the sake of operative treatment in this country. He was sent over by his Italian doctor, and he consulted me as to whether I approved of the surgical treatment suggested. I did. He told me he was quite prepared to spend between 50 and 60 guineas in getting cured. The next day he wrote me word saying he had been offered by a friend in the city gratuitous treatment in a general hospital, of which he intended to avail himself. I protested that if he went into hospital it was a gross abuse of charity, as he defrauded three sets of people—first, the subscribing public, who did not contribute in order to maintain such patients as himself in hospital; secondly, the surgeons, who never stipulated that they should operate upon patients of his class without fees; thirdly, the really poor patients, one of whose beds he would occupy if he went into a hospital. But I am afraid, in spite of my protestations, he became an ordinary hospital patient. Possibly on leaving the institution he might contribute a few guineas to the hospital funds, but I maintain that this is no adequate reward for the treatment he would receive. The second case is as follows: On Sunday last I was spending the week-end with a medical friend in the country, and accompanied him in his motor on his rounds. At one house he pointed out to me a well-dressed man who, he said, had recently been a month in a London hospital, and had been operated upon for appendicitis successfully. I am not aware that the patient contributes anything whatsoever towards the hospital, but I was told for a fact that he received £45 from an assurance society. Is this sort of thing right? I hold that it is not, but that the surgeon who operated should have received at least a fee of ten guineas, and the hospital that maintained him payment of some two or three guineas a week. It has of late years been customary for the assurance offices to issue policies against sickness and grave illness, as well as against accident and death, and the public largely avail themselves of these policies. It should be borne in mind that a great many people belong to sick funds and clubs, from which they obtain money when sickness overtakes them. Moreover, under the Workmen's Compensation Act, recompense is made to those who meet with accidents in the course of their employment. It is no uncommon thing for a person to actually make a profit out of his illness or accident, as in the case I have just stated. Such a person draws a considerable sum of money from his assurance society, club, or sick fund (or even from all three), which is intended to meet the payment of his doctor's fees, nursing, and expenses, to which he may be put through his illness, but instead of this he goes into hospital and receives board, residence, and medical treatment free, and retains the assurance money for his private use. Time will not permit me to quote more than one other instance. One afternoon, not so long ago, feeling seedy, I stayed at home and did not see my out-patients, who were seen by my deputy in my absence. One of my patients was vexed at this, obtained my address, came on to my house and paid me a fee of one guinea for seeing me at home. Had I been at the hospital I need hardly say neither hospital nor I would have obtained this fee. Mankind is often foolish, but it has never been so foolish that it would habitually pay for that which it could obtain without payment. Let us to-night consider the profession as whole and united, not separated by differences of opinion and aim, not even divided into the different classes of consultants, specialists, and general practitioners, each class inclined to blame the other for the present condition of things. I maintain that all suffer alike from the present evil. How can it be remedied? Talking alone will not do it. There has been talking enough on this subject for more than a quarter of a century, and practically nothing has come of it. It is not enough to meet, talk, deplore the present state of things, express pious opinions, and then separate, to meet a year hence and react the same farce. A firm line of concerted action must be thought out and then acted upon. The subject is a complex one. To administer charity properly is one of the most difficult tasks man can lay his hands to. But few things are impossible if men are in earnest. Nothing was ever accomplished in this world without zeal and enthusiasm. Certainly apathy never accomplished anything. Even the tortoise was not apathetic; he was slow, but persistent. "Doucement mais toujours" was his motto. It must be ours if we mean to effect reform. Let us consider what has been done in other countries. Here is a cutting from the *Standard* of Buenos Aires. Contrast it with what I read a few moments ago. It relates to the British Hospital there, an institution conducted not only on philanthropic principles, but on business lines as well.

BRITISH HOSPITAL, BUENOS AIRES.

Rules of Admission.

Ordinary patients are admitted from 11 a.m. until noon daily, accidents or urgent cases admitted at any hour with or without order of admission.

No order for admission is required from paying patients, but if they are not personally known to the hospital authorities, a deposit to cover fees is required, or applicants must bring a suitable letter of guarantee or introduction from a subscriber. Poor and distressed applicants of British or American nationality and their families can obtain orders for free admission by applying to . . . .

In recommending patients for free admission, subscribers are particularly requested to give satisfactory information as to the inability of the applicant to pay a part or all the fees or give a donation.

Scale of fees subject to alteration from time to time:

General ward per diem	$ 3.50.
Private ward do.	6.00.
Private room do.	10.00.

Scale of fees for operations to patients in the private ward and the private rooms can be obtained on application.

Subscriptions and donations gratefully received by the Hon. Treasurer.

To me the management of this hospital leaves little or nothing to be desired, and I think the managers of our London hospitals might well take a lesson from it. Throughout the United States, Canada, and other British Colonies paying patients are received in the hospitals. There are various grades, as in the British hospital at Buenos Aires. It is the same in Sweden, Norway, Denmark, Russia, etc.; I speak from personal experience. It is to be remembered—and this point I

particularly wish to emphasize—that the small private house can no longer compete as a field for operations with the hospital with its manifold and complete appliances for obtaining asepsis and efficient nursing. The public knows this. Patients of a better class will, no matter what we may do, endeavour to come into hospital for treatment, not merely to save expense but because in their own homes the difficulties are insuperable. It is necessary to make some altered arrangements for their reception. Personally I think paying wards and private rooms should be instituted in every hospital without exception forthwith. In my opinion, it is useless to talk of building fresh hospitals for the class of patient who can pay one, two, or three guineas a week for maintenance, and a fee of a few guineas for an operation. It cannot become a paying investment. The site of the Lyceum Theatre was sold on Thursday last for over £5 the square foot—£119,000. Land is too valuable in the centre of London to be bought for such a purpose. Interest would never be obtained on the capital expended. The proprietors of nursing homes, where much higher rates of payment prevail, do not find it always a lucrative business. It would be found, I think, that many of the patients now in the free wards of hospitals would go into paying wards; and I do not think the really poor would be deprived of any beds at all. Let the present hospitals set apart a portion of their beds for the reception of paying patients, as is done in other countries. The worship of that ancient family god "tradition" is carried to such lengths in this country that progress has become almost impossible. As to the out-patients. The principle should obtain that only the really necessitous cases, or genuinely urgent cases, or those specially sent up with a doctor's card or letter for consultation should be admitted to them. All others without exception should be referred elsewhere. That every patient who presents himself should be seen once is to my mind an absurdity. If unsuitable he should never be seen at all. If patients obtain admission to the free wards, and are found subsequently to be able to contribute—it should be possible for the hospital to recover from them or their nearest relative, fees for treatment and maintenance, as is done at present under the Poor Law. The principle should also be enforced that no paying patient should receive gratuitous medical treatment. It is not fair that a surgeon or physician should be compelled to treat gratuitously paying patients. A certain proportion of paying beds should be thrown open to the outside practitioner, for as the benefits of the hospital are now extended to a larger class of patient, so should the opportunities for working and exercising responsibility in the hospital be extended to a larger class of medical practitioner, especially as the standard of medical education and efficiency is so much higher all round than ever before. Time will not permit me to do more than hint at the lines upon which I think hospital management should be remodelled. Briefly they are these: I would suggest that: (1) No patient shall any longer receive gratuitous medical treatment at a hospital who does not produce satisfactory documentary evidence of his or her total inability to pay for the same. That this rule should be inflexibly enforced except in the case of urgent cases. "Satisfactory documentary evidence" shall be defined as a note or card from a medical practitioner, minister of religion, district visitor, district nurse, city missionary, or relieving officer *personally* acquainted with the patient. (2) Every in-patient who can shall pay proportionately to his or her means for treatment, and there shall be established at every hospital graduated scales of payment. Fees to be recoverable by the hospital. (3) A portion of every hospital shall be set apart for paying patients. That, of the paying wards, some should be reserved for the use of the staff attached to the hospital, but that others should be thrown open for the use of outside practitioners. (4) That the demands upon the time, skill, and energies of the medical staffs of hospitals have become so great that an honorarium should be made to them for attending the poor, and that they should be entitled to accept payment from patients in the paying wards. At one of the hospitals in Copenhagen, which I visited a few years ago, I was told that each in-patient surgeon or physician received an honorarium of about £200 per annum, while each assistant surgeon or physician received £100. I cannot understand why medical men should be asked to undertake so much more gratuitous work than any other class of the community is asked to perform. Surely the *medical* labourer is as worthy of his hire as any other. The present system (I do not scruple to call it so) is a sweating system. Advantage is taken, possibly unintentionally, by the Managing Boards of hospitals to utilize the labours, almost the lives of those (I mean the medical staffs) without whom the hospitals could not exist for a single day; because, if they were to resign, the Boards of Management are aware that, such is the stress of medical competition, they could be immediately replaced. (5) The medical staffs of all hospitals should be adequately represented on the Boards of Management. Nothing less than a 50 per cent. representation should satisfy us. (6) Some central authority must be created who shall have the control of all hospitals, bringing them into line one with another, and having power to influence them and coerce them if necessary. For the present some combination of King Edward VII's Fund and the Sunday and Saturday Hospital Funds might exercise this control. These are, roughly, the principles which, in my opinion, should prevail in our London hospitals, but which at present do not. There is, however, one difficulty in this consideration—that those funds might refuse aid to hospitals attempting to conduct their management on the business lines I have indicated. They might say that such hospitals were no longer philanthropic and charitable institutions, and on these grounds might withhold their support from them. There are, I need hardly remind you, some who make a trade of their philanthropy, and who, for the sake of social distinction, or in hopes of a baronetcy, undertake a charitable work. To these the alterations I suggest would naturally be distasteful. But I feel sure that if the case were adequately placed before the gentlemen controlling these funds they would see the advantages and need of reform. These changes in hospital management on the lines I have indicated would accomplish the following things: (1) It would make the hospitals in a very large measure self-supporting; (2) it would reduce the competition between the hospitals and outside practitioners, at least, to a fairer basis; wholesale underselling by the hospitals would be stopped; (3) the public would not be teased and badgered with the present number of urgent appeals; (4) the pauperization of various classes would be lessened and thrift encouraged; (5), and lastly, the medical profession would become more united, while the material prosperity of the profession as a whole would be greatly enhanced. At present large numbers of patients escape through the meshes of the medical net. We cannot hope for this reform—revolution, if you like—unless we are prepared to put our shoulders to the wheel and, if necessary, make some personal sacrifice for the good of the cause. For the cause is a good one.

Dr. Knowsley Sibley seconded the resolution, and after congratulating Dr. Dauber on the lucid way he had handled the subject, said it was impossible in a few minutes to do more than mention a few points. Forty years ago a committee of medical men under Sir W. Fergusson investigated the out-patient system, and reported: "That a quarter of the patients attending were able to pay a private doctor, a quarter were able to join a provident dispensary, and a quarter should be referred to the Poor Law," and ever since that date this scandalous state of things had increased enormously. Any one who had studied the hospital question in any other civilized country would at once be struck with the deplorable condition of the hospitals in this land in comparison with those abroad, where central control in some form or other is universal. Out-patients attending hospitals in Italy, Germany, Spain, etc., are never given medicine but a prescription, which they have to take to a chemist and pay for the medicine. The disease was obvious to all; but what of the treatment? Over ten years ago he had published a pamphlet entitled *State-aided versus Voluntary Hospitals*, an exposition of the abuses of the English hospitals, and he had not altered his opinion that the only satisfactory solution was central control. He hardly liked to speak of it, but he was certain that the hospitals must eventually come on to the rates. They naturally did all they could to put off the evil day, but it must come. Combination and not competition of the hospitals must be the first step. This might be obtained by such as the King Edward's Fund

combined with the Hospital Saturday and Sunday Funds, but not as at present, in competition one with the other; but to expect the various Hospital Boards to combine of themselves was absurd.

Dr. FORBES ROSS said he could not honestly and honourably permit the resolution before the Division to pass without raising his voice in earnest protest against what was on the face of it absolutely untrue. He must therefore move the deletion of the words "and the charity of the medical profession." It was an outrageous farce for any body of men, knowing what they did know, to pretend for a moment that in 1906 the work of the medical profession in hospitals was in any sense of the word "charity." The general practitioner, from whom he had sprung, had his earnest sympathy, but was really to blame in part for his misfortunes; on the other hand there was, especially in London, a certain section of the consultants (and no doubt elsewhere) who were lowering the tone, honesty, and public appreciation of an honourable profession. These men were responsible for what he regarded as the grossest form of hospital abuse extant, namely misuse of hospitals by the staffs to further their own worldly and sordid ends, without reference to the trust reposed in them by the benevolent public on behalf of the patients whom they were supposed to succour. The leaders of the profession, physicians, and surgeons, especially those comprising the staffs of the teaching schools in London, were, he was glad to freely acknowledge, honourable, single-minded, noble men, who honestly and honourably endeavoured to discharge and fulfil their public obligations, entrusted to them by the benevolent public. They succoured the sick and suffering, they promoted impartially the interest of science and knowledge, they held the scales as fairly as possible between man and man in the profession, and all that they did had at any rate the stamp of an endeavour to do right. It was to the second and third rate consultant that the general practitioner owed most of his trouble. It was a useless and solemn farce to ask the public, from the millionaire to the pauper, to refrain from making free use of the hospitals and to ask the lay committees of hospitals to restrict the use by the public when certain members of the profession clearly gave the lie to any grounds of protest such as "the charity of the profession." He referred to the practice in London especially, of bestowing on certain individuals plural appointments, whereby one man was able to hold, *two*, *three*, *four*, *five*, and even *six* honorary hospital posts (last week in London a hospital bestowed on a candidate his *sixth* appointment). The leaders of the profession, all without exception, were men who were contented with, and would only permit, one honorary hospital appointment to be held by their colleagues. He defied any general practitioner who might obtain the F.R.C.S.Eng. or the M.R.C.P.Lond. to obtain straightforwardly a post in one of the smaller London hospitals. He would encounter an amount of virulent opposition, and be subjected to every possible humiliation and indignity, and then not succeed. All sorts of excuses would be advanced against him — his age, his experience (a *drawback*), too *senior*, was he on a "teaching school"? etc. Another evil which existed in these circles was the habit of requiring a candidate to promise to confine himself to only one line or part of a line or speciality, thereby limiting his sources of income, and thereby financial freedom, and freedom and probity in dealing with his paying patients. He had been asked this question repeatedly, and had declined to conform, for this reason: An honest man must keep his word, if the promise was extracted and adhered to. One of two things must happen, either the promise must be broken, or one's financial independence was seriously curtailed if there was a scarcity of work in the particular line, and the individual was not doing other work, there was the temptation to do useless, unnecessary, even wickedly unjustifiable operations for the fee, or to keep patients hanging on. It was unfair to the candidate, unfair to the public, his patients, unfair to those whose knowledge was keeping the institution going which imposed through its medical staff so infernal a restriction, and bad in every way for the honour and probity of the profession. Yet this was what had been going on for years without a single voice being raised against it in the British Medical Association. How did all this injure the general practitioner? How did it fall short of what the benevolent public intended who subscribed money to aid the sick and further science. It acted in this way—it wasted clinical material, and procured a slipshod attendance on the sick. General practitioners had had it drilled into them that they and their patients should consult only consultants holding hospital posts. Well and good if these men all belonged to the first rank, and were those on teaching schools who for the most part acted as far as in them lay up to the original intentions for which funds were provided by the benevolent. But concerning the class he was dealing with, the second and third rate consultants, the story was different. If four men held between them sixteen posts it follows that there were twelve men kept out of the running—a matter clearly not intended by the benevolent. Owing to the "usage" and "custom" which had sprung up of the general practitioner only countenancing the hospital man, these twelve men who were as a rule fairly competent men, and determined not to be repressed, became the natural enemies of the general practitioner willy-nilly. If a case came to a "free lance" on the recommendation of a former patient, the "free lance" was on the horns of a dilemma. If he communicated with the general practitioner, the probability was that he would never see the case again. He (the speaker) had had this experience till he was heartily sick of it. On the other hand, if the free lance "shirked" the case, the general practitioner suffered in prestige and lost more than that one patient, nay, perhaps the best part of his practice. If the case did badly it was because, in her or his estimation, the general practitioner had neglected her and him too long; if the case did well, *ergo* it clearly showed the general practitioner was an incompetent fool. The result was that the patient went home, spread the news, and the general practitioner found his practice going away from him to his neighbours, and could not account for the slump in his practice. Naturally he blamed the out-patient department of the nearest hospital, despite the fact that the class of patient was quite different. This was clearly unfair to all concerned, "free lance" and general practitioner alike. This the general practitioner owed to the gross breach of confidence which had been perpetrated by the plural appointment men and those who supported them. Many general practitioners were now retaliating by sending cases to the hospitals which they would not deal with themselves, and he could not blame them. This state of affairs injured the entire consultant class and brought them into disrepute, and caused the general practitioner to regard the average consultant as an untrustworthy grasping filcher of his patients. He thought that the British Medical Association should direct itself to professional hospital abuse such as he had outlined before going to the public and asking them to remove the mote from their eye.

Dr. INGLIS PARSONS said that he quite agreed with Dr. Dauber, but he thought they were attempting too much at first. Their first endeavour should be to stop the abuse of medical charities. But this could not be done by an almoner. He could quote numerous instances to prove this. The only way was to have some proof of the patient's means. To arrive at this he would suggest: "That no patient be seen at a hospital until a general practitioner or a clergyman has filled up a form provided for the purpose, stating that he or she is deserving of charity." At the Chelsea Hospital for Women every endeavour was made to prevent patients coming in unless they were deserving. If the British Medical Association could arrive at some definite resolution of this kind, other reforms would follow.

Dr. F. HEWKLEY said all ranks of the profession were admittedly interested in the hospital abuse, and suffered in a greater or less degree, directly or indirectly. Nothing short of police supervision would check the gross abuse of both the out-patient and in-patient departments. Any body deemed ineligible should be served with a summons and charged with fraudulently obtaining medical advice under false pretence, and subject to a penalty of 40s.

Dr. MCCANN said that the great evil which existed at the present time was the competition between the different hospitals. The question of hospital abuse had been debated for the last thirty years, many meetings had been held, and many proposals brought forward, and still

medical men were calling out in the wilderness, whilst the question of hospital abuse remained unaltered. The question had now assumed an acute phase, owing to the fact that various metropolitan hospitals were feeling the pinch of poverty, and the authorities, both medical and lay, were beginning to awaken from their apathetic condition. They all admitted that abuse existed both in the out-patient and in-patient departments of their hospitals, and it was needless to continue adding to the innumerable instances which had been brought forward; but as practical men they should seek out the remedy. Who was going to enforce the suggestions adopted by this or any other meeting? Did they imagine that the hospitals were going to obey the mandate of the British Medical Association? Many medical men associated with the hospitals scorned the Association, while others were not members of it. Their duty clearly lay in persuading every medical man to become a member of the Association. He suggested that the whole weight of the Association should be employed in agitating for the formation of a Central Hospital Council, which should be formed by an amalgamation of the three existing hospital funds—namely, King Edward's Fund, the Hospital Saturday Fund, and the Hospital Sunday Fund—together with an equal number of medical members. That medical men should have an equal representation on this Council was, in his judgement, a point of vital importance. They had fought long and well to gain their position on hospital Boards, and it would be a grievous error to retreat when on the eve of victory. Nothing could be done or would be done until a central authority was constituted, backed up by financial support and able to compel the different metropolitan hospitals to come into line. This central authority should be absolutely non-political, as he was strongly opposed to State-aided hospitals, which would pave the way for numerous abuses, even greater abuses than those existing. He would urge that all their efforts should be directed to the formation of a Central Hospital Council, and that this meeting should unanimously approve this suggestion. After this council was formed it would be easy to carry out the necessary reforms which had been suggested from time to time.

Dr. R. Capes quite agreed that the present system of hospital management was obsolete, and no one was aware of this more than the hospital staffs themselves. In proof of this he would say that King's College Hospital, in view of their proposed removal to Camberwell, approached the Lambeth, Norwood, and Wandsworth Divisions to elect a committee of practitioners to express the views of the medical practitioners of the South London area as to the best methods of safeguarding their interests in connexion with the framing of rules for the out-patient department, as well as for the admission of in-patients, and to express an opinion as to the question of paying patients. This committee was formed, and added representatives of all the medical charities and medical societies in the neighbourhood. The only addition to the resolution before the meeting which he should like to suggest would be "and whose complaints are so trivial as to be unsuitable for hospital treatment," as this covered the nature of the illness as well as the financial position, and it was equally important to sweep out the crowd of trivial ailments as to expel those who could pay.

Dr. P. H. Parsons (Chelsea Division) commented on the fact that there were no representatives of the King Edward's or Saturday or Sunday Funds present to take notice of the various specific cases of hospital abuse quoted by the various speakers, as no doubt the funds would on the evidence cut down their financial aid for the forthcoming year. He also suggested that as the present system of hospital-appointed almoners was entirely unsatisfactory, the associated funds should appoint their own almoners who should be responsible only to the funds and should report directly to them any cases of patients endeavouring to obtain free medical attendance when they were able to pay for it.

Mr. Hamly Hilliard thought that the hospital abuse resulted largely from the fact that hospital patients received their treatment for nothing, and urged that every patient be made to pay according to his means, and that destitute patients be always referred to the Poor Law, others being made to bring a certificate from either a doctor or a relieving officer, or their last rent receipt; he believed this would act as a deterrent, particularly if the payments were proportionate to the recipient's means, the question of the acceptance of the patient and the amount of the payment being decided by a relief committee; urgent cases being, of course, exceptional.

Mr. Herbert Tanner objected to the suggestion of State-supported hospitals, but was in favour of control of such a body as could be formed from the Hospitals Funds Committee with an equal number of medical men. He would like to see ordinary cases admitted to hospital treatment only on production of a letter or visiting card from the medical attendant, which would pass first into the hands of a paid almoner appointed by the Hospitals Funds Committee, who would have power to reject or admit, but would be mainly guided in his action by the doctor's statement. Mr. Tanner felt that an end could be made to this grievance if the staffs would come forward and join the Association, and say boldly to the lay committees and to the public, "Here is a long existing and an increasing hardship for the profession and an injustice to the charitable and the deserving poor; there must be an end to it." Hospitals could only work with money and medical services, and both at present were charitable gifts; surely, therefore, the voice of the staffs must be listened to, and he appealed strongly for their brotherly support. Amongst other duties, the proposed central hospital committee could veto the building of hospitals that were unnecessary and therefore undesirable. Now hospital walls were run up, and at once an appeal made for funds, whether the building was likely to be useful to the poor or not—another grievous waste of charitable funds.

The resolution was adopted.

The following resolution was then proposed by Dr. Dauber:

> That the Westminster Division considers that the first step in obtaining any remedy for hospital abuse is the constitution of a central hospital authority—composed of an amalgamation of King Edward's Fund, Hospital Sunday Fund, Hospital Saturday Fund, and the Charity Organization Society, with an equal number of medical members.

This was seconded by Dr. McCann, and carried unanimously.

Stratford Division.

A meeting of the Division was held on Thursday, November 15th, at the Bow and Bromley Institute, Dr. E. B. Hastings presiding.

Confirmation of Minutes.—The minutes of the previous meeting were confirmed.

Address.—Dr. J. Biernacki, of the Plaistow Fever Hospital, gave an address on the treatment of high temperatures. The address, which was not only highly scientific but also eminently practical, met with the cordial appreciation of the audience. A considerable number of questions were put to the lecturer during the ensuing discussion, and after Dr. Biernacki had answered these he was awarded a very hearty vote of thanks.

Annual Representative Meeting.—Dr. Percy Rose, Representative of the Division, then made his report on the Annual Representative Meeting, and at the close was, on the motion of the Chairman, awarded a hearty vote of thanks. The proceedings then terminated.

BIRMINGHAM BRANCH:

Warwick and Leamington Division.

A meeting of the members of this Division was held at the invitation of the Chairman at 26, The Parade, Leamington, on December 8th, at 8.30 p.m. Mr. W. G. Silvester, Chairman, presided.

Hospital Reform.—The recommendations of the Hospitals Committee were discussed, and in the main approved of.

School Certificates.—It was proposed by Dr. Thursfield, seconded by Dr. Hicks, and unanimously carried:

> That the President of the Birmingham Branch be requested to bring the question of payment by the Educational Authorities for school certificates in cases of illness before the Branch Council with a view to submitting it to the Division.

Compulsory Notification of Phthisis.—It was proposed by Dr. Hicks, seconded by Dr. Thursfield, and carried unanimously:

> That this meeting of the Warwick and Leamington Division of the British Medical Association expresses its conviction that pulmonary phthisis should be included among the list of compulsory notifiable diseases, and that it should be made compulsory that efficient disinfection of premises

where death has occurred from such disease should be undertaken by the local health authorities, and resolves that a copy of this resolution be forwarded to the Birmingham Branch Council.

LANCASHIRE AND CHESHIRE BRANCH: WARRINGTON DIVISION.

A QUARTERLY meeting was held at Warrington Infirmary on December 11th.

Apologies for Non-attendance.—The SECRETARY reported letters of apology for absence owing to unavoidable causes from Dr. Burrowes (President), and Dr. Mercer.

Previous Meeting.—At the previous meeting, there being no quorum there was nothing to report.

The Division and Its Meetings.—Some twelve medical men in the Division had been written to by the Secretary, who were non-members, suggesting they should join. One answer was received: the gentleman was not inclined at present to join the society. It was proposed and seconded:

That the experience of the Warrington Branch of the British Medical Association is that the meetings are not a success owing to the paucity of attendance of the members.

Expenses of Representatives.—It was proposed and seconded:

That the sum of £1 1s. per day and travelling expenses be paid to this Division's representative at the Representative, Annual, and Special Meetings; that such expenses be defrayed out of the general expenses of the British Medical Association.

Proposed Royal Charter.—Subsequently a discussion on the Charter was adjourned to a special meeting to be held in January, notice of which the Secretary was instructed to send to the members, and also of a joint meeting of the St. Helen's and Warrington Branches to be held for the purpose of appointing a joint Representative in this matter.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.

THE autumn meeting was held at the New Inn Hotel, Pontypridd, on December 13th, the PRESIDENT in the chair.

Vote of Sympathy.—A vote of sincere sympathy with and continued confidence in Mr. Lynn Thomas and Dr. Skyrme was unanimously passed.

General Medical Council Election.—The result of the election of Direct Representatives on the General Medical Council was announced, and Dr. Latimer's thanks to the members of the Branch was conveyed by Dr. MACLEAN. A vote of congratulation to Dr. Latimer was carried unanimously.

Contract Practice Fund.—Dr. E. J. MACLEAN, the Honorary Secretary and Treasurer, reported on the condition of the Fund, and announced a generous donation of £50 towards it from Sir Victor Horsley. He emphasized the importance of the members of the Branch giving their heartiest support to the work of the Contract Practice Committee and Fund. Although a large amount had been collected, it had been subscribed by only 170 out of over 500 members.

Ebbw Vale Dispute.—Dr. GREER detailed the position of affairs at Ebbw Vale, of which he formed a favourable opinion.

Communications.—Dr. W. MITCHELL STEVENS read a very interesting paper on the modes of dissemination of intra-abdominal malignant disease. It was discussed by Dr. EGBERT WILLIAMS and Mr. W. SHEEN, to whom Dr. Stevens replied. Mr. WILLIAM SHEEN read a paper on the results of operation in 225 cases of hernia, from which he deduced some highly instructive lessons. Three other papers were not read owing to the absence of the readers.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN seventy-six of the largest English towns, including London, 7,623 births and 5,271 deaths were registered during the week ending Saturday last, December 15th. The annual rate of mortality in these towns, which had been 15·8 per 1,000 in each of the two preceding weeks, increased last week to 17·4 per 1,000. The ratio in the several towns ranged from 7·3 in Ipswich, 7·4 in Handsworth (Staffs.), 7·8 in Hastings, 8·3 in Warrington, 9·3 in King's Norton, 9·7 in Leyton, 9·9 in Burton-on-Trent, and 10·2 in Hornsey, to 22·0 in Gateshead, 23·0 in Stockport, 23·7 in Preston, 24·0 in Oldham, in Middlesbrough, and in Sunderland, 26·4 in Burnley, and 28·7 in Rochdale. In London the rate of mortality was 18·0 per 1,000, while it averaged 17·1 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1·4 per 1,000 in these towns; in London this death rate was equal to 1·2 per 1,000, while among the seventy-five large provincial towns the rates ranged upwards to 3·4 in Hull, 3·5 in Norwich and in Merthyr Tydfil, 3·6 in Middlesbrough, 4·0 in Devonport, 4·2 in South Shields, 5·1 in Rotherham, 5·5 in Bootle and 6·0 in Rochdale. Measles caused a death-rate of 1·3 in Norwich and in Aston Manor, 1·5 in Warrington, 1·6 in Leicester, 1·8 in Hull, 2·0 in Devonport, 2·7 in Plymouth, 2·8 in Newport (Mon.), 3·2 in Bootle, 4·2 in Rochdale and in South Shields, and 5·1 in Rotherham; diphtheria of 1·4 in West Hartlepool, 1·6 in Wallasey and in Bootle, 1·7 in Derby, and 2·0 in Reading and in Stockton-on-Tees. whooping-cough of 1·1 in Willesden and 1·6 in Swansea; and "fever," of 1·6 in Middlesbrough; and from diarrhœa, of 1·2 in Wigan and 1·4 in Merthyr Tydfil. The mortality from scarlet fever showed no marked excess in any of the large towns. One fatal case of small-pox was registered in Hull, but none in any other of the large towns, and no small-pox patients were under treatment last week in any of the Metropolitan Asylums Hospitals. The number of scarlet fever cases in these hospitals and in the London Fever Hospital, which had been 4,144, 4,053, and 4,062 at the end of the three preceding weeks, had declined again to 3,986 at the end of last week; 389 new cases were admitted during the week, against 467, 401, and 424 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

DURING the week ending Saturday last, December 15th, 864 births and 620 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 19·1, 17·6 and 18·4 per 1,000 in the three preceding weeks, declined again to 18·1 per 1,000 last week, but was 0·7 per 1,000 above the mean-rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 16·2 in Greenock and 16·8 in Paisley to 19·1 in Edinburgh and 19·6 in Perth. The death-rate from the principal infectious diseases averaged 1·6 per 1,000 in these towns, the highest rates being recorded in Aberdeen and Perth. The 289 deaths registered in Glasgow included 6 which were referred to diphtheria, 13 to whooping-cough, 3 to "fever," 5 to diarrhœa, and 4 to cerebro-spinal meningitis. Four deaths from measles, 2 from diphtheria, and 2 from diarrhœa were recorded in Aberdeen; 3 from diarrhœa in Edinburgh; and 3 from diphtheria in Dundee.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, December 15th, 506 births and 352 deaths were registered in six of the principal Irish towns, as against 453 births and 373 deaths in the preceding period. The annual death-rate in these towns, which had been 23·5, 19·7, and 20·3 per 1,000 in the three preceding weeks, rose to 20·8 per 1,000 in the week under notice, this figure being 3·4 per 1,000 higher than the mean annual rate for the seventy-six English towns for the corresponding period. The figures ranged from 14·9 in Londonderry and 16·4 in Limerick to 22·3 in Dublin and 33·1 in Waterford. The zymotic death-rate during the same period, and in the same six Irish towns, averaged 1·8 per 1,000, or 0·3 per 1,000 higher than during the preceding period, the highest figure—5·8—being recorded in Waterford, while Londonderry and Limerick registered no deaths under this heading at all. In all Ireland there were 2 deaths from scarlet fever, 9 from whooping-cough, and 7 from diphtheria.

Naval and Military Appointments.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL C. E. NICHOL, D.S.O., M.B., has been appointed Commandant at the Training School, R.A.M.C. School of Instruction, Aldershot, vice Lieutenant-Colonel T. J. R. Lucas, C.B., M.B., who has proceeded to India.

Lieutenant-Colonel G. T. GOGGIN has been appointed Administrative Medical Officer at Belfast.

Captain H. HARVEY, M.B., Calcutta, is appointed Specialist in the Prevention of Disease.

INDIAN MEDICAL SERVICE.

THE undermentioned Majors, all of whom entered the service as Assistant-Surgeons, September 30th, 1886, are promoted to be Lieutenant-Colonels from September 30th: R. J. MACNAMARA, M.D., H.W. PILGRIM, M.B., F.R.C.S., F. W. THOMSON, M.B., E. H. BROWN, M.D., F.R.C.S.E., C. N. BENSLEY, S. H. HENDERSON, M.B., B. B. GRAYFOOT, M.D., D. W. SCOTLAND, M.B., F. R. M. GREEN, F.R.C.S., R. H. CASTOR, T. E. DYSON, M.B., E. C. HARE, F. C. CLARKSON, J. G. JORDAN, M.B., H. M. MORRIS, A.R.P. RUSSELL, J. MORWOOD, M.D., F. G. MAINWENT, and E. A. W. HALL, M.B. Such of these as have war records in the Army Lists are as follows: Lieutenant-Colonel Green: Hazara Expedition, 1888 (medal with clasp). Lieutenant-Colonel Castor: Wuntho Expedition, Burmah, 1891 (mentioned in dispatches, medal with clasp). Lieutenant-Colonel Clarkson: Chin-Lushai Expedition, 1889-90 (medal with clasp); Thetta Column, Burmah, 1891 (clasp); Manipore Expedition, 1891 (clasp). Lieutenant-Colonel Russell: Burmese Expedition, 1887-9 (medal with clasp). Lieutenant-Colonel Morwood: Hazara Expedition, 1888 (medal with clasp); Tirah Campaign, 1897-8 (medal with two clasps). Lieutenant-Colonel Maidment: Burmese Expedition, 1887-9 (medal with clasp); China, 1900 (medal).

Captains A. GWYTHER, M.B., F.R.C.S.E., and J. A. HAMILTON, M.B., F.R.C.S.E., who joined the department as Surgeon-Lieutenants, January 29th, 1895, are promoted to be Majors, from July 29th. Neither of these has any war record.

Captain HAROLD WHALE, who entered as Lieutenant, September 1st, 1902, has resigned the service from November 30th.

Captain W. S. J. SHAW, M.B., Western Command, has been appointed Specialist in Psychological Medicine; and Lieutenant W. GILLITT, Northern Command, Specialist in Midwifery and Gynæcology.

Association Notices.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

THE Library will be closed from Saturday, December 22nd to Thursday, December 27th, 1906.

GUY ELLISTON, *General Secretary.*

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BATH: ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer.

BOURNEMOUTH: ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary, £10 a month.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Assistant House-Surgeon. Salary, £50 per annum.

BRISTOL ROYAL INFIRMARY.—Surgical Registrar.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Grays Inn Road, W.C.—(1) Non-Resident House-Surgeon. (2) Three Registrars. (3) Assistant Anæsthetist.

CHELSEA HOSPITAL FOR WOMEN, Fulham Road, S.W.—(1) Resident Medical Officer. Salary, £80 per annum. (2) Clinical Assistant.

DERBYSHIRE ROYAL INFIRMARY.—(1) Two House-Surgeons. (2) House-Physician. (3) Assistant House-Surgeon. Salaries for (1) and (2) £100 per annum, and (3) at the rate of £60 per annum.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—House-Physician. Honorarium, £25 for six months.

EDINBURGH SCHOOL BOARD.—Medical Officer. Salary, £400 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway Road, N.—Casualty Officer, male. Salary, £100 per annum.

GRESHAM COLLEGE.—Gresham Lectureship on Physics.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—House-Surgeon. Salary, £20 for six months and £2 10s. washing allowance.

MANCHESTER ROYAL INFIRMARY.—Director of the Clinical Laboratory. Salary, £100 per annum.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton Street, W.—(1) Two Clinical Assistants. (2) Two Anæsthetists.

MIDHURST: KING EDWARD VII SANATORIUM.—(1) Pathologist; (2) Two House-Physicians. Salaries for (1) £220 per annum; and for (2) at the rate of £50 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Senior House-Physician. Salary, £50 per annum.

NEWPORT BOROUGH ASYLUM, Caerleon.—Assistant Medical Officer, male. Salary, £150 per annum.

NORFOLK COUNTY ASYLUM, Thorpe.—Junior Assistant Medical Officer; male. Commencing salary, £150 per annum.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney Road, E. (1) House-Surgeon; (2) House-Physician. Salary at the rate of £50 per annum each.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House-Surgeon. Salary, £50 per annum.

NORWICH: JENNY LIND INFIRMARY FOR CHILDREN.—Lady Resident Medical Officer. Salary, £50 per annum.

NORWICH: NORFOLK AND NORWICH HOSPITAL.—Two Male Assistant House-Surgeons. Honorarium, £20 each for six months.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

ROYAL EYE HOSPITAL, Southwark.—Honorary Assistant Surgeon, with care of out-patients.

ST. PANCRAS AND NORTHERN DISPENSARY, Euston Road, N.W.—Honorary Physician.

SALFORD BOROUGH FEVER HOSPITAL.—Assistant Medical Officer. Salary, £150 per annum.

SALISBURY INFIRMARY.—Assistant House-Surgeon. Salary, £50 per annum.

SHEFFIELD ROYAL HOSPITAL.—Fourth, Fifth, and Sixth Residents. Salary for Fourth, £80; the others, £50 per annum.

SHEFFIELD UNIVERSITY.—Professor of Pathology.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Etc., Welbeck Street, W.—(1) Physician: (2) Medical Officer in charge of Electrical Department.

YORKSHIRE: EAST AND WEST RIDING COUNTY COUNCILS, etc.—Bacteriologist to carry out investigation as to the conditions of milk supply for the district. Remuneration, £250 for 12 months.

APPOINTMENTS.

BEAMAN, E. H., L.R.C.P., and S. Lpol., Certifying Factory Surgeon for the Normanton District, co. York.

BOYD, John C., M.B., Ch.B., Non-resident House-Physician to Dr. Norman Walker, Edinburgh Royal Infirmary.

CUNNINGHAM, Richard G., M.B., Ch.B.Edin., House-Physician and Pathologist at Sunderland Infirmary.

CURRIE, James, M.B., C.M.Edin., Certifying Factory Surgeon for the Springhead District, co. York.

DIXON, W. J., M.B., M.S.Madras, M.R.C.S., L.R.C.P., District Medical Officer of the Wincanton Union.

DUNLOP, J. B., M.B., B.C.Cantab., Assistant Physician at Bradford Royal Infirmary.

ECKENSTEIN, K. E., M.R.C.S., L.R.C.P., Clinical Assistant to the Chelsea Hospital for Women.

FLEETWOOD, W. H., M.R.C.S., L.R.C.P., Resident Assistant Medical Officer, West Derby Union Infirmary.

GAULT, David, M.D., F.R.C.S., Surgeon-Captain to the Tauranga Mounted Rifles.

KELLY, T. Gordon, M.D., Dip. State Medicine (Dub.), D.P.H. Oxon., reappointed Medical Officer of Health, Market Borwick Rural District.

SIMON, R. M., M.D.Camb., F.R.C.P.Lond., Extra Examiner in Medicine at the University of Cambridge.

SIMPSON, W. B., M.B., C.M.Aberd., D.P.H., Medical Officer of Health, Borough and Port of Grimsby.

SPAIGHT, Henry W., L.R.C.P., L.R.C.S.I., Surgeon to the Post Offices at Porthleven, Breage, and Ashton; and Surgeon to the Cornwall County Police, Porthleven and Breage.

WILCOX, W. H., M.D.Lond., M.R.C.P., Physician to the Great Northern Central Hospital, Holloway, N.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTH.

SMITH.—On December 8th, at Brabourne, Kent, the wife of William Smith, M.B., of a daughter.

BOOKS, ETC., RECEIVED.

Traité de Thérapeutique Orthopédique. Par le Dr. C. Ducroquet. Paris: J. Rousset. 1907. Fr.15.

Leçons de Thérapeutique Pratique. Par G. Rauzier. Montpellier: Coulet et Fils; Paris: Masson et Cie. 1907. Fr.4.50.

London: H. K. Lewis:

A Handbook of the Diseases of the Eye and their Treatment. By H. R. Swanzy, A.M., M.D., and L. Werner, M.B., F.R.C.S.I. Ninth Edition. 1907. 12s. 6d.

The Bacteriological Examination of Water Supplies. By W. G. Savage, B.Sc., M.D., D.P.H. 1906. 6s. 6d.

Department of Commerce and Labor Bureau of the Census.—S. N. D. North, Director. Special Reports. The Blind and the Deaf. 1906. Washington Government Printing Office. 1906.

Therapeutische Technik für die ärztliche Praxis. Herausgegeben von Professor Dr. J. Schwalbe. Erster Halbband. Leipzig: G. Thieme. 1906. M.8.80.

The Chemical Investigation of Gastric and Intestinal Diseases by the Aid of Test Meals. By V. Harley, M.D.Edin., M.R.C.P., F.C.S., and F. W. Goodbody, M.D.Dub., M.R.C.P. London: E. Arnold. 1906. 8s. 6d.

How to Keep Well. By C. S. Read, M.B., M.R.C.S., F.R.C.P. London: T. Fisher Unwin. 1907. 2s. 6d.

List of Annual Subscriptions to English and Foreign Newspapers, Magazines, etc. Eighteenth Edition. London: W. Dawson and Sons, Limited. 1907.

Politics and Disease. By A. Goff and J. H. Levy. London: P. S. King and Son. 3s. 6d.

Jena: G. Fischer:

Experimentelle und klinische Untersuchungen über die Histogenese der myeloiden Leukämie. Von Dr. K. Ziegler. 1906. M.4.50.

Ueber die Rolle des Sympathicus bei der Erkrankung des Wurmfortsatzes. Von Dr. E. Hönck. 1907. M.4.

Textbook of Comparative General Pathology. By Professor Dr. Th. Kitt. Authorized translation by Dr. W. W. Cadbury. Edited by Dr. A. J. Smith. London: Baillière, Tindall and Cox. 1906. 25s.

London: J. Whitaker and Sons, Limited:

Whitaker's Almanack for 1907. By J. Whitaker, F.S.A. 2s. 6d.

Whitaker's Peerage, Baronetage, Knightage and Companionage for 1907. 3s. 6d.

The Christmas Bookseller. 1906. 1s.

Reports of the Society for the Study of Disease in Children. Vol. VI. Session 1905-6. Edited by G. Carpenter, M.D. London: J. and A. Churchill. 12s. 6d.

The Nurses' "Enquire Within." By C. O. M. London: The Scientific Press. 2s.

Herbert Fry's Royal Guide to the London Charities. Edited by J. Lane. 43rd edition. London: Chatto and Windus. 1907. 1s. 6d.

The Yearbook of the Scientific and Learned Societies of Great Britain and Ireland. Compiled from official sources. Twenty-third annual issue. London: C. Griffin and Co., Limited. 1906.

Recent Progress in the Study of Variation, Heredity, and Evolution. By R. H. Lock, M.A. London: J. Murray. 1906. 7s. 6d.

Post-mortem Pathology. By H. W. Cattell, A.M., M.D. Third edition. Philadelphia and London: J. B. Lippincott Co. 1906. 18s.

Die Therapie der Haut- und Geschlechtskrankheiten. Von Dr. R. Ledermann. Dritte Auflage. Berlin: O. Coblentz. 1907. M.6.

Die Lehre von der Krebskrankheit von den ältesten zeiten bis zur Gegenwart. Von Sanitätsrat Dr. J. Wolff. Jena: G. Fischer. 1907. M.20.

Philadelphia and London: W. B. Saunders and Co. 1906:

The Technic of Operations upon the Intestines and Stomach. By A. H. Gould, M.D. 21s.

Prevalent Diseases of the Eye. By S. Theobald, M.D. 12s.

Photoscopy (Skiascopy or Retinoscopy). By M. D. Stevenson, M.D. 5s.

A Manual of Normal Histology and Organotherapy. By C. Hill, Ph.D., M.D. 10s.

A Textbook on the Practice of Gynecology. By W. E. Ashton, M.D., LL.D. Third edition. 27s. 6d.

A Textbook of Pathology. By A. Stengel, M.D. Fifth edition. 21s.

A Textbook of Obstetrics. By B. C. Hirst, M.D. Fifth edition. 21s.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date	Meetings to be Held.
DECEMBER.	
21 FRIDAY.....	Extraordinary General Meeting, at 3 p.m., at the offices of the Association, 429, Strand, W.C.
22 SATURDAY ..	
23 Sunday	
24 MONDAY	
25 TUESDAY	*Christmas Day.*
26 WEDNESDAY	*Bank Holiday.*
27 THURSDAY ..	
28 FRIDAY ..	
29 SATURDAY ..	
30 Sunday	
31 MONDAY	
JANUARY.	
1 TUESDAY.....	Subscriptions to the British Medical Association for 1907 become due.
2 WEDNESDAY	
3 THURSDAY ..	
4 FRIDAY	
5 SATURDAY ...	
6 Sunday	
7 MONDAY	
8 TUESDAY ...	LONDON: Organization Committee, 11 a.m. LONDON: Public Health Committee, 3.15 p.m.
9 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m. LONDON: Medical Witnesses Sub-committee, 1.45 p.m.
10 THURSDAY	LONDON: Hospitals Committee, 2.30 p.m.

Date.	Meetings to be Held
JANUARY *(Contined).*	
11 FRIDAY ...	LONDON: Central Ethical Committee, 2 p.m. HAMPSTEAD DIVISION, *Metropolitan Counties Branch.*
12 SATURDAY	
13 Sunday	
14 MONDAY	
15 TUESDAY ..	LONDON: Poor-Law Committee (English Members), 1.30 p.m. CITY DIVISION, *Metropolitan Counties Branch*, Great Eastern Hotel, E.C., 4 p.m.
16 WEDNESDAY	
17 THURSDAY...	
18 FRIDAY	
19 SATURDAY ...	
20 Sunday	
21 MONDAY	
22 TUESDAY ...	
23 WEDNESDAY	CENTRAL COUNCIL.
24 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.45 p.m.
25 FRIDAY	
26 SATURDAY ..	
27 Sunday.....	
28 MONDAY	
29 TUESDAY	
30 WEDNESDAY	BATH AND BRISTOL BRANCH, Bristol.
31 THURSDAY...	
FEBRUARY	
1 FRIDAY.. ..	
2 SATURDAY	
3 Sunday ..	
4 MONDAY ...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom, and £1 12s. 6d. for abroad.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 29TH, 1906.

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Meetings of Branches & Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.*]*

BORDER COUNTIES BRANCH:
WEST CUMBERLAND DIVISION.

A MEETING of the West Cumberland Division was held on Thursday, November 29th, at 3.45 p.m., at the Cottage Hospital, Maryport. Dr. H. MITCHELL, Chairman, presiding.

Radical Cure for Hernia.—Dr. PROUD (Maryport) read notes on 20 cases of radical cure for hernia, in which he pointed out the difficulties he had experienced; 12 were left, 7 right, and 1 ventral with adherent membrane. Two femoral were strangulated. In 5 cases the silk sutures suppurated, so now he uses catgut, with better results so far as suppuration is concerned. Orchitis with atrophy followed after one operation. So far no recurrence has followed any of the operations. Dr. Proud showed pathological specimens: (1) Cystic goitre; (2) ovarian tumour of more than ten years' duration; (3) radial artery with aneurysmal pouch following trauma.

Cases and Specimens.—Dr. J. W. CRERAR (Maryport) exhibited the following: (*a*) Cases: (1) Boy operated on for epispadias by Cautwell's operation (case described at Keswick meeting of Border Counties Branch held on May 4th); (2) man showing result of wiring fractured patella. (*b*) Photograph of Thiersch skin grafting for large ulcer of back resulting from burn. Reference was made to the device of covering with a thin film of celloidin the surface from which the grafts were cut, thus rendering the culture of grafts much easier, and simplifying the spreading of same. (*c*) Specimens: (1) Right Fallopian tube and ovary from a case of acute salpingitis and peritonitis in a young woman aged 26; at the time of operation pus was exuding from patent fimbriated ostium; treatment by laparotomy and drainage through abdominal wound and vagina with successful result; (2) cystic parovarian tumour from woman aged 36.

Proposed Amalgamation with North Cumberland Division.—It was proposed by Dr. J. W. CRERAR (Maryport), seconded by Dr. G. B. MURIEL (Whitehaven), and carried unanimously:

> That this Division is in favour of amalgamation with the North Cumberland Division of the Branch, subject to such other changes of the north area as are determined by the Branch.

CAPE OF GOOD HOPE (EASTERN PROVINCE) BRANCH:
GRAHAMSTOWN DIVISION.

THE annual meeting of this Division was held on November 16th at Steinmann's Hotel, Grahamstown, Dr. J. BRUCE-BAYS in the chair.

Dinner.—The members dined together before the meeting.

Apology for Absence.—A letter of apology for absence from Dr. C. E. Jones-Phillipson was read.

Election of Officers.—The results of the ballot for office-bearers was then declared to be as follows: *Chairman*, Dr. C. E. Jones-Phillipson (Port Alfred); *Vice-Chairman*, Dr. R. C. Mullins (Grahamstown); *Secretary and Treasurer*, Dr. E. G. Dru Drury (Grahamstown); *Executive Committee*, Dr. J. Bruce-Bays (Grahamstown); Dr. T. L. Blackburn (Port Elizabeth); Dr. J. B. Greathead (Grahamstown); Dr. T. D. Greenlees (Grahamstown); Dr. W. L. A. Leslie (Grahamstown); Dr. T. D. Miller (Fort Beaufort); Dr. F. E. Murray (Graaff-Reinet); Dr. L. Watson (Aliwal North); Dr. H. Caiger (Burghersdorp); Dr. A. Gooding (Adelaide); Dr. E. R. Rowland (Dordrecht); Dr. A. C. Wroughton (Grahamstown), the sixteenth seat being reserved for the Representative to be elected in March, 1907.

Reports of Secretary and Treasurer.—The annual reports of the Secretary and Treasurer were then read and adopted. A vote of thanks to the Secretary was passed.

The Question of Branch.—After discussion of the relative position of the Eastern Province Branch to its constituent Divisions, it was resolved:

> That Colonel Bruce be advised that this Division is of opinion that there is no longer any justification for the existence of a "Branch" in the Eastern Districts of Cape Colony.

Bloemfontein Congress.—Dr. BRUCE BAYS, delegate to the Bloemfontein Congress, reported the general results of the Congress to the meeting, and received a formal vote of thanks for his services.

Colonial Medical Council Election.—The forthcoming Colonial Medical Council Election was then discussed with considerable detail, as also the qualifications of the candidates, and it was resolved that, the meeting being fully convinced of the present and future importance to the profession of a proper settlement of the "reciprocity" question, a letter should be addressed to each of them, stating:

> That this meeting of the Grahamstown Division of the British Medical Association is strongly in favour of strict reciprocity without any exemptions, and requests a definite statement of your views, and that a copy of this resolution be sent to Cape Town, Kimberley, and East London.

It was further resolved:

> That the Medico-Political Committee communicate the above resolutions to our local members of Parliament.

DUNDEE BRANCH.

AN ordinary meeting of this Branch was held in the Students' Union, Dundee, on December 4th, at 8.30 p.m., Dr. KINNEAR in the chair.

Confirmation of Minutes.—The minutes of the annual meeting and of the Dundee Committee on the terms of the appointment of a medical officer to Dundee School Board were read, approved, and signed.

"Bradford Rules."—It was reported that the Central Council had sanctioned the adoption of the "Bradford Rules" with the slight verbal alterations proposed by the Branch.

Annual Representative Meeting.—The Representative at the Annual Representative Meeting gave a report on the proceedings at the meeting in London in July.

Election of Members of Central Council.—A circular was read from the Dublin Division of the Leinster Branch objecting to the resolution passed at the Representative Meeting to elect members of the meeting to the Council. It was resolved to take no action in the matter.

Hospitals Committee.—It was resolved that consideration of a circular from the Hospitals Committee be delayed and that the circular be distributed to the members.

Central Emergency Fund.—It was resolved on the recommendation of the Branch Council, that a donation of £5 be given to the Central Emergency Fund to be earmarked "Ebbw Vale Fund," and that a guarantee of £10 be given to the Central Emergency Fund to be returned in three years if not required, the sums to be taken from the funds at the credit of the Branch before the reconstitution of the Association.

Medical Practitioners and Chemists in Dundee.—It was resolved by 9 votes to 5:

> That the Dundee Branch of the British Medical Association recommends that in future no medical practitioner should accept from a chemist a commission in any form as a return for prescriptions dispensed by him, considering such a thing to be discreditable to the profession, unjust to the chemist, and unfair to the patient.

Scale of Fees in Dundee.—It was remitted to the Branch Council to revise the scale of fees formerly issued by the Forfarshire Medical Association and submit it to the Branch for consideration.

HONG KONG BRANCH.

The annual general meeting was held on November 5th, at 9 p.m., Dr. F. W. Clark, President, in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Cases.—Dr. Harston showed some interesting eye cases, which were discussed by Dr. Webb Anderson (Fatshan).

Retiring President's Address.—The outgoing President briefly sketched the transactions of the Branch during the past session, and then went on to refer to the main points mentioned in his address on the prevention of malaria in Hong Kong, which had previously been printed and circulated. The paper was discussed by Drs. Thomson, Koch, Webb Anderson, Stedman, and Harston, and Dr. Clark replied.

New By-law.—The President then moved the adoption of the proposed new by-law, which reads as follows:

> II. "No member of this Branch shall be eligible to represent this Branch, alone or in conjunction with any Branch with which it may for the time being be grouped for representation on the Council of the Association, until he has been a resident member of the Branch for a period of not less than three years, and no Representative so qualified shall continue to represent the Branch or group of Branches on the Council after he has been absent from the Branch for a period of three years."

This was seconded by Dr. Stedman, and carried *nem. con.*

Election of Officers.—The following officers were elected for the year 1906-7: *President:* Dr. D. V. M. Koch. *Vice-President:* Dr. Clark. *Honorary Secretary and Treasurer:* Dr. W. B. A. Moore. *Council:* Hon. Dr. Atkinson, Staff Surgeon Bell, R.N., Dr. Jordan, Captain Ranking, R.A.M.C., Dr. Stedman.

Installation of new President.—Dr. Koch then took the chair amidst applause, and in a few words thanked the members for his election. The meeting then terminated.

METROPOLITAN COUNTIES BRANCH:

Wandsworth Division.

An ordinary meeting of this Division, to which the members of the Lambeth Division were also invited, was held on Thursday, December 13th, at the Alexandra Hotel, Clapham Common, Dr. Llewellyn Williams, Chairman of the Division, presiding.

Confirmation of Minutes.—The minutes of the last two meetings were duly read and signed.

Hospital Reform.—A letter from Mr. Armit was read, suggesting that each of the Metropolitan Divisions should arrange for nine of their members to be present at the adjourned meeting of the British Medical Association on Friday, December 21st. This was acted upon, and nine members of the Division appointed.

General Medical Council Election.—The result of the General Medical Council election was then announced by the Chairman, the success of Dr. McManus being especially approved.

Paper.—Dr. Risien Russell then read a most interesting paper on the diagnosis of intracranial tumours, illustrated by lantern slides; and, in a discussion which followed, Drs. Biggs and McManus, with the Chairman, took part.

Skiagrams.—Dr. Capes (Chairman of the Lambeth Division) afterwards showed, in conjunction with Dr. Ironsides Bruce, some skiagrams from a case of osteomalacia of the spinal column.

Votes of Thanks.—Hearty votes of thanks to Dr. Risien Russell and Dr. Capes were carried with acclamation.

RICHMOND DIVISION.

A meeting of the Division was held on December 12th, at 8.30 p.m., at the Royal Hospital, Richmond. Dr. F. G. Crookshank occupied the chair.

Address.—Dr. G. S. Hovenden gave an interesting address on the Treatment of Bronchial Catarrh, which was followed by a discussion.

Cases and Specimens.—The following cases and microscopical specimens were shown:—Dr. Crook: Corneal opacities successfully treated by high-frequency current. Dr. Crookshank: Endothelial growth in the neck. Dr. Johnson: Splenic leukaemia with excessive enlargement of the spleen. Dr. Duncan: Microscopical slides showing the organism peculiar to "sleeping sickness." Dr. Blair: Several ophthalmic cases.

LANCASHIRE AND CHESHIRE BRANCH:

Manchester South Division.

A meeting of the members of this Division was held at Dr. Vipont Brown's, Longsight, at 3.30 p.m., on Tuesday, December 18th, Dr. Sawers Scott in the chair. The Chairman and Secretaries of the other Manchester Divisions were invited to be present and to take part.

Letters of Regret for Non-attendance.—Letters of regret were received from Dr. Donald (Chairman) and Dr. Clifford (Secretary) of the Central Division; from Dr. Skardon Prowse, Secretary of the West Division; and from Dr. McGowan, Secretary of the North Division. Dr. Owen, Chairman of the Salford Division, also expressed regret at inability to be present.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Letter from Dr. Skardon Prowse, Secretary of the West Division.

The following important letter from Dr. Prowse was read:

Manchester, December 10th, 1906.

Dr. Milson R. Rhodes, Honorary Secretary,
Manchester South Division.

Dear Sir,—A combined meeting of the Manchester and Salford Divisions was held at the Midland Hotel, on Wednesday, November 28th, 1906, for the purpose of considering the best means of furthering the work of the Association and the interests of the profession in and around Manchester by some form of co-operation on the part of the several Divisions. In calling the meeting the Manchester West Division were actuated solely by the desire of increasing the value of Association work without prejudice to the interests of any single Division. The Manchester South Division most cordially united with the West in promoting the meeting. As Secretary (*pro tem.*) I was instructed by the meeting to request you to bring the following resolutions to the notice of your Division at as early a period as possible:

1. That this meeting of the Manchester and Salford Division considers that the interest of the Association and of the profession will be best served by the discussion in combined meetings of matters of general interest to be decided on by a combined Committee.
2. That a Committee composed of the Chairman and Secretaries of Divisions be formed to carry out this scheme.
3. That it be an instruction to the Secretary of this meeting to inform the Divisions of what is proposed; and to say that we do not in any way wish to interfere with the authority, autonomy, or individuality of any Division. And that we hope this movement will be the means of securing greater sympathy and good feeling between the various Divisions and the various medical practitioners of Manchester and District.

The last resolution was proposed by the Chairman, Dr. Collins (ex-Chairman of the Manchester South Division), and seconded by Dr. Redmond, Chairman of the West Division.

I am, Sir, yours truly
J. Skardon Prowse, B.A.,
Honorary Secretary, Manchester West Division.

The Poor-law Royal Commission.

Dr. J. Milson Rhodes, J.P., then read his recommendations *re* the matters referred by the Poor-law Committee to the Divisions, for the use of the Royal Commission on the Poor Law (see page 307, Supplement to the British Medical Journal, December 8th). The numbering and lettering of Dr. Rhodes's recommendations are in accordance with those of the matters referred to the Divisions at the reference above mentioned. Dr. Rhodes said:

A. *Primarily Affecting Medical Men.*

1. The terms under which the medical officers under the Poor Law hold office should have no alteration made in them. I give the vast majority of Boards of Guardians credit for desiring to do the right thing by their officers, but it must not be forgotten that Poor Law, like all law, is meant to prevent wrongdoing, and cases where serious wrongdoing would have occurred if it had not been for the present system of fixity of tenure have come under my notice in several places; to part with the present system of fixity of tenure would be to destroy the Poor-law Medical Officers' Magna Charta. That the medical fees paid in many cases to the union medical officers are inadequate admits, I am afraid, of little doubt,; 3s. 4d. a case might be adequate if the statement of Mrs. Sydney Webb that "in practice the treatment consists of a bottle of physic" were true, but we know that it is very far from being even a general truth, and that many of the cases of sickness appear month after month on the list; there is no doubt that vaccination fees are usually taken into account, and add very considerably to the emolument of the Poor-law medical officer, as the following statistics prove:

District.	Cases.	Salary.	Vaccination Fees.	Total.
		£	£	£
A.	741	100	167	267
B.	900	100	135	235
C.	946	100	100	200
D.	499	130	89	219
E.	432	100	187	287
F.	449	85	232	317
G.	969	130	199	329
H.	286	60	107	167
I.	158	40	19	59
J.	69	40	29	69
K.	52	30	64	94

If the average fees are calculated it will be found that one medical officer receives under 2s. per case and another over 11s.—a very far from just distribution; of course full allowance must be made for the longer distances the medical officers have to travel in the more rural districts, but in these days of the motor car that cause of the variation will tend to diminish. Even "the gentleman in the white waistcoat" would hardly say that 1s. 10d. per case was adequate payment. The cause of the inadequate remuneration cannot be solely laid at the door of the guardians; there has been so much competition among certain members of the profession that I know in some unions it has led to a system of what is nothing better than sweating. I will give a case in point. A candidate called on me some three years ago, and said he "would be willing to do the whole of the district work for nothing if he were appointed public vaccinator." I am glad to say that he got neither. My reason for quoting this man's offer is that it has a strong tendency to convey to the lay mind the idea that the guardians were actually paying more than a fair remuneration, and so to depreciate the standard of remuneration of the medical officer. I trust the Poor-law Committee of the British Medical Association will carefully consider the whole question as to the system and the remuneration. It does appear to me doubtful if it is wise to compel all the poor to have one medical man, and only one, whether they like him or not. In the case of public vaccination, the present state of affairs must be swept away, and the Scotch one of placing every practitioner who wishes it on the *Register* must be substituted for it. I should like the Committee to consider very carefully if a different system could not be adopted, not the system proposed by a member of the Royal Commission of having special medical Poor-law officials appointed for Poor Law—that proposal alone shows how little is the grasp some have of the great question they have to attempt to solve, for no one who had real practical experience would even propose such a "wild-cat scheme," for you cannot imagine it working in the rural district.

2. The question as to the provision of drugs cannot be answered in one word, so far as regards the suggestion that they should be provided by the State, as arrangements were not made for their use in the present contracts.

As regards drugs in crowded districts like London and Manchester you might have Poor-law dispensaries, but when you come to consider the cases of rural union such a scheme is unworkable and absurd.

3. I have referred just now to the question of public vaccination. I never thought bringing the children together did much harm, and am amused to see some people who were the strongest opponents of vaccination stations now advocating *gouttes de lait* dépôts where the children are got together and weighed—I had almost said by the dozen; but leaving that aspect of the question aside, we are face to face with the fact that over £1,400 per annum in the Chorlton Union is going into the pockets of thirteen gentlemen—upwards of £100 each. I can, as I said just now, see no reason why every practitioner should not be a public vaccinator, and every parent have the right to call in whoever he likes. A case was brought under my notice officially where a vaccinating surgeon had gone to a house and stated that they had better let him vaccinate their child, as their own doctor could not get the Government lymph. That the vaccination fees are taken into account in fixing salaries admits of no doubt.

5. If the guardians wish to use the general hospital they must pay for their cases.

B. *Primarily Affecting the Public.*

1. That the general administration of the public hospitals should and can be carried out on first-class lines is proved by the excellent accommodation provided not only at many of the large but also of the smaller unions. There are several that I could name where the union would be ashamed to have such wretched accommodation as is found in some cases in London voluntary hospitals, specially the accommodation for nurses.

2. That Poor-law infirmaries and general hospitals can be brought under one management I very much doubt. You must remember that the general hospitals are, compared with the Poor-law hospitals, in a very small minority; there are more beds in the union hospitals of London than there are in all the general and special hospitals of England and Wales put together.

3. As regards the aged poor, it is as impossible to have one uniform system as it is to find a general specific. Circumstances alter cases, and a system that would answer well in a small rural union might be an utter failure in a large urban one. In regard to the aged poor, I say now, as I said years ago before a Parliamentary Committee on this very question: "That system of dealing with the aged is best which is best administered—in one case out relief, in another the homes; but if you adopt the latter, have a proper system of classification, so that Caleb Plummer and Bill Sykes have not to end their days in constant association." As regards the term you use to describe the institution, it makes little difference; the public know that the term "almshouse" in Germany, "poor house" in the United States, "workhouse" in England, or "hospital," mean one and the same.

4. (*a*) That power should be given to provide for really feeble-minded women admits of no doubt, and the same power should be given as regards mentally-degenerating epileptics.

(*b*) Deserted wives cannot be dealt with as a uniform mass. If they are deserving they should have out-relief; if not, indoor and strict supervision.

5. The isolation of infectious diseases is *pro bono publico*, and should be dealt with by the sanitary authority. To do this efficiently in the rural districts there must be combination, and in many cases the combination must be spread over wide areas; but with the motor ambulance the difficulties that formerly stood in the way will rapidly

disappear. The whole charge should be borne by the sanitary authority, as it is for the sanitation of the division.

6. District nurses are best provided by voluntary associations, so that their services can be available for cases of the non-pauper class.

The guardians should, of course, make grants in aid of the funds in proportion to the number of pauper cases.

7. In some cases to obtain proper classification for all sorts of cases it will be necessary for the Boards to adopt a system of voluntary combination, as in the case of Manchester and Chorlton, for epileptics and for vagrants; in others it may be necessary to combine for all purposes; but in no cases, though a union may cover several urban or rural district council areas, should the boundary fail to coincide with the external boundaries of the enclosed areas.

The meeting heartily approved of, agreed to, and adopted Dr. Rhodes's recommendations, and to give practical expression to them resolved that this meeting of the Manchester South Division, in response to the Poor-law Committee's invitation, wish to draw the Committee's attention to these recommendations on the matters referred by that Committee to the Divisions; and resolved, further, that this meeting are agreed as follows on these matters:

A 1. (1) That the present system of special Poor-law medical officers is unsatisfactory, both to the poor and to the profession.
(2) That every registered practitioner should be entitled to attend Poor-law cases unless he expresses his wish not to be on the list.
(3) That the relieving officer should allow the patient to take the order to such registered practitioner on the list desired by that patient.
(4) That there should be payment per case, the average amount being calculated over a large number of cases.
(5) The interest of the present Poor-law medical officers should be safeguarded.

3. That similarly with regard to vaccination the Scotch system should be adopted—that is, every registered medical man should be entitled to act as public vaccinator, such medical practitioners being bound by the regulations of the Local Government Board with regard to vaccination.

4. (1) That the union hospitals are used by people who could afford to pay a private practitioner.
(2) That the recipients of outdoor relief very often—*trusting to his benevolence*—prefer the attendance of a private practitioner to that of a Poor-law medical officer.

B. 5. That provision for infectious diseases should not be met by the Poor-law authorities.

Dr. Rhodes was accorded a unanimous and hearty vote of thanks for bringing these matters before the Division, and, on the proposal of Dr. Stennett Redmond, Chairman of the Manchester (West) Division, it was agreed to suggest that the above recommendations be brought before the first proposed combined meeting of the Manchester Divisions in the second week in January.

Medical Benevolent Institutions.

Dr. Collins, in opening the discussion on Dr. Jordan's most excellent report on the medical benevolent institutions (see Supplement to the British Medical Journal, December 1st, page 293), said: This is a sad record of trouble, sorrow, and failure amongst our professional brethren. We are a poor profession. I believe the average income of medical practitioners is only £300 per annum, and one realizes it is well-nigh impossible for many men to make any adequate provision for old age or for the necessities of widows and orphans. If Dr. Jordan will permit me, I would like to offer a few supplementary suggestions as to how the necessary funds might be raised to enable the Benevolent Institution to increase the annuities. I would point out *en passant* that this is an excellent occasion for showing the advantages of our new policy of linking up the five Manchester Divisions under the guidance of a central representative committee in a common object for the common good. The five Manchester and Salford linked Divisions, comprising 362 members, can do some real work which the isolated Divisions could not undertake. In addition to these 362 members we have about 100 unassociated practitioners in the Manchester and Salford district. I have no doubt if approached in the proper spirit and manner all these members of our profession could be brought into a co-operative scheme for the advantage of our profession. Every week we see in the British Medical Journal urgent appeals for help: let us try to help ourselves. When trouble, sorrow, or failure comes upon a household the women and children suffer most and first. The key-note of my proposals is that we should not be working for ourselves but for others who have a greater or lesser claim upon our sympathy. I now offer a few suggestions as to the best mode of raising the money Dr. Jordan has so plainly shown us is required.

1. That Dr. Jordan be requestsd and empowered to appoint an honorary lady secretary from among the practitioners' wives resident in the Manchester and Salford area.

2. That the lady secretary should secure the services of a medical man's wife in each district in the area to visit all the medical practitioners in her district to solicit a subscription from them. As each district would be small it would entail little work upon each lady.

3. That at a date to be arranged, each of those ladies would hand over her collection to the lady honorary secretary, who, in her turn, would furnish a report to Dr. Jordan and hand him the aggregate collection.

4. That when Dr. Jordan was forwarding the aggregated collected funds to the Benevolent Institute Committee he might attach a request—which would, I think, almost amount to a command—that when cases were specially recommended by the Manchester and Salford Committee special consideration should be given to these cases.

(This principle would give a local impulse to the work.)

5. That each lady, when collecting, should endeavour to obtain 2s. 6d. as a minimum subscription from each member of the profession in her area per annum, but that, when possible, she should boldly ask for a larger sum. Also, there would be nothing derogatory in asking other benevolent people to assist in this effort.

We medical practitioners do an immense amount of work gratuitously. We are always ready to help others; indeed, we often offer our services without being asked. Why should we hesitate to ask others to do unto us as they would we should do unto them?

I estimate that a systematic organization, somewhat on these lines, would succeed in raising a large sum of money annually, and perhaps the success of our local scheme might stimulate other Divisions to take up the same good work.

Note.—The Medical Benevolent Institute in 1905 granted small sums for temporary relief to:

21 medical men.
82 widows.
57 children

There are 123 annuitants who receive £20 each, consisting of:

20 medical men.
55 widows.
48 daughters.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

Edinburgh Branch.—It is proposed to hold the annual clinical meeting of the Edinburgh Branch in the Royal Infirmary, Edinburgh, on the second or third Friday in February, 1907.—A. Logan Turner, Francis W. Boyd, Honorary Secretaries.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments have been made at the Admiralty — Hugh W. Macnamara, Fleet Surgeon, to the Royal Marines, Portsmouth, December 17th: William J. Colborne, Fleet Surgeon, to the *Euryalus*, December 17th; Arthur Gaskell, Fleet Surgeon, to the *Hogue*, December 17th: Ernest C. Lomas, M.B., D.S.O., and Louis L. Greig, M.B., Surgeon, to the *Hibernia*, on commissioning, January 2nd, 1907; John Jenkins, Fleet Surgeon, to the *Cumberland*, on recommissioning, January 1st, 1907; George T. Broatch, M.D., Fleet Surgeon, to the *Cornwall*, on recommissioning, January 1st, 1907: James Bradley, M.D., Fleet Surgeon, to the *Victorious*, on recommissioning, January 1st, 1907; Beauchamp F. Parish, Staff Surgeon, to the *Implacable*, December 17th; William H. Thomson, Staff Surgeon, to the *Ariadne*, December 17th; Arthur E. Kelsey, M.B., Staff Surgeon, to the *Trafalgar*, on recommissioning, January 2nd, 1907.

CHANGES OF STATION.

The following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during November, 1906:

		FROM		TO
Colonel	J. G. Harwood	Portsmouth	...	Darjeeling.
Lieut.-Col.	S. C. B. Robinson	Colchester	...	W. Com., India.
..	T. J. R. Lucas, C.B., M.B.	Aldershot	...	Secunderabad.
..	G. W. Brazier-Creagh, C.M.G.	Bareilly	...	Hounslow.
..	W. W. Pike, D.S.O.	Mandalay	...	Maymyo.
..	C. E. Nichol, D.S.O., M.B.	Jubbulpore	...	Aldershot.
..	H. S. McGill	London	...	Bombay.
..	A. E. Morris, M.D.	Saugor	...	Jubbulpore.
..	R. L. R. Macleod, M.B.	Dublin	...	W. Com. India.
..	H. P. G. Elkington	Aldershot	...	India.
..	J. B. W. Buchanan, M.B.	Barrackpore	...	Maryhill.
..	J. J. O'Donnell, M.B.	Newcl-on-Tyne	...	W. Cd., India.
..	C. J. MacDonald, M.D.	Kilworth	...	Fermoy.
Major	A. Y. Reily, M.B.	Maymyo	...	Mandalay.
..	H. St. G. de Hore	Naas	...	Dublin.
..	D. Stiell, M.D.	Rangoon	...	Bhamo.
..	H. S. Peeke	Aldershot	...	N. Com., India.
..	E. McK. Williams	Brighton	...	Shorncliffe.
..	F. W. Begbie	Millbank	...	W. Com., India.
..	E. M. Morphew	E. Com., India		Meerut.
..	J. G. McNaught, M.D.	Malta	...	Edinburgh.
..	H. S. Thurston	N. China	...	London Dist.
..	F. A. Symons, M.B.	Mhow	...	..
Captain	H. Hewetson	Dover	...	Straits Settlmt.
..	M. MacG. Rattray, M.B.	Colaba	...	Bangalore.
..	A. H. O. Young	Belfast	...	Bermuda.
..	C. J. O'Gorman, D.S.O.	Shorncliffe	...	Brighton.
..	A. R. O'Flaherty	Mhow	...	Saugor.
..	M. H. G. Fell	Seaforth	...	Liverpool.
..	T. C. Lauder, M.B.	Edinburgh	...	Glencorse.
..	H. S. Taylor	—		Aldershot.
..	R. H. Lloyd	Glencorse	...	Edinburgh.
..	H. K. Palmer	Colchester	...	Yarmouth.
..	V. J. Crawford	Edinburgh	...	Glasgow.
..	P. H. Falkner	Cardiff	...	Warrington.
..	J. W. Langstaff	Brecon	...	Wrexham.
..	J. I. W. Morris	Perth	...	Fort George.
..	F. Harvey	Deepcut	...	Aldershot.
..	W. M. McLoughlin	Middelburg, Transvaal		..
..	J. A. Hartigan, M.B.	Aldershot	...	Deepcut.
..	J. G. Foster, M.B.	Dunree Camp		Belfast.
..	W. Bennett, M.B.	Kilkenny	...	Fermoy.
..	G. Carroll	Cahir	...	Clonmel.
..	J. G. Churton	Woolwich	...	Hounslow.
..	A. D. Waring, M.B.	Belfast	...	Belturbet.
..	F. McLennan, M.B.	Fort George	...	Maryhill.
..	J. H. Robinson	Campbellpore		Alderney.
..	J. Tobin	Cork	...	Fethard.
..	R. T. Brown, M.B.	Ranikhet	...	Eastern Comd.
..	P. H. Henderson, M.B.	Aden	...	Colchester.
..	F. H. Hardy	Mill Hill	...	Brit. C. Africa.
..	W. L. Bennett, M.B.	Aberdeen	...	Edinburgh.
..	W. S. Crosthwait	Secunderabad.		Thayetmyo.
..	P. S. Lelean	N. Com., India		Lucknow.
..	J. T. Johnson, M.D.	Hong Kong	...	N. Command.
..	H. J. M'Grigor, M.B.	Bulford	...	W. Africa.
..	J. H. Brunskill, M.B.	Thayetmyo	...	Maymyo.
..	R. N. Hunt, M.B.	Secunderabad.		Dublin.
..	J. C. Kennedy, M.B.	Malta	...	E. Command.
..	R. V. Cowper	Secunderabad.		..
..	R. C. Wilson, M.B.	Cyprus	...	Egypt.
..	S. M. Adye-Curran	Kilbride	...	Dublin.
..	L. Cotterill	Mandalay	...	Maymyo.
..	B. A. Craig	Glen Imaal	...	Curragh.
..	N. E. J. Harding, M.B.	Shwebo	...	Rangoon.
..	J. A. W. Webster	Poona	...	Purandhar.
..	B. H. V. Dunbar, M.B.	Purandhar	...	Jubbulpore
Lieutenant	T. J. Wright	Wellington	...	Colaba.
..	R. R. Lewis	Bellary	...	Secunderabad.
..	W. Parsons	Bangalore	...	..
..	H. H. A. Emerson, M.B.	R.A.M. College		Bermuda.
..	G. E. Ferguson	Devonport	...	Egypt.
..	C. E. W. S. Fawcett, M.B.	Secunderabad		Bangalore.
..	F. G. Anthonisz	Netley	...	..
..	E. L. Moss	Portsmouth	...	India.
..	A. E. S. Irvine	Curragh	...	Dublin.
..	P. Farrant	—		Colchester.
..	A. E. F. Hastings	Dublin	...	E. Cmd., India.
..	J. S. Dunne	Deepcut	...	.. ..
..	C. F. White, M.B.	E. Cmd., India		Lucknow.
..	W. R. Galwey, M.B.	Dublin	...	Queenstown.
..	F. Forrest	Colchester	...	Mill Hill.
..	A. S. Williams	—		Dover.
..	C. R. M. Morris, M.B.	Cork	...	Kilworth.
..	R. E. U. Newman, M.B.	..	...	Bere Island.
..	P. Sampson	Bordon	...	Longmoor.
..	M. G. Dill, M.B.	Maryhill	...	Ayr.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

EDINBURGH SCHOOL BOARD.—Medical Officer. Salary, £400 per annum.

GRESHAM COLLEGE.—Gresham Lectureship on Physics.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—House-Surgeon. Salary, £20 for six months and £2 10s. washing allowance.

MIDHURST: KING EDWARD VII SANATORIUM.—(1) Pathologist; (2) Two House-Physicians. Salaries for (1) £250 per annum; and for (2) at the rate of £50 per annum.

NORWICH: JENNY LIND INFIRMARY FOR CHILDREN.—Lady Resident Medical Officer. Salary, £50 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Surgeon. Salary, £100 per annum.

SHEFFIELD UNIVERSITY.—Professor of Pathology.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Etc., Welbeck Street, W.—(1) Physician; (2) Medical Officer in charge of Electrical Department.

APPOINTMENTS.

COTTERILL, D., M.B., Ch.B., Clinical Assistant to Professor Annandale at the Edinburgh Royal Infirmary.

JOHNSTON, G. Jameson, M.A., M.B., F.R.C.S.I., University Examiner in Clinical Surgery, Dublin University.

MILES, G. L. N., L.R.C.P. and S. Irel., Certifying Factory Surgeon for the Farnham District, co. Surrey.

PEARCE, George Harper, D.P.H.Camb., reappointed Medical Officer of Health by the Darton Urban District Council.

PURVES, W., L.R.C.P. and S.Edin., Certifying Factory Surgeon for the Milnthorpe District, co. Westmorland.

ST. JOHN, W. St. A., M.R.C.S., L.R.C.P., Honorary Anaesthetist to the Derbyshire Royal Infirmary.

TROTTER, Wilfred, M.D., M.B., M.S., Assistant Surgeon, University College Hospital.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

DEATH.

MACGREGOR.—At Wellington, New Zealand, on December 16th, Duncan MacGregor, M.B., LL.D., Inspector-General of Hospitals and Asylums for the Colony of New Zealand, aged 63.

DIARY FOR THE WEEK.

WEDNESDAY.

OBSTETRICAL SOCIETY OF LONDON, 20, Hanover Square, W., 8 p.m.—The following specimen will be shown: Dr. Amand Routh: Fibroid with Sarcomatous Change. Papers: Dr. Archibald Donald: Chronic Septic Infection of the Uterus and its Appendages. Dr. W. Fletcher Shaw: The Pathology of Chronic Metritis.

BOOKS, Etc., RECEIVED.

Chirurgie du Foie, et des Voies Biliaires. Par F. Terrier et M. Auvray. Paris: F. Alcan. 1907. Fr.12.

A Modern Miracle (Pierre de Rudder). By A. Deschamps, S.J., M.D., Sc.D. Translated from the French by F. Rankin, S.J. Glasgow: R. Gibson and Sons. 1906.

Aids to Medical Diagnosis. By A. Whiting, M.D., M.R.C.P. London: Baillière, Tindall, and Cox. 1907. 2s. 6d.

Guy's Hospital Reports. Edited by F. J. Steward, M.S.; and H. French, M.D. Vol. LX. London: J. and A. Churchill. 1906.

Erfahrungen über Cholecystektomie und Cholecystenterostomie nach 286 gallenstein-laparotomien. Von Dr. A. von Bardeleben. Jena: G. Fischer. 1906. M.4.

*** In forwarding books the publishers are requested to state the selling price.

CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
DECEMBER.	
30 Sunday	
31 MONDAY	
JANUARY.	
1 TUESDAY.....	Subscriptions to the British Medical Association for 1907 become due.
2 WEDNESDAY	
3 THURSDAY...	
4 FRIDAY	
5 SATURDAY...	
6 Sunday	
7 MONDAY	
8 TUESDAY ...	LONDON: Organization Committee, 11 a.m. LONDON: Public Health Committee, 3.15 p.m.
9 WEDNESDAY	LONDON: Medico-Political Committee, 2.30 p.m. LONDON: Medical Witnesses Sub-committee, 1.45 p.m.
10 THURSDAY...	LONDON: Hospitals Committee, 2.30 p.m.
11 FRIDAY	LONDON: Central Ethical Committee, 2 p.m. HAMPSTEAD DIVISION, *Metropolitan Counties Branch.*
12 SATURDAY...	LONDON: Science Committee, 11 a.m.
13 Sunday	
14 MONDAY	
15 TUESDAY ...	LONDON: Poor-Law Committee (English Members), 1.30 p.m. Full Committee, 3.30 p.m. CITY DIVISION, *Metropolitan Counties Branch*, Great Eastern Hotel, E.C., 4 p.m.
16 WEDNESDAY	

Date.	Meetings to be Held.
JANUARY *(Continued).*	
17 THURSDAY...	
18 FRIDAY	
19 SATURDAY ...	
20 Sunday	
21 MONDAY	
22 TUESDAY ...	
23 WEDNESDAY	CENTRAL COUNCIL.
24 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Wandsworth Town Hall, 8.45 p.m.
25 FRIDAY	
26 SATURDAY...	
27 Sunday.....	
28 MONDAY	
29 TUESDAY.....	
30 WEDNESDAY	BATH AND BRISTOL BRANCH, Bristol.
31 THURSDAY...	
FEBRUARY.	
1 FRIDAY.....	
2 SATURDAY...	
3 Sunday.....	
4 MONDAY	
5 TUESDAY.....	
6 WEDNESDAY	
7 THURSDAY...	WANDSWORTH DIVISION, *Metropolitan Counties Branch*, Bolingbroke Hospital, 4 p.m.
8 FRIDAY	HAMPSTEAD DIVISION, *Metropolitan Counties Branch.*
9 SATURDAY...	
10 Sunday	
11 MONDAY	
12 TUESDAY.....	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the BRITISH MEDICAL JOURNAL is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

Forms of application for membership can be obtained from the General Secretary, 429, Strand, London, W.C.

The principal rules governing the election of a medical practitioner to be a member of the British Medical Association are as follow:

Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

By-law 3.—Every candidate whose place of residence is not included in the area of any Branch shall forward his Application to the General Secretary of the Association, together with a statement, signed by three Members of the Association, that from personal knowledge they consider him a suitable person for election. Notice of the proposed election shall be sent by the General Secretary to every Member of the Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a Member of the Association by the Council at any meeting thereof held not less than one month after the date of the said notice.

The annual subscription to the BRITISH MEDICAL JOURNAL for non-members is £1 8s. 0d. for the United Kingdom, and £1 12s. 6d. for abroad.

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BY

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THE CIRCULATION VIEWED FROM THE PERIPHERY.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—In the first place I must thank you, and through you the whole British Medical Association for the high honour which has been conferred on me in my appointment to deliver this address. This is an honour and a privilege which happens to very few men, and that only once in a lifetime. I feel the dignity of the office and the obligations which it entails all the more deeply inasmuch as the invitation in the first place came from the members of the Association resident in this City. When the invitation was conveyed to me I rather hesitated to undertake a task which I felt I could only inadequately perform, but, on the other hand, I looked upon the request as a command, and it seemed to me that I could scarcely refuse to undertake a duty for which I had been selected by my Canadian brethren.

After accepting the task my difficulties began, and my first was in choosing a subject which would have a more or less general interest. The whole domain of medicine has been traversed by addresses, and it appeared as if there were no corner left for me. I could find nothing new under the sun, but there was still left to me the privilege of talking of the glories of the past, and what medicine has done for humanity. Again, I found that any attempt at a hackneyed survey of the advances of physic, say during the Victorian era, would be merely clothing in my own language facts with which you are all familiar and in the advancement of which many of you have taken an important part. I further found that standing on the high pedestal on which you have placed me I was, to a certain extent, placed above criticism, and therefore could not fairly deal with polemics.

It finally occurred to me that I might find some devious path or unbeaten track in the vast field of medicine which I might pursue with some measure of success. I intuitively turned my attention to the circulation, the ramifications of which pervade the whole field, and as writers hitherto on this subject have almost invariably traced the circulation from the centre to the periphery it occurred to me that we might get a fresh view if we turned our attention in the opposite direction. There are numerous treatises on diseases of the heart and aorta, but until recent years a careful study of the peripheral circulation has been largely left to physiologists and pathologists. The experimental work of Cohnheim will ever remain a landmark in the pathology of the circulation, while to the school of Ludwig physiologists are no less indebted. To physiology medicine owes much, and all great advances are being prosecuted along physiological lines. If there have been any apparent divorce between the scientific basis and the practical application of our art, it is not due to any too rapid advance of physiology, but to physicians being too slow to fructify the field which has been tilled by physiologists. I have previously asserted that diseases of the heart most frequently arise from causes acting on the periphery, and hence there is here no room for specialism. The man who only studies the circulation with the aid of a stethoscope is a positive danger to society. I can, therefore, with an easy conscience and a sense of much satisfaction devote some attention to that periphery.

The capillaries through which the interchange of nutritive pabulum and gases takes place between the blood and tissues, play a most important rôle in the animal economy. Yet they have received very inadequate attention from clinicians. Perhaps it has been thought that their structure and position could be so briefly described that any circumlocution in their description was unnecessary. But however simple their structure, and however apparent their functions, they constitute a vast filter bed for conveying nutritive material and oxygen to the tissues and for removing waste products therefrom. A careful study of how these changes take place, and how the functions of these little tubes are carried on, has always seemed to me a matter of as much importance as even the action of the heart itself. These little vessels are of extreme tenuity and delicacy, consisting of a single layer of endothelium, yet they are much stronger than most people imagine, and are capable of standing considerable internal pressure; they vary from about 0.5 to 1 millimetre in length, and from 7 to 13 micro-millimetres in diameter. They are to a certain extent elastic, or at least they have the capacity of adapting themselves to the amount of blood which is driven through them. Their importance has been aptly described by Leonard Hill, who says: "The blood is brought into intimate relation with the tissues by diffusing through the endothelial wall of the capillaries, and this wall is of great tenuity; thereby takes place that change of material which maintains the combustion of the body and the fire of life."

The capillary bed is a vast territory which pervades every tissue and organ of the body, and so numerous are these little vessels that it would be difficult to stick the point of a needle in any vascular area without wounding one or more, but in neurotic individuals you may wound many such vessels without drawing blood. In very plethoric individuals and in cases of polycythaemia the capillaries of the body are fairly replete, but in ordinary mortals, especially in those of neurotic temperament, perhaps not a third of the capillaries are full at any one moment. Apply a sinapism to a very pallid skin, and you may wonder where all the turgid capillaries have sprung from. From the fact that under normal circumstances a sufficient quantity of blood cannot get through the arterioles to keep the enormous capillary bed full, the lateral pressure and the velocity in the capillaries are ever-varying quantities. When Leonard Hill stated that the pressure in the capillaries under certain conditions is often over 100 mm. of mercury, I thought that there must be some error of observation, as I was under the impression that such pressure would rupture these delicate little vessels, but I remembered the old advice: Do not think; try. I tried, and found that Leonard Hill had rather understated the fact, as I found variations from about 50 to 2,000 mm. of water. I also found equally

great variations in the velocity of the blood in the capillaries. In textbooks on physiology it is put down from 0.2 to 0.75 mm. per second, but my observations have given records from about 0.5 to 25 mm. per second. The capillary bed covers an enormous area; take, for example, the lungs where all the air vesicles are surrounded by a meshwork of capillaries, and the surface of the air vesicles in the average individual has been calculated by Zuntz at 90 square metres. Numerous attempts have been made to estimate the capacity and sectional area of the capillaries, but in my opinion these questions are still unsolved. The method adopted of estimating the sectional area of the systemic capillaries is simplicity itself. We all know that with any given force the velocity is inversely as the sectional area. The mean velocity in the aorta has been set down as 320 mm., and in the capillaries as 0.5 mm. in the second; therefore, on this basis of calculation the sectional area of the systemic capillaries would be 640 times that of the aorta. It is not difficult to show that the premisses are wrong, so it is highly improbable that the conclusion can be right. It at once becomes absurd if we consider how this calculation would work out for capacity; if we reckon the average length of a capillary as 0.75 mm., and the length of the aorta as 480 mm., accordingly the aorta should hold as much as all the systemic capillaries. From the effective mean lateral pressure in the arteries it is difficult to draw any conclusion as to the velocity in the aorta, because the force imparted to the blood in the aorta by the heart is an ever-varying compound of kinetic and potential energy. Even if you did arrive at any fairly accurate idea as to the mean velocity in the aorta, it would not be correct to draw any inferences from a comparison between the velocity of the blood in the aorta and in the capillaries, because the conditions determining the velocities in the two sets of vessels are not comparable. The higher the potential in the arteries the greater the velocity in the capillaries, but as this arterial potential is induced by obstruction to the outflow the velocity in the arteries will be diminished. As Leonard Hill appropriately says: "The circulation of the blood follows certain definite laws; unfortunately, the conditions of the flow are so complicated that these laws remain for the most part undetermined. A viscous fluid driven by an intermittent pump which circulates through a system of branching elastic tubes of varying capacity; a system of tubes into and out of which passage of fluid takes place either by osmosis, filtration, or secretion; a fluid which varies in viscosity, a pump which varies in force, and tubes which have an ever-changing diameter and coefficient of elasticity."

In a paper on tubal nephritis published in 1883, and in one on the pathology and treatment of dropsy in 1886 I dealt with the capillary circulation. I have long been in the habit of estimating the velocity by compressing the blood out of the capillaries in a given area and then watching the quickness or velocity of the return. This has served, and still serves, my purpose, but when I wish to record my observations I use a glass rod 10 millimetres in diameter. With the flat end of this rod I compress the capillaries, and then with a stop-watch recording fifths of a second I time the period of the return of the blood. If you divide the radius of this rod (5 millimetres) by the time, you get the velocity per second. For these observations you must select some spot where there is a network of capillaries which you can completely empty, such as those in the back of the hand or finger, and you must also choose a spot where the return current flows from all parts of the circumference. This method is so simple and accurate that it is a matter of surprise to me that, so far as I know, it has never been thought of before.* When fluid is circulating in a capillary tube, the axial velocity is double the mean velocity. Now, the erythrocytes travel in the axis, but as they occupy at least four-fifths of the lumen of the vessel, the mean must be fully 0.8 of the observed velocity. For estimating the pressure in the capillaries I use a modification of v. Kries's apparatus. For applying the pressure I use three sizes of glass plates measuring 20, 100, and 400 sq. mm., so a gram pressure on each of these plates represents respectively 50, 10, and 2.5 mm. of H_2O. As before stated, I have recorded capillary pressures varying from 50 to 2,000 mm. of water, and my velocity records have ranged from about 0.5 mm. to over 25 mm. per second. Any one with a capillary velocity at the level of the heart which physiologists set down as normal might appropriately take up the refrain, "The hour of my departure's come."

The study of the lateral pressure and velocity of the blood in the capillaries is an exceedingly interesting one. A combination of these two forces represents the energy of the blood in the capillaries, and no doubt this energy is derived from the heart, and stands in direct relationship to the force of the cardiac contraction; the greater the force of the cardiac output the greater will be the energy in the capillaries, but the component elements of this energy—lateral pressure and velocity—need not bear any direct relationship to those respective elements in the arteries. These two conditions (velocity and pressure) might be said to stand, within certain limits, in an inverse ratio to one another, the more rapid the flow the less the lateral pressure, and vice versa. The lateral pressure depends on the statical condition of the blood, and just in proportion as you introduce movement you convert the force of pressure into that of velocity.

If you wish to drive a certain quantity of fluid through a tube, the velocity will depend on the force of the propulsion minus the obstruction to the outflow, with the inertia or viscosity of the fluid (there is no fluid perfectly mobile) and the friction of the tube; and the lateral pressure will increase as the outflow is obstructed—in short, as the statical condition is maintained. The *vis viva* or energy of the blood in the capillaries can be represented, as in any other vessel, by the formula $\frac{MV^2}{2}$. The component forces of this energy—pressure and velocity—are constantly varying, so, for the sake of clearness, it will perhaps be better to describe them separately.

The pressure stands in direct relation to the freedom of the inflow and the obstruction to the outflow. For example, take a very cold hand: the arterioles and small arteries may be so contracted that the mass of blood supplied to the capillaries is greatly diminished, and the lateral pressure correspondingly falls. Even in the arterioles there may be such a drop in the pressure-gradient that there may be a difference of 50 mm. of Hg between the lateral pressure in the digital artery and that in the radial. In cases of local syncope the lumen of the arterioles supplying the affected district is obliterated and the capillary pressure is reduced to nil. On the other hand, if you warm the hand, or take a glass of whisky which dilates the arterioles, the mass of blood in the capillaries is augmented and the pressure rises; and the fall in the pressure-gradient between the arteries and capillaries becomes more gradual. An increased obstruction in the arterioles over a wide tract, such as the splanchnic area, raises the general arterial pressure and lowers the capillary pressure in the area supplied by the contracted arterioles.

As Colnheim long ago pointed out, if you obstruct the outflow by tying a ligature round the limb you greatly raise the pressure in the veins and capillaries distal to the ligature, but as you cannot thus completely obstruct the venous return without at the same time obliterating the arterial supply, the pressure in the veins does not rise so high as that in the capillaries, and the pressure in the capillaries does not attain the level of that in the arteries, and, of course, that in the obstructed artery does not rise above the general arterial pressure at the same level. With any given energy in an artery the pressure and velocity in the capillaries supplied by that artery stand in an inverse ratio to one another, the greater the pressure the less the velocity.

I have corroborated v. Kries's observations as to the effects of gravity on the capillary pressure, and like him I have found that the increase is usually less than one-

*Dr. George Oliver has drawn my attention to a capillary dynamometer devised by Dr. Alexander Haig for gauging the amount of uric acid in the circulation and estimating the blood pressure. Dr. Haig compresses the blood out of the capillaries under pressures varying from about 5 to 20 oz., and times the periods of compression and of the capillary reflex. Dr. Haig says that his "instrument gives a constant definite area of pressure—a definite and measurable force, the pressure being applied for a definite and constant time, measured by a metronome beating half seconds, the length of time the blood and colour take to return being measured by the same instrument." Our methods are similar, but our objects are different. At one time I thought of drawing up rules for estimating the arterial blood pressure by the capillary velocity, but I soon found that the necessary corrections on account of the contraction or dilatation of the arterioles, the position and temperature of the part under examination, and perhaps the viscosity of the blood were so numerous as to materially lessen the clinical value of any such method.

half the hydrostatic effect—for example, if you take the capillary pressure in the finger at the level of the vertex, and then take it when the finger is lowered, say 600 mm., the increase may be only 200 mm. of water in place of an increase of 600 mm. of blood which it would be in an artery. I have also found that the increase is not at all uniform. It may vary enormously in different individuals, and in the same individual under different conditions. It largely depends on the condition of the vasomotor mechanism of the part which you are examining. If the arterioles be contracted and the inflow to the capillaries be obstructed the increase may not be a third of the hydrostatic pressure, but if the arterioles be much dilated the increase may be half or even two-thirds of the increase which has taken place in the artery. Leonard Hill has pointed out to me that this increase chiefly takes place when the limb is immobilized; and when active movements are going on the blood is compressed out of the capillaries and this increase in the lateral pressure does not take place. There is, however, under these conditions an increased hydrostatic pressure in the arteries, as Leonard Hill was among the first to demonstrate, and this must be expended in the arterioles and capillaries either in the form of increased pressure or augmented velocity, but more anon when we come to speak of the latter component of the increased energy.

I have shown that the capillary pressure in the foot even when immobilized is often less than that in the hand and much less than that in a grog-blossomed nose. This is entirely due to the wonderful mechanism of the vasomotor system.

Some people are very liable to cold feet in bed, and such appendages to a lady seem to have led up to a divorce in the United States of America. In such cases the part may be fairly comfortable before going to bed, but once the horizontal posture is assumed the arterial pressure and capillary velocity fall, there is not a sufficient amount of fuel carried to the extremities to keep the large cooling surface warm. Here the defect is in the initial energy, and besides improving the general arterial pressure it would be advantageous to keep the feet much lower than the head and shoulders. Possibly if the lady had been under medical treatment she might have conserved her own comfort, preserved the affection of her husband (though she might not have thought the affection of the brute worth preserving), and saved the notoriety of the divorce court.

The velocity of the blood in the capillaries is, if possible, even more interesting than the pressure. It varies enormously in different individuals under different conditions. As I have before said, the range of my observations has been from less than 0.5 to 25 mm. per second. We shall now consider the conditions under which these variations occur. In the first place it depends chiefly on the potential in the arteries—the higher the arterial pressure the greater the velocity in the arterioles and capillaries. High arterial tension drives the blood through the arterioles and capillaries with great velocity, but certain little corrections have here to be borne in mind. If the arterioles of a small area, such as the hand, be contracted, the general arterial blood pressure is not affected; the blood travels in the direction of the least resistance, so the supply to the hand is diminished, and although the capillary pressure is diminished the velocity is not increased—in fact, the diminished supply spread over a large capillary district should tend to lessen the velocity. The velocity in the capillaries is not comparable with that in the arteries, but with that in the arterioles; and as velocities are inversely as the cross sections, you could easily calculate the sectional area of the capillaries if you only knew the velocity of the blood in the arterioles and their sectional area.

When the arterioles are dilated in any area, as at the commencement of an inflammation, the whole of the capillaries are opened up and engorged with blood, and with this increased mass the pressure is raised, but the velocity is also heightened owing to the arterial potential remaining high and the resistance in the enlarged capillaries being diminished. The resistance is inversely as the square of the cross sections, or the fourth power of the diameter, or directly as the square of the velocity. We have seen how hydrostatics affect the pressure in the capillaries, but the velocity is much more uniformly affected. It is usually sufficient to lower the hand 320 mm. in order to double the velocity, and in the capillaries of the foot the velocity is usually extremely rapid. Velocity, $V = \sqrt{2\,Gh}$; but in the capillaries we have further to take into account the sectional area, which has not yet been accurately computed either in whole or part.

So readily is the capillary velocity affected by the arterial pressure that, *caeteris paribus*, you can easily detect a difference between the velocity in the back of the hand and in the fingers: when a warm hand is hanging the velocity in the finger is greater than in the back of the hand, and if the relative position of these parts be altered the velocities are reversed. I purposely said a warm hand, because in a cold hand the capillary circulation in the fingers is often very languid. After removal of an Esmarch's tourniquet the capillary velocity in the flushed extremity is considerably augmented.

Any obstruction to the outflow from the capillaries diminishes the velocity in them. The hydrostatic effect of the blood in the veins would materially obstruct the capillary flow only for the provision of valves, and the muscular compression hastens on the blood and thus diminishes the statical condition. However, certain capillaries, such as those of the liver and kidneys, are exposed to considerable backward pressure when from any cause the venous pressure is raised.

When the velocity in the capillaries is reduced to one millimetre or less per second the blood becomes surcharged with carbonic acid and the skin or organ supplied becomes of a dusky hue. This appearance immediately disappears if you increase the capillary velocity; for example, when the hand is blue and passively congested from cold, or the so-called local asphyxia, if you let it hang down you increase the velocity and you quickly see bright red spots intermingled with surrounding lividity, and soon the colour of the whole hand improves. In the cold livid dependent hand the colour of the fingers is better than that of the back of the hand. When you get cardiac failure, with or without any obstructive lung disease, you frequently see the upper part of the body and the hands quite dusky, while the legs and feet, which are at a lower level, may be pale. In one marked case of cardiac failure where the upper part of the body was livid, I saw one foot and part of the leg in a state of local syncope and as pale as marble. These patients do not require a cylinder of oxygen, with which they are frequently plied, but the judicious application of a little common sense, such as the intravenous injection of small doses of adrenalin or some cardiac tonic. In cases of Raynaud's disease the local syncope is ascribed to vasomotor spasm, but really the spasm, if it exist, is a very mild affair. In these cases the arterioles shut down because there is not sufficient blood pressure to keep them open. The arterial pressure is always low, and the blood is deficient in lime salts and viscosity. In the cases of local asphyxia the arterioles are not closed, but the arterial potential is low, the velocity in the capillaries is defective, and the *vis viva* is not sufficient to drive on the blood stagnating in the veins. In cases of erythromelalgia the reverse happens; the velocity and pressure are both increased in the large engorged capillaries.

In many cases of pneumonia with low blood pressure, the vasomotor taps in the splanchnic area are all open, and the aorta is drained before it terminates in the iliac arteries; the bulk of the blood is retained in the chest and abdomen, and the quantity supplied to the lower limbs is diminished. Moreover, the extremities are often colder than the body, and the arteries contracted. The lower level of the limbs increases the velocity in the capillaries and veins, and consequently the capillaries of the foot and leg are often blanched and the veins comparatively empty when the upper part of the body appears congested and purple.

Viscosity of the Blood.

The viscosity varies greatly, and is no doubt the great cause of resistance in the capillaries. Normally it is about five times that of distilled water, and my friend, Dr. John H. Watson, who has recently been doing some valuable work on this subject in association with a physicist, Dr. A. du Pre Denning, has found that in many diseases the viscosity is nine or ten times that of distilled water. The coefficient of viscosity in the tarry blood of Asiatic cholera is often so great that it will not

pass through the capillaries. Dr. Graham Brown and others have found that a rise in temperature lessens the viscosity, and hence a febrile temperature lessens the resistance and so diminishes the work of the heart, but it does not follow from this that a high temperature in fever is an advantage, as there are many more efficient ways of lessening the viscosity. As the velocity diminishes the blood becomes more charged with CO_2, which enlarges the red corpuscles and further increases the viscosity. Drs. Watson and Denning have devised a very convenient capillary viscosimeter, which shows these variations in this physical property of the blood. They conclude that the chief resistance to the flow is due to the viscosity, and occurs in the capillaries. It has long been a disputed point as to whether the resistance to the arterial flow, and consequently to the heart, is situated in the capillaries or arterioles.

Sir W. H. Broadbent, I believe, even now throws the weight of his deservedly great name in favour of the resistance being in the capillaries; and in cases of vasomotor paralysis no doubt such is the case, but in ordinary circumstances I agree with the majority that there is an earlier barrier to the outflow from the heart in the arterioles and small arteries which are governed by vasomotor nerves. This can be readily proven by the fact that there is very little fall in the pressure-gradient from the large to the small arteries. The pressure in the radial and tibial at the same levels is as great as that in the brachial and femoral. When you come to the very small arteries and arterioles which are offering resistance to the flow there is a very great fall in the pressure and an increased velocity. As I have before said, the fall between the radial and digital artery may be as much as 50 mm. of mercury, and there may be an even greater fall in the pressure-gradient between this and the capillaries. Now, if the capillaries formed the first line of resistance the fall in the pressure-gradient would be much more gradual, and high arterial pressure would be associated with high capillary pressure, but we know the reverse to be the case.

It is extremely fortunate that there is this first line of defence created by the action of the vasomotor nerves in the small arteries and arterioles, because if this were wanting, as at present constituted we should either have to go about on all-fours or constantly run the risk of fatal syncope. Moreover, the blood would gravitate into the most dependent parts, the cooling surface would be enormous, the capillary velocity would be diminished, the blood would become surcharged with CO_2, and we would become cold-blooded animals. When the vasomotor nerves of a rabbit are paralysed it appears all right until you suspend it by the ears, and then it immediately dies. The arteriolar resistance saves us from such risks.

In cases of vasomotor paralysis the arteriolar resistance to the cardiac outflow is transferred to the capillaries, and then the fall in the pressure-gradient becomes more gradual. In a case of Landry's paralysis I have seen within half an hour of death the diastolic pressure 146 mm. of Hg, and the systolic 190 mm. of Hg in the brachial artery at the heart level, and when the arm was raised 220 mm. the diastolic pressure fell to 130 mm. and the systolic to 174 mm. of mercury. The capillary velocity in the hand at heart level was 0.83 mm. in the second. The hand was perfectly livid, but when it was lowered over the edge of the bed 650 mm. the velocity increased to 1.67 mm. in the second, and the colour improved; thus proving that the resistance was not a question of viscosity, but gradual failure in the driving power to overcome the total resistance. The venous pressure was low as well as the capillary, showing that the heart was rapidly failing (though doing its utmost) and had not sufficient energy to overcome the capillary resistance. By this wonderful vasomotor mechanism a large amount of the cardiac energy is stored up in the arteries as potential, and is converted into kinetic energy in the arterioles and capillaries.

In the second line of resistance there is a greater transformation of energy. If there be very little resistance in the veins a large proportion of the kinetic energy is carried right through to them, but as far as the resistance to the outflow has to be overcome the velocity is converted into pressure. There is considerable waste or rather transformation of energy in overcoming resistance and in producing filtration pressure. In these small tubes there is an enormous amount of surface friction. The resistance is directly as the length of the tube and inversely as the square of the sectional area; directly as the square of the velocity and inversely as the fourth power of the diameter. It also varies directly as the viscosity. The extravascular pressure is about one-fourth of the capillary pressure from which it is derived and is an important force in carrying on the lymph circulation.

The viscosity is an important element in the resistance; we have already seen how it is increased by CO_2 and diminished by heat. The work of Professor A. E. Wright has shown that it is increased by the salts of calcium, magnesium, and strontium, and diminished by decalcifying agents such as citric acid and the salts of potassium, ammonium, and sodium.

We have already referred to the viscosity in connexion with the resistance in the tubes or the surface friction, but the mobility of the fluid or the surface friction of the molecules of the fluid against one another increases the resistance. The force of the heart is used up in propelling on the blood, and of course the mere weight of the blood and the viscosity must use up a great part of this force. The blood is a very viscous fluid and its viscosity is much increased by an excess of corpuscles.

Dr. John H. Watson and Dr. Denning found that the viscosity is much diminished by a rise of temperature; and that an increase in the corpuscles invariably causes an increase in the viscosity, and in the tubes of small bore this increase produces a most definite rise in the internal resistance, increasing more and more markedly as the diameter diminishes.

My former house-physician, Dr. R. J. Ewart, who has done some excellent work on the viscosity of the blood, has shown that here the law of Poiseuille does not hold good in tubes of very small diameter, because the increase is much greater than the inverse ratio of the fourth power of the diameter.

Drs. Watson and Denning have shown that, "With a given number of corpuscles present in the blood, the rate of flow through any particular tube down to 0.3 mm. in diameter may be considered directly proportional to the pressure. A given increase of pressure exerts a much greater accelerating effect on the rate of flow through tubes of fine calibre than through tubes of wide bore." This corroborates my own observations on the effects of arterial pressure on capillary velocity.

Burton-Opitz, quoted by Watson, has found the viscosity increased by nitrogenous diet and by alcohol. Watson has found the viscosity diminished in chlorosis, but this must be more than counterbalanced by the great increase in the plasma and the total increase in the corpuscles, which Lorrain Smith has shown to exist in this disease. The viscosity is diminished, but the total weight of the fluid to be driven is enormously increased, consequently the heart hypertrophies.

In polycythaemia, as Professor Osler has said, "It is especially important to test the viscosity of the blood by accurate physical methods, and to determine the relation of the number of corpuscles to the viscosity." This has been done by Watson and by Parkes Weber, and they have found that viscosity may be more than doubled, and is in direct proportion to the number of corpuscles.

Burton-Opitz, Fano and Rossi found that thyroid secretion lessens the viscosity. Watson concludes his observations in the statement: "The influence, therefore, of the viscosity of the blood is not an independent but a dependent variable whereby its effect upon the work of the heart may be diminished or increased."

There can be no doubt that the viscosity is an important element in determining the work of the heart; but, as a clinical factor, its importance can be easily overrated, as there are other simpler methods of determining the condition of the capillary circulation, and we must remember that the living capillaries are more or less elastic, and offer much less resistance to the flow of blood than would be caused by rigid tubes of the same calibre. On the other hand, the great variableness of the capillary pressure and velocity makes their interpretation often a matter of some difficulty.

The Interchange of Material through the Capillary Walls.

There are some physiologists who would raise the endothelial cells of the capillary walls to the high level of

secreting structures, not that they have any evidence, either from analogy or otherwise, in support of such a contention, but simply because they think that the physical properties of diffusion, osmosis, and filtration cannot account for the phenomena. They hold that the capillary pressure is low, and is more than counterbalanced by the endosmotic equivalent of the albumen and salts in the blood. When they recognize the enormous variation which takes place in the pressure and velocity of the blood in the capillaries, they will have less difficulty in admitting the problem of filtration as applicable to the capillary circulation. Moreover, the capillary walls do not form a semi-permeable membrane, but are just as easily permeated, *caeteris paribus*, in one direction as in the other. In a network of capillaries the pressure must necessarily be higher in the efferent or distributing vessels connected with the arterioles than it is in the afferent or collecting tubules which unite to form the venules. You can thus have filtration and absorption going on side by side, just as in a hole in the wall divided by a midriff you can have strong currents of air flowing side by side in opposite directions. The fall in the pressure-gradient in the capillaries must be fairly uniform from arteriole to venule; but as there is usually a considerable fall from the capillaries to the veins there must be a corresponding difference between the efferent and afferent capillaries, and thus transudation and absorption in different parts of the same network can be readily explained. In the intestinal capillaries the larger and deeper vessels supply the secretory structures, and the smaller and more superficial vessels are the absorbents.

The interchange of gases which are in solution readily takes place by the process of diffusion; and osmosis must play a very important part in transudation and absorption according as the osmotic equivalent is greater on one side than the other of the capillary membrane. In 1886, when dealing with the pathology of dropsy, I said: "Fluids pass very readily through organic membranes, such as the walls of the capillaries, by a process of osmosis, but albumens do not thus readily transude. Unlike the capillaries of the lungs and kidneys, the systemic capillaries allow albumen to pass through their walls, so that it is found in all the intercellular fluids. Now, if it does not pass through by osmosis, we must suppose it to be filtered through under varying amounts of pressure. In filtering under pressure, as a rule, the greater the pressure the greater the amount of the filtrate, but the composition of the latter differs very materially from the nature of the compound fluid submitted to the pressure, as the different constituents pass through with varying degrees of ease, the water passing through much more readily than the albumen. Hence, although the total amount of albumen passed through may be increased according to the quantity of the filtrate, its percentage is diminished. Hence, the greater and more rapid the production of dropsy—if there be no increase in absorption—the less the relative amount of albumen." Runeberg in 1882 expressed similar views when he maintained that the concentration of a colloid filtrate is greater at lower than at higher pressures.

Time will not permit me to wander into this attractive by-path, but I wish you not to allow any advanced physiologist to allure you from the paths of truth. By all means prove all things, but hold fast to that which is good. On this score you cannot do better than adhere to the teaching of Professor Starling, who says: "In fact, we may say that the formation of lymph and its composition, apart from the changes brought about by diffusion and osmosis between it and the tissues it bathes, depend entirely on two factors: (1) The permeability of the vessel wall; (2) the intracapillary blood pressure. So far as our experimental data go, we have not sufficient evidence to conclude that the endothelial cells of the capillary walls take an active part in the formation of lymph. It seems rather that the vital activities of these cells are devoted entirely to maintaining their integrity as a filtering membrane, differing in permeability according to the region of the body in which they are situated. Any injury, whether from within or without, leads to a failure of this their one function, and therefore to an increased permeability, with the production of an increased flow of a more concentrated lymph."

We shall now briefly glance at the capillaries and their functions in some of the principal regions of the body. In order to avoid repetition, I shall here include the minute arteries and arterioles which regulate the supply of blood to the capillaries. These little vessels are anatomically composed of three coats, but according to the function which they have to perform they vary very much in the thickness of the middle coat and in the supply of vasomotor nerves.

The Arterioles and Capillaries of the Skin.

The arterioles are well endowed with muscular fibre and vasomotor nerves, chiefly of the constrictor type; frequently they are so contracted that the capillaries are almost empty, and in cases of local syncope quite empty, and the pressure and velocity fall to zero. When the vasomotor nerves are paralysed from a central cause the capillaries are full, their pressure increased, and the velocity diminished. When paralysed from a local cause—such as a mustard poultice—the capillaries are engorged and the pressure and velocity increased. Witness also the effects following the application and removal of an Esmarch's tourniquet. These little vessels are reciprocal to those of the splanchnic area, are largely concerned in regulating the temperature of the body and in maintaining the general arterial pressure.

The capillaries form an exceedingly close network in the corium and send loops up into the papillae. The pressure and velocity vary enormously. After a liberal meal—especially one containing ingredients which dilate the arterioles, raise the diastolic arterial pressure, and thus provide an abundant supply of blood to, with increased pressure in, the capillaries—there is a free outpouring of lymph. In my opinion, a good deal of the work which has been done on the so-called digestion leucocytosis has been rendered worthless by the work of George Oliver on the tissue-lymph circulation. These observations were made on blood obtained from a prick of the finger, and this consists of a mixture of blood and lymph. The white cells are increased—the increase being in the lymphocytes—in proportion to the dilution with lymph and the red cells are proportionately diminished. If the lymph be compressed out of the tissues and then a drop of pure capillary blood be obtained, there will be found in it an increase of red cells, and the white cells will be much less than in the mixed blood and scarcely any more than would be obtained by an ordinary puncture two or three hours later when the lymph had been reabsorbed. This so-called digestion leucocytosis is therefore no evidence of any increase of white corpuscles in the circulating blood, but merely that lymph has been pressed out from the vessels, and in this lymph there is a considerable number of lymphocytes, probably obtained from the tissues rather than from the capillaries. There is no doubt a digestion leucocytosis, but it is not what has been described.

The Arterioles and Capillaries of the Splanchnic Area.

These arterioles are very muscular and well supplied with vasomotor nerves. These nerves are the chief regulators of the arterial blood pressure. The capillaries are very fine and form an extremely close network. The resistance to the outflow is very slight, except in cases of portal obstruction, hence the velocity is usually great and the lateral pressure slight. This is just what would be expected in vessels where absorption is an even more important function than secretion. Those capillaries which are given off earlier are the largest, and go to supply the secreting structures of the glands, while those which approach the surface of the mucous membrane are much finer, consequently the velocity in them is much greater and the lateral pressure less. This is where absorption takes place.

The Capillaries of the Liver.

The capillaries of the liver are short and wide, measuring 0.5 to 1 mm. in length and about 10 to 13 micromillimetres in diameter. The velocity is often so slow that the liver is of a dull purple colour, and the pressure is relatively but not absolutely high. The liver capillaries are very permeable, and, as has been shown by Professor Starling, give rise to a free secretion of concentrated lymph. This is in accordance with the observations of Runeberg and of myself that the concentration of the filtrate is greater at lower than at higher pressures. Professor

Starling has also shown that the lymph is also increased by any obstruction to the outflow from the hepatic veins. In the large nutmeg livers, induced by positive intrathoracic pressure and regurgitation through the tricuspid orifice, the capillary pressure is increased and the velocity diminished. In the early stages of hepatic cirrhosis, while there is an increased exudation and fibrosis along the portal vessels there is also marked congestion of the central lobules due to cardiac asthenia, dilatation of the tricuspid orifice, and increased venous pressure, the results of chronic alcoholic intoxication. At this period the liver is enlarged from hepatic congestion, and it is only later that the contraction of the newly-formed fibrous tissue leads to diminution in bulk. The liver acts as a reservoir for the right side of the heart.

The Arterioles and Capillaries of the Kidneys.

The arterioles are very muscular and well supplied with vaso-constrictor fibres, and thus while these nerves contribute to raise the general arterial pressure, they protect the capillaries of the glomeruli from any excessive pressure: thus high arterial pressure increases the velocity in the glomeruli, but not necessarily the lateral pressure. The glomeruli are further protected by the endothelial lining of Bowman's capsule, and are not easily permeable to albumen, but readily allow the transudation of water and salts. Moreover, the glomeruli are protected in ordinary circumstances from any backward venous pressure by the second set of capillaries into which the efferent vessels divide. In cases of orthostatic albuminuria there is defective vasomotor action in the whole of the splanchnic area, the kidneys are congested in the erect posture, and moreover the blood is deficient in lime salts as has been shown by Professor A. E. Wright, so the albumen more easily permeates the walls. Here, with the lessened velocity and lowered pressure, the concentration of the filtrate is increased.

The same local conditions occur in a more marked degree in inflammatory disturbances in the kidneys. We have seen that only a fourth or less of the capillary pressure is transmitted directly to the surrounding tissues in which they are imbedded, but in some pathological states the whole brunt of the arterial and capillary pressure is transmitted, and woe betide any organ when this pressure is long continued. In those large, congested, chocolate-coloured kidneys, when the capsule is stretched to its utmost capacity, and the kidneys are nearly twice their normal weight, the transmitted pressure of the arteries and capillaries stops all secretion. The only salvation for such kidneys and their possessor is to freely incise the capsule and kidneys, as has been ably and persistently advocated by Mr. Reginald Harrison. When the pressure is relieved the secretion is at once re-established. This is a purely physical effect, and may occur in any organ where the limits of its expansion are exceeded. I have felt a big spleen pulsating in my hand till I thought it was going to burst; in this case the transmitted pressure was arterial. An inflamed gland often pulsates.

In granular kidneys the glomeruli are further protected by the increased thickness of Bowman's capsule; the velocity is much increased and the pressure only relatively so; the filtrate is bulky but not concentrated. There is nocturnal diuresis because in the horizontal posture, although there is a fall in the general arterial pressure, the arteries of the kidneys are dilated, and the total amount of blood circulating through them increased.

The Arterioles and Capillaries of the Muscles.

The arterioles are supplied with vaso-dilator nerves, and thus these vessels are reciprocal to those of the splanchnic area. The capillaries are arranged in a fine longitudinal network, and readily allow of the transudation of lymph. When there is a rise in the general arterial pressure these vessels are flushed and allow a free secretion. Dr. George Oliver has shown that during the height of the digestive flow of lymph, tension exercises of the muscles do not further raise the arterial pressure. The lymph in the limbs is not concentrated and is readily absorbed.

The splenic vessels are well supplied with vasomotor nerves, and the whole organ seems to have the power of contracting and of thus regulating its own blood supply. Adrenalin has a powerful effect in producing contraction.

The Cerebral Vessels.

The arteries and arterioles have relatively thin walls in proportion to their calibre. The inner coat is well developed; in the middle coat there is a moderate amount of muscular fibre but the elastic tissue is defective; the external coat is attenuated, and ceases before the muscular coat disappears and the arterioles pass into the capillaries. The external coat is composed of connective and white fibrous tissue with longitudinal striation, and there are no elastic fibres. Robin described a lymphatic sheath over the arterioles, which strengthens them and helps to supply the place of the defective adventitia.

These vessels are not very contractile, and take no part in regulating the general arterial pressure. Owing to the stress and strain to which they are frequently submitted they are very liable to atheromatous and calcareous degeneration of the internal coat, and thickening or periarteritis of the external coat; there are also frequently small miliary aneurysms. Physiologists, as a rule, do not admit that these vessels possess any vasomotor nerve fibres, but Dr. Alexander Morison says that he discovered their presence; if so they must be very scanty, and perhaps only serve a trophic function. There is not a very great amount of muscular fibre on which they can act, and adrenalin does not cause any contraction of these vessels, of the coronary, or pulmonary arteries, as has been shown by Schäfer, Dixon, Brodie, and Elliott. The capillaries are small, short, well-supported vessels, which seem to be able to bear a considerable amount of strain, as Leonard Hill has shown that sometimes the pressure may be at zero and at other times when the head is down it may rise to 100 mm. of mercury. This latter condition must however be rather exceptional, as the carotid arteries have great contractile power. Professor MacWilliam has shown that *post mortem* the carotid can be easily made to contract to half its former diameter, and any one can easily satisfy himself as to the great variations which occur in life. Under these circumstances the circulation in the brain becomes largely kinetic, the velocity is enormously increased, but not the lateral pressure. The cerebro-spinal fluid is very deficient in proteid, from which we may infer that under ordinary circumstances the capillary velocity is relatively great and pressure slight. In cases of meningitis the proteid in the cerebro-spinal fluid is increased.

The Coronary Vessels.

The arteries and arterioles which supply the heart closely resemble the cerebral vessels in being thin-walled, rather deficient in muscular fibre, and in having very few, if any, vasomotor nerves. They are also exceedingly prone to atheromatous and calcareous degeneration of the intima. Newell Martin, Roy and Adami, and Alexander Morison have found some evidence of vasomotor nerves, but on the other hand Schäfer, Dixon, Brodie, and Elliott have failed to get any response to adrenalin which acts on all muscular fibre innervated by the sympathetic. The portions of the arteries which are not subject to muscular compression, and which consequently are constantly under the strain of the aortic pressure are very liable to degenerative changes, but the terminal portions of the arteries which are imbedded in muscle are not as a rule much affected. So when a coronary is blocked the heart may be supplied with blood from the venous side. In cases of stenosis of the tricuspid orifice the coronary veins are often much dilated, and form regular sinuses in the cardiac muscles.

The Pulmonary Circulation.

The pressure in the pulmonary artery is not more than one-third and the velocity of the blood about three-fourths of those respective conditions in the aorta; but, unlike the vena cava, the pressure in the pulmonic veins is always positive, so that the blood always enters the left side of the heart under pressure, while it is usually sucked into the right side. There is a gradual fall of the pressure-gradient from the right ventricle to the left auricle, and there does not seem to be much resistance to the circulation either in the arterioles or capillaries.

Bradford and Dean, and François Franck have shown by a series of very elaborate experiments that the pulmonic vessels are innervated; but while such innervation may be sufficient to maintain slight tone in the vessels, the experiments with adrenalin, to which I have before

referred, would show that it cannot constrict the vessels so as to effectively increase the resistance.

The experiments of Lichtheim showed that the greater number of the branches of the pulmonary artery could be ligatured without lessening the input into the left heart or lowering the aortic pressure. But Cohnheim showed that this end was attained by increased work on the part of the right ventricle as demonstrated by the increased intraventricular pressure, and once this ventricle began to fail there was a sudden fall in the input to the left heart, and in the aortic pressure. Any diminution in the pulmonary vessels, such as occurs in pneumonia and in emphysema, increases the work of the right ventricle, but so long as it is able to meet the demand, the circulation is maintained. It is the failure of the right ventricle which is the principal cause of death in pneumonia. The pulmonic arteries are fairly well endowed with muscular fibre, and even after death have a considerable power of contraction so as to drive the blood right on through the capillaries into the pulmonic veins.

If formaldehyde, which firmly clots the blood, be injected down the trachea after death, there will often be found firm thrombi in all the pulmonary veins, but not in the pulmonic arteries. It is therefore highly probable that any nerves which the pulmonic vessels may possess merely maintain the tone of the vessels or have a trophic effect. In cases of mitral stenosis the intrapulmonic tension is raised throughout, and atheromatous changes are as common in the pulmonic veins as in the arteries.

Respiration renders great assistance in carrying on the circulation to the right side of the heart, and to a less extent to the left; that the assistance extends to the whole circulation is shown by the fall in the arterial pressure which occurs at the beginning of inspiration. In the so-called *pulsus paradoxus* (there is no paradox, but merely an exaggeration of a perfectly normal phenomenon), and in Müller's experiment of expanding the chest with the glottis shut, the pulse may disappear at the wrist. This is due to the sudden emptying of the veins to fill up the vacuum in the chest, and with this removal of the obstruction to the capillary flow there is a simultaneous depletion of the arteries. It is not due, as has been supposed by Kussmaul, to any kinking of the large vessels, nor to any sucking back of the blood into the aorta as has been imagined by those who seem to have forgotten that the pressure in the aorta is always high and cannot be affected by a negative pressure in the thorax. It is due to a certain fall in pressure affecting the veins, capillaries, and arteries, and it is most marked in cases of low arterial pressure. When the arterioles are much contracted and the arterial tension high, as in cases of Bright's disease, it does not occur. The lungs form a blood reservoir for the left side of the heart, and during this expansion the reservoir is increased and has to be filled up before the left side of the heart is sufficiently well supplied with blood to enable it to throw the proper quantities into the aorta at each systole; the arteries are therefore emptied at their distal end and not filled at their proximal end and so the pulse disappears until an equilibrium is restored. I recently had a very good example of this in a case of bradycardia under my care where the frequency of the pulse varied from twelve to twenty-four beats in the minute.

When Dr. John Hay, and my house-physician, Dr. Jones, were taking cardiographic and sphygmographic tracings I found that when the patient took a long deep breath and then held his chest expanded as long as possible, the following events occurred:

During the deep inspiration there were two beats of the heart and two pulses at the wrist, then the pulse disappeared in the carotid, brachial, radial, and femoral arteries, and remained absent for several beats. At the same time the impulse of the heart disappeared, and the clear loud first sound and systolic murmur were replaced by a low, dull-toned, obscure sound, and the second sound was not audible. After four or five faint systoles, which I attributed to the right ventricle, the clear first sound and systolic murmur, and the double second sound reappeared and were associated with a return of the pulse in all the arteries. Here undoubtedly the blood was stored up in the lung reservoir, and the proper systoles of the left ventricle and the pulse in the arteries did not reappear until the reservoir overflowed. He had several attacks of semiconsciousness and one slight epileptic seizure during the periods of suspended breathing with the chest expanded. These attacks always occurred after the pulse had ceased for about twenty seconds.

In 1904 Dr. George Oliver gave a great stimulus to the study of the peripheral circulation by the publication of his admirable work on the tissue-lymph circulation. He showed that during the first hour of digestion there was a rise in the blood pressure—arterial, capillary, and venous—with a flow of lymph into the tissues; during this wave there might be a difference of 10 to 20 per cent. in the number of erythrocytes and haemoglobin between the mixture of blood and lymph obtained by a simple prick of the finger, and that of the pure capillary blood obtained from the same prick after the lymph had been compressed out of the finger.

He also showed that the same extracapillary lymph flow occurred in the muscles and prevented any further rise in the arterial pressure from tension exercises. His observations led him to the following conclusions: "(1) That the food constituents themselves (proteids, fats, and carbohydrates) do not possess the power of starting the mechanism by which lymph is dispensed to the tissues through the body. (2) That Nature, however, associates with our foodstuffs small quantities of very active substances which bring into play that mechanism, though these substances themselves are practically devoid of food value, and that man frequently increases this natural lymph by the use of salt and beverages containing bodies which also incite the flow of lymph. Such bodies as uric acid, creatin, creatinin, xanthin, glycogen, and sodium chloride perform an important function in nutrition, for during digestion they act as distributors of lymph to all the tissues—an office which the nutrient constituents themselves (proteids, fats, and carbohydrates) are incapable of discharging."

Dr. Oliver associated the action of these lymphagogues with a rise in capillary blood pressure, but in 1891 Heidenhain had ascribed the action of such agents to a specific excitation of the secretory activities of the endothelial cells. We have before referred to the careful experimental work of Starling in 1893, by which he refuted the conclusion of Heidenhain and re-established the doctrine of filtration under pressure.

From not clearly recognizing how the *vis viva* is very variedly compounded (in the arteries, capillaries, and veins) of pressure and velocity, very many have had great difficulty in giving a satisfactory explanation of capillary filtration under pressure. They assume that the capillary pressure always stands somewhere between the arterial and venous pressures, and therefore when these two pressures are high so also should the capillary be high. We know that when a person is standing the arterial and venous pressures in the foot are higher than in any other part of the body, and therefore according to this view the transudation should be greater, and we should have constantly more or less physiological oedema of the feet and ankles. Dr. George Oliver explains its absence by accepting the dictum of Starling that the capillaries are less permeable. No doubt the support, protection, and permeability, especially if they be damaged, of the capillaries vary in different parts of the body. The capillaries of the lungs and kidneys are well protected and not readily permeable to albumen. The capillaries of the limbs are more perfect and less permeable than those of the liver. The capillaries of the foot may be less numerous and better supported than those of the hand, but to assume that they are less permeable is a gratuitous assumption without a shred of evidence in support of it. The error arises from the assumption that the capillary pressure must be always higher than the venous. The energy always is, but not necessarily the pressure. I have shown that the capillary pressure in the foot may be less than in the nose; why, then, conjure up the unproven factor of lessened permeability?

The pressure in the capillaries is usually higher than that in the veins because their sectional area is greater and there is greater friction, but if the arterioles be much contracted, a tenth or even a twentieth of the capillaries may not be filled with blood, and the sectional area of those may fall even below that of the vessels collecting the blood.

When a person is standing the venous pressure in the foot is raised, but so also is the arterial. Supposing under the circumstances you have a venous pressure in

the foot of 100 mm. of mercury obstructing the capillary flow, and an arterial pressure of 300 mm. of mercury, you have a difference of 200 mm. of mercury driving the blood through the capillaries with great velocity and very little lateral pressure. If, then, the subject assume the horizontal posture, and raise the foot till the venous pressure be *nil*, there will be a corresponding fall in the arteries of 100 mm. of mercury, but there will still remain the same difference between the arteries and veins of 200 mm. The following physical experiment readily explains this question of pressure and velocity. If you construct a U-shaped tube out of india-rubber tubing, having both the limbs very wide, and a short connexion made of very fine tubing, then make a small hole in each of the three pieces, and connect one of the limbs with a water-tap, you will then find that the water comes out in a forcible jet from the hole in the proximal limb or artery, with less force from the hole in the distal limb or vein, but from the hole in the capillary there is no escape; the energy in it is all converted into velocity. If you compress the vein, then you raise the lateral pressure in the capillary and thus cause an escape. In the healthy individual the arteries of the lower limbs are firmly contracted, and although the pressure is high the mass of blood on which it acts is relatively small, and consequently the energy in the capillaries is largely converted into velocity. In proportion as you obstruct the outflow from the capillaries you increase the lateral pressure and diminish the velocity in them, and consequently increase the transudation. In cases of vasomotor paresis and in cases of cardiac failure the mass of blood in the capillaries of the dependent limb is augmented, the pressure is increased, and the velocity is diminished; consequently you get oedema.

The Veins.

The veins are smooth, capacious vessels, which practically offer no resistance to the circulating blood. They contain a certain amount of muscular fibre, and are supplied with some vasomotor nerves, which maintain their tone and to some extent regulate their capacity. The great strength of the veins depends on the strong fibrous external coat. They are slightly elastic and attain their maximum distension at a low internal pressure; in this respect they differ essentially from their corresponding arteries. The veins have very flaccid walls, and consequently readily adjust their cubic space to the amount of blood in transit. It has been shown by MacWilliam and by Leonard Hill that veins contract on mechanical stimulation or by cold, and dilate by heat. The coefficient of elasticity increases with the internal pressure.

The Pressure in the Veins.

The lateral pressure in the systemic veins depends on three factors which it would be well to consider separately: (1) The obstruction to the inflow to the chest; (2) the hydrostatic effect of the column of blood; and (3) the potential energy transmitted through the capillaries.

1. During inspiration there should be a negative pressure of a few millimetres of mercury in the systemic veins in the chest, and from this there is a gradual rise till you reach the smallest vessels collecting the blood from the capillaries, and of course the pressure in these vessels will largely depend on the hydrostatic pressure due to their posture. During expiration there is a positive pressure in the veins of the chest, and this is further increased when there is any obstruction in the lungs such as arises from emphysema, pneumonia, or bronchitis, or in the heart as may arise from pulmonic or tricuspid obstruction or regurgitation, pericarditis with effusion, cardiac failure, etc. This obstruction tells backwards throughout the whole venous system to the capillaries, but its effects are more immediately felt in the liver, and it often gives rise to transudation into the pleural sacs. In epileptic or tetanic convulsions there is great obstruction to the entrance of blood into the chest, while the high arterial pressure keeps the lungs engorged by damming back the blood, drives the blood on through the capillaries, and thus raises the venous pressure.

2. The effects of the hydrostatic pressure in the veins of the limbs would be very great only for the fact that they are well supplied with valves, and the muscular compression of the vessels drives the blood onwards, thus lowering the venous pressure and diminishing the obstruction to the outflow from the capillaries. If there be a negative pressure in the chest the venous pressure at the level of the vertex should be practically *nil*. Therefore, when the body is in the horizontal posture and the foot raised to the level of the head, the pressure in the veins of the dorsum of the foot may be at zero, but when a person with large varicose veins and defective valves in the veins of the lower extremity is erect the pressure in the dorsum of the foot may rise to over 100 mm. of mercury.

3. The pressure transmitted by the blood moving through the capillaries. This is a very variable quantity, and largely depends on the amount of blood and the energy which it retains in its passage from the arteries through the capillaries. If the quantity be great and the capillary pressure high the venous pressure is raised, but if the quantity be small and the velocity great in the capillaries the blood in the veins may still retain much of its kinetic energy. In the veins the viscosity of the blood and the friction against their walls are practically negligible quantities. The energy of the blood in the veins is also variously compounded of pressure and velocity; the greater the obstruction to the flow into the chest the greater the pressure and the less the velocity; and the greater the freedom in the flow the more is the *vis a tergo* converted into velocity.

In the portal vein the pressure is always positive, and in this respect it resembles an artery.

Velocity in the Veins.

The blood in the veins is one of the very few things which runs more quickly up the hill than it does down it. The velocity depends on the *vis a tergo* and varies enormously; in the veins of the arm it is frequently five times greater when the arm is hanging than when it is held horizontally at the level of the shoulder. The velocity is calculated by emptying a long piece of vein between two valves, and then timing with a stop-watch the period it takes the blood to fill the empty vein. I have seen 23 cm. of a vein in a dependent arm filled in 0.2 of a second, or a velocity of 115 cm. in the second, a velocity as great as often occurs in the aorta. As in this case viscosity and friction can be left out of account, the only resistance to the flow was the retarding influence of gravity which can be easily calculated.

The resistance would just equal the accelerating influence of gravity on a body falling *in vacuo* through a height of 23 cm., and from the formula $V = \sqrt{2\,Gh}$, we know that this would equal a terminal velocity of 2,100 mm. per second. This is equivalent to a pressure of 230 mm. of blood and equals the resistance, but in order to attain a velocity of 1,150 mm. in the second over and above the resistance of gravity, we must have a pressure which would give a velocity of 3,250 mm. in the second, which would be obtained by the pressure of a column of blood of 530 mm. in height. The pressure-gradient in these 23 cm. of vein would, therefore, be a fall from 530 to 300 mm. of blood, or from 40 to 23 mm. of mercury. This calculation was borne out by observation with a haemometer. In these calculations mercury is reckoned as thirteen times heavier than blood. Where the resistance is *nil*, a pressure-gradient of 5 mm. of mercury in a vein will give you a velocity of 1,120 mm. in the second. These observations show how kinetic and potential energy in every part of the circulation is constantly varying.

The Arteries.

It would be quite out of place to this audience and to the larger audience which I hope to reach, to describe the constitution of the arteries, but for the clear comprehension of the physics of the circulation it is rather important to emphasize some difference between the aorta and its branches. The aorta and the commencement of its principal branches differ from those of smaller calibre in the enormous amount of elastic and white fibrous tissue which almost completely replace the muscular layer of the middle coat. The external coat is very strong, and is composed of white fibrous tissue and longitudinally disposed elastic fibres, while the internal coat, like that of the other arteries, is divisible into three structures. When we pass down to the small arteries and arterioles,

the muscular layer is relatively better developed, and the external tunic gradually lessens, and before the capillaries are reached finally disappears.

The constitution of the respective arteries depends on the functions which they have to perform. The arteries, especially those of large size, are well supplied with nutritive vessels, the *vasa vasorum;* and, with the exception of those previously specified, are richly endowed with vasomotor nerves; and it is largely due to this influence that the arterial tone is maintained.

As the blood leaves the heart its energy is largely kinetic, and therefore there must be very little lateral pressure at the commencement of the aorta during ventricular systole, but if the aorta be healthy a large portion of this energy is rapidly stored up in the elastic walls as potential which is paid out during the diastolic period, and then the blood is compressed with a force nearly equal to that which it exercised, and this applies to all portions, including the commencement.

The velocities of the blood in the aorta and pulmonary artery vary considerably in different individuals, and in the same individual under different conditions. The velocity is directly as the cardiac energy and inversely as the resistance to the outflow and the sectional area. The force of the right ventricle is not a third of that of the left, but the resistance is also not a third of that in the systemic vessels; the sectional area is only slightly greater, therefore the velocity in the pulmonary artery is nearly equal to that in the aorta.

In my opinion physiologists place too low an estimate on the velocity of the blood in the aorta, though no doubt their conclusions are based on many careful experiments, but experiments very difficult to carry out and very liable to great fallacies. Chauveau found that the velocity in the carotid artery of the horse reached 520 mm. per second during systole, while at the time of the dicrotic wave the velocity sank to 220 mm. per second, and in diastole to 150 mm. per second. In the human aorta the mean velocity has been set down as 320 mm. to the second, while Professor Sherrington is a little more liberal with 500 mm. Now, a fall in the pressure-gradient in the aorta from 100 to 80 mm. of mercury gives you a theoretical velocity of 525 mm. per second. It seems to me that with this easy-going circulation a kind of perpetual motion ought to be set up, and you should live to the age of Methusaleh before your arteries were worn out. However, there would be the disadvantage of this theoretically perfect circulation in the present day, that you would be more easily hustled out of existence, and the only consolation would be that your relatives would know that, although you ceased to exist, there was nothing the matter with you.

You must bear with me while I explain these questions of velocity and pressure in the aorta, because a clear comprehension of them is essential for any true knowledge as to how stress and strain produce atheromatous and sclerotic changes in the vessels.

There is no more important subject in the whole domain of medicine, as, after the age of 50, arterio-sclerosis, directly or indirectly, kills more people than any other disease.

As the semilunar valves open the blood has acquired its velocity head, and then the actual velocity depends on the energy or effective head minus the resistance to the outflow; in the aorta the viscosity of the blood can be left out of account. The velocity between any two points depends not on the pressure but on the difference in the pressures. In a healthy aorta the energy is rapidly stored up in the elastic walls during systole and paid out during diastole, thus making the pressure and velocity more or less uniform. The most perfect circulation is one with a small difference between the systolic and the diastolic pressures—a moderately low systolic and a relatively high diastolic pressure in all the arteries. The systole of the ventricles gives out the energy during a third of a cardiac revolution, and the perfection of the circulation depends on the disposal of that energy not only during the time that it is given out, but also in the interval between the systoles. The diastolic pressure is more than sufficient to overcome all the resistance in the circulation; if it were not, the circulation in the main arteries would come to a standstill towards the end of the diastole. You can therefore look upon the difference between the systolic and diastolic pressures as that par of the energy which is not stored up in the walls of the arteries and which is engaged in producing velocity. I usually think that when this difference exceeds 40 mm. of mercury there is something wrong with the elasticity of your aorta and it is about time that you began to think about repairing the damage. Now we have seen that a pressure-gradient of 5 mm. of mercury in a vein without any resistance would give you a velocity of 1,120 mm. in the second, but in an artery, in order to get a velocity of 1120 mm., you require a fall in the pressure gradient from 150 to 100 mm. of mercury. With a pressure of 150 mm. and a resistance of 120 mm. of mercury to the outflow you get a velocity of 640 mm. in the second. With this velocity there is no excessive longitudinal strain on your vessel, and provided the lateral pressure in the aorta does not exceed 150 mm. of mercury the elasticity of the vessel may be preserved till old age. This ideal is not often realized.

When you get a continuous lateral pressure of 200 mm. of mercury or more there is no period of repose for the vessels, but merely periods of greater or less distension; there is interference with the circulation in the nutritive vessels, the *vasa vasorum;* you get irritative and proliferative changes in the subendothelial layer of the intima, atheromatous and perhaps calcareous degeneration follow, and the elasticity of the aorta becomes impaired. Oskar Klotz says that all the aortas examined by him coming from persons over 25 years of age showed more or less calcareous change in the aortic wall. In proportion to the loss of the elasticity the energy of the heart is not stored up, and with the loss in the conservation of energy the heart has got more work to do in order to carry on the circulation, and a great disparity arises between the systolic and diastolic pressures.

In these cases the immediate resistance to the outflow from the heart is not increased, but the total work is greater, the diastolic pressure in the heart rises, and the ventricle dilates and hypertrophies. The output is increased, the velocity is increased, and longitudinal straining—especially along the greater curvature of the arch of the aorta—takes place. You may now get a difference between the diastolic and systolic pressures of 120 or 130 mm. of mercury or more. With a systolic pressure of 250 mm. and a diastolic pressure of 120 mm. of mercury you would have a velocity of 2,450 mm. in the second, which would be chiefly expended during the systole. This gives rise to a marked recoil of the heart at the end of the systole, and to negative and positive waves in the circulation which obstruct one another. When failure begins to set in, you may find the force of this big powerful organ which shakes the whole chest only poorly represented at the periphery. In these cases the storage is defective, the pressure and the velocity are more or less intermittent, and there is an enormous waste of energy. In cases of very free aortic regurgitation the difference in the pressure gradient, and consequently in the velocity, is often very great, the cardiac hypertrophy becomes extreme, and subsequent failure rapidly takes place.

This question of storage forms an important element in prognosis, and for this reason aortic regurgitation occurring early in life from a rheumatic lesion when the aorta is fairly healthy is, *caeteris paribus*, very much less serious than a similar lesion arising secondary to degeneration of the aorta. If there be any elasticity left in the aorta and principal branches, there is an advantage in aortic regurgitation in maintaining a relatively high diastolic pressure, because you thus make circulation more uniform, and you do not necessarily raise the systolic pressure or increase the work of the heart. For these reasons well-regulated doses of digitalis and squill often do an enormous amount of good in this disease, notwithstanding the fact that many well-recognized authorities have entirely condemned the use of digitalis in aortic regurgitation, possibly because they did not know how to use it.

While a combination of these drugs increases the peripheral resistance—which is an advantage if moderate in amount—they lessen the size of the ventricle, increase the length and completeness of contraction, diminish the residual blood, and thus lower the diastolic pressure in the ventricles. In estimating the condition of the aortic wall in these cases some valuable evidence is furnished by the ear, because if there be any delay in the transmission of the pulse wave the aorta is still fairly elastic. You must always be careful to distinguish between the

velocity of the blood and that of the pulse wave. With the former, the greater the resistance, the higher the diastolic and the lower the systolic pressure, the less the arterial velocity of the blood; but in the case of the pulse wave, the greater the resistance, the higher the diastolic pressure, the more rigid the arterial wall, and the greater and more rapid the energy of the ventricle the quicker the transmission. The rigidity of the arterial wall may either depend on the atheromatous and calcareous degeneration with loss of elasticity, or on an increase in the coefficient of elasticity due to high blood pressure; in both cases the velocity of the pulse wave is increased. The velocity of the blood in the smaller arteries is inversely as the cross section, and need not here further detain us, as it will be best considered with the pressure-gradient. In the present day it is a very common, and occasionally beneficial, practice to combine cardiac tonics with vasomotor relaxants, such as digitalis and nitro-glycerine, but before combining opposing forces I think it is always well to have a clear indication in your mind as to the objects which you wish to accomplish, and the results which are likely to be attained. The circulation of the blood is one of the most perfect pieces of mechanism in the universe, and no amateur should be trusted to keep it in repair, yet American and English people pour tons of baneful drugs down their throats every year on the recommendation of advertising quacks, who care nothing for the lives and health of the community, and care for nothing but their money.

ARTERIAL BLOOD PRESSURE.

During recent years an enormous amount of literature has been devoted to what has been euphemistically described as blood pressure. To much of this I do not wish to refer, and I have no time to devote to the really valuable contributions. With one of the numerous blood-pressure instruments on the market it might seem a very simple matter to make an observation, but it must be remembered that it is not the instrument, but the man behind the instrument, who makes or mars the observation.

The arterial pressure at the level of the heart depends on the force of the cardiac systole and the resistance to the outflow through the arterioles and capillaries. With a healthy heart or self-regulating pump the greater the resistance the greater the force of the cardiac contraction, and consequently the higher the lateral pressure on the walls of the arteries. If the resistance be too great, we may get cardiac failure, and then the pressure falls. A long-continued great resistance increases the work of the heart, and work leads to hypertrophy, which maintains the pressure at a high level. In a healthy aorta the coefficient of elasticity increases with the internal pressure, but long-continued strain impairs the elasticity and leads to degenerative changes in the intima.

Roy considered that the maximum distensibility of an artery occurred under pressures corresponding, more or less exactly, to their normal blood pressure, but since then Professor MacWilliam has shown that this is an error due no doubt to Roy unwittingly using arteries in a state of *post-mortem* contraction. MacWilliam has shown that the behaviour of an artery under varying degrees of internal pressure depends on the state of contraction or relaxation of the vessel, and on the relative amount of elastic and muscular tissue. A strongly contracted muscular artery resists internal pressure, and the maximum distension does not occur until very high pressures are reached, while in a completely relaxed artery and one containing very little muscular fibre, the increase in volume is greatest at low pressures. Similar conclusions were deduced from his experiments on the pulsatile expansion of arteries.

"In the intact arteries of men and animals there would be much less pulsatile expansion in a contracted artery than in a relaxed one; and in a relaxed artery expansion would be very much more extensive when the mean blood pressure is low. Further, elongation would occur markedly in the relaxed artery as compared with the contracted one. And when a long stretch of artery is concerned the increase in length is very much greater than the increase in transverse diameter."

I have arrived at the same conclusions from my observations on the pressure-gradient; wherever there is relatively a great disparity between the systolic and diastolic pressures you get marked expansion in the arteries; when the arteries and arterioles are very relaxed and the diastolic pressure low, as in the hyperdicrotic pulse, you get extensive expansion; but even under these conditions if the systolic output be slight the expansion is not great, so we are driven back to the conclusion that even in a relaxed artery the amount of expansion depends on the fall in the pressure-gradient. In very contracted arteries, which are usually associated with high blood pressure, the fall in the pressure-gradient is slight and the expansion is slight. Again, I observed that a contracted artery, no matter how high the internal pressure, does not become tortuous. On the other hand, tortuous arteries are always more or less relaxed, and there is a great difference between the systolic and diastolic pressures. In these arteries there is a want of muscular tone, there is a waste of energy, they are badly nourished, their walls become thickened, the muscular tissue wastes and is partly replaced by fibrous or even calcareous material. This is the condition which has been termed by Clifford Allbutt the involutionary form of arterio-sclerosis, but it is involutionary in development and is primarily due to want of muscular or vasomotor tone.

When a person is in the horizontal posture there is still the same pressure-gradient between the systolic and diastolic pressures, and in all the arteries of the limbs these respective pressures are about similar levels. The postural variations in pressure have been thoroughly investigated by Leonard Hill and placed on a true scientific basis. These variations are of importance not only from a physiological but also from a pathological standpoint. In arterio-sclerotic changes the arteries of the lower limbs are most involved notwithstanding their muscular development and good vasomotor nerve supply. These arteries take part in raising the general arterial pressure, and are also subjected to additional internal strain from the statical pressure of the blood; hence both the middle and internal coats are involved in the sclerotic changes.

In arterio-sclerosis the middle coat is chiefly thickened in the muscular arteries and arterioles which take part in raising the general arterial pressure, such as those of the splanchnic area, the skin, and muscles; while in those arteries which are not very muscular and are subjected to internal strain from both high systolic and diastolic pressures the intima is principally involved. Hence atheroma and calcareous degeneration are very common in the aorta and in the commencement of its branches, and in the coronary and cerebral arteries. The carotid arteries seem to occupy an intermediate position; they are muscular and very contractile, and are not specially liable to sclerotic changes either in the intima or the media.

In my writings on arterio-sclerosis I entered very fully into the numerous causes which give rise to this disease, and the pathological aspect of the subject has been well investigated by Councilman, Cowan, Russell, Welch, and a host of others. A life of indolence and luxury is more deleterious to the circulation than the work of a navvy. I must not be supposed as recommending either course of life, but a happy mean with a strong leaning towards hard work. Sir Lauder Brunton and Dr. F. W. Tunnicliffe showed that after the cessation of muscular contraction the intramuscular arteries dilate and thus lessen the resistance. Athletes who have had great muscular training retain very healthy peripheral vessels, but are liable to atheromatous changes in the aorta, and cardiac hypertrophy with subsequent degeneration.

Where there is continued high arterial pressure, especially high diastolic pressure such as occurs in chronic granular kidneys, you get general arterio-sclerosis, but the lesion is more local when the high pressure is intermittent. Women have not got the continued physical strain of men, but they are very liable to sudden increases of blood pressure from emotional causes which chiefly act on the splanchnic area, hence in them the aorta suffers more than the peripheral vessels. It is like the effect of suddenly turning a stopcock in a water-pipe connected with the main supply: it is the larger pipes which get the chief stress. We are not now allowed to put such a tap in a main water-pipe, but it is rather more difficult to legis-

late for the vasomotor system in an emotional individual. In many of these women the arch of the aorta becomes considerably dilated and the walls thin.

In assuming the erect posture from the horizontal there is not only a rise in the arterial pressure below the heart level but a fall in the arteries above, and to prevent the blood from the upper part of the body gravitating into the capacious vessels of the abdomen, the regulative vasomotor mechanism contracts the splanchnic area, and so raises the mean arterial pressure, thus syncope is obviated. There are many cases, such as Addison's disease, where there is defective action of the vasomotor nerves, perhaps from lack of their usual stimulus—adrenalin—the splanchnic vessels do not contract, and the patient cannot maintain the erect posture. In the so-called cardio-splanchnic paresis of Albert Abrams, and in cases of orthostatic albuminuria, there is a defective action in the splanchnic area, but the vessels of the skin and muscles contract and make a feeble attempt to compensate for the want of tone in the abdominal vessels. In these cases the systolic pressure is low, but there is an even greater fall in the diastolic pressure.

The Heart.

No survey of the circulation would be complete without a reference to the self-regulating pump. The heart is composed of two physiologically distinct organs—the right and left heart. Each has got its own varying amount of work to perform, and it, under normal circumstances, performs it without any assistance from the other, but in cases of stress or difficulty they mutually assist one another. They act together, and are set to the same time, but this does not prevent one side from beginning or ending contraction before the other, and so much so is this the case—and they are at least to this extent independent—that doubling of both sounds of the heart is one of the most common of cardiac phenomena. In a healthy heart, both sounds are usually doubled every deep respiration.

Ladies and gentlemen, I have said enough to show you the necessity of a well-balanced circulation for the maintenance of life and health. It is only with healthy blood vessels that any one can hope to retain his mental and bodily vigour, and expect to attain a green old age.

Like the circulation, let us run with patience the race which is set before us. "Life every man holds dear, but the brave man holds honour more precious dear than life."

Address in Surgery

DELIVERED AT THE

SEVENTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION,

BY

SIR VICTOR HORSLEY, F.R.C.S., F.R.S.,

LATE CHAIRMAN OF THE REPRESENTATIVE MEETING OF THE BRITISH MEDICAL ASSOCIATION; SURGEON TO UNIVERSITY COLLEGE HOSPITAL, AND TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN SQUARE.

ON THE TECHNIQUE OF OPERATIONS ON THE CENTRAL NERVOUS SYSTEM.

In considering in what way I could best fulfil the extremely honourable and at the same time responsible duty of delivering the Address in Surgery on the occasion of such a meeting as this, it occurred to me that exactly twenty years had elapsed since I showed at the Annual Meeting of the Association at Brighton the first three patients upon whom I had operated at Queen Square Hospital for intracranial disease. Many of what were then regarded as special points in the technique of operations on the central nervous system are now, thanks to the work of surgeons in every part of the world, household words. The principles then advanced were chiefly based on experiments on animals. During the past twenty years further experimental research on animals and clinical observations on human beings have confirmed and extended the general soundness of the broad principles underlying the treatment then proposed.

I intend, therefore, to-night to analyse my cases at the National Hospital, Queen Square, and facts which we have gained therefrom since 1886, while from my experience at University College Hospital and in private practice, I shall only quote such cases as are unique, or particularly demonstrate certain points.

The considerable interval of time which has elapsed since the Brighton meeting has also permitted of such an accumulation of facts that important questions of diagnosis and prognosis, which were matters of much doubt in 1886, can now be more readily answered. In fact, the advance in technique of the surgical treatment of diseases of the brain and the spinal cord has been relatively less than the improvement in our knowledge of the seat and nature of the diseases for which surgical intervention is useful and necessary.

Correct diagnosis in diseases of the nervous system is still far to seek, and yet operative treatment in such a difficult field is often expected to yield as good results as the relatively easier and simpler work of curing herniae or removing abdominal tumours.

It will soon appear of what immense importance it is to the community that the study of neurology should be pushed forward by every means in our power in order that the earliest commencement of a tumour of the brain should be determined as certainly as that of one nearer the surface of the body. The International Commission for the advance of this branch of science, which owes its inception to the great German anatomists, Professor Waldeyer and the late Professor His, will, it is hoped, have a co-ordinating and fostering influence on the work.

But the twenty years of medical and surgical work which have passed have done more than improve our topographical knowledge of the probable seat of encephalic lesions, they have taught us from the operating theatre what previous generations had never learnt in the *post-mortem* room—namely, a great deal of the vital pathology and true anatomical nature of brain disease. How often we see the nature, structure, and treatment of cerebral tumours discussed on the basis of such growths as are seen at autopsies, that is, when they have reached such a maximal degree of development as to have caused death! (See Figs. 13 and 14, Plate 3.) *Post-mortem* records can never teach what the careful study of the living tumours exposed in an operation can demonstrate, since in almost every case the former condition is practically what we may term inoperable.

I must first briefly allude to the responsibility of the surgeon in the treatment of diseases of the central nervous system. As in all special branches of medicine and surgery which are in a process of evolution, it is not easy to assign credit or blame when the course of treatment pursued is respectively successful or unsuccessful; but so long as our powers of diagnosis remain as imperfect as they are so long will the vulgar error of regarding surgical treatment as a *dernier ressort* be committed. This question, namely, When should medicinal treatment be given up and operative treatment substituted? has been raised again and again and hotly discussed in connexion with many diseases, notably appendicitis.

In 1890, hoping to secure a more logical and definite pronouncement on this fundamental point at the International Medical Congress, I proposed that in cases of Jacksonian epilepsy and other syndromata which suggested the existence of gross organic disease of the brain, a definite probationary period of medicinal treatment should be agreed upon, and that in an elementary case where no urgent symptoms like optic neuritis existed surgical treatment should be employed after thorough drug medication* had been energetically applied for about six or eight weeks and cure had not appreciably resulted. No conclusion, however, was arrived at.

Again, in 1893 I was unable to get an expression of opinion on this point, although Dr. Allan Starr, in his well-known work on *Brain Surgery*, had also formulated the conclusion that the surgeon should be invited to consultation in the case after about three months' medical treatment had been unsuccessful. Although such a course is in general the practice at the Queen Square Hospital, this view of the situation unfortunately has not yet been discussed in the profession. Even in the present year I

* Practically such drug treatment means mass treatment with the iodides, combined or not with mercury.

have been asked to operate on a patient with a lateral tumour of the cerebellum who had been known to have optic neuritis for nine years, and last year I did operate on such a patient who had been known to have optic neuritis for thirteen years.

As the opportunity of seeing the disc under such conditions is rare I append a photograph (Fig. 1, Plate 2) of the fundus in this case. It is of course perfectly ridiculous to include such cases in surgical statistics purporting to be a scientific study of this subject, and I only mention them to show what extraordinary ideas still prevail of our responsibility towards the victims of diseased conditions when such happen to constitute what are termed new subjects in medicine and surgery.

Assuming now that in a given case surgical treatment is considered advisable, the question immediately arises for what precise purpose is it to be employed, for all treatment, medical or surgical, is either palliative or curative. These two aspects of the matter require separate consideration.

Palliative Surgical Procedures.

It is a prominent characteristic of intracranial disease that (1) it is liable to produce optic neuritis, which customarily ends in total blindness; (2) it may concomitantly cause severe headache and vomiting, all of which symptoms are dependent upon pressure, and can be completely palliated or wholly removed by making a sufficiently free opening in the skull and dura mater.

The first of these, namely, optic neuritis, is a condition which, owing to its causing blindness, is of such vital importance to the interest of the patient, and so to the community, that it merits full attention. In 1886 its pathological causation was a matter of acute controversy, but we learnt by a very few years of operative surgical experience that, whatever other factors might be concomitant, the most important one in the production of optic neuritis was increase of the intracranial tension, and thus it happened that our earliest experience was the strikingly rapid subsidence of the optic neuritis when the skull and dura were opened. Therefore it is now possible to dogmatize on this question, and to say that in no case of optic neuritis (not of course of toxaemic or anaemic origin) should the process be allowed to continue after it has once been diagnosed, and that if blindness results therefrom the responsibility is very heavy on any one who fails to advise such a simple proceeding as opening the dura mater. The gravity of this responsibility does not seem to be generally recognized, and it is owing to this as well as to the backward state of neurological diagnosis that melancholy cases such as the following occur. A. B., lady, married, developed symptoms of cerebral tumour with acute optic neuritis, and was told by a neurologist that nothing could be done surgically. Subsequently, and after some treatment with the iodides, the neuritis subsided into complete atrophy and blindness, while the cerebral lesion gradually retrogressed. When the patient came under my observation in the spring of this year, her physical condition was apparently perfectly normal except the permanent loss of sight. This calamity would have been wholly avoided by operating to relieve the optic neuritis, even if nothing further had been attempted to deal with the lesion itself.

As regards the procedure to be adopted, my own experience is that although in rare instances the neuritis may begin to subside after even the first stage of only opening the skull, it is, as a rule, necessary to make a free opening in the dura mater to effect this purpose. One reservation must be made, that in cases where the tumour directly involves the optic tract, the specially delicate anatomical structure of the optic tract may negative the attaining of this otherwise invariable result.

In predicting what will be the condition of vision after surgical treatment of the optic neuritis, everything depends upon the care with which the ophthalmoscopic appearances of the disc are interpreted. Yellowish-white stippling, patches of exudation, or opal white atrophic changes, especially when associated with macular figures, all indicate that the secondary changes in the disc are likely to be permanent, and, therefore, in proportion to their development so the vision will be impaired, whereas when the loss of vision has been dependent simply on the swelling of the disc, then not only is the sight saved but largely improved. For some further discussion of this most important point from the point of view of the ophthalmologist, I would refer to Mr. Leslie Paton's recent analysis of the Queen Square cases which contains many of the results of my operations.

One more point must be mentioned in connexion with optic neuritis, because although of more importance in diagnosis than technical procedure I find it is of the utmost value in indicating to the surgeon on which side he should operate. I refer to the localizing value of the incidence of the optic neuritis. Varying statements have been made on this subject from time to time, namely, that (*a*) the optic neuritis begins on the side of the lesion, (*b*) that it begins on the side opposite to the lesion, (*c*) that sometimes one thing happens and sometimes the other according to the position of the lesion in the skull, for example, whether above or below the tentorium and according to the nature of the lesion. I wish to lay down the position drawn from an examination of my own cases of intracranial tumour that the optic neuritis commences on the side of the lesion (see Fig. 2, Plate 1). I am quite aware that true exceptions may yet be found to this rule, but I would point out that some of the exceptions hitherto described have not been real, that in any given case it is not a question merely of the number of dioptres of swelling of the disc, but it is also a matter of the anatomical changes in the disc, and finally that by the time the patient comes under observation the disc on the side of the lesion may be actually subsiding into decadent conditions at a time when the opposite disc is rising into its maximal swelling.

To sum up, then, during the past twenty years we have learnt that although the old procedure of de Wecker of incising the swollen sheath of the optic nerve in the orbit is of no avail, we can with certainty avert blindness by opening the subdural space early in cases of intracranial disease. [Preferably in the basal temporal region of the right side, that is, assuming that no attempt is made to attack the disease itself.]

Curative Surgical Procedures.

If the operation is undertaken for the purpose of effecting a cure we have to consider (1) what is the nature of the disease, (2) what loss or aberration of nerve function it causes, (3) whether if the lesion be wholly extirpated there will be a recovery from the disorder of function, and (4) whether any loss which may have been present before operation will be made permanent by the necessary extirpation of particular regions of the brain.

On points like the last it is evident that we cannot give a satisfactory opinion until we know precisely first what parts of the central nervous system alone contain the representation of movements or the record of sensation, and consequently of what parts does destruction entail permanent loss of function. In other words, we require to learn from the cerebral physiologist under what circumstances and to what extent can we get *compensation* of function when various parts of the cerebrum and cerebellum are destroyed.

1. *As Regards the Cerebrum.*—Apparently from the clinical records we can generalize thus far, that special motor functions cannot be restored if the whole of their cortical representation be removed. The same thing is probably also true of the special senses, and certainly is true of the hemianopic representation of sight. Succinctly stated, this amounts to the generalization that compensation is not possible after the destruction of middle level centres (see Fig. 3, Plate 4). The higher sensory representations and *a fortiori* the intellectual functions are, on the contrary, not permanently abrogated by the destruction of any one part of the cerebral hemisphere. The net conclusion, however, must be that as little injury as possible should be done, and no more removed than is absolutely necessary.*

2. *As Regards the Cerebellum.*—This question of compensatory power is of notable scientific interest when studied in the cerebrum, which is so clearly an assemblage of different nerve centres (in fact we might almost say organs), but it is no less interesting in the study of a homogeneous structure like the cerebellum, and has assumed a particular importance in the present subject because of Professor Frazier's proposal to extirpate the lateral lobe of the

* It being always understood that this does not apply to the skull but only to the nerve structures. The opening in the skull must always be free to allow of a proper survey of the brain.

cerebellum in preference to pushing it aside by displacement for the purpose of reaching deep-seated tumours. My own experience is against such extirpations for convenience. In fact, I regard them as an unnecessary mutilation, though quite admitting that in the process of removing a large tumour in that region the cerebellum is considerably bruised when so pushed aside. I ought to add that although I have removed a considerable number of lateral recess cerebellar growths, I have never found it necessary to do more than compress the cerebellum aside (see Fig. 4, Plate 4).

As to whether there is loss of function from such displacement involving bruising of the cerebellum, I have followed up the longest surviving case that I could find in the Queen Square series, namely, one of cerebellar tumour and cyst combined, which I operated on eleven years ago, when the patient was a boy of 14. He is now a healthy young man of 25, as may be seen in the accompanying photograph (see Fig. 6). In this case the tumour was a large one, situated in the right lateral lobe of the cerebellum, which was consequently markedly compressed, and probably the dentate nucleus of that side was also affected. The only indication of loss of physiological function that he now presents is a slight unsteadiness of the hand when he is particularly fatigued, as for



Fig. 6.—Case of tumour and cyst of cerebellum eleven years after operation.

instance after a long bicycle ride. The photograph shows distinctly the plus tension of the normal cerebro-spinal fluid. As far as the cerebellum is concerned, whether this remarkable recovery is due to restoration of function of the bruised portions or compensation from the uninjured part cannot yet be determined with certainty (I believe the former), but the conclusion I would draw is that we should preserve as much as possible of every portion of the encephalon which is not absolutely shown to be diseased.

At any rate, cases either cerebral or cerebellar dealt with on these lines show a remarkable power of recovery of function.

Consideration of the Details of Operative Procedure.

Perhaps the most convenient way of continuing this review of the technique and procedure of encephalic operations will be by taking the essential steps of such operations *seriatim*, and virtually it will be found that the fundamental purpose of every detail is the prevention of shock and the maintenance of the physiological integrity of the nervous system.

(*a*) *Previous Preparation.*

The general preparation of the patient by dieting, enemata, etc., is the same as for all operations. In a few instances I have found calcium chloride of probable service in cases where oozing from the bone or superficial tissues was to be expected, as in cases of penetrating endotheliomata of the skull.

The head and cavities in relation to it having been thoroughly disinfected for two or more days with sublimate and carbolic acid, the patient is placed on the table in such a position that, while the head is elevated to diminish the pressure in the venous sinuses, the shoulders are also slightly raised, so that the glottic respiration is not interfered with. If the operation is to be on the cerebellum the patient is placed on his side, with the uppermost arm drawn downwards. By these simple means complete access can be gained for any operation on the encephalon without subjecting the patient to constraint which affects both the circulation and the respiration. This question of posture of the head is no mere matter of convenience to the operator, it is an extremely serious one to the patient for the satisfactory performance of the operation, and is only to be secured by having a suitable head-rest, such as the fork rest of Professor Frazier or the one I use.

(*b*) *Anaesthesia.*

The all-important question of anaesthesia must next be considered. My own experience is confined to general anaesthesia, for I have never yet employed the intraspinal injection of cocaine or stovaine.

Since the use of an anaesthetic agent should, I think, extend beyond the production of analgesia, and include among other purposes the convenience of influencing the blood pressure at will, intraspinal anaesthesia is of too limited applicability because control of the intensity of narcosis is lost. Moreover, in many cases the psychical effect produced by the preparations for an operation upon a patient suffering from a lesion of the central nervous system might be unfavourable unless consciousness were abolished. However, after the very remarkable results of Morton and others, this question must be regarded as quite an open one and may indeed help to decide the best means of avoiding shock in this department of surgery.

In 1886 I suggested, in view of the remarkable power that morphine possesses of contracting the cerebral vessels, that it was better to use a combined anaesthesia of morphine with chloroform, a combination which many years before was largely advocated in general surgery. Unfortunately the adverse effects which morphine produces on the alimentary canal have always proved a bar to its common use. As regards the central nervous system also it has a disadvantageous action on the respiratory centre, and since the energy of this is already lowered by the shock of the operation I gave up the combined anaesthesia and have employed pure chloroform only for many years.

Of the general anaesthetic substances at our disposal, therefore, there are at the present time two for practical discussion, namely, ether and chloroform.

Of these two, numerous experiments on animals in 1883-5 proved to me the striking disadvantages of ether, in spite of its greater safety, which it owes to its far lower physiological toxicity on nerve tissues.[1] Apart from this specific difference the most important contrast between the two substances is due to their respective effects on the blood circulation. Ether directly causes, besides a rise of the blood pressure, a notable increase of the blood venosity, and therefore much additional and troublesome haemorrhage. In its later effects—that is, on recovery—it causes excitement, as well as in many cases notable headache and, of course, vomiting.

Ether I regard, therefore, as inadmissible as an anaesthetic in operations on the central nervous system; but in saying this I must not be thought to be criticizing my colleagues, especially American surgeons, who have accomplished most brilliant results under ether narcosis.

Chloroform, *per contra*, causes a fall of blood pressure with relatively less blood venosity—although this is by no means absent, as will be seen below. It therefore does not aggravate the bleeding, nor embarrass the respiration by causing bronchorrhoea.

By its more essentially paralysing action on nerve centres it causes practically no after-excitement and but moderate headache. It is probably as frequently followed by obstinate sickness, but this depends on many other correlative factors, and primarily on the dose used (vide infra). Chloroform, however, as already stated, is more dangerous. It kills by paralysis of the respiratory centre as often or more often than by paralysis of the heart.

Moreover, all cases of increased intercranial tension (as is now well recognized) are liable to die at any moment from sudden paralysis of the respiratory centre. How often one sees this accident in cases of intercranial tumour which are only at the very last transferred for surgical treatment! Two or three instances will suffice.

Case I.—Boy, aged 17. National Hospital, Queen Square. Admitted with all symptoms of localized cerebral tumour. Prepared for operation. On morning of day of operation suddenly fell back "dead" in bed. Respiration stopped, heart beat continued. Failure to restore respiratory centre. *Post-mortem* examination: Small encapsulated tumour of the leg area.

Case II.—Woman, aged 42. University College Hospital. Admitted with symptoms of cerebellar tumour. Operation advised. Patient decided to have same done at home. Two hours before leaving hospital suddenly collapsed. Respiration stopped, heart beat continued. Failure to restore respiratory centre. *Post-mortem* examination: Tumour of interior of lateral lobe of cerebellum.

Case III.—Woman, aged 38. Private practice. "Tumour of brain" had been diagnosed nine years before. Admitted into nursing home with symptoms of lateral recess cerebellar tumour. Prepared for operation. Twenty-four hours before operation attack of cerebral vomiting, followed by sudden arrest of respiration. Heart beat continued. Artificial respiration combined with opening of the skull failed to restore respiratory centre. *Post mortem*, lateral recess cerebellar tumour.

In the literature of the early days of cerebral surgery may be found instances of death on the operation table. I have no doubt that these were due to failure of the respiratory centre, owing to a dose of chloroform having been given which, though perhaps not necessarily lethal in an ordinary case, was fully so to a patient whose bulb was hampered by previous tumour pressure. Chloroform, therefore, must be used with caution in the surgery of the nervous system, to avoid giving a dose which might bring about fatal arrest of the respiratory centre.

The immediate problem is how to regulate the dosage of chloroform, and let me say, in passing, that the whole of my consideration of this question is applicable to all operations, and not only those on the central nervous system. Yet, curiously enough, because the early efforts of Snow, Clover, and others to obtain the administration of such a drug in known quantities were not entirely successful, the present haphazard and dangerous method of unknown dosage became customary and universal.

At the original suggestion of Dr. Waller I obtained, on July 10th, 1901, from the Council of our Association the appointment of a Research Committee to secure data for the administration of chloroform in known doses, commencing with its precise quantitative determination. The results so far obtained have already proved of notable value.



Fig. 7.—Arrangement, at the National Hospital, Queen Square, for anaesthetization and oxygenation of the patient. The Vernon Harcourt regulator is fixed on the conical stand, the chloroform bottle being in a water bath. The oxygen supply from the horizontal cylinder is readily regulated by the anaesthetist, Dr. Powell. Professor Theodor Kocher of Berne, who happened to be visiting the hospital at the time, stands at the right of the photograph.

The Committee have found that less than 2 per cent. of chloroform vapour in the atmosphere breathed by a patient is enough to produce deep narcosis, and that a much smaller dose is required to maintain unconsciousness to pain. Various apparatuses have been devised to give known percentages of chloroform. Of these I have worked practically entirely with Mr. Vernon Harcourt's, and the arrangement my colleagues now generally employ is shown in the photograph (Fig. 7).

Much has been written on the subject of chloroform administration, but I must state categorically what I believe to be the most profitable way in which it can be used in operations on the nervous system, and how its disadvantages can be mitigated or avoided.

If the mask of the inhaler be made to fit by wet aseptic

towels, the amount of the dose given will be under complete control. With the dose commencing at 0.5 per cent., and rising in one to two minutes to 2 per cent., the patient ought to be ready for operation after five to eight minutes. If the initial narcosis be complete no adverse event—for example, vomiting—will occur. If it be incomplete when the operation is commenced various drawbacks will appear. This is, of course, well recognized as a general principle by anaesthetists, but is so salient a point as to deserve repetition.

I desire now to refer to the use of chloroform during the operation, and, first, as regards its use as an anaesthetic or pain-preventing agent (Fig. 8).

I venture to repeat what I constantly stated in the chloroform discussions of the last three years, that having now, by means of the Harcourt or other regulator, the power of giving known doses, we ought to arrange the narcosis strictly according to the nerve excitations it is intended to drown, and so avoid contributing to the patient's discomfort by giving unnecessary quantities of the drug. The accompanying parallel diagrams (Fig. 8) convey my meaning. Abscissae represent time, and ordinates the form can be entirely shut off, the longest period that I have been able to do this for being twenty minutes. This, however, was a case of a cerebellar tumour in a child, and I have never been able in the adult to exceed twelve or fifteen minutes before the return of the reflexes of the limbs necessitated the renewed administration of the drug. After the encephalic lesion is dealt with the percentage always should be raised to about 0.7 or even 1 per cent. to provide for the insertion of the sutures in the skin, as naturally that is a strong pathic stimulus. Finally this percentage is continued to the commencement of the dressing to prevent the accident of vomiting occurring before the protecting rubber bib can be applied.

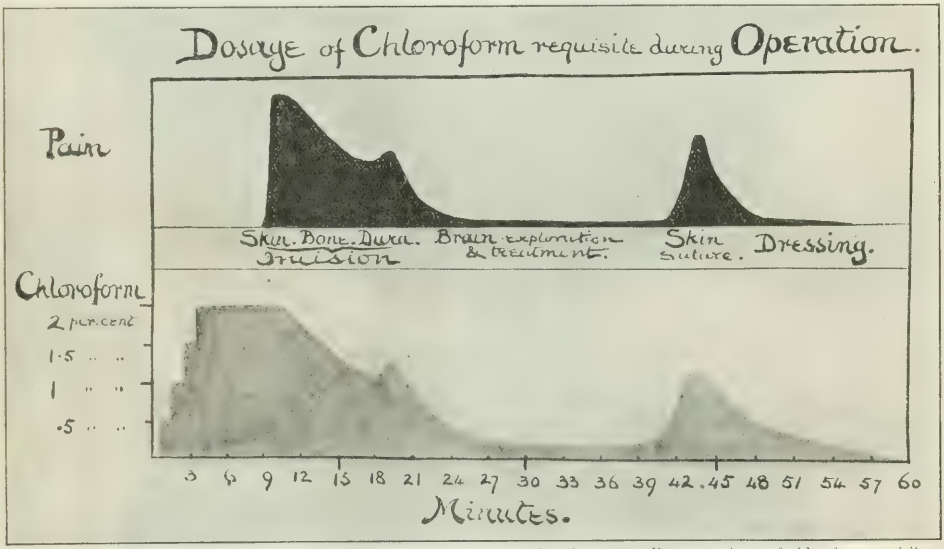


Fig. 8.—In this diagram the upper curve is that of degrees of pain, the lower that of corresponding percentages of chloroform requisite. The lengths 3 to 60, on the abscissa line, signifies an hour divided into periods of three minutes. The diagram shows in a graphic form that to the stages of induction nominally is given about nine minutes; that after the patient has inhaled 2 per cent. vapour for about six minutes he is ready for the operator. The maximum pain being caused by the skin cut, the concentration is lowered for the division of the less sensitive bone, and again raised for the division of the dura. Then the exploration of the brain being a painless procedure, as the chart shows, a great reduction of the chloroform is made—that is, to 0.5 per cent., or zero. Finally, the dose is raised to meet the pain of skin suture and prevent vomiting.

grades of pain and amount of chloroform respectively. Naturally the curves are arbitrary, but the chloroform dosage represents what I am in the habit of asking for and what my colleagues, Dr. Dudley Buxton and Dr. Powell, find to be amply sufficient.

As a rule the amount of 2 per cent. is given for about five minutes before the incision of the skin and reflection of the flap which constitutes the maximal pain period of the operation. This completed, the dose can be lowered by pushing the tap back and the bone be removed at 1 per cent. As the dura is a sensitive membrane supplied by the fifth cranial nerve the dose should be somewhat raised just previous to its incision to prevent reflex starts or movements on the part of the patient.

As soon as the dura is opened the encephalon can be dealt with without causing any pain except if the course of the fillet or one of the peripheral sensory cranial nerves be accidentally irritated. Consequently all this part of the operation is done under less than 0.5 per cent. of chloroform in the air respired, an amount which of course is far below that required in the induction stage. Indeed in many cases (the edges of the wound being as usual thoroughly protected by gauze) the chloro-

(c) Maintenance of the Body Temperature.

One of the depressant physiological effects of the general anaesthetic now requires consideration, and that is the remarkable influence which Dr. Horatio Wood and Dr. Hare have done so much to elucidate—namely, a high degree of power to lower the temperature of the body, and therewith emphasize the shock of the operation.

This is of course characteristic of all narcotic substances (cf. Chloral, Lauder Brunton). Ether, for example, in a very short time will, as Dr. Hare has shown, lower the temperature of the body two degrees Fahrenheit. For this reason I think that all operating rooms should be at a temperature of not less than 75° F., and that the operating table should be provided with a suitable hot water bed.

While, however, cooling due to the anaesthesia can thus be readily combated, my experimental work of the last twenty years on both the carnivora and monkeys has convinced me that to maintain the physiological energy of the central nervous system and prevent shock thereto it is necessary during all operative procedures on the skull and its cavity to prevent cooling by radiation from the brain exposed in the wound. The wound, therefore, should be constantly irrigated, usually with a solution of sublimate of 1 in 10,000 strength, or with saline. These lotions are put into the irrigator at a temperature of 115° for the reason to be detailed directly, and the flow is regulated at will by an assistant.

While, therefore, a follower of Professor Cheever and others, in thinking that much shock can be prevented by artificially maintaining the general temperature of the body, I consider we must also preclude local cooling.

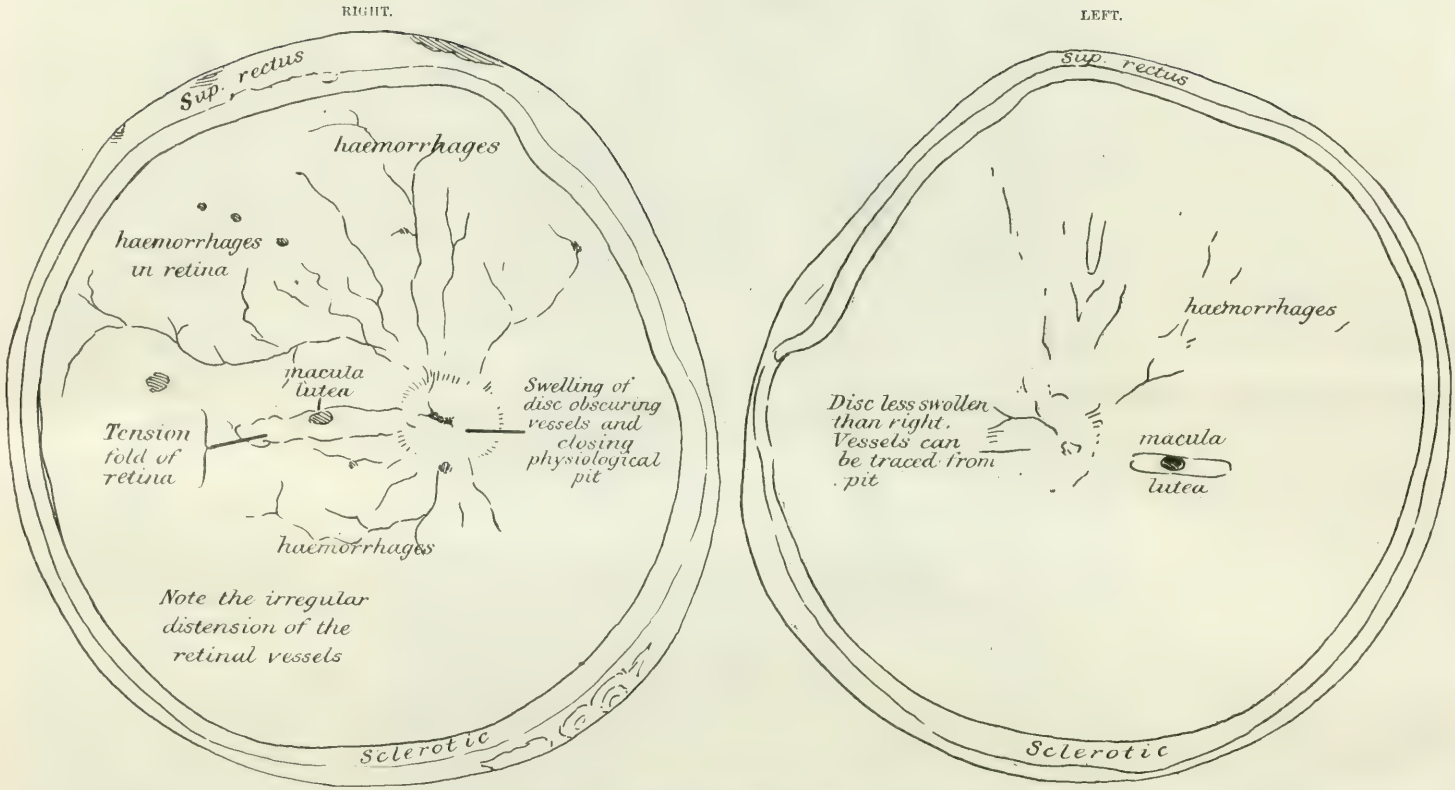


Fig. 2.—The fundi from a case of endothelioma of the right tentorium cerebelli, showing the greater intensity of the optic neuritis on the side of the lesion. Duration of neuritis probably 12 months. (Magnification about 4 diameters.)



Fig. 2

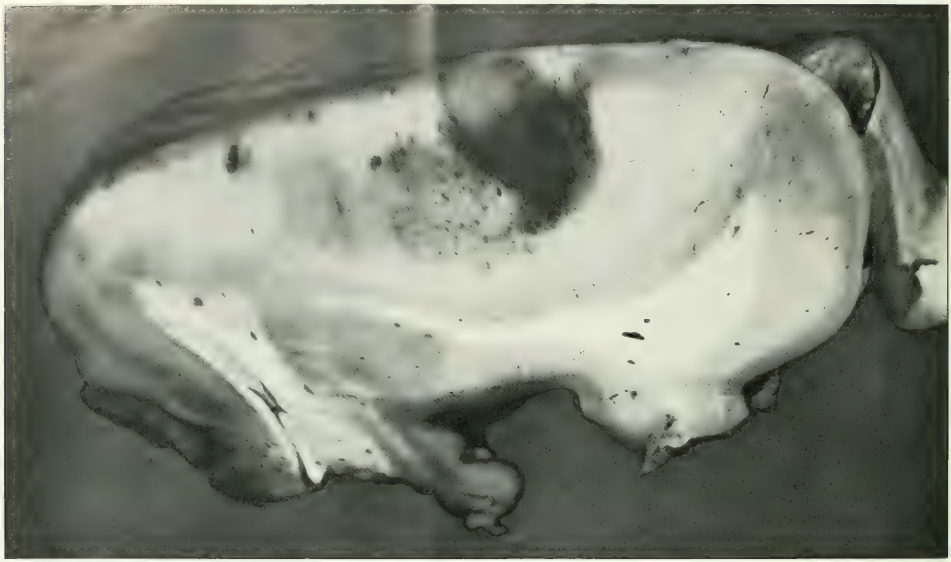


Fig. 19

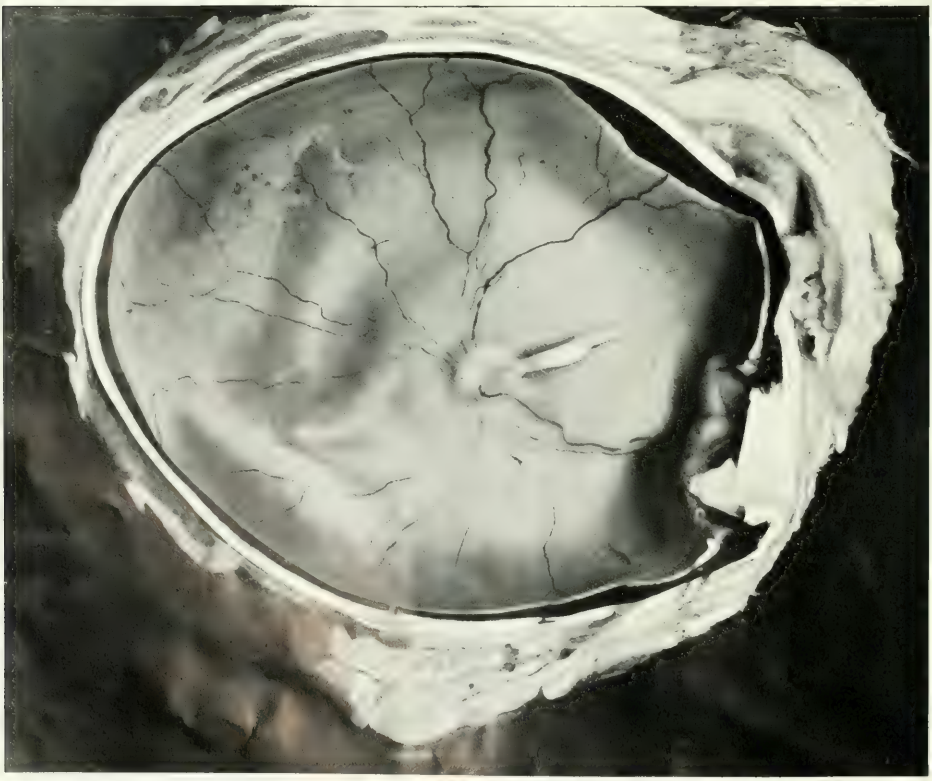


Fig. 1

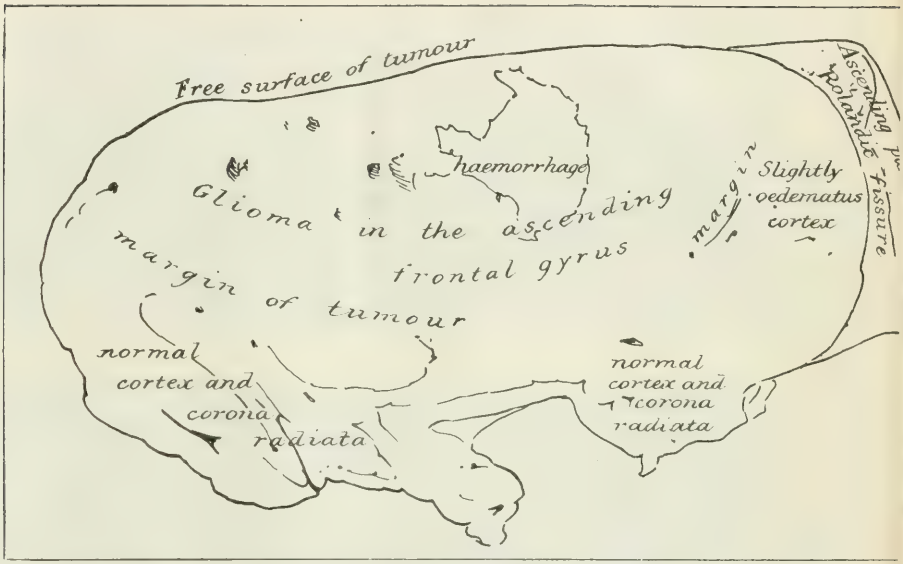


Fig. 19.—Section of glioma and surrounding tissue removed. Case I. "P." (Magnification 2·5 diameters.)

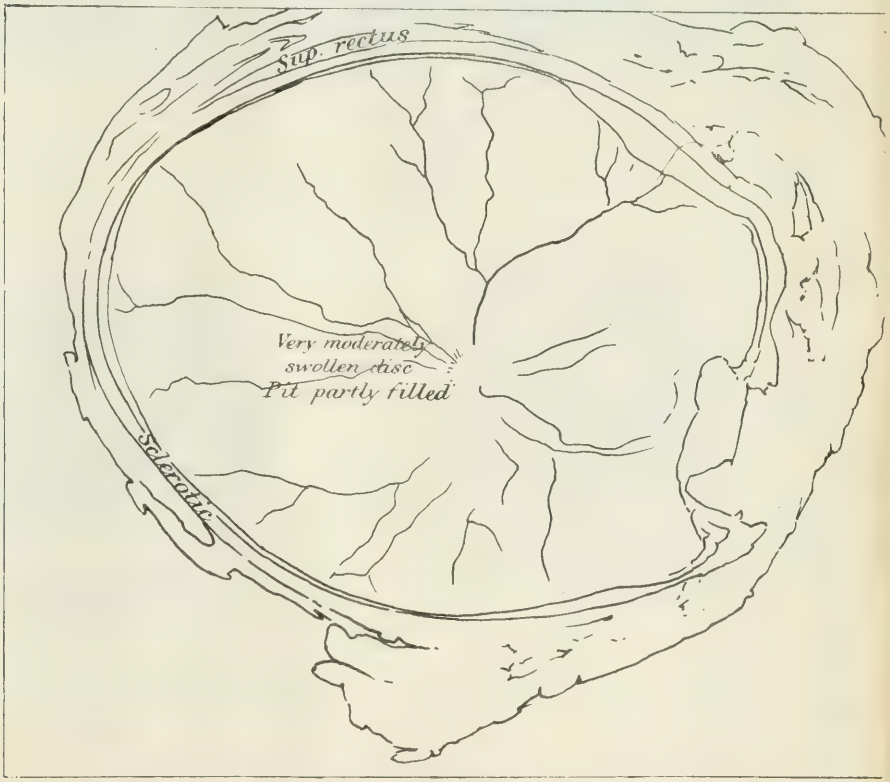
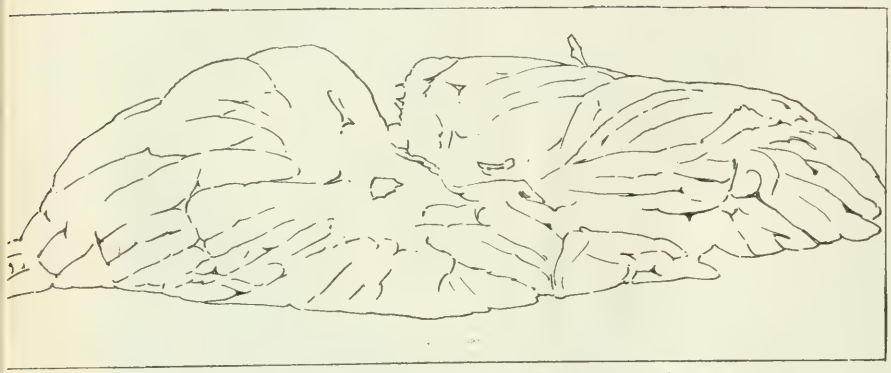
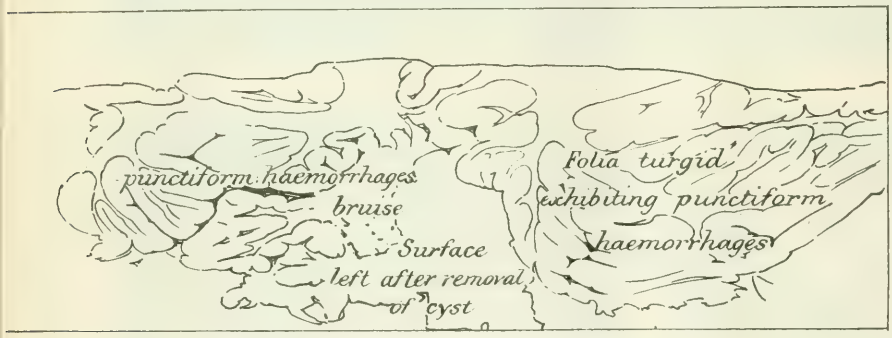


Fig. 1.—Optic neuritis of duration known to exceed 13 years. (Magnification about 3·5 diameters.)

Fig. 12.



Exterior of cerebellum showing normal appearance. (Magnification 1·5 diameters.)



Section of cerebellum showing punctiform hæmorrhages, &c.

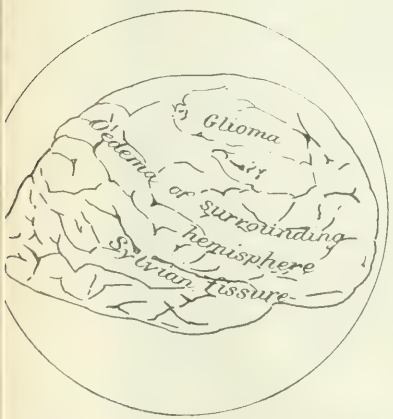


Fig. 13.—Outer surface of hemisphere, seat of glioma cerebri.



Fig. 14.—Section of glioma cerebri and brain (same case as fig. 13).

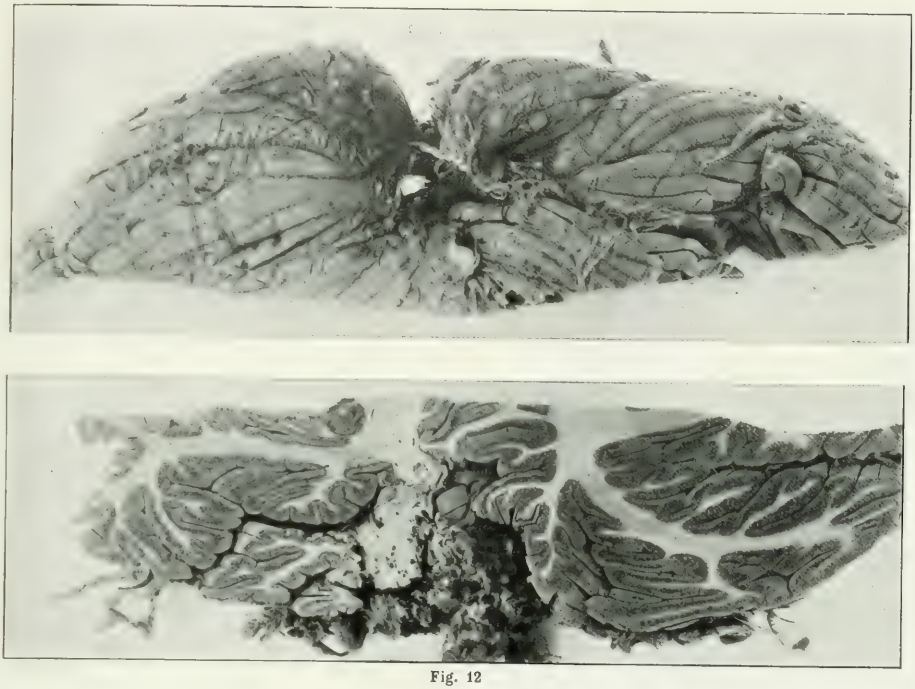


Fig. 12

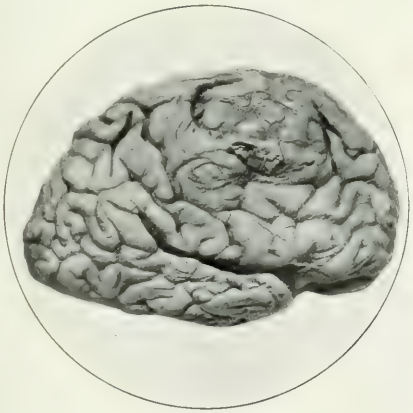


Fig. 13

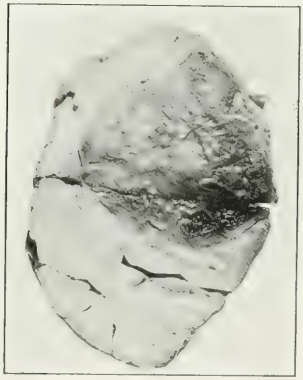


Fig. 14

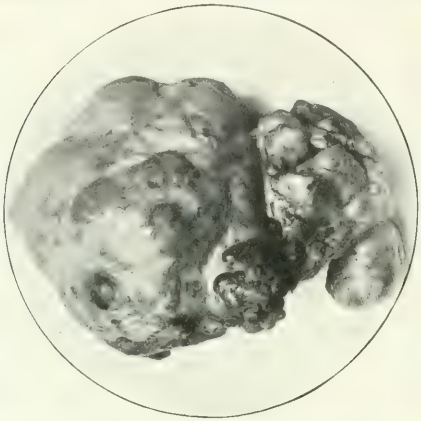


Fig. 15



Fig. 16

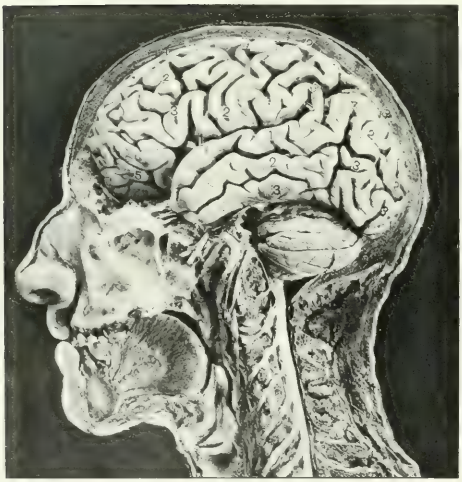


Fig. 3



Fig. 10



Fig. 4



Fig. 9



Fig. 15.—Encapsulated fibroma from the left frontal lobe.



Fig. 16.—Patient well two and a half years after operation.

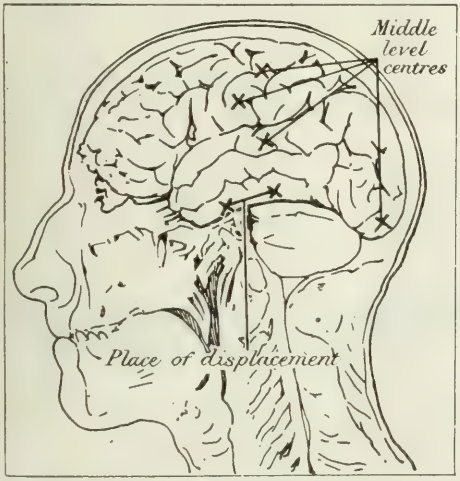


Fig. 3.—From Fraser's *Guide to Operations on the Brain.*

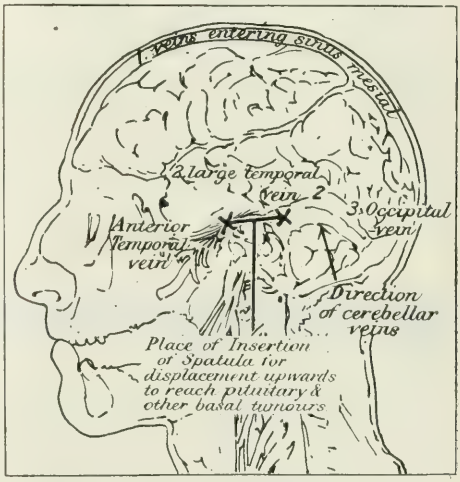


Fig. 10.—From Fraser's *Guide to Operations on the Brain.*

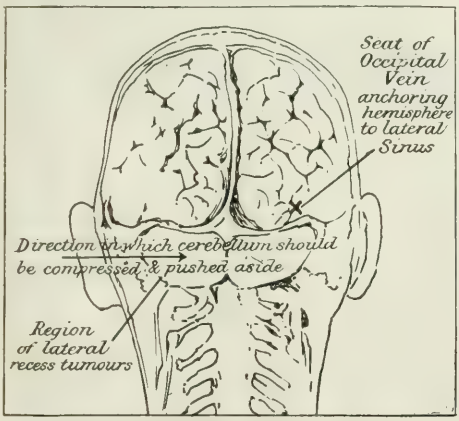


Fig. 4.—From Fraser's *Guide to Operations on the Brain.*



Fig. 9.—Brain of macaque monkey, showing effect of vein ligature for displacement of hemisphere.

The use of the hot irrigation fluid, however, is not only to prevent cooling of the nerve centres; it also has another purpose—namely, the arrest of capillary and arterial haemorrhage. I, therefore, take up the question now of haemorrhage; and it is, of course, only necessary to speak on this occasion of the haemorrhage from the central nervous system itself—unavoidable haemorrhage met with in dealing with the nerve tissues.

(*d*) *Haemorrhage.*

The first general principle is the recognition of the fact, originally established by Colnheim's researches, that as few vessels as possible should be obstructed; and, again, experiments on animals show that in encephalic surgery this principle must be followed as closely in the case of the veins as in the case of arteries. For instance, in the monkey (Fig. 9, Plate 4), as well as in man, the blocking of the large temporo-sphenoidal vein (Fig. 10) and the most anterior external occipital vein proximal to the original plan of tying all the arteries around the lesion before extirpating it; and inasmuch as all arterial supply of the encephalon is necessarily from below upwards, it is better to commence the excision of a lesion by beginning the incision in the brain below, and carrying it upwards and towards the mesial plane.

Arterioles and Capillaries.—Although it is necessary that every bleeding artery should be secured by ligature—and on this point one cannot too strongly emphasize the dictum of von Bergmann,[2] that it is very unsafe to trust to tampon pressure—it is remarkably easy to arrest capillary oozing and arteriole oozing from the brain by the simple means of hot irrigation. The most accurate work on this subject to my knowledge is that of the late Dr. Milne Murray,[3] who from his experiments came to the following conclusion, which I prefer to quote in his own words: "It is certain that water from 70° F. to 103° or 105° F. will invariably dilate blood vessels and promote the flow from open ones, but it is equally certain that water of tempera-

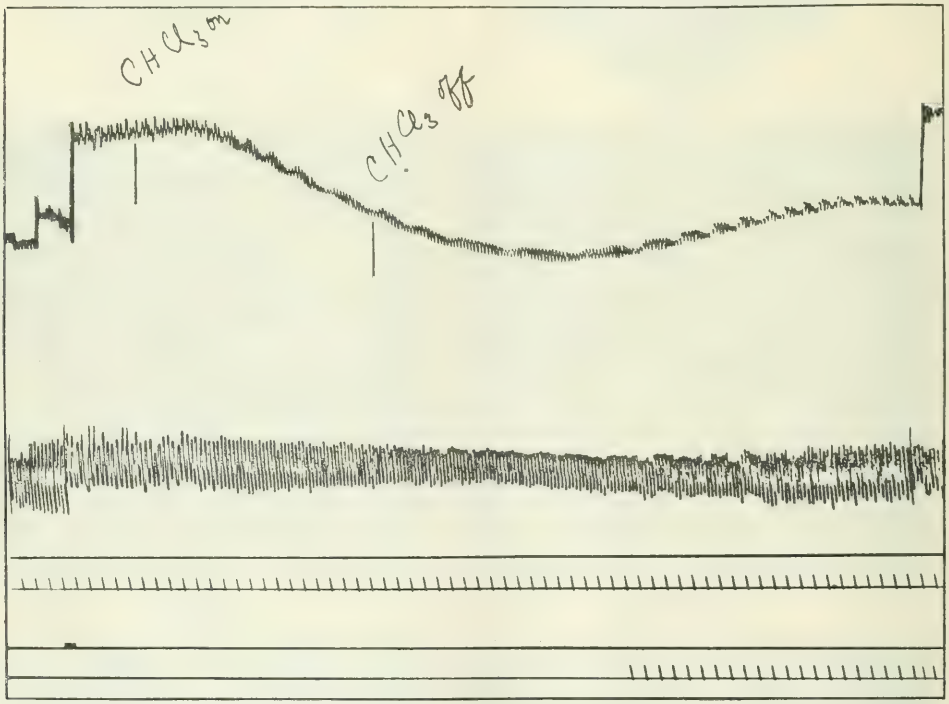


Fig. 11.—Kymographic tracing of the blood pressure (highest curve), respiratory movements (second line), and time marker (two seconds intervals). It will be seen that while the blood pressure was at its highest (the animal, a dog, being then under ether), chloroform vapour was given instead at the point marked "$CHCl_3$ on." Within twelve seconds the pressure began to fall, and continued to do so for about a minute, the fall continuing after the chloroform was shut off at "$CHCl_3$ off." Note also the effect of chloroform in gradually diminishing the expiratory function of the respiratory centre (Hughlings Jackson, Laborde), thus leading to blood venosity. (See paragraph, page 19.)

duces softening of the posterior part of the hemisphere. In pursuance of this principle, where it is necessary to remove large portions of the brain, the branches of vessels to be divided should be severed as far as possible from the trunk. A few points in detail must now be discussed according to the nature of the vessel.

Arteries.—From time to time it has been proposed to tie the main arteries—for example, the carotid, with the view of producing a large control of the blood flow from the cerebral arteries. But a thorough consideration of the cases in which this has had to be done by reason of operative necessities has convinced me that it is a measure to be avoided as far as it possibly can be. For instance, when ligature of the carotid has been found necessary in the case where a portion of the hemisphere has been partly displaced and compressed to gain access to a basal tumour, etc., serious and even fatal secondary oedema and softening has proved the adverse influence of this proceeding. On the whole, I cannot suggest anything better than the tures from 110° F. to 120° F. will have just the opposite effect." Theoretically what we require is that the irrigation fluid shall at the moment of contact with the nerve tissues contract the small vessels and at the same time not cause any heat coagulation of the cut surface of the brain. In my opinion, therefore, the temperature of the fluid should not exceed 115° F.—that is, about 46° C.—but it is equally certain that it must not fall below 110° F. or 43.5° C. If a large irrigator be used it is practically an easy thing to keep the fluid at the desired temperature on account of its mass, and it is gratifying, especially in a cerebellar wound, to see the oozing gradually cease during the steady flow from the irrigator "hose" pipe.

Before leaving the question of haemorrhage from the arterial system I must refer to the use of chloroform in this particular. As will be seen in the accompanying kymograph tracing (Fig. 11), one of the most striking features of the physiological action of chloroform on the

mammalian animal is that it soon (10 to 20 seconds) causes a marked fall in blood pressure. Consequently when a lesion is about to be extirpated, and there is reason to expect considerable oozing, or when the brain is obviously turgid with congestion, I always ask that the chloroform percentage should be raised for, say, a quarter to half a minute to 1 or 2 per cent. This at once induces a convenient, proportionate, and, of course, temporary anaemia.

The consideration of capillary oozing and haemorrhage brings us logically to the question of bleeding from the venous sytem, because capillary oozing is so dependent on the venous pressure. The same steps, therefore, which diminish the latter will also reduce the former.

Veins.—All bleeding from the veins and sinuses in bone can be immediately and absolutely certainly arrested by plugging with wax if the periosteum round the hole is completely removed. No difficulty, therefore, should ever arise from haemorrhage from this cause. It is otherwise with wounds of the sinuses and Pacchionian bodies and venous lakes in the dura mater. The bleeding from these, however, no matter how severe, is immediately controlled by pressure with the point of an instrument, while the opening is closed by a fine lateral suture on a round needle in the usual way. The principal veins if necessary are, of course, ligatured like arteries by passing a round needle beneath them, and there only remains, therefore, for consideration the control and arrest of venous oozing.

Control of Venous and Capillary Oozing by the Use of Oxygen.

Venous bleeding as just stated, commonly occurs in association with capillary oozing, and is often very troublesome in spinal as well as in intracranial operations, especially those at the base of the skull.

This can be rapidly controlled by a simple manœuvre, namely, the inhalation of oxygen. It is not necessary here, nor have I the opportunity or time to discuss why during the administration of chloroform there is gradually induced a moderate degree of asphyxia which has the effect of raising the venous pressure. The fact is plain, and consequently all that has to be done to lower the venous pressure and stop the oozing is to get rid of the asphyxial condition. Though it is impossible to promptly improve the action of the respiratory centre itself directly or the respiratory movements of the patient and so lower the venous pressure, it is easy to raise the percentage of oxygen in the anaesthetic atmosphere breathed, by directing a stream of the gas through the air inlet of the Harcourt regulator, and so quickly abolish any asphyxia.*

It is interesting to see how rapidly the bleeding stops as the colour of the oozing blood changes from dark purple to a bright scarlet. I frequently, therefore, during operation, especially towards the end, request the anaesthetist to turn on the oxygen for this purpose as well as for the elimination of shock (vide inf.). (See Fig. 7.) It of course must not be forgotten that as the gas is delivered through the Harcourt tap at a pressure somewhat greater than the patient's own respiratory current passing through the chloroform bottle, the in-draught of chloroform air (and therefore the total percentage of chloroform) is somewhat diminished, but this is of no practical consequence, especially at that stage of the operation.

Shock.

I now come to the analysis of the Queen Square cases, and shall endeavour as far as possible to thereby throw light on the actual cause of death occurring within the first twenty-four to forty-eight hours after the operation—that is, from what is termed "shock."

The question is one of profound interest, for since shock or sepsis are practically the only causes of death which can be provided against, the answer to it lies at the root of successful prognosis as well as of further improvement in surgical technique.

A few prefatory words are necessary as to what is meant by "shock." I quite agree with Crile, who has done so much to elucidate this all-important question, that we should discriminate between shock and collapse; and that while collapse is a temporary accident, in which the patient's nerve centres are capable of being revived by ordinary clinical means, shock, on the other hand, is a post-operative condition, which deepens after the operation for a variable period, and which if it terminates fatally destroys life, as a rule, within twenty-four hours. It is this dangerous phenomenon which we must now discuss.

From observation of the condition of patients after all kinds of operations it is evident that the phenomena of dangerous shock differ according to the part of the body operated upon, according to the condition of the patient before the operation, the concurrence of accidental haemorrhage, etc. The alteration of the intracranial tension which is produced by opening the skull, of itself necessarily causes shock after encephalic operations in a manner which is somewhat different from that caused by other operations. Therefore I think its treatment must also be different. The nervous system is responsible for the maintenance of the respiration, the maintenance and control of the blood pressure, and for the maintenance and control of the temperature of the body. Hence the only way in which we can adequately examine into the subject is by systematic discussion of these several points.

Fortunately the clinical investigation of the first—the alteration of the intracranial tension—has been rendered more easy by reason of the procedures adopted during the last thirteen years. In 1893, at the discussion in the Section of Surgery of this Association at Newcastle,[4] I pointed out that the early statistics of intracranial operations showed that the majority of deaths occurred from a severe degree of shock which could be in great part avoided by dividing the operation into two stages, the interval between them being about five days.*

The first stage consisted of the opening of the skull, the second of opening the dura mater and removal of the lesion. On the same occasion I also drew attention to the fact that although at the second stage the dura mater was opened, the removal of the tumour was often attended by relatively little shock. Subsequent experience has fully confirmed these statements, and shown that it is in fact the opening of the skull which causes most general depression of nerve energy and most alteration in the circulation.

Method of Opening the Skull.

I cannot spend time on the various mechanical devices for opening the skull, but as much of the shock depends on the way in which this is effected, I must allude to the principles which I believe govern the opening of the cranio-neural tube at any point. Of these the first is that as far as possible the bone should be divided with as little vertically applied force as possible, and removed with the least possible pressure on the brain and dura beneath. After a long experience of saws, circular or straight, and trephines driven by electromotors, I find that the foregoing principle can be most quickly and readily fulfilled by first removing a trephine disc, then marking with a large saw the area to be removed, and finally cutting away the bone with large bone forceps, all traction being directed outwards. The ill effects of vertical pressure or force are particularly seen when the opening of the skull has been done osteoplastically with the use of the mallet and chisel, and as in very many cases it is not advisable to preserve the bony wall of the skull the chisel need be but rarely used.

Alteration of Intracranial Tension.

(*a*) *Influence of Region of Skull Opened.*

Having thus briefly dealt with the methods of opening the skull, I pass to the next practical question—the influence of the region opened. This introduces a very important point which was first raised by Duret some thirty years ago, and has attracted the attention of most surgeons who have more especially operated on the cerebellum. It is obvious that inasmuch as the nerve centres of organic representation are situated in the posterior fossa of the skull, opening this region might theoretically be expected to cause more shock symptoms than the opening of other parts. No statistics can give a dogmatic explanation of this or any other clinical matter,

* I may here add that Bayliss and Starling found in their experiments on animals that warming the respired air diminishes the effects of operative shock. This can easily be done by passing the oxygen through a hot coil.

* The advantage of systematic two-stage operations only properly applies in my opinion to encephalic cases, although I have used it in emergency in a spinal operation.—Cf. also Brodnitz, *Verhandlungen der deutschen Gesellschaft für Chirurgie*, 1905, p. 219.

and in fact every case forming the material for our present statistical analysis in which death occurred from shock after the first stage (six of the total number of cases) was complicated by the pressure of the lesion being only partly diminished, while in two instances there was, in addition, persistent haemorrhagic oozing; but on taking all the cases together they give the following result, which is sufficiently demonstrative:

	Proportionate Ratio.
"Motor area"	1 death in 27 operations
Parietal and post-parietal regions	1 ,, 19 ,,
Frontal region	1 ,, 13 ,,
Temporal region	1 ,, 12 ,,
Cerebellar region	1 ,, 10 ,,

If, therefore, a line be drawn from the frontal eminences to the occipital protuberance, it is obvious that more shock results from operations below that line than from above, and also as we proceed from the frontal to the cerebellar pole of the encephalon.

Duret's conclusion was that pressure applied to the frontal regions specially produced lethal effect by direct transmission to the medulla along an axis parallel to such a line, and I shall show how such mechanical effects can, as far as possible, be avoided during operations on the basal parts of the brain.

(*b*) *Production of von Bergmann's Oedema Cerebri.*

The surgery of the central nervous system has been enriched by many contributions that have been made to it by von Bergmann, but on no point more particularly than that of the causation and frequency of oedema of the nerve tissues (see especially his *Kopfverletzungen*, and, later, *Die chirurgische Behandlung der Hirnkrankheiten*, 1889, p. 118, *et seq.*). The readiness with which the cerebrum and cerebellum become oedematous is remarkable, but the circumstances under which it happens are not at all easy to understand, and the facts of a large series of cases do not fall into line with von Bergmann's generalization—namely, that oedema necessarily occurs whenever the skull is freely opened. Thus, after the second stage of an extirpation in which the skull has been very freely opened and a tumour removed, there may be only a very moderate degree of oedema of the hemisphere operated upon, which, like all traumatic oedema of the brain, arrives at its maximum in three to four days, and disappears without any complication. On the other hand, when the skull has been freely opened in the first stage and the dura mater left intact, if the pressure of the growth is considerable, that may be accentuated by the development of a markedly oedematous condition around the focus of pressure. It is, of course, quite comprehensible that this is owing to the fact that a slight relative increase of tension may unfavourably affect the walls of the cerebral blood vessels, which are still under compression, and bring about a Cohnheim effect. That this does occasionally occur is proved by the very rare phenomenon of transudation of the red blood corpuscles into the oedematous tissue, of which the following is an example, and as it is unique in my experience I quote it here:

The patient, a lady of 52 years of age, had had symptoms of cerebellar tumour for several years, and a varying degree of optic neuritis had been known to exist for more than two years. The case being referred to me, I opened the cerebellar region, and finding extreme tension, decided to relieve it by a small opening in the dura. This revealed a thin-walled simple cyst, which I punctured and removed. After a preliminary stage (three to four hours) of moderate shock, the patient gradually developed remarkable symptoms of deepening coma, Cheyne Stokes respiration, and a rising temperature. These symptoms terminated fatally in thirty-six hours from the operation. *Post-mortem* examination showed that the cyst was completely removed, and that death had resulted from oedema, with punctiform extravasations, of the medulla and cerebellum (Fig. 12, Plate 3).

Probably this unusual occurrence was partly determined by a moderate degree of arterial sclerosis which was also present, but had not the complication of oedema occurred no case could have been more satisfactory.

This question of oedema is in our experience clearly associated with the further question of unrelieved pressure, and this brings us to the all-important question of success in diagnosis and the much-discussed procedure which is called an exploratory operation. The statistics of Queen Square Hospital throw a good deal of light on this subject, and show that the former condition, namely unrelieved pressure, is a matter of great practical importance in respect of ordinary palliative operations performed to abolish optic neuritis and relieve the headache, in short, to the procedure to which Professor Cushing has recently given the name of "decompression" operations. I will take this point now. Thus, of 13 cases which died of shock after the second stage, in 7 by reason of failure of topographical diagnosis, the pressure was not relieved directly over the seat of the lesions, whereas in 6 cases in which a tumour of the brain was diagnosed and correctly localized, but in which removal was not attempted owing to the size of the growth and other reasons, no patient died.

A comparison of this kind is sufficient, I think, to warrant the statement that the risk of an operation for decompression is greater if the opening for the relief of pressure is not made directly over the lesion. Precisely the same point is borne out with even greater distinctness by the figures showing the relative risk of operating with and without a correct diagnosis. Thus, of 79 cases in which a correct diagnosis was made and the tumour successfully removed, 7 cases died of shock—a little over 8 per cent.; whereas in 16 cases of tumour which were incorrectly diagnosed and consequently not removed, 6 cases died from shock—approximately 37 per cent. It is, perhaps, worth while adding that practically in all these latter cases the tumour was a glioma or gliomatous sarcoma—that is to say, a diffuse growth the diagnosis of which is always the most obscure, and at the same time a form of neoplasm in which circulatory changes and oedema is always liable to occur (see Figs. 13 and 14, Plate 3).

I think that these data enable us to form a more or less correct estimate of the risk of an exploratory operation in cases of doubtful diagnosis.

Treatment of Shock.

As I have suggested above, the treatment must be arranged according to the symptoms which threaten life, and those may be grouped according as they affect (1) the respiration, (2) the circulation, (3) the body temperature.

Depression, or aberration of special nerve functions—for example, motion, sensation, etc.—need not be a source of anxiety, as, if the centres of organic life are restored, recovery of the others will certainly follow in proportion to the extent to which their representation has been preserved.

1. *Respiration.*—The embarrassment of the respiratory centre in a stage of shock shows itself in increasing degrees of severity as follows: (*a*) shallowness of the respiratory movement, (*b*) periodicity and grouping of the respiratory movements, (*c*) typical Cheyne Stokes respiration. These changes are best dealt with by inhalations of oxygen until the effect of nutrient enemata (vid. inf.) begins to make itself felt, but it is above all in depression of the respiratory centre that strychnine is of use in combating shock. In speaking thus favourably of strychnine I nevertheless agree with the elaborate and useful work of Dr. Crile on this subject, and believe that in many cases strychnine is used too empirically, too freely, or with undue reliance on its powers, and that in repeated doses it has a depressant action on the circulation. As a stimulant of the bulbo-spinal centres strychnine is of course unrivalled, and when any marked alteration in the rhythm of the respiratory centres shows itself, a small dose should be given hypodermically, but for the above-mentioned reasons it does not seem advisable to give such a drug beforehand, as is sometimes done either immediately previous to the operation or at the end thereof, with the idea of anticipating difficulties resulting from shock. It is also not to be forgotten that the usual functional depression of the respiratory and the cardiac centres which immediately precedes chloroform vomiting is particularly marked in these operations, and often causes unnecessary alarm.

2. *Circulation.*—In considering the depression of the circulation by shock, we must again express our indebtedness to Crile for having shown that this part of the subject is not merely a question of the central or cardiac maintenance of the blood pressure, but to a large extent the lack of influence of the vasomotor system. I think the

beneficial effects of pressure on the surface of the body can be obtained by bandaging the limbs with cotton-wool. It remains, therefore, to consider what drug treatment is to be resorted to. As regards cardiac stimulation, that has always seemed to me to be a clinical error. The heart does not require accelerating as a rule, but it does require feeding. Undoubtedly repeated enemata (every two hours) of four ounces of beef-tea in which is dissolved Brand's essence or pancreatized milk is the readiest means of beginning to follow this line. If time presses, a very small dose of atropine is useful, and in cases of peripheral vasomotor paralysis digitalis is also useful, but its use must be at once stopped if there is any acceleration of the pulse. It is, I believe, of universal experience that, compared to the foregoing drugs, alcohol is not worth mentioning, and as it has very definite depressant after-effects, I think its use is to be avoided. A small quantity of strong coffee gives all the psychic stimulation of alcohol without its depressant effects; and even if it be vomited within a few minutes, benefit results.

3. *Body Temperature.*—In a large majority of cases the body temperature is somewhat lowered, but in certain instances, notably in children, one of the shock effects of operation is the losing of heat control and consequently the temperature, instead of falling, rises from the moment the patient is returned to bed. This rise may in a child become hyperpyretically dangerous, but can, of course, be, as a rule, like all neurotic pyrexia, controlled by cold sponging the upper limbs.

In leaving the question of shock I desire to once more assert that the main principle of operating on the central nervous system should be the avoidance and prevention of all conditions which lead to shock—namely, cooling and mechanical disturbance of the central nervous system. In respect of the necessity of producing less disturbance or chance of pressure upon the brain beneath, Mr. Spencer found in my laboratory that even slight pressure on the surface of the hemisphere materially affects, in accordance with the principles of Duret, the activity and regular function of the respiratory centre. So, too, in the second stage all the necessary instrumental procedures must be effected with as little pressure upon the brain and nerve tissues as possible. Sponging, for instance, should be avoided unless absolutely requisite; and, indeed, the practice of hot irrigation renders it very unnecessary. In particular, during the separation and extraction of an encapsulated tumour—such as a large fibroma (see Figs. 15 and 16, Plate 4)—every attempt ought to be made to exert a leverage or traction, so that the direction of the force is always outwards.

These principles underlying the avoidance of shock having been fully discussed, we may turn to the question of septic infection.

On Sepsis.

So far I have said nothing about the second possible cause of death, namely, septic infection. Few things are more interesting in a review of general surgery as compared to the special branches of the subject than to see how essentially different in varying conditions is the incidence of sepsis. It had always been recognized, and long before Lord Lister's immortal discovery of antisepsis explained why, that the cavities of the body presented special risks in this particular. Nowadays, when many surgeons can show an unbroken record of successful operations for the radical cure of hernia or for appendicitis in the cold stage, I believe it is not completely realized how very different should be our estimate of the proclivity of the central nervous system to invasion by septic micro-organisms and the extremely feeble degree of its resisting powers. A survey of the literature of the last ten years proves this most distinctly, numbers of cases of sepsis arising in the practice of the most careful operators even for such simple conditions as a benign isolated fibroma compressing the spinal cord. The records of Queen Square Hospital of the past twenty years are somewhat vitiated by accidental infections traceable to causes unconnected with the special region of the wound. Thus of the 17 cases in which death directly resulted from sepsis, one was due to the condition of the scalp before the operation, another to infection from the mouth, and two if not three from imperfect sterilization of the ligatures. Of the remainder, the infection in a very large majority obviously originated during the after-treatment of the case, while the external wound was still open at the drainage spot, especially when such openings and avenues of infection had been kept open by tampons and plugs. Personally I believe that the present-day precautions are sufficient at the time of operation, especially if the irrigation fluid used be a weak antiseptic lotion, that for the subsequent dressings it is essential to use an antiseptic (I have only complete confidence in a mercury salt), and that so long as the cerebro-spinal fluid continues to escape the most vigorous disinfection of the skin and frequent changing of the dressings must be carried out, for not only so long as the cerebro-spinal fluid is flowing is there great danger of septic invasion, but the difficulty of closing a drainage sinus is increased the longer the cerebro-spinal fluid passes through it.

In summary, I feel inclined to reassert the view expressed in 1886 that the less drainage is employed the better, and consequently that every effort should be made to close the skin wound as early as possible.

Displacement of the Brain.

With these general considerations before us, there remains the discussion of particular procedures. One of the most important of these is displacement of the brain, which must be resorted to to reach tumours at the base. I mean displacement of the lobes or regions. My first attention to this subject was drawn by being requested in 1889 to operate on a tumour pressing on the front of the optic chiasma, and for this purpose I raised the frontal lobe, but found that the tumour was really a cystic adeno-sarcoma of the pituitary gland, and was inoperable. To facilitate the elevation of the frontal lobe some of the veins entering the longitudinal sinus therefrom were ligatured. On the death of the patient some years later I found that there was considerable softening of part of the frontal lobe in the area drained by these veins, and not directly implicated by the tumour. This and subsequent evidence referred to above led me to the following conclusions, which I have repeatedly made use of and found of service, especially in 10 cases of operation on the pituitary body. The cerebral hemisphere is anchored by emissary veins to the dura mater at various points (see Figs. 10 and 3, Plate 4), (1) in the mesial plane, that is, to the longitudinal sinus; (2) laterally, chiefly by the temporo-sphenoidal vein to the lateral sinus opposite the asterion; (3) to a less degree by the external occipital vein, and (4) by the anterior temporo-sphenoidal vein, both of which last are small vessels, but being almost terminal require to be respected (see Fig. 9, Plate 4). The hemisphere can be readily compressed upwards by inserting a flat spatula cautiously beneath it (see Figs. 10 and 3, Plate 4) and between the veins just described. The next question, of course, is What happens to the hemisphere compressed? This entirely depends on the mode of compression. If the compression is, as it should be, gradual, the soft nerve tissues soon mould, with very little internal derangement; but it is easy to produce, with too much and too rapid application of pressure, laceration of and ecchymotic oozing between the fibres of the corona radiata. Such compression contusions of the basal portions of the hemisphere are relatively unimportant, because they relate to portions of the cortex of which the function is either readily compensated when lost or of very wide representation. The inspection of the deep parts of the skull by displacement of portions of the brain entails trouble to the assistant, because it is certainly disadvantageous to move the retractor when once properly in position. So far I have spoken of the cerebrum. I think that precisely the same principles should prevail in the case of the cerebellum.

With this procedure properly applied to the temporal lobe it is remarkable how much can be seen and correctly examined. With a good illumination the crura cerebri, the circle of Willis, the pituitary body and internal carotid, the second and third nerves come into view. I have in two cases after removal of a pituitary tumour inspected the base of the brain further by means of a small rhinoscopic mirror placed in the sella turcica; and it is very easy by continued but gentle pressure with a copper spatula, or with a spatula of suitable size, and with a strong head-light, to inspect the lateral region of the cerebellum and medulla oblongata with the issuing nerves (See Figs. 3 and 4, Plate 4). For these reasons I venture to take

exception to the step of removing portions and lobes of the encephalon if these impede the approach to the lesion.

The Ventricles.

In this connexion, namely, procedures necessary for the examination of the deeper portions of the brain, a few moments must be devoted to the matter of exploration of the ventricles.

Considering that for 1,400 years (as we know historically) the lateral ventricles were looked upon as the most important part of the brain, inasmuch as the animal spirits, or, as we should now say, nerve energy, originated therein, it is not surprising to find that special danger was supposed to attend their opening or surgical interference. Undoubtedly their continued drainage exposes the patient to the particular risk of sepsis, but apart from this there is no reason why they should not be freely dealt with like other parts of the brain, opened and portions of their wall removed as the case may require, provided that one precaution is taken, namely, that blood is prevented from flowing into the ventricular cavity. This, of course, may be obviated at the time of operation by a simple plug, and when the removal of the lesion is completed a temporary tampon is left in for twenty-four hours, by which time all the oozing vessels are thrombosed. I may, perhaps, on this question draw attention again to my paper of 1893, because the case therein referred to of death by intraventricular



Fig. 17.—Dilatation of the ventricles in a case of unrelieved cerebellar tumour.

filling was an instance of persistent oozing gradually forcing its way through the softened roof of the unopened ventricle.

Procedures in the Treatment of Malignant Disease of the Encephalon.

The analysis of the Queen Square cases also brings out in very strong relief the fact that where the technique of intracranial operations fails most is the treatment of malignant disease. This, therefore, will fitly form the last chapter of our considerations. All tumours which, growing from the meninges, penetrate the brain, or which are encapsulated, such as fibromata, myxomata and endotheliomata, tuberculomata and gummata, can all be excised with a good permanent result (see Figs. 15 and 16, Plate 4). The comparison between simple and malignant disease is well shown in the accompanying table of 55 tumours, cases in which the patients' histories have been followed up to date.

Queen Square Cases. Recurrence Table of 55 Tumours.

	Cases.		
Glioma .. ... 19 Sarcoma ... 4	23		Recurrence within 2 years, 20.
Endothelioma	8	1 recurrence 3 years later; died of valvular heart disease. 7 alive well, longest 5 years.	
Tuberculous ...	4	2 died within 3 months of tuberculous meningitis. 2 alive well, longest 7 years.	
Gumma ...	3	No recurrence.	
Fibroma ...	4	No recurrence.	
Cysts ...	3	No recurrence.	
Adenoma ...	Pituitary 1	1 recurrence.	
Adeno-sarcoma	3		

But unfortunately a considerable proportion of cases of cerebral tumour are essentially malignant, and by reason of their diffusing through the nerve tissues are very difficult to deal with so as to produce a complete and radical cure. These are the gliomata or glio-sarcomata. One elementary point of difficulty arises from the fact that they not infrequently reach a considerable size before they produce sufficient symptoms to render a topographical diagnosis accurately possible. Further, pathological anatomy does not yet tell us how to classify these growths, or how to determine what is their exact point of origin, consequently it is very difficult to systematically attack their growing focus or plan correctly the complete extirpation of the infected tissues (see Fig. 17 and Fig. 18). Further, the regions of the

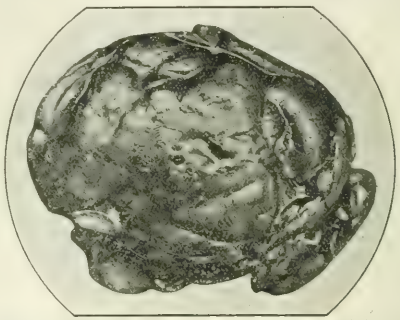


Fig. 18.—Highly-malignant glio-sarcoma of cortex cerebri. From a photograph taken immediately after removal to show the diffuse and oedematous character of the lesion. Recovery with recurrence in eighteen months.

brain surrounding the tumour are commonly oedematous, and this introduces a fresh difficulty—namely, to decide between the infiltration of the brain tissue with neoplastic growth and with simple oedema respectively. The Queen Square series of cases in the foregoing table show that recurrence of malignant disease was observed in no less than 20 out of 23 instances. I have on several occasions attempted, with but partial success, to obtain by extirpating such recurrences the same striking result as Bramann in his classical case, but undoubtedly the treatment of this class of disease will not be surgically

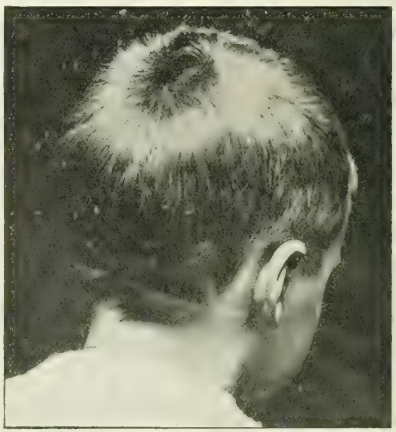


Fig. 20.—Case of glioma of the right lateral lobe of the cerebellum. Photograph three and three-quarter years after operation.

satisfactory until the diagnosis is so far improved as to make it possible to remove the growth entirely with certainty in the first instance. I may quote a couple of cases illustrative of this:

Case I.—P. This patient, a man aged 62, sent to me by Dr. Sellers, of Preston, presented all the classical symptoms of a localized tumour of the right ascending frontal gyrus, namely, Jacksonian epilepsy, hand aura, slight hemiparesis, atopognosis, etc., and optic neuritis limited to the upper nasal quadrant of the right disc. At the operation a small tumour, 5 cm. in length, was found, and the accompanying photograph (Fig. 19, Plate 2) shows that

it commenced in the substance of the cortex and was spreading diffusely from that focus. Microscopically it proved to be a highly malignant glioma. The patient remains in good health.

Case II.—F. In this case the patient, a boy aged 8, presented fulminating symptoms of cerebellar tumour, intense optic neuritis, inability to stand, repeated cerebellar fits, marked nystagmus and localizing pressure symptoms enabling a diagnosis of right cerebellar lateral lobe lesion. A glioma of about 8 cm. long axis was removed from this situation. As will be seen from the photograph (Fig. 20) the patient is in perfect health nearly four years after operation, and shows no symptoms of loss of cerebellar function, although the removal of the growth necessitated considerable contusion of the cerebellar hemisphere.

These cases make it clear that the successful treatment of glioma resolves itself into a question of early diagnosis. In this respect it seems to fall into line with the corresponding malignant tumours, for example, sarcomata of muscle and other soft vascular organs and tissues.

Effect of Directly Exposing but not Removing Gliomata.

In 1890, that is, sixteen years ago, my attention was drawn to the remarkable progress of a case of glioma of the cerebrum which was referred to me by Dr. Buzzard for operation on the understanding that the operation should not be completed if the hemiplegia should be increased or made permanent. The tumour was found at the point diagnosed, but it was so large that obviously its extirpation would have been followed by some permanent paralysis. The wound was therefore closed and the patient made a good recovery. Two and a half years later he accidentally infected himself with erysipelas and died in another hospital. At the *post-mortem* examination it was found that the tumour had disappeared, leaving a cicatricial and degeneration cyst. Since then I have operated on 10 cases of similar nature, but not always defining the tumour itself. In all, however, classical symptoms were present, namely, double optic neuritis, headache, vomiting, and varying motor and sensory pareses, together with severe intracranial tension and bulging of the brain through the opening of the dura.

I may quote the two most recent of these cases: The first, a boy, admitted into University College Hospital, with left hemiplegia and Jacksonian epilepsy, optic neuritis, stupor and vomiting. At the operation I found that at least the middle third of the cerebral hemisphere, principally the leg area, was involved in a dark red diffuse growth. Regarding it as inoperable I closed the wound, hoping that the tumour would undergo retrogression in accordance with the previous cases. This duly happened, and the boy is growing, is bright and intelligent. Examined July 10th, 1906, two and three-quarter years since the operation, he seems to be normally healthy, except that there is a considerable degree of spastic hemiparesis of the left leg, and to a less degree of the arm. Occasionally he has cortical twitching of the left leg.

The second of these two cases is that of a medical practitioner, whom I saw in October, 1902, with all the symptoms of a rapidly-growing malignant tumour of the left lateral lobe of the cerebellum. As this was apparently confirmed when I opened the skull and dura by the extreme turgescence and deep red colour of the cerebellum, I closed the wound, considering that the original intention of palliation of the headache and neuritis was the only possible treatment. His recovery was, however, so complete that in a few months he returned to his practice, which he has been carrying on ever since. Cases of this kind are clearly comparable to those which Dr. Glynn has published[1] of subacute encephalitis and internal hydrocephalus simulating cerebral tumour. It is, however, of course, difficult to determine the parallelism between his series of cases and mine, as only in one was an operation performed—namely, by Mr. Thomas—but in that instance the relief of the cerebro-spinal fluid was followed by complete recovery.

I venture to think that we are justified in making the following general deductions on the question of the surgical treatment of malignant disease of the encephalon: (1) That operation should be resorted to as early as possible; (2) the tumour should be, if possible, freely exposed and examined and extirpated with surrounding tissue; (3) that if it cannot be removed without undue interference with important or essential structures there remains some possibility of the tumour undergoing retrogression in a certain number of cases.

Conclusion.

In bringing this discussion of but one set of cases to a close some explanation is, I think, due from me why I did not follow the customary course of accumulating the records as of many cases as possible from the literature and basing my deductions on that basis.

My reason is that the massing together of cases treated by different surgeons under different conditions of operative technique with different clinical histories has always seemed to me an unscientific proceeding.

The errors of clinical observation are so numerous that to arrive at correct conclusions we ought to exclude variations of condition as much as possible.

I have only now the very agreeable duty of rendering an acknowledgement of my sense of indebtedness to Dr. Grainger Stewart, the Pathologist to the National Hospital (Queen Square), who has with indefatigable industry worked out the clinical records of the cases on which this address is based.

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[1] Waller, *Brain*, vol. xix. p. 569, 1896. [2] *Die chirurgische Behandlung der Hirnkrankheiten*, 1889, p. 116. [3] *Transactions of the Edinburgh Obstetrical Society*, 1885-6, p. 55. [4] British Medical Journal, December 23rd, 1893. [5] Ibid, April 22nd, 1905.

Address in Obstetrics

DELIVERED AT THE

SEVENTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION,

BY

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THE TEACHING OF OBSTETRICS.

May I be permitted, before entering on the subject proper of this address, to make a brief reference to the addresses delivered by my predecessors? They are few in number, and appear to have been given only on exceptional occasions.

That this should be one of those special occasions has been wisely determined by the Council of the Association, and they have placed on me the responsibility of endeavouring to make some adequate use of the opportunities which such an occasion affords.

The first, and in some respects one of the most interesting of these addresses was given at the thirty-first annual meeting of the Association, held at Bristol in 1863, by Dr. J. G. Swayne, Physician-Accoucheur to the Bristol General Hospital, and Lecturer on Midwifery at the Bristol Medical School. It is recorded in volume ii of the British Medical Journal of that year, p. 178, and it will be noticed that of the many subjects discussed in this address, the obstetric use of chloroform, version in cases of obstructed labour, the treatment of placenta praevia, Caesarean section, blood-letting and chloroform in puerperal convulsions, the nature of thrombosis and of phlegmasia dolens, and the operation of ovariotomy, almost all are still matters under discussion.

As regards the obstetric use of chloroform he says that although it had been used for over fifteen years, obstetric authors were not agreed as to the extent or the frequency with which it should be administered, and in reading his arguments for and against the use of chloroform we can see that medical men at that time had not learnt how to administer it in such a way as would ensure to the patient the needful relief from suffering, while interfering as little as possible with the normal action of the uterus. He concludes by saying that in normal labour especially he would not administer chloroform, but would rather let well alone than interfere with the course of Nature.

Apparently very many practitioners of to-day agree with his views, and not having been taught the proper method of administration, they allow many a patient to suffer severely during labour without affording them the relief that chloroform can give.

Many of us will agree with him in his conclusions as to the treatment of placenta praevia, namely, that the method of version and extraction by the feet must after all be our main resort, being that most often suitable and, be it added, successful. The cases which are exceptional and require other methods are those in which the difficulty of dilatation of the cervix is considerable.

Of the other subjects he discusses, that of the operation of ovariotomy (then still in its infancy) must interest us particularly. Here are seen some of the pioneers of this operation: Spencer Wells, Baker Brown, Tyler Smith, and Clay, with the results involving a mortality in selected cases of from 50 to 30 per cent. Dr. Tyler Smith, then President of the Obstetrical Society of London, whose papers will be found in the third volume of the *Transactions* of that Society, is quoted as having had seven recoveries out of twelve cases, and that "one of the most remarkable features in these cases was, that in two of them the pedicle was tied with a silk ligature, the pedicle and ligature being cut as short as possible, and dropped into the abdomen without producing any bad results."

The address in 1884 was given by Dr. G. H. Kidd of Dublin at the meeting at Belfast. It is recorded in the BRITISH MEDICAL JOURNAL, vol. ii, p. 217, of that year. The subject was Puerperal Fever, treated chiefly from the clinical point of view. While rightly exposing the fallacy of the theory of scarlet fever as a cause of puerperal fever, he refused to admit the general septicaemic theory, because it did not include groups of cases which he supposed due to a specific epidemic disease. The twenty-two years which have elapsed since that date have brought evidence which convinces all who study the matter under favourable conditions that the cases commonly grouped under the head of "puerperal fever" are in the main cases of septicaemia arising as the result of infection introduced from without in connexion with the process of labour and the lying-in, and that this septicaemia is to be prevented by the prevention of this infection. In addition to this, the principal group, there remains a small fraction of cases in which the infection, although introduced from without originally, has remained almost dormant within the body until labour has provided the opportunity for its extension. The theory of a specific epidemic disease has vanished.

The next address was delivered in 1893 at Newcastle-on-Tyne by our revered colleague, Dr. Cullingworth, who is occupying his leisure from active hospital work by editing the *Journal of Obstetrics and Gynaecology of the British Empire*. His address will be found in the second volume of the BRITISH MEDICAL JOURNAL for 1895, p. 353. The subject was Pelvic Peritonitis in the Female, and the Pathological Importance of the Fallopian Tubes in connexion therewith. The address remains as a landmark in our knowledge of the pathology of salpingitis; it led to the general appreciation by British gynaecologists of the true pathology of perimetritis, as well as to advances in abdominal surgery in the treatment of these cases.

In 1900 an address was given at Ipswich, where I had the honour to be President of the Obstetric Section, by our friend, Dr. W. J. Smyly, of Dublin, whose work at the Rotunda Hospital is well known to you all, and who has since received the well-deserved honour of knighthood. His address will be found in the BRITISH MEDICAL JOURNAL, vol. ii, p. 377, of that year. The subject was Maternal Mortality in Childbed. Its chief importance as a landmark is in its indication of the simplification of antiseptic measures for the protection of parturient women, as for instance the abolition of the douche as a routine practice, and in its insistence on the substitution as far as possible of external or abdominal for internal or vaginal examinations during labour. Dr. Smyly does full justice to the pioneers in the fight with puerperal fever, but like Dr. Kidd, and indeed other writers until quite recently, he does not mention the astounding evidence collected by Oliver Wendell Holmes—whose essay on the contagiousness of puerperal fever was placed in my hands by a non-medical friend in my first year as a medical student, and has ever since remained in my memory. The profession is indebted to Dr. Cullingworth for having reminded them of the great service which Oliver Wendell Holmes rendered, though with so little immediate fruit.

At the meeting at Manchester in 1902, Professor Sir William Japp Sinclair discussed Carcinoma in Women, chiefly in its clinical aspects. This is reported in the BRITISH MEDICAL JOURNAL, vol. ii, p. 321, of that year. In this address he expressed his firm conviction that the secret of cancer will be discovered (if ever it is) by the study of cancer of the uterus, although his reasons for this view are not very clear. He is less pessimistic with regard to the results of vaginal hysterectomy than many operators, and was not at that time in favour of abdominal hysterectomy in these cases.

Such an address as I am requested to give on this occasion should, if possible, deal with some point of general importance and interest rather than of personal investigation or experience, and I can imagine none at the present time so important to the present and future members of the Association as the efforts which are being made to improve the teaching and training of our medical students in practical obstetrics. The faults of our methods of teaching are obvious to every thoughtful person. The difficulty in adequately removing the deficiencies is undoubtedly very great.

May we first consider some of the most obvious imperfections? These are for the most part due to the difficulty of providing practical clinical teaching. There is no large maternity hospital in London capable of accommodating the students of the various medical schools, for the four lying-in hospitals are primarily charities for the relief of poor women and training schools for monthly nurses and midwives.

Queen Charlotte's is the only lying-in hospital which admits medical students or qualified practitioners to its practice. The students, however, who take the month's course obtain clinical teaching and experience of a kind not to be easily obtained elsewhere, but unless the hospital is prepared to give up its principal work—the training of midwives and monthly nurses—in favour of the medical students, its 70 beds, accommodating 1,600 in-patients in the year, can only provide the necessary experience for a small number of the students of London. At the present time the practice is attended chiefly by qualified men, who, having found out their lack of experience, are glad to make use of the opportunities for instruction to be obtained there.

The other three lying-in hospitals provide between them 100 beds, but they do not at present admit medical students. So far as teaching is concerned their work is limited to the training of midwives and monthly nurses. The number of women from all parts of the country seeking to be trained as midwives is continually increasing, and to meet their requirements the capacity of these lying-in hospitals is fully taxed.

All the medical schools and lying-in hospitals have an extern maternity department, and in this department the students, under more or less organized supervision, attend poor women in their own homes. Even in the best organized of these maternities the supervision and instruction of the students are very inadequate, for the resident medical officer in charge of them is without that constant guidance and close personal contact with his chief which fall to his lot when working in the wards of a hospital. It is impossible for it to be otherwise, and it speaks well for the general standard of practical common sense that so few calamities occur.

When attended by students *who have had the necessary preliminary clinical teaching*, these extern maternities provide the most important and valuable training that any medical student can obtain, for, as in private practice, he is then placed almost entirely on his own resources. At any time he may have to deal with one of the sudden emergencies of midwifery, and so he begins to acquire that feeling of personal responsibility for the direction and management of the case which it is so difficult to arouse in the student while at work within the hospital, where every important detail is supervised by the responsible officers. Thus invaluable training is at hand for every student in the maternity districts, and their responsibilities in degree and in value are not exceeded by those of any house-surgeon or house-physician, offices which can only be held by a small minority of the best students.

Another factor which has delayed the provision of adequate teaching in obstetrics, not only in England, but probably in other countries, is the old ingrained idea that the process of labour is a simple function of Nature, requiring for the most part a competent nurse only, and that the practitioners of obstetrics, although recognized in theory as of equal standing, are to be looked down upon in comparison with their colleagues in the other great branches of medicine and surgery. As the result of this, both in teaching and in examinations, the study of obstetrics has been relegated to a position totally unworthy of its immense importance to the practitioner and to the national welfare.

As Dr. Dakin pointed out in his excellent inaugural address before the Obstetrical Society of London last year, if only the scourge of puerperal septicaemia can be removed childbed will be robbed of one of its principal terrors, and this long-desired consummation will be nearer its accomplishment when our students are taught practically in the lying-in wards the application to midwifery of the general principles of antisepsis.

As shown in the report of a Committee of the General Medical Council, just published, it is still common in many places for students to be permitted or even encouraged to attend their maternity cases before they have had any adequate instruction in those general principles of medicine and surgery upon which the whole practice of obstetrics is based.

Another defect in the teaching is due to the fact that the lecturers frequently have had little experience in the practice of obstetrics. It is considered essential for the lecturer on medicine, surgery, or, indeed, any other special subject, to be a man of wide clinical experience, and to be in charge of wards devoted to the care of patients suffering from those particular diseases upon which it is his duty to lecture.

In obstetrics it is otherwise; the lecturer presides over no obstetric clinic and has often had but little experience. He is an obstetrician in name, not in practice. He probably does not attend twenty cases in a year. His obstetric practice is limited to the few special cases to which he may be called in consultation, and his teaching is necessarily of the book, not controlled by that wide personal experience only to be acquired by the constant observation of large numbers of cases such as falls to the surgeon, the physician, or to himself as a gynaecologist in the course of their daily work. They, however, aim at and attain a high standard of theoretical teaching, and all credit is due to the men who under these very imperfect conditions have done such admirable work as teachers and investigators.

In many of the provincial schools the lecturer is a successful general practitioner, to whom the Fates have given a large obstetric experience, but whose scientific training for this work and whose experience as a teacher may have been quite inadequate.

It is essential to have a scheme which shall place the teaching of obstetrics upon the same basis as the teaching of medicine and surgery. To devise such a scheme is not difficult, but to render it practicable within a reasonable time must be a matter of considerable expense and difficulty.

It is in the first place essential that the clinical teaching be given in hospitals provided for the purpose, where a sufficient and continuous series of patients can be admitted, and they should have a large extern department where the advanced students can attend patients at their own homes. Lying-in wards in a general hospital would be equally valuable if there were a sufficiently large number of beds to ensure a regular series of patients in sufficient numbers. A small ward with a few beds is quite inadequate for routine teaching, although of great value for the admission of special cases. A large number of cases is less of a necessity than a continuous series, and I am convinced that it is of the greatest advantage to teachers and pupils that medical students be taught their duties at the same time and place as monthly nurses and midwives. If taught separately, the average student learns little of the many things every nurse knows well, and the nurse of a few months' training thinks she knows a great deal more than the doctor, and does not realize the wide gulf that separates her knowledge and practice from that of the properly-trained doctor.

Both student and nurse will in the wards have been taught together how to carry out their respective duties in the best manner with all the appliances and assistance which can be provided there, and in passing from the wards to the out-patient department they will learn how to carry out those principles in the simplest manner, and often enough with little to assist their wits and their fingers in dealing with the lesser emergencies which they will meet with.

Every clinical teacher of obstetrics should be a practitioner of obstetrics having charge of the obstetric wards and extern maternity department, whose office as professor or lecturer would necessarily terminate with the cessation of his clinical duties. This arrangement would usually lead to the devolution of the greater part of the obstetric teaching to the younger members of the medical staff, with great advantage to them, as well as to the students. They would have more time for visiting and clinical teaching in the labour and lying-in wards, and to devote to the pathological work of their department, which the older physician busy in practice may find it difficult to do.

Owing to the great difficulty that there is in providing the necessary funds for the maintenance and development of the existing hospitals, supported as they are by the voluntary contributions of a comparatively small proportion of the community, it seems hardly possible to expect that adequate accommodation can be provided in this manner in the near future, whether by the extension of the lying-in hospitals or provision of suitable wards in the general hospitals or by the foundation of new hospitals. All these are urgently needed, and will require the expenditure of large sums of money. When we look at the splendid provision made for patients in the great public asylums and fever hospitals we shall be pardoned if we are inclined to look forward to a time when the great hospitals of the country shall be relieved from the eternal difficulty of finding the money necessary to pay for their daily maintenance, and when we shall see them equipped in an equally suitable though perhaps less expensive manner by funds provided by the State, administered by the existing Board of Managers, under the general supervision of a responsible Central Hospital Board or Commission.

The practice of obstetrics consists of the practical application of the ordinary principles of surgery and medicine to special organs and to special conditions, and yet as stated in the report of the Midwifery Training Committee of the General Medical Council, already alluded to, in twenty-three out of thirty-seven medical schools students are allowed to attend midwifery practice before they have received even an elementary training in the principles of medicine and surgery. All obstetric physicians who have to teach know well that it is impossible to instruct such students with any enthusiasm, however willing the students may be to learn.

The action of the General Medical Council in appointing this Committee is a very important step in the right direction. The recommendations are in the main excellent, and are now being considered by the various teaching bodies. They are—that every student be required to have conducted no less than 20 cases of labour, subject to the following conditions:

A. Before the student is allowed to conduct the above-mentioned 20 cases of labour he should be required to have held the office of clinical medical clerk and of surgical dresser; to have attended a course of lectures in medicine, surgery, and midwifery; to have during one month given undivided attendance upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital; and to have therein attended cases of labour under the direct supervision of a medical officer of the hospital. He should further be required to produce a certificate from the authorities of the hospital showing that he is competent to undertake the conduct of ordinary cases.

B. No certificate that the student has conducted the above-mentioned 20 cases of labour should be accepted unless it is given by a member of the staff of a lying-in hospital or of the maternity charity of a general hospital.

These recommendations, when they can be rendered practicable and can be enforced, will meet some of the most important deficiencies suggested in this address. They will ensure that the student has had a considerable part of his training in medicine and surgery and elementary obstetrics before the required twenty cases of labour are commenced; and that he will have had the same practical demonstrations and clinical instruction in the wards of the lying-in hospitals or in the lying-in wards of the general hospital as he receives in his surgical and medical training.

The changes indicated in Paragraph B may be thought to inflict some hardship upon individual students, for at the present time the requisite certificate of attendance upon twenty cases of labour may be given by any registered practitioner. But it must be remembered that under the existing regulations the certificate affords no evidence that the student has received any instruction whatever, and there is reason to believe that such indeed is sometimes the case.

While it is perfectly clear that there are many general practitioners able to give excellent instruction in some of the details of practical midwifery, it is equally certain that there are many others whose methods of practice, especially in the disregard of aseptic precautions, would make them dangerous teachers, and would lead to the continuance of methods which tend to the perpetuation of the still high mortality from puerperal fever. The difficulty of making any selection under these circumstances would be very great, and there is no satisfactory alternative but to adopt the course which is universally followed in the teaching of surgery and medicine—namely, to require that instruction be given by recognized teachers selected from the hospital staff for the purpose, and that the instruction in practical midwifery necessary for qualification be given only by recognized teachers.

The regulation at present in existence which demands that the student shall attend courses of systematic lectures is also faulty, since it involves unnecessary labour to the lecturer and makes too great a call on the time and attendance of the student. This remark, indeed, applies to almost all systematic lectures as delivered at the present time, and many of us think that the time has come when the arrangements for such lectures need thorough revision. The great extent and variety of the subjects, on the one hand, and the excellence of so many of the text-books on the other, make it desirable that the greater branches of medicine and surgery be taught in sections rather than in a continuous course of sixty or eighty lectures.

In obstetrics the usual plan is to give a course of lectures extending over three months, and delivered on four or five days in the week during the summer session; this course the student is expected to attend, but it is often quite impracticable to arrange a time for the lectures which shall permit anything like the whole number of the students to attend without interfering with their other duties, and unless (as is the case in the larger schools) a tutor is appointed to supplement these lectures by classes held at short intervals, a student may get little or none of the higher instruction which it is essential for him to receive. The lecturer on his part has year after year to spend a considerable portion of the time given to his lectures in teaching the anatomy and physiology of the female generative organs, both in the normal and gravid conditions, before he can begin teaching obstetrics proper, namely, the anatomy and physiology of labour, the management of pregnancy and labour, and the science and practice of the various complications that may arise.

It is a curious custom, but apparently a common one, for the lecturers on anatomy and physiology to omit from their systematic courses the female generative organs; hence the student learns but little of female pelvic anatomy and of such a highly-important subject as the physiology of menstruation until he attends lectures on obstetrics and gynaecology.

Before attending his cases and acquiring some degree of practical acquaintance with the process of labour the student is not in a position to appreciate or even to understand much of what he hears in a course of systematic lectures. It would be better if the instruction he received before his attendance upon labours were limited to the management of normal pregnancy, labour, and the puerperium together with such complications as are common. Instruction of this kind could well be given by the demonstrator, and would clear the ground for the lecturer on obstetrics, leaving him free to devote more time to the graver complications and more advanced work. The student also at this later stage of his career would be in an infinitely better position to appreciate the value of this advanced teaching.

Another method of instruction, and one likely to be keenly appreciated by advanced students, is the delivery of clinical lectures upon cases recently in the wards. Hitherto, owing to the absence of lying-in wards, such lectures have seldom been delivered.

Amongst the many able and learned obstetricians in London who have from time to time endeavoured to raise the standard of teaching, there is probably no one to whom we owe so much as to the late Dr. Matthews Duncan. He came to London to fill the vacant post of obstetric physician at St. Bartholomew's Hospital in October, 1877, and from the first devoted a large portion of his time and his great experience, and gradually his affection also, to his wards and his students. A "Scotsman of the Scots," he came to London believing that there was little of value to be found South of the Tweed. He gradually transferred his devotion from Edinburgh and Aberdeen to London and St. Bartholomew's. He would go to Scotland for his holiday but came back to London for his work.

His influence at the hospital may be summed up in the statement that by his teaching and example he transformed the teaching of obstetrics and gynaecology from an almost insignificant position to one of the greatest importance. This change was soon felt, not only by his colleagues on the staff of St. Bartholomew's, but by the students and junior officers who flocked to his lectures and wards to learn from his example that the practice of midwifery and gynaecology could be as noble and as full of dignity as that of the highest standards of surgery and medicine. This transformation was due not only to his learning and greatness as a teacher and to his success as a leading consultant—both of which were sufficiently recognized far beyond the limits of St. Bartholomew's and even of London itself—but also to the greatness of character which made it impossible for any one to be brought in contact with him, either in hospital or palace, without feeling that the branch of the profession which he practised was as noble and dignified as that practised by the greatest physicians and surgeons. In this respect, as in the high standard of his teaching, his example diffused itself in every direction, and it is no injustice to other great teachers of his time to say that it raised the whole standard of teaching obstetrics and gynaecology throughout London.

It is difficult to say whether he excelled most in his systematic or clinical lectures. Students who regularly attended his systematic lectures received a course of instruction which by its completeness rarely left any matter of importance—however recent a contribution or emanating from whatever country—lacking in their knowledge of the subject. Illumined with the criticism of his clear, highly-trained, logical mind, they were enabled to discriminate what was of permanent value and what they might expect to lay aside with fuller knowledge.

His clinical lectures were models of what such lectures should be. No student could help keeping his attention fixed on the subject. No mass of detail was allowed to obscure the clearness of the main object of the lecture, so that every one carried away some important principle clearly impressed on his mind, while to the more advanced student in gynaecology the facts grouped round the main thesis (the importance of which was not always perceptible to the elementary student) afforded him further instruction, the value of which rose in proportion to his knowledge of the subject and his experience as a practitioner.

The influence of such a man, who combined the highest personal qualities with knowledge, experience, and clear judgement, not only in the ward and class room but in every relation of life, raised the standard of the science and practice of obstetrics and gynaecology to a position which, at least in London, they had never before attained.

Introductory Addresses

BY

PRESIDENTS OF SECTIONS.

SECTION OF ANATOMY.

Arthur Robinson, M.D., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE TEACHING OF ANATOMY IN UNIVERSITIES AND MEDICAL SCHOOLS.

It is a rule of the British Medical Association that Presidents of Sections are not expected to deliver any formal address in opening their Sections, and it is decreed that any introductory remarks they may make shall be compressed into a period of fifteen minutes. These are wise rules, for in most Sections the time available at the Annual Meeting is not sufficient for the amount of work to be done, and it is essential, therefore, that every reader of a paper or opener of a discussion shall condense his remarks as much as possible, giving to the members present at the meeting only the essence of his subject, and leaving the details for publication in the Journal. In our Section this year we have a wealth of important material to be considered. This being the case, it would obviously be unwise that your President should encroach unnecessarily upon time already too short. Still, within the limits wisely imposed by our authorities, and without entrenching too much upon the time set apart for our more direct work, this appears to me to be the proper time to draw your attention, as workers in the field of human anatomy, to a point of importance, which we may not neglect if we desire to keep human anatomy in its proper place as a living science, whilst at the same time we are careful not to lose sight of its practical importance as a technical subject in a medical curriculum.

Human anatomy appears to have been studied at first by men of an inquisitive turn of mind, who desired to know as much as possible of themselves and their fellows. They were men of the educated class of their time, and it is not improbable that they may have hoped that a knowledge of the structure and arrangements of the various parts of the body would be of service in an attempt to meet and avoid those infirmities and diseases which they knew as the precursors and possible causes of death, just as similar knowledge enabled them to preserve and improve other mechanisms with which they were acquainted. Whether this was so or not, the knowledge gradually acquired was utilized by those who undertook the treatment of injuries and diseases of the human frame, and gradually the study of the details of human anatomy passed at first into the hands of the priesthood, who provided for the bodies as well as the souls of their flocks, and afterwards into the hands of the members of the medical profession. This was the natural course of events, for it is clear that the man who desires to regulate, protect, improve, and repair any instrument must know thoroughly all its main features and as many of its minute details as possible. The treatment of the body having fallen into the hands of a special group of men, it naturally followed that they must teach the details of their profession, and, consequently, human anatomy, which is a basis subject, has been taught for the most part in medical schools which may or may not have been associated with universities, and it has been taught almost entirely by medical men.

Under these circumstances, there has been danger that the science might be shorn of its wider limits and reduced to a technical level, the human body being looked upon merely as an object possessing certain definite structure and arrangements of parts which must be studied by the physician and surgeon merely for the purpose of localizing and treating diseases and injuries.

In more than one place the science has been debased to this level, and there is still a tendency in some quarters to decry any wider view and to insist that the medical student shall be taught only the technical details of human anatomy—that is, the positions of organs and parts and their relations to each other. This view is tending to become more prominent in association with the increasing demands which are being made upon the medical student's time from many sides, and it is usually pressed by those who are of the opinion that most of that time should be spent in seeing cases and watching or taking part in their treatment. Nothing could be more harmful, nothing could be more fatal to the best interests of the medical profession and the public than the general adoption of such a view. It would result in the medical man becoming a mere technician—that is, a man whose value is limited by the number of cases he has seen and treated. The medical man thus taught would be very much in the position of the working mechanic who can do well everything he has been taught to do or has seen done, but who is absolutely useless when he is desired to do something new which requires general as well as special knowledge.

Fortunately, there have always been in the medical profession many broad-minded men who have recognized that the man who has a wide knowledge of general principles is better adapted to meet unexpected circumstances than one who is merely provided with a memory of a certain number of observed facts, and luckily the opinions of our broader-minded colleagues have hitherto prevailed. The result has been, so far as anatomy is concerned, that in a large number of well-equipped medical schools and medical departments of universities the teaching of anatomy has passed into the hands of specialists—that is, into the hands of men who have spent the greater part of their lives in the study of the subject and who are enthusiasts in its teaching and study, looking upon man as the highest outcome of Nature and considering him and his relations, therefore, as worthy of the most careful study.

There are clear signs that this will be still more the case in the future. We recognize that it must be so; nevertheless, though we see that the movement is in the right direction, we must not minimize the danger which lies in the path and which will be inimical to the best interests of medical students if it is not carefully guarded against. The danger is that specialists occasionally lose sight of the practical applications of their subject and work at and teach only its more scientifically interesting features. It is a danger which exists in the cases of all subjects taught by specialists and it is one that must be carefully avoided in the case of anatomy, for the majority of the students of anatomy are, and so far as we can see always will be, medical students, who in most cases take up the subject merely as the means to an end. The danger will be avoided if the electing bodies of teaching institutions will take care to appoint as teachers only men who have been through the medical curriculum and who understand the needs of the profession and its students, and if the men thus appointed will keep in touch with their colleagues who are practising the art of medicine and surgery. They can do that in many ways, of which one of the not least important is taking part in the meetings of medical associations, and thus keeping touch with the general knowledge of the profession and its relationships to their own special branch, and on that account it is important that there should always be an Anatomical Section at the annual meeting of the British Medical Association.

It should, however, be remembered that the object of a medical curriculum is not to turn out a finished anatomist any more than a finished physician or surgeon, for that is an impossibility in the time through which the curriculum extends. The object should be to give the men passing through the curriculum a wide knowledge of the principles on which they must rely in the practice of their profession, a sufficient knowledge of the details to prevent them making any serious mistake when they first begin to depend upon themselves, and a sufficiency of general knowledge to enable them to take their places as members of a community who are able to appreciate the interests of their fellows, and, what is not least important, an understanding of man's place in Nature and his relationship to Nature's general laws. The amount of detailed knowledge which it is possible to acquire within the period of a medical curriculum is not sufficient to enable a practitioner of medicine to cope successfully with all the various conditions he will meet in his practice, but if he

has been thoroughly grounded in general principles, and in the universal laws which govern animal life, and if he possesses a moderately fair amount of brain power, he will not only be able to deal satisfactorily with all the cases he meets, but he will also be capable of recording observations in a proper manner; he will also be able to balance evidence, to guard against fallacies, and he will probably do something to advance the general knowledge.

It should, therefore, be the object of anatomists to avoid entangling medical students in a superfluity of detail. They should insist upon a thoroughly sound knowledge of the general relations and arrangements of the more important organs and parts of the body, a good knowledge of the general principles which underlie the relationships and arrangements and the advantages derived from them. They should endeavour to make their students acquainted with the general laws of growth and development and with abnormal conditions so far as they are produced by deviations from general laws of growth and development, and, carrying on the work done in the Biological Department, they should draw attention to man's relations to other animals in all cases where such relations are evident, and are instructive of the methods by which man has been evolved and the means by which he retains his place in the world. In addition, however, they must see that their students acquire a sufficient knowledge of the detail of the various parts of the body and their relationships to enable them to deal successfully with any emergency of daily life; but, with this exception, it is more important that the students should know the general principles upon which the various systems and organs are constructed, and those on which they are modified, than that they should memorize details which they can look up at any time, whenever necessary, in the numerous good textbooks which are now at every one's disposal. It is not necessary to enter here into details of the things which should be strongly impressed or into details of those which should be passed lightly over, for we can all easily recall examination questions which show both the right and the wrong trend of thought, but I would strongly urge that if we wish to do well for our medical students and the medical profession as a whole we should deal more with general principles and less with detail than has generally been the case in the past.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

A. H. Freeland Barbour, M.D., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE RELATION OF GYNAECOLOGY TO THE WORK OF THE GENERAL PRACTITIONER.

Gynaecology holds out one hand to the general practitioner and the other to the specialist. She has her grand manner, in which, adopting the style and tools of the surgeon, she rivals him in brilliance of work; yet I am not sure but she is greater when, in the guise of the family physician, she cares for the health of the mothers and growing daughters of the community. She is equally at home with the brilliant operator and the sagacious practitioner; and when honours go round, will the greater fall to the operator in his theatre furnished with every appliance and waiting for his patient, or to the practitioner in his gig starting on a long drive across the moor?

Gynaecology as a specialty is sufficiently in evidence in the programme of work of this Section, and therefore I devote the few minutes of this introductory address to the relation of gynaecology to the work of the general practitioner.

The medical student starts with a wrong idea of gynaecology, for which the term "diseases peculiar to women" is in part responsible. Instead of applying the general principles of pathology to pelvic diseases, he thinks that these have a special pathology. He fails to recognize that apart from the peculiarities of the anatomical structures involved, and the physiological changes implied in menstruation, there is no difference between salpingitis and appendicitis, or that epithelioma of the cervix does not differ from epithelioma of the lip. The difficulties which beset clinical teaching in gynaecology send him into practice inadequately prepared to deal as efficiently with diseases of the reproductive system as with those of other systems in the female; and this insufficient equipment develops in the mind of the laity the idea that a special knowledge is required to deal with disease in this part of the body, a special knowledge as distinct from the experience which comes to a man as the result of having devoted his attention to one branch of medicine.

Now, from one point of view, there is no more reason to treat gynaecology as a specialty than obstetrics, which is admitted to be part of the work of the general practitioner. A moment's consideration will show that the great majority of gynaecological cases must be at first in the hands of the general practitioner. A married woman expects to be treated in the first instance by the physician who attended her at her confinement, and it is for him to say when she should pass beyond his care. The examination of her case is at first in his hands, the diagnosis of her condition rests with him, and the routine treatment of chronic cases, of what we might describe as minor gynaecology, should be relegated to him.

The recent remarkable development in operative gynaecology has led to the idea that the surgical aspect of gynaecology is gynaecology itself. But this is only one side of it; it has what I might call its medical aspect also.

The term "specialty" applied to gynaecology raises the question as to what we mean by a specialty. Gynaecology is not a specialty in the same sense as mental disease, or even diseases of the eye. When a case of mental disease presents itself the practitioner at once recognizes that here is a case which does not belong to him. And the same is largely true of diseases of the eye. Specialism in gynaecology, apart from major gynaecological operations, is more akin to specialism in diseases of the heart or lung, in which, by devoting special attention to affections of one system, and gaining a wider experience in it than falls to the general practitioner, the physician has come to be recognized as an authority on diseases of a given system.

From this point of view it may be said that the way to the specialist in gynaecology passes through the domain of the general practitioner, and that the specialist is to be called in when the general practitioner recognizes that he has not the training or experience to enable him to diagnose or to treat successfully his patients. This view of the subject requires a higher standard of knowledge than he at present possesses, and we stand at the parting of the ways. Is gynaecology to be relegated to the post-graduate course, to be studied only by those who have a bias towards it? Or is it to be made an integral part of the student's training, so that at its termination he will know at least the elements of clinical gynaecology. Of clinical as distinct from systematic, which implies that every student must be taught clinically, and, when possible, examined clinically. I know the difficulties which the latter proposal implies, but from the relation of the diseases of women to obstetrical work, from the reasonable expectation of the general public, from the very nature of the case, this seems to me to be the road along which we must advance at this parting of the ways.

While emphasis has been laid on the teaching of gynaecology to the student as against its postponement to a post-graduate course, a word is necessary as to the manner of presenting it. While taught as a specialty it should be taught in relation to medicine, surgery, and midwifery, the tripod on which the practice of medicine rests. If these three subjects were represented by three circles, side by side, gynaecology is a fourth intersecting the three. The defect in medical education at present is that each subject is taught as it is in itself instead of in its relation to the other subjects of the curriculum. If the teacher in each subject kept before him the relation of his subject to all the others the student would not be in a hurry, as he is at present, to escape from an over-burdened curriculum into general practice. He would begin to be interested in knowledge as an end in itself. At present the utilitarian, which passes readily into the mercantile, bulks too largely in his mind. Aristotle makes the important distinction between what is useful or yields revenue and what is liberal or tends to enjoyment. The study of medicine, if taken in the proper way, might become a

liberal education while not ceasing to be a professional one. But I have wandered from my text. My object was to suggest to those who have to do with the teaching of this subject a method of presenting it.

There is another aspect of the same question which I would venture to lay before my colleagues who are engaged in the practice of gynaecology, and that is the necessity of taking a broad view of a case. Specialism is a peak in a mountain range and its development is subject to the same law. A broad foundation must be laid for knowledge, remembering that the height of a hill is related to the breadth of its base. Some rise, like Fujiyama, abruptly from the plain, volcanic in nature, produced by a sudden outburst of imprisoned force. Such are the geniuses of the medical profession. More usually, however, a peak is produced by a gradual process—for Nature is rarely in a hurry—which leads to its appearance as a member of a mountain chain. The specialist is slowly differentiated from his fellows like a peak in the Rocky Mountains.

SECTION OF OPHTHALMOLOGY.

R. Marcus Gunn, F.R.C.S., President.

PRESIDENT'S INTRODUCTORY REMARKS.

Gentlemen,—After crossing wide seas it is a privilege to find oneself among friends—friends who speak one's own tongue, and who are equally and simultaneously engaged in similar work. In such a meeting as is now being held in this city there must be great advantage, and I value very highly the honour of being asked to preside over our Section.

Among the instructions I received on taking this office one is prominent, that I was not expected to give a regular address; in fact, gentlemen, you do not come here for any such purpose, but we are all met to compare notes and have our suggestions and opinions weighed, compared, and criticized.

Before proceeding to our regular business, however, it is fitting that we should remind ourselves and think for a moment of the great loss that Canadian ophthalmology has sustained, since the last Annual Meeting of this Association, in the death of Professor Buller of Montreal. Trained at Moorfields, he held office as House-Surgeon there for a considerable time, and some of my earliest recollections of the hospital are associated with this period. Buller left there a record of good work well done. His position and his work in Montreal are known to us all, and his striking personality was familiar to most here. It seems but yesterday since he, in collaboration with Dr. Casey Wood of Chicago, brought to our notice the effects of poisoning by wood-alcohol in a memoir that is already classical. But, apparently in full vigour, he was claimed by an insidious disease which found no remedy, and, as we bitterly remember to-day, Professor Buller is no longer with us.

It is part of my duty to draw your attention to certain rules which must guide our discussion and papers.

[The President here read the rules.]

We welcome most heartily all our visitors, and certainly not least our esteemed colleagues and professional brethren from the United States of America. We are glad that so many have been able to join us here, and in your name I invite them most cordially to consider themselves for the time being members of our meetings, with all privileges, and under the same rules of procedure as ourselves.

SECTION OF PHYSIOLOGY.

Professor W. D. Halliburton, M.D., F.R.S., President.

PRESIDENT'S INTRODUCTORY REMARKS.

PROTEID NOMENCLATURE.

Among the usages of our Association, there is at least one which I feel sure will commend itself to all present, and that is the abolition of formal introductory addresses by Presidents of Sections. Such addresses have too often a tendency to degenerate into platitudes; they are usually inordinately long, and consume time which might be more profitably spent. I think this year our Section has good reason to congratulate itself, both on the quantity and quality of the communications promised, and one only hopes we may have time to do ample justice to them all. I propose to set a good example by doing my best to adhere to the time limit prescribed for individual papers.

It has been regarded as fitting that your President's paper should occupy an early place on the programme, and may I take the opportunity of uttering, in a single sentence, a word of welcome to the numerous visitors who grace our proceedings by their presence? It is a matter of congratulation and satisfaction to the Association in general and to this Section in particular how many distinguished visitors we have with us, not only from the neighbouring great Commonwealth of the United States, but also from beyond the seas.

In the subject I have selected for my communication I appear before you as a delegate from a Joint Committee of the Physiological and Chemical Societies of England appointed to consider the question of proteid nomenclature, and of which I was appointed chairman. The report drawn up by this Committee has been already received and criticized by the two Societies concerned, but it has been felt before its recommendations are likely to meet with acceptance that some expressions of opinion should be obtained from other nationalities. It is specially desirable that uniformity in terminology should be adopted by the English-speaking nations, and if our friends in France and Germany can also see their way to fall into line so much the better.

It is one's earnest hope that by such means the present confusion, which is so great a stumbling-block to writers, teachers, and especially to students, may be removed. I fear, however, that past attempts to secure uniformity of nomenclature have not been attended with very great success. Some years ago the Chemical Society in London appointed a Committee to formulate nomenclature, but their recommendations have never been universally adopted by those who write and speak English. They suggested definite meanings, for instance, to certain terminations: for example, *ol* is the affix selected for alcohols, *ine* for basic substances, *in* for materials of more indefinite structure. Yet we still see leucine and choline spelt without the final *e*, and gelatin with it. In America, where we should have anticipated some amount of support, the old non-conforming conscience has asserted itself, and the tendency there has been in the direction of Germanizing rather than Anglicizing chemical names; creatine is spelt kreatin, sulphur appears as sulfur, and the final *e* in chloride, sulphate, and other salts is usually absent. There is no harm in the phonetic replacement of *ph* by *f*, or of the hard *c* by *k*, but the words chlorid, bromid, and bromat strike the conservative Englishman as being neither euphonious or rational.

But to return from this digression to the particular case of the albuminous compounds. A great change is coming over our chemical conceptions of these substances, and when Emil Fischer's important work upon them is concluded a further revision of nomenclature will no doubt be necessary. The Committee I have referred to were quite aware of this, and recognize that what they now suggest can be only temporary; still, even as a temporary measure, some uniformity is advisable, and certainly the time is not yet ripe for coining strictly chemical names. When that time arrives one can hardly doubt that many of the old familiar terms will still remain, just as many of us still continue to use such names as corrosive sublimate, oil of vitriol, and lunar caustic.

The object of the Committee's recommendations has been as far as possible to retain existing terms, and to reconcile the way in which they are employed in Great Britain, America, and the Continent of Europe. An initial difficulty met the Committee in the selection of the general name for the whole group. The term "proteid," used for it in England, is restricted to a subgroup (the conjugated proteids) by the Germans. The word "albuminoid," still employed by analytical chemists in England, and also by French physiologists in the same sense, is in Germany and also by English physiologists restricted to the heterogeneous group, of which gelatin and keratin are instances. The word "albumin" is fairly universally bestowed on a subgroup; its adoption as a

family name would make the present confusion worse, and there is no adequate English translation of the homely German term "Eiweissstoff."

After much debate the word "protein" was recommended as the general name. It is at present so used in America and to some extent in Germany (*Proteinstoffe*). This word has the advantage of admitting of the derived words, "protease," "proteose," etc., and it has, after all, the ring of familiarity. We have therefore suggested the abolition of the term "proteid."

The subclasses, beginning with the simplest, would be as follows:

1. Protamines.
2. Histones.
3. Albumins.
4. Globulins.
5. Sclero-proteins.
6. Phospho-proteins.
7. Conjugated proteins.
   - (*a*) Gluco-proteins (for example, mucin).
   - (*b*) Nucleo-proteins.
   - (*c*) Chromo-proteins (for example, haemoglobin).

For Classes 3 and 4 (albumins and globulins) a general term would be advisable, especially from the teachers' point of view. We have not been fortunate enough to find one which would prove acceptable. The expression "heat-coagulable proteins" which was suggested has two disadvantages: First, it is too long; and secondly, it is inaccurate, for other proteins—for example, histones and some nucleo-proteins—are also coagulable by heat. At one time the Committee seriously thought of the word "albugin," a neutral word which simply means white. We owed the word to the researches of Dr. F. G. Hopkins, who discovered it was first used in the seventeenth century in adjective form by Sir Thomas Browne, the author of the *Religio Medici*:

> . . . . for eggs, I observe, will freeze in the albuginous part thereof.—*Vulgar Errours* (1646).

The word also lingers in histology in the expression "tunica albuginea."

But the new word met with such a universal chorus of disapproval that we dropped it like a hot potato, and we still await a suggestion for a word to take its place.

For Class 7 we still retain the double-barrelled expression "Conjugated protein," mainly because we were not sufficiently lucky to hit upon a single descriptive word. The term implies that here we have to deal with substances in which the protein molecule is united to a prosthetic group. We have ruled out of this class the vitellin-caseinogen group and put them in a separate compartment labelled "Phospho-proteins" (Class 6); the prefix "nucleo-" frequently used in relation to these substances is incorrect and misleading.

The new word "sclero-protein" replaces the word "albuminoid" (gelatin, keratin, etc.) as employed by English and German physiologists. The prefix indicates the skeletal origin and often insoluble nature of its members.

Coming next to products of protein hydrolysis (a term preferable to proteolysis), the Committee recommend that these be classified as follows:

1. Infra-proteins.
2. Proteoses.
3. Peptones.
4. Polypeptides.

Infra-protein replaces albumin*ate* (acid-albumin, alkali-albumin). The termination *ate* implies a salt and so is objectionable. These first degradation products are obtainable from both albumins and globulins, and after much consideration the Committee recommend the prefixing of "infra" (or possibly "meta" which some prefer) to the word "protein" as an indication of comparatively slight chemical alteration.

The term "proteose" includes albumose, globulose, gelatose, etc. The subdivision of these into proto-, hetero-, deutero-proteoses, etc., and the various modifications of Kühne's original classification were considered by the Committee, but they have wisely determined that at present the whole matter is in too unsettled a state for any final nomenclature to be proposed.

The household word "peptone" is not likely ever to disappear from chemical literature. We, however, propose that it should be restricted to those further products of hydrolysis which cannot be salted out from solution, but which nevertheless still give the biuret reaction.

In the course of the discussion on this subject we were confronted with the discovery that there are certain vegetable proteins which have hitherto been regarded as peptones which do not give the biuret reaction. It seems impossible at present to bring exceptional substances of this kind into any general classification, and the same is true for those curious vegetable proteins, such as gliadin, which are soluble in alcohol.

The polypeptides are still further on the down-grade, though most of those we are acquainted with are the synthetical products of amino-acids which Fischer has prepared. They do not as a rule give the biuret reaction, but their exact relation to the peptones is still undetermined.

In conclusion, the Committee considered a few special cases of terminology. They had, for instance, some difficulty in assigning to fibrin its proper place in their classification, but ultimately put it among the derivatives of globulins, for its mother substance, fibrinogen, is a member of that group.

They had no difficulty about caseinogen and casein, and strongly urge the continued use of these words in the sense now employed in the majority of English textbooks, that is, caseinogen for the principal protein of milk, and casein for its coagulated condition brought about by the rennet ferment.

In the case of the muscle proteins they are equally unanimous that the original terms, of which I am the unhappy parent, should be adhered to. The new words introduced by v. Fürth have only produced confusion, especially among students. The terms to be adopted should therefore be "paramyosinogen" and "myosinogen" for the proteins of the muscle-plasma, "soluble myosin" for v. Fürth's soluble myogen-fibrin, and "myosin" for the final product.

I am quite aware that it will not be easy in a meeting like this to adequately discuss the numerous points raised; the present occasion must be regarded rather as a preliminary feeler on the question, and we propose to submit the matter to various societies of physiologists, among others to the American Physiological Society, for careful consideration and report.

SECTION OF SURGERY.

Sir HECTOR C. CAMERON, M.D.Glas., President.

PRESIDENT'S INTRODUCTORY REMARKS.

GENTLEMEN,—I congratulate myself, and still more I congratulate you that, by request of the Executive of the Association, the Presidents of the various Sections will abstain from delivering any formal addresses in opening, this morning, the business of their respective Sections. I recognize fully the wisdom of this decision and most willingly bow to its requirement. But I feel that I should ill requite the kind favour which has placed me in the honourable position I occupy, and should do but scant justice to my own feelings, were I not now, in a single sentence, to say to you how very greatly indeed I appreciate the distinction thus conferred upon me.

It is a high honour, under any circumstances, to be invited to fill such an office. But I cannot help thinking that both the interest and the sense of honour attached to it are greatly enhanced when the Association, deserting its ordinary home circuit, justifies its imperial character by accepting an invitation to visit one of the chief cities of the Greater Britain across the Seas—one of the most important centres of this great Dominion of Canada.

We who practise our profession in Great Britain and Ireland are never forgetful of the great and daily increasing debt which surgery owes to those who cultivate its science and art on this side of the Atlantic; and we therefore naturally look forward with keen anticipation to the benefits which cannot fail to accrue to all of us from the instructive and valuable intercourse which we shall have here with our Canadian brethren, as well as with those American surgeons who will do us the honour of attending our meetings.

You will perhaps here permit me to offer to the latter a most hearty and fraternal welcome. We trust they will take a full share in all our discussions, giving us the benefits of their experience and of those opinions which they are so well qualified to express on the various important and interesting subjects which are to be brought before us. These subjects constitute, I think, a promising programme, provided and arranged for us by the zeal and industry of our Secretaries.

With their continued assistance, as well as with the countenance and help of the Vice-Presidents of the Section, I hope to be able so to guide and regulate the business that our meetings may prove—what I am sure they can hardly fail to prove—a source of the highest interest and value to all of us.

Without further preface, gentlemen, I invite you to proceed with the work of the Section.

SECTION OF THERAPEUTICS.

Donald MacAlister, M.A., M.D., D.C.L., LL.D., F.R.C.P., President.

PRESIDENT'S INTRODUCTORY REMARKS.

AN IMPERIAL PHARMACOPOEIA.

By order of the Council of the Association, "Presidents of Sections are requested not to deliver a formal address in opening their Sections, as complaints have been made of want of time for sectional work." I obey the order with alacrity. But I am allowed a few "introductory remarks," provided they are brief and informal.

First, then, let me express the pleasure which we who come from the Old Country feel in meeting once more on Canadian soil. We remember the impulse to corporate expansion, the realization of our Imperial responsibilities as a profession, that came to us when the Association met at Montreal. The force of that impulse is still felt among us. It was good, it *is* good, for us to be here; not only that we may meet face to face with those of our kinsmen beyond the seas whose names are associated in our minds with good work ably done for the advancement of our common science, but also that we may be braced by breathing your larger air, and by coming into closer touch with your strenuous vitality. We therefore count on returning to our tasks at home heartened by the knitting of new and of old friendships, and strengthened by the transfusion of fresh vigour, of new thoughts and influences, from you who are here engaged in fashioning a sister nation. We have come to learn rather than to teach, and thus it has been the endeavour of my colleagues and myself to procure for our Section as many contributions as possible from this side of the Atlantic, and from both shores of the great lakes. We trust that you will find us teachable. That we have journeyed so far in search of knowledge is at least an indication that we are not yet incurably affected with insular sclerosis, not yet wholly refractory to the new ideas and unfamiliar experiences which you are ready to communicate.

In the second place, I would seize the occasion to say a word on behalf of the *British Pharmacopoeia*. As Chairman of the Committee that is charged with the preparation of our national medicine-book, it is not inappropriate that I should seek to interest this Therapeutic Section, and particularly the Canadian members of it, in our work for the profession. The time for the next revision is approaching, and we desire to make the new book a better expression of our ideal than has hitherto been practicable. Forty years ago the Medical Council declared that in the *Pharmacopoeia* it desired "to afford to the members of the medical profession and those engaged in the preparation of medicines throughout the British Empire one uniform standard and guide, whereby the nature and composition of substances to be used in medicine may be ascertained and determined." In 1898, with the help of the medical and pharmaceutical authorities throughout the British dominions, the first effective steps were taken to produce a work adapted to the general and the local requirements of all parts of the Empire. Our efforts were materially aided by a Canadian Committee, under the leadership of Dr. Blackader, one of your Vice-Presidents. In the *Indian and Colonial Addendum* of 1900 a further step was taken to meet the needs of particular localities outside the United Kingdom. Medicinal plants and other substances which had been suggested for inclusion by colonial authorities, but which were little known and little used at home, were therein dealt with, and official sanction was given to their local employment. At the instance of the North American Colonies such additions to the *materia medica* as couch-grass, arnica, cotton-root bark, grindelia, black haw, wintergreen, sesame oil, and turpeth were introduced, and suitable preparations containing them were described. But it was added that "with regard to the sources, preparations, and properties of some of these drugs, further investigation, especially in the countries in which they are found, is much to be desired." And a hope was expressed that their official recognition would conduce to research of this kind.

Since that date the new United States *Pharmacopoeia* has been issued (1905). The British Committee has observed with gratification that it exhibits a marked tendency to uniformity with the *British Pharmacopoeia*, and that it includes just such information about some of the "North American" drugs of the *Addendum* as was desired. It also embodies the conclusions reached by the International Congress on Pharmacopoeial Unification, which with Professor H. C. Wood I was privileged to attend as the Government delegate at Brussels in 1902. These conclusions have now been ratified by an international agreement between the various pharmacopoeial authorities of the civilized world, and have already been observed in framing the new Pharmacopoeias of Austria, Holland, Belgium, Spain, and the United States. I need not say that they will also be embodied in the next *British Pharmacopoeia*. They refer solely to the unification of the strengths of drastic or poisonous drugs and preparations. They seek to secure that throughout the world medicines which bear the same name, and whose potency demands that they shall be used with cautious precision, shall mean the same thing, and shall possess the same determinate strength. *Maxime interest ut medicamina heroica non in unius tantum nationis, sed in omnium gentium culturum officinis eadem sint*, says the new *Pharmacopoeia Belgica*.

Though we are still far from realizing the dream of a single International Pharmacopoeia, applicable to the whole world of medicine, the results of the Brussels Congress go far to minimize the dangers to the public which in these days of travel attend the lack of agreement between the various national standards. When they have been fully carried into effect, a traveller whose prescription contains "dilute hydrocyanic acid" will no longer receive it of 1 per cent. in France, 2½ per cent. in Belgium, and 10 per cent. in Spain. At present "syrup of chloral" may contain from 2 to 10 per cent., and "tincture of cantharides" from 5 to 20 per cent. of the active ingredient, according to the country where they are dispensed.

Differences of tradition and environment will long preclude the complete harmonization of the numerous national pharmacopoeias; but no such differences stand in the way of adapting the *British Pharmacopoeia* to the needs of all the nations and peoples that are included within the world-wide dominion of Greater Britain. To bring about that adaptation is the aim of the General Medical Council, and we seek the willing and sympathetic co-operation of our brethren beyond the seas that we may attain it. Through the India Office and the Colonial Office at home, I have sent a circular letter to each of the seventy Administrations of the Empire, inviting the considered suggestions of their respective medical and pharmaceutical authorities towards the improvement of the *Pharmacopoeia* from this imperial point of view. In particular, advice is sought as to the permanent inclusion of the drugs dealt with in a tentative manner in the *Addendum* of 1900. From over thirty Colonial governments answers to my circular have already been received, and these contain much useful information for our guidance. But, so far as I am aware, no answer has yet been sent from this great Dominion. Did modesty allow, I should be glad to think that you are silent merely because you are perfectly satisfied with the book as it is, and have no desire to alter it in any way. I am privately assured that that, at least, is not the reason.

May I therefore take advantage of my temporary position to say that without Canadian co-operation we must fall short

of our ideal? The new *Pharmacopoeia* will be condemned to antenatal mutilation. Might not a representative Committee be formed under the auspices of this and other medical associations of the Dominion for the purpose of formulating your special requirements, and of affording us the advantage of your special knowledge and skill? The Committee at home will welcome your suggestions, and will give them its most careful consideration. In Canada you have experience in the use not only of the *British Pharmacopoeia* and its *Addendum*, but also of the United States *Pharmacopoeia*, and the French *Codex*. You can point out to us what discrepancies between these have proved to be of serious importance in practice, and how they may best be reconciled. You can tell us what non-official drugs are in widespread use among you, and therefore call for recognition in order that their characters and preparations may be exactly defined. You can inform us what articles in the *Pharmacopoeia* are practically obsolete in this country, in order that we may have proper data for deciding as to their omission. Forms of adulteration or contamination with which we are unfamiliar at home may be within your experience; these we should know about when we are revising our standards and tests of purity. Questions of this kind, and others which will emerge on systematic inquiry, are scarcely to be compassed by the home Committee without Canadian assistance. I am sanguine that, after this straight hint, the assistance will not be withheld.

Medical Reciprocity.

Before we proceed to the business of the day, allow me a few words on a kindred subject. The co-operation between the Dominion and the United Kingdom, which I have suggested, need not be limited to the preparation of an Imperial Pharmacopoeia. Some of us would fain see it extended to the whole field of medical study and practice. You may be aware that by our Medical Act of 1886, a person who holds a recognized Colonial medical diploma granted to him in a British possession, who is of good character, and who is legally entitled to practise in that British possession, is also entitled, without examination in the United Kingdom, to be registered in the *Medical Register*. But before a Colonial diploma can be thus "recognized," the Privy Council must be satisfied that the British possession in question affords to home-registered practitioners such privileges of practising there as to His Majesty may seem just. And by an Act of 1905 it is further provided that for this purpose a Province or State in a larger Federation shall be deemed a distinct possession, and therefore entitled to apply for recognition on its own account. Orders in Council have already been issued, applying the Act to New Zealand, the States of Australia, the Provinces of India, Ceylon, and Malta, all of which grant medical diplomas of their own. And as these diplomas have been recognized by the General Medical Council, their holders are at once made capable of registration in the British *Register*, and of acquiring all the rights and privileges which registration confers. A similar enactment exists in relation to foreign countries, and already the Kingdom of Italy and the Empire of Japan have been admitted to corresponding privileges. But, with one exception, the provinces of Canada have not yet applied for admission, and to that extent the medical federation of His Majesty's dominions is incomplete. The exception is Nova Scotia, to which the Medical Act was extended by an Order in Council on May 11th in the present year. The Medical Council learned with great satisfaction of the step thus taken by the Maritime Province, and it looks forward with interest to like applications from the other great Provinces of the Dominion. I am aware that on your Statute Book there stands a Medical Act of 1902, which, were it in operation, would go far to complete the confederation of the provinces by providing for their common action in medical matters, and by assimilating and extending their professional privileges. And I am also to some extent aware of the internal difficulties that have hitherto prevented the Act from coming into effect. But these internal difficulties need not affect the question of imperial recognition and reciprocity. Under our recent legislation each Province can negotiate for itself with the home authorities, as Nova Scotia has done. It need not wait for the others. His Majesty in Council is the arbiter as to the justice of its claim to be included in the medical federation of the Empire, and to be granted the wider citizenship which that implies.

As things stand, however willing the powers at home may be, a medical graduate of Ontario or Quebec cannot legally hold a medical appointment in the naval or military service of the King. He cannot be appointed surgeon to a British ship, or to any hospital or other public establishment, body, or institution in the United Kingdom. He is ineligible as a medical officer of health; he cannot so much as be a candidate for one of our diplomas in hygiene or State medicine. And lastly, he may not use his degree as a qualification for private practice in the United Kingdom or in any of the British possessions—and they are not few—that are governed by our Medical Acts. These disabilities must often be irksome, and the more because, so far as Canadians are concerned, they are now self-imposed. The Imperial Parliament at least has opened the way for their removal. The next and only remaining step has to be taken by the provincial authorities.

Every year Canadian graduates come over to study and to obtain diplomas at home. When I observe your splendidly-equipped medical schools and hospitals, I cannot help wishing that a strong reverse current might be set up, and that our own students and graduates might acquire the habit of crossing the Atlantic to complete or to supplement their medical education in Canada. That mutual recognition of professional qualifications would further and foster this tendency I am convinced; and I am not less sure that such educational interchanges would exert a powerful influence for good, not only upon us but upon you. Sympathy comes from mutual understanding; there is nothing so divisive as mutual ignorance.

I close, therefore, on the note with which I began. We value these occasional meetings outside our islands because they lead to our better knowledge of each other, and so strengthen the bonds of brotherhood which unite us. But the meetings are too rare to accomplish all that is desirable in this kind, and many of us are middle-aged and more before we can take advantage of them. If we could but have more intercourse, and have it younger, our mutual sympathies and affections would be warmer still. It is for this reason that I have risked your impatience by wandering a little from the proper subject-matter of our Section. Let us now return to Therapeutics.

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